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3300X March

AMD Ryzen 3 3300X 4-Core testing with a MSI B350M GAMING PRO (MS-7A39) v1.0 (2.NR BIOS) and AMD FirePro V3800 512MB on Ubuntu 20.04 via the Phoronix Test Suite.

Automated Executive Summary

2 had the most wins, coming in first place for 37% of the tests.

Based on the geometric mean of all complete results, the fastest (2) was 1.004x the speed of the slowest (1). 4 was 0.999x the speed of 2, 3 was 1x the speed of 4, 1 was 0.997x the speed of 3.

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

JPEG XL Decoding (CPU Threads: All) at 1.027x
JPEG XL (Input: JPEG - Encode Speed: 5) at 1.016x
JPEG XL (Input: PNG - Encode Speed: 7) at 1.016x
JPEG XL Decoding (CPU Threads: 1) at 1.015x
ET: Legacy (Resolution: 1920 x 1080) at 1.015x
JPEG XL (Input: PNG - Encode Speed: 5) at 1.015x
JPEG XL (Input: JPEG - Encode Speed: 7) at 1.014x
dav1d (Video Input: Summer Nature 1080p) at 1.013x
JPEG XL (Input: JPEG - Encode Speed: 8) at 1.013x

Blender (Blend File: Fishy Cat - Compute: CPU-Only) at 1.012x.

Test Systems:

1

2

3

4

Processor: AMD Ryzen 3 3300X 4-Core @ 3.80GHz (4 Cores / 8 Threads), Motherboard: MSI B350M GAMING PRO (MS-7A39) v1.0 (2.NR BIOS), Chipset: AMD Starship/Matisse, Memory: 8GB, Disk: 256GB INTEL SSDPEKKW256G7, Graphics: AMD FirePro V3800 512MB, Audio: AMD Redwood HDMI Audio, Monitor: DELL S2409W, Network: Realtek RTL8111/8168/8411

OS: Ubuntu 20.04, Kernel: 5.9.0-rc5-14sep-patch (x86_64) 20200914, Desktop: GNOME Shell 3.36.4, Display Server: X Server 1.20.9, OpenGL: 3.3 Mesa 20.0.8 (LLVM 10.0.0), Compiler: GCC 9.3.0, File-System: ext4, Screen Resolution: 1920x1080

Kernel Notes: 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++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-9-HskZEa/gcc-9-9.3.0/debian/tmp-nvptx/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: 0x8701021
Graphics Notes: GLAMOR
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

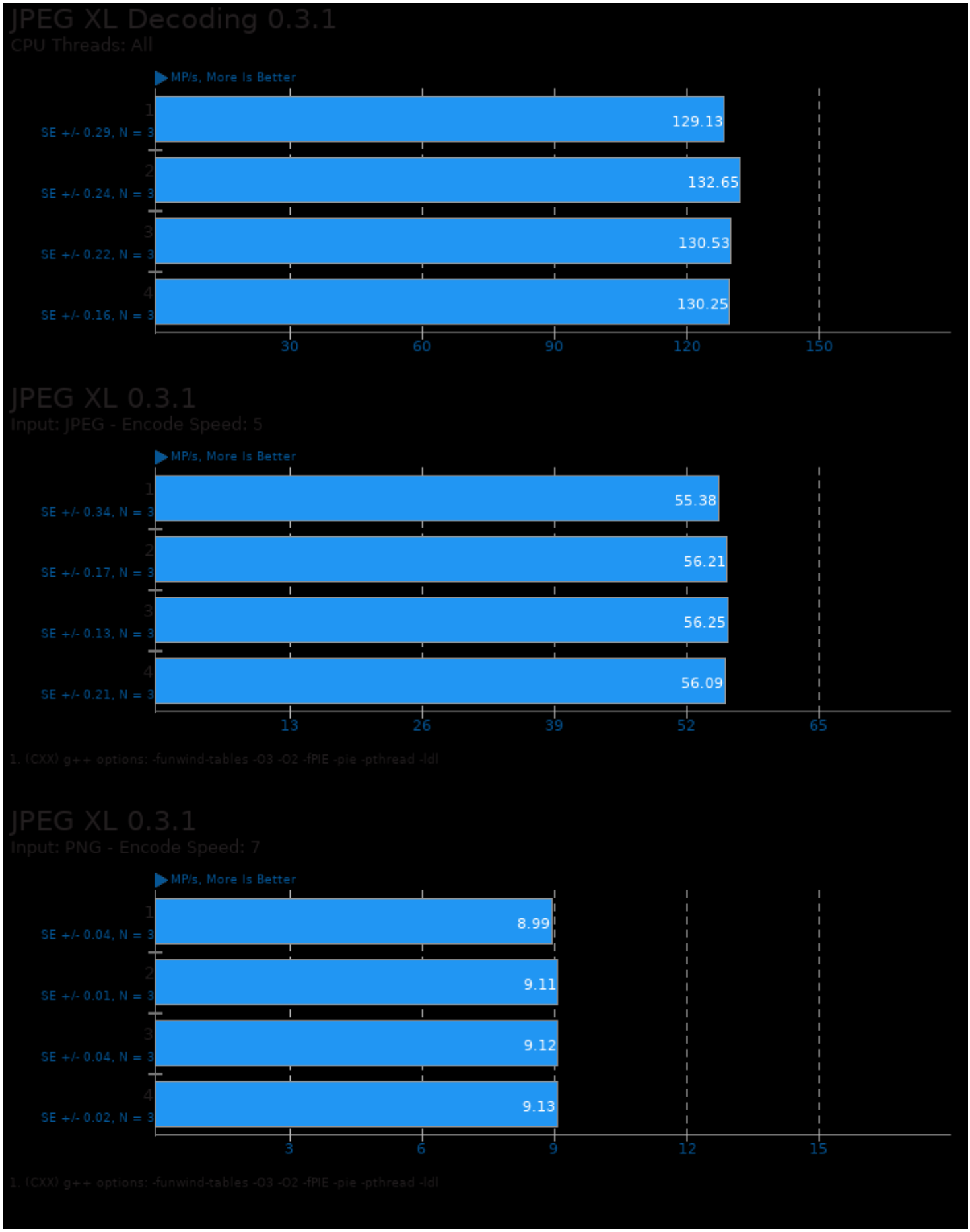
	1	2	3	4
JPEG XL Decoding - All (MP/s)	**129.13**	**132.65**	130.53	130.25
Normalized	97.35%	100%	98.4%	98.19%
Standard Deviation	0.4%	0.3%	0.3%	0.2%
JPEG XL - JPEG - 5 (MP/s)	**55.38**	56.21	**56.25**	56.09
Normalized	98.45%	99.93%	100%	99.72%
Standard Deviation	1%	0.5%	0.4%	0.6%
JPEG XL - PNG - 7 (MP/s)	**8.99**	9.11	9.12	**9.13**
Normalized	98.47%	99.78%	99.89%	100%
Standard Deviation	0.7%	0.2%	0.7%	0.4%
JPEG XL Decoding - 1 (MP/s)	**44.13**	**44.81**	44.46	44.40
Normalized	98.48%	100%	99.22%	99.09%
Standard Deviation	0%	0.1%	0%	0.1%

