# ocean  quick_sprint

Score = Throughput x Availability% x SoftAcc% / 10,000  -  Lucy / test41 harness

Generated 2026-08-18 09:45:25. Tides up 22 / 22. This-epoch cells 51612 / 51612.

Holistic best train mode: sgd  best dtype: float32  best arch: singlex1

Suggested default (most Lucy-axis wins): sgd | float32 | singlex1  (9 axes)

LPD goldilocks vs Score champ float32|none|sgd|single|simd (0.1 KiB). Gold cells (Q>=80% at <=20% RAM): 24  e.g. binary|none|MeshTweenSplitSparse|single|simd

## Train mode votes

| Key | Layers | Mean Score |
|---|---|---|
| sgd | 11 | 69654.43 |
| tween_chain | 6 | 98054.50 |
| MeshTweenSplitSparse | 2 | 14073.13 |
| tween | 1 | 137030.76 |
| step_sgd | 1 | 96669.31 |
| TweenSplitHeadProxy | 1 | 2628.31 |

## DType votes

| Key | Layers | Mean Score |
|---|---|---|
| float32 | 19 | 70544.33 |
| uint8 | 1 | 141288.76 |
| uint4 | 1 | 135138.63 |
| int2 | 1 | 2230.79 |

## Arch votes

| Key | Layers | Mean Score |
|---|---|---|
| singlex1 | 22 | 73590.93 |

## Lucy axis champions (ocean-wide)

| Axis | Tide | Mode | DType | Arch | Value |
|---|---|---|---|---|---|
| score | dense | sgd | float32 | singlex1 | 161402.90 |
| soft_acc | cnn1 | sgd | float64 | singlex1 | 45.52 |
| hard_acc | cnn1 | sgd | float32 | singlex1 | 98.84 |
| throughput | dense | step_sgd | float32 | singlex1 | 1929001.25 |
| availability | residual | MeshTweenSplitS~ | uint5 | bicameralx2 | 47.63 |
| acc_thru | dense | step_sgd | float32 | singlex1 | 481539.54 |
| realtime | dense | sgd | float32 | singlex1 | 646285.60 |
| adapt | cnn1 | MeshTweenSplitS~ | int64 | singlex1 | 46.19 |
| keep_learn | cnn1 | MeshTweenSplitF~ | float64 | singlex1 | 20.65 |
| acc_per_sec | cnn1 | sgd | float64 | singlex1 | 22.76 |
| consistency | dense | sgd | float64 | singlex1 | 100.00 |
| stability | dense | sgd | fp4 | singlex1 | 100.00 |
| mobile_score | dense | MeshTweenSplitS~ | binary | singlex1 | 41872414527.45 |
| lpd | convt3 | sgd | binary | singlex1 | 31.22 |
| mspeed | dense | step_sgd | float32 | singlex1 | 1.00 |
| mavail | convt3 | MeshTweenSplit | uintptr | singlex1 | 1.00 |
| mix | convt2 | tween_chain | float32 | singlex1 | 0.99 |
| time_to_50 | cnn3 | sgd | binary | tricameralx3 | 0.05 |

## Train mode mean Score




## DType mean Score




## Per-layer best (mode x dtype x arch)

| Tide | Mode | DType | Arch | Score | Soft | Acc |
|---|---|---|---|---|---|---|
| dense | sgd | float32 | singlex1 | 161402.9 | 25.0 | 28.2 |
| softmax | tween_chain | uint8 | singlex1 | 141288.8 | 25.0 | 27.4 |
| metacognition | sgd | float32 | singlex1 | 140221.4 | 25.0 | 27.5 |
| embedding | tween | float32 | singlex1 | 137030.8 | 25.0 | 26.7 |
| kmeans | sgd | uint4 | singlex1 | 135138.6 | 25.0 | 28.4 |
| residual | tween_chain | float32 | singlex1 | 116056.9 | 25.0 | 27.3 |
| layernorm | tween_chain | float32 | singlex1 | 114613.4 | 27.7 | 47.9 |
| rmsnorm | sgd | float32 | singlex1 | 111200.2 | 27.2 | 44.7 |
| parallel | tween_chain | float32 | singlex1 | 100450.9 | 25.0 | 26.5 |
| sequential | step_sgd | float32 | singlex1 | 96669.3 | 25.0 | 25.5 |
| swiglu | tween_chain | float32 | singlex1 | 80921.0 | 25.0 | 34.6 |
| convt1 | sgd | float32 | singlex1 | 74807.7 | 25.0 | 28.1 |
| cnn3 | sgd | float32 | singlex1 | 52818.6 | 41.4 | 93.1 |
| cnn1 | sgd | float32 | singlex1 | 43204.5 | 45.3 | 98.8 |
| convt2 | tween_chain | float32 | singlex1 | 34996.1 | 25.0 | 28.2 |
| convt3 | MeshTweenSplitSparse | float32 | singlex1 | 24465.2 | 25.0 | 27.1 |
| cnn2 | sgd | float32 | singlex1 | 23268.1 | 43.3 | 96.6 |
| rnn | sgd | float32 | singlex1 | 17545.5 | 39.1 | 92.5 |
| mamba | sgd | float32 | singlex1 | 4360.5 | 25.1 | 29.4 |
| gdn | MeshTweenSplitSparse | float32 | singlex1 | 3681.0 | 25.0 | 25.0 |
| mha | TweenSplitHeadProxy | float32 | singlex1 | 2628.3 | 25.0 | 24.8 |
| lstm | sgd | int2 | singlex1 | 2230.8 | 25.0 | 21.5 |

## Lucy axes - dense

| Axis | Mode | DType | Arch | Value |
|---|---|---|---|---|
| score | sgd | float32 | singlex1 | 161402.90 |
| soft_acc | TweenSplitHeadP~ | binary | singlex1 | 25.32 |
| hard_acc | sgd | int2 | bicameralx2 | 33.80 |
| throughput | step_sgd | float32 | singlex1 | 1929001.25 |
| availability | TweenSplitSparse | uint6 | tricameralx3 | 47.24 |
| acc_thru | step_sgd | float32 | singlex1 | 481539.54 |
| realtime | sgd | float32 | singlex1 | 646285.60 |
| adapt | MeshTweenSplitS~ | binary | singlex1 | 25.38 |
| keep_learn | tween | ternary | singlex1 | 12.63 |
| acc_per_sec | StepTweenAlt | fp8e4m3 | singlex1 | 12.57 |
| consistency | sgd | float64 | singlex1 | 100.00 |
| stability | sgd | fp4 | singlex1 | 100.00 |
| mobile_score | MeshTweenSplitS~ | binary | singlex1 | 41872414527.45 |
| lpd | MeshTweenSplitS~ | binary | singlex1 | 30.32 |

| | | | | |
|---|---|---|---|---|
| mspeed | step_sgd | float32 | singlex1 | 1.00 |
| mavail | tween_chain | int3 | singlex1 | 0.88 |
| mix | sgd | float32 | singlex1 | 0.89 |

## Lucy axes - softmax

| Axis | Mode | DType | Arch | Value |
|---|---|---|---|---|
| score | tween_chain | uint8 | singlex1 | 141288.76 |
| soft_acc | TweenSplitLinear | binary | singlex1 | 25.07 |
| hard_acc | tween | fp8e5m2 | tricameralx3 | 32.59 |
| throughput | tween_chain | float32 | singlex1 | 1516497.93 |
| availability | TweenSplit | uintptr | tricameralx3 | 47.42 |
| acc_thru | tween_chain | float32 | singlex1 | 379348.88 |
| realtime | tween_chain | uint8 | singlex1 | 565276.31 |
| adapt | TweenSplitLinear | binary | singlex1 | 25.11 |
| keep_learn | TweenSplitLinea~ | int64 | singlex1 | 12.54 |
| acc_per_sec | sgd | ternary | singlex1 | 12.52 |
| consistency | sgd | float64 | singlex1 | 100.00 |
| stability | sgd | fp4 | bicameralx2 | 100.00 |
| mobile_score | sgd | binary | singlex1 | 35897066357.85 |
| lpd | sgd | binary | singlex1 | 8.79 |
| mspeed | tween_chain | float32 | singlex1 | 1.00 |
| mavail | tween_chain | int5 | singlex1 | 0.91 |
| mix | tween_chain | uint8 | singlex1 | 0.92 |

## Lucy axes - metacognition

| Axis | Mode | DType | Arch | Value |
|---|---|---|---|---|
| score | sgd | float32 | singlex1 | 140221.41 |
| soft_acc | TweenSplitLinear | binary | singlex1 | 25.66 |
| hard_acc | MeshTweenSplitF~ | fp6 | tricameralx3 | 37.15 |
| throughput | sgd | float32 | singlex1 | 1490611.71 |
| availability | TweenSplitSparse | uint | tricameralx3 | 47.31 |
| acc_thru | sgd | float32 | singlex1 | 371915.63 |
| realtime | sgd | float32 | singlex1 | 561997.55 |
| adapt | TweenSplitLinear | binary | singlex1 | 25.72 |
| keep_learn | tween | ternary | singlex1 | 12.64 |
| acc_per_sec | step_sgd | binary | singlex1 | 12.65 |
| consistency | sgd | float64 | singlex1 | 100.00 |
| stability | sgd | fp4 | singlex1 | 100.00 |
| mobile_score | sgd | binary | singlex1 | 10183604697.74 |
| lpd | sgd | binary | singlex1 | 28.01 |
| mspeed | sgd | float32 | singlex1 | 1.00 |
| mavail | sgd | int16 | singlex1 | 0.92 |
| mix | sgd | float32 | singlex1 | 0.93 |

## Lucy axes - embedding

| Axis | Mode | DType | Arch | Value |
|---|---|---|---|---|
| score | tween | float32 | singlex1 | 137030.76 |
| soft_acc | StepTweenAlt | binary | singlex1 | 25.06 |
| hard_acc | MeshTweenSplit | int6 | bicameralx2 | 34.94 |
| throughput | tween | float32 | singlex1 | 1389792.79 |
| availability | MeshTweenSplit | uint5 | singlex1 | 46.75 |
| acc_thru | tween | float32 | singlex1 | 347506.90 |

| | | | | |
|---|---|---|---|---|
| realtime | tween | float32 | singlex1 | 548030.44 |
| adapt | sgd | float32 | singlex1 | 25.10 |
| keep_learn | sgd | float32 | singlex1 | 12.54 |
| acc_per_sec | sgd | float32 | singlex1 | 12.53 |
| time_to_50 | step_sgd | int3 | tricameralx3 | 0.21 |
| consistency | sgd | float64 | singlex1 | 100.00 |
| stability | sgd | fp4 | singlex1 | 100.00 |
| mobile_score | tween | binary | singlex1 | 1747189706.21 |
| lpd | step_sgd | binary | singlex1 | 23.89 |
| mspeed | tween | float32 | singlex1 | 1.00 |
| mavail | TweenSplitLinea~ | uint8 | singlex1 | 0.94 |
| mix | tween | float32 | singlex1 | 0.94 |

## Lucy axes - kmeans

| Axis | Mode | DType | Arch | Value |
|---|---|---|---|---|
| score | sgd | uint4 | singlex1 | 135138.63 |
| soft_acc | TweenSplitHeadP~ | binary | singlex1 | 25.07 |
| hard_acc | TweenSplitLinea~ | uint8 | bicameralx2 | 33.86 |
| throughput | sgd | uint4 | singlex1 | 1383262.88 |
| availability | MeshTweenSplitS~ | uint3 | tricameralx3 | 47.20 |
| acc_thru | sgd | uint4 | singlex1 | 346054.54 |
| realtime | sgd | uint4 | singlex1 | 540181.45 |
| adapt | tween_chain | ternary | singlex1 | 25.08 |
| keep_learn | sgd | nf4 | singlex1 | 12.54 |
| acc_per_sec | sgd | complex128 | singlex1 | 12.51 |
| consistency | sgd | float64 | singlex1 | 100.00 |
| stability | sgd | fp4 | singlex1 | 100.00 |
| mobile_score | tween | binary | singlex1 | 33869770343.02 |
| lpd | sgd | binary | singlex1 | 4.81 |
| mspeed | sgd | uint4 | singlex1 | 1.00 |
| mavail | MeshTweenSplit | fp6 | singlex1 | 0.85 |
| mix | sgd | uint4 | singlex1 | 0.94 |

## Lucy axes - residual

| Axis | Mode | DType | Arch | Value |
|---|---|---|---|---|
| score | tween_chain | float32 | singlex1 | 116056.88 |
| soft_acc | MeshTweenAlt | binary | singlex1 | 25.31 |
| hard_acc | TweenSplitHeadP~ | int3 | tricameralx3 | 34.45 |
| throughput | tween_chain | float32 | singlex1 | 1176713.69 |
| availability | MeshTweenSplitS~ | uint5 | bicameralx2 | 47.63 |
| acc_thru | tween_chain | float32 | singlex1 | 293600.36 |
| realtime | tween_chain | float32 | singlex1 | 465141.53 |
| adapt | MeshTweenAlt | float32 | singlex1 | 25.43 |
| keep_learn | step_tween_chain | binary | singlex1 | 12.70 |
| acc_per_sec | tween | binary | singlex1 | 12.57 |
| consistency | sgd | float64 | singlex1 | 100.00 |
| stability | sgd | fp4 | singlex1 | 100.00 |
| mobile_score | tween_chain | binary | singlex1 | 8615472031.32 |
| lpd | tween | binary | singlex1 | 28.96 |
| mspeed | tween_chain | float32 | singlex1 | 1.00 |
| mavail | TweenSplit | uint4 | singlex1 | 0.94 |
| mix | tween_chain | float32 | singlex1 | 0.94 |

## Lucy axes - layernorm

| Axis | Mode | DType | Arch | Value |
|---|---|---|---|---|
| score | tween_chain | float32 | singlex1 | 114613.39 |
| soft_acc | tween_chain | float32 | singlex1 | 27.70 |
| hard_acc | tween_chain | float32 | singlex1 | 47.95 |
| throughput | tween | float32 | singlex1 | 1040295.32 |
| availability | TweenSplitSparse | int16 | bicameralx2 | 47.39 |
| acc_thru | tween_chain | float32 | singlex1 | 284136.42 |
| realtime | tween | float32 | singlex1 | 418180.21 |
| adapt | MeshTweenAlt | int64 | singlex1 | 26.41 |
| keep_learn | tween_chain | int2 | singlex1 | 13.04 |
| acc_per_sec | sgd | float32 | singlex1 | 13.77 |
| time_to_50 | TweenAlt | float32 | singlex1 | 0.66 |
| consistency | sgd | float64 | singlex1 | 100.00 |
| stability | sgd | fp4 | singlex1 | 100.00 |
| mobile_score | tween_chain | binary | singlex1 | 7848445589.78 |
| lpd | tween_chain | binary | singlex1 | 24.41 |
| mspeed | tween | float32 | singlex1 | 1.00 |
| mavail | sgd | int16 | singlex1 | 0.94 |
| mix | tween_chain | float32 | singlex1 | 0.94 |

## Lucy axes - rmsnorm

| Axis | Mode | DType | Arch | Value |
|---|---|---|---|---|
| score | sgd | float32 | singlex1 | 111200.24 |
| soft_acc | sgd | float32 | singlex1 | 27.17 |
| hard_acc | tween_chain | float32 | singlex1 | 45.28 |
| throughput | tween | float32 | singlex1 | 1083929.05 |
| availability | MeshTweenSplitS~ | complex64 | tricameralx3 | 47.36 |
| acc_thru | step_sgd | float32 | singlex1 | 274474.80 |
| realtime | tween | float32 | singlex1 | 435996.80 |
| adapt | tween_chain | float32 | singlex1 | 26.41 |
| keep_learn | TweenSplitHeadP~ | ternary | singlex1 | 12.89 |
| acc_per_sec | sgd | float32 | singlex1 | 13.58 |
| time_to_50 | sgd | float32 | singlex1 | 1.31 |
| consistency | sgd | float64 | singlex1 | 100.00 |
| stability | sgd | fp4 | singlex1 | 100.00 |
| mobile_score | step_sgd | binary | singlex1 | 8209420998.61 |
| lpd | step_sgd | binary | singlex1 | 26.69 |
| mspeed | tween | float32 | singlex1 | 1.00 |
| mavail | sgd | int | singlex1 | 0.94 |
| mix | sgd | float32 | singlex1 | 0.93 |

## Lucy axes - parallel

| Axis | Mode | DType | Arch | Value |
|---|---|---|---|---|
| score | tween_chain | float32 | singlex1 | 100450.91 |
| soft_acc | TweenAlt | float32 | singlex1 | 25.14 |
| hard_acc | MeshTweenSplitS~ | binary | singlex1 | 32.47 |
| throughput | tween_chain | float32 | singlex1 | 980995.78 |
| availability | TweenSplitSparse | complex64 | tricameralx3 | 47.52 |
| acc_thru | tween_chain | float32 | singlex1 | 245363.60 |
| realtime | tween_chain | float32 | singlex1 | 401615.87 |
| adapt | TweenAlt | float32 | singlex1 | 25.16 |

| Axis | Mode | DType | Arch | Value |
|---|---|---|---|---|
| keep_learn | MeshTweenAlt | int | tricameralx3 | 12.51 |
| acc_per_sec | StepTweenAlt | float32 | singlex1 | 12.52 |
| consistency | sgd | float64 | singlex1 | 100.00 |
| stability | sgd | fp4 | singlex1 | 100.00 |
| mobile_score | sgd | binary | singlex1 | 2825766864.44 |
| lpd | tween | binary | singlex1 | 27.37 |
| mspeed | tween_chain | float32 | singlex1 | 1.00 |
| mavail | TweenSplitSparse | float64 | singlex1 | 0.95 |
| mix | tween_chain | float32 | singlex1 | 0.95 |

## Lucy axes - sequential

| Axis | Mode | DType | Arch | Value |
|---|---|---|---|---|
| score | step_sgd | float32 | singlex1 | 96669.31 |
| soft_acc | TweenAlt | float32 | singlex1 | 25.15 |
| hard_acc | step_tween | complex128 | tricameralx3 | 36.58 |
| throughput | step_sgd | float32 | singlex1 | 941533.67 |
| availability | MeshTweenSplitS~ | nf4 | tricameralx3 | 47.44 |
| acc_thru | step_sgd | float32 | singlex1 | 235507.16 |
| realtime | step_sgd | float32 | singlex1 | 386474.06 |
| adapt | TweenAlt | float32 | singlex1 | 25.15 |
| keep_learn | MeshTweenAlt | float32 | singlex1 | 12.54 |
| acc_per_sec | sgd | binary | singlex1 | 12.50 |
| consistency | sgd | float64 | singlex1 | 100.00 |
| stability | sgd | fp4 | singlex1 | 100.00 |
| mobile_score | sgd | binary | singlex1 | 4358986045.99 |
| lpd | tween | binary | singlex1 | 29.12 |
| mspeed | step_sgd | float32 | singlex1 | 1.00 |
| mavail | MeshTweenSplit | uint64 | singlex1 | 0.96 |
| mix | step_sgd | float32 | singlex1 | 0.95 |

## Lucy axes - swiglu

| Axis | Mode | DType | Arch | Value |
|---|---|---|---|---|
| score | tween_chain | float32 | singlex1 | 80920.98 |
| soft_acc | TweenAlt | float32 | singlex1 | 25.07 |
| hard_acc | MeshTweenSplitS~ | int4 | singlex1 | 35.31 |
| throughput | tween_chain | float32 | singlex1 | 771950.80 |
| availability | TweenSplitSparse | int | tricameralx3 | 47.15 |
| acc_thru | tween_chain | float32 | singlex1 | 192989.71 |
| realtime | tween_chain | float32 | singlex1 | 323680.56 |
| adapt | MeshTweenAlt | float32 | singlex1 | 25.13 |
| keep_learn | MeshTweenAlt | float32 | singlex1 | 12.54 |
| acc_per_sec | sgd | complex64 | singlex1 | 12.50 |
| time_to_50 | step_tween_chain | uint64 | bicameralx2 | 0.85 |
| consistency | sgd | float64 | singlex1 | 100.00 |
| stability | sgd | fp4 | singlex1 | 100.00 |
| mobile_score | sgd | binary | singlex1 | 1221660764.67 |
| lpd | sgd | binary | singlex1 | 25.43 |
| mspeed | tween_chain | float32 | singlex1 | 1.00 |
| mavail | tween_chain | float64 | singlex1 | 0.95 |
| mix | tween_chain | float32 | singlex1 | 0.96 |

## Lucy axes - convt1

| Axis | Mode | DType | Arch | Value |
| --- | --- | --- | --- | --- |
| score | sgd | float32 | singlex1 | 74807.69 |
| soft_acc | TweenAlt | int64 | singlex1 | 25.92 |
| hard_acc | TweenAlt | float32 | singlex1 | 37.83 |
| throughput | sgd | float32 | singlex1 | 703980.17 |
| availability | MeshTweenSplitS~ | fp4 | bicameralx2 | 46.60 |
| acc_thru | sgd | float32 | singlex1 | 176204.17 |
| realtime | sgd | float32 | singlex1 | 298875.61 |
| adapt | MeshTweenAlt | float32 | singlex1 | 26.02 |
| keep_learn | TweenSplitSparse | float64 | singlex1 | 12.69 |
| acc_per_sec | StepTweenAlt | float64 | singlex1 | 12.86 |
| time_to_50 | TweenAlt | float32 | singlex1 | 0.50 |
| consistency | sgd | float64 | singlex1 | 100.00 |
| stability | sgd | fp4 | singlex1 | 100.00 |
| mobile_score | sgd | binary | singlex1 | 7249214741.25 |
| lpd | tween | binary | singlex1 | 30.44 |
| mspeed | sgd | float32 | singlex1 | 1.00 |
| mavail | TweenSplitLinea~ | complex64 | singlex1 | 0.97 |
| mix | sgd | float32 | singlex1 | 0.97 |

## Lucy axes - cnn3

| Axis | Mode | DType | Arch | Value |
| --- | --- | --- | --- | --- |
| score | sgd | float32 | singlex1 | 52818.58 |
| soft_acc | step_tween_chain | float32 | singlex1 | 41.45 |
| hard_acc | sgd | float32 | singlex1 | 93.07 |
| throughput | tween | float32 | singlex1 | 332749.14 |
| availability | TweenSplitSparse | uint32 | tricameralx3 | 46.59 |
| acc_thru | sgd | float32 | singlex1 | 134992.85 |
| realtime | sgd | float32 | singlex1 | 127505.78 |
| adapt | TweenSplitFastP~ | float32 | singlex1 | 42.47 |
| keep_learn | MeshTweenSplitF~ | float32 | singlex1 | 18.52 |
| acc_per_sec | sgd | float32 | singlex1 | 20.71 |
| time_to_50 | sgd | binary | tricameralx3 | 0.05 |
| consistency | sgd | float64 | singlex1 | 100.00 |
| stability | sgd | fp4 | singlex1 | 100.00 |
| mobile_score | tween_chain | binary | singlex1 | 2994706560.73 |
| lpd | sgd | int8 | singlex1 | 2.97 |
| mspeed | tween | float32 | singlex1 | 1.00 |
| mavail | TweenSplitHeadP~ | int | singlex1 | 0.94 |
| mix | sgd | float32 | singlex1 | 0.94 |

## Lucy axes - cnn1

| Axis | Mode | DType | Arch | Value |
| --- | --- | --- | --- | --- |
| score | sgd | float32 | singlex1 | 43204.49 |
| soft_acc | sgd | float64 | singlex1 | 45.52 |
| hard_acc | sgd | float32 | singlex1 | 98.84 |
| throughput | sgd | ternary | singlex1 | 250863.07 |
| availability | TweenSplit | complex64 | singlex1 | 46.40 |
| acc_thru | sgd | float32 | singlex1 | 111258.56 |
| realtime | sgd | ternary | singlex1 | 111297.98 |
| adapt | MeshTweenSplitS~ | int64 | singlex1 | 46.19 |

| Axis | Mode | DType | Arch | Value |
|---|---|---|---|---|
| keep_learn | MeshTweenSplitF~ | float64 | singlex1 | 20.65 |
| acc_per_sec | sgd | float64 | singlex1 | 22.76 |
| time_to_50 | sgd | int | tricameralx3 | 0.06 |
| consistency | sgd | float64 | singlex1 | 100.00 |
| stability | sgd | fp4 | singlex1 | 100.00 |
| mobile_score | tween_chain | binary | singlex1 | 953931216.95 |
| lpd | sgd | int8 | singlex1 | 3.03 |
| mspeed | sgd | float32 | singlex1 | 0.98 |
| mavail | TweenSplitHeadP~ | int | singlex1 | 0.99 |
| mix | sgd | float32 | singlex1 | 0.94 |

## Lucy axes - convt2

| Axis | Mode | DType | Arch | Value |
|---|---|---|---|---|
| score | tween_chain | float32 | singlex1 | 34996.07 |
| soft_acc | StepTweenAlt | float32 | singlex1 | 25.26 |
| hard_acc | TweenSplitSparse | uint | tricameralx3 | 33.72 |
| throughput | tween_chain | float32 | singlex1 | 306481.20 |
| availability | TweenSplitLinea~ | int16 | singlex1 | 46.78 |
| acc_thru | tween_chain | float32 | singlex1 | 76685.65 |
| realtime | tween_chain | float32 | singlex1 | 139864.98 |
| adapt | MeshTweenAlt | float64 | singlex1 | 25.32 |
| keep_learn | step_tween_chain | fp8e5m2 | tricameralx3 | 13.48 |
| acc_per_sec | sgd | float64 | singlex1 | 12.51 |
| time_to_50 | step_tween_chain | int5 | tricameralx3 | 0.15 |
| consistency | sgd | float64 | singlex1 | 100.00 |
| stability | sgd | fp4 | singlex1 | 100.00 |
| mobile_score | sgd | binary | singlex1 | 902443927.24 |
| lpd | tween | binary | singlex1 | 29.23 |
| mspeed | tween_chain | float32 | singlex1 | 1.00 |
| mavail | TweenSplitLinea~ | int | singlex1 | 1.00 |
| mix | tween_chain | float32 | singlex1 | 0.99 |

## Lucy axes - convt3

| Axis | Mode | DType | Arch | Value |
|---|---|---|---|---|
| score | MeshTweenSplitS~ | float32 | singlex1 | 24465.24 |
| soft_acc | TweenAlt | float32 | singlex1 | 25.21 |
| hard_acc | step_tween_chain | uint3 | bicameralx2 | 32.46 |
| throughput | sgd | fp4 | singlex1 | 220839.79 |
| availability | MeshTweenSplit | uintptr | singlex1 | 46.65 |
| acc_thru | sgd | fp4 | singlex1 | 55209.95 |
| realtime | MeshTweenSplitS~ | float32 | singlex1 | 97864.53 |
| adapt | MeshTweenAlt | complex128 | singlex1 | 25.34 |
| keep_learn | MeshTweenSplitF~ | binary | singlex1 | 12.57 |
| acc_per_sec | sgd | binary | singlex1 | 12.53 |
| time_to_50 | StepTweenAlt | uint6 | tricameralx3 | 0.07 |
| consistency | sgd | float64 | singlex1 | 100.00 |
| stability | sgd | fp4 | singlex1 | 100.00 |
| mobile_score | sgd | binary | singlex1 | 901497405.59 |
| lpd | sgd | binary | singlex1 | 31.22 |
| mspeed | sgd | fp4 | singlex1 | 1.00 |
| mavail | MeshTweenSplit | uintptr | singlex1 | 1.00 |

| | | | | |
|---|---|---|---|---|
| mix | MeshTweenSplitS~ | float32 | singlex1 | 0.98 |

## Lucy axes - cnn2

| Axis | Mode | DType | Arch | Value |
|---|---|---|---|---|
| score | sgd | float32 | singlex1 | 23268.06 |
| soft_acc | sgd | float64 | singlex1 | 43.69 |
| hard_acc | tween_chain | bfloat16 | singlex1 | 97.16 |
| throughput | sgd | float32 | singlex1 | 135310.77 |
| availability | MeshTweenSplitS~ | float32 | tricameralx3 | 44.61 |
| acc_thru | sgd | float32 | singlex1 | 58588.62 |
| realtime | sgd | float32 | singlex1 | 53737.72 |
| adapt | MeshTweenAlt | float64 | singlex1 | 44.46 |
| keep_learn | MeshTweenSplitF~ | float64 | singlex1 | 19.81 |
| acc_per_sec | sgd | float64 | singlex1 | 21.83 |
| time_to_50 | sgd | binary | bicameralx2 | 0.05 |
| consistency | sgd | float64 | singlex1 | 100.00 |
| stability | sgd | fp4 | singlex1 | 100.00 |
| mobile_score | sgd | binary | singlex1 | 282889266.02 |
| lpd | sgd | uint8 | singlex1 | 3.09 |
| mspeed | sgd | float32 | singlex1 | 1.00 |
| mavail | TweenSplitFastP~ | float64 | singlex1 | 1.00 |
| mix | sgd | float32 | singlex1 | 0.96 |

## Lucy axes - rnn

| Axis | Mode | DType | Arch | Value |
|---|---|---|---|---|
| score | sgd | float32 | singlex1 | 17545.45 |
| soft_acc | tween_chain | float64 | singlex1 | 39.29 |
| hard_acc | tween_chain | float64 | singlex1 | 94.38 |
| throughput | MeshTweenSplitS~ | ternary | singlex1 | 124518.99 |
| availability | MeshTweenSplitS~ | float64 | singlex1 | 44.43 |
| acc_thru | sgd | float32 | singlex1 | 46856.72 |
| realtime | MeshTweenSplitS~ | ternary | singlex1 | 54631.28 |
| adapt | MeshTweenSplitS~ | float64 | singlex1 | 42.11 |
| keep_learn | TweenSplitSparse | complex128 | singlex1 | 18.92 |
| acc_per_sec | sgd | float64 | singlex1 | 19.60 |
| time_to_50 | sgd | uint2 | tricameralx3 | 0.06 |
| consistency | sgd | float64 | singlex1 | 100.00 |
| stability | sgd | fp4 | singlex1 | 100.00 |
| mobile_score | tween_chain | binary | singlex1 | 110850194.56 |
| lpd | MeshTweenSplitS~ | int8 | singlex1 | 2.49 |
| mspeed | sgd | float32 | singlex1 | 0.96 |
| mavail | MeshTweenSplitS~ | float64 | singlex1 | 1.00 |
| mix | sgd | float32 | singlex1 | 0.93 |

## Lucy axes - mamba

| Axis | Mode | DType | Arch | Value |
|---|---|---|---|---|
| score | sgd | float32 | singlex1 | 4360.51 |
| soft_acc | StepTweenAlt | float32 | singlex1 | 25.84 |
| hard_acc | TweenSplitLinear | fp6 | bicameralx2 | 35.16 |
| throughput | MeshTweenSplit | float32 | singlex1 | 74750.28 |
| availability | MeshTweenSplitS~ | float32 | bicameralx2 | 44.03 |
| acc_thru | sgd | float32 | singlex1 | 10949.30 |

| | | | | |
|---|---|---|---|---|
| realtime | MeshTweenSplit | float32 | singlex1 | 30542.40 |
| adapt | MeshTweenAlt | float16 | singlex1 | 26.30 |
| keep_learn | MeshTweenAlt | float32 | bicameralx2 | 12.59 |
| acc_per_sec | TweenSplit | float16 | singlex1 | 12.69 |
| time_to_50 | tween_chain | uint6 | tricameralx3 | 0.16 |
| consistency | sgd | float64 | singlex1 | 100.00 |
| stability | sgd | fp4 | singlex1 | 100.00 |
| mobile_score | tween_chain | binary | singlex1 | 44235381.94 |
| lpd | sgd | binary | singlex1 | 27.91 |
| mspeed | TweenSplit | float32 | singlex1 | 0.72 |
| mavail | MeshTweenSplitS~ | float32 | bicameralx2 | 1.00 |
| mix | TweenSplit | float32 | singlex1 | 0.85 |

## Lucy axes - gdn

| Axis | Mode | DType | Arch | Value |
|---|---|---|---|---|
| score | MeshTweenSplitS~ | float32 | singlex1 | 3681.03 |
| soft_acc | sgd | float32 | singlex1 | 25.00 |
| hard_acc | step_tween | float32 | tricameralx3 | 25.45 |
| throughput | MeshTweenSplitS~ | float32 | singlex1 | 36740.81 |
| availability | MeshTweenSplitS~ | float32 | tricameralx3 | 43.89 |
| acc_thru | MeshTweenSplitS~ | float32 | singlex1 | 9185.20 |
| realtime | MeshTweenSplitS~ | float32 | singlex1 | 14724.12 |
| adapt | sgd | float32 | singlex1 | 25.00 |
| keep_learn | sgd | float32 | singlex1 | 12.50 |
| acc_per_sec | sgd | float32 | singlex1 | 12.50 |
| consistency | sgd | float32 | singlex1 | 100.00 |
| stability | sgd | float32 | singlex1 | 100.00 |
| mobile_score | MeshTweenSplitS~ | float32 | singlex1 | 3769375.09 |
| lpd | MeshTweenSplitS~ | float32 | singlex1 | 1.00 |
| mspeed | MeshTweenSplitS~ | float32 | singlex1 | 1.00 |
| mavail | MeshTweenSplitS~ | float32 | tricameralx3 | 1.00 |
| mix | MeshTweenSplitS~ | float32 | singlex1 | 0.97 |

## Lucy axes - mha

| Axis | Mode | DType | Arch | Value |
|---|---|---|---|---|
| score | TweenSplitHeadP~ | float32 | singlex1 | 2628.31 |
| soft_acc | StepTweenAlt | fp8e5m2 | bicameralx2 | 25.15 |
| hard_acc | TweenSplitHeadP~ | fp8e5m2 | bicameralx2 | 34.01 |
| throughput | TweenSplitHeadP~ | float32 | singlex1 | 26101.09 |
| availability | TweenSplitSparse | float32 | tricameralx3 | 43.90 |
| acc_thru | TweenSplitHeadP~ | float32 | singlex1 | 6525.18 |
| realtime | TweenSplitHeadP~ | float32 | singlex1 | 10513.39 |
| adapt | StepTweenAlt | int | tricameralx3 | 25.16 |
| keep_learn | MeshTweenAlt | float16 | tricameralx3 | 12.54 |
| acc_per_sec | sgd | uint8 | singlex1 | 12.50 |
| time_to_50 | step_sgd | int6 | bicameralx2 | 0.47 |
| consistency | sgd | float64 | singlex1 | 100.00 |
| stability | sgd | fp4 | singlex1 | 100.00 |
| mobile_score | TweenSplitSparse | binary | singlex1 | 37152123.41 |
| lpd | TweenSplitSparse | binary | singlex1 | 29.98 |
| mspeed | TweenSplitHeadP~ | float32 | singlex1 | 1.00 |
| mavail | TweenSplitSparse | float32 | tricameralx3 | 1.00 |

| | | | | |
|---|---|---|---|---|
| mix | TweenSplitHeadP~ | float32 | singlex1 | 0.97 |

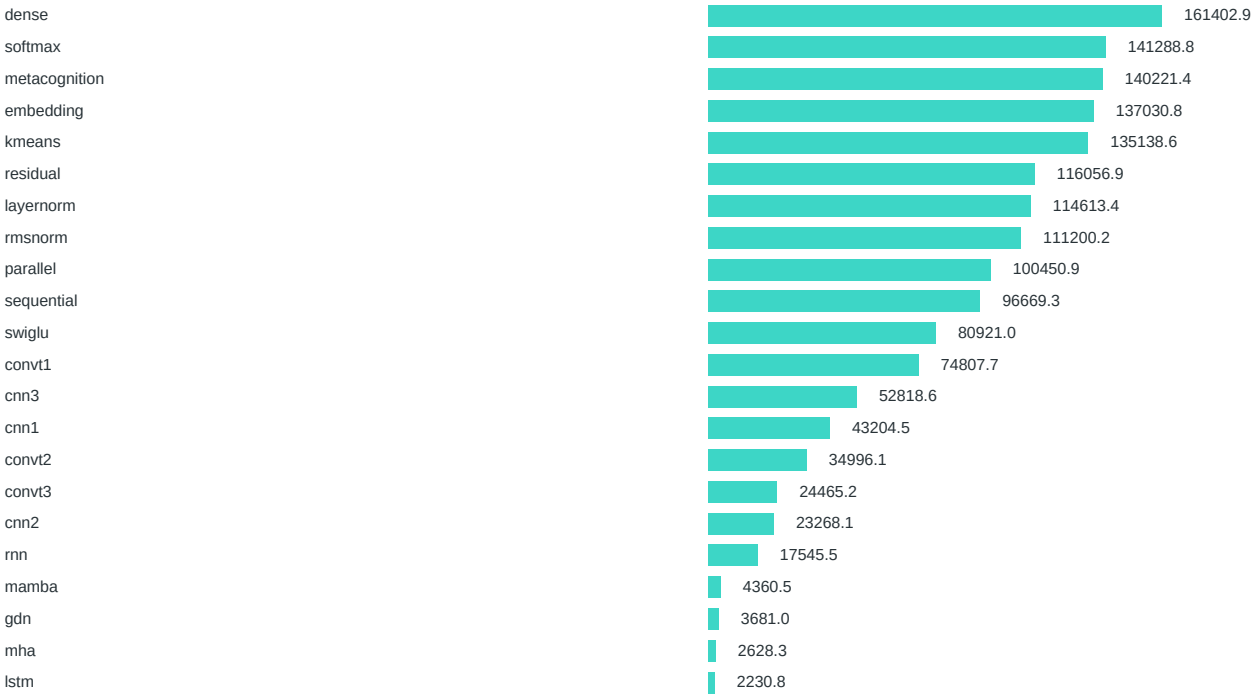
## Lucy axes - lstm

| Axis | Mode | DType | Arch | Value |
|---|---|---|---|---|
| score | sgd | int2 | singlex1 | 2230.79 |
| soft_acc | TweenAlt | float64 | singlex1 | 25.31 |
| hard_acc | MeshTweenChain | complex64 | tricameralx3 | 48.83 |
| throughput | sgd | int2 | singlex1 | 24631.88 |
| availability | MeshTweenSplitS~ | binary | tricameralx3 | 41.78 |
| acc_thru | sgd | int2 | singlex1 | 6158.82 |
| realtime | sgd | int2 | singlex1 | 8921.91 |
| adapt | MeshTweenAlt | float64 | singlex1 | 25.45 |
| keep_learn | tween | fp6 | tricameralx3 | 13.10 |
| acc_per_sec | sgd | float32 | singlex1 | 12.53 |
| time_to_50 | tween | int6 | bicameralx2 | 0.06 |
| consistency | sgd | float64 | singlex1 | 100.00 |
| stability | sgd | fp4 | singlex1 | 100.00 |
| mobile_score | sgd | binary | singlex1 | 6878293.55 |
| lpd | sgd | binary | singlex1 | 1.23 |
| mspeed | sgd | int2 | singlex1 | 1.00 |
| mavail | MeshTweenSplitS~ | binary | tricameralx3 | 1.00 |
| mix | sgd | int2 | singlex1 | 0.95 |

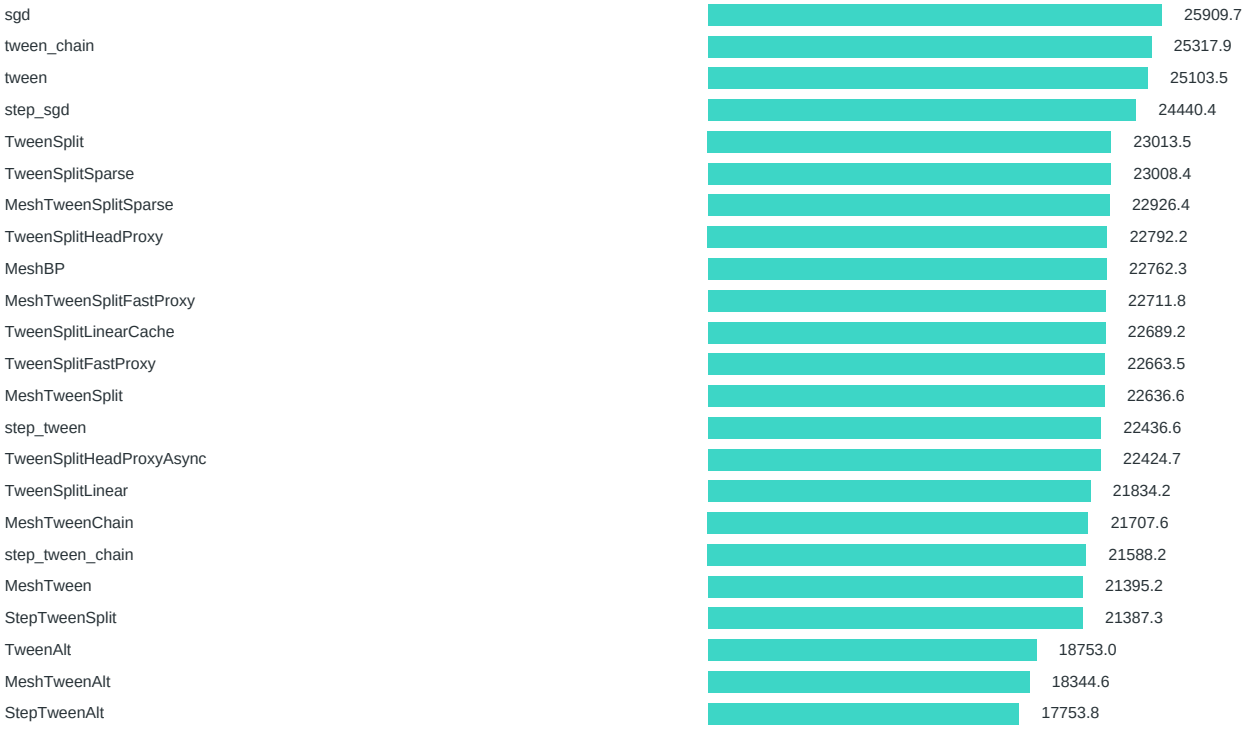
## Combined leaderboard

| Tide | Cell | Score | Soft | Acc | Avail |
|---|---|---|---|---|---|
| dense | float32\|none\|sgd\|single\|simd | 161402.9 | 25.0 | 28.2 | 33.6 |
| dense | float32\|none\|step_sgd\|single\|simd | 160922.3 | 25.0 | 27.9 | 33.4 |
| dense | uint8\|none\|MeshTweenSplitSparse\|single\|simd | 160784.5 | 25.0 | 24.7 | 35.4 |
| dense | binary\|none\|MeshTweenSplitSparse\|single\|simd | 159730.6 | 25.3 | 25.4 | 36.3 |
| dense | fp4\|none\|MeshTweenSplitSparse\|single\|simd | 159661.4 | 25.0 | 25.0 | 35.3 |
| dense | float32\|none\|tween_chain\|single\|simd | 157516.8 | 25.0 | 28.1 | 33.9 |
| dense | float16\|none\|MeshTweenSplitSparse\|single\|simd | 157235.1 | 25.0 | 28.8 | 34.1 |
| dense | bfloat16\|none\|MeshTweenSplitSparse\|single\|simd | 156737.7 | 25.0 | 29.1 | 35.9 |
| dense | float16\|none\|tween_chain\|single\|simd | 156317.6 | 25.0 | 28.1 | 34.9 |
| dense | float32\|none\|tween\|single\|simd | 155225.0 | 25.0 | 27.5 | 34.1 |
| dense | float16\|none\|sgd\|single\|simd | 154742.9 | 25.0 | 28.3 | 34.8 |
| dense | uint8\|none\|sgd\|single\|simd | 152399.0 | 25.0 | 24.3 | 35.5 |
| softmax | uint8\|none\|tween_chain\|single\|simd | 141288.8 | 25.0 | 27.4 | 38.4 |
| softmax | fp4\|none\|tween_chain\|single\|simd | 140330.8 | 25.0 | 25.0 | 37.7 |
| softmax | fp4\|none\|sgd\|single\|simd | 140228.9 | 25.0 | 25.0 | 37.6 |
| metacognition | float32\|none\|sgd\|single\|simd | 140221.4 | 25.0 | 27.5 | 37.7 |
| softmax | float32\|none\|tween_chain\|single\|simd | 139259.1 | 25.0 | 30.6 | 36.7 |
| softmax | float16\|none\|tween_chain\|single\|simd | 137723.6 | 25.0 | 26.8 | 37.3 |
| softmax | uint8\|none\|sgd\|single\|simd | 137546.7 | 25.0 | 28.1 | 38.1 |
| softmax | int8\|none\|tween_chain\|single\|simd | 137258.8 | 25.0 | 29.8 | 38.2 |

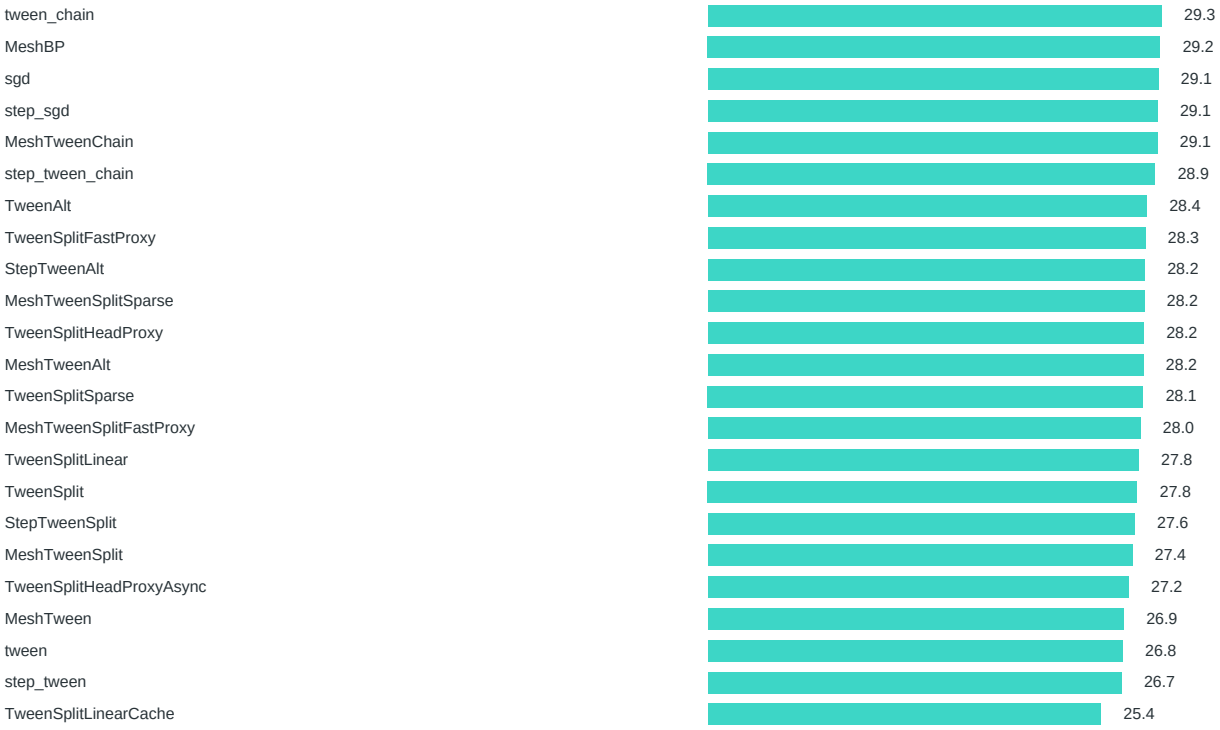
## Score by layer



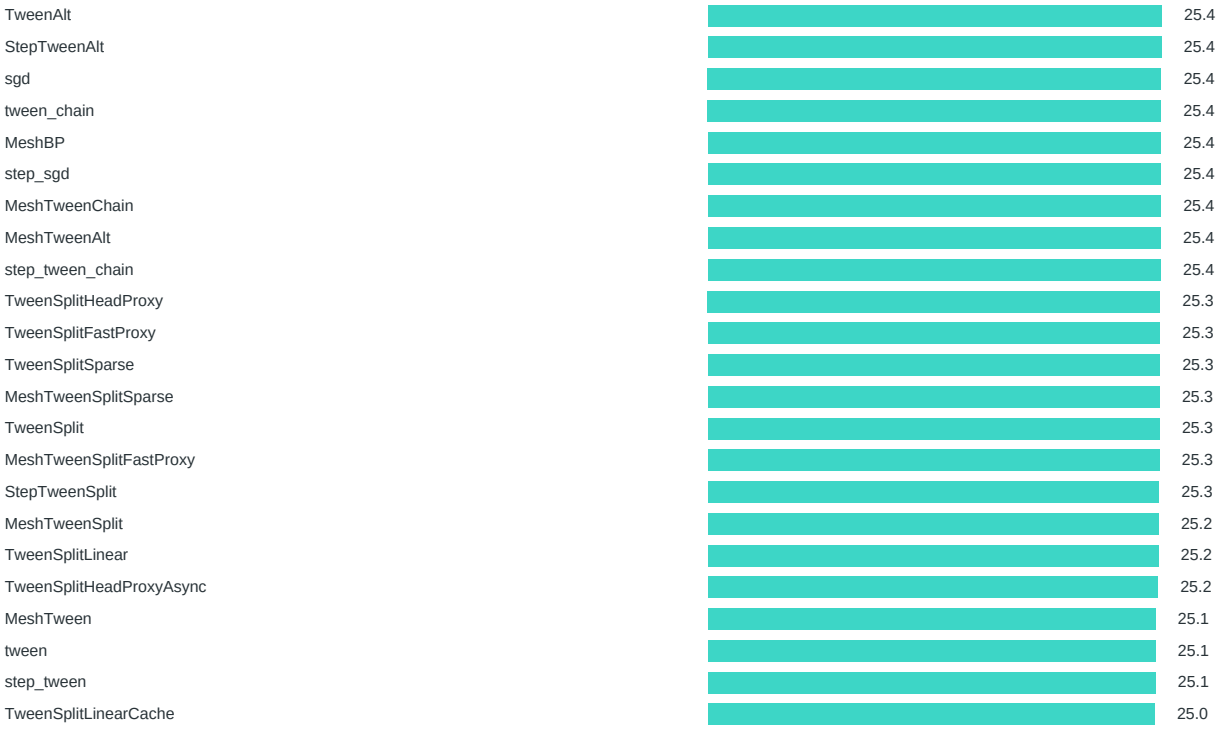

## Mean Score by train mode



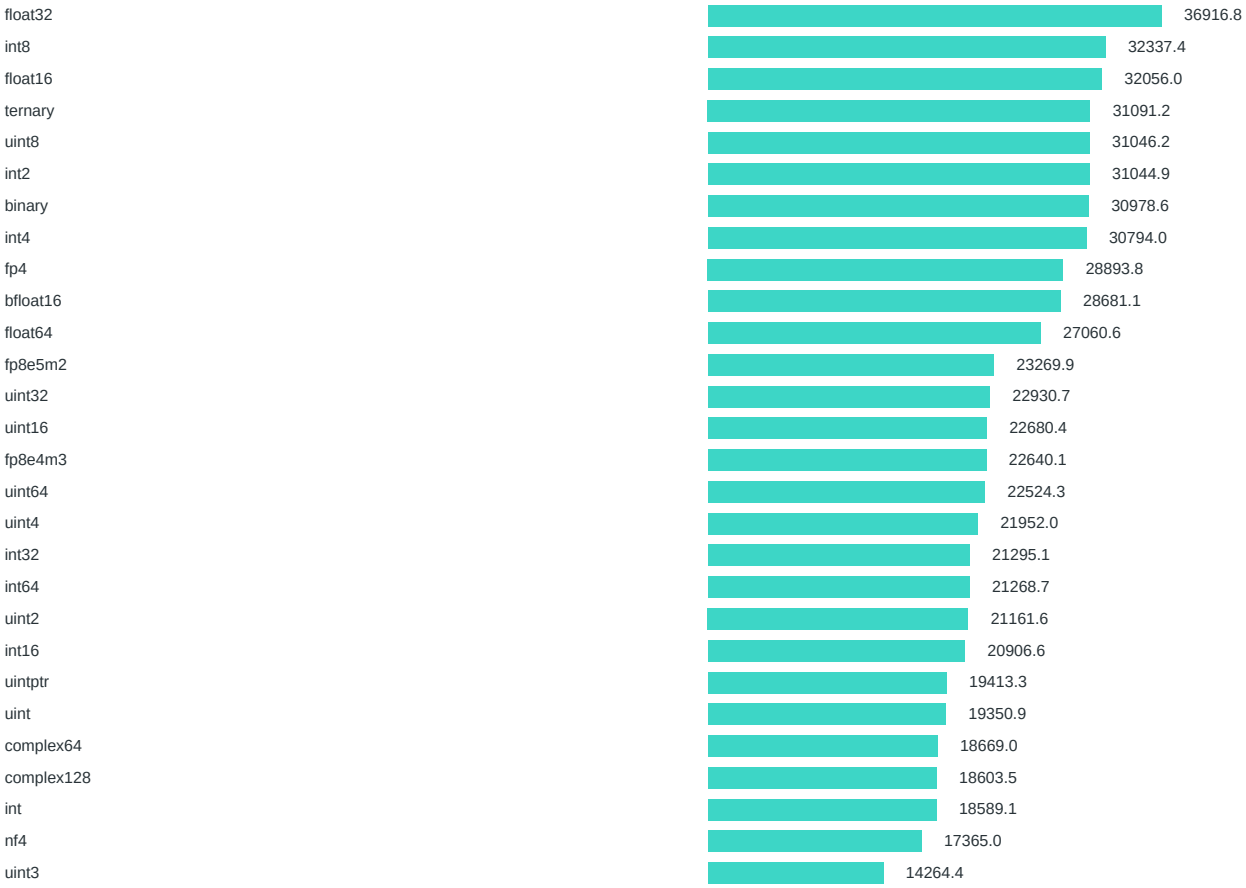

## Mean hard Acc by train mode




## Mean SoftAcc by train mode




## Mean Score by dtype




## Mean hard Acc by dtype




## Mean Score by arch




## Honesty - mean Score, every mode x dtype (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 29424 | 31491 | 19019 | 19120 | 32621 | 37914 | 28067 | 29254 | 10833 | 22963 | 23669 | 18917 | 21595 | 31440 | 13810 | 21855 |
| MeshTween | 27338 | 29689 | 17777 | 17797 | 30566 | 35487 | 25837 | 27817 | 10240 | 21546 | 22285 | 17668 | 20051 | 29837 | 13048 | 20649 |
| MeshTweenAlt | 24249 | 25782 | 15129 | 15285 | 25763 | 29726 | 22339 | 24114 | 8562 | 18792 | 19130 | 15321 | 17217 | 25602 | 11088 | 17795 |
| MeshTweenChain | 27854 | 29848 | 18251 | 18320 | 31062 | 36373 | 26768 | 27866 | 10310 | 21897 | 22473 | 18148 | 20323 | 30125 | 13213 | 20873 |
| MeshTweenSplit | 29052 | 31227 | 18980 | 18899 | 33504 | 36301 | 26942 | 29132 | 11385 | 23011 | 23576 | 18807 | 21239 | 31349 | 14029 | 21213 |
| MeshTweenSplitFa | 28681 | 31197 | 18805 | 19015 | 31968 | 37599 | 27489 | 29551 | 10875 | 22739 | 23192 | 19225 | 21355 | 31251 | 14462 | 22037 |
| MeshTweenSplitSp | 29723 | 31923 | 19150 | 18947 | 33298 | 37965 | 27780 | 29615 | 11309 | 23247 | 23858 | 18896 | 21349 | 32047 | 14422 | 21733 |
| StepTweenAlt | 23043 | 24908 | 14821 | 14838 | 25634 | 29610 | 21774 | 22827 | 8032 | 18401 | 18653 | 14673 | 16736 | 24797 | 10557 | 17034 |
| StepTweenSplit | 27671 | 29786 | 17531 | 17746 | 31230 | 35379 | 25590 | 27914 | 10186 | 21782 | 22410 | 17528 | 20127 | 30106 | 13221 | 20254 |
| TweenAlt | 24414 | 26213 | 15551 | 15647 | 26784 | 30978 | 23117 | 23922 | 8677 | 19184 | 19572 | 15618 | 17805 | 25848 | 11289 | 18109 |
| TweenSplit | 29230 | 31672 | 19119 | 19317 | 33058 | 37070 | 27232 | 29964 | 11516 | 23273 | 23961 | 19058 | 21484 | 32096 | 14502 | 21791 |
| TweenSplitFastPr | 29197 | 31425 | 19199 | 19340 | 32309 | 37342 | 27308 | 29087 | 11267 | 23017 | 23295 | 19366 | 21069 | 31240 | 13867 | 21591 |
| TweenSplitHeadPr | 29291 | 31347 | 19477 | 19126 | 32615 | 37058 | 27538 | 29196 | 11368 | 23164 | 23681 | 19048 | 21245 | 31854 | 14348 | 21675 |
| TweenSplitHeadPr | 28446 | 31077 | 18736 | 18662 | 31653 | 36809 | 26735 | 29117 | 11198 | 22871 | 23542 | 18627 | 21031 | 31499 | 13909 | 21318 |
| TweenSplitLinear | 27787 | 29977 | 18355 | 18558 | 31189 | 35965 | 26567 | 28293 | 10836 | 22069 | 22784 | 18339 | 20590 | 29597 | 13755 | 20994 |
| TweenSplitLinear | 28917 | 31597 | 18627 | 19160 | 32249 | 36655 | 26714 | 29232 | 11437 | 23381 | 23662 | 18641 | 21335 | 31488 | 14378 | 21660 |
| TweenSplitSparse | 29604 | 31821 | 19120 | 19213 | 33028 | 38155 | 27309 | 29581 | 11524 | 23236 | 23918 | 19246 | 21519 | 32082 | 14343 | 21674 |
| sgd | 32933 | 35803 | 21851 | 21769 | 36801 | 42795 | 31306 | 33381 | 12639 | 25765 | 26834 | 21787 | 24460 | 35893 | 15964 | 24778 |
| step_sgd | 31369 | 34122 | 20130 | 20366 | 35357 | 41282 | 30096 | 31841 | 11418 | 24528 | 25592 | 20453 | 22683 | 34134 | 14708 | 23345 |
| step_tween | 28990 | 31600 | 18301 | 18295 | 32580 | 37790 | 27540 | 29409 | 10402 | 22956 | 23622 | 18337 | 20868 | 31643 | 13270 | 21474 |
| step_tween_chain | 27778 | 30226 | 17995 | 18083 | 31725 | 36848 | 26865 | 28293 | 10194 | 21668 | 22590 | 18015 | 19538 | 30255 | 12928 | 20160 |
| tween | 31983 | 35139 | 20630 | 20624 | 35736 | 41715 | 30450 | 32670 | 12020 | 25486 | 26361 | 20628 | 23511 | 34934 | 15442 | 23940 |
| tween_chain | 32690 | 34638 | 21328 | 21260 | 36557 | 42271 | 31031 | 32481 | 12254 | 25745 | 26550 | 21202 | 23722 | 34916 | 15546 | 23835 |

## Honesty - mean Score, every mode x dtype (cols 17-32)

## Honesty - mean Score, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 31125 | 11673 | 10977 | 21948 | 33064 | 17457 | 31772 | 19635 | 23165 | 21648 | 14333 | 23550 | 22288 | 12483 | 11491 | 23101 |
| MeshTween | 29835 | 10890 | 10251 | 20260 | 31229 | 16614 | 29581 | 18489 | 22037 | 20200 | 13467 | 22216 | 21129 | 11660 | 10710 | 21671 |
| MeshTweenAlt | 25363 | 9179 | 8510 | 17246 | 26806 | 14212 | 25219 | 16377 | 18540 | 17439 | 11434 | 18798 | 18332 | 9650 | 8940 | 18790 |
| MeshTweenChain | 29713 | 11205 | 10561 | 20840 | 31406 | 16813 | 30229 | 18880 | 22199 | 20505 | 13776 | 22350 | 21215 | 12024 | 10905 | 21860 |
| MeshTweenSplit | 31702 | 11874 | 11023 | 21053 | 32858 | 17849 | 31192 | 19706 | 22935 | 21424 | 14776 | 23155 | 22856 | 12580 | 12087 | 22677 |
| MeshTweenSplitFa | 31469 | 12180 | 11310 | 21418 | 33119 | 17859 | 31529 | 19942 | 22887 | 21865 | 14926 | 23174 | 22031 | 13037 | 11891 | 22553 |
| MeshTweenSplitSp | 31498 | 12114 | 11400 | 21783 | 33328 | 17886 | 31933 | 19931 | 22823 | 21468 | 14834 | 23693 | 22159 | 12629 | 11922 | 23027 |
| StepTweenAlt | 24866 | 8935 | 8293 | 16709 | 26208 | 13556 | 25158 | 15111 | 18038 | 16954 | 10905 | 18052 | 17432 | 9357 | 8556 | 17991 |
| StepTweenSplit | 29887 | 11016 | 10368 | 20339 | 31328 | 16308 | 30089 | 18320 | 21715 | 20221 | 13593 | 21708 | 21033 | 11718 | 10803 | 21435 |
| TweenAlt | 25812 | 9615 | 8805 | 18035 | 27541 | 14389 | 26314 | 16242 | 19298 | 17821 | 11761 | 19136 | 18592 | 9955 | 9110 | 18966 |
| TweenSplit | 31751 | 12365 | 11588 | 21638 | 33243 | 18020 | 32026 | 19883 | 23431 | 21777 | 15130 | 23716 | 22753 | 13201 | 11964 | 23049 |
| TweenSplitFastPr | 31171 | 12063 | 11503 | 21571 | 32296 | 17649 | 31516 | 19811 | 22861 | 21594 | 14526 | 23065 | 22266 | 12632 | 11724 | 22578 |
| TweenSplitHeadPr | 31454 | 12333 | 11522 | 21768 | 32725 | 17965 | 31353 | 19808 | 22972 | 21211 | 14709 | 23118 | 22267 | 12930 | 11902 | 22774 |
| TweenSplitHeadPr | 31112 | 11805 | 11051 | 21432 | 32500 | 17677 | 31462 | 19333 | 22359 | 21308 | 14373 | 22758 | 21985 | 12384 | 11515 | 22930 |
| TweenSplitLinear | 29570 | 11593 | 11017 | 21031 | 31128 | 17334 | 29557 | 19007 | 22339 | 20499 | 14310 | 22309 | 21533 | 12225 | 11442 | 22310 |
| TweenSplitLinear | 31328 | 12188 | 11420 | 21477 | 32541 | 18048 | 31850 | 19691 | 22995 | 21537 | 14765 | 23051 | 22026 | 12961 | 11796 | 22753 |
| TweenSplitSparse | 31494 | 12196 | 11624 | 21962 | 33052 | 18206 | 32318 | 20028 | 23165 | 21641 | 14715 | 23483 | 22571 | 12821 | 11921 | 22977 |
| sgd | 35342 | 13630 | 12699 | 25002 | 37338 | 19934 | 35671 | 22514 | 26794 | 24467 | 16730 | 27035 | 25487 | 14409 | 13415 | 26427 |
| step_sgd | 33808 | 12375 | 11629 | 23416 | 35502 | 18740 | 34127 | 20958 | 24950 | 23136 | 15414 | 25386 | 24109 | 13088 | 12075 | 24741 |
| step_tween | 31302 | 11148 | 10515 | 21249 | 32808 | 17240 | 31640 | 19329 | 22908 | 21405 | 13920 | 22980 | 22041 | 11842 | 10954 | 22560 |
| step_tween_chain | 29724 | 11044 | 10292 | 20692 | 30819 | 16609 | 30492 | 18665 | 21503 | 20436 | 13528 | 22337 | 21222 | 11651 | 10818 | 21717 |
| tween | 34453 | 12838 | 12091 | 23710 | 36410 | 19388 | 35259 | 21594 | 25937 | 24205 | 16001 | 26212 | 24737 | 13731 | 12664 | 25648 |
| tween_chain | 34487 | 13150 | 12442 | 24603 | 36510 | 19642 | 34812 | 21815 | 25797 | 23958 | 16154 | 26123 | 24831 | 14033 | 12901 | 25521 |

## Honesty - mean Score, every mode x dtype  (cols 33-34)

## Honesty - mean Score, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 31779 | 19715 |
| MeshTween | 30216 | 18678 |
| MeshTweenAlt | 26170 | 16276 |
| MeshTweenChain | 30344 | 18831 |
| MeshTweenSplit | 30871 | 19728 |
| MeshTweenSplitFa | 31110 | 19750 |
| MeshTweenSplitSp | 31440 | 19650 |
| StepTweenAlt | 25223 | 15384 |
| StepTweenSplit | 29886 | 18276 |
| TweenAlt | 26393 | 16506 |
| TweenSplit | 31920 | 19993 |
| TweenSplitFastPr | 31271 | 19844 |
| TweenSplitHeadPr | 31669 | 19745 |
| TweenSplitHeadPr | 30938 | 19601 |
| TweenSplitLinear | 29716 | 19116 |
| TweenSplitLinear | 31238 | 19972 |
| TweenSplitSparse | 32118 | 19900 |
| sgd | 35907 | 22566 |
| step_sgd | 34207 | 21086 |
| step_tween | 31861 | 19331 |
| step_tween_chain | 29669 | 18894 |
| tween | 34904 | 21679 |
| tween_chain | 35212 | 21984 |

## Honesty - mean hard Acc, every mode x dtype  (cols 1-16)

## Honesty - mean hard Acc, every mode x dtype  (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 34 | 24 | 32 | 33 | 33 | 34 | 34 | 25 | 28 | 27 | 27 | 33 | 32 | 25 | 25 | 32 |
| MeshTween | 32 | 25 | 29 | 28 | 29 | 28 | 29 | 25 | 26 | 25 | 25 | 28 | 28 | 25 | 26 | 28 |
| MeshTweenAlt | 33 | 25 | 32 | 32 | 33 | 35 | 34 | 25 | 26 | 26 | 27 | 32 | 29 | 25 | 25 | 28 |
| MeshTweenChain | 33 | 25 | 33 | 33 | 33 | 34 | 34 | 25 | 28 | 27 | 26 | 32 | 31 | 25 | 25 | 32 |
| MeshTweenSplit | 31 | 25 | 31 | 31 | 32 | 32 | 32 | 25 | 26 | 26 | 25 | 31 | 28 | 25 | 25 | 28 |
| MeshTweenSplitFa | 33 | 25 | 29 | 30 | 31 | 31 | 31 | 25 | 28 | 27 | 27 | 30 | 29 | 25 | 25 | 30 |
| MeshTweenSplitSp | 32 | 26 | 31 | 30 | 31 | 32 | 32 | 25 | 28 | 27 | 27 | 30 | 29 | 26 | 25 | 30 |
| StepTweenAlt | 33 | 26 | 33 | 33 | 34 | 35 | 35 | 25 | 27 | 26 | 27 | 33 | 29 | 25 | 25 | 29 |
| StepTweenSplit | 32 | 25 | 31 | 31 | 32 | 32 | 32 | 25 | 27 | 26 | 26 | 30 | 28 | 25 | 25 | 28 |
| TweenAlt | 34 | 25 | 33 | 34 | 34 | 36 | 35 | 25 | 27 | 26 | 27 | 33 | 28 | 25 | 25 | 29 |
| TweenSplit | 32 | 25 | 31 | 32 | 32 | 32 | 33 | 25 | 26 | 26 | 26 | 32 | 28 | 25 | 25 | 29 |
| TweenSplitFastPr | 33 | 25 | 30 | 31 | 32 | 32 | 31 | 25 | 29 | 27 | 26 | 30 | 29 | 25 | 25 | 30 |
| TweenSplitHeadPr | 33 | 25 | 31 | 30 | 32 | 32 | 32 | 25 | 28 | 26 | 26 | 31 | 29 | 25 | 25 | 30 |
| TweenSplitHeadPr | 29 | 25 | 29 | 29 | 29 | 29 | 29 | 25 | 28 | 26 | 26 | 28 | 28 | 25 | 26 | 28 |
| TweenSplitLinear | 31 | 26 | 32 | 30 | 32 | 30 | 31 | 25 | 26 | 26 | 26 | 30 | 30 | 25 | 25 | 29 |
| TweenSplitLinear | 26 | 24 | 26 | 25 | 27 | 26 | 25 | 25 | 25 | 25 | 25 | 26 | 26 | 25 | 25 | 26 |
| TweenSplitSparse | 32 | 25 | 30 | 30 | 31 | 32 | 32 | 25 | 27 | 27 | 26 | 31 | 30 | 25 | 25 | 30 |
| sgd | 33 | 25 | 32 | 33 | 33 | 34 | 33 | 25 | 28 | 27 | 26 | 33 | 32 | 25 | 25 | 32 |
| step_sgd | 33 | 25 | 32 | 33 | 34 | 34 | 34 | 25 | 28 | 28 | 27 | 33 | 31 | 25 | 25 | 32 |
| step_tween | 31 | 24 | 28 | 28 | 29 | 27 | 29 | 25 | 25 | 26 | 25 | 29 | 29 | 25 | 25 | 30 |
| step_tween_chain | 33 | 25 | 32 | 32 | 32 | 34 | 33 | 25 | 28 | 27 | 27 | 32 | 31 | 24 | 25 | 32 |
| tween | 32 | 25 | 28 | 28 | 29 | 29 | 29 | 25 | 26 | 25 | 25 | 28 | 28 | 25 | 25 | 29 |
| tween_chain | 33 | 25 | 33 | 33 | 34 | 35 | 34 | 25 | 28 | 26 | 27 | 33 | 32 | 24 | 25 | 32 |

## Honesty - mean hard Acc, every mode x dtype  (cols 17-32)

## Honesty - mean hard Acc, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 25 | 28 | 29 | 33 | 29 | 25 | 25 | 32 | 31 | 24 | 26 | 32 | 26 | 27 | 28 | 32 |
| MeshTween | 26 | 24 | 25 | 28 | 28 | 25 | 25 | 28 | 28 | 25 | 25 | 29 | 26 | 25 | 26 | 29 |
| MeshTweenAlt | 26 | 26 | 27 | 33 | 28 | 25 | 25 | 28 | 28 | 26 | 25 | 28 | 25 | 25 | 26 | 28 |
| MeshTweenChain | 24 | 27 | 29 | 32 | 29 | 27 | 24 | 31 | 32 | 25 | 26 | 31 | 27 | 27 | 28 | 32 |
| MeshTweenSplit | 25 | 25 | 27 | 31 | 28 | 25 | 25 | 28 | 28 | 26 | 25 | 28 | 25 | 26 | 26 | 28 |
| MeshTweenSplitFa | 26 | 26 | 28 | 31 | 29 | 25 | 25 | 30 | 30 | 25 | 25 | 29 | 24 | 26 | 28 | 29 |
| MeshTweenSplitSp | 27 | 28 | 27 | 31 | 29 | 25 | 26 | 29 | 30 | 24 | 26 | 29 | 26 | 26 | 29 | 29 |
| StepTweenAlt | 26 | 25 | 27 | 34 | 29 | 26 | 25 | 28 | 28 | 25 | 25 | 29 | 25 | 25 | 26 | 28 |
| StepTweenSplit | 26 | 26 | 27 | 31 | 28 | 26 | 24 | 28 | 28 | 24 | 26 | 28 | 25 | 26 | 27 | 28 |
| TweenAlt | 25 | 25 | 26 | 34 | 28 | 25 | 26 | 28 | 28 | 25 | 25 | 29 | 25 | 26 | 27 | 28 |
| TweenSplit | 25 | 26 | 26 | 32 | 28 | 25 | 25 | 29 | 28 | 25 | 25 | 28 | 25 | 26 | 27 | 28 |
| TweenSplitFastPr | 26 | 26 | 29 | 31 | 29 | 26 | 24 | 30 | 30 | 25 | 26 | 30 | 25 | 27 | 28 | 31 |
| TweenSplitHeadPr | 25 | 27 | 28 | 31 | 29 | 26 | 25 | 29 | 30 | 24 | 24 | 30 | 25 | 27 | 28 | 30 |
| TweenSplitHeadPr | 25 | 27 | 28 | 29 | 29 | 24 | 25 | 28 | 29 | 25 | 25 | 28 | 24 | 26 | 28 | 29 |
| TweenSplitLinear | 25 | 26 | 27 | 30 | 29 | 25 | 26 | 29 | 31 | 26 | 26 | 29 | 25 | 25 | 26 | 30 |
| TweenSplitLinear | 24 | 25 | 26 | 26 | 26 | 25 | 24 | 26 | 25 | 25 | 25 | 26 | 25 | 24 | 26 | 26 |
| TweenSplitSparse | 25 | 26 | 28 | 31 | 29 | 26 | 25 | 30 | 29 | 26 | 25 | 30 | 26 | 26 | 29 | 29 |
| sgd | 25 | 27 | 27 | 33 | 30 | 25 | 25 | 31 | 32 | 25 | 25 | 33 | 25 | 27 | 29 | 32 |
| step_sgd | 26 | 26 | 29 | 33 | 29 | 25 | 25 | 31 | 31 | 25 | 25 | 32 | 26 | 27 | 28 | 32 |
| step_tween | 25 | 25 | 25 | 28 | 28 | 25 | 25 | 28 | 28 | 26 | 25 | 28 | 25 | 25 | 26 | 27 |
| step_tween_chain | 25 | 27 | 28 | 33 | 29 | 25 | 25 | 31 | 31 | 25 | 26 | 31 | 26 | 28 | 28 | 31 |
| tween | 25 | 24 | 26 | 27 | 29 | 26 | 25 | 29 | 29 | 25 | 25 | 28 | 25 | 25 | 25 | 28 |
| tween_chain | 26 | 27 | 28 | 33 | 29 | 27 | 25 | 32 | 32 | 25 | 25 | 32 | 26 | 27 | 29 | 32 |

## Honesty - mean hard Acc, every mode x dtype  (cols 33-34)

## Honesty - mean hard Acc, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 30 | 32 |
| MeshTween | 28 | 28 |
| MeshTweenAlt | 28 | 29 |
| MeshTweenChain | 29 | 31 |
| MeshTweenSplit | 28 | 28 |
| MeshTweenSplitFa | 28 | 29 |
| MeshTweenSplitSp | 29 | 29 |
| StepTweenAlt | 28 | 29 |
| StepTweenSplit | 28 | 28 |
| TweenAlt | 28 | 29 |
| TweenSplit | 28 | 28 |
| TweenSplitFastPr | 29 | 30 |
| TweenSplitHeadPr | 29 | 30 |
| TweenSplitHeadPr | 28 | 28 |
| TweenSplitLinear | 28 | 29 |
| TweenSplitLinear | 25 | 25 |
| TweenSplitSparse | 30 | 30 |
| sgd | 30 | 32 |
| step_sgd | 29 | 31 |
| step_tween | 27 | 28 |
| step_tween_chain | 30 | 31 |
| tween | 27 | 29 |
| tween_chain | 29 | 32 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 1-16)

## Honesty - mean SoftAcc, every mode x dtype  (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 26 | 25 | 26 | 26 | 26 | 26 | 26 | 25 | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 |
| MeshTween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenAlt | 26 | 25 | 26 | 26 | 26 | 27 | 27 | 25 | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 |
| MeshTweenChain | 26 | 25 | 26 | 26 | 26 | 26 | 26 | 25 | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 |
| MeshTweenSplit | 26 | 25 | 26 | 26 | 26 | 26 | 26 | 25 | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 |
| MeshTweenSplitFa | 26 | 25 | 26 | 26 | 26 | 26 | 26 | 25 | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 |
| MeshTweenSplitSp | 26 | 25 | 26 | 26 | 26 | 26 | 26 | 25 | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 |
| StepTweenAlt | 26 | 25 | 26 | 26 | 26 | 27 | 27 | 25 | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 |
| StepTweenSplit | 26 | 25 | 26 | 26 | 26 | 26 | 26 | 25 | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 |
| TweenAlt | 26 | 25 | 26 | 26 | 27 | 27 | 27 | 25 | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 |
| TweenSplit | 26 | 25 | 26 | 26 | 26 | 26 | 26 | 25 | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 |
| TweenSplitFastPr | 26 | 25 | 26 | 26 | 26 | 26 | 26 | 25 | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 26 | 25 | 26 | 26 | 26 | 26 | 26 | 25 | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 26 | 26 | 26 | 26 | 26 | 25 | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 26 | 26 | 26 | 26 | 26 | 25 | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitSparse | 26 | 25 | 26 | 26 | 26 | 26 | 26 | 25 | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 |
| sgd | 26 | 25 | 26 | 26 | 26 | 26 | 26 | 25 | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 |
| step_sgd | 26 | 25 | 26 | 26 | 26 | 26 | 26 | 25 | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 |
| step_tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween_chain | 26 | 25 | 26 | 26 | 26 | 26 | 26 | 25 | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 |
| tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween_chain | 26 | 25 | 26 | 26 | 26 | 26 | 26 | 25 | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 17-32)

## Honesty - mean SoftAcc, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenAlt | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenChain | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplit | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenAlt | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenSplit | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenAlt | 25 | 25 | 25 | 27 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplit | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitFastPr | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitSparse | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| sgd | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_sgd | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween_chain | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween_chain | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 33-34)

## Honesty - mean SoftAcc, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 25 | 25 |
| MeshTween | 25 | 25 |
| MeshTweenAlt | 25 | 25 |
| MeshTweenChain | 25 | 25 |
| MeshTweenSplit | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 |
| StepTweenAlt | 25 | 25 |
| StepTweenSplit | 25 | 25 |
| TweenAlt | 25 | 25 |
| TweenSplit | 25 | 25 |
| TweenSplitFastPr | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 |
| TweenSplitLinear | 25 | 25 |
| TweenSplitLinear | 25 | 25 |
| TweenSplitSparse | 25 | 25 |
| sgd | 25 | 25 |
| step_sgd | 25 | 25 |
| step_tween | 25 | 25 |
| step_tween_chain | 25 | 25 |
| tween | 25 | 25 |
| tween_chain | 25 | 25 |

## Mean Score, every mode x arch

## Mean Score, every mode x arch

| | bicamera | singlex1 | tricamer |
|---|---|---|---|
| MeshBP | 13852 | 43216 | 11219 |
| MeshTween | 13147 | 40287 | 10752 |
| MeshTweenAlt | 10799 | 35100 | 9135 |
| MeshTweenChain | 13289 | 40973 | 10861 |
| MeshTweenSplit | 14545 | 41351 | 12014 |
| MeshTweenSplitFa | 14715 | 41270 | 12150 |
| MeshTweenSplitSp | 14864 | 41402 | 12512 |
| StepTweenAlt | 10384 | 34608 | 8269 |
| StepTweenSplit | 13378 | 39761 | 11022 |
| TweenAlt | 11211 | 35989 | 9059 |
| TweenSplit | 14727 | 42025 | 12289 |
| TweenSplitFastPr | 14570 | 41284 | 12137 |
| TweenSplitHeadPr | 14632 | 41562 | 12182 |
| TweenSplitHeadPr | 14471 | 40661 | 12142 |
| TweenSplitLinear | 13700 | 40480 | 11322 |
| TweenSplitLinear | 14596 | 41384 | 12087 |
| TweenSplitSparse | 14897 | 41523 | 12605 |
| sgd | 15924 | 48698 | 13107 |
| step_sgd | 14727 | 46688 | 11907 |
| step_tween | 13548 | 42941 | 10821 |
| step_tween_chain | 12983 | 42047 | 9735 |
| tween | 15632 | 46870 | 12809 |
| tween_chain | 15482 | 47889 | 12583 |

## Mean hard Acc, every mode x arch

## Mean hard Acc, every mode x arch

| | bicamera | singlex1 | tricamer |
|---|---|---|---|
| MeshBP | 27 | 34 | 27 |
| MeshTween | 25 | 30 | 25 |
| MeshTweenAlt | 27 | 31 | 27 |
| MeshTweenChain | 26 | 34 | 27 |
| MeshTweenSplit | 26 | 30 | 26 |
| MeshTweenSplitFa | 26 | 33 | 26 |
| MeshTweenSplitSp | 26 | 33 | 26 |
| StepTweenAlt | 27 | 31 | 27 |
| StepTweenSplit | 26 | 31 | 26 |
| TweenAlt | 27 | 31 | 27 |
| TweenSplit | 26 | 31 | 26 |
| TweenSplitFastPr | 26 | 33 | 26 |
| TweenSplitHeadPr | 26 | 33 | 26 |
| TweenSplitHeadPr | 25 | 31 | 25 |
| TweenSplitLinear | 26 | 32 | 26 |
| TweenSplitLinear | 25 | 26 | 25 |
| TweenSplitSparse | 26 | 33 | 26 |
| sgd | 27 | 34 | 27 |
| step_sgd | 27 | 34 | 27 |
| step_tween | 25 | 30 | 25 |
| step_tween_chain | 27 | 34 | 26 |
| tween | 25 | 30 | 25 |
| tween_chain | 27 | 34 | 27 |

## Mean Score, every layer x mode  (cols 1-16)

## Mean Score, every layer x mode (cols 1-16)

| | MeshBP | MeshTwee | MeshTwee | MeshTwee | MeshTwee | MeshTwee | MeshTwee | StepTwee | StepTwee | TweenAlt | TweenSpl | TweenSpl | TweenSpl | TweenSpl | TweenSpl | TweenSpl |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| cnn1 | 6893 | 5226 | 4040 | 6413 | 6313 | 6771 | 6849 | 3711 | 5513 | 4275 | 6433 | 7037 | 7014 | 6681 | 5728 | 5872 |
| cnn2 | 2894 | 2117 | 1565 | 2647 | 3014 | 2995 | 3093 | 1390 | 2456 | 1664 | 3097 | 3101 | 3104 | 2907 | 2256 | 2556 |
| cnn3 | 13144 | 11085 | 9733 | 12455 | 13149 | 12997 | 13193 | 9097 | 11912 | 10186 | 13565 | 13495 | 13559 | 12628 | 11962 | 12260 |
| convt1 | 20639 | 19455 | 15900 | 19713 | 20497 | 19807 | 20649 | 15346 | 18895 | 16078 | 20417 | 20283 | 20412 | 20020 | 19087 | 20353 |
| convt2 | 6805 | 6215 | 4986 | 6535 | 7341 | 7158 | 7212 | 4742 | 6425 | 5163 | 7317 | 7021 | 7162 | 6897 | 6701 | 7283 |
| convt3 | 5683 | 5425 | 4324 | 5634 | 6090 | 6135 | 6629 | 3956 | 5241 | 4483 | 6055 | 6145 | 6161 | 6019 | 5762 | 6237 |
| dense | 58072 | 57179 | 51303 | 56750 | 57362 | 61177 | 69926 | 51009 | 56525 | 52951 | 58370 | 57983 | 58875 | 57475 | 58100 | 58816 |
| embedding | 15074 | 13861 | 11304 | 14272 | 15168 | 14687 | 14300 | 10862 | 13824 | 11420 | 15230 | 14265 | 14397 | 14177 | 13648 | 14796 |
| gdn | 2253 | 2014 | 1065 | 2075 | 2290 | 2190 | 2966 | 938 | 1946 | 1188 | 2519 | 2438 | 2522 | 2367 | 2275 | 2472 |
| kmeans | 55893 | 53174 | 47974 | 54027 | 57036 | 57015 | 55039 | 47259 | 54089 | 48842 | 56954 | 56430 | 56977 | 56528 | 55467 | 57276 |
| layernorm | 38312 | 35600 | 29809 | 36094 | 36136 | 36193 | 35568 | 29169 | 34775 | 30550 | 37311 | 36611 | 36793 | 36367 | 35502 | 36372 |
| lstm | 434 | 365 | 188 | 412 | 536 | 542 | 695 | 155 | 372 | 188 | 546 | 565 | 558 | 567 | 329 | 540 |
| mamba | 717 | 608 | 358 | 670 | 889 | 870 | 1027 | 295 | 629 | 354 | 903 | 901 | 880 | 903 | 578 | 867 |
| metacognition | 41569 | 39136 | 33195 | 39640 | 41298 | 40021 | 40036 | 32482 | 39390 | 34516 | 42138 | 41409 | 41303 | 40573 | 39546 | 41404 |
| mha | 747 | 629 | 352 | 710 | 907 | 891 | 1095 | 287 | 636 | 364 | 951 | 927 | 944 | 914 | 626 | 913 |
| parallel | 26919 | 25655 | 22139 | 25998 | 28975 | 29260 | 29130 | 20922 | 26811 | 22274 | 29260 | 29123 | 29099 | 29257 | 27808 | 29152 |
| residual | 39584 | 37727 | 32057 | 37240 | 38092 | 38428 | 37428 | 31314 | 37056 | 32994 | 39581 | 38878 | 38696 | 38384 | 38283 | 39208 |
| rmsnorm | 37180 | 34605 | 29364 | 35103 | 36029 | 35895 | 35114 | 27810 | 34046 | 29770 | 36681 | 35805 | 35969 | 35446 | 34578 | 35828 |
| rnn | 2352 | 1999 | 1288 | 2321 | 2416 | 2850 | 3423 | 1131 | 1935 | 1340 | 2430 | 2768 | 2788 | 2513 | 1910 | 2507 |
| sequential | 30361 | 29018 | 24333 | 28643 | 30748 | 30546 | 30078 | 22896 | 28925 | 24633 | 31229 | 30458 | 30671 | 30444 | 30550 | 30863 |
| softmax | 55953 | 52702 | 46471 | 52416 | 53395 | 52768 | 50814 | 45577 | 51757 | 47295 | 54957 | 52989 | 53345 | 52521 | 52410 | 53583 |
| swiglu | 19388 | 18087 | 15058 | 18744 | 20576 | 20546 | 20741 | 13914 | 18491 | 14990 | 20460 | 20331 | 20527 | 20286 | 18259 | 20381 |

## Mean Score, every layer x mode (cols 17-23)

| | TweenSpl | sgd | step_sgd | step_twe | step_twe | tween | tween_ch |
|---|---|---|---|---|---|---|---|
| cnn1 | 7144 | 8205 | 7258 | 5476 | 6413 | 6464 | 7751 |
| cnn2 | 3238 | 3523 | 2931 | 2117 | 2531 | 2726 | 3337 |
| cnn3 | 13830 | 15574 | 13939 | 11481 | 12270 | 13563 | 14893 |
| convt1 | 21062 | 22893 | 21068 | 19800 | 19850 | 21947 | 22544 |
| convt2 | 7409 | 8044 | 7273 | 6503 | 6007 | 7555 | 7801 |
| convt3 | 6504 | 6720 | 5978 | 5082 | 5104 | 6099 | 6210 |
| dense | 58479 | 67518 | 64721 | 57518 | 56164 | 63866 | 62722 |
| embedding | 14870 | 17302 | 16696 | 14654 | 14749 | 17034 | 16742 |
| gdn | 3049 | 2095 | 1793 | 1662 | 1750 | 2171 | 2236 |
| kmeans | 56677 | 66092 | 63013 | 56935 | 49691 | 64354 | 63756 |
| layernorm | 36764 | 41212 | 39111 | 38028 | 37776 | 40807 | 42392 |
| lstm | 721 | 492 | 366 | 305 | 335 | 430 | 483 |
| mamba | 1056 | 822 | 602 | 520 | 556 | 727 | 811 |
| metacognition | 41456 | 48319 | 45228 | 41537 | 40649 | 46530 | 46291 |
| mha | 1117 | 593 | 442 | 497 | 548 | 605 | 770 |
| parallel | 29516 | 31952 | 29756 | 26663 | 22619 | 31209 | 30799 |
| residual | 38590 | 42774 | 40507 | 40282 | 39184 | 43398 | 43750 |
| rmsnorm | 36712 | 42664 | 40710 | 36537 | 36311 | 41269 | 41200 |
| rnn | 2913 | 2755 | 2281 | 1735 | 1979 | 2175 | 2512 |
| sequential | 31209 | 34597 | 33225 | 30479 | 29703 | 34720 | 33799 |
| softmax | 53243 | 59570 | 57427 | 56964 | 55617 | 60115 | 61464 |
| swiglu | 21251 | 23185 | 21385 | 18665 | 15879 | 22256 | 22330 |

## Mean hard Acc, every layer x mode (cols 1-16)

## Mean hard Acc, every layer x mode (cols 1-16)

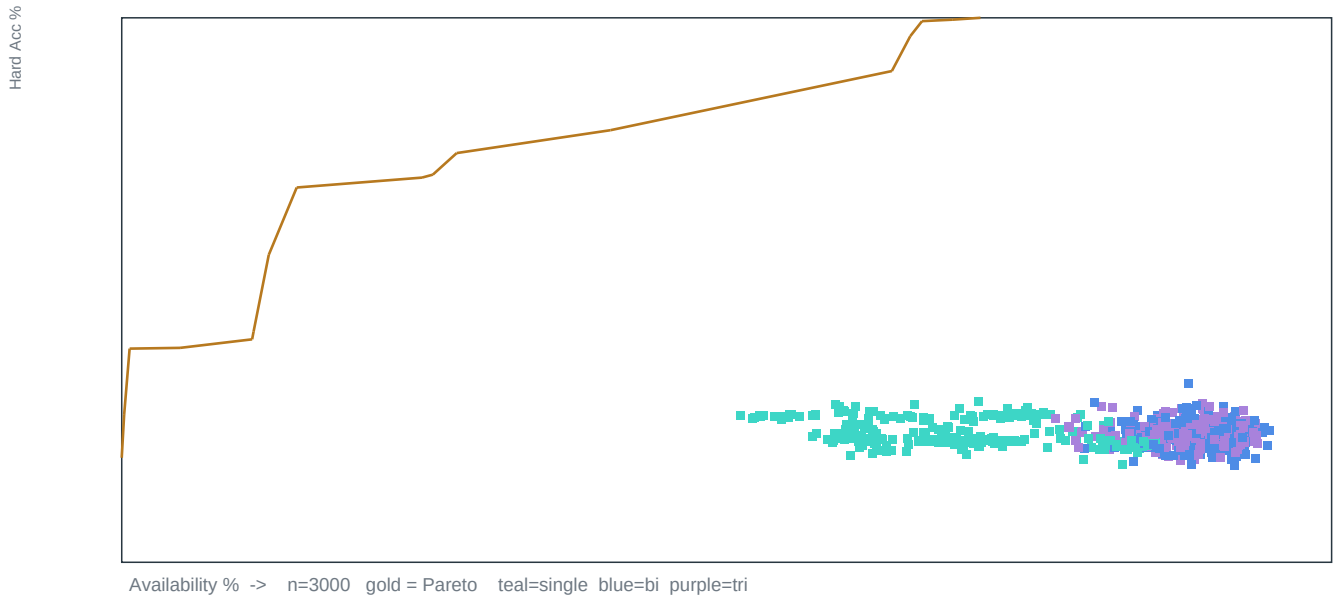
| | MeshBP | MeshTwee | MeshTwee | MeshTwee | MeshTwee | MeshTwee | MeshTwee | StepTwee | StepTwee | TweenAlt | TweenSpl | TweenSpl | TweenSpl | TweenSpl | TweenSpl | TweenSpl |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| cnn1 | 50 | 36 | 43 | 50 | 39 | 43 | 45 | 42 | 38 | 43 | 39 | 47 | 44 | 39 | 42 | 30 |
| cnn2 | 49 | 34 | 47 | 48 | 44 | 43 | 44 | 48 | 45 | 49 | 47 | 43 | 44 | 39 | 42 | 26 |
| cnn3 | 40 | 31 | 39 | 38 | 34 | 35 | 36 | 40 | 35 | 41 | 35 | 36 | 37 | 33 | 33 | 25 |
| convt1 | 26 | 25 | 26 | 25 | 25 | 25 | 25 | 26 | 26 | 26 | 26 | 25 | 25 | 25 | 25 | 25 |
| convt2 | 25 | 25 | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 26 | 25 | 25 | 26 | 25 | 25 | 25 |
| convt3 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| dense | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| embedding | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| gdn | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| kmeans | 25 | 25 | 26 | 26 | 26 | 25 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 25 | 25 | 25 |
| layernorm | 30 | 26 | 27 | 29 | 26 | 27 | 26 | 26 | 26 | 26 | 26 | 27 | 26 | 26 | 28 | 25 |
| lstm | 26 | 27 | 25 | 26 | 25 | 25 | 26 | 25 | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 |
| mamba | 25 | 25 | 25 | 25 | 25 | 26 | 25 | 25 | 26 | 26 | 26 | 25 | 25 | 25 | 25 | 25 |
| metacognition | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| mha | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 26 | 25 |
| parallel | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| residual | 25 | 25 | 26 | 25 | 25 | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| rmsnorm | 30 | 26 | 27 | 29 | 27 | 27 | 27 | 27 | 27 | 28 | 27 | 26 | 27 | 27 | 28 | 25 |
| rnn | 38 | 33 | 30 | 38 | 29 | 35 | 35 | 30 | 30 | 31 | 30 | 36 | 36 | 30 | 34 | 25 |
| sequential | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| softmax | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 26 | 25 | 26 | 25 |
| swiglu | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |

## Mean hard Acc, every layer x mode (cols 17-23)

| | TweenSpl | sgd | step_sgd | step_twe | step_twe | tween | tween_ch |
|---|---|---|---|---|---|---|---|
| cnn1 | 46 | 51 | 49 | 36 | 49 | 35 | 51 |
| cnn2 | 43 | 48 | 48 | 34 | 48 | 35 | 48 |
| cnn3 | 37 | 39 | 37 | 31 | 37 | 31 | 39 |
| convt1 | 25 | 25 | 26 | 25 | 25 | 25 | 25 |
| convt2 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| convt3 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| dense | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| embedding | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| gdn | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| kmeans | 26 | 26 | 26 | 25 | 26 | 25 | 26 |
| layernorm | 27 | 29 | 29 | 26 | 29 | 26 | 29 |
| lstm | 25 | 25 | 26 | 25 | 26 | 26 | 27 |
| mamba | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| metacognition | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| mha | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| parallel | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| residual | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| rmsnorm | 27 | 29 | 29 | 27 | 29 | 26 | 29 |
| rnn | 35 | 38 | 39 | 31 | 37 | 32 | 39 |
| sequential | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| softmax | 25 | 25 | 26 | 26 | 25 | 26 | 26 |
| swiglu | 25 | 25 | 25 | 24 | 25 | 25 | 26 |

## Avail vs hard Acc (headline scatter)

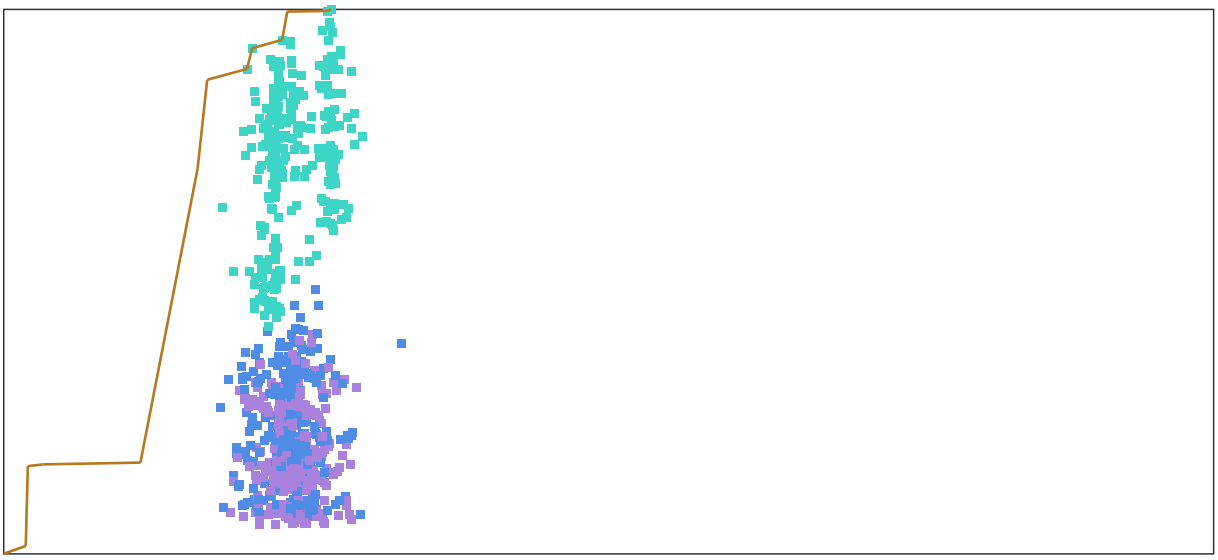
## Avail vs hard Acc (headline scatter)




## Pareto - SoftAcc vs Score



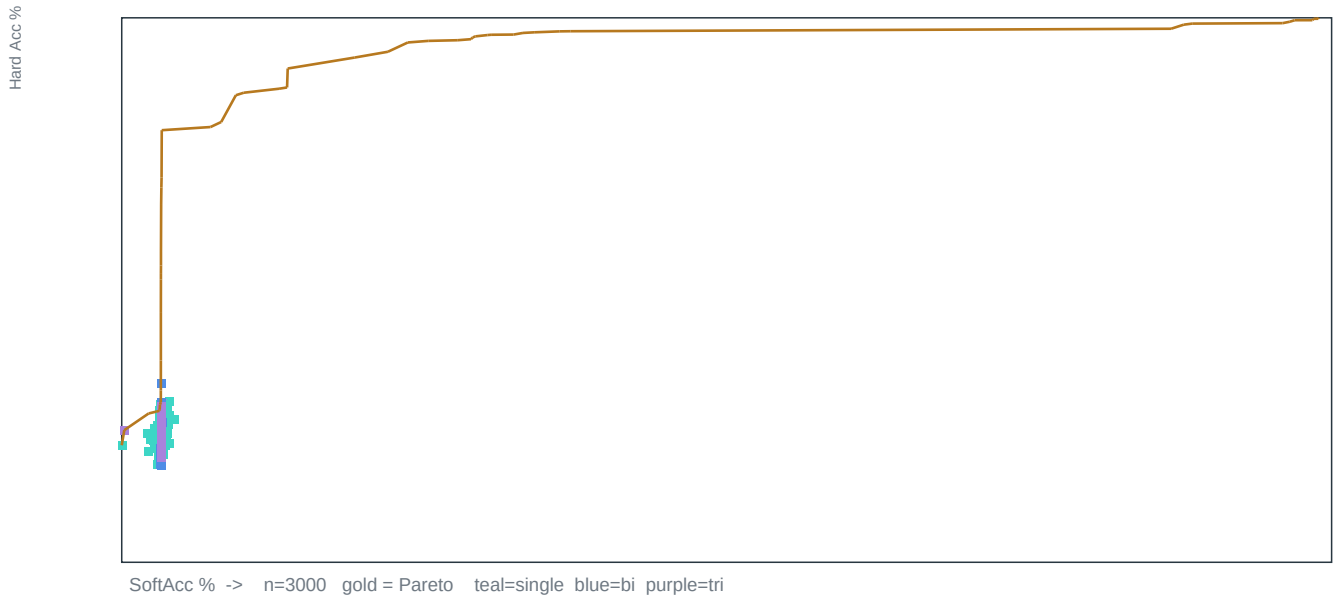

## Pareto - hard Acc vs Score



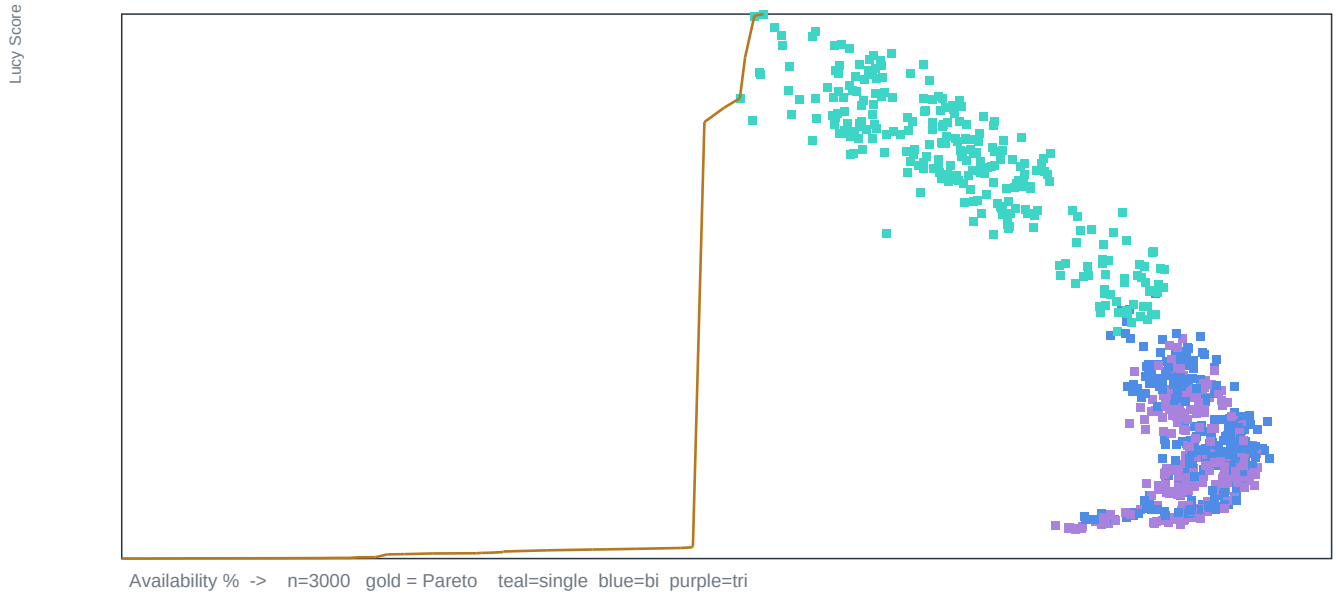
Hard Acc %  ->  n=3000  gold = Pareto  teal=single  blue=bi  purple=tri

Lucy Score

## SoftAcc vs hard Acc




## Avail vs Score (duty clock)




## Lucy Pareto (LPD) - goldilocks

Q = geomean of Score/Soft/Acc/Thru vs the Lucy Score champion. LPD = 0 if Q<70%, else Q x shrink vs champ RAM (capped 32x). Gold = Q>=80% and RAM<=20% of champ. MSpeed = Thru vs the board's fastest (0 if Q<70%). MAvail = Availability vs the board's best duty cycle (0 if Q<70%). Mix = geomean(Q, MSpeed, MAvail). Raw Score/MiB is the binary trap.

Quality champ float32|none|sgd|single|simd Score 161402.9 Soft 25 Acc 28 Thru 1921380 RAM 0.1 KiB

Board fastest float32|none|step_sgd|single|simd Thru 1929001 Best availability uint5|none|MeshTweenSplitSparse|bicameral|simd 47.6%

## Gold - Q >= 80% of champ, RAM <= 20%

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| gold | binary\|none\|MeshTweenSplitSparse\|single\|simd | 95 | 3 | 32.0 | 30.32 | 25 | 25 | 159730.6 | 0.0 |
| gold | binary\|none\|step_sgd\|single\|simd | 90 | 3 | 32.0 | 28.93 | 25 | 25 | 145502.6 | 0.0 |
| gold | binary\|none\|tween_chain\|single\|simd | 90 | 3 | 32.0 | 28.73 | 25 | 27 | 138171.8 | 0.0 |
| gold | binary\|none\|sgd\|single\|simd | 88 | 3 | 32.0 | 28.31 | 25 | 22 | 149856.4 | 0.0 |
| gold | binary\|none\|tween\|single\|simd | 88 | 3 | 32.0 | 28.30 | 25 | 24 | 142635.4 | 0.0 |
| gold | binary\|none\|TweenSplitHeadProxy\|single\|simd | 88 | 3 | 32.0 | 28.26 | 25 | 30 | 132015.7 | 0.0 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| gold | binary\|none\|sgd\|single\|simd | 88 | 3 | 32.0 | 28.06 | 25 | 27 | 136936.4 | 0.0 |
| gold | binary\|none\|tween\|single\|simd | 87 | 3 | 32.0 | 27.70 | 25 | 28 | 129446.2 | 0.0 |
| gold | binary\|none\|tween_chain\|single\|simd | 86 | 3 | 32.0 | 27.61 | 25 | 26 | 133746.8 | 0.0 |
| gold | binary\|none\|TweenSplitFastProxy\|single\|simd | 86 | 3 | 32.0 | 27.50 | 25 | 26 | 130612.1 | 0.0 |
| gold | binary\|none\|step_tween\|single\|simd | 85 | 3 | 32.0 | 27.19 | 25 | 25 | 126308.5 | 0.0 |
| gold | binary\|none\|sgd\|single\|simd | 85 | 3 | 32.0 | 27.19 | 25 | 27 | 128777.4 | 0.0 |
| gold | binary\|none\|MeshTween\|single\|simd | 84 | 3 | 32.0 | 26.94 | 25 | 26 | 124655.4 | 0.0 |
| gold | binary\|none\|StepTweenSplit\|single\|simd | 83 | 3 | 32.0 | 26.71 | 25 | 25 | 123580.4 | 0.0 |
| gold | binary\|none\|MeshTweenChain\|single\|simd | 83 | 3 | 32.0 | 26.67 | 25 | 25 | 123156.0 | 0.0 |
| gold | binary\|none\|step_sgd\|single\|simd | 83 | 3 | 32.0 | 26.60 | 25 | 26 | 125288.6 | 0.0 |

## Near-gold - Q >= 70%, RAM <= 50%

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| near | binary\|none\|tween\|single\|simd | 80 | 3 | 32.0 | 25.57 | 25 | 21 | 129202.9 | 0.0 |
| near | binary\|none\|MeshTweenSplitFastProxy\|single\|simd | 80 | 3 | 32.0 | 25.55 | 25 | 25 | 118930.6 | 0.0 |
| near | binary\|none\|MeshBP\|single\|simd | 80 | 3 | 32.0 | 25.55 | 25 | 27 | 112702.3 | 0.0 |
| near | binary\|none\|MeshTween\|single\|simd | 79 | 3 | 32.0 | 25.40 | 25 | 26 | 112015.6 | 0.0 |
| near | binary\|none\|TweenSplit\|single\|simd | 79 | 3 | 32.0 | 25.36 | 25 | 26 | 112624.9 | 0.0 |
| near | binary\|none\|TweenSplitLinearCache\|single\|simd | 79 | 3 | 32.0 | 25.36 | 25 | 25 | 115462.0 | 0.0 |
| near | binary\|none\|MeshTweenSplitFastProxy\|single\|simd | 79 | 3 | 32.0 | 25.28 | 25 | 22 | 122311.9 | 0.0 |
| near | binary\|none\|TweenSplitHeadProxyAsync\|single\|simd | 79 | 3 | 32.0 | 25.21 | 25 | 30 | 107955.9 | 0.0 |
| near | binary\|none\|step_tween_chain\|single\|simd | 79 | 3 | 32.0 | 25.19 | 25 | 23 | 118661.8 | 0.0 |
| near | binary\|none\|TweenSplitLinearCache\|single\|simd | 79 | 3 | 32.0 | 25.14 | 25 | 24 | 115669.5 | 0.0 |
| near | binary\|none\|TweenSplitFastProxy\|single\|simd | 78 | 3 | 32.0 | 25.11 | 25 | 24 | 114378.4 | 0.0 |
| near | binary\|none\|MeshTweenSplitSparse\|single\|simd | 78 | 3 | 32.0 | 24.90 | 25 | 30 | 104873.3 | 0.0 |

## LPD rank (Q x shrink; 0 if Q < 70%)

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| gold | binary\|none\|MeshTweenSplitSparse\|single\|simd | 95 | 3 | 32.0 | 30.32 | 25 | 25 | 159730.6 | 0.0 |
| gold | binary\|none\|step_sgd\|single\|simd | 90 | 3 | 32.0 | 28.93 | 25 | 25 | 145502.6 | 0.0 |
| gold | binary\|none\|tween_chain\|single\|simd | 90 | 3 | 32.0 | 28.73 | 25 | 27 | 138171.8 | 0.0 |
| gold | binary\|none\|sgd\|single\|simd | 88 | 3 | 32.0 | 28.31 | 25 | 22 | 149856.4 | 0.0 |
| gold | binary\|none\|tween\|single\|simd | 88 | 3 | 32.0 | 28.30 | 25 | 24 | 142635.4 | 0.0 |
| gold | binary\|none\|TweenSplitHeadProxy\|single\|simd | 88 | 3 | 32.0 | 28.26 | 25 | 30 | 132015.7 | 0.0 |
| gold | binary\|none\|sgd\|single\|simd | 88 | 3 | 32.0 | 28.06 | 25 | 27 | 136936.4 | 0.0 |
| gold | binary\|none\|tween\|single\|simd | 87 | 3 | 32.0 | 27.70 | 25 | 28 | 129446.2 | 0.0 |
| gold | binary\|none\|tween_chain\|single\|simd | 86 | 3 | 32.0 | 27.61 | 25 | 26 | 133746.8 | 0.0 |
| gold | binary\|none\|TweenSplitFastProxy\|single\|simd | 86 | 3 | 32.0 | 27.50 | 25 | 26 | 130612.1 | 0.0 |
| gold | binary\|none\|step_tween\|single\|simd | 85 | 3 | 32.0 | 27.19 | 25 | 25 | 126308.5 | 0.0 |
| gold | binary\|none\|sgd\|single\|simd | 85 | 3 | 32.0 | 27.19 | 25 | 27 | 128777.4 | 0.0 |
| gold | binary\|none\|MeshTween\|single\|simd | 84 | 3 | 32.0 | 26.94 | 25 | 26 | 124655.4 | 0.0 |
| gold | binary\|none\|StepTweenSplit\|single\|simd | 83 | 3 | 32.0 | 26.71 | 25 | 25 | 123580.4 | 0.0 |
| gold | binary\|none\|MeshTweenChain\|single\|simd | 83 | 3 | 32.0 | 26.67 | 25 | 25 | 123156.0 | 0.0 |
| gold | binary\|none\|step_sgd\|single\|simd | 83 | 3 | 32.0 | 26.60 | 25 | 26 | 125288.6 | 0.0 |
| gold | binary\|none\|StepTweenAlt\|single\|simd | 83 | 3 | 32.0 | 26.52 | 25 | 28 | 115310.4 | 0.0 |
| gold | binary\|none\|MeshBP\|single\|simd | 83 | 3 | 32.0 | 26.47 | 25 | 23 | 127483.4 | 0.0 |
| gold | binary\|none\|MeshTweenAlt\|single\|simd | 83 | 3 | 32.0 | 26.41 | 25 | 24 | 122810.5 | 0.0 |
| gold | binary\|none\|tween_chain\|single\|simd | 82 | 3 | 32.0 | 26.38 | 25 | 25 | 126211.4 | 0.0 |

## Mobile speed - Thru vs board fastest (Q >= 70%)

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| keep | float32\|none\|step_sgd\|single\|simd | 100 | 100 | 70 | 89 | 1.00 | 1929001 | 33.4 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| keep | float32\|none\|sgd\|single\|simd | 100 | 100 | 71 | 89 | 1.00 | 1921380 | 33.6 |
| keep | float32\|none\|tween_chain\|single\|simd | 98 | 97 | 71 | 88 | 0.98 | 1861900 | 33.9 |
| near | float16\|none\|MeshTweenSplitSparse\|single\|simd | 98 | 96 | 72 | 88 | 1.97 | 1847118 | 34.1 |
| keep | float32\|none\|tween\|single\|simd | 97 | 95 | 71 | 87 | 0.97 | 1825857 | 34.1 |
| near | uint8\|none\|MeshTweenSplitSparse\|single\|simd | 95 | 94 | 74 | 87 | 3.39 | 1817796 | 35.4 |
| gold | fp4\|none\|MeshTweenSplitSparse\|single\|simd | 95 | 94 | 74 | 87 | 7.63 | 1807862 | 35.3 |
| near | float16\|none\|tween_chain\|single\|simd | 97 | 93 | 73 | 87 | 1.95 | 1795421 | 34.9 |
| keep | float32\|none\|MeshTweenSplitSparse\|single\|simd | 96 | 93 | 70 | 85 | 0.96 | 1790441 | 33.2 |
| near | float16\|none\|step_sgd\|single\|simd | 97 | 93 | 72 | 86 | 1.93 | 1789970 | 34.1 |

## Mobile availability - duty cycle vs board best (Q >= 70%)

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| near | int3\|none\|tween_chain\|single\|simd | 72 | 46 | 90 | 67 | 7.64 | 893671 | 43.0 |
| near | uint3\|none\|TweenSplit\|single\|simd | 70 | 44 | 90 | 65 | 5.60 | 846527 | 42.8 |
| near | int4\|none\|MeshTweenSplitFastProxy\|single\|simd | 73 | 48 | 89 | 68 | 1.94 | 919575 | 42.4 |
| - | bfloat16\|none\|sgd\|single\|simd | 71 | 45 | 89 | 66 | 0.47 | 860062 | 42.3 |
| - | uint8\|none\|TweenSplit\|single\|simd | 70 | 46 | 88 | 66 | 0.87 | 884967 | 42.1 |
| - | bfloat16\|none\|tween\|single\|simd | 71 | 45 | 88 | 65 | 0.47 | 861509 | 42.1 |
| near | uint3\|none\|tween_chain\|single\|simd | 73 | 48 | 88 | 68 | 5.87 | 930080 | 42.1 |
| - | int8\|none\|TweenSplit\|single\|simd | 70 | 45 | 88 | 66 | 0.94 | 876678 | 42.0 |
| near | ternary\|none\|tween_chain\|single\|simd | 72 | 46 | 88 | 66 | 3.82 | 878633 | 42.0 |
| - | float64\|none\|sgd\|single\|simd | 72 | 47 | 88 | 67 | 0.12 | 910791 | 42.0 |

## Mix - geomean of Q, MSpeed, MAvail

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| keep | float32\|none\|sgd\|single\|simd | 100 | 100 | 71 | 89 | 1.00 | 1921380 | 33.6 |
| keep | float32\|none\|step_sgd\|single\|simd | 100 | 100 | 70 | 89 | 1.00 | 1929001 | 33.4 |
| keep | float32\|none\|tween_chain\|single\|simd | 98 | 97 | 71 | 88 | 0.98 | 1861900 | 33.9 |
| near | float16\|none\|MeshTweenSplitSparse\|single\|simd | 98 | 96 | 72 | 88 | 1.97 | 1847118 | 34.1 |
| near | uint8\|none\|MeshTweenSplitSparse\|single\|simd | 95 | 94 | 74 | 87 | 3.39 | 1817796 | 35.4 |
| near | float16\|none\|tween_chain\|single\|simd | 97 | 93 | 73 | 87 | 1.95 | 1795421 | 34.9 |
| gold | fp4\|none\|MeshTweenSplitSparse\|single\|simd | 95 | 94 | 74 | 87 | 7.63 | 1807862 | 35.3 |
| near | bfloat16\|none\|MeshTweenSplitSparse\|single\|simd | 97 | 90 | 75 | 87 | 1.94 | 1745144 | 35.9 |
| keep | float32\|none\|tween\|single\|simd | 97 | 95 | 71 | 87 | 0.97 | 1825857 | 34.1 |
| near | float16\|none\|sgd\|single\|simd | 97 | 92 | 73 | 87 | 1.94 | 1780739 | 34.8 |

## Trap - tiny RAM, Q < 70% (why Score/MiB lies)

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| trap | binary\|none\|MeshTweenAlt\|single\|simd | 70 | 3 | 32.0 | 0.00 | 25 | 20 | 99189.9 | 0.0 |
| trap | binary\|none\|sgd\|single\|simd | 35 | 8 | 12.8 | 0.00 | 25 | 16 | 27980.5 | 0.0 |
| trap | binary\|none\|step_sgd\|single\|simd | 35 | 8 | 12.8 | 0.00 | 25 | 19 | 26258.6 | 0.0 |
| trap | binary\|none\|tween\|single\|simd | 40 | 8 | 12.8 | 0.00 | 25 | 30 | 27851.9 | 0.0 |
| trap | binary\|none\|tween_chain\|single\|simd | 40 | 8 | 12.8 | 0.00 | 26 | 39 | 28559.7 | 0.0 |
| trap | binary\|none\|step_tween\|single\|simd | 34 | 8 | 12.8 | 0.00 | 24 | 20 | 23677.3 | 0.0 |
| trap | binary\|none\|step_tween_chain\|single\|simd | 36 | 8 | 12.8 | 0.00 | 25 | 31 | 23219.6 | 0.0 |
| trap | binary\|none\|MeshBP\|single\|simd | 32 | 8 | 12.8 | 0.00 | 25 | 16 | 24234.8 | 0.0 |
| trap | binary\|none\|MeshTween\|single\|simd | 35 | 8 | 12.8 | 0.00 | 25 | 26 | 23051.7 | 0.0 |
| trap | binary\|none\|MeshTweenChain\|single\|simd | 34 | 8 | 12.8 | 0.00 | 25 | 23 | 22035.9 | 0.0 |

## LPD - Q% vs RAM KiB (gold = high Q, low RAM)

## LPD - Q% vs RAM KiB (gold = high Q, low RAM)




## LPD - Q% vs shrink vs champ (gold = upper right)




## Top LPD


binary|none|MeshTweenSplitSparse|single|simd
30.3
binary|none|step_sgd|single|simd
28.9
binary|none|tween_chain|single|simd
28.7
binary|none|sgd|single|simd
28.3
binary|none|tween|single|simd
28.3
binary|none|TweenSplitHeadProxy|single|simd
28.3
binary|none|sgd|single|simd
28.1
binary|none|tween|single|simd
27.7
binary|none|tween_chain|single|simd
27.6
binary|none|TweenSplitFastProxy|single|simd
27.5
binary|none|step_tween|single|simd
27.2
binary|none|sgd|single|simd
27.2
binary|none|MeshTween|single|simd
26.9
binary|none|StepTweenSplit|single|simd
26.7
binary|none|MeshTweenChain|single|simd
26.7
binary|none|step_sgd|single|simd
26.6

# tide  cnn1

Score = Throughput x Availability% x SoftAcc% / 10,000
done  -  epoch 1  -  2026-08-18 09:45:25  -  0.0.0.0:8102
This epoch 2346 / 2346 cells. Recorded 2346 results.
Score 0 usually means the cell finished before a Lucy pulse (SoftAcc never sampled) or true-class mass was 0. Those rows do not vote holistically.
cnn1  -  1D sine freq class, Lucy 1->2->3 switches  -  modes all  -  min 2000ms/cell  -  1024 train  -  pulse 50ms  -  SIMD true

## Lucy champions (this tide)

| Axis | Cell | Score | Soft | Acc | Thru | Avail |
|---|---|---|---|---|---|---|
| score | float32\|none\|sgd\|single\|simd | 43204.49 | 45.3 | 98.8 | 245654.9 | 38.8 |
| throughput | ternary\|none\|sgd\|single\|simd | 27933.40 | 25.1 | 20.4 | 250863.1 | 44.4 |
| availability | complex64\|none\|TweenSplit\|single\|simd | 19725.67 | 33.4 | 87.0 | 127344.1 | 46.4 |
| accuracy | float64\|none\|sgd\|single\|simd | 41610.48 | 45.5 | 98.7 | 202751.3 | 45.1 |
| mobile score (tra | binary\|none\|tween_chain\|single\|simd | 27292.19 | 25.6 | 35.0 | 239899.9 | 44.5 |
| t->50% | int\|none\|sgd\|tricameral\|simd | 277.64 | 25.0 | 52.3 | 3884.9 | 28.6 |
| acc/sec | float64\|none\|sgd\|single\|simd | 41610.48 | 45.5 | 98.7 | 202751.3 | 45.1 |

## Lucy axes - cnn1

| Axis | Mode | DType | Arch | Value |
|---|---|---|---|---|
| score | sgd | float32 | singlex1 | 43204.49 |
| soft_acc | sgd | float64 | singlex1 | 45.52 |
| hard_acc | sgd | float32 | singlex1 | 98.84 |
| throughput | sgd | ternary | singlex1 | 250863.07 |
| availability | TweenSplit | complex64 | singlex1 | 46.40 |
| acc_thru | sgd | float32 | singlex1 | 111258.56 |
| realtime | sgd | ternary | singlex1 | 111297.98 |
| adapt | MeshTweenSplitS~ | int64 | singlex1 | 46.19 |
| keep_learn | MeshTweenSplitF~ | float64 | singlex1 | 20.65 |
| acc_per_sec | sgd | float64 | singlex1 | 22.76 |
| time_to_50 | sgd | int | tricameralx3 | 0.06 |
| consistency | sgd | float64 | singlex1 | 100.00 |
| stability | sgd | fp4 | singlex1 | 100.00 |
| mobile_score | tween_chain | binary | singlex1 | 953931216.95 |
| lpd | sgd | int8 | singlex1 | 3.03 |
| mspeed | sgd | float32 | singlex1 | 0.98 |
| mavail | TweenSplitHeadP~ | int | singlex1 | 0.99 |
| mix | sgd | float32 | singlex1 | 0.94 |

## Best settings per train mode

| Mode | DType | Format | Score | Soft | Acc | Avail | n |
|---|---|---|---|---|---|---|---|
| sgd | float32 | none | 43204.5 | 45.3 | 98.8 | 38.8 | 102 |
| tween_chain | float32 | none | 39679.9 | 45.2 | 98.5 | 38.2 | 102 |
| step_sgd | float32 | none | 39331.1 | 45.1 | 98.0 | 37.6 | 102 |
| step_tween_chain | float32 | none | 36101.7 | 45.2 | 98.2 | 37.4 | 102 |
| MeshBP | float64 | none | 35922.7 | 45.3 | 98.1 | 45.0 | 102 |
| TweenSplitFastProxy | float32 | none | 34968.0 | 43.8 | 98.1 | 38.6 | 102 |
| TweenSplitHeadProxy | float64 | none | 34628.4 | 44.2 | 96.8 | 45.9 | 102 |
| TweenSplitSparse | float64 | none | 34392.4 | 43.3 | 98.3 | 45.7 | 102 |
| MeshTweenChain | float64 | none | 33757.0 | 45.1 | 97.5 | 44.6 | 102 |
| TweenSplitHeadProxyAsync | float64 | none | 32214.2 | 42.5 | 94.4 | 45.5 | 102 |
| MeshTweenSplitFastProxy | float64 | none | 31704.3 | 41.9 | 94.4 | 45.5 | 102 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| MeshTweenSplitSparse | float32 | none | 31394.2 | 41.1 | 84.7 | 39.3 | 102 |
| TweenSplitLinear | float64 | none | 29992.9 | 42.6 | 95.2 | 44.7 | 102 |
| tween | binary | none | 26851.3 | 24.7 | 20.1 | 43.8 | 102 |
| StepTweenSplit | float64 | none | 25137.2 | 33.5 | 88.0 | 44.0 | 102 |
| MeshTweenSplit | ternary | none | 24964.1 | 25.4 | 34.5 | 45.1 | 102 |
| TweenSplit | float64 | none | 24889.5 | 31.8 | 85.0 | 45.6 | 102 |
| TweenSplitLinearCache | int2 | none | 24725.0 | 24.9 | 23.9 | 45.0 | 102 |
| step_tween | float32 | none | 24120.6 | 28.9 | 78.1 | 37.2 | 102 |
| TweenAlt | float64 | none | 23776.9 | 38.5 | 92.5 | 41.5 | 102 |
| StepTweenAlt | float64 | none | 22277.5 | 37.9 | 92.8 | 40.4 | 102 |
| MeshTween | float64 | none | 22250.4 | 30.4 | 80.5 | 43.8 | 102 |
| MeshTweenAlt | float64 | none | 22127.4 | 37.2 | 91.4 | 41.9 | 102 |

## Best dtype per mode

| Mode | Winner dtype | Score | Soft | Acc |
|---|---|---|---|---|
| sgd | float32 | 43204.5 | 45.3 | 98.8 |
| tween_chain | float32 | 39679.9 | 45.2 | 98.5 |
| step_sgd | float32 | 39331.1 | 45.1 | 98.0 |
| step_tween_chain | float32 | 36101.7 | 45.2 | 98.2 |
| MeshBP | float64 | 35922.7 | 45.3 | 98.1 |
| TweenSplitFastProxy | float32 | 34968.0 | 43.8 | 98.1 |
| TweenSplitHeadProxy | float64 | 34628.4 | 44.2 | 96.8 |
| TweenSplitSparse | float64 | 34392.4 | 43.3 | 98.3 |
| MeshTweenChain | float64 | 33757.0 | 45.1 | 97.5 |
| TweenSplitHeadProxyAsync | float64 | 32214.2 | 42.5 | 94.4 |
| MeshTweenSplitFastProxy | float64 | 31704.3 | 41.9 | 94.4 |
| MeshTweenSplitSparse | float32 | 31394.2 | 41.1 | 84.7 |
| TweenSplitLinear | float64 | 29992.9 | 42.6 | 95.2 |
| tween | binary | 26851.3 | 24.7 | 20.1 |
| StepTweenSplit | float64 | 25137.2 | 33.5 | 88.0 |
| MeshTweenSplit | ternary | 24964.1 | 25.4 | 34.5 |
| TweenSplit | float64 | 24889.5 | 31.8 | 85.0 |
| TweenSplitLinearCache | int2 | 24725.0 | 24.9 | 23.9 |
| step_tween | float32 | 24120.6 | 28.9 | 78.1 |
| TweenAlt | float64 | 23776.9 | 38.5 | 92.5 |
| StepTweenAlt | float64 | 22277.5 | 37.9 | 92.8 |
| MeshTween | float64 | 22250.4 | 30.4 | 80.5 |
| MeshTweenAlt | float64 | 22127.4 | 37.2 | 91.4 |

## Best mode per dtype

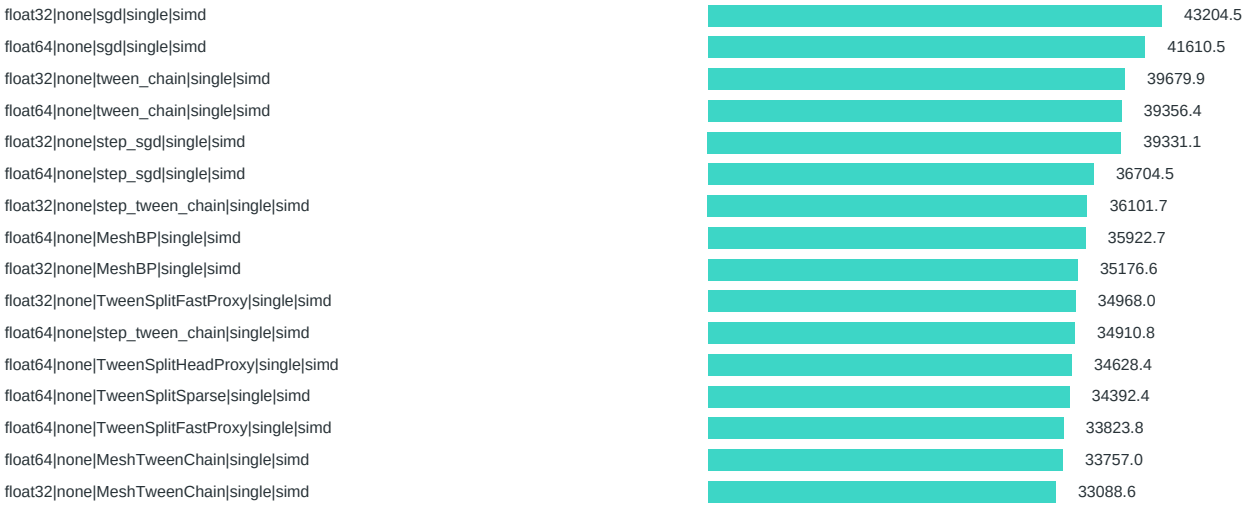
| DType | Winner mode | Score | Soft | Acc |
|---|---|---|---|---|
| float32 | sgd | 43204.5 | 45.3 | 98.8 |
| float64 | sgd | 41610.5 | 45.5 | 98.7 |
| int64 | sgd | 32328.0 | 45.3 | 98.3 |
| bfloat16 | sgd | 32101.9 | 43.1 | 97.8 |
| float16 | sgd | 29993.5 | 44.9 | 98.4 |
| complex64 | sgd | 29061.2 | 45.2 | 98.4 |
| complex128 | sgd | 28533.4 | 45.3 | 98.1 |
| int | sgd | 28187.2 | 45.1 | 98.0 |
| ternary | sgd | 27933.4 | 25.1 | 20.4 |
| int2 | sgd | 27902.1 | 25.3 | 43.4 |
| int4 | sgd | 27420.9 | 24.9 | 28.8 |

| | | | | |
|---|---|---|---|---|
| uint32 | sgd | 27413.7 | 32.6 | 95.6 |
| binary | tween_chain | 27292.2 | 25.6 | 35.0 |
| uint64 | sgd | 26834.0 | 32.2 | 96.3 |
| uint8 | sgd | 26470.7 | 31.5 | 95.7 |
| uint16 | sgd | 25700.4 | 31.7 | 96.2 |
| int8 | sgd | 25503.0 | 31.3 | 94.9 |
| int16 | sgd | 24085.0 | 32.8 | 96.1 |
| int32 | sgd | 23976.0 | 32.3 | 95.9 |
| uintptr | sgd | 22097.7 | 32.1 | 96.2 |
| uint | sgd | 21835.9 | 31.4 | 95.1 |
| uint4 | sgd | 20008.1 | 25.1 | 24.6 |
| uint2 | sgd | 19561.6 | 24.8 | 7.7 |
| fp4 | sgd | 18955.7 | 25.0 | 25.0 |
| fp8e4m3 | sgd | 15283.6 | 25.6 | 51.5 |
| fp8e5m2 | sgd | 14955.3 | 25.4 | 48.1 |
| uint3 | sgd | 12014.2 | 24.8 | 18.4 |
| nf4 | sgd | 11579.7 | 25.0 | 18.2 |
| int3 | sgd | 11468.4 | 25.2 | 34.2 |
| uint6 | sgd | 10495.6 | 29.9 | 92.9 |
| uint5 | sgd | 10214.7 | 26.1 | 69.6 |
| int6 | sgd | 10006.9 | 29.6 | 93.0 |
| int5 | sgd | 9753.1 | 26.0 | 62.8 |
| fp6 | sgd | 7968.4 | 30.5 | 94.1 |

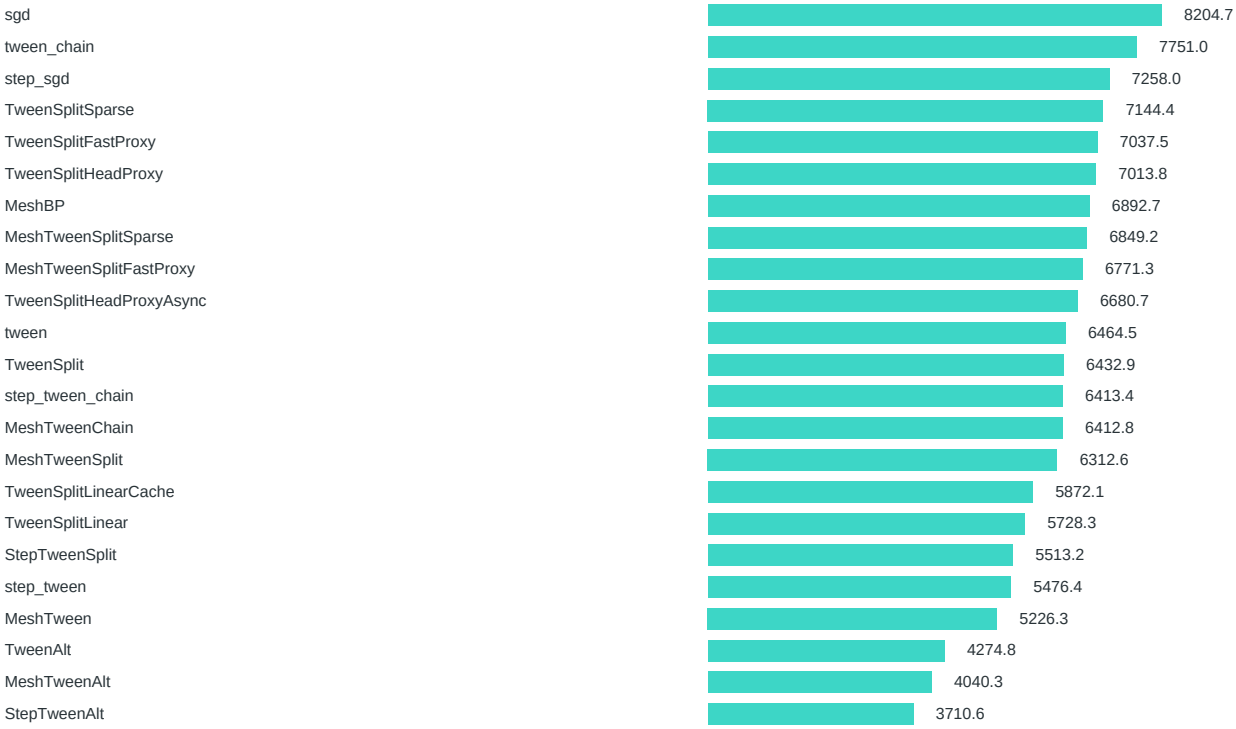
## Leaderboard - cnn1

| # | Cell | Score | Soft | Acc | Thru | Avail |
|---|---|---|---|---|---|---|
| 1 | float32\|none\|sgd\|single\|simd | 43204.5 | 45.3 | 98.8 | 245654.9 | 38.8 |
| 2 | float64\|none\|sgd\|single\|simd | 41610.5 | 45.5 | 98.7 | 202751.3 | 45.1 |
| 3 | float32\|none\|tween_chain\|single\|simd | 39679.9 | 45.2 | 98.5 | 229802.1 | 38.2 |
| 4 | float64\|none\|tween_chain\|single\|simd | 39356.4 | 45.2 | 98.1 | 194276.3 | 44.9 |
| 5 | float32\|none\|step_sgd\|single\|simd | 39331.1 | 45.1 | 98.0 | 231982.5 | 37.6 |
| 6 | float64\|none\|step_sgd\|single\|simd | 36704.5 | 45.3 | 98.2 | 186610.4 | 43.4 |
| 7 | float32\|none\|step_tween_chain\|single\|simd | 36101.7 | 45.2 | 98.2 | 213505.8 | 37.4 |
| 8 | float64\|none\|MeshBP\|single\|simd | 35922.7 | 45.3 | 98.1 | 176489.9 | 45.0 |
| 9 | float32\|none\|MeshBP\|single\|simd | 35176.6 | 45.1 | 98.0 | 203072.9 | 38.4 |
| 10 | float32\|none\|TweenSplitFastProxy\|single\|simd | 34968.0 | 43.8 | 98.1 | 207174.0 | 38.6 |
| 11 | float64\|none\|step_tween_chain\|single\|simd | 34910.8 | 45.3 | 98.7 | 177857.3 | 43.3 |
| 12 | float64\|none\|TweenSplitHeadProxy\|single\|simd | 34628.4 | 44.2 | 96.8 | 170937.5 | 45.9 |
| 13 | float64\|none\|TweenSplitSparse\|single\|simd | 34392.4 | 43.3 | 98.3 | 173502.3 | 45.7 |
| 14 | float64\|none\|TweenSplitFastProxy\|single\|simd | 33823.8 | 44.1 | 98.3 | 167941.0 | 45.7 |
| 15 | float64\|none\|MeshTweenChain\|single\|simd | 33757.0 | 45.1 | 97.5 | 167764.4 | 44.6 |
| 16 | float32\|none\|MeshTweenChain\|single\|simd | 33088.6 | 45.0 | 97.6 | 195424.4 | 37.6 |
| 17 | float32\|none\|TweenSplitHeadProxy\|single\|simd | 32686.1 | 44.2 | 96.9 | 191382.5 | 38.7 |
| 18 | int64\|none\|sgd\|single\|simd | 32328.0 | 45.3 | 98.3 | 158153.0 | 45.1 |
| 19 | float64\|none\|TweenSplitHeadProxyAsync\|single\|simd | 32214.2 | 42.5 | 94.4 | 166511.3 | 45.5 |
| 20 | bfloat16\|none\|sgd\|single\|simd | 32101.9 | 43.1 | 97.8 | 184781.0 | 40.3 |

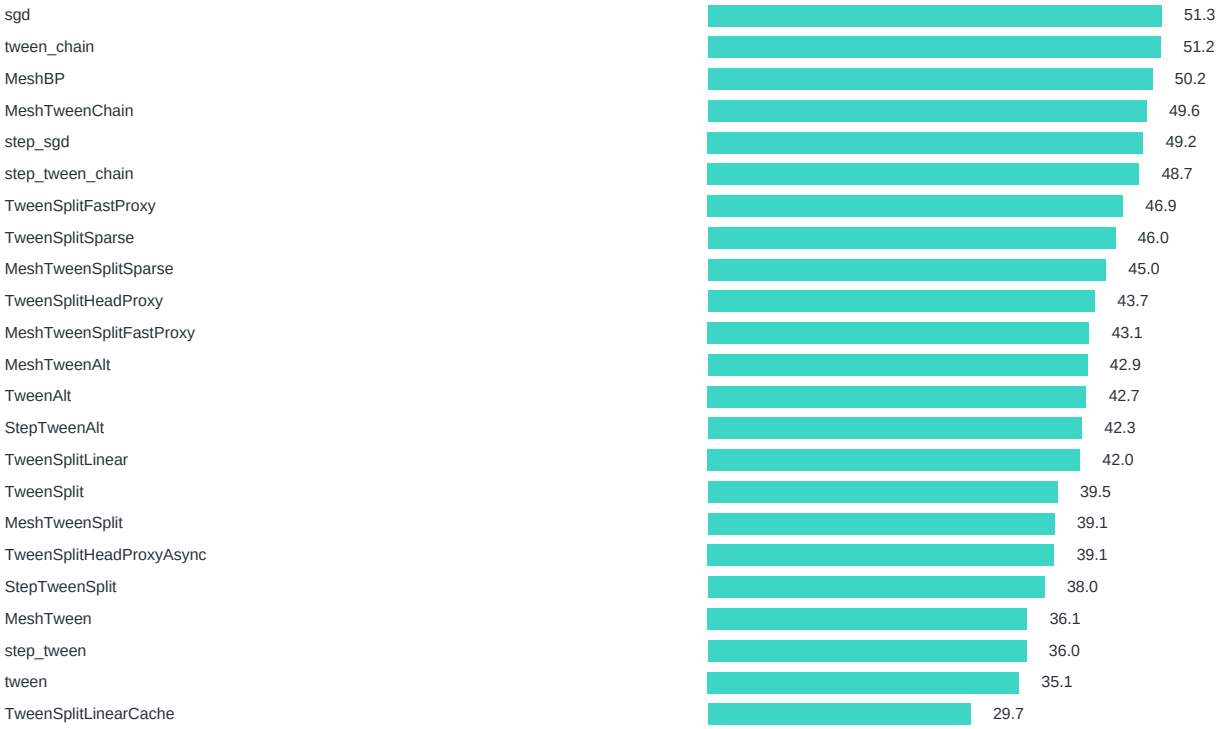
## Top scores - cnn1



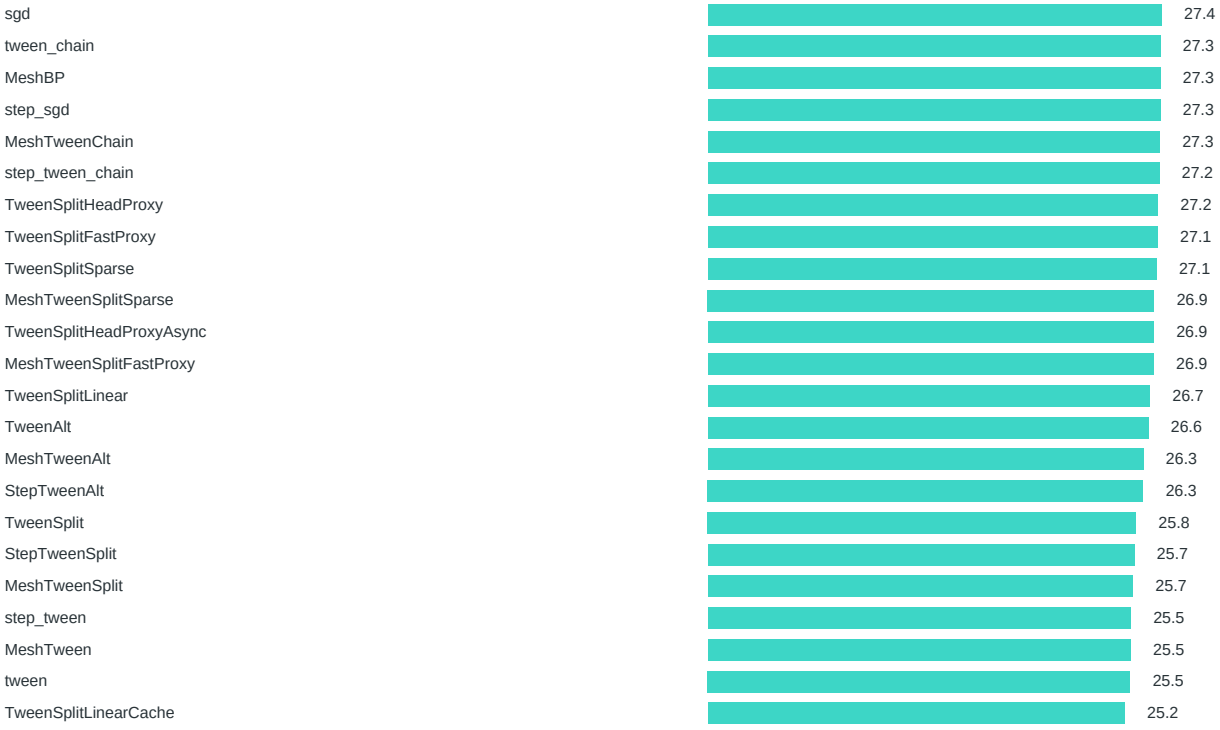

## Mean Score by train mode



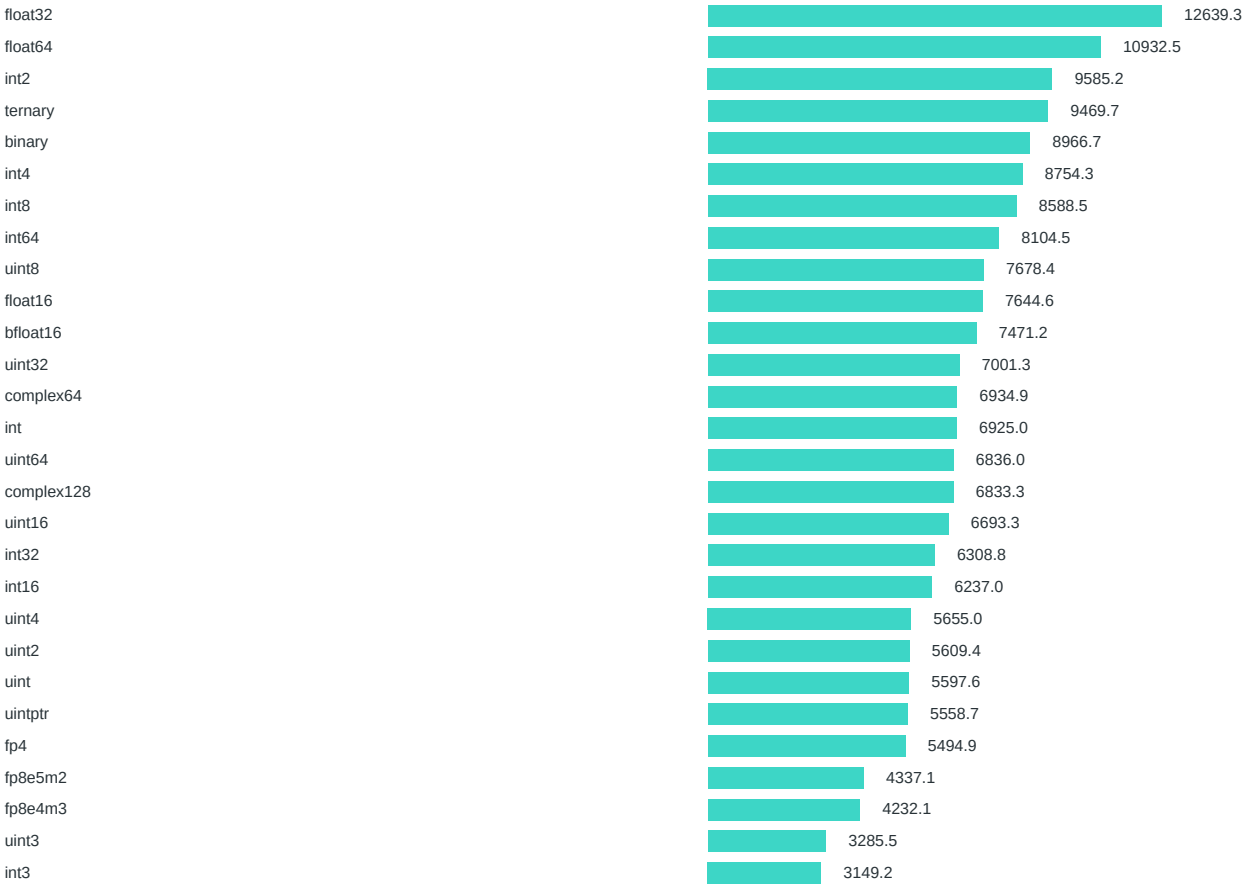

## Mean hard Acc by train mode




## Mean SoftAcc by train mode




## Mean Score by dtype




## Mean hard Acc by dtype




## Mean Score by arch




## Honesty - mean Score, every mode x dtype (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 9519 | 8651 | 8249 | 8150 | 9100 | 14734 | 12844 | 5733 | 2110 | 4412 | 4593 | 8384 | 7122 | 9582 | 3306 | 6886 |
| MeshTween | 5299 | 7805 | 4772 | 5191 | 5521 | 9632 | 8184 | 5346 | 1520 | 3793 | 4089 | 5033 | 5386 | 8522 | 2787 | 5359 |
| MeshTweenAlt | 3837 | 6083 | 4325 | 4620 | 4087 | 7418 | 7942 | 3710 | 974 | 2712 | 2439 | 4544 | 4224 | 6839 | 2044 | 4348 |
| MeshTweenChain | 8710 | 8634 | 7611 | 8109 | 8441 | 13952 | 12061 | 5304 | 2000 | 4370 | 4389 | 7768 | 6431 | 8726 | 3060 | 6392 |
| MeshTweenSplit | 6233 | 10351 | 5593 | 6175 | 6840 | 11725 | 9652 | 5954 | 2096 | 4569 | 4721 | 6358 | 6480 | 10509 | 3743 | 6171 |
| MeshTweenSplitFa | 8939 | 9509 | 7559 | 7780 | 8721 | 13887 | 11928 | 5526 | 2192 | 4687 | 5012 | 8034 | 6883 | 9911 | 3504 | 6560 |
| MeshTweenSplitSp | 8721 | 9774 | 7496 | 7165 | 9193 | 15517 | 11446 | 6094 | 2028 | 4374 | 4815 | 7210 | 6957 | 11179 | 3249 | 7040 |
| StepTweenAlt | 3219 | 5769 | 4108 | 4204 | 3444 | 7170 | 7862 | 3245 | 829 | 2277 | 2336 | 4284 | 3825 | 6160 | 1849 | 3949 |
| StepTweenSplit | 5233 | 8751 | 5345 | 5417 | 6374 | 10414 | 9306 | 5327 | 1675 | 4197 | 4263 | 5099 | 5428 | 9503 | 2762 | 5684 |
| TweenAlt | 3602 | 6719 | 5051 | 5173 | 4313 | 8246 | 8548 | 3448 | 1056 | 2771 | 2671 | 4865 | 4468 | 6888 | 2204 | 4335 |
| TweenSplit | 5770 | 9861 | 6016 | 7002 | 7105 | 11520 | 9784 | 6159 | 2000 | 4589 | 4662 | 6907 | 6549 | 10838 | 3793 | 6498 |
| TweenSplitFastPr | 9268 | 10164 | 8046 | 8130 | 9714 | 14994 | 12602 | 5824 | 2182 | 4546 | 4613 | 8552 | 6570 | 10320 | 3534 | 7051 |
| TweenSplitHeadPr | 9651 | 10080 | 8161 | 8037 | 9131 | 14321 | 12860 | 5628 | 2140 | 4795 | 4628 | 8183 | 7114 | 10035 | 3276 | 6799 |
| TweenSplitHeadPr | 8722 | 8929 | 8124 | 7765 | 8918 | 13586 | 12122 | 5539 | 2155 | 4440 | 4578 | 8051 | 6440 | 10022 | 3200 | 7109 |
| TweenSplitLinear | 5838 | 8576 | 7664 | 7548 | 6389 | 9709 | 11099 | 4314 | 1470 | 3384 | 3284 | 7716 | 6028 | 8697 | 3139 | 6157 |
| TweenSplitLinear | 5870 | 9766 | 5073 | 5365 | 6124 | 9791 | 8170 | 5854 | 2106 | 4322 | 4514 | 5203 | 5734 | 10659 | 3345 | 5584 |
| TweenSplitSparse | 9232 | 10106 | 7897 | 7829 | 9496 | 15888 | 13002 | 6124 | 2204 | 4554 | 4898 | 8022 | 6735 | 11629 | 3326 | 7010 |
| sgd | 11322 | 10172 | 9752 | 9935 | 10895 | 18141 | 14943 | 6848 | 2715 | 5401 | 5300 | 9641 | 8382 | 11108 | 3920 | 8351 |
| step_sgd | 10117 | 9446 | 8384 | 8467 | 9881 | 16287 | 13002 | 6209 | 2289 | 4728 | 4995 | 8473 | 6995 | 10121 | 3305 | 7274 |
| step_tween | 5965 | 8491 | 5364 | 4949 | 5790 | 10794 | 8694 | 5747 | 1676 | 4101 | 4350 | 4540 | 5381 | 9107 | 2853 | 5777 |
| step_tween_chain | 9015 | 8399 | 7464 | 7341 | 8584 | 14600 | 12284 | 5520 | 1877 | 4270 | 4305 | 7476 | 6320 | 8948 | 2859 | 6315 |
| tween | 6842 | 10035 | 5959 | 5882 | 6962 | 11603 | 8978 | 6596 | 2041 | 4940 | 5161 | 5776 | 6311 | 10600 | 3534 | 6648 |
| tween_chain | 10916 | 10162 | 9155 | 9269 | 10802 | 16775 | 14134 | 6337 | 2500 | 5106 | 5136 | 9156 | 7687 | 10557 | 3842 | 7805 |

## Honesty - mean Score, every mode x dtype (cols 17-32)

## Honesty - mean Score, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 8685 | 2732 | 2798 | 9602 | 9803 | 3298 | 9154 | 6170 | 7654 | 5755 | 3425 | 7765 | 5865 | 2980 | 2845 | 7330 |
| MeshTween | 7869 | 2225 | 2013 | 5660 | 7651 | 2904 | 8499 | 4943 | 5808 | 5163 | 2848 | 5954 | 5313 | 2430 | 2193 | 6228 |
| MeshTweenAlt | 6188 | 1565 | 1439 | 5185 | 5075 | 1811 | 6219 | 4276 | 4433 | 4088 | 2159 | 4668 | 4090 | 1679 | 1771 | 4767 |
| MeshTweenChain | 7858 | 2420 | 2575 | 9471 | 8756 | 3159 | 8563 | 5719 | 6856 | 5213 | 3120 | 7305 | 5320 | 2900 | 2502 | 6921 |
| MeshTweenSplit | 9747 | 2988 | 2920 | 7256 | 8871 | 3314 | 10914 | 5752 | 6666 | 6097 | 3762 | 7352 | 5737 | 3170 | 2970 | 7016 |
| MeshTweenSplitFa | 9183 | 2469 | 2817 | 9144 | 9329 | 3477 | 10360 | 5414 | 6974 | 5950 | 3568 | 7513 | 5867 | 2966 | 2886 | 7439 |
| MeshTweenSplitSp | 9948 | 2685 | 2767 | 8655 | 11262 | 3251 | 11091 | 5693 | 6726 | 5375 | 3361 | 6910 | 5595 | 2821 | 2931 | 6899 |
| StepTweenAlt | 5588 | 1505 | 1283 | 4995 | 4346 | 1594 | 6155 | 3291 | 4300 | 3919 | 1834 | 4444 | 3763 | 1723 | 1434 | 4215 |
| StepTweenSplit | 8722 | 2437 | 2104 | 6851 | 7658 | 2909 | 9394 | 4759 | 5838 | 5335 | 3047 | 6169 | 5333 | 2438 | 2214 | 5901 |
| TweenAlt | 6399 | 1747 | 1571 | 6199 | 4644 | 1851 | 6935 | 3714 | 4829 | 4467 | 2296 | 5124 | 4444 | 1891 | 1623 | 4778 |
| TweenSplit | 9662 | 3058 | 2789 | 7857 | 8791 | 3478 | 10805 | 5884 | 7187 | 6316 | 3654 | 7400 | 6159 | 3247 | 2759 | 6910 |
| TweenSplitFastPr | 9330 | 2772 | 2945 | 9547 | 9496 | 3564 | 10580 | 6470 | 7074 | 5538 | 3356 | 7993 | 6330 | 3124 | 3013 | 7373 |
| TweenSplitHeadPr | 9433 | 3042 | 3135 | 9729 | 9477 | 3279 | 10531 | 5985 | 7369 | 5952 | 3586 | 7667 | 6051 | 3110 | 3403 | 7419 |
| TweenSplitHeadPr | 9070 | 2764 | 2707 | 8855 | 8926 | 3418 | 9621 | 5852 | 7203 | 5715 | 3634 | 7024 | 5483 | 3041 | 3060 | 7480 |
| TweenSplitLinear | 7816 | 2429 | 2218 | 8464 | 5877 | 2500 | 8451 | 5822 | 6111 | 5937 | 3461 | 6759 | 5412 | 2701 | 2373 | 6413 |
| TweenSplitLinear | 9634 | 2924 | 2531 | 5925 | 8630 | 3474 | 10293 | 5472 | 5918 | 5876 | 3707 | 6848 | 6187 | 3026 | 2795 | 6200 |
| TweenSplitSparse | 9962 | 2788 | 2812 | 8885 | 10453 | 3550 | 11156 | 6502 | 7178 | 5895 | 3286 | 7197 | 6031 | 3110 | 3208 | 7514 |
| sgd | 10245 | 3319 | 3395 | 11139 | 11242 | 4030 | 10825 | 7512 | 8918 | 6785 | 4107 | 9505 | 6978 | 3476 | 3560 | 9295 |
| step_sgd | 9433 | 2658 | 2808 | 9995 | 10263 | 3681 | 10217 | 6176 | 7992 | 5973 | 3497 | 8283 | 6199 | 2843 | 2958 | 8098 |
| step_tween | 8392 | 2196 | 2031 | 6087 | 7735 | 3141 | 8861 | 4907 | 6080 | 5390 | 3123 | 6306 | 5330 | 2379 | 2099 | 6136 |
| step_tween_chain | 8438 | 2466 | 2557 | 8944 | 9167 | 3137 | 8700 | 5647 | 6674 | 5342 | 3072 | 6804 | 5492 | 2522 | 2475 | 7174 |
| tween | 9977 | 2810 | 2650 | 7100 | 9490 | 3627 | 10376 | 6147 | 7763 | 6453 | 3744 | 7488 | 6425 | 3083 | 2715 | 7351 |
| tween_chain | 9772 | 3110 | 3075 | 10859 | 10593 | 3669 | 10103 | 6638 | 8394 | 6480 | 3921 | 8555 | 6663 | 3449 | 3427 | 8372 |

## Honesty - mean Score, every mode x dtype  (cols 33-34)

## Honesty - mean Score, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 8917 | 6200 |
| MeshTween | 6754 | 5001 |
| MeshTweenAlt | 4343 | 3468 |
| MeshTweenChain | 7596 | 5822 |
| MeshTweenSplit | 7874 | 5053 |
| MeshTweenSplitFa | 8428 | 5810 |
| MeshTweenSplitSp | 9055 | 5592 |
| StepTweenAlt | 3899 | 3346 |
| StepTweenSplit | 6771 | 4794 |
| TweenAlt | 4539 | 3932 |
| TweenSplit | 7974 | 5737 |
| TweenSplitFastPr | 8585 | 6074 |
| TweenSplitHeadPr | 8243 | 6223 |
| TweenSplitHeadPr | 7695 | 5894 |
| TweenSplitLinear | 5365 | 5643 |
| TweenSplitLinear | 7419 | 5310 |
| TweenSplitSparse | 9113 | 6319 |
| sgd | 10201 | 7600 |
| step_sgd | 9314 | 6412 |
| step_tween | 7573 | 4853 |
| step_tween_chain | 8214 | 5653 |
| tween | 8680 | 6049 |
| tween_chain | 10050 | 7066 |

## Honesty - mean hard Acc, every mode x dtype  (cols 1-16)

## Honesty - mean hard Acc, every mode x dtype  (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 81 | 31 | 73 | 71 | 71 | 76 | 79 | 25 | 43 | 46 | 35 | 71 | 72 | 25 | 18 | 70 |
| MeshTween | 71 | 23 | 47 | 45 | 41 | 33 | 44 | 25 | 35 | 24 | 28 | 47 | 44 | 11 | 41 | 48 |
| MeshTweenAlt | 72 | 21 | 50 | 56 | 63 | 72 | 71 | 25 | 29 | 19 | 32 | 49 | 66 | 21 | 29 | 55 |
| MeshTweenChain | 82 | 31 | 73 | 72 | 76 | 82 | 77 | 25 | 41 | 42 | 30 | 70 | 69 | 11 | 17 | 74 |
| MeshTweenSplit | 65 | 26 | 47 | 54 | 58 | 62 | 48 | 25 | 27 | 35 | 27 | 47 | 47 | 27 | 16 | 48 |
| MeshTweenSplitFa | 85 | 17 | 46 | 51 | 66 | 63 | 65 | 25 | 43 | 52 | 35 | 43 | 52 | 30 | 14 | 63 |
| MeshTweenSplitSp | 76 | 22 | 58 | 58 | 65 | 69 | 75 | 25 | 39 | 49 | 29 | 61 | 50 | 28 | 38 | 62 |
| StepTweenAlt | 63 | 19 | 60 | 48 | 69 | 80 | 68 | 25 | 43 | 25 | 26 | 58 | 60 | 26 | 25 | 53 |
| StepTweenSplit | 61 | 26 | 46 | 47 | 49 | 51 | 52 | 25 | 35 | 32 | 23 | 40 | 42 | 33 | 30 | 54 |
| TweenAlt | 75 | 20 | 53 | 63 | 72 | 82 | 78 | 25 | 32 | 22 | 19 | 56 | 50 | 26 | 31 | 60 |
| TweenSplit | 70 | 27 | 45 | 58 | 48 | 56 | 71 | 25 | 24 | 27 | 33 | 49 | 39 | 28 | 25 | 59 |
| TweenSplitFastPr | 82 | 30 | 58 | 58 | 75 | 72 | 62 | 25 | 45 | 49 | 33 | 53 | 57 | 25 | 25 | 51 |
| TweenSplitHeadPr | 79 | 27 | 56 | 55 | 78 | 75 | 72 | 25 | 35 | 35 | 25 | 55 | 58 | 18 | 30 | 59 |
| TweenSplitHeadPr | 63 | 35 | 53 | 43 | 43 | 45 | 54 | 25 | 47 | 17 | 35 | 45 | 46 | 20 | 34 | 43 |
| TweenSplitLinear | 75 | 36 | 61 | 53 | 70 | 57 | 60 | 25 | 30 | 38 | 16 | 51 | 63 | 27 | 31 | 51 |
| TweenSplitLinear | 39 | 19 | 44 | 30 | 43 | 29 | 33 | 25 | 29 | 29 | 26 | 38 | 35 | 22 | 29 | 38 |
| TweenSplitSparse | 75 | 23 | 63 | 63 | 73 | 71 | 73 | 25 | 40 | 37 | 20 | 66 | 54 | 32 | 21 | 62 |
| sgd | 84 | 16 | 68 | 74 | 72 | 82 | 73 | 25 | 50 | 53 | 30 | 65 | 69 | 35 | 24 | 75 |
| step_sgd | 80 | 19 | 63 | 70 | 75 | 79 | 79 | 25 | 50 | 49 | 30 | 72 | 69 | 29 | 22 | 71 |
| step_tween | 65 | 14 | 35 | 52 | 49 | 37 | 53 | 25 | 21 | 29 | 22 | 56 | 50 | 22 | 22 | 57 |
| step_tween_chain | 79 | 19 | 71 | 67 | 73 | 80 | 69 | 25 | 41 | 39 | 34 | 67 | 72 | 23 | 23 | 66 |
| tween | 55 | 19 | 44 | 42 | 39 | 41 | 48 | 25 | 29 | 26 | 30 | 36 | 37 | 19 | 29 | 47 |
| tween_chain | 83 | 32 | 76 | 69 | 73 | 84 | 80 | 25 | 41 | 44 | 37 | 71 | 71 | 18 | 16 | 76 |

## Honesty - mean hard Acc, every mode x dtype  (cols 17-32)

## Honesty - mean hard Acc, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 17 | 56 | 51 | 74 | 43 | 28 | 19 | 69 | 72 | 16 | 28 | 70 | 25 | 36 | 39 | 72 |
| MeshTween | 28 | 19 | 22 | 36 | 46 | 12 | 29 | 43 | 39 | 30 | 21 | 56 | 38 | 22 | 34 | 51 |
| MeshTweenAlt | 32 | 33 | 40 | 59 | 51 | 22 | 23 | 51 | 53 | 34 | 35 | 53 | 33 | 25 | 29 | 49 |
| MeshTweenChain | 16 | 41 | 53 | 72 | 42 | 45 | 20 | 62 | 73 | 7 | 35 | 71 | 28 | 34 | 41 | 68 |
| MeshTweenSplit | 21 | 25 | 42 | 48 | 43 | 37 | 27 | 45 | 49 | 32 | 31 | 46 | 28 | 32 | 21 | 44 |
| MeshTweenSplitFa | 32 | 34 | 38 | 62 | 44 | 21 | 20 | 51 | 56 | 31 | 24 | 48 | 24 | 34 | 50 | 55 |
| MeshTweenSplitSp | 24 | 47 | 38 | 59 | 53 | 22 | 33 | 48 | 56 | 15 | 26 | 51 | 30 | 31 | 48 | 53 |
| StepTweenAlt | 33 | 29 | 31 | 61 | 54 | 39 | 30 | 47 | 51 | 13 | 18 | 52 | 29 | 25 | 24 | 48 |
| StepTweenSplit | 29 | 28 | 31 | 41 | 51 | 30 | 16 | 42 | 54 | 22 | 29 | 48 | 23 | 33 | 31 | 45 |
| TweenAlt | 22 | 29 | 25 | 64 | 48 | 26 | 21 | 40 | 50 | 29 | 34 | 70 | 19 | 25 | 32 | 48 |
| TweenSplit | 20 | 34 | 25 | 47 | 47 | 22 | 26 | 61 | 51 | 25 | 26 | 46 | 24 | 25 | 32 | 49 |
| TweenSplitFastPr | 29 | 35 | 53 | 63 | 43 | 30 | 26 | 59 | 58 | 29 | 34 | 64 | 17 | 41 | 50 | 69 |
| TweenSplitHeadPr | 18 | 37 | 44 | 57 | 47 | 21 | 25 | 53 | 54 | 30 | 19 | 61 | 13 | 30 | 46 | 52 |
| TweenSplitHeadPr | 21 | 40 | 46 | 56 | 48 | 22 | 22 | 41 | 51 | 13 | 33 | 43 | 17 | 26 | 47 | 59 |
| TweenSplitLinear | 19 | 32 | 32 | 52 | 44 | 20 | 27 | 45 | 67 | 26 | 35 | 53 | 29 | 20 | 33 | 55 |
| TweenSplitLinear | 30 | 25 | 30 | 33 | 27 | 27 | 14 | 37 | 33 | 27 | 20 | 32 | 28 | 29 | 27 | 27 |
| TweenSplitSparse | 22 | 30 | 40 | 62 | 49 | 34 | 26 | 57 | 53 | 17 | 23 | 67 | 29 | 25 | 60 | 53 |
| sgd | 28 | 40 | 37 | 74 | 51 | 23 | 29 | 70 | 73 | 18 | 25 | 77 | 22 | 38 | 49 | 78 |
| step_sgd | 24 | 36 | 50 | 73 | 47 | 22 | 32 | 64 | 69 | 22 | 23 | 73 | 23 | 23 | 38 | 70 |
| step_tween | 24 | 13 | 24 | 39 | 49 | 33 | 23 | 57 | 44 | 29 | 26 | 40 | 31 | 24 | 29 | 36 |
| step_tween_chain | 20 | 46 | 49 | 70 | 43 | 30 | 16 | 72 | 64 | 22 | 28 | 66 | 25 | 31 | 48 | 61 |
| tween | 20 | 28 | 27 | 42 | 44 | 37 | 28 | 53 | 51 | 27 | 17 | 39 | 25 | 27 | 25 | 49 |
| tween_chain | 33 | 38 | 50 | 74 | 45 | 38 | 22 | 68 | 71 | 20 | 19 | 73 | 29 | 44 | 44 | 68 |

## Honesty - mean hard Acc, every mode x dtype  (cols 33-34)

## Honesty - mean hard Acc, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 38 | 66 |
| MeshTween | 45 | 46 |
| MeshTweenAlt | 40 | 63 |
| MeshTweenChain | 38 | 64 |
| MeshTweenSplit | 51 | 51 |
| MeshTweenSplitFa | 40 | 49 |
| MeshTweenSplitSp | 45 | 46 |
| StepTweenAlt | 42 | 65 |
| StepTweenSplit | 41 | 52 |
| TweenAlt | 46 | 60 |
| TweenSplit | 41 | 56 |
| TweenSplitFastPr | 43 | 54 |
| TweenSplitHeadPr | 53 | 48 |
| TweenSplitHeadPr | 48 | 46 |
| TweenSplitLinear | 36 | 60 |
| TweenSplitLinear | 29 | 28 |
| TweenSplitSparse | 58 | 61 |
| sgd | 46 | 71 |
| step_sgd | 42 | 60 |
| step_tween | 43 | 52 |
| step_tween_chain | 56 | 63 |
| tween | 41 | 52 |
| tween_chain | 40 | 71 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 1-16)

## Honesty - mean SoftAcc, every mode x dtype  (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 31 | 25 | 32 | 32 | 31 | 33 | 32 | 25 | 26 | 25 | 25 | 32 | 27 | 25 | 25 | 27 |
| MeshTween | 26 | 25 | 26 | 27 | 26 | 26 | 27 | 25 | 25 | 25 | 25 | 27 | 26 | 25 | 25 | 26 |
| MeshTweenAlt | 25 | 25 | 29 | 30 | 29 | 33 | 32 | 25 | 25 | 25 | 25 | 29 | 26 | 25 | 25 | 26 |
| MeshTweenChain | 31 | 25 | 32 | 32 | 31 | 33 | 32 | 25 | 27 | 25 | 25 | 32 | 27 | 25 | 25 | 27 |
| MeshTweenSplit | 25 | 25 | 27 | 27 | 26 | 28 | 28 | 25 | 25 | 25 | 25 | 27 | 26 | 25 | 25 | 26 |
| MeshTweenSplitFa | 30 | 25 | 31 | 31 | 30 | 31 | 31 | 25 | 26 | 25 | 25 | 31 | 27 | 25 | 25 | 27 |
| MeshTweenSplitSp | 30 | 25 | 31 | 31 | 30 | 31 | 31 | 25 | 26 | 25 | 25 | 31 | 27 | 25 | 25 | 27 |
| StepTweenAlt | 26 | 25 | 29 | 29 | 28 | 33 | 32 | 25 | 25 | 25 | 25 | 30 | 26 | 25 | 25 | 26 |
| StepTweenSplit | 25 | 25 | 28 | 27 | 27 | 28 | 28 | 25 | 25 | 25 | 25 | 27 | 26 | 25 | 25 | 26 |
| TweenAlt | 25 | 25 | 30 | 31 | 29 | 35 | 33 | 25 | 25 | 25 | 25 | 30 | 26 | 25 | 25 | 26 |
| TweenSplit | 25 | 25 | 27 | 28 | 27 | 28 | 29 | 25 | 25 | 25 | 25 | 28 | 26 | 25 | 25 | 26 |
| TweenSplitFastPr | 31 | 25 | 31 | 31 | 31 | 32 | 31 | 25 | 26 | 25 | 25 | 31 | 27 | 25 | 25 | 27 |
| TweenSplitHeadPr | 31 | 25 | 31 | 31 | 31 | 32 | 31 | 25 | 26 | 25 | 25 | 31 | 27 | 25 | 25 | 27 |
| TweenSplitHeadPr | 30 | 25 | 31 | 31 | 31 | 31 | 31 | 25 | 26 | 25 | 25 | 31 | 27 | 25 | 25 | 27 |
| TweenSplitLinear | 29 | 25 | 31 | 31 | 30 | 31 | 31 | 25 | 25 | 25 | 25 | 31 | 26 | 25 | 25 | 27 |
| TweenSplitLinear | 25 | 25 | 26 | 25 | 26 | 26 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitSparse | 30 | 25 | 31 | 31 | 31 | 32 | 31 | 25 | 26 | 25 | 25 | 31 | 27 | 25 | 25 | 27 |
| sgd | 31 | 25 | 32 | 32 | 32 | 33 | 32 | 25 | 27 | 25 | 25 | 32 | 28 | 25 | 25 | 27 |
| step_sgd | 31 | 25 | 32 | 32 | 32 | 33 | 32 | 25 | 27 | 25 | 25 | 32 | 27 | 25 | 25 | 27 |
| step_tween | 26 | 25 | 27 | 26 | 26 | 26 | 27 | 25 | 25 | 25 | 25 | 26 | 26 | 25 | 25 | 26 |
| step_tween_chain | 31 | 25 | 32 | 32 | 32 | 32 | 32 | 25 | 26 | 25 | 25 | 32 | 27 | 25 | 25 | 27 |
| tween | 26 | 25 | 27 | 26 | 26 | 26 | 26 | 25 | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 26 |
| tween_chain | 31 | 25 | 32 | 32 | 32 | 33 | 32 | 25 | 27 | 25 | 25 | 32 | 27 | 25 | 25 | 27 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 17-32)

## Honesty - mean SoftAcc, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 25 | 26 | 26 | 32 | 27 | 25 | 25 | 27 | 27 | 25 | 25 | 27 | 25 | 25 | 26 | 27 |
| MeshTween | 25 | 25 | 25 | 26 | 26 | 25 | 25 | 26 | 26 | 25 | 25 | 26 | 25 | 25 | 25 | 26 |
| MeshTweenAlt | 25 | 25 | 25 | 29 | 26 | 25 | 25 | 26 | 26 | 25 | 25 | 26 | 25 | 25 | 25 | 26 |
| MeshTweenChain | 25 | 25 | 27 | 32 | 27 | 25 | 25 | 27 | 27 | 25 | 25 | 27 | 25 | 26 | 26 | 27 |
| MeshTweenSplit | 25 | 25 | 25 | 28 | 26 | 25 | 25 | 26 | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 26 |
| MeshTweenSplitFa | 25 | 25 | 26 | 31 | 26 | 25 | 25 | 27 | 27 | 25 | 25 | 27 | 25 | 25 | 26 | 27 |
| MeshTweenSplitSp | 25 | 25 | 26 | 31 | 27 | 25 | 25 | 27 | 27 | 25 | 25 | 26 | 25 | 25 | 26 | 27 |
| StepTweenAlt | 25 | 25 | 25 | 29 | 26 | 25 | 25 | 26 | 26 | 25 | 25 | 26 | 25 | 25 | 25 | 26 |
| StepTweenSplit | 25 | 25 | 25 | 28 | 25 | 25 | 25 | 26 | 26 | 25 | 25 | 26 | 25 | 25 | 25 | 26 |
| TweenAlt | 25 | 25 | 25 | 32 | 26 | 25 | 25 | 26 | 26 | 25 | 25 | 26 | 25 | 25 | 25 | 26 |
| TweenSplit | 25 | 25 | 25 | 28 | 26 | 25 | 25 | 26 | 26 | 25 | 25 | 26 | 25 | 25 | 25 | 26 |
| TweenSplitFastPr | 25 | 26 | 26 | 31 | 27 | 25 | 25 | 27 | 27 | 25 | 25 | 27 | 25 | 25 | 27 | 27 |
| TweenSplitHeadPr | 25 | 25 | 27 | 31 | 27 | 25 | 25 | 26 | 27 | 25 | 25 | 27 | 25 | 25 | 27 | 27 |
| TweenSplitHeadPr | 25 | 25 | 26 | 31 | 27 | 25 | 25 | 26 | 27 | 25 | 25 | 26 | 25 | 25 | 26 | 27 |
| TweenSplitLinear | 25 | 25 | 25 | 31 | 26 | 25 | 25 | 26 | 26 | 25 | 25 | 27 | 25 | 25 | 25 | 27 |
| TweenSplitLinear | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitSparse | 25 | 25 | 26 | 31 | 27 | 25 | 25 | 27 | 27 | 25 | 25 | 27 | 25 | 25 | 27 | 27 |
| sgd | 25 | 25 | 27 | 32 | 27 | 25 | 25 | 27 | 27 | 25 | 25 | 28 | 25 | 25 | 27 | 27 |
| step_sgd | 25 | 25 | 26 | 32 | 27 | 25 | 25 | 27 | 27 | 25 | 25 | 27 | 25 | 25 | 26 | 27 |
| step_tween | 25 | 25 | 25 | 27 | 25 | 25 | 25 | 26 | 26 | 25 | 25 | 26 | 25 | 25 | 25 | 26 |
| step_tween_chain | 25 | 25 | 27 | 32 | 27 | 25 | 25 | 27 | 27 | 25 | 25 | 27 | 25 | 25 | 26 | 27 |
| tween | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 26 | 26 | 25 | 25 | 26 | 25 | 25 | 25 | 26 |
| tween_chain | 25 | 25 | 26 | 32 | 27 | 25 | 25 | 27 | 27 | 25 | 25 | 27 | 25 | 25 | 27 | 27 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 33-34)

## Honesty - mean SoftAcc, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 27 | 27 |
| MeshTween | 26 | 26 |
| MeshTweenAlt | 25 | 26 |
| MeshTweenChain | 27 | 27 |
| MeshTweenSplit | 25 | 26 |
| MeshTweenSplitFa | 27 | 27 |
| MeshTweenSplitSp | 27 | 27 |
| StepTweenAlt | 26 | 26 |
| StepTweenSplit | 25 | 26 |
| TweenAlt | 26 | 26 |
| TweenSplit | 26 | 26 |
| TweenSplitFastPr | 27 | 27 |
| TweenSplitHeadPr | 26 | 27 |
| TweenSplitHeadPr | 27 | 27 |
| TweenSplitLinear | 26 | 26 |
| TweenSplitLinear | 25 | 25 |
| TweenSplitSparse | 27 | 27 |
| sgd | 27 | 27 |
| step_sgd | 27 | 27 |
| step_tween | 26 | 25 |
| step_tween_chain | 27 | 27 |
| tween | 26 | 26 |
| tween_chain | 28 | 27 |

## Mean Score, every mode x arch

## Mean Score, every mode x arch

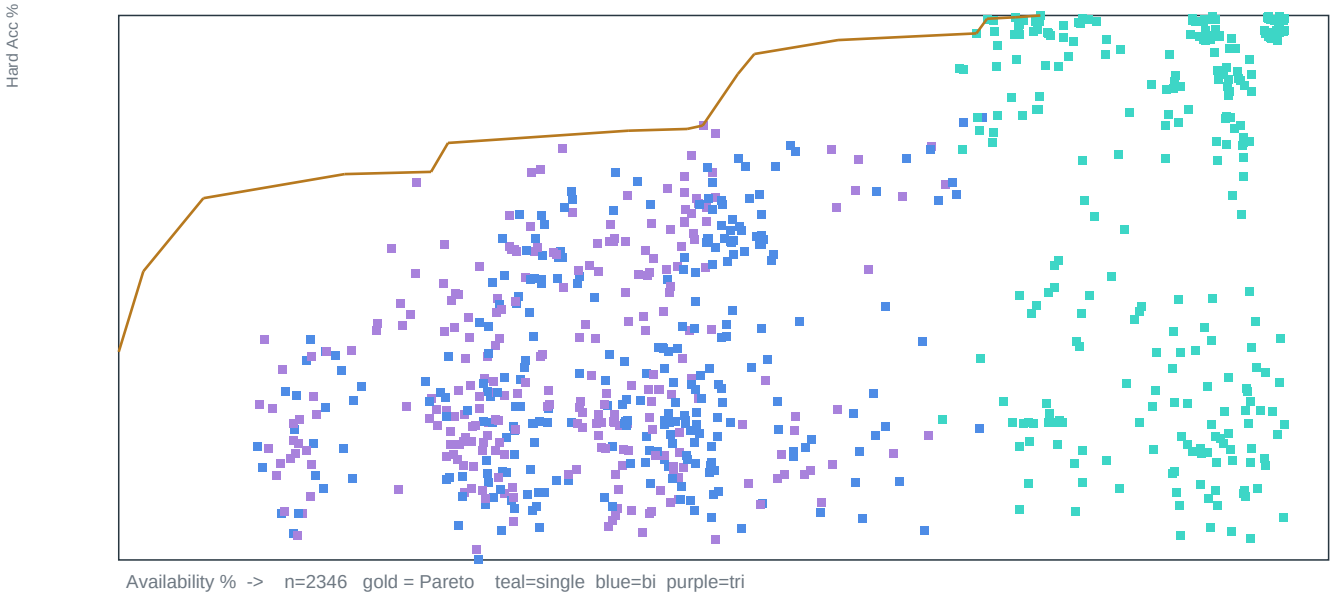
| | bicamera | singlex1 | tricamer |
|---|---|---|---|
| MeshBP | 915 | 19141 | 622 |
| MeshTween | 827 | 14280 | 572 |
| MeshTweenAlt | 489 | 11308 | 324 |
| MeshTweenChain | 868 | 17764 | 606 |
| MeshTweenSplit | 1480 | 16358 | 1100 |
| MeshTweenSplitFa | 1443 | 17794 | 1077 |
| MeshTweenSplitSp | 1944 | 17033 | 1570 |
| StepTweenAlt | 406 | 10462 | 264 |
| StepTweenSplit | 1118 | 14642 | 780 |
| TweenAlt | 496 | 11993 | 335 |
| TweenSplit | 1532 | 16647 | 1120 |
| TweenSplitFastPr | 1524 | 18497 | 1091 |
| TweenSplitHeadPr | 1506 | 18411 | 1124 |
| TweenSplitHeadPr | 1504 | 17430 | 1108 |
| TweenSplitLinear | 967 | 15547 | 671 |
| TweenSplitLinear | 1467 | 15089 | 1060 |
| TweenSplitSparse | 2012 | 17862 | 1560 |
| sgd | 1149 | 22692 | 773 |
| step_sgd | 907 | 20257 | 610 |
| step_tween | 796 | 15112 | 520 |
| step_tween_chain | 757 | 17981 | 503 |
| tween | 1082 | 17579 | 733 |
| tween_chain | 1090 | 21432 | 731 |

## Mean hard Acc, every mode x arch

## Mean hard Acc, every mode x arch

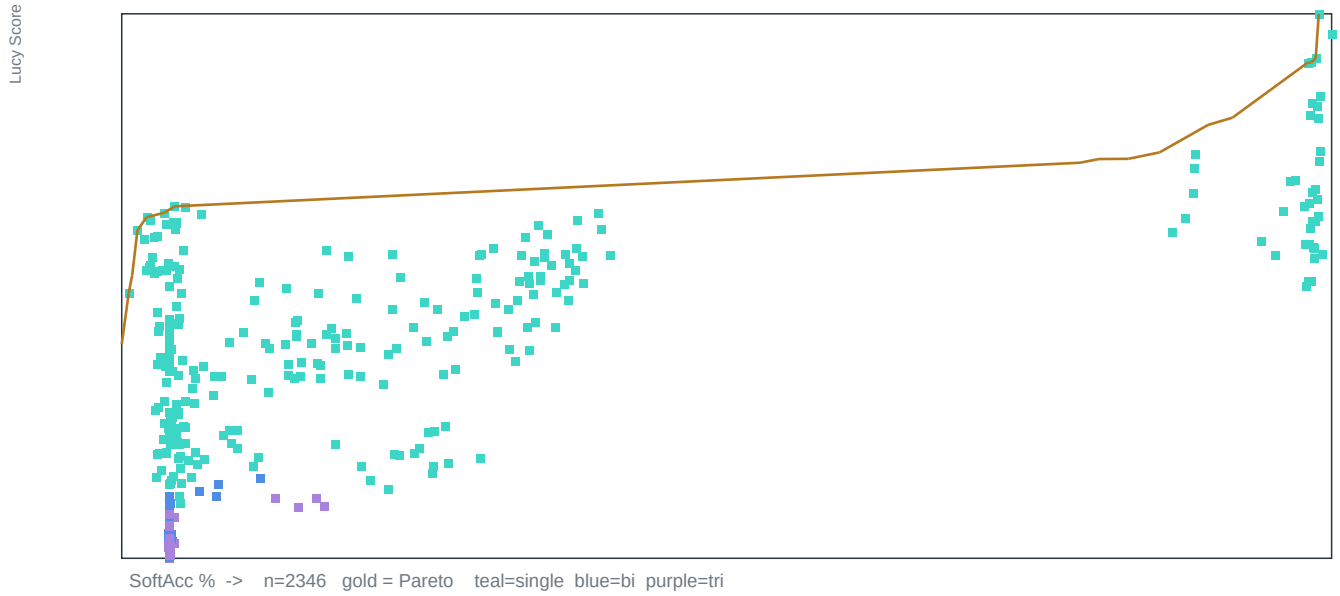
| | bicamera | singlex1 | tricamer |
|---|---|---|---|
| MeshBP | 42 | 70 | 38 |
| MeshTween | 25 | 55 | 28 |
| MeshTweenAlt | 38 | 56 | 34 |
| MeshTweenChain | 39 | 70 | 40 |
| MeshTweenSplit | 31 | 56 | 30 |
| MeshTweenSplitFa | 33 | 68 | 28 |
| MeshTweenSplitSp | 35 | 69 | 31 |
| StepTweenAlt | 33 | 60 | 34 |
| StepTweenSplit | 28 | 56 | 29 |
| TweenAlt | 35 | 60 | 32 |
| TweenSplit | 28 | 58 | 32 |
| TweenSplitFastPr | 36 | 71 | 34 |
| TweenSplitHeadPr | 35 | 68 | 29 |
| TweenSplitHeadPr | 25 | 66 | 26 |
| TweenSplitLinear | 35 | 62 | 30 |
| TweenSplitLinear | 28 | 35 | 27 |
| TweenSplitSparse | 36 | 68 | 34 |
| sgd | 43 | 70 | 41 |
| step_sgd | 39 | 68 | 41 |
| step_tween | 27 | 53 | 28 |
| step_tween_chain | 40 | 71 | 36 |
| tween | 24 | 56 | 25 |
| tween_chain | 40 | 73 | 40 |

## Avail vs hard Acc (headline scatter)

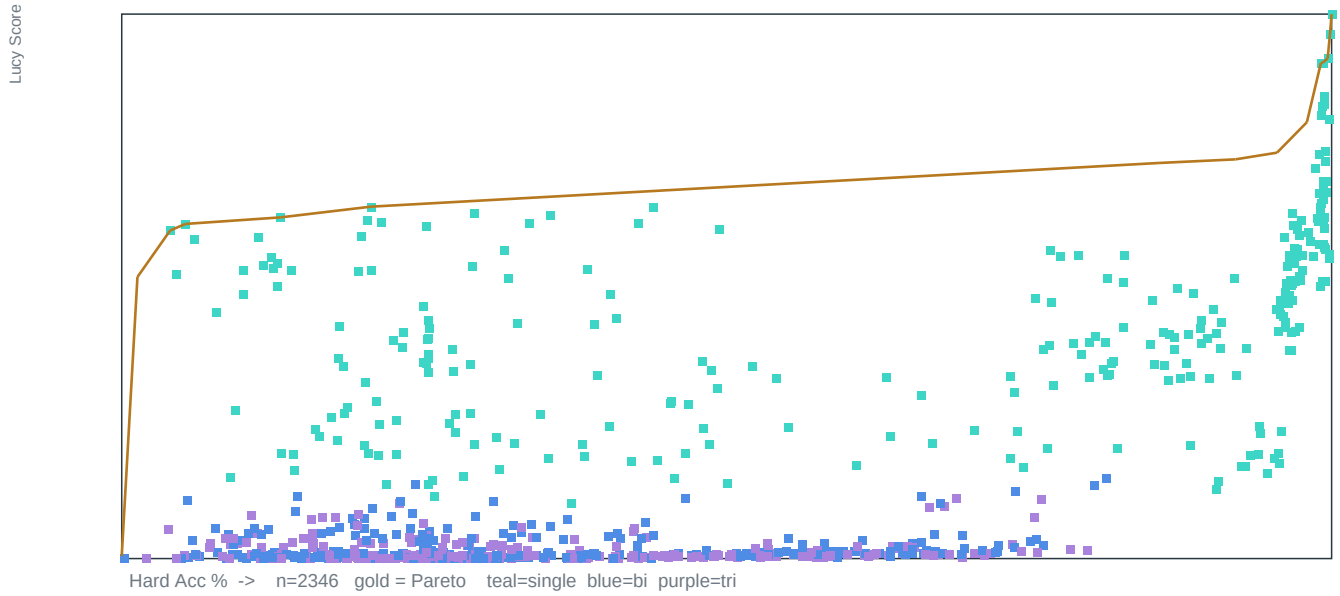



## Pareto - SoftAcc vs Score

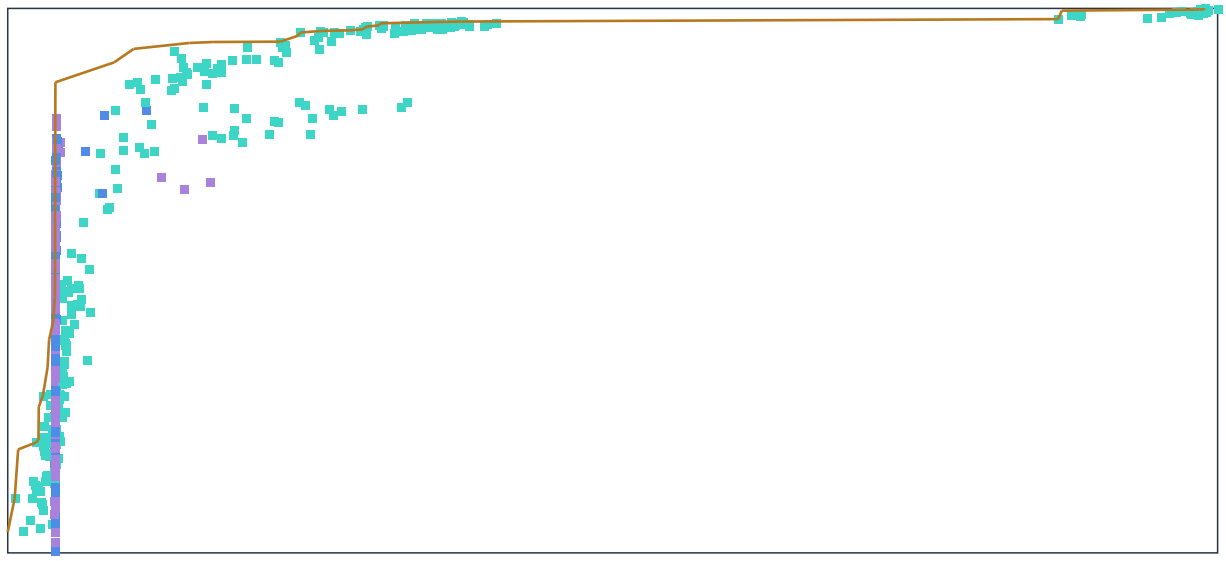
## Pareto - SoftAcc vs Score




## Pareto - hard Acc vs Score

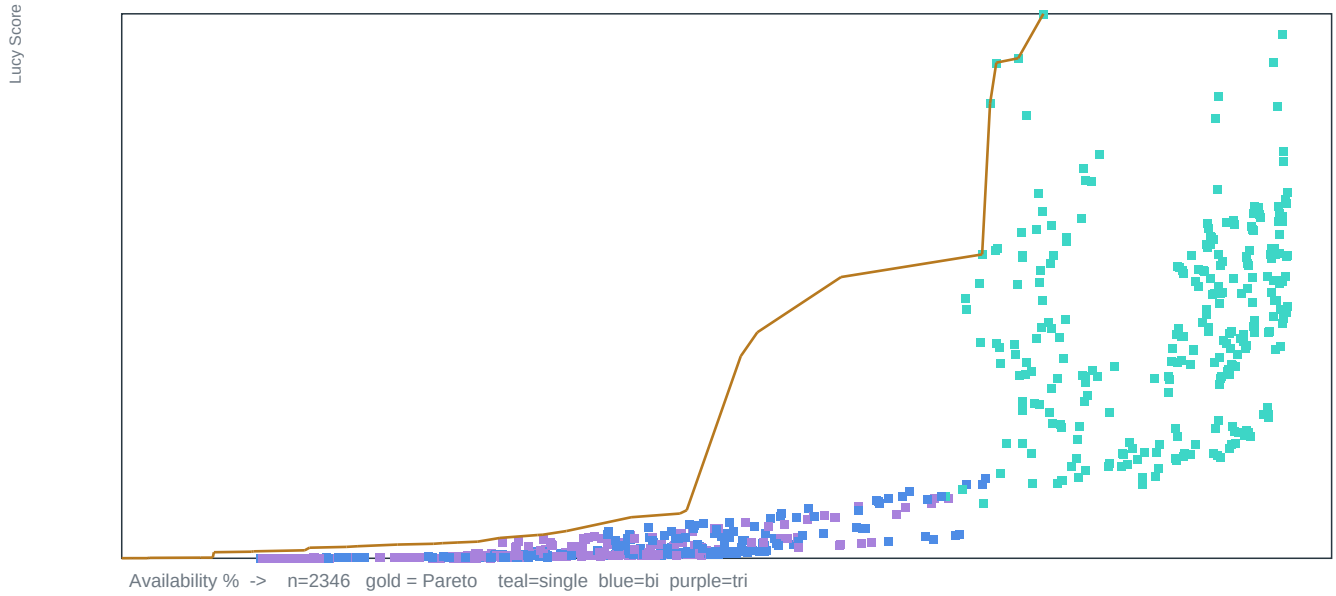



## SoftAcc vs hard Acc




SoftAcc %  ->  n=2346  gold = Pareto  teal=single  blue=bi  purple=tri
Hard Acc %

## Avail vs Score (duty clock)




## Lucy Pareto (LPD) - goldilocks

Q = geomean of Score/Soft/Acc/Thru vs the Lucy Score champion. LPD = 0 if Q<70%, else Q x shrink vs champ RAM (capped 32x). Gold = Q>=80% and RAM<=20% of champ. MSpeed = Thru vs the board's fastest (0 if Q<70%). MAvail = Availability vs the board's best duty cycle (0 if Q<70%). Mix = geomean(Q, MSpeed, MAvail). Raw Score/MiB is the binary trap.

Quality champ float32|none|sgd|single|simd  Score 43204.5  Soft 45  Acc 99  Thru 245655  RAM 0.9 KiB

Board fastest ternary|none|sgd|single|simd  Thru 250863  Best availability complex64|none|TweenSplit|single|simd  46.4%

No gold cell yet. Need a recipe that keeps 80% of the Score champ's Score/Soft/Acc/Thru at one fifth the RAM.

## Near-gold - Q >= 70%, RAM <= 50%

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| near | int8\|none\|sgd\|single\|simd | 76 | 25 | 4.0 | 3.03 | 31 | 95 | 25503.0 | 0.2 |
| near | uint8\|none\|sgd\|single\|simd | 78 | 26 | 3.9 | 3.00 | 32 | 96 | 26470.7 | 0.2 |
| near | uint8\|none\|tween_chain\|single\|simd | 77 | 26 | 3.9 | 2.99 | 33 | 96 | 26128.2 | 0.2 |
| near | int8\|none\|step_sgd\|single\|simd | 74 | 25 | 4.0 | 2.96 | 32 | 95 | 23901.4 | 0.2 |
| near | int8\|none\|tween_chain\|single\|simd | 74 | 25 | 4.0 | 2.95 | 30 | 95 | 24050.0 | 0.2 |
| near | uint8\|none\|step_sgd\|single\|simd | 75 | 26 | 3.9 | 2.92 | 32 | 96 | 24590.1 | 0.2 |
| near | int8\|none\|MeshBP\|single\|simd | 72 | 25 | 4.0 | 2.90 | 32 | 96 | 22889.2 | 0.2 |
| near | int8\|none\|step_tween_chain\|single\|simd | 71 | 25 | 4.0 | 2.83 | 32 | 96 | 21736.9 | 0.2 |
| near | uint8\|none\|MeshBP\|single\|simd | 73 | 26 | 3.9 | 2.82 | 32 | 96 | 23423.9 | 0.2 |
| near | uint8\|none\|step_tween_chain\|single\|simd | 71 | 26 | 3.9 | 2.76 | 32 | 96 | 21851.9 | 0.2 |
| near | bfloat16\|none\|sgd\|single\|simd | 85 | 50 | 2.0 | 1.70 | 43 | 98 | 32101.9 | 0.5 |
| near | bfloat16\|none\|tween_chain\|single\|simd | 84 | 50 | 2.0 | 1.68 | 43 | 98 | 30973.1 | 0.5 |

## LPD rank (Q x shrink; 0 if Q < 70%)

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| near | int8\|none\|sgd\|single\|simd | 76 | 25 | 4.0 | 3.03 | 31 | 95 | 25503.0 | 0.2 |
| near | uint8\|none\|sgd\|single\|simd | 78 | 26 | 3.9 | 3.00 | 32 | 96 | 26470.7 | 0.2 |
| near | uint8\|none\|tween_chain\|single\|simd | 77 | 26 | 3.9 | 2.99 | 33 | 96 | 26128.2 | 0.2 |
| near | int8\|none\|step_sgd\|single\|simd | 74 | 25 | 4.0 | 2.96 | 32 | 95 | 23901.4 | 0.2 |
| near | int8\|none\|tween_chain\|single\|simd | 74 | 25 | 4.0 | 2.95 | 30 | 95 | 24050.0 | 0.2 |
| near | uint8\|none\|step_sgd\|single\|simd | 75 | 26 | 3.9 | 2.92 | 32 | 96 | 24590.1 | 0.2 |
| near | int8\|none\|MeshBP\|single\|simd | 72 | 25 | 4.0 | 2.90 | 32 | 96 | 22889.2 | 0.2 |
| near | int8\|none\|step_tween_chain\|single\|simd | 71 | 25 | 4.0 | 2.83 | 32 | 96 | 21736.9 | 0.2 |
| near | uint8\|none\|MeshBP\|single\|simd | 73 | 26 | 3.9 | 2.82 | 32 | 96 | 23423.9 | 0.2 |
| near | uint8\|none\|step_tween_chain\|single\|simd | 71 | 26 | 3.9 | 2.76 | 32 | 96 | 21851.9 | 0.2 |

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| near | bfloat16\|none\|sgd\|single\|simd | 85 | 50 | 2.0 | 1.70 | 43 | 98 | 32101.9 | 0.5 |
| near | bfloat16\|none\|tween_chain\|single\|simd | 84 | 50 | 2.0 | 1.68 | 43 | 98 | 30973.1 | 0.5 |
| near | float16\|none\|sgd\|single\|simd | 83 | 50 | 2.0 | 1.65 | 45 | 98 | 29993.5 | 0.5 |
| near | float16\|none\|tween_chain\|single\|simd | 82 | 50 | 2.0 | 1.65 | 45 | 98 | 29961.7 | 0.5 |
| near | bfloat16\|none\|step_sgd\|single\|simd | 82 | 50 | 2.0 | 1.64 | 43 | 98 | 29017.4 | 0.5 |
| near | float16\|none\|step_sgd\|single\|simd | 80 | 50 | 2.0 | 1.59 | 45 | 98 | 27548.5 | 0.5 |
| near | bfloat16\|none\|MeshBP\|single\|simd | 78 | 50 | 2.0 | 1.57 | 43 | 98 | 27016.6 | 0.5 |
| near | bfloat16\|none\|step_tween_chain\|single\|simd | 77 | 50 | 2.0 | 1.55 | 43 | 97 | 25878.6 | 0.5 |
| near | bfloat16\|none\|TweenSplitHeadProxy\|single\|simd | 77 | 50 | 2.0 | 1.54 | 42 | 95 | 26454.3 | 0.5 |
| near | float16\|none\|MeshBP\|single\|simd | 76 | 50 | 2.0 | 1.51 | 44 | 97 | 25183.0 | 0.5 |

## Mobile speed - Thru vs board fastest (Q >= 70%)

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| keep | float32\|none\|sgd\|single\|simd | 100 | 98 | 84 | 94 | 1.00 | 245655 | 38.8 |
| - | float32\|none\|tween\|single\|simd | 71 | 94 | 81 | 81 | 0.71 | 234700 | 37.6 |
| keep | float32\|none\|step_sgd\|single\|simd | 96 | 92 | 81 | 90 | 0.96 | 231983 | 37.6 |
| keep | float32\|none\|tween_chain\|single\|simd | 96 | 92 | 82 | 90 | 0.96 | 229802 | 38.2 |
| - | float32\|none\|step_tween\|single\|simd | 71 | 89 | 80 | 80 | 0.71 | 223960 | 37.2 |
| near | uint8\|none\|sgd\|single\|simd | 78 | 86 | 84 | 82 | 3.00 | 215116 | 39.0 |
| keep | float32\|none\|step_tween_chain\|single\|simd | 92 | 85 | 81 | 86 | 0.92 | 213506 | 37.4 |
| - | float32\|none\|MeshTweenSplit\|single\|simd | 72 | 84 | 82 | 79 | 0.72 | 211110 | 38.2 |
| near | uint8\|none\|tween_chain\|single\|simd | 77 | 83 | 83 | 81 | 2.99 | 207208 | 38.6 |
| keep | float32\|none\|TweenSplitFastProxy\|single\|simd | 90 | 83 | 83 | 85 | 0.90 | 207174 | 38.6 |

## Mobile availability - duty cycle vs board best (Q >= 70%)

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| - | int\|none\|TweenSplitHeadProxy\|single\|simd | 70 | 46 | 99 | 68 | 0.35 | 115532 | 45.9 |
| - | int64\|none\|TweenSplitHeadProxy\|single\|simd | 76 | 54 | 99 | 74 | 0.38 | 135581 | 45.9 |
| - | int64\|none\|TweenSplitSparse\|single\|simd | 72 | 50 | 99 | 71 | 0.36 | 125099 | 45.9 |
| keep | float64\|none\|TweenSplitHeadProxy\|single\|simd | 85 | 68 | 99 | 83 | 0.43 | 170937 | 45.9 |
| - | int64\|none\|TweenSplitFastProxy\|single\|simd | 75 | 54 | 99 | 74 | 0.38 | 134451 | 45.8 |
| - | int\|none\|TweenSplitFastProxy\|single\|simd | 72 | 49 | 99 | 70 | 0.36 | 122508 | 45.8 |
| - | int64\|none\|MeshTweenSplitSparse\|single\|simd | 70 | 50 | 99 | 70 | 0.35 | 125167 | 45.8 |
| keep | float64\|none\|TweenSplitSparse\|single\|simd | 86 | 69 | 99 | 84 | 0.43 | 173502 | 45.7 |
| - | int64\|none\|TweenSplitHeadProxyAsync\|single\|simd | 72 | 51 | 98 | 71 | 0.36 | 128057 | 45.7 |
| - | float64\|none\|MeshTweenSplitSparse\|single\|simd | 79 | 62 | 98 | 79 | 0.40 | 156562 | 45.7 |

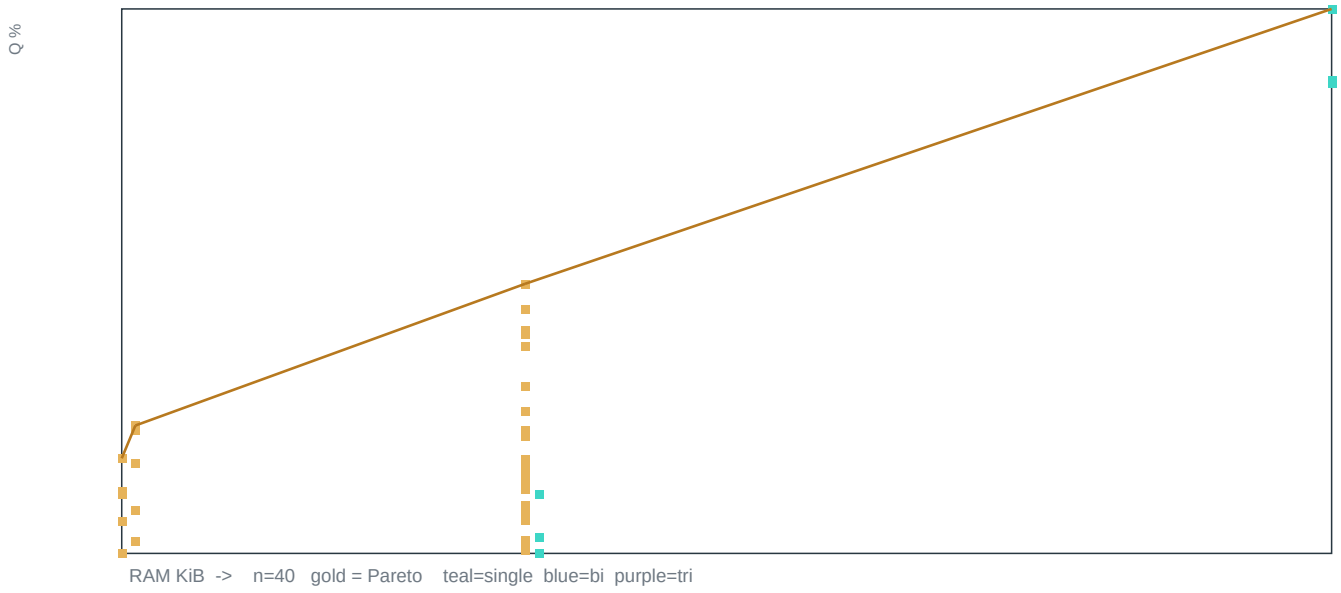
## Mix - geomean of Q, MSpeed, MAvail

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| keep | float32\|none\|sgd\|single\|simd | 100 | 98 | 84 | 94 | 1.00 | 245655 | 38.8 |
| keep | float64\|none\|sgd\|single\|simd | 94 | 81 | 97 | 91 | 0.47 | 202751 | 45.1 |
| keep | float32\|none\|tween_chain\|single\|simd | 96 | 92 | 82 | 90 | 0.96 | 229802 | 38.2 |
| keep | float32\|none\|step_sgd\|single\|simd | 96 | 92 | 81 | 90 | 0.96 | 231983 | 37.6 |
| keep | float64\|none\|tween_chain\|single\|simd | 92 | 77 | 97 | 88 | 0.46 | 194276 | 44.9 |
| keep | float32\|none\|step_tween_chain\|single\|simd | 92 | 85 | 81 | 86 | 0.92 | 213506 | 37.4 |
| keep | float64\|none\|step_sgd\|single\|simd | 89 | 74 | 94 | 85 | 0.45 | 186610 | 43.4 |
| keep | float32\|none\|TweenSplitFastProxy\|single\|simd | 90 | 83 | 83 | 85 | 0.90 | 207174 | 38.6 |
| keep | float32\|none\|MeshBP\|single\|simd | 90 | 81 | 83 | 85 | 0.90 | 203073 | 38.4 |
| keep | float64\|none\|MeshBP\|single\|simd | 88 | 70 | 97 | 84 | 0.44 | 176490 | 45.0 |

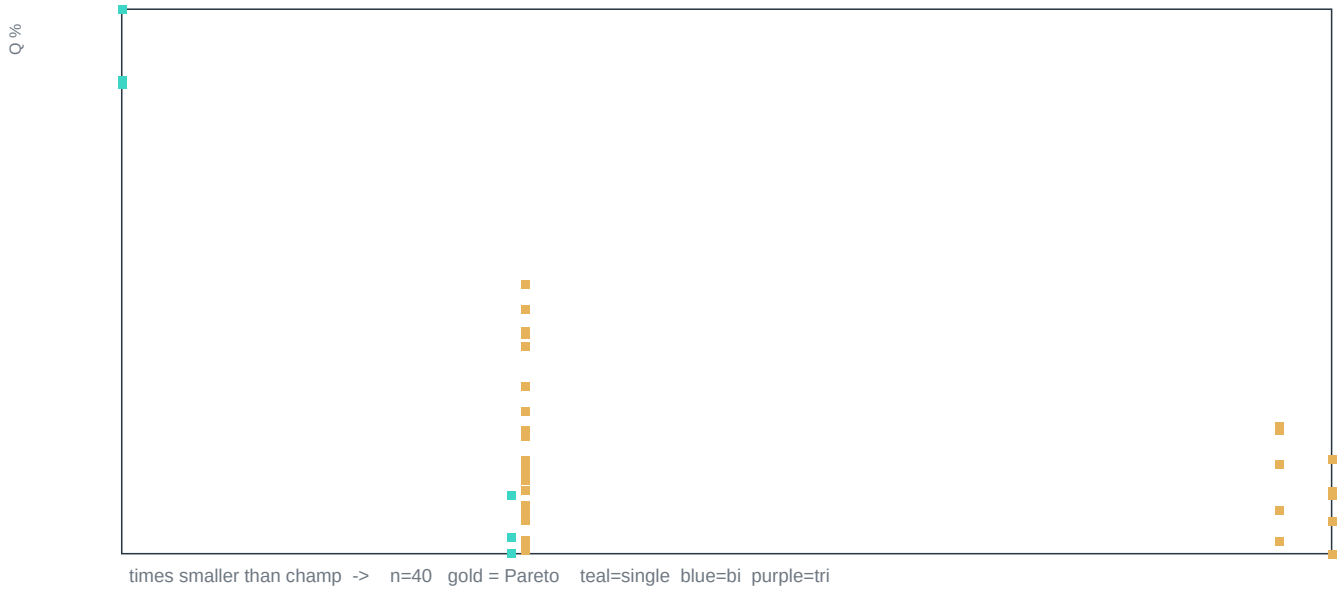
## Trap - tiny RAM, Q < 70% (why Score/MiB lies)

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| trap | binary\|none\|sgd\|single\|simd | 46 | 3 | 31.5 | 0.00 | 25 | 13 | 27081.6 | 0.0 |
| trap | binary\|none\|step_sgd\|single\|simd | 37 | 3 | 31.5 | 0.00 | 25 | 6 | 25369.2 | 0.0 |
| trap | binary\|none\|tween\|single\|simd | 51 | 3 | 31.5 | 0.00 | 25 | 20 | 26851.3 | 0.0 |
| trap | binary\|none\|tween_chain\|single\|simd | 59 | 3 | 31.5 | 0.00 | 26 | 35 | 27292.2 | 0.0 |
| trap | binary\|none\|step_tween\|single\|simd | 40 | 3 | 31.5 | 0.00 | 25 | 10 | 22903.2 | 0.0 |
| trap | binary\|none\|step_tween_chain\|single\|simd | 47 | 3 | 31.5 | 0.00 | 25 | 19 | 22796.3 | 0.0 |
| trap | binary\|none\|MeshBP\|single\|simd | 42 | 3 | 31.5 | 0.00 | 25 | 12 | 23302.0 | 0.0 |
| trap | binary\|none\|MeshTween\|single\|simd | 38 | 3 | 31.5 | 0.00 | 24 | 10 | 21030.1 | 0.0 |
| trap | binary\|none\|MeshTweenChain\|single\|simd | 53 | 3 | 31.5 | 0.00 | 25 | 31 | 23311.1 | 0.0 |
| trap | binary\|none\|TweenSplit\|single\|simd | 44 | 3 | 31.5 | 0.00 | 25 | 14 | 23337.9 | 0.0 |

## LPD - Q% vs RAM KiB (gold = high Q, low RAM)



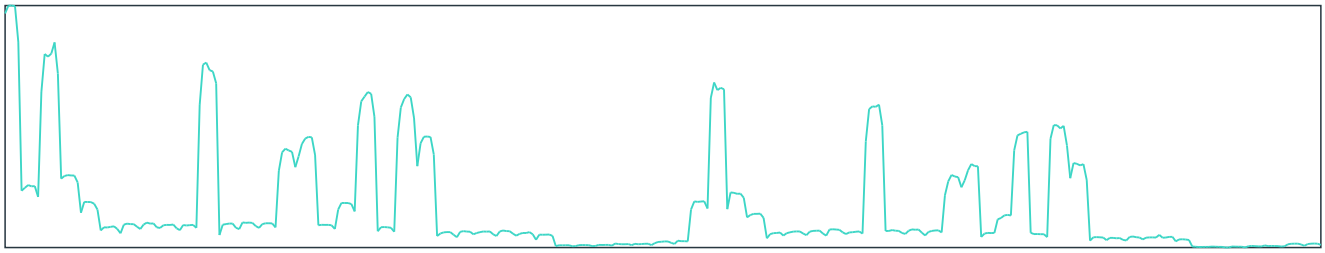

## LPD - Q% vs shrink vs champ (gold = upper right)




## Top LPD

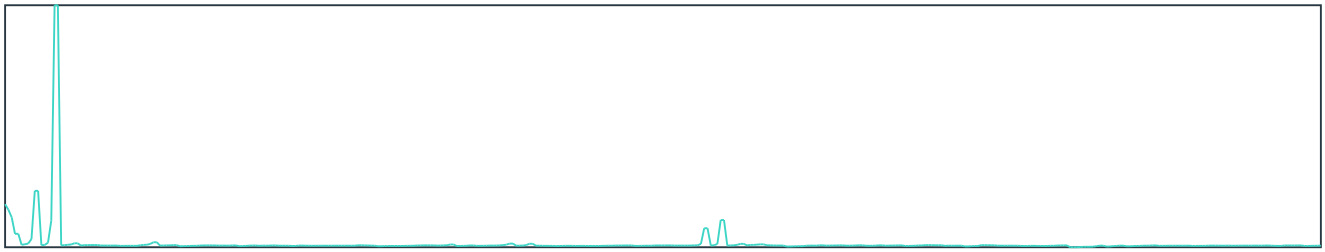



## Pulse Score - cnn1



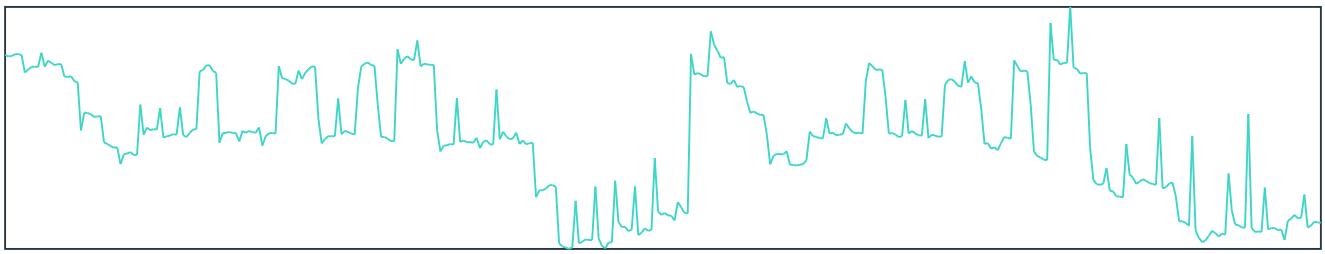
n=400 min=180.14 max=10952.88

## Pulse SoftAcc - cnn1



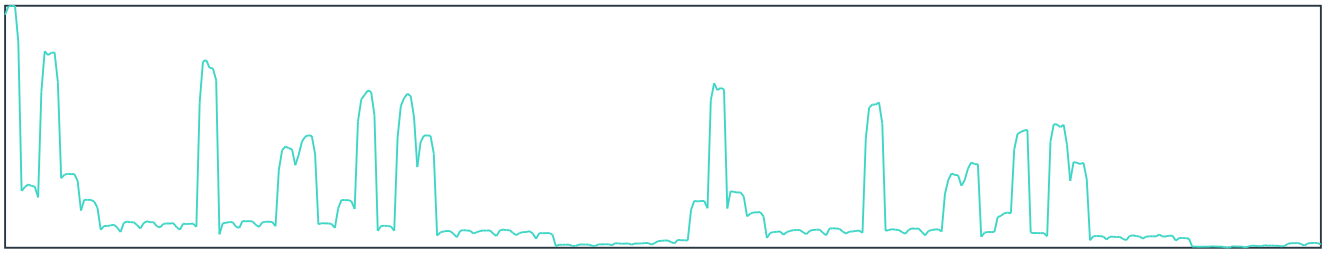
n=400 min=24.99 max=26.60

## Pulse Availability - cnn1



n=400 min=38.36 max=47.08

## Pulse Throughput - cnn1



n=400 min=1754.43 max=96034.88

## Queue by train mode (this epoch)

| Mode | Done | Run | Left | Total |
|---|---|---|---|---|
| sgd | 102 | 0 | 0 | 102 |
| step_sgd | 102 | 0 | 0 | 102 |
| tween | 102 | 0 | 0 | 102 |
| tween_chain | 102 | 0 | 0 | 102 |
| step_tween | 102 | 0 | 0 | 102 |
| step_tween_chain | 102 | 0 | 0 | 102 |
| MeshBP | 102 | 0 | 0 | 102 |
| MeshTween | 102 | 0 | 0 | 102 |
| MeshTweenChain | 102 | 0 | 0 | 102 |
| TweenSplit | 102 | 0 | 0 | 102 |
| StepTweenSplit | 102 | 0 | 0 | 102 |
| TweenAlt | 102 | 0 | 0 | 102 |
| StepTweenAlt | 102 | 0 | 0 | 102 |
| TweenSplitHeadProxy | 102 | 0 | 0 | 102 |
| TweenSplitLinear | 102 | 0 | 0 | 102 |
| TweenSplitFastProxy | 102 | 0 | 0 | 102 |
| TweenSplitLinearCache | 102 | 0 | 0 | 102 |
| TweenSplitHeadProxyAsync | 102 | 0 | 0 | 102 |
| TweenSplitSparse | 102 | 0 | 0 | 102 |
| MeshTweenSplit | 102 | 0 | 0 | 102 |
| MeshTweenAlt | 102 | 0 | 0 | 102 |
| MeshTweenSplitFastProxy | 102 | 0 | 0 | 102 |
| MeshTweenSplitSparse | 102 | 0 | 0 | 102 |

# tide  cnn2

Score = Throughput x Availability% x SoftAcc% / 10,000
done  -  epoch 1  -  2026-08-18 09:45:25  -  0.0.0.0:8103
This epoch 2346 / 2346 cells. Recorded 2346 results.
Score 0 usually means the cell finished before a Lucy pulse (SoftAcc never sampled) or true-class mass was 0. Those rows do not vote holistically.
cnn2  -  tiny spatial patterns (phase rotates)  -  modes all  -  min 2000ms/cell  -  1024 train  -  pulse 50ms  -  SIMD true

## Lucy champions (this tide)

| Axis | Cell | Score | Soft | Acc | Thru | Avail |
|---|---|---|---|---|---|---|
| score | float32\|none\|sgd\|single\|simd | 23268.06 | 43.3 | 96.6 | 135310.8 | 39.7 |
| throughput | float32\|none\|sgd\|single\|simd | 23268.06 | 43.3 | 96.6 | 135310.8 | 39.7 |
| availability | float32\|none\|MeshTweenSplitSparse\|tricameral\|simd | 4179.10 | 26.7 | 50.5 | 35090.6 | 44.6 |
| accuracy | float64\|none\|sgd\|single\|simd | 16233.97 | 43.7 | 96.9 | 85584.3 | 43.4 |
| mobile score (tpp) | binary\|none\|sgd\|single\|simd | 10521.58 | 25.1 | 24.4 | 97264.8 | 43.1 |
| t->50% | binary\|none\|sgd\|bicameral\|simd | 773.74 | 25.0 | 34.8 | 12196.1 | 25.4 |
| acc/sec | float64\|none\|sgd\|single\|simd | 16233.97 | 43.7 | 96.9 | 85584.3 | 43.4 |

## Lucy axes - cnn2

| Axis | Mode | DType | Arch | Value |
|---|---|---|---|---|
| score | sgd | float32 | singlex1 | 23268.06 |
| soft_acc | sgd | float64 | singlex1 | 43.69 |
| hard_acc | tween_chain | bfloat16 | singlex1 | 97.16 |
| throughput | sgd | float32 | singlex1 | 135310.77 |
| availability | MeshTweenSplitS~ | float32 | tricameralx3 | 44.61 |
| acc_thru | sgd | float32 | singlex1 | 58588.62 |
| realtime | sgd | float32 | singlex1 | 53737.72 |
| adapt | MeshTweenAlt | float64 | singlex1 | 44.46 |
| keep_learn | MeshTweenSplitF~ | float64 | singlex1 | 19.81 |
| acc_per_sec | sgd | float64 | singlex1 | 21.83 |
| time_to_50 | sgd | binary | bicameralx2 | 0.05 |
| consistency | sgd | float64 | singlex1 | 100.00 |
| stability | sgd | fp4 | singlex1 | 100.00 |
| mobile_score | sgd | binary | singlex1 | 282889266.02 |
| lpd | sgd | uint8 | singlex1 | 3.09 |
| mspeed | sgd | float32 | singlex1 | 1.00 |
| mavail | TweenSplitFastP~ | float64 | singlex1 | 1.00 |
| mix | sgd | float32 | singlex1 | 0.96 |

## Best settings per train mode

| Mode | DType | Format | Score | Soft | Acc | Avail | n |
|---|---|---|---|---|---|---|---|
| sgd | float32 | none | 23268.1 | 43.3 | 96.6 | 39.7 | 102 |
| tween_chain | float32 | none | 22275.8 | 43.3 | 96.5 | 39.9 | 102 |
| step_sgd | float32 | none | 20527.1 | 42.8 | 95.9 | 38.3 | 102 |
| MeshBP | float32 | none | 18874.0 | 43.2 | 96.5 | 39.1 | 102 |
| step_tween_chain | float32 | none | 18197.6 | 43.1 | 96.5 | 38.0 | 102 |
| TweenSplitHeadProxy | float32 | none | 17725.6 | 42.2 | 95.9 | 39.6 | 102 |
| TweenSplitSparse | float32 | none | 17621.2 | 41.4 | 93.7 | 40.1 | 102 |
| TweenSplitFastProxy | float32 | none | 17517.0 | 41.7 | 94.9 | 39.7 | 102 |
| MeshTweenChain | float32 | none | 17073.6 | 43.3 | 96.2 | 38.4 | 102 |
| MeshTweenSplit | float32 | none | 17035.4 | 40.4 | 91.9 | 40.1 | 102 |
| MeshTweenSplitSparse | float32 | none | 16918.5 | 40.0 | 89.9 | 40.0 | 102 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| TweenSplitHeadProxyAsync | float32 | none | 16642.0 | 38.2 | 91.8 | 39.8 | 102 |
| MeshTweenSplitFastProxy | float32 | none | 16570.2 | 40.4 | 90.9 | 39.7 | 102 |
| TweenSplit | float32 | none | 15922.8 | 42.6 | 95.4 | 39.7 | 102 |
| tween | float32 | none | 15460.8 | 30.2 | 73.1 | 38.7 | 102 |
| StepTweenSplit | float32 | none | 14529.9 | 41.9 | 94.5 | 38.2 | 102 |
| MeshTween | float32 | none | 13595.0 | 32.9 | 81.2 | 38.0 | 102 |
| step_tween | float32 | none | 13128.1 | 29.1 | 73.6 | 37.5 | 102 |
| TweenSplitLinear | float32 | none | 12035.3 | 39.0 | 86.7 | 34.8 | 102 |
| TweenSplitLinearCache | float32 | none | 11244.2 | 26.1 | 46.7 | 39.6 | 102 |
| TweenAlt | float32 | none | 10126.9 | 42.7 | 96.4 | 32.9 | 102 |
| MeshTweenAlt | float32 | none | 9853.4 | 41.5 | 95.1 | 33.4 | 102 |
| StepTweenAlt | float32 | none | 9153.4 | 42.5 | 95.3 | 31.3 | 102 |

## Best dtype per mode

| Mode | Winner dtype | Score | Soft | Acc |
|---|---|---|---|---|
| sgd | float32 | 23268.1 | 43.3 | 96.6 |
| tween_chain | float32 | 22275.8 | 43.3 | 96.5 |
| step_sgd | float32 | 20527.1 | 42.8 | 95.9 |
| MeshBP | float32 | 18874.0 | 43.2 | 96.5 |
| step_tween_chain | float32 | 18197.6 | 43.1 | 96.5 |
| TweenSplitHeadProxy | float32 | 17725.6 | 42.2 | 95.9 |
| TweenSplitSparse | float32 | 17621.2 | 41.4 | 93.7 |
| TweenSplitFastProxy | float32 | 17517.0 | 41.7 | 94.9 |
| MeshTweenChain | float32 | 17073.6 | 43.3 | 96.2 |
| MeshTweenSplit | float32 | 17035.4 | 40.4 | 91.9 |
| MeshTweenSplitSparse | float32 | 16918.5 | 40.0 | 89.9 |
| TweenSplitHeadProxyAsync | float32 | 16642.0 | 38.2 | 91.8 |
| MeshTweenSplitFastProxy | float32 | 16570.2 | 40.4 | 90.9 |
| TweenSplit | float32 | 15922.8 | 42.6 | 95.4 |
| tween | float32 | 15460.8 | 30.2 | 73.1 |
| StepTweenSplit | float32 | 14529.9 | 41.9 | 94.5 |
| MeshTween | float32 | 13595.0 | 32.9 | 81.2 |
| step_tween | float32 | 13128.1 | 29.1 | 73.6 |
| TweenSplitLinear | float32 | 12035.3 | 39.0 | 86.7 |
| TweenSplitLinearCache | float32 | 11244.2 | 26.1 | 46.7 |
| TweenAlt | float32 | 10126.9 | 42.7 | 96.4 |
| MeshTweenAlt | float32 | 9853.4 | 41.5 | 95.1 |
| StepTweenAlt | float32 | 9153.4 | 42.5 | 95.3 |

## Best mode per dtype

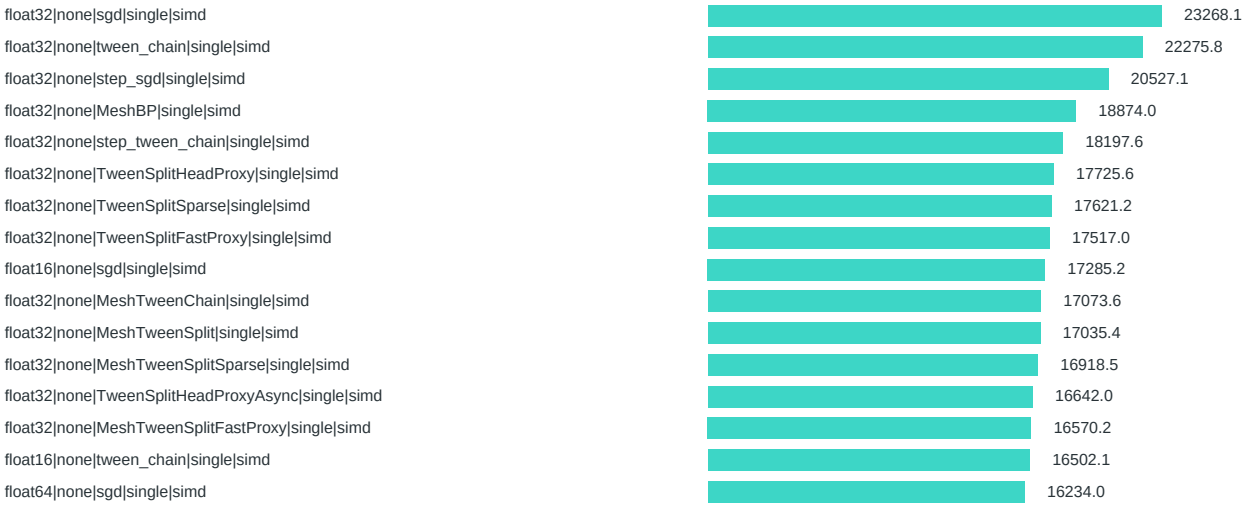
| DType | Winner mode | Score | Soft | Acc |
|---|---|---|---|---|
| float32 | sgd | 23268.1 | 43.3 | 96.6 |
| float16 | sgd | 17285.2 | 43.1 | 96.8 |
| float64 | sgd | 16234.0 | 43.7 | 96.9 |
| bfloat16 | sgd | 14906.0 | 40.9 | 96.6 |
| uint8 | sgd | 14794.6 | 34.1 | 94.8 |
| int8 | sgd | 12470.9 | 34.1 | 94.6 |
| uint64 | sgd | 12284.6 | 33.4 | 95.3 |
| uint32 | sgd | 12159.1 | 33.2 | 95.1 |
| int64 | sgd | 12035.8 | 43.3 | 96.4 |
| uint16 | sgd | 11358.2 | 31.8 | 95.6 |
| binary | sgd | 10521.6 | 25.1 | 24.4 |

| | | | | |
|---|---|---|---|---|
| int4 | sgd | 10453.6 | 25.2 | 29.8 |
| int2 | sgd | 10397.1 | 25.0 | 22.3 |
| ternary | sgd | 10335.3 | 24.8 | 21.7 |
| int | sgd | 10333.0 | 43.1 | 96.6 |
| complex128 | sgd | 10045.9 | 43.2 | 96.3 |
| complex64 | sgd | 9995.7 | 43.2 | 96.9 |
| int32 | sgd | 9739.2 | 33.7 | 93.9 |
| int16 | sgd | 9340.2 | 33.4 | 95.5 |
| fp4 | sgd | 9275.6 | 25.0 | 25.0 |
| uintptr | sgd | 9220.0 | 32.9 | 95.0 |
| uint | sgd | 9083.0 | 31.8 | 94.3 |
| uint4 | sgd | 8792.3 | 25.2 | 38.0 |
| uint2 | sgd | 7965.5 | 24.8 | 16.0 |
| fp8e5m2 | sgd | 7459.4 | 26.6 | 70.3 |
| fp8e4m3 | sgd | 7038.3 | 26.0 | 49.1 |
| nf4 | sgd | 4876.0 | 25.7 | 45.5 |
| uint3 | sgd | 4399.9 | 24.9 | 24.5 |
| uint5 | sgd | 4055.0 | 28.3 | 83.1 |
| uint6 | sgd | 4051.6 | 31.1 | 91.9 |
| int3 | sgd | 3880.8 | 25.0 | 22.4 |
| int6 | sgd | 3561.9 | 30.8 | 93.5 |
| int5 | sgd | 3544.6 | 27.8 | 83.1 |
| fp6 | sgd | 3222.9 | 32.6 | 91.2 |

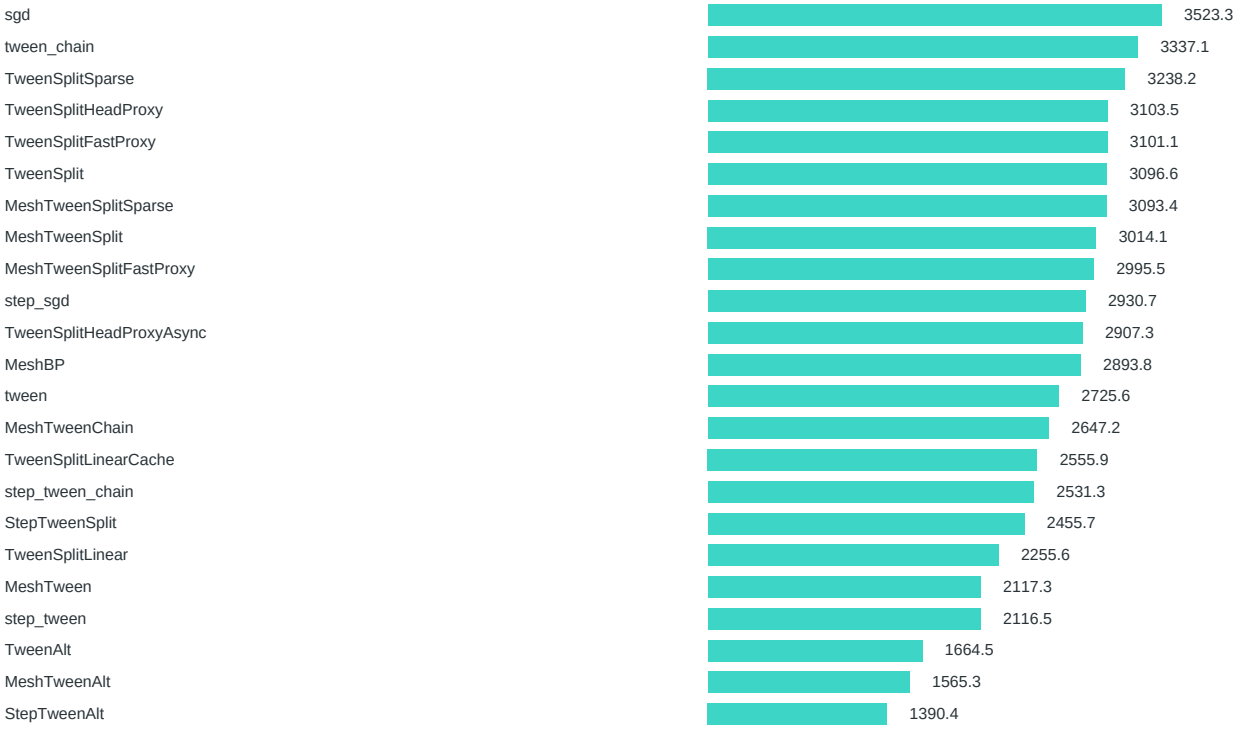
## Leaderboard - cnn2

| # | Cell | Score | Soft | Acc | Thru | Avail |
|---|---|---|---|---|---|---|
| 1 | float32\|none\|sgd\|single\|simd | 23268.1 | 43.3 | 96.6 | 135310.8 | 39.7 |
| 2 | float32\|none\|tween_chain\|single\|simd | 22275.8 | 43.3 | 96.5 | 129008.9 | 39.9 |
| 3 | float32\|none\|step_sgd\|single\|simd | 20527.1 | 42.8 | 95.9 | 125225.9 | 38.3 |
| 4 | float32\|none\|MeshBP\|single\|simd | 18874.0 | 43.2 | 96.5 | 111738.0 | 39.1 |
| 5 | float32\|none\|step_tween_chain\|single\|simd | 18197.6 | 43.1 | 96.5 | 111087.9 | 38.0 |
| 6 | float32\|none\|TweenSplitHeadProxy\|single\|simd | 17725.6 | 42.2 | 95.9 | 105936.7 | 39.6 |
| 7 | float32\|none\|TweenSplitSparse\|single\|simd | 17621.2 | 41.4 | 93.7 | 106218.7 | 40.1 |
| 8 | float32\|none\|TweenSplitFastProxy\|single\|simd | 17517.0 | 41.7 | 94.9 | 105716.1 | 39.7 |
| 9 | float16\|none\|sgd\|single\|simd | 17285.2 | 43.1 | 96.8 | 100842.7 | 39.7 |
| 10 | float32\|none\|MeshTweenChain\|single\|simd | 17073.6 | 43.3 | 96.2 | 102620.9 | 38.4 |
| 11 | float32\|none\|MeshTweenSplit\|single\|simd | 17035.4 | 40.4 | 91.9 | 105274.8 | 40.1 |
| 12 | float32\|none\|MeshTweenSplitSparse\|single\|simd | 16918.5 | 40.0 | 89.9 | 105525.2 | 40.0 |
| 13 | float32\|none\|TweenSplitHeadProxyAsync\|single\|simd | 16642.0 | 38.2 | 91.8 | 109528.2 | 39.8 |
| 14 | float32\|none\|MeshTweenSplitFastProxy\|single\|simd | 16570.2 | 40.4 | 90.9 | 103310.1 | 39.7 |
| 15 | float16\|none\|tween_chain\|single\|simd | 16502.1 | 42.9 | 96.4 | 97058.4 | 39.7 |
| 16 | float64\|none\|sgd\|single\|simd | 16234.0 | 43.7 | 96.9 | 85584.3 | 43.4 |
| 17 | float32\|none\|TweenSplit\|single\|simd | 15922.8 | 42.6 | 95.4 | 94141.2 | 39.7 |
| 18 | float64\|none\|tween_chain\|single\|simd | 15560.5 | 43.4 | 96.7 | 82772.4 | 43.3 |
| 19 | float32\|none\|tween\|single\|simd | 15460.8 | 30.2 | 73.1 | 132344.5 | 38.7 |
| 20 | float16\|none\|step_sgd\|single\|simd | 15067.4 | 42.8 | 95.9 | 93070.5 | 37.8 |

## Top scores - cnn2



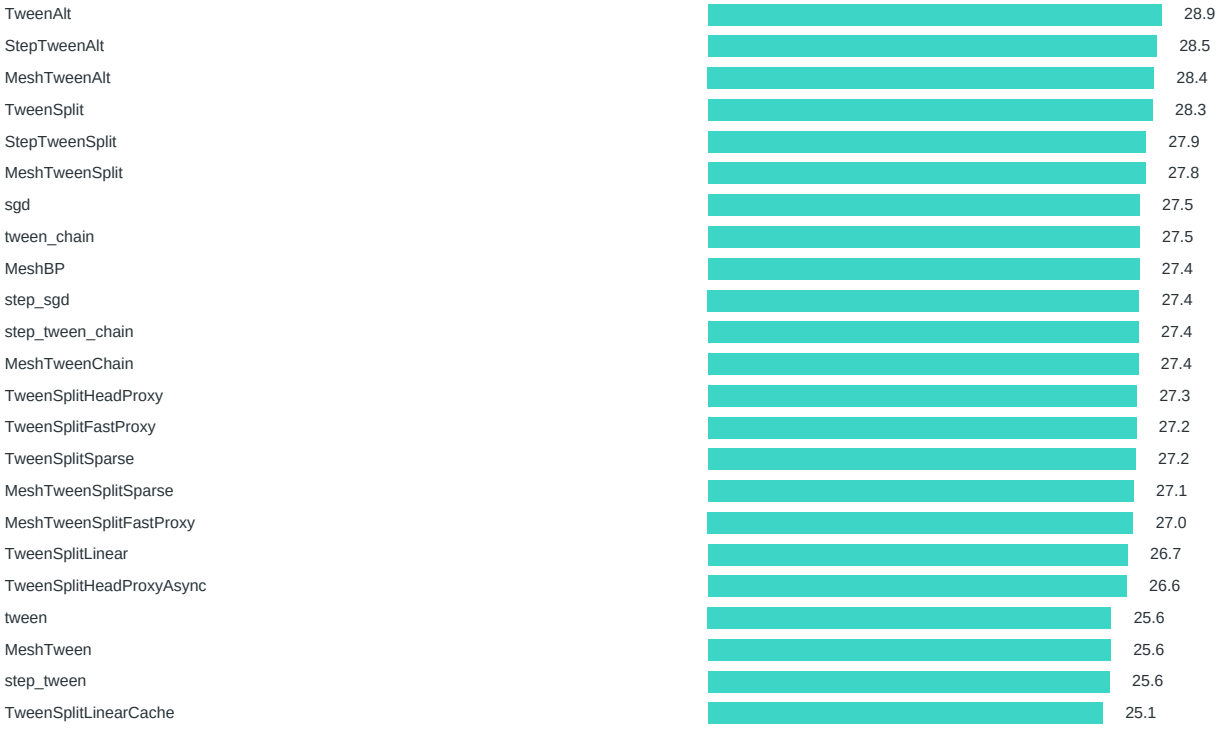

## Mean Score by train mode



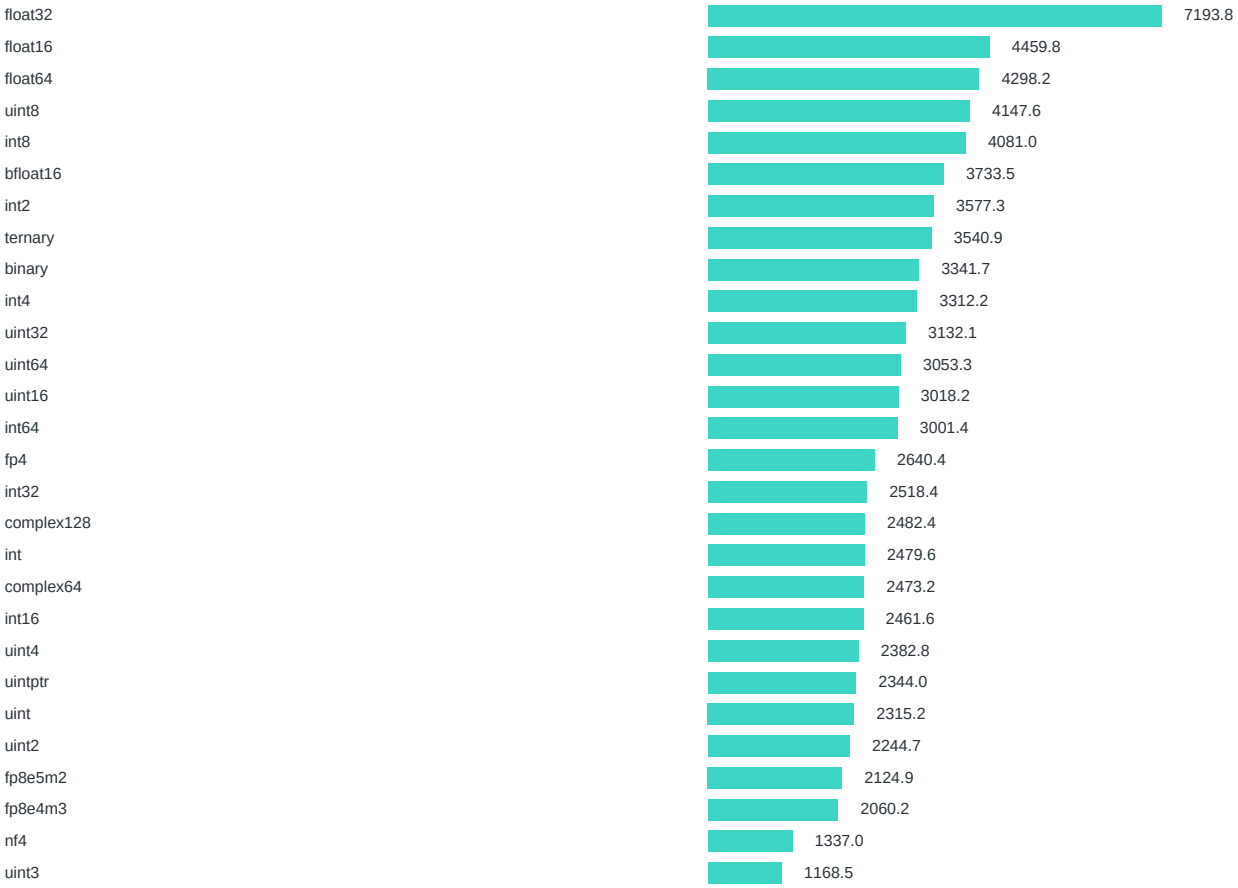

## Mean hard Acc by train mode




## Mean SoftAcc by train mode




## Mean Score by dtype




## Mean hard Acc by dtype




## Mean Score by arch




## Honesty - mean Score, every mode x dtype (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 4187 | 3216 | 2862 | 2799 | 5139 | 7962 | 4855 | 2708 | 858 | 2181 | 2197 | 2924 | 2763 | 3533 | 1097 | 2835 |
| MeshTween | 2733 | 2733 | 1666 | 1732 | 3172 | 6050 | 3108 | 2380 | 539 | 1750 | 1769 | 1766 | 1937 | 3074 | 856 | 1971 |
| MeshTweenAlt | 2169 | 1984 | 1464 | 1437 | 2462 | 4449 | 2740 | 1467 | 389 | 1231 | 1210 | 1492 | 1444 | 1972 | 676 | 1498 |
| MeshTweenChain | 4091 | 3064 | 2612 | 2670 | 4695 | 7253 | 4659 | 2483 | 785 | 2093 | 2104 | 2676 | 2414 | 3116 | 999 | 2446 |
| MeshTweenSplit | 4108 | 3900 | 2849 | 2932 | 4853 | 8210 | 4707 | 2937 | 931 | 2350 | 2598 | 2666 | 2836 | 3789 | 1292 | 2777 |
| MeshTweenSplitFa | 4231 | 3985 | 2872 | 2926 | 5023 | 7472 | 4821 | 2815 | 933 | 2279 | 2281 | 2862 | 2849 | 4010 | 1214 | 2982 |
| MeshTweenSplitSp | 4132 | 4054 | 2996 | 2645 | 5107 | 8802 | 4456 | 2867 | 973 | 2408 | 2430 | 2540 | 2887 | 4611 | 1197 | 2914 |
| StepTweenAlt | 1915 | 1772 | 1312 | 1350 | 2195 | 4115 | 2563 | 1365 | 299 | 1015 | 1113 | 1254 | 1256 | 1843 | 470 | 1286 |
| StepTweenSplit | 3617 | 3213 | 2175 | 2266 | 4172 | 6949 | 3857 | 2542 | 644 | 2009 | 2088 | 2154 | 2121 | 3481 | 910 | 2174 |
| TweenAlt | 2348 | 1958 | 1685 | 1616 | 2735 | 4640 | 2922 | 1612 | 385 | 1269 | 1274 | 1624 | 1613 | 2232 | 597 | 1654 |
| TweenSplit | 4250 | 3927 | 3079 | 2897 | 5064 | 7963 | 4920 | 3079 | 923 | 2513 | 2601 | 3095 | 2732 | 4288 | 1306 | 2937 |
| TweenSplitFastPr | 4266 | 3913 | 3057 | 3054 | 5707 | 7837 | 5093 | 3035 | 1012 | 2355 | 2317 | 3204 | 2923 | 4223 | 1221 | 2931 |
| TweenSplitHeadPr | 4680 | 3989 | 3079 | 2940 | 5386 | 7916 | 5087 | 2739 | 992 | 2406 | 2385 | 2953 | 2977 | 4088 | 1190 | 2849 |
| TweenSplitHeadPr | 3805 | 3727 | 2637 | 2877 | 4778 | 7437 | 4536 | 2855 | 865 | 2238 | 2293 | 2789 | 2694 | 3923 | 1334 | 2812 |
| TweenSplitLinear | 2825 | 2887 | 2422 | 2392 | 3235 | 5345 | 3955 | 2244 | 621 | 1554 | 1651 | 2305 | 2252 | 3097 | 1043 | 2328 |
| TweenSplitLinear | 2895 | 3852 | 2006 | 1960 | 3546 | 5758 | 3458 | 2890 | 791 | 2178 | 2284 | 2045 | 2365 | 4072 | 1254 | 2251 |
| TweenSplitSparse | 4614 | 4250 | 2848 | 2891 | 5553 | 8885 | 4988 | 3210 | 1009 | 2481 | 2386 | 2954 | 2835 | 4887 | 1196 | 3073 |
| sgd | 5271 | 3925 | 3458 | 3447 | 6189 | 9940 | 5886 | 3342 | 1109 | 2519 | 2647 | 3554 | 3275 | 4214 | 1345 | 3416 |
| step_sgd | 4458 | 3398 | 2736 | 2759 | 5350 | 8606 | 4903 | 2873 | 802 | 2202 | 2308 | 2752 | 2667 | 3594 | 1014 | 2784 |
| step_tween | 2762 | 2928 | 1597 | 1651 | 3317 | 5820 | 3173 | 2538 | 532 | 1783 | 1897 | 1591 | 1886 | 3201 | 824 | 1899 |
| step_tween_chain | 3868 | 2929 | 2304 | 2335 | 4651 | 7499 | 4376 | 2509 | 666 | 1889 | 2002 | 2304 | 2315 | 3151 | 905 | 2309 |
| tween | 3596 | 3645 | 2157 | 2087 | 4335 | 7086 | 4171 | 3095 | 721 | 2246 | 2425 | 2271 | 2417 | 3943 | 1153 | 2579 |
| tween_chain | 5049 | 3612 | 3222 | 3222 | 5911 | 9460 | 5626 | 3143 | 956 | 2436 | 2613 | 3256 | 3159 | 3934 | 1294 | 3218 |

## Honesty - mean Score, every mode x dtype (cols 17-32)

## Honesty - mean Score, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 3234 | 895 | 986 | 3421 | 4437 | 1424 | 3266 | 2653 | 3370 | 2346 | 1212 | 3567 | 2542 | 1159 | 1113 | 3414 |
| MeshTween | 2857 | 668 | 656 | 2006 | 3380 | 1117 | 2937 | 1929 | 2473 | 1962 | 939 | 2396 | 2071 | 793 | 688 | 2555 |
| MeshTweenAlt | 2110 | 438 | 444 | 1863 | 2263 | 690 | 2051 | 1278 | 1846 | 1473 | 659 | 1967 | 1429 | 579 | 478 | 1854 |
| MeshTweenChain | 2963 | 928 | 927 | 3125 | 4035 | 1334 | 3115 | 2352 | 3075 | 2133 | 1066 | 3049 | 2283 | 1067 | 941 | 3044 |
| MeshTweenSplit | 3858 | 1169 | 1134 | 3363 | 4243 | 1718 | 4266 | 2593 | 3407 | 2442 | 1445 | 3750 | 2533 | 1114 | 1219 | 3223 |
| MeshTweenSplitFa | 3719 | 1127 | 1061 | 3549 | 4649 | 1502 | 4129 | 2547 | 3169 | 2554 | 1384 | 3641 | 2462 | 1249 | 1209 | 3389 |
| MeshTweenSplitSp | 3990 | 1101 | 1097 | 3434 | 5225 | 1419 | 4564 | 2523 | 3488 | 2420 | 1337 | 3658 | 2536 | 1254 | 1165 | 3293 |
| StepTweenAlt | 1708 | 378 | 356 | 1597 | 2102 | 606 | 1891 | 1137 | 1661 | 1315 | 522 | 1633 | 1279 | 459 | 401 | 1773 |
| StepTweenSplit | 3234 | 752 | 723 | 2714 | 3887 | 1195 | 3495 | 2089 | 2680 | 2000 | 991 | 2718 | 2158 | 858 | 814 | 2667 |
| TweenAlt | 2272 | 488 | 471 | 1976 | 2221 | 776 | 2069 | 1437 | 2022 | 1516 | 660 | 1992 | 1589 | 569 | 522 | 1880 |
| TweenSplit | 3964 | 1127 | 1042 | 3558 | 4528 | 1584 | 4295 | 2674 | 3405 | 2439 | 1465 | 3504 | 2911 | 1277 | 1229 | 3319 |
| TweenSplitFastPr | 3825 | 1011 | 1091 | 3532 | 4758 | 1453 | 4129 | 2736 | 3556 | 2459 | 1257 | 3508 | 2722 | 1276 | 1150 | 3409 |
| TweenSplitHeadPr | 3684 | 1134 | 1092 | 3761 | 4743 | 1504 | 4208 | 2642 | 3446 | 2484 | 1367 | 3657 | 2682 | 1189 | 1265 | 3426 |
| TweenSplitHeadPr | 3629 | 1033 | 1063 | 3333 | 4378 | 1582 | 3837 | 2426 | 3222 | 2531 | 1398 | 3291 | 2566 | 1249 | 1148 | 3617 |
| TweenSplitLinear | 2650 | 747 | 785 | 2856 | 2896 | 1167 | 2923 | 2172 | 2530 | 2115 | 1149 | 2843 | 2138 | 866 | 845 | 2728 |
| TweenSplitLinear | 3863 | 981 | 888 | 2439 | 3997 | 1592 | 4278 | 2171 | 2719 | 2402 | 1403 | 3058 | 2563 | 1064 | 995 | 2754 |
| TweenSplitSparse | 4154 | 1114 | 1181 | 3797 | 5313 | 1549 | 4798 | 2728 | 3539 | 2561 | 1380 | 3473 | 2815 | 1257 | 1312 | 3349 |
| sgd | 3899 | 1221 | 1222 | 4177 | 5477 | 1707 | 4000 | 3134 | 3956 | 2777 | 1518 | 4230 | 3079 | 1391 | 1385 | 4266 |
| step_sgd | 3415 | 870 | 883 | 3398 | 4671 | 1404 | 3502 | 2571 | 3340 | 2376 | 1144 | 3455 | 2484 | 1058 | 1005 | 3470 |
| step_tween | 2896 | 626 | 573 | 1795 | 3300 | 1141 | 3043 | 1880 | 2457 | 1987 | 943 | 2533 | 2167 | 719 | 653 | 2497 |
| step_tween_chain | 2890 | 733 | 767 | 2859 | 4053 | 1187 | 3026 | 2184 | 3017 | 2060 | 932 | 2972 | 2156 | 892 | 885 | 3118 |
| tween | 3577 | 924 | 841 | 2514 | 4253 | 1472 | 3783 | 2405 | 3138 | 2550 | 1281 | 3192 | 2751 | 1077 | 956 | 3251 |
| tween_chain | 3786 | 1151 | 1174 | 3963 | 5053 | 1627 | 3835 | 2987 | 3902 | 2725 | 1423 | 3948 | 2888 | 1320 | 1275 | 3929 |

## Honesty - mean Score, every mode x dtype  (cols 33-34)

## Honesty - mean Score, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 4718 | 2514 |
| MeshTween | 3480 | 1844 |
| MeshTweenAlt | 2393 | 1322 |
| MeshTweenChain | 3981 | 2424 |
| MeshTweenSplit | 4619 | 2644 |
| MeshTweenSplitFa | 4409 | 2541 |
| MeshTweenSplitSp | 5017 | 2637 |
| StepTweenAlt | 2190 | 1145 |
| StepTweenSplit | 4064 | 2083 |
| TweenAlt | 2503 | 1465 |
| TweenSplit | 4559 | 2828 |
| TweenSplitFastPr | 4746 | 2669 |
| TweenSplitHeadPr | 4771 | 2807 |
| TweenSplitHeadPr | 4365 | 2582 |
| TweenSplitLinear | 2976 | 2147 |
| TweenSplitLinear | 3819 | 2308 |
| TweenSplitSparse | 4989 | 2729 |
| sgd | 5633 | 3180 |
| step_sgd | 4813 | 2578 |
| step_tween | 3505 | 1850 |
| step_tween_chain | 4153 | 2167 |
| tween | 4429 | 2352 |
| tween_chain | 5264 | 3097 |

## Honesty - mean hard Acc, every mode x dtype  (cols 1-16)

## Honesty - mean hard Acc, every mode x dtype  (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 72 | 24 | 54 | 64 | 71 | 77 | 68 | 25 | 49 | 35 | 31 | 66 | 67 | 22 | 25 | 63 |
| MeshTween | 52 | 27 | 49 | 40 | 40 | 47 | 43 | 25 | 29 | 25 | 23 | 34 | 42 | 21 | 26 | 38 |
| MeshTweenAlt | 78 | 25 | 71 | 71 | 78 | 84 | 82 | 25 | 42 | 45 | 56 | 71 | 47 | 27 | 27 | 47 |
| MeshTweenChain | 66 | 13 | 62 | 64 | 65 | 68 | 66 | 25 | 42 | 38 | 37 | 60 | 64 | 26 | 30 | 63 |
| MeshTweenSplit | 73 | 20 | 69 | 67 | 77 | 81 | 77 | 25 | 40 | 42 | 42 | 69 | 45 | 23 | 24 | 46 |
| MeshTweenSplitFa | 69 | 36 | 50 | 49 | 64 | 60 | 52 | 25 | 38 | 32 | 41 | 58 | 45 | 22 | 30 | 49 |
| MeshTweenSplitSp | 58 | 35 | 52 | 48 | 57 | 66 | 51 | 25 | 45 | 38 | 45 | 53 | 51 | 35 | 21 | 49 |
| StepTweenAlt | 82 | 34 | 75 | 77 | 83 | 91 | 85 | 25 | 39 | 41 | 58 | 73 | 47 | 22 | 20 | 50 |
| StepTweenSplit | 75 | 23 | 66 | 65 | 81 | 86 | 80 | 25 | 42 | 42 | 42 | 63 | 45 | 27 | 24 | 46 |
| TweenAlt | 84 | 23 | 79 | 79 | 86 | 91 | 88 | 25 | 43 | 43 | 58 | 79 | 52 | 31 | 25 | 53 |
| TweenSplit | 80 | 26 | 74 | 76 | 84 | 88 | 84 | 25 | 41 | 43 | 43 | 73 | 47 | 23 | 26 | 48 |
| TweenSplitFastPr | 69 | 26 | 55 | 50 | 58 | 56 | 54 | 25 | 57 | 35 | 36 | 57 | 50 | 24 | 24 | 54 |
| TweenSplitHeadPr | 68 | 21 | 54 | 54 | 59 | 61 | 63 | 25 | 47 | 34 | 25 | 61 | 52 | 32 | 22 | 54 |
| TweenSplitHeadPr | 54 | 23 | 45 | 47 | 50 | 45 | 46 | 25 | 49 | 33 | 36 | 48 | 48 | 26 | 27 | 47 |
| TweenSplitLinear | 58 | 29 | 58 | 54 | 65 | 50 | 54 | 25 | 44 | 31 | 39 | 50 | 48 | 24 | 25 | 55 |
| TweenSplitLinear | 27 | 20 | 22 | 28 | 38 | 41 | 23 | 25 | 29 | 31 | 21 | 29 | 26 | 28 | 28 | 24 |
| TweenSplitSparse | 61 | 21 | 43 | 46 | 53 | 66 | 60 | 25 | 50 | 36 | 37 | 55 | 50 | 20 | 33 | 52 |
| sgd | 65 | 27 | 65 | 63 | 66 | 67 | 70 | 25 | 49 | 33 | 41 | 63 | 68 | 16 | 29 | 65 |
| step_sgd | 68 | 26 | 62 | 66 | 61 | 70 | 68 | 25 | 46 | 37 | 30 | 63 | 57 | 27 | 24 | 66 |
| step_tween | 47 | 19 | 44 | 44 | 46 | 43 | 46 | 25 | 34 | 29 | 24 | 38 | 45 | 29 | 14 | 49 |
| step_tween_chain | 69 | 27 | 57 | 65 | 57 | 78 | 66 | 25 | 38 | 38 | 33 | 61 | 62 | 27 | 24 | 66 |
| tween | 53 | 24 | 36 | 36 | 51 | 44 | 45 | 25 | 33 | 21 | 33 | 37 | 36 | 23 | 28 | 49 |
| tween_chain | 66 | 22 | 62 | 64 | 68 | 76 | 61 | 25 | 40 | 37 | 41 | 66 | 64 | 19 | 21 | 64 |

## Honesty - mean hard Acc, every mode x dtype  (cols 17-32)

## Honesty - mean hard Acc, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 23 | 44 | 44 | 59 | 43 | 32 | 27 | 60 | 65 | 31 | 25 | 69 | 39 | 42 | 54 | 61 |
| MeshTween | 33 | 19 | 26 | 39 | 42 | 32 | 31 | 39 | 42 | 24 | 22 | 46 | 27 | 18 | 34 | 51 |
| MeshTweenAlt | 33 | 32 | 39 | 75 | 54 | 25 | 22 | 47 | 47 | 19 | 22 | 50 | 27 | 28 | 37 | 49 |
| MeshTweenChain | 25 | 45 | 53 | 66 | 43 | 37 | 21 | 55 | 65 | 35 | 22 | 62 | 29 | 43 | 49 | 66 |
| MeshTweenSplit | 29 | 32 | 36 | 70 | 46 | 22 | 22 | 44 | 46 | 25 | 23 | 46 | 31 | 35 | 40 | 46 |
| MeshTweenSplitFa | 29 | 39 | 48 | 51 | 60 | 23 | 31 | 50 | 62 | 23 | 26 | 48 | 19 | 44 | 45 | 48 |
| MeshTweenSplitSp | 41 | 51 | 45 | 55 | 44 | 32 | 26 | 41 | 56 | 23 | 30 | 54 | 25 | 47 | 50 | 47 |
| StepTweenAlt | 27 | 33 | 42 | 80 | 55 | 25 | 28 | 46 | 48 | 28 | 24 | 49 | 27 | 28 | 40 | 49 |
| StepTweenSplit | 28 | 34 | 41 | 70 | 47 | 32 | 22 | 47 | 46 | 26 | 27 | 45 | 28 | 29 | 43 | 47 |
| TweenAlt | 27 | 30 | 44 | 83 | 58 | 26 | 26 | 46 | 50 | 22 | 23 | 48 | 26 | 35 | 43 | 52 |
| TweenSplit | 29 | 34 | 42 | 80 | 50 | 28 | 26 | 45 | 45 | 21 | 27 | 47 | 20 | 37 | 45 | 45 |
| TweenSplitFastPr | 32 | 37 | 49 | 52 | 45 | 30 | 19 | 51 | 51 | 22 | 37 | 50 | 32 | 42 | 39 | 45 |
| TweenSplitHeadPr | 34 | 45 | 40 | 50 | 45 | 38 | 21 | 52 | 56 | 21 | 22 | 45 | 34 | 49 | 44 | 56 |
| TweenSplitHeadPr | 32 | 36 | 43 | 45 | 43 | 26 | 31 | 48 | 44 | 25 | 20 | 46 | 16 | 40 | 43 | 46 |
| TweenSplitLinear | 23 | 28 | 42 | 49 | 52 | 26 | 27 | 46 | 50 | 26 | 30 | 54 | 28 | 29 | 39 | 54 |
| TweenSplitLinear | 14 | 25 | 31 | 27 | 25 | 21 | 15 | 31 | 24 | 23 | 32 | 30 | 24 | 17 | 28 | 28 |
| TweenSplitSparse | 23 | 40 | 42 | 52 | 50 | 29 | 26 | 54 | 54 | 36 | 29 | 50 | 38 | 49 | 44 | 52 |
| sgd | 26 | 41 | 47 | 64 | 43 | 26 | 18 | 59 | 59 | 26 | 23 | 69 | 28 | 51 | 45 | 64 |
| step_sgd | 28 | 42 | 48 | 66 | 50 | 33 | 25 | 59 | 57 | 29 | 32 | 63 | 28 | 50 | 49 | 68 |
| step_tween | 23 | 26 | 24 | 33 | 37 | 20 | 28 | 42 | 44 | 36 | 23 | 45 | 18 | 35 | 29 | 44 |
| step_tween_chain | 28 | 39 | 49 | 65 | 51 | 24 | 32 | 67 | 62 | 24 | 18 | 70 | 31 | 52 | 45 | 70 |
| tween | 27 | 22 | 37 | 34 | 43 | 29 | 26 | 37 | 42 | 26 | 26 | 48 | 27 | 23 | 29 | 43 |
| tween_chain | 27 | 41 | 54 | 64 | 48 | 30 | 23 | 61 | 59 | 31 | 28 | 65 | 33 | 47 | 51 | 72 |

## Honesty - mean hard Acc, every mode x dtype  (cols 33-34)

## Honesty - mean hard Acc, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 56 | 67 |
| MeshTween | 42 | 41 |
| MeshTweenAlt | 52 | 48 |
| MeshTweenChain | 52 | 65 |
| MeshTweenSplit | 45 | 47 |
| MeshTweenSplitFa | 43 | 49 |
| MeshTweenSplitSp | 49 | 57 |
| StepTweenAlt | 56 | 46 |
| StepTweenSplit | 48 | 47 |
| TweenAlt | 56 | 49 |
| TweenSplit | 48 | 46 |
| TweenSplitFastPr | 49 | 57 |
| TweenSplitHeadPr | 50 | 51 |
| TweenSplitHeadPr | 40 | 41 |
| TweenSplitLinear | 43 | 58 |
| TweenSplitLinear | 21 | 26 |
| TweenSplitSparse | 41 | 51 |
| sgd | 53 | 69 |
| step_sgd | 45 | 61 |
| step_tween | 39 | 43 |
| step_tween_chain | 47 | 67 |
| tween | 39 | 42 |
| tween_chain | 53 | 62 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 1-16)

## Honesty - mean SoftAcc, every mode x dtype  (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 30 | 25 | 31 | 31 | 31 | 31 | 31 | 25 | 27 | 26 | 25 | 31 | 28 | 25 | 25 | 28 |
| MeshTween | 26 | 25 | 26 | 27 | 26 | 28 | 27 | 25 | 25 | 25 | 25 | 27 | 26 | 25 | 25 | 26 |
| MeshTweenAlt | 35 | 25 | 35 | 35 | 37 | 39 | 38 | 25 | 26 | 27 | 28 | 35 | 27 | 25 | 25 | 27 |
| MeshTweenChain | 30 | 25 | 31 | 31 | 31 | 31 | 31 | 25 | 27 | 26 | 26 | 31 | 28 | 25 | 25 | 27 |
| MeshTweenSplit | 33 | 25 | 33 | 33 | 35 | 37 | 36 | 25 | 26 | 27 | 26 | 34 | 27 | 25 | 25 | 27 |
| MeshTweenSplitFa | 30 | 25 | 30 | 30 | 30 | 30 | 30 | 25 | 27 | 25 | 25 | 30 | 27 | 25 | 25 | 27 |
| MeshTweenSplitSp | 29 | 25 | 30 | 30 | 30 | 31 | 30 | 25 | 27 | 26 | 26 | 30 | 27 | 25 | 25 | 27 |
| StepTweenAlt | 36 | 25 | 35 | 36 | 38 | 41 | 39 | 25 | 26 | 26 | 27 | 35 | 27 | 25 | 25 | 27 |
| StepTweenSplit | 33 | 25 | 32 | 33 | 36 | 38 | 36 | 25 | 26 | 27 | 27 | 32 | 27 | 25 | 25 | 27 |
| TweenAlt | 36 | 25 | 37 | 37 | 39 | 41 | 40 | 25 | 26 | 27 | 28 | 37 | 27 | 25 | 25 | 27 |
| TweenSplit | 34 | 25 | 34 | 35 | 37 | 39 | 37 | 25 | 26 | 27 | 27 | 35 | 27 | 25 | 25 | 27 |
| TweenSplitFastPr | 30 | 25 | 30 | 30 | 30 | 31 | 31 | 25 | 27 | 26 | 25 | 31 | 28 | 25 | 25 | 28 |
| TweenSplitHeadPr | 30 | 25 | 31 | 31 | 31 | 31 | 31 | 25 | 28 | 25 | 25 | 31 | 28 | 25 | 25 | 28 |
| TweenSplitHeadPr | 28 | 25 | 29 | 29 | 29 | 29 | 29 | 25 | 27 | 25 | 25 | 29 | 27 | 25 | 25 | 27 |
| TweenSplitLinear | 29 | 25 | 30 | 30 | 29 | 30 | 30 | 25 | 26 | 25 | 25 | 30 | 27 | 25 | 25 | 27 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitSparse | 30 | 25 | 30 | 30 | 30 | 31 | 30 | 25 | 27 | 26 | 25 | 30 | 28 | 25 | 25 | 28 |
| sgd | 30 | 25 | 31 | 31 | 31 | 32 | 31 | 25 | 28 | 25 | 26 | 31 | 28 | 25 | 25 | 28 |
| step_sgd | 30 | 25 | 31 | 31 | 31 | 32 | 31 | 25 | 27 | 26 | 25 | 31 | 28 | 25 | 25 | 28 |
| step_tween | 26 | 25 | 26 | 27 | 26 | 26 | 27 | 25 | 25 | 25 | 25 | 26 | 26 | 25 | 25 | 26 |
| step_tween_chain | 30 | 25 | 31 | 31 | 31 | 32 | 31 | 25 | 27 | 25 | 25 | 31 | 28 | 25 | 25 | 27 |
| tween | 26 | 25 | 27 | 26 | 27 | 27 | 28 | 25 | 25 | 25 | 25 | 27 | 26 | 25 | 25 | 26 |
| tween_chain | 30 | 25 | 31 | 31 | 31 | 33 | 31 | 25 | 27 | 25 | 26 | 31 | 28 | 25 | 25 | 28 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 17-32)

## Honesty - mean SoftAcc, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 25 | 26 | 27 | 31 | 28 | 25 | 25 | 28 | 28 | 25 | 25 | 28 | 25 | 26 | 27 | 28 |
| MeshTween | 25 | 25 | 25 | 27 | 26 | 25 | 25 | 26 | 26 | 25 | 25 | 26 | 25 | 25 | 25 | 26 |
| MeshTweenAlt | 25 | 25 | 26 | 36 | 27 | 25 | 25 | 27 | 27 | 25 | 25 | 27 | 25 | 25 | 26 | 27 |
| MeshTweenChain | 25 | 26 | 27 | 31 | 28 | 25 | 25 | 27 | 28 | 25 | 25 | 28 | 25 | 26 | 27 | 27 |
| MeshTweenSplit | 25 | 25 | 26 | 34 | 27 | 25 | 25 | 27 | 27 | 25 | 25 | 27 | 25 | 25 | 26 | 27 |
| MeshTweenSplitFa | 25 | 26 | 27 | 30 | 27 | 25 | 25 | 27 | 27 | 25 | 25 | 27 | 25 | 26 | 27 | 27 |
| MeshTweenSplitSp | 25 | 26 | 27 | 30 | 27 | 25 | 25 | 27 | 27 | 25 | 25 | 28 | 25 | 26 | 27 | 27 |
| StepTweenAlt | 25 | 25 | 26 | 37 | 27 | 25 | 25 | 26 | 27 | 25 | 25 | 27 | 25 | 25 | 26 | 27 |
| StepTweenSplit | 25 | 26 | 26 | 33 | 27 | 25 | 25 | 27 | 27 | 25 | 25 | 27 | 25 | 25 | 26 | 27 |
| TweenAlt | 25 | 25 | 26 | 38 | 27 | 25 | 25 | 27 | 27 | 25 | 25 | 27 | 25 | 25 | 26 | 27 |
| TweenSplit | 25 | 25 | 26 | 36 | 27 | 25 | 25 | 27 | 27 | 25 | 25 | 26 | 25 | 26 | 26 | 27 |
| TweenSplitFastPr | 25 | 26 | 27 | 31 | 28 | 25 | 25 | 27 | 28 | 25 | 25 | 27 | 25 | 26 | 27 | 28 |
| TweenSplitHeadPr | 25 | 26 | 27 | 31 | 28 | 25 | 25 | 27 | 27 | 25 | 25 | 27 | 25 | 26 | 27 | 28 |
| TweenSplitHeadPr | 25 | 25 | 27 | 29 | 27 | 25 | 25 | 27 | 27 | 25 | 25 | 27 | 25 | 26 | 27 | 27 |
| TweenSplitLinear | 25 | 25 | 26 | 30 | 27 | 25 | 25 | 27 | 27 | 25 | 25 | 27 | 25 | 25 | 26 | 27 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitSparse | 25 | 26 | 27 | 30 | 27 | 25 | 25 | 27 | 27 | 25 | 25 | 27 | 25 | 26 | 27 | 28 |
| sgd | 25 | 26 | 27 | 31 | 28 | 25 | 25 | 27 | 27 | 25 | 25 | 28 | 25 | 26 | 27 | 28 |
| step_sgd | 25 | 26 | 27 | 31 | 28 | 25 | 25 | 28 | 28 | 25 | 25 | 27 | 25 | 26 | 27 | 28 |
| step_tween | 25 | 25 | 25 | 26 | 26 | 25 | 25 | 26 | 26 | 25 | 25 | 26 | 25 | 25 | 25 | 26 |
| step_tween_chain | 25 | 26 | 27 | 31 | 28 | 25 | 25 | 28 | 28 | 25 | 25 | 28 | 25 | 26 | 27 | 28 |
| tween | 25 | 25 | 25 | 26 | 26 | 25 | 25 | 26 | 26 | 25 | 25 | 26 | 25 | 25 | 25 | 26 |
| tween_chain | 25 | 26 | 27 | 31 | 28 | 25 | 25 | 27 | 28 | 25 | 25 | 28 | 25 | 26 | 27 | 28 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 33-34)

## Honesty - mean SoftAcc, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 28 | 28 |
| MeshTween | 26 | 26 |
| MeshTweenAlt | 27 | 27 |
| MeshTweenChain | 27 | 28 |
| MeshTweenSplit | 27 | 27 |
| MeshTweenSplitFa | 27 | 27 |
| MeshTweenSplitSp | 27 | 27 |
| StepTweenAlt | 27 | 26 |
| StepTweenSplit | 27 | 27 |
| TweenAlt | 27 | 27 |
| TweenSplit | 27 | 27 |
| TweenSplitFastPr | 28 | 27 |
| TweenSplitHeadPr | 27 | 28 |
| TweenSplitHeadPr | 27 | 27 |
| TweenSplitLinear | 27 | 27 |
| TweenSplitLinear | 25 | 25 |
| TweenSplitSparse | 28 | 27 |
| sgd | 28 | 28 |
| step_sgd | 28 | 28 |
| step_tween | 26 | 26 |
| step_tween_chain | 27 | 28 |
| tween | 26 | 26 |
| tween_chain | 28 | 28 |

## Mean Score, every mode x arch

## Mean Score, every mode x arch

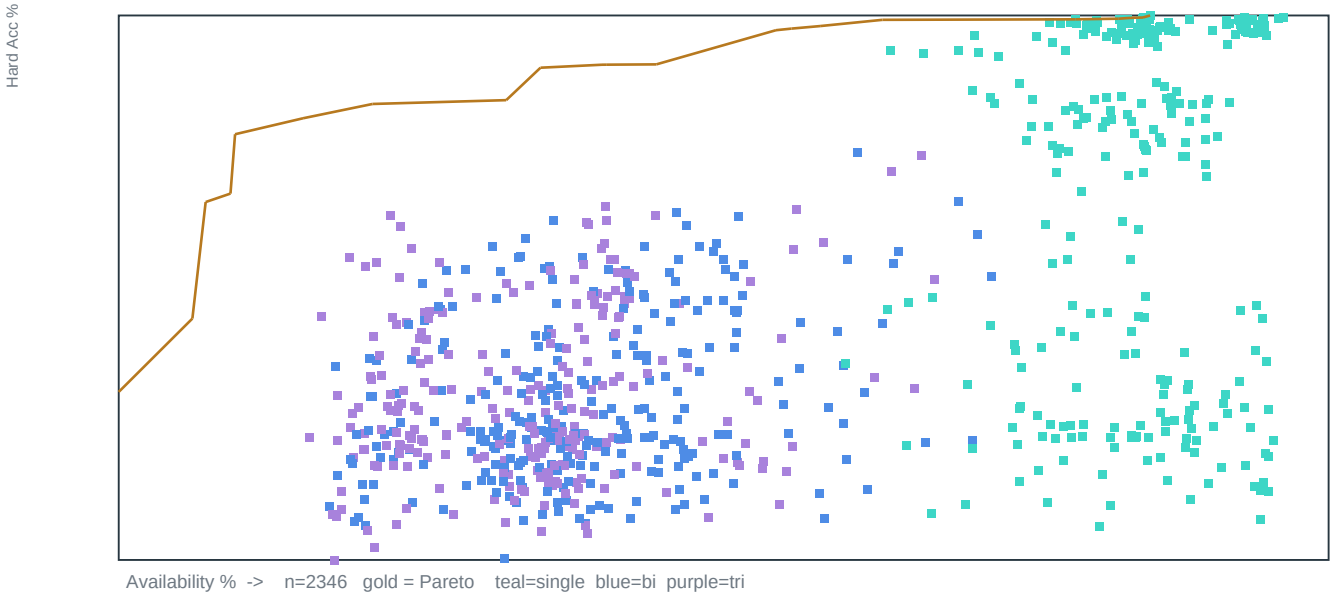
| | bicamera | singlex1 | tricamer |
|---|---|---|---|
| MeshBP | 432 | 7962 | 287 |
| MeshTween | 382 | 5704 | 266 |
| MeshTweenAlt | 237 | 4302 | 158 |
| MeshTweenChain | 409 | 7257 | 276 |
| MeshTweenSplit | 813 | 7639 | 590 |
| MeshTweenSplitFa | 740 | 7691 | 555 |
| MeshTweenSplitSp | 1098 | 7353 | 829 |
| StepTweenAlt | 193 | 3849 | 130 |
| StepTweenSplit | 572 | 6387 | 408 |
| TweenAlt | 237 | 4594 | 162 |
| TweenSplit | 855 | 7806 | 629 |
| TweenSplitFastPr | 781 | 7956 | 567 |
| TweenSplitHeadPr | 774 | 7945 | 591 |
| TweenSplitHeadPr | 771 | 7381 | 571 |
| TweenSplitLinear | 456 | 5992 | 319 |
| TweenSplitLinear | 768 | 6349 | 551 |
| TweenSplitSparse | 1088 | 7756 | 870 |
| sgd | 545 | 9658 | 367 |
| step_sgd | 418 | 8102 | 273 |
| step_tween | 349 | 5768 | 233 |
| step_tween_chain | 338 | 7028 | 228 |
| tween | 503 | 7337 | 337 |
| tween_chain | 505 | 9157 | 349 |

## Mean hard Acc, every mode x arch

## Mean hard Acc, every mode x arch

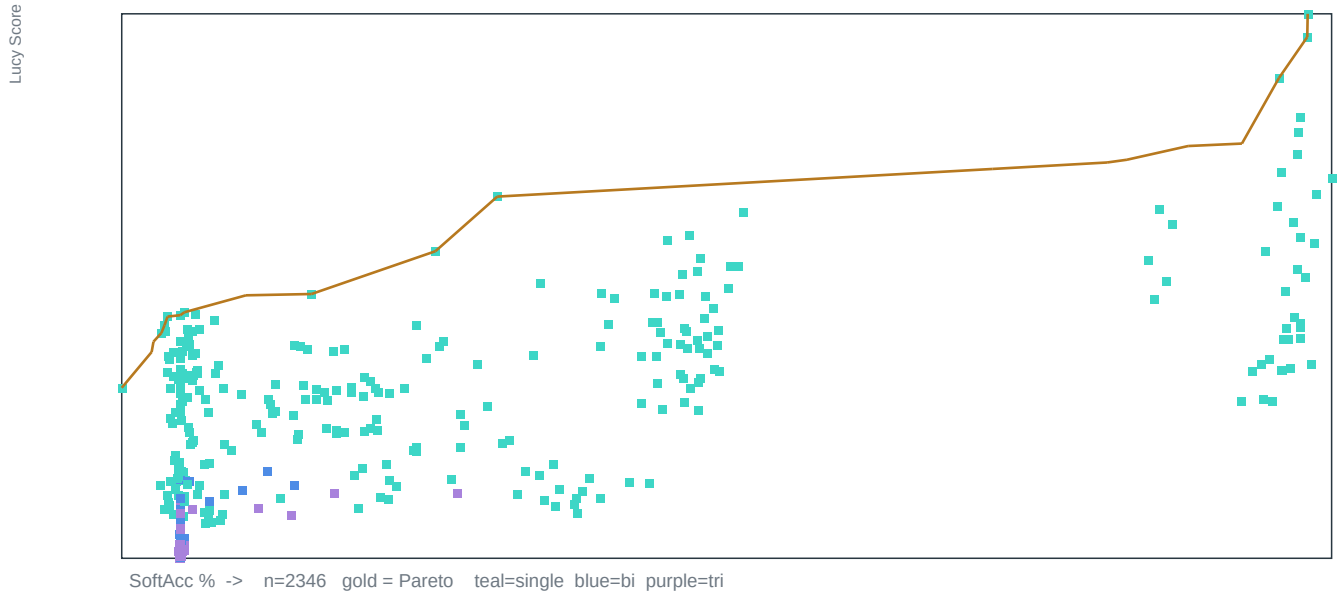
| | bicamera | singlex1 | tricamer |
|---|---|---|---|
| MeshBP | 37 | 72 | 36 |
| MeshTween | 26 | 54 | 24 |
| MeshTweenAlt | 36 | 67 | 36 |
| MeshTweenChain | 34 | 73 | 36 |
| MeshTweenSplit | 35 | 64 | 34 |
| MeshTweenSplitFa | 30 | 70 | 29 |
| MeshTweenSplitSp | 32 | 70 | 31 |
| StepTweenAlt | 39 | 67 | 38 |
| StepTweenSplit | 35 | 68 | 33 |
| TweenAlt | 41 | 69 | 39 |
| TweenSplit | 37 | 69 | 35 |
| TweenSplitFastPr | 29 | 72 | 28 |
| TweenSplitHeadPr | 31 | 72 | 29 |
| TweenSplitHeadPr | 24 | 67 | 25 |
| TweenSplitLinear | 29 | 62 | 34 |
| TweenSplitLinear | 24 | 32 | 22 |
| TweenSplitSparse | 30 | 70 | 29 |
| sgd | 36 | 72 | 35 |
| step_sgd | 36 | 73 | 35 |
| step_tween | 24 | 53 | 26 |
| step_tween_chain | 36 | 73 | 36 |
| tween | 23 | 55 | 26 |
| tween_chain | 36 | 74 | 36 |

## Avail vs hard Acc (headline scatter)

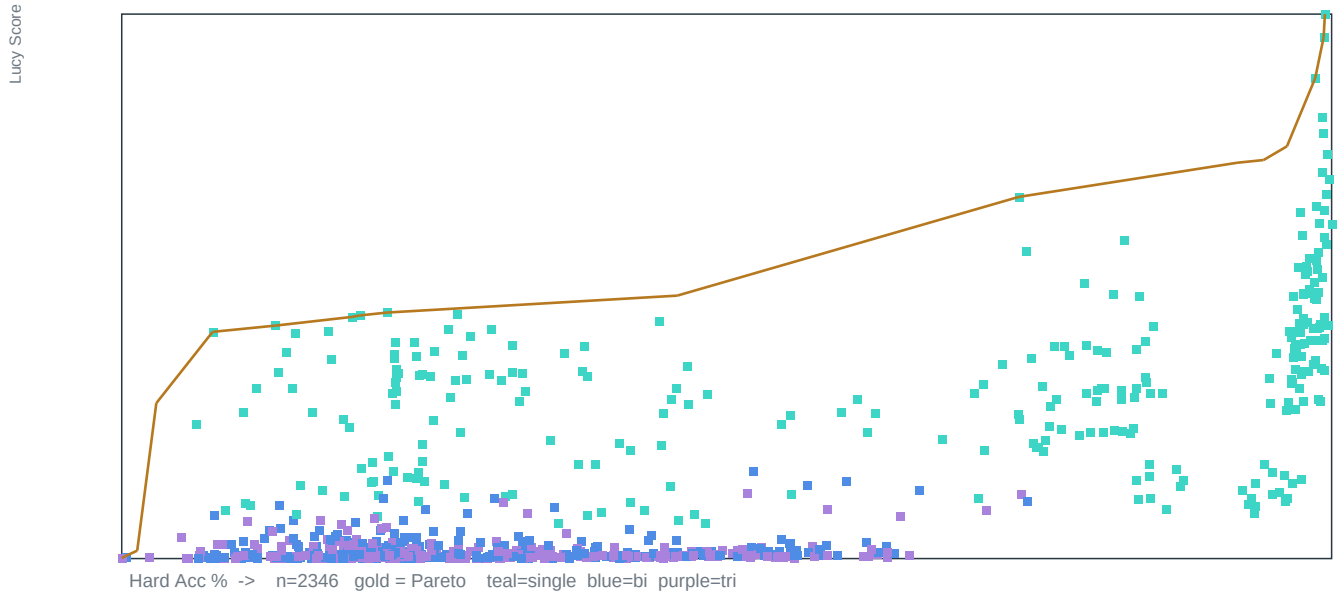



## Pareto - SoftAcc vs Score

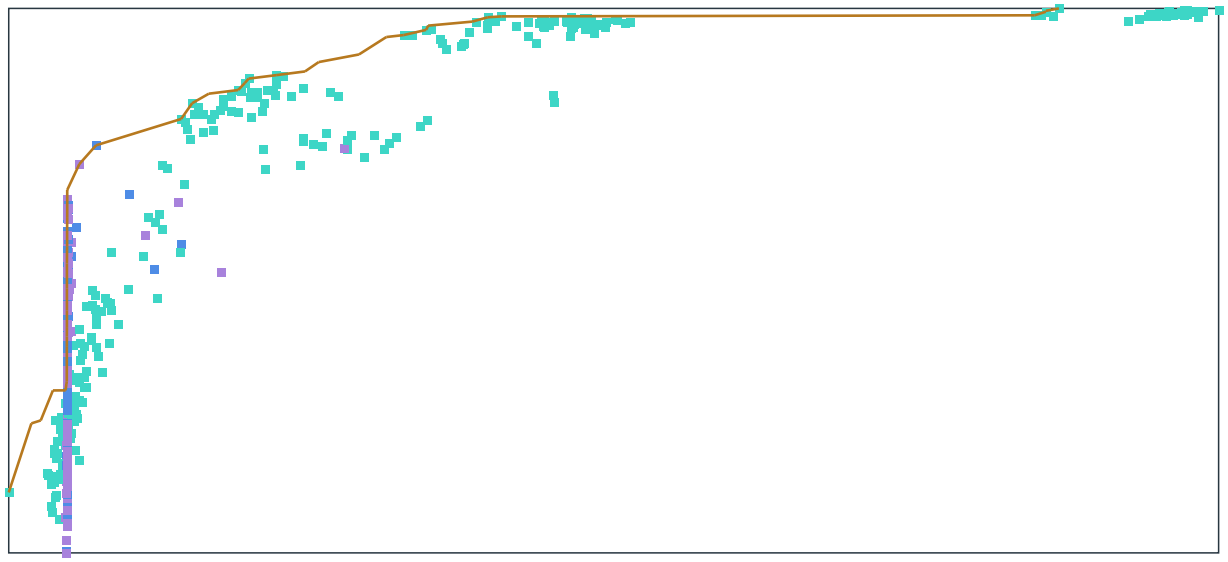
## Pareto - SoftAcc vs Score




## Pareto - hard Acc vs Score

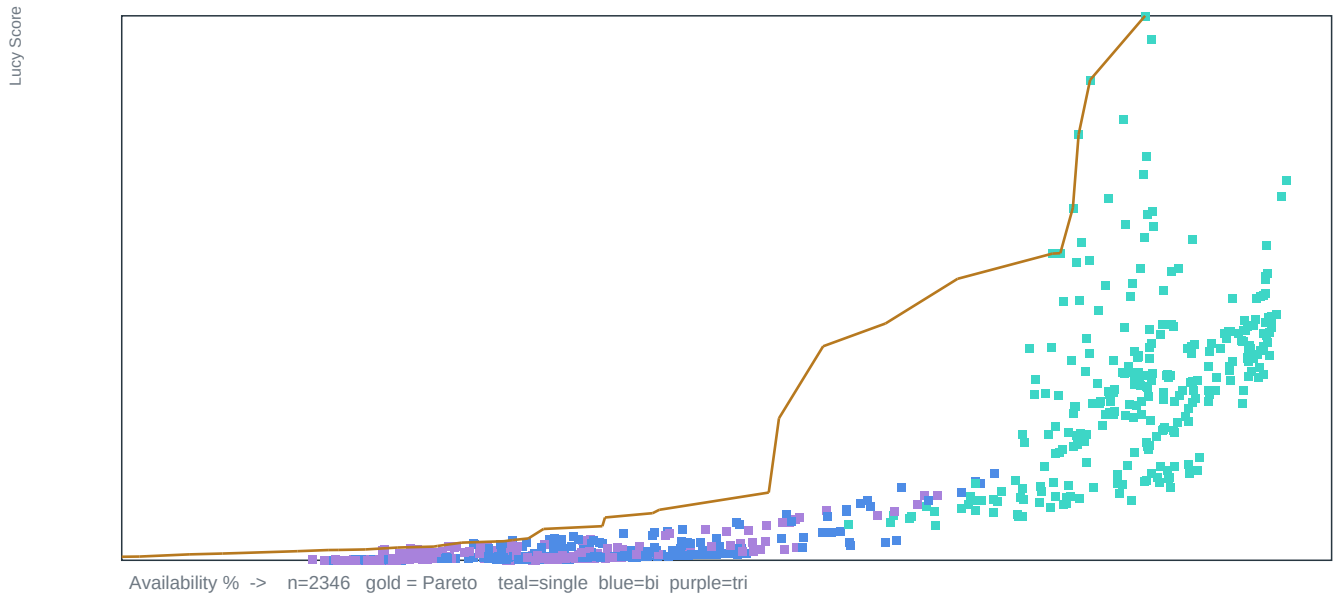



## SoftAcc vs hard Acc




SoftAcc %  ->  n=2346  gold = Pareto  teal=single  blue=bi  purple=tri
Hard Acc %

## Avail vs Score (duty clock)




## Lucy Pareto (LPD) - goldilocks

Q = geomean of Score/Soft/Acc/Thru vs the Lucy Score champion. LPD = 0 if Q<70%, else Q x shrink vs champ RAM (capped 32x). Gold = Q>=80% and RAM<=20% of champ. MSpeed = Thru vs the board's fastest (0 if Q<70%). MAvail = Availability vs the board's best duty cycle (0 if Q<70%). Mix = geomean(Q, MSpeed, MAvail). Raw Score/MiB is the binary trap.

