

www.phoronix-test-suite.com

gold may

Intel Xeon Gold 6226R testing with a Supermicro X11SPL-F v1.02 (3.1 BIOS) and llvmpipe on Ubuntu 20.10 via the Phoronix Test Suite.

Automated Executive Summary

1 had the most wins, coming in first place for 63% of the tests.

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

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

Timed MrBayes Analysis (Primate Phylogeny Analysis) at 1.05x
PJSIP (Method: OPTIONS, Stateless) at 1.038x
Chia Blockchain VDF (Test: Square Assembly Optimized) at 1.029x
AOM AV1 (Encoder Mode: Speed 9 Realtime - Input: Bosphorus 1080p) at 1.021x
Embree (Binary: Pathtracer ISPC - Model: Asian Dragon) at 1.017x
Embree (Binary: Pathtracer - Model: Asian Dragon) at 1.015x
AOM AV1 (Encoder Mode: Speed 9 Realtime - Input: Bosphorus 4K) at 1.015x
AOM AV1 (Encoder Mode: Speed 8 Realtime - Input: Bosphorus 1080p) at 1.014x
AOM AV1 (Encoder Mode: Speed 8 Realtime - Input: Bosphorus 4K) at 1.013x
QMCPACK (Input: simple-H2O) at 1.011x.

Test Systems:

1

2

Processor: Intel Xeon Gold 6226R @ 3.90GHz (16 Cores / 32 Threads), Motherboard: Supermicro X11SPL-F v1.02 (3.1 BIOS), Chipset: Intel Sky Lake-E DMI3 Registers, Memory: 188GB, Disk: 280GB INTEL SSDPED1D280GA, Graphics: llvmpipe, Monitor: VE228, Network: 2 x Intel I210

OS: Ubuntu 20.10, Kernel: 5.11.0-rc4-max-boost-inv-patch (x86_64) 20210121, Desktop: GNOME Shell 3.38.1, Display Server: X Server 1.20.9, OpenGL: 4.5 Mesa 20.2.1 (LLVM 11.0.0 256 bits), Compiler: GCC 10.2.0, 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-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_cpufreq schedutil - CPU Microcode: 0x5003003
Python Notes: Python 3.8.6
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: Mitigation of TSX disabled

	1	2
Nebular Empirical Analysis Tool (sec)	**47.807**	**48.116**
Normalized	100%	99.36%
Standard Deviation		1.6%
Timed MrBayes Analysis - P.P.A (sec)	**201.075**	**191.476**
Normalized	95.23%	100%
Standard Deviation		0.2%
QMCPACK - simple-H2O (Execution Time - sec)	**42.159**	**42.643**
Normalized	100%	98.86%
Standard Deviation		0.6%
Timed HMMer Search - P.D.S (sec)	**139.857**	**140.122**
Normalized	100%	99.81%
Standard Deviation		0.4%
libgav1 - Chimera 1080p (FPS)	**62.83**	**62.80**
Normalized	100%	99.95%
Standard Deviation		0.1%
libgav1 - Summer Nature 4K (FPS)	**28.74**	**28.77**
Normalized	99.9%	100%
Standard Deviation		0.3%
libgav1 - S.N.1 (FPS)	**83.1**	**83.23**
Normalized	99.84%	100%
Standard Deviation		0.5%
libgav1 - C.1.1.b (FPS)	**20.84**	**20.82**
Normalized	100%	99.9%
Standard Deviation		0.1%

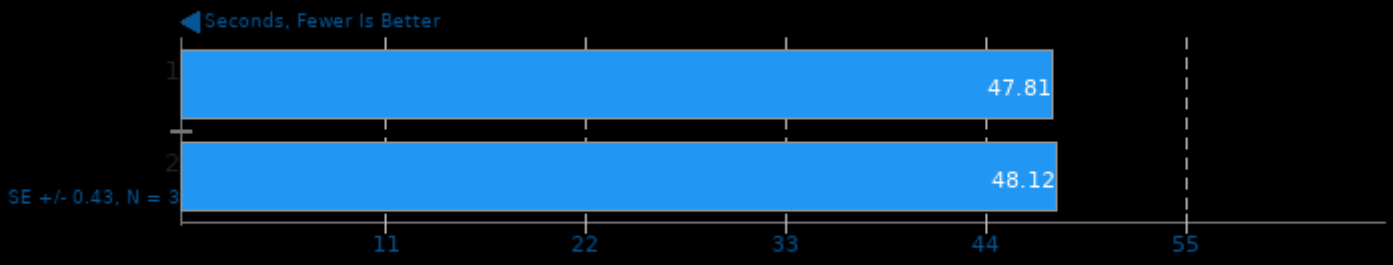
gold may

Xmrig - Monero - 1M (H/s)	**6887**	**6816**
Normalized	100%	98.96%
Standard Deviation		0.5%
Xmrig - Wownero - 1M (H/s)	**9620**	**9614**
Normalized	100%	99.93%
Standard Deviation		0.6%
Chia Blockchain VDF - Square Plain C++ (IPS)	**117700**	**118467**
Normalized	99.35%	100%
Standard Deviation		0.1%
Chia Blockchain VDF - S.A.O (IPS)	**164500**	**159933**
Normalized	100%	97.22%
Standard Deviation		1.6%
AOM AV1 - Speed 0 Two-Pass - Bosphorus 4K (FPS)	0.13	0.13
Standard Deviation		0%
AOM AV1 - Speed 4 Two-Pass - Bosphorus 4K (FPS)	**2.44**	**2.46**
Normalized	99.19%	100%
Standard Deviation		0.2%
AOM AV1 - Speed 6 Realtime - Bosphorus 4K (FPS)	**8.08**	**8.05**
Normalized	100%	99.63%
Standard Deviation		0.8%
AOM AV1 - Speed 6 Two-Pass - Bosphorus 4K (FPS)	**4.24**	**4.23**
Normalized	100%	99.76%
Standard Deviation		1%
AOM AV1 - Speed 8 Realtime - Bosphorus 4K (FPS)	**19.28**	**19.54**
Normalized	98.67%	100%
Standard Deviation		0.7%
AOM AV1 - Speed 9 Realtime - Bosphorus 4K (FPS)	**27.58**	**27.98**
Normalized	98.57%	100%
Standard Deviation		0.4%
AOM AV1 - Speed 0 Two-Pass - Bosphorus 1080p	0.34	0.34
Standard Deviation		0%
AOM AV1 - Speed 4 Two-Pass - Bosphorus 1080p	**3.54**	**3.51**
Normalized	100%	99.15%
Standard Deviation		0.3%
AOM AV1 - Speed 6 Realtime - Bosphorus 1080p	**11.95**	**11.96**
Normalized	99.92%	100%
Standard Deviation		1.7%
AOM AV1 - Speed 6 Two-Pass - Bosphorus 1080p	**9.26**	**9.29**
Normalized	99.68%	100%
Standard Deviation		1%
AOM AV1 - Speed 8 Realtime - Bosphorus 1080p	**47.61**	**46.94**
Normalized	100%	98.59%
Standard Deviation		3%
AOM AV1 - Speed 9 Realtime - Bosphorus 1080p	**54.01**	**55.17**
Normalized	97.9%	100%
Standard Deviation		1.2%
PJSIP - INVITE (Responses/sec)	**3161**	**3181**
Normalized	99.37%	100%
Standard Deviation		0.4%
PJSIP - OPTIONS, Stateful (Responses/sec)	**5643**	**5584**
Normalized	100%	98.95%
Standard Deviation		0.8%
PJSIP - OPTIONS, Stateless (Responses/sec)	**33837**	**32600**
Normalized	100%	96.34%
Standard Deviation		1.6%

gold may

Helsing - 12 digit (sec)	**3.402**	**3.412**
Normalized	100%	99.71%
Standard Deviation		0.2%
Helsing - 14 digit (sec)	**336.615**	**337.274**
Normalized	100%	99.8%
Standard Deviation		0.3%
VOSK Speech Recognition Toolkit (sec)	**22.188**	**22.270**
Normalized	100%	99.63%
Standard Deviation		0.9%
libjpeg-turbo tjbench - D.T (Megapixels/sec)	**172.257722**	**173.116593**
Normalized	99.5%	100%
Standard Deviation		0.3%
WRF - conus 2.5km (sec)	**35356**	**35551**
Normalized	100%	99.45%
Embree - Pathtracer - Crown (FPS)	**16.4014**	**16.3271**
Normalized	100%	99.55%
Standard Deviation	1.7%	1.6%
Embree - Pathtracer ISPC - Crown (FPS)	**15.1928**	**15.1668**
Normalized	100%	99.83%
Standard Deviation	0.3%	0.6%
Embree - Pathtracer - Asian Dragon (FPS)	**19.2458**	**19.5276**
Normalized	98.56%	100%
Standard Deviation	2.8%	1.5%
Embree - Pathtracer - Asian Dragon Obj (FPS)	**17.8576**	**17.8604**
Normalized	99.98%	100%
Standard Deviation	0.1%	0.3%
Embree - Pathtracer ISPC - Asian Dragon (FPS)	**19.7480**	**19.4252**
Normalized	100%	98.37%
Standard Deviation	1.2%	0.9%
Embree - Pathtracer ISPC - Asian Dragon Obj (FPS)	**17.3235**	**17.3173**
Normalized	100%	99.96%
Standard Deviation	0.5%	0.3%

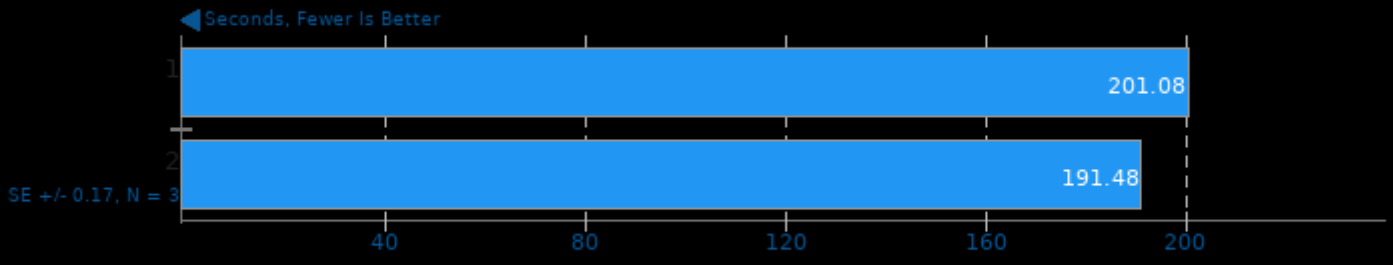
Nebular Empirical Analysis Tool 2.3



1. (F9X) gfortran options: -O3 -cpp -ffree-line-length-0 -Jsource/ -fopenmp -fno-backtrace -lcfitsio

Timed MrBayes Analysis 3.2.7

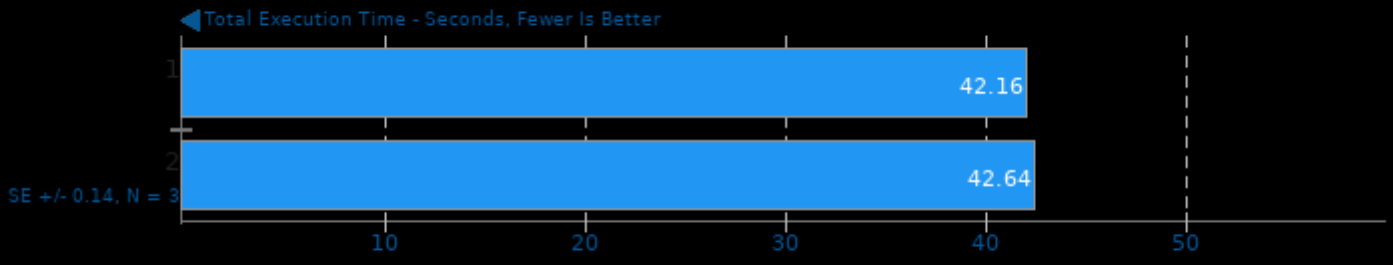
Primate Phylogeny Analysis



1. (CC) gcc options: -mmmx -msse -msse2 -msse3 -mssse3 -msse4.1 -msse4.2 -maes -mavx -mfma -mavx2 -mavx512f -mavx512cd -mavx512vl -mavx512