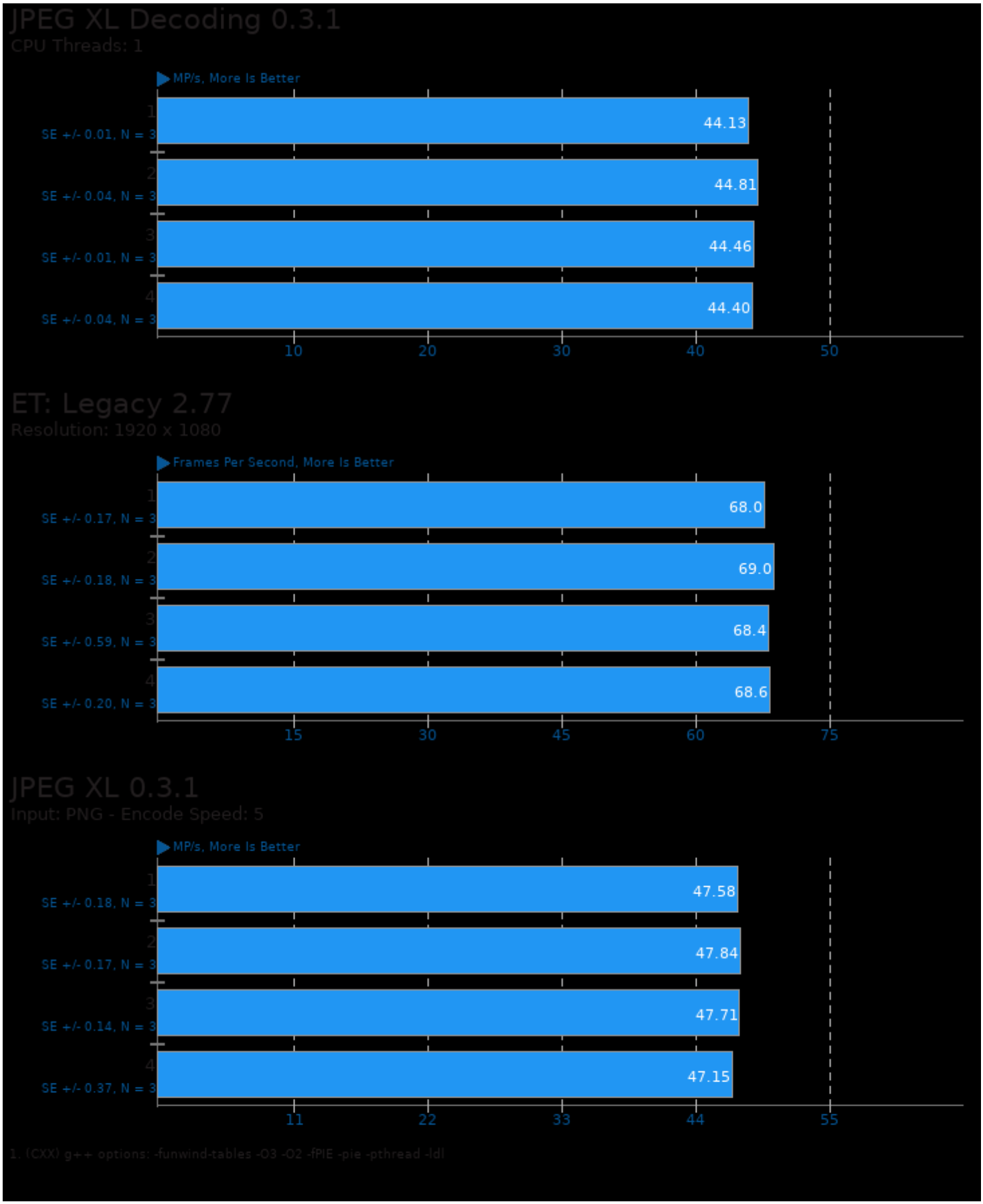
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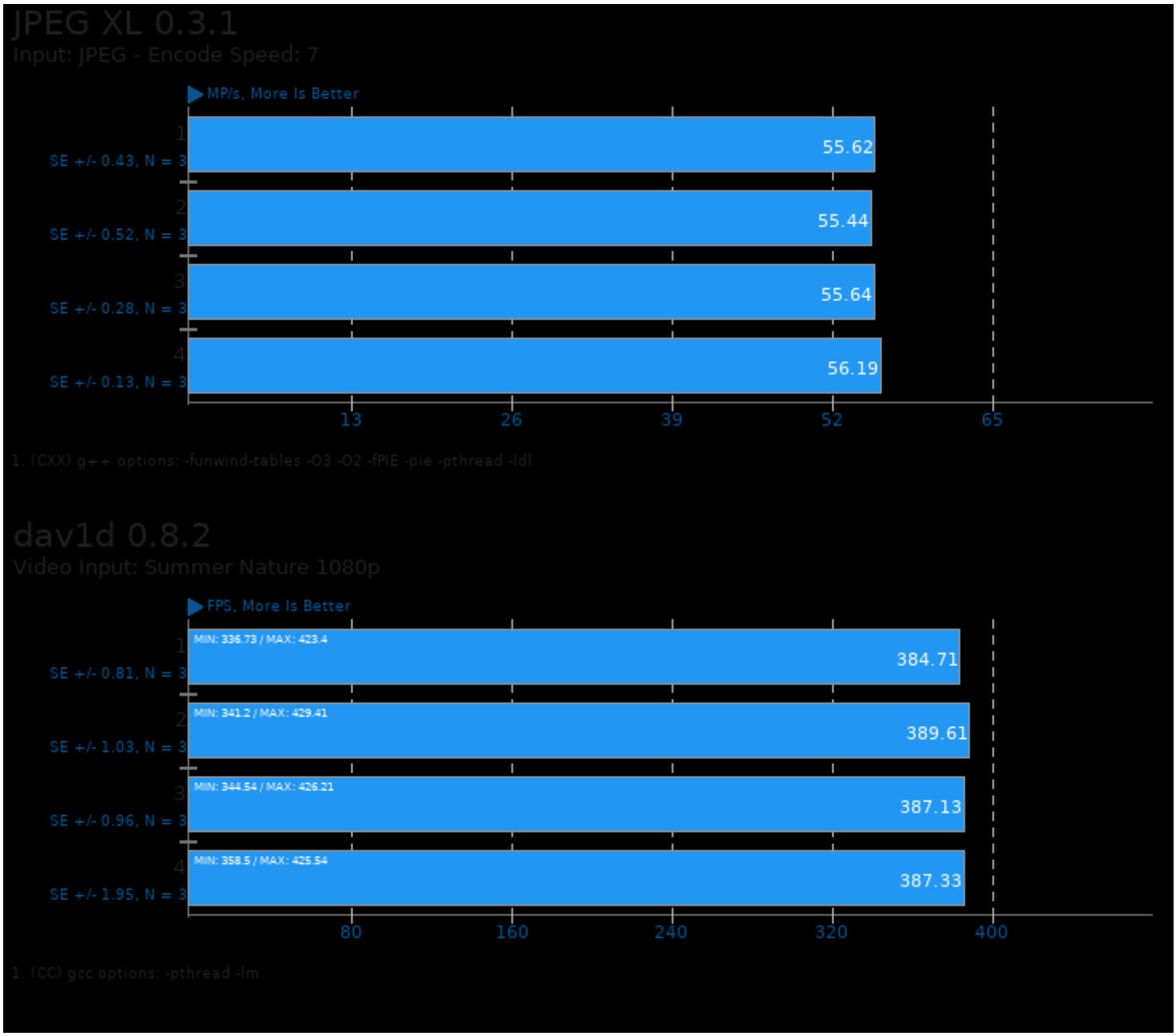
ET: Legacy - 1920 x 1080 (FPS)	**68.0**	**69.0**	68.4	68.6
Normalized	98.55%	100%	99.13%	99.42%
Standard Deviation	0.4%	0.4%	1.5%	0.5%
JPEG XL - PNG - 5 (MP/s)	47.58	**47.84**	47.71	**47.15**
Normalized	99.46%	100%	99.73%	98.56%
Standard Deviation	0.6%	0.6%	0.5%	1.4%
JPEG XL - JPEG - 7 (MP/s)	55.62	**55.44**	55.64	**56.19**
Normalized	98.99%	98.67%	99.02%	100%
Standard Deviation	1.3%	1.6%	0.9%	0.4%
dav1d - S.N.1 (FPS)	**384.71**	**389.61**	387.13	387.33
Normalized	98.74%	100%	99.36%	99.41%
Standard Deviation	0.4%	0.5%	0.4%	0.9%
JPEG XL - JPEG - 8 (MP/s)	**24.75**	25.04	24.81	**25.06**
Normalized	98.76%	99.92%	99%	100%
Standard Deviation	0.5%	1.4%	1.3%	0.2%
Blender - Fishy Cat - CPU-Only (sec)	**407.88**	404.61	403.96	**403.13**
Normalized	98.84%	99.63%	99.79%	100%
Standard Deviation	0%	0.2%	0.1%	0.1%
libavif avifenc - 2 (sec)	53.840	**54.170**	**53.628**	53.732
Normalized	99.61%	99%	100%	99.81%
Standard Deviation	0.2%	0.6%	0.2%	0.5%
Blender - Pabellon Barcelona - CPU-Only (sec)	**973.64**	**981.40**	977.02	977.79
Normalized	100%	99.21%	99.65%	99.58%
Standard Deviation	0.1%	0.2%	0%	0.1%
Blender - BMW27 - CPU-Only (sec)	**302.29**	**304.68**	303.48	302.43
Normalized	100%	99.22%	99.61%	99.95%
Standard Deviation	0.2%	0.5%	0.2%	0.1%
dav1d - Chimera 1080p (FPS)	**395.55**	398.20	**398.39**	397.17
Normalized	99.29%	99.95%	100%	99.69%
Standard Deviation	0.6%	0.5%	0.8%	0.5%
dav1d - Summer Nature 4K (FPS)	115.47	**116.16**	115.74	**115.41**
Normalized	99.41%	100%	99.64%	99.35%
Standard Deviation	0.1%	0.1%	0.3%	0.2%
libavif avifenc - 10 (sec)	**3.737**	3.748	3.758	**3.760**
Normalized	100%	99.71%	99.44%	99.39%
Standard Deviation	0.5%	0.1%	0.4%	0.6%
Blender - Classroom - CPU-Only (sec)	883.20	**885.55**	883.16	**880.73**
Normalized	99.72%	99.46%	99.72%	100%
Standard Deviation	0.2%	0.2%	0.1%	0.1%
libavif avifenc - 10, Lossless (sec)	6.962	6.973	**6.942**	**6.976**
Normalized	99.71%	99.56%	100%	99.51%
Standard Deviation	0.2%	0.2%	0.1%	0.5%
dav1d - C.1.1.b (FPS)	**107.89**	108.17	108.08	**108.38**
Normalized	99.55%	99.81%	99.72%	100%
Standard Deviation	0.2%	0.1%	0.3%	0.2%
libavif avifenc - 6, Lossless (sec)	109.984	**109.600**	**110.059**	109.604
Normalized	99.65%	100%	99.58%	100%
Standard Deviation	0.1%	0.3%	0.8%	0.8%
toyBrot Fractal Generator - OpenMP (ms)	78116	**78083**	78250	**78354**
Normalized	99.96%	100%	99.79%	99.65%
Standard Deviation	0.5%	0.4%	0.4%	0.5%
libavif avifenc - 0 (sec)	106.813	**106.791**	106.997	**107.052**
Normalized	99.98%	100%	99.81%	99.76%

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Standard Deviation	0.2%	0.6%	0.3%	0.4%
libavif avifenc - 6 (sec)	17.922	**17.949**	**17.912**	17.940
Normalized	99.94%	99.79%	100%	99.84%
Standard Deviation	0.6%	0.2%	0.4%	0.3%
NWChem - C240 Buckyball (sec)	**15847**	15868		**15872**
Normalized	100%	99.87%		99.84%
toyBrot Fractal Generator - C++ Tasks (ms)	**78874**	78898	78949	**78994**
Normalized	100%	99.97%	99.91%	99.85%
Standard Deviation	0.1%	0.2%	0.1%	0.1%
toyBrot Fractal Generator - C++ Threads (ms)	78931	**78926**	78934	**78955**
Normalized	99.99%	100%	99.99%	99.96%
Standard Deviation	0.1%	0%	0%	0%
JPEG XL - PNG - 8 (MP/s)	0.84	0.84	0.84	0.84
Standard Deviation	1.2%	0%	0%	0%

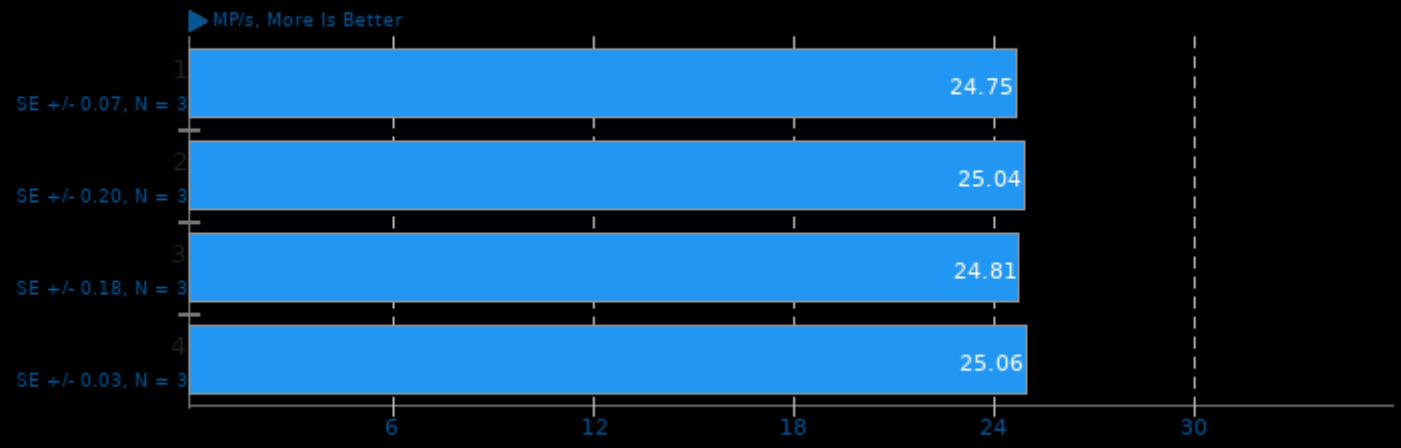

JPEG XL Decoding 0.3.1
CPU Threads: All
MP/s, More Is Better
1
SE +/- 0.29, N = 3
129.13
2
SE +/- 0.24, N = 3
132.65
3
SE +/- 0.22, N = 3
130.53
4
SE +/- 0.16, N = 3
130.25
30
60
90
120
150
JPEG XL 0.3.1
Input: JPEG - Encode Speed: 5
MP/s, More Is Better
1
SE +/- 0.34, N = 3
55.38
2
SE +/- 0.17, N = 3
56.21
3
SE +/- 0.13, N = 3
56.25
4
SE +/- 0.21, N = 3
56.09
13
26
39
52
65
1. (CXX) g++ options: -funwind-tables -O3 -O2 -fPIE -pie -pthread -ldl
JPEG XL 0.3.1
Input: PNG - Encode Speed: 7
MP/s, More Is Better
1
SE +/- 0.04, N = 3
8.99
2
SE +/- 0.01, N = 3
9.11
3
SE +/- 0.04, N = 3
9.12
4
SE +/- 0.02, N = 3
9.13
3
6
9
12
15
1. (CXX) g++ options: -funwind-tables -O3 -O2 -fPIE -pie -pthread -ldl


