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# 8100 March

Intel Core i3-8100 testing with a ASRock Z370M-ITX/ac (P4.10 BIOS) and Intel 8th Gen Core Gaussian Mixture Model 3GB on Ubuntu 20.04 via the Phoronix Test Suite.

**Automated Executive Summary**

*3 had the most wins, coming in first place for 36% of the tests.*

*Based on the geometric mean of all complete results, the fastest (3) was 1.001x the speed of the slowest (2). 3 was 1x the speed of 4, 1 was 1x the speed of 3, 2 was 1x the speed of 1.*

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

*JPEG XL (Input: JPEG - Encode Speed: 5) at 1.017x*
*ET: Legacy (Resolution: 1920 x 1080) at 1.014x*
*JPEG XL (Input: JPEG - Encode Speed: 7) at 1.01x*
*JPEG XL (Input: PNG - Encode Speed: 5) at 1.01x*
*dav1d (Video Input: Summer Nature 1080p) at 1.01x*
*dav1d (Video Input: Chimera 1080p) at 1.008x*
*dav1d (Video Input: Summer Nature 4K) at 1.005x*
*JPEG XL (Input: PNG - Encode Speed: 7) at 1.005x*
*libavif avifenc (Encoder Speed: 10, Lossless) at 1.003x*

*libavif avifenc (Encoder Speed: 6, Lossless) at 1.002x.*

# Test Systems:

## 1

## 2

## 3

## 4

Processor: Intel Core i3-8100 @ 3.60GHz (4 Cores), Motherboard: ASRock Z370M-ITX/ac (P4.10 BIOS), Chipset: Intel 8th Gen Core 4-core Desktop, Memory: 8GB, Disk: 60GB DREVO X1 SSD, Graphics: Intel 8th Gen Core Gaussian Mixture Model 3GB (1100MHz), Audio: Realtek ALC892, Monitor: DELL S2409W, Network: Intel I219-V + Intel I211 + Intel Dual Band-AC 3168NGW

OS: Ubuntu 20.04, Kernel: 5.9.0-050900rc1daily20200819-generic (x86_64) 20200818, Desktop: GNOME Shell 3.36.4, Display Server: X Server 1.20.9, OpenGL: 4.6 Mesa 20.0.8, Vulkan: 1.2.131, 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: intel_pstate powersave - CPU Microcode: 0xde - Thermald 1.9.1
Security Notes: itlb_multihit: KVM: Mitigation of VMX disabled + l1tf: Mitigation of PTE Inversion; VMX: conditional cache flushes SMT disabled + mds: Mitigation of Clear buffers; SMT disabled + meltdown: Mitigation of PTI + 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 generic retpoline IBPB: conditional IBRS_FW STIBP: disabled RSB filling + srbds: Mitigation of Microcode + tsx_async_abort: Not affected

| | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| **dav1d - Chimera 1080p (FPS)** | **258.87** | 256.99 | **256.89** | 257.84 |
| **Normalized** | 100% | 99.27% | 99.24% | 99.6% |
| **Standard Deviation** | 0.6% | 0.1% | 0.3% | 0.2% |
| **dav1d - Summer Nature 4K (FPS)** | **70.66** | 70.42 | **70.32** | 70.63 |
| **Normalized** | 100% | 99.66% | 99.52% | 99.96% |
| **Standard Deviation** | 0.1% | 0.2% | 0.2% | 0.1% |
| **dav1d - S.N.1 (FPS)** | **237.61** | 238.45 | 239.20 | **239.95** |
| **Normalized** | 99.02% | 99.37% | 99.69% | 100% |
| **Standard Deviation** | 1.6% | 0.4% | 0.5% | 0.4% |
| **dav1d - C.1.1.b (FPS)** | 69.64 | **69.59** | **69.70** | |
| **Normalized** | 99.91% | 99.84% | 100% | |
| **Standard Deviation** | 0.1% | 0.1% | 0% | |

