www.phoronix-test-suite.com

m6gd.16xlarge

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

Automated Executive Summary

m6g.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

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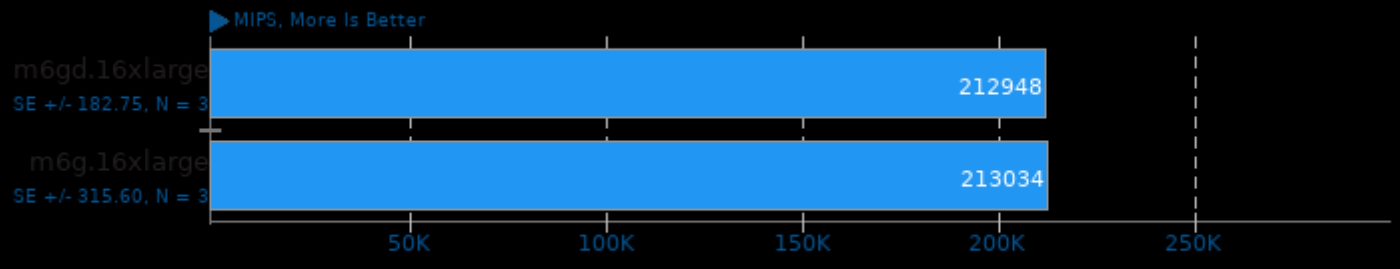
Python Notes: Python 2.7.16 + Python 3.7.3
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl + spectre_v1: Mitigation of __user pointer sanitization + spectre_v2: Not affected + srbds: Not affected + tsx_async_abort: Not affected

	m6gd.16xlarge	m6g.16xlarge
7-Zip Compression - C.S.T (MIPS)	**212948**	**213034**
Normalized	99.96%	100%
Standard Deviation	0.1%	0.3%
Basis Universal - UASTC Level 2 (sec)	14.023	14.023
Standard Deviation	0.5%	0.3%
Basis Universal - UASTC Level 3 (sec)	**20.288**	**20.301**
Normalized	100%	99.94%
Standard Deviation	0%	0%
Build2 - Time To Compile (sec)	**69.542**	**69.928**
Normalized	100%	99.45%
Standard Deviation	0.5%	0.4%
dav1d - Summer Nature 4K (FPS)	**277.62**	**277.27**
Normalized	100%	99.87%
Standard Deviation	0.2%	0.4%
GraphicsMagick - Swirl (Iterations/min)	**1804**	**1810**
Normalized	99.67%	100%

Standard Deviation	0.8%	0.9%
GraphicsMagick - Sharpen (Iterations/min)	516	516
Standard Deviation	0.2%	
GraphicsMagick - Enhanced (Iterations/min)	766	766
Standard Deviation		0.1%
John The Ripper - Blowfish (Real C/S)	40737	40703
Normalized	100%	99.92%
Standard Deviation	0.1%	
John The Ripper - MD5 (Real C/S)	1307333	1315000
Normalized	99.42%	100%
Standard Deviation	0%	
OpenSSL - SHA256 (byte/s)	44216248300	44243795250
Normalized	99.94%	100%
Standard Deviation	0%	0%
PostgreSQL pgbench - 100 - 250 - Read Only (TPS)	316458	320260
Normalized	98.81%	100%
Standard Deviation	12.5%	2.3%
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 - 500 - Read Only (TPS)	323303	342988
Normalized	94.26%	100%
Standard Deviation	4.2%	6.5%
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 - 250 - Read Only - Average Latency (TPS)		332864
Standard Deviation		1.8%
PostgreSQL pgbench - 100 - 500 - Read Only - Average Latency (TPS)		346794
Standard Deviation		11.4%
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%
Timed FFmpeg Compilation - Time To Compile (sec)	24.093	24.287
Normalized	100%	99.2%
Standard Deviation	2.5%	2.5%
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%