JPEG XL Decoding 0.3.1
CPU Threads: 1
MP/s, More Is Better
1
SE +/- 0.01, N = 3
44.13
2
SE +/- 0.04, N = 3
44.81
3
SE +/- 0.01, N = 3
44.46
4
SE +/- 0.04, N = 3
44.40
10
20
30
40
50
ET: Legacy 2.77
Resolution: 1920 x 1080
Frames Per Second, More Is Better
1
SE +/- 0.17, N = 3
68.0
2
SE +/- 0.18, N = 3
69.0
3
SE +/- 0.59, N = 3
68.4
4
SE +/- 0.20, N = 3
68.6
15
30
45
60
75
JPEG XL 0.3.1
Input: PNG - Encode Speed: 5
MP/s, More Is Better
1
SE +/- 0.18, N = 3
47.58
2
SE +/- 0.17, N = 3
47.84
3
SE +/- 0.14, N = 3
47.71
4
SE +/- 0.37, N = 3
47.15
11
22
33
44
55
1. (CXX) g++ options: -funwind-tables -O3 -O2 -fPIE -pie -pthread -ldl


JPEG XL 0.3.1
Input: JPEG - Encode Speed: 7
MP/s, More Is Better
1
SE +/- 0.43, N = 3
55.62
2
SE +/- 0.52, N = 3
55.44
3
SE +/- 0.28, N = 3
55.64
4
SE +/- 0.13, N = 3
56.19
13
26
39
52
65
1. (CXX) g++ options: -funwind-tables -O3 -O2 -fPIE -pie -pthread -ldl
dav1d 0.8.2
Video Input: Summer Nature 1080p
FPS, More Is Better
1
SE +/- 0.81, N = 3
MIN: 336.73 / MAX: 423.4
384.71
2
SE +/- 1.03, N = 3
MIN: 341.2 / MAX: 429.41
389.61
3
SE +/- 0.96, N = 3
MIN: 344.54 / MAX: 426.21
387.13
4
SE +/- 1.95, N = 3
MIN: 358.5 / MAX: 425.54
387.33
80
160
240
320
400
1. (CC) gcc options: -pthread -lm

