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TR 3990X Updated Tests

AMD Ryzen Threadripper 3990X 64-Core testing with a System76 Thelio Major (F4c Z5 BIOS) and AMD Radeon RX 5600 OEM/5600 XT / 5700/5700 8GB on Pop 20.10 via the Phoronix Test Suite.

Automated Executive Summary

1 had the most wins, coming in first place for 68% of the tests.

Based on the geometric mean of all complete results, the fastest (1) was 1.008x the speed of the slowest (3). 2 was 0.996x the speed of 1 and 3 was 0.996x the speed of 2.

The results with the greatest spread from best to worst included:

JPEG XL Decoding (CPU Threads: 1) at 1.038x
Basis Universal (Settings: ETC1S) at 1.022x
AOM AV1 (Encoder Mode: Speed 6 Realtime) at 1.018x
Mobile Neural Network (Model: inception-v3) at 1.016x
JPEG XL (Input: PNG - Encode Speed: 5) at 1.015x
Mobile Neural Network (Model: resnet-v2-50) at 1.015x
AOM AV1 (Encoder Mode: Speed 6 Two-Pass) at 1.015x
JPEG XL (Input: JPEG - Encode Speed: 5) at 1.012x
JPEG XL (Input: JPEG - Encode Speed: 7) at 1.012x

JPEG XL (Input: PNG - Encode Speed: 8) at 1.012x.

Test Systems:

1

2

3

Processor: AMD Ryzen Threadripper 3990X 64-Core @ 2.90GHz (64 Cores / 128 Threads), Motherboard: System76 Thelio Major (F4c Z5 BIOS), Chipset: AMD Starship/Matisse, Memory: 126GB, Disk: Samsung SSD 970 EVO Plus 500GB, Graphics: AMD Radeon RX 5600 OEM/5600 XT / 5700/5700 8GB (1750/875MHz), Audio: AMD Navi 10 HDMI Audio, Monitor: DELL P2415Q, Network: Intel I211 + Intel Wi-Fi 6 AX200

OS: Pop 20.10, Kernel: 5.8.0-7630-generic (x86_64), Desktop: GNOME Shell 3.38.2, Display Server: X Server 1.20.8, OpenGL: 4.6 Mesa 21.1.0-devel (git-96d7555 2021-01-22 groovy-oibaf-ppa) (LLVM 11.0.1), Vulkan: 1.2.145, Compiler: GCC 10.2.0 + Clang 11.0.1-1~oibaf~g, File-System: ext4, Screen Resolution: 3840x2160

Kernel Notes: snd_usb_audio.ignore_ctl_error=1 - Transparent Huge Pages: madvise
Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,m2 --enable-libphobos-checking=release --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-10-JvwpWM/gcc-10-10.2.0/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-10-JvwpWM/gcc-10-10.2.0/debian/tmp-gcn/usr,hsa --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq ondemand (Boost: Enabled) - CPU Microcode: 0x8301025
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Full AMD retpoline IBPB: conditional STIBP: conditional RSB filling + srbds: Not affected + tsx_async_abort: Not affected

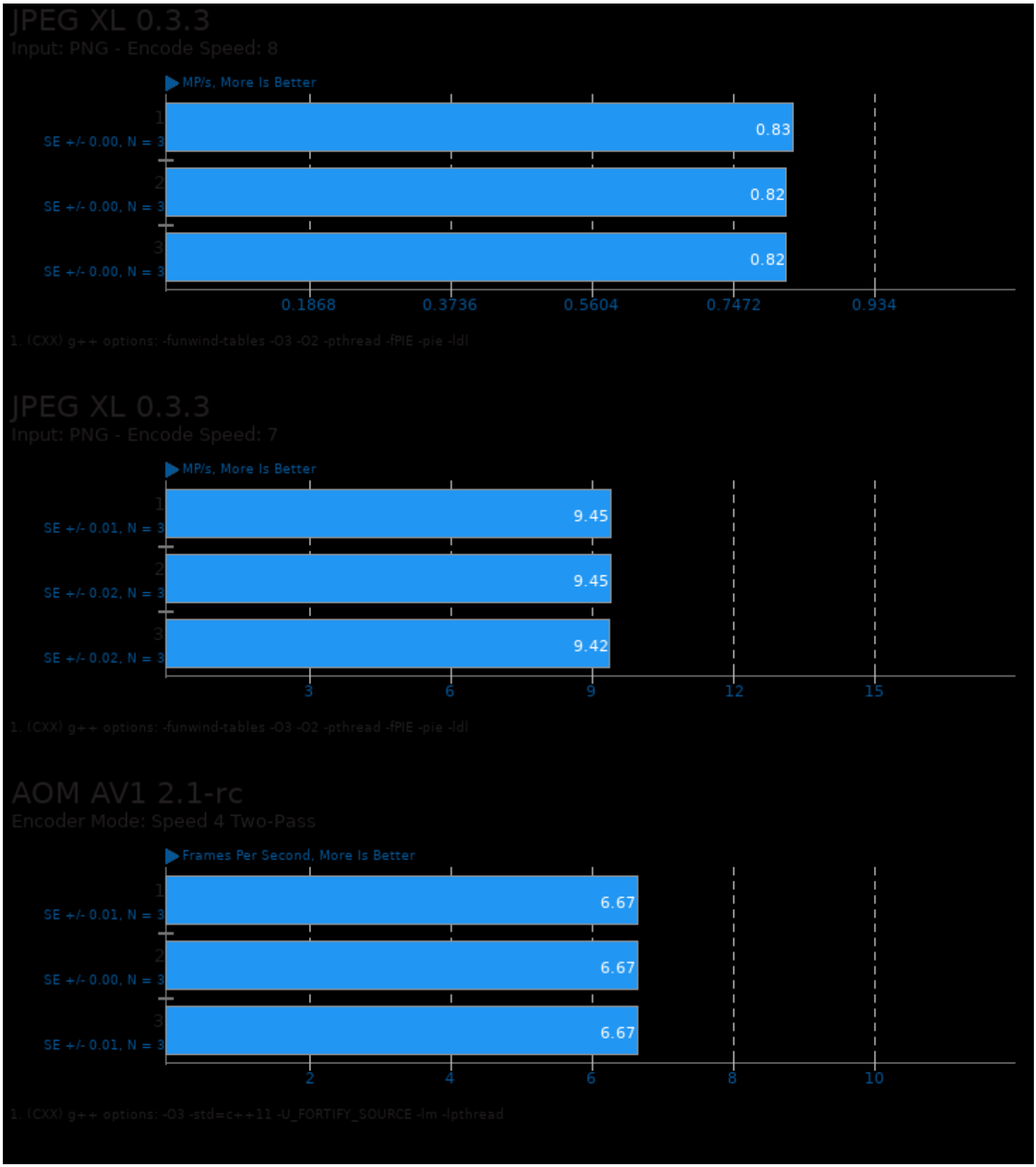
	1	2	3
JPEG XL - PNG - 8 (MP/s)	**0.83**	**0.82**	**0.82**
Normalized	100%	98.8%	98.8%
Standard Deviation	0%	0.7%	0.7%
JPEG XL - PNG - 7 (MP/s)	**9.45**	**9.45**	**9.42**
Normalized	100%	100%	99.68%
Standard Deviation	0.3%	0.3%	0.3%
AOM AV1 - Speed 4 Two-Pass (FPS)	6.67	6.67	6.67
Standard Deviation	0.1%	0.1%	0.4%
Mobile Neural Network - inception-v3 (ms)	**35.926**	36.367	**36.486**
Normalized	100%	98.79%	98.47%
Standard Deviation	0.8%	2.2%	1.8%
Mobile Neural Network - mobilenet-v1-1.0	**4.072**	**4.289**	4.086
Normalized	100%	94.94%	99.66%
Standard Deviation	1.5%	9%	3.5%

