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AMD Ryzen Threadripper 2970WX 24-Core testing with a Gigabyte X399 AORUS Gaming 7 (F12h BIOS) and Sapphire AMD Radeon RX 560 4GB on Ubuntu 20.04 via the Phoronix Test Suite.

Automated Executive Summary

A had the most wins, coming in first place for 47% of the tests.

Based on the geometric mean of all complete results, the fastest (A) was 1.005x the speed of the slowest (C). B was 0.997x the speed of A and C was 0.999x the speed of B.

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

7-Zip Compression (Test: Compression Rating) at 1.176x
yquake2 (Renderer: OpenGL ES 3.x - AF: Off - MSAA: Off - Resolution: 1920 x 1080) at 1.097x
yquake2 (Renderer: Software CPU - AF: On - MSAA: Off - Resolution: 1920 x 1080) at 1.088x
yquake2 (Renderer: OpenGL 3.x - AF: Off - MSAA: Off - Resolution: 1920 x 1080) at 1.085x
AOM AV1 (Encoder Mode: Speed 9 Realtime - Input: Bosphorus 1080p) at 1.058x
AOM AV1 (Encoder Mode: Speed 6 Two-Pass - Input: Bosphorus 1080p) at 1.04x
yquake2 (Renderer: Software CPU Color Light - AF: Off - MSAA: Off - Resolution: 1920 x 1080) at 1.038x
yquake2 (Renderer: Software CPU - AF: On - MSAA: On - Resolution: 1920 x 1080) at 1.038x
AOM AV1 (Encoder Mode: Speed 6 Realtime - Input: Bosphorus 1080p) at 1.037x

AOM AV1 (Encoder Mode: Speed 6 Two-Pass - Input: Bosphorus 4K) at 1.036x.

Test Systems:

A

B

C

Processor: AMD Ryzen Threadripper 2970WX 24-Core @ 3.00GHz (24 Cores / 48 Threads), Motherboard: Gigabyte X399 AORUS Gaming 7 (F12h BIOS), Chipset: AMD 17h, Memory: 16GB, Disk: 120GB Corsair Force MP500, Graphics: Sapphire AMD Radeon RX 560 4GB (1300/1750MHz), Audio: Realtek ALC1220, Monitor: DELL S2409W, Network: Qualcomm Atheros Killer E2500 + 2 x QLogic cLOM8214 1/10GbE + Intel 8265 / 8275

OS: Ubuntu 20.04, Kernel: 5.9.0-050900rc6daily20200926-generic (x86_64) 20200925, Desktop: GNOME Shell 3.36.4, Display Server: X Server 1.20.13, OpenGL: 4.6 Mesa 21.2.6 (LLVM 12.0.0), Compiler: GCC 9.4.0, 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-Av3uEd/gcc-9-9.4.0/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: 0x800820d
Graphics Notes: GLAMOR - BAR1 / Visible vRAM Size: 256 MB - vBIOS Version: 113-34830M4-U02
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: disabled RSB filling + srbds: Not affected + tsx_async_abort: Not affected

	A	B	C
yquake2 - Vulkan - On - On - 1920 x 1080 (FPS)	**200**	195.2	**194.9**
Normalized	100%	97.6%	97.45%
yquake2 - Vulkan - Off - On - 1920 x 1080 (FPS)	**207**	**202.9**	206.3
Normalized	100%	98.02%	99.66%
yquake2 - Vulkan - On - Off - 1920 x 1080 (FPS)	**904.1**	**901.6**	**904.1**
Normalized	100%	99.72%	100%
yquake2 - Vulkan - Off - Off - 1920 x 1080 (FPS)	**919.9**	917.3	**914.6**
Normalized	100%	99.72%	99.42%

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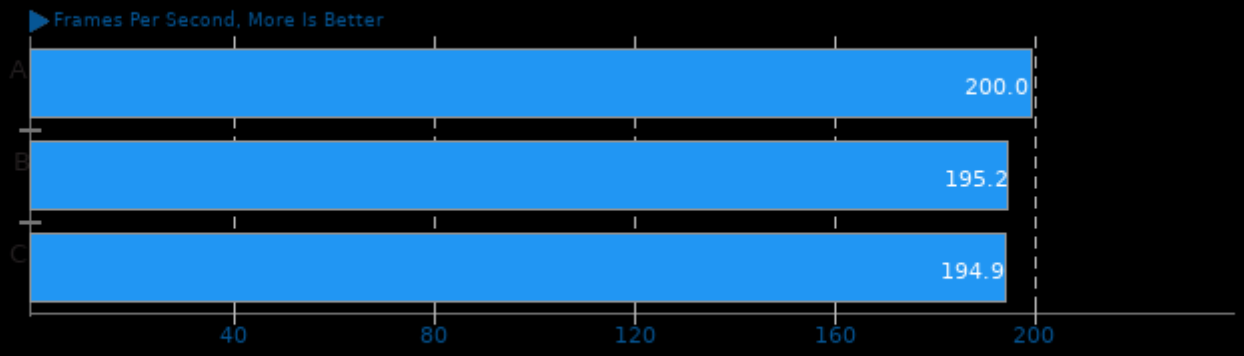
yquake2 - OpenGL 3.x - On - On - 1920 x 1080 (FPS)	959	964.9	964.9
Normalized	99.39%	100%	100%
yquake2 - OpenGL 3.x - Off - On - 1920 x 1080 (FPS)	982.9	993.7	981.4
Normalized	98.91%	100%	98.76%
yquake2 - OpenGL 3.x - On - Off - 1920 x 1080 (FPS)	1371	1339	1368
Normalized	100%	97.67%	99.79%
yquake2 - OpenGL 3.x - Off - Off - 1920 x 1080 (FPS)	1353	1339	1453
Normalized	93.14%	92.16%	100%
yquake2 - Software CPU - On - On - 1920 x 1080 (FPS)	93.3	93.7	90.3
Normalized	99.57%	100%	96.37%
yquake2 - OpenGL ES 3.x - On - On - 1920 x 1080 (FPS)	953.2	966.4	961.9
Normalized	98.63%	100%	99.53%
yquake2 - Software CPU - Off - On - 1920 x 1080 (FPS)	95.6	93	94.1
Normalized	100%	97.28%	98.43%
yquake2 - Software CPU - On - Off - 1920 x 1080 (FPS)	94.4	94	86.8
Normalized	100%	99.58%	91.95%
yquake2 - OpenGL ES 3.x - Off - On - 1920 x 1080 (FPS)	989	979.8	979.8
Normalized	100%	99.07%	99.07%
yquake2 - OpenGL ES 3.x - On - Off - 1920 x 1080 (FPS)	1342	1353	1371
Normalized	97.88%	98.72%	100%
yquake2 - Software CPU - Off - Off - 1920 x 1080 (FPS)	96.2	97.1	94.1
Normalized	99.07%	100%	96.91%
yquake2 - OpenGL ES 3.x - Off - Off - 1920 x 1080 (FPS)	1423	1342	1298
Normalized	100%	94.27%	91.17%
yquake2 - S.C.C.L - On - On - 1920 x 1080 (FPS)	85.5	87.2	85.9
Normalized	98.05%	100%	98.51%
yquake2 - S.C.C.L - Off - On - 1920 x 1080 (FPS)	88.6	87.8	88.1
Normalized	100%	99.1%	99.44%
yquake2 - S.C.C.L - On - Off - 1920 x 1080 (FPS)	88.5	88.1	85.7
Normalized	100%	99.55%	96.84%
yquake2 - S.C.C.L - Off - Off - 1920 x 1080 (FPS)	88.3	89.8	86.5
Normalized	98.33%	100%	96.33%
AOM AV1 - Speed 0 Two-Pass - Bosphorus 4K (FPS)	0.12	0.12	0.12