Quality champ float32|none|sgd|single|simd  Score 23268.1  Soft 43  Acc 97  Thru 135311  RAM 1.2 KiB

Board fastest float32|none|sgd|single|simd  Thru 135311  Best availability float32|none|MeshTweenSplitSparse|tricameral|simd 44.6%

No gold cell yet. Need a recipe that keeps 80% of the Score champ's Score/Soft/Acc/Thru at one fifth the RAM.

## Near-gold - Q >= 70%, RAM <= 50%

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| near | uint8\|none\|sgd\|single\|simd | 79 | 26 | 3.9 | 3.09 | 34 | 95 | 14794.6 | 0.3 |
| near | uint8\|none\|tween_chain\|single\|simd | 77 | 26 | 3.9 | 2.99 | 33 | 95 | 13816.5 | 0.3 |
| near | uint8\|none\|step_sgd\|single\|simd | 75 | 26 | 3.9 | 2.91 | 33 | 95 | 12844.9 | 0.3 |
| near | int8\|none\|sgd\|single\|simd | 72 | 25 | 4.0 | 2.90 | 34 | 95 | 12470.9 | 0.3 |
| near | uint8\|none\|MeshBP\|single\|simd | 73 | 26 | 3.9 | 2.85 | 34 | 95 | 12487.7 | 0.3 |
| near | int8\|none\|tween_chain\|single\|simd | 70 | 25 | 4.0 | 2.80 | 34 | 95 | 11542.7 | 0.3 |
| near | uint8\|none\|TweenSplitHeadProxy\|single\|simd | 70 | 26 | 3.9 | 2.73 | 32 | 92 | 11747.7 | 0.3 |
| near | float16\|none\|sgd\|single\|simd | 86 | 50 | 2.0 | 1.72 | 43 | 97 | 17285.2 | 0.6 |
| near | float16\|none\|tween_chain\|single\|simd | 84 | 50 | 2.0 | 1.68 | 43 | 96 | 16502.1 | 0.6 |
| near | float16\|none\|step_sgd\|single\|simd | 81 | 50 | 2.0 | 1.63 | 43 | 96 | 15067.4 | 0.6 |
| near | bfloat16\|none\|sgd\|single\|simd | 80 | 50 | 2.0 | 1.60 | 41 | 97 | 14906.0 | 0.6 |
| near | float16\|none\|TweenSplitFastProxy\|single\|simd | 80 | 50 | 2.0 | 1.59 | 41 | 94 | 14955.4 | 0.6 |

## LPD rank (Q x shrink; 0 if Q < 70%)

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| near | uint8\|none\|sgd\|single\|simd | 79 | 26 | 3.9 | 3.09 | 34 | 95 | 14794.6 | 0.3 |
| near | uint8\|none\|tween_chain\|single\|simd | 77 | 26 | 3.9 | 2.99 | 33 | 95 | 13816.5 | 0.3 |
| near | uint8\|none\|step_sgd\|single\|simd | 75 | 26 | 3.9 | 2.91 | 33 | 95 | 12844.9 | 0.3 |
| near | int8\|none\|sgd\|single\|simd | 72 | 25 | 4.0 | 2.90 | 34 | 95 | 12470.9 | 0.3 |
| near | uint8\|none\|MeshBP\|single\|simd | 73 | 26 | 3.9 | 2.85 | 34 | 95 | 12487.7 | 0.3 |
| near | int8\|none\|tween_chain\|single\|simd | 70 | 25 | 4.0 | 2.80 | 34 | 95 | 11542.7 | 0.3 |
| near | uint8\|none\|TweenSplitHeadProxy\|single\|simd | 70 | 26 | 3.9 | 2.73 | 32 | 92 | 11747.7 | 0.3 |
| near | float16\|none\|sgd\|single\|simd | 86 | 50 | 2.0 | 1.72 | 43 | 97 | 17285.2 | 0.6 |
| near | float16\|none\|tween_chain\|single\|simd | 84 | 50 | 2.0 | 1.68 | 43 | 96 | 16502.1 | 0.6 |

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| near | float16\|none\|step_sgd\|single\|simd | 81 | 50 | 2.0 | 1.63 | 43 | 96 | 15067.4 | 0.6 |
| near | bfloat16\|none\|sgd\|single\|simd | 80 | 50 | 2.0 | 1.60 | 41 | 97 | 14906.0 | 0.6 |
| near | float16\|none\|TweenSplitFastProxy\|single\|simd | 80 | 50 | 2.0 | 1.59 | 41 | 94 | 14955.4 | 0.6 |
| near | float16\|none\|MeshBP\|single\|simd | 79 | 50 | 2.0 | 1.57 | 43 | 96 | 14357.9 | 0.6 |
| near | bfloat16\|none\|tween_chain\|single\|simd | 78 | 50 | 2.0 | 1.57 | 41 | 97 | 14285.0 | 0.6 |
| near | float16\|none\|TweenSplitHeadProxy\|single\|simd | 77 | 50 | 2.0 | 1.54 | 42 | 95 | 13925.7 | 0.6 |
| near | float16\|none\|step_tween_chain\|single\|simd | 76 | 50 | 2.0 | 1.52 | 43 | 96 | 13112.5 | 0.6 |
| near | float16\|none\|TweenSplitSparse\|single\|simd | 75 | 50 | 2.0 | 1.51 | 41 | 94 | 13458.9 | 0.6 |
| near | float16\|none\|MeshTweenChain\|single\|simd | 75 | 50 | 2.0 | 1.50 | 43 | 96 | 13063.7 | 0.6 |
| near | bfloat16\|none\|step_sgd\|single\|simd | 75 | 50 | 2.0 | 1.50 | 41 | 96 | 12750.9 | 0.6 |
| near | float16\|none\|MeshTweenSplitFastProxy\|single\|simd | 74 | 50 | 2.0 | 1.48 | 40 | 93 | 13052.6 | 0.6 |

## Mobile speed - Thru vs board fastest (Q >= 70%)

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| keep | float32\|none\|sgd\|single\|simd | 100 | 100 | 89 | 96 | 1.00 | 135311 | 39.7 |
| - | float32\|none\|tween\|single\|simd | 76 | 98 | 87 | 87 | 0.76 | 132344 | 38.7 |
| keep | float32\|none\|tween_chain\|single\|simd | 98 | 95 | 89 | 94 | 0.98 | 129009 | 39.9 |
| keep | float32\|none\|step_sgd\|single\|simd | 95 | 93 | 86 | 91 | 0.95 | 125226 | 38.3 |
| - | float32\|none\|step_tween\|single\|simd | 71 | 89 | 84 | 81 | 0.71 | 120151 | 37.5 |
| keep | float32\|none\|MeshBP\|single\|simd | 90 | 83 | 88 | 87 | 0.90 | 111738 | 39.1 |
| keep | float32\|none\|step_tween_chain\|single\|simd | 89 | 82 | 85 | 85 | 0.89 | 111088 | 38.0 |
| keep | float32\|none\|TweenSplitHeadProxyAsync\|single\|simd | 83 | 81 | 89 | 84 | 0.83 | 109528 | 39.8 |
| near | uint8\|none\|sgd\|single\|simd | 79 | 81 | 89 | 83 | 3.09 | 108981 | 39.8 |
| - | float32\|none\|MeshTween\|single\|simd | 74 | 80 | 85 | 80 | 0.74 | 108619 | 38.0 |

## Mobile availability - duty cycle vs board best (Q >= 70%)

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| - | float64\|none\|TweenSplitFastProxy\|single\|simd | 73 | 53 | 100 | 73 | 0.37 | 71295 | 44.4 |
| - | float64\|none\|TweenSplitHeadProxy\|single\|simd | 73 | 52 | 99 | 72 | 0.36 | 70413 | 44.4 |
| - | float64\|none\|TweenSplitSparse\|single\|simd | 71 | 51 | 99 | 71 | 0.35 | 68785 | 44.3 |
| - | float64\|none\|MeshTweenSplitFastProxy\|single\|simd | 70 | 53 | 99 | 72 | 0.35 | 71509 | 44.1 |
| keep | float64\|none\|sgd\|single\|simd | 82 | 63 | 97 | 79 | 0.41 | 85584 | 43.4 |
| - | float64\|none\|tween_chain\|single\|simd | 80 | 61 | 97 | 78 | 0.40 | 82772 | 43.3 |
| - | uint64\|none\|sgd\|single\|simd | 71 | 63 | 96 | 76 | 0.35 | 85710 | 42.9 |
| - | float64\|none\|MeshBP\|single\|simd | 75 | 53 | 96 | 73 | 0.37 | 72320 | 42.9 |
| - | uint32\|none\|sgd\|single\|simd | 71 | 63 | 96 | 75 | 0.70 | 85572 | 42.9 |
| - | int64\|none\|sgd\|single\|simd | 71 | 48 | 96 | 69 | 0.35 | 64922 | 42.9 |

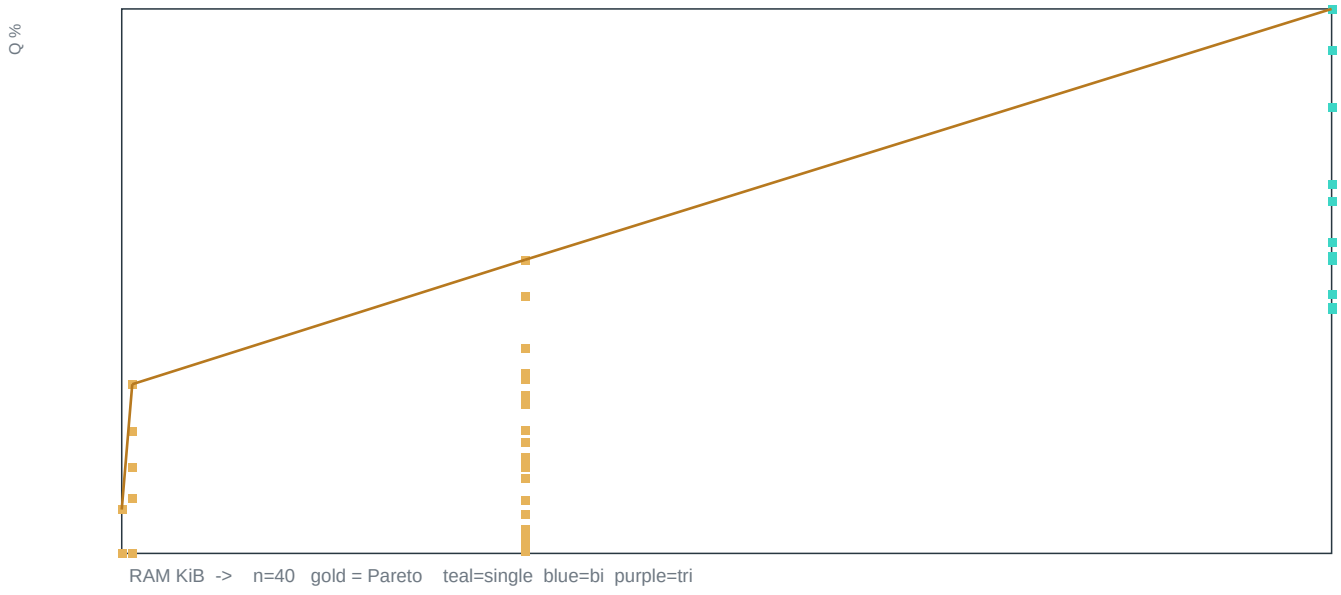
## Mix - geomean of Q, MSpeed, MAvail

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| keep | float32\|none\|sgd\|single\|simd | 100 | 100 | 89 | 96 | 1.00 | 135311 | 39.7 |
| keep | float32\|none\|tween_chain\|single\|simd | 98 | 95 | 89 | 94 | 0.98 | 129009 | 39.9 |
| keep | float32\|none\|step_sgd\|single\|simd | 95 | 93 | 86 | 91 | 0.95 | 125226 | 38.3 |
| keep | float32\|none\|MeshBP\|single\|simd | 90 | 83 | 88 | 87 | 0.90 | 111738 | 39.1 |
| - | float32\|none\|tween\|single\|simd | 76 | 98 | 87 | 87 | 0.76 | 132344 | 38.7 |
| keep | float32\|none\|step_tween_chain\|single\|simd | 89 | 82 | 85 | 85 | 0.89 | 111088 | 38.0 |
| keep | float32\|none\|TweenSplitSparse\|single\|simd | 86 | 78 | 90 | 85 | 0.86 | 106219 | 40.1 |
| keep | float32\|none\|TweenSplitHeadProxy\|single\|simd | 87 | 78 | 89 | 85 | 0.87 | 105937 | 39.6 |
| keep | float32\|none\|TweenSplitHeadProxyAsync\|single\|simd | 83 | 81 | 89 | 84 | 0.83 | 109528 | 39.8 |
| keep | float32\|none\|TweenSplitFastProxy\|single\|simd | 86 | 78 | 89 | 84 | 0.86 | 105716 | 39.7 |

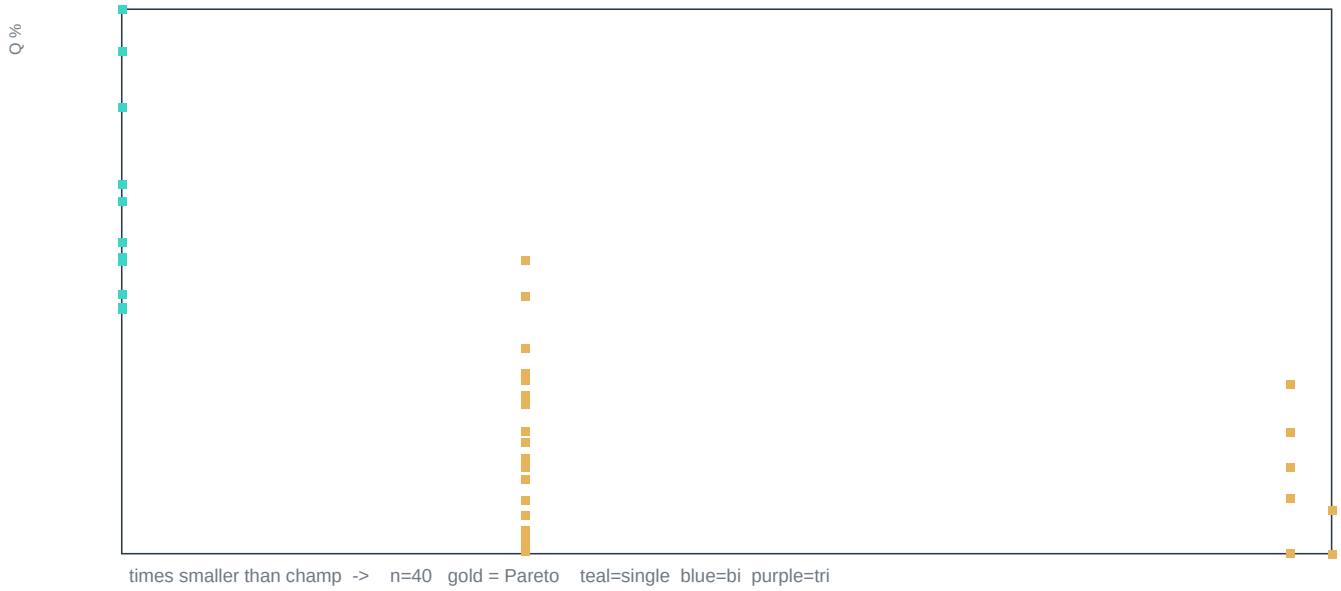
## Trap - tiny RAM, Q < 70% (why Score/MiB lies)

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| trap | binary\|none\|sgd\|single\|simd | 47 | 3 | 31.4 | 0.00 | 25 | 24 | 10521.6 | 0.0 |
| trap | binary\|none\|step_sgd\|single\|simd | 48 | 3 | 31.4 | 0.00 | 25 | 34 | 9148.8 | 0.0 |
| trap | binary\|none\|tween\|single\|simd | 43 | 3 | 31.4 | 0.00 | 25 | 20 | 9726.5 | 0.0 |
| trap | binary\|none\|tween_chain\|single\|simd | 41 | 3 | 31.4 | 0.00 | 25 | 17 | 9634.5 | 0.0 |
| trap | binary\|none\|step_tween\|single\|simd | 42 | 3 | 31.4 | 0.00 | 25 | 27 | 7905.0 | 0.0 |
| trap | binary\|none\|step_tween_chain\|single\|simd | 44 | 3 | 31.4 | 0.00 | 25 | 32 | 7903.3 | 0.0 |
| trap | binary\|none\|MeshBP\|single\|simd | 43 | 3 | 31.4 | 0.00 | 25 | 27 | 8665.5 | 0.0 |
| trap | binary\|none\|MeshTween\|single\|simd | 34 | 3 | 31.4 | 0.00 | 24 | 14 | 7294.2 | 0.0 |
| trap | binary\|none\|MeshTweenChain\|single\|simd | 41 | 3 | 31.4 | 0.00 | 25 | 23 | 8214.7 | 0.0 |
| trap | binary\|none\|TweenSplit\|single\|simd | 49 | 3 | 31.4 | 0.00 | 26 | 40 | 8988.6 | 0.0 |

## LPD - Q% vs RAM KiB (gold = high Q, low RAM)



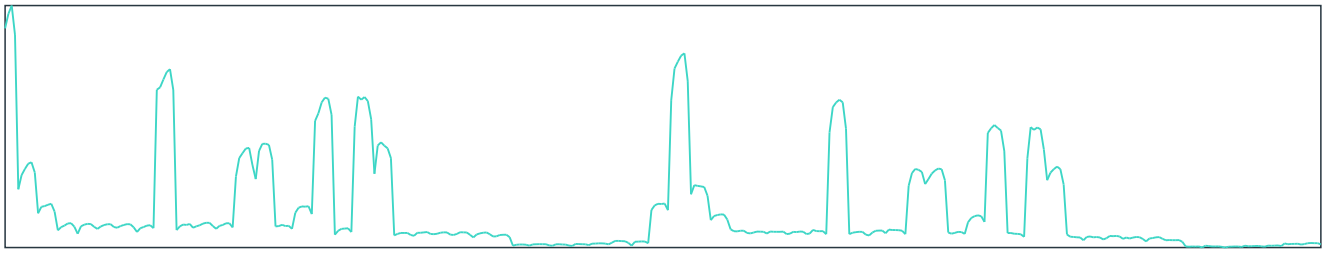

## LPD - Q% vs shrink vs champ (gold = upper right)




## Top LPD

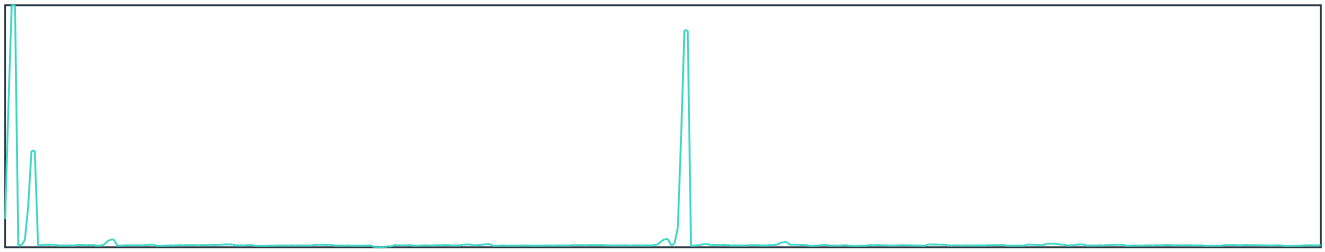



## Pulse Score - cnn2



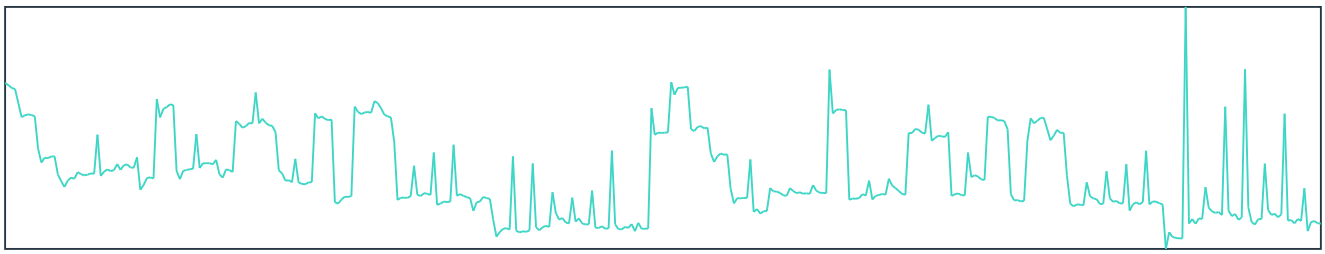
n=400 min=103.55 max=6027.37

## Pulse SoftAcc - cnn2



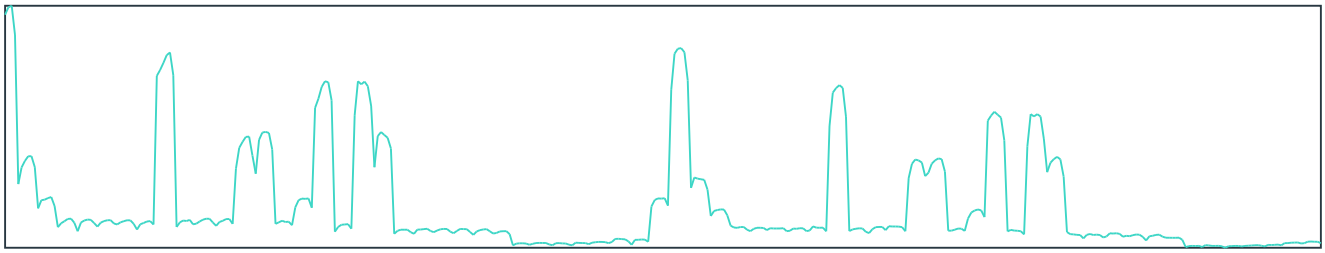
n=400 min=24.99 max=26.90

## Pulse Availability - cnn2



n=400 min=37.73 max=48.00

## Pulse Throughput - cnn2



n=400 min=946.30 max=50291.43

## Queue by train mode (this epoch)

| Mode | Done | Run | Left | Total |
|---|---|---|---|---|
| sgd | 102 | 0 | 0 | 102 |
| step_sgd | 102 | 0 | 0 | 102 |
| tween | 102 | 0 | 0 | 102 |
| tween_chain | 102 | 0 | 0 | 102 |
| step_tween | 102 | 0 | 0 | 102 |
| step_tween_chain | 102 | 0 | 0 | 102 |
| MeshBP | 102 | 0 | 0 | 102 |
| MeshTween | 102 | 0 | 0 | 102 |
| MeshTweenChain | 102 | 0 | 0 | 102 |
| TweenSplit | 102 | 0 | 0 | 102 |
| StepTweenSplit | 102 | 0 | 0 | 102 |
| TweenAlt | 102 | 0 | 0 | 102 |
| StepTweenAlt | 102 | 0 | 0 | 102 |
| TweenSplitHeadProxy | 102 | 0 | 0 | 102 |
| TweenSplitLinear | 102 | 0 | 0 | 102 |
| TweenSplitFastProxy | 102 | 0 | 0 | 102 |
| TweenSplitLinearCache | 102 | 0 | 0 | 102 |
| TweenSplitHeadProxyAsync | 102 | 0 | 0 | 102 |
| TweenSplitSparse | 102 | 0 | 0 | 102 |
| MeshTweenSplit | 102 | 0 | 0 | 102 |
| MeshTweenAlt | 102 | 0 | 0 | 102 |
| MeshTweenSplitFastProxy | 102 | 0 | 0 | 102 |
| MeshTweenSplitSparse | 102 | 0 | 0 | 102 |

# tide  cnn3

Score = Throughput x Availability% x SoftAcc% / 10,000
done - epoch 1 - 2026-08-18 09:45:25 - 0.0.0.0:8104
This epoch 2346 / 2346 cells. Recorded 2346 results.
Score 0 usually means the cell finished before a Lucy pulse (SoftAcc never sampled) or true-class mass was 0. Those rows do not vote holistically.
cnn3 - tiny occupancy volume (phase rotates) - modes all - min 2000ms/cell - 1024 train - pulse 50ms - SIMD true

## Lucy champions (this tide)

| Axis | Cell | Score | Soft | Acc | Thru | Avail |
|---|---|---|---|---|---|---|
| score | float32\|none\|sgd\|single\|simd | 52818.58 | 41.4 | 93.1 | 325877.1 | 39.1 |
| throughput | float32\|none\|tween\|single\|simd | 34222.91 | 27.1 | 54.6 | 332749.1 | 38.0 |
| availability | uint32\|none\|TweenSplitSparse\|tricameral\|simd | 7915.97 | 25.0 | 31.1 | 67887.3 | 46.6 |
| accuracy | float32\|none\|step_tween_chain\|single\|simd | 45754.68 | 41.5 | 91.8 | 288919.1 | 38.2 |
| mobile score (tap) | binary\|none\|tween_chain\|single\|simd | 28559.75 | 25.5 | 39.0 | 271897.2 | 41.2 |
| t->50% | binary\|none\|sgd\|tricameral\|simd | 12965.23 | 25.0 | 35.2 | 127546.0 | 40.6 |
| acc/sec | float32\|none\|sgd\|single\|simd | 52818.58 | 41.4 | 93.1 | 325877.1 | 39.1 |

## Lucy axes - cnn3

| Axis | Mode | DType | Arch | Value |
|---|---|---|---|---|
| score | sgd | float32 | singlex1 | 52818.58 |
| soft_acc | step_tween_chain | float32 | singlex1 | 41.45 |
| hard_acc | sgd | float32 | singlex1 | 93.07 |
| throughput | tween | float32 | singlex1 | 332749.14 |
| availability | TweenSplitSparse | uint32 | tricameralx3 | 46.59 |
| acc_thru | sgd | float32 | singlex1 | 134992.85 |
| realtime | sgd | float32 | singlex1 | 127505.78 |
| adapt | TweenSplitFastP~ | float32 | singlex1 | 42.47 |
| keep_learn | MeshTweenSplitF~ | float32 | singlex1 | 18.52 |
| acc_per_sec | sgd | float32 | singlex1 | 20.71 |
| time_to_50 | sgd | binary | tricameralx3 | 0.05 |
| consistency | sgd | float64 | singlex1 | 100.00 |
| stability | sgd | fp4 | singlex1 | 100.00 |
| mobile_score | tween_chain | binary | singlex1 | 2994706560.73 |
| lpd | sgd | int8 | singlex1 | 2.97 |
| mspeed | tween | float32 | singlex1 | 1.00 |
| mavail | TweenSplitHeadP~ | int | singlex1 | 0.94 |
| mix | sgd | float32 | singlex1 | 0.94 |

## Best settings per train mode

| Mode | DType | Format | Score | Soft | Acc | Avail | n |
|---|---|---|---|---|---|---|---|
| sgd | float32 | none | 52818.6 | 41.4 | 93.1 | 39.1 | 102 |
| tween_chain | float32 | none | 51348.7 | 41.4 | 91.2 | 39.0 | 102 |
| step_sgd | float32 | none | 49249.7 | 40.8 | 89.0 | 38.3 | 102 |
| MeshBP | float32 | none | 46168.7 | 41.2 | 91.6 | 39.3 | 102 |
| step_tween_chain | float32 | none | 45754.7 | 41.5 | 91.8 | 38.2 | 102 |
| TweenSplitFastProxy | float32 | none | 43796.4 | 40.3 | 89.5 | 39.0 | 102 |
| MeshTweenChain | float32 | none | 43670.4 | 41.3 | 90.6 | 38.9 | 102 |
| TweenSplitHeadProxy | float32 | none | 42732.9 | 40.8 | 89.9 | 39.5 | 102 |
| TweenSplitSparse | float32 | none | 42061.5 | 39.3 | 84.4 | 39.7 | 102 |
| MeshTweenSplitFastProxy | float32 | none | 40919.3 | 37.7 | 81.1 | 39.0 | 102 |
| StepTweenSplit | float32 | none | 40569.8 | 37.8 | 86.4 | 38.6 | 102 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| TweenSplit | float32 | none | 39354.0 | 36.7 | 83.4 | 39.5 | 102 |
| MeshTweenSplitSparse | float32 | none | 38930.2 | 38.8 | 88.1 | 39.3 | 102 |
| TweenAlt | float32 | none | 38108.7 | 40.8 | 92.5 | 37.3 | 102 |
| MeshTweenSplit | float32 | none | 36653.2 | 34.9 | 77.4 | 40.0 | 102 |
| TweenSplitLinear | float32 | none | 36457.7 | 35.6 | 78.7 | 38.4 | 102 |
| StepTweenAlt | float32 | none | 35828.1 | 40.5 | 89.9 | 36.2 | 102 |
| MeshTweenAlt | float32 | none | 34462.6 | 39.3 | 88.0 | 36.9 | 102 |
| tween | float32 | none | 34222.9 | 27.1 | 54.6 | 38.0 | 102 |
| TweenSplitHeadProxyAsync | float32 | none | 33338.9 | 30.9 | 68.3 | 39.2 | 102 |
| step_tween | float32 | none | 31142.6 | 25.8 | 40.8 | 37.3 | 102 |
| MeshTween | float32 | none | 29939.6 | 27.0 | 50.1 | 38.1 | 102 |
| TweenSplitLinearCache | uint8 | none | 27303.0 | 25.0 | 28.6 | 40.4 | 102 |

## Best dtype per mode

| Mode | Winner dtype | Score | Soft | Acc |
|---|---|---|---|---|
| sgd | float32 | 52818.6 | 41.4 | 93.1 |
| tween_chain | float32 | 51348.7 | 41.4 | 91.2 |
| step_sgd | float32 | 49249.7 | 40.8 | 89.0 |
| MeshBP | float32 | 46168.7 | 41.2 | 91.6 |
| step_tween_chain | float32 | 45754.7 | 41.5 | 91.8 |
| TweenSplitFastProxy | float32 | 43796.4 | 40.3 | 89.5 |
| MeshTweenChain | float32 | 43670.4 | 41.3 | 90.6 |
| TweenSplitHeadProxy | float32 | 42732.9 | 40.8 | 89.9 |
| TweenSplitSparse | float32 | 42061.5 | 39.3 | 84.4 |
| MeshTweenSplitFastProxy | float32 | 40919.3 | 37.7 | 81.1 |
| StepTweenSplit | float32 | 40569.8 | 37.8 | 86.4 |
| TweenSplit | float32 | 39354.0 | 36.7 | 83.4 |
| MeshTweenSplitSparse | float32 | 38930.2 | 38.8 | 88.1 |
| TweenAlt | float32 | 38108.7 | 40.8 | 92.5 |
| MeshTweenSplit | float32 | 36653.2 | 34.9 | 77.4 |
| TweenSplitLinear | float32 | 36457.7 | 35.6 | 78.7 |
| StepTweenAlt | float32 | 35828.1 | 40.5 | 89.9 |
| MeshTweenAlt | float32 | 34462.6 | 39.3 | 88.0 |
| tween | float32 | 34222.9 | 27.1 | 54.6 |
| TweenSplitHeadProxyAsync | float32 | 33338.9 | 30.9 | 68.3 |
| step_tween | float32 | 31142.6 | 25.8 | 40.8 |
| MeshTween | float32 | 29939.6 | 27.0 | 50.1 |
| TweenSplitLinearCache | uint8 | 27303.0 | 25.0 | 28.6 |

## Best mode per dtype

| DType | Winner mode | Score | Soft | Acc |
|---|---|---|---|---|
| float32 | sgd | 52818.6 | 41.4 | 93.1 |
| float16 | sgd | 48864.0 | 41.0 | 91.5 |
| bfloat16 | sgd | 43519.9 | 37.3 | 92.0 |
| float64 | sgd | 43425.0 | 41.3 | 92.8 |
| int64 | sgd | 36924.9 | 40.3 | 89.9 |
| complex64 | sgd | 35301.8 | 40.8 | 90.1 |
| int | sgd | 34799.2 | 40.7 | 89.7 |
| complex128 | sgd | 34764.7 | 40.6 | 91.8 |
| uint8 | sgd | 33151.5 | 27.3 | 75.6 |
| int8 | sgd | 32567.4 | 27.7 | 78.4 |
| uint64 | sgd | 30032.7 | 27.9 | 66.3 |

| | | | | |
|---|---|---|---|---|
| fp4 | sgd | 30031.8 | 25.0 | 25.1 |
| uint16 | sgd | 29493.1 | 27.8 | 61.1 |
| uint32 | sgd | 29248.4 | 27.2 | 80.1 |
| ternary | sgd | 28612.9 | 25.1 | 22.1 |
| binary | tween_chain | 28559.7 | 25.5 | 39.0 |
| int2 | sgd | 28172.0 | 25.0 | 32.3 |
| int4 | sgd | 28157.5 | 24.9 | 18.9 |
| uint | sgd | 27261.7 | 27.5 | 71.0 |
| int32 | sgd | 27155.9 | 27.9 | 59.6 |
| uintptr | sgd | 27138.4 | 27.6 | 75.8 |
| fp8e5m2 | sgd | 27130.6 | 25.2 | 35.8 |
| int16 | sgd | 26950.1 | 27.9 | 77.4 |
| fp8e4m3 | sgd | 26629.0 | 25.1 | 24.1 |
| uint4 | sgd | 26223.5 | 24.9 | 14.7 |
| uint2 | sgd | 25933.7 | 25.1 | 32.1 |
| nf4 | sgd | 21034.8 | 24.9 | 20.4 |
| uint3 | tween_chain | 18857.3 | 25.0 | 24.0 |
| int3 | sgd | 17568.0 | 24.8 | 12.4 |
| uint6 | sgd | 17143.9 | 26.9 | 70.2 |
| uint5 | sgd | 17125.5 | 25.5 | 39.5 |
| int5 | sgd | 16112.4 | 25.4 | 38.9 |
| int6 | sgd | 16004.1 | 27.0 | 56.2 |
| fp6 | sgd | 15659.1 | 26.3 | 62.4 |

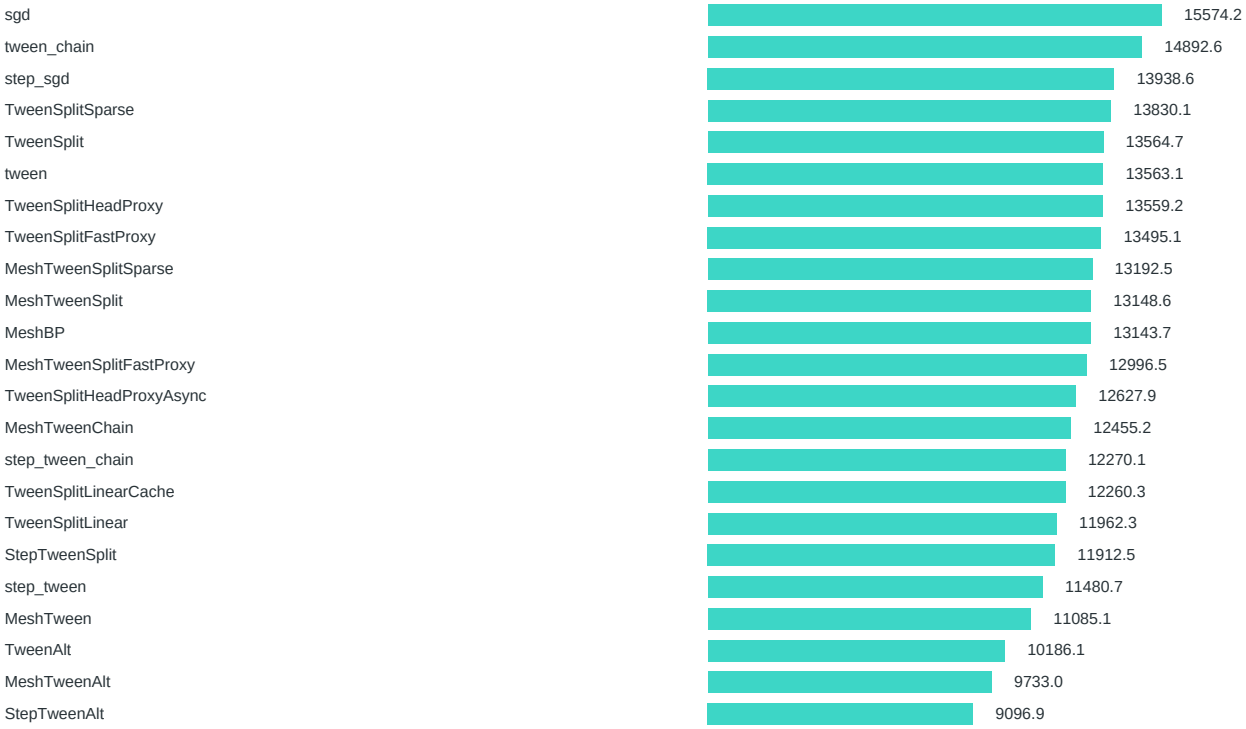
## Leaderboard - cnn3

| # | Cell | Score | Soft | Acc | Thru | Avail |
|---|---|---|---|---|---|---|
| 1 | float32\|none\|sgd\|single\|simd | 52818.6 | 41.4 | 93.1 | 325877.1 | 39.1 |
| 2 | float32\|none\|tween_chain\|single\|simd | 51348.7 | 41.4 | 91.2 | 317947.2 | 39.0 |
| 3 | float32\|none\|step_sgd\|single\|simd | 49249.7 | 40.8 | 89.0 | 315029.9 | 38.3 |
| 4 | float16\|none\|sgd\|single\|simd | 48864.0 | 41.0 | 91.5 | 298673.9 | 39.9 |
| 5 | float16\|none\|tween_chain\|single\|simd | 48163.6 | 40.5 | 91.4 | 298692.0 | 39.8 |
| 6 | float32\|none\|MeshBP\|single\|simd | 46168.7 | 41.2 | 91.6 | 285101.2 | 39.3 |
| 7 | float32\|none\|step_tween_chain\|single\|simd | 45754.7 | 41.5 | 91.8 | 288919.1 | 38.2 |
| 8 | float16\|none\|step_sgd\|single\|simd | 45691.8 | 40.5 | 89.7 | 291533.0 | 38.7 |
| 9 | float32\|none\|TweenSplitFastProxy\|single\|simd | 43796.4 | 40.3 | 89.5 | 279185.7 | 39.0 |
| 10 | float32\|none\|MeshTweenChain\|single\|simd | 43670.4 | 41.3 | 90.6 | 271566.2 | 38.9 |
| 11 | bfloat16\|none\|sgd\|single\|simd | 43519.9 | 37.3 | 92.0 | 288146.0 | 40.5 |
| 12 | float64\|none\|sgd\|single\|simd | 43425.0 | 41.3 | 92.8 | 251740.6 | 41.7 |
| 13 | float16\|none\|MeshBP\|single\|simd | 42822.7 | 40.7 | 91.3 | 265091.0 | 39.7 |
| 14 | float32\|none\|TweenSplitHeadProxy\|single\|simd | 42732.9 | 40.8 | 89.9 | 264640.6 | 39.5 |
| 15 | float16\|none\|step_tween_chain\|single\|simd | 42061.6 | 41.0 | 92.5 | 266143.9 | 38.6 |
| 16 | float32\|none\|TweenSplitSparse\|single\|simd | 42061.5 | 39.3 | 84.4 | 269601.9 | 39.7 |
| 17 | bfloat16\|none\|tween_chain\|single\|simd | 41961.9 | 37.0 | 88.7 | 279492.3 | 40.6 |
| 18 | float32\|none\|MeshTweenSplitFastProxy\|single\|simd | 40919.3 | 37.7 | 81.1 | 278302.4 | 39.0 |
| 19 | bfloat16\|none\|step_sgd\|single\|simd | 40794.7 | 37.0 | 88.6 | 280565.7 | 39.3 |
| 20 | float32\|none\|StepTweenSplit\|single\|simd | 40569.8 | 37.8 | 86.4 | 277973.4 | 38.6 |

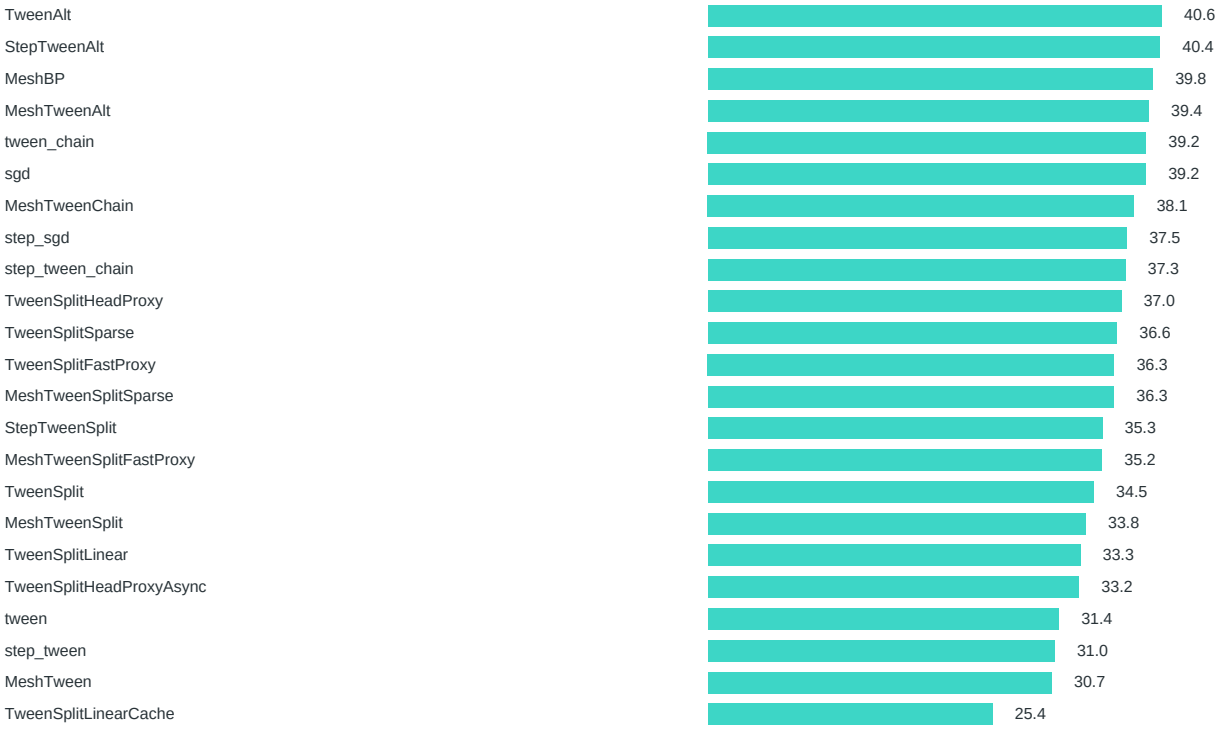
## Top scores - cnn3



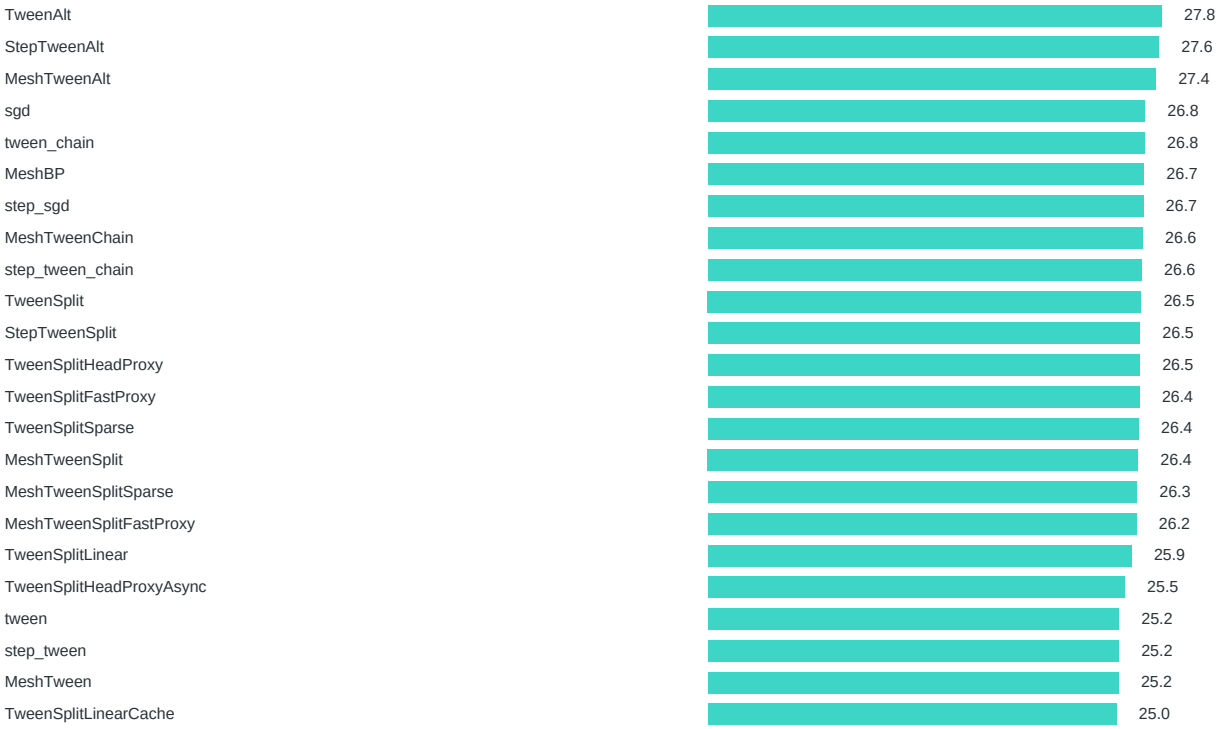

## Mean Score by train mode




## Mean hard Acc by train mode



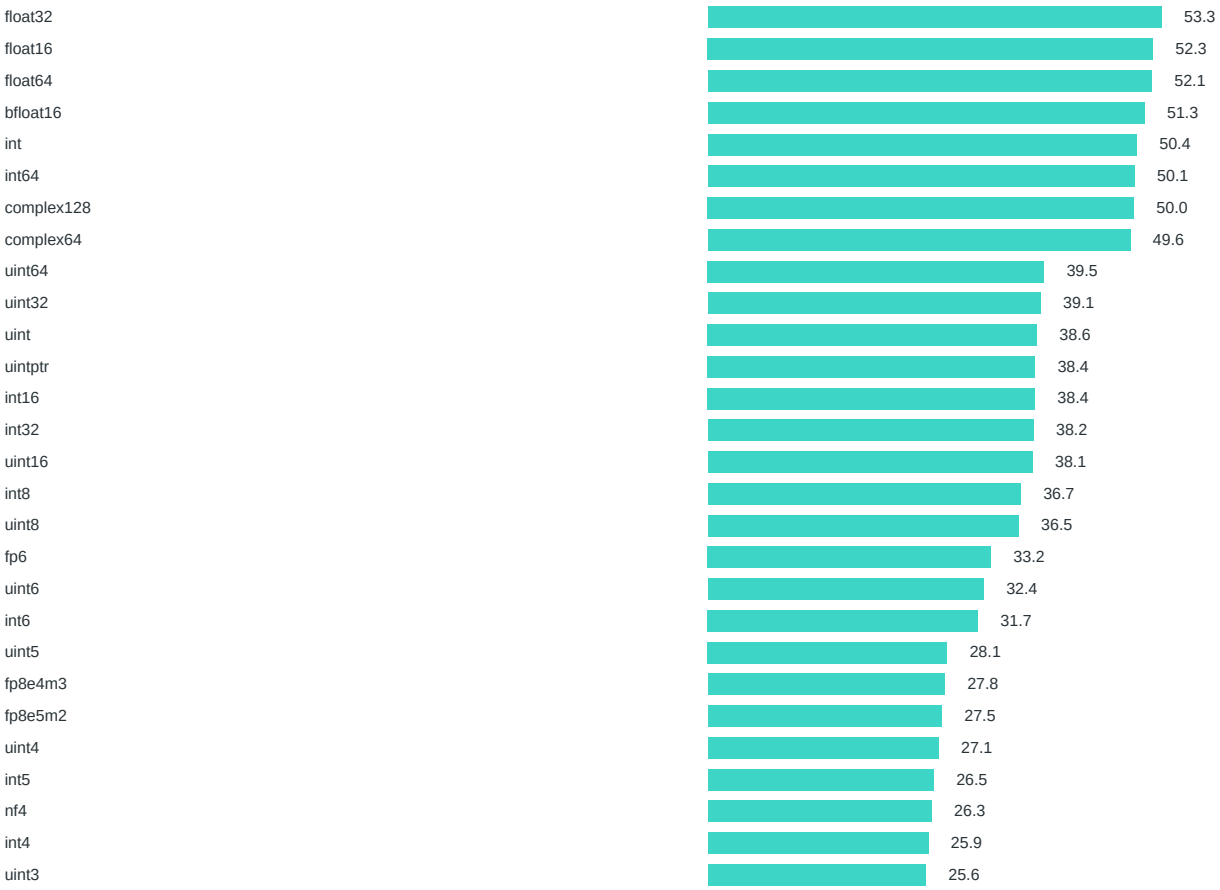

## Mean SoftAcc by train mode




## Mean Score by dtype




## Mean hard Acc by dtype




## Mean Score by arch




## Honesty - mean Score, every mode x dtype (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 19717 | 15843 | 13324 | 12985 | 22536 | 27248 | 20316 | 15241 | 5590 | 12071 | 12761 | 13453 | 11914 | 16131 | 6921 | 12065 |
| MeshTween | 14799 | 14908 | 8961 | 9262 | 16395 | 20666 | 14051 | 14539 | 4830 | 11148 | 11642 | 8968 | 10063 | 15656 | 6298 | 10411 |
| MeshTweenAlt | 13791 | 11852 | 9536 | 9824 | 16816 | 22575 | 15834 | 11405 | 3733 | 8894 | 9718 | 10181 | 8421 | 11783 | 4712 | 8483 |
| MeshTweenChain | 18251 | 14823 | 12656 | 12591 | 21208 | 26170 | 18301 | 15065 | 5446 | 12010 | 12438 | 12482 | 11533 | 15497 | 6654 | 11535 |
| MeshTweenSplit | 17736 | 16645 | 12398 | 12428 | 21460 | 24731 | 18162 | 15401 | 6359 | 12065 | 12843 | 13145 | 11936 | 16248 | 7606 | 12234 |
| MeshTweenSplitFa | 18479 | 17375 | 12305 | 12510 | 19916 | 25469 | 17876 | 15257 | 5983 | 12798 | 13354 | 12844 | 12046 | 16598 | 7592 | 12483 |
| MeshTweenSplitSp | 18483 | 18475 | 12295 | 12850 | 21335 | 25133 | 18125 | 15333 | 6184 | 12515 | 13102 | 12471 | 12428 | 16075 | 7423 | 12149 |
| StepTweenAlt | 12537 | 11590 | 9107 | 9088 | 17224 | 22276 | 14524 | 10492 | 3102 | 7997 | 8565 | 9338 | 8035 | 11090 | 4591 | 8111 |
| StepTweenSplit | 16378 | 15362 | 11275 | 11534 | 20585 | 25095 | 17285 | 14323 | 5046 | 11344 | 12205 | 11160 | 10809 | 15248 | 6384 | 10553 |
| TweenAlt | 14758 | 12121 | 10304 | 10393 | 18729 | 24919 | 16689 | 11874 | 3946 | 9406 | 9813 | 10441 | 8870 | 12497 | 5033 | 8992 |
| TweenSplit | 18201 | 17294 | 13456 | 13631 | 22278 | 26065 | 19121 | 16676 | 6199 | 12625 | 13577 | 13722 | 12403 | 17594 | 7656 | 12658 |
| TweenSplitFastPr | 19901 | 16447 | 13580 | 13631 | 22354 | 26075 | 19587 | 15976 | 6094 | 13047 | 13205 | 13687 | 12332 | 16987 | 7112 | 12197 |
| TweenSplitHeadPr | 20411 | 17137 | 13257 | 13578 | 22565 | 26203 | 18377 | 15885 | 6120 | 13017 | 13560 | 13623 | 12095 | 16839 | 7411 | 12874 |
| TweenSplitHeadPr | 16409 | 16409 | 11016 | 11286 | 19193 | 22763 | 16211 | 16070 | 6102 | 12483 | 13363 | 10380 | 12320 | 16634 | 7351 | 11999 |
| TweenSplitLinear | 16239 | 15609 | 11181 | 11586 | 19442 | 23279 | 16621 | 14658 | 5526 | 11586 | 11733 | 11428 | 11241 | 15368 | 6686 | 10984 |
| TweenSplitLinear | 15567 | 16493 | 10138 | 10818 | 17839 | 20580 | 14822 | 16274 | 5869 | 12653 | 13087 | 10037 | 11413 | 16514 | 7465 | 11983 |
| TweenSplitSparse | 19885 | 17400 | 13432 | 13372 | 22444 | 26928 | 19198 | 17391 | 6138 | 13718 | 13894 | 13557 | 12327 | 17967 | 7712 | 12609 |
| sgd | 22842 | 18890 | 15639 | 15934 | 26657 | 32242 | 23457 | 18257 | 6804 | 14399 | 14848 | 15788 | 14290 | 18932 | 8255 | 14525 |
| step_sgd | 20955 | 17344 | 13601 | 13957 | 24315 | 29377 | 20885 | 16547 | 5642 | 13093 | 13717 | 13791 | 12346 | 17572 | 7048 | 12710 |
| step_tween | 14960 | 15592 | 9181 | 9343 | 17492 | 21350 | 15513 | 15299 | 4832 | 11626 | 12384 | 9397 | 10577 | 16012 | 6368 | 10777 |
| step_tween_chain | 18489 | 15124 | 11947 | 11956 | 21497 | 25725 | 18247 | 14680 | 5034 | 11481 | 12062 | 12139 | 10915 | 15659 | 6189 | 10985 |
| tween | 17974 | 18587 | 10987 | 11093 | 20129 | 24095 | 17191 | 17433 | 5949 | 13669 | 14799 | 11152 | 12872 | 18422 | 7722 | 12732 |
| tween_chain | 21920 | 18523 | 15007 | 15366 | 25352 | 31530 | 21927 | 17254 | 6500 | 13838 | 14444 | 14627 | 13729 | 18215 | 7831 | 13521 |

## Honesty - mean Score, every mode x dtype (cols 17-32)

## Honesty - mean Score, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 16222 | 5962 | 5771 | 15023 | 18300 | 8942 | 16276 | 11111 | 13073 | 11311 | 7355 | 13125 | 11747 | 6308 | 5933 | 12801 |
| MeshTween | 15152 | 5228 | 4662 | 10423 | 15855 | 8140 | 15100 | 9754 | 11226 | 10232 | 6500 | 11664 | 11127 | 5534 | 5085 | 11370 |
| MeshTweenAlt | 12251 | 3756 | 3731 | 11696 | 13388 | 6292 | 11806 | 8127 | 9260 | 8357 | 5025 | 10169 | 8645 | 4441 | 4032 | 9164 |
| MeshTweenChain | 15342 | 5661 | 5115 | 14545 | 17241 | 8641 | 15260 | 10420 | 12171 | 10662 | 6839 | 12766 | 10967 | 5803 | 5579 | 12151 |
| MeshTweenSplit | 17026 | 6682 | 6225 | 14717 | 18377 | 9267 | 15532 | 10356 | 13855 | 11876 | 8235 | 13643 | 12746 | 6555 | 6789 | 13302 |
| MeshTweenSplitFa | 16236 | 6055 | 6119 | 14055 | 17819 | 9282 | 16264 | 10792 | 12396 | 11520 | 7551 | 13693 | 11909 | 6969 | 6236 | 13044 |
| MeshTweenSplitSp | 17344 | 6154 | 5946 | 14370 | 17873 | 9934 | 17202 | 11049 | 13593 | 11206 | 8157 | 13451 | 11770 | 6729 | 6576 | 13546 |
| StepTweenAlt | 11076 | 3476 | 3302 | 11196 | 12683 | 5807 | 11725 | 7087 | 8885 | 7786 | 4642 | 9142 | 7970 | 3986 | 3623 | 8672 |
| StepTweenSplit | 15568 | 5437 | 4912 | 13264 | 16726 | 8163 | 15511 | 9726 | 11766 | 10334 | 6814 | 11979 | 11293 | 5893 | 5349 | 11328 |
| TweenAlt | 12199 | 4138 | 3969 | 12266 | 14155 | 6791 | 12588 | 8116 | 9757 | 8831 | 5289 | 9757 | 8893 | 4633 | 4140 | 9670 |
| TweenSplit | 16881 | 6306 | 6055 | 15235 | 18488 | 9507 | 17082 | 11656 | 13389 | 12217 | 7917 | 13571 | 12858 | 7014 | 6653 | 12952 |
| TweenSplitFastPr | 16598 | 6094 | 6326 | 14870 | 18274 | 9666 | 16733 | 12151 | 13521 | 12099 | 7852 | 13207 | 12532 | 6769 | 6669 | 13249 |
| TweenSplitHeadPr | 16571 | 6855 | 6098 | 15542 | 18728 | 9657 | 17338 | 11346 | 13565 | 11505 | 8033 | 13660 | 12289 | 6999 | 6571 | 12913 |
| TweenSplitHeadPr | 16753 | 6383 | 5827 | 12674 | 17897 | 9499 | 16440 | 11003 | 12505 | 11443 | 7869 | 12824 | 12451 | 6914 | 6295 | 12740 |
| TweenSplitLinear | 14902 | 5771 | 5293 | 13056 | 16142 | 8794 | 15289 | 10355 | 11920 | 10819 | 7378 | 12174 | 11291 | 6148 | 5678 | 11824 |
| TweenSplitLinear | 15842 | 6269 | 5763 | 11535 | 16862 | 9293 | 16640 | 11091 | 12669 | 11564 | 8039 | 12661 | 11942 | 6805 | 6180 | 12921 |
| TweenSplitSparse | 17470 | 6925 | 6518 | 15349 | 18235 | 9863 | 17253 | 11584 | 14050 | 12466 | 8334 | 13667 | 12979 | 7290 | 6878 | 12858 |
| sgd | 18727 | 7135 | 6888 | 17811 | 21483 | 10464 | 18924 | 13329 | 15599 | 13510 | 8648 | 15784 | 14161 | 7593 | 7389 | 15715 |
| step_sgd | 17459 | 5947 | 5879 | 15823 | 19085 | 9333 | 17659 | 11502 | 13917 | 12073 | 7652 | 14058 | 12623 | 6402 | 6106 | 13889 |
| step_tween | 15652 | 5157 | 4928 | 11042 | 16456 | 8254 | 15926 | 9778 | 11689 | 10795 | 6924 | 12075 | 11227 | 5622 | 5174 | 11531 |
| step_tween_chain | 15422 | 5307 | 5250 | 14076 | 17312 | 8184 | 15507 | 10321 | 12166 | 10464 | 6699 | 12174 | 11053 | 5716 | 5320 | 12131 |
| tween | 18105 | 6480 | 6186 | 13354 | 19366 | 9813 | 18353 | 11740 | 14389 | 12878 | 8130 | 14318 | 13585 | 7107 | 6573 | 13896 |
| tween_chain | 17974 | 6648 | 6571 | 17299 | 20125 | 10063 | 18354 | 12316 | 14847 | 12921 | 8652 | 15092 | 13414 | 7428 | 7003 | 14826 |

## Honesty - mean Score, every mode x dtype  (cols 33-34)

## Honesty - mean Score, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 18631 | 10877 |
| MeshTween | 17404 | 9840 |
| MeshTweenAlt | 14186 | 9040 |
| MeshTweenChain | 17118 | 10534 |
| MeshTweenSplit | 18945 | 11526 |
| MeshTweenSplitFa | 18369 | 10689 |
| MeshTweenSplitSp | 18516 | 10753 |
| StepTweenAlt | 13262 | 7310 |
| StepTweenSplit | 16782 | 9593 |
| TweenAlt | 14225 | 8127 |
| TweenSplit | 18760 | 11504 |
| TweenSplitFastPr | 18502 | 11511 |
| TweenSplitHeadPr | 18806 | 11584 |
| TweenSplitHeadPr | 18633 | 11206 |
| TweenSplitLinear | 16643 | 10071 |
| TweenSplitLinear | 18405 | 10818 |
| TweenSplitSparse | 18999 | 11534 |
| sgd | 21333 | 13269 |
| step_sgd | 20157 | 11445 |
| step_tween | 17464 | 9946 |
| step_tween_chain | 17676 | 10278 |
| tween | 20230 | 11840 |
| tween_chain | 20838 | 12392 |

## Honesty - mean hard Acc, every mode x dtype  (cols 1-16)

## Honesty - mean hard Acc, every mode x dtype  (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 53 | 21 | 52 | 51 | 52 | 57 | 62 | 25 | 37 | 27 | 25 | 59 | 46 | 29 | 33 | 43 |
| MeshTween | 45 | 15 | 35 | 39 | 41 | 32 | 33 | 25 | 28 | 27 | 18 | 29 | 36 | 21 | 28 | 34 |
| MeshTweenAlt | 68 | 23 | 67 | 70 | 76 | 77 | 73 | 25 | 30 | 30 | 26 | 70 | 35 | 23 | 29 | 32 |
| MeshTweenChain | 55 | 22 | 51 | 54 | 49 | 60 | 56 | 25 | 44 | 24 | 30 | 49 | 43 | 26 | 22 | 43 |
| MeshTweenSplit | 50 | 28 | 55 | 51 | 54 | 53 | 58 | 25 | 30 | 25 | 19 | 50 | 33 | 30 | 27 | 33 |
| MeshTweenSplitFa | 49 | 25 | 45 | 50 | 44 | 45 | 47 | 25 | 36 | 32 | 27 | 53 | 36 | 23 | 18 | 39 |
| MeshTweenSplitSp | 51 | 26 | 46 | 42 | 47 | 50 | 48 | 25 | 36 | 30 | 29 | 46 | 38 | 22 | 26 | 43 |
| StepTweenAlt | 72 | 33 | 72 | 70 | 79 | 79 | 76 | 25 | 29 | 28 | 30 | 72 | 35 | 33 | 31 | 36 |
| StepTweenSplit | 50 | 25 | 53 | 54 | 58 | 61 | 55 | 25 | 31 | 24 | 26 | 53 | 35 | 24 | 27 | 33 |
| TweenAlt | 73 | 26 | 76 | 74 | 80 | 83 | 80 | 25 | 30 | 28 | 27 | 75 | 35 | 29 | 21 | 35 |
| TweenSplit | 53 | 22 | 58 | 57 | 58 | 57 | 57 | 25 | 31 | 26 | 29 | 57 | 34 | 23 | 20 | 34 |
| TweenSplitFastPr | 51 | 19 | 46 | 48 | 51 | 50 | 48 | 25 | 37 | 32 | 29 | 47 | 38 | 26 | 20 | 42 |
| TweenSplitHeadPr | 53 | 22 | 50 | 46 | 52 | 57 | 49 | 25 | 39 | 30 | 32 | 50 | 38 | 24 | 28 | 42 |
| TweenSplitHeadPr | 37 | 20 | 35 | 41 | 42 | 39 | 42 | 25 | 35 | 30 | 28 | 35 | 34 | 30 | 34 | 33 |
| TweenSplitLinear | 44 | 22 | 52 | 43 | 48 | 42 | 44 | 25 | 28 | 23 | 23 | 48 | 35 | 22 | 19 | 33 |
| TweenSplitLinear | 27 | 26 | 27 | 29 | 30 | 34 | 27 | 25 | 26 | 21 | 23 | 28 | 30 | 27 | 29 | 29 |
| TweenSplitSparse | 54 | 22 | 46 | 48 | 51 | 48 | 51 | 25 | 37 | 27 | 27 | 54 | 45 | 29 | 22 | 42 |
| sgd | 50 | 28 | 52 | 47 | 56 | 64 | 58 | 25 | 42 | 22 | 26 | 53 | 47 | 28 | 21 | 41 |
| step_sgd | 51 | 26 | 52 | 52 | 53 | 61 | 56 | 25 | 40 | 31 | 31 | 53 | 43 | 20 | 25 | 42 |
| step_tween | 41 | 20 | 36 | 37 | 34 | 26 | 32 | 25 | 18 | 38 | 35 | 38 | 38 | 21 | 28 | 44 |
| step_tween_chain | 52 | 27 | 48 | 49 | 54 | 51 | 50 | 25 | 34 | 32 | 30 | 48 | 40 | 23 | 24 | 46 |
| tween | 49 | 22 | 38 | 32 | 36 | 40 | 36 | 25 | 26 | 28 | 25 | 41 | 41 | 22 | 27 | 34 |
| tween_chain | 53 | 29 | 57 | 56 | 56 | 61 | 61 | 25 | 39 | 24 | 36 | 50 | 46 | 27 | 25 | 48 |

## Honesty - mean hard Acc, every mode x dtype  (cols 17-32)

## Honesty - mean hard Acc, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 28 | 34 | 39 | 57 | 41 | 20 | 25 | 51 | 44 | 18 | 26 | 47 | 37 | 33 | 42 | 47 |
| MeshTween | 29 | 23 | 26 | 34 | 40 | 28 | 26 | 41 | 37 | 22 | 24 | 34 | 29 | 34 | 23 | 40 |
| MeshTweenAlt | 26 | 27 | 28 | 71 | 34 | 27 | 24 | 34 | 34 | 35 | 24 | 35 | 25 | 27 | 33 | 33 |
| MeshTweenChain | 22 | 29 | 38 | 49 | 43 | 28 | 29 | 48 | 48 | 22 | 26 | 39 | 33 | 29 | 35 | 46 |
| MeshTweenSplit | 19 | 23 | 21 | 56 | 33 | 24 | 23 | 35 | 32 | 36 | 22 | 33 | 22 | 21 | 27 | 32 |
| MeshTweenSplitFa | 25 | 26 | 37 | 46 | 34 | 30 | 26 | 44 | 37 | 22 | 25 | 44 | 29 | 20 | 32 | 42 |
| MeshTweenSplitSp | 34 | 29 | 34 | 46 | 38 | 20 | 33 | 42 | 42 | 25 | 34 | 35 | 25 | 33 | 43 | 38 |
| StepTweenAlt | 27 | 20 | 28 | 75 | 35 | 26 | 26 | 33 | 34 | 25 | 25 | 35 | 24 | 27 | 32 | 34 |
| StepTweenSplit | 31 | 23 | 32 | 56 | 33 | 33 | 19 | 33 | 34 | 19 | 27 | 33 | 22 | 33 | 35 | 34 |
| TweenAlt | 21 | 26 | 33 | 77 | 36 | 22 | 28 | 33 | 37 | 25 | 18 | 34 | 27 | 24 | 30 | 39 |
| TweenSplit | 19 | 25 | 30 | 56 | 34 | 27 | 28 | 33 | 34 | 24 | 16 | 35 | 23 | 22 | 23 | 34 |
| TweenSplitFastPr | 21 | 28 | 34 | 48 | 41 | 28 | 21 | 39 | 39 | 31 | 31 | 43 | 28 | 33 | 31 | 47 |
| TweenSplitHeadPr | 19 | 35 | 34 | 47 | 37 | 28 | 30 | 44 | 42 | 21 | 28 | 41 | 19 | 35 | 41 | 39 |
| TweenSplitHeadPr | 27 | 26 | 35 | 38 | 37 | 26 | 24 | 35 | 38 | 27 | 28 | 37 | 37 | 30 | 34 | 40 |
| TweenSplitLinear | 25 | 30 | 30 | 44 | 33 | 23 | 27 | 37 | 39 | 30 | 24 | 42 | 22 | 22 | 28 | 49 |
| TweenSplitLinear | 27 | 20 | 23 | 29 | 25 | 27 | 24 | 23 | 24 | 22 | 24 | 32 | 24 | 20 | 21 | 26 |
| TweenSplitSparse | 38 | 27 | 43 | 44 | 41 | 28 | 23 | 39 | 38 | 28 | 23 | 38 | 27 | 30 | 35 | 37 |
| sgd | 23 | 28 | 35 | 55 | 48 | 29 | 23 | 45 | 41 | 24 | 35 | 51 | 25 | 34 | 44 | 44 |
| step_sgd | 29 | 20 | 30 | 49 | 36 | 22 | 16 | 44 | 47 | 23 | 26 | 48 | 27 | 31 | 33 | 44 |
| step_tween | 28 | 29 | 20 | 34 | 35 | 30 | 27 | 28 | 31 | 30 | 28 | 37 | 35 | 21 | 22 | 36 |
| step_tween_chain | 31 | 27 | 37 | 57 | 36 | 21 | 25 | 42 | 43 | 21 | 24 | 42 | 28 | 39 | 34 | 44 |
| tween | 22 | 27 | 28 | 30 | 30 | 32 | 25 | 40 | 43 | 25 | 25 | 38 | 29 | 25 | 23 | 35 |
| tween_chain | 24 | 25 | 33 | 55 | 45 | 27 | 26 | 45 | 40 | 22 | 24 | 45 | 26 | 24 | 41 | 47 |

## Honesty - mean hard Acc, every mode x dtype  (cols 33-34)

## Honesty - mean hard Acc, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 42 | 48 |
| MeshTween | 36 | 35 |
| MeshTweenAlt | 35 | 34 |
| MeshTweenChain | 39 | 40 |
| MeshTweenSplit | 36 | 32 |
| MeshTweenSplitFa | 40 | 45 |
| MeshTweenSplitSp | 43 | 37 |
| StepTweenAlt | 35 | 34 |
| StepTweenSplit | 33 | 35 |
| TweenAlt | 37 | 35 |
| TweenSplit | 35 | 33 |
| TweenSplitFastPr | 45 | 40 |
| TweenSplitHeadPr | 34 | 43 |
| TweenSplitHeadPr | 27 | 41 |
| TweenSplitLinear | 40 | 35 |
| TweenSplitLinear | 18 | 19 |
| TweenSplitSparse | 42 | 36 |
| sgd | 41 | 47 |
| step_sgd | 36 | 49 |
| step_tween | 35 | 37 |
| step_tween_chain | 39 | 44 |
| tween | 32 | 37 |
| tween_chain | 42 | 48 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 1-16)

## Honesty - mean SoftAcc, every mode x dtype  (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 29 | 25 | 31 | 31 | 31 | 32 | 32 | 25 | 25 | 25 | 25 | 31 | 26 | 25 | 25 | 26 |
| MeshTween | 25 | 25 | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenAlt | 30 | 25 | 34 | 34 | 35 | 37 | 36 | 25 | 25 | 25 | 25 | 35 | 26 | 25 | 25 | 26 |
| MeshTweenChain | 29 | 25 | 31 | 30 | 30 | 32 | 31 | 25 | 26 | 25 | 25 | 30 | 26 | 25 | 25 | 26 |
| MeshTweenSplit | 27 | 25 | 30 | 30 | 30 | 30 | 31 | 25 | 25 | 25 | 25 | 30 | 26 | 25 | 25 | 26 |
| MeshTweenSplitFa | 28 | 25 | 29 | 29 | 29 | 29 | 29 | 25 | 26 | 25 | 25 | 29 | 26 | 25 | 25 | 26 |
| MeshTweenSplitSp | 28 | 25 | 29 | 29 | 30 | 30 | 30 | 25 | 25 | 25 | 25 | 29 | 26 | 25 | 25 | 26 |
| StepTweenAlt | 30 | 25 | 35 | 34 | 36 | 37 | 36 | 25 | 25 | 25 | 25 | 35 | 26 | 25 | 25 | 26 |
| StepTweenSplit | 28 | 25 | 30 | 31 | 31 | 32 | 31 | 25 | 25 | 25 | 25 | 31 | 26 | 25 | 25 | 26 |
| TweenAlt | 31 | 25 | 36 | 36 | 36 | 38 | 37 | 25 | 25 | 25 | 25 | 36 | 26 | 25 | 25 | 26 |
| TweenSplit | 28 | 25 | 31 | 31 | 31 | 31 | 31 | 25 | 25 | 25 | 25 | 31 | 26 | 25 | 25 | 26 |
| TweenSplitFastPr | 29 | 25 | 30 | 29 | 30 | 30 | 31 | 25 | 25 | 25 | 25 | 30 | 26 | 25 | 25 | 26 |
| TweenSplitHeadPr | 29 | 25 | 30 | 30 | 30 | 31 | 30 | 25 | 25 | 25 | 25 | 30 | 26 | 25 | 25 | 26 |
| TweenSplitHeadPr | 26 | 25 | 26 | 27 | 27 | 27 | 26 | 25 | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 26 |
| TweenSplitLinear | 27 | 25 | 28 | 28 | 28 | 29 | 28 | 25 | 25 | 25 | 25 | 28 | 26 | 25 | 25 | 26 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitSparse | 29 | 25 | 30 | 30 | 30 | 30 | 30 | 25 | 25 | 25 | 25 | 30 | 26 | 25 | 25 | 26 |
| sgd | 29 | 25 | 31 | 31 | 31 | 33 | 32 | 25 | 25 | 25 | 25 | 31 | 26 | 25 | 25 | 26 |
| step_sgd | 29 | 25 | 30 | 31 | 31 | 32 | 32 | 25 | 25 | 25 | 25 | 30 | 26 | 25 | 25 | 26 |
| step_tween | 25 | 25 | 25 | 26 | 25 | 25 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween_chain | 29 | 25 | 30 | 30 | 31 | 31 | 31 | 25 | 26 | 25 | 25 | 30 | 26 | 25 | 25 | 26 |
| tween | 25 | 25 | 25 | 25 | 25 | 26 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween_chain | 29 | 25 | 31 | 32 | 31 | 33 | 32 | 25 | 26 | 25 | 25 | 30 | 26 | 25 | 25 | 26 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 17-32)

## Honesty - mean SoftAcc, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 25 | 25 | 26 | 31 | 26 | 25 | 25 | 26 | 26 | 25 | 25 | 26 | 25 | 25 | 25 | 26 |
| MeshTween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenAlt | 25 | 25 | 25 | 35 | 26 | 25 | 25 | 26 | 26 | 25 | 25 | 26 | 25 | 25 | 25 | 26 |
| MeshTweenChain | 25 | 25 | 25 | 30 | 26 | 25 | 25 | 26 | 26 | 25 | 25 | 26 | 25 | 25 | 26 | 26 |
| MeshTweenSplit | 25 | 25 | 25 | 30 | 26 | 25 | 25 | 25 | 26 | 25 | 25 | 26 | 25 | 25 | 25 | 26 |
| MeshTweenSplitFa | 25 | 25 | 26 | 30 | 26 | 25 | 25 | 26 | 26 | 25 | 25 | 26 | 25 | 25 | 25 | 26 |
| MeshTweenSplitSp | 25 | 25 | 25 | 29 | 26 | 25 | 25 | 26 | 26 | 25 | 25 | 26 | 25 | 25 | 26 | 26 |
| StepTweenAlt | 25 | 25 | 25 | 36 | 26 | 25 | 25 | 26 | 26 | 25 | 25 | 26 | 25 | 25 | 25 | 26 |
| StepTweenSplit | 25 | 25 | 25 | 31 | 26 | 25 | 25 | 26 | 26 | 25 | 25 | 26 | 25 | 25 | 25 | 26 |
| TweenAlt | 25 | 25 | 25 | 36 | 26 | 25 | 25 | 26 | 26 | 25 | 25 | 26 | 25 | 25 | 25 | 26 |
| TweenSplit | 25 | 25 | 25 | 31 | 26 | 25 | 25 | 26 | 26 | 25 | 25 | 26 | 25 | 25 | 25 | 26 |
| TweenSplitFastPr | 25 | 25 | 26 | 30 | 26 | 25 | 25 | 26 | 26 | 25 | 25 | 26 | 25 | 25 | 25 | 26 |
| TweenSplitHeadPr | 25 | 25 | 25 | 30 | 26 | 25 | 25 | 26 | 26 | 25 | 25 | 26 | 25 | 25 | 25 | 26 |
| TweenSplitHeadPr | 25 | 25 | 25 | 27 | 25 | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 29 | 26 | 25 | 25 | 26 | 26 | 25 | 25 | 26 | 25 | 25 | 25 | 26 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitSparse | 25 | 25 | 26 | 30 | 26 | 25 | 25 | 26 | 26 | 25 | 25 | 26 | 25 | 25 | 26 | 26 |
| sgd | 25 | 25 | 26 | 31 | 26 | 25 | 25 | 26 | 26 | 25 | 25 | 26 | 25 | 25 | 26 | 26 |
| step_sgd | 25 | 25 | 26 | 30 | 26 | 25 | 25 | 26 | 26 | 25 | 25 | 26 | 25 | 25 | 26 | 26 |
| step_tween | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween_chain | 25 | 25 | 26 | 30 | 26 | 25 | 25 | 26 | 26 | 25 | 25 | 26 | 25 | 25 | 25 | 26 |
| tween | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween_chain | 25 | 25 | 26 | 31 | 26 | 25 | 25 | 26 | 26 | 25 | 25 | 26 | 25 | 25 | 25 | 26 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 33-34)

## Honesty - mean SoftAcc, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 26 | 26 |
| MeshTween | 25 | 25 |
| MeshTweenAlt | 26 | 26 |
| MeshTweenChain | 26 | 26 |
| MeshTweenSplit | 26 | 26 |
| MeshTweenSplitFa | 26 | 26 |
| MeshTweenSplitSp | 26 | 26 |
| StepTweenAlt | 26 | 26 |
| StepTweenSplit | 25 | 26 |
| TweenAlt | 26 | 26 |
| TweenSplit | 26 | 26 |
| TweenSplitFastPr | 26 | 26 |
| TweenSplitHeadPr | 26 | 26 |
| TweenSplitHeadPr | 25 | 26 |
| TweenSplitLinear | 26 | 26 |
| TweenSplitLinear | 25 | 25 |
| TweenSplitSparse | 26 | 26 |
| sgd | 26 | 26 |
| step_sgd | 26 | 26 |
| step_tween | 25 | 25 |
| step_tween_chain | 26 | 26 |
| tween | 25 | 25 |
| tween_chain | 26 | 26 |

## Mean Score, every mode x arch

## Mean Score, every mode x arch

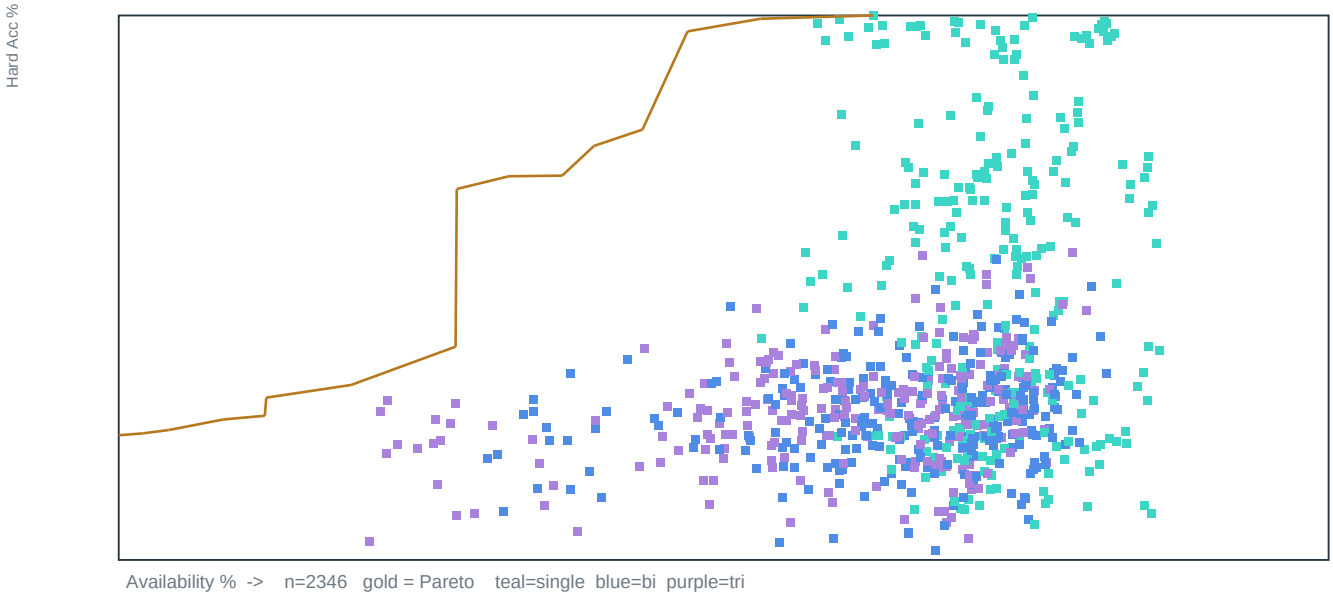
| | bicamera | singlex1 | tricamer |
|---|---|---|---|
| MeshBP | 8112 | 24773 | 6546 |
| MeshTween | 7391 | 19799 | 6066 |
| MeshTweenAlt | 6182 | 18023 | 4993 |
| MeshTweenChain | 7729 | 23277 | 6360 |
| MeshTweenSplit | 9063 | 22891 | 7492 |
| MeshTweenSplitFa | 8850 | 22703 | 7436 |
| MeshTweenSplitSp | 9377 | 22315 | 7885 |
| StepTweenAlt | 5422 | 17497 | 4372 |
| StepTweenSplit | 7901 | 21302 | 6535 |
| TweenAlt | 6334 | 19221 | 5003 |
| TweenSplit | 9434 | 23375 | 7885 |
| TweenSplitFastPr | 9114 | 23808 | 7564 |
| TweenSplitHeadPr | 9124 | 23742 | 7811 |
| TweenSplitHeadPr | 9105 | 21080 | 7698 |
| TweenSplitLinear | 8138 | 21184 | 6564 |
| TweenSplitLinear | 8933 | 20252 | 7596 |
| TweenSplitSparse | 9716 | 23468 | 8305 |
| sgd | 9821 | 28870 | 8031 |
| step_sgd | 8490 | 26608 | 6718 |
| step_tween | 7386 | 21133 | 5923 |
| step_tween_chain | 7253 | 23796 | 5761 |
| tween | 9269 | 23998 | 7422 |
| tween_chain | 9349 | 27757 | 7572 |

## Mean hard Acc, every mode x arch

## Mean hard Acc, every mode x arch

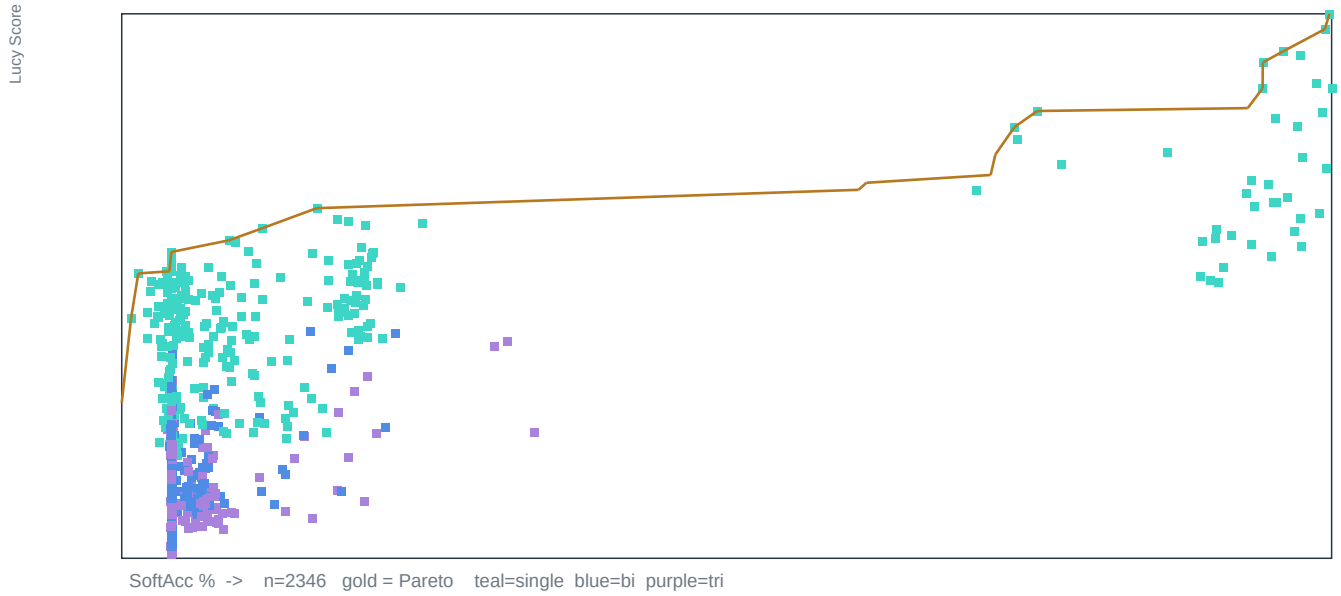
| | bicamera | singlex1 | tricamer |
|---|---|---|---|
| MeshBP | 30 | 57 | 32 |
| MeshTween | 27 | 40 | 25 |
| MeshTweenAlt | 35 | 48 | 35 |
| MeshTweenChain | 30 | 55 | 29 |
| MeshTweenSplit | 29 | 45 | 28 |
| MeshTweenSplitFa | 25 | 54 | 27 |
| MeshTweenSplitSp | 27 | 54 | 28 |
| StepTweenAlt | 37 | 49 | 36 |
| StepTweenSplit | 29 | 47 | 30 |
| TweenAlt | 37 | 49 | 36 |
| TweenSplit | 29 | 47 | 28 |
| TweenSplitFastPr | 27 | 56 | 26 |
| TweenSplitHeadPr | 27 | 57 | 26 |
| TweenSplitHeadPr | 26 | 45 | 29 |
| TweenSplitLinear | 26 | 47 | 26 |
| TweenSplitLinear | 27 | 26 | 23 |
| TweenSplitSparse | 26 | 56 | 27 |
| sgd | 30 | 57 | 31 |
| step_sgd | 28 | 56 | 29 |
| step_tween | 27 | 40 | 26 |
| step_tween_chain | 29 | 56 | 27 |
| tween | 27 | 41 | 26 |
| tween_chain | 28 | 57 | 32 |

## Avail vs hard Acc (headline scatter)

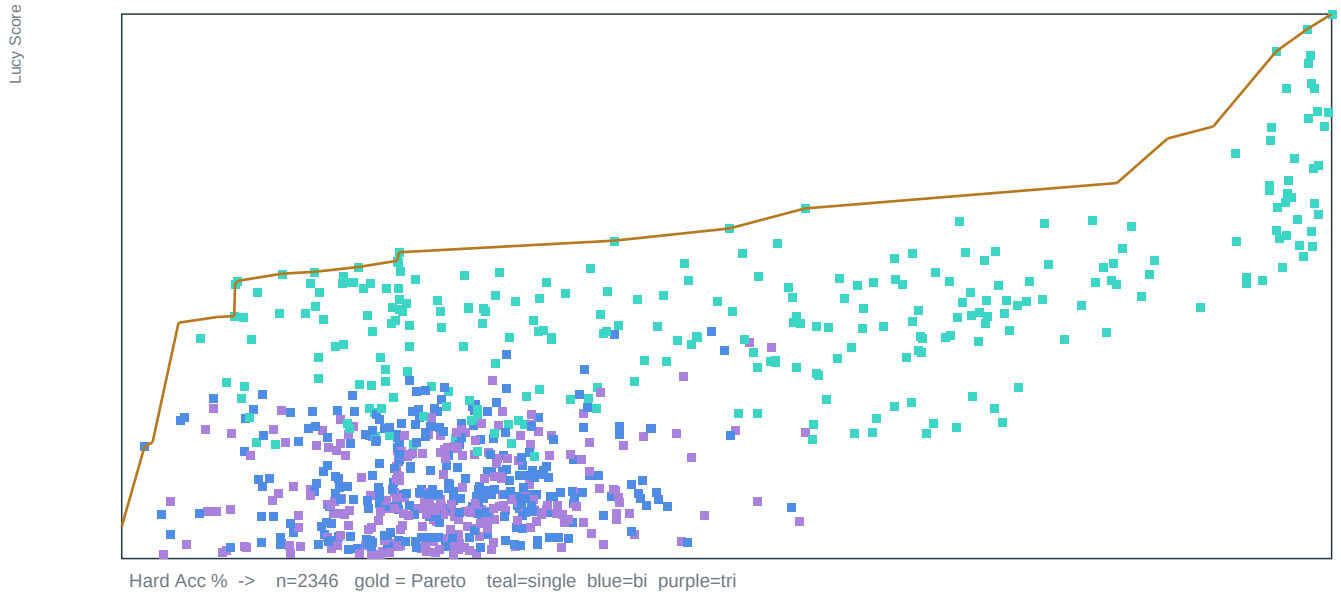



## Pareto - SoftAcc vs Score

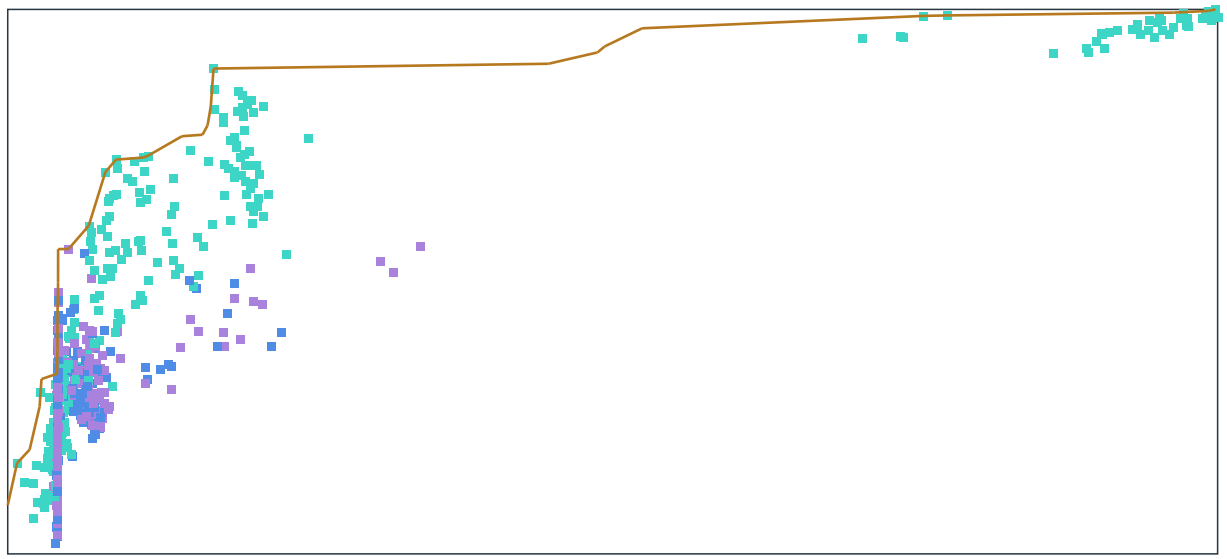
## Pareto - SoftAcc vs Score




## Pareto - hard Acc vs Score

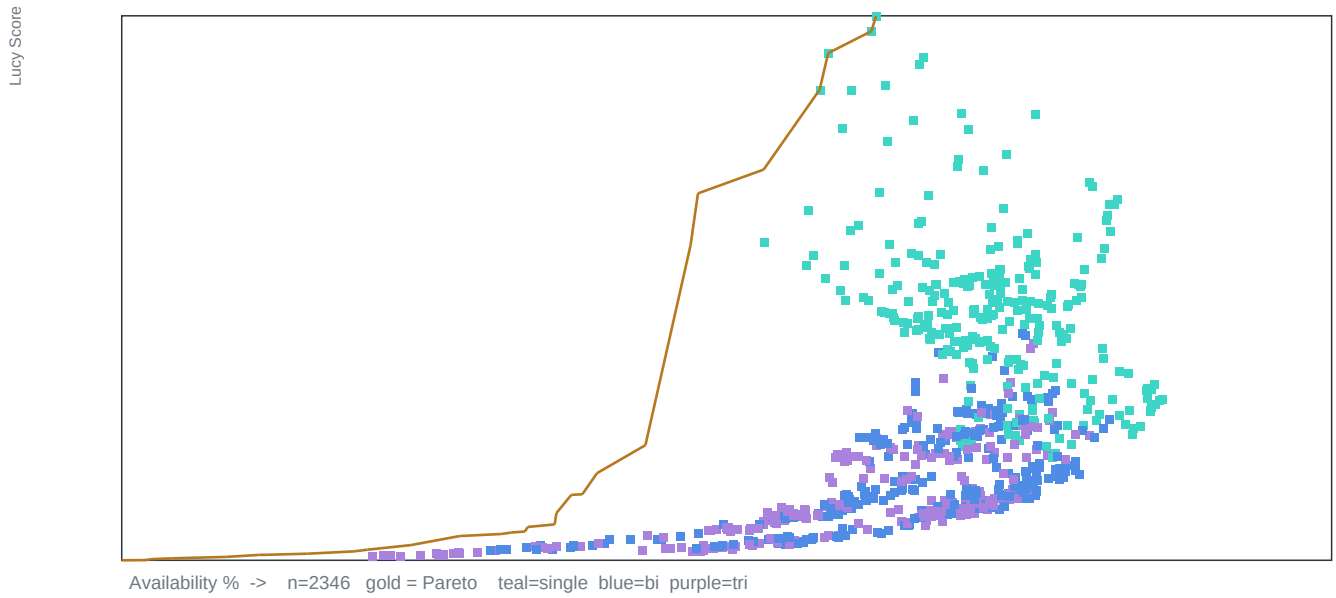



## SoftAcc vs hard Acc




SoftAcc %  ->  n=2346  gold = Pareto  teal=single  blue=bi  purple=tri
Hard Acc %

## Avail vs Score (duty clock)




## Lucy Pareto (LPD) - goldilocks

Q = geomean of Score/Soft/Acc/Thru vs the Lucy Score champion. LPD = 0 if Q<70%, else Q x shrink vs champ RAM (capped 32x). Gold = Q>=80% and RAM<=20% of champ. MSpeed = Thru vs the board's fastest (0 if Q<70%). MAvail = Availability vs the board's best duty cycle (0 if Q<70%). Mix = geomean(Q, MSpeed, MAvail). Raw Score/MiB is the binary trap.

Quality champ float32|none|sgd|single|simd  Score 52818.6  Soft 41  Acc 93  Thru 325877  RAM 0.3 KiB

Board fastest float32|none|tween|single|simd  Thru 332749  Best availability uint32|none|TweenSplitSparse|tricameral|simd  46.6%

No gold cell yet. Need a recipe that keeps 80% of the Score champ's Score/Soft/Acc/Thru at one fifth the RAM.

## Near-gold - Q >= 70%, RAM <= 50%

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| near | int8\|none\|sgd\|single\|simd | 74 | 25 | 4.0 | 2.97 | 28 | 78 | 32567.4 | 0.1 |
| near | int8\|none\|tween_chain\|single\|simd | 72 | 25 | 4.0 | 2.87 | 28 | 78 | 30455.0 | 0.1 |
| near | uint8\|none\|sgd\|single\|simd | 75 | 28 | 3.6 | 2.72 | 27 | 76 | 33151.5 | 0.1 |
| near | uint8\|none\|step_sgd\|single\|simd | 74 | 28 | 3.6 | 2.69 | 29 | 72 | 32781.9 | 0.1 |
| near | uint8\|none\|tween_chain\|single\|simd | 72 | 28 | 3.6 | 2.63 | 28 | 66 | 33024.0 | 0.1 |
| near | uint8\|none\|step_tween_chain\|single\|simd | 71 | 28 | 3.6 | 2.58 | 28 | 77 | 28966.1 | 0.1 |
| near | float16\|none\|sgd\|single\|simd | 95 | 50 | 2.0 | 1.91 | 41 | 91 | 48864.0 | 0.2 |
| near | float16\|none\|tween_chain\|single\|simd | 95 | 50 | 2.0 | 1.89 | 40 | 91 | 48163.6 | 0.2 |
| near | float16\|none\|step_sgd\|single\|simd | 92 | 50 | 2.0 | 1.85 | 40 | 90 | 45691.8 | 0.2 |
| near | bfloat16\|none\|sgd\|single\|simd | 90 | 50 | 2.0 | 1.79 | 37 | 92 | 43519.9 | 0.2 |
| near | float16\|none\|step_tween_chain\|single\|simd | 89 | 50 | 2.0 | 1.79 | 41 | 93 | 42061.6 | 0.2 |
| near | float16\|none\|MeshBP\|single\|simd | 89 | 50 | 2.0 | 1.79 | 41 | 91 | 42822.7 | 0.2 |

## LPD rank (Q x shrink; 0 if Q < 70%)

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| near | int8\|none\|sgd\|single\|simd | 74 | 25 | 4.0 | 2.97 | 28 | 78 | 32567.4 | 0.1 |
| near | int8\|none\|tween_chain\|single\|simd | 72 | 25 | 4.0 | 2.87 | 28 | 78 | 30455.0 | 0.1 |
| near | uint8\|none\|sgd\|single\|simd | 75 | 28 | 3.6 | 2.72 | 27 | 76 | 33151.5 | 0.1 |
| near | uint8\|none\|step_sgd\|single\|simd | 74 | 28 | 3.6 | 2.69 | 29 | 72 | 32781.9 | 0.1 |
| near | uint8\|none\|tween_chain\|single\|simd | 72 | 28 | 3.6 | 2.63 | 28 | 66 | 33024.0 | 0.1 |
| near | uint8\|none\|step_tween_chain\|single\|simd | 71 | 28 | 3.6 | 2.58 | 28 | 77 | 28966.1 | 0.1 |
| near | float16\|none\|sgd\|single\|simd | 95 | 50 | 2.0 | 1.91 | 41 | 91 | 48864.0 | 0.2 |
| near | float16\|none\|tween_chain\|single\|simd | 95 | 50 | 2.0 | 1.89 | 40 | 91 | 48163.6 | 0.2 |
| near | float16\|none\|step_sgd\|single\|simd | 92 | 50 | 2.0 | 1.85 | 40 | 90 | 45691.8 | 0.2 |
| near | bfloat16\|none\|sgd\|single\|simd | 90 | 50 | 2.0 | 1.79 | 37 | 92 | 43519.9 | 0.2 |

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| near | float16\|none\|step_tween_chain\|single\|simd | 89 | 50 | 2.0 | 1.79 | 41 | 93 | 42061.6 | 0.2 |
| near | float16\|none\|MeshBP\|single\|simd | 89 | 50 | 2.0 | 1.79 | 41 | 91 | 42822.7 | 0.2 |
| near | bfloat16\|none\|tween_chain\|single\|simd | 87 | 50 | 2.0 | 1.74 | 37 | 89 | 41961.9 | 0.2 |
| near | bfloat16\|none\|step_sgd\|single\|simd | 87 | 50 | 2.0 | 1.73 | 37 | 89 | 40794.7 | 0.2 |
| near | float16\|none\|MeshTweenChain\|single\|simd | 86 | 50 | 2.0 | 1.73 | 40 | 90 | 40426.8 | 0.2 |
| near | float16\|none\|TweenSplitHeadProxy\|single\|simd | 85 | 50 | 2.0 | 1.70 | 40 | 89 | 39376.3 | 0.2 |
| near | bfloat16\|none\|MeshBP\|single\|simd | 84 | 50 | 2.0 | 1.69 | 38 | 92 | 38404.4 | 0.2 |
| near | float16\|none\|TweenSplitFastProxy\|single\|simd | 84 | 50 | 2.0 | 1.68 | 40 | 89 | 38973.6 | 0.2 |
| near | bfloat16\|none\|TweenSplitHeadProxy\|single\|simd | 82 | 50 | 2.0 | 1.64 | 37 | 89 | 37396.6 | 0.2 |
| near | bfloat16\|none\|TweenSplitFastProxy\|single\|simd | 82 | 50 | 2.0 | 1.64 | 37 | 90 | 37045.8 | 0.2 |

## Mobile speed - Thru vs board fastest (Q >= 70%)

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| - | float32\|none\|tween\|single\|simd | 71 | 100 | 82 | 83 | 0.71 | 332749 | 38.0 |
| keep | float32\|none\|sgd\|single\|simd | 100 | 98 | 84 | 94 | 1.00 | 325877 | 39.1 |
| keep | float32\|none\|tween_chain\|single\|simd | 98 | 96 | 84 | 92 | 0.98 | 317947 | 39.0 |
| keep | float32\|none\|step_sgd\|single\|simd | 96 | 95 | 82 | 91 | 0.96 | 315030 | 38.3 |
| near | uint8\|none\|sgd\|single\|simd | 75 | 91 | 86 | 84 | 2.72 | 304172 | 39.9 |
| near | uint8\|none\|tween_chain\|single\|simd | 72 | 91 | 85 | 82 | 2.63 | 301471 | 39.8 |
| near | float16\|none\|tween_chain\|single\|simd | 95 | 90 | 85 | 90 | 1.89 | 298692 | 39.8 |
| near | float16\|none\|sgd\|single\|simd | 95 | 90 | 86 | 90 | 1.91 | 298674 | 39.9 |
| near | uint8\|none\|step_sgd\|single\|simd | 74 | 89 | 83 | 82 | 2.69 | 295519 | 38.8 |
| near | float16\|none\|step_sgd\|single\|simd | 92 | 88 | 83 | 88 | 1.85 | 291533 | 38.7 |

## Mobile availability - duty cycle vs board best (Q >= 70%)

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| - | int\|none\|TweenSplitHeadProxy\|single\|simd | 71 | 49 | 94 | 69 | 0.35 | 163284 | 43.6 |
| - | int\|none\|TweenSplitFastProxy\|single\|simd | 71 | 52 | 94 | 70 | 0.35 | 171627 | 43.6 |
| - | complex64\|none\|TweenSplitHeadProxy\|single\|simd | 70 | 51 | 93 | 69 | 0.35 | 169418 | 43.5 |
| - | int64\|none\|TweenSplitFastProxy\|single\|simd | 72 | 53 | 93 | 71 | 0.36 | 176294 | 43.3 |
| - | int64\|none\|TweenSplitSparse\|single\|simd | 71 | 53 | 93 | 71 | 0.36 | 177606 | 43.2 |
| - | complex64\|none\|sgd\|single\|simd | 79 | 60 | 92 | 76 | 0.40 | 200737 | 43.1 |
| - | int\|none\|sgd\|single\|simd | 79 | 60 | 92 | 76 | 0.39 | 198833 | 43.0 |
| - | int64\|none\|TweenSplitHeadProxy\|single\|simd | 76 | 56 | 92 | 73 | 0.38 | 185513 | 43.0 |
| - | int\|none\|tween_chain\|single\|simd | 75 | 57 | 92 | 73 | 0.38 | 188100 | 43.0 |
| - | complex128\|none\|sgd\|single\|simd | 79 | 60 | 92 | 76 | 0.20 | 199296 | 42.9 |

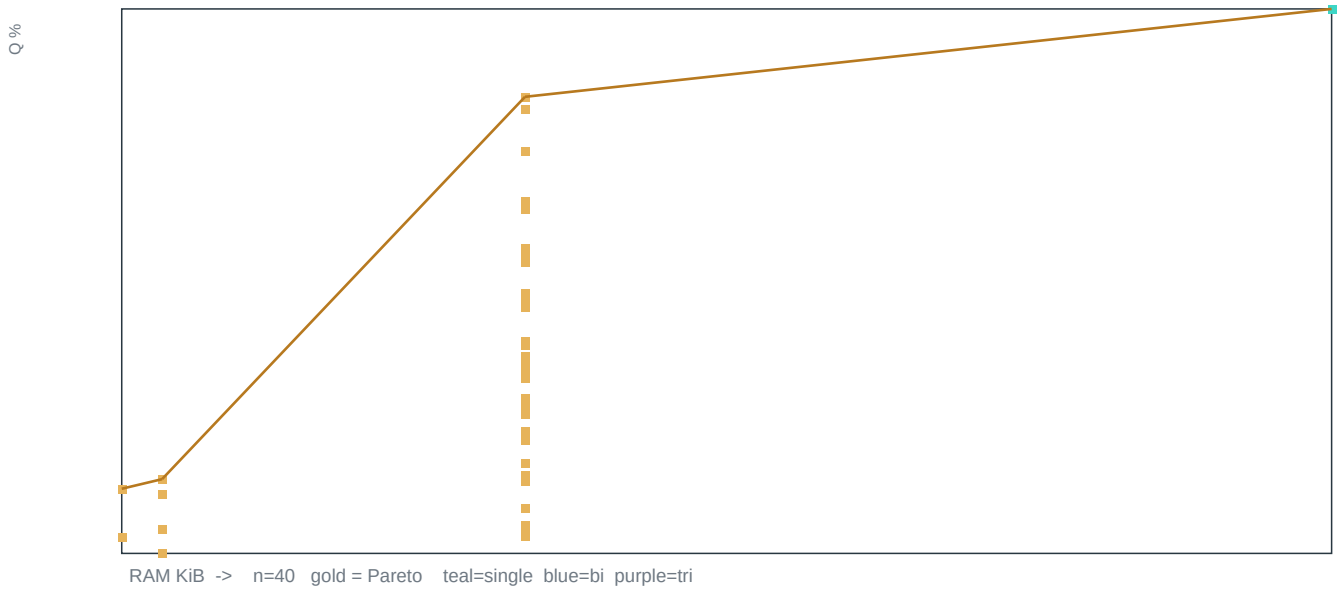
## Mix - geomean of Q, MSpeed, MAvail

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| keep | float32\|none\|sgd\|single\|simd | 100 | 98 | 84 | 94 | 1.00 | 325877 | 39.1 |
| keep | float32\|none\|tween_chain\|single\|simd | 98 | 96 | 84 | 92 | 0.98 | 317947 | 39.0 |
| keep | float32\|none\|step_sgd\|single\|simd | 96 | 95 | 82 | 91 | 0.96 | 315030 | 38.3 |
| near | float16\|none\|sgd\|single\|simd | 95 | 90 | 86 | 90 | 1.91 | 298674 | 39.9 |
| near | float16\|none\|tween_chain\|single\|simd | 95 | 90 | 85 | 90 | 1.89 | 298692 | 39.8 |
| near | bfloat16\|none\|sgd\|single\|simd | 90 | 87 | 87 | 88 | 1.79 | 288146 | 40.5 |
| near | float16\|none\|step_sgd\|single\|simd | 92 | 88 | 83 | 88 | 1.85 | 291533 | 38.7 |
| keep | float32\|none\|MeshBP\|single\|simd | 93 | 86 | 84 | 88 | 0.93 | 285101 | 39.3 |
| keep | float32\|none\|step_tween_chain\|single\|simd | 93 | 87 | 82 | 87 | 0.93 | 288919 | 38.2 |
| near | bfloat16\|none\|tween_chain\|single\|simd | 87 | 84 | 87 | 86 | 1.74 | 279492 | 40.6 |

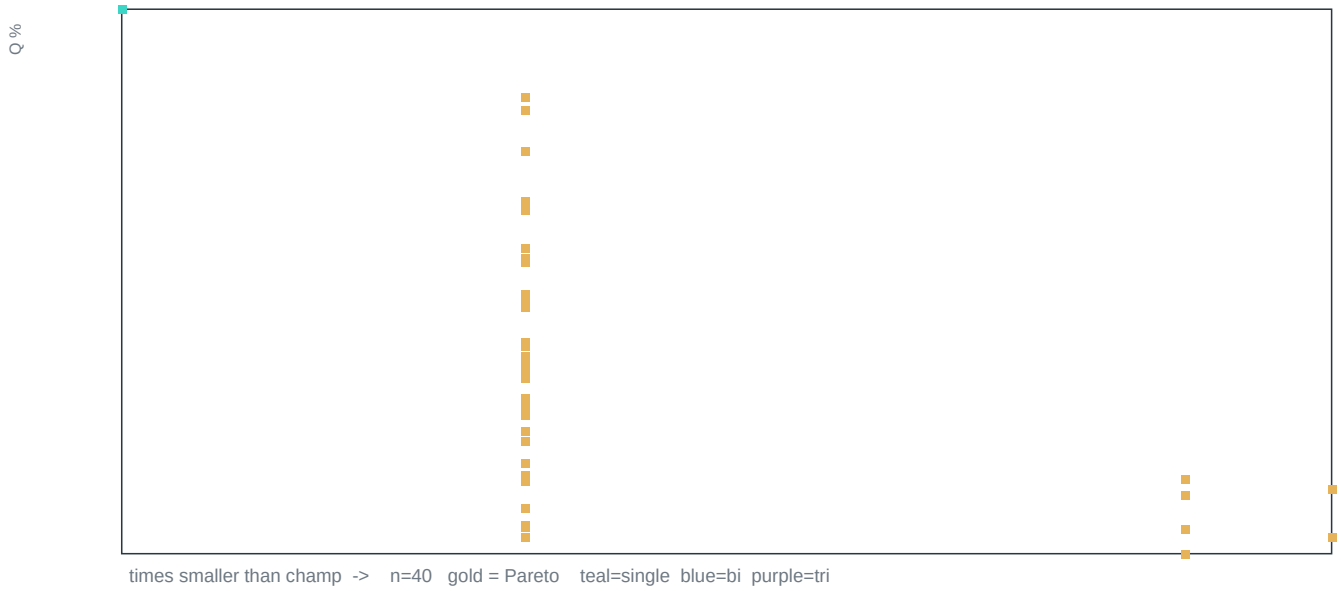
## Trap - tiny RAM, Q < 70% (why Score/MiB lies)

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| trap | binary\|none\|sgd\|single\|simd | 47 | 3 | 32.0 | 0.00 | 25 | 16 | 27980.5 | 0.0 |
| trap | binary\|none\|step_sgd\|single\|simd | 47 | 3 | 32.0 | 0.00 | 25 | 19 | 26258.6 | 0.0 |
| trap | binary\|none\|tween\|single\|simd | 54 | 3 | 32.0 | 0.00 | 25 | 30 | 27851.9 | 0.0 |
| trap | binary\|none\|tween_chain\|single\|simd | 58 | 3 | 32.0 | 0.00 | 26 | 39 | 28559.7 | 0.0 |
| trap | binary\|none\|step_tween\|single\|simd | 45 | 3 | 32.0 | 0.00 | 24 | 20 | 23677.3 | 0.0 |
| trap | binary\|none\|step_tween_chain\|single\|simd | 50 | 3 | 32.0 | 0.00 | 25 | 31 | 23219.6 | 0.0 |
| trap | binary\|none\|MeshBP\|single\|simd | 43 | 3 | 32.0 | 0.00 | 25 | 16 | 24234.8 | 0.0 |
| trap | binary\|none\|MeshTween\|single\|simd | 48 | 3 | 32.0 | 0.00 | 25 | 26 | 23051.7 | 0.0 |
| trap | binary\|none\|MeshTweenChain\|single\|simd | 45 | 3 | 32.0 | 0.00 | 25 | 23 | 22035.9 | 0.0 |
| trap | binary\|none\|TweenSplit\|single\|simd | 50 | 3 | 32.0 | 0.00 | 25 | 27 | 25312.9 | 0.0 |

## LPD - Q% vs RAM KiB (gold = high Q, low RAM)



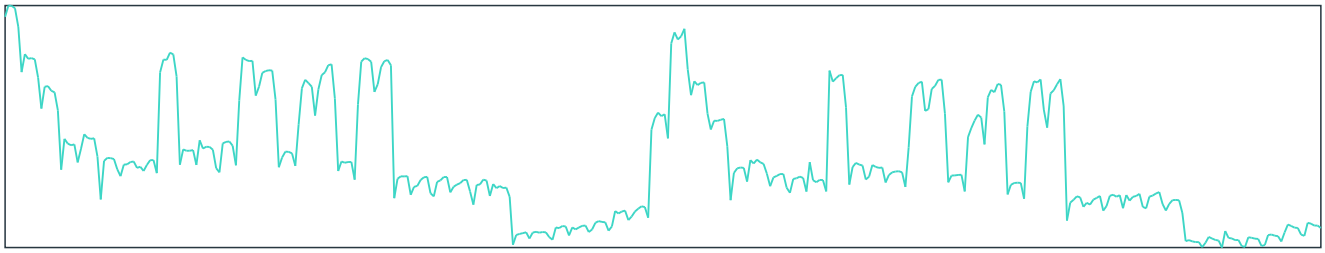

## LPD - Q% vs shrink vs champ (gold = upper right)




## Top LPD

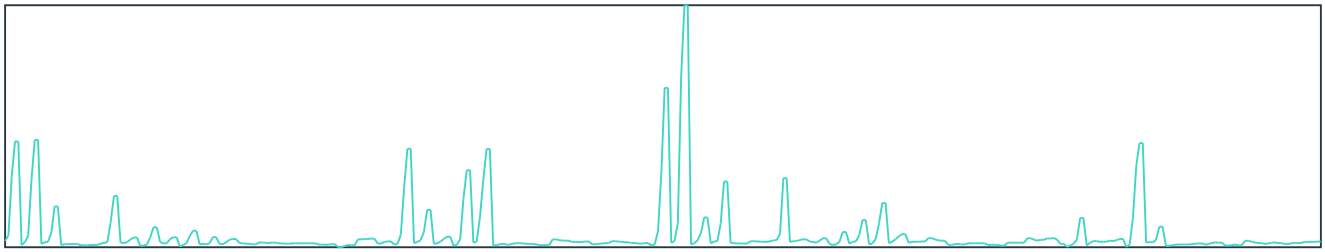



## Pulse Score - cnn3



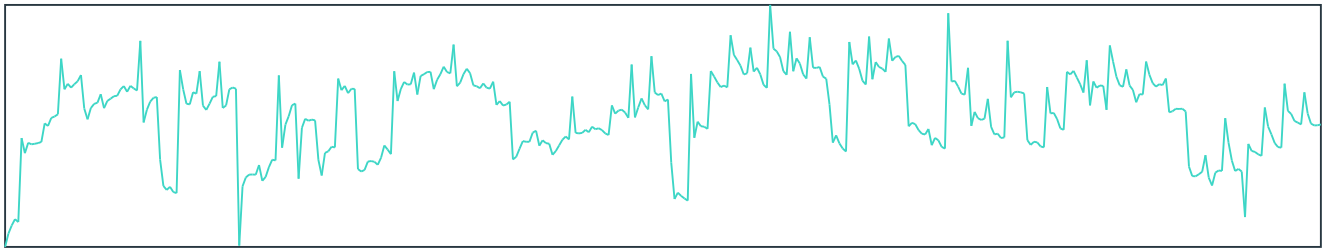
n=400 min=2431.65 max=21607.33

## Pulse SoftAcc - cnn3



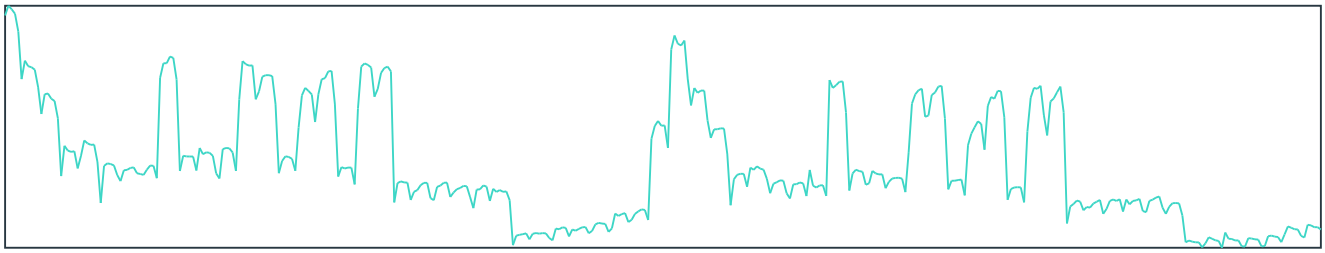
n=400 min=24.99 max=25.91

## Pulse Availability - cnn3



n=400 min=43.52 max=47.58

## Pulse Throughput - cnn3



n=400 min=21711.25 max=197350.26

## Queue by train mode (this epoch)

| Mode | Done | Run | Left | Total |
|---|---|---|---|---|
| sgd | 102 | 0 | 0 | 102 |
| step_sgd | 102 | 0 | 0 | 102 |
| tween | 102 | 0 | 0 | 102 |
| tween_chain | 102 | 0 | 0 | 102 |
| step_tween | 102 | 0 | 0 | 102 |
| step_tween_chain | 102 | 0 | 0 | 102 |
| MeshBP | 102 | 0 | 0 | 102 |
| MeshTween | 102 | 0 | 0 | 102 |
| MeshTweenChain | 102 | 0 | 0 | 102 |
| TweenSplit | 102 | 0 | 0 | 102 |
| StepTweenSplit | 102 | 0 | 0 | 102 |
| TweenAlt | 102 | 0 | 0 | 102 |
| StepTweenAlt | 102 | 0 | 0 | 102 |
| TweenSplitHeadProxy | 102 | 0 | 0 | 102 |
| TweenSplitLinear | 102 | 0 | 0 | 102 |
| TweenSplitFastProxy | 102 | 0 | 0 | 102 |
| TweenSplitLinearCache | 102 | 0 | 0 | 102 |
| TweenSplitHeadProxyAsync | 102 | 0 | 0 | 102 |
| TweenSplitSparse | 102 | 0 | 0 | 102 |
| MeshTweenSplit | 102 | 0 | 0 | 102 |
| MeshTweenAlt | 102 | 0 | 0 | 102 |
| MeshTweenSplitFastProxy | 102 | 0 | 0 | 102 |
| MeshTweenSplitSparse | 102 | 0 | 0 | 102 |

# tide  convt1

Score = Throughput x Availability% x SoftAcc% / 10,000
done  -  epoch 1  -  2026-08-18 09:45:25  -  0.0.0.0:8105
This epoch 2346 / 2346 cells. Recorded 2346 results.
Score 0 usually means the cell finished before a Lucy pulse (SoftAcc never sampled) or true-class mass was 0. Those rows do not vote holistically.
convt1  -  1D upsample from XOR latent  -  modes all  -  min 2000ms/cell  -  1024 train  -  pulse 50ms  -  SIMD true

## Lucy champions (this tide)

| Axis | Cell | Score | Soft | Acc | Thru | Avail |
|---|---|---|---|---|---|---|
| score | float32\|none\|sgd\|single\|simd | 74807.69 | 25.0 | 28.1 | 703980.2 | 42.5 |
| throughput | float32\|none\|sgd\|single\|simd | 74807.69 | 25.0 | 28.1 | 703980.2 | 42.5 |
| availability | fp4\|none\|MeshTweenSplitSparse\|bicameral\|simd | 12094.91 | 25.0 | 25.0 | 103816.5 | 46.6 |
| accuracy | int64\|none\|TweenAlt\|single\|simd | 39383.62 | 25.9 | 37.1 | 361680.6 | 42.0 |
| mobile score (tra | binary\|none\|sgd\|single\|simd | 69133.90 | 25.0 | 22.0 | 637297.8 | 43.4 |
| t->50% | float32\|none\|TweenAlt\|single\|simd | 50845.31 | 25.8 | 37.8 | 495772.7 | 39.7 |
| acc/sec | float64\|none\|StepTweenAlt\|single\|simd | 44795.41 | 25.8 | 36.5 | 419491.5 | 41.5 |

## Lucy axes - convt1

| Axis | Mode | DType | Arch | Value |
|---|---|---|---|---|
| score | sgd | float32 | singlex1 | 74807.69 |
| soft_acc | TweenAlt | int64 | singlex1 | 25.92 |
| hard_acc | TweenAlt | float32 | singlex1 | 37.83 |
| throughput | sgd | float32 | singlex1 | 703980.17 |
| availability | MeshTweenSplitS~ | fp4 | bicameralx2 | 46.60 |
| acc_thru | sgd | float32 | singlex1 | 176204.17 |
| realtime | sgd | float32 | singlex1 | 298875.61 |
| adapt | MeshTweenAlt | float32 | singlex1 | 26.02 |
| keep_learn | TweenSplitSparse | float64 | singlex1 | 12.69 |
| acc_per_sec | StepTweenAlt | float64 | singlex1 | 12.86 |
| time_to_50 | TweenAlt | float32 | singlex1 | 0.50 |
| consistency | sgd | float64 | singlex1 | 100.00 |
| stability | sgd | fp4 | singlex1 | 100.00 |
| mobile_score | sgd | binary | singlex1 | 7249214741.25 |
| lpd | tween | binary | singlex1 | 30.44 |
| mspeed | sgd | float32 | singlex1 | 1.00 |
| mavail | TweenSplitLinea~ | complex64 | singlex1 | 0.97 |
| mix | sgd | float32 | singlex1 | 0.97 |

## Best settings per train mode

| Mode | DType | Format | Score | Soft | Acc | Avail | n |
|---|---|---|---|---|---|---|---|
| sgd | float32 | none | 74807.7 | 25.0 | 28.1 | 42.5 | 102 |
| tween_chain | int2 | none | 72441.8 | 25.0 | 24.4 | 43.2 | 102 |
| tween | fp4 | none | 71348.8 | 25.0 | 25.0 | 41.5 | 102 |
| step_sgd | int2 | none | 69178.5 | 25.0 | 27.8 | 42.6 | 102 |
| TweenSplitLinearCache | float32 | none | 68282.8 | 25.0 | 24.4 | 42.8 | 102 |
| TweenSplit | fp4 | none | 68151.3 | 25.0 | 24.9 | 42.9 | 102 |
| MeshTweenSplit | fp4 | none | 67293.3 | 25.0 | 25.0 | 42.9 | 102 |
| TweenSplitFastProxy | fp4 | none | 66996.2 | 25.0 | 25.0 | 43.0 | 102 |
| step_tween | float32 | none | 66140.3 | 25.0 | 24.0 | 40.6 | 102 |
| MeshBP | fp4 | none | 65996.8 | 25.0 | 25.1 | 41.5 | 102 |
| MeshTweenSplitSparse | fp4 | none | 65674.6 | 25.0 | 25.0 | 43.0 | 102 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| step_tween_chain | float32 | none | 64320.2 | 25.0 | 30.2 | 41.1 | 102 |
| TweenSplitHeadProxy | int4 | none | 64302.1 | 25.0 | 22.6 | 43.5 | 102 |
| MeshTweenSplitFastProxy | fp4 | none | 63421.2 | 25.0 | 25.0 | 43.0 | 102 |
| MeshTweenChain | binary | none | 62903.1 | 25.0 | 24.7 | 43.2 | 102 |
| TweenSplitHeadProxyAsync | float32 | none | 62900.2 | 25.1 | 28.2 | 42.8 | 102 |
| TweenSplitSparse | fp4 | none | 62842.4 | 25.0 | 25.0 | 43.1 | 102 |
| StepTweenSplit | fp4 | none | 62758.8 | 25.0 | 25.0 | 41.8 | 102 |
| TweenSplitLinear | float32 | none | 61865.8 | 25.0 | 26.4 | 42.0 | 102 |
| MeshTween | float32 | none | 61338.8 | 25.0 | 29.1 | 40.7 | 102 |
| MeshTweenAlt | int2 | none | 58810.4 | 25.0 | 22.8 | 41.5 | 102 |
| TweenAlt | int2 | none | 53155.5 | 25.0 | 20.3 | 41.4 | 102 |
| StepTweenAlt | int4 | none | 52982.2 | 25.0 | 29.8 | 40.8 | 102 |

## Best dtype per mode

| Mode | Winner dtype | Score | Soft | Acc |
|---|---|---|---|---|
| sgd | float32 | 74807.7 | 25.0 | 28.1 |
| tween_chain | int2 | 72441.8 | 25.0 | 24.4 |
| tween | fp4 | 71348.8 | 25.0 | 25.0 |
| step_sgd | int2 | 69178.5 | 25.0 | 27.8 |
| TweenSplitLinearCache | float32 | 68282.8 | 25.0 | 24.4 |
| TweenSplit | fp4 | 68151.3 | 25.0 | 24.9 |
| MeshTweenSplit | fp4 | 67293.3 | 25.0 | 25.0 |
| TweenSplitFastProxy | fp4 | 66996.2 | 25.0 | 25.0 |
| step_tween | float32 | 66140.3 | 25.0 | 24.0 |
| MeshBP | fp4 | 65996.8 | 25.0 | 25.1 |
| MeshTweenSplitSparse | fp4 | 65674.6 | 25.0 | 25.0 |
| step_tween_chain | float32 | 64320.2 | 25.0 | 30.2 |
| TweenSplitHeadProxy | int4 | 64302.1 | 25.0 | 22.6 |
| MeshTweenSplitFastProxy | fp4 | 63421.2 | 25.0 | 25.0 |
| MeshTweenChain | binary | 62903.1 | 25.0 | 24.7 |
| TweenSplitHeadProxyAsync | float32 | 62900.2 | 25.1 | 28.2 |
| TweenSplitSparse | fp4 | 62842.4 | 25.0 | 25.0 |
| StepTweenSplit | fp4 | 62758.8 | 25.0 | 25.0 |
| TweenSplitLinear | float32 | 61865.8 | 25.0 | 26.4 |
| MeshTween | float32 | 61338.8 | 25.0 | 29.1 |
| MeshTweenAlt | int2 | 58810.4 | 25.0 | 22.8 |
| TweenAlt | int2 | 53155.5 | 25.0 | 20.3 |
| StepTweenAlt | int4 | 52982.2 | 25.0 | 29.8 |

## Best mode per dtype

| DType | Winner mode | Score | Soft | Acc |
|---|---|---|---|---|
| float32 | sgd | 74807.7 | 25.0 | 28.1 |
| int2 | sgd | 72743.0 | 25.0 | 26.3 |
| fp4 | sgd | 71421.1 | 25.0 | 25.0 |
| ternary | tween_chain | 70168.6 | 25.0 | 21.8 |
| uint8 | sgd | 70095.6 | 25.0 | 26.4 |
| binary | sgd | 69133.9 | 25.0 | 22.0 |
| int4 | sgd | 68803.3 | 25.0 | 26.3 |
| int8 | sgd | 68490.5 | 25.0 | 24.3 |
| float64 | sgd | 65730.3 | 25.0 | 29.4 |
| float16 | sgd | 63604.8 | 25.0 | 26.7 |
| bfloat16 | sgd | 61908.8 | 25.0 | 27.5 |

| | | | | |
|---|---|---|---|---|
| uint16 | sgd | 60313.2 | 25.0 | 26.9 |
| uint64 | sgd | 60310.4 | 25.0 | 27.8 |
| uint32 | tween_chain | 58373.3 | 25.0 | 26.3 |
| uint4 | sgd | 57402.1 | 25.0 | 25.0 |
| uint2 | sgd | 56803.8 | 25.0 | 22.9 |
| fp8e5m2 | tween_chain | 56123.9 | 25.0 | 23.9 |
| int16 | sgd | 56009.6 | 25.0 | 26.7 |
| int32 | sgd | 55532.9 | 25.0 | 26.8 |
| uint | sgd | 55308.3 | 25.0 | 24.7 |
| int64 | tween | 55073.3 | 25.0 | 23.4 |
| complex128 | tween_chain | 54236.3 | 25.0 | 28.7 |
| fp8e4m3 | tween_chain | 54124.6 | 25.0 | 25.1 |
| int | tween_chain | 53582.6 | 25.0 | 28.3 |
| uintptr | sgd | 53404.7 | 25.0 | 27.0 |
| complex64 | tween_chain | 52842.1 | 25.0 | 29.9 |
| nf4 | tween_chain | 48176.3 | 25.0 | 27.1 |
| uint3 | sgd | 42359.6 | 25.0 | 23.5 |
| int3 | sgd | 40650.8 | 25.0 | 26.4 |
| uint5 | sgd | 36737.7 | 25.0 | 28.2 |
| int5 | sgd | 35939.9 | 25.0 | 22.6 |
| uint6 | sgd | 35506.4 | 25.0 | 26.8 |
| int6 | sgd | 33945.0 | 25.0 | 24.6 |
| fp6 | tween_chain | 32708.2 | 25.0 | 24.5 |

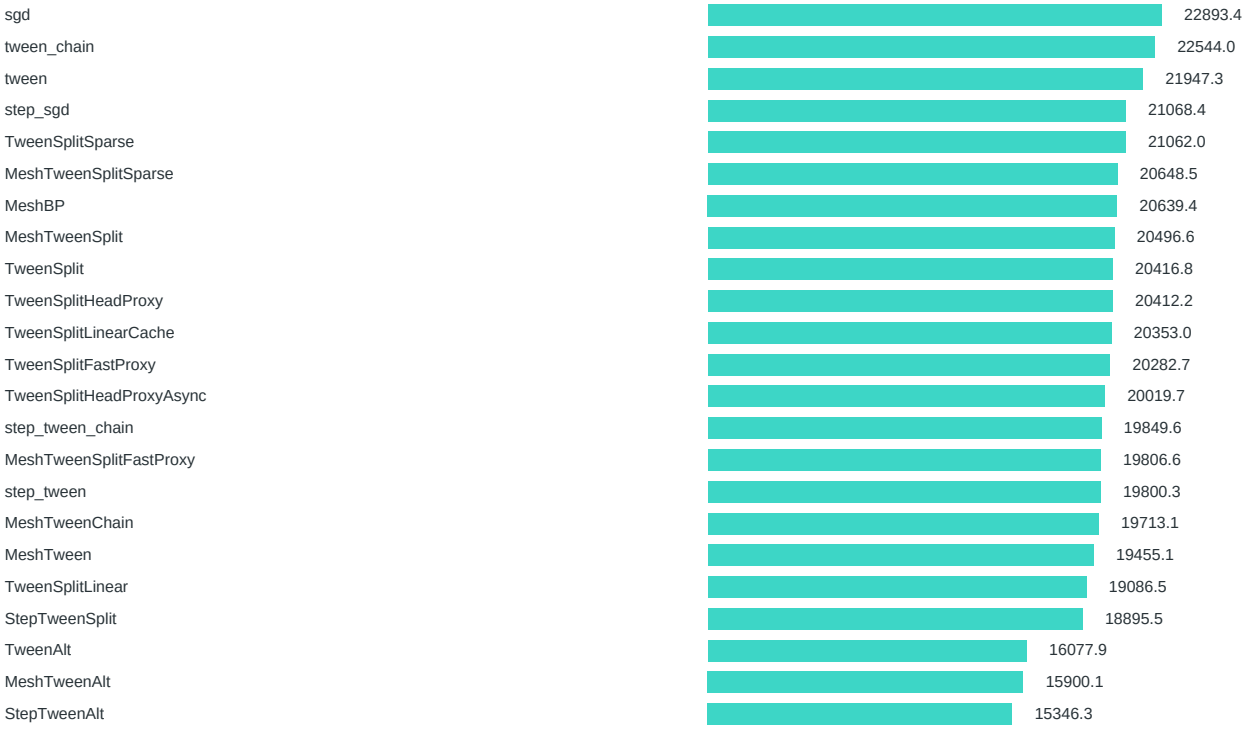
## Leaderboard - convt1

| # | Cell | Score | Soft | Acc | Thru | Avail |
|---|---|---|---|---|---|---|
| 1 | float32\|none\|sgd\|single\|simd | 74807.7 | 25.0 | 28.1 | 703980.2 | 42.5 |
| 2 | int2\|none\|sgd\|single\|simd | 72743.0 | 25.0 | 26.3 | 674228.8 | 43.1 |
| 3 | int2\|none\|tween_chain\|single\|simd | 72441.8 | 25.0 | 24.4 | 670542.4 | 43.2 |
| 4 | fp4\|none\|sgd\|single\|simd | 71421.1 | 25.0 | 25.0 | 681861.2 | 41.9 |
| 5 | fp4\|none\|tween\|single\|simd | 71348.8 | 25.0 | 25.0 | 687071.6 | 41.5 |
| 6 | ternary\|none\|tween_chain\|single\|simd | 70168.6 | 25.0 | 21.8 | 648272.5 | 43.3 |
| 7 | uint8\|none\|sgd\|single\|simd | 70095.6 | 25.0 | 26.4 | 660257.5 | 42.5 |
| 8 | ternary\|none\|sgd\|single\|simd | 69799.4 | 25.0 | 23.9 | 644155.2 | 43.4 |
| 9 | float32\|none\|tween\|single\|simd | 69744.2 | 25.0 | 27.0 | 678000.8 | 41.2 |
| 10 | fp4\|none\|tween_chain\|single\|simd | 69330.9 | 25.0 | 25.0 | 668194.3 | 41.5 |
| 11 | float32\|none\|tween_chain\|single\|simd | 69282.2 | 25.0 | 29.7 | 668806.4 | 41.4 |
| 12 | int2\|none\|step_sgd\|single\|simd | 69178.5 | 25.0 | 27.8 | 649942.4 | 42.6 |
| 13 | binary\|none\|sgd\|single\|simd | 69133.9 | 25.0 | 22.0 | 637297.8 | 43.4 |
| 14 | int4\|none\|sgd\|single\|simd | 68803.3 | 25.0 | 26.3 | 633209.5 | 43.4 |
| 15 | int8\|none\|sgd\|single\|simd | 68490.5 | 25.0 | 24.3 | 641158.8 | 42.7 |
| 16 | binary\|none\|tween_chain\|single\|simd | 68425.2 | 25.0 | 21.9 | 634288.9 | 43.2 |
| 17 | float32\|none\|TweenSplitLinearCache\|single\|simd | 68282.8 | 25.0 | 24.4 | 636530.7 | 42.8 |
| 18 | fp4\|none\|TweenSplit\|single\|simd | 68151.3 | 25.0 | 24.9 | 634732.5 | 42.9 |
| 19 | binary\|none\|tween\|single\|simd | 68140.4 | 25.0 | 28.4 | 633118.3 | 43.0 |
| 20 | int2\|none\|tween\|single\|simd | 67582.9 | 25.0 | 27.1 | 630898.2 | 42.8 |

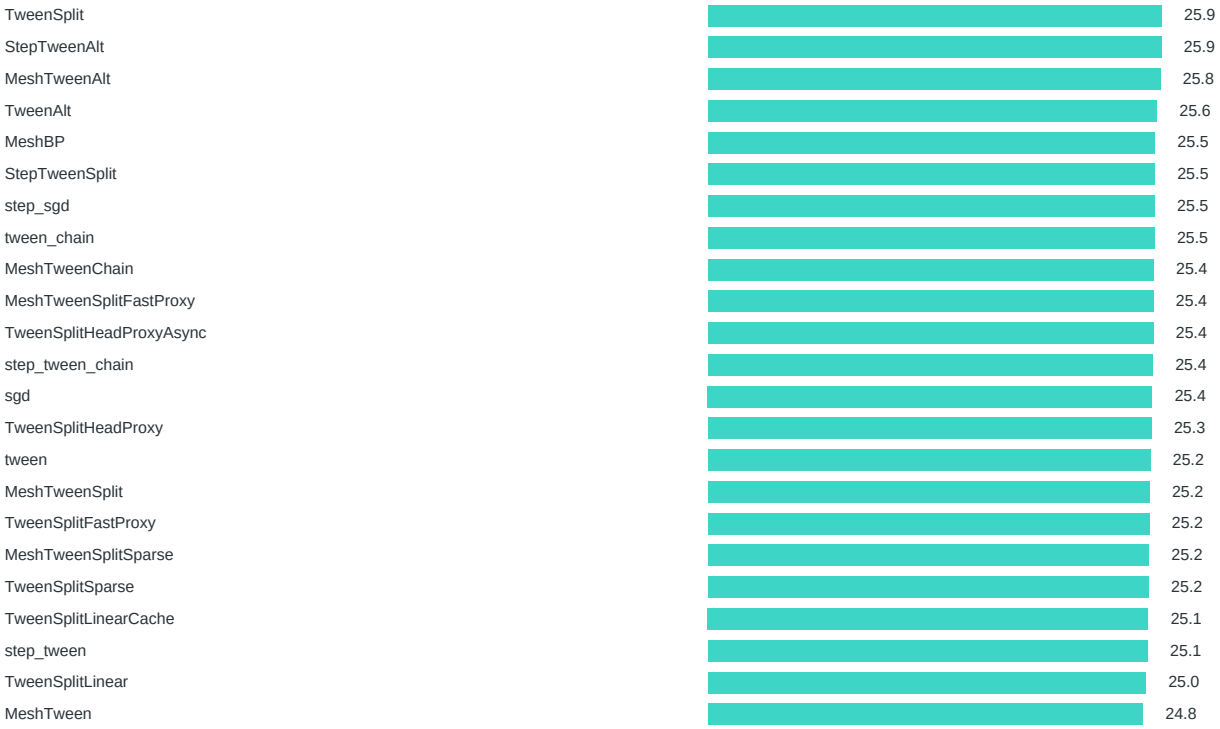
## Top scores - convt1



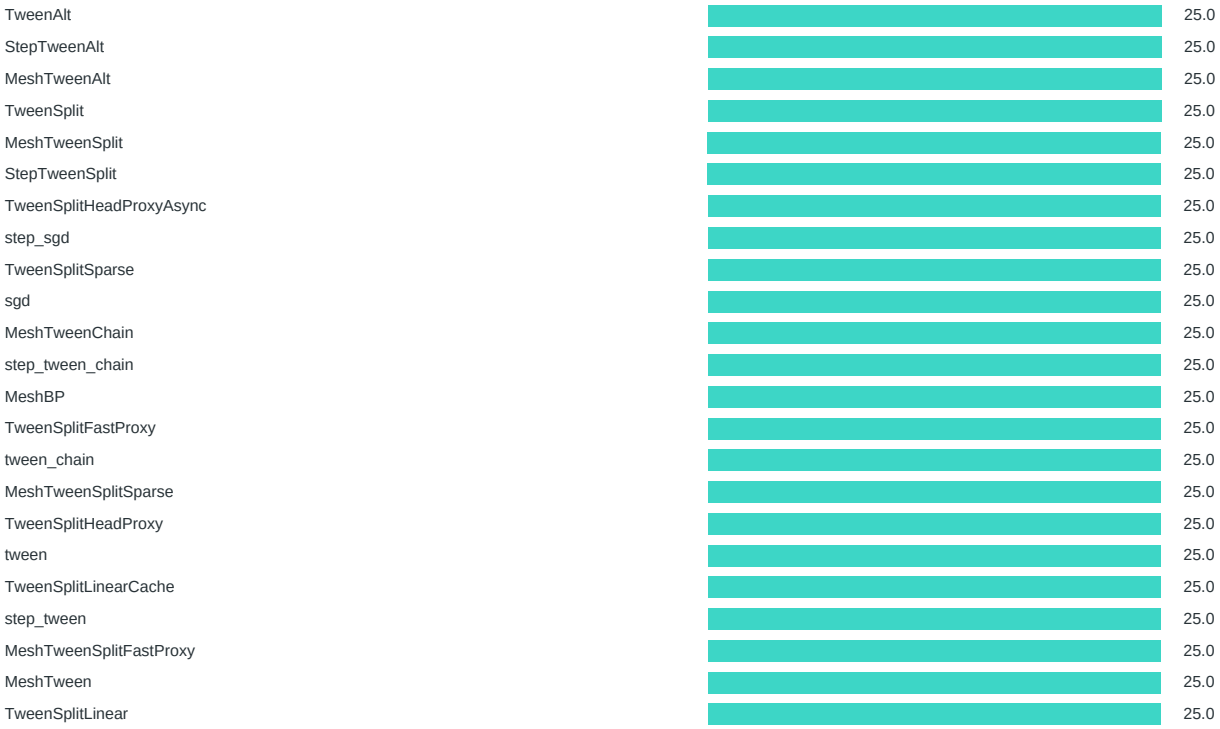

## Mean Score by train mode



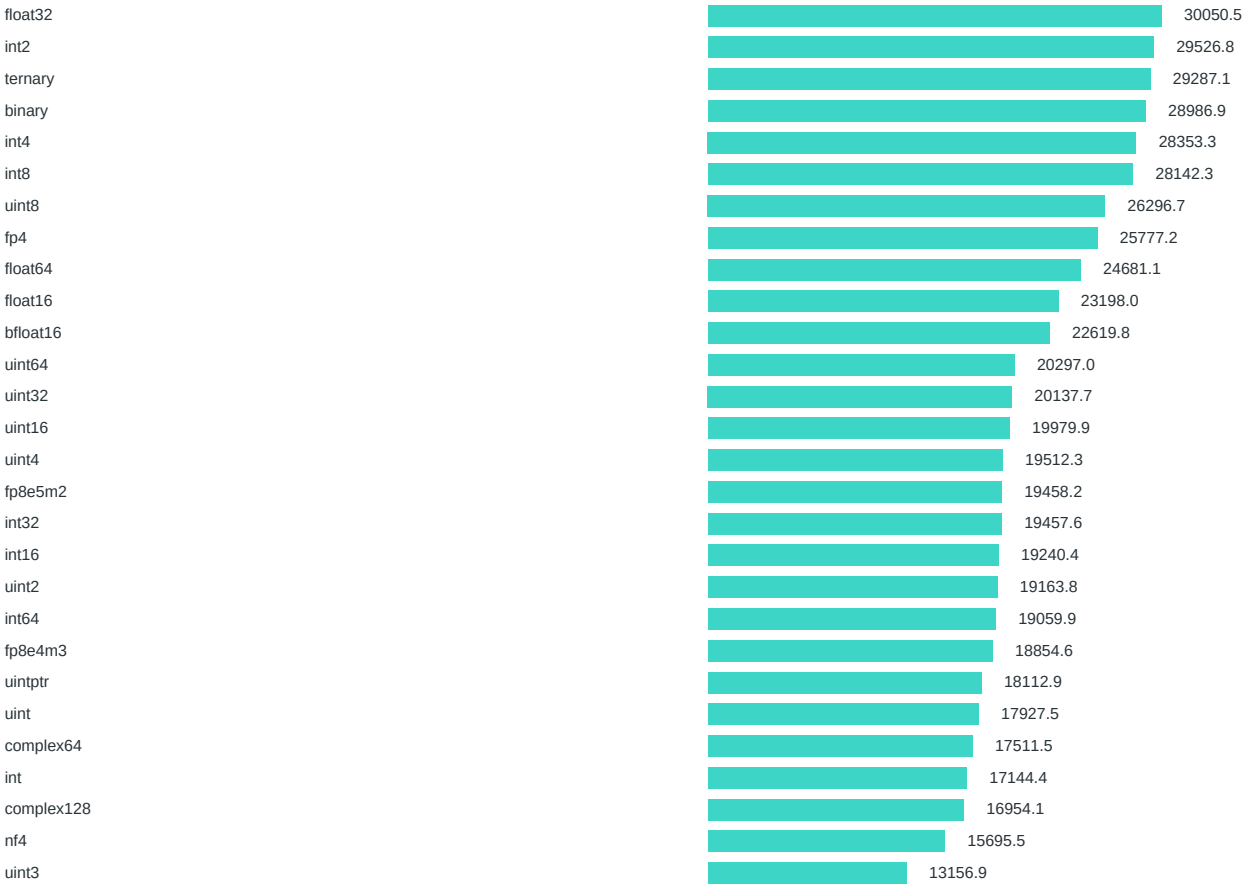

## Mean hard Acc by train mode




## Mean SoftAcc by train mode




## Mean Score by dtype




## Mean hard Acc by dtype




## Mean Score by arch




## Honesty - mean Score, every mode x dtype (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 22440 | 31250 | 18255 | 18448 | 22682 | 29585 | 26614 | 25948 | 9708 | 18519 | 19010 | 18149 | 20282 | 31966 | 13235 | 20373 |
| MeshTween | 20800 | 28837 | 17309 | 17907 | 21713 | 28598 | 25839 | 23502 | 9435 | 17333 | 18272 | 16770 | 19858 | 28731 | 12507 | 18429 |
| MeshTweenAlt | 18062 | 23193 | 12684 | 13678 | 16714 | 20528 | 20801 | 20370 | 7677 | 14818 | 16112 | 12917 | 16697 | 26974 | 11578 | 16715 |
| MeshTweenChain | 21910 | 30244 | 17375 | 17583 | 21690 | 28528 | 26047 | 23508 | 9733 | 18182 | 18098 | 17181 | 19377 | 30212 | 13094 | 19876 |
| MeshTweenSplit | 25767 | 29507 | 16279 | 17312 | 25479 | 32351 | 21995 | 28653 | 10668 | 21122 | 21782 | 16148 | 19259 | 29176 | 13046 | 20274 |
| MeshTweenSplitFa | 22055 | 27849 | 16350 | 17298 | 25136 | 32219 | 24874 | 27854 | 10019 | 20383 | 21089 | 17614 | 17206 | 27319 | 13578 | 20276 |
| MeshTweenSplitSp | 25854 | 30493 | 17235 | 16468 | 26015 | 33005 | 25605 | 28907 | 10350 | 20714 | 21541 | 16628 | 19644 | 30020 | 12823 | 20800 |
| StepTweenAlt | 15534 | 23074 | 13457 | 13692 | 16219 | 20715 | 19747 | 17734 | 7604 | 13408 | 13846 | 12414 | 15478 | 24380 | 10201 | 15697 |
| StepTweenSplit | 23080 | 26178 | 15291 | 15453 | 23648 | 29774 | 22065 | 26566 | 9343 | 17983 | 18732 | 15044 | 18311 | 27026 | 12479 | 18286 |
| TweenAlt | 17748 | 24487 | 13539 | 14192 | 18092 | 22079 | 21728 | 17943 | 7156 | 14592 | 14280 | 13579 | 16481 | 24604 | 11505 | 16547 |
| TweenSplit | 23494 | 28921 | 16597 | 17669 | 24330 | 30281 | 23053 | 29153 | 10858 | 19944 | 20636 | 16375 | 19591 | 28910 | 14257 | 19486 |
| TweenSplitFastPr | 22874 | 27428 | 16946 | 18844 | 23901 | 32192 | 24398 | 29177 | 10657 | 20572 | 19571 | 18050 | 19506 | 27914 | 12950 | 19247 |
| TweenSplitHeadPr | 23308 | 28908 | 17542 | 17908 | 24149 | 30472 | 25145 | 26183 | 10483 | 19996 | 20207 | 18081 | 18723 | 30596 | 14164 | 19098 |
| TweenSplitHeadPr | 24080 | 28872 | 16397 | 17631 | 24292 | 32128 | 22889 | 26656 | 10432 | 19506 | 20540 | 18050 | 19089 | 27988 | 12469 | 19060 |
| TweenSplitLinear | 22623 | 25636 | 16373 | 17418 | 23416 | 30774 | 22560 | 26797 | 10247 | 19609 | 19818 | 17820 | 18190 | 26296 | 12950 | 18198 |
| TweenSplitLinear | 24964 | 27606 | 16436 | 18246 | 25516 | 33755 | 23816 | 28222 | 10866 | 20679 | 20623 | 16940 | 19464 | 28766 | 13513 | 20455 |
| TweenSplitSparse | 24544 | 31260 | 17304 | 18042 | 27115 | 34550 | 26032 | 28462 | 10801 | 19610 | 20721 | 19015 | 19999 | 29821 | 13090 | 19585 |
| sgd | 24985 | 33850 | 19387 | 20491 | 25663 | 34318 | 29774 | 28161 | 11472 | 20518 | 21668 | 19831 | 22478 | 35582 | 14905 | 22326 |
| step_sgd | 23277 | 32306 | 18626 | 18858 | 23542 | 31075 | 26422 | 25713 | 10604 | 18572 | 19918 | 18496 | 20747 | 33268 | 13269 | 20470 |
| step_tween | 22801 | 30555 | 17543 | 17776 | 22808 | 29713 | 25820 | 24173 | 9303 | 18090 | 19109 | 17481 | 19212 | 31081 | 12077 | 19418 |
| step_tween_chain | 22053 | 29651 | 17846 | 17505 | 22498 | 29538 | 25931 | 23885 | 9946 | 18785 | 19289 | 17259 | 19390 | 29679 | 12590 | 19204 |
| tween | 23094 | 33249 | 20238 | 19879 | 23934 | 32747 | 27845 | 28029 | 11010 | 19985 | 20926 | 19809 | 21713 | 33600 | 14380 | 21375 |
| tween_chain | 24909 | 33343 | 20935 | 20469 | 25002 | 32237 | 28662 | 27279 | 11584 | 20734 | 21752 | 20671 | 21834 | 35210 | 14821 | 22329 |

## Honesty - mean Score, every mode x dtype (cols 17-32)

## Honesty - mean Score, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 30822 | 11762 | 10964 | 19658 | 28041 | 15669 | 30934 | 18903 | 20740 | 20750 | 13333 | 21398 | 21011 | 12370 | 11313 | 21586 |
| MeshTween | 28741 | 10264 | 10306 | 18593 | 26910 | 15255 | 29331 | 17960 | 20291 | 19340 | 13012 | 20913 | 19542 | 11319 | 10254 | 21077 |
| MeshTweenAlt | 22662 | 8163 | 8167 | 16384 | 19738 | 12205 | 22456 | 15821 | 15685 | 17199 | 10282 | 16282 | 15928 | 9000 | 8631 | 16522 |
| MeshTweenChain | 28872 | 11133 | 10334 | 19238 | 27087 | 14568 | 29512 | 18359 | 20067 | 19552 | 13194 | 20538 | 19410 | 11426 | 10773 | 20630 |
| MeshTweenSplit | 28613 | 11180 | 10275 | 18488 | 31241 | 16504 | 28238 | 18052 | 20337 | 19243 | 13508 | 21091 | 19580 | 12053 | 10929 | 21276 |
| MeshTweenSplitFa | 27322 | 12055 | 9102 | 19905 | 29379 | 15320 | 28132 | 16942 | 19201 | 18451 | 11461 | 19226 | 18848 | 12286 | 11076 | 20199 |
| MeshTweenSplitSp | 27140 | 10214 | 10183 | 19727 | 30673 | 16518 | 32648 | 17801 | 20126 | 19572 | 13254 | 20574 | 19947 | 11276 | 10359 | 20665 |
| StepTweenAlt | 23737 | 8532 | 8126 | 15593 | 20108 | 12038 | 23900 | 14150 | 16897 | 15505 | 10506 | 16291 | 15503 | 8683 | 8743 | 16486 |
| StepTweenSplit | 26389 | 10402 | 9862 | 17881 | 29980 | 15234 | 27648 | 16536 | 18460 | 17742 | 12599 | 18123 | 18580 | 10902 | 10761 | 18786 |
| TweenAlt | 23856 | 9172 | 8515 | 15556 | 20718 | 10997 | 25091 | 15122 | 17961 | 15801 | 11702 | 17714 | 16567 | 9333 | 8752 | 17251 |
| TweenSplit | 28439 | 11935 | 11015 | 18505 | 30415 | 17102 | 28493 | 17997 | 20228 | 19123 | 14036 | 20426 | 20030 | 12565 | 11477 | 21053 |
| TweenSplitFastPr | 27370 | 12255 | 10949 | 18527 | 29226 | 17275 | 29189 | 17963 | 20383 | 19331 | 13387 | 20247 | 19868 | 11770 | 11319 | 20417 |
| TweenSplitHeadPr | 30173 | 11041 | 10741 | 19867 | 28302 | 16525 | 29510 | 17834 | 21105 | 18264 | 13866 | 20630 | 21360 | 11986 | 11411 | 19781 |
| TweenSplitHeadPr | 26722 | 11507 | 10512 | 18489 | 30330 | 17410 | 28178 | 19126 | 18927 | 20177 | 12705 | 19433 | 18408 | 11279 | 10645 | 21468 |
| TweenSplitLinear | 26051 | 10072 | 9632 | 17880 | 27805 | 15854 | 26023 | 16540 | 18108 | 17699 | 13391 | 18274 | 18384 | 11626 | 9974 | 19187 |
| TweenSplitLinear | 28366 | 12017 | 10461 | 19823 | 28590 | 15632 | 29921 | 17350 | 20352 | 18590 | 13786 | 19279 | 19026 | 12854 | 10775 | 19984 |
| TweenSplitSparse | 29762 | 11192 | 10995 | 19710 | 31717 | 17172 | 30448 | 18757 | 19780 | 20622 | 13436 | 21094 | 19743 | 11529 | 11137 | 19965 |
| sgd | 33189 | 12934 | 12140 | 21478 | 31467 | 17453 | 34648 | 21231 | 24043 | 22247 | 15510 | 23363 | 22775 | 13186 | 12708 | 23931 |
| step_sgd | 30923 | 11447 | 10787 | 20070 | 29803 | 16772 | 31820 | 19417 | 21405 | 20142 | 14068 | 21790 | 20525 | 11928 | 11471 | 21569 |
| step_tween | 29157 | 10244 | 9768 | 19403 | 27147 | 15366 | 29939 | 17940 | 20226 | 19186 | 12915 | 20294 | 19616 | 10839 | 9905 | 20149 |
| step_tween_chain | 29476 | 10529 | 10223 | 19708 | 27229 | 15541 | 30548 | 17777 | 20684 | 19223 | 12751 | 20777 | 19662 | 11730 | 10616 | 19616 |
| tween | 31927 | 11601 | 11572 | 22043 | 30487 | 16750 | 32881 | 20155 | 21954 | 21253 | 14615 | 22111 | 22242 | 12978 | 11712 | 22218 |
| tween_chain | 32419 | 12497 | 12049 | 21853 | 30879 | 17839 | 34116 | 20599 | 22576 | 21757 | 15291 | 23299 | 22228 | 13029 | 11924 | 23013 |

## Honesty - mean Score, every mode x dtype  (cols 33-34)

## Honesty - mean Score, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 26640 | 19384 |
| MeshTween | 24974 | 17551 |
| MeshTweenAlt | 21183 | 14777 |
| MeshTweenChain | 24691 | 18223 |
| MeshTweenSplit | 27879 | 19580 |
| MeshTweenSplitFa | 26508 | 16889 |
| MeshTweenSplitSp | 28214 | 17058 |
| StepTweenAlt | 18833 | 14944 |
| StepTweenSplit | 26149 | 17156 |
| TweenAlt | 18783 | 15208 |
| TweenSplit | 28864 | 18911 |
| TweenSplitFastPr | 27891 | 18017 |
| TweenSplitHeadPr | 27910 | 18745 |
| TweenSplitHeadPr | 27301 | 17970 |
| TweenSplitLinear | 26174 | 17541 |
| TweenSplitLinear | 26631 | 18698 |
| TweenSplitSparse | 30079 | 19015 |
| sgd | 30026 | 20636 |
| step_sgd | 27880 | 19350 |
| step_tween | 26033 | 18124 |
| step_tween_chain | 25538 | 18210 |
| tween | 27750 | 20145 |
| tween_chain | 28895 | 20463 |

## Honesty - mean hard Acc, every mode x dtype  (cols 1-16)

## Honesty - mean hard Acc, every mode x dtype  (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 27 | 27 | 25 | 26 | 27 | 26 | 27 | 25 | 25 | 24 | 26 | 27 | 26 | 24 | 25 | 25 |
| MeshTween | 27 | 28 | 25 | 24 | 24 | 26 | 27 | 25 | 24 | 25 | 26 | 26 | 24 | 25 | 24 | 23 |
| MeshTweenAlt | 25 | 23 | 28 | 28 | 26 | 29 | 27 | 25 | 29 | 26 | 24 | 29 | 24 | 25 | 26 | 26 |
| MeshTweenChain | 25 | 26 | 26 | 26 | 26 | 26 | 27 | 25 | 26 | 24 | 25 | 27 | 27 | 26 | 27 | 26 |
| MeshTweenSplit | 26 | 23 | 26 | 27 | 27 | 27 | 28 | 25 | 24 | 24 | 24 | 28 | 25 | 27 | 24 | 24 |
| MeshTweenSplitFa | 26 | 25 | 25 | 25 | 25 | 25 | 26 | 25 | 24 | 27 | 25 | 26 | 23 | 24 | 27 | 25 |
| MeshTweenSplitSp | 25 | 25 | 26 | 25 | 27 | 26 | 26 | 25 | 22 | 26 | 26 | 27 | 25 | 24 | 25 | 25 |
| StepTweenAlt | 26 | 23 | 28 | 29 | 29 | 29 | 30 | 25 | 25 | 26 | 25 | 28 | 25 | 23 | 27 | 25 |
| StepTweenSplit | 26 | 25 | 27 | 26 | 27 | 28 | 28 | 25 | 24 | 24 | 26 | 27 | 25 | 24 | 25 | 25 |
| TweenAlt | 26 | 25 | 29 | 29 | 28 | 30 | 29 | 25 | 26 | 25 | 24 | 28 | 25 | 22 | 23 | 25 |
| TweenSplit | 26 | 27 | 28 | 28 | 27 | 29 | 29 | 25 | 25 | 27 | 25 | 28 | 26 | 24 | 23 | 24 |
| TweenSplitFastPr | 26 | 26 | 29 | 25 | 24 | 26 | 25 | 25 | 25 | 25 | 25 | 27 | 25 | 26 | 23 | 24 |
| TweenSplitHeadPr | 28 | 27 | 26 | 27 | 25 | 26 | 26 | 25 | 24 | 26 | 23 | 24 | 23 | 25 | 21 | 26 |
| TweenSplitHeadPr | 25 | 26 | 26 | 27 | 27 | 27 | 26 | 25 | 25 | 23 | 26 | 28 | 26 | 24 | 25 | 28 |
| TweenSplitLinear | 26 | 25 | 29 | 25 | 24 | 25 | 24 | 25 | 23 | 26 | 26 | 25 | 27 | 24 | 25 | 24 |
| TweenSplitLinear | 24 | 24 | 24 | 27 | 25 | 26 | 23 | 25 | 24 | 25 | 28 | 24 | 23 | 28 | 27 | 25 |
| TweenSplitSparse | 25 | 25 | 25 | 26 | 25 | 27 | 27 | 25 | 24 | 26 | 27 | 25 | 27 | 23 | 26 | 25 |
| sgd | 26 | 23 | 26 | 26 | 25 | 26 | 28 | 25 | 23 | 25 | 28 | 26 | 25 | 24 | 25 | 26 |
| step_sgd | 26 | 25 | 29 | 28 | 27 | 27 | 30 | 25 | 24 | 29 | 26 | 26 | 25 | 27 | 25 | 26 |
| step_tween | 26 | 24 | 25 | 26 | 25 | 24 | 24 | 25 | 25 | 23 | 25 | 26 | 28 | 26 | 24 | 27 |
| step_tween_chain | 25 | 26 | 27 | 28 | 25 | 27 | 28 | 25 | 23 | 26 | 28 | 27 | 25 | 21 | 25 | 25 |
| tween | 26 | 26 | 26 | 25 | 24 | 26 | 27 | 25 | 25 | 24 | 29 | 25 | 27 | 25 | 23 | 23 |
| tween_chain | 28 | 23 | 27 | 26 | 27 | 28 | 26 | 25 | 25 | 25 | 24 | 27 | 25 | 24 | 24 | 25 |

## Honesty - mean hard Acc, every mode x dtype  (cols 17-32)

## Honesty - mean hard Acc, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 28 | 23 | 24 | 27 | 26 | 28 | 26 | 25 | 23 | 24 | 25 | 27 | 26 | 25 | 23 | 26 |
| MeshTween | 25 | 22 | 24 | 24 | 25 | 23 | 22 | 26 | 25 | 25 | 25 | 26 | 26 | 27 | 24 | 25 |
| MeshTweenAlt | 24 | 26 | 24 | 29 | 26 | 26 | 24 | 23 | 24 | 27 | 26 | 25 | 27 | 23 | 28 | 25 |
| MeshTweenChain | 25 | 27 | 24 | 25 | 27 | 25 | 23 | 25 | 24 | 25 | 25 | 23 | 25 | 26 | 26 | 25 |
| MeshTweenSplit | 22 | 23 | 24 | 28 | 25 | 25 | 27 | 27 | 24 | 23 | 25 | 24 | 25 | 24 | 24 | 25 |
| MeshTweenSplitFa | 26 | 25 | 25 | 25 | 24 | 25 | 28 | 25 | 25 | 26 | 26 | 25 | 29 | 24 | 28 | 25 |
| MeshTweenSplitSp | 24 | 27 | 25 | 26 | 23 | 22 | 24 | 26 | 24 | 25 | 29 | 23 | 29 | 25 | 25 | 24 |
| StepTweenAlt | 26 | 24 | 24 | 29 | 24 | 28 | 24 | 25 | 24 | 27 | 25 | 26 | 25 | 25 | 25 | 25 |
| StepTweenSplit | 24 | 25 | 24 | 28 | 26 | 26 | 25 | 26 | 25 | 26 | 26 | 25 | 25 | 25 | 24 | 24 |
| TweenAlt | 26 | 23 | 25 | 29 | 25 | 26 | 25 | 25 | 24 | 24 | 25 | 24 | 24 | 27 | 25 | 25 |
| TweenSplit | 27 | 26 | 26 | 29 | 25 | 25 | 23 | 25 | 26 | 25 | 25 | 26 | 27 | 28 | 26 | 24 |
| TweenSplitFastPr | 26 | 24 | 24 | 29 | 24 | 24 | 23 | 24 | 25 | 27 | 23 | 27 | 26 | 25 | 26 | 25 |
| TweenSplitHeadPr | 24 | 26 | 25 | 26 | 26 | 28 | 25 | 25 | 24 | 28 | 27 | 24 | 25 | 25 | 24 | 25 |
| TweenSplitHeadPr | 25 | 23 | 25 | 26 | 28 | 24 | 24 | 23 | 26 | 24 | 25 | 25 | 24 | 27 | 24 | 26 |
| TweenSplitLinear | 23 | 26 | 25 | 25 | 25 | 24 | 25 | 24 | 27 | 24 | 26 | 25 | 25 | 23 | 22 | 29 |
| TweenSplitLinear | 25 | 22 | 26 | 27 | 24 | 25 | 25 | 26 | 25 | 23 | 25 | 25 | 24 | 26 | 26 | 28 |
| TweenSplitSparse | 26 | 24 | 24 | 26 | 23 | 25 | 24 | 26 | 24 | 26 | 27 | 26 | 23 | 26 | 25 | 23 |
| sgd | 25 | 24 | 23 | 28 | 24 | 25 | 25 | 25 | 26 | 23 | 24 | 26 | 28 | 24 | 25 | 26 |
| step_sgd | 25 | 25 | 24 | 27 | 26 | 22 | 25 | 24 | 22 | 25 | 23 | 26 | 23 | 24 | 26 | 26 |
| step_tween | 25 | 24 | 26 | 25 | 25 | 23 | 24 | 25 | 27 | 27 | 25 | 24 | 24 | 27 | 25 | 26 |
| step_tween_chain | 25 | 26 | 23 | 26 | 27 | 24 | 24 | 27 | 23 | 24 | 25 | 26 | 24 | 25 | 27 | 27 |
| tween | 24 | 27 | 25 | 24 | 24 | 27 | 25 | 24 | 25 | 22 | 27 | 26 | 26 | 26 | 23 | 26 |
| tween_chain | 26 | 25 | 25 | 28 | 25 | 24 | 24 | 25 | 25 | 26 | 26 | 25 | 25 | 26 | 26 | 26 |

## Honesty - mean hard Acc, every mode x dtype  (cols 33-34)

## Honesty - mean hard Acc, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 26 | 25 |
| MeshTween | 25 | 24 |
| MeshTweenAlt | 24 | 25 |
| MeshTweenChain | 24 | 25 |
| MeshTweenSplit | 24 | 27 |
| MeshTweenSplitFa | 24 | 26 |
| MeshTweenSplitSp | 27 | 25 |
| StepTweenAlt | 24 | 26 |
| StepTweenSplit | 26 | 26 |
| TweenAlt | 24 | 26 |
| TweenSplit | 24 | 24 |
| TweenSplitFastPr | 24 | 25 |
| TweenSplitHeadPr | 27 | 25 |
| TweenSplitHeadPr | 25 | 24 |
| TweenSplitLinear | 26 | 23 |
| TweenSplitLinear | 26 | 23 |
| TweenSplitSparse | 24 | 25 |
| sgd | 27 | 25 |
| step_sgd | 24 | 26 |
| step_tween | 24 | 25 |
| step_tween_chain | 25 | 24 |
| tween | 25 | 25 |
| tween_chain | 25 | 25 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 1-16)

## Honesty - mean SoftAcc, every mode x dtype  (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenChain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitFastPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitSparse | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 17-32)

## Honesty - mean SoftAcc, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenChain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitFastPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitSparse | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 33-34)

## Honesty - mean SoftAcc, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 25 | 25 |
| MeshTween | 25 | 25 |
| MeshTweenAlt | 25 | 25 |
| MeshTweenChain | 25 | 25 |
| MeshTweenSplit | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 |
| StepTweenAlt | 25 | 25 |
| StepTweenSplit | 25 | 25 |
| TweenAlt | 25 | 25 |
| TweenSplit | 25 | 25 |
| TweenSplitFastPr | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 |
| TweenSplitLinear | 25 | 25 |
| TweenSplitLinear | 25 | 25 |
| TweenSplitSparse | 25 | 25 |
| sgd | 25 | 25 |
| step_sgd | 25 | 25 |
| step_tween | 25 | 25 |
| step_tween_chain | 25 | 25 |
| tween | 25 | 25 |
| tween_chain | 25 | 25 |

## Mean Score, every mode x arch

## Mean Score, every mode x arch

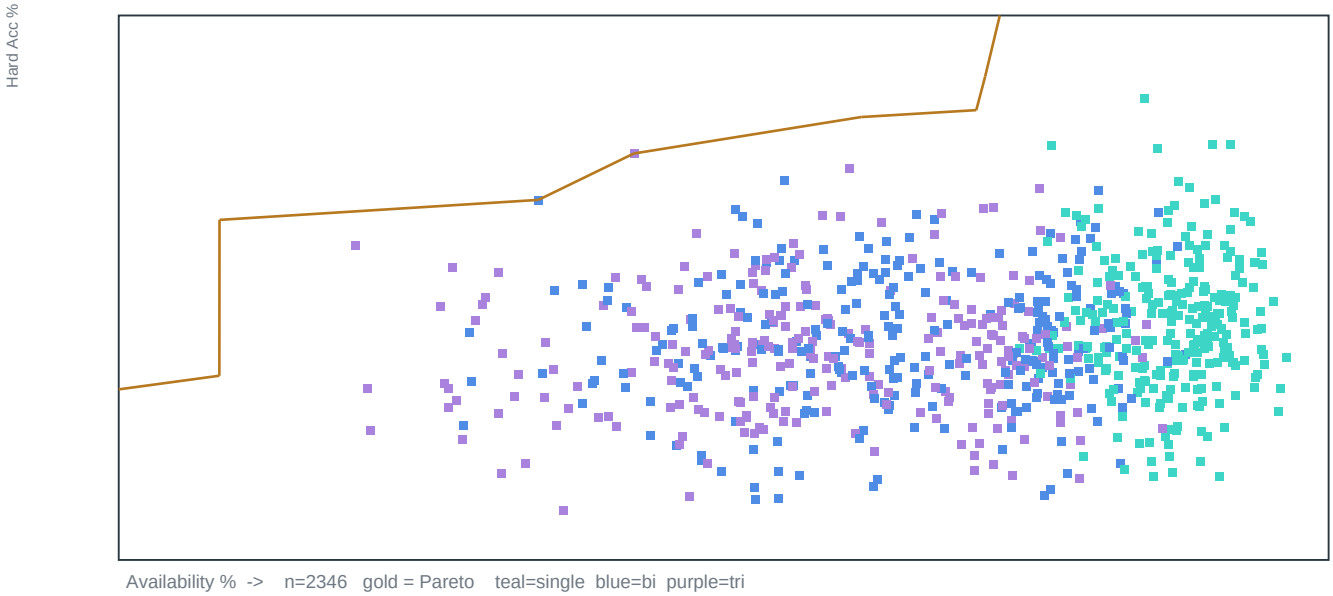
| | bicamera | singlex1 | tricamer |
|---|---|---|---|
| MeshBP | 6874 | 50130 | 4914 |
| MeshTween | 6344 | 47354 | 4668 |
| MeshTweenAlt | 4667 | 39688 | 3346 |
| MeshTweenChain | 6615 | 47751 | 4773 |
| MeshTweenSplit | 7585 | 48289 | 5616 |
| MeshTweenSplitFa | 7358 | 46376 | 5686 |
| MeshTweenSplitSp | 8723 | 46234 | 6988 |
| StepTweenAlt | 4180 | 39095 | 2764 |
| StepTweenSplit | 6481 | 45437 | 4769 |
| TweenAlt | 4702 | 40297 | 3234 |
| TweenSplit | 7598 | 48072 | 5579 |
| TweenSplitFastPr | 7628 | 47666 | 5554 |
| TweenSplitHeadPr | 7601 | 48035 | 5601 |
| TweenSplitHeadPr | 7790 | 46592 | 5677 |
| TweenSplitLinear | 6796 | 45651 | 4812 |
| TweenSplitLinear | 7568 | 47924 | 5566 |
| TweenSplitSparse | 8988 | 46851 | 7346 |
| sgd | 7579 | 55556 | 5546 |
| step_sgd | 6902 | 51550 | 4754 |
| step_tween | 6113 | 48858 | 4430 |
| step_tween_chain | 6088 | 49042 | 4419 |
| tween | 7272 | 53119 | 5451 |
| tween_chain | 7507 | 54672 | 5453 |

## Mean hard Acc, every mode x arch

## Mean hard Acc, every mode x arch

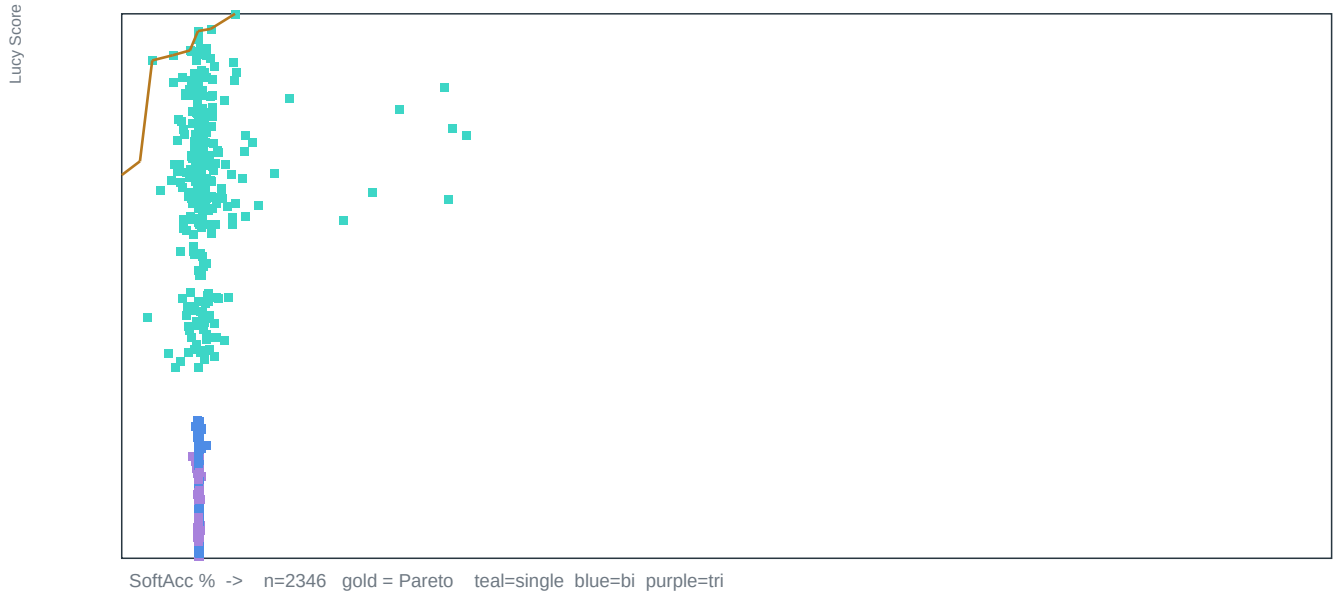
| | bicamera | singlex1 | tricamer |
|---|---|---|---|
| MeshBP | 26 | 26 | 25 |
| MeshTween | 25 | 25 | 24 |
| MeshTweenAlt | 25 | 27 | 25 |
| MeshTweenChain | 25 | 26 | 25 |
| MeshTweenSplit | 25 | 26 | 25 |
| MeshTweenSplitFa | 25 | 26 | 25 |
| MeshTweenSplitSp | 25 | 26 | 25 |
| StepTweenAlt | 25 | 28 | 25 |
| StepTweenSplit | 25 | 27 | 25 |
| TweenAlt | 25 | 27 | 25 |
| TweenSplit | 25 | 27 | 25 |
| TweenSplitFastPr | 25 | 26 | 24 |
| TweenSplitHeadPr | 25 | 26 | 25 |
| TweenSplitHeadPr | 25 | 26 | 25 |
| TweenSplitLinear | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 26 | 25 |
| TweenSplitSparse | 24 | 26 | 25 |
| sgd | 25 | 26 | 25 |
| step_sgd | 25 | 26 | 25 |
| step_tween | 26 | 25 | 25 |
| step_tween_chain | 26 | 26 | 24 |
| tween | 25 | 26 | 25 |
| tween_chain | 25 | 26 | 26 |

## Avail vs hard Acc (headline scatter)

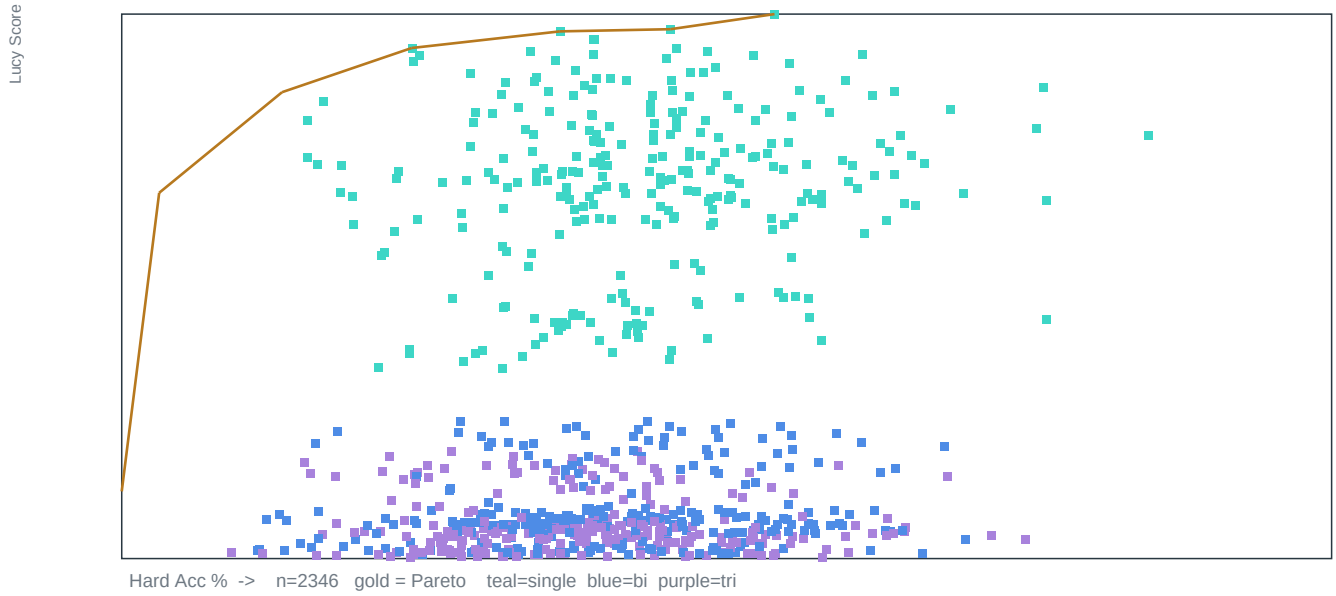



## Pareto - SoftAcc vs Score

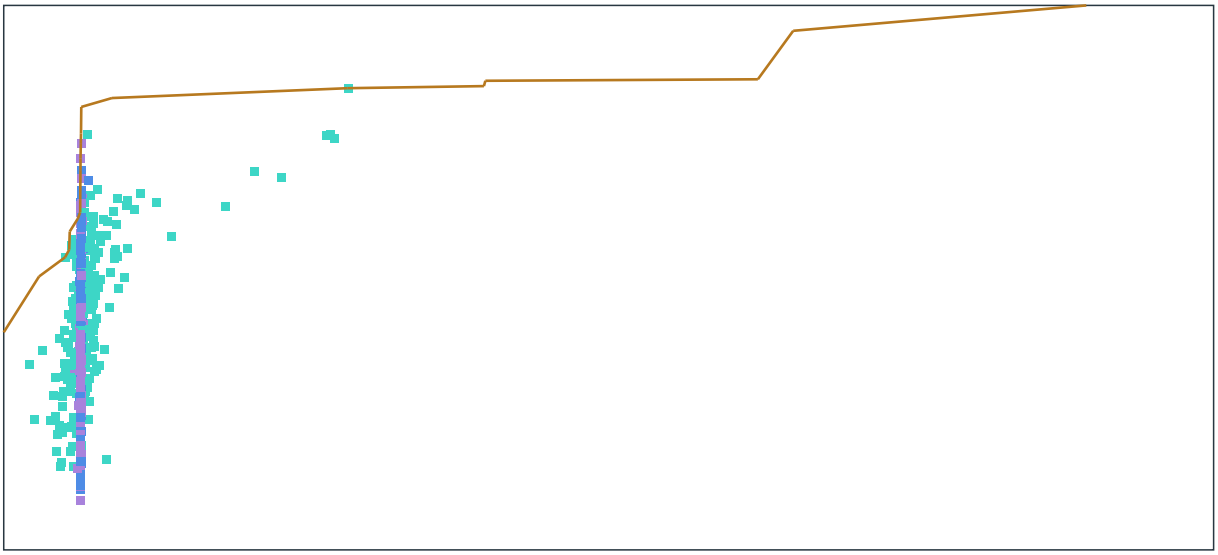
## Pareto - SoftAcc vs Score




## Pareto - hard Acc vs Score

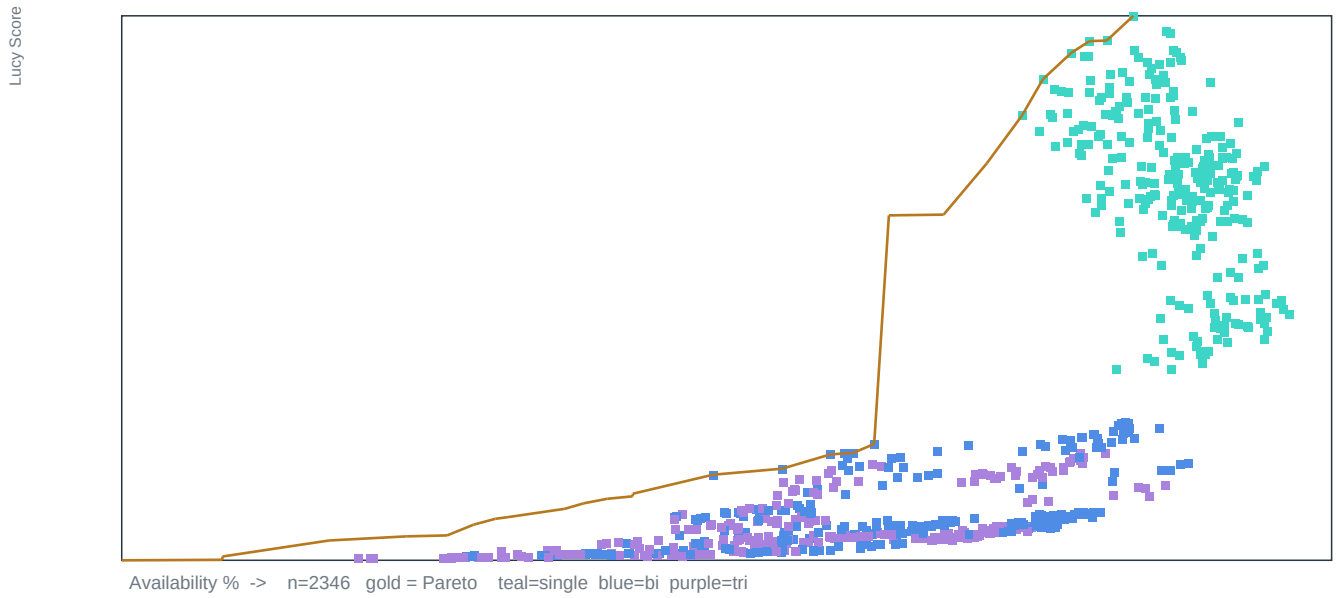



## SoftAcc vs hard Acc




SoftAcc %  ->  n=2346  gold = Pareto  teal=single  blue=bi  purple=tri
Hard Acc %

## Avail vs Score (duty clock)




## Lucy Pareto (LPD) - goldilocks

Q = geomean of Score/Soft/Acc/Thru vs the Lucy Score champion. LPD = 0 if Q<70%, else Q x shrink vs champ RAM (capped 32x). Gold = Q>=80% and RAM<=20% of champ. MSpeed = Thru vs the board's fastest (0 if Q<70%). MAvail = Availability vs the board's best duty cycle (0 if Q<70%). Mix = geomean(Q, MSpeed, MAvail). Raw Score/MiB is the binary trap.

Quality champ float32|none|sgd|single|simd  Score 74807.7  Soft 25  Acc 28  Thru 703980  RAM 0.3 KiB

Board fastest float32|none|sgd|single|simd  Thru 703980  Best availability fp4|none|MeshTweenSplitSparse|bicameral|simd  46.6%

## Gold - Q >= 80% of champ, RAM <= 20%

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| gold | binary\|none\|tween\|single\|simd | 95 | 3 | 32.0 | 30.44 | 25 | 28 | 68140.4 | 0.0 |
| gold | binary\|none\|step_sgd\|single\|simd | 93 | 3 | 32.0 | 29.85 | 25 | 27 | 66820.2 | 0.0 |
| gold | binary\|none\|MeshBP\|single\|simd | 92 | 3 | 32.0 | 29.56 | 25 | 29 | 64447.2 | 0.0 |
| gold | binary\|none\|sgd\|single\|simd | 90 | 3 | 32.0 | 28.75 | 25 | 22 | 69133.9 | 0.0 |
| gold | binary\|none\|tween_chain\|single\|simd | 89 | 3 | 32.0 | 28.61 | 25 | 22 | 68425.2 | 0.0 |
| gold | binary\|none\|TweenSplitHeadProxy\|single\|simd | 89 | 3 | 32.0 | 28.55 | 25 | 27 | 60854.2 | 0.0 |
| gold | binary\|none\|MeshTweenChain\|single\|simd | 88 | 3 | 32.0 | 28.26 | 25 | 25 | 62903.1 | 0.0 |
| gold | binary\|none\|MeshTweenSplit\|single\|simd | 88 | 3 | 32.0 | 28.03 | 25 | 25 | 61163.5 | 0.0 |
| gold | binary\|none\|TweenSplit\|single\|simd | 87 | 3 | 32.0 | 27.95 | 25 | 26 | 59600.0 | 0.0 |
| gold | binary\|none\|step_tween_chain\|single\|simd | 87 | 3 | 32.0 | 27.87 | 25 | 24 | 62063.1 | 0.0 |
| gold | binary\|none\|MeshTween\|single\|simd | 87 | 3 | 32.0 | 27.73 | 25 | 25 | 59495.3 | 0.0 |
| gold | binary\|none\|MeshTweenSplitSparse\|single\|simd | 87 | 3 | 32.0 | 27.69 | 25 | 27 | 57660.8 | 0.0 |
| gold | binary\|none\|MeshTweenSplitFastProxy\|single\|simd | 86 | 3 | 32.0 | 27.55 | 25 | 26 | 57751.4 | 0.0 |
| gold | binary\|none\|TweenSplitHeadProxyAsync\|single\|simd | 86 | 3 | 32.0 | 27.40 | 25 | 24 | 59994.3 | 0.0 |
| gold | binary\|none\|step_tween\|single\|simd | 85 | 3 | 32.0 | 27.07 | 25 | 20 | 62940.2 | 0.0 |
| gold | binary\|none\|TweenSplitSparse\|single\|simd | 84 | 3 | 32.0 | 26.90 | 25 | 23 | 59389.9 | 0.0 |

## Near-gold - Q >= 70%, RAM <= 50%

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| near | binary\|none\|StepTweenAlt\|single\|simd | 79 | 3 | 32.0 | 25.26 | 25 | 23 | 50798.7 | 0.0 |
| near | binary\|none\|MeshTweenAlt\|single\|simd | 78 | 3 | 32.0 | 25.12 | 25 | 26 | 47967.2 | 0.0 |
| near | int2\|none\|StepTweenAlt\|single\|simd | 80 | 6 | 16.0 | 12.77 | 25 | 22 | 52856.5 | 0.0 |
| near | int2\|none\|MeshTweenSplitFastProxy\|single\|simd | 79 | 6 | 16.0 | 12.62 | 25 | 20 | 54964.7 | 0.0 |
| near | int2\|none\|TweenAlt\|single\|simd | 78 | 6 | 16.0 | 12.50 | 25 | 20 | 53155.5 | 0.0 |
| near | ternary\|none\|MeshTweenAlt\|single\|simd | 77 | 6 | 16.0 | 12.25 | 25 | 24 | 47119.2 | 0.0 |
| near | uint2\|none\|TweenSplitFastProxy\|single\|simd | 80 | 8 | 13.3 | 10.64 | 25 | 30 | 48724.3 | 0.0 |

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| near | uint2\|none\|step_tween_chain\|single\|simd | 80 | 8 | 13.3 | 10.62 | 25 | 26 | 50281.1 | 0.0 |
| near | uint2\|none\|step_sgd\|single\|simd | 79 | 8 | 13.3 | 10.47 | 25 | 23 | 52115.3 | 0.0 |
| near | uint2\|none\|MeshTweenSplit\|single\|simd | 78 | 8 | 13.3 | 10.45 | 25 | 27 | 48048.6 | 0.0 |
| near | uint2\|none\|MeshBP\|single\|simd | 78 | 8 | 13.3 | 10.44 | 25 | 22 | 53313.7 | 0.0 |
| near | uint2\|none\|tween_chain\|single\|simd | 78 | 8 | 13.3 | 10.41 | 25 | 20 | 55284.1 | 0.0 |

## LPD rank (Q x shrink; 0 if Q < 70%)

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| gold | binary\|none\|tween\|single\|simd | 95 | 3 | 32.0 | 30.44 | 25 | 28 | 68140.4 | 0.0 |
| gold | binary\|none\|step_sgd\|single\|simd | 93 | 3 | 32.0 | 29.85 | 25 | 27 | 66820.2 | 0.0 |
| gold | binary\|none\|MeshBP\|single\|simd | 92 | 3 | 32.0 | 29.56 | 25 | 29 | 64447.2 | 0.0 |
| gold | binary\|none\|sgd\|single\|simd | 90 | 3 | 32.0 | 28.75 | 25 | 22 | 69133.9 | 0.0 |
| gold | binary\|none\|tween_chain\|single\|simd | 89 | 3 | 32.0 | 28.61 | 25 | 22 | 68425.2 | 0.0 |
| gold | binary\|none\|TweenSplitHeadProxy\|single\|simd | 89 | 3 | 32.0 | 28.55 | 25 | 27 | 60854.2 | 0.0 |
| gold | binary\|none\|MeshTweenChain\|single\|simd | 88 | 3 | 32.0 | 28.26 | 25 | 25 | 62903.1 | 0.0 |
| gold | binary\|none\|MeshTweenSplit\|single\|simd | 88 | 3 | 32.0 | 28.03 | 25 | 25 | 61163.5 | 0.0 |
| gold | binary\|none\|TweenSplit\|single\|simd | 87 | 3 | 32.0 | 27.95 | 25 | 26 | 59600.0 | 0.0 |
| gold | binary\|none\|step_tween_chain\|single\|simd | 87 | 3 | 32.0 | 27.87 | 25 | 24 | 62063.1 | 0.0 |
| gold | binary\|none\|MeshTween\|single\|simd | 87 | 3 | 32.0 | 27.73 | 25 | 25 | 59495.3 | 0.0 |
| gold | binary\|none\|MeshTweenSplitSparse\|single\|simd | 87 | 3 | 32.0 | 27.69 | 25 | 27 | 57660.8 | 0.0 |
| gold | binary\|none\|MeshTweenSplitFastProxy\|single\|simd | 86 | 3 | 32.0 | 27.55 | 25 | 26 | 57751.4 | 0.0 |
| gold | binary\|none\|TweenSplitHeadProxyAsync\|single\|simd | 86 | 3 | 32.0 | 27.40 | 25 | 24 | 59994.3 | 0.0 |
| gold | binary\|none\|step_tween\|single\|simd | 85 | 3 | 32.0 | 27.07 | 25 | 20 | 62940.2 | 0.0 |
| gold | binary\|none\|TweenSplitSparse\|single\|simd | 84 | 3 | 32.0 | 26.90 | 25 | 23 | 59389.9 | 0.0 |
| gold | binary\|none\|TweenAlt\|single\|simd | 84 | 3 | 32.0 | 26.74 | 25 | 28 | 52127.2 | 0.0 |
| gold | binary\|none\|TweenSplitLinear\|single\|simd | 83 | 3 | 32.0 | 26.60 | 25 | 26 | 54061.3 | 0.0 |
| gold | binary\|none\|TweenSplitFastProxy\|single\|simd | 83 | 3 | 32.0 | 26.54 | 25 | 25 | 54950.1 | 0.0 |
| gold | binary\|none\|StepTweenSplit\|single\|simd | 83 | 3 | 32.0 | 26.43 | 25 | 25 | 54627.0 | 0.0 |

## Mobile speed - Thru vs board fastest (Q >= 70%)

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| keep | float32\|none\|sgd\|single\|simd | 100 | 100 | 91 | 97 | 1.00 | 703980 | 42.5 |
| gold | fp4\|none\|tween\|single\|simd | 95 | 98 | 89 | 94 | 7.63 | 687072 | 41.5 |
| gold | fp4\|none\|sgd\|single\|simd | 95 | 97 | 90 | 94 | 7.61 | 681861 | 41.9 |
| keep | float32\|none\|tween\|single\|simd | 96 | 96 | 88 | 94 | 0.96 | 678001 | 41.2 |
| gold | int2\|none\|sgd\|single\|simd | 97 | 96 | 93 | 95 | 15.46 | 674229 | 43.1 |
| gold | int2\|none\|tween_chain\|single\|simd | 95 | 95 | 93 | 94 | 15.13 | 670542 | 43.2 |
| keep | float32\|none\|tween_chain\|single\|simd | 97 | 95 | 89 | 94 | 0.97 | 668806 | 41.4 |
| gold | fp4\|none\|tween_chain\|single\|simd | 94 | 95 | 89 | 93 | 7.52 | 668194 | 41.5 |
| near | uint8\|none\|sgd\|single\|simd | 95 | 94 | 91 | 93 | 3.63 | 660258 | 42.5 |
| keep | float32\|none\|step_tween\|single\|simd | 91 | 93 | 87 | 90 | 0.91 | 652550 | 40.6 |

## Mobile availability - duty cycle vs board best (Q >= 70%)

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| - | complex64\|none\|TweenSplitLinearCache\|single\|simd | 75 | 58 | 97 | 75 | 0.38 | 409044 | 45.2 |
| keep | complex128\|none\|tween_chain\|single\|simd | 84 | 68 | 97 | 82 | 0.21 | 480057 | 45.2 |
| near | int3\|none\|sgd\|single\|simd | 71 | 51 | 97 | 71 | 7.62 | 359937 | 45.2 |
| near | uint3\|none\|sgd\|single\|simd | 71 | 53 | 97 | 72 | 6.67 | 376245 | 45.0 |
| keep | int\|none\|tween_chain\|single\|simd | 83 | 68 | 97 | 82 | 0.42 | 475977 | 45.0 |
| keep | complex64\|none\|sgd\|single\|simd | 82 | 66 | 97 | 81 | 0.41 | 464811 | 45.0 |
| - | uint\|none\|MeshTweenSplitSparse\|single\|simd | 73 | 55 | 97 | 73 | 0.36 | 385133 | 45.0 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| keep | complex64\|none\|tween_chain\|single\|simd | 83 | 67 | 96 | 81 | 0.41 | 469616 | 45.0 |
| - | uint\|none\|TweenSplitLinearCache\|single\|simd | 75 | 56 | 96 | 74 | 0.37 | 391008 | 45.0 |
| - | int\|none\|MeshTweenSplitFastProxy\|single\|simd | 75 | 56 | 96 | 74 | 0.38 | 397607 | 44.9 |

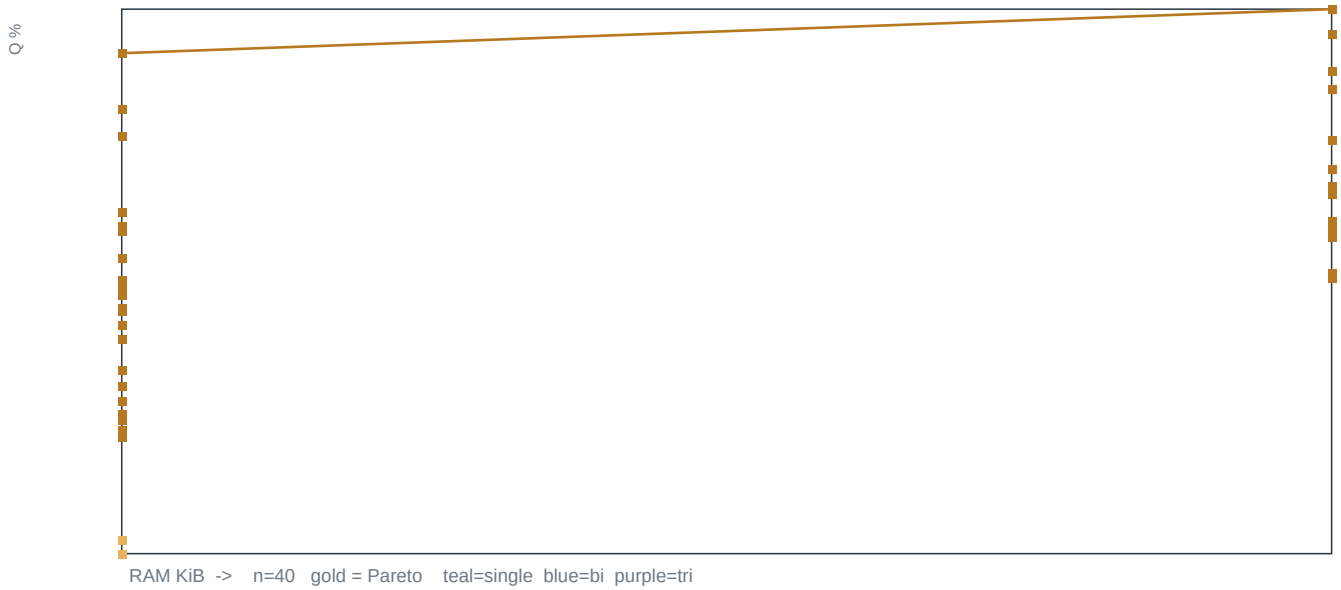
## Mix - geomean of Q, MSpeed, MAvail

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| keep | float32\|none\|sgd\|single\|simd | 100 | 100 | 91 | 97 | 1.00 | 703980 | 42.5 |
| gold | int2\|none\|sgd\|single\|simd | 97 | 96 | 93 | 95 | 15.46 | 674229 | 43.1 |
| gold | int2\|none\|tween_chain\|single\|simd | 95 | 95 | 93 | 94 | 15.13 | 670542 | 43.2 |
| gold | fp4\|none\|tween\|single\|simd | 95 | 98 | 89 | 94 | 7.63 | 687072 | 41.5 |
| gold | fp4\|none\|sgd\|single\|simd | 95 | 97 | 90 | 94 | 7.61 | 681861 | 41.9 |
| keep | float32\|none\|tween\|single\|simd | 96 | 96 | 88 | 94 | 0.96 | 678001 | 41.2 |
| keep | float32\|none\|tween_chain\|single\|simd | 97 | 95 | 89 | 94 | 0.97 | 668806 | 41.4 |
| near | uint8\|none\|sgd\|single\|simd | 95 | 94 | 91 | 93 | 3.63 | 660258 | 42.5 |
| gold | int2\|none\|step_sgd\|single\|simd | 96 | 92 | 91 | 93 | 15.33 | 649942 | 42.6 |
| gold | fp4\|none\|tween_chain\|single\|simd | 94 | 95 | 89 | 93 | 7.52 | 668194 | 41.5 |

## Trap - tiny RAM, Q < 70% (why Score/MiB lies)

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| trap | int3\|none\|step_sgd\|single\|simd | 68 | 9 | 10.7 | 0.00 | 25 | 26 | 36599.3 | 0.0 |
| trap | int3\|none\|tween\|single\|simd | 68 | 9 | 10.7 | 0.00 | 25 | 23 | 39086.4 | 0.0 |
| trap | int3\|none\|tween_chain\|single\|simd | 69 | 9 | 10.7 | 0.00 | 25 | 24 | 40328.7 | 0.0 |
| trap | int3\|none\|step_tween\|single\|simd | 67 | 9 | 10.7 | 0.00 | 25 | 29 | 33389.2 | 0.0 |
| trap | int3\|none\|step_tween_chain\|single\|simd | 65 | 9 | 10.7 | 0.00 | 25 | 23 | 34811.2 | 0.0 |
| trap | int3\|none\|MeshBP\|single\|simd | 68 | 9 | 10.7 | 0.00 | 25 | 28 | 36027.6 | 0.0 |
| trap | int3\|none\|MeshTween\|single\|simd | 66 | 9 | 10.7 | 0.00 | 25 | 26 | 34149.2 | 0.0 |
| trap | int3\|none\|MeshTweenChain\|single\|simd | 68 | 9 | 10.7 | 0.00 | 25 | 29 | 35517.8 | 0.0 |
| trap | int3\|none\|TweenSplit\|single\|simd | 68 | 9 | 10.7 | 0.00 | 25 | 25 | 38020.7 | 0.0 |
| trap | int3\|none\|StepTweenSplit\|single\|simd | 64 | 9 | 10.7 | 0.00 | 25 | 24 | 34000.2 | 0.0 |

## LPD - Q% vs RAM KiB (gold = high Q, low RAM)

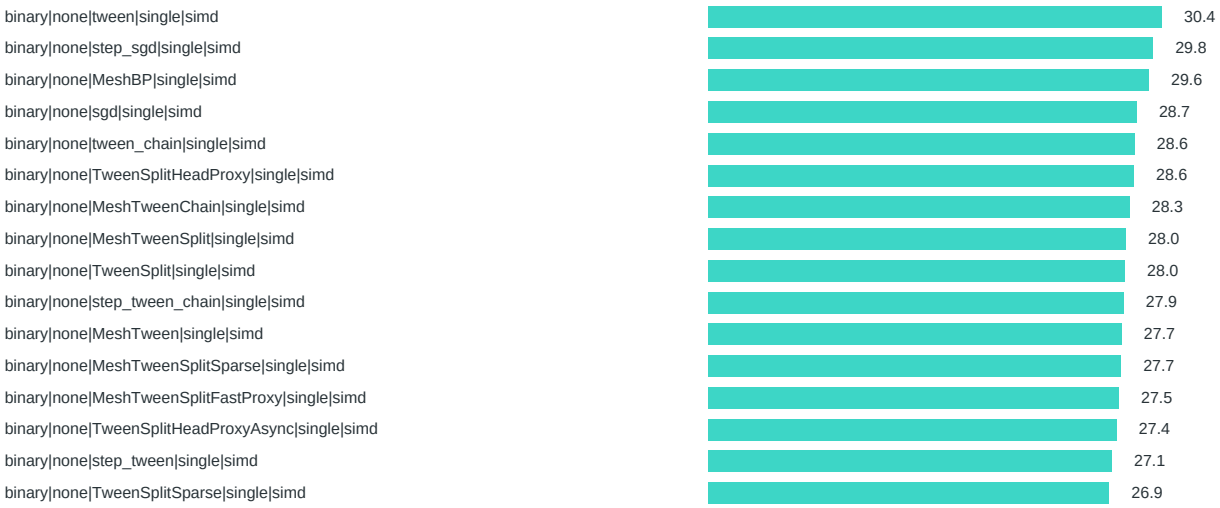



## LPD - Q% vs shrink vs champ (gold = upper right)

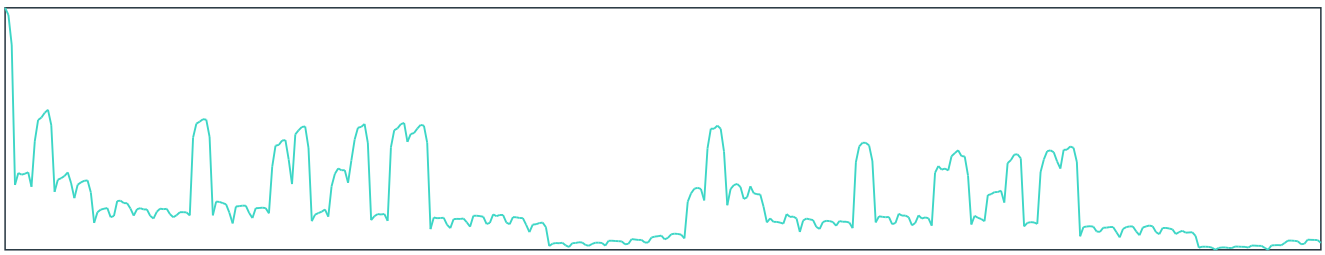
## LPD - Q% vs shrink vs champ (gold = upper right)




## Top LPD

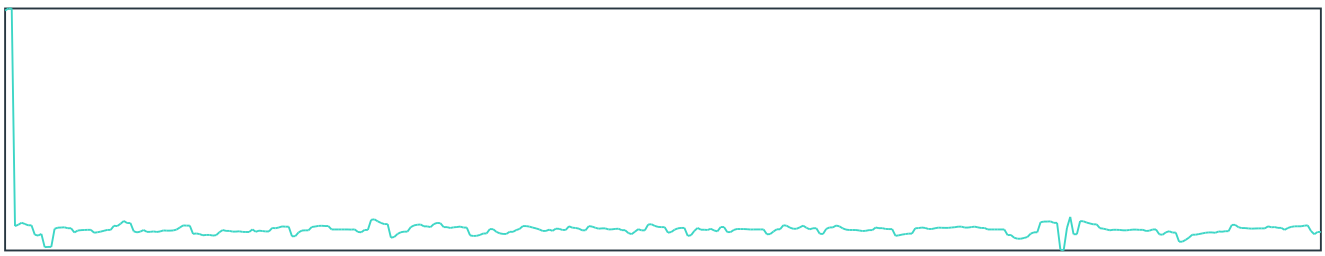



## Pulse Score - convt1



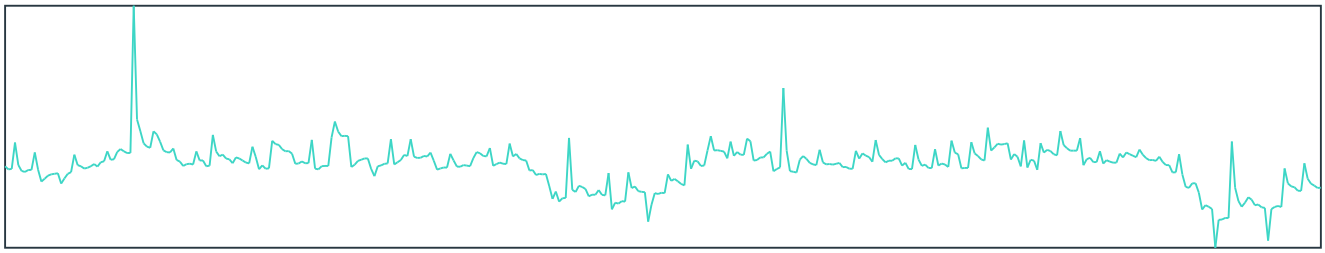
n=400 min=1455.74 max=39857.53

## Pulse SoftAcc - convt1



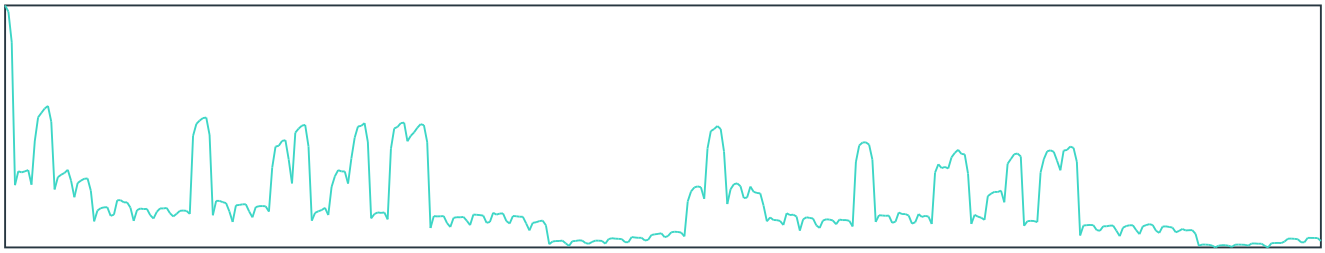
n=400 min=25.00 max=25.03

## Pulse Availability - convt1



n=400 min=40.70 max=53.49

## Pulse Throughput - convt1



n=400 min=14176.28 max=353890.00

## Queue by train mode (this epoch)

| Mode | Done | Run | Left | Total |
|---|---|---|---|---|
| sgd | 102 | 0 | 0 | 102 |
| step_sgd | 102 | 0 | 0 | 102 |
| tween | 102 | 0 | 0 | 102 |
| tween_chain | 102 | 0 | 0 | 102 |
| step_tween | 102 | 0 | 0 | 102 |
| step_tween_chain | 102 | 0 | 0 | 102 |
| MeshBP | 102 | 0 | 0 | 102 |
| MeshTween | 102 | 0 | 0 | 102 |
| MeshTweenChain | 102 | 0 | 0 | 102 |
| TweenSplit | 102 | 0 | 0 | 102 |
| StepTweenSplit | 102 | 0 | 0 | 102 |
| TweenAlt | 102 | 0 | 0 | 102 |
| StepTweenAlt | 102 | 0 | 0 | 102 |
| TweenSplitHeadProxy | 102 | 0 | 0 | 102 |
| TweenSplitLinear | 102 | 0 | 0 | 102 |
| TweenSplitFastProxy | 102 | 0 | 0 | 102 |
| TweenSplitLinearCache | 102 | 0 | 0 | 102 |
| TweenSplitHeadProxyAsync | 102 | 0 | 0 | 102 |
| TweenSplitSparse | 102 | 0 | 0 | 102 |
| MeshTweenSplit | 102 | 0 | 0 | 102 |
| MeshTweenAlt | 102 | 0 | 0 | 102 |
| MeshTweenSplitFastProxy | 102 | 0 | 0 | 102 |
| MeshTweenSplitSparse | 102 | 0 | 0 | 102 |

# tide  convt2

Score = Throughput x Availability% x SoftAcc% / 10,000
done - epoch 1 - 2026-08-18 09:45:25 - 0.0.0.0:8106
This epoch 2346 / 2346 cells. Recorded 2346 results.
Score 0 usually means the cell finished before a Lucy pulse (SoftAcc never sampled) or true-class mass was 0. Those rows do not vote holistically.
convt2 - 2D upsample from XOR latent - modes all - min 2000ms/cell - 1024 train - pulse 50ms - SIMD true

## Lucy champions (this tide)

| Axis | Cell | Score | Soft | Acc | Thru | Avail |
|---|---|---|---|---|---|---|
| score | float32\|none\|tween_chain\|single\|simd | 34996.07 | 25.0 | 28.2 | 306481.2 | 45.6 |
| throughput | float32\|none\|tween_chain\|single\|simd | 34996.07 | 25.0 | 28.2 | 306481.2 | 45.6 |
| availability | int16\|none\|TweenSplitLinearCache\|single\|simd | 19984.37 | 25.0 | 21.1 | 171038.8 | 46.8 |
| accuracy | float32\|none\|StepTweenAlt\|single\|simd | 22146.61 | 25.3 | 32.1 | 210622.2 | 41.6 |
| mobile score (tra | binary\|none\|sgd\|single\|simd | 30982.95 | 25.0 | 24.1 | 272848.2 | 45.4 |
| t->50% | int5\|none\|step_tween_chain\|tricameral\|simd | 25.47 | 25.0 | 28.3 | 539.9 | 18.9 |
| acc/sec | float64\|none\|sgd\|single\|simd | 27137.20 | 25.0 | 28.1 | 236546.0 | 45.8 |

## Lucy axes - convt2

| Axis | Mode | DType | Arch | Value |
|---|---|---|---|---|
| score | tween_chain | float32 | singlex1 | 34996.07 |
| soft_acc | StepTweenAlt | float32 | singlex1 | 25.26 |
| hard_acc | TweenSplitSparse | uint | tricameralx3 | 33.72 |
| throughput | tween_chain | float32 | singlex1 | 306481.20 |
| availability | TweenSplitLinea~ | int16 | singlex1 | 46.78 |
| acc_thru | tween_chain | float32 | singlex1 | 76685.65 |
| realtime | tween_chain | float32 | singlex1 | 139864.98 |
| adapt | MeshTweenAlt | float64 | singlex1 | 25.32 |
| keep_learn | step_tween_chain | fp8e5m2 | tricameralx3 | 13.48 |
| acc_per_sec | sgd | float64 | singlex1 | 12.51 |
| time_to_50 | step_tween_chain | int5 | tricameralx3 | 0.15 |
| consistency | sgd | float64 | singlex1 | 100.00 |
| stability | sgd | fp4 | singlex1 | 100.00 |
| mobile_score | sgd | binary | singlex1 | 902443927.24 |
| lpd | tween | binary | singlex1 | 29.23 |
| mspeed | tween_chain | float32 | singlex1 | 1.00 |
| mavail | TweenSplitLinea~ | int | singlex1 | 1.00 |
| mix | tween_chain | float32 | singlex1 | 0.99 |

## Best settings per train mode

| Mode | DType | Format | Score | Soft | Acc | Avail | n |
|---|---|---|---|---|---|---|---|
| tween_chain | float32 | none | 34996.1 | 25.0 | 28.2 | 45.6 | 102 |
| sgd | float32 | none | 34734.2 | 25.0 | 26.2 | 45.6 | 102 |
| tween | float32 | none | 33884.5 | 25.0 | 24.1 | 45.0 | 102 |
| step_sgd | float32 | none | 32595.3 | 25.0 | 27.1 | 44.5 | 102 |
| TweenSplitSparse | float32 | none | 31592.1 | 25.0 | 28.8 | 46.0 | 102 |
| step_tween | float32 | none | 31368.6 | 25.0 | 25.9 | 43.9 | 102 |
| TweenSplitHeadProxy | float32 | none | 30794.7 | 25.0 | 30.1 | 45.9 | 102 |
| MeshBP | float32 | none | 30732.8 | 25.0 | 28.4 | 45.4 | 102 |
| MeshTweenSplitFastProxy | float32 | none | 30556.9 | 25.0 | 27.8 | 45.8 | 102 |
| TweenSplitLinearCache | float32 | none | 30302.3 | 25.0 | 25.7 | 46.0 | 102 |
| TweenSplitFastProxy | float32 | none | 30292.8 | 25.0 | 26.7 | 45.8 | 102 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| TweenSplit | float32 | none | 29963.3 | 25.1 | 30.7 | 46.0 | 102 |
| MeshTweenChain | float32 | none | 29777.3 | 25.0 | 28.6 | 45.3 | 102 |
| TweenSplitLinear | float32 | none | 29459.8 | 25.0 | 25.9 | 45.1 | 102 |
| MeshTweenSplit | int8 | none | 29278.7 | 25.0 | 24.6 | 46.2 | 102 |
| step_tween_chain | float32 | none | 29014.1 | 25.0 | 27.6 | 44.2 | 102 |
| MeshTween | float32 | none | 28708.1 | 25.0 | 26.0 | 44.6 | 102 |
| StepTweenSplit | float32 | none | 28604.4 | 25.1 | 29.9 | 44.8 | 102 |
| MeshTweenSplitSparse | float32 | none | 28603.9 | 25.0 | 27.7 | 45.9 | 102 |
| TweenSplitHeadProxyAsync | fp4 | none | 27595.0 | 25.0 | 24.8 | 45.5 | 102 |
| TweenAlt | float32 | none | 24493.4 | 25.1 | 31.6 | 42.7 | 102 |
| MeshTweenAlt | float32 | none | 22629.1 | 25.2 | 32.2 | 42.7 | 102 |
| StepTweenAlt | fp4 | none | 22395.1 | 25.0 | 25.1 | 40.7 | 102 |

## Best dtype per mode

| Mode | Winner dtype | Score | Soft | Acc |
|---|---|---|---|---|
| tween_chain | float32 | 34996.1 | 25.0 | 28.2 |
| sgd | float32 | 34734.2 | 25.0 | 26.2 |
| tween | float32 | 33884.5 | 25.0 | 24.1 |
| step_sgd | float32 | 32595.3 | 25.0 | 27.1 |
| TweenSplitSparse | float32 | 31592.1 | 25.0 | 28.8 |
| step_tween | float32 | 31368.6 | 25.0 | 25.9 |
| TweenSplitHeadProxy | float32 | 30794.7 | 25.0 | 30.1 |
| MeshBP | float32 | 30732.8 | 25.0 | 28.4 |
| MeshTweenSplitFastProxy | float32 | 30556.9 | 25.0 | 27.8 |
| TweenSplitLinearCache | float32 | 30302.3 | 25.0 | 25.7 |
| TweenSplitFastProxy | float32 | 30292.8 | 25.0 | 26.7 |
| TweenSplit | float32 | 29963.3 | 25.1 | 30.7 |
| MeshTweenChain | float32 | 29777.3 | 25.0 | 28.6 |
| TweenSplitLinear | float32 | 29459.8 | 25.0 | 25.9 |
| MeshTweenSplit | int8 | 29278.7 | 25.0 | 24.6 |
| step_tween_chain | float32 | 29014.1 | 25.0 | 27.6 |
| MeshTween | float32 | 28708.1 | 25.0 | 26.0 |
| StepTweenSplit | float32 | 28604.4 | 25.1 | 29.9 |
| MeshTweenSplitSparse | float32 | 28603.9 | 25.0 | 27.7 |
| TweenSplitHeadProxyAsync | fp4 | 27595.0 | 25.0 | 24.8 |
| TweenAlt | float32 | 24493.4 | 25.1 | 31.6 |
| MeshTweenAlt | float32 | 22629.1 | 25.2 | 32.2 |
| StepTweenAlt | fp4 | 22395.1 | 25.0 | 25.1 |

## Best mode per dtype

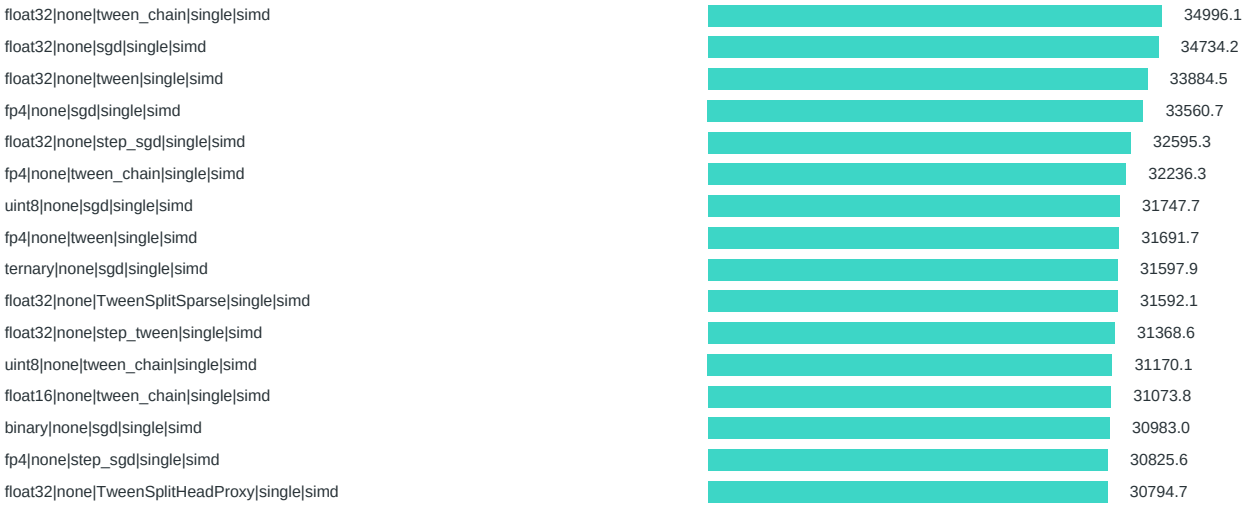
| DType | Winner mode | Score | Soft | Acc |
|---|---|---|---|---|
| float32 | tween_chain | 34996.1 | 25.0 | 28.2 |
| fp4 | sgd | 33560.7 | 25.0 | 25.1 |
| uint8 | sgd | 31747.7 | 25.0 | 24.1 |
| ternary | sgd | 31597.9 | 25.0 | 22.9 |
| float16 | tween_chain | 31073.8 | 25.0 | 25.6 |
| binary | sgd | 30983.0 | 25.0 | 24.1 |
| int2 | sgd | 30604.9 | 25.0 | 23.2 |
| int8 | sgd | 30273.4 | 25.0 | 24.1 |
| int4 | sgd | 29398.9 | 25.0 | 25.7 |
| bfloat16 | tween_chain | 28514.3 | 25.0 | 25.3 |
| float64 | tween_chain | 27190.2 | 25.0 | 29.1 |

| | | | | |
|---|---|---|---|---|
| uint16 | sgd | 24944.8 | 25.0 | 26.3 |
| fp8e5m2 | sgd | 24426.2 | 25.0 | 22.1 |
| uint64 | sgd | 24380.6 | 25.0 | 24.4 |
| uint32 | sgd | 24323.5 | 25.0 | 25.9 |
| uint4 | sgd | 23600.8 | 25.0 | 28.1 |
| fp8e4m3 | sgd | 23521.7 | 25.0 | 20.8 |
| uint2 | sgd | 22850.5 | 25.0 | 25.4 |
| int32 | sgd | 22749.4 | 25.0 | 26.2 |
| int64 | sgd | 22415.0 | 25.0 | 28.6 |
| int16 | sgd | 22106.4 | 25.0 | 23.9 |
| uint | sgd | 21513.6 | 25.0 | 29.3 |
| uintptr | sgd | 21507.8 | 25.0 | 24.4 |
| complex64 | sgd | 20187.9 | 25.0 | 27.7 |
| int | sgd | 20021.1 | 25.0 | 27.3 |
| complex128 | sgd | 19809.8 | 25.0 | 27.6 |
| nf4 | sgd | 18126.8 | 25.0 | 25.0 |
| uint3 | sgd | 15296.6 | 25.0 | 24.5 |
| int3 | sgd | 14362.1 | 25.0 | 26.9 |
| uint5 | sgd | 12719.3 | 25.0 | 22.6 |
| int5 | sgd | 11750.0 | 25.0 | 27.3 |
| uint6 | sgd | 11453.3 | 25.0 | 24.5 |
| int6 | sgd | 11131.0 | 25.0 | 26.5 |
| fp6 | sgd | 10675.0 | 25.0 | 28.3 |

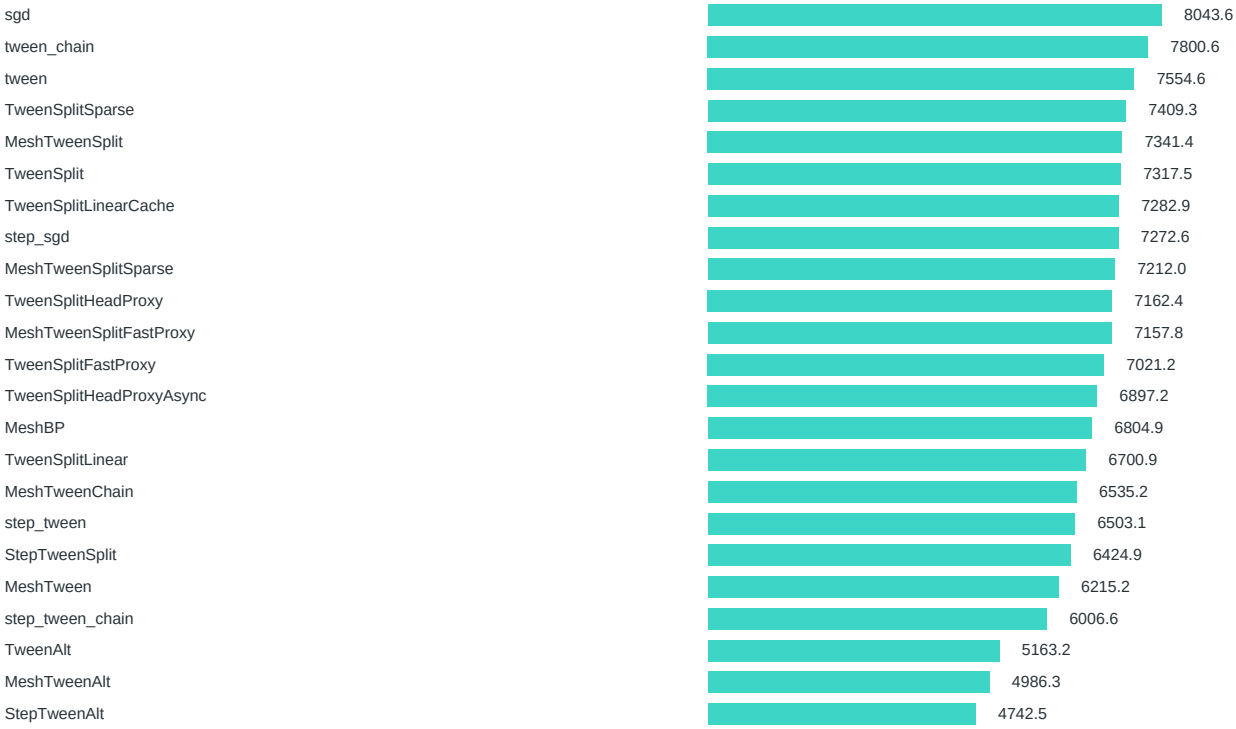
## Leaderboard - convt2

| # | Cell | Score | Soft | Acc | Thru | Avail |
|---|---|---|---|---|---|---|
| 1 | float32\|none\|tween_chain\|single\|simd | 34996.1 | 25.0 | 28.2 | 306481.2 | 45.6 |
| 2 | float32\|none\|sgd\|single\|simd | 34734.2 | 25.0 | 26.2 | 304592.0 | 45.6 |
| 3 | float32\|none\|tween\|single\|simd | 33884.5 | 25.0 | 24.1 | 301532.8 | 45.0 |
| 4 | fp4\|none\|sgd\|single\|simd | 33560.7 | 25.0 | 25.1 | 296569.2 | 45.3 |
| 5 | float32\|none\|step_sgd\|single\|simd | 32595.3 | 25.0 | 27.1 | 293388.5 | 44.5 |
| 6 | fp4\|none\|tween_chain\|single\|simd | 32236.3 | 25.0 | 25.1 | 286065.4 | 45.1 |
| 7 | uint8\|none\|sgd\|single\|simd | 31747.7 | 25.0 | 24.1 | 277724.7 | 45.7 |
| 8 | fp4\|none\|tween\|single\|simd | 31691.7 | 25.0 | 25.0 | 285093.3 | 44.5 |
| 9 | ternary\|none\|sgd\|single\|simd | 31597.9 | 25.0 | 22.9 | 279378.2 | 45.3 |
| 10 | float32\|none\|TweenSplitSparse\|single\|simd | 31592.1 | 25.0 | 28.8 | 274510.2 | 46.0 |
| 11 | float32\|none\|step_tween\|single\|simd | 31368.6 | 25.0 | 25.9 | 285433.1 | 43.9 |
| 12 | uint8\|none\|tween_chain\|single\|simd | 31170.1 | 25.0 | 25.2 | 273316.0 | 45.6 |
| 13 | float16\|none\|tween_chain\|single\|simd | 31073.8 | 25.0 | 25.6 | 273619.1 | 45.4 |
| 14 | binary\|none\|sgd\|single\|simd | 30983.0 | 25.0 | 24.1 | 272848.2 | 45.4 |
| 15 | fp4\|none\|step_sgd\|single\|simd | 30825.6 | 25.0 | 25.1 | 280026.2 | 44.0 |
| 16 | float32\|none\|TweenSplitHeadProxy\|single\|simd | 30794.7 | 25.0 | 30.1 | 268511.7 | 45.9 |
| 17 | float32\|none\|MeshBP\|single\|simd | 30732.8 | 25.0 | 28.4 | 270753.3 | 45.4 |
| 18 | float16\|none\|sgd\|single\|simd | 30615.8 | 25.0 | 26.4 | 269819.0 | 45.4 |
| 19 | int2\|none\|sgd\|single\|simd | 30604.9 | 25.0 | 23.2 | 270145.9 | 45.3 |
| 20 | float32\|none\|MeshTweenSplitFastProxy\|single\|simd | 30556.9 | 25.0 | 27.8 | 266399.3 | 45.8 |

