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6500 2921

Intel Core i5-6500 testing with a Gigabyte Z170M-D3H-CF (F22f BIOS) and Gigabyte Intel HD 530 3GB on Ubuntu 20.04 via the Phoronix Test Suite.

Automated Executive Summary

2 had the most wins, coming in first place for 55% of the tests.

Based on the geometric mean of all complete results, the fastest (2) was 1x the speed of the slowest (1). 3 was 1x the speed of 2 and 1 was 1x the speed of 3.

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

Kripke at 1.015x

Warsow (Resolution: 1920 x 1080) at 1.014x

Mobile Neural Network (Model: mobilenet-v1-1.0) at 1.013x

Mobile Neural Network (Model: resnet-v2-50) at 1.011x

LAMMPS Molecular Dynamics Simulator (Model: Rhodopsin Protein) at 1.01x

CP2K Molecular Dynamics (Fayalite-FIST Data) at 1.007x

Mobile Neural Network (Model: SqueezeNetV1.0) at 1.006x

rav1e (Speed: 1) at 1.006x

TNN (Target: CPU - Model: MobileNet v2) at 1.005x

Cryptsetup (PBKDF2-sha512) at 1.005x.

Test Systems:

1

2

3

Processor: Intel Core i5-6500 @ 3.60GHz (4 Cores), Motherboard: Gigabyte Z170M-D3H-CF (F22f BIOS), Chipset: Intel Xeon E3-1200 v5/E3-1500, Memory: 8GB, Disk: 250GB Samsung SSD 850, Graphics: Gigabyte Intel HD 530 3GB (1050MHz), Audio: Realtek ALC892, Monitor: G237HL, Network: Intel I219-V

OS: Ubuntu 20.04, Kernel: 5.9.0-050900rc7daily20200929-generic (x86_64) 20200928, Desktop: GNOME Shell 3.36.4, Display Server: X Server 1.20.8, Display Driver: modesetting 1.20.8, OpenGL: 4.6 Mesa 20.0.8, OpenCL: OpenCL 2.1, Compiler: GCC 9.3.0, File-System: ext4, Screen Resolution: 1920x1080

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: intel_pstate powersave - CPU Microcode: 0xe2 - ThermalD 1.9.1

Security Notes: itlb_multihit KVM: Mitigation of VMX disabled + l1tf: Mitigation of PTE Inversion; VMX: conditional cache flushes SMT disabled + mds: Mitigation of Clear buffers; SMT disabled + meltdown: Mitigation of PTI + 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 generic retpoline IBPB: conditional IBRS_FW STIBP: disabled RSB filling + srbs: Mitigation of Microcode + tsx_async_abort: Mitigation of Clear buffers; SMT disabled

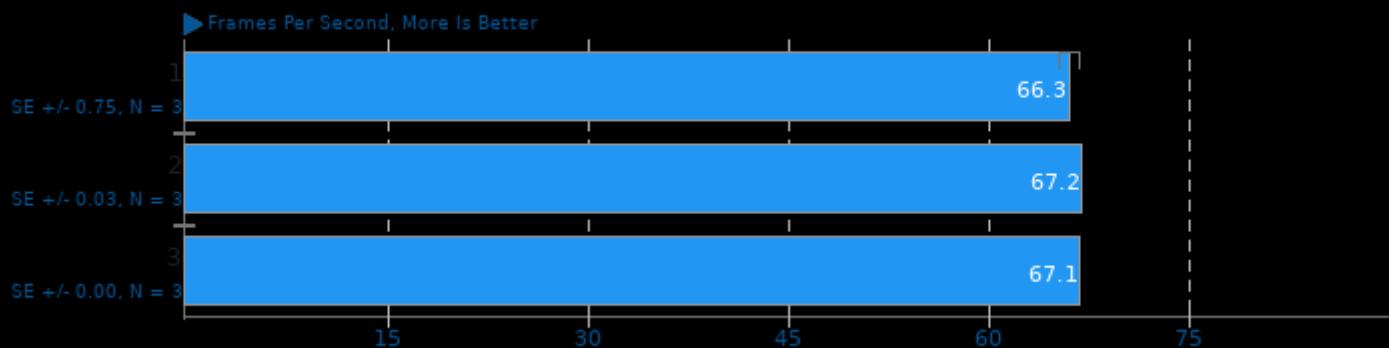
	1	2	3
Warsow - 1920 x 1080 (FPS)	66.3	67.2	67.1
Normalized	98.66%	100%	99.85%
Standard Deviation	2%	0.1%	0%
CP2K Molecular Dynamics - Fayalite-FIST	1366	1357	1367
Data (sec)			
Normalized	99.28%	100%	99.27%
Algebraic Multi-Grid Benchmark (Figure Of	178394933	179242567	178929900
Merit			
Normalized	99.53%	100%	99.83%
Standard Deviation	0.3%	0.1%	0.3%
OpenFOAM - Motorbike 30M (sec)	385.05	383.77	384.28
Normalized	99.67%	100%	99.87%
Standard Deviation	0.1%	0%	0.2%