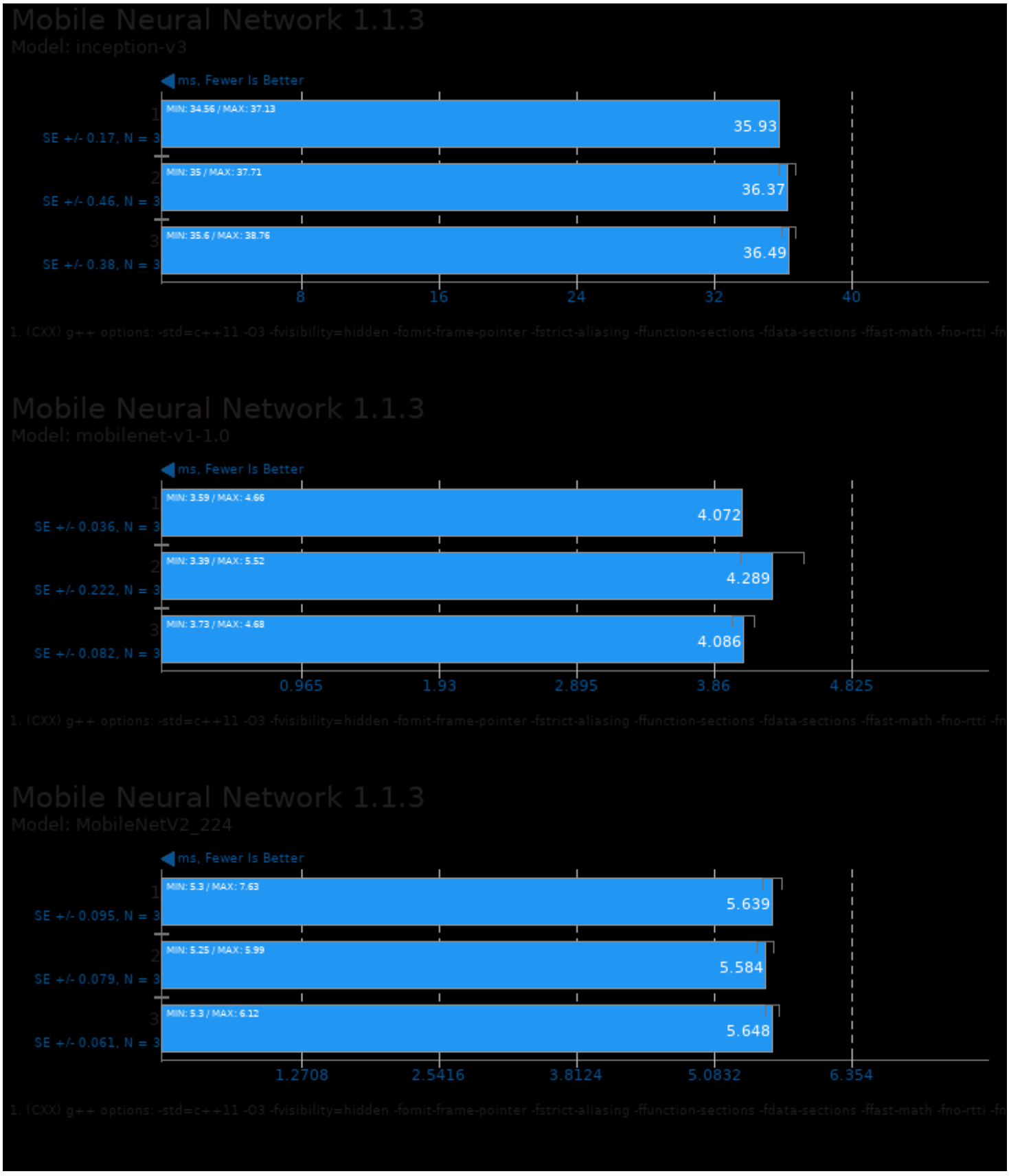
TR 3990X Updated Tests

Mobile Neural Network - MobileNetV2_224	5.639	**5.584**	**5.648**
Normalized	99.02%	100%	98.87%
Standard Deviation	2.9%	2.5%	1.9%
Mobile Neural Network - resnet-v2-50 (ms)	28.331	**28.227**	**28.645**
Normalized	99.63%	100%	98.54%
Standard Deviation	2.4%	0.5%	0.8%
Mobile Neural Network - SqueezeNetV1.0	7.710	**7.654**	**7.720**
Normalized	99.27%	100%	99.15%
Standard Deviation	0.3%	0.2%	0.7%
AOM AV1 - Speed 0 Two-Pass (FPS)	0.28	0.28	0.28
Standard Deviation	0%	2%	0%
JPEG XL Decoding - 1 (MP/s)	**40.88**	40.18	**39.38**
Normalized	100%	98.29%	96.33%
Standard Deviation	0.2%	0.2%	0.3%
simdjson - PartialTweets (GB/s)	**3.68**	3.66	**3.65**
Normalized	100%	99.46%	99.18%
Standard Deviation	0.2%	0.4%	0%
simdjson - DistinctUserID (GB/s)	**4.25**	**4.22**	4.24
Normalized	100%	99.29%	99.76%
Standard Deviation	0.8%	0.5%	0.5%
simdjson - Kostya (GB/s)	**2.62**	**2.62**	**2.61**
Normalized	100%	100%	99.62%
Standard Deviation	0.6%	0.8%	0.6%
simdjson - LargeRand (GB/s)	0.95	0.95	0.95
Standard Deviation	0.6%	1.1%	1.1%
AOM AV1 - Speed 6 Two-Pass (FPS)	19.17	**19.25**	**18.97**
Normalized	99.58%	100%	98.55%
Standard Deviation	0.3%	0.5%	0.4%
JPEG XL Decoding - All (MP/s)	223.16	**223.85**	**222.56**
Normalized	99.69%	100%	99.42%
Standard Deviation	0.3%	0.4%	0.8%
AOM AV1 - Speed 6 Realtime (FPS)	21.16	**21.36**	**20.98**
Normalized	99.06%	100%	98.22%
Standard Deviation	1%	0.4%	1%
ASTC Encoder - Exhaustive (sec)	21.2214	**21.1785**	**21.2419**
Normalized	99.8%	100%	99.7%
Standard Deviation	1.2%	0.9%	1%
Basis Universal - ETC1S (sec)	**23.698**	23.919	**24.219**
Normalized	100%	99.08%	97.85%
Standard Deviation	0.5%	0.4%	1.2%
JPEG XL - JPEG - 5 (MP/s)	**66.03**	65.59	**65.22**
Normalized	100%	99.33%	98.77%
Standard Deviation	0.4%	0.6%	0.2%
JPEG XL - PNG - 5 (MP/s)	**76.78**	76.36	**75.62**
Normalized	100%	99.45%	98.49%
Standard Deviation	0.4%	0.6%	1.3%
JPEG XL - JPEG - 7 (MP/s)	**66.30**	66.10	**65.49**
Normalized	100%	99.7%	98.78%
Standard Deviation	0.2%	0.6%	0.7%
Basis Universal - UASTC Level 3 (sec)	**14.803**	**14.924**	14.875
Normalized	100%	99.19%	99.52%
Standard Deviation	0.4%	0.4%	0.4%
Basis Universal - UASTC Level 2 (sec)	**10.459**	10.536	**10.568**
Normalized	100%	99.27%	98.97%
Standard Deviation	0.5%	0.1%	0.2%

TR 3990X Updated Tests

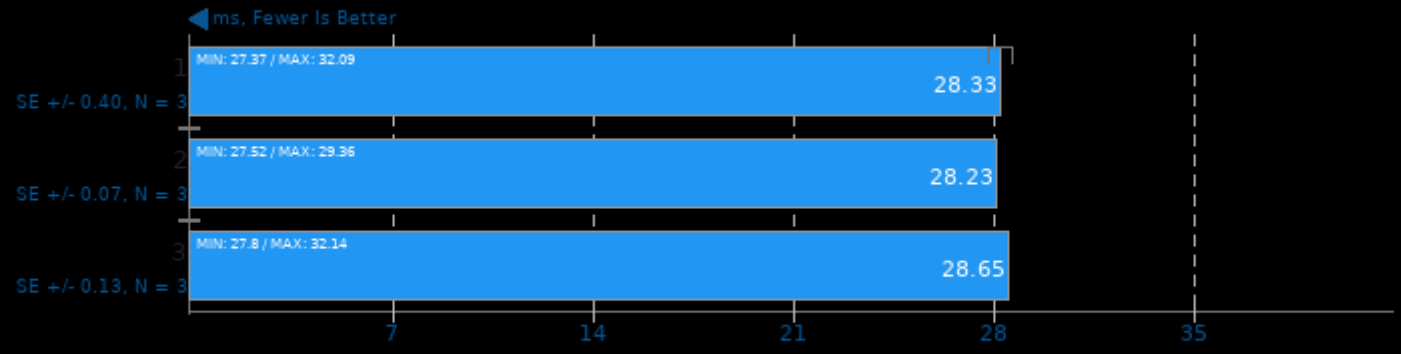
JPEG XL - JPEG - 8 (MP/s)	**30.43**	30.41	**30.18**
Normalized	100%	99.93%	99.18%
Standard Deviation	0.6%	0.1%	0.3%
AOM AV1 - Speed 8 Realtime (FPS)	64.19	**64.32**	**63.62**
Normalized	99.8%	100%	98.91%
Standard Deviation	1.4%	1%	0.1%
ASTC Encoder - Thorough (sec)	7.7137	**7.7159**	**7.6894**
Normalized	99.68%	99.66%	100%
Standard Deviation	0.3%	0.5%	0.6%
Basis Universal - UASTC Level 0 (sec)	**6.460**	**6.536**	6.527
Normalized	100%	98.84%	98.97%
Standard Deviation	0.5%	0.1%	0.4%
ASTC Encoder - Medium (sec)	**4.5939**	**4.6404**	4.6191
Normalized	100%	99%	99.45%
Standard Deviation	0.7%	0.1%	0.8%