7-Zip Compression 16.02

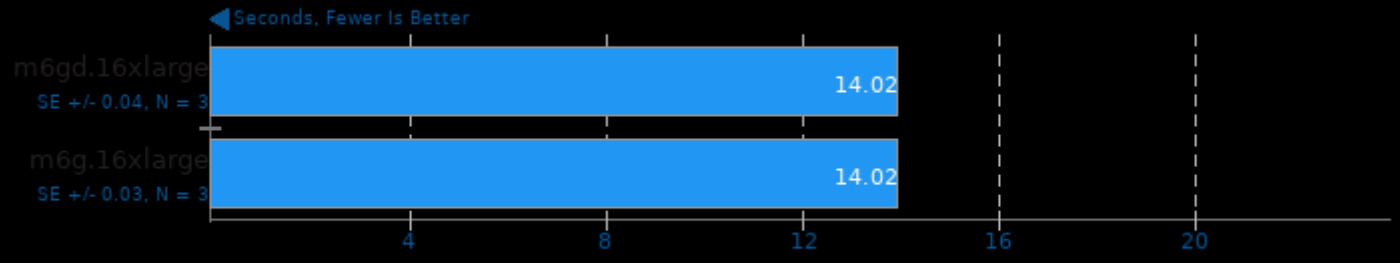
Compress Speed Test



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

Basis Universal 1.13

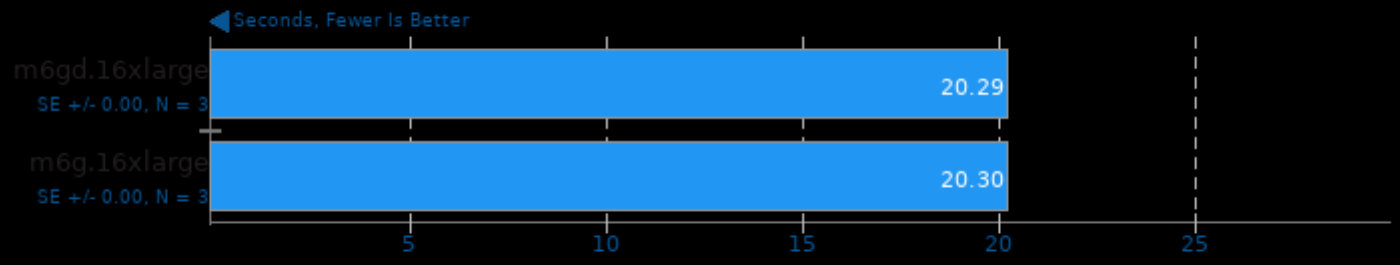
Settings: UASTC Level 2



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

Basis Universal 1.13

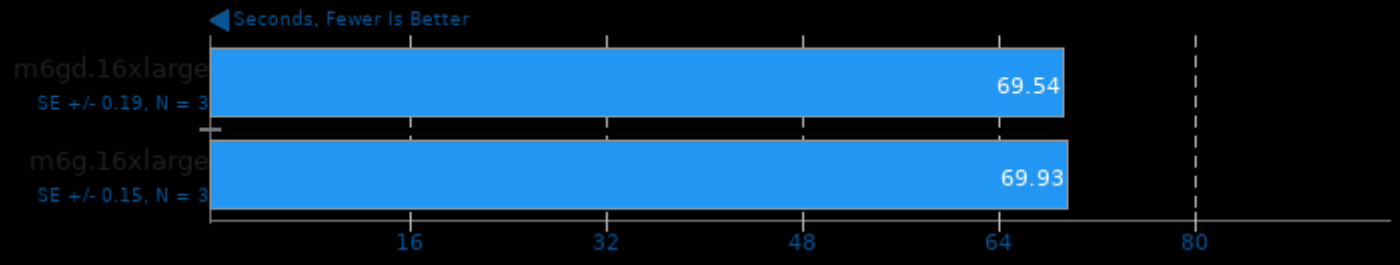
Settings: UASTC Level 3



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

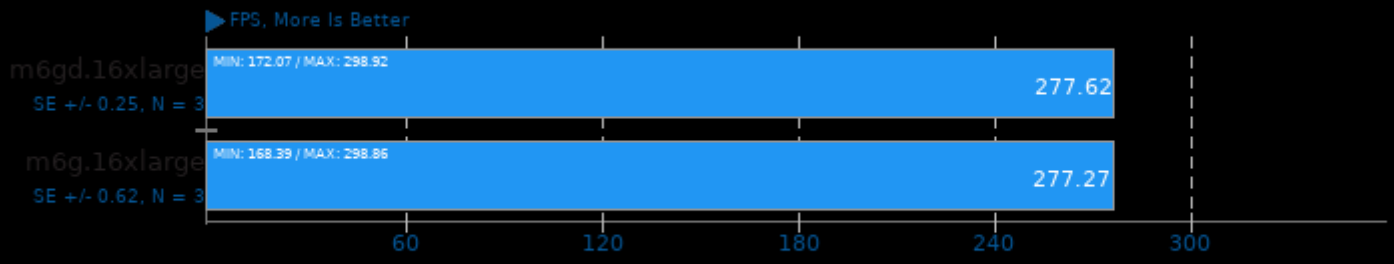
Build2 0.13

Time To Compile



dav1d 0.9.2

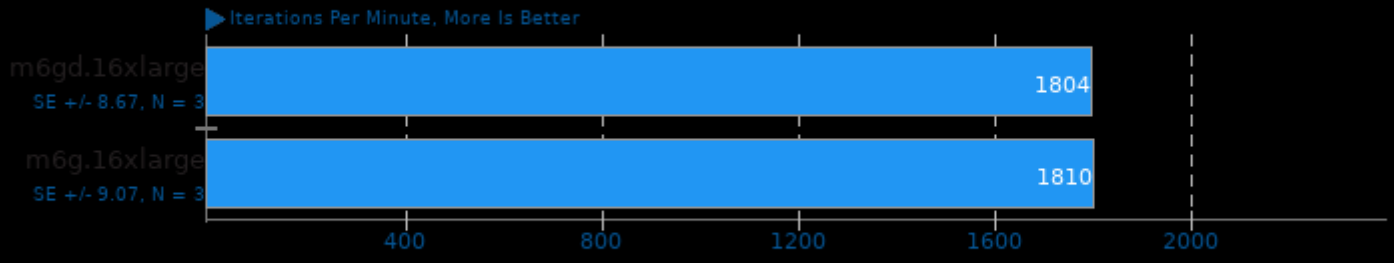
Video Input: Summer Nature 4K



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

GraphicsMagick 1.3.33

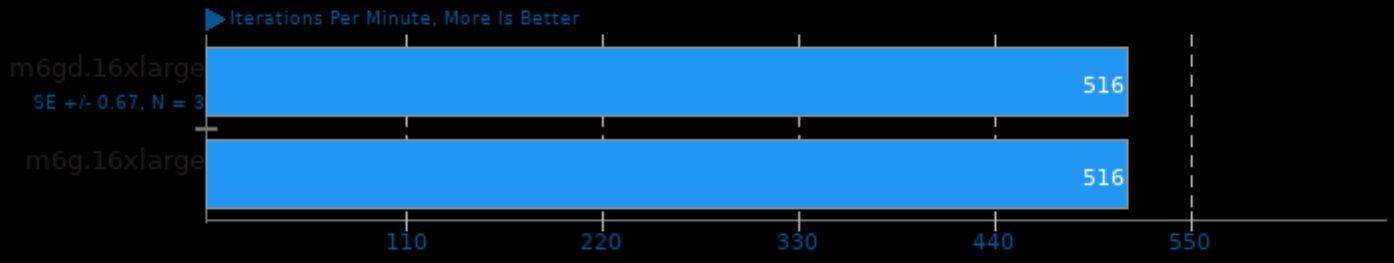
Operation: Swirl



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

GraphicsMagick 1.3.33

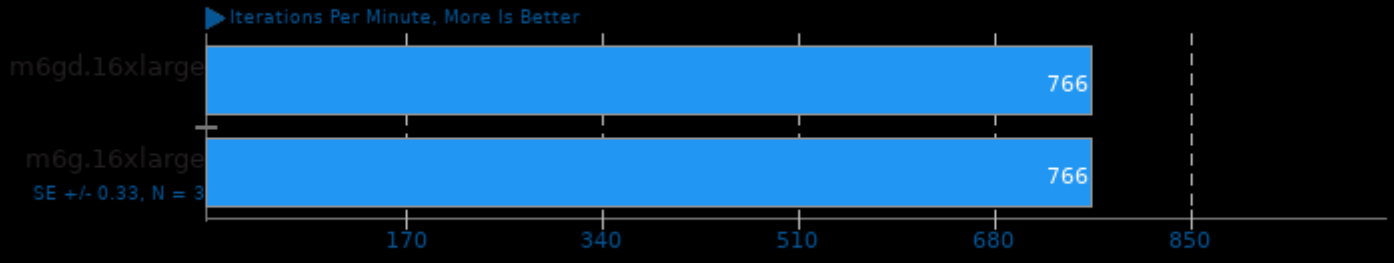
Operation: Sharpen



