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Intel Core i5-13600K testing with a ASUS ROG STRIX Z690-E GAMING WIFI (2103 BIOS) and AMD Radeon RX 6800 XT 16GB on Ubuntu 22.04 via the Phoronix Test Suite.

Automated Executive Summary

A had the most wins, coming in first place for 52% of the tests.

Based on the geometric mean of all complete results, the fastest (B) was 1.008x the speed of the slowest (C). A was 0.999x the speed of B and C was 0.994x the speed of A.

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

OpenFOAM (Input: drivaerFastback, Small Mesh Size - Mesh Time) at 1.1x
AOM AV1 (Encoder Mode: Speed 6 Realtime - Input: Bosphorus 1080p) at 1.074x
AOM AV1 (Encoder Mode: Speed 0 Two-Pass - Input: Bosphorus 4K) at 1.067x
OpenRadioss (Model: Cell Phone Drop Test) at 1.052x
OpenRadioss (Model: Bumper Beam) at 1.04x
OpenFOAM (Input: motorBike - Mesh Time) at 1.039x
OpenRadioss (Model: Rubber O-Ring Seal Installation) at 1.035x
OpenRadioss (Model: Bird Strike on Windshield) at 1.035x
AOM AV1 (Encoder Mode: Speed 10 Realtime - Input: Bosphorus 1080p) at 1.031x

Timed CPython Compilation (Build Configuration: Default) at 1.025x.

Test Systems:

A

B

C

Processor: Intel Core i5-13600K @ 3.80GHz (14 Cores / 20 Threads), Motherboard: ASUS ROG STRIX Z690-E GAMING WIFI (2103 BIOS), Chipset: Intel Device 7aa7, Memory: 32GB, Disk: 2000GB Samsung SSD 980 PRO 2TB + 2000GB, Graphics: AMD Radeon RX 6800 XT 16GB (2575/1000MHz), Audio: Intel Device 7ad0, Monitor: ASUS VP28U, Network: Intel I225-V + Intel Wi-Fi 6 AX210/AX211/AX411

OS: Ubuntu 22.04, Kernel: 6.0.0-060000rc1daily20220820-generic (x86_64), Desktop: GNOME Shell 42.2, Display Server: X Server 1.21.1.3 + Wayland, OpenGL: 4.6 Mesa 22.3.0-devel (git-4685385 2022-08-23 jammy-oibaf-ppa) (LLVM 14.0.6 DRM 3.48), Vulkan: 1.3.224, Compiler: GCC 12.0.1 20220319, File-System: ext4, Screen Resolution: 3840x2160

Kernel Notes: Transparent Huge Pages: madvise
Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-cet --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,d,fortran,objc,obj-c++,m2 --enable-libphobos-checking=release --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-defaulted --enable-offload-targets=nvptx-none=/build/gcc-12-OcsLtf/gcc-12-12-20220319/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-12-OcsLtf/gcc-12-12-20220319/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-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 (EPP: balance_performance) - CPU Microcode: 0x10e
Python Notes: Python 3.10.4
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + mmio_stale_data: Not affected + retbleed: 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 Enhanced IBRS IBPB: conditional RSB filling PBRSB-eIBRS: SW sequence + srbds: Not affected + tsx_async_abort: Not affected

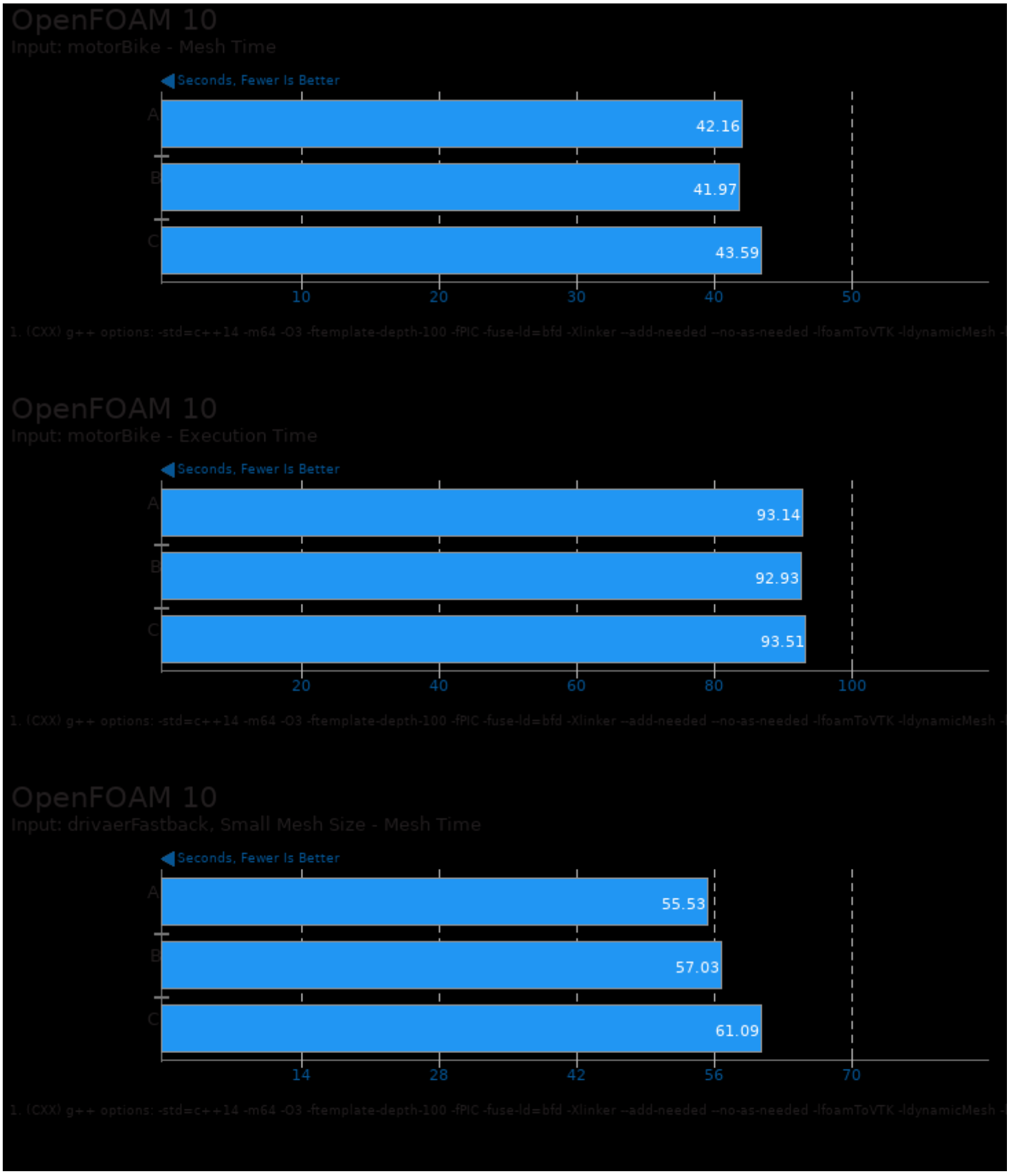
	A	B	C
OpenFOAM - motorBike - Mesh Time (sec)	42.1646	**41.9685**	**43.5913**
Normalized	99.53%	100%	96.28%
OpenFOAM - motorBike - Execution Time	93.1407	**92.9345**	**93.5074**
Normalized	99.78%	100%	99.39%
OpenFOAM - d.S.M.S - Mesh Time (sec)	**55.533361**	57.033015	**61.089575**
Normalized	100%	97.37%	90.9%
OpenFOAM - d.S.M.S - Execution Time (sec)	**315.60241**	314.94023	**314.8216**
Normalized	99.75%	99.96%	100%
OpenRadioss - Bumper Beam (sec)	**248.89**	**258.75**	252.39
Normalized	100%	96.19%	98.61%
OpenRadioss - C.P.D.T (sec)	184.78	**180.44**	**189.79**
Normalized	97.65%	100%	95.07%

