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AMD Ryzen 9 3900X 12-Core testing with a ASUS TUF GAMING X570-PLUS (WI-FI) (2203 BIOS) and MSI AMD Radeon RX 580 8GB on Ubuntu 20.04 via the Phoronix Test Suite.

Automated Executive Summary

A had the most wins, coming in first place for 41% of the tests.

Based on the geometric mean of all complete results, the fastest (A) was 1.006x the speed of the slowest (C). B was 1x the speed of A and C was 0.994x the speed of B.

Test Systems:

A

B

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C

Processor: AMD Ryzen 9 3900X 12-Core @ 3.80GHz (12 Cores / 24 Threads), Motherboard: ASUS TUF GAMING X570-PLUS (WI-FI) (2203 BIOS), Chipset: AMD Starship/Matisse, Memory: 16GB, Disk: Samsung SSD 970 EVO Plus 250GB, Graphics: MSI AMD Radeon RX 580 8GB (1366/2000MHz), Audio: AMD Ellesmere HDMI Audio, Monitor: MX279, Network: Realtek RTL8111/8168/8411 + Intel-AC 9260

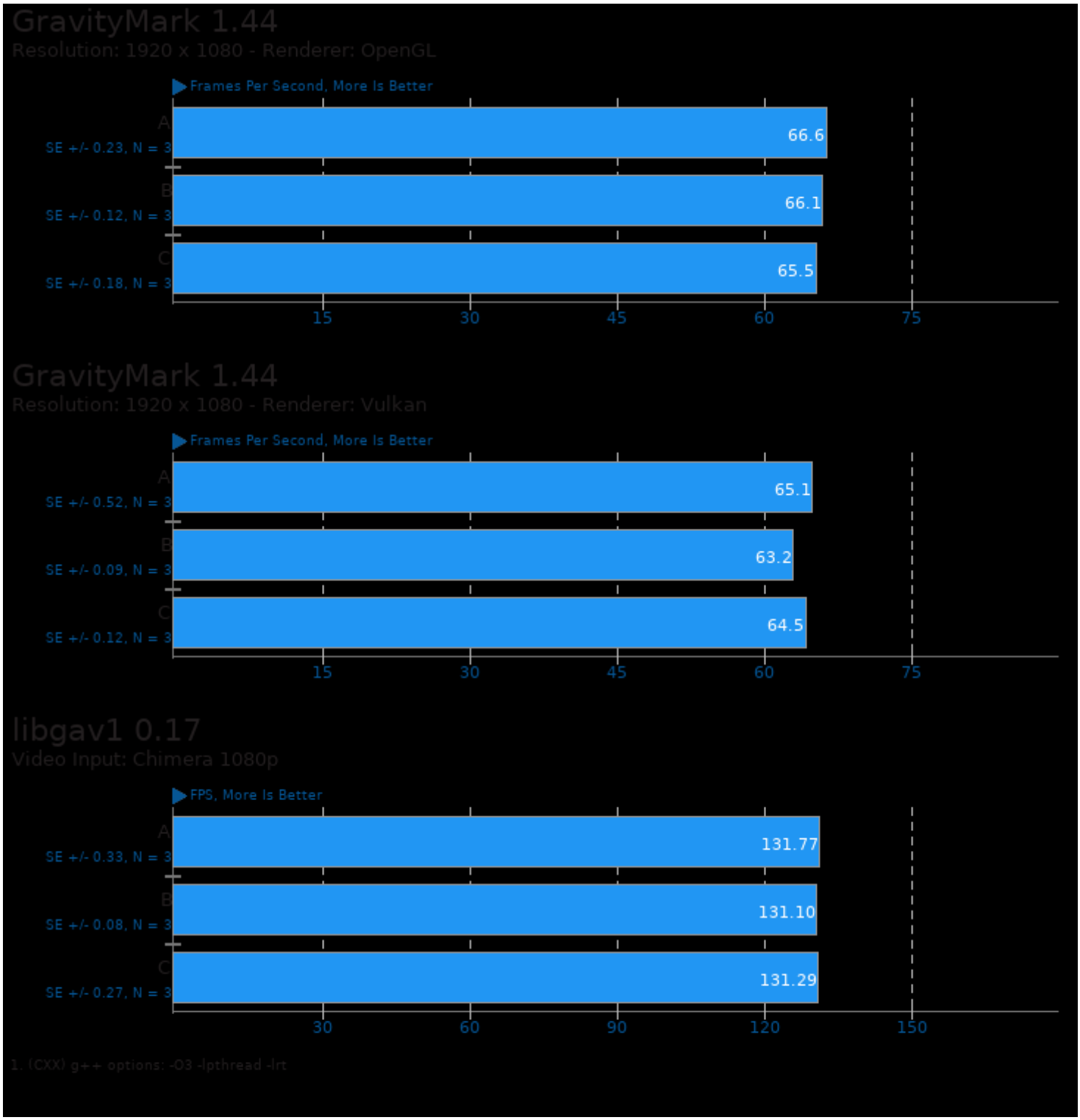
OS: Ubuntu 20.04, Kernel: 5.11.0-rc1-phx (x86_64) 20201228, Desktop: GNOME Shell 3.36.4, Display Server: X Server 1.20.9, OpenGL: 4.6 Mesa 21.0.0-devel (git-28a202f 2020-12-31 focal-oibaf-ppa) (LLVM 11.0.0), Vulkan: 1.2.145, Compiler: GCC 9.3.0, File-System: ext4, Screen Resolution: 1920x1080

