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ZEN3

Test Systems:

yyyy

Processor: AMD EPYC 7J13 64-Core @ 2.55GHz (64 Cores / 128 Threads), Motherboard: (1.4.1 BIOS), Memory: 16384 + 16384 + 16384 + 16384 + 16384 + 16384 + 16384 + 16384 + 16384 + 16384 + 16384 + 16384 + 16384 + 16384 + 16384 + 16128 0MHz, Disk: 1024GB ORACLE BlockVolume Disk + 1600GB ORACLE BlockVolume Disk, Graphics: NICE DCV Virtual Display, Monitor: DCVDspay4K, Network: Oracle VirtIO

OS: Microsoft Windows Server 2019 Standard Build 17763, Kernel: 10.0 (x86_64), Display Driver: 9.25.36.24, File-System: NTFS, Screen Resolution: 1680x1050

Processor Notes: CPU Microcode: 6500000100000000
Security Notes: __user pointer sanitization: Disabled + STIBP: Enabled

yayrah

Processor: AMD EPYC 7J13 64-Core @ 2.55GHz (64 Cores / 128 Threads), Motherboard: (1.4.1 BIOS), Memory: 16384 + 16384 + 16384 + 16384 + 16384 + 16384 + 16384 + 16384 + 16384 + 16384 + 16384 + 16384 + 16384 + 16384 + 16128 0MHz, Disk: 1024GB ORACLE BlockVolume Disk + 1600GB ORACLE BlockVolume Disk, Graphics: NICE DCV Virtual Display, Monitor: DCVDspay4K, Network: Oracle VirtIO

OS: Microsoft Windows Server 2019 Standard Build 17763, Kernel: 10.0 (x86_64), Display Driver: 9.25.36.24, File-System: NTFS, Screen Resolution: 1024x768

Processor Notes: CPU Microcode: 6500000100000000
Security Notes: __user pointer sanitization: Disabled + STIBP: Enabled

epyczen3

Processor: AMD EPYC 7J13 64-Core @ 2.55GHz (64 Cores / 128 Threads), Motherboard: (1.4.1 BIOS), Memory: 16384 + 16384 + 16384 + 16384 + 16384 + 16384 + 16384 + 16384 + 16384 + 16384 + 16384 + 16384 + 16384 + 16384 + 16128 0MHz, Disk: 1024GB ORACLE BlockVolume Disk + 1600GB ORACLE BlockVolume Disk, Graphics: NICE DCV Virtual Display, Monitor: DCVDspay4K, Network: Oracle VirtIO

OS: Microsoft Windows Server 2019 Standard Build 17763, Kernel: 10.0 (x86_64), Display Driver: 9.25.36.24, File-System: NTFS, Screen Resolution: 1280x1024

Processor Notes: CPU Microcode: 6500000100000000
Java Notes: OpenJDK Runtime Environment 18.9 (build 11.0.6+10-LTS)
Security Notes: __user pointer sanitization: Disabled + STIBP: Enabled

7J13

Processor: AMD EPYC 7J13 64-Core @ 2.55GHz (64 Cores / 128 Threads), Motherboard: (1.4.1 BIOS), Memory: 16384 + 16384 + 16384 + 16384 + 16384 + 16384 + 16384 + 16384 + 16384 + 16384 + 16384 + 16384 + 16384 + 16384 + 16128 0MHz, Disk: 1024GB ORACLE BlockVolume Disk + 1600GB ORACLE BlockVolume Disk, Graphics: NICE DCV Virtual Display, Monitor: DCVDspay4K, Network: Oracle VirtIO

OS: Microsoft Windows Server 2019 Standard Build 17763, Kernel: 10.0 (x86_64), Display Driver: 9.25.36.24, Compiler: GCC 8.3.0, File-System: NTFS, Screen Resolution: 1280x1024

Processor Notes: CPU Microcode: 6500000100000000
Security Notes: __user pointer sanitization: Disabled + STIBP: Enabled

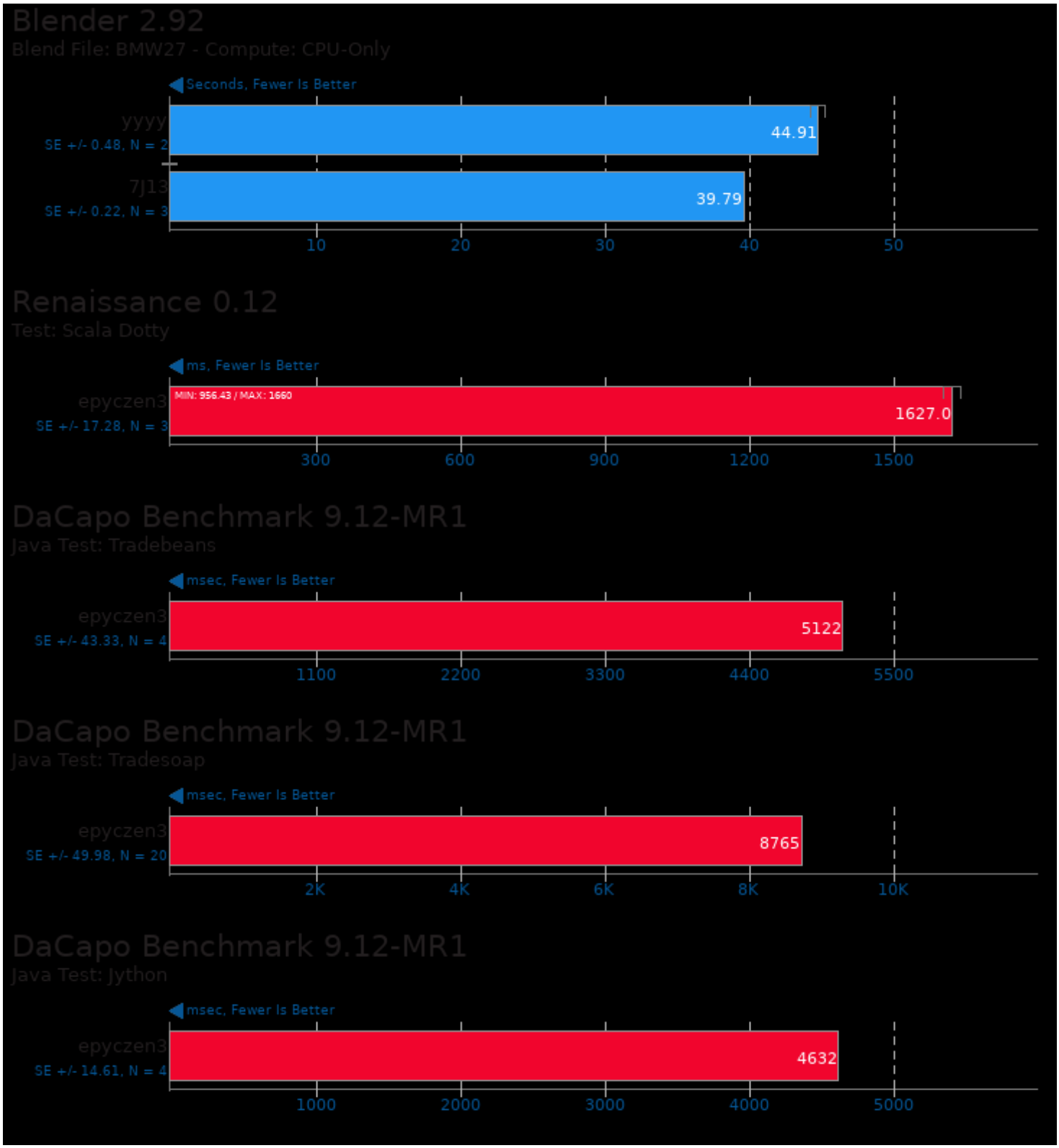
	yyyy	yayrah	epyczen3	7J13
Blender - BMW27 - CPU-Only (sec)	44.91			39.79
Normalized	88.6%			100%
Standard Deviation	1.5%			1%
Renaissance - Scala Dotty (ms)			1627	
Standard Deviation			1.8%	
DaCapo Benchmark - Tradebeans (msec)			5122	
Standard Deviation			1.7%	
DaCapo Benchmark - Tradesoap			8765	
Standard Deviation			2.6%	