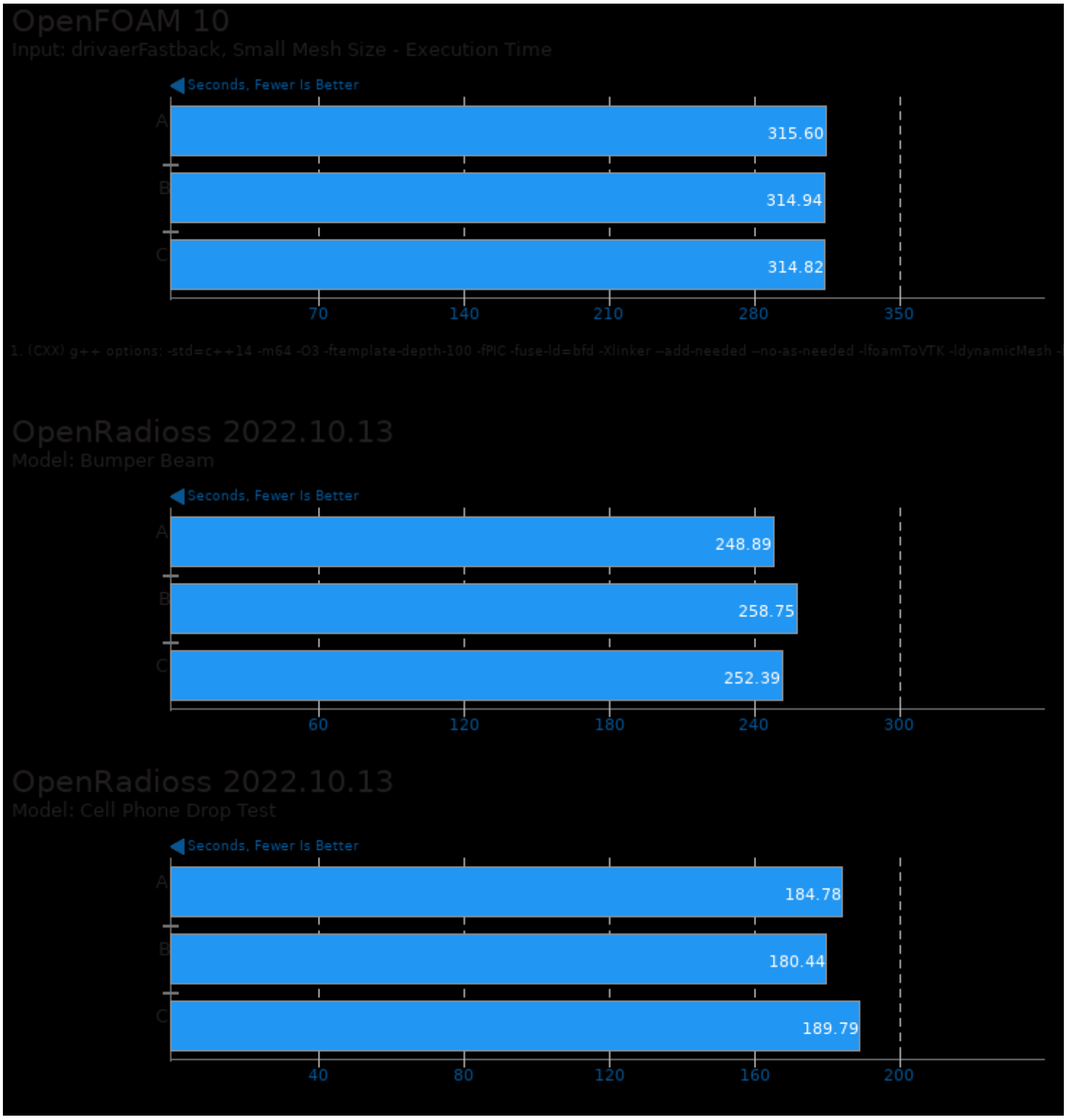
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OpenRadioss - B.S.o.W (sec)	**434.49**	**419.87**	425.77
Normalized	96.64%	100%	98.61%
OpenRadioss - R.O.R.S.I (sec)	305.02	**312.64**	**301.96**
Normalized	99%	96.58%	100%
OpenRadioss - I.a.F.S.I.D.C (sec)	833.48	**829.14**	**836.67**
Normalized	99.48%	100%	99.1%
QuadRay - 1 - 4K (FPS)	**4.56**	**4.54**	4.55
Normalized	100%	99.56%	99.78%
QuadRay - 2 - 4K (FPS)	**1.31**	**1.3**	**1.3**
Normalized	100%	99.24%	99.24%
QuadRay - 3 - 4K (FPS)	**1.09**	**1.08**	**1.08**
Normalized	100%	99.08%	99.08%
QuadRay - 5 - 4K (FPS)	0.33	0.33	0.33
QuadRay - 1 - 1080p (FPS)	**17.73**	**17.73**	**17.72**
Normalized	100%	100%	99.94%
QuadRay - 2 - 1080p (FPS)	5.09	5.09	5.09
QuadRay - 3 - 1080p (FPS)	**4.25**	**4.24**	**4.25**
Normalized	100%	99.76%	100%
QuadRay - 5 - 1080p (FPS)	**1.36**	**1.34**	**1.36**
Normalized	100%	98.53%	100%
AOM AV1 - Speed 0 Two-Pass - Bosphorus 4K (FPS)	**0.16**	**0.16**	**0.15**
Normalized	100%	100%	93.75%
AOM AV1 - Speed 4 Two-Pass - Bosphorus 4K (FPS)	**5.5**	5.48	**5.45**
Normalized	100%	99.64%	99.09%
AOM AV1 - Speed 6 Realtime - Bosphorus 4K (FPS)	**27.67**	**27.81**	27.73
Normalized	99.5%	100%	99.71%
AOM AV1 - Speed 6 Two-Pass - Bosphorus 4K (FPS)	**10.38**	10.36	**10.21**
Normalized	100%	99.81%	98.36%
AOM AV1 - Speed 8 Realtime - Bosphorus 4K (FPS)	**46.58**	**47**	46.72
Normalized	99.11%	100%	99.4%
AOM AV1 - Speed 9 Realtime - Bosphorus 4K (FPS)	**68.3**	**68.94**	68.42
Normalized	99.07%	100%	99.25%
AOM AV1 - Speed 10 Realtime - Bosphorus 4K (FPS)	**70.55**	**70.78**	70.75
Normalized	99.68%	100%	99.96%
AOM AV1 - Speed 0 Two-Pass - Bosphorus 1080p (FPS)	0.48	0.48	0.48
AOM AV1 - Speed 4 Two-Pass - Bosphorus 1080p (FPS)	14	**14.01**	**13.98**
Normalized	99.93%	100%	99.79%
AOM AV1 - Speed 6 Realtime - Bosphorus 1080p (FPS)	56.36	**60.14**	**56.01**
Normalized	93.71%	100%	93.13%

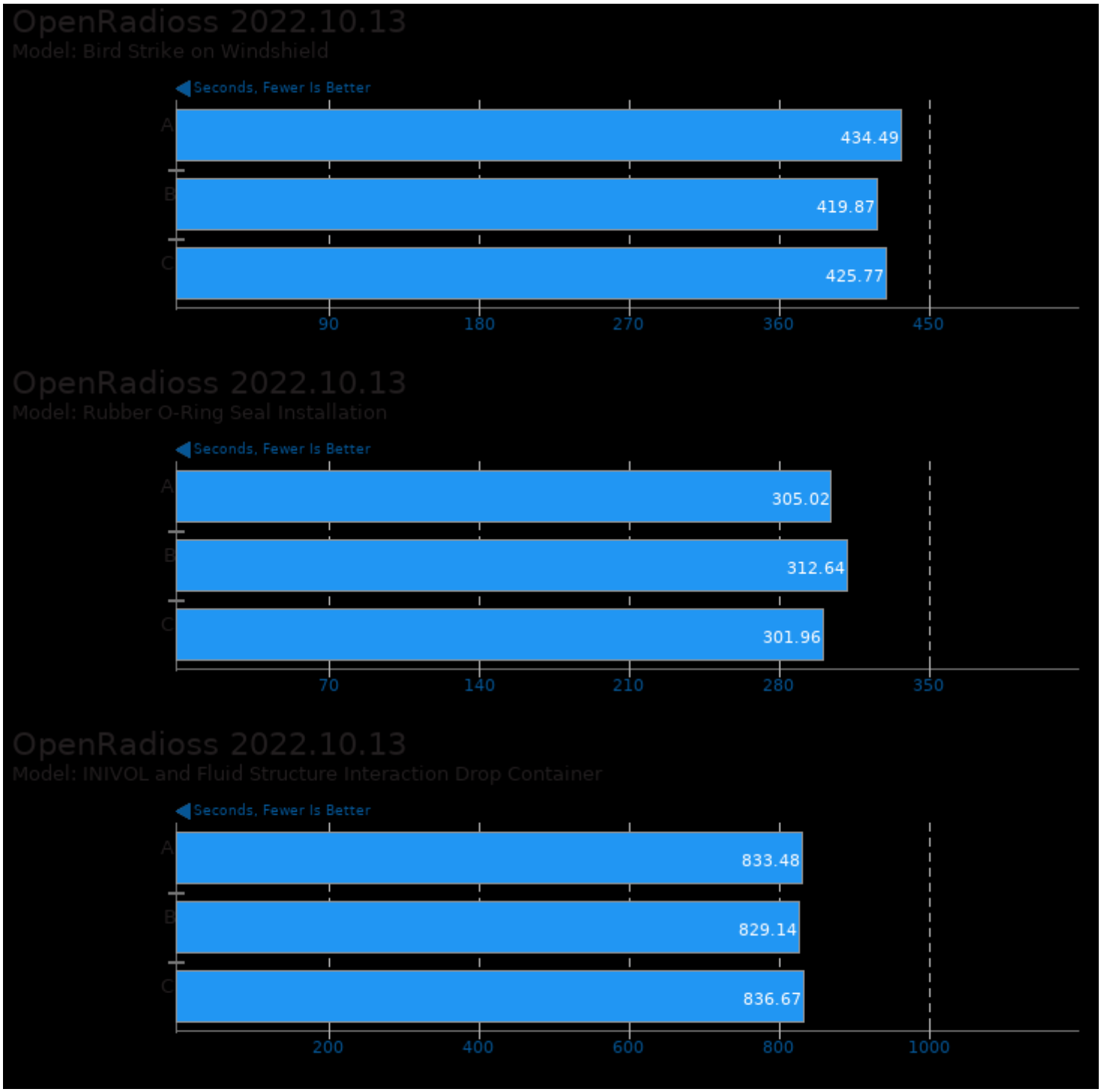
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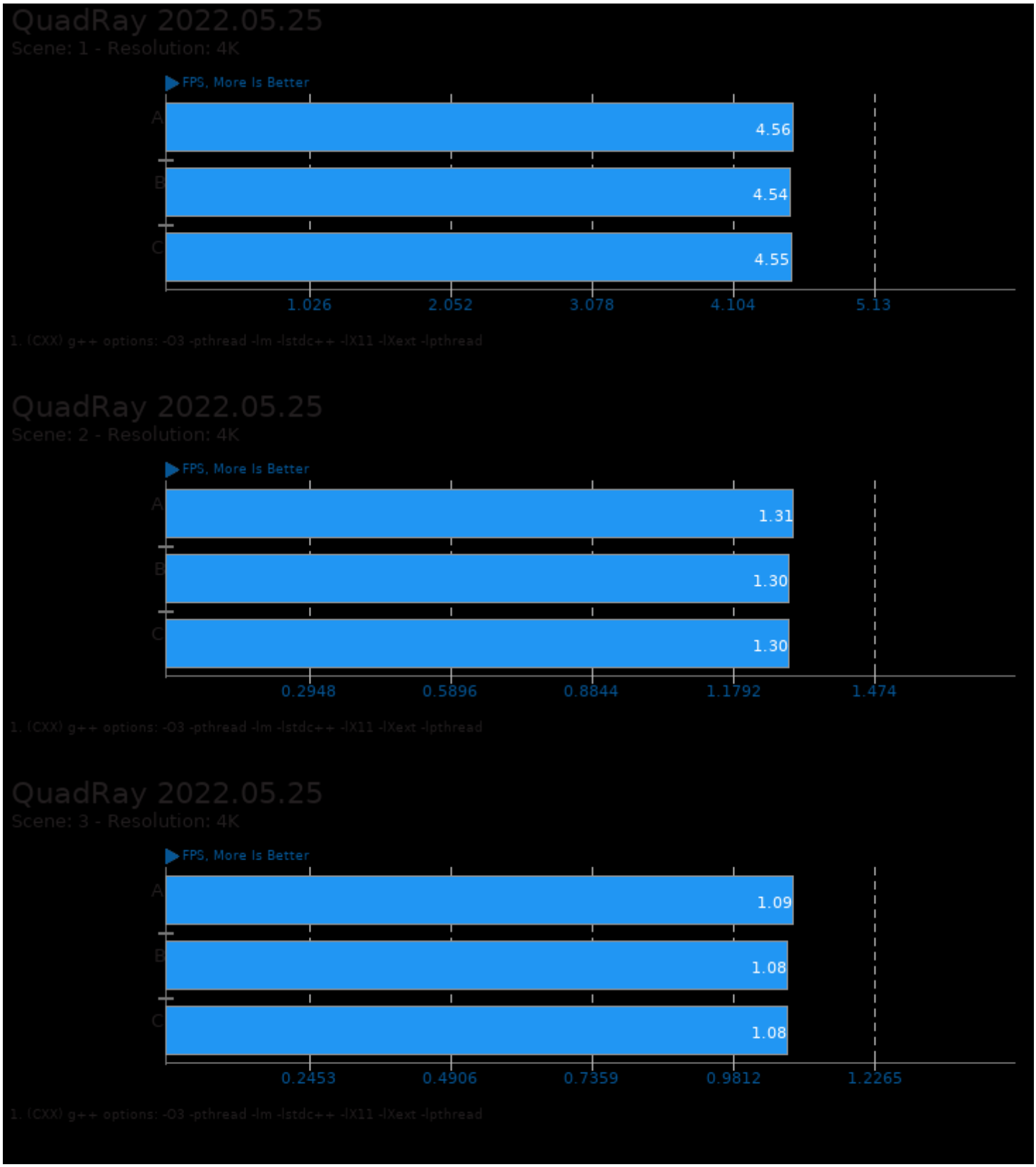
AOM AV1 - Speed 6 Two-Pass - Bosphorus 1080p (FPS)	33.71	33.79	33.66
Normalized	99.76%	100%	99.62%
AOM AV1 - Speed 8 Realtime - Bosphorus 1080p (FPS)	128.5	127.15	126.7
Normalized	100%	98.95%	98.6%
AOM AV1 - Speed 9 Realtime - Bosphorus 1080p (FPS)	148.37	148.97	148.54
Normalized	99.6%	100%	99.71%
AOM AV1 - Speed 10 Realtime - Bosphorus 1080p (FPS)	155.21	159.98	157.48
Normalized	97.02%	100%	98.44%
7-Zip Compression - Compression Rating (MIPS)	78284	77878	78176
Normalized	100%	99.48%	99.86%
7-Zip Compression - D.R (MIPS)	46933	46577	46659
Normalized	100%	99.24%	99.42%
Timed Linux Kernel Compilation - defconfig (sec)	115.624	115.778	115.724
Normalized	100%	99.87%	99.91%
Timed CPython Compilation - Default (sec)	21.565	21.116	21.036
Normalized	97.55%	99.62%	100%
Timed CPython Compilation - R.B.P.L.O	218.197	217.503	217.354
Normalized	99.61%	99.93%	100%
spaCy - en_core_web_lg (tokens/sec)	18597	18545	18583
Normalized	100%	99.72%	99.92%
spaCy - en_core_web_trf (tokens/sec)	1184	1177	1173
Normalized	100%	99.41%	99.07%