QMCPACK 3.11

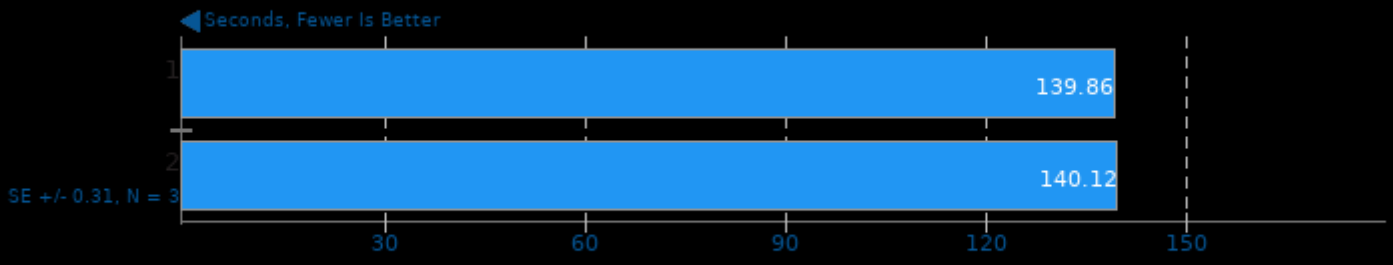
Input: simple-H2O



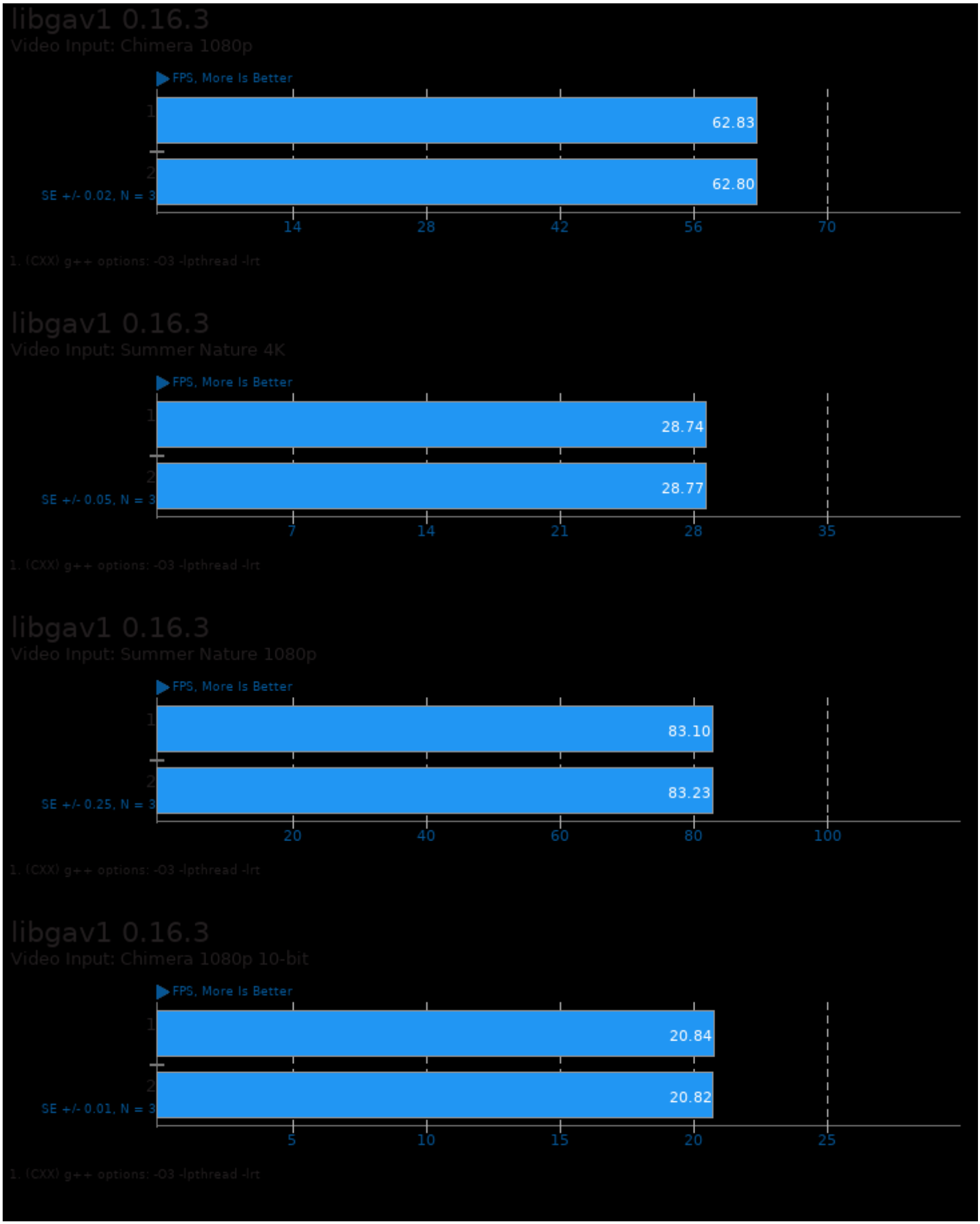
1. (CXX) g++ options: -fopenmp -finline-limit=1000 -fstrict-aliasing -funroll-all-loops -march=native -O3 -fomit-frame-pointer -ffast-math -pthread -lm

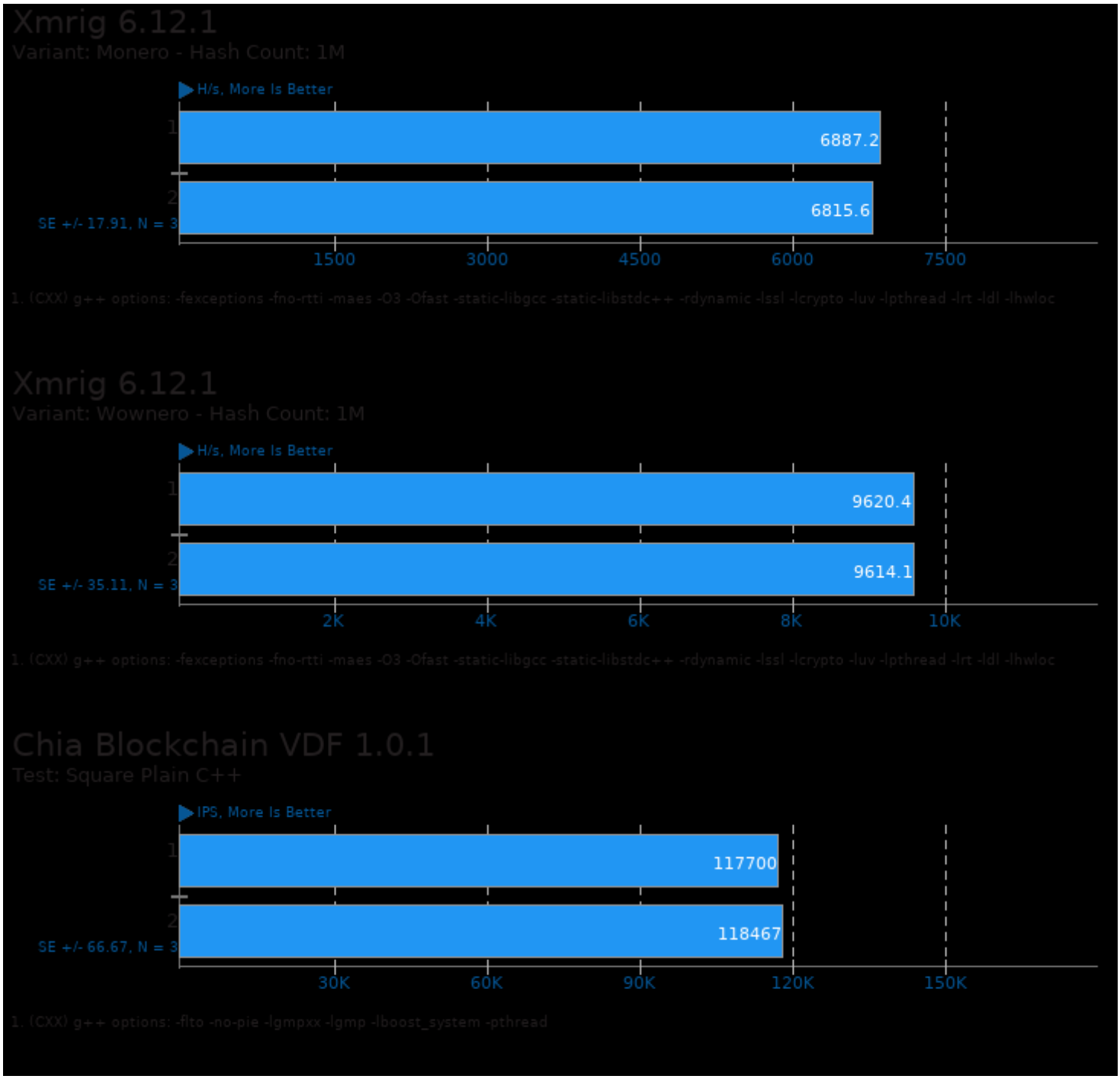
Timed HMMer Search 3.3.2

Pfam Database Search



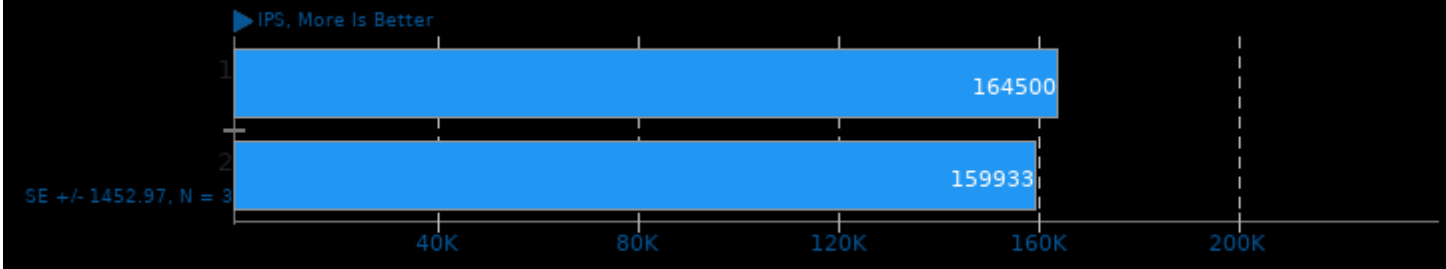
1. (CC) gcc options: -O3 -pthread -lhmmer -leasel -lm -lmpi


libgav1 0.16.3
Video Input: Chimera 1080p
FPS, More Is Better
1
62.83
2
62.80
SE +/- 0.02, N = 3
14
28
42
56
70
1. (CXX) g++ options: -O3 -lpthread -lrt
libgav1 0.16.3
Video Input: Summer Nature 4K
FPS, More Is Better
1
28.74
2
28.77
SE +/- 0.05, N = 3
7
14
21
28
35
1. (CXX) g++ options: -O3 -lpthread -lrt
libgav1 0.16.3
Video Input: Summer Nature 1080p
FPS, More Is Better
1
83.10
2
83.23
SE +/- 0.25, N = 3
20
40
60
80
100
1. (CXX) g++ options: -O3 -lpthread -lrt
libgav1 0.16.3
Video Input: Chimera 1080p 10-bit
FPS, More Is Better
1
20.84
2
20.82
SE +/- 0.01, N = 3
5
10
15
20
25
1. (CXX) g++ options: -O3 -lpthread -lrt


Xmrig 6.12.1
Variant: Monero - Hash Count: 1M
H/s, More Is Better
1
6887.2
2
6815.6
SE +/- 17.91, N = 3
1500
3000
4500
6000
7500
1. (CXX) g++ options: -fexceptions -fno-rtti -maes -O3 -Ofast -static-libgcc -static-libstdc++ -rdynamic -lssl -lcrypto -luv -lpthread -lrt -ldl -lhwloc
Xmrig 6.12.1
Variant: Wownero - Hash Count: 1M
H/s, More Is Better
1
9620.4
2
9614.1
SE +/- 35.11, N = 3
2K
4K
6K
8K
10K
1. (CXX) g++ options: -fexceptions -fno-rtti -maes -O3 -Ofast -static-libgcc -static-libstdc++ -rdynamic -lssl -lcrypto -luv -lpthread -lrt -ldl -lhwloc
Chia Blockchain VDF 1.0.1
Test: Square Plain C++
IPS, More Is Better
1
117700
2
118467
SE +/- 66.67, N = 3
30K
60K
90K
120K
150K
1. (CXX) g++ options: -flto -no-pie -lgmpxx -lgmp -lboost_system -pthread

