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Intel Core i9-10900K testing with a Gigabyte Z490 AORUS MASTER (F3 BIOS) and Gigabyte AMD Radeon RX 5500/5500M / Pro 5500M 8GB on Ubuntu 20.10 via the Phoronix Test Suite.

Automated Executive Summary

1 had the most wins, coming in first place for 51% of the tests.

Based on the geometric mean of all complete results, the fastest (3) was 1.001x the speed of the slowest (1). 2 was 0.999x the speed of 3 and 1 was 1x the speed of 2.

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

Zstd Compression (Compression Level: 8, Long Mode - Compression Speed) at 1.041x
Zstd Compression (Compression Level: 8 - Compression Speed) at 1.02x
Qmlbench (Resolution: 3840 x 2160 - Test: Delegates Canvas FBO Threaded) at 1.016x
Qmlbench (Resolution: 3840 x 2160 - Test: Creation Delegates Flow) at 1.014x
Qmlbench (Resolution: 3840 x 2160 - Test: Canvas Text Simple) at 1.012x
Zstd Compression (Compression Level: 19, Long Mode - Decompression Speed) at 1.011x
Zstd Compression (Compression Level: 3 - Compression Speed) at 1.011x
Zstd Compression (Compression Level: 3, Long Mode - Decompression Speed) at 1.011x
Zstd Compression (Compression Level: 8 - Decompression Speed) at 1.01x

Zstd Compression (Compression Level: 19 - Decompression Speed) at 1.01x.

Test Systems:

1

2

3

Processor: Intel Core i9-10900K @ 5.30GHz (10 Cores / 20 Threads), Motherboard: Gigabyte Z490 AORUS MASTER (F3 BIOS), Chipset: Intel Comet Lake PCH, Memory: 16GB, Disk: Samsung SSD 970 EVO 250GB, Graphics: Gigabyte AMD Radeon RX 5500/5500M / Pro 5500M 8GB (1900/875MHz), Audio: Realtek ALC1220, Monitor: ASUS MG28U, Network: Intel + Intel Wi-Fi 6 AX201

OS: Ubuntu 20.10, Kernel: 5.11.0-051100rc2daily20210106-generic (x86_64) 20210105, Desktop: GNOME Shell 3.38.1, Display Server: X Server 1.20.9, OpenGL: 4.6 Mesa 20.2.1 (LLVM 11.0.0), Vulkan: 1.2.131, Compiler: GCC 10.2.0, 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-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-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-10-JvwpWM/gcc-10-10.2.0/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-10-JvwpWM/gcc-10-10.2.0/debian/tmp-gcn/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: 0xe0 - Thermald 2.3
Security Notes: itlb_multihit: KVM: Mitigation of VMX disabled + 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 Enhanced IBRS IBPB: conditional RSB filling + srbds: Not affected + tsx_async_abort: Not affected

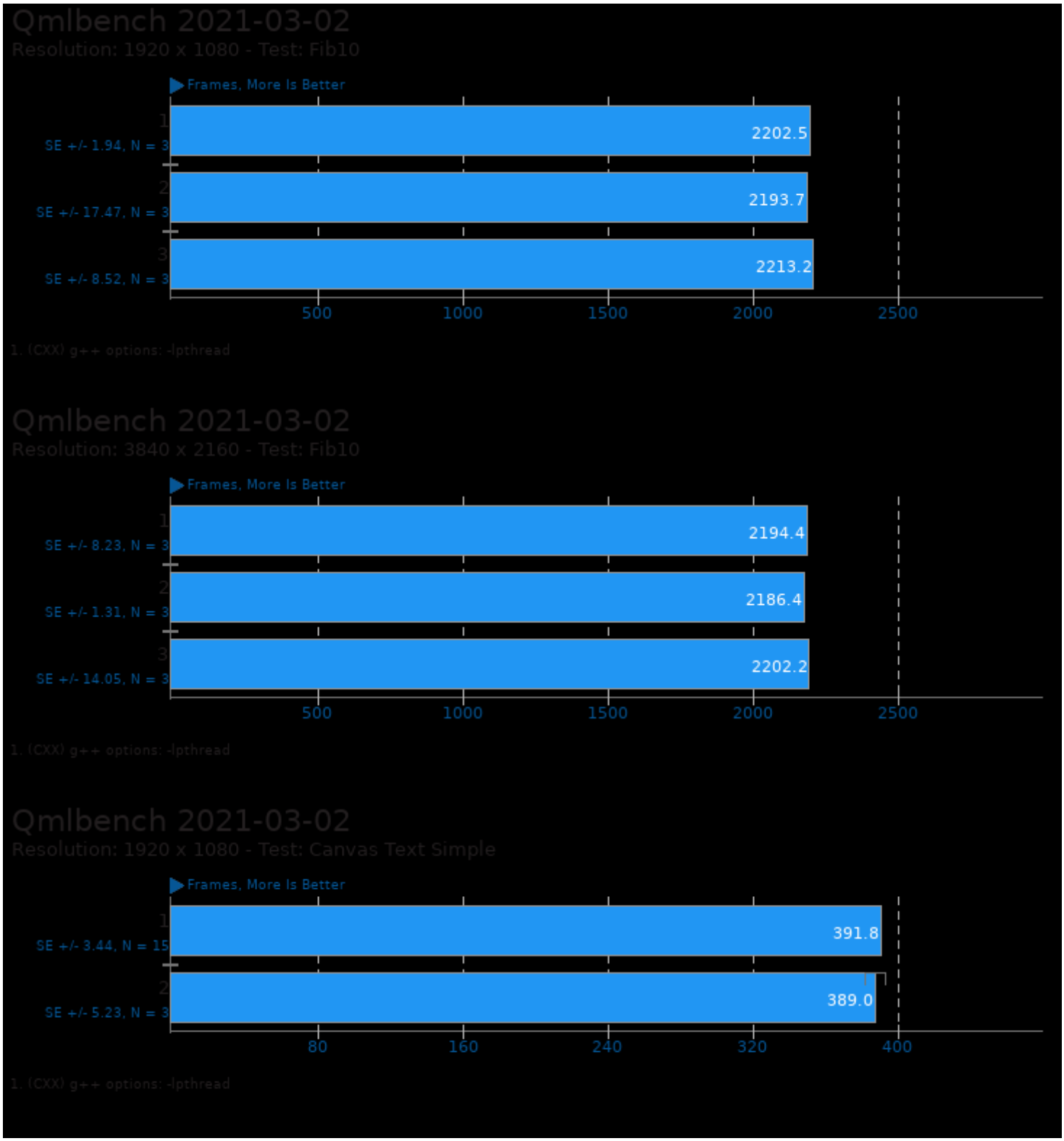
	1	2	3
Qmlbench - 1920 x 1080 - Fib10 (Frames)	2203	**2194**	**2213**
Normalized	99.52%	99.12%	100%
Standard Deviation	0.2%	1.4%	0.7%
Qmlbench - 3840 x 2160 - Fib10 (Frames)	2194	**2186**	**2202**
Normalized	99.65%	99.28%	100%
Standard Deviation	0.6%	0.1%	1.1%
Qmlbench - 1920 x 1080 - Canvas Text Simple (Frames)	**391.8**	**389.0**	
Normalized	100%	99.29%	
Standard Deviation	3.4%	2.3%	
Qmlbench - 3840 x 2160 - Canvas Text Simple (Frames)	**375.5**	**370.9**	
Normalized	100%	98.77%	
Standard Deviation	2.2%	1.5%	