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

GraphicsMagick 1.3.33

Operation: Enhanced

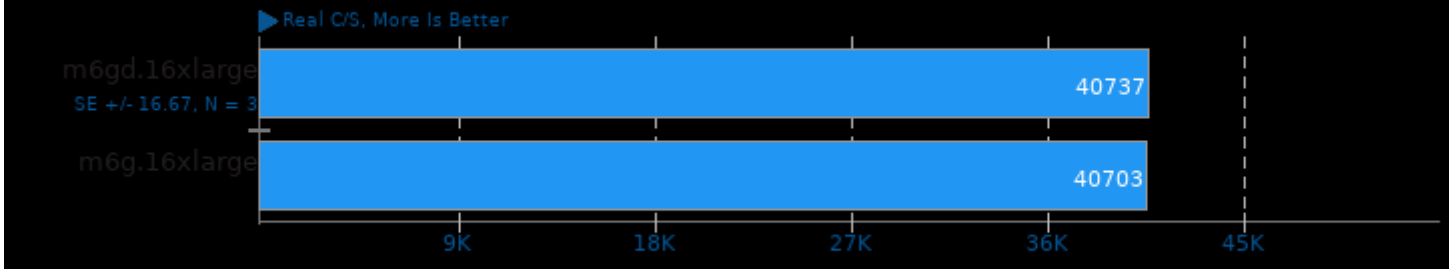


1. (CC) gcc options: -fopenmp -O2 -pthread -ljpeg -lz -lm -lpthread

m6gd.16xlarge

John The Ripper 1.9.0-jumbo-1

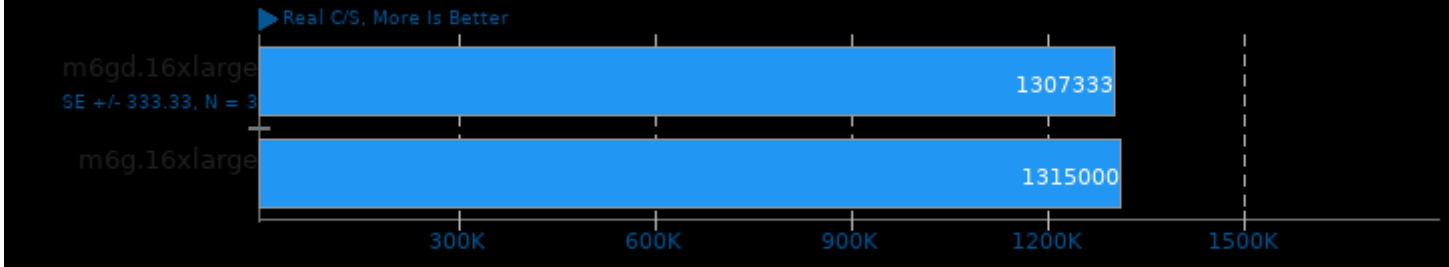
Test: Blowfish



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

John The Ripper 1.9.0-jumbo-1

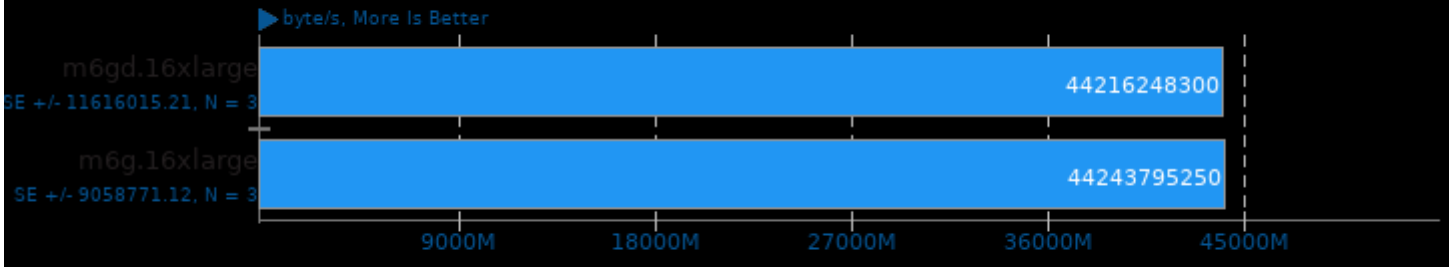
Test: MD5



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

OpenSSL 3.0

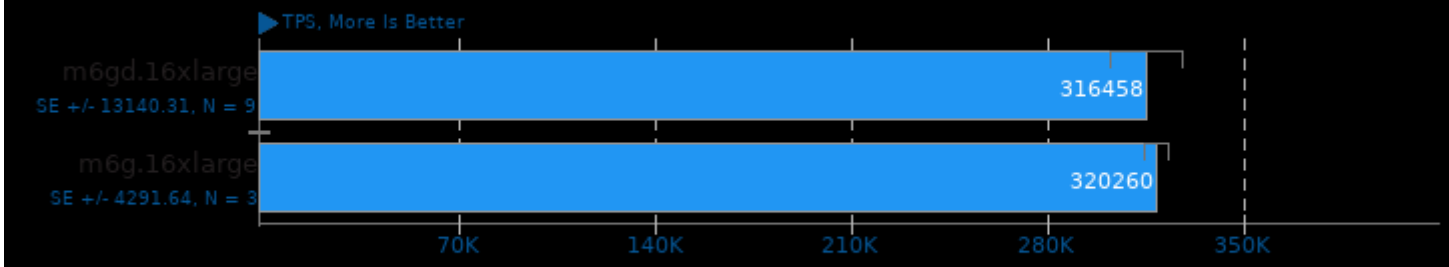
Algorithm: SHA256



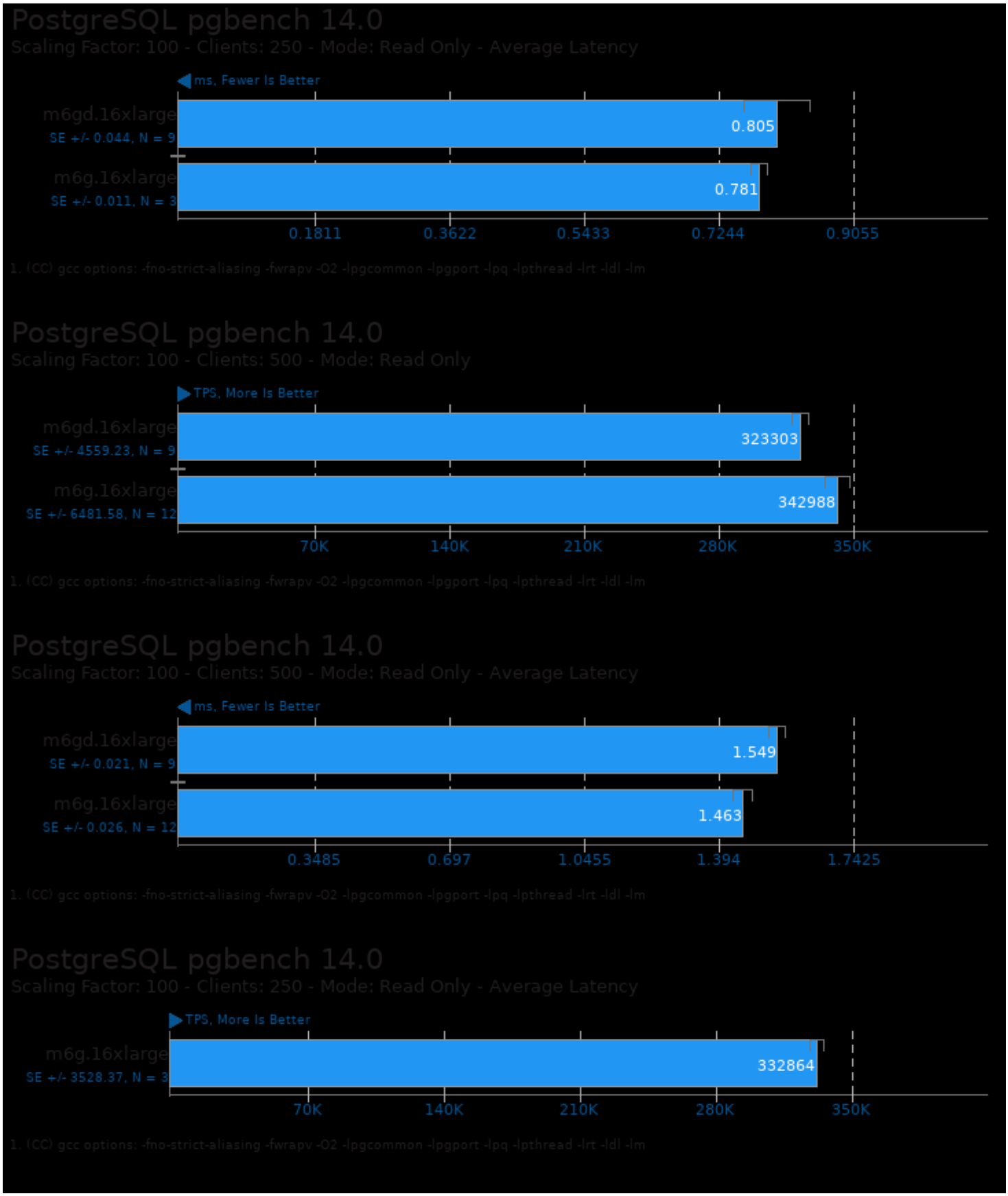
1. (CC) gcc options: -pthread -O3 -lssl -lcrypto -ldl

PostgreSQL pgbench 14.0

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

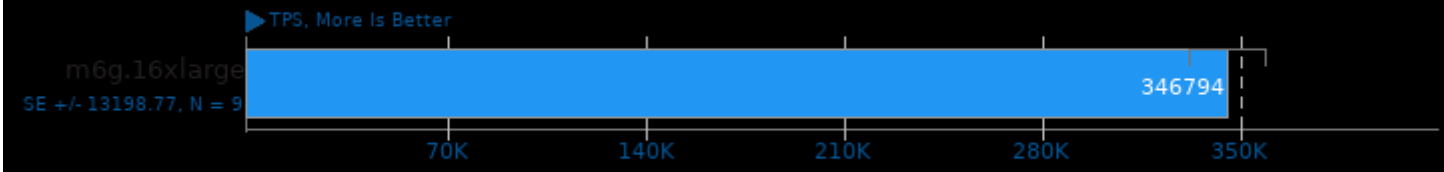


1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm


PostgreSQL pgbench 14.0