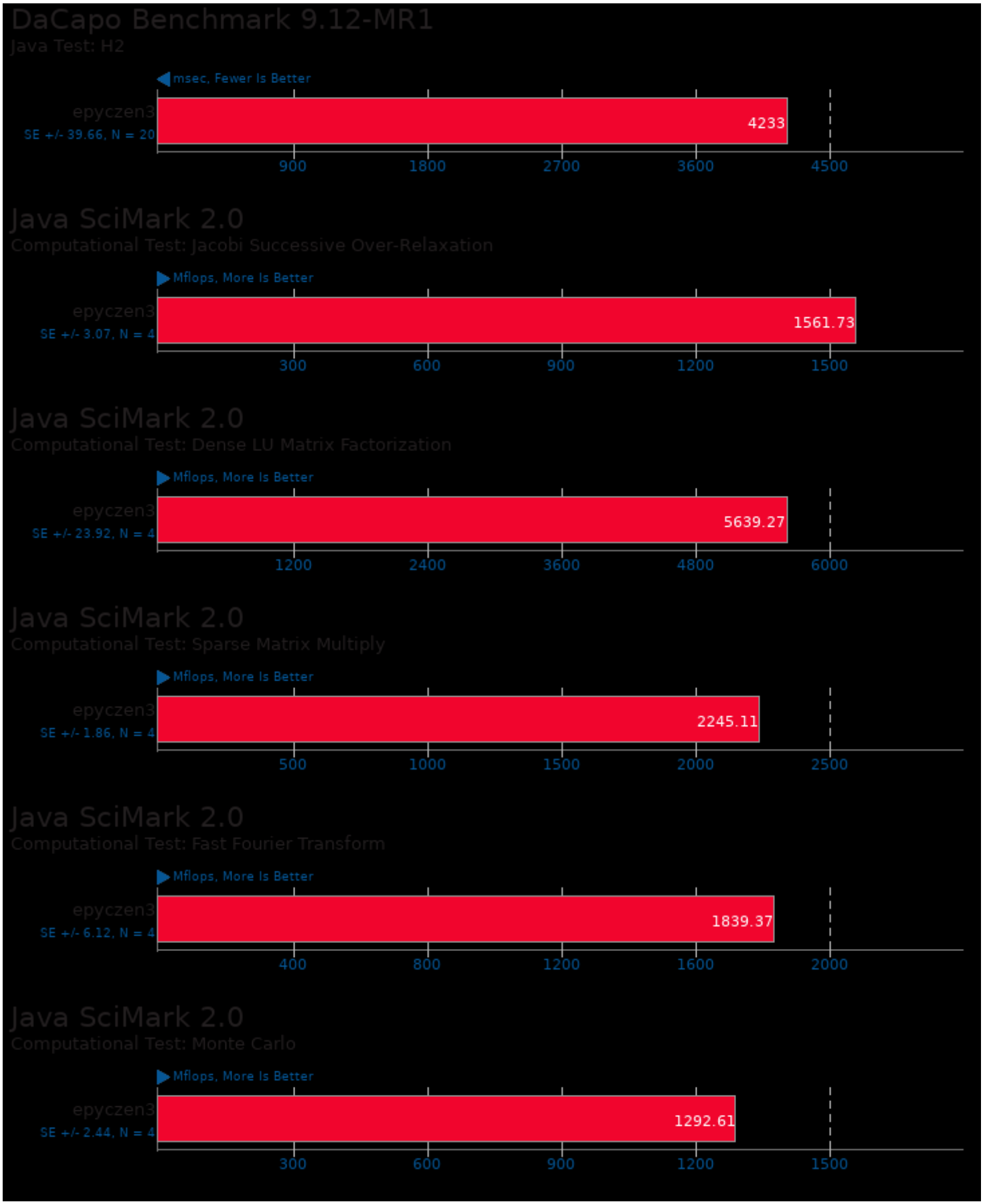
DaCapo Benchmark - Jython (msec)	4632
Standard Deviation	0.6%
DaCapo Benchmark - H2 (msec)	4233
Standard Deviation	4.2%
Java SciMark - J.S.O.R (Mflops)	1562
Standard Deviation	0.4%
Java SciMark - D.L.M.F (Mflops)	5639
Standard Deviation	0.8%
Java SciMark - S.M.M (Mflops)	2245
Standard Deviation	0.2%
Java SciMark - F.F.T (Mflops)	1839
Standard Deviation	0.7%
Java SciMark - Monte Carlo (Mflops)	1293
Standard Deviation	0.4%
Java SciMark - Composite (Mflops)	2516
Standard Deviation	0.4%
Go Benchmarks - garbage (ns/op)	822717
Standard Deviation	2.3%
Go Benchmarks - build (ns/op)	28716806200
Standard Deviation	1.5%
Go Benchmarks - http (ns/op)	9824
Standard Deviation	0.5%
BLAKE2 (Cycles/Byte)	4.90
Standard Deviation	0.2%
Timed MrBayes Analysis - P.P.A (sec)	801.543
Standard Deviation	0.2%
lzbench - Libdeflate 1 - Decompression (MB/s)	1071
Standard Deviation	0.1%
lzbench - Libdeflate 1 - Compression (MB/s)	211
Standard Deviation	0.3%
lzbench - Brotli 0 - Decompression (MB/s)	522
Standard Deviation	0.2%
lzbench - Brotli 0 - Compression	337
Standard Deviation	0.2%
lzbench - Zstd 1 - Decompression	689
Standard Deviation	0.4%
lzbench - Zstd 1 - Compression (MB/s)	408
Standard Deviation	1%
lzbench - XZ 0 - Decompression	110
lzbench - XZ 0 - Compression (MB/s)	33
NAMD - ATPase Simulation - 327,506 Atoms (days/ns)	0.56991
Standard Deviation	1.1%
LeelaChessZero - BLAS (Nodes/s)	352
Standard Deviation	1.1%
t-test1 - 2 (sec)	503.788
Standard Deviation	1.1%
t-test1 - 1 (sec)	30.632
Standard Deviation	0.3%