OpenFOAM 10
Input: motorBike - Mesh Time
Seconds, Fewer Is Better
A
B
C
42.16
41.97
43.59
10
20
30
40
50
1. (CXX) g++ options: -std=c++14 -m64 -O3 -ftemplate-depth-100 -fPIC -fuse-ld=bfd -Xlinker --add-needed --no-as-needed -lfoamToVTK -ldynamicMesh
OpenFOAM 10
Input: motorBike - Execution Time
Seconds, Fewer Is Better
A
B
C
93.14
92.93
93.51
20
40
60
80
100
1. (CXX) g++ options: -std=c++14 -m64 -O3 -ftemplate-depth-100 -fPIC -fuse-ld=bfd -Xlinker --add-needed --no-as-needed -lfoamToVTK -ldynamicMesh
OpenFOAM 10
Input: drivaerFastback, Small Mesh Size - Mesh Time
Seconds, Fewer Is Better
A
B
C
55.53
57.03
61.09
14
28
42
56
70
1. (CXX) g++ options: -std=c++14 -m64 -O3 -ftemplate-depth-100 -fPIC -fuse-ld=bfd -Xlinker --add-needed --no-as-needed -lfoamToVTK -ldynamicMesh

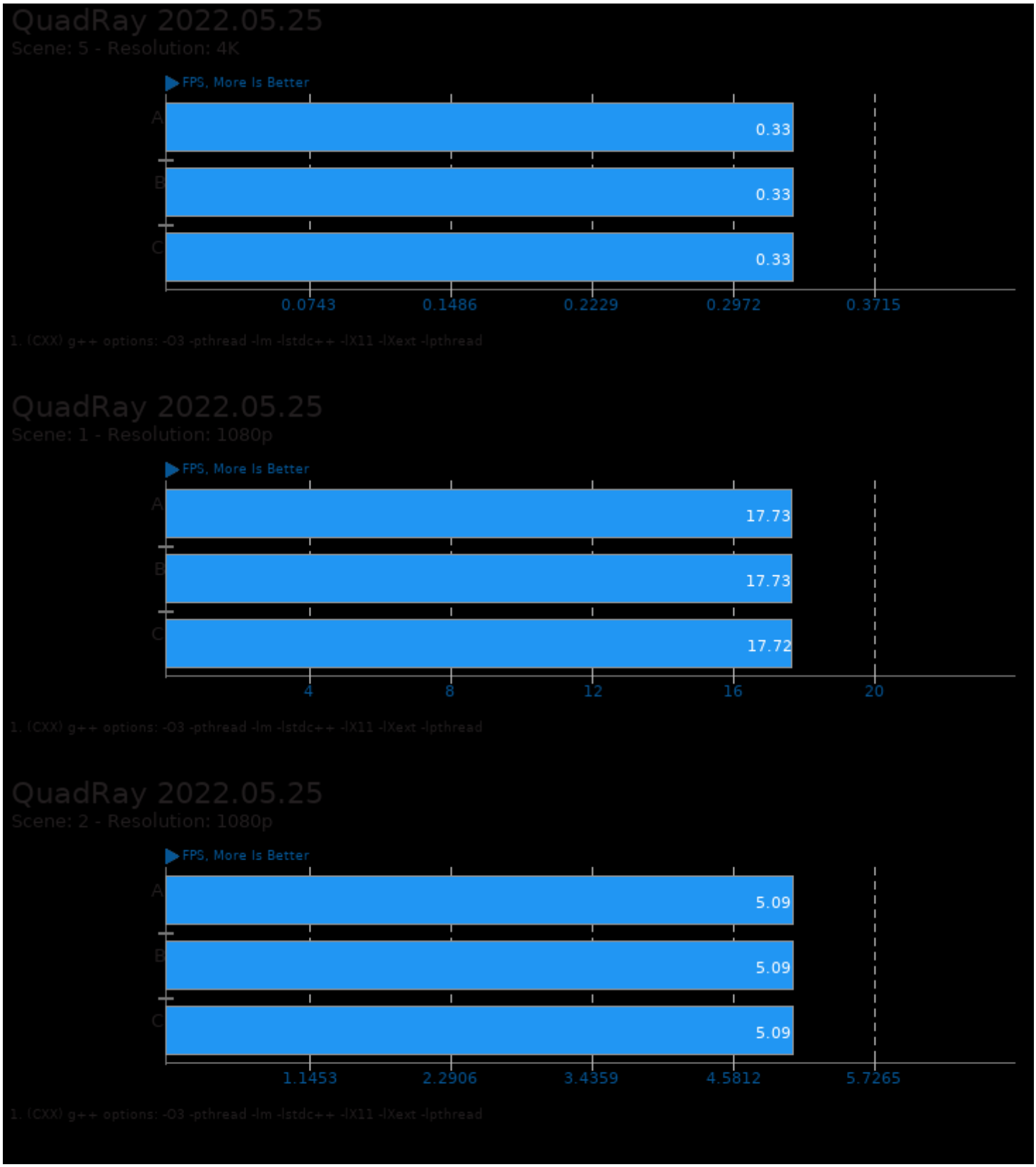

OpenFOAM 10
Input: drivaerFastback, Small Mesh Size - Execution Time
Seconds, Fewer Is Better
A
B
C
315.60
314.94
314.82
70
140
210
280
350
1. (CXX) g++ options: -std=c++14 -m64 -O3 -ftemplate-depth-100 -fPIC -fuse-ld=bfd -Xlinker --add-needed --no-as-needed -lfoamToVTK -ldynamicMesh
OpenRadioss 2022.10.13
Model: Bumper Beam
Seconds, Fewer Is Better
A
B
C
248.89
258.75
252.39
60
120
180
240
300
OpenRadioss 2022.10.13
Model: Cell Phone Drop Test
Seconds, Fewer Is Better
A
B
C
184.78
180.44
189.79
40
80
120
160
200

