

www.phoronix-test-suite.com

m6gd.16xlarge

ARMv8 Neoverse-N1 testing on Debian 10 via the Phoronix Test Suite.

Automated Executive Summary

m6gd.16xlarge had the most wins, coming in first place for 50% of the tests.

Based on the geometric mean of all complete results, the fastest (m6g.16xlarge) was 1.009x the speed of the slowest (m6gd.16xlarge).

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

Timed GDB GNU Debugger Compilation (Time To Compile) at 1.013x
Timed Node.js Compilation (Time To Compile) at 1.009x
Timed FFmpeg Compilation (Time To Compile) at 1.008x
John The Ripper (Test: MD5) at 1.006x
Build2 (Time To Compile) at 1.006x
GraphicsMagick (Operation: Swirl) at 1.003x
dav1d (Video Input: Summer Nature 4K) at 1.001x
John The Ripper (Test: Blowfish) at 1.001x
Basis Universal (Settings: UASTC Level 3) at 1.001x
OpenSSL (Algorithm: SHA256) at 1.001x.

Test Systems:

m6gd.16xlarge

Processor: ARMv8 Neoverse-N1 (64 Cores), Motherboard: Amazon EC2 m6gd.16xlarge (1.0 BIOS), Chipset: Amazon Device 0200, Memory: 248GB, Disk: 107GB Amazon Elastic Block Store + 2 x 1900GB Amazon EC2 NVMe Instance Storage, Network: Amazon Elastic

OS: Debian 10, Kernel: 4.19.0-14-arm64 (aarch64), Compiler: GCC 8.3.0, File-System: ext4

Kernel Notes: Transparent Huge Pages: always
Compiler Notes: --build=aarch64-linux-gnu --disable-libphobos --disable-libquadmath --disable-libquadmath-support --disable-werror --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-fix-cortex-a53-843419 --enable-gnu-unique-object --enable-languages=c,ada,c++,go,d,fortran,objc,obj-c++ --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-nls --enable-plugin --enable-shared --enable-threads=posix --host=aarch64-linux-gnu --program-prefix=aarch64-linux-gnu- --target=aarch64-linux-gnu --with-default-libstdcxx-abi=new --with-gcc-major-version-only -v
Python Notes: Python 2.7.16 + Python 3.7.3
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl + spectre_v1: Mitigation of __user pointer sanitization + spectre_v2: Not affected + srbds: Not affected + tsx_async_abort: Not affected

m6g.16xlarge

Processor: ARMv8 Neoverse-N1 (64 Cores), Motherboard: Amazon EC2 m6g.16xlarge (1.0 BIOS), Chipset: Amazon Device 0200, Memory: 248GB, Disk: 107GB Amazon Elastic Block Store, Network: Amazon Elastic

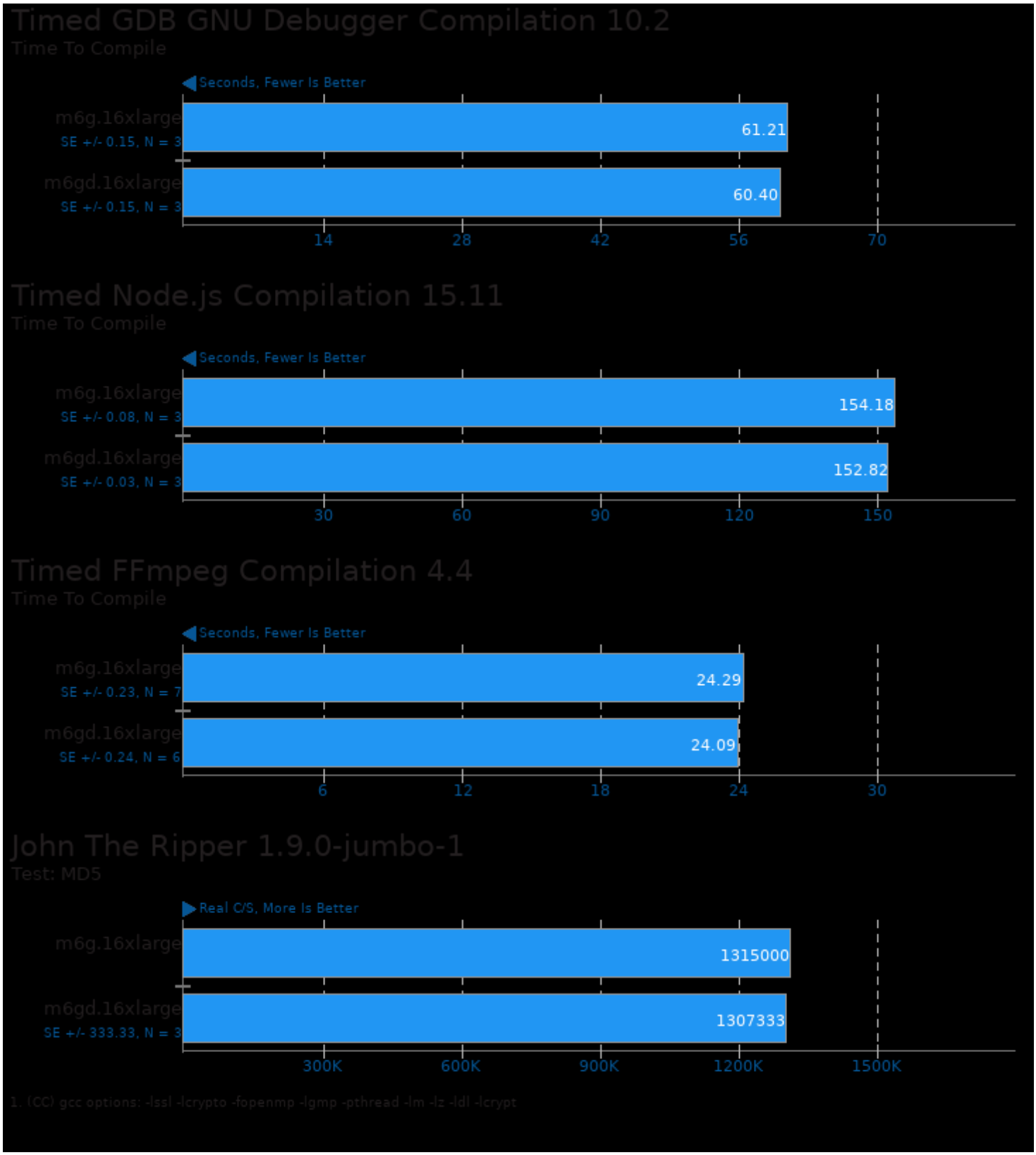
OS: Debian 10, Kernel: 4.19.0-14-arm64 (aarch64), Compiler: GCC 8.3.0, File-System: ext4