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AOM AV1 - Speed 4 Two-Pass - Bosphorus 4K (FPS)	4.2	4.06	4.15
Normalized	100%	96.67%	98.81%
AOM AV1 - Speed 6 Realtime - Bosphorus 4K (FPS)	16.41	16.93	16.85
Normalized	96.93%	100%	99.53%
AOM AV1 - Speed 6 Two-Pass - Bosphorus 4K (FPS)	6.72	6.67	6.91
Normalized	97.25%	96.53%	100%
AOM AV1 - Speed 8 Realtime - Bosphorus 4K (FPS)	26.65	26.61	26.31
Normalized	100%	99.85%	98.72%
AOM AV1 - Speed 9 Realtime - Bosphorus 4K (FPS)	33.52	33.73	33.74
Normalized	99.35%	99.97%	100%
AOM AV1 - Speed 10 Realtime - Bosphorus 4K (FPS)	34.18	34.12	33.71
Normalized	100%	99.82%	98.62%
AOM AV1 - Speed 0 Two-Pass - Bosphorus 1080p (FPS)	0.31	0.32	0.32
Normalized	96.88%	100%	100%
AOM AV1 - Speed 4 Two-Pass - Bosphorus 1080p (FPS)	7.41	7.37	7.43
Normalized	99.73%	99.19%	100%
AOM AV1 - Speed 6 Realtime - Bosphorus 1080p (FPS)	27.88	28.07	28.9
Normalized	96.47%	97.13%	100%
AOM AV1 - Speed 6 Two-Pass - Bosphorus 1080p (FPS)	17.47	17.12	17.81
Normalized	98.09%	96.13%	100%
AOM AV1 - Speed 8 Realtime - Bosphorus 1080p (FPS)	67.2	66.72	65.55
Normalized	100%	99.29%	97.54%
AOM AV1 - Speed 9 Realtime - Bosphorus 1080p (FPS)	75.9		80.33
Normalized	94.49%		100%
AOM AV1 - Speed 10 Realtime - Bosphorus 1080p (FPS)	83.99		84.09
Normalized	99.88%		100%
7-Zip Compression - Compression Rating (MIPS)	94723		80517
Normalized	100%		85%
7-Zip Compression - D.R (MIPS)	130661		132149
Normalized	98.87%		100%

yquake2 8.10

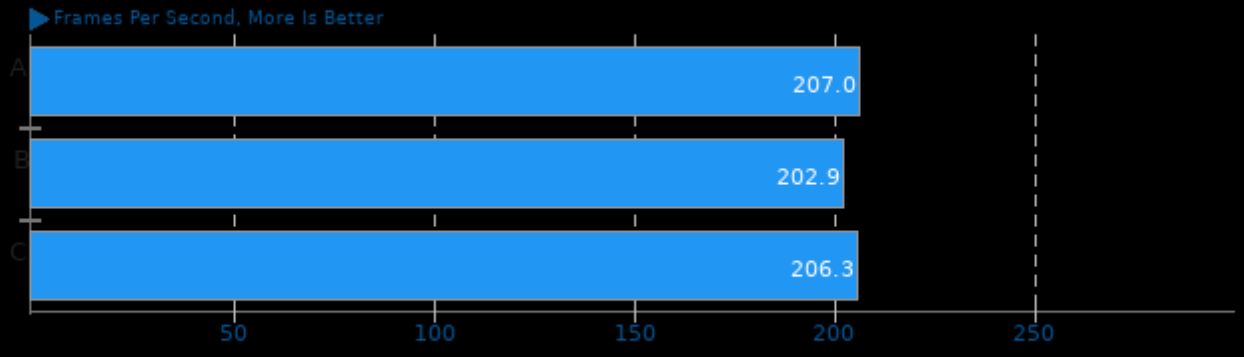
Renderer: Vulkan - AF: On - MSAA: On - Resolution: 1920 x 1080



1. (CC) gcc options: -shared -lm -ldl -rdynamic -lSDL2 -O2 -pipe -fomit-frame-pointer -std=gnu99 -fno-strict-aliasing -fwrapv -fvisibility=hidden -MMD -mf

yquake2 8.10

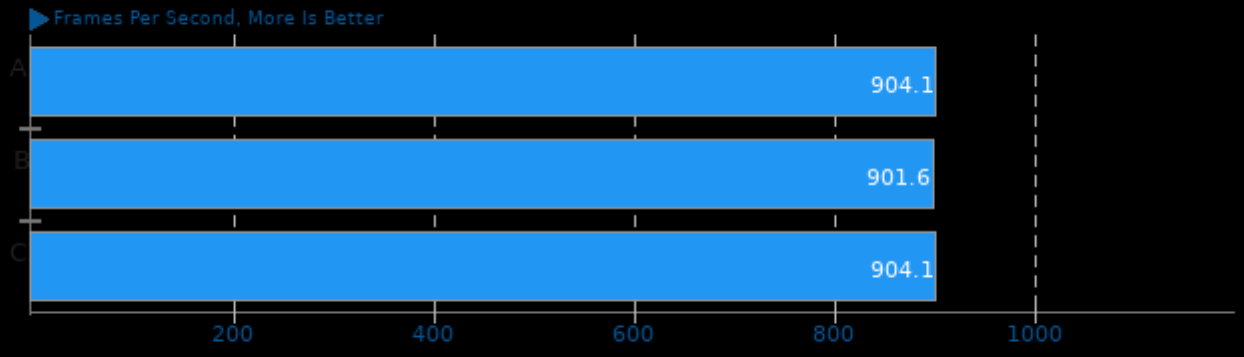
Renderer: Vulkan - AF: Off - MSAA: On - Resolution: 1920 x 1080



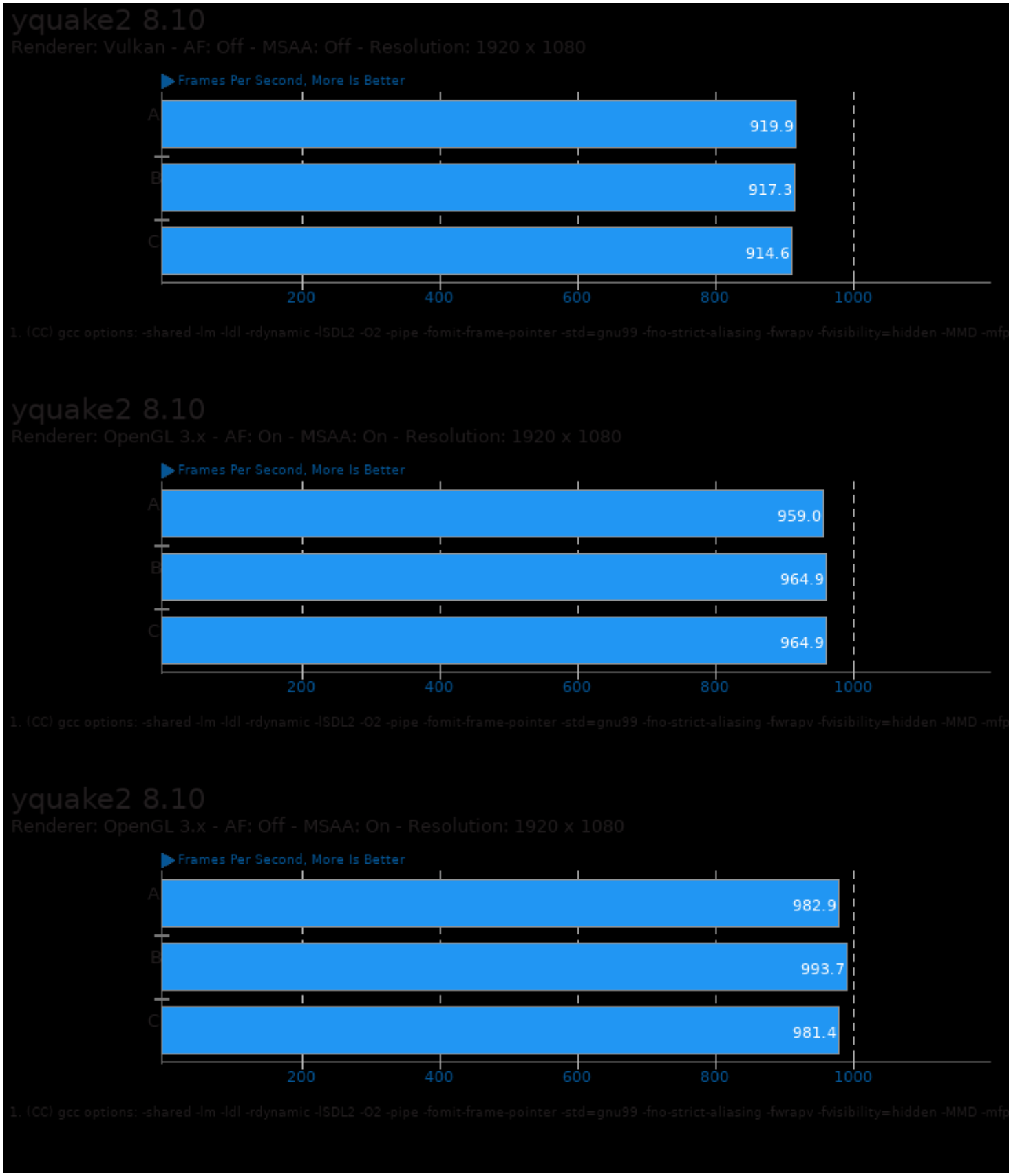
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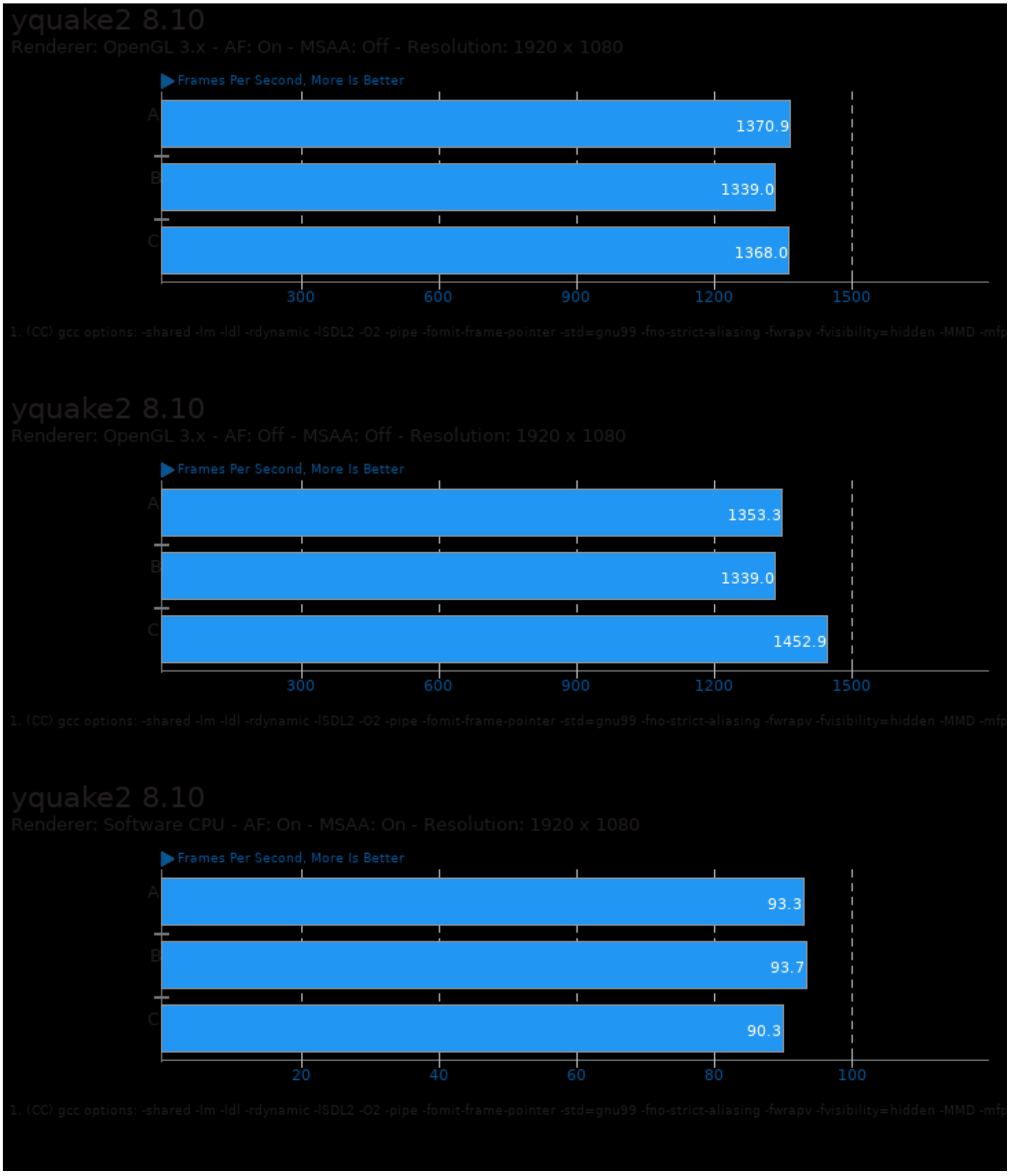
yquake2 8.10