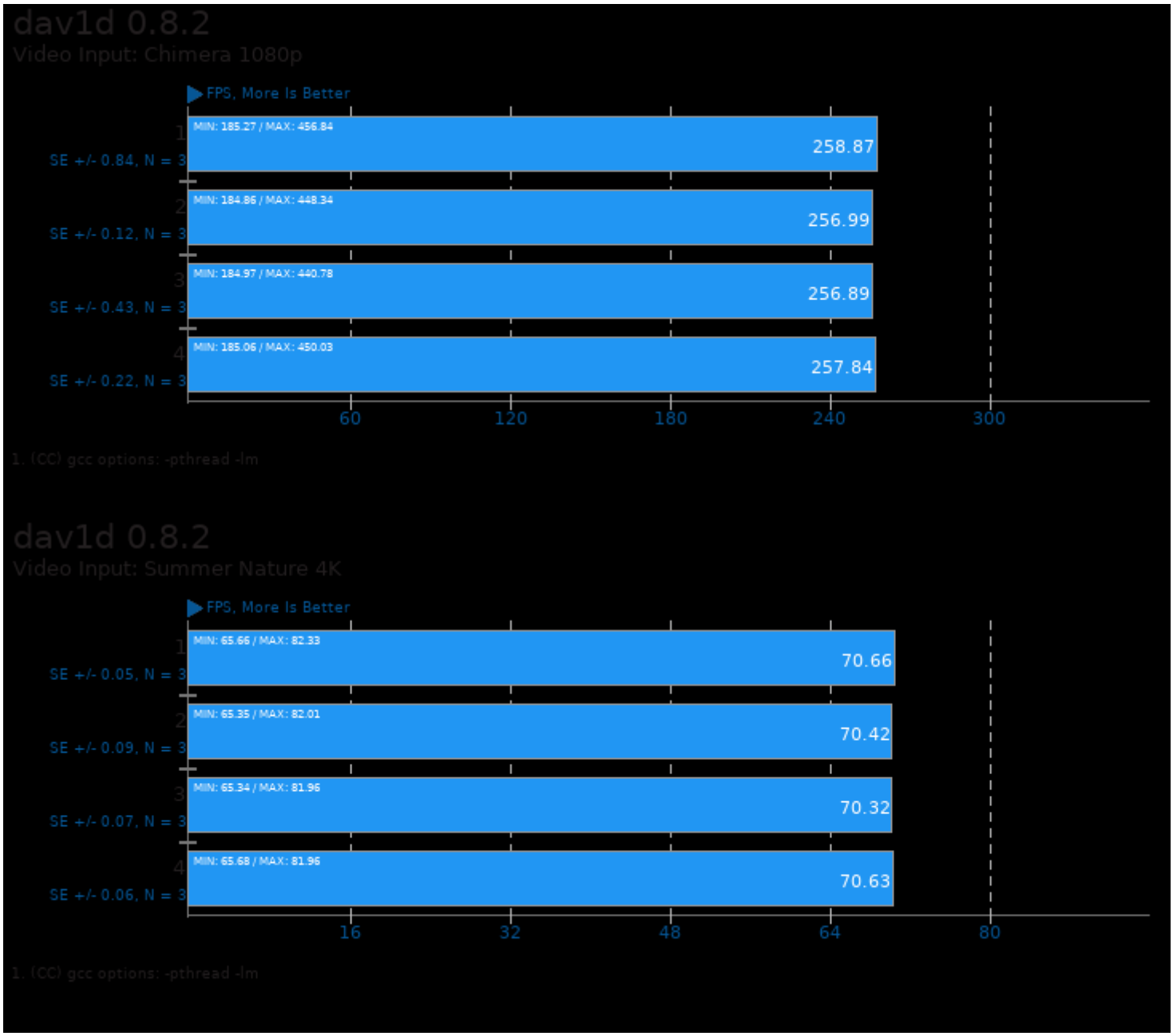
# 8100 March

| | | | | |
|---|---|---|---|---|
| **ET: Legacy - 1920 x 1080 (FPS)** | **156.3** | **158.5** | 158.0 | |
| **Normalized** | 98.61% | 100% | 99.68% | |
| **Standard Deviation** | 0.7% | 0.5% | 1.4% | |
| **JPEG XL - PNG - 5 (MP/s)** | 36.16 | 36.17 | **36.47** | **36.11** |
| **Normalized** | 99.15% | 99.18% | 100% | 99.01% |
| **Standard Deviation** | 0.4% | 0.4% | 0.3% | 0.3% |
| **JPEG XL - PNG - 7 (MP/s)** | **6.56** | 6.58 | **6.59** | **6.59** |
| **Normalized** | 99.54% | 99.85% | 100% | 100% |
| **Standard Deviation** | 0.3% | 0.2% | 0.2% | 0.3% |
| **JPEG XL - PNG - 8 (MP/s)** | 0.62 | 0.62 | 0.62 | 0.62 |
| **Standard Deviation** | 0.9% | 0% | 0% | 0% |
| **JPEG XL - JPEG - 5 (MP/s)** | 42.91 | 42.89 | **43.18** | **42.47** |
| **Normalized** | 99.37% | 99.33% | 100% | 98.36% |
| **Standard Deviation** | 0.6% | 1.7% | 0.2% | 0.5% |
| **JPEG XL - JPEG - 7 (MP/s)** | 42.76 | 42.85 | **42.55** | **42.99** |
| **Normalized** | 99.46% | 99.67% | 98.98% | 100% |
| **Standard Deviation** | 0.5% | 1.1% | 0.3% | 0.7% |
| **JPEG XL - JPEG - 8 (MP/s)** | **20.50** | 20.48 | **20.47** | **20.50** |
| **Normalized** | 100% | 99.9% | 99.85% | 100% |
| **Standard Deviation** | 0.2% | 0.5% | 0.2% | 0.5% |
| **JPEG XL Decoding - 1 (MP/s)** | **33.35** | **33.37** | **33.35** | **33.37** |
| **Normalized** | 99.94% | 100% | 99.94% | 100% |
| **Standard Deviation** | 0% | 0% | 0% | 0.1% |
| **JPEG XL Decoding - All (MP/s)** | **106.45** | **106.38** | 106.40 | 106.41 |
| **Normalized** | 100% | 99.93% | 99.95% | 99.96% |
| **Standard Deviation** | 0% | 0% | 0.1% | 0% |
| **libavif avifenc - 0 (sec)** | 156.975 | **157.175** | **156.893** | |
| **Normalized** | 99.95% | 99.82% | 100% | |
| **Standard Deviation** | 0.2% | 0.2% | 0.1% | |
| **libavif avifenc - 2 (sec)** | **79.669** | **79.583** | 79.652 | |
| **Normalized** | 99.89% | 100% | 99.91% | |
| **Standard Deviation** | 0.1% | 0.2% | 0.2% | |
| **libavif avifenc - 6 (sec)** | 27.147 | **27.148** | **27.110** | |
| **Normalized** | 99.86% | 99.86% | 100% | |
| **Standard Deviation** | 0.2% | 0.3% | 0.2% | |
| **libavif avifenc - 10 (sec)** | 5.619 | **5.628** | **5.615** | |
| **Normalized** | 99.93% | 99.77% | 100% | |
| **Standard Deviation** | 0.1% | 0.1% | 0.1% | |
| **libavif avifenc - 6, Lossless (sec)** | **156.413** | 156.101 | **156.048** | |
| **Normalized** | 99.77% | 99.97% | 100% | |
| **Standard Deviation** | 1.2% | 0.9% | 0.7% | |
| **libavif avifenc - 10, Lossless (sec)** | **9.938** | **9.968** | 9.955 | |
| **Normalized** | 100% | 99.7% | 99.83% | |
| **Standard Deviation** | 0.4% | 0.8% | 0.6% | |
| **toyBrot Fractal Generator - OpenMP (ms)** | **181925** | **181755** | 181863 | 181775 |
| **Normalized** | 99.91% | 100% | 99.94% | 99.99% |
| **Standard Deviation** | 0% | 0.1% | 0% | 0.1% |
| **toyBrot Fractal Generator - C++ Tasks (ms)** | **182681** | **182725** | 182705 | 182719 |
| **Normalized** | 100% | 99.98% | 99.99% | 99.98% |
| **Standard Deviation** | 0% | 0% | 0% | 0% |