Kernel Notes: Transparent Huge Pages: always
Compiler Notes: --build=aarch64-linux-gnu --disable-libphobos --disable-libquadmath --disable-libquadmath-support --disable-werror --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-fix-cortex-a53-843419 --enable-gnu-unique-object --enable-languages=c,ada,c++,go,d,fortran,objc,obj-c++ --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-nls --enable-plugin --enable-shared --enable-threads=posix --host=aarch64-linux-gnu --program-prefix=aarch64-linux-gnu- --target=aarch64-linux-gnu --with-default-libstdcxx-abi=new --with-gcc-major-version-only -v
Python Notes: Python 2.7.16 + Python 3.7.3
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl + spectre_v1: Mitigation of __user pointer sanitization + spectre_v2: Not affected + srbds: Not affected + tsx_async_abort: Not affected

	m6gd.16xlarge	m6g.16xlarge
Timed GDB GNU Debugger Compilation - Time To Compile (sec)	**60.396**	**61.208**
Normalized	100%	98.67%
Standard Deviation	0.4%	0.4%
Timed Node.js Compilation - Time To Compile (sec)	**152.822**	**154.179**
Normalized	100%	99.12%
Standard Deviation	0%	0.1%
Timed FFmpeg Compilation - Time To Compile (sec)	**24.093**	**24.287**
Normalized	100%	99.2%
Standard Deviation	2.5%	2.5%
John The Ripper - MD5 (Real C/S)	**1307333**	**1315000**
Normalized	99.42%	100%
Standard Deviation	0%	
Build2 - Time To Compile (sec)	**69.542**	**69.928**
Normalized	100%	99.45%
Standard Deviation	0.5%	0.4%

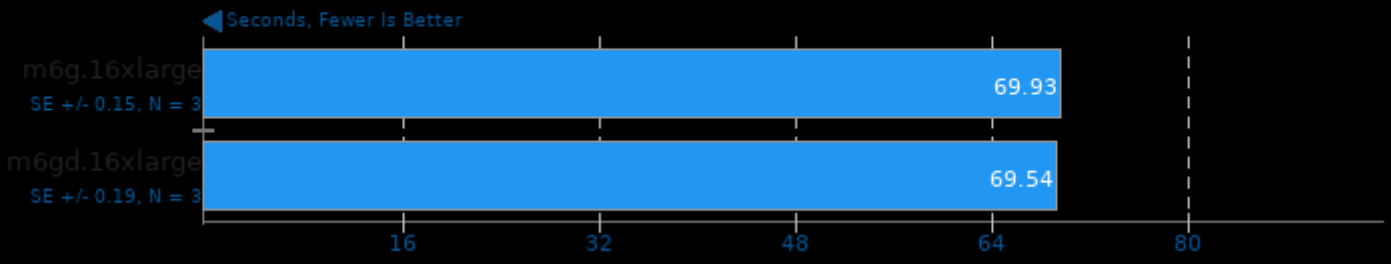
m6gd.16xlarge

GraphicsMagick - Swirl (Iterations/min)	**1804**	**1810**
Normalized	99.67%	100%
Standard Deviation	0.8%	0.9%
dav1d - Summer Nature 4K (FPS)	**277.62**	**277.27**
Normalized	100%	99.87%
Standard Deviation	0.2%	0.4%
John The Ripper - Blowfish (Real C/S)	**40737**	**40703**
Normalized	100%	99.92%
Standard Deviation	0.1%	
Basis Universal - UASTC Level 3 (sec)	**20.288**	**20.301**
Normalized	100%	99.94%
Standard Deviation	0%	0%
OpenSSL - SHA256 (byte/s)	**44216248300**	**44243795250**
Normalized	99.94%	100%
Standard Deviation	0%	0%
7-Zip Compression - C.S.T (MIPS)	**212948**	**213034**
Normalized	99.96%	100%
Standard Deviation	0.1%	0.3%
Stress-NG - Crypto (Bogo Ops/s)	**10056**	**10052**
Normalized	100%	99.97%
Standard Deviation	0%	0%
Stress-NG - Vector Math (Bogo Ops/s)	**137951**	**137965**
Normalized	99.99%	100%
Standard Deviation	0.1%	0.1%
Basis Universal - UASTC Level 2 (sec)	14.023	14.023
Standard Deviation	0.5%	0.3%
PostgreSQL pgbench - 100 - 250 - Read Only - Average Latency (TPS)		332864
Standard Deviation		1.8%
GraphicsMagick - Enhanced (Iterations/min)	766	766
Standard Deviation		0.1%
GraphicsMagick - Sharpen (Iterations/min)	516	516
Standard Deviation	0.2%	
PostgreSQL pgbench - 100 - 500 - Read Only - Average Latency (TPS)		346794
Standard Deviation		11.4%
PostgreSQL pgbench - 100 - 500 - Read Only - Average Latency (ms)	**1.549**	**1.456**
Normalized	94%	100%
Standard Deviation	4.1%	9.9%
PostgreSQL pgbench - 100 - 500 - Read Only (TPS)	**323303**	**342988**
Normalized	94.26%	100%
Standard Deviation	4.2%	6.5%
PostgreSQL pgbench - 100 - 250 - Read Only - Average Latency (ms)	**0.805**	**0.751**
Normalized	93.29%	100%
Standard Deviation	16.6%	1.8%
PostgreSQL pgbench - 100 - 250 - Read Only (TPS)	**316458**	**320260**
Normalized	98.81%	100%
Standard Deviation	12.5%	2.3%


Timed GDB GNU Debugger Compilation 10.2
Time To Compile
Seconds, Fewer Is Better
m6g.16xlarge
SE +/- 0.15, N = 3
61.21
m6gd.16xlarge
SE +/- 0.15, N = 3
60.40
14
28
42
56
70
Timed Node.js Compilation 15.11
Time To Compile
Seconds, Fewer Is Better
m6g.16xlarge
SE +/- 0.08, N = 3
154.18
m6gd.16xlarge
SE +/- 0.03, N = 3
152.82
30
60
90
120
150
Timed FFmpeg Compilation 4.4
Time To Compile
Seconds, Fewer Is Better
m6g.16xlarge
SE +/- 0.23, N = 7
24.29
m6gd.16xlarge
SE +/- 0.24, N = 6
24.09
6
12
18
24
30
John The Ripper 1.9.0-jumbo-1
Test: MD5
Real C/S, More Is Better
m6g.16xlarge
1315000
m6gd.16xlarge
SE +/- 333.33, N = 3
1307333
300K
600K
900K
1200K
1500K
1. (CC) gcc options: -lssl -lcrypto -fopenmp -lgmp -pthread -lm -lz -ldl -lcrypt