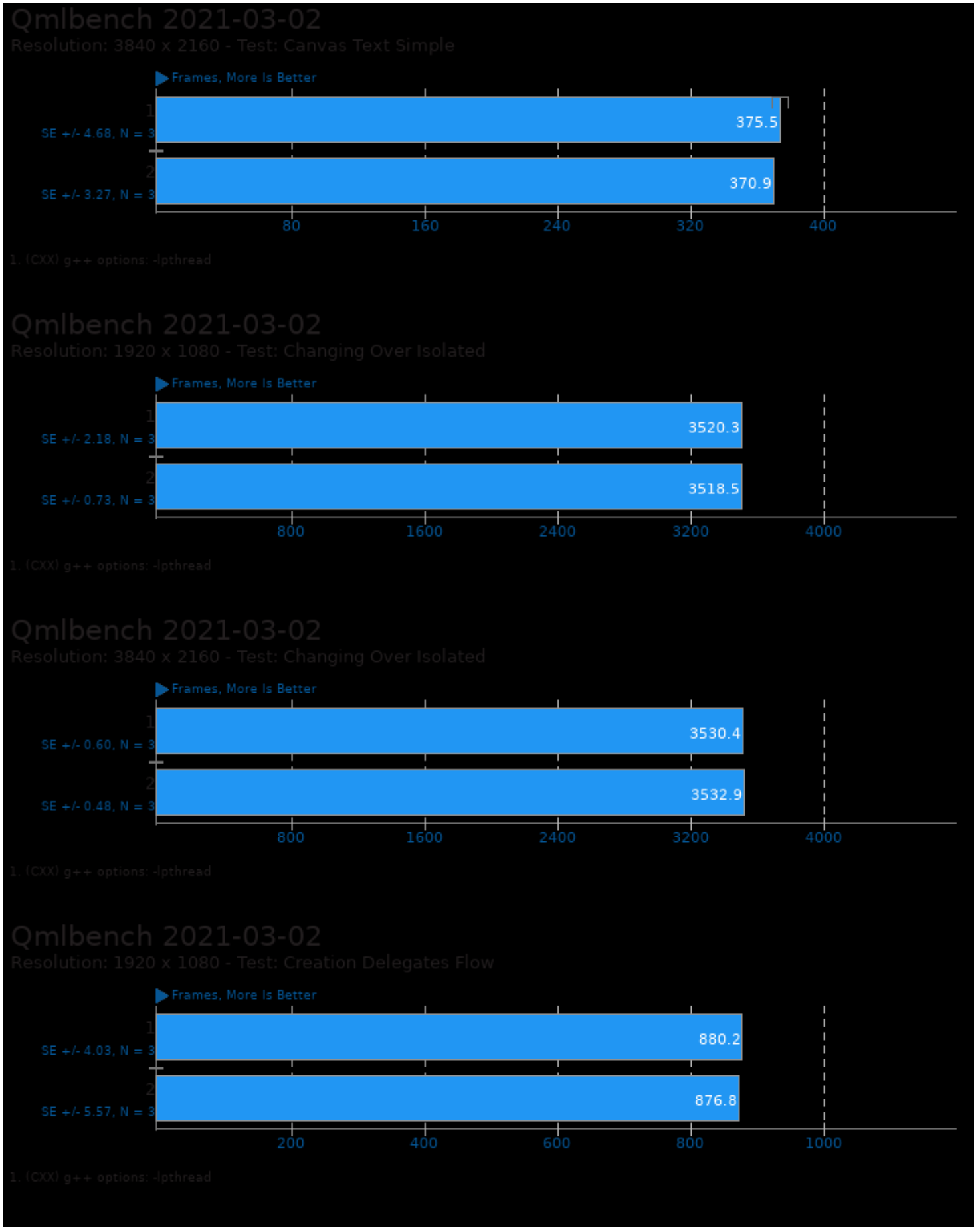
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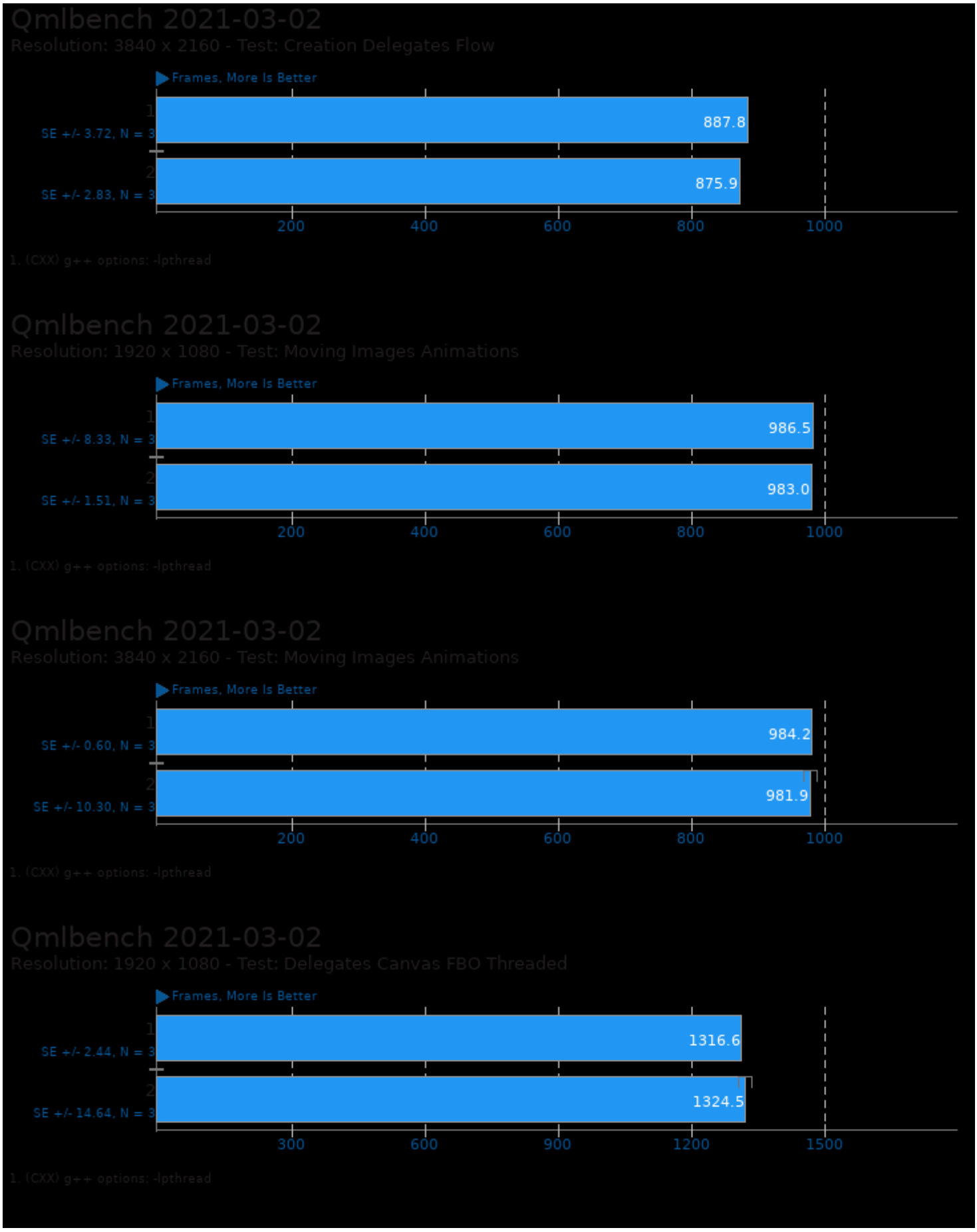
Qmlbench - 1920 x 1080 - C.O.I (Frames)	**3520**	**3519**	
Normalized	100%	99.95%	
Standard Deviation	0.1%	0%	
Qmlbench - 3840 x 2160 - C.O.I (Frames)	**3530**	**3533**	
Normalized	99.93%	100%	
Standard Deviation	0%	0%	
Qmlbench - 1920 x 1080 - C.D.F (Frames)	**880.2**	**876.8**	
Normalized	100%	99.61%	
Standard Deviation	0.8%	1.1%	
Qmlbench - 3840 x 2160 - C.D.F (Frames)	**887.8**	**875.9**	
Normalized	100%	98.66%	
Standard Deviation	0.7%	0.6%	
Qmlbench - 1920 x 1080 - M.I.A (Frames)	**986.5**	**983.0**	
Normalized	100%	99.65%	
Standard Deviation	1.5%	0.3%	
Qmlbench - 3840 x 2160 - M.I.A (Frames)	**984.2**	**981.9**	
Normalized	100%	99.77%	
Standard Deviation	0.1%	1.8%	
Qmlbench - 1920 x 1080 - D.C.F.T (Frames)	**1317**	**1325**	
Normalized	99.4%	100%	
Standard Deviation	0.3%	1.9%	
Qmlbench - 1920 x 1080 - D.C.F.T (Frames)	**882.5**	**885.5**	
Normalized	99.66%	100%	
Standard Deviation	1.7%	3%	
Qmlbench - 3840 x 2160 - D.C.F.T (Frames)	**910.2**	**896.3**	
