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AMD Ryzen 7 4700U testing with a LENOVO LNVNB161216 (DTCN18WWV1.04 BIOS) and AMD Renoir 512MB on Pop 22.04 via the Phoronix Test Suite.

Automated Executive Summary

A had the most wins, coming in first place for 71% of the tests.

Based on the geometric mean of all complete results, the fastest (A) was 1.024x the speed of the slowest (C). B was 0.978x the speed of A and C was 0.999x the speed of B.

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

yquake2 (Renderer: Vulkan - AF: On - MSAA: On - Resolution: 1920 x 1080) at 1.121x
AOM AV1 (Encoder Mode: Speed 8 Realtime - Input: Bosphorus 1080p) at 1.104x
AOM AV1 (Encoder Mode: Speed 0 Two-Pass - Input: Bosphorus 4K) at 1.1x
yquake2 (Renderer: OpenGL ES 3.x - AF: Off - MSAA: Off - Resolution: 1920 x 1080) at 1.089x
AOM AV1 (Encoder Mode: Speed 6 Two-Pass - Input: Bosphorus 1080p) at 1.081x
AOM AV1 (Encoder Mode: Speed 9 Realtime - Input: Bosphorus 1080p) at 1.079x
yquake2 (Renderer: OpenGL ES 3.x - AF: On - MSAA: Off - Resolution: 1920 x 1080) at 1.078x
simdjson (Throughput Test: PartialTweets) at 1.075x
simdjson (Throughput Test: TopTweet) at 1.059x

AOM AV1 (Encoder Mode: Speed 10 Realtime - Input: Bosphorus 4K) at 1.059x.

Test Systems:

A

B

C

Processor: AMD Ryzen 7 4700U @ 2.00GHz (8 Cores), Motherboard: LENOVO LNVNB161216 (DTCN18WWV1.04 BIOS), Chipset: AMD Renoir/Cezanne, Memory: 16GB, Disk: 512GB SAMSUNG MZALQ512HALU-000L2, Graphics: AMD Renoir 512MB (1600/400MHz), Audio: AMD Renoir Radeon HD Audio, Network: Intel Wi-Fi 6 AX200

OS: Pop 22.04, Kernel: 5.17.5-76051705-generic (x86_64), Desktop: GNOME Shell 42.1, Display Server: X Server 1.21.1.3, OpenGL: 4.6 Mesa 22.0.1 (LLVM 13.0.1 DRM 3.44), Vulkan: 1.3.204, Compiler: GCC 11.2.0, 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-bootstrap --enable-cet --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-link-serialization=2 --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-11-gBFGDP/gcc-11-11.2.0/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-11-gBFGDP/gcc-11-11.2.0/debian/tmp-gcn/usr --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-build-config=bootstrap-lto-lean --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 schedutil (Boost: Enabled) - Platform Profile: balanced - CPU Microcode: 0x8600102 - ACPI Profile: balanced
Graphics Notes: GLAMOR - BAR1 / Visible vRAM Size: 512 MB - vBIOS Version: 113-RENOIR-023
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Retpolines IBPB: conditional IBRS_FW STIBP: disabled RSB filling + srbds: Not affected + tsx_async_abort: Not affected

	A	B	C
AOM AV1 - Speed 4 Two-Pass - Bosphorus 4K (FPS)	**3.03**	**3.01**	3.02
Normalized	100%	99.34%	99.67%
AOM AV1 - Speed 0 Two-Pass - Bosphorus 4K (FPS)	**0.11**	**0.1**	**0.1**
Normalized	100%	90.91%	90.91%
AOM AV1 - Speed 6 Two-Pass - Bosphorus 4K (FPS)	**5.09**	5.07	**5.06**
Normalized	100%	99.61%	99.41%
AOM AV1 - Speed 4 Two-Pass - Bosphorus 1080p (FPS)	**5.97**	5.86	**5.77**
Normalized	100%	98.16%	96.65%
simdjson - PartialTweets (GB/s)	3.64	**3.45**	**3.71**

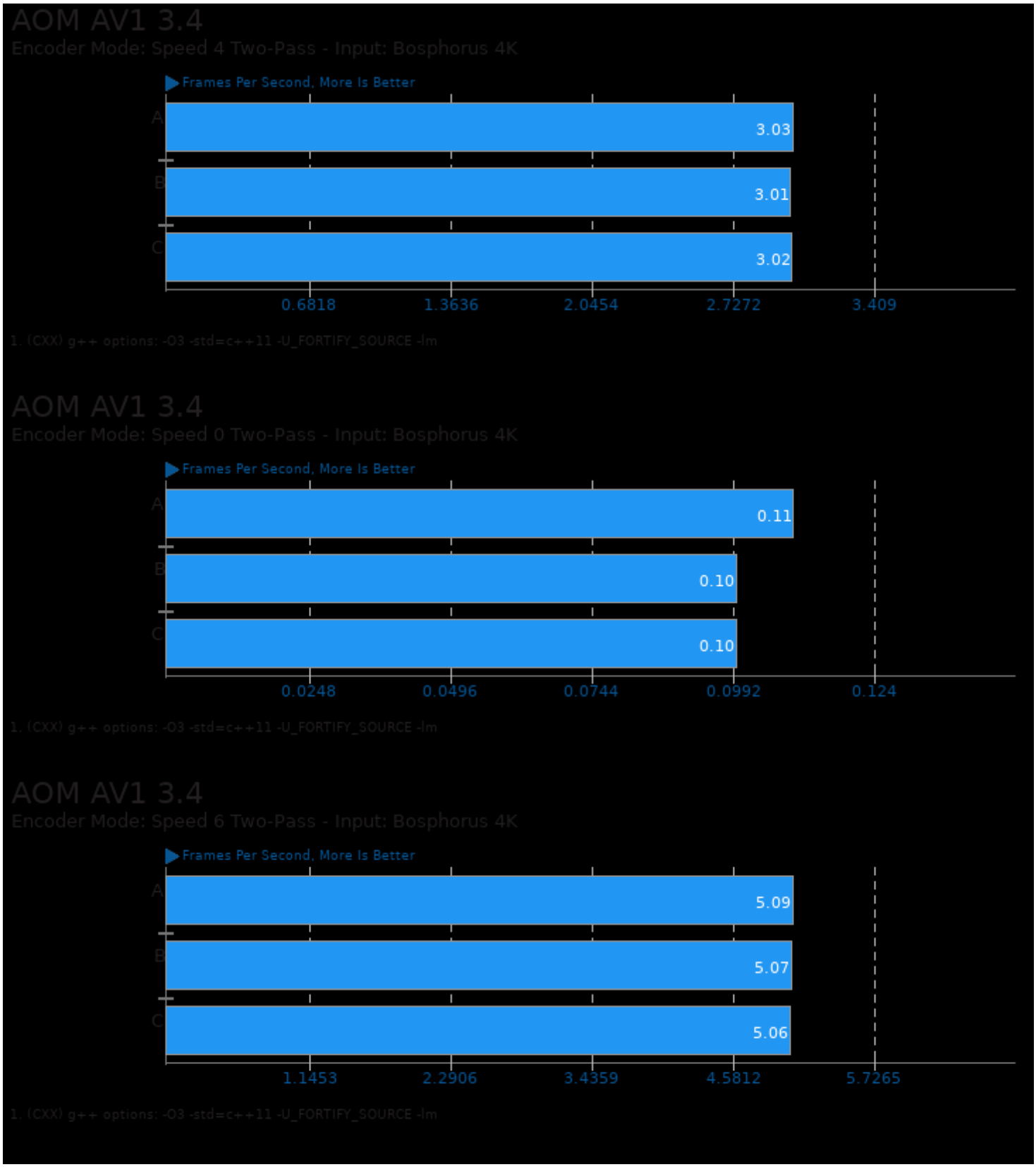
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Normalized	98.11%	92.99%	100%
simdjson - TopTweet (GB/s)	4.1	4.11	3.88
Normalized	99.76%	100%	94.4%
simdjson - DistinctUserID (GB/s)	4.03	4.05	4.1
Normalized	98.29%	98.78%	100%
AOM AV1 - Speed 0 Two-Pass - Bosphorus 1080p (FPS)	0.3	0.3	0.29
Normalized	100%	100%	96.67%
simdjson - Kostya (GB/s)	2.7	2.72	2.7
Normalized	99.26%	100%	99.26%
simdjson - LargeRand (GB/s)	0.94	0.94	0.94
AOM AV1 - Speed 6 Two-Pass - Bosphorus 1080p (FPS)	14.53	13.44	13.61
Normalized	100%	92.5%	93.67%
AOM AV1 - Speed 6 Realtime - Bosphorus 4K (FPS)	16.05	15.74	15.8
Normalized	100%	98.07%	98.44%
AOM AV1 - Speed 6 Realtime - Bosphorus 1080p (FPS)	20.66	21.09	20.45
Normalized	97.96%	100%	96.97%
AOM AV1 - Speed 8 Realtime - Bosphorus 4K (FPS)	22.11	23.16	22.07
Normalized	95.47%	100%	95.29%
AOM AV1 - Speed 9 Realtime - Bosphorus 4K (FPS)	26.28	25.81	25.55
Normalized	100%	98.21%	97.22%
AOM AV1 - Speed 10 Realtime - Bosphorus 4K (FPS)	28.28	26.71	27.23
Normalized	100%	94.45%	96.29%
AOM AV1 - Speed 8 Realtime - Bosphorus 1080p (FPS)	56.94	51.59	52.99
Normalized	100%	90.6%	93.06%
yquake2 - S.C.C.L - On - Off - 1920 x 1080 (FPS)	75.2	73.2	73.2
Normalized	100%	97.34%	97.34%
yquake2 - S.C.C.L - On - On - 1920 x 1080 (FPS)	75	74.4	72.8
Normalized	100%	99.2%	97.07%
AOM AV1 - Speed 9 Realtime - Bosphorus 1080p (FPS)	74.36	68.89	69.33
Normalized	100%	92.64%	93.24%
yquake2 - S.C.C.L - Off - Off - 1920 x 1080 (FPS)	77	76.4	74
Normalized	100%	99.22%	96.1%
yquake2 - S.C.C.L - Off - On - 1920 x 1080 (FPS)	76.7	76.5	75.9
Normalized	100%	99.74%	98.96%
yquake2 - Software CPU - On - On - 1920 x 1080 (FPS)	79.9	78.9	76.6
Normalized	100%	98.75%	95.87%

