


**www.phoronix-test-suite.com**

# rr

ARMv8 Cortex-A72 testing with a BCM2835 Raspberry Pi 400 Rev 1.0 and V3D 4.2 4GB on Debian 10 via the Phoronix Test Suite.

**Automated Executive Summary**

*3 had the most wins, coming in first place for 38% of the tests.*

*Based on the geometric mean of all complete results, the fastest (2) was 1.023x the speed of the slowest (1). 3 was 0.998x the speed of 2, 5 was 0.999x the speed of 3, 4 was 0.99x the speed of 5, 1 was 0.991x the speed of 4.*

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

*GLmark2 (Resolution: 1920 x 1080) at 1.125x*
*dav1d (Video Input: Summer Nature 1080p) at 1.117x*
*dav1d (Video Input: Chimera 1080p 10-bit) at 1.076x*
*GLmark2 (Resolution: 1024 x 768) at 1.073x*
*GLmark2 (Resolution: 1280 x 1024) at 1.048x*
*JPEG XL libjxl (Input: JPEG - Encode Speed: 7) at 1.034x*
*JPEG XL libjxl (Input: JPEG - Encode Speed: 5) at 1.033x*
*JPEG XL libjxl (Input: JPEG - Encode Speed: 8) at 1.027x*
*GLmark2 (Resolution: 800 x 600) at 1.026x*

*dav1d (Video Input: Summer Nature 4K) at 1.021x.*

# Test Systems:

## 1

## 2

## 3

## 4

## 5

Processor: ARMv8 Cortex-A72 @ 1.80GHz (4 Cores), Motherboard: BCM2835 Raspberry Pi 400 Rev 1.0, Memory: 4096MB, Disk: 32GB GB1QT, Graphics: V3D 4.2 4GB, Monitor: DELL P2210H

OS: Debian 10, Kernel: 5.4.51-v8+ (aarch64), Desktop: LXDE 0.10.0, Display Server: X Server 1.20.4, OpenGL: 2.1 Mesa 19.3.2, Compiler: GCC 8.3.0, File-System: ext4, Screen Resolution: 1920x1080

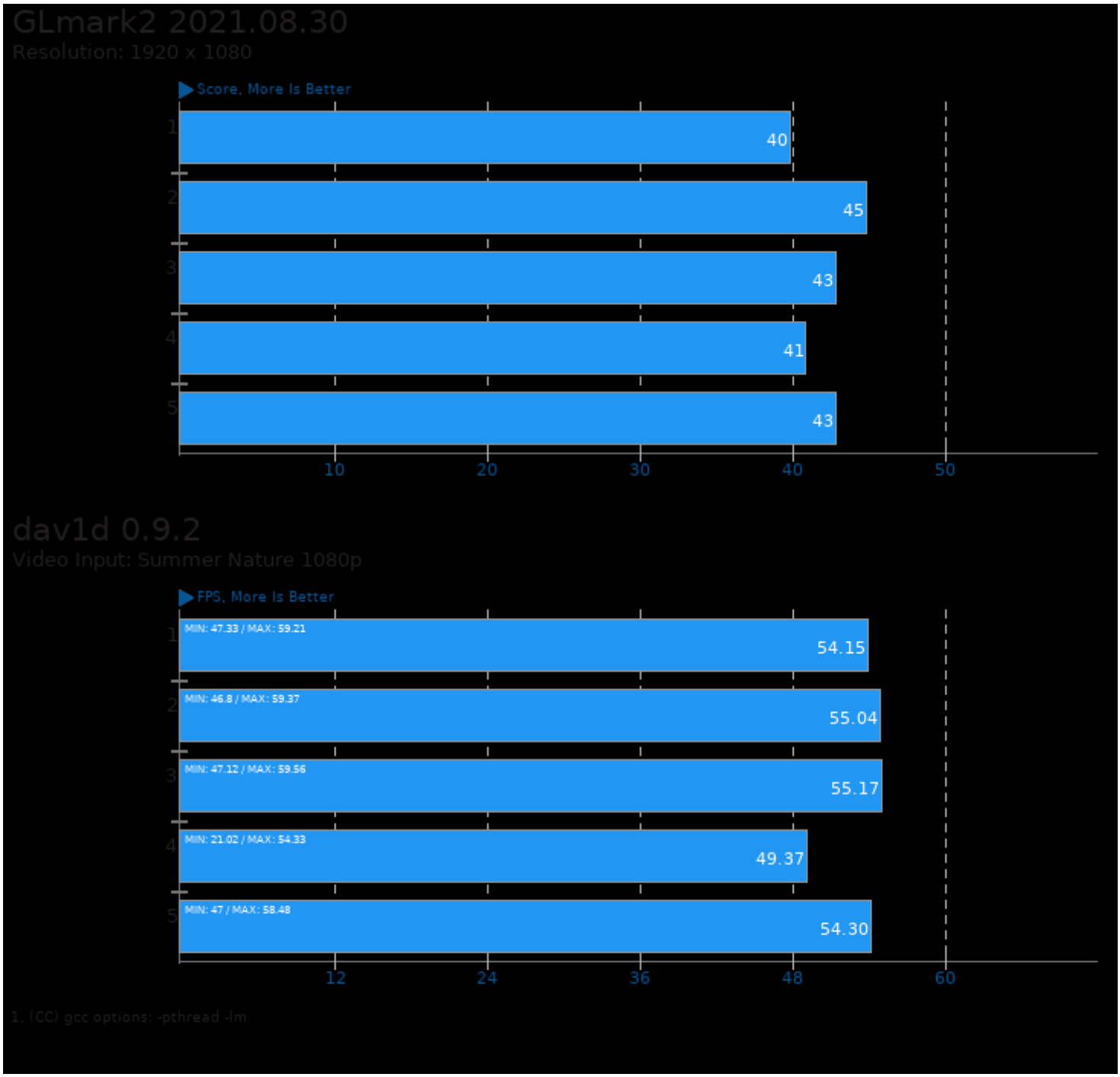
Kernel Notes: snd_bcm2835.enable_compat_alsa=0 snd_bcm2835.enable_hdmi=1 snd_bcm2835.enable_headphones=1
Compiler Notes: --build=aarch64-linux-gnu --disable-libphobos --disable-libquadmath --disable-libquadmath-support --disable-werror --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-fix-cortex-a53-843419 --enable-gnu-unique-object --enable-languages=c,ada,c++,go,d,fortran,objc,obj-c++ --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-nls --enable-plugin --enable-shared --enable-threads=posix --host=aarch64-linux-gnu --program-prefix=aarch64-linux-gnu- --target=aarch64-linux-gnu --with-default-libstdcxx-abi=new --with-gcc-major-version-only -v
Processor Notes: Scaling Governor: cpufreq-dt ondemand
Python Notes: Python 2.7.16 + Python 3.7.3
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Vulnerable + spectre_v1: Mitigation of __user pointer sanitization + spectre_v2: Vulnerable + srbds: Not affected + tsx_async_abort: Not affected