Normalized	100%	98.47%	
Standard Deviation	0.7%	1%	
Qmlbench - 3840 x 2160 - D.C.F.T (Frames)	**1343**	**1332**	
Normalized	100%	99.2%	
Standard Deviation	2.2%	1.4%	
Timed Linux Kernel Compilation - Time To Compile (sec)	**71.593**	71.724	**71.866**
Normalized	100%	99.82%	99.62%
Standard Deviation	1.3%	1.2%	0.8%
Zstd Compression - 3 - Compression Speed (MB/s)	2323	**2339**	**2313**
Normalized	99.31%	100%	98.91%
Standard Deviation	0.8%	2.2%	0.6%
Zstd Compression - 3 - D.S (MB/s)	**4383**	4370	**4344**
Normalized	100%	99.71%	99.12%
Standard Deviation	0.2%	0.1%	1.1%
Zstd Compression - 8 - Compression Speed (MB/s)	**281.6**	279.6	**276.0**
Normalized	100%	99.29%	98.01%
Standard Deviation	1.6%	1.4%	0.4%
Zstd Compression - 8 - D.S (MB/s)	**4374**	4390	**4419**
Normalized	98.98%	99.34%	100%
Standard Deviation	0.6%	1.8%	0.9%
Zstd Compression - 19 - Compression Speed (MB/s)	**33.7**	**33.8**	**33.8**
Normalized	99.7%	100%	100%
Standard Deviation	0.2%	0.3%	0.3%
Zstd Compression - 19 - D.S (MB/s)	4033	**4041**	**4000**
Normalized	99.81%	100%	99%
Standard Deviation	0.8%	0.5%	0.1%