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yquake2 - Vulkan - On - On - 1920 x 1080 (FPS)	88.8	82.5	79.2
Normalized	100%	92.91%	89.19%
yquake2 - Software CPU - On - Off - 1920 x 1080 (FPS)	80.4	79.7	79
Normalized	100%	99.13%	98.26%
AOM AV1 - Speed 10 Realtime - Bosphorus 1080p (FPS)	75.94	72.59	74.71
Normalized	100%	95.59%	98.38%
yquake2 - Software CPU - Off - Off - 1920 x 1080 (FPS)	81.9	81	78.4
Normalized	100%	98.9%	95.73%
yquake2 - Software CPU - Off - On - 1920 x 1080 (FPS)	81.8	80.5	81.2
Normalized	100%	98.41%	99.27%
yquake2 - Vulkan - Off - On - 1920 x 1080 (FPS)	90.5	90.5	88.5
Normalized	100%	100%	97.79%
yquake2 - OpenGL 3.x - On - On - 1920 x 1080 (FPS)	377.3	374.2	374
Normalized	100%	99.18%	99.13%
yquake2 - Vulkan - On - Off - 1920 x 1080 (FPS)	395.7	394.8	403.8
Normalized	97.99%	97.77%	100%
yquake2 - OpenGL ES 3.x - On - On - 1920 x 1080 (FPS)	370.2	372.6	376.4
Normalized	98.35%	98.99%	100%
yquake2 - OpenGL ES 3.x - Off - On - 1920 x 1080 (FPS)	375.1	376	378.4
Normalized	99.13%	99.37%	100%
yquake2 - OpenGL 3.x - Off - On - 1920 x 1080 (FPS)	378.9	379.6	381.4
Normalized	99.34%	99.53%	100%
yquake2 - Vulkan - Off - Off - 1920 x 1080 (FPS)	406.4	409.9	406.7
Normalized	99.15%	100%	99.22%
yquake2 - OpenGL 3.x - On - Off - 1920 x 1080 (FPS)	895.2	868.1	877.8
Normalized	100%	96.97%	98.06%
yquake2 - OpenGL ES 3.x - On - Off - 1920 x 1080 (FPS)	896.5	831.6	892.7
Normalized	100%	92.76%	99.58%
yquake2 - OpenGL ES 3.x - Off - Off - 1920 x 1080 (FPS)	967.8	888.9	929.4
Normalized	100%	91.85%	96.03%
yquake2 - OpenGL 3.x - Off - Off - 1920 x 1080 (FPS)	975.3	929.4	939.1
Normalized	100%	95.29%	96.29%

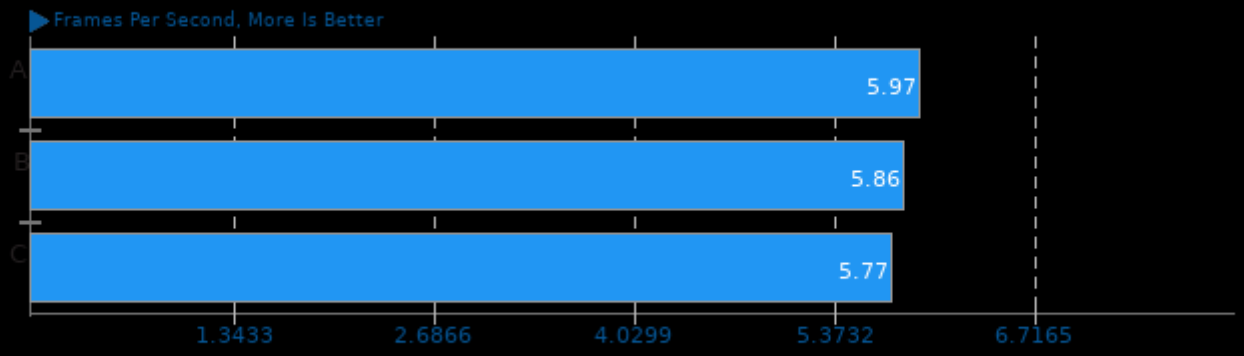
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AOM AV1 3.4
Encoder Mode: Speed 4 Two-Pass - Input: Bosphorus 4K
Frames Per Second, More Is Better
A
B
C
3.03
3.01
3.02
0.6818
1.3636
2.0454
2.7272
3.409
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm
AOM AV1 3.4
Encoder Mode: Speed 0 Two-Pass - Input: Bosphorus 4K
Frames Per Second, More Is Better
A
B
C
0.11
0.10
0.10
0.0248
0.0496
0.0744
0.0992
0.124
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm
AOM AV1 3.4
Encoder Mode: Speed 6 Two-Pass - Input: Bosphorus 4K
Frames Per Second, More Is Better
A
B
C
5.09
5.07
5.06
1.1453
2.2906
3.4359
4.5812
5.7265
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm

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AOM AV1 3.4

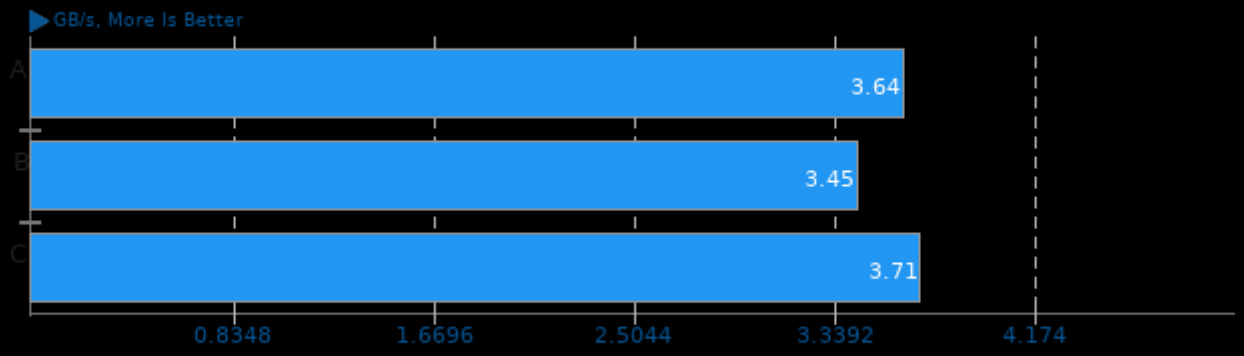
Encoder Mode: Speed 4 Two-Pass - Input: Bosphorus 1080p