Scaling Factor: 100 - Clients: 250 - Mode: Read Only - Average Latency
ms, Fewer Is Better
m6gd.16xlarge
SE +/- 0.044, N = 9
0.805
m6g.16xlarge
SE +/- 0.011, N = 3
0.781
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: 500 - Mode: Read Only
TPS, More Is Better
m6gd.16xlarge
SE +/- 4559.23, N = 9
323303
m6g.16xlarge
SE +/- 6481.58, N = 12
342988
70K
140K
210K
280K
350K
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
ms, Fewer Is Better
m6gd.16xlarge
SE +/- 0.021, N = 9
1.549
m6g.16xlarge
SE +/- 0.026, N = 12
1.463
0.3485
0.697
1.0455
1.394
1.7425
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
TPS, More Is Better
m6g.16xlarge
SE +/- 3528.37, N = 3
332864
70K
140K
210K
280K
350K
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm

PostgreSQL pgbench 14.0

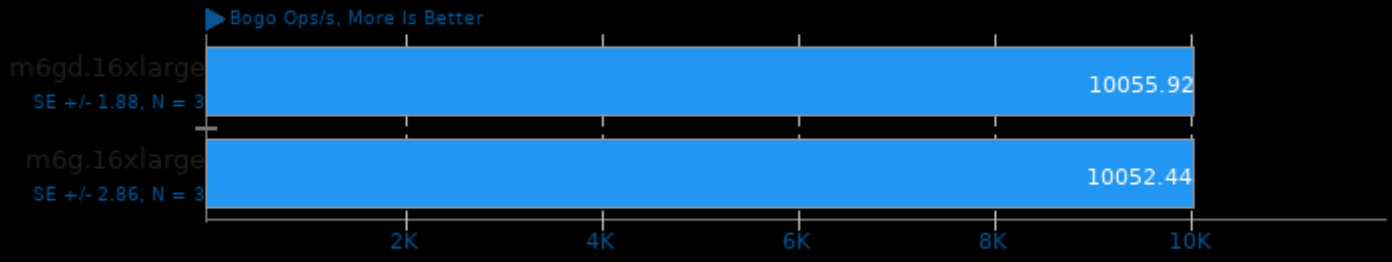
Scaling Factor: 100 - Clients: 500 - Mode: Read Only - Average Latency