Blender - Classroom - CPU-Only (sec)	104.06
IndigoBench - CPU - Supercar (M samples/s)	12.700
Standard Deviation	0.7%
IndigoBench - CPU - Bedroom (M samples/s)	5.888
Standard Deviation	1.1%
AOBench - 2048 x 2048 - Total Time (sec)	74.206
Standard Deviation	0.6%
Smallpt - G.I.R.1.S (sec)	3.795
Standard Deviation	0.9%
OSPray - M.R - Path Tracer (FPS)	500
OSPray - NASA Streamlines - Path Tracer (FPS)	18.87
Standard Deviation	0%
OSPray - M.R - SciVis (FPS)	50
OSPray - XFrog Forest - Path Tracer (FPS)	6.77
Standard Deviation	0.4%
OSPray - NASA Streamlines - SciVis (FPS)	90.91
Standard Deviation	0%
OSPray - San Miguel - Path Tracer (FPS)	5.67
Standard Deviation	0.3%
OSPray - XFrog Forest - SciVis (FPS)	12.66
Standard Deviation	0%
OSPray - San Miguel - SciVis (FPS)	66.67
Standard Deviation	0%
LuxCoreRender - R.C.a.P - CPU (M samples/sec)	2.87
Standard Deviation	2.3%
LuxCoreRender - LuxCore Benchmark - CPU (M samples/sec)	1.14
Standard Deviation	1.3%
LuxCoreRender - Orange Juice - CPU (M samples/sec)	1.84
Standard Deviation	0.9%
LuxCoreRender - Danish Mood - CPU (M samples/sec)	0.93
Standard Deviation	1.6%
LuxCoreRender - DLSC - CPU (M samples/sec)	1.41
Standard Deviation	1.6%
Go Benchmarks - json (ns/op)	2257142
Standard Deviation	57.6%
BlogBench - Write (Final Score)	422
Standard Deviation	6.7%
BlogBench - Read (Final Score)	13311
Standard Deviation	8.5%

C-Ray - Total Time - 4.1.R.P.P (sec) 15.660

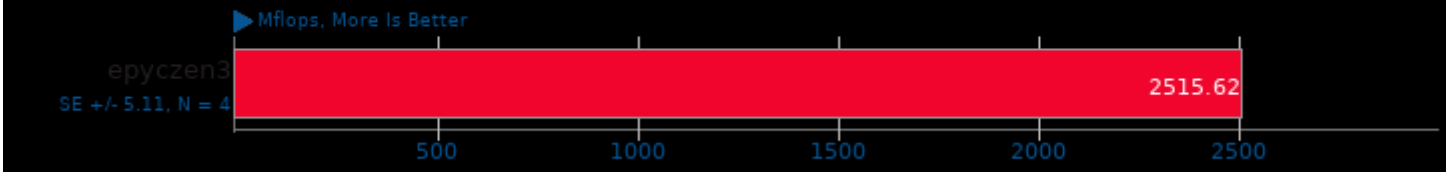
Standard Deviation 8.1%


Blender 2.92
Blend File: BMW27 - Compute: CPU-Only
Seconds, Fewer Is Better
yyyy
SE +/- 0.48, N = 2
44.91
7J13
SE +/- 0.22, N = 3
39.79
10
20
30
40
50
Renaissance 0.12
Test: Scala Dotty
ms, Fewer Is Better
epyczen3
SE +/- 17.28, N = 3
MIN: 956.43 / MAX: 1660
1627.0
300
600
900
1200
1500
DaCapo Benchmark 9.12-MR1
Java Test: Tradebeans
msec, Fewer Is Better
epyczen3
SE +/- 43.33, N = 4
5122
1100
2200
3300
4400
5500
DaCapo Benchmark 9.12-MR1
Java Test: Tradesoap
msec, Fewer Is Better
epyczen3
SE +/- 49.98, N = 20
8765
2K
4K
6K
8K
10K
DaCapo Benchmark 9.12-MR1
Java Test: Jython
msec, Fewer Is Better
epyczen3
SE +/- 14.61, N = 4
4632
1000
2000
3000
4000
5000


DaCapo Benchmark 9.12-MR1
Java Test: H2
msec, Fewer Is Better
epyczen3
SE +/- 39.66, N = 20
4233
900
1800
2700
3600
4500
Java SciMark 2.0
Computational Test: Jacobi Successive Over-Relaxation
Mflops, More Is Better
epyczen3
SE +/- 3.07, N = 4
1561.73
300
600
900
1200
1500
Java SciMark 2.0
Computational Test: Dense LU Matrix Factorization
Mflops, More Is Better
epyczen3
SE +/- 23.92, N = 4
5639.27
1200
2400
3600
4800
6000
Java SciMark 2.0
Computational Test: Sparse Matrix Multiply
Mflops, More Is Better
epyczen3
SE +/- 1.86, N = 4
2245.11
500
1000
1500
2000
2500
Java SciMark 2.0
Computational Test: Fast Fourier Transform
Mflops, More Is Better
epyczen3
SE +/- 6.12, N = 4
1839.37
400
800
1200
1600
2000
Java SciMark 2.0
Computational Test: Monte Carlo
Mflops, More Is Better
epyczen3
SE +/- 2.44, N = 4
1292.61
300
600
900
1200
1500