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

simdjson 2.0

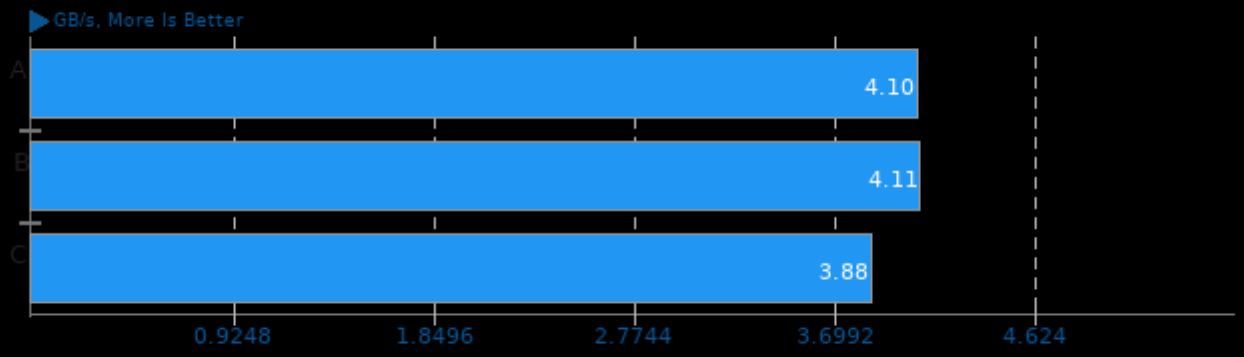
Throughput Test: PartialTweets



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

simdjson 2.0

Throughput Test: TopTweet

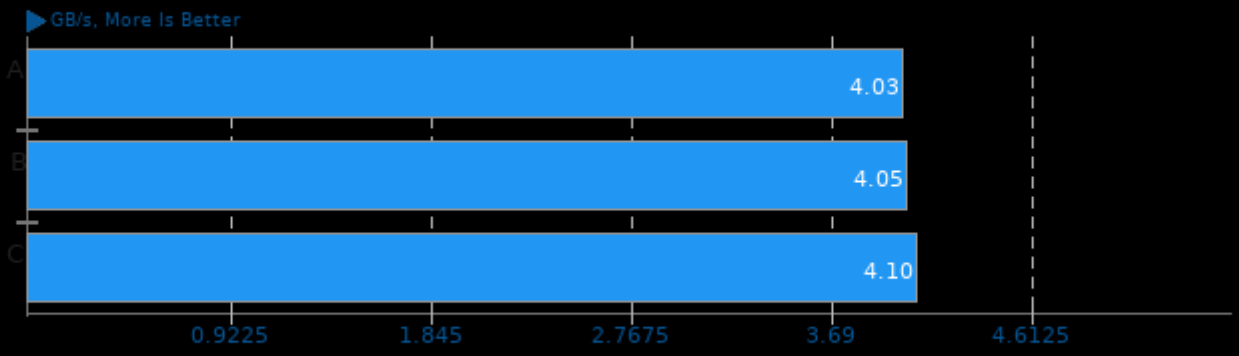


1. (CXX) g++ options: -O3

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simdjson 2.0

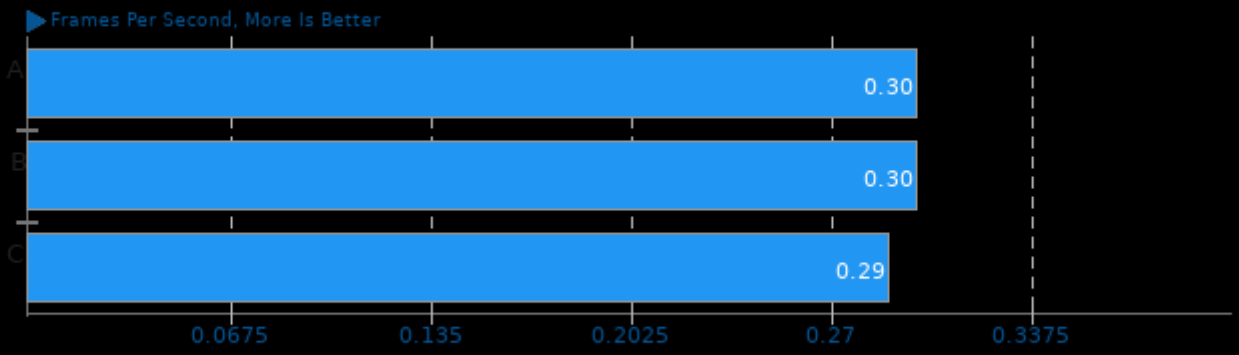
Throughput Test: DistinctUserID



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

AOM AV1 3.4

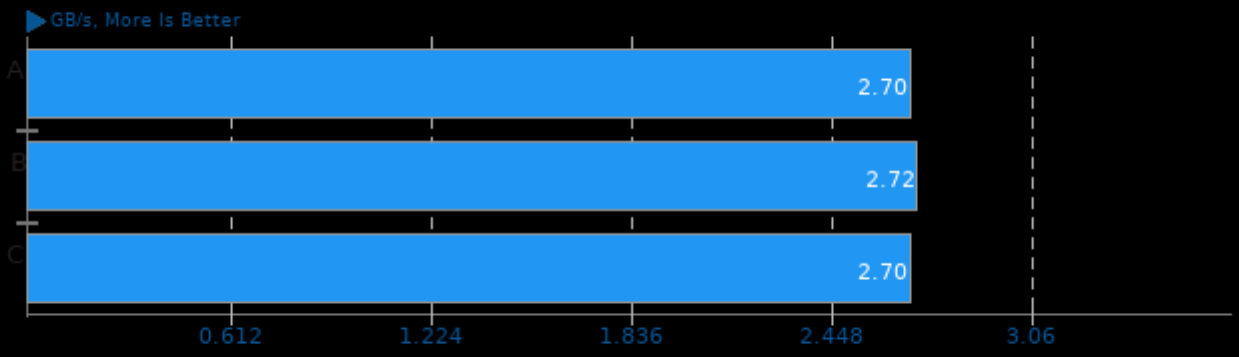
Encoder Mode: Speed 0 Two-Pass - Input: Bosphorus 1080p