Renderer: Vulkan - AF: On - MSAA: Off - Resolution: 1920 x 1080



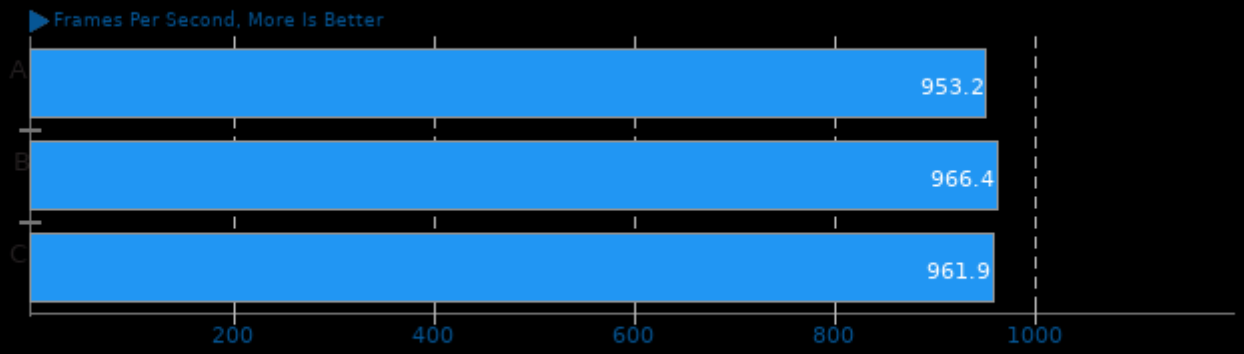
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yquake2 8.10
Renderer: Vulkan - AF: Off - MSAA: Off - Resolution: 1920 x 1080
Frames Per Second, More Is Better
A
B
C
919.9
917.3
914.6
200
400
600
800
1000
1. (CC) gcc options: -shared -lm -ldl -rdynamic -lSDL2 -O2 -pipe -fomit-frame-pointer -std=gnu99 -fno-strict-aliasing -fwrapv -fvisibility=hidden -MMD -mf
yquake2 8.10
Renderer: OpenGL 3.x - AF: On - MSAA: On - Resolution: 1920 x 1080
Frames Per Second, More Is Better
A
B
C
959.0
964.9
964.9
200
400
600
800
1000
1. (CC) gcc options: -shared -lm -ldl -rdynamic -lSDL2 -O2 -pipe -fomit-frame-pointer -std=gnu99 -fno-strict-aliasing -fwrapv -fvisibility=hidden -MMD -mf
yquake2 8.10
Renderer: OpenGL 3.x - AF: Off - MSAA: On - Resolution: 1920 x 1080
Frames Per Second, More Is Better
A
B
C
982.9
993.7
981.4
200
400
600
800
1000
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yquake2 8.10
Renderer: OpenGL 3.x - AF: On - MSAA: Off - Resolution: 1920 x 1080
Frames Per Second, More Is Better
A
B
C
1370.9
1339.0
1368.0
300
600
900
1200
1500
1. (CC) gcc options: -shared -lm -ldl -rdynamic -lSDL2 -O2 -pipe -fomit-frame-pointer -std=gnu99 -fno-strict-aliasing -fwrapv -fvisibility=hidden -MMD -mf
yquake2 8.10
Renderer: OpenGL 3.x - AF: Off - MSAA: Off - Resolution: 1920 x 1080
Frames Per Second, More Is Better
A
B
C
1353.3
1339.0
1452.9
300
600
900
1200
1500
1. (CC) gcc options: -shared -lm -ldl -rdynamic -lSDL2 -O2 -pipe -fomit-frame-pointer -std=gnu99 -fno-strict-aliasing -fwrapv -fvisibility=hidden -MMD -mf
yquake2 8.10
Renderer: Software CPU - AF: On - MSAA: On - Resolution: 1920 x 1080
Frames Per Second, More Is Better
A
B
C
93.3
93.7
90.3
20
40
60
80
100
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yquake2 8.10

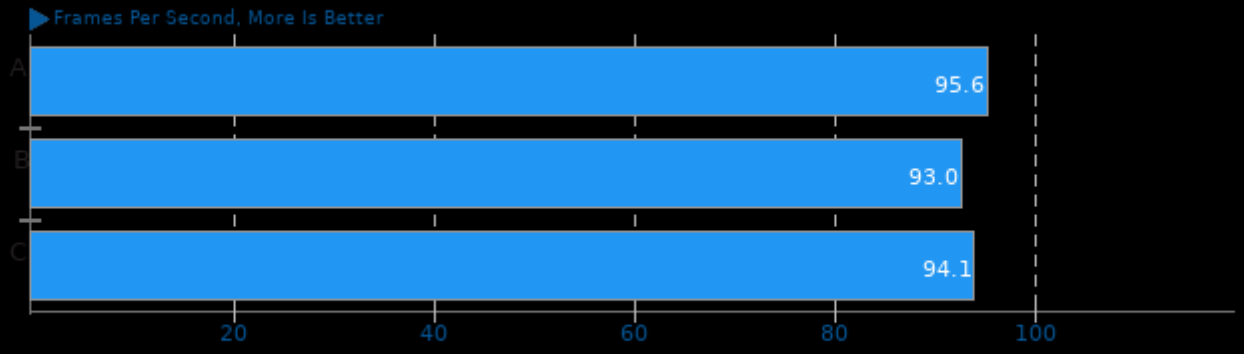
Renderer: OpenGL ES 3.x - AF: On - MSAA: On - Resolution: 1920 x 1080