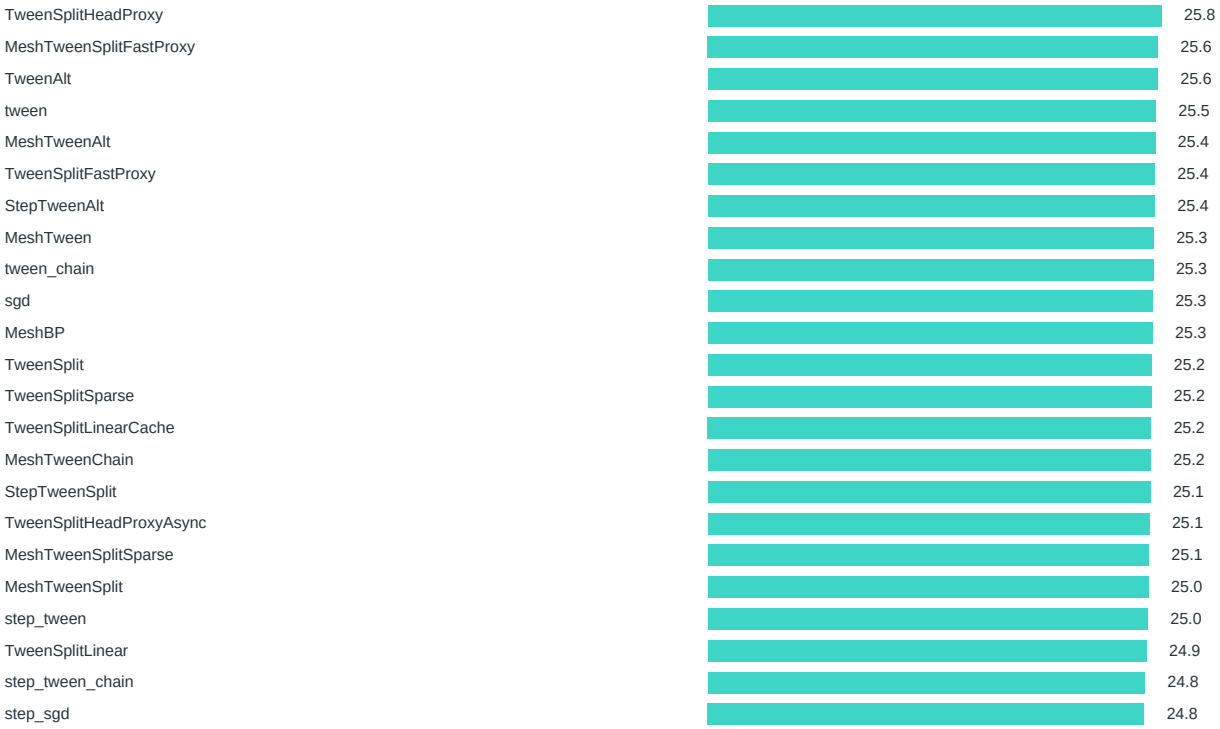
## Top scores - convt2



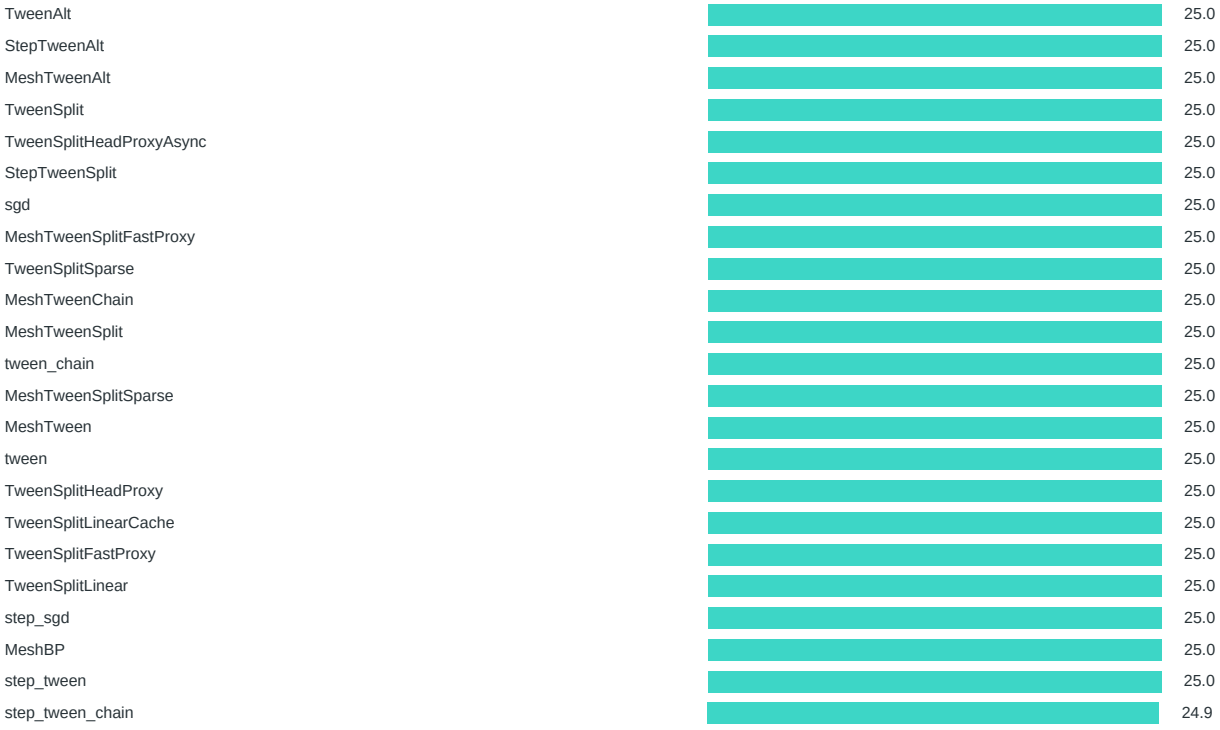

## Mean Score by train mode




## Mean hard Acc by train mode




## Mean SoftAcc by train mode




## Mean Score by dtype




## Mean hard Acc by dtype




## Mean Score by arch




## Honesty - mean Score, every mode x dtype (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 8364 | 8942 | 5564 | 5784 | 9410 | 12519 | 8012 | 9581 | 3029 | 6902 | 6931 | 5757 | 6496 | 9514 | 3968 | 6544 |
| MeshTween | 7845 | 8236 | 5104 | 5134 | 8797 | 11702 | 7631 | 8748 | 2658 | 6246 | 6280 | 5204 | 6067 | 8656 | 3423 | 5740 |
| MeshTweenAlt | 6273 | 6752 | 4080 | 4216 | 6919 | 8966 | 6115 | 7425 | 1993 | 5143 | 5042 | 4016 | 4734 | 7190 | 2624 | 4981 |
| MeshTweenChain | 8019 | 8831 | 5305 | 5435 | 9129 | 12125 | 8142 | 9177 | 2810 | 6440 | 6508 | 5718 | 6317 | 9303 | 3811 | 6158 |
| MeshTweenSplit | 9475 | 9973 | 6148 | 6280 | 9467 | 12478 | 8318 | 9893 | 3389 | 6988 | 8025 | 5801 | 7343 | 10978 | 4073 | 6595 |
| MeshTweenSplitFa | 7864 | 10290 | 5923 | 6070 | 9181 | 13133 | 9024 | 9854 | 2960 | 6417 | 6819 | 6297 | 6704 | 10948 | 4204 | 7199 |
| MeshTweenSplitSp | 8960 | 10095 | 5617 | 5893 | 10056 | 13377 | 8502 | 9764 | 3227 | 7491 | 6862 | 6028 | 6637 | 11630 | 4322 | 6723 |
| StepTweenAlt | 6052 | 6702 | 3754 | 3852 | 6920 | 8517 | 6011 | 7543 | 1865 | 4606 | 4774 | 3654 | 4671 | 6938 | 2549 | 4444 |
| StepTweenSplit | 8034 | 9143 | 5093 | 5027 | 9026 | 11914 | 7562 | 9127 | 2729 | 6369 | 6586 | 5325 | 5976 | 9401 | 3668 | 5917 |
| TweenAlt | 6666 | 7202 | 4144 | 4006 | 7234 | 9559 | 6285 | 7438 | 2095 | 5193 | 5406 | 4334 | 4827 | 7583 | 2983 | 4854 |
| TweenSplit | 8972 | 10327 | 5883 | 6077 | 10129 | 12979 | 8620 | 10087 | 3331 | 7321 | 7172 | 6002 | 6758 | 10523 | 4514 | 6770 |
| TweenSplitFastPr | 9063 | 9448 | 5566 | 6072 | 9795 | 13071 | 8250 | 9719 | 3172 | 7159 | 6923 | 5626 | 6308 | 10239 | 4055 | 6409 |
| TweenSplitHeadPr | 8926 | 10117 | 6198 | 5906 | 9541 | 13305 | 8336 | 9834 | 3254 | 7028 | 7330 | 5786 | 6618 | 10696 | 4119 | 6877 |
| TweenSplitHeadPr | 8375 | 9407 | 5385 | 5533 | 9636 | 12227 | 8382 | 9640 | 3122 | 6983 | 7143 | 5828 | 6638 | 10780 | 3928 | 6788 |
| TweenSplitLinear | 8811 | 8779 | 5752 | 5815 | 8832 | 12118 | 8305 | 9649 | 3006 | 6601 | 7033 | 5502 | 6388 | 9362 | 3926 | 6485 |
| TweenSplitLinear | 9150 | 9767 | 5831 | 6122 | 9992 | 13172 | 9045 | 9513 | 3493 | 7247 | 7209 | 6253 | 6966 | 10702 | 4172 | 6672 |
| TweenSplitSparse | 9027 | 10537 | 6026 | 6050 | 10774 | 14557 | 8823 | 9965 | 3175 | 7424 | 7344 | 6043 | 6333 | 11241 | 4258 | 7008 |
| sgd | 9655 | 10820 | 6718 | 6850 | 10718 | 14306 | 9559 | 11473 | 3596 | 8037 | 8314 | 6791 | 7541 | 11167 | 4840 | 7761 |
| step_sgd | 8833 | 9677 | 6070 | 6140 | 10072 | 13156 | 8787 | 10478 | 3103 | 7015 | 7486 | 6025 | 6877 | 10219 | 4227 | 6981 |
| step_tween | 8221 | 8926 | 5365 | 5266 | 9227 | 12370 | 7951 | 9572 | 2619 | 6659 | 6791 | 5373 | 5963 | 9474 | 3597 | 6047 |
| step_tween_chain | 7506 | 8349 | 4814 | 4838 | 8487 | 11256 | 7282 | 8551 | 2380 | 6280 | 6311 | 4920 | 5360 | 8032 | 3515 | 5807 |
| tween | 9203 | 10077 | 6282 | 6339 | 10247 | 14042 | 9218 | 10829 | 3291 | 7368 | 7784 | 6348 | 7233 | 10237 | 4441 | 7247 |
| tween_chain | 9826 | 10150 | 6480 | 6583 | 10840 | 14337 | 9538 | 11007 | 3503 | 7882 | 8120 | 6519 | 7457 | 10828 | 4593 | 7515 |

## Honesty - mean Score, every mode x dtype (cols 17-32)

## Honesty - mean Score, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 9100 | 3295 | 3003 | 6544 | 10673 | 5255 | 9270 | 5948 | 7068 | 6567 | 4030 | 7127 | 6693 | 3469 | 3161 | 7064 |
| MeshTween | 8065 | 3030 | 2718 | 5955 | 10073 | 4841 | 8434 | 5339 | 6424 | 5856 | 3497 | 6384 | 5958 | 3196 | 2884 | 6634 |
| MeshTweenAlt | 6698 | 2223 | 2023 | 4583 | 7662 | 3776 | 7015 | 4257 | 5237 | 5025 | 2823 | 5102 | 5080 | 2382 | 2183 | 5080 |
| MeshTweenChain | 8549 | 3229 | 2867 | 6150 | 10397 | 5037 | 9434 | 5679 | 6421 | 6196 | 3838 | 7027 | 6285 | 3417 | 2954 | 6839 |
| MeshTweenSplit | 10461 | 3380 | 3676 | 7315 | 12191 | 5803 | 10561 | 5933 | 7096 | 6879 | 4667 | 6853 | 7311 | 3616 | 3768 | 7724 |
| MeshTweenSplitFa | 9822 | 3220 | 3064 | 7116 | 10930 | 5784 | 10869 | 6288 | 7511 | 6752 | 4338 | 7041 | 7113 | 3858 | 3093 | 7297 |
| MeshTweenSplitSp | 9815 | 3426 | 3227 | 6277 | 12174 | 5446 | 11198 | 6284 | 7186 | 6409 | 4112 | 7340 | 7067 | 3595 | 3146 | 7452 |
| StepTweenAlt | 6261 | 1905 | 1823 | 4449 | 7502 | 3746 | 6698 | 3953 | 4829 | 4578 | 2616 | 5008 | 4807 | 2161 | 2008 | 4958 |
| StepTweenSplit | 8927 | 3093 | 2815 | 5958 | 10229 | 4842 | 9512 | 5445 | 6645 | 5961 | 3656 | 6667 | 6255 | 3344 | 3032 | 6562 |
| TweenAlt | 7034 | 2368 | 2025 | 4931 | 8004 | 3791 | 6954 | 4675 | 5375 | 4711 | 2963 | 5441 | 5116 | 2459 | 2154 | 5454 |
| TweenSplit | 10118 | 3765 | 3231 | 6542 | 11611 | 5584 | 10775 | 6572 | 7344 | 6945 | 4538 | 7539 | 7015 | 3989 | 3459 | 7373 |
| TweenSplitFastPr | 9628 | 3451 | 2950 | 6714 | 11134 | 5714 | 10758 | 5938 | 6964 | 6811 | 4065 | 6888 | 6997 | 3485 | 3249 | 6946 |
| TweenSplitHeadPr | 9779 | 3349 | 3182 | 6846 | 11737 | 5552 | 10619 | 5980 | 6953 | 6856 | 4142 | 7364 | 6719 | 3589 | 3377 | 7270 |
| TweenSplitHeadPr | 9202 | 3360 | 2958 | 6477 | 11021 | 5236 | 10181 | 5643 | 6955 | 6442 | 3966 | 7294 | 6885 | 3296 | 3029 | 7163 |
| TweenSplitLinear | 8686 | 3257 | 3009 | 6586 | 9952 | 5228 | 8853 | 5866 | 6792 | 6198 | 3927 | 7266 | 6642 | 3365 | 3326 | 6940 |
| TweenSplitLinear | 9620 | 3681 | 3366 | 6850 | 11703 | 5684 | 10588 | 6383 | 7412 | 7269 | 4370 | 7581 | 6852 | 3776 | 3640 | 7207 |
| TweenSplitSparse | 9852 | 3537 | 3285 | 7000 | 12957 | 5439 | 11400 | 6341 | 7236 | 6664 | 4287 | 7437 | 6774 | 3735 | 3224 | 7501 |
| sgd | 10285 | 3959 | 3748 | 7646 | 12190 | 6129 | 11237 | 7286 | 8500 | 7748 | 5152 | 8297 | 8020 | 4281 | 3856 | 8308 |
| step_sgd | 9614 | 3372 | 3139 | 6953 | 11448 | 5430 | 10263 | 6518 | 7446 | 7004 | 4499 | 7724 | 7212 | 3756 | 3278 | 7556 |
| step_tween | 8785 | 2837 | 2601 | 6031 | 10303 | 4902 | 9236 | 5829 | 6692 | 6206 | 3658 | 6688 | 6476 | 3094 | 2720 | 6634 |
| step_tween_chain | 8050 | 2780 | 2517 | 5599 | 8949 | 4543 | 8446 | 5399 | 6552 | 5518 | 3391 | 6592 | 5838 | 2942 | 2668 | 6539 |
| tween | 9870 | 3670 | 3329 | 7167 | 11633 | 5660 | 10820 | 6747 | 7786 | 7190 | 4655 | 7885 | 7420 | 3926 | 3501 | 7677 |
| tween_chain | 10126 | 3755 | 3508 | 7628 | 12000 | 5990 | 10709 | 6912 | 7975 | 7257 | 4823 | 8034 | 7619 | 4058 | 3709 | 7891 |

## Honesty - mean Score, every mode x dtype  (cols 33-34)

## Honesty - mean Score, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 9836 | 5947 |
| MeshTween | 9199 | 5358 |
| MeshTweenAlt | 7591 | 4326 |
| MeshTweenChain | 9233 | 5416 |
| MeshTweenSplit | 10704 | 6446 |
| MeshTweenSplitFa | 10398 | 5983 |
| MeshTweenSplitSp | 10019 | 5850 |
| StepTweenAlt | 7116 | 3973 |
| StepTweenSplit | 9270 | 5338 |
| TweenAlt | 7837 | 4447 |
| TweenSplit | 10316 | 6613 |
| TweenSplitFastPr | 9897 | 6259 |
| TweenSplitHeadPr | 10023 | 6314 |
| TweenSplitHeadPr | 9832 | 5767 |
| TweenSplitLinear | 9384 | 6195 |
| TweenSplitLinear | 10146 | 6182 |
| TweenSplitSparse | 10442 | 6221 |
| sgd | 11417 | 7276 |
| step_sgd | 10499 | 6410 |
| step_tween | 9480 | 5512 |
| step_tween_chain | 8998 | 5215 |
| tween | 10967 | 6766 |
| tween_chain | 11205 | 6844 |

## Honesty - mean hard Acc, every mode x dtype  (cols 1-16)

## Honesty - mean hard Acc, every mode x dtype  (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 26 | 23 | 24 | 28 | 25 | 26 | 27 | 25 | 24 | 24 | 26 | 26 | 26 | 25 | 25 | 23 |
| MeshTween | 28 | 26 | 26 | 26 | 26 | 27 | 24 | 25 | 24 | 26 | 24 | 24 | 25 | 27 | 26 | 25 |
| MeshTweenAlt | 25 | 26 | 27 | 26 | 26 | 27 | 27 | 25 | 24 | 25 | 25 | 27 | 24 | 26 | 25 | 25 |
| MeshTweenChain | 24 | 24 | 25 | 25 | 27 | 24 | 26 | 25 | 24 | 26 | 24 | 25 | 25 | 26 | 27 | 26 |
| MeshTweenSplit | 25 | 23 | 27 | 26 | 26 | 26 | 26 | 25 | 26 | 25 | 24 | 26 | 26 | 25 | 27 | 25 |
| MeshTweenSplitFa | 24 | 23 | 26 | 27 | 25 | 26 | 27 | 25 | 25 | 26 | 27 | 26 | 27 | 26 | 27 | 25 |
| MeshTweenSplitSp | 27 | 22 | 25 | 27 | 25 | 26 | 26 | 25 | 27 | 25 | 25 | 25 | 23 | 24 | 22 | 26 |
| StepTweenAlt | 26 | 24 | 27 | 27 | 27 | 27 | 27 | 25 | 24 | 24 | 26 | 28 | 24 | 25 | 25 | 25 |
| StepTweenSplit | 26 | 22 | 27 | 27 | 27 | 27 | 26 | 25 | 26 | 24 | 26 | 26 | 26 | 26 | 23 | 26 |
| TweenAlt | 26 | 23 | 28 | 28 | 27 | 27 | 27 | 25 | 25 | 24 | 25 | 28 | 25 | 24 | 25 | 24 |
| TweenSplit | 26 | 26 | 27 | 28 | 26 | 27 | 26 | 25 | 25 | 25 | 24 | 26 | 25 | 21 | 24 | 25 |
| TweenSplitFastPr | 26 | 27 | 22 | 26 | 25 | 25 | 24 | 25 | 27 | 25 | 23 | 26 | 26 | 25 | 24 | 25 |
| TweenSplitHeadPr | 26 | 23 | 27 | 25 | 26 | 26 | 27 | 25 | 25 | 25 | 27 | 24 | 25 | 26 | 28 | 25 |
| TweenSplitHeadPr | 26 | 24 | 27 | 24 | 26 | 25 | 25 | 25 | 25 | 26 | 25 | 26 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 26 | 27 | 25 | 24 | 26 | 27 | 25 | 25 | 25 | 23 | 26 | 26 | 22 | 24 | 28 |
| TweenSplitLinear | 25 | 25 | 25 | 26 | 26 | 26 | 28 | 25 | 26 | 27 | 25 | 26 | 23 | 25 | 25 | 27 |
| TweenSplitSparse | 25 | 26 | 24 | 23 | 27 | 26 | 27 | 25 | 22 | 25 | 23 | 27 | 24 | 27 | 22 | 27 |
| sgd | 25 | 25 | 25 | 25 | 26 | 25 | 26 | 25 | 27 | 24 | 26 | 27 | 23 | 25 | 28 | 28 |
| step_sgd | 26 | 23 | 24 | 27 | 25 | 27 | 25 | 25 | 23 | 24 | 25 | 27 | 23 | 25 | 25 | 25 |
| step_tween | 24 | 27 | 27 | 22 | 27 | 25 | 23 | 25 | 24 | 25 | 27 | 26 | 25 | 27 | 24 | 24 |
| step_tween_chain | 26 | 23 | 26 | 24 | 23 | 26 | 24 | 25 | 25 | 26 | 26 | 23 | 22 | 23 | 27 | 25 |
| tween | 27 | 25 | 28 | 24 | 26 | 25 | 25 | 25 | 25 | 24 | 26 | 24 | 26 | 27 | 29 | 24 |
| tween_chain | 26 | 26 | 26 | 28 | 25 | 27 | 26 | 25 | 24 | 25 | 26 | 28 | 25 | 23 | 23 | 23 |

## Honesty - mean hard Acc, every mode x dtype  (cols 17-32)

## Honesty - mean hard Acc, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 24 | 25 | 29 | 25 | 22 | 26 | 28 | 26 | 24 | 24 | 26 | 25 | 24 | 25 | 24 | 29 |
| MeshTween | 24 | 26 | 25 | 24 | 25 | 25 | 25 | 26 | 27 | 25 | 26 | 25 | 24 | 24 | 25 | 24 |
| MeshTweenAlt | 28 | 24 | 24 | 26 | 26 | 26 | 23 | 24 | 25 | 26 | 26 | 26 | 26 | 26 | 25 | 24 |
| MeshTweenChain | 24 | 23 | 28 | 26 | 26 | 24 | 23 | 25 | 25 | 26 | 23 | 26 | 26 | 28 | 23 | 26 |
| MeshTweenSplit | 25 | 26 | 23 | 26 | 25 | 24 | 26 | 25 | 26 | 23 | 27 | 24 | 20 | 24 | 24 | 24 |
| MeshTweenSplitFa | 28 | 27 | 25 | 25 | 26 | 25 | 25 | 26 | 27 | 24 | 27 | 25 | 24 | 23 | 24 | 25 |
| MeshTweenSplitSp | 26 | 27 | 23 | 24 | 24 | 27 | 28 | 25 | 26 | 29 | 21 | 24 | 26 | 24 | 23 | 24 |
| StepTweenAlt | 24 | 26 | 28 | 27 | 25 | 25 | 24 | 24 | 26 | 23 | 26 | 26 | 24 | 24 | 26 | 24 |
| StepTweenSplit | 26 | 23 | 24 | 26 | 25 | 28 | 26 | 26 | 25 | 24 | 25 | 25 | 25 | 22 | 22 | 26 |
| TweenAlt | 26 | 24 | 25 | 27 | 26 | 26 | 30 | 25 | 26 | 24 | 24 | 25 | 24 | 26 | 26 | 24 |
| TweenSplit | 25 | 25 | 26 | 27 | 25 | 25 | 23 | 25 | 24 | 22 | 29 | 24 | 26 | 23 | 25 | 24 |
| TweenSplitFastPr | 25 | 26 | 28 | 25 | 28 | 26 | 25 | 23 | 24 | 25 | 25 | 24 | 26 | 25 | 27 | 29 |
| TweenSplitHeadPr | 25 | 26 | 27 | 26 | 23 | 26 | 28 | 25 | 27 | 25 | 28 | 25 | 24 | 26 | 27 | 27 |
| TweenSplitHeadPr | 23 | 26 | 25 | 27 | 25 | 22 | 24 | 24 | 27 | 26 | 27 | 24 | 24 | 25 | 28 | 24 |
| TweenSplitLinear | 24 | 25 | 28 | 25 | 26 | 24 | 23 | 26 | 27 | 22 | 26 | 22 | 26 | 25 | 26 | 23 |
| TweenSplitLinear | 23 | 27 | 25 | 26 | 26 | 27 | 22 | 23 | 24 | 27 | 24 | 23 | 24 | 28 | 25 | 25 |
| TweenSplitSparse | 24 | 24 | 25 | 25 | 25 | 25 | 25 | 29 | 25 | 29 | 25 | 24 | 24 | 24 | 28 | 26 |
| sgd | 24 | 28 | 26 | 27 | 24 | 24 | 26 | 25 | 25 | 24 | 24 | 25 | 27 | 22 | 25 | 24 |
| step_sgd | 23 | 23 | 25 | 24 | 25 | 27 | 21 | 24 | 26 | 23 | 25 | 27 | 26 | 23 | 25 | 27 |
| step_tween | 26 | 25 | 24 | 25 | 25 | 26 | 23 | 24 | 25 | 30 | 26 | 25 | 24 | 24 | 24 | 24 |
| step_tween_chain | 21 | 23 | 28 | 27 | 25 | 25 | 28 | 24 | 22 | 25 | 27 | 24 | 24 | 26 | 27 | 24 |
| tween | 25 | 26 | 25 | 24 | 29 | 26 | 25 | 23 | 25 | 26 | 27 | 24 | 25 | 25 | 24 | 26 |
| tween_chain | 26 | 24 | 25 | 26 | 27 | 27 | 26 | 27 | 25 | 25 | 21 | 25 | 23 | 25 | 27 | 26 |

## Honesty - mean hard Acc, every mode x dtype  (cols 33-34)

## Honesty - mean hard Acc, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 25 | 25 |
| MeshTween | 27 | 26 |
| MeshTweenAlt | 25 | 24 |
| MeshTweenChain | 25 | 27 |
| MeshTweenSplit | 26 | 26 |
| MeshTweenSplitFa | 26 | 24 |
| MeshTweenSplitSp | 27 | 24 |
| StepTweenAlt | 25 | 26 |
| StepTweenSplit | 25 | 24 |
| TweenAlt | 26 | 25 |
| TweenSplit | 25 | 26 |
| TweenSplitFastPr | 24 | 27 |
| TweenSplitHeadPr | 26 | 24 |
| TweenSplitHeadPr | 25 | 24 |
| TweenSplitLinear | 23 | 26 |
| TweenSplitLinear | 24 | 25 |
| TweenSplitSparse | 27 | 23 |
| sgd | 23 | 26 |
| step_sgd | 25 | 25 |
| step_tween | 24 | 25 |
| step_tween_chain | 24 | 27 |
| tween | 24 | 26 |
| tween_chain | 26 | 24 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 1-16)

## Honesty - mean SoftAcc, every mode x dtype  (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenChain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitFastPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitSparse | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 24 | 25 | 25 | 25 | 25 | 24 |
| tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 17-32)

## Honesty - mean SoftAcc, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenChain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitFastPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitSparse | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 24 | 25 | 25 | 25 | 25 |
| tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 33-34)

## Honesty - mean SoftAcc, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 25 | 25 |
| MeshTween | 25 | 25 |
| MeshTweenAlt | 25 | 25 |
| MeshTweenChain | 25 | 25 |
| MeshTweenSplit | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 |
| StepTweenAlt | 25 | 25 |
| StepTweenSplit | 25 | 25 |
| TweenAlt | 25 | 25 |
| TweenSplit | 25 | 25 |
| TweenSplitFastPr | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 |
| TweenSplitLinear | 25 | 25 |
| TweenSplitLinear | 25 | 25 |
| TweenSplitSparse | 25 | 25 |
| sgd | 25 | 25 |
| step_sgd | 25 | 25 |
| step_tween | 25 | 25 |
| step_tween_chain | 25 | 25 |
| tween | 25 | 25 |
| tween_chain | 25 | 25 |

## Mean Score, every mode x arch

## Mean Score, every mode x arch

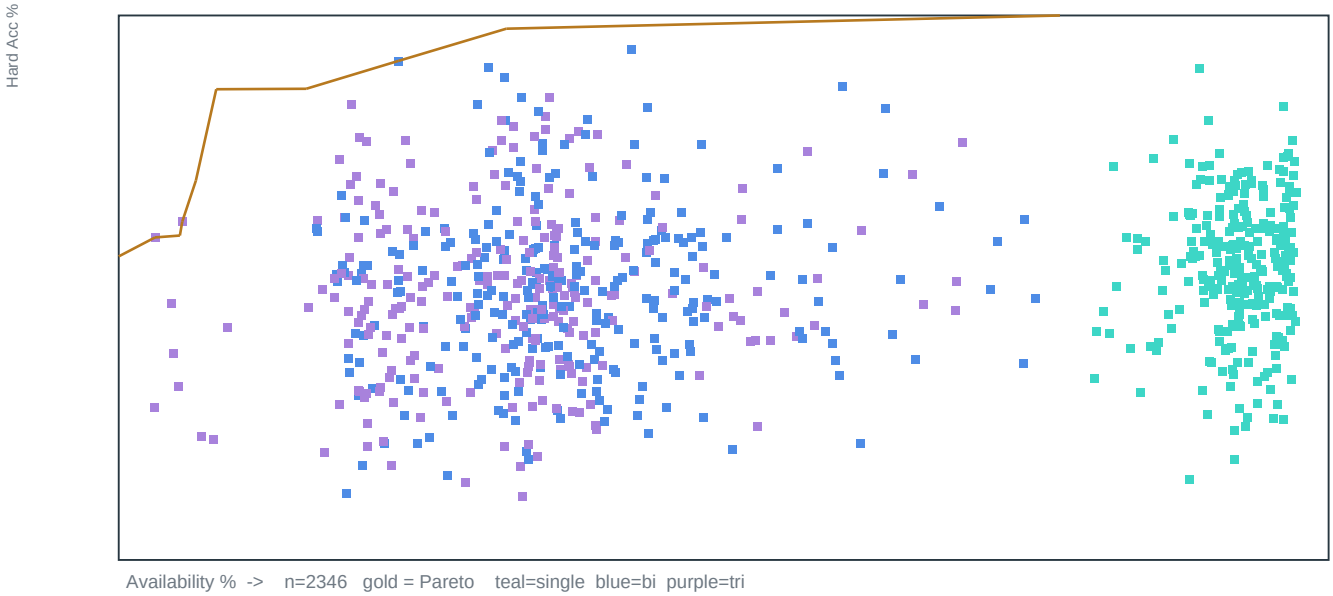
| | bicamera | singlex1 | tricamer |
|---|---|---|---|
| MeshBP | 541 | 19529 | 344 |
| MeshTween | 490 | 17835 | 321 |
| MeshTweenAlt | 275 | 14507 | 177 |
| MeshTweenChain | 516 | 18752 | 337 |
| MeshTweenSplit | 1031 | 20263 | 731 |
| MeshTweenSplitFa | 1036 | 19724 | 713 |
| MeshTweenSplitSp | 1318 | 19305 | 1013 |
| StepTweenAlt | 221 | 13866 | 140 |
| StepTweenSplit | 709 | 18086 | 480 |
| TweenAlt | 272 | 15043 | 174 |
| TweenSplit | 1029 | 20202 | 721 |
| TweenSplitFastPr | 1049 | 19283 | 732 |
| TweenSplitHeadPr | 1037 | 19716 | 735 |
| TweenSplitHeadPr | 1036 | 18913 | 742 |
| TweenSplitLinear | 623 | 19058 | 422 |
| TweenSplitLinear | 1020 | 20124 | 705 |
| TweenSplitSparse | 1414 | 19757 | 1057 |
| sgd | 680 | 23015 | 436 |
| step_sgd | 533 | 20949 | 335 |
| step_tween | 453 | 18787 | 269 |
| step_tween_chain | 394 | 17466 | 159 |
| tween | 645 | 21594 | 425 |
| tween_chain | 639 | 22353 | 410 |

## Mean hard Acc, every mode x arch

## Mean hard Acc, every mode x arch

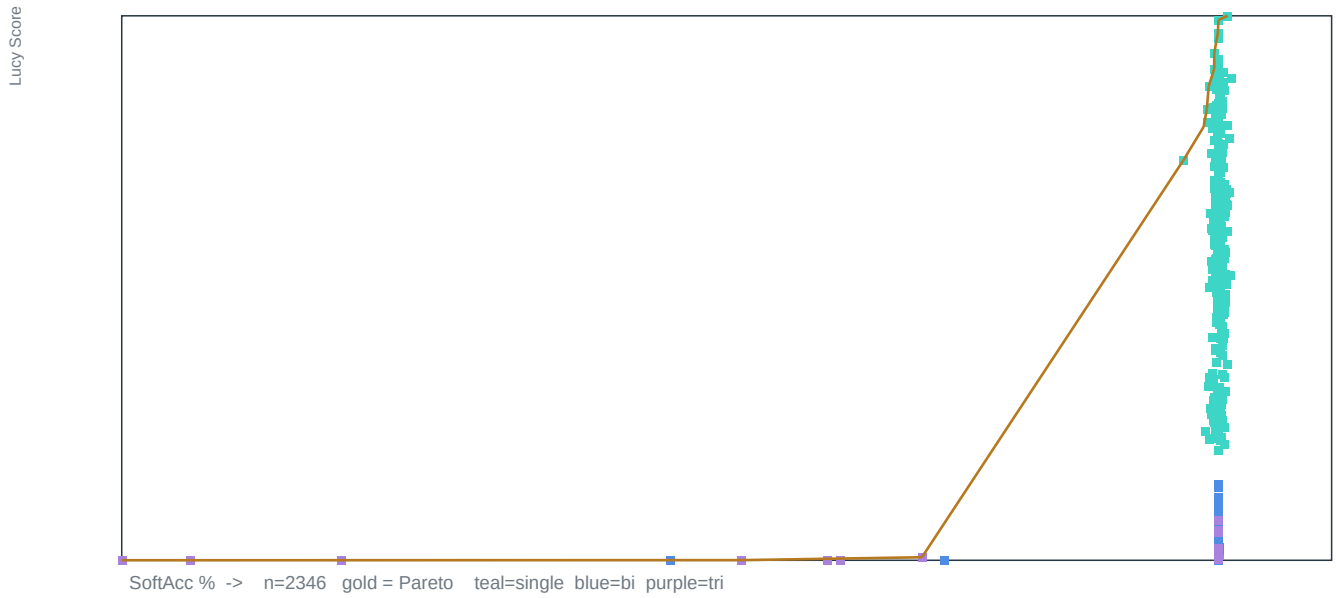
| | bicamera | singlex1 | tricamer |
|---|---|---|---|
| MeshBP | 25 | 25 | 25 |
| MeshTween | 25 | 26 | 25 |
| MeshTweenAlt | 25 | 26 | 25 |
| MeshTweenChain | 24 | 26 | 25 |
| MeshTweenSplit | 25 | 26 | 25 |
| MeshTweenSplitFa | 26 | 26 | 25 |
| MeshTweenSplitSp | 25 | 25 | 25 |
| StepTweenAlt | 25 | 27 | 24 |
| StepTweenSplit | 25 | 26 | 25 |
| TweenAlt | 25 | 27 | 25 |
| TweenSplit | 25 | 26 | 25 |
| TweenSplitFastPr | 26 | 25 | 25 |
| TweenSplitHeadPr | 26 | 27 | 25 |
| TweenSplitHeadPr | 25 | 26 | 25 |
| TweenSplitLinear | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 |
| TweenSplitSparse | 25 | 26 | 25 |
| sgd | 25 | 26 | 25 |
| step_sgd | 24 | 26 | 24 |
| step_tween | 24 | 26 | 25 |
| step_tween_chain | 25 | 26 | 24 |
| tween | 25 | 26 | 25 |
| tween_chain | 26 | 26 | 24 |

## Avail vs hard Acc (headline scatter)

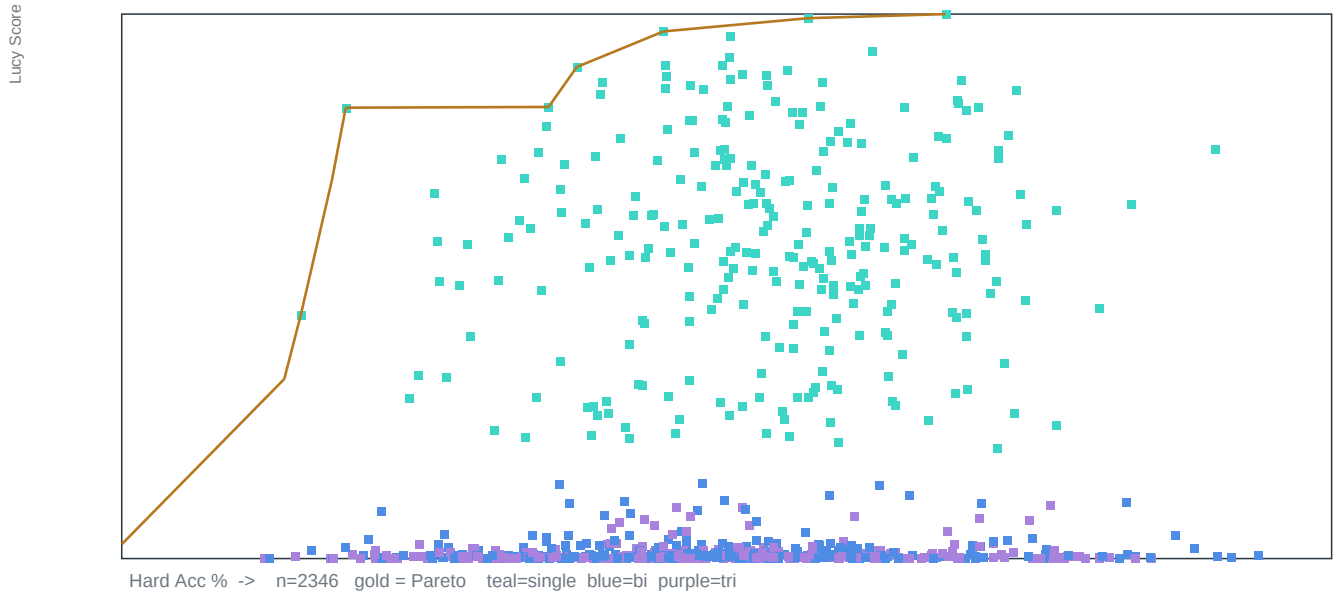



## Pareto - SoftAcc vs Score

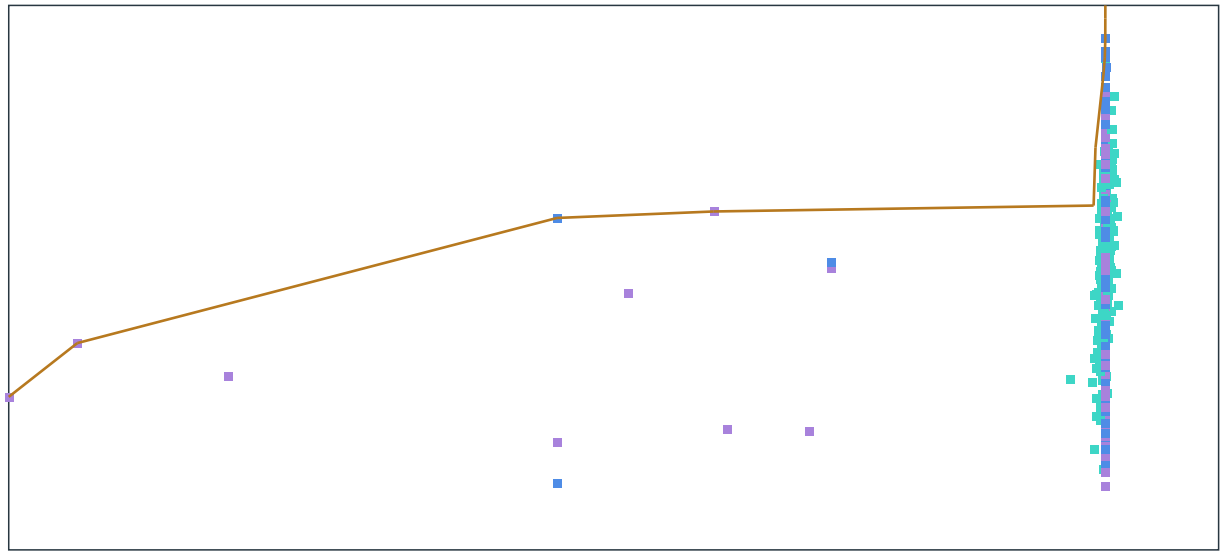
## Pareto - SoftAcc vs Score




## Pareto - hard Acc vs Score

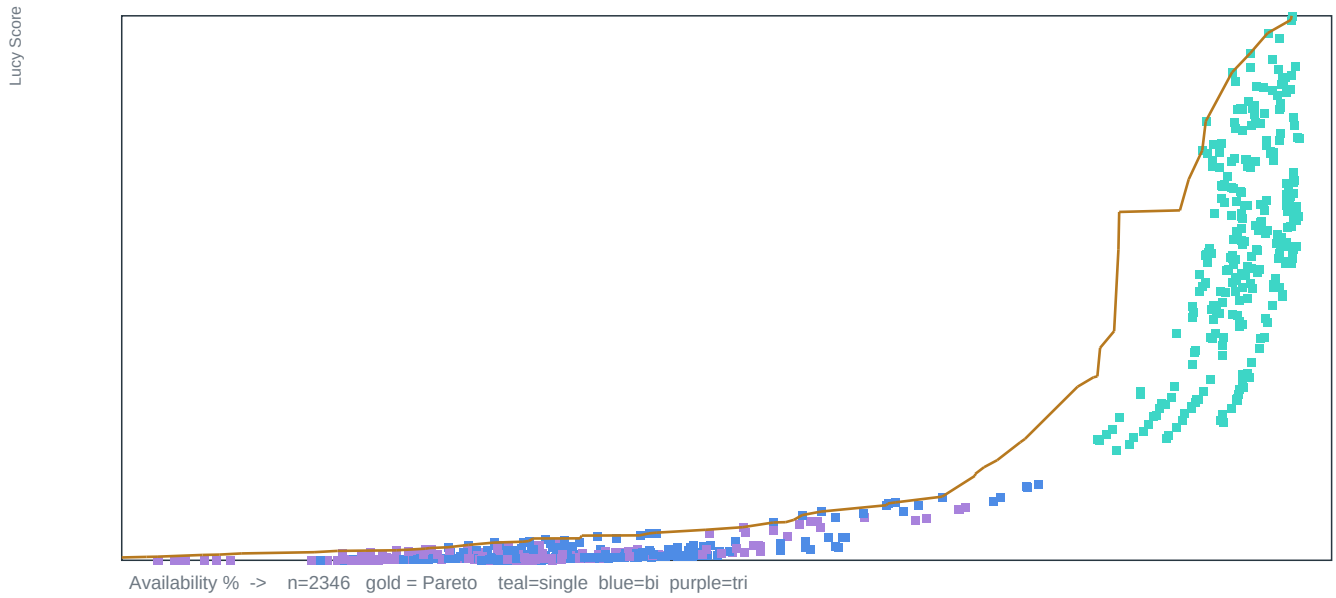



## SoftAcc vs hard Acc




SoftAcc %  ->  n=2346  gold = Pareto  teal=single  blue=bi  purple=tri
Hard Acc %

## Avail vs Score (duty clock)




## Lucy Pareto (LPD) - goldilocks

Q = geomean of Score/Soft/Acc/Thru vs the Lucy Score champion. LPD = 0 if Q<70%, else Q x shrink vs champ RAM (capped 32x). Gold = Q>=80% and RAM<=20% of champ. MSpeed = Thru vs the board's fastest (0 if Q<70%). MAvail = Availability vs the board's best duty cycle (0 if Q<70%). Mix = geomean(Q, MSpeed, MAvail). Raw Score/MiB is the binary trap.

Quality champ float32|none|tween_chain|single|simd Score 34996.1 Soft 25 Acc 28 Thru 306481 RAM 1.1 KiB

Board fastest float32|none|tween_chain|single|simd Thru 306481 Best availability int16|none|TweenSplitLinearCache|single|simd 46.8%

## Gold - Q >= 80% of champ, RAM <= 20%

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| gold | binary\|none\|tween\|single\|simd | 91 | 3 | 32.0 | 29.23 | 25 | 28 | 28842.0 | 0.0 |
| gold | binary\|none\|sgd\|single\|simd | 91 | 3 | 32.0 | 29.01 | 25 | 24 | 30983.0 | 0.0 |
| gold | binary\|none\|tween_chain\|single\|simd | 89 | 3 | 32.0 | 28.39 | 25 | 25 | 29115.3 | 0.0 |
| gold | binary\|none\|TweenSplit\|single\|simd | 88 | 3 | 32.0 | 28.12 | 25 | 27 | 27480.2 | 0.0 |
| gold | binary\|none\|step_tween\|single\|simd | 87 | 3 | 32.0 | 27.80 | 25 | 29 | 25749.0 | 0.0 |
| gold | binary\|none\|MeshTweenSplitFastProxy\|single\|simd | 87 | 3 | 32.0 | 27.76 | 25 | 26 | 27305.5 | 0.0 |
| gold | binary\|none\|MeshTweenSplit\|single\|simd | 86 | 3 | 32.0 | 27.54 | 25 | 27 | 26465.0 | 0.0 |
| gold | binary\|none\|TweenSplitHeadProxy\|single\|simd | 86 | 3 | 32.0 | 27.36 | 25 | 26 | 26857.9 | 0.0 |
| gold | binary\|none\|TweenSplitLinearCache\|single\|simd | 85 | 3 | 32.0 | 27.29 | 25 | 27 | 25918.5 | 0.0 |
| gold | binary\|none\|step_sgd\|single\|simd | 85 | 3 | 32.0 | 27.17 | 25 | 22 | 27776.8 | 0.0 |
| gold | binary\|none\|TweenSplitSparse\|single\|simd | 84 | 3 | 32.0 | 26.97 | 25 | 25 | 26132.4 | 0.0 |
| gold | binary\|none\|TweenSplitFastProxy\|single\|simd | 83 | 3 | 32.0 | 26.61 | 25 | 27 | 24659.6 | 0.0 |
| gold | binary\|none\|MeshTweenChain\|single\|simd | 83 | 3 | 32.0 | 26.43 | 25 | 25 | 25405.3 | 0.0 |
| gold | binary\|none\|MeshTweenSplitSparse\|single\|simd | 82 | 3 | 32.0 | 26.35 | 25 | 25 | 25354.3 | 0.0 |
| gold | binary\|none\|step_tween_chain\|single\|simd | 82 | 3 | 32.0 | 26.18 | 25 | 25 | 24200.0 | 0.0 |
| gold | binary\|none\|TweenSplitHeadProxyAsync\|single\|simd | 81 | 3 | 32.0 | 25.97 | 25 | 25 | 24594.0 | 0.0 |

## Near-gold - Q >= 70%, RAM <= 50%

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| near | binary\|none\|TweenAlt\|single\|simd | 76 | 3 | 32.0 | 24.43 | 25 | 24 | 21181.2 | 0.0 |
| near | binary\|none\|MeshTweenAlt\|single\|simd | 75 | 3 | 32.0 | 23.90 | 25 | 25 | 19770.6 | 0.0 |
| near | binary\|none\|StepTweenAlt\|single\|simd | 74 | 3 | 32.0 | 23.83 | 25 | 24 | 19726.9 | 0.0 |
| near | int2\|none\|TweenAlt\|single\|simd | 79 | 6 | 16.0 | 12.66 | 25 | 26 | 21791.6 | 0.1 |
| near | ternary\|none\|TweenSplitLinear\|single\|simd | 79 | 6 | 16.0 | 12.66 | 25 | 22 | 24687.7 | 0.1 |
| near | ternary\|none\|MeshTween\|single\|simd | 79 | 6 | 16.0 | 12.58 | 25 | 23 | 23734.2 | 0.1 |

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| near | ternary\|none\|TweenAlt\|single\|simd | 78 | 6 | 16.0 | 12.46 | 25 | 32 | 20251.5 | 0.1 |
| near | int2\|none\|StepTweenAlt\|single\|simd | 77 | 6 | 16.0 | 12.37 | 25 | 28 | 19963.4 | 0.1 |
| near | int2\|none\|MeshTweenAlt\|single\|simd | 77 | 6 | 16.0 | 12.30 | 25 | 26 | 20582.8 | 0.1 |
| near | int2\|none\|step_tween_chain\|single\|simd | 77 | 6 | 16.0 | 12.24 | 25 | 23 | 22297.6 | 0.1 |
| near | ternary\|none\|MeshTweenAlt\|single\|simd | 75 | 6 | 16.0 | 11.97 | 25 | 24 | 20344.9 | 0.1 |
| near | uint2\|none\|sgd\|single\|simd | 79 | 7 | 15.2 | 11.94 | 25 | 25 | 22850.5 | 0.1 |

## LPD rank (Q x shrink; 0 if Q < 70%)

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| gold | binary\|none\|tween\|single\|simd | 91 | 3 | 32.0 | 29.23 | 25 | 28 | 28842.0 | 0.0 |
| gold | binary\|none\|sgd\|single\|simd | 91 | 3 | 32.0 | 29.01 | 25 | 24 | 30983.0 | 0.0 |
| gold | binary\|none\|tween_chain\|single\|simd | 89 | 3 | 32.0 | 28.39 | 25 | 25 | 29115.3 | 0.0 |
| gold | binary\|none\|TweenSplit\|single\|simd | 88 | 3 | 32.0 | 28.12 | 25 | 27 | 27480.2 | 0.0 |
| gold | binary\|none\|step_tween\|single\|simd | 87 | 3 | 32.0 | 27.80 | 25 | 29 | 25749.0 | 0.0 |
| gold | binary\|none\|MeshTweenSplitFastProxy\|single\|simd | 87 | 3 | 32.0 | 27.76 | 25 | 26 | 27305.5 | 0.0 |
| gold | binary\|none\|MeshTweenSplit\|single\|simd | 86 | 3 | 32.0 | 27.54 | 25 | 27 | 26465.0 | 0.0 |
| gold | binary\|none\|TweenSplitHeadProxy\|single\|simd | 86 | 3 | 32.0 | 27.36 | 25 | 26 | 26857.9 | 0.0 |
| gold | binary\|none\|TweenSplitLinearCache\|single\|simd | 85 | 3 | 32.0 | 27.29 | 25 | 27 | 25918.5 | 0.0 |
| gold | binary\|none\|step_sgd\|single\|simd | 85 | 3 | 32.0 | 27.17 | 25 | 22 | 27776.8 | 0.0 |
| gold | binary\|none\|TweenSplitSparse\|single\|simd | 84 | 3 | 32.0 | 26.97 | 25 | 25 | 26132.4 | 0.0 |
| gold | binary\|none\|TweenSplitFastProxy\|single\|simd | 83 | 3 | 32.0 | 26.61 | 25 | 27 | 24659.6 | 0.0 |
| gold | binary\|none\|MeshTweenChain\|single\|simd | 83 | 3 | 32.0 | 26.43 | 25 | 25 | 25405.3 | 0.0 |
| gold | binary\|none\|MeshTweenSplitSparse\|single\|simd | 82 | 3 | 32.0 | 26.35 | 25 | 25 | 25354.3 | 0.0 |
| gold | binary\|none\|step_tween_chain\|single\|simd | 82 | 3 | 32.0 | 26.18 | 25 | 25 | 24200.0 | 0.0 |
| gold | binary\|none\|TweenSplitHeadProxyAsync\|single\|simd | 81 | 3 | 32.0 | 25.97 | 25 | 25 | 24594.0 | 0.0 |
| gold | binary\|none\|StepTweenSplit\|single\|simd | 81 | 3 | 32.0 | 25.93 | 25 | 24 | 24919.3 | 0.0 |
| gold | binary\|none\|MeshBP\|single\|simd | 81 | 3 | 32.0 | 25.79 | 25 | 22 | 25701.3 | 0.0 |
| gold | binary\|none\|MeshTween\|single\|simd | 81 | 3 | 32.0 | 25.78 | 25 | 25 | 23654.5 | 0.0 |
| gold | binary\|none\|TweenSplitLinear\|single\|simd | 80 | 3 | 32.0 | 25.66 | 25 | 22 | 25069.2 | 0.0 |

## Mobile speed - Thru vs board fastest (Q >= 70%)

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| keep | float32\|none\|tween_chain\|single\|simd | 100 | 100 | 98 | 99 | 1.00 | 306481 | 45.6 |
| keep | float32\|none\|sgd\|single\|simd | 98 | 99 | 98 | 98 | 0.98 | 304592 | 45.6 |
| keep | float32\|none\|tween\|single\|simd | 95 | 98 | 96 | 96 | 0.95 | 301533 | 45.0 |
| gold | fp4\|none\|sgd\|single\|simd | 95 | 97 | 97 | 96 | 7.62 | 296569 | 45.3 |
| keep | float32\|none\|step_sgd\|single\|simd | 96 | 96 | 95 | 96 | 0.96 | 293389 | 44.5 |
| gold | fp4\|none\|tween_chain\|single\|simd | 93 | 93 | 96 | 94 | 7.48 | 286065 | 45.1 |
| keep | float32\|none\|step_tween\|single\|simd | 94 | 93 | 94 | 94 | 0.94 | 285433 | 43.9 |
| gold | fp4\|none\|tween\|single\|simd | 93 | 93 | 95 | 94 | 7.43 | 285093 | 44.5 |
| gold | fp4\|none\|step_sgd\|single\|simd | 92 | 91 | 94 | 92 | 7.36 | 280026 | 44.0 |
| gold | ternary\|none\|sgd\|single\|simd | 90 | 91 | 97 | 93 | 14.46 | 279378 | 45.3 |

## Mobile availability - duty cycle vs board best (Q >= 70%)

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| - | int\|none\|TweenSplitLinearCache\|single\|simd | 70 | 50 | 100 | 71 | 0.35 | 154627 | 46.7 |
| - | uint\|none\|TweenSplit\|single\|simd | 71 | 53 | 100 | 72 | 0.36 | 163212 | 46.7 |
| - | int64\|none\|MeshTweenSplit\|single\|simd | 77 | 59 | 100 | 77 | 0.38 | 179420 | 46.7 |
| - | int32\|none\|MeshTweenSplit\|single\|simd | 71 | 53 | 100 | 72 | 0.71 | 161953 | 46.7 |
| - | int32\|none\|TweenSplitLinearCache\|single\|simd | 71 | 54 | 100 | 72 | 0.71 | 164001 | 46.7 |
| - | complex64\|none\|TweenSplit\|single\|simd | 70 | 49 | 100 | 70 | 0.35 | 149845 | 46.7 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| - | complex128\|none\|MeshTweenSplit\|single\|simd | 71 | 50 | 100 | 71 | 0.18 | 152253 | 46.6 |
| - | complex64\|none\|MeshTweenSplit\|single\|simd | 71 | 51 | 100 | 71 | 0.36 | 155472 | 46.6 |
| near | int16\|none\|MeshTweenSplit\|single\|simd | 77 | 59 | 100 | 77 | 1.54 | 181508 | 46.6 |
| near | uint2\|none\|TweenSplitLinearCache\|single\|simd | 75 | 59 | 100 | 76 | 11.35 | 181067 | 46.6 |

## Mix - geomean of Q, MSpeed, MAvail

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| keep | float32\|none\|tween_chain\|single\|simd | 100 | 100 | 98 | 99 | 1.00 | 306481 | 45.6 |
| keep | float32\|none\|sgd\|single\|simd | 98 | 99 | 98 | 98 | 0.98 | 304592 | 45.6 |
| keep | float32\|none\|tween\|single\|simd | 95 | 98 | 96 | 96 | 0.95 | 301533 | 45.0 |
| gold | fp4\|none\|sgd\|single\|simd | 95 | 97 | 97 | 96 | 7.62 | 296569 | 45.3 |
| keep | float32\|none\|step_sgd\|single\|simd | 96 | 96 | 95 | 96 | 0.96 | 293389 | 44.5 |
| gold | fp4\|none\|tween_chain\|single\|simd | 93 | 93 | 96 | 94 | 7.48 | 286065 | 45.1 |
| keep | float32\|none\|TweenSplitSparse\|single\|simd | 95 | 90 | 98 | 94 | 0.95 | 274510 | 46.0 |
| gold | fp4\|none\|tween\|single\|simd | 93 | 93 | 95 | 94 | 7.43 | 285093 | 44.5 |
| keep | float32\|none\|step_tween\|single\|simd | 94 | 93 | 94 | 94 | 0.94 | 285433 | 43.9 |
| near | uint8\|none\|sgd\|single\|simd | 92 | 91 | 98 | 93 | 3.61 | 277725 | 45.7 |

## Trap - tiny RAM, Q < 70% (why Score/MiB lies)

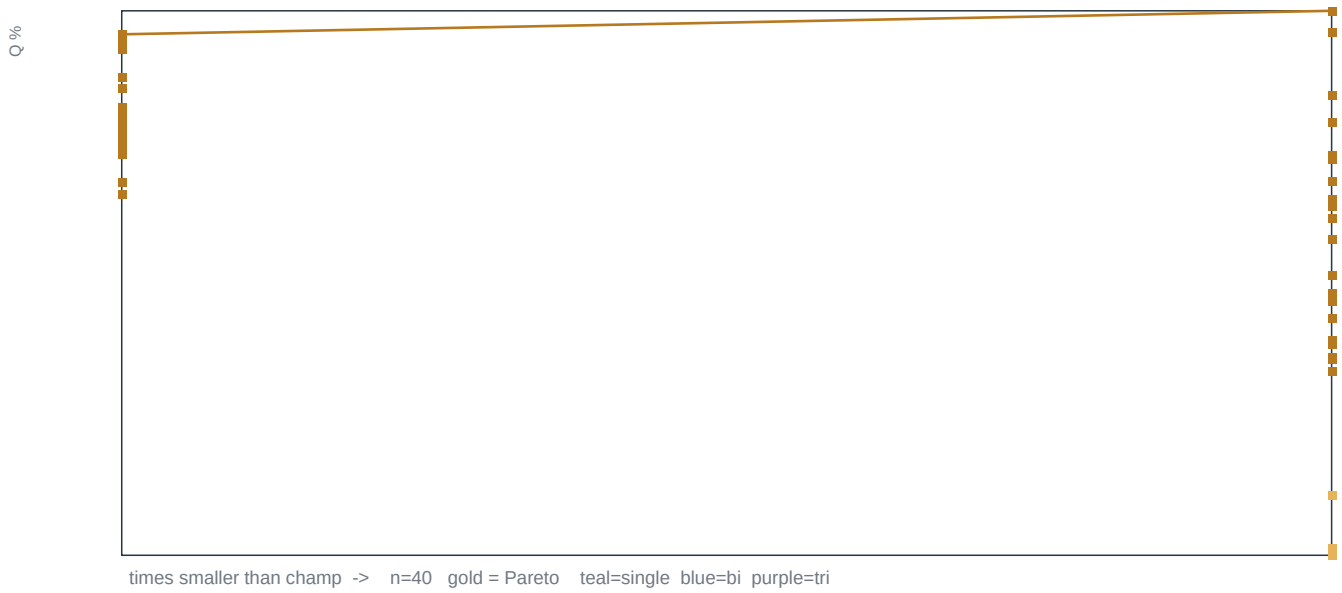
| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| trap | uint2\|none\|step_tween_chain\|single\|simd | 67 | 7 | 15.2 | 0.00 | 25 | 25 | 16381.7 | 0.1 |
| trap | uint2\|none\|MeshTween\|single\|simd | 70 | 7 | 15.2 | 0.00 | 25 | 26 | 17305.3 | 0.1 |
| trap | uint2\|none\|TweenSplit\|single\|simd | 70 | 7 | 15.2 | 0.00 | 25 | 21 | 20120.1 | 0.1 |
| trap | uint2\|none\|TweenAlt\|single\|simd | 61 | 7 | 15.2 | 0.00 | 25 | 23 | 13990.0 | 0.1 |
| trap | uint2\|none\|StepTweenAlt\|single\|simd | 61 | 7 | 15.2 | 0.00 | 25 | 23 | 13630.3 | 0.1 |
| trap | uint2\|none\|TweenSplitLinear\|single\|simd | 66 | 7 | 15.2 | 0.00 | 25 | 20 | 18129.2 | 0.1 |
| trap | uint2\|none\|MeshTweenAlt\|single\|simd | 67 | 7 | 15.2 | 0.00 | 25 | 28 | 14931.4 | 0.1 |
| trap | uint2\|none\|MeshTweenSplitFastProxy\|single\|simd | 69 | 7 | 15.2 | 0.00 | 25 | 21 | 19525.3 | 0.1 |
| trap | int3\|none\|sgd\|single\|simd | 64 | 9 | 10.7 | 0.00 | 25 | 27 | 14362.1 | 0.1 |
| trap | int3\|none\|step_sgd\|single\|simd | 61 | 9 | 10.7 | 0.00 | 25 | 29 | 12586.8 | 0.1 |

## LPD - Q% vs RAM KiB (gold = high Q, low RAM)

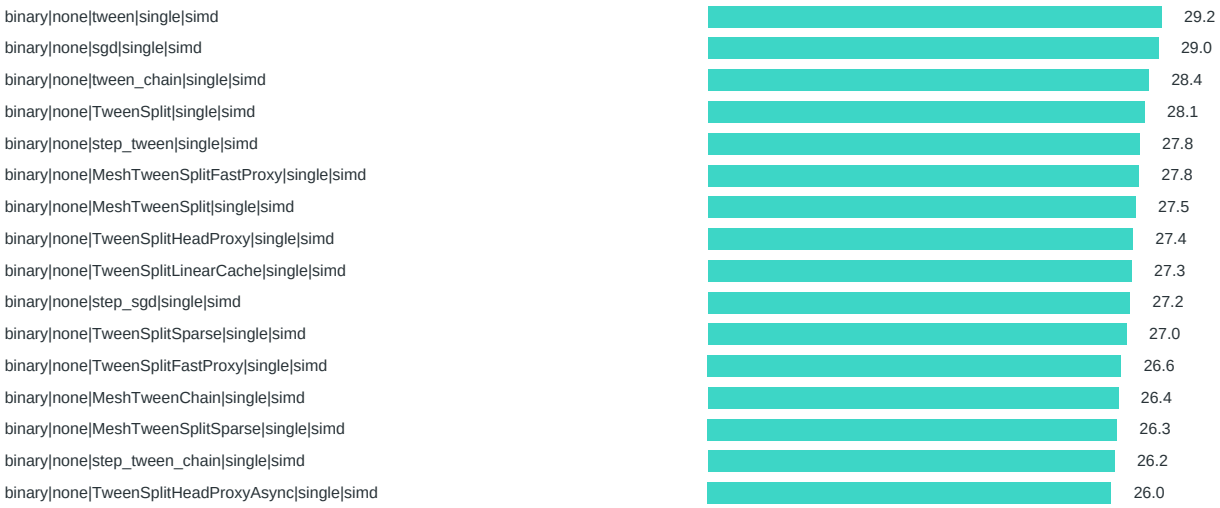



## LPD - Q% vs shrink vs champ (gold = upper right)

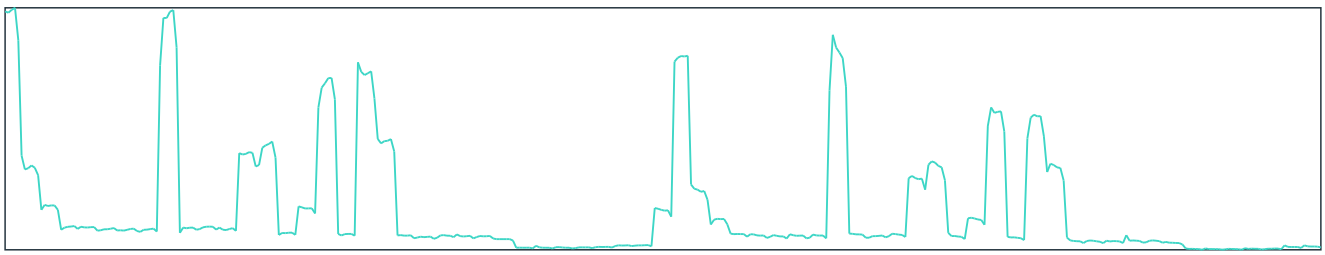
## LPD - Q% vs shrink vs champ (gold = upper right)




## Top LPD

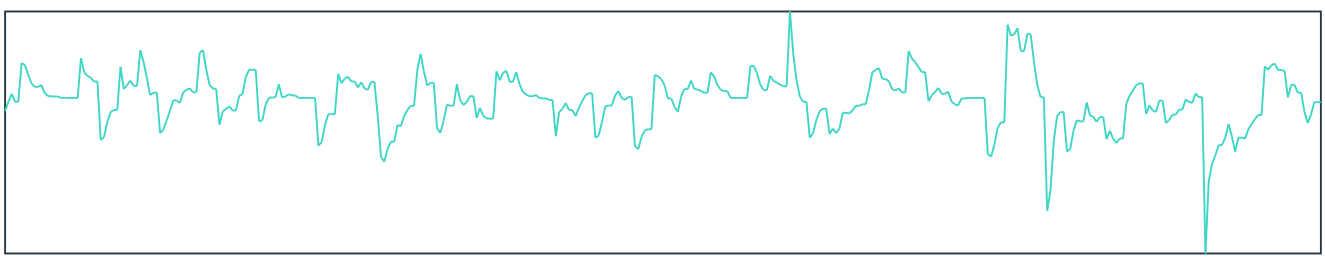



## Pulse Score - convt2



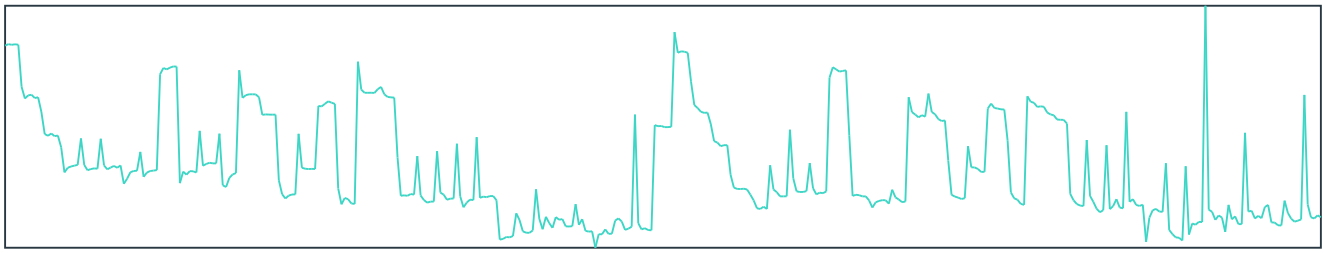
n=400 min=122.33 max=6888.85

## Pulse SoftAcc - convt2



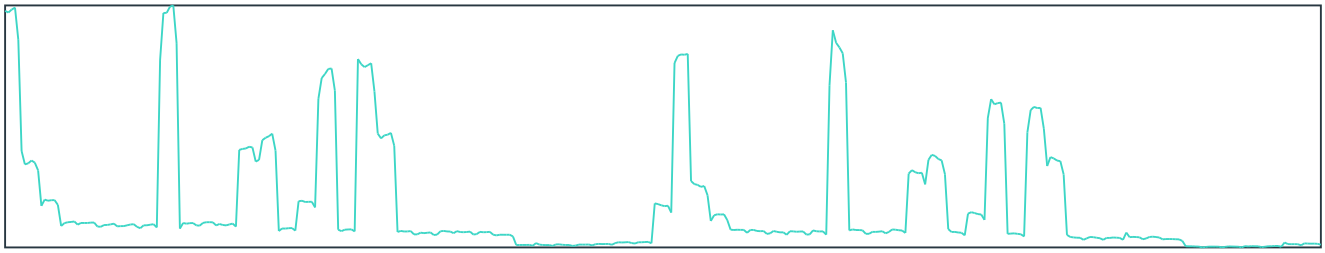
n=400 min=25.00 max=25.00

## Pulse Availability - convt2



n=400 min=37.81 max=46.84

## Pulse Throughput - convt2



n=400 min=1262.33 max=61233.72

## Queue by train mode (this epoch)

| Mode | Done | Run | Left | Total |
|---|---|---|---|---|
| sgd | 102 | 0 | 0 | 102 |
| step_sgd | 102 | 0 | 0 | 102 |
| tween | 102 | 0 | 0 | 102 |
| tween_chain | 102 | 0 | 0 | 102 |
| step_tween | 102 | 0 | 0 | 102 |
| step_tween_chain | 102 | 0 | 0 | 102 |
| MeshBP | 102 | 0 | 0 | 102 |
| MeshTween | 102 | 0 | 0 | 102 |
| MeshTweenChain | 102 | 0 | 0 | 102 |
| TweenSplit | 102 | 0 | 0 | 102 |
| StepTweenSplit | 102 | 0 | 0 | 102 |
| TweenAlt | 102 | 0 | 0 | 102 |
| StepTweenAlt | 102 | 0 | 0 | 102 |
| TweenSplitHeadProxy | 102 | 0 | 0 | 102 |
| TweenSplitLinear | 102 | 0 | 0 | 102 |
| TweenSplitFastProxy | 102 | 0 | 0 | 102 |
| TweenSplitLinearCache | 102 | 0 | 0 | 102 |
| TweenSplitHeadProxyAsync | 102 | 0 | 0 | 102 |
| TweenSplitSparse | 102 | 0 | 0 | 102 |
| MeshTweenSplit | 102 | 0 | 0 | 102 |
| MeshTweenAlt | 102 | 0 | 0 | 102 |
| MeshTweenSplitFastProxy | 102 | 0 | 0 | 102 |
| MeshTweenSplitSparse | 102 | 0 | 0 | 102 |

# tide  convt3

Score = Throughput x Availability% x SoftAcc% / 10,000

done - epoch 1 - 2026-08-18 09:45:25 - 0.0.0.0:8107

This epoch 2346 / 2346 cells. Recorded 2346 results.

Score 0 usually means the cell finished before a Lucy pulse (SoftAcc never sampled) or true-class mass was 0. Those rows do not vote holistically.

convt3 - 3D upsample from XOR latent - modes all - min 2000ms/cell - 1024 train - pulse 50ms - SIMD true

## Lucy champions (this tide)

| Axis | Cell | Score | Soft | Acc | Thru | Avail |
|---|---|---|---|---|---|---|
| score | float32\|none\|MeshTweenSplitSparse\|single\|simd | 24465.24 | 25.0 | 27.1 | 213662.5 | 45.8 |
| throughput | fp4\|none\|sgd\|single\|simd | 24428.65 | 25.0 | 24.9 | 220839.8 | 44.2 |
| availability | uintptr\|none\|MeshTweenSplit\|single\|simd | 16216.53 | 25.0 | 26.4 | 139047.9 | 46.7 |
| accuracy | float32\|none\|TweenAlt\|single\|simd | 17196.22 | 25.2 | 31.1 | 163017.5 | 41.8 |
| mobile score (tra | binary\|none\|sgd\|single\|simd | 23212.84 | 25.1 | 30.3 | 203959.4 | 45.4 |
| t->50% | uint6\|none\|StepTweenAlt\|tricameral\|simd | 24.05 | 25.0 | 27.5 | 643.2 | 15.0 |
| acc/sec | binary\|none\|sgd\|single\|simd | 23212.84 | 25.1 | 30.3 | 203959.4 | 45.4 |

## Lucy axes - convt3

| Axis | Mode | DType | Arch | Value |
|---|---|---|---|---|
| score | MeshTweenSplitS~ | float32 | singlex1 | 24465.24 |
| soft_acc | TweenAlt | float32 | singlex1 | 25.21 |
| hard_acc | step_tween_chain | uint3 | bicameralx2 | 32.46 |
| throughput | sgd | fp4 | singlex1 | 220839.79 |
| availability | MeshTweenSplit | uintptr | singlex1 | 46.65 |
| acc_thru | sgd | fp4 | singlex1 | 55209.95 |
| realtime | MeshTweenSplitS~ | float32 | singlex1 | 97864.53 |
| adapt | MeshTweenAlt | complex128 | singlex1 | 25.34 |
| keep_learn | MeshTweenSplitF~ | binary | singlex1 | 12.57 |
| acc_per_sec | sgd | binary | singlex1 | 12.53 |
| time_to_50 | StepTweenAlt | uint6 | tricameralx3 | 0.07 |
| consistency | sgd | float64 | singlex1 | 100.00 |
| stability | sgd | fp4 | singlex1 | 100.00 |
| mobile_score | sgd | binary | singlex1 | 901497405.59 |
| lpd | sgd | binary | singlex1 | 31.22 |
| mspeed | sgd | fp4 | singlex1 | 1.00 |
| mavail | MeshTweenSplit | uintptr | singlex1 | 1.00 |
| mix | MeshTweenSplitS~ | float32 | singlex1 | 0.98 |

## Best settings per train mode

| Mode | DType | Format | Score | Soft | Acc | Avail | n |
|---|---|---|---|---|---|---|---|
| MeshTweenSplitSparse | float32 | none | 24465.2 | 25.0 | 27.1 | 45.8 | 102 |
| sgd | fp4 | none | 24428.7 | 25.0 | 24.9 | 44.2 | 102 |
| TweenSplitHeadProxyAsync | fp4 | none | 23381.5 | 25.0 | 25.0 | 45.8 | 102 |
| tween | float32 | none | 23287.0 | 25.0 | 25.4 | 44.3 | 102 |
| tween_chain | float32 | none | 23221.0 | 25.0 | 26.8 | 44.7 | 102 |
| step_sgd | fp4 | none | 23106.4 | 25.0 | 25.1 | 43.4 | 102 |
| TweenSplitSparse | float32 | none | 22934.9 | 25.0 | 27.4 | 45.7 | 102 |
| MeshTweenSplitFastProxy | float32 | none | 22779.9 | 25.0 | 24.3 | 45.7 | 102 |
| TweenSplit | fp4 | none | 22634.4 | 25.0 | 25.1 | 45.5 | 102 |
| TweenSplitFastProxy | fp4 | none | 22544.6 | 25.0 | 25.0 | 45.5 | 102 |
| TweenSplitLinear | float32 | none | 22423.6 | 25.0 | 23.3 | 45.2 | 102 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| TweenSplitHeadProxy | float32 | none | 22416.7 | 25.0 | 24.3 | 45.5 | 102 |
| MeshTweenSplit | fp4 | none | 22113.7 | 25.0 | 25.0 | 45.8 | 102 |
| TweenSplitLinearCache | fp4 | none | 22030.4 | 25.0 | 25.0 | 46.2 | 102 |
| MeshTweenChain | float32 | none | 21311.1 | 25.0 | 25.4 | 44.5 | 102 |
| MeshBP | fp4 | none | 20987.2 | 25.0 | 25.1 | 44.0 | 102 |
| MeshTween | float32 | none | 20449.3 | 25.0 | 26.7 | 43.7 | 102 |
| step_tween_chain | float32 | none | 20043.1 | 25.0 | 25.7 | 43.5 | 102 |
| StepTweenSplit | fp4 | none | 19950.5 | 25.0 | 25.0 | 44.1 | 102 |
| step_tween | fp4 | none | 19712.1 | 25.0 | 25.0 | 42.3 | 102 |
| TweenAlt | float32 | none | 17196.2 | 25.2 | 31.1 | 41.8 | 102 |
| MeshTweenAlt | float32 | none | 16214.5 | 25.0 | 26.8 | 41.8 | 102 |
| StepTweenAlt | int4 | none | 15297.6 | 25.0 | 21.9 | 40.8 | 102 |

## Best dtype per mode

| Mode | Winner dtype | Score | Soft | Acc |
|---|---|---|---|---|
| MeshTweenSplitSparse | float32 | 24465.2 | 25.0 | 27.1 |
| sgd | fp4 | 24428.7 | 25.0 | 24.9 |
| TweenSplitHeadProxyAsync | fp4 | 23381.5 | 25.0 | 25.0 |
| tween | float32 | 23287.0 | 25.0 | 25.4 |
| tween_chain | float32 | 23221.0 | 25.0 | 26.8 |
| step_sgd | fp4 | 23106.4 | 25.0 | 25.1 |
| TweenSplitSparse | float32 | 22934.9 | 25.0 | 27.4 |
| MeshTweenSplitFastProxy | float32 | 22779.9 | 25.0 | 24.3 |
| TweenSplit | fp4 | 22634.4 | 25.0 | 25.1 |
| TweenSplitFastProxy | fp4 | 22544.6 | 25.0 | 25.0 |
| TweenSplitLinear | float32 | 22423.6 | 25.0 | 23.3 |
| TweenSplitHeadProxy | float32 | 22416.7 | 25.0 | 24.3 |
| MeshTweenSplit | fp4 | 22113.7 | 25.0 | 25.0 |
| TweenSplitLinearCache | fp4 | 22030.4 | 25.0 | 25.0 |
| MeshTweenChain | float32 | 21311.1 | 25.0 | 25.4 |
| MeshBP | fp4 | 20987.2 | 25.0 | 25.1 |
| MeshTween | float32 | 20449.3 | 25.0 | 26.7 |
| step_tween_chain | float32 | 20043.1 | 25.0 | 25.7 |
| StepTweenSplit | fp4 | 19950.5 | 25.0 | 25.0 |
| step_tween | fp4 | 19712.1 | 25.0 | 25.0 |
| TweenAlt | float32 | 17196.2 | 25.2 | 31.1 |
| MeshTweenAlt | float32 | 16214.5 | 25.0 | 26.8 |
| StepTweenAlt | int4 | 15297.6 | 25.0 | 21.9 |

## Best mode per dtype

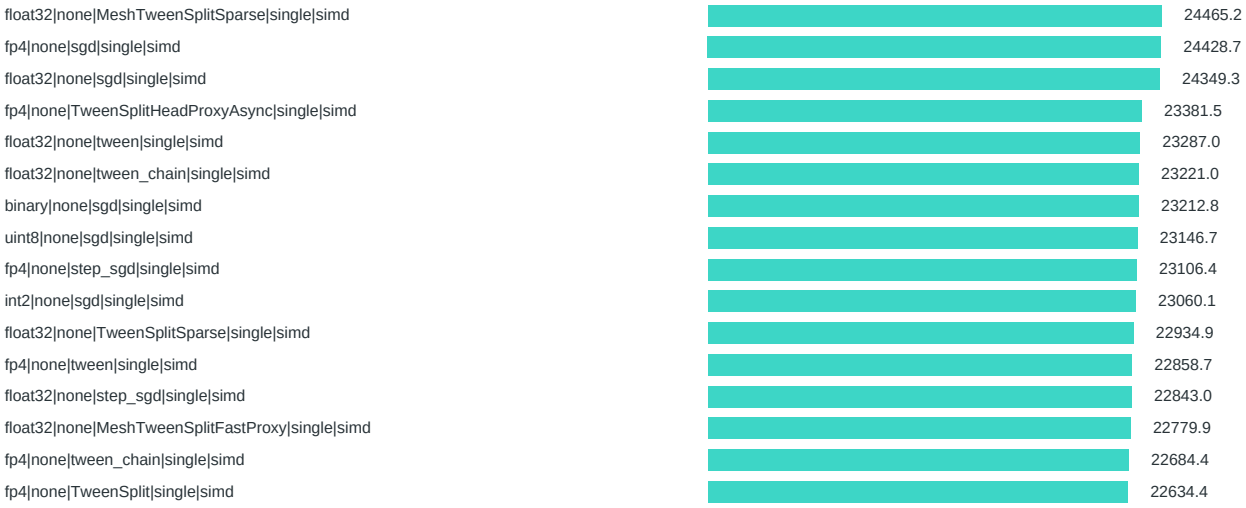
| DType | Winner mode | Score | Soft | Acc |
|---|---|---|---|---|
| float32 | MeshTweenSplitSparse | 24465.2 | 25.0 | 27.1 |
| fp4 | sgd | 24428.7 | 25.0 | 24.9 |
| binary | sgd | 23212.8 | 25.1 | 30.3 |
| uint8 | sgd | 23146.7 | 25.0 | 25.1 |
| int2 | sgd | 23060.1 | 25.0 | 24.4 |
| int8 | sgd | 22574.4 | 25.0 | 24.7 |
| float16 | sgd | 22400.8 | 25.0 | 25.0 |
| ternary | sgd | 22161.8 | 25.0 | 24.5 |
| int4 | sgd | 22118.0 | 25.0 | 26.7 |
| bfloat16 | sgd | 21751.7 | 25.0 | 24.6 |
| float64 | sgd | 21729.7 | 25.0 | 25.9 |

| | | | | |
|---|---|---|---|---|
| uint64 | sgd | 19925.3 | 25.0 | 23.4 |
| uint32 | sgd | 19767.4 | 25.0 | 23.8 |
| fp8e5m2 | sgd | 19482.5 | 25.0 | 22.3 |
| uint2 | sgd | 19263.7 | 25.0 | 26.9 |
| uint16 | sgd | 19231.7 | 25.0 | 25.8 |
| int32 | sgd | 18947.5 | 25.0 | 24.7 |
| uint4 | sgd | 18921.7 | 25.0 | 23.6 |
| int16 | sgd | 18884.5 | 25.0 | 23.8 |
| fp8e4m3 | TweenSplitLinearCache | 18766.6 | 25.0 | 22.3 |
| int64 | sgd | 18559.9 | 25.0 | 26.9 |
| uintptr | sgd | 18453.8 | 25.0 | 22.6 |
| uint | sgd | 18288.1 | 25.0 | 21.3 |
| complex128 | sgd | 18041.6 | 25.0 | 24.9 |
| complex64 | sgd | 17891.9 | 25.0 | 26.0 |
| int | sgd | 17866.2 | 25.0 | 26.2 |
| nf4 | sgd | 16424.1 | 25.0 | 25.5 |
| uint3 | sgd | 14240.2 | 25.0 | 23.9 |
| int3 | sgd | 14039.0 | 25.0 | 26.8 |
| uint5 | sgd | 12351.5 | 25.0 | 24.7 |
| int5 | sgd | 11874.6 | 25.0 | 26.5 |
| uint6 | sgd | 11395.6 | 25.0 | 25.4 |
| int6 | sgd | 10897.9 | 25.0 | 21.6 |
| fp6 | TweenSplit | 10552.4 | 25.0 | 23.7 |

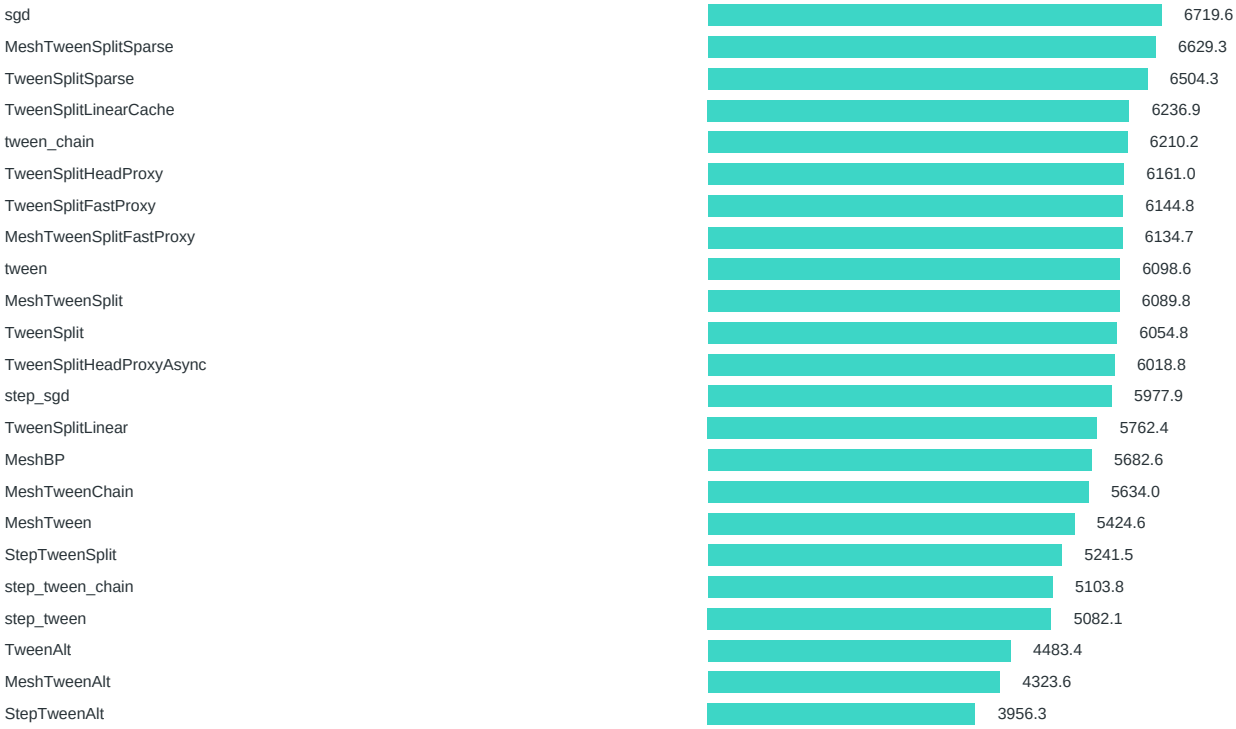
## Leaderboard - convt3

| # | Cell | Score | Soft | Acc | Thru | Avail |
|---|---|---|---|---|---|---|
| 1 | float32\|none\|MeshTweenSplitSparse\|single\|simd | 24465.2 | 25.0 | 27.1 | 213662.5 | 45.8 |
| 2 | fp4\|none\|sgd\|single\|simd | 24428.7 | 25.0 | 24.9 | 220839.8 | 44.2 |
| 3 | float32\|none\|sgd\|single\|simd | 24349.3 | 25.0 | 25.6 | 217014.8 | 44.9 |
| 4 | fp4\|none\|TweenSplitHeadProxyAsync\|single\|simd | 23381.5 | 25.0 | 25.0 | 204023.3 | 45.8 |
| 5 | float32\|none\|tween\|single\|simd | 23287.0 | 25.0 | 25.4 | 210222.6 | 44.3 |
| 6 | float32\|none\|tween_chain\|single\|simd | 23221.0 | 25.0 | 26.8 | 207643.9 | 44.7 |
| 7 | binary\|none\|sgd\|single\|simd | 23212.8 | 25.1 | 30.3 | 203959.4 | 45.4 |
| 8 | uint8\|none\|sgd\|single\|simd | 23146.7 | 25.0 | 25.1 | 205036.9 | 45.2 |
| 9 | fp4\|none\|step_sgd\|single\|simd | 23106.4 | 25.0 | 25.1 | 213020.7 | 43.4 |
| 10 | int2\|none\|sgd\|single\|simd | 23060.1 | 25.0 | 24.4 | 203761.8 | 45.3 |
| 11 | float32\|none\|TweenSplitSparse\|single\|simd | 22934.9 | 25.0 | 27.4 | 200509.3 | 45.7 |
| 12 | fp4\|none\|tween\|single\|simd | 22858.7 | 25.0 | 25.0 | 209264.2 | 43.7 |
| 13 | float32\|none\|step_sgd\|single\|simd | 22843.0 | 25.0 | 26.8 | 210277.4 | 43.5 |
| 14 | float32\|none\|MeshTweenSplitFastProxy\|single\|simd | 22779.9 | 25.0 | 24.3 | 199472.1 | 45.7 |
| 15 | fp4\|none\|tween_chain\|single\|simd | 22684.4 | 25.0 | 25.0 | 205033.6 | 44.3 |
| 16 | fp4\|none\|TweenSplit\|single\|simd | 22634.4 | 25.0 | 25.1 | 198904.9 | 45.5 |
| 17 | int8\|none\|sgd\|single\|simd | 22574.4 | 25.0 | 24.7 | 200767.9 | 45.0 |
| 18 | fp4\|none\|TweenSplitFastProxy\|single\|simd | 22544.6 | 25.0 | 25.0 | 198074.6 | 45.5 |
| 19 | int8\|none\|MeshTweenSplitFastProxy\|single\|simd | 22426.2 | 25.0 | 24.4 | 195652.2 | 45.9 |
| 20 | float32\|none\|TweenSplitLinear\|single\|simd | 22423.6 | 25.0 | 23.3 | 198539.2 | 45.2 |

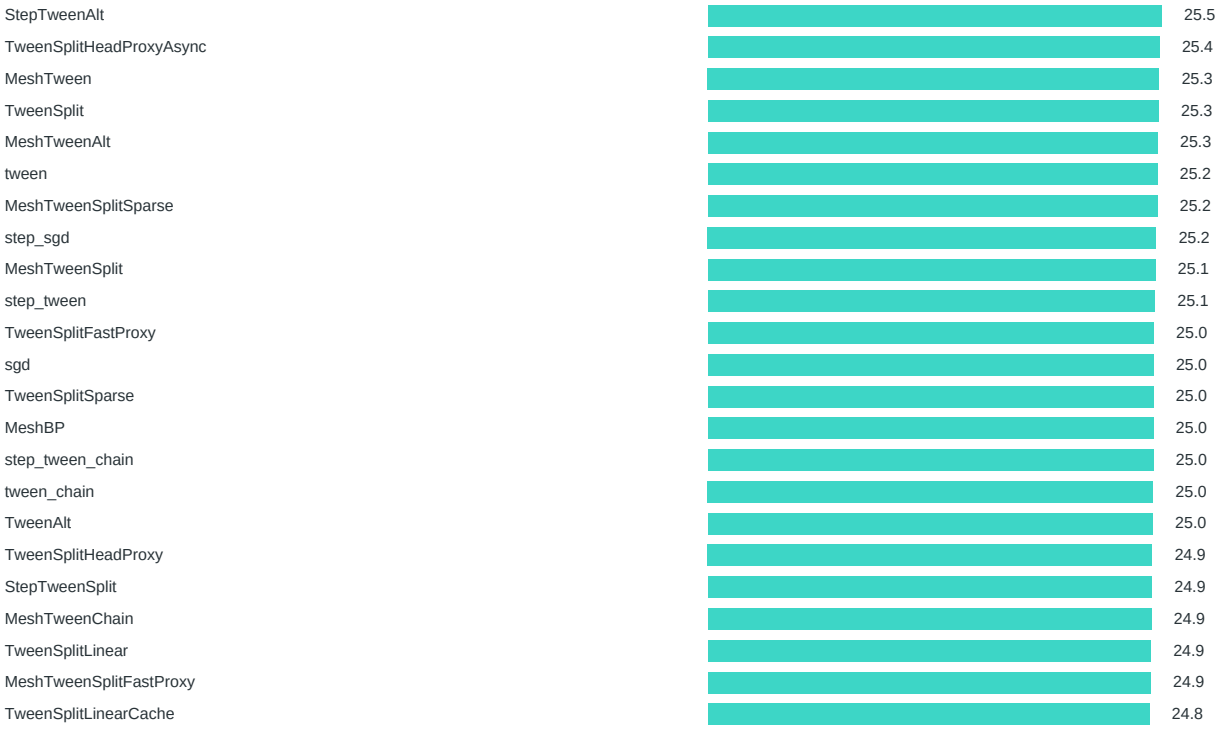
## Top scores - convt3



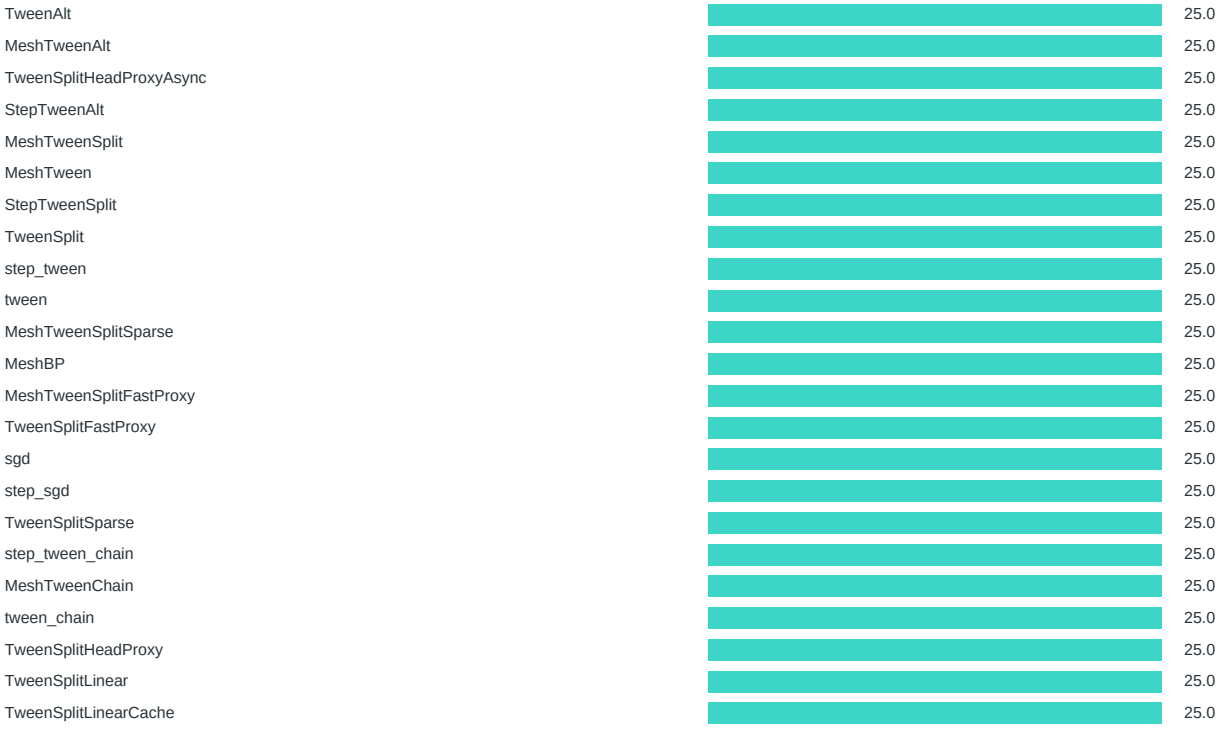

## Mean Score by train mode



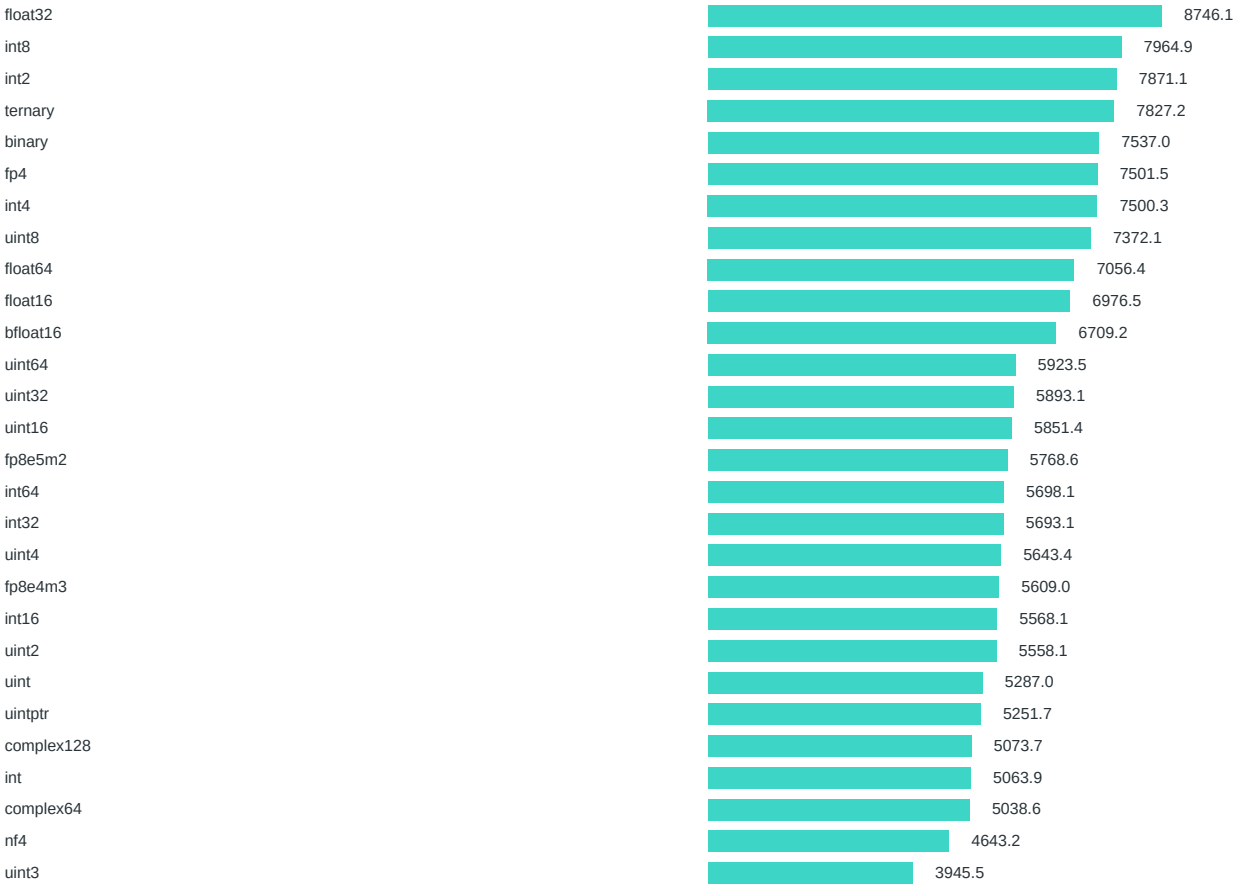

## Mean hard Acc by train mode




## Mean SoftAcc by train mode




## Mean Score by dtype




## Mean hard Acc by dtype




## Mean Score by arch




## Honesty - mean Score, every mode x dtype (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 6559 | 7686 | 5103 | 5146 | 6618 | 8161 | 7222 | 7282 | 2941 | 5503 | 5740 | 5132 | 5736 | 7863 | 3996 | 5721 |
| MeshTween | 6253 | 7050 | 5033 | 4824 | 6249 | 8001 | 6633 | 6944 | 2883 | 5487 | 5516 | 4995 | 5145 | 7524 | 3856 | 5497 |
| MeshTweenAlt | 4789 | 5763 | 3737 | 3781 | 5056 | 5999 | 5232 | 5476 | 2169 | 3976 | 4080 | 3763 | 4307 | 5981 | 2859 | 4529 |
| MeshTweenChain | 6606 | 7565 | 5043 | 5024 | 6874 | 8236 | 7460 | 6935 | 3048 | 5511 | 5589 | 5209 | 5694 | 7504 | 3756 | 5791 |
| MeshTweenSplit | 7242 | 7671 | 5447 | 5198 | 7704 | 9167 | 6732 | 8181 | 3440 | 5784 | 5798 | 5370 | 5591 | 8096 | 4481 | 6225 |
| MeshTweenSplitFa | 7456 | 7778 | 5323 | 5306 | 7685 | 9738 | 7778 | 8042 | 3364 | 5856 | 6237 | 6169 | 5439 | 8498 | 4277 | 5456 |
| MeshTweenSplitSp | 8295 | 8806 | 5284 | 5374 | 8606 | 11991 | 8217 | 8609 | 3366 | 6468 | 6972 | 5344 | 6538 | 9711 | 4205 | 6557 |
| StepTweenAlt | 4836 | 4991 | 3430 | 3443 | 4724 | 5599 | 5203 | 5109 | 1925 | 3813 | 3937 | 3400 | 4166 | 5623 | 2645 | 4145 |
| StepTweenSplit | 6404 | 6999 | 4307 | 4553 | 6942 | 8296 | 6390 | 7159 | 2770 | 5203 | 5212 | 4611 | 5128 | 6974 | 3500 | 5213 |
| TweenAlt | 5011 | 6191 | 4234 | 4168 | 5066 | 6250 | 5673 | 5571 | 2173 | 4400 | 4617 | 3932 | 4420 | 6228 | 3175 | 4602 |
| TweenSplit | 7205 | 7891 | 5213 | 5171 | 7519 | 9346 | 7061 | 8304 | 3628 | 5963 | 6341 | 5218 | 5853 | 8365 | 4053 | 5908 |
| TweenSplitFastPr | 7121 | 7988 | 5297 | 5192 | 7625 | 9590 | 7562 | 8419 | 3621 | 6133 | 6068 | 5395 | 5669 | 8140 | 4335 | 5732 |
| TweenSplitHeadPr | 7101 | 7826 | 5797 | 5444 | 7639 | 9592 | 7572 | 7940 | 3277 | 6171 | 6259 | 5288 | 5927 | 8271 | 4203 | 6093 |
| TweenSplitHeadPr | 7219 | 8191 | 5253 | 5277 | 7067 | 9083 | 7024 | 8704 | 3493 | 6011 | 6378 | 5225 | 6045 | 7456 | 4100 | 6116 |
| TweenSplitLinear | 7025 | 7410 | 4951 | 5057 | 7319 | 9291 | 6946 | 7648 | 3257 | 5799 | 6120 | 5147 | 5367 | 7179 | 4049 | 5592 |
| TweenSplitLinear | 7111 | 7898 | 5655 | 5713 | 7360 | 9139 | 7131 | 8222 | 3319 | 6639 | 6100 | 5703 | 6014 | 8157 | 4066 | 6341 |
| TweenSplitSparse | 7700 | 8727 | 5767 | 5395 | 8214 | 11486 | 7643 | 8463 | 3272 | 6487 | 6387 | 5225 | 6286 | 9660 | 3895 | 6310 |
| sgd | 7642 | 8941 | 6270 | 6229 | 7957 | 9683 | 8324 | 8503 | 3568 | 6438 | 6714 | 6225 | 6663 | 9560 | 4787 | 6690 |
| step_sgd | 6872 | 7918 | 5351 | 5367 | 7294 | 8958 | 7566 | 7974 | 3027 | 5837 | 6056 | 5321 | 5895 | 8682 | 4012 | 5905 |
| step_tween | 5922 | 6800 | 4595 | 4571 | 6218 | 7533 | 6352 | 6808 | 2445 | 4845 | 5163 | 4498 | 4933 | 7322 | 3462 | 5217 |
| step_tween_chain | 5934 | 6723 | 4574 | 4437 | 6291 | 7779 | 6663 | 6454 | 2586 | 4815 | 5050 | 4306 | 5080 | 7047 | 3438 | 5110 |
| tween | 6899 | 8368 | 5435 | 5575 | 7202 | 9203 | 7855 | 7929 | 3172 | 5938 | 6084 | 5430 | 5876 | 8598 | 4236 | 5996 |
| tween_chain | 7106 | 8170 | 5597 | 5641 | 7231 | 9036 | 8060 | 7857 | 3267 | 5928 | 6261 | 5562 | 6294 | 8597 | 4336 | 6196 |

## Honesty - mean Score, every mode x dtype (cols 17-32)

## Honesty - mean Score, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 7585 | 3202 | 3251 | 5784 | 7483 | 4520 | 7988 | 5213 | 5580 | 5770 | 3827 | 5895 | 5706 | 3639 | 3274 | 6041 |
| MeshTween | 7237 | 3191 | 2943 | 5423 | 7211 | 4584 | 7536 | 4925 | 5767 | 5157 | 3811 | 5744 | 5276 | 3235 | 2995 | 5586 |
| MeshTweenAlt | 5380 | 2599 | 2290 | 4271 | 5817 | 3515 | 5973 | 4584 | 4637 | 4238 | 3078 | 4627 | 4488 | 2583 | 2426 | 5002 |
| MeshTweenChain | 7424 | 3331 | 3033 | 5753 | 7379 | 4432 | 7324 | 5506 | 5846 | 5322 | 3985 | 5833 | 5551 | 3635 | 3142 | 5681 |
| MeshTweenSplit | 8260 | 3768 | 3524 | 5996 | 7979 | 5332 | 8414 | 5855 | 6158 | 5713 | 4369 | 5963 | 6464 | 3774 | 3670 | 6093 |
| MeshTweenSplitFa | 7613 | 3401 | 3295 | 6411 | 9689 | 4901 | 8030 | 5538 | 6072 | 5709 | 4496 | 5961 | 5608 | 3863 | 3381 | 6692 |
| MeshTweenSplitSp | 8894 | 3593 | 3392 | 6400 | 10706 | 4943 | 9845 | 5537 | 6698 | 6036 | 4155 | 6642 | 6241 | 3623 | 3563 | 6397 |
| StepTweenAlt | 5483 | 2145 | 1977 | 3774 | 5355 | 3024 | 5195 | 3704 | 4060 | 4115 | 2821 | 4238 | 4213 | 2183 | 2097 | 4330 |
| StepTweenSplit | 6763 | 3024 | 2790 | 4972 | 7850 | 4140 | 7078 | 4622 | 5282 | 4855 | 3580 | 5303 | 4998 | 3211 | 2883 | 5439 |
| TweenAlt | 6166 | 2571 | 2402 | 4588 | 5453 | 3446 | 6078 | 4271 | 4756 | 4679 | 2999 | 4865 | 4480 | 2739 | 2474 | 4759 |
| TweenSplit | 7444 | 3573 | 3471 | 5924 | 8661 | 5103 | 8395 | 5402 | 6049 | 6083 | 4173 | 5979 | 5849 | 3730 | 3646 | 6069 |
| TweenSplitFastPr | 8053 | 3693 | 3527 | 5823 | 8400 | 5007 | 8179 | 5639 | 6454 | 6020 | 4144 | 6480 | 6328 | 3671 | 3257 | 6301 |
| TweenSplitHeadPr | 7816 | 3649 | 3424 | 6184 | 8872 | 4850 | 8171 | 5965 | 6329 | 5965 | 4142 | 6379 | 5903 | 3876 | 3391 | 6526 |
| TweenSplitHeadPr | 7351 | 3441 | 3576 | 5930 | 8471 | 4941 | 7997 | 5652 | 6324 | 5493 | 3885 | 6642 | 5611 | 3821 | 3740 | 6247 |
| TweenSplitLinear | 7216 | 3412 | 3097 | 5817 | 8020 | 4785 | 7695 | 5326 | 5790 | 5641 | 3956 | 5943 | 5705 | 3827 | 3158 | 5855 |
| TweenSplitLinear | 8410 | 3739 | 3747 | 6056 | 8950 | 5116 | 8717 | 5770 | 6138 | 6201 | 4131 | 6573 | 6053 | 3912 | 3458 | 6500 |
| TweenSplitSparse | 9246 | 3500 | 3386 | 6403 | 10202 | 5429 | 9215 | 5491 | 6463 | 6377 | 4186 | 6168 | 6321 | 3586 | 3703 | 6260 |
| sgd | 8484 | 4031 | 3697 | 6564 | 8776 | 5614 | 8904 | 6344 | 6775 | 6716 | 4852 | 6972 | 6631 | 4196 | 3863 | 7001 |
| step_sgd | 7945 | 3307 | 3041 | 6051 | 7909 | 4838 | 8433 | 5492 | 5975 | 5897 | 4161 | 6180 | 6014 | 3601 | 3238 | 6042 |
| step_tween | 6742 | 2761 | 2606 | 5138 | 7004 | 4071 | 7127 | 4663 | 5274 | 4968 | 3546 | 5114 | 5053 | 3050 | 2700 | 5346 |
| step_tween_chain | 6824 | 2833 | 2646 | 5164 | 6911 | 4046 | 6992 | 4647 | 5583 | 4888 | 3623 | 5366 | 5012 | 2986 | 2794 | 5415 |
| tween | 7931 | 3630 | 3339 | 6135 | 8045 | 5000 | 8470 | 5683 | 6271 | 5968 | 4349 | 6227 | 6003 | 3718 | 3399 | 6084 |
| tween_chain | 8239 | 3682 | 3417 | 6497 | 8050 | 5158 | 8268 | 5774 | 6298 | 6026 | 4475 | 6448 | 6290 | 3892 | 3506 | 6573 |

## Honesty - mean Score, every mode x dtype  (cols 33-34)

## Honesty - mean Score, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 6969 | 5073 |
| MeshTween | 6944 | 4981 |
| MeshTweenAlt | 5414 | 4581 |
| MeshTweenChain | 7250 | 5284 |
| MeshTweenSplit | 7896 | 5700 |
| MeshTweenSplitFa | 7919 | 5600 |
| MeshTweenSplitSp | 8833 | 5555 |
| StepTweenAlt | 4987 | 3824 |
| StepTweenSplit | 7038 | 4719 |
| TweenAlt | 5731 | 4265 |
| TweenSplit | 7725 | 5549 |
| TweenSplitFastPr | 8151 | 5908 |
| TweenSplitHeadPr | 7800 | 5833 |
| TweenSplitHeadPr | 7822 | 5053 |
| TweenSplitLinear | 7133 | 5388 |
| TweenSplitLinear | 8411 | 5602 |
| TweenSplitSparse | 8892 | 5401 |
| sgd | 8458 | 6395 |
| step_sgd | 7666 | 5424 |
| step_tween | 6377 | 4565 |
| step_tween_chain | 6808 | 4702 |
| tween | 7611 | 5692 |
| tween_chain | 7721 | 5694 |

## Honesty - mean hard Acc, every mode x dtype  (cols 1-16)

## Honesty - mean hard Acc, every mode x dtype  (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 26 | 22 | 26 | 25 | 26 | 25 | 26 | 25 | 25 | 23 | 27 | 26 | 25 | 27 | 26 | 24 |
| MeshTween | 25 | 25 | 27 | 26 | 23 | 27 | 27 | 25 | 24 | 28 | 25 | 25 | 24 | 26 | 24 | 26 |
| MeshTweenAlt | 24 | 27 | 26 | 26 | 25 | 25 | 26 | 25 | 26 | 25 | 25 | 26 | 25 | 26 | 24 | 25 |
| MeshTweenChain | 24 | 21 | 27 | 28 | 25 | 28 | 25 | 25 | 25 | 24 | 26 | 23 | 24 | 25 | 25 | 28 |
| MeshTweenSplit | 25 | 26 | 26 | 26 | 25 | 25 | 25 | 25 | 24 | 24 | 26 | 25 | 26 | 24 | 23 | 25 |
| MeshTweenSplitFa | 24 | 24 | 25 | 24 | 25 | 24 | 26 | 25 | 25 | 25 | 24 | 25 | 25 | 25 | 23 | 23 |
| MeshTweenSplitSp | 23 | 26 | 25 | 25 | 26 | 27 | 27 | 25 | 24 | 26 | 26 | 25 | 25 | 23 | 25 | 24 |
| StepTweenAlt | 25 | 26 | 26 | 27 | 25 | 26 | 26 | 25 | 26 | 25 | 25 | 25 | 25 | 24 | 24 | 25 |
| StepTweenSplit | 25 | 25 | 26 | 26 | 25 | 26 | 25 | 25 | 25 | 24 | 22 | 26 | 25 | 21 | 25 | 25 |
| TweenAlt | 25 | 25 | 25 | 27 | 26 | 27 | 27 | 25 | 24 | 24 | 25 | 27 | 24 | 25 | 26 | 24 |
| TweenSplit | 24 | 26 | 25 | 26 | 25 | 26 | 25 | 25 | 26 | 25 | 24 | 26 | 25 | 24 | 27 | 24 |
| TweenSplitFastPr | 25 | 25 | 24 | 25 | 25 | 27 | 25 | 25 | 25 | 24 | 26 | 25 | 24 | 24 | 26 | 24 |
| TweenSplitHeadPr | 24 | 26 | 25 | 26 | 24 | 24 | 26 | 25 | 24 | 25 | 25 | 25 | 24 | 24 | 23 | 28 |
| TweenSplitHeadPr | 24 | 26 | 25 | 25 | 25 | 27 | 26 | 25 | 25 | 26 | 25 | 25 | 25 | 25 | 26 | 26 |
| TweenSplitLinear | 26 | 23 | 26 | 26 | 25 | 24 | 24 | 25 | 26 | 26 | 24 | 25 | 25 | 24 | 23 | 26 |
| TweenSplitLinear | 26 | 26 | 27 | 24 | 25 | 24 | 26 | 25 | 25 | 25 | 25 | 24 | 24 | 26 | 24 | 26 |
| TweenSplitSparse | 23 | 27 | 26 | 25 | 26 | 26 | 25 | 25 | 25 | 27 | 23 | 26 | 24 | 26 | 25 | 24 |
| sgd | 24 | 28 | 25 | 26 | 24 | 25 | 26 | 25 | 24 | 25 | 25 | 25 | 22 | 26 | 24 | 25 |
| step_sgd | 25 | 28 | 24 | 25 | 27 | 26 | 25 | 25 | 26 | 28 | 26 | 24 | 26 | 24 | 23 | 26 |
| step_tween | 26 | 24 | 24 | 24 | 27 | 26 | 24 | 25 | 25 | 24 | 26 | 26 | 26 | 26 | 25 | 24 |
| step_tween_chain | 24 | 26 | 28 | 24 | 26 | 24 | 24 | 25 | 25 | 24 | 25 | 25 | 24 | 25 | 25 | 24 |
| tween | 26 | 24 | 27 | 23 | 27 | 25 | 25 | 25 | 26 | 26 | 26 | 26 | 27 | 26 | 25 | 26 |
| tween_chain | 25 | 24 | 26 | 25 | 26 | 25 | 24 | 25 | 24 | 25 | 24 | 24 | 25 | 25 | 26 | 27 |

## Honesty - mean hard Acc, every mode x dtype  (cols 17-32)

## Honesty - mean hard Acc, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 25 | 25 | 25 | 24 | 25 | 27 | 24 | 24 | 25 | 23 | 27 | 23 | 27 | 26 | 23 | 24 |
| MeshTween | 24 | 25 | 26 | 24 | 25 | 26 | 26 | 26 | 26 | 26 | 25 | 26 | 26 | 24 | 25 | 26 |
| MeshTweenAlt | 24 | 25 | 26 | 26 | 26 | 25 | 25 | 24 | 25 | 27 | 26 | 25 | 25 | 24 | 23 | 25 |
| MeshTweenChain | 22 | 24 | 27 | 25 | 26 | 22 | 26 | 24 | 24 | 24 | 26 | 24 | 26 | 25 | 25 | 24 |
| MeshTweenSplit | 25 | 24 | 25 | 26 | 26 | 25 | 26 | 24 | 25 | 25 | 24 | 25 | 24 | 27 | 26 | 24 |
| MeshTweenSplitFa | 24 | 24 | 25 | 27 | 26 | 27 | 25 | 26 | 23 | 25 | 25 | 24 | 23 | 27 | 26 | 24 |
| MeshTweenSplitSp | 24 | 27 | 24 | 24 | 25 | 27 | 25 | 25 | 26 | 25 | 26 | 26 | 26 | 25 | 23 | 26 |
| StepTweenAlt | 23 | 26 | 27 | 26 | 26 | 26 | 26 | 25 | 25 | 27 | 25 | 24 | 27 | 26 | 26 | 24 |
| StepTweenSplit | 26 | 25 | 26 | 25 | 26 | 23 | 25 | 25 | 25 | 24 | 25 | 25 | 25 | 25 | 26 | 26 |
| TweenAlt | 26 | 25 | 26 | 26 | 25 | 24 | 23 | 24 | 26 | 22 | 23 | 25 | 24 | 25 | 25 | 24 |
| TweenSplit | 24 | 25 | 25 | 25 | 26 | 25 | 26 | 26 | 25 | 26 | 28 | 26 | 26 | 26 | 25 | 24 |
| TweenSplitFastPr | 23 | 26 | 25 | 25 | 26 | 25 | 25 | 27 | 24 | 26 | 26 | 26 | 26 | 23 | 24 | 26 |
| TweenSplitHeadPr | 25 | 23 | 27 | 25 | 26 | 24 | 23 | 25 | 26 | 23 | 24 | 25 | 25 | 23 | 26 | 27 |
| TweenSplitHeadPr | 25 | 26 | 27 | 25 | 27 | 27 | 25 | 27 | 25 | 24 | 24 | 25 | 25 | 24 | 28 | 26 |
| TweenSplitLinear | 25 | 26 | 25 | 25 | 24 | 25 | 24 | 25 | 23 | 24 | 24 | 24 | 26 | 25 | 24 | 27 |
| TweenSplitLinear | 22 | 24 | 23 | 27 | 24 | 24 | 24 | 25 | 25 | 25 | 23 | 25 | 24 | 27 | 26 | 25 |
| TweenSplitSparse | 23 | 23 | 26 | 26 | 26 | 25 | 22 | 27 | 28 | 25 | 23 | 24 | 27 | 25 | 25 | 24 |
| sgd | 26 | 24 | 23 | 25 | 25 | 26 | 26 | 26 | 27 | 26 | 25 | 24 | 24 | 24 | 25 | 26 |
| step_sgd | 27 | 23 | 25 | 25 | 24 | 25 | 24 | 23 | 23 | 25 | 25 | 24 | 26 | 27 | 24 | 25 |
| step_tween | 24 | 25 | 26 | 25 | 26 | 26 | 26 | 25 | 25 | 25 | 24 | 25 | 25 | 25 | 25 | 25 |
| step_tween_chain | 27 | 24 | 25 | 26 | 26 | 24 | 25 | 25 | 25 | 24 | 28 | 25 | 25 | 26 | 25 | 23 |
| tween | 26 | 25 | 25 | 25 | 25 | 24 | 25 | 24 | 27 | 25 | 24 | 25 | 24 | 24 | 24 | 24 |
| tween_chain | 27 | 25 | 25 | 25 | 25 | 24 | 26 | 26 | 26 | 24 | 24 | 23 | 26 | 24 | 24 | 27 |

## Honesty - mean hard Acc, every mode x dtype  (cols 33-34)

## Honesty - mean hard Acc, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 25 | 26 |
| MeshTween | 25 | 25 |
| MeshTweenAlt | 25 | 25 |
| MeshTweenChain | 26 | 25 |
| MeshTweenSplit | 27 | 26 |
| MeshTweenSplitFa | 27 | 25 |
| MeshTweenSplitSp | 27 | 23 |
| StepTweenAlt | 26 | 25 |
| StepTweenSplit | 25 | 25 |
| TweenAlt | 25 | 25 |
| TweenSplit | 24 | 24 |
| TweenSplitFastPr | 26 | 25 |
| TweenSplitHeadPr | 25 | 26 |
| TweenSplitHeadPr | 25 | 22 |
| TweenSplitLinear | 26 | 25 |
| TweenSplitLinear | 22 | 25 |
| TweenSplitSparse | 26 | 24 |
| sgd | 26 | 24 |
| step_sgd | 23 | 26 |
| step_tween | 23 | 25 |
| step_tween_chain | 25 | 24 |
| tween | 26 | 27 |
| tween_chain | 23 | 28 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 1-16)

## Honesty - mean SoftAcc, every mode x dtype  (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenChain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitFastPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitSparse | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 17-32)

## Honesty - mean SoftAcc, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenChain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitFastPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitSparse | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 33-34)

## Honesty - mean SoftAcc, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 25 | 25 |
| MeshTween | 25 | 25 |
| MeshTweenAlt | 25 | 25 |
| MeshTweenChain | 25 | 25 |
| MeshTweenSplit | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 |
| StepTweenAlt | 25 | 25 |
| StepTweenSplit | 25 | 25 |
| TweenAlt | 25 | 25 |
| TweenSplit | 25 | 25 |
| TweenSplitFastPr | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 |
| TweenSplitLinear | 25 | 25 |
| TweenSplitLinear | 25 | 25 |
| TweenSplitSparse | 25 | 25 |
| sgd | 25 | 25 |
| step_sgd | 25 | 25 |
| step_tween | 25 | 25 |
| step_tween_chain | 25 | 25 |
| tween | 25 | 25 |
| tween_chain | 25 | 25 |

## Mean Score, every mode x arch

## Mean Score, every mode x arch

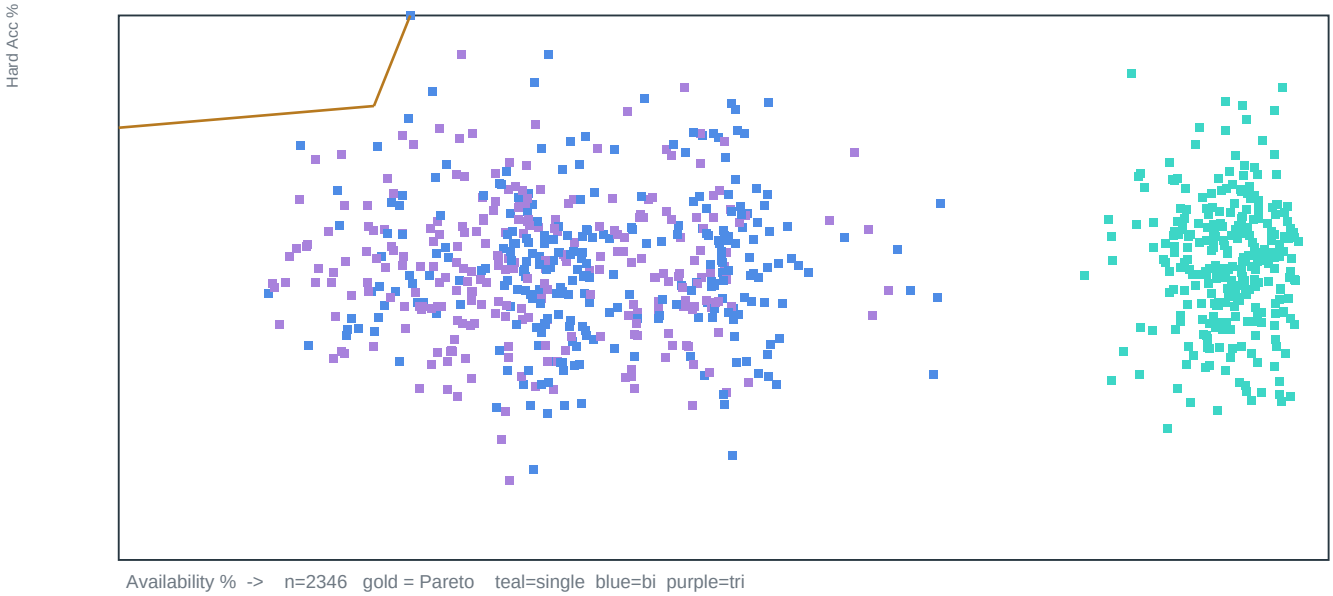
| | bicamera | singlex1 | tricamer |
|---|---|---|---|
| MeshBP | 711 | 15867 | 470 |
| MeshTween | 692 | 15130 | 452 |
| MeshTweenAlt | 380 | 12349 | 242 |
| MeshTweenChain | 697 | 15755 | 450 |
| MeshTweenSplit | 1083 | 16460 | 726 |
| MeshTweenSplitFa | 1152 | 16475 | 777 |
| MeshTweenSplitSp | 1672 | 16859 | 1356 |
| StepTweenAlt | 310 | 11369 | 190 |
| StepTweenSplit | 763 | 14421 | 540 |
| TweenAlt | 364 | 12852 | 234 |
| TweenSplit | 1052 | 16397 | 715 |
| TweenSplitFastPr | 1085 | 16601 | 748 |
| TweenSplitHeadPr | 1074 | 16655 | 754 |
| TweenSplitHeadPr | 1081 | 16221 | 754 |
| TweenSplitLinear | 815 | 15946 | 526 |
| TweenSplitLinear | 1116 | 16851 | 744 |
| TweenSplitSparse | 1711 | 16480 | 1322 |
| sgd | 908 | 18674 | 576 |
| step_sgd | 703 | 16786 | 445 |
| step_tween | 562 | 14311 | 373 |
| step_tween_chain | 561 | 14371 | 379 |
| tween | 797 | 16977 | 522 |
| tween_chain | 772 | 17338 | 520 |

## Mean hard Acc, every mode x arch

## Mean hard Acc, every mode x arch

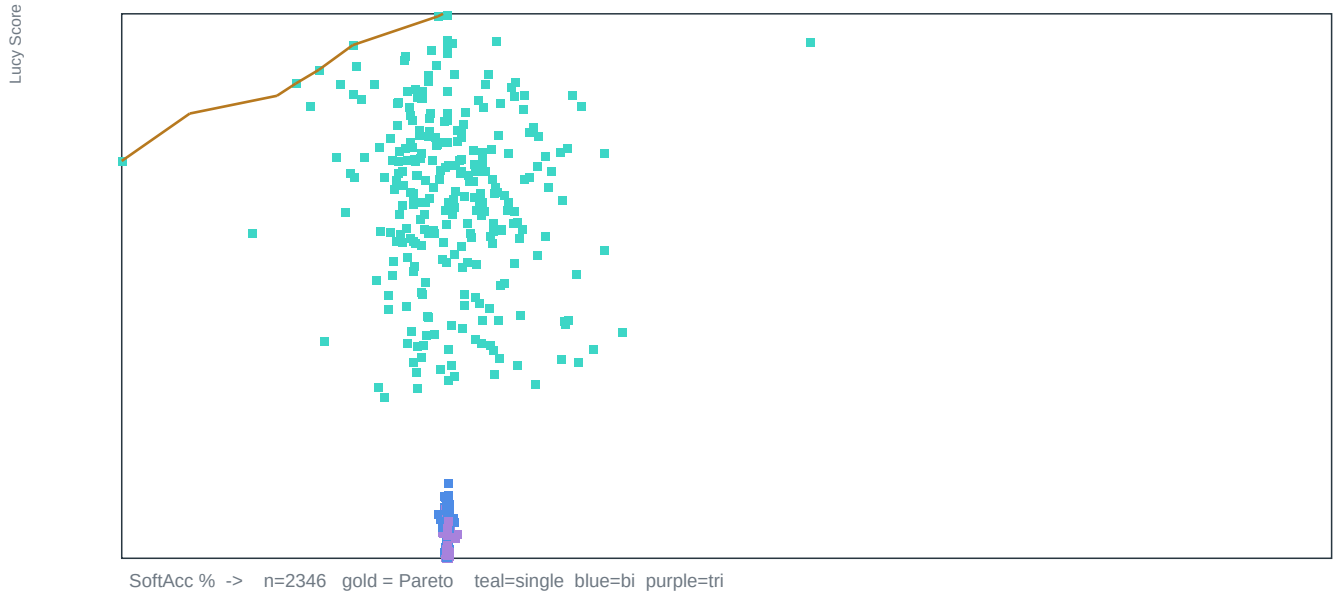
| | bicamera | singlex1 | tricamer |
|---|---|---|---|
| MeshBP | 25 | 25 | 25 |
| MeshTween | 25 | 25 | 25 |
| MeshTweenAlt | 25 | 26 | 25 |
| MeshTweenChain | 25 | 25 | 25 |
| MeshTweenSplit | 25 | 25 | 25 |
| MeshTweenSplitFa | 24 | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 | 25 |
| StepTweenAlt | 26 | 26 | 25 |
| StepTweenSplit | 25 | 25 | 25 |
| TweenAlt | 25 | 25 | 25 |
| TweenSplit | 25 | 26 | 25 |
| TweenSplitFastPr | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 24 | 26 |
| TweenSplitHeadPr | 26 | 26 | 25 |
| TweenSplitLinear | 25 | 25 | 25 |
| TweenSplitLinear | 24 | 25 | 25 |
| TweenSplitSparse | 25 | 25 | 25 |
| sgd | 25 | 25 | 25 |
| step_sgd | 25 | 25 | 25 |
| step_tween | 25 | 26 | 25 |
| step_tween_chain | 25 | 25 | 25 |
| tween | 25 | 26 | 25 |
| tween_chain | 25 | 25 | 25 |

## Avail vs hard Acc (headline scatter)

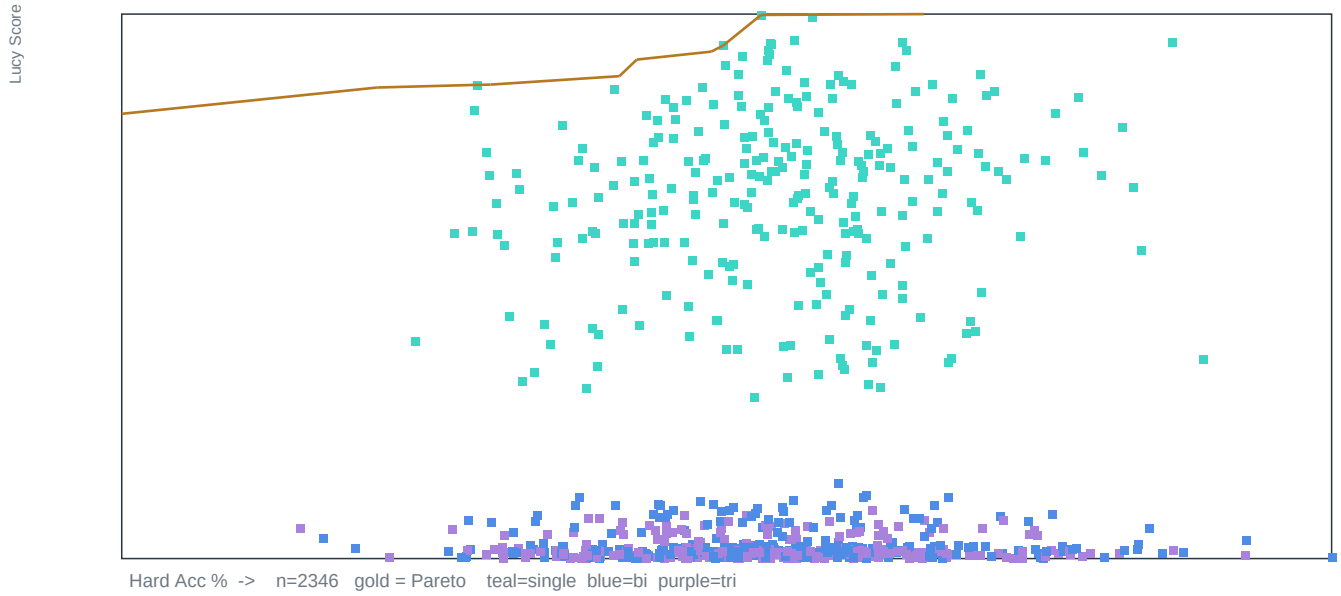



## Pareto - SoftAcc vs Score

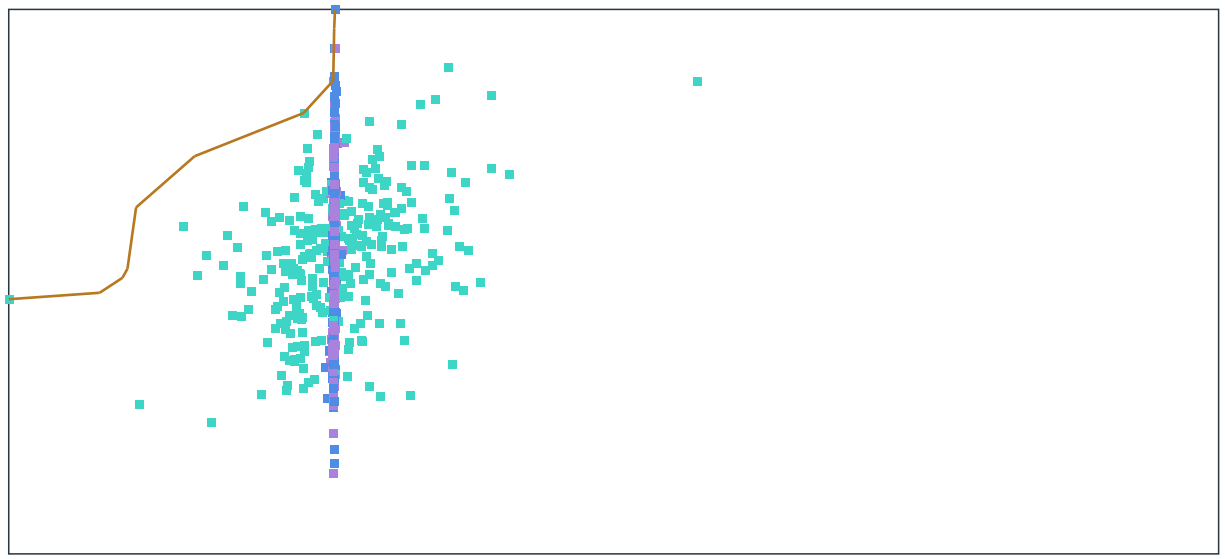
## Pareto - SoftAcc vs Score




## Pareto - hard Acc vs Score

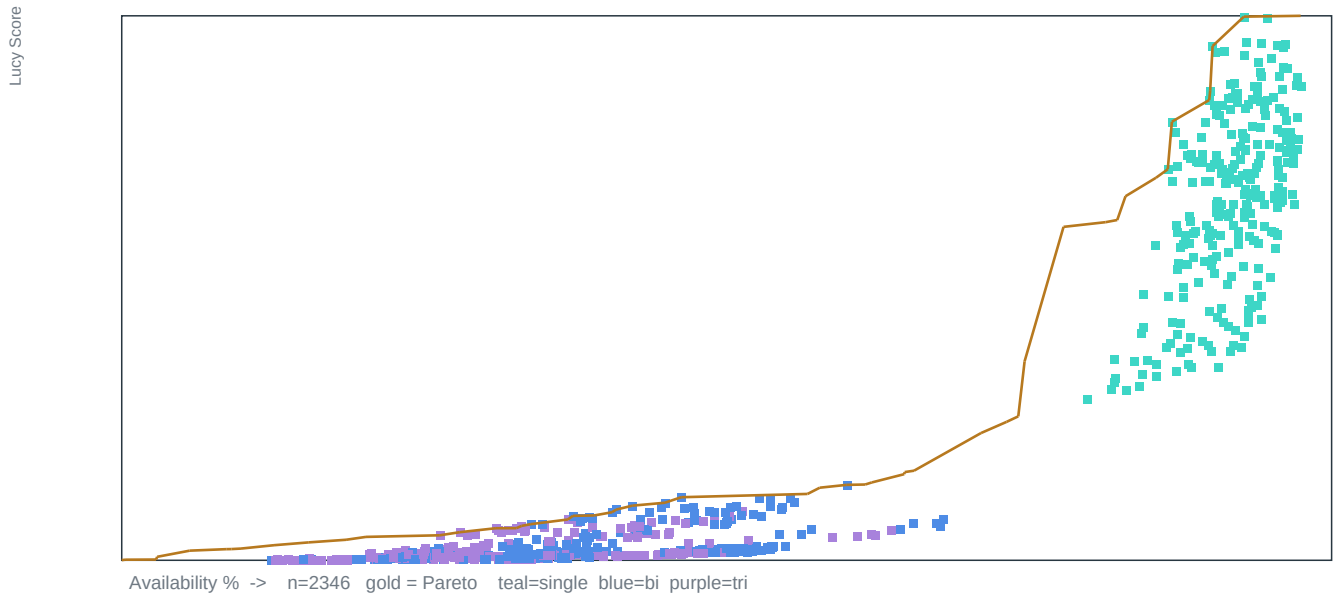



## SoftAcc vs hard Acc




SoftAcc % -> n=2346 gold = Pareto teal=single blue=bi purple=tri
Hard Acc %

## Avail vs Score (duty clock)




## Lucy Pareto (LPD) - goldilocks

Q = geomean of Score/Soft/Acc/Thru vs the Lucy Score champion. LPD = 0 if Q<70%, else Q x shrink vs champ RAM (capped 32x). Gold = Q>=80% and RAM<=20% of champ. MSpeed = Thru vs the board's fastest (0 if Q<70%). MAvail = Availability vs the board's best duty cycle (0 if Q<70%). Mix = geomean(Q, MSpeed, MAvail). Raw Score/MiB is the binary trap.

Quality champ float32|none|MeshTweenSplitSparse|single|simd  Score 24465.2  Soft 25  Acc 27  Thru 213662  RAM 0.8 KiB

Board fastest fp4|none|sgd|single|simd  Thru 220840  Best availability uintptr|none|MeshTweenSplit|single|simd  46.7%

### Gold - Q >= 80% of champ, RAM <= 20%

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| gold | binary\|none\|sgd\|single\|simd | 98 | 3 | 32.0 | 31.22 | 25 | 30 | 23212.8 | 0.0 |
| gold | binary\|none\|tween\|single\|simd | 94 | 3 | 32.0 | 29.97 | 25 | 25 | 21950.5 | 0.0 |
| gold | binary\|none\|step_sgd\|single\|simd | 93 | 3 | 32.0 | 29.84 | 25 | 28 | 20836.8 | 0.0 |
| gold | binary\|none\|tween_chain\|single\|simd | 93 | 3 | 32.0 | 29.63 | 25 | 26 | 21331.6 | 0.0 |
| gold | binary\|none\|TweenSplit\|single\|simd | 90 | 3 | 32.0 | 28.88 | 25 | 29 | 19878.8 | 0.0 |
| gold | binary\|none\|TweenSplitLinearCache\|single\|simd | 90 | 3 | 32.0 | 28.86 | 25 | 27 | 19949.0 | 0.0 |
| gold | binary\|none\|MeshTweenSplitSparse\|single\|simd | 90 | 3 | 32.0 | 28.79 | 25 | 29 | 19789.1 | 0.0 |
| gold | binary\|none\|TweenSplitHeadProxyAsync\|single\|simd | 90 | 3 | 32.0 | 28.68 | 25 | 25 | 20687.2 | 0.0 |
| gold | binary\|none\|TweenSplitFastProxy\|single\|simd | 89 | 3 | 32.0 | 28.53 | 25 | 25 | 20258.6 | 0.0 |
| gold | binary\|none\|TweenSplitSparse\|single\|simd | 88 | 3 | 32.0 | 28.25 | 25 | 30 | 19057.8 | 0.0 |
| gold | binary\|none\|MeshTweenSplit\|single\|simd | 88 | 3 | 32.0 | 28.22 | 25 | 27 | 19056.9 | 0.0 |
| gold | binary\|none\|TweenSplitLinear\|single\|simd | 88 | 3 | 32.0 | 28.08 | 25 | 24 | 19998.2 | 0.0 |
| gold | binary\|none\|MeshTweenSplitFastProxy\|single\|simd | 87 | 3 | 32.0 | 27.93 | 25 | 25 | 19401.9 | 0.0 |
| gold | binary\|none\|TweenSplitHeadProxy\|single\|simd | 86 | 3 | 32.0 | 27.64 | 25 | 24 | 19696.3 | 0.0 |
| gold | binary\|none\|MeshTween\|single\|simd | 86 | 3 | 32.0 | 27.57 | 25 | 25 | 18491.8 | 0.0 |
| gold | binary\|none\|step_tween\|single\|simd | 86 | 3 | 32.0 | 27.52 | 25 | 25 | 18097.0 | 0.0 |

### Near-gold - Q >= 70%, RAM <= 50%

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| near | binary\|none\|MeshTweenAlt\|single\|simd | 80 | 3 | 32.0 | 25.46 | 25 | 25 | 15706.7 | 0.0 |
| near | binary\|none\|StepTweenAlt\|single\|simd | 78 | 3 | 32.0 | 24.86 | 25 | 28 | 13829.6 | 0.0 |
| near | ternary\|none\|StepTweenAlt\|single\|simd | 78 | 6 | 16.0 | 12.44 | 25 | 27 | 14047.8 | 0.1 |
| near | int2\|none\|StepTweenAlt\|single\|simd | 77 | 6 | 16.0 | 12.38 | 25 | 24 | 14750.7 | 0.1 |
| near | uint2\|none\|TweenSplitHeadProxy\|single\|simd | 80 | 7 | 14.9 | 11.86 | 25 | 23 | 16914.3 | 0.1 |
| near | uint2\|none\|MeshTweenSplitFastProxy\|single\|simd | 80 | 7 | 14.9 | 11.85 | 25 | 25 | 16078.6 | 0.1 |
| near | uint2\|none\|TweenSplitLinear\|single\|simd | 78 | 7 | 14.9 | 11.68 | 25 | 23 | 16143.5 | 0.1 |

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| near | uint2\|none\|MeshTweenSplit\|single\|simd | 78 | 7 | 14.9 | 11.65 | 25 | 24 | 16072.0 | 0.1 |
| near | uint2\|none\|MeshBP\|single\|simd | 78 | 7 | 14.9 | 11.65 | 25 | 22 | 16596.6 | 0.1 |
| near | uint2\|none\|MeshTween\|single\|simd | 78 | 7 | 14.9 | 11.60 | 25 | 26 | 14813.5 | 0.1 |
| near | uint2\|none\|MeshTweenChain\|single\|simd | 78 | 7 | 14.9 | 11.59 | 25 | 25 | 15305.2 | 0.1 |
| near | uint2\|none\|step_tween\|single\|simd | 78 | 7 | 14.9 | 11.56 | 25 | 26 | 14419.9 | 0.1 |

## LPD rank (Q x shrink; 0 if Q < 70%)

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| gold | binary\|none\|sgd\|single\|simd | 98 | 3 | 32.0 | 31.22 | 25 | 30 | 23212.8 | 0.0 |
| gold | binary\|none\|tween\|single\|simd | 94 | 3 | 32.0 | 29.97 | 25 | 25 | 21950.5 | 0.0 |
| gold | binary\|none\|step_sgd\|single\|simd | 93 | 3 | 32.0 | 29.84 | 25 | 28 | 20836.8 | 0.0 |
| gold | binary\|none\|tween_chain\|single\|simd | 93 | 3 | 32.0 | 29.63 | 25 | 26 | 21331.6 | 0.0 |
| gold | binary\|none\|TweenSplit\|single\|simd | 90 | 3 | 32.0 | 28.88 | 25 | 29 | 19878.8 | 0.0 |
| gold | binary\|none\|TweenSplitLinearCache\|single\|simd | 90 | 3 | 32.0 | 28.86 | 25 | 27 | 19949.0 | 0.0 |
| gold | binary\|none\|MeshTweenSplitSparse\|single\|simd | 90 | 3 | 32.0 | 28.79 | 25 | 29 | 19789.1 | 0.0 |
| gold | binary\|none\|TweenSplitHeadProxyAsync\|single\|simd | 90 | 3 | 32.0 | 28.68 | 25 | 25 | 20687.2 | 0.0 |
| gold | binary\|none\|TweenSplitFastProxy\|single\|simd | 89 | 3 | 32.0 | 28.53 | 25 | 25 | 20258.6 | 0.0 |
| gold | binary\|none\|TweenSplitSparse\|single\|simd | 88 | 3 | 32.0 | 28.25 | 25 | 30 | 19057.8 | 0.0 |
| gold | binary\|none\|MeshTweenSplit\|single\|simd | 88 | 3 | 32.0 | 28.22 | 25 | 27 | 19056.9 | 0.0 |
| gold | binary\|none\|TweenSplitLinear\|single\|simd | 88 | 3 | 32.0 | 28.08 | 25 | 24 | 19998.2 | 0.0 |
| gold | binary\|none\|MeshTweenSplitFastProxy\|single\|simd | 87 | 3 | 32.0 | 27.93 | 25 | 25 | 19401.9 | 0.0 |
| gold | binary\|none\|TweenSplitHeadProxy\|single\|simd | 86 | 3 | 32.0 | 27.64 | 25 | 24 | 19696.3 | 0.0 |
| gold | binary\|none\|MeshTween\|single\|simd | 86 | 3 | 32.0 | 27.57 | 25 | 25 | 18491.8 | 0.0 |
| gold | binary\|none\|step_tween\|single\|simd | 86 | 3 | 32.0 | 27.52 | 25 | 25 | 18097.0 | 0.0 |
| gold | binary\|none\|MeshBP\|single\|simd | 86 | 3 | 32.0 | 27.38 | 25 | 21 | 20174.1 | 0.0 |
| gold | binary\|none\|StepTweenSplit\|single\|simd | 85 | 3 | 32.0 | 27.22 | 25 | 26 | 17820.5 | 0.0 |
| gold | binary\|none\|TweenAlt\|single\|simd | 84 | 3 | 32.0 | 26.92 | 25 | 26 | 17158.8 | 0.0 |
| gold | binary\|none\|step_tween_chain\|single\|simd | 84 | 3 | 32.0 | 26.85 | 25 | 24 | 17858.0 | 0.0 |

## Mobile speed - Thru vs board fastest (Q >= 70%)

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| gold | fp4\|none\|sgd\|single\|simd | 98 | 100 | 95 | 98 | 7.83 | 220840 | 44.2 |
| keep | float32\|none\|sgd\|single\|simd | 98 | 98 | 96 | 98 | 0.98 | 217015 | 44.9 |
| keep | float32\|none\|MeshTweenSplitSparse\|single\|simd | 100 | 97 | 98 | 98 | 1.00 | 213662 | 45.8 |
| gold | fp4\|none\|step_sgd\|single\|simd | 97 | 96 | 93 | 95 | 7.73 | 213021 | 43.4 |
| keep | float32\|none\|step_sgd\|single\|simd | 98 | 95 | 93 | 95 | 0.98 | 210277 | 43.5 |
| keep | float32\|none\|tween\|single\|simd | 97 | 95 | 95 | 96 | 0.97 | 210223 | 44.3 |
| gold | fp4\|none\|tween\|single\|simd | 96 | 95 | 94 | 95 | 7.67 | 209264 | 43.7 |
| keep | float32\|none\|tween_chain\|single\|simd | 98 | 94 | 96 | 96 | 0.98 | 207644 | 44.7 |
| near | uint8\|none\|sgd\|single\|simd | 96 | 93 | 97 | 95 | 3.76 | 205037 | 45.2 |
| gold | fp4\|none\|tween_chain\|single\|simd | 95 | 93 | 95 | 94 | 7.62 | 205034 | 44.3 |

## Mobile availability - duty cycle vs board best (Q >= 70%)

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| keep | uintptr\|none\|MeshTweenSplit\|single\|simd | 81 | 63 | 100 | 80 | 0.40 | 139048 | 46.7 |
| keep | float64\|none\|TweenSplitHeadProxy\|single\|simd | 87 | 78 | 100 | 88 | 0.43 | 172358 | 46.6 |
| keep | uint32\|none\|MeshTweenSplit\|single\|simd | 80 | 65 | 100 | 80 | 0.80 | 143351 | 46.6 |
| - | int\|none\|MeshTweenSplit\|single\|simd | 78 | 59 | 100 | 77 | 0.39 | 130031 | 46.5 |
| keep | uint\|none\|MeshTweenSplit\|single\|simd | 80 | 65 | 100 | 80 | 0.40 | 143195 | 46.5 |
| near | int16\|none\|TweenSplitLinearCache\|single\|simd | 81 | 66 | 100 | 81 | 1.63 | 144780 | 46.5 |
| gold | binary\|none\|TweenSplitHeadProxy\|single\|simd | 86 | 77 | 100 | 87 | 27.64 | 169735 | 46.4 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| - | uint64\|none\|MeshTweenSplit\|single\|simd | 80 | 66 | 100 | 81 | 0.40 | 146700 | 46.4 |
| keep | int64\|none\|MeshTweenSplit\|single\|simd | 82 | 65 | 100 | 81 | 0.41 | 144497 | 46.4 |
| keep | complex128\|none\|TweenSplitHeadProxy\|single\|simd | 81 | 64 | 100 | 80 | 0.20 | 141761 | 46.4 |

## Mix - geomean of Q, MSpeed, MAvail

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| keep | float32\|none\|MeshTweenSplitSparse\|single\|simd | 100 | 97 | 98 | 98 | 1.00 | 213662 | 45.8 |
| keep | float32\|none\|sgd\|single\|simd | 98 | 98 | 96 | 98 | 0.98 | 217015 | 44.9 |
| gold | fp4\|none\|sgd\|single\|simd | 98 | 100 | 95 | 98 | 7.83 | 220840 | 44.2 |
| keep | float32\|none\|tween_chain\|single\|simd | 98 | 94 | 96 | 96 | 0.98 | 207644 | 44.7 |
| gold | binary\|none\|sgd\|single\|simd | 98 | 92 | 97 | 96 | 31.22 | 203959 | 45.4 |
| keep | float32\|none\|tween\|single\|simd | 97 | 95 | 95 | 96 | 0.97 | 210223 | 44.3 |
| gold | fp4\|none\|TweenSplitHeadProxyAsync\|single\|simd | 96 | 92 | 98 | 95 | 7.66 | 204023 | 45.8 |
| gold | fp4\|none\|step_sgd\|single\|simd | 97 | 96 | 93 | 95 | 7.73 | 213021 | 43.4 |
| keep | float32\|none\|step_sgd\|single\|simd | 98 | 95 | 93 | 95 | 0.98 | 210277 | 43.5 |
| keep | float32\|none\|TweenSplitSparse\|single\|simd | 97 | 91 | 98 | 95 | 0.97 | 200509 | 45.7 |

## Trap - tiny RAM, Q < 70% (why Score/MiB lies)

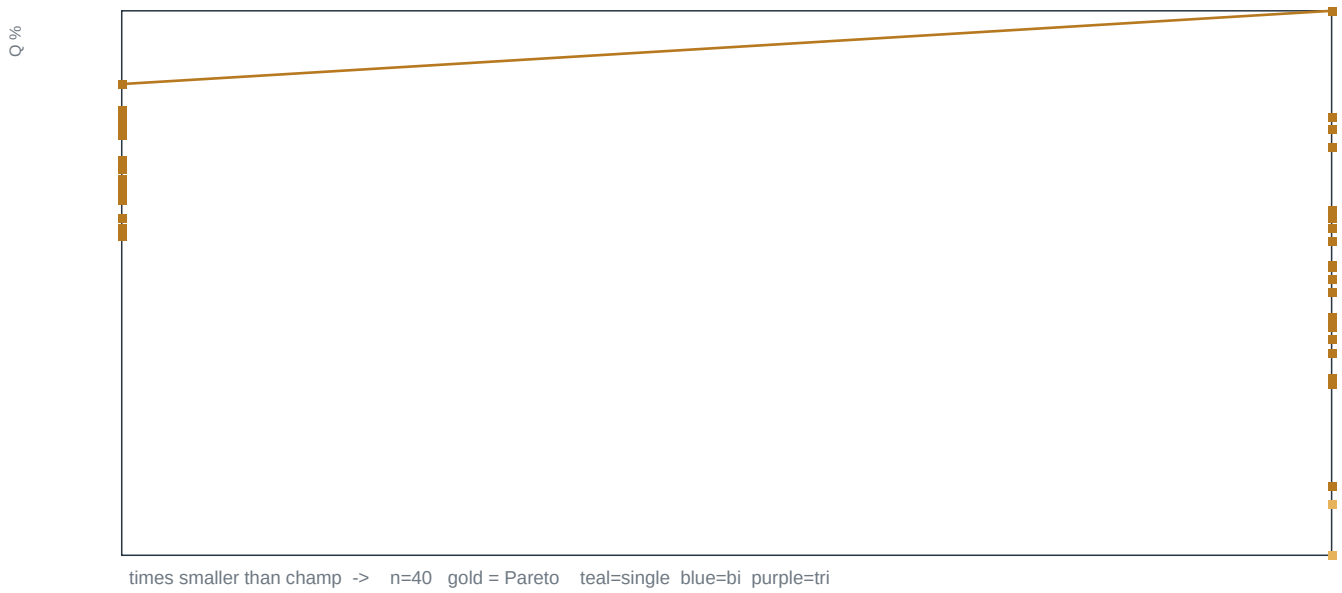
| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| trap | uint2\|none\|MeshTweenAlt\|single\|simd | 70 | 7 | 14.9 | 0.00 | 25 | 23 | 12302.5 | 0.1 |
| trap | int3\|none\|step_sgd\|single\|simd | 69 | 9 | 10.7 | 0.00 | 25 | 24 | 11842.3 | 0.1 |
| trap | int3\|none\|step_tween\|single\|simd | 66 | 9 | 10.7 | 0.00 | 25 | 28 | 10225.4 | 0.1 |
| trap | int3\|none\|step_tween_chain\|single\|simd | 66 | 9 | 10.7 | 0.00 | 25 | 28 | 10157.5 | 0.1 |
| trap | int3\|none\|MeshBP\|single\|simd | 70 | 9 | 10.7 | 0.00 | 25 | 27 | 11729.2 | 0.1 |
| trap | int3\|none\|MeshTween\|single\|simd | 67 | 9 | 10.7 | 0.00 | 25 | 24 | 11337.8 | 0.1 |
| trap | int3\|none\|MeshTweenChain\|single\|simd | 64 | 9 | 10.7 | 0.00 | 25 | 22 | 11018.8 | 0.1 |
| trap | int3\|none\|TweenSplit\|single\|simd | 69 | 9 | 10.7 | 0.00 | 25 | 29 | 11675.3 | 0.1 |
| trap | int3\|none\|StepTweenSplit\|single\|simd | 64 | 9 | 10.7 | 0.00 | 25 | 25 | 10253.7 | 0.1 |
| trap | int3\|none\|TweenAlt\|single\|simd | 62 | 9 | 10.7 | 0.00 | 25 | 25 | 9396.6 | 0.1 |

## LPD - Q% vs RAM KiB (gold = high Q, low RAM)

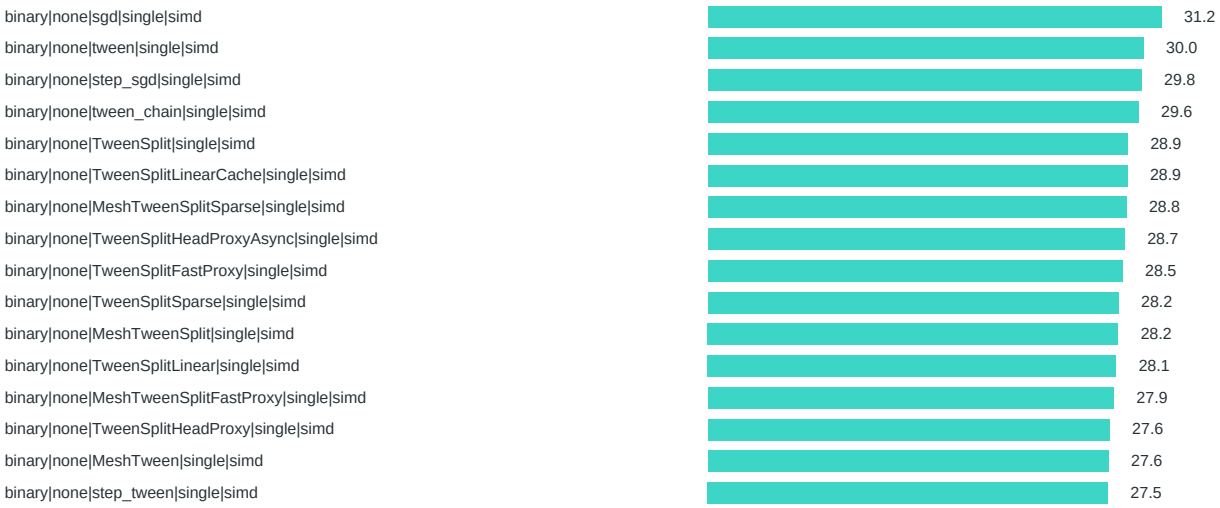



## LPD - Q% vs shrink vs champ (gold = upper right)

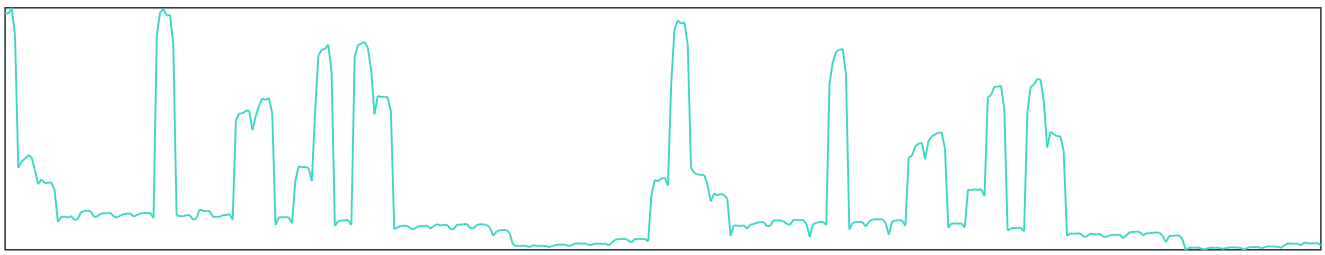
## LPD - Q% vs shrink vs champ (gold = upper right)




## Top LPD

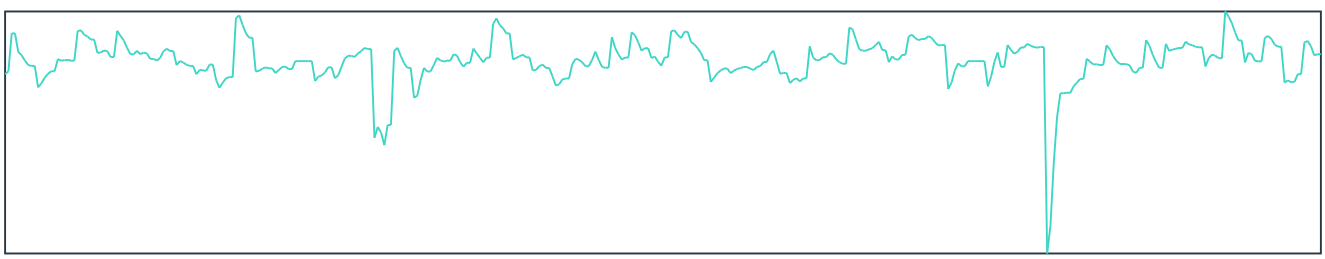



## Pulse Score - convt3



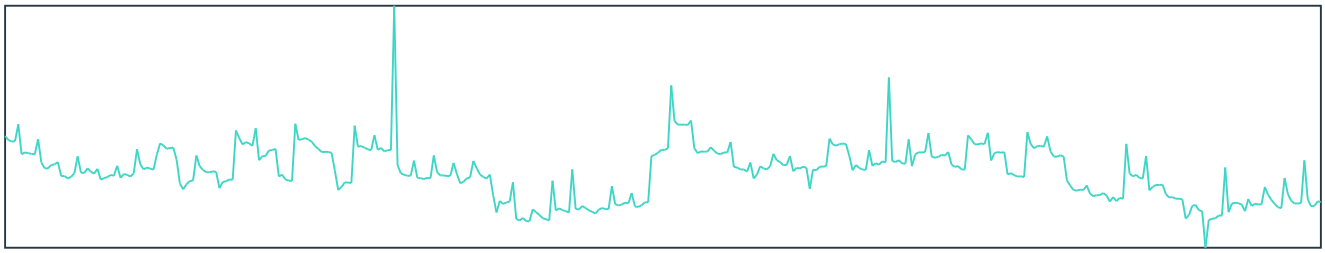
n=400 min=165.19 max=6601.37

## Pulse SoftAcc - convt3



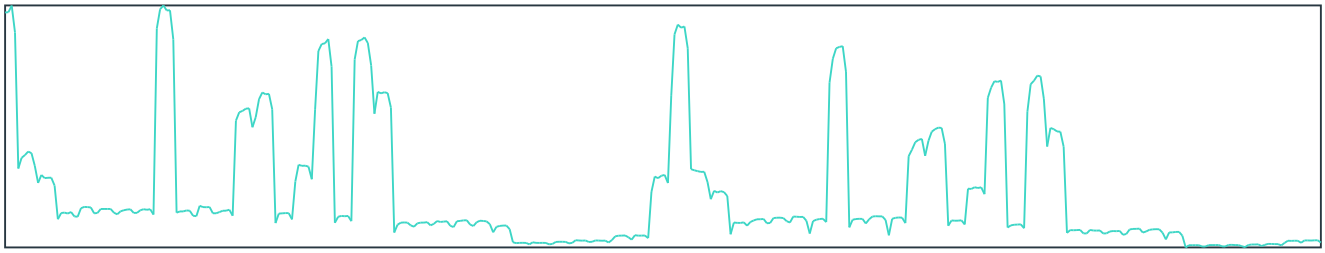
n=400 min=25.00 max=25.00

## Pulse Availability - convt3



n=400 min=35.20 max=52.13

## Pulse Throughput - convt3



n=400 min=1774.42 max=61973.83

## Queue by train mode (this epoch)

| Mode | Done | Run | Left | Total |
|---|---|---|---|---|
| sgd | 102 | 0 | 0 | 102 |
| step_sgd | 102 | 0 | 0 | 102 |
| tween | 102 | 0 | 0 | 102 |
| tween_chain | 102 | 0 | 0 | 102 |
| step_tween | 102 | 0 | 0 | 102 |
| step_tween_chain | 102 | 0 | 0 | 102 |
| MeshBP | 102 | 0 | 0 | 102 |
| MeshTween | 102 | 0 | 0 | 102 |
| MeshTweenChain | 102 | 0 | 0 | 102 |
| TweenSplit | 102 | 0 | 0 | 102 |
| StepTweenSplit | 102 | 0 | 0 | 102 |
| TweenAlt | 102 | 0 | 0 | 102 |
| StepTweenAlt | 102 | 0 | 0 | 102 |
| TweenSplitHeadProxy | 102 | 0 | 0 | 102 |
| TweenSplitLinear | 102 | 0 | 0 | 102 |
| TweenSplitFastProxy | 102 | 0 | 0 | 102 |
| TweenSplitLinearCache | 102 | 0 | 0 | 102 |
| TweenSplitHeadProxyAsync | 102 | 0 | 0 | 102 |
| TweenSplitSparse | 102 | 0 | 0 | 102 |
| MeshTweenSplit | 102 | 0 | 0 | 102 |
| MeshTweenAlt | 102 | 0 | 0 | 102 |
| MeshTweenSplitFastProxy | 102 | 0 | 0 | 102 |
| MeshTweenSplitSparse | 102 | 0 | 0 | 102 |

# tide  dense

Score = Throughput x Availability% x SoftAcc% / 10,000
done  -  epoch 1  -  2026-08-18 09:45:25  -  0.0.0.0:8101
This epoch 2346 / 2346 cells. Recorded 2346 results.
Score 0 usually means the cell finished before a Lucy pulse (SoftAcc never sampled) or true-class mass was 0. Those rows do not vote holistically.
dense  -  4-class pairwise XOR in noise  -  modes all  -  min 2000ms/cell  -  1024 train  -  pulse 50ms  -  SIMD true

## Lucy champions (this tide)

| Axis | Cell | Score | Soft | Acc | Thru | Avail |
|---|---|---|---|---|---|---|
| score | float32\|none\|sgd\|single\|simd | 161402.90 | 25.0 | 28.2 | 1921379.6 | 33.6 |
| throughput | float32\|none\|step_sgd\|single\|simd | 160922.34 | 25.0 | 27.9 | 1929001.3 | 33.4 |
| availability | uint6\|none\|TweenSplitSparse\|tricameral\|simd | 11647.16 | 25.0 | 23.5 | 98644.1 | 47.2 |
| accuracy | binary\|none\|TweenSplitHeadProxy\|single\|simd | 132015.71 | 25.3 | 30.2 | 1429848.5 | 36.5 |
| mobile score (tradeoff) | binary\|none\|MeshTweenSplitSparse\|single\|simd | 159730.59 | 25.3 | 25.4 | 1740470.2 | 36.3 |
| acc/sec | fp8e4m3\|none\|StepTweenAlt\|single\|simd | 117277.69 | 25.2 | 29.3 | 1269281.7 | 36.7 |

## Lucy axes - dense

| Axis | Mode | DType | Arch | Value |
|---|---|---|---|---|
| score | sgd | float32 | singlex1 | 161402.90 |
| soft_acc | TweenSplitHeadP~ | binary | singlex1 | 25.32 |
| hard_acc | sgd | int2 | bicameralx2 | 33.80 |
| throughput | step_sgd | float32 | singlex1 | 1929001.25 |
| availability | TweenSplitSparse | uint6 | tricameralx3 | 47.24 |
| acc_thru | step_sgd | float32 | singlex1 | 481539.54 |
| realtime | sgd | float32 | singlex1 | 646285.60 |
| adapt | MeshTweenSplitS~ | binary | singlex1 | 25.38 |
| keep_learn | tween | ternary | singlex1 | 12.63 |
| acc_per_sec | StepTweenAlt | fp8e4m3 | singlex1 | 12.57 |
| consistency | sgd | float64 | singlex1 | 100.00 |
| stability | sgd | fp4 | singlex1 | 100.00 |
| mobile_score | MeshTweenSplitS~ | binary | singlex1 | 41872414527.45 |
| lpd | MeshTweenSplitS~ | binary | singlex1 | 30.32 |
| mspeed | step_sgd | float32 | singlex1 | 1.00 |
| mavail | tween_chain | int3 | singlex1 | 0.88 |
| mix | sgd | float32 | singlex1 | 0.89 |

## Best settings per train mode

| Mode | DType | Format | Score | Soft | Acc | Avail | n |
|---|---|---|---|---|---|---|---|
| sgd | float32 | none | 161402.9 | 25.0 | 28.2 | 33.6 | 102 |
| step_sgd | float32 | none | 160922.3 | 25.0 | 27.9 | 33.4 | 102 |
| MeshTweenSplitSparse | uint8 | none | 160784.5 | 25.0 | 24.7 | 35.4 | 102 |
| tween_chain | float32 | none | 157516.8 | 25.0 | 28.1 | 33.9 | 102 |
| tween | float32 | none | 155225.0 | 25.0 | 27.5 | 34.1 | 102 |
| MeshBP | float32 | none | 144296.0 | 25.0 | 28.2 | 33.5 | 102 |
| step_tween | float32 | none | 143567.9 | 25.0 | 28.1 | 33.6 | 102 |
| TweenSplitSparse | float32 | none | 141658.7 | 24.9 | 28.5 | 33.9 | 102 |
| TweenSplitHeadProxy | float32 | none | 139010.7 | 25.0 | 27.8 | 33.9 | 102 |
| StepTweenSplit | float32 | none | 138892.9 | 25.0 | 28.3 | 33.8 | 102 |
| MeshTweenChain | float32 | none | 138062.9 | 25.0 | 27.9 | 33.9 | 102 |
| MeshTweenSplitFastProxy | fp4 | none | 137815.2 | 25.0 | 25.0 | 35.7 | 102 |
| TweenSplitLinearCache | float32 | none | 136823.8 | 25.1 | 24.4 | 34.2 | 102 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| step_tween_chain | float32 | none | 136484.4 | 25.0 | 28.1 | 33.1 | 102 |
| MeshTweenSplit | float16 | none | 136306.5 | 25.0 | 28.2 | 35.1 | 102 |
| TweenSplitLinear | int8 | none | 135327.2 | 25.0 | 24.5 | 36.1 | 102 |
| TweenSplitFastProxy | uint8 | none | 134963.6 | 24.9 | 23.7 | 35.7 | 102 |
| TweenSplit | float16 | none | 134334.2 | 25.0 | 27.6 | 35.0 | 102 |
| TweenAlt | float32 | none | 133570.5 | 25.0 | 28.2 | 32.7 | 102 |
| MeshTween | float16 | none | 131825.5 | 25.0 | 28.4 | 34.3 | 102 |
| TweenSplitHeadProxyAsync | float32 | none | 131238.2 | 25.0 | 28.6 | 33.7 | 102 |
| StepTweenAlt | float32 | none | 129407.6 | 25.0 | 28.3 | 32.2 | 102 |
| MeshTweenAlt | fp4 | none | 125517.9 | 25.0 | 25.0 | 34.4 | 102 |

## Best dtype per mode

| Mode | Winner dtype | Score | Soft | Acc |
|---|---|---|---|---|
| sgd | float32 | 161402.9 | 25.0 | 28.2 |
| step_sgd | float32 | 160922.3 | 25.0 | 27.9 |
| MeshTweenSplitSparse | uint8 | 160784.5 | 25.0 | 24.7 |
| tween_chain | float32 | 157516.8 | 25.0 | 28.1 |
| tween | float32 | 155225.0 | 25.0 | 27.5 |
| MeshBP | float32 | 144296.0 | 25.0 | 28.2 |
| step_tween | float32 | 143567.9 | 25.0 | 28.1 |
| TweenSplitSparse | float32 | 141658.7 | 24.9 | 28.5 |
| TweenSplitHeadProxy | float32 | 139010.7 | 25.0 | 27.8 |
| StepTweenSplit | float32 | 138892.9 | 25.0 | 28.3 |
| MeshTweenChain | float32 | 138062.9 | 25.0 | 27.9 |
| MeshTweenSplitFastProxy | fp4 | 137815.2 | 25.0 | 25.0 |
| TweenSplitLinearCache | float32 | 136823.8 | 25.1 | 24.4 |
| step_tween_chain | float32 | 136484.4 | 25.0 | 28.1 |
| MeshTweenSplit | float16 | 136306.5 | 25.0 | 28.2 |
| TweenSplitLinear | int8 | 135327.2 | 25.0 | 24.5 |
| TweenSplitFastProxy | uint8 | 134963.6 | 24.9 | 23.7 |
| TweenSplit | float16 | 134334.2 | 25.0 | 27.6 |
| TweenAlt | float32 | 133570.5 | 25.0 | 28.2 |
| MeshTween | float16 | 131825.5 | 25.0 | 28.4 |
| TweenSplitHeadProxyAsync | float32 | 131238.2 | 25.0 | 28.6 |
| StepTweenAlt | float32 | 129407.6 | 25.0 | 28.3 |
| MeshTweenAlt | fp4 | 125517.9 | 25.0 | 25.0 |

## Best mode per dtype

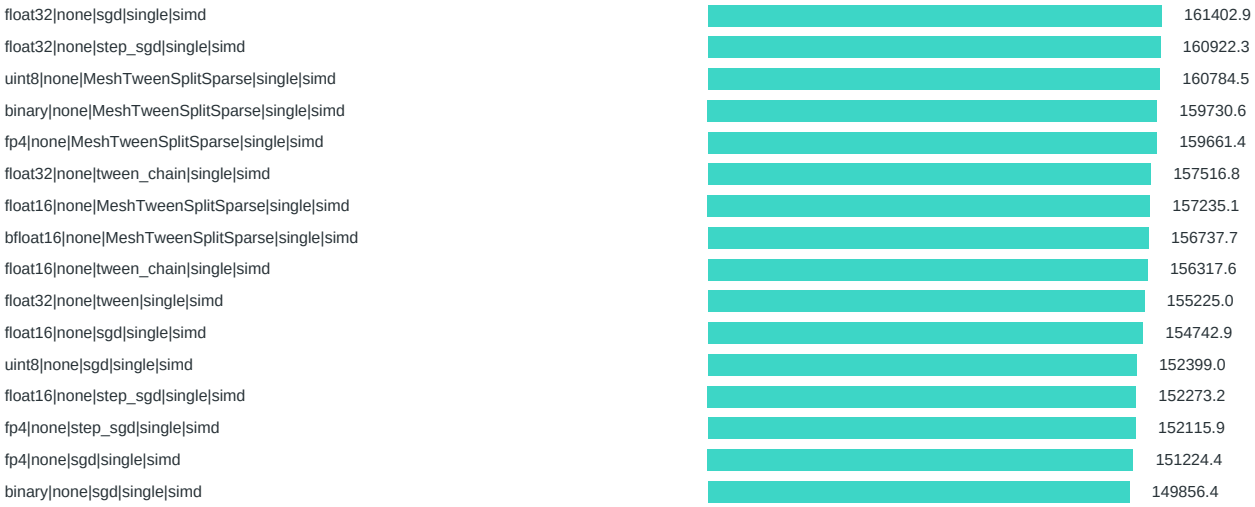
| DType | Winner mode | Score | Soft | Acc |
|---|---|---|---|---|
| float32 | sgd | 161402.9 | 25.0 | 28.2 |
| uint8 | MeshTweenSplitSparse | 160784.5 | 25.0 | 24.7 |
| binary | MeshTweenSplitSparse | 159730.6 | 25.3 | 25.4 |
| fp4 | MeshTweenSplitSparse | 159661.4 | 25.0 | 25.0 |
| float16 | MeshTweenSplitSparse | 157235.1 | 25.0 | 28.8 |
| bfloat16 | MeshTweenSplitSparse | 156737.7 | 25.0 | 29.1 |
| fp8e5m2 | MeshTweenSplitSparse | 148380.8 | 24.9 | 24.2 |
| ternary | step_sgd | 147634.7 | 25.1 | 28.2 |
| float64 | MeshTweenSplitSparse | 147535.8 | 25.0 | 27.4 |
| int8 | step_sgd | 146624.7 | 24.9 | 23.3 |
| int2 | step_sgd | 146137.7 | 25.1 | 24.0 |
| int4 | sgd | 144493.4 | 25.0 | 27.6 |
| uint64 | MeshTweenSplitSparse | 143913.4 | 25.0 | 24.4 |

| | | | | |
|---|---|---|---|---|
| uint32 | MeshTweenSplitSparse | 141922.2 | 24.9 | 23.1 |
| fp8e4m3 | MeshTweenSplitSparse | 140544.1 | 25.0 | 18.3 |
| uint16 | sgd | 135875.5 | 25.0 | 23.6 |
| uintptr | MeshTweenSplitSparse | 134579.1 | 25.0 | 24.2 |
| uint4 | sgd | 134204.3 | 25.0 | 22.2 |
| int64 | MeshTweenSplitSparse | 131582.3 | 25.0 | 27.8 |
| uint | MeshTweenSplitSparse | 130479.7 | 24.9 | 23.1 |
| int16 | sgd | 129671.5 | 25.0 | 23.7 |
| uint2 | step_sgd | 128069.1 | 25.0 | 24.2 |
| complex128 | MeshTweenSplitSparse | 127776.8 | 25.0 | 29.2 |
| int32 | MeshTweenSplitSparse | 127665.8 | 24.9 | 23.1 |
| complex64 | MeshTweenSplitSparse | 125923.7 | 25.0 | 27.7 |
| nf4 | MeshTweenSplitSparse | 122495.5 | 25.0 | 26.0 |
| int | MeshTweenSplitSparse | 118628.1 | 24.9 | 28.1 |
| uint3 | MeshTweenSplitSparse | 109200.1 | 25.0 | 30.4 |
| int3 | MeshTweenSplitSparse | 105446.4 | 24.9 | 24.9 |
| uint5 | MeshTweenSplitSparse | 97662.6 | 24.9 | 22.0 |
| int5 | MeshTweenSplitSparse | 92811.6 | 25.0 | 23.6 |
| uint6 | MeshTweenSplitSparse | 91714.8 | 25.0 | 24.8 |
| int6 | MeshTweenSplitSparse | 87739.8 | 25.0 | 23.2 |
| fp6 | sgd | 85975.0 | 24.9 | 22.6 |

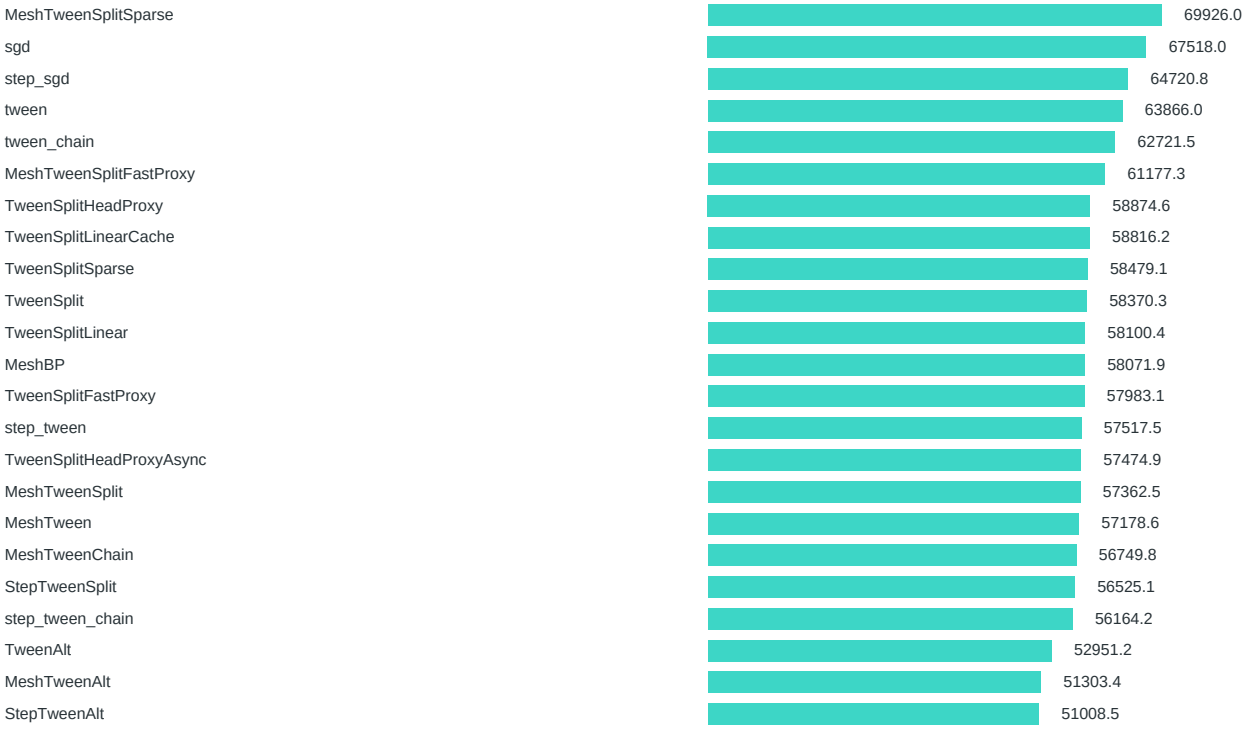
## Leaderboard - dense

| # | Cell | Score | Soft | Acc | Thru | Avail |
|---|---|---|---|---|---|---|
| 1 | float32\|none\|sgd\|single\|simd | 161402.9 | 25.0 | 28.2 | 1921379.6 | 33.6 |
| 2 | float32\|none\|step_sgd\|single\|simd | 160922.3 | 25.0 | 27.9 | 1929001.3 | 33.4 |
| 3 | uint8\|none\|MeshTweenSplitSparse\|single\|simd | 160784.5 | 25.0 | 24.7 | 1817795.5 | 35.4 |
| 4 | binary\|none\|MeshTweenSplitSparse\|single\|simd | 159730.6 | 25.3 | 25.4 | 1740470.2 | 36.3 |
| 5 | fp4\|none\|MeshTweenSplitSparse\|single\|simd | 159661.4 | 25.0 | 25.0 | 1807861.6 | 35.3 |
| 6 | float32\|none\|tween_chain\|single\|simd | 157516.8 | 25.0 | 28.1 | 1861900.3 | 33.9 |
| 7 | float16\|none\|MeshTweenSplitSparse\|single\|simd | 157235.1 | 25.0 | 28.8 | 1847117.7 | 34.1 |
| 8 | bfloat16\|none\|MeshTweenSplitSparse\|single\|simd | 156737.7 | 25.0 | 29.1 | 1745144.5 | 35.9 |
| 9 | float16\|none\|tween_chain\|single\|simd | 156317.6 | 25.0 | 28.1 | 1795420.7 | 34.9 |
| 10 | float32\|none\|tween\|single\|simd | 155225.0 | 25.0 | 27.5 | 1825856.5 | 34.1 |
| 11 | float16\|none\|sgd\|single\|simd | 154742.9 | 25.0 | 28.3 | 1780739.4 | 34.8 |
| 12 | uint8\|none\|sgd\|single\|simd | 152399.0 | 25.0 | 24.3 | 1719962.3 | 35.5 |
| 13 | float16\|none\|step_sgd\|single\|simd | 152273.2 | 25.0 | 28.0 | 1789970.5 | 34.1 |
| 14 | fp4\|none\|step_sgd\|single\|simd | 152115.9 | 25.0 | 25.0 | 1722298.5 | 35.3 |
| 15 | fp4\|none\|sgd\|single\|simd | 151224.4 | 25.0 | 25.0 | 1694771.8 | 35.7 |
| 16 | binary\|none\|sgd\|single\|simd | 149856.4 | 25.0 | 21.9 | 1633444.6 | 36.7 |
| 17 | bfloat16\|none\|sgd\|single\|simd | 149360.7 | 25.0 | 28.9 | 1648731.9 | 36.3 |
| 18 | float32\|none\|MeshTweenSplitSparse\|single\|simd | 148502.7 | 25.0 | 28.4 | 1790441.1 | 33.2 |
| 19 | fp8e5m2\|none\|MeshTweenSplitSparse\|single\|simd | 148380.8 | 24.9 | 24.2 | 1579821.5 | 37.6 |
| 20 | bfloat16\|none\|tween_chain\|single\|simd | 148144.3 | 25.0 | 29.0 | 1640634.3 | 36.2 |

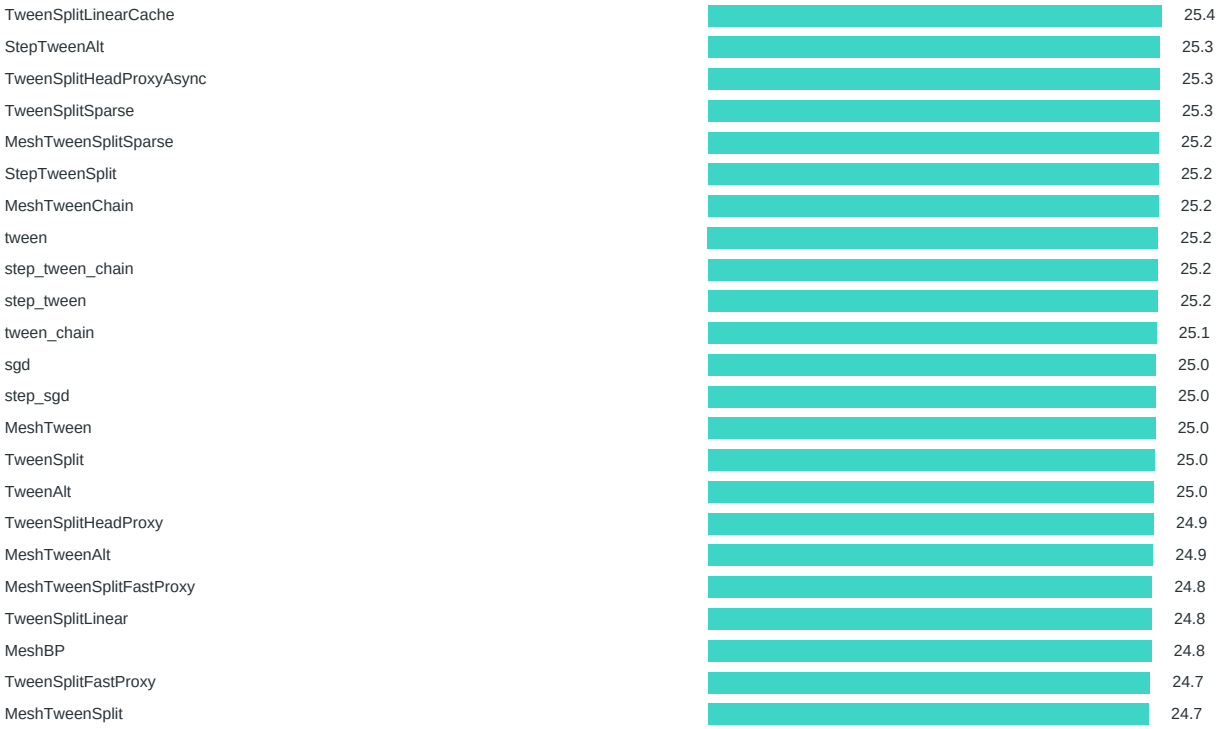
## Top scores - dense



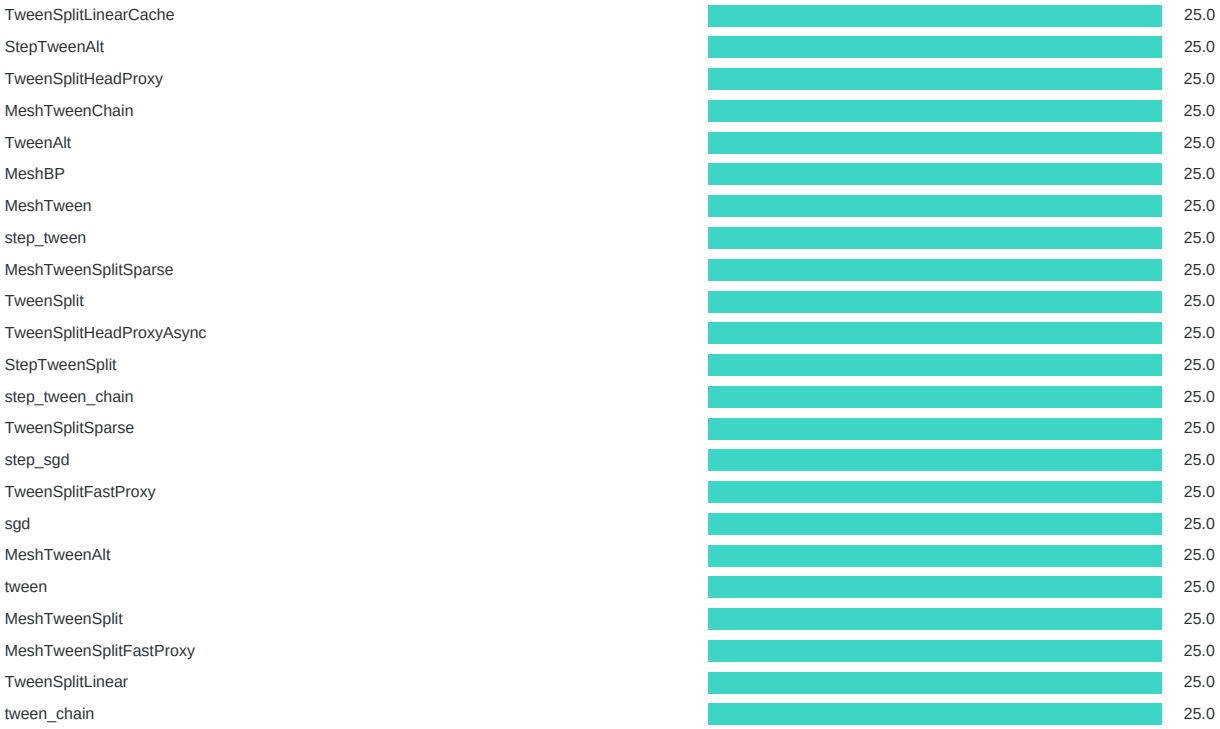

## Mean Score by train mode



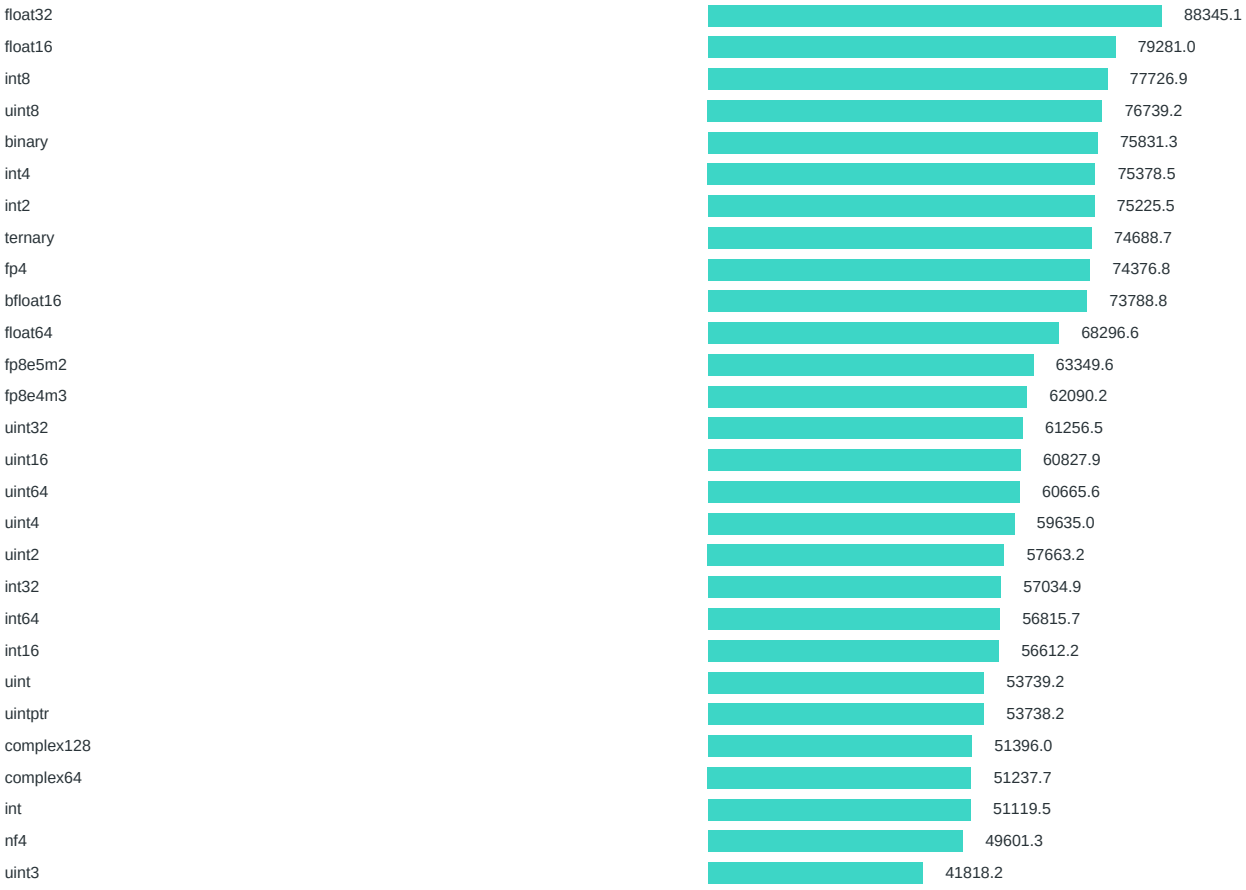

## Mean hard Acc by train mode




## Mean SoftAcc by train mode




## Mean Score by dtype




## Mean hard Acc by dtype




## Mean Score by arch




## Honesty - mean Score, every mode x dtype (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 73361 | 74099 | 50571 | 48762 | 77693 | 89236 | 68731 | 71803 | 31804 | 60041 | 62478 | 49650 | 57021 | 74578 | 40073 | 58457 |
| MeshTween | 70413 | 72733 | 50440 | 50495 | 76111 | 83941 | 65563 | 72698 | 31603 | 58188 | 60972 | 50288 | 56046 | 72339 | 39241 | 58041 |
| MeshTweenAlt | 68024 | 68055 | 44702 | 44624 | 66920 | 76321 | 60307 | 65660 | 26770 | 55450 | 57427 | 44656 | 49626 | 66004 | 34585 | 50477 |
| MeshTweenChain | 70545 | 72421 | 49397 | 49380 | 75212 | 85467 | 67480 | 72907 | 30641 | 60778 | 59935 | 47947 | 53562 | 75779 | 38746 | 54674 |
| MeshTweenSplit | 70152 | 78366 | 52415 | 51643 | 79816 | 81001 | 65764 | 71007 | 31367 | 61088 | 60128 | 52021 | 53918 | 76032 | 37238 | 53926 |
| MeshTweenSplitFa | 74389 | 75147 | 52289 | 53263 | 80506 | 93283 | 67393 | 80840 | 33328 | 64027 | 65829 | 53887 | 58382 | 75628 | 48262 | 63068 |
| MeshTweenSplitSp | 86755 | 92216 | 63101 | 61565 | 93194 | 99536 | 83004 | 90403 | 37781 | 73674 | 78539 | 60514 | 65628 | 84697 | 49855 | 68322 |
| StepTweenAlt | 66239 | 64486 | 44984 | 44274 | 69346 | 78563 | 60372 | 61823 | 27352 | 56960 | 57110 | 44686 | 49417 | 65354 | 34514 | 50060 |
| StepTweenSplit | 70932 | 72229 | 48837 | 49636 | 75467 | 84910 | 62996 | 71445 | 30082 | 58968 | 61723 | 49600 | 55981 | 73399 | 37850 | 56739 |
| TweenAlt | 67073 | 67933 | 45271 | 47333 | 70216 | 81643 | 62487 | 67537 | 29271 | 55996 | 57659 | 46078 | 50686 | 67811 | 34608 | 52080 |
| TweenSplit | 73887 | 75694 | 50854 | 50066 | 80387 | 84379 | 65791 | 75364 | 32502 | 61531 | 62747 | 50190 | 56456 | 75264 | 38894 | 56091 |
| TweenSplitFastPr | 74634 | 76380 | 51329 | 51305 | 78570 | 86232 | 63125 | 66144 | 32466 | 60937 | 63622 | 51013 | 56391 | 73660 | 39111 | 57709 |
| TweenSplitHeadPr | 73272 | 77062 | 53166 | 51587 | 79358 | 88540 | 70991 | 74146 | 34579 | 62579 | 61410 | 51363 | 54489 | 78222 | 42657 | 57042 |
| TweenSplitHeadPr | 69327 | 70996 | 51509 | 49901 | 73981 | 86106 | 65585 | 73257 | 32383 | 62075 | 63293 | 50218 | 56339 | 73312 | 41432 | 53135 |
| TweenSplitLinear | 74049 | 74567 | 49565 | 52565 | 77070 | 86940 | 65293 | 72544 | 32955 | 58713 | 60048 | 50278 | 55487 | 74241 | 41850 | 54918 |
| TweenSplitLinear | 72026 | 76322 | 52786 | 53238 | 80349 | 88879 | 68454 | 74881 | 33705 | 60623 | 63248 | 50212 | 56441 | 73072 | 40844 | 57274 |
| TweenSplitSparse | 74299 | 75419 | 50491 | 48399 | 76716 | 87656 | 67245 | 75827 | 32781 | 61002 | 60724 | 48847 | 58818 | 73703 | 40349 | 56809 |
| sgd | 84201 | 88124 | 59094 | 58317 | 91449 | 101774 | 79547 | 85626 | 38061 | 69152 | 71646 | 58041 | 66145 | 85796 | 47355 | 64606 |
| step_sgd | 80238 | 83235 | 54437 | 55875 | 88502 | 99273 | 77019 | 83399 | 35212 | 68435 | 69684 | 56195 | 61813 | 84156 | 44022 | 62600 |
| step_tween | 71793 | 74280 | 49741 | 50208 | 79643 | 88444 | 67548 | 72667 | 31322 | 61118 | 61356 | 50226 | 55319 | 74021 | 37143 | 56953 |
| step_tween_chain | 70368 | 70919 | 47886 | 47023 | 78726 | 86861 | 67498 | 71716 | 29358 | 60770 | 60988 | 49295 | 53331 | 72296 | 38130 | 54041 |
| tween | 80533 | 83487 | 54634 | 54468 | 86030 | 97300 | 76887 | 81256 | 35031 | 68102 | 67000 | 54916 | 60286 | 81734 | 44511 | 61692 |
| tween_chain | 80631 | 79950 | 54610 | 54540 | 88200 | 95652 | 71740 | 77717 | 34849 | 67868 | 69475 | 55630 | 60497 | 79087 | 42638 | 53089 |

## Honesty - mean Score, every mode x dtype (cols 17-32)

## Honesty - mean Score, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 73883 | 33886 | 32071 | 57042 | 77467 | 48303 | 75250 | 52584 | 61218 | 57675 | 40130 | 60698 | 57288 | 36811 | 33533 | 60674 |
| MeshTween | 75085 | 33587 | 31047 | 53912 | 75102 | 48575 | 71318 | 51699 | 59591 | 56057 | 39537 | 62714 | 60714 | 35324 | 32402 | 59059 |
| MeshTweenAlt | 67172 | 29139 | 26021 | 48022 | 67675 | 42154 | 63975 | 49080 | 52279 | 48817 | 35074 | 52322 | 53835 | 30751 | 29426 | 54307 |
| MeshTweenChain | 75426 | 32610 | 31134 | 54528 | 73771 | 47085 | 73453 | 51271 | 60356 | 55363 | 40057 | 57404 | 59497 | 36160 | 32639 | 57961 |
| MeshTweenSplit | 77442 | 32164 | 31084 | 53025 | 77215 | 50439 | 74597 | 56740 | 56397 | 52195 | 41369 | 58277 | 58043 | 37087 | 32628 | 56876 |
| MeshTweenSplitFa | 78199 | 37247 | 32580 | 60532 | 83572 | 54681 | 74264 | 53734 | 64923 | 63554 | 47095 | 62417 | 57477 | 40571 | 34966 | 60949 |
| MeshTweenSplitSp | 87871 | 42648 | 39774 | 67765 | 85390 | 60709 | 87313 | 65702 | 70371 | 66631 | 51423 | 74942 | 68384 | 44912 | 42086 | 74386 |
| StepTweenAlt | 65656 | 29553 | 28339 | 47360 | 68825 | 41508 | 66422 | 45903 | 51469 | 48748 | 36832 | 52393 | 51000 | 31856 | 28510 | 52608 |
| StepTweenSplit | 71862 | 33369 | 31381 | 56357 | 75753 | 45967 | 73301 | 50733 | 58817 | 56967 | 39127 | 58377 | 58528 | 34953 | 32104 | 61591 |
| TweenAlt | 65151 | 30906 | 28039 | 50601 | 72063 | 43665 | 67200 | 47536 | 55924 | 53997 | 36804 | 54708 | 52658 | 31243 | 30167 | 54390 |
| TweenSplit | 75031 | 36266 | 33196 | 55710 | 77652 | 48352 | 75905 | 52622 | 59711 | 57994 | 39947 | 61444 | 59813 | 38048 | 34716 | 59549 |
| TweenSplitFastPr | 74594 | 36297 | 33012 | 54428 | 75089 | 49401 | 73660 | 55427 | 60898 | 58512 | 40148 | 59580 | 57186 | 36848 | 34087 | 58840 |
| TweenSplitHeadPr | 72171 | 36837 | 33431 | 54980 | 74153 | 50220 | 74024 | 55299 | 60183 | 57984 | 42285 | 58507 | 58811 | 37744 | 35002 | 59377 |
| TweenSplitHeadPr | 77015 | 34334 | 31408 | 53853 | 78863 | 47762 | 68781 | 52072 | 57300 | 56998 | 41732 | 63201 | 58140 | 36207 | 33512 | 60774 |
| TweenSplitLinear | 74274 | 34752 | 34193 | 55303 | 78059 | 49090 | 70874 | 52362 | 63320 | 56019 | 43435 | 60402 | 61454 | 36338 | 35436 | 62213 |
| TweenSplitLinear | 73540 | 35886 | 32476 | 60435 | 75282 | 51305 | 74668 | 51764 | 63071 | 59136 | 40957 | 59359 | 59690 | 37140 | 34909 | 58077 |
| TweenSplitSparse | 72079 | 35187 | 35183 | 58361 | 77438 | 49651 | 72547 | 53476 | 59290 | 56098 | 42442 | 61965 | 61138 | 38301 | 33464 | 61360 |
| sgd | 85764 | 40781 | 38212 | 66209 | 88879 | 56109 | 85907 | 60494 | 70879 | 64261 | 47786 | 70195 | 69256 | 42612 | 40525 | 69306 |
| step_sgd | 82701 | 38212 | 34361 | 61196 | 86395 | 54075 | 84620 | 59543 | 66515 | 64160 | 46806 | 68845 | 65575 | 39063 | 36750 | 65155 |
| step_tween | 73358 | 32557 | 31444 | 56458 | 78177 | 47567 | 73234 | 52438 | 59184 | 57072 | 39616 | 58447 | 58907 | 34922 | 32417 | 58858 |
| step_tween_chain | 72789 | 33031 | 30990 | 55772 | 75127 | 47355 | 73604 | 50083 | 55930 | 55248 | 40077 | 58216 | 56325 | 34925 | 31649 | 58235 |
| tween | 82584 | 37219 | 34949 | 61240 | 83396 | 53288 | 83354 | 57478 | 67189 | 62658 | 45401 | 68978 | 63381 | 39313 | 37032 | 66370 |
| tween_chain | 80058 | 36625 | 35463 | 63675 | 82377 | 53571 | 79570 | 57963 | 64228 | 60109 | 43739 | 65506 | 64505 | 39030 | 36739 | 64393 |

## Honesty - mean Score, every mode x dtype  (cols 33-34)

## Honesty - mean Score, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 76652 | 50922 |
| MeshTween | 75736 | 53498 |
| MeshTweenAlt | 64565 | 50094 |
| MeshTweenChain | 75213 | 50697 |
| MeshTweenSplit | 76937 | 51927 |
| MeshTweenSplitFa | 80630 | 53117 |
| MeshTweenSplitSp | 91606 | 66786 |
| StepTweenAlt | 66185 | 45581 |
| StepTweenSplit | 70911 | 50958 |
| TweenAlt | 71340 | 50267 |
| TweenSplit | 74797 | 53740 |
| TweenSplitFastPr | 76995 | 53800 |
| TweenSplitHeadPr | 75233 | 55033 |
| TweenSplitHeadPr | 74302 | 55045 |
| TweenSplitLinear | 74674 | 52134 |
| TweenSplitLinear | 76575 | 53127 |
| TweenSplitSparse | 79035 | 52188 |
| sgd | 87681 | 61822 |
| step_sgd | 83213 | 59228 |
| step_tween | 77283 | 51872 |
| step_tween_chain | 71370 | 49653 |
| tween | 81930 | 57819 |
| tween_chain | 82137 | 56672 |

## Honesty - mean hard Acc, every mode x dtype  (cols 1-16)

## Honesty - mean hard Acc, every mode x dtype  (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 25 | 25 | 26 | 26 | 26 | 27 | 26 | 25 | 22 | 25 | 25 | 26 | 24 | 25 | 26 | 25 |
| MeshTween | 27 | 24 | 30 | 26 | 25 | 26 | 27 | 25 | 24 | 27 | 28 | 25 | 25 | 24 | 23 | 24 |
| MeshTweenAlt | 26 | 25 | 26 | 26 | 26 | 27 | 27 | 25 | 23 | 26 | 22 | 27 | 24 | 23 | 26 | 24 |
| MeshTweenChain | 25 | 27 | 26 | 26 | 26 | 27 | 25 | 25 | 25 | 25 | 26 | 27 | 26 | 24 | 27 | 24 |
| MeshTweenSplit | 26 | 24 | 26 | 25 | 26 | 27 | 27 | 25 | 25 | 22 | 25 | 26 | 25 | 23 | 24 | 23 |
| MeshTweenSplitFa | 26 | 25 | 27 | 25 | 25 | 25 | 26 | 25 | 24 | 25 | 24 | 26 | 25 | 25 | 25 | 26 |
| MeshTweenSplitSp | 26 | 25 | 26 | 26 | 27 | 27 | 26 | 25 | 24 | 25 | 25 | 26 | 24 | 24 | 24 | 23 |
| StepTweenAlt | 26 | 27 | 27 | 27 | 26 | 27 | 26 | 25 | 23 | 25 | 26 | 26 | 24 | 27 | 24 | 24 |
| StepTweenSplit | 26 | 24 | 26 | 26 | 26 | 26 | 27 | 25 | 25 | 28 | 25 | 26 | 24 | 24 | 26 | 25 |
| TweenAlt | 26 | 23 | 26 | 27 | 26 | 27 | 27 | 25 | 24 | 24 | 24 | 26 | 24 | 25 | 24 | 24 |
| TweenSplit | 26 | 24 | 27 | 26 | 26 | 27 | 27 | 25 | 25 | 26 | 25 | 26 | 24 | 25 | 22 | 24 |
| TweenSplitFastPr | 27 | 26 | 26 | 27 | 26 | 26 | 26 | 25 | 24 | 23 | 24 | 27 | 24 | 24 | 25 | 26 |
| TweenSplitHeadPr | 26 | 29 | 25 | 25 | 26 | 26 | 26 | 25 | 24 | 23 | 24 | 26 | 24 | 25 | 24 | 24 |
| TweenSplitHeadPr | 27 | 25 | 26 | 25 | 27 | 26 | 25 | 25 | 26 | 25 | 24 | 26 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 27 | 24 | 26 | 25 | 27 | 25 | 25 | 25 | 25 | 25 | 23 | 26 | 25 | 26 | 24 | 24 |
| TweenSplitLinear | 24 | 24 | 27 | 24 | 25 | 24 | 24 | 25 | 26 | 26 | 25 | 25 | 27 | 24 | 25 | 26 |
| TweenSplitSparse | 27 | 23 | 25 | 25 | 25 | 27 | 26 | 25 | 26 | 26 | 26 | 27 | 26 | 24 | 28 | 25 |
| sgd | 26 | 24 | 27 | 27 | 27 | 27 | 27 | 25 | 25 | 25 | 24 | 27 | 24 | 28 | 22 | 24 |
| step_sgd | 26 | 25 | 26 | 26 | 26 | 27 | 27 | 25 | 26 | 26 | 27 | 26 | 24 | 27 | 24 | 25 |
| step_tween | 26 | 23 | 27 | 26 | 26 | 27 | 26 | 25 | 27 | 28 | 23 | 26 | 26 | 22 | 25 | 24 |
| step_tween_chain | 26 | 24 | 26 | 27 | 26 | 26 | 26 | 25 | 24 | 25 | 27 | 27 | 24 | 25 | 24 | 25 |
| tween | 27 | 26 | 24 | 25 | 28 | 26 | 25 | 25 | 24 | 26 | 25 | 26 | 25 | 27 | 24 | 26 |
| tween_chain | 27 | 24 | 26 | 27 | 27 | 26 | 26 | 25 | 23 | 26 | 26 | 27 | 24 | 23 | 24 | 23 |

## Honesty - mean hard Acc, every mode x dtype  (cols 17-32)

## Honesty - mean hard Acc, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 22 | 23 | 24 | 27 | 24 | 26 | 26 | 24 | 24 | 24 | 25 | 24 | 23 | 23 | 25 | 24 |
| MeshTween | 24 | 25 | 25 | 26 | 25 | 26 | 26 | 23 | 27 | 25 | 23 | 24 | 25 | 25 | 22 | 23 |
| MeshTweenAlt | 22 | 25 | 25 | 27 | 24 | 25 | 24 | 24 | 24 | 26 | 27 | 25 | 23 | 25 | 24 | 24 |
| MeshTweenChain | 24 | 24 | 25 | 26 | 25 | 26 | 23 | 24 | 24 | 27 | 29 | 24 | 25 | 23 | 26 | 24 |
| MeshTweenSplit | 25 | 26 | 25 | 26 | 24 | 25 | 24 | 24 | 24 | 25 | 25 | 24 | 24 | 22 | 24 | 24 |
| MeshTweenSplitFa | 25 | 24 | 23 | 26 | 24 | 24 | 24 | 24 | 25 | 25 | 25 | 25 | 22 | 24 | 24 | 24 |
| MeshTweenSplitSp | 27 | 26 | 25 | 26 | 24 | 25 | 24 | 24 | 24 | 25 | 28 | 25 | 24 | 23 | 26 | 25 |
| StepTweenAlt | 25 | 24 | 23 | 27 | 25 | 26 | 27 | 24 | 24 | 28 | 25 | 24 | 24 | 26 | 25 | 24 |
| StepTweenSplit | 25 | 24 | 25 | 27 | 24 | 26 | 26 | 24 | 24 | 24 | 26 | 25 | 26 | 25 | 24 | 24 |
| TweenAlt | 25 | 25 | 25 | 27 | 24 | 26 | 28 | 24 | 24 | 24 | 25 | 24 | 23 | 24 | 24 | 24 |
| TweenSplit | 23 | 26 | 25 | 26 | 24 | 23 | 27 | 25 | 24 | 27 | 26 | 24 | 23 | 24 | 25 | 24 |
| TweenSplitFastPr | 26 | 24 | 22 | 26 | 23 | 25 | 24 | 23 | 24 | 24 | 25 | 25 | 24 | 22 | 23 | 24 |
| TweenSplitHeadPr | 24 | 26 | 25 | 27 | 27 | 25 | 24 | 25 | 25 | 24 | 24 | 25 | 23 | 23 | 25 | 25 |
| TweenSplitHeadPr | 24 | 28 | 25 | 27 | 26 | 24 | 27 | 26 | 24 | 26 | 25 | 25 | 24 | 25 | 24 | 25 |
| TweenSplitLinear | 25 | 24 | 25 | 26 | 26 | 23 | 26 | 26 | 24 | 23 | 23 | 24 | 23 | 26 | 23 | 23 |
| TweenSplitLinear | 23 | 26 | 24 | 26 | 28 | 26 | 26 | 26 | 27 | 25 | 25 | 24 | 28 | 23 | 27 | 25 |
| TweenSplitSparse | 23 | 24 | 25 | 26 | 25 | 26 | 26 | 27 | 25 | 26 | 25 | 24 | 25 | 25 | 24 | 26 |
| sgd | 26 | 25 | 22 | 27 | 24 | 27 | 26 | 24 | 25 | 23 | 24 | 24 | 23 | 25 | 23 | 25 |
| step_sgd | 24 | 25 | 24 | 26 | 23 | 23 | 24 | 24 | 25 | 24 | 25 | 24 | 25 | 23 | 24 | 25 |
| step_tween | 24 | 25 | 24 | 25 | 25 | 26 | 24 | 24 | 26 | 26 | 26 | 24 | 26 | 25 | 24 | 26 |
| step_tween_chain | 24 | 24 | 24 | 26 | 24 | 26 | 26 | 24 | 25 | 25 | 24 | 25 | 25 | 25 | 26 | 24 |
| tween | 24 | 25 | 24 | 26 | 25 | 27 | 24 | 25 | 23 | 28 | 25 | 24 | 26 | 26 | 24 | 24 |
| tween_chain | 24 | 24 | 24 | 26 | 25 | 27 | 25 | 24 | 24 | 25 | 25 | 24 | 26 | 25 | 26 | 24 |

## Honesty - mean hard Acc, every mode x dtype  (cols 33-34)

## Honesty - mean hard Acc, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 25 | 24 |
| MeshTween | 24 | 24 |
| MeshTweenAlt | 24 | 26 |
| MeshTweenChain | 25 | 24 |
| MeshTweenSplit | 25 | 24 |
| MeshTweenSplitFa | 25 | 25 |
| MeshTweenSplitSp | 25 | 26 |
| StepTweenAlt | 24 | 24 |
| StepTweenSplit | 24 | 24 |
| TweenAlt | 25 | 24 |
| TweenSplit | 25 | 25 |
| TweenSplitFastPr | 24 | 24 |
| TweenSplitHeadPr | 23 | 25 |
| TweenSplitHeadPr | 24 | 25 |
| TweenSplitLinear | 25 | 26 |
| TweenSplitLinear | 24 | 25 |
| TweenSplitSparse | 24 | 23 |
| sgd | 25 | 24 |
| step_sgd | 24 | 25 |
| step_tween | 25 | 24 |
| step_tween_chain | 25 | 25 |
| tween | 24 | 24 |
| tween_chain | 24 | 24 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 1-16)

## Honesty - mean SoftAcc, every mode x dtype  (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenChain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitFastPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitSparse | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 17-32)

## Honesty - mean SoftAcc, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenChain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitFastPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitSparse | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 33-34)

## Honesty - mean SoftAcc, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 25 | 25 |
| MeshTween | 25 | 25 |
| MeshTweenAlt | 25 | 25 |
| MeshTweenChain | 25 | 25 |
| MeshTweenSplit | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 |
| StepTweenAlt | 25 | 25 |
| StepTweenSplit | 25 | 25 |
| TweenAlt | 25 | 25 |
| TweenSplit | 25 | 25 |
| TweenSplitFastPr | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 |
| TweenSplitLinear | 25 | 25 |
| TweenSplitLinear | 25 | 25 |
| TweenSplitSparse | 25 | 25 |
| sgd | 25 | 25 |
| step_sgd | 25 | 25 |
| step_tween | 25 | 25 |
| step_tween_chain | 25 | 25 |
| tween | 25 | 25 |
| tween_chain | 25 | 25 |

## Mean Score, every mode x arch

## Mean Score, every mode x arch

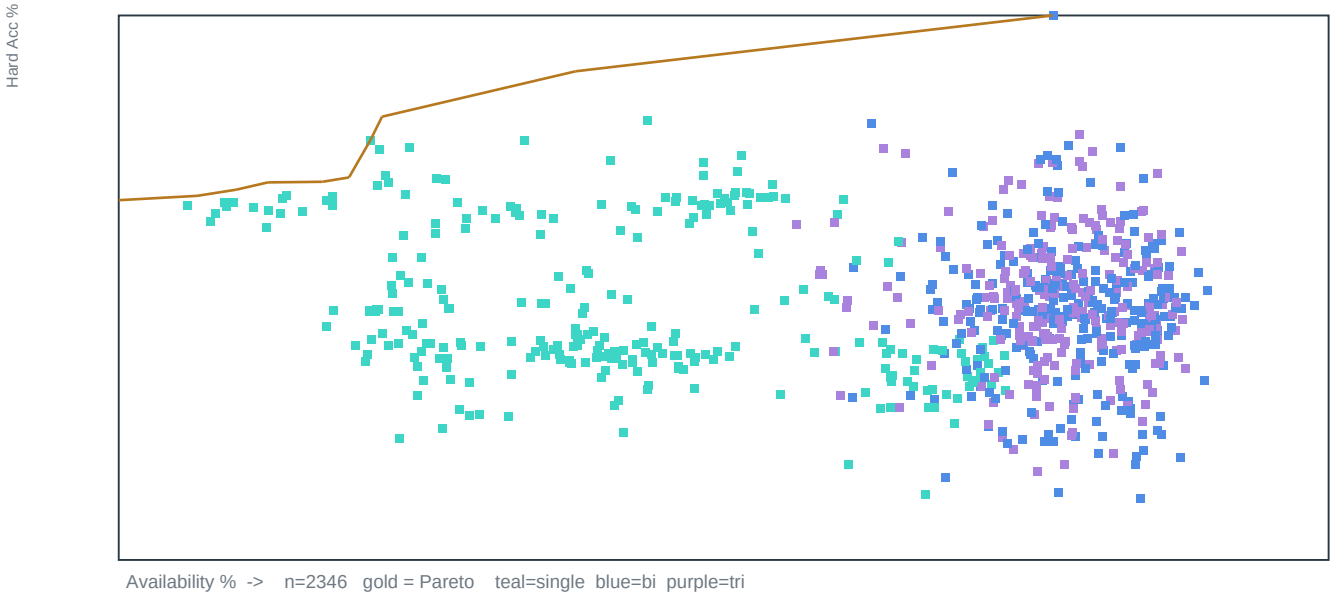
| | bicamera | singlex1 | tricamer |
|---|---|---|---|
| MeshBP | 34964 | 111375 | 27877 |
| MeshTween | 34839 | 108974 | 27722 |
| MeshTweenAlt | 29737 | 99528 | 24645 |
| MeshTweenChain | 34589 | 107879 | 27782 |
| MeshTweenSplit | 37028 | 105341 | 29719 |
| MeshTweenSplitFa | 42247 | 107014 | 34272 |
| MeshTweenSplitSp | 43980 | 129838 | 35960 |
| StepTweenAlt | 29349 | 100909 | 22767 |
| StepTweenSplit | 34458 | 107161 | 27956 |
| TweenAlt | 30908 | 103056 | 24890 |
| TweenSplit | 36597 | 108662 | 29852 |
| TweenSplitFastPr | 36566 | 107514 | 29869 |
| TweenSplitHeadPr | 37370 | 109287 | 29967 |
| TweenSplitHeadPr | 36134 | 106601 | 29689 |
| TweenSplitLinear | 35556 | 109494 | 29251 |
| TweenSplitLinear | 37282 | 109131 | 30036 |
| TweenSplitSparse | 36402 | 109152 | 29883 |
| sgd | 41540 | 127275 | 33740 |
| step_sgd | 38388 | 124841 | 30934 |
| step_tween | 34269 | 111118 | 27165 |
| step_tween_chain | 33392 | 108499 | 26602 |
| tween | 38895 | 121158 | 31545 |
| tween_chain | 38032 | 119678 | 30455 |

## Mean hard Acc, every mode x arch

## Mean hard Acc, every mode x arch

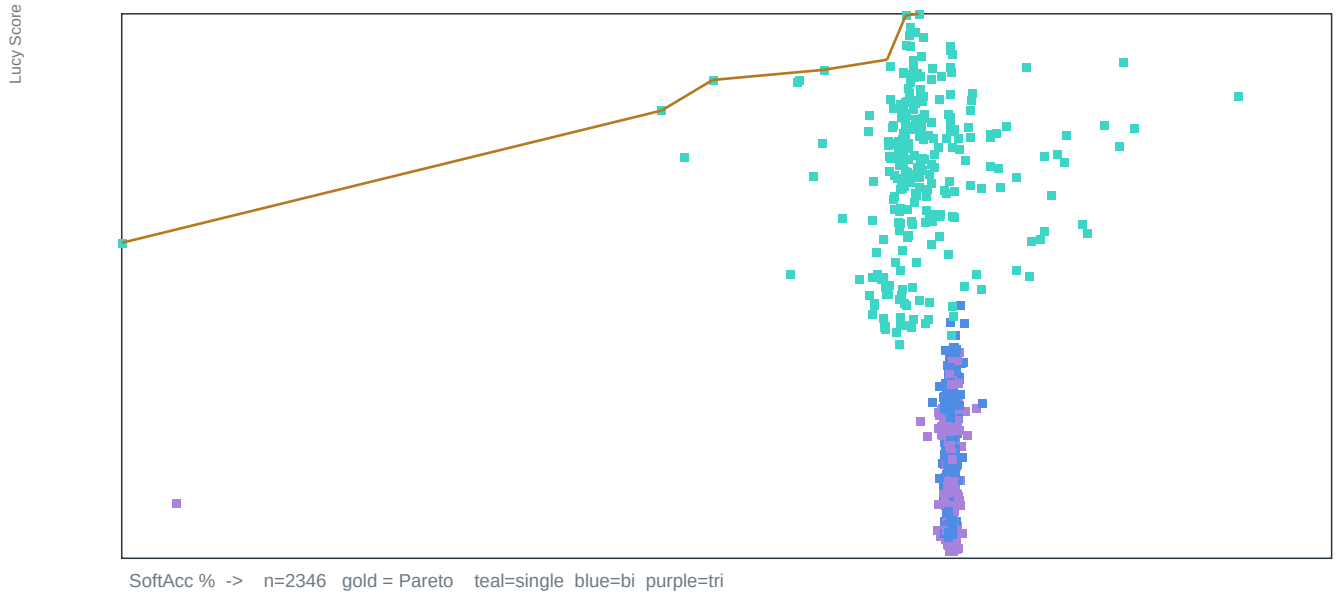
| | bicamera | singlex1 | tricamer |
|---|---|---|---|
| MeshBP | 25 | 25 | 24 |
| MeshTween | 25 | 25 | 25 |
| MeshTweenAlt | 25 | 25 | 25 |
| MeshTweenChain | 25 | 25 | 25 |
| MeshTweenSplit | 24 | 24 | 25 |
| MeshTweenSplitFa | 25 | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 | 25 |
| StepTweenAlt | 25 | 26 | 25 |
| StepTweenSplit | 25 | 25 | 25 |
| TweenAlt | 25 | 25 | 25 |
| TweenSplit | 25 | 25 | 25 |
| TweenSplitFastPr | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 26 | 25 |
| TweenSplitSparse | 25 | 25 | 26 |
| sgd | 25 | 25 | 25 |
| step_sgd | 25 | 25 | 25 |
| step_tween | 25 | 25 | 25 |
| step_tween_chain | 25 | 25 | 25 |
| tween | 24 | 25 | 26 |
| tween_chain | 25 | 25 | 25 |

## Avail vs hard Acc (headline scatter)

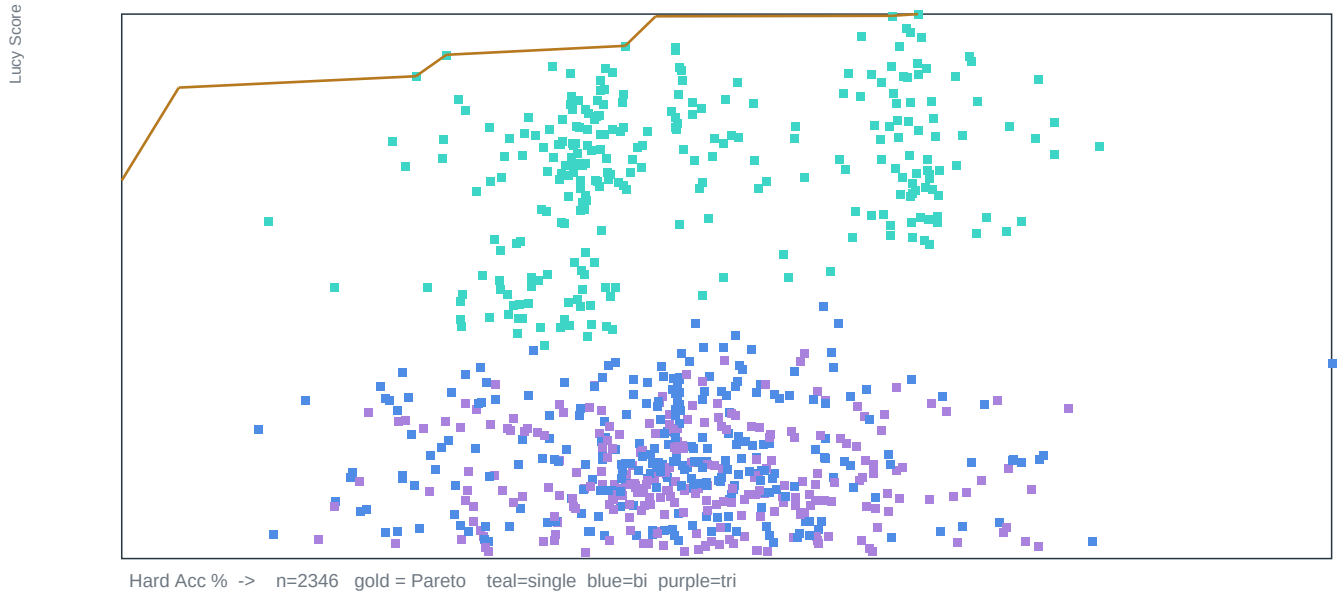



## Pareto - SoftAcc vs Score

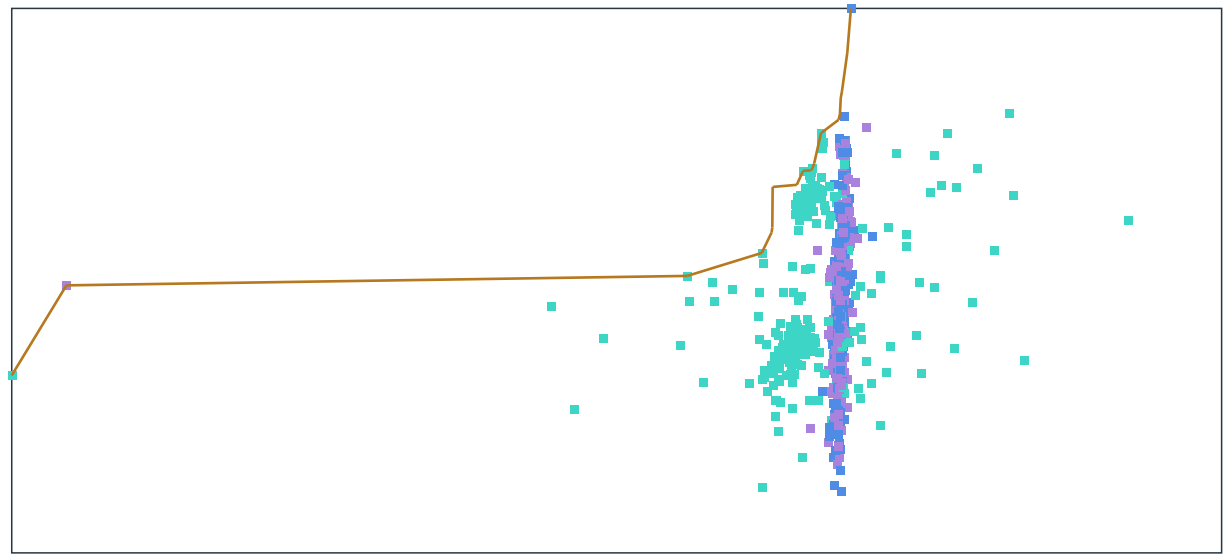
## Pareto - SoftAcc vs Score




## Pareto - hard Acc vs Score

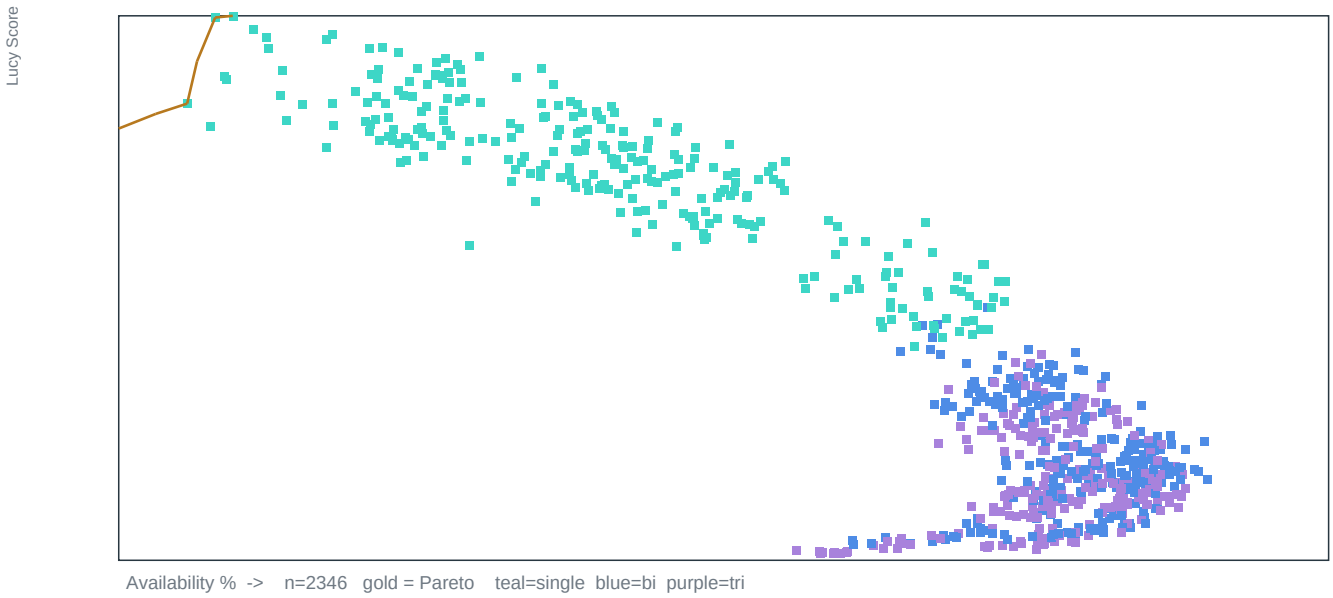



## SoftAcc vs hard Acc




SoftAcc %  ->  n=2346  gold = Pareto  teal=single  blue=bi  purple=tri
Hard Acc %

## Avail vs Score (duty clock)




## Lucy Pareto (LPD) - goldilocks

Q = geomean of Score/Soft/Acc/Thru vs the Lucy Score champion. LPD = 0 if Q<70%, else Q x shrink vs champ RAM (capped 32x). Gold = Q>=80% and RAM<=20% of champ. MSpeed = Thru vs the board's fastest (0 if Q<70%). MAvail = Availability vs the board's best duty cycle (0 if Q<70%). Mix = geomean(Q, MSpeed, MAvail). Raw Score/MiB is the binary trap.

Quality champ float32|none|sgd|single|simd  Score 161402.9  Soft 25  Acc 28  Thru 1921380  RAM 0.1 KiB

Board fastest float32|none|step_sgd|single|simd  Thru 1929001  Best availability uint6|none|TweenSplitSparse|tricameral|simd 47.2%

## Gold - Q >= 80% of champ, RAM <= 20%

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| gold | binary\|none\|MeshTweenSplitSparse\|single\|simd | 95 | 3 | 32.0 | 30.32 | 25 | 25 | 159730.6 | 0.0 |
| gold | binary\|none\|step_sgd\|single\|simd | 90 | 3 | 32.0 | 28.93 | 25 | 25 | 145502.6 | 0.0 |
| gold | binary\|none\|tween_chain\|single\|simd | 90 | 3 | 32.0 | 28.73 | 25 | 27 | 138171.8 | 0.0 |
| gold | binary\|none\|sgd\|single\|simd | 88 | 3 | 32.0 | 28.31 | 25 | 22 | 149856.4 | 0.0 |
| gold | binary\|none\|tween\|single\|simd | 88 | 3 | 32.0 | 28.30 | 25 | 24 | 142635.4 | 0.0 |
| gold | binary\|none\|TweenSplitHeadProxy\|single\|simd | 88 | 3 | 32.0 | 28.26 | 25 | 30 | 132015.7 | 0.0 |
| gold | binary\|none\|TweenSplitFastProxy\|single\|simd | 86 | 3 | 32.0 | 27.50 | 25 | 26 | 130612.1 | 0.0 |
| gold | binary\|none\|step_tween\|single\|simd | 85 | 3 | 32.0 | 27.19 | 25 | 25 | 126308.5 | 0.0 |
| gold | binary\|none\|MeshTween\|single\|simd | 84 | 3 | 32.0 | 26.94 | 25 | 26 | 124655.4 | 0.0 |
| gold | binary\|none\|StepTweenSplit\|single\|simd | 83 | 3 | 32.0 | 26.71 | 25 | 25 | 123580.4 | 0.0 |
| gold | binary\|none\|MeshTweenChain\|single\|simd | 83 | 3 | 32.0 | 26.67 | 25 | 25 | 123156.0 | 0.0 |
| gold | binary\|none\|StepTweenAlt\|single\|simd | 83 | 3 | 32.0 | 26.52 | 25 | 28 | 115310.4 | 0.0 |
| gold | binary\|none\|MeshBP\|single\|simd | 83 | 3 | 32.0 | 26.47 | 25 | 23 | 127483.4 | 0.0 |
| gold | binary\|none\|MeshTweenAlt\|single\|simd | 83 | 3 | 32.0 | 26.41 | 25 | 24 | 122810.5 | 0.0 |
| gold | binary\|none\|TweenSplitHeadProxyAsync\|single\|simd | 82 | 3 | 32.0 | 26.32 | 25 | 25 | 120262.5 | 0.0 |
| gold | binary\|none\|TweenSplitLinearCache\|single\|simd | 82 | 3 | 32.0 | 26.32 | 25 | 23 | 125055.1 | 0.0 |

## Near-gold - Q >= 70%, RAM <= 50%

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| near | binary\|none\|TweenAlt\|single\|simd | 77 | 3 | 32.0 | 24.73 | 25 | 21 | 114886.1 | 0.0 |
| near | binary\|none\|MeshTweenSplitFastProxy\|single\|simd | 77 | 3 | 32.0 | 24.66 | 25 | 24 | 107889.7 | 0.0 |
| near | ternary\|none\|TweenSplitLinearCache\|single\|simd | 80 | 6 | 16.0 | 12.73 | 25 | 23 | 118805.1 | 0.0 |
| near | ternary\|none\|MeshTweenSplit\|single\|simd | 79 | 6 | 16.0 | 12.61 | 25 | 22 | 119238.0 | 0.0 |
| near | int2\|none\|StepTweenSplit\|single\|simd | 78 | 6 | 16.0 | 12.55 | 25 | 19 | 125607.8 | 0.0 |
| near | ternary\|none\|TweenSplitHeadProxyAsync\|single\|simd | 78 | 6 | 16.0 | 12.54 | 25 | 24 | 111539.5 | 0.0 |

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| near | int2\|none\|MeshTweenSplitFastProxy\|single\|simd | 78 | 6 | 16.0 | 12.52 | 25 | 22 | 117686.4 | 0.0 |
| near | int2\|none\|MeshTweenAlt\|single\|simd | 78 | 6 | 16.0 | 12.44 | 25 | 22 | 113190.8 | 0.0 |
| near | ternary\|none\|MeshTweenAlt\|single\|simd | 73 | 6 | 16.0 | 11.75 | 25 | 18 | 114164.8 | 0.0 |
| near | uint2\|none\|MeshTweenSplitFastProxy\|single\|simd | 80 | 9 | 10.7 | 8.52 | 25 | 24 | 119234.6 | 0.0 |
| near | uint2\|none\|StepTweenSplit\|single\|simd | 80 | 9 | 10.7 | 8.51 | 25 | 27 | 113585.9 | 0.0 |
| near | uint2\|none\|TweenSplitLinearCache\|single\|simd | 80 | 9 | 10.7 | 8.51 | 25 | 27 | 113924.2 | 0.0 |

## LPD rank (Q x shrink; 0 if Q < 70%)

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| gold | binary\|none\|MeshTweenSplitSparse\|single\|simd | 95 | 3 | 32.0 | 30.32 | 25 | 25 | 159730.6 | 0.0 |
| gold | binary\|none\|step_sgd\|single\|simd | 90 | 3 | 32.0 | 28.93 | 25 | 25 | 145502.6 | 0.0 |
| gold | binary\|none\|tween_chain\|single\|simd | 90 | 3 | 32.0 | 28.73 | 25 | 27 | 138171.8 | 0.0 |
| gold | binary\|none\|sgd\|single\|simd | 88 | 3 | 32.0 | 28.31 | 25 | 22 | 149856.4 | 0.0 |
| gold | binary\|none\|tween\|single\|simd | 88 | 3 | 32.0 | 28.30 | 25 | 24 | 142635.4 | 0.0 |
| gold | binary\|none\|TweenSplitHeadProxy\|single\|simd | 88 | 3 | 32.0 | 28.26 | 25 | 30 | 132015.7 | 0.0 |
| gold | binary\|none\|TweenSplitFastProxy\|single\|simd | 86 | 3 | 32.0 | 27.50 | 25 | 26 | 130612.1 | 0.0 |
| gold | binary\|none\|step_tween\|single\|simd | 85 | 3 | 32.0 | 27.19 | 25 | 25 | 126308.5 | 0.0 |
| gold | binary\|none\|MeshTween\|single\|simd | 84 | 3 | 32.0 | 26.94 | 25 | 26 | 124655.4 | 0.0 |
| gold | binary\|none\|StepTweenSplit\|single\|simd | 83 | 3 | 32.0 | 26.71 | 25 | 25 | 123580.4 | 0.0 |
| gold | binary\|none\|MeshTweenChain\|single\|simd | 83 | 3 | 32.0 | 26.67 | 25 | 25 | 123156.0 | 0.0 |
| gold | binary\|none\|StepTweenAlt\|single\|simd | 83 | 3 | 32.0 | 26.52 | 25 | 28 | 115310.4 | 0.0 |
| gold | binary\|none\|MeshBP\|single\|simd | 83 | 3 | 32.0 | 26.47 | 25 | 23 | 127483.4 | 0.0 |
| gold | binary\|none\|MeshTweenAlt\|single\|simd | 83 | 3 | 32.0 | 26.41 | 25 | 24 | 122810.5 | 0.0 |
| gold | binary\|none\|TweenSplitHeadProxyAsync\|single\|simd | 82 | 3 | 32.0 | 26.32 | 25 | 25 | 120262.5 | 0.0 |
| gold | binary\|none\|TweenSplitLinearCache\|single\|simd | 82 | 3 | 32.0 | 26.32 | 25 | 23 | 125055.1 | 0.0 |
| gold | binary\|none\|TweenSplitLinear\|single\|simd | 82 | 3 | 32.0 | 26.30 | 25 | 24 | 124538.7 | 0.0 |
| gold | binary\|none\|step_tween_chain\|single\|simd | 82 | 3 | 32.0 | 26.23 | 25 | 24 | 120321.4 | 0.0 |
| gold | binary\|none\|TweenSplit\|single\|simd | 82 | 3 | 32.0 | 26.16 | 25 | 22 | 126495.3 | 0.0 |
| gold | binary\|none\|TweenSplitSparse\|single\|simd | 82 | 3 | 32.0 | 26.08 | 25 | 22 | 127040.2 | 0.0 |

## Mobile speed - Thru vs board fastest (Q >= 70%)

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| keep | float32\|none\|step_sgd\|single\|simd | 100 | 100 | 71 | 89 | 1.00 | 1929001 | 33.4 |
| keep | float32\|none\|sgd\|single\|simd | 100 | 100 | 71 | 89 | 1.00 | 1921380 | 33.6 |
| keep | float32\|none\|tween_chain\|single\|simd | 98 | 97 | 72 | 88 | 0.98 | 1861900 | 33.9 |
| near | float16\|none\|MeshTweenSplitSparse\|single\|simd | 98 | 96 | 72 | 88 | 1.97 | 1847118 | 34.1 |
| keep | float32\|none\|tween\|single\|simd | 97 | 95 | 72 | 87 | 0.97 | 1825857 | 34.1 |
| near | uint8\|none\|MeshTweenSplitSparse\|single\|simd | 95 | 94 | 75 | 88 | 3.39 | 1817796 | 35.4 |
| gold | fp4\|none\|MeshTweenSplitSparse\|single\|simd | 95 | 94 | 75 | 87 | 7.63 | 1807862 | 35.3 |
| near | float16\|none\|tween_chain\|single\|simd | 97 | 93 | 74 | 87 | 1.95 | 1795421 | 34.9 |
| keep | float32\|none\|MeshTweenSplitSparse\|single\|simd | 96 | 93 | 70 | 86 | 0.96 | 1790441 | 33.2 |
| near | float16\|none\|step_sgd\|single\|simd | 97 | 93 | 72 | 86 | 1.93 | 1789970 | 34.1 |

## Mobile availability - duty cycle vs board best (Q >= 70%)

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| near | int3\|none\|tween_chain\|single\|simd | 71 | 46 | 88 | 66 | 7.55 | 892870 | 41.8 |
| near | int3\|none\|MeshTweenSplitSparse\|single\|simd | 74 | 53 | 88 | 70 | 7.92 | 1015132 | 41.7 |
| near | uint3\|none\|TweenSplitHeadProxy\|single\|simd | 71 | 45 | 88 | 65 | 5.64 | 869504 | 41.5 |
| near | uint3\|none\|tween\|single\|simd | 74 | 49 | 87 | 68 | 5.90 | 942036 | 41.2 |
| near | uint3\|none\|sgd\|single\|simd | 75 | 51 | 87 | 70 | 6.02 | 989122 | 41.1 |
| near | uint3\|none\|MeshTweenSplitSparse\|single\|simd | 78 | 55 | 87 | 72 | 6.25 | 1060346 | 41.1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| near | uint3\|none\|step_sgd\|single\|simd | 74 | 52 | 87 | 70 | 5.94 | 1012192 | 41.0 |
| near | nf4\|none\|TweenSplitLinearCache\|single\|simd | 77 | 54 | 87 | 71 | 6.15 | 1042810 | 40.9 |
| - | int\|none\|TweenSplitLinearCache\|single\|simd | 72 | 51 | 87 | 69 | 0.36 | 989560 | 40.9 |
| gold | nf4\|none\|MeshTweenSplitSparse\|single\|simd | 81 | 62 | 86 | 76 | 6.51 | 1201016 | 40.7 |

## Mix - geomean of Q, MSpeed, MAvail

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| keep | float32\|none\|sgd\|single\|simd | 100 | 100 | 71 | 89 | 1.00 | 1921380 | 33.6 |
| keep | float32\|none\|step_sgd\|single\|simd | 100 | 100 | 71 | 89 | 1.00 | 1929001 | 33.4 |
| keep | float32\|none\|tween_chain\|single\|simd | 98 | 97 | 72 | 88 | 0.98 | 1861900 | 33.9 |
| near | float16\|none\|MeshTweenSplitSparse\|single\|simd | 98 | 96 | 72 | 88 | 1.97 | 1847118 | 34.1 |
| near | uint8\|none\|MeshTweenSplitSparse\|single\|simd | 95 | 94 | 75 | 88 | 3.39 | 1817796 | 35.4 |
| near | float16\|none\|tween_chain\|single\|simd | 97 | 93 | 74 | 87 | 1.95 | 1795421 | 34.9 |
| gold | fp4\|none\|MeshTweenSplitSparse\|single\|simd | 95 | 94 | 75 | 87 | 7.63 | 1807862 | 35.3 |
| near | bfloat16\|none\|MeshTweenSplitSparse\|single\|simd | 97 | 90 | 76 | 87 | 1.94 | 1745144 | 35.9 |
| keep | float32\|none\|tween\|single\|simd | 97 | 95 | 72 | 87 | 0.97 | 1825857 | 34.1 |
| near | float16\|none\|sgd\|single\|simd | 97 | 92 | 74 | 87 | 1.94 | 1780739 | 34.8 |

## Trap - tiny RAM, Q < 70% (why Score/MiB lies)

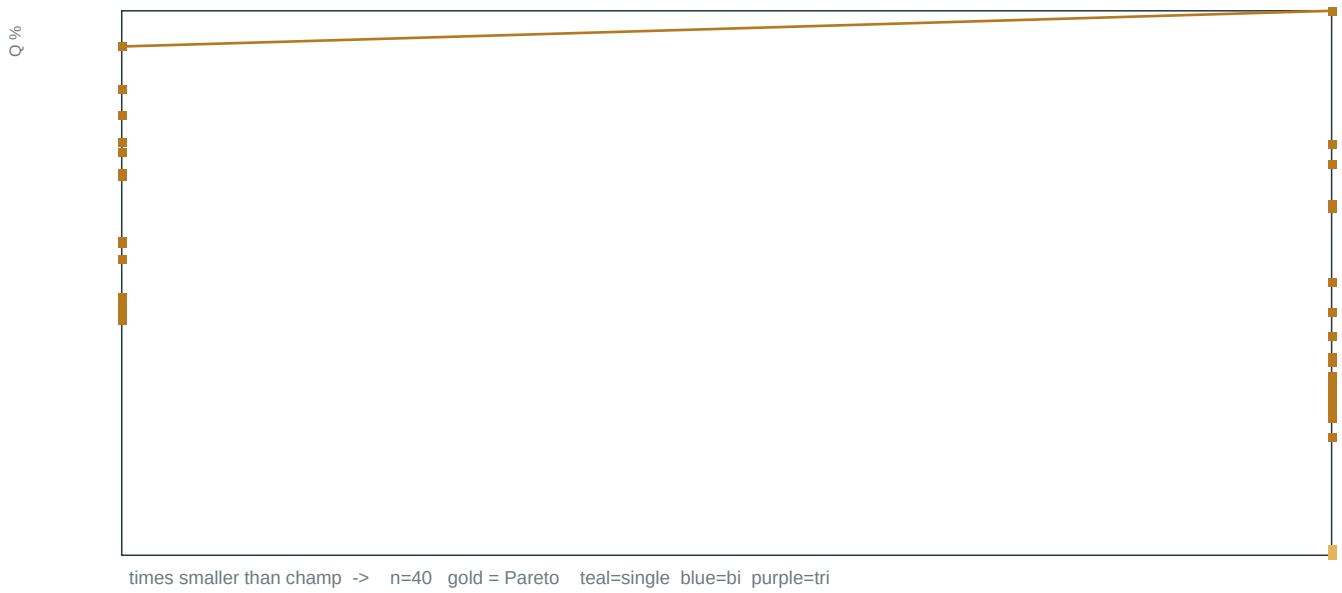
| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| trap | int3\|none\|sgd\|single\|simd | 69 | 9 | 10.7 | 0.00 | 25 | 20 | 102730.9 | 0.0 |
| trap | int3\|none\|step_sgd\|single\|simd | 70 | 9 | 10.7 | 0.00 | 25 | 23 | 97603.3 | 0.0 |
| trap | int3\|none\|tween\|single\|simd | 69 | 9 | 10.7 | 0.00 | 25 | 23 | 96841.3 | 0.0 |
| trap | int3\|none\|step_tween\|single\|simd | 66 | 9 | 10.7 | 0.00 | 25 | 25 | 81541.5 | 0.0 |
| trap | int3\|none\|step_tween_chain\|single\|simd | 63 | 9 | 10.7 | 0.00 | 25 | 20 | 83835.8 | 0.0 |
| trap | int3\|none\|MeshBP\|single\|simd | 69 | 9 | 10.7 | 0.00 | 25 | 27 | 88526.1 | 0.0 |
| trap | int3\|none\|MeshTween\|single\|simd | 66 | 9 | 10.7 | 0.00 | 25 | 24 | 84020.6 | 0.0 |
| trap | int3\|none\|MeshTweenChain\|single\|simd | 67 | 9 | 10.7 | 0.00 | 25 | 27 | 83341.4 | 0.0 |
| trap | int3\|none\|TweenSplit\|single\|simd | 65 | 9 | 10.7 | 0.00 | 25 | 25 | 82433.5 | 0.0 |
| trap | int3\|none\|StepTweenSplit\|single\|simd | 67 | 9 | 10.7 | 0.00 | 25 | 28 | 80975.2 | 0.0 |

## LPD - Q% vs RAM KiB (gold = high Q, low RAM)



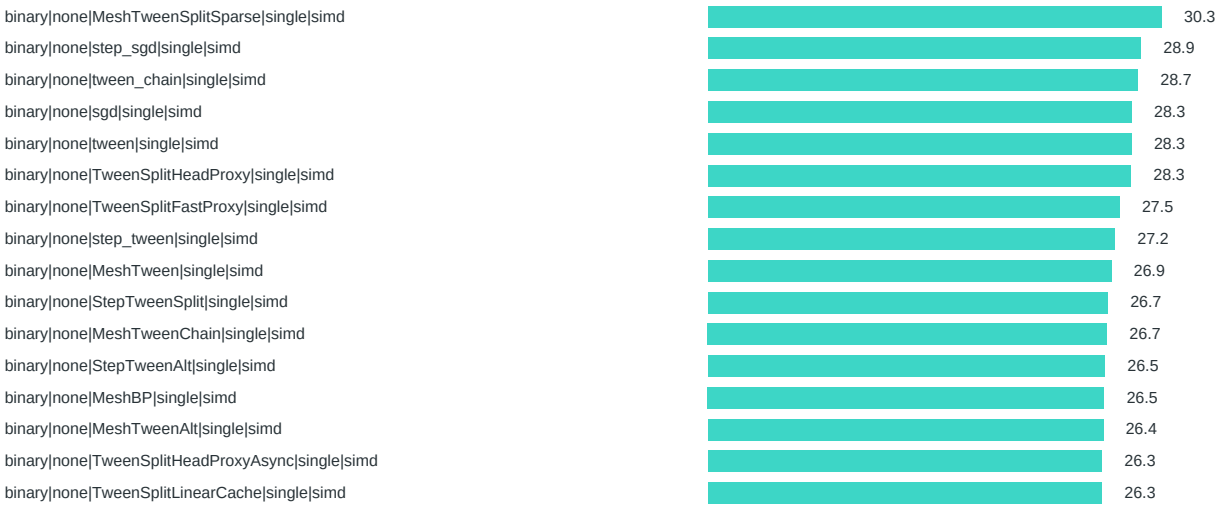

## LPD - Q% vs shrink vs champ (gold = upper right)

## LPD - Q% vs shrink vs champ (gold = upper right)

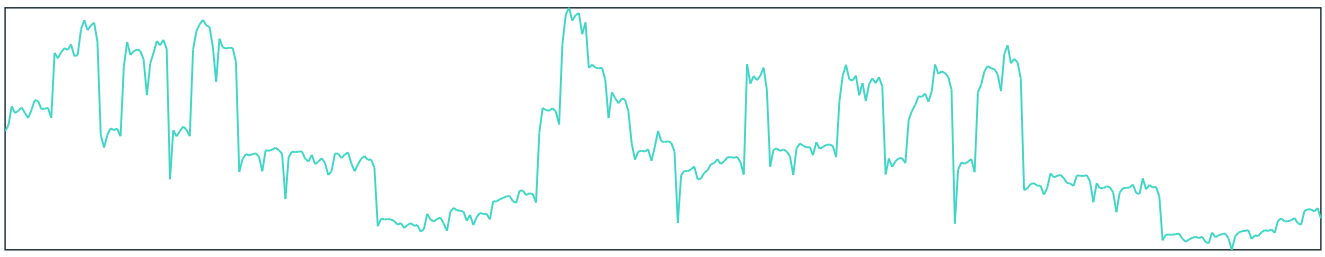



times smaller than champ ->  n=40  gold = Pareto  teal=single  blue=bi  purple=tri

## Top LPD

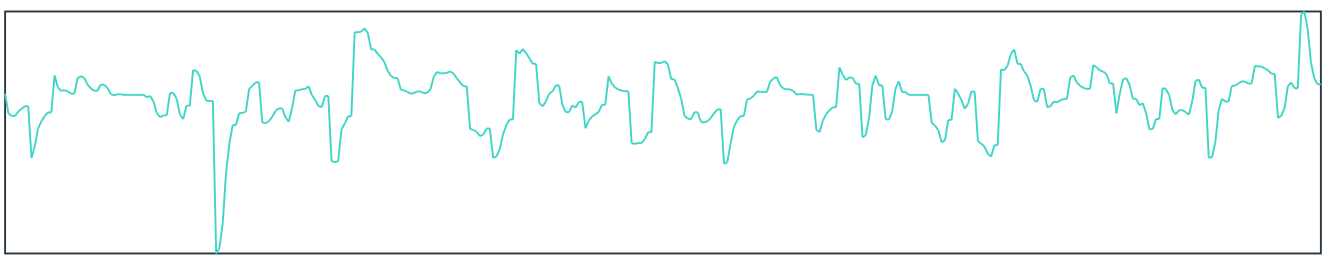



## Pulse Score - dense



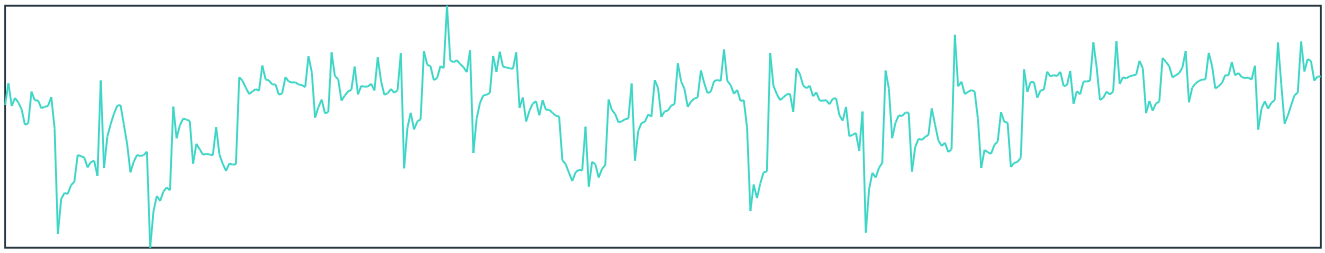
n=400  min=12467.68  max=74407.10

## Pulse SoftAcc - dense



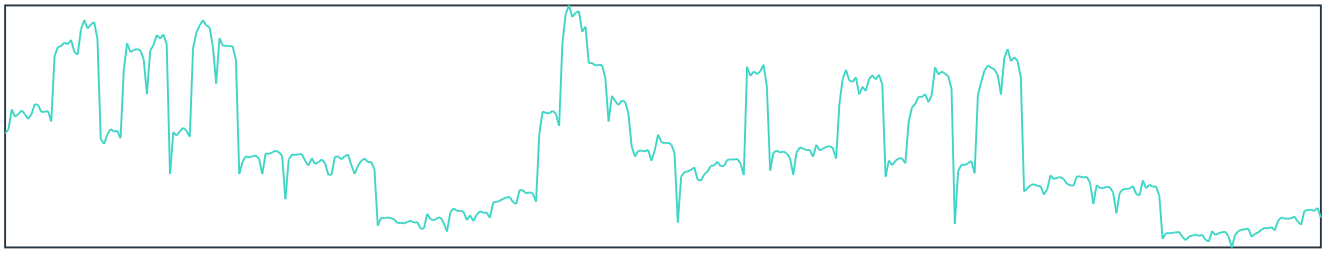
n=400 min=24.97 max=25.01

## Pulse Availability - dense



n=400 min=42.82 max=48.73

## Pulse Throughput - dense



n=400 min=105302.47 max=666717.18

## Queue by train mode (this epoch)

| Mode | Done | Run | Left | Total |
|---|---|---|---|---|
| sgd | 102 | 0 | 0 | 102 |
| step_sgd | 102 | 0 | 0 | 102 |
| tween | 102 | 0 | 0 | 102 |
| tween_chain | 102 | 0 | 0 | 102 |
| step_tween | 102 | 0 | 0 | 102 |
| step_tween_chain | 102 | 0 | 0 | 102 |
| MeshBP | 102 | 0 | 0 | 102 |
| MeshTween | 102 | 0 | 0 | 102 |
| MeshTweenChain | 102 | 0 | 0 | 102 |
| TweenSplit | 102 | 0 | 0 | 102 |
| StepTweenSplit | 102 | 0 | 0 | 102 |
| TweenAlt | 102 | 0 | 0 | 102 |
| StepTweenAlt | 102 | 0 | 0 | 102 |
| TweenSplitHeadProxy | 102 | 0 | 0 | 102 |
| TweenSplitLinear | 102 | 0 | 0 | 102 |
| TweenSplitFastProxy | 102 | 0 | 0 | 102 |
| TweenSplitLinearCache | 102 | 0 | 0 | 102 |
| TweenSplitHeadProxyAsync | 102 | 0 | 0 | 102 |
| TweenSplitSparse | 102 | 0 | 0 | 102 |
| MeshTweenSplit | 102 | 0 | 0 | 102 |
| MeshTweenAlt | 102 | 0 | 0 | 102 |
| MeshTweenSplitFastProxy | 102 | 0 | 0 | 102 |
| MeshTweenSplitSparse | 102 | 0 | 0 | 102 |

# tide  embedding

Score = Throughput x Availability% x SoftAcc% / 10,000

done - epoch 1 - 2026-08-18 09:45:25 - 0.0.0.0:8113

This epoch 2346 / 2346 cells. Recorded 2346 results.