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

Stress-NG 0.13.02

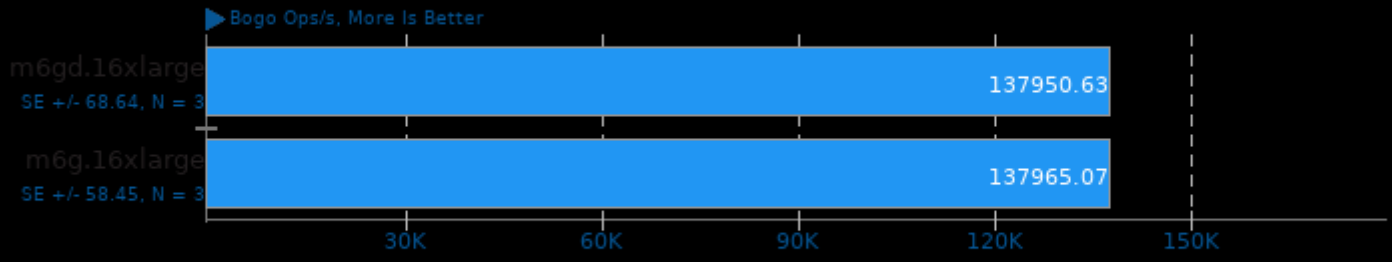
Test: Crypto



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

Stress-NG 0.13.02

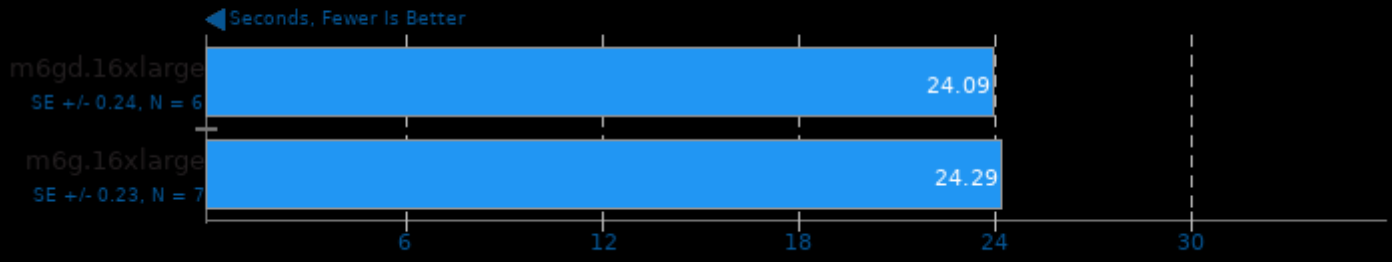
Test: Vector Math



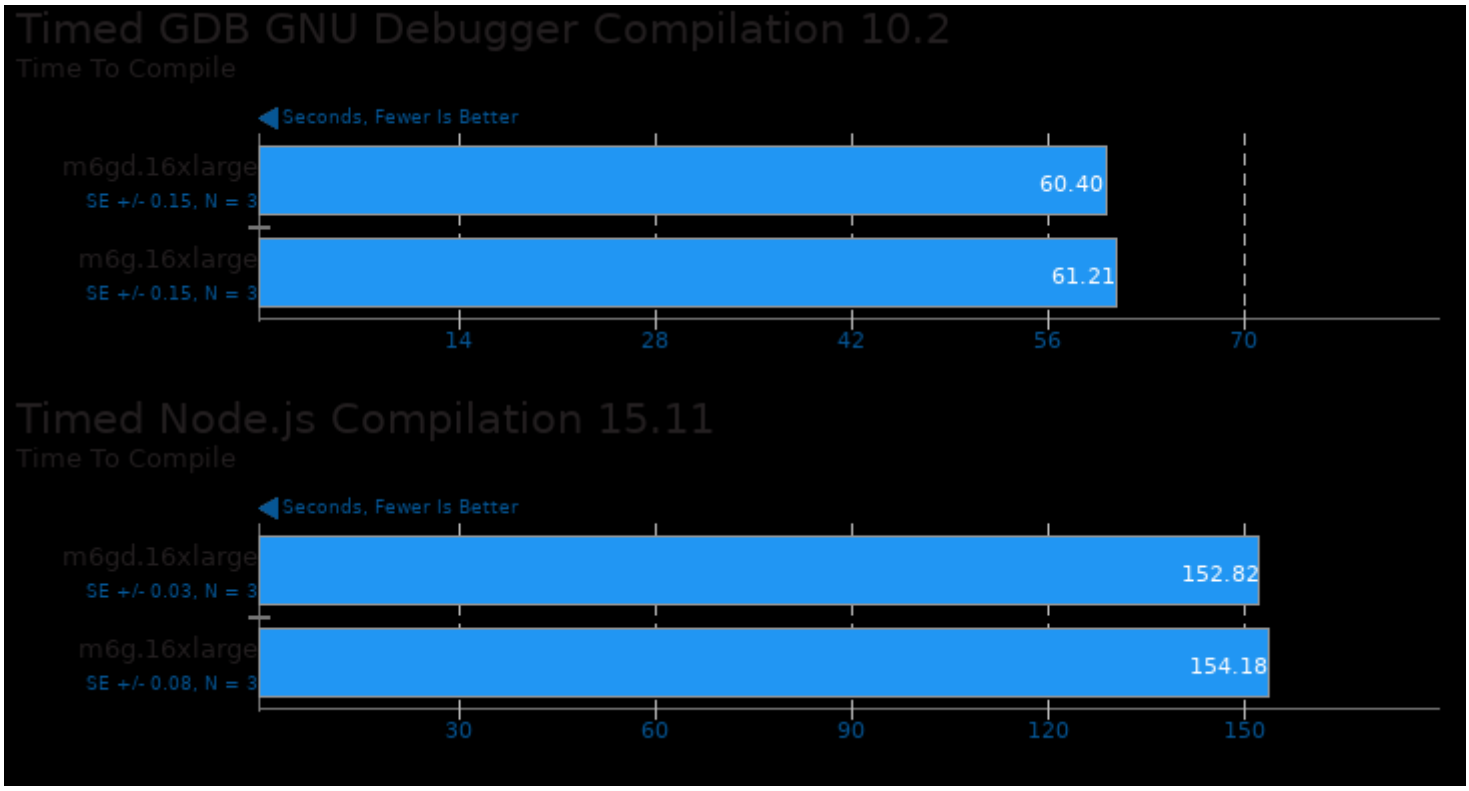
1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -lz -ldl -pthread -lc -latomic