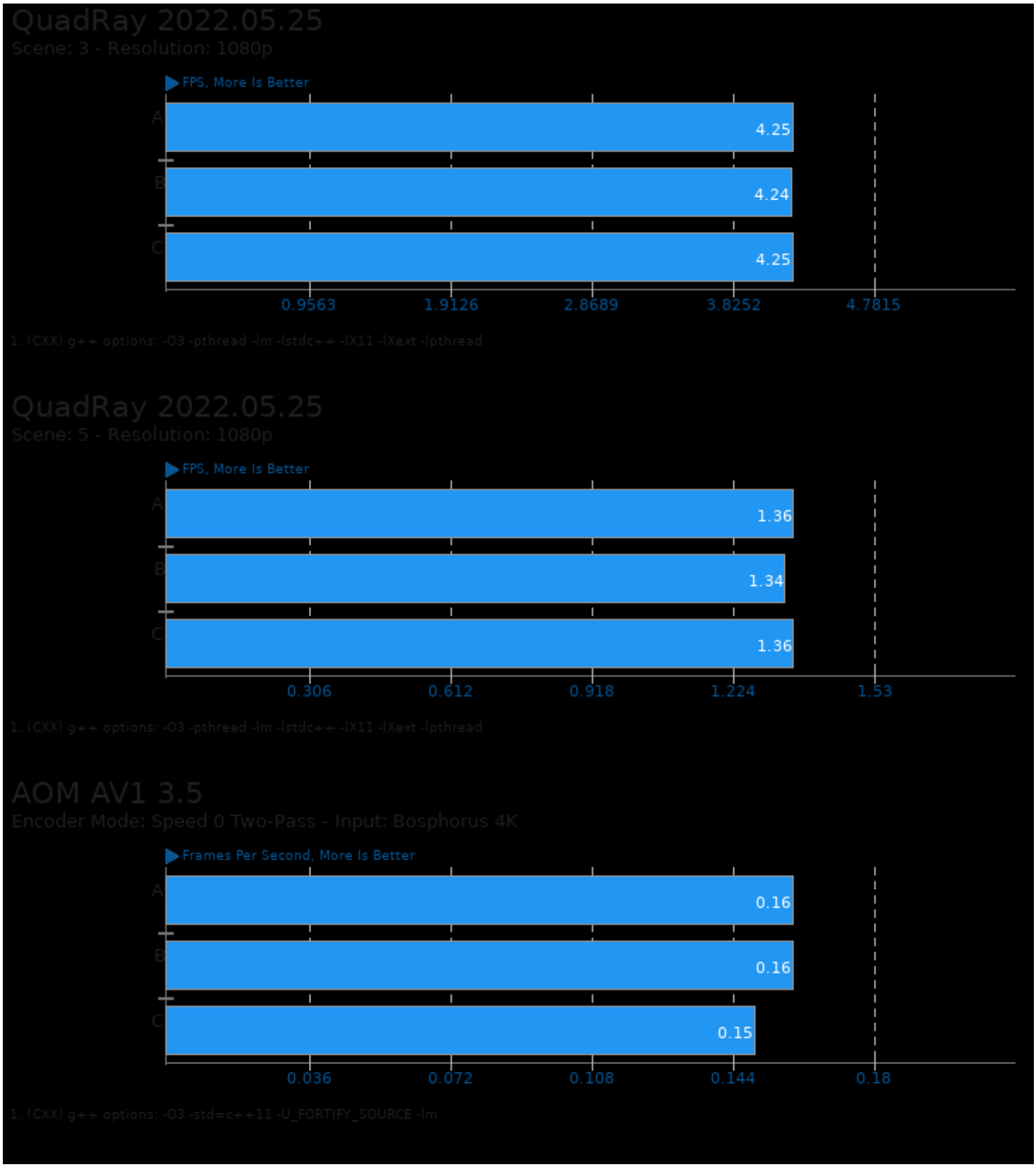
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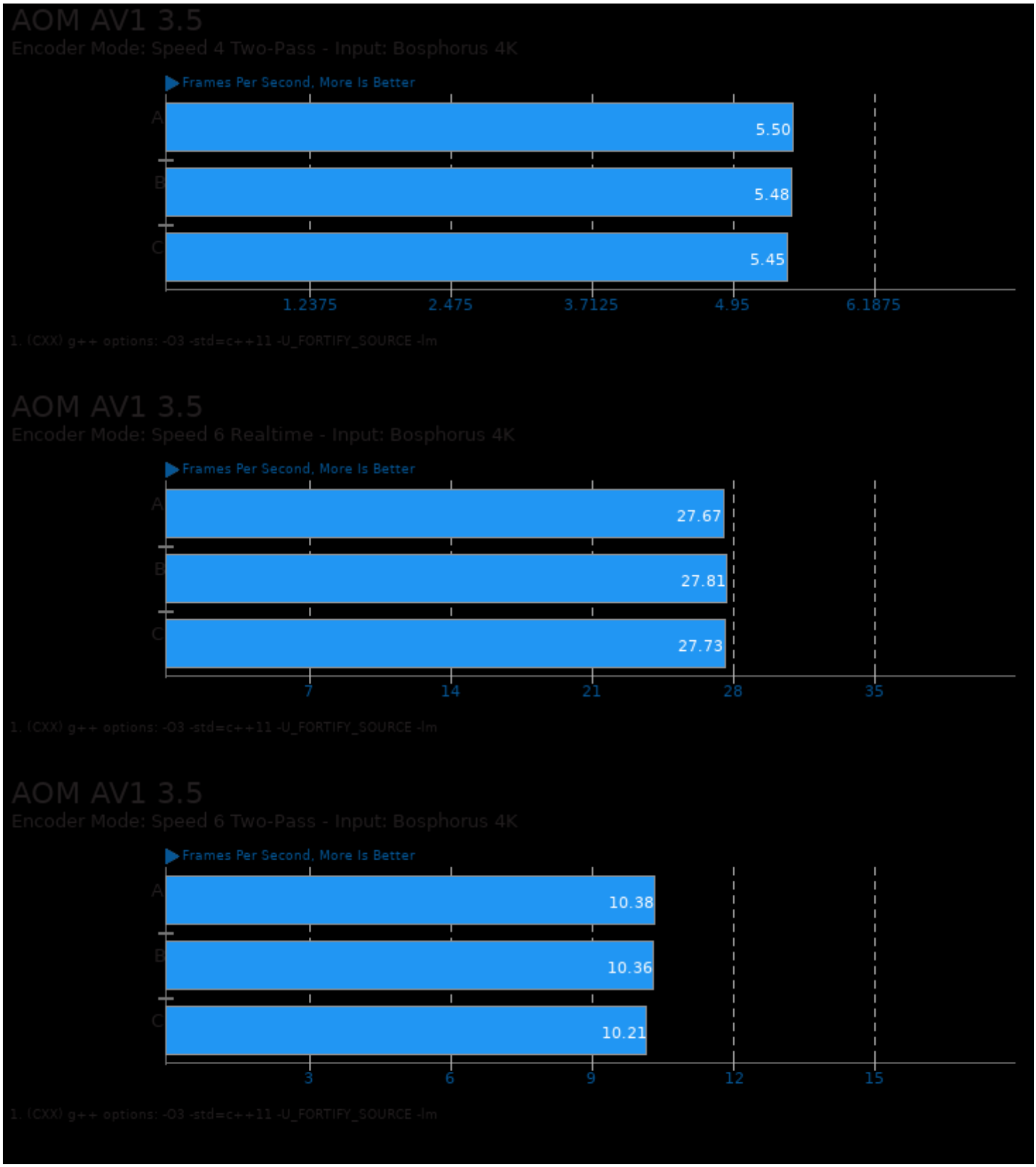

OpenRadioss 2022.10.13
Model: Bird Strike on Windshield
Seconds, Fewer Is Better
A
B
C
434.49
419.87
425.77
90
180
270
360
450
OpenRadioss 2022.10.13
Model: Rubber O-Ring Seal Installation
Seconds, Fewer Is Better
A
B
C
305.02
312.64
301.96
70
140
210
280
350
OpenRadioss 2022.10.13
Model: INIVOL and Fluid Structure Interaction Drop Container
Seconds, Fewer Is Better
A
B
C
833.48
829.14
836.67
200
400
600
800
1000

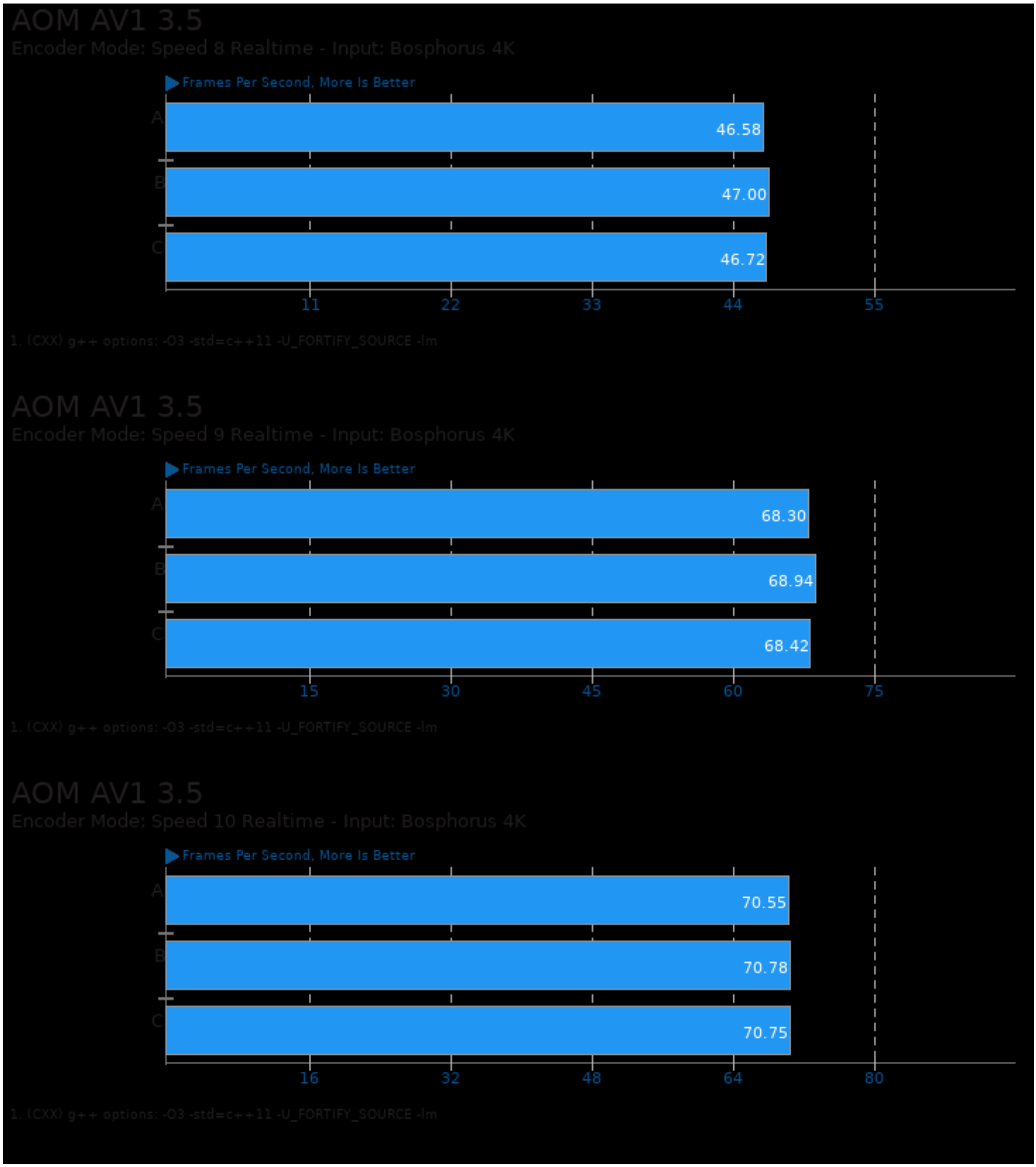

QuadRay 2022.05.25
Scene: 1 - Resolution: 4K
FPS, More Is Better
A
B
C
4.56
4.54
4.55
1.026
2.052
3.078
4.104
5.13
1. (CXX) g++ options: -O3 -pthread -lm -lstdc++ -lX11 -lXext -lpthread
QuadRay 2022.05.25
Scene: 2 - Resolution: 4K
FPS, More Is Better
A
B
C
1.31
1.30
1.30
0.2948
0.5896
0.8844
1.1792
1.474
1. (CXX) g++ options: -O3 -pthread -lm -lstdc++ -lX11 -lXext -lpthread
QuadRay 2022.05.25
Scene: 3 - Resolution: 4K
FPS, More Is Better
A
B
C
1.09
1.08
1.08
0.2453
0.4906
0.7359
0.9812
1.2265
1. (CXX) g++ options: -O3 -pthread -lm -lstdc++ -lX11 -lXext -lpthread