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

simdjson 2.0

Throughput Test: Kostya

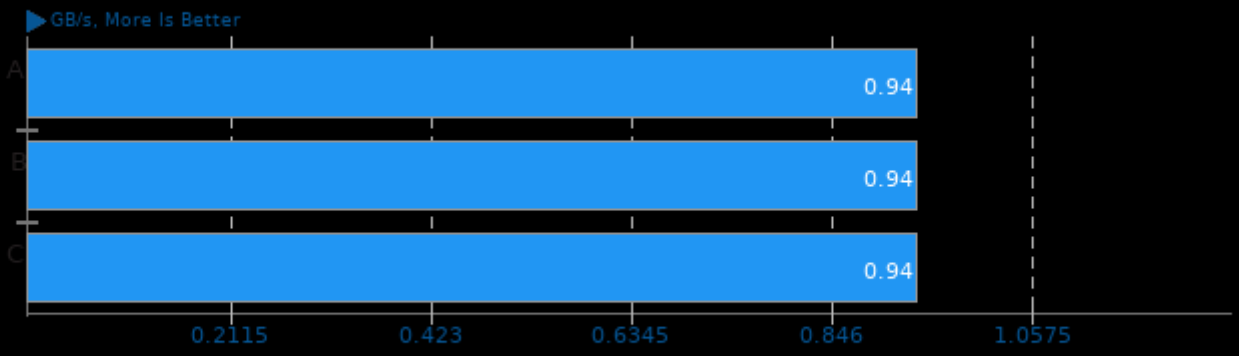


1. (CXX) g++ options: -O3

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simdjson 2.0

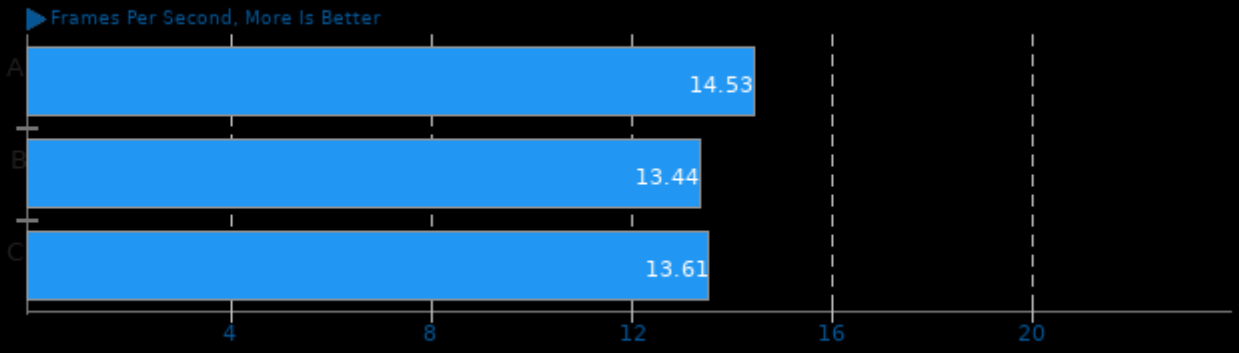
Throughput Test: LargeRandom



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

AOM AV1 3.4

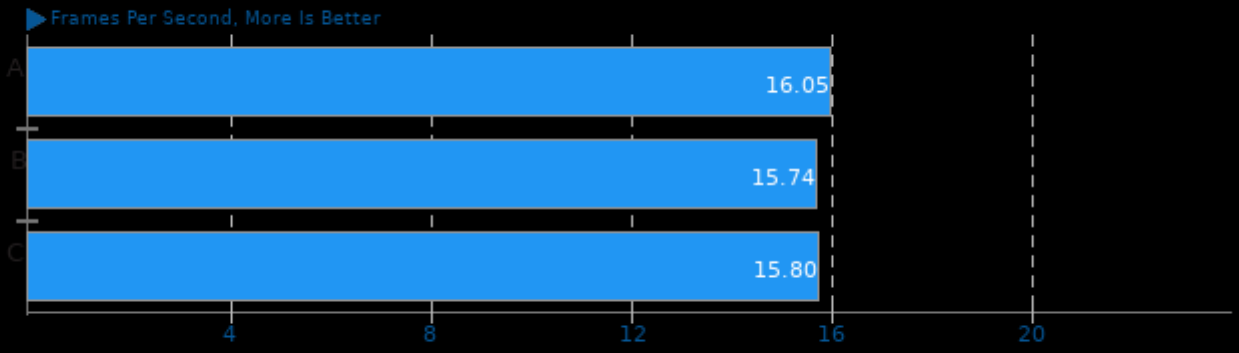
Encoder Mode: Speed 6 Two-Pass - Input: Bosphorus 1080p



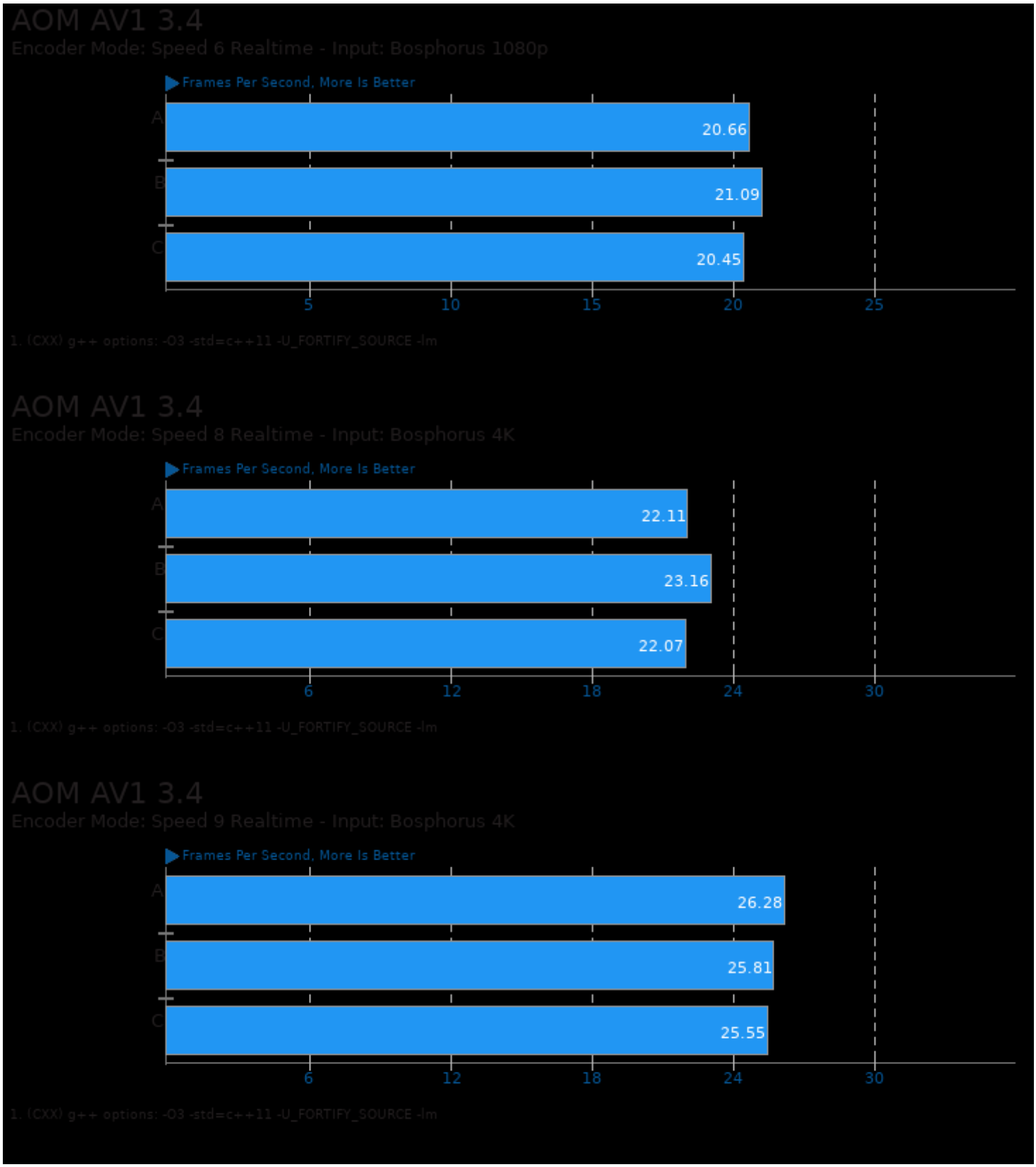
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm

AOM AV1 3.4

Encoder Mode: Speed 6 Realtime - Input: Bosphorus 4K



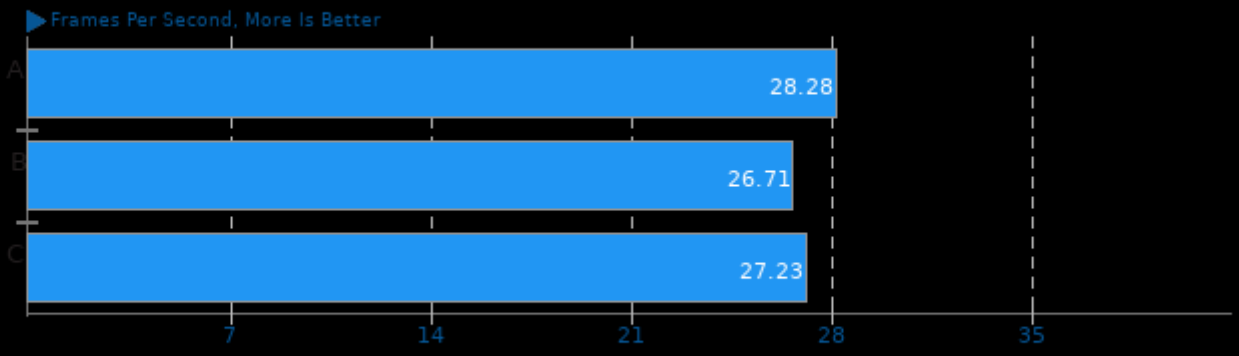
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm


AOM AV1 3.4
Encoder Mode: Speed 6 Realtime - Input: Bosphorus 1080p
Frames Per Second, More Is Better
A
B
C
20.66
21.09
20.45
5
10
15
20
25
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm
AOM AV1 3.4
Encoder Mode: Speed 8 Realtime - Input: Bosphorus 4K
Frames Per Second, More Is Better
A
B
C
22.11
23.16
22.07
6
12
18
24
30
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm
AOM AV1 3.4
Encoder Mode: Speed 9 Realtime - Input: Bosphorus 4K
Frames Per Second, More Is Better
A
B
C
26.28
25.81
25.55
6
12
18
24
30
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm

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AOM AV1 3.4

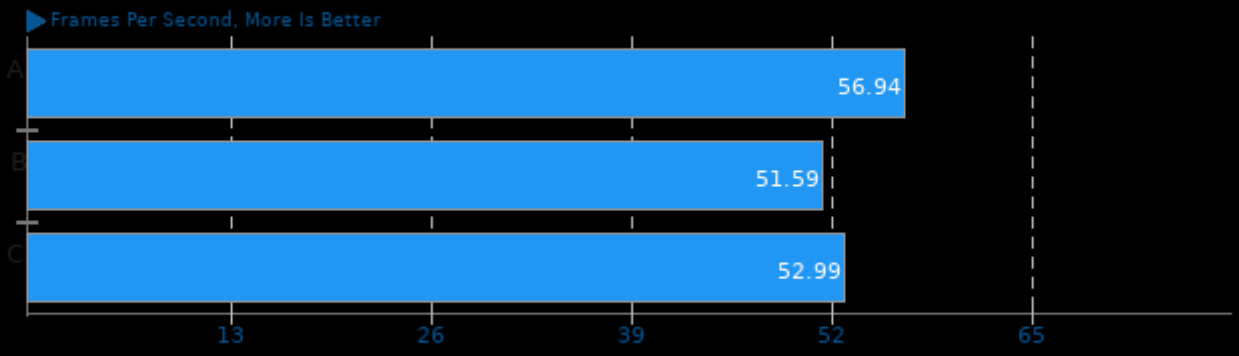
Encoder Mode: Speed 10 Realtime - Input: Bosphorus 4K