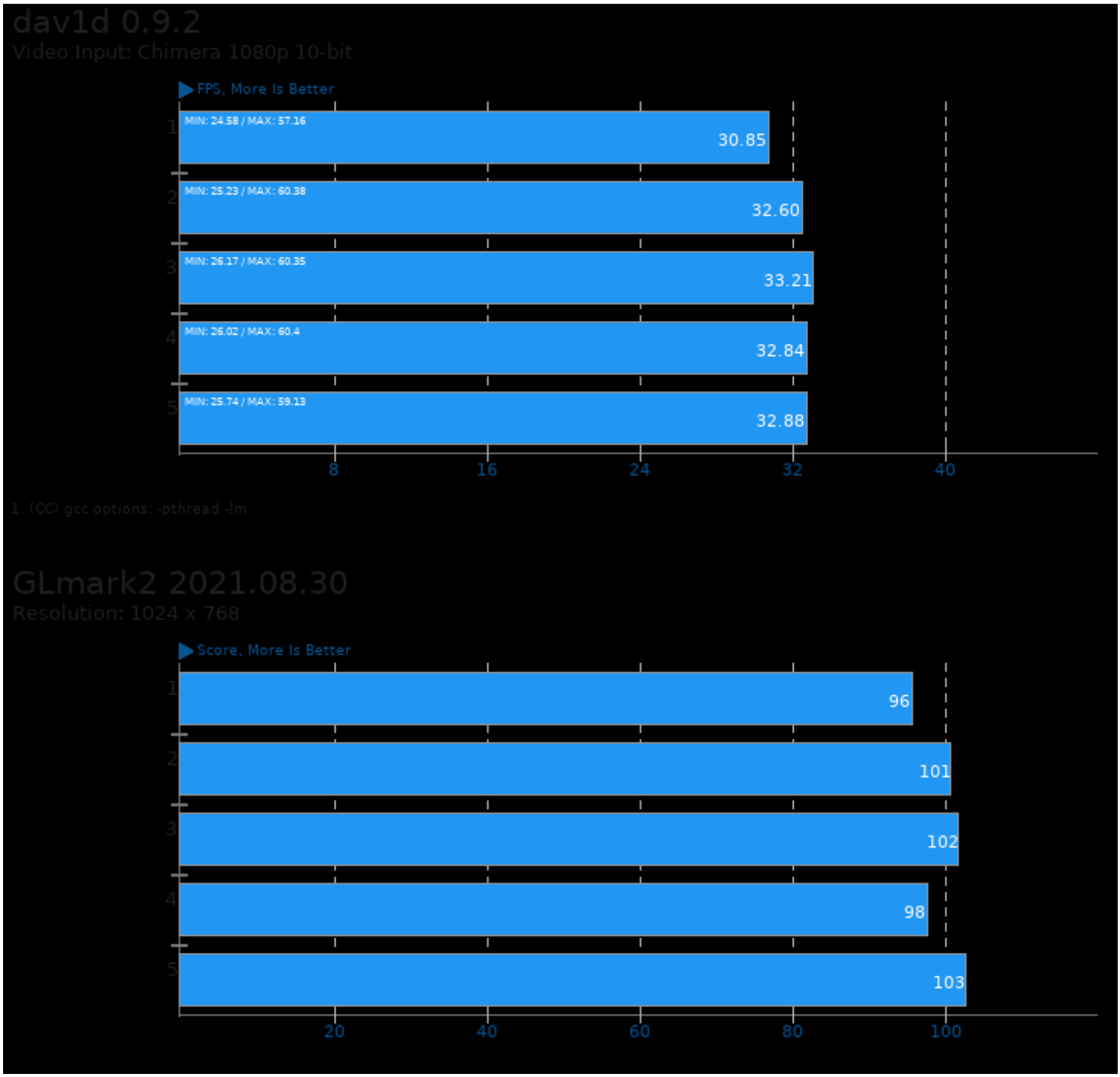
| | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| **GLmark2 - 1920 x 1080 (Score)** | 40 | 45 | 43 | 41 | 43 |
| **Normalized** | 88.89% | 100% | 95.56% | 91.11% | 95.56% |
| **dav1d - S.N.1 (FPS)** | 54.15 | 55.04 | 55.17 | 49.37 | 54.3 |
| **Normalized** | 98.15% | 99.76% | 100% | 89.49% | 98.42% |
| **dav1d - C.1.1.b (FPS)** | 30.85 | 32.6 | 33.21 | 32.84 | 32.88 |
| **Normalized** | 92.89% | 98.16% | 100% | 98.89% | 99.01% |
| **GLmark2 - 1024 x 768 (Score)** | 96 | 101 | 102 | 98 | 103 |
| **Normalized** | 93.2% | 98.06% | 99.03% | 95.15% | 100% |
| **GLmark2 - 1280 x 1024 (Score)** | 64 | 66 | 64 | 65 | 63 |
| **Normalized** | 96.97% | 100% | 96.97% | 98.48% | 95.45% |
| **JPEG XL libjxl - JPEG - 7 (MP/s)** | 12.89 | 13.23 | 13.33 | 13.23 | 13.26 |
| **Normalized** | 96.7% | 99.25% | 100% | 99.25% | 99.47% |
| **JPEG XL libjxl - JPEG - 5 (MP/s)** | 12.88 | 13.21 | 13.23 | 13.24 | 13.31 |
| **Normalized** | 96.77% | 99.25% | 99.4% | 99.47% | 100% |