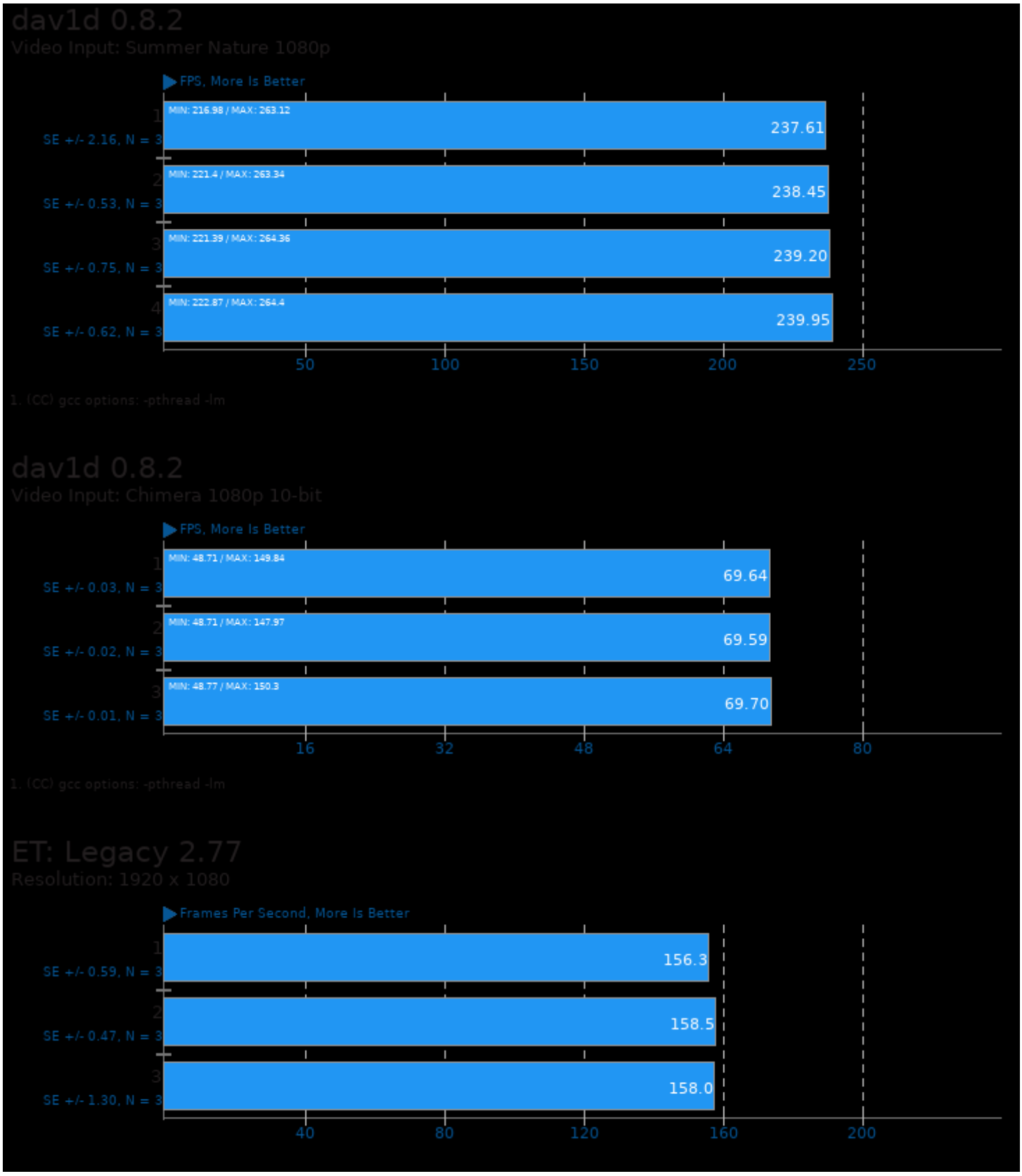
# 8100 March

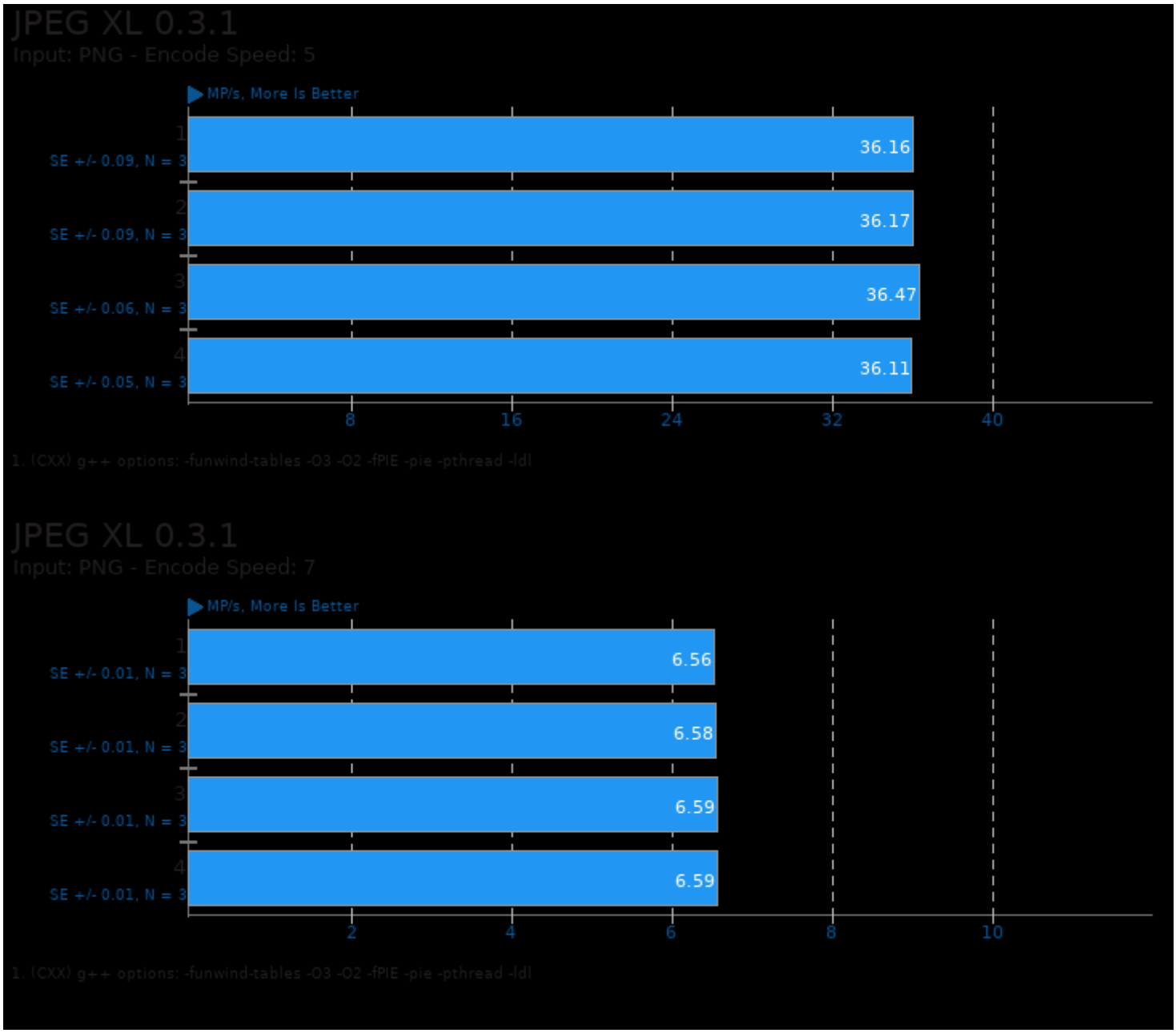
| toyBrot Fractal Generator - C++ Threads (ms) | 182407 | 182333 | 182320 | 182266 |
|---|---|---|---|---|
| Normalized | 99.92% | 99.96% | 99.97% | 100% |
| Standard Deviation | 0% | 0.1% | 0% | 0.1% |