JPEG XL 0.3.3
Input: PNG - Encode Speed: 8
MP/s, More Is Better
1
SE +/- 0.00, N = 3
0.83
2
SE +/- 0.00, N = 3
0.82
3
SE +/- 0.00, N = 3
0.82
0.1868
0.3736
0.5604
0.7472
0.934
1. (CXX) g++ options: -funwind-tables -O3 -O2 -pthread -fPIE -pie -ldl
JPEG XL 0.3.3
Input: PNG - Encode Speed: 7
MP/s, More Is Better
1
SE +/- 0.01, N = 3
9.45
2
SE +/- 0.02, N = 3
9.45
3
SE +/- 0.02, N = 3
9.42
3
6
9
12
15
1. (CXX) g++ options: -funwind-tables -O3 -O2 -pthread -fPIE -pie -ldl
AOM AV1 2.1-rc
Encoder Mode: Speed 4 Two-Pass
Frames Per Second, More Is Better
1
SE +/- 0.01, N = 3
6.67
2
SE +/- 0.00, N = 3
6.67
3
SE +/- 0.01, N = 3
6.67
2
4
6
8
10
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm -lpthread


Mobile Neural Network 1.1.3
Model: inception-v3
ms, Fewer Is Better
1
MIN: 34.56 / MAX: 37.13
35.93
SE +/- 0.17, N = 3
2
MIN: 35 / MAX: 37.71
36.37
SE +/- 0.46, N = 3
3
MIN: 35.6 / MAX: 38.76
36.49
SE +/- 0.38, N = 3
8
16
24
32
40
1. (CXX) g++ options: -std=c++11 -O3 -fvisibility=hidden -fomit-frame-pointer -fstrict-aliasing -ffunction-sections -fdata-sections -ffast-math -fno-rtti -fv
Mobile Neural Network 1.1.3
Model: mobilenet-v1-1.0
ms, Fewer Is Better
1
MIN: 3.59 / MAX: 4.66
4.072
SE +/- 0.036, N = 3
2
MIN: 3.39 / MAX: 5.52
4.289
SE +/- 0.222, N = 3
3
MIN: 3.73 / MAX: 4.68
4.086
SE +/- 0.082, N = 3
0.965
1.93
2.895
3.86
4.825
1. (CXX) g++ options: -std=c++11 -O3 -fvisibility=hidden -fomit-frame-pointer -fstrict-aliasing -ffunction-sections -fdata-sections -ffast-math -fno-rtti -fv
Mobile Neural Network 1.1.3
Model: MobileNetV2_224
ms, Fewer Is Better
1
MIN: 5.3 / MAX: 7.63
5.639
SE +/- 0.095, N = 3
2
MIN: 5.25 / MAX: 5.99
5.584
SE +/- 0.079, N = 3
3
MIN: 5.3 / MAX: 6.12
5.648
SE +/- 0.061, N = 3
1.2708
2.5416
3.8124
5.0832
6.354
1. (CXX) g++ options: -std=c++11 -O3 -fvisibility=hidden -fomit-frame-pointer -fstrict-aliasing -ffunction-sections -fdata-sections -ffast-math -fno-rtti -fv

Mobile Neural Network 1.1.3

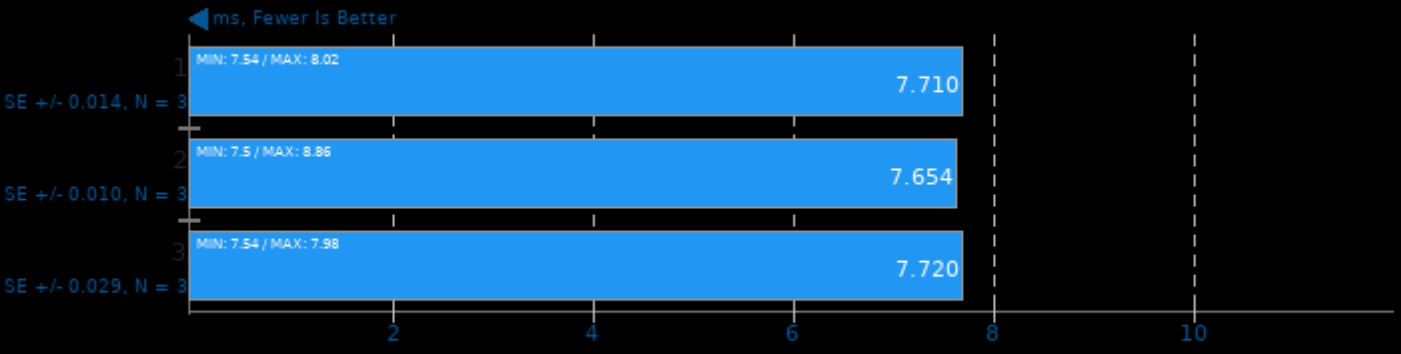
Model: resnet-v2-50



1. (CXX) g++ options: -std=c++11 -O3 -fvisibility=hidden -fomit-frame-pointer -fstrict-aliasing -ffunction-sections -fdata-sections -ffast-math -fno-rtti -fv

Mobile Neural Network 1.1.3

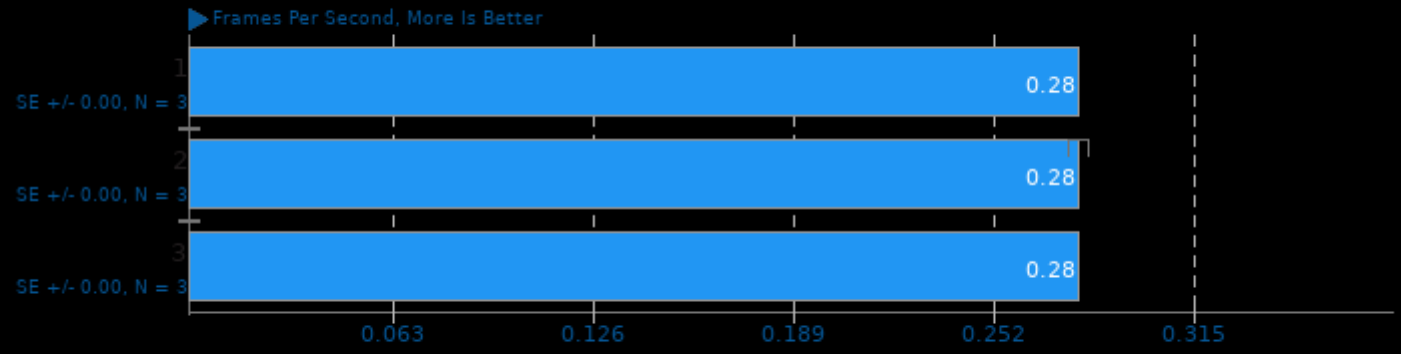
Model: SqueezeNetV1.0



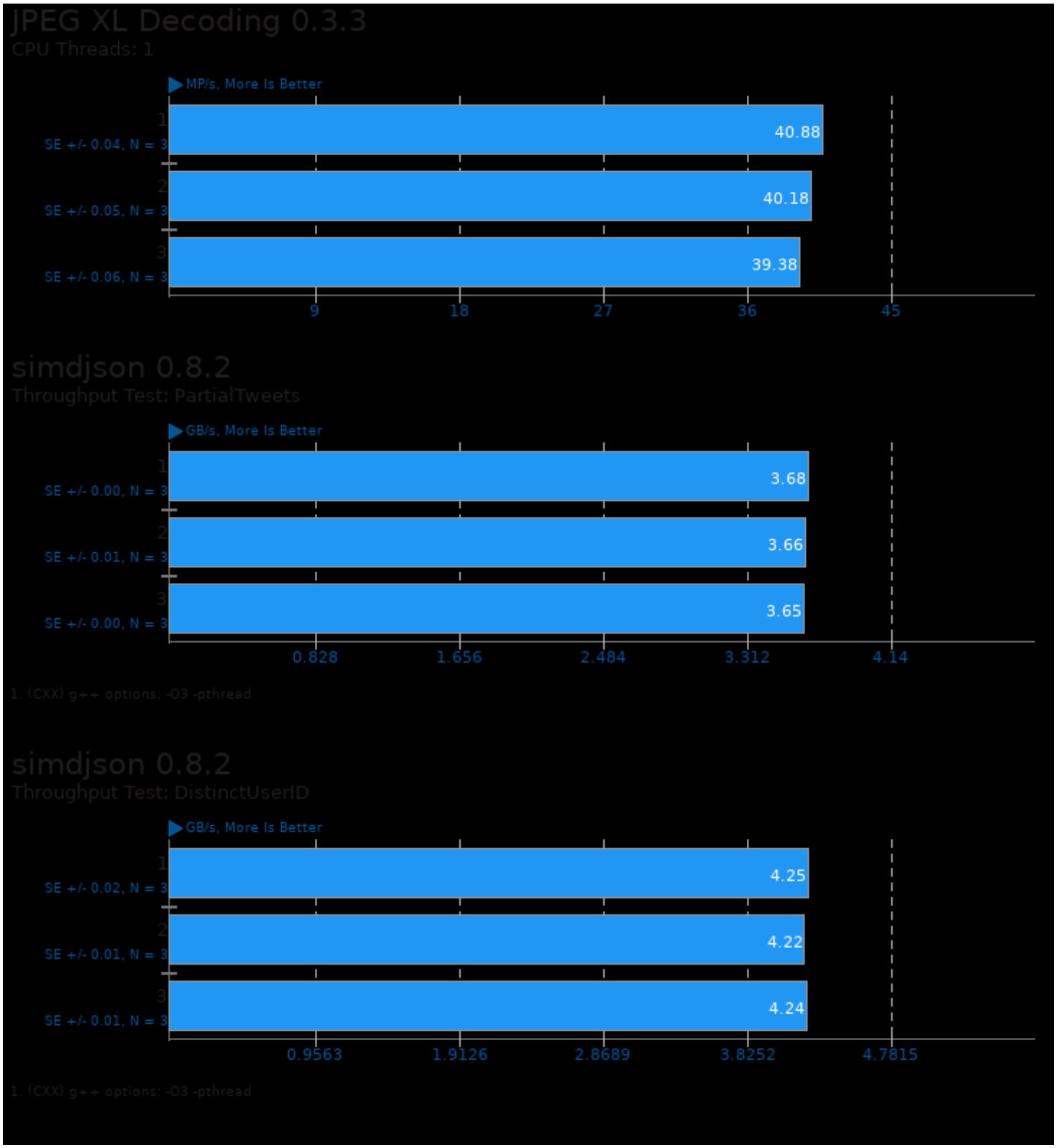
1. (CXX) g++ options: -std=c++11 -O3 -fvisibility=hidden -fomit-frame-pointer -fstrict-aliasing -ffunction-sections -fdata-sections -ffast-math -fno-rtti -fv