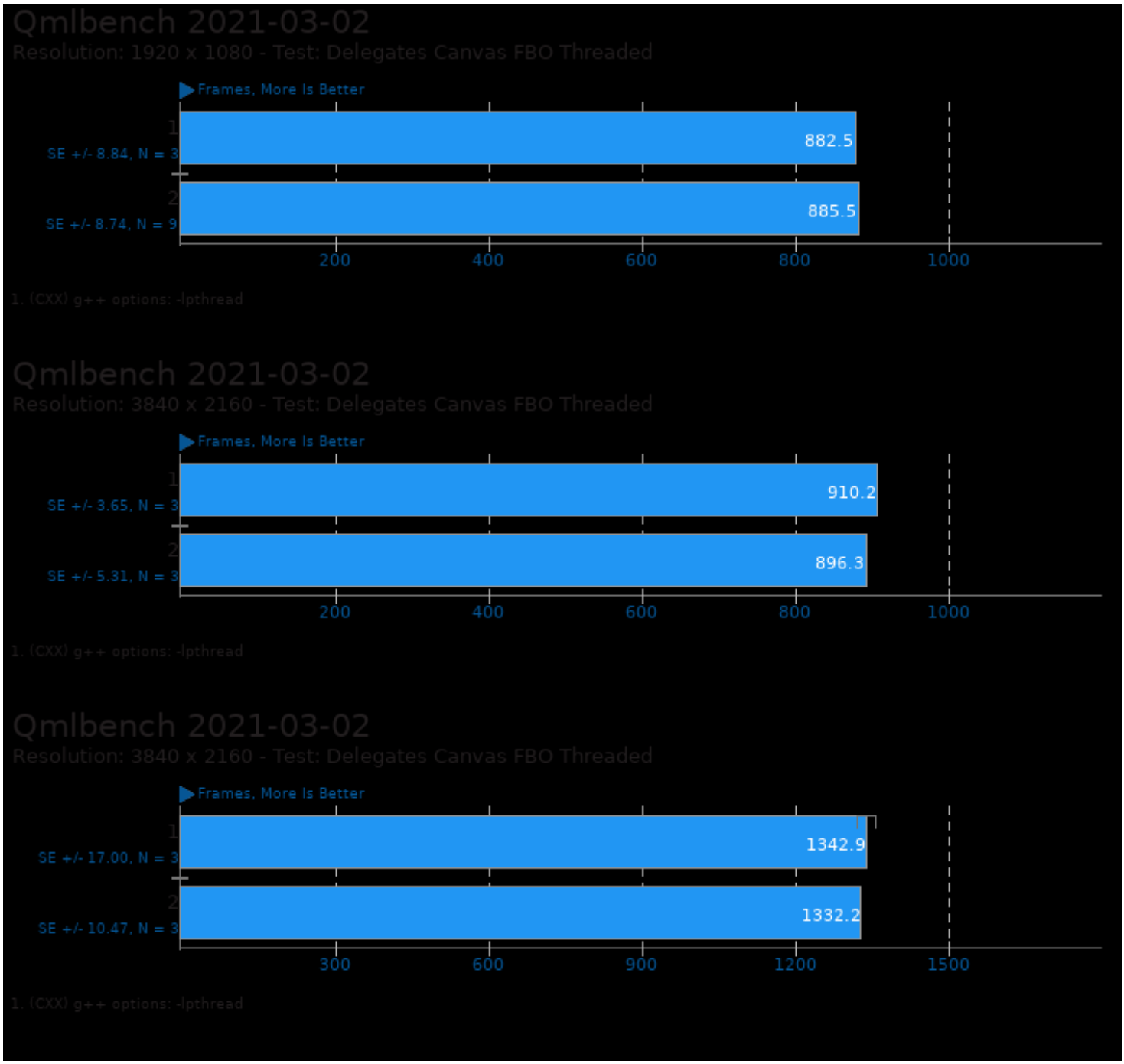
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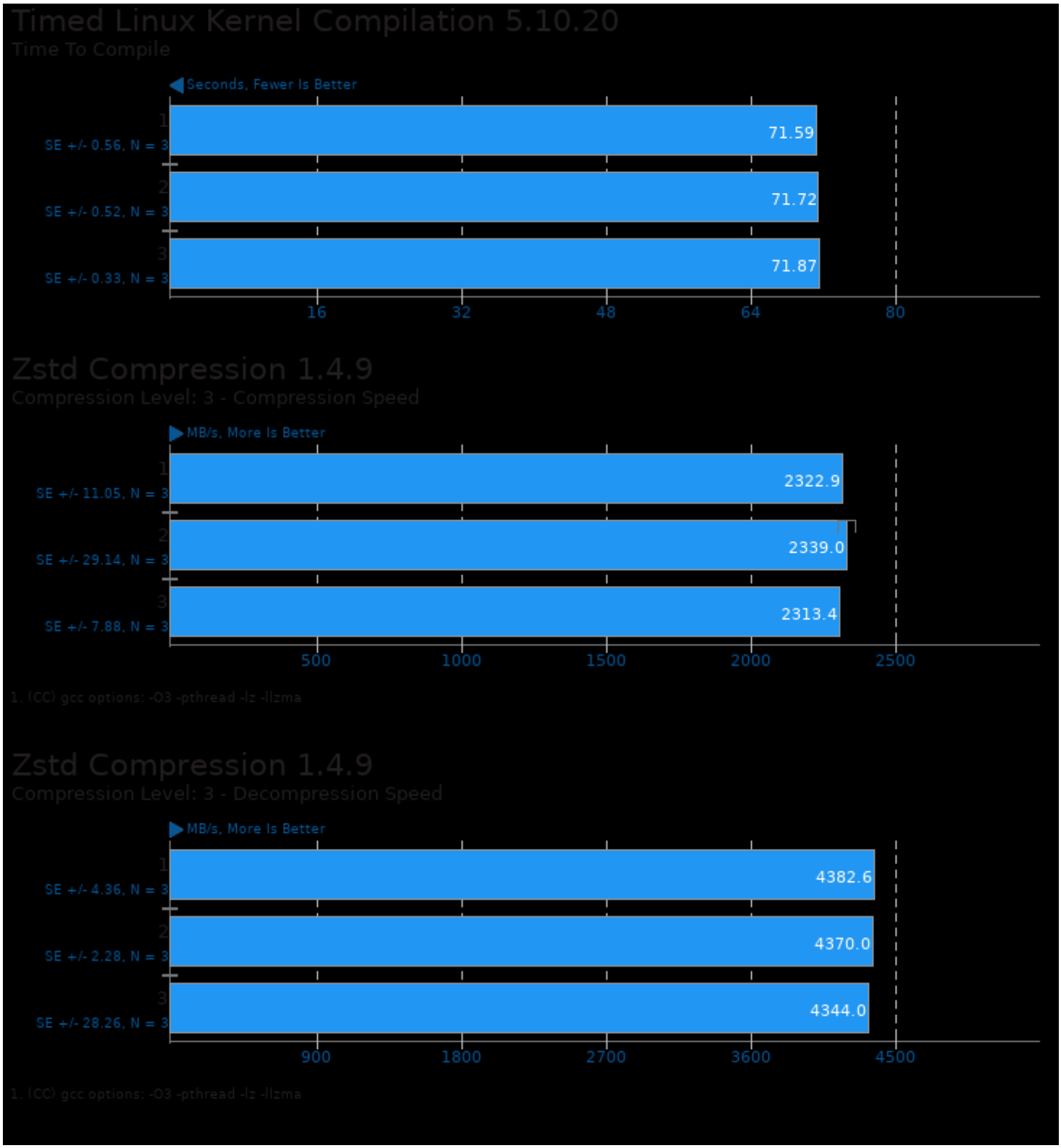
Zstd Compression - 3, Long Mode - Compression Speed (MB/s)	1372	**1371**	**1381**
Normalized	99.36%	99.3%	100%
Standard Deviation	1%	0.5%	0.8%
Zstd Compression - 3, Long Mode - D.S	**4614**	**4565**	4578
Normalized	100%	98.94%	99.23%
Standard Deviation	0.2%	0.9%	0.8%
Zstd Compression - 8, Long Mode - Compression Speed (MB/s)	**441.4**	451.8	**459.5**
Normalized	96.06%	98.32%	100%
Standard Deviation	3.3%	2.6%	1.8%
Zstd Compression - 8, Long Mode - D.S	4701	**4727**	**4685**
Normalized	99.44%	100%	99.11%
Standard Deviation	1.3%	1%	1.1%
Zstd Compression - 19, Long Mode - Compression Speed (MB/s)	**29.6**	**29.4**	**29.6**
Normalized	100%	99.32%	100%
Standard Deviation	0.6%	0.3%	0.5%
Zstd Compression - 19, Long Mode - D.S (MB/s)	4011	**3994**	**4038**
Normalized	99.32%	98.91%	100%
Standard Deviation	0.6%	0.9%	1.8%