LAMMPS Molecular Dynamics Simulator - Rhodopsin Protein (ns/day)	2.594	2.578	2.603
Normalized	99.65%	99.04%	100%
Standard Deviation	0.6%	1.1%	0.4%
LULESH (z/s)	1106	1106	1103
Normalized	99.99%	100%	99.73%
Standard Deviation	0.2%	0.1%	0.2%
dav1d - Chimera 1080p (FPS)	229.71	229.33	229.11
Normalized	100%	99.83%	99.74%
Standard Deviation	0.3%	0.4%	0.2%
dav1d - Summer Nature 4K (FPS)	62.57	62.59	62.42
Normalized	99.97%	100%	99.73%
Standard Deviation	0.2%	0.2%	0.1%
dav1d - S.N.1 (FPS)	211.16	210.99	210.71
Normalized	100%	99.92%	99.79%
Standard Deviation	0.3%	0.2%	0.1%
dav1d - C.1.1.b (FPS)	51.84	51.85	51.84
Normalized	99.98%	100%	99.98%
Standard Deviation	0.1%	0.1%	0.1%
rav1e - 1 (FPS)	0.342	0.341	0.340
Normalized	100%	99.71%	99.42%
Standard Deviation	0.2%	0.3%	0.2%
rav1e - 5 (FPS)	0.972	0.971	0.971
Normalized	100%	99.9%	99.9%
Standard Deviation	0.5%	0.2%	0.1%
rav1e - 6 (FPS)	1.288	1.287	1.286
Normalized	100%	99.92%	99.84%
Standard Deviation	0%	0%	0%
rav1e - 10 (FPS)	2.872	2.871	2.870
Normalized	100%	99.97%	99.93%
Standard Deviation	0.3%	0.3%	0.2%
Cryptsetup - PBKDF2-sha512 (Iterations/sec)	1463812	1464499	1457071
Normalized	99.95%	100%	99.49%
Standard Deviation	0.2%	0.3%	0.7%
Cryptsetup - PBKDF2-whirlpool	626888	626389	626141
Normalized	100%	99.92%	99.88%
Standard Deviation	0.1%		0.1%
Cryptsetup - A.X.2.E (MiB/s)	1866	1872	1870
Normalized	99.67%	100%	99.89%
Standard Deviation	0.2%	0.1%	0.3%
Cryptsetup - A.X.2.D (MiB/s)	1888	1890	1886
Normalized	99.9%	100%	99.79%
Standard Deviation	0.4%	0.2%	0.2%
Cryptsetup - S.X.2.E (MiB/s)	645.3	647.1	646.5
Normalized	99.72%	100%	99.91%
Standard Deviation	0.2%	0.1%	0.2%
Cryptsetup - S.X.2.D (MiB/s)	665.1	665.5	665.8
Normalized	99.88%	99.95%	100%
Standard Deviation	0.2%	0%	0%
Cryptsetup - T.X.2.E (MiB/s)	360.9	361.3	360.9
Normalized	99.89%	100%	99.89%
Standard Deviation	0.2%	0%	0.2%
Cryptsetup - T.X.2.D (MiB/s)	365.2	365.3	365.0
Normalized	99.97%	100%	99.92%
Standard Deviation	0.1%	0.1%	0.2%