Timed FFmpeg Compilation 4.4

Time To Compile

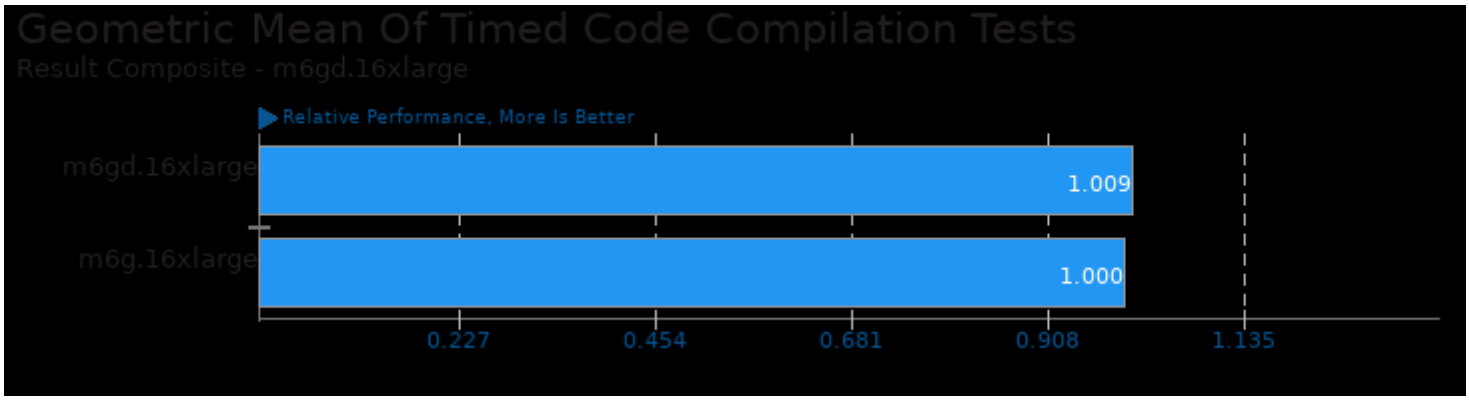


m6gd.16xlarge

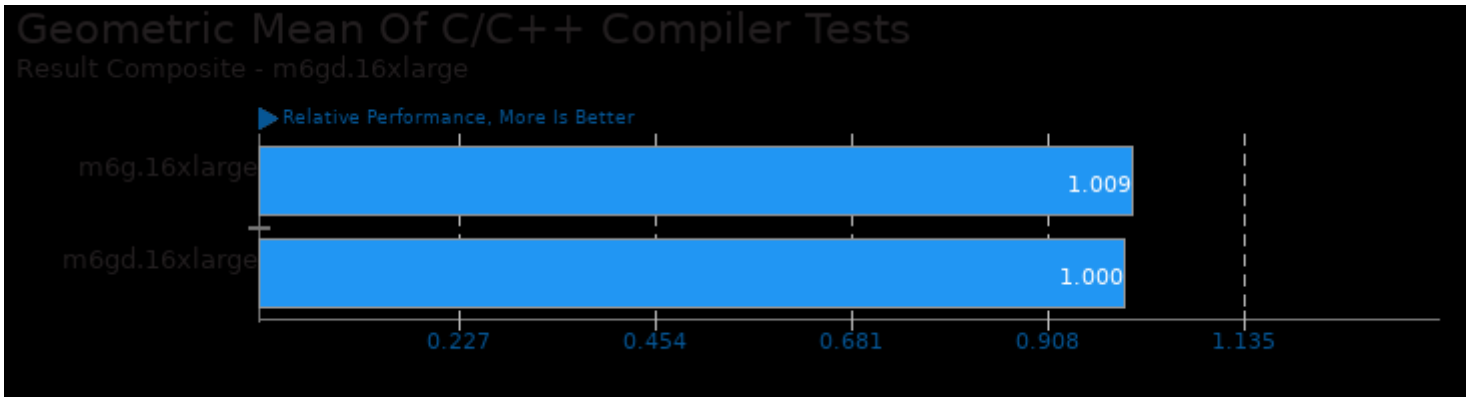


m6gd.16xlarge

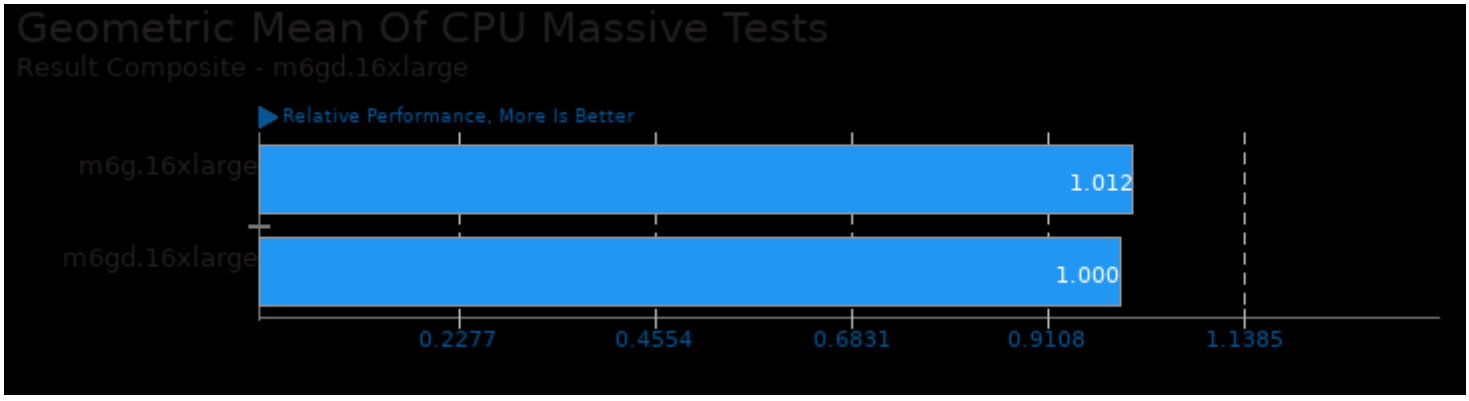
These geometric means are based upon test groupings / test suites for this result file.