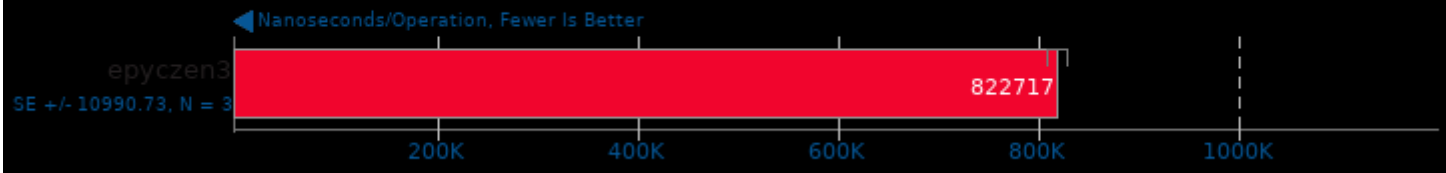
Java SciMark 2.0

Computational Test: Composite



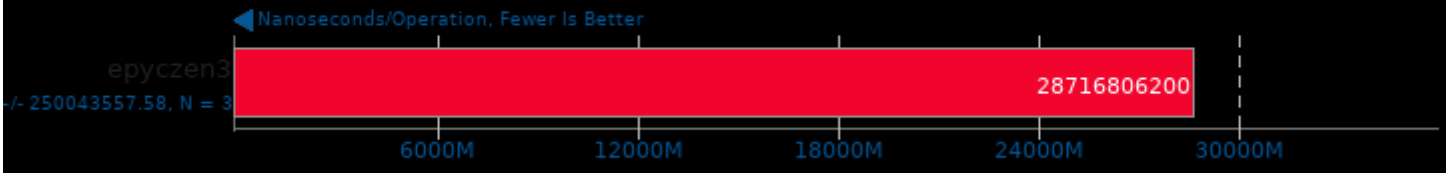
Go Benchmarks

Test: garbage



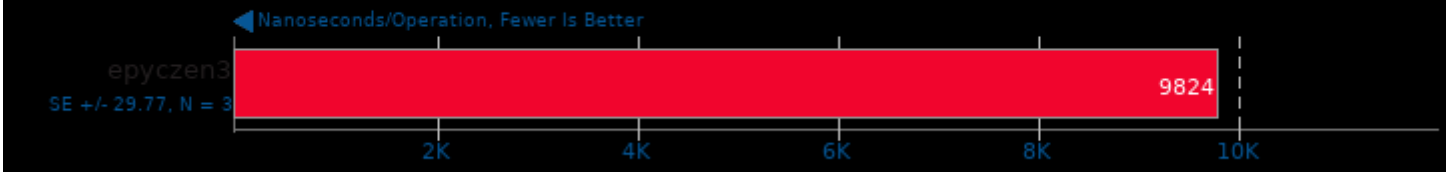
Go Benchmarks

Test: build

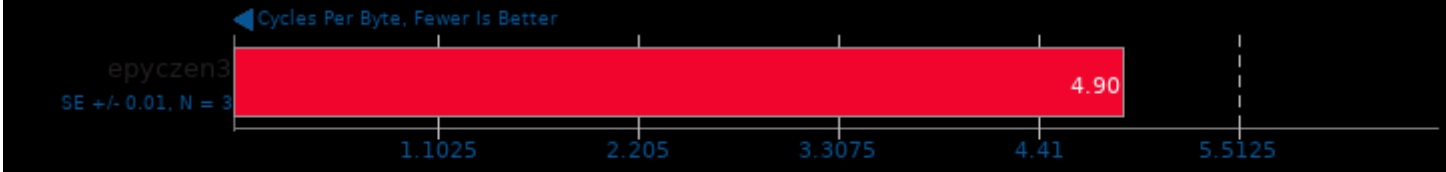


Go Benchmarks

Test: http

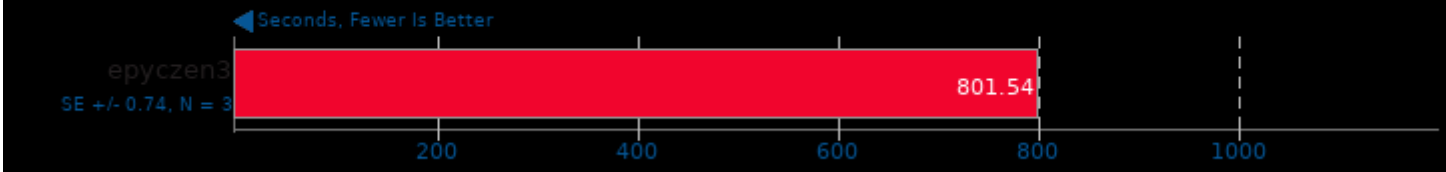


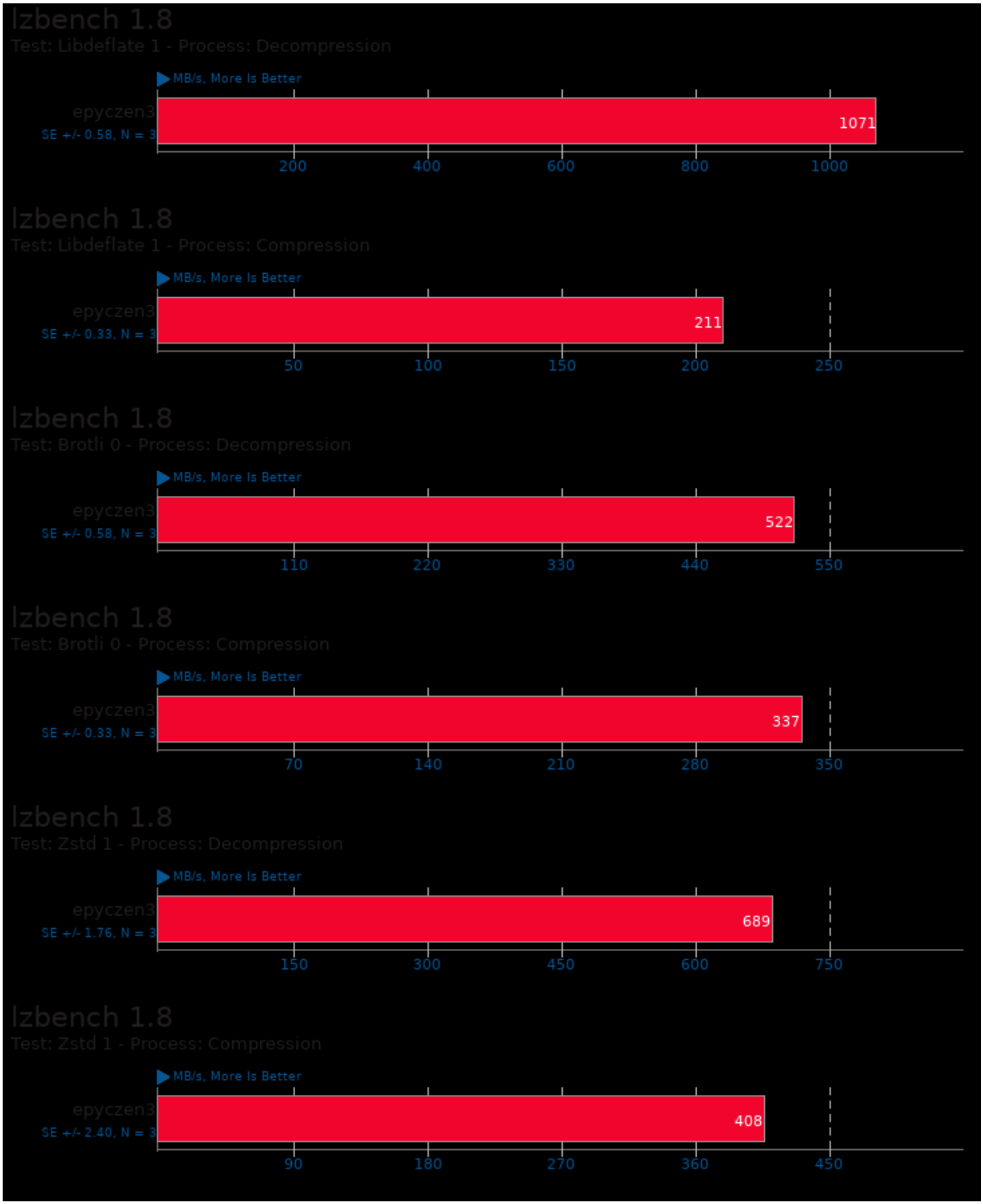
BLAKE2 20170307



Timed MrBayes Analysis 3.2.7

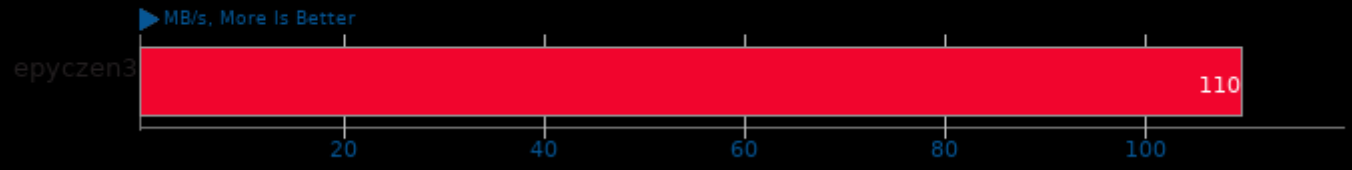
Primate Phylogeny Analysis




lzbench 1.8
Test: Libdeflate 1 - Process: Decompression
MB/s, More Is Better
epyczen3
SE +/- 0.58, N = 3
1071
200
400
600
800
1000
lzbench 1.8
Test: Libdeflate 1 - Process: Compression
MB/s, More Is Better
epyczen3
SE +/- 0.33, N = 3
211
50
100
150
200
250
lzbench 1.8
Test: Brotli 0 - Process: Decompression
MB/s, More Is Better
epyczen3
SE +/- 0.58, N = 3
522
110
220
330
440
550
lzbench 1.8
Test: Brotli 0 - Process: Compression
MB/s, More Is Better
epyczen3
SE +/- 0.33, N = 3
337
70
140
210
280
350
lzbench 1.8
Test: Zstd 1 - Process: Decompression
MB/s, More Is Better
epyczen3
SE +/- 1.76, N = 3
689
150
300
450
600
750
lzbench 1.8
Test: Zstd 1 - Process: Compression
MB/s, More Is Better
epyczen3
SE +/- 2.40, N = 3
408
90
180
270
360
450