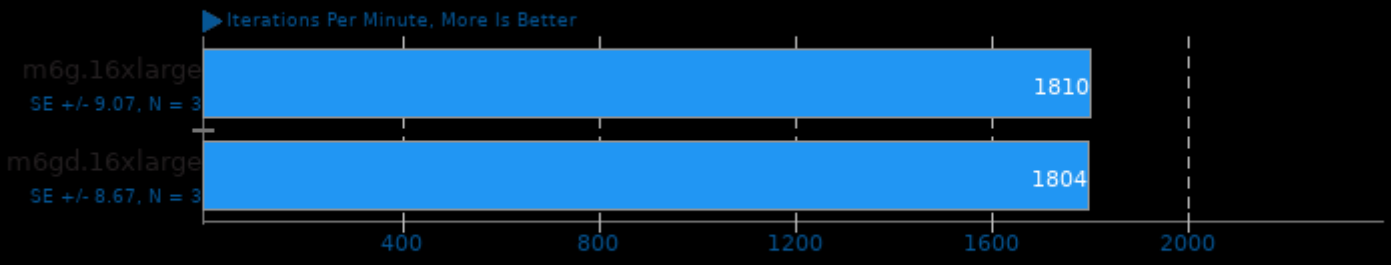
Build2 0.13

Time To Compile



GraphicsMagick 1.3.33

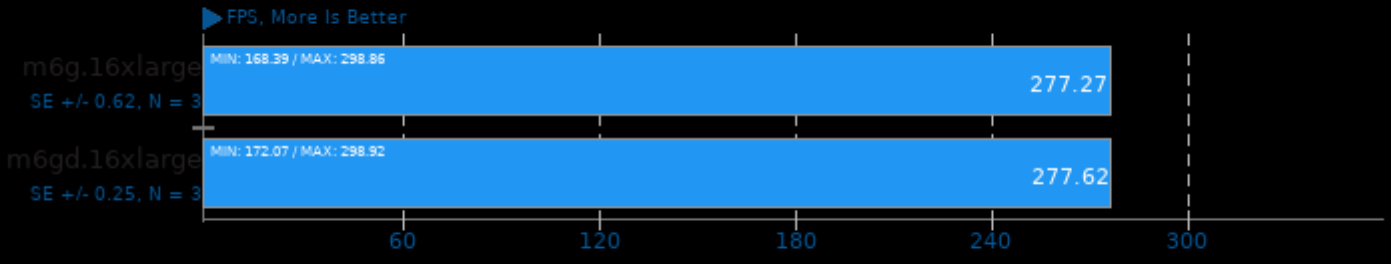
Operation: Swirl



1. (CC) gcc options: -fopenmp -O2 -pthread -ljpeg -lz -lm -lpthread

dav1d 0.9.2

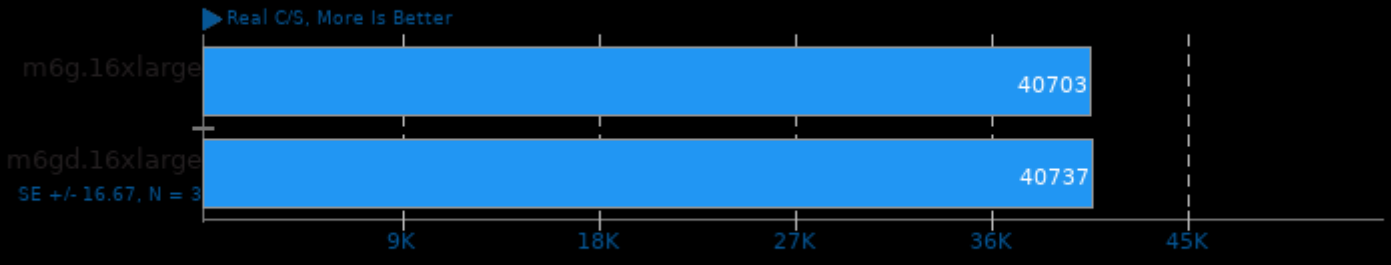
Video Input: Summer Nature 4K



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

John The Ripper 1.9.0-jumbo-1

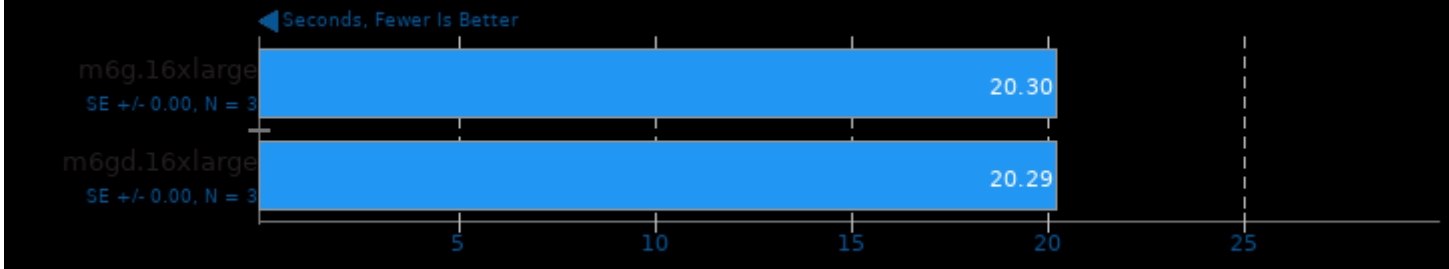
Test: Blowfish



1. (CC) gcc options: -lssl -lcrypto -fopenmp -lgmp -pthread -lm -lz -ldl -lcrypt

Basis Universal 1.13

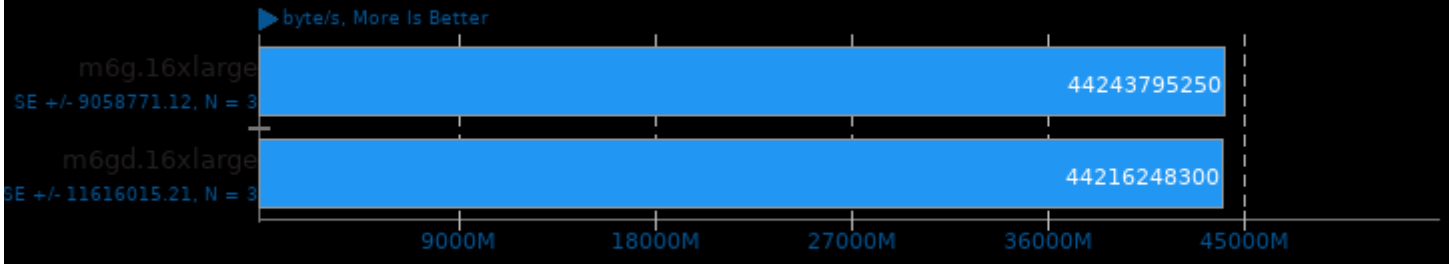
Settings: UASTC Level 3



1. (CXX) g++ options: -std=c++11 -fvisibility=hidden -fPIC -fno-strict-aliasing -O3 -rdynamic -lm -lpthread