Score 0 usually means the cell finished before a Lucy pulse (SoftAcc never sampled) or true-class mass was 0. Those rows do not vote holistically.

embedding - token-id XOR of first two ids - modes all - min 2000ms/cell - 1024 train - pulse 50ms - SIMD true

## Lucy champions (this tide)

| Axis | Cell | Score | Soft | Acc | Thru | Avail |
|---|---|---|---|---|---|---|
| score | float32\|none\|tween\|single\|simd | 137030.76 | 25.0 | 26.7 | 1389792.8 | 39.4 |
| throughput | float32\|none\|tween\|single\|simd | 137030.76 | 25.0 | 26.7 | 1389792.8 | 39.4 |
| availability | uint5\|none\|MeshTweenSplit\|single\|simd | 18282.58 | 25.0 | 24.7 | 156436.2 | 46.8 |
| accuracy | binary\|none\|StepTweenAlt\|single\|simd | 50318.11 | 25.1 | 25.6 | 500574.3 | 40.1 |
| mobile score (tap) | binary\|none\|tween\|single\|simd | 79980.00 | 25.0 | 20.3 | 737800.8 | 43.4 |
| t->50% | int3\|none\|step_sgd\|tricameral\|simd | 52.60 | 25.0 | 27.4 | 1083.4 | 19.4 |
| acc/sec | float32\|none\|sgd\|single\|simd | 132074.25 | 25.1 | 26.1 | 1321096.4 | 39.9 |

## Lucy axes - embedding

| Axis | Mode | DType | Arch | Value |
|---|---|---|---|---|
| score | tween | float32 | singlex1 | 137030.76 |
| soft_acc | StepTweenAlt | binary | singlex1 | 25.06 |
| hard_acc | MeshTweenSplit | int6 | bicameralx2 | 34.94 |
| throughput | tween | float32 | singlex1 | 1389792.79 |
| availability | MeshTweenSplit | uint5 | singlex1 | 46.75 |
| acc_thru | tween | float32 | singlex1 | 347506.90 |
| realtime | tween | float32 | singlex1 | 548030.44 |
| adapt | sgd | float32 | singlex1 | 25.10 |
| keep_learn | sgd | float32 | singlex1 | 12.54 |
| acc_per_sec | sgd | float32 | singlex1 | 12.53 |
| time_to_50 | step_sgd | int3 | tricameralx3 | 0.21 |
| consistency | sgd | float64 | singlex1 | 100.00 |
| stability | sgd | fp4 | singlex1 | 100.00 |
| mobile_score | tween | binary | singlex1 | 1747189706.21 |
| lpd | step_sgd | binary | singlex1 | 23.89 |
| mspeed | tween | float32 | singlex1 | 1.00 |
| mavail | TweenSplitLinea~ | uint8 | singlex1 | 0.94 |
| mix | tween | float32 | singlex1 | 0.94 |

## Best settings per train mode

| Mode | DType | Format | Score | Soft | Acc | Avail | n |
|---|---|---|---|---|---|---|---|
| tween | float32 | none | 137030.8 | 25.0 | 26.7 | 39.4 | 102 |
| step_sgd | float32 | none | 134526.7 | 25.0 | 23.7 | 39.4 | 102 |
| sgd | float32 | none | 132074.3 | 25.1 | 26.1 | 39.9 | 102 |
| tween_chain | float32 | none | 130468.6 | 25.0 | 23.5 | 40.0 | 102 |
| step_tween | float32 | none | 117309.3 | 25.0 | 24.5 | 38.8 | 102 |
| step_tween_chain | float32 | none | 116641.2 | 25.0 | 25.2 | 39.2 | 102 |
| MeshBP | float32 | none | 116573.8 | 25.0 | 22.9 | 39.4 | 102 |
| MeshTweenSplit | float32 | none | 113064.1 | 25.0 | 26.4 | 39.8 | 102 |
| MeshTweenChain | float32 | none | 112770.2 | 25.0 | 22.8 | 39.7 | 102 |
| TweenSplit | float32 | none | 110969.1 | 25.0 | 23.8 | 39.5 | 102 |
| MeshTweenSplitFastProxy | float32 | none | 108121.8 | 25.0 | 27.4 | 39.6 | 102 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| TweenSplitFastProxy | float32 | none | 107821.0 | 25.0 | 25.1 | 39.3 | 102 |
| MeshTween | float32 | none | 106021.8 | 25.0 | 26.2 | 38.9 | 102 |
| TweenSplitLinearCache | float32 | none | 105772.7 | 25.0 | 24.8 | 39.7 | 102 |
| TweenSplitHeadProxy | float32 | none | 103131.9 | 25.0 | 25.7 | 39.5 | 102 |
| TweenSplitSparse | float32 | none | 102922.6 | 25.0 | 23.3 | 39.7 | 102 |
| MeshTweenSplitSparse | float32 | none | 102670.6 | 25.0 | 24.2 | 39.5 | 102 |
| StepTweenSplit | float32 | none | 100696.2 | 25.0 | 24.8 | 38.9 | 102 |
| TweenSplitHeadProxyAsync | float32 | none | 98842.3 | 25.0 | 24.5 | 39.3 | 102 |
| TweenSplitLinear | float32 | none | 97005.5 | 25.0 | 27.4 | 38.9 | 102 |
| StepTweenAlt | float32 | none | 89555.0 | 25.0 | 24.6 | 36.7 | 102 |
| MeshTweenAlt | float32 | none | 88964.3 | 25.0 | 25.9 | 37.0 | 102 |
| TweenAlt | float32 | none | 84465.8 | 25.0 | 24.6 | 36.3 | 102 |

## Best dtype per mode

| Mode | Winner dtype | Score | Soft | Acc |
|---|---|---|---|---|
| tween | float32 | 137030.8 | 25.0 | 26.7 |
| step_sgd | float32 | 134526.7 | 25.0 | 23.7 |
| sgd | float32 | 132074.3 | 25.1 | 26.1 |
| tween_chain | float32 | 130468.6 | 25.0 | 23.5 |
| step_tween | float32 | 117309.3 | 25.0 | 24.5 |
| step_tween_chain | float32 | 116641.2 | 25.0 | 25.2 |
| MeshBP | float32 | 116573.8 | 25.0 | 22.9 |
| MeshTweenSplit | float32 | 113064.1 | 25.0 | 26.4 |
| MeshTweenChain | float32 | 112770.2 | 25.0 | 22.8 |
| TweenSplit | float32 | 110969.1 | 25.0 | 23.8 |
| MeshTweenSplitFastProxy | float32 | 108121.8 | 25.0 | 27.4 |
| TweenSplitFastProxy | float32 | 107821.0 | 25.0 | 25.1 |
| MeshTween | float32 | 106021.8 | 25.0 | 26.2 |
| TweenSplitLinearCache | float32 | 105772.7 | 25.0 | 24.8 |
| TweenSplitHeadProxy | float32 | 103131.9 | 25.0 | 25.7 |
| TweenSplitSparse | float32 | 102922.6 | 25.0 | 23.3 |
| MeshTweenSplitSparse | float32 | 102670.6 | 25.0 | 24.2 |
| StepTweenSplit | float32 | 100696.2 | 25.0 | 24.8 |
| TweenSplitHeadProxyAsync | float32 | 98842.3 | 25.0 | 24.5 |
| TweenSplitLinear | float32 | 97005.5 | 25.0 | 27.4 |
| StepTweenAlt | float32 | 89555.0 | 25.0 | 24.6 |
| MeshTweenAlt | float32 | 88964.3 | 25.0 | 25.9 |
| TweenAlt | float32 | 84465.8 | 25.0 | 24.6 |

## Best mode per dtype

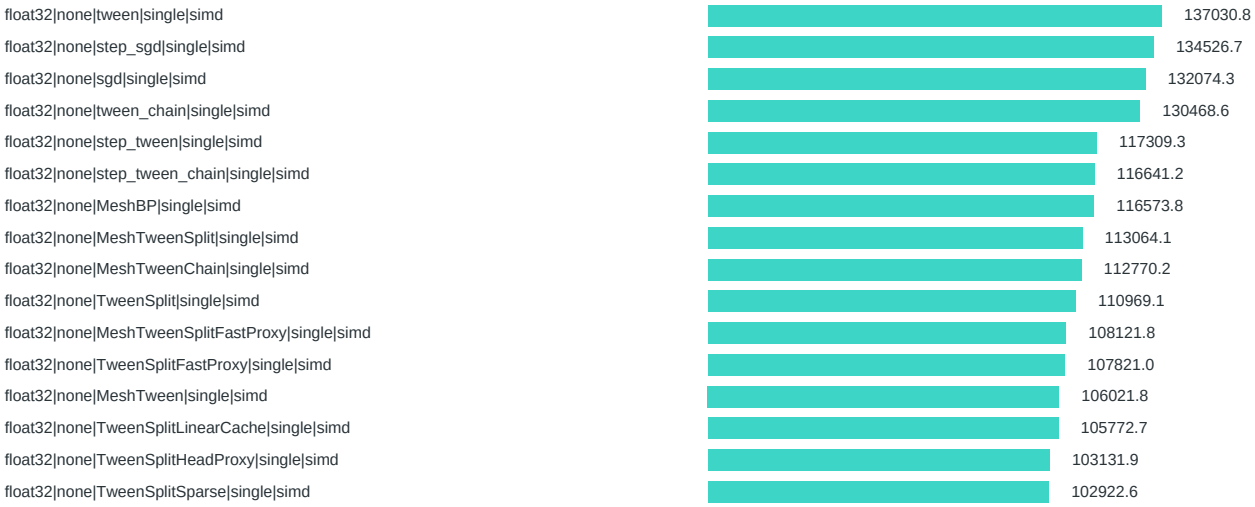
| DType | Winner mode | Score | Soft | Acc |
|---|---|---|---|---|
| float32 | tween | 137030.8 | 25.0 | 26.7 |
| uint8 | tween | 86363.5 | 25.0 | 27.0 |
| float16 | tween | 86042.8 | 25.0 | 25.3 |
| int8 | sgd | 84486.0 | 25.0 | 26.9 |
| binary | tween | 79980.0 | 25.0 | 20.3 |
| int4 | sgd | 72906.5 | 25.0 | 25.5 |
| ternary | tween | 72604.8 | 25.0 | 25.8 |
| int2 | sgd | 71849.7 | 25.0 | 30.2 |
| bfloat16 | tween | 67799.1 | 25.0 | 24.4 |
| fp4 | sgd | 65532.9 | 25.0 | 25.0 |
| float64 | sgd | 63840.3 | 25.0 | 25.3 |

| | | | | |
|---|---|---|---|---|
| uint16 | sgd | 51706.1 | 25.0 | 26.0 |
| uint32 | sgd | 51046.8 | 25.0 | 26.8 |
| uint64 | tween | 50852.2 | 25.0 | 24.2 |
| fp8e5m2 | tween | 50658.4 | 25.0 | 25.2 |
| fp8e4m3 | sgd | 47963.2 | 25.0 | 21.8 |
| uint4 | step_sgd | 47103.8 | 25.0 | 21.7 |
| int64 | sgd | 45657.0 | 25.0 | 25.1 |
| int16 | sgd | 44948.2 | 25.0 | 25.8 |
| int32 | sgd | 44260.3 | 25.0 | 26.0 |
| uint2 | tween | 43872.8 | 25.0 | 28.6 |
| uintptr | sgd | 40171.6 | 25.0 | 24.0 |
| uint | sgd | 39804.0 | 25.0 | 24.5 |
| complex128 | sgd | 36978.7 | 25.0 | 26.4 |
| complex64 | sgd | 36463.0 | 25.0 | 26.9 |
| int | tween | 36352.8 | 25.0 | 26.4 |
| nf4 | step_sgd | 32484.7 | 25.0 | 27.0 |
| uint3 | sgd | 25010.5 | 25.0 | 25.7 |
| int3 | sgd | 21999.5 | 25.0 | 25.0 |
| uint5 | sgd | 20296.1 | 25.0 | 23.2 |
| uint6 | sgd | 17703.5 | 25.0 | 24.9 |
| int5 | sgd | 16992.3 | 25.0 | 23.0 |
| fp6 | sgd | 16127.7 | 25.0 | 24.1 |
| int6 | tween | 15736.9 | 25.0 | 24.7 |

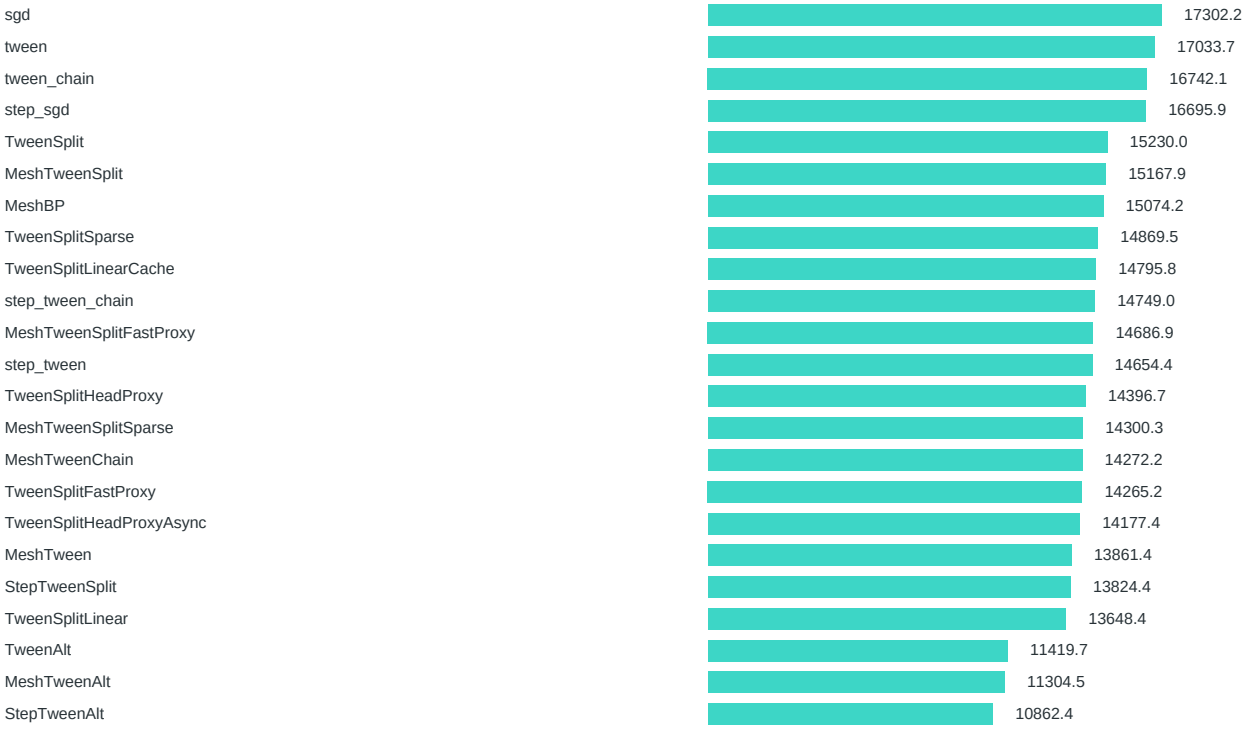
## Leaderboard - embedding

| # | Cell | Score | Soft | Acc | Thru | Avail |
|---|---|---|---|---|---|---|
| 1 | float32\|none\|tween\|single\|simd | 137030.8 | 25.0 | 26.7 | 1389792.8 | 39.4 |
| 2 | float32\|none\|step_sgd\|single\|simd | 134526.7 | 25.0 | 23.7 | 1368795.5 | 39.4 |
| 3 | float32\|none\|sgd\|single\|simd | 132074.3 | 25.1 | 26.1 | 1321096.4 | 39.9 |
| 4 | float32\|none\|tween_chain\|single\|simd | 130468.6 | 25.0 | 23.5 | 1303631.7 | 40.0 |
| 5 | float32\|none\|step_tween\|single\|simd | 117309.3 | 25.0 | 24.5 | 1208698.8 | 38.8 |
| 6 | float32\|none\|step_tween_chain\|single\|simd | 116641.2 | 25.0 | 25.2 | 1188763.8 | 39.2 |
| 7 | float32\|none\|MeshBP\|single\|simd | 116573.8 | 25.0 | 22.9 | 1184675.5 | 39.4 |
| 8 | float32\|none\|MeshTweenSplit\|single\|simd | 113064.1 | 25.0 | 26.4 | 1134853.8 | 39.8 |
| 9 | float32\|none\|MeshTweenChain\|single\|simd | 112770.2 | 25.0 | 22.8 | 1136124.6 | 39.7 |
| 10 | float32\|none\|TweenSplit\|single\|simd | 110969.1 | 25.0 | 23.8 | 1123550.3 | 39.5 |
| 11 | float32\|none\|MeshTweenSplitFastProxy\|single\|simd | 108121.8 | 25.0 | 27.4 | 1089382.3 | 39.6 |
| 12 | float32\|none\|TweenSplitFastProxy\|single\|simd | 107821.0 | 25.0 | 25.1 | 1097113.3 | 39.3 |
| 13 | float32\|none\|MeshTween\|single\|simd | 106021.8 | 25.0 | 26.2 | 1090052.3 | 38.9 |
| 14 | float32\|none\|TweenSplitLinearCache\|single\|simd | 105772.7 | 25.0 | 24.8 | 1065934.3 | 39.7 |
| 15 | float32\|none\|TweenSplitHeadProxy\|single\|simd | 103131.9 | 25.0 | 25.7 | 1043785.3 | 39.5 |
| 16 | float32\|none\|TweenSplitSparse\|single\|simd | 102922.6 | 25.0 | 23.3 | 1038681.4 | 39.7 |
| 17 | float32\|none\|MeshTweenSplitSparse\|single\|simd | 102670.6 | 25.0 | 24.2 | 1040169.9 | 39.5 |
| 18 | float32\|none\|StepTweenSplit\|single\|simd | 100696.2 | 25.0 | 24.8 | 1036036.6 | 38.9 |
| 19 | float32\|none\|TweenSplitHeadProxyAsync\|single\|simd | 98842.3 | 25.0 | 24.5 | 1004983.8 | 39.3 |
| 20 | float32\|none\|TweenSplitLinear\|single\|simd | 97005.5 | 25.0 | 27.4 | 996866.3 | 38.9 |

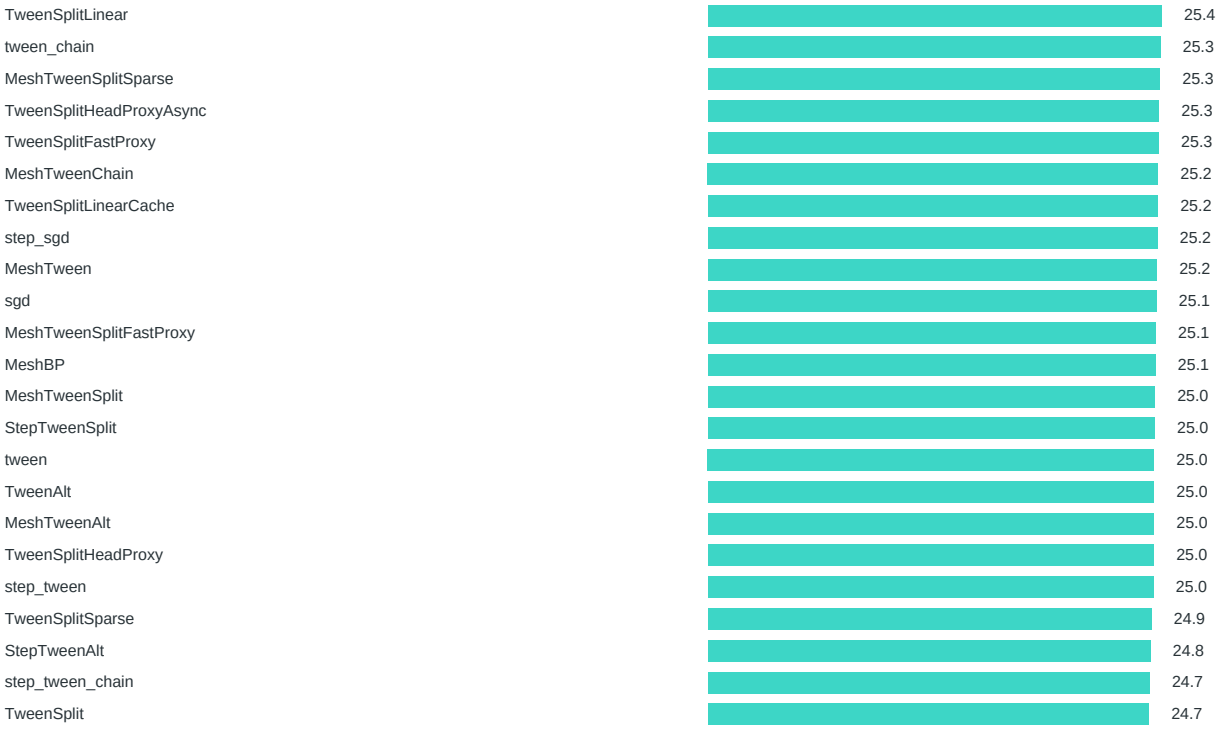
## Top scores - embedding



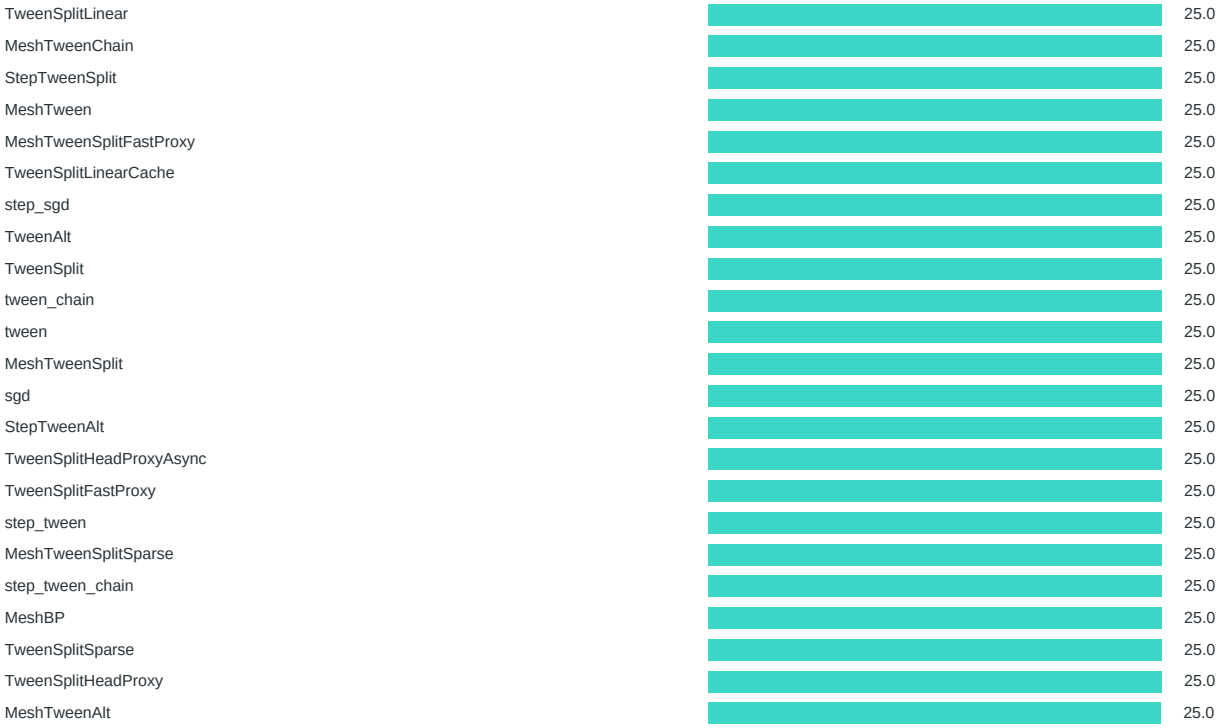

## Mean Score by train mode



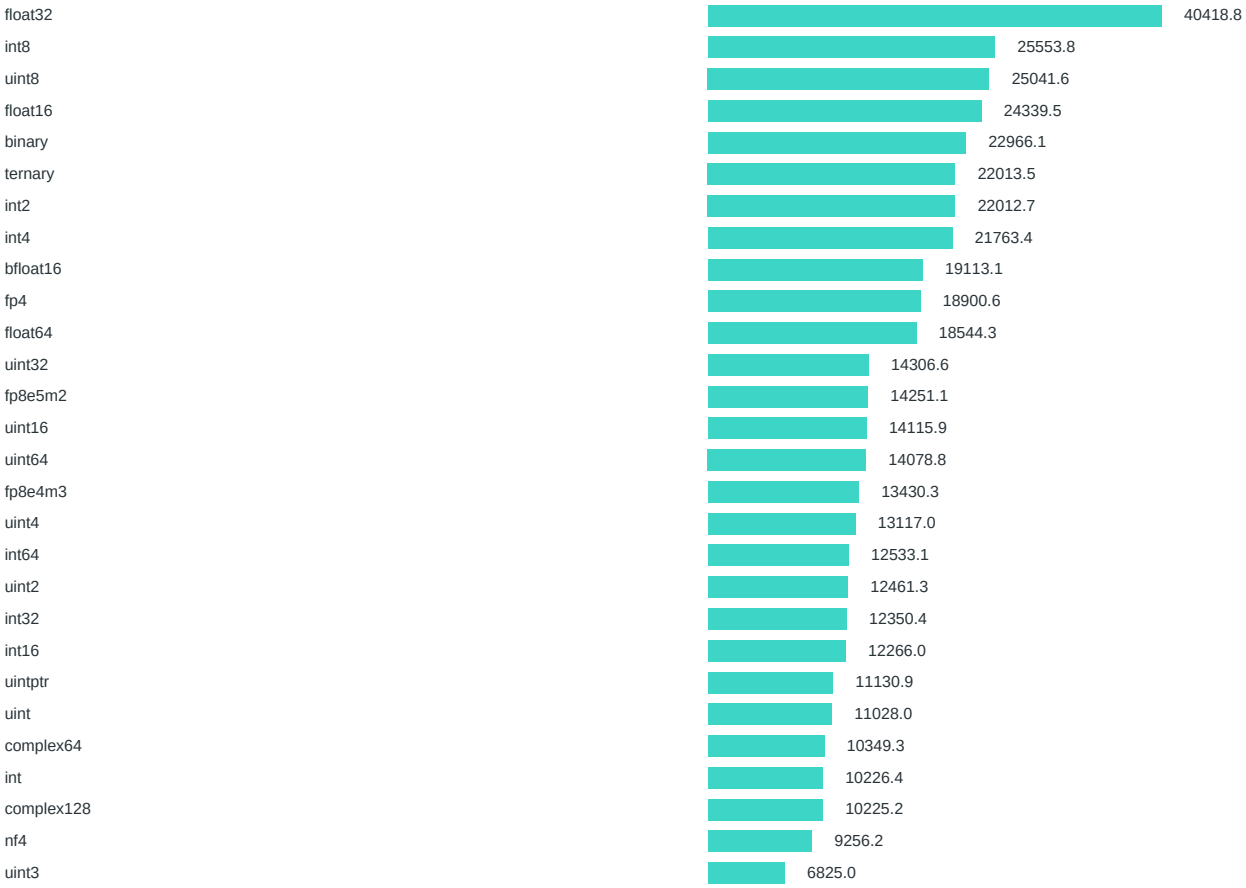

## Mean hard Acc by train mode




## Mean SoftAcc by train mode




## Mean Score by dtype




## Mean hard Acc by dtype




## Mean Score by arch




## Honesty - mean Score, every mode x dtype (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 20201 | 23301 | 10701 | 11096 | 25061 | 42591 | 19820 | 19706 | 4568 | 13926 | 15049 | 10532 | 12847 | 22687 | 6826 | 12937 |
| MeshTween | 18556 | 21738 | 9924 | 9804 | 23073 | 38800 | 18305 | 17795 | 4103 | 12670 | 13243 | 9982 | 11864 | 20398 | 5738 | 12281 |
| MeshTweenAlt | 16615 | 16911 | 7645 | 8264 | 17961 | 32078 | 14850 | 16590 | 3118 | 10474 | 11127 | 7973 | 9471 | 17078 | 4212 | 9715 |
| MeshTweenChain | 19297 | 22809 | 10238 | 10053 | 24259 | 40999 | 18599 | 18517 | 4198 | 13279 | 14129 | 10199 | 11890 | 21352 | 6288 | 12548 |
| MeshTweenSplit | 19210 | 24560 | 10755 | 10689 | 26623 | 41929 | 19932 | 19646 | 4933 | 13955 | 15051 | 10285 | 13421 | 22630 | 7076 | 12388 |
| MeshTweenSplitFa | 19250 | 23736 | 9627 | 11041 | 25887 | 40730 | 16897 | 19980 | 4791 | 12046 | 13414 | 10289 | 12051 | 22346 | 6888 | 11590 |
| MeshTweenSplitSp | 17982 | 23321 | 10037 | 9895 | 24499 | 39406 | 17398 | 18263 | 4296 | 12687 | 13487 | 9994 | 11844 | 22598 | 6215 | 12104 |
| StepTweenAlt | 14971 | 17004 | 7727 | 7592 | 18836 | 31882 | 14361 | 13772 | 2670 | 10651 | 11377 | 7768 | 9177 | 16115 | 4484 | 9207 |
| StepTweenSplit | 17703 | 22703 | 9564 | 9779 | 23097 | 37276 | 17646 | 17575 | 3967 | 13344 | 13559 | 9619 | 11501 | 21528 | 6227 | 10997 |
| TweenAlt | 15430 | 17920 | 7776 | 7915 | 18885 | 30512 | 14716 | 14556 | 3171 | 11046 | 12034 | 8184 | 10036 | 16989 | 4935 | 10081 |
| TweenSplit | 20110 | 23919 | 10846 | 10830 | 25297 | 41592 | 19545 | 19350 | 5158 | 14569 | 14879 | 10752 | 12246 | 23084 | 6949 | 12850 |
| TweenSplitFastPr | 18780 | 22646 | 10634 | 10279 | 22278 | 40271 | 18755 | 17688 | 4778 | 13064 | 13976 | 10504 | 11898 | 22102 | 6375 | 12693 |
| TweenSplitHeadPr | 18351 | 21272 | 10642 | 10374 | 23994 | 38747 | 18783 | 19036 | 4609 | 13078 | 14153 | 9864 | 12713 | 22333 | 6771 | 12707 |
| TweenSplitHeadPr | 17949 | 22753 | 10926 | 10784 | 22624 | 37453 | 17612 | 19197 | 4474 | 13069 | 13037 | 9597 | 11661 | 23412 | 6210 | 11567 |
| TweenSplitLinear | 17971 | 21663 | 10257 | 10233 | 22930 | 35613 | 18096 | 18513 | 4206 | 12727 | 13196 | 9876 | 11774 | 20350 | 6757 | 11712 |
| TweenSplitLinear | 19727 | 24273 | 9869 | 10710 | 24303 | 39854 | 17972 | 18790 | 4858 | 14425 | 14243 | 10518 | 11993 | 22639 | 6613 | 12064 |
| TweenSplitSparse | 17890 | 22892 | 10352 | 10829 | 24771 | 39755 | 17777 | 19469 | 4819 | 13983 | 14692 | 10148 | 12400 | 23975 | 6505 | 12611 |
| sgd | 22553 | 27019 | 12482 | 12315 | 28807 | 48547 | 22065 | 22247 | 5424 | 16259 | 17098 | 12066 | 15220 | 25535 | 7406 | 15019 |
| step_sgd | 22229 | 27294 | 11826 | 11129 | 28498 | 48693 | 21408 | 22060 | 4839 | 14440 | 16725 | 12175 | 14154 | 25088 | 7266 | 14574 |
| step_tween | 19922 | 23738 | 10065 | 10229 | 25724 | 42654 | 19371 | 18966 | 4011 | 13663 | 14482 | 10406 | 12215 | 21771 | 6092 | 12770 |
| step_tween_chain | 19623 | 23130 | 10151 | 10294 | 25174 | 42304 | 19236 | 19993 | 4303 | 13677 | 14715 | 10224 | 12602 | 22319 | 6346 | 12715 |
| tween | 23052 | 27432 | 11542 | 12153 | 29477 | 50137 | 21848 | 21512 | 5105 | 16144 | 17118 | 12262 | 14639 | 25136 | 7295 | 14466 |
| tween_chain | 22230 | 26187 | 11593 | 11749 | 27749 | 47811 | 21525 | 21490 | 5133 | 15722 | 16993 | 11990 | 14499 | 24827 | 7370 | 14463 |

## Honesty - mean Score, every mode x dtype (cols 17-32)

## Honesty - mean Score, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 21638 | 4965 | 4522 | 13140 | 26263 | 9771 | 22645 | 11621 | 14708 | 13006 | 7149 | 15215 | 13302 | 5767 | 5081 | 14922 |
| MeshTween | 20989 | 4490 | 4074 | 12216 | 24693 | 8776 | 20680 | 10394 | 14106 | 11721 | 6225 | 13586 | 12392 | 4926 | 4367 | 13733 |
| MeshTweenAlt | 17038 | 3713 | 3159 | 9520 | 19415 | 7391 | 16038 | 8770 | 11689 | 9673 | 5069 | 10522 | 10170 | 3662 | 3390 | 12518 |
| MeshTweenChain | 21292 | 4694 | 4209 | 12236 | 24180 | 9244 | 21525 | 10820 | 13783 | 12161 | 6727 | 13727 | 12909 | 5197 | 4415 | 13899 |
| MeshTweenSplit | 24036 | 5498 | 4818 | 13242 | 27670 | 8733 | 22582 | 11381 | 13773 | 13252 | 7309 | 13519 | 14305 | 6198 | 5417 | 13559 |
| MeshTweenSplitFa | 23367 | 4985 | 4573 | 13044 | 27177 | 9112 | 22593 | 11454 | 15104 | 12440 | 7307 | 15005 | 11850 | 5792 | 4806 | 14645 |
| MeshTweenSplitSp | 22834 | 5130 | 4376 | 12376 | 25135 | 9184 | 22903 | 10707 | 13726 | 13306 | 6698 | 14484 | 13491 | 5273 | 5016 | 12787 |
| StepTweenAlt | 17118 | 3169 | 2534 | 8904 | 18749 | 6551 | 16071 | 8281 | 10613 | 9220 | 4924 | 10350 | 9784 | 3912 | 2917 | 11032 |
| StepTweenSplit | 22556 | 4614 | 4289 | 11628 | 24746 | 8355 | 22054 | 10328 | 13458 | 11793 | 6410 | 13808 | 12937 | 5311 | 4360 | 12690 |
| TweenAlt | 17598 | 3609 | 3095 | 10823 | 20165 | 6813 | 17309 | 9536 | 11297 | 9359 | 5416 | 10984 | 10477 | 3840 | 3585 | 11258 |
| TweenSplit | 24049 | 5490 | 4951 | 12983 | 26376 | 9865 | 23935 | 11630 | 14840 | 13253 | 7498 | 14571 | 13990 | 6004 | 5337 | 13903 |
| TweenSplitFastPr | 20488 | 4966 | 4654 | 12639 | 24663 | 9698 | 21782 | 11529 | 14068 | 12378 | 6785 | 13527 | 12055 | 5400 | 4870 | 14003 |
| TweenSplitHeadPr | 22336 | 4910 | 4705 | 12384 | 26641 | 9419 | 21721 | 10450 | 13414 | 12056 | 6589 | 14521 | 12615 | 5304 | 4904 | 13447 |
| TweenSplitHeadPr | 20500 | 4582 | 5010 | 11714 | 24029 | 10376 | 23566 | 10749 | 13577 | 11827 | 6539 | 14187 | 12993 | 5217 | 4647 | 14206 |
| TweenSplitLinear | 20191 | 4600 | 4442 | 11915 | 21812 | 9131 | 19749 | 10955 | 13078 | 11541 | 7052 | 14036 | 13142 | 5170 | 4383 | 13726 |
| TweenSplitLinear | 22985 | 5251 | 4695 | 12094 | 24883 | 9243 | 24208 | 11156 | 13520 | 13743 | 7314 | 15121 | 12943 | 5775 | 4935 | 14261 |
| TweenSplitSparse | 21678 | 5264 | 4600 | 12353 | 28412 | 9632 | 24678 | 11100 | 14624 | 12914 | 6791 | 14956 | 13795 | 5872 | 4876 | 14702 |
| sgd | 25150 | 5717 | 5126 | 15491 | 31583 | 10867 | 24549 | 13423 | 17490 | 14379 | 8407 | 17279 | 15810 | 6815 | 5947 | 16613 |
| step_sgd | 23908 | 5326 | 5074 | 14826 | 28202 | 10906 | 23587 | 12660 | 16516 | 14516 | 8058 | 16407 | 15854 | 6301 | 5087 | 16095 |
| step_tween | 21527 | 4524 | 4016 | 12852 | 25766 | 9211 | 22231 | 11225 | 14130 | 12356 | 6500 | 14527 | 13084 | 4959 | 4398 | 14014 |
| step_tween_chain | 22106 | 4592 | 4122 | 12835 | 26629 | 8915 | 21822 | 10887 | 14159 | 12552 | 6658 | 14863 | 13419 | 5298 | 4482 | 14396 |
| tween | 22573 | 5247 | 5286 | 14552 | 30560 | 10809 | 25363 | 11926 | 16907 | 14807 | 7811 | 17052 | 14947 | 6139 | 5556 | 17189 |
| tween_chain | 24602 | 5573 | 5030 | 14494 | 29990 | 10890 | 24718 | 12660 | 16085 | 14355 | 7738 | 16804 | 15428 | 6158 | 5423 | 16213 |

## Honesty - mean Score, every mode x dtype  (cols 33-34)

## Honesty - mean Score, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 25301 | 11660 |
| MeshTween | 24951 | 10694 |
| MeshTweenAlt | 19321 | 9211 |
| MeshTweenChain | 24651 | 10931 |
| MeshTweenSplit | 26385 | 10946 |
| MeshTweenSplitFa | 25140 | 10396 |
| MeshTweenSplitSp | 23608 | 11150 |
| StepTweenAlt | 19018 | 8579 |
| StepTweenSplit | 24110 | 10499 |
| TweenAlt | 19766 | 9152 |
| TweenSplit | 25711 | 11458 |
| TweenSplitFastPr | 23436 | 11357 |
| TweenSplitHeadPr | 25954 | 10690 |
| TweenSplitHeadPr | 24733 | 11255 |
| TweenSplitLinear | 22426 | 10821 |
| TweenSplitLinear | 26296 | 11785 |
| TweenSplitSparse | 25735 | 10714 |
| sgd | 30014 | 13555 |
| step_sgd | 29116 | 12826 |
| step_tween | 25771 | 11080 |
| step_tween_chain | 25726 | 11196 |
| tween | 29992 | 13112 |
| tween_chain | 28794 | 12942 |

## Honesty - mean hard Acc, every mode x dtype  (cols 1-16)

## Honesty - mean hard Acc, every mode x dtype  (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 25 | 25 | 23 | 25 | 25 | 24 | 25 | 25 | 27 | 24 | 26 | 27 | 25 | 26 | 25 | 24 |
| MeshTween | 25 | 24 | 25 | 23 | 26 | 25 | 25 | 25 | 26 | 25 | 23 | 26 | 25 | 26 | 27 | 24 |
| MeshTweenAlt | 25 | 26 | 26 | 24 | 24 | 26 | 25 | 25 | 23 | 26 | 26 | 24 | 24 | 26 | 24 | 25 |
| MeshTweenChain | 26 | 24 | 24 | 25 | 25 | 23 | 27 | 25 | 25 | 24 | 23 | 27 | 24 | 27 | 25 | 26 |
| MeshTweenSplit | 25 | 24 | 24 | 25 | 25 | 25 | 26 | 25 | 24 | 24 | 25 | 25 | 25 | 25 | 24 | 26 |
| MeshTweenSplitFa | 24 | 27 | 24 | 24 | 26 | 26 | 27 | 25 | 24 | 26 | 25 | 25 | 25 | 24 | 26 | 24 |
| MeshTweenSplitSp | 27 | 27 | 25 | 25 | 25 | 24 | 25 | 25 | 27 | 25 | 25 | 25 | 27 | 26 | 23 | 27 |
| StepTweenAlt | 25 | 26 | 25 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 24 | 25 | 25 | 24 | 25 | 25 |
| StepTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 26 | 26 | 25 | 25 | 26 | 24 | 25 | 25 |
| TweenAlt | 25 | 22 | 25 | 25 | 25 | 25 | 25 | 25 | 24 | 24 | 25 | 25 | 25 | 27 | 24 | 25 |
| TweenSplit | 25 | 24 | 25 | 25 | 26 | 25 | 26 | 25 | 25 | 24 | 24 | 25 | 25 | 26 | 24 | 25 |
| TweenSplitFastPr | 25 | 23 | 23 | 25 | 25 | 27 | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 27 | 26 | 28 |
| TweenSplitHeadPr | 25 | 25 | 25 | 24 | 25 | 25 | 25 | 25 | 24 | 24 | 24 | 24 | 25 | 25 | 26 | 25 |
| TweenSplitHeadPr | 27 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 28 | 25 | 26 | 24 | 26 | 27 | 24 | 25 |
| TweenSplitLinear | 24 | 24 | 24 | 26 | 27 | 26 | 27 | 25 | 25 | 26 | 26 | 28 | 25 | 23 | 27 | 25 |
| TweenSplitLinear | 25 | 24 | 26 | 25 | 26 | 27 | 25 | 25 | 26 | 25 | 25 | 24 | 25 | 25 | 26 | 25 |
| TweenSplitSparse | 25 | 24 | 26 | 26 | 23 | 23 | 24 | 25 | 23 | 26 | 25 | 24 | 25 | 27 | 27 | 27 |
| sgd | 25 | 28 | 24 | 25 | 25 | 25 | 24 | 25 | 24 | 24 | 25 | 24 | 25 | 25 | 26 | 29 |
| step_sgd | 26 | 26 | 23 | 25 | 24 | 25 | 25 | 25 | 21 | 24 | 25 | 27 | 28 | 26 | 28 | 24 |
| step_tween | 27 | 25 | 25 | 25 | 26 | 25 | 24 | 25 | 24 | 24 | 25 | 26 | 24 | 26 | 26 | 25 |
| step_tween_chain | 25 | 23 | 25 | 24 | 21 | 24 | 25 | 25 | 26 | 26 | 24 | 24 | 25 | 25 | 26 | 25 |
| tween | 25 | 24 | 26 | 26 | 26 | 27 | 25 | 25 | 25 | 26 | 26 | 25 | 23 | 25 | 26 | 25 |
| tween_chain | 26 | 24 | 26 | 26 | 24 | 25 | 25 | 25 | 29 | 24 | 27 | 25 | 29 | 27 | 25 | 24 |

## Honesty - mean hard Acc, every mode x dtype  (cols 17-32)

## Honesty - mean hard Acc, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 27 | 24 | 24 | 26 | 24 | 25 | 26 | 24 | 25 | 25 | 26 | 26 | 25 | 25 | 25 | 26 |
| MeshTween | 23 | 28 | 26 | 26 | 25 | 24 | 26 | 26 | 25 | 25 | 23 | 26 | 27 | 26 | 24 | 24 |
| MeshTweenAlt | 25 | 24 | 25 | 25 | 24 | 25 | 23 | 26 | 25 | 27 | 27 | 24 | 26 | 27 | 25 | 24 |
| MeshTweenChain | 24 | 25 | 22 | 25 | 25 | 26 | 27 | 27 | 26 | 25 | 26 | 25 | 26 | 27 | 25 | 27 |
| MeshTweenSplit | 26 | 24 | 28 | 26 | 25 | 26 | 22 | 25 | 25 | 24 | 26 | 26 | 24 | 26 | 27 | 24 |
| MeshTweenSplitFa | 27 | 25 | 27 | 26 | 23 | 26 | 25 | 25 | 23 | 26 | 25 | 24 | 24 | 25 | 27 | 24 |
| MeshTweenSplitSp | 23 | 28 | 26 | 24 | 26 | 25 | 26 | 26 | 25 | 24 | 23 | 25 | 27 | 25 | 24 | 27 |
| StepTweenAlt | 27 | 25 | 24 | 25 | 25 | 23 | 24 | 25 | 25 | 25 | 25 | 25 | 23 | 24 | 25 | 25 |
| StepTweenSplit | 25 | 25 | 25 | 24 | 25 | 24 | 24 | 25 | 25 | 24 | 28 | 25 | 25 | 26 | 24 | 25 |
| TweenAlt | 26 | 25 | 24 | 25 | 25 | 26 | 28 | 25 | 25 | 24 | 23 | 25 | 26 | 26 | 26 | 25 |
| TweenSplit | 26 | 25 | 23 | 25 | 25 | 25 | 24 | 24 | 25 | 25 | 23 | 25 | 24 | 24 | 26 | 25 |
| TweenSplitFastPr | 26 | 25 | 25 | 25 | 27 | 24 | 27 | 25 | 26 | 24 | 26 | 24 | 27 | 22 | 25 | 25 |
| TweenSplitHeadPr | 25 | 27 | 28 | 27 | 24 | 24 | 23 | 24 | 24 | 25 | 24 | 24 | 25 | 26 | 25 | 26 |
| TweenSplitHeadPr | 24 | 26 | 26 | 26 | 26 | 22 | 24 | 25 | 25 | 24 | 26 | 25 | 24 | 26 | 27 | 26 |
| TweenSplitLinear | 25 | 26 | 27 | 24 | 25 | 27 | 25 | 25 | 26 | 27 | 25 | 25 | 26 | 24 | 24 | 25 |
| TweenSplitLinear | 25 | 24 | 25 | 24 | 25 | 24 | 24 | 28 | 25 | 27 | 26 | 24 | 25 | 25 | 26 | 24 |
| TweenSplitSparse | 24 | 24 | 24 | 27 | 26 | 26 | 24 | 25 | 25 | 25 | 25 | 24 | 24 | 22 | 27 | 24 |
| sgd | 26 | 26 | 26 | 26 | 26 | 25 | 26 | 23 | 26 | 25 | 26 | 27 | 23 | 24 | 24 | 25 |
| step_sgd | 26 | 24 | 24 | 27 | 25 | 26 | 25 | 27 | 25 | 25 | 27 | 24 | 25 | 23 | 27 | 25 |
| step_tween | 25 | 25 | 24 | 24 | 26 | 24 | 24 | 25 | 26 | 25 | 26 | 24 | 25 | 23 | 25 | 26 |
| step_tween_chain | 25 | 23 | 24 | 25 | 24 | 26 | 26 | 24 | 27 | 23 | 26 | 26 | 24 | 23 | 24 | 24 |
| tween | 24 | 23 | 25 | 26 | 26 | 25 | 26 | 27 | 25 | 27 | 24 | 24 | 23 | 23 | 24 | 24 |
| tween_chain | 22 | 25 | 25 | 24 | 24 | 26 | 27 | 25 | 25 | 25 | 26 | 26 | 26 | 24 | 24 | 26 |

## Honesty - mean hard Acc, every mode x dtype  (cols 33-34)

## Honesty - mean hard Acc, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 26 | 23 |
| MeshTween | 25 | 27 |
| MeshTweenAlt | 25 | 25 |
| MeshTweenChain | 25 | 24 |
| MeshTweenSplit | 24 | 25 |
| MeshTweenSplitFa | 26 | 25 |
| MeshTweenSplitSp | 26 | 26 |
| StepTweenAlt | 25 | 26 |
| StepTweenSplit | 25 | 25 |
| TweenAlt | 25 | 25 |
| TweenSplit | 25 | 25 |
| TweenSplitFastPr | 25 | 25 |
| TweenSplitHeadPr | 26 | 26 |
| TweenSplitHeadPr | 25 | 27 |
| TweenSplitLinear | 26 | 23 |
| TweenSplitLinear | 28 | 25 |
| TweenSplitSparse | 27 | 25 |
| sgd | 25 | 25 |
| step_sgd | 26 | 25 |
| step_tween | 26 | 24 |
| step_tween_chain | 26 | 25 |
| tween | 26 | 26 |
| tween_chain | 25 | 24 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 1-16)

## Honesty - mean SoftAcc, every mode x dtype  (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenChain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitFastPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitSparse | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 17-32)

## Honesty - mean SoftAcc, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenAlt | 25 | 25 | 23 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenChain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitFastPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitSparse | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 33-34)

## Honesty - mean SoftAcc, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 25 | 25 |
| MeshTween | 25 | 25 |
| MeshTweenAlt | 25 | 25 |
| MeshTweenChain | 25 | 25 |
| MeshTweenSplit | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 |
| StepTweenAlt | 25 | 25 |
| StepTweenSplit | 25 | 25 |
| TweenAlt | 25 | 25 |
| TweenSplit | 25 | 25 |
| TweenSplitFastPr | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 |
| TweenSplitLinear | 25 | 25 |
| TweenSplitLinear | 25 | 25 |
| TweenSplitSparse | 25 | 25 |
| sgd | 25 | 25 |
| step_sgd | 25 | 25 |
| step_tween | 25 | 25 |
| step_tween_chain | 25 | 25 |
| tween | 25 | 25 |
| tween_chain | 25 | 25 |

## Mean Score, every mode x arch

## Mean Score, every mode x arch

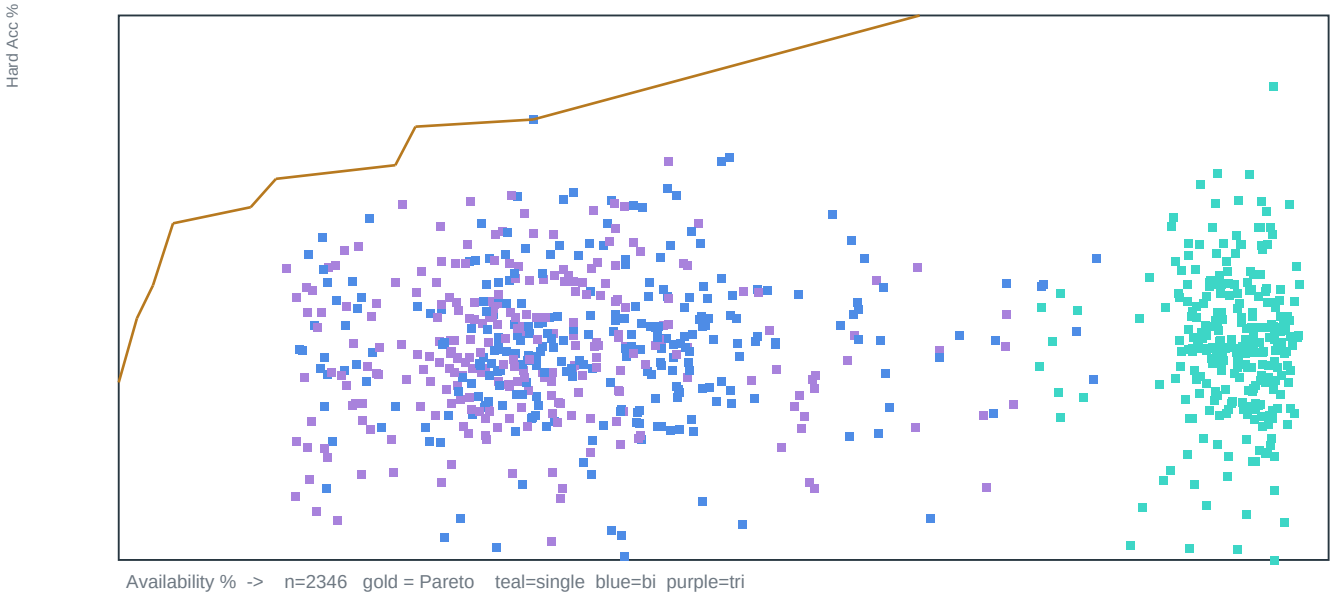
| | bicamera | singlex1 | tricamer |
|---|---|---|---|
| MeshBP | 856 | 43822 | 544 |
| MeshTween | 788 | 40294 | 502 |
| MeshTweenAlt | 454 | 33184 | 276 |
| MeshTweenChain | 801 | 41518 | 498 |
| MeshTweenSplit | 1458 | 43094 | 952 |
| MeshTweenSplitFa | 1474 | 41592 | 995 |
| MeshTweenSplitSp | 1786 | 39817 | 1297 |
| StepTweenAlt | 381 | 31991 | 215 |
| StepTweenSplit | 1074 | 39700 | 700 |
| TweenAlt | 460 | 33538 | 261 |
| TweenSplit | 1478 | 43207 | 1006 |
| TweenSplitFastPr | 1472 | 40354 | 969 |
| TweenSplitHeadPr | 1505 | 40722 | 963 |
| TweenSplitHeadPr | 1487 | 40067 | 979 |
| TweenSplitLinear | 907 | 39456 | 583 |
| TweenSplitLinear | 1445 | 41999 | 944 |
| TweenSplitSparse | 1851 | 41384 | 1374 |
| sgd | 1080 | 50141 | 685 |
| step_sgd | 864 | 48676 | 548 |
| step_tween | 745 | 42736 | 482 |
| step_tween_chain | 744 | 43046 | 457 |
| tween | 1017 | 49429 | 655 |
| tween_chain | 983 | 48597 | 646 |

## Mean hard Acc, every mode x arch

## Mean hard Acc, every mode x arch

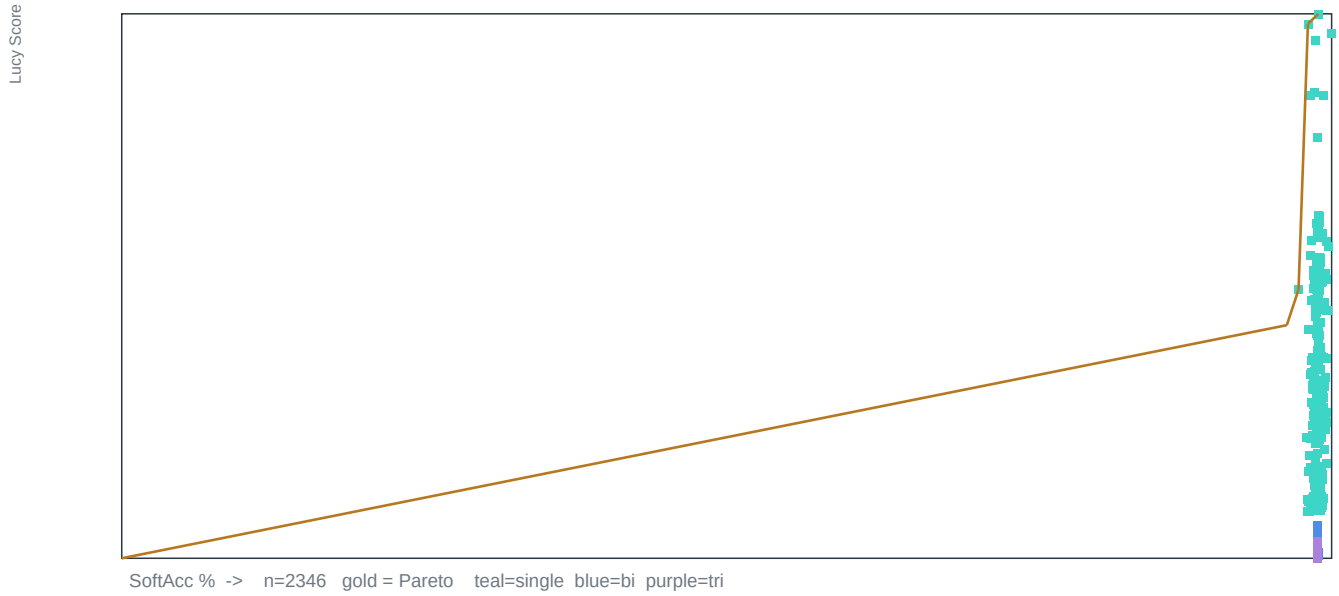
| | bicamera | singlex1 | tricamer |
|---|---|---|---|
| MeshBP | 25 | 25 | 25 |
| MeshTween | 25 | 25 | 25 |
| MeshTweenAlt | 25 | 25 | 25 |
| MeshTweenChain | 25 | 25 | 25 |
| MeshTweenSplit | 25 | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 | 26 |
| StepTweenAlt | 25 | 25 | 25 |
| StepTweenSplit | 25 | 25 | 25 |
| TweenAlt | 25 | 25 | 25 |
| TweenSplit | 25 | 25 | 25 |
| TweenSplitFastPr | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 |
| TweenSplitLinear | 26 | 25 | 26 |
| TweenSplitLinear | 25 | 25 | 25 |
| TweenSplitSparse | 25 | 25 | 25 |
| sgd | 25 | 25 | 25 |
| step_sgd | 25 | 25 | 25 |
| step_tween | 25 | 25 | 25 |
| step_tween_chain | 25 | 25 | 24 |
| tween | 25 | 25 | 25 |
| tween_chain | 25 | 25 | 26 |

## Avail vs hard Acc (headline scatter)

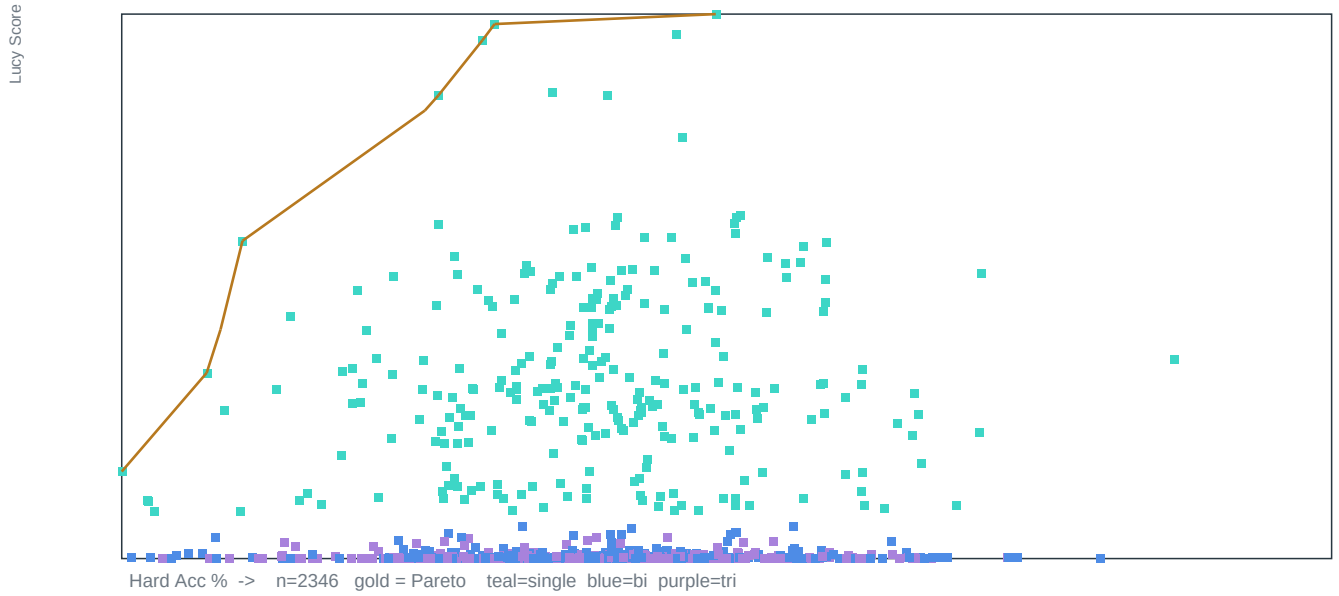



## Pareto - SoftAcc vs Score

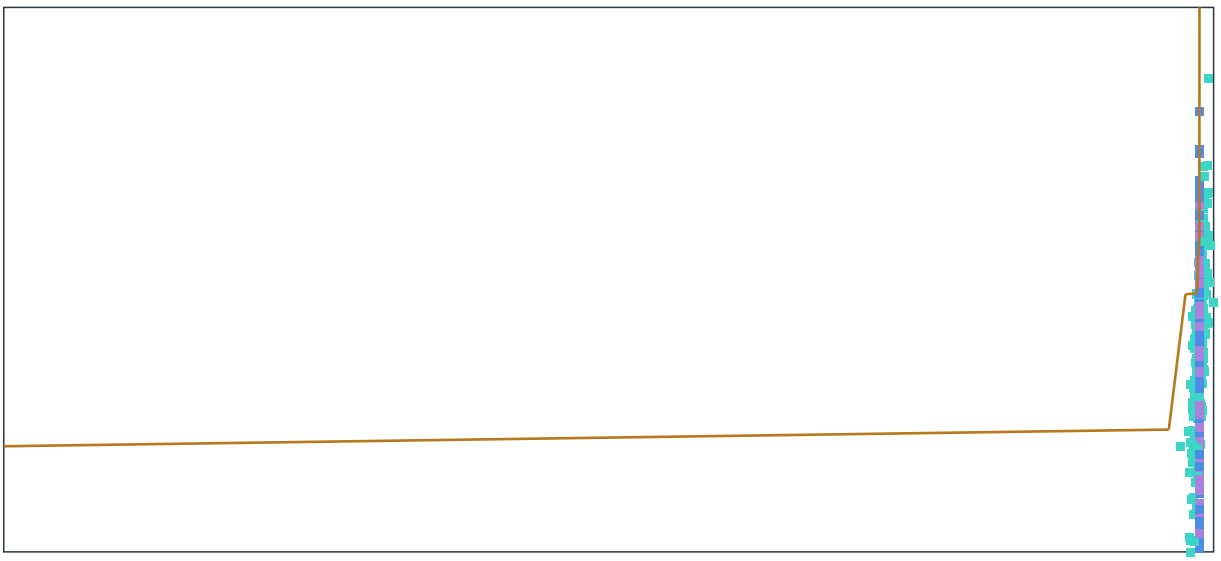
## Pareto - SoftAcc vs Score




## Pareto - hard Acc vs Score

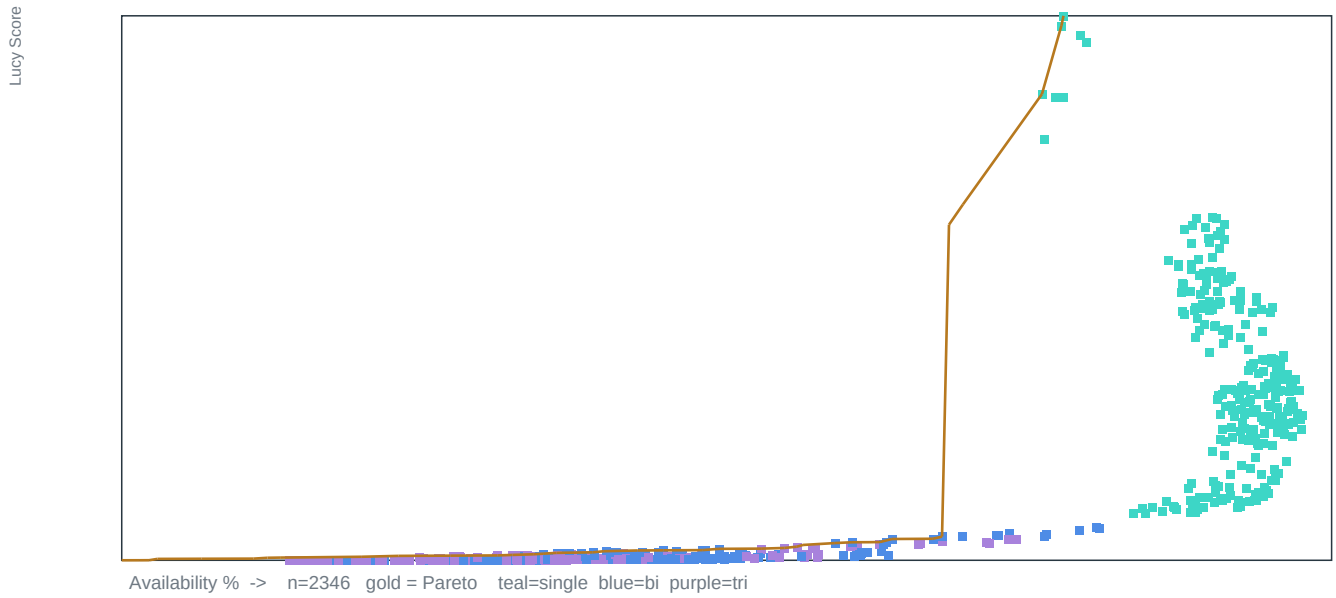



## SoftAcc vs hard Acc




SoftAcc %  ->  n=2346  gold = Pareto  teal=single  blue=bi  purple=tri
Hard Acc %

## Avail vs Score (duty clock)




## Lucy Pareto (LPD) - goldilocks

Q = geomean of Score/Soft/Acc/Thru vs the Lucy Score champion. LPD = 0 if Q<70%, else Q x shrink vs champ RAM (capped 32x). Gold = Q>=80% and RAM<=20% of champ. MSpeed = Thru vs the board's fastest (0 if Q<70%). MAvail = Availability vs the board's best duty cycle (0 if Q<70%). Mix = geomean(Q, MSpeed, MAvail). Raw Score/MiB is the binary trap.
Quality champ float32|none|tween|single|simd  Score 137030.8  Soft 25  Acc 27  Thru 1389793  RAM 1.5 KiB
Board fastest float32|none|tween|single|simd  Thru 1389793  Best availability uint5|none|MeshTweenSplit|single|simd  46.8%
No gold cell yet. Need a recipe that keeps 80% of the Score champ's Score/Soft/Acc/Thru at one fifth the RAM.

## Near-gold - Q >= 70%, RAM <= 50%

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| near | binary\|none\|step_sgd\|single\|simd | 75 | 3 | 32.0 | 23.89 | 25 | 28 | 79752.1 | 0.0 |
| near | binary\|none\|sgd\|single\|simd | 74 | 3 | 32.0 | 23.61 | 25 | 28 | 78558.3 | 0.0 |
| near | binary\|none\|tween_chain\|single\|simd | 70 | 3 | 32.0 | 22.48 | 25 | 23 | 76229.5 | 0.0 |
| near | int2\|none\|sgd\|single\|simd | 71 | 6 | 16.0 | 11.29 | 25 | 30 | 71849.7 | 0.1 |
| near | ternary\|none\|tween\|single\|simd | 70 | 6 | 16.0 | 11.26 | 25 | 26 | 72604.8 | 0.1 |
| near | int4\|none\|sgd\|single\|simd | 70 | 12 | 8.0 | 5.63 | 25 | 26 | 72906.5 | 0.2 |
| near | int8\|none\|sgd\|single\|simd | 76 | 25 | 4.0 | 3.06 | 25 | 27 | 84486.0 | 0.4 |
| near | uint8\|none\|tween\|single\|simd | 77 | 26 | 3.9 | 3.04 | 25 | 27 | 86363.5 | 0.4 |
| near | uint8\|none\|sgd\|single\|simd | 77 | 26 | 3.9 | 3.03 | 25 | 27 | 86049.3 | 0.4 |
| near | int8\|none\|tween\|single\|simd | 75 | 25 | 4.0 | 3.01 | 25 | 27 | 81796.0 | 0.4 |
| near | int8\|none\|tween_chain\|single\|simd | 74 | 25 | 4.0 | 2.98 | 25 | 26 | 80864.5 | 0.4 |
| near | uint8\|none\|tween_chain\|single\|simd | 74 | 26 | 3.9 | 2.91 | 25 | 25 | 82802.1 | 0.4 |

## LPD rank (Q x shrink; 0 if Q < 70%)

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| near | binary\|none\|step_sgd\|single\|simd | 75 | 3 | 32.0 | 23.89 | 25 | 28 | 79752.1 | 0.0 |
| near | binary\|none\|sgd\|single\|simd | 74 | 3 | 32.0 | 23.61 | 25 | 28 | 78558.3 | 0.0 |
| near | binary\|none\|tween_chain\|single\|simd | 70 | 3 | 32.0 | 22.48 | 25 | 23 | 76229.5 | 0.0 |
| near | int2\|none\|sgd\|single\|simd | 71 | 6 | 16.0 | 11.29 | 25 | 30 | 71849.7 | 0.1 |
| near | ternary\|none\|tween\|single\|simd | 70 | 6 | 16.0 | 11.26 | 25 | 26 | 72604.8 | 0.1 |
| near | int4\|none\|sgd\|single\|simd | 70 | 12 | 8.0 | 5.63 | 25 | 26 | 72906.5 | 0.2 |
| near | int8\|none\|sgd\|single\|simd | 76 | 25 | 4.0 | 3.06 | 25 | 27 | 84486.0 | 0.4 |
| near | uint8\|none\|tween\|single\|simd | 77 | 26 | 3.9 | 3.04 | 25 | 27 | 86363.5 | 0.4 |
| near | uint8\|none\|sgd\|single\|simd | 77 | 26 | 3.9 | 3.03 | 25 | 27 | 86049.3 | 0.4 |
| near | int8\|none\|tween\|single\|simd | 75 | 25 | 4.0 | 3.01 | 25 | 27 | 81796.0 | 0.4 |

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| near | int8\|none\|tween_chain\|single\|simd | 74 | 25 | 4.0 | 2.98 | 25 | 26 | 80864.5 | 0.4 |
| near | uint8\|none\|tween_chain\|single\|simd | 74 | 26 | 3.9 | 2.91 | 25 | 25 | 82802.1 | 0.4 |
| near | int8\|none\|step_sgd\|single\|simd | 73 | 25 | 4.0 | 2.91 | 25 | 27 | 75794.6 | 0.4 |
| near | uint8\|none\|step_sgd\|single\|simd | 74 | 26 | 3.9 | 2.90 | 25 | 23 | 84305.1 | 0.4 |
| near | uint8\|none\|step_tween\|single\|simd | 72 | 26 | 3.9 | 2.83 | 25 | 28 | 74486.4 | 0.4 |
| near | uint8\|none\|step_tween_chain\|single\|simd | 72 | 26 | 3.9 | 2.83 | 25 | 28 | 74592.2 | 0.4 |
| near | uint8\|none\|TweenSplitLinearCache\|single\|simd | 72 | 26 | 3.9 | 2.81 | 25 | 27 | 74490.3 | 0.4 |
| near | uint8\|none\|MeshTweenSplit\|single\|simd | 71 | 26 | 3.9 | 2.79 | 25 | 25 | 74652.0 | 0.4 |
| near | uint8\|none\|TweenSplitHeadProxy\|single\|simd | 71 | 26 | 3.9 | 2.78 | 25 | 26 | 73069.9 | 0.4 |
| near | uint8\|none\|TweenSplit\|single\|simd | 71 | 26 | 3.9 | 2.77 | 25 | 27 | 72387.8 | 0.4 |

## Mobile speed - Thru vs board fastest (Q >= 70%)

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| keep | float32\|none\|tween\|single\|simd | 100 | 100 | 84 | 94 | 1.00 | 1389793 | 39.4 |
| keep | float32\|none\|step_sgd\|single\|simd | 96 | 98 | 84 | 93 | 0.96 | 1368795 | 39.4 |
| keep | float32\|none\|sgd\|single\|simd | 97 | 95 | 85 | 92 | 0.97 | 1321096 | 39.9 |
| keep | float32\|none\|tween_chain\|single\|simd | 94 | 94 | 86 | 91 | 0.94 | 1303632 | 40.0 |
| keep | float32\|none\|step_tween\|single\|simd | 91 | 87 | 83 | 87 | 0.91 | 1208699 | 38.8 |
| keep | float32\|none\|step_tween_chain\|single\|simd | 91 | 86 | 84 | 87 | 0.91 | 1188764 | 39.2 |
| keep | float32\|none\|MeshBP\|single\|simd | 89 | 85 | 84 | 86 | 0.89 | 1184675 | 39.4 |
| keep | float32\|none\|MeshTweenChain\|single\|simd | 87 | 82 | 85 | 85 | 0.87 | 1136125 | 39.7 |
| keep | float32\|none\|MeshTweenSplit\|single\|simd | 90 | 82 | 85 | 86 | 0.90 | 1134854 | 39.8 |
| keep | float32\|none\|TweenSplit\|single\|simd | 87 | 81 | 85 | 84 | 0.87 | 1123550 | 39.5 |

## Mobile availability - duty cycle vs board best (Q >= 70%)

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| near | uint8\|none\|TweenSplitLinearCache\|single\|simd | 72 | 49 | 94 | 69 | 2.81 | 677354 | 44.0 |
| near | float16\|none\|TweenSplit\|single\|simd | 70 | 47 | 94 | 68 | 1.40 | 655777 | 43.9 |
| near | float16\|none\|MeshTweenSplit\|single\|simd | 70 | 50 | 94 | 69 | 1.41 | 695146 | 43.9 |
| near | int8\|none\|tween_chain\|single\|simd | 74 | 53 | 94 | 72 | 2.98 | 737956 | 43.8 |
| near | int8\|none\|sgd\|single\|simd | 76 | 55 | 94 | 74 | 3.06 | 770996 | 43.8 |
| near | uint8\|none\|TweenSplitSparse\|single\|simd | 70 | 47 | 94 | 67 | 2.75 | 648378 | 43.8 |
| near | uint8\|none\|TweenSplit\|single\|simd | 71 | 48 | 94 | 68 | 2.77 | 661948 | 43.7 |
| near | int4\|none\|sgd\|single\|simd | 70 | 48 | 94 | 68 | 5.63 | 666660 | 43.7 |
| near | uint8\|none\|TweenSplitHeadProxy\|single\|simd | 71 | 48 | 94 | 68 | 2.78 | 668465 | 43.7 |
| near | uint8\|none\|tween_chain\|single\|simd | 74 | 55 | 93 | 72 | 2.91 | 757896 | 43.7 |

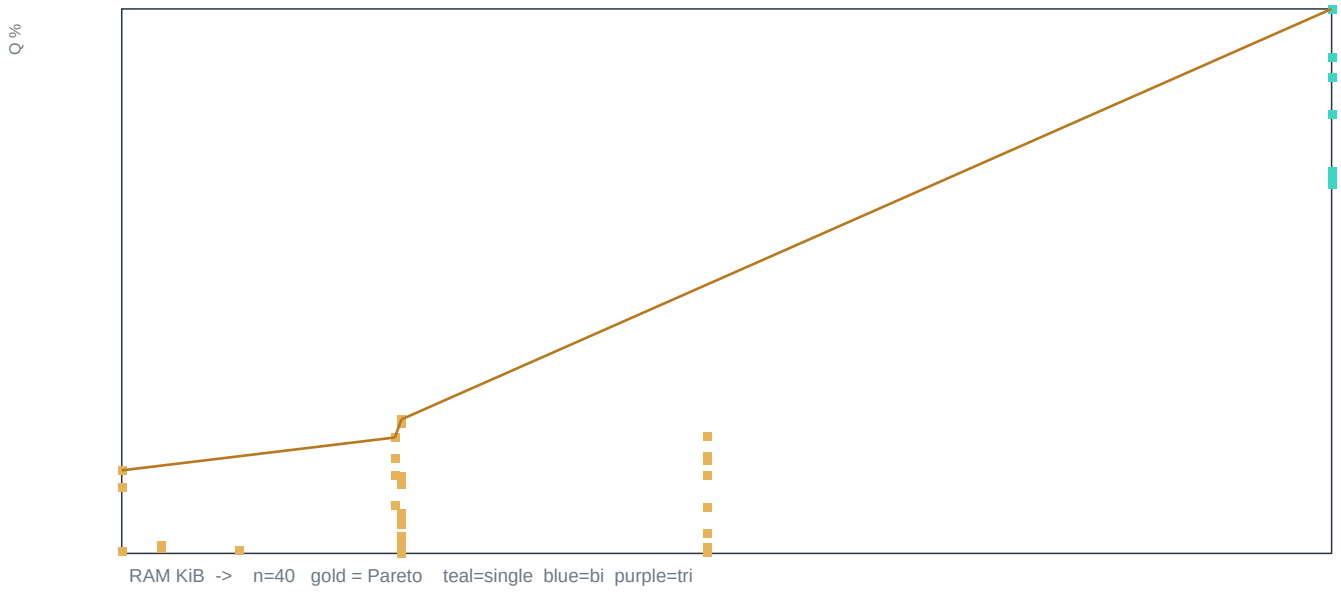
## Mix - geomean of Q, MSpeed, MAvail

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| keep | float32\|none\|tween\|single\|simd | 100 | 100 | 84 | 94 | 1.00 | 1389793 | 39.4 |
| keep | float32\|none\|step_sgd\|single\|simd | 96 | 98 | 84 | 93 | 0.96 | 1368795 | 39.4 |
| keep | float32\|none\|sgd\|single\|simd | 97 | 95 | 85 | 92 | 0.97 | 1321096 | 39.9 |
| keep | float32\|none\|tween_chain\|single\|simd | 94 | 94 | 86 | 91 | 0.94 | 1303632 | 40.0 |
| keep | float32\|none\|step_tween\|single\|simd | 91 | 87 | 83 | 87 | 0.91 | 1208699 | 38.8 |
| keep | float32\|none\|step_tween_chain\|single\|simd | 91 | 86 | 84 | 87 | 0.91 | 1188764 | 39.2 |
| keep | float32\|none\|MeshBP\|single\|simd | 89 | 85 | 84 | 86 | 0.89 | 1184675 | 39.4 |
| keep | float32\|none\|MeshTweenSplit\|single\|simd | 90 | 82 | 85 | 86 | 0.90 | 1134854 | 39.8 |
| keep | float32\|none\|MeshTweenChain\|single\|simd | 87 | 82 | 85 | 85 | 0.87 | 1136125 | 39.7 |
| keep | float32\|none\|TweenSplit\|single\|simd | 87 | 81 | 85 | 84 | 0.87 | 1123550 | 39.5 |

## Trap - tiny RAM, Q < 70% (why Score/MiB lies)

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| trap | binary\|none\|tween\|single\|simd | 70 | 3 | 32.0 | 0.00 | 25 | 20 | 79980.0 | 0.0 |
| trap | binary\|none\|step_tween\|single\|simd | 68 | 3 | 32.0 | 0.00 | 25 | 24 | 69421.1 | 0.0 |
| trap | binary\|none\|step_tween_chain\|single\|simd | 65 | 3 | 32.0 | 0.00 | 25 | 22 | 67638.0 | 0.0 |
| trap | binary\|none\|MeshBP\|single\|simd | 68 | 3 | 32.0 | 0.00 | 25 | 25 | 67941.8 | 0.0 |
| trap | binary\|none\|MeshTween\|single\|simd | 66 | 3 | 32.0 | 0.00 | 25 | 25 | 63463.4 | 0.0 |
| trap | binary\|none\|MeshTweenChain\|single\|simd | 67 | 3 | 32.0 | 0.00 | 25 | 25 | 66605.9 | 0.0 |
| trap | binary\|none\|TweenSplit\|single\|simd | 67 | 3 | 32.0 | 0.00 | 25 | 25 | 66724.6 | 0.0 |
| trap | binary\|none\|StepTweenSplit\|single\|simd | 67 | 3 | 32.0 | 0.00 | 25 | 26 | 64281.0 | 0.0 |
| trap | binary\|none\|TweenAlt\|single\|simd | 59 | 3 | 32.0 | 0.00 | 25 | 23 | 52983.1 | 0.0 |
| trap | binary\|none\|StepTweenAlt\|single\|simd | 60 | 3 | 32.0 | 0.00 | 25 | 26 | 50318.1 | 0.0 |

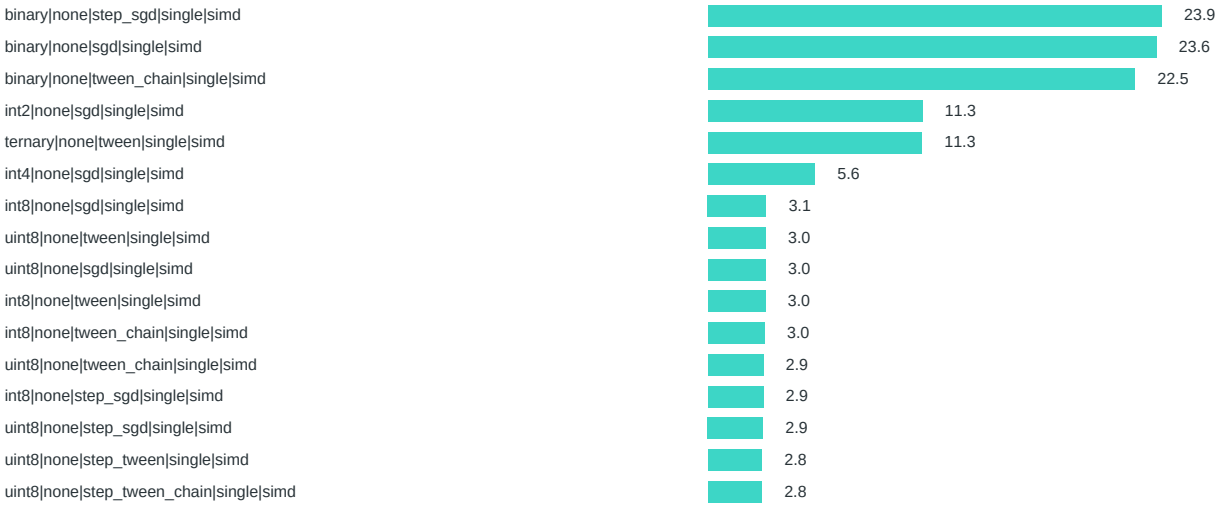
## LPD - Q% vs RAM KiB (gold = high Q, low RAM)



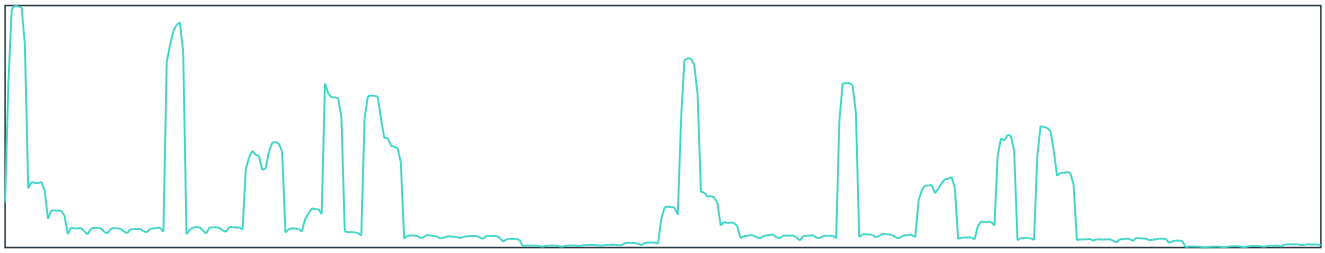

## LPD - Q% vs shrink vs champ (gold = upper right)




## Top LPD

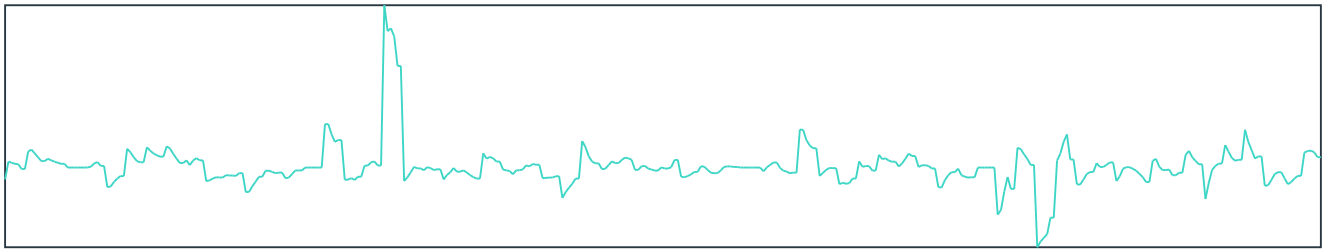



## Pulse Score - embedding



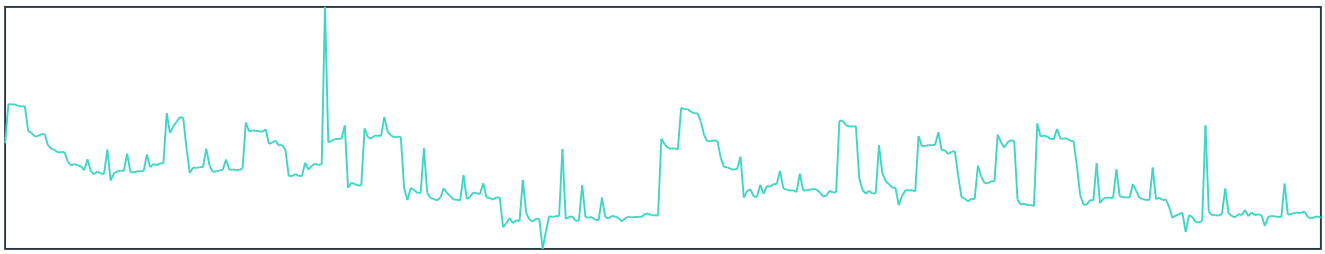
n=400 min=121.61 max=10544.30

## Pulse SoftAcc - embedding



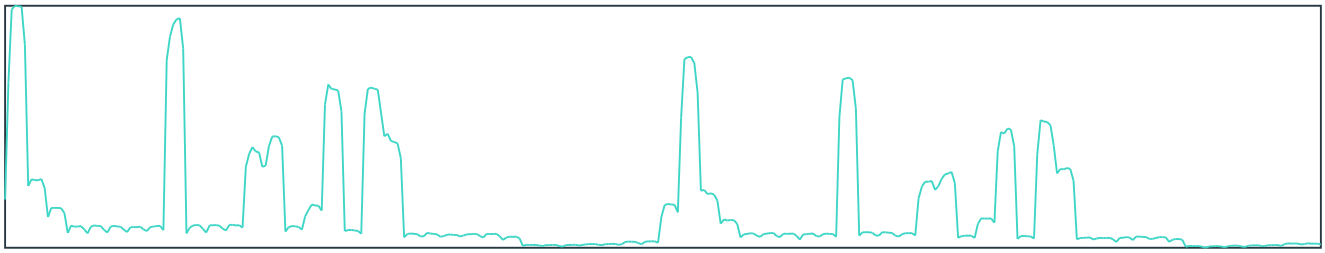
n=400 min=25.00 max=25.00

## Pulse Availability - embedding



n=400 min=36.43 max=52.63

## Pulse Throughput - embedding



n=400 min=1088.19 max=91496.90

## Queue by train mode (this epoch)

| Mode | Done | Run | Left | Total |
|---|---|---|---|---|
| sgd | 102 | 0 | 0 | 102 |
| step_sgd | 102 | 0 | 0 | 102 |
| tween | 102 | 0 | 0 | 102 |
| tween_chain | 102 | 0 | 0 | 102 |
| step_tween | 102 | 0 | 0 | 102 |
| step_tween_chain | 102 | 0 | 0 | 102 |
| MeshBP | 102 | 0 | 0 | 102 |
| MeshTween | 102 | 0 | 0 | 102 |
| MeshTweenChain | 102 | 0 | 0 | 102 |
| TweenSplit | 102 | 0 | 0 | 102 |
| StepTweenSplit | 102 | 0 | 0 | 102 |
| TweenAlt | 102 | 0 | 0 | 102 |
| StepTweenAlt | 102 | 0 | 0 | 102 |
| TweenSplitHeadProxy | 102 | 0 | 0 | 102 |
| TweenSplitLinear | 102 | 0 | 0 | 102 |
| TweenSplitFastProxy | 102 | 0 | 0 | 102 |
| TweenSplitLinearCache | 102 | 0 | 0 | 102 |
| TweenSplitHeadProxyAsync | 102 | 0 | 0 | 102 |
| TweenSplitSparse | 102 | 0 | 0 | 102 |
| MeshTweenSplit | 102 | 0 | 0 | 102 |
| MeshTweenAlt | 102 | 0 | 0 | 102 |
| MeshTweenSplitFastProxy | 102 | 0 | 0 | 102 |
| MeshTweenSplitSparse | 102 | 0 | 0 | 102 |

# tide  gdn

Score = Throughput x Availability% x SoftAcc% / 10,000

done  -  epoch 1  -  2026-08-18 09:45:25  -  0.0.0.0:8112

This epoch 2346 / 2346 cells. Recorded 2346 results.

Score 0 usually means the cell finished before a Lucy pulse (SoftAcc never sampled) or true-class mass was 0. Those rows do not vote holistically.

gdn  -  gated delta associative recall (f32)  -  modes all  -  min 2000ms/cell  -  1024 train  -  pulse 50ms  -  SIMD true

## Lucy champions (this tide)

| Axis | Cell | Score | Soft | Acc | Thru | Avail |
|---|---|---|---|---|---|---|
| score | float32\|none\|MeshTweenSplitSparse\|single\|simd | 3681.03 | 25.0 | 25.0 | 36740.8 | 40.1 |
| throughput | float32\|none\|MeshTweenSplitSparse\|single\|simd | 3681.03 | 25.0 | 25.0 | 36740.8 | 40.1 |
| availability | float32\|none\|MeshTweenSplitSparse\|tricameral\|simd | 2454.64 | 25.0 | 24.6 | 22368.6 | 43.9 |
| accuracy | float32\|none\|sgd\|single\|simd | 3101.59 | 25.0 | 24.6 | 32670.4 | 38.0 |
| mobile score (trapezoid) | float32\|none\|MeshTweenSplitSparse\|single\|simd | 3681.03 | 25.0 | 25.0 | 36740.8 | 40.1 |
| acc/sec | float32\|none\|sgd\|single\|simd | 3101.59 | 25.0 | 24.6 | 32670.4 | 38.0 |

## Lucy axes - gdn

| Axis | Mode | DType | Arch | Value |
|---|---|---|---|---|
| score | MeshTweenSplitS~ | float32 | singlex1 | 3681.03 |
| soft_acc | sgd | float32 | singlex1 | 25.00 |
| hard_acc | step_tween | float32 | tricameralx3 | 25.45 |
| throughput | MeshTweenSplitS~ | float32 | singlex1 | 36740.81 |
| availability | MeshTweenSplitS~ | float32 | tricameralx3 | 43.89 |
| acc_thru | MeshTweenSplitS~ | float32 | singlex1 | 9185.20 |
| realtime | MeshTweenSplitS~ | float32 | singlex1 | 14724.12 |
| adapt | sgd | float32 | singlex1 | 25.00 |
| keep_learn | sgd | float32 | singlex1 | 12.50 |
| acc_per_sec | sgd | float32 | singlex1 | 12.50 |
| consistency | sgd | float32 | singlex1 | 100.00 |
| stability | sgd | float32 | singlex1 | 100.00 |
| mobile_score | MeshTweenSplitS~ | float32 | singlex1 | 3769375.09 |
| lpd | MeshTweenSplitS~ | float32 | singlex1 | 1.00 |
| mspeed | MeshTweenSplitS~ | float32 | singlex1 | 1.00 |
| mavail | MeshTweenSplitS~ | float32 | tricameralx3 | 1.00 |
| mix | MeshTweenSplitS~ | float32 | singlex1 | 0.97 |

## Best settings per train mode

| Mode | DType | Format | Score | Soft | Acc | Avail | n |
|---|---|---|---|---|---|---|---|
| MeshTweenSplitSparse | float32 | none | 3681.0 | 25.0 | 25.0 | 40.1 | 3 |
| TweenSplitHeadProxy | float32 | none | 3565.5 | 25.0 | 25.0 | 40.0 | 3 |
| TweenSplit | float32 | none | 3525.6 | 25.0 | 25.2 | 40.0 | 3 |
| TweenSplitFastProxy | float32 | none | 3521.3 | 25.0 | 24.8 | 39.9 | 3 |
| MeshBP | float32 | none | 3442.9 | 25.0 | 25.3 | 38.8 | 3 |
| TweenSplitLinearCache | float32 | none | 3406.7 | 25.0 | 24.9 | 40.4 | 3 |
| TweenSplitHeadProxyAsync | float32 | none | 3396.5 | 25.0 | 25.0 | 40.2 | 3 |
| TweenSplitLinear | float32 | none | 3393.5 | 25.0 | 24.7 | 39.7 | 3 |
| tween_chain | float32 | none | 3300.2 | 25.0 | 24.9 | 38.6 | 3 |
| TweenSplitSparse | float32 | none | 3283.9 | 25.0 | 24.9 | 40.1 | 3 |
| tween | float32 | none | 3243.7 | 25.0 | 25.1 | 37.6 | 3 |
| MeshTweenSplitFastProxy | float32 | none | 3237.5 | 25.0 | 25.1 | 40.1 | 3 |
| MeshTweenSplit | float32 | none | 3125.7 | 25.0 | 24.9 | 39.8 | 3 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| sgd | float32 | none | 3101.6 | 25.0 | 24.6 | 38.0 | 3 |
| MeshTweenChain | float32 | none | 3091.4 | 25.0 | 25.1 | 38.5 | 3 |
| MeshTween | float32 | none | 3008.5 | 25.0 | 25.0 | 37.0 | 3 |
| step_tween_chain | float32 | none | 2778.3 | 25.0 | 25.1 | 35.7 | 3 |
| StepTweenSplit | float32 | none | 2749.3 | 25.0 | 24.8 | 36.4 | 3 |
| step_sgd | float32 | none | 2729.5 | 25.0 | 25.0 | 35.3 | 3 |
| step_tween | float32 | none | 2476.0 | 25.0 | 24.9 | 34.0 | 3 |
| TweenAlt | float32 | none | 1872.0 | 25.0 | 25.2 | 30.9 | 3 |
| MeshTweenAlt | float32 | none | 1667.0 | 25.0 | 25.3 | 30.4 | 3 |
| StepTweenAlt | float32 | none | 1497.6 | 25.0 | 24.8 | 28.4 | 3 |

## Best dtype per mode

| Mode | Winner dtype | Score | Soft | Acc |
|---|---|---|---|---|
| MeshTweenSplitSparse | float32 | 3681.0 | 25.0 | 25.0 |
| TweenSplitHeadProxy | float32 | 3565.5 | 25.0 | 25.0 |
| TweenSplit | float32 | 3525.6 | 25.0 | 25.2 |
| TweenSplitFastProxy | float32 | 3521.3 | 25.0 | 24.8 |
| MeshBP | float32 | 3442.9 | 25.0 | 25.3 |
| TweenSplitLinearCache | float32 | 3406.7 | 25.0 | 24.9 |
| TweenSplitHeadProxyAsync | float32 | 3396.5 | 25.0 | 25.0 |
| TweenSplitLinear | float32 | 3393.5 | 25.0 | 24.7 |
| tween_chain | float32 | 3300.2 | 25.0 | 24.9 |
| TweenSplitSparse | float32 | 3283.9 | 25.0 | 24.9 |
| tween | float32 | 3243.7 | 25.0 | 25.1 |
| MeshTweenSplitFastProxy | float32 | 3237.5 | 25.0 | 25.1 |
| MeshTweenSplit | float32 | 3125.7 | 25.0 | 24.9 |
| sgd | float32 | 3101.6 | 25.0 | 24.6 |
| MeshTweenChain | float32 | 3091.4 | 25.0 | 25.1 |
| MeshTween | float32 | 3008.5 | 25.0 | 25.0 |
| step_tween_chain | float32 | 2778.3 | 25.0 | 25.1 |
| StepTweenSplit | float32 | 2749.3 | 25.0 | 24.8 |
| step_sgd | float32 | 2729.5 | 25.0 | 25.0 |
| step_tween | float32 | 2476.0 | 25.0 | 24.9 |
| TweenAlt | float32 | 1872.0 | 25.0 | 25.2 |
| MeshTweenAlt | float32 | 1667.0 | 25.0 | 25.3 |
| StepTweenAlt | float32 | 1497.6 | 25.0 | 24.8 |

## Best mode per dtype

| DType | Winner mode | Score | Soft | Acc |
|---|---|---|---|---|
| float32 | MeshTweenSplitSparse | 3681.0 | 25.0 | 25.0 |

## Leaderboard - gdn

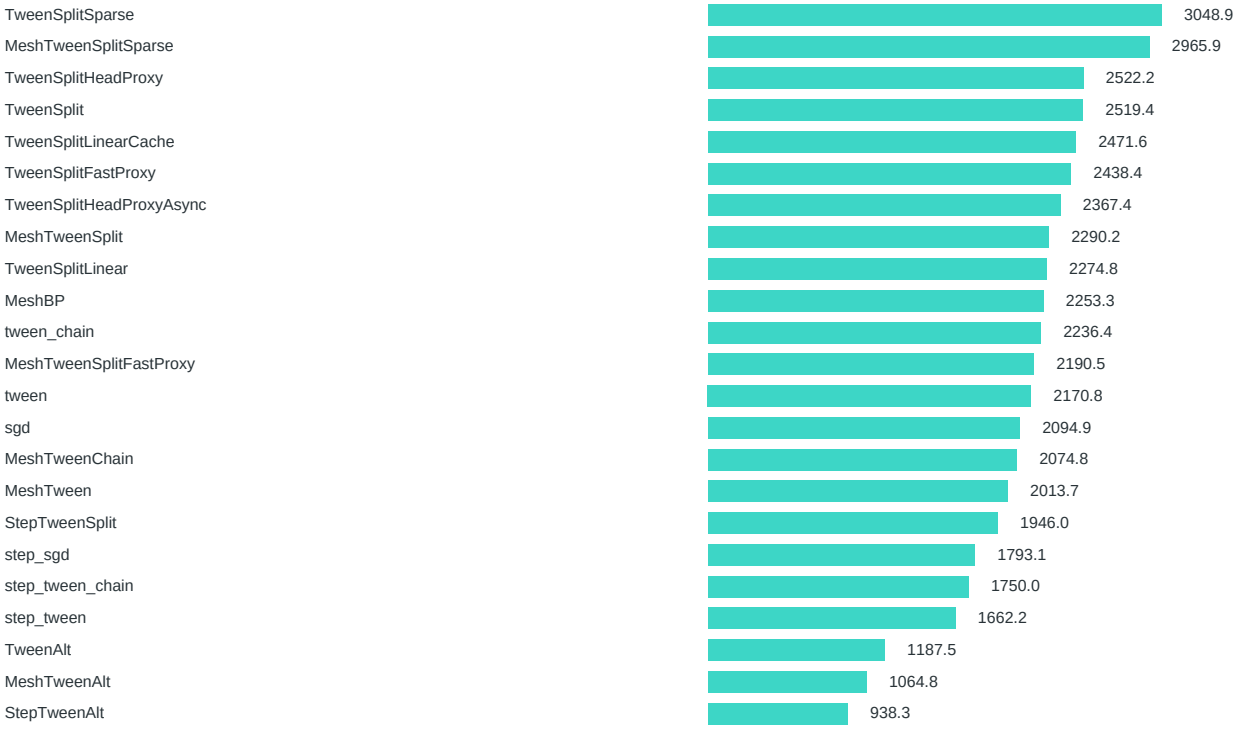
| # | Cell | Score | Soft | Acc | Thru | Avail |
|---|---|---|---|---|---|---|
| 1 | float32\|none\|MeshTweenSplitSparse\|single\|simd | 3681.0 | 25.0 | 25.0 | 36740.8 | 40.1 |
| 2 | float32\|none\|TweenSplitHeadProxy\|single\|simd | 3565.5 | 25.0 | 25.0 | 35640.4 | 40.0 |
| 3 | float32\|none\|TweenSplit\|single\|simd | 3525.6 | 25.0 | 25.2 | 35283.1 | 40.0 |
| 4 | float32\|none\|TweenSplitFastProxy\|single\|simd | 3521.3 | 25.0 | 24.8 | 35308.5 | 39.9 |
| 5 | float32\|none\|MeshBP\|single\|simd | 3442.9 | 25.0 | 25.3 | 35536.2 | 38.8 |
| 6 | float32\|none\|TweenSplitLinearCache\|single\|simd | 3406.7 | 25.0 | 24.9 | 33695.5 | 40.4 |
| 7 | float32\|none\|TweenSplitHeadProxyAsync\|single\|simd | 3396.5 | 25.0 | 25.0 | 33776.5 | 40.2 |
| 8 | float32\|none\|TweenSplitLinear\|single\|simd | 3393.5 | 25.0 | 24.7 | 34214.8 | 39.7 |
| 9 | float32\|none\|tween_chain\|single\|simd | 3300.2 | 25.0 | 24.9 | 34177.1 | 38.6 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 10 | float32\|none\|TweenSplitSparse\|single\|simd | 3283.9 | 25.0 | 24.9 | 32739.7 | 40.1 |
| 11 | float32\|none\|tween\|single\|simd | 3243.7 | 25.0 | 25.1 | 34533.7 | 37.6 |
| 12 | float32\|none\|MeshTweenSplitFastProxy\|single\|simd | 3237.5 | 25.0 | 25.1 | 32264.5 | 40.1 |
| 13 | float32\|none\|MeshTweenSplit\|single\|simd | 3125.7 | 25.0 | 24.9 | 31436.4 | 39.8 |
| 14 | float32\|none\|sgd\|single\|simd | 3101.6 | 25.0 | 24.6 | 32670.4 | 38.0 |
| 15 | float32\|none\|MeshTweenChain\|single\|simd | 3091.4 | 25.0 | 25.1 | 32141.4 | 38.5 |
| 16 | float32\|none\|TweenSplitSparse\|bicameral\|simd | 3061.2 | 25.0 | 25.3 | 28138.2 | 43.5 |
| 17 | float32\|none\|MeshTween\|single\|simd | 3008.5 | 25.0 | 25.0 | 32488.1 | 37.0 |
| 18 | float32\|none\|TweenSplitSparse\|tricameral\|simd | 2801.6 | 25.0 | 25.4 | 25742.0 | 43.5 |
| 19 | float32\|none\|step_tween_chain\|single\|simd | 2778.3 | 25.0 | 25.1 | 31135.5 | 35.7 |
| 20 | float32\|none\|MeshTweenSplitSparse\|bicameral\|simd | 2761.9 | 25.0 | 24.8 | 25302.9 | 43.7 |

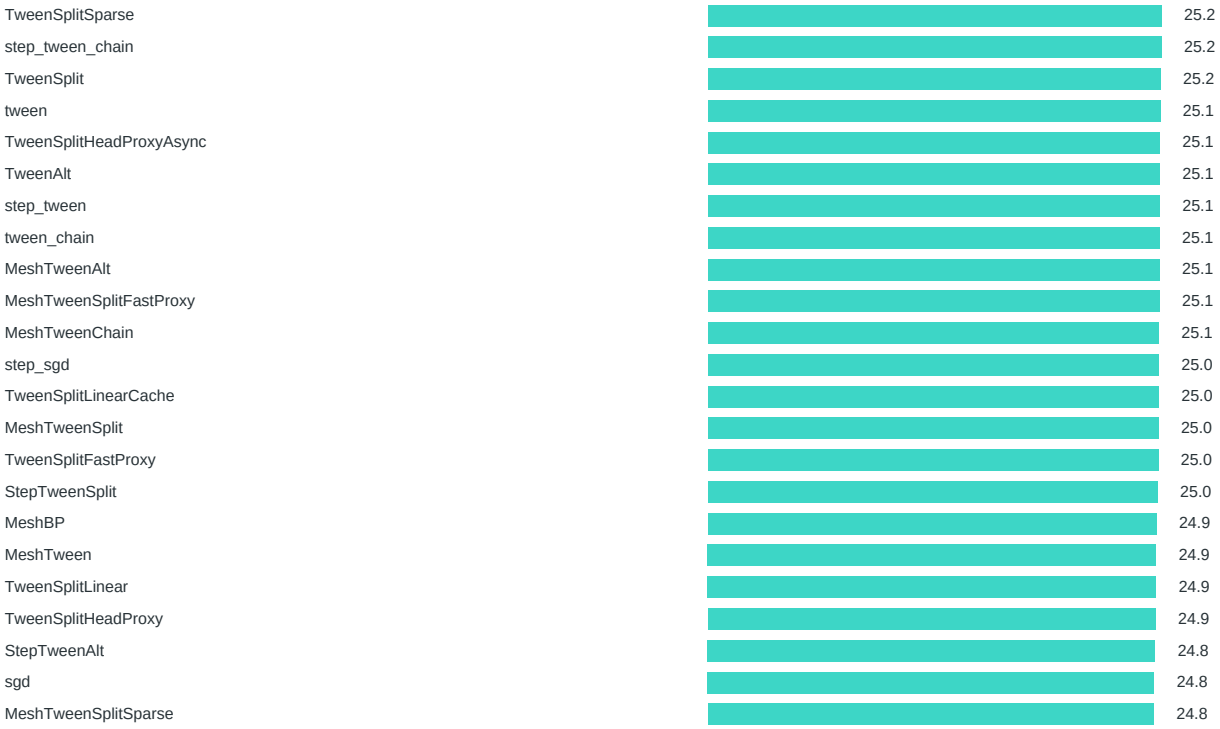
## Top scores - gdn



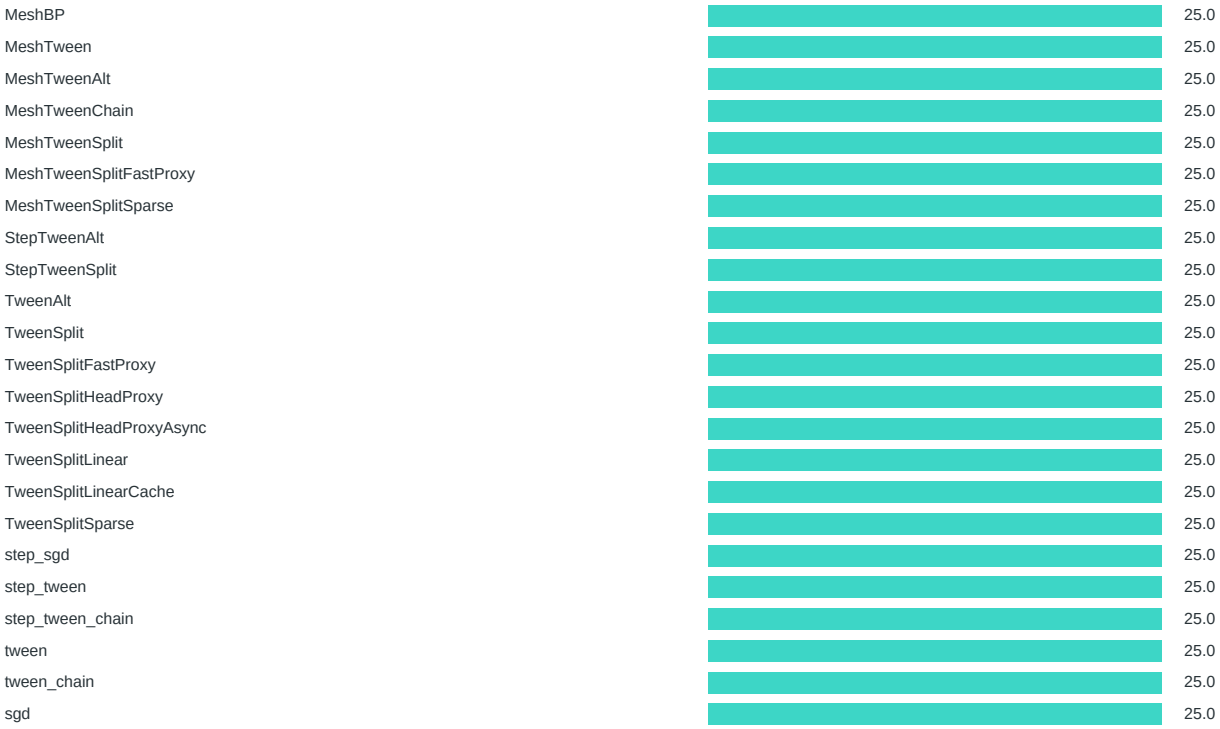

## Mean Score by train mode




## Mean hard Acc by train mode




## Mean SoftAcc by train mode




## Mean Score by dtype



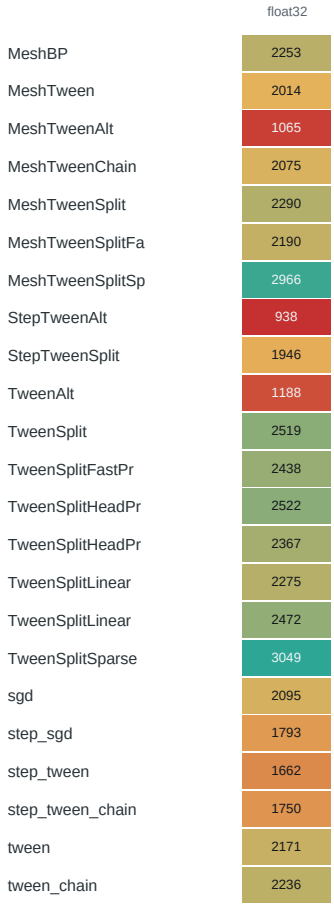

## Mean hard Acc by dtype




## Mean Score by arch

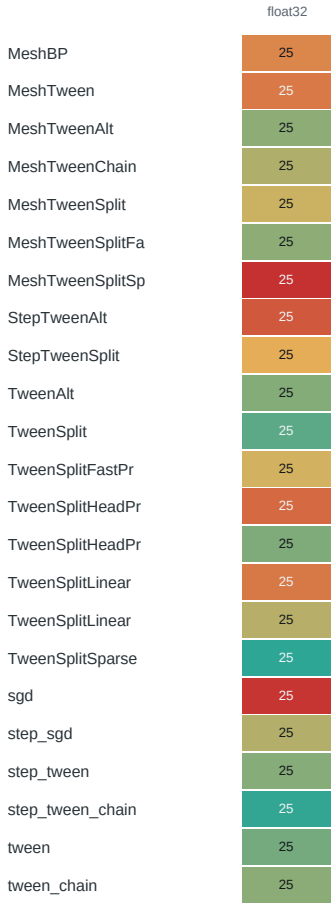


## Honesty - mean Score, every mode x dtype




## Honesty - mean hard Acc, every mode x dtype

## Honesty - mean hard Acc, every mode x dtype




## Honesty - mean SoftAcc, every mode x dtype

## Honesty - mean SoftAcc, every mode x dtype

| | float32 |
|---|---|
| MeshBP | 25 |
| MeshTween | 25 |
| MeshTweenAlt | 25 |
| MeshTweenChain | 25 |
| MeshTweenSplit | 25 |
| MeshTweenSplitFa | 25 |
| MeshTweenSplitSp | 25 |
| StepTweenAlt | 25 |
| StepTweenSplit | 25 |
| TweenAlt | 25 |
| TweenSplit | 25 |
| TweenSplitFastPr | 25 |
| TweenSplitHeadPr | 25 |
| TweenSplitHeadPr | 25 |
| TweenSplitLinear | 25 |
| TweenSplitLinear | 25 |
| TweenSplitSparse | 25 |
| sgd | 25 |
| step_sgd | 25 |
| step_tween | 25 |
| step_tween_chain | 25 |
| tween | 25 |
| tween_chain | 25 |

## Mean Score, every mode x arch

## Mean Score, every mode x arch

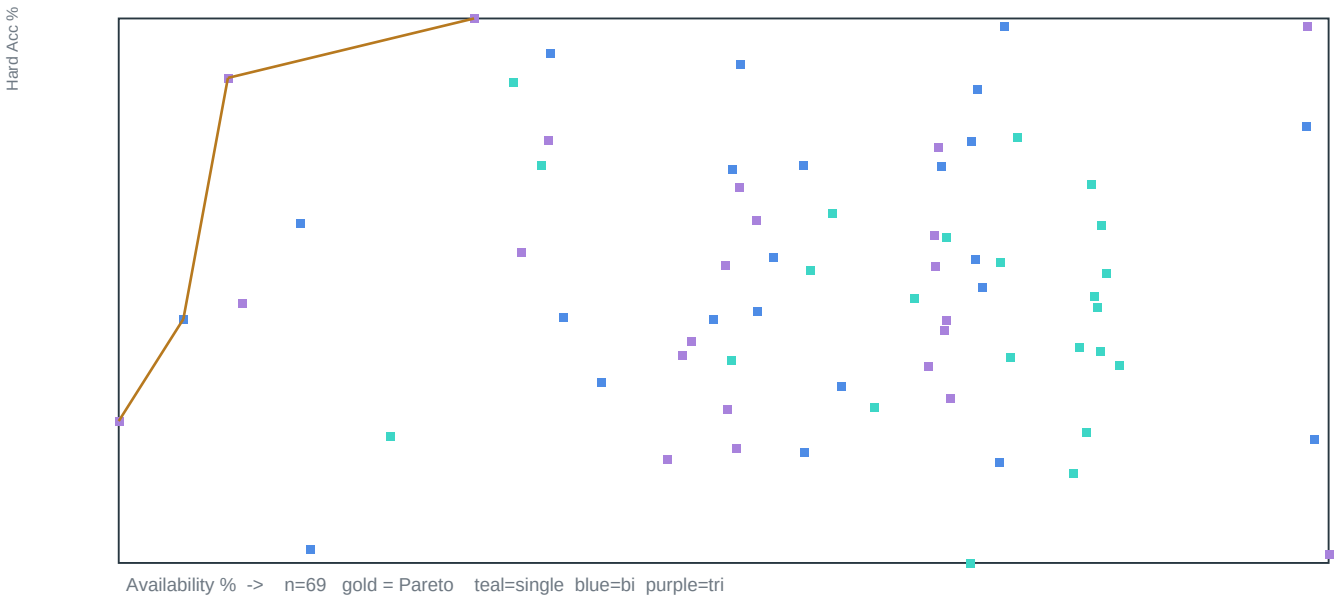
| | bicamera | singlex1 | tricamer |
|---|---|---|---|
| MeshBP | 1823 | 3443 | 1493 |
| MeshTween | 1647 | 3008 | 1385 |
| MeshTweenAlt | 869 | 1667 | 658 |
| MeshTweenChain | 1707 | 3091 | 1426 |
| MeshTweenSplit | 1902 | 3126 | 1843 |
| MeshTweenSplitFa | 1724 | 3238 | 1610 |
| MeshTweenSplitSp | 2762 | 3681 | 2455 |
| StepTweenAlt | 717 | 1498 | 600 |
| StepTweenSplit | 1653 | 2749 | 1436 |
| TweenAlt | 928 | 1872 | 763 |
| TweenSplit | 2119 | 3526 | 1913 |
| TweenSplitFastPr | 2106 | 3521 | 1688 |
| TweenSplitHeadPr | 2241 | 3566 | 1760 |
| TweenSplitHeadPr | 2016 | 3396 | 1689 |
| TweenSplitLinear | 1897 | 3393 | 1534 |
| TweenSplitLinear | 2215 | 3407 | 1793 |
| TweenSplitSparse | 3061 | 3284 | 2802 |
| sgd | 1639 | 3102 | 1544 |
| step_sgd | 1428 | 2730 | 1222 |
| step_tween | 1406 | 2476 | 1104 |
| step_tween_chain | 1322 | 2778 | 1150 |
| tween | 1787 | 3244 | 1481 |
| tween_chain | 1854 | 3300 | 1555 |

## Mean hard Acc, every mode x arch

## Mean hard Acc, every mode x arch

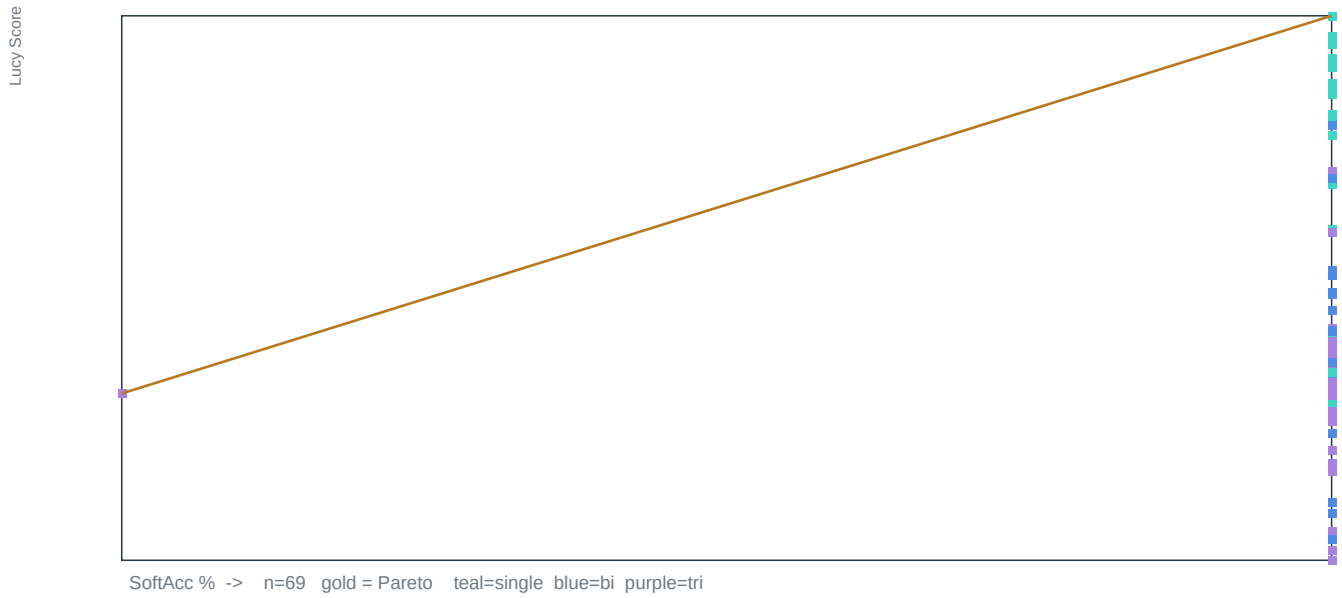
| | bicamera | singlex1 | tricamer |
|---|---|---|---|
| MeshBP | 25 | 25 | 25 |
| MeshTween | 25 | 25 | 25 |
| MeshTweenAlt | 25 | 25 | 25 |
| MeshTweenChain | 25 | 25 | 25 |
| MeshTweenSplit | 25 | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 | 25 |
| StepTweenAlt | 25 | 25 | 25 |
| StepTweenSplit | 25 | 25 | 25 |
| TweenAlt | 25 | 25 | 25 |
| TweenSplit | 25 | 25 | 25 |
| TweenSplitFastPr | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 |
| TweenSplitSparse | 25 | 25 | 25 |
| sgd | 25 | 25 | 25 |
| step_sgd | 25 | 25 | 25 |
| step_tween | 25 | 25 | 25 |
| step_tween_chain | 25 | 25 | 25 |
| tween | 25 | 25 | 25 |
| tween_chain | 25 | 25 | 25 |

## Avail vs hard Acc (headline scatter)

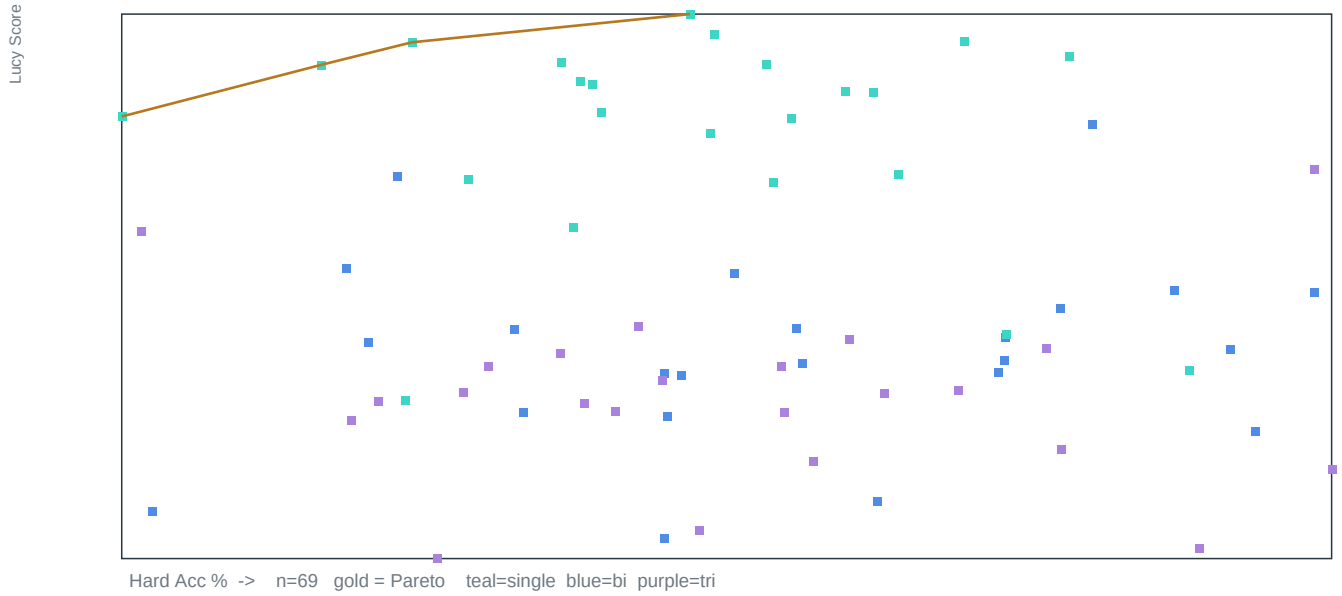



## Pareto - SoftAcc vs Score

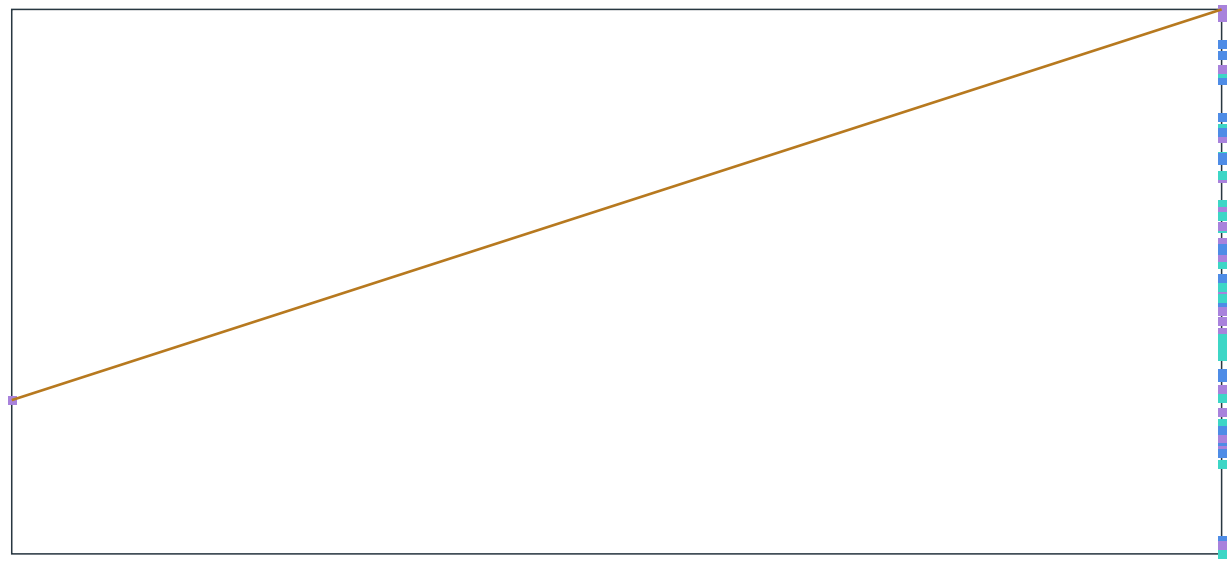
## Pareto - SoftAcc vs Score




## Pareto - hard Acc vs Score

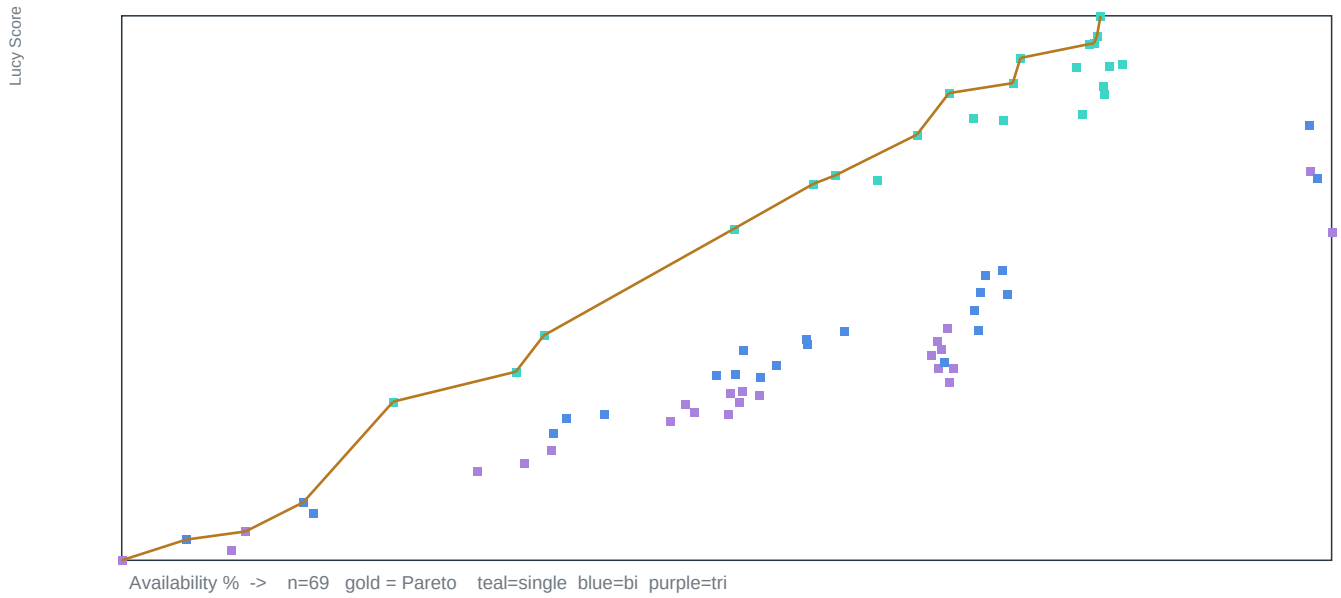



## SoftAcc vs hard Acc




SoftAcc %  ->  n=69  gold = Pareto  teal=single  blue=bi  purple=tri
Hard Acc %

## Avail vs Score (duty clock)




## Lucy Pareto (LPD) - goldilocks

Q = geomean of Score/Soft/Acc/Thru vs the Lucy Score champion. LPD = 0 if Q<70%, else Q x shrink vs champ RAM (capped 32x). Gold = Q>=80% and RAM<=20% of champ. MSpeed = Thru vs the board's fastest (0 if Q<70%). MAvail = Availability vs the board's best duty cycle (0 if Q<70%). Mix = geomean(Q, MSpeed, MAvail). Raw Score/MiB is the binary trap.

Quality champ float32|none|MeshTweenSplitSparse|single|simd  Score 3681.0  Soft 25  Acc 25  Thru 36741  RAM 1.0 KiB

Board fastest float32|none|MeshTweenSplitSparse|single|simd  Thru 36741  Best availability float32|none|MeshTweenSplitSparse|tricameral|simd  43.9%

No gold cell yet. Need a recipe that keeps 80% of the Score champ's Score/Soft/Acc/Thru at one fifth the RAM.

## LPD rank (Q x shrink; 0 if Q < 70%)

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| keep | float32\|none\|MeshTweenSplitSparse\|single\|simd | 100 | 100 | 1.0 | 1.00 | 25 | 25 | 3681.0 | 1.0 |
| keep | float32\|none\|TweenSplitHeadProxy\|single\|simd | 98 | 100 | 1.0 | 0.98 | 25 | 25 | 3565.5 | 1.0 |
| keep | float32\|none\|TweenSplit\|single\|simd | 98 | 100 | 1.0 | 0.98 | 25 | 25 | 3525.6 | 1.0 |
| keep | float32\|none\|TweenSplitFastProxy\|single\|simd | 98 | 100 | 1.0 | 0.98 | 25 | 25 | 3521.3 | 1.0 |
| keep | float32\|none\|MeshBP\|single\|simd | 98 | 100 | 1.0 | 0.98 | 25 | 25 | 3442.9 | 1.0 |
| keep | float32\|none\|TweenSplitLinear\|single\|simd | 96 | 100 | 1.0 | 0.96 | 25 | 25 | 3393.5 | 1.0 |
| keep | float32\|none\|TweenSplitHeadProxyAsync\|single\|simd | 96 | 100 | 1.0 | 0.96 | 25 | 25 | 3396.5 | 1.0 |
| keep | float32\|none\|TweenSplitLinearCache\|single\|simd | 96 | 100 | 1.0 | 0.96 | 25 | 25 | 3406.7 | 1.0 |
| keep | float32\|none\|tween_chain\|single\|simd | 95 | 100 | 1.0 | 0.95 | 25 | 25 | 3300.2 | 1.0 |
| keep | float32\|none\|tween\|single\|simd | 95 | 100 | 1.0 | 0.95 | 25 | 25 | 3243.7 | 1.0 |
| keep | float32\|none\|TweenSplitSparse\|single\|simd | 94 | 100 | 1.0 | 0.94 | 25 | 25 | 3283.9 | 1.0 |
| keep | float32\|none\|MeshTweenSplitFastProxy\|single\|simd | 94 | 100 | 1.0 | 0.94 | 25 | 25 | 3237.5 | 1.0 |
| keep | float32\|none\|sgd\|single\|simd | 93 | 100 | 1.0 | 0.93 | 25 | 25 | 3101.6 | 1.0 |
| keep | float32\|none\|MeshTweenChain\|single\|simd | 93 | 100 | 1.0 | 0.93 | 25 | 25 | 3091.4 | 1.0 |
| keep | float32\|none\|MeshTweenSplit\|single\|simd | 92 | 100 | 1.0 | 0.92 | 25 | 25 | 3125.7 | 1.0 |
| keep | float32\|none\|MeshTween\|single\|simd | 92 | 100 | 1.0 | 0.92 | 25 | 25 | 3008.5 | 1.0 |
| keep | float32\|none\|step_tween_chain\|single\|simd | 89 | 100 | 1.0 | 0.89 | 25 | 25 | 2778.3 | 1.0 |
| keep | float32\|none\|step_sgd\|single\|simd | 89 | 100 | 1.0 | 0.89 | 25 | 25 | 2729.5 | 1.0 |
| keep | float32\|none\|StepTweenSplit\|single\|simd | 88 | 100 | 1.0 | 0.88 | 25 | 25 | 2749.3 | 1.0 |
| keep | float32\|none\|step_tween\|single\|simd | 85 | 100 | 1.0 | 0.85 | 25 | 25 | 2476.0 | 1.0 |

## Mobile speed - Thru vs board fastest (Q >= 70%)

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| keep | float32\|none\|MeshTweenSplitSparse\|single\|simd | 100 | 100 | 91 | 97 | 1.00 | 36741 | 40.1 |

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| keep | float32\|none\|TweenSplitHeadProxy\|single\|simd | 98 | 97 | 91 | 95 | 0.98 | 35640 | 40.0 |
| keep | float32\|none\|MeshBP\|single\|simd | 98 | 97 | 88 | 94 | 0.98 | 35536 | 38.8 |
| keep | float32\|none\|TweenSplitFastProxy\|single\|simd | 98 | 96 | 91 | 95 | 0.98 | 35309 | 39.9 |
| keep | float32\|none\|TweenSplit\|single\|simd | 98 | 96 | 91 | 95 | 0.98 | 35283 | 40.0 |
| keep | float32\|none\|tween\|single\|simd | 95 | 94 | 86 | 92 | 0.95 | 34534 | 37.6 |
| keep | float32\|none\|TweenSplitLinear\|single\|simd | 96 | 93 | 90 | 93 | 0.96 | 34215 | 39.7 |
| keep | float32\|none\|tween_chain\|single\|simd | 95 | 93 | 88 | 92 | 0.95 | 34177 | 38.6 |
| keep | float32\|none\|TweenSplitHeadProxyAsync\|single\|simd | 96 | 92 | 92 | 93 | 0.96 | 33776 | 40.2 |
| keep | float32\|none\|TweenSplitLinearCache\|single\|simd | 96 | 92 | 92 | 93 | 0.96 | 33696 | 40.4 |

## Mobile availability - duty cycle vs board best (Q >= 70%)

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| - | float32\|none\|MeshTweenSplitSparse\|tricameral\|simd | 79 | 61 | 100 | 79 | 0.01 | 22369 | 43.9 |
| keep | float32\|none\|MeshTweenSplitSparse\|bicameral\|simd | 85 | 69 | 99 | 83 | 0.02 | 25303 | 43.7 |
| keep | float32\|none\|TweenSplitSparse\|tricameral\|simd | 85 | 70 | 99 | 84 | 0.01 | 25742 | 43.5 |
| keep | float32\|none\|TweenSplitSparse\|bicameral\|simd | 89 | 77 | 99 | 88 | 0.02 | 28138 | 43.5 |
| keep | float32\|none\|TweenSplitLinearCache\|single\|simd | 96 | 92 | 92 | 93 | 0.96 | 33696 | 40.4 |
| keep | float32\|none\|TweenSplitHeadProxyAsync\|single\|simd | 96 | 92 | 92 | 93 | 0.96 | 33776 | 40.2 |
| keep | float32\|none\|MeshTweenSplitFastProxy\|single\|simd | 94 | 88 | 91 | 91 | 0.94 | 32264 | 40.1 |
| keep | float32\|none\|TweenSplitSparse\|single\|simd | 94 | 89 | 91 | 92 | 0.94 | 32740 | 40.1 |
| keep | float32\|none\|MeshTweenSplitSparse\|single\|simd | 100 | 100 | 91 | 97 | 1.00 | 36741 | 40.1 |
| keep | float32\|none\|TweenSplitHeadProxy\|single\|simd | 98 | 97 | 91 | 95 | 0.98 | 35640 | 40.0 |

## Mix - geomean of Q, MSpeed, MAvail

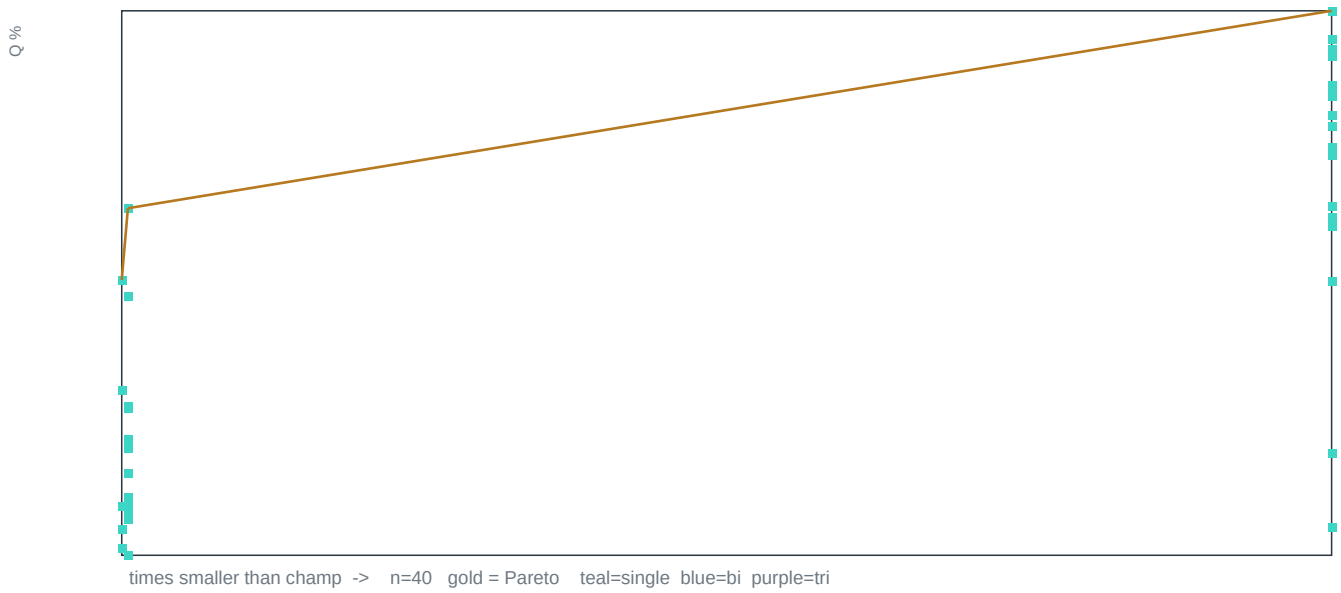
| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| keep | float32\|none\|MeshTweenSplitSparse\|single\|simd | 100 | 100 | 91 | 97 | 1.00 | 36741 | 40.1 |
| keep | float32\|none\|TweenSplitHeadProxy\|single\|simd | 98 | 97 | 91 | 95 | 0.98 | 35640 | 40.0 |
| keep | float32\|none\|TweenSplit\|single\|simd | 98 | 96 | 91 | 95 | 0.98 | 35283 | 40.0 |
| keep | float32\|none\|TweenSplitFastProxy\|single\|simd | 98 | 96 | 91 | 95 | 0.98 | 35309 | 39.9 |
| keep | float32\|none\|MeshBP\|single\|simd | 98 | 97 | 88 | 94 | 0.98 | 35536 | 38.8 |
| keep | float32\|none\|TweenSplitLinearCache\|single\|simd | 96 | 92 | 92 | 93 | 0.96 | 33696 | 40.4 |
| keep | float32\|none\|TweenSplitHeadProxyAsync\|single\|simd | 96 | 92 | 92 | 93 | 0.96 | 33776 | 40.2 |
| keep | float32\|none\|TweenSplitLinear\|single\|simd | 96 | 93 | 90 | 93 | 0.96 | 34215 | 39.7 |
| keep | float32\|none\|tween_chain\|single\|simd | 95 | 93 | 88 | 92 | 0.95 | 34177 | 38.6 |
| keep | float32\|none\|TweenSplitSparse\|single\|simd | 94 | 89 | 91 | 92 | 0.94 | 32740 | 40.1 |

## LPD - Q% vs RAM KiB (gold = high Q, low RAM)

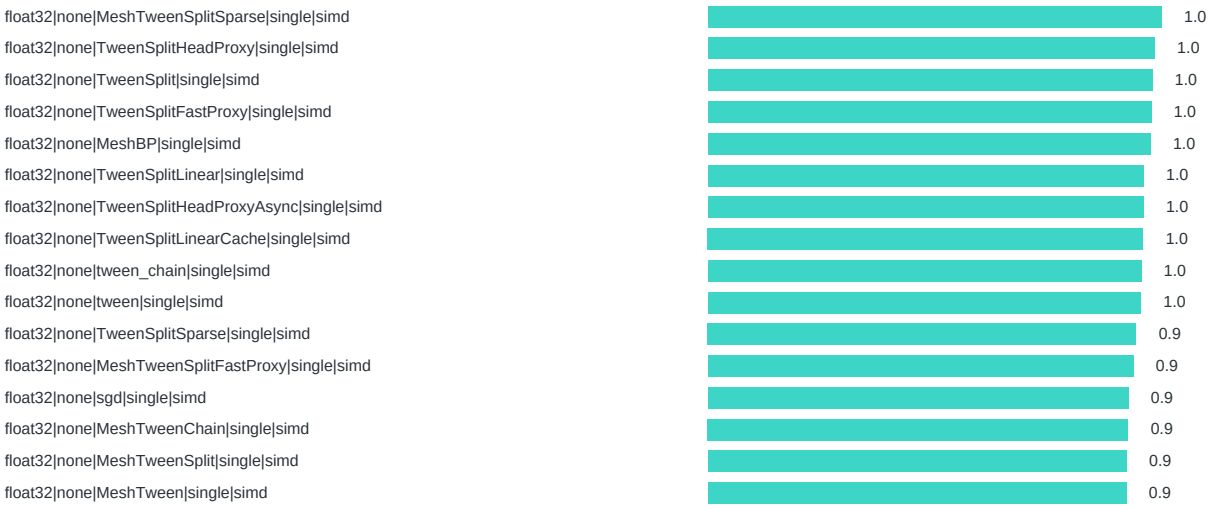



RAM KiB -> n=40 gold = Pareto teal=single blue=bi purple=tri
Q %

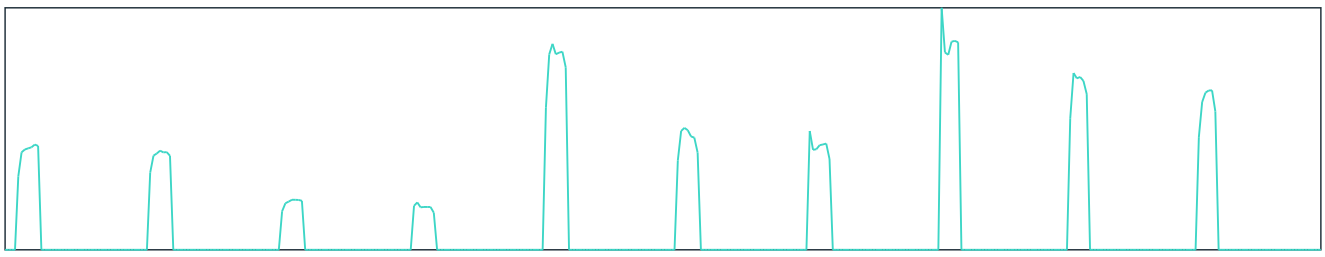
## LPD - Q% vs shrink vs champ (gold = upper right)




## Top LPD

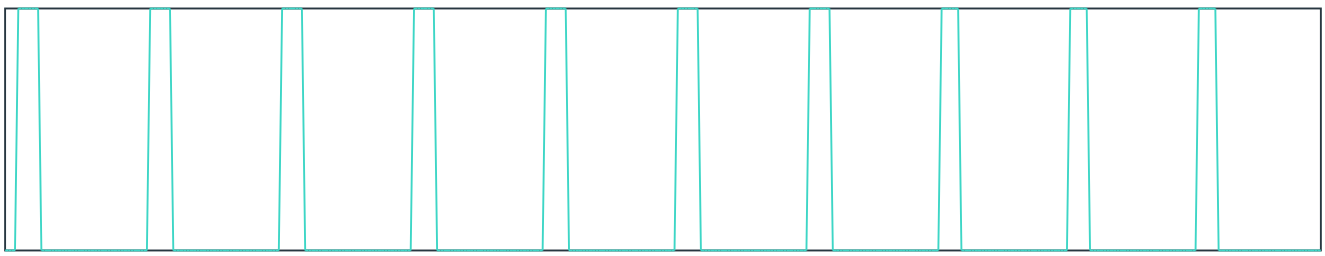



## Pulse Score - gdn



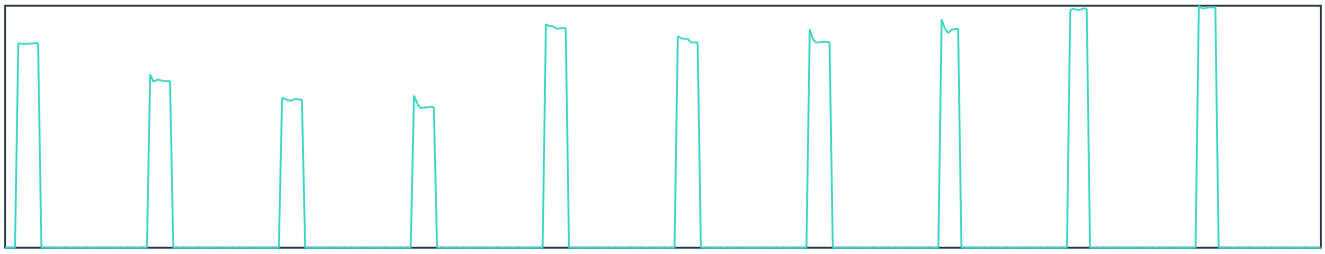
n=400 min=0.00 max=4292.87

## Pulse SoftAcc - gdn



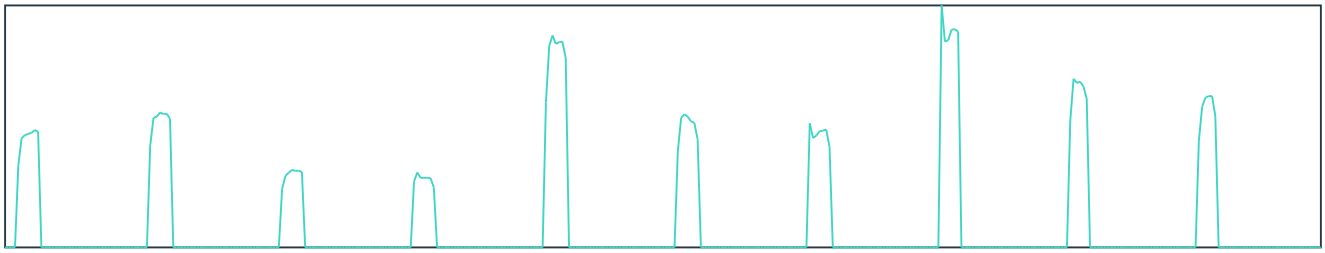
n=400 min=0.00 max=25.00

## Pulse Availability - gdn



n=400 min=0.00 max=44.20

## Pulse Throughput - gdn



n=400 min=0.00 max=41196.34

## Queue by train mode (this epoch)

| Mode | Done | Run | Left | Total |
|---|---|---|---|---|
| sgd | 102 | 0 | 0 | 102 |
| step_sgd | 102 | 0 | 0 | 102 |
| tween | 102 | 0 | 0 | 102 |
| tween_chain | 102 | 0 | 0 | 102 |
| step_tween | 102 | 0 | 0 | 102 |
| step_tween_chain | 102 | 0 | 0 | 102 |
| MeshBP | 102 | 0 | 0 | 102 |
| MeshTween | 102 | 0 | 0 | 102 |
| MeshTweenChain | 102 | 0 | 0 | 102 |
| TweenSplit | 102 | 0 | 0 | 102 |
| StepTweenSplit | 102 | 0 | 0 | 102 |
| TweenAlt | 102 | 0 | 0 | 102 |
| StepTweenAlt | 102 | 0 | 0 | 102 |
| TweenSplitHeadProxy | 102 | 0 | 0 | 102 |
| TweenSplitLinear | 102 | 0 | 0 | 102 |
| TweenSplitFastProxy | 102 | 0 | 0 | 102 |
| TweenSplitLinearCache | 102 | 0 | 0 | 102 |
| TweenSplitHeadProxyAsync | 102 | 0 | 0 | 102 |
| TweenSplitSparse | 102 | 0 | 0 | 102 |
| MeshTweenSplit | 102 | 0 | 0 | 102 |
| MeshTweenAlt | 102 | 0 | 0 | 102 |
| MeshTweenSplitFastProxy | 102 | 0 | 0 | 102 |
| MeshTweenSplitSparse | 102 | 0 | 0 | 102 |

# tide  kmeans

Score = Throughput x Availability% x SoftAcc% / 10,000
done - epoch 1 - 2026-08-18 09:45:25 - 0.0.0.0:8118
This epoch 2346 / 2346 cells. Recorded 2346 results.
Score 0 usually means the cell finished before a Lucy pulse (SoftAcc never sampled) or true-class mass was 0. Those rows do not vote holistically.
kmeans - overlapping XOR clusters - modes all - min 2000ms/cell - 1024 train - pulse 50ms - SIMD true

## Lucy champions (this tide)

| Axis | Cell | Score | Soft | Acc | Thru | Avail |
|---|---|---|---|---|---|---|
| score | uint4\|none\|sgd\|single\|simd | 135138.63 | 25.0 | 28.4 | 1383262.9 | 39.1 |
| throughput | uint4\|none\|sgd\|single\|simd | 135138.63 | 25.0 | 28.4 | 1383262.9 | 39.1 |
| availability | uint3\|none\|MeshTweenSplitSparse\|tricameral\|simd | 18033.96 | 25.0 | 23.1 | 152822.9 | 47.2 |
| accuracy | binary\|none\|TweenSplitHeadProxyAsync\|single\|simd | 107955.92 | 25.1 | 30.0 | 1105870.5 | 38.9 |
| mobile score (tra | binary\|none\|tween\|single\|simd | 129202.92 | 25.0 | 20.8 | 1326644.8 | 39.0 |
| acc/sec | complex128\|none\|sgd\|single\|simd | 129725.03 | 25.0 | 30.1 | 1326186.2 | 39.1 |

## Lucy axes - kmeans

| Axis | Mode | DType | Arch | Value |
|---|---|---|---|---|
| score | sgd | uint4 | singlex1 | 135138.63 |
| soft_acc | TweenSplitHeadP~ | binary | singlex1 | 25.07 |
| hard_acc | TweenSplitLinea~ | uint8 | bicameralx2 | 33.86 |
| throughput | sgd | uint4 | singlex1 | 1383262.88 |
| availability | MeshTweenSplitS~ | uint3 | tricameralx3 | 47.20 |
| acc_thru | sgd | uint4 | singlex1 | 346054.54 |
| realtime | sgd | uint4 | singlex1 | 540181.45 |
| adapt | tween_chain | ternary | singlex1 | 25.08 |
| keep_learn | sgd | nf4 | singlex1 | 12.54 |
| acc_per_sec | sgd | complex128 | singlex1 | 12.51 |
| consistency | sgd | float64 | singlex1 | 100.00 |
| stability | sgd | fp4 | singlex1 | 100.00 |
| mobile_score | tween | binary | singlex1 | 33869770343.02 |
| lpd | sgd | binary | singlex1 | 4.81 |
| mspeed | sgd | uint4 | singlex1 | 1.00 |
| mavail | MeshTweenSplit | fp6 | singlex1 | 0.85 |
| mix | sgd | uint4 | singlex1 | 0.94 |

## Best settings per train mode

| Mode | DType | Format | Score | Soft | Acc | Avail | n |
|---|---|---|---|---|---|---|---|
| sgd | uint4 | none | 135138.6 | 25.0 | 28.4 | 39.1 | 102 |
| tween | uint16 | none | 131775.1 | 25.0 | 28.4 | 38.8 | 102 |
| tween_chain | bfloat16 | none | 131383.0 | 25.0 | 26.5 | 38.9 | 102 |
| step_sgd | uint4 | none | 131122.3 | 25.0 | 22.9 | 38.7 | 102 |
| step_tween | uint4 | none | 121408.1 | 25.0 | 23.1 | 38.5 | 102 |
| MeshTweenSplit | uint4 | none | 120037.6 | 25.0 | 26.4 | 39.3 | 102 |
| MeshTweenSplitFastProxy | binary | none | 118930.6 | 25.0 | 24.7 | 39.3 | 102 |
| TweenSplitFastProxy | ternary | none | 117962.0 | 25.0 | 23.9 | 39.0 | 102 |
| TweenSplitSparse | uintptr | none | 117445.5 | 25.0 | 26.8 | 39.4 | 102 |
| TweenSplitHeadProxyAsync | float32 | none | 117360.1 | 25.0 | 28.3 | 38.9 | 102 |
| TweenSplitLinearCache | uint | none | 117242.7 | 25.0 | 24.9 | 39.4 | 102 |
| MeshBP | uint8 | none | 115321.1 | 25.0 | 25.8 | 39.0 | 102 |
| TweenSplitLinear | fp8e5m2 | none | 114789.3 | 25.0 | 25.8 | 38.8 | 102 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| step_tween_chain | uint32 | none | 114688.4 | 25.0 | 30.0 | 38.6 | 102 |
| TweenSplitHeadProxy | uint16 | none | 114265.5 | 25.0 | 28.0 | 39.2 | 102 |
| MeshTweenSplitSparse | float32 | none | 114216.2 | 25.0 | 30.6 | 39.0 | 102 |
| TweenSplit | ternary | none | 113923.0 | 25.0 | 26.6 | 39.3 | 102 |
| StepTweenSplit | fp4 | none | 112319.6 | 25.0 | 24.9 | 38.5 | 102 |
| MeshTweenChain | uint32 | none | 111445.2 | 25.0 | 30.4 | 38.9 | 102 |
| MeshTween | uint64 | none | 110075.4 | 25.0 | 28.0 | 38.8 | 102 |
| MeshTweenAlt | uint4 | none | 104640.4 | 25.0 | 24.4 | 38.1 | 102 |
| StepTweenAlt | uint2 | none | 103046.8 | 25.0 | 23.4 | 37.8 | 102 |
| TweenAlt | uint4 | none | 102087.2 | 25.0 | 26.3 | 38.1 | 102 |

## Best dtype per mode

| Mode | Winner dtype | Score | Soft | Acc |
|---|---|---|---|---|
| sgd | uint4 | 135138.6 | 25.0 | 28.4 |
| tween | uint16 | 131775.1 | 25.0 | 28.4 |
| tween_chain | bfloat16 | 131383.0 | 25.0 | 26.5 |
| step_sgd | uint4 | 131122.3 | 25.0 | 22.9 |
| step_tween | uint4 | 121408.1 | 25.0 | 23.1 |
| MeshTweenSplit | uint4 | 120037.6 | 25.0 | 26.4 |
| MeshTweenSplitFastProxy | binary | 118930.6 | 25.0 | 24.7 |
| TweenSplitFastProxy | ternary | 117962.0 | 25.0 | 23.9 |
| TweenSplitSparse | uintptr | 117445.5 | 25.0 | 26.8 |
| TweenSplitHeadProxyAsync | float32 | 117360.1 | 25.0 | 28.3 |
| TweenSplitLinearCache | uint | 117242.7 | 25.0 | 24.9 |
| MeshBP | uint8 | 115321.1 | 25.0 | 25.8 |
| TweenSplitLinear | fp8e5m2 | 114789.3 | 25.0 | 25.8 |
| step_tween_chain | uint32 | 114688.4 | 25.0 | 30.0 |
| TweenSplitHeadProxy | uint16 | 114265.5 | 25.0 | 28.0 |
| MeshTweenSplitSparse | float32 | 114216.2 | 25.0 | 30.6 |
| TweenSplit | ternary | 113923.0 | 25.0 | 26.6 |
| StepTweenSplit | fp4 | 112319.6 | 25.0 | 24.9 |
| MeshTweenChain | uint32 | 111445.2 | 25.0 | 30.4 |
| MeshTween | uint64 | 110075.4 | 25.0 | 28.0 |
| MeshTweenAlt | uint4 | 104640.4 | 25.0 | 24.4 |
| StepTweenAlt | uint2 | 103046.8 | 25.0 | 23.4 |
| TweenAlt | uint4 | 102087.2 | 25.0 | 26.3 |

## Best mode per dtype

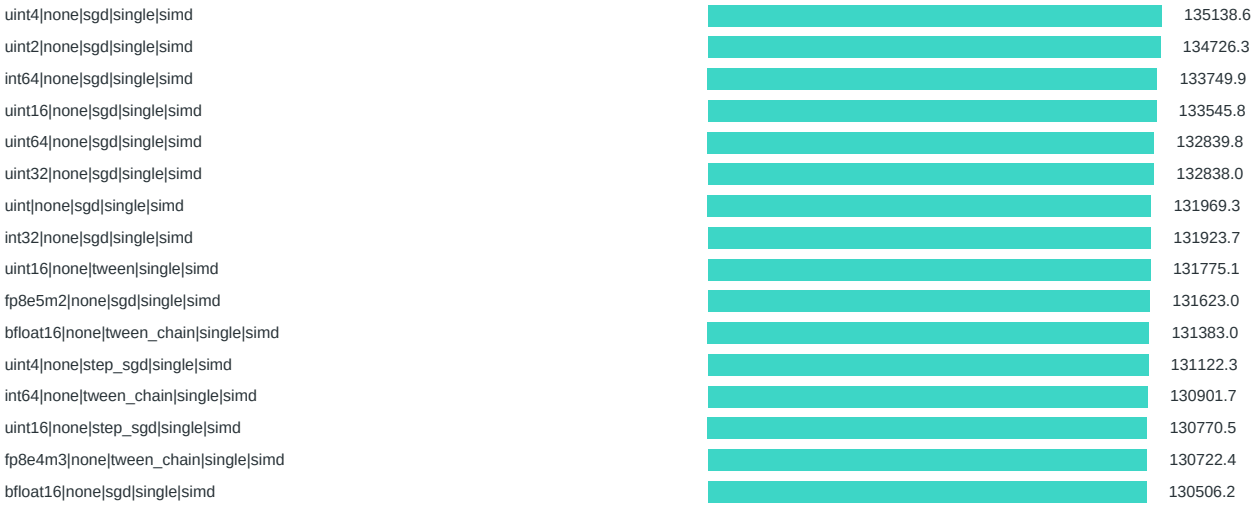
| DType | Winner mode | Score | Soft | Acc |
|---|---|---|---|---|
| uint4 | sgd | 135138.6 | 25.0 | 28.4 |
| uint2 | sgd | 134726.3 | 25.0 | 23.7 |
| int64 | sgd | 133749.9 | 25.0 | 29.1 |
| uint16 | sgd | 133545.8 | 25.0 | 29.5 |
| uint64 | sgd | 132839.8 | 25.0 | 28.3 |
| uint32 | sgd | 132838.0 | 25.0 | 28.2 |
| uint | sgd | 131969.3 | 25.0 | 28.4 |
| int32 | sgd | 131923.7 | 25.0 | 26.5 |
| fp8e5m2 | sgd | 131623.0 | 25.0 | 25.7 |
| bfloat16 | tween_chain | 131383.0 | 25.0 | 26.5 |
| fp8e4m3 | tween_chain | 130722.4 | 25.0 | 20.6 |
| uintptr | sgd | 130402.7 | 25.0 | 29.6 |
| uint8 | tween_chain | 130124.5 | 25.0 | 27.4 |

| | | | | |
|---|---|---|---|---|
| float32 | sgd | 130112.3 | 25.0 | 28.4 |
| int2 | sgd | 130027.0 | 25.0 | 24.8 |
| int16 | tween_chain | 129754.6 | 25.0 | 28.5 |
| complex128 | sgd | 129725.0 | 25.0 | 30.1 |
| ternary | sgd | 129663.7 | 25.0 | 21.1 |
| fp4 | sgd | 129519.9 | 25.0 | 25.0 |
| uint3 | sgd | 129267.0 | 25.0 | 20.3 |
| binary | tween | 129202.9 | 25.0 | 20.8 |
| int4 | sgd | 129176.1 | 25.0 | 27.4 |
| int | sgd | 129154.5 | 25.0 | 28.0 |
| int8 | sgd | 128627.9 | 25.0 | 28.9 |
| complex64 | sgd | 127605.1 | 25.0 | 31.7 |
| uint5 | sgd | 127533.9 | 25.0 | 25.9 |
| float16 | sgd | 127392.6 | 25.0 | 29.2 |
| uint6 | sgd | 127241.4 | 25.0 | 23.6 |
| float64 | tween | 127164.2 | 25.0 | 26.5 |
| nf4 | sgd | 126694.7 | 25.0 | 21.1 |
| int3 | sgd | 125723.1 | 25.0 | 20.6 |
| int5 | sgd | 125186.8 | 25.0 | 27.9 |
| int6 | sgd | 124586.6 | 25.0 | 24.7 |
| fp6 | sgd | 122540.1 | 25.0 | 22.9 |

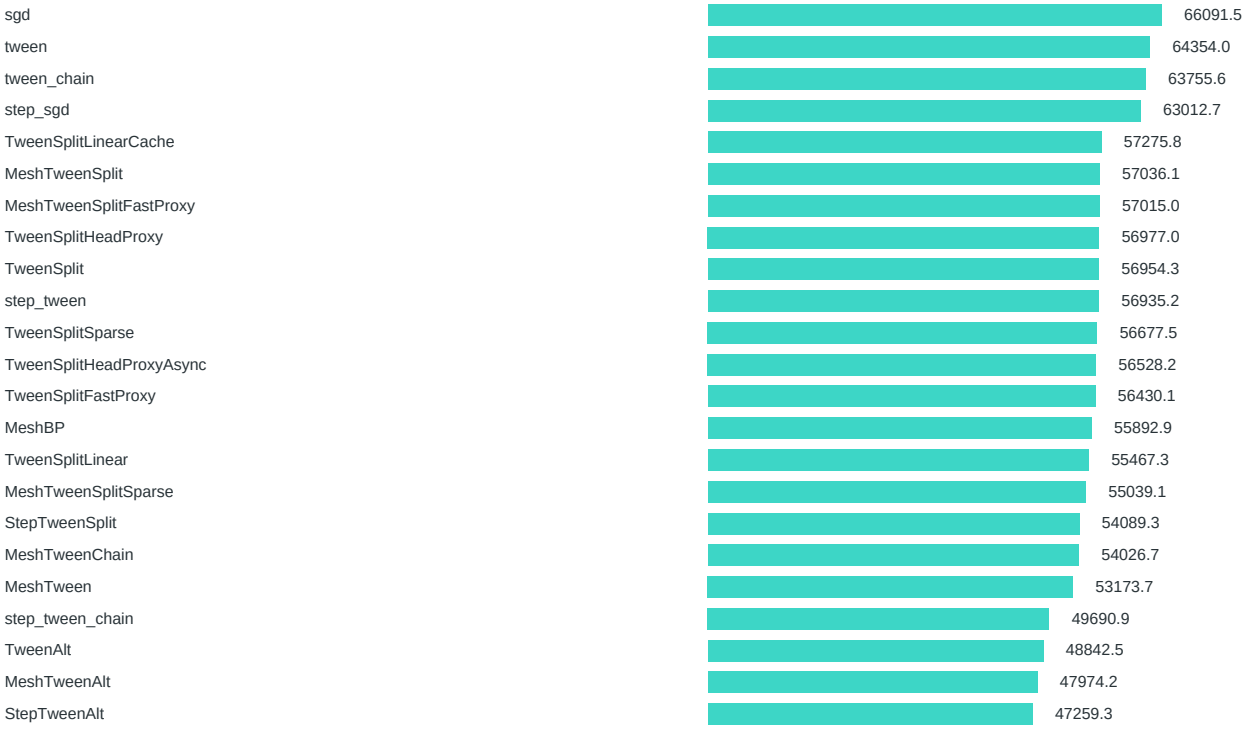
## Leaderboard - kmeans

| # | Cell | Score | Soft | Acc | Thru | Avail |
|---|---|---|---|---|---|---|
| 1 | uint4\|none\|sgd\|single\|simd | 135138.6 | 25.0 | 28.4 | 1383262.9 | 39.1 |
| 2 | uint2\|none\|sgd\|single\|simd | 134726.3 | 25.0 | 23.7 | 1379875.8 | 39.1 |
| 3 | int64\|none\|sgd\|single\|simd | 133749.9 | 25.0 | 29.1 | 1376730.2 | 38.9 |
| 4 | uint16\|none\|sgd\|single\|simd | 133545.8 | 25.0 | 29.5 | 1372401.1 | 38.9 |
| 5 | uint64\|none\|sgd\|single\|simd | 132839.8 | 25.0 | 28.3 | 1358531.8 | 39.1 |
| 6 | uint32\|none\|sgd\|single\|simd | 132838.0 | 25.0 | 28.2 | 1360123.9 | 39.1 |
| 7 | uint\|none\|sgd\|single\|simd | 131969.3 | 25.0 | 28.4 | 1339063.6 | 39.4 |
| 8 | int32\|none\|sgd\|single\|simd | 131923.7 | 25.0 | 26.5 | 1351980.1 | 39.0 |
| 9 | uint16\|none\|tween\|single\|simd | 131775.1 | 25.0 | 28.4 | 1358581.2 | 38.8 |
| 10 | fp8e5m2\|none\|sgd\|single\|simd | 131623.0 | 25.0 | 25.7 | 1346141.0 | 39.1 |
| 11 | bfloat16\|none\|tween_chain\|single\|simd | 131383.0 | 25.0 | 26.5 | 1349741.2 | 38.9 |
| 12 | uint4\|none\|step_sgd\|single\|simd | 131122.3 | 25.0 | 22.9 | 1353943.3 | 38.7 |
| 13 | int64\|none\|tween_chain\|single\|simd | 130901.7 | 25.0 | 29.5 | 1342431.4 | 39.0 |
| 14 | uint16\|none\|step_sgd\|single\|simd | 130770.5 | 25.0 | 28.3 | 1357309.2 | 38.5 |
| 15 | fp8e4m3\|none\|tween_chain\|single\|simd | 130722.4 | 25.0 | 20.6 | 1338812.9 | 39.1 |
| 16 | bfloat16\|none\|sgd\|single\|simd | 130506.2 | 25.0 | 27.2 | 1336133.4 | 39.1 |
| 17 | fp8e4m3\|none\|sgd\|single\|simd | 130415.1 | 25.0 | 26.3 | 1330992.2 | 39.2 |
| 18 | uintptr\|none\|sgd\|single\|simd | 130402.7 | 25.0 | 29.6 | 1331500.4 | 39.2 |
| 19 | uint4\|none\|tween\|single\|simd | 130347.8 | 25.0 | 22.7 | 1342908.3 | 38.8 |
| 20 | uintptr\|none\|tween_chain\|single\|simd | 130287.7 | 25.0 | 31.2 | 1327682.4 | 39.3 |

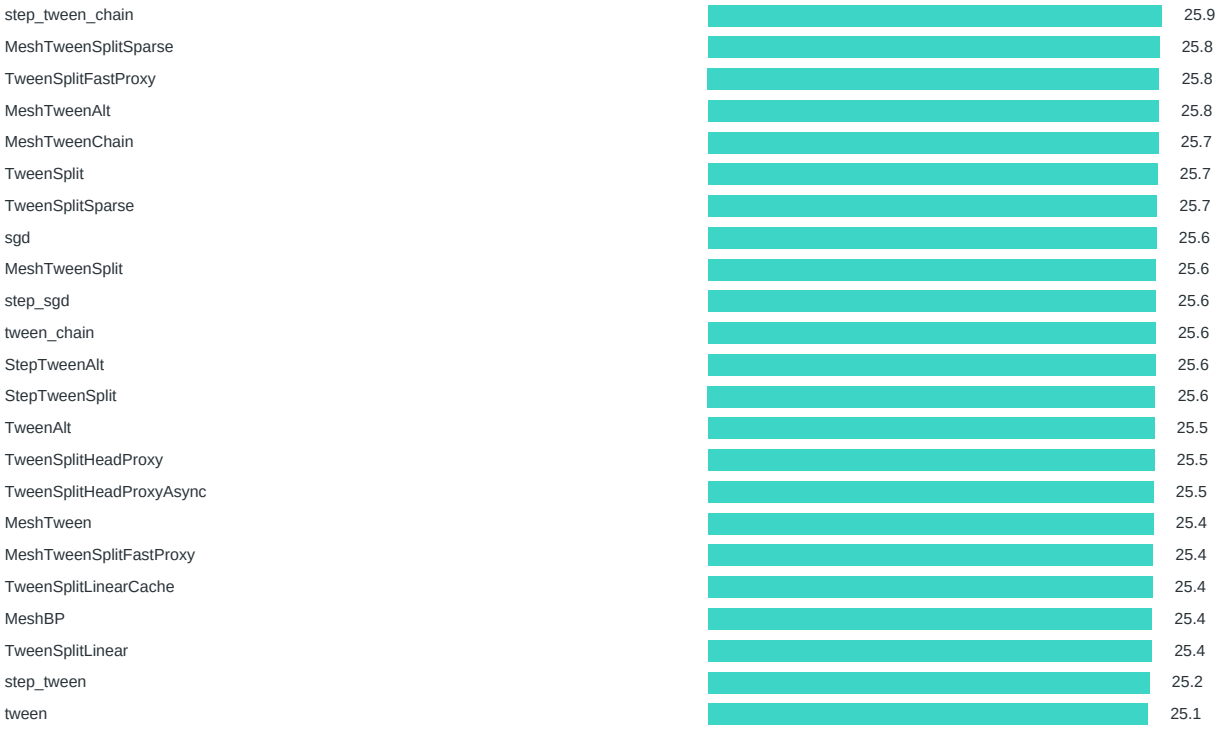
## Top scores - kmeans



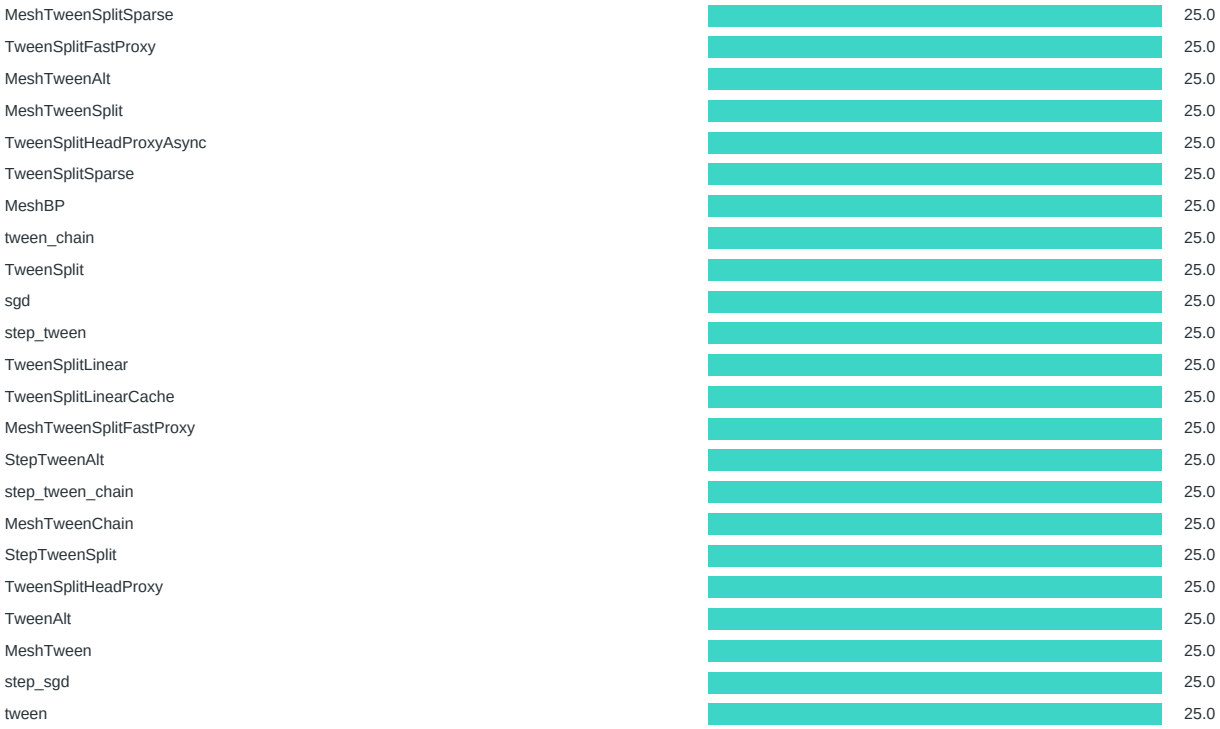

## Mean Score by train mode



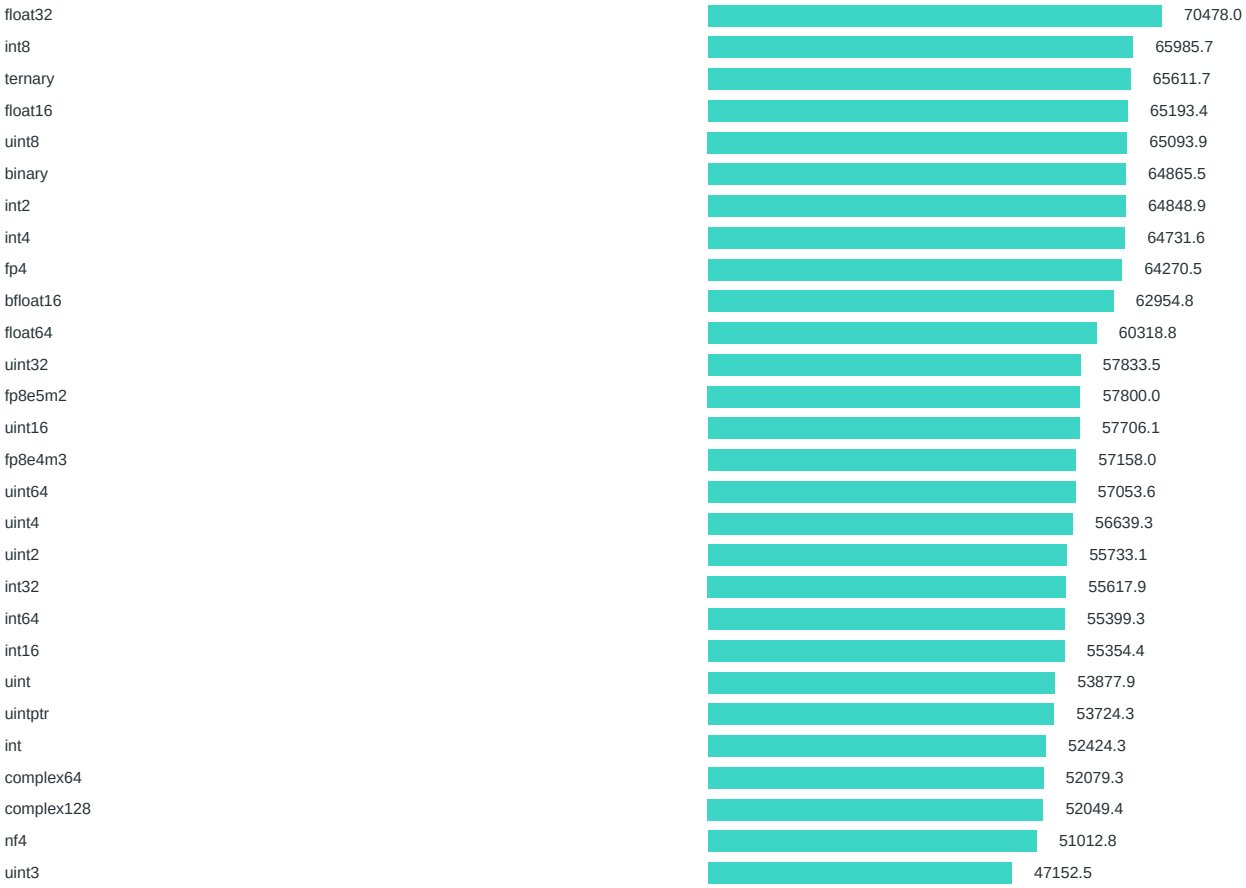

## Mean hard Acc by train mode




## Mean SoftAcc by train mode




## Mean Score by dtype




## Mean hard Acc by dtype




## Mean Score by arch




## Honesty - mean Score, every mode x dtype (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 62659 | 64484 | 51321 | 52088 | 64332 | 69256 | 59082 | 63601 | 42025 | 57131 | 57745 | 50957 | 56043 | 64011 | 46061 | 55251 |
| MeshTween | 60765 | 61366 | 49579 | 49284 | 61638 | 67481 | 56747 | 59526 | 40503 | 54918 | 55909 | 48161 | 51620 | 61867 | 44889 | 52877 |
| MeshTweenAlt | 55722 | 56226 | 43442 | 45299 | 53430 | 63605 | 51881 | 56171 | 36600 | 48998 | 47148 | 47367 | 47863 | 58062 | 38885 | 49167 |
| MeshTweenChain | 60642 | 62963 | 49759 | 49891 | 62726 | 68204 | 57960 | 61628 | 38731 | 54581 | 55694 | 50656 | 52586 | 62140 | 45398 | 53935 |
| MeshTweenSplit | 65446 | 66115 | 52583 | 50403 | 68934 | 70061 | 64387 | 66097 | 44737 | 55655 | 60158 | 53350 | 56469 | 65925 | 46547 | 55462 |
| MeshTweenSplitFa | 62238 | 68683 | 53010 | 52917 | 64883 | 68877 | 62722 | 67078 | 39314 | 54776 | 53894 | 53781 | 57087 | 68060 | 48343 | 57250 |
| MeshTweenSplitSp | 62040 | 63475 | 50605 | 50317 | 65940 | 70888 | 59156 | 61978 | 41817 | 57669 | 55747 | 51662 | 54370 | 64124 | 46526 | 53824 |
| StepTweenAlt | 53475 | 55031 | 44681 | 44515 | 55158 | 61370 | 51520 | 54646 | 35142 | 48992 | 49141 | 43215 | 46349 | 54847 | 38554 | 46078 |
| StepTweenSplit | 60406 | 61402 | 50444 | 50697 | 64450 | 68136 | 59116 | 63178 | 40226 | 54714 | 55327 | 49711 | 53336 | 63015 | 47341 | 52878 |
| TweenAlt | 56375 | 55947 | 45970 | 44275 | 56891 | 61648 | 52211 | 54995 | 36237 | 49777 | 49998 | 45883 | 47973 | 55748 | 40434 | 49203 |
| TweenSplit | 63841 | 64461 | 53124 | 54258 | 66568 | 71504 | 61528 | 65366 | 42426 | 57955 | 60097 | 53198 | 56268 | 67345 | 49398 | 55257 |
| TweenSplitFastPr | 63121 | 64217 | 52838 | 53213 | 64294 | 71319 | 60520 | 65490 | 42120 | 57589 | 58048 | 54594 | 55305 | 65143 | 46011 | 55584 |
| TweenSplitHeadPr | 61785 | 63872 | 54199 | 53853 | 66697 | 70450 | 59481 | 64715 | 42199 | 57610 | 59910 | 52504 | 56454 | 66505 | 46731 | 56796 |
| TweenSplitHeadPr | 61875 | 64238 | 51089 | 50602 | 64566 | 75489 | 60586 | 64873 | 43641 | 57908 | 58489 | 52682 | 56917 | 65185 | 46195 | 56249 |
| TweenSplitLinear | 61541 | 64119 | 49181 | 50530 | 65020 | 70143 | 59552 | 64396 | 41936 | 57167 | 59318 | 51922 | 54952 | 62516 | 45712 | 56696 |
| TweenSplitLinear | 63368 | 68086 | 52925 | 54278 | 66380 | 69473 | 60235 | 66201 | 43282 | 58237 | 57425 | 53780 | 57803 | 65379 | 48862 | 57821 |
| TweenSplitSparse | 63777 | 65373 | 53208 | 52939 | 66276 | 71094 | 60172 | 64211 | 43580 | 59167 | 59798 | 54597 | 56287 | 63274 | 46996 | 53945 |
| sgd | 74171 | 75507 | 61999 | 61351 | 75889 | 81111 | 69092 | 74293 | 50457 | 67500 | 68563 | 61782 | 64794 | 75456 | 55075 | 66342 |
| step_sgd | 70385 | 72781 | 58735 | 58905 | 72247 | 77948 | 67625 | 71607 | 47224 | 64421 | 65561 | 58609 | 61529 | 73111 | 52830 | 63370 |
| step_tween | 64963 | 66176 | 51941 | 51569 | 66848 | 71348 | 61736 | 65125 | 42730 | 59344 | 59557 | 52679 | 55103 | 65907 | 46599 | 56542 |
| step_tween_chain | 52580 | 60093 | 47424 | 47624 | 59140 | 61822 | 54231 | 57383 | 39385 | 48845 | 49648 | 46406 | 46257 | 56969 | 41631 | 47344 |
| tween | 73344 | 74685 | 59459 | 59814 | 73411 | 80183 | 69501 | 73502 | 48126 | 65438 | 66023 | 59684 | 64149 | 73248 | 52836 | 64338 |
| tween_chain | 73440 | 72605 | 59619 | 59203 | 73731 | 79585 | 68290 | 72161 | 48489 | 66242 | 66201 | 58579 | 63638 | 73686 | 53011 | 63003 |

## Honesty - mean Score, every mode x dtype (cols 17-32)

## Honesty - mean Score, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 64414 | 43877 | 42684 | 55423 | 66389 | 50696 | 66273 | 53388 | 57825 | 55799 | 47267 | 57813 | 56573 | 44710 | 44054 | 56721 |
| MeshTween | 61873 | 41516 | 40571 | 52906 | 63472 | 48342 | 61211 | 50590 | 55192 | 51066 | 43807 | 55259 | 51996 | 42920 | 41897 | 54725 |
| MeshTweenAlt | 55852 | 36799 | 36148 | 48300 | 56890 | 43994 | 56418 | 45481 | 47130 | 46368 | 37986 | 46791 | 50912 | 37377 | 35938 | 47726 |
| MeshTweenChain | 61798 | 42111 | 40501 | 53347 | 64576 | 48838 | 64117 | 52595 | 56053 | 53930 | 45114 | 56753 | 53586 | 44214 | 41916 | 55302 |
| MeshTweenSplit | 66576 | 43938 | 41159 | 54229 | 70169 | 51464 | 65981 | 55215 | 59725 | 56735 | 46721 | 58993 | 61231 | 43368 | 47233 | 56552 |
| MeshTweenSplitFa | 67251 | 47486 | 44902 | 51697 | 68086 | 52915 | 65220 | 55955 | 57670 | 57351 | 47826 | 60261 | 57612 | 46697 | 47428 | 58098 |
| MeshTweenSplitSp | 63727 | 43893 | 42582 | 54705 | 66037 | 48709 | 64062 | 52613 | 55546 | 53679 | 46409 | 59022 | 54475 | 43451 | 42549 | 56036 |
| StepTweenAlt | 55818 | 37823 | 36112 | 45803 | 54666 | 42945 | 56041 | 43266 | 48316 | 48714 | 38215 | 48094 | 46300 | 37486 | 36538 | 48642 |
| StepTweenSplit | 64407 | 41921 | 40947 | 54576 | 63963 | 47735 | 62489 | 52071 | 55470 | 53266 | 44767 | 55915 | 53320 | 43071 | 41648 | 54342 |
| TweenAlt | 56218 | 39978 | 36600 | 49415 | 58167 | 44622 | 57690 | 46827 | 50339 | 48589 | 41493 | 49095 | 49796 | 38294 | 36197 | 49528 |
| TweenSplit | 65112 | 43814 | 44000 | 55748 | 65742 | 52826 | 67326 | 53374 | 59583 | 55139 | 49329 | 59060 | 55635 | 46949 | 42167 | 57094 |
| TweenSplitFastPr | 64741 | 42933 | 43643 | 57399 | 66341 | 50262 | 68997 | 52539 | 58467 | 56672 | 46375 | 58136 | 57449 | 44598 | 44147 | 57832 |
| TweenSplitHeadPr | 66435 | 46042 | 45361 | 57160 | 66801 | 53187 | 66417 | 54614 | 59585 | 54723 | 49261 | 59194 | 56998 | 45336 | 44911 | 57339 |
| TweenSplitHeadPr | 64990 | 44467 | 43230 | 56584 | 69964 | 51207 | 69622 | 53087 | 57909 | 55298 | 45904 | 57726 | 57005 | 43311 | 41725 | 59326 |
| TweenSplitLinear | 62976 | 43876 | 44091 | 55814 | 65445 | 52309 | 64166 | 54144 | 56827 | 55625 | 46351 | 54922 | 56008 | 42719 | 42694 | 55909 |
| TweenSplitLinear | 65222 | 45206 | 45142 | 55446 | 66456 | 51893 | 67219 | 56543 | 57543 | 55706 | 48447 | 57536 | 57273 | 46675 | 45245 | 58546 |
| TweenSplitSparse | 63857 | 44520 | 42577 | 56841 | 65299 | 51508 | 64256 | 56231 | 57528 | 56376 | 47575 | 59342 | 55897 | 46065 | 44791 | 57164 |
| sgd | 75264 | 52431 | 51082 | 66493 | 76187 | 59655 | 75907 | 63862 | 68794 | 67641 | 56989 | 68973 | 67911 | 53827 | 52617 | 68629 |
| step_sgd | 72959 | 48245 | 47887 | 61900 | 73260 | 56299 | 72746 | 60037 | 65857 | 63661 | 53844 | 66061 | 64454 | 50627 | 49010 | 65179 |
| step_tween | 66248 | 44030 | 42538 | 55701 | 67872 | 51747 | 66051 | 54246 | 59681 | 57622 | 47278 | 58299 | 57975 | 44911 | 43531 | 58142 |
| step_tween_chain | 55692 | 40542 | 38909 | 46119 | 51789 | 46281 | 60090 | 49311 | 50110 | 49269 | 44486 | 51278 | 51264 | 41243 | 41219 | 49155 |
| tween | 74397 | 50017 | 48710 | 64128 | 75511 | 57901 | 74211 | 62098 | 67416 | 64402 | 54959 | 66967 | 65638 | 51854 | 50207 | 66228 |
| tween_chain | 72998 | 49778 | 49058 | 64450 | 74589 | 57959 | 72561 | 61104 | 64673 | 64233 | 54104 | 64681 | 63397 | 52064 | 49789 | 64019 |

## Honesty - mean Score, every mode x dtype  (cols 33-34)

## Honesty - mean Score, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 65984 | 54423 |
| MeshTween | 62886 | 50546 |
| MeshTweenAlt | 56688 | 44461 |
| MeshTweenChain | 62664 | 51999 |
| MeshTweenSplit | 62388 | 55220 |
| MeshTweenSplitFa | 65574 | 53570 |
| MeshTweenSplitSp | 62654 | 51042 |
| StepTweenAlt | 56425 | 42899 |
| StepTweenSplit | 63919 | 50833 |
| TweenAlt | 57649 | 46583 |
| TweenSplit | 66425 | 54527 |
| TweenSplitFastPr | 66039 | 52653 |
| TweenSplitHeadPr | 66498 | 53592 |
| TweenSplitHeadPr | 67010 | 53008 |
| TweenSplitLinear | 64413 | 52898 |
| TweenSplitLinear | 66643 | 57097 |
| TweenSplitSparse | 65732 | 56782 |
| sgd | 74501 | 62967 |
| step_sgd | 72897 | 60619 |
| step_tween | 66960 | 54798 |
| step_tween_chain | 54557 | 51395 |
| tween | 74005 | 61648 |
| tween_chain | 74648 | 62103 |

## Honesty - mean hard Acc, every mode x dtype  (cols 1-16)

## Honesty - mean hard Acc, every mode x dtype  (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 26 | 25 | 27 | 28 | 26 | 25 | 25 | 25 | 25 | 27 | 25 | 24 | 26 | 24 | 24 | 27 |
| MeshTween | 26 | 25 | 26 | 23 | 26 | 27 | 25 | 25 | 26 | 25 | 26 | 25 | 25 | 24 | 25 | 26 |
| MeshTweenAlt | 26 | 25 | 26 | 25 | 29 | 26 | 26 | 25 | 23 | 27 | 25 | 26 | 24 | 24 | 23 | 26 |
| MeshTweenChain | 26 | 23 | 25 | 26 | 26 | 26 | 26 | 25 | 27 | 25 | 25 | 26 | 26 | 26 | 24 | 25 |
| MeshTweenSplit | 26 | 26 | 27 | 27 | 24 | 27 | 25 | 25 | 23 | 24 | 26 | 27 | 26 | 26 | 23 | 25 |
| MeshTweenSplitFa | 26 | 23 | 25 | 27 | 27 | 26 | 25 | 25 | 25 | 25 | 24 | 25 | 25 | 20 | 25 | 27 |
| MeshTweenSplitSp | 26 | 26 | 25 | 24 | 27 | 27 | 26 | 25 | 26 | 24 | 25 | 26 | 27 | 27 | 28 | 25 |
| StepTweenAlt | 27 | 25 | 27 | 25 | 26 | 26 | 25 | 25 | 26 | 26 | 27 | 26 | 26 | 22 | 25 | 28 |
| StepTweenSplit | 26 | 27 | 26 | 26 | 25 | 28 | 27 | 25 | 24 | 25 | 25 | 26 | 26 | 24 | 24 | 26 |
| TweenAlt | 25 | 28 | 27 | 27 | 25 | 27 | 27 | 25 | 25 | 25 | 25 | 26 | 25 | 23 | 25 | 26 |
| TweenSplit | 25 | 26 | 28 | 28 | 28 | 27 | 26 | 25 | 25 | 24 | 26 | 25 | 26 | 24 | 25 | 27 |
| TweenSplitFastPr | 25 | 25 | 25 | 28 | 27 | 27 | 25 | 25 | 24 | 27 | 28 | 25 | 24 | 25 | 30 | 28 |
| TweenSplitHeadPr | 26 | 24 | 27 | 25 | 27 | 26 | 25 | 25 | 24 | 25 | 24 | 27 | 26 | 26 | 24 | 24 |
| TweenSplitHeadPr | 25 | 25 | 28 | 25 | 25 | 25 | 27 | 25 | 26 | 25 | 26 | 26 | 25 | 26 | 27 | 28 |
| TweenSplitLinear | 25 | 26 | 27 | 25 | 26 | 27 | 26 | 25 | 26 | 25 | 26 | 25 | 25 | 25 | 26 | 24 |
| TweenSplitLinear | 26 | 26 | 26 | 25 | 24 | 26 | 24 | 25 | 25 | 26 | 26 | 26 | 24 | 26 | 26 | 26 |
| TweenSplitSparse | 26 | 24 | 26 | 27 | 24 | 28 | 27 | 25 | 25 | 26 | 25 | 26 | 26 | 24 | 24 | 26 |
| sgd | 26 | 23 | 25 | 28 | 26 | 28 | 25 | 25 | 26 | 26 | 26 | 27 | 24 | 24 | 25 | 27 |
| step_sgd | 26 | 27 | 26 | 27 | 27 | 27 | 26 | 25 | 24 | 24 | 27 | 27 | 25 | 26 | 25 | 26 |
| step_tween | 26 | 26 | 27 | 23 | 27 | 25 | 28 | 25 | 25 | 24 | 24 | 27 | 25 | 26 | 26 | 24 |
| step_tween_chain | 26 | 25 | 25 | 26 | 25 | 27 | 27 | 25 | 24 | 27 | 24 | 26 | 27 | 22 | 24 | 27 |
| tween | 28 | 24 | 25 | 25 | 25 | 26 | 27 | 25 | 26 | 25 | 26 | 28 | 25 | 25 | 25 | 24 |
| tween_chain | 26 | 24 | 26 | 28 | 26 | 28 | 26 | 25 | 26 | 23 | 25 | 26 | 26 | 26 | 22 | 23 |

## Honesty - mean hard Acc, every mode x dtype  (cols 17-32)

## Honesty - mean hard Acc, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 28 | 25 | 23 | 27 | 26 | 26 | 22 | 27 | 25 | 25 | 26 | 26 | 24 | 23 | 25 | 27 |
| MeshTween | 26 | 25 | 27 | 25 | 27 | 24 | 25 | 24 | 26 | 26 | 26 | 26 | 26 | 27 | 23 | 26 |
| MeshTweenAlt | 25 | 25 | 25 | 28 | 27 | 26 | 28 | 27 | 26 | 24 | 25 | 26 | 27 | 27 | 25 | 26 |
| MeshTweenChain | 24 | 25 | 26 | 28 | 26 | 25 | 24 | 25 | 26 | 28 | 25 | 28 | 25 | 27 | 27 | 25 |
| MeshTweenSplit | 27 | 25 | 25 | 25 | 26 | 23 | 24 | 27 | 27 | 25 | 24 | 29 | 26 | 25 | 26 | 27 |
| MeshTweenSplitFa | 26 | 23 | 26 | 25 | 26 | 26 | 26 | 26 | 25 | 25 | 24 | 27 | 25 | 26 | 26 | 27 |
| MeshTweenSplitSp | 25 | 25 | 25 | 27 | 26 | 27 | 26 | 25 | 26 | 24 | 25 | 27 | 25 | 25 | 27 | 26 |
| StepTweenAlt | 26 | 25 | 25 | 26 | 26 | 24 | 25 | 27 | 26 | 24 | 25 | 27 | 23 | 25 | 25 | 25 |
| StepTweenSplit | 27 | 26 | 26 | 26 | 24 | 25 | 24 | 26 | 26 | 23 | 25 | 27 | 24 | 24 | 25 | 25 |
| TweenAlt | 28 | 24 | 24 | 27 | 25 | 26 | 25 | 26 | 27 | 21 | 25 | 26 | 26 | 24 | 25 | 25 |
| TweenSplit | 25 | 25 | 25 | 25 | 25 | 23 | 26 | 26 | 26 | 26 | 24 | 24 | 26 | 26 | 25 | 26 |
| TweenSplitFastPr | 26 | 23 | 25 | 26 | 25 | 26 | 25 | 26 | 26 | 23 | 26 | 24 | 26 | 27 | 26 | 28 |
| TweenSplitHeadPr | 24 | 24 | 25 | 26 | 28 | 25 | 27 | 26 | 25 | 25 | 24 | 25 | 26 | 26 | 24 | 27 |
| TweenSplitHeadPr | 24 | 24 | 24 | 26 | 28 | 24 | 25 | 26 | 27 | 24 | 26 | 26 | 23 | 25 | 25 | 26 |
| TweenSplitLinear | 23 | 25 | 23 | 26 | 25 | 24 | 24 | 26 | 25 | 27 | 26 | 26 | 24 | 25 | 25 | 27 |
| TweenSplitLinear | 24 | 27 | 26 | 24 | 26 | 27 | 27 | 24 | 26 | 24 | 26 | 26 | 24 | 25 | 24 | 25 |
| TweenSplitSparse | 28 | 24 | 27 | 25 | 26 | 26 | 25 | 25 | 24 | 26 | 25 | 26 | 27 | 26 | 24 | 26 |
| sgd | 26 | 26 | 26 | 25 | 26 | 24 | 24 | 27 | 27 | 25 | 25 | 26 | 26 | 26 | 26 | 26 |
| step_sgd | 23 | 22 | 27 | 24 | 27 | 26 | 27 | 25 | 28 | 25 | 24 | 28 | 25 | 25 | 26 | 25 |
| step_tween | 26 | 23 | 26 | 26 | 24 | 24 | 23 | 26 | 25 | 24 | 26 | 27 | 24 | 25 | 27 | 24 |
| step_tween_chain | 26 | 24 | 25 | 27 | 25 | 25 | 26 | 27 | 27 | 27 | 27 | 26 | 25 | 27 | 28 | 26 |
| tween | 23 | 25 | 28 | 24 | 27 | 24 | 24 | 26 | 25 | 25 | 23 | 25 | 21 | 25 | 25 | 24 |
| tween_chain | 25 | 24 | 23 | 28 | 24 | 27 | 27 | 28 | 26 | 25 | 26 | 26 | 25 | 23 | 27 | 27 |

## Honesty - mean hard Acc, every mode x dtype  (cols 33-34)

## Honesty - mean hard Acc, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 25 | 25 |
| MeshTween | 26 | 24 |
| MeshTweenAlt | 27 | 26 |
| MeshTweenChain | 28 | 26 |
| MeshTweenSplit | 26 | 26 |
| MeshTweenSplitFa | 27 | 27 |
| MeshTweenSplitSp | 27 | 26 |
| StepTweenAlt | 27 | 28 |
| StepTweenSplit | 25 | 28 |
| TweenAlt | 27 | 25 |
| TweenSplit | 27 | 26 |
| TweenSplitFastPr | 26 | 26 |
| TweenSplitHeadPr | 27 | 28 |
| TweenSplitHeadPr | 24 | 26 |
| TweenSplitLinear | 25 | 26 |
| TweenSplitLinear | 28 | 24 |
| TweenSplitSparse | 27 | 26 |
| sgd | 25 | 27 |
| step_sgd | 27 | 25 |
| step_tween | 23 | 25 |
| step_tween_chain | 28 | 26 |
| tween | 25 | 26 |
| tween_chain | 24 | 28 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 1-16)

## Honesty - mean SoftAcc, every mode x dtype  (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenChain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitFastPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitSparse | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 17-32)

## Honesty - mean SoftAcc, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenChain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitFastPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitSparse | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 33-34)

## Honesty - mean SoftAcc, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 25 | 25 |
| MeshTween | 25 | 25 |
| MeshTweenAlt | 25 | 25 |
| MeshTweenChain | 25 | 25 |
| MeshTweenSplit | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 |
| StepTweenAlt | 25 | 25 |
| StepTweenSplit | 25 | 25 |
| TweenAlt | 25 | 25 |
| TweenSplit | 25 | 25 |
| TweenSplitFastPr | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 |
| TweenSplitLinear | 25 | 25 |
| TweenSplitLinear | 25 | 25 |
| TweenSplitSparse | 25 | 25 |
| sgd | 25 | 25 |
| step_sgd | 25 | 25 |
| step_tween | 25 | 25 |
| step_tween_chain | 25 | 25 |
| tween | 25 | 25 |
| tween_chain | 25 | 25 |

## Mean Score, every mode x arch

## Mean Score, every mode x arch

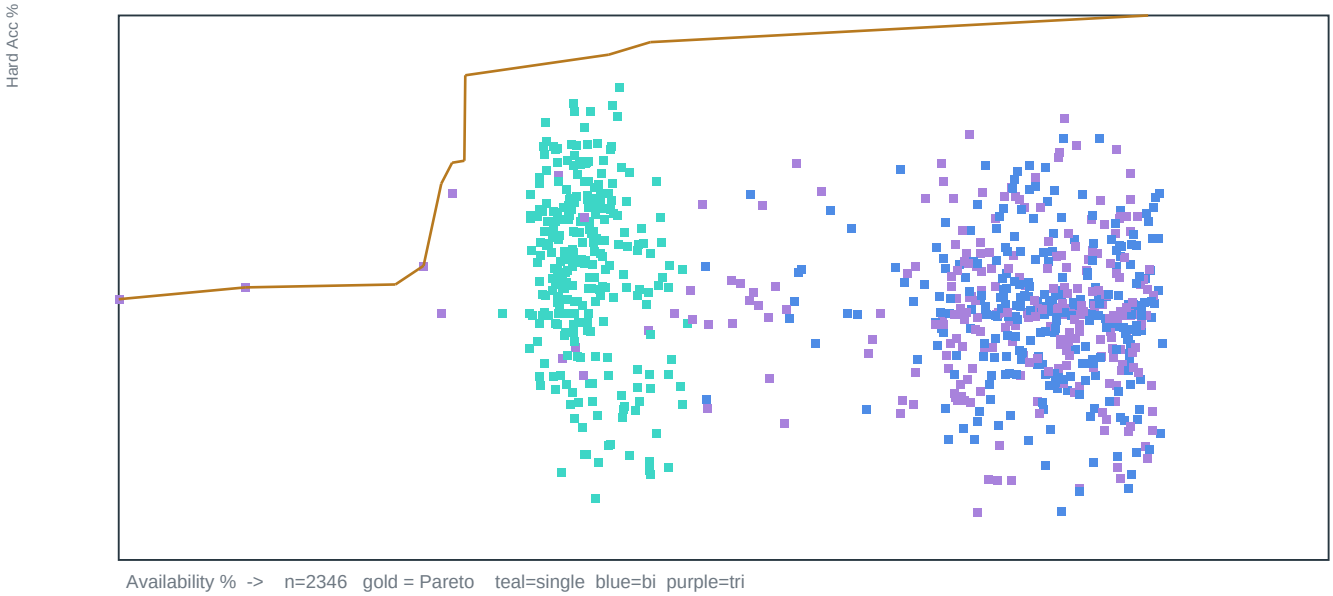
| | bicamera | singlex1 | tricamer |
|---|---|---|---|
| MeshBP | 32128 | 110258 | 25292 |
| MeshTween | 30285 | 104723 | 24514 |
| MeshTweenAlt | 26180 | 95621 | 22121 |
| MeshTweenChain | 31340 | 105619 | 25121 |
| MeshTweenSplit | 34355 | 108834 | 27919 |
| MeshTweenSplitFa | 34200 | 109477 | 27368 |
| MeshTweenSplitSp | 32805 | 104847 | 27464 |
| StepTweenAlt | 25511 | 96494 | 19773 |
| StepTweenSplit | 31639 | 105088 | 25540 |
| TweenAlt | 27294 | 97811 | 21423 |
| TweenSplit | 34313 | 108606 | 27944 |
| TweenSplitFastPr | 34471 | 106399 | 28421 |
| TweenSplitHeadPr | 34387 | 108335 | 28209 |
| TweenSplitHeadPr | 34011 | 107429 | 28144 |
| TweenSplitLinear | 32504 | 107428 | 26470 |
| TweenSplitLinear | 34186 | 109711 | 27931 |
| TweenSplitSparse | 33889 | 107837 | 28307 |
| sgd | 38126 | 129450 | 30699 |
| step_sgd | 35659 | 125214 | 28165 |
| step_tween | 31370 | 115619 | 23816 |
| step_tween_chain | 28077 | 105364 | 15631 |
| tween | 37142 | 126132 | 29788 |
| tween_chain | 36194 | 126034 | 29039 |

## Mean hard Acc, every mode x arch

## Mean hard Acc, every mode x arch

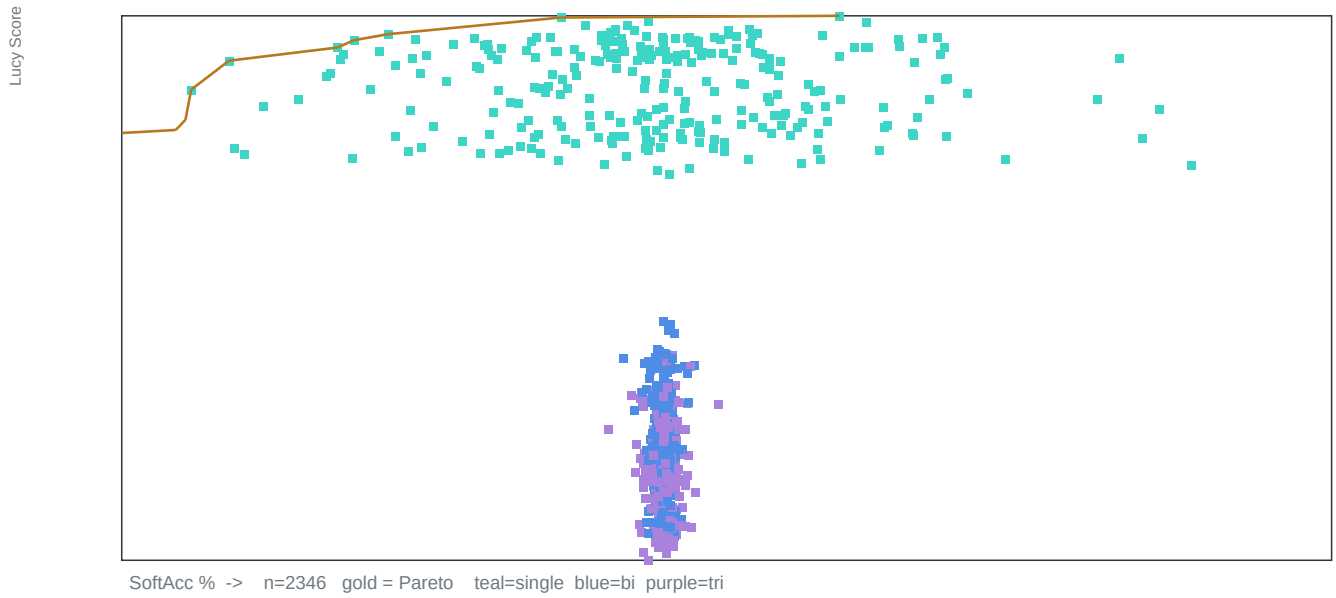
| | bicamera | singlex1 | tricamer |
|---|---|---|---|
| MeshBP | 24 | 27 | 25 |
| MeshTween | 26 | 26 | 25 |
| MeshTweenAlt | 25 | 27 | 25 |
| MeshTweenChain | 25 | 27 | 25 |
| MeshTweenSplit | 25 | 26 | 25 |
| MeshTweenSplitFa | 25 | 26 | 25 |
| MeshTweenSplitSp | 25 | 27 | 25 |
| StepTweenAlt | 25 | 27 | 25 |
| StepTweenSplit | 25 | 26 | 25 |
| TweenAlt | 25 | 26 | 25 |
| TweenSplit | 25 | 26 | 25 |
| TweenSplitFastPr | 25 | 27 | 25 |
| TweenSplitHeadPr | 26 | 26 | 25 |
| TweenSplitHeadPr | 25 | 26 | 25 |
| TweenSplitLinear | 25 | 26 | 25 |
| TweenSplitLinear | 26 | 25 | 25 |
| TweenSplitSparse | 25 | 26 | 25 |
| sgd | 26 | 27 | 25 |
| step_sgd | 25 | 26 | 25 |
| step_tween | 25 | 26 | 25 |
| step_tween_chain | 25 | 27 | 26 |
| tween | 25 | 26 | 25 |
| tween_chain | 25 | 26 | 26 |

## Avail vs hard Acc (headline scatter)

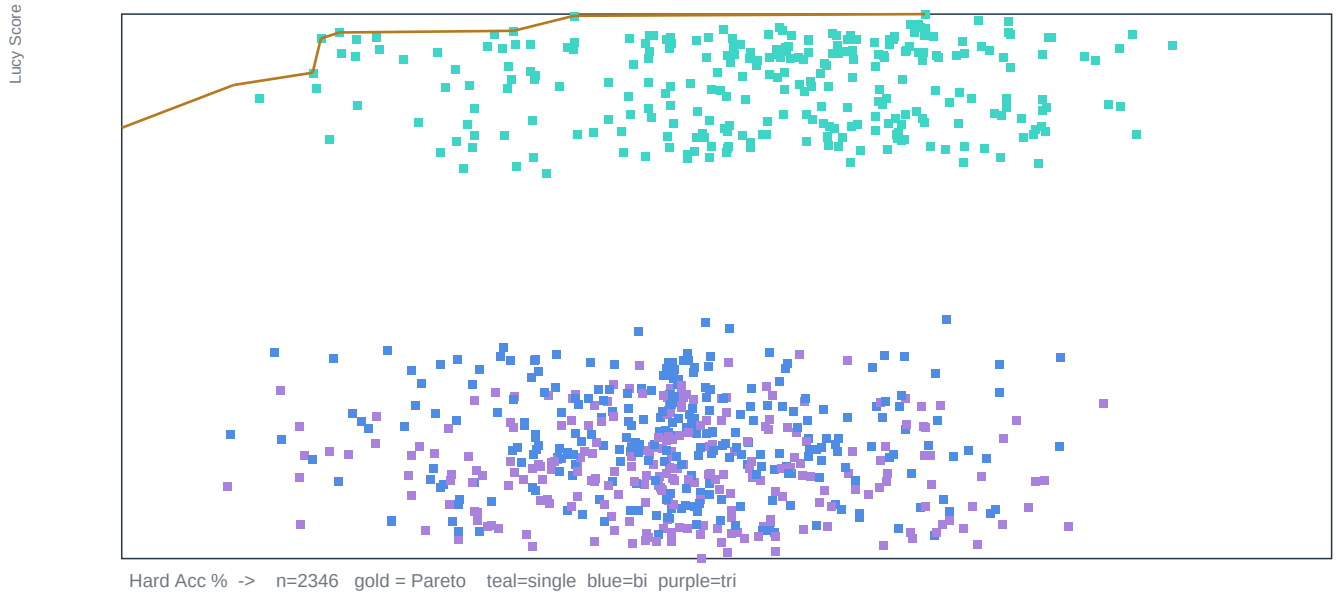



## Pareto - SoftAcc vs Score

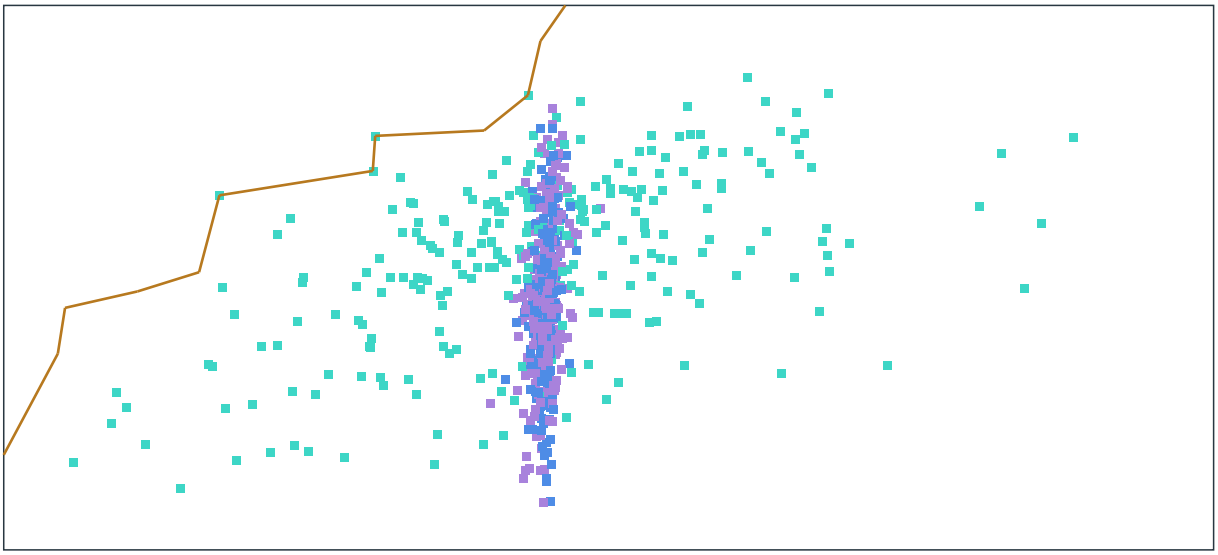
## Pareto - SoftAcc vs Score




## Pareto - hard Acc vs Score

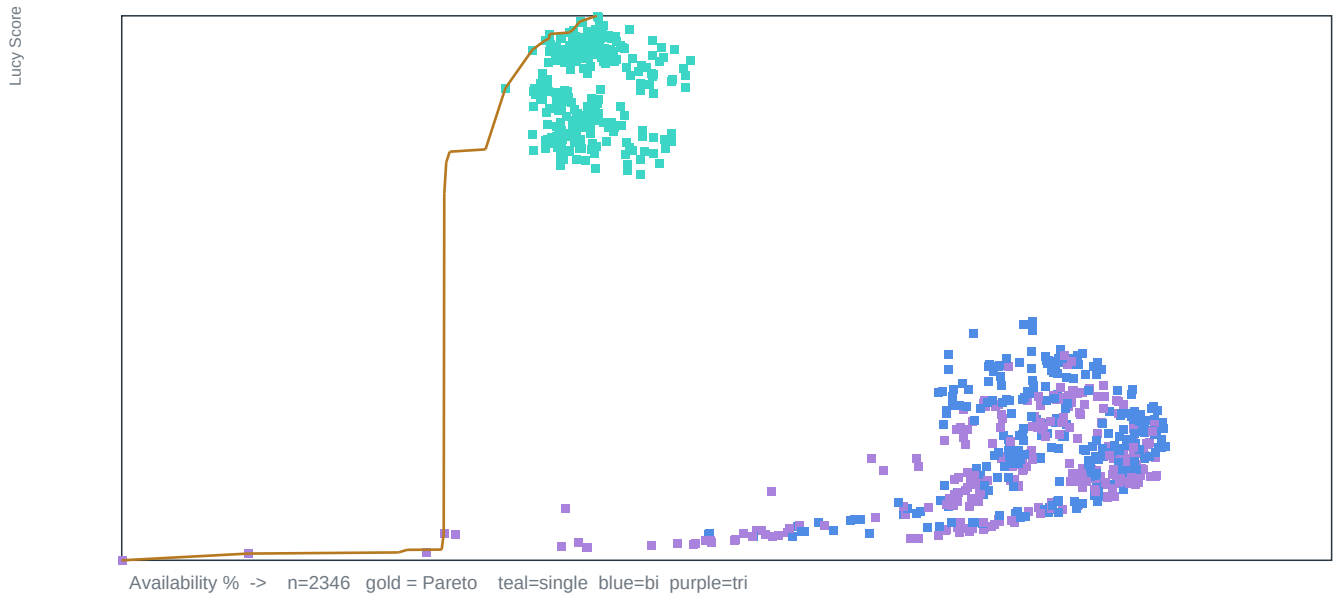



## SoftAcc vs hard Acc




SoftAcc %  ->  n=2346  gold = Pareto  teal=single  blue=bi  purple=tri
Hard Acc %

## Avail vs Score (duty clock)




## Lucy Pareto (LPD) - goldilocks

Q = geomean of Score/Soft/Acc/Thru vs the Lucy Score champion. LPD = 0 if Q<70%, else Q x shrink vs champ RAM (capped 32x). Gold = Q>=80% and RAM<=20% of champ. MSpeed = Thru vs the board's fastest (0 if Q<70%). MAvail = Availability vs the board's best duty cycle (0 if Q<70%). Mix = geomean(Q, MSpeed, MAvail). Raw Score/MiB is the binary trap.

Quality champ uint4|none|sgd|single|simd Score 135138.6 Soft 25 Acc 28 Thru 1383263 RAM 0.0 KiB

Board fastest uint4|none|sgd|single|simd Thru 1383263 Best availability uint3|none|MeshTweenSplitSparse|tricameral|simd 47.2%

## Gold - Q >= 80% of champ, RAM <= 20%

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| gold | binary\|none\|sgd\|single\|simd | 96 | 20 | 5.0 | 4.81 | 25 | 27 | 128777.4 | 0.0 |
| gold | binary\|none\|step_sgd\|single\|simd | 94 | 20 | 5.0 | 4.71 | 25 | 26 | 125288.6 | 0.0 |
| gold | binary\|none\|tween_chain\|single\|simd | 93 | 20 | 5.0 | 4.67 | 25 | 25 | 126211.4 | 0.0 |
| gold | binary\|none\|step_tween\|single\|simd | 92 | 20 | 5.0 | 4.60 | 25 | 27 | 117184.2 | 0.0 |
| gold | binary\|none\|tween\|single\|simd | 91 | 20 | 5.0 | 4.53 | 25 | 21 | 129202.9 | 0.0 |
| gold | binary\|none\|MeshBP\|single\|simd | 90 | 20 | 5.0 | 4.52 | 25 | 27 | 112702.3 | 0.0 |
| gold | binary\|none\|MeshTweenSplitFastProxy\|single\|simd | 90 | 20 | 5.0 | 4.52 | 25 | 25 | 118930.6 | 0.0 |
| gold | binary\|none\|TweenSplitHeadProxyAsync\|single\|simd | 89 | 20 | 5.0 | 4.47 | 25 | 30 | 107955.9 | 0.0 |
| gold | binary\|none\|TweenSplitLinearCache\|single\|simd | 89 | 20 | 5.0 | 4.45 | 25 | 24 | 115669.5 | 0.0 |
| gold | binary\|none\|MeshTweenSplitSparse\|single\|simd | 87 | 20 | 5.0 | 4.36 | 25 | 27 | 105419.0 | 0.0 |
| gold | binary\|none\|step_tween_chain\|single\|simd | 87 | 20 | 5.0 | 4.36 | 25 | 26 | 106410.3 | 0.0 |
| gold | binary\|none\|TweenSplitSparse\|single\|simd | 87 | 20 | 5.0 | 4.35 | 25 | 25 | 108255.1 | 0.0 |
| gold | binary\|none\|TweenSplitFastProxy\|single\|simd | 87 | 20 | 5.0 | 4.34 | 25 | 27 | 105085.5 | 0.0 |
| gold | binary\|none\|TweenSplitLinear\|single\|simd | 86 | 20 | 5.0 | 4.32 | 25 | 23 | 111657.1 | 0.0 |
| gold | binary\|none\|MeshTween\|single\|simd | 86 | 20 | 5.0 | 4.31 | 25 | 25 | 105693.5 | 0.0 |
| gold | binary\|none\|TweenSplit\|single\|simd | 86 | 20 | 5.0 | 4.31 | 25 | 25 | 107115.2 | 0.0 |

## Near-gold - Q >= 70%, RAM <= 50%

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| near | ternary\|none\|tween_chain\|single\|simd | 96 | 40 | 2.5 | 2.40 | 25 | 29 | 124868.4 | 0.0 |
| near | int2\|none\|step_sgd\|single\|simd | 96 | 40 | 2.5 | 2.40 | 25 | 27 | 126194.0 | 0.0 |
| near | int2\|none\|tween_chain\|single\|simd | 96 | 40 | 2.5 | 2.39 | 25 | 27 | 127553.4 | 0.0 |
| near | ternary\|none\|tween\|single\|simd | 95 | 40 | 2.5 | 2.38 | 25 | 27 | 126762.0 | 0.0 |
| near | int2\|none\|sgd\|single\|simd | 95 | 40 | 2.5 | 2.37 | 25 | 25 | 130027.0 | 0.0 |
| near | int2\|none\|tween\|single\|simd | 94 | 40 | 2.5 | 2.35 | 25 | 26 | 124471.4 | 0.0 |
| near | int2\|none\|step_tween\|single\|simd | 92 | 40 | 2.5 | 2.30 | 25 | 28 | 115017.6 | 0.0 |

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| near | ternary\|none\|TweenSplitHeadProxyAsync\|single\|simd | 92 | 40 | 2.5 | 2.30 | 25 | 29 | 114632.4 | 0.0 |
| near | ternary\|none\|sgd\|single\|simd | 91 | 40 | 2.5 | 2.27 | 25 | 21 | 129663.7 | 0.0 |
| near | ternary\|none\|step_sgd\|single\|simd | 91 | 40 | 2.5 | 2.26 | 25 | 22 | 125973.8 | 0.0 |
| near | ternary\|none\|TweenSplitLinearCache\|single\|simd | 90 | 40 | 2.5 | 2.26 | 25 | 28 | 111708.2 | 0.0 |
| near | ternary\|none\|TweenSplit\|single\|simd | 90 | 40 | 2.5 | 2.25 | 25 | 27 | 113923.0 | 0.0 |

## LPD rank (Q x shrink; 0 if Q < 70%)

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| gold | binary\|none\|sgd\|single\|simd | 96 | 20 | 5.0 | 4.81 | 25 | 27 | 128777.4 | 0.0 |
| gold | binary\|none\|step_sgd\|single\|simd | 94 | 20 | 5.0 | 4.71 | 25 | 26 | 125288.6 | 0.0 |
| gold | binary\|none\|tween_chain\|single\|simd | 93 | 20 | 5.0 | 4.67 | 25 | 25 | 126211.4 | 0.0 |
| gold | binary\|none\|step_tween\|single\|simd | 92 | 20 | 5.0 | 4.60 | 25 | 27 | 117184.2 | 0.0 |
| gold | binary\|none\|tween\|single\|simd | 91 | 20 | 5.0 | 4.53 | 25 | 21 | 129202.9 | 0.0 |
| gold | binary\|none\|MeshBP\|single\|simd | 90 | 20 | 5.0 | 4.52 | 25 | 27 | 112702.3 | 0.0 |
| gold | binary\|none\|MeshTweenSplitFastProxy\|single\|simd | 90 | 20 | 5.0 | 4.52 | 25 | 25 | 118930.6 | 0.0 |
| gold | binary\|none\|TweenSplitHeadProxyAsync\|single\|simd | 89 | 20 | 5.0 | 4.47 | 25 | 30 | 107955.9 | 0.0 |
| gold | binary\|none\|TweenSplitLinearCache\|single\|simd | 89 | 20 | 5.0 | 4.45 | 25 | 24 | 115669.5 | 0.0 |
| gold | binary\|none\|MeshTweenSplitSparse\|single\|simd | 87 | 20 | 5.0 | 4.36 | 25 | 27 | 105419.0 | 0.0 |
| gold | binary\|none\|step_tween_chain\|single\|simd | 87 | 20 | 5.0 | 4.36 | 25 | 26 | 106410.3 | 0.0 |
| gold | binary\|none\|TweenSplitSparse\|single\|simd | 87 | 20 | 5.0 | 4.35 | 25 | 25 | 108255.1 | 0.0 |
| gold | binary\|none\|TweenSplitFastProxy\|single\|simd | 87 | 20 | 5.0 | 4.34 | 25 | 27 | 105085.5 | 0.0 |
| gold | binary\|none\|TweenSplitLinear\|single\|simd | 86 | 20 | 5.0 | 4.32 | 25 | 23 | 111657.1 | 0.0 |
| gold | binary\|none\|MeshTween\|single\|simd | 86 | 20 | 5.0 | 4.31 | 25 | 25 | 105693.5 | 0.0 |
| gold | binary\|none\|TweenSplit\|single\|simd | 86 | 20 | 5.0 | 4.31 | 25 | 25 | 107115.2 | 0.0 |
| gold | binary\|none\|StepTweenSplit\|single\|simd | 86 | 20 | 5.0 | 4.30 | 25 | 26 | 103767.5 | 0.0 |
| gold | binary\|none\|MeshTweenSplit\|single\|simd | 86 | 20 | 5.0 | 4.28 | 25 | 23 | 110600.8 | 0.0 |
| gold | binary\|none\|MeshTweenAlt\|single\|simd | 84 | 20 | 5.0 | 4.18 | 25 | 26 | 97631.6 | 0.0 |
| gold | binary\|none\|TweenAlt\|single\|simd | 83 | 20 | 5.0 | 4.17 | 25 | 25 | 97651.7 | 0.0 |

## Mobile speed - Thru vs board fastest (Q >= 70%)

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| keep | uint4\|none\|sgd\|single\|simd | 100 | 100 | 83 | 94 | 1.00 | 1383263 | 39.1 |
| keep | uint2\|none\|sgd\|single\|simd | 95 | 100 | 83 | 92 | 1.59 | 1379876 | 39.1 |
| keep | int64\|none\|sgd\|single\|simd | 100 | 100 | 82 | 93 | 0.08 | 1376730 | 38.9 |
| keep | uint16\|none\|sgd\|single\|simd | 100 | 99 | 82 | 93 | 0.29 | 1372401 | 38.9 |
| keep | uint32\|none\|sgd\|single\|simd | 99 | 98 | 83 | 93 | 0.15 | 1360124 | 39.1 |
| keep | uint16\|none\|tween\|single\|simd | 99 | 98 | 82 | 93 | 0.29 | 1358581 | 38.8 |
| keep | uint64\|none\|sgd\|single\|simd | 99 | 98 | 83 | 93 | 0.08 | 1358532 | 39.1 |
| keep | uint16\|none\|step_sgd\|single\|simd | 99 | 98 | 82 | 92 | 0.29 | 1357309 | 38.5 |
| keep | uint4\|none\|step_sgd\|single\|simd | 94 | 98 | 82 | 91 | 0.94 | 1353943 | 38.7 |
| keep | int32\|none\|sgd\|single\|simd | 97 | 98 | 83 | 92 | 0.15 | 1351980 | 39.0 |

## Mobile availability - duty cycle vs board best (Q >= 70%)

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| keep | fp6\|none\|MeshTweenSplit\|single\|simd | 85 | 76 | 85 | 82 | 0.71 | 1055204 | 40.3 |
| - | uint6\|none\|TweenSplitHeadProxyAsync\|single\|simd | 79 | 70 | 85 | 78 | 0.56 | 965068 | 40.3 |
| keep | fp6\|none\|MeshTweenSplitSparse\|single\|simd | 84 | 70 | 85 | 79 | 0.70 | 967677 | 40.3 |
| keep | int6\|none\|TweenSplitHeadProxy\|single\|simd | 86 | 78 | 85 | 83 | 0.72 | 1078354 | 40.3 |
| keep | int6\|none\|TweenSplitSparse\|single\|simd | 83 | 72 | 85 | 80 | 0.69 | 993657 | 40.3 |
| keep | int6\|none\|TweenSplit\|single\|simd | 82 | 74 | 85 | 80 | 0.68 | 1027291 | 40.2 |
| keep | int6\|none\|MeshTweenSplit\|single\|simd | 80 | 69 | 85 | 78 | 0.67 | 952192 | 40.2 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| keep | uint6\|none\|MeshTweenSplit\|single\|simd | 88 | 82 | 85 | 85 | 0.63 | 1132027 | 40.2 |
| - | fp6\|none\|MeshTweenSplitFastProxy\|single\|simd | 80 | 65 | 85 | 76 | 0.66 | 902080 | 40.2 |
| keep | uint6\|none\|MeshTweenSplitSparse\|single\|simd | 82 | 70 | 85 | 79 | 0.59 | 974290 | 40.2 |

## Mix - geomean of Q, MSpeed, MAvail

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| keep | uint4\|none\|sgd\|single\|simd | 100 | 100 | 83 | 94 | 1.00 | 1383263 | 39.1 |
| keep | int64\|none\|sgd\|single\|simd | 100 | 100 | 82 | 93 | 0.08 | 1376730 | 38.9 |
| keep | uint16\|none\|sgd\|single\|simd | 100 | 99 | 82 | 93 | 0.29 | 1372401 | 38.9 |
| keep | uint64\|none\|sgd\|single\|simd | 99 | 98 | 83 | 93 | 0.08 | 1358532 | 39.1 |
| keep | uint32\|none\|sgd\|single\|simd | 99 | 98 | 83 | 93 | 0.15 | 1360124 | 39.1 |
| keep | uint16\|none\|tween\|single\|simd | 99 | 98 | 82 | 93 | 0.29 | 1358581 | 38.8 |
| keep | uint\|none\|sgd\|single\|simd | 99 | 97 | 83 | 93 | 0.08 | 1339064 | 39.4 |
| keep | uint16\|none\|step_sgd\|single\|simd | 99 | 98 | 82 | 92 | 0.29 | 1357309 | 38.5 |
| keep | int64\|none\|tween_chain\|single\|simd | 98 | 97 | 83 | 92 | 0.08 | 1342431 | 39.0 |
| keep | uint2\|none\|sgd\|single\|simd | 95 | 100 | 83 | 92 | 1.59 | 1379876 | 39.1 |

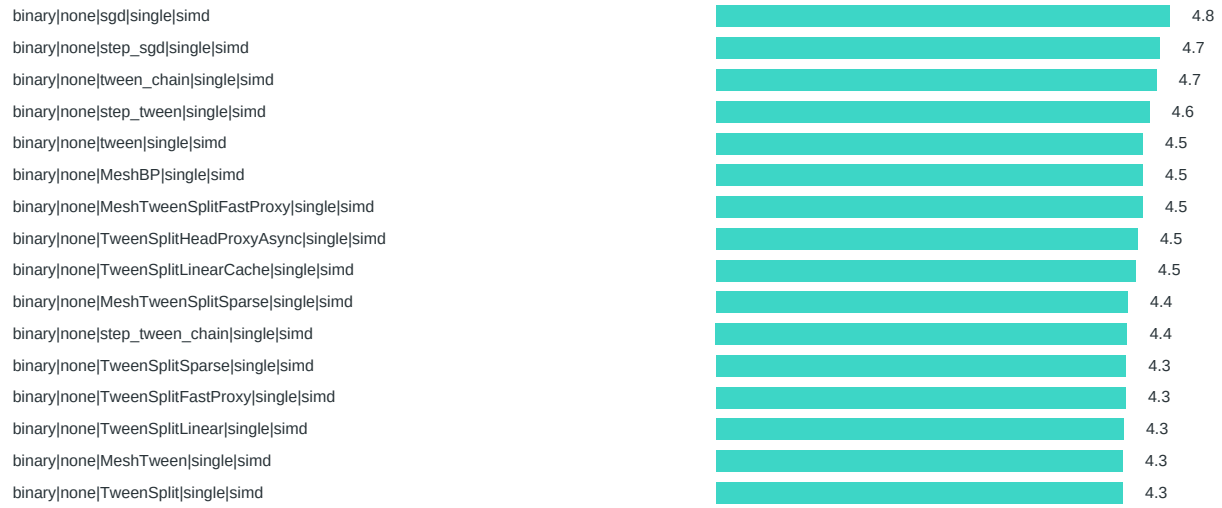
## LPD - Q% vs RAM KiB (gold = high Q, low RAM)



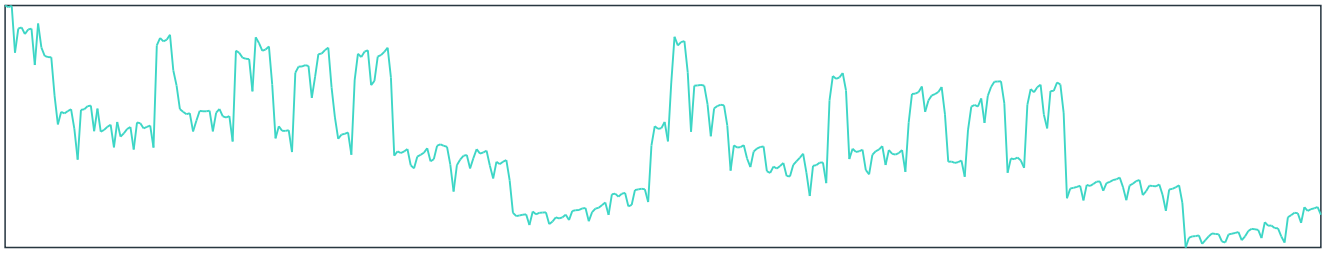

## LPD - Q% vs shrink vs champ (gold = upper right)



## Top LPD

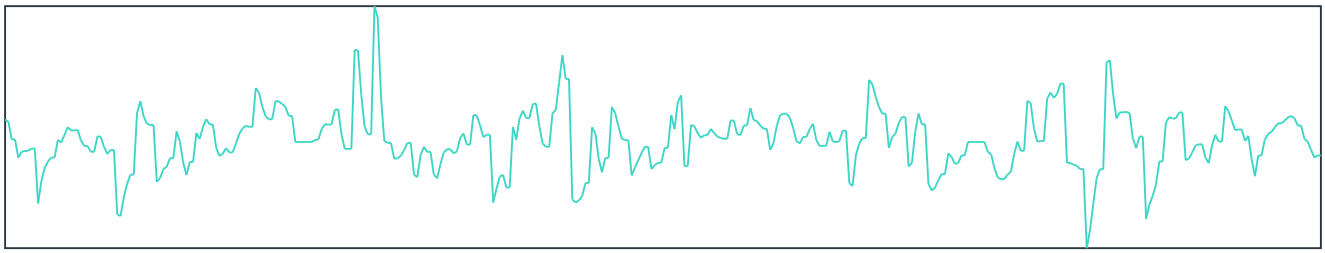



## Pulse Score - kmeans



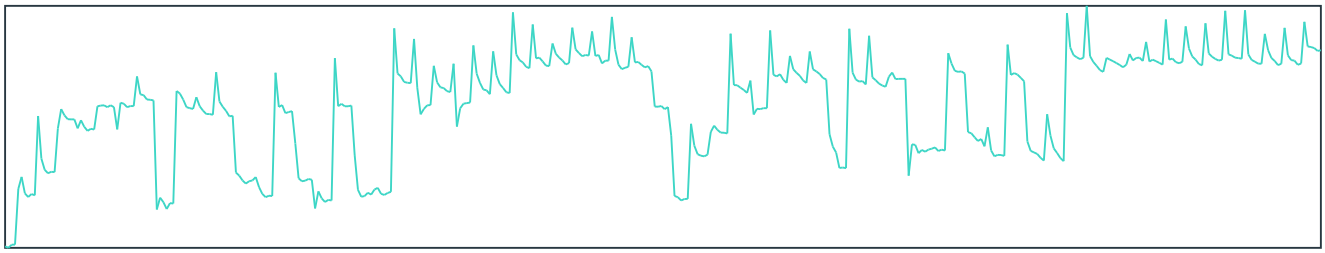
n=400 min=11321.16 max=60896.72

## Pulse SoftAcc - kmeans



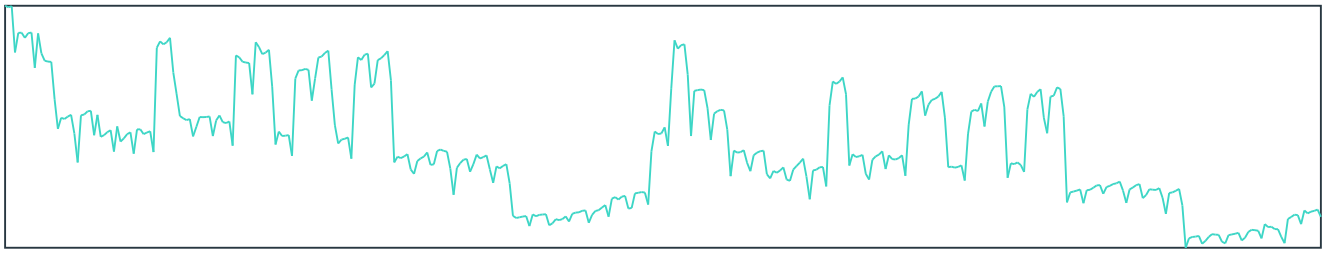
n=400 min=25.00 max=25.01

## Pulse Availability - kmeans



n=400 min=44.68 max=47.77

## Pulse Throughput - kmeans



n=400 min=95323.25 max=544924.74

## Queue by train mode (this epoch)

| Mode | Done | Run | Left | Total |
|---|---|---|---|---|
| sgd | 102 | 0 | 0 | 102 |
| step_sgd | 102 | 0 | 0 | 102 |
| tween | 102 | 0 | 0 | 102 |
| tween_chain | 102 | 0 | 0 | 102 |
| step_tween | 102 | 0 | 0 | 102 |
| step_tween_chain | 102 | 0 | 0 | 102 |
| MeshBP | 102 | 0 | 0 | 102 |
| MeshTween | 102 | 0 | 0 | 102 |
| MeshTweenChain | 102 | 0 | 0 | 102 |
| TweenSplit | 102 | 0 | 0 | 102 |
| StepTweenSplit | 102 | 0 | 0 | 102 |
| TweenAlt | 102 | 0 | 0 | 102 |
| StepTweenAlt | 102 | 0 | 0 | 102 |
| TweenSplitHeadProxy | 102 | 0 | 0 | 102 |
| TweenSplitLinear | 102 | 0 | 0 | 102 |
| TweenSplitFastProxy | 102 | 0 | 0 | 102 |
| TweenSplitLinearCache | 102 | 0 | 0 | 102 |
| TweenSplitHeadProxyAsync | 102 | 0 | 0 | 102 |
| TweenSplitSparse | 102 | 0 | 0 | 102 |
| MeshTweenSplit | 102 | 0 | 0 | 102 |
| MeshTweenAlt | 102 | 0 | 0 | 102 |
| MeshTweenSplitFastProxy | 102 | 0 | 0 | 102 |
| MeshTweenSplitSparse | 102 | 0 | 0 | 102 |

# tide  layernorm

Score = Throughput x Availability% x SoftAcc% / 10,000
done - epoch 1 - 2026-08-18 09:45:25 - 0.0.0.0:8115
This epoch 2346 / 2346 cells. Recorded 2346 results.
Score 0 usually means the cell finished before a Lucy pulse (SoftAcc never sampled) or true-class mass was 0. Those rows do not vote holistically.
layernorm - XOR after random per-sample scale - modes all - min 2000ms/cell - 1024 train - pulse 50ms - SIMD true

## Lucy champions (this tide)

| Axis | Cell | Score | Soft | Acc | Thru | Avail |
|---|---|---|---|---|---|---|
| score | float32\|none\|tween_chain\|single\|simd | 114613.39 | 27.7 | 47.9 | 1025798.2 | 40.3 |
| throughput | float32\|none\|tween\|single\|simd | 105488.21 | 25.2 | 31.3 | 1040295.3 | 40.2 |
| availability | int16\|none\|TweenSplitSparse\|bicameral\|simd | 26023.11 | 25.0 | 26.9 | 219563.8 | 47.4 |
| accuracy | float32\|none\|tween_chain\|single\|simd | 114613.39 | 27.7 | 47.9 | 1025798.2 | 40.3 |
| mobile score (trapp) | binary\|none\|tween_chain\|single\|simd | 89818.33 | 24.9 | 27.4 | 864622.8 | 41.7 |
| t->50% | float32\|none\|TweenAlt\|single\|simd | 83153.34 | 26.1 | 33.7 | 799256.0 | 39.9 |
| acc/sec | float32\|none\|sgd\|single\|simd | 108301.75 | 27.6 | 47.0 | 969805.7 | 40.5 |

## Lucy axes - layernorm

| Axis | Mode | DType | Arch | Value |
|---|---|---|---|---|
| score | tween_chain | float32 | singlex1 | 114613.39 |
| soft_acc | tween_chain | float32 | singlex1 | 27.70 |
| hard_acc | tween_chain | float32 | singlex1 | 47.95 |
| throughput | tween | float32 | singlex1 | 1040295.32 |
| availability | TweenSplitSparse | int16 | bicameralx2 | 47.39 |
| acc_thru | tween_chain | float32 | singlex1 | 284136.42 |
| realtime | tween | float32 | singlex1 | 418180.21 |
| adapt | MeshTweenAlt | int64 | singlex1 | 26.41 |
| keep_learn | tween_chain | int2 | singlex1 | 13.04 |
| acc_per_sec | sgd | float32 | singlex1 | 13.77 |
| time_to_50 | TweenAlt | float32 | singlex1 | 0.66 |
| consistency | sgd | float64 | singlex1 | 100.00 |
| stability | sgd | fp4 | singlex1 | 100.00 |
| mobile_score | tween_chain | binary | singlex1 | 7848445589.78 |
| lpd | tween_chain | binary | singlex1 | 24.41 |
| mspeed | tween | float32 | singlex1 | 1.00 |
| mavail | sgd | int16 | singlex1 | 0.94 |
| mix | tween_chain | float32 | singlex1 | 0.94 |

## Best settings per train mode

| Mode | DType | Format | Score | Soft | Acc | Avail | n |
|---|---|---|---|---|---|---|---|
| tween_chain | float32 | none | 114613.4 | 27.7 | 47.9 | 40.3 | 102 |
| MeshBP | float32 | none | 108646.6 | 27.5 | 47.1 | 40.7 | 102 |
| sgd | float32 | none | 108301.8 | 27.6 | 47.0 | 40.5 | 102 |
| step_sgd | float32 | none | 105765.8 | 27.2 | 44.0 | 40.1 | 102 |
| tween | float32 | none | 105488.2 | 25.2 | 31.3 | 40.2 | 102 |
| step_tween_chain | float32 | none | 104761.9 | 27.3 | 44.5 | 40.3 | 102 |
| step_tween | float32 | none | 100116.7 | 25.3 | 29.8 | 39.4 | 102 |
| MeshTweenChain | float32 | none | 93354.5 | 26.6 | 37.9 | 39.8 | 102 |
| MeshTween | float32 | none | 90976.5 | 25.2 | 30.3 | 39.7 | 102 |
| TweenSplitFastProxy | float32 | none | 90412.5 | 25.1 | 27.9 | 40.3 | 102 |
| TweenSplitHeadProxy | float32 | none | 90367.0 | 25.1 | 27.6 | 40.7 | 102 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| TweenSplit | float32 | none | 90258.0 | 25.4 | 28.9 | 40.9 | 102 |
| TweenSplitSparse | float16 | none | 89912.8 | 25.1 | 27.9 | 41.4 | 102 |
| MeshTweenSplit | float32 | none | 89884.3 | 25.3 | 30.6 | 40.4 | 102 |
| MeshTweenSplitSparse | float32 | none | 89147.7 | 25.1 | 27.6 | 40.8 | 102 |
| TweenSplitLinear | float32 | none | 87656.1 | 25.9 | 36.3 | 39.9 | 102 |
| StepTweenSplit | float32 | none | 87019.4 | 25.7 | 33.7 | 40.6 | 102 |
| TweenSplitHeadProxyAsync | int4 | none | 86833.6 | 25.4 | 28.3 | 42.2 | 102 |
| TweenSplitLinearCache | float32 | none | 84921.4 | 25.3 | 28.0 | 41.2 | 102 |
| MeshTweenSplitFastProxy | float32 | none | 84633.2 | 25.1 | 28.4 | 40.6 | 102 |
| TweenAlt | float32 | none | 83153.3 | 26.1 | 33.7 | 39.9 | 102 |
| StepTweenAlt | float32 | none | 78347.2 | 26.1 | 35.8 | 39.1 | 102 |
| MeshTweenAlt | int8 | none | 78071.1 | 25.2 | 28.9 | 40.2 | 102 |

## Best dtype per mode

| Mode | Winner dtype | Score | Soft | Acc |
|---|---|---|---|---|
| tween_chain | float32 | 114613.4 | 27.7 | 47.9 |
| MeshBP | float32 | 108646.6 | 27.5 | 47.1 |
| sgd | float32 | 108301.8 | 27.6 | 47.0 |
| step_sgd | float32 | 105765.8 | 27.2 | 44.0 |
| tween | float32 | 105488.2 | 25.2 | 31.3 |
| step_tween_chain | float32 | 104761.9 | 27.3 | 44.5 |
| step_tween | float32 | 100116.7 | 25.3 | 29.8 |
| MeshTweenChain | float32 | 93354.5 | 26.6 | 37.9 |
| MeshTween | float32 | 90976.5 | 25.2 | 30.3 |
| TweenSplitFastProxy | float32 | 90412.5 | 25.1 | 27.9 |
| TweenSplitHeadProxy | float32 | 90367.0 | 25.1 | 27.6 |
| TweenSplit | float32 | 90258.0 | 25.4 | 28.9 |
| TweenSplitSparse | float16 | 89912.8 | 25.1 | 27.9 |
| MeshTweenSplit | float32 | 89884.3 | 25.3 | 30.6 |
| MeshTweenSplitSparse | float32 | 89147.7 | 25.1 | 27.6 |
| TweenSplitLinear | float32 | 87656.1 | 25.9 | 36.3 |
| StepTweenSplit | float32 | 87019.4 | 25.7 | 33.7 |
| TweenSplitHeadProxyAsync | int4 | 86833.6 | 25.4 | 28.3 |
| TweenSplitLinearCache | float32 | 84921.4 | 25.3 | 28.0 |
| MeshTweenSplitFastProxy | float32 | 84633.2 | 25.1 | 28.4 |
| TweenAlt | float32 | 83153.3 | 26.1 | 33.7 |
| StepTweenAlt | float32 | 78347.2 | 26.1 | 35.8 |
| MeshTweenAlt | int8 | 78071.1 | 25.2 | 28.9 |

## Best mode per dtype

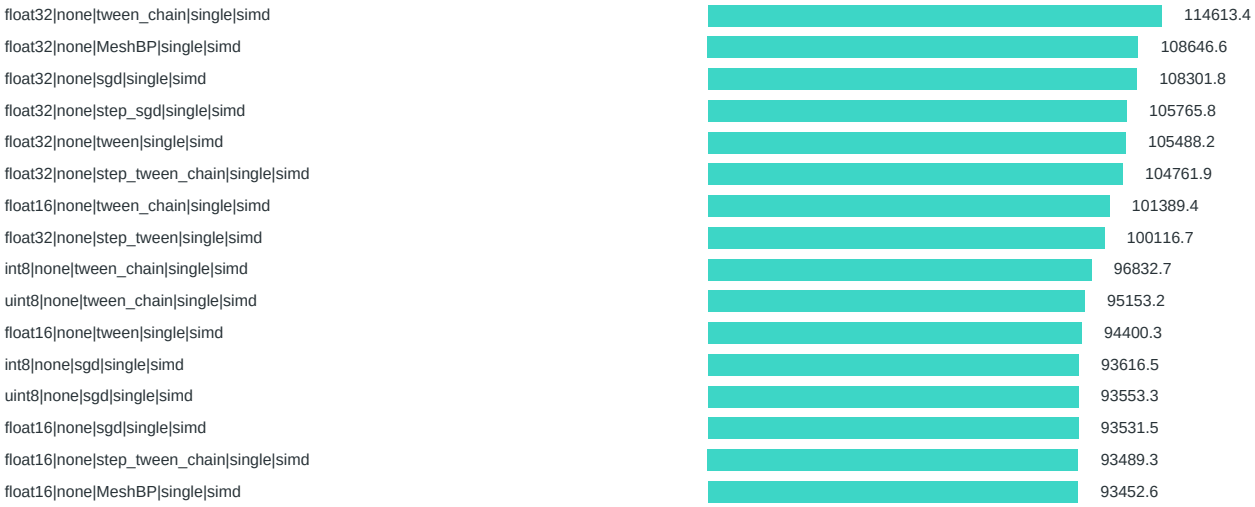
| DType | Winner mode | Score | Soft | Acc |
|---|---|---|---|---|
| float32 | tween_chain | 114613.4 | 27.7 | 47.9 |
| float16 | tween_chain | 101389.4 | 26.3 | 38.6 |
| int8 | tween_chain | 96832.7 | 25.9 | 36.0 |
| uint8 | tween_chain | 95153.2 | 25.9 | 35.7 |
| int2 | sgd | 93406.7 | 24.9 | 26.3 |
| ternary | tween_chain | 93323.7 | 25.3 | 28.6 |
| int4 | tween_chain | 92522.2 | 25.4 | 29.4 |
| binary | tween_chain | 89818.3 | 24.9 | 27.4 |
| fp4 | tween_chain | 89499.3 | 25.0 | 25.0 |
| bfloat16 | tween_chain | 87735.7 | 25.4 | 37.0 |
| float64 | tween_chain | 85931.8 | 26.9 | 41.0 |

| | | | | |
|---|---|---|---|---|
| fp8e5m2 | tween_chain | 77626.3 | 25.6 | 35.4 |
| fp8e4m3 | tween_chain | 77063.9 | 25.5 | 30.3 |
| uint16 | tween_chain | 76989.3 | 25.9 | 36.8 |
| uint32 | tween_chain | 76748.0 | 25.9 | 35.7 |
| uint64 | tween_chain | 74402.2 | 25.8 | 36.0 |
| int32 | tween_chain | 71996.1 | 25.9 | 36.0 |
| int64 | sgd | 71755.4 | 26.8 | 42.1 |
| uint4 | sgd | 71616.4 | 25.3 | 29.3 |
| int16 | tween_chain | 71358.9 | 25.9 | 36.6 |
| uint2 | tween_chain | 69212.4 | 24.9 | 23.5 |
| uintptr | tween_chain | 65096.4 | 25.8 | 36.7 |
| uint | tween_chain | 64885.0 | 25.8 | 36.7 |
| complex64 | tween_chain | 62993.2 | 26.6 | 40.4 |
| int | tween_chain | 62800.7 | 26.3 | 37.8 |
| complex128 | tween_chain | 62603.0 | 26.2 | 38.5 |
| nf4 | tween_chain | 59448.0 | 25.4 | 33.7 |
| uint3 | tween | 47423.9 | 24.8 | 23.6 |
| int3 | tween_chain | 46486.9 | 25.1 | 24.2 |
| uint5 | tween_chain | 43571.9 | 25.6 | 35.6 |
| int5 | sgd | 40394.5 | 25.7 | 35.9 |
| uint6 | tween_chain | 39551.7 | 25.7 | 36.6 |
| int6 | tween_chain | 38045.3 | 25.8 | 36.6 |
| fp6 | tween_chain | 37744.8 | 25.8 | 36.2 |

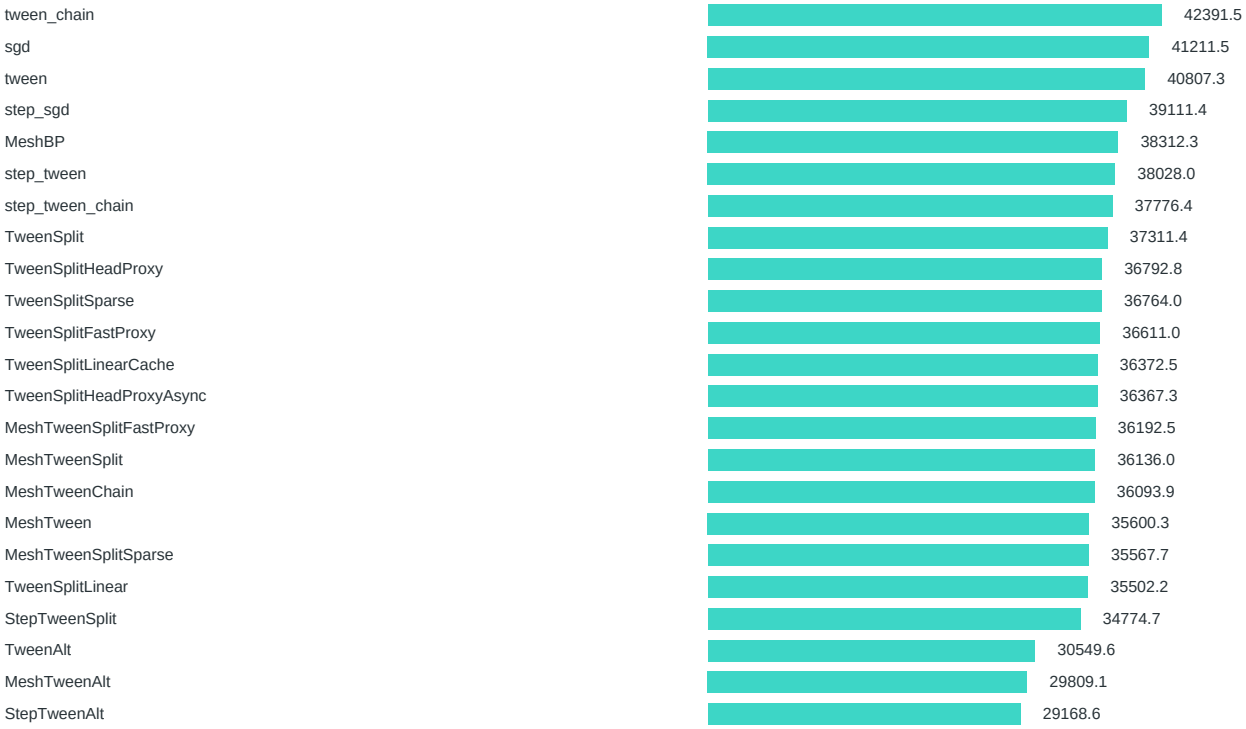
## Leaderboard - layernorm

| # | Cell | Score | Soft | Acc | Thru | Avail |
|---|---|---|---|---|---|---|
| 1 | float32\|none\|tween_chain\|single\|simd | 114613.4 | 27.7 | 47.9 | 1025798.2 | 40.3 |
| 2 | float32\|none\|MeshBP\|single\|simd | 108646.6 | 27.5 | 47.1 | 968866.0 | 40.7 |
| 3 | float32\|none\|sgd\|single\|simd | 108301.8 | 27.6 | 47.0 | 969805.7 | 40.5 |
| 4 | float32\|none\|step_sgd\|single\|simd | 105765.8 | 27.2 | 44.0 | 970705.0 | 40.1 |
| 5 | float32\|none\|tween\|single\|simd | 105488.2 | 25.2 | 31.3 | 1040295.3 | 40.2 |
| 6 | float32\|none\|step_tween_chain\|single\|simd | 104761.9 | 27.3 | 44.5 | 952685.6 | 40.3 |
| 7 | float16\|none\|tween_chain\|single\|simd | 101389.4 | 26.3 | 38.6 | 939101.5 | 41.0 |
| 8 | float32\|none\|step_tween\|single\|simd | 100116.7 | 25.3 | 29.8 | 1005222.9 | 39.4 |
| 9 | int8\|none\|tween_chain\|single\|simd | 96832.7 | 25.9 | 36.0 | 906475.6 | 41.2 |
| 10 | uint8\|none\|tween_chain\|single\|simd | 95153.2 | 25.9 | 35.7 | 888029.6 | 41.4 |
| 11 | float16\|none\|tween\|single\|simd | 94400.3 | 25.2 | 31.5 | 916831.8 | 40.8 |
| 12 | int8\|none\|sgd\|single\|simd | 93616.5 | 25.9 | 35.6 | 878469.0 | 41.2 |
| 13 | uint8\|none\|sgd\|single\|simd | 93553.3 | 25.9 | 36.3 | 866891.3 | 41.7 |
| 14 | float16\|none\|sgd\|single\|simd | 93531.5 | 26.3 | 38.3 | 870921.3 | 40.8 |
| 15 | float16\|none\|step_tween_chain\|single\|simd | 93489.3 | 26.4 | 40.0 | 874223.5 | 40.6 |
| 16 | float16\|none\|MeshBP\|single\|simd | 93452.6 | 26.3 | 37.7 | 873649.7 | 40.6 |
| 17 | int2\|none\|sgd\|single\|simd | 93406.7 | 24.9 | 26.3 | 900474.1 | 41.7 |
| 18 | float32\|none\|MeshTweenChain\|single\|simd | 93354.5 | 26.6 | 37.9 | 880771.0 | 39.8 |
| 19 | ternary\|none\|tween_chain\|single\|simd | 93323.7 | 25.3 | 28.6 | 878632.8 | 42.0 |
| 20 | int8\|none\|step_tween_chain\|single\|simd | 93153.7 | 25.9 | 36.5 | 872082.9 | 41.3 |

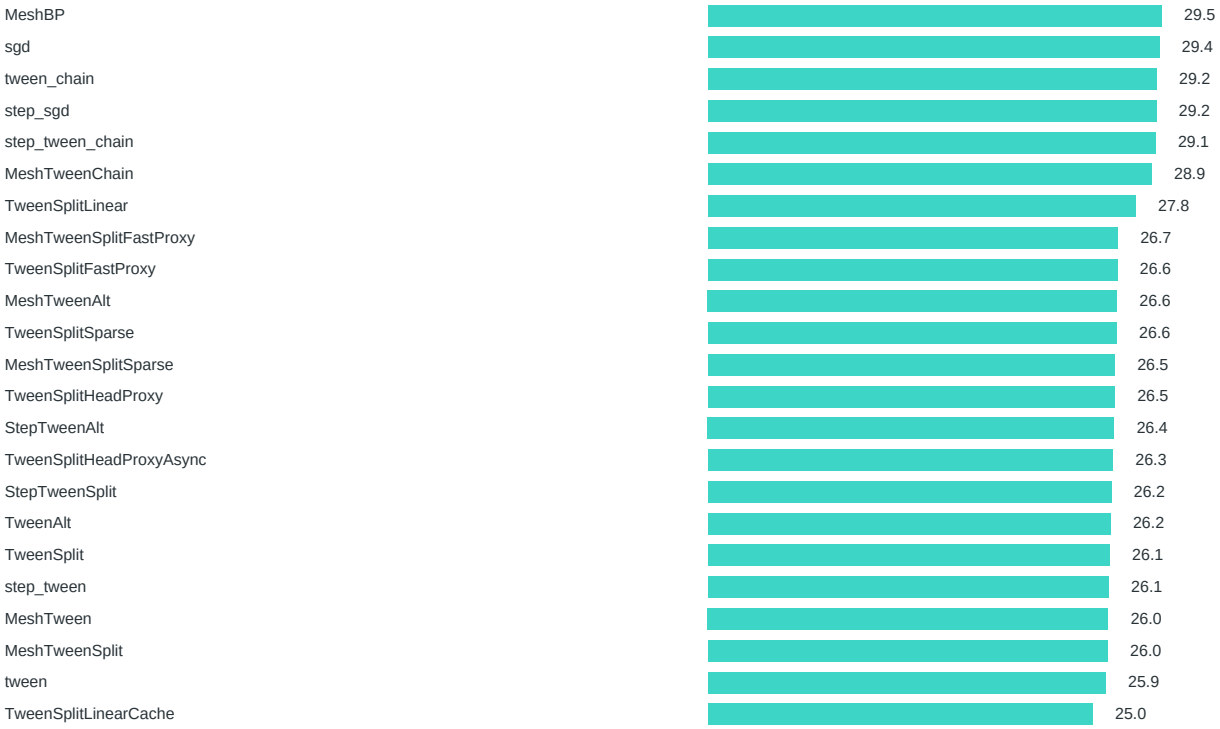
## Top scores - layernorm



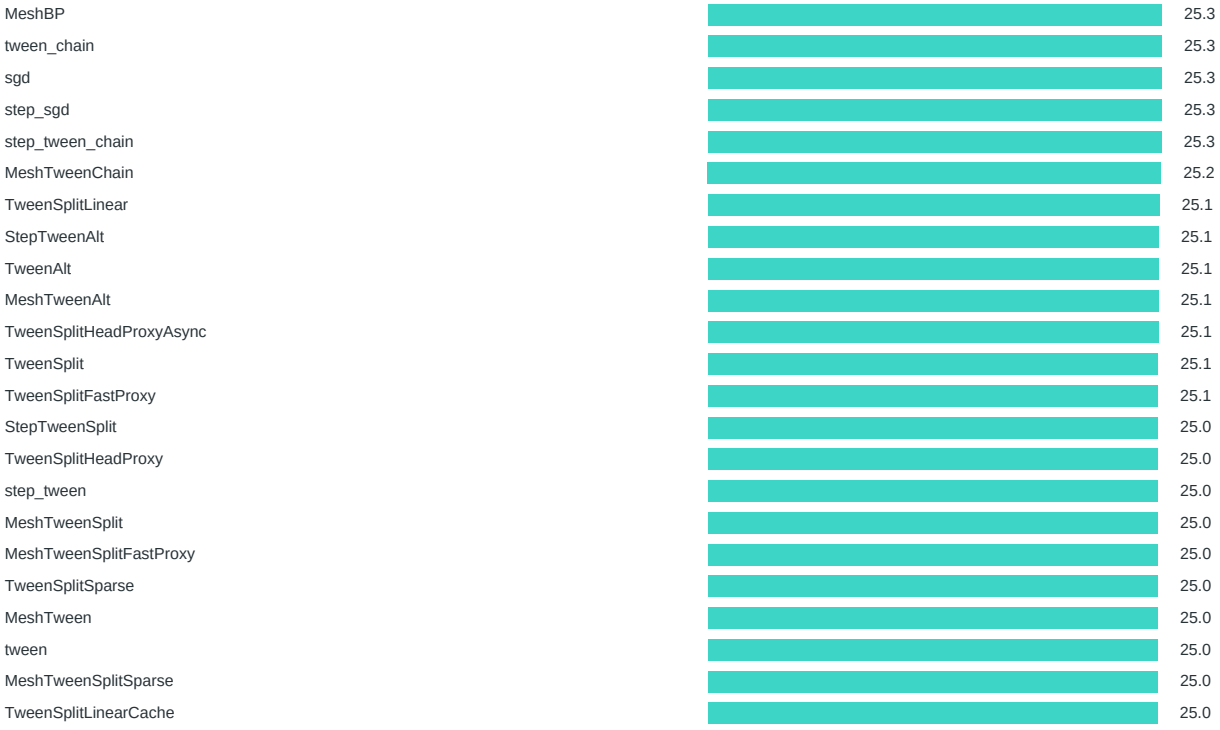

## Mean Score by train mode



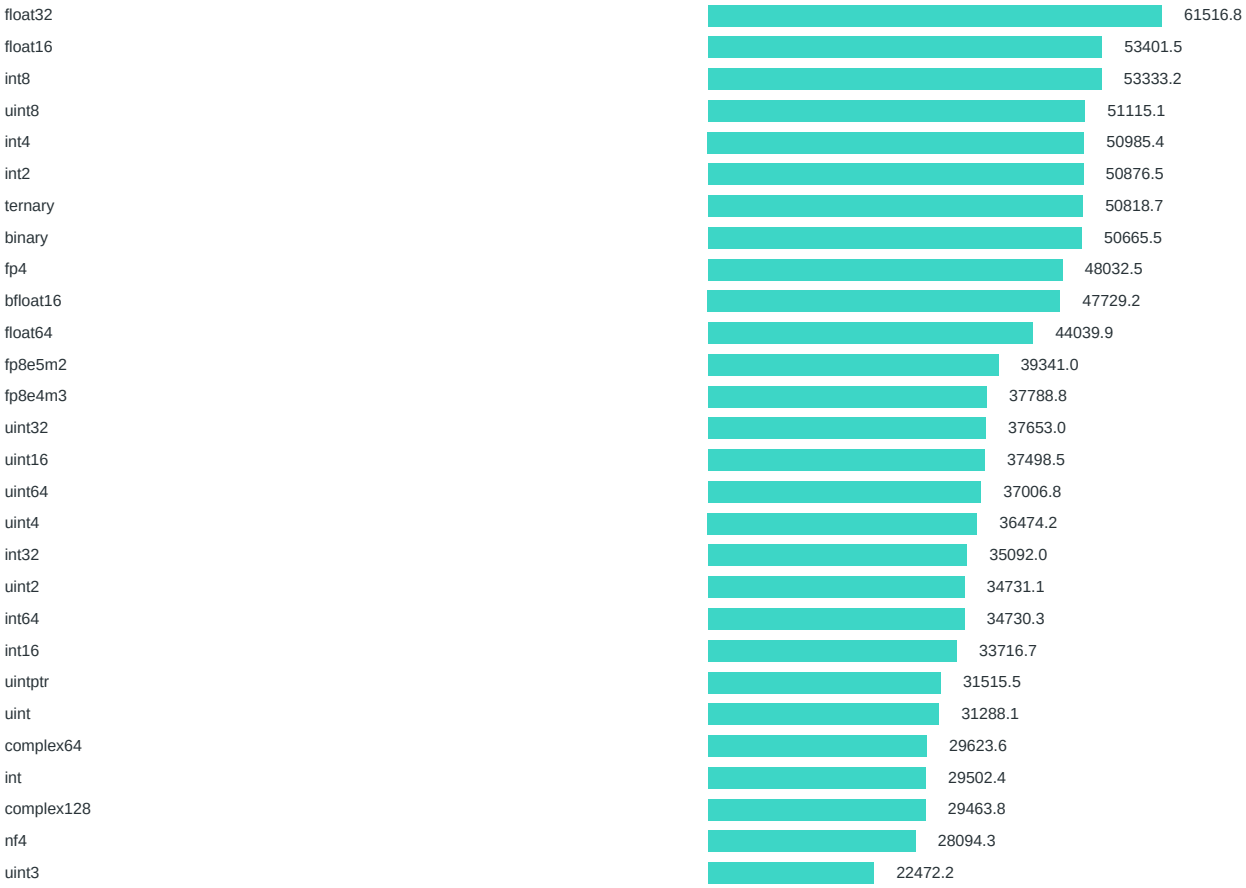

## Mean hard Acc by train mode




## Mean SoftAcc by train mode




## Mean Score by dtype




## Mean hard Acc by dtype




## Mean Score by arch




## Honesty - mean Score, every mode x dtype (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 51131 | 53638 | 31223 | 31056 | 57405 | 67380 | 47291 | 50847 | 17287 | 40198 | 41357 | 31057 | 35263 | 52771 | 21575 | 36798 |
| MeshTween | 46571 | 49061 | 29591 | 28831 | 53086 | 60599 | 42415 | 47353 | 15935 | 36164 | 38359 | 28731 | 33849 | 50551 | 20391 | 34802 |
| MeshTweenAlt | 40314 | 40939 | 23684 | 24331 | 43370 | 49643 | 36060 | 38406 | 13169 | 30715 | 31943 | 23530 | 27765 | 42002 | 17045 | 27858 |
| MeshTweenChain | 46525 | 48983 | 29112 | 30308 | 53809 | 61767 | 44520 | 47859 | 16464 | 37465 | 38887 | 30221 | 34249 | 49376 | 20680 | 35335 |
| MeshTweenSplit | 48081 | 49577 | 28148 | 31151 | 53306 | 58082 | 44091 | 49116 | 17726 | 35593 | 38444 | 30135 | 35133 | 49902 | 22391 | 34993 |
| MeshTweenSplitFa | 44731 | 50970 | 27099 | 29132 | 52408 | 60350 | 46928 | 45834 | 16119 | 35721 | 38185 | 29272 | 33784 | 47736 | 23311 | 36101 |
| MeshTweenSplitSp | 47563 | 49608 | 29095 | 27507 | 51895 | 59155 | 45565 | 46342 | 16294 | 38350 | 38995 | 28791 | 32965 | 49593 | 21707 | 32687 |
| StepTweenAlt | 38256 | 42844 | 23165 | 24213 | 41000 | 49832 | 34446 | 38897 | 11913 | 30975 | 31452 | 23934 | 26688 | 41616 | 16327 | 29100 |
| StepTweenSplit | 45241 | 49870 | 27583 | 27340 | 50613 | 57885 | 40889 | 46490 | 15890 | 36033 | 37885 | 27698 | 32834 | 49768 | 21368 | 32627 |
| TweenAlt | 40525 | 44788 | 25137 | 24657 | 43145 | 53284 | 37272 | 40117 | 12777 | 31696 | 32861 | 24943 | 30166 | 41948 | 17528 | 28597 |
| TweenSplit | 48004 | 50242 | 30404 | 30197 | 54280 | 60893 | 42382 | 50941 | 17679 | 39486 | 39021 | 29537 | 34902 | 51771 | 23060 | 36063 |
| TweenSplitFastPr | 48513 | 51315 | 29973 | 30584 | 52469 | 61084 | 43277 | 49048 | 17760 | 38437 | 38780 | 29795 | 33130 | 51803 | 21612 | 34291 |
| TweenSplitHeadPr | 49886 | 50660 | 30411 | 29314 | 52967 | 61688 | 44958 | 49220 | 18105 | 38836 | 41098 | 29785 | 34799 | 51604 | 21922 | 34605 |
| TweenSplitHeadPr | 49235 | 52596 | 29059 | 30348 | 52689 | 59111 | 42703 | 48608 | 16861 | 38479 | 40490 | 28457 | 31010 | 53850 | 21772 | 33758 |
| TweenSplitLinear | 45240 | 46911 | 29063 | 28660 | 50976 | 60621 | 43596 | 46894 | 16776 | 35185 | 37953 | 29454 | 33778 | 48284 | 20998 | 34636 |
| TweenSplitLinear | 46956 | 51381 | 29758 | 29009 | 54127 | 58295 | 43235 | 45616 | 17604 | 38949 | 38283 | 29594 | 33317 | 48918 | 21731 | 36188 |
| TweenSplitSparse | 49854 | 53351 | 28526 | 29717 | 54605 | 59689 | 43306 | 46842 | 17833 | 38163 | 41477 | 29654 | 33466 | 52010 | 22839 | 37314 |
| sgd | 53503 | 55883 | 33626 | 33999 | 59693 | 70295 | 49287 | 53675 | 19023 | 41927 | 44873 | 34478 | 39716 | 58219 | 24283 | 39345 |
| step_sgd | 51103 | 53780 | 31998 | 31752 | 58063 | 68477 | 48335 | 51992 | 16993 | 40244 | 41951 | 31620 | 36966 | 55304 | 22900 | 38346 |
| step_tween | 49280 | 53308 | 30806 | 31473 | 56941 | 65888 | 46308 | 50473 | 16141 | 39720 | 40958 | 29906 | 35549 | 54216 | 22148 | 36278 |
| step_tween_chain | 50289 | 52081 | 31670 | 30902 | 57531 | 66144 | 45022 | 50765 | 16739 | 40371 | 41508 | 30454 | 27616 | 53812 | 22217 | 37196 |
| tween | 52812 | 56449 | 33540 | 32095 | 60672 | 71121 | 49115 | 53732 | 18027 | 42316 | 44483 | 33130 | 38175 | 56868 | 24510 | 38722 |
| tween_chain | 54159 | 57071 | 34997 | 34767 | 63185 | 73601 | 51916 | 55681 | 19480 | 44121 | 45599 | 34381 | 40364 | 58239 | 25111 | 41476 |

## Honesty - mean Score, every mode x dtype (cols 17-32)

## Honesty - mean Score, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 52744 | 17988 | 16885 | 37731 | 56591 | 28474 | 53751 | 33004 | 38915 | 35684 | 23245 | 39408 | 38431 | 19643 | 17969 | 39319 |
| MeshTween | 48645 | 16657 | 15773 | 33847 | 53130 | 26605 | 49691 | 30180 | 37167 | 34936 | 21721 | 37716 | 35184 | 17239 | 16978 | 36408 |
| MeshTweenAlt | 40632 | 13991 | 12645 | 28608 | 47321 | 22039 | 41159 | 27375 | 30915 | 28554 | 17217 | 31446 | 29359 | 14399 | 13428 | 31848 |
| MeshTweenChain | 49466 | 17668 | 16195 | 34226 | 54180 | 28090 | 49496 | 30719 | 37066 | 34556 | 22258 | 36935 | 35894 | 19715 | 17022 | 36552 |
| MeshTweenSplit | 51516 | 18116 | 16089 | 32933 | 50932 | 28554 | 51199 | 32262 | 38990 | 34511 | 22569 | 36845 | 38818 | 19113 | 17387 | 35296 |
| MeshTweenSplitFa | 52300 | 18192 | 17262 | 34108 | 52248 | 28639 | 53350 | 31176 | 38547 | 35150 | 23959 | 36871 | 36387 | 20040 | 17638 | 36125 |
| MeshTweenSplitSp | 47983 | 18764 | 16347 | 34447 | 52717 | 27354 | 48932 | 30913 | 36205 | 34019 | 22764 | 36357 | 34223 | 18721 | 17781 | 35454 |
| StepTweenAlt | 41640 | 13700 | 12292 | 27292 | 43682 | 22653 | 41956 | 24472 | 29840 | 28705 | 17100 | 29939 | 30265 | 14121 | 12725 | 28907 |
| StepTweenSplit | 49165 | 17328 | 15995 | 32387 | 50421 | 26986 | 50004 | 29298 | 36278 | 32709 | 21543 | 35812 | 35395 | 18435 | 17537 | 34737 |
| TweenAlt | 42144 | 14133 | 12832 | 29189 | 45256 | 23551 | 43220 | 26585 | 31056 | 29287 | 18010 | 31851 | 31269 | 15005 | 13978 | 31102 |
| TweenSplit | 52461 | 19081 | 17949 | 34569 | 54523 | 29110 | 49342 | 31941 | 38710 | 35481 | 24684 | 40195 | 38551 | 19893 | 19047 | 39025 |
| TweenSplitFastPr | 51409 | 19015 | 17281 | 33455 | 54058 | 28705 | 50902 | 32513 | 35953 | 36201 | 23317 | 38107 | 37107 | 19758 | 17773 | 35990 |
| TweenSplitHeadPr | 50278 | 18504 | 16936 | 33931 | 53655 | 28113 | 49847 | 30951 | 35998 | 35313 | 23155 | 38049 | 37577 | 19777 | 18400 | 37156 |
| TweenSplitHeadPr | 54798 | 18290 | 16097 | 35419 | 52134 | 27719 | 49555 | 31790 | 36488 | 33804 | 23236 | 35515 | 36362 | 18952 | 17539 | 37252 |
| TweenSplitLinear | 49070 | 18149 | 16704 | 35501 | 51105 | 28749 | 48094 | 30294 | 37567 | 32783 | 21884 | 36954 | 35031 | 20056 | 18357 | 37523 |
| TweenSplitLinear | 52438 | 18086 | 18014 | 35125 | 51513 | 28667 | 51422 | 30949 | 37039 | 35302 | 23372 | 37417 | 36702 | 20555 | 18427 | 36661 |
| TweenSplitSparse | 51657 | 17822 | 17096 | 34742 | 52336 | 29639 | 51721 | 30909 | 37603 | 34587 | 22454 | 36788 | 36460 | 19918 | 18132 | 36790 |
| sgd | 57412 | 20908 | 18903 | 40368 | 60424 | 31445 | 56957 | 35663 | 42156 | 39284 | 25209 | 43557 | 40923 | 21765 | 19433 | 41582 |
| step_sgd | 54883 | 18164 | 17185 | 37787 | 57639 | 29521 | 55411 | 33111 | 39790 | 36364 | 23175 | 40799 | 38854 | 19808 | 17462 | 40865 |
| step_tween | 54208 | 17685 | 16456 | 36293 | 55767 | 29641 | 53323 | 32267 | 39368 | 36448 | 22562 | 39677 | 37980 | 19083 | 17206 | 38646 |
| step_tween_chain | 52382 | 18073 | 16670 | 37545 | 56873 | 27966 | 53215 | 32169 | 39381 | 35637 | 21817 | 39548 | 36811 | 19329 | 17719 | 38277 |
| tween | 56662 | 19900 | 17985 | 39167 | 59009 | 31234 | 57443 | 34846 | 42801 | 39330 | 25740 | 41577 | 40182 | 21131 | 18920 | 42435 |
| tween_chain | 58772 | 21072 | 19677 | 40125 | 61150 | 32716 | 58841 | 36237 | 44634 | 40169 | 25871 | 44656 | 41141 | 22558 | 20473 | 43204 |

## Honesty - mean Score, every mode x dtype  (cols 33-34)

## Honesty - mean Score, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 53814 | 32744 |
| MeshTween | 49898 | 32346 |
| MeshTweenAlt | 45127 | 26669 |
| MeshTweenChain | 51200 | 30395 |
| MeshTweenSplit | 46075 | 31551 |
| MeshTweenSplitFa | 48562 | 32312 |
| MeshTweenSplitSp | 49707 | 30498 |
| StepTweenAlt | 42302 | 25486 |
| StepTweenSplit | 49399 | 28894 |
| TweenAlt | 43577 | 27201 |
| TweenSplit | 52328 | 32836 |
| TweenSplitFastPr | 50592 | 30769 |
| TweenSplitHeadPr | 51969 | 31491 |
| TweenSplitHeadPr | 50540 | 31973 |
| TweenSplitLinear | 47940 | 32291 |
| TweenSplitLinear | 50544 | 31466 |
| TweenSplitSparse | 51941 | 30737 |
| sgd | 58565 | 34813 |
| step_sgd | 55454 | 33691 |
| step_tween | 54240 | 32710 |
| step_tween_chain | 54433 | 32233 |
| tween | 58018 | 35300 |
| tween_chain | 59420 | 36449 |

## Honesty - mean hard Acc, every mode x dtype  (cols 1-16)

## Honesty - mean hard Acc, every mode x dtype  (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 31 | 25 | 32 | 35 | 31 | 36 | 34 | 25 | 29 | 27 | 29 | 32 | 31 | 25 | 29 | 31 |
| MeshTween | 26 | 24 | 29 | 26 | 26 | 27 | 25 | 25 | 24 | 25 | 25 | 28 | 28 | 25 | 26 | 26 |
| MeshTweenAlt | 27 | 28 | 29 | 28 | 30 | 31 | 30 | 25 | 25 | 25 | 25 | 29 | 25 | 28 | 26 | 26 |
| MeshTweenChain | 31 | 23 | 31 | 32 | 32 | 33 | 33 | 25 | 29 | 25 | 27 | 32 | 31 | 23 | 25 | 30 |
| MeshTweenSplit | 27 | 26 | 28 | 27 | 27 | 28 | 27 | 25 | 25 | 26 | 25 | 27 | 25 | 26 | 26 | 26 |
| MeshTweenSplitFa | 27 | 25 | 26 | 27 | 28 | 27 | 27 | 25 | 28 | 25 | 26 | 26 | 27 | 27 | 27 | 26 |
| MeshTweenSplitSp | 27 | 25 | 27 | 27 | 28 | 27 | 27 | 25 | 27 | 25 | 28 | 27 | 27 | 26 | 26 | 26 |
| StepTweenAlt | 26 | 24 | 29 | 31 | 29 | 33 | 31 | 25 | 26 | 25 | 25 | 29 | 26 | 27 | 25 | 27 |
| StepTweenSplit | 26 | 25 | 28 | 26 | 27 | 28 | 27 | 25 | 27 | 28 | 26 | 27 | 26 | 23 | 28 | 26 |
| TweenAlt | 27 | 22 | 29 | 28 | 28 | 31 | 30 | 25 | 25 | 25 | 26 | 31 | 27 | 27 | 24 | 26 |
| TweenSplit | 26 | 23 | 27 | 28 | 26 | 28 | 27 | 25 | 27 | 26 | 22 | 28 | 27 | 23 | 26 | 26 |
| TweenSplitFastPr | 28 | 25 | 29 | 26 | 27 | 28 | 28 | 25 | 30 | 23 | 27 | 27 | 26 | 25 | 27 | 28 |
| TweenSplitHeadPr | 28 | 23 | 28 | 27 | 28 | 28 | 28 | 25 | 27 | 26 | 25 | 28 | 27 | 24 | 27 | 27 |
| TweenSplitHeadPr | 28 | 25 | 29 | 27 | 28 | 28 | 27 | 25 | 27 | 26 | 26 | 28 | 28 | 23 | 24 | 28 |
| TweenSplitLinear | 28 | 24 | 29 | 28 | 30 | 29 | 31 | 25 | 26 | 24 | 27 | 29 | 30 | 27 | 28 | 30 |
| TweenSplitLinear | 27 | 26 | 26 | 25 | 26 | 27 | 26 | 25 | 25 | 24 | 23 | 25 | 26 | 25 | 25 | 26 |
| TweenSplitSparse | 29 | 26 | 28 | 27 | 27 | 27 | 27 | 25 | 28 | 26 | 25 | 27 | 27 | 24 | 27 | 27 |
| sgd | 31 | 22 | 33 | 33 | 32 | 36 | 34 | 25 | 30 | 25 | 29 | 31 | 31 | 26 | 26 | 30 |
| step_sgd | 31 | 25 | 31 | 32 | 32 | 35 | 34 | 25 | 28 | 26 | 31 | 32 | 30 | 23 | 25 | 31 |
| step_tween | 27 | 23 | 28 | 27 | 27 | 27 | 27 | 25 | 24 | 23 | 28 | 26 | 25 | 23 | 27 | 27 |
| step_tween_chain | 31 | 25 | 33 | 32 | 32 | 35 | 34 | 25 | 29 | 28 | 27 | 32 | 31 | 25 | 23 | 31 |
| tween | 27 | 23 | 28 | 27 | 28 | 28 | 30 | 25 | 26 | 23 | 26 | 24 | 26 | 27 | 25 | 26 |
| tween_chain | 31 | 24 | 32 | 33 | 32 | 36 | 34 | 25 | 30 | 25 | 27 | 31 | 31 | 25 | 24 | 30 |

## Honesty - mean hard Acc, every mode x dtype  (cols 17-32)

## Honesty - mean hard Acc, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 30 | 27 | 30 | 33 | 30 | 26 | 26 | 31 | 31 | 26 | 24 | 31 | 27 | 29 | 28 | 32 |
| MeshTween | 24 | 25 | 27 | 27 | 26 | 26 | 25 | 27 | 28 | 25 | 26 | 28 | 25 | 25 | 28 | 27 |
| MeshTweenAlt | 25 | 25 | 25 | 30 | 26 | 24 | 29 | 26 | 27 | 25 | 25 | 27 | 25 | 26 | 25 | 27 |
| MeshTweenChain | 26 | 28 | 30 | 31 | 30 | 29 | 25 | 31 | 31 | 22 | 27 | 31 | 27 | 28 | 29 | 31 |
| MeshTweenSplit | 25 | 25 | 26 | 26 | 27 | 23 | 26 | 26 | 26 | 28 | 23 | 26 | 27 | 27 | 25 | 27 |
| MeshTweenSplitFa | 24 | 27 | 29 | 27 | 29 | 26 | 26 | 27 | 28 | 24 | 25 | 27 | 27 | 28 | 27 | 27 |
| MeshTweenSplitSp | 28 | 27 | 24 | 28 | 26 | 28 | 26 | 28 | 27 | 22 | 25 | 27 | 27 | 25 | 27 | 26 |
| StepTweenAlt | 25 | 26 | 25 | 28 | 24 | 26 | 24 | 27 | 25 | 24 | 24 | 27 | 26 | 25 | 26 | 26 |
| StepTweenSplit | 25 | 25 | 25 | 27 | 25 | 25 | 27 | 27 | 25 | 29 | 25 | 27 | 24 | 25 | 26 | 26 |
| TweenAlt | 25 | 25 | 25 | 32 | 26 | 24 | 24 | 26 | 27 | 25 | 24 | 26 | 23 | 25 | 25 | 26 |
| TweenSplit | 27 | 23 | 27 | 29 | 26 | 26 | 25 | 27 | 28 | 26 | 26 | 27 | 25 | 26 | 26 | 28 |
| TweenSplitFastPr | 25 | 25 | 27 | 27 | 27 | 26 | 24 | 27 | 27 | 27 | 27 | 27 | 26 | 25 | 27 | 28 |
| TweenSplitHeadPr | 26 | 27 | 26 | 28 | 28 | 25 | 24 | 28 | 26 | 26 | 24 | 27 | 27 | 25 | 27 | 28 |
| TweenSplitHeadPr | 24 | 25 | 25 | 27 | 27 | 24 | 24 | 28 | 28 | 24 | 25 | 28 | 26 | 25 | 26 | 28 |
| TweenSplitLinear | 25 | 24 | 26 | 31 | 30 | 26 | 29 | 30 | 31 | 26 | 25 | 31 | 25 | 26 | 28 | 30 |
| TweenSplitLinear | 20 | 25 | 24 | 25 | 25 | 25 | 24 | 25 | 25 | 22 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitSparse | 26 | 25 | 26 | 28 | 27 | 25 | 25 | 27 | 28 | 26 | 28 | 26 | 26 | 27 | 27 | 27 |
| sgd | 27 | 30 | 28 | 33 | 31 | 27 | 26 | 31 | 31 | 27 | 24 | 31 | 27 | 28 | 31 | 32 |
| step_sgd | 25 | 31 | 29 | 33 | 31 | 29 | 26 | 31 | 31 | 25 | 23 | 31 | 26 | 29 | 29 | 31 |
| step_tween | 23 | 26 | 27 | 27 | 26 | 28 | 25 | 26 | 27 | 21 | 26 | 28 | 25 | 25 | 29 | 27 |
| step_tween_chain | 26 | 30 | 27 | 32 | 31 | 27 | 26 | 31 | 31 | 26 | 25 | 31 | 27 | 26 | 28 | 30 |
| tween | 23 | 24 | 26 | 26 | 25 | 24 | 26 | 26 | 27 | 25 | 25 | 27 | 24 | 25 | 25 | 28 |
| tween_chain | 25 | 27 | 31 | 33 | 31 | 28 | 27 | 31 | 31 | 24 | 24 | 31 | 26 | 29 | 29 | 31 |

## Honesty - mean hard Acc, every mode x dtype  (cols 33-34)

## Honesty - mean hard Acc, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 31 | 31 |
| MeshTween | 28 | 24 |
| MeshTweenAlt | 26 | 26 |
| MeshTweenChain | 30 | 32 |
| MeshTweenSplit | 26 | 26 |
| MeshTweenSplitFa | 28 | 27 |
| MeshTweenSplitSp | 26 | 27 |
| StepTweenAlt | 26 | 27 |
| StepTweenSplit | 27 | 27 |
| TweenAlt | 26 | 26 |
| TweenSplit | 26 | 26 |
| TweenSplitFastPr | 26 | 27 |
| TweenSplitHeadPr | 27 | 26 |
| TweenSplitHeadPr | 27 | 28 |
| TweenSplitLinear | 29 | 28 |
| TweenSplitLinear | 27 | 26 |
| TweenSplitSparse | 27 | 27 |
| sgd | 31 | 31 |
| step_sgd | 31 | 31 |
| step_tween | 27 | 28 |
| step_tween_chain | 31 | 31 |
| tween | 28 | 27 |
| tween_chain | 31 | 31 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 1-16)

## Honesty - mean SoftAcc, every mode x dtype  (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 25 | 25 | 25 | 26 | 25 | 26 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenChain | 25 | 25 | 25 | 25 | 25 | 26 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenAlt | 25 | 25 | 25 | 25 | 25 | 26 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenAlt | 25 | 25 | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitFastPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitSparse | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| sgd | 25 | 25 | 25 | 26 | 25 | 26 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_sgd | 25 | 25 | 25 | 25 | 25 | 26 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween_chain | 25 | 25 | 26 | 26 | 25 | 26 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween_chain | 25 | 25 | 25 | 26 | 25 | 26 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 17-32)

## Honesty - mean SoftAcc, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenChain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitFastPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitSparse | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| sgd | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_sgd | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween_chain | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 33-34)

## Honesty - mean SoftAcc, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 25 | 25 |
| MeshTween | 25 | 25 |
| MeshTweenAlt | 25 | 25 |
| MeshTweenChain | 25 | 25 |
| MeshTweenSplit | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 |
| StepTweenAlt | 25 | 25 |
| StepTweenSplit | 25 | 25 |
| TweenAlt | 25 | 25 |
| TweenSplit | 25 | 25 |
| TweenSplitFastPr | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 |
| TweenSplitLinear | 25 | 25 |
| TweenSplitLinear | 25 | 25 |
| TweenSplitSparse | 25 | 25 |
| sgd | 25 | 25 |
| step_sgd | 25 | 25 |
| step_tween | 25 | 25 |
| step_tween_chain | 25 | 25 |
| tween | 25 | 25 |
| tween_chain | 25 | 25 |

## Mean Score, every mode x arch

## Mean Score, every mode x arch

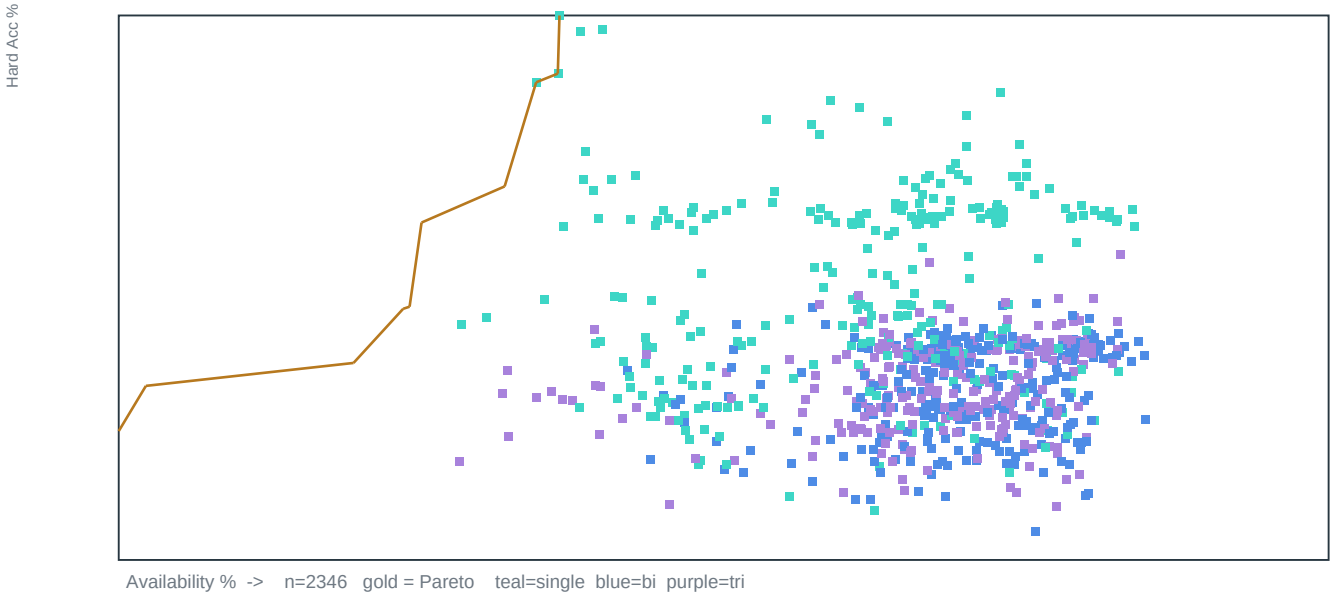
| | bicamera | singlex1 | tricamer |
|---|---|---|---|
| MeshBP | 27139 | 65589 | 22209 |
| MeshTween | 25627 | 59910 | 21264 |
| MeshTweenAlt | 20542 | 50846 | 18039 |
| MeshTweenChain | 25716 | 61235 | 21331 |
| MeshTweenSplit | 26770 | 58950 | 22688 |
| MeshTweenSplitFa | 26647 | 58966 | 22965 |
| MeshTweenSplitSp | 26138 | 57958 | 22607 |
| StepTweenAlt | 20172 | 51165 | 16169 |
| StepTweenSplit | 25279 | 57829 | 21215 |
| TweenAlt | 21570 | 52365 | 17714 |
| TweenSplit | 27567 | 60885 | 23481 |
| TweenSplitFastPr | 27453 | 59415 | 22965 |
| TweenSplitHeadPr | 27257 | 60070 | 23051 |
| TweenSplitHeadPr | 26582 | 59775 | 22745 |
| TweenSplitLinear | 25839 | 59086 | 21581 |
| TweenSplitLinear | 26829 | 59152 | 23137 |
| TweenSplitSparse | 27006 | 60226 | 23060 |
| sgd | 29421 | 69542 | 24671 |
| step_sgd | 27434 | 67070 | 22830 |
| step_tween | 27231 | 64797 | 22056 |
| step_tween_chain | 26470 | 65213 | 21647 |
| tween | 30130 | 67193 | 25099 |
| tween_chain | 30404 | 71927 | 24843 |

## Mean hard Acc, every mode x arch

## Mean hard Acc, every mode x arch

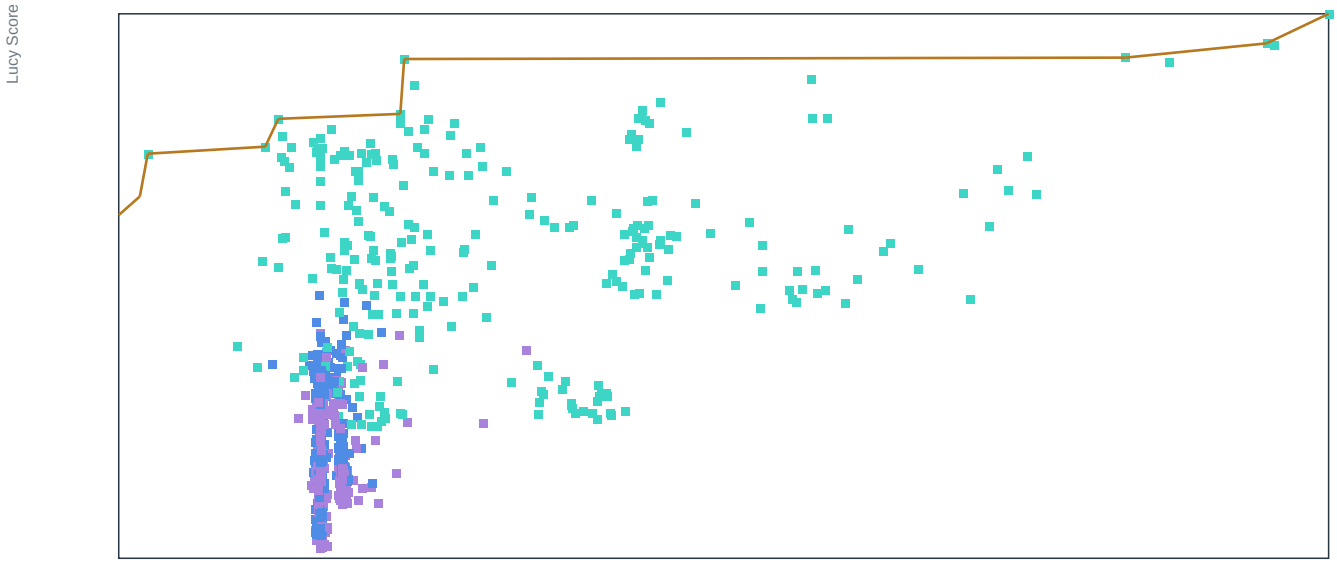
| | bicamera | singlex1 | tricamer |
|---|---|---|---|
| MeshBP | 27 | 34 | 27 |
| MeshTween | 25 | 28 | 26 |
| MeshTweenAlt | 26 | 28 | 26 |
| MeshTweenChain | 27 | 33 | 26 |
| MeshTweenSplit | 25 | 28 | 26 |
| MeshTweenSplitFa | 26 | 28 | 26 |
| MeshTweenSplitSp | 26 | 28 | 26 |
| StepTweenAlt | 26 | 28 | 25 |
| StepTweenSplit | 26 | 28 | 25 |
| TweenAlt | 26 | 28 | 25 |
| TweenSplit | 25 | 28 | 26 |
| TweenSplitFastPr | 26 | 28 | 26 |
| TweenSplitHeadPr | 26 | 28 | 25 |
| TweenSplitHeadPr | 25 | 29 | 25 |
| TweenSplitLinear | 26 | 32 | 25 |
| TweenSplitLinear | 25 | 25 | 25 |
| TweenSplitSparse | 26 | 28 | 26 |
| sgd | 26 | 34 | 27 |
| step_sgd | 26 | 34 | 27 |
| step_tween | 25 | 28 | 25 |
| step_tween_chain | 27 | 34 | 26 |
| tween | 25 | 28 | 25 |
| tween_chain | 26 | 34 | 27 |

## Avail vs hard Acc (headline scatter)

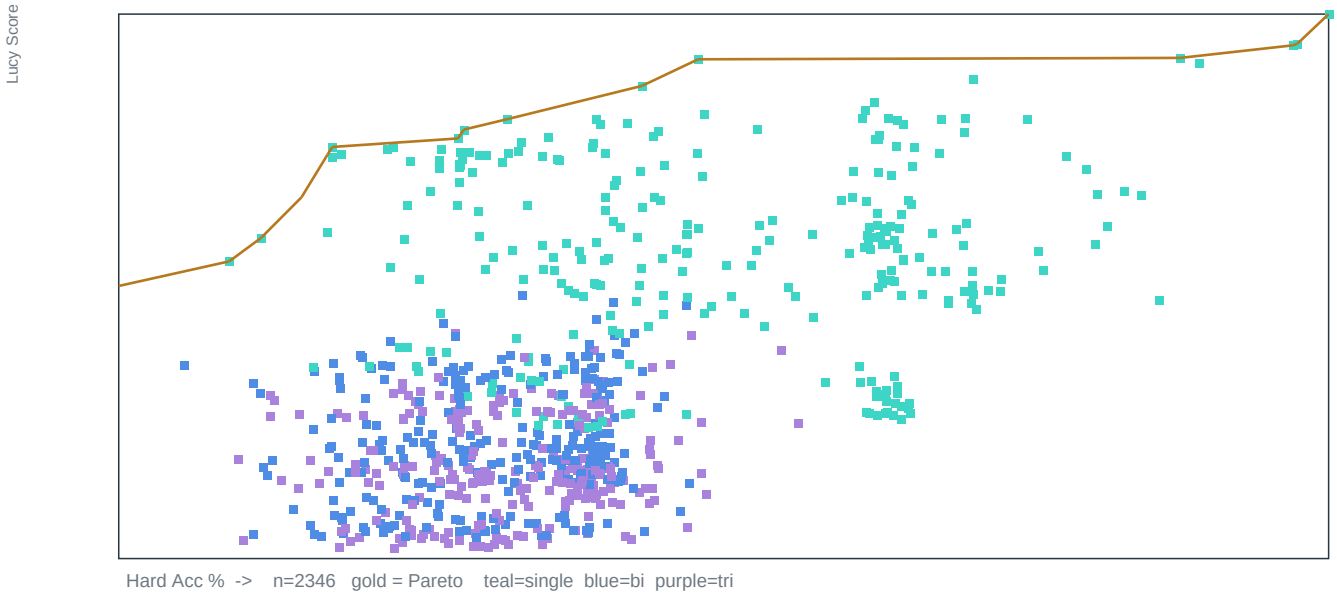



## Pareto - SoftAcc vs Score

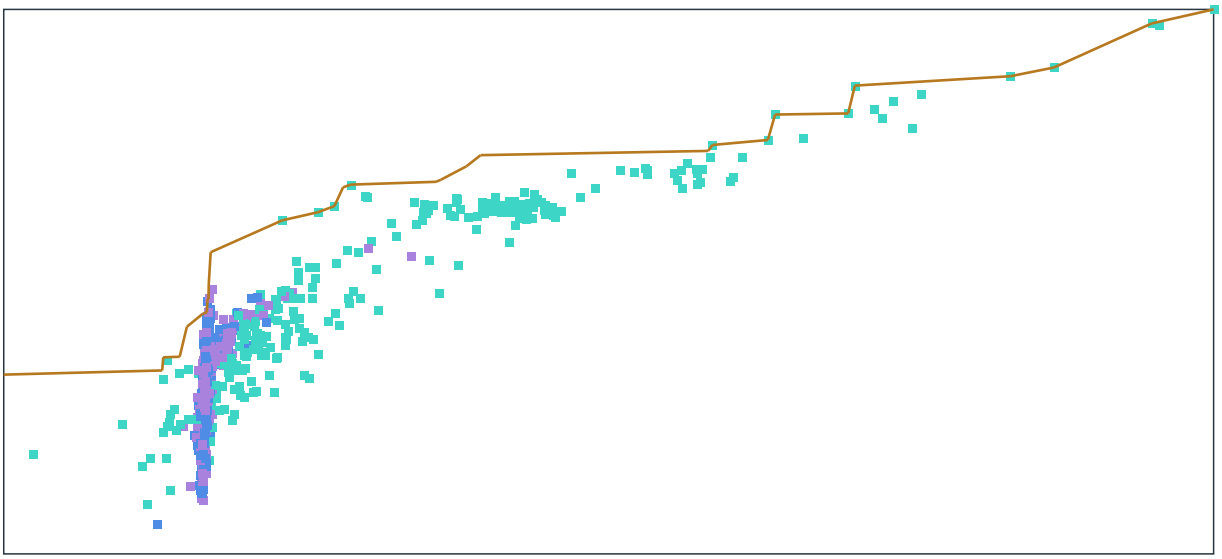
## Pareto - SoftAcc vs Score




## Pareto - hard Acc vs Score

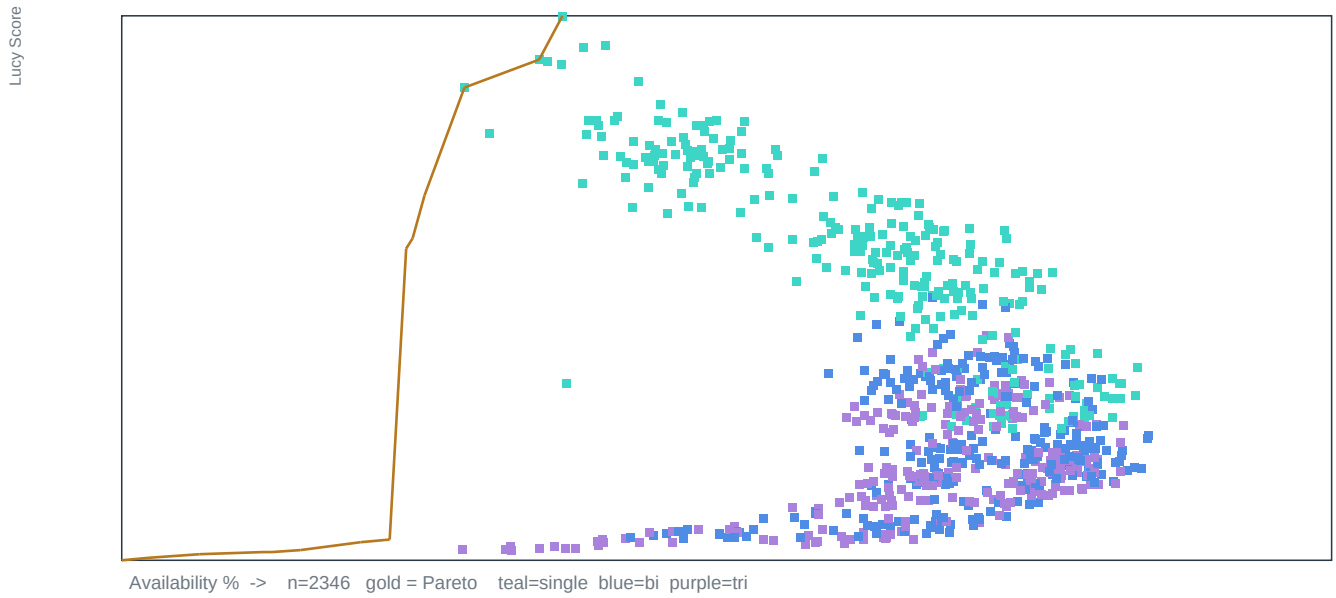



## SoftAcc vs hard Acc




SoftAcc %  ->  n=2346  gold = Pareto  teal=single  blue=bi  purple=tri
Hard Acc %

## Avail vs Score (duty clock)




## Lucy Pareto (LPD) - goldilocks

Q = geomean of Score/Soft/Acc/Thru vs the Lucy Score champion. LPD = 0 if Q<70%, else Q x shrink vs champ RAM (capped 32x). Gold = Q>=80% and RAM<=20% of champ. MSpeed = Thru vs the board's fastest (0 if Q<70%). MAvail = Availability vs the board's best duty cycle (0 if Q<70%). Mix = geomean(Q, MSpeed, MAvail). Raw Score/MiB is the binary trap.