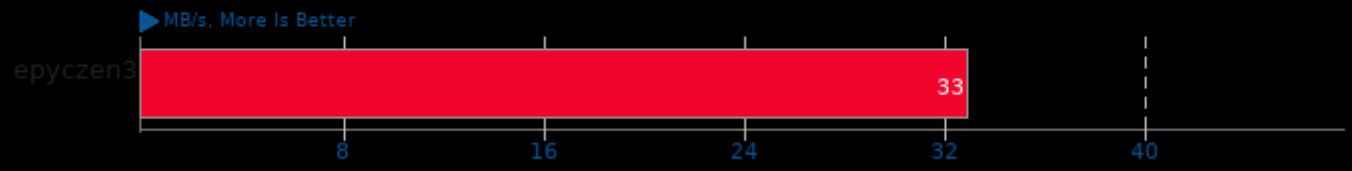
lzbench 1.8

Test: XZ 0 - Process: Decompression



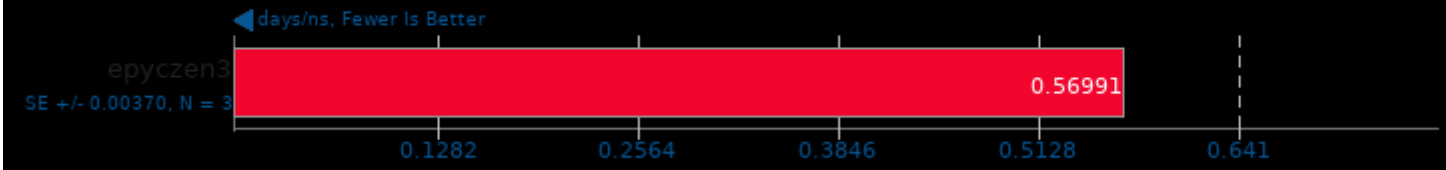
lzbench 1.8

Test: XZ 0 - Process: Compression



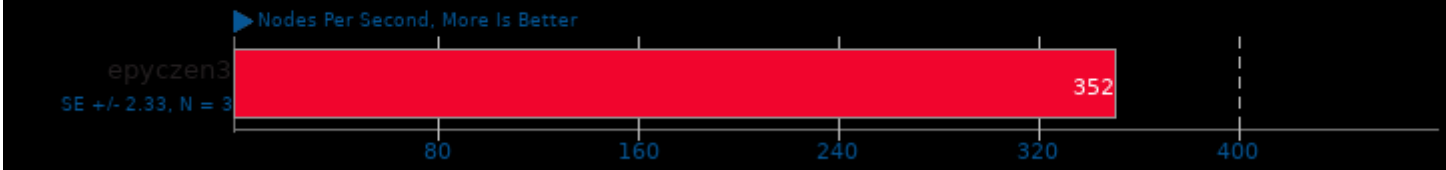
NAMD 2.14

ATPase Simulation - 327,506 Atoms



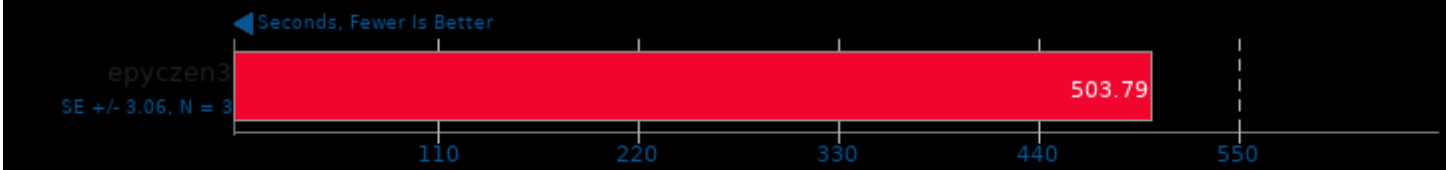
LeelaChessZero 0.26

Backend: BLAS



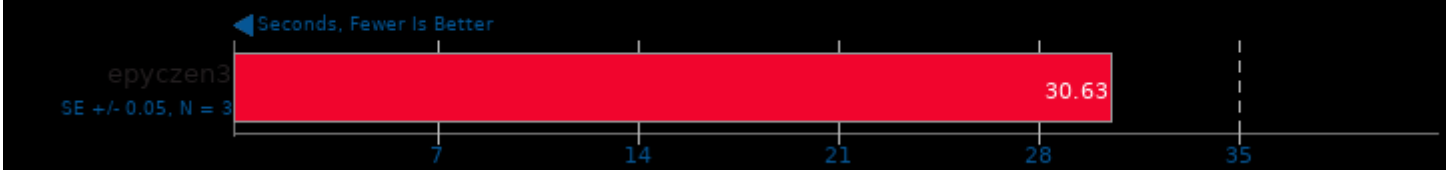
t-test1 2017-01-13

Threads: 2