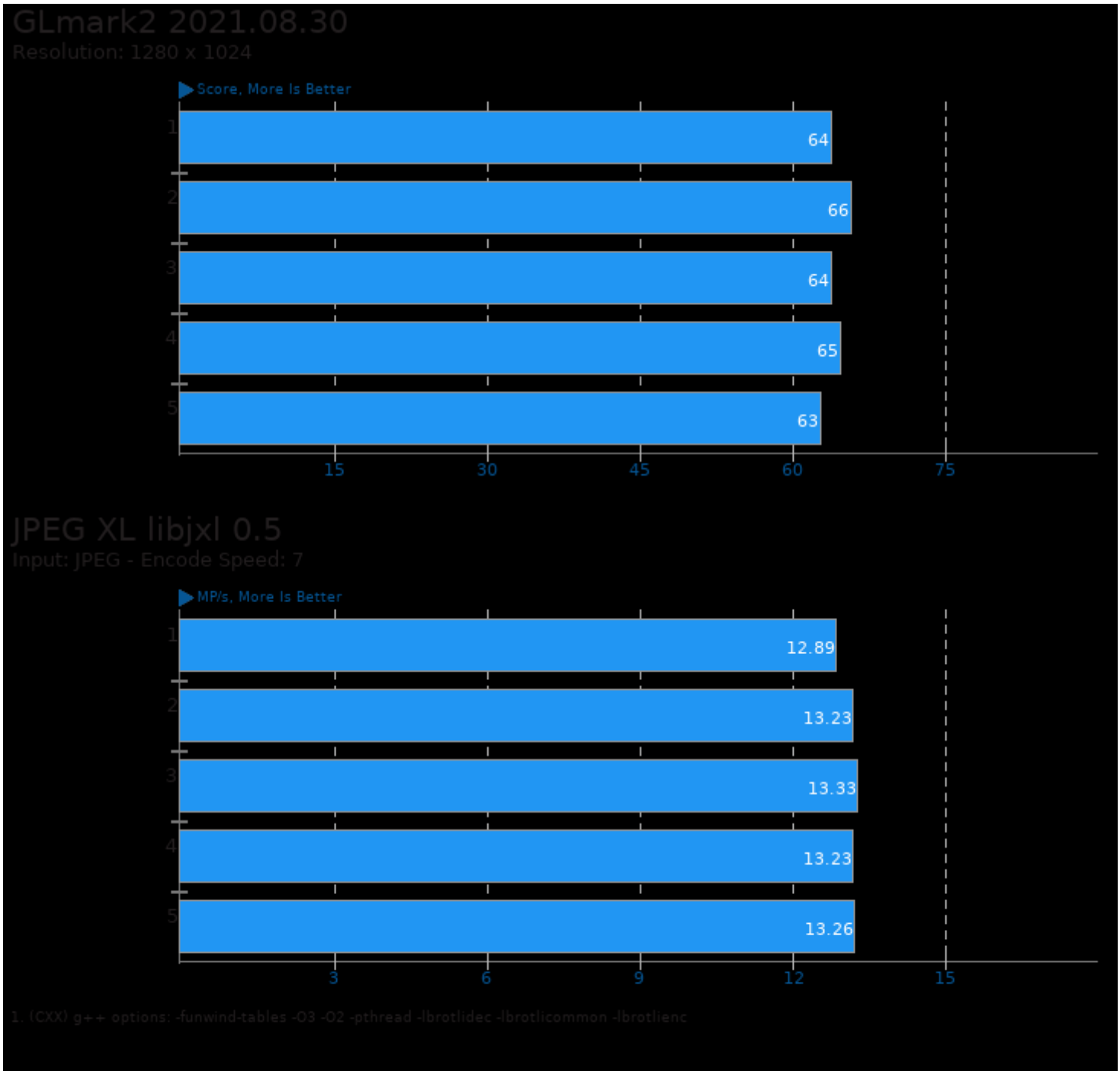
# rr

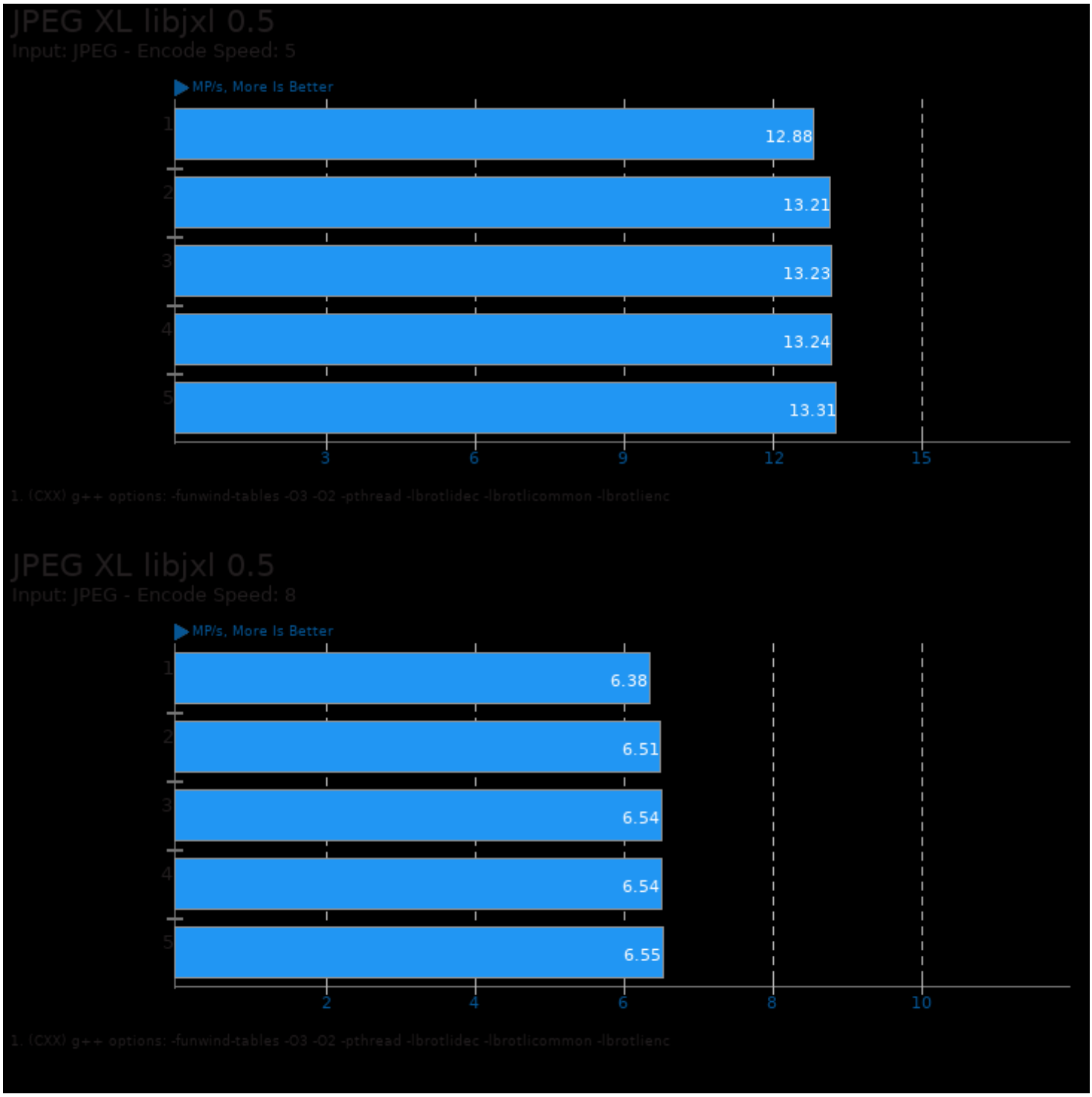
| | | | | | |
|---|---|---|---|---|---|
| **JPEG XL libjxl - JPEG - 8 (MP/s)** | **6.38** | 6.51 | 6.54 | 6.54 | **6.55** |
| **Normalized** | 97.4% | 99.39% | 99.85% | 99.85% | 100% |
| **GLmark2 - 800 x 600 (Score)** | **152** | **156** | **152** | 154 | 154 |
| **Normalized** | 97.44% | 100% | 97.44% | 98.72% | 98.72% |
| **dav1d - Summer Nature 4K (FPS)** | 13.18 | **13.26** | 13.12 | **12.99** | 13.13 |
| **Normalized** | 99.4% | 100% | 98.94% | 97.96% | 99.02% |
| **JPEG XL libjxl - PNG - 7 (MP/s)** | **1.23** | 1.24 | **1.25** | **1.25** | **1.25** |
| **Normalized** | 98.4% | 99.2% | 100% | 100% | 100% |
| **JPEG XL Decoding libjxl - 1** | **6.84** | 6.9 | **6.95** | 6.94 | 6.94 |
| **Normalized** | 98.42% | 99.28% | 100% | 99.86% | 99.86% |
| **JPEG XL libjxl - PNG - 5 (MP/s)** | **3.21** | 3.23 | 3.22 | 3.24 | **3.25** |
| **Normalized** | 98.77% | 99.38% | 99.08% | 99.69% | 100% |
| **JPEG XL Decoding libjxl - All (MP/s)** | 21.22 | **21.15** | **21.39** | 21.19 | 21.32 |
| **Normalized** | 99.21% | 98.88% | 100% | 99.06% | 99.67% |
| **OpenSSL - SHA256 (byte/s)** | **439512100** | 442335200 | 442911010 | **442956970** | 442283900 |
| **Normalized** | 99.22% | 99.86% | 99.99% | 100% | 99.85% |
| **dav1d - Chimera 1080p (FPS)** | 54.49 | 54.57 | **54.73** | 54.56 | **54.34** |
| **Normalized** | 99.56% | 99.71% | 100% | 99.69% | 99.29% |
| **OpenSSL - RSA4096 (sign/s)** | **115.3** | **115.4** | **115.3** | **115.3** | **115.3** |
| **Normalized** | 99.91% | 100% | 99.91% | 99.91% | 99.91% |
| **OpenSSL - RSA4096 (verify/s)** | **8927** | 8925 | 8924 | **8923** | 8925 |
| **Normalized** | 100% | 99.98% | 99.97% | 99.96% | 99.98% |

