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AMD Ryzen 9 5950X 16-Core testing with a MSI MEG X570 GODLIKE (MS-7C34) v1.0 (1.I0 BIOS) and eVGA NVIDIA GeForce GTX 1060 6GB on Gentoo 2.9 via the Phoronix Test Suite.

Automated Executive Summary

2 had the most wins, coming in first place for 86% of the tests.

Based on the geometric mean of all complete results, the fastest (2) was 1.023x the speed of the slowest (AMD Ryzen 9 5950X 16-Core).

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

Zstd Compression (Compression Level: 8 - Compression Speed) at 1.099x
C-Blosc (Test: blosclz shuffle) at 1.077x
C-Blosc (Test: blosclz bitshuffle) at 1.077x
Zstd Compression (Compression Level: 3, Long Mode - Compression Speed) at 1.029x
Zstd Compression (Compression Level: 19 - Decompression Speed) at 1.027x
Zstd Compression (Compression Level: 8, Long Mode - Decompression Speed) at 1.023x
Zstd Compression (Compression Level: 3 - Compression Speed) at 1.021x
AOM AV1 (Encoder Mode: Speed 4 Two-Pass - Input: Bosphorus 1080p) at 1.02x
AOM AV1 (Encoder Mode: Speed 4 Two-Pass - Input: Bosphorus 4K) at 1.019x

Timed Linux Kernel Compilation (Build: defconfig) at 1.018x.

Test Systems:

AMD Ryzen 9 5950X 16-Core

2

Processor: AMD Ryzen 9 5950X 16-Core @ 3.40GHz (16 Cores / 32 Threads), Motherboard: MSI MEG X570 GODLIKE (MS-7C34) v1.0 (1.I0 BIOS), Chipset: AMD Starship/Matisse, Memory: 2 x 16 GB DDR4-3733MT/s TEAMGROUP-UD4-3600, Disk: 3 x 1000GB Samsung SSD 980 PRO 1TB, Graphics: eVGA NVIDIA GeForce GTX 1060 6GB, Audio: NVIDIA GP106 HD Audio, Network: Realtek Device 2600 + Realtek Killer E3000 2.5GbE + Intel Wi-Fi 6 AX200

OS: Gentoo 2.9, Kernel: 6.1.0-harambe-edition (x86_64), Desktop: KDE Plasma 5.26.4, Display Server: X Server 1.21.1.4, Display Driver: NVIDIA 515.86.01, Compiler: GCC 12.2.1 20221210 + Clang 15.0.6 + LLVM 15.0.6, File-System: ext4

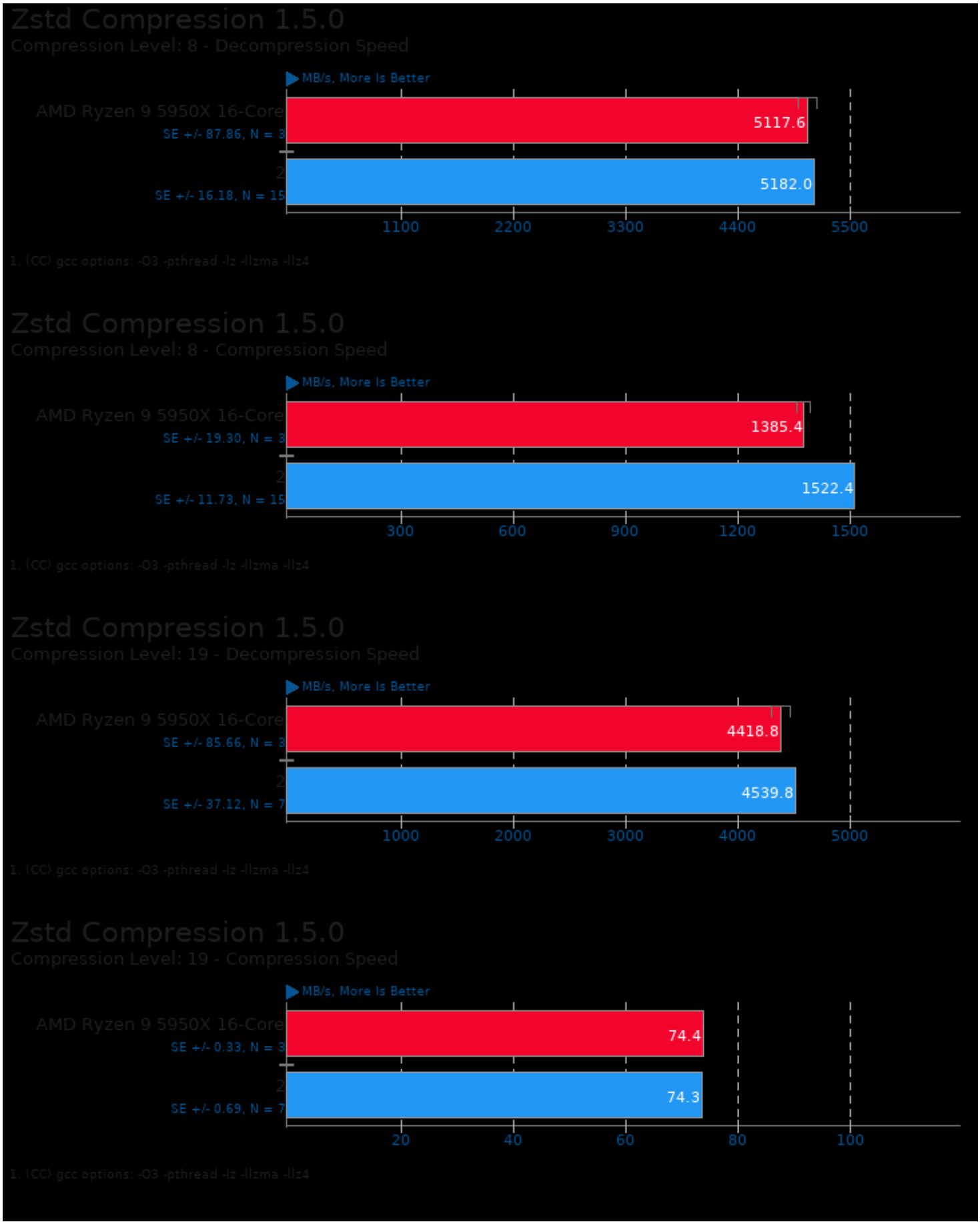
Kernel Notes: Transparent Huge Pages: madvise
Compiler Notes: --bindir=/usr/x86_64-pc-linux-gnu/gcc-bin/12 --build=x86_64-pc-linux-gnu --datadir=/usr/share/gcc-data/x86_64-pc-linux-gnu/12 --disable-cet --disable-default-ssp --disable-esp --disable-fixed-point --disable-isl-version-check --disable-libada --disable-libsanitizer --disable-libssp --disable-libstdcxx-pch --disable-libunwind-exceptions --disable-libvtv --disable-nls --disable-systemtap --disable-valgrind-annotations --disable-vtable-verify --disable-werror --enable-__cxa_atexit --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-languages=c,c++,go,fortran --enable-libgomp --enable-libstdcxx-time --enable-lto --enable-multilib --enable-obsolete --enable-secureplt --enable-shared --enable-targets=all --enable-threads=posix --host=x86_64-pc-linux-gnu --includedir=/usr/lib/gcc/x86_64-pc-linux-gnu/12/include --mandir=/usr/share/gcc-data/x86_64-pc-linux-gnu/12/man --with-build-config=bootstrap-lto --with-gcc-major-version-only --with-isl --with-multilib-list=m32,m64 --with-python-dir=/share/gcc-data/x86_64-pc-linux-gnu/12/python --with-zstd
Processor Notes: Scaling Governor: acpi-cpufreq performance (Boost: Enabled) - CPU Microcode: 0xa201016
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: Vulnerable IBPB: conditional IBRS_FW STIBP: always-on RSB filling PBRSB-eIBRS: Not affected + srbds: Not affected + tsx_async_abort: Not affected