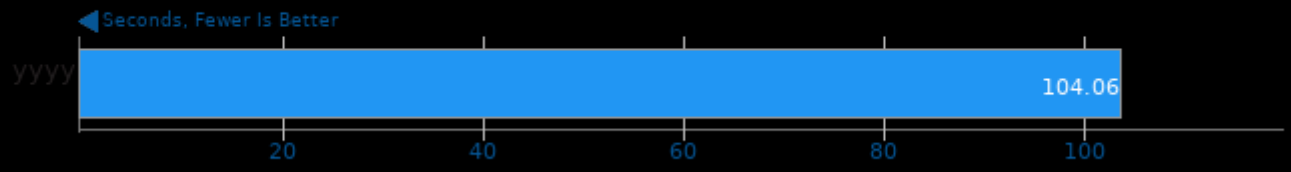
t-test1 2017-01-13

Threads: 1



Blender 2.92

Blend File: Classroom - Compute: CPU-Only



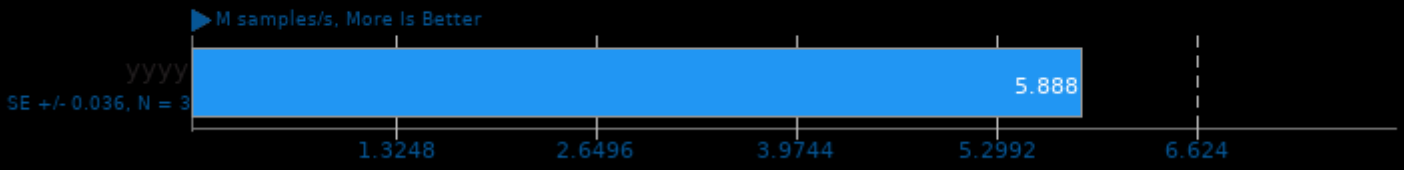
IndigoBench 4.4

Acceleration: CPU - Scene: Supercar



IndigoBench 4.4

Acceleration: CPU - Scene: Bedroom



AOBench

Size: 2048 x 2048 - Total Time



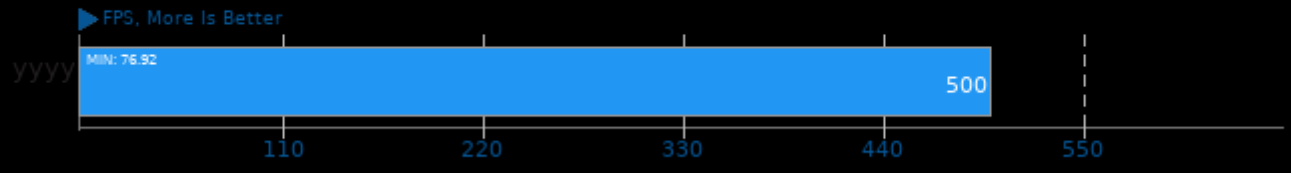
Smallpt 1.0

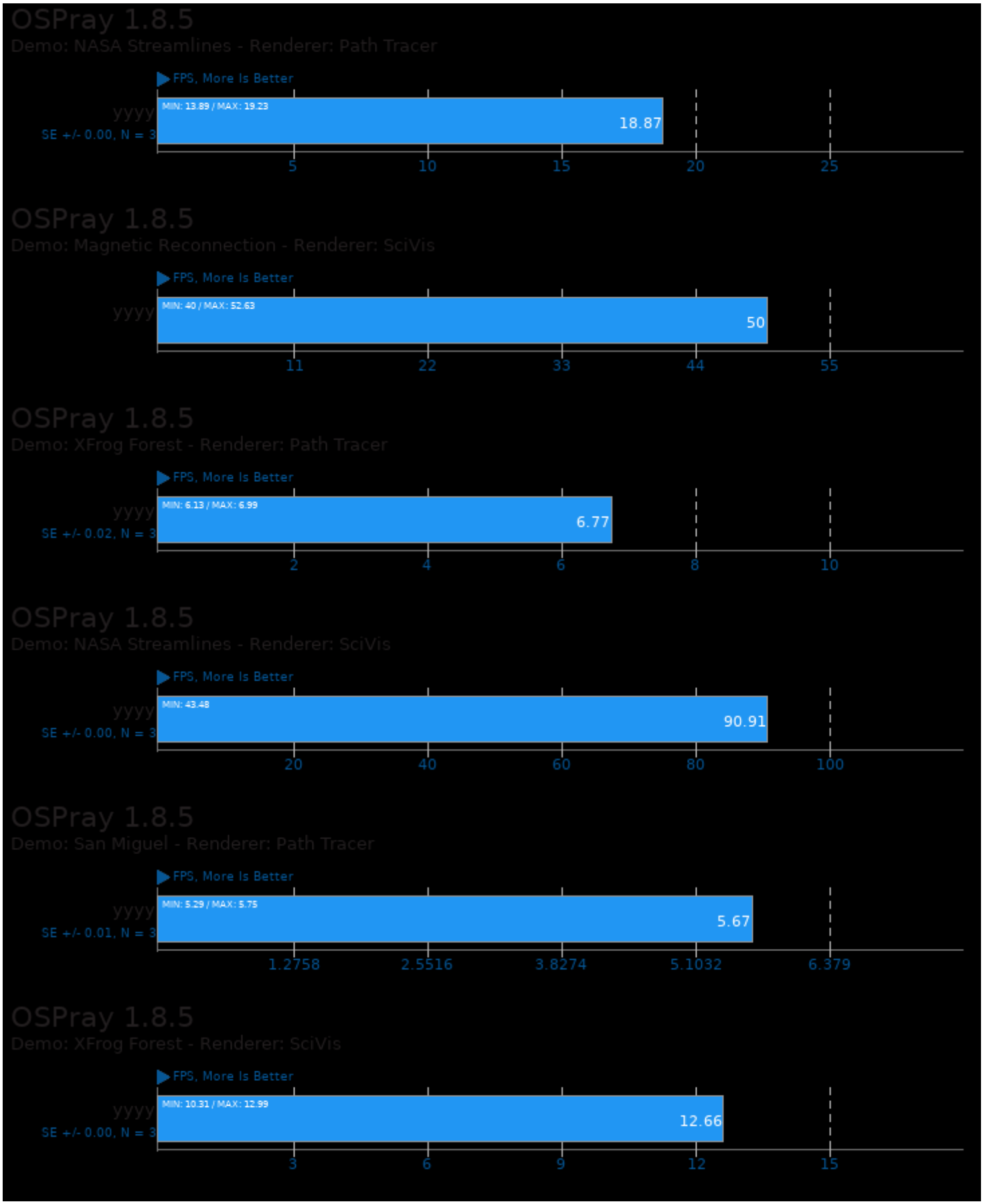
Global Illumination Renderer; 128 Samples