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

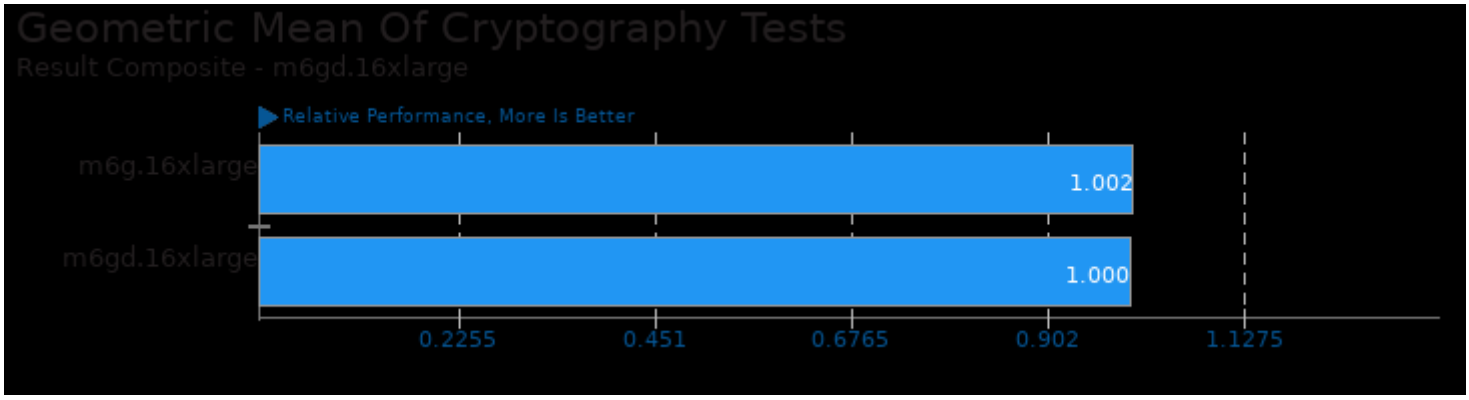


Geometric mean based upon tests: pts/graphics-magick, pts/compress-7zip, pts/pgbench, pts/john-the-ripper, pts/dav1d, pts/openssl, pts/build-gdb, pts/build-ffmpeg and pts/basis

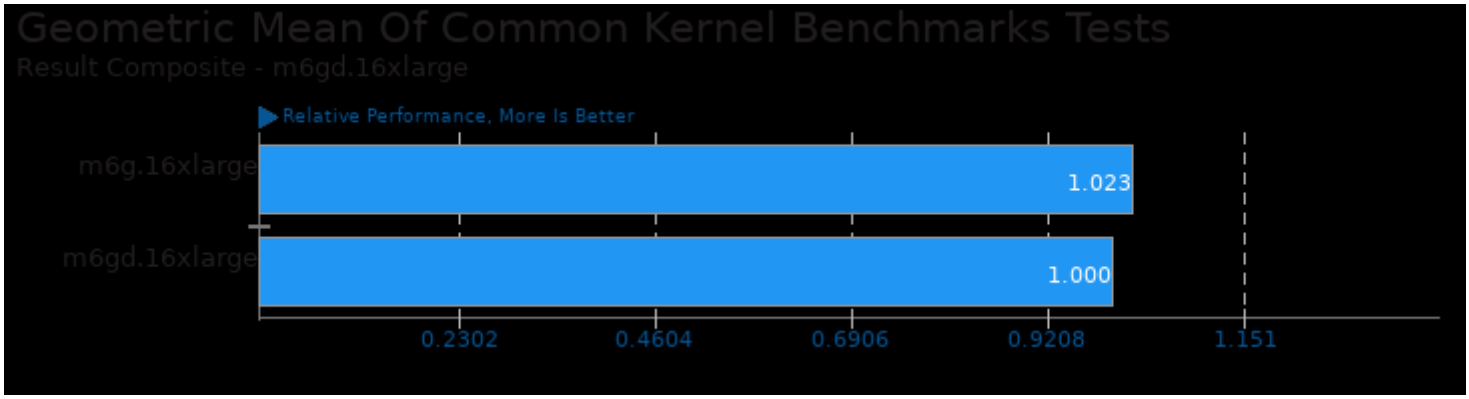


Geometric mean based upon tests: pts/compress-7zip, pts/dav1d, pts/graphics-magick, pts/john-the-ripper, pts/openssl, pts/pgbench and pts/stress-ng

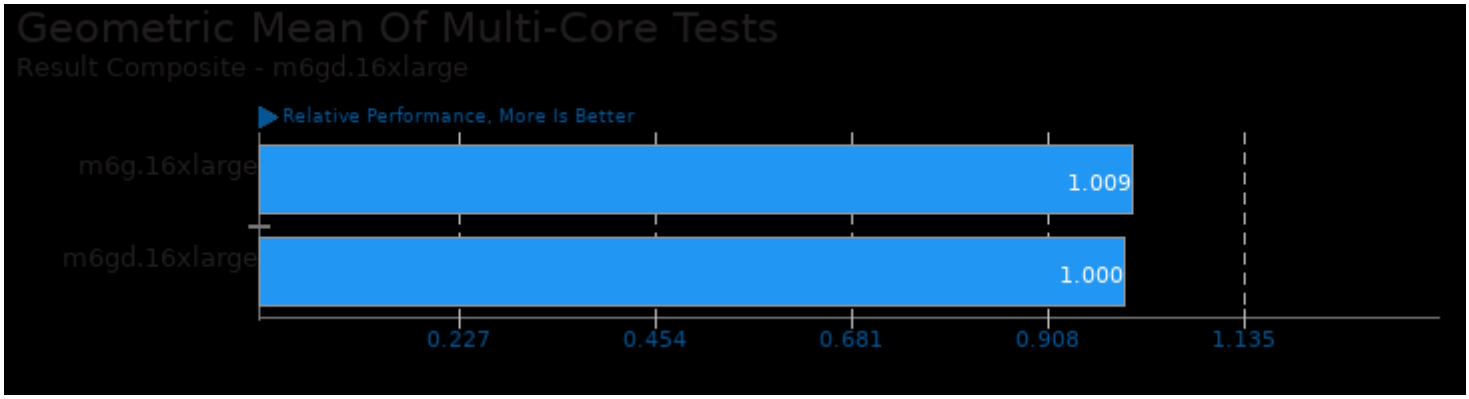
Geometric mean based upon tests: pts/dav1d, pts/graphics-magick and pts/basis