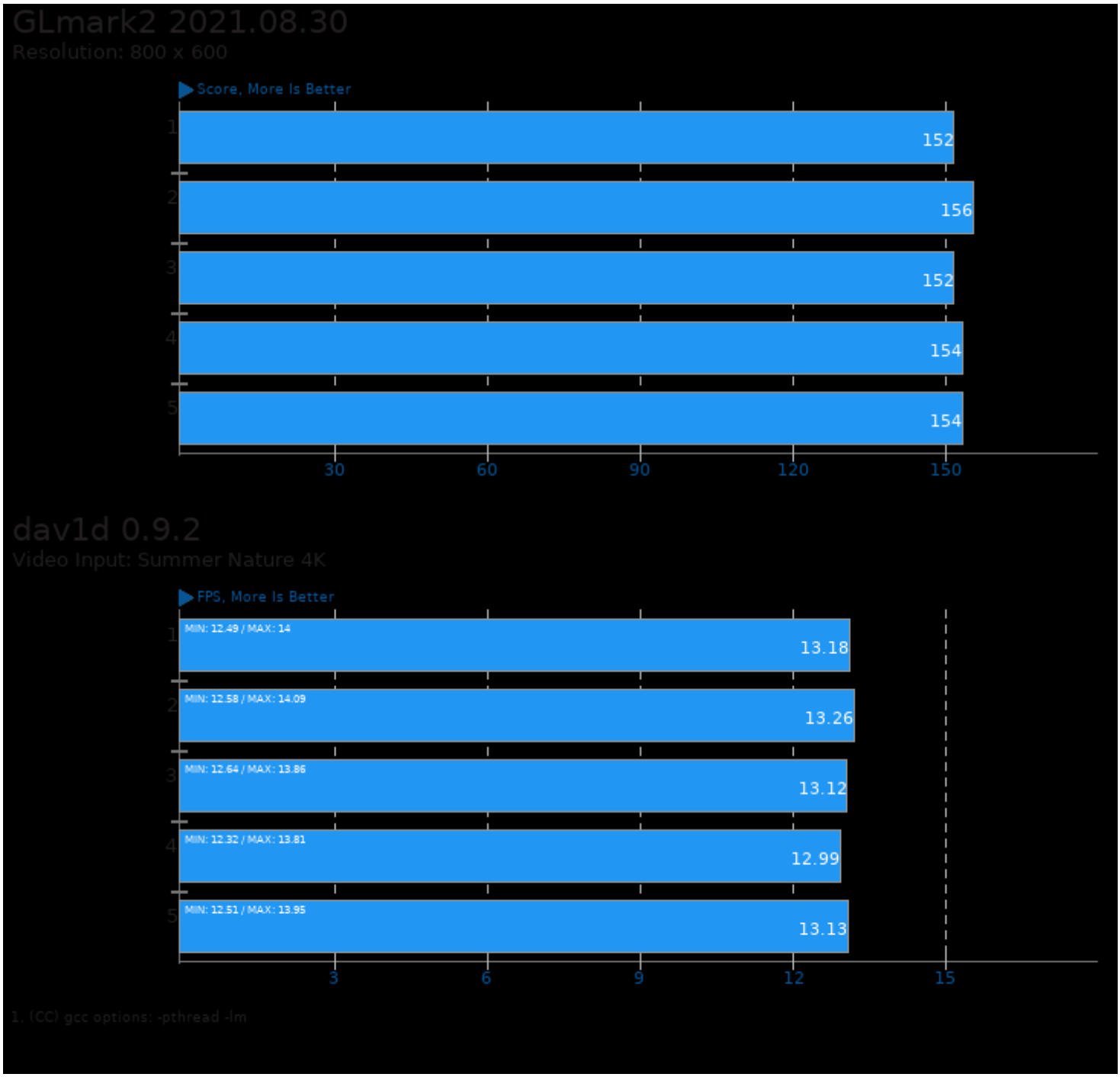
# rr

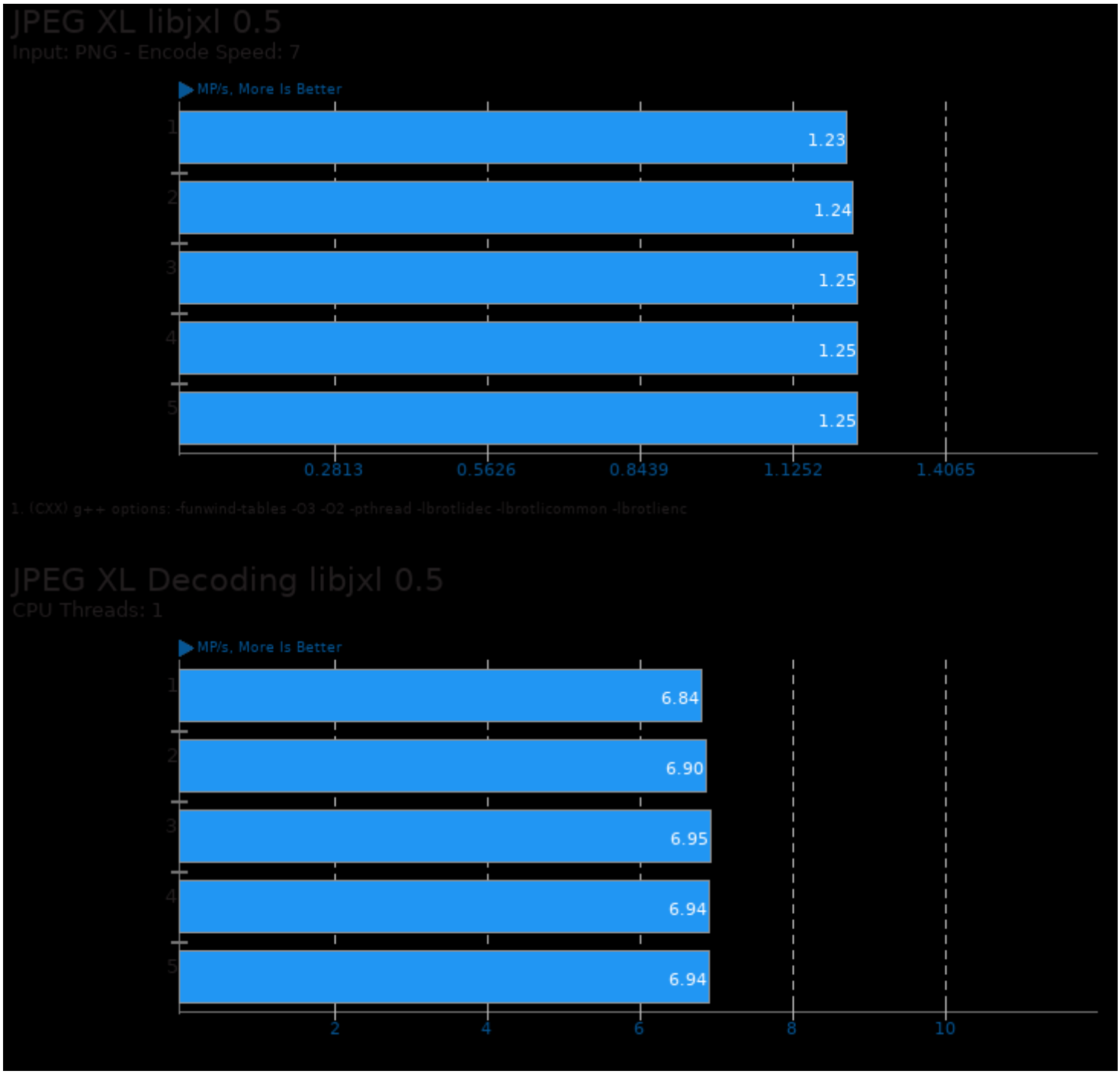

GLmark2 2021.08.30
Resolution: 1920 x 1080
Score, More Is Better
1
40
2
45
3
43
4
41
5
43
10
20
30
40
50
dav1d 0.9.2
Video Input: Summer Nature 1080p
FPS, More Is Better
1
MIN: 47.33 / MAX: 59.21
54.15
2
MIN: 46.8 / MAX: 59.37
55.04
3
MIN: 47.12 / MAX: 59.56
55.17
4
MIN: 21.02 / MAX: 54.33
49.37
5
MIN: 47 / MAX: 58.48
54.30
12
24
36
48
60
1. (CC) gcc options: -pthread -lm