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yquake2 8.10

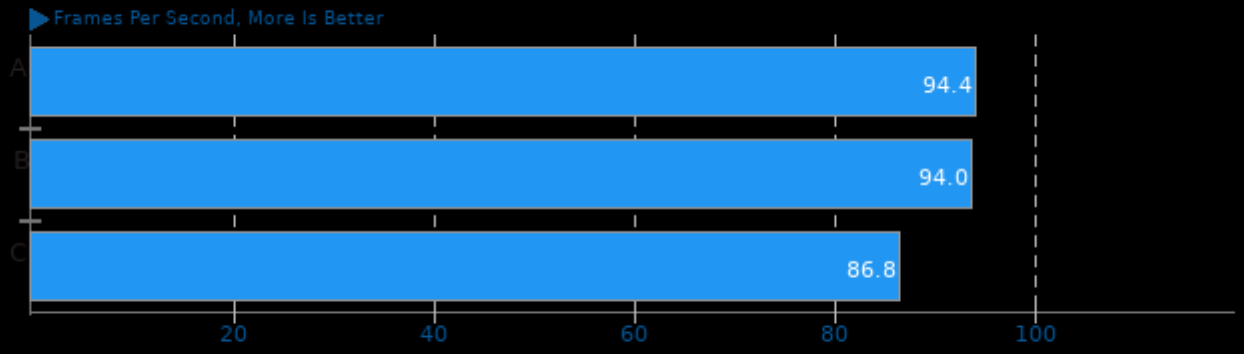
Renderer: Software CPU - AF: Off - MSAA: On - Resolution: 1920 x 1080



1. (CC) gcc options: -shared -lm -ldl -rdynamic -lSDL2 -O2 -pipe -fomit-frame-pointer -std=gnu99 -fno-strict-aliasing -fwrapv -fvisibility=hidden -MMD -mf

yquake2 8.10

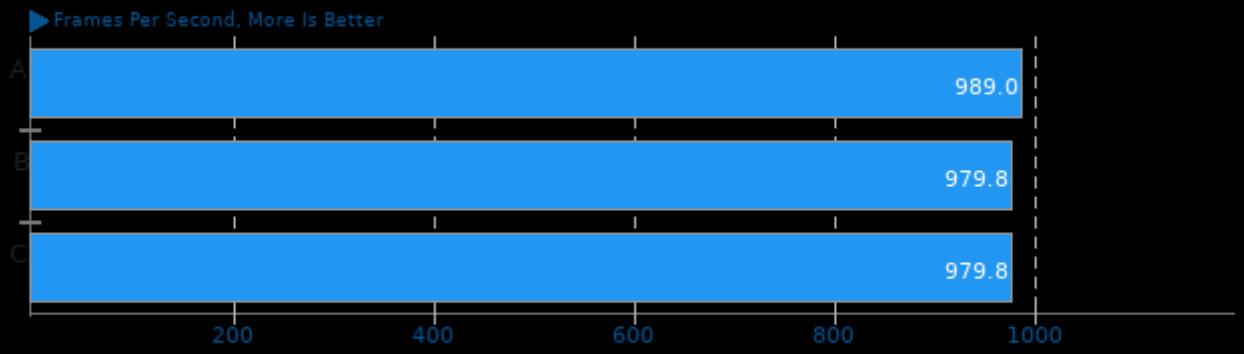
Renderer: Software CPU - AF: On - MSAA: Off - Resolution: 1920 x 1080



1. (CC) gcc options: -shared -lm -ldl -rdynamic -lSDL2 -O2 -pipe -fomit-frame-pointer -std=gnu99 -fno-strict-aliasing -fwrapv -fvisibility=hidden -MMD -mf

yquake2 8.10

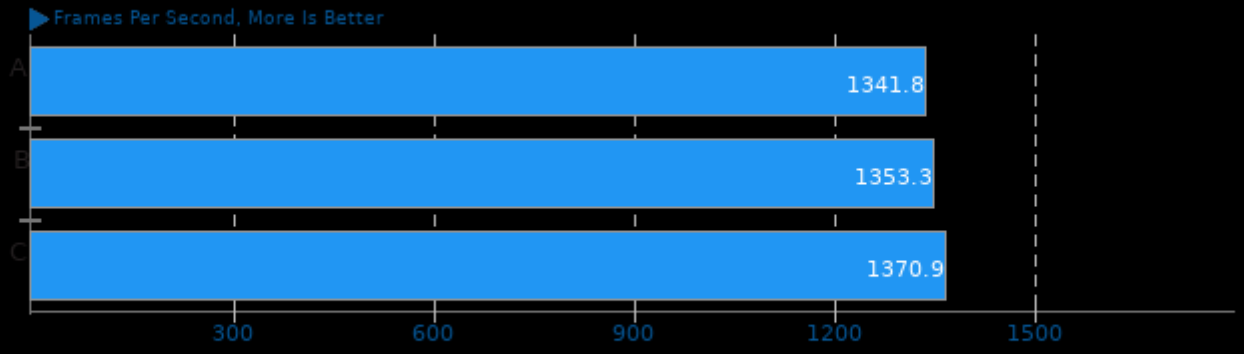
Renderer: OpenGL ES 3.x - AF: Off - MSAA: On - Resolution: 1920 x 1080



1. (CC) gcc options: -shared -lm -ldl -rdynamic -lSDL2 -O2 -pipe -fomit-frame-pointer -std=gnu99 -fno-strict-aliasing -fwrapv -fvisibility=hidden -MMD -mf

yquake2 8.10

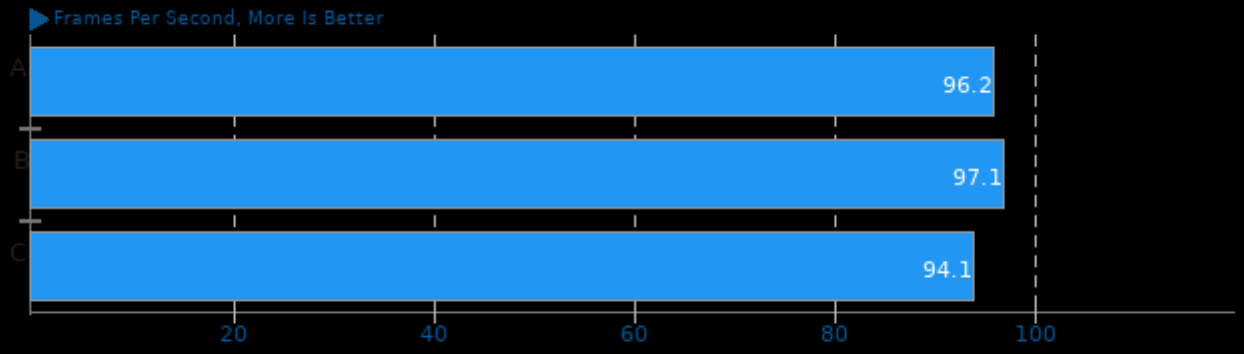
Renderer: OpenGL ES 3.x - AF: On - MSAA: Off - Resolution: 1920 x 1080



1. (CC) gcc options: -shared -lm -ldl -rdynamic -lSDL2 -O2 -pipe -fomit-frame-pointer -std=gnu99 -fno-strict-aliasing -fwrapv -fvisibility=hidden -MMD -mf

yquake2 8.10

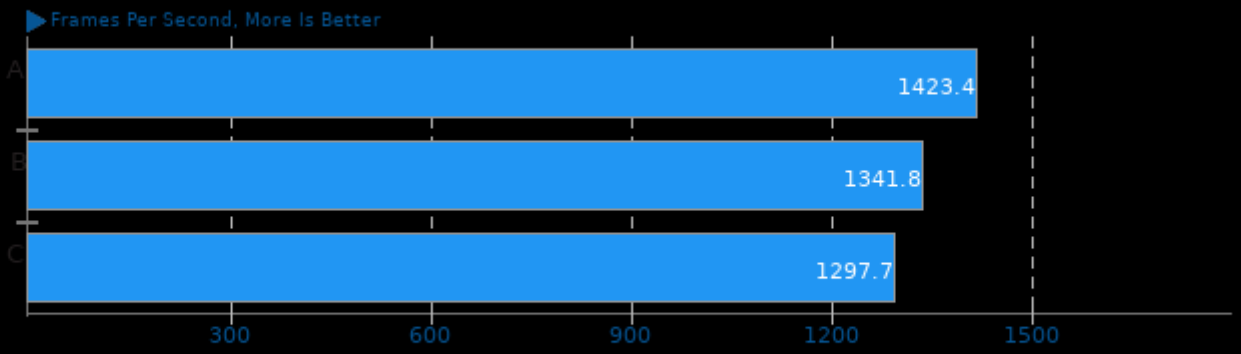
Renderer: Software CPU - AF: Off - MSAA: Off - Resolution: 1920 x 1080