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

AOM AV1 3.4

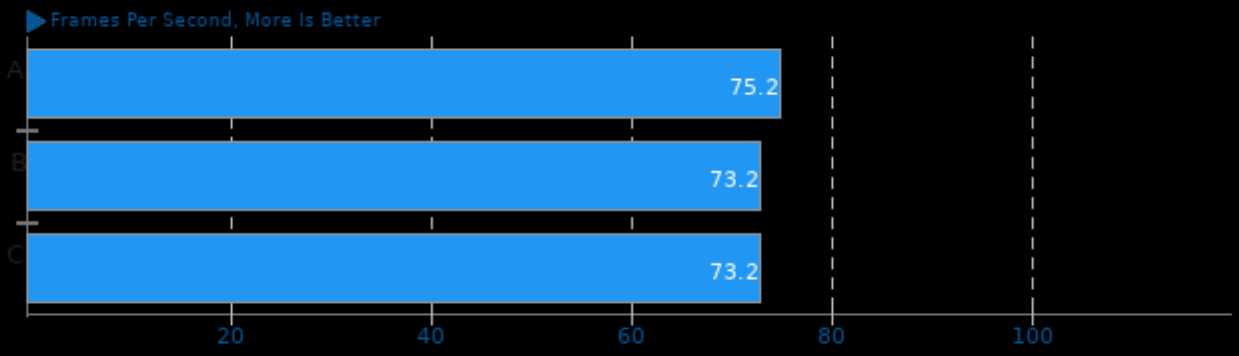
Encoder Mode: Speed 8 Realtime - Input: Bosphorus 1080p



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

yquake2 8.10

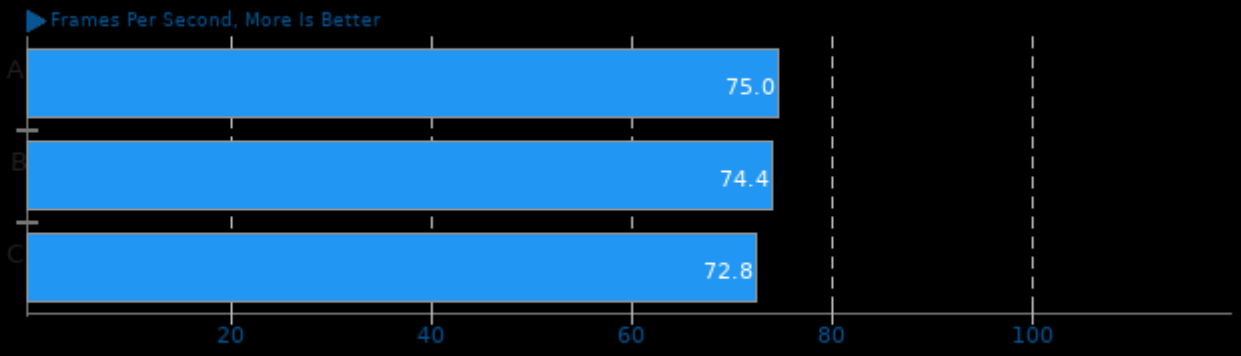
Renderer: Software CPU Color Light - AF: On - MSAA: Off - Resolution: 1920 x 1080



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

yquake2 8.10

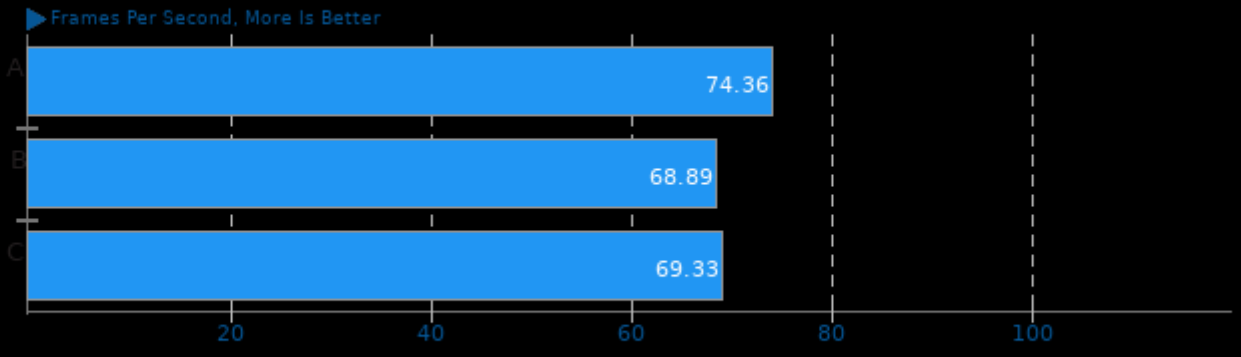
Renderer: Software CPU Color Light - AF: On - MSAA: On - Resolution: 1920 x 1080



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

AOM AV1 3.4

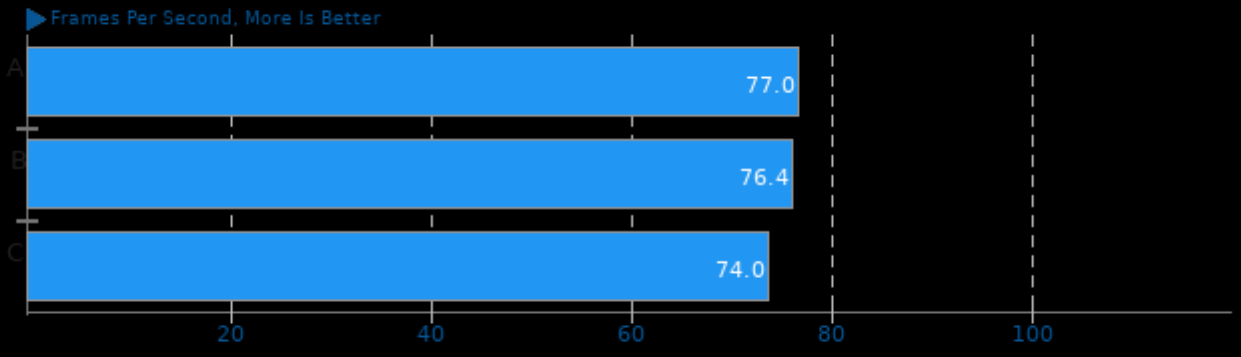
Encoder Mode: Speed 9 Realtime - Input: Bosphorus 1080p



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

yquake2 8.10

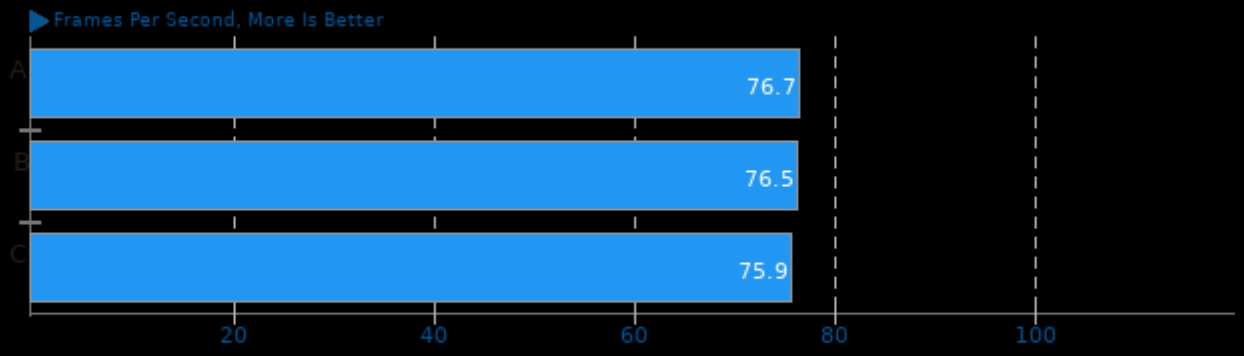
Renderer: Software CPU Color Light - AF: Off - MSAA: Off - Resolution: 1920 x 1080