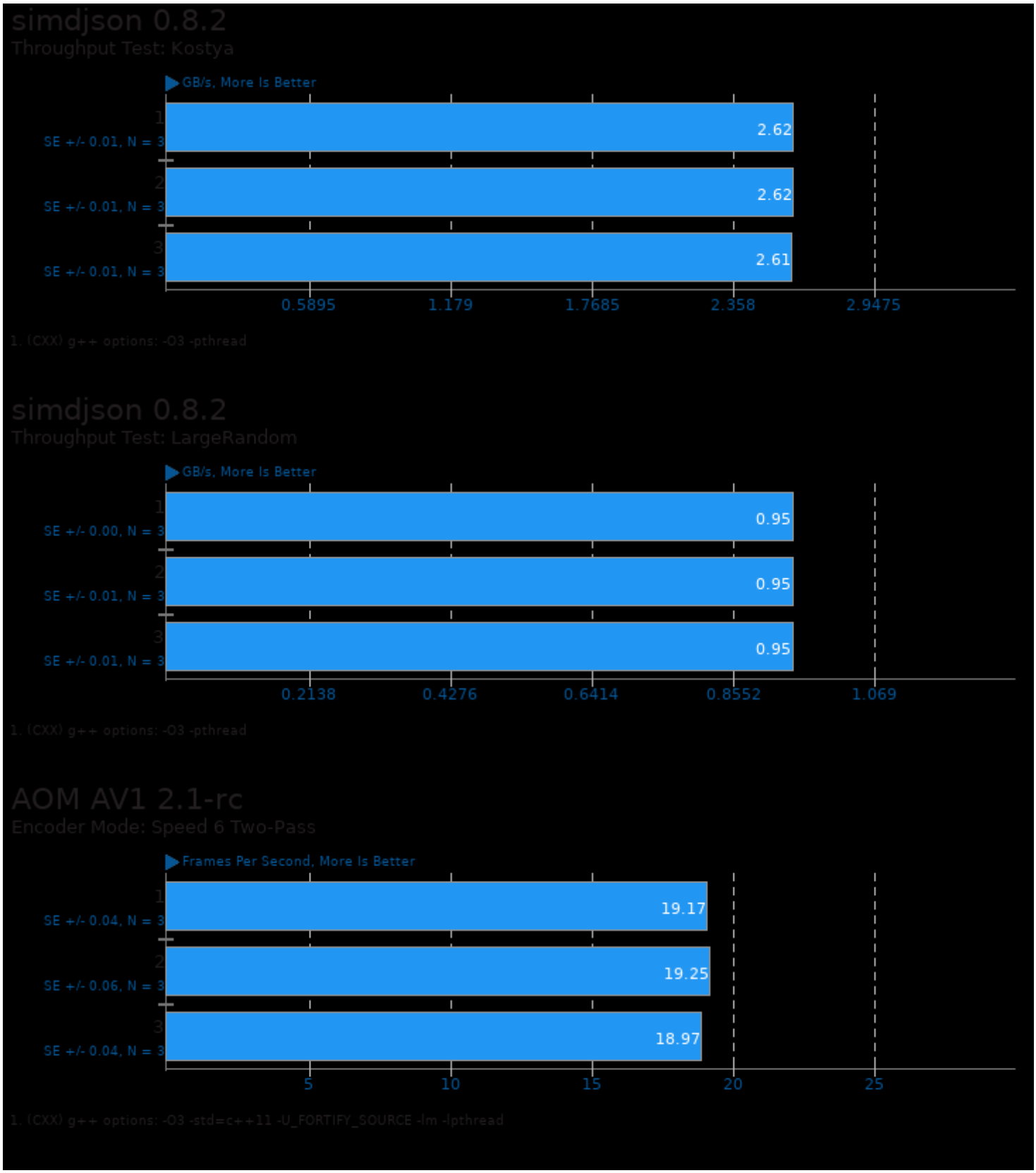
AOM AV1 2.1-rc

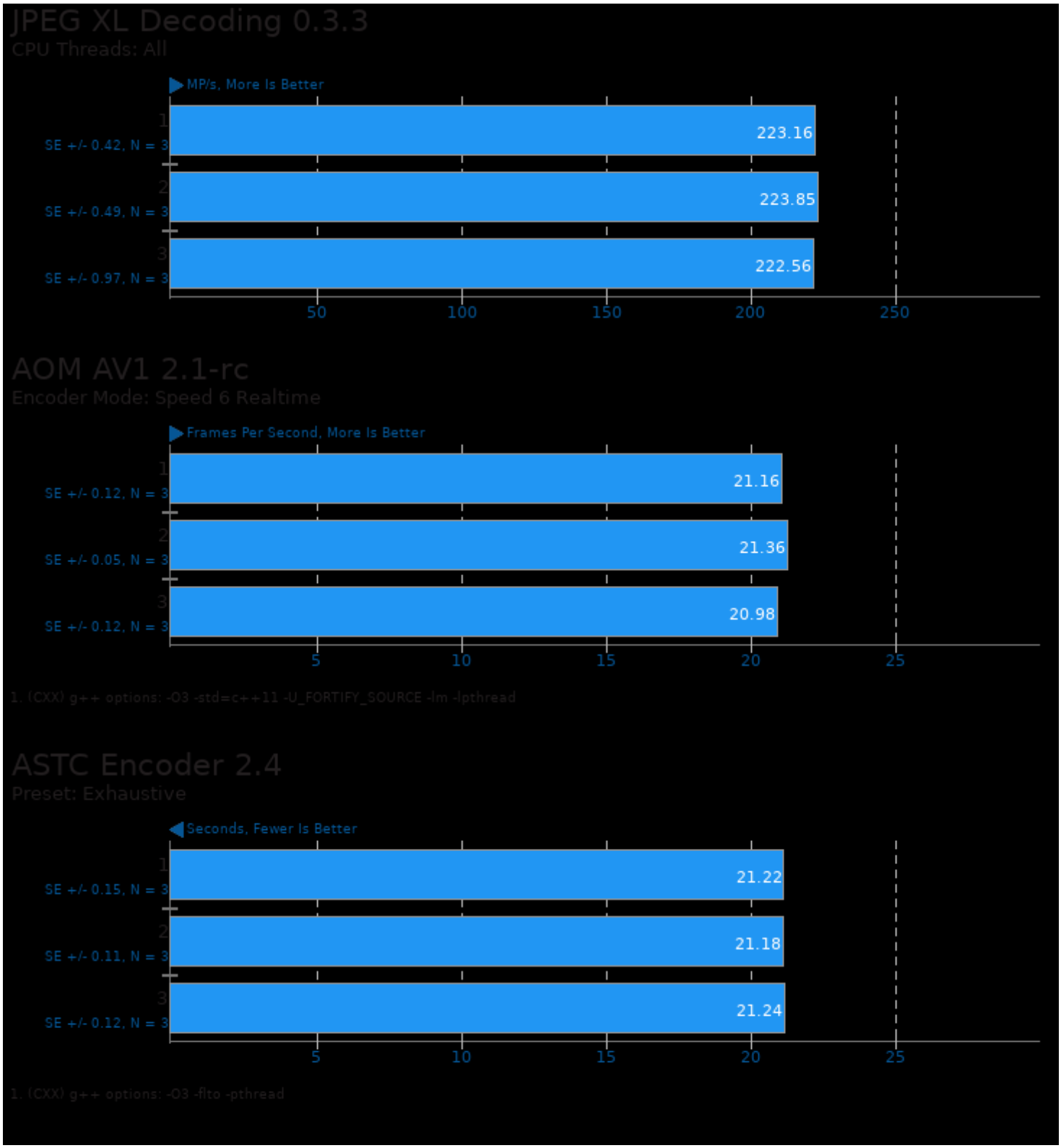
Encoder Mode: Speed 0 Two-Pass