JPEG XL 0.3.1

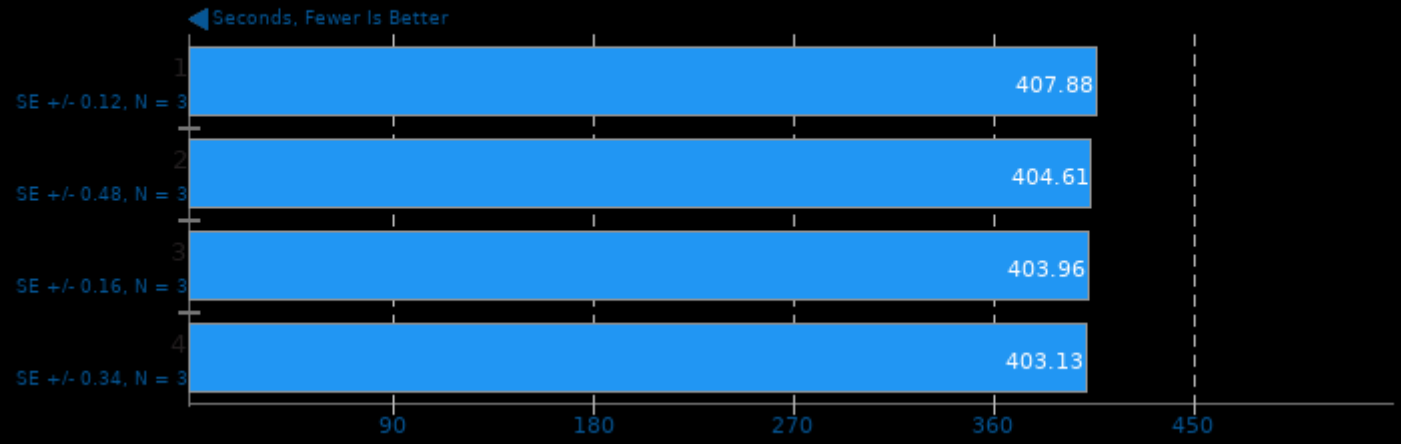
Input: JPEG - Encode Speed: 8



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

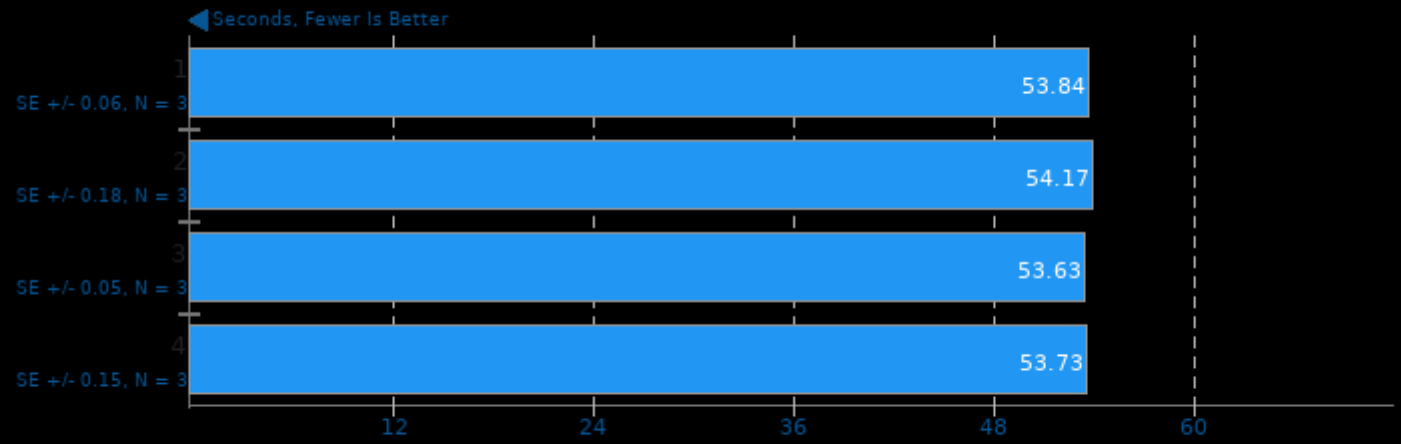
Blender 2.92

Blend File: Fishy Cat - Compute: CPU-Only

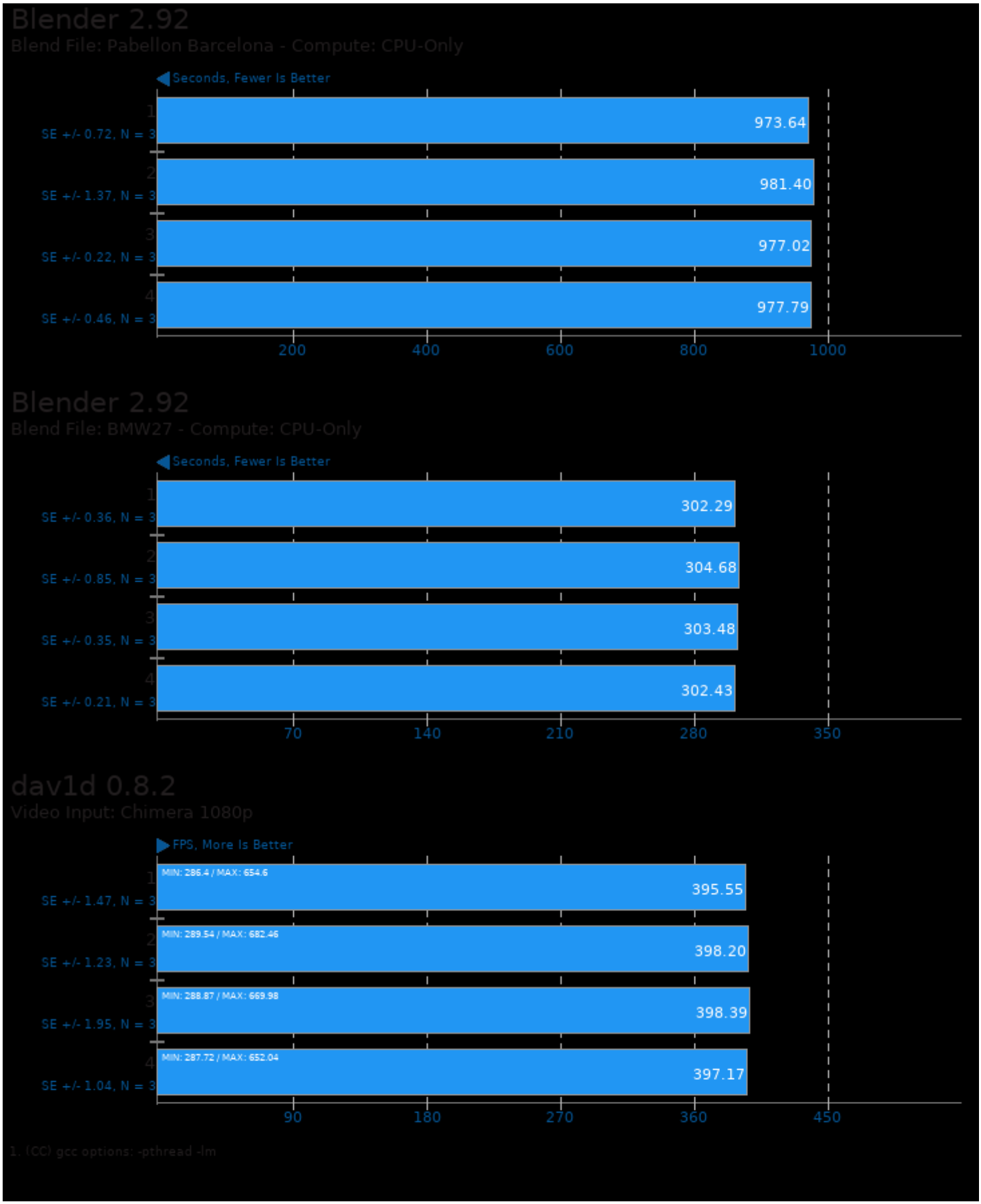


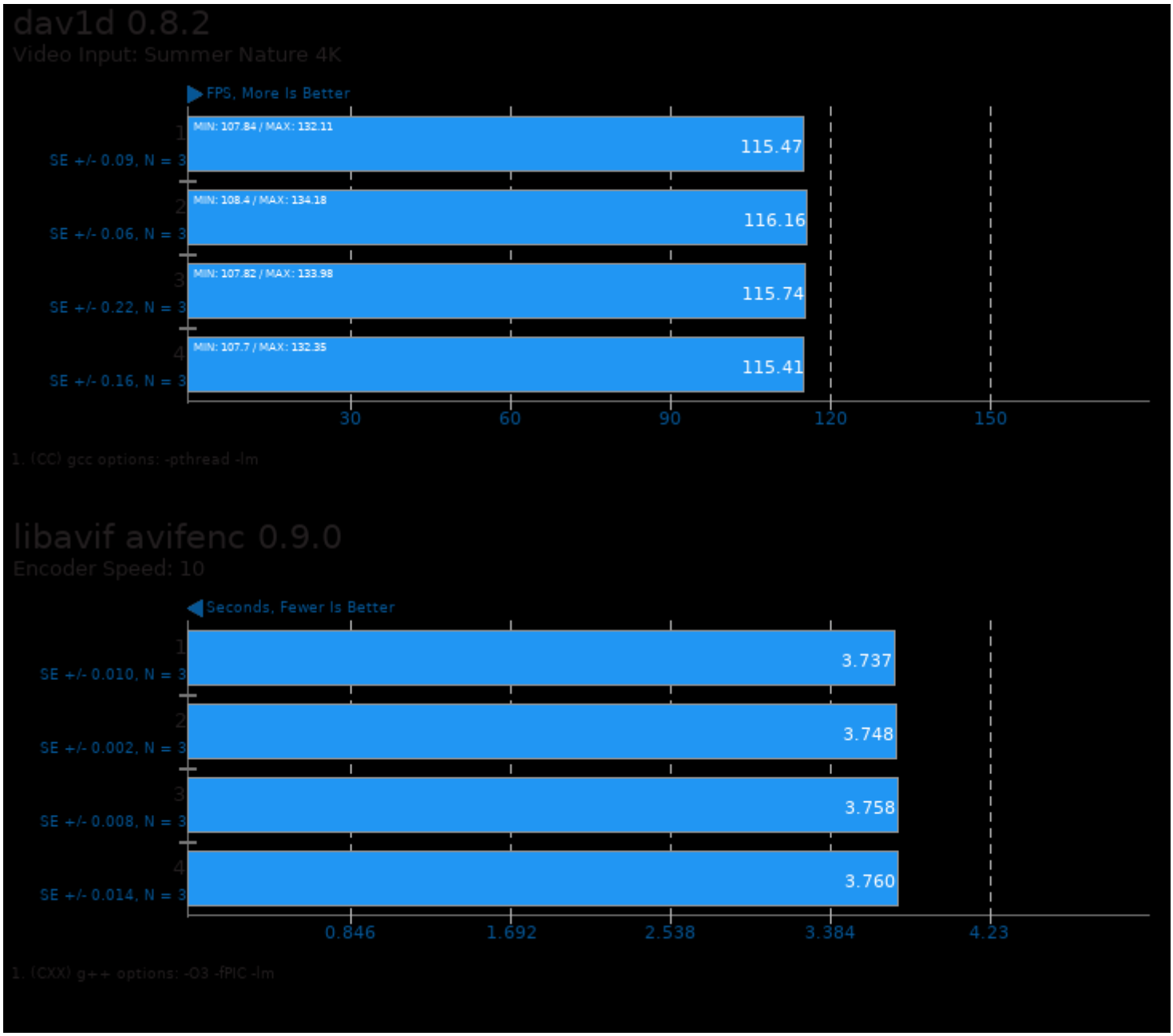
libavif avifenc 0.9.0

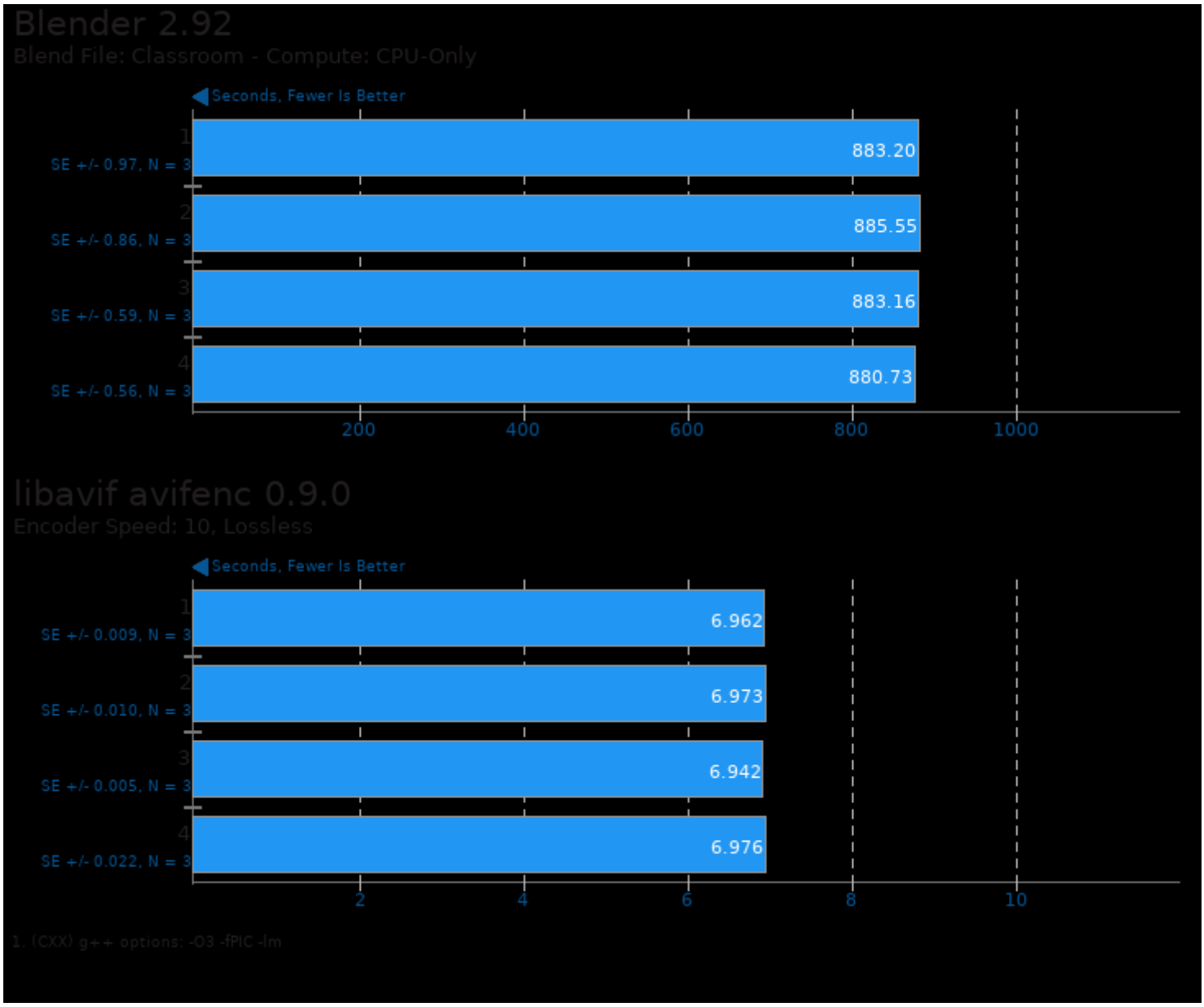
Encoder Speed: 2



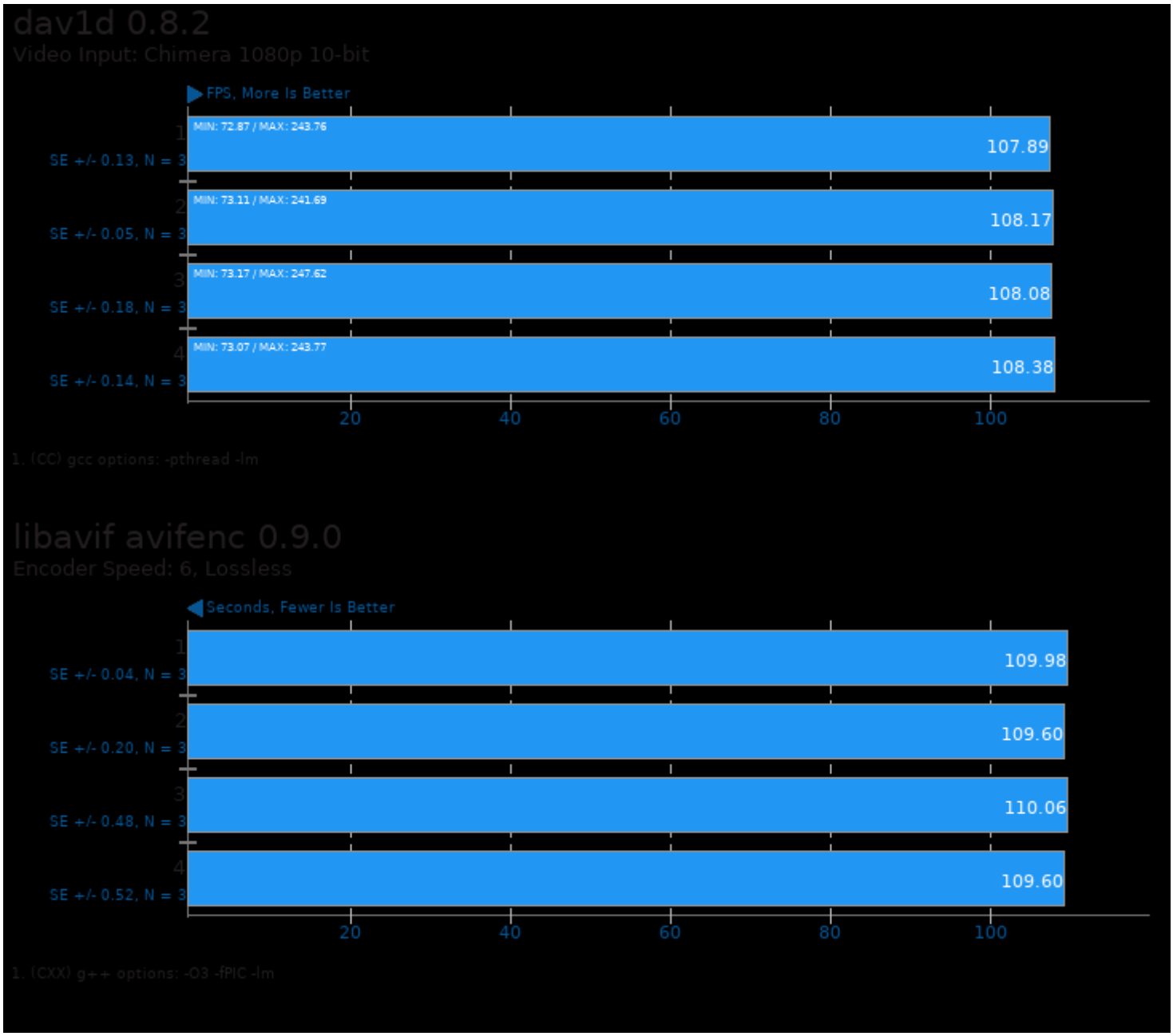
1. (CXX) g++ options: -O3 -fPIC -lm

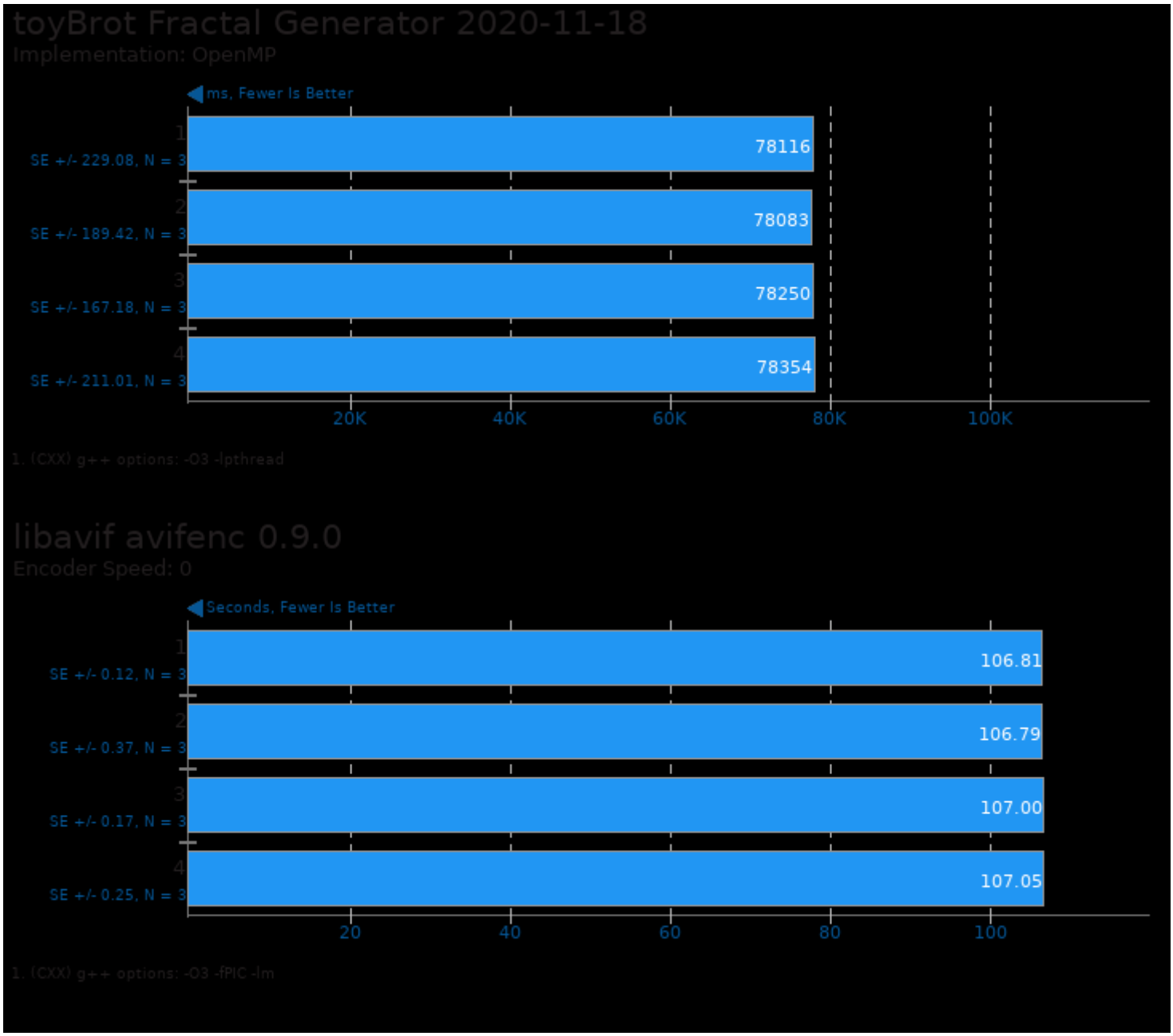

Blender 2.92
Blend File: Pabellon Barcelona - Compute: CPU-Only
Seconds, Fewer Is Better
1
SE +/- 0.72, N = 3
973.64
2
SE +/- 1.37, N = 3
981.40
3
SE +/- 0.22, N = 3
977.02
4
SE +/- 0.46, N = 3
977.79
200
400
600
800
1000
Blender 2.92
Blend File: BMW27 - Compute: CPU-Only
Seconds, Fewer Is Better
1
SE +/- 0.36, N = 3
302.29
2
SE +/- 0.85, N = 3
304.68
3
SE +/- 0.35, N = 3
303.48
4
SE +/- 0.21, N = 3
302.43
70
140