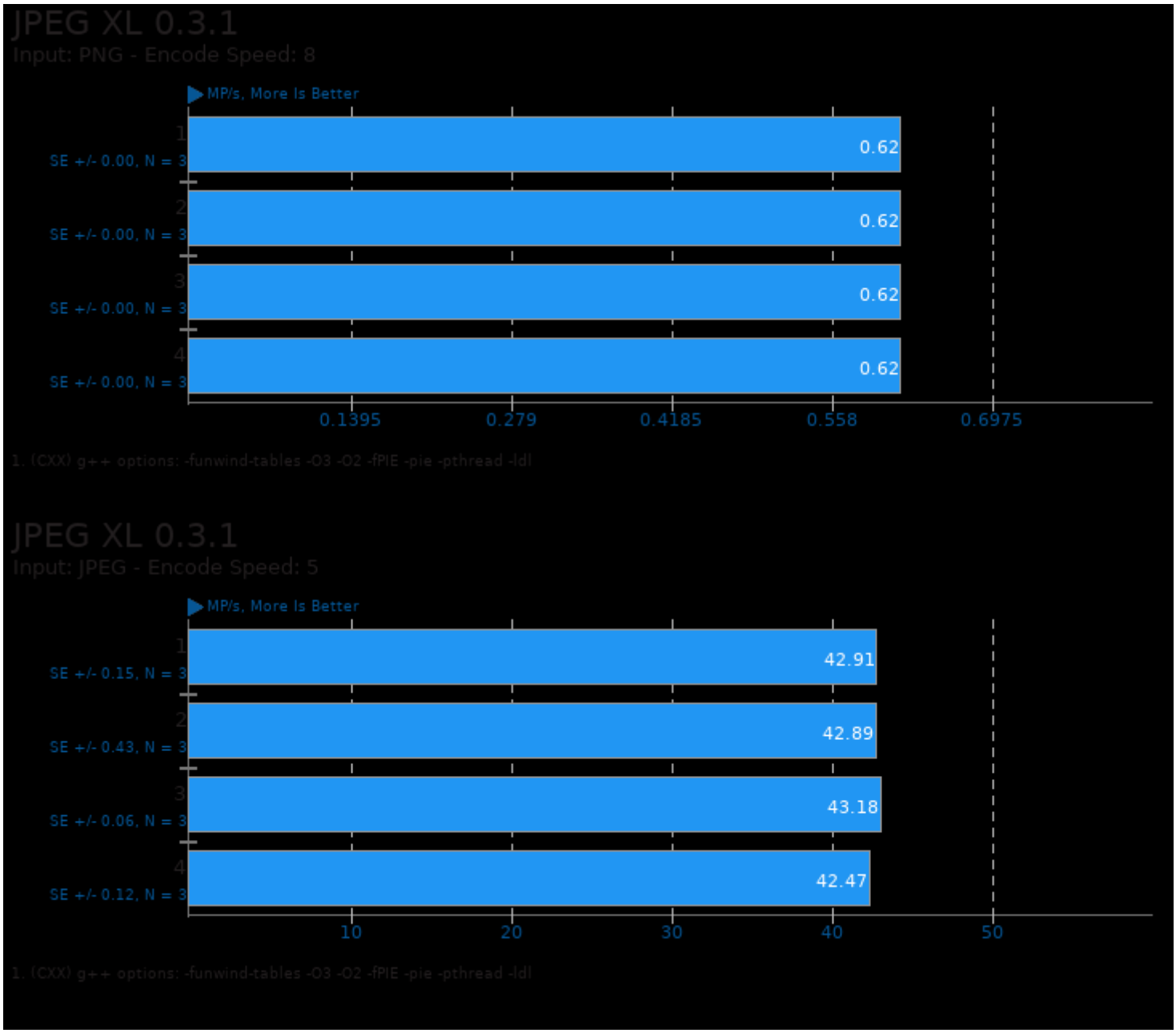
# 8100 March

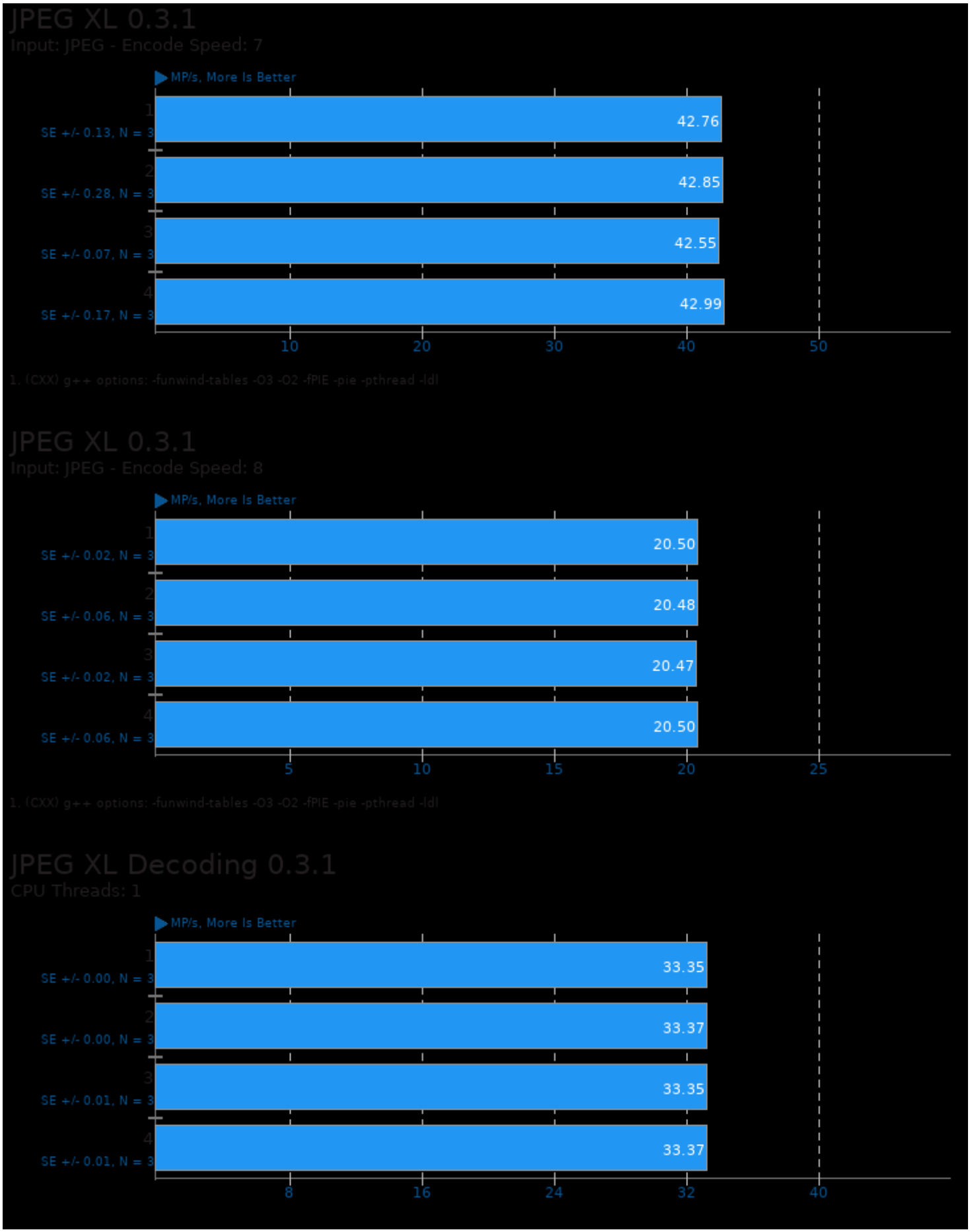

dav1d 0.8.2
Video Input: Chimera 1080p
FPS, More Is Better
1
MIN: 185.27 / MAX: 456.84
258.87
SE +/- 0.84, N = 3
2
MIN: 184.86 / MAX: 448.34
256.99
SE +/- 0.12, N = 3
3
MIN: 184.97 / MAX: 440.78
256.89
SE +/- 0.43, N = 3
4
MIN: 185.06 / MAX: 450.03
257.84
SE +/- 0.22, N = 3
60
120
180
240
300
1. (CC) gcc options: -pthread -lm
dav1d 0.8.2
Video Input: Summer Nature 4K
FPS, More Is Better
1
MIN: 65.66 / MAX: 82.33
70.66
SE +/- 0.05, N = 3
2
MIN: 65.35 / MAX: 82.01
70.42
SE +/- 0.09, N = 3
3
MIN: 65.34 / MAX: 81.96
70.32
SE +/- 0.07, N = 3
4
MIN: 65.68 / MAX: 81.96
70.63
SE +/- 0.06, N = 3
16
32
48
64
80
1. (CC) gcc options: -pthread -lm