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

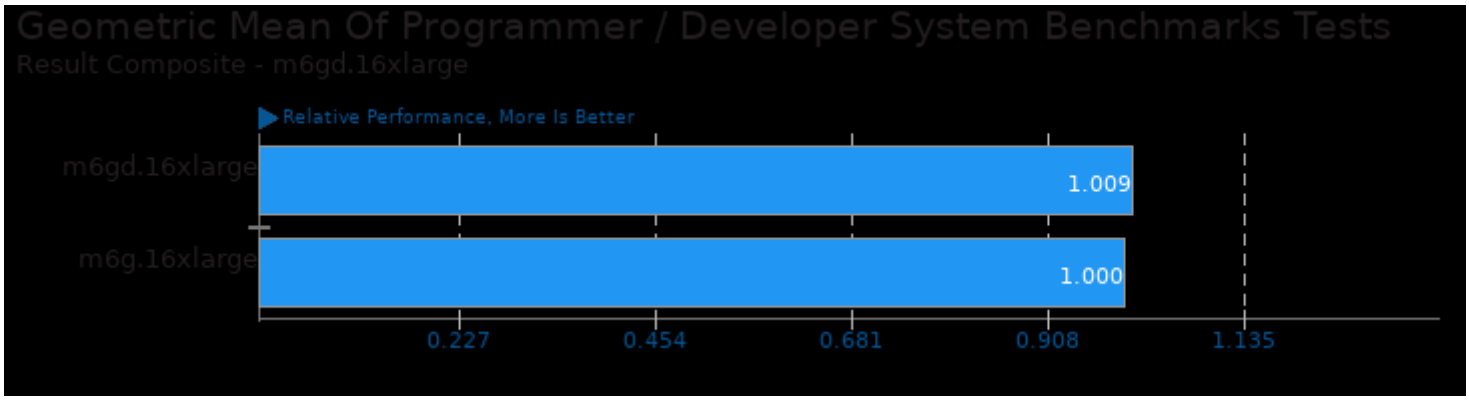


Geometric mean based upon tests: pts/pgbench, pts/openssl and pts/stress-ng

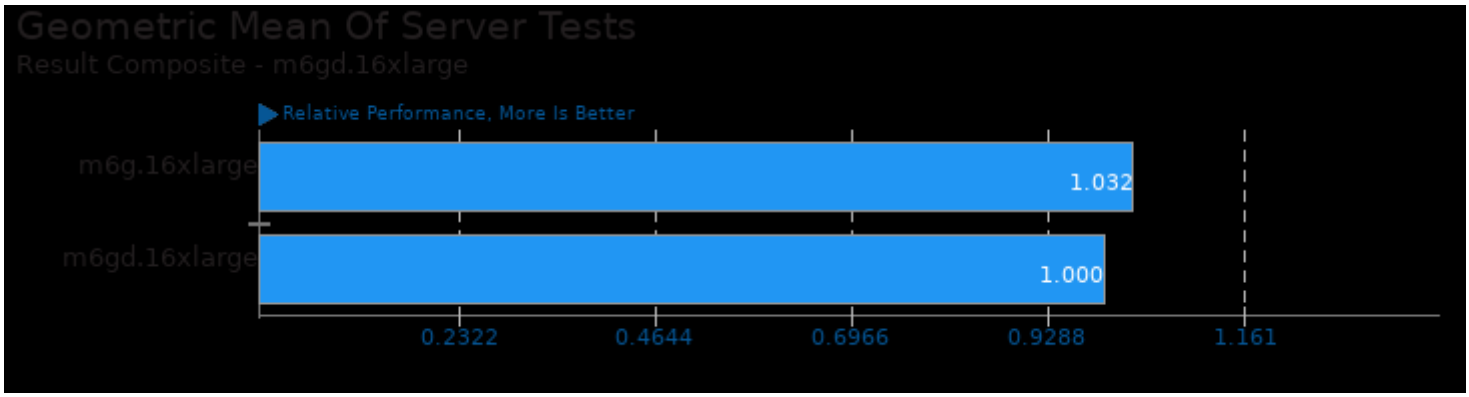


Geometric mean based upon tests: pts/dav1d, pts/john-the-ripper, pts/graphics-magick, pts/compress-7zip,

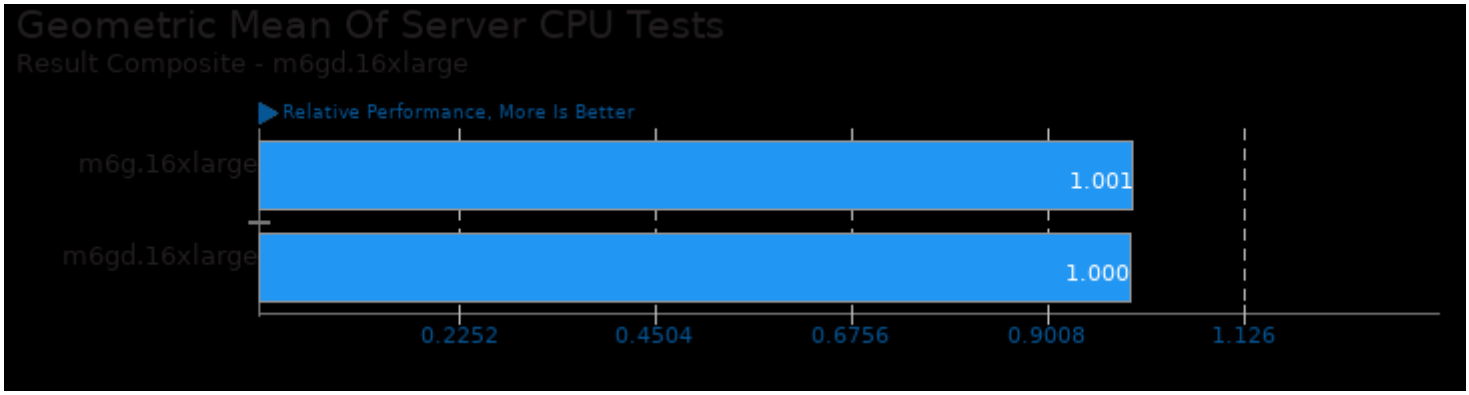
pts/build-gdb, pts/build-ffmpeg, pts/build2, pts/build-nodejs and pts/pgbench



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 17:59.