	AMD Ryzen 9 5950X 16-Core	2
Zstd Compression - 8 - D.S (MB/s)	**5118**	**5182**
Normalized	98.76%	100%
Standard Deviation	3%	1.2%
Zstd Compression - 8 - Compression Speed (MB/s)	**1385**	**1522**
Normalized	91%	100%
Standard Deviation	2.4%	3%
Zstd Compression - 19 - D.S (MB/s)	**4419**	**4540**
Normalized	97.33%	100%
Standard Deviation	3.4%	2.2%
Zstd Compression - 19 - Compression Speed (MB/s)	**74.4**	**74.3**
Normalized	100%	99.87%
Standard Deviation	0.8%	2.5%
AOM AV1 - Speed 4 Two-Pass - Bosphorus 4K (FPS)	**10.44**	**10.64**
Normalized	98.12%	100%

Standard Deviation	0.5%	0.2%
Timed Linux Kernel Compilation - defconfig (sec)	**51.987**	**51.077**
Normalized	98.25%	100%
Standard Deviation	1.1%	1%
AOM AV1 - Speed 6 Two-Pass - Bosphorus 4K (FPS)	**18.35**	**18.67**
Normalized	98.29%	100%
Standard Deviation	0.3%	0.4%
Zstd Compression - 19, Long Mode - D.S (MB/s)	**4555**	**4542**
Normalized	100%	99.71%
Standard Deviation	1.2%	0.2%
Zstd Compression - 19, Long Mode - Compression Speed (MB/s)	**53.2**	**53.4**
Normalized	99.63%	100%
Standard Deviation	0.9%	0.6%
Zstd Compression - 3, Long Mode - D.S (MB/s)	**5309**	**5381**
Normalized	98.67%	100%
Standard Deviation	0.7%	0.5%
Zstd Compression - 3, Long Mode - Compression Speed (MB/s)	**1385**	**1425**
Normalized	97.17%	100%
Standard Deviation	0.8%	1.3%
Zstd Compression - 3 - D.S (MB/s)	**4962**	**5028**
Normalized	98.69%	100%
Standard Deviation	2.3%	0.9%
Zstd Compression - 3 - Compression Speed (MB/s)	**5181**	**5289**
Normalized	97.96%	100%
Standard Deviation	0.8%	0.1%
Zstd Compression - 8, Long Mode - D.S (MB/s)	**5505**	**5629**
Normalized	97.8%	100%
Standard Deviation	0.6%	0.7%
Zstd Compression - 8, Long Mode - Compression Speed (MB/s)	**1355**	**1375**
Normalized	98.49%	100%
Standard Deviation	1.2%	1.4%
AOM AV1 - Speed 4 Two-Pass - Bosphorus 1080p	**20.97**	**21.38**
Normalized	98.08%	100%
Standard Deviation	0.4%	0.1%
C-Blosc - blosclz shuffle (MB/s)	**25331**	**27282**
Normalized	92.85%	100%
Standard Deviation	2.8%	0.5%
x265 - Bosphorus 4K (FPS)	**29.96**	**30.43**
Normalized	98.46%	100%
Standard Deviation	0.6%	0.3%
AOM AV1 - Speed 6 Two-Pass - Bosphorus 1080p	**42.63**	**43.34**
Normalized	98.36%	100%
Standard Deviation	0.1%	0.9%
C-Blosc - blosclz bitshuffle (MB/s)	**15539**	**16735**
Normalized	92.86%	100%
Standard Deviation	0.4%	2.2%
x264 - Bosphorus 4K (FPS)	**58.92**	**59.86**
Normalized	98.43%	100%
Standard Deviation	0.4%	0.4%
x265 - Bosphorus 1080p (FPS)	**92.65**	**92.25**
Normalized	100%	99.57%
Standard Deviation	0.3%	0.4%

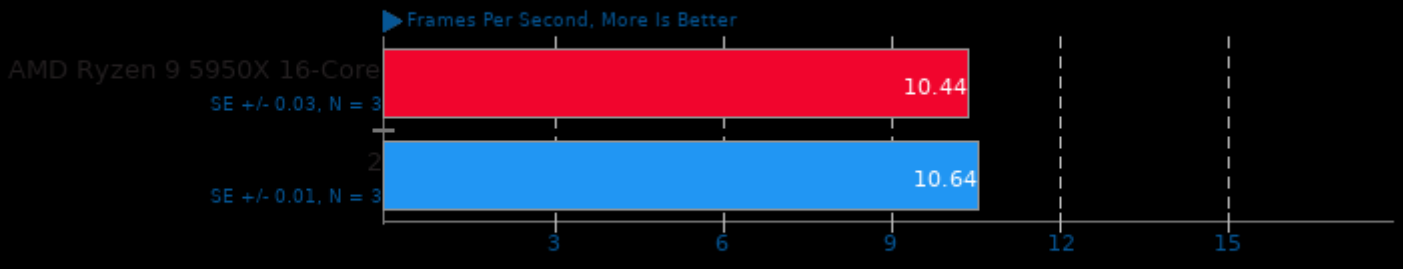
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x264 - Bosphorus 1080p (FPS)	220.06	221.96
Normalized	99.14%	100%
Standard Deviation	0.3%	1.1%


Zstd Compression 1.5.0
Compression Level: 8 - Decompression Speed
MB/s, More Is Better
AMD Ryzen 9 5950X 16-Core
SE +/- 87.86, N = 3
5117.6
SE +/- 16.18, N = 15
5182.0
1100
2200
3300
4400
5500
1. (CC) gcc options: -O3 -pthread -lz -llzma -llz4
Zstd Compression 1.5.0
Compression Level: 8 - Compression Speed
MB/s, More Is Better
AMD Ryzen 9 5950X 16-Core
SE +/- 19.30, N = 3
1385.4
SE +/- 11.73, N = 15
1522.4
300
600
900
1200
1500
1. (CC) gcc options: -O3 -pthread -lz -llzma -llz4
Zstd Compression 1.5.0
Compression Level: 19 - Decompression Speed
MB/s, More Is Better
AMD Ryzen 9 5950X 16-Core
SE +/- 85.66, N = 3
4418.8
SE +/- 37.12, N = 7
4539.8
1000
2000
3000
4000
5000
1. (CC) gcc options: -O3 -pthread -lz -llzma -llz4
Zstd Compression 1.5.0
Compression Level: 19 - Compression Speed
MB/s, More Is Better
AMD Ryzen 9 5950X 16-Core
SE +/- 0.33, N = 3
74.4
SE +/- 0.69, N = 7
74.3
20
40
60
80
100
1. (CC) gcc options: -O3 -pthread -lz -llzma -llz4