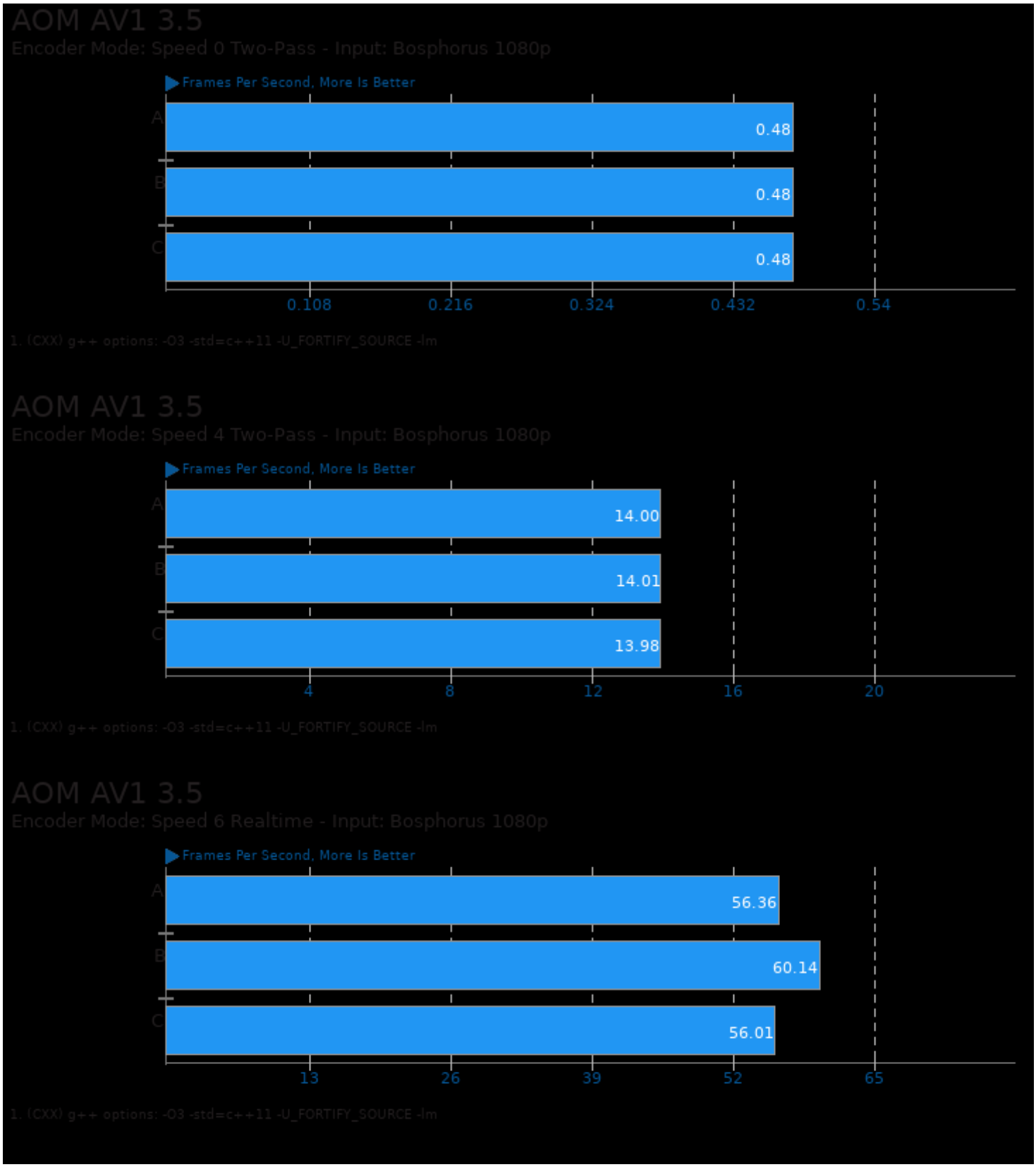
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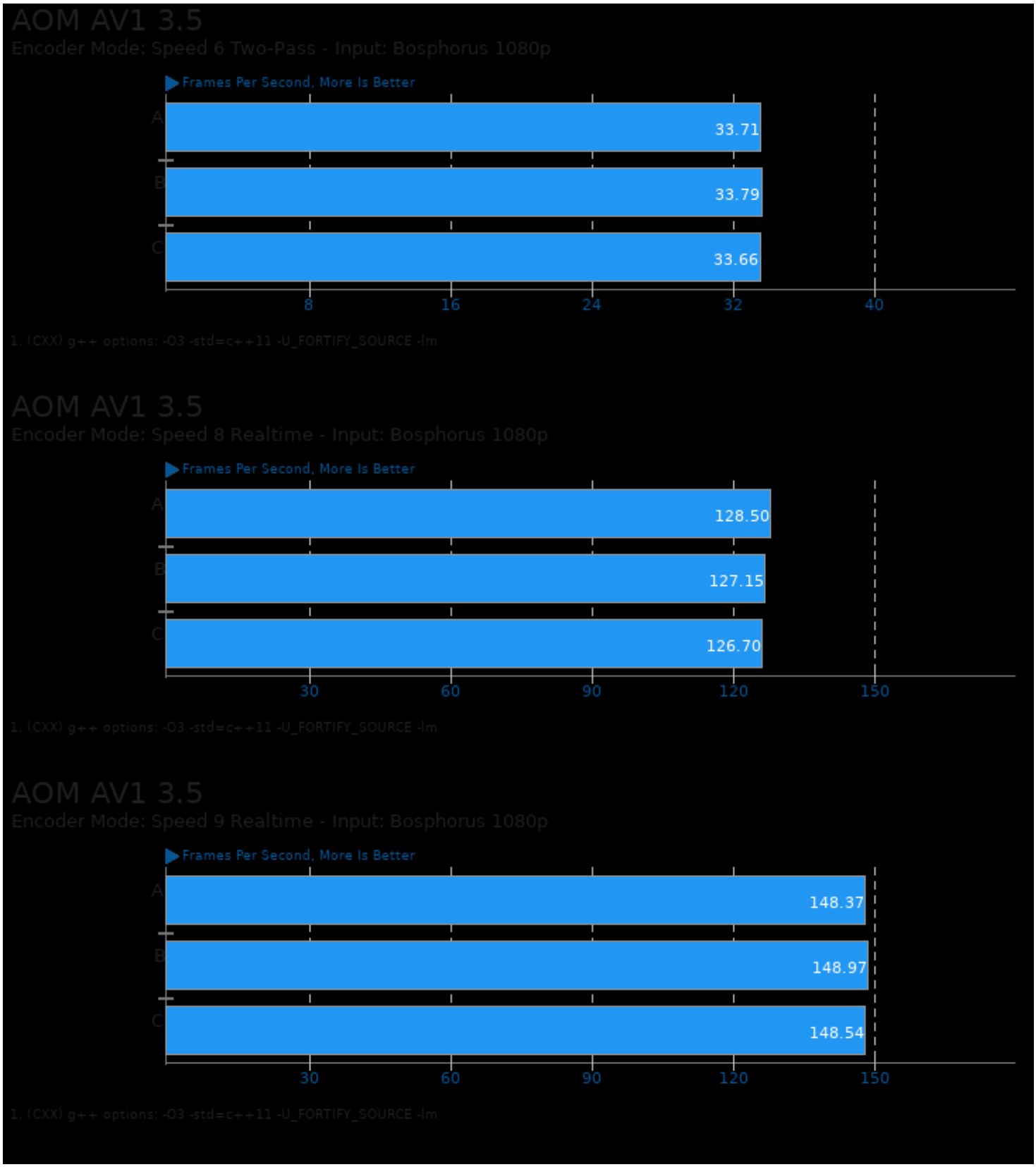

QuadRay 2022.05.25
Scene: 5 - Resolution: 4K
FPS, More Is Better
A
B
C
0.33
0.33
0.33
0.0743
0.1486
0.2229
0.2972
0.3715
1. (CXX) g++ options: -O3 -pthread -lm -lstdc++ -lX11 -lXext -lpthread
QuadRay 2022.05.25
Scene: 1 - Resolution: 1080p
FPS, More Is Better
A
B
C
17.73
17.73
17.72
4
8
12
16
20
1. (CXX) g++ options: -O3 -pthread -lm -lstdc++ -lX11 -lXext -lpthread
QuadRay 2022.05.25
Scene: 2 - Resolution: 1080p
FPS, More Is Better
A
B
C
5.09
5.09
5.09
1.1453
2.2906
3.4359
4.5812
5.7265
1. (CXX) g++ options: -O3 -pthread -lm -lstdc++ -lX11 -lXext -lpthread


QuadRay 2022.05.25
Scene: 3 - Resolution: 1080p
FPS, More Is Better
A
B
C
4.25
4.24
4.25
0.9563
1.9126
2.8689
3.8252
4.7815
1. (CXX) g++ options: -O3 -pthread -lm -lstdc++ -lX11 -lXext -lpthread
QuadRay 2022.05.25
Scene: 5 - Resolution: 1080p
FPS, More Is Better
A
B
C
1.36
1.34
1.36
0.306
0.612
0.918
1.224
1.53
1. (CXX) g++ options: -O3 -pthread -lm -lstdc++ -lX11 -lXext -lpthread
AOM AV1 3.5
Encoder Mode: Speed 0 Two-Pass - Input: Bosphorus 4K
Frames Per Second, More Is Better
A
B
C
0.16
0.16
0.15
0.036
0.072
0.108
0.144
0.18
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm


AOM AV1 3.5
Encoder Mode: Speed 4 Two-Pass - Input: Bosphorus 4K
Frames Per Second, More Is Better
A
B
C
5.50
5.48
5.45
1.2375
2.475
3.7125
4.95
6.1875
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm
AOM AV1 3.5
Encoder Mode: Speed 6 Realtime - Input: Bosphorus 4K
Frames Per Second, More Is Better
A
B
C
27.67
27.81
27.73
7
14
21
28
35
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm
AOM AV1 3.5
Encoder Mode: Speed 6 Two-Pass - Input: Bosphorus 4K
Frames Per Second, More Is Better
A
B
C
10.38
10.36
10.21
3
6
9
12
15
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm

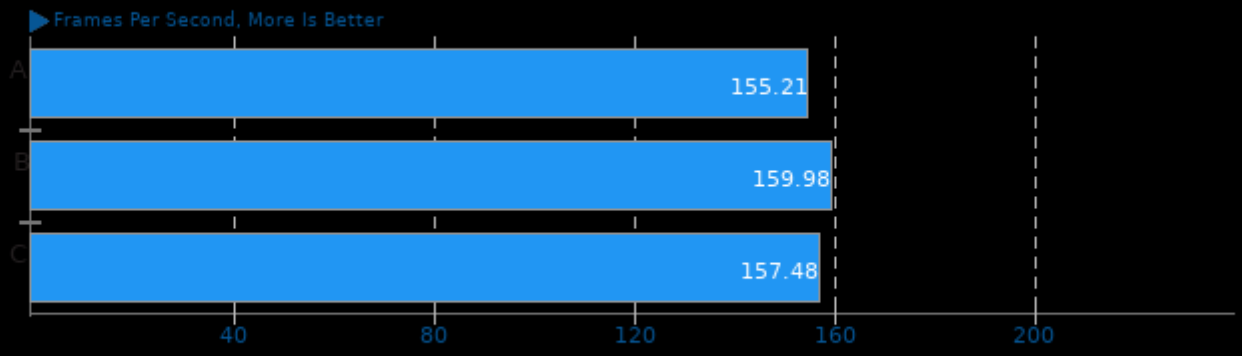

AOM AV1 3.5
Encoder Mode: Speed 8 Realtime - Input: Bosphorus 4K
Frames Per Second, More Is Better
A
B
C
46.58
47.00
46.72
11
22
33
44
55
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm
AOM AV1 3.5
Encoder Mode: Speed 9 Realtime - Input: Bosphorus 4K
Frames Per Second, More Is Better
A
B
C
68.30
68.94
68.42
15
30
45
60
75
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm
AOM AV1 3.5
Encoder Mode: Speed 10 Realtime - Input: Bosphorus 4K
Frames Per Second, More Is Better
A
B
C
70.55
70.78
70.75
16
32
48
64
80
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm


AOM AV1 3.5
Encoder Mode: Speed 0 Two-Pass - Input: Bosphorus 1080p
Frames Per Second, More Is Better
A
B
C
0.48
0.48
0.48
0.108
0.216
0.324
0.432
0.54
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm
AOM AV1 3.5
Encoder Mode: Speed 4 Two-Pass - Input: Bosphorus 1080p
Frames Per Second, More Is Better
A
B
C
14.00
14.01
13.98
4
8
12
16
20
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm
AOM AV1 3.5
Encoder Mode: Speed 6 Realtime - Input: Bosphorus 1080p
Frames Per Second, More Is Better
A
B
C
56.36
60.14
56.01
13
26
39
52
65
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm


AOM AV1 3.5
Encoder Mode: Speed 6 Two-Pass - Input: Bosphorus 1080p
Frames Per Second, More Is Better
A
B
C
33.71
33.79
33.66
8
16
24
32
40
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm
AOM AV1 3.5
Encoder Mode: Speed 8 Realtime - Input: Bosphorus 1080p
Frames Per Second, More Is Better
A
B
C
128.50
127.15
126.70
30
60
90
120
150
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm
AOM AV1 3.5
Encoder Mode: Speed 9 Realtime - Input: Bosphorus 1080p
Frames Per Second, More Is Better
A
B
C
148.37
148.97
148.54
30
60
90
120
150
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm

AOM AV1 3.5

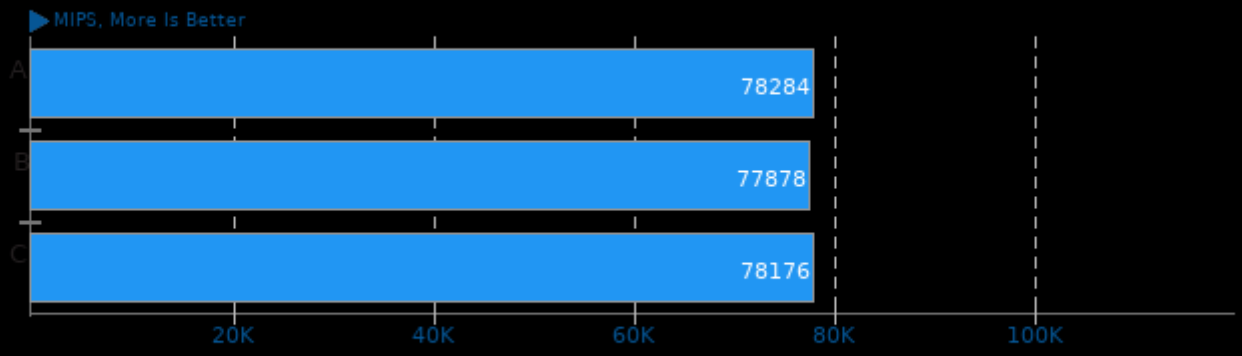
Encoder Mode: Speed 10 Realtime - Input: Bosphorus 1080p



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

7-Zip Compression 22.01

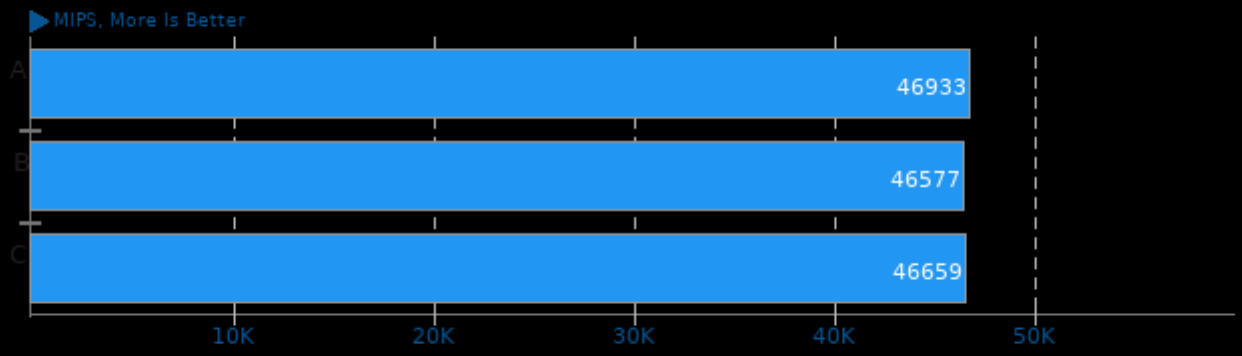
Test: Compression Rating



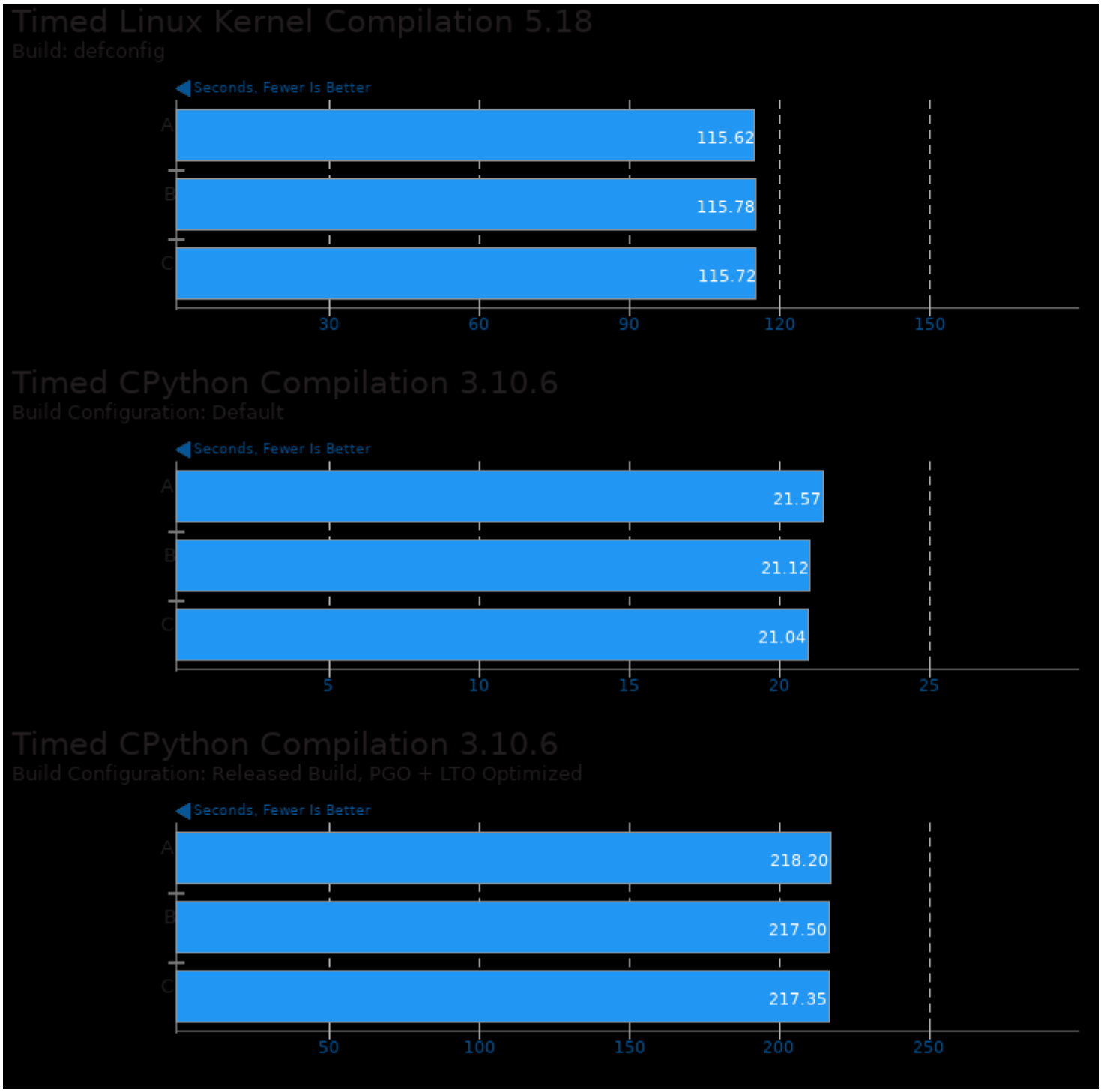
1. (CXX) g++ options: -lpthread -ldl -O2 -fPIC