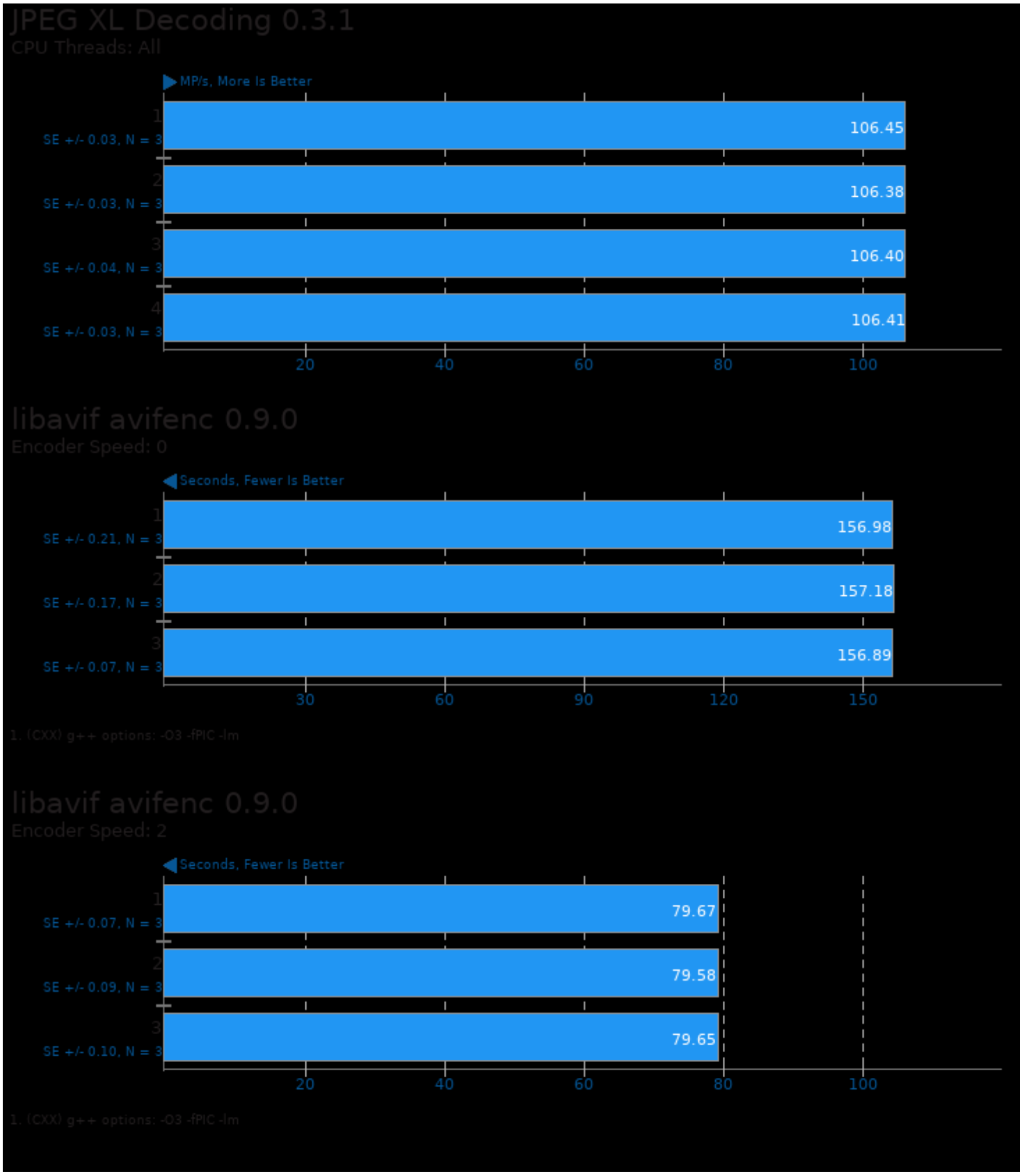
# 8100 March

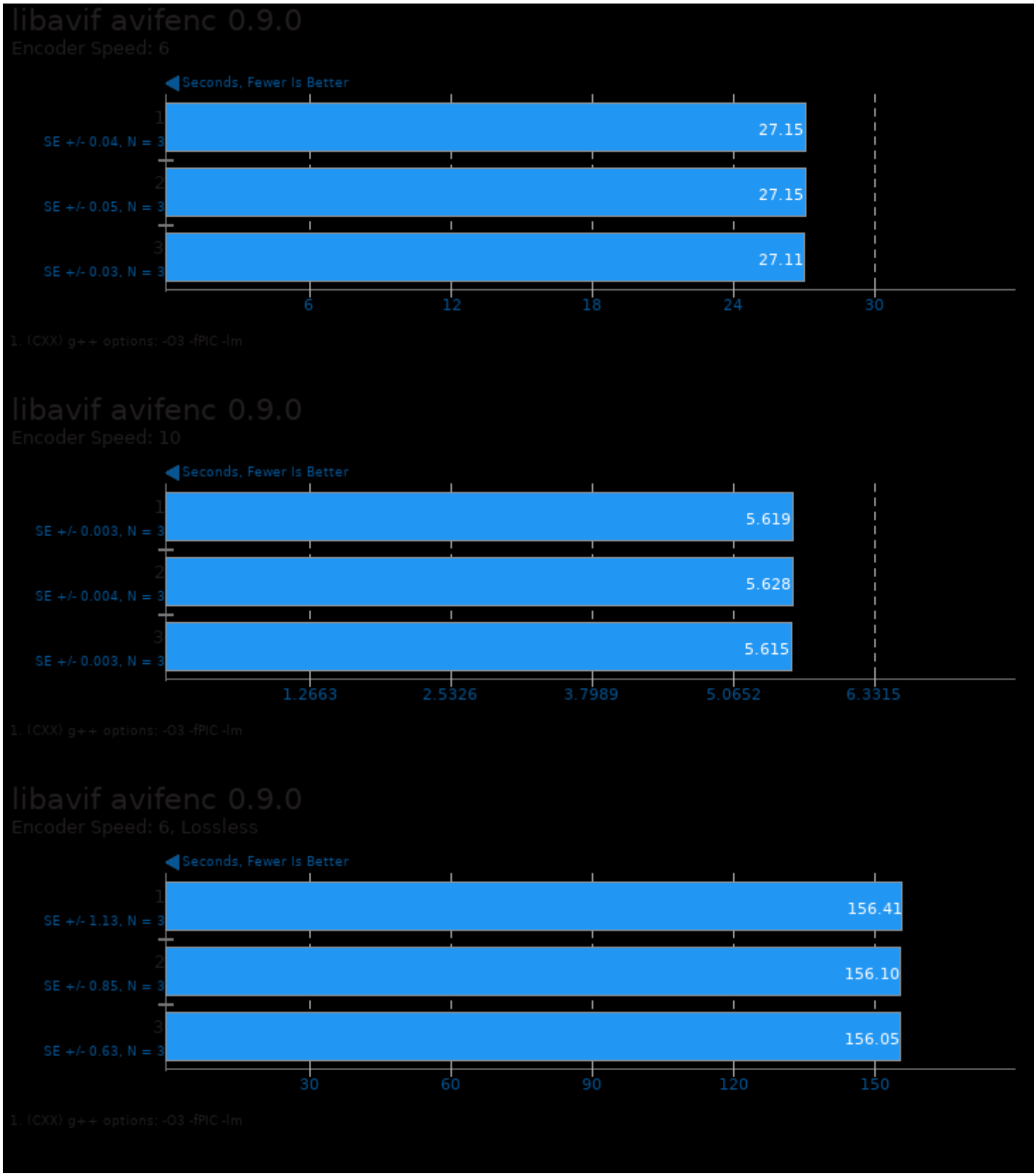

dav1d 0.8.2
Video Input: Summer Nature 1080p
FPS, More Is Better
1
MIN: 216.98 / MAX: 263.12
237.61
SE +/- 2.16, N = 3
2
MIN: 221.4 / MAX: 263.34
238.45
SE +/- 0.53, N = 3
3
MIN: 221.39 / MAX: 264.36
239.20
SE +/- 0.75, N = 3
4
MIN: 222.87 / MAX: 264.4
239.95
SE +/- 0.62, N = 3
50
100
150
200
250
1. (CC) gcc options: -pthread -lm
dav1d 0.8.2
Video Input: Chimera 1080p 10-bit
FPS, More Is Better
1
MIN: 48.71 / MAX: 149.84
69.64
SE +/- 0.03, N = 3
2
MIN: 48.71 / MAX: 147.97
69.59
SE +/- 0.02, N = 3
3
MIN: 48.77 / MAX: 150.3
69.70
SE +/- 0.01, N = 3
16
32
48
64
80
1. (CC) gcc options: -pthread -lm
ET: Legacy 2.77
Resolution: 1920 x 1080
Frames Per Second, More Is Better
1
156.3
SE +/- 0.59, N = 3
2
158.5
SE +/- 0.47, N = 3
3
158.0
SE +/- 1.30, N = 3
40
80
120
160
200


JPEG XL 0.3.1
Input: PNG - Encode Speed: 5
MP/s, More Is Better
1
SE +/- 0.09, N = 3
36.16
2
SE +/- 0.09, N = 3
36.17
3
SE +/- 0.06, N = 3
36.47
4
SE +/- 0.05, N = 3
36.11
8
16
24
32
40
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 +/- 0.01, N = 3
6.56
2
SE +/- 0.01, N = 3
6.58
3
SE +/- 0.01, N = 3
6.59
4
SE +/- 0.01, N = 3
6.59
2
4
6
8
10
1. (CXX) g++ options: -funwind-tables -O3 -O2 -fPIE -pie -pthread -ldl


JPEG XL 0.3.1
Input: PNG - Encode Speed: 8
MP/s, More Is Better
1
SE +/- 0.00, N = 3
0.62
2
SE +/- 0.00, N = 3
0.62
3
SE +/- 0.00, N = 3
0.62
4
SE +/- 0.00, N = 3
0.62
0.1395
0.279
0.4185
0.558
0.6975
1. (CXX) g++ options: -funwind-tables -O3 -O2 -fPIE -pie -pthread -ldl
JPEG XL 0.3.1
Input: JPEG - Encode Speed: 5
MP/s, More Is Better
1
SE +/- 0.15, N = 3
42.91
2
SE +/- 0.43, N = 3
42.89
3
SE +/- 0.06, N = 3
43.18
4
SE +/- 0.12, N = 3
42.47
10
20
30
40
50
1. (CXX) g++ options: -funwind-tables -O3 -O2 -fPIE -pie -pthread -ldl