Quality champ float32|none|tween_chain|single|simd  Score 114613.4  Soft 28  Acc 48  Thru 1025798  RAM 0.4 KiB

Board fastest float32|none|tween|single|simd  Thru 1040295  Best availability int16|none|TweenSplitSparse|bicameral|simd  47.4%

No gold cell yet. Need a recipe that keeps 80% of the Score champ's Score/Soft/Acc/Thru at one fifth the RAM.

## Near-gold - Q >= 70%, RAM <= 50%

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| near | binary\|none\|tween_chain\|single\|simd | 76 | 3 | 32.0 | 24.41 | 25 | 27 | 89818.3 | 0.0 |
| near | binary\|none\|step_sgd\|single\|simd | 74 | 3 | 32.0 | 23.75 | 25 | 26 | 86502.7 | 0.0 |
| near | binary\|none\|step_tween\|single\|simd | 73 | 3 | 32.0 | 23.20 | 25 | 24 | 85202.0 | 0.0 |
| near | binary\|none\|TweenSplitSparse\|single\|simd | 72 | 3 | 32.0 | 23.11 | 25 | 25 | 85035.1 | 0.0 |
| near | binary\|none\|step_tween_chain\|single\|simd | 72 | 3 | 32.0 | 22.97 | 25 | 24 | 83557.8 | 0.0 |
| near | binary\|none\|tween\|single\|simd | 71 | 3 | 32.0 | 22.78 | 25 | 22 | 87779.4 | 0.0 |
| near | binary\|none\|TweenSplitHeadProxyAsync\|single\|simd | 71 | 3 | 32.0 | 22.77 | 25 | 25 | 83188.7 | 0.0 |
| near | binary\|none\|sgd\|single\|simd | 71 | 3 | 32.0 | 22.65 | 25 | 22 | 86362.6 | 0.0 |
| near | binary\|none\|StepTweenSplit\|single\|simd | 71 | 3 | 32.0 | 22.64 | 25 | 26 | 79304.2 | 0.0 |
| near | binary\|none\|MeshBP\|single\|simd | 70 | 3 | 32.0 | 22.47 | 25 | 22 | 85669.4 | 0.0 |
| near | ternary\|none\|tween_chain\|single\|simd | 79 | 6 | 16.0 | 12.56 | 25 | 29 | 93323.7 | 0.0 |
| near | int2\|none\|sgd\|single\|simd | 77 | 6 | 16.0 | 12.33 | 25 | 26 | 93406.7 | 0.0 |

## LPD rank (Q x shrink; 0 if Q < 70%)

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| near | binary\|none\|tween_chain\|single\|simd | 76 | 3 | 32.0 | 24.41 | 25 | 27 | 89818.3 | 0.0 |
| near | binary\|none\|step_sgd\|single\|simd | 74 | 3 | 32.0 | 23.75 | 25 | 26 | 86502.7 | 0.0 |
| near | binary\|none\|step_tween\|single\|simd | 73 | 3 | 32.0 | 23.20 | 25 | 24 | 85202.0 | 0.0 |
| near | binary\|none\|TweenSplitSparse\|single\|simd | 72 | 3 | 32.0 | 23.11 | 25 | 25 | 85035.1 | 0.0 |
| near | binary\|none\|step_tween_chain\|single\|simd | 72 | 3 | 32.0 | 22.97 | 25 | 24 | 83557.8 | 0.0 |
| near | binary\|none\|tween\|single\|simd | 71 | 3 | 32.0 | 22.78 | 25 | 22 | 87779.4 | 0.0 |
| near | binary\|none\|TweenSplitHeadProxyAsync\|single\|simd | 71 | 3 | 32.0 | 22.77 | 25 | 25 | 83188.7 | 0.0 |
| near | binary\|none\|sgd\|single\|simd | 71 | 3 | 32.0 | 22.65 | 25 | 22 | 86362.6 | 0.0 |
| near | binary\|none\|StepTweenSplit\|single\|simd | 71 | 3 | 32.0 | 22.64 | 25 | 26 | 79304.2 | 0.0 |
| near | binary\|none\|MeshBP\|single\|simd | 70 | 3 | 32.0 | 22.47 | 25 | 22 | 85669.4 | 0.0 |

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| near | ternary\|none\|tween_chain\|single\|simd | 79 | 6 | 16.0 | 12.56 | 25 | 29 | 93323.7 | 0.0 |
| near | int2\|none\|sgd\|single\|simd | 77 | 6 | 16.0 | 12.33 | 25 | 26 | 93406.7 | 0.0 |
| near | ternary\|none\|sgd\|single\|simd | 75 | 6 | 16.0 | 12.07 | 25 | 27 | 88795.3 | 0.0 |
| near | int2\|none\|tween_chain\|single\|simd | 75 | 6 | 16.0 | 12.03 | 25 | 25 | 91279.6 | 0.0 |
| near | ternary\|none\|step_tween\|single\|simd | 75 | 6 | 16.0 | 11.96 | 25 | 28 | 85293.5 | 0.0 |
| near | int2\|none\|tween\|single\|simd | 75 | 6 | 16.0 | 11.95 | 25 | 27 | 86843.9 | 0.0 |
| near | int2\|none\|step_tween_chain\|single\|simd | 75 | 6 | 16.0 | 11.94 | 25 | 27 | 85975.2 | 0.0 |
| near | int2\|none\|step_tween\|single\|simd | 74 | 6 | 16.0 | 11.81 | 25 | 26 | 86196.3 | 0.0 |
| near | int2\|none\|step_sgd\|single\|simd | 74 | 6 | 16.0 | 11.78 | 25 | 25 | 86750.7 | 0.0 |
| near | ternary\|none\|step_tween_chain\|single\|simd | 74 | 6 | 16.0 | 11.77 | 25 | 26 | 84626.5 | 0.0 |

## Mobile speed - Thru vs board fastest (Q >= 70%)

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| keep | float32\|none\|tween\|single\|simd | 86 | 100 | 85 | 90 | 0.86 | 1040295 | 40.2 |
| keep | float32\|none\|tween_chain\|single\|simd | 100 | 99 | 85 | 94 | 1.00 | 1025798 | 40.3 |
| keep | float32\|none\|step_tween\|single\|simd | 83 | 97 | 83 | 88 | 0.83 | 1005223 | 39.4 |
| keep | float32\|none\|step_sgd\|single\|simd | 94 | 93 | 85 | 91 | 0.94 | 970705 | 40.1 |
| keep | float32\|none\|sgd\|single\|simd | 97 | 93 | 86 | 92 | 0.97 | 969806 | 40.5 |
| keep | float32\|none\|MeshBP\|single\|simd | 97 | 93 | 86 | 92 | 0.97 | 968866 | 40.7 |
| keep | float32\|none\|step_tween_chain\|single\|simd | 94 | 92 | 85 | 90 | 0.94 | 952686 | 40.3 |
| near | float16\|none\|tween_chain\|single\|simd | 89 | 90 | 87 | 89 | 1.77 | 939101 | 41.0 |
| near | float16\|none\|tween\|single\|simd | 81 | 88 | 86 | 85 | 1.63 | 916832 | 40.8 |
| - | float32\|none\|MeshTween\|single\|simd | 80 | 87 | 84 | 84 | 0.80 | 908920 | 39.7 |

## Mobile availability - duty cycle vs board best (Q >= 70%)

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| near | int16\|none\|sgd\|single\|simd | 71 | 58 | 94 | 73 | 1.42 | 604891 | 44.4 |
| near | int16\|none\|tween_chain\|single\|simd | 72 | 60 | 94 | 74 | 1.44 | 621543 | 44.4 |
| - | int64\|none\|sgd\|single\|simd | 75 | 58 | 93 | 74 | 0.37 | 607809 | 44.1 |
| - | int64\|none\|MeshBP\|single\|simd | 71 | 55 | 93 | 71 | 0.36 | 571019 | 44.1 |
| - | uint16\|none\|sgd\|single\|simd | 72 | 61 | 93 | 74 | 1.38 | 630013 | 43.8 |
| - | int64\|none\|tween_chain\|single\|simd | 73 | 59 | 92 | 74 | 0.36 | 614392 | 43.8 |
| - | int32\|none\|step_sgd\|single\|simd | 71 | 59 | 92 | 73 | 0.71 | 609130 | 43.8 |
| - | int32\|none\|sgd\|single\|simd | 70 | 58 | 92 | 72 | 0.70 | 601462 | 43.8 |
| - | int32\|none\|tween_chain\|single\|simd | 72 | 61 | 92 | 74 | 0.72 | 637426 | 43.7 |
| - | uint64\|none\|sgd\|single\|simd | 74 | 61 | 92 | 75 | 0.36 | 634428 | 43.7 |

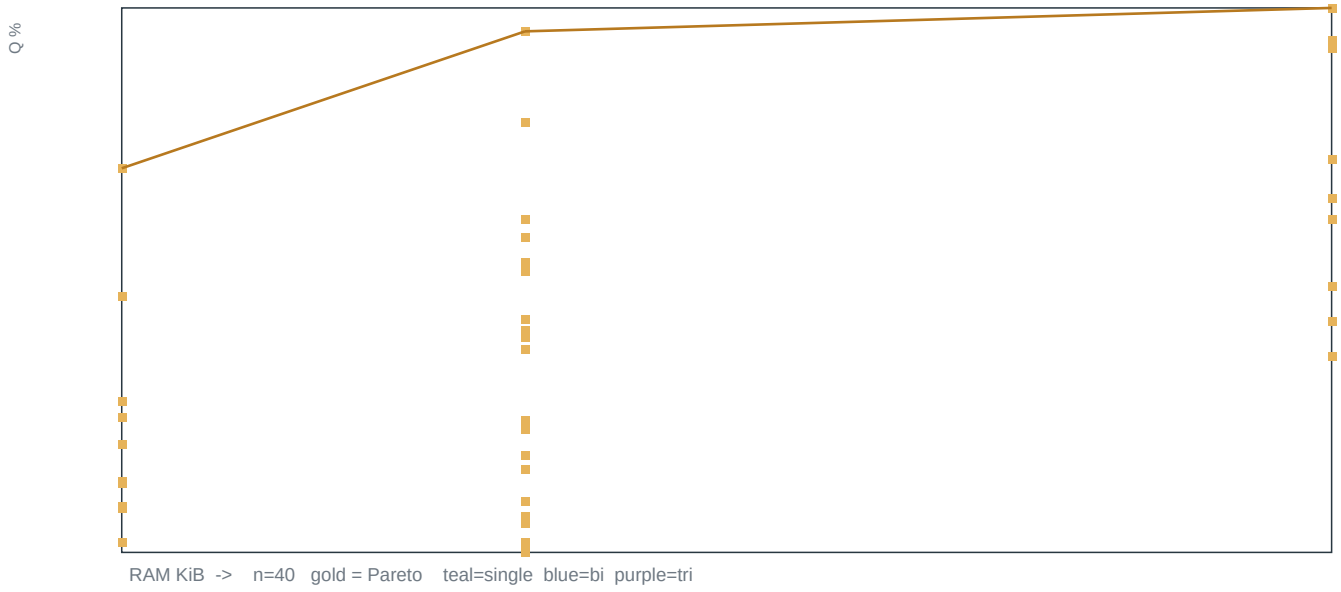
## Mix - geomean of Q, MSpeed, MAvail

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| keep | float32\|none\|tween_chain\|single\|simd | 100 | 99 | 85 | 94 | 1.00 | 1025798 | 40.3 |
| keep | float32\|none\|MeshBP\|single\|simd | 97 | 93 | 86 | 92 | 0.97 | 968866 | 40.7 |
| keep | float32\|none\|sgd\|single\|simd | 97 | 93 | 86 | 92 | 0.97 | 969806 | 40.5 |
| keep | float32\|none\|step_sgd\|single\|simd | 94 | 93 | 85 | 91 | 0.94 | 970705 | 40.1 |
| keep | float32\|none\|step_tween_chain\|single\|simd | 94 | 92 | 85 | 90 | 0.94 | 952686 | 40.3 |
| keep | float32\|none\|tween\|single\|simd | 86 | 100 | 85 | 90 | 0.86 | 1040295 | 40.2 |
| near | float16\|none\|tween_chain\|single\|simd | 89 | 90 | 87 | 89 | 1.77 | 939101 | 41.0 |
| keep | float32\|none\|step_tween\|single\|simd | 83 | 97 | 83 | 88 | 0.83 | 1005223 | 39.4 |
| near | int8\|none\|tween_chain\|single\|simd | 85 | 87 | 87 | 86 | 3.40 | 906476 | 41.2 |
| near | uint8\|none\|tween_chain\|single\|simd | 84 | 85 | 87 | 86 | 3.10 | 888030 | 41.4 |

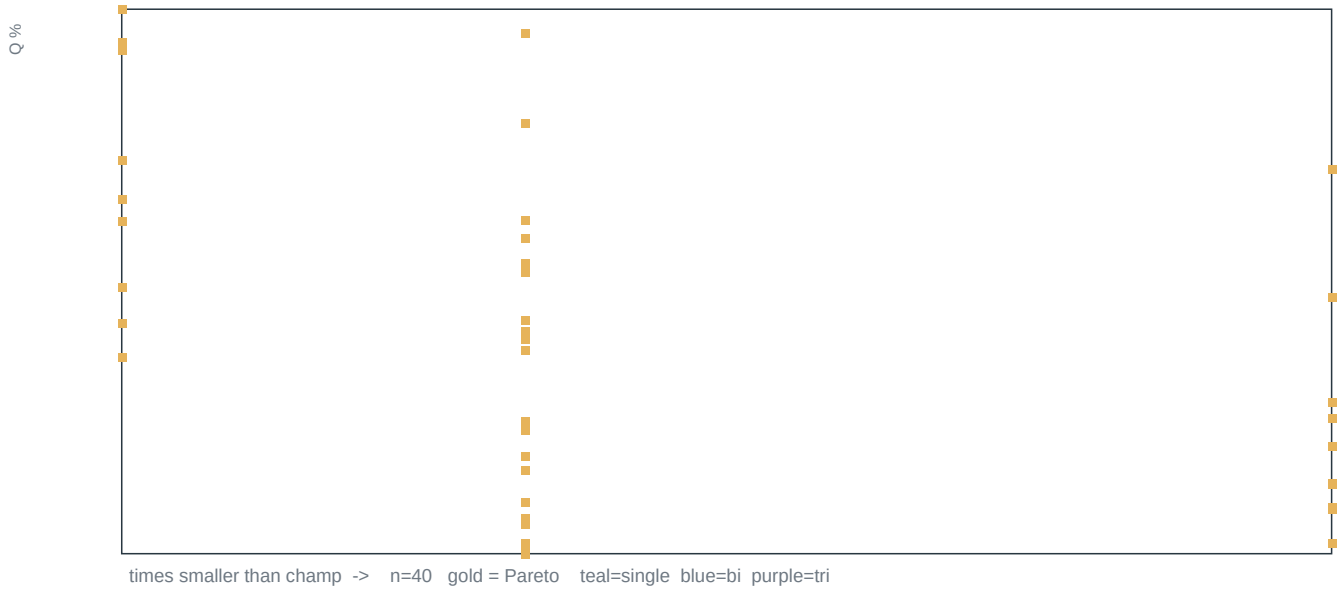
## Trap - tiny RAM, Q < 70% (why Score/MiB lies)

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| trap | binary\|none\|MeshTween\|single\|simd | 69 | 3 | 32.0 | 0.00 | 25 | 25 | 74773.7 | 0.0 |
| trap | binary\|none\|MeshTweenChain\|single\|simd | 69 | 3 | 32.0 | 0.00 | 25 | 25 | 78383.1 | 0.0 |
| trap | binary\|none\|TweenSplit\|single\|simd | 67 | 3 | 32.0 | 0.00 | 25 | 22 | 77043.1 | 0.0 |
| trap | binary\|none\|TweenAlt\|single\|simd | 66 | 3 | 32.0 | 0.00 | 25 | 23 | 70829.4 | 0.0 |
| trap | binary\|none\|StepTweenAlt\|single\|simd | 68 | 3 | 32.0 | 0.00 | 25 | 27 | 70354.9 | 0.0 |
| trap | binary\|none\|TweenSplitHeadProxy\|single\|simd | 66 | 3 | 32.0 | 0.00 | 25 | 21 | 76763.2 | 0.0 |
| trap | binary\|none\|TweenSplitLinear\|single\|simd | 65 | 3 | 32.0 | 0.00 | 25 | 22 | 73251.9 | 0.0 |
| trap | binary\|none\|TweenSplitFastProxy\|single\|simd | 67 | 3 | 32.0 | 0.00 | 25 | 23 | 76344.7 | 0.0 |
| trap | binary\|none\|TweenSplitLinearCache\|single\|simd | 69 | 3 | 32.0 | 0.00 | 25 | 24 | 79038.5 | 0.0 |
| trap | binary\|none\|MeshTweenSplit\|single\|simd | 70 | 3 | 32.0 | 0.00 | 25 | 28 | 75188.7 | 0.0 |

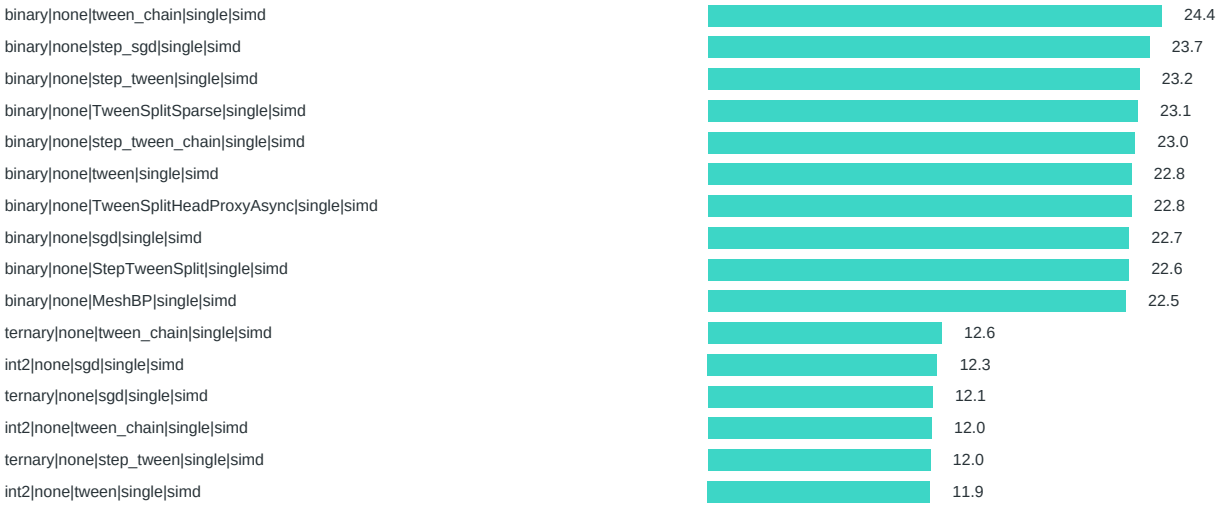
## LPD - Q% vs RAM KiB (gold = high Q, low RAM)



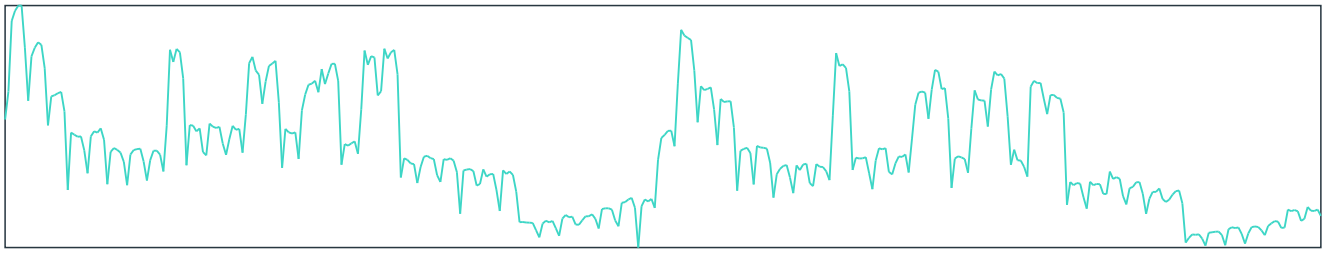

## LPD - Q% vs shrink vs champ (gold = upper right)




## Top LPD

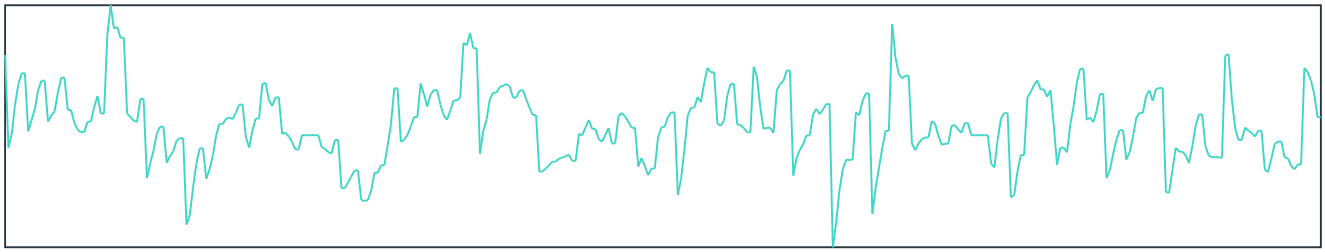



## Pulse Score - layernorm



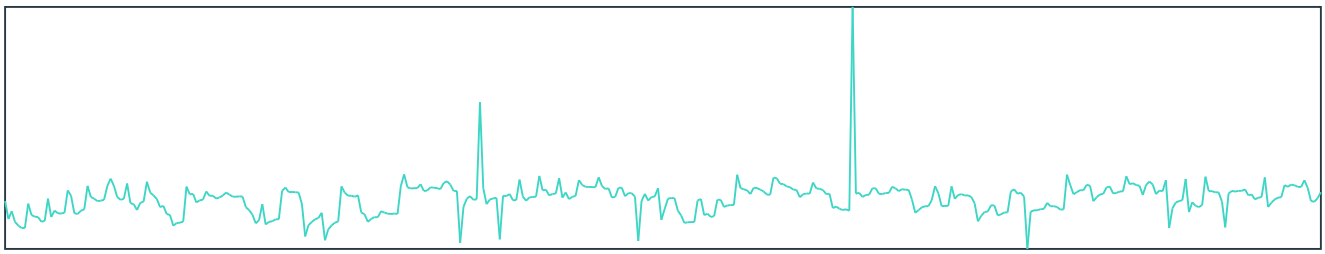
n=400 min=7085.99 max=54728.35

## Pulse SoftAcc - layernorm



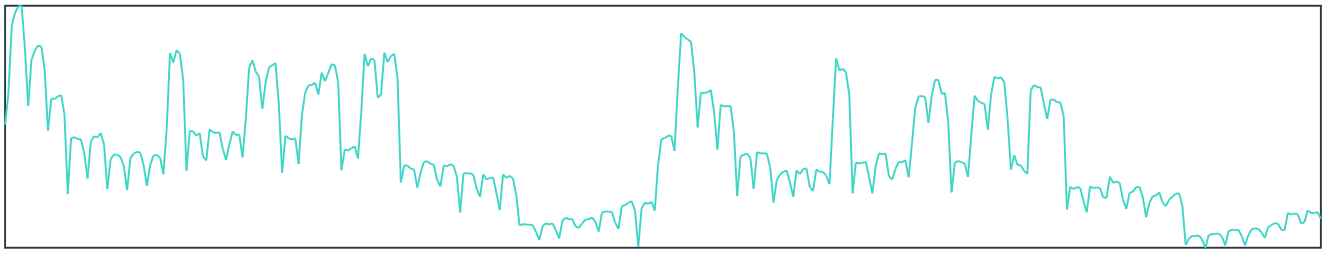
n=400 min=24.96 max=25.05

## Pulse Availability - layernorm



n=400 min=44.10 max=56.86

## Pulse Throughput - layernorm



n=400 min=62359.89 max=483822.71

## Queue by train mode (this epoch)

| Mode | Done | Run | Left | Total |
|---|---|---|---|---|
| sgd | 102 | 0 | 0 | 102 |
| step_sgd | 102 | 0 | 0 | 102 |
| tween | 102 | 0 | 0 | 102 |
| tween_chain | 102 | 0 | 0 | 102 |
| step_tween | 102 | 0 | 0 | 102 |
| step_tween_chain | 102 | 0 | 0 | 102 |
| MeshBP | 102 | 0 | 0 | 102 |
| MeshTween | 102 | 0 | 0 | 102 |
| MeshTweenChain | 102 | 0 | 0 | 102 |
| TweenSplit | 102 | 0 | 0 | 102 |
| StepTweenSplit | 102 | 0 | 0 | 102 |
| TweenAlt | 102 | 0 | 0 | 102 |
| StepTweenAlt | 102 | 0 | 0 | 102 |
| TweenSplitHeadProxy | 102 | 0 | 0 | 102 |
| TweenSplitLinear | 102 | 0 | 0 | 102 |
| TweenSplitFastProxy | 102 | 0 | 0 | 102 |
| TweenSplitLinearCache | 102 | 0 | 0 | 102 |
| TweenSplitHeadProxyAsync | 102 | 0 | 0 | 102 |
| TweenSplitSparse | 102 | 0 | 0 | 102 |
| MeshTweenSplit | 102 | 0 | 0 | 102 |
| MeshTweenAlt | 102 | 0 | 0 | 102 |
| MeshTweenSplitFastProxy | 102 | 0 | 0 | 102 |
| MeshTweenSplitSparse | 102 | 0 | 0 | 102 |

# tide  lstm

Score = Throughput x Availability% x SoftAcc% / 10,000
done  -  epoch 1  -  2026-08-18 09:45:25  -  0.0.0.0:8109
This epoch 2346 / 2346 cells. Recorded 2346 results.
Score 0 usually means the cell finished before a Lucy pulse (SoftAcc never sampled) or true-class mass was 0. Those rows do not vote holistically.
lstm  -  gated delay: cue early, ignore the rest  -  modes all  -  min 2000ms/cell  -  1024 train  -  pulse 50ms  -  SIMD true

## Lucy champions (this tide)

| Axis | Cell | Score | Soft | Acc | Thru | Avail |
|---|---|---|---|---|---|---|
| score | int2\|none\|sgd\|single\|simd | 2230.79 | 25.0 | 21.5 | 24631.9 | 36.2 |
| throughput | int2\|none\|sgd\|single\|simd | 2230.79 | 25.0 | 21.5 | 24631.9 | 36.2 |
| availability | binary\|none\|MeshTweenSplitSparse\|tricameral\|simd | 1266.20 | 25.0 | 26.7 | 12123.4 | 41.8 |
| accuracy | float64\|none\|TweenAlt\|single\|simd | 717.15 | 25.3 | 34.8 | 10281.0 | 27.6 |
| mobile score (tradeoff) | binary\|none\|sgd\|single\|simd | 2204.04 | 25.0 | 24.6 | 24401.1 | 36.1 |
| t->50% | int6\|none\|tween\|bicameral\|simd | 47.37 | 25.0 | 22.5 | 830.0 | 22.8 |
| acc/sec | float32\|none\|sgd\|single\|simd | 1228.01 | 25.1 | 31.0 | 18326.4 | 26.7 |

## Lucy axes - lstm

| Axis | Mode | DType | Arch | Value |
|---|---|---|---|---|
| score | sgd | int2 | singlex1 | 2230.79 |
| soft_acc | TweenAlt | float64 | singlex1 | 25.31 |
| hard_acc | MeshTweenChain | complex64 | tricameralx3 | 48.83 |
| throughput | sgd | int2 | singlex1 | 24631.88 |
| availability | MeshTweenSplitS~ | binary | tricameralx3 | 41.78 |
| acc_thru | sgd | int2 | singlex1 | 6158.82 |
| realtime | sgd | int2 | singlex1 | 8921.91 |
| adapt | MeshTweenAlt | float64 | singlex1 | 25.45 |
| keep_learn | tween | fp6 | tricameralx3 | 13.10 |
| acc_per_sec | sgd | float32 | singlex1 | 12.53 |
| time_to_50 | tween | int6 | bicameralx2 | 0.06 |
| consistency | sgd | float64 | singlex1 | 100.00 |
| stability | sgd | fp4 | singlex1 | 100.00 |
| mobile_score | sgd | binary | singlex1 | 6878293.55 |
| lpd | sgd | binary | singlex1 | 1.23 |
| mspeed | sgd | int2 | singlex1 | 1.00 |
| mavail | MeshTweenSplitS~ | binary | tricameralx3 | 1.00 |
| mix | sgd | int2 | singlex1 | 0.95 |

## Best settings per train mode

| Mode | DType | Format | Score | Soft | Acc | Avail | n |
|---|---|---|---|---|---|---|---|
| sgd | int2 | none | 2230.8 | 25.0 | 21.5 | 36.2 | 102 |
| tween_chain | binary | none | 2196.3 | 25.0 | 26.9 | 36.5 | 102 |
| TweenSplitLinearCache | binary | none | 2157.3 | 25.0 | 26.9 | 37.6 | 102 |
| TweenSplitHeadProxyAsync | binary | none | 2137.4 | 25.0 | 20.1 | 37.6 | 102 |
| TweenSplitFastProxy | binary | none | 2125.2 | 25.0 | 22.8 | 37.6 | 102 |
| MeshTweenSplitFastProxy | binary | none | 2079.7 | 25.0 | 23.7 | 37.9 | 102 |
| TweenSplitHeadProxy | int2 | none | 2036.0 | 25.0 | 23.1 | 37.4 | 102 |
| MeshTweenSplitSparse | int4 | none | 1999.3 | 25.0 | 25.5 | 37.7 | 102 |
| TweenSplitSparse | int2 | none | 1953.9 | 25.0 | 26.5 | 37.2 | 102 |
| MeshBP | int2 | none | 1916.0 | 25.0 | 23.4 | 35.6 | 102 |
| tween | int2 | none | 1900.2 | 25.0 | 30.3 | 34.4 | 102 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| TweenSplit | ternary | none | 1863.6 | 25.0 | 21.3 | 37.0 | 102 |
| MeshTweenChain | int2 | none | 1839.2 | 25.0 | 25.3 | 35.7 | 102 |
| MeshTweenSplit | binary | none | 1806.5 | 25.0 | 25.0 | 37.9 | 102 |
| step_sgd | int2 | none | 1733.9 | 25.0 | 23.7 | 32.8 | 102 |
| MeshTween | binary | none | 1601.2 | 25.0 | 19.4 | 33.8 | 102 |
| step_tween_chain | ternary | none | 1573.0 | 25.0 | 25.0 | 32.0 | 102 |
| step_tween | ternary | none | 1433.9 | 25.0 | 24.1 | 31.1 | 102 |
| StepTweenSplit | binary | none | 1408.1 | 25.0 | 25.0 | 33.4 | 102 |
| TweenSplitLinear | binary | none | 1405.7 | 25.0 | 27.1 | 32.1 | 102 |
| TweenAlt | int2 | none | 836.3 | 25.0 | 24.9 | 27.0 | 102 |
| MeshTweenAlt | binary | none | 822.2 | 25.0 | 23.4 | 27.6 | 102 |
| StepTweenAlt | ternary | none | 726.6 | 25.0 | 26.2 | 25.3 | 102 |

## Best dtype per mode

| Mode | Winner dtype | Score | Soft | Acc |
|---|---|---|---|---|
| sgd | int2 | 2230.8 | 25.0 | 21.5 |
| tween_chain | binary | 2196.3 | 25.0 | 26.9 |
| TweenSplitLinearCache | binary | 2157.3 | 25.0 | 26.9 |
| TweenSplitHeadProxyAsync | binary | 2137.4 | 25.0 | 20.1 |
| TweenSplitFastProxy | binary | 2125.2 | 25.0 | 22.8 |
| MeshTweenSplitFastProxy | binary | 2079.7 | 25.0 | 23.7 |
| TweenSplitHeadProxy | int2 | 2036.0 | 25.0 | 23.1 |
| MeshTweenSplitSparse | int4 | 1999.3 | 25.0 | 25.5 |
| TweenSplitSparse | int2 | 1953.9 | 25.0 | 26.5 |
| MeshBP | int2 | 1916.0 | 25.0 | 23.4 |
| tween | int2 | 1900.2 | 25.0 | 30.3 |
| TweenSplit | ternary | 1863.6 | 25.0 | 21.3 |
| MeshTweenChain | int2 | 1839.2 | 25.0 | 25.3 |
| MeshTweenSplit | binary | 1806.5 | 25.0 | 25.0 |
| step_sgd | int2 | 1733.9 | 25.0 | 23.7 |
| MeshTween | binary | 1601.2 | 25.0 | 19.4 |
| step_tween_chain | ternary | 1573.0 | 25.0 | 25.0 |
| step_tween | ternary | 1433.9 | 25.0 | 24.1 |
| StepTweenSplit | binary | 1408.1 | 25.0 | 25.0 |
| TweenSplitLinear | binary | 1405.7 | 25.0 | 27.1 |
| TweenAlt | int2 | 836.3 | 25.0 | 24.9 |
| MeshTweenAlt | binary | 822.2 | 25.0 | 23.4 |
| StepTweenAlt | ternary | 726.6 | 25.0 | 26.2 |

## Best mode per dtype

| DType | Winner mode | Score | Soft | Acc |
|---|---|---|---|---|
| int2 | sgd | 2230.8 | 25.0 | 21.5 |
| binary | sgd | 2204.0 | 25.0 | 24.6 |
| ternary | sgd | 2192.1 | 25.0 | 12.3 |
| int4 | TweenSplitHeadProxyAsync | 2113.7 | 25.0 | 24.5 |
| float32 | TweenSplitSparse | 1889.1 | 25.0 | 33.6 |
| float64 | MeshTweenSplit | 1788.5 | 25.2 | 34.1 |
| int8 | TweenSplitSparse | 1679.6 | 25.0 | 19.2 |
| uint32 | TweenSplitFastProxy | 1278.6 | 25.0 | 28.2 |
| uint64 | TweenSplitHeadProxy | 1277.2 | 25.0 | 27.6 |
| uint16 | sgd | 1213.2 | 25.0 | 27.8 |
| int16 | TweenSplitHeadProxy | 1176.3 | 25.0 | 26.4 |

| | | | | |
|---|---|---|---|---|
| int32 | TweenSplitHeadProxy | 1175.2 | 25.0 | 28.8 |
| uint4 | MeshTweenSplitFastProxy | 1172.7 | 25.0 | 20.2 |
| uint8 | TweenSplitSparse | 1159.8 | 25.0 | 24.3 |
| uint2 | TweenSplitSparse | 1154.4 | 25.0 | 24.0 |
| int64 | MeshTweenSplit | 1111.5 | 25.1 | 29.3 |
| float16 | TweenSplitSparse | 970.6 | 25.0 | 17.7 |
| uint | TweenSplitHeadProxyAsync | 961.2 | 25.0 | 27.7 |
| int | TweenSplitHeadProxyAsync | 937.0 | 25.0 | 25.8 |
| fp4 | tween_chain | 922.7 | 25.0 | 24.9 |
| bfloat16 | sgd | 921.3 | 25.0 | 25.3 |
| complex64 | TweenSplitFastProxy | 920.1 | 25.0 | 30.0 |
| uintptr | TweenSplit | 907.0 | 25.0 | 26.6 |
| complex128 | sgd | 895.6 | 25.1 | 32.7 |
| fp8e5m2 | sgd | 699.1 | 25.0 | 22.7 |
| fp8e4m3 | sgd | 669.1 | 25.0 | 21.8 |
| uint3 | TweenSplitFastProxy | 565.8 | 25.0 | 26.4 |
| int3 | MeshTweenSplit | 564.6 | 25.0 | 25.6 |
| nf4 | tween_chain | 474.8 | 25.0 | 29.3 |
| uint5 | TweenSplitHeadProxy | 454.6 | 25.0 | 24.6 |
| int5 | TweenSplitHeadProxy | 407.1 | 25.0 | 26.0 |
| uint6 | MeshTweenSplitSparse | 384.4 | 25.0 | 20.5 |
| int6 | TweenSplit | 356.3 | 25.0 | 26.8 |
| fp6 | TweenSplitHeadProxyAsync | 263.2 | 25.0 | 27.3 |

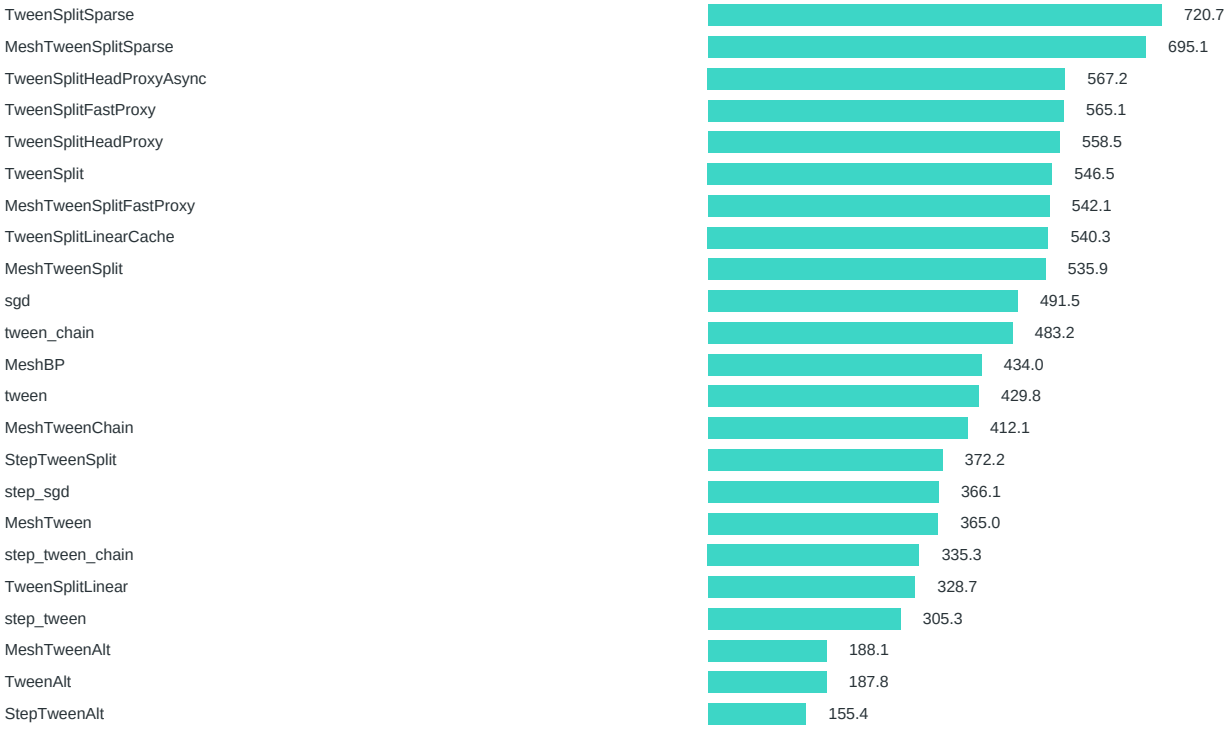
## Leaderboard - lstm

| # | Cell | Score | Soft | Acc | Thru | Avail |
|---|---|---|---|---|---|---|
| 1 | int2\|none\|sgd\|single\|simd | 2230.8 | 25.0 | 21.5 | 24631.9 | 36.2 |
| 2 | binary\|none\|sgd\|single\|simd | 2204.0 | 25.0 | 24.6 | 24401.1 | 36.1 |
| 3 | binary\|none\|tween_chain\|single\|simd | 2196.3 | 25.0 | 26.9 | 24105.6 | 36.5 |
| 4 | ternary\|none\|sgd\|single\|simd | 2192.1 | 25.0 | 12.3 | 24154.2 | 36.3 |
| 5 | binary\|none\|TweenSplitLinearCache\|single\|simd | 2157.3 | 25.0 | 26.9 | 22947.2 | 37.6 |
| 6 | ternary\|none\|tween_chain\|single\|simd | 2155.6 | 25.0 | 23.3 | 24126.6 | 35.7 |
| 7 | binary\|none\|TweenSplitHeadProxyAsync\|single\|simd | 2137.4 | 25.0 | 20.1 | 22761.6 | 37.6 |
| 8 | binary\|none\|TweenSplitFastProxy\|single\|simd | 2125.2 | 25.0 | 22.8 | 22620.5 | 37.6 |
| 9 | int2\|none\|tween_chain\|single\|simd | 2117.2 | 25.0 | 25.7 | 23671.0 | 35.8 |
| 10 | int4\|none\|TweenSplitHeadProxyAsync\|single\|simd | 2113.7 | 25.0 | 24.5 | 22576.7 | 37.5 |
| 11 | ternary\|none\|TweenSplitLinearCache\|single\|simd | 2099.8 | 25.0 | 22.5 | 22635.6 | 37.1 |
| 12 | binary\|none\|MeshTweenSplitFastProxy\|single\|simd | 2079.7 | 25.0 | 23.7 | 21949.9 | 37.9 |
| 13 | int4\|none\|TweenSplitFastProxy\|single\|simd | 2074.5 | 25.0 | 21.9 | 22379.2 | 37.1 |
| 14 | int4\|none\|sgd\|single\|simd | 2053.2 | 25.0 | 24.5 | 23155.0 | 35.5 |
| 15 | int4\|none\|tween_chain\|single\|simd | 2050.6 | 25.0 | 26.2 | 23002.0 | 35.7 |
| 16 | ternary\|none\|TweenSplitFastProxy\|single\|simd | 2043.0 | 25.0 | 20.4 | 21995.3 | 37.2 |
| 17 | int2\|none\|TweenSplitFastProxy\|single\|simd | 2039.7 | 25.0 | 28.2 | 21775.6 | 37.5 |
| 18 | int2\|none\|TweenSplitHeadProxy\|single\|simd | 2036.0 | 25.0 | 23.1 | 21760.8 | 37.4 |
| 19 | int2\|none\|TweenSplitHeadProxyAsync\|single\|simd | 2028.7 | 25.0 | 21.3 | 21622.8 | 37.5 |
| 20 | ternary\|none\|TweenSplitHeadProxy\|single\|simd | 2019.9 | 25.0 | 26.3 | 21623.8 | 37.4 |

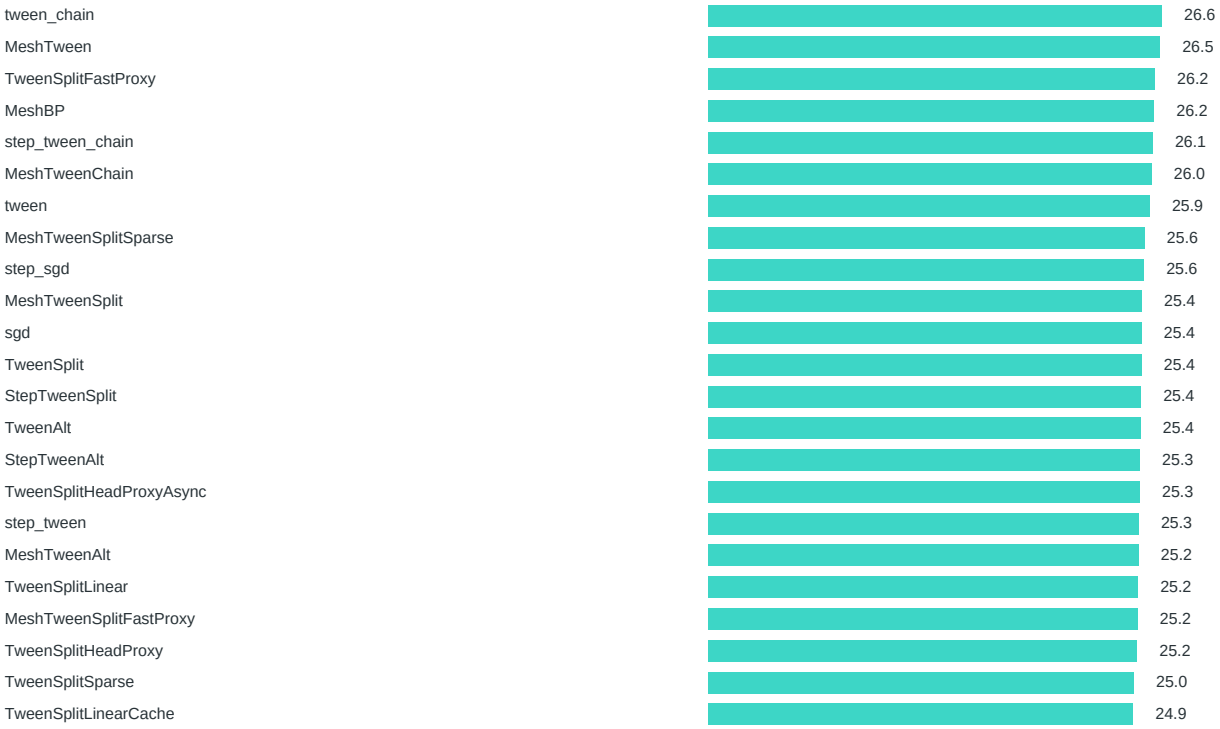
## Top scores - lstm



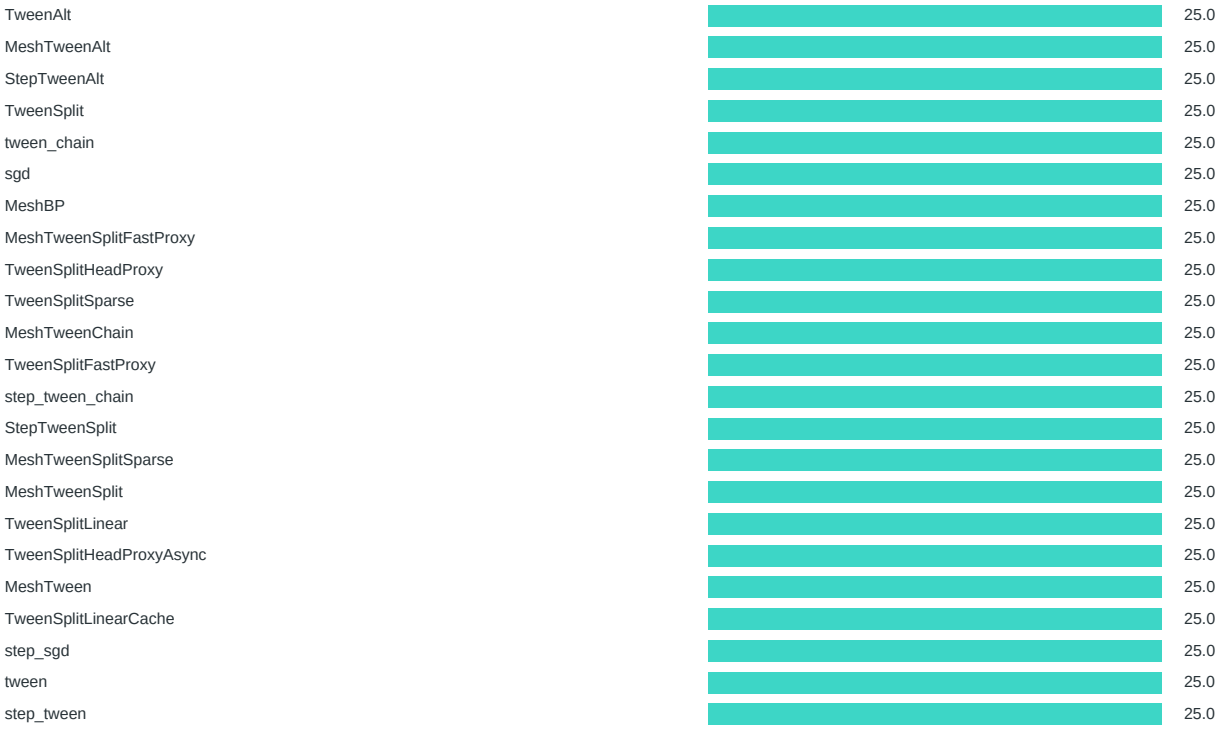

## Mean Score by train mode



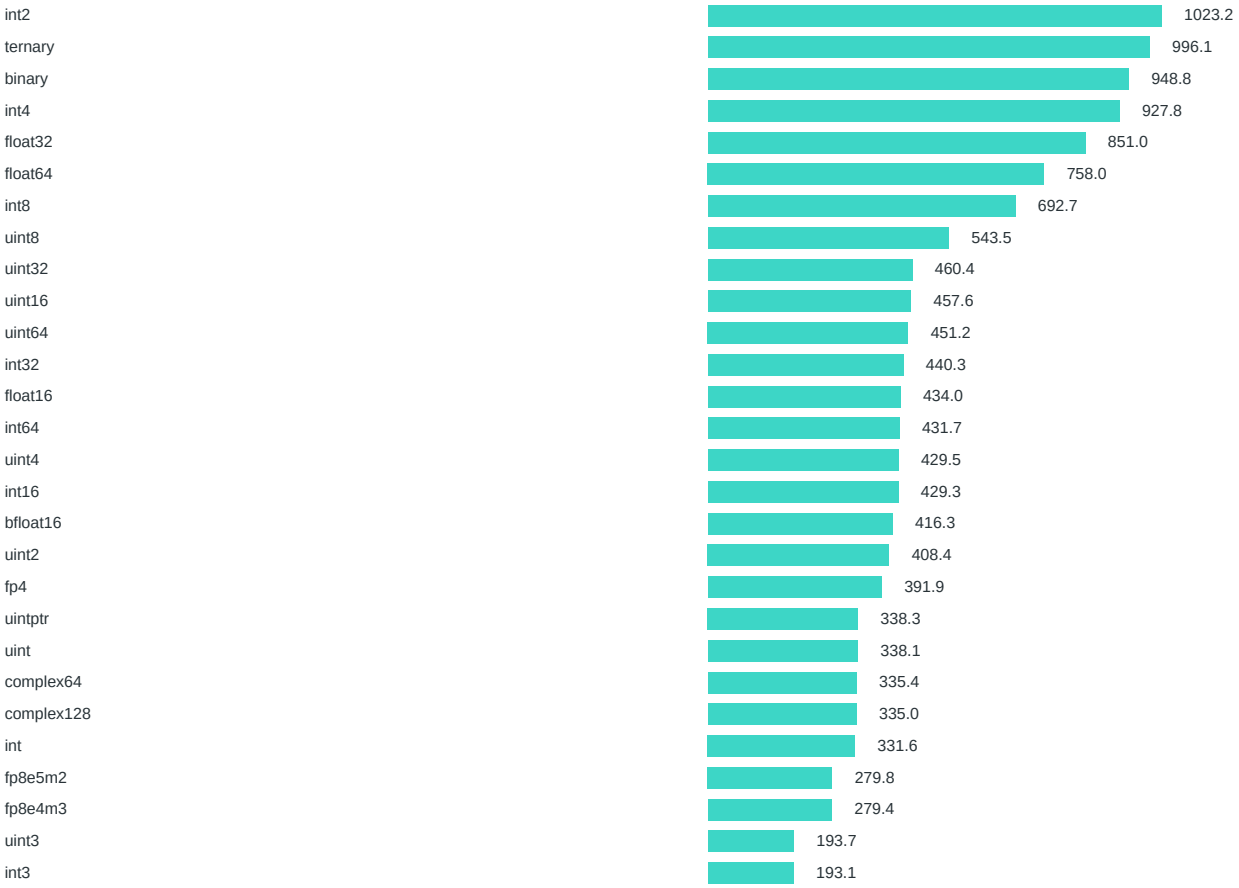

## Mean hard Acc by train mode



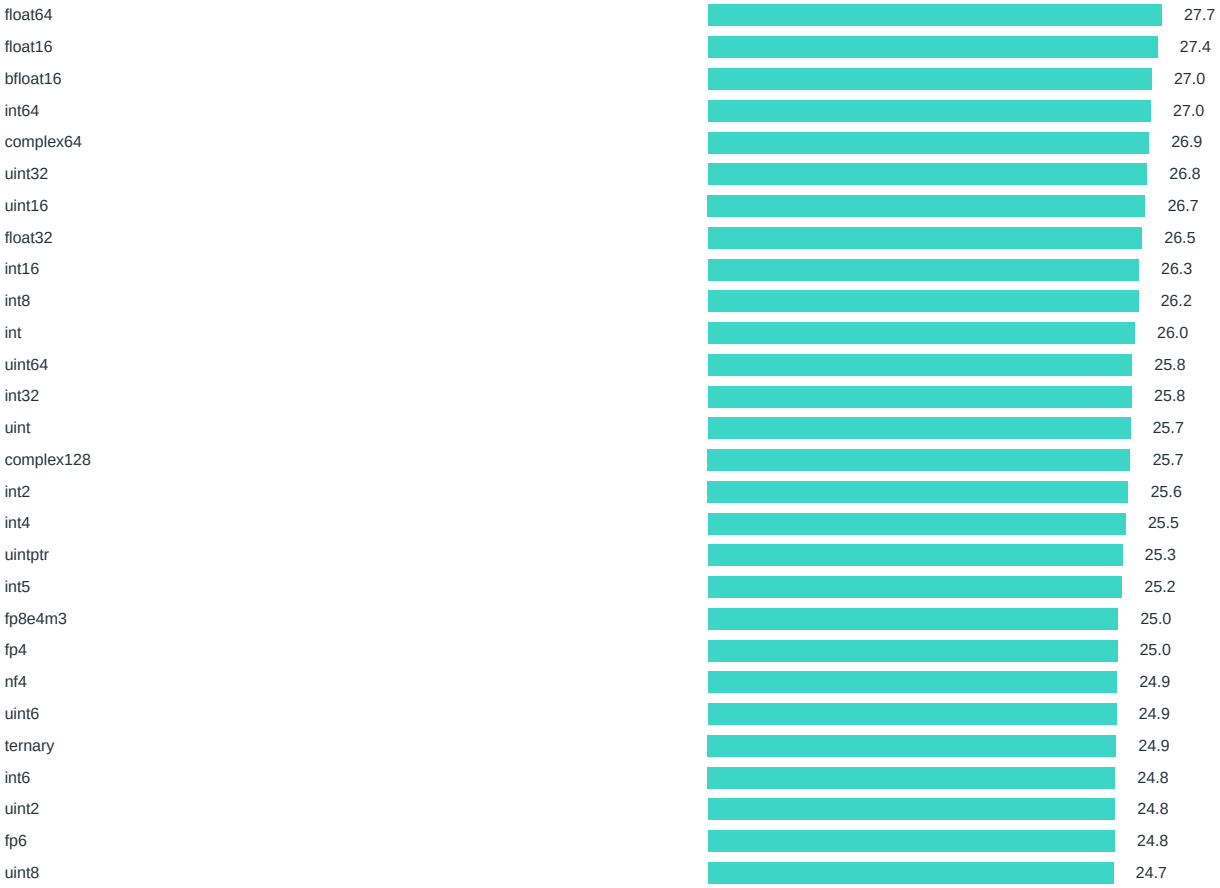

## Mean SoftAcc by train mode




## Mean Score by dtype




## Mean hard Acc by dtype




## Mean Score by arch




## Honesty - mean Score, every mode x dtype  (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 414 | 858 | 340 | 325 | 411 | 859 | 735 | 390 | 91 | 284 | 287 | 306 | 444 | 1012 | 186 | 435 |
| MeshTween | 385 | 780 | 267 | 267 | 368 | 728 | 616 | 361 | 77 | 246 | 254 | 256 | 352 | 845 | 144 | 350 |
| MeshTweenAlt | 164 | 371 | 135 | 145 | 169 | 394 | 364 | 162 | 34 | 112 | 97 | 155 | 174 | 430 | 76 | 201 |
| MeshTweenChain | 373 | 840 | 326 | 328 | 389 | 829 | 720 | 387 | 93 | 264 | 276 | 307 | 405 | 961 | 178 | 397 |
| MeshTweenSplit | 467 | 1117 | 435 | 436 | 506 | 924 | 1003 | 454 | 127 | 341 | 344 | 426 | 541 | 1129 | 275 | 569 |
| MeshTweenSplitFa | 520 | 1230 | 439 | 424 | 523 | 928 | 916 | 456 | 131 | 362 | 352 | 404 | 550 | 1233 | 245 | 588 |
| MeshTweenSplitSp | 686 | 1572 | 481 | 468 | 824 | 1584 | 1094 | 676 | 142 | 446 | 439 | 511 | 585 | 1653 | 275 | 612 |
| StepTweenAlt | 132 | 302 | 116 | 110 | 137 | 327 | 296 | 136 | 28 | 94 | 85 | 124 | 159 | 355 | 60 | 161 |
| StepTweenSplit | 384 | 854 | 276 | 295 | 400 | 734 | 594 | 318 | 80 | 246 | 242 | 266 | 328 | 898 | 156 | 364 |
| TweenAlt | 170 | 359 | 149 | 151 | 161 | 338 | 361 | 149 | 40 | 111 | 121 | 142 | 190 | 434 | 81 | 205 |
| TweenSplit | 498 | 1121 | 439 | 448 | 522 | 931 | 941 | 451 | 138 | 345 | 355 | 448 | 570 | 1232 | 264 | 583 |
| TweenSplitFastPr | 502 | 1271 | 450 | 467 | 516 | 938 | 955 | 481 | 138 | 347 | 342 | 447 | 546 | 1313 | 270 | 585 |
| TweenSplitHeadPr | 480 | 1189 | 451 | 454 | 484 | 929 | 950 | 439 | 123 | 312 | 335 | 438 | 604 | 1312 | 268 | 609 |
| TweenSplitHeadPr | 518 | 1284 | 443 | 441 | 532 | 968 | 1031 | 467 | 142 | 357 | 329 | 469 | 587 | 1296 | 274 | 594 |
| TweenSplitLinear | 261 | 731 | 275 | 285 | 248 | 549 | 684 | 247 | 69 | 185 | 172 | 289 | 361 | 735 | 166 | 341 |
| TweenSplitLinear | 533 | 1224 | 441 | 429 | 480 | 915 | 949 | 473 | 128 | 362 | 341 | 433 | 556 | 1198 | 266 | 539 |
| TweenSplitSparse | 727 | 1577 | 506 | 484 | 889 | 1560 | 1102 | 695 | 149 | 459 | 455 | 478 | 639 | 1770 | 302 | 650 |
| sgd | 473 | 1039 | 383 | 382 | 457 | 935 | 850 | 422 | 108 | 318 | 329 | 363 | 496 | 1156 | 204 | 513 |
| step_sgd | 374 | 769 | 238 | 257 | 385 | 856 | 609 | 362 | 68 | 241 | 249 | 258 | 338 | 905 | 141 | 339 |
| step_tween | 303 | 666 | 200 | 204 | 326 | 709 | 499 | 301 | 55 | 199 | 202 | 203 | 284 | 724 | 111 | 285 |
| step_tween_chain | 343 | 729 | 235 | 236 | 344 | 759 | 576 | 318 | 66 | 208 | 225 | 236 | 301 | 816 | 126 | 314 |
| tween | 432 | 900 | 313 | 317 | 439 | 926 | 746 | 425 | 88 | 279 | 286 | 301 | 394 | 1010 | 167 | 412 |
| tween_chain | 439 | 1038 | 365 | 362 | 473 | 955 | 843 | 444 | 106 | 307 | 318 | 366 | 468 | 1113 | 206 | 483 |

## Honesty - mean Score, every mode x dtype  (cols 17-32)

## Honesty - mean Score, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 897 | 140 | 130 | 430 | 680 | 195 | 919 | 334 | 471 | 408 | 184 | 475 | 431 | 155 | 138 | 469 |
| MeshTween | 761 | 112 | 95 | 353 | 625 | 158 | 769 | 268 | 372 | 346 | 163 | 376 | 346 | 118 | 104 | 372 |
| MeshTweenAlt | 418 | 65 | 54 | 211 | 282 | 75 | 381 | 174 | 219 | 161 | 74 | 207 | 181 | 60 | 59 | 204 |
| MeshTweenChain | 865 | 139 | 118 | 396 | 653 | 177 | 868 | 313 | 418 | 389 | 182 | 437 | 423 | 154 | 125 | 417 |
| MeshTweenSplit | 1092 | 196 | 175 | 570 | 805 | 235 | 1137 | 440 | 577 | 479 | 274 | 604 | 533 | 218 | 187 | 580 |
| MeshTweenSplitFa | 1164 | 200 | 176 | 543 | 737 | 224 | 1227 | 413 | 592 | 524 | 242 | 549 | 565 | 210 | 173 | 555 |
| MeshTweenSplitSp | 1490 | 219 | 190 | 605 | 1302 | 286 | 1725 | 466 | 687 | 579 | 283 | 637 | 615 | 227 | 211 | 623 |
| StepTweenAlt | 346 | 47 | 38 | 159 | 243 | 56 | 350 | 123 | 166 | 151 | 64 | 179 | 141 | 47 | 42 | 176 |
| StepTweenSplit | 830 | 117 | 106 | 340 | 610 | 149 | 871 | 274 | 374 | 319 | 158 | 359 | 324 | 127 | 112 | 378 |
| TweenAlt | 403 | 62 | 58 | 197 | 285 | 73 | 388 | 142 | 209 | 182 | 83 | 220 | 196 | 70 | 62 | 204 |
| TweenSplit | 1089 | 207 | 183 | 578 | 776 | 239 | 1253 | 440 | 594 | 507 | 255 | 604 | 552 | 217 | 194 | 564 |
| TweenSplitFastPr | 1215 | 192 | 173 | 561 | 804 | 234 | 1314 | 465 | 589 | 543 | 273 | 635 | 573 | 218 | 189 | 600 |
| TweenSplitHeadPr | 1186 | 202 | 180 | 572 | 808 | 240 | 1305 | 450 | 579 | 554 | 273 | 589 | 559 | 225 | 190 | 632 |
| TweenSplitHeadPr | 1280 | 203 | 173 | 563 | 754 | 229 | 1292 | 478 | 557 | 530 | 259 | 579 | 561 | 212 | 186 | 617 |
| TweenSplitLinear | 683 | 128 | 111 | 377 | 363 | 121 | 713 | 288 | 361 | 339 | 167 | 378 | 361 | 136 | 115 | 376 |
| TweenSplitLinear | 1102 | 193 | 173 | 533 | 736 | 237 | 1265 | 435 | 599 | 517 | 252 | 570 | 553 | 213 | 179 | 548 |
| TweenSplitSparse | 1540 | 212 | 195 | 645 | 1414 | 302 | 1723 | 509 | 661 | 634 | 298 | 673 | 636 | 249 | 207 | 656 |
| sgd | 980 | 156 | 150 | 489 | 774 | 203 | 1086 | 379 | 536 | 470 | 206 | 526 | 498 | 165 | 153 | 513 |
| step_sgd | 795 | 110 | 93 | 342 | 643 | 143 | 841 | 255 | 363 | 326 | 139 | 352 | 353 | 115 | 100 | 343 |
| step_tween | 652 | 78 | 73 | 282 | 578 | 120 | 723 | 200 | 304 | 270 | 113 | 309 | 286 | 90 | 77 | 294 |
| step_tween_chain | 715 | 94 | 81 | 306 | 595 | 141 | 772 | 237 | 332 | 308 | 130 | 337 | 304 | 105 | 87 | 320 |
| tween | 864 | 132 | 121 | 399 | 724 | 191 | 935 | 319 | 458 | 393 | 166 | 457 | 415 | 141 | 120 | 438 |
| tween_chain | 973 | 154 | 144 | 480 | 740 | 214 | 1055 | 374 | 506 | 465 | 218 | 536 | 471 | 166 | 146 | 500 |

## Honesty - mean Score, every mode x dtype  (cols 33-34)

## Honesty - mean Score, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 579 | 341 |
| MeshTween | 495 | 280 |
| MeshTweenAlt | 244 | 145 |
| MeshTweenChain | 539 | 330 |
| MeshTweenSplit | 589 | 436 |
| MeshTweenSplitFa | 605 | 428 |
| MeshTweenSplitSp | 945 | 494 |
| StepTweenAlt | 208 | 127 |
| StepTweenSplit | 494 | 278 |
| TweenAlt | 235 | 156 |
| TweenSplit | 587 | 456 |
| TweenSplitFastPr | 615 | 450 |
| TweenSplitHeadPr | 627 | 438 |
| TweenSplitHeadPr | 625 | 454 |
| TweenSplitLinear | 289 | 271 |
| TweenSplitLinear | 578 | 420 |
| TweenSplitSparse | 1025 | 486 |
| sgd | 626 | 375 |
| step_sgd | 481 | 262 |
| step_tween | 447 | 213 |
| step_tween_chain | 468 | 239 |
| tween | 580 | 323 |
| tween_chain | 620 | 380 |

## Honesty - mean hard Acc, every mode x dtype  (cols 1-16)

## Honesty - mean hard Acc, every mode x dtype  (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 33 | 22 | 26 | 30 | 27 | 29 | 29 | 25 | 25 | 25 | 23 | 26 | 23 | 25 | 25 | 28 |
| MeshTween | 33 | 25 | 24 | 28 | 31 | 28 | 29 | 25 | 26 | 24 | 27 | 25 | 27 | 34 | 23 | 24 |
| MeshTweenAlt | 25 | 24 | 25 | 27 | 25 | 25 | 27 | 26 | 26 | 27 | 24 | 26 | 26 | 25 | 24 | 26 |
| MeshTweenChain | 28 | 24 | 27 | 35 | 28 | 24 | 30 | 25 | 27 | 25 | 22 | 25 | 26 | 23 | 25 | 22 |
| MeshTweenSplit | 24 | 29 | 26 | 27 | 26 | 26 | 28 | 25 | 26 | 25 | 26 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitFa | 27 | 23 | 25 | 25 | 29 | 27 | 28 | 24 | 25 | 26 | 20 | 23 | 26 | 26 | 27 | 24 |
| MeshTweenSplitSp | 28 | 25 | 31 | 26 | 27 | 26 | 31 | 24 | 23 | 25 | 24 | 24 | 27 | 27 | 22 | 31 |
| StepTweenAlt | 25 | 24 | 27 | 28 | 26 | 26 | 27 | 25 | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 |
| StepTweenSplit | 25 | 25 | 26 | 25 | 25 | 26 | 26 | 25 | 26 | 25 | 25 | 26 | 26 | 26 | 26 | 25 |
| TweenAlt | 25 | 25 | 26 | 27 | 25 | 26 | 28 | 25 | 25 | 25 | 25 | 27 | 26 | 26 | 26 | 24 |
| TweenSplit | 25 | 25 | 27 | 27 | 25 | 26 | 27 | 25 | 26 | 25 | 25 | 27 | 26 | 25 | 24 | 26 |
| TweenSplitFastPr | 27 | 25 | 24 | 27 | 27 | 28 | 34 | 25 | 26 | 26 | 20 | 24 | 27 | 25 | 24 | 28 |
| TweenSplitHeadPr | 27 | 27 | 30 | 25 | 26 | 29 | 30 | 25 | 24 | 25 | 29 | 25 | 24 | 22 | 27 | 26 |
| TweenSplitHeadPr | 25 | 25 | 24 | 25 | 25 | 24 | 23 | 25 | 22 | 25 | 24 | 24 | 26 | 26 | 26 | 27 |
| TweenSplitLinear | 29 | 23 | 26 | 28 | 27 | 23 | 30 | 25 | 21 | 25 | 24 | 33 | 25 | 25 | 20 | 20 |
| TweenSplitLinear | 25 | 24 | 20 | 23 | 24 | 24 | 25 | 25 | 24 | 23 | 26 | 26 | 25 | 28 | 24 | 25 |
| TweenSplitSparse | 25 | 23 | 27 | 25 | 25 | 29 | 25 | 25 | 27 | 25 | 26 | 31 | 30 | 24 | 21 | 27 |
| sgd | 28 | 23 | 24 | 29 | 32 | 29 | 21 | 25 | 22 | 24 | 23 | 23 | 27 | 24 | 27 | 24 |
| step_sgd | 26 | 21 | 25 | 27 | 30 | 27 | 22 | 25 | 21 | 25 | 26 | 23 | 25 | 27 | 31 | 26 |
| step_tween | 25 | 25 | 24 | 25 | 26 | 25 | 31 | 25 | 25 | 28 | 23 | 23 | 26 | 26 | 22 | 30 |
| step_tween_chain | 28 | 26 | 26 | 25 | 30 | 27 | 27 | 25 | 25 | 27 | 25 | 31 | 28 | 26 | 23 | 27 |
| tween | 31 | 26 | 26 | 29 | 29 | 26 | 27 | 25 | 24 | 22 | 19 | 27 | 30 | 26 | 23 | 27 |
| tween_chain | 28 | 25 | 28 | 25 | 34 | 28 | 31 | 25 | 28 | 24 | 26 | 26 | 26 | 25 | 24 | 26 |

## Honesty - mean hard Acc, every mode x dtype  (cols 17-32)

## Honesty - mean hard Acc, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 25 | 22 | 25 | 30 | 25 | 20 | 32 | 29 | 25 | 26 | 24 | 26 | 26 | 28 | 27 | 26 |
| MeshTween | 30 | 21 | 27 | 31 | 30 | 31 | 24 | 27 | 25 | 20 | 25 | 31 | 22 | 21 | 24 | 26 |
| MeshTweenAlt | 25 | 23 | 25 | 27 | 24 | 25 | 26 | 26 | 26 | 24 | 25 | 25 | 25 | 25 | 24 | 25 |
| MeshTweenChain | 26 | 22 | 25 | 28 | 27 | 23 | 27 | 27 | 25 | 27 | 26 | 27 | 29 | 24 | 26 | 29 |
| MeshTweenSplit | 25 | 23 | 26 | 27 | 26 | 23 | 23 | 23 | 26 | 26 | 25 | 26 | 25 | 25 | 26 | 26 |
| MeshTweenSplitFa | 23 | 30 | 24 | 24 | 28 | 24 | 25 | 27 | 30 | 22 | 24 | 28 | 26 | 26 | 20 | 22 |
| MeshTweenSplitSp | 27 | 26 | 25 | 27 | 27 | 24 | 24 | 24 | 29 | 20 | 27 | 23 | 24 | 21 | 23 | 29 |
| StepTweenAlt | 25 | 25 | 25 | 27 | 25 | 25 | 26 | 25 | 25 | 25 | 24 | 25 | 25 | 23 | 25 | 25 |
| StepTweenSplit | 25 | 23 | 27 | 27 | 26 | 26 | 27 | 25 | 25 | 26 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenAlt | 25 | 24 | 24 | 27 | 25 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 26 | 24 | 24 | 26 |
| TweenSplit | 25 | 26 | 25 | 26 | 25 | 25 | 23 | 25 | 25 | 26 | 24 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitFastPr | 22 | 29 | 26 | 28 | 24 | 29 | 21 | 29 | 25 | 23 | 25 | 28 | 23 | 27 | 32 | 27 |
| TweenSplitHeadPr | 27 | 26 | 23 | 26 | 28 | 24 | 25 | 20 | 27 | 20 | 18 | 26 | 22 | 24 | 23 | 26 |
| TweenSplitHeadPr | 25 | 26 | 28 | 27 | 26 | 21 | 25 | 28 | 29 | 26 | 23 | 33 | 22 | 25 | 23 | 25 |
| TweenSplitLinear | 24 | 23 | 26 | 26 | 28 | 27 | 29 | 21 | 28 | 29 | 23 | 26 | 24 | 25 | 23 | 23 |
| TweenSplitLinear | 25 | 28 | 26 | 30 | 27 | 25 | 24 | 26 | 27 | 29 | 28 | 25 | 20 | 20 | 25 | 25 |
| TweenSplitSparse | 26 | 27 | 21 | 22 | 24 | 27 | 27 | 26 | 23 | 23 | 18 | 26 | 23 | 22 | 23 | 26 |
| sgd | 25 | 30 | 22 | 26 | 29 | 28 | 22 | 27 | 26 | 25 | 23 | 27 | 26 | 22 | 28 | 27 |
| step_sgd | 27 | 22 | 24 | 30 | 24 | 23 | 30 | 27 | 25 | 25 | 22 | 25 | 26 | 24 | 27 | 26 |
| step_tween | 25 | 24 | 25 | 32 | 24 | 23 | 20 | 22 | 27 | 26 | 28 | 33 | 23 | 24 | 28 | 22 |
| step_tween_chain | 26 | 26 | 23 | 25 | 27 | 25 | 24 | 27 | 27 | 29 | 28 | 25 | 27 | 26 | 15 | 25 |
| tween | 26 | 22 | 25 | 20 | 31 | 24 | 21 | 28 | 30 | 26 | 26 | 26 | 28 | 25 | 30 | 30 |
| tween_chain | 25 | 31 | 26 | 28 | 24 | 26 | 24 | 27 | 31 | 23 | 25 | 28 | 22 | 31 | 25 | 26 |

## Honesty - mean hard Acc, every mode x dtype  (cols 33-34)

## Honesty - mean hard Acc, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 25 | 25 |
| MeshTween | 21 | 30 |
| MeshTweenAlt | 25 | 25 |
| MeshTweenChain | 27 | 26 |
| MeshTweenSplit | 26 | 26 |
| MeshTweenSplitFa | 18 | 28 |
| MeshTweenSplitSp | 27 | 23 |
| StepTweenAlt | 26 | 25 |
| StepTweenSplit | 25 | 26 |
| TweenAlt | 25 | 24 |
| TweenSplit | 25 | 26 |
| TweenSplitFastPr | 28 | 27 |
| TweenSplitHeadPr | 27 | 22 |
| TweenSplitHeadPr | 27 | 27 |
| TweenSplitLinear | 26 | 22 |
| TweenSplitLinear | 25 | 20 |
| TweenSplitSparse | 24 | 28 |
| sgd | 21 | 24 |
| step_sgd | 27 | 26 |
| step_tween | 23 | 20 |
| step_tween_chain | 24 | 28 |
| tween | 21 | 25 |
| tween_chain | 25 | 30 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 1-16)

## Honesty - mean SoftAcc, every mode x dtype  (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenChain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitFastPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitSparse | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 17-32)

## Honesty - mean SoftAcc, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenChain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitFastPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitSparse | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 33-34)

## Honesty - mean SoftAcc, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 25 | 25 |
| MeshTween | 25 | 25 |
| MeshTweenAlt | 25 | 25 |
| MeshTweenChain | 25 | 25 |
| MeshTweenSplit | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 |
| StepTweenAlt | 25 | 25 |
| StepTweenSplit | 25 | 25 |
| TweenAlt | 25 | 25 |
| TweenSplit | 25 | 25 |
| TweenSplitFastPr | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 |
| TweenSplitLinear | 25 | 25 |
| TweenSplitLinear | 25 | 25 |
| TweenSplitSparse | 25 | 25 |
| sgd | 25 | 25 |
| step_sgd | 25 | 25 |
| step_tween | 25 | 25 |
| step_tween_chain | 25 | 25 |
| tween | 25 | 25 |
| tween_chain | 25 | 25 |

## Mean Score, every mode x arch

## Mean Score, every mode x arch

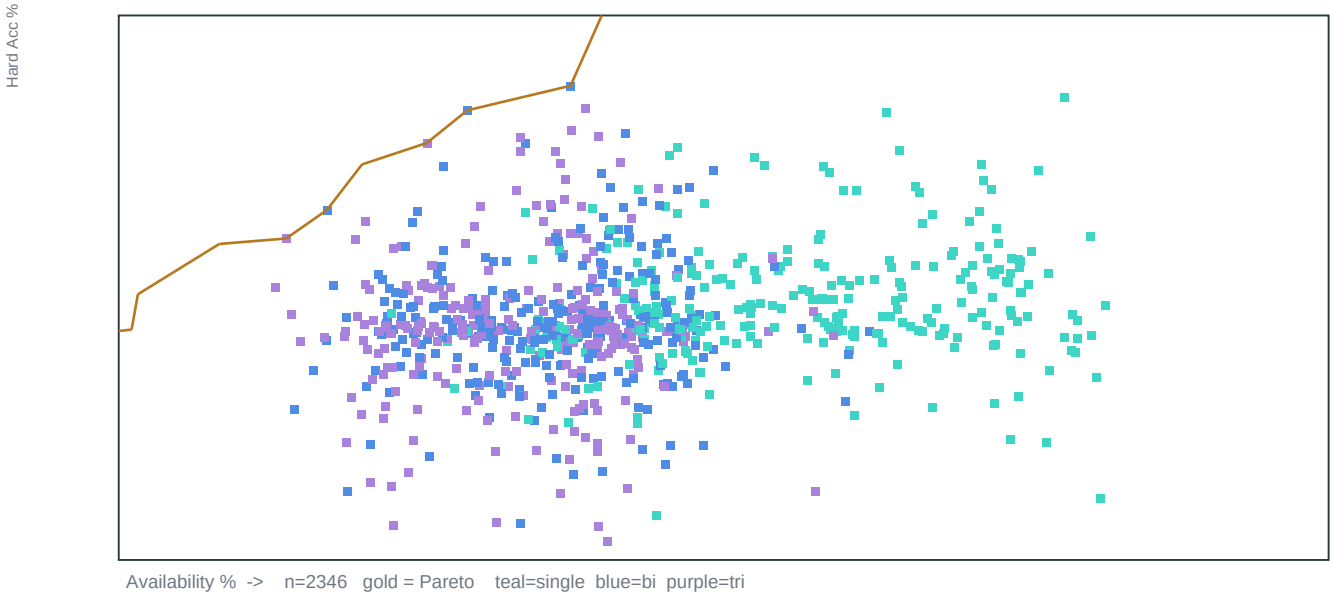
| | bicamera | singlex1 | tricamer |
|---|---|---|---|
| MeshBP | 232 | 891 | 179 |
| MeshTween | 200 | 731 | 164 |
| MeshTweenAlt | 102 | 383 | 79 |
| MeshTweenChain | 225 | 838 | 174 |
| MeshTweenSplit | 361 | 940 | 306 |
| MeshTweenSplitFa | 370 | 956 | 301 |
| MeshTweenSplitSp | 613 | 919 | 553 |
| StepTweenAlt | 83 | 322 | 61 |
| StepTweenSplit | 244 | 671 | 201 |
| TweenAlt | 99 | 384 | 81 |
| TweenSplit | 377 | 943 | 319 |
| TweenSplitFastPr | 389 | 988 | 318 |
| TweenSplitHeadPr | 380 | 976 | 320 |
| TweenSplitHeadPr | 394 | 981 | 326 |
| TweenSplitLinear | 212 | 604 | 170 |
| TweenSplitLinear | 371 | 949 | 301 |
| TweenSplitSparse | 632 | 952 | 578 |
| sgd | 262 | 1010 | 202 |
| step_sgd | 191 | 759 | 148 |
| step_tween | 165 | 622 | 128 |
| step_tween_chain | 175 | 697 | 134 |
| tween | 241 | 868 | 181 |
| tween_chain | 258 | 996 | 196 |

## Mean hard Acc, every mode x arch

## Mean hard Acc, every mode x arch

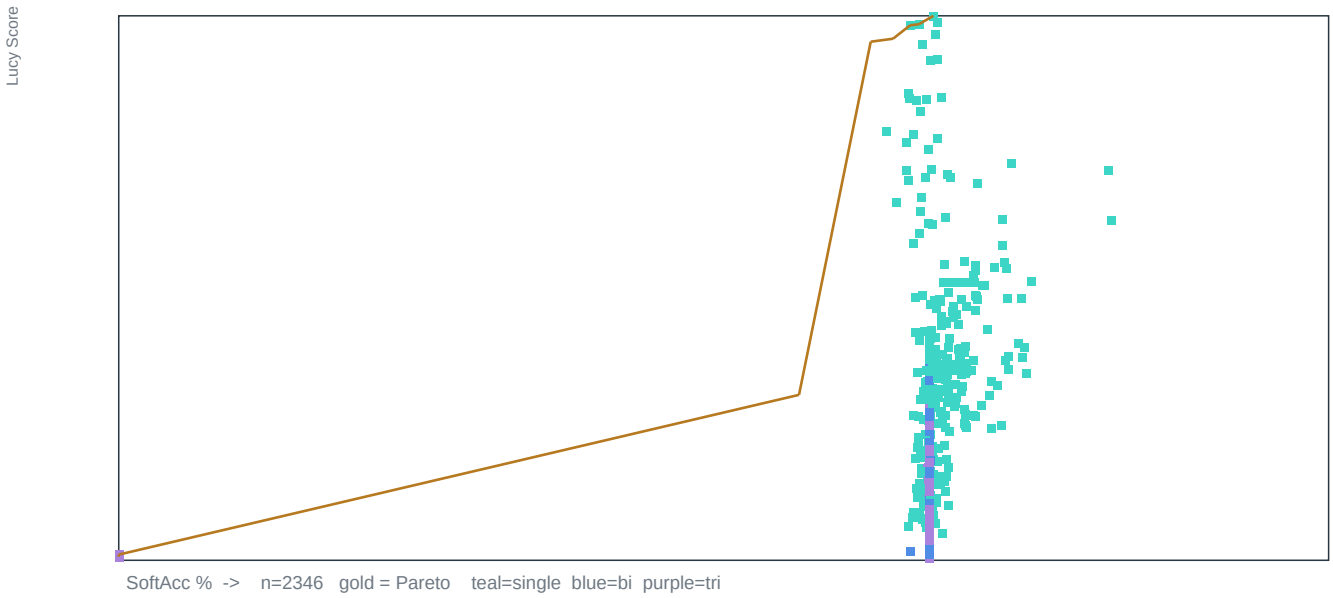
| | bicamera | singlex1 | tricamer |
|---|---|---|---|
| MeshBP | 26 | 27 | 26 |
| MeshTween | 26 | 28 | 25 |
| MeshTweenAlt | 25 | 26 | 25 |
| MeshTweenChain | 24 | 27 | 27 |
| MeshTweenSplit | 25 | 26 | 25 |
| MeshTweenSplitFa | 24 | 27 | 25 |
| MeshTweenSplitSp | 25 | 27 | 25 |
| StepTweenAlt | 25 | 26 | 25 |
| StepTweenSplit | 25 | 26 | 25 |
| TweenAlt | 25 | 26 | 25 |
| TweenSplit | 25 | 26 | 25 |
| TweenSplitFastPr | 26 | 27 | 25 |
| TweenSplitHeadPr | 23 | 28 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 |
| TweenSplitLinear | 26 | 25 | 25 |
| TweenSplitLinear | 24 | 25 | 25 |
| TweenSplitSparse | 24 | 27 | 24 |
| sgd | 26 | 27 | 24 |
| step_sgd | 25 | 27 | 25 |
| step_tween | 26 | 26 | 24 |
| step_tween_chain | 26 | 28 | 25 |
| tween | 25 | 27 | 26 |
| tween_chain | 26 | 28 | 25 |

## Avail vs hard Acc (headline scatter)

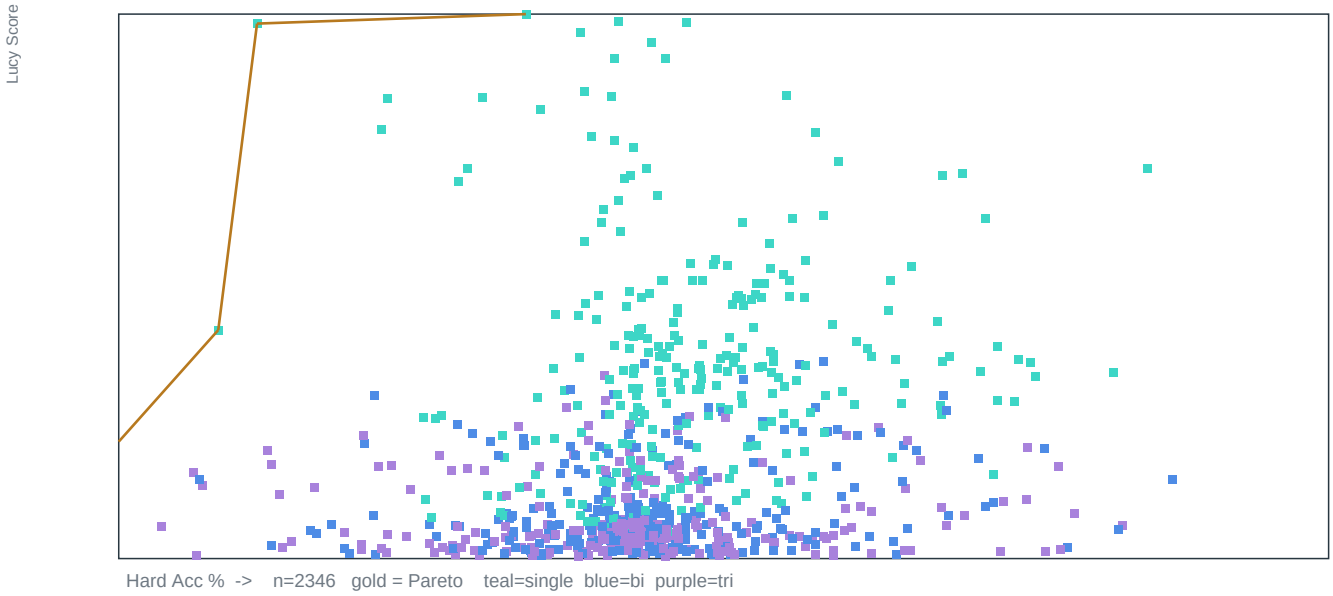



## Pareto - SoftAcc vs Score

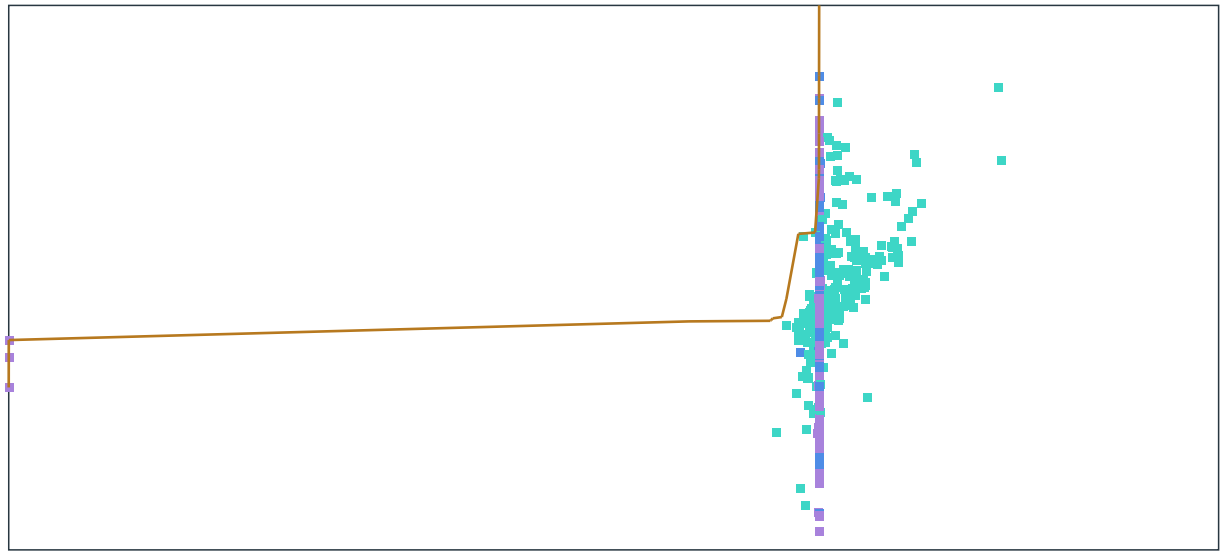
## Pareto - SoftAcc vs Score




## Pareto - hard Acc vs Score

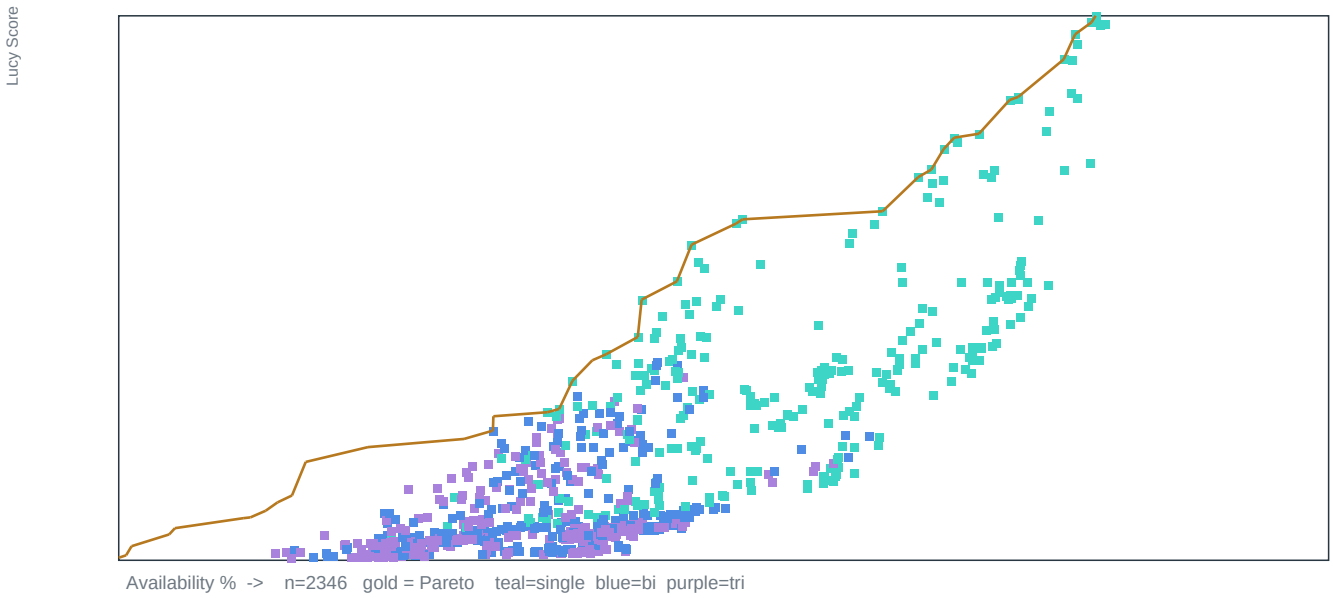



## SoftAcc vs hard Acc




SoftAcc % -> n=2346 gold = Pareto teal=single blue=bi purple=tri
Hard Acc %

## Avail vs Score (duty clock)




## Lucy Pareto (LPD) - goldilocks

Q = geomean of Score/Soft/Acc/Thru vs the Lucy Score champion. LPD = 0 if Q<70%, else Q x shrink vs champ RAM (capped 32x). Gold = Q>=80% and RAM<=20% of champ. MSpeed = Thru vs the board's fastest (0 if Q<70%). MAvail = Availability vs the board's best duty cycle (0 if Q<70%). Mix = geomean(Q, MSpeed, MAvail). Raw Score/MiB is the binary trap.

Quality champ int2|none|sgd|single|simd  Score 2230.8  Soft 25  Acc 21  Thru 24632  RAM 0.4 KiB

Board fastest int2|none|sgd|single|simd  Thru 24632  Best availability binary|none|MeshTweenSplitSparse|tricameral|simd  41.8%

No gold cell yet. Need a recipe that keeps 80% of the Score champ's Score/Soft/Acc/Thru at one fifth the RAM.

## LPD rank (Q x shrink; 0 if Q < 70%)

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| keep | binary\|none\|sgd\|single\|simd | 99 | 81 | 1.2 | 1.23 | 25 | 25 | 2204.0 | 0.3 |
| keep | binary\|none\|tween_chain\|single\|simd | 99 | 81 | 1.2 | 1.23 | 25 | 27 | 2196.3 | 0.3 |
| keep | binary\|none\|TweenSplitLinearCache\|single\|simd | 97 | 81 | 1.2 | 1.21 | 25 | 27 | 2157.3 | 0.3 |
| keep | binary\|none\|TweenSplitFastProxy\|single\|simd | 97 | 81 | 1.2 | 1.20 | 25 | 23 | 2125.2 | 0.3 |
| keep | binary\|none\|MeshTweenSplitFastProxy\|single\|simd | 95 | 81 | 1.2 | 1.18 | 25 | 24 | 2079.7 | 0.3 |
| keep | binary\|none\|TweenSplitHeadProxyAsync\|single\|simd | 95 | 81 | 1.2 | 1.18 | 25 | 20 | 2137.4 | 0.3 |
| keep | binary\|none\|TweenSplitHeadProxy\|single\|simd | 91 | 81 | 1.2 | 1.13 | 25 | 27 | 1868.2 | 0.3 |
| keep | binary\|none\|MeshTweenSplit\|single\|simd | 89 | 81 | 1.2 | 1.10 | 25 | 25 | 1806.5 | 0.3 |
| keep | binary\|none\|MeshTweenChain\|single\|simd | 89 | 81 | 1.2 | 1.10 | 25 | 23 | 1736.7 | 0.3 |
| keep | binary\|none\|MeshTweenSplitSparse\|single\|simd | 89 | 81 | 1.2 | 1.10 | 25 | 27 | 1774.4 | 0.3 |
| keep | binary\|none\|TweenSplit\|single\|simd | 88 | 81 | 1.2 | 1.09 | 25 | 25 | 1753.9 | 0.3 |
| keep | binary\|none\|tween\|single\|simd | 88 | 81 | 1.2 | 1.09 | 25 | 17 | 1887.8 | 0.3 |
| keep | binary\|none\|step_sgd\|single\|simd | 87 | 81 | 1.2 | 1.08 | 25 | 26 | 1604.0 | 0.3 |
| keep | binary\|none\|MeshTween\|single\|simd | 84 | 81 | 1.2 | 1.04 | 25 | 19 | 1601.2 | 0.3 |
| keep | binary\|none\|MeshBP\|single\|simd | 84 | 81 | 1.2 | 1.04 | 25 | 17 | 1762.4 | 0.3 |
| keep | binary\|none\|step_tween_chain\|single\|simd | 83 | 81 | 1.2 | 1.03 | 25 | 19 | 1550.3 | 0.3 |
| keep | binary\|none\|step_tween\|single\|simd | 82 | 81 | 1.2 | 1.01 | 25 | 29 | 1381.2 | 0.3 |
| keep | binary\|none\|TweenSplitLinear\|single\|simd | 82 | 81 | 1.2 | 1.01 | 25 | 27 | 1405.7 | 0.3 |
| keep | binary\|none\|TweenSplitSparse\|single\|simd | 82 | 81 | 1.2 | 1.01 | 25 | 13 | 1928.0 | 0.3 |
| keep | binary\|none\|StepTweenSplit\|single\|simd | 81 | 81 | 1.2 | 1.00 | 25 | 25 | 1408.1 | 0.3 |

## Mobile speed - Thru vs board fastest (Q >= 70%)

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| keep | int2\|none\|sgd\|single\|simd | 100 | 100 | 87 | 95 | 1.00 | 24632 | 36.2 |
| keep | binary\|none\|sgd\|single\|simd | 99 | 99 | 86 | 95 | 1.23 | 24401 | 36.1 |

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| keep | ternary\|none\|sgd\|single\|simd | 86 | 98 | 87 | 90 | 0.86 | 24154 | 36.3 |
| keep | ternary\|none\|tween_chain\|single\|simd | 99 | 98 | 86 | 94 | 0.99 | 24127 | 35.7 |
| keep | binary\|none\|tween_chain\|single\|simd | 99 | 98 | 87 | 95 | 1.23 | 24106 | 36.5 |
| keep | int2\|none\|tween_chain\|single\|simd | 98 | 96 | 86 | 93 | 0.98 | 23671 | 35.8 |
| keep | int4\|none\|sgd\|single\|simd | 96 | 94 | 85 | 92 | 0.70 | 23155 | 35.5 |
| keep | int4\|none\|tween_chain\|single\|simd | 96 | 93 | 85 | 92 | 0.70 | 23002 | 35.7 |
| keep | binary\|none\|TweenSplitLinearCache\|single\|simd | 97 | 93 | 90 | 93 | 1.21 | 22947 | 37.6 |
| keep | binary\|none\|TweenSplitHeadProxyAsync\|single\|simd | 95 | 92 | 90 | 93 | 1.18 | 22762 | 37.6 |

## Mobile availability - duty cycle vs board best (Q >= 70%)

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| - | binary\|none\|MeshTweenSplitSparse\|tricameral\|simd | 73 | 49 | 100 | 71 | 0.13 | 12123 | 41.8 |
| - | binary\|none\|TweenSplitSparse\|tricameral\|simd | 77 | 56 | 100 | 76 | 0.13 | 13721 | 41.8 |
| keep | ternary\|none\|MeshTweenSplitSparse\|tricameral\|simd | 81 | 61 | 100 | 79 | 0.07 | 15017 | 41.6 |
| keep | binary\|none\|MeshTweenSplitSparse\|bicameral\|simd | 84 | 66 | 99 | 82 | 0.19 | 16134 | 41.5 |
| keep | ternary\|none\|TweenSplitSparse\|bicameral\|simd | 85 | 68 | 99 | 83 | 0.10 | 16631 | 41.3 |
| keep | int2\|none\|TweenSplitSparse\|tricameral\|simd | 83 | 64 | 99 | 81 | 0.08 | 15805 | 41.2 |
| keep | ternary\|none\|MeshTweenSplitSparse\|bicameral\|simd | 85 | 67 | 99 | 83 | 0.10 | 16592 | 41.2 |
| - | binary\|none\|TweenSplitSparse\|bicameral\|simd | 76 | 54 | 99 | 74 | 0.17 | 13304 | 41.2 |
| - | int2\|none\|TweenSplitSparse\|bicameral\|simd | 78 | 68 | 98 | 81 | 0.09 | 16839 | 41.1 |
| - | int2\|none\|MeshTweenSplitSparse\|tricameral\|simd | 80 | 60 | 98 | 78 | 0.07 | 14714 | 41.1 |

## Mix - geomean of Q, MSpeed, MAvail

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| keep | int2\|none\|sgd\|single\|simd | 100 | 100 | 87 | 95 | 1.00 | 24632 | 36.2 |
| keep | binary\|none\|sgd\|single\|simd | 99 | 99 | 86 | 95 | 1.23 | 24401 | 36.1 |
| keep | binary\|none\|tween_chain\|single\|simd | 99 | 98 | 87 | 95 | 1.23 | 24106 | 36.5 |
| keep | ternary\|none\|tween_chain\|single\|simd | 99 | 98 | 86 | 94 | 0.99 | 24127 | 35.7 |
| keep | binary\|none\|TweenSplitLinearCache\|single\|simd | 97 | 93 | 90 | 93 | 1.21 | 22947 | 37.6 |
| keep | int2\|none\|tween_chain\|single\|simd | 98 | 96 | 86 | 93 | 0.98 | 23671 | 35.8 |
| keep | binary\|none\|TweenSplitFastProxy\|single\|simd | 97 | 92 | 90 | 93 | 1.20 | 22621 | 37.6 |
| keep | binary\|none\|TweenSplitHeadProxyAsync\|single\|simd | 95 | 92 | 90 | 93 | 1.18 | 22762 | 37.6 |
| keep | int4\|none\|TweenSplitHeadProxyAsync\|single\|simd | 97 | 92 | 90 | 93 | 0.70 | 22577 | 37.5 |
| keep | ternary\|none\|TweenSplitLinearCache\|single\|simd | 96 | 92 | 89 | 92 | 0.96 | 22636 | 37.1 |

## LPD - Q% vs RAM KiB (gold = high Q, low RAM)

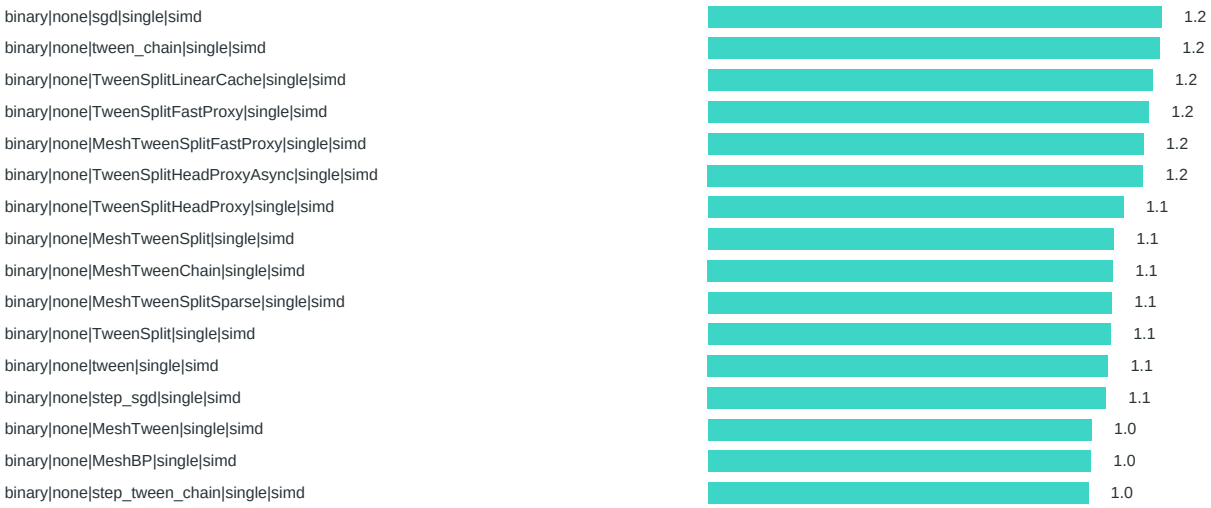



RAM KiB -> n=40 gold = Pareto teal=single blue=bi purple=tri
Q %

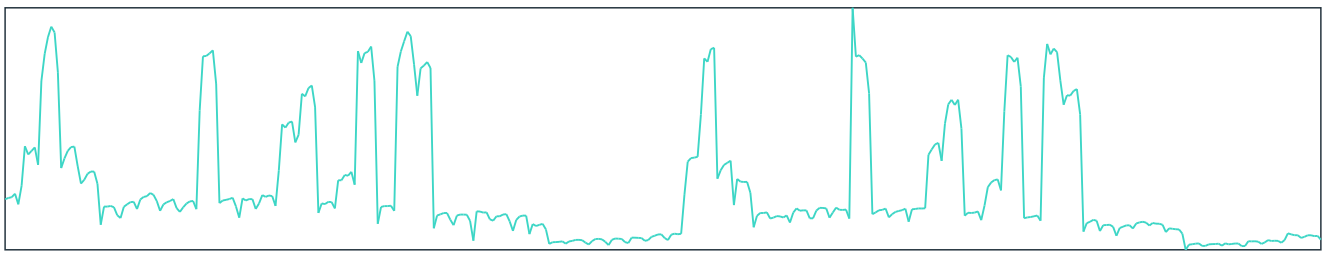
## LPD - Q% vs shrink vs champ (gold = upper right)




## Top LPD

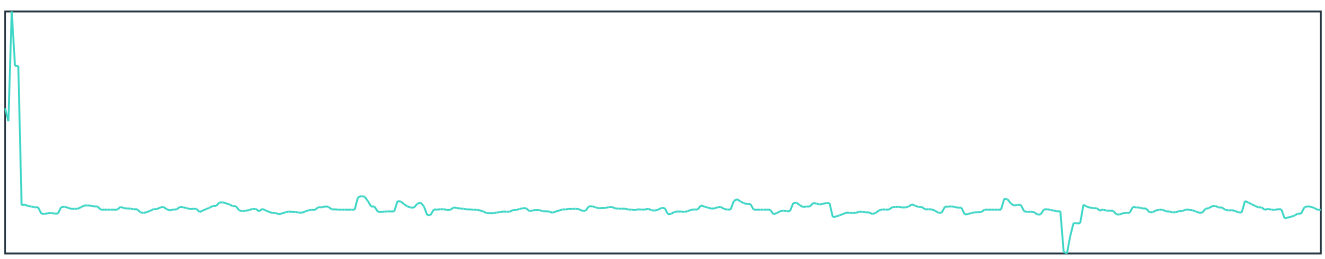



## Pulse Score - lstm



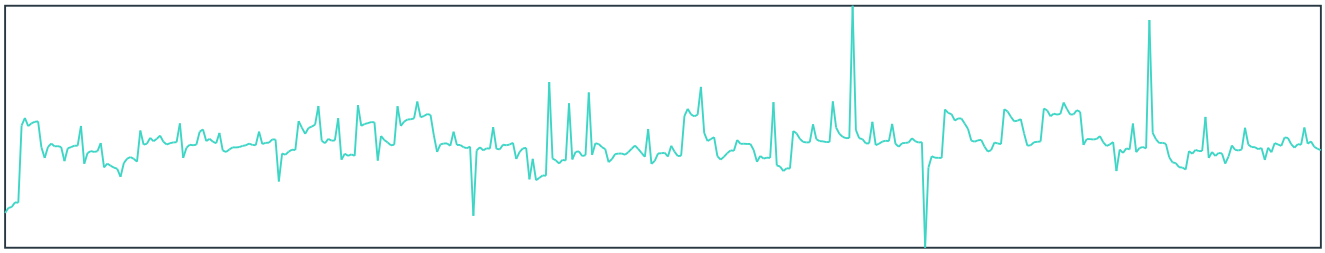
n=400 min=73.28 max=2204.57

## Pulse SoftAcc - lstm



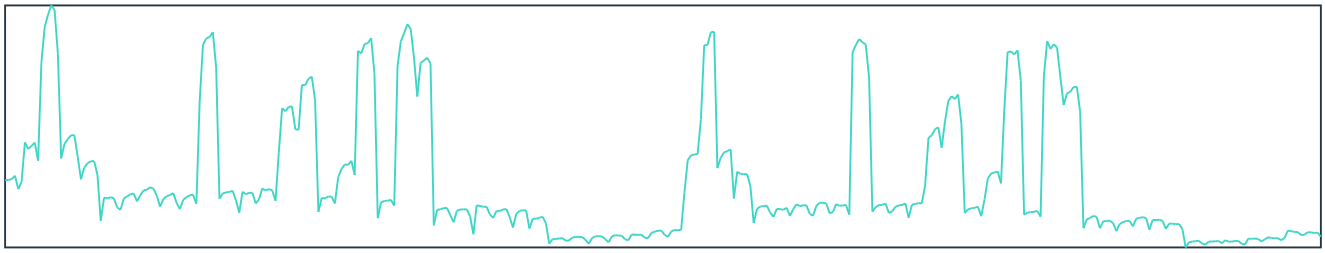
n=400 min=25.00 max=25.01

## Pulse Availability - lstm



n=400 min=29.25 max=51.56

## Pulse Throughput - lstm



n=400 min=803.96 max=20983.50

## Queue by train mode (this epoch)

| Mode | Done | Run | Left | Total |
|---|---|---|---|---|
| sgd | 102 | 0 | 0 | 102 |
| step_sgd | 102 | 0 | 0 | 102 |
| tween | 102 | 0 | 0 | 102 |
| tween_chain | 102 | 0 | 0 | 102 |
| step_tween | 102 | 0 | 0 | 102 |
| step_tween_chain | 102 | 0 | 0 | 102 |
| MeshBP | 102 | 0 | 0 | 102 |
| MeshTween | 102 | 0 | 0 | 102 |
| MeshTweenChain | 102 | 0 | 0 | 102 |
| TweenSplit | 102 | 0 | 0 | 102 |
| StepTweenSplit | 102 | 0 | 0 | 102 |
| TweenAlt | 102 | 0 | 0 | 102 |
| StepTweenAlt | 102 | 0 | 0 | 102 |
| TweenSplitHeadProxy | 102 | 0 | 0 | 102 |
| TweenSplitLinear | 102 | 0 | 0 | 102 |
| TweenSplitFastProxy | 102 | 0 | 0 | 102 |
| TweenSplitLinearCache | 102 | 0 | 0 | 102 |
| TweenSplitHeadProxyAsync | 102 | 0 | 0 | 102 |
| TweenSplitSparse | 102 | 0 | 0 | 102 |
| MeshTweenSplit | 102 | 0 | 0 | 102 |
| MeshTweenAlt | 102 | 0 | 0 | 102 |
| MeshTweenSplitFastProxy | 102 | 0 | 0 | 102 |
| MeshTweenSplitSparse | 102 | 0 | 0 | 102 |

# tide  mamba

Score = Throughput x Availability% x SoftAcc% / 10,000
done - epoch 1 - 2026-08-18 09:45:25 - 0.0.0.0:8111
This epoch 2346 / 2346 cells. Recorded 2346 results.
Score 0 usually means the cell finished before a Lucy pulse (SoftAcc never sampled) or true-class mass was 0. Those rows do not vote holistically.
mamba - selective SSM associative recall - modes all - min 2000ms/cell - 1024 train - pulse 50ms - SIMD true

## Lucy champions (this tide)

| Axis | Cell | Score | Soft | Acc | Thru | Avail |
|---|---|---|---|---|---|---|
| score | float32\|none\|sgd\|single\|simd | 4360.51 | 25.1 | 29.4 | 43644.2 | 39.8 |
| throughput | float32\|none\|MeshTweenSplit\|single\|simd | 2826.62 | 9.3 | 24.9 | 74750.3 | 40.9 |
| availability | float32\|none\|MeshTweenSplitSparse\|bicameral\|simd | 2814.49 | 25.0 | 25.5 | 25570.6 | 44.0 |
| accuracy | float32\|none\|StepTweenAlt\|single\|simd | 1833.97 | 25.8 | 29.7 | 23792.5 | 29.8 |
| mobile score (tra | binary\|none\|tween_chain\|single\|simd | 3374.89 | 25.0 | 22.5 | 35877.3 | 37.7 |
| t->50% | uint6\|none\|tween_chain\|tricameral\|simd | 44.78 | 25.0 | 23.7 | 741.2 | 24.2 |
| acc/sec | float16\|none\|TweenSplit\|single\|simd | 2919.16 | 25.5 | 27.7 | 29318.5 | 39.1 |

## Lucy axes - mamba

| Axis | Mode | DType | Arch | Value |
|---|---|---|---|---|
| score | sgd | float32 | singlex1 | 4360.51 |
| soft_acc | StepTweenAlt | float32 | singlex1 | 25.84 |
| hard_acc | TweenSplitLinear | fp6 | bicameralx2 | 35.16 |
| throughput | MeshTweenSplit | float32 | singlex1 | 74750.28 |
| availability | MeshTweenSplitS~ | float32 | bicameralx2 | 44.03 |
| acc_thru | sgd | float32 | singlex1 | 10949.30 |
| realtime | MeshTweenSplit | float32 | singlex1 | 30542.40 |
| adapt | MeshTweenAlt | float16 | singlex1 | 26.30 |
| keep_learn | MeshTweenAlt | float32 | bicameralx2 | 12.59 |
| acc_per_sec | TweenSplit | float16 | singlex1 | 12.69 |
| time_to_50 | tween_chain | uint6 | tricameralx3 | 0.16 |
| consistency | sgd | float64 | singlex1 | 100.00 |
| stability | sgd | fp4 | singlex1 | 100.00 |
| mobile_score | tween_chain | binary | singlex1 | 44235381.94 |
| lpd | sgd | binary | singlex1 | 27.91 |
| mspeed | TweenSplit | float32 | singlex1 | 0.72 |
| mavail | MeshTweenSplitS~ | float32 | bicameralx2 | 1.00 |
| mix | TweenSplit | float32 | singlex1 | 0.85 |

## Best settings per train mode

| Mode | DType | Format | Score | Soft | Acc | Avail | n |
|---|---|---|---|---|---|---|---|
| sgd | float32 | none | 4360.5 | 25.1 | 29.4 | 39.8 | 102 |
| TweenSplit | float32 | none | 4294.0 | 19.3 | 25.5 | 41.2 | 102 |
| tween_chain | float32 | none | 4158.6 | 25.1 | 28.2 | 39.5 | 102 |
| TweenSplitLinearCache | float32 | none | 4086.2 | 25.0 | 26.5 | 40.7 | 102 |
| MeshTweenSplitSparse | float32 | none | 3930.3 | 25.0 | 27.0 | 41.1 | 102 |
| TweenSplitSparse | float32 | none | 3870.5 | 25.1 | 28.4 | 41.0 | 102 |
| MeshTweenSplitFastProxy | float32 | none | 3866.0 | 25.1 | 28.5 | 40.7 | 102 |
| MeshBP | float32 | none | 3814.0 | 25.1 | 29.4 | 39.2 | 102 |
| TweenSplitFastProxy | float32 | none | 3807.1 | 25.1 | 29.3 | 40.9 | 102 |
| tween | float32 | none | 3805.7 | 25.0 | 27.7 | 38.1 | 102 |
| TweenSplitHeadProxyAsync | float32 | none | 3657.0 | 25.0 | 25.2 | 40.9 | 102 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| MeshTweenChain | float32 | none | 3588.6 | 25.0 | 27.5 | 39.0 | 102 |
| TweenSplitHeadProxy | float32 | none | 3586.4 | 25.1 | 28.6 | 40.6 | 102 |
| MeshTweenSplit | int8 | none | 3414.1 | 25.0 | 26.6 | 40.6 | 102 |
| StepTweenSplit | float32 | none | 3386.6 | 19.9 | 25.3 | 38.2 | 102 |
| MeshTween | float32 | none | 3312.4 | 25.0 | 30.7 | 37.8 | 102 |
| step_sgd | float32 | none | 3275.1 | 25.1 | 28.9 | 36.4 | 102 |
| step_tween_chain | float32 | none | 3211.4 | 25.0 | 26.4 | 35.9 | 102 |
| step_tween | float32 | none | 2944.7 | 25.0 | 24.9 | 34.6 | 102 |
| TweenSplitLinear | float32 | none | 2789.5 | 25.0 | 27.1 | 35.9 | 102 |
| MeshTweenAlt | float32 | none | 2614.1 | 21.0 | 26.3 | 34.6 | 102 |
| TweenAlt | float32 | none | 2264.9 | 21.3 | 26.5 | 34.2 | 102 |
| StepTweenAlt | float32 | none | 1834.0 | 25.8 | 29.7 | 29.8 | 102 |

## Best dtype per mode

| Mode | Winner dtype | Score | Soft | Acc |
|---|---|---|---|---|
| sgd | float32 | 4360.5 | 25.1 | 29.4 |
| TweenSplit | float32 | 4294.0 | 19.3 | 25.5 |
| tween_chain | float32 | 4158.6 | 25.1 | 28.2 |
| TweenSplitLinearCache | float32 | 4086.2 | 25.0 | 26.5 |
| MeshTweenSplitSparse | float32 | 3930.3 | 25.0 | 27.0 |
| TweenSplitSparse | float32 | 3870.5 | 25.1 | 28.4 |
| MeshTweenSplitFastProxy | float32 | 3866.0 | 25.1 | 28.5 |
| MeshBP | float32 | 3814.0 | 25.1 | 29.4 |
| TweenSplitFastProxy | float32 | 3807.1 | 25.1 | 29.3 |
| tween | float32 | 3805.7 | 25.0 | 27.7 |
| TweenSplitHeadProxyAsync | float32 | 3657.0 | 25.0 | 25.2 |
| MeshTweenChain | float32 | 3588.6 | 25.0 | 27.5 |
| TweenSplitHeadProxy | float32 | 3586.4 | 25.1 | 28.6 |
| MeshTweenSplit | int8 | 3414.1 | 25.0 | 26.6 |
| StepTweenSplit | float32 | 3386.6 | 19.9 | 25.3 |
| MeshTween | float32 | 3312.4 | 25.0 | 30.7 |
| step_sgd | float32 | 3275.1 | 25.1 | 28.9 |
| step_tween_chain | float32 | 3211.4 | 25.0 | 26.4 |
| step_tween | float32 | 2944.7 | 25.0 | 24.9 |
| TweenSplitLinear | float32 | 2789.5 | 25.0 | 27.1 |
| MeshTweenAlt | float32 | 2614.1 | 21.0 | 26.3 |
| TweenAlt | float32 | 2264.9 | 21.3 | 26.5 |
| StepTweenAlt | float32 | 1834.0 | 25.8 | 29.7 |

## Best mode per dtype

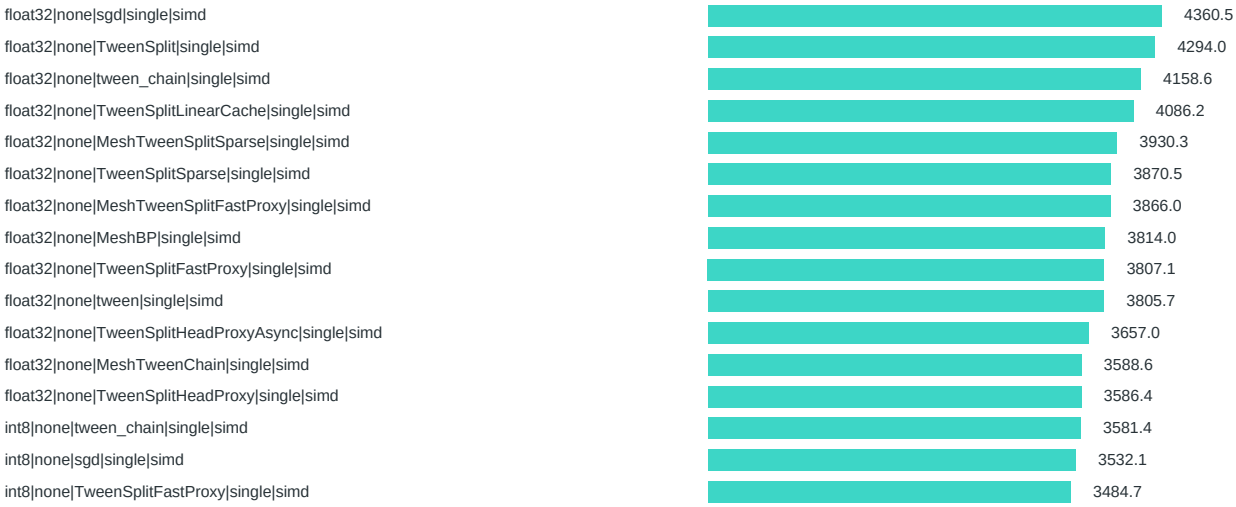
| DType | Winner mode | Score | Soft | Acc |
|---|---|---|---|---|
| float32 | sgd | 4360.5 | 25.1 | 29.4 |
| int8 | tween_chain | 3581.4 | 25.0 | 26.1 |
| ternary | sgd | 3482.3 | 25.0 | 26.7 |
| int2 | tween_chain | 3386.0 | 25.0 | 22.2 |
| binary | tween_chain | 3374.9 | 25.0 | 22.5 |
| int4 | tween_chain | 3291.2 | 25.0 | 22.8 |
| uint8 | sgd | 3093.0 | 25.0 | 25.1 |
| float16 | sgd | 3038.2 | 25.0 | 26.6 |
| fp4 | sgd | 2706.8 | 25.0 | 25.2 |
| float64 | sgd | 2526.1 | 25.1 | 28.4 |
| bfloat16 | tween_chain | 2463.8 | 25.0 | 24.9 |

| | | | | |
|---|---|---|---|---|
| fp8e5m2 | tween_chain | 1704.4 | 25.0 | 26.6 |
| fp8e4m3 | sgd | 1670.7 | 25.0 | 25.2 |
| uint16 | sgd | 1646.3 | 25.0 | 26.9 |
| uint32 | tween_chain | 1625.7 | 25.0 | 25.3 |
| int32 | MeshTweenSplitSparse | 1591.6 | 25.0 | 24.9 |
| uint64 | tween_chain | 1558.3 | 25.0 | 26.8 |
| int64 | sgd | 1556.2 | 25.0 | 26.0 |
| uint4 | tween_chain | 1535.9 | 25.0 | 20.8 |
| int16 | sgd | 1528.9 | 25.0 | 26.3 |
| uint2 | TweenSplitSparse | 1393.9 | 25.0 | 30.2 |
| uintptr | sgd | 1183.8 | 25.0 | 25.3 |
| complex64 | MeshTweenSplit | 1164.9 | 25.2 | 26.8 |
| int | tween_chain | 1157.9 | 25.0 | 26.6 |
| uint | TweenSplit | 1146.8 | 25.0 | 26.8 |
| complex128 | TweenSplitHeadProxy | 1139.8 | 25.0 | 25.6 |
| nf4 | TweenSplit | 1113.2 | 25.0 | 24.9 |
| int3 | MeshTweenSplitSparse | 683.9 | 25.0 | 25.3 |
| uint3 | TweenSplitHeadProxyAsync | 654.5 | 25.0 | 20.5 |
| uint5 | MeshTweenSplit | 517.5 | 25.0 | 25.7 |
| int5 | TweenSplitHeadProxyAsync | 514.3 | 25.0 | 27.1 |
| uint6 | TweenSplitFastProxy | 460.2 | 25.0 | 26.2 |
| fp6 | TweenSplitLinearCache | 457.3 | 25.0 | 28.5 |
| int6 | TweenSplitFastProxy | 439.1 | 25.0 | 24.5 |

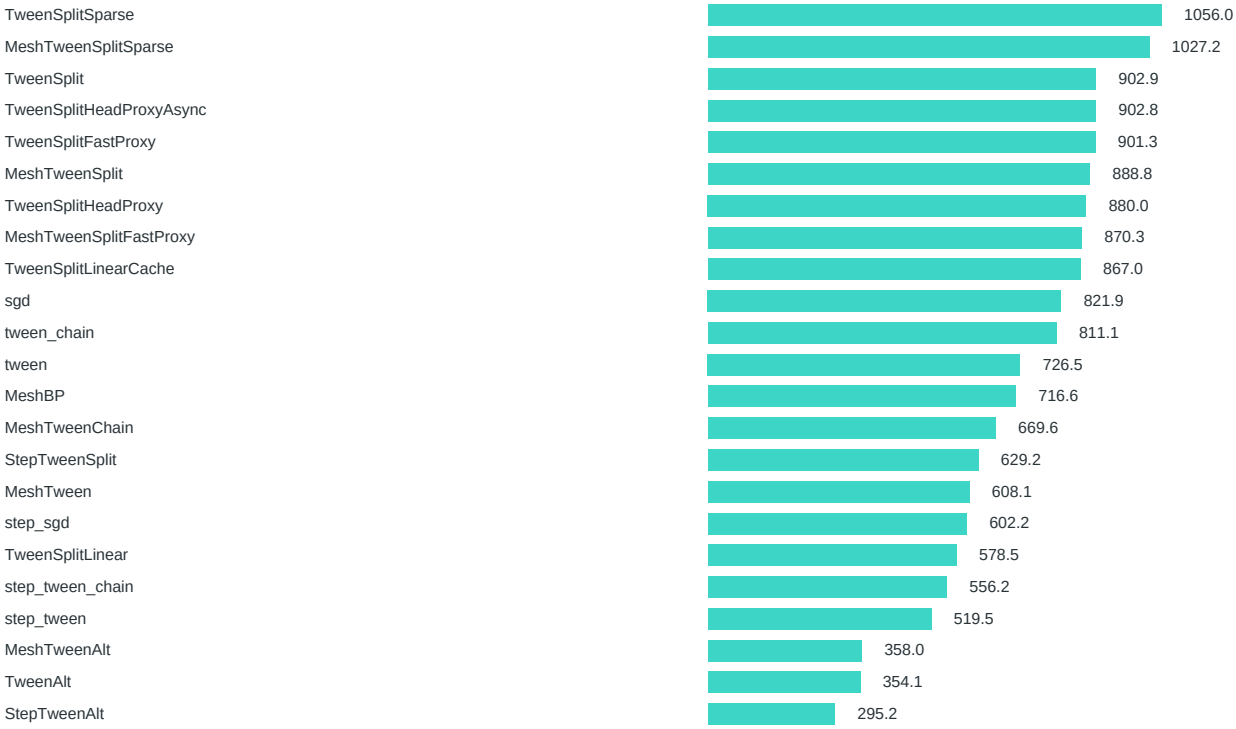
## Leaderboard - mamba

| # | Cell | Score | Soft | Acc | Thru | Avail |
|---|---|---|---|---|---|---|
| 1 | float32\|none\|sgd\|single\|simd | 4360.5 | 25.1 | 29.4 | 43644.2 | 39.8 |
| 2 | float32\|none\|TweenSplit\|single\|simd | 4294.0 | 19.3 | 25.5 | 54044.9 | 41.2 |
| 3 | float32\|none\|tween_chain\|single\|simd | 4158.6 | 25.1 | 28.2 | 42033.4 | 39.5 |
| 4 | float32\|none\|TweenSplitLinearCache\|single\|simd | 4086.2 | 25.0 | 26.5 | 40083.8 | 40.7 |
| 5 | float32\|none\|MeshTweenSplitSparse\|single\|simd | 3930.3 | 25.0 | 27.0 | 38165.5 | 41.1 |
| 6 | float32\|none\|TweenSplitSparse\|single\|simd | 3870.5 | 25.1 | 28.4 | 37625.5 | 41.0 |
| 7 | float32\|none\|MeshTweenSplitFastProxy\|single\|simd | 3866.0 | 25.1 | 28.5 | 37952.5 | 40.7 |
| 8 | float32\|none\|MeshBP\|single\|simd | 3814.0 | 25.1 | 29.4 | 38761.7 | 39.2 |
| 9 | float32\|none\|TweenSplitFastProxy\|single\|simd | 3807.1 | 25.1 | 29.3 | 37078.0 | 40.9 |
| 10 | float32\|none\|tween\|single\|simd | 3805.7 | 25.0 | 27.7 | 39899.8 | 38.1 |
| 11 | float32\|none\|TweenSplitHeadProxyAsync\|single\|simd | 3657.0 | 25.0 | 25.2 | 35731.7 | 40.9 |
| 12 | float32\|none\|MeshTweenChain\|single\|simd | 3588.6 | 25.0 | 27.5 | 36739.8 | 39.0 |
| 13 | float32\|none\|TweenSplitHeadProxy\|single\|simd | 3586.4 | 25.1 | 28.6 | 35215.1 | 40.6 |
| 14 | int8\|none\|tween_chain\|single\|simd | 3581.4 | 25.0 | 26.1 | 37326.4 | 38.4 |
| 15 | int8\|none\|sgd\|single\|simd | 3532.1 | 25.0 | 25.2 | 36380.7 | 38.8 |
| 16 | int8\|none\|TweenSplitFastProxy\|single\|simd | 3484.7 | 25.0 | 25.0 | 35144.5 | 39.7 |
| 17 | ternary\|none\|sgd\|single\|simd | 3482.3 | 25.0 | 26.7 | 36460.3 | 38.2 |
| 18 | int8\|none\|TweenSplit\|single\|simd | 3417.5 | 25.1 | 27.5 | 33911.6 | 40.2 |
| 19 | int8\|none\|MeshTweenSplit\|single\|simd | 3414.1 | 25.0 | 26.6 | 33546.2 | 40.6 |
| 20 | float32\|none\|StepTweenSplit\|single\|simd | 3386.6 | 19.9 | 25.3 | 44646.4 | 38.2 |

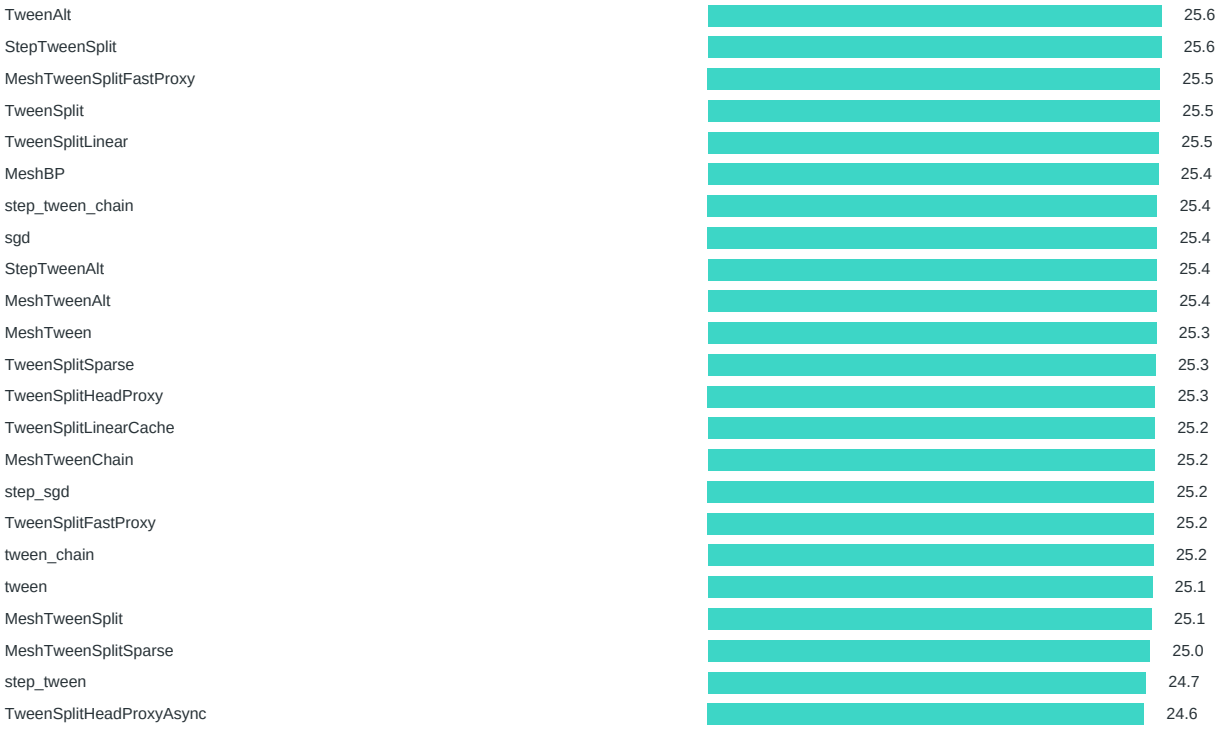
## Top scores - mamba



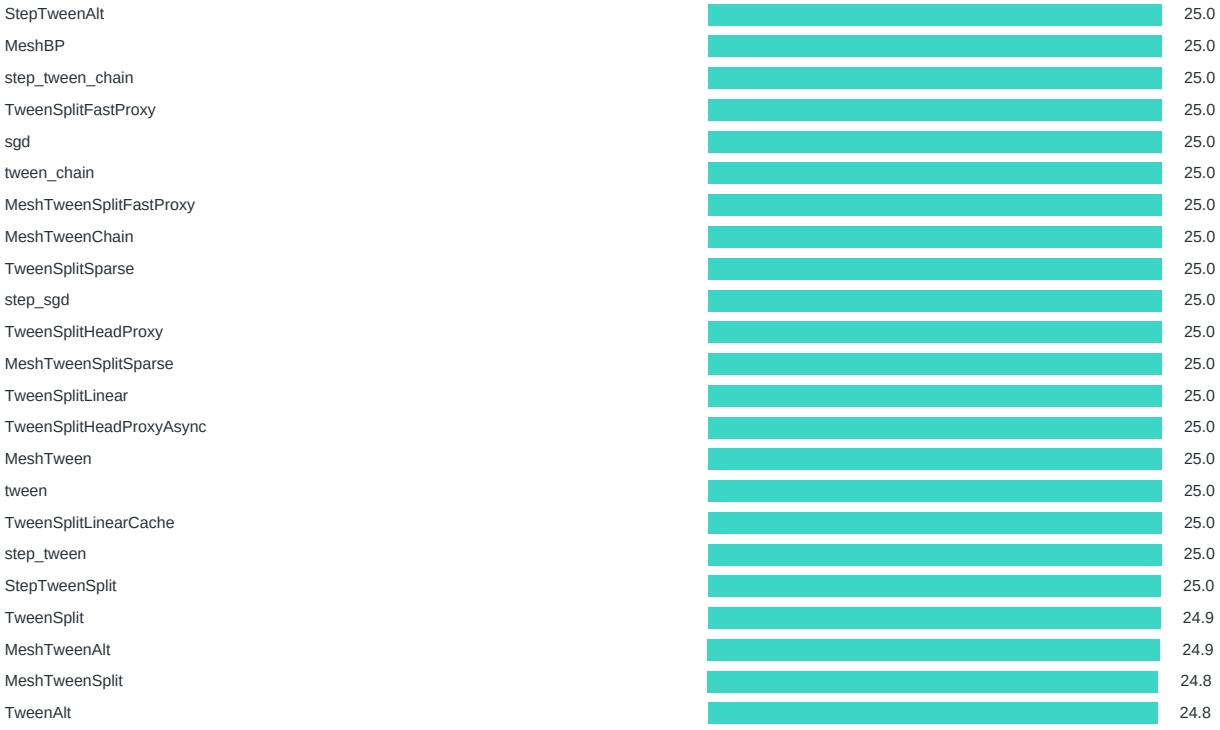

## Mean Score by train mode



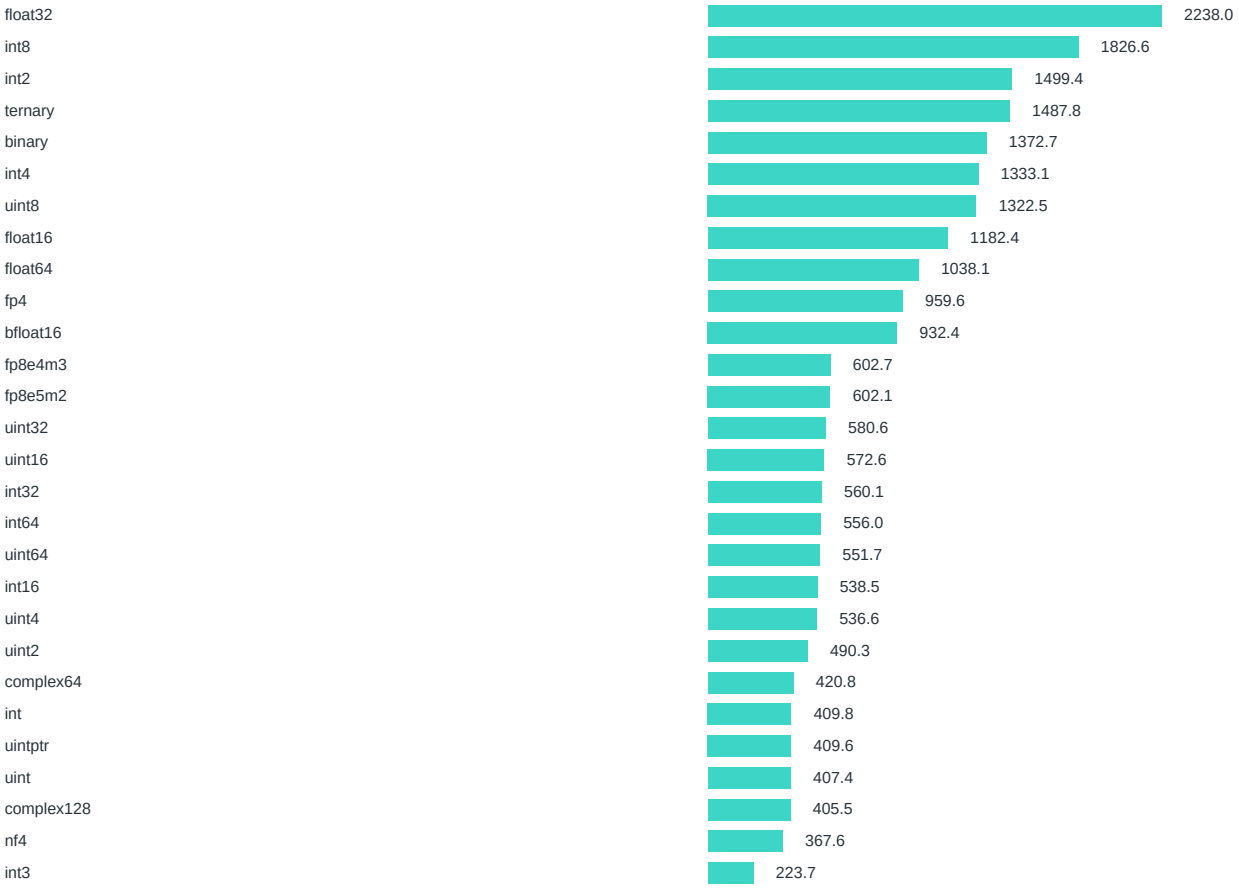

## Mean hard Acc by train mode




## Mean SoftAcc by train mode




## Mean Score by dtype




## Mean hard Acc by dtype




## Mean Score by arch




## Honesty - mean Score, every mode x dtype (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 927 | 1301 | 400 | 408 | 1197 | 2301 | 1034 | 983 | 151 | 604 | 625 | 395 | 572 | 1431 | 214 | 581 |
| MeshTween | 813 | 1183 | 324 | 338 | 1042 | 2085 | 909 | 810 | 111 | 506 | 497 | 330 | 425 | 1277 | 170 | 440 |
| MeshTweenAlt | 447 | 673 | 238 | 238 | 551 | 1411 | 549 | 467 | 65 | 284 | 286 | 203 | 245 | 694 | 103 | 248 |
| MeshTweenChain | 867 | 1218 | 374 | 400 | 1094 | 2227 | 986 | 876 | 136 | 553 | 554 | 406 | 509 | 1327 | 210 | 517 |
| MeshTweenSplit | 1174 | 1712 | 515 | 561 | 1485 | 2081 | 1295 | 1221 | 207 | 778 | 785 | 532 | 713 | 1817 | 301 | 749 |
| MeshTweenSplitFa | 1179 | 1562 | 538 | 543 | 1445 | 2585 | 1260 | 1168 | 212 | 745 | 720 | 503 | 631 | 1754 | 284 | 710 |
| MeshTweenSplitSp | 1245 | 2018 | 534 | 580 | 1639 | 3245 | 1360 | 1309 | 223 | 795 | 822 | 540 | 732 | 2313 | 350 | 837 |
| StepTweenAlt | 382 | 570 | 150 | 145 | 531 | 1039 | 428 | 398 | 47 | 243 | 228 | 158 | 217 | 662 | 76 | 210 |
| StepTweenSplit | 785 | 1314 | 334 | 344 | 1061 | 2031 | 947 | 813 | 118 | 482 | 508 | 357 | 443 | 1365 | 184 | 462 |
| TweenAlt | 492 | 665 | 185 | 215 | 594 | 1249 | 580 | 486 | 64 | 302 | 297 | 201 | 261 | 696 | 98 | 254 |
| TweenSplit | 1210 | 1777 | 522 | 559 | 1530 | 2619 | 1237 | 1164 | 208 | 765 | 748 | 550 | 697 | 1838 | 301 | 697 |
| TweenSplitFastPr | 1111 | 1807 | 511 | 534 | 1459 | 2629 | 1228 | 1096 | 217 | 814 | 757 | 533 | 724 | 1852 | 303 | 690 |
| TweenSplitHeadPr | 1158 | 1693 | 550 | 555 | 1392 | 2490 | 1175 | 1103 | 209 | 796 | 784 | 520 | 664 | 1739 | 297 | 735 |
| TweenSplitHeadPr | 1189 | 1746 | 531 | 549 | 1404 | 2619 | 1350 | 1220 | 200 | 761 | 774 | 519 | 696 | 1886 | 287 | 684 |
| TweenSplitLinear | 747 | 944 | 360 | 364 | 907 | 1852 | 928 | 829 | 137 | 510 | 501 | 375 | 458 | 1116 | 188 | 452 |
| TweenSplitLinear | 1152 | 1656 | 536 | 542 | 1462 | 2631 | 1253 | 1107 | 217 | 713 | 730 | 519 | 638 | 1847 | 282 | 643 |
| TweenSplitSparse | 1311 | 2053 | 568 | 591 | 1607 | 3082 | 1453 | 1405 | 232 | 841 | 858 | 574 | 744 | 2461 | 345 | 796 |
| sgd | 1045 | 1497 | 457 | 476 | 1389 | 2630 | 1213 | 1149 | 172 | 715 | 692 | 462 | 645 | 1593 | 254 | 664 |
| step_sgd | 787 | 1128 | 306 | 314 | 1047 | 2022 | 873 | 851 | 113 | 491 | 482 | 321 | 437 | 1277 | 168 | 449 |
| step_tween | 676 | 1063 | 257 | 268 | 931 | 1804 | 731 | 716 | 87 | 401 | 441 | 264 | 364 | 1150 | 127 | 385 |
| step_tween_chain | 732 | 1117 | 282 | 296 | 871 | 1935 | 811 | 762 | 101 | 467 | 455 | 289 | 406 | 1211 | 145 | 430 |
| tween | 927 | 1381 | 386 | 405 | 1238 | 2356 | 1077 | 1008 | 138 | 600 | 592 | 392 | 560 | 1525 | 205 | 589 |
| tween_chain | 1090 | 1493 | 466 | 455 | 1320 | 2552 | 1200 | 1129 | 151 | 695 | 713 | 483 | 604 | 1655 | 253 | 660 |

## Honesty - mean Score, every mode x dtype (cols 17-32)

## Honesty - mean Score, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 1324 | 159 | 148 | 556 | 1842 | 375 | 1345 | 424 | 571 | 480 | 229 | 627 | 541 | 163 | 147 | 583 |
| MeshTween | 1098 | 135 | 111 | 462 | 1631 | 299 | 1164 | 338 | 449 | 397 | 181 | 478 | 444 | 135 | 116 | 477 |
| MeshTweenAlt | 622 | 76 | 69 | 327 | 930 | 171 | 687 | 187 | 272 | 222 | 91 | 304 | 245 | 78 | 60 | 255 |
| MeshTweenChain | 1255 | 162 | 143 | 516 | 1698 | 331 | 1297 | 383 | 539 | 451 | 206 | 556 | 514 | 158 | 144 | 531 |
| MeshTweenSplit | 1657 | 228 | 201 | 711 | 2213 | 462 | 1843 | 528 | 768 | 612 | 289 | 760 | 675 | 246 | 215 | 723 |
| MeshTweenSplitFa | 1580 | 228 | 181 | 715 | 2058 | 472 | 1871 | 512 | 669 | 627 | 293 | 693 | 695 | 232 | 203 | 641 |
| MeshTweenSplitSp | 2010 | 234 | 231 | 768 | 2684 | 504 | 2338 | 573 | 780 | 681 | 313 | 830 | 751 | 256 | 222 | 762 |
| StepTweenAlt | 551 | 48 | 47 | 220 | 855 | 135 | 629 | 146 | 219 | 189 | 74 | 238 | 206 | 56 | 47 | 205 |
| StepTweenSplit | 1273 | 140 | 119 | 467 | 1644 | 302 | 1404 | 345 | 460 | 400 | 181 | 495 | 433 | 144 | 124 | 457 |
| TweenAlt | 692 | 74 | 66 | 271 | 899 | 181 | 608 | 189 | 265 | 221 | 103 | 271 | 249 | 73 | 63 | 259 |
| TweenSplit | 1643 | 226 | 211 | 697 | 2197 | 512 | 1897 | 553 | 735 | 660 | 308 | 723 | 684 | 241 | 211 | 700 |
| TweenSplitFastPr | 1749 | 241 | 215 | 728 | 2198 | 470 | 1844 | 523 | 735 | 633 | 292 | 683 | 659 | 235 | 217 | 737 |
| TweenSplitHeadPr | 1588 | 242 | 206 | 712 | 2124 | 476 | 1835 | 547 | 705 | 625 | 288 | 740 | 680 | 243 | 216 | 673 |
| TweenSplitHeadPr | 1651 | 245 | 195 | 681 | 2174 | 447 | 2010 | 519 | 754 | 625 | 310 | 688 | 689 | 242 | 214 | 669 |
| TweenSplitLinear | 971 | 143 | 128 | 472 | 1437 | 313 | 1068 | 351 | 467 | 417 | 193 | 501 | 424 | 154 | 133 | 454 |
| TweenSplitLinear | 1522 | 225 | 199 | 672 | 2043 | 482 | 1777 | 489 | 712 | 637 | 275 | 741 | 639 | 225 | 208 | 676 |
| TweenSplitSparse | 2026 | 260 | 229 | 768 | 2665 | 518 | 2612 | 585 | 849 | 724 | 334 | 811 | 776 | 270 | 241 | 782 |
| sgd | 1442 | 187 | 164 | 668 | 2079 | 426 | 1600 | 472 | 691 | 549 | 253 | 658 | 643 | 193 | 172 | 648 |
| step_sgd | 1161 | 122 | 109 | 435 | 1636 | 296 | 1251 | 321 | 471 | 383 | 163 | 490 | 428 | 132 | 117 | 451 |
| step_tween | 1014 | 98 | 83 | 386 | 1452 | 246 | 1062 | 254 | 406 | 331 | 132 | 384 | 374 | 100 | 85 | 390 |
| step_tween_chain | 1045 | 109 | 99 | 409 | 1516 | 258 | 1137 | 290 | 431 | 362 | 146 | 431 | 401 | 117 | 99 | 402 |
| tween | 1340 | 164 | 136 | 525 | 1952 | 367 | 1402 | 391 | 576 | 488 | 212 | 568 | 554 | 156 | 140 | 553 |
| tween_chain | 1449 | 181 | 163 | 624 | 2083 | 411 | 1537 | 449 | 648 | 566 | 234 | 685 | 637 | 196 | 169 | 661 |

## Honesty - mean Score, every mode x dtype  (cols 33-34)

## Honesty - mean Score, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 1328 | 398 |
| MeshTween | 1164 | 335 |
| MeshTweenAlt | 665 | 208 |
| MeshTweenChain | 1255 | 373 |
| MeshTweenSplit | 1630 | 530 |
| MeshTweenSplitFa | 1561 | 520 |
| MeshTweenSplitSp | 1882 | 560 |
| StepTweenAlt | 549 | 140 |
| StepTweenSplit | 1137 | 320 |
| TweenAlt | 718 | 201 |
| TweenSplit | 1536 | 544 |
| TweenSplitFastPr | 1685 | 534 |
| TweenSplitHeadPr | 1635 | 527 |
| TweenSplitHeadPr | 1639 | 530 |
| TweenSplitLinear | 1034 | 342 |
| TweenSplitLinear | 1497 | 533 |
| TweenSplitSparse | 1920 | 612 |
| sgd | 1556 | 489 |
| step_sgd | 1137 | 304 |
| step_tween | 934 | 266 |
| step_tween_chain | 1056 | 292 |
| tween | 1388 | 413 |
| tween_chain | 1515 | 448 |

## Honesty - mean hard Acc, every mode x dtype  (cols 1-16)

## Honesty - mean hard Acc, every mode x dtype  (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 25 | 27 | 24 | 23 | 25 | 27 | 27 | 25 | 26 | 25 | 25 | 26 | 26 | 24 | 25 | 26 |
| MeshTween | 28 | 25 | 25 | 24 | 24 | 28 | 26 | 25 | 24 | 25 | 24 | 25 | 25 | 25 | 24 | 24 |
| MeshTweenAlt | 26 | 24 | 25 | 25 | 26 | 26 | 26 | 25 | 24 | 25 | 24 | 27 | 25 | 26 | 26 | 26 |
| MeshTweenChain | 25 | 26 | 28 | 25 | 24 | 26 | 27 | 25 | 26 | 24 | 27 | 26 | 25 | 25 | 25 | 25 |
| MeshTweenSplit | 25 | 24 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 26 | 25 | 25 | 23 | 25 |
| MeshTweenSplitFa | 25 | 28 | 25 | 26 | 26 | 27 | 26 | 25 | 27 | 25 | 23 | 25 | 25 | 24 | 26 | 27 |
| MeshTweenSplitSp | 27 | 24 | 25 | 25 | 24 | 25 | 26 | 25 | 27 | 25 | 27 | 23 | 24 | 24 | 24 | 26 |
| StepTweenAlt | 27 | 24 | 26 | 27 | 26 | 28 | 26 | 24 | 24 | 25 | 26 | 26 | 26 | 25 | 23 | 25 |
| StepTweenSplit | 26 | 28 | 25 | 25 | 26 | 25 | 26 | 25 | 24 | 26 | 26 | 25 | 26 | 26 | 26 | 25 |
| TweenAlt | 26 | 26 | 25 | 26 | 26 | 28 | 26 | 25 | 25 | 25 | 26 | 26 | 25 | 24 | 26 | 26 |
| TweenSplit | 27 | 24 | 25 | 27 | 26 | 25 | 25 | 25 | 26 | 26 | 25 | 26 | 27 | 26 | 28 | 25 |
| TweenSplitFastPr | 26 | 26 | 26 | 25 | 26 | 26 | 26 | 25 | 26 | 25 | 26 | 25 | 25 | 26 | 24 | 24 |
| TweenSplitHeadPr | 25 | 26 | 25 | 24 | 25 | 26 | 25 | 25 | 22 | 24 | 26 | 25 | 24 | 25 | 25 | 26 |
| TweenSplitHeadPr | 24 | 24 | 25 | 24 | 25 | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 | 24 | 24 | 24 |
| TweenSplitLinear | 25 | 27 | 26 | 27 | 24 | 25 | 26 | 25 | 28 | 25 | 27 | 24 | 24 | 23 | 25 | 24 |
| TweenSplitLinear | 25 | 24 | 27 | 24 | 26 | 25 | 25 | 25 | 25 | 24 | 24 | 26 | 27 | 24 | 25 | 25 |
| TweenSplitSparse | 25 | 28 | 26 | 26 | 25 | 27 | 26 | 25 | 27 | 25 | 27 | 24 | 24 | 25 | 22 | 25 |
| sgd | 25 | 25 | 26 | 26 | 27 | 27 | 26 | 25 | 24 | 25 | 26 | 25 | 28 | 26 | 29 | 25 |
| step_sgd | 25 | 26 | 25 | 26 | 24 | 28 | 26 | 25 | 25 | 26 | 24 | 24 | 26 | 24 | 25 | 27 |
| step_tween | 27 | 26 | 25 | 24 | 25 | 25 | 25 | 25 | 25 | 25 | 26 | 24 | 26 | 25 | 27 | 25 |
| step_tween_chain | 26 | 27 | 26 | 23 | 26 | 25 | 29 | 25 | 26 | 25 | 25 | 25 | 23 | 27 | 27 | 24 |
| tween | 28 | 25 | 24 | 27 | 23 | 26 | 24 | 25 | 25 | 24 | 22 | 25 | 25 | 27 | 26 | 25 |
| tween_chain | 25 | 25 | 26 | 26 | 27 | 29 | 28 | 25 | 25 | 24 | 25 | 24 | 26 | 26 | 26 | 25 |

## Honesty - mean hard Acc, every mode x dtype  (cols 17-32)

## Honesty - mean hard Acc, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 27 | 25 | 25 | 25 | 24 | 25 | 24 | 26 | 25 | 25 | 25 | 24 | 26 | 26 | 24 | 26 |
| MeshTween | 25 | 28 | 25 | 27 | 23 | 24 | 25 | 24 | 29 | 25 | 26 | 25 | 26 | 27 | 25 | 25 |
| MeshTweenAlt | 25 | 24 | 25 | 25 | 26 | 25 | 26 | 26 | 26 | 26 | 27 | 25 | 25 | 24 | 25 | 24 |
| MeshTweenChain | 24 | 26 | 24 | 26 | 24 | 27 | 23 | 25 | 25 | 27 | 25 | 24 | 25 | 27 | 22 | 25 |
| MeshTweenSplit | 24 | 26 | 26 | 25 | 26 | 25 | 22 | 25 | 25 | 26 | 27 | 25 | 27 | 25 | 24 | 25 |
| MeshTweenSplitFa | 24 | 26 | 26 | 26 | 24 | 26 | 24 | 24 | 27 | 28 | 26 | 26 | 23 | 24 | 26 | 29 |
| MeshTweenSplitSp | 25 | 24 | 29 | 25 | 24 | 23 | 25 | 24 | 23 | 25 | 26 | 25 | 25 | 25 | 26 | 23 |
| StepTweenAlt | 25 | 23 | 25 | 26 | 26 | 25 | 25 | 26 | 25 | 24 | 24 | 26 | 25 | 25 | 26 | 25 |
| StepTweenSplit | 25 | 27 | 25 | 26 | 26 | 24 | 26 | 25 | 26 | 25 | 25 | 25 | 26 | 28 | 25 | 26 |
| TweenAlt | 25 | 24 | 25 | 25 | 26 | 25 | 26 | 26 | 26 | 25 | 27 | 26 | 26 | 25 | 27 | 26 |
| TweenSplit | 25 | 28 | 24 | 26 | 26 | 24 | 26 | 26 | 25 | 23 | 24 | 26 | 25 | 26 | 26 | 26 |
| TweenSplitFastPr | 24 | 28 | 23 | 25 | 25 | 24 | 27 | 26 | 24 | 26 | 22 | 23 | 22 | 26 | 27 | 26 |
| TweenSplitHeadPr | 27 | 27 | 26 | 25 | 25 | 26 | 25 | 26 | 26 | 24 | 24 | 25 | 25 | 23 | 27 | 24 |
| TweenSplitHeadPr | 22 | 21 | 26 | 24 | 26 | 25 | 25 | 26 | 23 | 25 | 23 | 25 | 27 | 24 | 24 | 24 |
| TweenSplitLinear | 27 | 26 | 26 | 29 | 24 | 26 | 25 | 27 | 26 | 24 | 27 | 24 | 23 | 26 | 25 | 26 |
| TweenSplitLinear | 22 | 25 | 25 | 24 | 24 | 24 | 29 | 26 | 25 | 24 | 25 | 24 | 23 | 26 | 30 | 28 |
| TweenSplitSparse | 26 | 26 | 24 | 24 | 24 | 24 | 25 | 27 | 26 | 27 | 24 | 22 | 26 | 22 | 28 | 26 |
| sgd | 22 | 27 | 24 | 25 | 24 | 24 | 26 | 24 | 27 | 24 | 25 | 26 | 25 | 26 | 24 | 27 |
| step_sgd | 23 | 26 | 26 | 26 | 23 | 26 | 26 | 26 | 25 | 24 | 25 | 23 | 25 | 25 | 26 | 27 |
| step_tween | 26 | 26 | 25 | 22 | 25 | 25 | 25 | 23 | 25 | 24 | 22 | 26 | 22 | 25 | 24 | 25 |
| step_tween_chain | 25 | 24 | 27 | 25 | 25 | 24 | 24 | 26 | 26 | 26 | 25 | 26 | 27 | 24 | 25 | 27 |
| tween | 23 | 23 | 25 | 26 | 26 | 25 | 24 | 25 | 26 | 25 | 26 | 25 | 24 | 25 | 26 | 27 |
| tween_chain | 25 | 25 | 23 | 24 | 27 | 26 | 23 | 25 | 27 | 24 | 25 | 29 | 21 | 23 | 21 | 23 |

## Honesty - mean hard Acc, every mode x dtype  (cols 33-34)

## Honesty - mean hard Acc, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 26 | 28 |
| MeshTween | 24 | 26 |
| MeshTweenAlt | 26 | 25 |
| MeshTweenChain | 25 | 26 |
| MeshTweenSplit | 26 | 25 |
| MeshTweenSplitFa | 23 | 25 |
| MeshTweenSplitSp | 26 | 25 |
| StepTweenAlt | 26 | 25 |
| StepTweenSplit | 26 | 25 |
| TweenAlt | 25 | 27 |
| TweenSplit | 26 | 25 |
| TweenSplitFastPr | 24 | 27 |
| TweenSplitHeadPr | 26 | 26 |
| TweenSplitHeadPr | 26 | 27 |
| TweenSplitLinear | 24 | 25 |
| TweenSplitLinear | 27 | 26 |
| TweenSplitSparse | 26 | 25 |
| sgd | 24 | 24 |
| step_sgd | 23 | 26 |
| step_tween | 24 | 21 |
| step_tween_chain | 24 | 24 |
| tween | 26 | 25 |
| tween_chain | 26 | 26 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 1-16)

## Honesty - mean SoftAcc, every mode x dtype  (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenAlt | 25 | 25 | 25 | 25 | 25 | 24 | 24 | 25 | 25 | 25 | 25 | 24 | 25 | 25 | 25 | 25 |
| MeshTweenChain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplit | 25 | 25 | 24 | 25 | 25 | 20 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenAlt | 25 | 25 | 25 | 25 | 24 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenSplit | 25 | 25 | 25 | 25 | 25 | 23 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenAlt | 25 | 25 | 22 | 24 | 25 | 24 | 24 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplit | 25 | 25 | 25 | 25 | 25 | 23 | 24 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitFastPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitSparse | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 17-32)

## Honesty - mean SoftAcc, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenChain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplit | 25 | 25 | 25 | 24 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenAlt | 25 | 25 | 25 | 23 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitFastPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitSparse | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 33-34)

## Honesty - mean SoftAcc, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 25 | 25 |
| MeshTween | 25 | 25 |
| MeshTweenAlt | 25 | 25 |
| MeshTweenChain | 25 | 25 |
| MeshTweenSplit | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 |
| StepTweenAlt | 25 | 25 |
| StepTweenSplit | 25 | 25 |
| TweenAlt | 25 | 25 |
| TweenSplit | 25 | 25 |
| TweenSplitFastPr | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 |
| TweenSplitLinear | 25 | 25 |
| TweenSplitLinear | 25 | 25 |
| TweenSplitSparse | 25 | 25 |
| sgd | 25 | 25 |
| step_sgd | 25 | 25 |
| step_tween | 25 | 25 |
| step_tween_chain | 25 | 25 |
| tween | 25 | 25 |
| tween_chain | 25 | 25 |

## Mean Score, every mode x arch

## Mean Score, every mode x arch

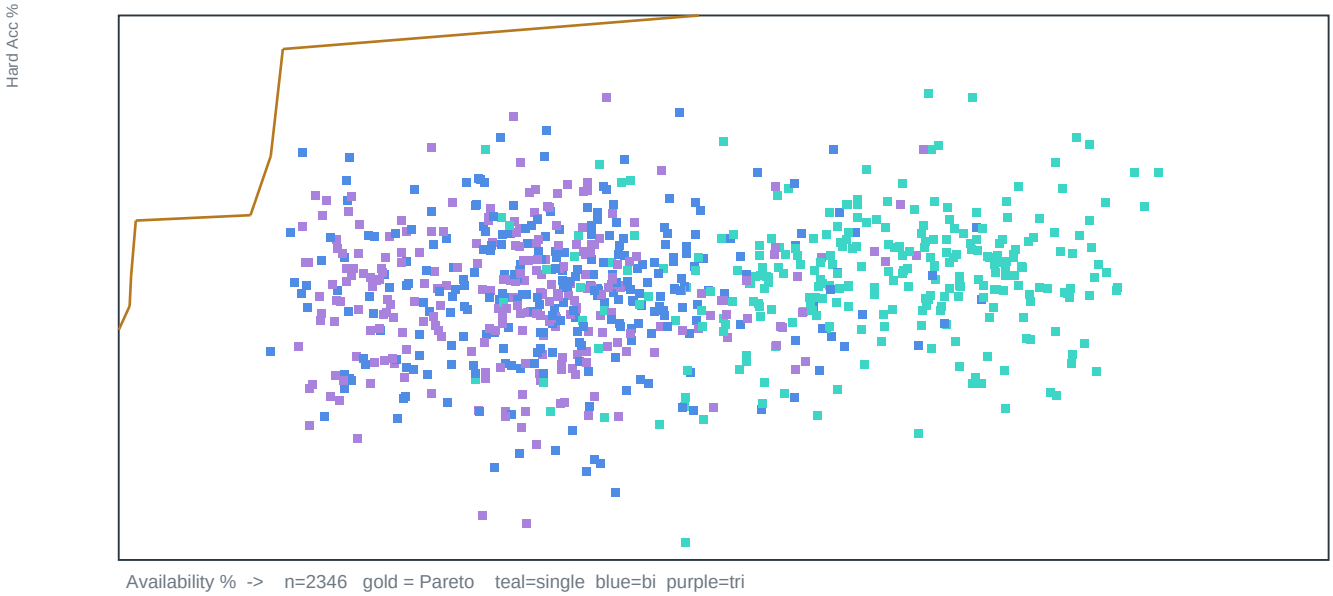
| | bicamera | singlex1 | tricamer |
|---|---|---|---|
| MeshBP | 348 | 1540 | 262 |
| MeshTween | 309 | 1280 | 236 |
| MeshTweenAlt | 171 | 782 | 122 |
| MeshTweenChain | 336 | 1418 | 255 |
| MeshTweenSplit | 552 | 1664 | 451 |
| MeshTweenSplitFa | 553 | 1621 | 437 |
| MeshTweenSplitSp | 805 | 1566 | 711 |
| StepTweenAlt | 127 | 662 | 97 |
| StepTweenSplit | 365 | 1221 | 301 |
| TweenAlt | 162 | 778 | 122 |
| TweenSplit | 562 | 1684 | 462 |
| TweenSplitFastPr | 579 | 1659 | 466 |
| TweenSplitHeadPr | 557 | 1618 | 466 |
| TweenSplitHeadPr | 594 | 1640 | 474 |
| TweenSplitLinear | 351 | 1114 | 271 |
| TweenSplitLinear | 562 | 1601 | 438 |
| TweenSplitSparse | 832 | 1628 | 709 |
| sgd | 397 | 1774 | 295 |
| step_sgd | 290 | 1298 | 218 |
| step_tween | 257 | 1115 | 187 |
| step_tween_chain | 266 | 1207 | 196 |
| tween | 372 | 1530 | 278 |
| tween_chain | 390 | 1755 | 289 |

## Mean hard Acc, every mode x arch

## Mean hard Acc, every mode x arch

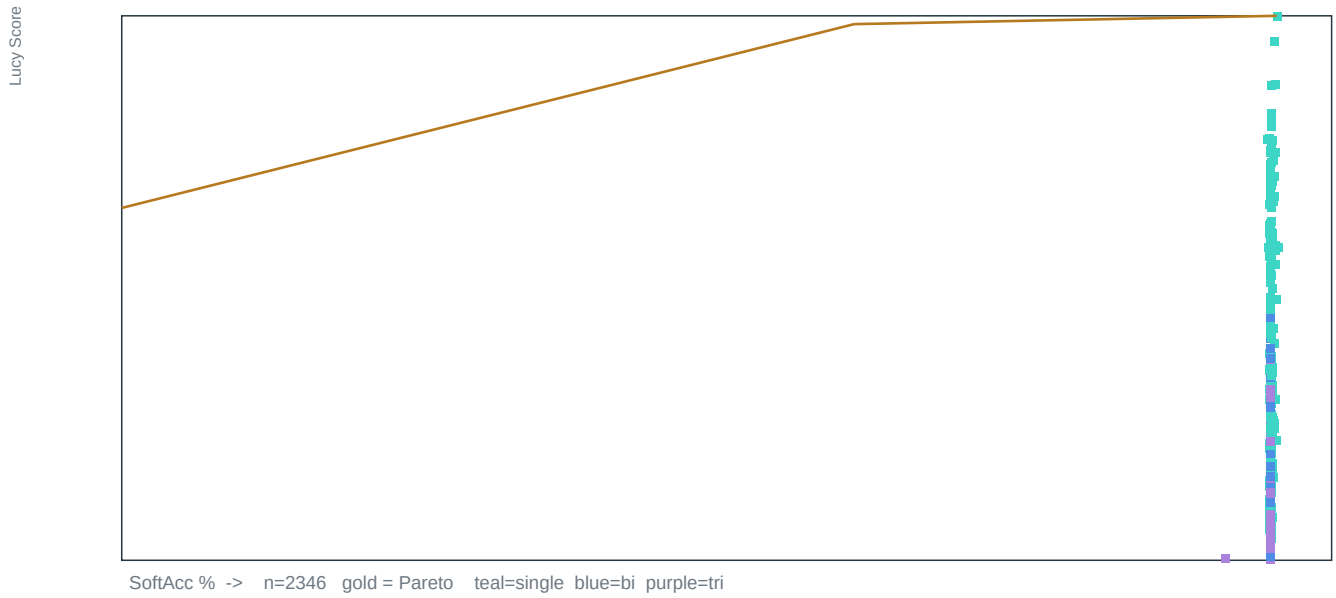
| | bicamera | singlex1 | tricamer |
|---|---|---|---|
| MeshBP | 25 | 26 | 25 |
| MeshTween | 25 | 26 | 25 |
| MeshTweenAlt | 25 | 26 | 25 |
| MeshTweenChain | 25 | 26 | 25 |
| MeshTweenSplit | 25 | 26 | 25 |
| MeshTweenSplitFa | 25 | 26 | 25 |
| MeshTweenSplitSp | 25 | 25 | 25 |
| StepTweenAlt | 25 | 26 | 25 |
| StepTweenSplit | 25 | 26 | 25 |
| TweenAlt | 25 | 26 | 25 |
| TweenSplit | 25 | 27 | 25 |
| TweenSplitFastPr | 25 | 26 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 |
| TweenSplitHeadPr | 24 | 25 | 24 |
| TweenSplitLinear | 26 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 26 |
| TweenSplitSparse | 25 | 26 | 25 |
| sgd | 25 | 26 | 25 |
| step_sgd | 24 | 26 | 25 |
| step_tween | 25 | 25 | 24 |
| step_tween_chain | 25 | 26 | 25 |
| tween | 25 | 25 | 25 |
| tween_chain | 25 | 26 | 25 |

## Avail vs hard Acc (headline scatter)

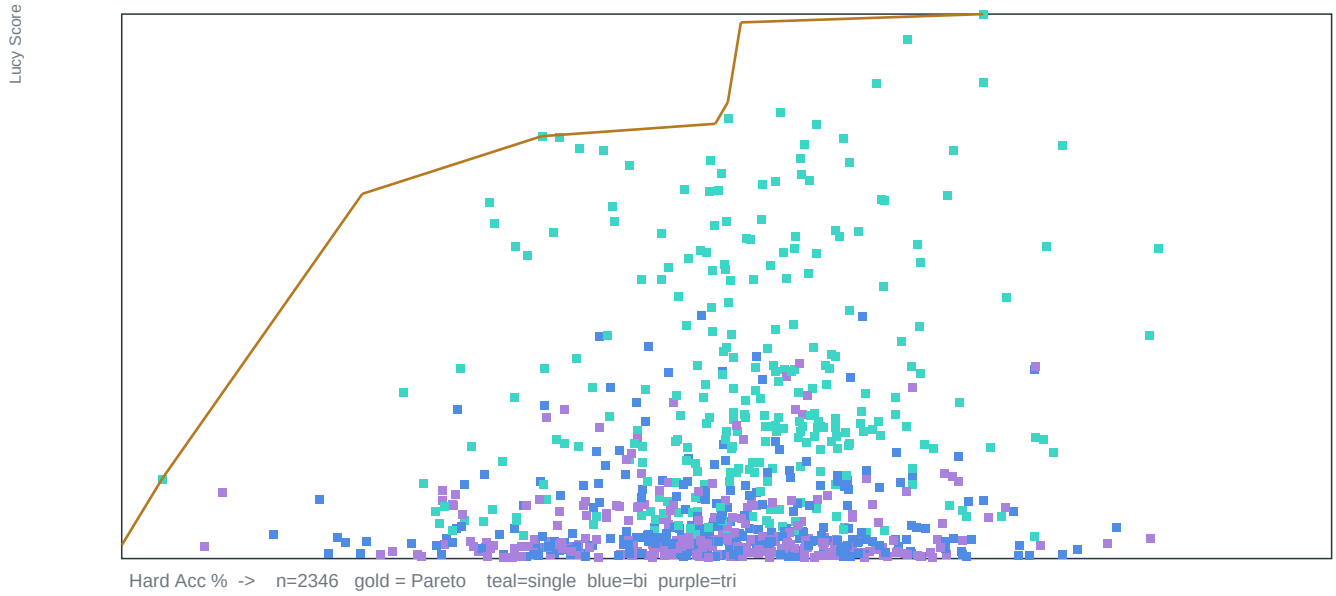



## Pareto - SoftAcc vs Score

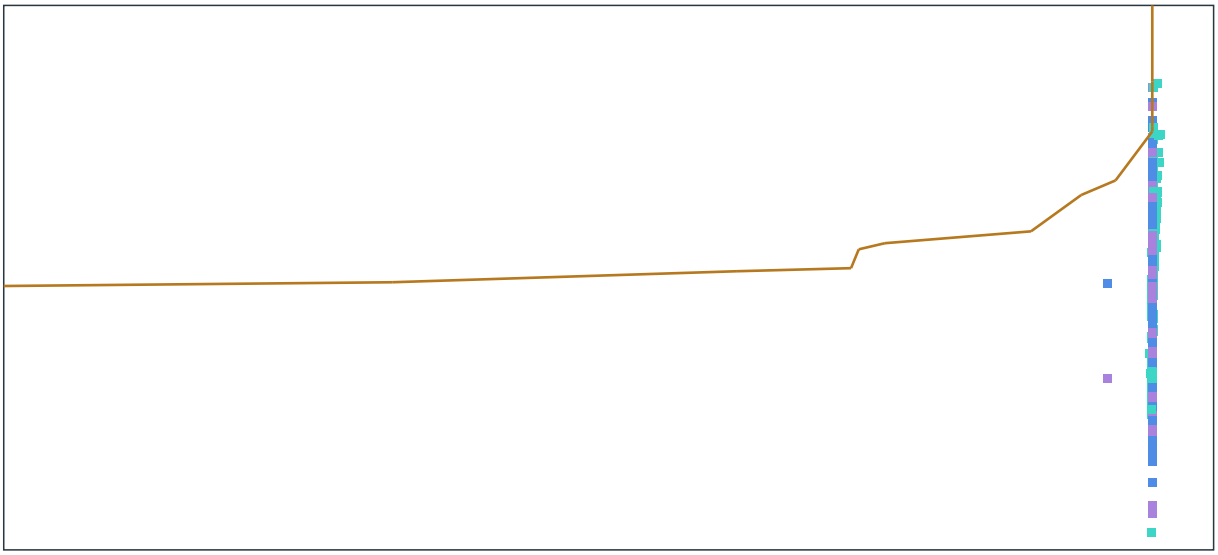
## Pareto - SoftAcc vs Score




## Pareto - hard Acc vs Score

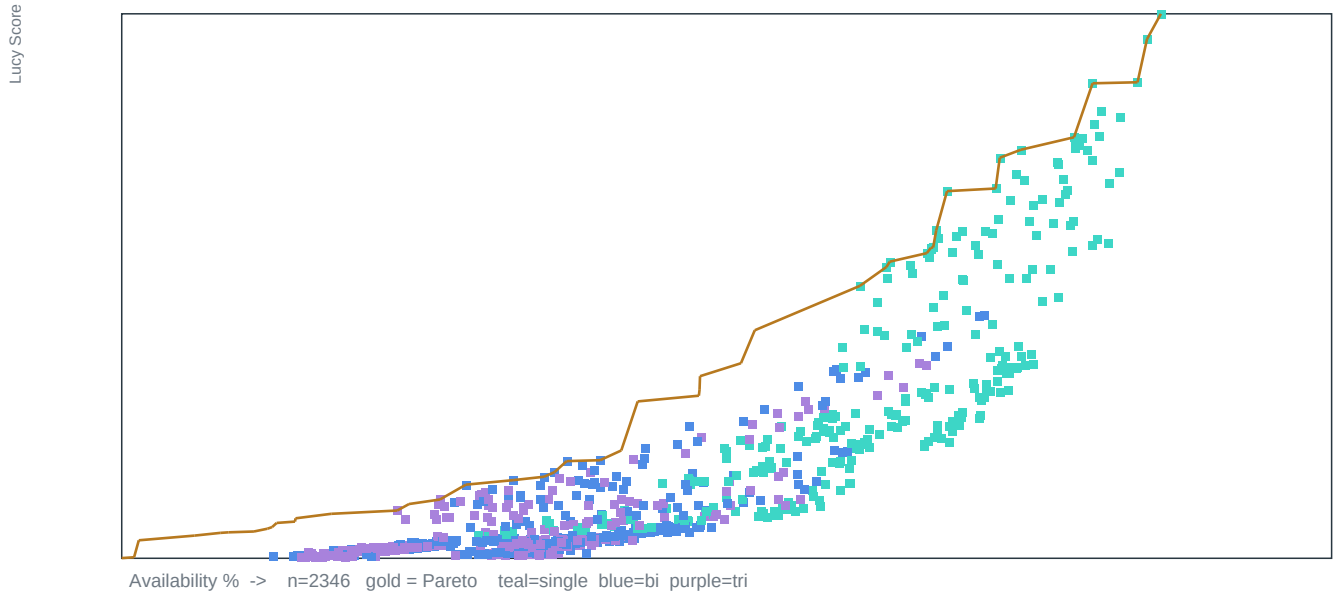



## SoftAcc vs hard Acc




SoftAcc % -> n=2346 gold = Pareto teal=single blue=bi purple=tri
Hard Acc %

## Avail vs Score (duty clock)




## Lucy Pareto (LPD) - goldilocks

Q = geomean of Score/Soft/Acc/Thru vs the Lucy Score champion. LPD = 0 if Q<70%, else Q x shrink vs champ RAM (capped 32x). Gold = Q>=80% and RAM<=20% of champ. MSpeed = Thru vs the board's fastest (0 if Q<70%). MAvail = Availability vs the board's best duty cycle (0 if Q<70%). Mix = geomean(Q, MSpeed, MAvail). Raw Score/MiB is the binary trap.

Quality champ float32|none|sgd|single|simd  Score 4360.5  Soft 25  Acc 29  Thru 43644  RAM 2.5 KiB

Board fastest float32|none|MeshTweenSplit|single|simd  Thru 74750  Best availability float32|none|MeshTweenSplitSparse|bicameral|simd  44.0%

### Gold - Q >= 80% of champ, RAM <= 20%

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| gold | binary\|none\|sgd\|single\|simd | 87 | 3 | 32.0 | 27.91 | 25 | 27 | 3369.0 | 0.1 |
| gold | binary\|none\|TweenSplitFastProxy\|single\|simd | 87 | 3 | 32.0 | 27.79 | 25 | 31 | 3266.2 | 0.1 |
| gold | binary\|none\|tween\|single\|simd | 84 | 3 | 32.0 | 26.80 | 25 | 26 | 3080.6 | 0.1 |
| gold | binary\|none\|TweenSplitSparse\|single\|simd | 84 | 3 | 32.0 | 26.75 | 25 | 30 | 3022.7 | 0.1 |
| gold | binary\|none\|TweenSplitHeadProxy\|single\|simd | 84 | 3 | 32.0 | 26.72 | 25 | 29 | 3018.3 | 0.1 |
| gold | binary\|none\|tween_chain\|single\|simd | 83 | 3 | 32.0 | 26.68 | 25 | 22 | 3374.9 | 0.1 |
| gold | binary\|none\|MeshBP\|single\|simd | 83 | 3 | 32.0 | 26.45 | 25 | 29 | 2919.1 | 0.1 |
| gold | binary\|none\|TweenSplit\|single\|simd | 81 | 3 | 32.0 | 26.07 | 25 | 26 | 3069.6 | 0.1 |
| gold | ternary\|none\|sgd\|single\|simd | 88 | 6 | 16.0 | 14.10 | 25 | 27 | 3482.3 | 0.2 |
| gold | ternary\|none\|tween_chain\|single\|simd | 86 | 6 | 16.0 | 13.80 | 25 | 26 | 3325.8 | 0.2 |
| gold | ternary\|none\|TweenSplitHeadProxyAsync\|single\|simd | 85 | 6 | 16.0 | 13.54 | 25 | 25 | 3346.3 | 0.2 |
| gold | int2\|none\|TweenSplitFastProxy\|single\|simd | 85 | 6 | 16.0 | 13.52 | 25 | 27 | 3224.2 | 0.2 |
| gold | int2\|none\|MeshTweenSplit\|single\|simd | 84 | 6 | 16.0 | 13.40 | 25 | 29 | 3053.2 | 0.2 |
| gold | ternary\|none\|TweenSplitSparse\|single\|simd | 83 | 6 | 16.0 | 13.35 | 25 | 27 | 3151.6 | 0.2 |
| gold | int2\|none\|TweenSplitLinearCache\|single\|simd | 83 | 6 | 16.0 | 13.33 | 25 | 25 | 3249.2 | 0.2 |
| gold | int2\|none\|tween_chain\|single\|simd | 83 | 6 | 16.0 | 13.26 | 25 | 22 | 3386.0 | 0.2 |

### Near-gold - Q >= 70%, RAM <= 50%

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| near | binary\|none\|MeshTweenSplit\|single\|simd | 80 | 3 | 32.0 | 25.50 | 25 | 23 | 3092.7 | 0.1 |
| near | binary\|none\|TweenSplitHeadProxyAsync\|single\|simd | 79 | 3 | 32.0 | 25.35 | 25 | 24 | 3014.9 | 0.1 |
| near | binary\|none\|MeshTweenSplitFastProxy\|single\|simd | 79 | 3 | 32.0 | 25.31 | 25 | 28 | 2763.7 | 0.1 |
| near | binary\|none\|step_tween_chain\|single\|simd | 79 | 3 | 32.0 | 25.14 | 25 | 32 | 2492.9 | 0.1 |
| near | binary\|none\|MeshTween\|single\|simd | 78 | 3 | 32.0 | 25.11 | 25 | 27 | 2628.4 | 0.1 |
| near | binary\|none\|step_tween\|single\|simd | 77 | 3 | 32.0 | 24.54 | 25 | 28 | 2381.8 | 0.1 |

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| near | binary\|none\|step_sgd\|single\|simd | 76 | 3 | 32.0 | 24.45 | 25 | 26 | 2494.8 | 0.1 |
| near | binary\|none\|MeshTweenChain\|single\|simd | 76 | 3 | 32.0 | 24.27 | 25 | 24 | 2666.3 | 0.1 |
| near | binary\|none\|MeshTweenSplitSparse\|single\|simd | 75 | 3 | 32.0 | 24.13 | 25 | 21 | 2878.5 | 0.1 |
| near | binary\|none\|StepTweenSplit\|single\|simd | 75 | 3 | 32.0 | 24.09 | 25 | 27 | 2411.9 | 0.1 |
| near | binary\|none\|TweenSplitLinearCache\|single\|simd | 74 | 3 | 32.0 | 23.73 | 25 | 19 | 2925.7 | 0.1 |
| near | int2\|none\|MeshTweenSplitFastProxy\|single\|simd | 80 | 6 | 16.0 | 12.73 | 25 | 25 | 2958.7 | 0.2 |

## LPD rank (Q x shrink; 0 if Q < 70%)

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| gold | binary\|none\|sgd\|single\|simd | 87 | 3 | 32.0 | 27.91 | 25 | 27 | 3369.0 | 0.1 |
| gold | binary\|none\|TweenSplitFastProxy\|single\|simd | 87 | 3 | 32.0 | 27.79 | 25 | 31 | 3266.2 | 0.1 |
| gold | binary\|none\|tween\|single\|simd | 84 | 3 | 32.0 | 26.80 | 25 | 26 | 3080.6 | 0.1 |
| gold | binary\|none\|TweenSplitSparse\|single\|simd | 84 | 3 | 32.0 | 26.75 | 25 | 30 | 3022.7 | 0.1 |
| gold | binary\|none\|TweenSplitHeadProxy\|single\|simd | 84 | 3 | 32.0 | 26.72 | 25 | 29 | 3018.3 | 0.1 |
| gold | binary\|none\|tween_chain\|single\|simd | 83 | 3 | 32.0 | 26.68 | 25 | 22 | 3374.9 | 0.1 |
| gold | binary\|none\|MeshBP\|single\|simd | 83 | 3 | 32.0 | 26.45 | 25 | 29 | 2919.1 | 0.1 |
| gold | binary\|none\|TweenSplit\|single\|simd | 81 | 3 | 32.0 | 26.07 | 25 | 26 | 3069.6 | 0.1 |
| near | binary\|none\|MeshTweenSplit\|single\|simd | 80 | 3 | 32.0 | 25.50 | 25 | 23 | 3092.7 | 0.1 |
| near | binary\|none\|TweenSplitHeadProxyAsync\|single\|simd | 79 | 3 | 32.0 | 25.35 | 25 | 24 | 3014.9 | 0.1 |
| near | binary\|none\|MeshTweenSplitFastProxy\|single\|simd | 79 | 3 | 32.0 | 25.31 | 25 | 28 | 2763.7 | 0.1 |
| near | binary\|none\|step_tween_chain\|single\|simd | 79 | 3 | 32.0 | 25.14 | 25 | 32 | 2492.9 | 0.1 |
| near | binary\|none\|MeshTween\|single\|simd | 78 | 3 | 32.0 | 25.11 | 25 | 27 | 2628.4 | 0.1 |
| near | binary\|none\|step_tween\|single\|simd | 77 | 3 | 32.0 | 24.54 | 25 | 28 | 2381.8 | 0.1 |
| near | binary\|none\|step_sgd\|single\|simd | 76 | 3 | 32.0 | 24.45 | 25 | 26 | 2494.8 | 0.1 |
| near | binary\|none\|MeshTweenChain\|single\|simd | 76 | 3 | 32.0 | 24.27 | 25 | 24 | 2666.3 | 0.1 |
| near | binary\|none\|MeshTweenSplitSparse\|single\|simd | 75 | 3 | 32.0 | 24.13 | 25 | 21 | 2878.5 | 0.1 |
| near | binary\|none\|StepTweenSplit\|single\|simd | 75 | 3 | 32.0 | 24.09 | 25 | 27 | 2411.9 | 0.1 |
| near | binary\|none\|TweenSplitLinearCache\|single\|simd | 74 | 3 | 32.0 | 23.73 | 25 | 19 | 2925.7 | 0.1 |
| gold | ternary\|none\|sgd\|single\|simd | 88 | 6 | 16.0 | 14.10 | 25 | 27 | 3482.3 | 0.2 |

## Mobile speed - Thru vs board fastest (Q >= 70%)

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| keep | float32\|none\|TweenSplit\|single\|simd | 90 | 72 | 94 | 85 | 0.90 | 54045 | 41.2 |
| keep | float32\|none\|StepTweenSplit\|single\|simd | 85 | 60 | 87 | 76 | 0.85 | 44646 | 38.2 |
| keep | float32\|none\|sgd\|single\|simd | 100 | 58 | 90 | 81 | 1.00 | 43644 | 39.8 |
| keep | float32\|none\|tween_chain\|single\|simd | 97 | 56 | 90 | 79 | 0.97 | 42033 | 39.5 |
| keep | float32\|none\|TweenSplitLinearCache\|single\|simd | 94 | 54 | 93 | 77 | 0.94 | 40084 | 40.7 |
| keep | float32\|none\|tween\|single\|simd | 93 | 53 | 87 | 75 | 0.93 | 39900 | 38.1 |
| keep | float32\|none\|MeshBP\|single\|simd | 94 | 52 | 89 | 76 | 0.94 | 38762 | 39.2 |
| keep | float32\|none\|MeshTweenSplitSparse\|single\|simd | 92 | 51 | 93 | 76 | 0.92 | 38165 | 41.1 |
| keep | float32\|none\|MeshTweenSplitFastProxy\|single\|simd | 93 | 51 | 92 | 76 | 0.93 | 37952 | 40.7 |
| keep | float32\|none\|TweenSplitSparse\|single\|simd | 93 | 50 | 93 | 76 | 0.93 | 37626 | 41.0 |

## Mobile availability - duty cycle vs board best (Q >= 70%)

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| - | float32\|none\|MeshTweenSplitSparse\|bicameral\|simd | 76 | 34 | 100 | 64 | 0.04 | 25571 | 44.0 |
| - | float32\|none\|MeshTweenSplitSparse\|tricameral\|simd | 75 | 36 | 100 | 65 | 0.03 | 27229 | 43.9 |
| - | float32\|none\|TweenSplitSparse\|tricameral\|simd | 71 | 29 | 100 | 59 | 0.03 | 21615 | 43.9 |
| - | float32\|none\|TweenSplitSparse\|bicameral\|simd | 78 | 37 | 99 | 66 | 0.04 | 27650 | 43.5 |
| - | int8\|none\|TweenSplitSparse\|bicameral\|simd | 71 | 31 | 98 | 60 | 0.14 | 23170 | 43.2 |
| - | int8\|none\|MeshTweenSplitSparse\|bicameral\|simd | 74 | 34 | 97 | 63 | 0.15 | 25625 | 42.8 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| - | ternary\|none\|TweenSplitSparse\|bicameral\|simd | 72 | 32 | 96 | 61 | 0.57 | 24046 | 42.3 |
| keep | float32\|none\|TweenSplit\|single\|simd | 90 | 72 | 94 | 85 | 0.90 | 54045 | 41.2 |
| keep | float32\|none\|MeshTweenSplitSparse\|single\|simd | 92 | 51 | 93 | 76 | 0.92 | 38165 | 41.1 |
| keep | float32\|none\|TweenSplitSparse\|single\|simd | 93 | 50 | 93 | 76 | 0.93 | 37626 | 41.0 |

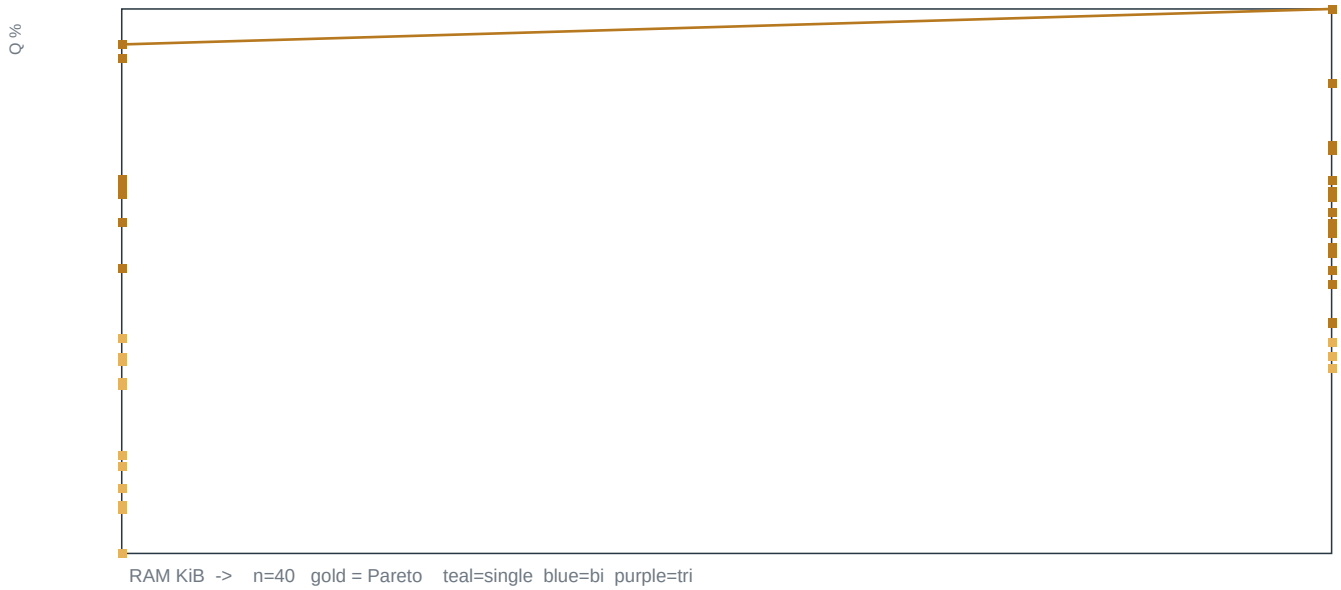
## Mix - geomean of Q, MSpeed, MAvail

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| keep | float32\|none\|TweenSplit\|single\|simd | 90 | 72 | 94 | 85 | 0.90 | 54045 | 41.2 |
| keep | float32\|none\|sgd\|single\|simd | 100 | 58 | 90 | 81 | 1.00 | 43644 | 39.8 |
| keep | float32\|none\|tween_chain\|single\|simd | 97 | 56 | 90 | 79 | 0.97 | 42033 | 39.5 |
| keep | float32\|none\|TweenSplitLinearCache\|single\|simd | 94 | 54 | 93 | 77 | 0.94 | 40084 | 40.7 |
| keep | float32\|none\|StepTweenSplit\|single\|simd | 85 | 60 | 87 | 76 | 0.85 | 44646 | 38.2 |
| keep | float32\|none\|MeshTweenSplitSparse\|single\|simd | 92 | 51 | 93 | 76 | 0.92 | 38165 | 41.1 |
| keep | float32\|none\|MeshTweenSplitFastProxy\|single\|simd | 93 | 51 | 92 | 76 | 0.93 | 37952 | 40.7 |
| keep | float32\|none\|TweenSplitSparse\|single\|simd | 93 | 50 | 93 | 76 | 0.93 | 37626 | 41.0 |
| keep | float32\|none\|MeshBP\|single\|simd | 94 | 52 | 89 | 76 | 0.94 | 38762 | 39.2 |
| keep | float32\|none\|tween\|single\|simd | 93 | 53 | 87 | 75 | 0.93 | 39900 | 38.1 |

## Trap - tiny RAM, Q < 70% (why Score/MiB lies)

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| trap | binary\|none\|TweenAlt\|single\|simd | 61 | 3 | 32.0 | 0.00 | 25 | 24 | 1570.8 | 0.1 |
| trap | binary\|none\|StepTweenAlt\|single\|simd | 59 | 3 | 32.0 | 0.00 | 25 | 27 | 1358.3 | 0.1 |
| trap | binary\|none\|TweenSplitLinear\|single\|simd | 68 | 3 | 32.0 | 0.00 | 25 | 27 | 1893.4 | 0.1 |
| trap | binary\|none\|MeshTweenAlt\|single\|simd | 60 | 3 | 32.0 | 0.00 | 25 | 23 | 1592.7 | 0.1 |
| trap | int2\|none\|TweenAlt\|single\|simd | 60 | 6 | 16.0 | 0.00 | 25 | 23 | 1493.2 | 0.2 |
| trap | ternary\|none\|TweenAlt\|single\|simd | 58 | 6 | 16.0 | 0.00 | 25 | 26 | 1311.6 | 0.2 |
| trap | int2\|none\|StepTweenAlt\|single\|simd | 60 | 6 | 16.0 | 0.00 | 25 | 24 | 1457.6 | 0.2 |
| trap | ternary\|none\|StepTweenAlt\|single\|simd | 62 | 6 | 16.0 | 0.00 | 25 | 27 | 1467.2 | 0.2 |
| trap | int2\|none\|TweenSplitLinear\|single\|simd | 67 | 6 | 16.0 | 0.00 | 25 | 25 | 1973.2 | 0.2 |
| trap | ternary\|none\|TweenSplitLinear\|single\|simd | 68 | 6 | 16.0 | 0.00 | 25 | 24 | 2067.6 | 0.2 |

## LPD - Q% vs RAM KiB (gold = high Q, low RAM)

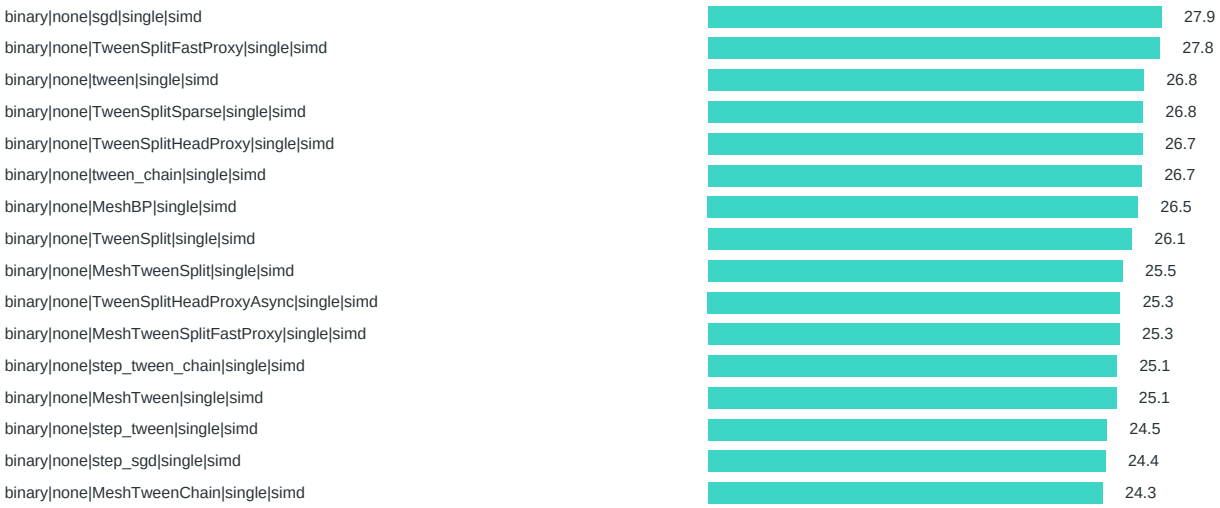



## LPD - Q% vs shrink vs champ (gold = upper right)

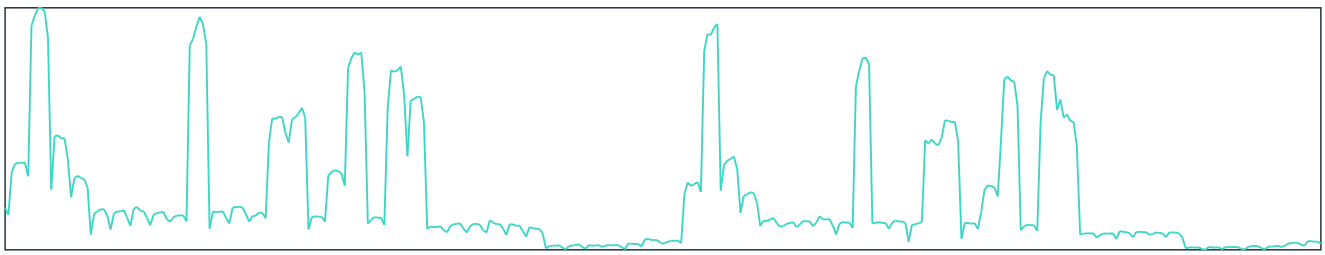
## LPD - Q% vs shrink vs champ (gold = upper right)




## Top LPD

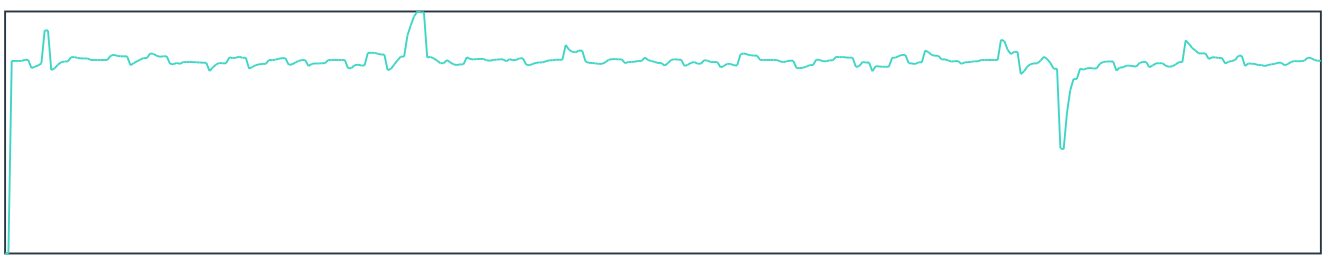



## Pulse Score - mamba



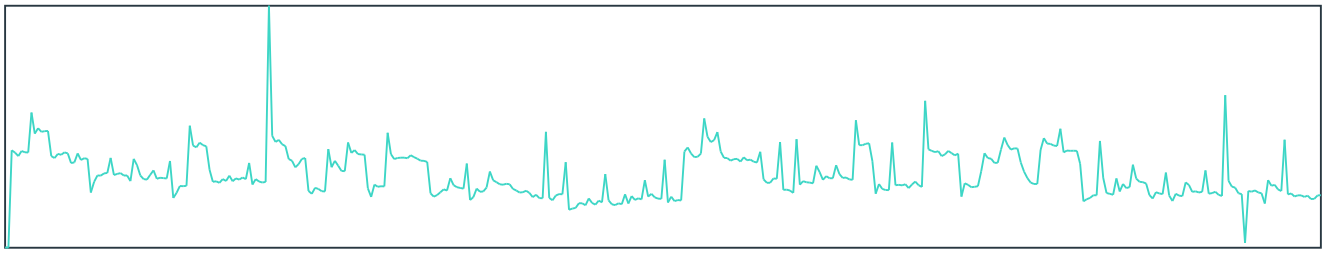
n=400 min=110.94 max=3196.72

## Pulse SoftAcc - mamba



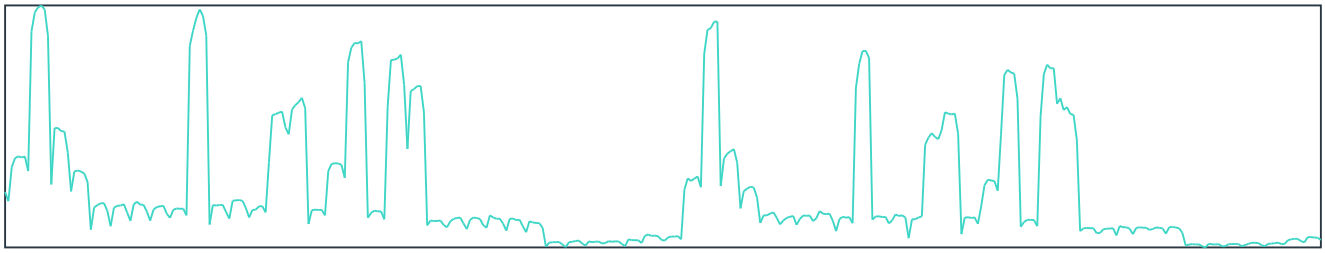
n=400 min=25.00 max=25.00

## Pulse Availability - mamba



n=400 min=34.50 max=54.24

## Pulse Throughput - mamba



n=400 min=1087.52 max=29091.01

## Queue by train mode (this epoch)

| Mode | Done | Run | Left | Total |
|---|---|---|---|---|
| sgd | 102 | 0 | 0 | 102 |
| step_sgd | 102 | 0 | 0 | 102 |
| tween | 102 | 0 | 0 | 102 |
| tween_chain | 102 | 0 | 0 | 102 |
| step_tween | 102 | 0 | 0 | 102 |
| step_tween_chain | 102 | 0 | 0 | 102 |
| MeshBP | 102 | 0 | 0 | 102 |
| MeshTween | 102 | 0 | 0 | 102 |
| MeshTweenChain | 102 | 0 | 0 | 102 |
| TweenSplit | 102 | 0 | 0 | 102 |
| StepTweenSplit | 102 | 0 | 0 | 102 |
| TweenAlt | 102 | 0 | 0 | 102 |
| StepTweenAlt | 102 | 0 | 0 | 102 |
| TweenSplitHeadProxy | 102 | 0 | 0 | 102 |
| TweenSplitLinear | 102 | 0 | 0 | 102 |
| TweenSplitFastProxy | 102 | 0 | 0 | 102 |
| TweenSplitLinearCache | 102 | 0 | 0 | 102 |
| TweenSplitHeadProxyAsync | 102 | 0 | 0 | 102 |
| TweenSplitSparse | 102 | 0 | 0 | 102 |
| MeshTweenSplit | 102 | 0 | 0 | 102 |
| MeshTweenAlt | 102 | 0 | 0 | 102 |
| MeshTweenSplitFastProxy | 102 | 0 | 0 | 102 |
| MeshTweenSplitSparse | 102 | 0 | 0 | 102 |

# tide  metacognition

Score = Throughput x Availability% x SoftAcc% / 10,000
done - epoch 1 - 2026-08-18 09:45:25 - 0.0.0.0:8122
This epoch 2346 / 2346 cells. Recorded 2346 results.
Score 0 usually means the cell finished before a Lucy pulse (SoftAcc never sampled) or true-class mass was 0. Those rows do not vote holistically.
metacognition - heuristic-wrapped XOR - modes all - min 2000ms/cell - 1024 train - pulse 50ms - SIMD true

## Lucy champions (this tide)

| Axis | Cell | Score | Soft | Acc | Thru | Avail |
|---|---|---|---|---|---|---|
| score | float32\|none\|sgd\|single\|simd | 140221.41 | 25.0 | 27.5 | 1490611.7 | 37.7 |
| throughput | float32\|none\|sgd\|single\|simd | 140221.41 | 25.0 | 27.5 | 1490611.7 | 37.7 |
| availability | uint\|none\|TweenSplitSparse\|tricameral\|simd | 20806.96 | 25.0 | 22.2 | 175943.0 | 47.3 |
| accuracy | binary\|none\|TweenSplitLinear\|single\|simd | 98004.65 | 25.7 | 26.6 | 958005.8 | 39.9 |
| mobile score (tradi | binary\|none\|sgd\|single\|simd | 116542.11 | 24.9 | 24.9 | 1162547.1 | 40.3 |
| acc/sec | binary\|none\|step_sgd\|single\|simd | 112391.30 | 25.3 | 25.3 | 1114715.4 | 39.8 |

## Lucy axes - metacognition

| Axis | Mode | DType | Arch | Value |
|---|---|---|---|---|
| score | sgd | float32 | singlex1 | 140221.41 |
| soft_acc | TweenSplitLinear | binary | singlex1 | 25.66 |
| hard_acc | MeshTweenSplitF~ | fp6 | tricameralx3 | 37.15 |
| throughput | sgd | float32 | singlex1 | 1490611.71 |
| availability | TweenSplitSparse | uint | tricameralx3 | 47.31 |
| acc_thru | sgd | float32 | singlex1 | 371915.63 |
| realtime | sgd | float32 | singlex1 | 561997.55 |
| adapt | TweenSplitLinear | binary | singlex1 | 25.72 |
| keep_learn | tween | ternary | singlex1 | 12.64 |
| acc_per_sec | step_sgd | binary | singlex1 | 12.65 |
| consistency | sgd | float64 | singlex1 | 100.00 |
| stability | sgd | fp4 | singlex1 | 100.00 |
| mobile_score | sgd | binary | singlex1 | 10183604697.74 |
| lpd | sgd | binary | singlex1 | 28.01 |
| mspeed | sgd | float32 | singlex1 | 1.00 |
| mavail | sgd | int16 | singlex1 | 0.92 |
| mix | sgd | float32 | singlex1 | 0.93 |

## Best settings per train mode

| Mode | DType | Format | Score | Soft | Acc | Avail | n |
|---|---|---|---|---|---|---|---|
| sgd | float32 | none | 140221.4 | 25.0 | 27.5 | 37.7 | 102 |
| step_sgd | float32 | none | 130356.4 | 25.0 | 27.8 | 37.2 | 102 |
| tween_chain | float32 | none | 129452.7 | 25.0 | 27.6 | 37.6 | 102 |
| tween | float32 | none | 127246.5 | 25.0 | 27.8 | 37.3 | 102 |
| step_tween | float32 | none | 121521.5 | 25.0 | 27.5 | 36.9 | 102 |
| step_tween_chain | float32 | none | 120325.8 | 24.9 | 27.4 | 37.2 | 102 |
| MeshBP | float32 | none | 118704.9 | 24.9 | 27.4 | 37.5 | 102 |
| TweenSplitFastProxy | float32 | none | 118180.8 | 25.0 | 26.8 | 37.6 | 102 |
| TweenSplitLinearCache | float32 | none | 116379.1 | 25.1 | 25.3 | 37.8 | 102 |
| StepTweenSplit | float32 | none | 115469.9 | 25.0 | 27.7 | 37.4 | 102 |
| MeshTweenChain | float32 | none | 113554.3 | 25.0 | 27.4 | 37.4 | 102 |
| MeshTween | float32 | none | 112242.4 | 24.9 | 27.2 | 37.2 | 102 |
| TweenSplit | float32 | none | 112233.7 | 25.0 | 27.9 | 37.5 | 102 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| MeshTweenSplitFastProxy | float32 | none | 112066.1 | 24.9 | 27.3 | 37.5 | 102 |
| TweenSplitLinear | float32 | none | 111650.1 | 24.9 | 26.5 | 37.3 | 102 |
| TweenSplitSparse | float32 | none | 108605.4 | 25.0 | 27.6 | 37.6 | 102 |
| MeshTweenSplit | uint8 | none | 108569.0 | 25.0 | 24.7 | 40.4 | 102 |
| MeshTweenSplitSparse | float32 | none | 108471.9 | 25.0 | 27.2 | 37.8 | 102 |
| TweenSplitHeadProxy | float32 | none | 107809.5 | 25.0 | 27.8 | 37.7 | 102 |
| TweenSplitHeadProxyAsync | float32 | none | 107149.4 | 25.0 | 27.6 | 37.5 | 102 |
| StepTweenAlt | float32 | none | 98640.2 | 24.9 | 26.9 | 35.2 | 102 |
| TweenAlt | float32 | none | 97687.0 | 25.0 | 27.5 | 36.0 | 102 |
| MeshTweenAlt | float32 | none | 94818.6 | 24.9 | 27.2 | 36.2 | 102 |

## Best dtype per mode

| Mode | Winner dtype | Score | Soft | Acc |
|---|---|---|---|---|
| sgd | float32 | 140221.4 | 25.0 | 27.5 |
| step_sgd | float32 | 130356.4 | 25.0 | 27.8 |
| tween_chain | float32 | 129452.7 | 25.0 | 27.6 |
| tween | float32 | 127246.5 | 25.0 | 27.8 |
| step_tween | float32 | 121521.5 | 25.0 | 27.5 |
| step_tween_chain | float32 | 120325.8 | 24.9 | 27.4 |
| MeshBP | float32 | 118704.9 | 24.9 | 27.4 |
| TweenSplitFastProxy | float32 | 118180.8 | 25.0 | 26.8 |
| TweenSplitLinearCache | float32 | 116379.1 | 25.1 | 25.3 |
| StepTweenSplit | float32 | 115469.9 | 25.0 | 27.7 |
| MeshTweenChain | float32 | 113554.3 | 25.0 | 27.4 |
| MeshTween | float32 | 112242.4 | 24.9 | 27.2 |
| TweenSplit | float32 | 112233.7 | 25.0 | 27.9 |
| MeshTweenSplitFastProxy | float32 | 112066.1 | 24.9 | 27.3 |
| TweenSplitLinear | float32 | 111650.1 | 24.9 | 26.5 |
| TweenSplitSparse | float32 | 108605.4 | 25.0 | 27.6 |
| MeshTweenSplit | uint8 | 108569.0 | 25.0 | 24.7 |
| MeshTweenSplitSparse | float32 | 108471.9 | 25.0 | 27.2 |
| TweenSplitHeadProxy | float32 | 107809.5 | 25.0 | 27.8 |
| TweenSplitHeadProxyAsync | float32 | 107149.4 | 25.0 | 27.6 |
| StepTweenAlt | float32 | 98640.2 | 24.9 | 26.9 |
| TweenAlt | float32 | 97687.0 | 25.0 | 27.5 |
| MeshTweenAlt | float32 | 94818.6 | 24.9 | 27.2 |

## Best mode per dtype

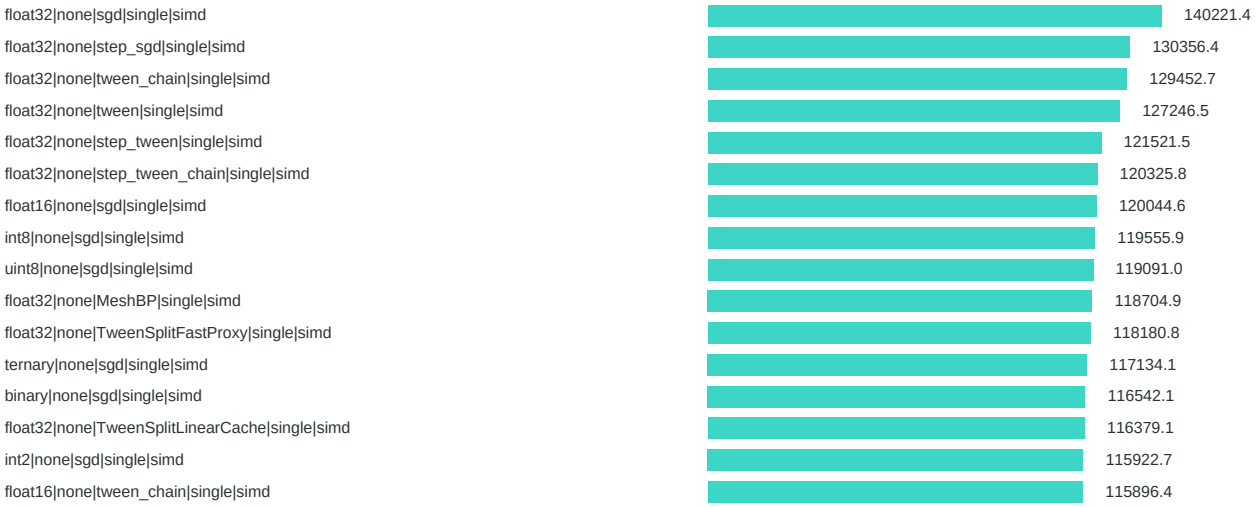
| DType | Winner mode | Score | Soft | Acc |
|---|---|---|---|---|
| float32 | sgd | 140221.4 | 25.0 | 27.5 |
| float16 | sgd | 120044.6 | 25.0 | 27.1 |
| int8 | sgd | 119555.9 | 25.0 | 23.7 |
| uint8 | sgd | 119091.0 | 25.0 | 23.9 |
| ternary | sgd | 117134.1 | 25.0 | 24.4 |
| binary | sgd | 116542.1 | 24.9 | 24.9 |
| int2 | sgd | 115922.7 | 25.0 | 26.3 |
| int4 | sgd | 113496.4 | 25.0 | 26.8 |
| fp4 | sgd | 111048.8 | 25.0 | 25.0 |
| bfloat16 | sgd | 107234.6 | 25.0 | 27.7 |
| float64 | sgd | 95468.0 | 25.0 | 27.7 |
| fp8e5m2 | tween | 93360.8 | 25.0 | 23.4 |
| fp8e4m3 | tween_chain | 90060.4 | 25.1 | 26.0 |

| | | | | |
|---|---|---|---|---|
| uint32 | sgd | 89414.8 | 25.0 | 24.5 |
| uint16 | sgd | 88282.3 | 25.0 | 24.3 |
| uint64 | sgd | 86000.8 | 25.0 | 24.3 |
| uint4 | sgd | 84652.6 | 25.0 | 21.9 |
| uint2 | sgd | 82863.5 | 24.9 | 19.0 |
| int32 | sgd | 81945.1 | 24.9 | 24.1 |
| int64 | sgd | 79617.9 | 25.0 | 27.7 |
| int16 | sgd | 79325.3 | 25.0 | 25.2 |
| uintptr | sgd | 74246.7 | 25.0 | 24.0 |
| uint | sgd | 73669.2 | 25.0 | 24.2 |
| complex64 | sgd | 71638.1 | 25.0 | 27.4 |
| int | sgd | 71442.8 | 25.0 | 27.2 |
| complex128 | sgd | 71364.9 | 25.0 | 28.3 |
| nf4 | sgd | 67403.3 | 25.1 | 27.3 |
| uint3 | sgd | 55238.1 | 24.9 | 24.3 |
| int3 | sgd | 53372.7 | 25.0 | 24.1 |
| uint5 | sgd | 47006.1 | 25.0 | 24.1 |
| int5 | sgd | 43815.8 | 24.9 | 21.8 |
| uint6 | sgd | 42053.2 | 25.0 | 24.6 |
| int6 | sgd | 40048.1 | 24.9 | 23.7 |
| fp6 | sgd | 40036.0 | 25.0 | 25.9 |

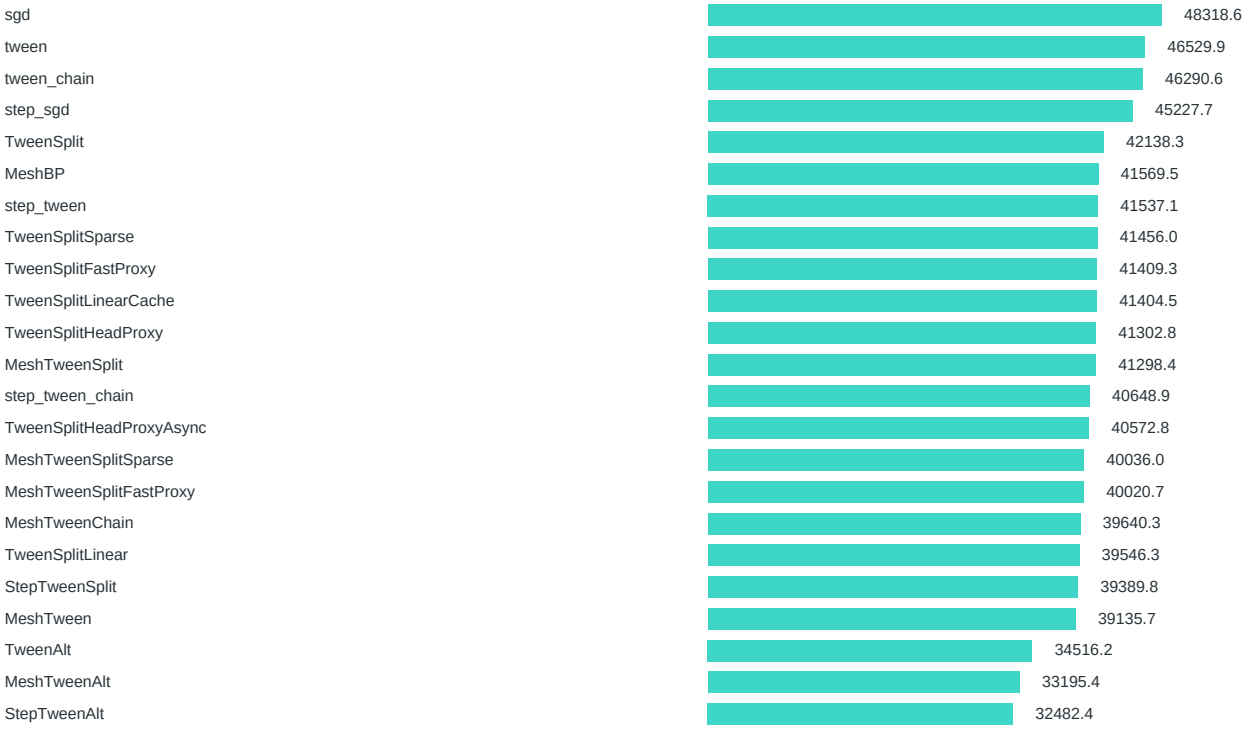
## Leaderboard - metacognition

| # | Cell | Score | Soft | Acc | Thru | Avail |
|---|---|---|---|---|---|---|
| 1 | float32\|none\|sgd\|single\|simd | 140221.4 | 25.0 | 27.5 | 1490611.7 | 37.7 |
| 2 | float32\|none\|step_sgd\|single\|simd | 130356.4 | 25.0 | 27.8 | 1403462.2 | 37.2 |
| 3 | float32\|none\|tween_chain\|single\|simd | 129452.7 | 25.0 | 27.6 | 1380855.8 | 37.6 |
| 4 | float32\|none\|tween\|single\|simd | 127246.5 | 25.0 | 27.8 | 1367090.5 | 37.3 |
| 5 | float32\|none\|step_tween\|single\|simd | 121521.5 | 25.0 | 27.5 | 1320379.4 | 36.9 |
| 6 | float32\|none\|step_tween_chain\|single\|simd | 120325.8 | 24.9 | 27.4 | 1297304.2 | 37.2 |
| 7 | float16\|none\|sgd\|single\|simd | 120044.6 | 25.0 | 27.1 | 1232755.1 | 39.0 |
| 8 | int8\|none\|sgd\|single\|simd | 119555.9 | 25.0 | 23.7 | 1191725.6 | 40.2 |
| 9 | uint8\|none\|sgd\|single\|simd | 119091.0 | 25.0 | 23.9 | 1182597.4 | 40.4 |
| 10 | float32\|none\|MeshBP\|single\|simd | 118704.9 | 24.9 | 27.4 | 1268660.8 | 37.5 |
| 11 | float32\|none\|TweenSplitFastProxy\|single\|simd | 118180.8 | 25.0 | 26.8 | 1259359.9 | 37.6 |
| 12 | ternary\|none\|sgd\|single\|simd | 117134.1 | 25.0 | 24.4 | 1160362.1 | 40.5 |
| 13 | binary\|none\|sgd\|single\|simd | 116542.1 | 24.9 | 24.9 | 1162547.1 | 40.3 |
| 14 | float32\|none\|TweenSplitLinearCache\|single\|simd | 116379.1 | 25.1 | 25.3 | 1229076.8 | 37.8 |
| 15 | int2\|none\|sgd\|single\|simd | 115922.7 | 25.0 | 26.3 | 1149777.0 | 40.3 |
| 16 | float16\|none\|tween_chain\|single\|simd | 115896.4 | 25.0 | 27.5 | 1190195.1 | 39.0 |
| 17 | float32\|none\|StepTweenSplit\|single\|simd | 115469.9 | 25.0 | 27.7 | 1236857.8 | 37.4 |
| 18 | uint8\|none\|tween\|single\|simd | 115191.1 | 25.0 | 25.3 | 1148437.3 | 40.2 |
| 19 | float16\|none\|step_sgd\|single\|simd | 114776.0 | 24.9 | 27.4 | 1192766.0 | 38.6 |
| 20 | int8\|none\|tween_chain\|single\|simd | 114633.1 | 25.0 | 23.7 | 1143114.1 | 40.2 |