210
280
350
dav1d 0.8.2
Video Input: Chimera 1080p
FPS, More Is Better
1
MIN: 286.4 / MAX: 654.6
SE +/- 1.47, N = 3
395.55
2
MIN: 289.54 / MAX: 682.46
SE +/- 1.23, N = 3
398.20
3
MIN: 288.87 / MAX: 669.98
SE +/- 1.95, N = 3
398.39
4
MIN: 287.72 / MAX: 652.04
SE +/- 1.04, N = 3
397.17
90
180
270
360
450
1. (CC) gcc options: -pthread -lm

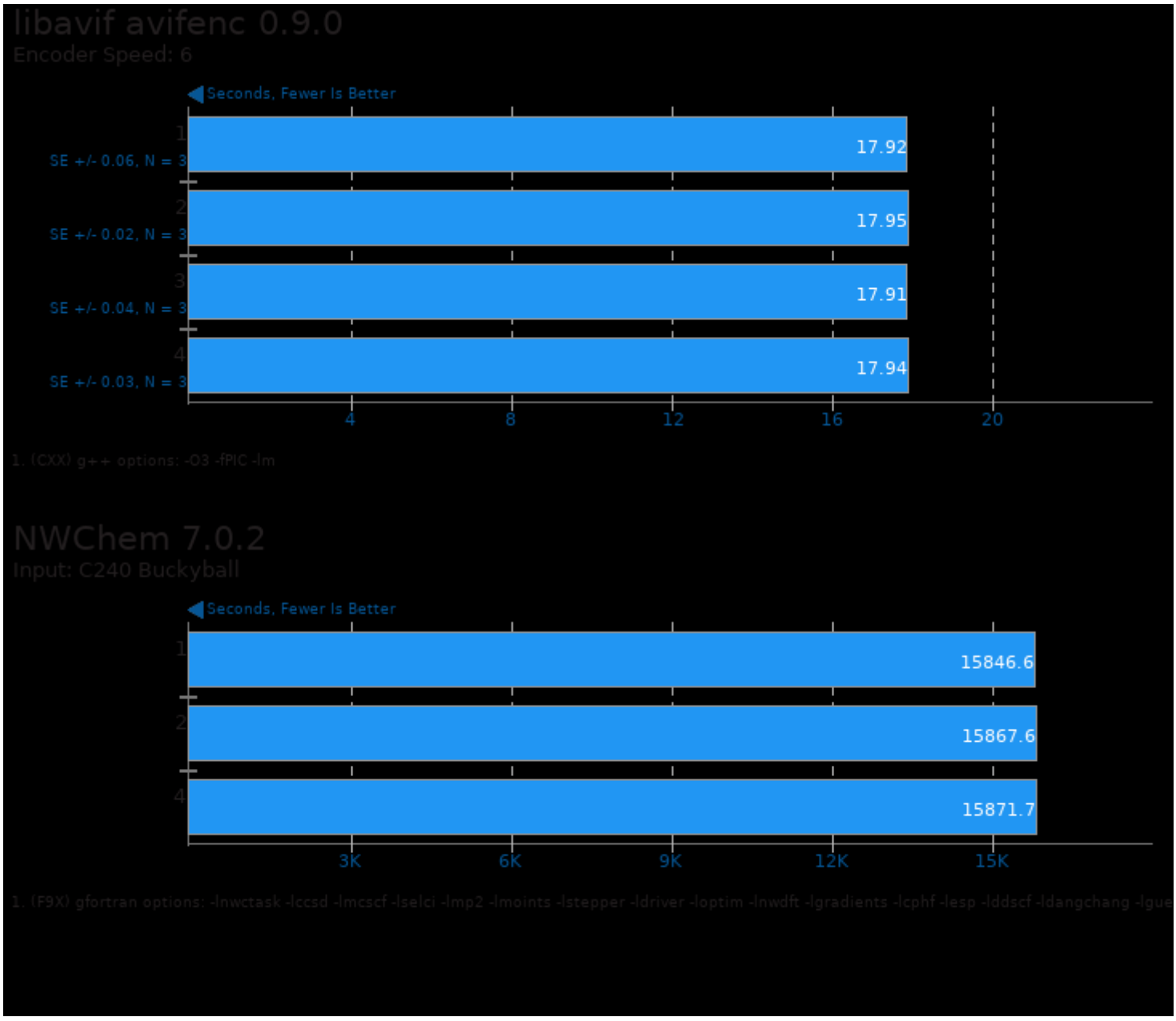

dav1d 0.8.2
Video Input: Summer Nature 4K
FPS, More Is Better
1
SE +/- 0.09, N = 3
MIN: 107.84 / MAX: 132.11
115.47
2
SE +/- 0.06, N = 3
MIN: 108.4 / MAX: 134.18
116.16
3
SE +/- 0.22, N = 3
MIN: 107.82 / MAX: 133.98
115.74
4
SE +/- 0.16, N = 3
MIN: 107.7 / MAX: 132.35
115.41
30
60
90
120
150
1. (CC) gcc options: -pthread -lm
libavif avifenc 0.9.0
Encoder Speed: 10
Seconds, Fewer Is Better
1
SE +/- 0.010, N = 3
3.737
2
SE +/- 0.002, N = 3
3.748
3
SE +/- 0.008, N = 3
3.758
4
SE +/- 0.014, N = 3
3.760
0.846
1.692
2.538
3.384
4.23
1. (CXX) g++ options: -O3 -fPIC -lm