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yquake2 8.10

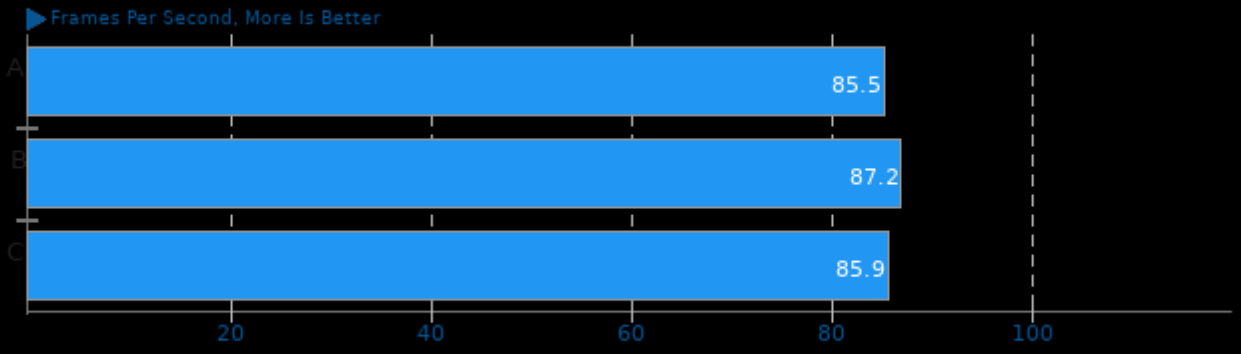
Renderer: OpenGL ES 3.x - AF: Off - MSAA: Off - Resolution: 1920 x 1080



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yquake2 8.10

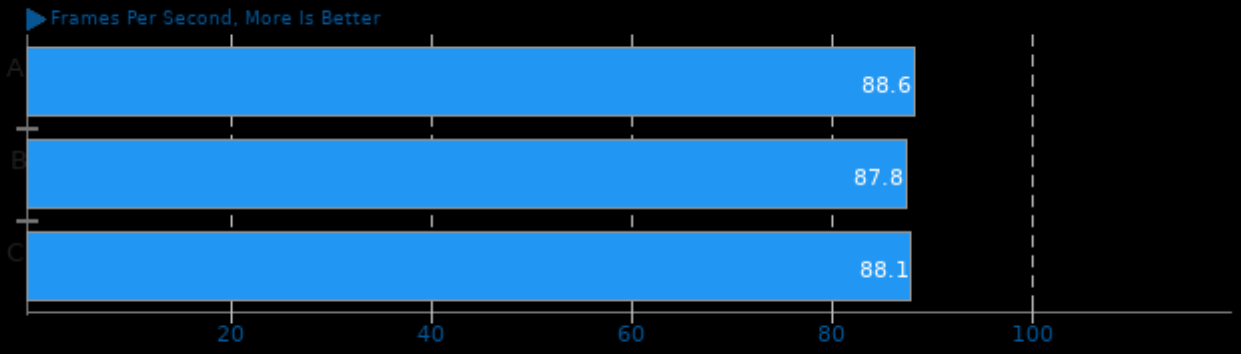
Renderer: Software CPU Color Light - AF: On - MSAA: On - Resolution: 1920 x 1080



1. (CC) gcc options: -shared -lm -ldl -rdynamic -lSDL2 -O2 -pipe -fomit-frame-pointer -std=gnu99 -fno-strict-aliasing -fwrapv -fvisibility=hidden -MMD -mf

yquake2 8.10

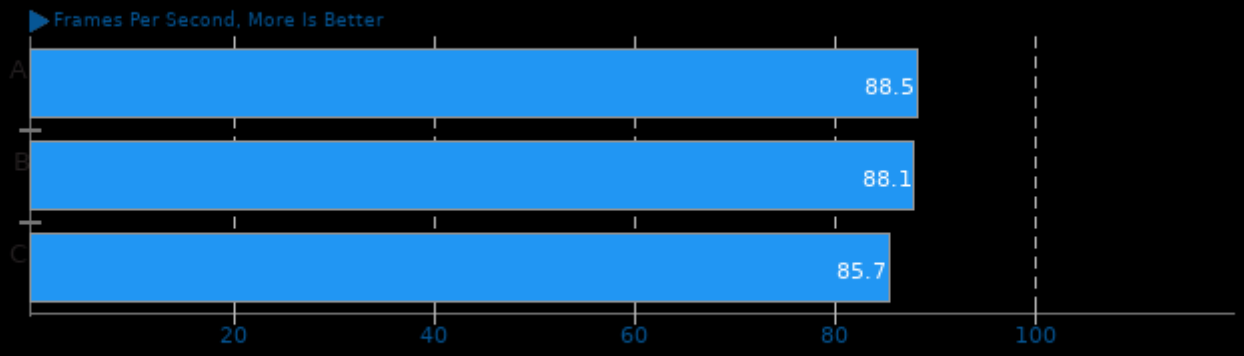
Renderer: Software CPU Color Light - AF: Off - MSAA: On - Resolution: 1920 x 1080



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yquake2 8.10

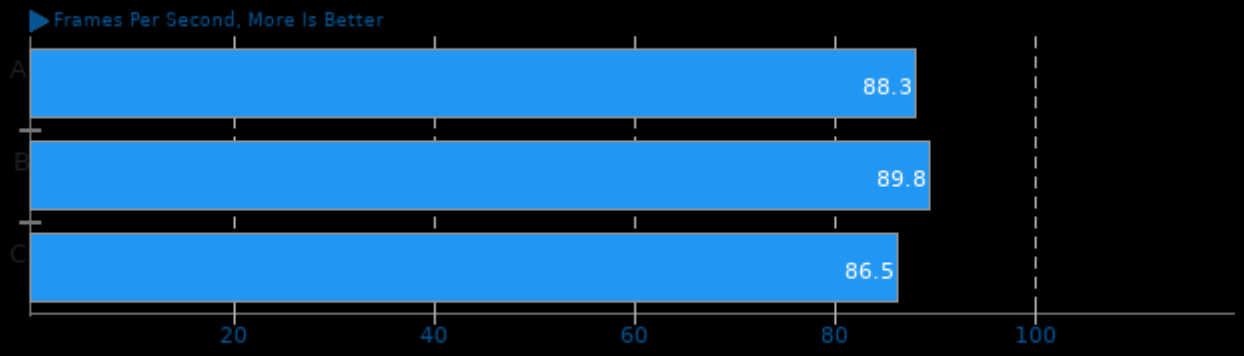
Renderer: Software CPU Color Light - AF: On - MSAA: Off - Resolution: 1920 x 1080



1. (CC) gcc options: -shared -lm -ldl -rdynamic -lSDL2 -O2 -pipe -fomit-frame-pointer -std=gnu99 -fno-strict-aliasing -fwrapv -fvisibility=hidden -MMD -mfp

yquake2 8.10

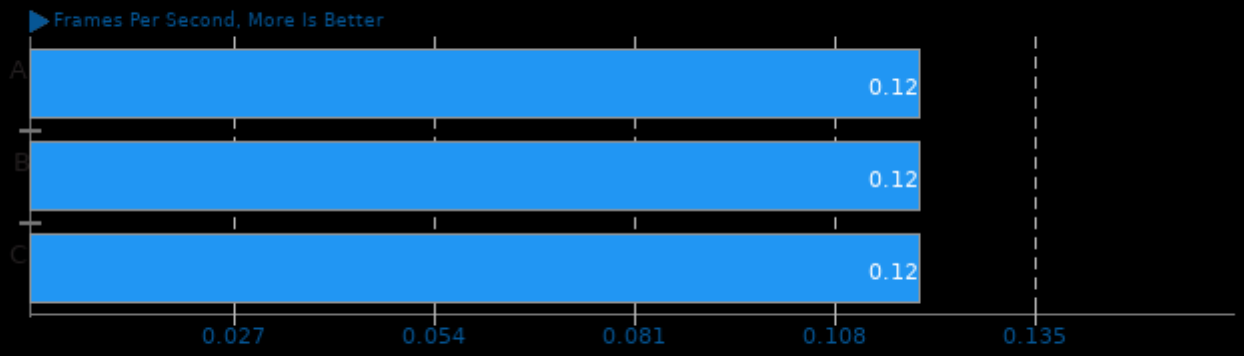
Renderer: Software CPU Color Light - AF: Off - MSAA: Off - Resolution: 1920 x 1080