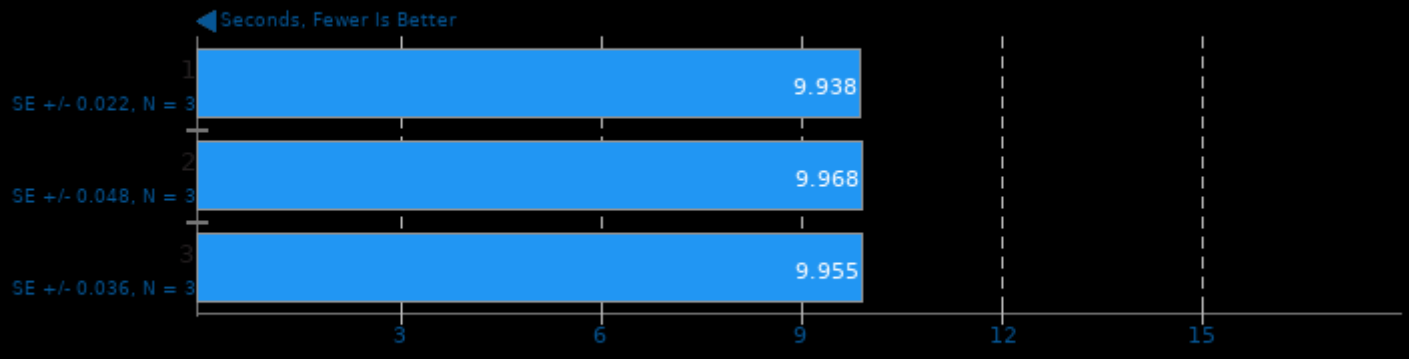

JPEG XL 0.3.1
Input: JPEG - Encode Speed: 7
MP/s, More Is Better
1
SE +/- 0.13, N = 3
42.76
2
SE +/- 0.28, N = 3
42.85
3
SE +/- 0.07, N = 3
42.55
4
SE +/- 0.17, N = 3
42.99
10
20
30
40
50
1. (CXX) g++ options: -funwind-tables -O3 -O2 -fPIE -pie -pthread -ldl
JPEG XL 0.3.1
Input: JPEG - Encode Speed: 8
MP/s, More Is Better
1
SE +/- 0.02, N = 3
20.50
2
SE +/- 0.06, N = 3
20.48
3
SE +/- 0.02, N = 3
20.47
4
SE +/- 0.06, N = 3
20.50
5
10
15
20
25
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 +/- 0.00, N = 3
33.35
2
SE +/- 0.00, N = 3
33.37
3
SE +/- 0.01, N = 3
33.35
4
SE +/- 0.01, N = 3
33.37
8
16
24
32
40


JPEG XL Decoding 0.3.1
CPU Threads: All
MP/s, More Is Better
1
SE +/- 0.03, N = 3
106.45
2
SE +/- 0.03, N = 3
106.38
3
SE +/- 0.04, N = 3
106.40
4
SE +/- 0.03, N = 3
106.41
20
40
60
80
100
libavif avifenc 0.9.0
Encoder Speed: 0
Seconds, Fewer Is Better
1
SE +/- 0.21, N = 3
156.98
2
SE +/- 0.17, N = 3
157.18
3
SE +/- 0.07, N = 3
156.89
30
60
90
120
150
1. (CXX) g++ options: -O3 -fPIC -lm
libavif avifenc 0.9.0
Encoder Speed: 2
Seconds, Fewer Is Better
1
SE +/- 0.07, N = 3
79.67
2
SE +/- 0.09, N = 3
79.58
3
SE +/- 0.10, N = 3
79.65
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 +/- 0.04, N = 3
27.15
2
SE +/- 0.05, N = 3
27.15
3
SE +/- 0.03, N = 3
27.11
6
12
18
24
30
1. (CXX) g++ options: -O3 -fPIC -lm
libavif avifenc 0.9.0
Encoder Speed: 10
Seconds, Fewer Is Better
1
SE +/- 0.003, N = 3
5.619
2
SE +/- 0.004, N = 3
5.628
3
SE +/- 0.003, N = 3
5.615
1.2663
2.5326
3.7989
5.0652
6.3315
1. (CXX) g++ options: -O3 -fPIC -lm
libavif avifenc 0.9.0
Encoder Speed: 6, Lossless
Seconds, Fewer Is Better
1
SE +/- 1.13, N = 3
156.41
2
SE +/- 0.85, N = 3
156.10
3
SE +/- 0.63, N = 3
156.05
30
60
90
120
150
1. (CXX) g++ options: -O3 -fPIC -lm