Chia Blockchain VDF 1.0.1

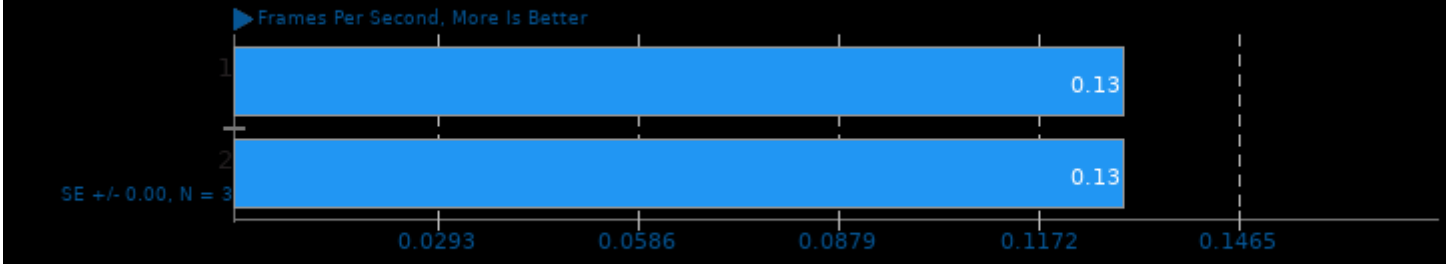
Test: Square Assembly Optimized



1. (CXX) g++ options: -flto -no-pie -lgmpxx -lgmp -lboost_system -pthread

AOM AV1 3.1

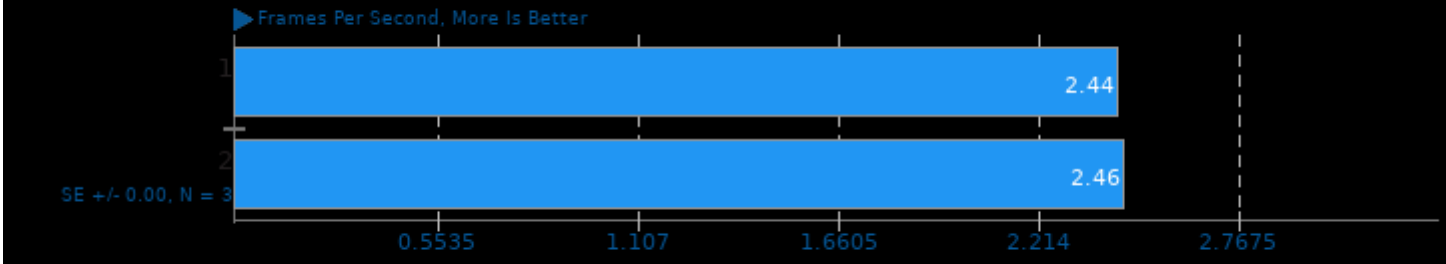
Encoder Mode: Speed 0 Two-Pass - Input: Bosphorus 4K



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

AOM AV1 3.1

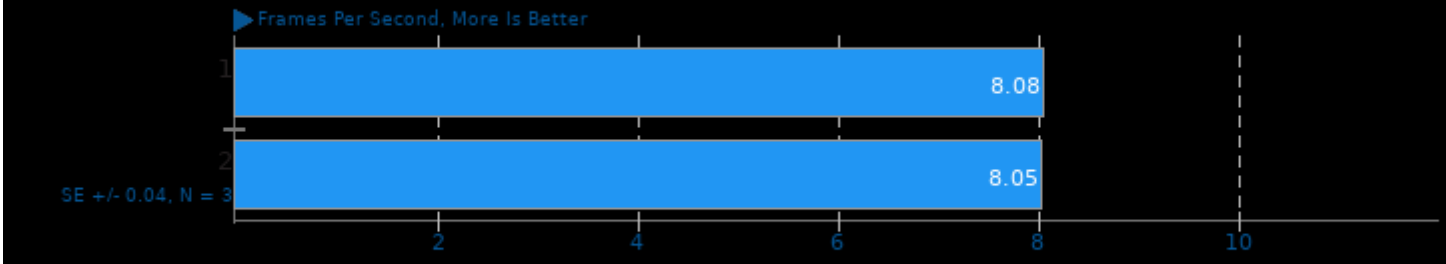
Encoder Mode: Speed 4 Two-Pass - Input: Bosphorus 4K



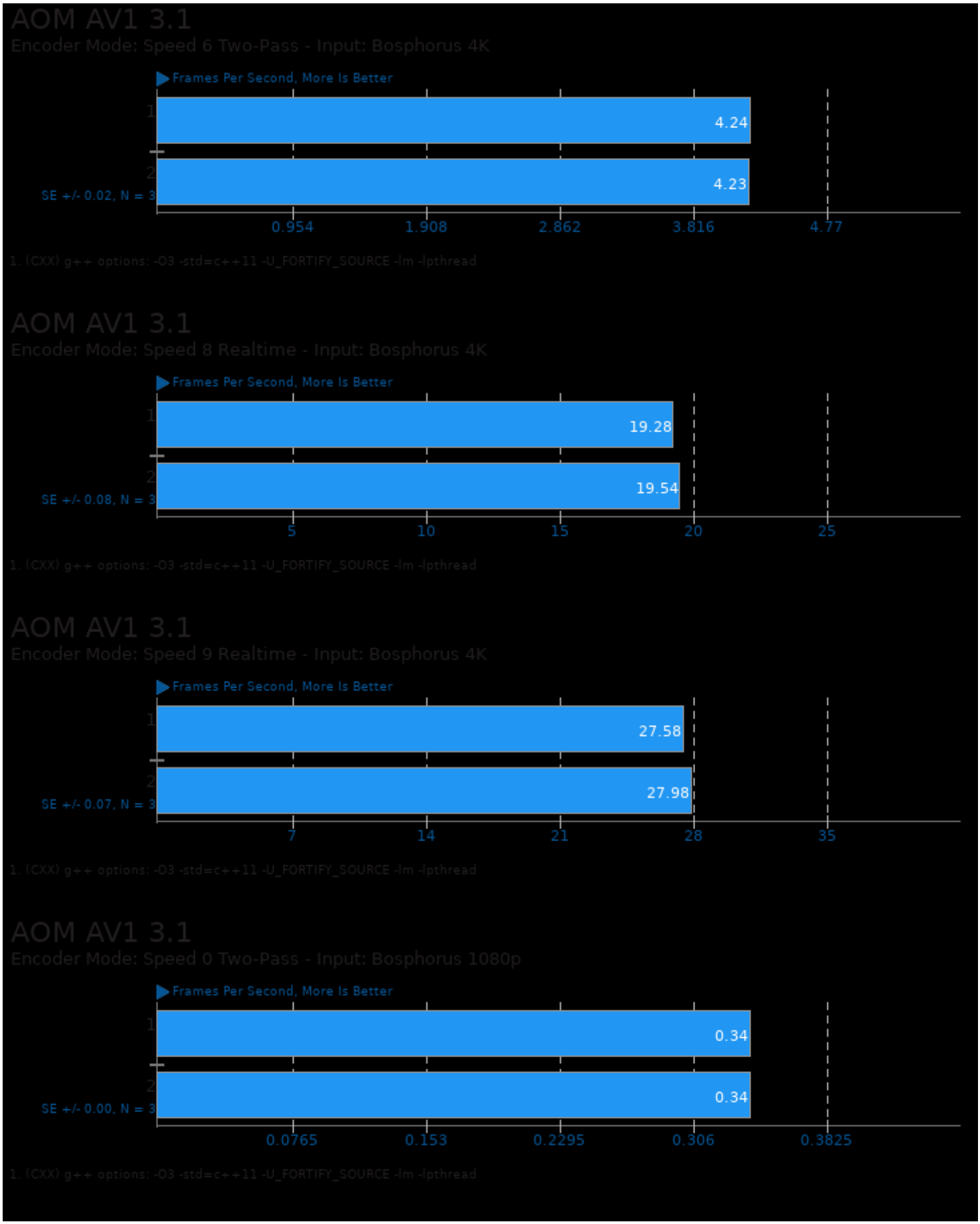
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm -lpthread