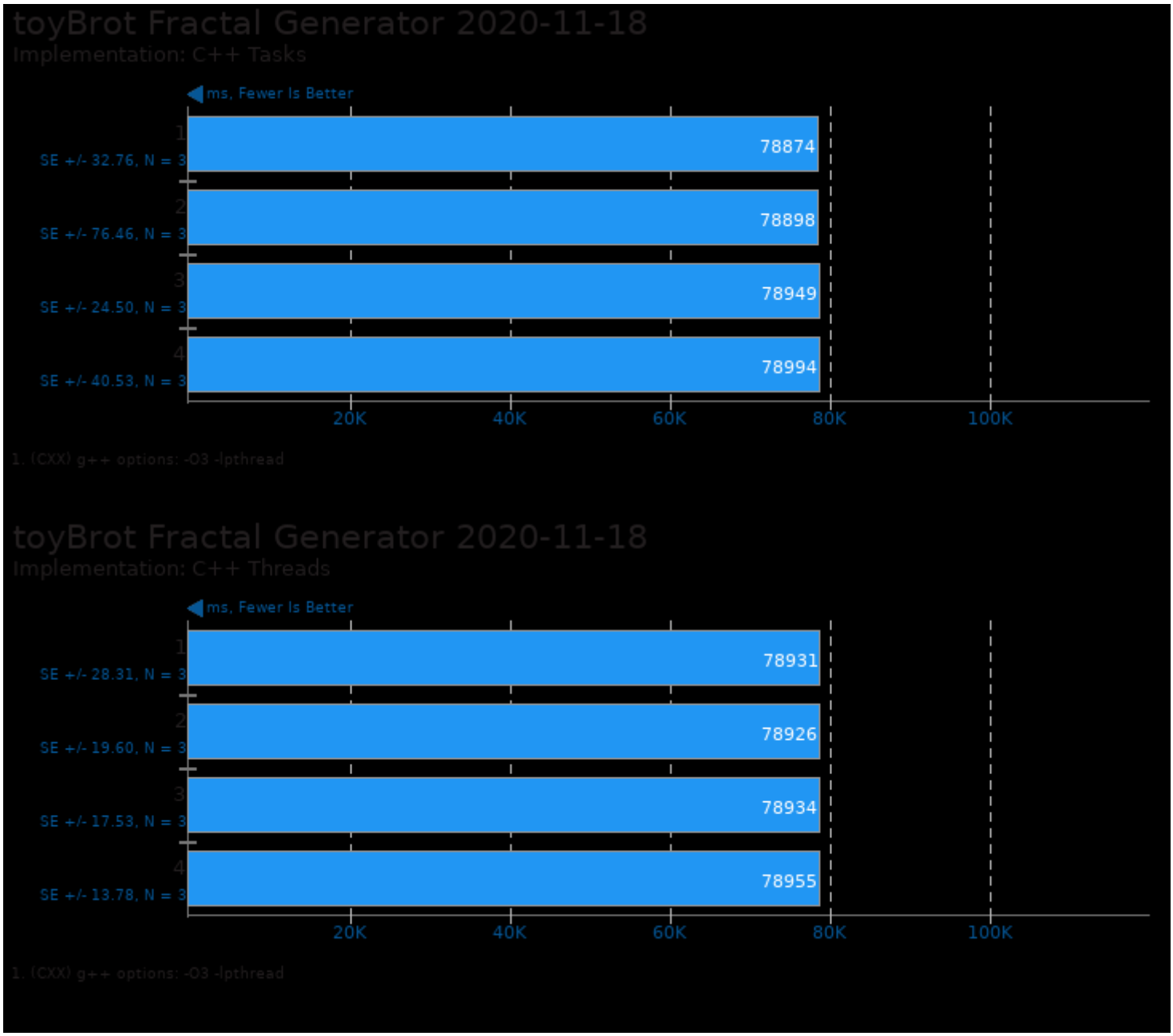

Blender 2.92
Blend File: Classroom - Compute: CPU-Only
Seconds, Fewer Is Better
1
SE +/- 0.97, N = 3
883.20
2
SE +/- 0.86, N = 3
885.55
3
SE +/- 0.59, N = 3
883.16
4
SE +/- 0.56, N = 3
880.73
200
400
600
800
1000
libavif avifenc 0.9.0
Encoder Speed: 10, Lossless
Seconds, Fewer Is Better
1
SE +/- 0.009, N = 3
6.962
2
SE +/- 0.010, N = 3
6.973
3
SE +/- 0.005, N = 3
6.942
4
SE +/- 0.022, N = 3
6.976
2
4
6
8
10
1. (CXX) g++ options: -O3 -fPIC -lm

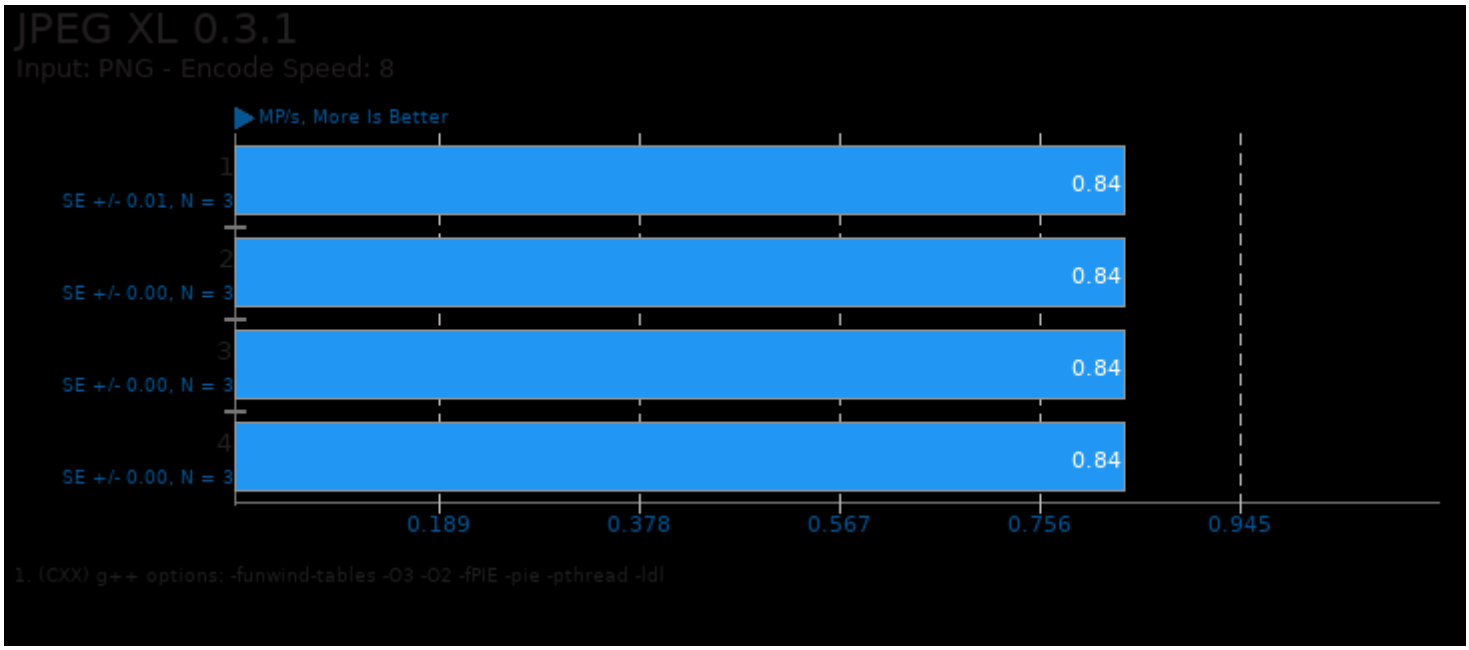
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dav1d 0.8.2
Video Input: Chimera 1080p 10-bit
FPS, More Is Better
1
MIN: 72.87 / MAX: 243.76
107.89
SE +/- 0.13, N = 3
2
MIN: 73.11 / MAX: 241.69
108.17
SE +/- 0.05, N = 3
3
MIN: 73.17 / MAX: 247.62
108.08
SE +/- 0.18, N = 3
4
MIN: 73.07 / MAX: 243.77
108.38
SE +/- 0.14, N = 3
20
40
60
80
100
1. (CC) gcc options: -pthread -lm
libavif avifenc 0.9.0
Encoder Speed: 6, Lossless
Seconds, Fewer Is Better
1
109.98
SE +/- 0.04, N = 3
2
109.60
SE +/- 0.20, N = 3
3
110.06
SE +/- 0.48, N = 3
4
109.60
SE +/- 0.52, N = 3
20
40
60
80
100
1. (CXX) g++ options: -O3 -fPIC -lm

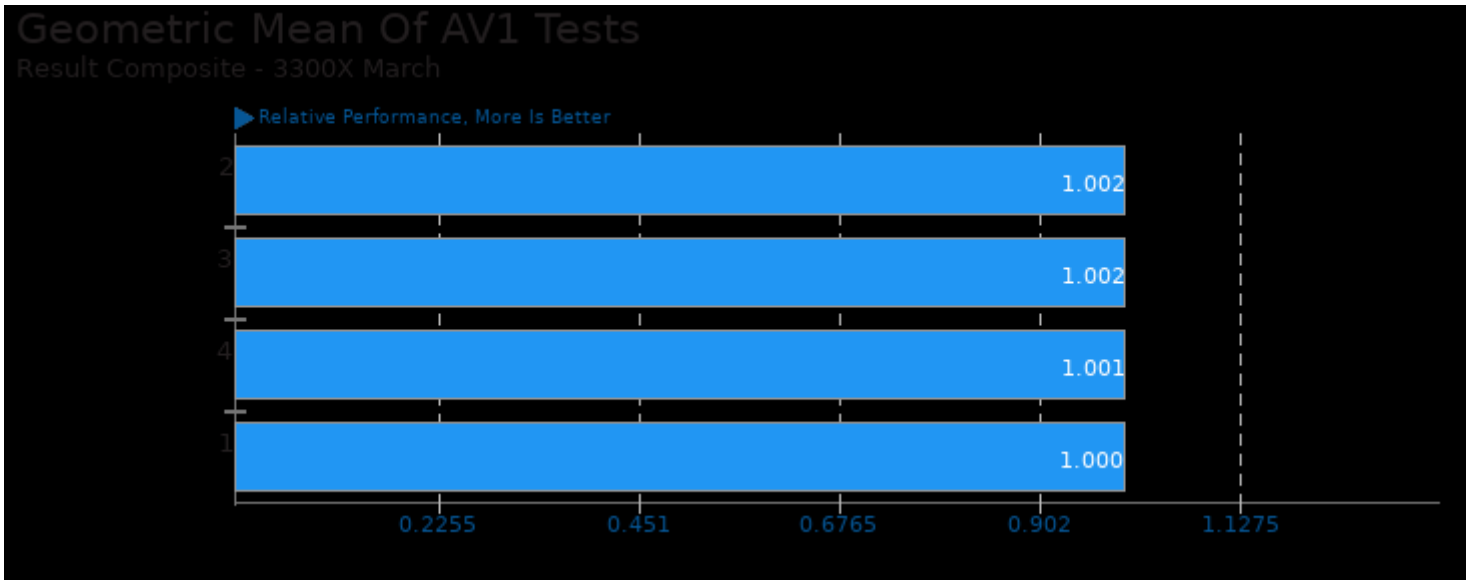

toyBrot Fractal Generator 2020-11-18
Implementation: OpenMP
ms, Fewer Is Better
1
SE +/- 229.08, N = 3
78116
2
SE +/- 189.42, N = 3
78083
3
SE +/- 167.18, N = 3
78250
4
SE +/- 211.01, N = 3
78354
20K
40K
60K
80K
100K
1. (CXX) g++ options: -O3 -lpthread
libavif avifenc 0.9.0
Encoder Speed: 0
Seconds, Fewer Is Better
1
SE +/- 0.12, N = 3
106.81
2
SE +/- 0.37, N = 3
106.79
3
SE +/- 0.17, N = 3
107.00
4
SE +/- 0.25, N = 3
107.05
20
40
60
80
100
1. (CXX) g++ options: -O3 -fPIC -lm


libavif avifenc 0.9.0
Encoder Speed: 6
Seconds, Fewer Is Better
1
SE +/- 0.06, N = 3
17.92
2
SE +/- 0.02, N = 3
17.95
3
SE +/- 0.04, N = 3
17.91
4
SE +/- 0.03, N = 3
17.94
4
8
12
16
20
1. (CXX) g++ options: -O3 -fPIC -lm
NWChem 7.0.2
Input: C240 Buckyball
Seconds, Fewer Is Better
1
15846.6
2
15867.6
4
15871.7
3K
6K
9K
12K
15K
1. (F9X) gfortran options: -lnwctask -lccsd -lmcscf -lselci -lmp2 -lmoints -lstepper -ldriver -loptim -lnwdft -lgradients -lcphf -lesp -lddscf -ldangchang -lgue