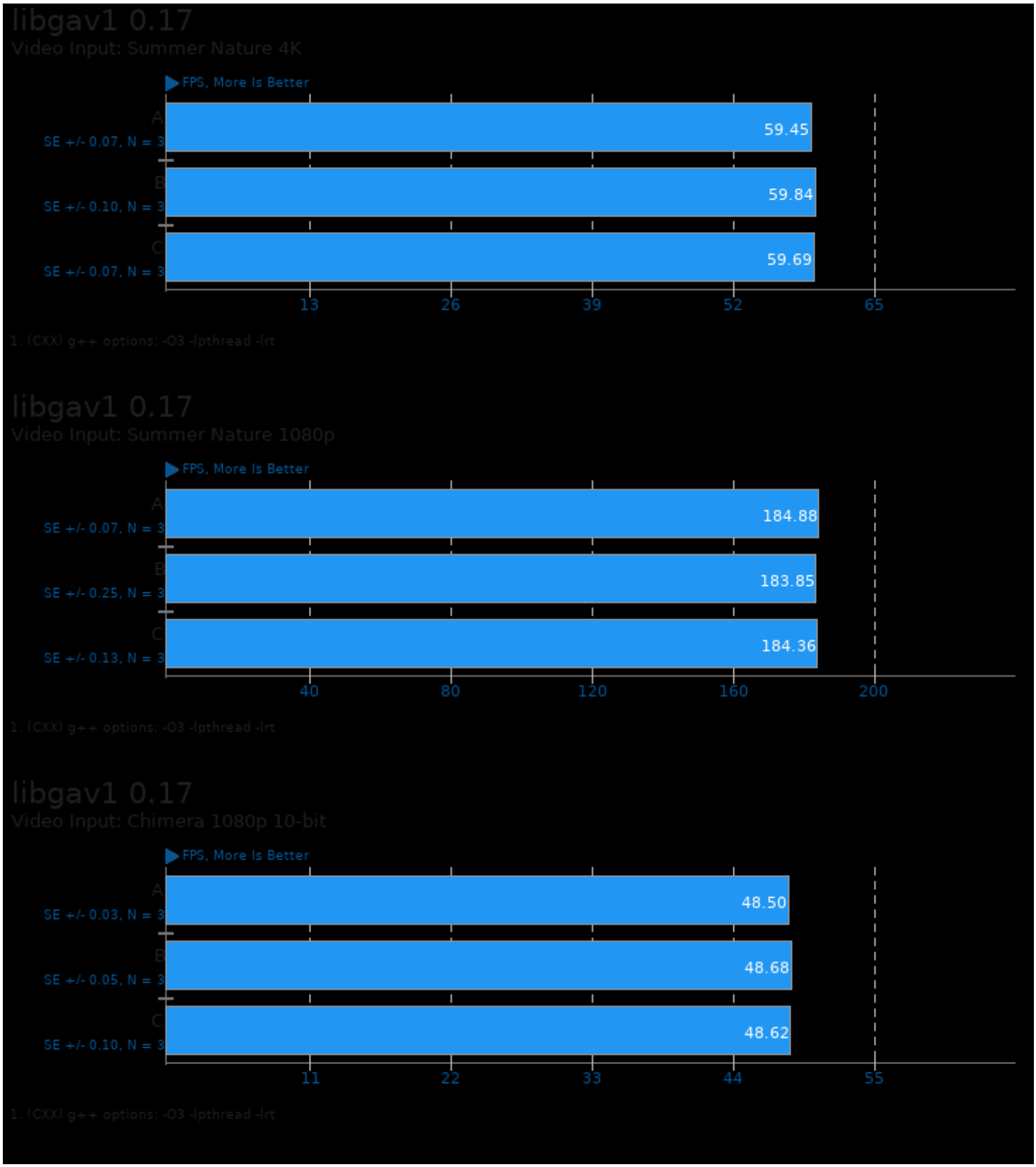
Kernel Notes: Transparent Huge Pages: madvise
Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-9-HskZEa/gcc-9-9.3.0/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: 0x8701021
Graphics Notes: GLAMOR - BAR1 / Visible vRAM Size: 256 MB
Python Notes: Python 3.8.10
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: conditional RSB filling + srbds: Not affected + tsx_async_abort: Not affected