7-Zip Compression 22.01

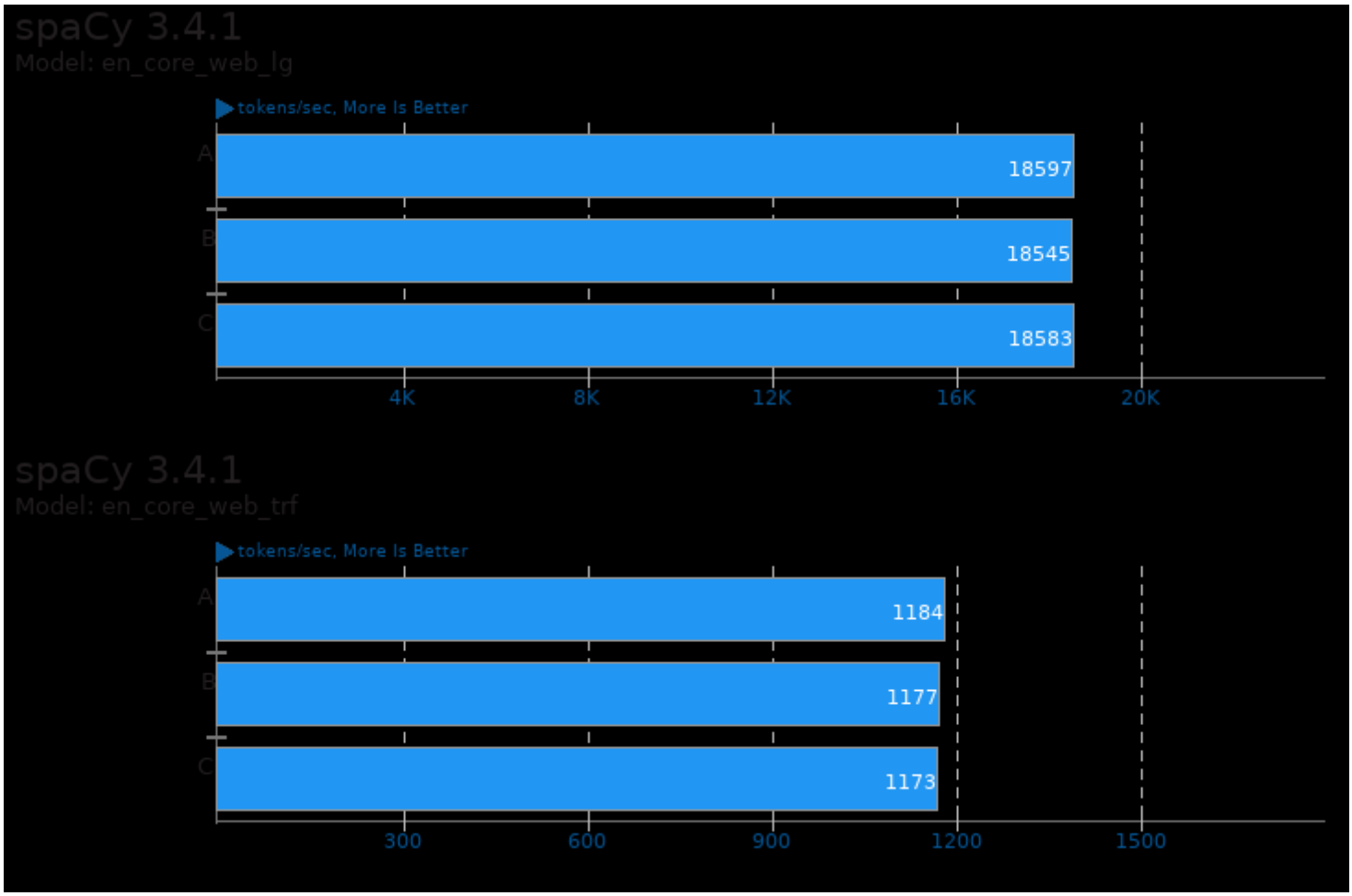
Test: Decompression Rating



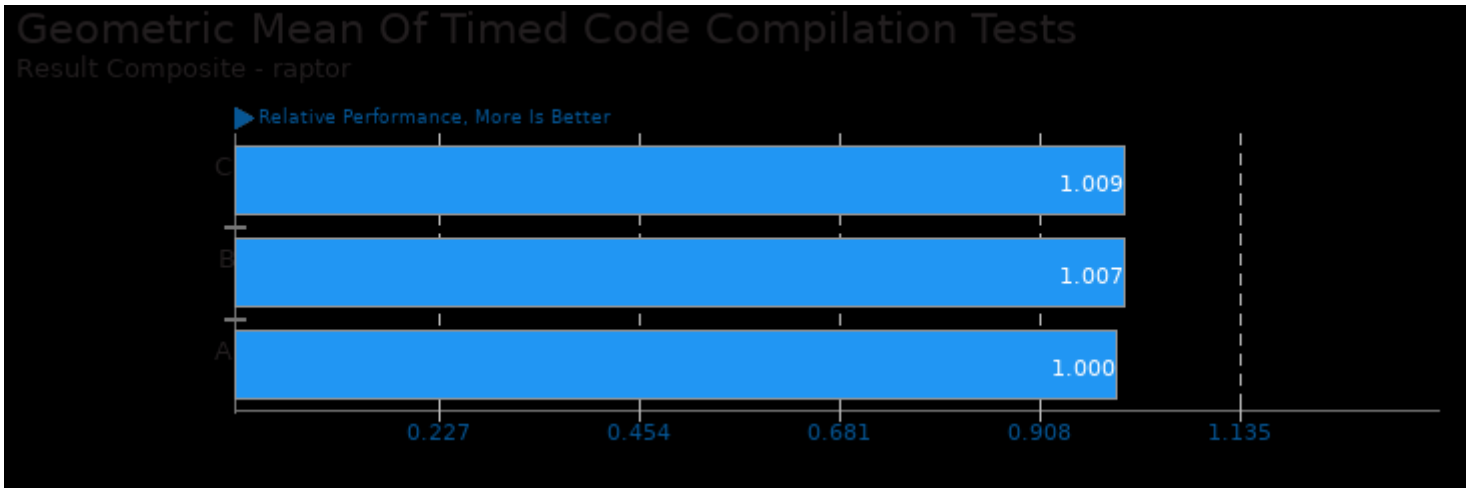
1. (CXX) g++ options: -lpthread -ldl -O2 -fPIC


Timed Linux Kernel Compilation 5.18
Build: defconfig
Seconds, Fewer Is Better
A
B
C
115.62
115.78
115.72
30
60
90
120
150
Timed CPython Compilation 3.10.6
Build Configuration: Default
Seconds, Fewer Is Better
A
B
C
21.57
21.12
21.04
5
10
15
20
25
Timed CPython Compilation 3.10.6
Build Configuration: Released Build, PGO + LTO Optimized
Seconds, Fewer Is Better
A
B
C
218.20
217.50
217.35
50
100
150
200
250

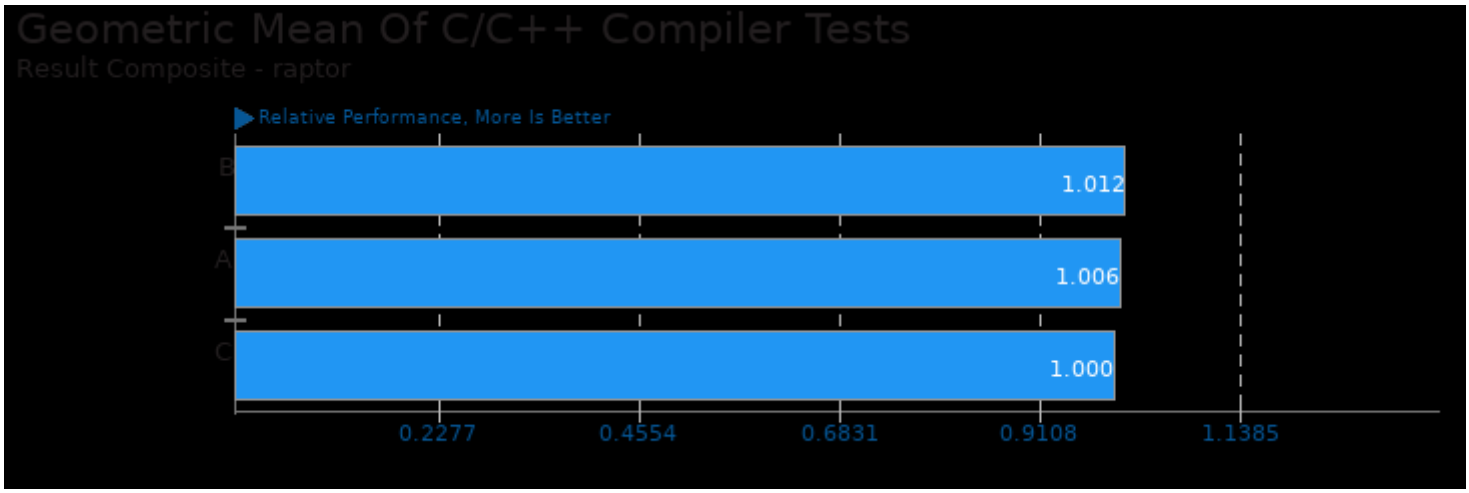
raptor


spaCy 3.4.1
Model: en_core_web_lg
tokens/sec, More Is Better
A
B
C
18597
18545
18583
4K
8K
12K
16K
20K
spaCy 3.4.1
Model: en_core_web_trf
tokens/sec, More Is Better
A
B
C
1184
1177
1173
300
600
900
1200
1500