## libavif avifenc 0.9.0

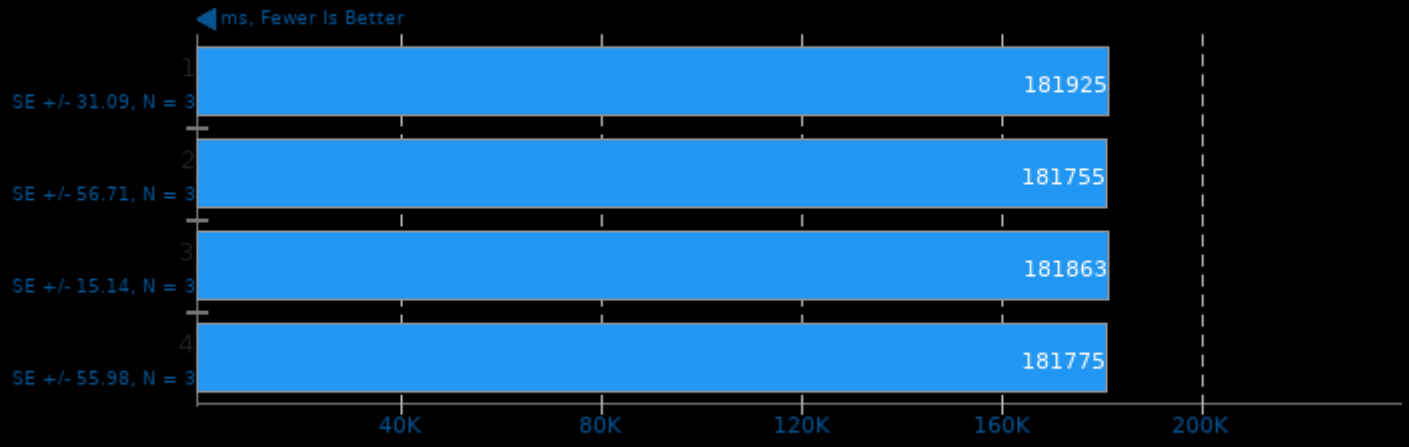
Encoder Speed: 10, Lossless




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

## toyBrot Fractal Generator 2020-11-18

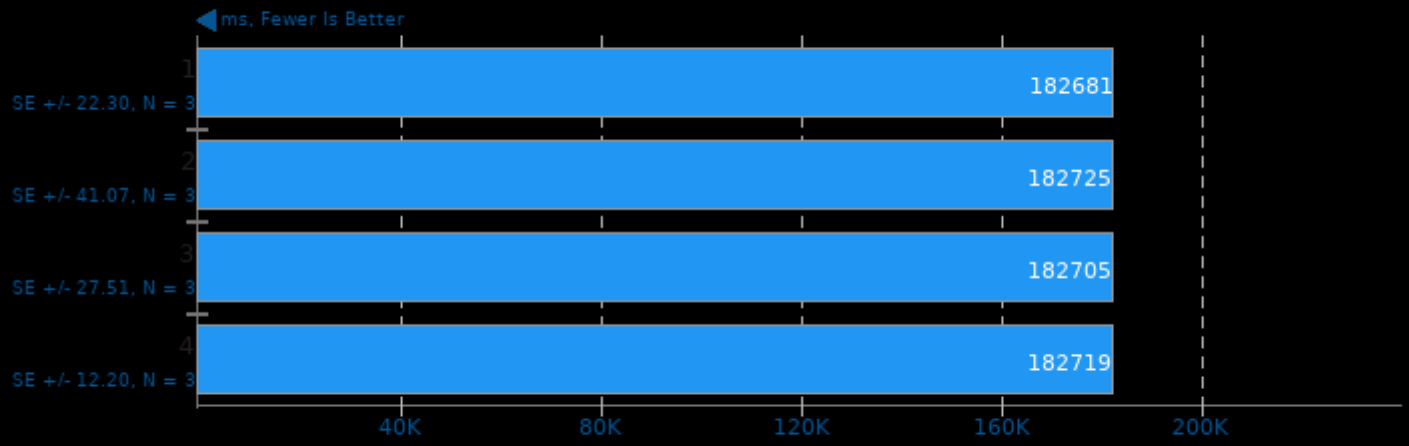
Implementation: OpenMP




1. (CXX) g++ options: -O3 -lpthread

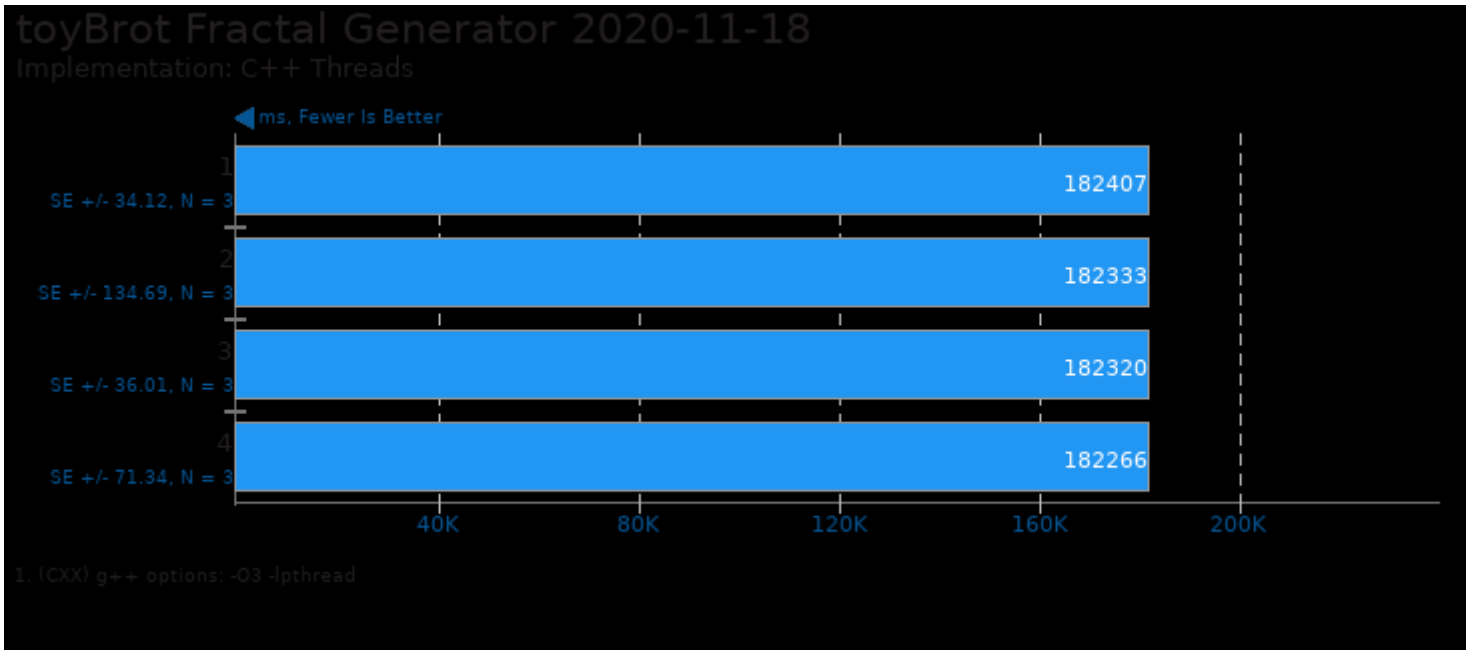
## toyBrot Fractal Generator 2020-11-18

Implementation: C++ Tasks



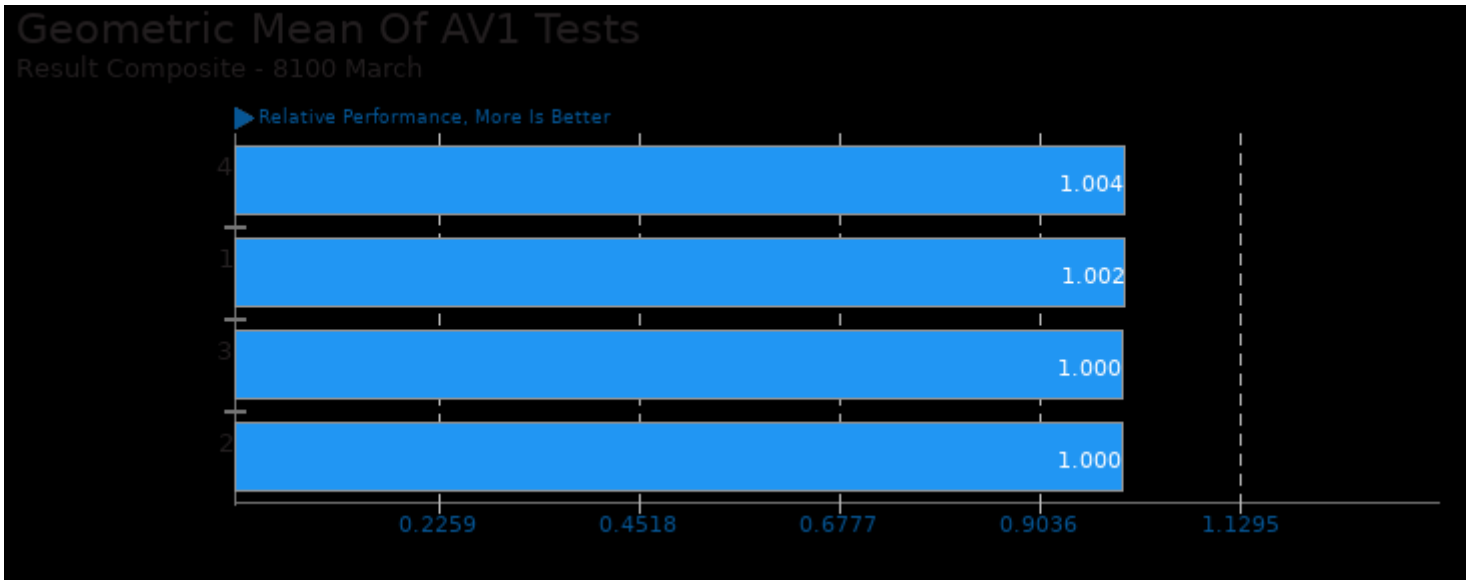

1. (CXX) g++ options: -O3 -lpthread

# 8100 March

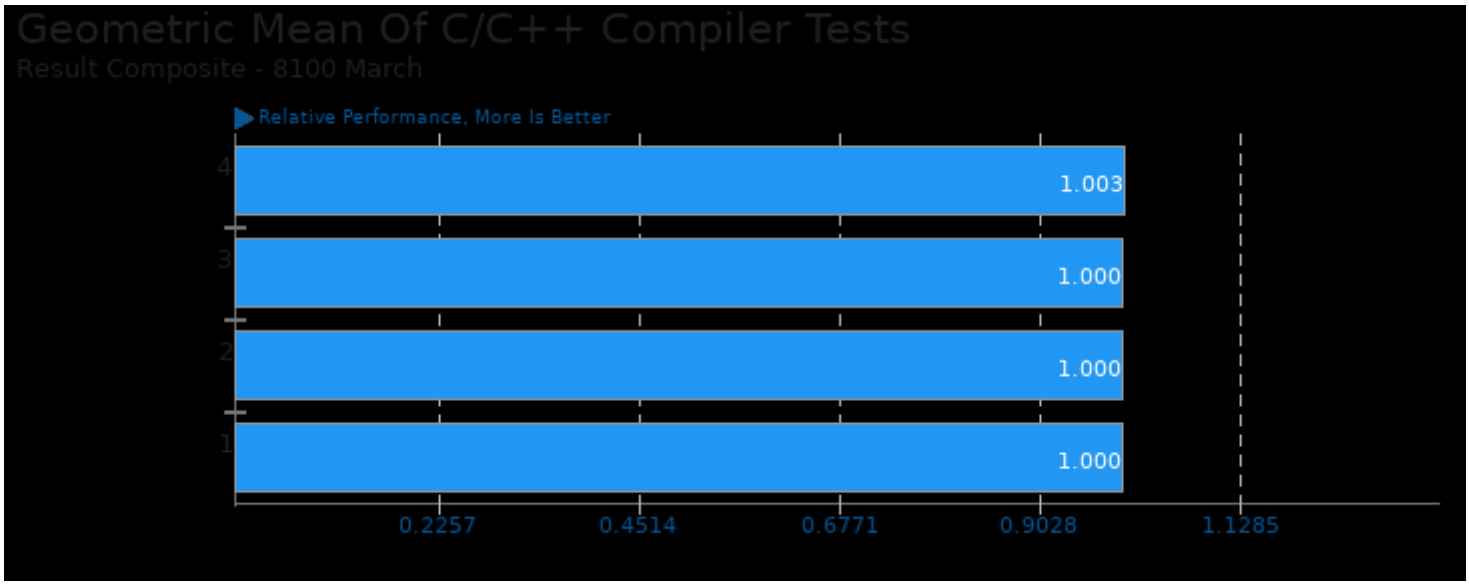

toyBrot Fractal Generator 2020-11-18
Implementation: C++ Threads
ms, Fewer Is Better
1
SE +/- 34.12, N = 3
182407
2
SE +/- 134.69, N = 3
182333
3
SE +/- 36.01, N = 3
182320
4
SE +/- 71.34, N = 3
182266
40K
80K
120K
160K
200K
1. (CXX) g++ options: -O3 -lpthread