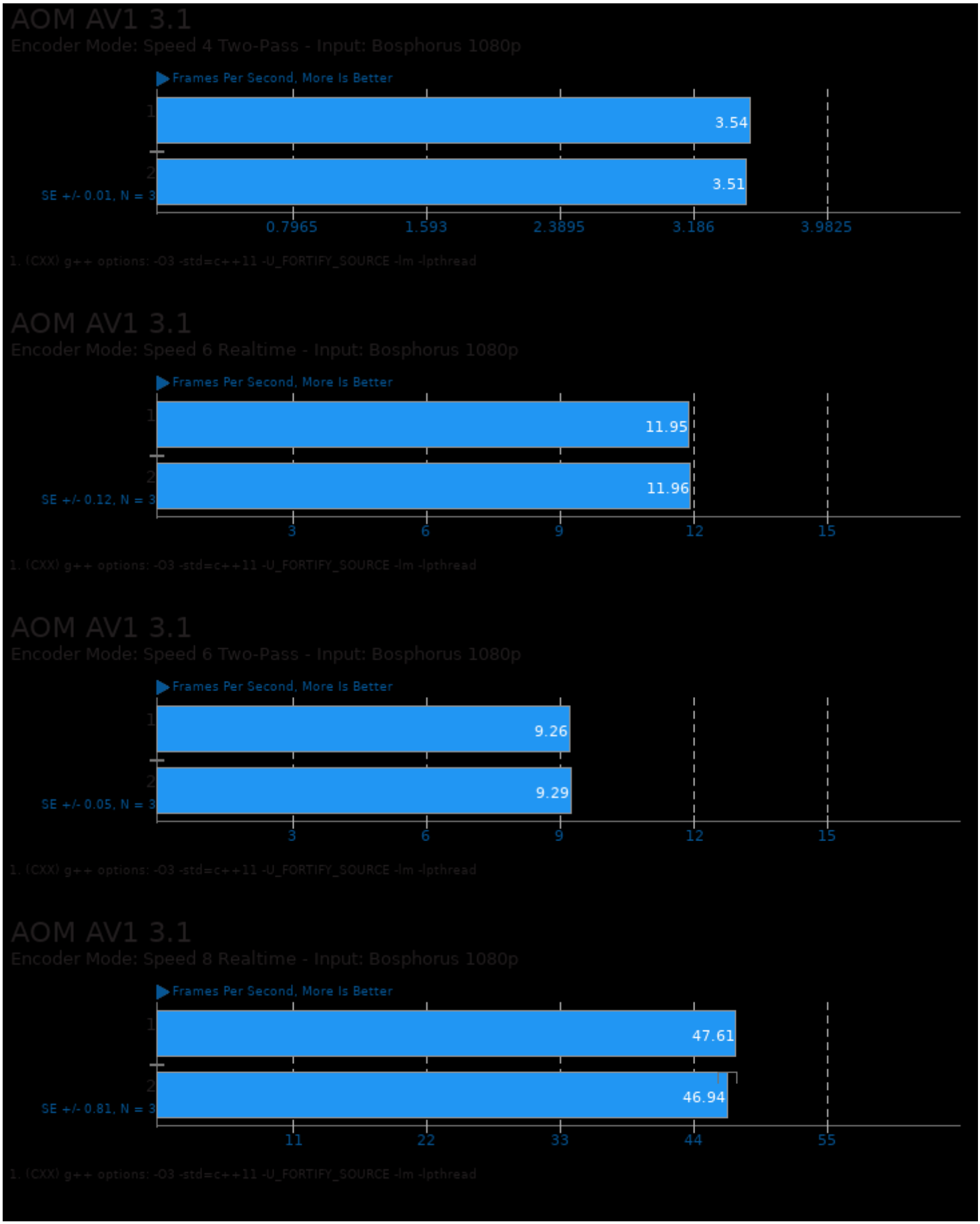
AOM AV1 3.1

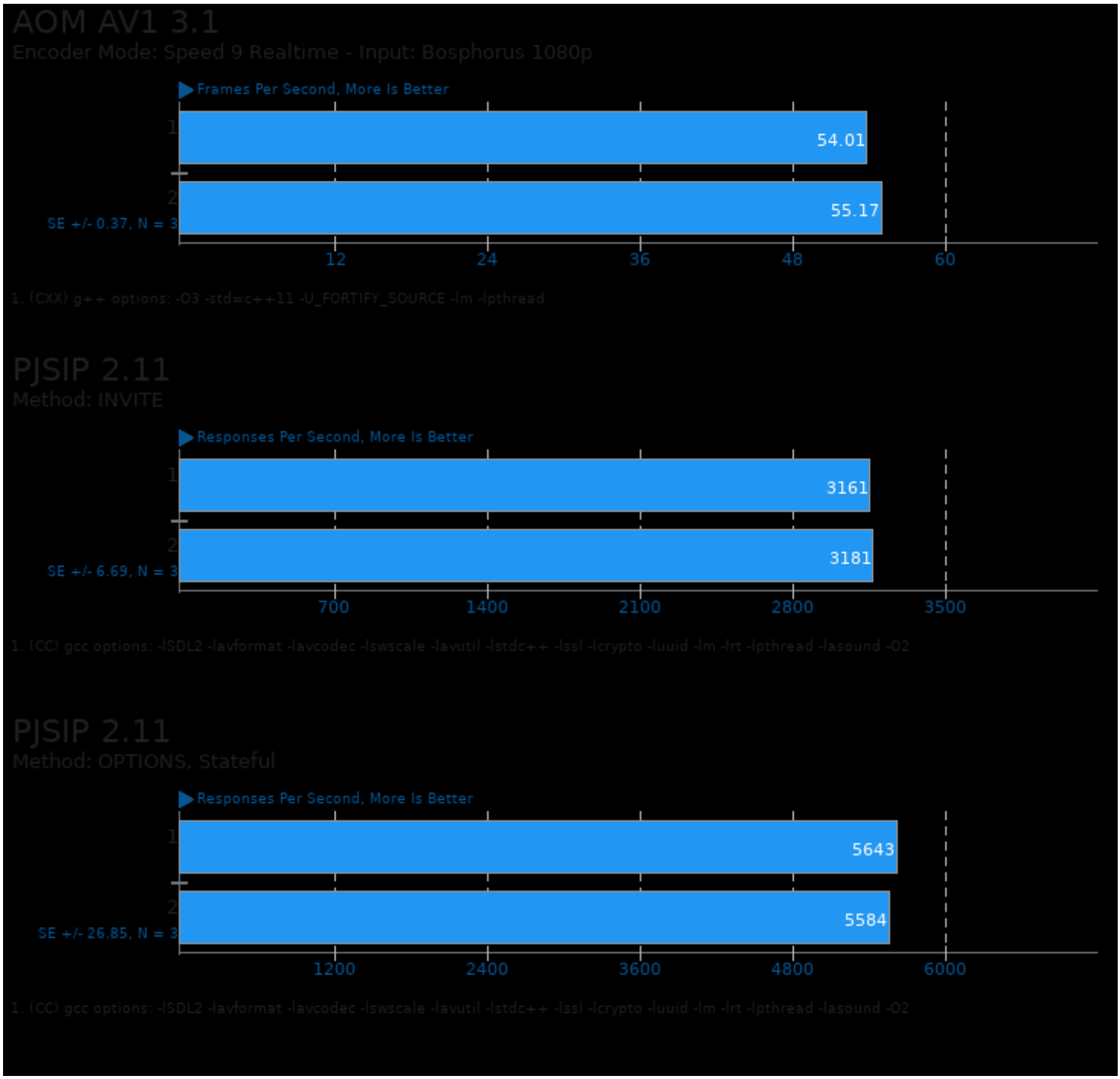
Encoder Mode: Speed 6 Realtime - Input: Bosphorus 4K



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

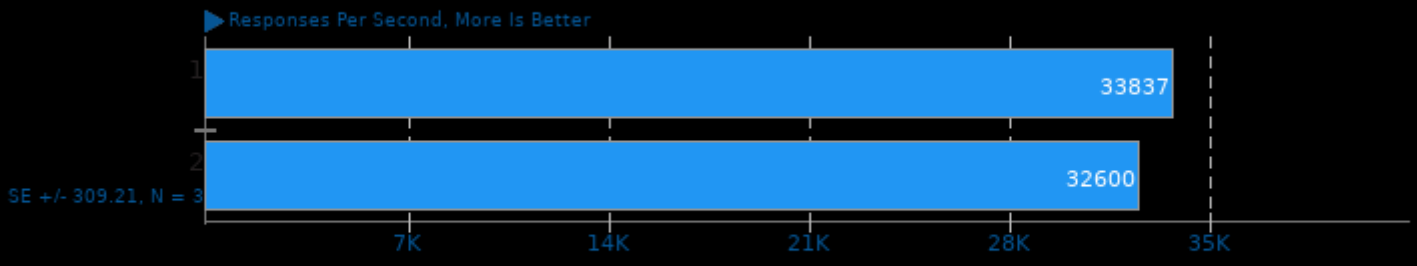

AOM AV1 3.1
Encoder Mode: Speed 6 Two-Pass - Input: Bosphorus 4K
Frames Per Second, More Is Better
1
4.24
2
4.23
SE +/- 0.02, N = 3
0.954
1.908
2.862
3.816
4.77
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm -lpthread
AOM AV1 3.1
Encoder Mode: Speed 8 Realtime - Input: Bosphorus 4K
Frames Per Second, More Is Better
1
19.28
2
19.54
SE +/- 0.08, N = 3
5
10
15
20
25
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm -lpthread
AOM AV1 3.1
Encoder Mode: Speed 9 Realtime - Input: Bosphorus 4K
Frames Per Second, More Is Better
1
27.58
2
27.98
SE +/- 0.07, N = 3
7
14
21
28
35
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm -lpthread
AOM AV1 3.1
Encoder Mode: Speed 0 Two-Pass - Input: Bosphorus 1080p
Frames Per Second, More Is Better
1
0.34
2
0.34
SE +/- 0.00, N = 3
0.0765
0.153
0.2295
0.306
0.3825
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm -lpthread


AOM AV1 3.1
Encoder Mode: Speed 4 Two-Pass - Input: Bosphorus 1080p
Frames Per Second, More Is Better
1
3.54
2
3.51
SE +/- 0.01, N = 3
0.7965
1.593
2.3895
3.186
3.9825
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm -lpthread
AOM AV1 3.1
Encoder Mode: Speed 6 Realtime - Input: Bosphorus 1080p
Frames Per Second, More Is Better
1
11.95
2
11.96
SE +/- 0.12, N = 3
3
6
9
12
15
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm -lpthread
AOM AV1 3.1
Encoder Mode: Speed 6 Two-Pass - Input: Bosphorus 1080p
Frames Per Second, More Is Better
1
9.26
2
9.29
SE +/- 0.05, N = 3
3
6
9
12
15
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm -lpthread
AOM AV1 3.1
Encoder Mode: Speed 8 Realtime - Input: Bosphorus 1080p
Frames Per Second, More Is Better
1
47.61
2
46.94
SE +/- 0.81, N = 3
11
22
33
44
55
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm -lpthread


AOM AV1 3.1
Encoder Mode: Speed 9 Realtime - Input: Bosphorus 1080p
Frames Per Second, More Is Better
1
54.01
2
55.17
SE +/- 0.37, N = 3
12
24
36
48
60
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm -lpthread
PJSIP 2.11
Method: INVITE
Responses Per Second, More Is Better
1
3161
2
3181
SE +/- 6.69, N = 3
700
1400
2100
2800
3500
1. (CC) gcc options: -lSDL2 -lavformat -lavcodec -lswscale -lavutil -lstdc++ -lssl -lcrypto -luuid -lm -lrt -lpthread -lasound -O2
PJSIP 2.11
Method: OPTIONS, Stateful
Responses Per Second, More Is Better
1
5643
2
5584
SE +/- 26.85, N = 3
1200
2400
3600
4800
6000
1. (CC) gcc options: -lSDL2 -lavformat -lavcodec -lswscale -lavutil -lstdc++ -lssl -lcrypto -luuid -lm -lrt -lpthread -lasound -O2

PJSIP 2.11

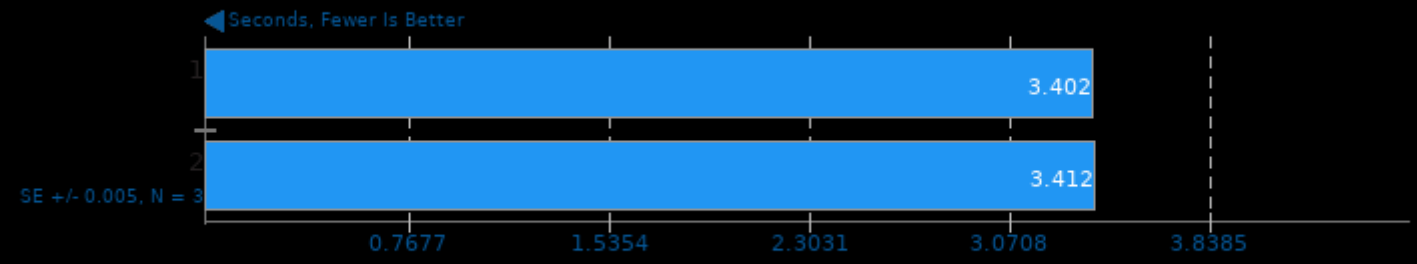
Method: OPTIONS, Stateless



1. (CC) gcc options: -lSDL2 -lavformat -lavcodec -lswscale -lavutil -lstdc++ -lssl -lcrypto -luuid -lm -lrt -lpthread -lasound -O2