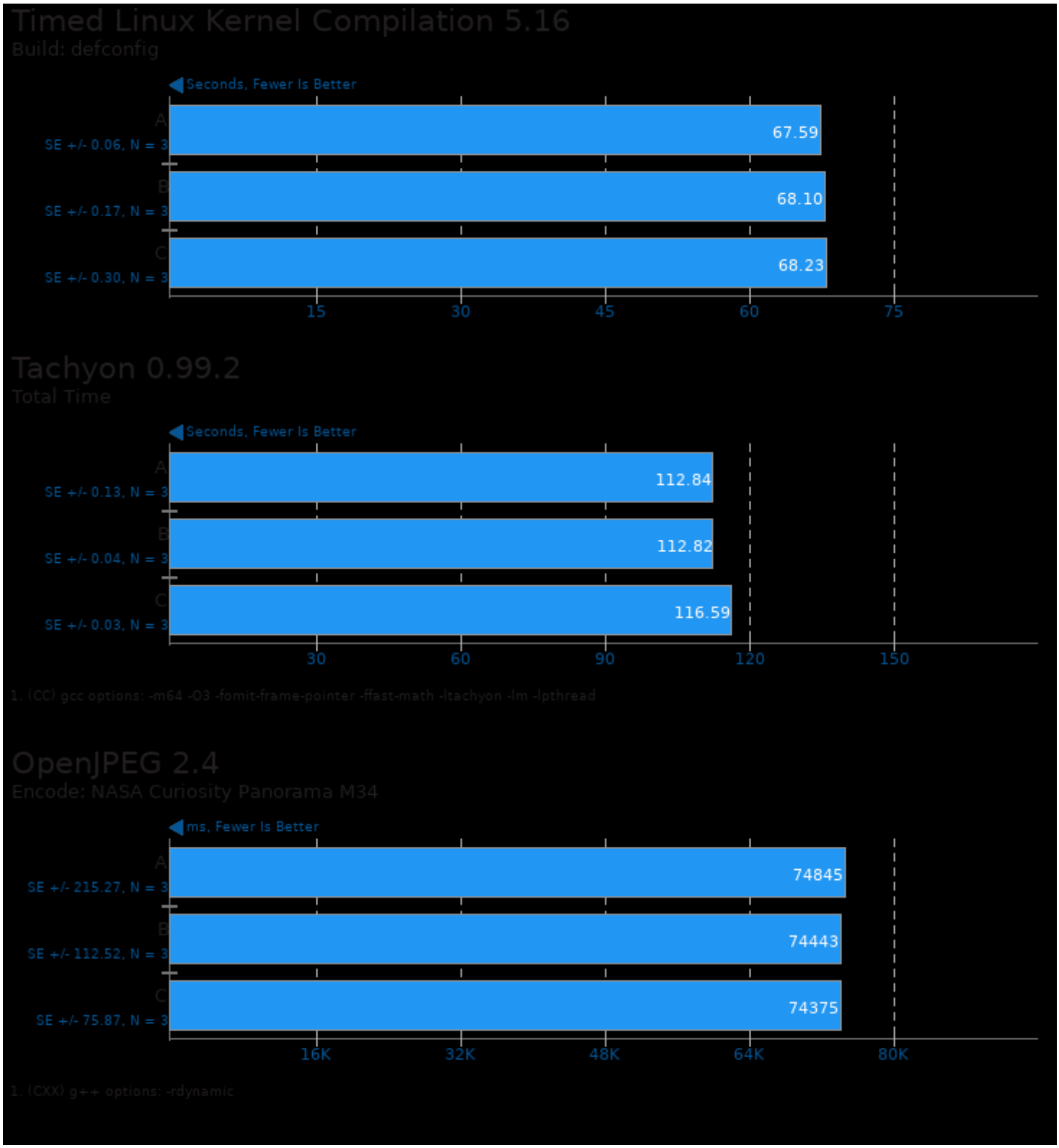
	A	B	C
GravityMark - 1920 x 1080 - OpenGL (FPS)	**66.6**	66.1	**65.5**
Normalized	100%	99.25%	98.35%
Standard Deviation	0.6%	0.3%	0.5%
GravityMark - 1920 x 1080 - Vulkan (FPS)	**65.1**	**63.2**	64.5
Normalized	100%	97.08%	99.08%
Standard Deviation	1.4%	0.2%	0.3%
libgav1 - Chimera 1080p (FPS)	**131.77**	**131.10**	131.29
Normalized	100%	99.49%	99.64%
Standard Deviation	0.4%	0.1%	0.4%
libgav1 - Summer Nature 4K (FPS)	**59.45**	**59.84**	59.69
Normalized	99.35%	100%	99.75%
Standard Deviation	0.2%	0.3%	0.2%
libgav1 - S.N.1 (FPS)	**184.88**	**183.85**	184.36
Normalized	100%	99.44%	99.72%
Standard Deviation	0.1%	0.2%	0.1%
libgav1 - C.1.1.b (FPS)	**48.50**	**48.68**	48.62
Normalized	99.63%	100%	99.88%
Standard Deviation	0.1%	0.2%	0.4%
Timed Linux Kernel Compilation - defconfig (sec)	**67.589**	68.097	**68.232**
Normalized	100%	99.25%	99.06%
Standard Deviation	0.2%	0.4%	0.8%
Tachyon - Total Time (sec)	112.8374	**112.8244**	**116.5910**
Normalized	99.99%	100%	96.77%
Standard Deviation	0.2%	0.1%	0%
OpenJPEG - N.C.P.M (ms)	**74845**	74443	**74375**
Normalized	99.37%	99.91%	100%
Standard Deviation	0.5%	0.3%	0.2%