AOM AV1 3.5

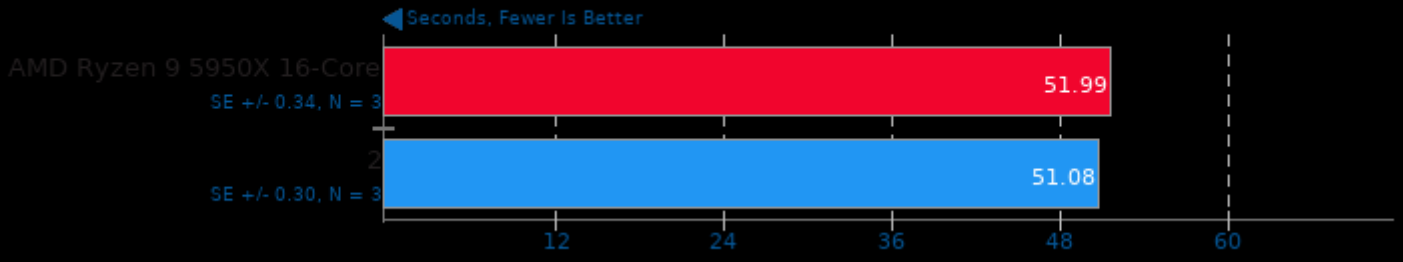
Encoder Mode: Speed 4 Two-Pass - Input: Bosphorus 4K



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

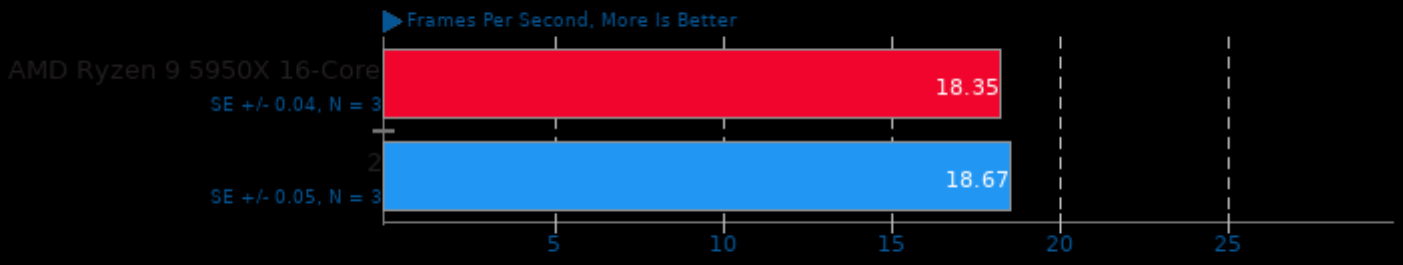
Timed Linux Kernel Compilation 6.1

Build: defconfig



AOM AV1 3.5

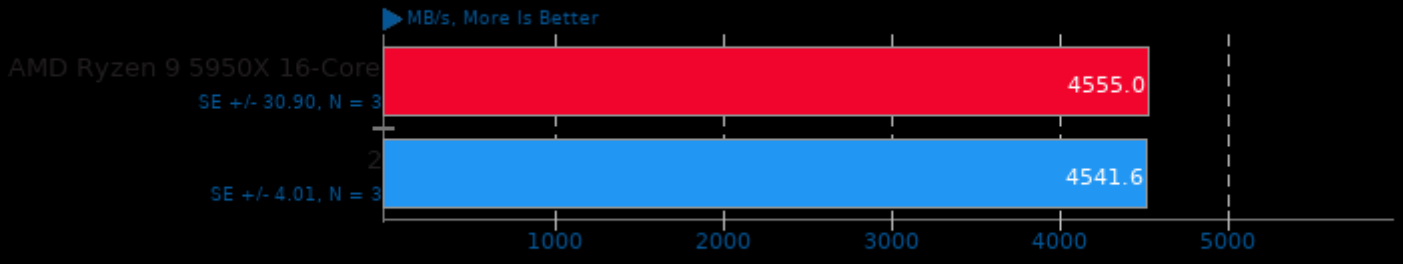
Encoder Mode: Speed 6 Two-Pass - Input: Bosphorus 4K



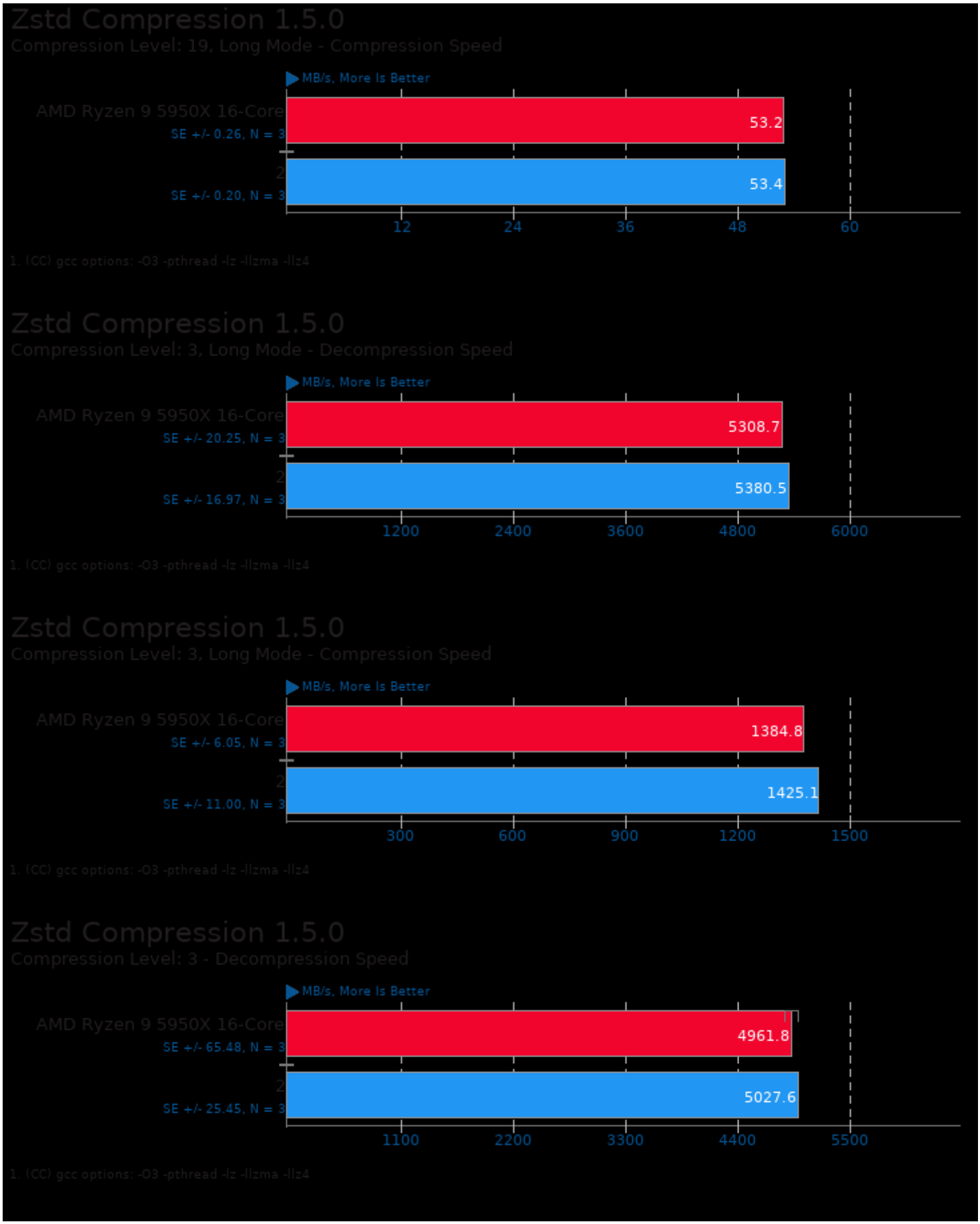
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm

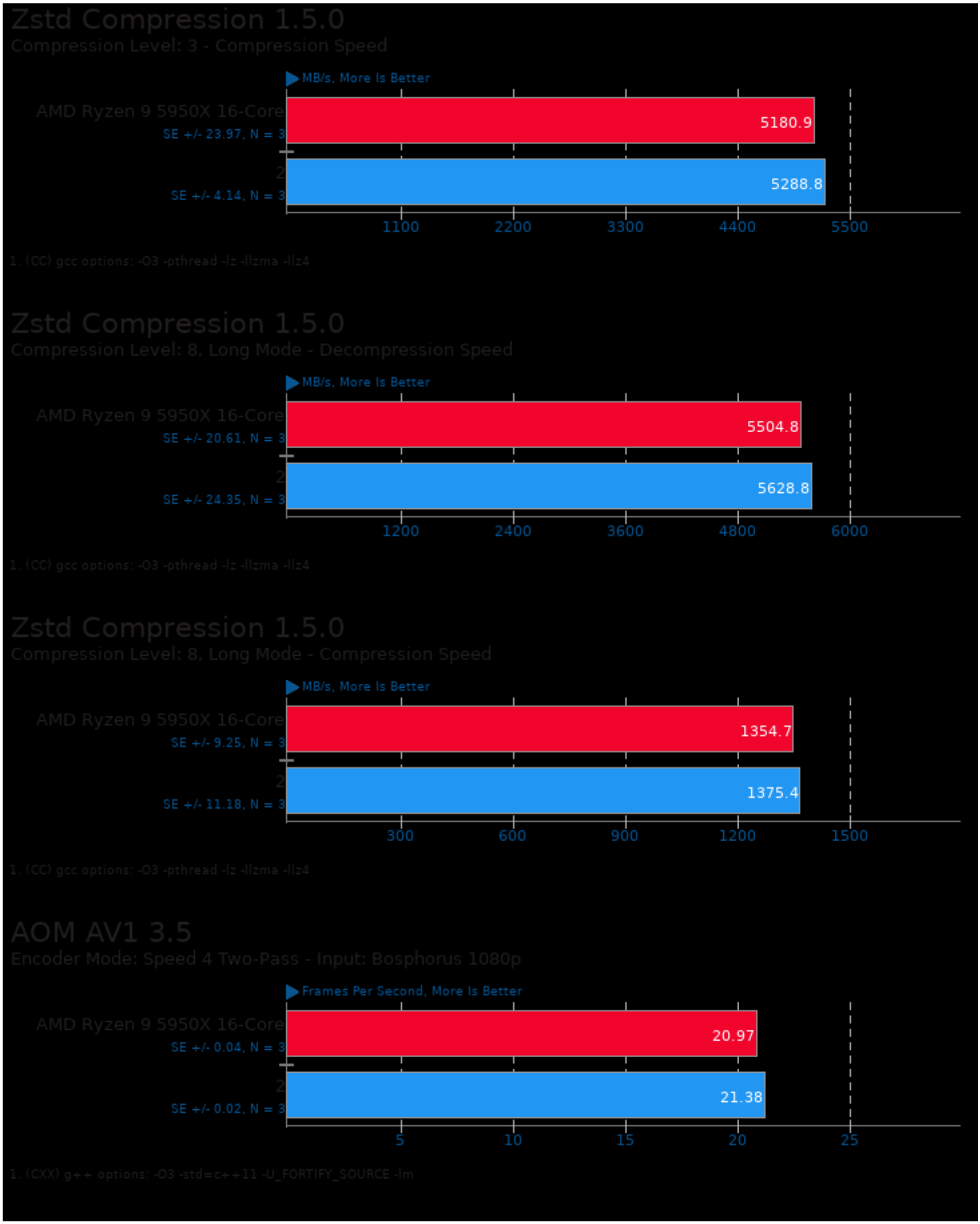
Zstd Compression 1.5.0

Compression Level: 19, Long Mode - Decompression Speed



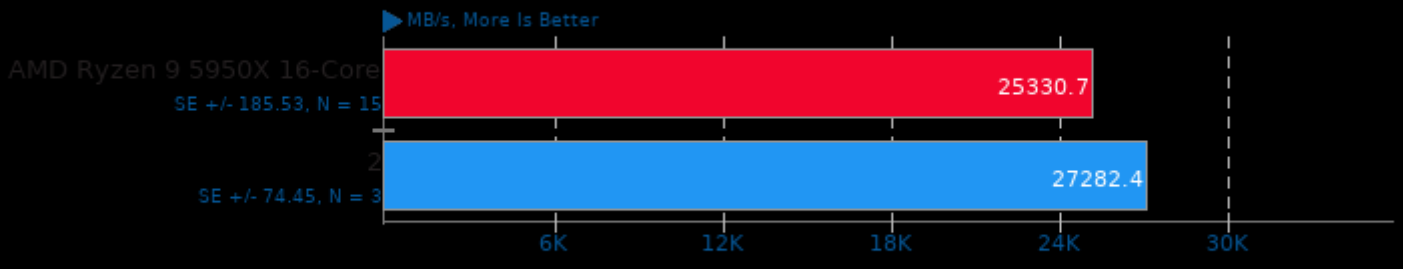
1. (CC) gcc options: -O3 -pthread -lz -llzma -llz4


Zstd Compression 1.5.0
Compression Level: 19, Long Mode - Compression Speed
MB/s, More Is Better
AMD Ryzen 9 5950X 16-Core
SE +/- 0.26, N = 3
53.2
SE +/- 0.20, N = 3
53.4
12
24
36
48
60
1. (CC) gcc options: -O3 -pthread -lz -llzma -llz4
Zstd Compression 1.5.0
Compression Level: 3, Long Mode - Decompression Speed
MB/s, More Is Better
AMD Ryzen 9 5950X 16-Core
SE +/- 20.25, N = 3
5308.7
SE +/- 16.97, N = 3
5380.5
1200
2400
3600
4800
6000
1. (CC) gcc options: -O3 -pthread -lz -llzma -llz4
Zstd Compression 1.5.0
Compression Level: 3, Long Mode - Compression Speed
MB/s, More Is Better
AMD Ryzen 9 5950X 16-Core
SE +/- 6.05, N = 3
1384.8
SE +/- 11.00, N = 3
1425.1
300
600
900
1200
1500
1. (CC) gcc options: -O3 -pthread -lz -llzma -llz4
Zstd Compression 1.5.0
Compression Level: 3 - Decompression Speed
MB/s, More Is Better
AMD Ryzen 9 5950X 16-Core
SE +/- 65.48, N = 3
4961.8
SE +/- 25.45, N = 3
5027.6
1100
2200
3300
4400
5500
1. (CC) gcc options: -O3 -pthread -lz -llzma -llz4