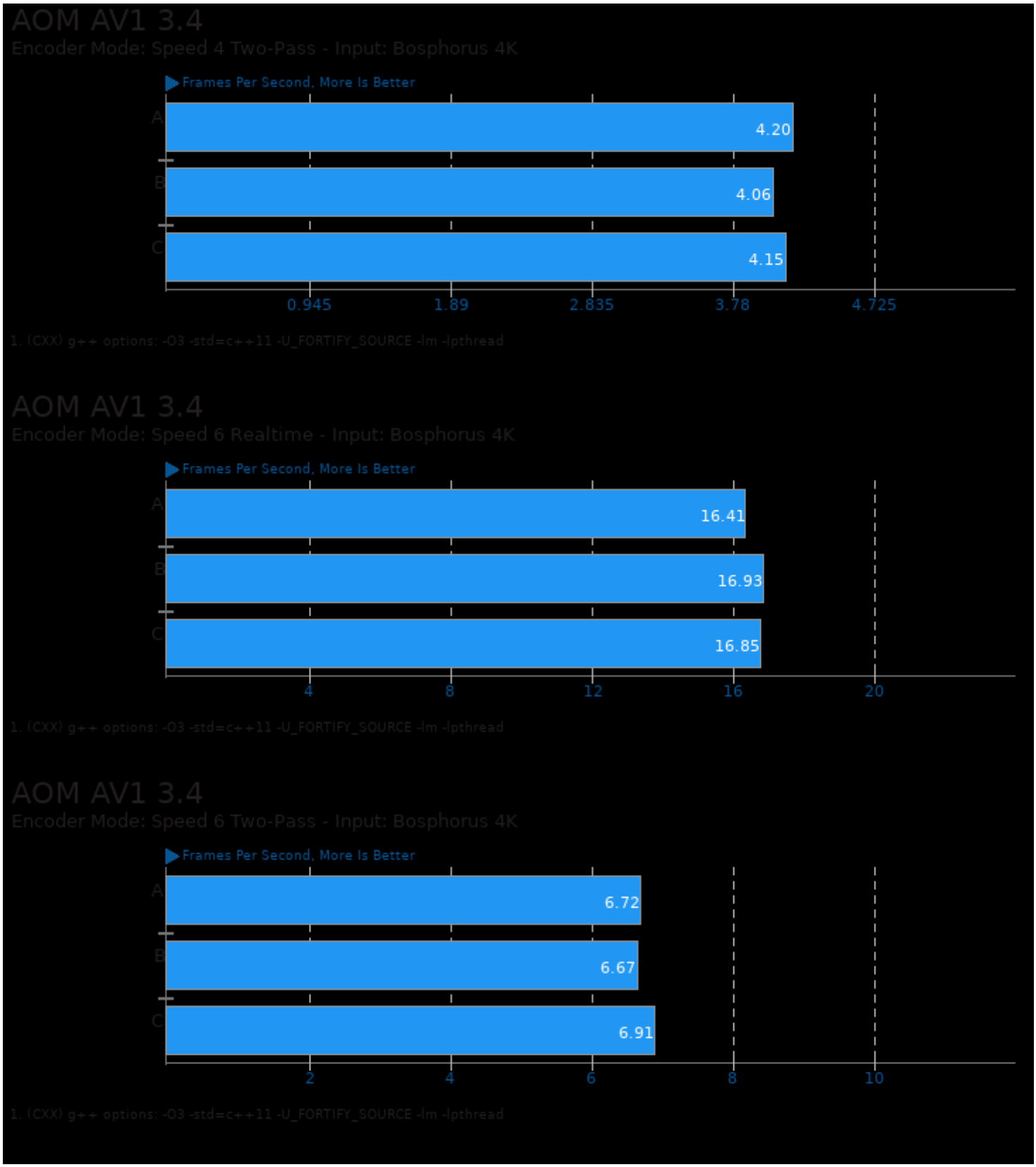
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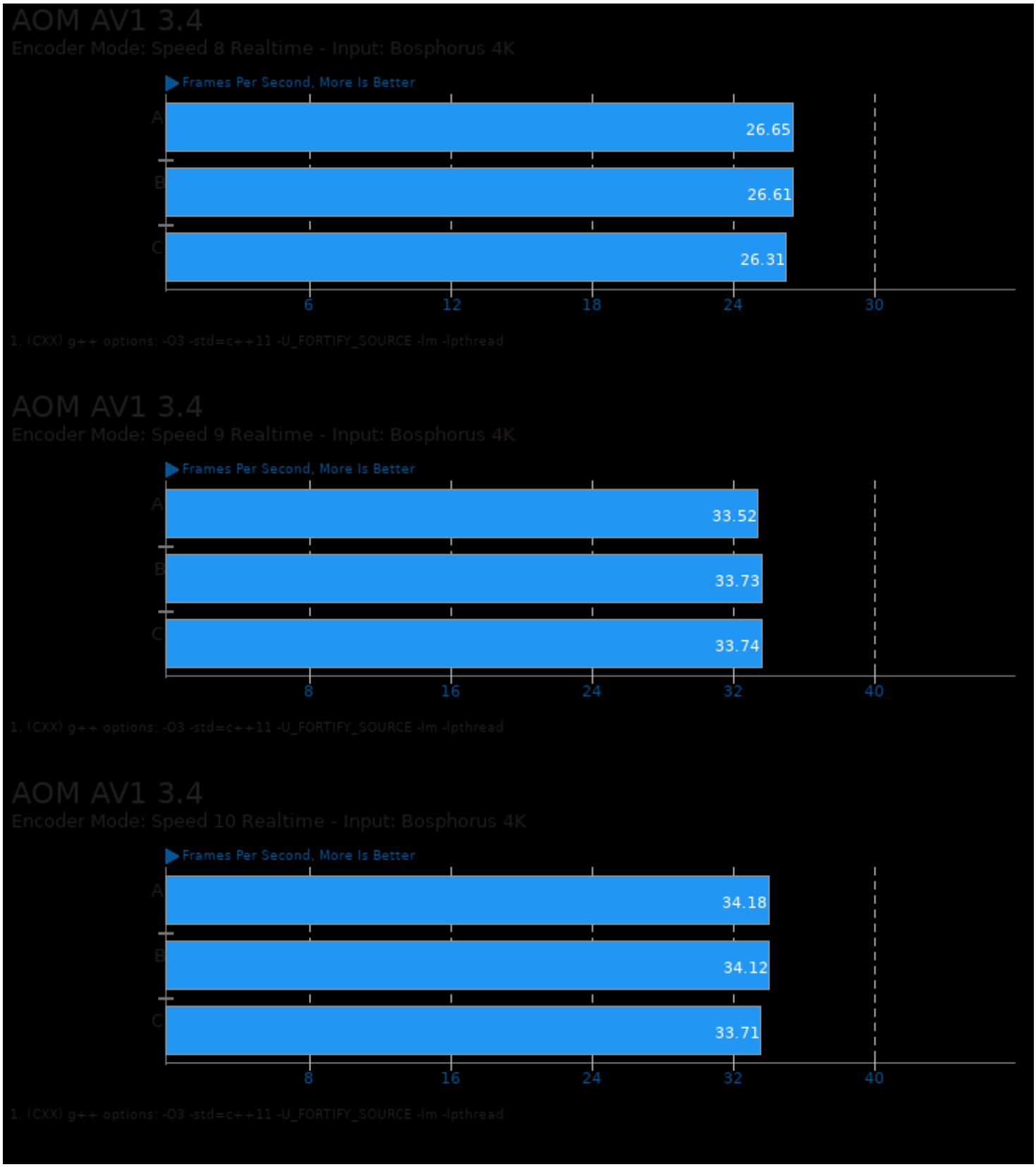
AOM AV1 3.4