Helsing 1.0-beta

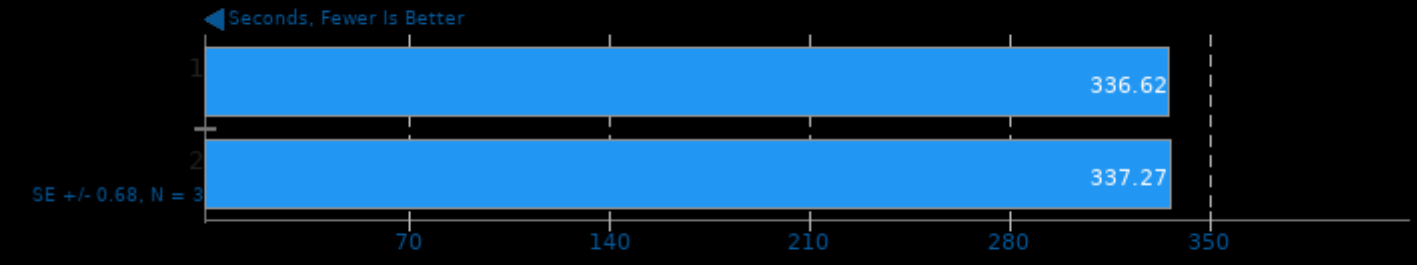
Digit Range: 12 digit



1. (CC) gcc options: -O2 -pthread

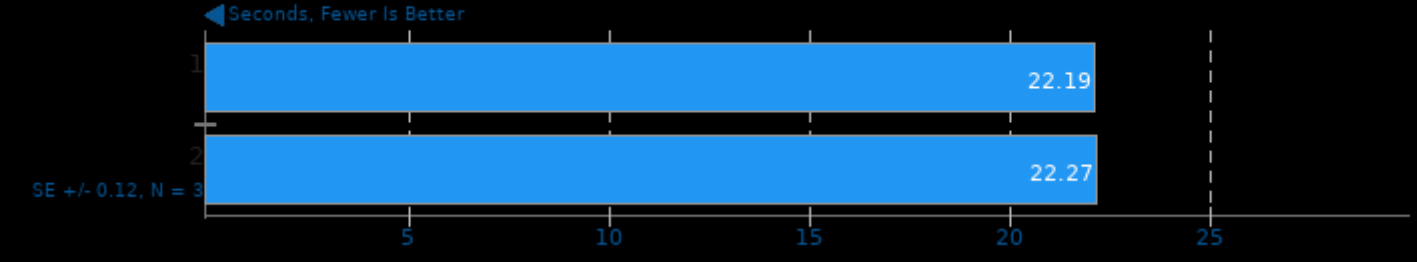
Helsing 1.0-beta

Digit Range: 14 digit



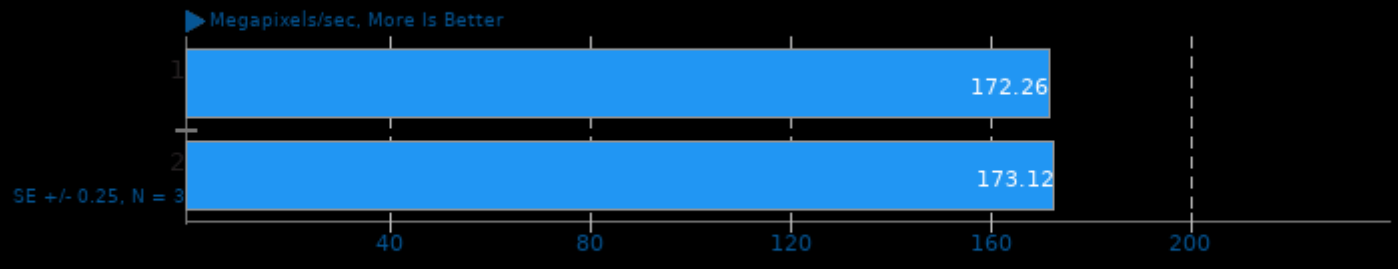
1. (CC) gcc options: -O2 -pthread

VOSK Speech Recognition Toolkit 0.3.21



libjpeg-turbo tjbench 2.1.0

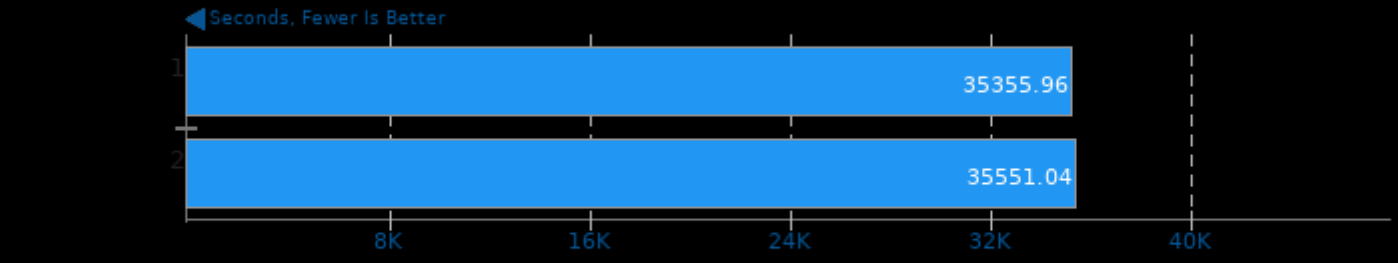
Test: Decompression Throughput



1. (CC) gcc options: -O3 -rdynamic

WRF 4.2.2

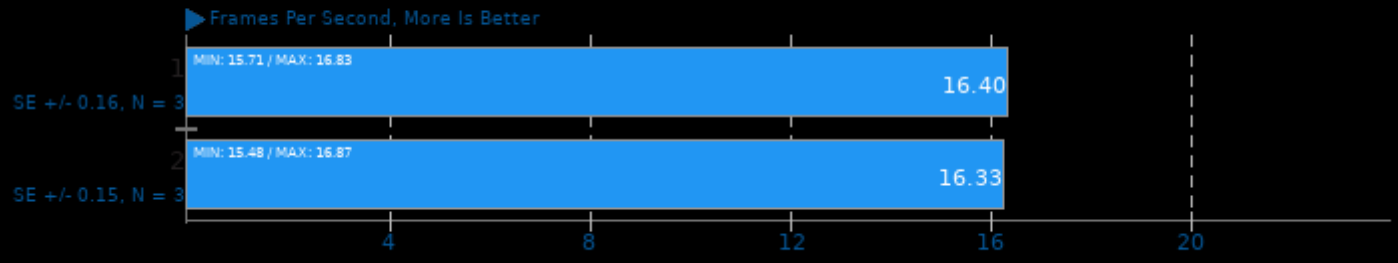
Input: conus 2.5km



1. (F9X) gfortran options: -O2 -ftree-vectorize -funroll-loops -ffree-form -fconvert=big-endian -frecord-marker=4 -fallow-invalid-boz -lesmf_time -lwrfio_nf