OpenSSL 3.0

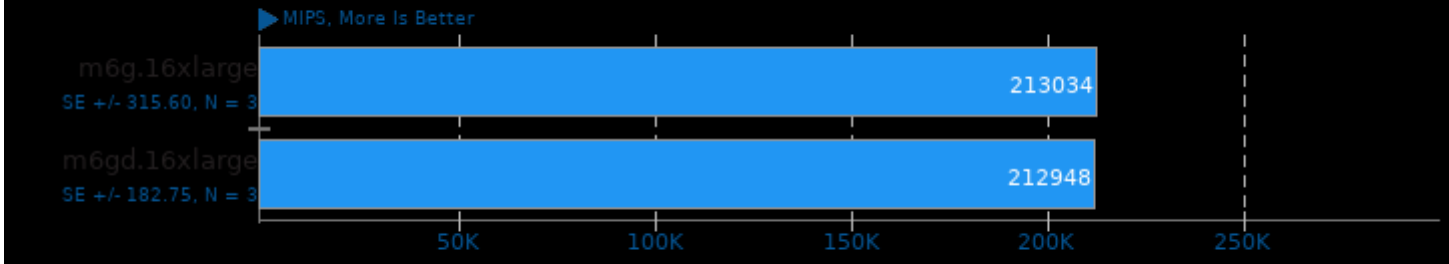
Algorithm: SHA256



1. (CC) gcc options: -pthread -O3 -lssl -lcrypto -ldl

7-Zip Compression 16.02

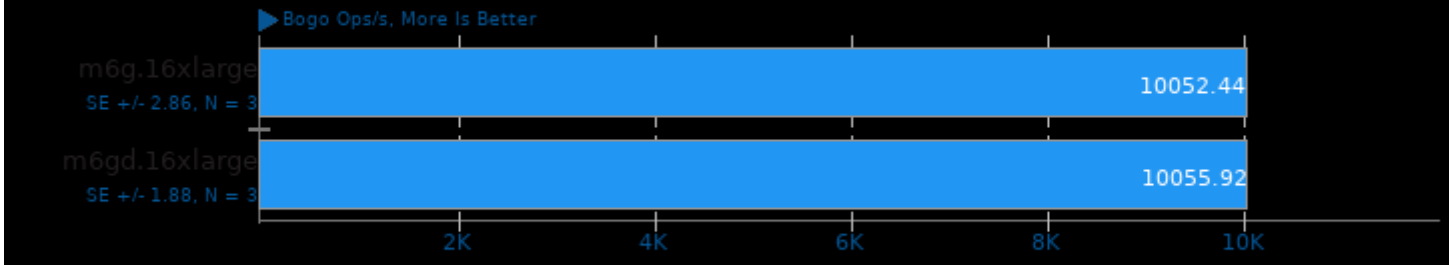
Compress Speed Test



1. (CXX) g++ options: -pipe -lpthread

Stress-NG 0.13.02

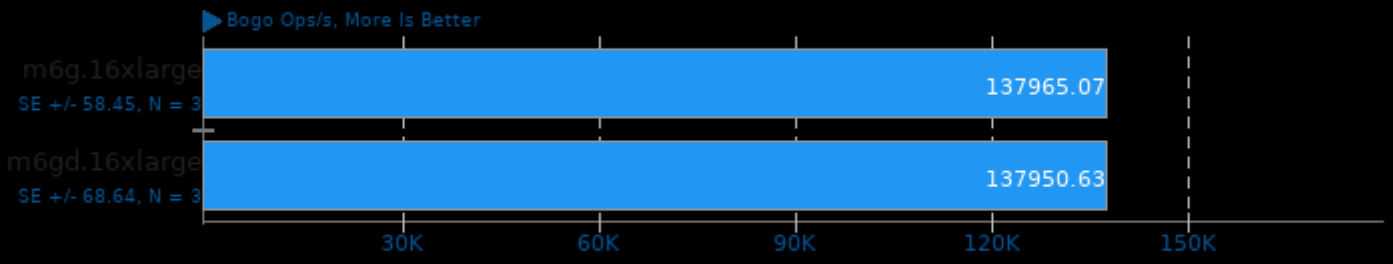
Test: Crypto



1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -lz -ldl -pthread -lc -latomic

Stress-NG 0.13.02

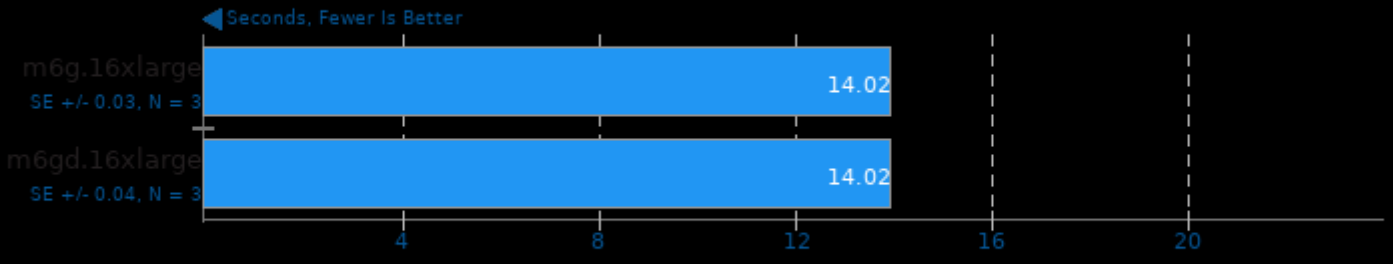
Test: Vector Math



1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -lz -ldl -pthread -lc -latomic

Basis Universal 1.13

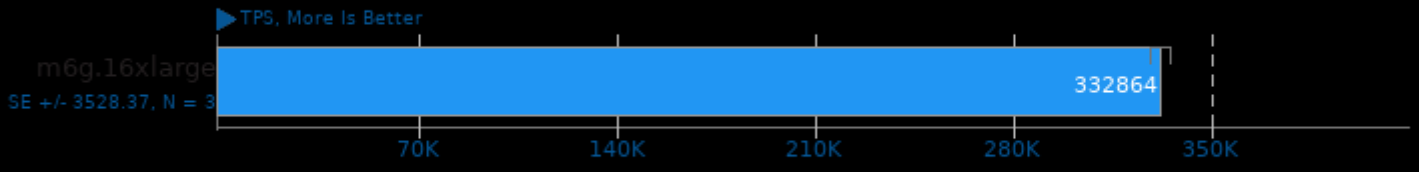
Settings: UASTC Level 2



1. (CXX) g++ options: -std=c++11 -fvisibility=hidden -fPIC -fno-strict-aliasing -O3 -rdynamic -lm -lpthread

PostgreSQL pgbench 14.0

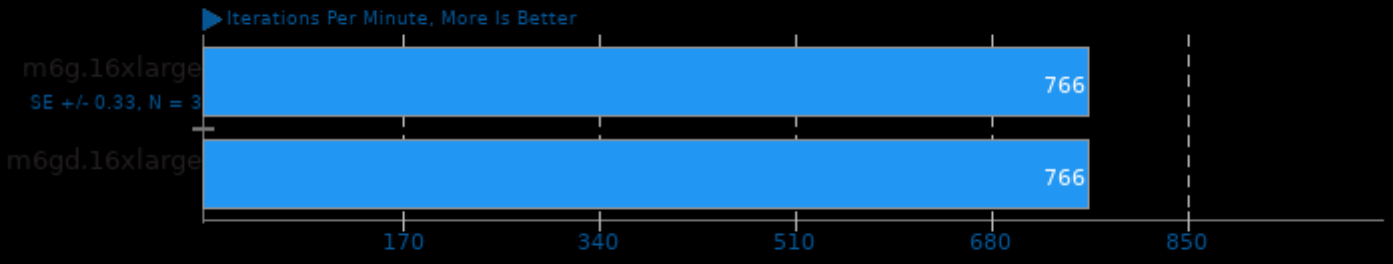
Scaling Factor: 100 - Clients: 250 - Mode: Read Only - Average Latency