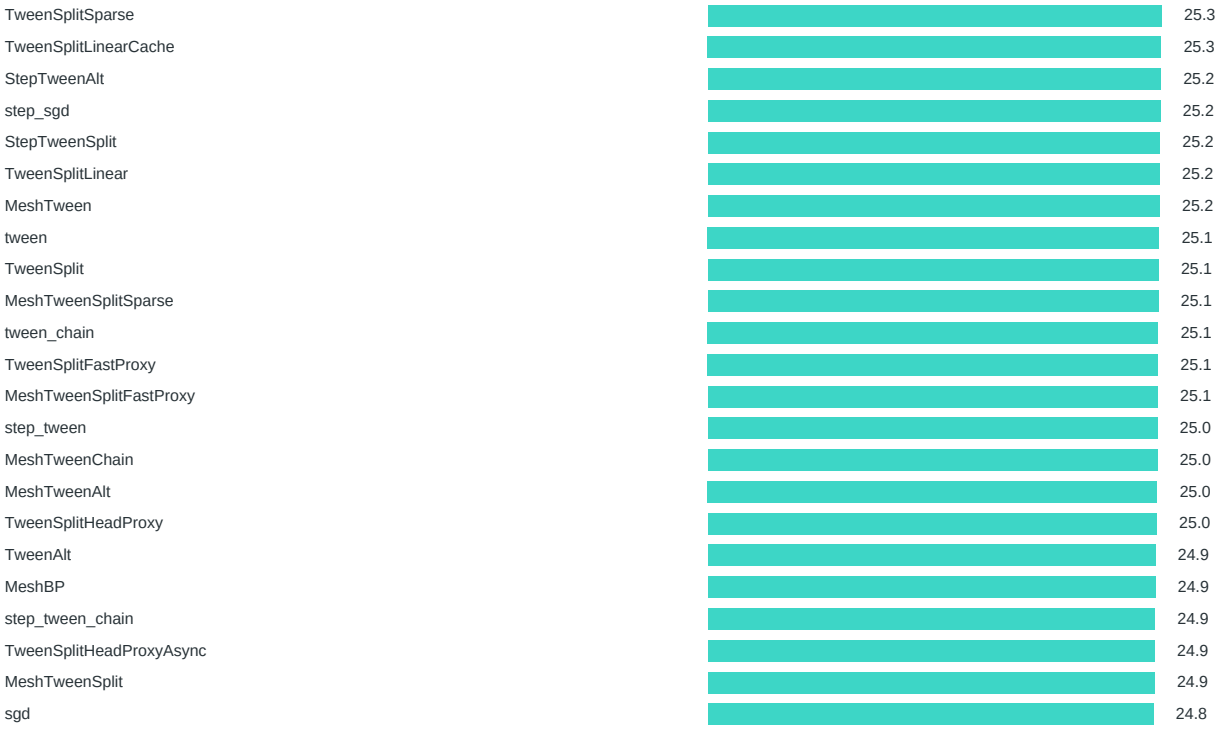
## Top scores - metacognition



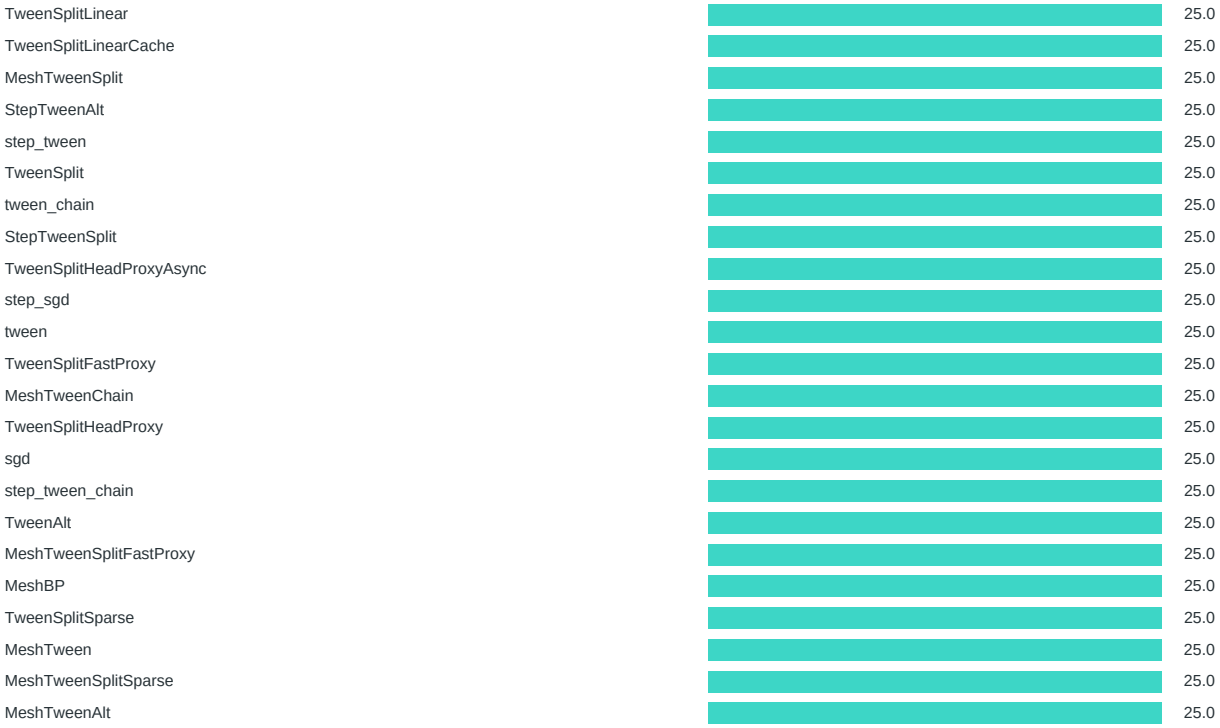

## Mean Score by train mode



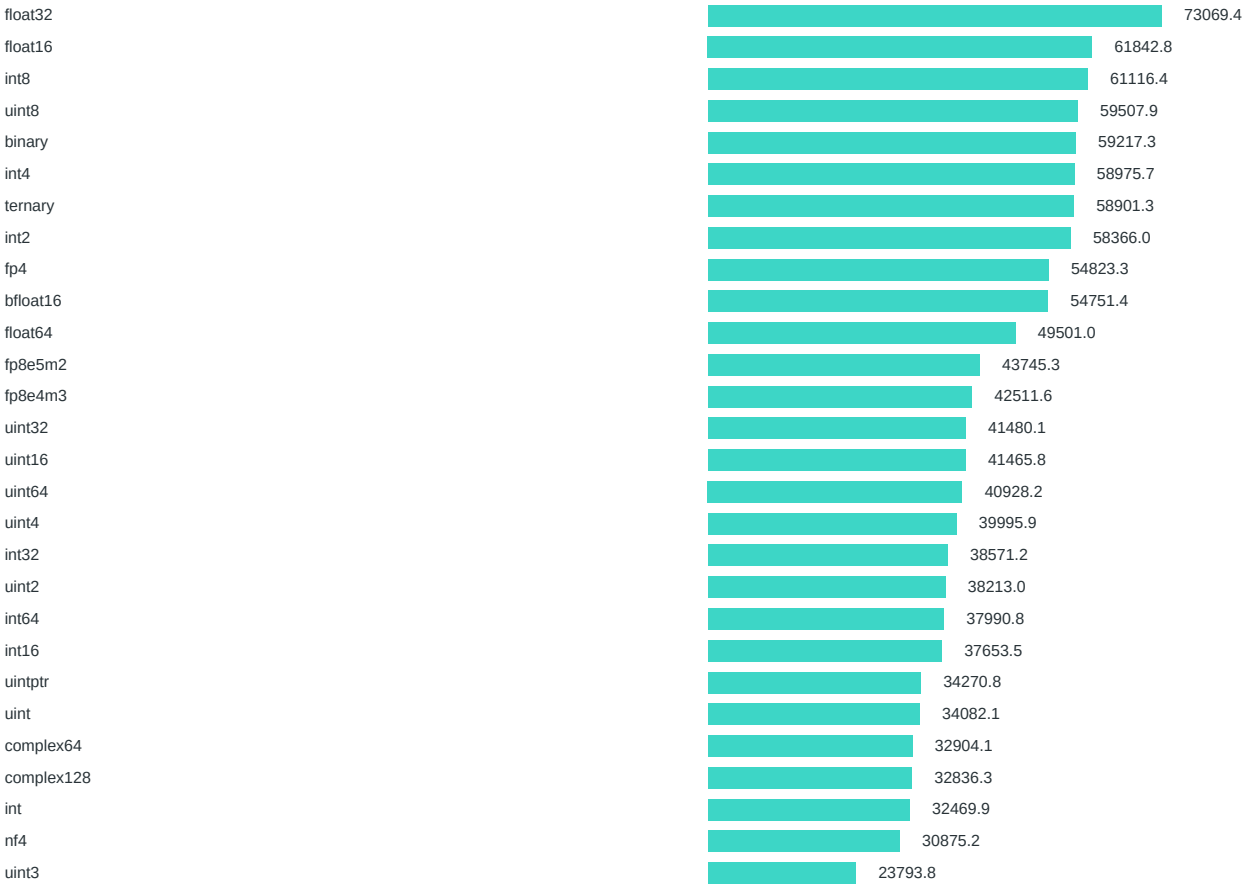

## Mean hard Acc by train mode




## Mean SoftAcc by train mode




## Mean Score by dtype




## Mean hard Acc by dtype




## Mean Score by arch




## Honesty - mean Score, every mode x dtype (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 55135 | 60254 | 32513 | 33105 | 63494 | 74931 | 50665 | 55357 | 17316 | 43940 | 44590 | 33151 | 38373 | 59425 | 22309 | 39248 |
| MeshTween | 52877 | 56172 | 31994 | 31888 | 60958 | 70816 | 47698 | 53572 | 15614 | 40995 | 42678 | 31446 | 35546 | 56780 | 21416 | 36731 |
| MeshTweenAlt | 48318 | 51389 | 27291 | 27007 | 51810 | 57561 | 39918 | 43490 | 12954 | 36073 | 35641 | 25343 | 31372 | 46721 | 17240 | 31048 |
| MeshTweenChain | 52707 | 55957 | 32634 | 32595 | 60497 | 72292 | 48523 | 52211 | 16716 | 40836 | 42774 | 31541 | 36893 | 56678 | 21678 | 37902 |
| MeshTweenSplit | 55895 | 56473 | 34094 | 34370 | 64509 | 71607 | 47687 | 55189 | 18149 | 43015 | 43950 | 32655 | 39664 | 59439 | 24683 | 39054 |
| MeshTweenSplitFa | 54815 | 56852 | 31846 | 32924 | 57139 | 72545 | 49093 | 52529 | 16832 | 39249 | 42108 | 32418 | 38040 | 56051 | 22646 | 38651 |
| MeshTweenSplitSp | 53552 | 56774 | 31917 | 33201 | 60830 | 71151 | 48992 | 54810 | 16891 | 40268 | 42039 | 31365 | 36736 | 57047 | 23429 | 36302 |
| StepTweenAlt | 44120 | 48877 | 26226 | 25744 | 50237 | 60220 | 38875 | 43535 | 12608 | 34335 | 33755 | 25801 | 30089 | 45193 | 17571 | 31418 |
| StepTweenSplit | 54102 | 57352 | 30801 | 31660 | 61537 | 72305 | 48854 | 52136 | 16007 | 41438 | 42218 | 31134 | 36416 | 57408 | 21455 | 37027 |
| TweenAlt | 47257 | 52333 | 26791 | 27756 | 52153 | 60829 | 41955 | 45620 | 13217 | 36047 | 36877 | 27776 | 31980 | 49187 | 18632 | 33425 |
| TweenSplit | 54172 | 61954 | 33748 | 33774 | 63518 | 73824 | 50534 | 56248 | 18134 | 43681 | 43940 | 33837 | 39146 | 60573 | 24030 | 39675 |
| TweenSplitFastPr | 54959 | 60060 | 34620 | 33726 | 61699 | 73670 | 49189 | 56051 | 17779 | 43898 | 43651 | 33324 | 38007 | 58623 | 22745 | 38793 |
| TweenSplitHeadPr | 55066 | 58937 | 33273 | 33399 | 61861 | 72388 | 49246 | 55201 | 17406 | 43706 | 45127 | 32600 | 38978 | 58588 | 23578 | 38597 |
| TweenSplitHeadPr | 53268 | 57541 | 32555 | 31976 | 60771 | 71996 | 50146 | 56103 | 18016 | 42258 | 42265 | 32957 | 37831 | 58186 | 23526 | 38690 |
| TweenSplitLinear | 52891 | 59170 | 32689 | 31575 | 60997 | 71873 | 47695 | 53066 | 16747 | 41633 | 40780 | 31793 | 35671 | 55506 | 22324 | 37458 |
| TweenSplitLinear | 55439 | 60143 | 33978 | 34341 | 61943 | 72070 | 49638 | 55149 | 18442 | 42438 | 45657 | 32989 | 38235 | 59537 | 23887 | 39454 |
| TweenSplitSparse | 56469 | 60861 | 34978 | 33405 | 61549 | 73068 | 50853 | 55749 | 17944 | 42714 | 44557 | 32793 | 36075 | 59941 | 23174 | 38151 |
| sgd | 63576 | 69662 | 38627 | 38885 | 72410 | 87541 | 57975 | 65002 | 20096 | 50214 | 52319 | 38449 | 44468 | 69757 | 27207 | 45690 |
| step_sgd | 61018 | 66539 | 35647 | 36038 | 68695 | 82478 | 55611 | 61763 | 18179 | 46830 | 48960 | 36256 | 41431 | 65466 | 24086 | 42957 |
| step_tween | 56039 | 61512 | 32616 | 32609 | 64202 | 76815 | 51855 | 56542 | 16108 | 43709 | 46003 | 32921 | 37799 | 60466 | 21889 | 39501 |
| step_tween_chain | 54128 | 58638 | 31908 | 32439 | 62686 | 74924 | 50640 | 55992 | 16117 | 42589 | 44153 | 32187 | 37450 | 59425 | 22277 | 38620 |
| tween | 61680 | 67802 | 37263 | 37376 | 69042 | 82598 | 55976 | 62733 | 18826 | 48665 | 51817 | 37229 | 43486 | 66106 | 25478 | 44633 |
| tween_chain | 61800 | 66744 | 37226 | 37004 | 69850 | 83094 | 56904 | 62889 | 19151 | 49234 | 50282 | 36843 | 42344 | 66317 | 26023 | 44114 |

## Honesty - mean Score, every mode x dtype (cols 17-32)

## Honesty - mean Score, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 59444 | 18691 | 17335 | 38950 | 62834 | 31283 | 60475 | 34606 | 42406 | 38871 | 24225 | 42996 | 40801 | 19997 | 18166 | 42878 |
| MeshTween | 58092 | 17111 | 15506 | 36233 | 57668 | 29973 | 55546 | 32222 | 39862 | 37318 | 22282 | 39518 | 38322 | 18918 | 16031 | 38720 |
| MeshTweenAlt | 46432 | 14086 | 13269 | 31285 | 48683 | 24548 | 47234 | 29489 | 33097 | 31668 | 18805 | 33380 | 32350 | 15040 | 13296 | 35566 |
| MeshTweenChain | 56195 | 17404 | 16749 | 37849 | 60396 | 30314 | 56650 | 33072 | 40695 | 37135 | 23815 | 40437 | 38520 | 18942 | 16931 | 38904 |
| MeshTweenSplit | 61870 | 18602 | 17851 | 36181 | 62790 | 29531 | 58011 | 32619 | 42629 | 37674 | 25541 | 42323 | 41233 | 20563 | 19841 | 41753 |
| MeshTweenSplitFa | 57443 | 18654 | 17472 | 37704 | 58957 | 30033 | 56693 | 34564 | 40610 | 36739 | 23971 | 41548 | 39962 | 19959 | 18648 | 39924 |
| MeshTweenSplitSp | 59983 | 18831 | 16626 | 37537 | 58454 | 29608 | 59040 | 32820 | 42454 | 37047 | 23544 | 41371 | 40809 | 19679 | 17784 | 39424 |
| StepTweenAlt | 48094 | 13416 | 11952 | 29689 | 50985 | 23956 | 48281 | 26348 | 33260 | 29171 | 17530 | 32861 | 31944 | 15102 | 12897 | 33077 |
| StepTweenSplit | 58353 | 16851 | 16109 | 37070 | 59038 | 29035 | 56501 | 32105 | 39505 | 36645 | 22342 | 39581 | 38303 | 18866 | 16811 | 39447 |
| TweenAlt | 49994 | 15044 | 13807 | 32407 | 53999 | 25645 | 51204 | 29180 | 34547 | 32941 | 18448 | 35632 | 33919 | 16425 | 13828 | 35096 |
| TweenSplit | 61392 | 19930 | 18372 | 39226 | 63240 | 33030 | 60773 | 36264 | 41863 | 40124 | 25804 | 42487 | 41633 | 21595 | 18920 | 42304 |
| TweenSplitFastPr | 58621 | 18675 | 17928 | 39571 | 61486 | 31857 | 60193 | 35164 | 43314 | 39869 | 25087 | 40945 | 41553 | 20094 | 18536 | 41668 |
| TweenSplitHeadPr | 58899 | 19958 | 17934 | 38727 | 61884 | 31735 | 59212 | 35061 | 41963 | 37815 | 24409 | 41130 | 40194 | 21970 | 18598 | 41628 |
| TweenSplitHeadPr | 59522 | 18157 | 17776 | 38568 | 58680 | 32030 | 57192 | 33193 | 39919 | 38056 | 23251 | 41807 | 39522 | 19560 | 18473 | 41567 |
| TweenSplitLinear | 55632 | 18305 | 16430 | 36777 | 59118 | 30707 | 54906 | 33254 | 41068 | 38479 | 23130 | 39731 | 38543 | 20089 | 17344 | 39379 |
| TweenSplitLinear | 59796 | 18924 | 18077 | 37832 | 61320 | 32729 | 60270 | 34768 | 41106 | 37315 | 25617 | 41532 | 39640 | 19776 | 18156 | 40732 |
| TweenSplitSparse | 59299 | 19664 | 18040 | 37943 | 60447 | 32487 | 60875 | 35343 | 41729 | 40343 | 24898 | 41925 | 40306 | 19966 | 18604 | 40967 |
| sgd | 69181 | 22163 | 19937 | 44590 | 73051 | 36350 | 69995 | 40096 | 49735 | 45765 | 28441 | 49953 | 47372 | 23623 | 21142 | 48517 |
| step_sgd | 65420 | 19932 | 18177 | 41982 | 69070 | 34228 | 66366 | 37538 | 45931 | 42142 | 25558 | 46810 | 43954 | 20789 | 18960 | 45038 |
| step_tween | 60024 | 17470 | 16288 | 38662 | 62885 | 31387 | 61502 | 34574 | 41760 | 39039 | 23655 | 41592 | 40383 | 18625 | 17037 | 41014 |
| step_tween_chain | 59248 | 17684 | 16165 | 37992 | 61163 | 29883 | 58967 | 33836 | 41689 | 37676 | 22605 | 41422 | 39657 | 18934 | 16883 | 40788 |
| tween | 67668 | 20763 | 18653 | 43660 | 69744 | 35004 | 68162 | 38952 | 47610 | 44113 | 27268 | 47904 | 45781 | 22204 | 19864 | 46474 |
| tween_chain | 65839 | 21123 | 19125 | 43355 | 69787 | 34777 | 66682 | 38823 | 46963 | 42953 | 27033 | 47157 | 45203 | 22776 | 20105 | 46483 |

## Honesty - mean Score, every mode x dtype  (cols 33-34)

## Honesty - mean Score, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 61129 | 34469 |
| MeshTween | 56800 | 33314 |
| MeshTweenAlt | 48286 | 28951 |
| MeshTweenChain | 58129 | 33199 |
| MeshTweenSplit | 61435 | 33265 |
| MeshTweenSplitFa | 59490 | 34596 |
| MeshTweenSplitSp | 57618 | 33293 |
| StepTweenAlt | 49645 | 27592 |
| StepTweenSplit | 58109 | 32729 |
| TweenAlt | 50484 | 29115 |
| TweenSplit | 59439 | 35518 |
| TweenSplitFastPr | 57967 | 34595 |
| TweenSplitHeadPr | 60325 | 34901 |
| TweenSplitHeadPr | 60662 | 33455 |
| TweenSplitLinear | 56633 | 33182 |
| TweenSplitLinear | 60619 | 36205 |
| TweenSplitSparse | 58846 | 35543 |
| sgd | 70494 | 40553 |
| step_sgd | 66215 | 37675 |
| step_tween | 61606 | 34175 |
| step_tween_chain | 59287 | 34009 |
| tween | 68334 | 39149 |
| tween_chain | 67128 | 38746 |

## Honesty - mean hard Acc, every mode x dtype  (cols 1-16)

## Honesty - mean hard Acc, every mode x dtype  (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 26 | 25 | 27 | 26 | 26 | 27 | 27 | 25 | 25 | 23 | 25 | 26 | 24 | 25 | 25 | 24 |
| MeshTween | 26 | 24 | 26 | 27 | 26 | 25 | 27 | 25 | 22 | 23 | 25 | 27 | 25 | 24 | 25 | 26 |
| MeshTweenAlt | 27 | 24 | 26 | 26 | 26 | 27 | 26 | 25 | 24 | 26 | 25 | 26 | 25 | 25 | 23 | 24 |
| MeshTweenChain | 26 | 26 | 26 | 26 | 26 | 27 | 27 | 25 | 23 | 27 | 23 | 26 | 24 | 29 | 25 | 25 |
| MeshTweenSplit | 26 | 25 | 26 | 25 | 26 | 25 | 26 | 25 | 24 | 27 | 23 | 26 | 24 | 25 | 27 | 25 |
| MeshTweenSplitFa | 27 | 25 | 25 | 26 | 25 | 24 | 25 | 25 | 29 | 26 | 23 | 26 | 25 | 28 | 25 | 24 |
| MeshTweenSplitSp | 27 | 25 | 27 | 26 | 26 | 26 | 26 | 25 | 22 | 25 | 23 | 25 | 24 | 23 | 26 | 26 |
| StepTweenAlt | 26 | 25 | 26 | 26 | 26 | 26 | 26 | 25 | 25 | 25 | 25 | 27 | 25 | 24 | 27 | 25 |
| StepTweenSplit | 26 | 26 | 26 | 26 | 26 | 27 | 25 | 25 | 24 | 24 | 24 | 27 | 24 | 26 | 22 | 25 |
| TweenAlt | 26 | 24 | 27 | 26 | 26 | 27 | 26 | 25 | 24 | 25 | 25 | 26 | 24 | 23 | 24 | 24 |
| TweenSplit | 27 | 25 | 26 | 26 | 26 | 26 | 26 | 25 | 24 | 23 | 25 | 26 | 26 | 22 | 24 | 25 |
| TweenSplitFastPr | 25 | 26 | 26 | 27 | 25 | 25 | 27 | 25 | 24 | 25 | 23 | 26 | 24 | 23 | 26 | 25 |
| TweenSplitHeadPr | 26 | 24 | 25 | 24 | 26 | 26 | 25 | 25 | 27 | 25 | 25 | 26 | 25 | 26 | 22 | 25 |
| TweenSplitHeadPr | 27 | 25 | 26 | 27 | 26 | 26 | 25 | 25 | 24 | 27 | 25 | 26 | 23 | 26 | 24 | 24 |
| TweenSplitLinear | 27 | 26 | 24 | 25 | 27 | 26 | 26 | 25 | 26 | 24 | 26 | 26 | 23 | 23 | 27 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 24 | 25 | 25 | 27 | 25 | 25 | 24 | 26 | 27 | 25 | 23 | 26 | 25 |
| TweenSplitSparse | 25 | 25 | 26 | 25 | 26 | 25 | 25 | 25 | 25 | 25 | 26 | 27 | 25 | 24 | 26 | 25 |
| sgd | 25 | 25 | 26 | 26 | 26 | 27 | 26 | 25 | 23 | 25 | 23 | 26 | 25 | 24 | 25 | 25 |
| step_sgd | 26 | 24 | 27 | 26 | 26 | 27 | 26 | 25 | 24 | 27 | 25 | 27 | 25 | 26 | 26 | 24 |
| step_tween | 27 | 25 | 24 | 27 | 26 | 27 | 25 | 25 | 22 | 25 | 27 | 25 | 27 | 23 | 24 | 24 |
| step_tween_chain | 26 | 24 | 25 | 26 | 26 | 26 | 27 | 25 | 26 | 25 | 24 | 27 | 24 | 23 | 25 | 25 |
| tween | 28 | 24 | 25 | 25 | 26 | 27 | 27 | 25 | 24 | 26 | 25 | 26 | 26 | 26 | 25 | 25 |
| tween_chain | 25 | 26 | 27 | 26 | 26 | 26 | 26 | 25 | 24 | 28 | 23 | 27 | 25 | 24 | 24 | 24 |

## Honesty - mean hard Acc, every mode x dtype  (cols 17-32)

## Honesty - mean hard Acc, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 23 | 25 | 23 | 26 | 25 | 24 | 26 | 24 | 25 | 20 | 28 | 25 | 25 | 26 | 22 | 24 |
| MeshTween | 24 | 24 | 25 | 26 | 25 | 25 | 25 | 26 | 25 | 23 | 27 | 24 | 25 | 26 | 26 | 24 |
| MeshTweenAlt | 25 | 25 | 24 | 26 | 24 | 27 | 28 | 24 | 25 | 23 | 25 | 25 | 23 | 24 | 24 | 24 |
| MeshTweenChain | 23 | 24 | 24 | 26 | 24 | 28 | 25 | 26 | 24 | 24 | 25 | 24 | 24 | 24 | 24 | 24 |
| MeshTweenSplit | 25 | 23 | 24 | 26 | 25 | 25 | 25 | 24 | 25 | 23 | 26 | 24 | 21 | 25 | 25 | 26 |
| MeshTweenSplitFa | 25 | 25 | 25 | 27 | 24 | 23 | 24 | 25 | 25 | 26 | 23 | 24 | 27 | 25 | 23 | 24 |
| MeshTweenSplitSp | 24 | 25 | 23 | 27 | 25 | 26 | 24 | 25 | 26 | 24 | 27 | 28 | 25 | 23 | 26 | 26 |
| StepTweenAlt | 26 | 25 | 24 | 26 | 24 | 23 | 26 | 24 | 24 | 27 | 26 | 25 | 26 | 24 | 24 | 25 |
| StepTweenSplit | 25 | 26 | 24 | 27 | 26 | 26 | 26 | 25 | 24 | 26 | 26 | 24 | 25 | 23 | 26 | 26 |
| TweenAlt | 25 | 25 | 24 | 26 | 24 | 24 | 24 | 25 | 24 | 26 | 26 | 24 | 25 | 24 | 24 | 24 |
| TweenSplit | 27 | 25 | 25 | 25 | 25 | 26 | 29 | 25 | 25 | 23 | 24 | 25 | 25 | 26 | 25 | 25 |
| TweenSplitFastPr | 26 | 23 | 25 | 25 | 25 | 23 | 27 | 24 | 25 | 26 | 24 | 25 | 25 | 25 | 25 | 24 |
| TweenSplitHeadPr | 25 | 25 | 26 | 26 | 23 | 25 | 25 | 26 | 25 | 25 | 26 | 26 | 24 | 24 | 24 | 24 |
| TweenSplitHeadPr | 24 | 24 | 24 | 26 | 25 | 23 | 23 | 25 | 24 | 26 | 25 | 24 | 25 | 24 | 25 | 24 |
| TweenSplitLinear | 26 | 26 | 27 | 25 | 25 | 24 | 25 | 25 | 25 | 25 | 26 | 25 | 24 | 22 | 23 | 26 |
| TweenSplitLinear | 24 | 27 | 26 | 22 | 27 | 26 | 25 | 26 | 26 | 27 | 23 | 24 | 25 | 26 | 27 | 25 |
| TweenSplitSparse | 25 | 24 | 26 | 26 | 24 | 26 | 25 | 25 | 25 | 25 | 23 | 27 | 26 | 25 | 26 | 25 |
| sgd | 25 | 24 | 24 | 26 | 26 | 27 | 26 | 24 | 25 | 23 | 25 | 25 | 24 | 26 | 23 | 24 |
| step_sgd | 26 | 26 | 26 | 27 | 24 | 25 | 24 | 24 | 25 | 25 | 23 | 25 | 22 | 25 | 25 | 25 |
| step_tween | 28 | 23 | 24 | 26 | 25 | 25 | 23 | 24 | 25 | 26 | 25 | 25 | 24 | 24 | 26 | 25 |
| step_tween_chain | 26 | 24 | 23 | 26 | 26 | 27 | 25 | 24 | 25 | 25 | 24 | 24 | 23 | 24 | 25 | 25 |
| tween | 26 | 24 | 25 | 26 | 25 | 25 | 23 | 24 | 25 | 26 | 26 | 25 | 24 | 21 | 24 | 25 |
| tween_chain | 26 | 23 | 24 | 26 | 24 | 23 | 24 | 24 | 25 | 27 | 23 | 24 | 26 | 26 | 27 | 25 |

## Honesty - mean hard Acc, every mode x dtype  (cols 33-34)

## Honesty - mean hard Acc, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 24 | 25 |
| MeshTween | 27 | 27 |
| MeshTweenAlt | 24 | 25 |
| MeshTweenChain | 23 | 25 |
| MeshTweenSplit | 25 | 25 |
| MeshTweenSplitFa | 25 | 24 |
| MeshTweenSplitSp | 26 | 24 |
| StepTweenAlt | 25 | 25 |
| StepTweenSplit | 25 | 24 |
| TweenAlt | 25 | 25 |
| TweenSplit | 25 | 25 |
| TweenSplitFastPr | 26 | 25 |
| TweenSplitHeadPr | 24 | 26 |
| TweenSplitHeadPr | 24 | 25 |
| TweenSplitLinear | 27 | 23 |
| TweenSplitLinear | 25 | 25 |
| TweenSplitSparse | 26 | 26 |
| sgd | 23 | 24 |
| step_sgd | 25 | 24 |
| step_tween | 24 | 25 |
| step_tween_chain | 22 | 25 |
| tween | 26 | 26 |
| tween_chain | 24 | 25 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 1-16)

## Honesty - mean SoftAcc, every mode x dtype  (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenChain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitFastPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitSparse | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 17-32)

## Honesty - mean SoftAcc, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenChain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitFastPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitSparse | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 33-34)

## Honesty - mean SoftAcc, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 25 | 25 |
| MeshTween | 25 | 25 |
| MeshTweenAlt | 25 | 25 |
| MeshTweenChain | 25 | 25 |
| MeshTweenSplit | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 |
| StepTweenAlt | 25 | 25 |
| StepTweenSplit | 25 | 25 |
| TweenAlt | 25 | 25 |
| TweenSplit | 25 | 25 |
| TweenSplitFastPr | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 |
| TweenSplitLinear | 25 | 25 |
| TweenSplitLinear | 25 | 25 |
| TweenSplitSparse | 25 | 25 |
| sgd | 25 | 25 |
| step_sgd | 25 | 25 |
| step_tween | 25 | 25 |
| step_tween_chain | 25 | 25 |
| tween | 25 | 25 |
| tween_chain | 25 | 25 |

## Mean Score, every mode x arch

## Mean Score, every mode x arch

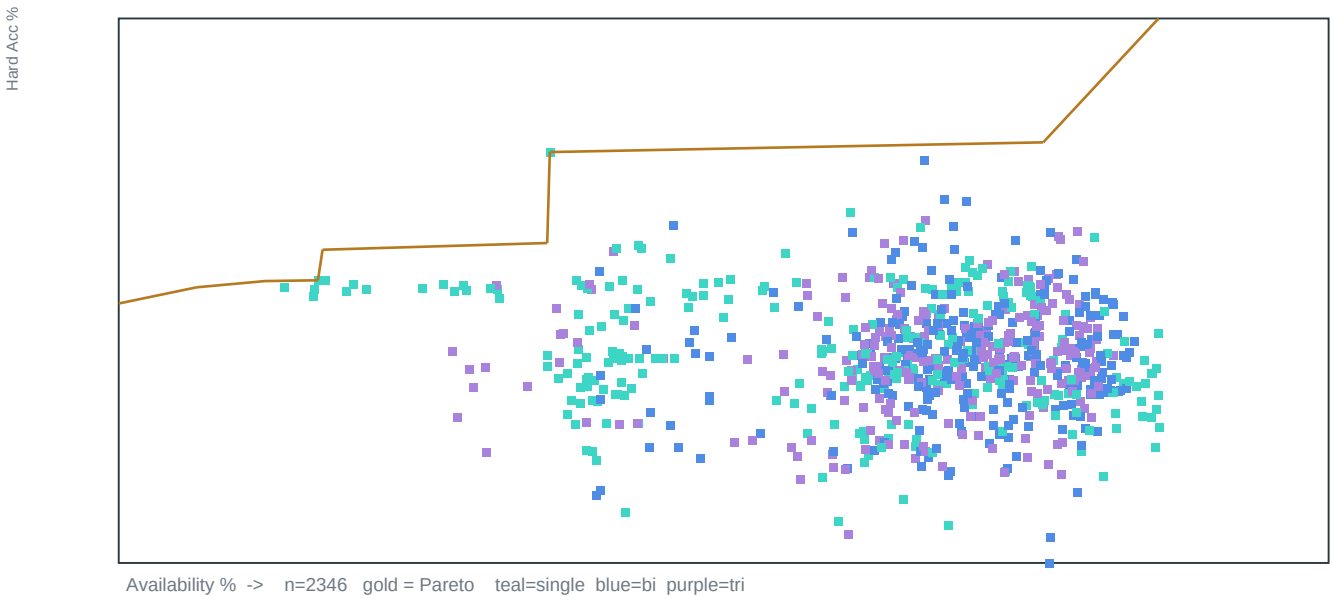
| | bicamera | singlex1 | tricamer |
|---|---|---|---|
| MeshBP | 28273 | 73427 | 23009 |
| MeshTween | 26534 | 69009 | 21864 |
| MeshTweenAlt | 22047 | 59300 | 18239 |
| MeshTweenChain | 27048 | 69453 | 22420 |
| MeshTweenSplit | 29373 | 70540 | 23983 |
| MeshTweenSplitFa | 27945 | 68262 | 23854 |
| MeshTweenSplitSp | 29206 | 66909 | 23993 |
| StepTweenAlt | 21045 | 59304 | 17098 |
| StepTweenSplit | 27273 | 68494 | 22402 |
| TweenAlt | 22708 | 62260 | 18581 |
| TweenSplit | 29692 | 71844 | 24879 |
| TweenSplitFastPr | 29298 | 70446 | 24483 |
| TweenSplitHeadPr | 29375 | 69640 | 24894 |
| TweenSplitHeadPr | 29484 | 67587 | 24648 |
| TweenSplitLinear | 27640 | 68019 | 22980 |
| TweenSplitLinear | 29088 | 70805 | 24320 |
| TweenSplitSparse | 29645 | 69832 | 24891 |
| sgd | 33184 | 84749 | 27023 |
| step_sgd | 30459 | 80906 | 24318 |
| step_tween | 27763 | 74559 | 22289 |
| step_tween_chain | 26949 | 73416 | 21582 |
| tween | 32105 | 81607 | 25878 |
| tween_chain | 31769 | 81511 | 25592 |

## Mean hard Acc, every mode x arch

## Mean hard Acc, every mode x arch

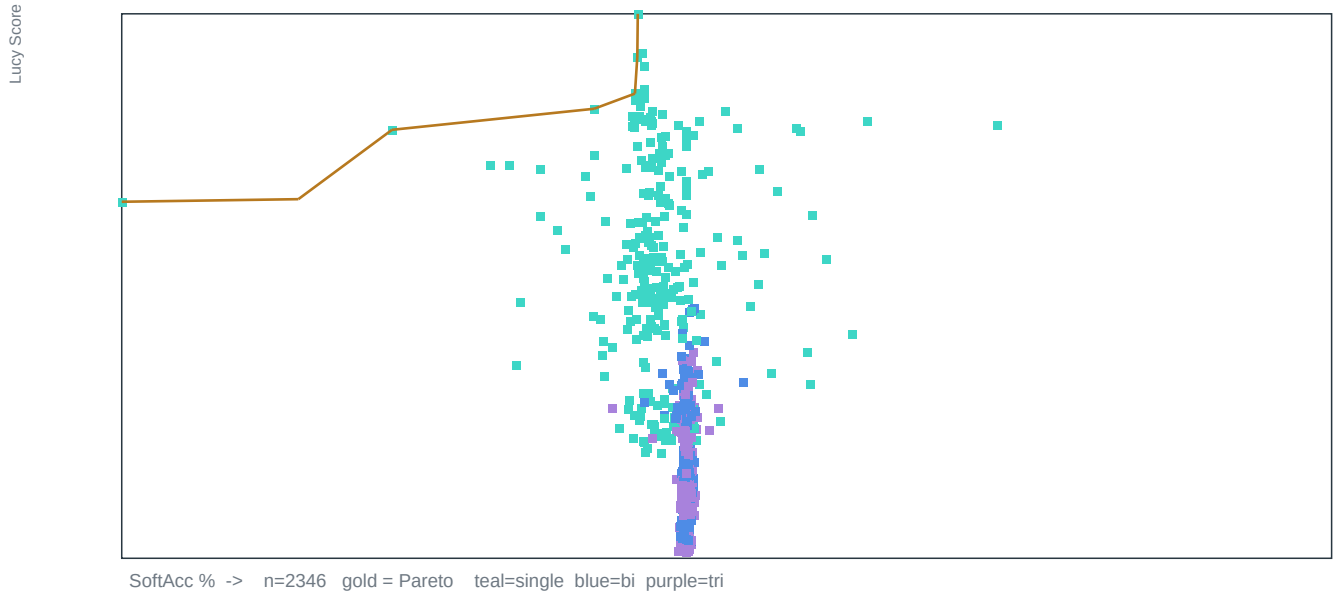
| | bicamera | singlex1 | tricamer |
|---|---|---|---|
| MeshBP | 25 | 25 | 25 |
| MeshTween | 25 | 25 | 25 |
| MeshTweenAlt | 25 | 25 | 25 |
| MeshTweenChain | 25 | 25 | 25 |
| MeshTweenSplit | 25 | 25 | 24 |
| MeshTweenSplitFa | 24 | 26 | 25 |
| MeshTweenSplitSp | 25 | 25 | 26 |
| StepTweenAlt | 25 | 25 | 25 |
| StepTweenSplit | 25 | 25 | 25 |
| TweenAlt | 25 | 25 | 25 |
| TweenSplit | 25 | 25 | 25 |
| TweenSplitFastPr | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 |
| TweenSplitLinear | 26 | 26 | 25 |
| TweenSplitSparse | 26 | 25 | 25 |
| sgd | 25 | 25 | 25 |
| step_sgd | 25 | 25 | 26 |
| step_tween | 25 | 26 | 25 |
| step_tween_chain | 25 | 25 | 25 |
| tween | 25 | 25 | 25 |
| tween_chain | 25 | 25 | 25 |

## Avail vs hard Acc (headline scatter)

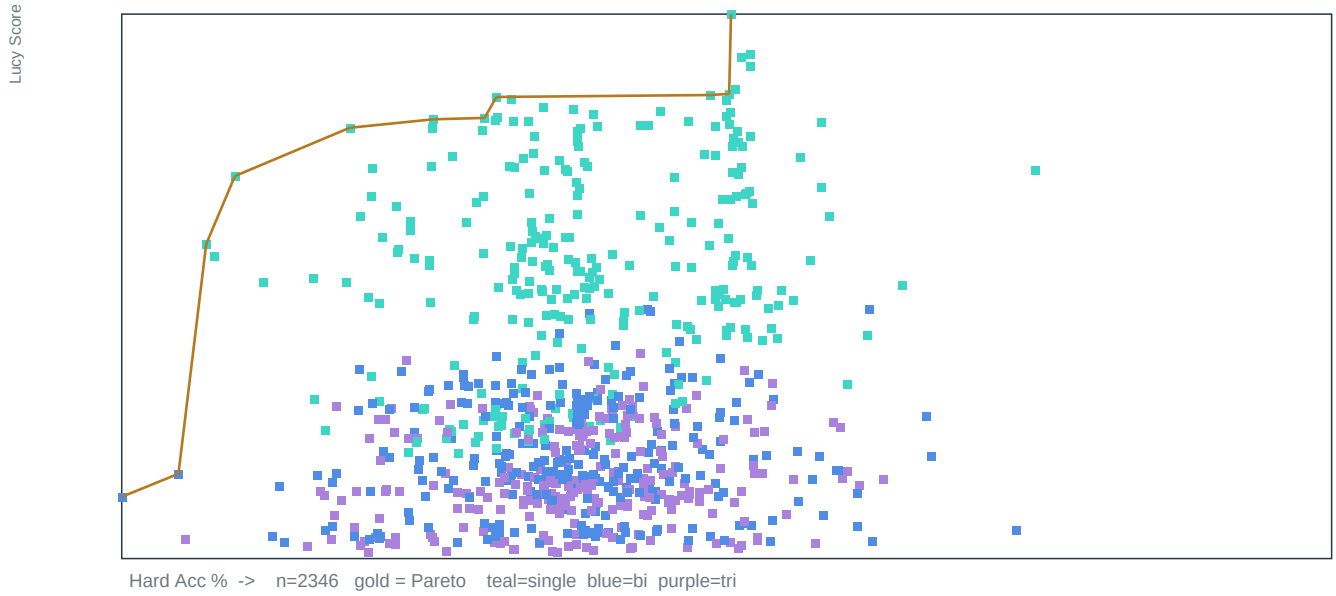



## Pareto - SoftAcc vs Score

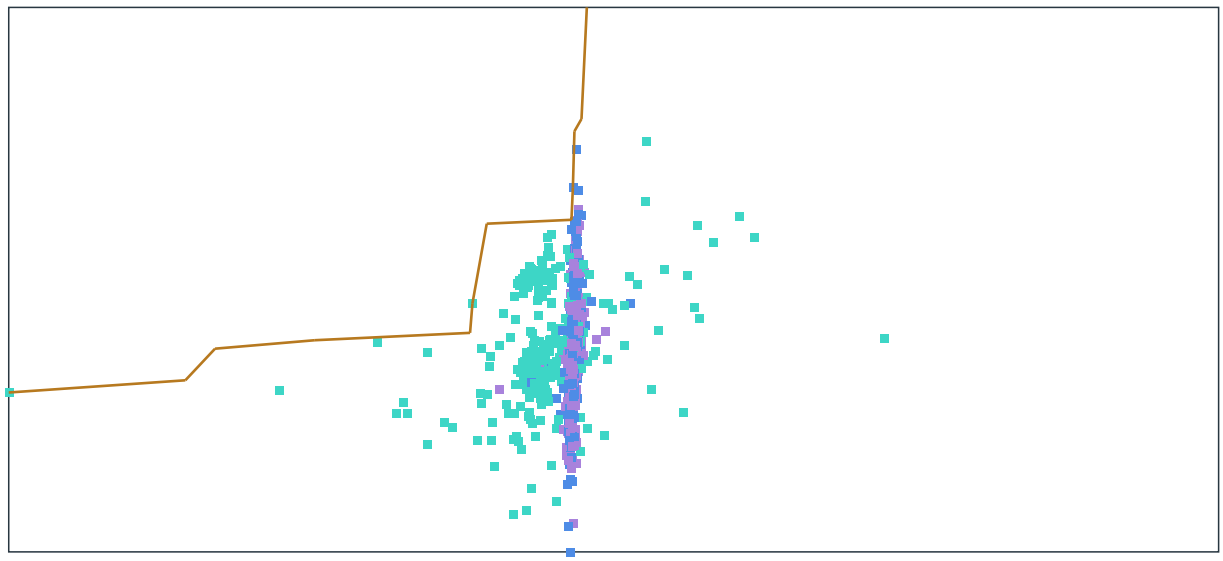
## Pareto - SoftAcc vs Score




## Pareto - hard Acc vs Score

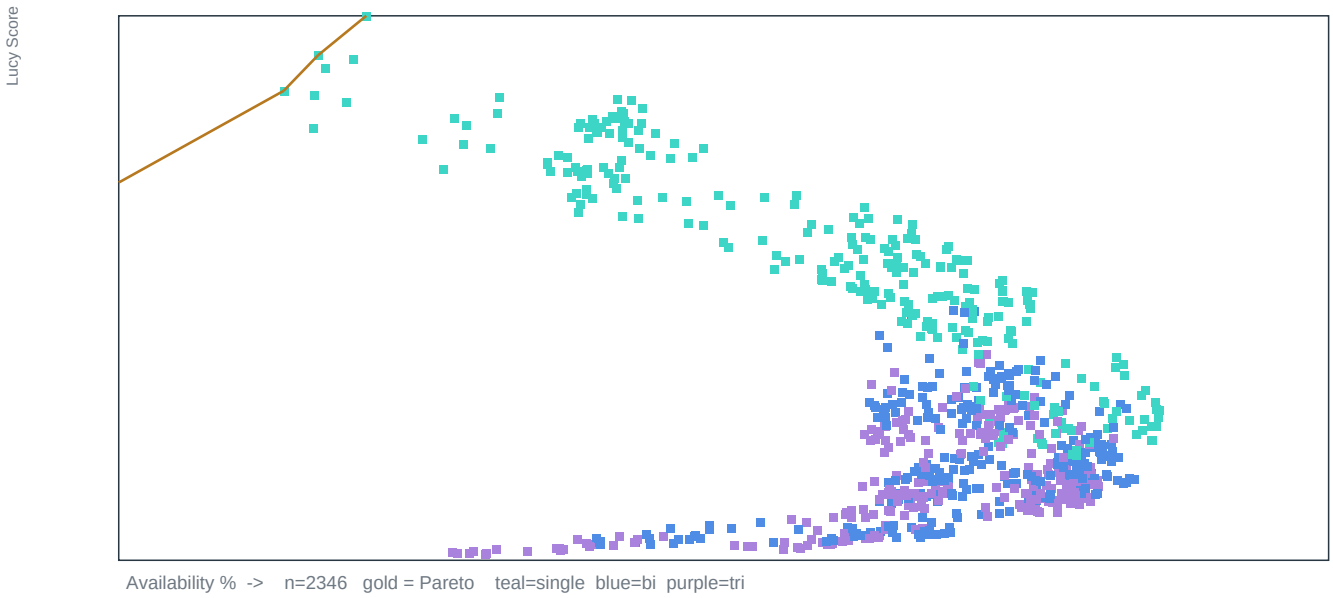



## SoftAcc vs hard Acc




SoftAcc %  ->  n=2346  gold = Pareto  teal=single  blue=bi  purple=tri
Hard Acc %

## Avail vs Score (duty clock)




## Lucy Pareto (LPD) - goldilocks

Q = geomean of Score/Soft/Acc/Thru vs the Lucy Score champion. LPD = 0 if Q<70%, else Q x shrink vs champ RAM (capped 32x). Gold = Q>=80% and RAM<=20% of champ. MSpeed = Thru vs the board's fastest (0 if Q<70%). MAvail = Availability vs the board's best duty cycle (0 if Q<70%). Mix = geomean(Q, MSpeed, MAvail). Raw Score/MiB is the binary trap.

Quality champ float32|none|sgd|single|simd Score 140221.4 Soft 25 Acc 27 Thru 1490612 RAM 0.4 KiB

Board fastest float32|none|sgd|single|simd Thru 1490612 Best availability uint|none|TweenSplitSparse|tricameral|simd 47.3%

## Gold - Q >= 80% of champ, RAM <= 20%

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| gold | binary\|none\|sgd\|single\|simd | 88 | 3 | 32.0 | 28.01 | 25 | 25 | 116542.1 | 0.0 |
| gold | binary\|none\|step_sgd\|single\|simd | 86 | 3 | 32.0 | 27.59 | 25 | 25 | 112391.3 | 0.0 |
| gold | binary\|none\|tween_chain\|single\|simd | 86 | 3 | 32.0 | 27.42 | 25 | 25 | 111684.3 | 0.0 |
| gold | binary\|none\|tween\|single\|simd | 84 | 3 | 32.0 | 27.00 | 25 | 23 | 111292.9 | 0.0 |
| gold | binary\|none\|TweenSplit\|single\|simd | 83 | 3 | 32.0 | 26.64 | 25 | 27 | 102860.9 | 0.0 |
| gold | binary\|none\|TweenSplitLinearCache\|single\|simd | 83 | 3 | 32.0 | 26.59 | 25 | 27 | 102129.8 | 0.0 |
| gold | binary\|none\|step_tween\|single\|simd | 83 | 3 | 32.0 | 26.50 | 25 | 25 | 103835.2 | 0.0 |
| gold | binary\|none\|step_tween_chain\|single\|simd | 82 | 3 | 32.0 | 26.18 | 25 | 25 | 101495.5 | 0.0 |
| gold | binary\|none\|MeshBP\|single\|simd | 81 | 3 | 32.0 | 26.05 | 25 | 25 | 100996.4 | 0.0 |
| gold | binary\|none\|TweenSplitLinear\|single\|simd | 81 | 3 | 32.0 | 25.99 | 26 | 27 | 98004.7 | 0.0 |
| gold | int2\|none\|sgd\|single\|simd | 88 | 6 | 16.0 | 14.15 | 25 | 26 | 115922.7 | 0.0 |
| gold | int2\|none\|tween_chain\|single\|simd | 88 | 6 | 16.0 | 14.10 | 25 | 29 | 113362.7 | 0.0 |
| gold | int2\|none\|tween\|single\|simd | 87 | 6 | 16.0 | 13.99 | 25 | 28 | 110997.2 | 0.0 |
| gold | ternary\|none\|sgd\|single\|simd | 87 | 6 | 16.0 | 13.95 | 25 | 24 | 117134.1 | 0.0 |
| gold | int2\|none\|step_sgd\|single\|simd | 87 | 6 | 16.0 | 13.93 | 25 | 26 | 112479.3 | 0.0 |
| gold | ternary\|none\|tween\|single\|simd | 85 | 6 | 16.0 | 13.54 | 25 | 23 | 113988.3 | 0.0 |

## Near-gold - Q >= 70%, RAM <= 50%

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| near | binary\|none\|TweenSplitFastProxy\|single\|simd | 80 | 3 | 32.0 | 25.46 | 25 | 25 | 96264.9 | 0.0 |
| near | binary\|none\|TweenSplitSparse\|single\|simd | 80 | 3 | 32.0 | 25.46 | 25 | 25 | 96902.1 | 0.0 |
| near | binary\|none\|StepTweenSplit\|single\|simd | 78 | 3 | 32.0 | 24.90 | 25 | 24 | 93998.8 | 0.0 |
| near | binary\|none\|MeshTweenSplitFastProxy\|single\|simd | 78 | 3 | 32.0 | 24.85 | 25 | 25 | 91264.3 | 0.0 |
| near | binary\|none\|MeshTweenChain\|single\|simd | 77 | 3 | 32.0 | 24.80 | 25 | 25 | 91627.8 | 0.0 |
| near | binary\|none\|MeshTween\|single\|simd | 77 | 3 | 32.0 | 24.73 | 24 | 23 | 93352.0 | 0.0 |
| near | binary\|none\|TweenSplitHeadProxy\|single\|simd | 77 | 3 | 32.0 | 24.58 | 25 | 24 | 90670.2 | 0.0 |

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| near | binary\|none\|MeshTweenAlt\|single\|simd | 77 | 3 | 32.0 | 24.58 | 25 | 25 | 88048.2 | 0.0 |
| near | binary\|none\|TweenSplitHeadProxyAsync\|single\|simd | 77 | 3 | 32.0 | 24.57 | 25 | 24 | 92493.0 | 0.0 |
| near | binary\|none\|TweenAlt\|single\|simd | 77 | 3 | 32.0 | 24.56 | 25 | 25 | 88608.7 | 0.0 |
| near | binary\|none\|MeshTweenSplitSparse\|single\|simd | 76 | 3 | 32.0 | 24.32 | 25 | 25 | 88619.2 | 0.0 |
| near | binary\|none\|StepTweenAlt\|single\|simd | 75 | 3 | 32.0 | 24.11 | 25 | 26 | 82795.0 | 0.0 |

## LPD rank (Q x shrink; 0 if Q < 70%)

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| gold | binary\|none\|sgd\|single\|simd | 88 | 3 | 32.0 | 28.01 | 25 | 25 | 116542.1 | 0.0 |
| gold | binary\|none\|step_sgd\|single\|simd | 86 | 3 | 32.0 | 27.59 | 25 | 25 | 112391.3 | 0.0 |
| gold | binary\|none\|tween_chain\|single\|simd | 86 | 3 | 32.0 | 27.42 | 25 | 25 | 111684.3 | 0.0 |
| gold | binary\|none\|tween\|single\|simd | 84 | 3 | 32.0 | 27.00 | 25 | 23 | 111292.9 | 0.0 |
| gold | binary\|none\|TweenSplit\|single\|simd | 83 | 3 | 32.0 | 26.64 | 25 | 27 | 102860.9 | 0.0 |
| gold | binary\|none\|TweenSplitLinearCache\|single\|simd | 83 | 3 | 32.0 | 26.59 | 25 | 27 | 102129.8 | 0.0 |
| gold | binary\|none\|step_tween\|single\|simd | 83 | 3 | 32.0 | 26.50 | 25 | 25 | 103835.2 | 0.0 |
| gold | binary\|none\|step_tween_chain\|single\|simd | 82 | 3 | 32.0 | 26.18 | 25 | 25 | 101495.5 | 0.0 |
| gold | binary\|none\|MeshBP\|single\|simd | 81 | 3 | 32.0 | 26.05 | 25 | 25 | 100996.4 | 0.0 |
| gold | binary\|none\|TweenSplitLinear\|single\|simd | 81 | 3 | 32.0 | 25.99 | 26 | 27 | 98004.7 | 0.0 |
| near | binary\|none\|TweenSplitFastProxy\|single\|simd | 80 | 3 | 32.0 | 25.46 | 25 | 25 | 96264.9 | 0.0 |
| near | binary\|none\|TweenSplitSparse\|single\|simd | 80 | 3 | 32.0 | 25.46 | 25 | 25 | 96902.1 | 0.0 |
| near | binary\|none\|StepTweenSplit\|single\|simd | 78 | 3 | 32.0 | 24.90 | 25 | 24 | 93998.8 | 0.0 |
| near | binary\|none\|MeshTweenSplitFastProxy\|single\|simd | 78 | 3 | 32.0 | 24.85 | 25 | 25 | 91264.3 | 0.0 |
| near | binary\|none\|MeshTweenChain\|single\|simd | 77 | 3 | 32.0 | 24.80 | 25 | 25 | 91627.8 | 0.0 |
| near | binary\|none\|MeshTween\|single\|simd | 77 | 3 | 32.0 | 24.73 | 24 | 23 | 93352.0 | 0.0 |
| near | binary\|none\|TweenSplitHeadProxy\|single\|simd | 77 | 3 | 32.0 | 24.58 | 25 | 24 | 90670.2 | 0.0 |
| near | binary\|none\|MeshTweenAlt\|single\|simd | 77 | 3 | 32.0 | 24.58 | 25 | 25 | 88048.2 | 0.0 |
| near | binary\|none\|TweenSplitHeadProxyAsync\|single\|simd | 77 | 3 | 32.0 | 24.57 | 25 | 24 | 92493.0 | 0.0 |
| near | binary\|none\|TweenAlt\|single\|simd | 77 | 3 | 32.0 | 24.56 | 25 | 25 | 88608.7 | 0.0 |

## Mobile speed - Thru vs board fastest (Q >= 70%)

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| keep | float32\|none\|sgd\|single\|simd | 100 | 100 | 80 | 93 | 1.00 | 1490612 | 37.7 |
| keep | float32\|none\|step_sgd\|single\|simd | 97 | 94 | 79 | 89 | 0.97 | 1403462 | 37.2 |
| keep | float32\|none\|tween_chain\|single\|simd | 96 | 93 | 79 | 89 | 0.96 | 1380856 | 37.6 |
| keep | float32\|none\|tween\|single\|simd | 96 | 92 | 79 | 88 | 0.96 | 1367091 | 37.3 |
| keep | float32\|none\|step_tween\|single\|simd | 94 | 89 | 78 | 86 | 0.94 | 1320379 | 36.9 |
| keep | float32\|none\|step_tween_chain\|single\|simd | 93 | 87 | 79 | 86 | 0.93 | 1297304 | 37.2 |
| keep | float32\|none\|MeshBP\|single\|simd | 92 | 85 | 79 | 85 | 0.92 | 1268661 | 37.5 |
| keep | float32\|none\|TweenSplitFastProxy\|single\|simd | 91 | 84 | 79 | 85 | 0.91 | 1259360 | 37.6 |
| keep | float32\|none\|StepTweenSplit\|single\|simd | 91 | 83 | 79 | 84 | 0.91 | 1236858 | 37.4 |
| near | float16\|none\|sgd\|single\|simd | 91 | 83 | 82 | 85 | 1.83 | 1232755 | 39.0 |

## Mobile availability - duty cycle vs board best (Q >= 70%)

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| near | int16\|none\|sgd\|single\|simd | 71 | 49 | 92 | 68 | 1.42 | 727122 | 43.7 |
| - | int32\|none\|tween_chain\|single\|simd | 71 | 49 | 92 | 68 | 0.71 | 727575 | 43.6 |
| - | int64\|none\|sgd\|single\|simd | 73 | 49 | 92 | 69 | 0.36 | 731588 | 43.6 |
| - | int64\|none\|tween_chain\|single\|simd | 72 | 48 | 92 | 68 | 0.36 | 714392 | 43.5 |
| - | int32\|none\|sgd\|single\|simd | 71 | 51 | 92 | 69 | 0.71 | 755369 | 43.5 |
| near | uint2\|none\|tween_chain\|single\|simd | 71 | 48 | 92 | 68 | 8.53 | 712148 | 43.4 |
| near | int16\|none\|tween\|single\|simd | 71 | 48 | 92 | 68 | 1.41 | 715833 | 43.4 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| - | int64\|none\|tween\|single\|simd | 72 | 49 | 91 | 69 | 0.36 | 726654 | 43.3 |
| - | int32\|none\|tween\|single\|simd | 72 | 50 | 91 | 69 | 0.72 | 744215 | 43.2 |
| near | uint4\|none\|sgd\|single\|simd | 71 | 53 | 91 | 70 | 4.86 | 783148 | 43.2 |

## Mix - geomean of Q, MSpeed, MAvail

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| keep | float32\|none\|sgd\|single\|simd | 100 | 100 | 80 | 93 | 1.00 | 1490612 | 37.7 |
| keep | float32\|none\|step_sgd\|single\|simd | 97 | 94 | 79 | 89 | 0.97 | 1403462 | 37.2 |
| keep | float32\|none\|tween_chain\|single\|simd | 96 | 93 | 79 | 89 | 0.96 | 1380856 | 37.6 |
| keep | float32\|none\|tween\|single\|simd | 96 | 92 | 79 | 88 | 0.96 | 1367091 | 37.3 |
| keep | float32\|none\|step_tween\|single\|simd | 94 | 89 | 78 | 86 | 0.94 | 1320379 | 36.9 |
| keep | float32\|none\|step_tween_chain\|single\|simd | 93 | 87 | 79 | 86 | 0.93 | 1297304 | 37.2 |
| near | float16\|none\|sgd\|single\|simd | 91 | 83 | 82 | 85 | 1.83 | 1232755 | 39.0 |
| keep | float32\|none\|MeshBP\|single\|simd | 92 | 85 | 79 | 85 | 0.92 | 1268661 | 37.5 |
| keep | float32\|none\|TweenSplitFastProxy\|single\|simd | 91 | 84 | 79 | 85 | 0.91 | 1259360 | 37.6 |
| keep | float32\|none\|StepTweenSplit\|single\|simd | 91 | 83 | 79 | 84 | 0.91 | 1236858 | 37.4 |

## Trap - tiny RAM, Q < 70% (why Score/MiB lies)

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| trap | uint2\|none\|sgd\|single\|simd | 68 | 8 | 12.0 | 0.00 | 25 | 19 | 82863.5 | 0.0 |
| trap | uint2\|none\|step_sgd\|single\|simd | 69 | 8 | 12.0 | 0.00 | 25 | 23 | 77535.5 | 0.0 |
| trap | uint2\|none\|step_tween\|single\|simd | 70 | 8 | 12.0 | 0.00 | 25 | 30 | 72745.7 | 0.0 |
| trap | uint2\|none\|step_tween_chain\|single\|simd | 68 | 8 | 12.0 | 0.00 | 25 | 26 | 69798.6 | 0.0 |
| trap | uint2\|none\|MeshBP\|single\|simd | 64 | 8 | 12.0 | 0.00 | 25 | 22 | 69728.8 | 0.0 |
| trap | uint2\|none\|MeshTween\|single\|simd | 64 | 8 | 12.0 | 0.00 | 25 | 23 | 68401.8 | 0.0 |
| trap | uint2\|none\|MeshTweenChain\|single\|simd | 62 | 8 | 12.0 | 0.00 | 25 | 21 | 67081.2 | 0.0 |
| trap | uint2\|none\|TweenSplit\|single\|simd | 66 | 8 | 12.0 | 0.00 | 25 | 23 | 71504.5 | 0.0 |
| trap | uint2\|none\|StepTweenSplit\|single\|simd | 64 | 8 | 12.0 | 0.00 | 25 | 24 | 65608.6 | 0.0 |
| trap | uint2\|none\|TweenAlt\|single\|simd | 64 | 8 | 12.0 | 0.00 | 25 | 25 | 62069.9 | 0.0 |

## LPD - Q% vs RAM KiB (gold = high Q, low RAM)

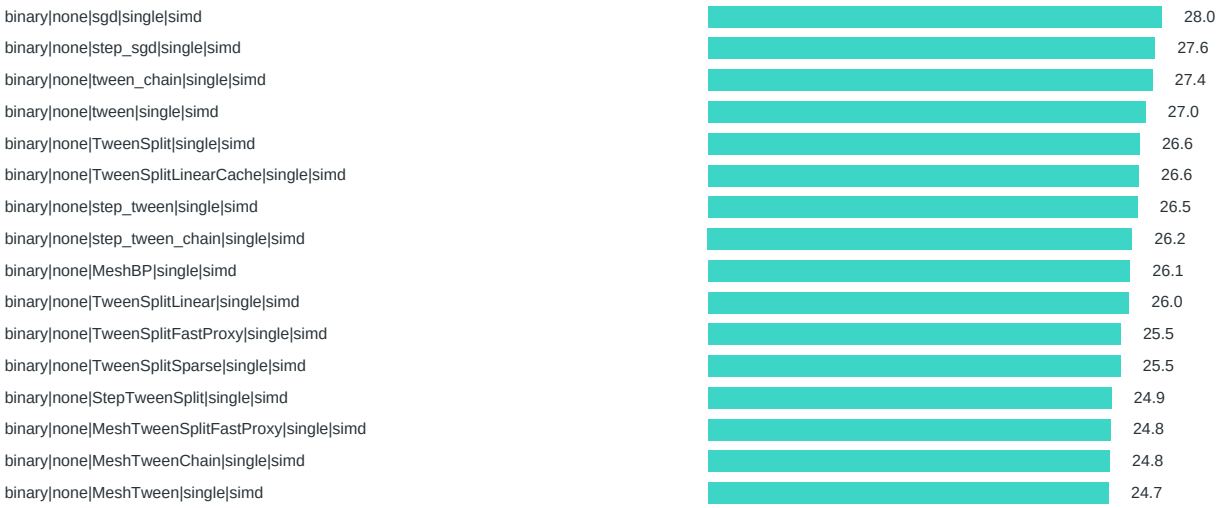



## LPD - Q% vs shrink vs champ (gold = upper right)

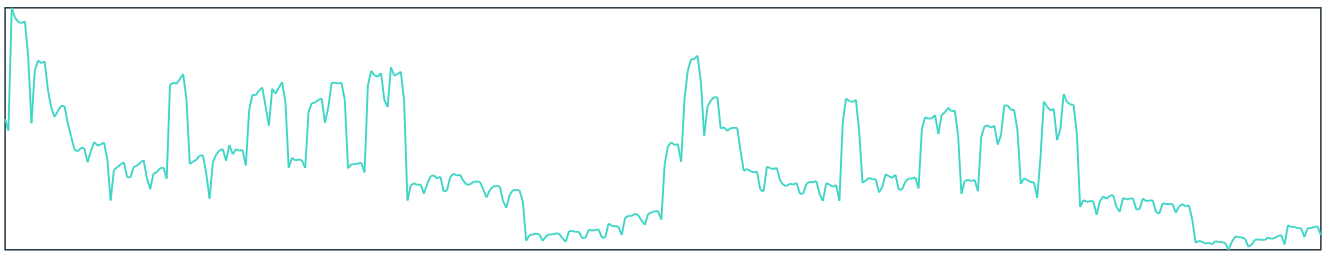
## LPD - Q% vs shrink vs champ (gold = upper right)




## Top LPD

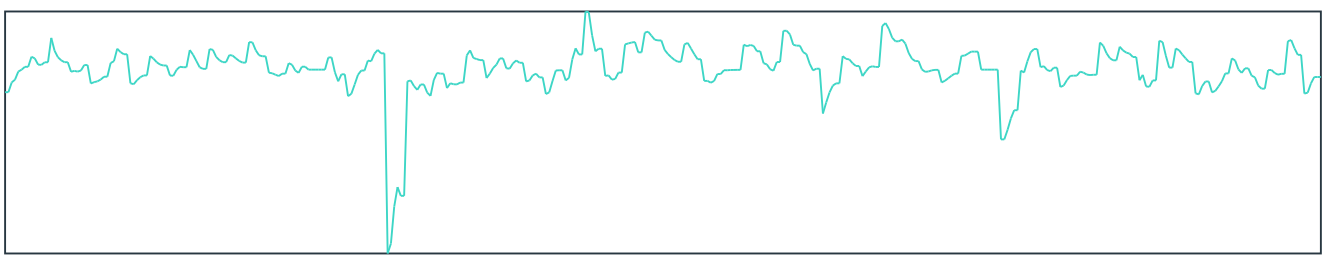



## Pulse Score - metacognition



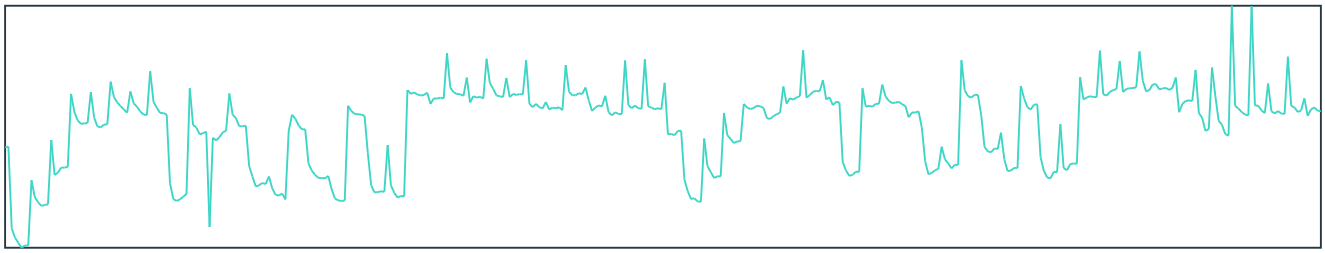
n=400 min=8609.67 max=67533.36

## Pulse SoftAcc - metacognition



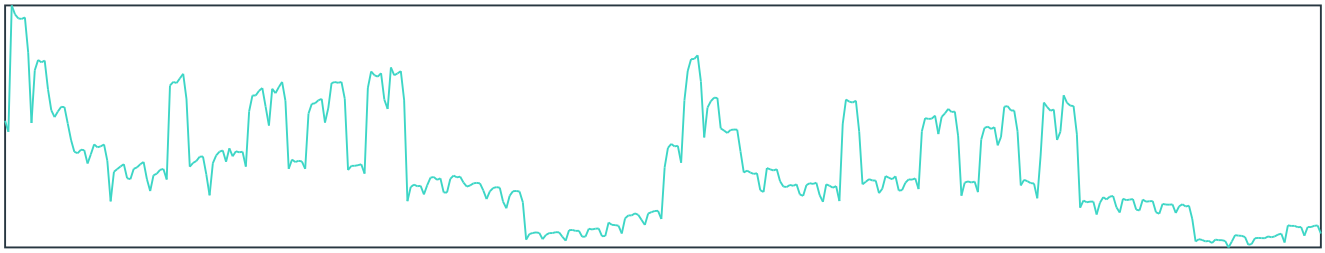
n=400 min=24.94 max=25.02

## Pulse Availability - metacognition



n=400 min=44.66 max=48.47

## Pulse Throughput - metacognition



n=400 min=74182.83 max=600883.38

## Queue by train mode (this epoch)

| Mode | Done | Run | Left | Total |
|---|---|---|---|---|
| sgd | 102 | 0 | 0 | 102 |
| step_sgd | 102 | 0 | 0 | 102 |
| tween | 102 | 0 | 0 | 102 |
| tween_chain | 102 | 0 | 0 | 102 |
| step_tween | 102 | 0 | 0 | 102 |
| step_tween_chain | 102 | 0 | 0 | 102 |
| MeshBP | 102 | 0 | 0 | 102 |
| MeshTween | 102 | 0 | 0 | 102 |
| MeshTweenChain | 102 | 0 | 0 | 102 |
| TweenSplit | 102 | 0 | 0 | 102 |
| StepTweenSplit | 102 | 0 | 0 | 102 |
| TweenAlt | 102 | 0 | 0 | 102 |
| StepTweenAlt | 102 | 0 | 0 | 102 |
| TweenSplitHeadProxy | 102 | 0 | 0 | 102 |
| TweenSplitLinear | 102 | 0 | 0 | 102 |
| TweenSplitFastProxy | 102 | 0 | 0 | 102 |
| TweenSplitLinearCache | 102 | 0 | 0 | 102 |
| TweenSplitHeadProxyAsync | 102 | 0 | 0 | 102 |
| TweenSplitSparse | 102 | 0 | 0 | 102 |
| MeshTweenSplit | 102 | 0 | 0 | 102 |
| MeshTweenAlt | 102 | 0 | 0 | 102 |
| MeshTweenSplitFastProxy | 102 | 0 | 0 | 102 |
| MeshTweenSplitSparse | 102 | 0 | 0 | 102 |

# tide  mha

Score = Throughput x Availability% x SoftAcc% / 10,000
done - epoch 1 - 2026-08-18 09:45:25 - 0.0.0.0:8110
This epoch 2346 / 2346 cells. Recorded 2346 results.
Score 0 usually means the cell finished before a Lucy pulse (SoftAcc never sampled) or true-class mass was 0. Those rows do not vote holistically.
mha - associative recall: match query key - modes all - min 2000ms/cell - 1024 train - pulse 50ms - SIMD true

## Lucy champions (this tide)

| Axis | Cell | Score | Soft | Acc | Thru | Avail |
|---|---|---|---|---|---|---|
| score | float32\|none\|TweenSplitHeadProxy\|single\|simd | 2628.31 | 25.0 | 24.8 | 26101.1 | 40.3 |
| throughput | float32\|none\|TweenSplitHeadProxy\|single\|simd | 2628.31 | 25.0 | 24.8 | 26101.1 | 40.3 |
| availability | float32\|none\|TweenSplitSparse\|tricameral\|simd | 2331.49 | 25.0 | 26.6 | 21244.6 | 43.9 |
| accuracy | fp8e5m2\|none\|StepTweenAlt\|bicameral\|simd | 126.67 | 25.1 | 26.3 | 2649.6 | 19.0 |
| mobile score (tra | binary\|none\|TweenSplitSparse\|single\|simd | 2267.59 | 25.0 | 25.0 | 23310.0 | 38.9 |
| t->50% | int6\|none\|step_sgd\|bicameral\|simd | 46.35 | 25.0 | 26.4 | 909.8 | 20.4 |
| acc/sec | uint8\|none\|sgd\|single\|simd | 1528.83 | 25.0 | 24.7 | 16823.9 | 36.3 |

## Lucy axes - mha

| Axis | Mode | DType | Arch | Value |
|---|---|---|---|---|
| score | TweenSplitHeadP~ | float32 | singlex1 | 2628.31 |
| soft_acc | StepTweenAlt | fp8e5m2 | bicameralx2 | 25.15 |
| hard_acc | TweenSplitHeadP~ | fp8e5m2 | bicameralx2 | 34.01 |
| throughput | TweenSplitHeadP~ | float32 | singlex1 | 26101.09 |
| availability | TweenSplitSparse | float32 | tricameralx3 | 43.90 |
| acc_thru | TweenSplitHeadP~ | float32 | singlex1 | 6525.18 |
| realtime | TweenSplitHeadP~ | float32 | singlex1 | 10513.39 |
| adapt | StepTweenAlt | int | tricameralx3 | 25.16 |
| keep_learn | MeshTweenAlt | float16 | tricameralx3 | 12.54 |
| acc_per_sec | sgd | uint8 | singlex1 | 12.50 |
| time_to_50 | step_sgd | int6 | bicameralx2 | 0.47 |
| consistency | sgd | float64 | singlex1 | 100.00 |
| stability | sgd | fp4 | singlex1 | 100.00 |
| mobile_score | TweenSplitSparse | binary | singlex1 | 37152123.41 |
| lpd | TweenSplitSparse | binary | singlex1 | 29.98 |
| mspeed | TweenSplitHeadP~ | float32 | singlex1 | 1.00 |
| mavail | TweenSplitSparse | float32 | tricameralx3 | 1.00 |
| mix | TweenSplitHeadP~ | float32 | singlex1 | 0.97 |

## Best settings per train mode

| Mode | DType | Format | Score | Soft | Acc | Avail | n |
|---|---|---|---|---|---|---|---|
| TweenSplitHeadProxy | float32 | none | 2628.3 | 25.0 | 24.8 | 40.3 | 102 |
| MeshTweenSplitSparse | float32 | none | 2518.0 | 25.0 | 24.1 | 40.3 | 102 |
| TweenSplit | float32 | none | 2478.8 | 25.0 | 25.1 | 39.4 | 102 |
| tween_chain | float32 | none | 2464.6 | 25.0 | 26.0 | 38.7 | 102 |
| TweenSplitSparse | float32 | none | 2459.1 | 25.0 | 24.9 | 43.1 | 102 |
| TweenSplitFastProxy | float32 | none | 2457.4 | 25.0 | 25.2 | 40.3 | 102 |
| TweenSplitLinearCache | float32 | none | 2437.1 | 25.0 | 25.1 | 39.4 | 102 |
| MeshTweenSplitFastProxy | float32 | none | 2413.7 | 25.0 | 25.1 | 40.1 | 102 |
| TweenSplitHeadProxyAsync | float32 | none | 2380.9 | 25.0 | 25.0 | 39.5 | 102 |
| MeshTweenSplit | float32 | none | 2301.0 | 25.0 | 24.8 | 39.8 | 102 |
| MeshBP | float32 | none | 2244.1 | 25.0 | 25.3 | 37.9 | 102 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| MeshTweenChain | float32 | none | 2166.1 | 25.0 | 25.7 | 37.7 | 102 |
| MeshTween | float32 | none | 1951.6 | 25.0 | 21.8 | 36.1 | 102 |
| TweenSplitLinear | float32 | none | 1885.5 | 25.0 | 25.8 | 36.5 | 102 |
| StepTweenSplit | float32 | none | 1869.5 | 25.0 | 24.9 | 35.5 | 102 |
| step_tween_chain | float32 | none | 1739.8 | 25.0 | 24.5 | 33.7 | 102 |
| tween | binary | none | 1726.9 | 25.0 | 26.7 | 34.9 | 102 |
| sgd | int8 | none | 1686.6 | 25.0 | 26.2 | 37.7 | 102 |
| step_tween | float32 | none | 1602.8 | 25.0 | 22.7 | 32.8 | 102 |
| step_sgd | float32 | none | 1389.5 | 25.0 | 24.9 | 33.4 | 102 |
| TweenAlt | float32 | none | 1254.6 | 25.0 | 24.8 | 31.1 | 102 |
| MeshTweenAlt | float32 | none | 1157.2 | 25.0 | 24.5 | 31.0 | 102 |
| StepTweenAlt | float32 | none | 992.8 | 25.0 | 24.8 | 28.1 | 102 |

## Best dtype per mode

| Mode | Winner dtype | Score | Soft | Acc |
|---|---|---|---|---|
| TweenSplitHeadProxy | float32 | 2628.3 | 25.0 | 24.8 |
| MeshTweenSplitSparse | float32 | 2518.0 | 25.0 | 24.1 |
| TweenSplit | float32 | 2478.8 | 25.0 | 25.1 |
| tween_chain | float32 | 2464.6 | 25.0 | 26.0 |
| TweenSplitSparse | float32 | 2459.1 | 25.0 | 24.9 |
| TweenSplitFastProxy | float32 | 2457.4 | 25.0 | 25.2 |
| TweenSplitLinearCache | float32 | 2437.1 | 25.0 | 25.1 |
| MeshTweenSplitFastProxy | float32 | 2413.7 | 25.0 | 25.1 |
| TweenSplitHeadProxyAsync | float32 | 2380.9 | 25.0 | 25.0 |
| MeshTweenSplit | float32 | 2301.0 | 25.0 | 24.8 |
| MeshBP | float32 | 2244.1 | 25.0 | 25.3 |
| MeshTweenChain | float32 | 2166.1 | 25.0 | 25.7 |
| MeshTween | float32 | 1951.6 | 25.0 | 21.8 |
| TweenSplitLinear | float32 | 1885.5 | 25.0 | 25.8 |
| StepTweenSplit | float32 | 1869.5 | 25.0 | 24.9 |
| step_tween_chain | float32 | 1739.8 | 25.0 | 24.5 |
| tween | binary | 1726.9 | 25.0 | 26.7 |
| sgd | int8 | 1686.6 | 25.0 | 26.2 |
| step_tween | float32 | 1602.8 | 25.0 | 22.7 |
| step_sgd | float32 | 1389.5 | 25.0 | 24.9 |
| TweenAlt | float32 | 1254.6 | 25.0 | 24.8 |
| MeshTweenAlt | float32 | 1157.2 | 25.0 | 24.5 |
| StepTweenAlt | float32 | 992.8 | 25.0 | 24.8 |

## Best mode per dtype

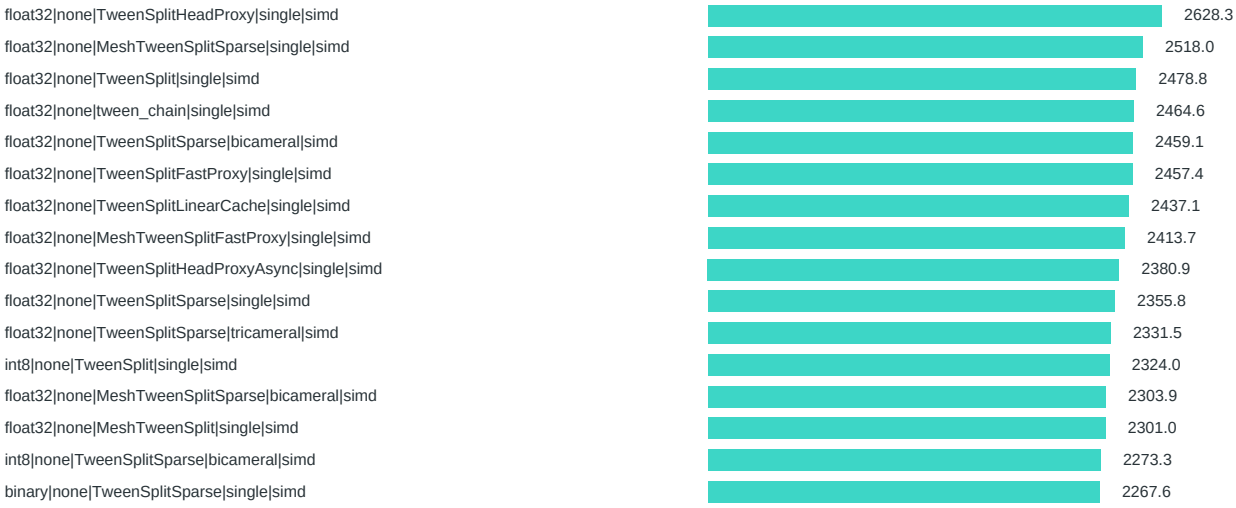
| DType | Winner mode | Score | Soft | Acc |
|---|---|---|---|---|
| float32 | TweenSplitHeadProxy | 2628.3 | 25.0 | 24.8 |
| int8 | TweenSplit | 2324.0 | 25.0 | 24.8 |
| binary | TweenSplitSparse | 2267.6 | 25.0 | 25.0 |
| ternary | TweenSplitSparse | 2241.0 | 25.0 | 24.4 |
| int2 | TweenSplitHeadProxy | 2232.6 | 25.0 | 24.3 |
| float16 | TweenSplit | 2198.8 | 25.0 | 24.8 |
| uint8 | TweenSplit | 2177.2 | 25.0 | 25.3 |
| int4 | MeshTweenSplitSparse | 2157.2 | 25.0 | 24.1 |
| bfloat16 | TweenSplitHeadProxy | 2044.5 | 25.0 | 25.5 |
| float64 | TweenSplit | 2022.5 | 25.0 | 25.0 |
| fp4 | MeshTweenSplitSparse | 1995.9 | 25.0 | 24.8 |

| | | | | |
|---|---|---|---|---|
| fp8e4m3 | TweenSplitHeadProxy | 1787.2 | 25.0 | 24.4 |
| uint16 | TweenSplitLinearCache | 1749.8 | 25.0 | 25.3 |
| uint32 | TweenSplit | 1737.4 | 25.0 | 25.1 |
| uint64 | TweenSplit | 1735.8 | 25.0 | 24.7 |
| uint4 | TweenSplit | 1732.1 | 25.0 | 24.9 |
| fp8e5m2 | TweenSplit | 1687.9 | 25.0 | 25.4 |
| uint2 | TweenSplitHeadProxy | 1649.8 | 25.0 | 22.3 |
| int32 | TweenSplit | 1630.2 | 25.0 | 25.1 |
| int64 | TweenSplitHeadProxy | 1588.4 | 25.0 | 25.2 |
| int16 | TweenSplit | 1582.0 | 25.0 | 25.2 |
| uintptr | TweenSplit | 1463.6 | 25.0 | 24.7 |
| uint | TweenSplitLinearCache | 1424.1 | 25.0 | 26.0 |
| complex128 | TweenSplitHeadProxy | 1368.8 | 25.0 | 25.8 |
| complex64 | MeshTweenSplit | 1368.5 | 25.0 | 24.9 |
| int | TweenSplit | 1366.0 | 25.0 | 24.8 |
| nf4 | TweenSplitSparse | 1355.3 | 25.0 | 25.1 |
| int3 | TweenSplitHeadProxy | 1073.1 | 25.0 | 19.6 |
| uint3 | TweenSplitHeadProxy | 1066.8 | 25.0 | 23.8 |
| uint5 | MeshTweenSplit | 895.5 | 25.0 | 25.1 |
| int5 | TweenSplit | 884.6 | 25.0 | 24.6 |
| int6 | TweenSplit | 854.2 | 25.0 | 24.6 |
| uint6 | TweenSplit | 839.0 | 25.0 | 25.0 |
| fp6 | TweenSplitHeadProxyAsync | 836.2 | 25.0 | 26.0 |

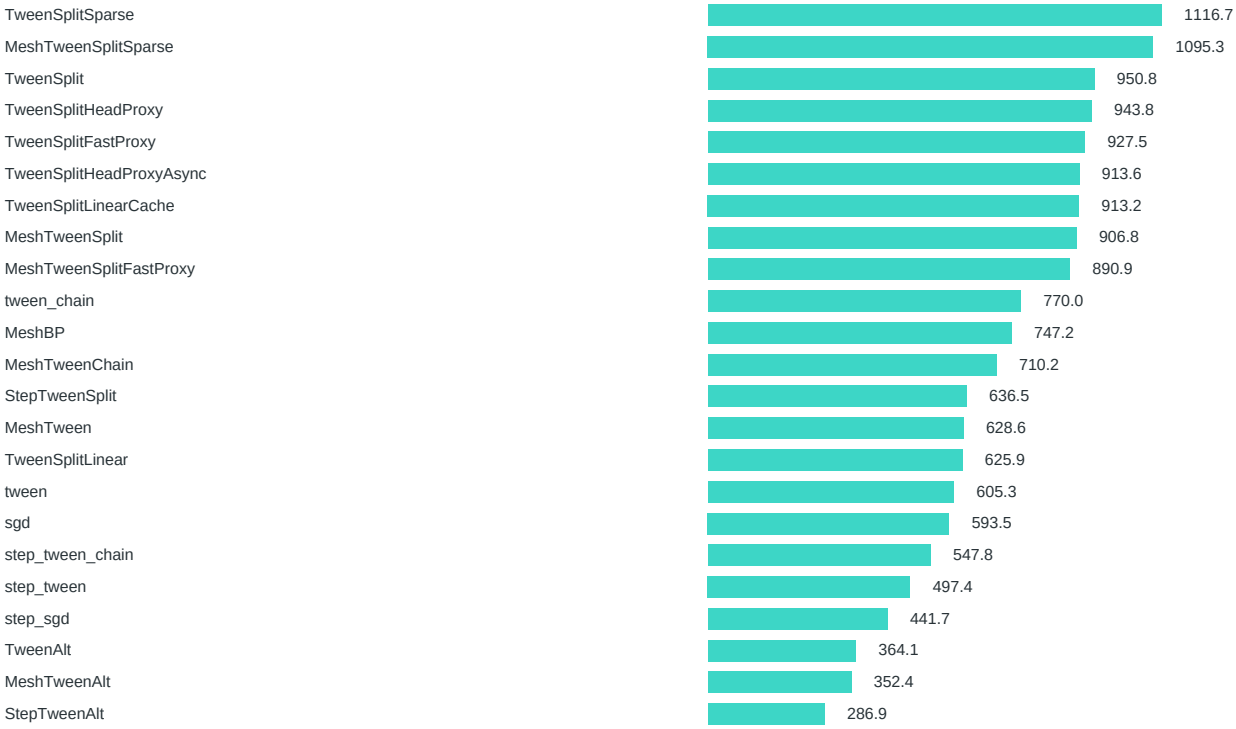
## Leaderboard - mha

| # | Cell | Score | Soft | Acc | Thru | Avail |
|---|---|---|---|---|---|---|
| 1 | float32\|none\|TweenSplitHeadProxy\|single\|simd | 2628.3 | 25.0 | 24.8 | 26101.1 | 40.3 |
| 2 | float32\|none\|MeshTweenSplitSparse\|single\|simd | 2518.0 | 25.0 | 24.1 | 24969.7 | 40.3 |
| 3 | float32\|none\|TweenSplit\|single\|simd | 2478.8 | 25.0 | 25.1 | 25147.4 | 39.4 |
| 4 | float32\|none\|tween_chain\|single\|simd | 2464.6 | 25.0 | 26.0 | 25458.7 | 38.7 |
| 5 | float32\|none\|TweenSplitSparse\|bicameral\|simd | 2459.1 | 25.0 | 24.9 | 22847.6 | 43.1 |
| 6 | float32\|none\|TweenSplitFastProxy\|single\|simd | 2457.4 | 25.0 | 25.2 | 24409.2 | 40.3 |
| 7 | float32\|none\|TweenSplitLinearCache\|single\|simd | 2437.1 | 25.0 | 25.1 | 24763.0 | 39.4 |
| 8 | float32\|none\|MeshTweenSplitFastProxy\|single\|simd | 2413.7 | 25.0 | 25.1 | 24054.1 | 40.1 |
| 9 | float32\|none\|TweenSplitHeadProxyAsync\|single\|simd | 2380.9 | 25.0 | 25.0 | 24085.1 | 39.5 |
| 10 | float32\|none\|TweenSplitSparse\|single\|simd | 2355.8 | 25.0 | 24.2 | 23511.3 | 40.1 |
| 11 | float32\|none\|TweenSplitSparse\|tricameral\|simd | 2331.5 | 25.0 | 26.6 | 21244.6 | 43.9 |
| 12 | int8\|none\|TweenSplit\|single\|simd | 2324.0 | 25.0 | 24.8 | 23356.6 | 39.8 |
| 13 | float32\|none\|MeshTweenSplitSparse\|bicameral\|simd | 2303.9 | 25.0 | 25.1 | 21539.9 | 42.8 |
| 14 | float32\|none\|MeshTweenSplit\|single\|simd | 2301.0 | 25.0 | 24.8 | 23121.9 | 39.8 |
| 15 | int8\|none\|TweenSplitSparse\|bicameral\|simd | 2273.3 | 25.0 | 23.5 | 21284.0 | 42.7 |
| 16 | binary\|none\|TweenSplitSparse\|single\|simd | 2267.6 | 25.0 | 25.0 | 23310.0 | 38.9 |
| 17 | int8\|none\|TweenSplitSparse\|single\|simd | 2248.7 | 25.0 | 25.3 | 22218.1 | 40.5 |
| 18 | float32\|none\|MeshBP\|single\|simd | 2244.1 | 25.0 | 25.3 | 23669.4 | 37.9 |
| 19 | ternary\|none\|TweenSplitSparse\|bicameral\|simd | 2241.0 | 25.0 | 24.4 | 21265.7 | 42.2 |
| 20 | ternary\|none\|TweenSplitHeadProxy\|single\|simd | 2239.8 | 25.0 | 25.6 | 23019.1 | 38.9 |

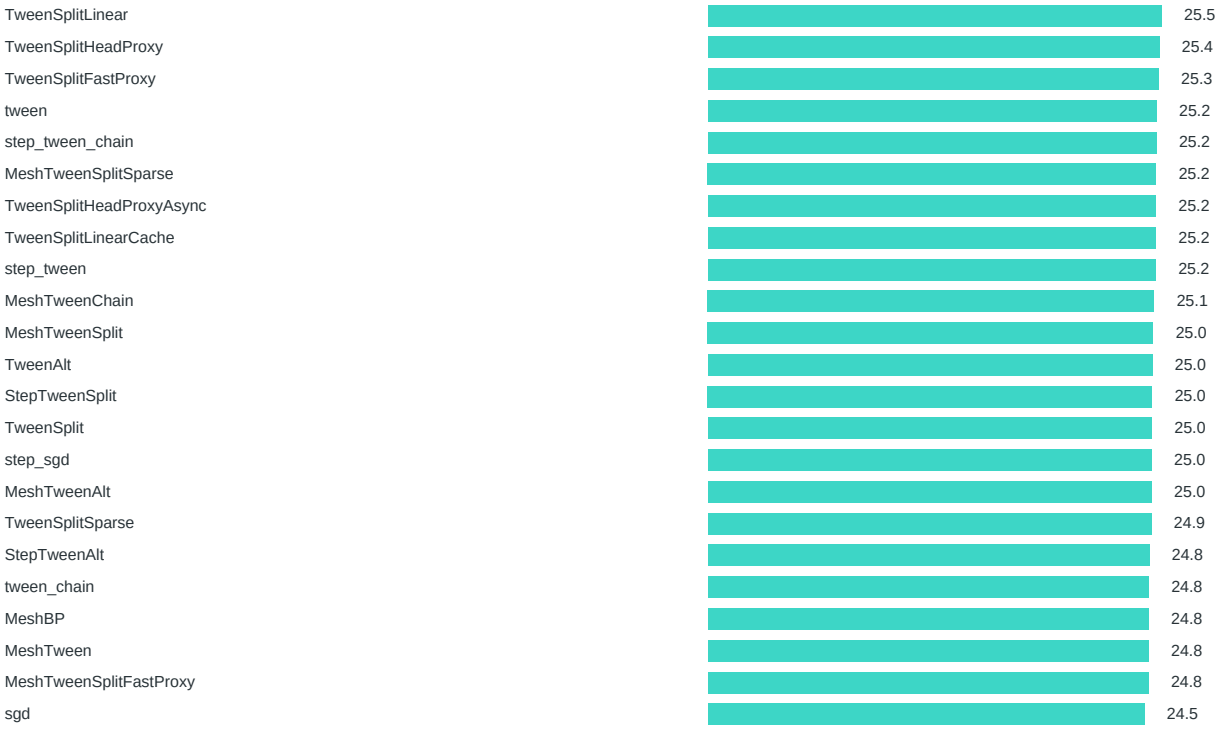
## Top scores - mha



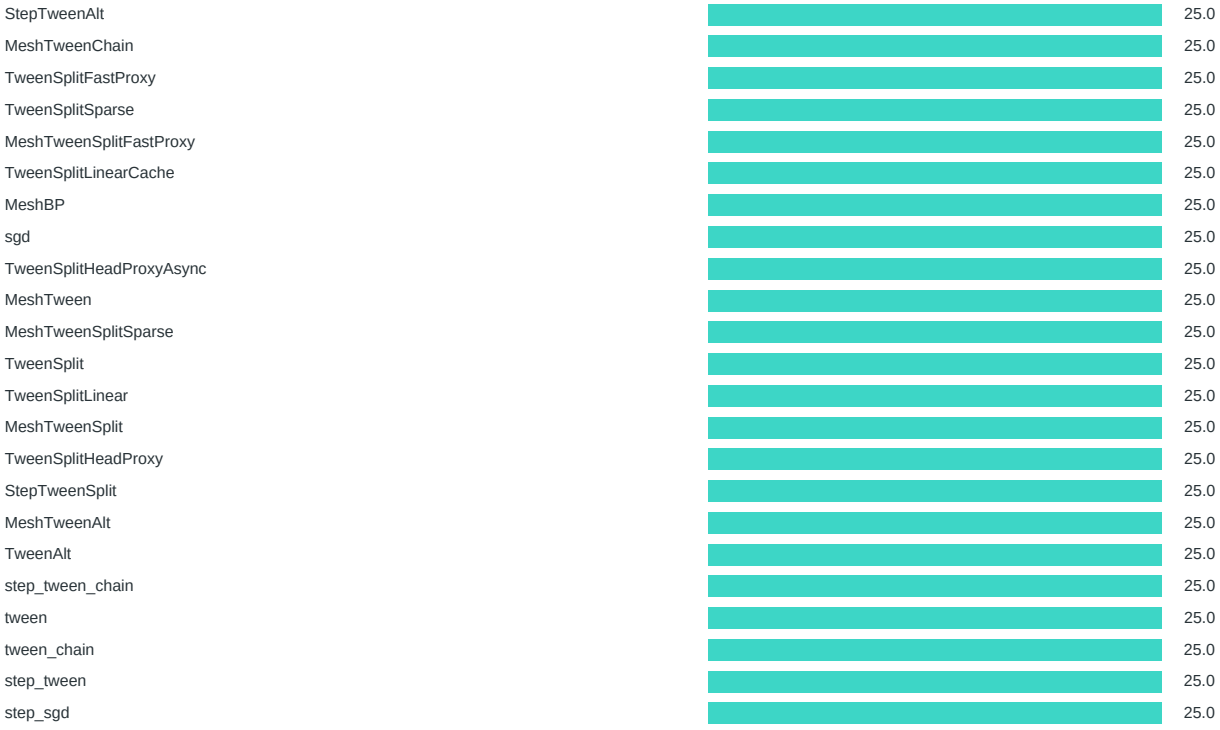

## Mean Score by train mode



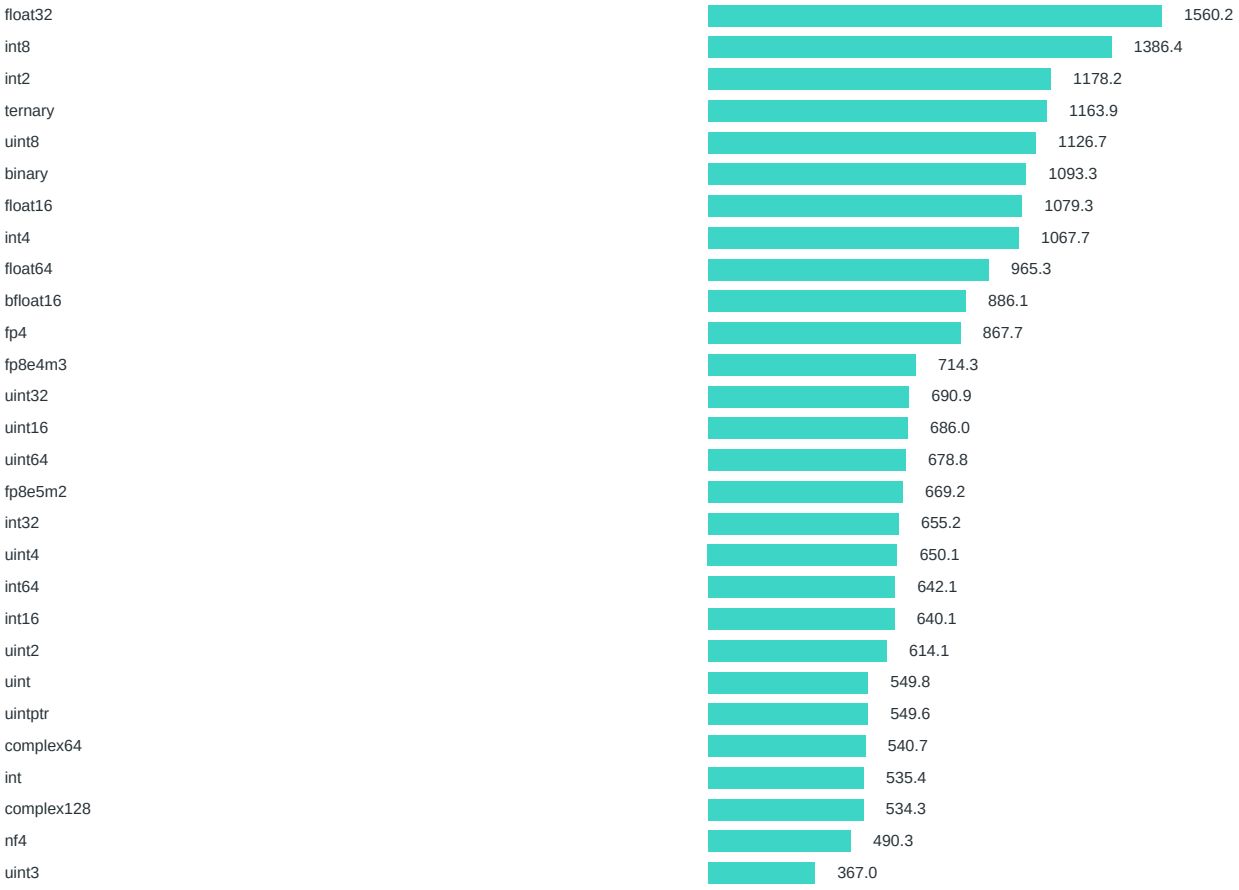

## Mean hard Acc by train mode




## Mean SoftAcc by train mode




## Mean Score by dtype




## Mean hard Acc by dtype




## Mean Score by arch




## Honesty - mean Score, every mode x dtype (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 899 | 1085 | 558 | 546 | 1177 | 1669 | 1038 | 933 | 275 | 725 | 723 | 538 | 687 | 1191 | 373 | 711 |
| MeshTween | 813 | 916 | 460 | 466 | 939 | 1483 | 874 | 766 | 219 | 640 | 581 | 465 | 571 | 1017 | 311 | 567 |
| MeshTweenAlt | 470 | 503 | 269 | 272 | 504 | 811 | 473 | 420 | 135 | 357 | 330 | 281 | 306 | 535 | 164 | 340 |
| MeshTweenChain | 879 | 1024 | 521 | 522 | 1086 | 1611 | 989 | 852 | 264 | 700 | 690 | 547 | 653 | 1186 | 358 | 631 |
| MeshTweenSplit | 1087 | 1392 | 709 | 732 | 1321 | 1755 | 1166 | 1110 | 368 | 960 | 857 | 703 | 805 | 1454 | 467 | 846 |
| MeshTweenSplitFa | 1095 | 1384 | 672 | 672 | 1321 | 1897 | 1222 | 1008 | 348 | 892 | 820 | 690 | 812 | 1442 | 480 | 825 |
| MeshTweenSplitSp | 1358 | 1808 | 783 | 789 | 1735 | 2342 | 1423 | 1348 | 388 | 1092 | 1007 | 789 | 956 | 1968 | 505 | 956 |
| StepTweenAlt | 366 | 428 | 200 | 208 | 435 | 689 | 406 | 351 | 94 | 278 | 291 | 204 | 256 | 495 | 127 | 264 |
| StepTweenSplit | 792 | 1041 | 451 | 467 | 968 | 1390 | 812 | 796 | 225 | 625 | 596 | 480 | 553 | 1063 | 302 | 565 |
| TweenAlt | 470 | 489 | 279 | 270 | 536 | 872 | 541 | 449 | 134 | 374 | 347 | 262 | 319 | 599 | 177 | 344 |
| TweenSplit | 1160 | 1460 | 720 | 710 | 1397 | 1921 | 1277 | 1128 | 372 | 964 | 901 | 725 | 865 | 1483 | 502 | 888 |
| TweenSplitFastPr | 1133 | 1421 | 716 | 699 | 1404 | 1897 | 1245 | 1102 | 359 | 906 | 888 | 705 | 839 | 1500 | 478 | 857 |
| TweenSplitHeadPr | 1188 | 1469 | 727 | 734 | 1398 | 1993 | 1287 | 1083 | 375 | 978 | 879 | 706 | 829 | 1549 | 504 | 874 |
| TweenSplitHeadPr | 1168 | 1386 | 704 | 694 | 1369 | 1893 | 1233 | 1094 | 382 | 939 | 860 | 700 | 798 | 1500 | 488 | 837 |
| TweenSplitLinear | 768 | 838 | 470 | 496 | 909 | 1427 | 891 | 813 | 233 | 664 | 596 | 498 | 604 | 958 | 324 | 601 |
| TweenSplitLinear | 1149 | 1393 | 702 | 688 | 1388 | 1885 | 1180 | 1114 | 359 | 943 | 846 | 672 | 832 | 1430 | 472 | 849 |
| TweenSplitSparse | 1358 | 1866 | 800 | 823 | 1736 | 2382 | 1476 | 1338 | 393 | 1075 | 1028 | 800 | 960 | 1976 | 537 | 984 |
| sgd | 680 | 877 | 470 | 484 | 801 | 1244 | 752 | 747 | 217 | 526 | 527 | 470 | 543 | 1015 | 303 | 555 |
| step_sgd | 567 | 658 | 309 | 320 | 666 | 1040 | 615 | 571 | 157 | 439 | 412 | 309 | 389 | 742 | 203 | 393 |
| step_tween | 620 | 786 | 339 | 353 | 771 | 1171 | 689 | 625 | 160 | 503 | 466 | 347 | 440 | 857 | 223 | 463 |
| step_tween_chain | 681 | 823 | 396 | 406 | 879 | 1311 | 739 | 660 | 188 | 540 | 495 | 382 | 476 | 908 | 263 | 501 |
| tween | 721 | 975 | 481 | 489 | 904 | 1388 | 825 | 707 | 237 | 564 | 554 | 479 | 525 | 969 | 339 | 508 |
| tween_chain | 958 | 1121 | 552 | 596 | 1178 | 1815 | 1049 | 939 | 290 | 747 | 699 | 561 | 705 | 1260 | 395 | 712 |

## Honesty - mean Score, every mode x dtype (cols 17-32)

## Honesty - mean Score, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 1052 | 309 | 287 | 671 | 1470 | 514 | 1134 | 573 | 743 | 667 | 393 | 719 | 677 | 303 | 287 | 697 |
| MeshTween | 886 | 252 | 233 | 567 | 1228 | 425 | 995 | 463 | 624 | 553 | 320 | 605 | 569 | 259 | 229 | 577 |
| MeshTweenAlt | 520 | 144 | 131 | 312 | 724 | 228 | 536 | 265 | 341 | 320 | 158 | 365 | 332 | 141 | 124 | 340 |
| MeshTweenChain | 1024 | 283 | 271 | 640 | 1422 | 459 | 1040 | 534 | 696 | 624 | 362 | 713 | 638 | 299 | 290 | 715 |
| MeshTweenSplit | 1368 | 394 | 375 | 838 | 1618 | 638 | 1541 | 742 | 866 | 780 | 488 | 891 | 827 | 408 | 366 | 849 |
| MeshTweenSplitFa | 1335 | 361 | 346 | 796 | 1630 | 629 | 1512 | 679 | 841 | 750 | 487 | 866 | 831 | 386 | 337 | 857 |
| MeshTweenSplitSp | 1787 | 429 | 399 | 928 | 2153 | 734 | 1956 | 804 | 1030 | 902 | 516 | 1014 | 950 | 443 | 405 | 1013 |
| StepTweenAlt | 427 | 106 | 91 | 261 | 613 | 186 | 447 | 214 | 260 | 250 | 135 | 265 | 264 | 103 | 99 | 267 |
| StepTweenSplit | 1032 | 249 | 238 | 553 | 1252 | 436 | 1076 | 489 | 599 | 519 | 307 | 614 | 548 | 259 | 229 | 617 |
| TweenAlt | 501 | 137 | 125 | 323 | 723 | 246 | 542 | 274 | 371 | 320 | 178 | 354 | 325 | 142 | 137 | 339 |
| TweenSplit | 1404 | 415 | 391 | 862 | 1759 | 653 | 1582 | 741 | 916 | 810 | 495 | 928 | 908 | 413 | 389 | 932 |
| TweenSplitFastPr | 1390 | 383 | 358 | 836 | 1722 | 636 | 1548 | 730 | 919 | 794 | 485 | 947 | 829 | 403 | 352 | 879 |
| TweenSplitHeadPr | 1401 | 402 | 378 | 864 | 1698 | 633 | 1533 | 737 | 883 | 848 | 498 | 890 | 872 | 395 | 379 | 905 |
| TweenSplitHeadPr | 1365 | 375 | 358 | 820 | 1730 | 614 | 1453 | 726 | 865 | 787 | 487 | 890 | 844 | 397 | 369 | 874 |
| TweenSplitLinear | 881 | 265 | 248 | 580 | 1145 | 452 | 904 | 487 | 598 | 538 | 332 | 607 | 601 | 262 | 248 | 587 |
| TweenSplitLinear | 1368 | 380 | 357 | 824 | 1666 | 640 | 1473 | 739 | 929 | 816 | 467 | 898 | 863 | 379 | 359 | 888 |
| TweenSplitSparse | 1784 | 420 | 409 | 987 | 2216 | 774 | 2050 | 808 | 1035 | 918 | 544 | 1037 | 970 | 445 | 416 | 1054 |
| sgd | 852 | 248 | 233 | 561 | 1197 | 418 | 927 | 470 | 596 | 523 | 322 | 594 | 552 | 247 | 229 | 572 |
| step_sgd | 634 | 160 | 156 | 387 | 950 | 302 | 698 | 328 | 405 | 371 | 211 | 411 | 409 | 174 | 147 | 423 |
| step_tween | 778 | 173 | 156 | 433 | 1049 | 317 | 849 | 346 | 460 | 405 | 226 | 463 | 458 | 176 | 164 | 473 |
| step_tween_chain | 801 | 206 | 180 | 485 | 1155 | 369 | 884 | 405 | 511 | 473 | 275 | 526 | 488 | 207 | 198 | 516 |
| tween | 865 | 257 | 237 | 525 | 1209 | 452 | 919 | 500 | 539 | 497 | 355 | 558 | 515 | 270 | 244 | 523 |
| tween_chain | 1104 | 299 | 285 | 715 | 1559 | 521 | 1170 | 589 | 751 | 659 | 400 | 735 | 684 | 306 | 281 | 715 |

## Honesty - mean Score, every mode x dtype  (cols 33-34)

## Honesty - mean Score, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 1215 | 566 |
| MeshTween | 1025 | 475 |
| MeshTweenAlt | 555 | 274 |
| MeshTweenChain | 1093 | 533 |
| MeshTweenSplit | 1386 | 724 |
| MeshTweenSplitFa | 1384 | 685 |
| MeshTweenSplitSp | 1725 | 806 |
| StepTweenAlt | 469 | 205 |
| StepTweenSplit | 1025 | 474 |
| TweenAlt | 603 | 274 |
| TweenSplit | 1481 | 774 |
| TweenSplitFastPr | 1431 | 745 |
| TweenSplitHeadPr | 1445 | 758 |
| TweenSplitHeadPr | 1359 | 705 |
| TweenSplitLinear | 964 | 493 |
| TweenSplitLinear | 1376 | 723 |
| TweenSplitSparse | 1758 | 811 |
| sgd | 966 | 460 |
| step_sgd | 729 | 330 |
| step_tween | 822 | 351 |
| step_tween_chain | 886 | 412 |
| tween | 973 | 477 |
| tween_chain | 1244 | 586 |

## Honesty - mean hard Acc, every mode x dtype  (cols 1-16)

## Honesty - mean hard Acc, every mode x dtype  (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 25 | 22 | 25 | 26 | 25 | 27 | 26 | 25 | 25 | 25 | 25 | 24 | 24 | 26 | 20 | 26 |
| MeshTween | 24 | 26 | 27 | 27 | 25 | 25 | 27 | 25 | 26 | 25 | 22 | 25 | 25 | 22 | 25 | 26 |
| MeshTweenAlt | 25 | 23 | 25 | 24 | 25 | 25 | 25 | 25 | 27 | 25 | 25 | 25 | 25 | 25 | 27 | 25 |
| MeshTweenChain | 25 | 28 | 26 | 24 | 25 | 26 | 25 | 25 | 23 | 26 | 24 | 24 | 24 | 27 | 26 | 25 |
| MeshTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 | 24 | 26 | 25 |
| MeshTweenSplitFa | 25 | 27 | 25 | 23 | 25 | 26 | 25 | 25 | 22 | 25 | 26 | 23 | 26 | 27 | 24 | 24 |
| MeshTweenSplitSp | 27 | 27 | 24 | 25 | 25 | 24 | 25 | 26 | 28 | 24 | 25 | 26 | 25 | 24 | 26 | 25 |
| StepTweenAlt | 25 | 24 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 24 | 26 | 25 | 25 | 24 | 23 | 25 |
| StepTweenSplit | 25 | 24 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 26 | 23 | 25 |
| TweenAlt | 25 | 24 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 24 | 25 | 25 | 23 | 27 | 25 |
| TweenSplit | 25 | 25 | 24 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 26 | 25 | 25 |
| TweenSplitFastPr | 25 | 27 | 26 | 25 | 26 | 26 | 25 | 26 | 26 | 23 | 23 | 25 | 27 | 24 | 26 | 24 |
| TweenSplitHeadPr | 26 | 26 | 25 | 25 | 27 | 24 | 25 | 25 | 28 | 25 | 24 | 24 | 25 | 25 | 24 | 26 |
| TweenSplitHeadPr | 25 | 24 | 25 | 25 | 26 | 25 | 26 | 25 | 26 | 27 | 26 | 23 | 25 | 27 | 24 | 24 |
| TweenSplitLinear | 25 | 26 | 25 | 25 | 26 | 25 | 28 | 25 | 25 | 25 | 29 | 27 | 26 | 26 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 27 | 25 | 26 | 24 | 23 | 25 | 22 | 27 | 25 | 27 | 25 | 27 | 23 | 25 |
| TweenSplitSparse | 26 | 26 | 25 | 25 | 26 | 25 | 25 | 25 | 24 | 25 | 25 | 25 | 26 | 26 | 25 | 25 |
| sgd | 25 | 25 | 26 | 24 | 25 | 25 | 24 | 25 | 22 | 25 | 22 | 25 | 26 | 25 | 25 | 26 |
| step_sgd | 25 | 24 | 26 | 24 | 27 | 26 | 26 | 25 | 23 | 26 | 26 | 24 | 23 | 23 | 28 | 25 |
| step_tween | 26 | 28 | 25 | 24 | 28 | 25 | 25 | 25 | 23 | 25 | 26 | 25 | 24 | 24 | 26 | 26 |
| step_tween_chain | 25 | 24 | 25 | 26 | 25 | 23 | 25 | 25 | 23 | 25 | 25 | 25 | 28 | 27 | 27 | 25 |
| tween | 26 | 28 | 24 | 24 | 25 | 25 | 26 | 25 | 25 | 25 | 23 | 26 | 24 | 25 | 27 | 26 |
| tween_chain | 25 | 25 | 25 | 24 | 25 | 25 | 27 | 25 | 23 | 24 | 23 | 25 | 25 | 24 | 26 | 24 |

## Honesty - mean hard Acc, every mode x dtype  (cols 17-32)

## Honesty - mean hard Acc, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 25 | 27 | 24 | 23 | 25 | 23 | 24 | 26 | 26 | 26 | 25 | 24 | 24 | 25 | 25 | 24 |
| MeshTween | 24 | 26 | 24 | 24 | 23 | 21 | 26 | 24 | 23 | 26 | 24 | 24 | 24 | 27 | 28 | 23 |
| MeshTweenAlt | 25 | 25 | 25 | 25 | 25 | 24 | 24 | 26 | 25 | 25 | 23 | 25 | 25 | 26 | 25 | 25 |
| MeshTweenChain | 25 | 25 | 26 | 25 | 24 | 26 | 27 | 25 | 24 | 25 | 23 | 25 | 24 | 26 | 25 | 26 |
| MeshTweenSplit | 24 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 26 | 27 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 | 25 | 25 | 26 | 25 | 24 | 24 | 26 | 25 | 28 | 25 | 21 | 22 | 23 | 25 |
| MeshTweenSplitSp | 25 | 25 | 25 | 25 | 26 | 24 | 24 | 26 | 24 | 26 | 25 | 25 | 27 | 24 | 24 | 25 |
| StepTweenAlt | 25 | 25 | 24 | 25 | 25 | 25 | 24 | 25 | 25 | 25 | 27 | 24 | 25 | 25 | 25 | 25 |
| StepTweenSplit | 23 | 24 | 26 | 25 | 25 | 24 | 25 | 25 | 25 | 25 | 26 | 25 | 27 | 26 | 25 | 25 |
| TweenAlt | 25 | 25 | 25 | 24 | 25 | 25 | 25 | 26 | 25 | 26 | 24 | 25 | 24 | 25 | 25 | 25 |
| TweenSplit | 25 | 24 | 25 | 25 | 25 | 26 | 26 | 25 | 25 | 24 | 25 | 25 | 24 | 25 | 25 | 25 |
| TweenSplitFastPr | 26 | 23 | 26 | 25 | 27 | 25 | 25 | 26 | 25 | 27 | 26 | 25 | 25 | 23 | 27 | 25 |
| TweenSplitHeadPr | 24 | 25 | 28 | 26 | 24 | 24 | 26 | 25 | 25 | 24 | 24 | 24 | 26 | 31 | 26 | 27 |
| TweenSplitHeadPr | 25 | 25 | 26 | 25 | 25 | 26 | 24 | 25 | 25 | 26 | 25 | 26 | 26 | 24 | 25 | 25 |
| TweenSplitLinear | 27 | 24 | 25 | 23 | 24 | 25 | 26 | 27 | 26 | 25 | 27 | 24 | 26 | 24 | 26 | 26 |
| TweenSplitLinear | 25 | 26 | 24 | 27 | 27 | 26 | 25 | 26 | 26 | 28 | 25 | 26 | 24 | 24 | 24 | 23 |
| TweenSplitSparse | 24 | 23 | 23 | 24 | 24 | 27 | 26 | 24 | 24 | 26 | 24 | 24 | 26 | 24 | 24 | 25 |
| sgd | 22 | 23 | 22 | 27 | 24 | 23 | 23 | 24 | 26 | 27 | 24 | 26 | 23 | 23 | 25 | 25 |
| step_sgd | 25 | 26 | 25 | 27 | 25 | 26 | 26 | 24 | 22 | 24 | 25 | 25 | 26 | 23 | 24 | 27 |
| step_tween | 27 | 27 | 26 | 25 | 24 | 24 | 26 | 24 | 24 | 25 | 25 | 26 | 25 | 23 | 25 | 24 |
| step_tween_chain | 22 | 24 | 27 | 27 | 27 | 28 | 25 | 23 | 25 | 25 | 27 | 23 | 25 | 26 | 25 | 25 |
| tween | 26 | 25 | 24 | 24 | 24 | 26 | 27 | 26 | 26 | 23 | 25 | 27 | 27 | 25 | 23 | 25 |
| tween_chain | 25 | 24 | 24 | 24 | 24 | 24 | 24 | 25 | 23 | 26 | 24 | 27 | 27 | 27 | 25 | 25 |

## Honesty - mean hard Acc, every mode x dtype  (cols 33-34)

## Honesty - mean hard Acc, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 26 | 25 |
| MeshTween | 25 | 27 |
| MeshTweenAlt | 25 | 24 |
| MeshTweenChain | 25 | 25 |
| MeshTweenSplit | 25 | 25 |
| MeshTweenSplitFa | 26 | 25 |
| MeshTweenSplitSp | 25 | 27 |
| StepTweenAlt | 25 | 25 |
| StepTweenSplit | 25 | 25 |
| TweenAlt | 25 | 24 |
| TweenSplit | 25 | 25 |
| TweenSplitFastPr | 24 | 25 |
| TweenSplitHeadPr | 25 | 26 |
| TweenSplitHeadPr | 27 | 25 |
| TweenSplitLinear | 26 | 25 |
| TweenSplitLinear | 25 | 26 |
| TweenSplitSparse | 25 | 25 |
| sgd | 26 | 26 |
| step_sgd | 25 | 25 |
| step_tween | 29 | 22 |
| step_tween_chain | 24 | 24 |
| tween | 25 | 27 |
| tween_chain | 23 | 25 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 1-16)

## Honesty - mean SoftAcc, every mode x dtype  (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenChain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitFastPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitSparse | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 17-32)

## Honesty - mean SoftAcc, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenChain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitFastPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitSparse | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 33-34)

## Honesty - mean SoftAcc, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 25 | 25 |
| MeshTween | 25 | 25 |
| MeshTweenAlt | 25 | 25 |
| MeshTweenChain | 25 | 25 |
| MeshTweenSplit | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 |
| StepTweenAlt | 25 | 25 |
| StepTweenSplit | 25 | 25 |
| TweenAlt | 25 | 25 |
| TweenSplit | 25 | 25 |
| TweenSplitFastPr | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 |
| TweenSplitLinear | 25 | 25 |
| TweenSplitLinear | 25 | 25 |
| TweenSplitSparse | 25 | 25 |
| sgd | 25 | 25 |
| step_sgd | 25 | 25 |
| step_tween | 25 | 25 |
| step_tween_chain | 25 | 25 |
| tween | 25 | 25 |
| tween_chain | 25 | 25 |

## Mean Score, every mode x arch

## Mean Score, every mode x arch

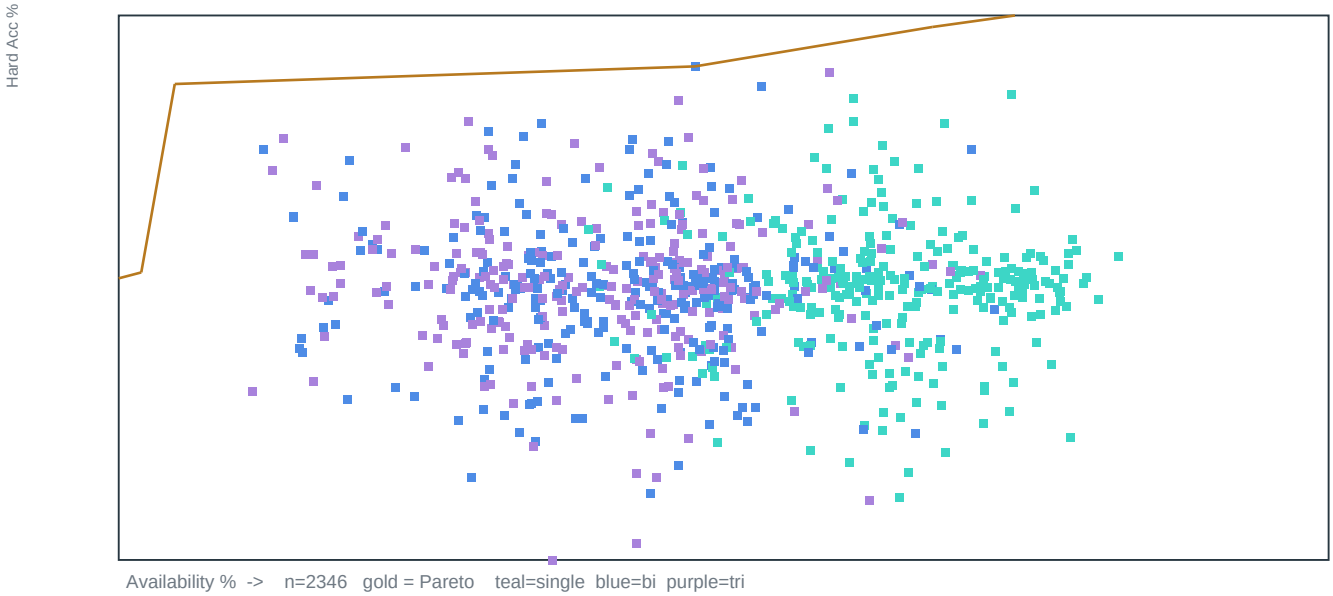
| | bicamera | singlex1 | tricamer |
|---|---|---|---|
| MeshBP | 442 | 1442 | 357 |
| MeshTween | 383 | 1193 | 310 |
| MeshTweenAlt | 201 | 704 | 152 |
| MeshTweenChain | 422 | 1374 | 335 |
| MeshTweenSplit | 645 | 1537 | 539 |
| MeshTweenSplitFa | 635 | 1482 | 556 |
| MeshTweenSplitSp | 924 | 1550 | 812 |
| StepTweenAlt | 159 | 575 | 126 |
| StepTweenSplit | 424 | 1126 | 360 |
| TweenAlt | 207 | 722 | 163 |
| TweenSplit | 666 | 1615 | 572 |
| TweenSplitFastPr | 665 | 1553 | 564 |
| TweenSplitHeadPr | 670 | 1600 | 562 |
| TweenSplitHeadPr | 658 | 1532 | 550 |
| TweenSplitLinear | 424 | 1092 | 361 |
| TweenSplitLinear | 635 | 1552 | 553 |
| TweenSplitSparse | 966 | 1555 | 829 |
| sgd | 360 | 1128 | 292 |
| step_sgd | 257 | 862 | 207 |
| step_tween | 295 | 961 | 237 |
| step_tween_chain | 320 | 1066 | 258 |
| tween | 411 | 1068 | 338 |
| tween_chain | 453 | 1483 | 374 |

## Mean hard Acc, every mode x arch

## Mean hard Acc, every mode x arch

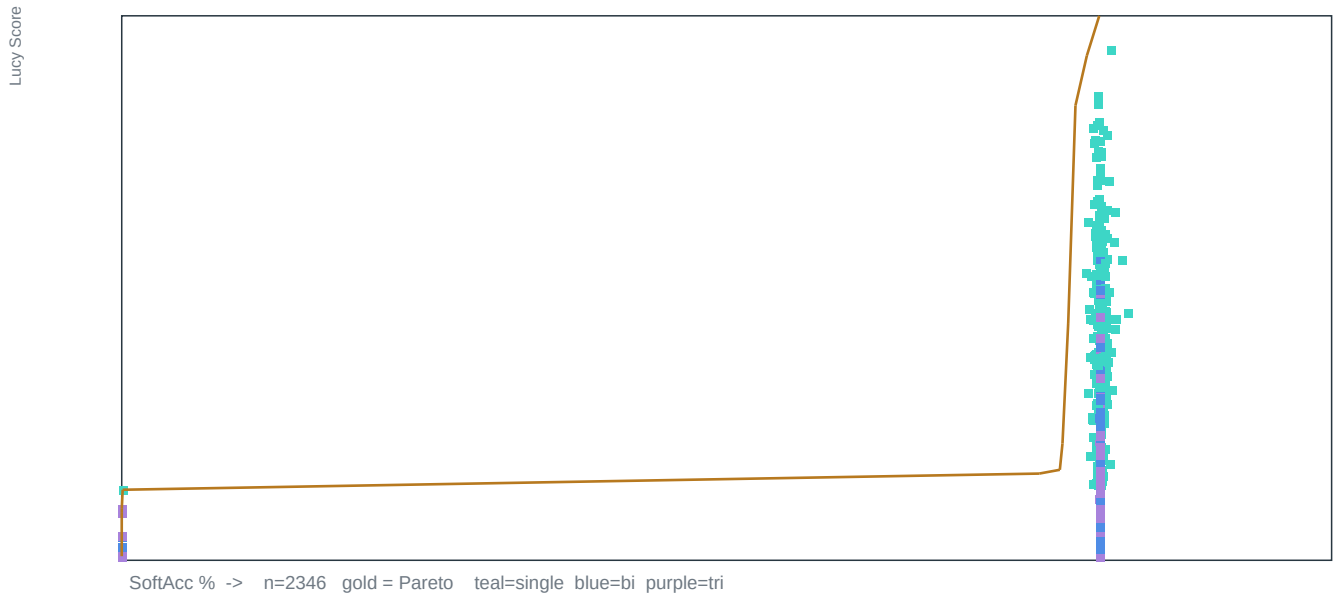
| | bicamera | singlex1 | tricamer |
|---|---|---|---|
| MeshBP | 25 | 25 | 25 |
| MeshTween | 25 | 25 | 25 |
| MeshTweenAlt | 25 | 25 | 25 |
| MeshTweenChain | 25 | 25 | 25 |
| MeshTweenSplit | 25 | 25 | 25 |
| MeshTweenSplitFa | 24 | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 | 25 |
| StepTweenAlt | 25 | 25 | 25 |
| StepTweenSplit | 25 | 25 | 25 |
| TweenAlt | 25 | 25 | 25 |
| TweenSplit | 25 | 25 | 25 |
| TweenSplitFastPr | 25 | 25 | 26 |
| TweenSplitHeadPr | 26 | 25 | 26 |
| TweenSplitHeadPr | 26 | 25 | 25 |
| TweenSplitLinear | 25 | 26 | 26 |
| TweenSplitLinear | 26 | 25 | 25 |
| TweenSplitSparse | 25 | 25 | 25 |
| sgd | 24 | 25 | 25 |
| step_sgd | 25 | 25 | 25 |
| step_tween | 25 | 25 | 25 |
| step_tween_chain | 25 | 25 | 25 |
| tween | 25 | 25 | 26 |
| tween_chain | 25 | 25 | 25 |

## Avail vs hard Acc (headline scatter)

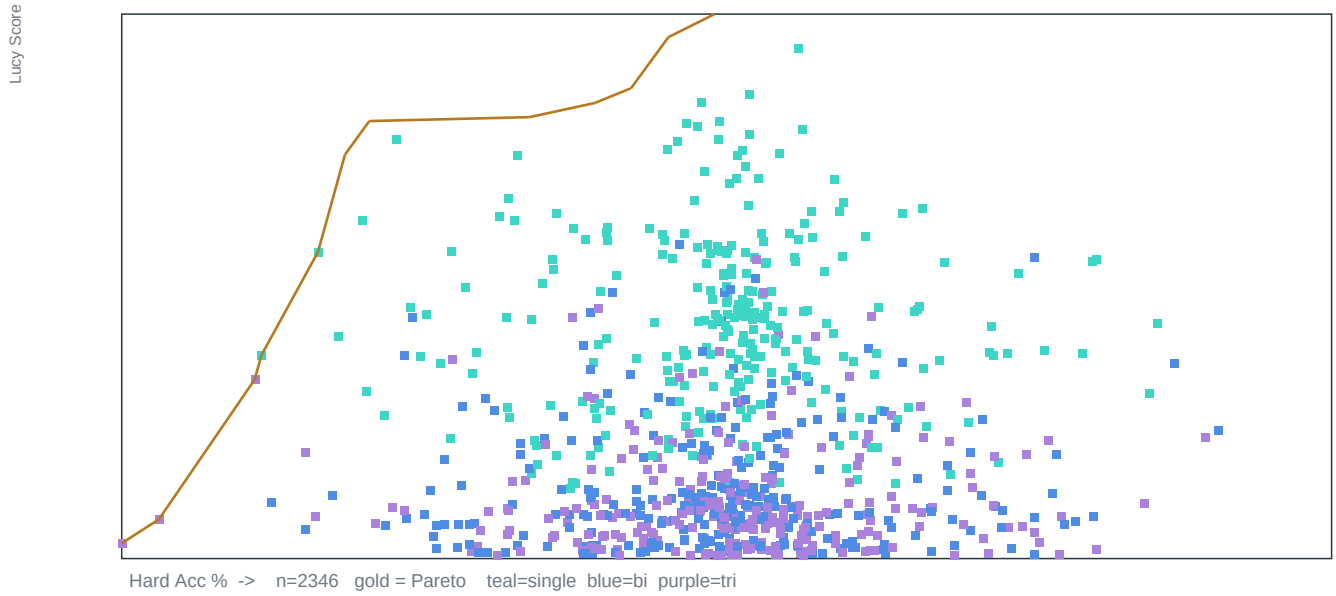



## Pareto - SoftAcc vs Score

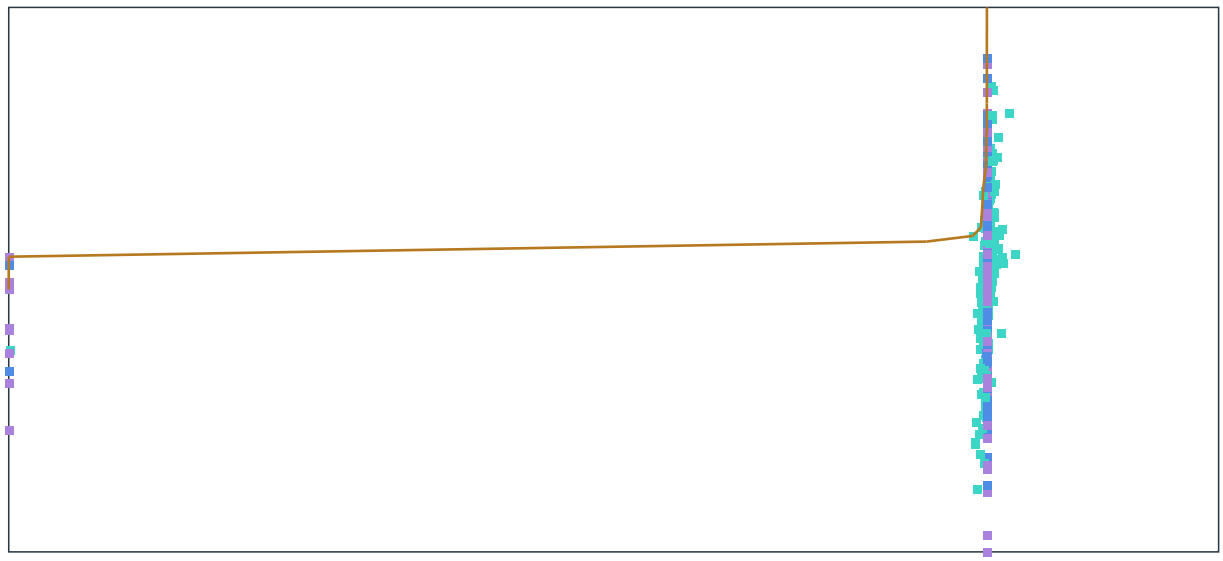
## Pareto - SoftAcc vs Score




## Pareto - hard Acc vs Score

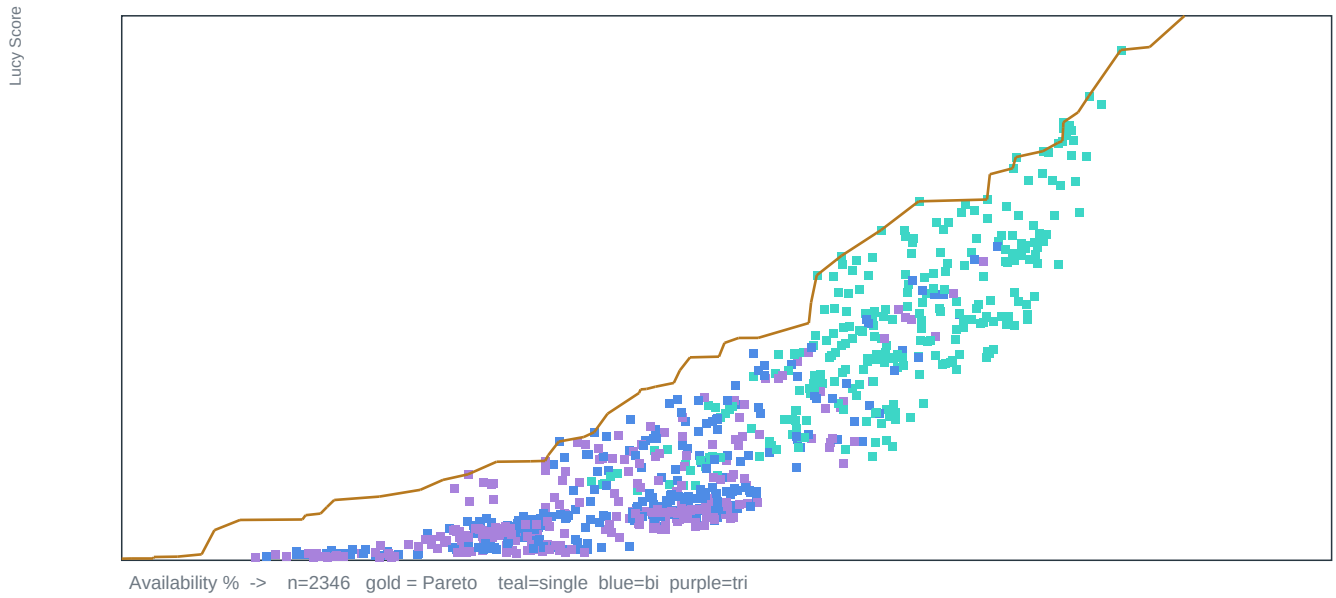



## SoftAcc vs hard Acc




SoftAcc %  ->  n=2346  gold = Pareto  teal=single  blue=bi  purple=tri
Hard Acc %

## Avail vs Score (duty clock)




## Lucy Pareto (LPD) - goldilocks

Q = geomean of Score/Soft/Acc/Thru vs the Lucy Score champion. LPD = 0 if Q<70%, else Q x shrink vs champ RAM (capped 32x). Gold = Q>=80% and RAM<=20% of champ. MSpeed = Thru vs the board's fastest (0 if Q<70%). MAvail = Availability vs the board's best duty cycle (0 if Q<70%). Mix = geomean(Q, MSpeed, MAvail). Raw Score/MiB is the binary trap.
Quality champ float32|none|TweenSplitHeadProxy|single|simd  Score 2628.3  Soft 25  Acc 25  Thru 26101  RAM 2.0 KiB
Board fastest float32|none|TweenSplitHeadProxy|single|simd  Thru 26101  Best availability float32|none|TweenSplitSparse|tricameral|simd  43.9%

### Gold - Q >= 80% of champ, RAM <= 20%

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| gold | binary\|none\|TweenSplitSparse\|single\|simd | 94 | 3 | 32.0 | 29.98 | 25 | 25 | 2267.6 | 0.1 |
| gold | binary\|none\|TweenSplit\|single\|simd | 91 | 3 | 32.0 | 29.23 | 25 | 25 | 2151.1 | 0.1 |
| gold | binary\|none\|tween_chain\|single\|simd | 91 | 3 | 32.0 | 29.03 | 25 | 25 | 2092.4 | 0.1 |
| gold | binary\|none\|MeshTweenSplitSparse\|single\|simd | 90 | 3 | 32.0 | 28.84 | 25 | 25 | 2090.3 | 0.1 |
| gold | binary\|none\|TweenSplitLinearCache\|single\|simd | 90 | 3 | 32.0 | 28.78 | 25 | 26 | 2086.2 | 0.1 |
| gold | binary\|none\|MeshTweenSplit\|single\|simd | 90 | 3 | 32.0 | 28.78 | 25 | 24 | 2112.4 | 0.1 |
| gold | binary\|none\|TweenSplitFastProxy\|single\|simd | 90 | 3 | 32.0 | 28.77 | 25 | 26 | 2092.0 | 0.1 |
| gold | binary\|none\|MeshTweenSplitFastProxy\|single\|simd | 90 | 3 | 32.0 | 28.72 | 25 | 28 | 2090.2 | 0.1 |
| gold | binary\|none\|TweenSplitHeadProxy\|single\|simd | 90 | 3 | 32.0 | 28.70 | 25 | 23 | 2134.1 | 0.1 |
| gold | binary\|none\|MeshBP\|single\|simd | 89 | 3 | 32.0 | 28.46 | 25 | 24 | 2019.8 | 0.1 |
| gold | binary\|none\|MeshTweenChain\|single\|simd | 88 | 3 | 32.0 | 28.26 | 25 | 30 | 1968.8 | 0.1 |
| gold | binary\|none\|TweenSplitHeadProxyAsync\|single\|simd | 87 | 3 | 32.0 | 27.99 | 25 | 23 | 2026.4 | 0.1 |
| gold | binary\|none\|tween\|single\|simd | 84 | 3 | 32.0 | 26.89 | 25 | 27 | 1726.9 | 0.1 |
| gold | binary\|none\|MeshTween\|single\|simd | 83 | 3 | 32.0 | 26.59 | 25 | 27 | 1687.1 | 0.1 |
| gold | binary\|none\|sgd\|single\|simd | 81 | 3 | 32.0 | 25.81 | 25 | 26 | 1628.1 | 0.1 |
| gold | binary\|none\|StepTweenSplit\|single\|simd | 81 | 3 | 32.0 | 25.78 | 25 | 23 | 1625.2 | 0.1 |

### Near-gold - Q >= 70%, RAM <= 50%

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| near | binary\|none\|step_tween_chain\|single\|simd | 79 | 3 | 32.0 | 25.26 | 25 | 23 | 1545.9 | 0.1 |
| near | binary\|none\|step_tween\|single\|simd | 79 | 3 | 32.0 | 25.19 | 25 | 30 | 1456.4 | 0.1 |
| near | binary\|none\|TweenSplitLinear\|single\|simd | 77 | 3 | 32.0 | 24.53 | 25 | 28 | 1404.3 | 0.1 |
| near | binary\|none\|step_sgd\|single\|simd | 71 | 3 | 32.0 | 22.87 | 25 | 26 | 1205.0 | 0.1 |
| near | ternary\|none\|sgd\|single\|simd | 79 | 6 | 16.0 | 12.71 | 25 | 22 | 1673.7 | 0.1 |
| near | ternary\|none\|step_tween\|single\|simd | 79 | 6 | 16.0 | 12.63 | 25 | 24 | 1479.2 | 0.1 |

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| near | int2\|none\|step_tween_chain\|single\|simd | 79 | 6 | 16.0 | 12.62 | 25 | 27 | 1470.6 | 0.1 |
| near | ternary\|none\|StepTweenSplit\|single\|simd | 79 | 6 | 16.0 | 12.59 | 25 | 25 | 1508.3 | 0.1 |
| near | int2\|none\|TweenSplitLinear\|single\|simd | 78 | 6 | 16.0 | 12.51 | 25 | 25 | 1467.1 | 0.1 |
| near | int2\|none\|StepTweenSplit\|single\|simd | 78 | 6 | 16.0 | 12.44 | 25 | 26 | 1455.1 | 0.1 |
| near | int2\|none\|MeshTween\|single\|simd | 77 | 6 | 16.0 | 12.38 | 25 | 20 | 1641.7 | 0.1 |
| near | ternary\|none\|TweenSplitLinear\|single\|simd | 77 | 6 | 16.0 | 12.34 | 25 | 27 | 1424.2 | 0.1 |

## LPD rank (Q x shrink; 0 if Q < 70%)

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| gold | binary\|none\|TweenSplitSparse\|single\|simd | 94 | 3 | 32.0 | 29.98 | 25 | 25 | 2267.6 | 0.1 |
| gold | binary\|none\|TweenSplit\|single\|simd | 91 | 3 | 32.0 | 29.23 | 25 | 25 | 2151.1 | 0.1 |
| gold | binary\|none\|tween_chain\|single\|simd | 91 | 3 | 32.0 | 29.03 | 25 | 25 | 2092.4 | 0.1 |
| gold | binary\|none\|MeshTweenSplitSparse\|single\|simd | 90 | 3 | 32.0 | 28.84 | 25 | 25 | 2090.3 | 0.1 |
| gold | binary\|none\|TweenSplitLinearCache\|single\|simd | 90 | 3 | 32.0 | 28.78 | 25 | 26 | 2086.2 | 0.1 |
| gold | binary\|none\|MeshTweenSplit\|single\|simd | 90 | 3 | 32.0 | 28.78 | 25 | 24 | 2112.4 | 0.1 |
| gold | binary\|none\|TweenSplitFastProxy\|single\|simd | 90 | 3 | 32.0 | 28.77 | 25 | 26 | 2092.0 | 0.1 |
| gold | binary\|none\|MeshTweenSplitFastProxy\|single\|simd | 90 | 3 | 32.0 | 28.72 | 25 | 28 | 2090.2 | 0.1 |
| gold | binary\|none\|TweenSplitHeadProxy\|single\|simd | 90 | 3 | 32.0 | 28.70 | 25 | 23 | 2134.1 | 0.1 |
| gold | binary\|none\|MeshBP\|single\|simd | 89 | 3 | 32.0 | 28.46 | 25 | 24 | 2019.8 | 0.1 |
| gold | binary\|none\|MeshTweenChain\|single\|simd | 88 | 3 | 32.0 | 28.26 | 25 | 30 | 1968.8 | 0.1 |
| gold | binary\|none\|TweenSplitHeadProxyAsync\|single\|simd | 87 | 3 | 32.0 | 27.99 | 25 | 23 | 2026.4 | 0.1 |
| gold | binary\|none\|tween\|single\|simd | 84 | 3 | 32.0 | 26.89 | 25 | 27 | 1726.9 | 0.1 |
| gold | binary\|none\|MeshTween\|single\|simd | 83 | 3 | 32.0 | 26.59 | 25 | 27 | 1687.1 | 0.1 |
| gold | binary\|none\|sgd\|single\|simd | 81 | 3 | 32.0 | 25.81 | 25 | 26 | 1628.1 | 0.1 |
| gold | binary\|none\|StepTweenSplit\|single\|simd | 81 | 3 | 32.0 | 25.78 | 25 | 23 | 1625.2 | 0.1 |
| near | binary\|none\|step_tween_chain\|single\|simd | 79 | 3 | 32.0 | 25.26 | 25 | 23 | 1545.9 | 0.1 |
| near | binary\|none\|step_tween\|single\|simd | 79 | 3 | 32.0 | 25.19 | 25 | 30 | 1456.4 | 0.1 |
| near | binary\|none\|TweenSplitLinear\|single\|simd | 77 | 3 | 32.0 | 24.53 | 25 | 28 | 1404.3 | 0.1 |
| near | binary\|none\|step_sgd\|single\|simd | 71 | 3 | 32.0 | 22.87 | 25 | 26 | 1205.0 | 0.1 |

## Mobile speed - Thru vs board fastest (Q >= 70%)

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| keep | float32\|none\|TweenSplitHeadProxy\|single\|simd | 100 | 100 | 92 | 97 | 1.00 | 26101 | 40.3 |
| keep | float32\|none\|tween_chain\|single\|simd | 98 | 98 | 88 | 94 | 0.98 | 25459 | 38.7 |
| keep | float32\|none\|TweenSplit\|single\|simd | 98 | 96 | 90 | 95 | 0.98 | 25147 | 39.4 |
| keep | float32\|none\|MeshTweenSplitSparse\|single\|simd | 97 | 96 | 92 | 95 | 0.97 | 24970 | 40.3 |
| keep | float32\|none\|TweenSplitLinearCache\|single\|simd | 97 | 95 | 90 | 94 | 0.97 | 24763 | 39.4 |
| keep | float32\|none\|TweenSplitFastProxy\|single\|simd | 97 | 94 | 92 | 94 | 0.97 | 24409 | 40.3 |
| keep | float32\|none\|TweenSplitHeadProxyAsync\|single\|simd | 96 | 92 | 90 | 93 | 0.96 | 24085 | 39.5 |
| keep | float32\|none\|MeshTweenSplitFastProxy\|single\|simd | 96 | 92 | 91 | 93 | 0.96 | 24054 | 40.1 |
| keep | float32\|none\|MeshBP\|single\|simd | 94 | 91 | 86 | 90 | 0.94 | 23669 | 37.9 |
| keep | float32\|none\|TweenSplitSparse\|single\|simd | 94 | 90 | 91 | 92 | 0.94 | 23511 | 40.1 |

## Mobile availability - duty cycle vs board best (Q >= 70%)

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| keep | float32\|none\|TweenSplitSparse\|tricameral\|simd | 92 | 81 | 100 | 91 | 0.03 | 21245 | 43.9 |
| keep | int8\|none\|MeshTweenSplitSparse\|tricameral\|simd | 89 | 76 | 99 | 88 | 0.11 | 19905 | 43.4 |
| keep | float32\|none\|MeshTweenSplitSparse\|tricameral\|simd | 88 | 78 | 98 | 88 | 0.03 | 20384 | 43.2 |
| keep | float32\|none\|TweenSplitSparse\|bicameral\|simd | 95 | 88 | 98 | 93 | 0.04 | 22848 | 43.1 |
| keep | uint8\|none\|TweenSplitSparse\|bicameral\|simd | 81 | 65 | 98 | 80 | 0.13 | 16858 | 43.0 |
| keep | int8\|none\|MeshTweenSplitSparse\|bicameral\|simd | 90 | 78 | 98 | 88 | 0.14 | 20388 | 42.9 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| keep | float32\|none\|MeshTweenSplitSparse\|bicameral\|simd | 92 | 83 | 97 | 91 | 0.04 | 21540 | 42.8 |
| - | float16\|none\|MeshTweenSplitSparse\|bicameral\|simd | 79 | 60 | 97 | 77 | 0.06 | 15704 | 42.7 |
| keep | int8\|none\|TweenSplitSparse\|bicameral\|simd | 90 | 82 | 97 | 90 | 0.14 | 21284 | 42.7 |
| - | binary\|none\|MeshTweenSplitSparse\|tricameral\|simd | 77 | 58 | 97 | 76 | 0.75 | 15213 | 42.6 |

## Mix - geomean of Q, MSpeed, MAvail

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| keep | float32\|none\|TweenSplitHeadProxy\|single\|simd | 100 | 100 | 92 | 97 | 1.00 | 26101 | 40.3 |
| keep | float32\|none\|MeshTweenSplitSparse\|single\|simd | 97 | 96 | 92 | 95 | 0.97 | 24970 | 40.3 |
| keep | float32\|none\|TweenSplit\|single\|simd | 98 | 96 | 90 | 95 | 0.98 | 25147 | 39.4 |
| keep | float32\|none\|tween_chain\|single\|simd | 98 | 98 | 88 | 94 | 0.98 | 25459 | 38.7 |
| keep | float32\|none\|TweenSplitFastProxy\|single\|simd | 97 | 94 | 92 | 94 | 0.97 | 24409 | 40.3 |
| keep | float32\|none\|TweenSplitLinearCache\|single\|simd | 97 | 95 | 90 | 94 | 0.97 | 24763 | 39.4 |
| keep | float32\|none\|TweenSplitSparse\|bicameral\|simd | 95 | 88 | 98 | 93 | 0.04 | 22848 | 43.1 |
| keep | float32\|none\|MeshTweenSplitFastProxy\|single\|simd | 96 | 92 | 91 | 93 | 0.96 | 24054 | 40.1 |
| keep | float32\|none\|TweenSplitHeadProxyAsync\|single\|simd | 96 | 92 | 90 | 93 | 0.96 | 24085 | 39.5 |
| keep | float32\|none\|TweenSplitSparse\|single\|simd | 94 | 90 | 91 | 92 | 0.94 | 23511 | 40.1 |

## Trap - tiny RAM, Q < 70% (why Score/MiB lies)

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| trap | binary\|none\|TweenAlt\|single\|simd | 65 | 3 | 32.0 | 0.00 | 25 | 24 | 950.4 | 0.1 |
| trap | binary\|none\|StepTweenAlt\|single\|simd | 62 | 3 | 32.0 | 0.00 | 25 | 24 | 841.5 | 0.1 |
| trap | binary\|none\|MeshTweenAlt\|single\|simd | 66 | 3 | 32.0 | 0.00 | 25 | 24 | 996.2 | 0.1 |
| trap | int2\|none\|step_sgd\|single\|simd | 68 | 6 | 16.0 | 0.00 | 25 | 20 | 1223.8 | 0.1 |
| trap | int2\|none\|TweenAlt\|single\|simd | 70 | 6 | 16.0 | 0.00 | 25 | 27 | 1085.7 | 0.1 |
| trap | ternary\|none\|TweenAlt\|single\|simd | 69 | 6 | 16.0 | 0.00 | 25 | 26 | 1086.1 | 0.1 |
| trap | int2\|none\|StepTweenAlt\|single\|simd | 59 | 6 | 16.0 | 0.00 | 25 | 20 | 852.2 | 0.1 |
| trap | ternary\|none\|StepTweenAlt\|single\|simd | 61 | 6 | 16.0 | 0.00 | 25 | 23 | 839.2 | 0.1 |
| trap | int2\|none\|MeshTweenAlt\|single\|simd | 65 | 6 | 16.0 | 0.00 | 25 | 26 | 946.6 | 0.1 |
| trap | ternary\|none\|MeshTweenAlt\|single\|simd | 67 | 6 | 16.0 | 0.00 | 25 | 22 | 1061.8 | 0.1 |

## LPD - Q% vs RAM KiB (gold = high Q, low RAM)

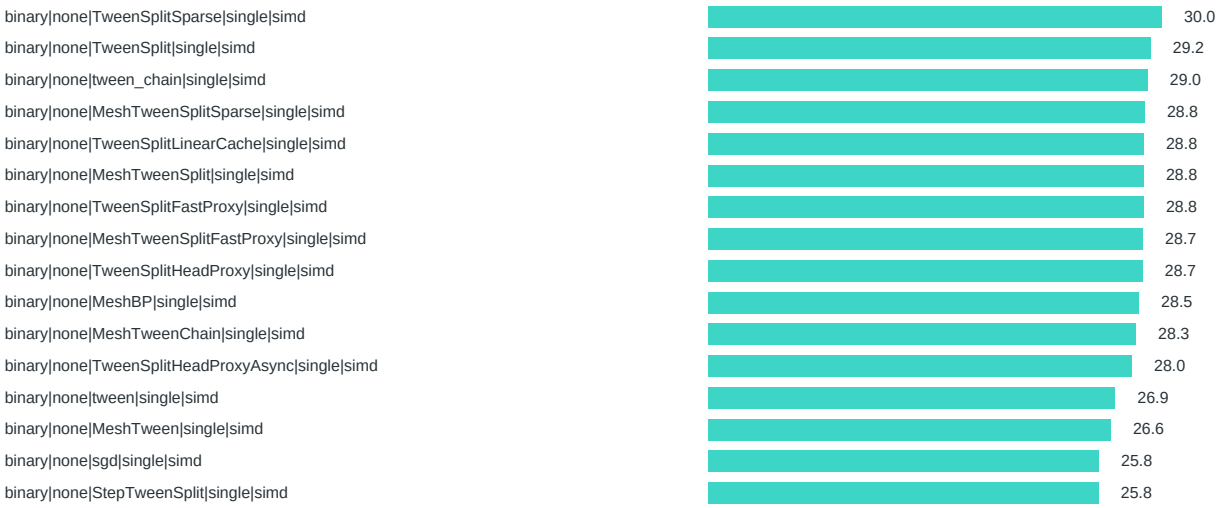



## LPD - Q% vs shrink vs champ (gold = upper right)

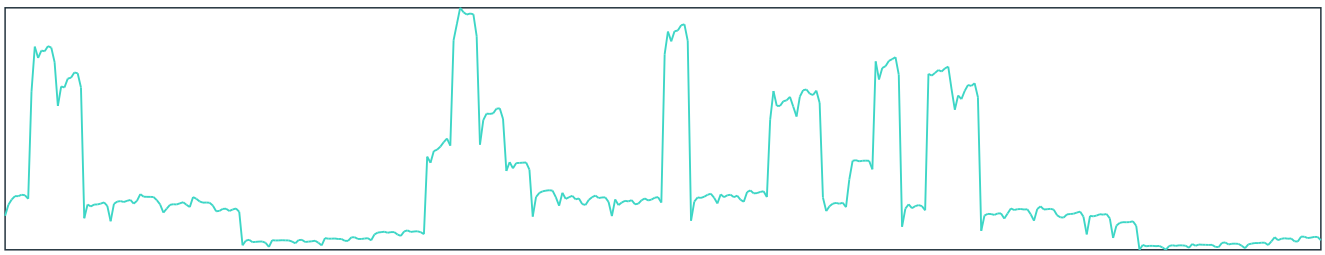
## LPD - Q% vs shrink vs champ (gold = upper right)




## Top LPD

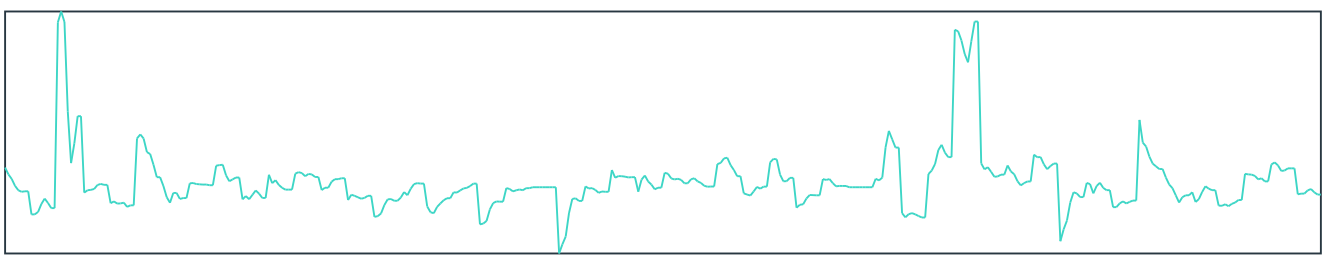



## Pulse Score - mha



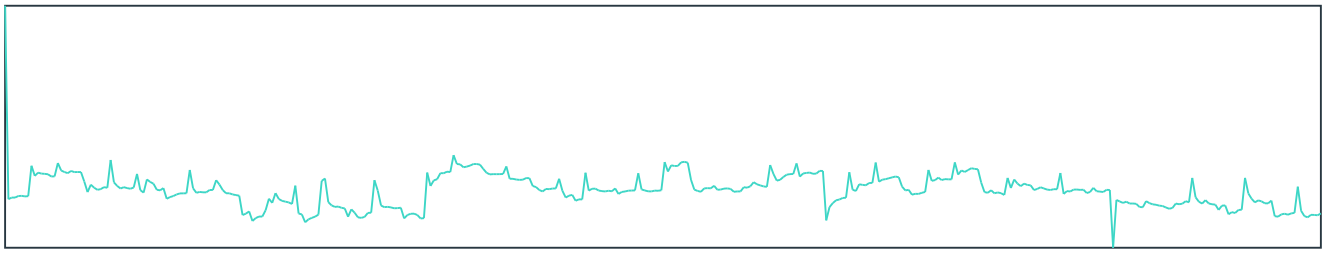
n=400 min=168.88 max=2472.83

## Pulse SoftAcc - mha



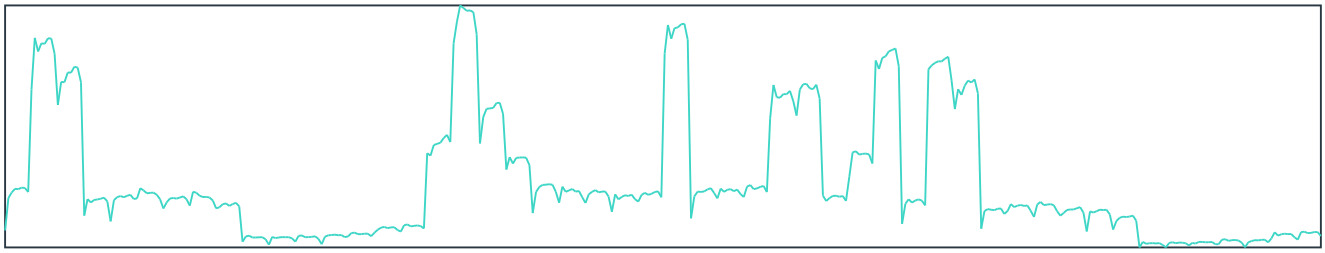
n=400 min=25.00 max=25.00

## Pulse Availability - mha



n=400 min=33.96 max=60.73

## Pulse Throughput - mha



n=400 min=1755.86 max=22905.30

## Queue by train mode (this epoch)

| Mode | Done | Run | Left | Total |
|---|---|---|---|---|
| sgd | 102 | 0 | 0 | 102 |
| step_sgd | 102 | 0 | 0 | 102 |
| tween | 102 | 0 | 0 | 102 |
| tween_chain | 102 | 0 | 0 | 102 |
| step_tween | 102 | 0 | 0 | 102 |
| step_tween_chain | 102 | 0 | 0 | 102 |
| MeshBP | 102 | 0 | 0 | 102 |
| MeshTween | 102 | 0 | 0 | 102 |
| MeshTweenChain | 102 | 0 | 0 | 102 |
| TweenSplit | 102 | 0 | 0 | 102 |
| StepTweenSplit | 102 | 0 | 0 | 102 |
| TweenAlt | 102 | 0 | 0 | 102 |
| StepTweenAlt | 102 | 0 | 0 | 102 |
| TweenSplitHeadProxy | 102 | 0 | 0 | 102 |
| TweenSplitLinear | 102 | 0 | 0 | 102 |
| TweenSplitFastProxy | 102 | 0 | 0 | 102 |
| TweenSplitLinearCache | 102 | 0 | 0 | 102 |
| TweenSplitHeadProxyAsync | 102 | 0 | 0 | 102 |
| TweenSplitSparse | 102 | 0 | 0 | 102 |
| MeshTweenSplit | 102 | 0 | 0 | 102 |
| MeshTweenAlt | 102 | 0 | 0 | 102 |
| MeshTweenSplitFastProxy | 102 | 0 | 0 | 102 |
| MeshTweenSplitSparse | 102 | 0 | 0 | 102 |

# tide  parallel

Score = Throughput x Availability% x SoftAcc% / 10,000
done - epoch 1 - 2026-08-18 09:45:25 - 0.0.0.0:8121
This epoch 2346 / 2346 cells. Recorded 2346 results.
Score 0 usually means the cell finished before a Lucy pulse (SoftAcc never sampled) or true-class mass was 0. Those rows do not vote holistically.
parallel - two-way add on pairwise XOR - modes all - min 2000ms/cell - 1024 train - pulse 50ms - SIMD true

## Lucy champions (this tide)

| Axis | Cell | Score | Soft | Acc | Thru | Avail |
|---|---|---|---|---|---|---|
| score | float32\|none\|tween_chain\|single\|simd | 100450.91 | 25.0 | 26.5 | 980995.8 | 40.9 |
| throughput | float32\|none\|tween_chain\|single\|simd | 100450.91 | 25.0 | 26.5 | 980995.8 | 40.9 |
| availability | complex64\|none\|TweenSplitSparse\|tricameral\|simd | 14925.08 | 25.0 | 22.2 | 125634.6 | 47.5 |
| accuracy | float32\|none\|TweenAlt\|single\|simd | 73136.49 | 25.1 | 30.0 | 737098.6 | 39.5 |
| mobile score (tradi | binary\|none\|sgd\|single\|simd | 75456.12 | 25.0 | 21.4 | 706047.4 | 42.8 |
| acc/sec | float32\|none\|StepTweenAlt\|single\|simd | 71521.35 | 25.1 | 27.5 | 736758.9 | 38.7 |

## Lucy axes - parallel

| Axis | Mode | DType | Arch | Value |
|---|---|---|---|---|
| score | tween_chain | float32 | singlex1 | 100450.91 |
| soft_acc | TweenAlt | float32 | singlex1 | 25.14 |
| hard_acc | MeshTweenSplitS~ | binary | singlex1 | 32.47 |
| throughput | tween_chain | float32 | singlex1 | 980995.78 |
| availability | TweenSplitSparse | complex64 | tricameralx3 | 47.52 |
| acc_thru | tween_chain | float32 | singlex1 | 245363.60 |
| realtime | tween_chain | float32 | singlex1 | 401615.87 |
| adapt | TweenAlt | float32 | singlex1 | 25.16 |
| keep_learn | MeshTweenAlt | int | tricameralx3 | 12.51 |
| acc_per_sec | StepTweenAlt | float32 | singlex1 | 12.52 |
| consistency | sgd | float64 | singlex1 | 100.00 |
| stability | sgd | fp4 | singlex1 | 100.00 |
| mobile_score | sgd | binary | singlex1 | 2825766864.44 |
| lpd | tween | binary | singlex1 | 27.37 |
| mspeed | tween_chain | float32 | singlex1 | 1.00 |
| mavail | TweenSplitSparse | float64 | singlex1 | 0.95 |
| mix | tween_chain | float32 | singlex1 | 0.95 |

## Best settings per train mode

| Mode | DType | Format | Score | Soft | Acc | Avail | n |
|---|---|---|---|---|---|---|---|
| tween_chain | float32 | none | 100450.9 | 25.0 | 26.5 | 40.9 | 102 |
| tween | float32 | none | 99550.1 | 25.0 | 27.2 | 40.7 | 102 |
| sgd | float32 | none | 97261.4 | 25.0 | 25.0 | 41.0 | 102 |
| MeshTweenSplit | float32 | none | 94173.2 | 25.0 | 24.8 | 41.7 | 102 |
| step_sgd | float32 | none | 93855.0 | 25.0 | 27.1 | 40.4 | 102 |
| MeshTweenSplitFastProxy | float32 | none | 93716.1 | 25.0 | 23.5 | 41.5 | 102 |
| step_tween | float32 | none | 91193.9 | 25.0 | 23.0 | 40.2 | 102 |
| TweenSplitFastProxy | float32 | none | 88918.2 | 25.0 | 26.1 | 41.3 | 102 |
| TweenSplitSparse | float32 | none | 88270.8 | 25.0 | 25.1 | 41.9 | 102 |
| MeshTweenSplitSparse | float32 | none | 87893.8 | 25.0 | 23.3 | 41.8 | 102 |
| TweenSplitHeadProxyAsync | float32 | none | 87513.9 | 25.0 | 27.6 | 41.4 | 102 |
| TweenSplitLinear | float32 | none | 86299.9 | 25.0 | 24.4 | 40.8 | 102 |
| TweenSplitLinearCache | float32 | none | 85458.7 | 25.0 | 27.1 | 41.4 | 102 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| TweenSplitHeadProxy | float32 | none | 84836.1 | 25.0 | 26.0 | 41.5 | 102 |
| TweenSplit | float32 | none | 83163.5 | 25.0 | 26.8 | 41.4 | 102 |
| MeshBP | float32 | none | 83085.3 | 25.0 | 26.1 | 40.8 | 102 |
| MeshTween | float32 | none | 82793.3 | 25.0 | 18.7 | 40.7 | 102 |
| MeshTweenChain | float32 | none | 82354.2 | 25.0 | 25.5 | 40.7 | 102 |
| StepTweenSplit | float32 | none | 82070.2 | 25.0 | 25.5 | 41.2 | 102 |
| step_tween_chain | float32 | none | 81336.0 | 25.0 | 25.9 | 40.3 | 102 |
| TweenAlt | float32 | none | 73136.5 | 25.1 | 30.0 | 39.5 | 102 |
| StepTweenAlt | float32 | none | 71521.3 | 25.1 | 27.5 | 38.7 | 102 |
| MeshTweenAlt | float32 | none | 69664.1 | 25.1 | 26.5 | 39.7 | 102 |

## Best dtype per mode

| Mode | Winner dtype | Score | Soft | Acc |
|---|---|---|---|---|
| tween_chain | float32 | 100450.9 | 25.0 | 26.5 |
| tween | float32 | 99550.1 | 25.0 | 27.2 |
| sgd | float32 | 97261.4 | 25.0 | 25.0 |
| MeshTweenSplit | float32 | 94173.2 | 25.0 | 24.8 |
| step_sgd | float32 | 93855.0 | 25.0 | 27.1 |
| MeshTweenSplitFastProxy | float32 | 93716.1 | 25.0 | 23.5 |
| step_tween | float32 | 91193.9 | 25.0 | 23.0 |
| TweenSplitFastProxy | float32 | 88918.2 | 25.0 | 26.1 |
| TweenSplitSparse | float32 | 88270.8 | 25.0 | 25.1 |
| MeshTweenSplitSparse | float32 | 87893.8 | 25.0 | 23.3 |
| TweenSplitHeadProxyAsync | float32 | 87513.9 | 25.0 | 27.6 |
| TweenSplitLinear | float32 | 86299.9 | 25.0 | 24.4 |
| TweenSplitLinearCache | float32 | 85458.7 | 25.0 | 27.1 |
| TweenSplitHeadProxy | float32 | 84836.1 | 25.0 | 26.0 |
| TweenSplit | float32 | 83163.5 | 25.0 | 26.8 |
| MeshBP | float32 | 83085.3 | 25.0 | 26.1 |
| MeshTween | float32 | 82793.3 | 25.0 | 18.7 |
| MeshTweenChain | float32 | 82354.2 | 25.0 | 25.5 |
| StepTweenSplit | float32 | 82070.2 | 25.0 | 25.5 |
| step_tween_chain | float32 | 81336.0 | 25.0 | 25.9 |
| TweenAlt | float32 | 73136.5 | 25.1 | 30.0 |
| StepTweenAlt | float32 | 71521.3 | 25.1 | 27.5 |
| MeshTweenAlt | float32 | 69664.1 | 25.1 | 26.5 |

## Best mode per dtype

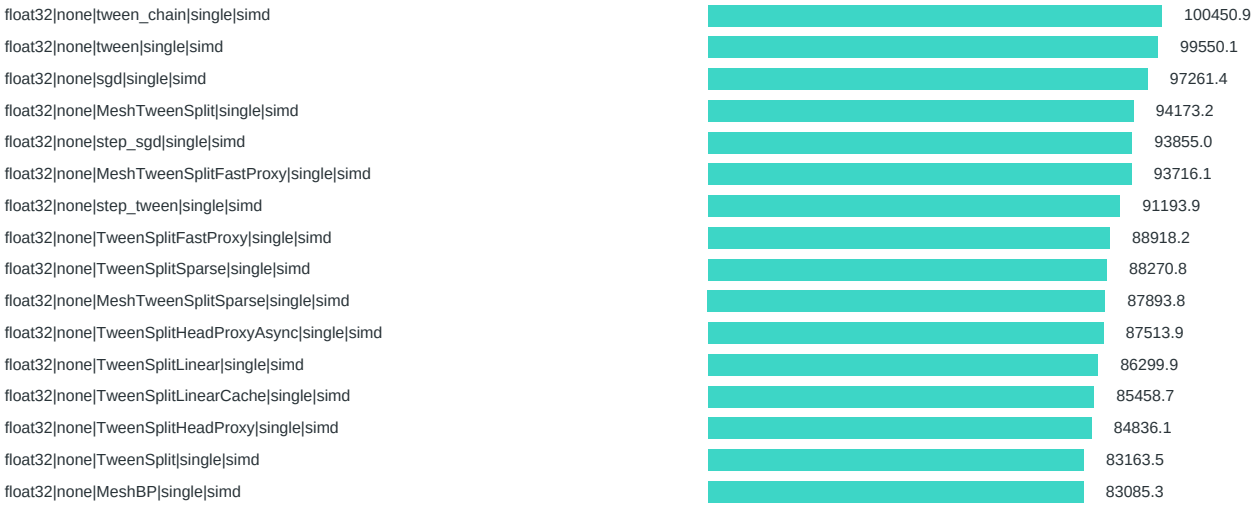
| DType | Winner mode | Score | Soft | Acc |
|---|---|---|---|---|
| float32 | tween_chain | 100450.9 | 25.0 | 26.5 |
| float16 | tween_chain | 80457.7 | 25.0 | 25.2 |
| int8 | tween_chain | 79205.0 | 25.0 | 24.5 |
| int2 | sgd | 77352.3 | 25.0 | 25.8 |
| binary | sgd | 75456.1 | 25.0 | 21.4 |
| uint8 | sgd | 75311.2 | 25.0 | 23.9 |
| ternary | sgd | 74950.5 | 25.0 | 24.2 |
| int4 | sgd | 74494.8 | 25.0 | 26.3 |
| bfloat16 | sgd | 68946.3 | 25.0 | 24.8 |
| fp4 | tween | 67565.7 | 25.0 | 25.0 |
| float64 | tween_chain | 60835.7 | 25.0 | 26.4 |
| fp8e5m2 | sgd | 52238.5 | 25.0 | 23.9 |
| uint32 | sgd | 50993.8 | 25.0 | 23.5 |

| | | | | |
|---|---|---|---|---|
| uint16 | sgd | 50455.6 | 25.0 | 25.1 |
| uint64 | sgd | 50182.4 | 25.0 | 24.7 |
| fp8e4m3 | sgd | 49849.1 | 25.0 | 25.1 |
| uint4 | sgd | 48497.0 | 25.0 | 27.9 |
| uint2 | sgd | 45660.1 | 25.0 | 24.2 |
| int32 | sgd | 45543.3 | 25.0 | 24.3 |
| int64 | sgd | 44382.8 | 25.0 | 25.5 |
| int16 | sgd | 43244.4 | 25.0 | 24.4 |
| uint | sgd | 38835.0 | 25.0 | 25.6 |
| uintptr | sgd | 38635.0 | 25.0 | 24.6 |
| complex128 | sgd | 36282.1 | 25.0 | 27.1 |
| int | tween | 36047.4 | 25.0 | 27.8 |
| complex64 | sgd | 36008.2 | 25.0 | 25.7 |
| nf4 | sgd | 33655.5 | 25.0 | 20.9 |
| uint3 | sgd | 26276.8 | 25.0 | 24.6 |
| int3 | sgd | 24237.1 | 25.0 | 27.2 |
| uint5 | sgd | 21224.2 | 25.0 | 24.3 |
| int5 | sgd | 19532.6 | 25.0 | 21.8 |
| uint6 | sgd | 19051.7 | 25.0 | 32.0 |
| int6 | sgd | 18129.8 | 25.0 | 25.1 |
| fp6 | tween_chain | 17071.1 | 25.0 | 26.0 |

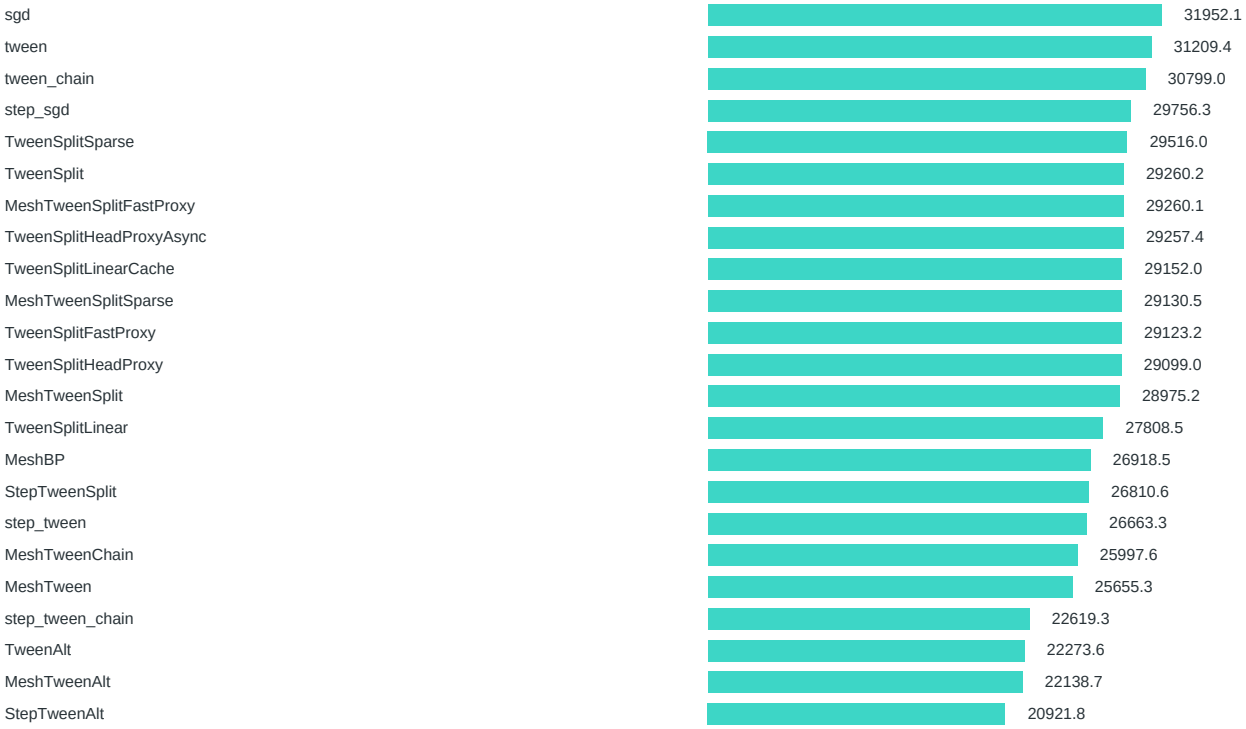
## Leaderboard - parallel

| # | Cell | Score | Soft | Acc | Thru | Avail |
|---|---|---|---|---|---|---|
| 1 | float32\|none\|tween_chain\|single\|simd | 100450.9 | 25.0 | 26.5 | 980995.8 | 40.9 |
| 2 | float32\|none\|tween\|single\|simd | 99550.1 | 25.0 | 27.2 | 977439.2 | 40.7 |
| 3 | float32\|none\|sgd\|single\|simd | 97261.4 | 25.0 | 25.0 | 948258.4 | 41.0 |
| 4 | float32\|none\|MeshTweenSplit\|single\|simd | 94173.2 | 25.0 | 24.8 | 903021.2 | 41.7 |
| 5 | float32\|none\|step_sgd\|single\|simd | 93855.0 | 25.0 | 27.1 | 928959.8 | 40.4 |
| 6 | float32\|none\|MeshTweenSplitFastProxy\|single\|simd | 93716.1 | 25.0 | 23.5 | 902987.1 | 41.5 |
| 7 | float32\|none\|step_tween\|single\|simd | 91193.9 | 25.0 | 23.0 | 907576.2 | 40.2 |
| 8 | float32\|none\|TweenSplitFastProxy\|single\|simd | 88918.2 | 25.0 | 26.1 | 859953.8 | 41.3 |
| 9 | float32\|none\|TweenSplitSparse\|single\|simd | 88270.8 | 25.0 | 25.1 | 842701.5 | 41.9 |
| 10 | float32\|none\|MeshTweenSplitSparse\|single\|simd | 87893.8 | 25.0 | 23.3 | 840498.6 | 41.8 |
| 11 | float32\|none\|TweenSplitHeadProxyAsync\|single\|simd | 87513.9 | 25.0 | 27.6 | 844256.8 | 41.4 |
| 12 | float32\|none\|TweenSplitLinear\|single\|simd | 86299.9 | 25.0 | 24.4 | 845960.9 | 40.8 |
| 13 | float32\|none\|TweenSplitLinearCache\|single\|simd | 85458.7 | 25.0 | 27.1 | 825782.5 | 41.4 |
| 14 | float32\|none\|TweenSplitHeadProxy\|single\|simd | 84836.1 | 25.0 | 26.0 | 817538.5 | 41.5 |
| 15 | float32\|none\|TweenSplit\|single\|simd | 83163.5 | 25.0 | 26.8 | 803520.6 | 41.4 |
| 16 | float32\|none\|MeshBP\|single\|simd | 83085.3 | 25.0 | 26.1 | 814648.2 | 40.8 |
| 17 | float32\|none\|MeshTween\|single\|simd | 82793.3 | 25.0 | 18.7 | 814695.9 | 40.7 |
| 18 | float32\|none\|MeshTweenChain\|single\|simd | 82354.2 | 25.0 | 25.5 | 808395.7 | 40.7 |
| 19 | float32\|none\|StepTweenSplit\|single\|simd | 82070.2 | 25.0 | 25.5 | 796628.1 | 41.2 |
| 20 | float32\|none\|step_tween_chain\|single\|simd | 81336.0 | 25.0 | 25.9 | 808094.0 | 40.3 |

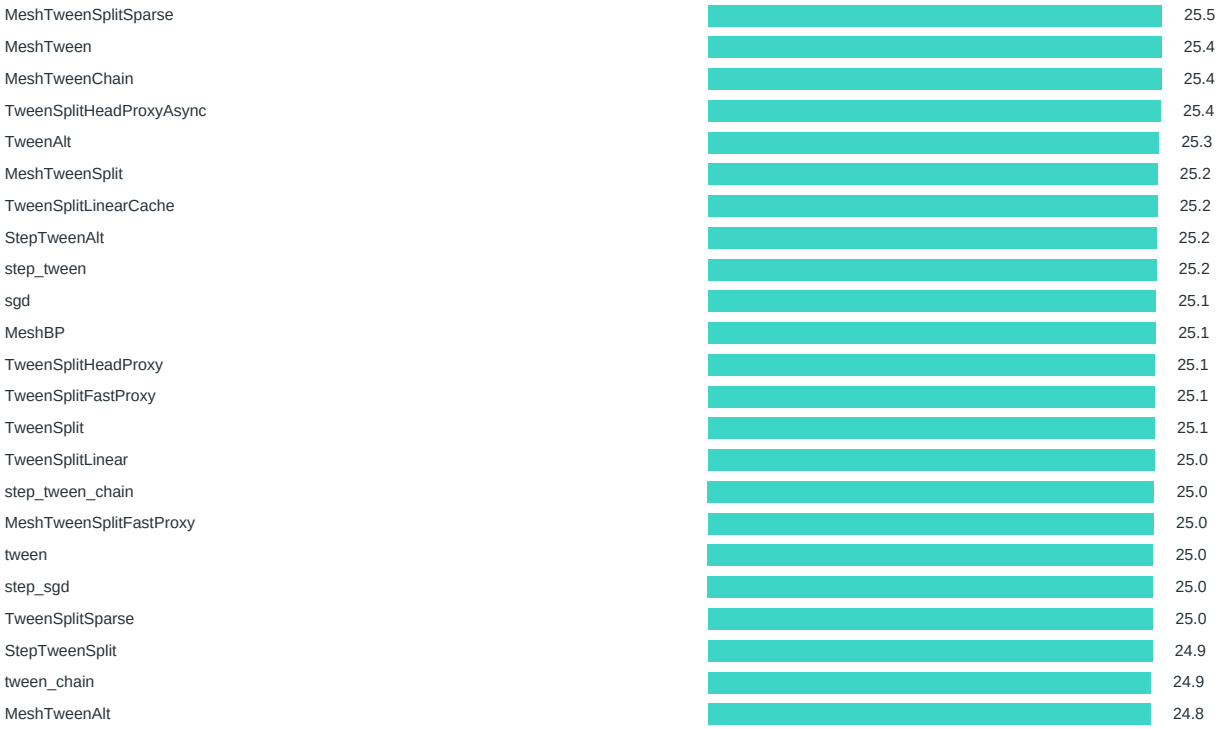
## Top scores - parallel



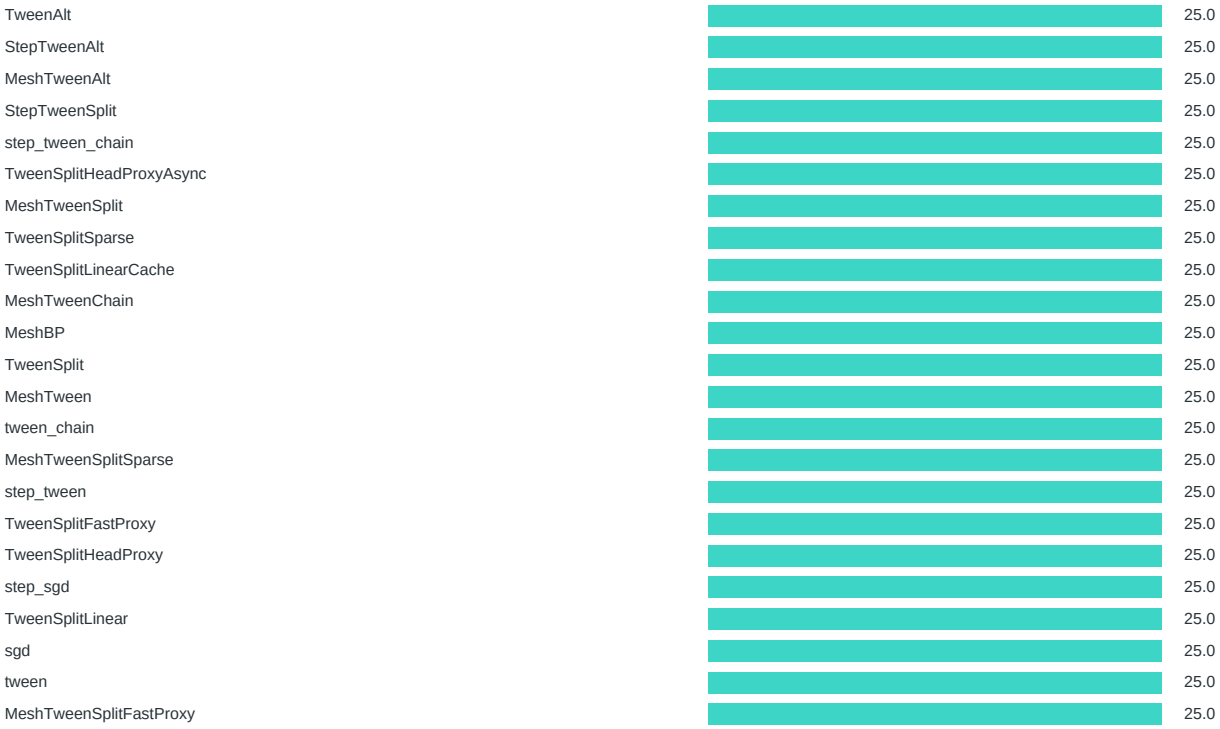

## Mean Score by train mode



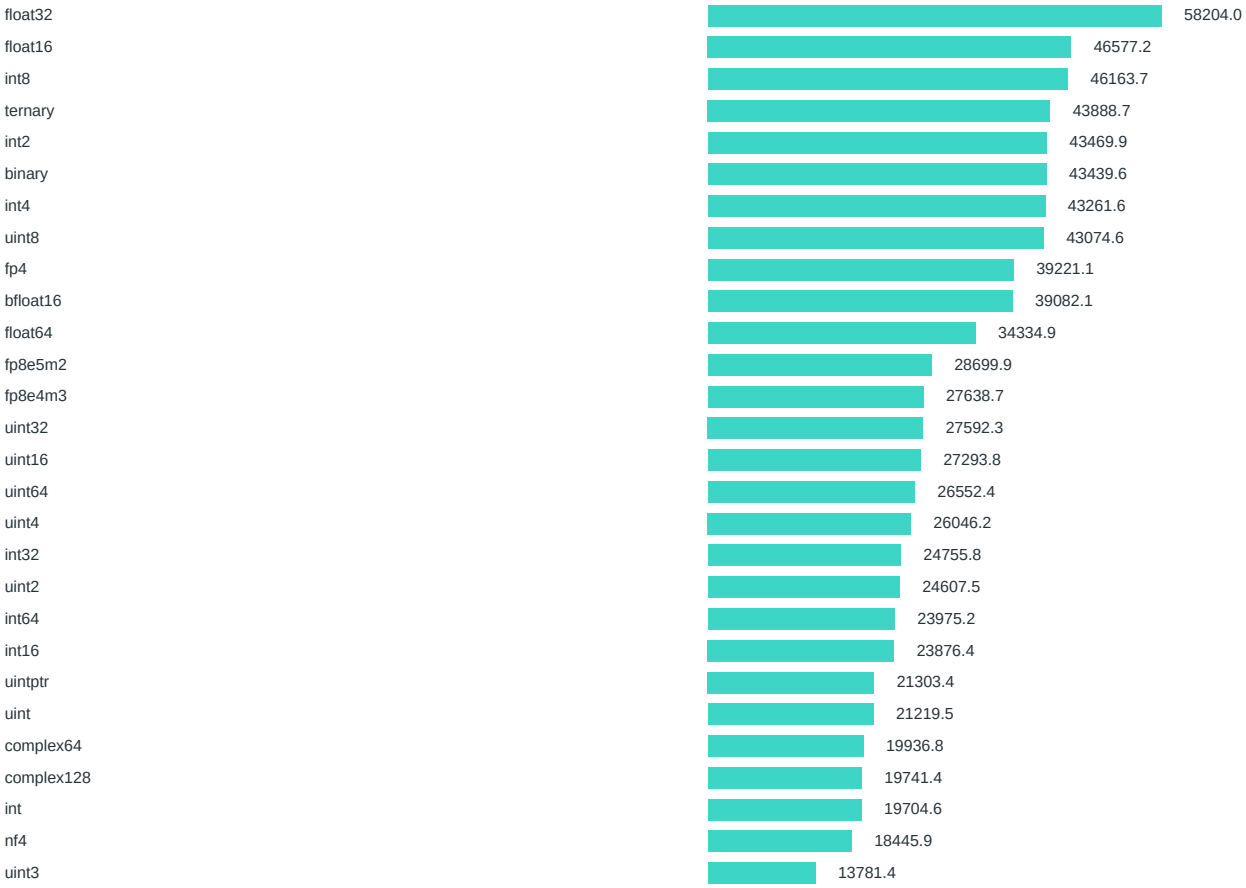

## Mean hard Acc by train mode




## Mean SoftAcc by train mode




## Mean Score by dtype




## Mean hard Acc by dtype




## Mean Score by arch




## Honesty - mean Score, every mode x dtype  (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 38606 | 42046 | 19345 | 19516 | 44949 | 56857 | 33457 | 38913 | 8410 | 27224 | 28098 | 19091 | 23652 | 41680 | 12366 | 24218 |
| MeshTween | 36506 | 40652 | 18483 | 18291 | 43510 | 56010 | 32571 | 36504 | 7903 | 25499 | 27069 | 18189 | 22197 | 39676 | 11882 | 22846 |
| MeshTweenAlt | 30988 | 35789 | 15341 | 15846 | 37598 | 45292 | 27822 | 32931 | 6158 | 22227 | 23604 | 15356 | 19213 | 36026 | 9489 | 20601 |
| MeshTweenChain | 37023 | 41091 | 18585 | 18472 | 43563 | 55884 | 32653 | 36768 | 8073 | 25798 | 27034 | 18686 | 22439 | 41071 | 12021 | 23060 |
| MeshTweenSplit | 43896 | 44564 | 21559 | 20716 | 51057 | 61357 | 34285 | 39543 | 9875 | 28897 | 29407 | 21512 | 24864 | 44850 | 14198 | 24774 |
| MeshTweenSplitFa | 41289 | 46387 | 21177 | 21400 | 49712 | 62418 | 34053 | 42221 | 10537 | 30795 | 27913 | 22073 | 26128 | 44774 | 14638 | 27106 |
| MeshTweenSplitSp | 42106 | 46034 | 20065 | 21208 | 50232 | 60042 | 34944 | 40402 | 10901 | 29773 | 30346 | 20958 | 24736 | 47539 | 14270 | 25320 |
| StepTweenAlt | 30042 | 34469 | 14586 | 14401 | 36487 | 46459 | 26465 | 30562 | 5428 | 21408 | 22306 | 14458 | 17733 | 33456 | 8749 | 18672 |
| StepTweenSplit | 38378 | 41394 | 19045 | 19397 | 46742 | 55071 | 33331 | 38350 | 8503 | 26502 | 28101 | 18850 | 22967 | 43313 | 12902 | 23752 |
| TweenAlt | 32064 | 34944 | 15714 | 15811 | 37182 | 48348 | 28534 | 30695 | 6371 | 22114 | 23306 | 15714 | 19717 | 34447 | 9850 | 20099 |
| TweenSplit | 40897 | 44539 | 21527 | 21556 | 48534 | 58510 | 35845 | 40907 | 10291 | 28893 | 30465 | 21211 | 25252 | 46925 | 14597 | 25467 |
| TweenSplitFastPr | 40588 | 45576 | 21455 | 21497 | 47340 | 59740 | 36198 | 41964 | 10482 | 29233 | 30259 | 20984 | 24759 | 45619 | 14066 | 26375 |
| TweenSplitHeadPr | 40792 | 46068 | 21577 | 21551 | 48553 | 59656 | 35157 | 41247 | 10232 | 28934 | 30568 | 20222 | 25614 | 45636 | 14559 | 26200 |
| TweenSplitHeadPr | 39981 | 45782 | 20490 | 21205 | 50129 | 61995 | 37059 | 41012 | 10180 | 29475 | 30113 | 20640 | 25003 | 45127 | 13893 | 26898 |
| TweenSplitLinear | 38393 | 42816 | 20373 | 20249 | 44473 | 59255 | 35393 | 40453 | 9476 | 27547 | 29701 | 20326 | 24604 | 43270 | 13731 | 25552 |
| TweenSplitLinear | 41148 | 44842 | 20642 | 22089 | 48668 | 60506 | 36124 | 40694 | 10466 | 29464 | 29523 | 21510 | 25263 | 45300 | 14146 | 27008 |
| TweenSplitSparse | 41469 | 45959 | 21138 | 21590 | 49785 | 60879 | 36896 | 40366 | 10565 | 29787 | 31608 | 21171 | 26396 | 46026 | 14880 | 26588 |
| sgd | 45241 | 49712 | 23082 | 22908 | 52620 | 65774 | 39434 | 44863 | 10344 | 32007 | 33712 | 22884 | 27978 | 50606 | 15031 | 29259 |
| step_sgd | 42058 | 47935 | 20973 | 20964 | 49954 | 63659 | 37544 | 43079 | 8756 | 29547 | 31230 | 21010 | 25715 | 47814 | 13412 | 26571 |
| step_tween | 38441 | 42940 | 18101 | 18087 | 46028 | 58119 | 33918 | 38970 | 7500 | 27106 | 28203 | 18520 | 22654 | 42884 | 11495 | 23648 |
| step_tween_chain | 30770 | 39125 | 16482 | 17239 | 39838 | 49797 | 29407 | 33646 | 7033 | 20884 | 22399 | 15863 | 18085 | 36956 | 10078 | 18975 |
| tween | 44017 | 48558 | 22176 | 22530 | 52003 | 66823 | 39340 | 44562 | 10003 | 31331 | 32715 | 22336 | 27330 | 48457 | 14535 | 28402 |
| tween_chain | 44191 | 47889 | 22135 | 22024 | 52321 | 66240 | 39272 | 43433 | 10050 | 31247 | 32418 | 21643 | 26856 | 48354 | 14346 | 27993 |

## Honesty - mean Score, every mode x dtype  (cols 17-32)

## Honesty - mean Score, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 41860 | 9691 | 8504 | 23594 | 46216 | 17827 | 43077 | 20559 | 26819 | 24087 | 13131 | 26764 | 25528 | 10289 | 9080 | 25724 |
| MeshTween | 40239 | 8934 | 8174 | 22778 | 44263 | 16865 | 40749 | 19373 | 25399 | 21978 | 12346 | 25725 | 23328 | 9648 | 8625 | 24520 |
| MeshTweenAlt | 35317 | 6980 | 6292 | 19008 | 39156 | 14741 | 37149 | 16523 | 21816 | 20681 | 10220 | 22055 | 20203 | 7601 | 6977 | 20697 |
| MeshTweenChain | 40110 | 9134 | 8152 | 22482 | 44705 | 17323 | 42285 | 20344 | 26060 | 22825 | 12644 | 25997 | 24356 | 10052 | 8719 | 25445 |
| MeshTweenSplit | 46181 | 11948 | 10044 | 25003 | 47492 | 19799 | 45128 | 22819 | 27125 | 25658 | 15597 | 28976 | 28293 | 12788 | 10719 | 29076 |
| MeshTweenSplitFa | 45236 | 11363 | 10036 | 24805 | 47470 | 19673 | 47104 | 23407 | 27567 | 26514 | 15037 | 27945 | 28092 | 12762 | 10861 | 27858 |
| MeshTweenSplitSp | 46210 | 11616 | 11237 | 25186 | 49608 | 20522 | 44641 | 22210 | 29060 | 25093 | 14823 | 28708 | 26320 | 12301 | 11306 | 27788 |
| StepTweenAlt | 33724 | 6256 | 5791 | 17906 | 37069 | 12688 | 34254 | 15152 | 21005 | 18811 | 9132 | 20764 | 19834 | 6814 | 6036 | 20121 |
| StepTweenSplit | 42979 | 9577 | 8554 | 23000 | 45671 | 17787 | 41854 | 20701 | 26849 | 23806 | 13295 | 26414 | 25120 | 10533 | 9331 | 25858 |
| TweenAlt | 35531 | 7404 | 6282 | 19436 | 39182 | 14621 | 36607 | 16892 | 22157 | 20098 | 10467 | 22037 | 21302 | 7720 | 6764 | 21552 |
| TweenSplit | 46424 | 11553 | 10546 | 25653 | 48699 | 20007 | 46161 | 22819 | 29316 | 25638 | 15459 | 29406 | 27665 | 12250 | 10986 | 27956 |
| TweenSplitFastPr | 45753 | 11103 | 10397 | 25719 | 48198 | 19021 | 45626 | 22400 | 28968 | 25710 | 15295 | 29692 | 27457 | 12121 | 10743 | 27982 |
| TweenSplitHeadPr | 44753 | 11489 | 10245 | 25767 | 48528 | 19723 | 45044 | 22181 | 28077 | 26024 | 14886 | 29479 | 27916 | 12264 | 11035 | 27780 |
| TweenSplitHeadPr | 45918 | 11091 | 10402 | 25468 | 47448 | 19778 | 46900 | 22488 | 29762 | 26271 | 14682 | 29852 | 27559 | 11922 | 10541 | 28560 |
| TweenSplitLinear | 43835 | 10301 | 9412 | 25175 | 45580 | 18928 | 43374 | 20706 | 26334 | 24755 | 13763 | 27192 | 26509 | 11086 | 10002 | 26774 |
| TweenSplitLinear | 45466 | 11151 | 10501 | 24738 | 48100 | 20370 | 46523 | 22886 | 29177 | 26448 | 15371 | 29238 | 26910 | 12425 | 10704 | 27231 |
| TweenSplitSparse | 44874 | 11672 | 10746 | 25109 | 47544 | 20744 | 45410 | 23701 | 29557 | 25772 | 15551 | 29974 | 27293 | 12469 | 11154 | 28409 |
| sgd | 49359 | 11790 | 10693 | 28546 | 52630 | 21198 | 49763 | 24877 | 32585 | 29227 | 16176 | 33001 | 31080 | 12828 | 11409 | 32205 |
| step_sgd | 46937 | 9864 | 8969 | 26083 | 49983 | 19293 | 47502 | 22847 | 29997 | 26798 | 14497 | 30572 | 28404 | 11091 | 9498 | 29219 |
| step_tween | 42680 | 8569 | 7507 | 23177 | 45533 | 16948 | 43705 | 20043 | 27063 | 23882 | 12488 | 26310 | 24972 | 9594 | 8161 | 25767 |
| step_tween_chain | 35092 | 7805 | 6935 | 18106 | 34537 | 15452 | 39394 | 18034 | 21184 | 20490 | 11296 | 21878 | 22202 | 8548 | 7560 | 20508 |
| tween | 48986 | 11089 | 10000 | 27455 | 52247 | 20538 | 49172 | 23823 | 31633 | 27920 | 15502 | 31736 | 29818 | 12156 | 10660 | 30293 |
| tween_chain | 47551 | 11254 | 10053 | 27237 | 51907 | 20409 | 48016 | 23263 | 30248 | 27485 | 15315 | 30909 | 28902 | 12108 | 10663 | 29382 |

## Honesty - mean Score, every mode x dtype  (cols 33-34)

## Honesty - mean Score, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 43110 | 20940 |
| MeshTween | 41964 | 19582 |
| MeshTweenAlt | 36284 | 16734 |
| MeshTweenChain | 40874 | 20193 |
| MeshTweenSplit | 40616 | 22540 |
| MeshTweenSplitFa | 43332 | 23161 |
| MeshTweenSplitSp | 43589 | 21340 |
| StepTweenAlt | 34914 | 15391 |
| StepTweenSplit | 42869 | 20766 |
| TweenAlt | 37134 | 17204 |
| TweenSplit | 45866 | 23028 |
| TweenSplitFastPr | 45762 | 22106 |
| TweenSplitHeadPr | 45578 | 22031 |
| TweenSplitHeadPr | 45031 | 22094 |
| TweenSplitLinear | 44740 | 21410 |
| TweenSplitLinear | 42649 | 23885 |
| TweenSplitSparse | 45100 | 23363 |
| sgd | 49014 | 24535 |
| step_sgd | 47232 | 22708 |
| step_tween | 43365 | 20176 |
| step_tween_chain | 34380 | 19077 |
| tween | 48951 | 24020 |
| tween_chain | 48359 | 23693 |

## Honesty - mean hard Acc, every mode x dtype  (cols 1-16)

## Honesty - mean hard Acc, every mode x dtype  (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 25 | 24 | 26 | 24 | 26 | 25 | 27 | 25 | 25 | 26 | 26 | 27 | 26 | 24 | 22 | 22 |
| MeshTween | 24 | 24 | 27 | 25 | 26 | 21 | 25 | 25 | 26 | 27 | 27 | 24 | 25 | 25 | 28 | 25 |
| MeshTweenAlt | 25 | 24 | 26 | 26 | 25 | 27 | 26 | 25 | 26 | 25 | 25 | 26 | 24 | 27 | 23 | 24 |
| MeshTweenChain | 26 | 27 | 26 | 26 | 24 | 25 | 27 | 25 | 26 | 23 | 25 | 25 | 24 | 26 | 29 | 26 |
| MeshTweenSplit | 25 | 25 | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 26 | 24 | 26 | 24 | 25 | 29 | 24 |
| MeshTweenSplitFa | 26 | 24 | 25 | 24 | 25 | 22 | 25 | 25 | 23 | 23 | 27 | 25 | 25 | 29 | 26 | 27 |
| MeshTweenSplitSp | 28 | 28 | 25 | 26 | 27 | 25 | 25 | 25 | 24 | 24 | 23 | 25 | 25 | 30 | 25 | 27 |
| StepTweenAlt | 25 | 26 | 25 | 25 | 25 | 26 | 26 | 25 | 25 | 26 | 25 | 26 | 25 | 26 | 24 | 24 |
| StepTweenSplit | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 26 | 26 | 25 | 25 | 28 | 24 | 25 |
| TweenAlt | 25 | 25 | 25 | 26 | 26 | 27 | 26 | 25 | 26 | 26 | 27 | 26 | 25 | 27 | 26 | 24 |
| TweenSplit | 23 | 24 | 25 | 26 | 25 | 26 | 25 | 25 | 26 | 27 | 26 | 25 | 24 | 27 | 26 | 26 |
| TweenSplitFastPr | 26 | 25 | 25 | 24 | 25 | 25 | 24 | 25 | 24 | 24 | 25 | 24 | 24 | 26 | 25 | 23 |
| TweenSplitHeadPr | 26 | 25 | 25 | 25 | 24 | 25 | 26 | 25 | 24 | 27 | 28 | 24 | 24 | 26 | 27 | 25 |
| TweenSplitHeadPr | 25 | 27 | 23 | 26 | 27 | 27 | 25 | 25 | 26 | 27 | 26 | 26 | 23 | 26 | 28 | 24 |
| TweenSplitLinear | 24 | 27 | 26 | 25 | 26 | 28 | 26 | 25 | 25 | 22 | 24 | 23 | 26 | 26 | 26 | 26 |
| TweenSplitLinear | 27 | 24 | 26 | 25 | 26 | 23 | 26 | 25 | 28 | 22 | 25 | 23 | 26 | 25 | 26 | 26 |
| TweenSplitSparse | 26 | 28 | 26 | 23 | 25 | 24 | 24 | 25 | 22 | 26 | 26 | 24 | 26 | 23 | 23 | 24 |
| sgd | 26 | 25 | 27 | 24 | 25 | 26 | 26 | 25 | 25 | 24 | 25 | 25 | 26 | 24 | 25 | 25 |
| step_sgd | 26 | 24 | 24 | 24 | 25 | 26 | 24 | 25 | 24 | 25 | 28 | 24 | 27 | 24 | 22 | 27 |
| step_tween | 24 | 26 | 26 | 25 | 23 | 23 | 25 | 25 | 26 | 25 | 25 | 26 | 25 | 24 | 28 | 25 |
| step_tween_chain | 25 | 24 | 25 | 23 | 26 | 27 | 25 | 25 | 25 | 25 | 23 | 23 | 26 | 23 | 26 | 25 |
| tween | 26 | 28 | 26 | 24 | 26 | 26 | 27 | 25 | 26 | 26 | 22 | 25 | 26 | 24 | 26 | 27 |
| tween_chain | 26 | 25 | 25 | 26 | 25 | 26 | 21 | 25 | 25 | 24 | 25 | 24 | 25 | 24 | 23 | 26 |

## Honesty - mean hard Acc, every mode x dtype  (cols 17-32)

## Honesty - mean hard Acc, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 26 | 24 | 26 | 26 | 26 | 26 | 25 | 25 | 26 | 24 | 24 | 26 | 26 | 24 | 25 | 26 |
| MeshTween | 27 | 28 | 27 | 25 | 26 | 27 | 27 | 23 | 25 | 24 | 27 | 26 | 26 | 26 | 25 | 25 |
| MeshTweenAlt | 25 | 24 | 24 | 26 | 25 | 23 | 25 | 25 | 25 | 23 | 24 | 25 | 24 | 25 | 25 | 24 |
| MeshTweenChain | 27 | 28 | 23 | 28 | 23 | 25 | 22 | 25 | 26 | 27 | 25 | 26 | 25 | 25 | 23 | 28 |
| MeshTweenSplit | 25 | 26 | 25 | 26 | 24 | 25 | 26 | 25 | 25 | 25 | 26 | 24 | 25 | 26 | 25 | 24 |
| MeshTweenSplitFa | 24 | 24 | 26 | 24 | 25 | 25 | 24 | 25 | 27 | 26 | 24 | 26 | 26 | 24 | 25 | 24 |
| MeshTweenSplitSp | 25 | 25 | 24 | 25 | 26 | 26 | 26 | 26 | 25 | 23 | 27 | 26 | 25 | 24 | 26 | 23 |
| StepTweenAlt | 26 | 25 | 25 | 26 | 25 | 25 | 24 | 24 | 24 | 25 | 27 | 24 | 26 | 25 | 25 | 25 |
| StepTweenSplit | 24 | 23 | 26 | 26 | 24 | 24 | 25 | 25 | 24 | 24 | 24 | 25 | 26 | 24 | 25 | 25 |
| TweenAlt | 25 | 24 | 25 | 26 | 25 | 24 | 25 | 25 | 24 | 27 | 24 | 25 | 26 | 26 | 24 | 24 |
| TweenSplit | 25 | 24 | 24 | 26 | 25 | 27 | 24 | 26 | 24 | 26 | 24 | 25 | 25 | 26 | 25 | 24 |
| TweenSplitFastPr | 24 | 26 | 26 | 25 | 24 | 27 | 27 | 25 | 24 | 24 | 26 | 25 | 25 | 25 | 26 | 26 |
| TweenSplitHeadPr | 27 | 26 | 25 | 24 | 23 | 23 | 26 | 24 | 25 | 25 | 26 | 25 | 23 | 27 | 24 | 25 |
| TweenSplitHeadPr | 24 | 28 | 27 | 26 | 23 | 25 | 25 | 26 | 25 | 26 | 26 | 24 | 25 | 24 | 24 | 25 |
| TweenSplitLinear | 26 | 26 | 25 | 24 | 26 | 25 | 24 | 24 | 26 | 26 | 24 | 24 | 25 | 24 | 24 | 23 |
| TweenSplitLinear | 28 | 27 | 23 | 28 | 23 | 24 | 25 | 26 | 23 | 27 | 26 | 26 | 24 | 25 | 25 | 25 |
| TweenSplitSparse | 23 | 26 | 26 | 26 | 26 | 24 | 25 | 24 | 25 | 25 | 25 | 26 | 27 | 25 | 27 | 24 |
| sgd | 27 | 23 | 25 | 25 | 25 | 23 | 25 | 27 | 23 | 26 | 25 | 23 | 26 | 23 | 28 | 27 |
| step_sgd | 26 | 26 | 26 | 25 | 24 | 24 | 24 | 26 | 22 | 26 | 27 | 23 | 25 | 25 | 24 | 26 |
| step_tween | 26 | 25 | 25 | 26 | 25 | 22 | 28 | 24 | 27 | 25 | 23 | 27 | 26 | 24 | 26 | 23 |
| step_tween_chain | 26 | 24 | 26 | 24 | 25 | 25 | 25 | 23 | 25 | 25 | 24 | 25 | 26 | 26 | 27 | 26 |
| tween | 23 | 25 | 26 | 22 | 25 | 25 | 23 | 25 | 23 | 26 | 27 | 23 | 24 | 25 | 24 | 24 |
| tween_chain | 22 | 27 | 23 | 25 | 24 | 24 | 24 | 26 | 25 | 24 | 25 | 26 | 25 | 26 | 26 | 26 |

## Honesty - mean hard Acc, every mode x dtype  (cols 33-34)

## Honesty - mean hard Acc, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 27 | 25 |
| MeshTween | 25 | 24 |
| MeshTweenAlt | 25 | 24 |
| MeshTweenChain | 25 | 24 |
| MeshTweenSplit | 25 | 24 |
| MeshTweenSplitFa | 25 | 25 |
| MeshTweenSplitSp | 26 | 27 |
| StepTweenAlt | 25 | 25 |
| StepTweenSplit | 24 | 25 |
| TweenAlt | 24 | 24 |
| TweenSplit | 24 | 25 |
| TweenSplitFastPr | 25 | 26 |
| TweenSplitHeadPr | 23 | 26 |
| TweenSplitHeadPr | 24 | 26 |
| TweenSplitLinear | 25 | 24 |
| TweenSplitLinear | 24 | 27 |
| TweenSplitSparse | 24 | 27 |
| sgd | 25 | 26 |
| step_sgd | 23 | 27 |
| step_tween | 28 | 24 |
| step_tween_chain | 29 | 25 |
| tween | 24 | 26 |
| tween_chain | 26 | 25 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 1-16)

## Honesty - mean SoftAcc, every mode x dtype  (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenChain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitFastPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitSparse | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 17-32)

## Honesty - mean SoftAcc, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenChain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitFastPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitSparse | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 33-34)

## Honesty - mean SoftAcc, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 25 | 25 |
| MeshTween | 25 | 25 |
| MeshTweenAlt | 25 | 25 |
| MeshTweenChain | 25 | 25 |
| MeshTweenSplit | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 |
| StepTweenAlt | 25 | 25 |
| StepTweenSplit | 25 | 25 |
| TweenAlt | 25 | 25 |
| TweenSplit | 25 | 25 |
| TweenSplitFastPr | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 |
| TweenSplitLinear | 25 | 25 |
| TweenSplitLinear | 25 | 25 |
| TweenSplitSparse | 25 | 25 |
| sgd | 25 | 25 |
| step_sgd | 25 | 25 |
| step_tween | 25 | 25 |
| step_tween_chain | 25 | 25 |
| tween | 25 | 25 |
| tween_chain | 25 | 25 |

## Mean Score, every mode x arch

## Mean Score, every mode x arch

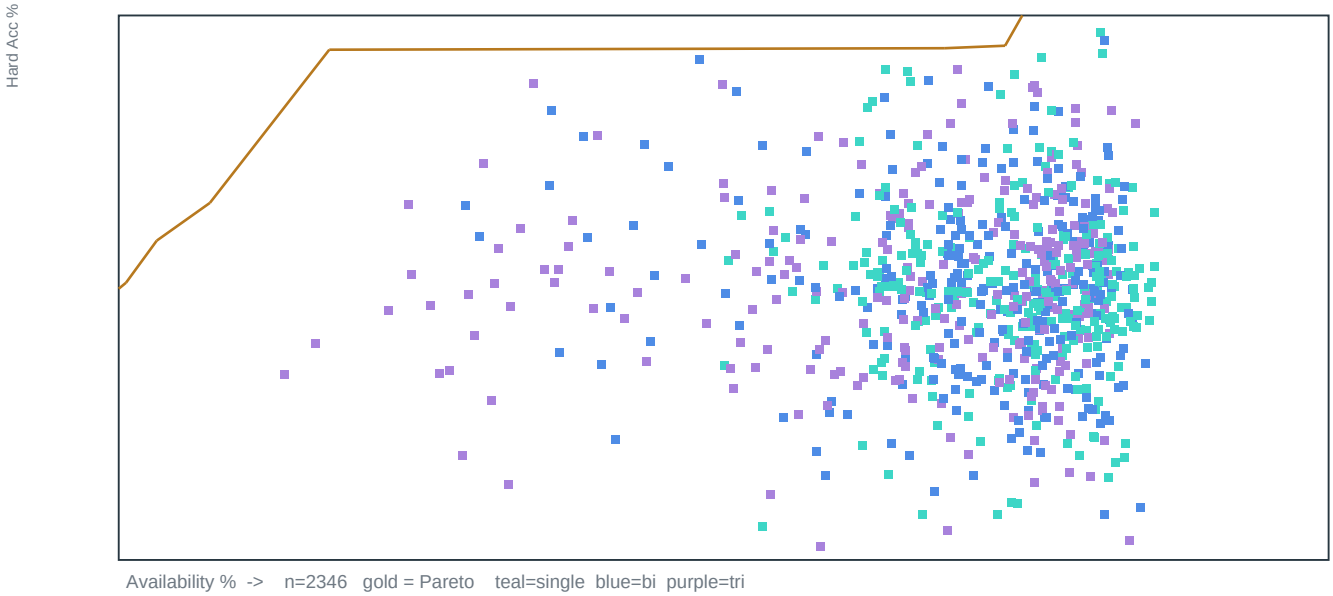
| | bicamera | singlex1 | tricamer |
|---|---|---|---|
| MeshBP | 21032 | 42029 | 17695 |
| MeshTween | 19908 | 40042 | 17016 |
| MeshTweenAlt | 16354 | 35288 | 14774 |
| MeshTweenChain | 20454 | 40179 | 17361 |
| MeshTweenSplit | 23347 | 43386 | 20193 |
| MeshTweenSplitFa | 23854 | 43885 | 20041 |
| MeshTweenSplitSp | 23511 | 44073 | 19808 |
| StepTweenAlt | 15840 | 33909 | 13017 |
| StepTweenSplit | 21136 | 41351 | 17945 |
| TweenAlt | 17162 | 35209 | 14450 |
| TweenSplit | 23615 | 43689 | 20477 |
| TweenSplitFastPr | 22903 | 43870 | 20596 |
| TweenSplitHeadPr | 23523 | 43447 | 20327 |
| TweenSplitHeadPr | 23358 | 43695 | 20719 |
| TweenSplitLinear | 21814 | 42678 | 18934 |
| TweenSplitLinear | 23635 | 43360 | 20461 |
| TweenSplitSparse | 23861 | 43666 | 21021 |
| sgd | 25129 | 49263 | 21464 |
| step_sgd | 23233 | 46698 | 19338 |
| step_tween | 20308 | 43447 | 16234 |
| step_tween_chain | 18239 | 39234 | 10384 |
| tween | 24539 | 48324 | 20765 |
| tween_chain | 23844 | 48285 | 20269 |

## Mean hard Acc, every mode x arch

## Mean hard Acc, every mode x arch

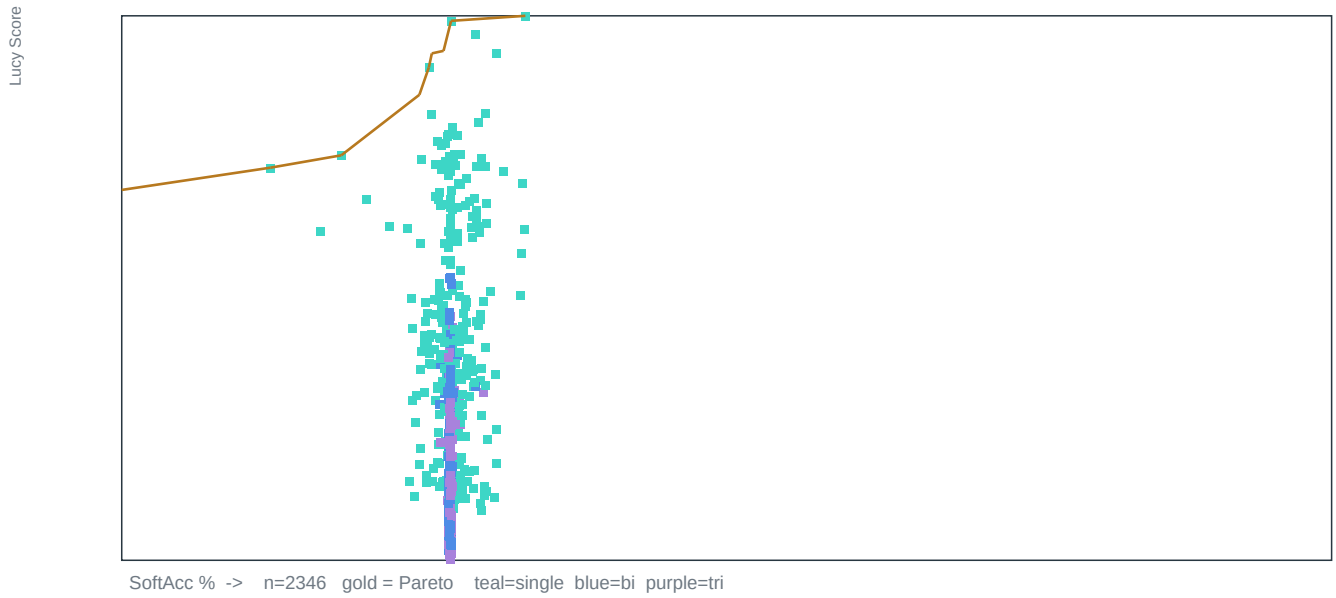
| | bicamera | singlex1 | tricamer |
|---|---|---|---|
| MeshBP | 25 | 25 | 25 |
| MeshTween | 26 | 26 | 25 |
| MeshTweenAlt | 25 | 25 | 25 |
| MeshTweenChain | 25 | 25 | 26 |
| MeshTweenSplit | 25 | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 | 26 |
| StepTweenAlt | 25 | 25 | 26 |
| StepTweenSplit | 25 | 25 | 25 |
| TweenAlt | 25 | 25 | 25 |
| TweenSplit | 25 | 25 | 25 |
| TweenSplitFastPr | 25 | 25 | 25 |
| TweenSplitHeadPr | 26 | 25 | 25 |
| TweenSplitHeadPr | 26 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 26 |
| TweenSplitSparse | 25 | 25 | 26 |
| sgd | 25 | 25 | 26 |
| step_sgd | 25 | 24 | 26 |
| step_tween | 26 | 25 | 24 |
| step_tween_chain | 25 | 25 | 25 |
| tween | 25 | 24 | 26 |
| tween_chain | 25 | 25 | 25 |

## Avail vs hard Acc (headline scatter)

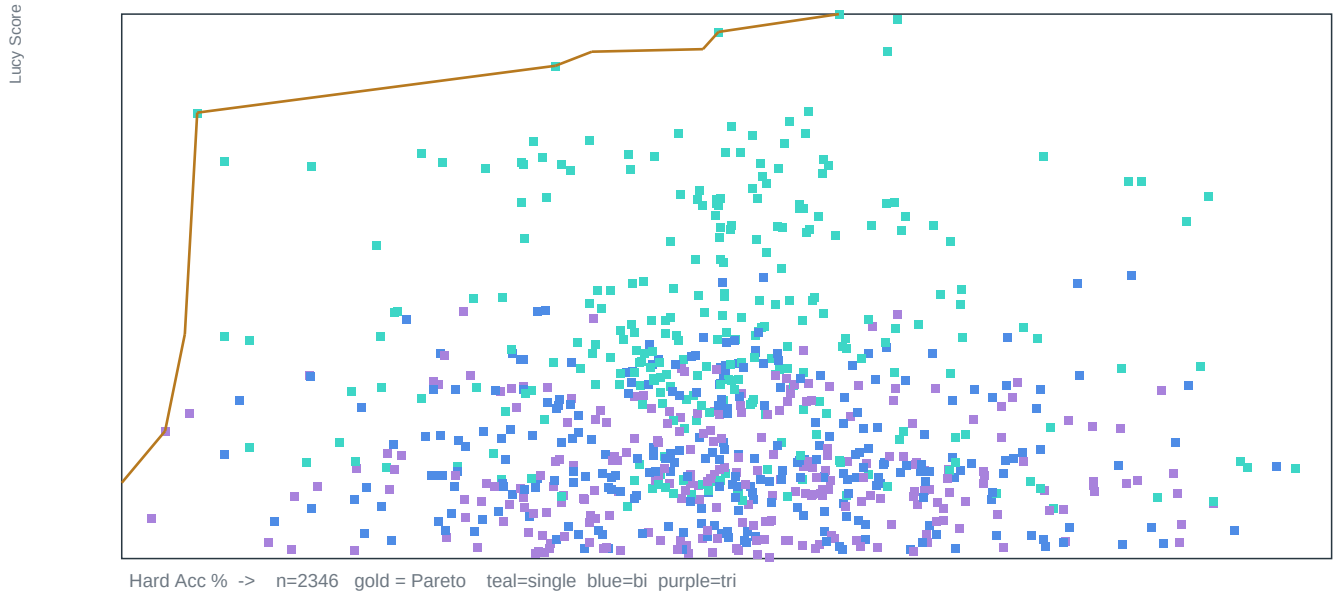



## Pareto - SoftAcc vs Score

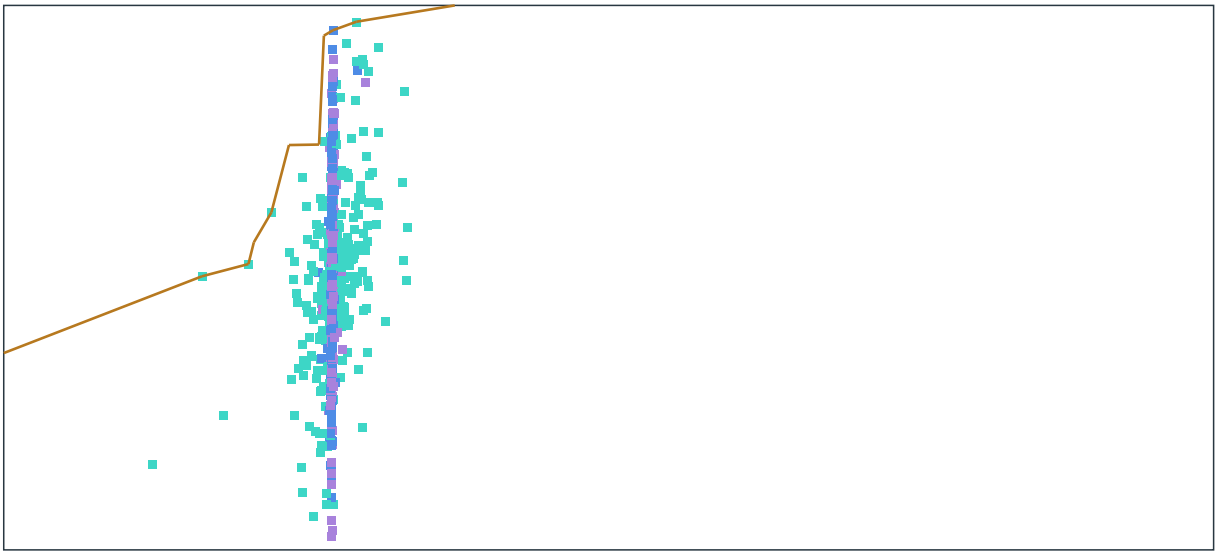
## Pareto - SoftAcc vs Score




## Pareto - hard Acc vs Score

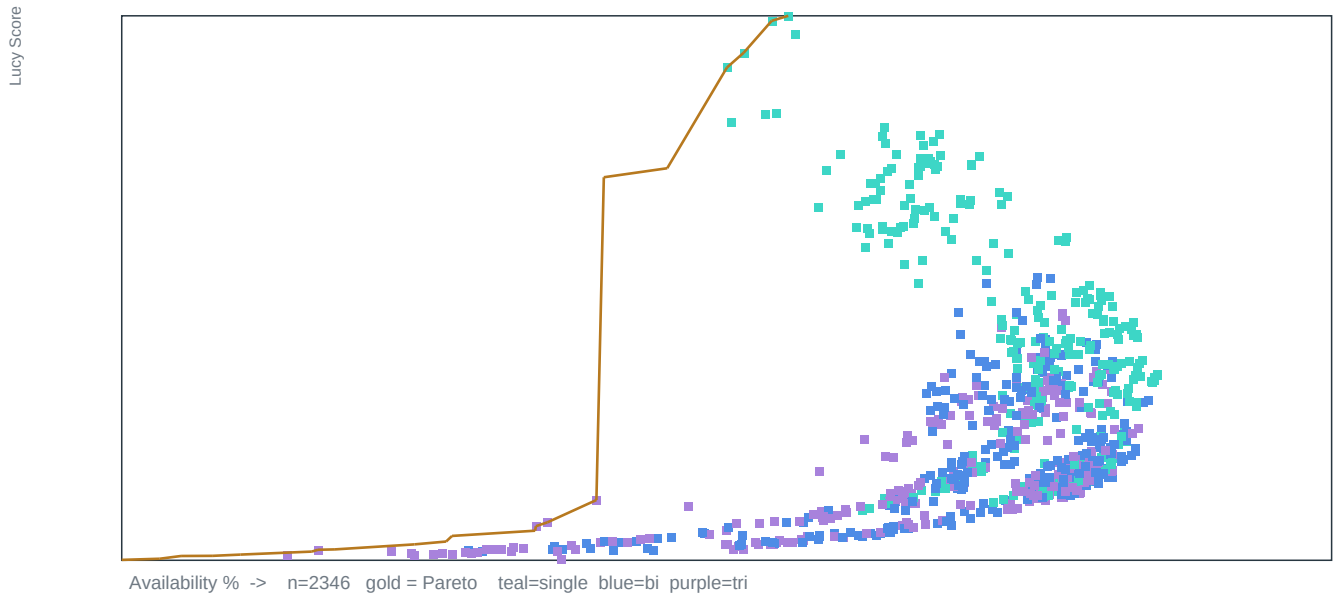



## SoftAcc vs hard Acc




SoftAcc %  ->  n=2346  gold = Pareto  teal=single  blue=bi  purple=tri
Hard Acc %

## Avail vs Score (duty clock)




## Lucy Pareto (LPD) - goldilocks

Q = geomean of Score/Soft/Acc/Thru vs the Lucy Score champion. LPD = 0 if Q<70%, else Q x shrink vs champ RAM (capped 32x). Gold = Q>=80% and RAM<=20% of champ. MSpeed = Thru vs the board's fastest (0 if Q<70%). MAvail = Availability vs the board's best duty cycle (0 if Q<70%). Mix = geomean(Q, MSpeed, MAvail). Raw Score/MiB is the binary trap.
Quality champ float32|none|tween_chain|single|simd Score 100450.9 Soft 25 Acc 26 Thru 980996 RAM 0.9 KiB
Board fastest float32|none|tween_chain|single|simd Thru 980996 Best availability
complex64|none|TweenSplitSparse|tricameral|simd 47.5%

## Gold - Q >= 80% of champ, RAM <= 20%

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| gold | binary\|none\|tween\|single\|simd | 86 | 3 | 32.0 | 27.37 | 25 | 29 | 74925.3 | 0.0 |
| gold | binary\|none\|TweenSplitHeadProxy\|single\|simd | 82 | 3 | 32.0 | 26.40 | 25 | 26 | 70731.9 | 0.0 |
| gold | binary\|none\|tween_chain\|single\|simd | 82 | 3 | 32.0 | 26.19 | 25 | 23 | 73595.3 | 0.0 |
| gold | binary\|none\|MeshTweenSplitSparse\|single\|simd | 82 | 3 | 32.0 | 26.09 | 25 | 32 | 69098.6 | 0.0 |
| gold | binary\|none\|TweenSplitSparse\|single\|simd | 81 | 3 | 32.0 | 26.07 | 25 | 28 | 68974.8 | 0.0 |
| gold | binary\|none\|sgd\|single\|simd | 81 | 3 | 32.0 | 26.01 | 25 | 21 | 75456.1 | 0.0 |
| gold | binary\|none\|step_tween\|single\|simd | 81 | 3 | 32.0 | 25.83 | 25 | 25 | 67529.5 | 0.0 |
| gold | binary\|none\|TweenSplitHeadProxyAsync\|single\|simd | 80 | 3 | 32.0 | 25.74 | 25 | 27 | 66929.1 | 0.0 |
| gold | int2\|none\|sgd\|single\|simd | 86 | 6 | 16.0 | 13.81 | 25 | 26 | 77352.3 | 0.1 |
| gold | ternary\|none\|tween_chain\|single\|simd | 85 | 6 | 16.0 | 13.53 | 25 | 26 | 73355.6 | 0.1 |
| gold | int2\|none\|tween\|single\|simd | 84 | 6 | 16.0 | 13.39 | 25 | 26 | 71968.7 | 0.1 |
| gold | ternary\|none\|sgd\|single\|simd | 84 | 6 | 16.0 | 13.38 | 25 | 24 | 74950.5 | 0.1 |
| gold | ternary\|none\|step_tween\|single\|simd | 83 | 6 | 16.0 | 13.32 | 25 | 30 | 70499.6 | 0.1 |
| gold | int2\|none\|MeshTweenSplitSparse\|single\|simd | 83 | 6 | 16.0 | 13.22 | 25 | 32 | 70814.0 | 0.1 |
| gold | ternary\|none\|tween\|single\|simd | 82 | 6 | 16.0 | 13.18 | 25 | 23 | 74760.7 | 0.1 |
| gold | int2\|none\|step_sgd\|single\|simd | 82 | 6 | 16.0 | 13.17 | 25 | 24 | 72600.6 | 0.1 |

## Near-gold - Q >= 70%, RAM <= 50%

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| near | binary\|none\|MeshBP\|single\|simd | 80 | 3 | 32.0 | 25.55 | 25 | 26 | 65758.5 | 0.0 |
| near | binary\|none\|MeshTweenSplit\|single\|simd | 79 | 3 | 32.0 | 25.33 | 25 | 26 | 65697.3 | 0.0 |
| near | binary\|none\|MeshTweenSplitFastProxy\|single\|simd | 79 | 3 | 32.0 | 25.31 | 25 | 23 | 69250.9 | 0.0 |
| near | binary\|none\|step_sgd\|single\|simd | 79 | 3 | 32.0 | 25.30 | 25 | 20 | 73242.4 | 0.0 |
| near | binary\|none\|TweenSplitLinear\|single\|simd | 79 | 3 | 32.0 | 25.18 | 25 | 26 | 64120.8 | 0.0 |
| near | binary\|none\|TweenSplitLinearCache\|single\|simd | 77 | 3 | 32.0 | 24.77 | 25 | 24 | 65408.1 | 0.0 |

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| near | binary\|none\|TweenSplitFastProxy\|single\|simd | 77 | 3 | 32.0 | 24.70 | 25 | 22 | 67380.6 | 0.0 |
| near | binary\|none\|step_tween_chain\|single\|simd | 77 | 3 | 32.0 | 24.68 | 25 | 25 | 62314.3 | 0.0 |
| near | binary\|none\|StepTweenSplit\|single\|simd | 77 | 3 | 32.0 | 24.67 | 25 | 25 | 62345.2 | 0.0 |
| near | binary\|none\|MeshTween\|single\|simd | 77 | 3 | 32.0 | 24.62 | 25 | 25 | 61945.9 | 0.0 |
| near | binary\|none\|TweenSplit\|single\|simd | 77 | 3 | 32.0 | 24.51 | 25 | 22 | 67214.5 | 0.0 |
| near | binary\|none\|StepTweenAlt\|single\|simd | 75 | 3 | 32.0 | 23.89 | 25 | 26 | 55462.9 | 0.0 |

## LPD rank (Q x shrink; 0 if Q < 70%)

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| gold | binary\|none\|tween\|single\|simd | 86 | 3 | 32.0 | 27.37 | 25 | 29 | 74925.3 | 0.0 |
| gold | binary\|none\|TweenSplitHeadProxy\|single\|simd | 82 | 3 | 32.0 | 26.40 | 25 | 26 | 70731.9 | 0.0 |
| gold | binary\|none\|tween_chain\|single\|simd | 82 | 3 | 32.0 | 26.19 | 25 | 23 | 73595.3 | 0.0 |
| gold | binary\|none\|MeshTweenSplitSparse\|single\|simd | 82 | 3 | 32.0 | 26.09 | 25 | 32 | 69098.6 | 0.0 |
| gold | binary\|none\|TweenSplitSparse\|single\|simd | 81 | 3 | 32.0 | 26.07 | 25 | 28 | 68974.8 | 0.0 |
| gold | binary\|none\|sgd\|single\|simd | 81 | 3 | 32.0 | 26.01 | 25 | 21 | 75456.1 | 0.0 |
| gold | binary\|none\|step_tween\|single\|simd | 81 | 3 | 32.0 | 25.83 | 25 | 25 | 67529.5 | 0.0 |
| gold | binary\|none\|TweenSplitHeadProxyAsync\|single\|simd | 80 | 3 | 32.0 | 25.74 | 25 | 27 | 66929.1 | 0.0 |
| near | binary\|none\|MeshBP\|single\|simd | 80 | 3 | 32.0 | 25.55 | 25 | 26 | 65758.5 | 0.0 |
| near | binary\|none\|MeshTweenSplit\|single\|simd | 79 | 3 | 32.0 | 25.33 | 25 | 26 | 65697.3 | 0.0 |
| near | binary\|none\|MeshTweenSplitFastProxy\|single\|simd | 79 | 3 | 32.0 | 25.31 | 25 | 23 | 69250.9 | 0.0 |
| near | binary\|none\|step_sgd\|single\|simd | 79 | 3 | 32.0 | 25.30 | 25 | 20 | 73242.4 | 0.0 |
| near | binary\|none\|TweenSplitLinear\|single\|simd | 79 | 3 | 32.0 | 25.18 | 25 | 26 | 64120.8 | 0.0 |
| near | binary\|none\|TweenSplitLinearCache\|single\|simd | 77 | 3 | 32.0 | 24.77 | 25 | 24 | 65408.1 | 0.0 |
| near | binary\|none\|TweenSplitFastProxy\|single\|simd | 77 | 3 | 32.0 | 24.70 | 25 | 22 | 67380.6 | 0.0 |
| near | binary\|none\|step_tween_chain\|single\|simd | 77 | 3 | 32.0 | 24.68 | 25 | 25 | 62314.3 | 0.0 |
| near | binary\|none\|StepTweenSplit\|single\|simd | 77 | 3 | 32.0 | 24.67 | 25 | 25 | 62345.2 | 0.0 |
| near | binary\|none\|MeshTween\|single\|simd | 77 | 3 | 32.0 | 24.62 | 25 | 25 | 61945.9 | 0.0 |
| near | binary\|none\|TweenSplit\|single\|simd | 77 | 3 | 32.0 | 24.51 | 25 | 22 | 67214.5 | 0.0 |
| near | binary\|none\|StepTweenAlt\|single\|simd | 75 | 3 | 32.0 | 23.89 | 25 | 26 | 55462.9 | 0.0 |

## Mobile speed - Thru vs board fastest (Q >= 70%)

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| keep | float32\|none\|tween_chain\|single\|simd | 100 | 100 | 86 | 95 | 1.00 | 980996 | 40.9 |
| keep | float32\|none\|tween\|single\|simd | 100 | 100 | 86 | 95 | 1.00 | 977439 | 40.7 |
| keep | float32\|none\|sgd\|single\|simd | 97 | 97 | 86 | 93 | 0.97 | 948258 | 41.0 |
| keep | float32\|none\|step_sgd\|single\|simd | 97 | 95 | 85 | 92 | 0.97 | 928960 | 40.4 |
| keep | float32\|none\|step_tween\|single\|simd | 92 | 93 | 85 | 90 | 0.92 | 907576 | 40.2 |
| keep | float32\|none\|MeshTweenSplit\|single\|simd | 95 | 92 | 88 | 92 | 0.95 | 903021 | 41.7 |
| keep | float32\|none\|MeshTweenSplitFastProxy\|single\|simd | 93 | 92 | 87 | 91 | 0.93 | 902987 | 41.5 |
| keep | float32\|none\|TweenSplitFastProxy\|single\|simd | 94 | 88 | 87 | 89 | 0.94 | 859954 | 41.3 |
| keep | float32\|none\|TweenSplitLinear\|single\|simd | 91 | 86 | 86 | 88 | 0.91 | 845961 | 40.8 |
| keep | float32\|none\|TweenSplitHeadProxyAsync\|single\|simd | 93 | 86 | 87 | 89 | 0.93 | 844257 | 41.4 |

## Mobile availability - duty cycle vs board best (Q >= 70%)

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| - | float64\|none\|TweenSplitSparse\|single\|simd | 70 | 49 | 95 | 69 | 0.35 | 480619 | 45.3 |
| - | float64\|none\|TweenSplitFastProxy\|single\|simd | 72 | 50 | 95 | 70 | 0.36 | 486479 | 45.0 |
| - | float64\|none\|TweenSplitHeadProxyAsync\|single\|simd | 72 | 50 | 95 | 70 | 0.36 | 488994 | 44.9 |
| near | bfloat16\|none\|TweenSplitSparse\|single\|simd | 75 | 56 | 94 | 73 | 1.51 | 549701 | 44.6 |
| near | bfloat16\|none\|MeshTweenSplitSparse\|single\|simd | 77 | 60 | 94 | 76 | 1.55 | 589992 | 44.6 |
| - | float64\|none\|TweenSplitLinear\|single\|simd | 72 | 50 | 94 | 70 | 0.36 | 493864 | 44.6 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| near | fp4\|none\|TweenSplitSparse\|single\|simd | 74 | 54 | 94 | 72 | 5.93 | 533067 | 44.5 |
| near | bfloat16\|none\|MeshTweenSplit\|single\|simd | 78 | 61 | 93 | 77 | 1.56 | 602994 | 44.4 |
| near | bfloat16\|none\|TweenSplitHeadProxy\|single\|simd | 76 | 56 | 93 | 74 | 1.53 | 549294 | 44.4 |
| near | bfloat16\|none\|TweenSplitFastProxy\|single\|simd | 76 | 57 | 93 | 74 | 1.52 | 555137 | 44.3 |

## Mix - geomean of Q, MSpeed, MAvail

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| keep | float32\|none\|tween_chain\|single\|simd | 100 | 100 | 86 | 95 | 1.00 | 980996 | 40.9 |
| keep | float32\|none\|tween\|single\|simd | 100 | 100 | 86 | 95 | 1.00 | 977439 | 40.7 |
| keep | float32\|none\|sgd\|single\|simd | 97 | 97 | 86 | 93 | 0.97 | 948258 | 41.0 |
| keep | float32\|none\|step_sgd\|single\|simd | 97 | 95 | 85 | 92 | 0.97 | 928960 | 40.4 |
| keep | float32\|none\|MeshTweenSplit\|single\|simd | 95 | 92 | 88 | 92 | 0.95 | 903021 | 41.7 |
| keep | float32\|none\|MeshTweenSplitFastProxy\|single\|simd | 93 | 92 | 87 | 91 | 0.93 | 902987 | 41.5 |
| keep | float32\|none\|step_tween\|single\|simd | 92 | 93 | 85 | 90 | 0.92 | 907576 | 40.2 |
| keep | float32\|none\|TweenSplitFastProxy\|single\|simd | 94 | 88 | 87 | 89 | 0.94 | 859954 | 41.3 |
| keep | float32\|none\|TweenSplitHeadProxyAsync\|single\|simd | 93 | 86 | 87 | 89 | 0.93 | 844257 | 41.4 |
| keep | float32\|none\|TweenSplitSparse\|single\|simd | 92 | 86 | 88 | 89 | 0.92 | 842702 | 41.9 |

## Trap - tiny RAM, Q < 70% (why Score/MiB lies)

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| trap | binary\|none\|sgd\|bicameral\|simd | 62 | 6 | 17.2 | 0.00 | 25 | 27 | 39698.1 | 0.1 |
| trap | binary\|none\|step_sgd\|bicameral\|simd | 60 | 6 | 17.2 | 0.00 | 25 | 25 | 37988.8 | 0.1 |
| trap | binary\|none\|tween\|bicameral\|simd | 59 | 6 | 17.2 | 0.00 | 25 | 24 | 37748.9 | 0.1 |
| trap | binary\|none\|tween_chain\|bicameral\|simd | 60 | 6 | 17.2 | 0.00 | 25 | 27 | 37588.3 | 0.1 |
| trap | binary\|none\|step_tween\|bicameral\|simd | 58 | 6 | 17.2 | 0.00 | 25 | 31 | 34035.5 | 0.1 |
| trap | binary\|none\|step_tween_chain\|bicameral\|simd | 53 | 6 | 17.2 | 0.00 | 25 | 23 | 30947.4 | 0.1 |
| trap | binary\|none\|MeshBP\|bicameral\|simd | 54 | 6 | 17.2 | 0.00 | 25 | 22 | 33014.2 | 0.1 |
| trap | binary\|none\|MeshTween\|bicameral\|simd | 55 | 6 | 17.2 | 0.00 | 25 | 25 | 32128.3 | 0.1 |
| trap | binary\|none\|MeshTweenChain\|bicameral\|simd | 56 | 6 | 17.2 | 0.00 | 25 | 30 | 32259.8 | 0.1 |
| trap | binary\|none\|TweenSplit\|bicameral\|simd | 57 | 6 | 17.2 | 0.00 | 25 | 24 | 36026.9 | 0.1 |

## LPD - Q% vs RAM KiB (gold = high Q, low RAM)

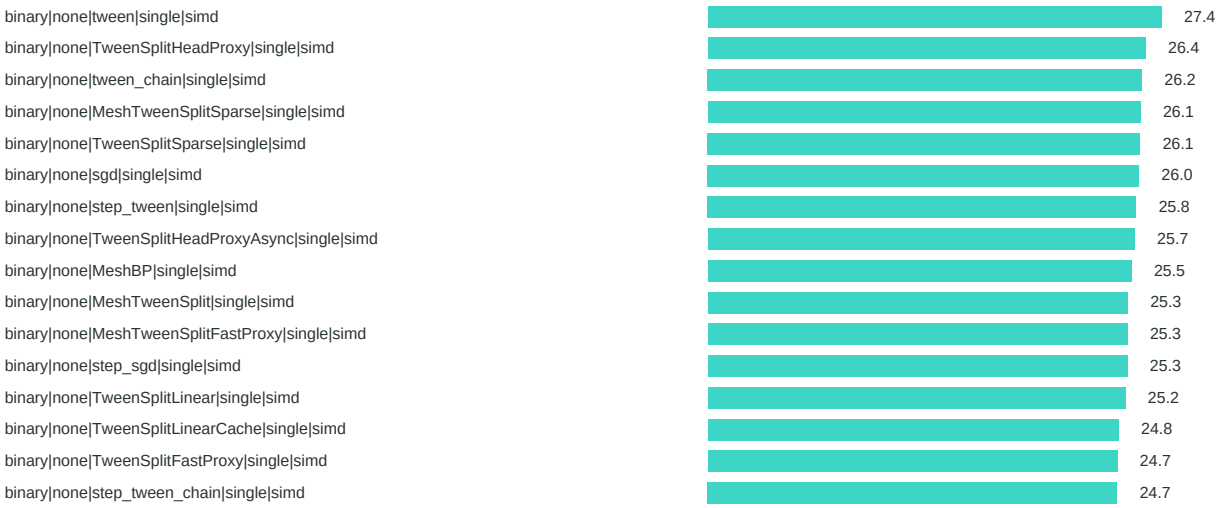



## LPD - Q% vs shrink vs champ (gold = upper right)

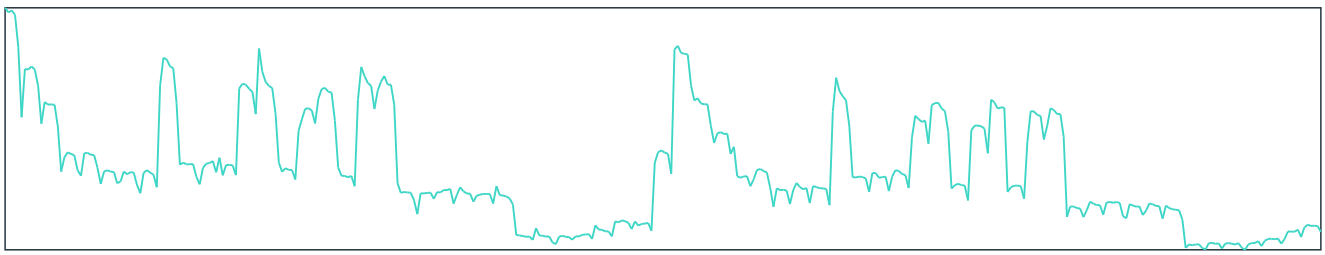
## LPD - Q% vs shrink vs champ (gold = upper right)




## Top LPD

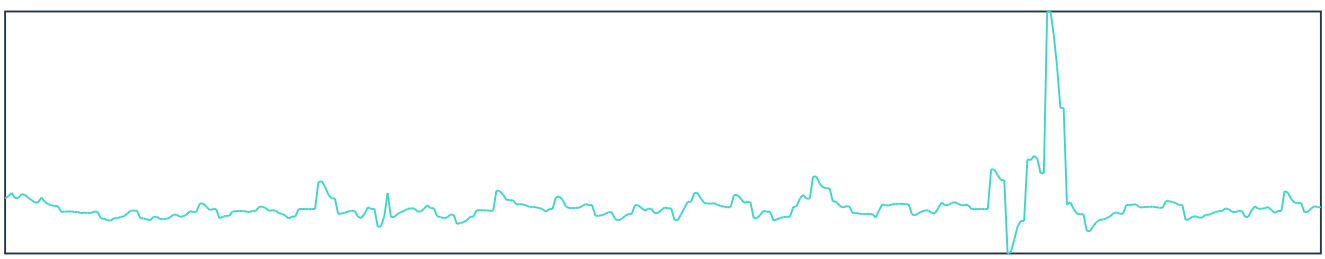



## Pulse Score - parallel



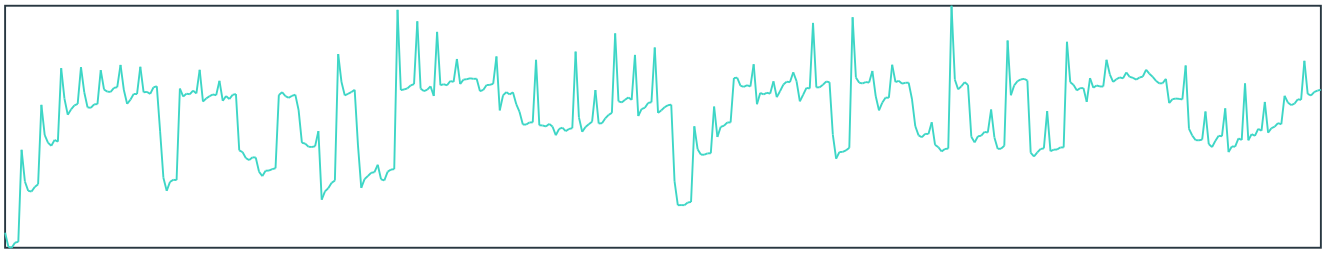
n=400 min=6877.62 max=58638.22

## Pulse SoftAcc - parallel



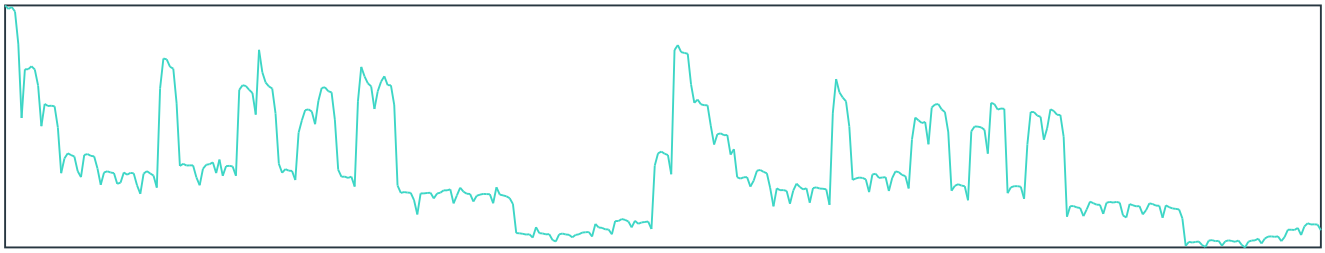
n=400 min=25.00 max=25.00

## Pulse Availability - parallel



n=400 min=45.24 max=48.29

## Pulse Throughput - parallel



n=400 min=58145.10 max=516293.77

## Queue by train mode (this epoch)

| Mode | Done | Run | Left | Total |
|---|---|---|---|---|
| sgd | 102 | 0 | 0 | 102 |
| step_sgd | 102 | 0 | 0 | 102 |
| tween | 102 | 0 | 0 | 102 |
| tween_chain | 102 | 0 | 0 | 102 |
| step_tween | 102 | 0 | 0 | 102 |
| step_tween_chain | 102 | 0 | 0 | 102 |
| MeshBP | 102 | 0 | 0 | 102 |
| MeshTween | 102 | 0 | 0 | 102 |
| MeshTweenChain | 102 | 0 | 0 | 102 |
| TweenSplit | 102 | 0 | 0 | 102 |
| StepTweenSplit | 102 | 0 | 0 | 102 |
| TweenAlt | 102 | 0 | 0 | 102 |
| StepTweenAlt | 102 | 0 | 0 | 102 |
| TweenSplitHeadProxy | 102 | 0 | 0 | 102 |
| TweenSplitLinear | 102 | 0 | 0 | 102 |
| TweenSplitFastProxy | 102 | 0 | 0 | 102 |
| TweenSplitLinearCache | 102 | 0 | 0 | 102 |
| TweenSplitHeadProxyAsync | 102 | 0 | 0 | 102 |
| TweenSplitSparse | 102 | 0 | 0 | 102 |
| MeshTweenSplit | 102 | 0 | 0 | 102 |
| MeshTweenAlt | 102 | 0 | 0 | 102 |
| MeshTweenSplitFastProxy | 102 | 0 | 0 | 102 |
| MeshTweenSplitSparse | 102 | 0 | 0 | 102 |

# tide  residual

Score = Throughput x Availability% x SoftAcc% / 10,000
done  -  epoch 1  -  2026-08-18 09:45:25  -  0.0.0.0:8120
This epoch 2346 / 2346 cells. Recorded 2346 results.
Score 0 usually means the cell finished before a Lucy pulse (SoftAcc never sampled) or true-class mass was 0. Those rows do not vote holistically.
residual  -  skip + dense F on pairwise XOR  -  modes all  -  min 2000ms/cell  -  1024 train  -  pulse 50ms  -  SIMD true

## Lucy champions (this tide)

| Axis | Cell | Score | Soft | Acc | Thru | Avail |
|---|---|---|---|---|---|---|
| score | float32\|none\|tween_chain\|single\|simd | 116056.88 | 25.0 | 27.3 | 1176713.7 | 39.5 |
| throughput | float32\|none\|tween_chain\|single\|simd | 116056.88 | 25.0 | 27.3 | 1176713.7 | 39.5 |
| availability | uint5\|none\|MeshTweenSplitSparse\|bicameral\|simd | 14091.33 | 25.0 | 24.9 | 118330.8 | 47.6 |
| accuracy | binary\|none\|MeshTweenAlt\|single\|simd | 74289.90 | 25.3 | 27.1 | 738428.0 | 39.7 |
| mobile score (tra | binary\|none\|tween_chain\|single\|simd | 98596.25 | 24.9 | 26.3 | 952116.5 | 41.6 |
| acc/sec | binary\|none\|tween\|single\|simd | 97900.50 | 25.2 | 27.4 | 935316.0 | 41.6 |

## Lucy axes - residual

| Axis | Mode | DType | Arch | Value |
|---|---|---|---|---|
| score | tween_chain | float32 | singlex1 | 116056.88 |
| soft_acc | MeshTweenAlt | binary | singlex1 | 25.31 |
| hard_acc | TweenSplitHeadP~ | int3 | tricameralx3 | 34.45 |
| throughput | tween_chain | float32 | singlex1 | 1176713.69 |
| availability | MeshTweenSplitS~ | uint5 | bicameralx2 | 47.63 |
| acc_thru | tween_chain | float32 | singlex1 | 293600.36 |
| realtime | tween_chain | float32 | singlex1 | 465141.53 |
| adapt | MeshTweenAlt | float32 | singlex1 | 25.43 |
| keep_learn | step_tween_chain | binary | singlex1 | 12.70 |
| acc_per_sec | tween | binary | singlex1 | 12.57 |
| consistency | sgd | float64 | singlex1 | 100.00 |
| stability | sgd | fp4 | singlex1 | 100.00 |
| mobile_score | tween_chain | binary | singlex1 | 8615472031.32 |
| lpd | tween | binary | singlex1 | 28.96 |
| mspeed | tween_chain | float32 | singlex1 | 1.00 |
| mavail | TweenSplit | uint4 | singlex1 | 0.94 |
| mix | tween_chain | float32 | singlex1 | 0.94 |

## Best settings per train mode

| Mode | DType | Format | Score | Soft | Acc | Avail | n |
|---|---|---|---|---|---|---|---|
| tween_chain | float32 | none | 116056.9 | 25.0 | 27.3 | 39.5 | 102 |
| tween | float32 | none | 113905.0 | 25.0 | 27.7 | 39.4 | 102 |
| step_tween | float32 | none | 113885.9 | 25.0 | 28.0 | 39.5 | 102 |
| sgd | float32 | none | 112066.2 | 25.0 | 27.6 | 39.3 | 102 |
| step_tween_chain | float32 | none | 111396.5 | 24.9 | 27.4 | 39.2 | 102 |
| MeshBP | float32 | none | 108863.1 | 25.0 | 27.6 | 39.4 | 102 |
| step_sgd | float32 | none | 108703.9 | 24.9 | 27.4 | 39.2 | 102 |
| TweenSplitSparse | float32 | none | 105502.7 | 24.9 | 26.8 | 40.1 | 102 |
| TweenSplit | float32 | none | 103857.6 | 25.0 | 27.8 | 40.5 | 102 |
| TweenSplitFastProxy | float32 | none | 101387.8 | 25.0 | 27.1 | 39.8 | 102 |
| TweenSplitLinearCache | float32 | none | 100965.1 | 25.0 | 23.7 | 40.4 | 102 |
| StepTweenSplit | float32 | none | 100766.1 | 25.0 | 29.6 | 39.7 | 102 |
| TweenSplitHeadProxyAsync | float32 | none | 99265.1 | 25.0 | 27.5 | 39.8 | 102 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| MeshTween | float32 | none | 99229.5 | 25.0 | 27.8 | 39.3 | 102 |
| TweenSplitLinear | float32 | none | 99223.1 | 24.9 | 26.9 | 40.1 | 102 |
| MeshTweenChain | float32 | none | 99131.2 | 24.9 | 27.7 | 39.6 | 102 |
| MeshTweenSplitFastProxy | int4 | none | 97660.9 | 25.1 | 27.4 | 42.4 | 102 |
| TweenSplitHeadProxy | float32 | none | 97532.2 | 25.0 | 28.3 | 40.2 | 102 |
| MeshTweenSplitSparse | float32 | none | 97344.6 | 24.9 | 26.3 | 40.1 | 102 |
| MeshTweenSplit | float16 | none | 97309.1 | 25.0 | 26.8 | 41.2 | 102 |
| TweenAlt | float32 | none | 86783.9 | 25.3 | 28.6 | 39.3 | 102 |
| StepTweenAlt | float32 | none | 84825.3 | 25.2 | 29.3 | 38.0 | 102 |
| MeshTweenAlt | float32 | none | 82824.6 | 25.2 | 29.8 | 39.2 | 102 |

## Best dtype per mode

| Mode | Winner dtype | Score | Soft | Acc |
|---|---|---|---|---|
| tween_chain | float32 | 116056.9 | 25.0 | 27.3 |
| tween | float32 | 113905.0 | 25.0 | 27.7 |
| step_tween | float32 | 113885.9 | 25.0 | 28.0 |
| sgd | float32 | 112066.2 | 25.0 | 27.6 |
| step_tween_chain | float32 | 111396.5 | 24.9 | 27.4 |
| MeshBP | float32 | 108863.1 | 25.0 | 27.6 |
| step_sgd | float32 | 108703.9 | 24.9 | 27.4 |
| TweenSplitSparse | float32 | 105502.7 | 24.9 | 26.8 |
| TweenSplit | float32 | 103857.6 | 25.0 | 27.8 |
| TweenSplitFastProxy | float32 | 101387.8 | 25.0 | 27.1 |
| TweenSplitLinearCache | float32 | 100965.1 | 25.0 | 23.7 |
| StepTweenSplit | float32 | 100766.1 | 25.0 | 29.6 |
| TweenSplitHeadProxyAsync | float32 | 99265.1 | 25.0 | 27.5 |
| MeshTween | float32 | 99229.5 | 25.0 | 27.8 |
| TweenSplitLinear | float32 | 99223.1 | 24.9 | 26.9 |
| MeshTweenChain | float32 | 99131.2 | 24.9 | 27.7 |
| MeshTweenSplitFastProxy | int4 | 97660.9 | 25.1 | 27.4 |
| TweenSplitHeadProxy | float32 | 97532.2 | 25.0 | 28.3 |
| MeshTweenSplitSparse | float32 | 97344.6 | 24.9 | 26.3 |
| MeshTweenSplit | float16 | 97309.1 | 25.0 | 26.8 |
| TweenAlt | float32 | 86783.9 | 25.3 | 28.6 |
| StepTweenAlt | float32 | 84825.3 | 25.2 | 29.3 |
| MeshTweenAlt | float32 | 82824.6 | 25.2 | 29.8 |

## Best mode per dtype

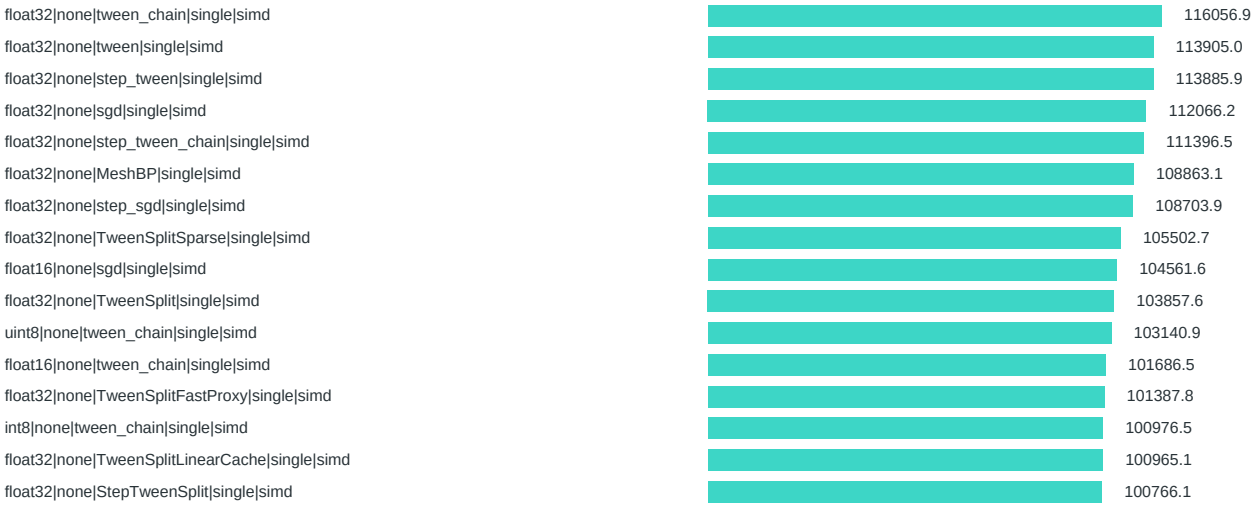
| DType | Winner mode | Score | Soft | Acc |
|---|---|---|---|---|
| float32 | tween_chain | 116056.9 | 25.0 | 27.3 |
| float16 | sgd | 104561.6 | 25.0 | 27.5 |
| uint8 | tween_chain | 103140.9 | 25.0 | 24.1 |
| int8 | tween_chain | 100976.5 | 24.9 | 24.6 |
| ternary | tween_chain | 100342.2 | 25.1 | 24.4 |
| int2 | tween_chain | 98657.6 | 24.9 | 24.4 |
| binary | tween_chain | 98596.3 | 24.9 | 26.3 |
| int4 | MeshTweenSplitFastProxy | 97660.9 | 25.1 | 27.4 |
| fp4 | tween_chain | 96293.7 | 25.0 | 25.0 |
| bfloat16 | tween_chain | 96226.2 | 25.0 | 27.7 |
| float64 | tween_chain | 87435.3 | 25.0 | 27.7 |
| fp8e5m2 | tween_chain | 79979.2 | 24.9 | 21.6 |
| fp8e4m3 | sgd | 78461.7 | 25.1 | 25.2 |

| | | | | |
|---|---|---|---|---|
| uint32 | tween_chain | 78187.8 | 25.0 | 25.0 |
| uint16 | tween_chain | 76916.1 | 25.0 | 24.5 |
| uint4 | tween_chain | 76467.7 | 25.0 | 24.6 |
| uint64 | tween_chain | 76149.5 | 25.0 | 24.8 |
| uint2 | tween_chain | 74440.1 | 25.0 | 26.0 |
| int32 | tween_chain | 73526.2 | 25.0 | 25.0 |
| int64 | tween_chain | 73241.3 | 25.0 | 27.3 |
| int16 | sgd | 68943.8 | 25.0 | 25.4 |
| uint | tween_chain | 66309.6 | 25.0 | 24.1 |
| uintptr | tween_chain | 66121.4 | 25.0 | 24.9 |
| complex128 | tween_chain | 64322.8 | 25.0 | 27.6 |
| complex64 | tween_chain | 63301.6 | 25.0 | 28.1 |
| int | tween | 61700.3 | 25.0 | 27.7 |
| nf4 | tween_chain | 61096.4 | 25.0 | 23.5 |
| uint3 | tween_chain | 50523.2 | 25.0 | 30.3 |
| int3 | tween | 48942.2 | 25.0 | 27.4 |
| uint5 | tween_chain | 43361.8 | 25.0 | 22.7 |
| int5 | tween | 40624.6 | 25.0 | 24.9 |
| uint6 | sgd | 39278.0 | 25.0 | 24.0 |
| int6 | tween_chain | 37553.3 | 25.0 | 24.2 |
| fp6 | tween_chain | 37373.5 | 25.0 | 25.1 |