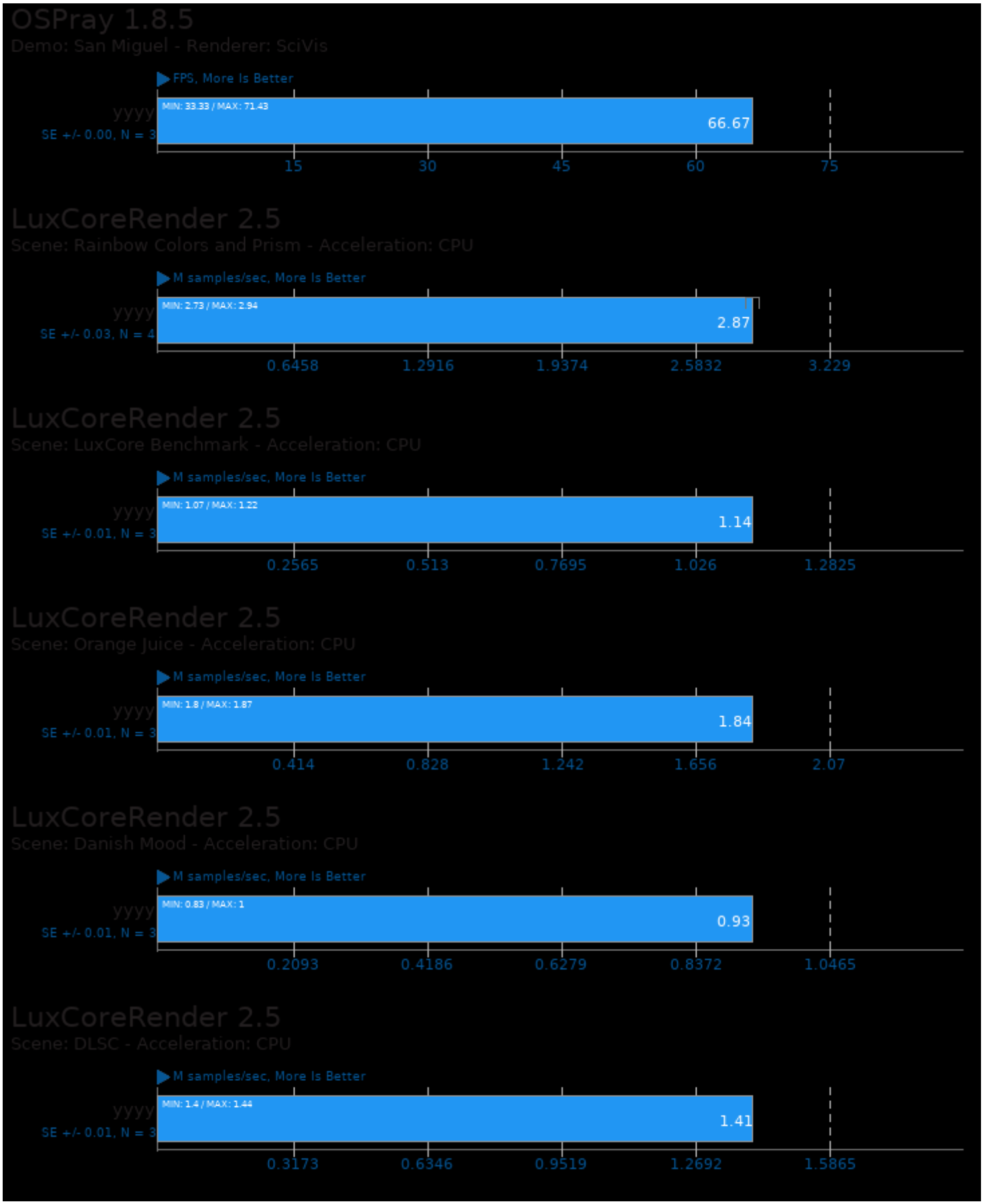


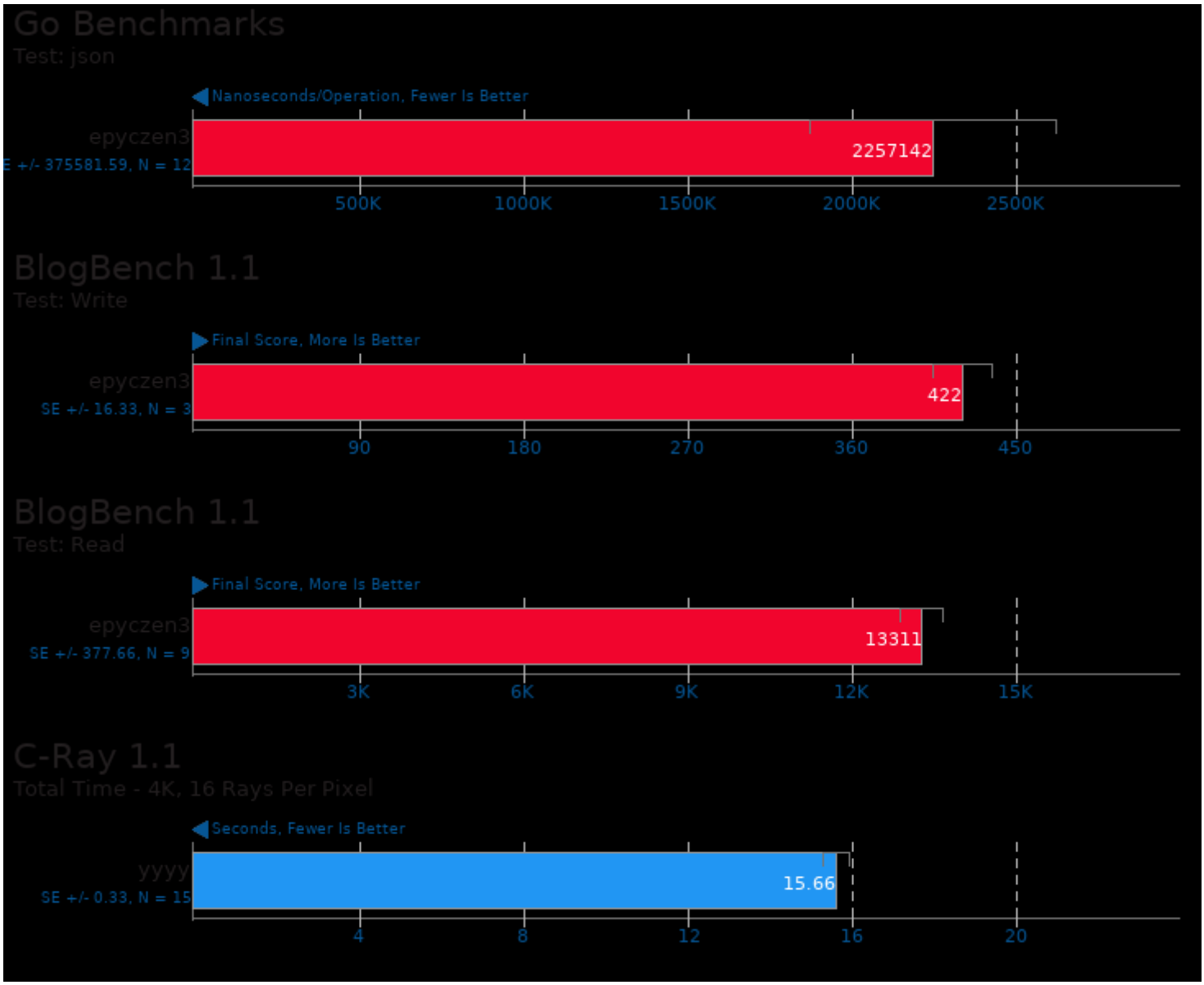
OSPray 1.8.5

Demo: Magnetic Reconnection - Renderer: Path Tracer




OSPray 1.8.5
Demo: NASA Streamlines - Renderer: Path Tracer
FPS, More Is Better
yyyy
SE +/- 0.00, N = 3
MIN: 13.89 / MAX: 19.23
18.87
5
10
15
20
25
OSPray 1.8.5
Demo: Magnetic Reconnection - Renderer: SciVis
FPS, More Is Better
yyyy
MIN: 40 / MAX: 52.63
50
11
22
33
44
55
OSPray 1.8.5
Demo: XFrog Forest - Renderer: Path Tracer
FPS, More Is Better
yyyy
SE +/- 0.02, N = 3
MIN: 6.13 / MAX: 6.99
6.77
2
4
6
8
10
OSPray 1.8.5
Demo: NASA Streamlines - Renderer: SciVis
FPS, More Is Better
yyyy
SE +/- 0.00, N = 3
MIN: 43.48
90.91
20
40
60
80
100
OSPray 1.8.5
Demo: San Miguel - Renderer: Path Tracer
FPS, More Is Better
yyyy
SE +/- 0.01, N = 3
MIN: 5.29 / MAX: 5.75
5.67
1.2758
2.5516
3.8274
5.1032
6.379
OSPray 1.8.5
Demo: XFrog Forest - Renderer: SciVis
FPS, More Is Better
yyyy
SE +/- 0.00, N = 3
MIN: 10.31 / MAX: 12.99
12.66
3
6
9
12
15


OSPray 1.8.5
Demo: San Miguel - Renderer: SciVis