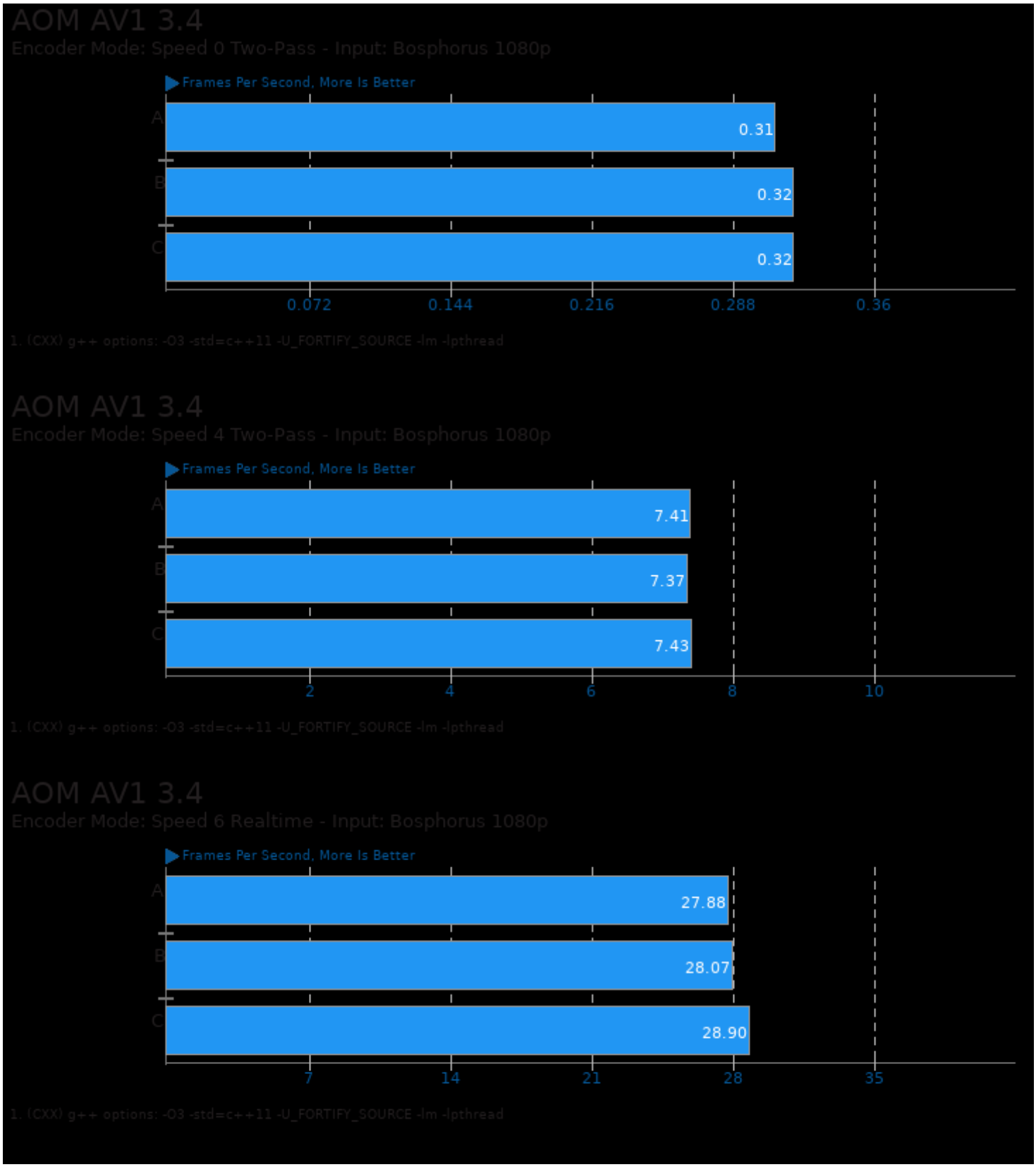
Encoder Mode: Speed 0 Two-Pass - Input: Bosphorus 4K