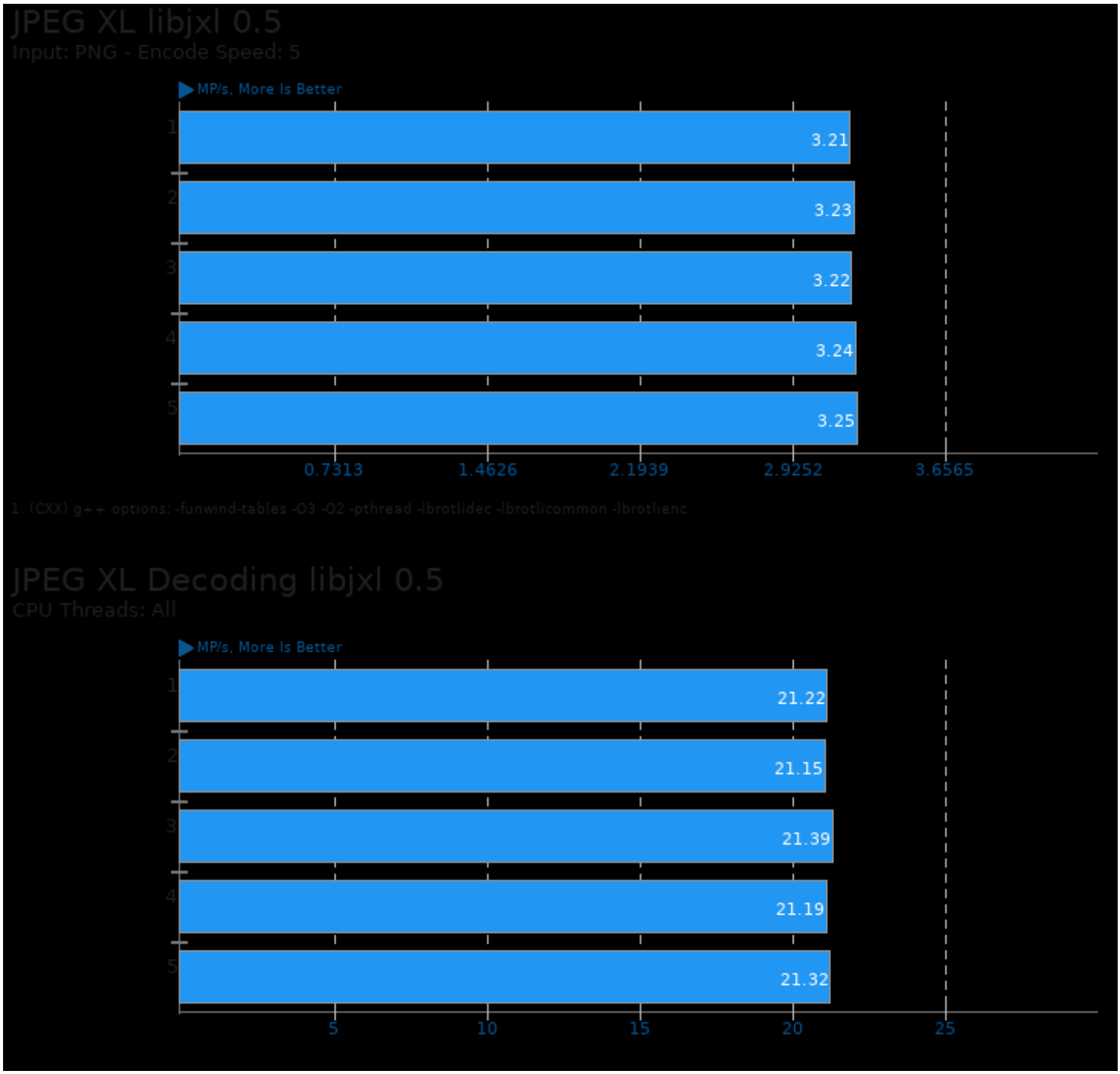

dav1d 0.9.2
Video Input: Chimera 1080p 10-bit
FPS, More Is Better
1
MIN: 24.58 / MAX: 57.16
30.85
2
MIN: 25.23 / MAX: 60.38
32.60
3
MIN: 26.17 / MAX: 60.35
33.21
4
MIN: 26.02 / MAX: 60.4
32.84
5
MIN: 25.74 / MAX: 59.13
32.88
8
16
24
32
40
1. (CC) gcc options: -pthread -lm
GLmark2 2021.08.30
Resolution: 1024 x 768
Score, More Is Better
1
96
2
101
3
102
4
98
5
103
20
40
60
80
100

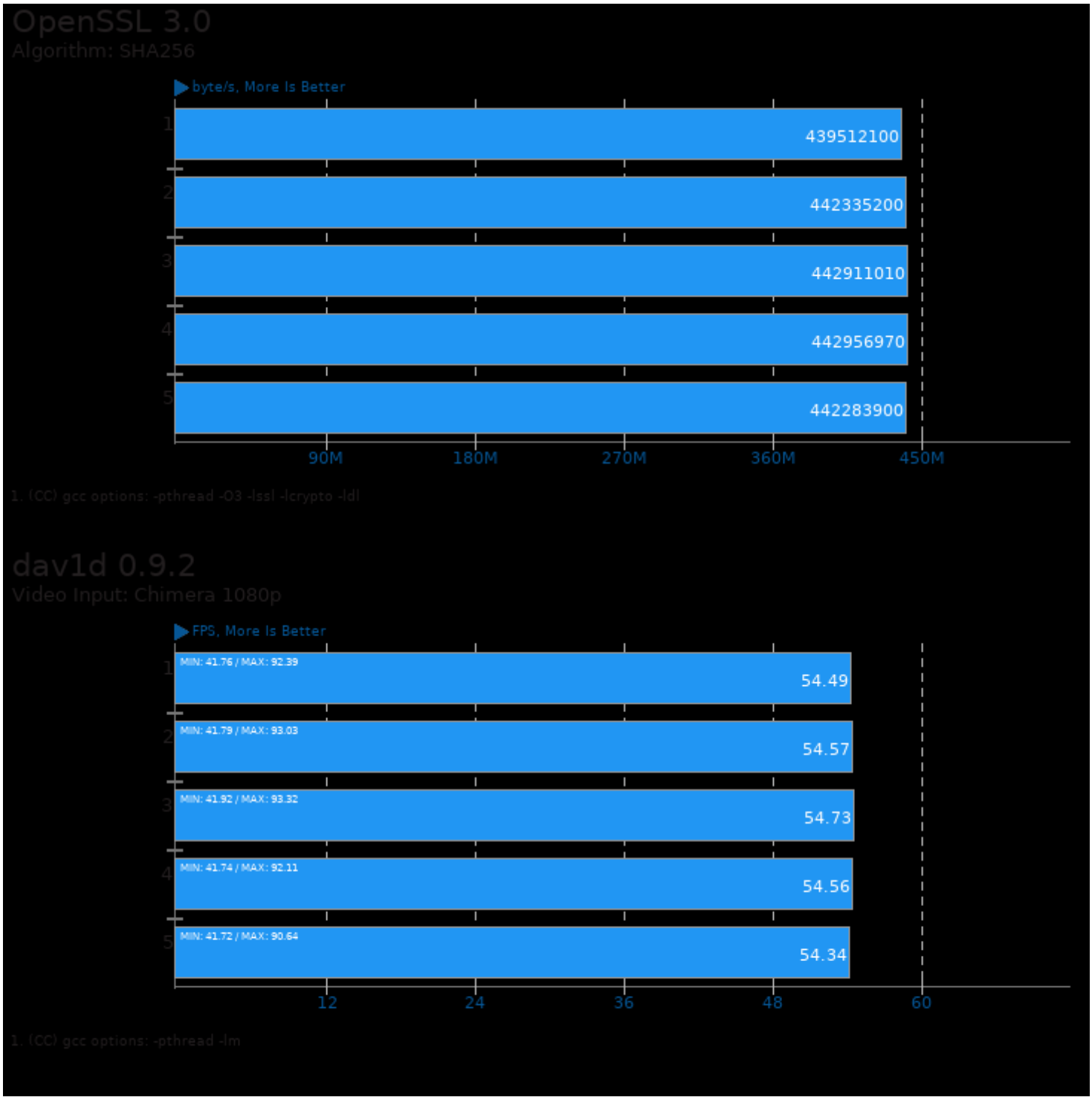

GLmark2 2021.08.30
Resolution: 1280 x 1024
Score, More Is Better
1
64
2
66
3
64
4
65
5
63
15
30
45
60
75
JPEG XL libjxl 0.5
Input: JPEG - Encode Speed: 7
MP/s, More Is Better
1
12.89
2
13.23
3
13.33
4
13.23
5
13.26
3
6
9
12
15
1. (CXX) g++ options: -funwind-tables -O3 -O2 -pthread -lbrotlidec -lbrotlicommon -lbrotlienc