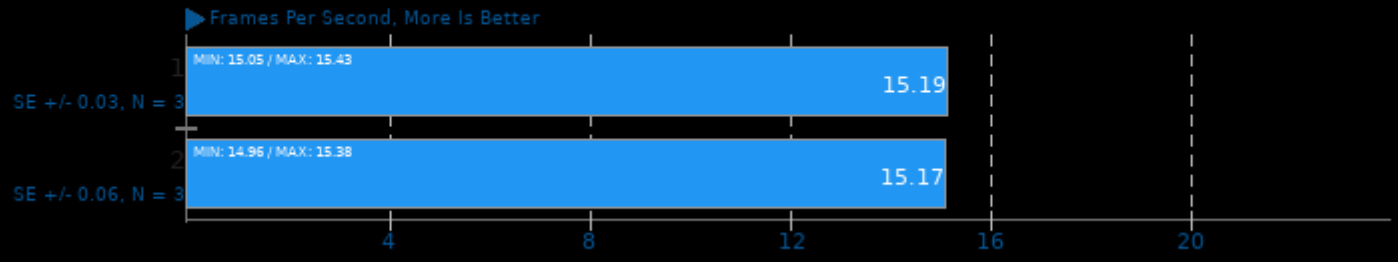
Embree 3.13

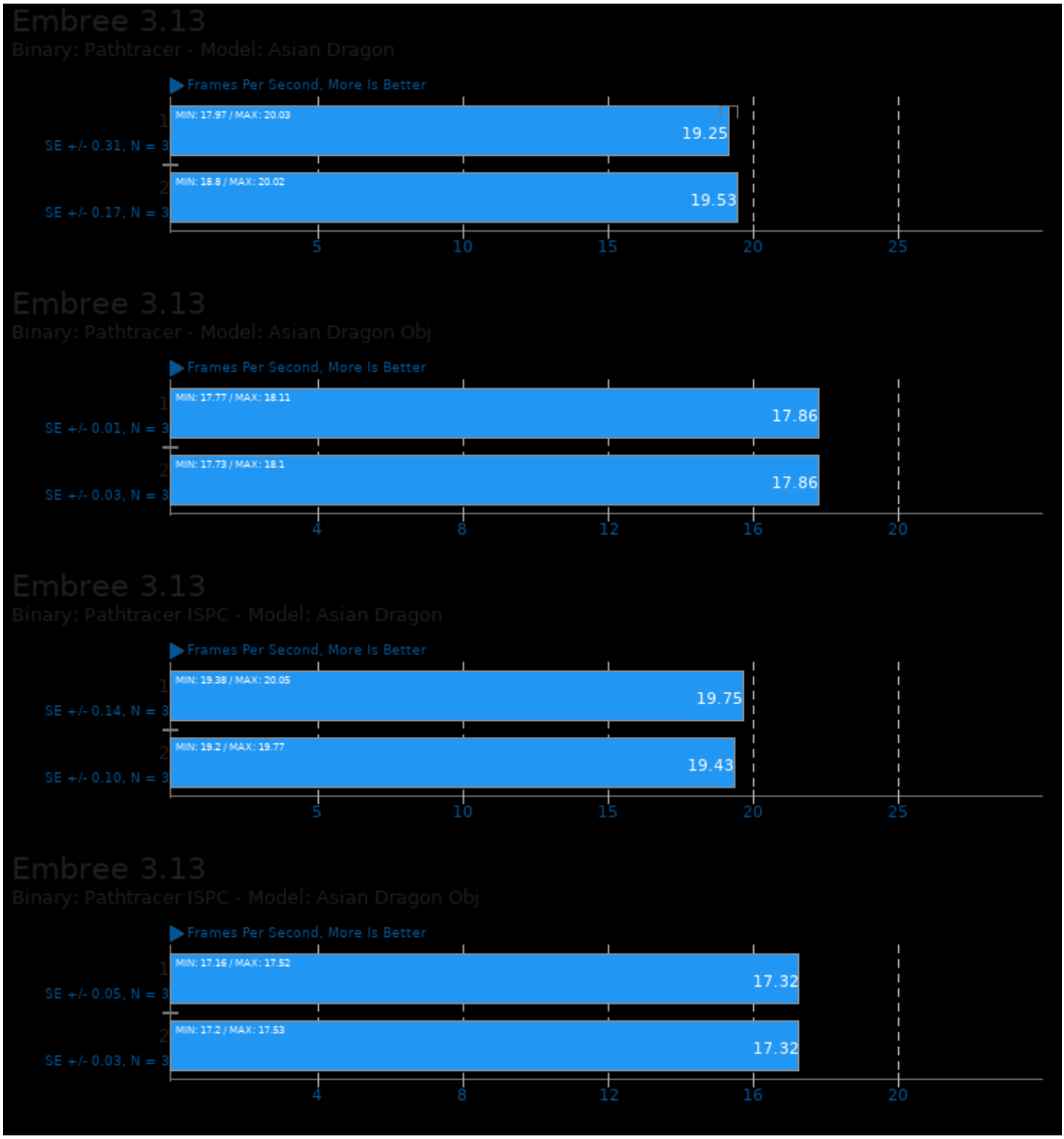
Binary: Pathtracer - Model: Crown



Embree 3.13

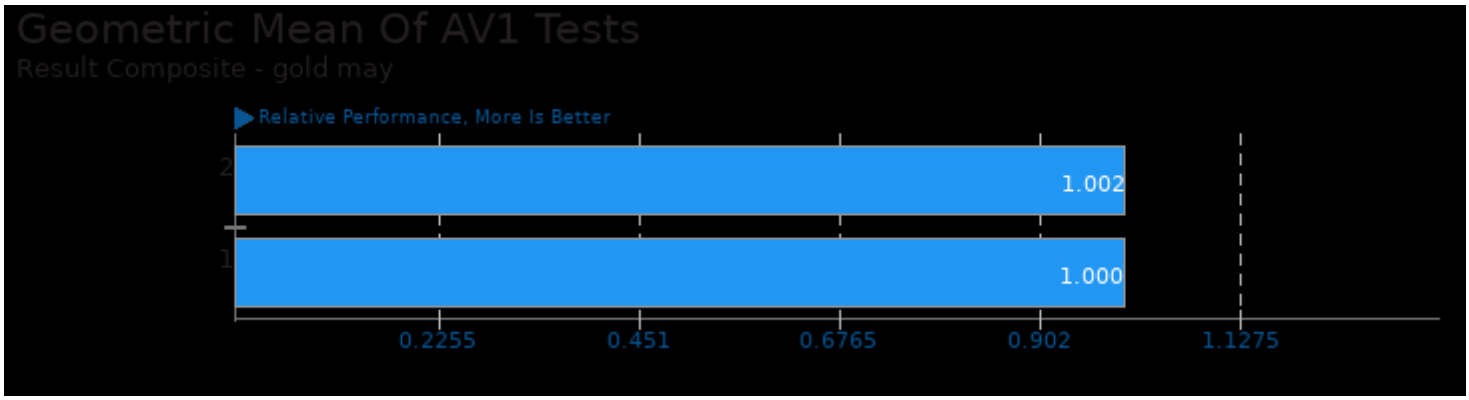
Binary: Pathtracer ISPC - Model: Crown



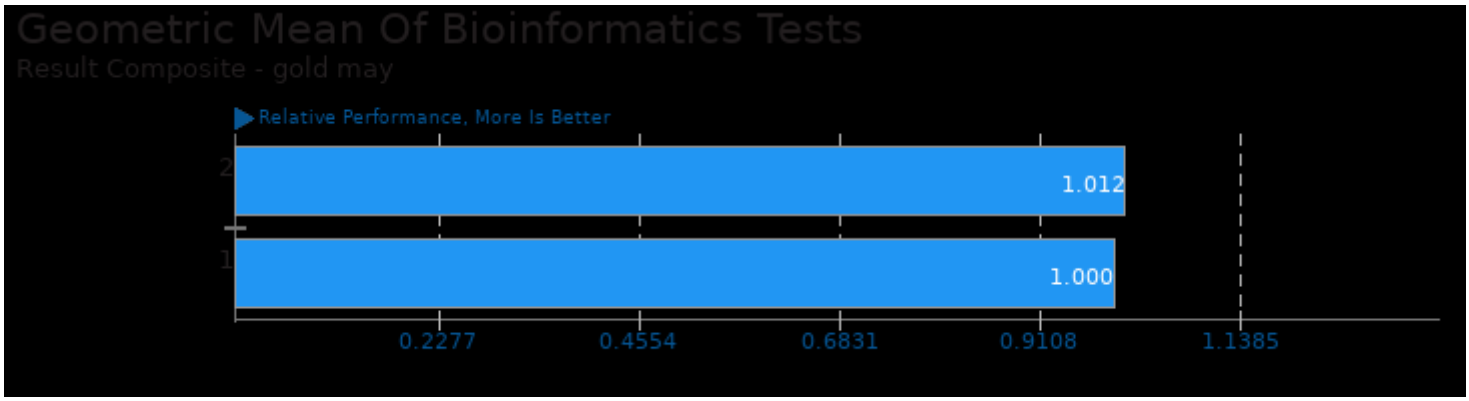

Embree 3.13
Binary: Pathtracer - Model: Asian Dragon
Frames Per Second, More Is Better
MIN: 17.97 / MAX: 20.03
19.25
SE +/- 0.31, N = 3
MIN: 18.8 / MAX: 20.02
19.53
SE +/- 0.17, N = 3
5
10
15
20
25
Embree 3.13
Binary: Pathtracer - Model: Asian Dragon Obj
Frames Per Second, More Is Better
MIN: 17.77 / MAX: 18.11
17.86
SE +/- 0.01, N = 3
MIN: 17.73 / MAX: 18.1
17.86
SE +/- 0.03, N = 3
4
8
12
16
20
Embree 3.13
Binary: Pathtracer ISPC - Model: Asian Dragon
Frames Per Second, More Is Better
MIN: 19.38 / MAX: 20.05
19.75
SE +/- 0.14, N = 3
MIN: 19.2 / MAX: 19.77
19.43
SE +/- 0.10, N = 3
5
10
15
20
25
Embree 3.13
Binary: Pathtracer ISPC - Model: Asian Dragon Obj
Frames Per Second, More Is Better
MIN: 17.16 / MAX: 17.52
17.32
SE +/- 0.05, N = 3
MIN: 17.2 / MAX: 17.53
17.32
SE +/- 0.03, N = 3
4
8
12
16
20

gold may

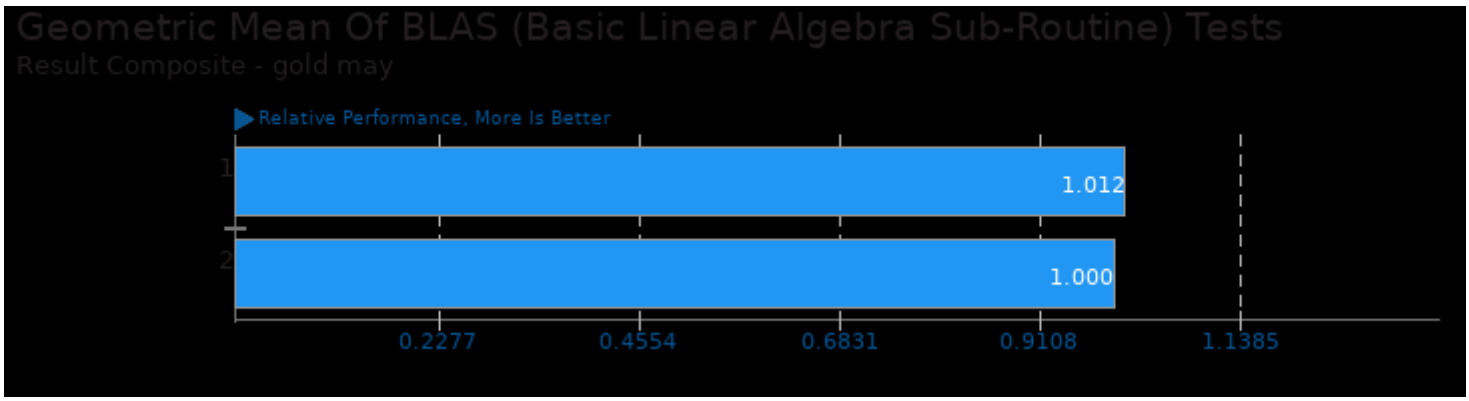
These geometric means are based upon test groupings / test suites for this result file.



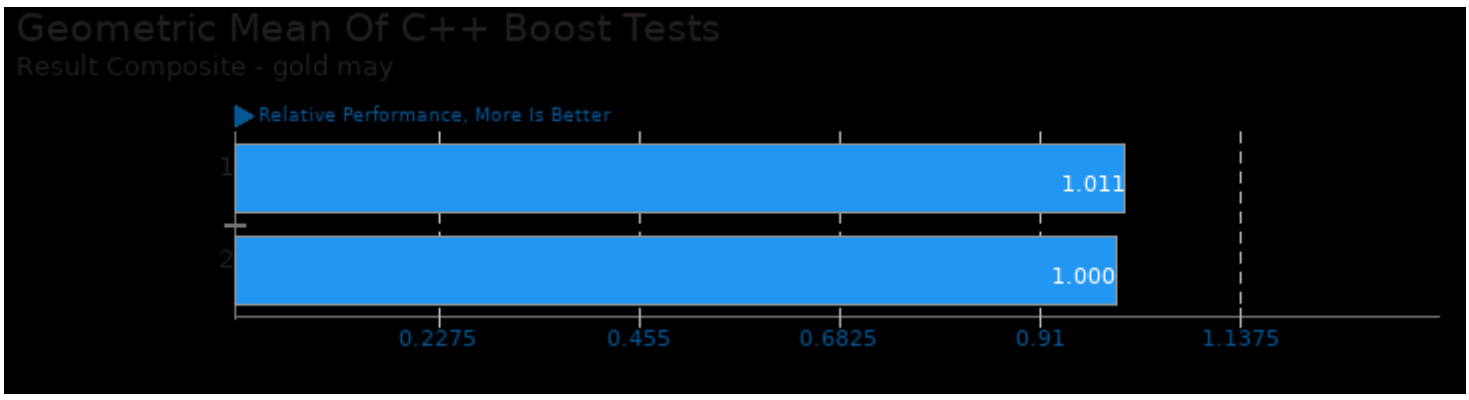
Geometric mean based upon tests: pts/aom-av1 and pts/libgav1



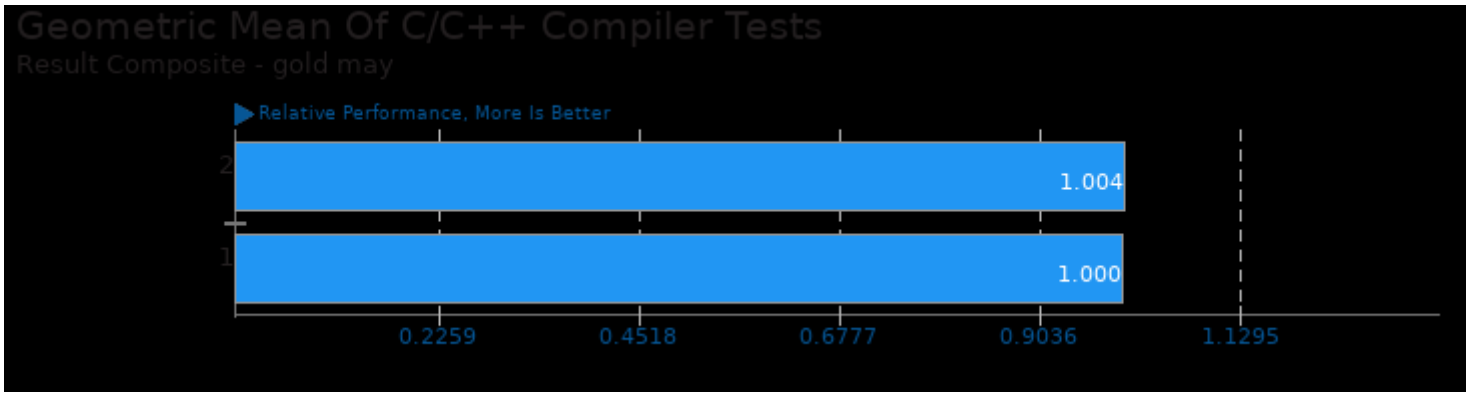
Geometric mean based upon tests: pts/mrbayes, pts/hmmer and pts/qmcpack



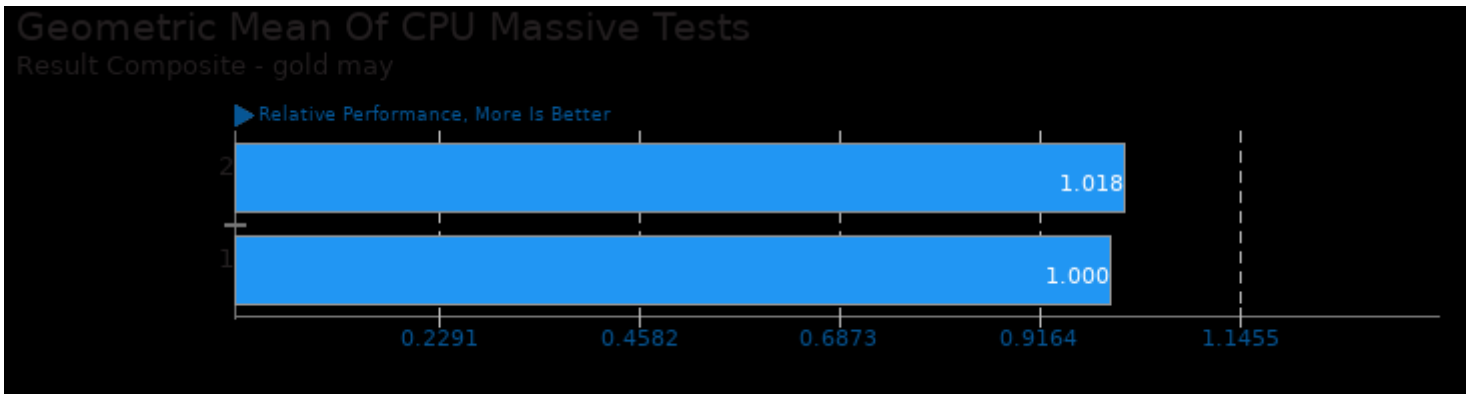
Geometric mean based upon tests: pts/qmcpack and pts/wrf



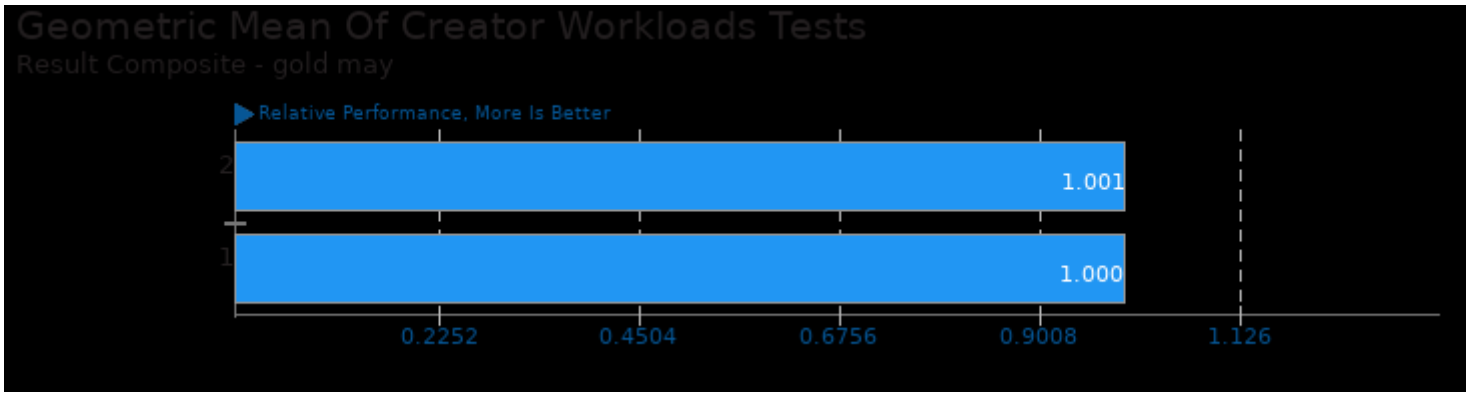
Geometric mean based upon tests: pts/qmcpack and pts/chia-vdf