# 8100 March

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

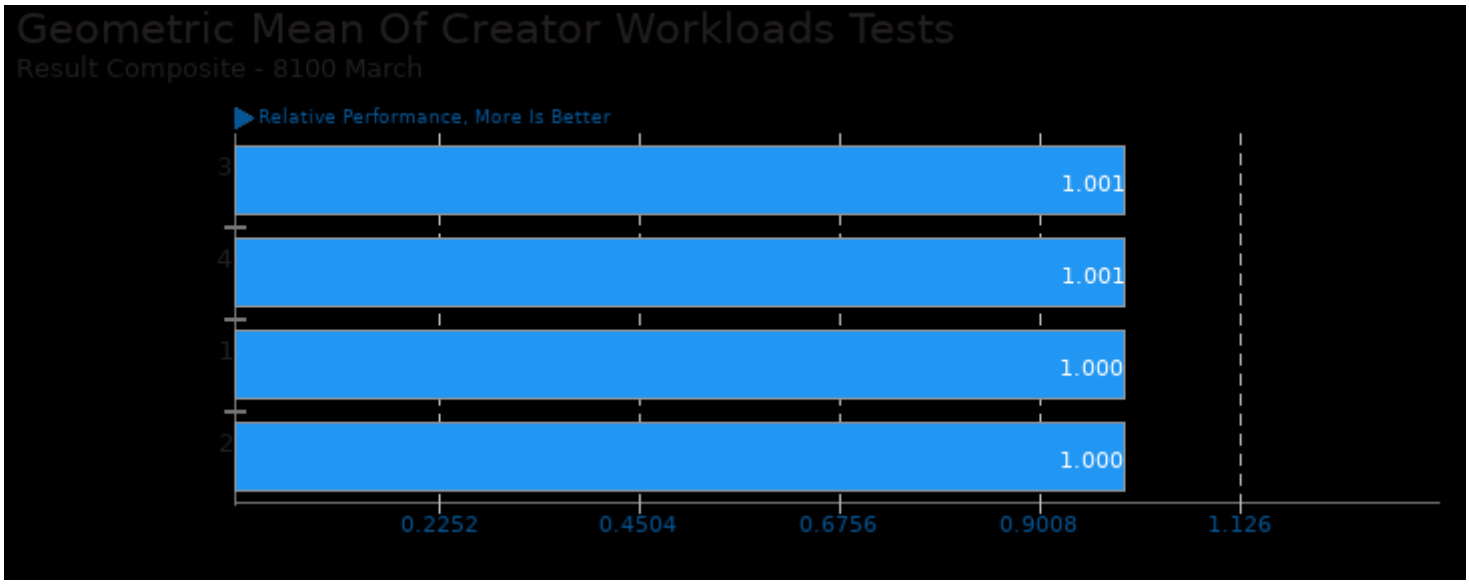



Geometric mean based upon tests: pts/dav1d and pts/avifenc

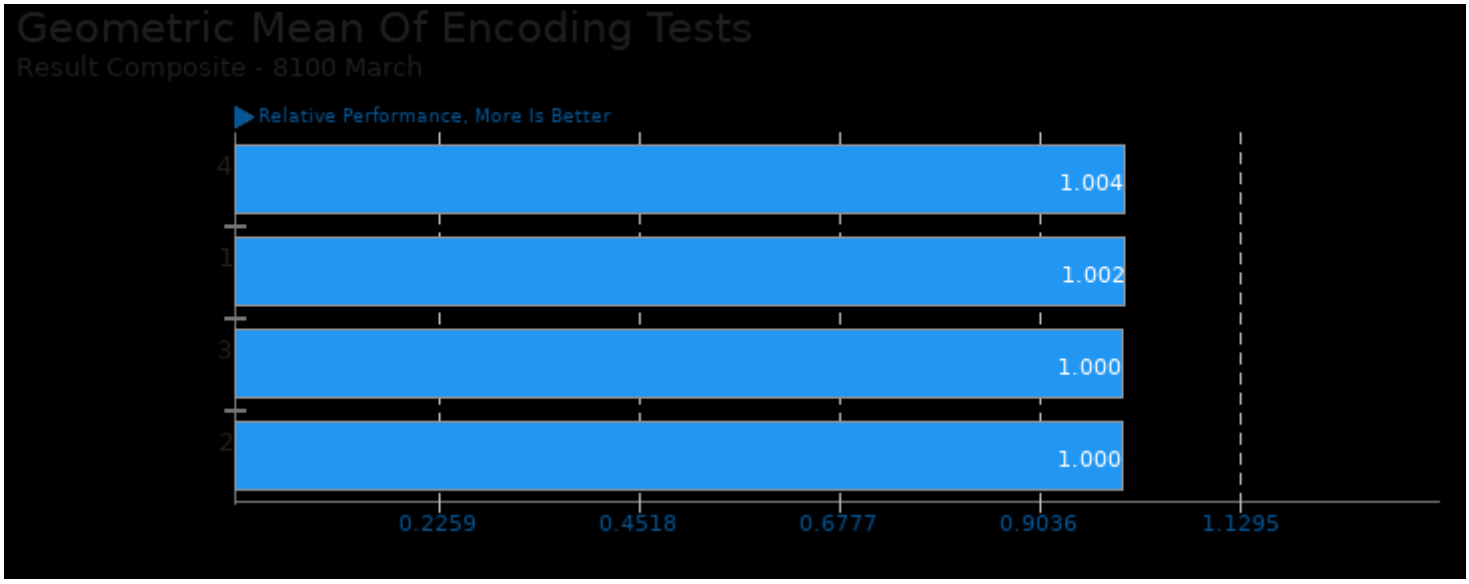



Geometric mean based upon tests: pts/dav1d and pts/toybrot

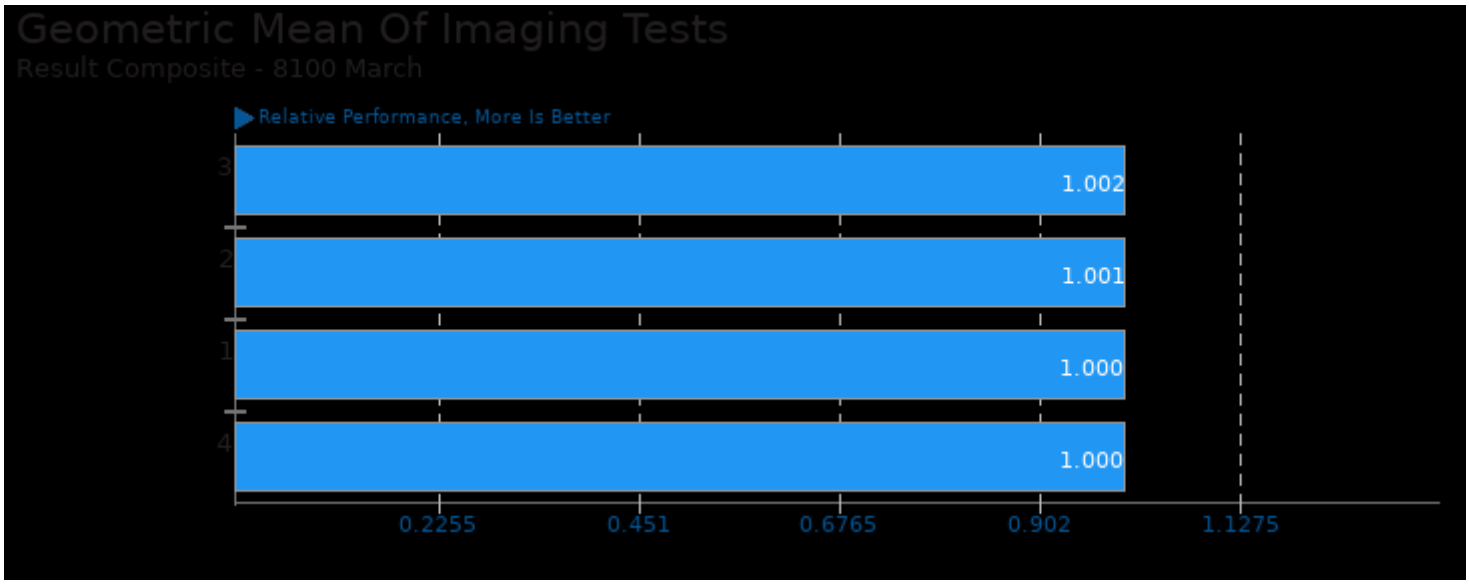
# 8100 March



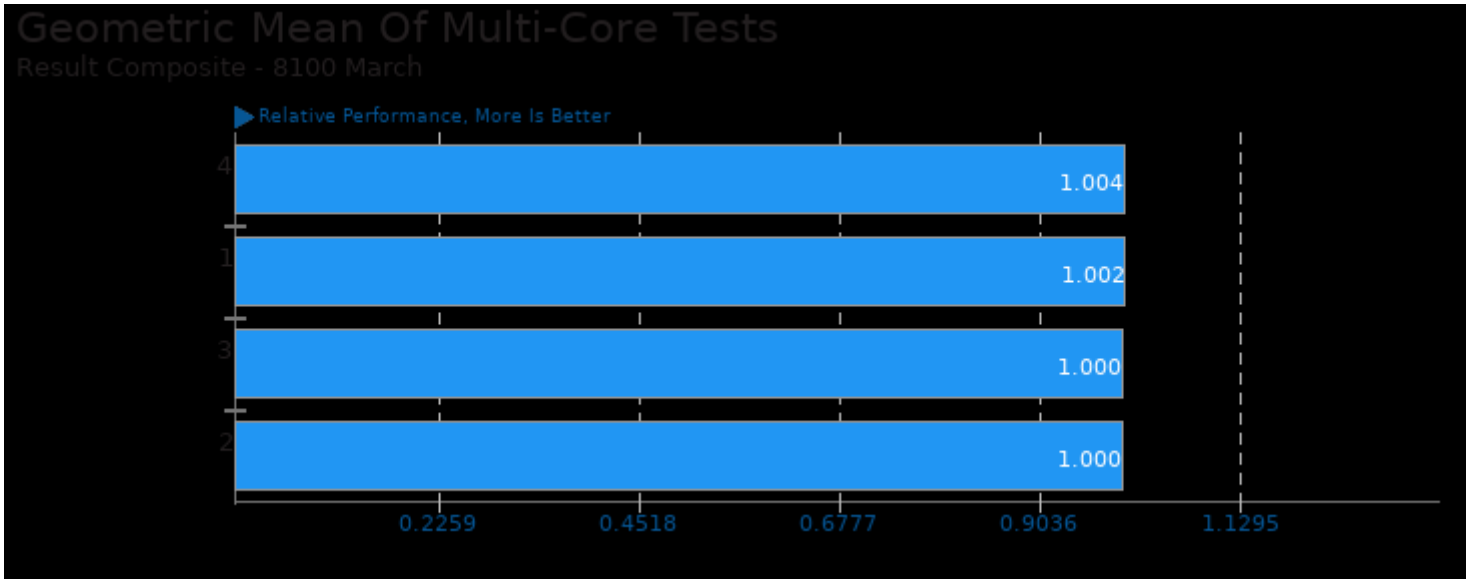

Geometric mean based upon tests: pts/dav1d, pts/avifenc, pts/jpegxl and pts/jpegxl-decode




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

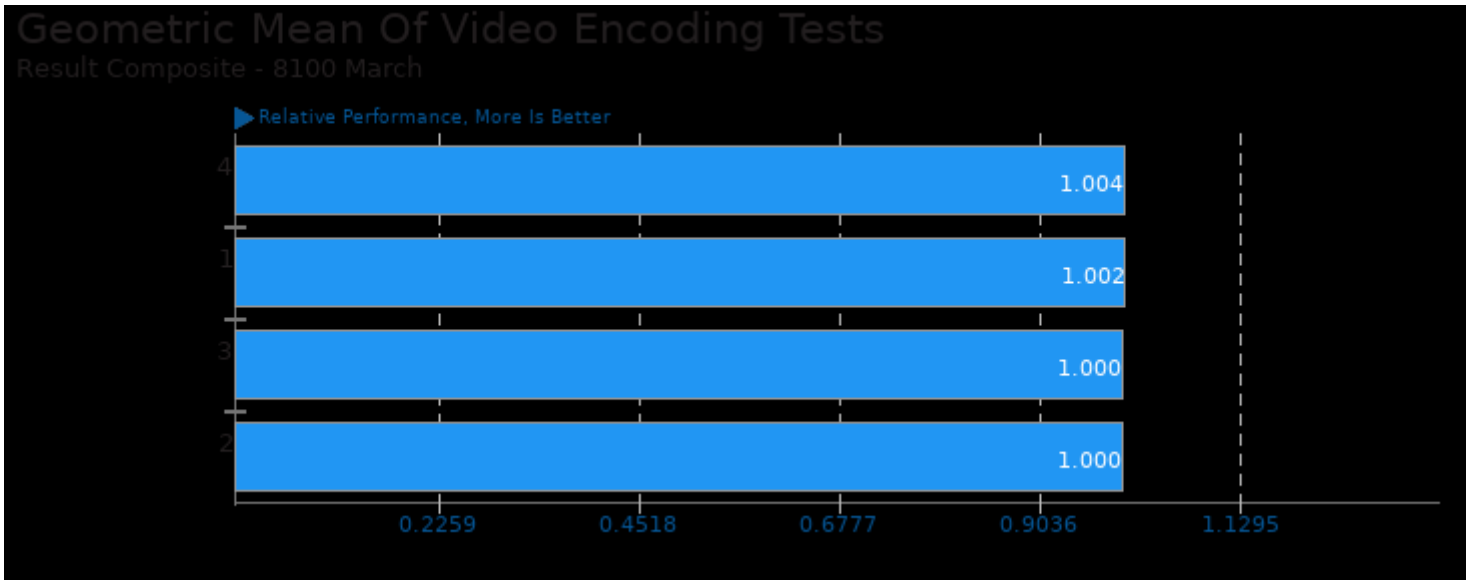



Geometric mean based upon tests: pts/jpegxl, pts/jpegxl-decode and pts/avifenc




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

# 8100 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 07:27.*