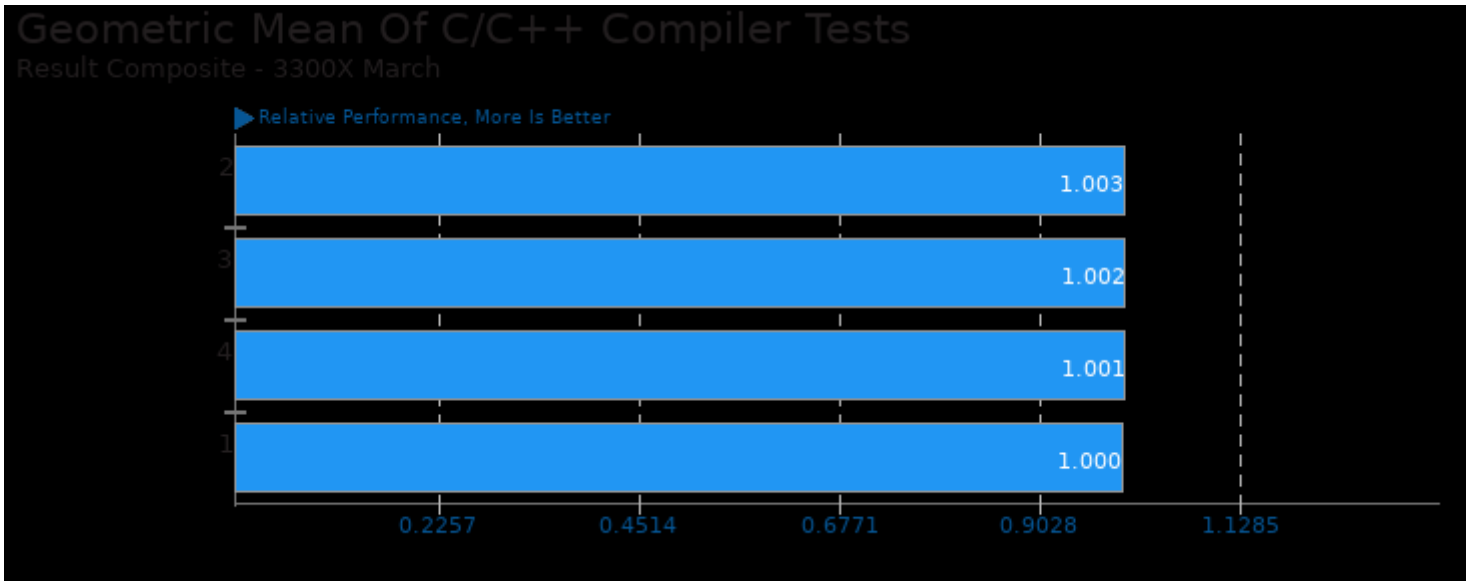

toyBrot Fractal Generator 2020-11-18
Implementation: C++ Tasks
ms, Fewer Is Better
1
SE +/- 32.76, N = 3
78874
2
SE +/- 76.46, N = 3
78898
3
SE +/- 24.50, N = 3
78949
4
SE +/- 40.53, N = 3
78994
20K
40K
60K
80K
100K
1. (CXX) g++ options: -O3 -lpthread
toyBrot Fractal Generator 2020-11-18
Implementation: C++ Threads
ms, Fewer Is Better
1
SE +/- 28.31, N = 3
78931
2
SE +/- 19.60, N = 3
78926
3
SE +/- 17.53, N = 3
78934
4
SE +/- 13.78, N = 3
78955
20K
40K
60K
80K
100K
1. (CXX) g++ options: -O3 -lpthread


JPEG XL 0.3.1
Input: PNG - Encode Speed: 8
MP/s, More Is Better
1
SE +/- 0.01, N = 3
0.84
2
SE +/- 0.00, N = 3
0.84
3
SE +/- 0.00, N = 3
0.84
4
SE +/- 0.00, N = 3
0.84
0.189
0.378
0.567
0.756
0.945
1. (CXX) g++ options: -funwind-tables -O3 -O2 -fPIE -pie -pthread -ldl

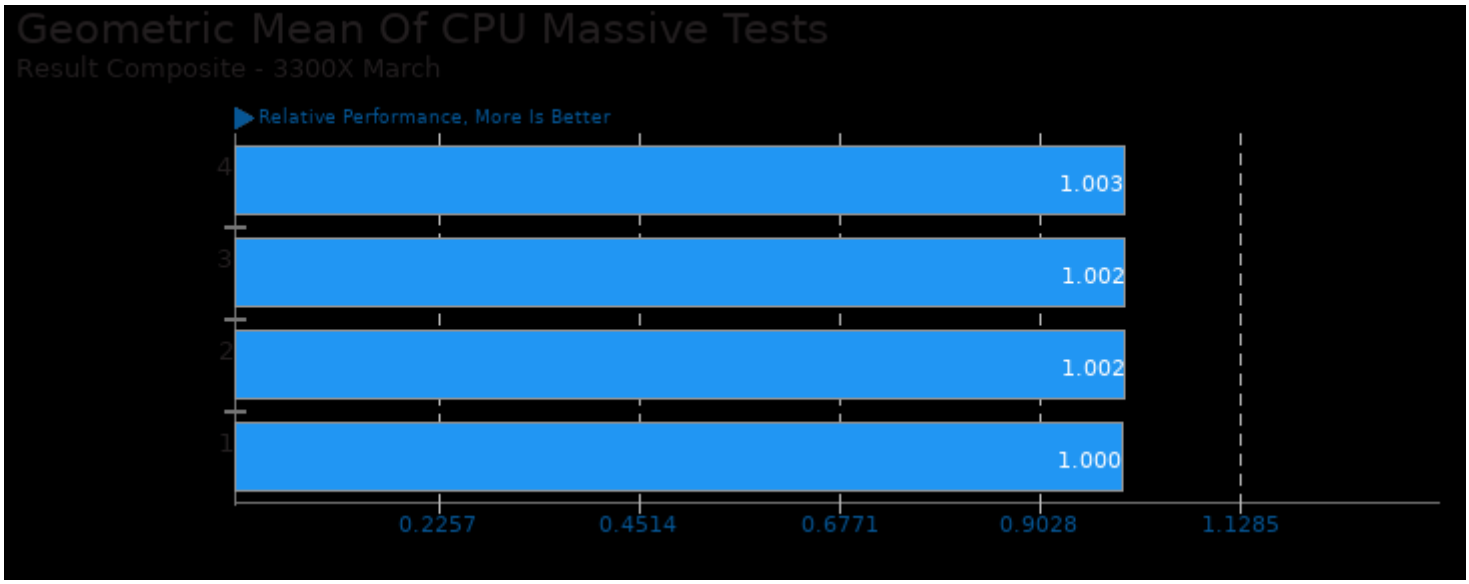
These geometric means are based upon test groupings / test suites for this result file.



Geometric mean based upon tests: pts/dav1d and pts/avifenc



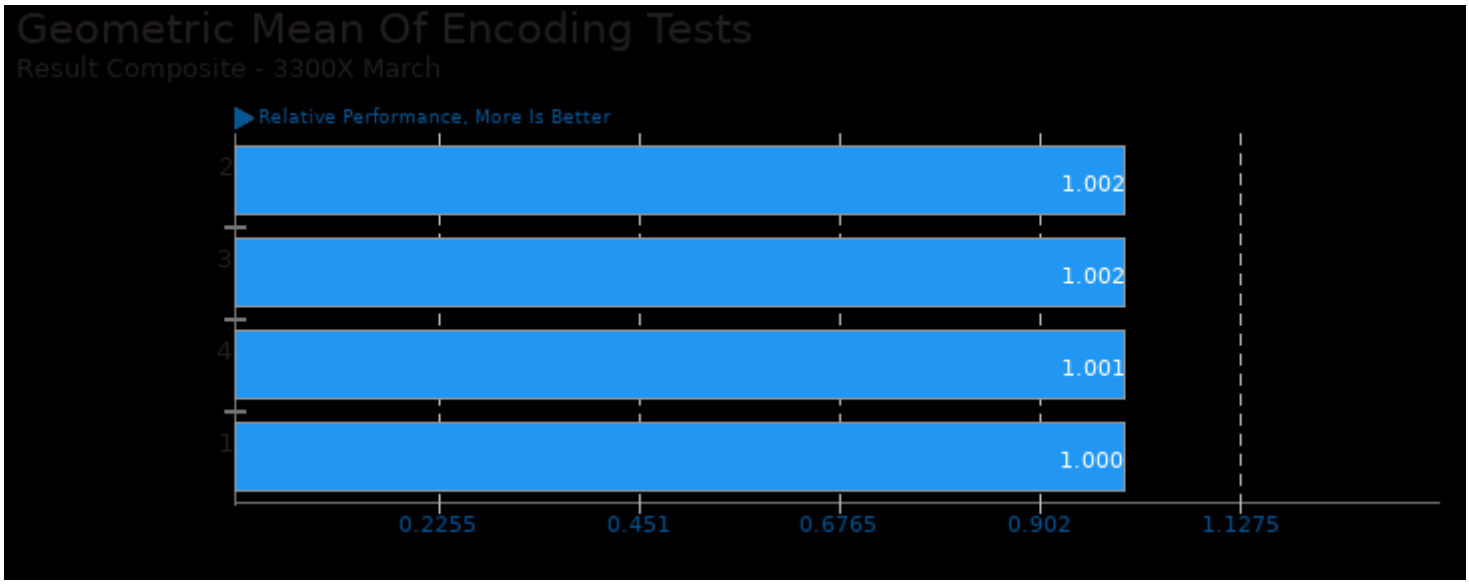
Geometric mean based upon tests: pts/dav1d and pts/toybrot