Zstd Compression 1.5.0
Compression Level: 3 - Compression Speed
MB/s, More Is Better
AMD Ryzen 9 5950X 16-Core
SE +/- 23.97, N = 3
5180.9
SE +/- 4.14, N = 3
5288.8
1100
2200
3300
4400
5500
1. (CC) gcc options: -O3 -pthread -lz -llzma -llz4
Zstd Compression 1.5.0
Compression Level: 8, Long Mode - Decompression Speed
MB/s, More Is Better
AMD Ryzen 9 5950X 16-Core
SE +/- 20.61, N = 3
5504.8
SE +/- 24.35, N = 3
5628.8
1200
2400
3600
4800
6000
1. (CC) gcc options: -O3 -pthread -lz -llzma -llz4
Zstd Compression 1.5.0
Compression Level: 8, Long Mode - Compression Speed
MB/s, More Is Better
AMD Ryzen 9 5950X 16-Core
SE +/- 9.25, N = 3
1354.7
SE +/- 11.18, N = 3
1375.4
300
600
900
1200
1500
1. (CC) gcc options: -O3 -pthread -lz -llzma -llz4
AOM AV1 3.5
Encoder Mode: Speed 4 Two-Pass - Input: Bosphorus 1080p
Frames Per Second, More Is Better
AMD Ryzen 9 5950X 16-Core
SE +/- 0.04, N = 3
20.97
SE +/- 0.02, N = 3
21.38
5
10
15
20
25
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm

C-Blosc 2.3

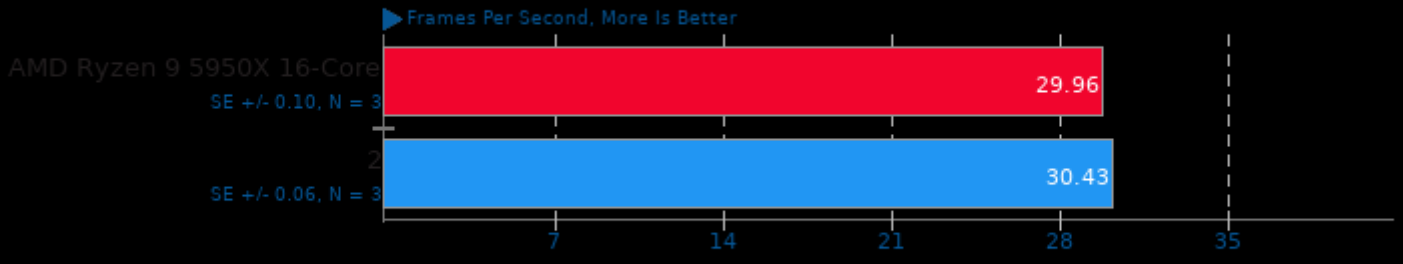
Test: blosclz shuffle



1. (CC) gcc options: -std=gnu99 -O3 -lrt -lm

x265 3.4

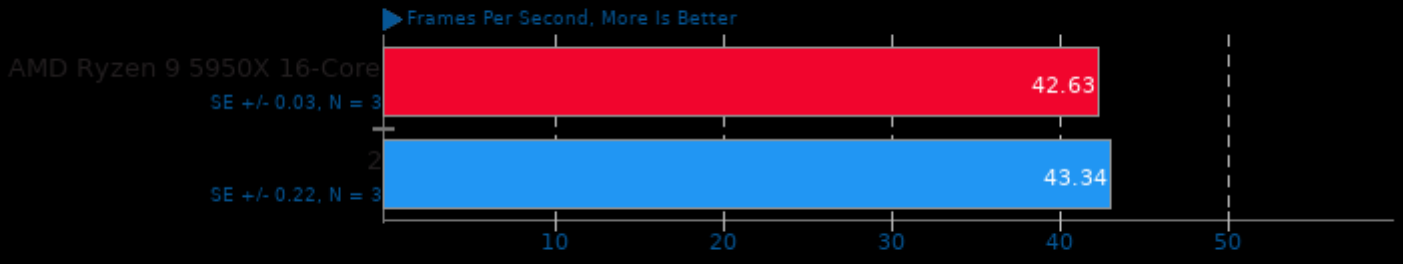
Video Input: Bosphorus 4K



1. (CXX) g++ options: -O3 -rdynamic -lpthread -lrt -ldl

AOM AV1 3.5

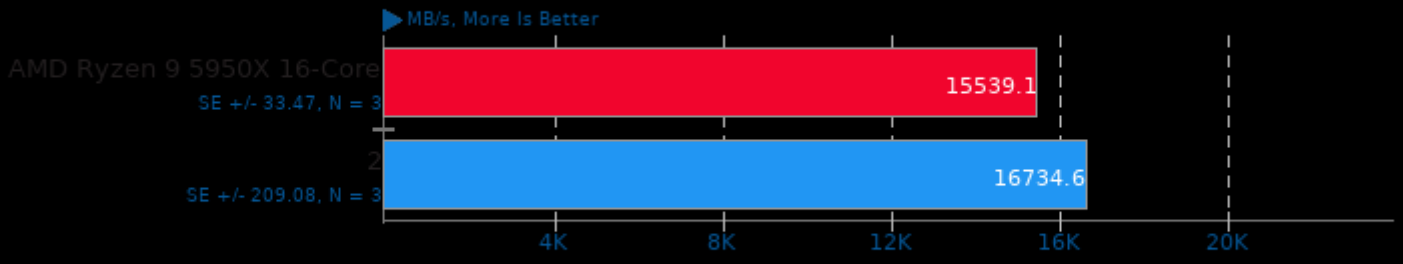
Encoder Mode: Speed 6 Two-Pass - Input: Bosphorus 1080p



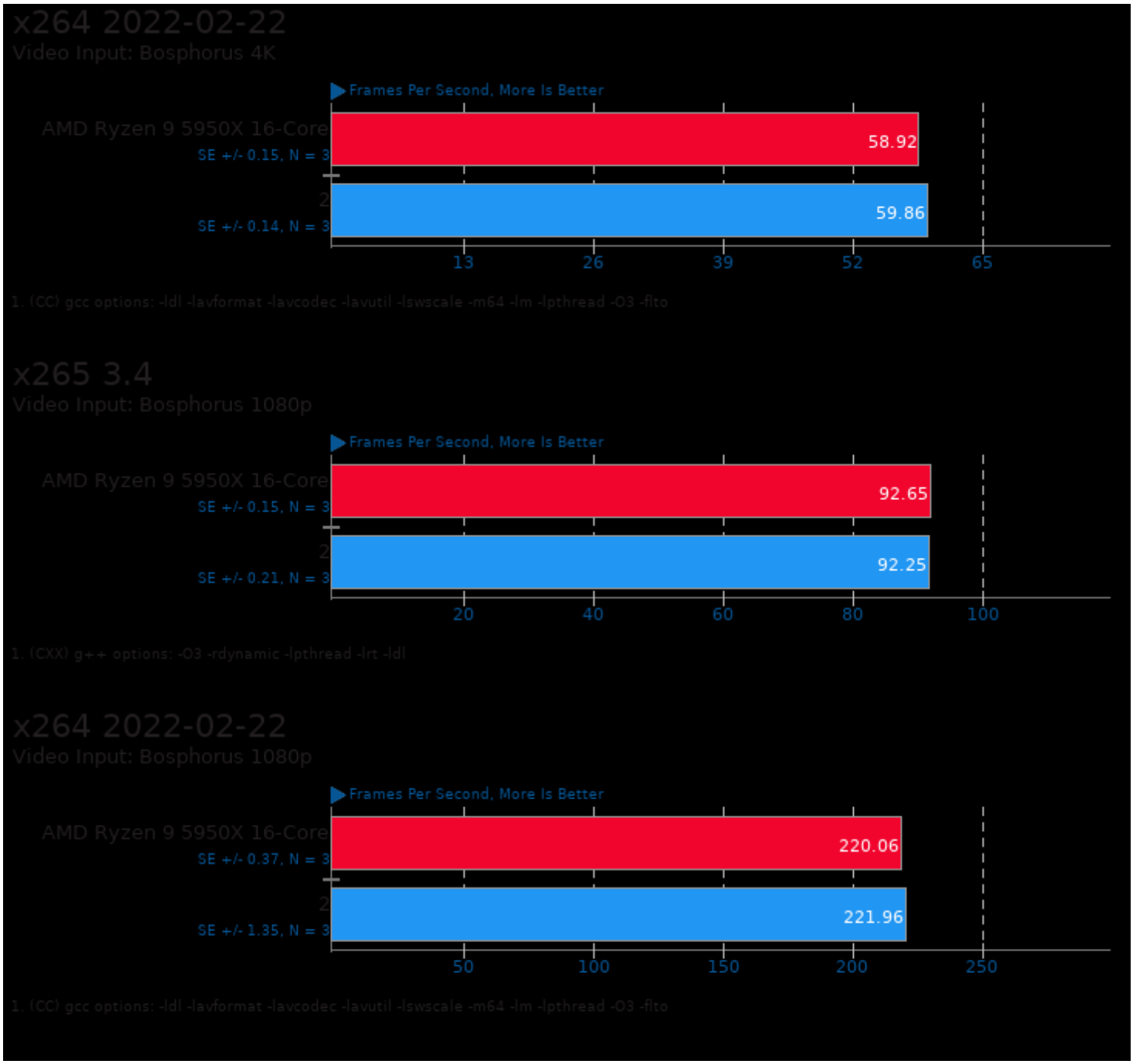
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm