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Google Draco - Lion (ms)	4731	**4704**	**4810**
Normalized	99.43%	100%	97.8%
Standard Deviation	1.7%	2.4%	2.2%
Google Draco - Church Facade (ms)	7109	**6999**	**7196**
Normalized	98.45%	100%	97.26%
Standard Deviation	2.4%	0.5%	2.5%
GPAW - Carbon Nanotube (sec)	**321.356**	316.405	**315.594**
Normalized	98.21%	99.74%	100%
Standard Deviation	1.5%	0.2%	0.2%

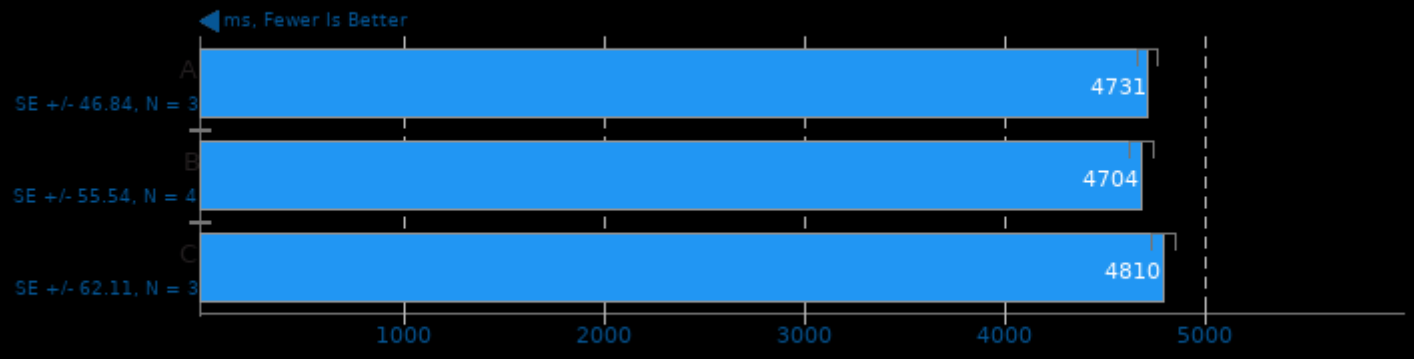

GravityMark 1.44
Resolution: 1920 x 1080 - Renderer: OpenGL
Frames Per Second, More Is Better
A
SE +/- 0.23, N = 3
66.6
B
SE +/- 0.12, N = 3
66.1
C
SE +/- 0.18, N = 3
65.5
15
30
45
60
75
GravityMark 1.44
Resolution: 1920 x 1080 - Renderer: Vulkan
Frames Per Second, More Is Better
A
SE +/- 0.52, N = 3
65.1
B
SE +/- 0.09, N = 3
63.2
C
SE +/- 0.12, N = 3
64.5
15
30
45
60
75
libgav1 0.17
Video Input: Chimera 1080p
FPS, More Is Better
A
SE +/- 0.33, N = 3
131.77
B
SE +/- 0.08, N = 3
131.10
C
SE +/- 0.27, N = 3
131.29
30
60
90
120
150
1. (CXX) g++ options: -O3 -lpthread -lrt


libgav1 0.17
Video Input: Summer Nature 4K
FPS, More Is Better
A
SE +/- 0.07, N = 3
59.45
B
SE +/- 0.10, N = 3
59.84
C
SE +/- 0.07, N = 3
59.69
13
26
39
52
65
1. (CXX) g++ options: -O3 -lpthread -lrt
libgav1 0.17
Video Input: Summer Nature 1080p
FPS, More Is Better
A
SE +/- 0.07, N = 3
184.88
B
SE +/- 0.25, N = 3
183.85
C
SE +/- 0.13, N = 3
184.36
40
80
120
160
200
1. (CXX) g++ options: -O3 -lpthread -lrt
libgav1 0.17
Video Input: Chimera 1080p 10-bit
FPS, More Is Better
A
SE +/- 0.03, N = 3
48.50
B
SE +/- 0.05, N = 3
48.68
C
SE +/- 0.10, N = 3
48.62
11
22
33
44
55
1. (CXX) g++ options: -O3 -lpthread -lrt