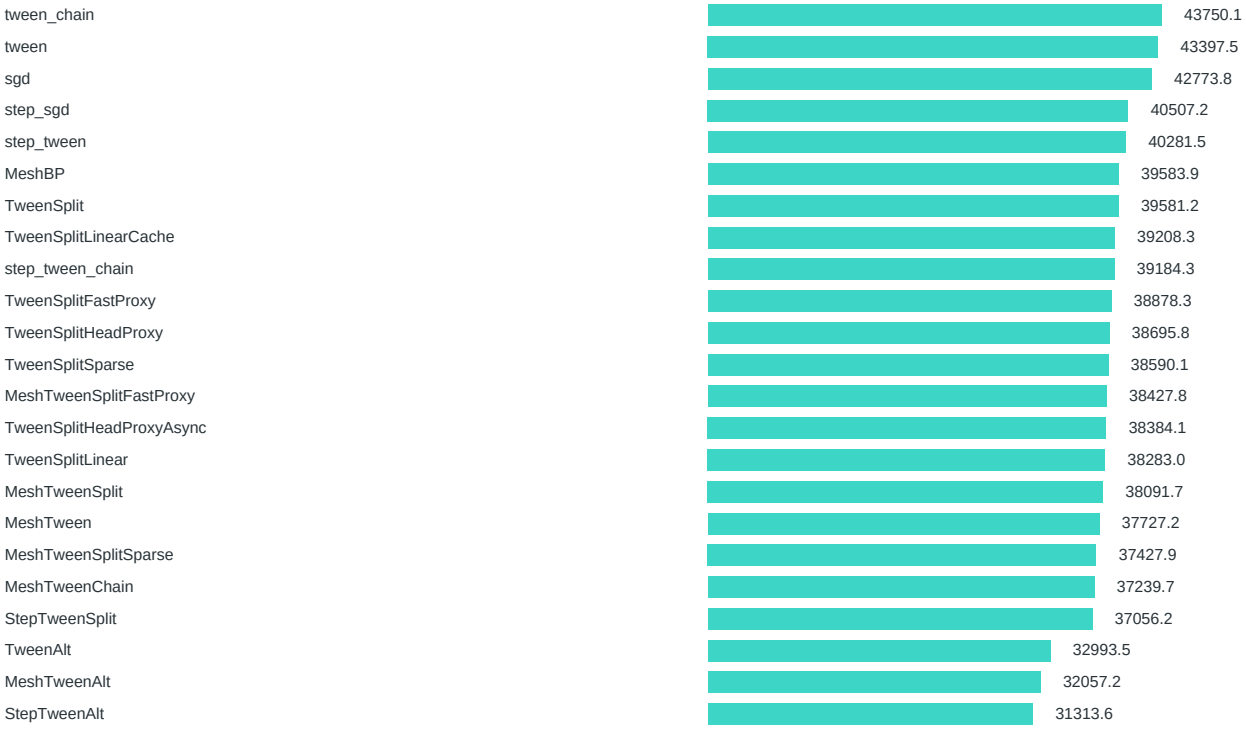
## Leaderboard - residual

| # | Cell | Score | Soft | Acc | Thru | Avail |
|---|---|---|---|---|---|---|
| 1 | float32\|none\|tween_chain\|single\|simd | 116056.9 | 25.0 | 27.3 | 1176713.7 | 39.5 |
| 2 | float32\|none\|tween\|single\|simd | 113905.0 | 25.0 | 27.7 | 1158125.9 | 39.4 |
| 3 | float32\|none\|step_tween\|single\|simd | 113885.9 | 25.0 | 28.0 | 1154373.6 | 39.5 |
| 4 | float32\|none\|sgd\|single\|simd | 112066.2 | 25.0 | 27.6 | 1141005.9 | 39.3 |
| 5 | float32\|none\|step_tween_chain\|single\|simd | 111396.5 | 24.9 | 27.4 | 1139421.0 | 39.2 |
| 6 | float32\|none\|MeshBP\|single\|simd | 108863.1 | 25.0 | 27.6 | 1106616.9 | 39.4 |
| 7 | float32\|none\|step_sgd\|single\|simd | 108703.9 | 24.9 | 27.4 | 1112043.2 | 39.2 |
| 8 | float32\|none\|TweenSplitSparse\|single\|simd | 105502.7 | 24.9 | 26.8 | 1055911.8 | 40.1 |
| 9 | float16\|none\|sgd\|single\|simd | 104561.6 | 25.0 | 27.5 | 1030173.9 | 40.7 |
| 10 | float32\|none\|TweenSplit\|single\|simd | 103857.6 | 25.0 | 27.8 | 1024887.1 | 40.5 |
| 11 | uint8\|none\|tween_chain\|single\|simd | 103140.9 | 25.0 | 24.1 | 990088.5 | 41.7 |
| 12 | float16\|none\|tween_chain\|single\|simd | 101686.5 | 25.0 | 27.3 | 1013669.4 | 40.2 |
| 13 | float32\|none\|TweenSplitFastProxy\|single\|simd | 101387.8 | 25.0 | 27.1 | 1020592.2 | 39.8 |
| 14 | int8\|none\|tween_chain\|single\|simd | 100976.5 | 24.9 | 24.6 | 979297.0 | 41.3 |
| 15 | float32\|none\|TweenSplitLinearCache\|single\|simd | 100965.1 | 25.0 | 23.7 | 1001118.3 | 40.4 |
| 16 | float32\|none\|StepTweenSplit\|single\|simd | 100766.1 | 25.0 | 29.6 | 1012960.7 | 39.7 |
| 17 | float16\|none\|tween\|single\|simd | 100575.8 | 25.0 | 27.4 | 998964.9 | 40.3 |
| 18 | ternary\|none\|tween_chain\|single\|simd | 100342.2 | 25.1 | 24.4 | 969667.1 | 41.2 |
| 19 | int8\|none\|tween\|single\|simd | 100135.5 | 25.0 | 27.4 | 976768.7 | 41.0 |
| 20 | float16\|none\|step_tween_chain\|single\|simd | 99497.0 | 25.0 | 27.8 | 996408.5 | 40.0 |

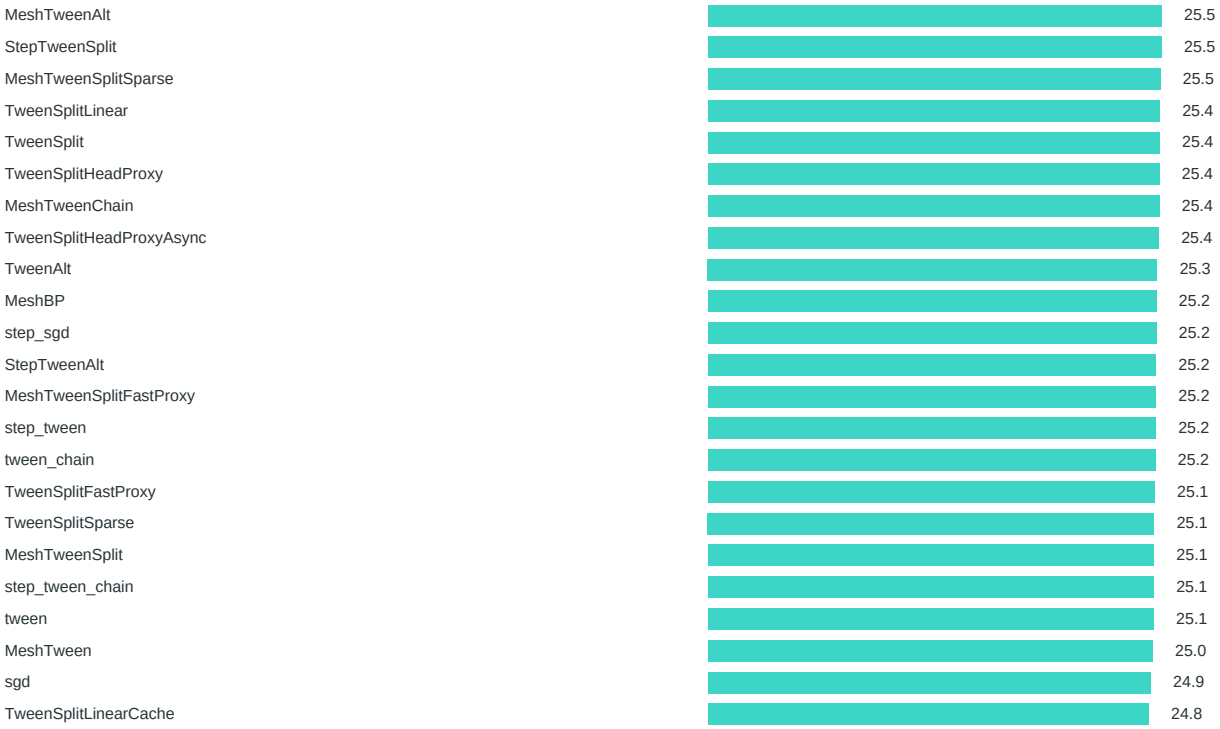
## Top scores - residual



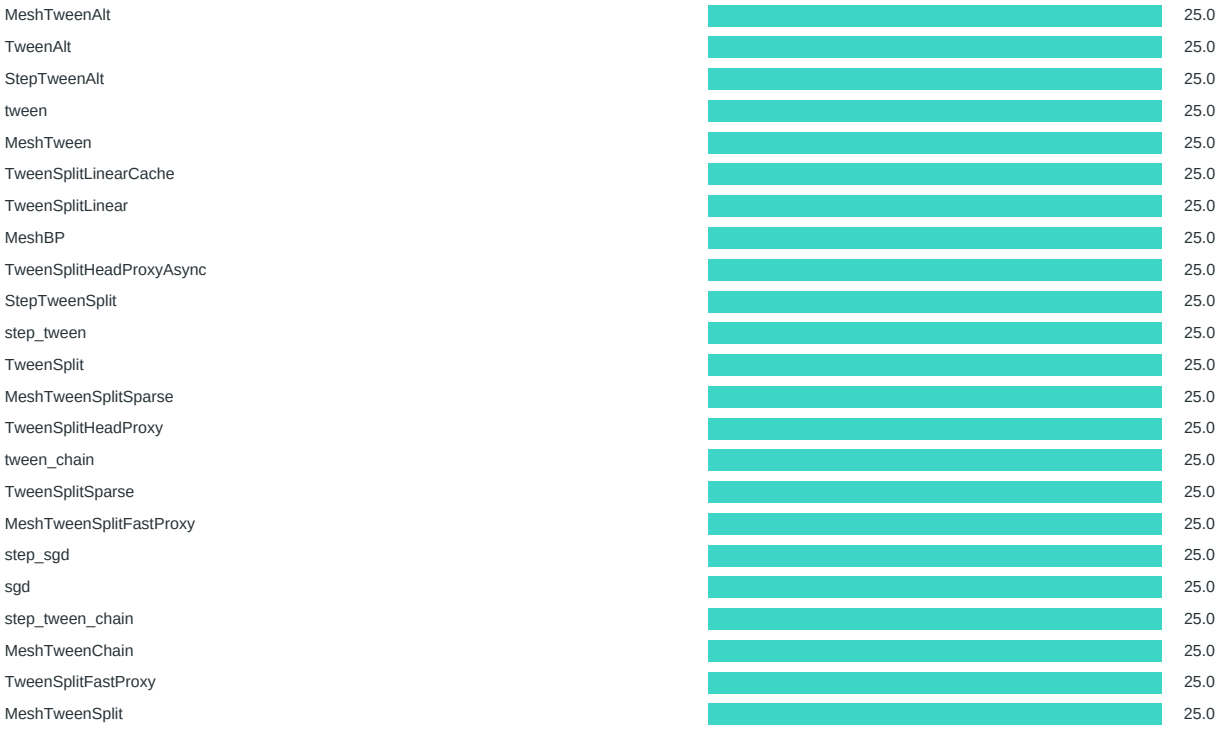

## Mean Score by train mode



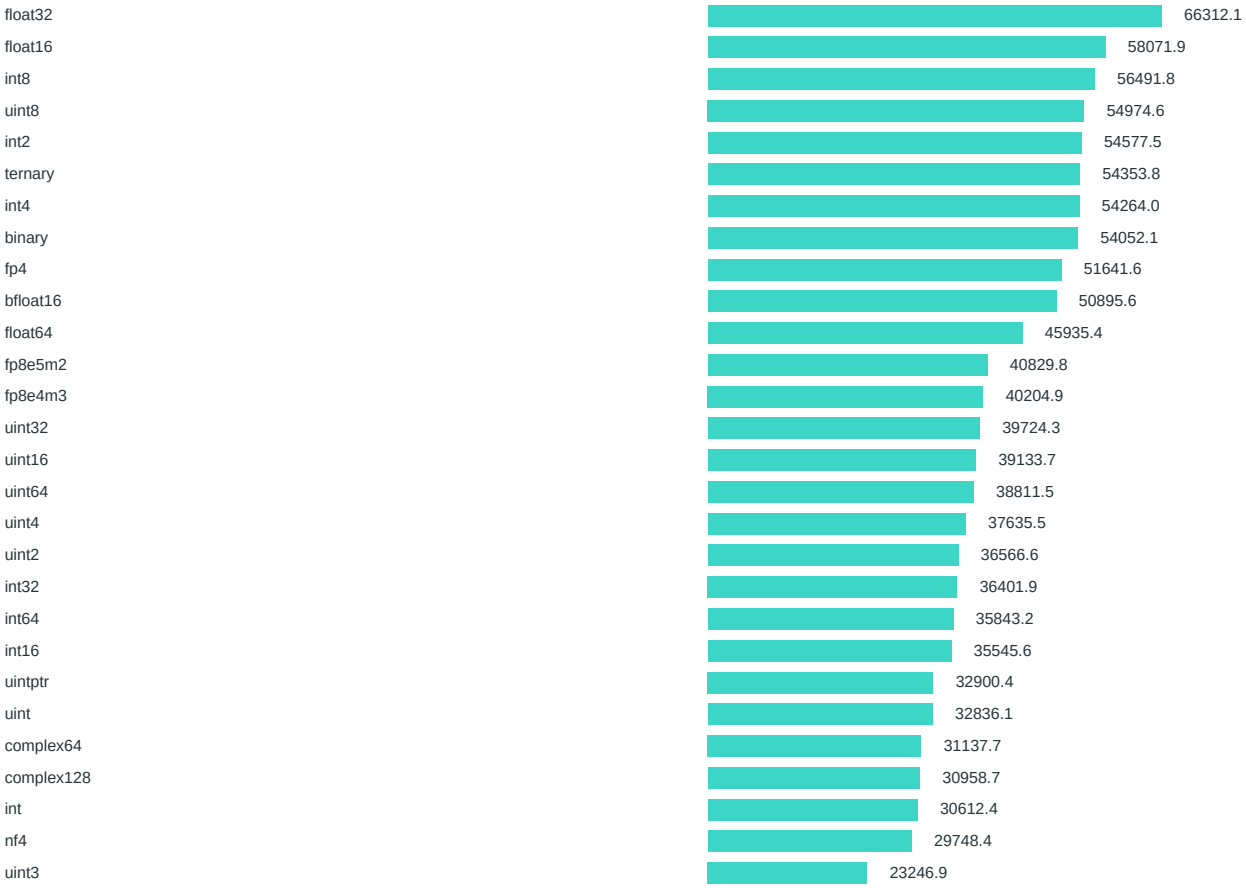

## Mean hard Acc by train mode




## Mean SoftAcc by train mode




## Mean Score by dtype




## Mean hard Acc by dtype




## Mean Score by arch




## Honesty - mean Score, every mode x dtype (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 52406 | 56104 | 30858 | 31615 | 60426 | 69701 | 48623 | 53545 | 16569 | 41840 | 42190 | 31441 | 37244 | 57036 | 23016 | 36883 |
| MeshTween | 49187 | 54507 | 29634 | 30493 | 55982 | 66101 | 44932 | 51368 | 16147 | 39020 | 40486 | 30048 | 35861 | 53589 | 21178 | 37171 |
| MeshTweenAlt | 44076 | 45718 | 26102 | 25937 | 47931 | 52682 | 36629 | 44156 | 13277 | 32580 | 33129 | 25371 | 30461 | 46259 | 17818 | 32161 |
| MeshTweenChain | 49800 | 51822 | 30117 | 30071 | 56672 | 65275 | 43953 | 49657 | 16657 | 38985 | 38560 | 29687 | 35237 | 54114 | 21192 | 36252 |
| MeshTweenSplit | 47687 | 53178 | 32262 | 31148 | 61139 | 62301 | 45118 | 49120 | 16920 | 39873 | 39064 | 30690 | 33118 | 53566 | 22653 | 34722 |
| MeshTweenSplitFa | 47684 | 51906 | 29910 | 32135 | 55954 | 62384 | 45574 | 50726 | 16877 | 40958 | 41531 | 28716 | 35452 | 56410 | 23120 | 35994 |
| MeshTweenSplitSp | 48068 | 53770 | 29836 | 30601 | 57268 | 65713 | 45531 | 49459 | 17497 | 37130 | 38136 | 30156 | 34496 | 52283 | 22125 | 36138 |
| StepTweenAlt | 42340 | 45425 | 24858 | 24442 | 47216 | 52434 | 37510 | 43646 | 12309 | 34068 | 32833 | 24474 | 29270 | 44771 | 17264 | 30182 |
| StepTweenSplit | 50708 | 52256 | 30214 | 29304 | 56420 | 65124 | 43289 | 50057 | 17105 | 38621 | 39119 | 29059 | 33323 | 52938 | 21203 | 34680 |
| TweenAlt | 44115 | 48204 | 26242 | 26475 | 49337 | 55547 | 40304 | 45374 | 13750 | 34565 | 35414 | 26226 | 30995 | 47129 | 18519 | 31897 |
| TweenSplit | 50905 | 54747 | 32554 | 32567 | 58595 | 67314 | 46434 | 52014 | 18525 | 40439 | 42310 | 31744 | 37392 | 54592 | 23656 | 38577 |
| TweenSplitFastPr | 52248 | 54607 | 31399 | 31596 | 59369 | 66667 | 45160 | 52355 | 17690 | 39906 | 39456 | 31662 | 35938 | 55630 | 23092 | 36120 |
| TweenSplitHeadPr | 51830 | 53668 | 31476 | 31267 | 58911 | 65866 | 47349 | 51564 | 17651 | 39617 | 41115 | 31100 | 36173 | 54057 | 22980 | 37314 |
| TweenSplitHeadPr | 51017 | 52977 | 31512 | 30615 | 60767 | 65454 | 44818 | 50371 | 17904 | 40619 | 41245 | 32005 | 34527 | 55626 | 21973 | 33429 |
| TweenSplitLinear | 51187 | 53864 | 32600 | 31782 | 58019 | 65522 | 47727 | 49712 | 17842 | 40770 | 41243 | 30529 | 35368 | 51482 | 22575 | 37792 |
| TweenSplitLinear | 52903 | 54297 | 31620 | 32163 | 56728 | 66608 | 45327 | 53523 | 18351 | 42620 | 43292 | 30941 | 36593 | 54114 | 23502 | 38458 |
| TweenSplitSparse | 51854 | 52571 | 31991 | 32566 | 58128 | 67699 | 42496 | 52267 | 18878 | 41250 | 40140 | 31196 | 35622 | 55643 | 24225 | 37764 |
| sgd | 55901 | 60823 | 34230 | 34207 | 64550 | 74163 | 51729 | 57998 | 18933 | 45386 | 46034 | 34539 | 39885 | 61099 | 24623 | 41383 |
| step_sgd | 53343 | 56880 | 31786 | 32669 | 60474 | 71623 | 49893 | 55030 | 17213 | 42281 | 43583 | 31607 | 37384 | 57389 | 23090 | 38824 |
| step_tween | 54618 | 56908 | 32599 | 31983 | 60772 | 72689 | 50067 | 54769 | 16839 | 42246 | 43626 | 31903 | 37578 | 57677 | 22677 | 38428 |
| step_tween_chain | 52809 | 56108 | 30446 | 31803 | 60951 | 70992 | 48807 | 53435 | 16986 | 41223 | 43629 | 31188 | 36431 | 56535 | 20665 | 29969 |
| tween | 57652 | 61925 | 34284 | 35086 | 65512 | 77142 | 52350 | 58675 | 18772 | 45677 | 46928 | 35044 | 39629 | 61273 | 25946 | 41327 |
| tween_chain | 58261 | 60930 | 35521 | 35641 | 64533 | 76179 | 52892 | 58936 | 19484 | 45039 | 46021 | 34759 | 39569 | 62070 | 25516 | 41782 |

## Honesty - mean Score, every mode x dtype (cols 17-32)

## Honesty - mean Score, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 55874 | 18287 | 17105 | 36541 | 58263 | 29915 | 56739 | 33272 | 40302 | 38558 | 24215 | 41382 | 38893 | 19583 | 17686 | 39556 |
| MeshTween | 53295 | 17294 | 16214 | 36508 | 56300 | 29365 | 53154 | 33104 | 37940 | 35455 | 22355 | 38916 | 37143 | 18504 | 16666 | 38875 |
| MeshTweenAlt | 45615 | 14365 | 13724 | 28507 | 48443 | 24324 | 46179 | 28973 | 34457 | 28640 | 19441 | 34855 | 31663 | 15900 | 14206 | 31113 |
| MeshTweenChain | 52753 | 18510 | 16161 | 35356 | 52566 | 29039 | 53134 | 31931 | 37834 | 35493 | 22016 | 38295 | 36306 | 18720 | 17283 | 37435 |
| MeshTweenSplit | 52701 | 18351 | 17019 | 35257 | 55720 | 29883 | 51845 | 32240 | 38639 | 36903 | 25071 | 41642 | 39285 | 20377 | 18936 | 40150 |
| MeshTweenSplitFa | 58214 | 18472 | 19614 | 37026 | 53214 | 29765 | 54671 | 33252 | 39470 | 37150 | 24100 | 39849 | 38139 | 20754 | 18742 | 37667 |
| MeshTweenSplitSp | 51511 | 18608 | 16542 | 33774 | 57091 | 30040 | 52935 | 31572 | 35912 | 37162 | 23130 | 40165 | 35101 | 19038 | 18717 | 38604 |
| StepTweenAlt | 45936 | 14248 | 12851 | 28224 | 49475 | 23747 | 44218 | 26508 | 31877 | 30714 | 17521 | 32005 | 31237 | 14223 | 13353 | 32020 |
| StepTweenSplit | 51969 | 18022 | 16677 | 34380 | 55283 | 28438 | 52700 | 30287 | 38068 | 35845 | 22547 | 38771 | 36508 | 18577 | 17274 | 37990 |
| TweenAlt | 46776 | 14692 | 14112 | 31139 | 50354 | 25173 | 48375 | 27777 | 34099 | 30300 | 19139 | 33196 | 32194 | 16485 | 13832 | 34164 |
| TweenSplit | 55913 | 19861 | 18424 | 36381 | 59203 | 31229 | 54330 | 33983 | 41223 | 36459 | 24409 | 40416 | 38781 | 21632 | 19234 | 40686 |
| TweenSplitFastPr | 55761 | 18933 | 18709 | 36006 | 54600 | 30051 | 56071 | 33405 | 37296 | 37180 | 24174 | 40347 | 37888 | 20893 | 19368 | 39183 |
| TweenSplitHeadPr | 54941 | 18975 | 18296 | 35829 | 55858 | 30558 | 54217 | 33841 | 38576 | 35289 | 23480 | 39012 | 37672 | 20708 | 18114 | 40357 |
| TweenSplitHeadPr | 53670 | 18405 | 16829 | 36129 | 55542 | 30354 | 53883 | 32151 | 39272 | 38097 | 23059 | 39587 | 38922 | 19492 | 17938 | 37748 |
| TweenSplitLinear | 52220 | 18470 | 17607 | 35868 | 56027 | 30029 | 54432 | 33498 | 38200 | 36166 | 24640 | 38647 | 36225 | 19240 | 19077 | 37783 |
| TweenSplitLinear | 55953 | 18856 | 17565 | 37446 | 57653 | 30575 | 54724 | 34680 | 40651 | 37850 | 24517 | 39348 | 35677 | 21275 | 18192 | 39378 |
| TweenSplitSparse | 56053 | 18852 | 18526 | 34035 | 54691 | 30026 | 53972 | 33428 | 38884 | 35018 | 23283 | 37930 | 39235 | 20405 | 18518 | 37366 |
| sgd | 59246 | 20260 | 18417 | 39726 | 62568 | 33058 | 60781 | 35463 | 44756 | 39969 | 26411 | 43819 | 41375 | 21695 | 20360 | 43579 |
| step_sgd | 57887 | 18538 | 16985 | 38961 | 61645 | 31107 | 56770 | 34799 | 41302 | 38545 | 23196 | 41640 | 39657 | 20345 | 17714 | 41400 |
| step_tween | 56855 | 18277 | 17229 | 37495 | 58765 | 30522 | 57077 | 34319 | 41063 | 38003 | 23231 | 42249 | 38482 | 19630 | 17499 | 40604 |
| step_tween_chain | 54380 | 18441 | 16929 | 38103 | 57909 | 30160 | 56137 | 33162 | 40482 | 37988 | 21376 | 40747 | 38769 | 19642 | 17555 | 39263 |
| tween | 59721 | 21089 | 18359 | 39965 | 64025 | 33118 | 61776 | 36596 | 44926 | 42021 | 26519 | 45160 | 42451 | 22466 | 19858 | 43499 |
| tween_chain | 60829 | 21045 | 19519 | 41739 | 64115 | 33737 | 62018 | 36992 | 44846 | 42225 | 26848 | 45680 | 44012 | 22646 | 20071 | 44245 |

## Honesty - mean Score, every mode x dtype  (cols 33-34)

## Honesty - mean Score, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 56725 | 33455 |
| MeshTween | 53589 | 32343 |
| MeshTweenAlt | 47546 | 27708 |
| MeshTweenChain | 53999 | 31269 |
| MeshTweenSplit | 54907 | 33633 |
| MeshTweenSplitFa | 56487 | 34627 |
| MeshTweenSplitSp | 52644 | 31797 |
| StepTweenAlt | 46193 | 27269 |
| StepTweenSplit | 52299 | 30857 |
| TweenAlt | 47162 | 28720 |
| TweenSplit | 57699 | 33534 |
| TweenSplitFastPr | 54415 | 34690 |
| TweenSplitHeadPr | 54205 | 33789 |
| TweenSplitHeadPr | 55548 | 33574 |
| TweenSplitLinear | 51972 | 33506 |
| TweenSplitLinear | 53747 | 33956 |
| TweenSplitSparse | 56356 | 31192 |
| sgd | 61281 | 36060 |
| step_sgd | 59364 | 34321 |
| step_tween | 58537 | 34352 |
| step_tween_chain | 56096 | 33153 |
| tween | 61079 | 35666 |
| tween_chain | 62566 | 37239 |

## Honesty - mean hard Acc, every mode x dtype  (cols 1-16)

## Honesty - mean hard Acc, every mode x dtype  (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 26 | 25 | 26 | 26 | 26 | 26 | 27 | 25 | 24 | 27 | 24 | 27 | 25 | 23 | 26 | 25 |
| MeshTween | 25 | 26 | 24 | 24 | 27 | 26 | 25 | 25 | 24 | 27 | 26 | 25 | 25 | 22 | 24 | 25 |
| MeshTweenAlt | 26 | 27 | 26 | 26 | 26 | 27 | 27 | 25 | 25 | 26 | 26 | 27 | 25 | 24 | 27 | 25 |
| MeshTweenChain | 25 | 26 | 27 | 27 | 26 | 26 | 27 | 25 | 24 | 26 | 25 | 26 | 25 | 26 | 25 | 25 |
| MeshTweenSplit | 26 | 26 | 26 | 25 | 27 | 26 | 26 | 25 | 25 | 24 | 25 | 26 | 25 | 23 | 23 | 25 |
| MeshTweenSplitFa | 27 | 24 | 24 | 26 | 25 | 26 | 25 | 25 | 24 | 24 | 26 | 27 | 26 | 25 | 27 | 24 |
| MeshTweenSplitSp | 25 | 26 | 26 | 26 | 26 | 27 | 26 | 25 | 26 | 27 | 28 | 25 | 26 | 25 | 25 | 25 |
| StepTweenAlt | 26 | 27 | 26 | 26 | 26 | 27 | 27 | 25 | 24 | 24 | 25 | 27 | 25 | 24 | 26 | 25 |
| StepTweenSplit | 26 | 27 | 26 | 26 | 26 | 27 | 26 | 25 | 26 | 26 | 26 | 26 | 25 | 24 | 25 | 25 |
| TweenAlt | 26 | 25 | 26 | 26 | 27 | 27 | 27 | 25 | 24 | 25 | 25 | 27 | 25 | 23 | 26 | 25 |
| TweenSplit | 26 | 23 | 26 | 27 | 27 | 26 | 26 | 25 | 26 | 26 | 26 | 26 | 25 | 24 | 27 | 25 |
| TweenSplitFastPr | 27 | 25 | 25 | 26 | 24 | 26 | 27 | 25 | 25 | 25 | 25 | 25 | 26 | 25 | 25 | 25 |
| TweenSplitHeadPr | 27 | 26 | 27 | 26 | 27 | 26 | 26 | 25 | 26 | 26 | 26 | 25 | 24 | 25 | 27 | 25 |
| TweenSplitHeadPr | 25 | 22 | 25 | 27 | 26 | 27 | 27 | 25 | 25 | 26 | 26 | 26 | 26 | 27 | 25 | 24 |
| TweenSplitLinear | 27 | 26 | 27 | 26 | 25 | 26 | 26 | 25 | 26 | 28 | 27 | 25 | 25 | 25 | 23 | 27 |
| TweenSplitLinear | 26 | 27 | 25 | 24 | 23 | 25 | 25 | 25 | 24 | 23 | 23 | 25 | 25 | 24 | 23 | 26 |
| TweenSplitSparse | 27 | 23 | 26 | 26 | 26 | 24 | 25 | 25 | 25 | 22 | 25 | 26 | 27 | 26 | 23 | 25 |
| sgd | 26 | 25 | 26 | 27 | 26 | 26 | 27 | 25 | 24 | 26 | 23 | 27 | 25 | 24 | 24 | 24 |
| step_sgd | 26 | 24 | 27 | 27 | 27 | 27 | 26 | 25 | 26 | 23 | 25 | 27 | 25 | 24 | 27 | 25 |
| step_tween | 27 | 24 | 27 | 26 | 25 | 25 | 26 | 25 | 25 | 24 | 26 | 25 | 26 | 26 | 24 | 27 |
| step_tween_chain | 26 | 23 | 26 | 27 | 26 | 26 | 26 | 25 | 28 | 25 | 25 | 26 | 24 | 25 | 24 | 25 |
| tween | 26 | 27 | 27 | 26 | 26 | 25 | 25 | 25 | 26 | 25 | 24 | 27 | 24 | 27 | 24 | 25 |
| tween_chain | 25 | 25 | 26 | 27 | 26 | 26 | 27 | 25 | 25 | 24 | 23 | 27 | 25 | 25 | 26 | 25 |

## Honesty - mean hard Acc, every mode x dtype  (cols 17-32)

## Honesty - mean hard Acc, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 27 | 24 | 26 | 26 | 24 | 22 | 27 | 25 | 25 | 24 | 25 | 24 | 26 | 24 | 27 | 25 |
| MeshTween | 25 | 24 | 24 | 25 | 28 | 26 | 27 | 26 | 24 | 26 | 24 | 25 | 26 | 23 | 26 | 25 |
| MeshTweenAlt | 28 | 26 | 25 | 27 | 25 | 26 | 24 | 24 | 25 | 29 | 23 | 24 | 25 | 25 | 24 | 25 |
| MeshTweenChain | 25 | 25 | 25 | 26 | 26 | 25 | 24 | 25 | 25 | 26 | 26 | 24 | 25 | 25 | 27 | 25 |
| MeshTweenSplit | 24 | 25 | 27 | 27 | 25 | 25 | 25 | 26 | 24 | 25 | 26 | 25 | 24 | 24 | 24 | 24 |
| MeshTweenSplitFa | 26 | 26 | 22 | 25 | 25 | 26 | 25 | 24 | 23 | 26 | 26 | 24 | 26 | 28 | 24 | 25 |
| MeshTweenSplitSp | 25 | 25 | 25 | 27 | 25 | 25 | 26 | 25 | 25 | 22 | 23 | 25 | 27 | 25 | 25 | 26 |
| StepTweenAlt | 24 | 25 | 25 | 27 | 25 | 26 | 25 | 25 | 25 | 23 | 25 | 25 | 24 | 25 | 24 | 25 |
| StepTweenSplit | 25 | 26 | 26 | 26 | 25 | 26 | 26 | 25 | 25 | 24 | 24 | 25 | 27 | 26 | 25 | 25 |
| TweenAlt | 25 | 26 | 25 | 27 | 25 | 26 | 26 | 25 | 24 | 23 | 23 | 25 | 27 | 26 | 25 | 25 |
| TweenSplit | 24 | 27 | 26 | 26 | 26 | 26 | 23 | 25 | 24 | 25 | 24 | 26 | 25 | 26 | 25 | 25 |
| TweenSplitFastPr | 26 | 24 | 25 | 26 | 24 | 24 | 25 | 24 | 25 | 27 | 27 | 25 | 23 | 26 | 25 | 26 |
| TweenSplitHeadPr | 24 | 24 | 26 | 25 | 25 | 26 | 25 | 27 | 25 | 24 | 23 | 25 | 25 | 25 | 26 | 25 |
| TweenSplitHeadPr | 26 | 25 | 26 | 25 | 24 | 26 | 25 | 24 | 24 | 27 | 26 | 24 | 23 | 25 | 26 | 25 |
| TweenSplitLinear | 25 | 26 | 25 | 26 | 24 | 27 | 23 | 26 | 26 | 25 | 25 | 26 | 25 | 25 | 26 | 23 |
| TweenSplitLinear | 25 | 27 | 24 | 25 | 25 | 26 | 23 | 27 | 25 | 23 | 25 | 24 | 26 | 25 | 25 | 24 |
| TweenSplitSparse | 24 | 23 | 26 | 26 | 27 | 28 | 24 | 25 | 25 | 26 | 25 | 26 | 22 | 24 | 25 | 25 |
| sgd | 23 | 22 | 24 | 26 | 26 | 24 | 26 | 26 | 25 | 24 | 25 | 24 | 23 | 24 | 23 | 25 |
| step_sgd | 27 | 25 | 27 | 27 | 25 | 23 | 23 | 24 | 24 | 24 | 26 | 25 | 23 | 25 | 24 | 25 |
| step_tween | 23 | 25 | 23 | 27 | 26 | 27 | 27 | 24 | 24 | 24 | 23 | 25 | 25 | 24 | 25 | 25 |
| step_tween_chain | 22 | 25 | 26 | 26 | 24 | 25 | 25 | 25 | 25 | 23 | 24 | 25 | 24 | 25 | 24 | 25 |
| tween | 24 | 25 | 24 | 25 | 29 | 23 | 26 | 24 | 23 | 26 | 27 | 25 | 23 | 25 | 25 | 24 |
| tween_chain | 28 | 23 | 24 | 26 | 24 | 25 | 25 | 25 | 24 | 24 | 26 | 25 | 25 | 26 | 26 | 24 |

## Honesty - mean hard Acc, every mode x dtype  (cols 33-34)

## Honesty - mean hard Acc, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 25 | 25 |
| MeshTween | 24 | 24 |
| MeshTweenAlt | 25 | 25 |
| MeshTweenChain | 26 | 25 |
| MeshTweenSplit | 26 | 26 |
| MeshTweenSplitFa | 24 | 26 |
| MeshTweenSplitSp | 24 | 27 |
| StepTweenAlt | 25 | 24 |
| StepTweenSplit | 25 | 25 |
| TweenAlt | 25 | 25 |
| TweenSplit | 26 | 25 |
| TweenSplitFastPr | 24 | 25 |
| TweenSplitHeadPr | 26 | 25 |
| TweenSplitHeadPr | 26 | 26 |
| TweenSplitLinear | 25 | 26 |
| TweenSplitLinear | 27 | 25 |
| TweenSplitSparse | 24 | 26 |
| sgd | 26 | 25 |
| step_sgd | 26 | 25 |
| step_tween | 25 | 25 |
| step_tween_chain | 25 | 25 |
| tween | 25 | 24 |
| tween_chain | 24 | 25 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 1-16)

## Honesty - mean SoftAcc, every mode x dtype  (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenChain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitFastPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitSparse | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 17-32)

## Honesty - mean SoftAcc, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenChain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitFastPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitSparse | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 33-34)

## Honesty - mean SoftAcc, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 25 | 25 |
| MeshTween | 25 | 25 |
| MeshTweenAlt | 25 | 25 |
| MeshTweenChain | 25 | 25 |
| MeshTweenSplit | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 |
| StepTweenAlt | 25 | 25 |
| StepTweenSplit | 25 | 25 |
| TweenAlt | 25 | 25 |
| TweenSplit | 25 | 25 |
| TweenSplitFastPr | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 |
| TweenSplitLinear | 25 | 25 |
| TweenSplitLinear | 25 | 25 |
| TweenSplitSparse | 25 | 25 |
| sgd | 25 | 25 |
| step_sgd | 25 | 25 |
| step_tween | 25 | 25 |
| step_tween_chain | 25 | 25 |
| tween | 25 | 25 |
| tween_chain | 25 | 25 |

## Mean Score, every mode x arch

## Mean Score, every mode x arch

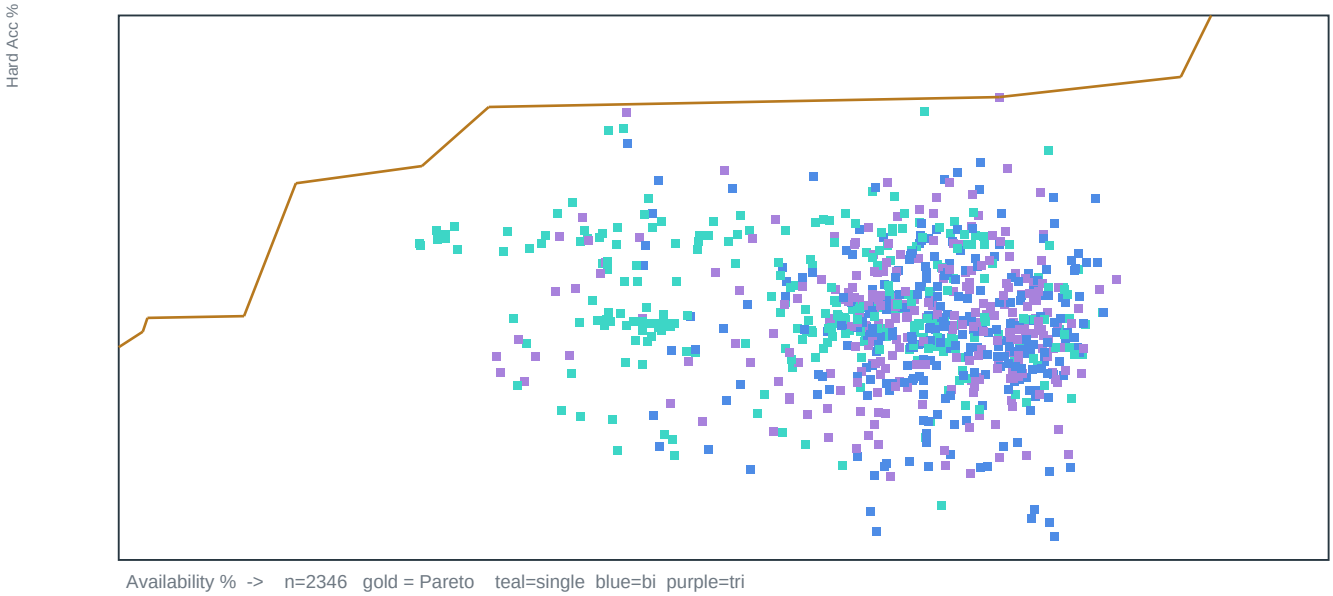
| | bicamera | singlex1 | tricamer |
|---|---|---|---|
| MeshBP | 28044 | 67820 | 22888 |
| MeshTween | 26932 | 64175 | 22074 |
| MeshTweenAlt | 21571 | 56023 | 18578 |
| MeshTweenChain | 26447 | 63546 | 21726 |
| MeshTweenSplit | 28445 | 62044 | 23786 |
| MeshTweenSplitFa | 28299 | 63525 | 23460 |
| MeshTweenSplitSp | 27698 | 61088 | 23498 |
| StepTweenAlt | 21136 | 55521 | 17284 |
| StepTweenSplit | 26349 | 62452 | 22367 |
| TweenAlt | 22893 | 57494 | 18593 |
| TweenSplit | 28651 | 65739 | 24353 |
| TweenSplitFastPr | 28626 | 64140 | 23869 |
| TweenSplitHeadPr | 28097 | 64014 | 23977 |
| TweenSplitHeadPr | 27997 | 63461 | 23694 |
| TweenSplitLinear | 27633 | 64268 | 22948 |
| TweenSplitLinear | 28513 | 65014 | 24097 |
| TweenSplitSparse | 28290 | 63962 | 23518 |
| sgd | 30487 | 72432 | 25402 |
| step_sgd | 28504 | 69493 | 23524 |
| step_tween | 28298 | 69559 | 22988 |
| step_tween_chain | 27568 | 67452 | 22533 |
| tween | 31625 | 72291 | 26277 |
| tween_chain | 31425 | 74363 | 25462 |

## Mean hard Acc, every mode x arch

## Mean hard Acc, every mode x arch

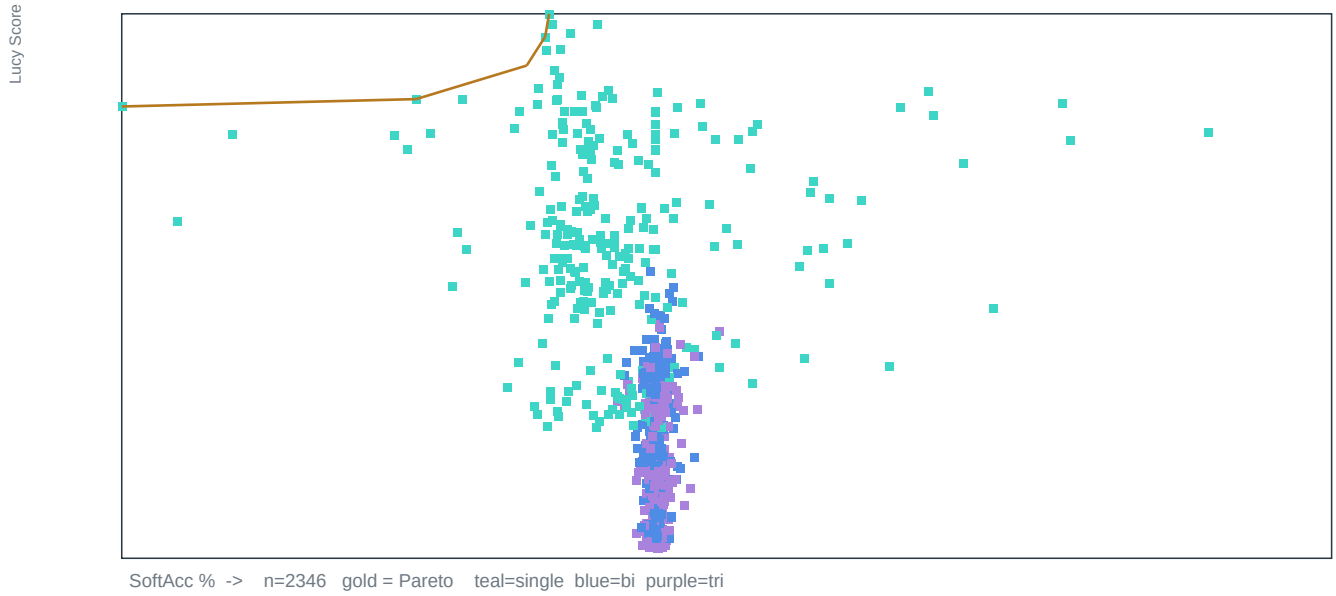
| | bicamera | singlex1 | tricamer |
|---|---|---|---|
| MeshBP | 25 | 26 | 25 |
| MeshTween | 24 | 26 | 25 |
| MeshTweenAlt | 25 | 26 | 25 |
| MeshTweenChain | 25 | 25 | 26 |
| MeshTweenSplit | 25 | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 | 25 |
| MeshTweenSplitSp | 25 | 26 | 25 |
| StepTweenAlt | 25 | 26 | 25 |
| StepTweenSplit | 25 | 26 | 25 |
| TweenAlt | 25 | 26 | 25 |
| TweenSplit | 25 | 26 | 25 |
| TweenSplitFastPr | 25 | 26 | 25 |
| TweenSplitHeadPr | 25 | 25 | 26 |
| TweenSplitHeadPr | 25 | 26 | 25 |
| TweenSplitLinear | 25 | 26 | 25 |
| TweenSplitLinear | 24 | 25 | 25 |
| TweenSplitSparse | 25 | 25 | 25 |
| sgd | 24 | 25 | 25 |
| step_sgd | 25 | 26 | 25 |
| step_tween | 25 | 25 | 25 |
| step_tween_chain | 25 | 25 | 25 |
| tween | 24 | 26 | 25 |
| tween_chain | 25 | 26 | 25 |

## Avail vs hard Acc (headline scatter)




## Pareto - SoftAcc vs Score

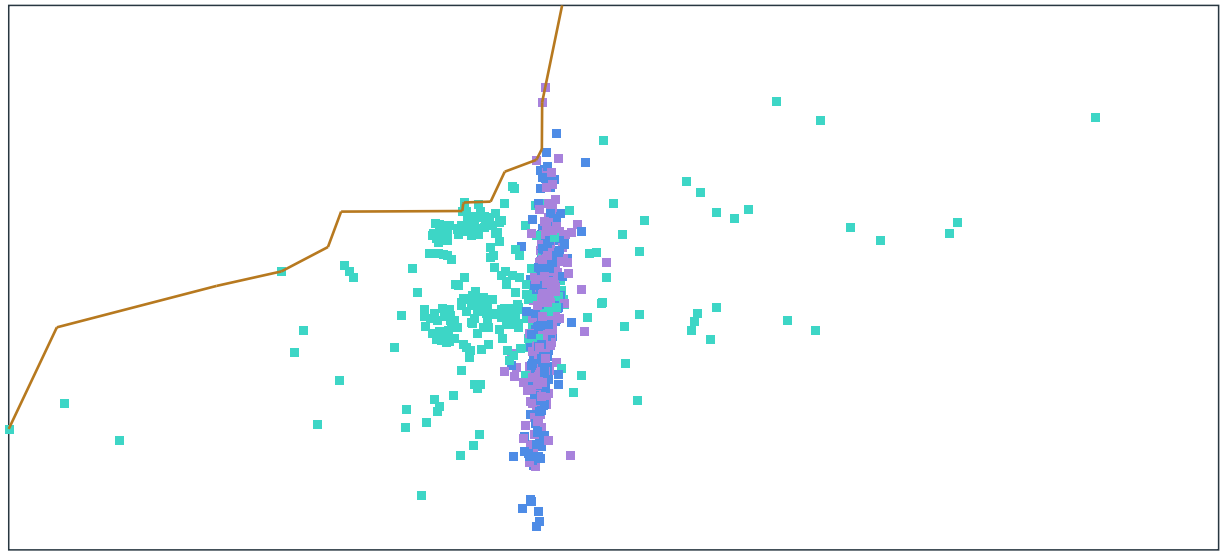
## Pareto - SoftAcc vs Score




## Pareto - hard Acc vs Score

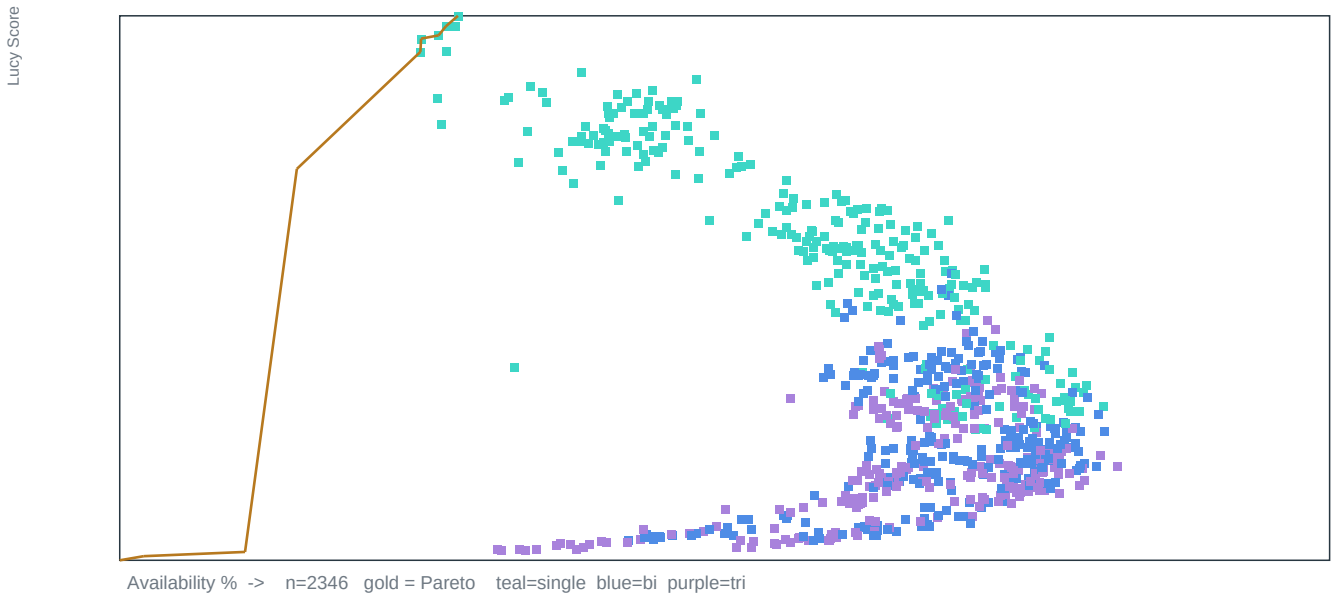



## SoftAcc vs hard Acc




SoftAcc %  ->  n=2346  gold = Pareto  teal=single  blue=bi  purple=tri
Hard Acc %

## Avail vs Score (duty clock)




## Lucy Pareto (LPD) - goldilocks

Q = geomean of Score/Soft/Acc/Thru vs the Lucy Score champion. LPD = 0 if Q<70%, else Q x shrink vs champ RAM (capped 32x). Gold = Q>=80% and RAM<=20% of champ. MSpeed = Thru vs the board's fastest (0 if Q<70%). MAvail = Availability vs the board's best duty cycle (0 if Q<70%). Mix = geomean(Q, MSpeed, MAvail). Raw Score/MiB is the binary trap.
Quality champ float32|none|tween_chain|single|simd  Score 116056.9  Soft 25  Acc 27  Thru 1176714  RAM 0.4 KiB
Board fastest float32|none|tween_chain|single|simd  Thru 1176714  Best availability uint5|none|MeshTweenSplitSparse|bicameral|simd  47.6%

### Gold - Q >= 80% of champ, RAM <= 20%

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| gold | binary\|none\|tween\|single\|simd | 90 | 3 | 32.0 | 28.96 | 25 | 27 | 97900.5 | 0.0 |
| gold | binary\|none\|tween_chain\|single\|simd | 90 | 3 | 32.0 | 28.85 | 25 | 26 | 98596.3 | 0.0 |
| gold | binary\|none\|MeshBP\|single\|simd | 87 | 3 | 32.0 | 27.93 | 25 | 28 | 90361.3 | 0.0 |
| gold | binary\|none\|step_sgd\|single\|simd | 87 | 3 | 32.0 | 27.83 | 25 | 26 | 91224.4 | 0.0 |
| gold | binary\|none\|sgd\|single\|simd | 85 | 3 | 32.0 | 27.22 | 25 | 21 | 97151.3 | 0.0 |
| gold | binary\|none\|MeshTween\|single\|simd | 85 | 3 | 32.0 | 27.21 | 25 | 28 | 85638.4 | 0.0 |
| gold | binary\|none\|TweenSplitLinear\|single\|simd | 84 | 3 | 32.0 | 26.82 | 25 | 25 | 86784.1 | 0.0 |
| gold | binary\|none\|step_tween_chain\|single\|simd | 84 | 3 | 32.0 | 26.74 | 25 | 24 | 88502.8 | 0.0 |
| gold | binary\|none\|TweenSplitFastProxy\|single\|simd | 83 | 3 | 32.0 | 26.68 | 25 | 27 | 83323.8 | 0.0 |
| gold | binary\|none\|TweenSplitLinearCache\|single\|simd | 83 | 3 | 32.0 | 26.48 | 25 | 25 | 85044.6 | 0.0 |
| gold | binary\|none\|step_tween\|single\|simd | 82 | 3 | 32.0 | 26.39 | 25 | 21 | 91472.8 | 0.0 |
| gold | binary\|none\|MeshTweenChain\|single\|simd | 82 | 3 | 32.0 | 26.33 | 25 | 24 | 85593.3 | 0.0 |
| gold | binary\|none\|TweenSplitHeadProxy\|single\|simd | 82 | 3 | 32.0 | 26.27 | 25 | 26 | 82374.1 | 0.0 |
| gold | binary\|none\|StepTweenSplit\|single\|simd | 82 | 3 | 32.0 | 26.13 | 25 | 25 | 83900.3 | 0.0 |
| gold | binary\|none\|StepTweenAlt\|single\|simd | 82 | 3 | 32.0 | 26.13 | 25 | 32 | 78056.0 | 0.0 |
| gold | binary\|none\|MeshTweenSplit\|single\|simd | 81 | 3 | 32.0 | 26.04 | 25 | 25 | 83583.0 | 0.0 |

### Near-gold - Q >= 70%, RAM <= 50%

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| near | binary\|none\|TweenAlt\|single\|simd | 80 | 3 | 32.0 | 25.59 | 25 | 24 | 79299.9 | 0.0 |
| near | binary\|none\|MeshTweenAlt\|single\|simd | 79 | 3 | 32.0 | 25.42 | 25 | 27 | 74289.9 | 0.0 |
| near | binary\|none\|MeshTweenSplitSparse\|single\|simd | 79 | 3 | 32.0 | 25.28 | 25 | 22 | 83079.1 | 0.0 |
| near | binary\|none\|MeshTweenSplitFastProxy\|single\|simd | 78 | 3 | 32.0 | 24.95 | 25 | 24 | 77144.8 | 0.0 |
| near | binary\|none\|TweenSplitHeadProxyAsync\|single\|simd | 78 | 3 | 32.0 | 24.91 | 25 | 20 | 84639.7 | 0.0 |
| near | binary\|none\|TweenSplit\|single\|simd | 78 | 3 | 32.0 | 24.86 | 25 | 20 | 84390.6 | 0.0 |

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| near | binary\|none\|TweenSplitSparse\|single\|simd | 77 | 3 | 32.0 | 24.73 | 25 | 22 | 79348.7 | 0.0 |
| near | int2\|none\|TweenAlt\|single\|simd | 80 | 6 | 16.0 | 12.79 | 25 | 25 | 78070.1 | 0.0 |
| near | ternary\|none\|MeshTweenSplit\|single\|simd | 80 | 6 | 16.0 | 12.73 | 25 | 27 | 77104.1 | 0.0 |
| near | ternary\|none\|TweenSplitLinearCache\|single\|simd | 80 | 6 | 16.0 | 12.72 | 25 | 21 | 85687.7 | 0.0 |
| near | ternary\|none\|StepTweenAlt\|single\|simd | 79 | 6 | 16.0 | 12.66 | 25 | 30 | 73075.5 | 0.0 |
| near | ternary\|none\|TweenAlt\|single\|simd | 79 | 6 | 16.0 | 12.64 | 25 | 24 | 77111.7 | 0.0 |

## LPD rank (Q x shrink; 0 if Q < 70%)

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| gold | binary\|none\|tween\|single\|simd | 90 | 3 | 32.0 | 28.96 | 25 | 27 | 97900.5 | 0.0 |
| gold | binary\|none\|tween_chain\|single\|simd | 90 | 3 | 32.0 | 28.85 | 25 | 26 | 98596.3 | 0.0 |
| gold | binary\|none\|MeshBP\|single\|simd | 87 | 3 | 32.0 | 27.93 | 25 | 28 | 90361.3 | 0.0 |
| gold | binary\|none\|step_sgd\|single\|simd | 87 | 3 | 32.0 | 27.83 | 25 | 26 | 91224.4 | 0.0 |
| gold | binary\|none\|sgd\|single\|simd | 85 | 3 | 32.0 | 27.22 | 25 | 21 | 97151.3 | 0.0 |
| gold | binary\|none\|MeshTween\|single\|simd | 85 | 3 | 32.0 | 27.21 | 25 | 28 | 85638.4 | 0.0 |
| gold | binary\|none\|TweenSplitLinear\|single\|simd | 84 | 3 | 32.0 | 26.82 | 25 | 25 | 86784.1 | 0.0 |
| gold | binary\|none\|step_tween_chain\|single\|simd | 84 | 3 | 32.0 | 26.74 | 25 | 24 | 88502.8 | 0.0 |
| gold | binary\|none\|TweenSplitFastProxy\|single\|simd | 83 | 3 | 32.0 | 26.68 | 25 | 27 | 83323.8 | 0.0 |
| gold | binary\|none\|TweenSplitLinearCache\|single\|simd | 83 | 3 | 32.0 | 26.48 | 25 | 25 | 85044.6 | 0.0 |
| gold | binary\|none\|step_tween\|single\|simd | 82 | 3 | 32.0 | 26.39 | 25 | 21 | 91472.8 | 0.0 |
| gold | binary\|none\|MeshTweenChain\|single\|simd | 82 | 3 | 32.0 | 26.33 | 25 | 24 | 85593.3 | 0.0 |
| gold | binary\|none\|TweenSplitHeadProxy\|single\|simd | 82 | 3 | 32.0 | 26.27 | 25 | 26 | 82374.1 | 0.0 |
| gold | binary\|none\|StepTweenSplit\|single\|simd | 82 | 3 | 32.0 | 26.13 | 25 | 25 | 83900.3 | 0.0 |
| gold | binary\|none\|StepTweenAlt\|single\|simd | 82 | 3 | 32.0 | 26.13 | 25 | 32 | 78056.0 | 0.0 |
| gold | binary\|none\|MeshTweenSplit\|single\|simd | 81 | 3 | 32.0 | 26.04 | 25 | 25 | 83583.0 | 0.0 |
| near | binary\|none\|TweenAlt\|single\|simd | 80 | 3 | 32.0 | 25.59 | 25 | 24 | 79299.9 | 0.0 |
| near | binary\|none\|MeshTweenAlt\|single\|simd | 79 | 3 | 32.0 | 25.42 | 25 | 27 | 74289.9 | 0.0 |
| near | binary\|none\|MeshTweenSplitSparse\|single\|simd | 79 | 3 | 32.0 | 25.28 | 25 | 22 | 83079.1 | 0.0 |
| near | binary\|none\|MeshTweenSplitFastProxy\|single\|simd | 78 | 3 | 32.0 | 24.95 | 25 | 24 | 77144.8 | 0.0 |

## Mobile speed - Thru vs board fastest (Q >= 70%)

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| keep | float32\|none\|tween_chain\|single\|simd | 100 | 100 | 83 | 94 | 1.00 | 1176714 | 39.5 |
| keep | float32\|none\|tween\|single\|simd | 99 | 98 | 83 | 93 | 0.99 | 1158126 | 39.4 |
| keep | float32\|none\|step_tween\|single\|simd | 99 | 98 | 83 | 93 | 0.99 | 1154374 | 39.5 |
| keep | float32\|none\|sgd\|single\|simd | 98 | 97 | 83 | 92 | 0.98 | 1141006 | 39.3 |
| keep | float32\|none\|step_tween_chain\|single\|simd | 98 | 97 | 82 | 92 | 0.98 | 1139421 | 39.2 |
| keep | float32\|none\|step_sgd\|single\|simd | 97 | 95 | 82 | 91 | 0.97 | 1112043 | 39.2 |
| keep | float32\|none\|MeshBP\|single\|simd | 97 | 94 | 83 | 91 | 0.97 | 1106617 | 39.4 |
| keep | float32\|none\|TweenSplitSparse\|single\|simd | 95 | 90 | 84 | 89 | 0.95 | 1055912 | 40.1 |
| near | float16\|none\|sgd\|single\|simd | 94 | 88 | 85 | 89 | 1.88 | 1030174 | 40.7 |
| keep | float32\|none\|TweenSplit\|single\|simd | 94 | 87 | 85 | 89 | 0.94 | 1024887 | 40.5 |

## Mobile availability - duty cycle vs board best (Q >= 70%)

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| near | uint4\|none\|TweenSplit\|single\|simd | 70 | 50 | 94 | 69 | 4.83 | 584043 | 44.7 |
| near | uint4\|none\|MeshTweenSplit\|single\|simd | 72 | 52 | 94 | 70 | 4.92 | 611585 | 44.5 |
| - | int32\|none\|TweenSplitHeadProxy\|single\|simd | 71 | 49 | 93 | 69 | 0.71 | 576420 | 44.5 |
| - | int32\|none\|TweenSplitLinear\|single\|simd | 71 | 50 | 93 | 69 | 0.71 | 589212 | 44.5 |
| - | int32\|none\|TweenSplitLinearCache\|single\|simd | 73 | 51 | 93 | 70 | 0.73 | 595913 | 44.5 |
| - | int32\|none\|MeshTweenSplitSparse\|single\|simd | 70 | 48 | 93 | 68 | 0.70 | 562119 | 44.5 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| - | int64\|none\|TweenSplitHeadProxyAsync\|single\|simd | 71 | 47 | 93 | 68 | 0.35 | 557509 | 44.5 |
| - | complex64\|none\|sgd\|single\|simd | 70 | 47 | 93 | 67 | 0.35 | 547750 | 44.4 |
| - | complex128\|none\|tween_chain\|single\|simd | 72 | 49 | 93 | 69 | 0.18 | 580022 | 44.4 |
| - | int32\|none\|TweenSplit\|single\|simd | 72 | 50 | 93 | 69 | 0.72 | 583842 | 44.4 |

## Mix - geomean of Q, MSpeed, MAvail

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| keep | float32\|none\|tween_chain\|single\|simd | 100 | 100 | 83 | 94 | 1.00 | 1176714 | 39.5 |
| keep | float32\|none\|tween\|single\|simd | 99 | 98 | 83 | 93 | 0.99 | 1158126 | 39.4 |
| keep | float32\|none\|step_tween\|single\|simd | 99 | 98 | 83 | 93 | 0.99 | 1154374 | 39.5 |
| keep | float32\|none\|sgd\|single\|simd | 98 | 97 | 83 | 92 | 0.98 | 1141006 | 39.3 |
| keep | float32\|none\|step_tween_chain\|single\|simd | 98 | 97 | 82 | 92 | 0.98 | 1139421 | 39.2 |
| keep | float32\|none\|MeshBP\|single\|simd | 97 | 94 | 83 | 91 | 0.97 | 1106617 | 39.4 |
| keep | float32\|none\|step_sgd\|single\|simd | 97 | 95 | 82 | 91 | 0.97 | 1112043 | 39.2 |
| keep | float32\|none\|TweenSplitSparse\|single\|simd | 95 | 90 | 84 | 89 | 0.95 | 1055912 | 40.1 |
| near | float16\|none\|sgd\|single\|simd | 94 | 88 | 85 | 89 | 1.88 | 1030174 | 40.7 |
| keep | float32\|none\|TweenSplit\|single\|simd | 94 | 87 | 85 | 89 | 0.94 | 1024887 | 40.5 |

## Trap - tiny RAM, Q < 70% (why Score/MiB lies)

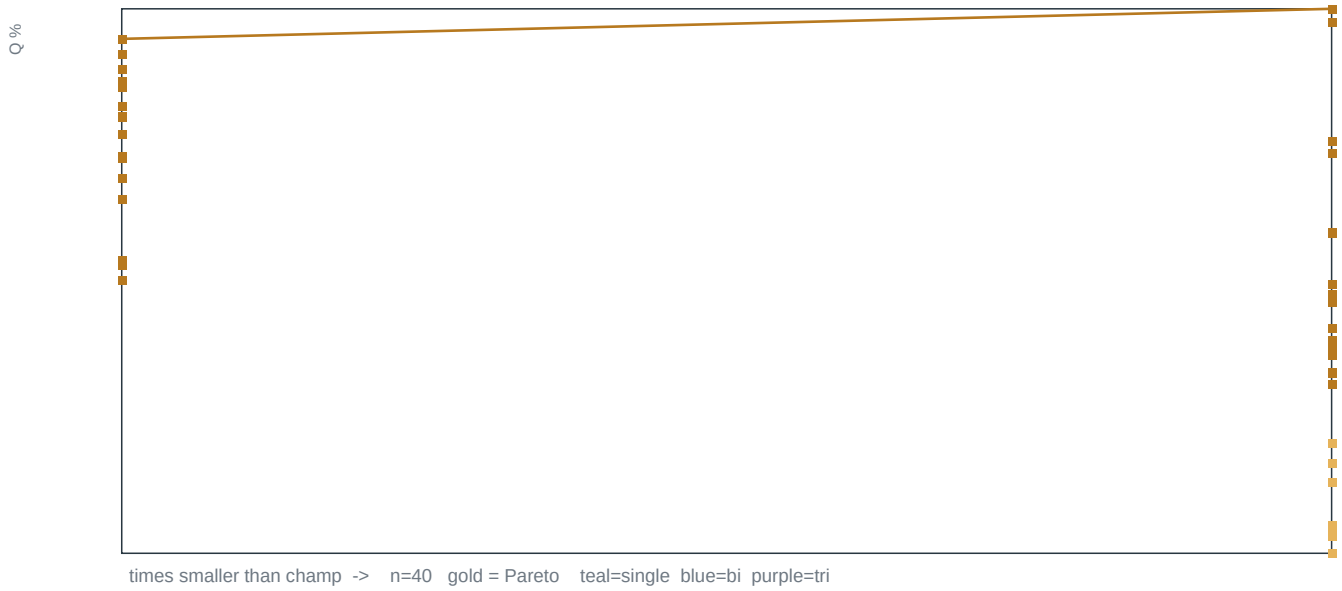
| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| trap | uint2\|none\|MeshTweenChain\|single\|simd | 70 | 8 | 12.0 | 0.00 | 25 | 25 | 61154.4 | 0.0 |
| trap | uint2\|none\|TweenSplit\|single\|simd | 69 | 8 | 12.0 | 0.00 | 25 | 25 | 61630.2 | 0.0 |
| trap | uint2\|none\|StepTweenSplit\|single\|simd | 70 | 8 | 12.0 | 0.00 | 25 | 24 | 63455.6 | 0.0 |
| trap | uint2\|none\|TweenAlt\|single\|simd | 62 | 8 | 12.0 | 0.00 | 25 | 21 | 53201.6 | 0.0 |
| trap | uint2\|none\|StepTweenAlt\|single\|simd | 66 | 8 | 12.0 | 0.00 | 25 | 22 | 56932.1 | 0.0 |
| trap | uint2\|none\|TweenSplitHeadProxy\|single\|simd | 66 | 8 | 12.0 | 0.00 | 25 | 24 | 57537.0 | 0.0 |
| trap | uint2\|none\|TweenSplitLinearCache\|single\|simd | 70 | 8 | 12.0 | 0.00 | 25 | 24 | 63237.6 | 0.0 |
| trap | uint2\|none\|TweenSplitSparse\|single\|simd | 68 | 8 | 12.0 | 0.00 | 25 | 28 | 56648.5 | 0.0 |
| trap | uint2\|none\|MeshTweenAlt\|single\|simd | 65 | 8 | 12.0 | 0.00 | 25 | 27 | 51156.9 | 0.0 |
| trap | uint2\|none\|MeshTweenSplitFastProxy\|single\|simd | 69 | 8 | 12.0 | 0.00 | 25 | 23 | 64586.1 | 0.0 |

## LPD - Q% vs RAM KiB (gold = high Q, low RAM)




## LPD - Q% vs shrink vs champ (gold = upper right)

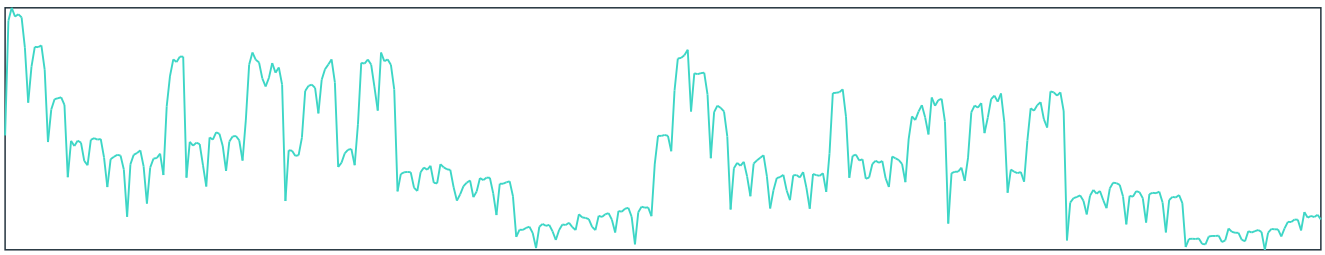
## LPD - Q% vs shrink vs champ (gold = upper right)




## Top LPD

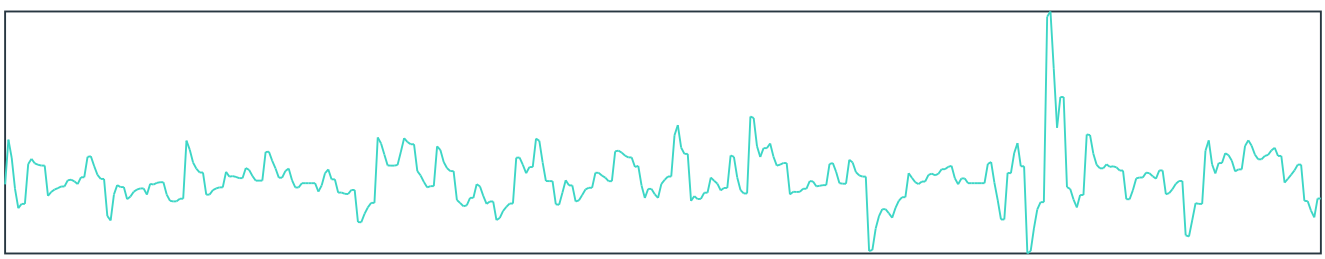



## Pulse Score - residual



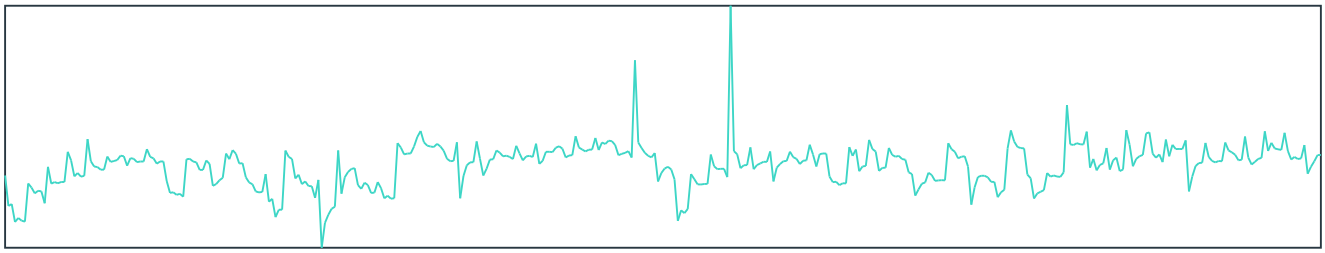
n=400 min=7789.52 max=58476.70

## Pulse SoftAcc - residual



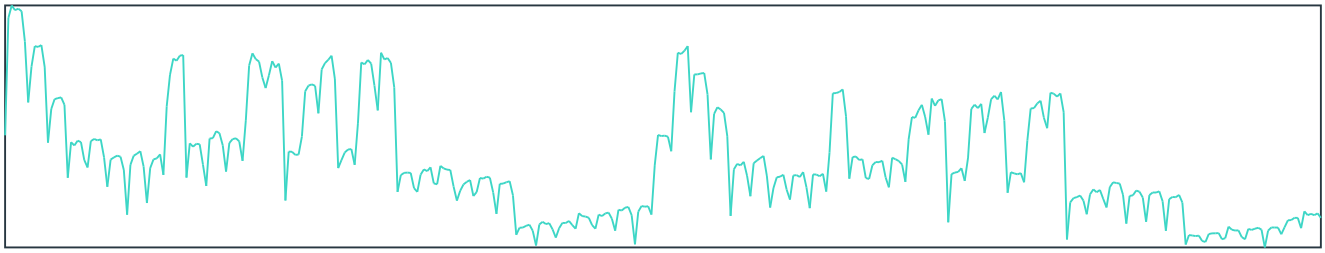
n=400 min=24.98 max=25.04

## Pulse Availability - residual



n=400 min=43.80 max=52.50

## Pulse Throughput - residual



n=400 min=64914.47 max=515395.73

## Queue by train mode (this epoch)

| Mode | Done | Run | Left | Total |
|---|---|---|---|---|
| sgd | 102 | 0 | 0 | 102 |
| step_sgd | 102 | 0 | 0 | 102 |
| tween | 102 | 0 | 0 | 102 |
| tween_chain | 102 | 0 | 0 | 102 |
| step_tween | 102 | 0 | 0 | 102 |
| step_tween_chain | 102 | 0 | 0 | 102 |
| MeshBP | 102 | 0 | 0 | 102 |
| MeshTween | 102 | 0 | 0 | 102 |
| MeshTweenChain | 102 | 0 | 0 | 102 |
| TweenSplit | 102 | 0 | 0 | 102 |
| StepTweenSplit | 102 | 0 | 0 | 102 |
| TweenAlt | 102 | 0 | 0 | 102 |
| StepTweenAlt | 102 | 0 | 0 | 102 |
| TweenSplitHeadProxy | 102 | 0 | 0 | 102 |
| TweenSplitLinear | 102 | 0 | 0 | 102 |
| TweenSplitFastProxy | 102 | 0 | 0 | 102 |
| TweenSplitLinearCache | 102 | 0 | 0 | 102 |
| TweenSplitHeadProxyAsync | 102 | 0 | 0 | 102 |
| TweenSplitSparse | 102 | 0 | 0 | 102 |
| MeshTweenSplit | 102 | 0 | 0 | 102 |
| MeshTweenAlt | 102 | 0 | 0 | 102 |
| MeshTweenSplitFastProxy | 102 | 0 | 0 | 102 |
| MeshTweenSplitSparse | 102 | 0 | 0 | 102 |

# tide  rmsnorm

Score = Throughput x Availability% x SoftAcc% / 10,000
done - epoch 1 - 2026-08-18 09:45:25 - 0.0.0.0:8116
This epoch 2346 / 2346 cells. Recorded 2346 results.
Score 0 usually means the cell finished before a Lucy pulse (SoftAcc never sampled) or true-class mass was 0. Those rows do not vote holistically.
rmsnorm - XOR after random per-sample scale - modes all - min 2000ms/cell - 1024 train - pulse 50ms - SIMD true

## Lucy champions (this tide)

| Axis | Cell | Score | Soft | Acc | Thru | Avail |
|---|---|---|---|---|---|---|
| score | float32\|none\|sgd\|single\|simd | 111200.24 | 27.2 | 44.7 | 1001089.2 | 40.9 |
| throughput | float32\|none\|tween\|single\|simd | 109635.94 | 25.1 | 31.0 | 1083929.1 | 40.2 |
| availability | complex64\|none\|MeshTweenSplitSparse\|tricameral\|simd | 16821.24 | 25.0 | 25.2 | 141980.9 | 47.4 |
| accuracy | float32\|none\|sgd\|single\|simd | 111200.24 | 27.2 | 44.7 | 1001089.2 | 40.9 |
| mobile score (tra | binary\|none\|step_sgd\|single\|simd | 93949.37 | 25.4 | 30.7 | 891990.6 | 41.4 |
| t->50% | float32\|none\|sgd\|single\|simd | 111200.24 | 27.2 | 44.7 | 1001089.2 | 40.9 |
| acc/sec | float32\|none\|sgd\|single\|simd | 111200.24 | 27.2 | 44.7 | 1001089.2 | 40.9 |

## Lucy axes - rmsnorm

| Axis | Mode | DType | Arch | Value |
|---|---|---|---|---|
| score | sgd | float32 | singlex1 | 111200.24 |
| soft_acc | sgd | float32 | singlex1 | 27.17 |
| hard_acc | tween_chain | float32 | singlex1 | 45.28 |
| throughput | tween | float32 | singlex1 | 1083929.05 |
| availability | MeshTweenSplitS~ | complex64 | tricameralx3 | 47.36 |
| acc_thru | step_sgd | float32 | singlex1 | 274474.80 |
| realtime | tween | float32 | singlex1 | 435996.80 |
| adapt | tween_chain | float32 | singlex1 | 26.41 |
| keep_learn | TweenSplitHeadP~ | ternary | singlex1 | 12.89 |
| acc_per_sec | sgd | float32 | singlex1 | 13.58 |
| time_to_50 | sgd | float32 | singlex1 | 1.31 |
| consistency | sgd | float64 | singlex1 | 100.00 |
| stability | sgd | fp4 | singlex1 | 100.00 |
| mobile_score | step_sgd | binary | singlex1 | 8209420998.61 |
| lpd | step_sgd | binary | singlex1 | 26.69 |
| mspeed | tween | float32 | singlex1 | 1.00 |
| mavail | sgd | int | singlex1 | 0.94 |
| mix | sgd | float32 | singlex1 | 0.93 |

## Best settings per train mode

| Mode | DType | Format | Score | Soft | Acc | Avail | n |
|---|---|---|---|---|---|---|---|
| sgd | float32 | none | 111200.2 | 27.2 | 44.7 | 40.9 | 102 |
| step_sgd | float32 | none | 110474.7 | 26.7 | 41.5 | 40.2 | 102 |
| tween | float32 | none | 109635.9 | 25.1 | 31.0 | 40.2 | 102 |
| tween_chain | float32 | none | 107281.7 | 27.0 | 45.3 | 41.0 | 102 |
| MeshTweenSplitFastProxy | float32 | none | 98448.6 | 25.2 | 30.5 | 40.9 | 102 |
| step_tween | float32 | none | 96815.9 | 25.2 | 29.3 | 39.7 | 102 |
| MeshBP | float32 | none | 96248.3 | 27.0 | 44.7 | 40.4 | 102 |
| step_tween_chain | float32 | none | 94848.2 | 26.4 | 37.9 | 39.9 | 102 |
| MeshTweenChain | float32 | none | 91325.0 | 26.8 | 39.5 | 40.6 | 102 |
| MeshTween | float32 | none | 89914.0 | 25.2 | 28.1 | 40.2 | 102 |
| MeshTweenSplit | float32 | none | 89563.0 | 25.5 | 35.4 | 41.0 | 102 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| TweenSplitLinearCache | float32 | none | 89436.5 | 25.3 | 27.2 | 41.1 | 102 |
| MeshTweenSplitSparse | float32 | none | 89237.6 | 25.2 | 27.3 | 40.7 | 102 |
| TweenSplitHeadProxyAsync | float32 | none | 88143.0 | 25.3 | 29.0 | 40.7 | 102 |
| TweenSplitSparse | float32 | none | 86969.2 | 25.1 | 26.9 | 40.9 | 102 |
| TweenSplit | float32 | none | 86768.3 | 25.3 | 31.3 | 40.8 | 102 |
| TweenSplitLinear | float32 | none | 86415.7 | 25.9 | 37.5 | 40.1 | 102 |
| TweenSplitFastProxy | float16 | none | 86157.8 | 25.2 | 29.0 | 41.5 | 102 |
| TweenSplitHeadProxy | float32 | none | 85646.4 | 25.2 | 30.6 | 40.6 | 102 |
| StepTweenSplit | float32 | none | 81661.4 | 25.3 | 31.3 | 40.4 | 102 |
| MeshTweenAlt | float32 | none | 79726.8 | 26.0 | 37.1 | 39.7 | 102 |
| TweenAlt | float32 | none | 74150.8 | 25.4 | 30.3 | 39.2 | 102 |
| StepTweenAlt | float32 | none | 73057.7 | 25.9 | 36.3 | 38.6 | 102 |

## Best dtype per mode

| Mode | Winner dtype | Score | Soft | Acc |
|---|---|---|---|---|
| sgd | float32 | 111200.2 | 27.2 | 44.7 |
| step_sgd | float32 | 110474.7 | 26.7 | 41.5 |
| tween | float32 | 109635.9 | 25.1 | 31.0 |
| tween_chain | float32 | 107281.7 | 27.0 | 45.3 |
| MeshTweenSplitFastProxy | float32 | 98448.6 | 25.2 | 30.5 |
| step_tween | float32 | 96815.9 | 25.2 | 29.3 |
| MeshBP | float32 | 96248.3 | 27.0 | 44.7 |
| step_tween_chain | float32 | 94848.2 | 26.4 | 37.9 |
| MeshTweenChain | float32 | 91325.0 | 26.8 | 39.5 |
| MeshTween | float32 | 89914.0 | 25.2 | 28.1 |
| MeshTweenSplit | float32 | 89563.0 | 25.5 | 35.4 |
| TweenSplitLinearCache | float32 | 89436.5 | 25.3 | 27.2 |
| MeshTweenSplitSparse | float32 | 89237.6 | 25.2 | 27.3 |
| TweenSplitHeadProxyAsync | float32 | 88143.0 | 25.3 | 29.0 |
| TweenSplitSparse | float32 | 86969.2 | 25.1 | 26.9 |
| TweenSplit | float32 | 86768.3 | 25.3 | 31.3 |
| TweenSplitLinear | float32 | 86415.7 | 25.9 | 37.5 |
| TweenSplitFastProxy | float16 | 86157.8 | 25.2 | 29.0 |
| TweenSplitHeadProxy | float32 | 85646.4 | 25.2 | 30.6 |
| StepTweenSplit | float32 | 81661.4 | 25.3 | 31.3 |
| MeshTweenAlt | float32 | 79726.8 | 26.0 | 37.1 |
| TweenAlt | float32 | 74150.8 | 25.4 | 30.3 |
| StepTweenAlt | float32 | 73057.7 | 25.9 | 36.3 |

## Best mode per dtype

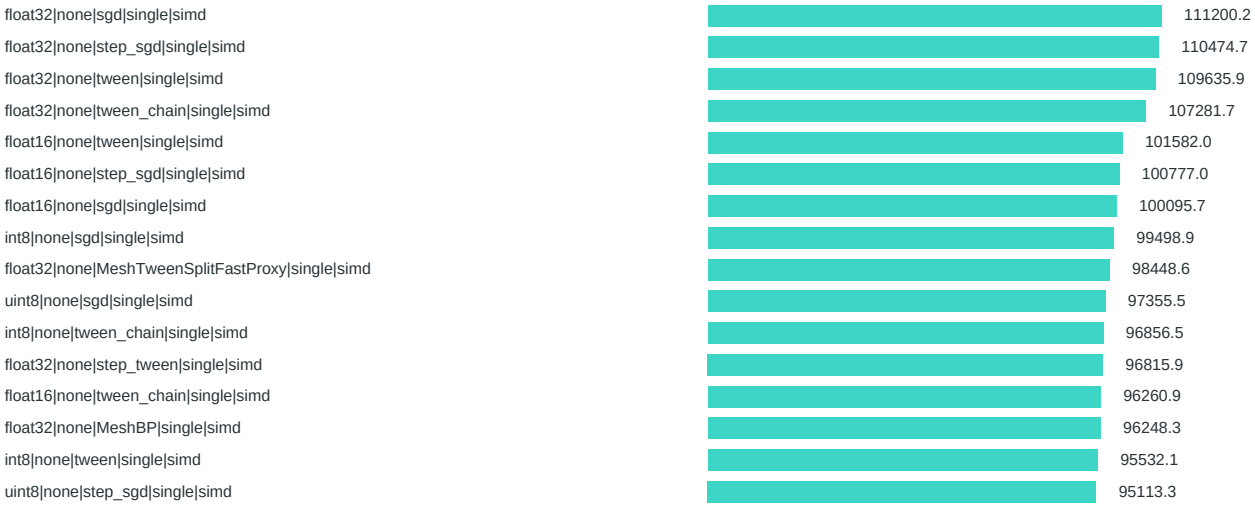
| DType | Winner mode | Score | Soft | Acc |
|---|---|---|---|---|
| float32 | sgd | 111200.2 | 27.2 | 44.7 |
| float16 | tween | 101582.0 | 25.1 | 26.8 |
| int8 | sgd | 99498.9 | 25.8 | 35.8 |
| uint8 | sgd | 97355.5 | 25.9 | 36.7 |
| int4 | sgd | 93996.4 | 25.3 | 31.4 |
| binary | step_sgd | 93949.4 | 25.4 | 30.7 |
| ternary | tween | 92538.8 | 24.8 | 25.3 |
| int2 | step_sgd | 92520.6 | 24.8 | 20.7 |
| bfloat16 | sgd | 91710.6 | 25.2 | 33.4 |
| fp4 | sgd | 90857.9 | 25.0 | 25.0 |
| float64 | step_sgd | 85461.3 | 26.4 | 37.7 |

| | | | | |
|---|---|---|---|---|
| fp8e5m2 | step_sgd | 79443.7 | 25.6 | 34.6 |
| uint32 | sgd | 78448.3 | 25.8 | 35.7 |
| fp8e4m3 | sgd | 76951.6 | 25.5 | 32.3 |
| uint64 | tween | 76817.0 | 25.2 | 30.2 |
| uint16 | sgd | 76179.9 | 25.8 | 36.1 |
| int32 | sgd | 74962.4 | 25.8 | 36.2 |
| uint4 | step_sgd | 72526.9 | 25.3 | 31.1 |
| int64 | step_sgd | 72284.9 | 26.3 | 37.2 |
| int16 | sgd | 70397.9 | 25.8 | 36.8 |
| uint2 | tween | 70154.0 | 25.0 | 26.4 |
| uintptr | sgd | 67512.5 | 25.8 | 36.4 |
| complex128 | sgd | 64752.8 | 26.2 | 37.3 |
| uint | sgd | 64323.1 | 25.9 | 35.8 |
| int | sgd | 63438.8 | 26.2 | 39.4 |
| complex64 | sgd | 62777.7 | 26.2 | 38.3 |
| nf4 | sgd | 58951.2 | 25.5 | 32.9 |
| uint3 | sgd | 49311.6 | 25.1 | 27.8 |
| int3 | sgd | 46016.3 | 25.3 | 29.2 |
| uint5 | sgd | 43022.5 | 25.6 | 35.4 |
| int5 | sgd | 40328.0 | 25.7 | 35.9 |
| uint6 | sgd | 39334.6 | 25.8 | 36.5 |
| int6 | sgd | 37105.1 | 25.7 | 36.1 |
| fp6 | sgd | 36845.7 | 25.6 | 35.8 |

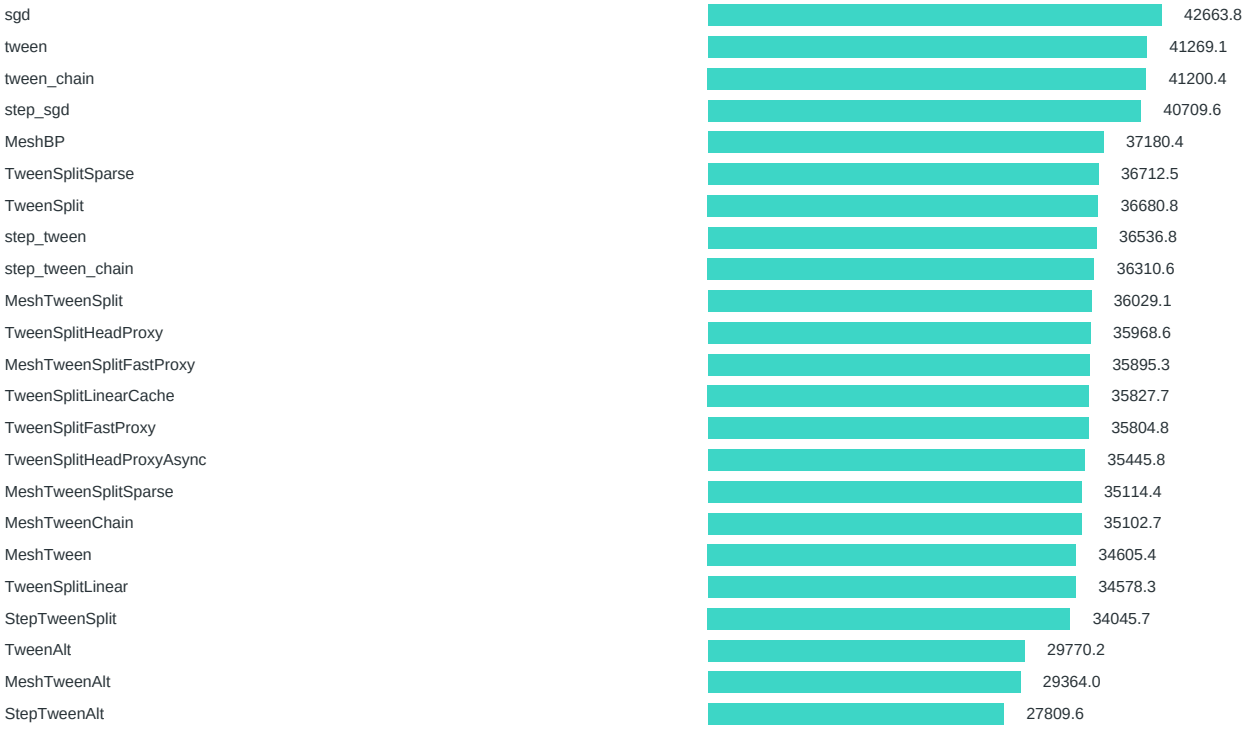
## Leaderboard - rmsnorm

| # | Cell | Score | Soft | Acc | Thru | Avail |
|---|---|---|---|---|---|---|
| 1 | float32\|none\|sgd\|single\|simd | 111200.2 | 27.2 | 44.7 | 1001089.2 | 40.9 |
| 2 | float32\|none\|step_sgd\|single\|simd | 110474.7 | 26.7 | 41.5 | 1027393.9 | 40.2 |
| 3 | float32\|none\|tween\|single\|simd | 109635.9 | 25.1 | 31.0 | 1083929.1 | 40.2 |
| 4 | float32\|none\|tween_chain\|single\|simd | 107281.7 | 27.0 | 45.3 | 970981.3 | 41.0 |
| 5 | float16\|none\|tween\|single\|simd | 101582.0 | 25.1 | 26.8 | 994450.2 | 40.7 |
| 6 | float16\|none\|step_sgd\|single\|simd | 100777.0 | 26.1 | 39.2 | 952372.5 | 40.6 |
| 7 | float16\|none\|sgd\|single\|simd | 100095.7 | 26.1 | 38.5 | 931579.8 | 41.2 |
| 8 | int8\|none\|sgd\|single\|simd | 99498.9 | 25.8 | 35.8 | 923076.3 | 41.7 |
| 9 | float32\|none\|MeshTweenSplitFastProxy\|single\|simd | 98448.6 | 25.2 | 30.5 | 953839.4 | 40.9 |
| 10 | uint8\|none\|sgd\|single\|simd | 97355.5 | 25.9 | 36.7 | 899306.2 | 41.8 |
| 11 | int8\|none\|tween_chain\|single\|simd | 96856.5 | 25.9 | 35.6 | 897194.7 | 41.7 |
| 12 | float32\|none\|step_tween\|single\|simd | 96815.9 | 25.2 | 29.3 | 967746.1 | 39.7 |
| 13 | float16\|none\|tween_chain\|single\|simd | 96260.9 | 26.0 | 38.9 | 899156.8 | 41.1 |
| 14 | float32\|none\|MeshBP\|single\|simd | 96248.3 | 27.0 | 44.7 | 881937.0 | 40.4 |
| 15 | int8\|none\|tween\|single\|simd | 95532.1 | 25.1 | 27.8 | 916277.5 | 41.5 |
| 16 | uint8\|none\|step_sgd\|single\|simd | 95113.3 | 25.8 | 36.6 | 889147.7 | 41.4 |
| 17 | float32\|none\|step_tween_chain\|single\|simd | 94848.2 | 26.4 | 37.9 | 900053.8 | 39.9 |
| 18 | uint8\|none\|tween_chain\|single\|simd | 94835.8 | 25.8 | 36.5 | 876874.9 | 41.9 |
| 19 | int4\|none\|sgd\|single\|simd | 93996.4 | 25.3 | 31.4 | 888099.2 | 41.8 |
| 20 | binary\|none\|step_sgd\|single\|simd | 93949.4 | 25.4 | 30.7 | 891990.6 | 41.4 |

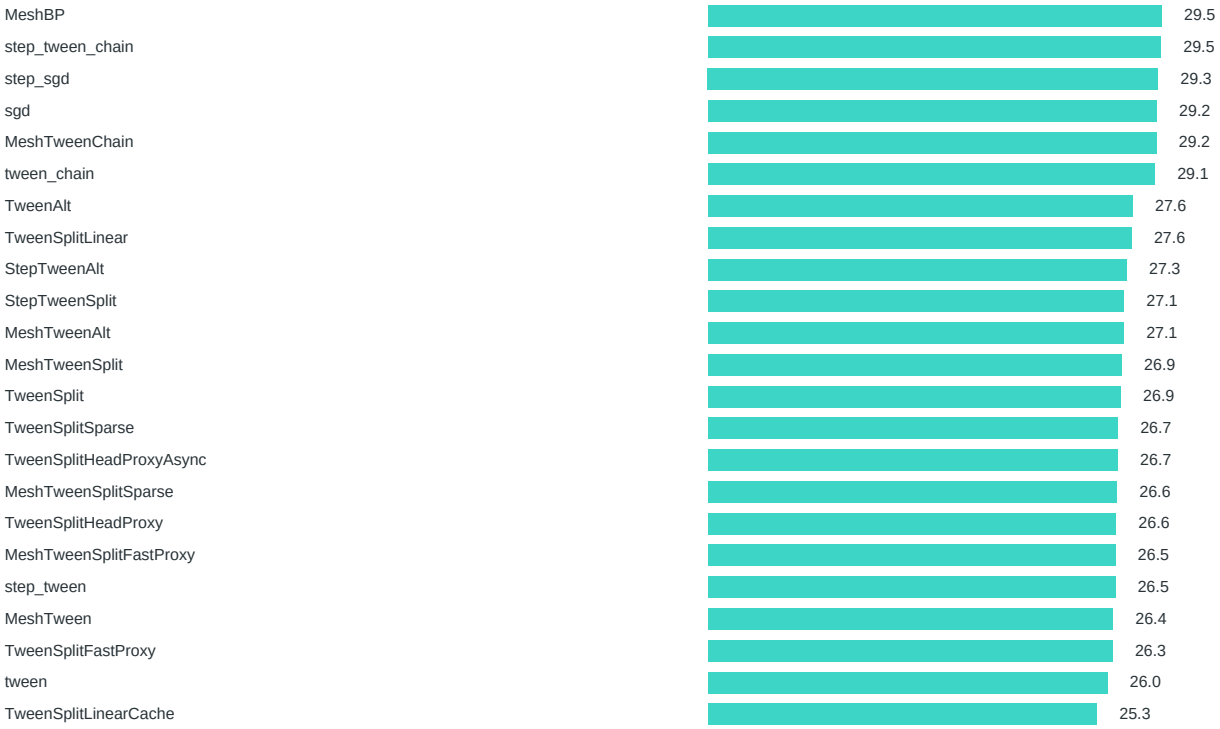
## Top scores - rmsnorm



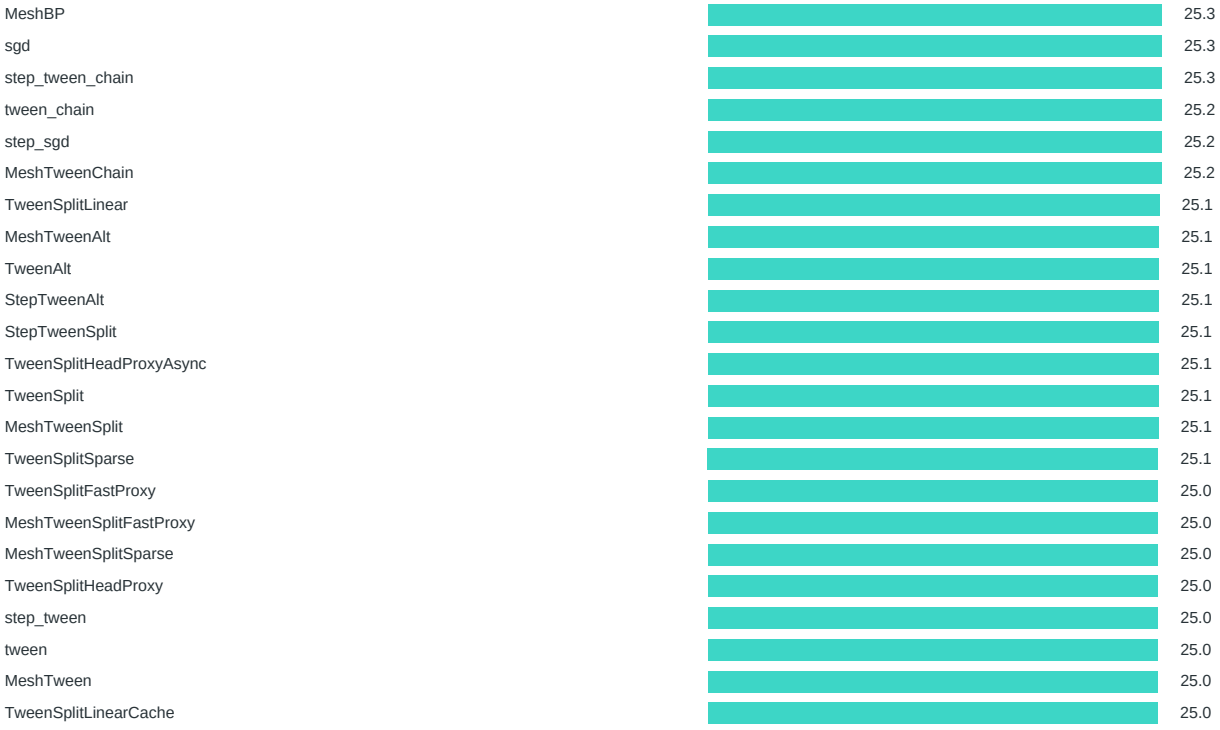

## Mean Score by train mode



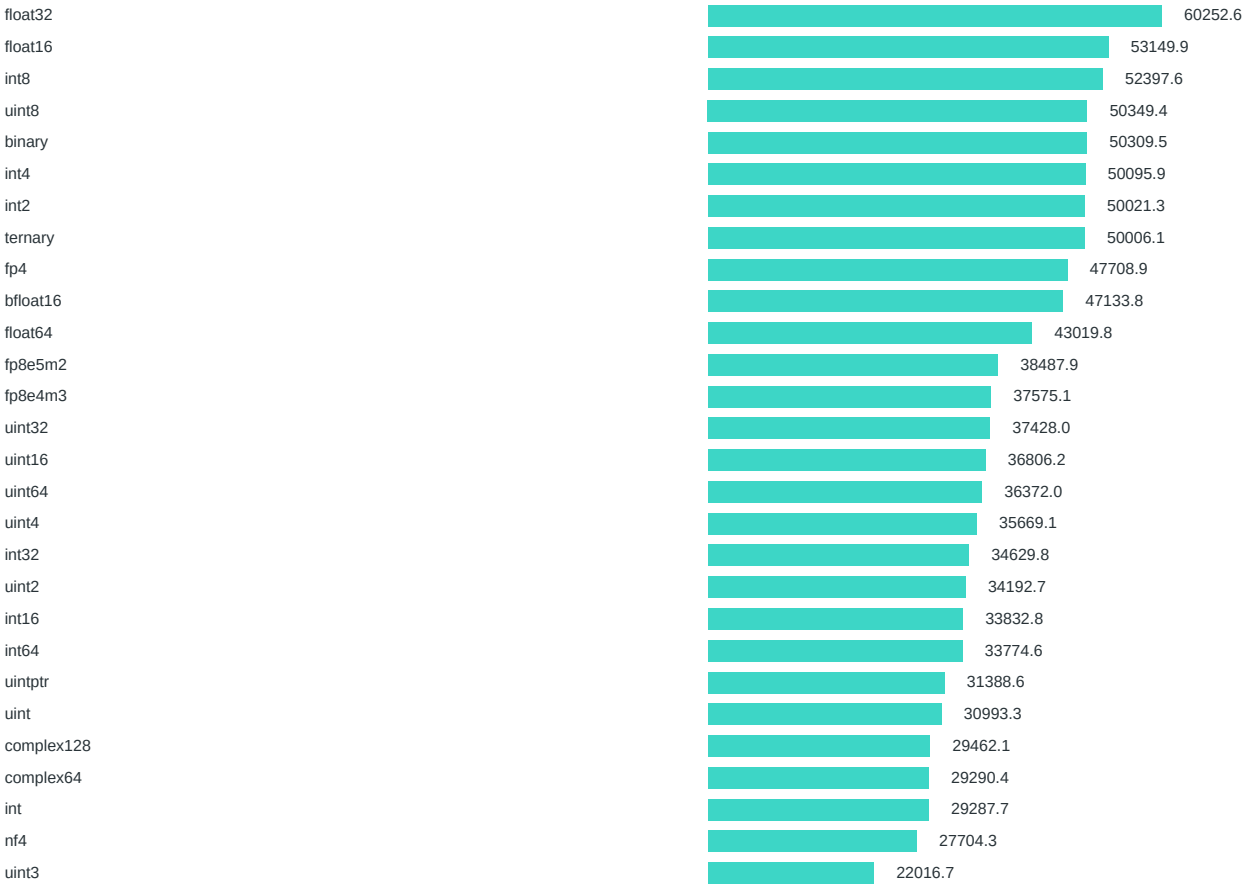

## Mean hard Acc by train mode




## Mean SoftAcc by train mode




## Mean Score by dtype




## Mean hard Acc by dtype




## Mean Score by arch




## Honesty - mean Score, every mode x dtype (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 49792 | 51987 | 31108 | 30791 | 54300 | 62609 | 45168 | 49461 | 16296 | 38514 | 39934 | 30228 | 35546 | 51938 | 21328 | 35486 |
| MeshTween | 45618 | 48184 | 28902 | 29053 | 51394 | 59286 | 42043 | 46227 | 15063 | 35432 | 36570 | 28484 | 32227 | 49315 | 19433 | 33987 |
| MeshTweenAlt | 38055 | 43405 | 23590 | 24095 | 43691 | 50259 | 35366 | 42730 | 12094 | 30462 | 30836 | 23541 | 26612 | 39775 | 16895 | 29145 |
| MeshTweenChain | 47053 | 48286 | 29200 | 28999 | 51591 | 59243 | 43547 | 46857 | 15541 | 36452 | 38230 | 28692 | 32708 | 48346 | 19736 | 34534 |
| MeshTweenSplit | 46645 | 49967 | 29380 | 28237 | 53900 | 58837 | 43103 | 45042 | 16061 | 39903 | 40889 | 30342 | 35309 | 49886 | 21772 | 34972 |
| MeshTweenSplitFa | 47541 | 49674 | 29423 | 27233 | 50515 | 62510 | 41742 | 47849 | 17412 | 37337 | 37121 | 30155 | 35412 | 49478 | 20799 | 35766 |
| MeshTweenSplitSp | 46384 | 48521 | 29025 | 27929 | 52027 | 59110 | 41588 | 45452 | 16527 | 35424 | 35285 | 27670 | 33595 | 49186 | 21346 | 34869 |
| StepTweenAlt | 37677 | 38998 | 22984 | 23185 | 41099 | 46770 | 33425 | 37272 | 10914 | 30713 | 30842 | 22437 | 26269 | 39325 | 16106 | 26792 |
| StepTweenSplit | 44273 | 47290 | 27852 | 28498 | 50064 | 54701 | 40259 | 45667 | 15234 | 36527 | 37356 | 27343 | 32484 | 47743 | 19813 | 32746 |
| TweenAlt | 39580 | 42523 | 24353 | 23544 | 44524 | 48744 | 35850 | 39573 | 12473 | 31514 | 33473 | 24401 | 28591 | 41886 | 16577 | 29415 |
| TweenSplit | 47324 | 51001 | 30362 | 30742 | 53768 | 58441 | 43324 | 49257 | 18060 | 38953 | 38995 | 29267 | 33960 | 51290 | 22395 | 34458 |
| TweenSplitFastPr | 46360 | 50101 | 30130 | 30159 | 55416 | 57727 | 42958 | 47579 | 16309 | 37200 | 39187 | 29130 | 33558 | 48322 | 20211 | 34533 |
| TweenSplitHeadPr | 48617 | 50654 | 29911 | 29646 | 52248 | 57993 | 42222 | 48147 | 16745 | 37998 | 39240 | 28767 | 33527 | 48589 | 21302 | 34428 |
| TweenSplitHeadPr | 45371 | 51609 | 28032 | 30622 | 51234 | 59861 | 40138 | 46425 | 16081 | 37396 | 36629 | 29464 | 32710 | 48600 | 20318 | 33477 |
| TweenSplitLinear | 44526 | 48562 | 29885 | 29213 | 52222 | 58723 | 41249 | 45718 | 15544 | 36064 | 36627 | 28928 | 32362 | 47096 | 20723 | 33191 |
| TweenSplitLinear | 46026 | 51098 | 28707 | 29343 | 53482 | 61642 | 42559 | 47713 | 16188 | 38220 | 37347 | 28625 | 33944 | 53112 | 22564 | 31994 |
| TweenSplitSparse | 48177 | 52386 | 30404 | 31073 | 53375 | 57623 | 43213 | 49512 | 17860 | 37936 | 37913 | 29867 | 34715 | 53180 | 22352 | 33458 |
| sgd | 56371 | 58235 | 35768 | 34429 | 62493 | 73782 | 50735 | 56527 | 19100 | 44007 | 45736 | 34956 | 40126 | 58769 | 24733 | 41945 |
| step_sgd | 52740 | 57764 | 32488 | 32281 | 62369 | 70607 | 50292 | 54029 | 17394 | 41326 | 44564 | 33968 | 37644 | 57555 | 23176 | 39250 |
| step_tween | 49486 | 51691 | 29121 | 29391 | 56141 | 63966 | 45402 | 49016 | 15321 | 38155 | 39491 | 29963 | 34077 | 50983 | 20448 | 35641 |
| step_tween_chain | 47907 | 51388 | 29328 | 28624 | 53751 | 62247 | 44273 | 49540 | 15561 | 38590 | 39382 | 29766 | 34411 | 51053 | 19968 | 35507 |
| tween | 54750 | 57140 | 33676 | 33209 | 61873 | 70862 | 50728 | 53597 | 18175 | 43376 | 45301 | 33280 | 39165 | 58170 | 23842 | 40258 |
| tween_chain | 53804 | 56652 | 33999 | 33384 | 60971 | 70268 | 50274 | 54114 | 18258 | 42725 | 44275 | 34343 | 39201 | 56892 | 23877 | 40633 |

## Honesty - mean Score, every mode x dtype (cols 17-32)

## Honesty - mean Score, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 50848 | 17537 | 16571 | 34854 | 55163 | 28403 | 52383 | 31946 | 38086 | 36372 | 22184 | 39308 | 36459 | 19374 | 17351 | 38067 |
| MeshTween | 49329 | 16193 | 14918 | 32665 | 50922 | 26722 | 47989 | 29277 | 36019 | 32122 | 20894 | 35722 | 34371 | 17253 | 15777 | 34521 |
| MeshTweenAlt | 42263 | 13543 | 12097 | 25947 | 44497 | 22551 | 39673 | 25904 | 29284 | 28141 | 18685 | 30636 | 30224 | 13954 | 12761 | 28859 |
| MeshTweenChain | 48604 | 16485 | 15645 | 33515 | 50653 | 27012 | 49889 | 30310 | 35862 | 34079 | 21738 | 36370 | 34711 | 18046 | 16327 | 34931 |
| MeshTweenSplit | 49788 | 19017 | 16791 | 34126 | 51730 | 28295 | 49420 | 32266 | 37027 | 34806 | 22496 | 36478 | 35248 | 18948 | 18973 | 34342 |
| MeshTweenSplitFa | 49020 | 17671 | 16672 | 32590 | 55173 | 27203 | 50378 | 31718 | 37395 | 34498 | 22787 | 38125 | 34967 | 20040 | 17094 | 34446 |
| MeshTweenSplitSp | 49267 | 17398 | 16277 | 31283 | 51486 | 27996 | 49170 | 31429 | 34684 | 35149 | 22300 | 37397 | 35422 | 18862 | 17445 | 35018 |
| StepTweenAlt | 38747 | 12543 | 10781 | 26977 | 41803 | 20879 | 40193 | 23393 | 28533 | 26631 | 16046 | 28511 | 27791 | 13597 | 11831 | 28294 |
| StepTweenSplit | 49364 | 16351 | 15127 | 31378 | 48986 | 25700 | 48281 | 29755 | 35661 | 32692 | 20806 | 34800 | 34564 | 18295 | 15855 | 34355 |
| TweenAlt | 42497 | 13424 | 12540 | 28297 | 44302 | 22960 | 41972 | 25862 | 29865 | 28481 | 18270 | 30352 | 29998 | 14306 | 13147 | 29853 |
| TweenSplit | 50804 | 18483 | 17212 | 33992 | 52047 | 29021 | 51919 | 32051 | 37776 | 35307 | 23179 | 37906 | 36691 | 19976 | 18178 | 37370 |
| TweenSplitFastPr | 49008 | 18138 | 16997 | 34964 | 51035 | 27388 | 48250 | 31024 | 35596 | 34086 | 22777 | 37770 | 36145 | 19057 | 16762 | 36679 |
| TweenSplitHeadPr | 51527 | 17894 | 17043 | 34269 | 52643 | 27997 | 47861 | 31514 | 36654 | 34315 | 23057 | 36009 | 35701 | 19609 | 17724 | 36904 |
| TweenSplitHeadPr | 51242 | 17721 | 16371 | 31938 | 53134 | 28888 | 49874 | 30015 | 36192 | 33465 | 21902 | 36094 | 36285 | 19493 | 17274 | 36066 |
| TweenSplitLinear | 46491 | 17244 | 15200 | 32511 | 49351 | 26413 | 48083 | 30303 | 36004 | 31752 | 21666 | 36446 | 34373 | 17987 | 16581 | 35896 |
| TweenSplitLinear | 51184 | 17078 | 15982 | 33327 | 49906 | 28698 | 49742 | 31063 | 36897 | 33889 | 22312 | 37689 | 35179 | 19389 | 17234 | 37256 |
| TweenSplitSparse | 50038 | 19008 | 17692 | 34960 | 50263 | 28153 | 52582 | 31482 | 37790 | 35959 | 22570 | 38875 | 36837 | 19130 | 17991 | 38632 |
| sgd | 59913 | 21026 | 19067 | 41322 | 63095 | 33126 | 58226 | 36738 | 44019 | 38917 | 26155 | 45450 | 41189 | 22392 | 20298 | 43492 |
| step_sgd | 57508 | 19988 | 18107 | 39269 | 59693 | 31227 | 56539 | 34946 | 42305 | 37537 | 24831 | 42168 | 40804 | 20546 | 17772 | 41408 |
| step_tween | 51229 | 16594 | 15034 | 35490 | 53592 | 27475 | 52049 | 31029 | 37685 | 34508 | 21252 | 38048 | 35941 | 17804 | 16336 | 36506 |
| step_tween_chain | 51424 | 16597 | 15290 | 34989 | 53538 | 27074 | 50699 | 30688 | 37575 | 34566 | 21064 | 38472 | 36158 | 18022 | 16315 | 37247 |
| tween | 54976 | 18647 | 18302 | 38744 | 61045 | 32251 | 57779 | 34791 | 42731 | 40111 | 24524 | 44618 | 40556 | 21008 | 19362 | 43824 |
| tween_chain | 57136 | 19851 | 18350 | 39410 | 61088 | 31767 | 57192 | 35341 | 42901 | 39049 | 24889 | 43600 | 40777 | 21172 | 19018 | 42591 |

## Honesty - mean Score, every mode x dtype  (cols 33-34)

## Honesty - mean Score, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 52349 | 32392 |
| MeshTween | 49883 | 30790 |
| MeshTweenAlt | 42555 | 26250 |
| MeshTweenChain | 49448 | 30849 |
| MeshTweenSplit | 48631 | 32362 |
| MeshTweenSplitFa | 49033 | 31663 |
| MeshTweenSplitSp | 48704 | 30666 |
| StepTweenAlt | 40049 | 24121 |
| StepTweenSplit | 48212 | 29523 |
| TweenAlt | 42790 | 26251 |
| TweenSplit | 51792 | 31848 |
| TweenSplitFastPr | 49995 | 32814 |
| TweenSplitHeadPr | 50665 | 31509 |
| TweenSplitHeadPr | 48854 | 32382 |
| TweenSplitLinear | 47861 | 30868 |
| TweenSplitLinear | 48884 | 29866 |
| TweenSplitSparse | 51732 | 31485 |
| sgd | 60489 | 37943 |
| step_sgd | 57373 | 34659 |
| step_tween | 52189 | 31200 |
| step_tween_chain | 51760 | 31788 |
| tween | 57343 | 35137 |
| tween_chain | 57443 | 35570 |

## Honesty - mean hard Acc, every mode x dtype  (cols 1-16)

## Honesty - mean hard Acc, every mode x dtype  (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 32 | 24 | 33 | 32 | 33 | 36 | 33 | 25 | 28 | 27 | 27 | 32 | 32 | 28 | 26 | 31 |
| MeshTween | 29 | 26 | 28 | 28 | 29 | 27 | 27 | 25 | 28 | 26 | 26 | 27 | 26 | 26 | 23 | 29 |
| MeshTweenAlt | 29 | 25 | 30 | 28 | 29 | 32 | 30 | 25 | 27 | 25 | 25 | 29 | 27 | 25 | 26 | 28 |
| MeshTweenChain | 32 | 25 | 32 | 32 | 32 | 32 | 32 | 25 | 31 | 29 | 28 | 33 | 31 | 26 | 23 | 31 |
| MeshTweenSplit | 28 | 27 | 29 | 29 | 28 | 30 | 28 | 25 | 27 | 25 | 26 | 29 | 28 | 24 | 27 | 28 |
| MeshTweenSplitFa | 27 | 26 | 27 | 27 | 28 | 29 | 27 | 25 | 26 | 26 | 27 | 28 | 27 | 24 | 26 | 29 |
| MeshTweenSplitSp | 28 | 24 | 27 | 27 | 28 | 27 | 28 | 25 | 26 | 28 | 25 | 27 | 28 | 24 | 27 | 26 |
| StepTweenAlt | 30 | 27 | 28 | 29 | 31 | 32 | 30 | 25 | 27 | 26 | 26 | 29 | 28 | 26 | 25 | 29 |
| StepTweenSplit | 29 | 25 | 28 | 29 | 29 | 29 | 29 | 25 | 27 | 25 | 24 | 29 | 28 | 25 | 25 | 28 |
| TweenAlt | 30 | 28 | 30 | 30 | 30 | 31 | 29 | 25 | 28 | 26 | 25 | 29 | 28 | 26 | 26 | 28 |
| TweenSplit | 30 | 25 | 28 | 29 | 29 | 29 | 30 | 25 | 27 | 24 | 26 | 28 | 29 | 26 | 24 | 28 |
| TweenSplitFastPr | 28 | 25 | 27 | 28 | 28 | 27 | 28 | 25 | 26 | 23 | 27 | 29 | 27 | 24 | 24 | 27 |
| TweenSplitHeadPr | 27 | 27 | 27 | 28 | 28 | 28 | 27 | 25 | 27 | 24 | 25 | 28 | 27 | 23 | 26 | 27 |
| TweenSplitHeadPr | 28 | 28 | 28 | 29 | 28 | 27 | 29 | 25 | 25 | 24 | 26 | 28 | 29 | 25 | 25 | 27 |
| TweenSplitLinear | 29 | 27 | 30 | 29 | 30 | 31 | 30 | 25 | 27 | 24 | 26 | 31 | 28 | 25 | 23 | 27 |
| TweenSplitLinear | 27 | 24 | 26 | 25 | 26 | 26 | 26 | 25 | 25 | 27 | 25 | 26 | 25 | 23 | 24 | 25 |
| TweenSplitSparse | 28 | 29 | 28 | 28 | 28 | 27 | 29 | 25 | 25 | 27 | 26 | 28 | 28 | 27 | 27 | 26 |
| sgd | 30 | 24 | 33 | 32 | 32 | 36 | 34 | 25 | 29 | 28 | 28 | 32 | 31 | 24 | 25 | 32 |
| step_sgd | 32 | 25 | 32 | 33 | 32 | 36 | 32 | 25 | 32 | 26 | 29 | 33 | 31 | 22 | 23 | 31 |
| step_tween | 28 | 23 | 26 | 27 | 26 | 28 | 27 | 25 | 27 | 26 | 26 | 28 | 27 | 26 | 24 | 28 |
| step_tween_chain | 32 | 24 | 33 | 32 | 32 | 35 | 33 | 25 | 29 | 30 | 29 | 32 | 31 | 26 | 24 | 31 |
| tween | 28 | 22 | 27 | 28 | 27 | 28 | 27 | 25 | 27 | 24 | 24 | 27 | 26 | 26 | 23 | 26 |
| tween_chain | 31 | 27 | 32 | 33 | 32 | 35 | 35 | 25 | 28 | 27 | 30 | 31 | 31 | 23 | 24 | 31 |

## Honesty - mean hard Acc, every mode x dtype  (cols 17-32)

## Honesty - mean hard Acc, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 26 | 30 | 31 | 33 | 31 | 27 | 25 | 31 | 31 | 26 | 28 | 31 | 27 | 29 | 29 | 31 |
| MeshTween | 25 | 26 | 27 | 27 | 27 | 22 | 23 | 28 | 26 | 28 | 25 | 27 | 24 | 26 | 28 | 25 |
| MeshTweenAlt | 26 | 26 | 28 | 29 | 28 | 25 | 24 | 28 | 27 | 27 | 22 | 27 | 25 | 27 | 28 | 28 |
| MeshTweenChain | 26 | 28 | 30 | 32 | 31 | 25 | 27 | 31 | 31 | 23 | 25 | 31 | 28 | 28 | 29 | 31 |
| MeshTweenSplit | 24 | 26 | 26 | 27 | 28 | 25 | 28 | 27 | 28 | 27 | 26 | 29 | 23 | 25 | 26 | 28 |
| MeshTweenSplitFa | 25 | 28 | 28 | 27 | 25 | 24 | 26 | 27 | 28 | 26 | 25 | 26 | 24 | 29 | 25 | 27 |
| MeshTweenSplitSp | 26 | 27 | 25 | 28 | 27 | 26 | 26 | 27 | 27 | 26 | 26 | 28 | 26 | 26 | 26 | 27 |
| StepTweenAlt | 24 | 26 | 27 | 30 | 28 | 25 | 26 | 27 | 28 | 23 | 24 | 28 | 25 | 26 | 27 | 28 |
| StepTweenSplit | 25 | 26 | 27 | 29 | 29 | 28 | 25 | 28 | 29 | 23 | 26 | 28 | 26 | 25 | 28 | 28 |
| TweenAlt | 27 | 27 | 27 | 28 | 28 | 25 | 24 | 28 | 29 | 26 | 28 | 28 | 25 | 27 | 28 | 28 |
| TweenSplit | 23 | 25 | 27 | 29 | 28 | 25 | 24 | 28 | 28 | 26 | 24 | 28 | 25 | 26 | 26 | 29 |
| TweenSplitFastPr | 26 | 27 | 26 | 29 | 27 | 25 | 22 | 28 | 27 | 23 | 26 | 28 | 27 | 26 | 24 | 27 |
| TweenSplitHeadPr | 26 | 25 | 28 | 28 | 25 | 27 | 26 | 27 | 28 | 25 | 26 | 28 | 26 | 25 | 26 | 28 |
| TweenSplitHeadPr | 28 | 26 | 27 | 27 | 26 | 27 | 22 | 26 | 28 | 25 | 26 | 28 | 26 | 25 | 25 | 27 |
| TweenSplitLinear | 24 | 26 | 30 | 29 | 31 | 24 | 28 | 29 | 30 | 23 | 24 | 29 | 24 | 28 | 29 | 28 |
| TweenSplitLinear | 26 | 26 | 28 | 26 | 26 | 26 | 24 | 24 | 26 | 27 | 20 | 25 | 24 | 26 | 27 | 25 |
| TweenSplitSparse | 26 | 26 | 26 | 28 | 27 | 26 | 27 | 26 | 27 | 26 | 23 | 26 | 24 | 25 | 26 | 28 |
| sgd | 26 | 27 | 28 | 33 | 31 | 28 | 24 | 32 | 31 | 23 | 26 | 31 | 26 | 28 | 28 | 31 |
| step_sgd | 27 | 27 | 31 | 32 | 31 | 27 | 24 | 31 | 31 | 25 | 23 | 31 | 26 | 30 | 30 | 31 |
| step_tween | 26 | 26 | 31 | 27 | 27 | 30 | 24 | 26 | 26 | 24 | 26 | 25 | 27 | 27 | 25 | 27 |
| step_tween_chain | 26 | 31 | 29 | 33 | 31 | 29 | 26 | 31 | 31 | 24 | 25 | 31 | 26 | 28 | 30 | 31 |
| tween | 26 | 24 | 26 | 28 | 23 | 26 | 24 | 27 | 25 | 26 | 25 | 27 | 24 | 27 | 28 | 27 |
| tween_chain | 26 | 29 | 27 | 33 | 31 | 27 | 25 | 32 | 31 | 25 | 24 | 31 | 27 | 25 | 29 | 31 |

## Honesty - mean hard Acc, every mode x dtype  (cols 33-34)

## Honesty - mean hard Acc, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 30 | 31 |
| MeshTween | 28 | 26 |
| MeshTweenAlt | 28 | 28 |
| MeshTweenChain | 31 | 31 |
| MeshTweenSplit | 28 | 28 |
| MeshTweenSplitFa | 25 | 28 |
| MeshTweenSplitSp | 28 | 27 |
| StepTweenAlt | 28 | 28 |
| StepTweenSplit | 28 | 28 |
| TweenAlt | 28 | 28 |
| TweenSplit | 29 | 28 |
| TweenSplitFastPr | 27 | 27 |
| TweenSplitHeadPr | 25 | 28 |
| TweenSplitHeadPr | 27 | 28 |
| TweenSplitLinear | 28 | 31 |
| TweenSplitLinear | 26 | 25 |
| TweenSplitSparse | 28 | 27 |
| sgd | 32 | 31 |
| step_sgd | 31 | 31 |
| step_tween | 27 | 26 |
| step_tween_chain | 31 | 31 |
| tween | 27 | 26 |
| tween_chain | 31 | 31 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 1-16)

## Honesty - mean SoftAcc, every mode x dtype  (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 25 | 25 | 25 | 25 | 25 | 26 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenChain | 25 | 25 | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenAlt | 25 | 25 | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitFastPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitSparse | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| sgd | 25 | 25 | 25 | 25 | 25 | 26 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_sgd | 25 | 25 | 25 | 25 | 25 | 26 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween_chain | 25 | 25 | 25 | 25 | 25 | 26 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween_chain | 25 | 25 | 25 | 26 | 25 | 26 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 17-32)

## Honesty - mean SoftAcc, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenChain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitFastPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitSparse | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| sgd | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween_chain | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 33-34)

## Honesty - mean SoftAcc, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 25 | 25 |
| MeshTween | 25 | 25 |
| MeshTweenAlt | 25 | 25 |
| MeshTweenChain | 25 | 25 |
| MeshTweenSplit | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 |
| StepTweenAlt | 25 | 25 |
| StepTweenSplit | 25 | 25 |
| TweenAlt | 25 | 25 |
| TweenSplit | 25 | 25 |
| TweenSplitFastPr | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 |
| TweenSplitLinear | 25 | 25 |
| TweenSplitLinear | 25 | 25 |
| TweenSplitSparse | 25 | 25 |
| sgd | 25 | 25 |
| step_sgd | 25 | 25 |
| step_tween | 25 | 25 |
| step_tween_chain | 25 | 25 |
| tween | 25 | 25 |
| tween_chain | 25 | 25 |

## Mean Score, every mode x arch

## Mean Score, every mode x arch

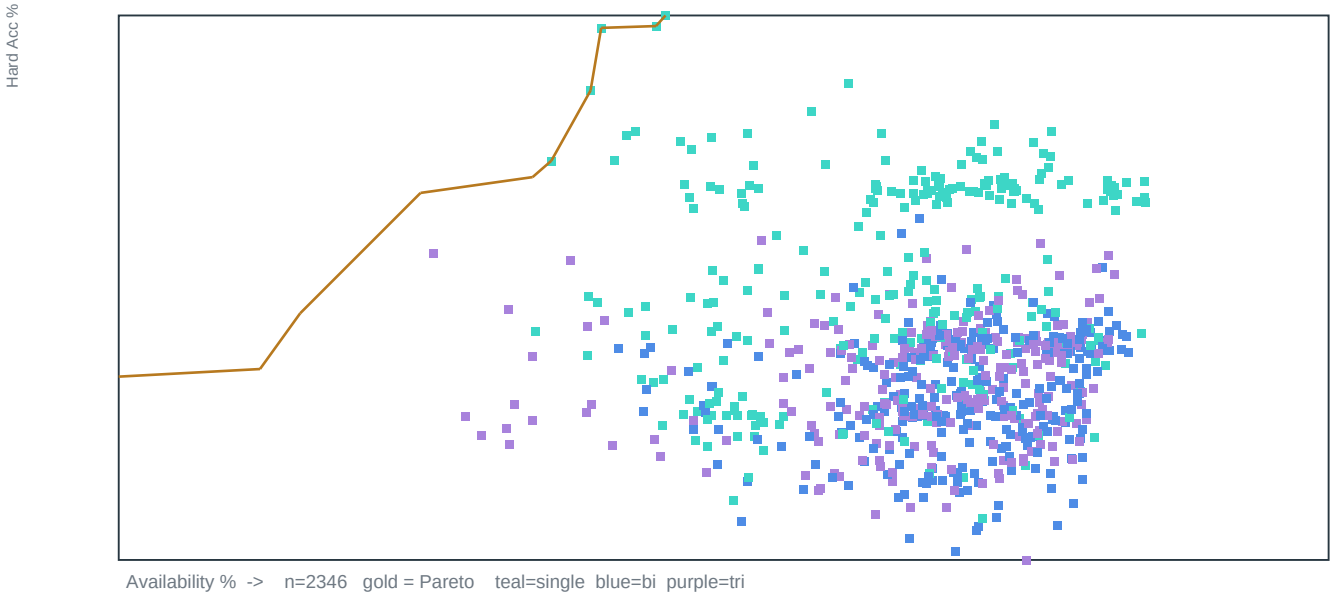
| | bicamera | singlex1 | tricamer |
|---|---|---|---|
| MeshBP | 26217 | 63660 | 21664 |
| MeshTween | 24670 | 58798 | 20349 |
| MeshTweenAlt | 20268 | 50718 | 17106 |
| MeshTweenChain | 24806 | 60064 | 20438 |
| MeshTweenSplit | 26141 | 59727 | 22220 |
| MeshTweenSplitFa | 26669 | 59394 | 21623 |
| MeshTweenSplitSp | 25876 | 57733 | 21734 |
| StepTweenAlt | 18815 | 49297 | 15317 |
| StepTweenSplit | 24796 | 56974 | 20367 |
| TweenAlt | 20894 | 51469 | 16948 |
| TweenSplit | 27002 | 60133 | 22907 |
| TweenSplitFastPr | 26792 | 58523 | 22099 |
| TweenSplitHeadPr | 26831 | 58828 | 22247 |
| TweenSplitHeadPr | 26498 | 57341 | 22498 |
| TweenSplitLinear | 25531 | 57221 | 20983 |
| TweenSplitLinear | 26810 | 58665 | 22008 |
| TweenSplitSparse | 26814 | 60043 | 23281 |
| sgd | 30287 | 72206 | 25498 |
| step_sgd | 28281 | 70684 | 23165 |
| step_tween | 25693 | 62606 | 21312 |
| step_tween_chain | 25247 | 63099 | 20586 |
| tween | 29244 | 70161 | 24402 |
| tween_chain | 29125 | 70175 | 24301 |

## Mean hard Acc, every mode x arch

## Mean hard Acc, every mode x arch

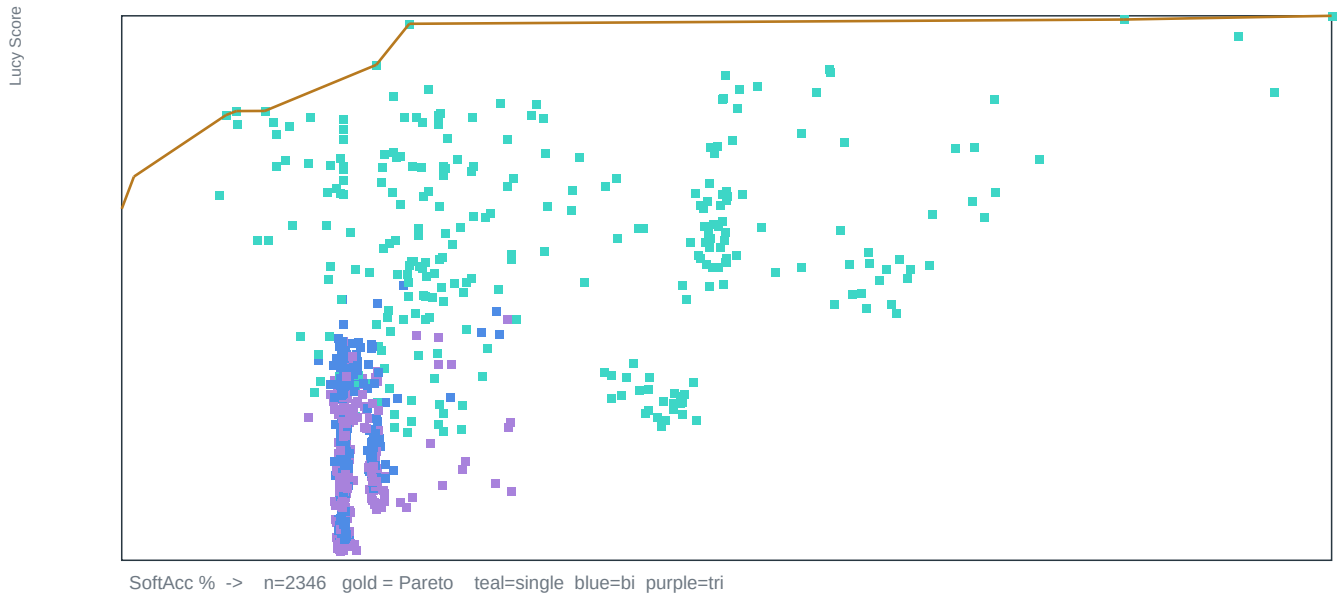
| | bicamera | singlex1 | tricamer |
|---|---|---|---|
| MeshBP | 27 | 34 | 27 |
| MeshTween | 25 | 28 | 26 |
| MeshTweenAlt | 26 | 28 | 26 |
| MeshTweenChain | 27 | 34 | 27 |
| MeshTweenSplit | 26 | 29 | 26 |
| MeshTweenSplitFa | 26 | 28 | 26 |
| MeshTweenSplitSp | 26 | 28 | 26 |
| StepTweenAlt | 26 | 28 | 27 |
| StepTweenSplit | 26 | 29 | 26 |
| TweenAlt | 27 | 29 | 27 |
| TweenSplit | 26 | 29 | 26 |
| TweenSplitFastPr | 25 | 28 | 26 |
| TweenSplitHeadPr | 26 | 28 | 26 |
| TweenSplitHeadPr | 26 | 29 | 26 |
| TweenSplitLinear | 25 | 32 | 26 |
| TweenSplitLinear | 25 | 26 | 26 |
| TweenSplitSparse | 26 | 28 | 26 |
| sgd | 27 | 34 | 27 |
| step_sgd | 27 | 34 | 27 |
| step_tween | 26 | 28 | 26 |
| step_tween_chain | 27 | 34 | 27 |
| tween | 24 | 28 | 25 |
| tween_chain | 26 | 34 | 27 |

## Avail vs hard Acc (headline scatter)

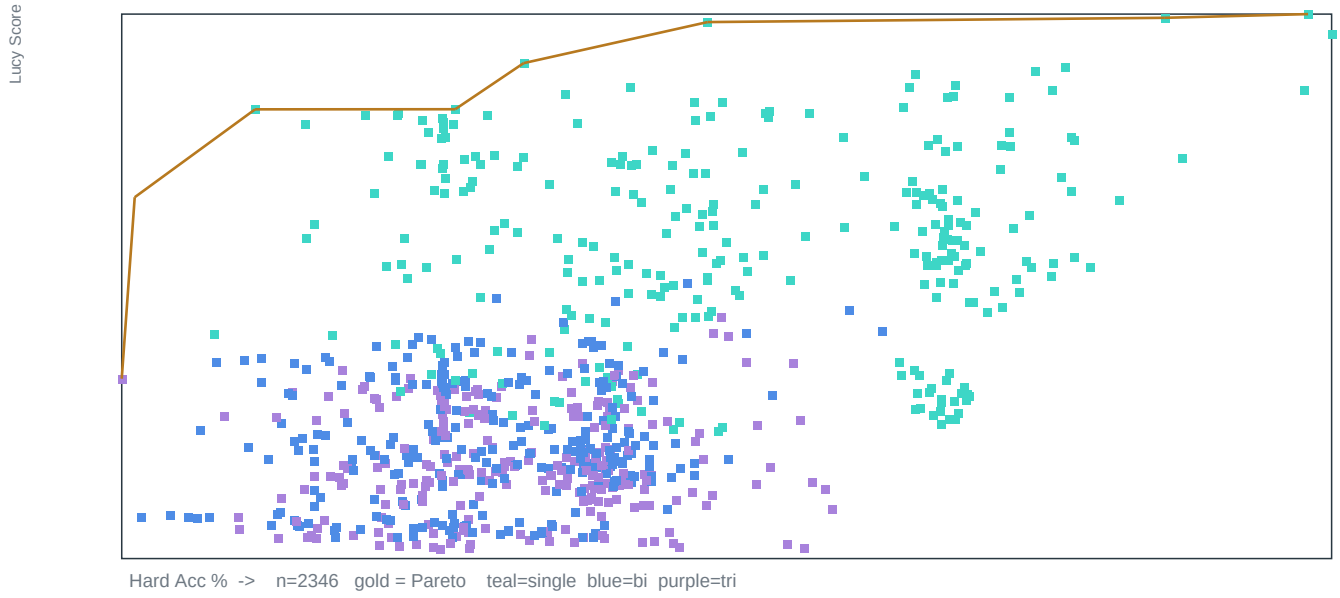



## Pareto - SoftAcc vs Score

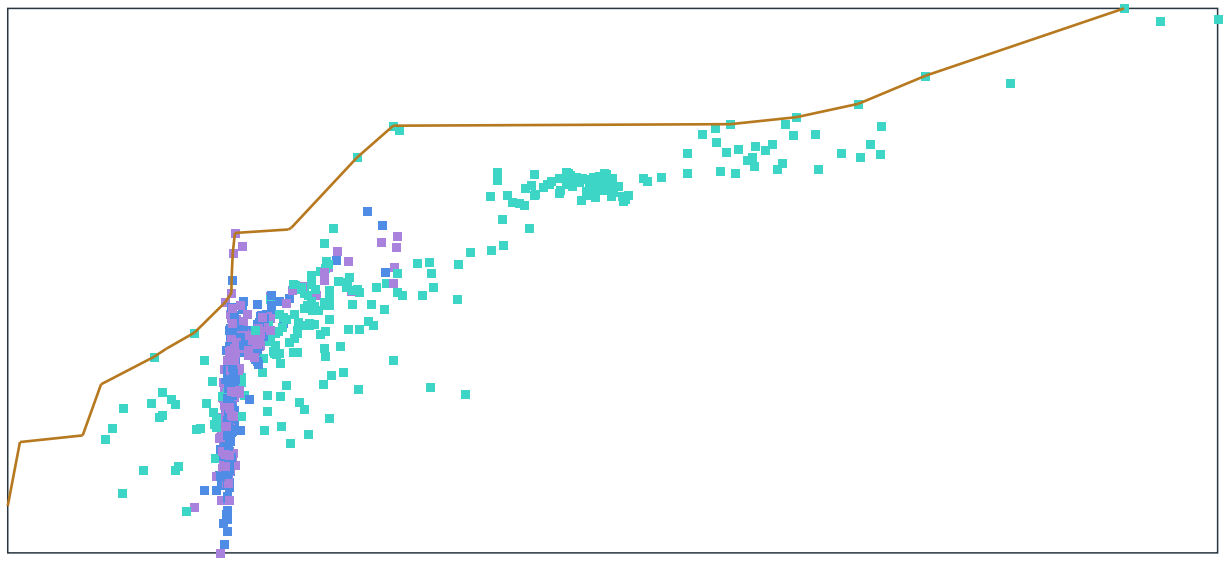
## Pareto - SoftAcc vs Score




## Pareto - hard Acc vs Score

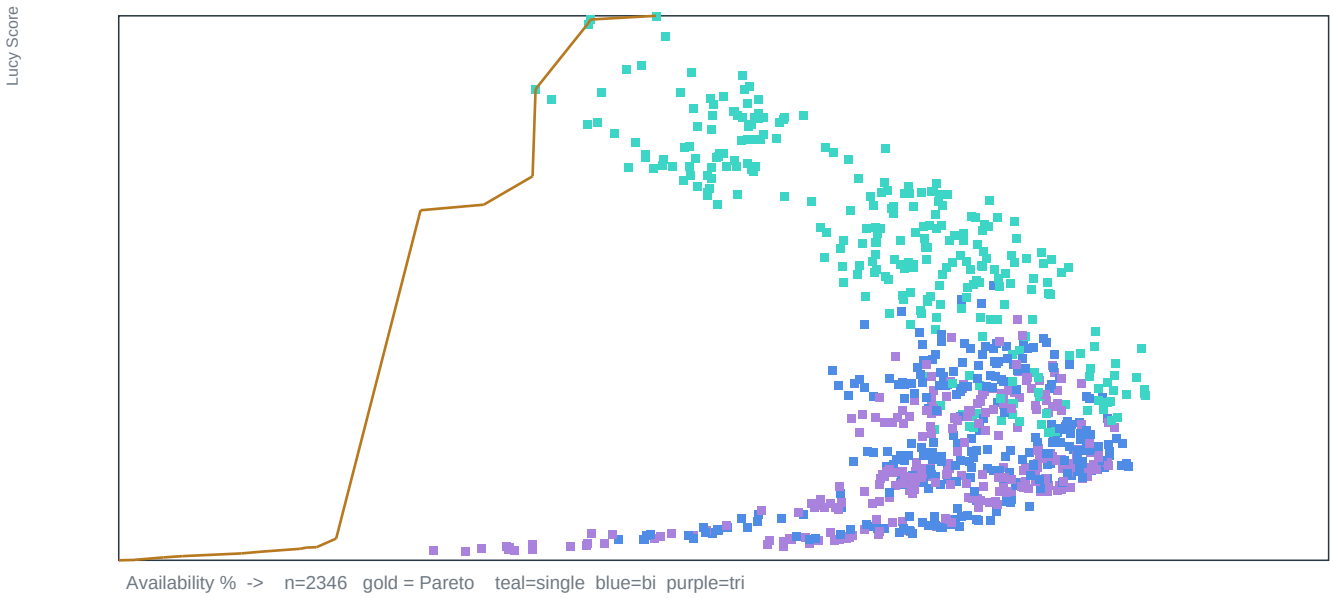



## SoftAcc vs hard Acc




SoftAcc % -> n=2346 gold = Pareto teal=single blue=bi purple=tri
Hard Acc %

## Avail vs Score (duty clock)




## Lucy Pareto (LPD) - goldilocks

Q = geomean of Score/Soft/Acc/Thru vs the Lucy Score champion. LPD = 0 if Q<70%, else Q x shrink vs champ RAM (capped 32x). Gold = Q>=80% and RAM<=20% of champ. MSpeed = Thru vs the board's fastest (0 if Q<70%). MAvail = Availability vs the board's best duty cycle (0 if Q<70%). Mix = geomean(Q, MSpeed, MAvail). Raw Score/MiB is the binary trap.
Quality champ float32|none|sgd|single|simd Score 111200.2 Soft 27 Acc 45 Thru 1001089 RAM 0.4 KiB
Board fastest float32|none|tween|single|simd Thru 1083929 Best availability
complex64|none|MeshTweenSplitSparse|tricameral|simd 47.4%

## Gold - Q >= 80% of champ, RAM <= 20%

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| gold | binary\|none\|step_sgd\|single\|simd | 83 | 3 | 32.0 | 26.69 | 25 | 31 | 93949.4 | 0.0 |
| gold | int4\|none\|sgd\|single\|simd | 84 | 12 | 8.0 | 6.69 | 25 | 31 | 93996.4 | 0.0 |
| gold | int4\|none\|step_sgd\|single\|simd | 84 | 12 | 8.0 | 6.68 | 25 | 32 | 91793.3 | 0.0 |
| gold | int4\|none\|tween_chain\|single\|simd | 83 | 12 | 8.0 | 6.64 | 25 | 32 | 91061.8 | 0.0 |

## Near-gold - Q >= 70%, RAM <= 50%

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| near | binary\|none\|tween\|single\|simd | 77 | 3 | 32.0 | 24.74 | 25 | 24 | 91727.2 | 0.0 |
| near | binary\|none\|tween_chain\|single\|simd | 77 | 3 | 32.0 | 24.65 | 25 | 25 | 90394.8 | 0.0 |
| near | binary\|none\|sgd\|single\|simd | 76 | 3 | 32.0 | 24.47 | 25 | 23 | 91410.1 | 0.0 |
| near | binary\|none\|TweenSplit\|single\|simd | 76 | 3 | 32.0 | 24.43 | 26 | 32 | 78553.8 | 0.0 |
| near | binary\|none\|step_tween_chain\|single\|simd | 75 | 3 | 32.0 | 24.05 | 26 | 26 | 83425.0 | 0.0 |
| near | binary\|none\|TweenSplitLinear\|single\|simd | 74 | 3 | 32.0 | 23.83 | 26 | 28 | 78134.4 | 0.0 |
| near | binary\|none\|TweenSplitLinearCache\|single\|simd | 74 | 3 | 32.0 | 23.66 | 25 | 25 | 82531.1 | 0.0 |
| near | binary\|none\|step_tween\|single\|simd | 74 | 3 | 32.0 | 23.58 | 25 | 24 | 83298.5 | 0.0 |
| near | binary\|none\|TweenSplitSparse\|single\|simd | 74 | 3 | 32.0 | 23.58 | 25 | 28 | 77879.8 | 0.0 |
| near | binary\|none\|MeshBP\|single\|simd | 73 | 3 | 32.0 | 23.47 | 25 | 24 | 81802.8 | 0.0 |
| near | binary\|none\|MeshTween\|single\|simd | 72 | 3 | 32.0 | 23.14 | 25 | 26 | 77340.4 | 0.0 |
| near | binary\|none\|TweenSplitHeadProxyAsync\|single\|simd | 72 | 3 | 32.0 | 23.12 | 25 | 26 | 77991.9 | 0.0 |

## LPD rank (Q x shrink; 0 if Q < 70%)

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| gold | binary\|none\|step_sgd\|single\|simd | 83 | 3 | 32.0 | 26.69 | 25 | 31 | 93949.4 | 0.0 |
| near | binary\|none\|tween\|single\|simd | 77 | 3 | 32.0 | 24.74 | 25 | 24 | 91727.2 | 0.0 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| near | binary\|none\|tween_chain\|single\|simd | 77 | 3 | 32.0 | 24.65 | 25 | 25 | 90394.8 | 0.0 |
| near | binary\|none\|sgd\|single\|simd | 76 | 3 | 32.0 | 24.47 | 25 | 23 | 91410.1 | 0.0 |
| near | binary\|none\|TweenSplit\|single\|simd | 76 | 3 | 32.0 | 24.43 | 26 | 32 | 78553.8 | 0.0 |
| near | binary\|none\|step_tween_chain\|single\|simd | 75 | 3 | 32.0 | 24.05 | 26 | 26 | 83425.0 | 0.0 |
| near | binary\|none\|TweenSplitLinear\|single\|simd | 74 | 3 | 32.0 | 23.83 | 26 | 28 | 78134.4 | 0.0 |
| near | binary\|none\|TweenSplitLinearCache\|single\|simd | 74 | 3 | 32.0 | 23.66 | 25 | 25 | 82531.1 | 0.0 |
| near | binary\|none\|step_tween\|single\|simd | 74 | 3 | 32.0 | 23.58 | 25 | 24 | 83298.5 | 0.0 |
| near | binary\|none\|TweenSplitSparse\|single\|simd | 74 | 3 | 32.0 | 23.58 | 25 | 28 | 77879.8 | 0.0 |
| near | binary\|none\|MeshBP\|single\|simd | 73 | 3 | 32.0 | 23.47 | 25 | 24 | 81802.8 | 0.0 |
| near | binary\|none\|MeshTween\|single\|simd | 72 | 3 | 32.0 | 23.14 | 25 | 26 | 77340.4 | 0.0 |
| near | binary\|none\|TweenSplitHeadProxyAsync\|single\|simd | 72 | 3 | 32.0 | 23.12 | 25 | 26 | 77991.9 | 0.0 |
| near | binary\|none\|MeshTweenSplitFastProxy\|single\|simd | 72 | 3 | 32.0 | 23.10 | 25 | 27 | 75181.2 | 0.0 |
| near | binary\|none\|TweenSplitHeadProxy\|single\|simd | 72 | 3 | 32.0 | 23.08 | 25 | 25 | 78946.0 | 0.0 |
| near | binary\|none\|TweenSplitFastProxy\|single\|simd | 71 | 3 | 32.0 | 22.74 | 25 | 24 | 77613.0 | 0.0 |
| near | binary\|none\|MeshTweenChain\|single\|simd | 71 | 3 | 32.0 | 22.66 | 25 | 24 | 77184.3 | 0.0 |
| near | binary\|none\|MeshTweenSplit\|single\|simd | 71 | 3 | 32.0 | 22.59 | 25 | 25 | 75966.1 | 0.0 |
| near | int2\|none\|tween\|single\|simd | 79 | 6 | 16.0 | 12.60 | 25 | 26 | 91381.9 | 0.0 |
| near | ternary\|none\|tween\|single\|simd | 79 | 6 | 16.0 | 12.60 | 25 | 25 | 92538.8 | 0.0 |

## Mobile speed - Thru vs board fastest (Q >= 70%)

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| keep | float32\|none\|tween\|single\|simd | 89 | 100 | 85 | 91 | 0.89 | 1083929 | 40.2 |
| keep | float32\|none\|step_sgd\|single\|simd | 98 | 95 | 85 | 92 | 0.98 | 1027394 | 40.2 |
| keep | float32\|none\|sgd\|single\|simd | 100 | 92 | 86 | 93 | 1.00 | 1001089 | 40.9 |
| near | float16\|none\|tween\|single\|simd | 84 | 92 | 86 | 87 | 1.68 | 994450 | 40.7 |
| keep | float32\|none\|tween_chain\|single\|simd | 98 | 90 | 87 | 91 | 0.98 | 970981 | 41.0 |
| keep | float32\|none\|step_tween\|single\|simd | 85 | 89 | 84 | 86 | 0.85 | 967746 | 39.7 |
| keep | float32\|none\|MeshTweenSplitFastProxy\|single\|simd | 85 | 88 | 86 | 87 | 0.85 | 953839 | 40.9 |
| near | float16\|none\|step_sgd\|single\|simd | 92 | 88 | 86 | 89 | 1.85 | 952372 | 40.6 |
| near | float16\|none\|sgd\|single\|simd | 91 | 86 | 87 | 88 | 1.82 | 931580 | 41.2 |
| near | int8\|none\|sgd\|single\|simd | 89 | 85 | 88 | 87 | 3.56 | 923076 | 41.7 |

## Mobile availability - duty cycle vs board best (Q >= 70%)

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| - | int\|none\|sgd\|single\|simd | 72 | 50 | 94 | 70 | 0.36 | 541422 | 44.7 |
| - | complex64\|none\|sgd\|single\|simd | 71 | 50 | 94 | 69 | 0.35 | 538048 | 44.6 |
| - | complex128\|none\|sgd\|single\|simd | 71 | 51 | 94 | 70 | 0.18 | 555258 | 44.6 |
| - | uintptr\|none\|tween_chain\|single\|simd | 70 | 51 | 94 | 70 | 0.35 | 556416 | 44.4 |
| - | uintptr\|none\|sgd\|single\|simd | 73 | 54 | 94 | 72 | 0.36 | 589918 | 44.3 |
| - | uint\|none\|tween_chain\|single\|simd | 70 | 51 | 94 | 69 | 0.35 | 549687 | 44.3 |
| - | int32\|none\|tween_chain\|single\|simd | 74 | 57 | 94 | 74 | 0.74 | 619590 | 44.3 |
| - | uint\|none\|sgd\|single\|simd | 70 | 52 | 94 | 70 | 0.35 | 561321 | 44.3 |
| - | int64\|none\|sgd\|single\|simd | 76 | 57 | 93 | 74 | 0.38 | 614601 | 44.2 |
| - | complex128\|none\|step_sgd\|single\|simd | 71 | 49 | 93 | 69 | 0.18 | 530731 | 44.1 |

## Mix - geomean of Q, MSpeed, MAvail

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| keep | float32\|none\|sgd\|single\|simd | 100 | 92 | 86 | 93 | 1.00 | 1001089 | 40.9 |
| keep | float32\|none\|step_sgd\|single\|simd | 98 | 95 | 85 | 92 | 0.98 | 1027394 | 40.2 |
| keep | float32\|none\|tween_chain\|single\|simd | 98 | 90 | 87 | 91 | 0.98 | 970981 | 41.0 |
| keep | float32\|none\|tween\|single\|simd | 89 | 100 | 85 | 91 | 0.89 | 1083929 | 40.2 |
| near | float16\|none\|step_sgd\|single\|simd | 92 | 88 | 86 | 89 | 1.85 | 952372 | 40.6 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| near | float16\|none\|sgd\|single\|simd | 91 | 86 | 87 | 88 | 1.82 | 931580 | 41.2 |
| near | int8\|none\|sgd\|single\|simd | 89 | 85 | 88 | 87 | 3.56 | 923076 | 41.7 |
| near | float16\|none\|tween\|single\|simd | 84 | 92 | 86 | 87 | 1.68 | 994450 | 40.7 |
| keep | float32\|none\|MeshTweenSplitFastProxy\|single\|simd | 85 | 88 | 86 | 87 | 0.85 | 953839 | 40.9 |
| near | uint8\|none\|sgd\|single\|simd | 89 | 83 | 88 | 87 | 3.27 | 899306 | 41.8 |

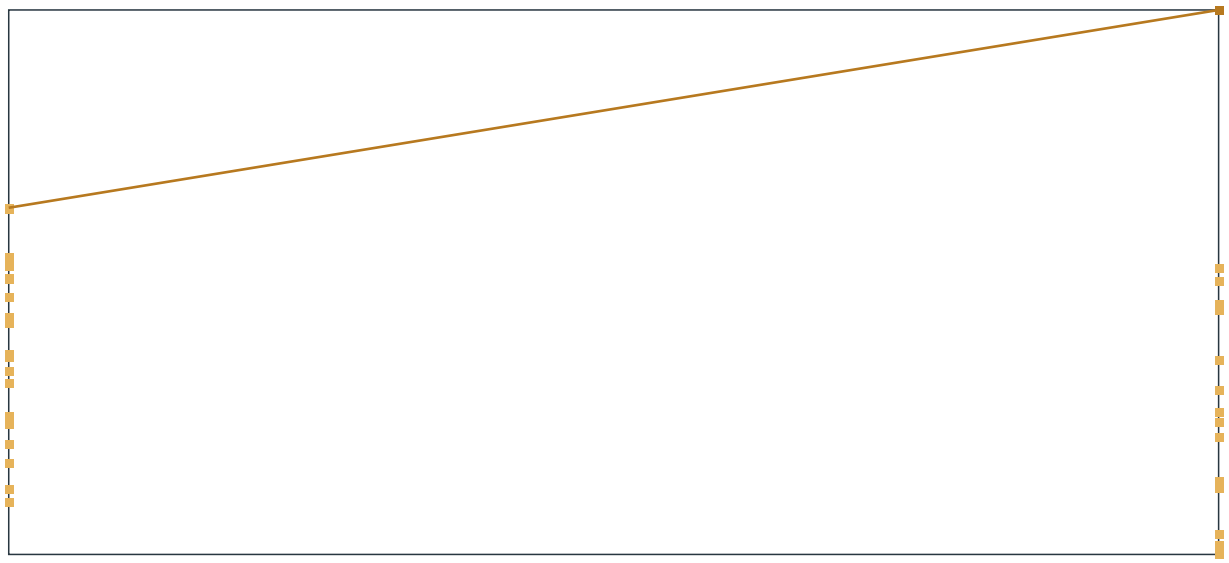
## Trap - tiny RAM, Q < 70% (why Score/MiB lies)

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| trap | binary\|none\|StepTweenSplit\|single\|simd | 66 | 3 | 32.0 | 0.00 | 25 | 20 | 73334.7 | 0.0 |
| trap | binary\|none\|TweenAlt\|single\|simd | 68 | 3 | 32.0 | 0.00 | 25 | 25 | 68650.1 | 0.0 |
| trap | binary\|none\|StepTweenAlt\|single\|simd | 67 | 3 | 32.0 | 0.00 | 25 | 24 | 66775.8 | 0.0 |
| trap | binary\|none\|MeshTweenAlt\|single\|simd | 68 | 3 | 32.0 | 0.00 | 25 | 25 | 68660.3 | 0.0 |
| trap | binary\|none\|MeshTweenSplitSparse\|single\|simd | 66 | 3 | 32.0 | 0.00 | 25 | 19 | 75066.0 | 0.0 |
| trap | int2\|none\|MeshTweenChain\|single\|simd | 68 | 6 | 16.0 | 0.00 | 25 | 21 | 76085.2 | 0.0 |
| trap | int2\|none\|TweenAlt\|single\|simd | 68 | 6 | 16.0 | 0.00 | 25 | 27 | 64987.0 | 0.0 |
| trap | ternary\|none\|TweenAlt\|single\|simd | 68 | 6 | 16.0 | 0.00 | 25 | 25 | 68718.7 | 0.0 |
| trap | int2\|none\|StepTweenAlt\|single\|simd | 67 | 6 | 16.0 | 0.00 | 25 | 27 | 64388.5 | 0.0 |
| trap | ternary\|none\|StepTweenAlt\|single\|simd | 67 | 6 | 16.0 | 0.00 | 25 | 24 | 67050.4 | 0.0 |

## LPD - Q% vs RAM KiB (gold = high Q, low RAM)



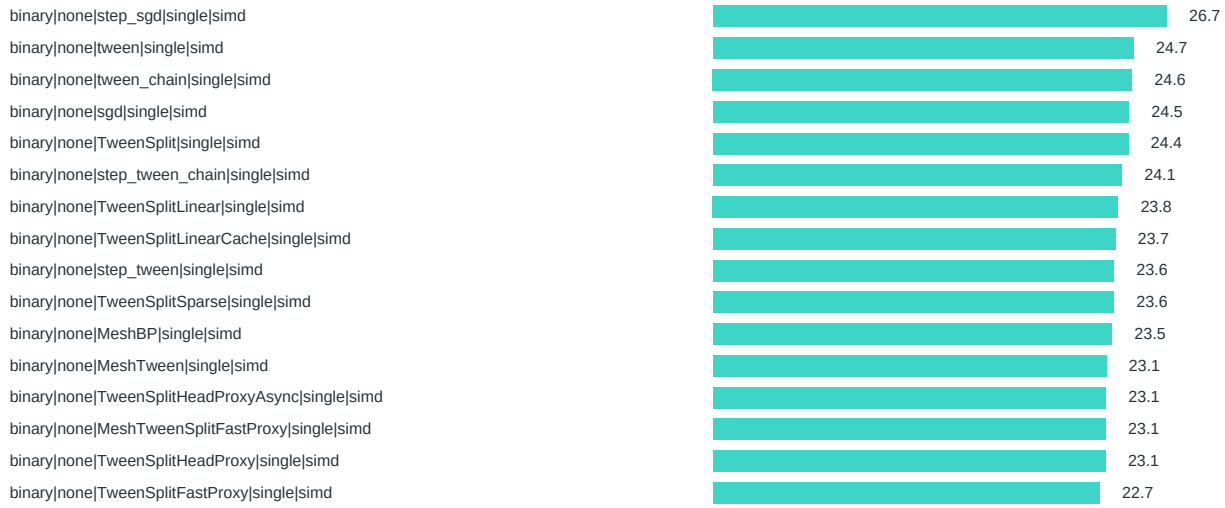

## LPD - Q% vs shrink vs champ (gold = upper right)



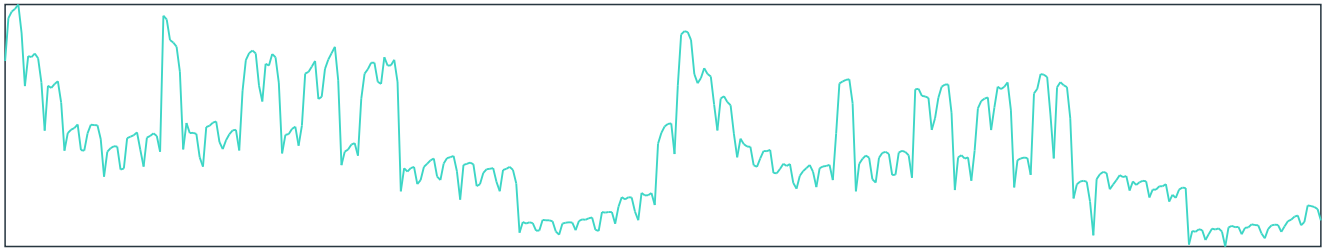
times smaller than champ  ->  n=40  gold = Pareto  teal=single  blue=bi  purple=tri

Q %

## Top LPD

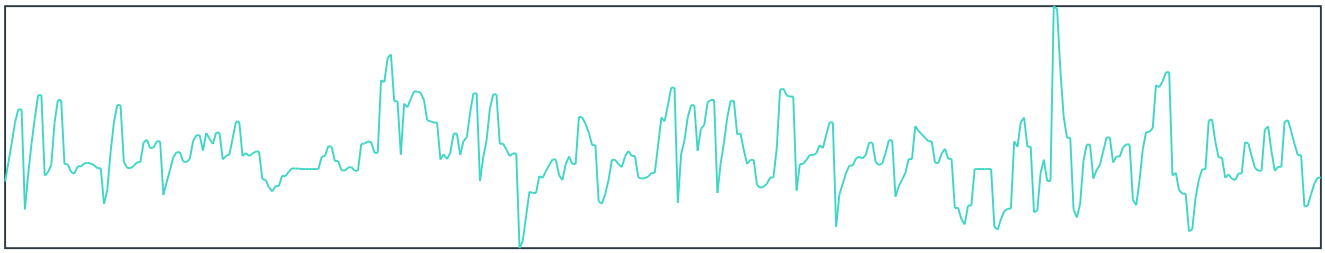



## Pulse Score - rmsnorm



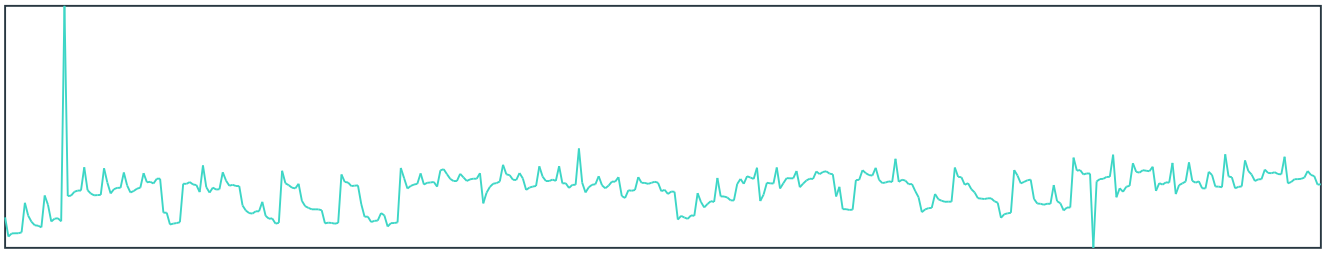
n=400 min=7557.29 max=53319.56

## Pulse SoftAcc - rmsnorm



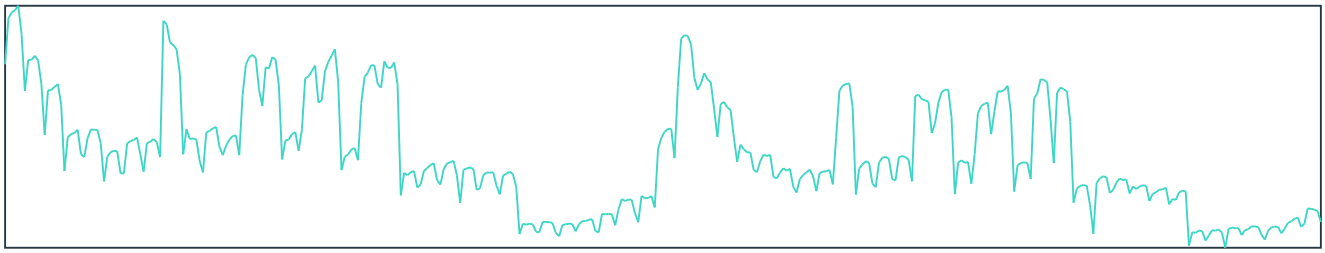
n=400 min=24.97 max=25.07

## Pulse Availability - rmsnorm



n=400 min=44.61 max=53.30

## Pulse Throughput - rmsnorm



n=400  min=63026.58  max=472055.44

## Queue by train mode (this epoch)

| Mode | Done | Run | Left | Total |
|---|---|---|---|---|
| sgd | 102 | 0 | 0 | 102 |
| step_sgd | 102 | 0 | 0 | 102 |
| tween | 102 | 0 | 0 | 102 |
| tween_chain | 102 | 0 | 0 | 102 |
| step_tween | 102 | 0 | 0 | 102 |
| step_tween_chain | 102 | 0 | 0 | 102 |
| MeshBP | 102 | 0 | 0 | 102 |
| MeshTween | 102 | 0 | 0 | 102 |
| MeshTweenChain | 102 | 0 | 0 | 102 |
| TweenSplit | 102 | 0 | 0 | 102 |
| StepTweenSplit | 102 | 0 | 0 | 102 |
| TweenAlt | 102 | 0 | 0 | 102 |
| StepTweenAlt | 102 | 0 | 0 | 102 |
| TweenSplitHeadProxy | 102 | 0 | 0 | 102 |
| TweenSplitLinear | 102 | 0 | 0 | 102 |
| TweenSplitFastProxy | 102 | 0 | 0 | 102 |
| TweenSplitLinearCache | 102 | 0 | 0 | 102 |
| TweenSplitHeadProxyAsync | 102 | 0 | 0 | 102 |
| TweenSplitSparse | 102 | 0 | 0 | 102 |
| MeshTweenSplit | 102 | 0 | 0 | 102 |
| MeshTweenAlt | 102 | 0 | 0 | 102 |
| MeshTweenSplitFastProxy | 102 | 0 | 0 | 102 |
| MeshTweenSplitSparse | 102 | 0 | 0 | 102 |

# tide  rnn

Score = Throughput x Availability% x SoftAcc% / 10,000
done  -  epoch 1  -  2026-08-18 09:45:25  -  0.0.0.0:8108
This epoch 2346 / 2346 cells. Recorded 2346 results.
Score 0 usually means the cell finished before a Lucy pulse (SoftAcc never sampled) or true-class mass was 0. Those rows do not vote holistically.
rnn  -  class cue at t=0, answer at last step  -  modes all  -  min 2000ms/cell  -  1024 train  -  pulse 50ms  -  SIMD true

## Lucy champions (this tide)

| Axis | Cell | Score | Soft | Acc | Thru | Avail |
|---|---|---|---|---|---|---|
| score | float32\|none\|sgd\|single\|simd | 17545.45 | 39.1 | 92.5 | 119911.0 | 37.4 |
| throughput | ternary\|none\|MeshTweenSplitSparse\|single\|simd | 13665.24 | 25.0 | 32.6 | 124519.0 | 43.9 |
| availability | float64\|none\|MeshTweenSplitSparse\|single\|simd | 13249.81 | 37.4 | 84.8 | 79709.6 | 44.4 |
| accuracy | float64\|none\|tween_chain\|single\|simd | 13956.18 | 39.3 | 94.4 | 83319.3 | 42.6 |
| mobile score (tra | binary\|none\|tween_chain\|single\|simd | 11417.22 | 25.3 | 29.6 | 108551.4 | 41.6 |
| t->50% | uint2\|none\|sgd\|tricameral\|simd | 161.72 | 25.0 | 47.1 | 2620.3 | 24.7 |
| acc/sec | float64\|none\|sgd\|single\|simd | 15004.99 | 39.2 | 92.4 | 89027.0 | 43.0 |

## Lucy axes - rnn

| Axis | Mode | DType | Arch | Value |
|---|---|---|---|---|
| score | sgd | float32 | singlex1 | 17545.45 |
| soft_acc | tween_chain | float64 | singlex1 | 39.29 |
| hard_acc | tween_chain | float64 | singlex1 | 94.38 |
| throughput | MeshTweenSplitS~ | ternary | singlex1 | 124518.99 |
| availability | MeshTweenSplitS~ | float64 | singlex1 | 44.43 |
| acc_thru | sgd | float32 | singlex1 | 46856.72 |
| realtime | MeshTweenSplitS~ | ternary | singlex1 | 54631.28 |
| adapt | MeshTweenSplitS~ | float64 | singlex1 | 42.11 |
| keep_learn | TweenSplitSparse | complex128 | singlex1 | 18.92 |
| acc_per_sec | sgd | float64 | singlex1 | 19.60 |
| time_to_50 | sgd | uint2 | tricameralx3 | 0.06 |
| consistency | sgd | float64 | singlex1 | 100.00 |
| stability | sgd | fp4 | singlex1 | 100.00 |
| mobile_score | tween_chain | binary | singlex1 | 110850194.56 |
| lpd | MeshTweenSplitS~ | int8 | singlex1 | 2.49 |
| mspeed | sgd | float32 | singlex1 | 0.96 |
| mavail | MeshTweenSplitS~ | float64 | singlex1 | 1.00 |
| mix | sgd | float32 | singlex1 | 0.93 |

## Best settings per train mode

| Mode | DType | Format | Score | Soft | Acc | Avail | n |
|---|---|---|---|---|---|---|---|
| sgd | float32 | none | 17545.5 | 39.1 | 92.5 | 37.4 | 102 |
| step_sgd | float32 | none | 16218.3 | 38.5 | 92.1 | 36.5 | 102 |
| MeshTweenSplitSparse | float32 | none | 15914.0 | 36.7 | 85.5 | 38.7 | 102 |
| MeshBP | float32 | none | 14939.0 | 38.5 | 92.3 | 37.0 | 102 |
| MeshTweenChain | float32 | none | 14653.9 | 38.2 | 92.4 | 36.6 | 102 |
| tween_chain | float32 | none | 14596.3 | 37.8 | 90.9 | 36.0 | 102 |
| TweenSplitFastProxy | float32 | none | 14567.0 | 37.6 | 89.8 | 37.7 | 102 |
| TweenSplitHeadProxy | float32 | none | 14336.2 | 37.1 | 87.7 | 37.0 | 102 |
| MeshTweenSplitFastProxy | float32 | none | 14260.5 | 35.3 | 82.8 | 38.0 | 102 |
| TweenSplitSparse | float32 | none | 13943.6 | 36.5 | 86.6 | 37.6 | 102 |
| step_tween_chain | float32 | none | 13467.1 | 38.3 | 92.4 | 35.3 | 102 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| tween | float32 | none | 11316.3 | 25.6 | 69.6 | 37.0 | 102 |
| TweenSplitHeadProxyAsync | int4 | none | 11258.5 | 25.0 | 18.0 | 43.2 | 102 |
| TweenSplitLinearCache | binary | none | 11127.4 | 24.9 | 20.9 | 43.3 | 102 |
| TweenSplit | float32 | none | 10696.5 | 30.4 | 62.1 | 37.1 | 102 |
| MeshTween | binary | none | 10299.1 | 25.3 | 32.8 | 41.4 | 102 |
| MeshTweenSplit | ternary | none | 10000.2 | 25.0 | 24.1 | 43.8 | 102 |
| TweenSplitLinear | ternary | none | 9244.1 | 25.1 | 29.3 | 40.2 | 102 |
| StepTweenSplit | int4 | none | 8905.5 | 25.1 | 30.8 | 40.9 | 102 |
| step_tween | float32 | none | 8855.5 | 25.6 | 63.5 | 35.1 | 102 |
| MeshTweenAlt | binary | none | 6925.8 | 25.0 | 16.8 | 37.4 | 102 |
| TweenAlt | int4 | none | 6690.8 | 25.1 | 27.0 | 37.1 | 102 |
| StepTweenAlt | int4 | none | 6315.5 | 25.0 | 25.0 | 34.9 | 102 |

## Best dtype per mode

| Mode | Winner dtype | Score | Soft | Acc |
|---|---|---|---|---|
| sgd | float32 | 17545.5 | 39.1 | 92.5 |
| step_sgd | float32 | 16218.3 | 38.5 | 92.1 |
| MeshTweenSplitSparse | float32 | 15914.0 | 36.7 | 85.5 |
| MeshBP | float32 | 14939.0 | 38.5 | 92.3 |
| MeshTweenChain | float32 | 14653.9 | 38.2 | 92.4 |
| tween_chain | float32 | 14596.3 | 37.8 | 90.9 |
| TweenSplitFastProxy | float32 | 14567.0 | 37.6 | 89.8 |
| TweenSplitHeadProxy | float32 | 14336.2 | 37.1 | 87.7 |
| MeshTweenSplitFastProxy | float32 | 14260.5 | 35.3 | 82.8 |
| TweenSplitSparse | float32 | 13943.6 | 36.5 | 86.6 |
| step_tween_chain | float32 | 13467.1 | 38.3 | 92.4 |
| tween | float32 | 11316.3 | 25.6 | 69.6 |
| TweenSplitHeadProxyAsync | int4 | 11258.5 | 25.0 | 18.0 |
| TweenSplitLinearCache | binary | 11127.4 | 24.9 | 20.9 |
| TweenSplit | float32 | 10696.5 | 30.4 | 62.1 |
| MeshTween | binary | 10299.1 | 25.3 | 32.8 |
| MeshTweenSplit | ternary | 10000.2 | 25.0 | 24.1 |
| TweenSplitLinear | ternary | 9244.1 | 25.1 | 29.3 |
| StepTweenSplit | int4 | 8905.5 | 25.1 | 30.8 |
| step_tween | float32 | 8855.5 | 25.6 | 63.5 |
| MeshTweenAlt | binary | 6925.8 | 25.0 | 16.8 |
| TweenAlt | int4 | 6690.8 | 25.1 | 27.0 |
| StepTweenAlt | int4 | 6315.5 | 25.0 | 25.0 |

## Best mode per dtype

| DType | Winner mode | Score | Soft | Acc |
|---|---|---|---|---|
| float32 | sgd | 17545.5 | 39.1 | 92.5 |
| float64 | sgd | 15005.0 | 39.2 | 92.4 |
| ternary | MeshTweenSplitSparse | 13665.2 | 25.0 | 32.6 |
| int4 | MeshTweenSplitSparse | 12280.2 | 25.0 | 24.0 |
| binary | tween_chain | 11417.2 | 25.3 | 29.6 |
| int2 | sgd | 11413.6 | 25.0 | 28.3 |
| float16 | sgd | 10732.0 | 36.8 | 91.5 |
| int64 | MeshTweenSplitSparse | 10252.1 | 35.4 | 80.2 |
| int8 | MeshTweenSplitSparse | 9905.7 | 26.2 | 72.7 |
| bfloat16 | sgd | 9633.7 | 32.3 | 92.1 |
| uint8 | MeshTweenSplitSparse | 9538.9 | 25.9 | 63.2 |

| | | | | |
|---|---|---|---|---|
| uint32 | MeshTweenSplitSparse | 8399.7 | 26.1 | 71.1 |
| uint16 | MeshTweenSplitSparse | 8224.1 | 26.2 | 74.1 |
| complex64 | MeshTweenSplitSparse | 8095.9 | 35.7 | 84.0 |
| complex128 | MeshTweenSplitSparse | 7942.9 | 35.2 | 81.9 |
| uint4 | MeshTweenSplitSparse | 7716.2 | 24.9 | 16.6 |
| int32 | MeshTweenSplitSparse | 7710.6 | 26.2 | 69.3 |
| uint64 | MeshTweenSplitSparse | 7537.1 | 26.2 | 74.2 |
| int | MeshTweenSplitSparse | 7477.1 | 36.4 | 85.2 |
| fp4 | sgd | 7407.0 | 25.0 | 25.0 |
| int16 | MeshTweenSplitSparse | 7337.8 | 26.3 | 76.2 |
| uint2 | MeshTweenSplitSparse | 7024.7 | 25.0 | 25.7 |
| uint | MeshTweenSplitSparse | 6248.7 | 26.2 | 73.8 |
| uintptr | MeshTweenSplitSparse | 6162.8 | 26.2 | 75.0 |
| fp8e5m2 | MeshTweenSplitSparse | 5810.6 | 25.2 | 35.8 |
| fp8e4m3 | MeshTweenSplitSparse | 5800.2 | 25.0 | 27.2 |
| uint3 | MeshTweenSplitSparse | 3767.3 | 25.0 | 26.9 |
| nf4 | MeshTweenSplitSparse | 3686.1 | 25.0 | 23.1 |
| int3 | MeshTweenSplitFastProxy | 3308.9 | 25.0 | 30.2 |
| uint5 | MeshTweenSplitSparse | 2826.5 | 25.2 | 33.1 |
| uint6 | MeshTweenSplitSparse | 2630.3 | 25.4 | 48.2 |
| int5 | MeshTweenSplitSparse | 2564.4 | 25.2 | 35.5 |
| int6 | MeshTweenSplitSparse | 2410.6 | 25.4 | 57.6 |
| fp6 | MeshTweenSplitFastProxy | 1878.5 | 25.5 | 50.7 |

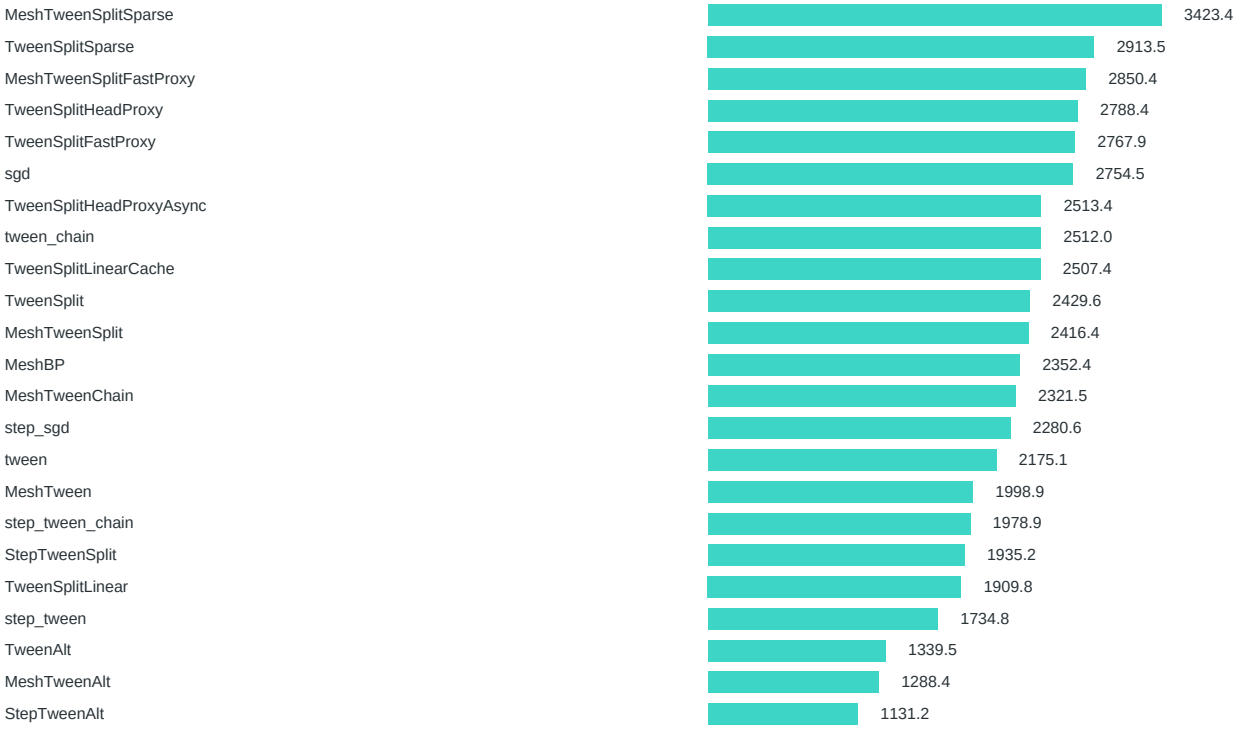
## Leaderboard - rnn

| # | Cell | Score | Soft | Acc | Thru | Avail |
|---|---|---|---|---|---|---|
| 1 | float32\|none\|sgd\|single\|simd | 17545.5 | 39.1 | 92.5 | 119911.0 | 37.4 |
| 2 | float32\|none\|step_sgd\|single\|simd | 16218.3 | 38.5 | 92.1 | 115446.1 | 36.5 |
| 3 | float32\|none\|MeshTweenSplitSparse\|single\|simd | 15914.0 | 36.7 | 85.5 | 112189.1 | 38.7 |
| 4 | float64\|none\|sgd\|single\|simd | 15005.0 | 39.2 | 92.4 | 89027.0 | 43.0 |
| 5 | float32\|none\|MeshBP\|single\|simd | 14939.0 | 38.5 | 92.3 | 104975.0 | 37.0 |
| 6 | float32\|none\|MeshTweenChain\|single\|simd | 14653.9 | 38.2 | 92.4 | 104845.4 | 36.6 |
| 7 | float32\|none\|tween_chain\|single\|simd | 14596.3 | 37.8 | 90.9 | 107235.6 | 36.0 |
| 8 | float32\|none\|TweenSplitFastProxy\|single\|simd | 14567.0 | 37.6 | 89.8 | 102782.9 | 37.7 |
| 9 | float32\|none\|TweenSplitHeadProxy\|single\|simd | 14336.2 | 37.1 | 87.7 | 104406.7 | 37.0 |
| 10 | float32\|none\|MeshTweenSplitFastProxy\|single\|simd | 14260.5 | 35.3 | 82.8 | 106201.4 | 38.0 |
| 11 | float64\|none\|tween_chain\|single\|simd | 13956.2 | 39.3 | 94.4 | 83319.3 | 42.6 |
| 12 | float32\|none\|TweenSplitSparse\|single\|simd | 13943.6 | 36.5 | 86.6 | 101467.6 | 37.6 |
| 13 | float64\|none\|TweenSplitFastProxy\|single\|simd | 13908.8 | 38.1 | 90.1 | 82420.7 | 44.3 |
| 14 | float64\|none\|TweenSplitHeadProxy\|single\|simd | 13889.9 | 38.8 | 92.4 | 82468.8 | 43.4 |
| 15 | ternary\|none\|MeshTweenSplitSparse\|single\|simd | 13665.2 | 25.0 | 32.6 | 124519.0 | 43.9 |
| 16 | float32\|none\|step_tween_chain\|single\|simd | 13467.1 | 38.3 | 92.4 | 99591.0 | 35.3 |
| 17 | float64\|none\|MeshTweenSplitSparse\|single\|simd | 13249.8 | 37.4 | 84.8 | 79709.6 | 44.4 |
| 18 | float64\|none\|MeshBP\|single\|simd | 12861.1 | 38.9 | 93.7 | 78107.7 | 42.3 |
| 19 | float64\|none\|MeshTweenSplitFastProxy\|single\|simd | 12706.5 | 36.0 | 81.5 | 80505.5 | 43.9 |
| 20 | float64\|none\|MeshTweenChain\|single\|simd | 12676.1 | 38.5 | 92.2 | 77611.3 | 42.4 |

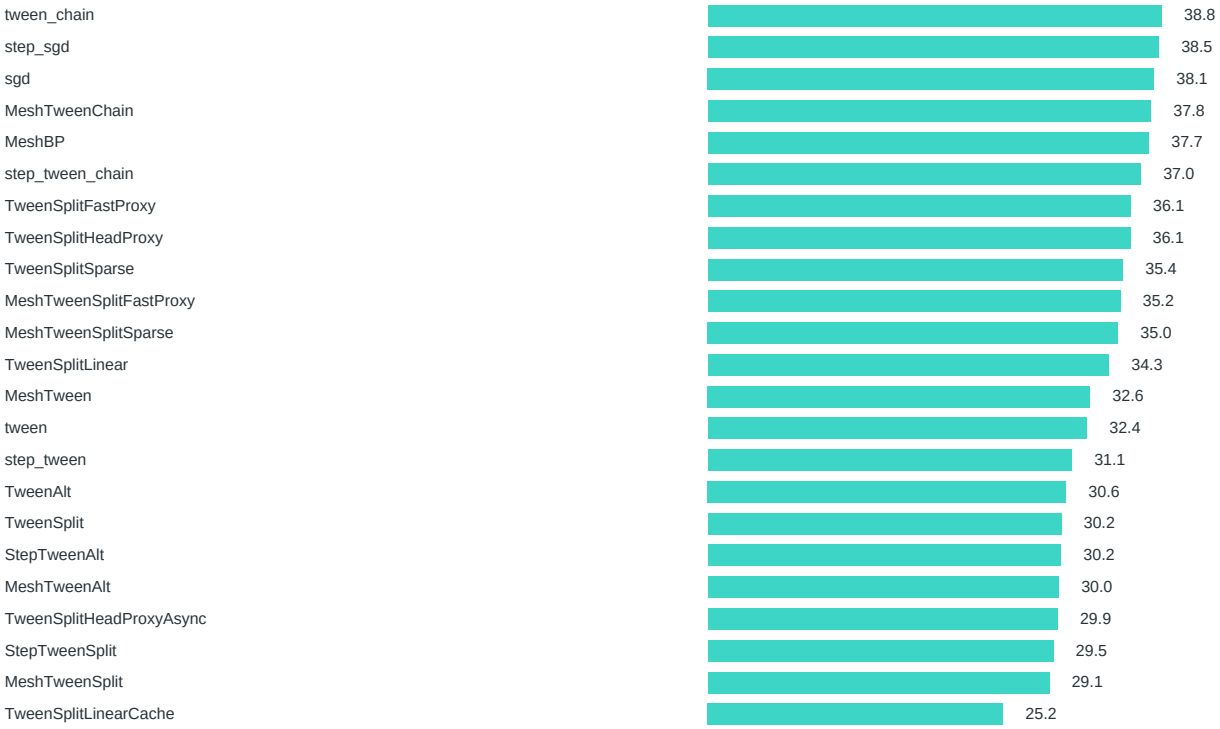
## Top scores - rnn



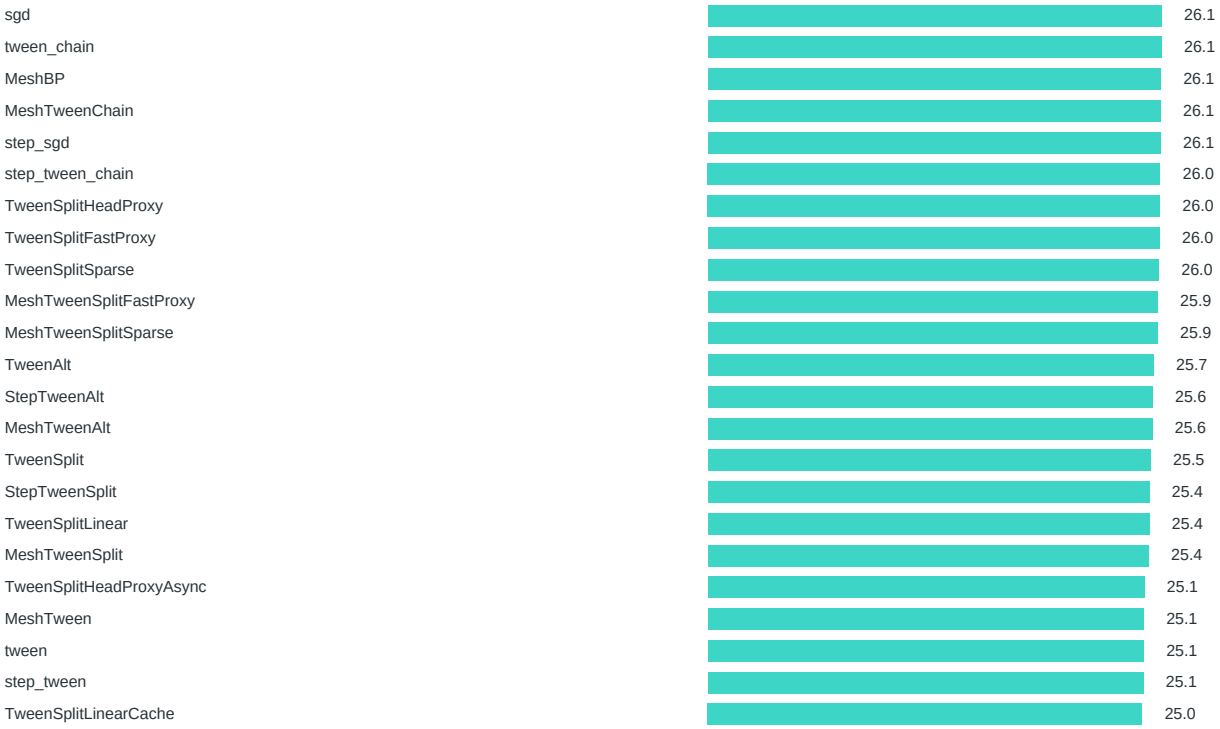

## Mean Score by train mode



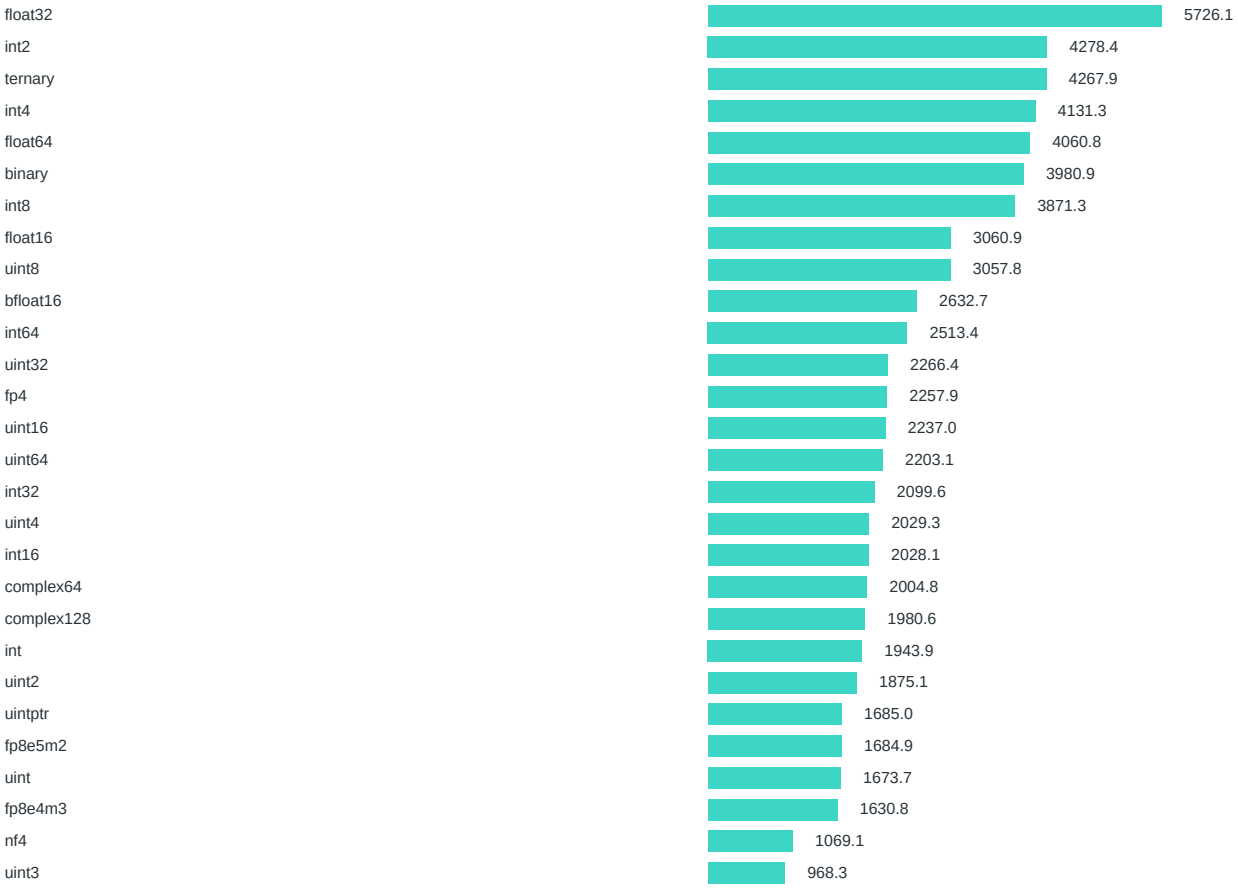

## Mean hard Acc by train mode




## Mean SoftAcc by train mode




## Mean Score by dtype




## Mean hard Acc by dtype




## Mean Score by arch




## Honesty - mean Score, every mode x dtype  (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 2733 | 3703 | 2264 | 2351 | 3519 | 6699 | 4742 | 2260 | 499 | 1612 | 1647 | 2228 | 2004 | 4074 | 948 | 2128 |
| MeshTween | 2386 | 3914 | 1485 | 1499 | 2474 | 4945 | 3034 | 2210 | 451 | 1522 | 1493 | 1494 | 1813 | 4030 | 839 | 1826 |
| MeshTweenAlt | 1402 | 2525 | 1019 | 1054 | 1533 | 2775 | 2247 | 1237 | 246 | 1001 | 1100 | 1103 | 1251 | 2297 | 530 | 1309 |
| MeshTweenChain | 2899 | 3755 | 2260 | 2345 | 3510 | 6681 | 4710 | 2211 | 495 | 1550 | 1687 | 2243 | 2068 | 3952 | 864 | 2126 |
| MeshTweenSplit | 2479 | 4305 | 1791 | 1858 | 2919 | 4751 | 3766 | 2440 | 623 | 1920 | 1844 | 2039 | 2303 | 4648 | 1037 | 2267 |
| MeshTweenSplitFa | 3331 | 4716 | 2772 | 2785 | 3699 | 7026 | 5142 | 2862 | 712 | 1927 | 2190 | 2530 | 2223 | 5453 | 1245 | 2623 |
| MeshTweenSplitSp | 3913 | 5689 | 2985 | 3050 | 4871 | 8992 | 5558 | 3172 | 749 | 2427 | 2437 | 2855 | 2913 | 6424 | 1257 | 3071 |
| StepTweenAlt | 1277 | 2097 | 970 | 898 | 1389 | 2425 | 2236 | 1028 | 210 | 836 | 809 | 937 | 1096 | 2125 | 394 | 1048 |
| StepTweenSplit | 2215 | 3420 | 1578 | 1559 | 2540 | 4406 | 3214 | 1946 | 409 | 1455 | 1462 | 1377 | 1789 | 3754 | 749 | 1934 |
| TweenAlt | 1485 | 2386 | 1203 | 1209 | 1601 | 2959 | 2486 | 1115 | 241 | 938 | 1035 | 1160 | 1369 | 2284 | 516 | 1364 |
| TweenSplit | 2833 | 4134 | 2004 | 2058 | 3151 | 5221 | 3972 | 2288 | 582 | 2000 | 1977 | 1976 | 2242 | 4461 | 1018 | 2378 |
| TweenSplitFastPr | 3218 | 4864 | 2708 | 2576 | 3950 | 7019 | 5455 | 2723 | 641 | 1947 | 1877 | 2685 | 2522 | 5133 | 995 | 2455 |
| TweenSplitHeadPr | 3212 | 4731 | 2621 | 2489 | 3885 | 6829 | 5437 | 2586 | 617 | 1869 | 1927 | 2623 | 2459 | 5224 | 1126 | 2390 |
| TweenSplitHeadPr | 2643 | 4837 | 1888 | 1805 | 2988 | 5878 | 3644 | 2635 | 638 | 1895 | 2024 | 1786 | 2226 | 4983 | 1147 | 2513 |
| TweenSplitLinear | 1706 | 3568 | 1728 | 1853 | 1911 | 3973 | 3672 | 1796 | 413 | 1175 | 1210 | 1699 | 1860 | 3935 | 927 | 1895 |
| TweenSplitLinear | 2737 | 4859 | 1866 | 1988 | 3034 | 5551 | 3579 | 2560 | 623 | 1802 | 1873 | 1847 | 2325 | 5259 | 1145 | 2518 |
| TweenSplitSparse | 3488 | 5116 | 2425 | 2527 | 4338 | 7877 | 5176 | 2862 | 597 | 2046 | 2081 | 2448 | 2567 | 5492 | 1201 | 2535 |
| sgd | 3547 | 4346 | 2696 | 2788 | 4075 | 7857 | 5577 | 2749 | 588 | 1929 | 1927 | 2583 | 2394 | 4725 | 1087 | 2480 |
| step_sgd | 2924 | 3829 | 2043 | 2150 | 3475 | 7111 | 4535 | 2492 | 420 | 1550 | 1695 | 2055 | 1828 | 4192 | 837 | 2011 |
| step_tween | 2124 | 3208 | 1241 | 1201 | 2221 | 4469 | 2565 | 2013 | 368 | 1352 | 1417 | 1158 | 1530 | 3624 | 627 | 1500 |
| step_tween_chain | 2287 | 3175 | 1913 | 1954 | 2865 | 5941 | 3980 | 2105 | 380 | 1304 | 1444 | 1773 | 1703 | 3747 | 683 | 1749 |
| tween | 2576 | 4058 | 1574 | 1558 | 2702 | 5558 | 3513 | 2269 | 458 | 1692 | 1778 | 1580 | 1969 | 4283 | 879 | 1968 |
| tween_chain | 3139 | 4323 | 2520 | 2553 | 3753 | 6758 | 5159 | 2374 | 518 | 1761 | 1817 | 2531 | 2193 | 4304 | 961 | 2203 |

## Honesty - mean Score, every mode x dtype  (cols 17-32)

## Honesty - mean Score, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 4045 | 682 | 603 | 2959 | 3841 | 991 | 3905 | 1728 | 2244 | 1841 | 921 | 2306 | 2092 | 783 | 658 | 2216 |
| MeshTween | 3670 | 580 | 526 | 1784 | 3636 | 1071 | 3850 | 1500 | 1899 | 1792 | 897 | 1981 | 1822 | 641 | 569 | 1914 |
| MeshTweenAlt | 2624 | 410 | 333 | 1420 | 2001 | 541 | 2212 | 1049 | 1245 | 1125 | 567 | 1307 | 1328 | 414 | 392 | 1346 |
| MeshTweenChain | 3749 | 712 | 609 | 2829 | 3679 | 1099 | 4022 | 1644 | 2243 | 1861 | 924 | 2120 | 1930 | 745 | 667 | 2013 |
| MeshTweenSplit | 4558 | 905 | 743 | 2358 | 4366 | 1214 | 4994 | 1943 | 2532 | 2157 | 1158 | 2588 | 2372 | 962 | 843 | 2251 |
| MeshTweenSplitFa | 4974 | 947 | 876 | 3154 | 4868 | 1354 | 5595 | 2079 | 2508 | 2357 | 1381 | 2649 | 2403 | 998 | 908 | 2751 |
| MeshTweenSplitSp | 6179 | 990 | 926 | 3913 | 6517 | 1500 | 7346 | 2420 | 3245 | 2753 | 1436 | 3318 | 3018 | 1083 | 1005 | 3033 |
| StepTweenAlt | 2396 | 337 | 281 | 1213 | 1808 | 493 | 2007 | 903 | 1301 | 884 | 437 | 1217 | 1160 | 340 | 311 | 1126 |
| StepTweenSplit | 3916 | 612 | 563 | 1941 | 3464 | 934 | 3851 | 1443 | 1959 | 1510 | 765 | 1939 | 1756 | 690 | 542 | 1900 |
| TweenAlt | 2618 | 369 | 346 | 1556 | 2272 | 585 | 2295 | 1141 | 1528 | 1118 | 539 | 1467 | 1170 | 432 | 340 | 1420 |
| TweenSplit | 4780 | 796 | 736 | 2591 | 3951 | 1228 | 4350 | 1925 | 2482 | 2031 | 1113 | 2624 | 2298 | 906 | 737 | 2594 |
| TweenSplitFastPr | 4848 | 827 | 696 | 3244 | 4193 | 1238 | 5031 | 1942 | 2550 | 2359 | 1158 | 2849 | 2550 | 855 | 781 | 2628 |
| TweenSplitHeadPr | 5057 | 827 | 767 | 3382 | 4408 | 1282 | 5265 | 2103 | 2709 | 2260 | 1225 | 2793 | 2372 | 953 | 819 | 2743 |
| TweenSplitHeadPr | 4977 | 779 | 772 | 2333 | 4345 | 1279 | 5241 | 1804 | 2751 | 1969 | 1196 | 2427 | 2301 | 854 | 788 | 2656 |
| TweenSplitLinear | 3355 | 640 | 581 | 2218 | 2652 | 904 | 3812 | 1631 | 2115 | 1862 | 913 | 2186 | 1851 | 690 | 596 | 1998 |
| TweenSplitLinear | 4566 | 901 | 778 | 2327 | 4410 | 1245 | 5078 | 1985 | 2507 | 2452 | 1106 | 2547 | 2320 | 855 | 792 | 2692 |
| TweenSplitSparse | 5148 | 826 | 734 | 3385 | 5638 | 1302 | 5694 | 1956 | 2794 | 2180 | 1206 | 2769 | 2294 | 993 | 844 | 2552 |
| sgd | 4557 | 801 | 708 | 3421 | 4473 | 1303 | 4415 | 1909 | 2653 | 2100 | 1135 | 2716 | 2385 | 859 | 737 | 2615 |
| step_sgd | 4011 | 582 | 512 | 2634 | 3846 | 973 | 3972 | 1509 | 2046 | 1843 | 846 | 2013 | 1952 | 653 | 560 | 2024 |
| step_tween | 3302 | 471 | 435 | 1521 | 3417 | 902 | 3297 | 1204 | 1771 | 1450 | 680 | 1709 | 1524 | 533 | 430 | 1800 |
| step_tween_chain | 3422 | 528 | 448 | 2477 | 3345 | 908 | 3503 | 1261 | 1803 | 1457 | 726 | 1887 | 1698 | 536 | 495 | 1850 |
| tween | 4012 | 640 | 586 | 2062 | 3972 | 1063 | 4195 | 1610 | 2171 | 1912 | 894 | 2262 | 1963 | 688 | 600 | 2171 |
| tween_chain | 4255 | 716 | 651 | 3082 | 3939 | 1180 | 4233 | 1807 | 2396 | 1852 | 1048 | 2452 | 2114 | 799 | 697 | 2376 |

## Honesty - mean Score, every mode x dtype  (cols 33-34)

## Honesty - mean Score, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 3065 | 1690 |
| MeshTween | 2935 | 1480 |
| MeshTweenAlt | 1766 | 1096 |
| MeshTweenChain | 2962 | 1763 |
| MeshTweenSplit | 3425 | 1799 |
| MeshTweenSplitFa | 3573 | 2305 |
| MeshTweenSplitSp | 4945 | 2407 |
| StepTweenAlt | 1554 | 918 |
| StepTweenSplit | 2796 | 1412 |
| TweenAlt | 1808 | 1189 |
| TweenSplit | 3248 | 1920 |
| TweenSplitFastPr | 3683 | 1910 |
| TweenSplitHeadPr | 3745 | 2071 |
| TweenSplitHeadPr | 3587 | 1864 |
| TweenSplitLinear | 2166 | 1442 |
| TweenSplitLinear | 3183 | 1942 |
| TweenSplitSparse | 3979 | 1987 |
| sgd | 3520 | 1997 |
| step_sgd | 2910 | 1505 |
| step_tween | 2707 | 1214 |
| step_tween_chain | 2544 | 1393 |
| tween | 3073 | 1666 |
| tween_chain | 3157 | 1788 |

## Honesty - mean hard Acc, every mode x dtype  (cols 1-16)

## Honesty - mean hard Acc, every mode x dtype  (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 50 | 25 | 53 | 52 | 51 | 49 | 49 | 25 | 35 | 25 | 38 | 47 | 47 | 22 | 31 | 48 |
| MeshTween | 47 | 26 | 39 | 42 | 44 | 36 | 43 | 25 | 33 | 21 | 29 | 34 | 45 | 31 | 27 | 32 |
| MeshTweenAlt | 35 | 23 | 37 | 37 | 36 | 47 | 38 | 25 | 26 | 28 | 28 | 36 | 30 | 25 | 23 | 31 |
| MeshTweenChain | 50 | 25 | 54 | 52 | 55 | 53 | 51 | 25 | 36 | 26 | 29 | 48 | 44 | 29 | 26 | 48 |
| MeshTweenSplit | 33 | 25 | 35 | 35 | 34 | 36 | 37 | 25 | 29 | 25 | 26 | 35 | 30 | 24 | 26 | 29 |
| MeshTweenSplitFa | 44 | 22 | 44 | 47 | 43 | 45 | 46 | 25 | 35 | 28 | 30 | 46 | 45 | 22 | 30 | 45 |
| MeshTweenSplitSp | 46 | 25 | 46 | 45 | 44 | 44 | 45 | 25 | 33 | 26 | 31 | 42 | 44 | 24 | 23 | 39 |
| StepTweenAlt | 33 | 25 | 38 | 38 | 38 | 45 | 42 | 25 | 29 | 25 | 29 | 37 | 30 | 26 | 25 | 30 |
| StepTweenSplit | 33 | 22 | 36 | 36 | 36 | 36 | 38 | 25 | 29 | 27 | 27 | 37 | 30 | 25 | 25 | 30 |
| TweenAlt | 34 | 27 | 37 | 40 | 39 | 48 | 41 | 25 | 29 | 25 | 28 | 38 | 30 | 25 | 26 | 30 |
| TweenSplit | 36 | 24 | 37 | 38 | 37 | 38 | 38 | 25 | 31 | 28 | 27 | 38 | 31 | 25 | 26 | 31 |
| TweenSplitFastPr | 46 | 27 | 45 | 49 | 47 | 46 | 47 | 25 | 34 | 25 | 27 | 46 | 40 | 23 | 27 | 43 |
| TweenSplitHeadPr | 44 | 21 | 46 | 44 | 48 | 47 | 47 | 25 | 33 | 28 | 26 | 48 | 44 | 25 | 25 | 47 |
| TweenSplitHeadPr | 25 | 24 | 36 | 39 | 38 | 35 | 37 | 25 | 29 | 29 | 25 | 37 | 31 | 28 | 29 | 28 |
| TweenSplitLinear | 33 | 30 | 46 | 45 | 44 | 51 | 47 | 25 | 25 | 25 | 28 | 40 | 45 | 22 | 22 | 45 |
| TweenSplitLinear | 26 | 23 | 27 | 25 | 24 | 25 | 24 | 25 | 23 | 25 | 26 | 28 | 25 | 27 | 23 | 25 |
| TweenSplitSparse | 51 | 27 | 45 | 46 | 44 | 44 | 46 | 25 | 26 | 28 | 25 | 45 | 36 | 26 | 27 | 42 |
| sgd | 51 | 25 | 48 | 49 | 52 | 52 | 51 | 25 | 30 | 28 | 23 | 56 | 53 | 26 | 22 | 49 |
| step_sgd | 50 | 22 | 46 | 50 | 56 | 49 | 48 | 25 | 31 | 26 | 26 | 52 | 49 | 31 | 29 | 49 |
| step_tween | 48 | 26 | 37 | 36 | 42 | 37 | 36 | 25 | 29 | 25 | 21 | 39 | 38 | 21 | 26 | 29 |
| step_tween_chain | 51 | 28 | 52 | 46 | 52 | 53 | 54 | 25 | 34 | 26 | 32 | 49 | 46 | 23 | 28 | 45 |
| tween | 47 | 27 | 40 | 34 | 40 | 41 | 38 | 25 | 26 | 25 | 22 | 47 | 42 | 27 | 21 | 41 |
| tween_chain | 51 | 27 | 47 | 52 | 59 | 49 | 51 | 25 | 38 | 26 | 26 | 51 | 45 | 25 | 27 | 54 |

## Honesty - mean hard Acc, every mode x dtype  (cols 17-32)

## Honesty - mean hard Acc, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 25 | 25 | 34 | 51 | 48 | 27 | 27 | 41 | 44 | 23 | 24 | 50 | 25 | 28 | 30 | 43 |
| MeshTween | 27 | 22 | 24 | 35 | 38 | 28 | 25 | 35 | 40 | 28 | 24 | 43 | 21 | 21 | 31 | 43 |
| MeshTweenAlt | 23 | 28 | 33 | 38 | 30 | 26 | 24 | 28 | 30 | 25 | 26 | 31 | 25 | 27 | 29 | 30 |
| MeshTweenChain | 26 | 23 | 32 | 48 | 41 | 32 | 23 | 46 | 43 | 21 | 26 | 49 | 30 | 20 | 35 | 50 |
| MeshTweenSplit | 26 | 28 | 30 | 35 | 30 | 24 | 23 | 30 | 32 | 25 | 24 | 29 | 26 | 26 | 28 | 31 |
| MeshTweenSplitFa | 23 | 23 | 35 | 46 | 38 | 31 | 25 | 44 | 40 | 24 | 29 | 41 | 18 | 24 | 33 | 41 |
| MeshTweenSplitSp | 23 | 35 | 33 | 49 | 39 | 23 | 27 | 40 | 40 | 24 | 24 | 43 | 26 | 25 | 34 | 43 |
| StepTweenAlt | 26 | 27 | 30 | 39 | 30 | 25 | 25 | 30 | 31 | 25 | 25 | 30 | 24 | 25 | 31 | 30 |
| StepTweenSplit | 27 | 26 | 30 | 35 | 31 | 23 | 25 | 30 | 30 | 25 | 25 | 30 | 29 | 26 | 30 | 30 |
| TweenAlt | 26 | 28 | 31 | 41 | 30 | 26 | 24 | 31 | 30 | 25 | 25 | 30 | 25 | 26 | 29 | 30 |
| TweenSplit | 25 | 27 | 29 | 39 | 31 | 26 | 25 | 30 | 31 | 25 | 25 | 30 | 25 | 27 | 29 | 30 |
| TweenSplitFastPr | 29 | 30 | 31 | 45 | 43 | 26 | 22 | 46 | 46 | 26 | 28 | 43 | 23 | 26 | 37 | 44 |
| TweenSplitHeadPr | 20 | 26 | 34 | 48 | 48 | 24 | 23 | 42 | 44 | 23 | 25 | 44 | 26 | 29 | 34 | 45 |
| TweenSplitHeadPr | 23 | 34 | 30 | 36 | 33 | 26 | 24 | 26 | 28 | 24 | 27 | 32 | 24 | 30 | 31 | 29 |
| TweenSplitLinear | 25 | 25 | 32 | 45 | 42 | 24 | 24 | 39 | 44 | 28 | 28 | 41 | 23 | 27 | 32 | 43 |
| TweenSplitLinear | 25 | 26 | 28 | 22 | 27 | 24 | 29 | 26 | 20 | 24 | 23 | 27 | 28 | 20 | 24 | 30 |
| TweenSplitSparse | 30 | 29 | 37 | 48 | 41 | 25 | 24 | 39 | 44 | 24 | 26 | 44 | 22 | 21 | 40 | 42 |
| sgd | 24 | 27 | 38 | 50 | 46 | 25 | 25 | 42 | 48 | 32 | 24 | 48 | 25 | 27 | 32 | 52 |
| step_sgd | 26 | 28 | 35 | 51 | 47 | 24 | 26 | 43 | 46 | 28 | 25 | 56 | 29 | 30 | 38 | 44 |
| step_tween | 27 | 27 | 27 | 36 | 36 | 23 | 28 | 41 | 39 | 26 | 25 | 29 | 26 | 24 | 27 | 35 |
| step_tween_chain | 28 | 23 | 24 | 47 | 42 | 24 | 18 | 47 | 52 | 29 | 26 | 39 | 29 | 25 | 30 | 43 |
| tween | 24 | 24 | 27 | 36 | 45 | 21 | 28 | 39 | 37 | 22 | 22 | 35 | 29 | 27 | 26 | 39 |
| tween_chain | 28 | 33 | 35 | 45 | 45 | 27 | 31 | 50 | 48 | 26 | 25 | 48 | 27 | 27 | 32 | 47 |

## Honesty - mean hard Acc, every mode x dtype  (cols 33-34)

## Honesty - mean hard Acc, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 43 | 47 |
| MeshTween | 35 | 36 |
| MeshTweenAlt | 31 | 31 |
| MeshTweenChain | 44 | 45 |
| MeshTweenSplit | 30 | 32 |
| MeshTweenSplitFa | 41 | 44 |
| MeshTweenSplitSp | 38 | 41 |
| StepTweenAlt | 30 | 31 |
| StepTweenSplit | 30 | 30 |
| TweenAlt | 30 | 31 |
| TweenSplit | 31 | 30 |
| TweenSplitFastPr | 45 | 40 |
| TweenSplitHeadPr | 46 | 46 |
| TweenSplitHeadPr | 32 | 31 |
| TweenSplitLinear | 33 | 36 |
| TweenSplitLinear | 26 | 25 |
| TweenSplitSparse | 42 | 42 |
| sgd | 47 | 45 |
| step_sgd | 47 | 47 |
| step_tween | 33 | 33 |
| step_tween_chain | 43 | 44 |
| tween | 36 | 41 |
| tween_chain | 44 | 47 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 1-16)

## Honesty - mean SoftAcc, every mode x dtype  (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 27 | 25 | 29 | 29 | 29 | 29 | 30 | 25 | 25 | 25 | 25 | 29 | 25 | 25 | 25 | 25 |
| MeshTween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenAlt | 26 | 25 | 27 | 27 | 27 | 29 | 27 | 25 | 25 | 25 | 25 | 27 | 25 | 25 | 25 | 25 |
| MeshTweenChain | 27 | 25 | 29 | 29 | 29 | 29 | 30 | 25 | 25 | 25 | 25 | 29 | 25 | 25 | 25 | 25 |
| MeshTweenSplit | 26 | 25 | 26 | 26 | 26 | 27 | 27 | 25 | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 |
| MeshTweenSplitFa | 26 | 25 | 29 | 29 | 28 | 28 | 29 | 25 | 25 | 25 | 25 | 29 | 25 | 25 | 25 | 25 |
| MeshTweenSplitSp | 26 | 25 | 28 | 29 | 28 | 29 | 29 | 25 | 25 | 25 | 25 | 29 | 25 | 25 | 25 | 25 |
| StepTweenAlt | 26 | 25 | 27 | 27 | 27 | 28 | 28 | 25 | 25 | 25 | 25 | 27 | 25 | 25 | 25 | 25 |
| StepTweenSplit | 26 | 25 | 27 | 26 | 26 | 27 | 27 | 25 | 25 | 25 | 25 | 27 | 25 | 25 | 25 | 25 |
| TweenAlt | 26 | 25 | 27 | 27 | 27 | 29 | 28 | 25 | 25 | 25 | 25 | 27 | 25 | 25 | 25 | 25 |
| TweenSplit | 26 | 25 | 27 | 27 | 27 | 27 | 27 | 25 | 25 | 25 | 25 | 27 | 25 | 25 | 25 | 25 |
| TweenSplitFastPr | 27 | 25 | 29 | 29 | 29 | 29 | 29 | 25 | 25 | 25 | 25 | 29 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 27 | 25 | 29 | 29 | 28 | 29 | 30 | 25 | 25 | 25 | 25 | 29 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 27 | 27 | 26 | 26 | 27 | 25 | 25 | 25 | 25 | 27 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitSparse | 27 | 25 | 29 | 29 | 29 | 29 | 29 | 25 | 25 | 25 | 25 | 29 | 25 | 25 | 25 | 25 |
| sgd | 27 | 25 | 29 | 29 | 29 | 30 | 30 | 25 | 25 | 25 | 25 | 29 | 26 | 25 | 25 | 25 |
| step_sgd | 27 | 25 | 29 | 29 | 29 | 30 | 29 | 25 | 25 | 25 | 25 | 29 | 25 | 25 | 25 | 25 |
| step_tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween_chain | 27 | 25 | 29 | 29 | 29 | 29 | 29 | 25 | 25 | 25 | 25 | 29 | 25 | 25 | 25 | 26 |
| tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween_chain | 27 | 25 | 29 | 30 | 29 | 29 | 30 | 25 | 25 | 25 | 25 | 29 | 26 | 25 | 25 | 26 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 17-32)

## Honesty - mean SoftAcc, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 25 | 25 | 25 | 30 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 |
| MeshTween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenAlt | 25 | 25 | 25 | 27 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenChain | 25 | 25 | 25 | 29 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplit | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 | 25 | 29 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 | 25 | 28 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenAlt | 25 | 25 | 25 | 27 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenSplit | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenAlt | 25 | 25 | 25 | 28 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplit | 25 | 25 | 25 | 27 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitFastPr | 25 | 25 | 25 | 29 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 29 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 27 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitSparse | 25 | 25 | 25 | 29 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| sgd | 25 | 25 | 25 | 30 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 25 |
| step_sgd | 25 | 25 | 25 | 29 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween_chain | 25 | 25 | 25 | 29 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween_chain | 25 | 25 | 25 | 30 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 26 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 33-34)

## Honesty - mean SoftAcc, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 25 | 25 |
| MeshTween | 25 | 25 |
| MeshTweenAlt | 25 | 25 |
| MeshTweenChain | 25 | 25 |
| MeshTweenSplit | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 |
| StepTweenAlt | 25 | 25 |
| StepTweenSplit | 25 | 25 |
| TweenAlt | 25 | 25 |
| TweenSplit | 25 | 25 |
| TweenSplitFastPr | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 |
| TweenSplitLinear | 25 | 25 |
| TweenSplitLinear | 25 | 25 |
| TweenSplitSparse | 25 | 25 |
| sgd | 25 | 25 |
| step_sgd | 26 | 25 |
| step_tween | 25 | 25 |
| step_tween_chain | 25 | 25 |
| tween | 25 | 25 |
| tween_chain | 25 | 25 |

## Mean Score, every mode x arch

## Mean Score, every mode x arch

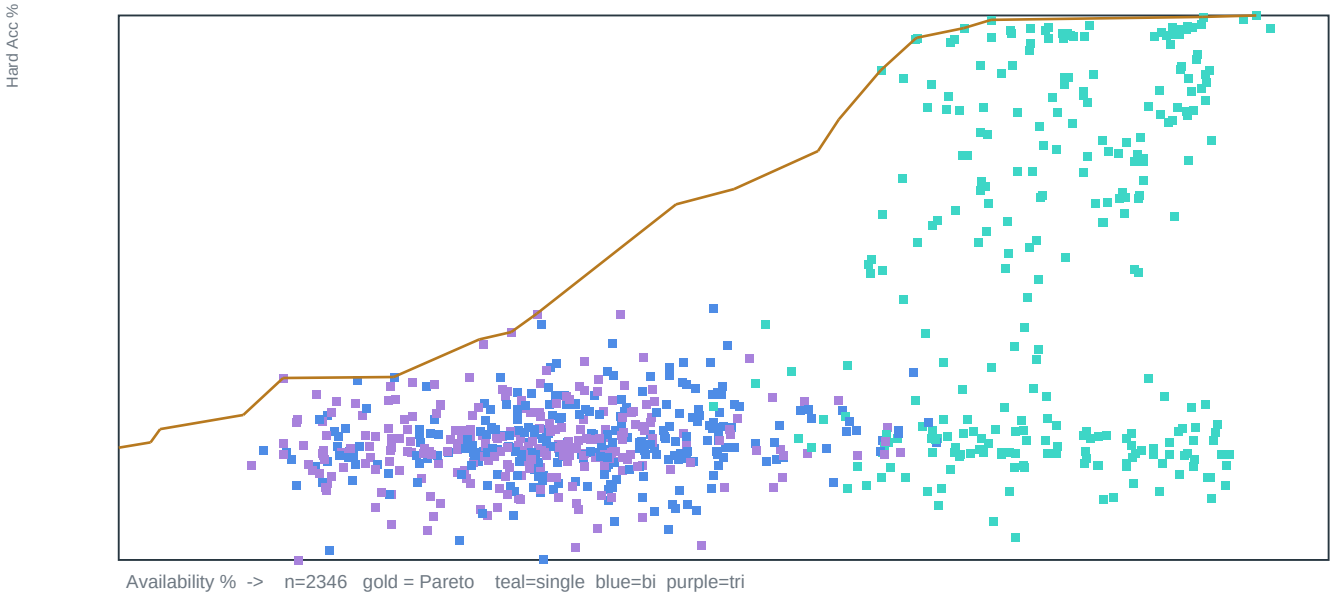
| | bicamera | singlex1 | tricamer |
|---|---|---|---|
| MeshBP | 523 | 6168 | 366 |
| MeshTween | 506 | 5143 | 348 |
| MeshTweenAlt | 277 | 3397 | 192 |
| MeshTweenChain | 532 | 6074 | 359 |
| MeshTweenSplit | 899 | 5710 | 639 |
| MeshTweenSplitFa | 1027 | 6740 | 784 |
| MeshTweenSplitSp | 1493 | 7604 | 1173 |
| StepTweenAlt | 215 | 3027 | 151 |
| StepTweenSplit | 598 | 4761 | 446 |
| TweenAlt | 281 | 3552 | 186 |
| TweenSplit | 834 | 5816 | 639 |
| TweenSplitFastPr | 939 | 6684 | 680 |
| TweenSplitHeadPr | 928 | 6739 | 698 |
| TweenSplitHeadPr | 940 | 5909 | 691 |
| TweenSplitLinear | 574 | 4755 | 401 |
| TweenSplitLinear | 918 | 5944 | 660 |
| TweenSplitSparse | 1281 | 6427 | 1032 |
| sgd | 600 | 7228 | 436 |
| step_sgd | 466 | 6059 | 317 |
| step_tween | 406 | 4511 | 287 |
| step_tween_chain | 412 | 5236 | 288 |
| tween | 530 | 5612 | 383 |
| tween_chain | 549 | 6593 | 394 |

## Mean hard Acc, every mode x arch

## Mean hard Acc, every mode x arch

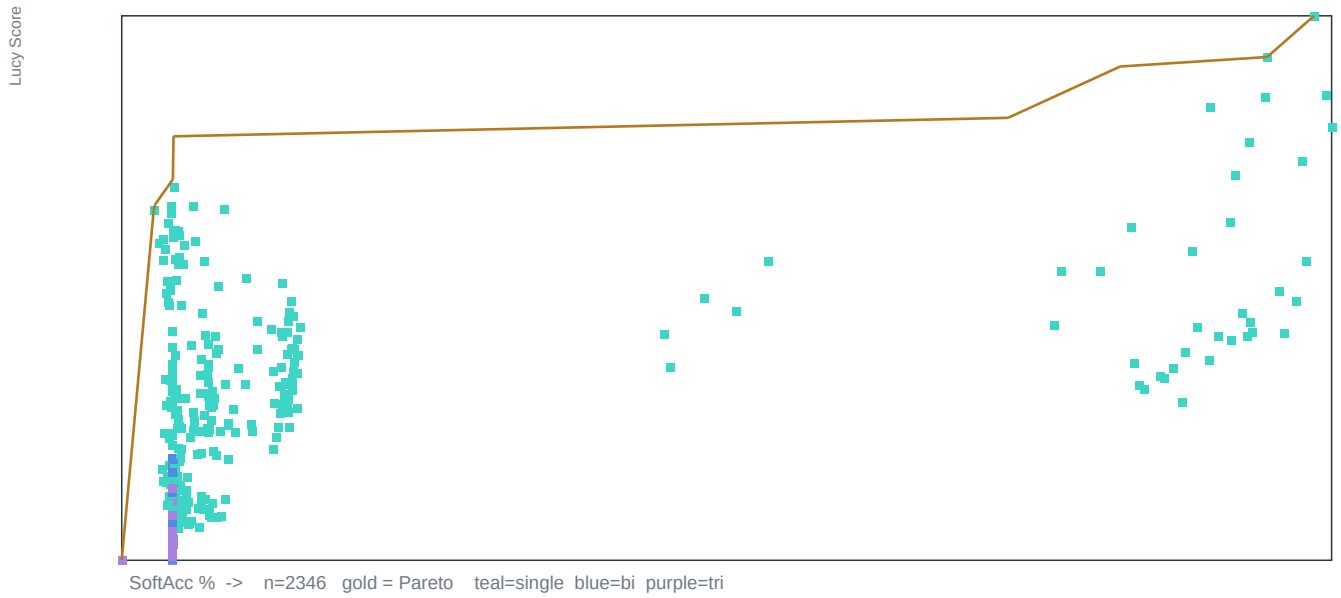
| | bicamera | singlex1 | tricamer |
|---|---|---|---|
| MeshBP | 29 | 57 | 27 |
| MeshTween | 26 | 46 | 26 |
| MeshTweenAlt | 26 | 39 | 26 |
| MeshTweenChain | 26 | 59 | 28 |
| MeshTweenSplit | 25 | 37 | 25 |
| MeshTweenSplitFa | 25 | 54 | 26 |
| MeshTweenSplitSp | 26 | 54 | 26 |
| StepTweenAlt | 25 | 40 | 26 |
| StepTweenSplit | 25 | 39 | 25 |
| TweenAlt | 26 | 40 | 26 |
| TweenSplit | 25 | 40 | 25 |
| TweenSplitFastPr | 25 | 57 | 26 |
| TweenSplitHeadPr | 24 | 57 | 27 |
| TweenSplitHeadPr | 24 | 40 | 26 |
| TweenSplitLinear | 27 | 49 | 27 |
| TweenSplitLinear | 25 | 25 | 25 |
| TweenSplitSparse | 25 | 56 | 25 |
| sgd | 28 | 59 | 27 |
| step_sgd | 29 | 59 | 28 |
| step_tween | 24 | 44 | 25 |
| step_tween_chain | 27 | 58 | 26 |
| tween | 25 | 48 | 24 |
| tween_chain | 28 | 60 | 28 |

## Avail vs hard Acc (headline scatter)

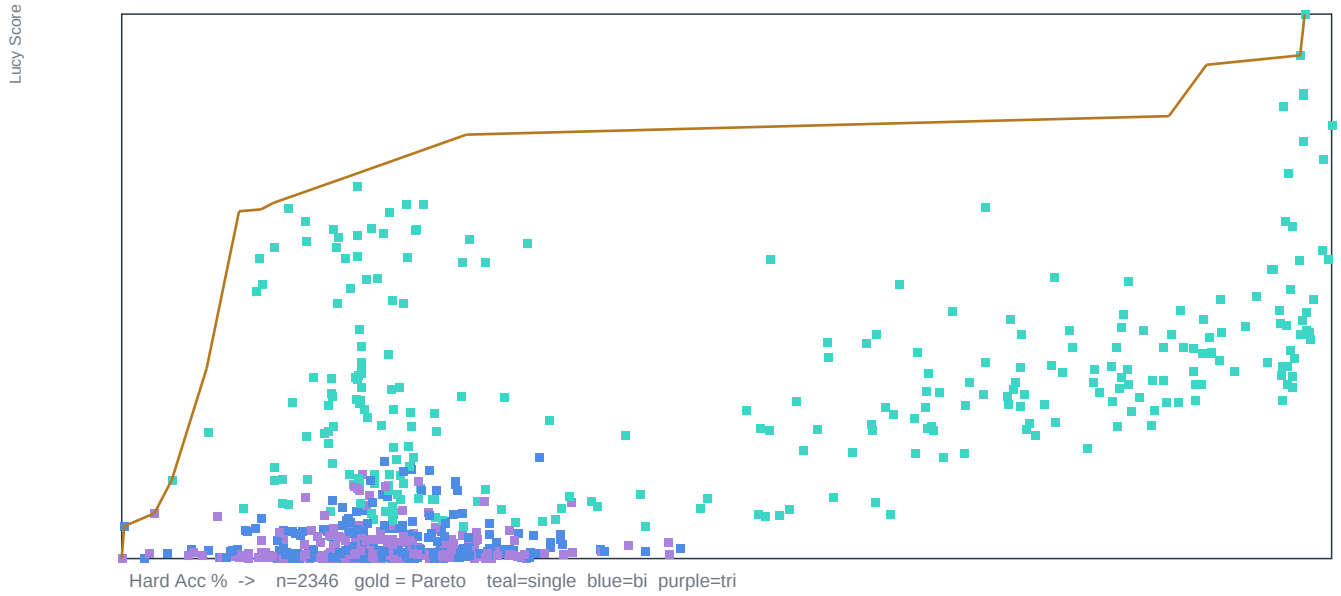



## Pareto - SoftAcc vs Score

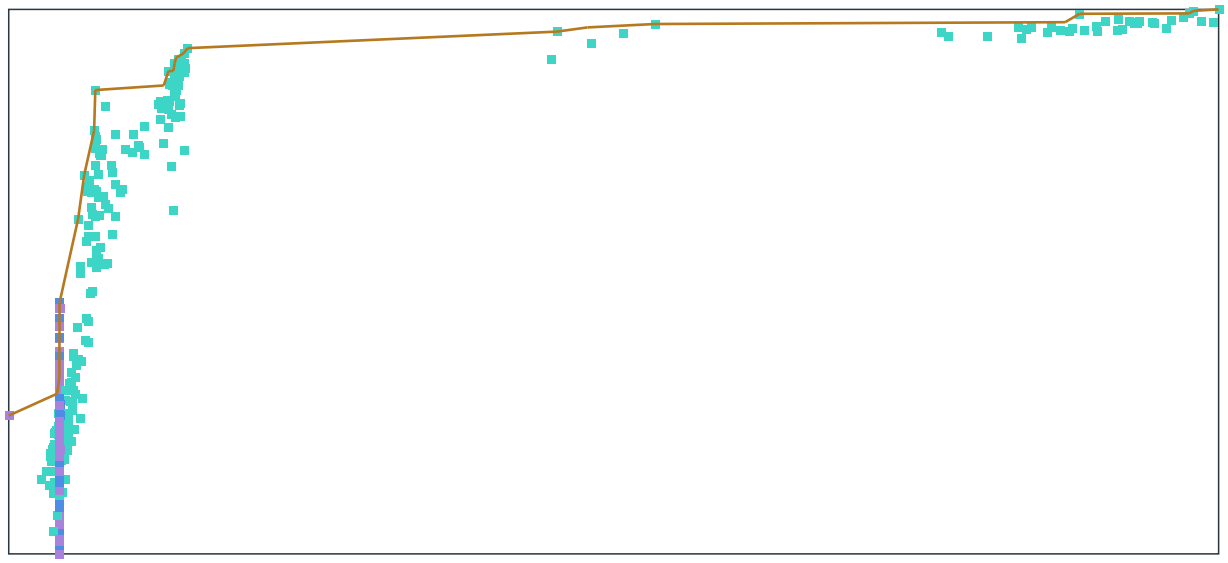
## Pareto - SoftAcc vs Score




## Pareto - hard Acc vs Score

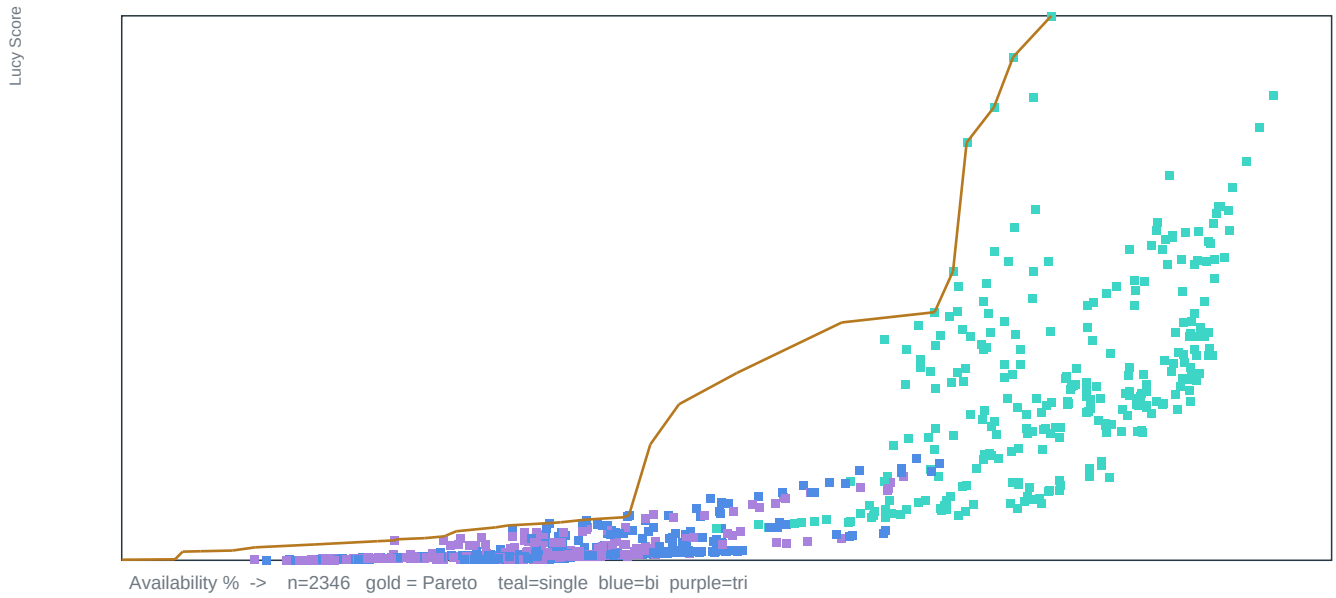



## SoftAcc vs hard Acc




SoftAcc % -> n=2346 gold = Pareto teal=single blue=bi purple=tri
Hard Acc %

## Avail vs Score (duty clock)




## Lucy Pareto (LPD) - goldilocks

Q = geomean of Score/Soft/Acc/Thru vs the Lucy Score champion. LPD = 0 if Q<70%, else Q x shrink vs champ RAM (capped 32x). Gold = Q>=80% and RAM<=20% of champ. MSpeed = Thru vs the board's fastest (0 if Q<70%). MAvail = Availability vs the board's best duty cycle (0 if Q<70%). Mix = geomean(Q, MSpeed, MAvail). Raw Score/MiB is the binary trap.

Quality champ float32|none|sgd|single|simd Score 17545.5 Soft 39 Acc 92 Thru 119911 RAM 1.4 KiB

Board fastest ternary|none|MeshTweenSplitSparse|single|simd Thru 124519 Best availability float64|none|MeshTweenSplitSparse|single|simd 44.4%

No gold cell yet. Need a recipe that keeps 80% of the Score champ's Score/Soft/Acc/Thru at one fifth the RAM.