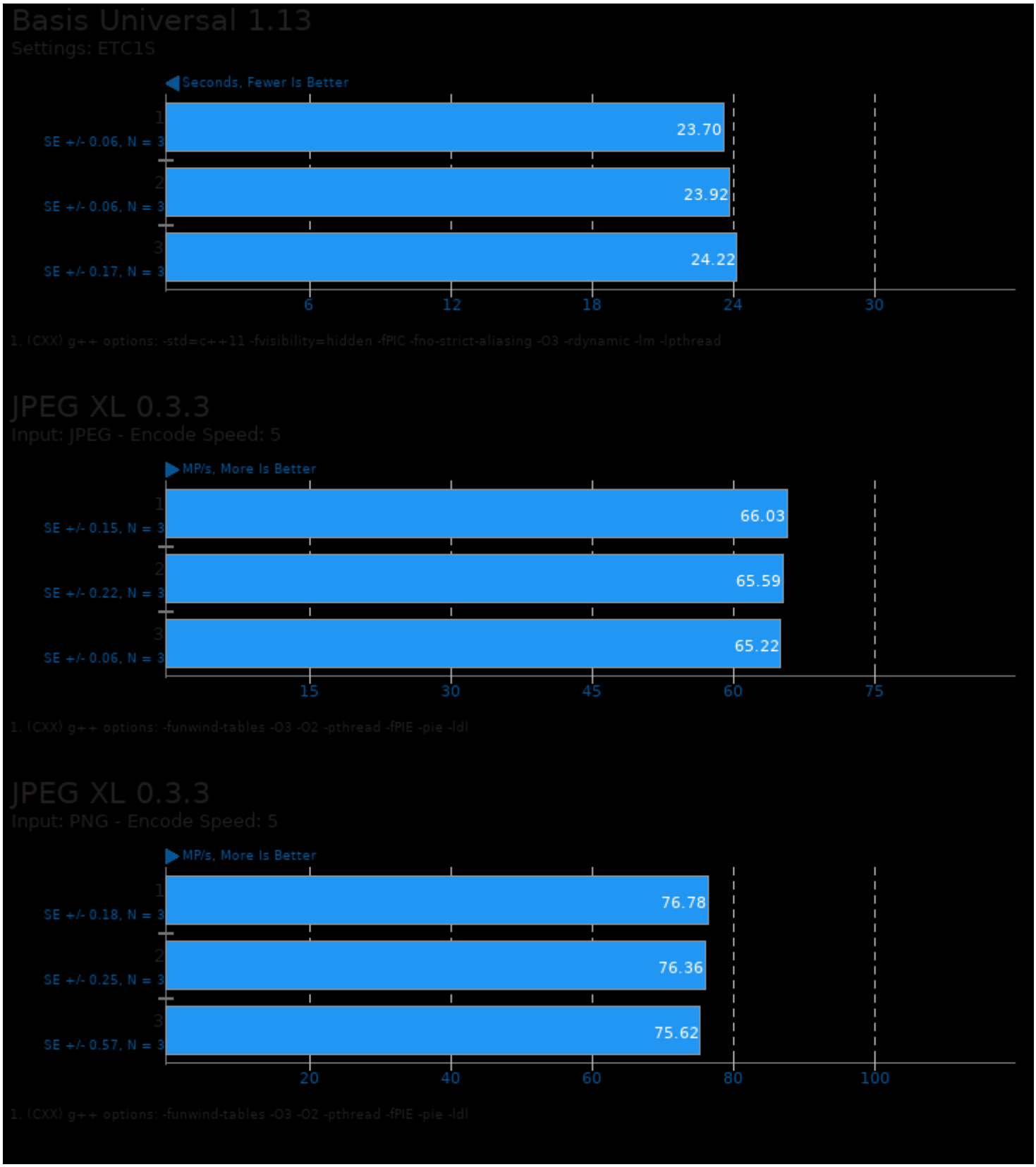


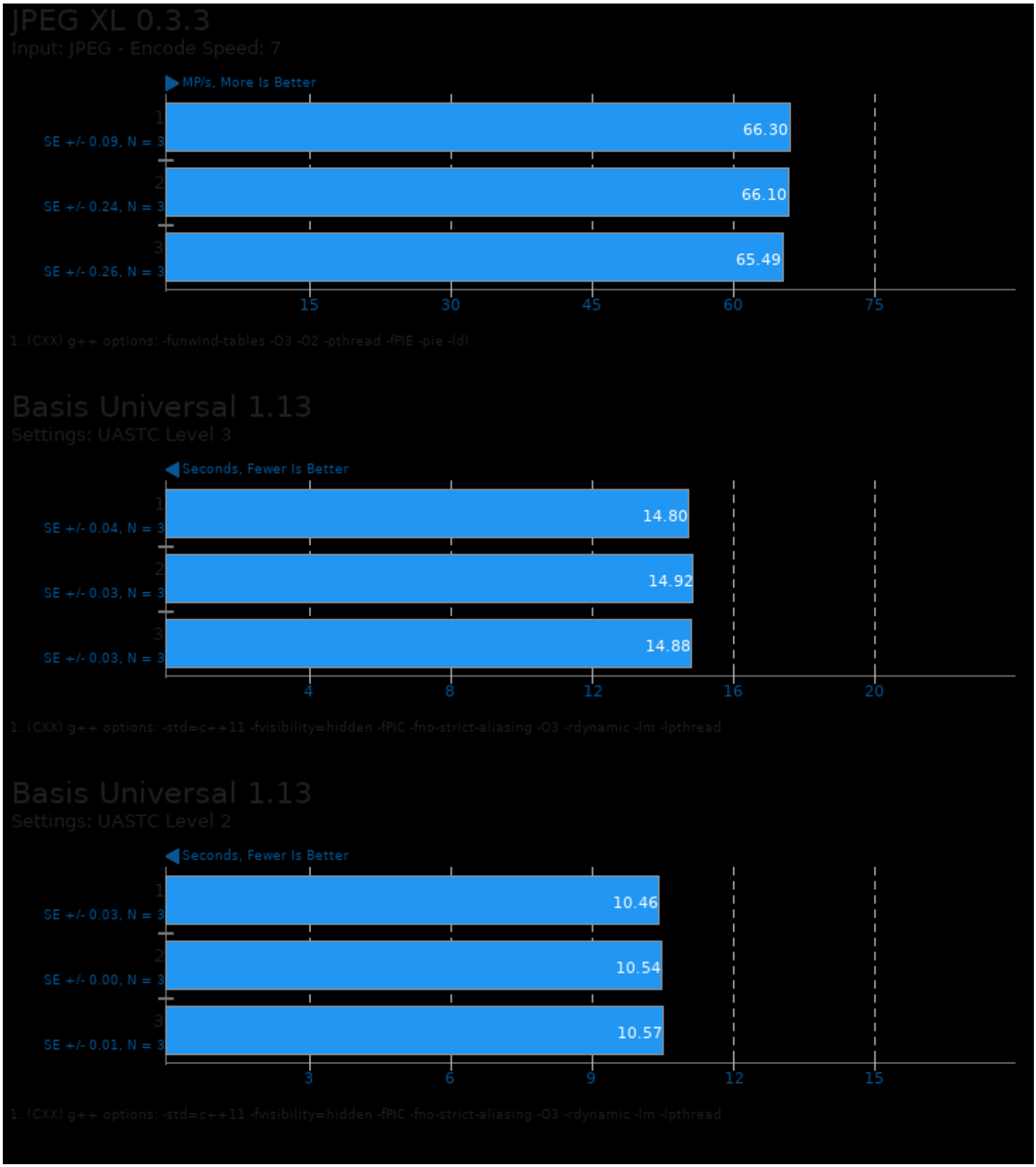
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm -lpthread