1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm

GraphicsMagick 1.3.33

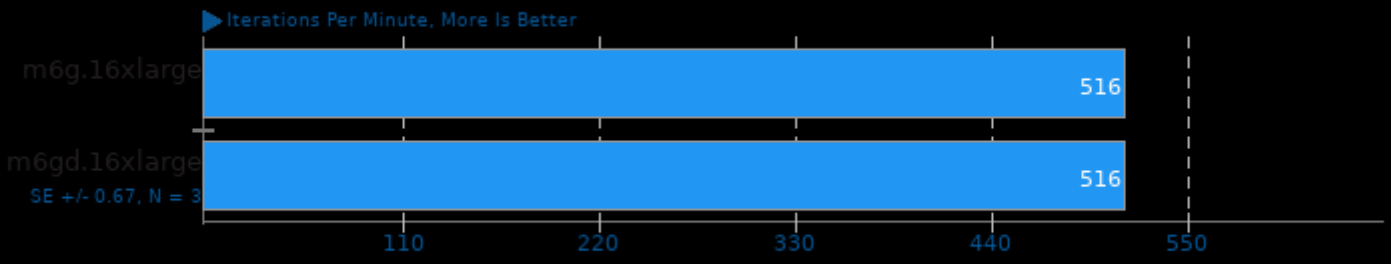
Operation: Enhanced



1. (CC) gcc options: -fopenmp -O2 -pthread -ljpeg -lz -lm -lpthread

GraphicsMagick 1.3.33

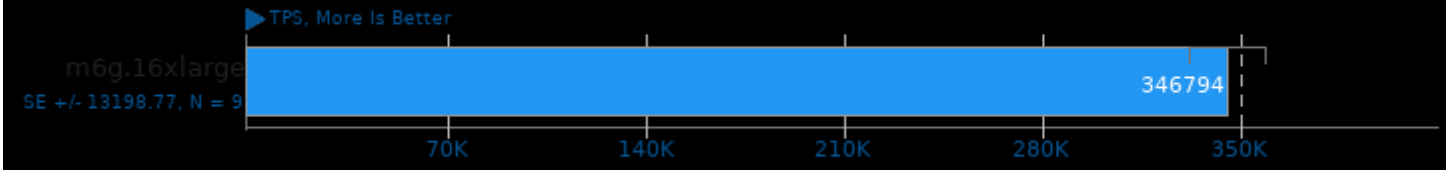
Operation: Sharpen



1. (CC) gcc options: -fopenmp -O2 -pthread -ljpeg -lz -lm -lpthread

PostgreSQL pgbench 14.0

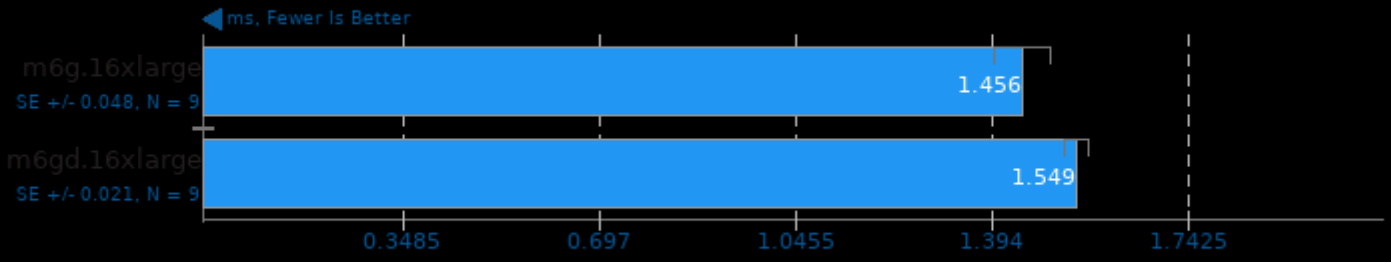
Scaling Factor: 100 - Clients: 500 - Mode: Read Only - Average Latency



1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm

PostgreSQL pgbench 14.0

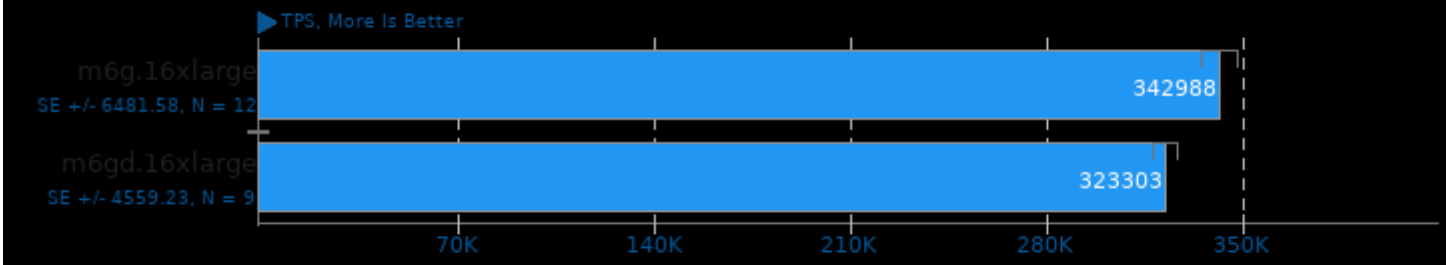
Scaling Factor: 100 - Clients: 500 - Mode: Read Only - Average Latency



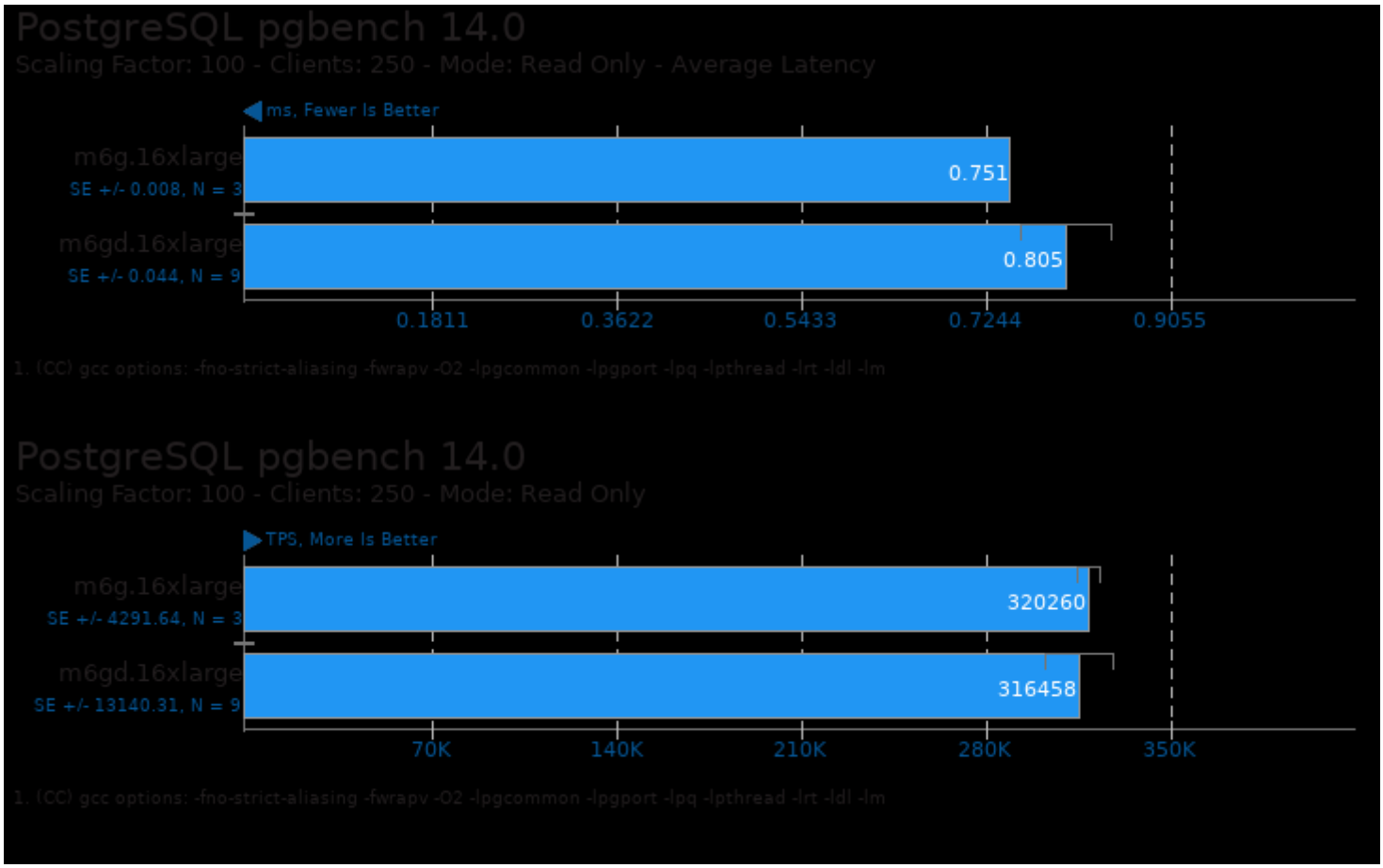
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm

PostgreSQL pgbench 14.0

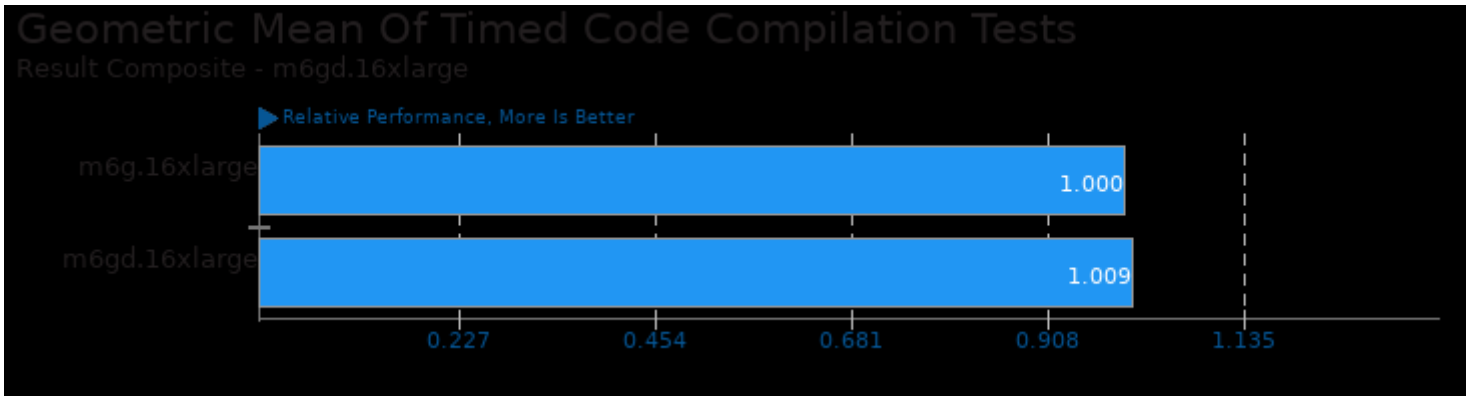
Scaling Factor: 100 - Clients: 500 - Mode: Read Only



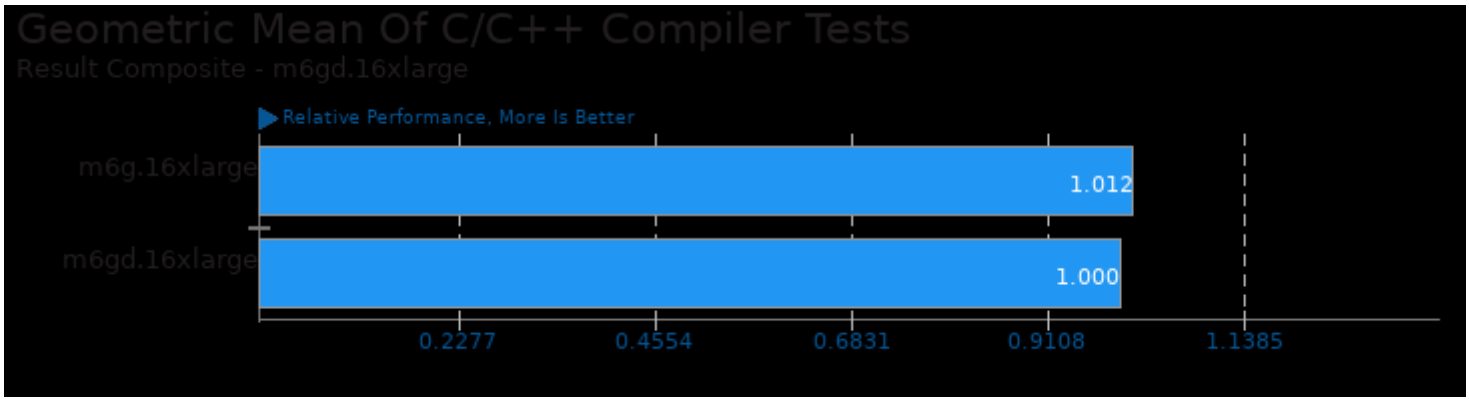
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm


PostgreSQL pgbench 14.0
Scaling Factor: 100 - Clients: 250 - Mode: Read Only - Average Latency
ms, Fewer Is Better
m6g.16xlarge
SE +/- 0.008, N = 3
0.751
m6gd.16xlarge
SE +/- 0.044, N = 9
0.805
0.1811
0.3622
0.5433
0.7244
0.9055
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm
PostgreSQL pgbench 14.0
Scaling Factor: 100 - Clients: 250 - Mode: Read Only
TPS, More Is Better
m6g.16xlarge
SE +/- 4291.64, N = 3
320260
m6gd.16xlarge
SE +/- 13140.31, N = 9
316458
70K
140K
210K
280K
350K
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm

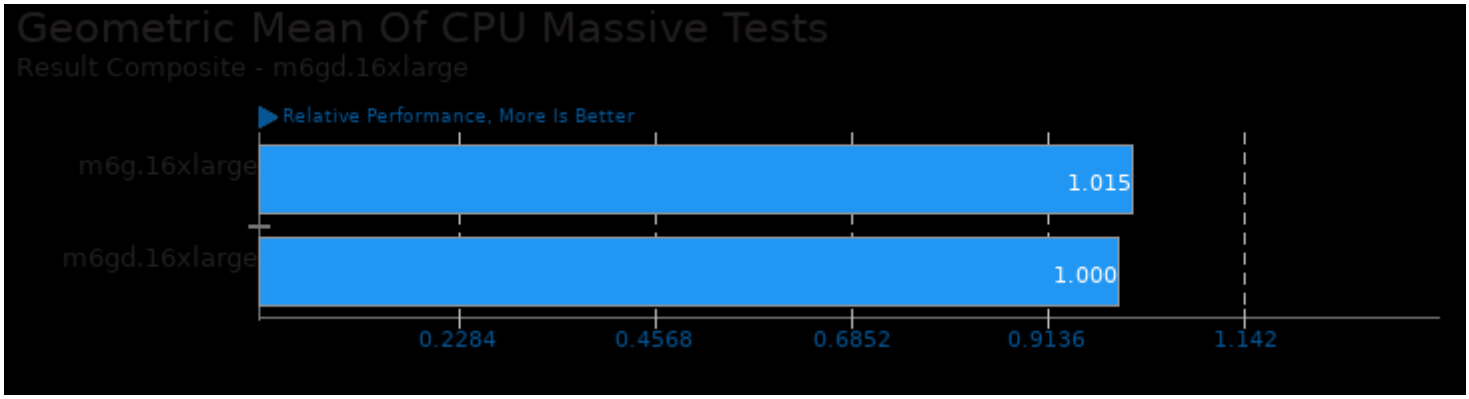
These geometric means are based upon test groupings / test suites for this result file.



Geometric mean based upon tests: pts/build-gdb, pts/build-ffmpeg, pts/build2 and pts/build-nodejs



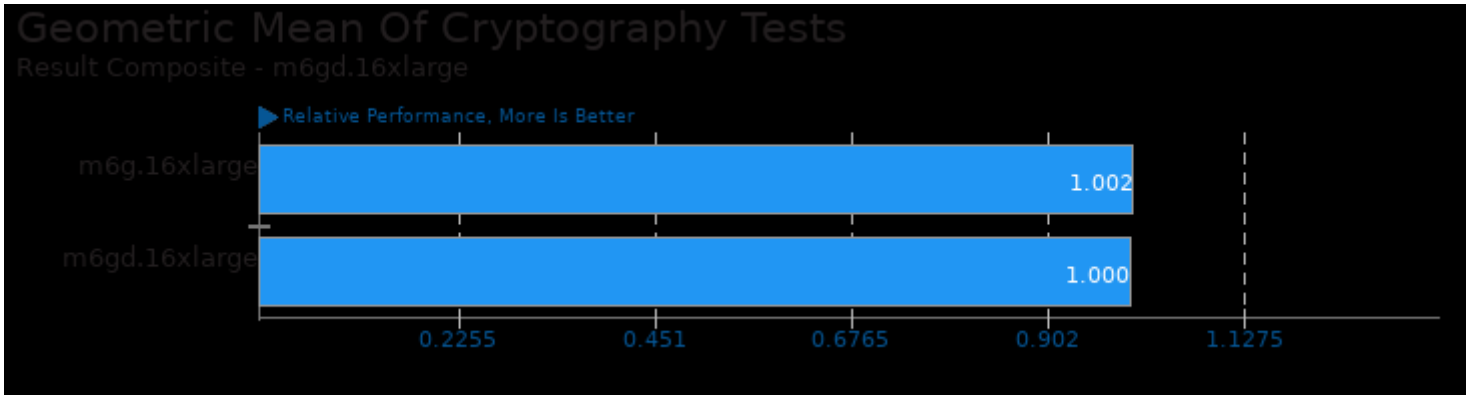
Geometric mean based upon tests: pts/graphics-magick, pts/compress-7zip, pts/pgbench, pts/john-the-ripper, pts/dav1d, pts/openssl, pts/build-gdb, pts/build-ffmpeg and pts/basis



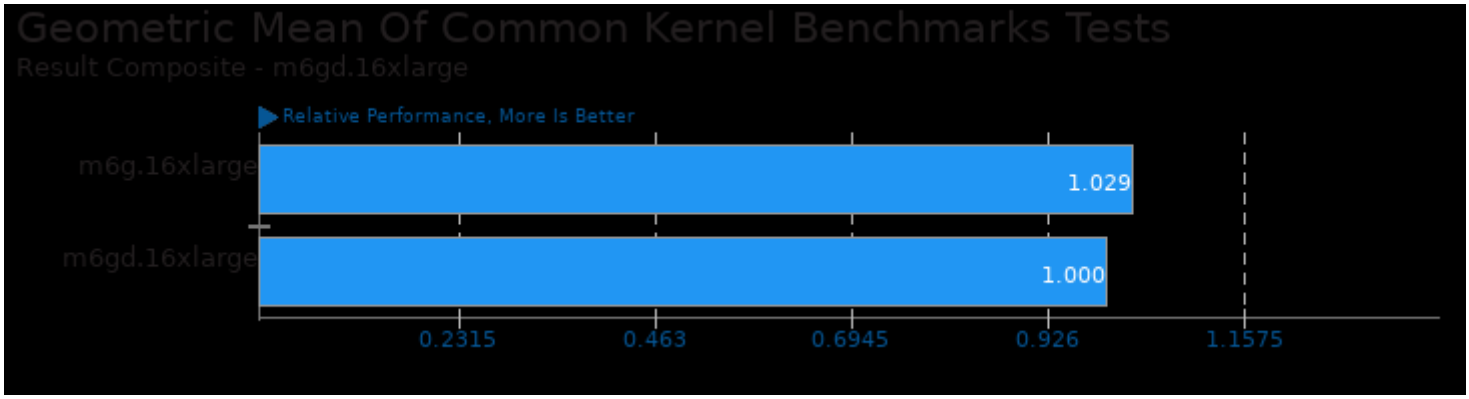
Geometric mean based upon tests: pts/compress-7zip, pts/dav1d, pts/graphics-magick, pts/john-the-ripper, pts/openssl, pts/pgbench and pts/stress-ng



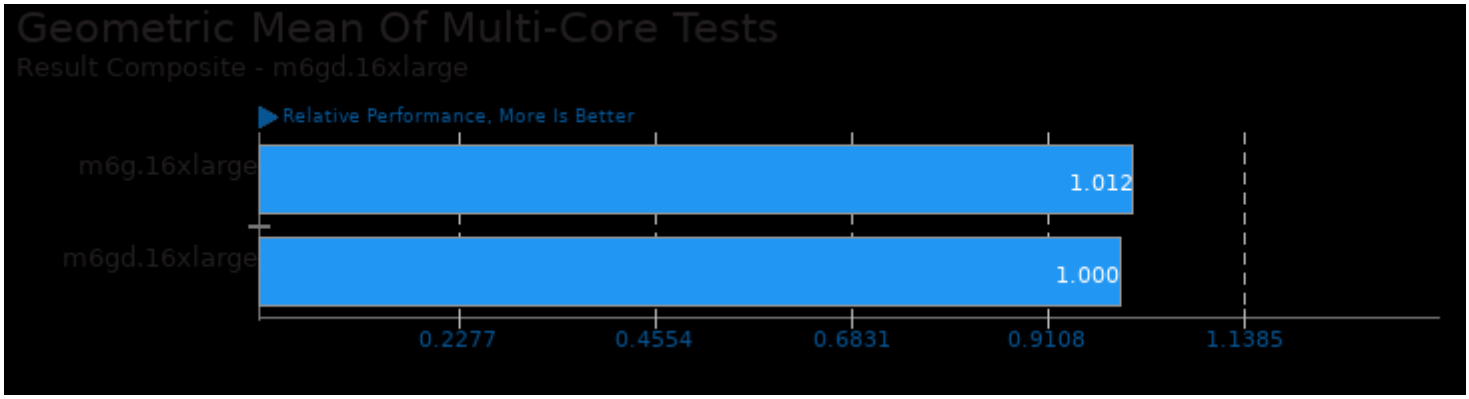
Geometric mean based upon tests: pts/dav1d, pts/graphics-magick and pts/basis