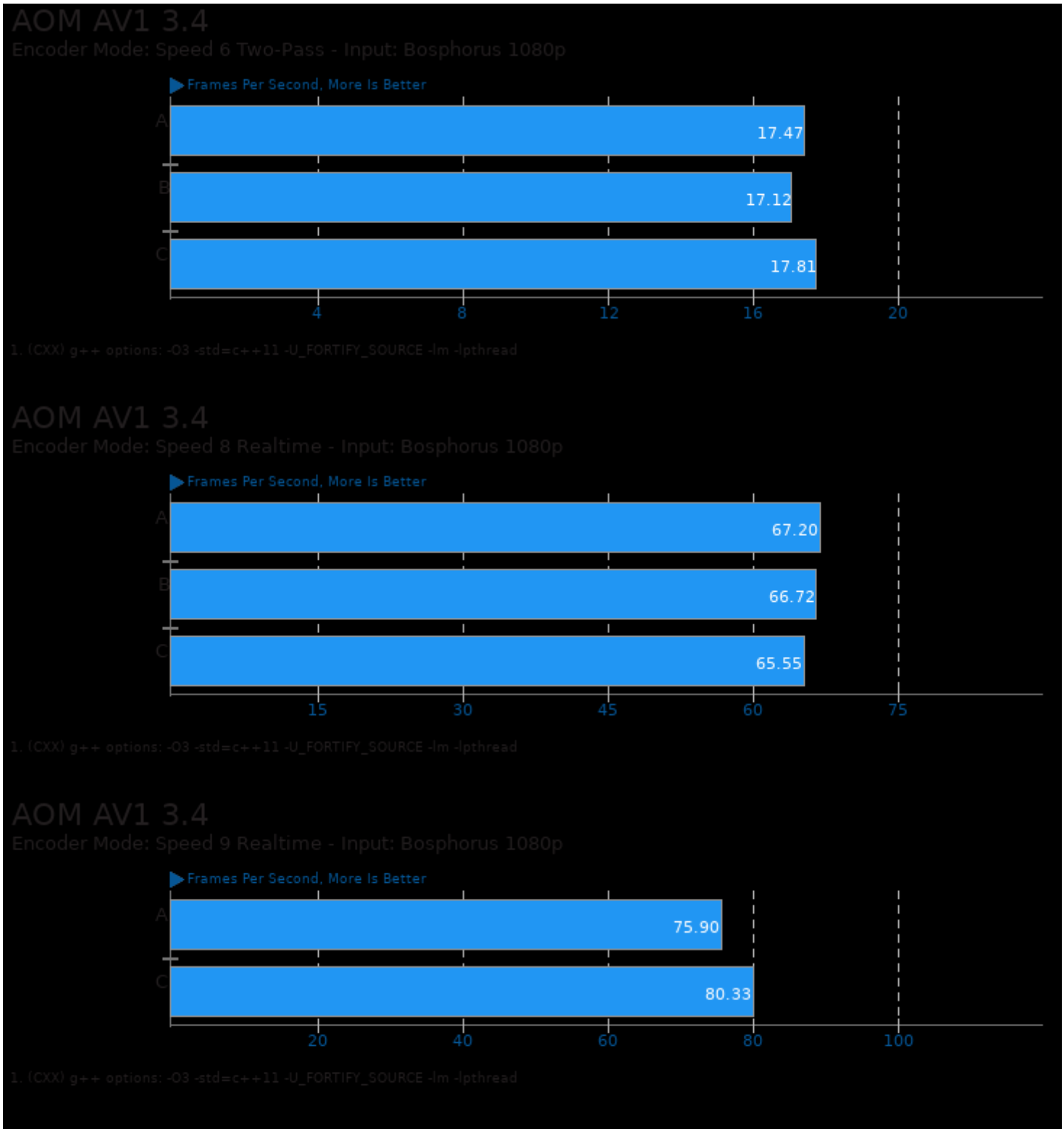


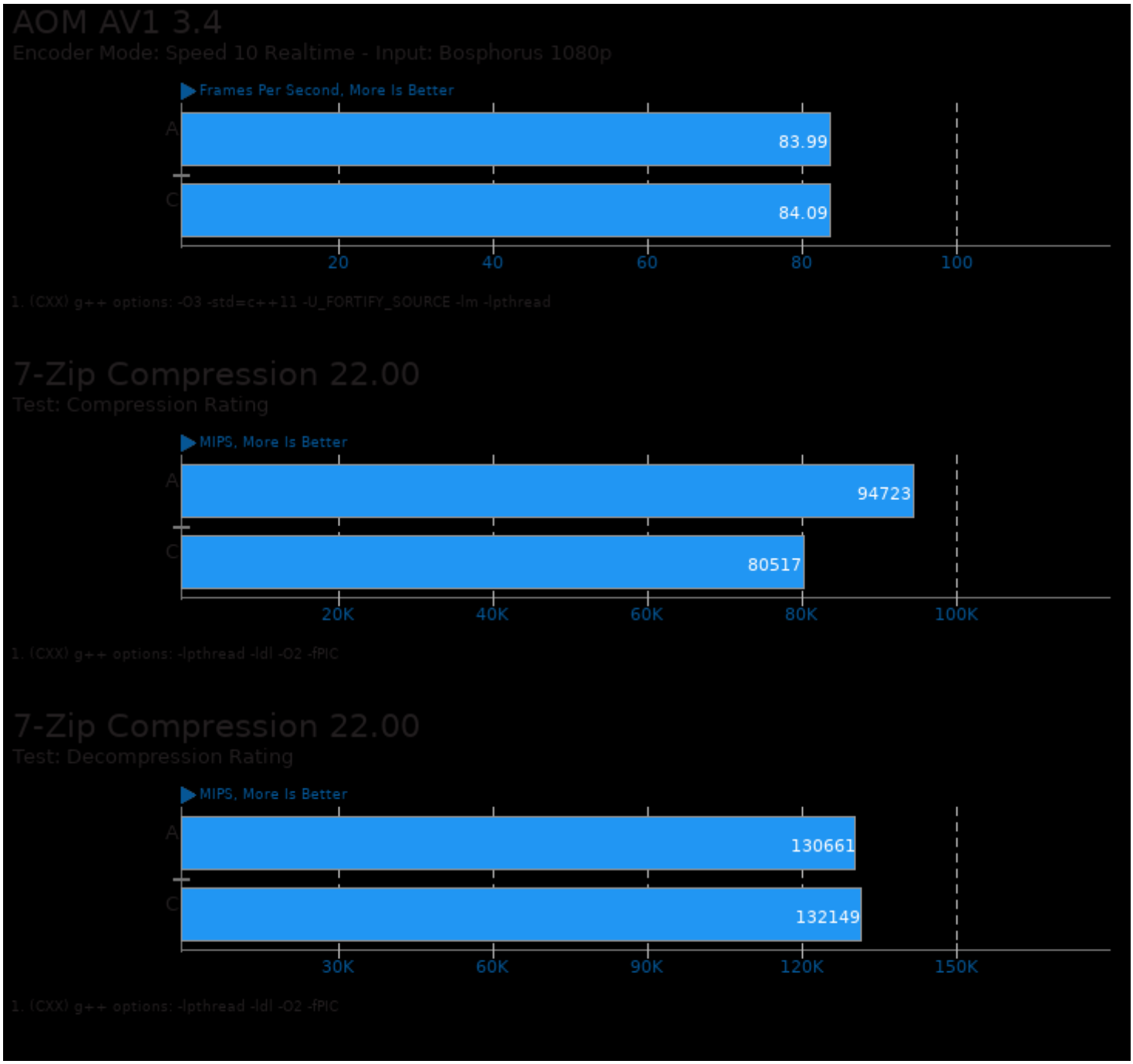
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm -lpthread


AOM AV1 3.4
Encoder Mode: Speed 4 Two-Pass - Input: Bosphorus 4K
Frames Per Second, More Is Better
A
B
C
4.20
4.06
4.15
0.945
1.89
2.835
3.78
4.725
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm -lpthread
AOM AV1 3.4
Encoder Mode: Speed 6 Realtime - Input: Bosphorus 4K
Frames Per Second, More Is Better
A
B
C
16.41
16.93
16.85
4
8
12
16
20
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm -lpthread
AOM AV1 3.4
Encoder Mode: Speed 6 Two-Pass - Input: Bosphorus 4K
Frames Per Second, More Is Better
A
B
C
6.72
6.67
6.91
2
4
6
8
10
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm -lpthread

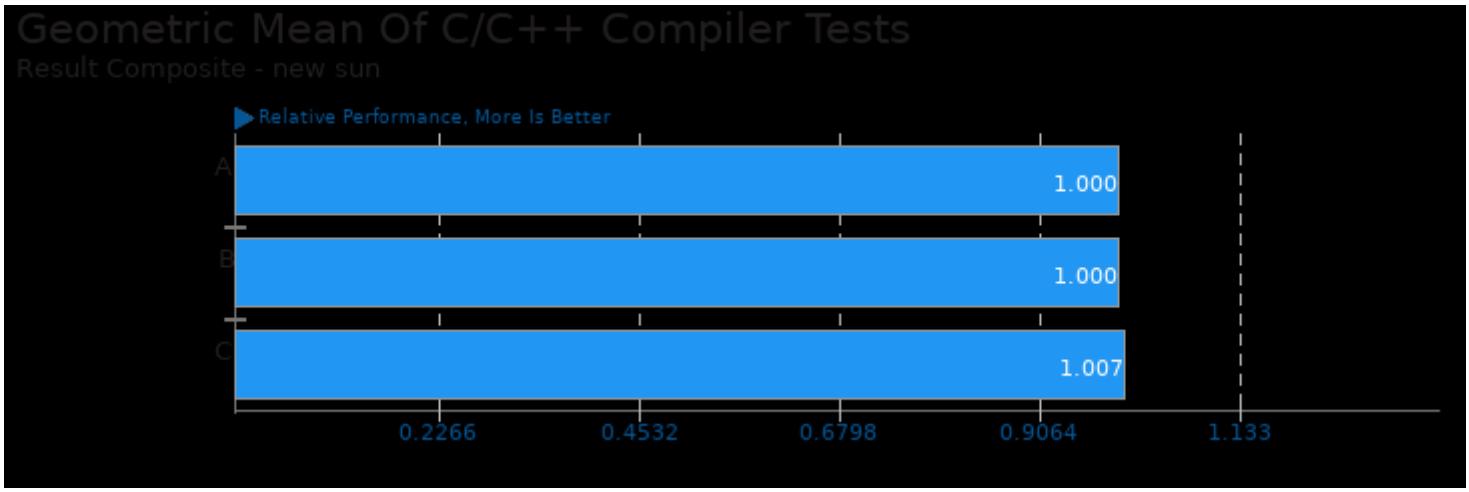

AOM AV1 3.4
Encoder Mode: Speed 8 Realtime - Input: Bosphorus 4K
Frames Per Second, More Is Better
A
B
C
26.65
26.61
26.31
6
12
18
24
30
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm -lpthread
AOM AV1 3.4
Encoder Mode: Speed 9 Realtime - Input: Bosphorus 4K
Frames Per Second, More Is Better
A
B
C
33.52
33.73
33.74
8
16
24
32
40
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm -lpthread
AOM AV1 3.4
Encoder Mode: Speed 10 Realtime - Input: Bosphorus 4K
Frames Per Second, More Is Better
A
B
C
34.18
34.12
33.71
8
16
24
32
40
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm -lpthread


AOM AV1 3.4
Encoder Mode: Speed 0 Two-Pass - Input: Bosphorus 1080p
Frames Per Second, More Is Better
A
B
C
0.31
0.32
0.32
0.072
0.144
0.216
0.288
0.36
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm -lpthread
AOM AV1 3.4
Encoder Mode: Speed 4 Two-Pass - Input: Bosphorus 1080p
Frames Per Second, More Is Better
A
B
C
7.41
7.37
7.43
2
4
6
8
10
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm -lpthread
AOM AV1 3.4
Encoder Mode: Speed 6 Realtime - Input: Bosphorus 1080p
Frames Per Second, More Is Better
A
B
C
27.88
28.07
28.90
7
14
21
28
35
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm -lpthread


AOM AV1 3.4
Encoder Mode: Speed 6 Two-Pass - Input: Bosphorus 1080p
Frames Per Second, More Is Better
A
B
C
17.47
17.12
17.81
4
8
12
16
20
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm -lpthread
AOM AV1 3.4
Encoder Mode: Speed 8 Realtime - Input: Bosphorus 1080p
Frames Per Second, More Is Better
A
B
C
67.20
66.72
65.55
15
30
45
60
75
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm -lpthread
AOM AV1 3.4
Encoder Mode: Speed 9 Realtime - Input: Bosphorus 1080p
Frames Per Second, More Is Better
A
C
75.90
80.33
20
40
60
80
100
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm -lpthread


AOM AV1 3.4
Encoder Mode: Speed 10 Realtime - Input: Bosphorus 1080p
Frames Per Second, More Is Better
A
83.99
C
84.09
20
40
60
80
100
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm -lpthread
7-Zip Compression 22.00
Test: Compression Rating
MIPS, More Is Better
A
94723
C
80517
20K
40K
60K
80K
100K
1. (CXX) g++ options: -lpthread -ldl -O2 -fPIC
7-Zip Compression 22.00
Test: Decompression Rating
MIPS, More Is Better
A
130661
C
132149
30K
60K
90K
120K
150K
1. (CXX) g++ options: -lpthread -ldl -O2 -fPIC

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



Geometric mean based upon tests: pts/compress-7zip and pts/aom-av1



Geometric mean based upon tests: pts/aom-av1 and pts/compress-7zip

This file was automatically generated via the Phoronix Test Suite benchmarking software on Friday, 29 March 2024 04:56.