JPEG XL Decoding 0.3.3
CPU Threads: 1
MP/s, More Is Better
1
SE +/- 0.04, N = 3
40.88
2
SE +/- 0.05, N = 3
40.18
3
SE +/- 0.06, N = 3
39.38
9
18
27
36
45
simdjson 0.8.2
Throughput Test: PartialTweets
GB/s, More Is Better
1
SE +/- 0.00, N = 3
3.68
2
SE +/- 0.01, N = 3
3.66
3
SE +/- 0.00, N = 3
3.65
0.828
1.656
2.484
3.312
4.14
1. (CXX) g++ options: -O3 -pthread
simdjson 0.8.2
Throughput Test: DistinctUserID
GB/s, More Is Better
1
SE +/- 0.02, N = 3
4.25
2
SE +/- 0.01, N = 3
4.22
3
SE +/- 0.01, N = 3
4.24
0.9563
1.9126
2.8689
3.8252
4.7815
1. (CXX) g++ options: -O3 -pthread


simdjson 0.8.2
Throughput Test: Kostya
GB/s, More Is Better
1
SE +/- 0.01, N = 3
2.62
2
SE +/- 0.01, N = 3
2.62
3
SE +/- 0.01, N = 3
2.61
0.5895
1.179
1.7685
2.358
2.9475
1. (CXX) g++ options: -O3 -pthread
simdjson 0.8.2
Throughput Test: LargeRandom
GB/s, More Is Better
1
SE +/- 0.00, N = 3
0.95
2
SE +/- 0.01, N = 3
0.95
3
SE +/- 0.01, N = 3
0.95
0.2138
0.4276
0.6414
0.8552
1.069
1. (CXX) g++ options: -O3 -pthread
AOM AV1 2.1-rc
Encoder Mode: Speed 6 Two-Pass
Frames Per Second, More Is Better
1
SE +/- 0.04, N = 3
19.17
2
SE +/- 0.06, N = 3
19.25
3
SE +/- 0.04, N = 3
18.97
5
10
15
20
25
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm -lpthread

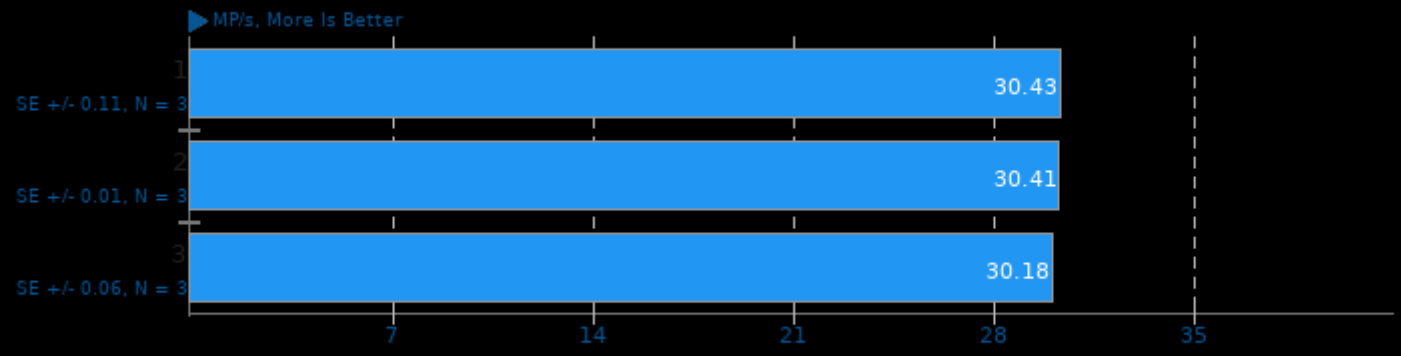

JPEG XL Decoding 0.3.3
CPU Threads: All
MP/s, More Is Better
1
SE +/- 0.42, N = 3
223.16
2
SE +/- 0.49, N = 3
223.85
3
SE +/- 0.97, N = 3
222.56
50
100
150
200
250
AOM AV1 2.1-rc
Encoder Mode: Speed 6 Realtime
Frames Per Second, More Is Better
1
SE +/- 0.12, N = 3
21.16
2
SE +/- 0.05, N = 3
21.36
3
SE +/- 0.12, N = 3
20.98
5
10
15
20
25
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm -lpthread
ASTC Encoder 2.4
Preset: Exhaustive
Seconds, Fewer Is Better
1
SE +/- 0.15, N = 3
21.22
2
SE +/- 0.11, N = 3
21.18
3
SE +/- 0.12, N = 3
21.24
5
10
15
20
25
1. (CXX) g++ options: -O3 -flto -pthread


Basis Universal 1.13
Settings: ETC1S
Seconds, Fewer Is Better
1
SE +/- 0.06, N = 3
23.70
2
SE +/- 0.06, N = 3
23.92
3
SE +/- 0.17, N = 3
24.22
6
12
18
24
30
1. (CXX) g++ options: -std=c++11 -fvisibility=hidden -fPIC -fno-strict-aliasing -O3 -rdynamic -lm -lpthread
JPEG XL 0.3.3
Input: JPEG - Encode Speed: 5
MP/s, More Is Better
1
SE +/- 0.15, N = 3
66.03
2
SE +/- 0.22, N = 3
65.59
3
SE +/- 0.06, N = 3
65.22
15
30
45
60
75
1. (CXX) g++ options: -funwind-tables -O3 -O2 -pthread -fPIE -pie -ldl
JPEG XL 0.3.3
Input: PNG - Encode Speed: 5
MP/s, More Is Better
1
SE +/- 0.18, N = 3
76.78
2
SE +/- 0.25, N = 3
76.36
3
SE +/- 0.57, N = 3
75.62
20
40
60
80
100
1. (CXX) g++ options: -funwind-tables -O3 -O2 -pthread -fPIE -pie -ldl


JPEG XL 0.3.3
Input: JPEG - Encode Speed: 7
MP/s, More Is Better
1
SE +/- 0.09, N = 3
66.30
2
SE +/- 0.24, N = 3
66.10
3
SE +/- 0.26, N = 3
65.49
15
30
45
60
75
1. (CXX) g++ options: -funwind-tables -O3 -O2 -pthread -fPIE -pie -ldl
Basis Universal 1.13
Settings: UASTC Level 3
Seconds, Fewer Is Better
1
SE +/- 0.04, N = 3
14.80
2
SE +/- 0.03, N = 3
14.92
3
SE +/- 0.03, N = 3
14.88
4
8
12
16
20
1. (CXX) g++ options: -std=c++11 -fvisibility=hidden -fPIC -fno-strict-aliasing -O3 -rdynamic -lm -lpthread
Basis Universal 1.13
Settings: UASTC Level 2
Seconds, Fewer Is Better
1
SE +/- 0.03, N = 3
10.46
2
SE +/- 0.00, N = 3
10.54
3
SE +/- 0.01, N = 3
10.57
3
6
9
12
15
1. (CXX) g++ options: -std=c++11 -fvisibility=hidden -fPIC -fno-strict-aliasing -O3 -rdynamic -lm -lpthread