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

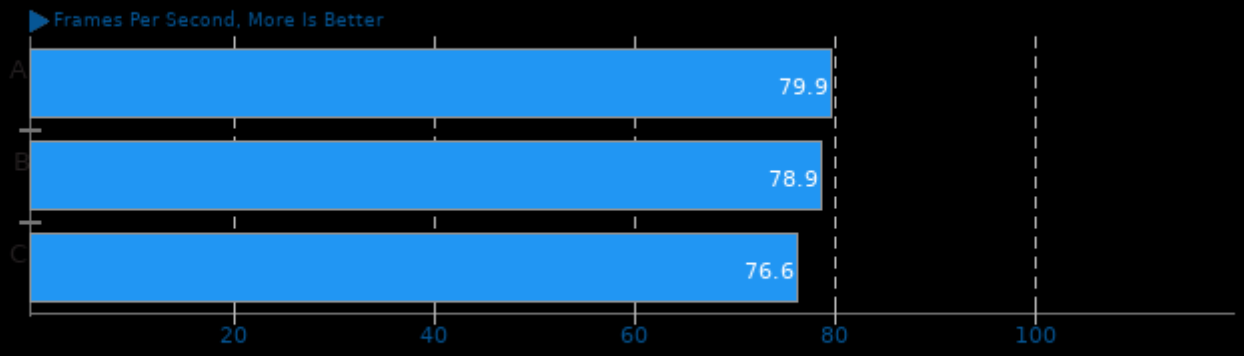
Renderer: Software CPU Color Light - AF: Off - MSAA: On - Resolution: 1920 x 1080



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

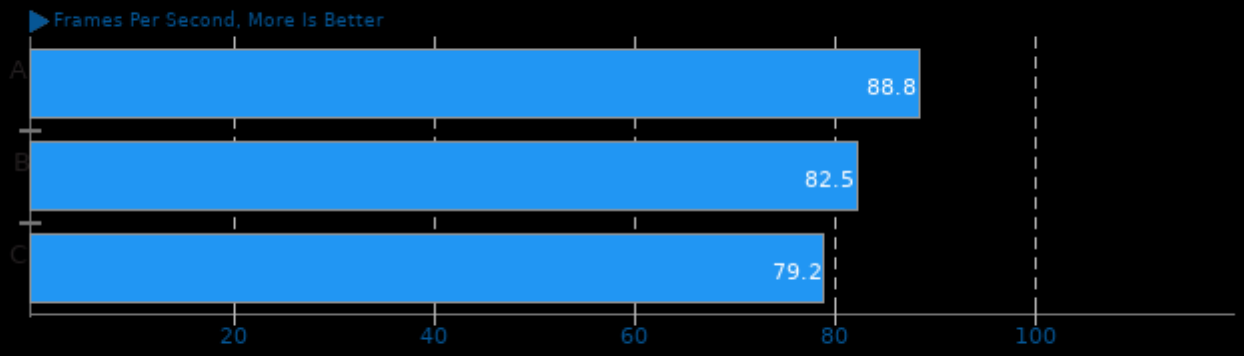
Renderer: Software CPU - AF: On - MSAA: On - Resolution: 1920 x 1080



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

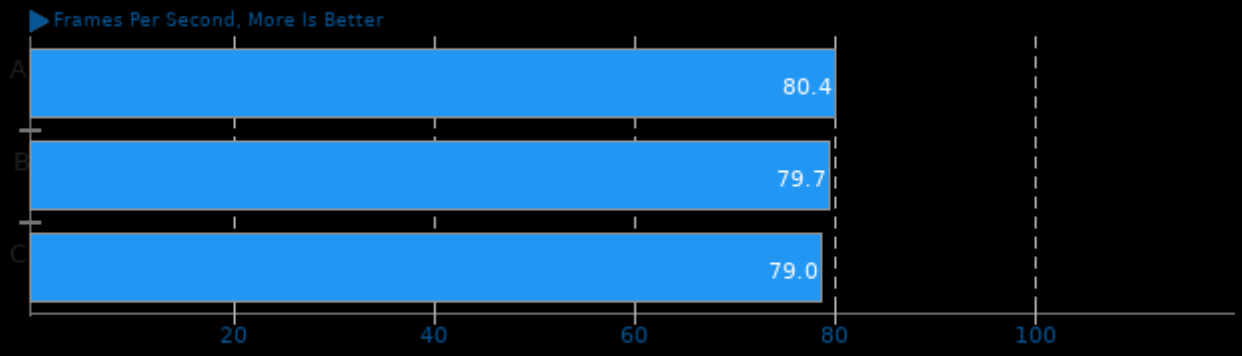
Renderer: Vulkan - AF: On - MSAA: On - Resolution: 1920 x 1080



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

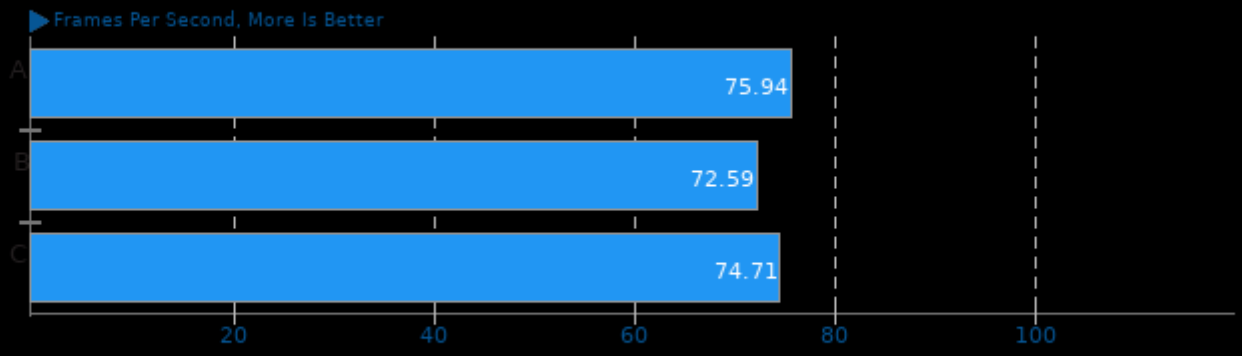
Renderer: Software CPU - AF: On - MSAA: Off - Resolution: 1920 x 1080



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

AOM AV1 3.4

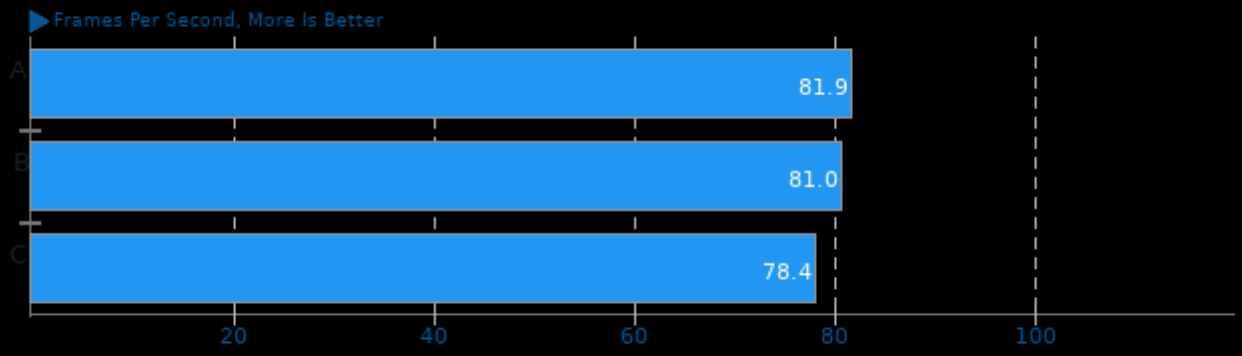
Encoder Mode: Speed 10 Realtime - Input: Bosphorus 1080p