FPS, More Is Better
yyyy
SE +/- 0.00, N = 3
MIN: 33.33 / MAX: 71.43
66.67
15
30
45
60
75
LuxCoreRender 2.5
Scene: Rainbow Colors and Prism - Acceleration: CPU
M samples/sec, More Is Better
yyyy
SE +/- 0.03, N = 4
MIN: 2.73 / MAX: 2.94
2.87
0.6458
1.2916
1.9374
2.5832
3.229
LuxCoreRender 2.5
Scene: LuxCore Benchmark - Acceleration: CPU
M samples/sec, More Is Better
yyyy
SE +/- 0.01, N = 3
MIN: 1.07 / MAX: 1.22
1.14
0.2565
0.513
0.7695
1.026
1.2825
LuxCoreRender 2.5
Scene: Orange Juice - Acceleration: CPU
M samples/sec, More Is Better
yyyy
SE +/- 0.01, N = 3
MIN: 1.8 / MAX: 1.87
1.84
0.414
0.828
1.242
1.656
2.07
LuxCoreRender 2.5
Scene: Danish Mood - Acceleration: CPU
M samples/sec, More Is Better
yyyy
SE +/- 0.01, N = 3
MIN: 0.83 / MAX: 1
0.93
0.2093
0.4186
0.6279
0.8372
1.0465
LuxCoreRender 2.5
Scene: DLSC - Acceleration: CPU
M samples/sec, More Is Better
yyyy
SE +/- 0.01, N = 3
MIN: 1.4 / MAX: 1.44
1.41
0.3173
0.6346
0.9519
1.2692
1.5865



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