Timed Linux Kernel Compilation 5.16
Build: defconfig
Seconds, Fewer Is Better
A
SE +/- 0.06, N = 3
67.59
B
SE +/- 0.17, N = 3
68.10
C
SE +/- 0.30, N = 3
68.23
15
30
45
60
75
Tachyon 0.99.2
Total Time
Seconds, Fewer Is Better
A
SE +/- 0.13, N = 3
112.84
B
SE +/- 0.04, N = 3
112.82
C
SE +/- 0.03, N = 3
116.59
30
60
90
120
150
1. (CC) gcc options: -m64 -O3 -fomit-frame-pointer -ffast-math -ltachyon -lm -lpthread
OpenJPEG 2.4
Encode: NASA Curiosity Panorama M34
ms, Fewer Is Better
A
SE +/- 215.27, N = 3
74845
B
SE +/- 112.52, N = 3
74443
C
SE +/- 75.87, N = 3
74375
16K
32K
48K
64K
80K
1. (CXX) g++ options: -rdynamic

Google Draco 1.5.0

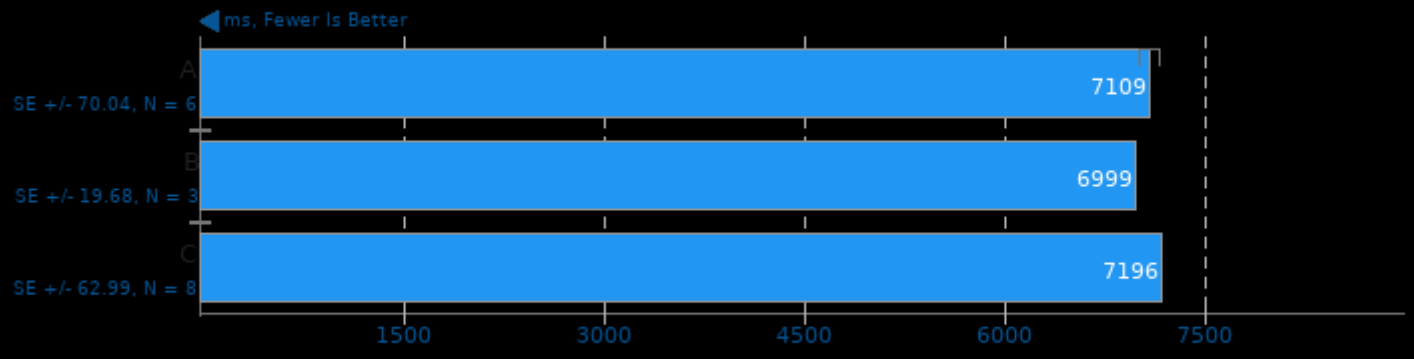
Model: Lion



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

Google Draco 1.5.0