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

yquake2 8.10

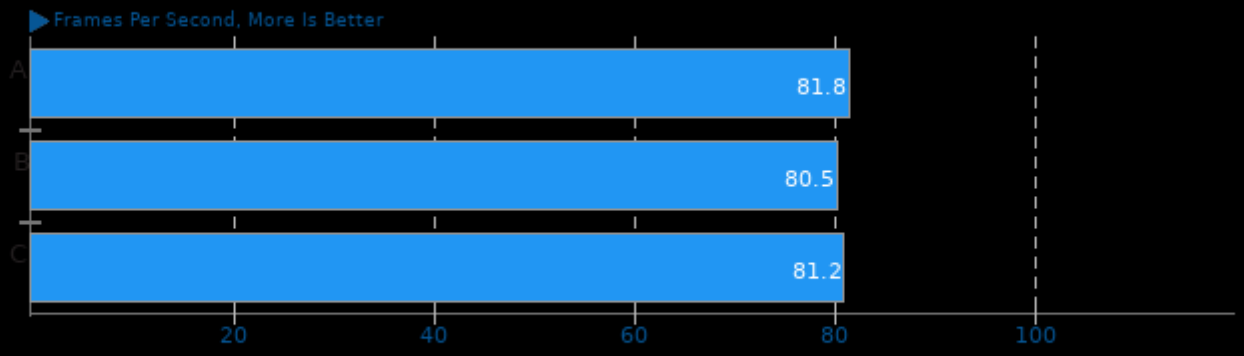
Renderer: Software CPU - AF: Off - MSAA: Off - Resolution: 1920 x 1080



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

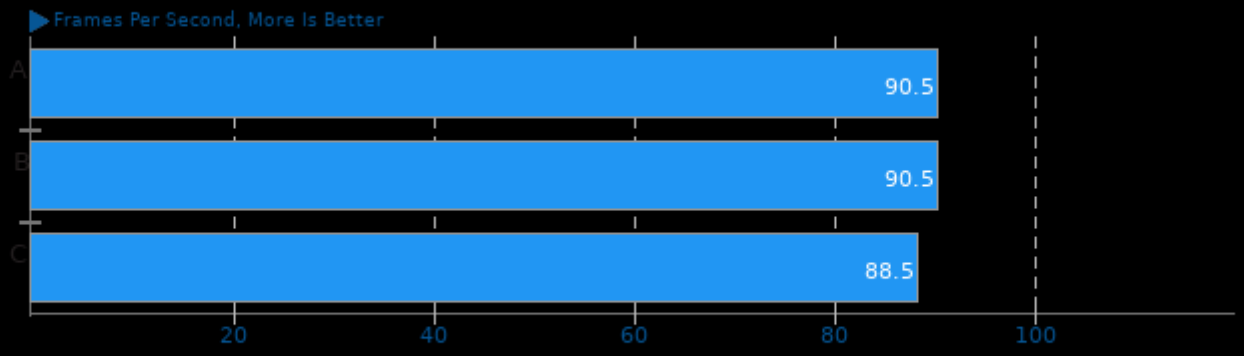
Renderer: Software CPU - AF: Off - MSAA: On - Resolution: 1920 x 1080



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

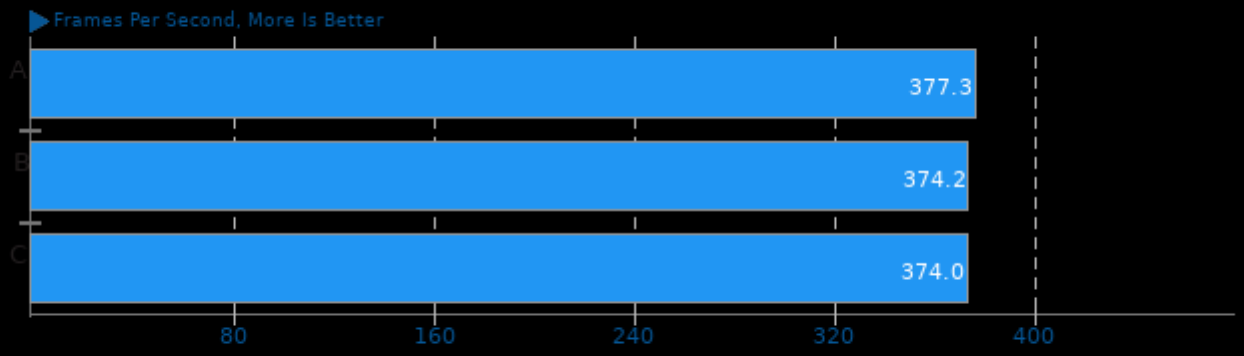
Renderer: Vulkan - AF: Off - MSAA: On - Resolution: 1920 x 1080



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

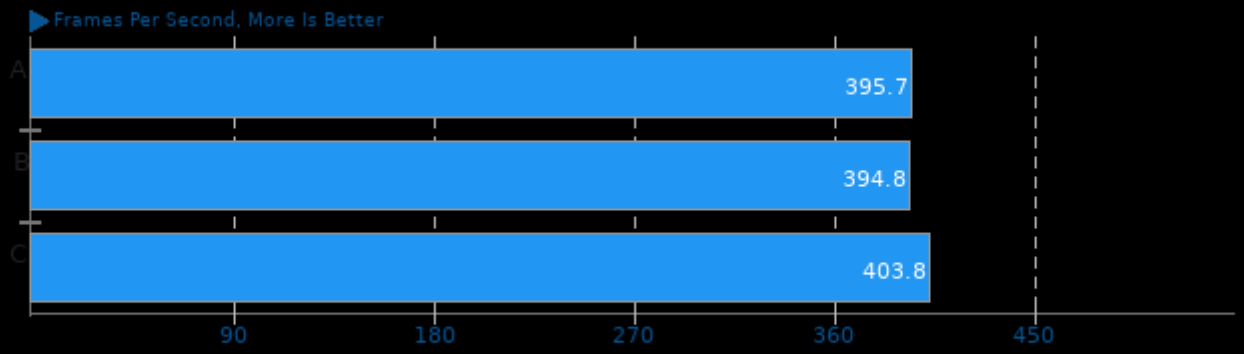
Renderer: OpenGL 3.x - AF: On - MSAA: On - Resolution: 1920 x 1080



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

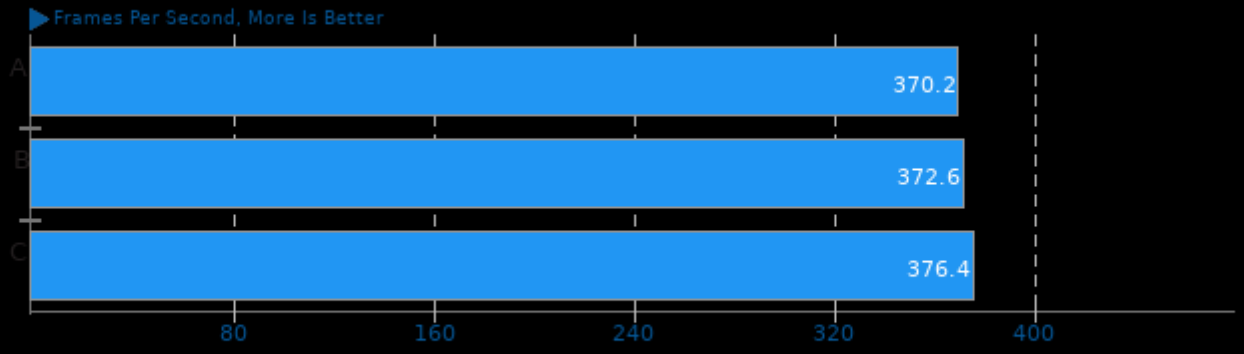
Renderer: Vulkan - AF: On - MSAA: Off - Resolution: 1920 x 1080



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

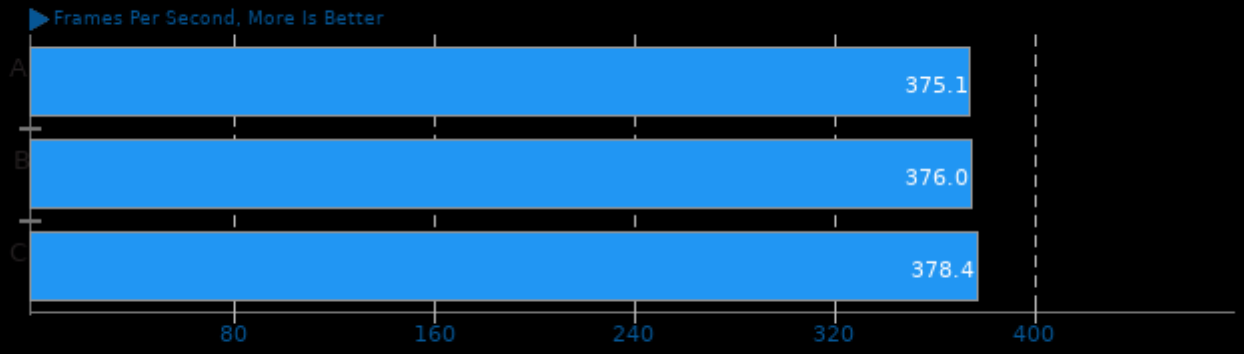
Renderer: OpenGL ES 3.x - AF: On - MSAA: On - Resolution: 1920 x 1080