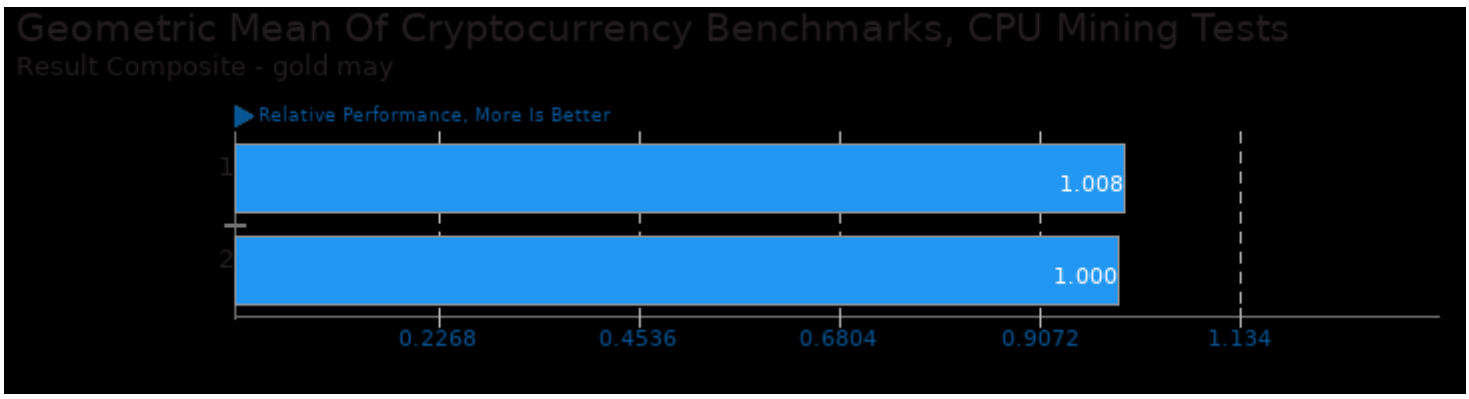
Geometric mean based upon tests: pts/hmmer, pts/mrbayes, pts/libgav1 and pts/aom-av1



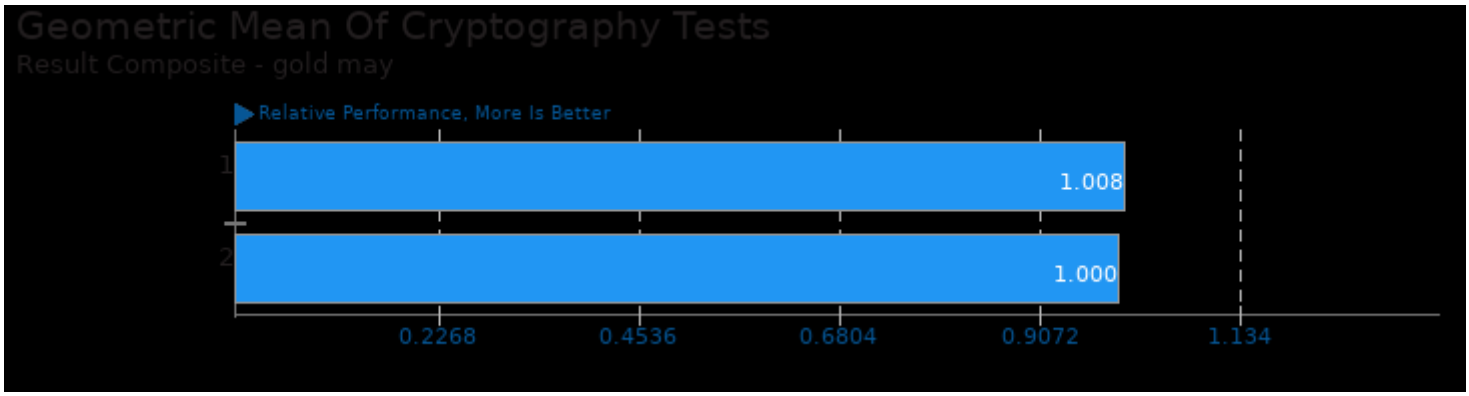
Geometric mean based upon tests: pts/hmmer, pts/mrbayes and pts/tjbench



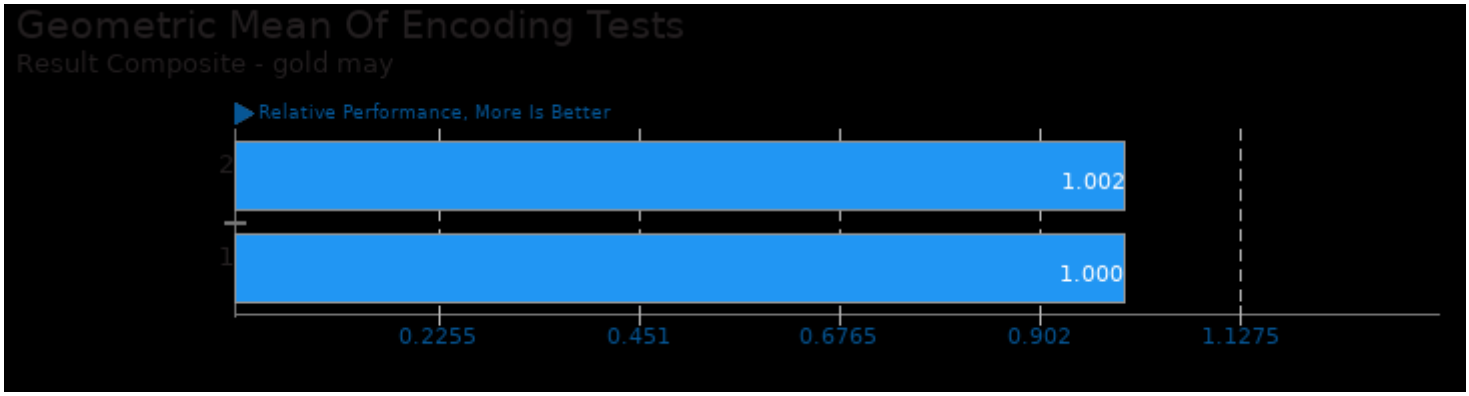
Geometric mean based upon tests: pts/aom-av1, pts/libgav1, pts/tjbench, pts/embree and pts/vosk



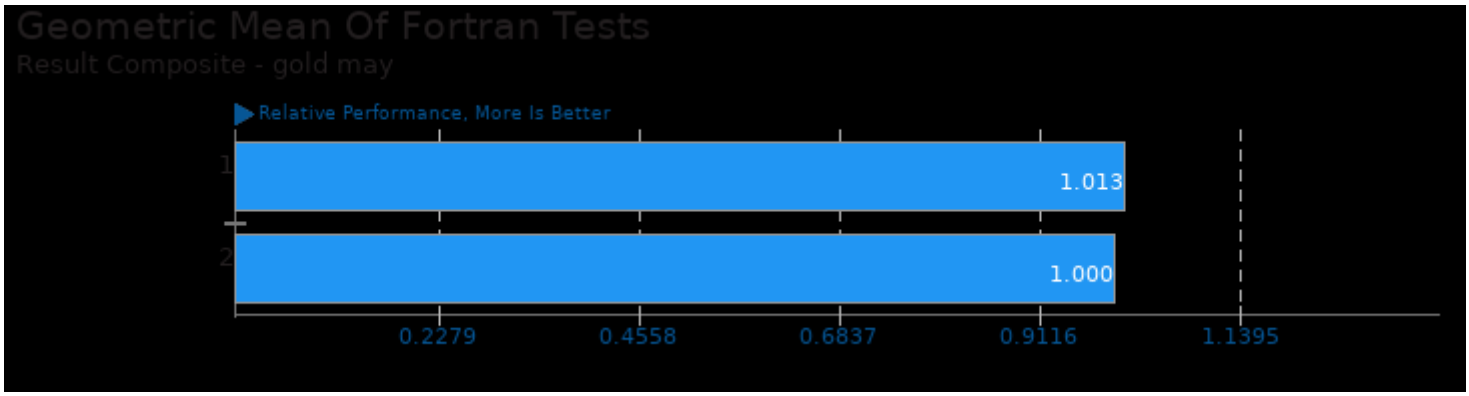
Geometric mean based upon tests: pts/xmrig and pts/chia-vdf



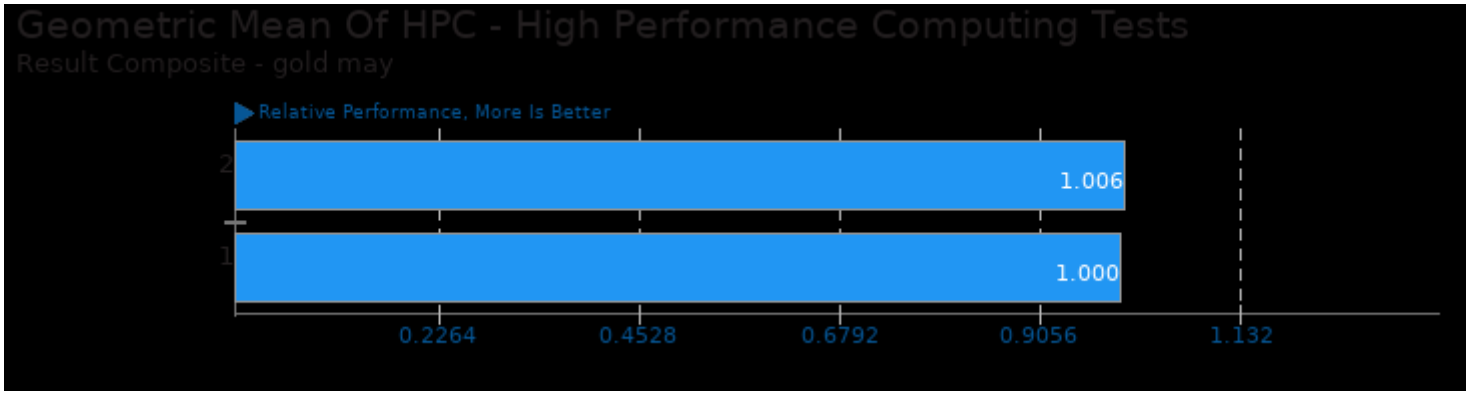
Geometric mean based upon tests: pts/xmrig and pts/chia-vdf