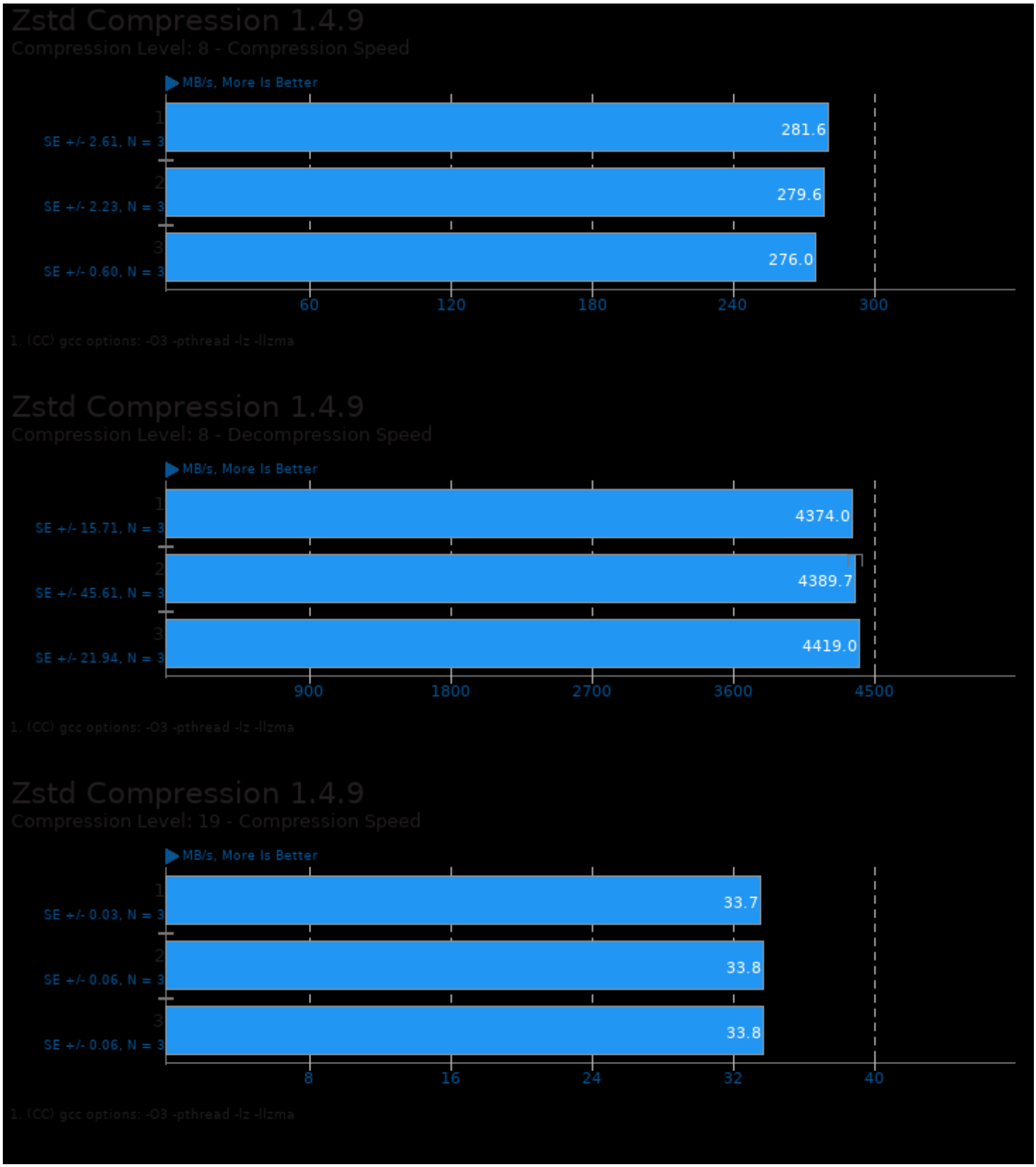

Qmlbench 2021-03-02
Resolution: 1920 x 1080 - Test: Fib10
Frames, More Is Better
1
SE +/- 1.94, N = 3
2202.5
2
SE +/- 17.47, N = 3
2193.7
3
SE +/- 8.52, N = 3
2213.2
500
1000
1500
2000
2500
1. (CXX) g++ options: -lpthread
Qmlbench 2021-03-02
Resolution: 3840 x 2160 - Test: Fib10
Frames, More Is Better
1
SE +/- 8.23, N = 3
2194.4
2
SE +/- 1.31, N = 3
2186.4
3
SE +/- 14.05, N = 3
2202.2
500
1000
1500
2000
2500
1. (CXX) g++ options: -lpthread
Qmlbench 2021-03-02
Resolution: 1920 x 1080 - Test: Canvas Text Simple
Frames, More Is Better
1
SE +/- 3.44, N = 15
391.8
2
SE +/- 5.23, N = 3
389.0
80
160
240
320
400
1. (CXX) g++ options: -lpthread