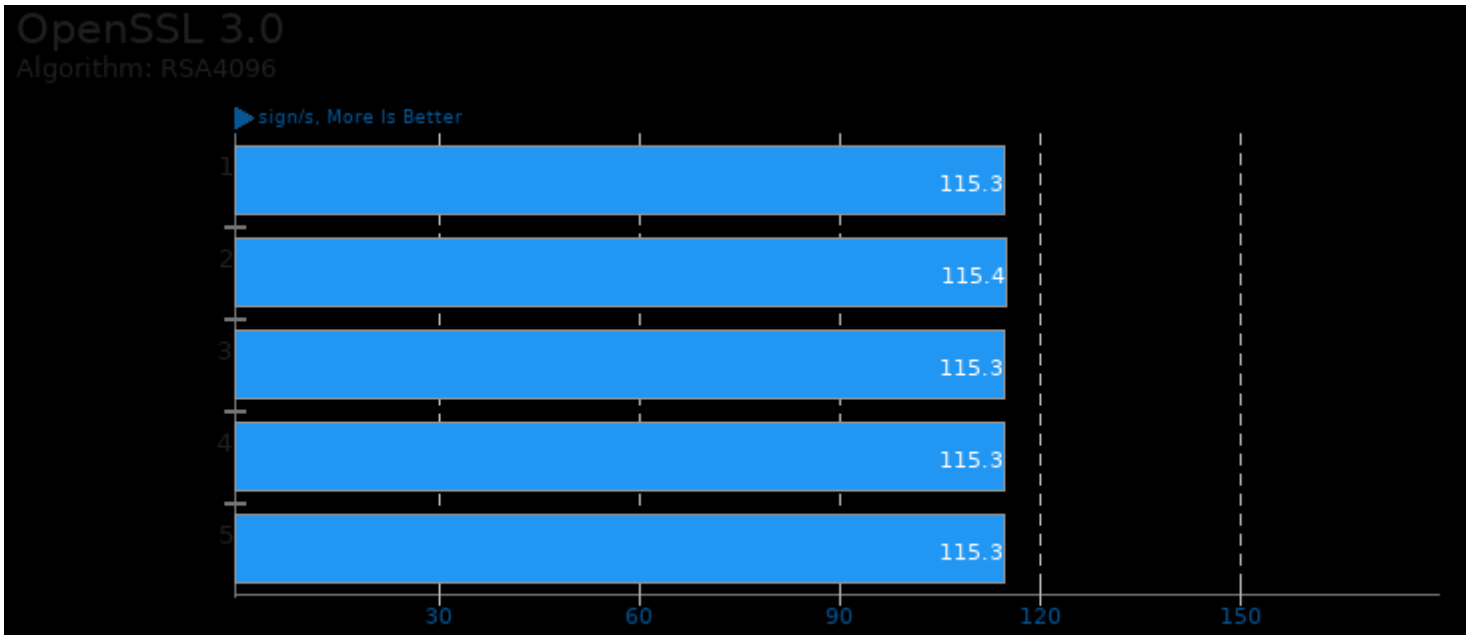

JPEG XL libjxl 0.5
Input: JPEG - Encode Speed: 5
MP/s, More Is Better
1
2
3
4
5
12.88
13.21
13.23
13.24
13.31
3
6
9
12
15
1. (CXX) g++ options: -funwind-tables -O3 -O2 -pthread -lbrotlidec -lbrotlicommon -lbrotlienc
JPEG XL libjxl 0.5
Input: JPEG - Encode Speed: 8
MP/s, More Is Better
1
2
3
4
5
6.38
6.51
6.54
6.54
6.55
2
4
6
8
10
1. (CXX) g++ options: -funwind-tables -O3 -O2 -pthread -lbrotlidec -lbrotlicommon -lbrotlienc

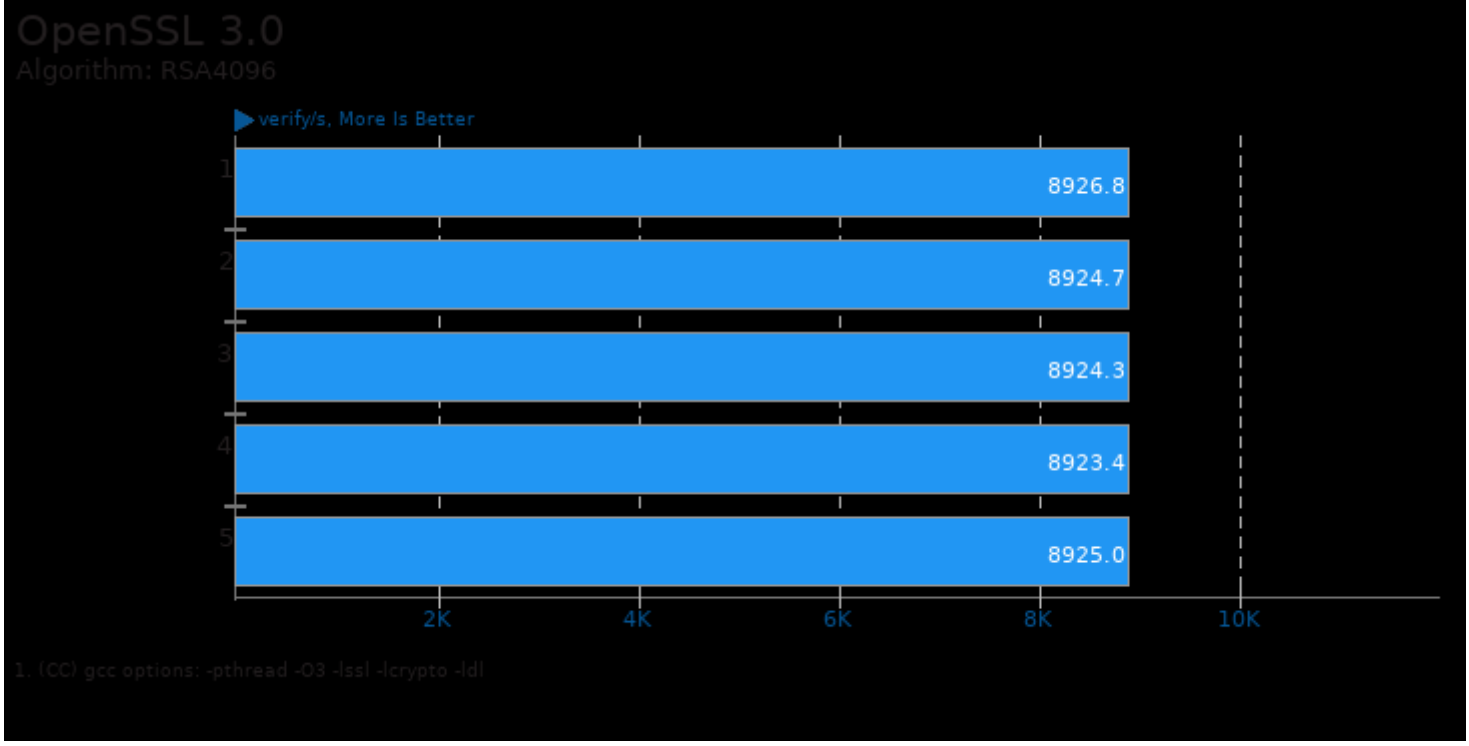

GLmark2 2021.08.30
Resolution: 800 x 600
Score, More Is Better
1
152
2
156
3
152
4
154
5
154
30
60
90
120
150
dav1d 0.9.2
Video Input: Summer Nature 4K
FPS, More Is Better
1
MIN: 12.49 / MAX: 14
13.18
2
MIN: 12.58 / MAX: 14.09
13.26
3
MIN: 12.64 / MAX: 13.86
13.12
4
MIN: 12.32 / MAX: 13.81
12.99
5
MIN: 12.51 / MAX: 13.95
13.13
3
6
9
12
15
1. (CC) gcc options: -pthread -lm


JPEG XL libjxl 0.5
Input: PNG - Encode Speed: 7
MP/s, More Is Better
1
2
3
4
5
1.23
1.24
1.25
1.25
1.25
0.2813
0.5626
0.8439
1.1252
1.4065
1. (CXX) g++ options: -funwind-tables -O3 -O2 -pthread -lbrotlidec -lbrotlicommon -lbrotlienc
JPEG XL Decoding libjxl 0.5
CPU Threads: 1
MP/s, More Is Better
1
2
3
4
5
6.84
6.90
6.95
6.94
6.94
2
4
6
8
10