JPEG XL 0.3.3

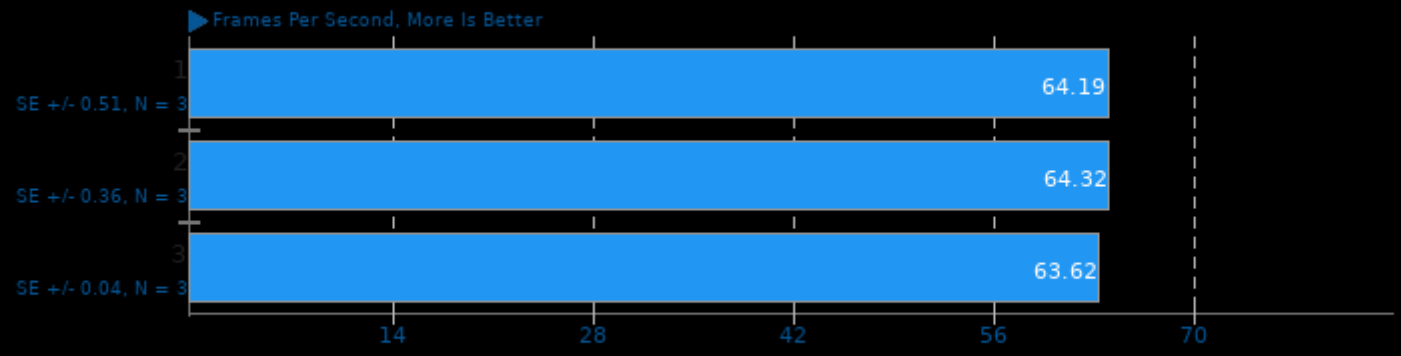
Input: JPEG - Encode Speed: 8



1. (CXX) g++ options: -funwind-tables -O3 -O2 -pthread -fPIE -pie -ldl

AOM AV1 2.1-rc

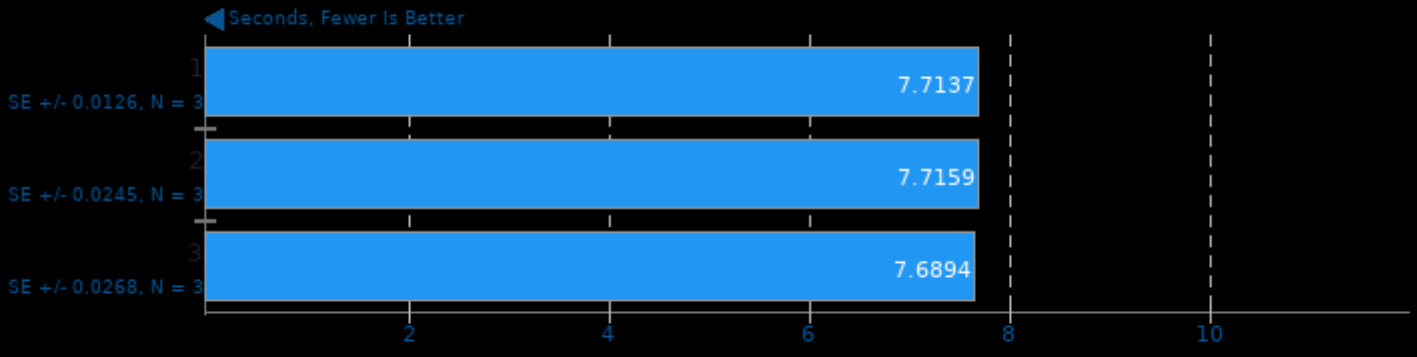
Encoder Mode: Speed 8 Realtime



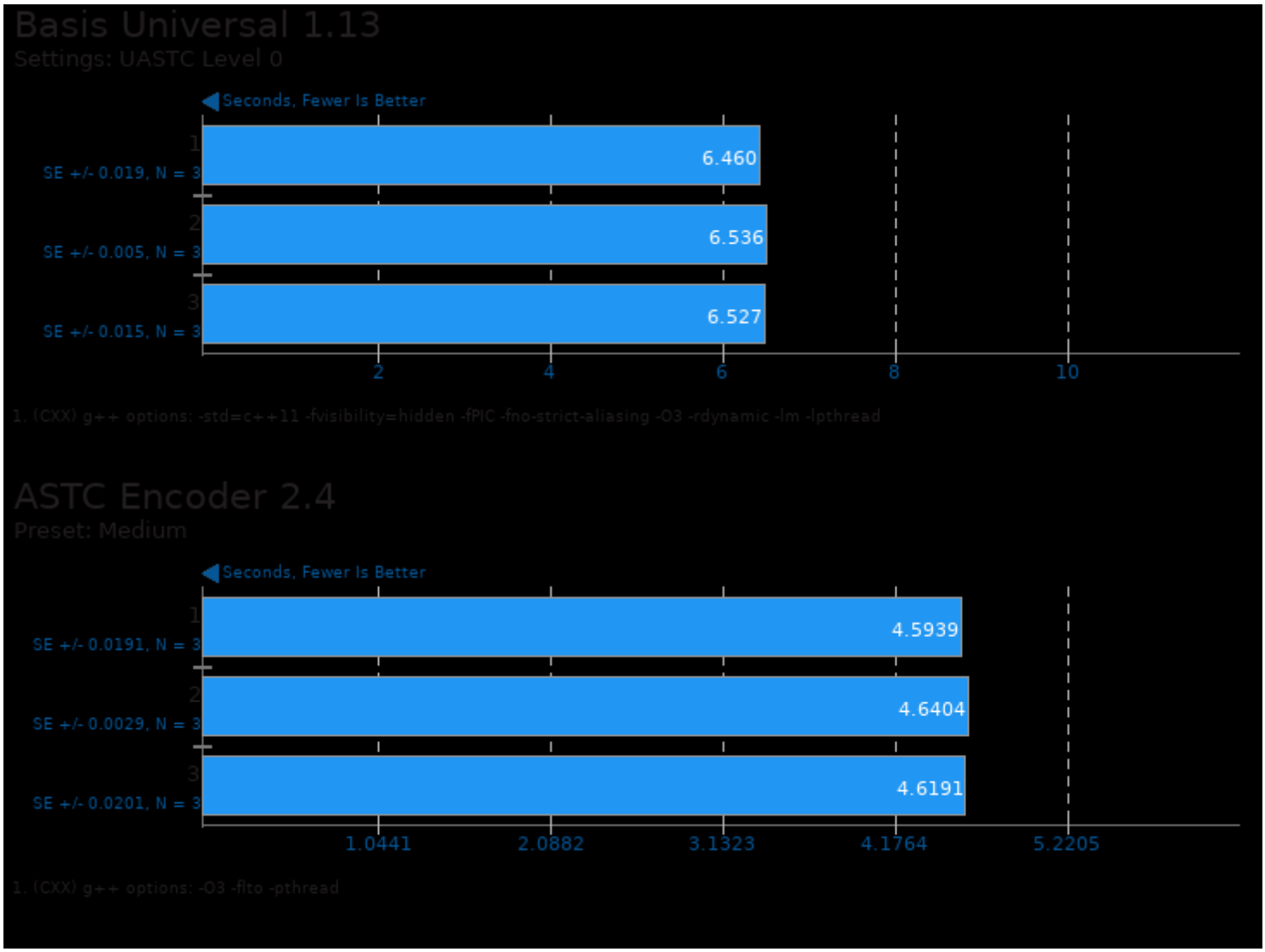
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm -lpthread

ASTC Encoder 2.4

Preset: Thorough

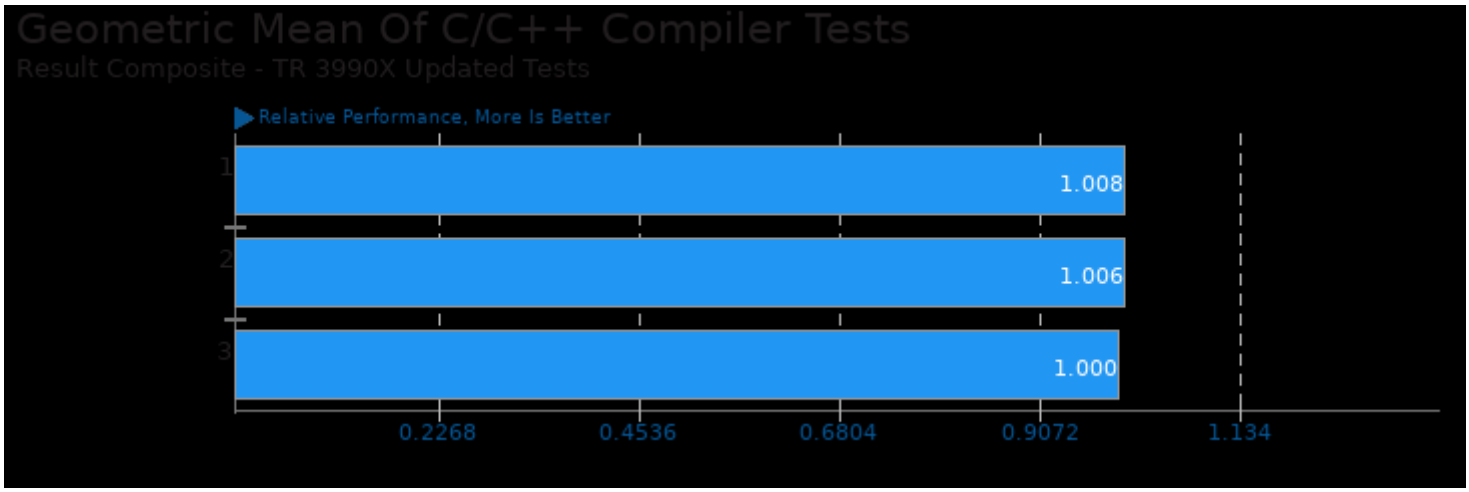


1. (CXX) g++ options: -O3 -flto -pthread

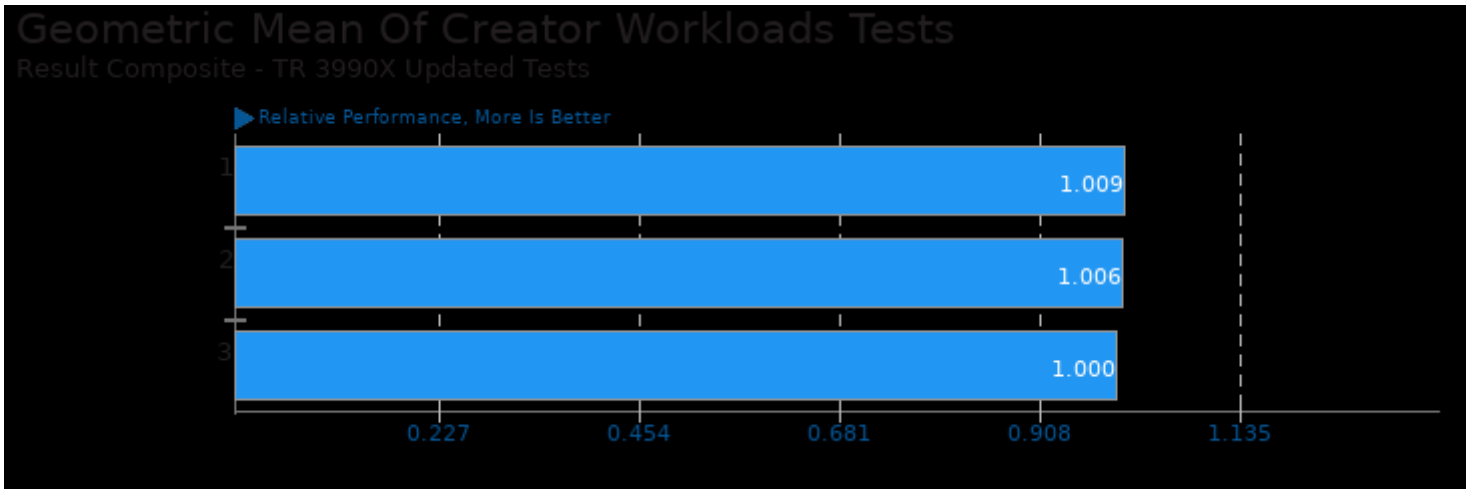

Basis Universal 1.13
Settings: UASTC Level 0
Seconds, Fewer Is Better
1
SE +/- 0.019, N = 3
6.460
2
SE +/- 0.005, N = 3
6.536
3
SE +/- 0.015, N = 3
6.527
2
4
6
8
10
1. (CXX) g++ options: -std=c++11 -fvisibility=hidden -fPIC -fno-strict-aliasing -O3 -rdynamic -lm -lpthread
ASTC Encoder 2.4
Preset: Medium
Seconds, Fewer Is Better
1
SE +/- 0.0191, N = 3
4.5939
2
SE +/- 0.0029, N = 3
4.6404
3
SE +/- 0.0201, N = 3
4.6191
1.0441
2.0882
3.1323
4.1764
5.2205
1. (CXX) g++ options: -O3 -flto -pthread