Geometric mean based upon tests: pts/aom-av1 and pts/libgav1

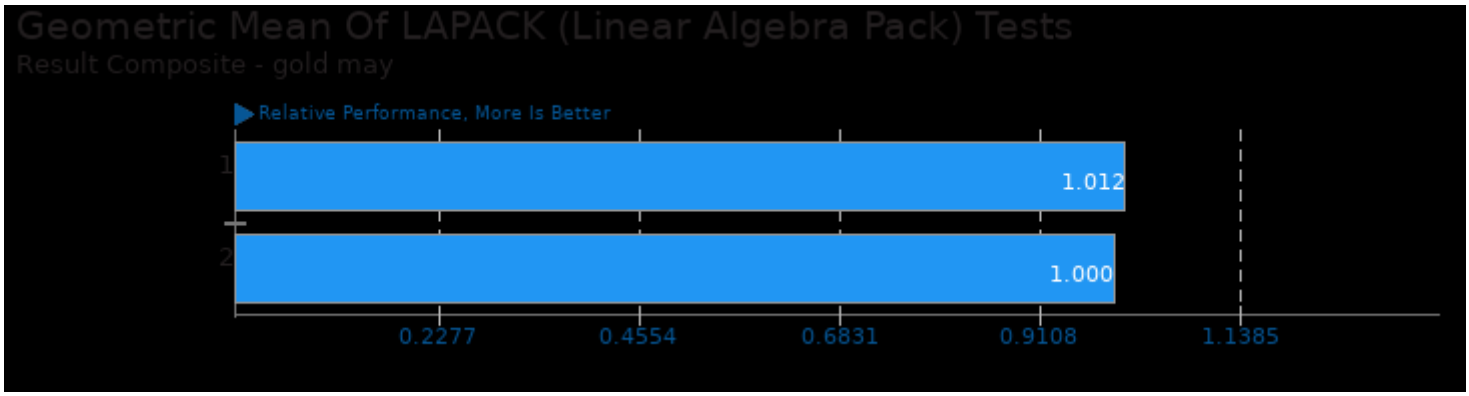


Geometric mean based upon tests: pts/neat and pts/wrf

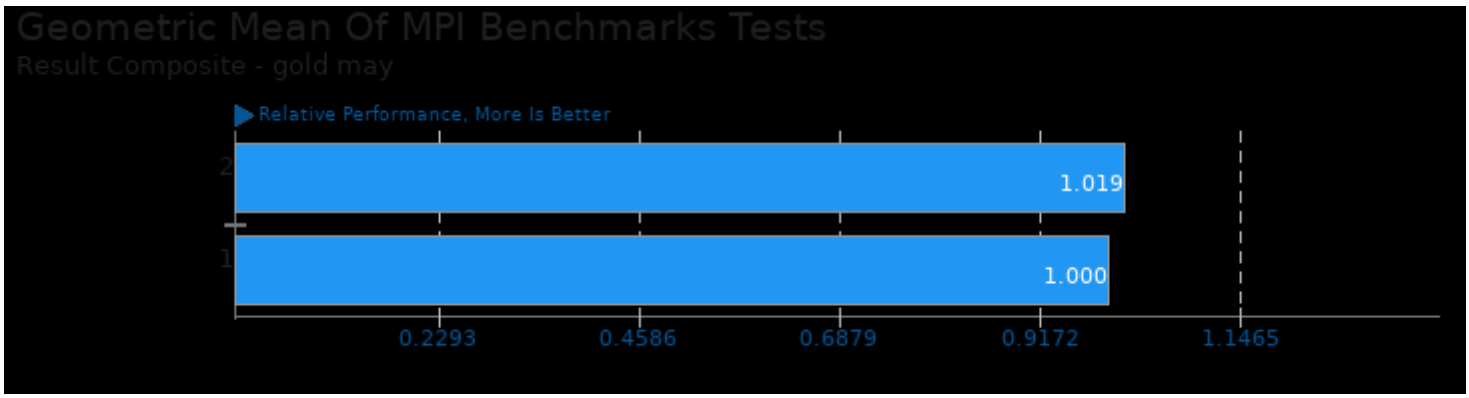


gold may

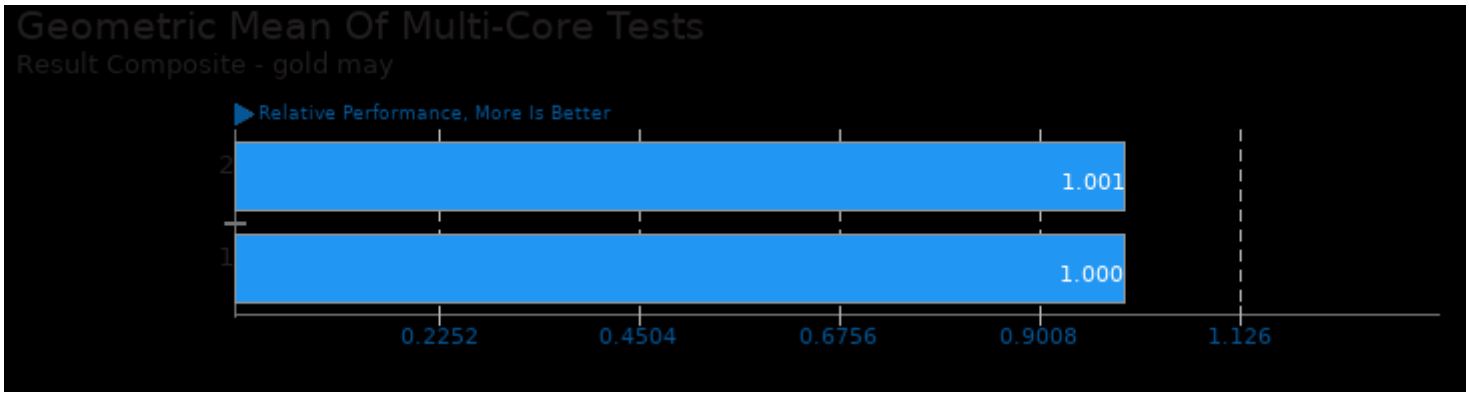
Geometric mean based upon tests: pts/neat, pts/mrbayes, pts/hmmer, pts/qmcpack and pts/wrf



Geometric mean based upon tests: pts/qmcpack and pts/wrf



Geometric mean based upon tests: pts/qmcpack and pts/mrbayes

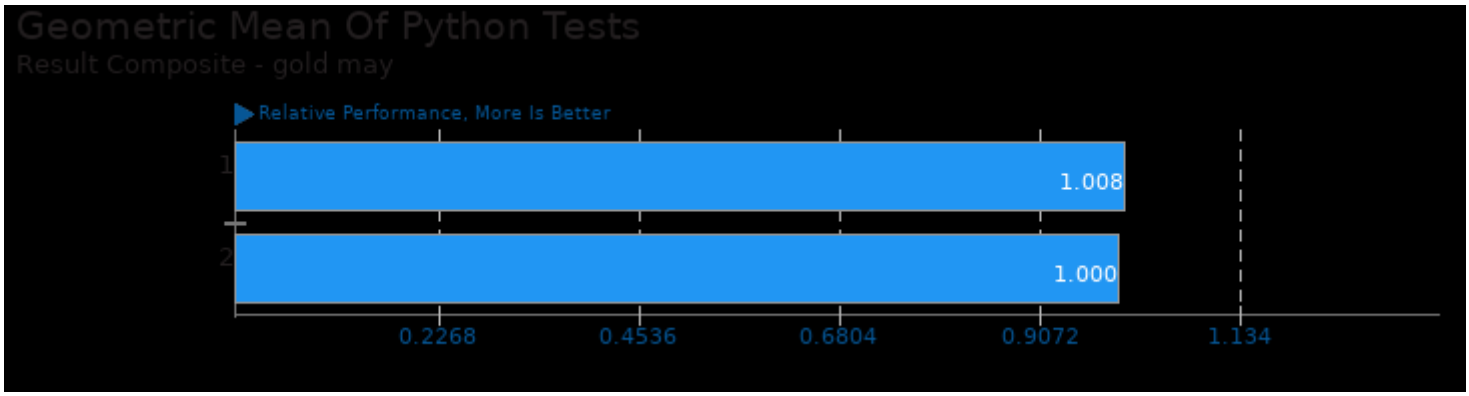


Geometric mean based upon tests: pts/aom-av1, pts/libgav1 and pts/embree

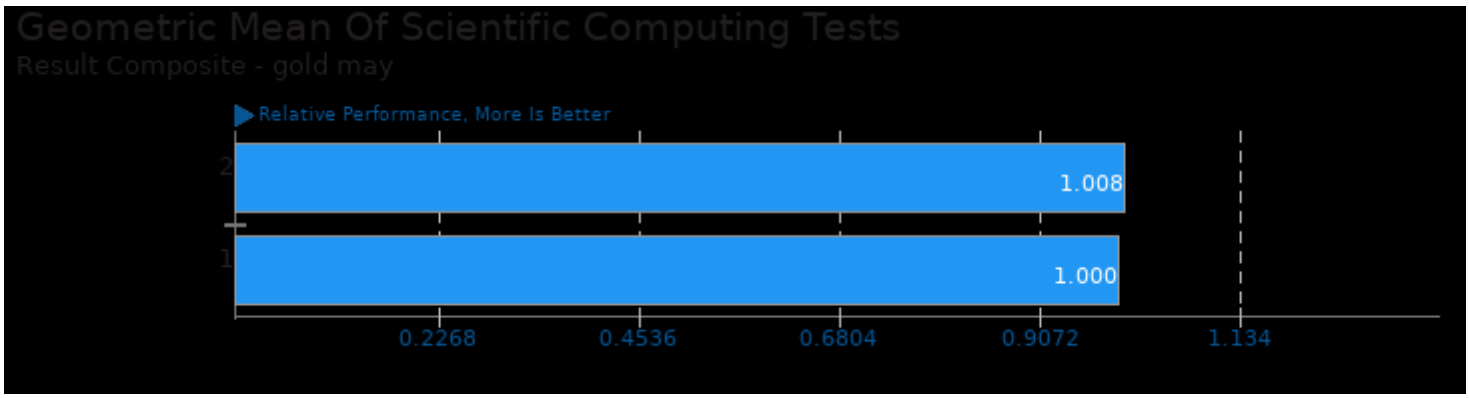


gold may

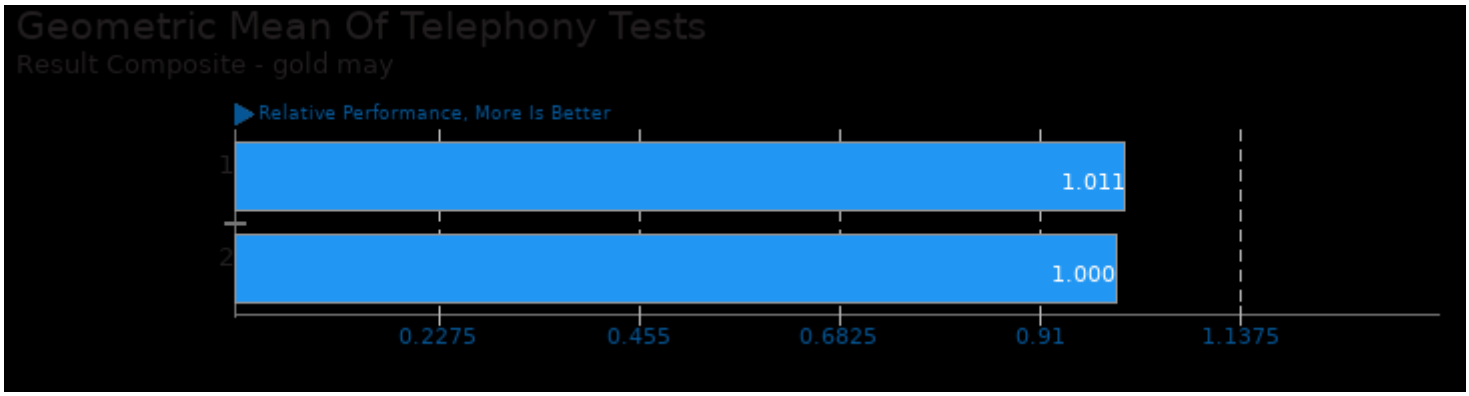
Geometric mean based upon tests: pts/mrbayes, pts/qmcpack, pts/hmmer and pts/wrf



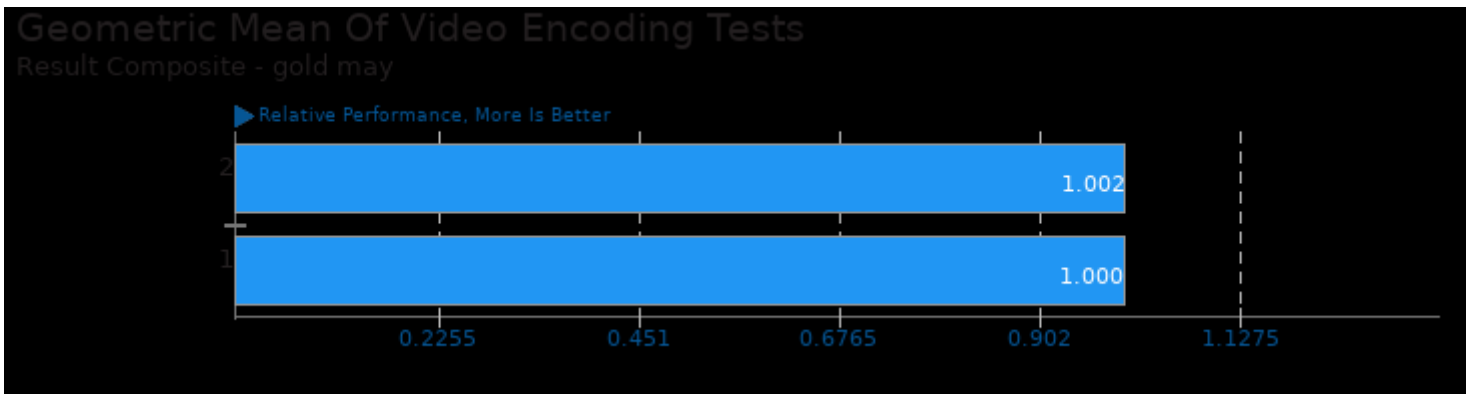
Geometric mean based upon tests: pts/chia-vdf and pts/vosk



Geometric mean based upon tests: pts/neat, pts/mrbayes, pts/hmmer and pts/qmcpack



Geometric mean based upon tests: pts/pjsip and pts/vosk



gold may

Geometric mean based upon tests: pts/aom-av1 and pts/libgav1

This file was automatically generated via the Phoronix Test Suite benchmarking software on Friday, 29 March 2024 01:53.