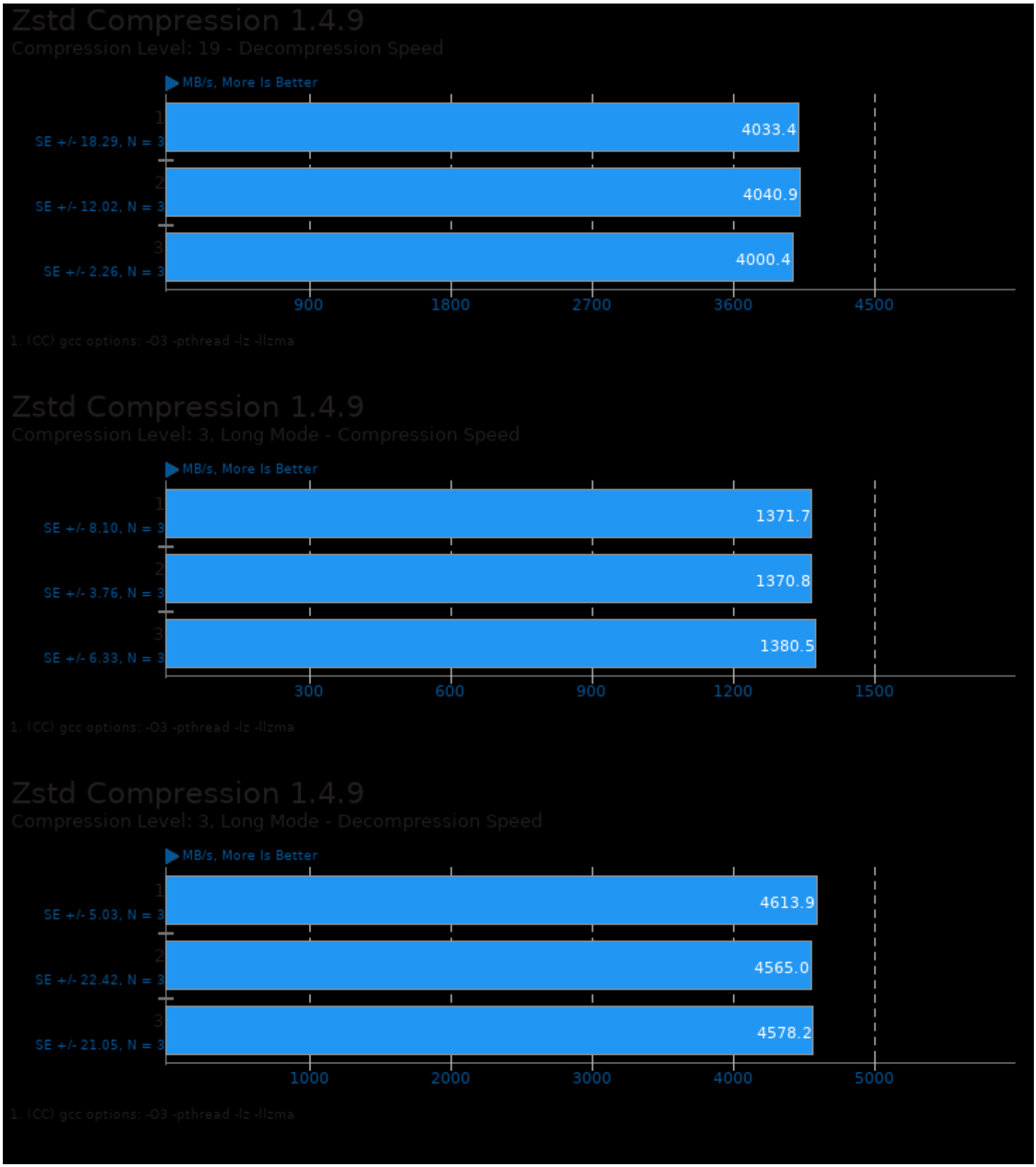

Qmlbench 2021-03-02
Resolution: 3840 x 2160 - Test: Canvas Text Simple
Frames, More Is Better
1
SE +/- 4.68, N = 3
375.5
2
SE +/- 3.27, N = 3
370.9
80
160
240
320
400
1. (CXX) g++ options: -lpthread
Qmlbench 2021-03-02
Resolution: 1920 x 1080 - Test: Changing Over Isolated
Frames, More Is Better
1
SE +/- 2.18, N = 3
3520.3
2
SE +/- 0.73, N = 3
3518.5
800
1600
2400
3200
4000
1. (CXX) g++ options: -lpthread
Qmlbench 2021-03-02
Resolution: 3840 x 2160 - Test: Changing Over Isolated
Frames, More Is Better
1
SE +/- 0.60, N = 3
3530.4
2
SE +/- 0.48, N = 3
3532.9
800
1600
2400
3200
4000
1. (CXX) g++ options: -lpthread
Qmlbench 2021-03-02
Resolution: 1920 x 1080 - Test: Creation Delegates Flow
Frames, More Is Better
1
SE +/- 4.03, N = 3
880.2
2
SE +/- 5.57, N = 3
876.8
200
400
600
800
1000
1. (CXX) g++ options: -lpthread

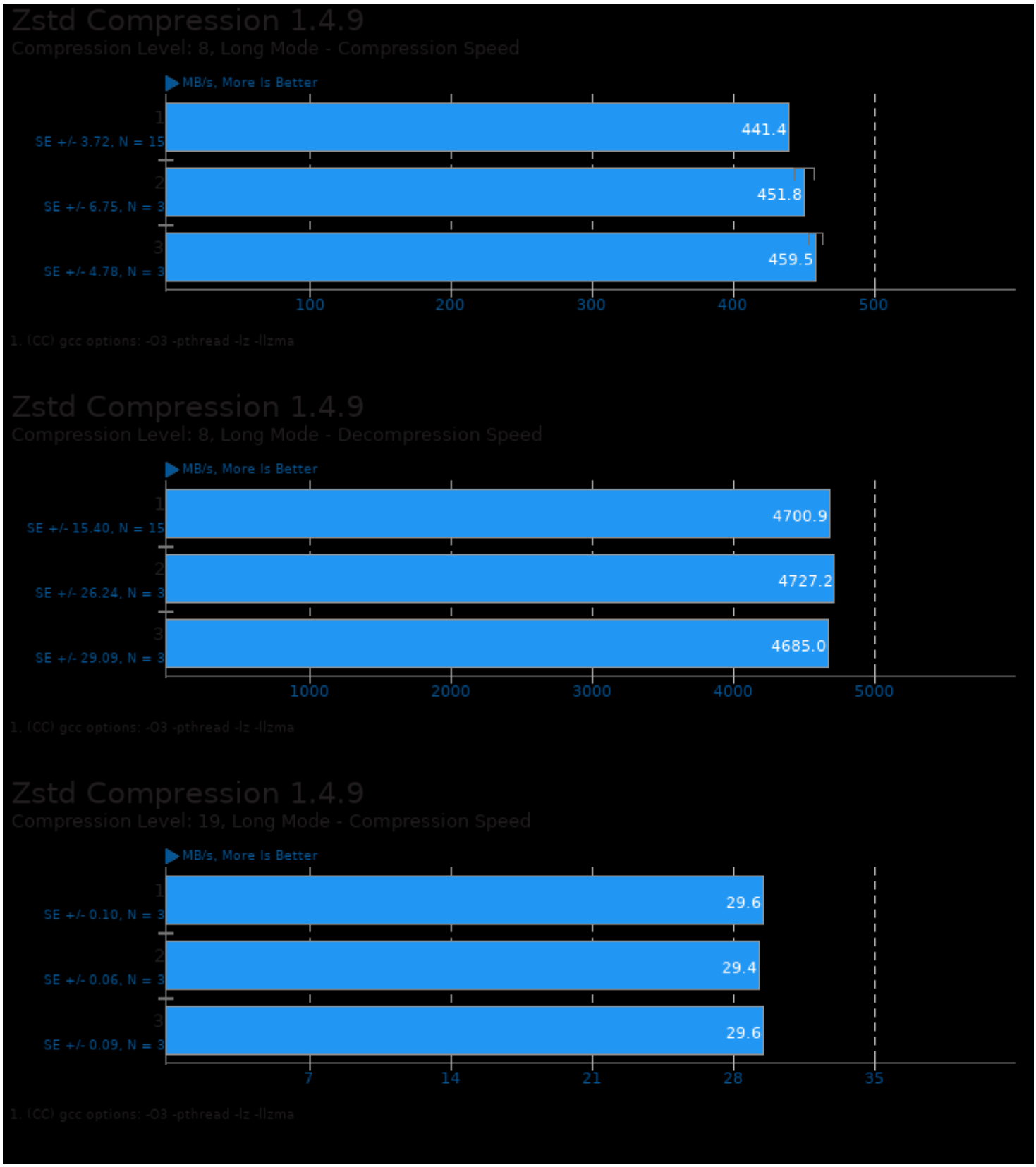

Qmlbench 2021-03-02
Resolution: 3840 x 2160 - Test: Creation Delegates Flow
Frames, More Is Better
1
SE +/- 3.72, N = 3
887.8
2
SE +/- 2.83, N = 3
875.9
200
400
600
800
1000
1. (CXX) g++ options: -lpthread
Qmlbench 2021-03-02
Resolution: 1920 x 1080 - Test: Moving Images Animations
Frames, More Is Better
1
SE +/- 8.33, N = 3
986.5
2
SE +/- 1.51, N = 3
983.0
200
400
600
800
1000
1. (CXX) g++ options: -lpthread
Qmlbench 2021-03-02
Resolution: 3840 x 2160 - Test: Moving Images Animations
Frames, More Is Better
1
SE +/- 0.60, N = 3
984.2
2
SE +/- 10.30, N = 3
981.9
200
400
600
800
1000
1. (CXX) g++ options: -lpthread
Qmlbench 2021-03-02
Resolution: 1920 x 1080 - Test: Delegates Canvas FBO Threaded
Frames, More Is Better
1
SE +/- 2.44, N = 3
1316.6
2
SE +/- 14.64, N = 3
1324.5
300
600
900
1200
1500
1. (CXX) g++ options: -lpthread