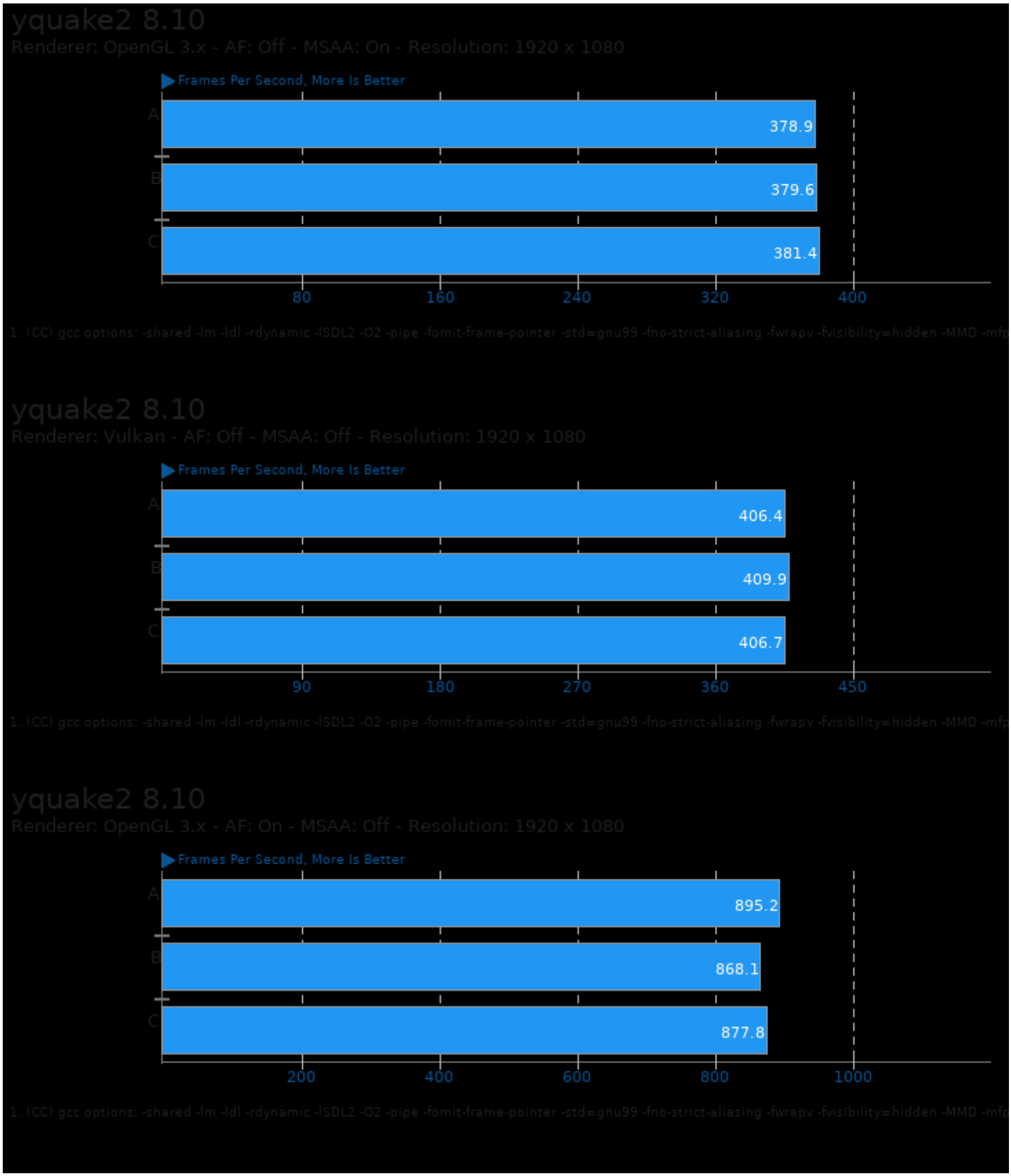
1. (CC) gcc options: -shared -lm -ldl -rdynamic -lSDL2 -O2 -pipe -fomit-frame-pointer -std=gnu99 -fno-strict-aliasing -fwrapv -fvisibility=hidden -MMD -mf

yquake2 8.10

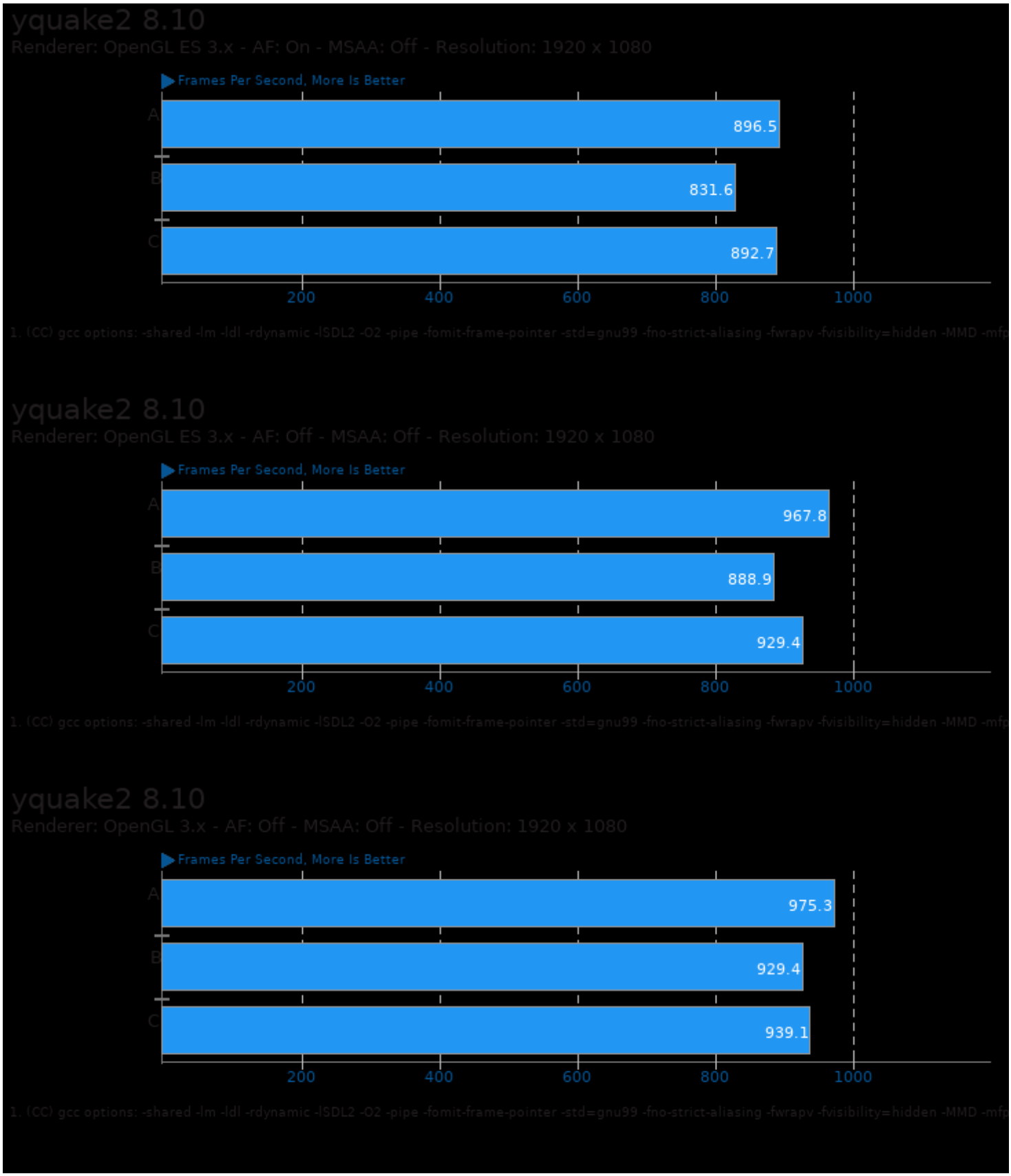
Renderer: OpenGL ES 3.x - AF: Off - MSAA: On - Resolution: 1920 x 1080



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 3.x - AF: Off - MSAA: On - Resolution: 1920 x 1080
Frames Per Second, More Is Better
A
B
C
378.9
379.6
381.4
80
160
240
320
400
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: Off - Resolution: 1920 x 1080
Frames Per Second, More Is Better
A
B
C
406.4
409.9
406.7
90
180
270
360
450
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: Off - Resolution: 1920 x 1080
Frames Per Second, More Is Better
A
B
C
895.2
868.1
877.8
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

4700u sat



This file was automatically generated via the Phoronix Test Suite benchmarking software on Thursday, 28 March 2024 11:08.