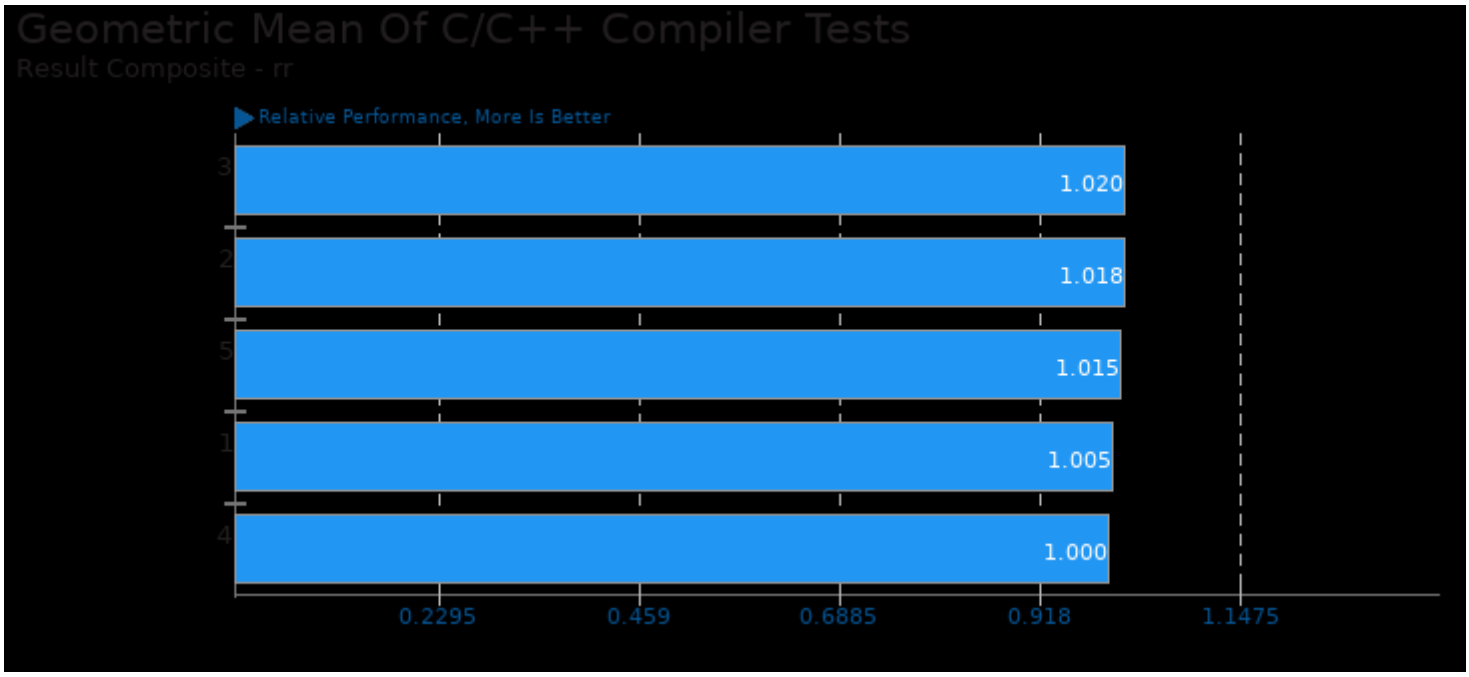

JPEG XL libjxl 0.5
Input: PNG - Encode Speed: 5
MP/s, More Is Better
1
2
3
4
5
3.21
3.23
3.22
3.24
3.25
0.7313
1.4626
2.1939
2.9252
3.6565
1. (CXX) g++ options: -funwind-tables -O3 -O2 -pthread -lbrotlidec -lbrotlicommon -lbrotlienc
JPEG XL Decoding libjxl 0.5
CPU Threads: All
MP/s, More Is Better
1
2
3
4
5
21.22
21.15
21.39
21.19
21.32
5
10
15
20
25


OpenSSL 3.0
Algorithm: SHA256
byte/s, More Is Better
1
439512100
2
442335200
3
442911010
4
442956970
5
442283900
90M
180M
270M
360M
450M
1. (CC) gcc options: -pthread -O3 -lssl -lcrypto -ldl
dav1d 0.9.2
Video Input: Chimera 1080p
FPS, More Is Better
1
MIN: 41.76 / MAX: 92.39
54.49
2
MIN: 41.79 / MAX: 93.03
54.57
3
MIN: 41.92 / MAX: 93.32
54.73
4
MIN: 41.74 / MAX: 92.11
54.56
5
MIN: 41.72 / MAX: 90.64
54.34
12
24
36
48
60
1. (CC) gcc options: -pthread -lm

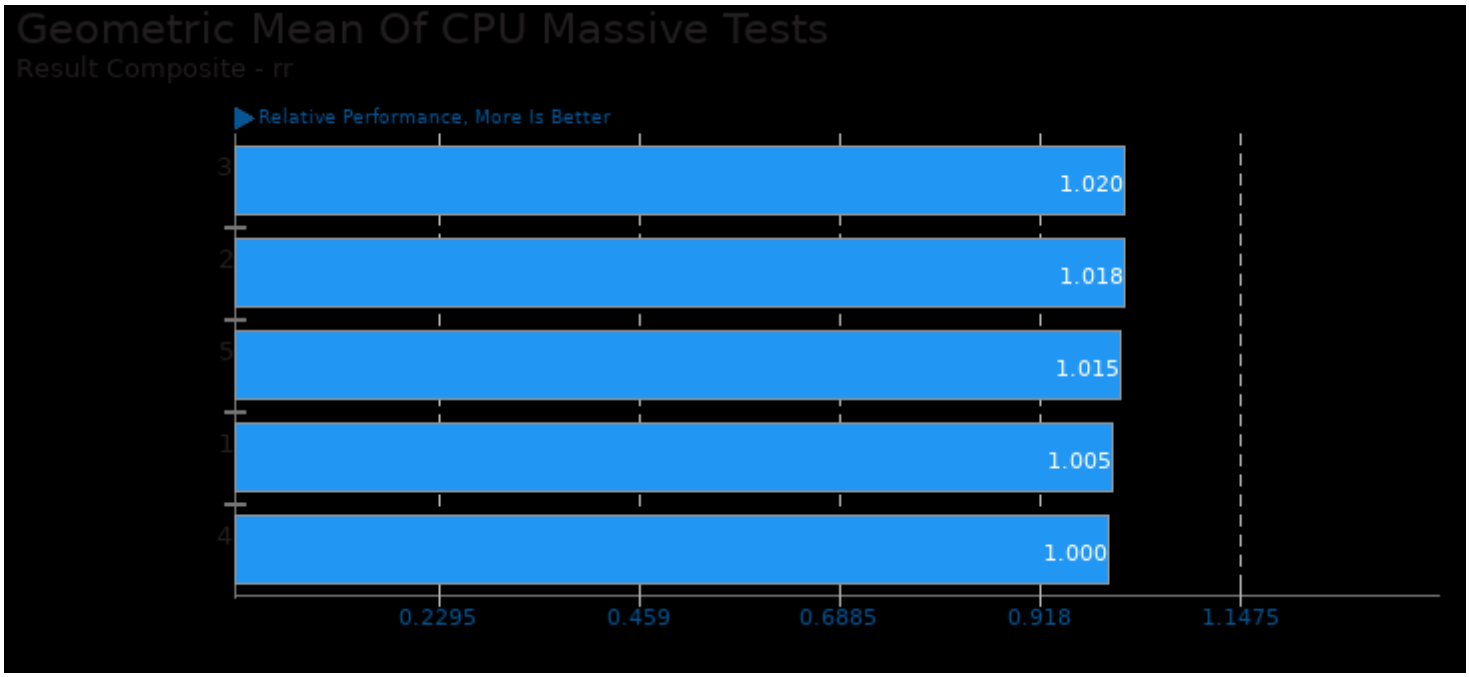

OpenSSL 3.0
Algorithm: RSA4096
sign/s, More Is Better
1
2
3
4
5
115.3
115.4
115.3
115.3
115.3
30
60
90
120
150
1. (CC) gcc options: -pthread -O3 -lssl -lcrypto -ldl


OpenSSL 3.0
Algorithm: RSA4096
verify/s, More Is Better
1
2
3
4
5
8926.8
8924.7
8924.3
8923.4
8925.0
2K
4K
6K
8K
10K
1. (CC) gcc options: -pthread -O3 -lssl -lcrypto -ldl

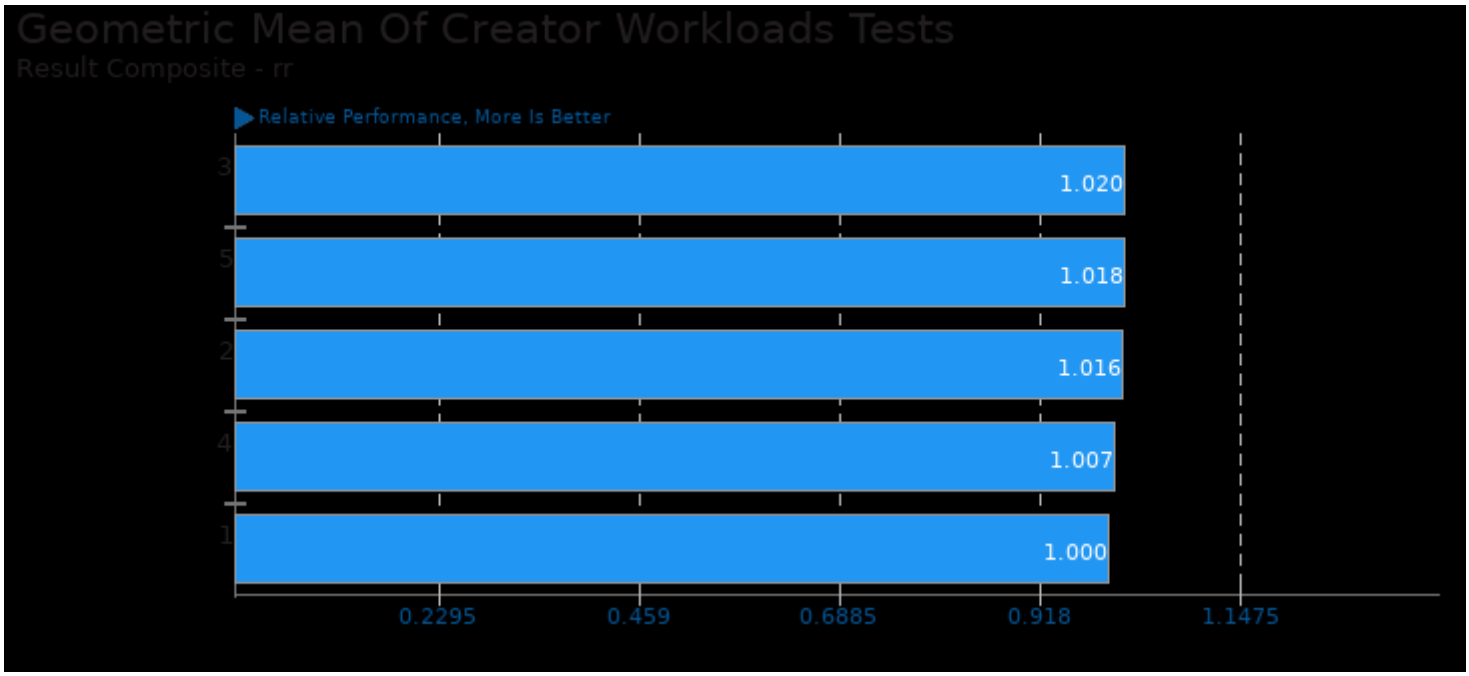
These geometric means are based upon test groupings / test suites for this result file.