Qmlbench 2021-03-02
Resolution: 1920 x 1080 - Test: Delegates Canvas FBO Threaded
Frames, More Is Better
1
SE +/- 8.84, N = 3
882.5
2
SE +/- 8.74, N = 9
885.5
200
400
600
800
1000
1. (CXX) g++ options: -lpthread
Qmlbench 2021-03-02
Resolution: 3840 x 2160 - Test: Delegates Canvas FBO Threaded
Frames, More Is Better
1
SE +/- 3.65, N = 3
910.2
2
SE +/- 5.31, N = 3
896.3
200
400
600
800
1000
1. (CXX) g++ options: -lpthread
Qmlbench 2021-03-02
Resolution: 3840 x 2160 - Test: Delegates Canvas FBO Threaded
Frames, More Is Better
1
SE +/- 17.00, N = 3
1342.9
2
SE +/- 10.47, N = 3
1332.2
300
600
900
1200
1500
1. (CXX) g++ options: -lpthread

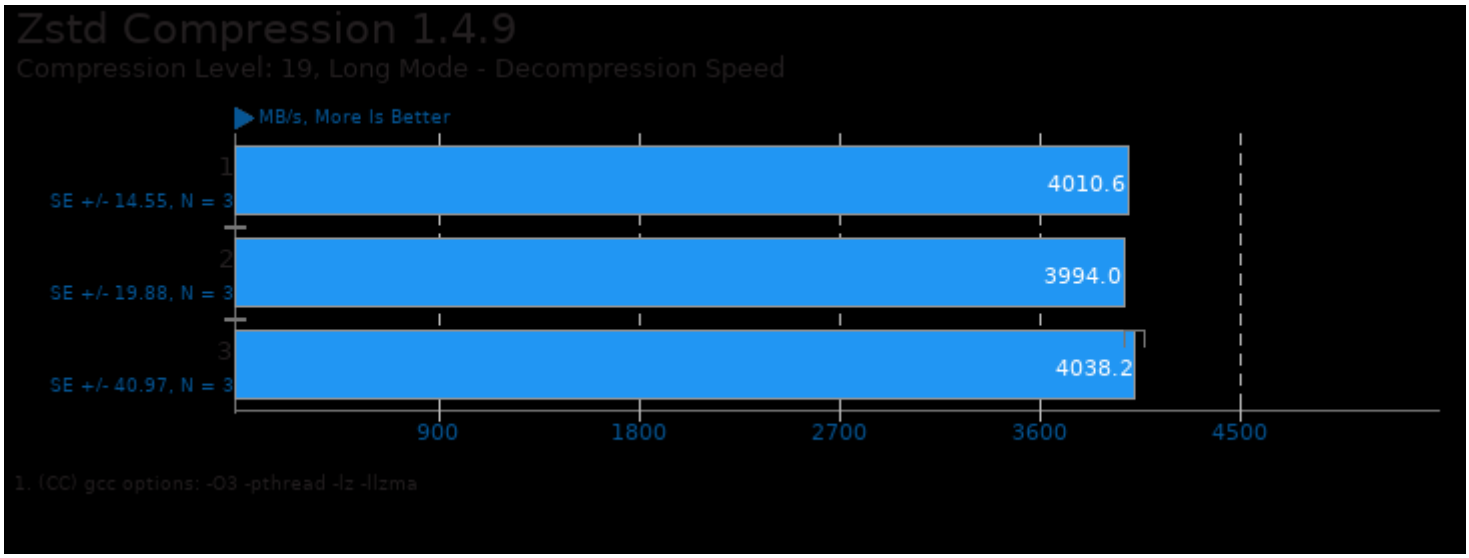

Timed Linux Kernel Compilation 5.10.20
Time To Compile
Seconds, Fewer Is Better
1
SE +/- 0.56, N = 3
71.59
2
SE +/- 0.52, N = 3
71.72
3
SE +/- 0.33, N = 3
71.87
16
32
48
64
80
Zstd Compression 1.4.9
Compression Level: 3 - Compression Speed
MB/s, More Is Better
1
SE +/- 11.05, N = 3
2322.9
2
SE +/- 29.14, N = 3
2339.0
3
SE +/- 7.88, N = 3
2313.4
500
1000
1500
2000
2500
1. (CC) gcc options: -O3 -pthread -lz -llzma
Zstd Compression 1.4.9
Compression Level: 3 - Decompression Speed
MB/s, More Is Better
1
SE +/- 4.36, N = 3
4382.6
2
SE +/- 2.28, N = 3
4370.0
3
SE +/- 28.26, N = 3
4344.0
900
1800
2700
3600
4500
1. (CC) gcc options: -O3 -pthread -lz -llzma


Zstd Compression 1.4.9
Compression Level: 8 - Compression Speed
MB/s, More Is Better
1
SE +/- 2.61, N = 3
281.6
2
SE +/- 2.23, N = 3
279.6
3
SE +/- 0.60, N = 3
276.0
60
120
180
240
300
1. (CC) gcc options: -O3 -pthread -lz -llzma
Zstd Compression 1.4.9
Compression Level: 8 - Decompression Speed
MB/s, More Is Better
1
SE +/- 15.71, N = 3
4374.0
2
SE +/- 45.61, N = 3
4389.7
3
SE +/- 21.94, N = 3
4419.0
900
1800
2700
3600
4500
1. (CC) gcc options: -O3 -pthread -lz -llzma
Zstd Compression 1.4.9
Compression Level: 19 - Compression Speed
MB/s, More Is Better
1
SE +/- 0.03, N = 3
33.7
2
SE +/- 0.06, N = 3
33.8
3
SE +/- 0.06, N = 3
33.8
8
16
24
32
40
1. (CC) gcc options: -O3 -pthread -lz -llzma