## Near-gold - Q >= 70%, RAM <= 50%

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| near | int8\|none\|MeshTweenSplitSparse\|single\|simd | 70 | 28 | 3.5 | 2.49 | 26 | 73 | 9905.7 | 0.4 |

## LPD rank (Q x shrink; 0 if Q < 70%)

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| near | int8\|none\|MeshTweenSplitSparse\|single\|simd | 70 | 28 | 3.5 | 2.49 | 26 | 73 | 9905.7 | 0.4 |
| - | float16\|none\|sgd\|single\|simd | 79 | 52 | 1.9 | 1.50 | 37 | 92 | 10732.0 | 0.8 |
| - | float16\|none\|tween_chain\|single\|simd | 76 | 52 | 1.9 | 1.46 | 38 | 94 | 9955.9 | 0.8 |
| - | float16\|none\|MeshTweenSplitSparse\|single\|simd | 75 | 52 | 1.9 | 1.43 | 34 | 82 | 10504.7 | 0.8 |
| - | bfloat16\|none\|sgd\|single\|simd | 74 | 52 | 1.9 | 1.42 | 32 | 92 | 9633.7 | 0.8 |
| - | float16\|none\|step_sgd\|single\|simd | 74 | 52 | 1.9 | 1.41 | 36 | 90 | 9323.5 | 0.8 |
| - | float16\|none\|TweenSplitFastProxy\|single\|simd | 73 | 52 | 1.9 | 1.40 | 36 | 87 | 9576.5 | 0.8 |
| - | float16\|none\|MeshBP\|single\|simd | 73 | 52 | 1.9 | 1.39 | 36 | 90 | 9341.0 | 0.8 |
| - | float16\|none\|MeshTweenChain\|single\|simd | 72 | 52 | 1.9 | 1.39 | 36 | 90 | 9261.9 | 0.8 |
| - | float16\|none\|TweenSplitSparse\|single\|simd | 72 | 52 | 1.9 | 1.38 | 36 | 84 | 9582.1 | 0.8 |
| - | float16\|none\|TweenSplitHeadProxy\|single\|simd | 72 | 52 | 1.9 | 1.37 | 35 | 86 | 9295.7 | 0.8 |
| keep | float32\|none\|sgd\|single\|simd | 100 | 100 | 1.0 | 1.00 | 39 | 92 | 17545.5 | 1.4 |
| keep | float32\|none\|step_sgd\|single\|simd | 97 | 100 | 1.0 | 0.97 | 38 | 92 | 16218.3 | 1.4 |
| keep | float32\|none\|MeshTweenSplitSparse\|single\|simd | 93 | 100 | 1.0 | 0.93 | 37 | 85 | 15914.0 | 1.4 |
| keep | float32\|none\|MeshBP\|single\|simd | 93 | 100 | 1.0 | 0.93 | 38 | 92 | 14939.0 | 1.4 |
| keep | float32\|none\|MeshTweenChain\|single\|simd | 92 | 100 | 1.0 | 0.92 | 38 | 92 | 14653.9 | 1.4 |
| keep | float32\|none\|tween_chain\|single\|simd | 92 | 100 | 1.0 | 0.92 | 38 | 91 | 14596.3 | 1.4 |
| keep | float32\|none\|TweenSplitFastProxy\|single\|simd | 90 | 100 | 1.0 | 0.90 | 38 | 90 | 14567.0 | 1.4 |
| keep | float32\|none\|TweenSplitHeadProxy\|single\|simd | 89 | 100 | 1.0 | 0.89 | 37 | 88 | 14336.2 | 1.4 |
| keep | float32\|none\|step_tween_chain\|single\|simd | 89 | 100 | 1.0 | 0.89 | 38 | 92 | 13467.1 | 1.4 |

## Mobile speed - Thru vs board fastest (Q >= 70%)

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| keep | float32\|none\|sgd\|single\|simd | 100 | 96 | 84 | 93 | 1.00 | 119911 | 37.4 |
| - | float32\|none\|tween\|single\|simd | 75 | 96 | 83 | 84 | 0.75 | 119207 | 37.0 |
| keep | float32\|none\|step_sgd\|single\|simd | 97 | 93 | 82 | 90 | 0.97 | 115446 | 36.5 |
| keep | float32\|none\|MeshTweenSplitSparse\|single\|simd | 93 | 90 | 87 | 90 | 0.93 | 112189 | 38.7 |
| keep | float32\|none\|tween_chain\|single\|simd | 92 | 86 | 81 | 86 | 0.92 | 107236 | 36.0 |
| keep | float32\|none\|MeshTweenSplitFastProxy\|single\|simd | 87 | 85 | 86 | 86 | 0.87 | 106201 | 38.0 |
| keep | float32\|none\|MeshBP\|single\|simd | 93 | 84 | 83 | 87 | 0.93 | 104975 | 37.0 |
| keep | float32\|none\|MeshTweenChain\|single\|simd | 92 | 84 | 82 | 86 | 0.92 | 104845 | 36.6 |
| keep | float32\|none\|TweenSplitHeadProxy\|single\|simd | 89 | 84 | 83 | 86 | 0.89 | 104407 | 37.0 |
| keep | float32\|none\|TweenSplitFastProxy\|single\|simd | 90 | 83 | 85 | 86 | 0.90 | 102783 | 37.7 |

## Mobile availability - duty cycle vs board best (Q >= 70%)

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| keep | float64\|none\|MeshTweenSplitSparse\|single\|simd | 81 | 64 | 100 | 80 | 0.42 | 79710 | 44.4 |
| keep | float64\|none\|TweenSplitFastProxy\|single\|simd | 85 | 66 | 100 | 82 | 0.43 | 82421 | 44.3 |
| - | int64\|none\|MeshTweenSplitSparse\|single\|simd | 71 | 53 | 99 | 72 | 0.36 | 65802 | 44.0 |
| - | float64\|none\|MeshTweenSplitFastProxy\|single\|simd | 79 | 65 | 99 | 80 | 0.41 | 80505 | 43.9 |
| keep | float64\|none\|TweenSplitSparse\|single\|simd | 80 | 63 | 99 | 79 | 0.41 | 78390 | 43.8 |
| keep | float64\|none\|TweenSplitHeadProxy\|single\|simd | 86 | 66 | 98 | 82 | 0.44 | 82469 | 43.4 |
| keep | float64\|none\|sgd\|single\|simd | 89 | 71 | 97 | 85 | 0.46 | 89027 | 43.0 |
| keep | float64\|none\|tween_chain\|single\|simd | 86 | 67 | 96 | 82 | 0.44 | 83319 | 42.6 |
| keep | float64\|none\|MeshTweenChain\|single\|simd | 82 | 62 | 95 | 79 | 0.42 | 77611 | 42.4 |
| keep | float64\|none\|MeshBP\|single\|simd | 83 | 63 | 95 | 79 | 0.42 | 78108 | 42.3 |

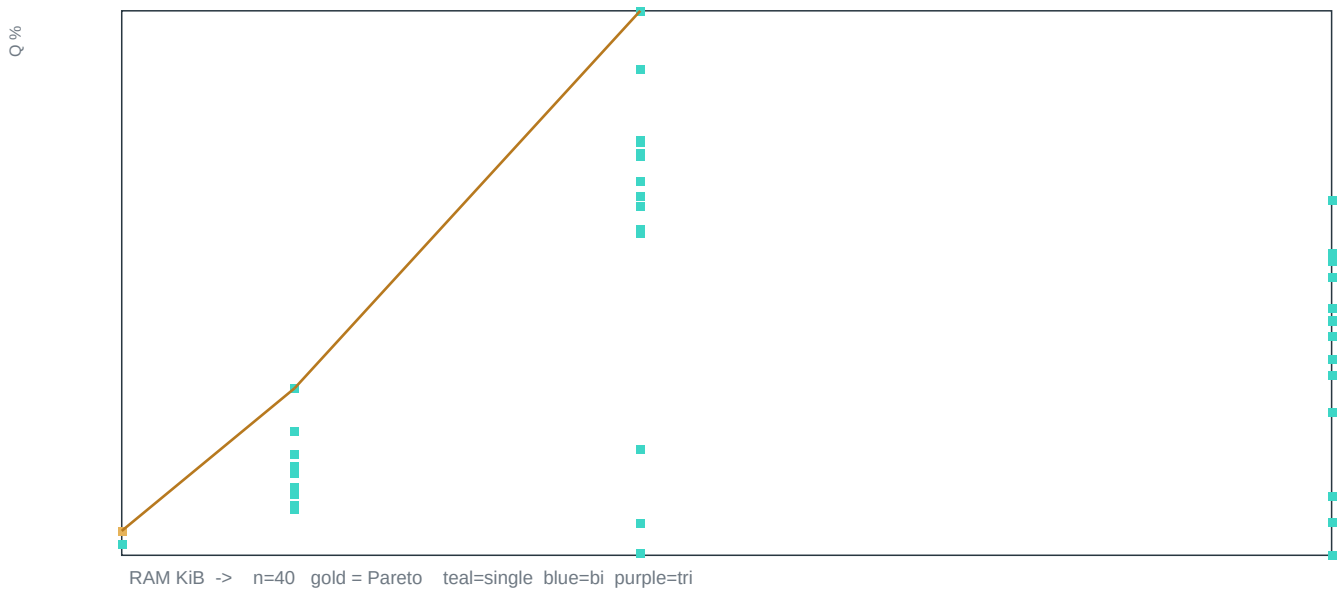
## Mix - geomean of Q, MSpeed, MAvail

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| keep | float32\|none\|sgd\|single\|simd | 100 | 96 | 84 | 93 | 1.00 | 119911 | 37.4 |
| keep | float32\|none\|step_sgd\|single\|simd | 97 | 93 | 82 | 90 | 0.97 | 115446 | 36.5 |
| keep | float32\|none\|MeshTweenSplitSparse\|single\|simd | 93 | 90 | 87 | 90 | 0.93 | 112189 | 38.7 |
| keep | float32\|none\|MeshBP\|single\|simd | 93 | 84 | 83 | 87 | 0.93 | 104975 | 37.0 |
| keep | float32\|none\|tween_chain\|single\|simd | 92 | 86 | 81 | 86 | 0.92 | 107236 | 36.0 |
| keep | float32\|none\|MeshTweenChain\|single\|simd | 92 | 84 | 82 | 86 | 0.92 | 104845 | 36.6 |
| keep | float32\|none\|MeshTweenSplitFastProxy\|single\|simd | 87 | 85 | 86 | 86 | 0.87 | 106201 | 38.0 |
| keep | float32\|none\|TweenSplitFastProxy\|single\|simd | 90 | 83 | 85 | 86 | 0.90 | 102783 | 37.7 |
| keep | float32\|none\|TweenSplitHeadProxy\|single\|simd | 89 | 84 | 83 | 86 | 0.89 | 104407 | 37.0 |
| keep | float64\|none\|sgd\|single\|simd | 89 | 71 | 97 | 85 | 0.46 | 89027 | 43.0 |

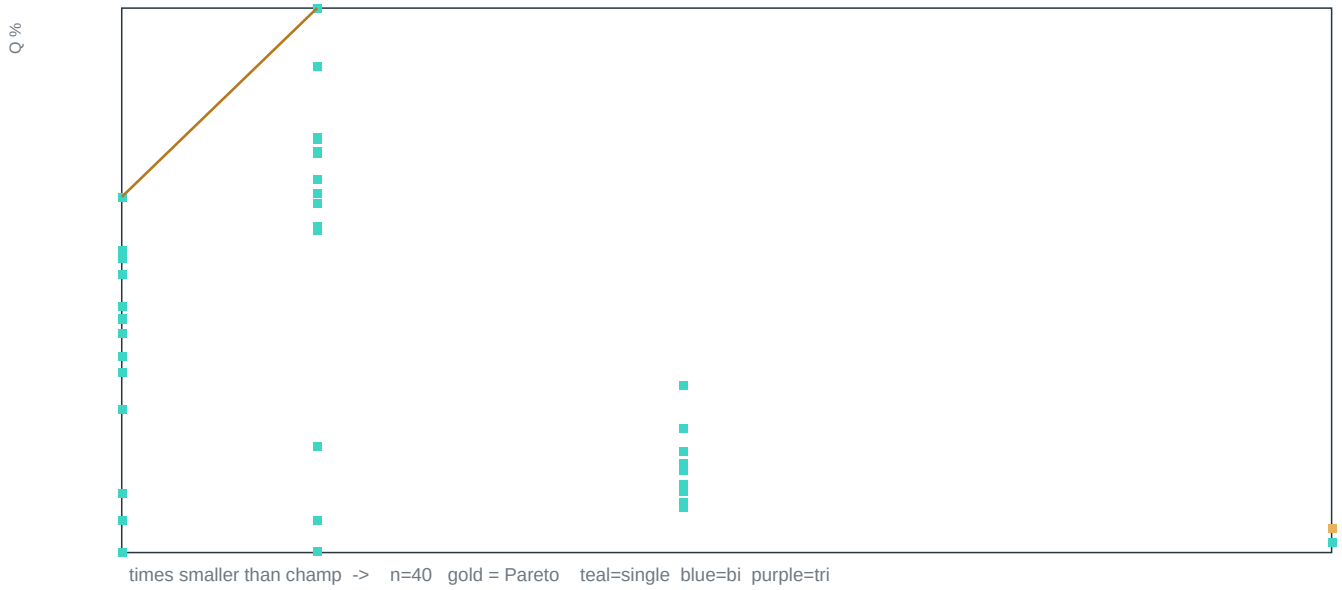
## Trap - tiny RAM, Q < 70% (why Score/MiB lies)

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| trap | binary\|none\|sgd\|single\|simd | 53 | 7 | 13.6 | 0.00 | 25 | 20 | 11287.0 | 0.1 |
| trap | binary\|none\|step_sgd\|single\|simd | 50 | 7 | 13.6 | 0.00 | 25 | 19 | 10029.1 | 0.1 |
| trap | binary\|none\|tween\|single\|simd | 57 | 7 | 13.6 | 0.00 | 25 | 29 | 10580.3 | 0.1 |
| trap | binary\|none\|tween_chain\|single\|simd | 59 | 7 | 13.6 | 0.00 | 25 | 30 | 11417.2 | 0.1 |
| trap | binary\|none\|step_tween\|single\|simd | 50 | 7 | 13.6 | 0.00 | 25 | 27 | 8322.4 | 0.1 |
| trap | binary\|none\|step_tween_chain\|single\|simd | 50 | 7 | 13.6 | 0.00 | 25 | 28 | 8228.3 | 0.1 |
| trap | binary\|none\|MeshBP\|single\|simd | 55 | 7 | 13.6 | 0.00 | 25 | 32 | 9563.9 | 0.1 |
| trap | binary\|none\|MeshTween\|single\|simd | 58 | 7 | 13.6 | 0.00 | 25 | 33 | 10299.1 | 0.1 |
| trap | binary\|none\|MeshTweenChain\|single\|simd | 49 | 7 | 13.6 | 0.00 | 25 | 19 | 9756.5 | 0.1 |
| trap | binary\|none\|TweenSplit\|single\|simd | 50 | 7 | 13.6 | 0.00 | 25 | 24 | 9039.2 | 0.1 |

## LPD - Q% vs RAM KiB (gold = high Q, low RAM)



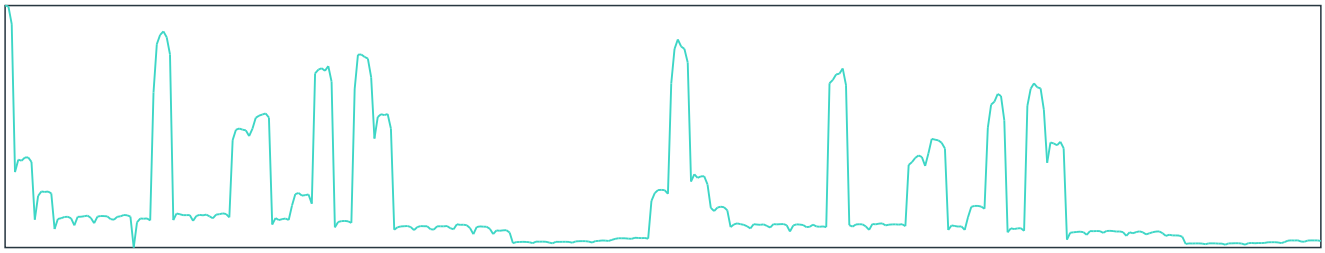

## LPD - Q% vs shrink vs champ (gold = upper right)




## Top LPD

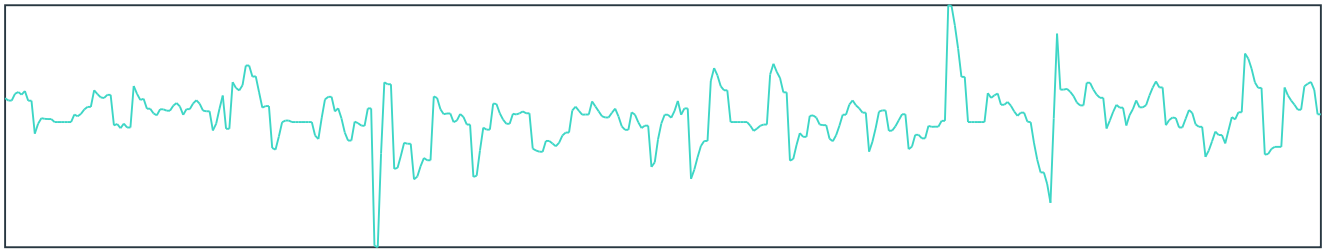



## Pulse Score - rnn



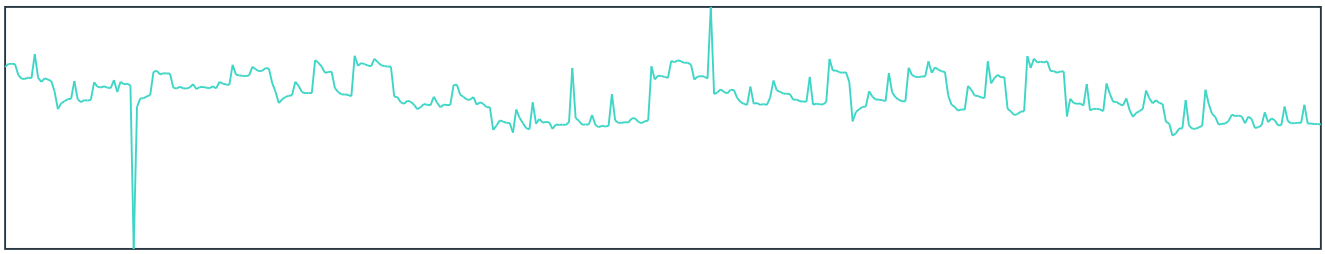
n=400 min=63.20 max=6542.23

## Pulse SoftAcc - rnn



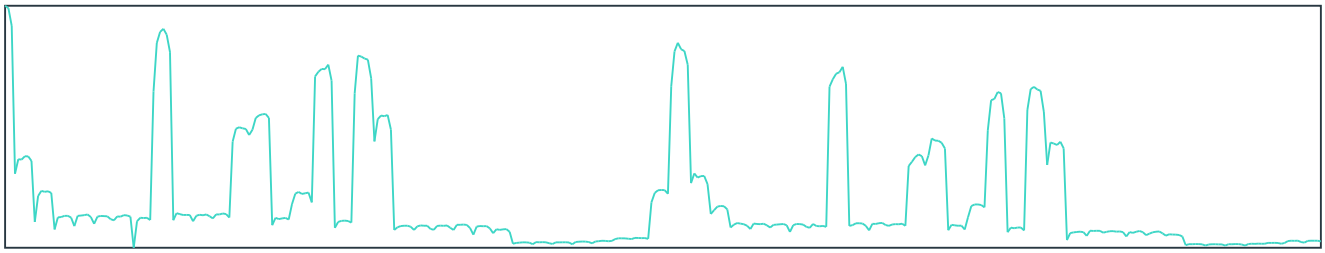
n=400 min=25.00 max=25.00

## Pulse Availability - rnn



n=400 min=27.21 max=49.42

## Pulse Throughput - rnn



n=400 min=928.87 max=59592.74

## Queue by train mode (this epoch)

| Mode | Done | Run | Left | Total |
|---|---|---|---|---|
| sgd | 102 | 0 | 0 | 102 |
| step_sgd | 102 | 0 | 0 | 102 |
| tween | 102 | 0 | 0 | 102 |
| tween_chain | 102 | 0 | 0 | 102 |
| step_tween | 102 | 0 | 0 | 102 |
| step_tween_chain | 102 | 0 | 0 | 102 |
| MeshBP | 102 | 0 | 0 | 102 |
| MeshTween | 102 | 0 | 0 | 102 |
| MeshTweenChain | 102 | 0 | 0 | 102 |
| TweenSplit | 102 | 0 | 0 | 102 |
| StepTweenSplit | 102 | 0 | 0 | 102 |
| TweenAlt | 102 | 0 | 0 | 102 |
| StepTweenAlt | 102 | 0 | 0 | 102 |
| TweenSplitHeadProxy | 102 | 0 | 0 | 102 |
| TweenSplitLinear | 102 | 0 | 0 | 102 |
| TweenSplitFastProxy | 102 | 0 | 0 | 102 |
| TweenSplitLinearCache | 102 | 0 | 0 | 102 |
| TweenSplitHeadProxyAsync | 102 | 0 | 0 | 102 |
| TweenSplitSparse | 102 | 0 | 0 | 102 |
| MeshTweenSplit | 102 | 0 | 0 | 102 |
| MeshTweenAlt | 102 | 0 | 0 | 102 |
| MeshTweenSplitFastProxy | 102 | 0 | 0 | 102 |
| MeshTweenSplitSparse | 102 | 0 | 0 | 102 |

# tide  sequential

Score = Throughput x Availability% x SoftAcc% / 10,000
done  -  epoch 1  -  2026-08-18 09:45:25  -  0.0.0.0:8119
This epoch 2346 / 2346 cells. Recorded 2346 results.
Score 0 usually means the cell finished before a Lucy pulse (SoftAcc never sampled) or true-class mass was 0. Those rows do not vote holistically.
sequential  -  stacked dense on pairwise XOR  -  modes all  -  min 2000ms/cell  -  1024 train  -  pulse 50ms  -  SIMD true

## Lucy champions (this tide)

| Axis | Cell | Score | Soft | Acc | Thru | Avail |
|---|---|---|---|---|---|---|
| score | float32\|none\|step_sgd\|single\|simd | 96669.31 | 25.0 | 25.5 | 941533.7 | 41.0 |
| throughput | float32\|none\|step_sgd\|single\|simd | 96669.31 | 25.0 | 25.5 | 941533.7 | 41.0 |
| availability | nf4\|none\|MeshTweenSplitSparse\|tricameral\|simd | 14490.26 | 25.0 | 27.9 | 122182.8 | 47.4 |
| accuracy | float32\|none\|TweenAlt\|single\|simd | 66829.96 | 25.1 | 29.5 | 655972.4 | 40.5 |
| mobile score (tra | binary\|none\|sgd\|single\|simd | 83141.06 | 25.0 | 21.7 | 777694.8 | 42.7 |
| acc/sec | binary\|none\|sgd\|single\|simd | 83141.06 | 25.0 | 21.7 | 777694.8 | 42.7 |

## Lucy axes - sequential

| Axis | Mode | DType | Arch | Value |
|---|---|---|---|---|
| score | step_sgd | float32 | singlex1 | 96669.31 |
| soft_acc | TweenAlt | float32 | singlex1 | 25.15 |
| hard_acc | step_tween | complex128 | tricameralx3 | 36.58 |
| throughput | step_sgd | float32 | singlex1 | 941533.67 |
| availability | MeshTweenSplitS~ | nf4 | tricameralx3 | 47.44 |
| acc_thru | step_sgd | float32 | singlex1 | 235507.16 |
| realtime | step_sgd | float32 | singlex1 | 386474.06 |
| adapt | TweenAlt | float32 | singlex1 | 25.15 |
| keep_learn | MeshTweenAlt | float32 | singlex1 | 12.54 |
| acc_per_sec | sgd | binary | singlex1 | 12.50 |
| consistency | sgd | float64 | singlex1 | 100.00 |
| stability | sgd | fp4 | singlex1 | 100.00 |
| mobile_score | sgd | binary | singlex1 | 4358986045.99 |
| lpd | tween | binary | singlex1 | 29.12 |
| mspeed | step_sgd | float32 | singlex1 | 1.00 |
| mavail | MeshTweenSplit | uint64 | singlex1 | 0.96 |
| mix | step_sgd | float32 | singlex1 | 0.95 |

## Best settings per train mode

| Mode | DType | Format | Score | Soft | Acc | Avail | n |
|---|---|---|---|---|---|---|---|
| step_sgd | float32 | none | 96669.3 | 25.0 | 25.5 | 41.0 | 102 |
| tween | float32 | none | 94942.2 | 25.0 | 26.2 | 41.2 | 102 |
| tween_chain | float32 | none | 92185.9 | 25.0 | 26.6 | 41.4 | 102 |
| step_tween | float32 | none | 89168.8 | 25.0 | 25.9 | 40.5 | 102 |
| TweenSplitLinearCache | float32 | none | 87877.7 | 25.0 | 30.4 | 42.3 | 102 |
| TweenSplitLinear | float32 | none | 87645.3 | 25.0 | 25.6 | 41.7 | 102 |
| step_tween_chain | float32 | none | 87016.2 | 25.0 | 26.9 | 40.4 | 102 |
| MeshTweenSplitFastProxy | float32 | none | 86677.9 | 25.0 | 28.0 | 42.0 | 102 |
| TweenSplitSparse | float32 | none | 84122.1 | 25.0 | 26.2 | 42.1 | 102 |
| sgd | float32 | none | 83745.5 | 25.0 | 26.4 | 41.1 | 102 |
| MeshBP | float32 | none | 82057.3 | 25.0 | 26.9 | 41.0 | 102 |
| MeshTween | float32 | none | 81979.5 | 25.0 | 23.4 | 40.9 | 102 |
| StepTweenSplit | float32 | none | 79729.8 | 25.0 | 26.5 | 41.9 | 102 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| TweenSplit | float32 | none | 79640.8 | 25.0 | 26.7 | 42.4 | 102 |
| MeshTweenSplit | float32 | none | 79310.4 | 25.0 | 27.3 | 42.0 | 102 |
| MeshTweenChain | float32 | none | 78727.0 | 25.0 | 26.1 | 40.8 | 102 |
| TweenSplitFastProxy | float32 | none | 78410.8 | 25.0 | 24.7 | 41.8 | 102 |
| TweenSplitHeadProxy | float32 | none | 78327.2 | 25.0 | 26.1 | 41.8 | 102 |
| MeshTweenSplitSparse | float32 | none | 77284.5 | 25.0 | 26.7 | 41.9 | 102 |
| TweenSplitHeadProxyAsync | float32 | none | 74522.4 | 25.0 | 26.0 | 42.0 | 102 |
| TweenAlt | float32 | none | 66830.0 | 25.1 | 29.5 | 40.5 | 102 |
| MeshTweenAlt | float32 | none | 65094.8 | 25.1 | 27.6 | 40.5 | 102 |
| StepTweenAlt | float32 | none | 64799.8 | 25.1 | 29.0 | 39.8 | 102 |

## Best dtype per mode

| Mode | Winner dtype | Score | Soft | Acc |
|---|---|---|---|---|
| step_sgd | float32 | 96669.3 | 25.0 | 25.5 |
| tween | float32 | 94942.2 | 25.0 | 26.2 |
| tween_chain | float32 | 92185.9 | 25.0 | 26.6 |
| step_tween | float32 | 89168.8 | 25.0 | 25.9 |
| TweenSplitLinearCache | float32 | 87877.7 | 25.0 | 30.4 |
| TweenSplitLinear | float32 | 87645.3 | 25.0 | 25.6 |
| step_tween_chain | float32 | 87016.2 | 25.0 | 26.9 |
| MeshTweenSplitFastProxy | float32 | 86677.9 | 25.0 | 28.0 |
| TweenSplitSparse | float32 | 84122.1 | 25.0 | 26.2 |
| sgd | float32 | 83745.5 | 25.0 | 26.4 |
| MeshBP | float32 | 82057.3 | 25.0 | 26.9 |
| MeshTween | float32 | 81979.5 | 25.0 | 23.4 |
| StepTweenSplit | float32 | 79729.8 | 25.0 | 26.5 |
| TweenSplit | float32 | 79640.8 | 25.0 | 26.7 |
| MeshTweenSplit | float32 | 79310.4 | 25.0 | 27.3 |
| MeshTweenChain | float32 | 78727.0 | 25.0 | 26.1 |
| TweenSplitFastProxy | float32 | 78410.8 | 25.0 | 24.7 |
| TweenSplitHeadProxy | float32 | 78327.2 | 25.0 | 26.1 |
| MeshTweenSplitSparse | float32 | 77284.5 | 25.0 | 26.7 |
| TweenSplitHeadProxyAsync | float32 | 74522.4 | 25.0 | 26.0 |
| TweenAlt | float32 | 66830.0 | 25.1 | 29.5 |
| MeshTweenAlt | float32 | 65094.8 | 25.1 | 27.6 |
| StepTweenAlt | float32 | 64799.8 | 25.1 | 29.0 |

## Best mode per dtype

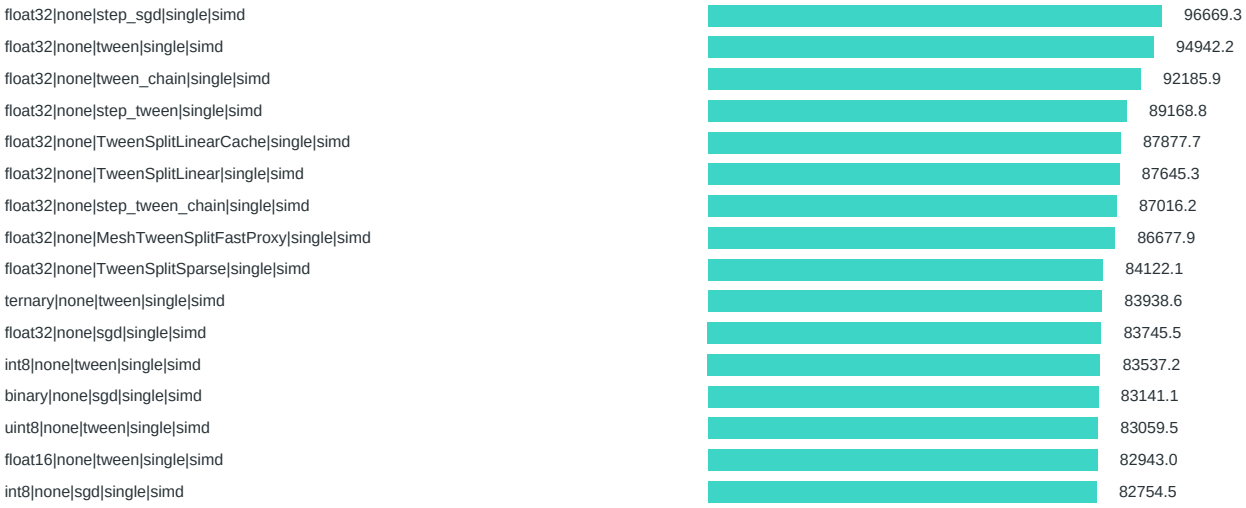
| DType | Winner mode | Score | Soft | Acc |
|---|---|---|---|---|
| float32 | step_sgd | 96669.3 | 25.0 | 25.5 |
| ternary | tween | 83938.6 | 25.0 | 25.9 |
| int8 | tween | 83537.2 | 25.0 | 23.1 |
| binary | sgd | 83141.1 | 25.0 | 21.7 |
| uint8 | tween | 83059.5 | 25.0 | 23.4 |
| float16 | tween | 82943.0 | 25.0 | 23.5 |
| int2 | tween | 81590.9 | 25.0 | 23.4 |
| int4 | step_sgd | 80317.5 | 25.0 | 25.2 |
| fp4 | sgd | 79567.7 | 25.0 | 25.0 |
| bfloat16 | tween | 71442.3 | 25.0 | 21.7 |
| float64 | tween | 64685.7 | 25.0 | 26.7 |
| uint32 | tween | 61581.1 | 25.0 | 22.5 |
| uint16 | tween | 59730.6 | 25.0 | 22.2 |

| | | | | |
|---|---|---|---|---|
| fp8e5m2 | step_sgd | 58569.6 | 25.0 | 25.5 |
| uint64 | tween | 56953.2 | 25.0 | 22.8 |
| fp8e4m3 | tween | 56873.9 | 25.0 | 21.6 |
| uint4 | sgd | 56392.6 | 25.0 | 21.8 |
| uint2 | tween | 55643.2 | 25.0 | 28.1 |
| int16 | tween | 52105.0 | 25.0 | 23.3 |
| int32 | tween_chain | 49738.9 | 25.0 | 23.5 |
| int64 | tween | 49040.6 | 25.0 | 26.3 |
| uintptr | sgd | 47676.1 | 25.0 | 23.6 |
| uint | sgd | 45576.5 | 25.0 | 23.8 |
| int | tween | 44144.0 | 25.0 | 23.5 |
| complex64 | sgd | 44013.9 | 25.0 | 25.2 |
| complex128 | tween | 43559.9 | 25.0 | 19.7 |
| nf4 | tween | 43023.3 | 25.0 | 25.5 |
| uint3 | sgd | 33635.4 | 25.0 | 23.1 |
| int3 | tween | 31710.8 | 25.0 | 22.3 |
| uint5 | sgd | 27197.5 | 25.0 | 27.9 |
| int5 | sgd | 25114.1 | 25.0 | 25.3 |
| uint6 | tween | 24514.6 | 25.0 | 29.7 |
| int6 | tween | 24063.3 | 25.0 | 26.0 |
| fp6 | tween | 23698.7 | 25.0 | 29.5 |

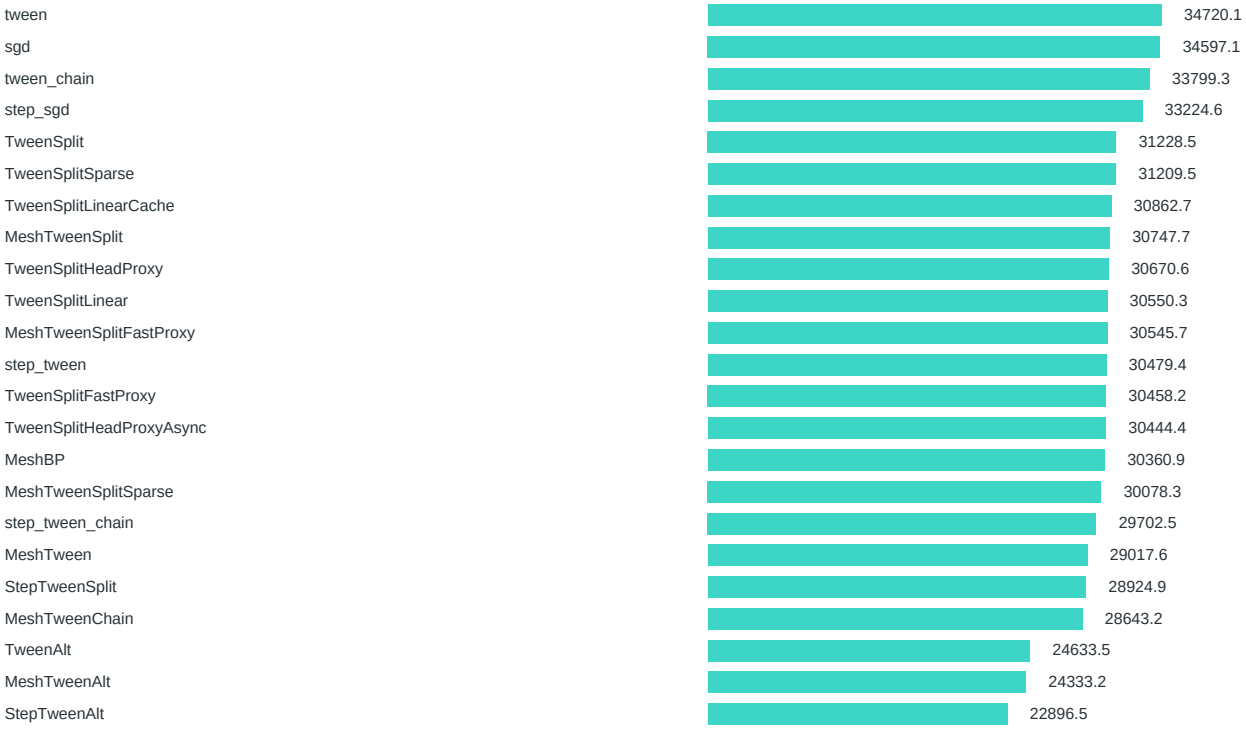
## Leaderboard - sequential

| # | Cell | Score | Soft | Acc | Thru | Avail |
|---|---|---|---|---|---|---|
| 1 | float32\|none\|step_sgd\|single\|simd | 96669.3 | 25.0 | 25.5 | 941533.7 | 41.0 |
| 2 | float32\|none\|tween\|single\|simd | 94942.2 | 25.0 | 26.2 | 922803.7 | 41.2 |
| 3 | float32\|none\|tween_chain\|single\|simd | 92185.9 | 25.0 | 26.6 | 891297.9 | 41.4 |
| 4 | float32\|none\|step_tween\|single\|simd | 89168.8 | 25.0 | 25.9 | 880837.4 | 40.5 |
| 5 | float32\|none\|TweenSplitLinearCache\|single\|simd | 87877.7 | 25.0 | 30.4 | 831849.2 | 42.3 |
| 6 | float32\|none\|TweenSplitLinear\|single\|simd | 87645.3 | 25.0 | 25.6 | 840392.6 | 41.7 |
| 7 | float32\|none\|step_tween_chain\|single\|simd | 87016.2 | 25.0 | 26.9 | 861138.0 | 40.4 |
| 8 | float32\|none\|MeshTweenSplitFastProxy\|single\|simd | 86677.9 | 25.0 | 28.0 | 824436.8 | 42.0 |
| 9 | float32\|none\|TweenSplitSparse\|single\|simd | 84122.1 | 25.0 | 26.2 | 798875.5 | 42.1 |
| 10 | ternary\|none\|tween\|single\|simd | 83938.6 | 25.0 | 25.9 | 786855.0 | 42.7 |
| 11 | float32\|none\|sgd\|single\|simd | 83745.5 | 25.0 | 26.4 | 813835.0 | 41.1 |
| 12 | int8\|none\|tween\|single\|simd | 83537.2 | 25.0 | 23.1 | 785619.8 | 42.5 |
| 13 | binary\|none\|sgd\|single\|simd | 83141.1 | 25.0 | 21.7 | 777694.8 | 42.7 |
| 14 | uint8\|none\|tween\|single\|simd | 83059.5 | 25.0 | 23.4 | 771460.9 | 43.1 |
| 15 | float16\|none\|tween\|single\|simd | 82943.0 | 25.0 | 23.5 | 791551.2 | 41.9 |
| 16 | int8\|none\|sgd\|single\|simd | 82754.5 | 25.0 | 26.2 | 775285.8 | 42.7 |
| 17 | float32\|none\|MeshBP\|single\|simd | 82057.3 | 25.0 | 26.9 | 800338.4 | 41.0 |
| 18 | float32\|none\|MeshTween\|single\|simd | 81979.5 | 25.0 | 23.4 | 802576.2 | 40.9 |
| 19 | float16\|none\|tween_chain\|single\|simd | 81782.0 | 25.0 | 24.8 | 784011.8 | 41.7 |
| 20 | int2\|none\|tween\|single\|simd | 81590.9 | 25.0 | 23.4 | 765292.5 | 42.7 |

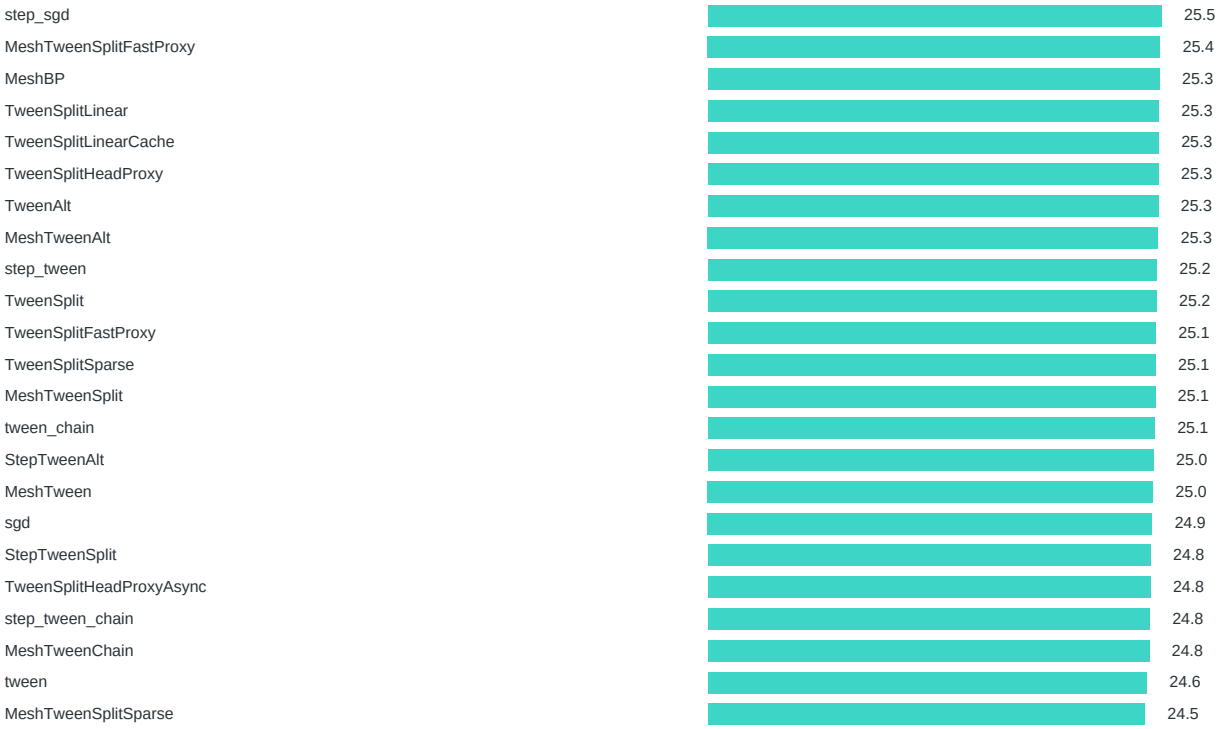
## Top scores - sequential



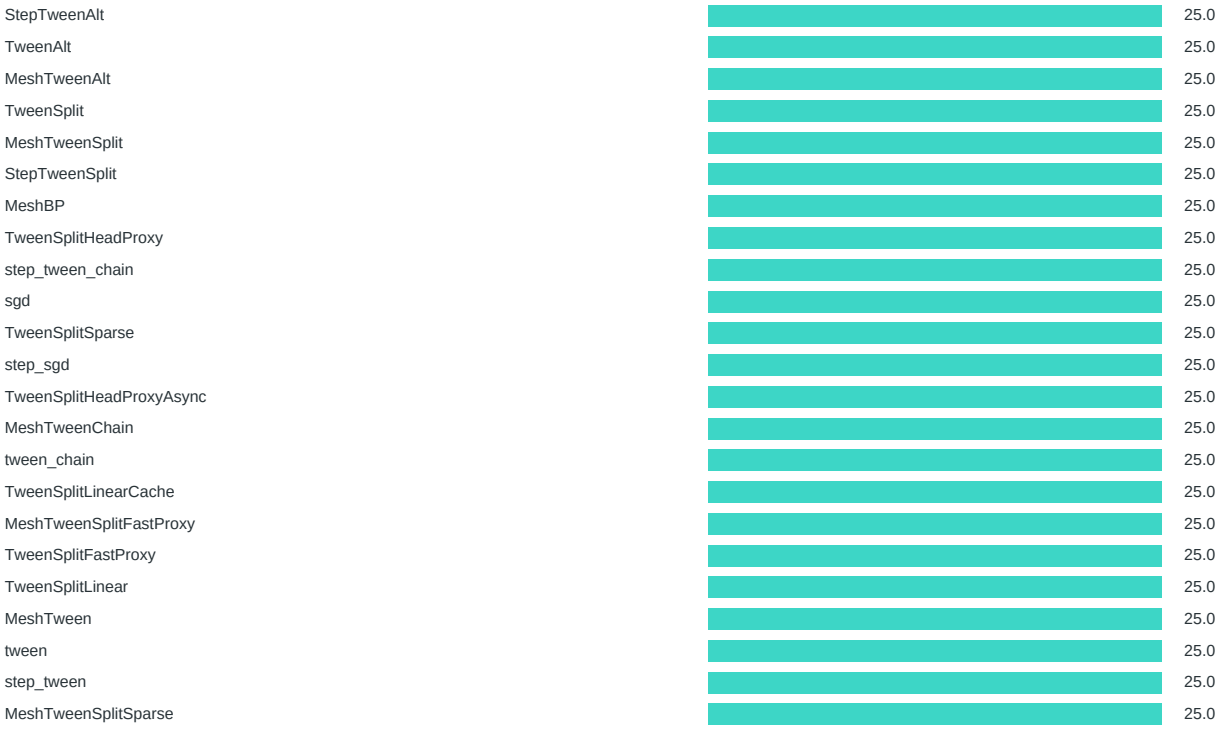

## Mean Score by train mode



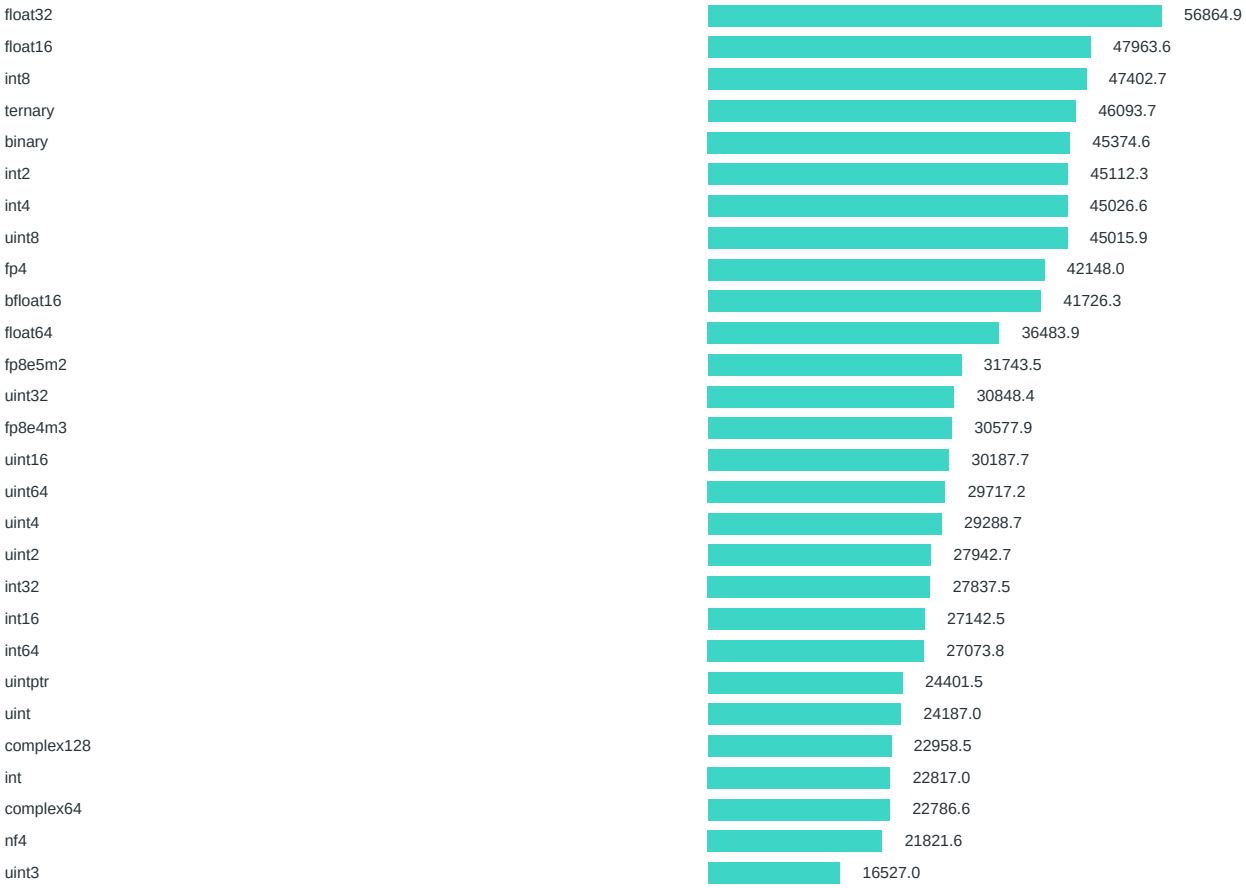

## Mean hard Acc by train mode




## Mean SoftAcc by train mode




## Mean Score by dtype




## Mean hard Acc by dtype




## Mean Score by arch




## Honesty - mean Score, every mode x dtype (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 41877 | 46262 | 23019 | 23457 | 48160 | 57884 | 38038 | 42437 | 11436 | 30020 | 31717 | 22832 | 27630 | 45197 | 15380 | 28321 |
| MeshTween | 40711 | 44379 | 22301 | 22226 | 47848 | 56915 | 35869 | 40406 | 10247 | 29660 | 30165 | 22481 | 25886 | 43617 | 14760 | 26726 |
| MeshTweenAlt | 34822 | 39013 | 17006 | 17425 | 37840 | 43182 | 28491 | 33724 | 8455 | 24865 | 26091 | 19201 | 22162 | 35796 | 11745 | 23520 |
| MeshTweenChain | 39253 | 43132 | 22158 | 21970 | 45550 | 55381 | 35176 | 39503 | 10651 | 28779 | 29865 | 21842 | 26168 | 42351 | 14211 | 26643 |
| MeshTweenSplit | 43613 | 45774 | 23744 | 22643 | 51464 | 55581 | 37070 | 42572 | 12448 | 32829 | 31241 | 22054 | 26423 | 44267 | 16552 | 28409 |
| MeshTweenSplitFa | 42613 | 42132 | 23225 | 23047 | 46778 | 59505 | 37971 | 44554 | 12535 | 31197 | 33532 | 23878 | 28071 | 46814 | 15910 | 29259 |
| MeshTweenSplitSp | 41131 | 44147 | 25541 | 22310 | 48100 | 54966 | 36734 | 42436 | 12280 | 31713 | 31468 | 22493 | 27559 | 46555 | 16084 | 26593 |
| StepTweenAlt | 32780 | 34370 | 16838 | 16847 | 37139 | 42355 | 26490 | 31755 | 7474 | 23679 | 23820 | 16733 | 21076 | 35567 | 10800 | 21970 |
| StepTweenSplit | 40877 | 45242 | 21647 | 21847 | 47971 | 53443 | 34480 | 40675 | 10750 | 30732 | 31320 | 21529 | 25835 | 43542 | 14874 | 26192 |
| TweenAlt | 35015 | 36665 | 18371 | 18391 | 39896 | 44949 | 29552 | 34213 | 8219 | 25773 | 25696 | 17724 | 22488 | 37143 | 11995 | 23054 |
| TweenSplit | 43678 | 47282 | 23289 | 24374 | 49412 | 56833 | 36478 | 42359 | 12704 | 32285 | 33727 | 23578 | 28204 | 46225 | 16507 | 29686 |
| TweenSplitFastPr | 42517 | 45529 | 23011 | 23661 | 47557 | 57010 | 37258 | 43409 | 12428 | 30130 | 30371 | 24091 | 27080 | 44800 | 15742 | 28398 |
| TweenSplitHeadPr | 41811 | 44959 | 23749 | 23940 | 49553 | 56626 | 36405 | 41849 | 12213 | 31428 | 31767 | 23513 | 26841 | 47344 | 16644 | 28188 |
| TweenSplitHeadPr | 42333 | 46007 | 24559 | 22488 | 46974 | 54412 | 35851 | 43460 | 12568 | 30262 | 33228 | 23116 | 28552 | 45919 | 16215 | 28918 |
| TweenSplitLinear | 42896 | 45493 | 23653 | 23203 | 48212 | 58158 | 38133 | 42028 | 12335 | 30416 | 32800 | 22847 | 27228 | 43884 | 16133 | 27644 |
| TweenSplitLinear | 43433 | 45472 | 23196 | 24533 | 50407 | 59634 | 36251 | 41440 | 12707 | 31486 | 32255 | 23870 | 28598 | 43595 | 16585 | 28499 |
| TweenSplitSparse | 42089 | 45783 | 24129 | 23280 | 48894 | 60008 | 37711 | 42910 | 12849 | 31385 | 32480 | 24401 | 27614 | 48553 | 16466 | 28320 |
| sgd | 45552 | 54058 | 26806 | 26538 | 51637 | 63374 | 40813 | 49503 | 12706 | 32792 | 35845 | 26814 | 31303 | 53382 | 18182 | 31765 |
| step_sgd | 44737 | 51558 | 24842 | 25164 | 54090 | 65750 | 41525 | 47921 | 11223 | 33973 | 36165 | 24831 | 29717 | 48608 | 15934 | 30094 |
| step_tween | 42485 | 46372 | 22381 | 22969 | 49075 | 60753 | 38305 | 42885 | 10675 | 31057 | 32687 | 23030 | 27391 | 45201 | 14711 | 28131 |
| step_tween_chain | 42276 | 45961 | 22728 | 22647 | 47197 | 60344 | 36425 | 42201 | 10390 | 30181 | 31561 | 21936 | 26191 | 45480 | 14165 | 27326 |
| tween | 47139 | 53086 | 26232 | 25490 | 55391 | 66504 | 42155 | 49588 | 13043 | 34874 | 36543 | 26182 | 31604 | 53013 | 18002 | 31219 |
| tween_chain | 46066 | 50939 | 25620 | 25641 | 54016 | 64324 | 41949 | 47576 | 12640 | 33775 | 35756 | 25815 | 30656 | 50729 | 17370 | 31386 |

## Honesty - mean Score, every mode x dtype (cols 17-32)

## Honesty - mean Score, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 44946 | 12405 | 11087 | 27602 | 47945 | 21768 | 46747 | 24131 | 31313 | 28101 | 16518 | 31444 | 29540 | 13384 | 11538 | 29656 |
| MeshTween | 43082 | 11376 | 10394 | 26385 | 45697 | 20197 | 43981 | 23304 | 28568 | 26984 | 15903 | 28793 | 28443 | 12700 | 10990 | 28258 |
| MeshTweenAlt | 37540 | 8935 | 8530 | 21002 | 40029 | 18467 | 36718 | 19574 | 24288 | 24244 | 12492 | 25438 | 24187 | 10471 | 8769 | 24350 |
| MeshTweenChain | 42920 | 11489 | 10603 | 25877 | 45303 | 21085 | 43273 | 22841 | 28845 | 26569 | 15522 | 29634 | 28045 | 12322 | 11020 | 28400 |
| MeshTweenSplit | 44305 | 13589 | 13064 | 27019 | 48517 | 22540 | 47223 | 24784 | 30965 | 27561 | 17670 | 31116 | 30457 | 14470 | 13451 | 32092 |
| MeshTweenSplitFa | 44122 | 12918 | 12128 | 28541 | 46782 | 22077 | 45152 | 25361 | 28636 | 28750 | 18239 | 30828 | 30770 | 13974 | 12318 | 29390 |
| MeshTweenSplitSp | 45205 | 12580 | 11862 | 26822 | 47849 | 22033 | 44893 | 24987 | 29225 | 28336 | 17983 | 29510 | 28798 | 13217 | 12552 | 29186 |
| StepTweenAlt | 35401 | 8456 | 7272 | 19859 | 39661 | 16272 | 35997 | 18406 | 23911 | 21043 | 11567 | 24213 | 22023 | 9205 | 8148 | 22842 |
| StepTweenSplit | 42793 | 11602 | 10706 | 25837 | 45314 | 20566 | 44919 | 23794 | 29223 | 26289 | 15335 | 29084 | 27957 | 12519 | 11254 | 28074 |
| TweenAlt | 37305 | 9728 | 8497 | 21784 | 41867 | 17223 | 37970 | 19877 | 26106 | 22412 | 12520 | 25337 | 24504 | 9966 | 9451 | 25350 |
| TweenSplit | 45454 | 13499 | 12257 | 27898 | 49457 | 23198 | 47519 | 25238 | 30778 | 29030 | 18253 | 31994 | 29904 | 14431 | 13084 | 30295 |
| TweenSplitFastPr | 46756 | 13638 | 12192 | 28044 | 47206 | 21506 | 45537 | 23438 | 30106 | 28506 | 17369 | 30403 | 29108 | 14631 | 12849 | 30766 |
| TweenSplitHeadPr | 47129 | 13341 | 12422 | 27784 | 45829 | 22629 | 45622 | 25260 | 30792 | 28210 | 17226 | 32193 | 29481 | 14167 | 12956 | 30256 |
| TweenSplitHeadPr | 43925 | 13603 | 12141 | 28257 | 45656 | 22630 | 48606 | 24556 | 30012 | 29147 | 17022 | 31448 | 28344 | 14075 | 13258 | 29332 |
| TweenSplitLinear | 46681 | 13357 | 12052 | 27331 | 46911 | 22187 | 46915 | 23975 | 31170 | 27882 | 17485 | 30264 | 30128 | 14503 | 12894 | 30600 |
| TweenSplitLinear | 44120 | 13898 | 12664 | 28736 | 48175 | 22898 | 46281 | 25567 | 29227 | 28653 | 17308 | 32233 | 29816 | 14322 | 13550 | 29999 |
| TweenSplitSparse | 46381 | 12931 | 12922 | 27888 | 48418 | 23435 | 49937 | 25779 | 31964 | 27755 | 17656 | 32412 | 29624 | 14520 | 13078 | 29692 |
| sgd | 52690 | 14506 | 12983 | 30740 | 54518 | 24980 | 53231 | 28427 | 36712 | 32193 | 19518 | 35694 | 34740 | 15815 | 13486 | 34758 |
| step_sgd | 50589 | 13107 | 12263 | 29620 | 52338 | 23732 | 50627 | 26150 | 32202 | 30944 | 17141 | 34526 | 32413 | 14221 | 12786 | 33488 |
| step_tween | 46658 | 11616 | 10575 | 27881 | 48439 | 21358 | 47131 | 23874 | 30778 | 27928 | 15642 | 31548 | 29657 | 12718 | 11221 | 30350 |
| step_tween_chain | 45502 | 11374 | 10211 | 26300 | 47239 | 21064 | 45755 | 23610 | 29609 | 26988 | 15030 | 30093 | 29174 | 12163 | 10827 | 28837 |
| tween | 51896 | 13410 | 13227 | 30986 | 54266 | 25527 | 54392 | 26400 | 35542 | 33435 | 18458 | 36485 | 33339 | 15071 | 13671 | 34343 |
| tween_chain | 50212 | 13543 | 12610 | 30504 | 52845 | 24526 | 51730 | 26969 | 34344 | 31720 | 18264 | 34825 | 33187 | 14837 | 13370 | 33181 |

## Honesty - mean Score, every mode x dtype  (cols 33-34)

## Honesty - mean Score, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 46360 | 24122 |
| MeshTween | 43992 | 23355 |
| MeshTweenAlt | 38316 | 20640 |
| MeshTweenChain | 43716 | 23773 |
| MeshTweenSplit | 45302 | 24613 |
| MeshTweenSplitFa | 43944 | 23603 |
| MeshTweenSplitSp | 43159 | 24354 |
| StepTweenAlt | 36125 | 18385 |
| StepTweenSplit | 43703 | 23521 |
| TweenAlt | 38875 | 19619 |
| TweenSplit | 46358 | 26500 |
| TweenSplitFastPr | 45234 | 25298 |
| TweenSplitHeadPr | 45458 | 25215 |
| TweenSplitHeadPr | 43240 | 24997 |
| TweenSplitLinear | 44614 | 24698 |
| TweenSplitLinear | 44956 | 24967 |
| TweenSplitSparse | 44738 | 25117 |
| sgd | 51516 | 28721 |
| step_sgd | 50401 | 26952 |
| step_tween | 46572 | 24246 |
| step_tween_chain | 45293 | 23807 |
| tween | 52646 | 27327 |
| tween_chain | 50846 | 27405 |

## Honesty - mean hard Acc, every mode x dtype  (cols 1-16)

## Honesty - mean hard Acc, every mode x dtype  (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 25 | 26 | 26 | 24 | 26 | 26 | 23 | 25 | 25 | 28 | 24 | 26 | 25 | 26 | 26 | 26 |
| MeshTween | 25 | 24 | 26 | 24 | 24 | 25 | 28 | 25 | 25 | 25 | 24 | 25 | 23 | 26 | 24 | 25 |
| MeshTweenAlt | 26 | 26 | 26 | 25 | 26 | 27 | 26 | 25 | 25 | 26 | 23 | 25 | 25 | 28 | 25 | 25 |
| MeshTweenChain | 25 | 23 | 24 | 26 | 26 | 26 | 25 | 25 | 24 | 26 | 23 | 25 | 26 | 25 | 24 | 24 |
| MeshTweenSplit | 27 | 26 | 27 | 25 | 25 | 26 | 26 | 25 | 25 | 27 | 25 | 26 | 25 | 26 | 22 | 24 |
| MeshTweenSplitFa | 25 | 24 | 26 | 26 | 26 | 26 | 25 | 25 | 26 | 25 | 28 | 25 | 25 | 25 | 23 | 24 |
| MeshTweenSplitSp | 26 | 25 | 26 | 24 | 25 | 26 | 24 | 25 | 26 | 26 | 23 | 24 | 26 | 25 | 25 | 23 |
| StepTweenAlt | 25 | 25 | 26 | 26 | 26 | 27 | 26 | 25 | 24 | 25 | 23 | 26 | 25 | 26 | 24 | 24 |
| StepTweenSplit | 26 | 24 | 26 | 25 | 25 | 26 | 26 | 25 | 24 | 24 | 23 | 25 | 25 | 27 | 24 | 25 |
| TweenAlt | 25 | 26 | 26 | 26 | 26 | 27 | 26 | 25 | 25 | 26 | 26 | 26 | 24 | 26 | 27 | 25 |
| TweenSplit | 25 | 29 | 25 | 25 | 25 | 26 | 26 | 25 | 24 | 25 | 23 | 25 | 25 | 25 | 26 | 25 |
| TweenSplitFastPr | 25 | 23 | 24 | 25 | 25 | 26 | 26 | 25 | 27 | 27 | 26 | 25 | 27 | 25 | 26 | 25 |
| TweenSplitHeadPr | 26 | 26 | 24 | 24 | 26 | 22 | 26 | 25 | 24 | 23 | 27 | 26 | 24 | 25 | 24 | 25 |
| TweenSplitHeadPr | 26 | 23 | 23 | 24 | 25 | 25 | 25 | 25 | 25 | 27 | 22 | 24 | 25 | 26 | 26 | 24 |
| TweenSplitLinear | 27 | 25 | 28 | 26 | 21 | 25 | 25 | 25 | 25 | 26 | 27 | 25 | 23 | 27 | 26 | 26 |
| TweenSplitLinear | 27 | 22 | 25 | 23 | 26 | 26 | 25 | 25 | 25 | 25 | 26 | 28 | 25 | 26 | 25 | 24 |
| TweenSplitSparse | 25 | 26 | 24 | 26 | 25 | 26 | 26 | 25 | 24 | 24 | 27 | 26 | 26 | 24 | 23 | 27 |
| sgd | 25 | 26 | 24 | 25 | 24 | 25 | 25 | 25 | 25 | 26 | 27 | 27 | 24 | 22 | 24 | 23 |
| step_sgd | 25 | 26 | 26 | 24 | 26 | 25 | 26 | 25 | 22 | 27 | 27 | 24 | 27 | 26 | 26 | 27 |
| step_tween | 24 | 23 | 28 | 25 | 26 | 25 | 24 | 25 | 23 | 26 | 26 | 23 | 27 | 24 | 26 | 25 |
| step_tween_chain | 25 | 27 | 25 | 25 | 26 | 24 | 27 | 25 | 23 | 24 | 26 | 25 | 27 | 24 | 26 | 25 |
| tween | 23 | 24 | 23 | 24 | 26 | 26 | 23 | 25 | 25 | 24 | 23 | 24 | 24 | 23 | 24 | 27 |
| tween_chain | 25 | 24 | 27 | 25 | 27 | 25 | 27 | 25 | 27 | 25 | 24 | 26 | 23 | 23 | 26 | 25 |

## Honesty - mean hard Acc, every mode x dtype  (cols 17-32)

## Honesty - mean hard Acc, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 26 | 26 | 26 | 26 | 28 | 23 | 25 | 26 | 25 | 23 | 25 | 25 | 25 | 26 | 26 | 24 |
| MeshTween | 26 | 25 | 26 | 24 | 22 | 25 | 27 | 26 | 24 | 25 | 23 | 26 | 25 | 26 | 27 | 27 |
| MeshTweenAlt | 28 | 24 | 25 | 26 | 24 | 25 | 26 | 25 | 25 | 27 | 25 | 25 | 25 | 24 | 25 | 24 |
| MeshTweenChain | 24 | 28 | 23 | 25 | 24 | 26 | 25 | 25 | 24 | 26 | 23 | 24 | 26 | 27 | 24 | 24 |
| MeshTweenSplit | 26 | 26 | 22 | 25 | 25 | 26 | 21 | 26 | 26 | 25 | 24 | 25 | 25 | 28 | 25 | 25 |
| MeshTweenSplitFa | 27 | 25 | 27 | 25 | 25 | 26 | 26 | 24 | 27 | 25 | 25 | 27 | 24 | 23 | 23 | 25 |
| MeshTweenSplitSp | 25 | 23 | 23 | 24 | 22 | 23 | 25 | 25 | 26 | 25 | 25 | 26 | 24 | 25 | 25 | 25 |
| StepTweenAlt | 24 | 25 | 26 | 26 | 24 | 25 | 25 | 24 | 25 | 27 | 25 | 25 | 25 | 25 | 24 | 25 |
| StepTweenSplit | 23 | 25 | 24 | 25 | 25 | 25 | 24 | 25 | 25 | 25 | 25 | 26 | 23 | 24 | 25 | 24 |
| TweenAlt | 24 | 25 | 24 | 26 | 24 | 22 | 28 | 25 | 24 | 28 | 26 | 24 | 24 | 25 | 26 | 24 |
| TweenSplit | 25 | 25 | 25 | 25 | 25 | 27 | 23 | 25 | 25 | 26 | 27 | 25 | 25 | 28 | 23 | 25 |
| TweenSplitFastPr | 28 | 23 | 24 | 26 | 27 | 26 | 22 | 24 | 26 | 26 | 26 | 25 | 26 | 25 | 21 | 24 |
| TweenSplitHeadPr | 23 | 27 | 25 | 25 | 25 | 25 | 26 | 27 | 26 | 26 | 27 | 26 | 25 | 25 | 26 | 26 |
| TweenSplitHeadPr | 26 | 25 | 24 | 25 | 29 | 24 | 24 | 25 | 26 | 27 | 22 | 25 | 25 | 24 | 25 | 24 |
| TweenSplitLinear | 24 | 28 | 28 | 28 | 27 | 26 | 21 | 26 | 23 | 27 | 22 | 26 | 27 | 26 | 24 | 23 |
| TweenSplitLinear | 26 | 22 | 25 | 26 | 25 | 25 | 27 | 20 | 25 | 25 | 28 | 27 | 23 | 26 | 28 | 26 |
| TweenSplitSparse | 24 | 27 | 24 | 25 | 24 | 27 | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 24 | 24 | 27 |
| sgd | 27 | 27 | 24 | 24 | 25 | 26 | 28 | 26 | 27 | 22 | 25 | 25 | 23 | 27 | 24 | 23 |
| step_sgd | 26 | 26 | 26 | 26 | 27 | 27 | 25 | 24 | 25 | 24 | 23 | 25 | 28 | 28 | 25 | 24 |
| step_tween | 25 | 27 | 25 | 24 | 24 | 27 | 25 | 25 | 27 | 26 | 26 | 27 | 24 | 26 | 27 | 24 |
| step_tween_chain | 24 | 25 | 24 | 25 | 21 | 26 | 22 | 23 | 23 | 24 | 27 | 24 | 27 | 24 | 23 | 25 |
| tween | 25 | 25 | 25 | 25 | 25 | 27 | 26 | 28 | 24 | 24 | 25 | 24 | 26 | 26 | 26 | 24 |
| tween_chain | 26 | 28 | 26 | 23 | 26 | 26 | 25 | 26 | 25 | 23 | 24 | 23 | 25 | 27 | 24 | 27 |

## Honesty - mean hard Acc, every mode x dtype  (cols 33-34)

## Honesty - mean hard Acc, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 26 | 26 |
| MeshTween | 27 | 22 |
| MeshTweenAlt | 25 | 25 |
| MeshTweenChain | 25 | 23 |
| MeshTweenSplit | 25 | 24 |
| MeshTweenSplitFa | 29 | 24 |
| MeshTweenSplitSp | 24 | 22 |
| StepTweenAlt | 24 | 25 |
| StepTweenSplit | 25 | 25 |
| TweenAlt | 24 | 25 |
| TweenSplit | 25 | 24 |
| TweenSplitFastPr | 25 | 26 |
| TweenSplitHeadPr | 25 | 27 |
| TweenSplitHeadPr | 25 | 26 |
| TweenSplitLinear | 24 | 25 |
| TweenSplitLinear | 28 | 27 |
| TweenSplitSparse | 26 | 24 |
| sgd | 25 | 23 |
| step_sgd | 24 | 24 |
| step_tween | 22 | 27 |
| step_tween_chain | 26 | 26 |
| tween | 24 | 23 |
| tween_chain | 22 | 24 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 1-16)

## Honesty - mean SoftAcc, every mode x dtype  (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenChain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitFastPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitSparse | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 17-32)

## Honesty - mean SoftAcc, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenChain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitFastPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitSparse | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 33-34)

## Honesty - mean SoftAcc, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 25 | 25 |
| MeshTween | 25 | 25 |
| MeshTweenAlt | 25 | 25 |
| MeshTweenChain | 25 | 25 |
| MeshTweenSplit | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 |
| StepTweenAlt | 25 | 25 |
| StepTweenSplit | 25 | 25 |
| TweenAlt | 25 | 25 |
| TweenSplit | 25 | 25 |
| TweenSplitFastPr | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 |
| TweenSplitLinear | 25 | 25 |
| TweenSplitLinear | 25 | 25 |
| TweenSplitSparse | 25 | 25 |
| sgd | 25 | 25 |
| step_sgd | 25 | 25 |
| step_tween | 25 | 25 |
| step_tween_chain | 25 | 25 |
| tween | 25 | 25 |
| tween_chain | 25 | 25 |

## Mean Score, every mode x arch

## Mean Score, every mode x arch

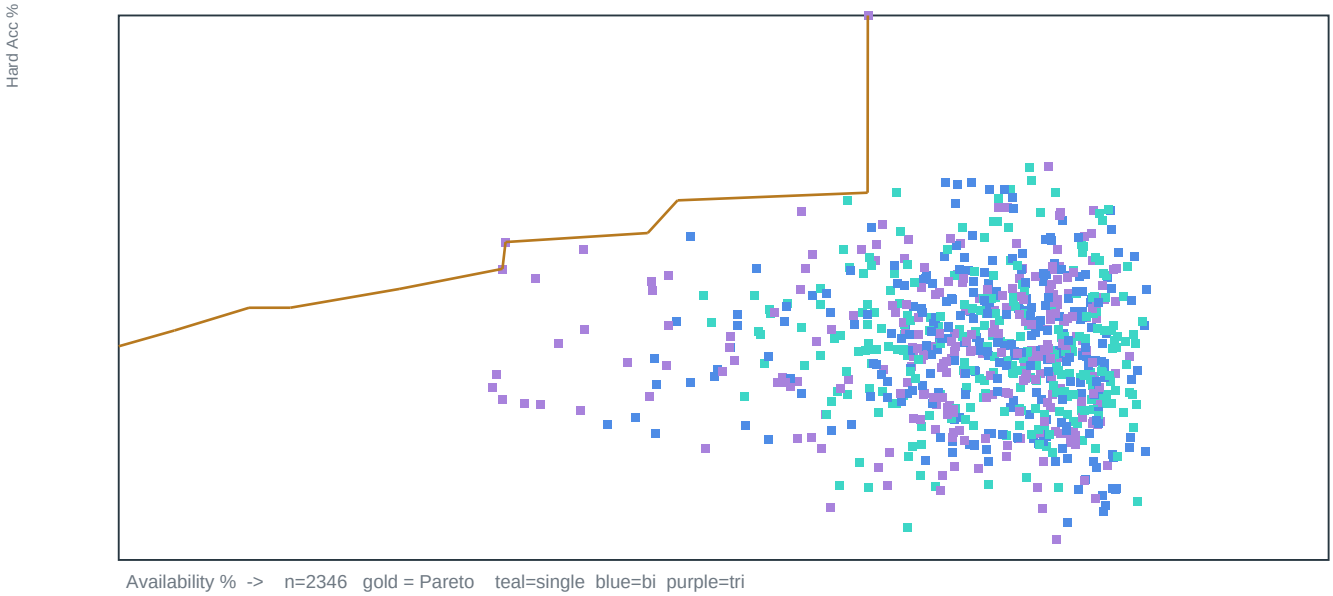
| | bicamera | singlex1 | tricamer |
|---|---|---|---|
| MeshBP | 23389 | 48090 | 19603 |
| MeshTween | 22228 | 46301 | 18524 |
| MeshTweenAlt | 17779 | 39798 | 15423 |
| MeshTweenChain | 21961 | 45492 | 18477 |
| MeshTweenSplit | 24360 | 47912 | 19971 |
| MeshTweenSplitFa | 24052 | 47505 | 20080 |
| MeshTweenSplitSp | 23374 | 46486 | 20375 |
| StepTweenAlt | 17050 | 37866 | 13774 |
| StepTweenSplit | 22686 | 45172 | 18917 |
| TweenAlt | 18498 | 40235 | 15168 |
| TweenSplit | 24664 | 48023 | 20999 |
| TweenSplitFastPr | 24269 | 46695 | 20410 |
| TweenSplitHeadPr | 24655 | 46885 | 20471 |
| TweenSplitHeadPr | 24484 | 46236 | 20614 |
| TweenSplitLinear | 23587 | 48178 | 19886 |
| TweenSplitLinear | 24635 | 47789 | 20164 |
| TweenSplitSparse | 24351 | 48099 | 21179 |
| sgd | 27143 | 53808 | 22840 |
| step_sgd | 25552 | 53499 | 20623 |
| step_tween | 22996 | 49189 | 19253 |
| step_tween_chain | 22499 | 47962 | 18646 |
| tween | 26558 | 55377 | 22225 |
| tween_chain | 25906 | 53603 | 21889 |

## Mean hard Acc, every mode x arch

## Mean hard Acc, every mode x arch

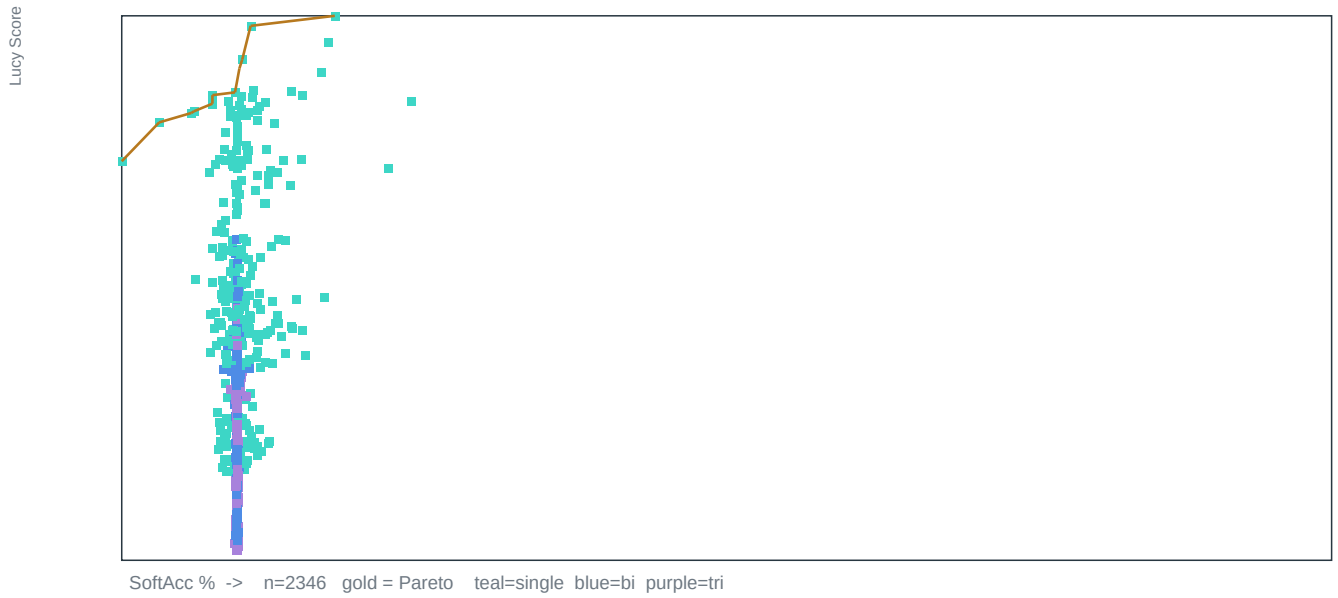
| | bicamera | singlex1 | tricamer |
|---|---|---|---|
| MeshBP | 26 | 25 | 25 |
| MeshTween | 25 | 25 | 25 |
| MeshTweenAlt | 25 | 25 | 25 |
| MeshTweenChain | 25 | 25 | 24 |
| MeshTweenSplit | 25 | 25 | 25 |
| MeshTweenSplitFa | 26 | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 | 24 |
| StepTweenAlt | 25 | 25 | 25 |
| StepTweenSplit | 25 | 25 | 25 |
| TweenAlt | 25 | 25 | 25 |
| TweenSplit | 25 | 25 | 25 |
| TweenSplitFastPr | 25 | 26 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 24 |
| TweenSplitLinear | 25 | 25 | 26 |
| TweenSplitLinear | 26 | 26 | 25 |
| TweenSplitSparse | 25 | 25 | 25 |
| sgd | 25 | 25 | 25 |
| step_sgd | 26 | 26 | 25 |
| step_tween | 25 | 25 | 26 |
| step_tween_chain | 25 | 25 | 24 |
| tween | 24 | 25 | 25 |
| tween_chain | 25 | 25 | 25 |

## Avail vs hard Acc (headline scatter)

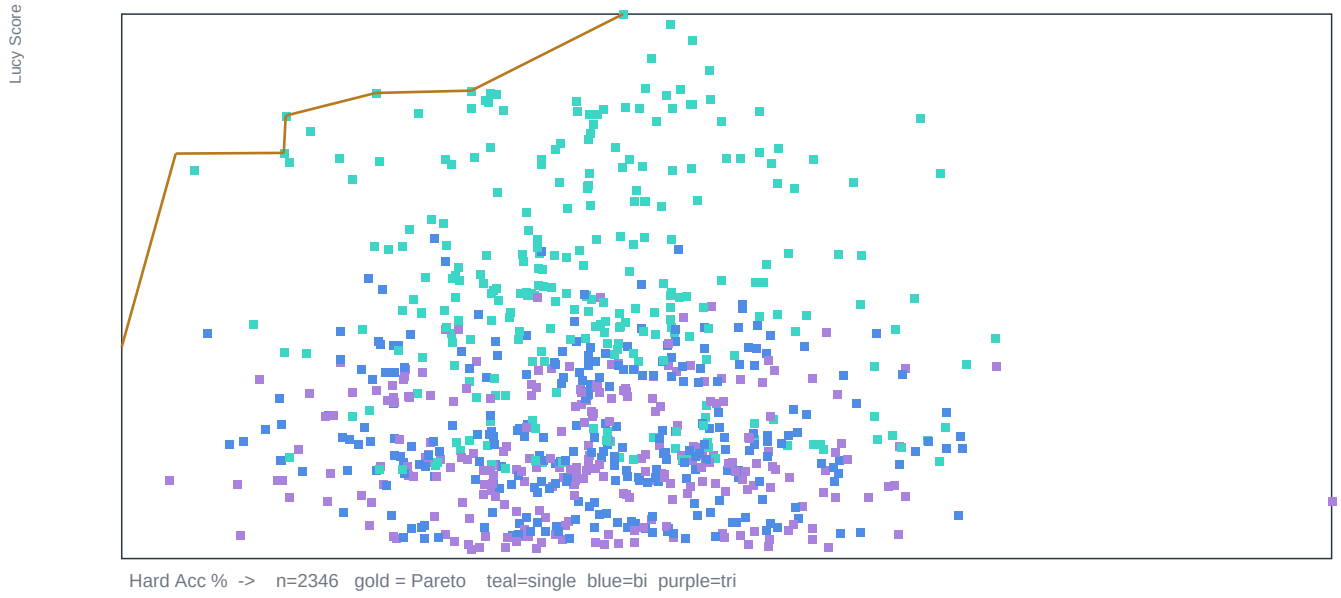



## Pareto - SoftAcc vs Score

## Pareto - SoftAcc vs Score




## Pareto - hard Acc vs Score

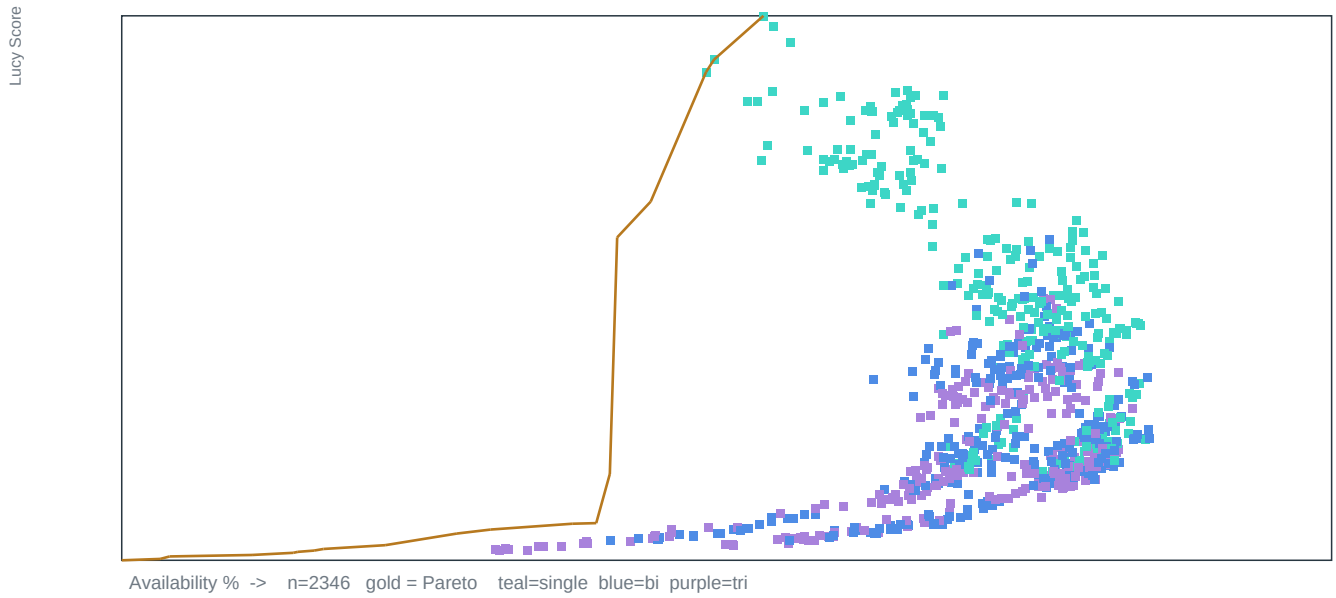



## SoftAcc vs hard Acc




SoftAcc %  ->  n=2346  gold = Pareto  teal=single  blue=bi  purple=tri
Hard Acc %

## Avail vs Score (duty clock)




## Lucy Pareto (LPD) - goldilocks

Q = geomean of Score/Soft/Acc/Thru vs the Lucy Score champion. LPD = 0 if Q<70%, else Q x shrink vs champ RAM (capped 32x). Gold = Q>=80% and RAM<=20% of champ. MSpeed = Thru vs the board's fastest (0 if Q<70%). MAvail = Availability vs the board's best duty cycle (0 if Q<70%). Mix = geomean(Q, MSpeed, MAvail). Raw Score/MiB is the binary trap.

Quality champ float32|none|step_sgd|single|simd Score 96669.3 Soft 25 Acc 26 Thru 941534 RAM 0.6 KiB

Board fastest float32|none|step_sgd|single|simd Thru 941534 Best availability nf4|none|MeshTweenSplitSparse|tricameral|simd 47.4%

## Gold - Q >= 80% of champ, RAM <= 20%

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| gold | binary\|none\|tween\|single\|simd | 91 | 3 | 32.0 | 29.12 | 25 | 27 | 81188.7 | 0.0 |
| gold | binary\|none\|tween_chain\|single\|simd | 89 | 3 | 32.0 | 28.57 | 25 | 27 | 78387.6 | 0.0 |
| gold | binary\|none\|step_sgd\|single\|simd | 89 | 3 | 32.0 | 28.40 | 25 | 24 | 80283.2 | 0.0 |
| gold | binary\|none\|sgd\|single\|simd | 88 | 3 | 32.0 | 28.20 | 25 | 22 | 83141.1 | 0.0 |
| gold | binary\|none\|MeshTweenSplit\|single\|simd | 85 | 3 | 32.0 | 27.24 | 25 | 27 | 72091.3 | 0.0 |
| gold | binary\|none\|TweenSplit\|single\|simd | 85 | 3 | 32.0 | 27.23 | 25 | 29 | 72081.3 | 0.0 |
| gold | binary\|none\|step_tween_chain\|single\|simd | 85 | 3 | 32.0 | 27.18 | 25 | 26 | 70495.6 | 0.0 |
| gold | binary\|none\|MeshBP\|single\|simd | 84 | 3 | 32.0 | 26.99 | 25 | 26 | 69823.1 | 0.0 |
| gold | binary\|none\|TweenSplitSparse\|single\|simd | 84 | 3 | 32.0 | 26.88 | 25 | 27 | 70199.6 | 0.0 |
| gold | binary\|none\|step_tween\|single\|simd | 83 | 3 | 32.0 | 26.66 | 25 | 23 | 71715.8 | 0.0 |
| gold | binary\|none\|TweenSplitHeadProxy\|single\|simd | 83 | 3 | 32.0 | 26.54 | 25 | 26 | 68279.3 | 0.0 |
| gold | binary\|none\|TweenSplitLinear\|single\|simd | 82 | 3 | 32.0 | 26.13 | 25 | 25 | 67501.4 | 0.0 |
| gold | binary\|none\|MeshTweenChain\|single\|simd | 81 | 3 | 32.0 | 26.07 | 25 | 24 | 67247.8 | 0.0 |
| gold | binary\|none\|StepTweenSplit\|single\|simd | 81 | 3 | 32.0 | 25.97 | 25 | 23 | 69008.6 | 0.0 |
| gold | binary\|none\|TweenSplitLinearCache\|single\|simd | 81 | 3 | 32.0 | 25.80 | 25 | 22 | 69359.6 | 0.0 |
| gold | ternary\|none\|tween\|single\|simd | 92 | 6 | 16.0 | 14.77 | 25 | 26 | 83938.6 | 0.0 |

## Near-gold - Q >= 70%, RAM <= 50%

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| near | binary\|none\|TweenSplitFastProxy\|single\|simd | 80 | 3 | 32.0 | 25.52 | 25 | 22 | 68103.2 | 0.0 |
| near | binary\|none\|MeshTweenSplitFastProxy\|single\|simd | 80 | 3 | 32.0 | 25.49 | 25 | 26 | 62945.5 | 0.0 |
| near | binary\|none\|MeshTween\|single\|simd | 80 | 3 | 32.0 | 25.47 | 25 | 21 | 68414.0 | 0.0 |
| near | binary\|none\|MeshTweenSplitSparse\|single\|simd | 80 | 3 | 32.0 | 25.47 | 25 | 23 | 66207.1 | 0.0 |
| near | binary\|none\|TweenSplitHeadProxyAsync\|single\|simd | 78 | 3 | 32.0 | 25.09 | 25 | 21 | 67170.9 | 0.0 |
| near | binary\|none\|MeshTweenAlt\|single\|simd | 77 | 3 | 32.0 | 24.68 | 25 | 25 | 58740.8 | 0.0 |

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| near | binary\|none\|TweenAlt\|single\|simd | 76 | 3 | 32.0 | 24.17 | 25 | 23 | 58015.3 | 0.0 |
| near | binary\|none\|StepTweenAlt\|single\|simd | 73 | 3 | 32.0 | 23.47 | 25 | 24 | 53156.9 | 0.0 |
| near | ternary\|none\|TweenSplitLinear\|single\|simd | 80 | 6 | 16.0 | 12.73 | 25 | 21 | 69435.9 | 0.0 |
| near | ternary\|none\|TweenAlt\|single\|simd | 79 | 6 | 16.0 | 12.65 | 25 | 29 | 60409.5 | 0.0 |
| near | int2\|none\|StepTweenSplit\|single\|simd | 79 | 6 | 16.0 | 12.59 | 25 | 23 | 64613.4 | 0.0 |
| near | int2\|none\|StepTweenAlt\|single\|simd | 77 | 6 | 16.0 | 12.38 | 25 | 30 | 57250.0 | 0.0 |

## LPD rank (Q x shrink; 0 if Q < 70%)

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| gold | binary\|none\|tween\|single\|simd | 91 | 3 | 32.0 | 29.12 | 25 | 27 | 81188.7 | 0.0 |
| gold | binary\|none\|tween_chain\|single\|simd | 89 | 3 | 32.0 | 28.57 | 25 | 27 | 78387.6 | 0.0 |
| gold | binary\|none\|step_sgd\|single\|simd | 89 | 3 | 32.0 | 28.40 | 25 | 24 | 80283.2 | 0.0 |
| gold | binary\|none\|sgd\|single\|simd | 88 | 3 | 32.0 | 28.20 | 25 | 22 | 83141.1 | 0.0 |
| gold | binary\|none\|MeshTweenSplit\|single\|simd | 85 | 3 | 32.0 | 27.24 | 25 | 27 | 72091.3 | 0.0 |
| gold | binary\|none\|TweenSplit\|single\|simd | 85 | 3 | 32.0 | 27.23 | 25 | 29 | 72081.3 | 0.0 |
| gold | binary\|none\|step_tween_chain\|single\|simd | 85 | 3 | 32.0 | 27.18 | 25 | 26 | 70495.6 | 0.0 |
| gold | binary\|none\|MeshBP\|single\|simd | 84 | 3 | 32.0 | 26.99 | 25 | 26 | 69823.1 | 0.0 |
| gold | binary\|none\|TweenSplitSparse\|single\|simd | 84 | 3 | 32.0 | 26.88 | 25 | 27 | 70199.6 | 0.0 |
| gold | binary\|none\|step_tween\|single\|simd | 83 | 3 | 32.0 | 26.66 | 25 | 23 | 71715.8 | 0.0 |
| gold | binary\|none\|TweenSplitHeadProxy\|single\|simd | 83 | 3 | 32.0 | 26.54 | 25 | 26 | 68279.3 | 0.0 |
| gold | binary\|none\|TweenSplitLinear\|single\|simd | 82 | 3 | 32.0 | 26.13 | 25 | 25 | 67501.4 | 0.0 |
| gold | binary\|none\|MeshTweenChain\|single\|simd | 81 | 3 | 32.0 | 26.07 | 25 | 24 | 67247.8 | 0.0 |
| gold | binary\|none\|StepTweenSplit\|single\|simd | 81 | 3 | 32.0 | 25.97 | 25 | 23 | 69008.6 | 0.0 |
| gold | binary\|none\|TweenSplitLinearCache\|single\|simd | 81 | 3 | 32.0 | 25.80 | 25 | 22 | 69359.6 | 0.0 |
| near | binary\|none\|TweenSplitFastProxy\|single\|simd | 80 | 3 | 32.0 | 25.52 | 25 | 22 | 68103.2 | 0.0 |
| near | binary\|none\|MeshTweenSplitFastProxy\|single\|simd | 80 | 3 | 32.0 | 25.49 | 25 | 26 | 62945.5 | 0.0 |
| near | binary\|none\|MeshTween\|single\|simd | 80 | 3 | 32.0 | 25.47 | 25 | 21 | 68414.0 | 0.0 |
| near | binary\|none\|MeshTweenSplitSparse\|single\|simd | 80 | 3 | 32.0 | 25.47 | 25 | 23 | 66207.1 | 0.0 |
| near | binary\|none\|TweenSplitHeadProxyAsync\|single\|simd | 78 | 3 | 32.0 | 25.09 | 25 | 21 | 67170.9 | 0.0 |

## Mobile speed - Thru vs board fastest (Q >= 70%)

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| keep | float32\|none\|step_sgd\|single\|simd | 100 | 100 | 87 | 95 | 1.00 | 941534 | 41.0 |
| keep | float32\|none\|tween\|single\|simd | 99 | 98 | 87 | 94 | 0.99 | 922804 | 41.2 |
| keep | float32\|none\|tween_chain\|single\|simd | 97 | 95 | 87 | 93 | 0.97 | 891298 | 41.4 |
| keep | float32\|none\|step_tween\|single\|simd | 96 | 94 | 85 | 92 | 0.96 | 880837 | 40.5 |
| keep | float32\|none\|step_tween_chain\|single\|simd | 95 | 91 | 85 | 91 | 0.95 | 861138 | 40.4 |
| keep | float32\|none\|TweenSplitLinear\|single\|simd | 95 | 89 | 88 | 91 | 0.95 | 840393 | 41.7 |
| keep | float32\|none\|TweenSplitLinearCache\|single\|simd | 95 | 88 | 89 | 91 | 0.95 | 831849 | 42.3 |
| keep | float32\|none\|MeshTweenSplitFastProxy\|single\|simd | 94 | 88 | 89 | 90 | 0.94 | 824437 | 42.0 |
| keep | float32\|none\|sgd\|single\|simd | 93 | 86 | 87 | 89 | 0.93 | 813835 | 41.1 |
| keep | float32\|none\|MeshTween\|single\|simd | 90 | 85 | 86 | 87 | 0.90 | 802576 | 40.9 |

## Mobile availability - duty cycle vs board best (Q >= 70%)

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| - | uint64\|none\|MeshTweenSplit\|single\|simd | 70 | 49 | 96 | 69 | 0.35 | 459423 | 45.4 |
| - | uint32\|none\|TweenSplitSparse\|single\|simd | 71 | 49 | 96 | 69 | 0.70 | 460653 | 45.4 |
| - | uint32\|none\|TweenSplitLinearCache\|single\|simd | 71 | 47 | 96 | 68 | 0.69 | 446104 | 45.3 |
| - | float32\|none\|TweenSplitSparse\|bicameral\|simd | 72 | 49 | 96 | 69 | 0.33 | 461007 | 45.3 |
| near | fp8e4m3\|none\|MeshTweenSplitFastProxy\|single\|simd | 71 | 48 | 95 | 69 | 2.83 | 449105 | 45.2 |
| - | uint32\|none\|MeshTweenSplitFastProxy\|single\|simd | 70 | 47 | 95 | 68 | 0.69 | 445398 | 45.1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| - | float32\|none\|MeshTweenSplit\|bicameral\|simd | 70 | 47 | 95 | 68 | 0.32 | 443192 | 45.1 |
| - | uint32\|none\|TweenSplitHeadProxy\|single\|simd | 71 | 48 | 95 | 69 | 0.70 | 454137 | 45.1 |
| near | fp8e5m2\|none\|TweenSplitSparse\|single\|simd | 70 | 47 | 95 | 68 | 2.82 | 446370 | 45.1 |
| near | fp8e5m2\|none\|MeshTweenSplitFastProxy\|single\|simd | 73 | 51 | 95 | 70 | 2.91 | 475489 | 45.1 |

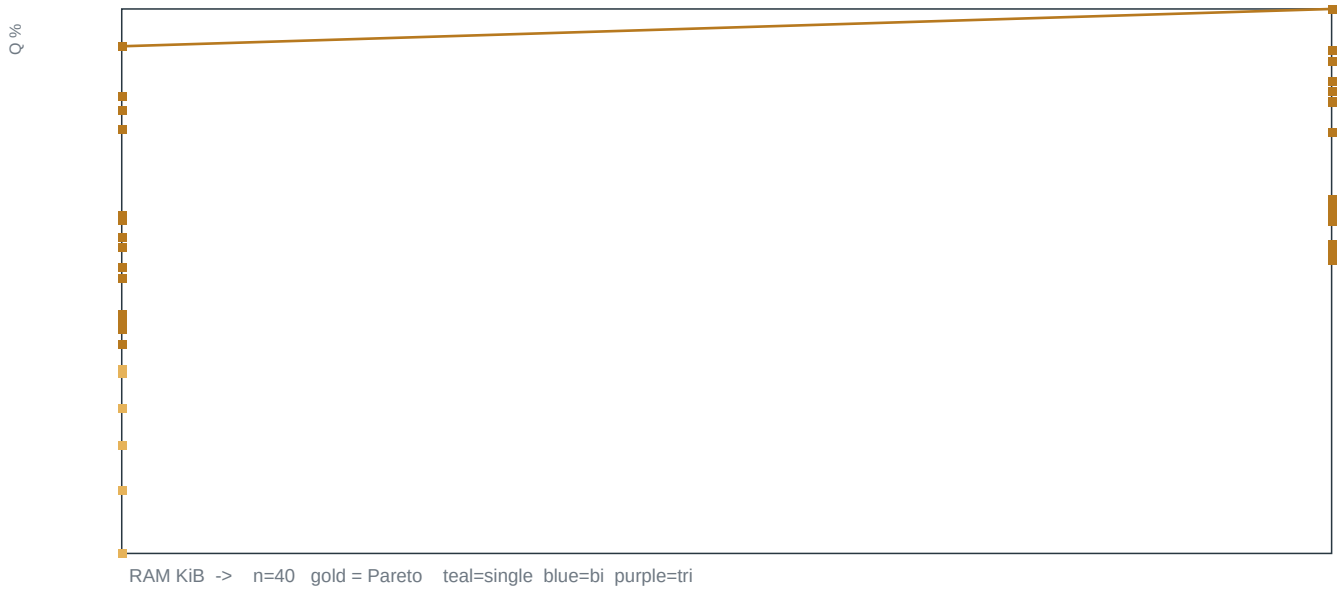
## Mix - geomean of Q, MSpeed, MAvail

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| keep | float32\|none\|step_sgd\|single\|simd | 100 | 100 | 87 | 95 | 1.00 | 941534 | 41.0 |
| keep | float32\|none\|tween\|single\|simd | 99 | 98 | 87 | 94 | 0.99 | 922804 | 41.2 |
| keep | float32\|none\|tween_chain\|single\|simd | 97 | 95 | 87 | 93 | 0.97 | 891298 | 41.4 |
| keep | float32\|none\|step_tween\|single\|simd | 96 | 94 | 85 | 92 | 0.96 | 880837 | 40.5 |
| keep | float32\|none\|TweenSplitLinearCache\|single\|simd | 95 | 88 | 89 | 91 | 0.95 | 831849 | 42.3 |
| keep | float32\|none\|TweenSplitLinear\|single\|simd | 95 | 89 | 88 | 91 | 0.95 | 840393 | 41.7 |
| keep | float32\|none\|step_tween_chain\|single\|simd | 95 | 91 | 85 | 91 | 0.95 | 861138 | 40.4 |
| keep | float32\|none\|MeshTweenSplitFastProxy\|single\|simd | 94 | 88 | 89 | 90 | 0.94 | 824437 | 42.0 |
| keep | float32\|none\|TweenSplitSparse\|single\|simd | 93 | 85 | 89 | 89 | 0.93 | 798876 | 42.1 |
| keep | float32\|none\|sgd\|single\|simd | 93 | 86 | 87 | 89 | 0.93 | 813835 | 41.1 |

## Trap - tiny RAM, Q < 70% (why Score/MiB lies)

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| trap | binary\|none\|sgd\|bicameral\|simd | 66 | 7 | 14.5 | 0.00 | 25 | 28 | 43388.3 | 0.0 |
| trap | binary\|none\|step_sgd\|bicameral\|simd | 64 | 7 | 14.5 | 0.00 | 25 | 26 | 40617.9 | 0.0 |
| trap | binary\|none\|tween\|bicameral\|simd | 62 | 7 | 14.5 | 0.00 | 25 | 21 | 42229.2 | 0.0 |
| trap | binary\|none\|tween_chain\|bicameral\|simd | 61 | 7 | 14.5 | 0.00 | 25 | 22 | 39936.7 | 0.0 |
| trap | binary\|none\|step_tween\|bicameral\|simd | 60 | 7 | 14.5 | 0.00 | 25 | 26 | 35763.3 | 0.0 |
| trap | binary\|none\|step_tween_chain\|bicameral\|simd | 60 | 7 | 14.5 | 0.00 | 25 | 27 | 35996.4 | 0.0 |
| trap | binary\|none\|MeshBP\|bicameral\|simd | 60 | 7 | 14.5 | 0.00 | 25 | 26 | 36297.8 | 0.0 |
| trap | binary\|none\|MeshTween\|bicameral\|simd | 57 | 7 | 14.5 | 0.00 | 25 | 22 | 35179.0 | 0.0 |
| trap | binary\|none\|MeshTweenChain\|bicameral\|simd | 56 | 7 | 14.5 | 0.00 | 25 | 22 | 33929.5 | 0.0 |
| trap | binary\|none\|TweenSplit\|bicameral\|simd | 61 | 7 | 14.5 | 0.00 | 25 | 26 | 38097.4 | 0.0 |

## LPD - Q% vs RAM KiB (gold = high Q, low RAM)




## LPD - Q% vs shrink vs champ (gold = upper right)

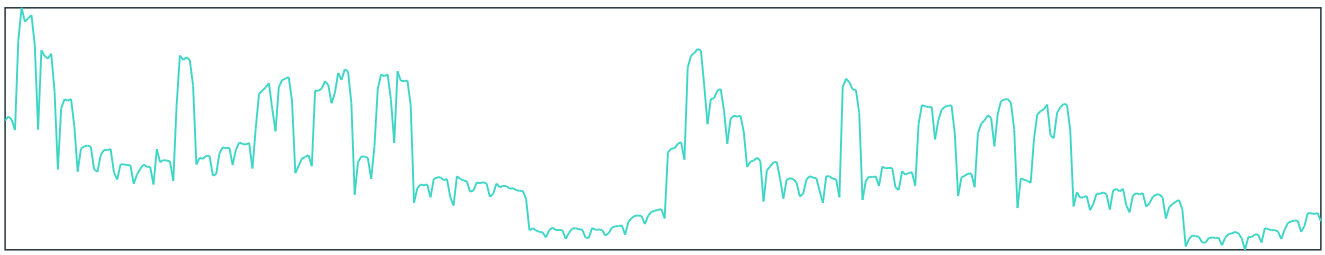
## LPD - Q% vs shrink vs champ (gold = upper right)




## Top LPD

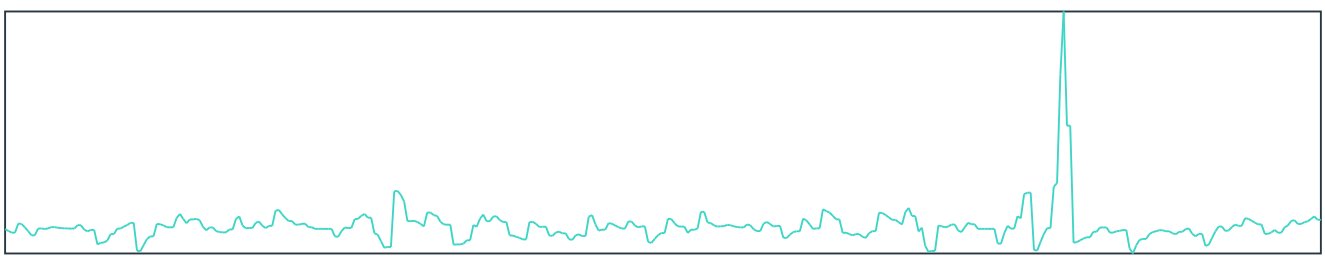



## Pulse Score - sequential



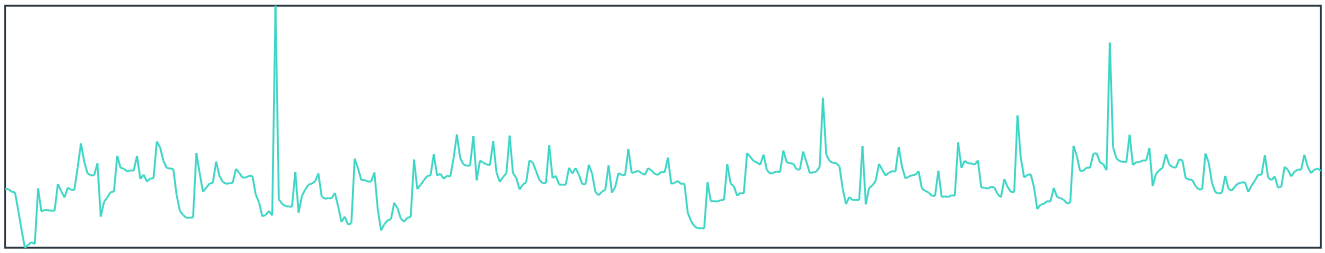
n=400 min=6334.42 max=55483.21

## Pulse SoftAcc - sequential



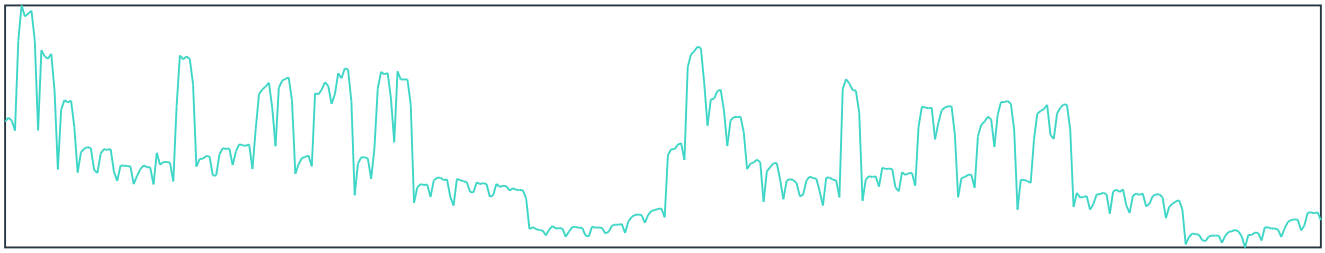
n=400 min=25.00 max=25.00

## Pulse Availability - sequential



n=400 min=45.05 max=51.65

## Pulse Throughput - sequential



n=400 min=54099.75 max=487437.30

## Queue by train mode (this epoch)

| Mode | Done | Run | Left | Total |
|---|---|---|---|---|
| sgd | 102 | 0 | 0 | 102 |
| step_sgd | 102 | 0 | 0 | 102 |
| tween | 102 | 0 | 0 | 102 |
| tween_chain | 102 | 0 | 0 | 102 |
| step_tween | 102 | 0 | 0 | 102 |
| step_tween_chain | 102 | 0 | 0 | 102 |
| MeshBP | 102 | 0 | 0 | 102 |
| MeshTween | 102 | 0 | 0 | 102 |
| MeshTweenChain | 102 | 0 | 0 | 102 |
| TweenSplit | 102 | 0 | 0 | 102 |
| StepTweenSplit | 102 | 0 | 0 | 102 |
| TweenAlt | 102 | 0 | 0 | 102 |
| StepTweenAlt | 102 | 0 | 0 | 102 |
| TweenSplitHeadProxy | 102 | 0 | 0 | 102 |
| TweenSplitLinear | 102 | 0 | 0 | 102 |
| TweenSplitFastProxy | 102 | 0 | 0 | 102 |
| TweenSplitLinearCache | 102 | 0 | 0 | 102 |
| TweenSplitHeadProxyAsync | 102 | 0 | 0 | 102 |
| TweenSplitSparse | 102 | 0 | 0 | 102 |
| MeshTweenSplit | 102 | 0 | 0 | 102 |
| MeshTweenAlt | 102 | 0 | 0 | 102 |
| MeshTweenSplitFastProxy | 102 | 0 | 0 | 102 |
| MeshTweenSplitSparse | 102 | 0 | 0 | 102 |

# tide  softmax

Score = Throughput x Availability% x SoftAcc% / 10,000
done - epoch 1 - 2026-08-18 09:45:25 - 0.0.0.0:8117
This epoch 2346 / 2346 cells. Recorded 2346 results.
Score 0 usually means the cell finished before a Lucy pulse (SoftAcc never sampled) or true-class mass was 0. Those rows do not vote holistically.
softmax - overlapping XOR -> softmax vs one-hot - modes all - min 2000ms/cell - 1024 train - pulse 50ms - SIMD true

## Lucy champions (this tide)

| Axis | Cell | Score | Soft | Acc | Thru | Avail |
|---|---|---|---|---|---|---|
| score | uint8\|none\|tween_chain\|single\|simd | 141288.76 | 25.0 | 27.4 | 1473111.2 | 38.4 |
| throughput | float32\|none\|tween_chain\|single\|simd | 139259.10 | 25.0 | 30.6 | 1516497.9 | 36.7 |
| availability | uintptr\|none\|TweenSplit\|tricameral\|simd | 22720.26 | 25.0 | 23.3 | 191669.2 | 47.4 |
| accuracy | binary\|none\|TweenSplitLinear\|single\|simd | 113223.41 | 25.1 | 29.5 | 1155302.9 | 39.1 |
| mobile score (tradi | binary\|none\|sgd\|single\|simd | 136936.44 | 25.0 | 26.6 | 1421447.2 | 38.5 |
| acc/sec | ternary\|none\|sgd\|single\|simd | 129236.08 | 25.0 | 28.5 | 1342004.7 | 38.5 |

## Lucy axes - softmax

| Axis | Mode | DType | Arch | Value |
|---|---|---|---|---|
| score | tween_chain | uint8 | singlex1 | 141288.76 |
| soft_acc | TweenSplitLinear | binary | singlex1 | 25.07 |
| hard_acc | tween | fp8e5m2 | tricameralx3 | 32.59 |
| throughput | tween_chain | float32 | singlex1 | 1516497.93 |
| availability | TweenSplit | uintptr | tricameralx3 | 47.42 |
| acc_thru | tween_chain | float32 | singlex1 | 379348.88 |
| realtime | tween_chain | uint8 | singlex1 | 565276.31 |
| adapt | TweenSplitLinear | binary | singlex1 | 25.11 |
| keep_learn | TweenSplitLinea~ | int64 | singlex1 | 12.54 |
| acc_per_sec | sgd | ternary | singlex1 | 12.52 |
| consistency | sgd | float64 | singlex1 | 100.00 |
| stability | sgd | fp4 | bicameralx2 | 100.00 |
| mobile_score | sgd | binary | singlex1 | 35897066357.85 |
| lpd | sgd | binary | singlex1 | 8.79 |
| mspeed | tween_chain | float32 | singlex1 | 1.00 |
| mavail | tween_chain | int5 | singlex1 | 0.91 |
| mix | tween_chain | uint8 | singlex1 | 0.92 |

## Best settings per train mode

| Mode | DType | Format | Score | Soft | Acc | Avail | n |
|---|---|---|---|---|---|---|---|
| tween_chain | uint8 | none | 141288.8 | 25.0 | 27.4 | 38.4 | 102 |
| sgd | fp4 | none | 140228.9 | 25.0 | 25.0 | 37.6 | 102 |
| tween | float32 | none | 137227.3 | 25.0 | 27.9 | 36.4 | 102 |
| step_tween_chain | float32 | none | 136895.2 | 25.0 | 31.0 | 36.3 | 102 |
| step_sgd | float32 | none | 135508.5 | 25.0 | 27.7 | 36.2 | 102 |
| step_tween | float32 | none | 135425.7 | 25.0 | 26.3 | 36.2 | 102 |
| MeshBP | float32 | none | 128466.0 | 25.0 | 30.0 | 36.3 | 102 |
| StepTweenSplit | float32 | none | 128442.7 | 25.0 | 27.8 | 36.9 | 102 |
| TweenSplit | float32 | none | 127908.0 | 25.0 | 28.2 | 37.3 | 102 |
| MeshTweenSplitSparse | float32 | none | 127806.7 | 25.0 | 28.2 | 36.9 | 102 |
| TweenSplitSparse | float32 | none | 126158.3 | 25.0 | 28.7 | 36.8 | 102 |
| TweenSplitHeadProxyAsync | float32 | none | 125379.7 | 25.0 | 27.5 | 36.9 | 102 |
| TweenSplitLinear | float32 | none | 124947.5 | 25.0 | 28.2 | 37.2 | 102 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| MeshTween | float32 | none | 124213.5 | 25.0 | 28.0 | 36.4 | 102 |
| TweenSplitLinearCache | int8 | none | 123885.5 | 25.0 | 27.0 | 38.3 | 102 |
| MeshTweenSplit | fp4 | none | 123368.9 | 25.0 | 25.1 | 38.4 | 102 |
| TweenSplitFastProxy | float32 | none | 122979.2 | 25.0 | 27.9 | 36.3 | 102 |
| MeshTweenChain | float32 | none | 122901.5 | 25.0 | 28.3 | 36.7 | 102 |
| MeshTweenSplitFastProxy | binary | none | 122311.9 | 25.0 | 22.2 | 38.8 | 102 |
| TweenAlt | float32 | none | 119688.1 | 25.0 | 28.2 | 35.7 | 102 |
| TweenSplitHeadProxy | uint8 | none | 118663.2 | 25.0 | 28.6 | 38.2 | 102 |
| MeshTweenAlt | uint8 | none | 118624.5 | 25.0 | 26.6 | 37.0 | 102 |
| StepTweenAlt | float16 | none | 113412.7 | 25.0 | 27.6 | 36.4 | 102 |

## Best dtype per mode

| Mode | Winner dtype | Score | Soft | Acc |
|---|---|---|---|---|
| tween_chain | uint8 | 141288.8 | 25.0 | 27.4 |
| sgd | fp4 | 140228.9 | 25.0 | 25.0 |
| tween | float32 | 137227.3 | 25.0 | 27.9 |
| step_tween_chain | float32 | 136895.2 | 25.0 | 31.0 |
| step_sgd | float32 | 135508.5 | 25.0 | 27.7 |
| step_tween | float32 | 135425.7 | 25.0 | 26.3 |
| MeshBP | float32 | 128466.0 | 25.0 | 30.0 |
| StepTweenSplit | float32 | 128442.7 | 25.0 | 27.8 |
| TweenSplit | float32 | 127908.0 | 25.0 | 28.2 |
| MeshTweenSplitSparse | float32 | 127806.7 | 25.0 | 28.2 |
| TweenSplitSparse | float32 | 126158.3 | 25.0 | 28.7 |
| TweenSplitHeadProxyAsync | float32 | 125379.7 | 25.0 | 27.5 |
| TweenSplitLinear | float32 | 124947.5 | 25.0 | 28.2 |
| MeshTween | float32 | 124213.5 | 25.0 | 28.0 |
| TweenSplitLinearCache | int8 | 123885.5 | 25.0 | 27.0 |
| MeshTweenSplit | fp4 | 123368.9 | 25.0 | 25.1 |
| TweenSplitFastProxy | float32 | 122979.2 | 25.0 | 27.9 |
| MeshTweenChain | float32 | 122901.5 | 25.0 | 28.3 |
| MeshTweenSplitFastProxy | binary | 122311.9 | 25.0 | 22.2 |
| TweenAlt | float32 | 119688.1 | 25.0 | 28.2 |
| TweenSplitHeadProxy | uint8 | 118663.2 | 25.0 | 28.6 |
| MeshTweenAlt | uint8 | 118624.5 | 25.0 | 26.6 |
| StepTweenAlt | float16 | 113412.7 | 25.0 | 27.6 |

## Best mode per dtype

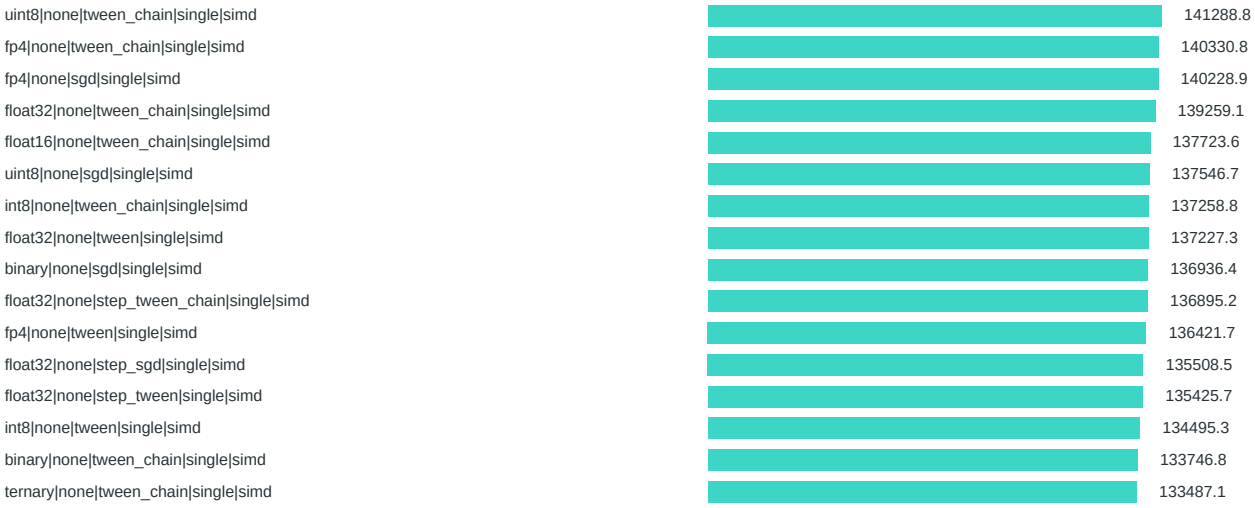
| DType | Winner mode | Score | Soft | Acc |
|---|---|---|---|---|
| uint8 | tween_chain | 141288.8 | 25.0 | 27.4 |
| fp4 | tween_chain | 140330.8 | 25.0 | 25.0 |
| float32 | tween_chain | 139259.1 | 25.0 | 30.6 |
| float16 | tween_chain | 137723.6 | 25.0 | 26.8 |
| int8 | tween_chain | 137258.8 | 25.0 | 29.8 |
| binary | sgd | 136936.4 | 25.0 | 26.6 |
| ternary | tween_chain | 133487.1 | 25.0 | 22.3 |
| int2 | tween_chain | 132619.9 | 25.0 | 22.0 |
| int4 | tween_chain | 131759.2 | 25.0 | 24.2 |
| bfloat16 | tween_chain | 130048.5 | 25.0 | 27.4 |
| fp8e5m2 | tween_chain | 127320.2 | 25.0 | 25.7 |
| float64 | tween_chain | 125934.7 | 25.0 | 29.8 |
| uint32 | sgd | 125885.8 | 25.0 | 28.6 |

| | | | | |
|---|---|---|---|---|
| uint16 | tween_chain | 124187.2 | 25.0 | 30.1 |
| fp8e4m3 | tween_chain | 123561.5 | 25.0 | 28.3 |
| uint64 | tween_chain | 123358.4 | 25.0 | 27.8 |
| uint2 | tween_chain | 121817.9 | 25.0 | 24.5 |
| uint4 | tween_chain | 121412.9 | 25.0 | 28.7 |
| int64 | tween_chain | 116826.6 | 25.0 | 28.9 |
| int32 | tween_chain | 115021.2 | 25.0 | 29.3 |
| uintptr | tween_chain | 114764.2 | 25.0 | 27.5 |
| int16 | sgd | 112731.4 | 25.0 | 29.4 |
| uint | sgd | 112617.6 | 25.0 | 27.7 |
| complex128 | tween_chain | 110638.8 | 25.0 | 28.7 |
| complex64 | tween_chain | 108302.2 | 25.0 | 28.4 |
| int | tween_chain | 107788.8 | 25.0 | 29.1 |
| nf4 | tween_chain | 107322.5 | 25.0 | 25.9 |
| uint3 | tween_chain | 97851.3 | 25.0 | 27.8 |
| int3 | tween_chain | 96028.7 | 25.0 | 26.9 |
| uint5 | tween_chain | 88689.7 | 25.0 | 22.4 |
| int5 | tween_chain | 84059.8 | 25.0 | 23.8 |
| uint6 | tween_chain | 83369.3 | 25.0 | 21.6 |
| int6 | tween_chain | 79718.5 | 25.0 | 24.7 |
| fp6 | sgd | 78267.5 | 25.0 | 24.0 |

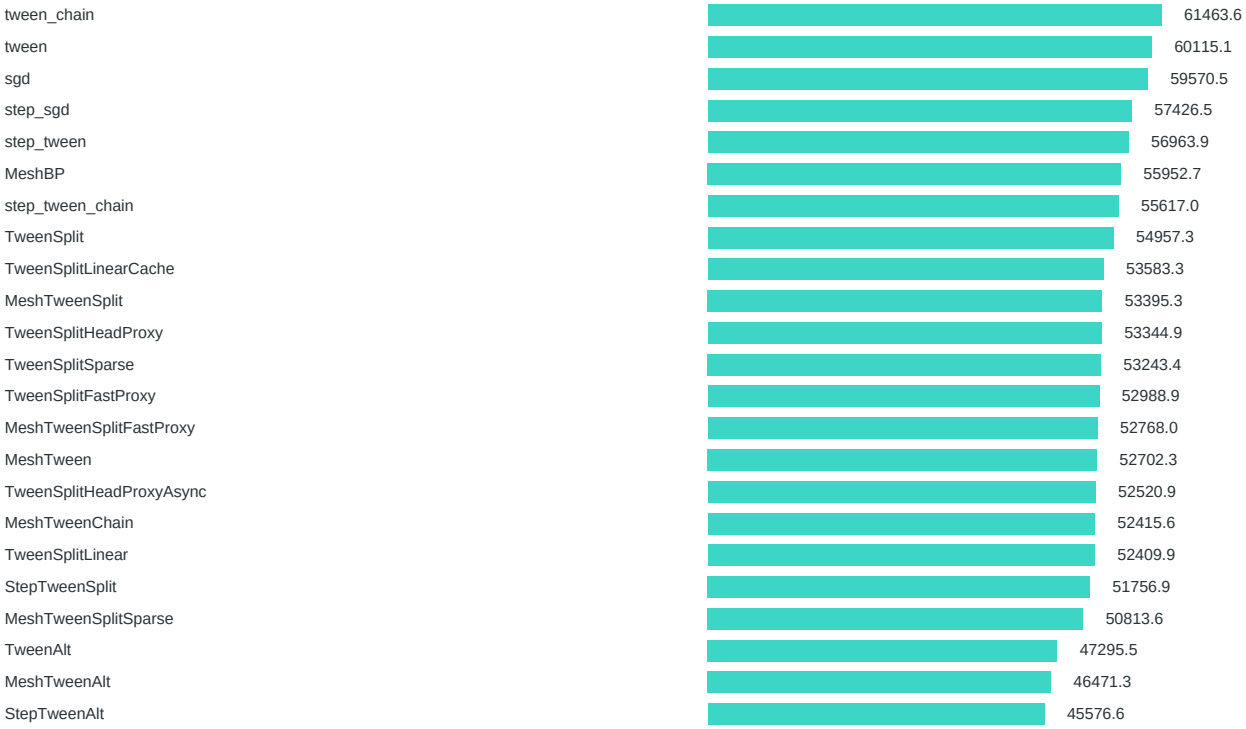
## Leaderboard - softmax

| # | Cell | Score | Soft | Acc | Thru | Avail |
|---|---|---|---|---|---|---|
| 1 | uint8\|none\|tween_chain\|single\|simd | 141288.8 | 25.0 | 27.4 | 1473111.2 | 38.4 |
| 2 | fp4\|none\|tween_chain\|single\|simd | 140330.8 | 25.0 | 25.0 | 1487115.4 | 37.7 |
| 3 | fp4\|none\|sgd\|single\|simd | 140228.9 | 25.0 | 25.0 | 1492233.2 | 37.6 |
| 4 | float32\|none\|tween_chain\|single\|simd | 139259.1 | 25.0 | 30.6 | 1516497.9 | 36.7 |
| 5 | float16\|none\|tween_chain\|single\|simd | 137723.6 | 25.0 | 26.8 | 1477015.6 | 37.3 |
| 6 | uint8\|none\|sgd\|single\|simd | 137546.7 | 25.0 | 28.1 | 1444165.0 | 38.1 |
| 7 | int8\|none\|tween_chain\|single\|simd | 137258.8 | 25.0 | 29.8 | 1433838.2 | 38.2 |
| 8 | float32\|none\|tween\|single\|simd | 137227.3 | 25.0 | 27.9 | 1509794.4 | 36.4 |
| 9 | binary\|none\|sgd\|single\|simd | 136936.4 | 25.0 | 26.6 | 1421447.2 | 38.5 |
| 10 | float32\|none\|step_tween_chain\|single\|simd | 136895.2 | 25.0 | 31.0 | 1506659.9 | 36.3 |
| 11 | fp4\|none\|tween\|single\|simd | 136421.7 | 25.0 | 25.0 | 1447649.5 | 37.7 |
| 12 | float32\|none\|step_sgd\|single\|simd | 135508.5 | 25.0 | 27.7 | 1496368.5 | 36.2 |
| 13 | float32\|none\|step_tween\|single\|simd | 135425.7 | 25.0 | 26.3 | 1495666.4 | 36.2 |
| 14 | int8\|none\|tween\|single\|simd | 134495.3 | 25.0 | 27.8 | 1402096.2 | 38.4 |
| 15 | binary\|none\|tween_chain\|single\|simd | 133746.8 | 25.0 | 26.0 | 1395608.9 | 38.3 |
| 16 | ternary\|none\|tween_chain\|single\|simd | 133487.1 | 25.0 | 22.3 | 1391247.6 | 38.4 |
| 17 | float16\|none\|tween\|single\|simd | 133312.7 | 25.0 | 26.6 | 1424487.0 | 37.4 |
| 18 | fp4\|none\|step_tween\|single\|simd | 133186.5 | 25.0 | 25.0 | 1423520.5 | 37.4 |
| 19 | int2\|none\|tween_chain\|single\|simd | 132619.9 | 25.0 | 22.0 | 1393712.0 | 38.1 |
| 20 | uint8\|none\|step_tween\|single\|simd | 132541.8 | 25.0 | 28.3 | 1419725.5 | 37.3 |

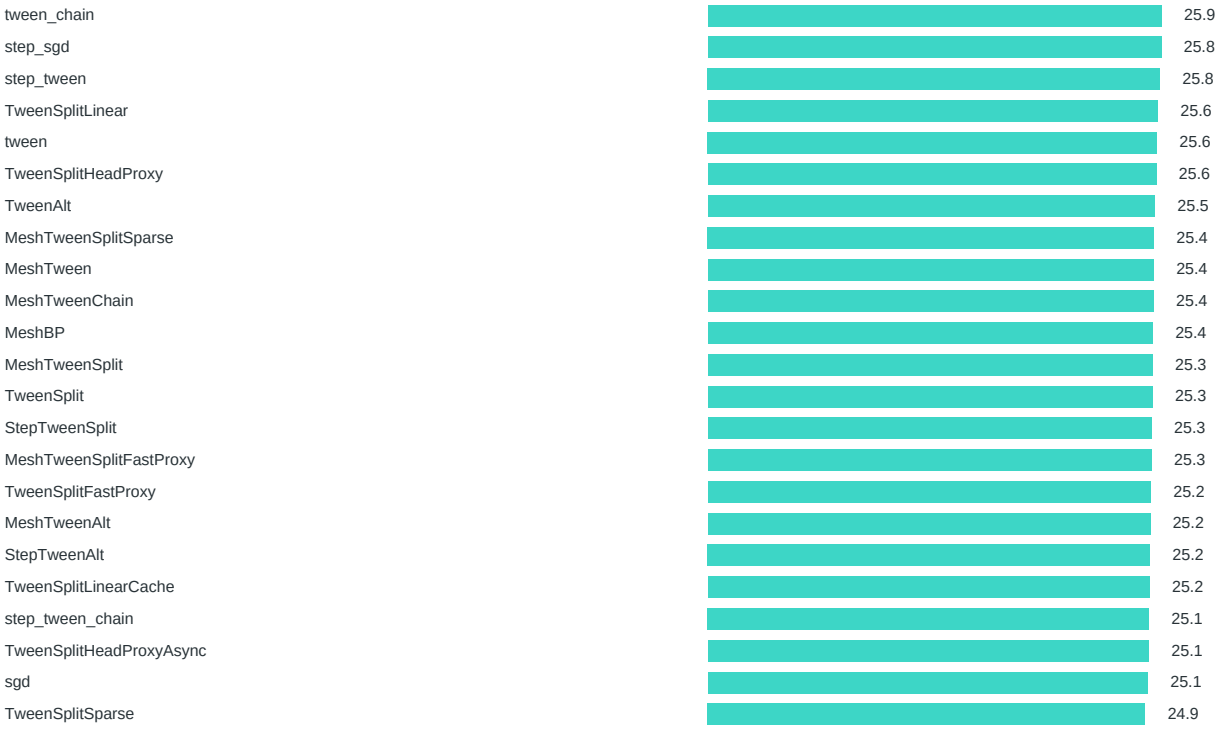
## Top scores - softmax



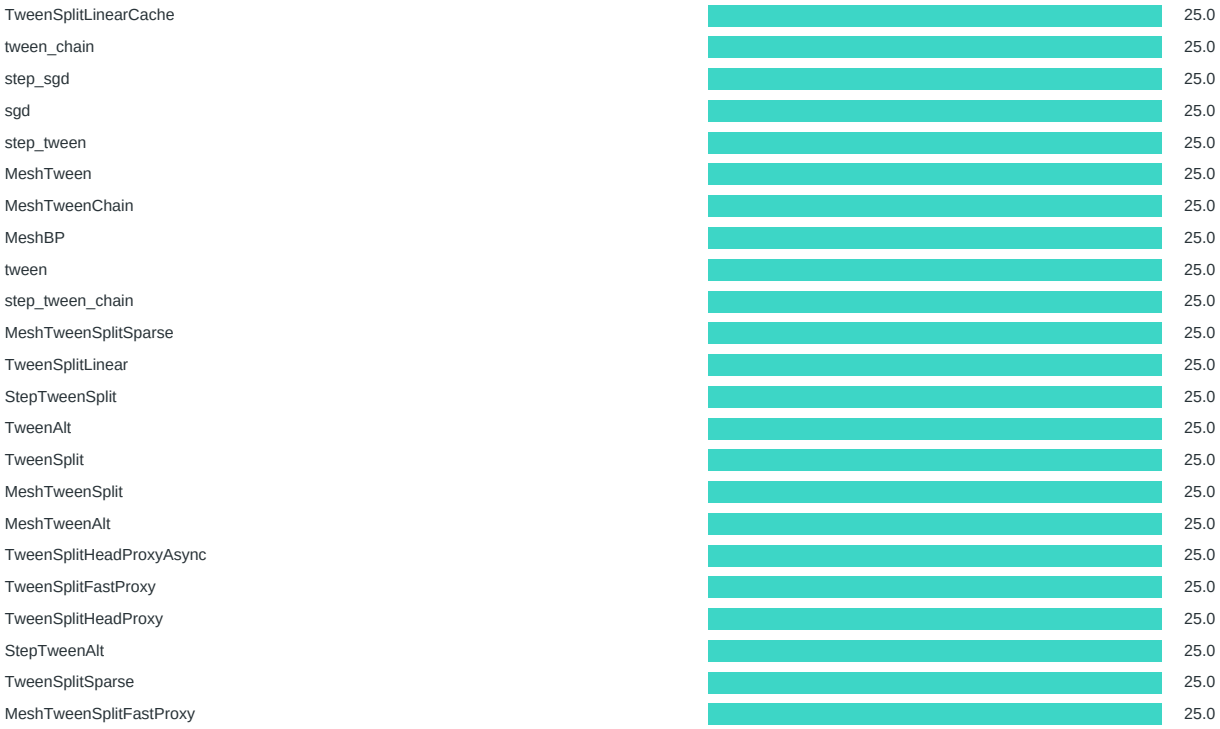

## Mean Score by train mode



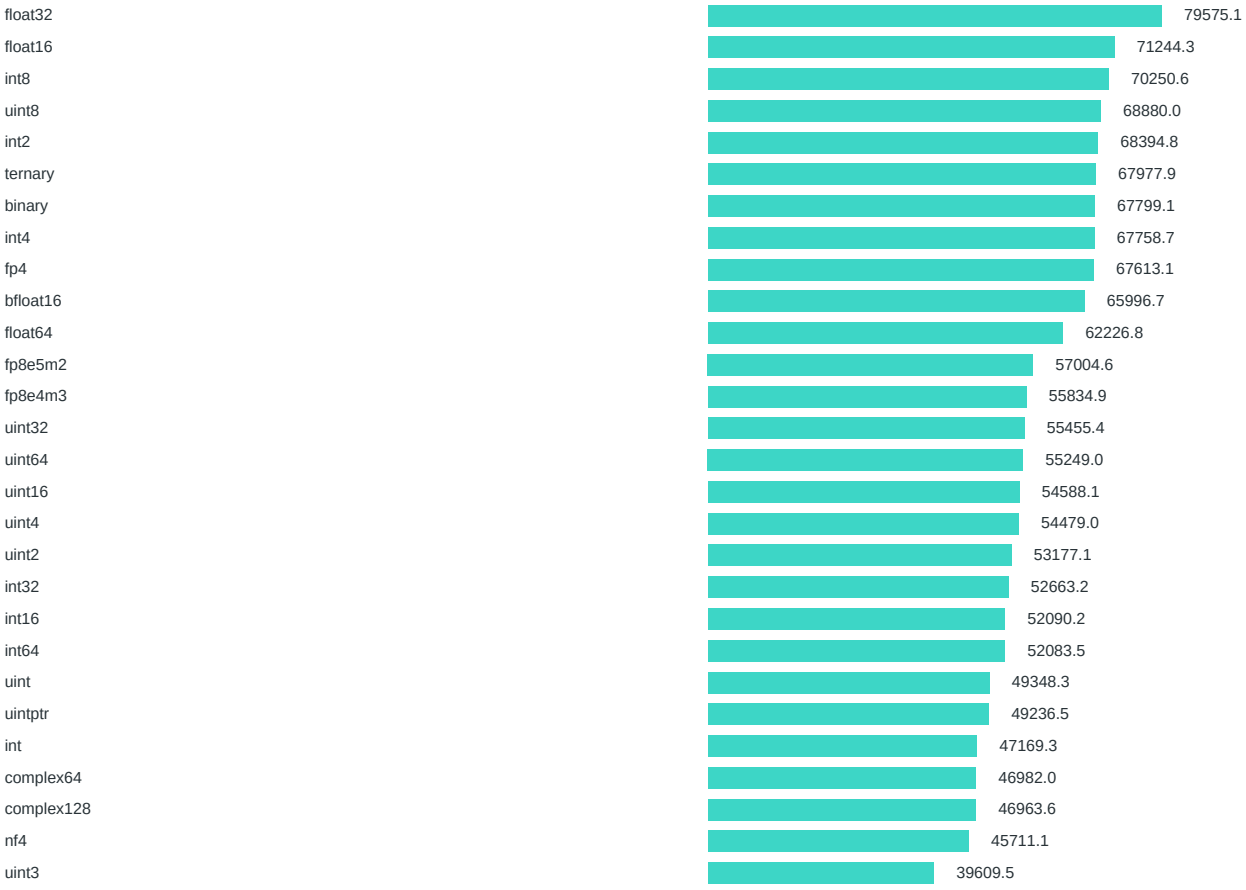

## Mean hard Acc by train mode




## Mean SoftAcc by train mode




## Mean Score by dtype




## Mean hard Acc by dtype




## Mean Score by arch




## Honesty - mean Score, every mode x dtype (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 69029 | 72492 | 49145 | 50353 | 73462 | 81522 | 65662 | 69807 | 31874 | 58566 | 60457 | 48708 | 55606 | 70571 | 39514 | 56681 |
| MeshTween | 64996 | 66022 | 45667 | 44972 | 69587 | 77414 | 61138 | 67873 | 31024 | 54382 | 54353 | 46596 | 49969 | 66847 | 37110 | 52293 |
| MeshTweenAlt | 58704 | 55919 | 42018 | 39582 | 60633 | 66657 | 53710 | 58895 | 26847 | 50609 | 49844 | 41472 | 42731 | 58000 | 34845 | 44891 |
| MeshTweenChain | 62989 | 66084 | 45782 | 45645 | 67496 | 78637 | 60986 | 66484 | 29471 | 54017 | 56569 | 44617 | 50519 | 66147 | 37587 | 51856 |
| MeshTweenSplit | 63310 | 65049 | 48167 | 48518 | 73284 | 77585 | 60944 | 68952 | 33184 | 57308 | 56592 | 44933 | 52794 | 67513 | 36731 | 49486 |
| MeshTweenSplitFa | 64166 | 67251 | 48510 | 46224 | 69181 | 80562 | 64125 | 65411 | 28381 | 56893 | 55268 | 47458 | 51113 | 64324 | 34693 | 50717 |
| MeshTweenSplitSp | 67787 | 63891 | 43883 | 44254 | 69814 | 78693 | 58306 | 64676 | 29437 | 53394 | 55614 | 45042 | 49065 | 66872 | 36961 | 51519 |
| StepTweenAlt | 57201 | 58054 | 40549 | 41081 | 62957 | 69001 | 55063 | 56162 | 24329 | 47701 | 50113 | 40602 | 45238 | 57753 | 30209 | 43677 |
| StepTweenSplit | 64299 | 66666 | 44533 | 45650 | 70194 | 79212 | 59803 | 65410 | 28769 | 53705 | 54371 | 45909 | 52103 | 67318 | 36785 | 50931 |
| TweenAlt | 60368 | 60502 | 40891 | 41683 | 64232 | 72700 | 56360 | 58614 | 26529 | 51251 | 49341 | 41176 | 46247 | 58597 | 32816 | 46599 |
| TweenSplit | 68682 | 69192 | 46972 | 47307 | 75713 | 80749 | 63191 | 69754 | 32616 | 55225 | 57934 | 48348 | 52345 | 70936 | 39087 | 53412 |
| TweenSplitFastPr | 64162 | 67275 | 47263 | 46802 | 68663 | 78516 | 63816 | 65300 | 31244 | 56507 | 55348 | 48852 | 51525 | 67611 | 39193 | 53025 |
| TweenSplitHeadPr | 64870 | 67995 | 48670 | 44996 | 70469 | 76905 | 61220 | 65275 | 31909 | 55635 | 54424 | 48857 | 51761 | 69353 | 39465 | 52289 |
| TweenSplitHeadPr | 64716 | 67301 | 47836 | 46239 | 66572 | 77941 | 62377 | 65380 | 30003 | 53822 | 56827 | 44859 | 52507 | 69696 | 38162 | 55434 |
| TweenSplitLinear | 62680 | 65529 | 45332 | 46315 | 70586 | 78630 | 60628 | 66332 | 30485 | 55372 | 56366 | 44825 | 53171 | 65910 | 38145 | 52201 |
| TweenSplitLinear | 66131 | 67545 | 45121 | 46989 | 68209 | 74530 | 60882 | 65001 | 31301 | 57440 | 58879 | 46486 | 52570 | 71381 | 39379 | 50802 |
| TweenSplitSparse | 63850 | 64653 | 44394 | 47157 | 70365 | 80713 | 57591 | 65112 | 30918 | 53950 | 57499 | 47948 | 53115 | 64621 | 38471 | 51940 |
| sgd | 70398 | 77577 | 52662 | 51822 | 78343 | 86060 | 66011 | 77203 | 35019 | 59361 | 61752 | 52554 | 57807 | 75441 | 42330 | 57429 |
| step_sgd | 71573 | 73551 | 48890 | 50808 | 75868 | 85539 | 66060 | 73530 | 31654 | 59880 | 60584 | 51928 | 53857 | 72865 | 40229 | 56330 |
| step_tween | 70327 | 73235 | 50192 | 48881 | 75851 | 84723 | 66359 | 73552 | 31929 | 59101 | 59195 | 49323 | 55133 | 74330 | 38986 | 55826 |
| step_tween_chain | 70432 | 69405 | 47582 | 48897 | 74763 | 85612 | 66019 | 70518 | 31206 | 54446 | 60112 | 49690 | 53870 | 71779 | 39691 | 56461 |
| tween | 72948 | 76442 | 52372 | 52938 | 80149 | 88239 | 70240 | 76937 | 34815 | 61535 | 63322 | 51457 | 57105 | 77076 | 41867 | 58598 |
| tween_chain | 74306 | 77749 | 53734 | 53476 | 82225 | 90088 | 70726 | 78923 | 34753 | 64105 | 66340 | 53250 | 57923 | 78139 | 44126 | 58859 |

## Honesty - mean Score, every mode x dtype (cols 17-32)

## Honesty - mean Score, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 71370 | 33139 | 31014 | 55113 | 72559 | 47736 | 70312 | 51017 | 55879 | 55006 | 40383 | 58419 | 56910 | 35322 | 32826 | 58293 |
| MeshTween | 67399 | 31105 | 30027 | 51839 | 69966 | 44250 | 65450 | 48502 | 57264 | 51672 | 38758 | 55287 | 54193 | 34424 | 31543 | 53786 |
| MeshTweenAlt | 58454 | 28189 | 25188 | 43403 | 61640 | 40717 | 58540 | 42527 | 48153 | 45200 | 35035 | 48901 | 46976 | 28252 | 26299 | 49989 |
| MeshTweenChain | 64821 | 31898 | 31875 | 50045 | 69123 | 44920 | 66593 | 48669 | 54452 | 50919 | 38473 | 55810 | 52123 | 33854 | 30717 | 54256 |
| MeshTweenSplit | 68772 | 31096 | 28754 | 52541 | 67021 | 48448 | 65745 | 47850 | 55195 | 57954 | 39424 | 56002 | 56128 | 32878 | 32502 | 55716 |
| MeshTweenSplitFa | 66863 | 33075 | 29691 | 47468 | 72021 | 45423 | 67268 | 52415 | 52302 | 54304 | 39439 | 52511 | 53260 | 33337 | 31950 | 53767 |
| MeshTweenSplitSp | 63099 | 29300 | 29501 | 50599 | 64799 | 42433 | 60357 | 48131 | 49604 | 48172 | 36821 | 51678 | 51549 | 31641 | 29464 | 52632 |
| StepTweenAlt | 56998 | 26901 | 26353 | 44263 | 60420 | 38577 | 59843 | 42225 | 45008 | 45069 | 32088 | 44597 | 45583 | 27340 | 25294 | 46309 |
| StepTweenSplit | 64130 | 30467 | 29326 | 50164 | 68356 | 43122 | 66776 | 47415 | 52177 | 51146 | 40357 | 52042 | 51518 | 32197 | 30061 | 51175 |
| TweenAlt | 60071 | 28519 | 26569 | 45261 | 62227 | 40928 | 60276 | 42294 | 49266 | 45205 | 34504 | 47976 | 48667 | 29738 | 26968 | 46891 |
| TweenSplit | 69097 | 34215 | 31675 | 52724 | 70594 | 44490 | 71173 | 49556 | 56891 | 55290 | 42695 | 58365 | 57875 | 36287 | 33024 | 55114 |
| TweenSplitFastPr | 67750 | 32796 | 31975 | 49225 | 66154 | 45229 | 66204 | 50115 | 53734 | 51367 | 38890 | 53131 | 54541 | 33832 | 31520 | 50906 |
| TweenSplitHeadPr | 69116 | 33950 | 30774 | 51849 | 69891 | 47181 | 68271 | 49526 | 54639 | 51847 | 38334 | 54330 | 53489 | 35486 | 31598 | 53248 |
| TweenSplitHeadPr | 63705 | 31166 | 29122 | 54658 | 68215 | 43364 | 69577 | 48971 | 50467 | 52360 | 40708 | 48430 | 53087 | 34155 | 31786 | 54897 |
| TweenSplitLinear | 64517 | 32342 | 31675 | 51677 | 67906 | 45263 | 62263 | 48312 | 53850 | 49181 | 39291 | 56134 | 51960 | 34497 | 32300 | 56165 |
| TweenSplitLinear | 68611 | 34184 | 30911 | 52094 | 73121 | 46755 | 66705 | 48332 | 56124 | 51544 | 38564 | 54483 | 54328 | 35141 | 31395 | 56906 |
| TweenSplitSparse | 68197 | 33555 | 30867 | 54006 | 67558 | 47658 | 69423 | 48833 | 54325 | 53513 | 39065 | 54420 | 55613 | 32827 | 32178 | 55932 |
| sgd | 75286 | 36004 | 33889 | 57819 | 78499 | 50311 | 76708 | 55583 | 61507 | 59400 | 44753 | 64929 | 58670 | 38433 | 36081 | 61938 |
| step_sgd | 73410 | 34386 | 32917 | 56254 | 74921 | 47858 | 74885 | 50081 | 60438 | 57316 | 42023 | 60224 | 59423 | 35374 | 34444 | 58615 |
| step_tween | 72990 | 33744 | 32663 | 54891 | 75883 | 47514 | 73665 | 52624 | 57898 | 56842 | 41213 | 58952 | 57311 | 34933 | 34103 | 58097 |
| step_tween_chain | 70385 | 33919 | 31412 | 54931 | 74177 | 46698 | 69668 | 50979 | 50090 | 55670 | 41706 | 60573 | 55359 | 34341 | 33343 | 59095 |
| tween | 76033 | 35834 | 33997 | 57457 | 80368 | 50259 | 76760 | 55799 | 62014 | 61989 | 42727 | 63966 | 62066 | 37401 | 35179 | 63456 |
| tween_chain | 77379 | 37689 | 35664 | 59640 | 80345 | 52218 | 77031 | 55254 | 64249 | 62109 | 45765 | 64314 | 62391 | 39851 | 37153 | 63545 |

## Honesty - mean Score, every mode x dtype  (cols 33-34)

## Honesty - mean Score, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 71094 | 52548 |
| MeshTween | 69590 | 46580 |
| MeshTweenAlt | 65576 | 41627 |
| MeshTweenChain | 69720 | 48976 |
| MeshTweenSplit | 66026 | 49039 |
| MeshTweenSplitFa | 63271 | 51470 |
| MeshTweenSplitSp | 62829 | 45845 |
| StepTweenAlt | 59838 | 43209 |
| StepTweenSplit | 66770 | 46881 |
| TweenAlt | 61289 | 43491 |
| TweenSplit | 70253 | 47768 |
| TweenSplitFastPr | 68013 | 51139 |
| TweenSplitHeadPr | 69323 | 46783 |
| TweenSplitHeadPr | 63506 | 47865 |
| TweenSplitLinear | 64197 | 47903 |
| TweenSplitLinear | 70360 | 49627 |
| TweenSplitSparse | 69510 | 50497 |
| sgd | 78617 | 55199 |
| step_sgd | 75097 | 51690 |
| step_tween | 74369 | 52136 |
| step_tween_chain | 67900 | 50249 |
| tween | 77312 | 55255 |
| tween_chain | 79780 | 56663 |

## Honesty - mean hard Acc, every mode x dtype  (cols 1-16)

## Honesty - mean hard Acc, every mode x dtype  (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 27 | 25 | 26 | 25 | 27 | 28 | 26 | 25 | 24 | 25 | 27 | 26 | 26 | 25 | 24 | 26 |
| MeshTween | 26 | 25 | 26 | 25 | 25 | 26 | 27 | 25 | 24 | 24 | 23 | 24 | 28 | 26 | 27 | 25 |
| MeshTweenAlt | 25 | 23 | 28 | 28 | 27 | 25 | 25 | 25 | 25 | 26 | 26 | 25 | 25 | 24 | 26 | 26 |
| MeshTweenChain | 26 | 28 | 25 | 25 | 25 | 26 | 25 | 25 | 23 | 26 | 24 | 24 | 28 | 25 | 24 | 26 |
| MeshTweenSplit | 26 | 24 | 25 | 26 | 27 | 25 | 27 | 25 | 26 | 27 | 24 | 27 | 25 | 24 | 26 | 25 |
| MeshTweenSplitFa | 26 | 23 | 28 | 24 | 27 | 28 | 29 | 25 | 26 | 22 | 26 | 25 | 28 | 25 | 25 | 27 |
| MeshTweenSplitSp | 26 | 29 | 26 | 26 | 26 | 26 | 27 | 25 | 25 | 24 | 24 | 28 | 25 | 23 | 26 | 23 |
| StepTweenAlt | 25 | 25 | 25 | 27 | 28 | 26 | 28 | 25 | 26 | 24 | 25 | 27 | 25 | 23 | 26 | 26 |
| StepTweenSplit | 27 | 23 | 27 | 25 | 25 | 25 | 25 | 25 | 26 | 23 | 27 | 27 | 26 | 24 | 26 | 25 |
| TweenAlt | 26 | 25 | 25 | 26 | 25 | 25 | 25 | 25 | 25 | 27 | 23 | 26 | 25 | 25 | 23 | 29 |
| TweenSplit | 27 | 26 | 26 | 24 | 27 | 28 | 26 | 25 | 23 | 27 | 23 | 25 | 24 | 25 | 26 | 25 |
| TweenSplitFastPr | 25 | 23 | 27 | 26 | 26 | 26 | 25 | 25 | 24 | 27 | 24 | 27 | 25 | 25 | 26 | 26 |
| TweenSplitHeadPr | 27 | 23 | 25 | 25 | 25 | 27 | 27 | 25 | 27 | 22 | 24 | 26 | 26 | 25 | 23 | 29 |
| TweenSplitHeadPr | 24 | 25 | 24 | 26 | 24 | 25 | 26 | 25 | 28 | 26 | 26 | 26 | 26 | 22 | 24 | 26 |
| TweenSplitLinear | 26 | 26 | 27 | 26 | 25 | 26 | 25 | 25 | 28 | 26 | 26 | 24 | 28 | 27 | 25 | 25 |
| TweenSplitLinear | 25 | 26 | 27 | 24 | 24 | 24 | 23 | 25 | 26 | 24 | 26 | 26 | 25 | 24 | 25 | 27 |
| TweenSplitSparse | 27 | 25 | 25 | 26 | 25 | 24 | 26 | 25 | 26 | 24 | 24 | 25 | 26 | 24 | 23 | 26 |
| sgd | 25 | 25 | 26 | 26 | 28 | 25 | 26 | 25 | 24 | 21 | 21 | 25 | 25 | 25 | 24 | 25 |
| step_sgd | 25 | 24 | 24 | 27 | 28 | 25 | 27 | 25 | 25 | 27 | 25 | 26 | 28 | 28 | 26 | 25 |
| step_tween | 25 | 23 | 24 | 27 | 27 | 26 | 27 | 25 | 26 | 26 | 26 | 25 | 28 | 24 | 26 | 27 |
| step_tween_chain | 25 | 25 | 25 | 24 | 26 | 26 | 26 | 25 | 24 | 26 | 23 | 26 | 24 | 25 | 26 | 26 |
| tween | 26 | 26 | 27 | 27 | 26 | 26 | 24 | 25 | 25 | 27 | 27 | 25 | 25 | 23 | 26 | 27 |
| tween_chain | 26 | 25 | 25 | 27 | 25 | 25 | 27 | 25 | 24 | 25 | 26 | 27 | 26 | 25 | 27 | 29 |

## Honesty - mean hard Acc, every mode x dtype  (cols 17-32)

## Honesty - mean hard Acc, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 22 | 24 | 26 | 25 | 26 | 23 | 25 | 27 | 26 | 25 | 24 | 25 | 24 | 25 | 23 | 26 |
| MeshTween | 27 | 25 | 25 | 24 | 27 | 27 | 23 | 25 | 28 | 25 | 26 | 25 | 24 | 24 | 26 | 27 |
| MeshTweenAlt | 26 | 23 | 25 | 24 | 22 | 25 | 24 | 27 | 26 | 27 | 24 | 24 | 24 | 22 | 25 | 26 |
| MeshTweenChain | 24 | 28 | 25 | 24 | 26 | 26 | 22 | 26 | 27 | 24 | 26 | 27 | 25 | 24 | 25 | 27 |
| MeshTweenSplit | 27 | 25 | 25 | 25 | 26 | 27 | 27 | 25 | 25 | 25 | 22 | 26 | 22 | 25 | 25 | 23 |
| MeshTweenSplitFa | 23 | 22 | 24 | 25 | 28 | 24 | 23 | 25 | 24 | 25 | 26 | 26 | 25 | 25 | 26 | 25 |
| MeshTweenSplitSp | 25 | 25 | 27 | 28 | 25 | 24 | 26 | 28 | 25 | 25 | 23 | 26 | 22 | 25 | 26 | 26 |
| StepTweenAlt | 25 | 25 | 24 | 25 | 25 | 24 | 24 | 27 | 25 | 25 | 23 | 24 | 24 | 25 | 24 | 26 |
| StepTweenSplit | 25 | 28 | 25 | 25 | 27 | 24 | 26 | 25 | 26 | 23 | 24 | 24 | 24 | 25 | 25 | 27 |
| TweenAlt | 25 | 26 | 26 | 25 | 25 | 25 | 25 | 27 | 25 | 27 | 26 | 24 | 26 | 26 | 27 | 24 |
| TweenSplit | 25 | 24 | 27 | 24 | 28 | 22 | 25 | 25 | 27 | 26 | 27 | 26 | 25 | 25 | 25 | 25 |
| TweenSplitFastPr | 22 | 25 | 27 | 24 | 27 | 23 | 27 | 25 | 27 | 23 | 25 | 23 | 25 | 26 | 26 | 26 |
| TweenSplitHeadPr | 22 | 25 | 27 | 25 | 26 | 25 | 26 | 26 | 26 | 26 | 26 | 27 | 24 | 25 | 25 | 27 |
| TweenSplitHeadPr | 25 | 24 | 28 | 26 | 28 | 26 | 24 | 26 | 24 | 23 | 22 | 25 | 24 | 24 | 25 | 25 |
| TweenSplitLinear | 24 | 24 | 26 | 26 | 25 | 25 | 26 | 27 | 26 | 27 | 25 | 24 | 24 | 26 | 23 | 26 |
| TweenSplitLinear | 24 | 25 | 27 | 24 | 24 | 27 | 25 | 24 | 24 | 26 | 26 | 26 | 25 | 24 | 26 | 25 |
| TweenSplitSparse | 24 | 23 | 27 | 25 | 24 | 24 | 27 | 26 | 26 | 24 | 24 | 26 | 26 | 23 | 24 | 24 |
| sgd | 25 | 22 | 24 | 26 | 26 | 24 | 27 | 27 | 25 | 24 | 24 | 25 | 27 | 23 | 26 | 26 |
| step_sgd | 25 | 25 | 27 | 25 | 29 | 26 | 26 | 26 | 25 | 24 | 24 | 24 | 25 | 25 | 26 | 27 |
| step_tween | 25 | 26 | 25 | 25 | 26 | 26 | 25 | 27 | 26 | 26 | 25 | 27 | 25 | 24 | 26 | 27 |
| step_tween_chain | 22 | 24 | 23 | 30 | 23 | 24 | 25 | 24 | 25 | 24 | 25 | 26 | 25 | 27 | 26 | 28 |
| tween | 27 | 25 | 25 | 28 | 26 | 24 | 24 | 26 | 25 | 26 | 25 | 25 | 24 | 25 | 25 | 25 |
| tween_chain | 26 | 25 | 26 | 26 | 27 | 27 | 28 | 26 | 26 | 24 | 26 | 26 | 26 | 23 | 25 | 26 |

## Honesty - mean hard Acc, every mode x dtype  (cols 33-34)

## Honesty - mean hard Acc, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 27 | 25 |
| MeshTween | 24 | 25 |
| MeshTweenAlt | 26 | 26 |
| MeshTweenChain | 26 | 26 |
| MeshTweenSplit | 27 | 27 |
| MeshTweenSplitFa | 25 | 25 |
| MeshTweenSplitSp | 26 | 25 |
| StepTweenAlt | 25 | 25 |
| StepTweenSplit | 26 | 25 |
| TweenAlt | 27 | 24 |
| TweenSplit | 25 | 24 |
| TweenSplitFastPr | 25 | 26 |
| TweenSplitHeadPr | 27 | 26 |
| TweenSplitHeadPr | 26 | 26 |
| TweenSplitLinear | 28 | 25 |
| TweenSplitLinear | 26 | 25 |
| TweenSplitSparse | 24 | 26 |
| sgd | 27 | 25 |
| step_sgd | 27 | 27 |
| step_tween | 26 | 24 |
| step_tween_chain | 27 | 25 |
| tween | 28 | 26 |
| tween_chain | 26 | 26 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 1-16)

## Honesty - mean SoftAcc, every mode x dtype  (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenChain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitFastPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitSparse | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 17-32)

## Honesty - mean SoftAcc, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenChain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitFastPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitSparse | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 33-34)

## Honesty - mean SoftAcc, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 25 | 25 |
| MeshTween | 25 | 25 |
| MeshTweenAlt | 25 | 25 |
| MeshTweenChain | 25 | 25 |
| MeshTweenSplit | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 |
| StepTweenAlt | 25 | 25 |
| StepTweenSplit | 25 | 25 |
| TweenAlt | 25 | 25 |
| TweenSplit | 25 | 25 |
| TweenSplitFastPr | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 |
| TweenSplitLinear | 25 | 25 |
| TweenSplitLinear | 25 | 25 |
| TweenSplitSparse | 25 | 25 |
| sgd | 25 | 25 |
| step_sgd | 25 | 25 |
| step_tween | 25 | 25 |
| step_tween_chain | 25 | 25 |
| tween | 25 | 25 |
| tween_chain | 25 | 25 |

## Mean Score, every mode x arch

## Mean Score, every mode x arch

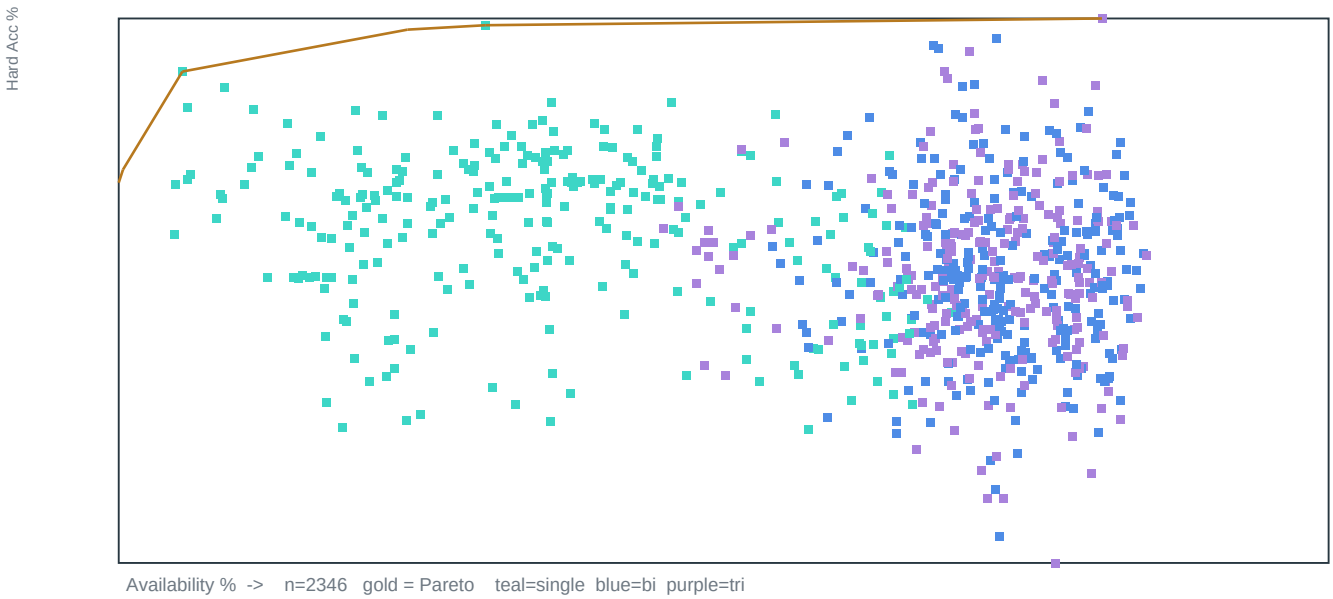
| | bicamera | singlex1 | tricamer |
|---|---|---|---|
| MeshBP | 34049 | 106866 | 26942 |
| MeshTween | 32181 | 100071 | 25855 |
| MeshTweenAlt | 27029 | 90193 | 22192 |
| MeshTweenChain | 32287 | 99312 | 25648 |
| MeshTweenSplit | 33640 | 99057 | 27489 |
| MeshTweenSplitFa | 33221 | 97901 | 27182 |
| MeshTweenSplitSp | 31977 | 93444 | 27020 |
| StepTweenAlt | 26525 | 89476 | 20729 |
| StepTweenSplit | 31945 | 97332 | 25993 |
| TweenAlt | 28091 | 91650 | 22146 |
| TweenSplit | 34749 | 101721 | 28403 |
| TweenSplitFastPr | 33450 | 97963 | 27553 |
| TweenSplitHeadPr | 33517 | 98675 | 27843 |
| TweenSplitHeadPr | 33254 | 96916 | 27393 |
| TweenSplitLinear | 32452 | 98331 | 26446 |
| TweenSplitLinear | 33531 | 99771 | 27448 |
| TweenSplitSparse | 33528 | 98309 | 27893 |
| sgd | 36885 | 112010 | 29817 |
| step_sgd | 34534 | 109943 | 27803 |
| step_tween | 34362 | 109547 | 26982 |
| step_tween_chain | 33526 | 106989 | 26336 |
| tween | 37901 | 111922 | 30523 |
| tween_chain | 38082 | 116426 | 29883 |

## Mean hard Acc, every mode x arch

## Mean hard Acc, every mode x arch

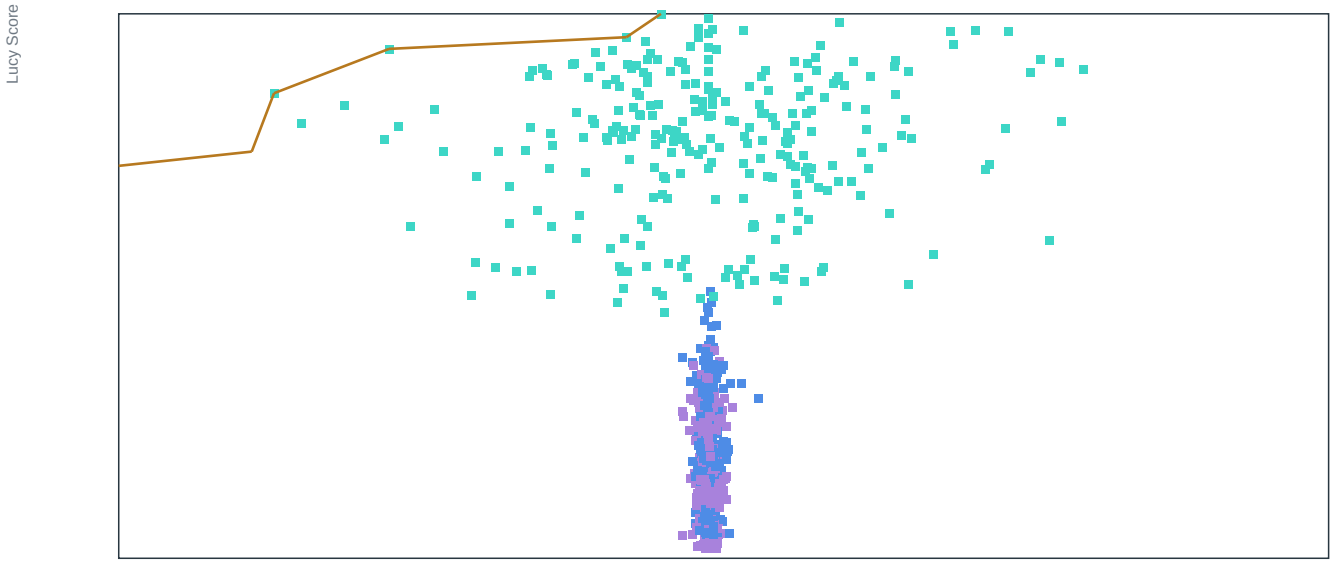
| | bicamera | singlex1 | tricamer |
|---|---|---|---|
| MeshBP | 25 | 26 | 25 |
| MeshTween | 25 | 26 | 25 |
| MeshTweenAlt | 25 | 26 | 25 |
| MeshTweenChain | 25 | 27 | 24 |
| MeshTweenSplit | 25 | 26 | 25 |
| MeshTweenSplitFa | 25 | 26 | 25 |
| MeshTweenSplitSp | 25 | 26 | 24 |
| StepTweenAlt | 24 | 26 | 25 |
| StepTweenSplit | 24 | 27 | 25 |
| TweenAlt | 25 | 26 | 25 |
| TweenSplit | 25 | 26 | 25 |
| TweenSplitFastPr | 25 | 26 | 25 |
| TweenSplitHeadPr | 25 | 27 | 25 |
| TweenSplitHeadPr | 25 | 26 | 24 |
| TweenSplitLinear | 25 | 27 | 25 |
| TweenSplitLinear | 25 | 26 | 25 |
| TweenSplitSparse | 24 | 26 | 24 |
| sgd | 25 | 26 | 24 |
| step_sgd | 26 | 26 | 25 |
| step_tween | 26 | 26 | 25 |
| step_tween_chain | 24 | 26 | 25 |
| tween | 25 | 26 | 26 |
| tween_chain | 26 | 27 | 25 |

## Avail vs hard Acc (headline scatter)

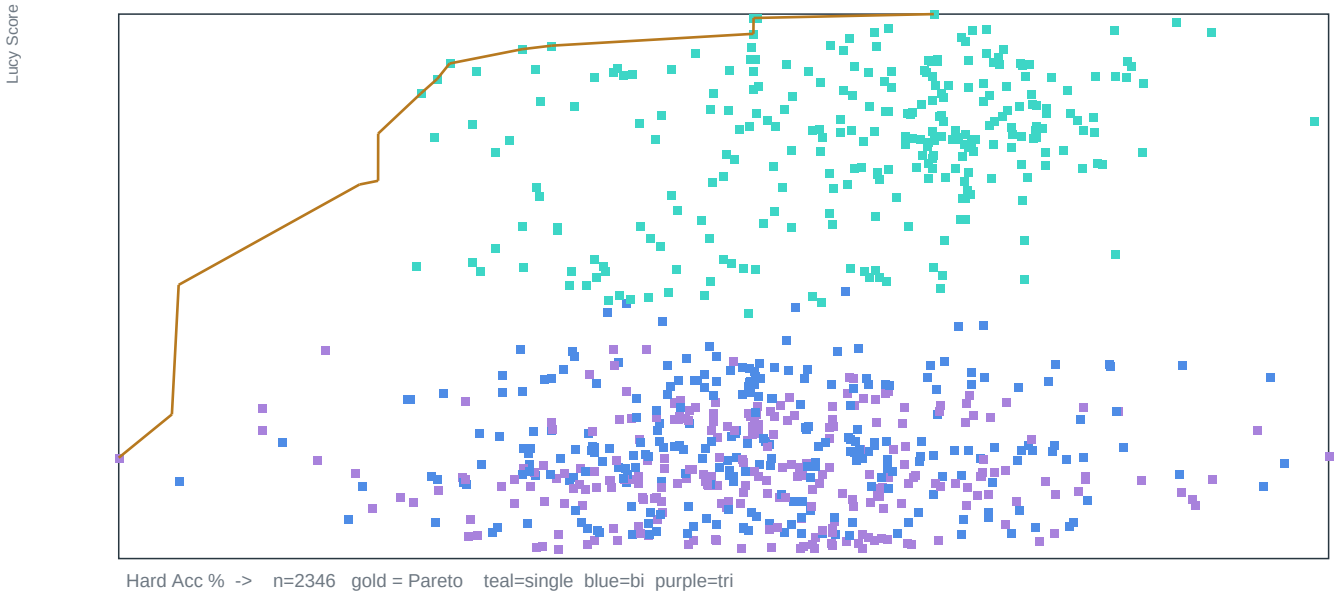



## Pareto - SoftAcc vs Score

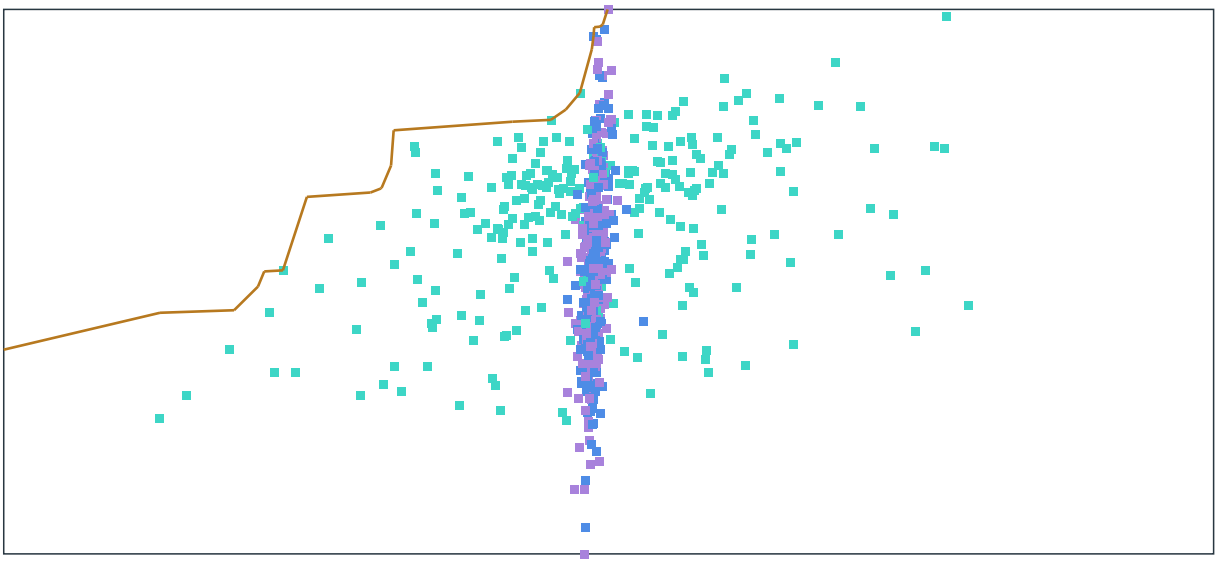
## Pareto - SoftAcc vs Score




## Pareto - hard Acc vs Score

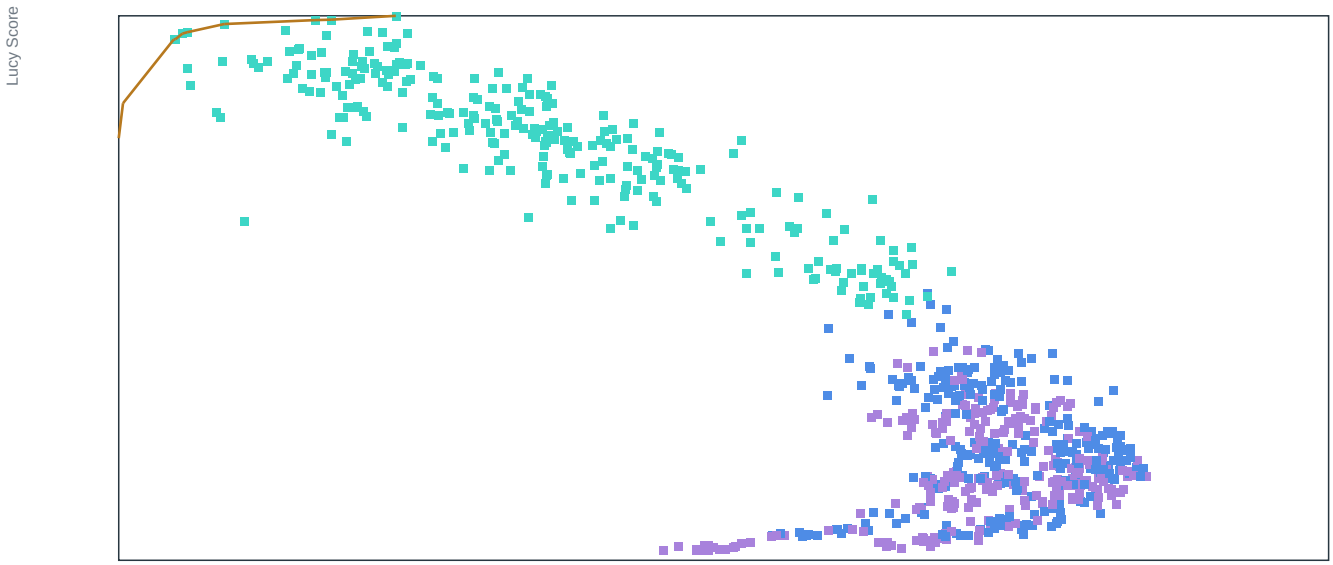



## SoftAcc vs hard Acc




SoftAcc %  ->  n=2346  gold = Pareto  teal=single  blue=bi  purple=tri
Hard Acc %

## Avail vs Score (duty clock)




## Lucy Pareto (LPD) - goldilocks

Q = geomean of Score/Soft/Acc/Thru vs the Lucy Score champion. LPD = 0 if Q<70%, else Q x shrink vs champ RAM (capped 32x). Gold = Q>=80% and RAM<=20% of champ. MSpeed = Thru vs the board's fastest (0 if Q<70%). MAvail = Availability vs the board's best duty cycle (0 if Q<70%). Mix = geomean(Q, MSpeed, MAvail). Raw Score/MiB is the binary trap.

Quality champ uint8|none|tween_chain|single|simd Score 141288.8 Soft 25 Acc 27 Thru 1473111 RAM 0.0 KiB

Board fastest float32|none|tween_chain|single|simd Thru 1516498 Best availability uintptr|none|TweenSplit|tricameral|simd 47.4%

## Gold - Q >= 80% of champ, RAM <= 20%

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| gold | binary\|none\|sgd\|single\|simd | 98 | 11 | 9.0 | 8.79 | 25 | 27 | 136936.4 | 0.0 |
| gold | binary\|none\|tween_chain\|single\|simd | 96 | 11 | 9.0 | 8.65 | 25 | 26 | 133746.8 | 0.0 |
| gold | binary\|none\|tween\|single\|simd | 96 | 11 | 9.0 | 8.61 | 25 | 28 | 129446.2 | 0.0 |
| gold | binary\|none\|step_sgd\|single\|simd | 91 | 11 | 9.0 | 8.18 | 25 | 23 | 126972.2 | 0.0 |
| gold | binary\|none\|MeshBP\|single\|simd | 91 | 11 | 9.0 | 8.17 | 25 | 23 | 126425.7 | 0.0 |
| gold | binary\|none\|MeshTweenChain\|single\|simd | 90 | 11 | 9.0 | 8.11 | 25 | 28 | 114764.9 | 0.0 |
| gold | binary\|none\|step_tween\|single\|simd | 90 | 11 | 9.0 | 8.06 | 25 | 21 | 127326.8 | 0.0 |
| gold | binary\|none\|TweenSplitHeadProxyAsync\|single\|simd | 89 | 11 | 9.0 | 8.04 | 25 | 26 | 115110.5 | 0.0 |
| gold | binary\|none\|TweenSplitLinear\|single\|simd | 89 | 11 | 9.0 | 8.01 | 25 | 29 | 113223.4 | 0.0 |
| gold | binary\|none\|MeshTween\|single\|simd | 88 | 11 | 9.0 | 7.95 | 25 | 26 | 112015.6 | 0.0 |
| gold | binary\|none\|TweenSplit\|single\|simd | 88 | 11 | 9.0 | 7.94 | 25 | 26 | 112624.9 | 0.0 |
| gold | binary\|none\|TweenSplitLinearCache\|single\|simd | 88 | 11 | 9.0 | 7.94 | 25 | 25 | 115462.0 | 0.0 |
| gold | binary\|none\|MeshTweenSplitFastProxy\|single\|simd | 88 | 11 | 9.0 | 7.92 | 25 | 22 | 122311.9 | 0.0 |
| gold | binary\|none\|step_tween_chain\|single\|simd | 88 | 11 | 9.0 | 7.89 | 25 | 23 | 118661.8 | 0.0 |
| gold | binary\|none\|TweenSplitFastProxy\|single\|simd | 87 | 11 | 9.0 | 7.86 | 25 | 24 | 114378.4 | 0.0 |
| gold | binary\|none\|StepTweenSplit\|single\|simd | 86 | 11 | 9.0 | 7.74 | 25 | 23 | 112918.8 | 0.0 |

## Near-gold - Q >= 70%, RAM <= 50%

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| near | binary\|none\|MeshTweenAlt\|single\|simd | 78 | 11 | 9.0 | 6.98 | 25 | 20 | 99189.9 | 0.0 |
| near | ternary\|none\|step_sgd\|single\|simd | 96 | 22 | 4.5 | 4.32 | 25 | 27 | 129621.6 | 0.0 |
| near | ternary\|none\|tween\|single\|simd | 96 | 22 | 4.5 | 4.31 | 25 | 28 | 129899.3 | 0.0 |
| near | ternary\|none\|sgd\|single\|simd | 96 | 22 | 4.5 | 4.30 | 25 | 29 | 129236.1 | 0.0 |
| near | int2\|none\|step_tween\|single\|simd | 94 | 22 | 4.5 | 4.23 | 25 | 25 | 130073.7 | 0.0 |
| near | int2\|none\|step_sgd\|single\|simd | 94 | 22 | 4.5 | 4.22 | 25 | 28 | 123848.0 | 0.0 |
| near | int2\|none\|step_tween_chain\|single\|simd | 93 | 22 | 4.5 | 4.21 | 25 | 27 | 124837.3 | 0.0 |

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| near | ternary\|none\|tween_chain\|single\|simd | 92 | 22 | 4.5 | 4.16 | 25 | 22 | 133487.1 | 0.0 |
| near | ternary\|none\|MeshBP\|single\|simd | 92 | 22 | 4.5 | 4.14 | 25 | 26 | 122468.7 | 0.0 |
| near | int2\|none\|sgd\|single\|simd | 92 | 22 | 4.5 | 4.13 | 25 | 24 | 127702.2 | 0.0 |
| near | int2\|none\|tween_chain\|single\|simd | 92 | 22 | 4.5 | 4.13 | 25 | 22 | 132619.9 | 0.0 |
| near | int2\|none\|TweenSplit\|single\|simd | 92 | 22 | 4.5 | 4.12 | 25 | 27 | 120539.8 | 0.0 |

## LPD rank (Q x shrink; 0 if Q < 70%)

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| gold | binary\|none\|sgd\|single\|simd | 98 | 11 | 9.0 | 8.79 | 25 | 27 | 136936.4 | 0.0 |
| gold | binary\|none\|tween_chain\|single\|simd | 96 | 11 | 9.0 | 8.65 | 25 | 26 | 133746.8 | 0.0 |
| gold | binary\|none\|tween\|single\|simd | 96 | 11 | 9.0 | 8.61 | 25 | 28 | 129446.2 | 0.0 |
| gold | binary\|none\|step_sgd\|single\|simd | 91 | 11 | 9.0 | 8.18 | 25 | 23 | 126972.2 | 0.0 |
| gold | binary\|none\|MeshBP\|single\|simd | 91 | 11 | 9.0 | 8.17 | 25 | 23 | 126425.7 | 0.0 |
| gold | binary\|none\|MeshTweenChain\|single\|simd | 90 | 11 | 9.0 | 8.11 | 25 | 28 | 114764.9 | 0.0 |
| gold | binary\|none\|step_tween\|single\|simd | 90 | 11 | 9.0 | 8.06 | 25 | 21 | 127326.8 | 0.0 |
| gold | binary\|none\|TweenSplitHeadProxyAsync\|single\|simd | 89 | 11 | 9.0 | 8.04 | 25 | 26 | 115110.5 | 0.0 |
| gold | binary\|none\|TweenSplitLinear\|single\|simd | 89 | 11 | 9.0 | 8.01 | 25 | 29 | 113223.4 | 0.0 |
| gold | binary\|none\|MeshTween\|single\|simd | 88 | 11 | 9.0 | 7.95 | 25 | 26 | 112015.6 | 0.0 |
| gold | binary\|none\|TweenSplit\|single\|simd | 88 | 11 | 9.0 | 7.94 | 25 | 26 | 112624.9 | 0.0 |
| gold | binary\|none\|TweenSplitLinearCache\|single\|simd | 88 | 11 | 9.0 | 7.94 | 25 | 25 | 115462.0 | 0.0 |
| gold | binary\|none\|MeshTweenSplitFastProxy\|single\|simd | 88 | 11 | 9.0 | 7.92 | 25 | 22 | 122311.9 | 0.0 |
| gold | binary\|none\|step_tween_chain\|single\|simd | 88 | 11 | 9.0 | 7.89 | 25 | 23 | 118661.8 | 0.0 |
| gold | binary\|none\|TweenSplitFastProxy\|single\|simd | 87 | 11 | 9.0 | 7.86 | 25 | 24 | 114378.4 | 0.0 |
| gold | binary\|none\|StepTweenSplit\|single\|simd | 86 | 11 | 9.0 | 7.74 | 25 | 23 | 112918.8 | 0.0 |
| gold | binary\|none\|MeshTweenSplitSparse\|single\|simd | 86 | 11 | 9.0 | 7.74 | 25 | 30 | 104873.3 | 0.0 |
| gold | binary\|none\|TweenAlt\|single\|simd | 85 | 11 | 9.0 | 7.67 | 25 | 25 | 105565.4 | 0.0 |
| gold | binary\|none\|TweenSplitSparse\|single\|simd | 85 | 11 | 9.0 | 7.64 | 25 | 25 | 106215.9 | 0.0 |
| gold | binary\|none\|TweenSplitHeadProxy\|single\|simd | 84 | 11 | 9.0 | 7.59 | 25 | 23 | 110686.5 | 0.0 |

## Mobile speed - Thru vs board fastest (Q >= 70%)

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| keep | float32\|none\|tween_chain\|single\|simd | 100 | 100 | 77 | 92 | 0.28 | 1516498 | 36.7 |
| keep | float32\|none\|tween\|single\|simd | 99 | 100 | 77 | 91 | 0.28 | 1509794 | 36.4 |
| keep | float32\|none\|step_tween_chain\|single\|simd | 99 | 99 | 77 | 91 | 0.28 | 1506660 | 36.3 |
| keep | float32\|none\|step_sgd\|single\|simd | 99 | 99 | 76 | 91 | 0.28 | 1496369 | 36.2 |
| keep | float32\|none\|step_tween\|single\|simd | 98 | 99 | 76 | 90 | 0.28 | 1495666 | 36.2 |
| near | fp4\|none\|sgd\|single\|simd | 98 | 98 | 79 | 91 | 2.20 | 1492233 | 37.6 |
| near | fp4\|none\|tween_chain\|single\|simd | 98 | 98 | 80 | 91 | 2.20 | 1487115 | 37.7 |
| keep | float16\|none\|tween_chain\|single\|simd | 99 | 97 | 79 | 91 | 0.56 | 1477016 | 37.3 |
| keep | uint8\|none\|tween_chain\|single\|simd | 100 | 97 | 81 | 92 | 1.00 | 1473111 | 38.4 |
| near | fp4\|none\|tween\|single\|simd | 96 | 95 | 79 | 90 | 2.17 | 1447649 | 37.7 |

## Mobile availability - duty cycle vs board best (Q >= 70%)

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| - | int5\|none\|tween_chain\|single\|simd | 72 | 51 | 91 | 70 | 1.30 | 775494 | 43.4 |
| - | int6\|none\|MeshTweenChain\|single\|simd | 70 | 45 | 91 | 66 | 1.05 | 682586 | 43.4 |
| - | fp6\|none\|tween\|single\|simd | 71 | 47 | 91 | 68 | 1.07 | 717738 | 43.3 |
| - | uint5\|none\|TweenSplit\|single\|simd | 71 | 47 | 91 | 67 | 1.06 | 719935 | 43.3 |
| - | int6\|none\|tween_chain\|single\|simd | 71 | 49 | 91 | 68 | 1.07 | 737332 | 43.3 |
| near | int3\|none\|TweenSplitLinearCache\|single\|simd | 73 | 52 | 91 | 70 | 2.18 | 785040 | 43.2 |
| - | uint6\|none\|sgd\|single\|simd | 71 | 49 | 91 | 68 | 0.92 | 746650 | 43.2 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| - | uint6\|none\|tween_chain\|single\|simd | 70 | 51 | 91 | 69 | 0.90 | 772430 | 43.2 |
| near | int3\|none\|MeshTweenSplit\|single\|simd | 72 | 47 | 91 | 68 | 2.15 | 716258 | 43.2 |
| - | int6\|none\|sgd\|single\|simd | 71 | 46 | 91 | 67 | 1.07 | 701905 | 43.2 |

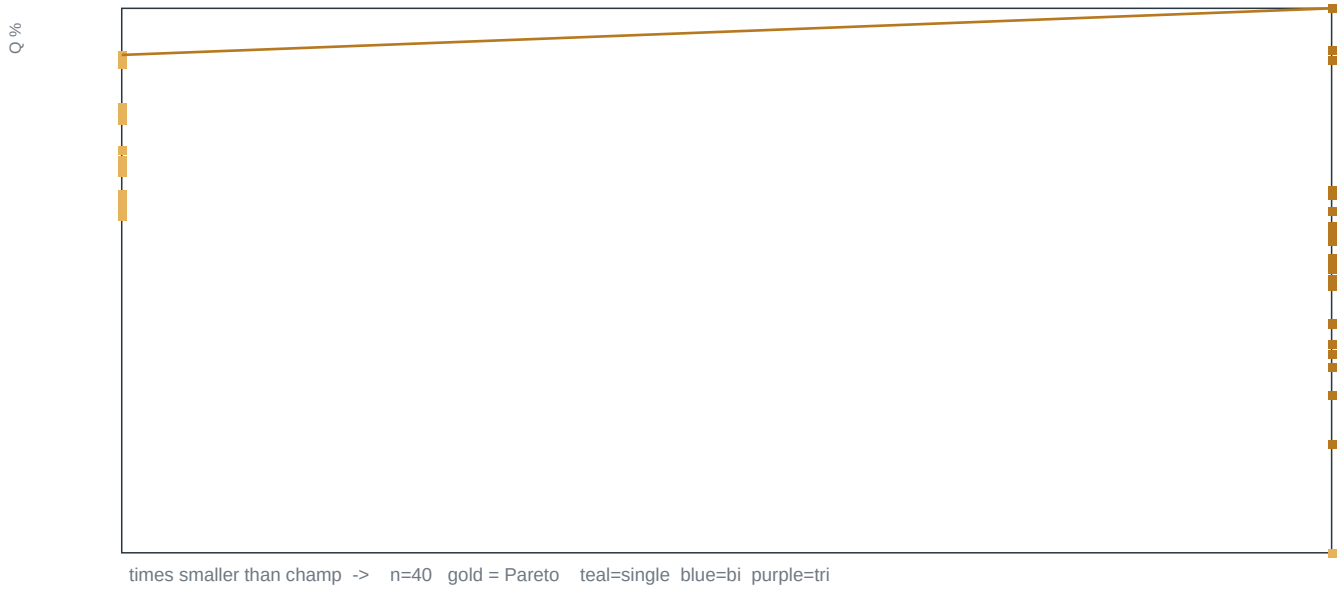
## Mix - geomean of Q, MSpeed, MAvail

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| keep | uint8\|none\|tween_chain\|single\|simd | 100 | 97 | 81 | 92 | 1.00 | 1473111 | 38.4 |
| keep | float32\|none\|tween_chain\|single\|simd | 100 | 100 | 77 | 92 | 0.28 | 1516498 | 36.7 |
| near | fp4\|none\|tween_chain\|single\|simd | 98 | 98 | 80 | 91 | 2.20 | 1487115 | 37.7 |
| near | fp4\|none\|sgd\|single\|simd | 98 | 98 | 79 | 91 | 2.20 | 1492233 | 37.6 |
| keep | float32\|none\|tween\|single\|simd | 99 | 100 | 77 | 91 | 0.28 | 1509794 | 36.4 |
| keep | float16\|none\|tween_chain\|single\|simd | 99 | 97 | 79 | 91 | 0.56 | 1477016 | 37.3 |
| keep | uint8\|none\|sgd\|single\|simd | 99 | 95 | 80 | 91 | 0.99 | 1444165 | 38.1 |
| keep | float32\|none\|step_tween_chain\|single\|simd | 99 | 99 | 77 | 91 | 0.28 | 1506660 | 36.3 |
| keep | int8\|none\|tween_chain\|single\|simd | 99 | 95 | 81 | 91 | 1.11 | 1433838 | 38.2 |
| keep | float32\|none\|step_sgd\|single\|simd | 99 | 99 | 76 | 91 | 0.28 | 1496369 | 36.2 |

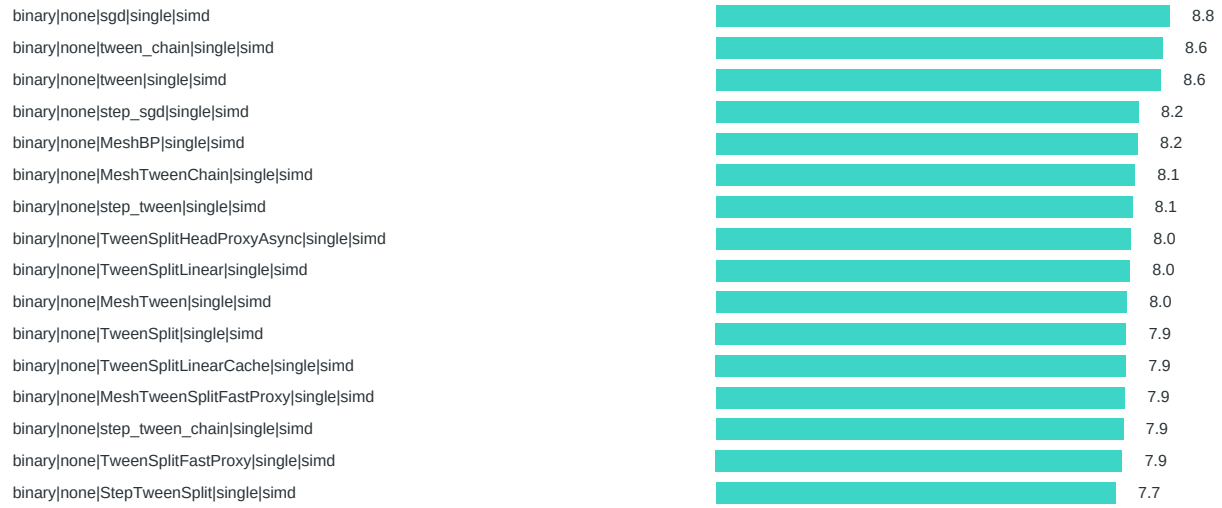
## LPD - Q% vs RAM KiB (gold = high Q, low RAM)



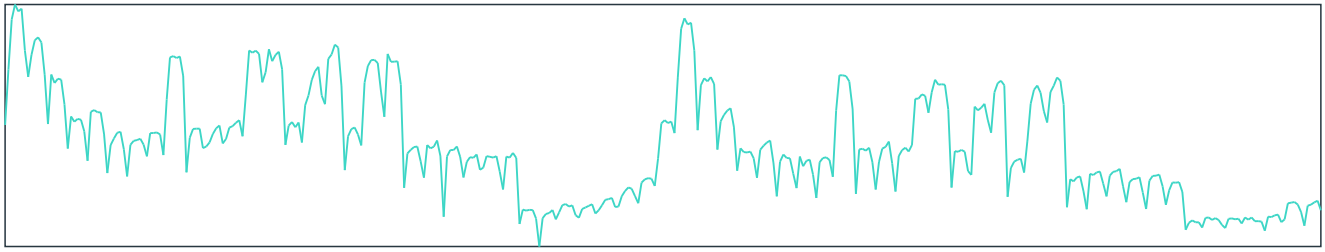

## LPD - Q% vs shrink vs champ (gold = upper right)



## Top LPD

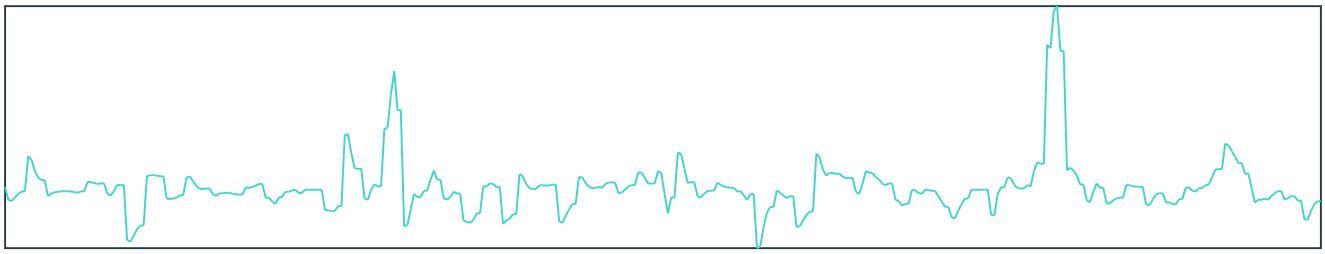



## Pulse Score - softmax



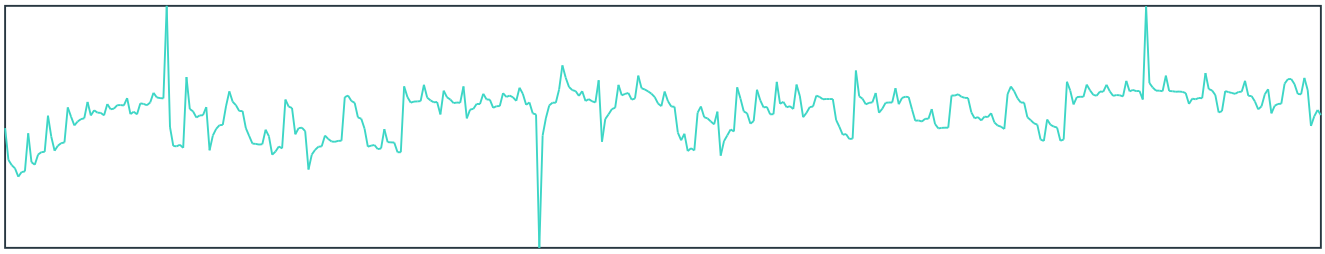
n=400 min=6188.34 max=65436.24

## Pulse SoftAcc - softmax



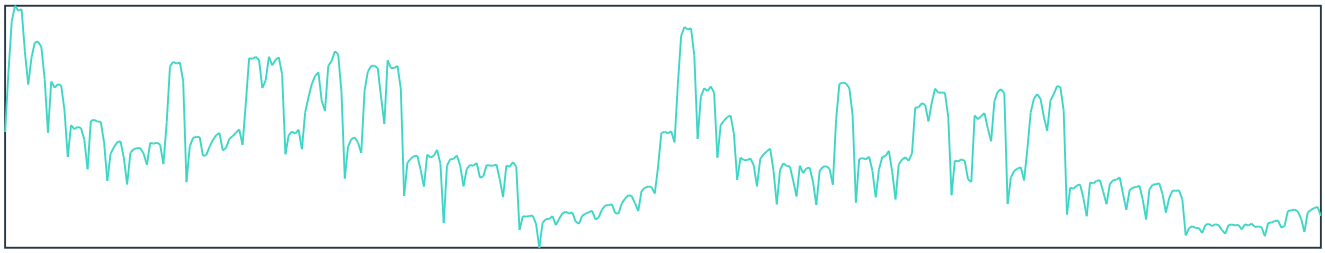
n=400 min=25.00 max=25.02

## Pulse Availability - softmax



n=400 min=41.37 max=50.53

## Pulse Throughput - softmax



n=400 min=59832.85 max=589803.85

## Queue by train mode (this epoch)

| Mode | Done | Run | Left | Total |
|---|---|---|---|---|
| sgd | 102 | 0 | 0 | 102 |
| step_sgd | 102 | 0 | 0 | 102 |
| tween | 102 | 0 | 0 | 102 |
| tween_chain | 102 | 0 | 0 | 102 |
| step_tween | 102 | 0 | 0 | 102 |
| step_tween_chain | 102 | 0 | 0 | 102 |
| MeshBP | 102 | 0 | 0 | 102 |
| MeshTween | 102 | 0 | 0 | 102 |
| MeshTweenChain | 102 | 0 | 0 | 102 |
| TweenSplit | 102 | 0 | 0 | 102 |
| StepTweenSplit | 102 | 0 | 0 | 102 |
| TweenAlt | 102 | 0 | 0 | 102 |
| StepTweenAlt | 102 | 0 | 0 | 102 |
| TweenSplitHeadProxy | 102 | 0 | 0 | 102 |
| TweenSplitLinear | 102 | 0 | 0 | 102 |
| TweenSplitFastProxy | 102 | 0 | 0 | 102 |
| TweenSplitLinearCache | 102 | 0 | 0 | 102 |
| TweenSplitHeadProxyAsync | 102 | 0 | 0 | 102 |
| TweenSplitSparse | 102 | 0 | 0 | 102 |
| MeshTweenSplit | 102 | 0 | 0 | 102 |
| MeshTweenAlt | 102 | 0 | 0 | 102 |
| MeshTweenSplitFastProxy | 102 | 0 | 0 | 102 |
| MeshTweenSplitSparse | 102 | 0 | 0 | 102 |

# tide  swiglu

Score = Throughput x Availability% x SoftAcc% / 10,000
done - epoch 1 - 2026-08-18 09:45:25 - 0.0.0.0:8114
This epoch 2346 / 2346 cells. Recorded 2346 results.
Score 0 usually means the cell finished before a Lucy pulse (SoftAcc never sampled) or true-class mass was 0. Those rows do not vote holistically.
swiglu - gated FFN on pairwise XOR - modes all - min 2000ms/cell - 1024 train - pulse 50ms - SIMD true

## Lucy champions (this tide)

| Axis | Cell | Score | Soft | Acc | Thru | Avail |
|---|---|---|---|---|---|---|
| score | float32\|none\|tween_chain\|single\|simd | 80920.98 | 25.0 | 34.6 | 771950.8 | 41.9 |
| throughput | float32\|none\|tween_chain\|single\|simd | 80920.98 | 25.0 | 34.6 | 771950.8 | 41.9 |
| availability | int\|none\|TweenSplitSparse\|tricameral\|simd | 11155.25 | 25.0 | 20.2 | 94642.6 | 47.1 |
| accuracy | float32\|none\|TweenAlt\|single\|simd | 59851.74 | 25.1 | 27.1 | 604922.9 | 39.5 |
| mobile score (tap) | binary\|none\|sgd\|single\|simd | 60583.46 | 25.0 | 25.3 | 563608.7 | 43.0 |
| t->50% | uint64\|none\|step_tween_chain\|bicameral\|simd | 12240.29 | 25.0 | 31.1 | 117536.0 | 41.7 |
| acc/sec | complex64\|none\|sgd\|single\|simd | 22125.79 | 25.0 | 27.6 | 196918.8 | 44.9 |

## Lucy axes - swiglu

| Axis | Mode | DType | Arch | Value |
|---|---|---|---|---|
| score | tween_chain | float32 | singlex1 | 80920.98 |
| soft_acc | TweenAlt | float32 | singlex1 | 25.07 |
| hard_acc | MeshTweenSplitS~ | int4 | singlex1 | 35.31 |
| throughput | tween_chain | float32 | singlex1 | 771950.80 |
| availability | TweenSplitSparse | int | tricameralx3 | 47.15 |
| acc_thru | tween_chain | float32 | singlex1 | 192989.71 |
| realtime | tween_chain | float32 | singlex1 | 323680.56 |
| adapt | MeshTweenAlt | float32 | singlex1 | 25.13 |
| keep_learn | MeshTweenAlt | float32 | singlex1 | 12.54 |
| acc_per_sec | sgd | complex64 | singlex1 | 12.50 |
| time_to_50 | step_tween_chain | uint64 | bicameralx2 | 0.85 |
| consistency | sgd | float64 | singlex1 | 100.00 |
| stability | sgd | fp4 | singlex1 | 100.00 |
| mobile_score | sgd | binary | singlex1 | 1221660764.67 |
| lpd | sgd | binary | singlex1 | 25.43 |
| mspeed | tween_chain | float32 | singlex1 | 1.00 |
| mavail | tween_chain | float64 | singlex1 | 0.95 |
| mix | tween_chain | float32 | singlex1 | 0.96 |

## Best settings per train mode

| Mode | DType | Format | Score | Soft | Acc | Avail | n |
|---|---|---|---|---|---|---|---|
| tween_chain | float32 | none | 80921.0 | 25.0 | 34.6 | 41.9 | 102 |
| sgd | float32 | none | 80746.1 | 25.0 | 28.4 | 42.0 | 102 |
| tween | float32 | none | 79701.9 | 25.0 | 20.6 | 41.7 | 102 |
| step_sgd | float32 | none | 76973.5 | 25.0 | 24.4 | 41.5 | 102 |
| step_tween | float32 | none | 74877.5 | 25.0 | 24.4 | 41.2 | 102 |
| TweenSplit | float32 | none | 70845.0 | 25.0 | 23.5 | 42.2 | 102 |
| TweenSplitFastProxy | float32 | none | 70322.0 | 25.0 | 24.7 | 42.1 | 102 |
| MeshTween | float32 | none | 68767.6 | 25.0 | 28.1 | 41.5 | 102 |
| MeshTweenSplit | float32 | none | 68376.3 | 25.0 | 27.0 | 42.2 | 102 |
| MeshBP | float32 | none | 68165.0 | 25.0 | 22.7 | 41.9 | 102 |
| MeshTweenChain | float32 | none | 68044.0 | 25.0 | 23.9 | 41.7 | 102 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| TweenSplitHeadProxy | float32 | none | 67908.0 | 25.0 | 28.4 | 42.2 | 102 |
| TweenSplitSparse | float32 | none | 67751.4 | 25.0 | 21.4 | 42.1 | 102 |
| StepTweenSplit | float32 | none | 67400.5 | 25.0 | 23.7 | 41.5 | 102 |
| TweenSplitLinearCache | float32 | none | 67218.8 | 25.0 | 27.4 | 42.0 | 102 |
| TweenSplitHeadProxyAsync | float32 | none | 66639.7 | 25.0 | 25.5 | 42.2 | 102 |
| MeshTweenSplitSparse | float32 | none | 66586.4 | 25.0 | 24.1 | 42.2 | 102 |
| step_tween_chain | float32 | none | 66160.6 | 25.0 | 24.5 | 41.4 | 102 |
| TweenSplitLinear | float32 | none | 66050.5 | 25.0 | 24.0 | 41.2 | 102 |
| MeshTweenSplitFastProxy | float32 | none | 61982.6 | 25.0 | 23.8 | 42.2 | 102 |
| TweenAlt | float32 | none | 59851.7 | 25.1 | 27.1 | 39.5 | 102 |
| StepTweenAlt | float32 | none | 57597.5 | 25.0 | 23.4 | 39.2 | 102 |
| MeshTweenAlt | float32 | none | 57405.1 | 25.1 | 29.4 | 39.7 | 102 |

## Best dtype per mode

| Mode | Winner dtype | Score | Soft | Acc |
|---|---|---|---|---|
| tween_chain | float32 | 80921.0 | 25.0 | 34.6 |
| sgd | float32 | 80746.1 | 25.0 | 28.4 |
| tween | float32 | 79701.9 | 25.0 | 20.6 |
| step_sgd | float32 | 76973.5 | 25.0 | 24.4 |
| step_tween | float32 | 74877.5 | 25.0 | 24.4 |
| TweenSplit | float32 | 70845.0 | 25.0 | 23.5 |
| TweenSplitFastProxy | float32 | 70322.0 | 25.0 | 24.7 |
| MeshTween | float32 | 68767.6 | 25.0 | 28.1 |
| MeshTweenSplit | float32 | 68376.3 | 25.0 | 27.0 |
| MeshBP | float32 | 68165.0 | 25.0 | 22.7 |
| MeshTweenChain | float32 | 68044.0 | 25.0 | 23.9 |
| TweenSplitHeadProxy | float32 | 67908.0 | 25.0 | 28.4 |
| TweenSplitSparse | float32 | 67751.4 | 25.0 | 21.4 |
| StepTweenSplit | float32 | 67400.5 | 25.0 | 23.7 |
| TweenSplitLinearCache | float32 | 67218.8 | 25.0 | 27.4 |
| TweenSplitHeadProxyAsync | float32 | 66639.7 | 25.0 | 25.5 |
| MeshTweenSplitSparse | float32 | 66586.4 | 25.0 | 24.1 |
| step_tween_chain | float32 | 66160.6 | 25.0 | 24.5 |
| TweenSplitLinear | float32 | 66050.5 | 25.0 | 24.0 |
| MeshTweenSplitFastProxy | float32 | 61982.6 | 25.0 | 23.8 |
| TweenAlt | float32 | 59851.7 | 25.1 | 27.1 |
| StepTweenAlt | float32 | 57597.5 | 25.0 | 23.4 |
| MeshTweenAlt | float32 | 57405.1 | 25.1 | 29.4 |

## Best mode per dtype

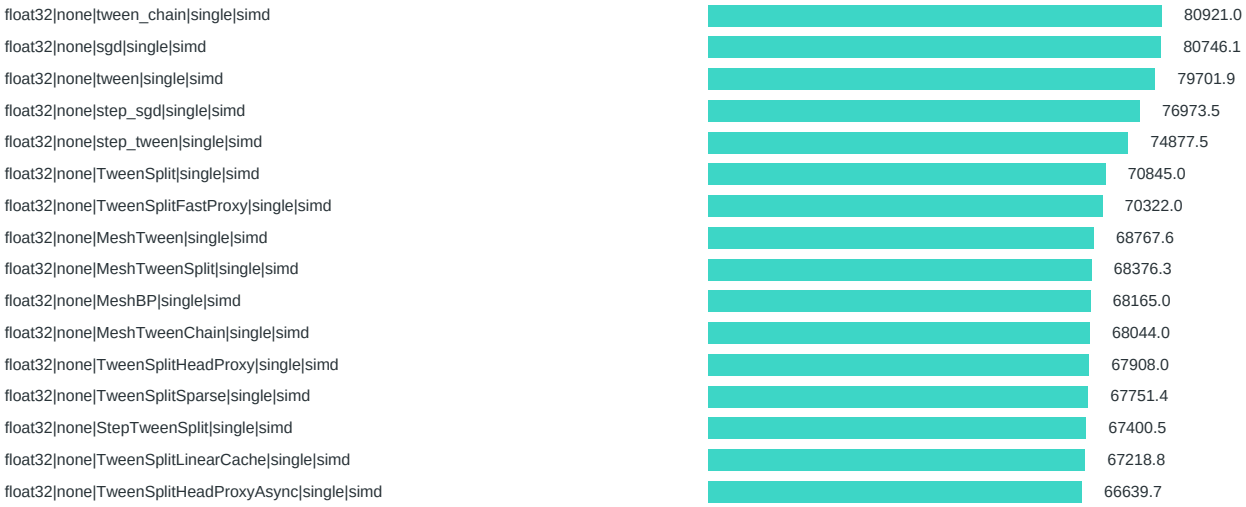
| DType | Winner mode | Score | Soft | Acc |
|---|---|---|---|---|
| float32 | tween_chain | 80921.0 | 25.0 | 34.6 |
| int8 | tween_chain | 64258.4 | 25.0 | 21.4 |
| binary | sgd | 60583.5 | 25.0 | 25.3 |
| int2 | sgd | 59500.9 | 25.0 | 23.5 |
| ternary | sgd | 59286.1 | 25.0 | 24.0 |
| int4 | sgd | 58162.4 | 25.0 | 22.9 |
| float16 | tween_chain | 57590.0 | 25.0 | 22.7 |
| uint8 | sgd | 55191.8 | 25.0 | 24.0 |
| bfloat16 | tween_chain | 46796.4 | 25.0 | 24.6 |
| fp4 | sgd | 45671.9 | 25.0 | 25.0 |
| float64 | tween_chain | 44545.7 | 25.0 | 31.1 |

| | | | | |
|---|---|---|---|---|
| fp8e5m2 | sgd | 32838.0 | 25.0 | 24.8 |
| uint32 | sgd | 31632.9 | 25.0 | 24.9 |
| fp8e4m3 | sgd | 31244.4 | 25.0 | 22.4 |
| uint16 | sgd | 30989.8 | 25.0 | 25.0 |
| uint4 | sgd | 30355.5 | 25.0 | 22.7 |
| uint64 | sgd | 30304.7 | 25.0 | 25.7 |
| int32 | sgd | 29422.6 | 25.0 | 24.6 |
| int64 | sgd | 28331.0 | 25.0 | 29.7 |
| int16 | sgd | 28106.3 | 25.0 | 29.1 |
| uint2 | sgd | 27766.2 | 25.0 | 20.5 |
| uintptr | sgd | 23652.9 | 25.0 | 18.4 |
| uint | sgd | 22924.5 | 25.0 | 22.6 |
| complex64 | sgd | 22125.8 | 25.0 | 27.6 |
| complex128 | sgd | 22116.9 | 25.0 | 24.3 |
| int | sgd | 22087.6 | 25.0 | 23.0 |
| nf4 | sgd | 19951.2 | 25.0 | 24.4 |
| uint3 | sgd | 14443.4 | 25.0 | 24.5 |
| int3 | sgd | 13395.8 | 25.0 | 22.9 |
| uint5 | sgd | 10646.0 | 25.0 | 23.7 |
| int5 | sgd | 9882.7 | 25.0 | 21.6 |
| uint6 | sgd | 9605.4 | 25.0 | 26.7 |
| int6 | sgd | 9017.0 | 25.0 | 18.5 |
| fp6 | sgd | 8841.5 | 25.0 | 26.3 |

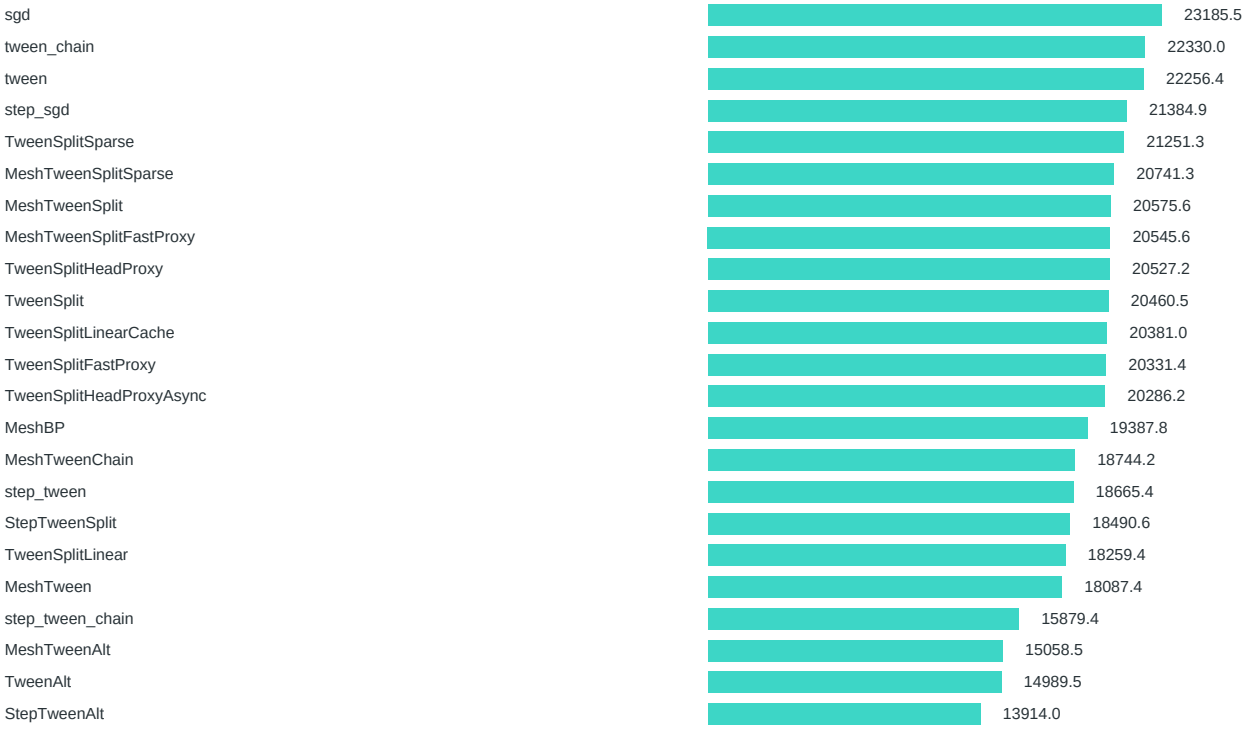
## Leaderboard - swiglu

| # | Cell | Score | Soft | Acc | Thru | Avail |
|---|---|---|---|---|---|---|
| 1 | float32\|none\|tween_chain\|single\|simd | 80921.0 | 25.0 | 34.6 | 771950.8 | 41.9 |
| 2 | float32\|none\|sgd\|single\|simd | 80746.1 | 25.0 | 28.4 | 768310.2 | 42.0 |
| 3 | float32\|none\|tween\|single\|simd | 79701.9 | 25.0 | 20.6 | 763807.5 | 41.7 |
| 4 | float32\|none\|step_sgd\|single\|simd | 76973.5 | 25.0 | 24.4 | 742246.9 | 41.5 |
| 5 | float32\|none\|step_tween\|single\|simd | 74877.5 | 25.0 | 24.4 | 727109.9 | 41.2 |
| 6 | float32\|none\|TweenSplit\|single\|simd | 70845.0 | 25.0 | 23.5 | 671030.5 | 42.2 |
| 7 | float32\|none\|TweenSplitFastProxy\|single\|simd | 70322.0 | 25.0 | 24.7 | 667617.7 | 42.1 |
| 8 | float32\|none\|MeshTween\|single\|simd | 68767.6 | 25.0 | 28.1 | 663248.9 | 41.5 |
| 9 | float32\|none\|MeshTweenSplit\|single\|simd | 68376.3 | 25.0 | 27.0 | 648336.9 | 42.2 |
| 10 | float32\|none\|MeshBP\|single\|simd | 68165.0 | 25.0 | 22.7 | 651473.4 | 41.9 |
| 11 | float32\|none\|MeshTweenChain\|single\|simd | 68044.0 | 25.0 | 23.9 | 651986.6 | 41.7 |
| 12 | float32\|none\|TweenSplitHeadProxy\|single\|simd | 67908.0 | 25.0 | 28.4 | 643976.2 | 42.2 |
| 13 | float32\|none\|TweenSplitSparse\|single\|simd | 67751.4 | 25.0 | 21.4 | 643025.8 | 42.1 |
| 14 | float32\|none\|StepTweenSplit\|single\|simd | 67400.5 | 25.0 | 23.7 | 648591.1 | 41.5 |
| 15 | float32\|none\|TweenSplitLinearCache\|single\|simd | 67218.8 | 25.0 | 27.4 | 639979.1 | 42.0 |
| 16 | float32\|none\|TweenSplitHeadProxyAsync\|single\|simd | 66639.7 | 25.0 | 25.5 | 631727.5 | 42.2 |
| 17 | float32\|none\|MeshTweenSplitSparse\|single\|simd | 66586.4 | 25.0 | 24.1 | 631465.9 | 42.2 |
| 18 | float32\|none\|step_tween_chain\|single\|simd | 66160.6 | 25.0 | 24.5 | 638947.8 | 41.4 |
| 19 | float32\|none\|TweenSplitLinear\|single\|simd | 66050.5 | 25.0 | 24.0 | 641495.8 | 41.2 |
| 20 | int8\|none\|tween_chain\|single\|simd | 64258.4 | 25.0 | 21.4 | 592778.1 | 43.4 |

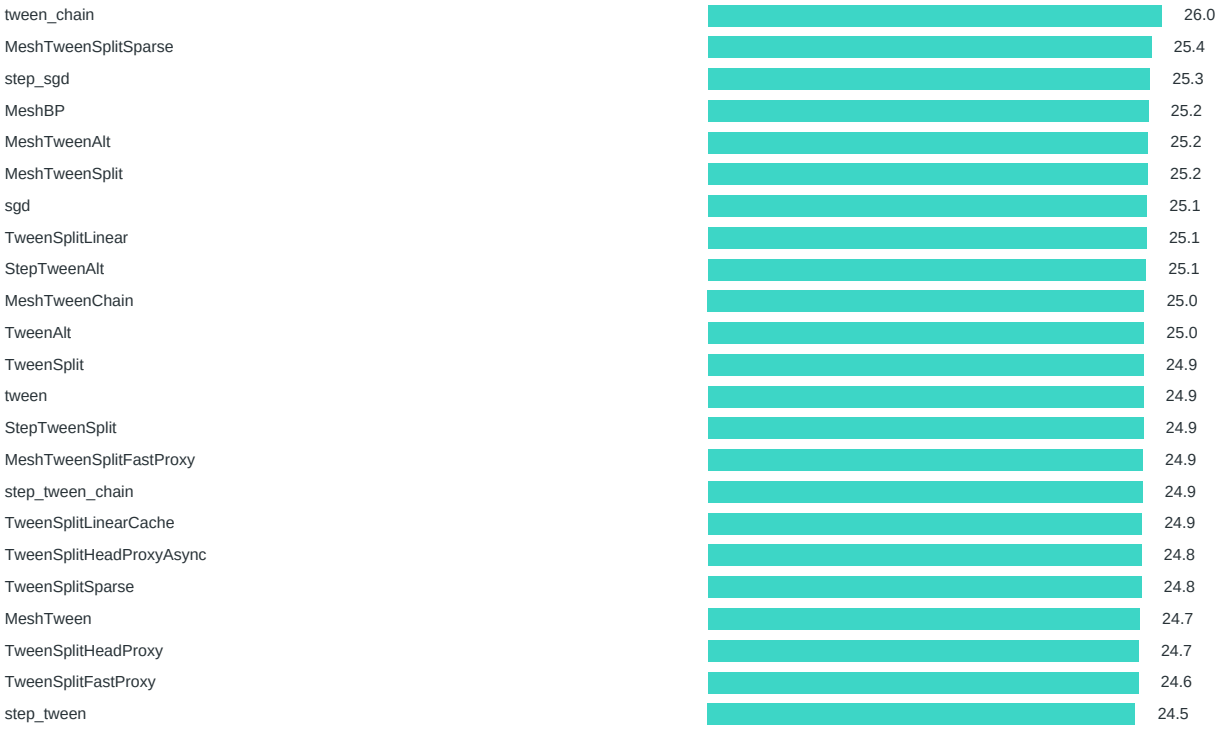
## Top scores - swiglu



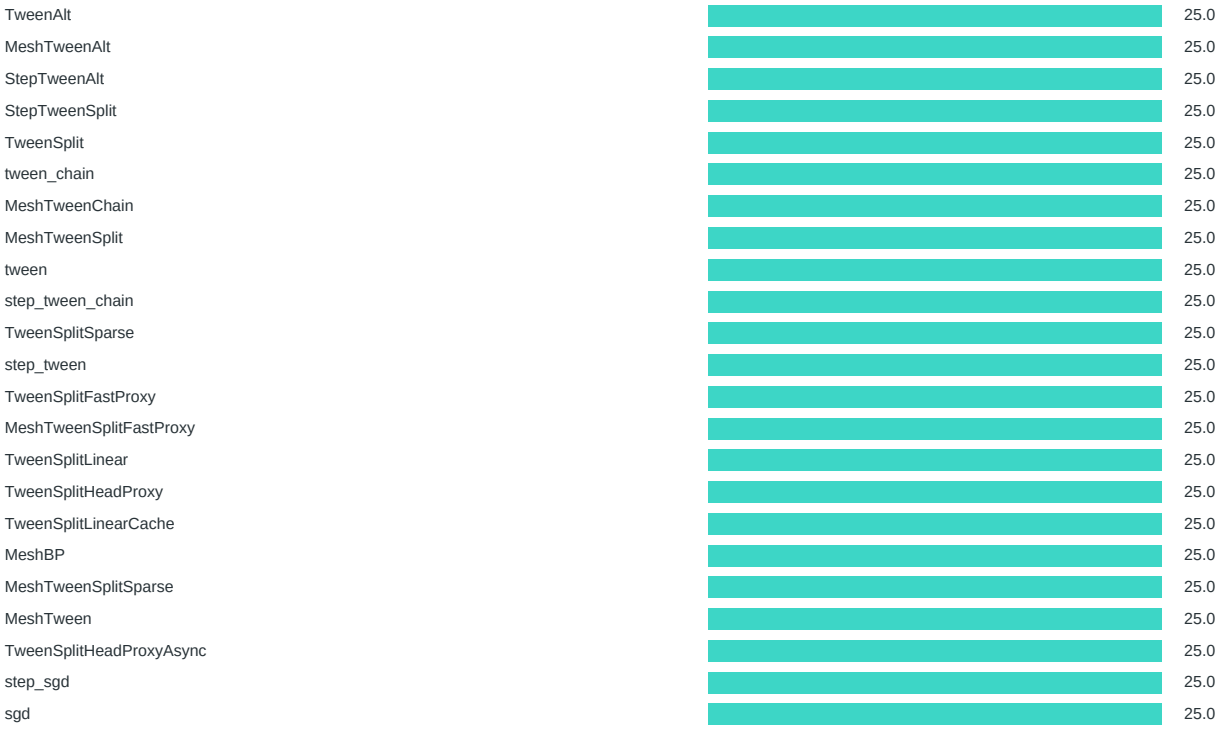

## Mean Score by train mode



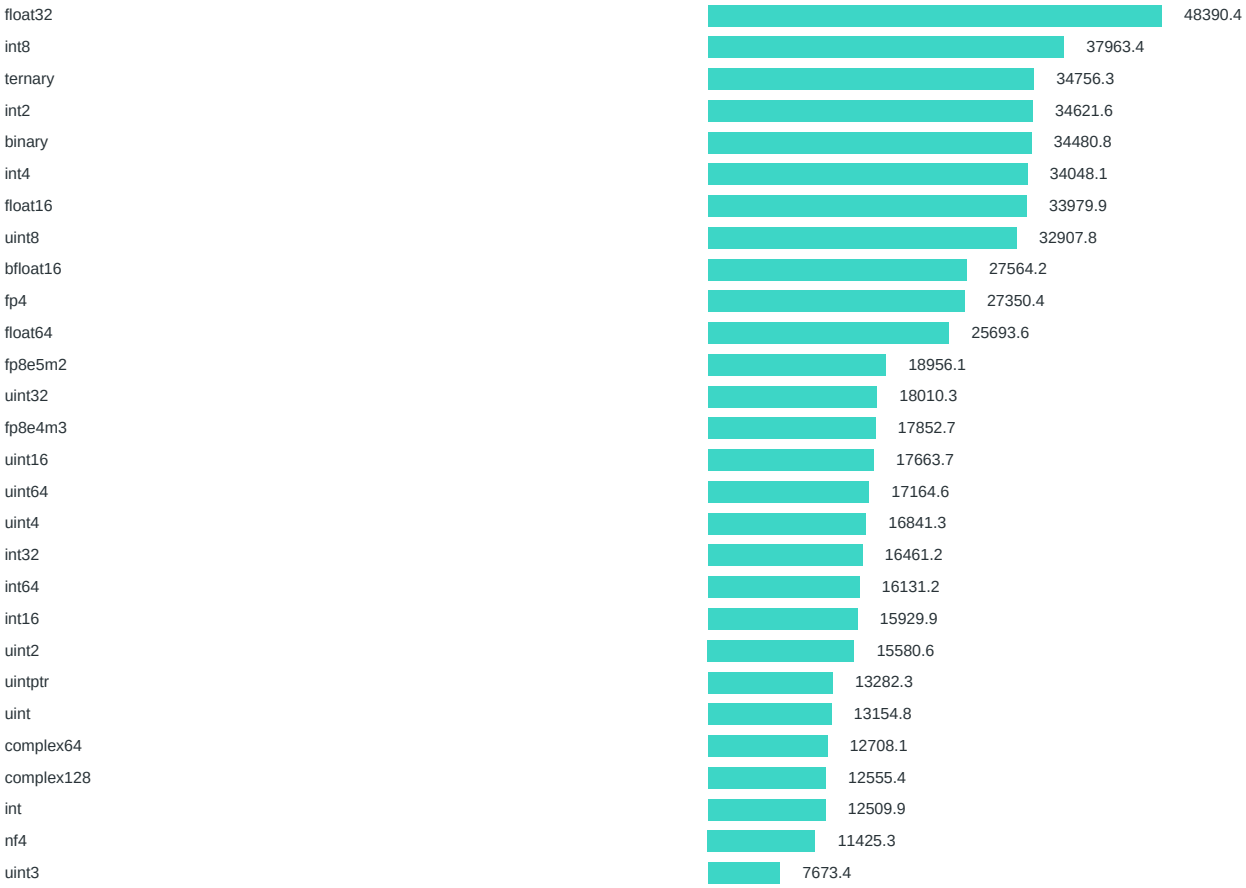

## Mean hard Acc by train mode




## Mean SoftAcc by train mode




## Mean Score by dtype




## Mean hard Acc by dtype




## Mean Score by arch




## Honesty - mean Score, every mode x dtype (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 27950 | 34097 | 12678 | 12748 | 33964 | 48153 | 25468 | 27807 | 4662 | 18005 | 18924 | 12355 | 16254 | 34053 | 7323 | 16385 |
| MeshTween | 25774 | 32284 | 11421 | 11780 | 32042 | 47442 | 24407 | 25225 | 4164 | 16872 | 17797 | 11337 | 14397 | 32273 | 6781 | 15288 |
| MeshTweenAlt | 22182 | 28355 | 9408 | 9313 | 25027 | 40291 | 21795 | 21503 | 2951 | 13653 | 14519 | 9280 | 12479 | 27213 | 4720 | 12467 |
| MeshTweenChain | 26495 | 33262 | 12199 | 12332 | 32806 | 47369 | 24655 | 25990 | 4548 | 17193 | 17918 | 12490 | 15126 | 33497 | 6945 | 15720 |
| MeshTweenSplit | 30396 | 35568 | 13319 | 13441 | 37525 | 49814 | 26612 | 29236 | 5483 | 18243 | 20566 | 13778 | 17092 | 36477 | 8454 | 18574 |
| MeshTweenSplitFa | 28443 | 36711 | 14031 | 13693 | 35716 | 47462 | 25931 | 28707 | 5398 | 18181 | 19372 | 13858 | 17590 | 37475 | 8467 | 17581 |
| MeshTweenSplitSp | 29160 | 35853 | 13345 | 13808 | 36087 | 49614 | 26368 | 29618 | 6139 | 19376 | 20927 | 13260 | 17058 | 36912 | 8730 | 17055 |
| StepTweenAlt | 20550 | 26209 | 8039 | 8307 | 25623 | 38730 | 19441 | 19901 | 2532 | 12369 | 12985 | 8261 | 10986 | 27063 | 4163 | 11242 |
| StepTweenSplit | 27248 | 32822 | 11497 | 11935 | 33566 | 47316 | 24693 | 26292 | 4343 | 16918 | 17727 | 11756 | 14994 | 33531 | 6731 | 15610 |
| TweenAlt | 22137 | 26140 | 9289 | 9359 | 26940 | 41017 | 20409 | 20974 | 2919 | 13722 | 14492 | 9338 | 12202 | 27880 | 4808 | 12685 |
| TweenSplit | 28729 | 35360 | 13893 | 13768 | 35115 | 50135 | 26830 | 29203 | 5503 | 18678 | 20090 | 13541 | 16744 | 36478 | 8312 | 17262 |
| TweenSplitFastPr | 28791 | 37472 | 13643 | 14119 | 34407 | 50606 | 26838 | 28239 | 5456 | 18632 | 19938 | 13853 | 16927 | 35103 | 7795 | 17738 |
| TweenSplitHeadPr | 28717 | 35994 | 13552 | 13666 | 34733 | 49846 | 26268 | 29303 | 5482 | 19659 | 20193 | 13241 | 16776 | 36358 | 8150 | 17815 |
| TweenSplitHeadPr | 28169 | 36025 | 13510 | 13266 | 34232 | 49023 | 26131 | 27893 | 5518 | 19307 | 20478 | 13383 | 17052 | 36108 | 7810 | 17610 |
| TweenSplitLinear | 25319 | 31837 | 11676 | 12579 | 31846 | 45153 | 24893 | 25501 | 4279 | 16784 | 18317 | 11561 | 15237 | 32256 | 6514 | 16049 |
| TweenSplitLinear | 28964 | 35565 | 13879 | 13789 | 35887 | 49263 | 26922 | 28628 | 5508 | 19560 | 19137 | 13279 | 16972 | 35603 | 7851 | 17463 |
| TweenSplitSparse | 30073 | 36094 | 14337 | 14515 | 36964 | 50991 | 27337 | 29022 | 6006 | 19930 | 21340 | 14419 | 17963 | 35885 | 9085 | 17702 |
| sgd | 32670 | 40912 | 15261 | 15362 | 40134 | 55689 | 30398 | 32408 | 5902 | 21672 | 22958 | 15249 | 19519 | 40635 | 9122 | 20270 |
| step_sgd | 30165 | 38779 | 13442 | 13510 | 37711 | 53871 | 28507 | 30188 | 4872 | 19537 | 21111 | 13502 | 17621 | 38883 | 7699 | 18006 |
| step_tween | 27092 | 34433 | 11079 | 11209 | 33845 | 48594 | 25481 | 26826 | 3799 | 17305 | 18286 | 11355 | 14839 | 34500 | 6215 | 15458 |
| step_tween_chain | 21256 | 30887 | 10507 | 10941 | 29499 | 41521 | 21713 | 23518 | 3768 | 13423 | 14649 | 10228 | 11782 | 29542 | 5603 | 12491 |
| tween | 31448 | 39648 | 14241 | 14331 | 38813 | 55646 | 29887 | 31651 | 5388 | 20464 | 21942 | 14129 | 18301 | 39341 | 8399 | 19036 |
| tween_chain | 32252 | 38749 | 14530 | 14512 | 39055 | 55434 | 29971 | 31424 | 5666 | 21130 | 22325 | 14274 | 18478 | 39231 | 8537 | 19099 |

## Honesty - mean Score, every mode x dtype (cols 17-32)

## Honesty - mean Score, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 33634 | 5537 | 4791 | 16272 | 38085 | 11239 | 35372 | 13141 | 17475 | 15550 | 7644 | 18091 | 17014 | 5943 | 5154 | 17120 |
| MeshTween | 32165 | 4739 | 4312 | 14952 | 36400 | 10431 | 32824 | 12206 | 16333 | 14098 | 6815 | 16805 | 15151 | 5335 | 4516 | 15700 |
| MeshTweenAlt | 26836 | 3574 | 2945 | 12310 | 31302 | 8234 | 27173 | 10194 | 13067 | 12016 | 5175 | 13408 | 13354 | 3889 | 3089 | 13084 |
| MeshTweenChain | 32693 | 5301 | 4566 | 15517 | 37720 | 10879 | 33966 | 12998 | 16845 | 15164 | 7227 | 17646 | 16254 | 5687 | 4892 | 17034 |
| MeshTweenSplit | 35914 | 6139 | 5566 | 16939 | 38869 | 12651 | 35866 | 13458 | 18902 | 16376 | 8332 | 18599 | 18159 | 6275 | 5781 | 17763 |
| MeshTweenSplitFa | 35885 | 5656 | 5551 | 16869 | 39717 | 12573 | 37432 | 14547 | 18476 | 17513 | 8489 | 19467 | 17833 | 6825 | 5757 | 17881 |
| MeshTweenSplitSp | 35174 | 6573 | 5927 | 17874 | 40756 | 12491 | 36428 | 14317 | 18938 | 16303 | 8688 | 19537 | 18276 | 6807 | 6090 | 18576 |
| StepTweenAlt | 25472 | 3100 | 2556 | 11156 | 29413 | 7218 | 26039 | 8669 | 12381 | 10522 | 4398 | 12712 | 11007 | 3092 | 2633 | 11760 |
| StepTweenSplit | 33388 | 4972 | 4389 | 15394 | 37064 | 10482 | 33153 | 12514 | 16443 | 14512 | 6820 | 16902 | 15867 | 5451 | 4561 | 15833 |
| TweenAlt | 26619 | 3357 | 2978 | 12528 | 31396 | 8228 | 27218 | 9647 | 13537 | 11728 | 5105 | 13473 | 12611 | 3704 | 3136 | 13094 |
| TweenSplit | 35603 | 6077 | 5642 | 17156 | 39385 | 12307 | 35233 | 14229 | 19025 | 16466 | 8518 | 18889 | 18012 | 6558 | 5802 | 18265 |
| TweenSplitFastPr | 35700 | 5915 | 5551 | 17163 | 39184 | 12245 | 35301 | 13916 | 18934 | 16398 | 8570 | 19299 | 17709 | 6232 | 5359 | 17755 |
| TweenSplitHeadPr | 36262 | 6341 | 5603 | 16995 | 40451 | 12500 | 35860 | 13685 | 18892 | 16537 | 8781 | 18687 | 17660 | 6608 | 5669 | 18471 |
| TweenSplitHeadPr | 36063 | 5997 | 5547 | 17328 | 38804 | 12446 | 36900 | 13701 | 18585 | 16434 | 8088 | 18978 | 17676 | 6381 | 5660 | 18271 |
| TweenSplitLinear | 31877 | 5189 | 4454 | 15462 | 36074 | 11087 | 32105 | 12505 | 16913 | 14725 | 6939 | 16823 | 16011 | 5268 | 4765 | 16189 |
| TweenSplitLinear | 34279 | 6120 | 5527 | 16758 | 39370 | 12490 | 37050 | 13907 | 18592 | 16358 | 8752 | 19357 | 17397 | 6592 | 5588 | 18385 |
| TweenSplitSparse | 36309 | 6866 | 6115 | 18037 | 40869 | 13494 | 36921 | 15051 | 19574 | 17087 | 9434 | 20242 | 18444 | 7310 | 6373 | 19019 |
| sgd | 40255 | 6653 | 6022 | 19778 | 43505 | 13774 | 40496 | 16110 | 21768 | 19353 | 9775 | 22234 | 21184 | 7204 | 6363 | 21496 |
| step_sgd | 38369 | 5542 | 4873 | 17759 | 42147 | 12134 | 38963 | 14312 | 19729 | 17483 | 8182 | 20306 | 18706 | 6024 | 5106 | 19227 |
| step_tween | 34195 | 4410 | 3808 | 15208 | 37853 | 10203 | 34418 | 12277 | 17109 | 14824 | 6623 | 17057 | 15652 | 4895 | 4109 | 16518 |
| step_tween_chain | 28110 | 4274 | 3735 | 11801 | 27993 | 9629 | 31468 | 11031 | 13598 | 12965 | 6220 | 14114 | 14415 | 4471 | 3994 | 13178 |
| tween | 39548 | 6068 | 5453 | 18721 | 43302 | 12815 | 39904 | 15074 | 20870 | 17942 | 8723 | 20940 | 19448 | 6457 | 5678 | 20330 |
| tween_chain | 38757 | 6396 | 5689 | 19040 | 43498 | 13232 | 39308 | 15071 | 20278 | 18001 | 9189 | 20671 | 19511 | 6852 | 5975 | 19836 |

## Honesty - mean Score, every mode x dtype  (cols 33-34)

## Honesty - mean Score, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 32942 | 13358 |
| MeshTween | 30871 | 12034 |
| MeshTweenAlt | 26974 | 10209 |
| MeshTweenChain | 31892 | 12475 |
| MeshTweenSplit | 34650 | 14754 |
| MeshTweenSplitFa | 34690 | 14775 |
| MeshTweenSplitSp | 34968 | 14170 |
| StepTweenAlt | 25924 | 8622 |
| StepTweenSplit | 31779 | 12175 |
| TweenAlt | 27209 | 9764 |
| TweenSplit | 34594 | 14256 |
| TweenSplitFastPr | 33050 | 13431 |
| TweenSplitHeadPr | 34843 | 14322 |
| TweenSplitHeadPr | 33421 | 13939 |
| TweenSplitLinear | 32438 | 12194 |
| TweenSplitLinear | 33264 | 14898 |
| TweenSplitSparse | 34562 | 15174 |
| sgd | 38138 | 16040 |
| step_sgd | 36402 | 14420 |
| step_tween | 32842 | 12306 |
| step_tween_chain | 25912 | 11662 |
| tween | 37683 | 15099 |
| tween_chain | 37831 | 15419 |

## Honesty - mean hard Acc, every mode x dtype  (cols 1-16)

## Honesty - mean hard Acc, every mode x dtype  (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 27 | 22 | 26 | 26 | 27 | 25 | 24 | 25 | 25 | 26 | 25 | 24 | 20 | 25 | 26 | 26 |
| MeshTween | 26 | 25 | 26 | 24 | 23 | 24 | 25 | 25 | 24 | 26 | 26 | 27 | 25 | 26 | 26 | 25 |
| MeshTweenAlt | 25 | 29 | 23 | 24 | 24 | 26 | 25 | 25 | 25 | 24 | 27 | 23 | 25 | 27 | 24 | 24 |
| MeshTweenChain | 25 | 26 | 25 | 23 | 25 | 25 | 25 | 25 | 24 | 24 | 28 | 23 | 23 | 22 | 28 | 25 |
| MeshTweenSplit | 26 | 26 | 26 | 25 | 26 | 26 | 24 | 25 | 22 | 29 | 24 | 26 | 23 | 27 | 26 | 24 |
| MeshTweenSplitFa | 25 | 22 | 23 | 25 | 24 | 23 | 27 | 25 | 23 | 23 | 29 | 25 | 26 | 27 | 24 | 28 |
| MeshTweenSplitSp | 26 | 25 | 26 | 27 | 27 | 26 | 25 | 25 | 24 | 25 | 23 | 23 | 25 | 27 | 24 | 25 |
| StepTweenAlt | 25 | 27 | 25 | 25 | 27 | 25 | 25 | 25 | 23 | 24 | 27 | 23 | 26 | 26 | 26 | 26 |
| StepTweenSplit | 27 | 24 | 24 | 26 | 27 | 26 | 23 | 25 | 24 | 23 | 27 | 25 | 27 | 25 | 25 | 28 |
| TweenAlt | 26 | 25 | 26 | 29 | 26 | 28 | 25 | 25 | 26 | 24 | 26 | 23 | 27 | 22 | 24 | 26 |
| TweenSplit | 25 | 21 | 25 | 26 | 28 | 24 | 25 | 25 | 25 | 24 | 24 | 28 | 27 | 25 | 25 | 23 |
| TweenSplitFastPr | 25 | 24 | 24 | 25 | 25 | 23 | 25 | 25 | 26 | 26 | 28 | 24 | 25 | 26 | 27 | 26 |
| TweenSplitHeadPr | 27 | 23 | 26 | 25 | 26 | 23 | 24 | 25 | 23 | 26 | 24 | 23 | 23 | 22 | 26 | 26 |
| TweenSplitHeadPr | 24 | 23 | 25 | 25 | 26 | 25 | 25 | 25 | 23 | 26 | 26 | 24 | 26 | 26 | 22 | 25 |
| TweenSplitLinear | 25 | 22 | 25 | 26 | 23 | 26 | 25 | 25 | 24 | 27 | 23 | 24 | 25 | 22 | 27 | 28 |
| TweenSplitLinear | 25 | 24 | 26 | 25 | 26 | 25 | 23 | 25 | 26 | 24 | 23 | 25 | 24 | 25 | 25 | 26 |
| TweenSplitSparse | 26 | 25 | 24 | 25 | 25 | 24 | 27 | 25 | 25 | 24 | 26 | 23 | 23 | 27 | 25 | 25 |
| sgd | 26 | 26 | 22 | 25 | 26 | 27 | 26 | 25 | 26 | 24 | 26 | 26 | 27 | 23 | 25 | 23 |
| step_sgd | 25 | 25 | 25 | 25 | 26 | 26 | 26 | 25 | 27 | 28 | 25 | 25 | 24 | 24 | 23 | 26 |
| step_tween | 26 | 24 | 24 | 25 | 26 | 23 | 25 | 25 | 24 | 22 | 25 | 23 | 24 | 25 | 25 | 29 |
| step_tween_chain | 27 | 27 | 24 | 24 | 24 | 25 | 24 | 25 | 26 | 25 | 27 | 25 | 26 | 25 | 25 | 24 |
| tween | 29 | 24 | 26 | 27 | 26 | 23 | 24 | 25 | 25 | 25 | 25 | 27 | 24 | 28 | 25 | 22 |
| tween_chain | 25 | 27 | 29 | 25 | 25 | 29 | 27 | 25 | 26 | 24 | 27 | 25 | 25 | 26 | 31 | 26 |

## Honesty - mean hard Acc, every mode x dtype  (cols 17-32)

## Honesty - mean hard Acc, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 27 | 24 | 27 | 25 | 24 | 28 | 25 | 27 | 23 | 26 | 25 | 27 | 20 | 24 | 26 | 27 |
| MeshTween | 26 | 24 | 23 | 25 | 24 | 25 | 21 | 23 | 22 | 21 | 26 | 26 | 23 | 25 | 27 | 24 |
| MeshTweenAlt | 28 | 24 | 26 | 23 | 26 | 28 | 25 | 25 | 27 | 25 | 26 | 25 | 25 | 25 | 28 | 25 |
| MeshTweenChain | 26 | 26 | 24 | 21 | 27 | 26 | 27 | 25 | 28 | 24 | 22 | 23 | 26 | 26 | 25 | 27 |
| MeshTweenSplit | 24 | 25 | 29 | 22 | 23 | 25 | 23 | 24 | 27 | 26 | 25 | 24 | 24 | 27 | 26 | 25 |
| MeshTweenSplitFa | 25 | 27 | 23 | 28 | 24 | 20 | 25 | 26 | 24 | 26 | 20 | 29 | 24 | 27 | 24 | 26 |
| MeshTweenSplitSp | 30 | 23 | 24 | 22 | 24 | 24 | 25 | 28 | 29 | 28 | 25 | 25 | 26 | 23 | 24 | 26 |
| StepTweenAlt | 25 | 22 | 24 | 26 | 26 | 27 | 26 | 22 | 25 | 24 | 26 | 28 | 25 | 24 | 24 | 26 |
| StepTweenSplit | 27 | 25 | 23 | 24 | 27 | 23 | 23 | 21 | 25 | 27 | 25 | 27 | 26 | 27 | 24 | 22 |
| TweenAlt | 25 | 25 | 22 | 27 | 22 | 26 | 26 | 26 | 25 | 26 | 27 | 22 | 25 | 24 | 24 | 27 |
| TweenSplit | 23 | 24 | 24 | 27 | 23 | 22 | 24 | 25 | 26 | 24 | 26 | 26 | 26 | 27 | 24 | 25 |
| TweenSplitFastPr | 24 | 24 | 28 | 26 | 24 | 24 | 23 | 25 | 25 | 23 | 23 | 23 | 23 | 23 | 24 | 25 |
| TweenSplitHeadPr | 28 | 24 | 23 | 24 | 27 | 26 | 25 | 23 | 26 | 24 | 25 | 24 | 29 | 25 | 25 | 24 |
| TweenSplitHeadPr | 25 | 24 | 26 | 21 | 22 | 25 | 25 | 26 | 29 | 24 | 25 | 27 | 25 | 25 | 23 | 27 |
| TweenSplitLinear | 26 | 27 | 23 | 25 | 29 | 25 | 26 | 29 | 27 | 27 | 24 | 22 | 26 | 28 | 25 | 22 |
| TweenSplitLinear | 25 | 29 | 25 | 24 | 26 | 25 | 23 | 27 | 24 | 23 | 24 | 26 | 24 | 25 | 27 | 24 |
| TweenSplitSparse | 25 | 24 | 25 | 26 | 24 | 24 | 24 | 22 | 26 | 25 | 26 | 25 | 25 | 28 | 23 | 22 |
| sgd | 24 | 23 | 23 | 28 | 28 | 25 | 25 | 25 | 26 | 25 | 25 | 26 | 23 | 25 | 26 | 25 |
| step_sgd | 22 | 26 | 25 | 27 | 24 | 25 | 21 | 29 | 22 | 27 | 26 | 26 | 28 | 28 | 26 | 25 |
| step_tween | 25 | 24 | 23 | 28 | 25 | 26 | 23 | 21 | 25 | 23 | 24 | 24 | 22 | 25 | 23 | 25 |
| step_tween_chain | 24 | 26 | 23 | 24 | 24 | 25 | 25 | 24 | 25 | 25 | 25 | 22 | 22 | 28 | 23 | 28 |
| tween | 27 | 21 | 26 | 27 | 25 | 22 | 25 | 26 | 23 | 25 | 24 | 24 | 26 | 24 | 21 | 27 |
| tween_chain | 25 | 26 | 25 | 26 | 23 | 27 | 23 | 29 | 27 | 23 | 32 | 26 | 25 | 19 | 27 | 26 |

## Honesty - mean hard Acc, every mode x dtype  (cols 33-34)

## Honesty - mean hard Acc, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 28 | 25 |
| MeshTween | 26 | 26 |
| MeshTweenAlt | 24 | 23 |
| MeshTweenChain | 25 | 24 |
| MeshTweenSplit | 25 | 25 |
| MeshTweenSplitFa | 27 | 25 |
| MeshTweenSplitSp | 27 | 27 |
| StepTweenAlt | 23 | 22 |
| StepTweenSplit | 22 | 26 |
| TweenAlt | 23 | 23 |
| TweenSplit | 26 | 26 |
| TweenSplitFastPr | 23 | 25 |
| TweenSplitHeadPr | 20 | 25 |
| TweenSplitHeadPr | 26 | 25 |
| TweenSplitLinear | 23 | 24 |
| TweenSplitLinear | 24 | 24 |
| TweenSplitSparse | 28 | 24 |
| sgd | 25 | 23 |
| step_sgd | 24 | 23 |
| step_tween | 25 | 25 |
| step_tween_chain | 26 | 23 |
| tween | 23 | 26 |
| tween_chain | 27 | 25 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 1-16)

## Honesty - mean SoftAcc, every mode x dtype  (cols 1-16)

| | bfloat16 | binary | complex1 | complex6 | float16 | float32 | float64 | fp4 | fp6 | fp8e4m3 | fp8e5m2 | int | int16 | int2 | int3 | int32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenChain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitFastPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitSparse | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 17-32)

## Honesty - mean SoftAcc, every mode x dtype  (cols 17-32)

| | int4 | int5 | int6 | int64 | int8 | nf4 | ternary | uint | uint16 | uint2 | uint3 | uint32 | uint4 | uint5 | uint6 | uint64 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MeshBP | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenChain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| StepTweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenAlt | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplit | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitFastPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| TweenSplitSparse | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_sgd | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| step_tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| tween_chain | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |

## Honesty - mean SoftAcc, every mode x dtype  (cols 33-34)

## Honesty - mean SoftAcc, every mode x dtype  (cols 33-34)

| | uint8 | uintptr |
|---|---|---|
| MeshBP | 25 | 25 |
| MeshTween | 25 | 25 |
| MeshTweenAlt | 25 | 25 |
| MeshTweenChain | 25 | 25 |
| MeshTweenSplit | 25 | 25 |
| MeshTweenSplitFa | 25 | 25 |
| MeshTweenSplitSp | 25 | 25 |
| StepTweenAlt | 25 | 25 |
| StepTweenSplit | 25 | 25 |
| TweenAlt | 25 | 25 |
| TweenSplit | 25 | 25 |
| TweenSplitFastPr | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 |
| TweenSplitLinear | 25 | 25 |
| TweenSplitLinear | 25 | 25 |
| TweenSplitSparse | 25 | 25 |
| sgd | 25 | 25 |
| step_sgd | 25 | 25 |
| step_tween | 25 | 25 |
| step_tween_chain | 25 | 25 |
| tween | 25 | 25 |
| tween_chain | 25 | 25 |

## Mean Score, every mode x arch

## Mean Score, every mode x arch

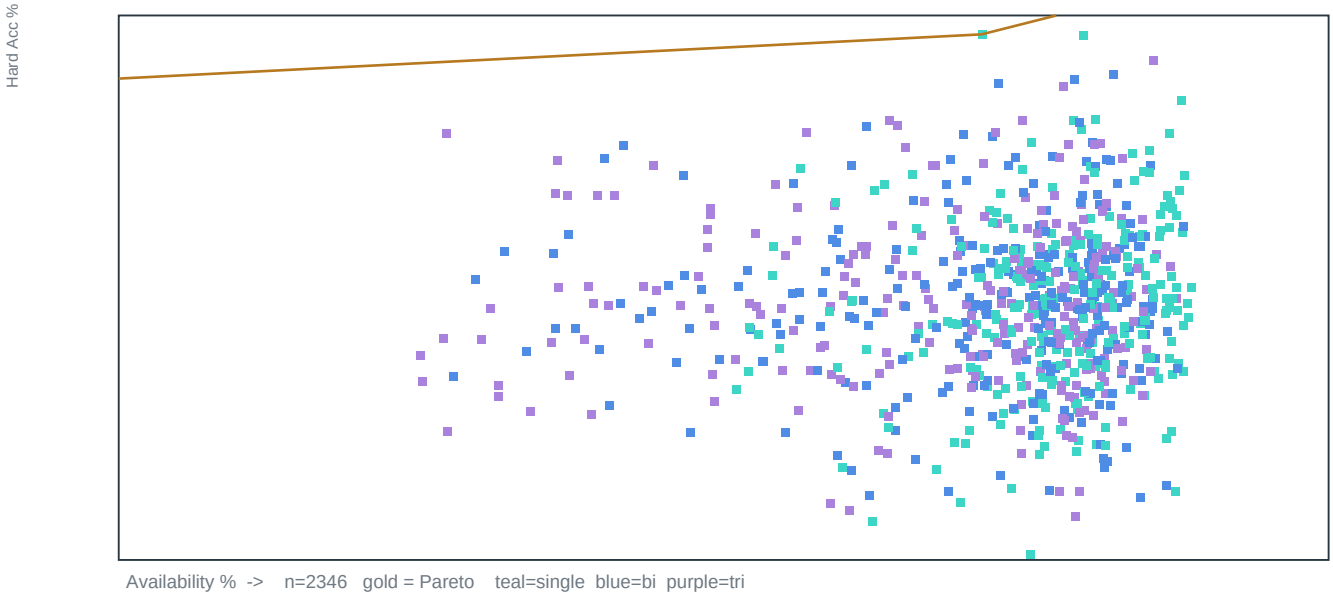
| | bicamera | singlex1 | tricamer |
|---|---|---|---|
| MeshBP | 16025 | 28324 | 13814 |
| MeshTween | 14908 | 26373 | 12981 |
| MeshTweenAlt | 12135 | 22137 | 10904 |
| MeshTweenChain | 15606 | 26990 | 13636 |
| MeshTweenSplit | 17395 | 28851 | 15481 |
| MeshTweenSplitFa | 17633 | 28697 | 15306 |
| MeshTweenSplitSp | 18191 | 27622 | 16411 |
| StepTweenAlt | 11207 | 21090 | 9445 |
| StepTweenSplit | 15478 | 26468 | 13526 |
| TweenAlt | 12108 | 22245 | 10616 |
| TweenSplit | 17363 | 28583 | 15435 |
| TweenSplitFastPr | 17271 | 28056 | 15667 |
| TweenSplitHeadPr | 17477 | 28582 | 15522 |
| TweenSplitHeadPr | 17091 | 28186 | 15581 |
| TweenSplitLinear | 15230 | 26070 | 13478 |
| TweenSplitLinear | 17567 | 28158 | 15417 |
| TweenSplitSparse | 18908 | 27864 | 16982 |
| sgd | 19236 | 33527 | 16793 |
| step_sgd | 17589 | 31485 | 15081 |
| step_tween | 15042 | 28586 | 12369 |
| step_tween_chain | 13707 | 25983 | 7948 |
| tween | 18394 | 32285 | 16091 |
| tween_chain | 18249 | 32845 | 15896 |

## Mean hard Acc, every mode x arch

## Mean hard Acc, every mode x arch

| | bicamera | singlex1 | tricamer |
|---|---|---|---|
| MeshBP | 25 | 25 | 25 |
| MeshTween | 24 | 25 | 25 |
| MeshTweenAlt | 25 | 26 | 24 |
| MeshTweenChain | 24 | 26 | 25 |
| MeshTweenSplit | 26 | 25 | 25 |
| MeshTweenSplitFa | 24 | 25 | 25 |
| MeshTweenSplitSp | 25 | 26 | 26 |
| StepTweenAlt | 25 | 25 | 25 |
| StepTweenSplit | 25 | 25 | 25 |
| TweenAlt | 25 | 25 | 25 |
| TweenSplit | 25 | 25 | 25 |
| TweenSplitFastPr | 24 | 25 | 25 |
| TweenSplitHeadPr | 25 | 25 | 24 |
| TweenSplitHeadPr | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 25 |
| TweenSplitLinear | 25 | 25 | 24 |
| TweenSplitSparse | 25 | 25 | 24 |
| sgd | 26 | 24 | 25 |
| step_sgd | 25 | 25 | 26 |
| step_tween | 25 | 24 | 24 |
| step_tween_chain | 25 | 24 | 25 |
| tween | 25 | 25 | 25 |
| tween_chain | 25 | 26 | 26 |

## Avail vs hard Acc (headline scatter)

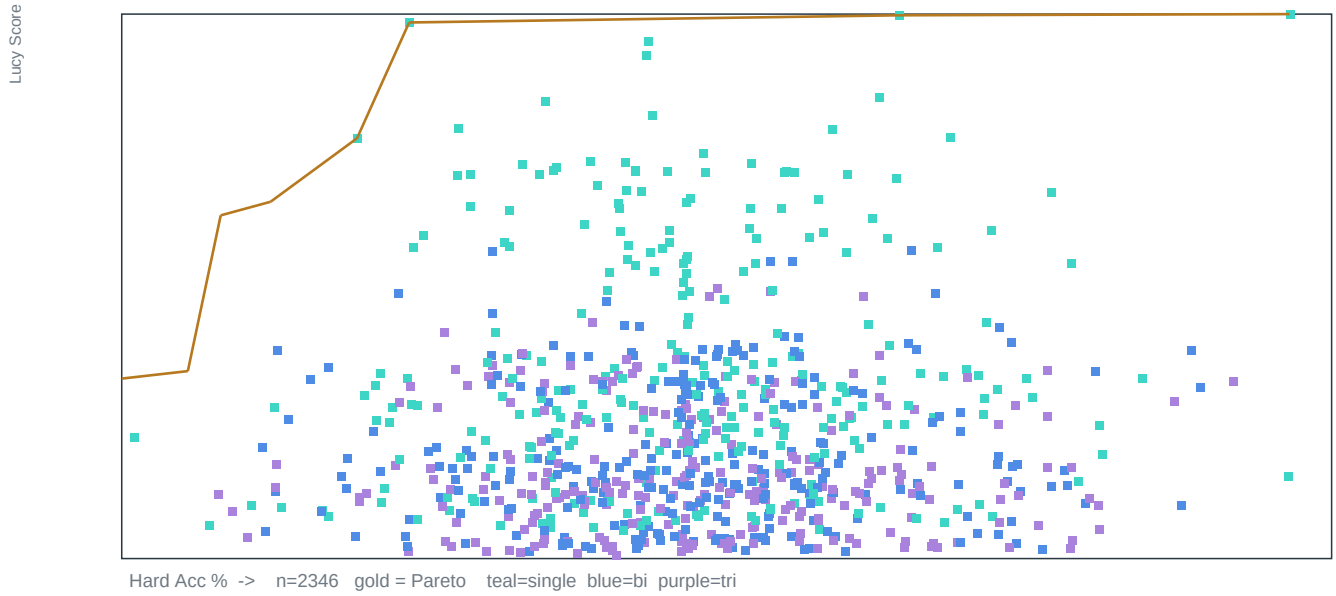



## Pareto - SoftAcc vs Score

## Pareto - SoftAcc vs Score




## Pareto - hard Acc vs Score

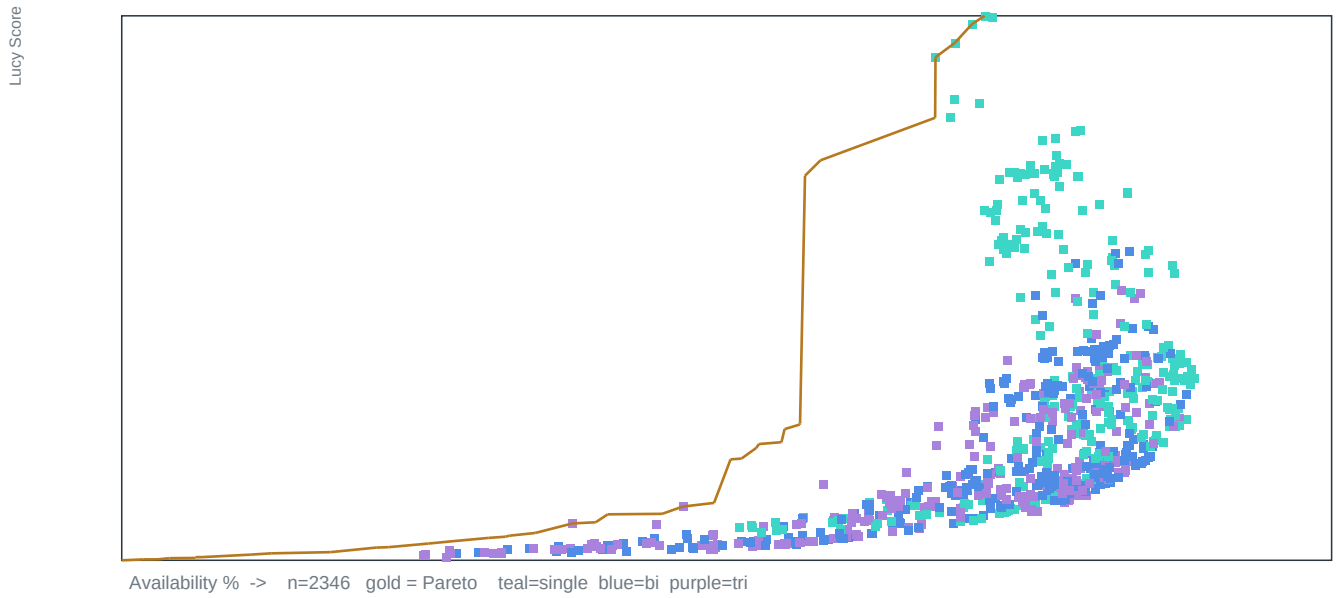



## SoftAcc vs hard Acc




SoftAcc %  ->  n=2346  gold = Pareto  teal=single  blue=bi  purple=tri
Hard Acc %

## Avail vs Score (duty clock)




## Lucy Pareto (LPD) - goldilocks

Q = geomean of Score/Soft/Acc/Thru vs the Lucy Score champion. LPD = 0 if Q<70%, else Q x shrink vs champ RAM (capped 32x). Gold = Q>=80% and RAM<=20% of champ. MSpeed = Thru vs the board's fastest (0 if Q<70%). MAvail = Availability vs the board's best duty cycle (0 if Q<70%). Mix = geomean(Q, MSpeed, MAvail). Raw Score/MiB is the binary trap.

Quality champ float32|none|tween_chain|single|simd  Score 80921.0  Soft 25  Acc 35  Thru 771951  RAM 1.6 KiB

Board fastest float32|none|tween_chain|single|simd  Thru 771951  Best availability int|none|TweenSplitSparse|tricameral|simd 47.1%

No gold cell yet. Need a recipe that keeps 80% of the Score champ's Score/Soft/Acc/Thru at one fifth the RAM.

## Near-gold - Q >= 70%, RAM <= 50%

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| near | binary\|none\|sgd\|single\|simd | 79 | 3 | 32.0 | 25.43 | 25 | 25 | 60583.5 | 0.1 |
| near | binary\|none\|tween_chain\|single\|simd | 79 | 3 | 32.0 | 25.34 | 25 | 28 | 57563.7 | 0.1 |
| near | binary\|none\|step_sgd\|single\|simd | 79 | 3 | 32.0 | 25.30 | 25 | 27 | 57926.3 | 0.1 |
| near | binary\|none\|tween\|single\|simd | 76 | 3 | 32.0 | 24.42 | 25 | 23 | 58574.8 | 0.1 |
| near | binary\|none\|step_tween\|single\|simd | 75 | 3 | 32.0 | 24.10 | 25 | 27 | 52583.7 | 0.1 |
| near | binary\|none\|MeshTweenChain\|single\|simd | 74 | 3 | 32.0 | 23.68 | 25 | 29 | 48824.8 | 0.1 |
| near | binary\|none\|TweenSplitFastProxy\|single\|simd | 74 | 3 | 32.0 | 23.64 | 25 | 23 | 54725.8 | 0.1 |
| near | binary\|none\|TweenSplitHeadProxy\|single\|simd | 74 | 3 | 32.0 | 23.55 | 25 | 25 | 52537.2 | 0.1 |
| near | binary\|none\|step_tween_chain\|single\|simd | 73 | 3 | 32.0 | 23.26 | 25 | 29 | 46890.2 | 0.1 |
| near | binary\|none\|MeshTween\|single\|simd | 72 | 3 | 32.0 | 23.18 | 25 | 27 | 48411.7 | 0.1 |
| near | binary\|none\|MeshTweenSplit\|single\|simd | 72 | 3 | 32.0 | 23.17 | 25 | 25 | 51070.7 | 0.1 |
| near | binary\|none\|TweenSplitLinearCache\|single\|simd | 72 | 3 | 32.0 | 22.97 | 25 | 24 | 50953.4 | 0.1 |

## LPD rank (Q x shrink; 0 if Q < 70%)

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| near | binary\|none\|sgd\|single\|simd | 79 | 3 | 32.0 | 25.43 | 25 | 25 | 60583.5 | 0.1 |
| near | binary\|none\|tween_chain\|single\|simd | 79 | 3 | 32.0 | 25.34 | 25 | 28 | 57563.7 | 0.1 |
| near | binary\|none\|step_sgd\|single\|simd | 79 | 3 | 32.0 | 25.30 | 25 | 27 | 57926.3 | 0.1 |
| near | binary\|none\|tween\|single\|simd | 76 | 3 | 32.0 | 24.42 | 25 | 23 | 58574.8 | 0.1 |
| near | binary\|none\|step_tween\|single\|simd | 75 | 3 | 32.0 | 24.10 | 25 | 27 | 52583.7 | 0.1 |
| near | binary\|none\|MeshTweenChain\|single\|simd | 74 | 3 | 32.0 | 23.68 | 25 | 29 | 48824.8 | 0.1 |
| near | binary\|none\|TweenSplitFastProxy\|single\|simd | 74 | 3 | 32.0 | 23.64 | 25 | 23 | 54725.8 | 0.1 |
| near | binary\|none\|TweenSplitHeadProxy\|single\|simd | 74 | 3 | 32.0 | 23.55 | 25 | 25 | 52537.2 | 0.1 |
| near | binary\|none\|step_tween_chain\|single\|simd | 73 | 3 | 32.0 | 23.26 | 25 | 29 | 46890.2 | 0.1 |

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| near | binary\|none\|MeshTween\|single\|simd | 72 | 3 | 32.0 | 23.18 | 25 | 27 | 48411.7 | 0.1 |
| near | binary\|none\|MeshTweenSplit\|single\|simd | 72 | 3 | 32.0 | 23.17 | 25 | 25 | 51070.7 | 0.1 |
| near | binary\|none\|TweenSplitLinearCache\|single\|simd | 72 | 3 | 32.0 | 22.97 | 25 | 24 | 50953.4 | 0.1 |
| near | binary\|none\|MeshBP\|single\|simd | 71 | 3 | 32.0 | 22.75 | 25 | 23 | 50291.0 | 0.1 |
| near | binary\|none\|StepTweenAlt\|single\|simd | 71 | 3 | 32.0 | 22.72 | 25 | 31 | 41582.2 | 0.1 |
| near | binary\|none\|MeshTweenSplitFastProxy\|single\|simd | 71 | 3 | 32.0 | 22.72 | 25 | 21 | 52951.7 | 0.1 |
| near | binary\|none\|TweenSplitLinear\|single\|simd | 70 | 3 | 32.0 | 22.50 | 25 | 26 | 46173.6 | 0.1 |
| near | binary\|none\|TweenSplitSparse\|single\|simd | 70 | 3 | 32.0 | 22.48 | 25 | 26 | 47242.8 | 0.1 |
| near | ternary\|none\|tween\|single\|simd | 79 | 6 | 16.0 | 12.69 | 25 | 26 | 59162.3 | 0.1 |
| near | int2\|none\|step_sgd\|single\|simd | 79 | 6 | 16.0 | 12.66 | 25 | 27 | 58058.1 | 0.1 |
| near | int2\|none\|tween\|single\|simd | 79 | 6 | 16.0 | 12.62 | 25 | 27 | 57905.6 | 0.1 |

## Mobile speed - Thru vs board fastest (Q >= 70%)

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| keep | float32\|none\|tween_chain\|single\|simd | 100 | 100 | 89 | 96 | 1.00 | 771951 | 41.9 |
| keep | float32\|none\|sgd\|single\|simd | 95 | 100 | 89 | 94 | 0.95 | 768310 | 42.0 |
| keep | float32\|none\|tween\|single\|simd | 87 | 99 | 89 | 91 | 0.87 | 763808 | 41.7 |
| keep | float32\|none\|step_sgd\|single\|simd | 90 | 96 | 88 | 91 | 0.90 | 742247 | 41.5 |
| keep | float32\|none\|step_tween\|single\|simd | 88 | 94 | 87 | 90 | 0.88 | 727110 | 41.2 |
| keep | float32\|none\|TweenSplit\|single\|simd | 85 | 87 | 90 | 87 | 0.85 | 671030 | 42.2 |
| keep | float32\|none\|TweenSplitFastProxy\|single\|simd | 86 | 86 | 89 | 87 | 0.86 | 667618 | 42.1 |
| keep | float32\|none\|MeshTween\|single\|simd | 88 | 86 | 88 | 87 | 0.88 | 663249 | 41.5 |
| keep | float32\|none\|MeshTweenChain\|single\|simd | 84 | 84 | 89 | 86 | 0.84 | 651987 | 41.7 |
| keep | float32\|none\|MeshBP\|single\|simd | 83 | 84 | 89 | 85 | 0.83 | 651473 | 41.9 |

## Mobile availability - duty cycle vs board best (Q >= 70%)

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| - | float64\|none\|tween_chain\|single\|simd | 71 | 52 | 95 | 70 | 0.36 | 398187 | 44.7 |
| near | bfloat16\|none\|sgd\|single\|simd | 70 | 54 | 94 | 71 | 1.41 | 416483 | 44.3 |
| near | uint8\|none\|MeshTweenSplit\|single\|simd | 72 | 58 | 94 | 73 | 2.76 | 447091 | 44.3 |
| near | uint8\|none\|MeshTweenSplitSparse\|single\|simd | 73 | 57 | 94 | 73 | 2.79 | 436854 | 44.2 |
| near | uint8\|none\|MeshTweenSplitFastProxy\|single\|simd | 73 | 58 | 94 | 73 | 2.81 | 447914 | 44.2 |
| near | uint8\|none\|TweenSplitHeadProxyAsync\|single\|simd | 71 | 56 | 94 | 72 | 2.74 | 429399 | 44.2 |
| near | uint8\|none\|TweenSplitSparse\|single\|simd | 73 | 54 | 94 | 72 | 2.80 | 416495 | 44.1 |
| - | float32\|none\|sgd\|bicameral\|simd | 71 | 55 | 94 | 71 | 0.49 | 422330 | 44.1 |
| near | uint8\|none\|sgd\|single\|simd | 74 | 65 | 93 | 77 | 2.87 | 500836 | 44.1 |
| near | uint8\|none\|tween_chain\|single\|simd | 75 | 65 | 93 | 77 | 2.87 | 500162 | 44.1 |

## Mix - geomean of Q, MSpeed, MAvail

| Band | Cell | Q% | Spd% | Duty% | Mix% | LPD | Thru | Avail |
|---|---|---|---|---|---|---|---|---|
| keep | float32\|none\|tween_chain\|single\|simd | 100 | 100 | 89 | 96 | 1.00 | 771951 | 41.9 |
| keep | float32\|none\|sgd\|single\|simd | 95 | 100 | 89 | 94 | 0.95 | 768310 | 42.0 |
| keep | float32\|none\|tween\|single\|simd | 87 | 99 | 89 | 91 | 0.87 | 763808 | 41.7 |
| keep | float32\|none\|step_sgd\|single\|simd | 90 | 96 | 88 | 91 | 0.90 | 742247 | 41.5 |
| keep | float32\|none\|step_tween\|single\|simd | 88 | 94 | 87 | 90 | 0.88 | 727110 | 41.2 |
| keep | float32\|none\|MeshTween\|single\|simd | 88 | 86 | 88 | 87 | 0.88 | 663249 | 41.5 |
| keep | float32\|none\|TweenSplitFastProxy\|single\|simd | 86 | 86 | 89 | 87 | 0.86 | 667618 | 42.1 |
| keep | float32\|none\|TweenSplit\|single\|simd | 85 | 87 | 90 | 87 | 0.85 | 671030 | 42.2 |
| keep | float32\|none\|TweenSplitHeadProxy\|single\|simd | 87 | 83 | 89 | 87 | 0.87 | 643976 | 42.2 |
| keep | float32\|none\|MeshTweenSplit\|single\|simd | 86 | 84 | 89 | 87 | 0.86 | 648337 | 42.2 |

## Trap - tiny RAM, Q < 70% (why Score/MiB lies)

| Band | Cell | Q% | RAM% | xSmall | LPD | Soft | Acc | Score | KiB |
|---|---|---|---|---|---|---|---|---|---|
| trap | binary\|none\|TweenSplit\|single\|simd | 67 | 3 | 32.0 | 0.00 | 25 | 18 | 51570.0 | 0.1 |
| trap | binary\|none\|StepTweenSplit\|single\|simd | 69 | 3 | 32.0 | 0.00 | 25 | 23 | 47131.5 | 0.1 |
| trap | binary\|none\|TweenAlt\|single\|simd | 66 | 3 | 32.0 | 0.00 | 25 | 26 | 39330.0 | 0.1 |
| trap | binary\|none\|TweenSplitHeadProxyAsync\|single\|simd | 69 | 3 | 32.0 | 0.00 | 25 | 22 | 50043.4 | 0.1 |
| trap | binary\|none\|MeshTweenAlt\|single\|simd | 67 | 3 | 32.0 | 0.00 | 25 | 26 | 40592.2 | 0.1 |
| trap | binary\|none\|MeshTweenSplitSparse\|single\|simd | 65 | 3 | 32.0 | 0.00 | 25 | 20 | 46342.2 | 0.1 |
| trap | binary\|none\|sgd\|bicameral\|simd | 61 | 5 | 21.9 | 0.00 | 25 | 30 | 33083.8 | 0.1 |
| trap | binary\|none\|step_sgd\|bicameral\|simd | 57 | 5 | 21.9 | 0.00 | 25 | 26 | 31140.0 | 0.1 |
| trap | binary\|none\|tween\|bicameral\|simd | 58 | 5 | 21.9 | 0.00 | 25 | 25 | 32073.5 | 0.1 |
| trap | binary\|none\|tween_chain\|bicameral\|simd | 57 | 5 | 21.9 | 0.00 | 25 | 25 | 31346.5 | 0.1 |

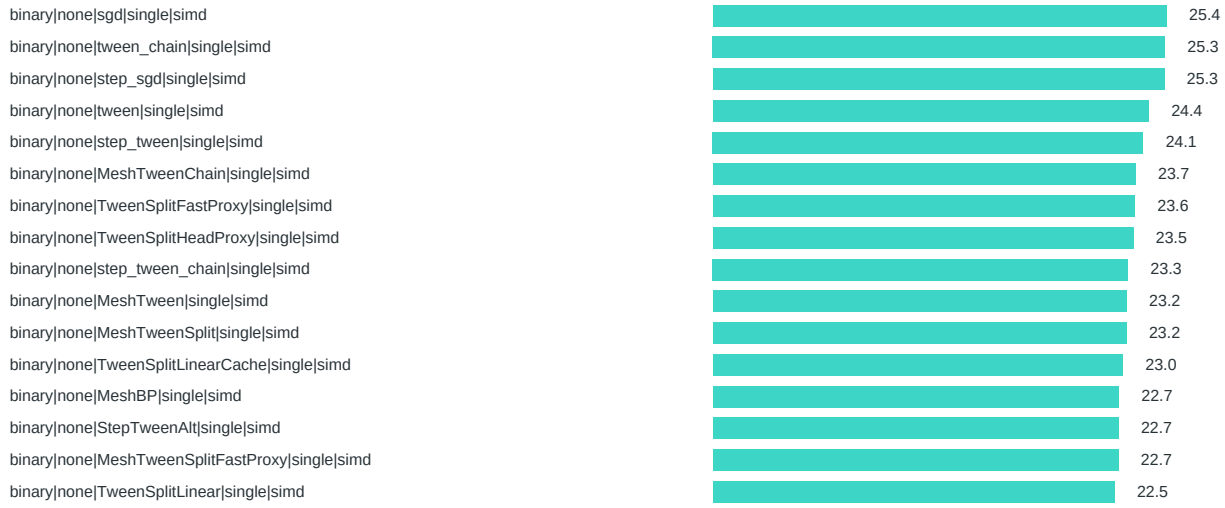
## LPD - Q% vs RAM KiB (gold = high Q, low RAM)



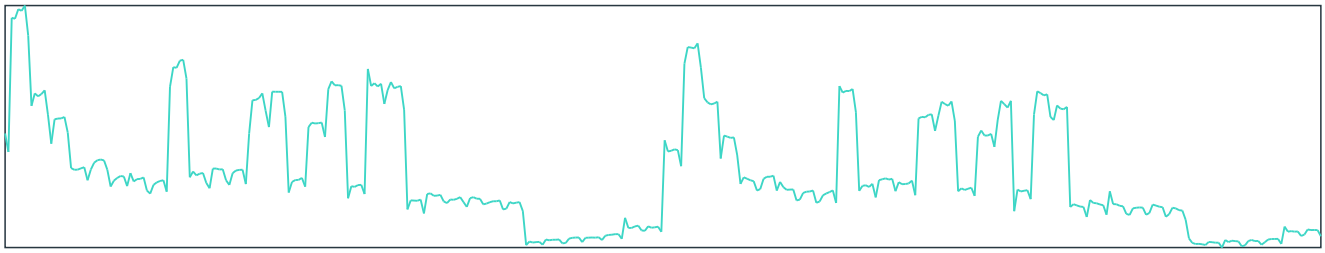

## LPD - Q% vs shrink vs champ (gold = upper right)




## Top LPD

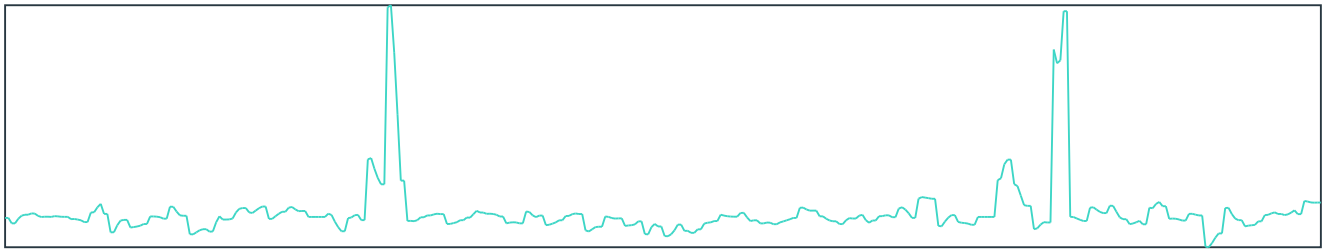



## Pulse Score - swiglu



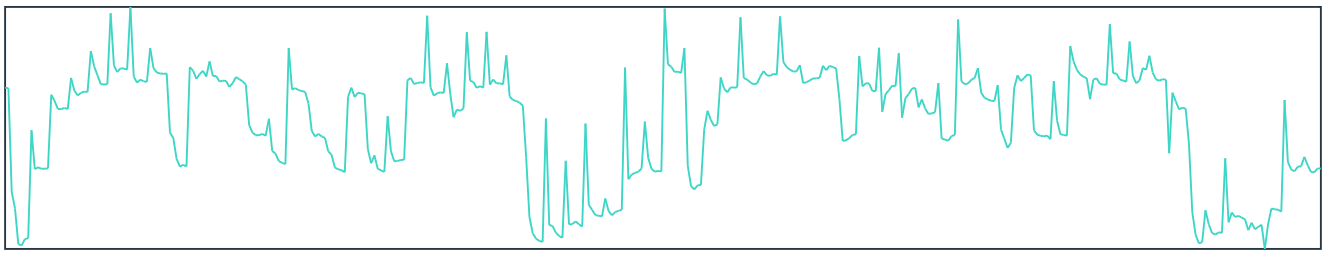
n=400 min=4799.35 max=49680.24

## Pulse SoftAcc - swiglu



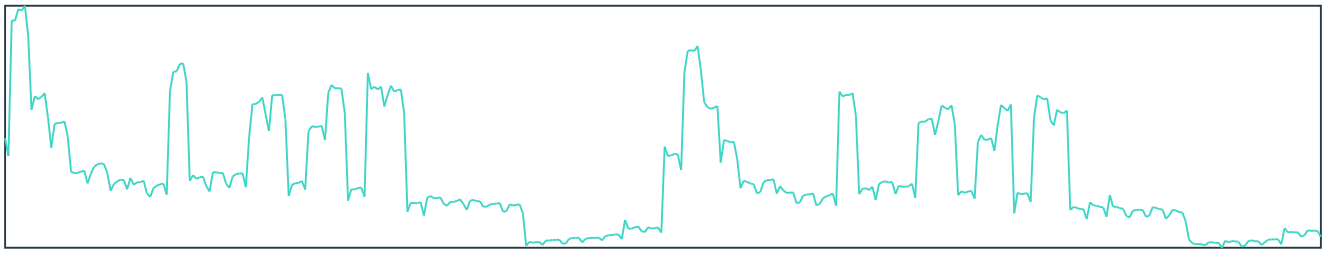
n=400 min=25.00 max=25.00

## Pulse Availability - swiglu



n=400 min=45.31 max=47.67

## Pulse Throughput - swiglu



n=400  min=42221.85  max=437645.71

## Queue by train mode (this epoch)

| Mode | Done | Run | Left | Total |
|---|---|---|---|---|
| sgd | 102 | 0 | 0 | 102 |
| step_sgd | 102 | 0 | 0 | 102 |
| tween | 102 | 0 | 0 | 102 |
| tween_chain | 102 | 0 | 0 | 102 |
| step_tween | 102 | 0 | 0 | 102 |
| step_tween_chain | 102 | 0 | 0 | 102 |
| MeshBP | 102 | 0 | 0 | 102 |
| MeshTween | 102 | 0 | 0 | 102 |
| MeshTweenChain | 102 | 0 | 0 | 102 |
| TweenSplit | 102 | 0 | 0 | 102 |
| StepTweenSplit | 102 | 0 | 0 | 102 |
| TweenAlt | 102 | 0 | 0 | 102 |
| StepTweenAlt | 102 | 0 | 0 | 102 |
| TweenSplitHeadProxy | 102 | 0 | 0 | 102 |
| TweenSplitLinear | 102 | 0 | 0 | 102 |
| TweenSplitFastProxy | 102 | 0 | 0 | 102 |
| TweenSplitLinearCache | 102 | 0 | 0 | 102 |
| TweenSplitHeadProxyAsync | 102 | 0 | 0 | 102 |
| TweenSplitSparse | 102 | 0 | 0 | 102 |
| MeshTweenSplit | 102 | 0 | 0 | 102 |
| MeshTweenAlt | 102 | 0 | 0 | 102 |
| MeshTweenSplitFastProxy | 102 | 0 | 0 | 102 |
| MeshTweenSplitSparse | 102 | 0 | 0 | 102 |