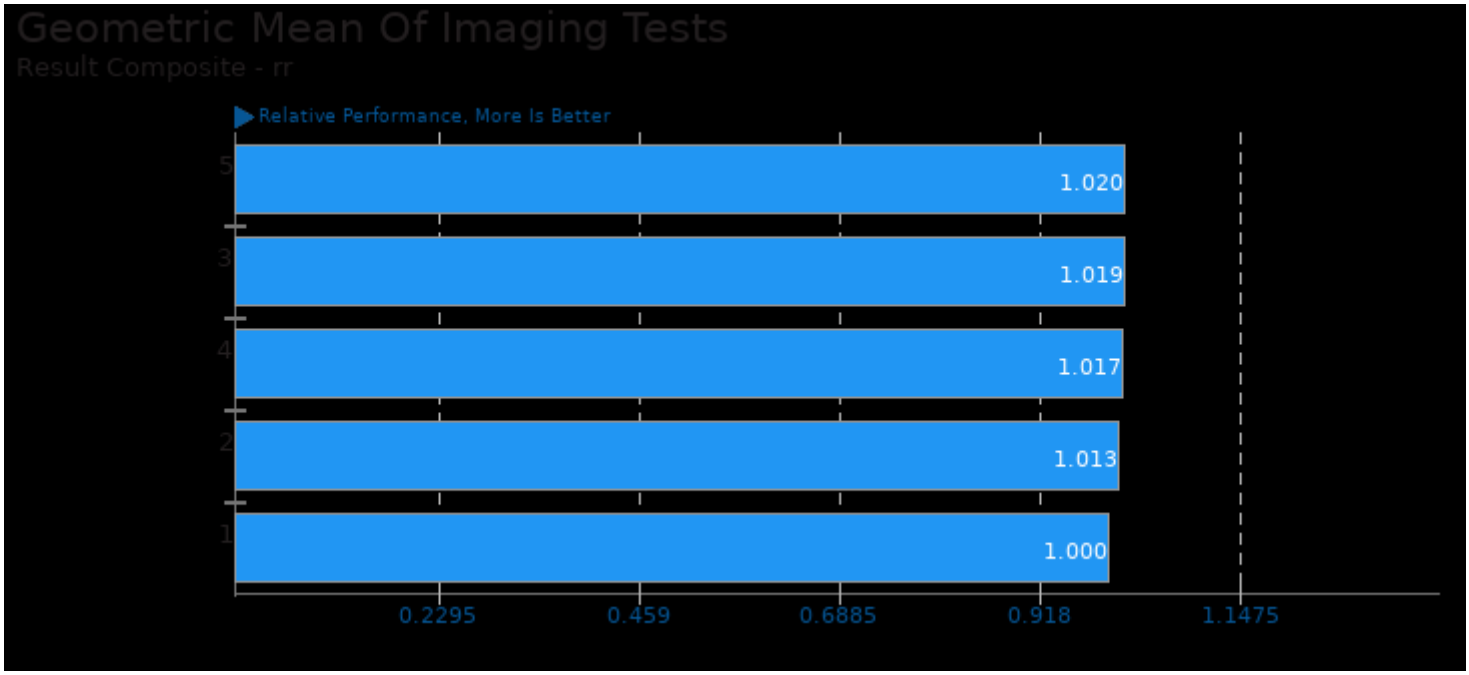

Geometric mean based upon tests: pts/dav1d and pts/openssl




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

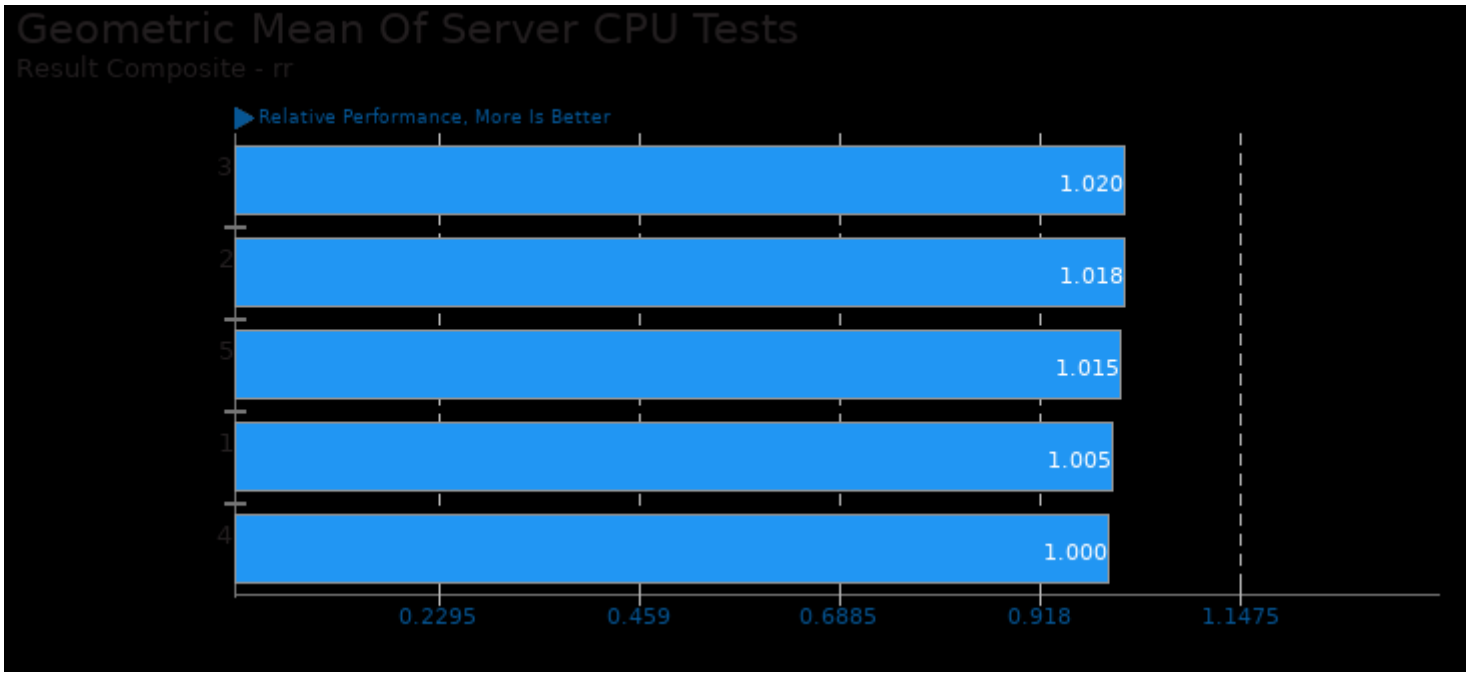



Geometric mean based upon tests: pts/dav1d, pts/jpegxl and pts/jpegxl-decode




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

# rr




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

*This file was automatically generated via the Phoronix Test Suite benchmarking software on Thursday, 28 March 2024 07:39.*