Zstd Compression 1.4.9
Compression Level: 19 - Decompression Speed
MB/s, More Is Better
1
SE +/- 18.29, N = 3
4033.4
2
SE +/- 12.02, N = 3
4040.9
3
SE +/- 2.26, N = 3
4000.4
900
1800
2700
3600
4500
1. (CC) gcc options: -O3 -pthread -lz -llzma
Zstd Compression 1.4.9
Compression Level: 3, Long Mode - Compression Speed
MB/s, More Is Better
1
SE +/- 8.10, N = 3
1371.7
2
SE +/- 3.76, N = 3
1370.8
3
SE +/- 6.33, N = 3
1380.5
300
600
900
1200
1500
1. (CC) gcc options: -O3 -pthread -lz -llzma
Zstd Compression 1.4.9
Compression Level: 3, Long Mode - Decompression Speed
MB/s, More Is Better
1
SE +/- 5.03, N = 3
4613.9
2
SE +/- 22.42, N = 3
4565.0
3
SE +/- 21.05, N = 3
4578.2
1000
2000
3000
4000
5000
1. (CC) gcc options: -O3 -pthread -lz -llzma


Zstd Compression 1.4.9
Compression Level: 8, Long Mode - Compression Speed
MB/s, More Is Better
1
SE +/- 3.72, N = 15
441.4
2
SE +/- 6.75, N = 3
451.8
3
SE +/- 4.78, N = 3
459.5
100
200
300
400
500
1. (CC) gcc options: -O3 -pthread -lz -llzma
Zstd Compression 1.4.9
Compression Level: 8, Long Mode - Decompression Speed
MB/s, More Is Better
1
SE +/- 15.40, N = 15
4700.9
2
SE +/- 26.24, N = 3
4727.2
3
SE +/- 29.09, N = 3
4685.0
1000
2000
3000
4000
5000
1. (CC) gcc options: -O3 -pthread -lz -llzma
Zstd Compression 1.4.9
Compression Level: 19, Long Mode - Compression Speed
MB/s, More Is Better
1
SE +/- 0.10, N = 3
29.6
2
SE +/- 0.06, N = 3
29.4
3
SE +/- 0.09, N = 3
29.6
7
14
21
28
35
1. (CC) gcc options: -O3 -pthread -lz -llzma

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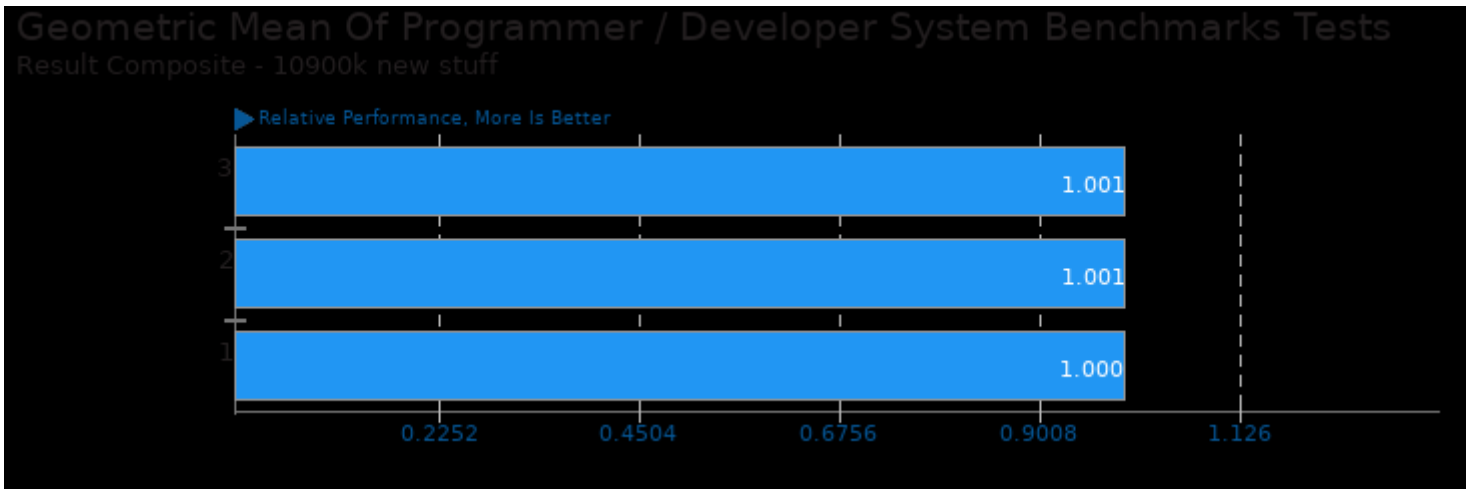
These geometric means are based upon test groupings / test suites for this result file.



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

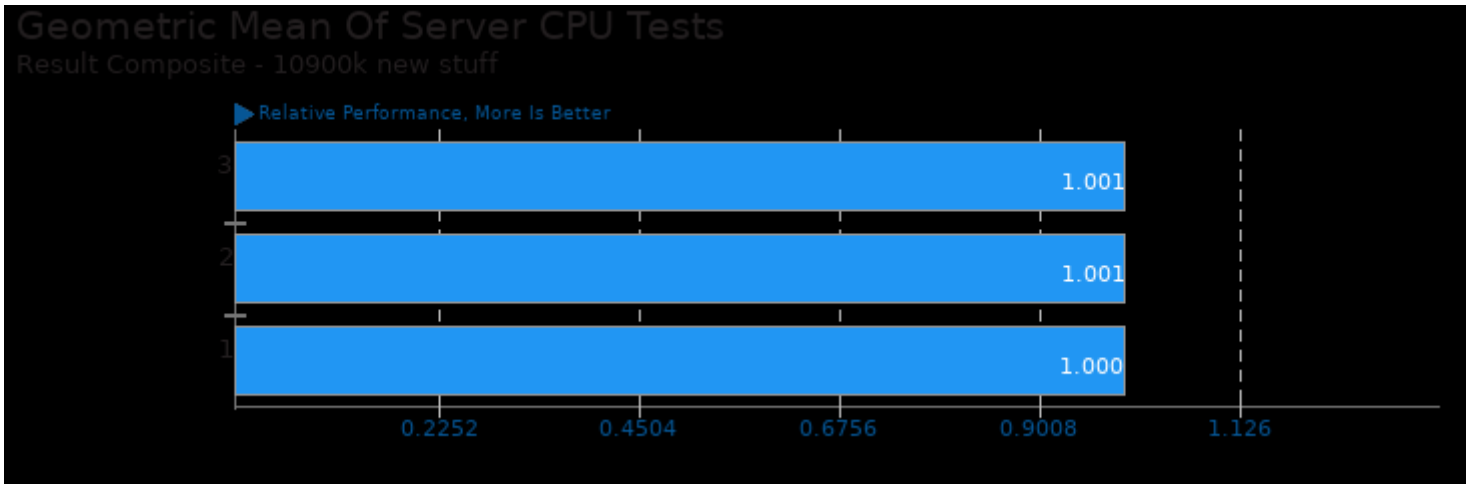


Geometric mean based upon tests: pts/compress-zstd and pts/build-linux-kernel



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

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

This file was automatically generated via the Phoronix Test Suite benchmarking software on Thursday, 28 March 2024 20:32.