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



Geometric mean based upon tests: pts/build-linux-kernel and pts/build-python



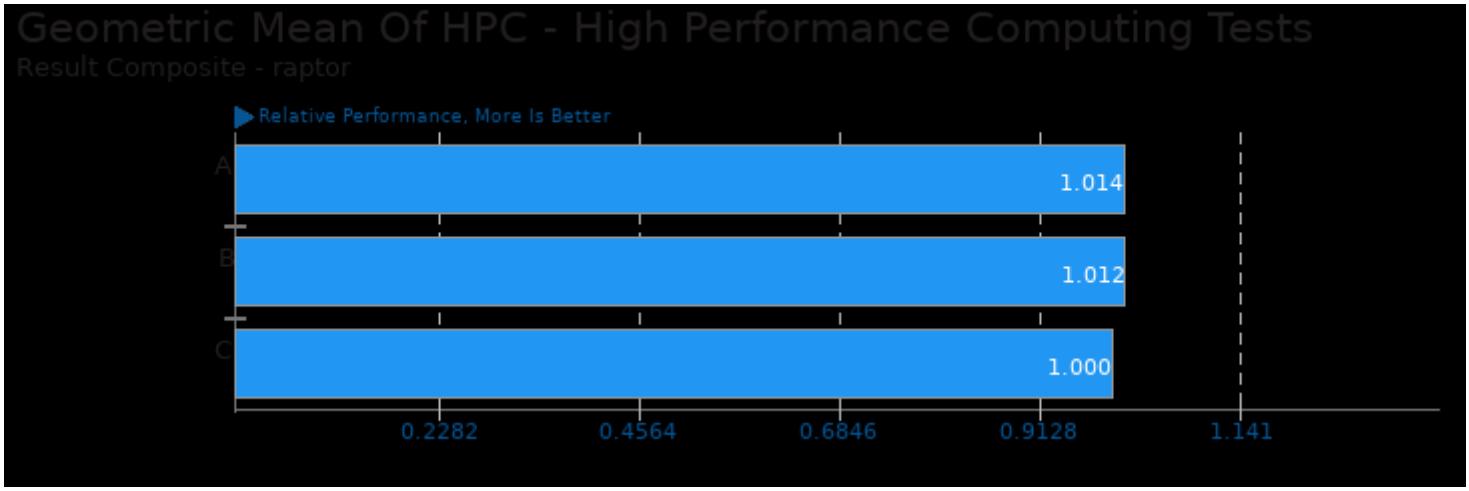
Geometric mean based upon tests: pts/compress-7zip and pts/aom-av1



Geometric mean based upon tests: pts/build-linux-kernel and pts/compress-7zip



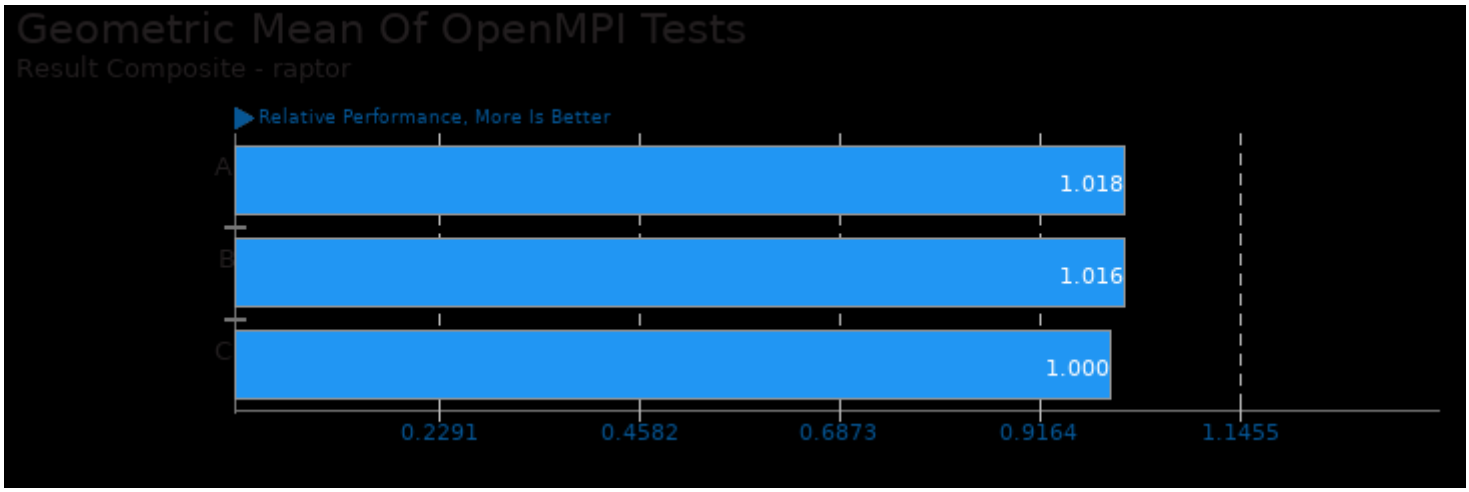
Geometric mean based upon tests: pts/quadray and pts/aom-av1



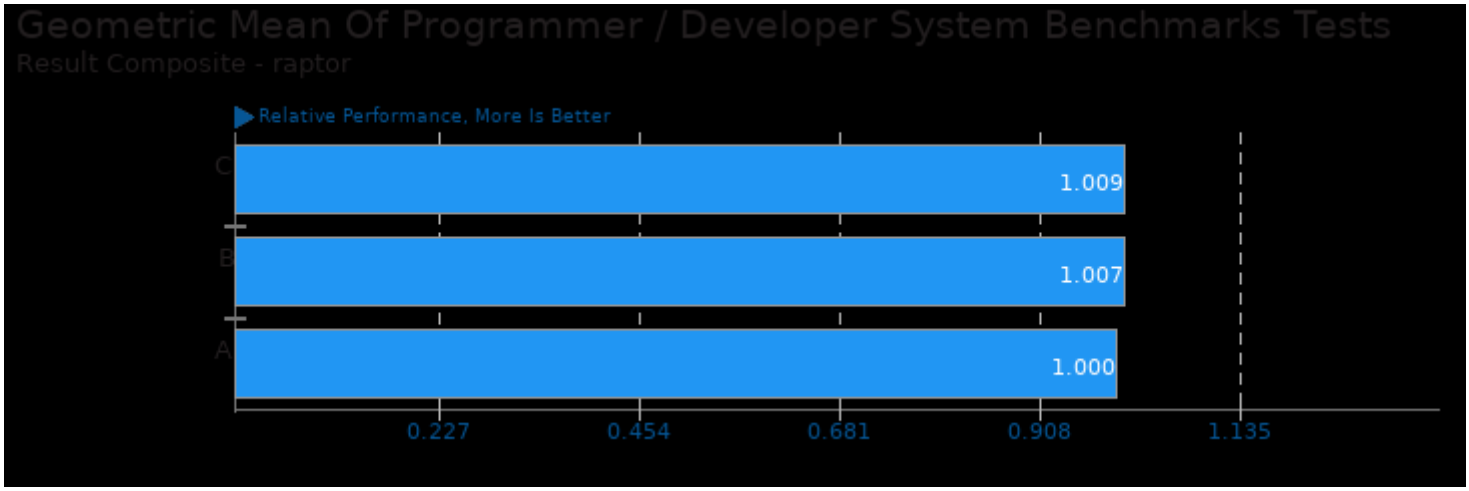
Geometric mean based upon tests: pts/openfoam, pts/spacy and pts/openradioss



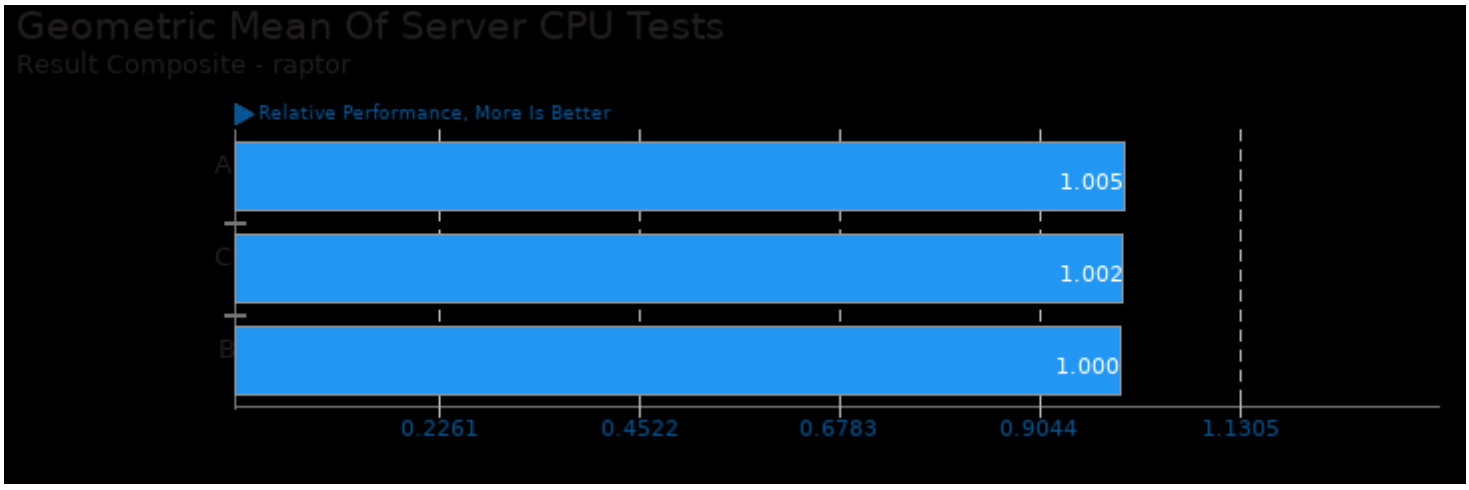
Geometric mean based upon tests: pts/quadray, pts/aom-av1, pts/compress-7zip, pts/build-linux-kernel and pts/build-python



Geometric mean based upon tests: pts/openfoam and pts/openradioss



Geometric mean based upon tests: pts/build-linux-kernel and pts/build-python



Geometric mean based upon tests: pts/compress-7zip and pts/build-linux-kernel

This file was automatically generated via the Phoronix Test Suite benchmarking software on Friday, 29 March 2024 07:59.