C-Blosc 2.3

Test: blosclz bitshuffle

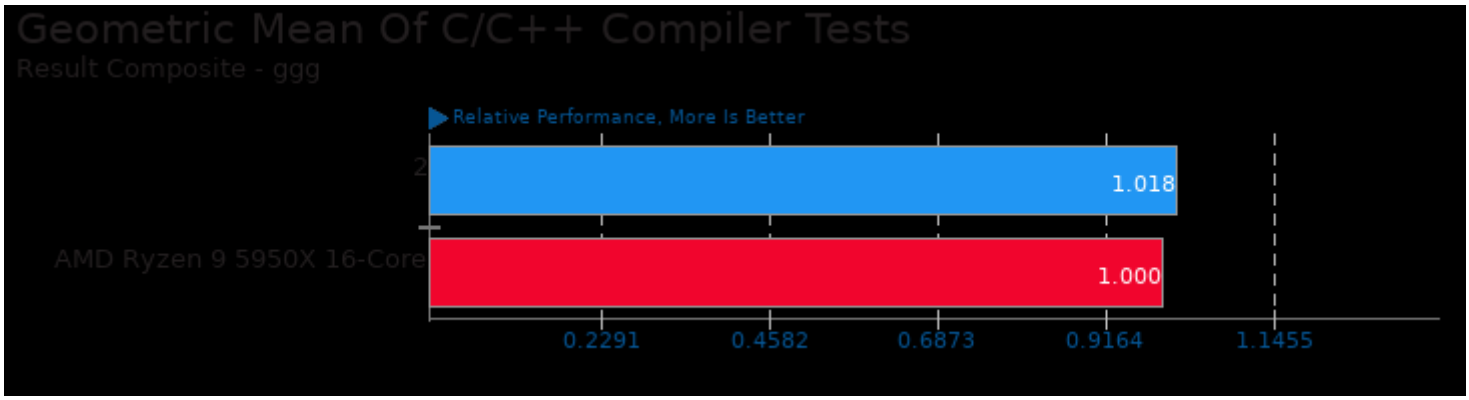


1. (CC) gcc options: -std=gnu99 -O3 -lrt -lm

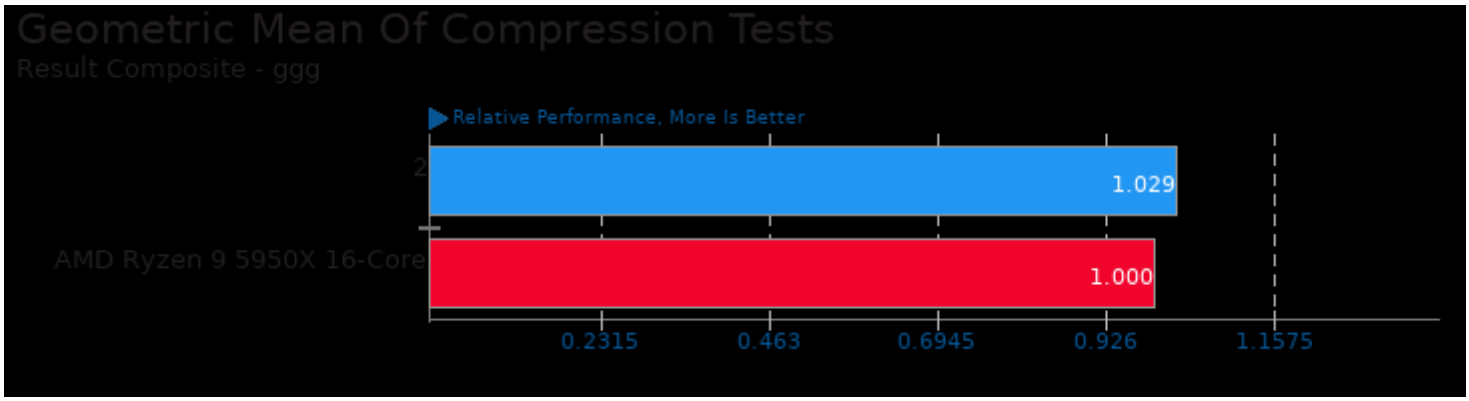

x264 2022-02-22
Video Input: Bosphorus 4K
Frames Per Second, More Is Better
AMD Ryzen 9 5950X 16-Core
SE +/- 0.15, N = 3
58.92
SE +/- 0.14, N = 3
59.86
13
26
39
52
65
1. (CC) gcc options: -ldl -lavformat -lavcodec -lavutil -lswscale -m64 -lm -lpthread -O3 -flto
x265 3.4
Video Input: Bosphorus 1080p
Frames Per Second, More Is Better
AMD Ryzen 9 5950X 16-Core
SE +/- 0.15, N = 3
92.65
SE +/- 0.21, N = 3
92.25
20
40
60
80
100
1. (CXX) g++ options: -O3 -rdynamic -lpthread -lrt -ldl
x264 2022-02-22
Video Input: Bosphorus 1080p
Frames Per Second, More Is Better
AMD Ryzen 9 5950X 16-Core
SE +/- 0.37, N = 3
220.06
SE +/- 1.35, N = 3
221.96
50
100
150
200
250
1. (CC) gcc options: -ldl -lavformat -lavcodec -lavutil -lswscale -m64 -lm -lpthread -O3 -flto