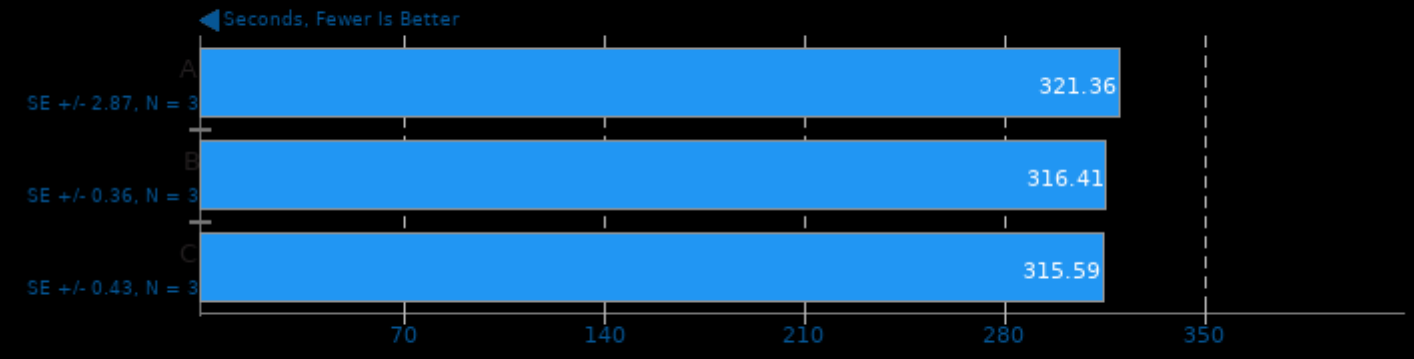
Model: Church Facade



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

GPAW 22.1

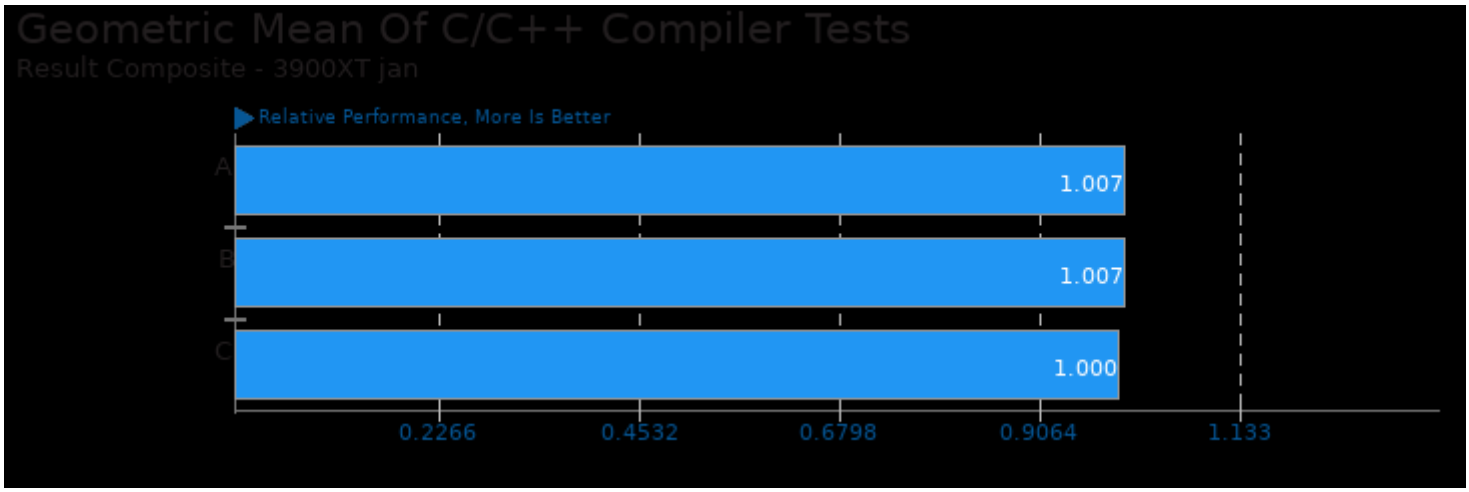
Input: Carbon Nanotube



1. (CC) gcc options: -pthread -shared -fwrapv -O2 -lxc -lblas -lmpi

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



Geometric mean based upon tests: pts/libgav1 and pts/tachyon



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



Geometric mean based upon tests: pts/tachyon, pts/libgav1, pts/openjpeg and pts/draco

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Geometric mean based upon tests: pts/tachyon, pts/libgav1 and pts/build-linux-kernel

This file was automatically generated via the Phoronix Test Suite benchmarking software on Thursday, 28 March 2024 17:08.