TR 3990X Updated Tests

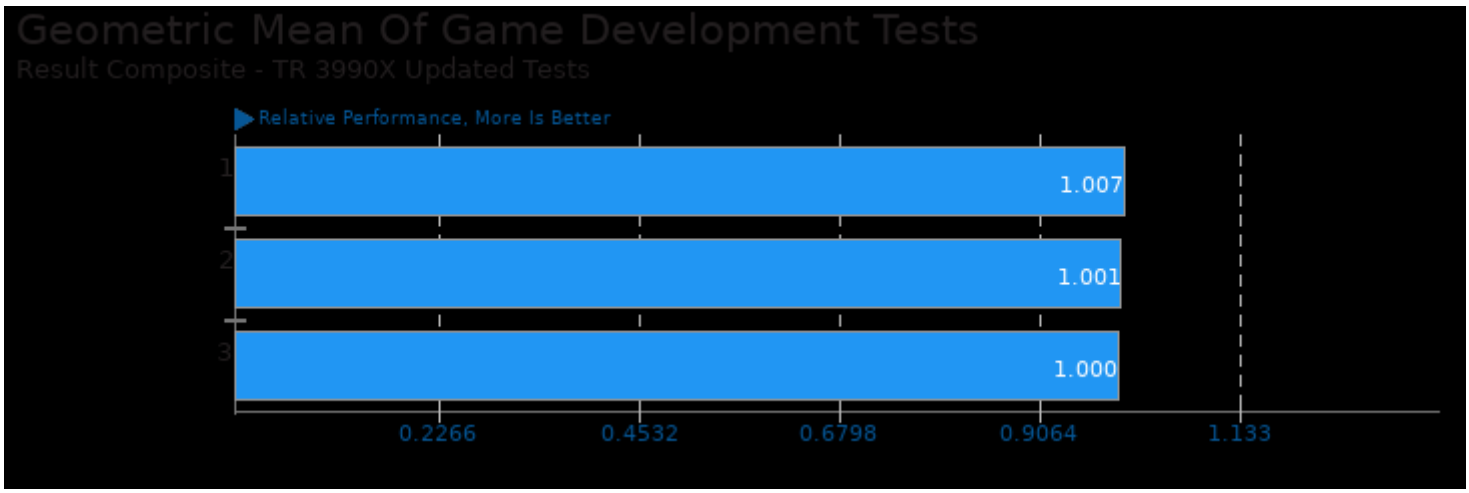
These geometric means are based upon test groupings / test suites for this result file.



Geometric mean based upon tests: pts/aom-av1 and pts/basis

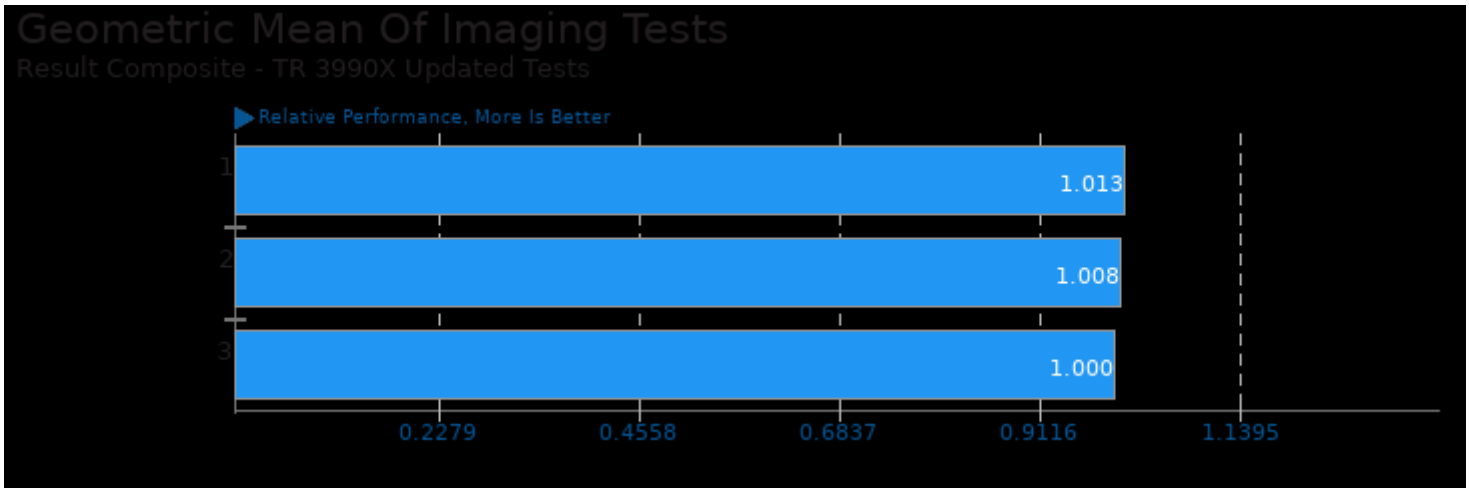


Geometric mean based upon tests: pts/aom-av1, pts/jpegxl, pts/jpegxl-decode, pts/basis and pts/astcenc

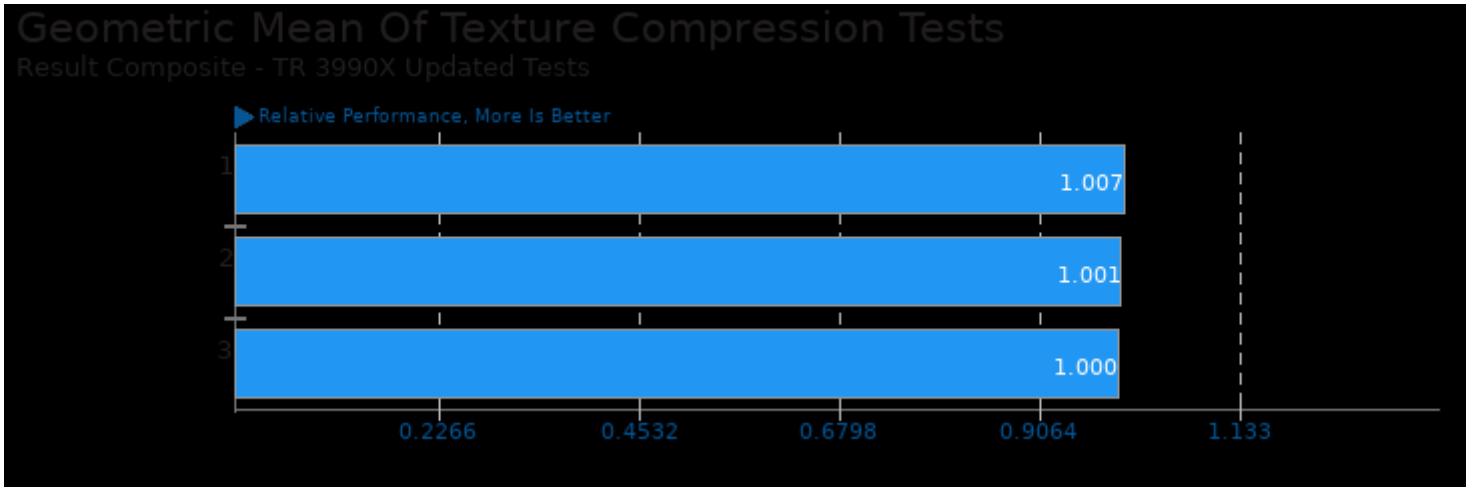


Geometric mean based upon tests: pts/basis and pts/astcenc

TR 3990X Updated Tests



Geometric mean based upon tests: pts/jpegxl and pts/jpegxl-decode



Geometric mean based upon tests: pts/basis and pts/astcenc

This file was automatically generated via the Phoronix Test Suite benchmarking software on Friday, 29 March 2024 06:51.