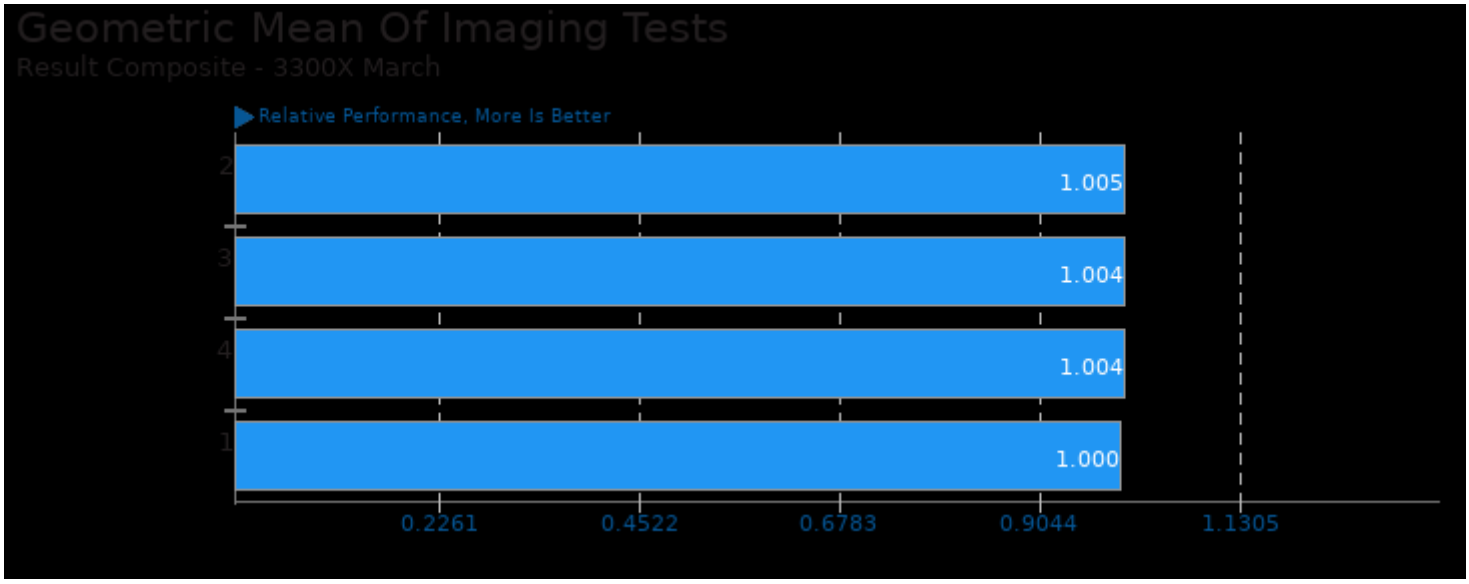
Geometric mean based upon tests: pts/dav1d and pts/blender



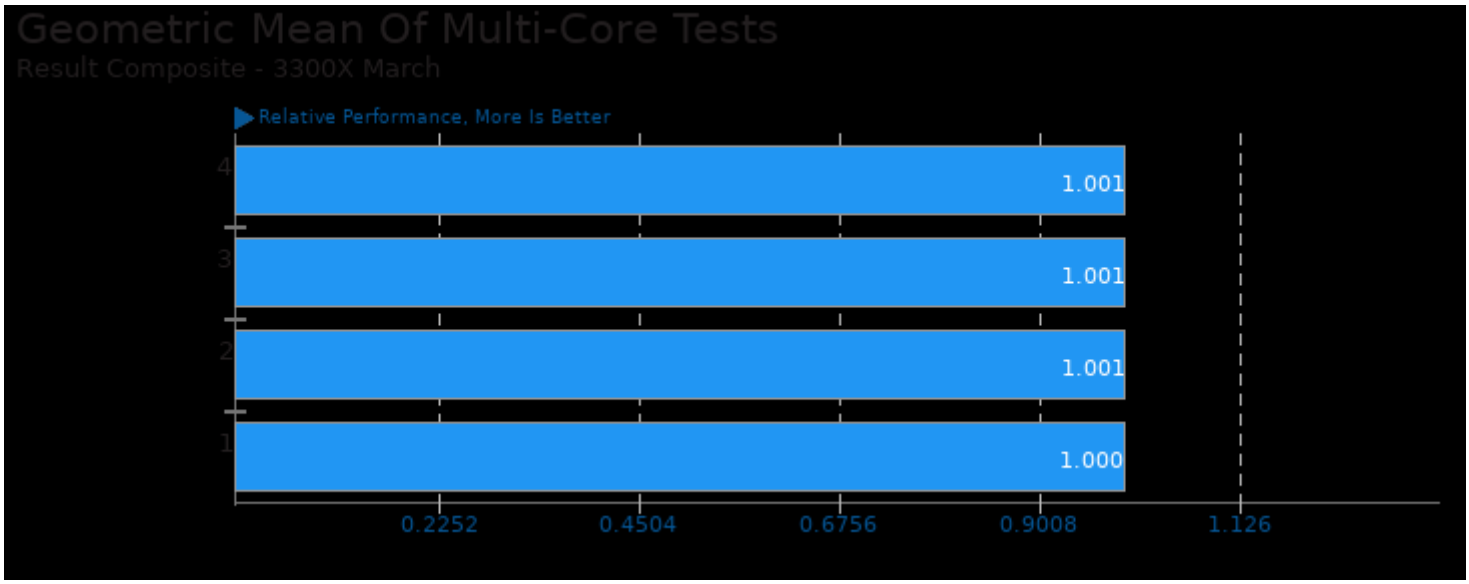
Geometric mean based upon tests: pts/blender, pts/dav1d, pts/avifenc, pts/jpegxl and pts/jpegxl-decode



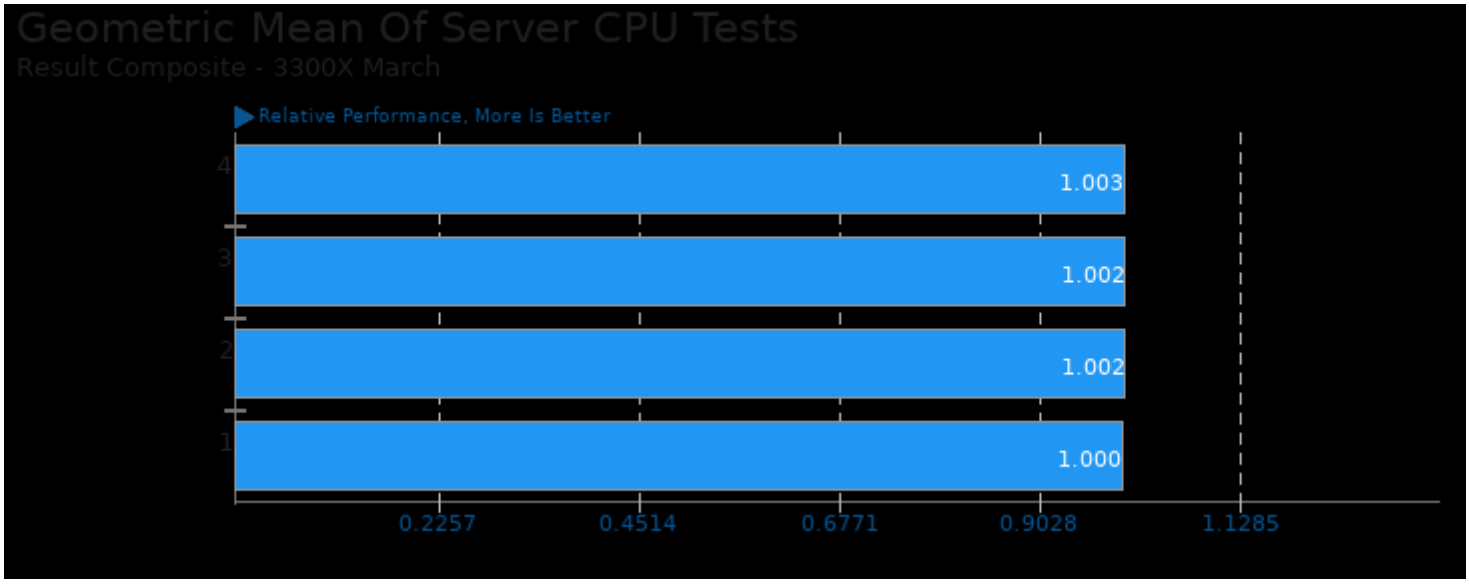
Geometric mean based upon tests: pts/dav1d and pts/avifenc



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

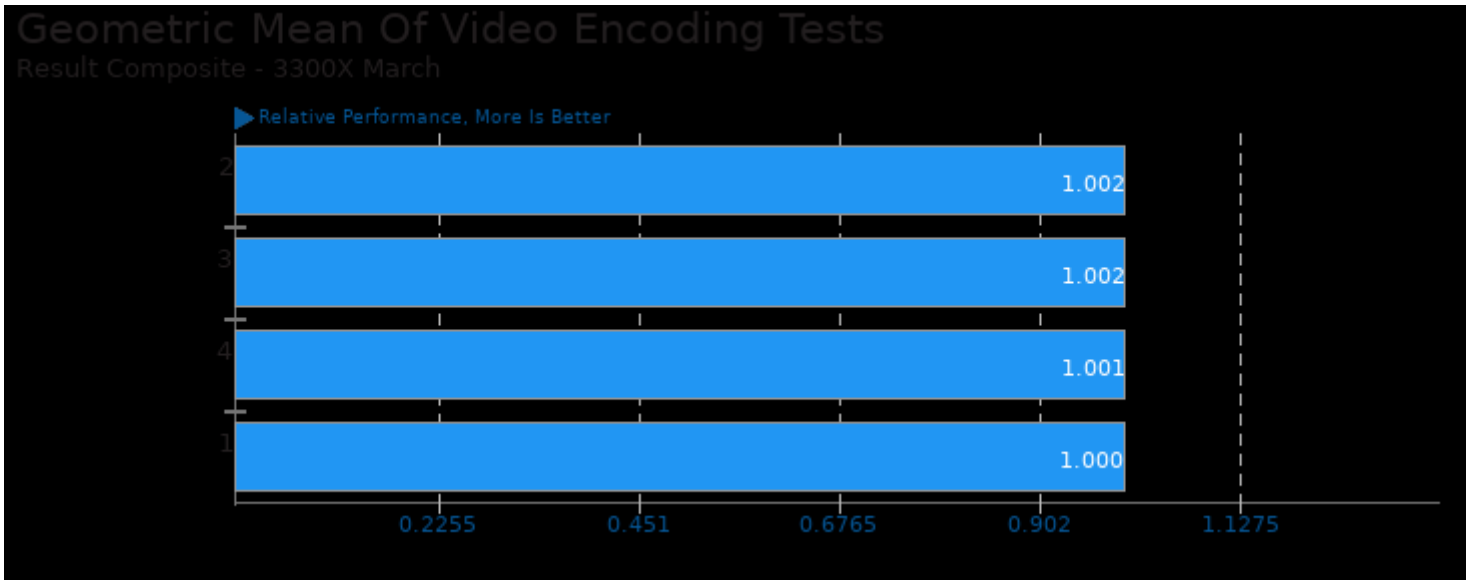


Geometric mean based upon tests: pts/blender, pts/dav1d and pts/avifenc



Geometric mean based upon tests: pts/dav1d and pts/blender

3300X March



Geometric mean based upon tests: pts/dav1d and pts/avifenc

This file was automatically generated via the Phoronix Test Suite benchmarking software on Friday, 29 March 2024 00:48.