Geometric mean based upon tests: pts/openssl and pts/john-the-ripper

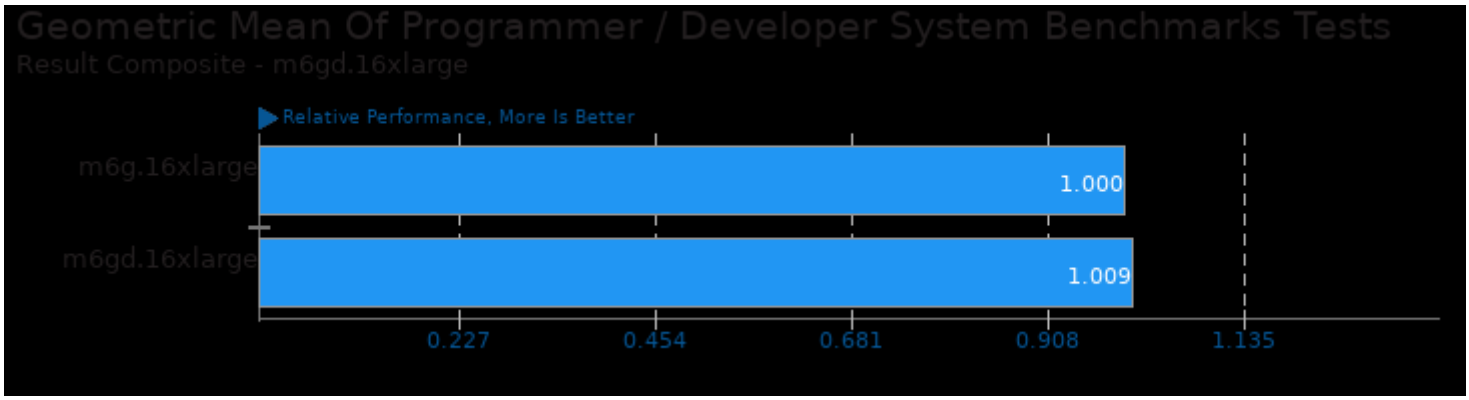


Geometric mean based upon tests: pts/pgbench, pts/openssl and pts/stress-ng

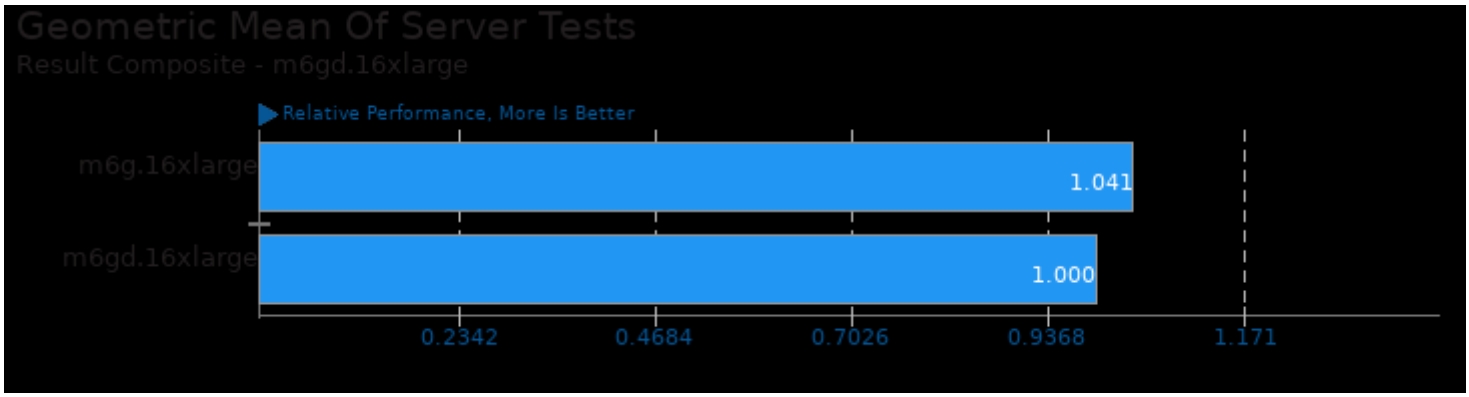


Geometric mean based upon tests: pts/dav1d, pts/john-the-ripper, pts/graphics-magick, pts/compress-7zip,

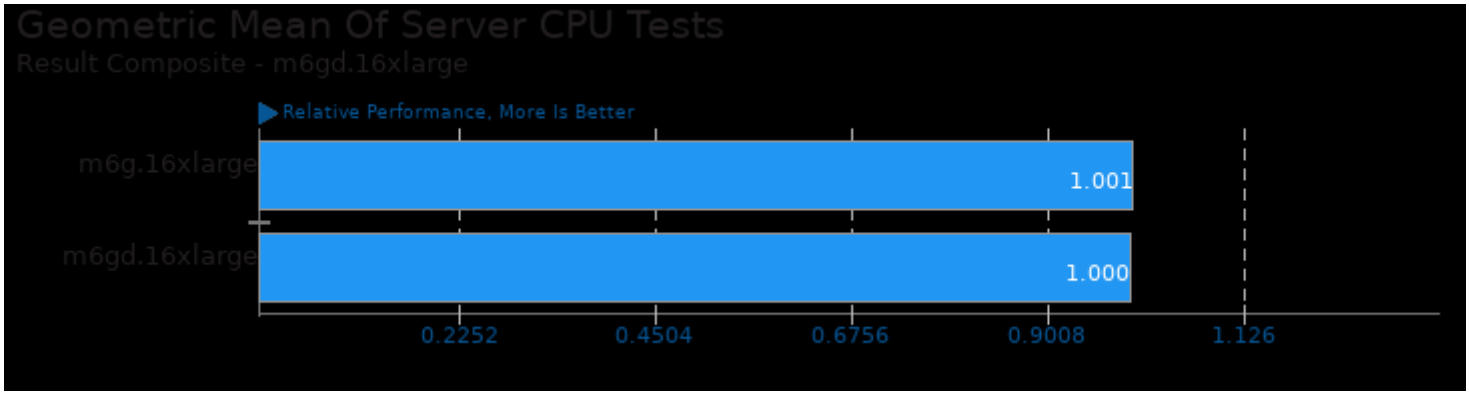
pts/build-gdb, pts/build-ffmpeg, pts/build2, pts/build-nodejs and pts/pgbench



Geometric mean based upon tests: pts/build-gdb, pts/build-ffmpeg, pts/build2 and pts/build-nodejs



Geometric mean based upon tests: pts/pgbench and pts/openssl



Geometric mean based upon tests: pts/john-the-ripper, pts/dav1d, pts/compress-7zip, pts/openssl and pts/stress-ng

This file was automatically generated via the Phoronix Test Suite benchmarking software on Thursday, 28 March 2024 15:13.