ggg

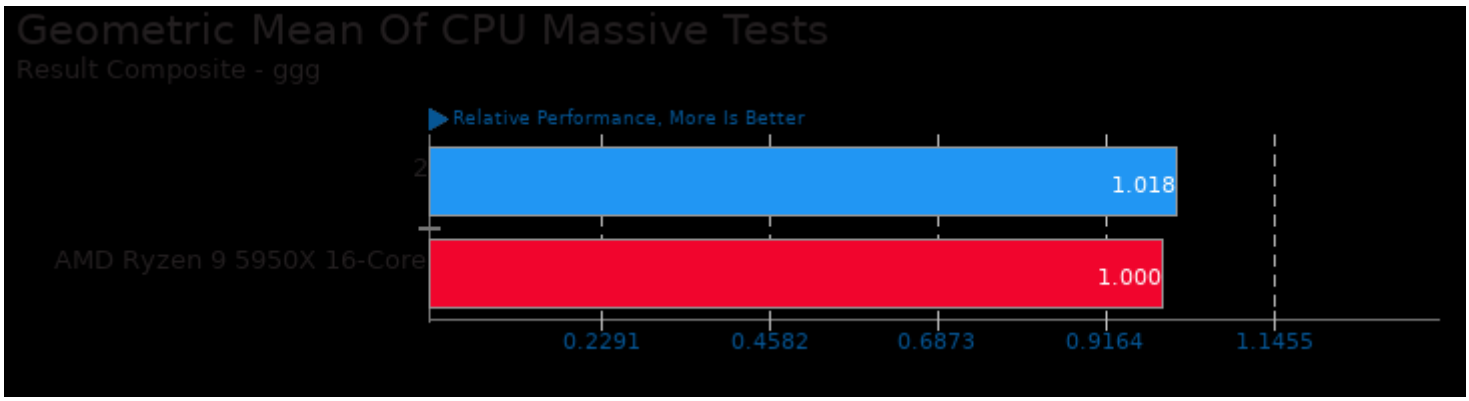
These geometric means are based upon test groupings / test suites for this result file.



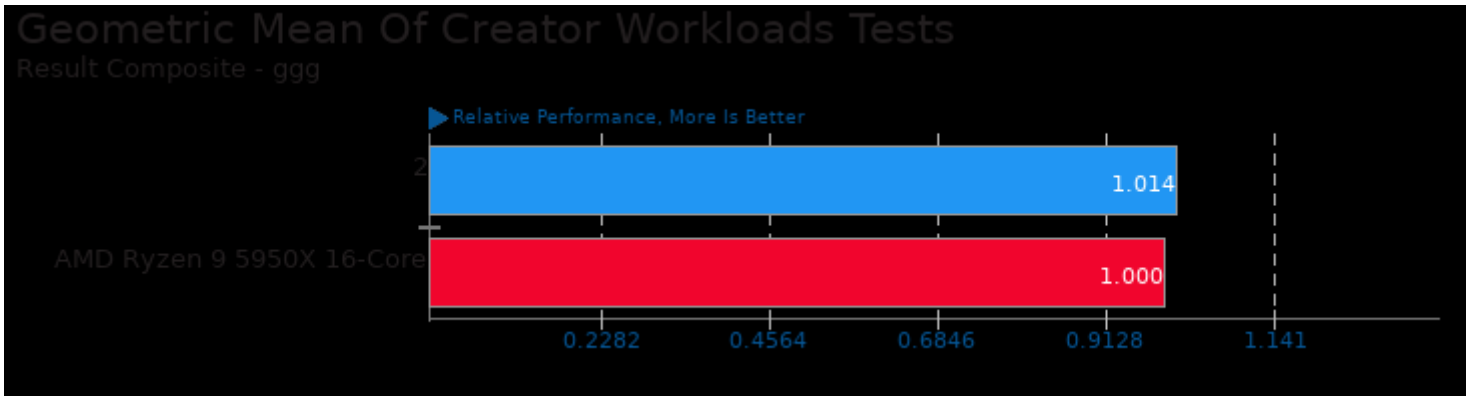
Geometric mean based upon tests: pts/x264, pts/x265, pts/compress-zstd and pts/aom-av1



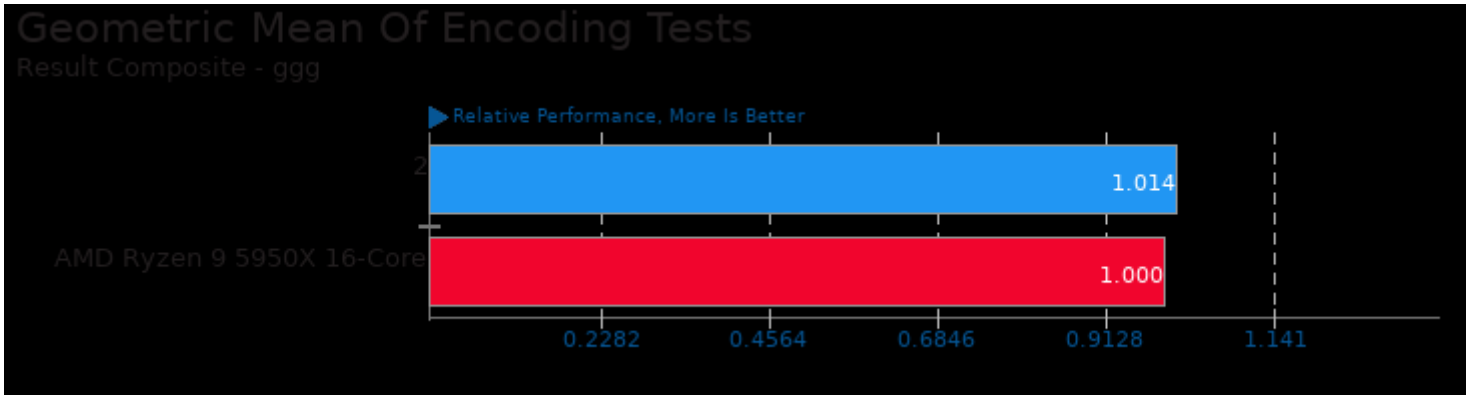
Geometric mean based upon tests: pts/compress-zstd and pts/blosc



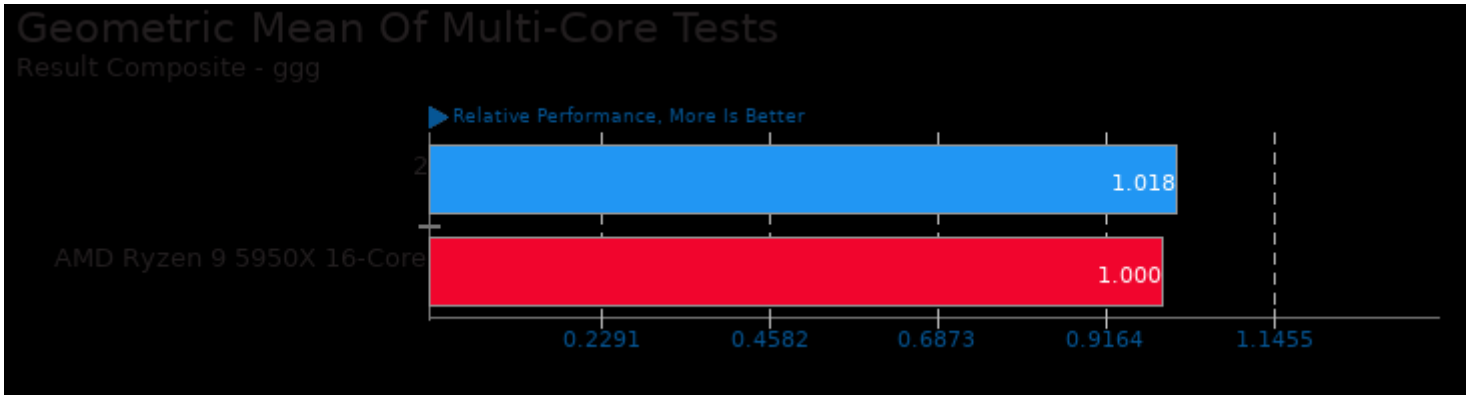
Geometric mean based upon tests: pts/build-linux-kernel, pts/compress-zstd, pts/x264 and pts/x265



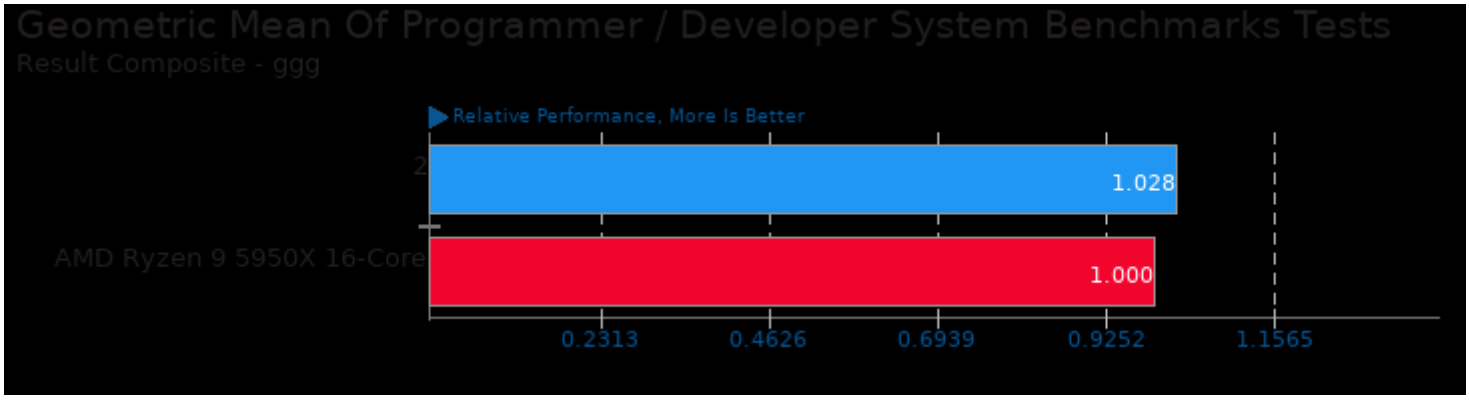
Geometric mean based upon tests: pts/x264, pts/x265 and pts/aom-av1



Geometric mean based upon tests: pts/x264, pts/x265 and pts/aom-av1

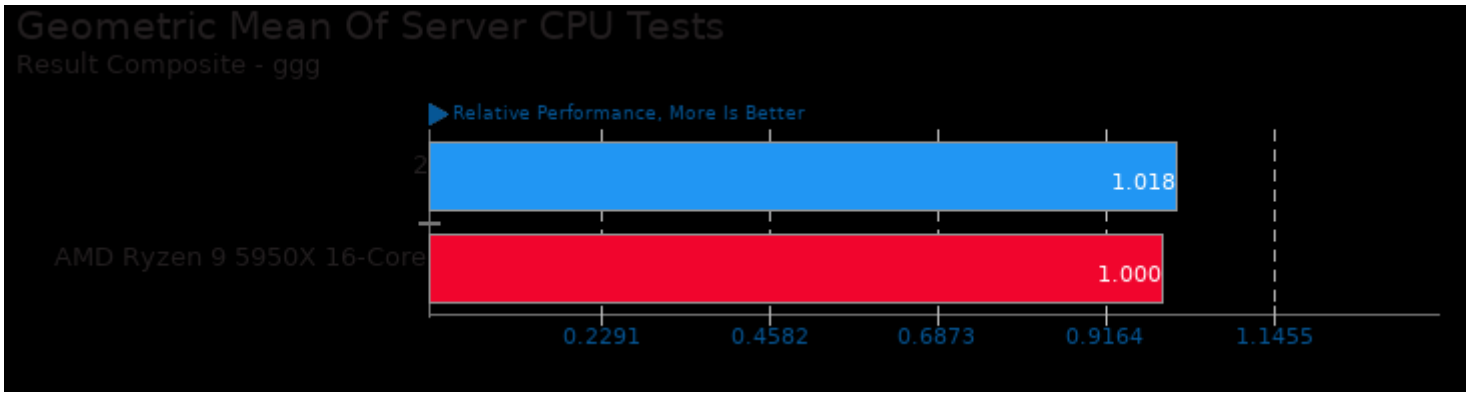


Geometric mean based upon tests: pts/x264, pts/x265, pts/aom-av1, pts/compress-zstd and pts/build-linux-kernel

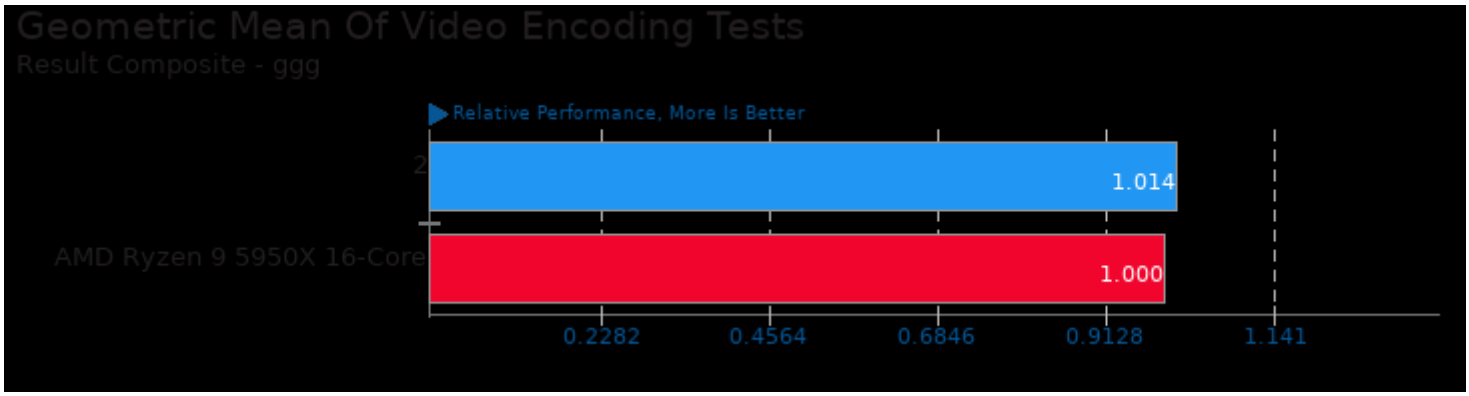


Geometric mean based upon tests: pts/blosc, pts/compress-zstd and pts/build-linux-kernel

ggg



Geometric mean based upon tests: pts/x264, pts/x265, pts/build-linux-kernel and pts/compress-zstd



Geometric mean based upon tests: pts/x264, pts/x265 and pts/aom-av1

This file was automatically generated via the Phoronix Test Suite benchmarking software on Thursday, 28 March 2024 15:32.