Cryptsetup - A.X.5.E (MiB/s)	1676	1678	1678
Normalized	99.93%	100%	100%
Standard Deviation	0.3%	0.1%	0.2%
Cryptsetup - A.X.5.D (MiB/s)	1703	1705	1705
Normalized	99.91%	100%	100%
Standard Deviation	0.4%	0.1%	0.1%
Cryptsetup - S.X.5.E (MiB/s)	646.1	646.7	647.0
Normalized	99.86%	99.95%	100%
Standard Deviation	0.1%	0.1%	0.2%
Cryptsetup - S.X.5.D (MiB/s)	664.5	665.8	665.6
Normalized	99.8%	100%	99.97%
Standard Deviation	0.1%	0.1%	0.1%
Cryptsetup - T.X.5.E (MiB/s)	361.0	360.9	361.0
Normalized	100%	99.97%	100%
Standard Deviation	0.1%	0.1%	0%
Cryptsetup - T.X.5.D (MiB/s)	364.1	365.1	364.8
Normalized	99.73%	100%	99.92%
Standard Deviation	0.1%	0%	0%
Mobile Neural Network - SqueezeNetV1.0	6.650	6.667	6.628
Normalized	99.67%	99.42%	100%
Standard Deviation	0.1%	0.4%	0.2%
Mobile Neural Network - resnet-v2-50 (ms)	34.855	35.229	34.832
Normalized	99.93%	98.87%	100%
Standard Deviation	0.2%	0.2%	0.3%
Mobile Neural Network - MobileNetV2_224	4.188	4.183	4.172
Normalized	99.62%	99.74%	100%
Standard Deviation	0.4%	0.1%	0.2%
Mobile Neural Network - mobilenet-v1-1.0	4.934	4.981	4.916
Normalized	99.64%	98.7%	100%
Standard Deviation	0.2%	0.4%	0.4%
Mobile Neural Network - inception-v3 (ms)	45.388	45.184	45.323
Normalized	99.55%	100%	99.69%
Standard Deviation	0.7%	0.2%	0.5%
TNN - CPU - MobileNet v2 (ms)	380.657	379.380	381.387
Normalized	99.66%	100%	99.47%
Standard Deviation	0%	0%	0%
TNN - CPU - SqueezeNet v1.1 (ms)	378.117	378.105	378.560
Normalized	100%	100%	99.88%
Standard Deviation	0.1%	0.1%	0.2%
Kripke (Throughput FoM)	33868827	33459207	33367053
Normalized	100%	98.79%	98.52%
Standard Deviation	0.7%	2.1%	1.8%

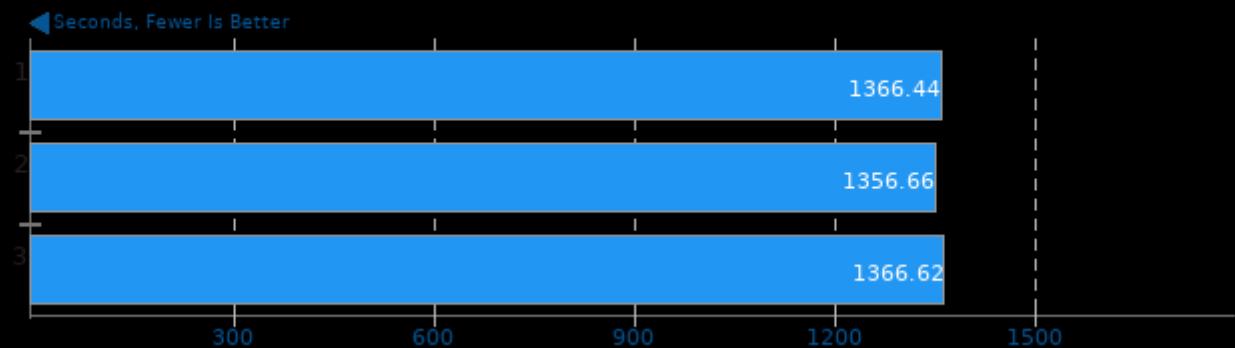
Warsow 2.5 Beta

Resolution: 1920 x 1080

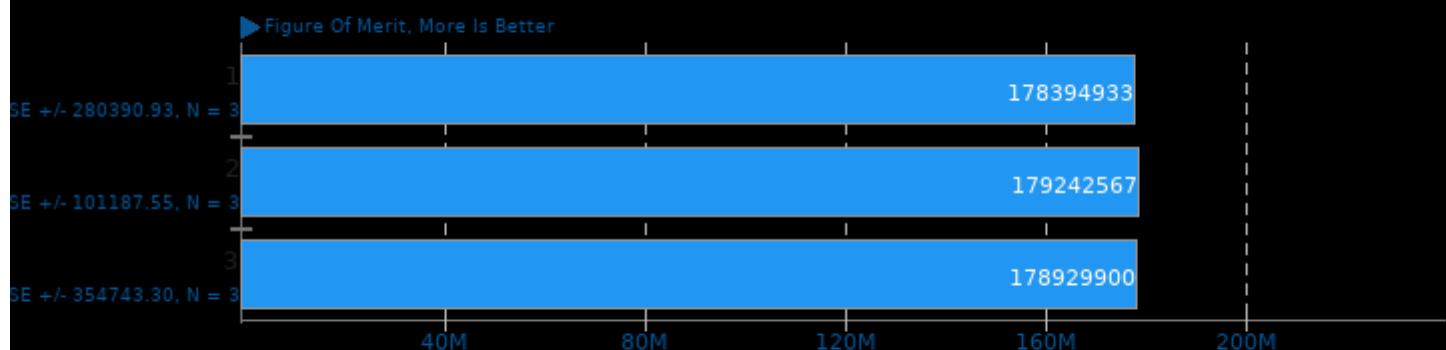


CP2K Molecular Dynamics 8.1

Fayalite-FIST Data



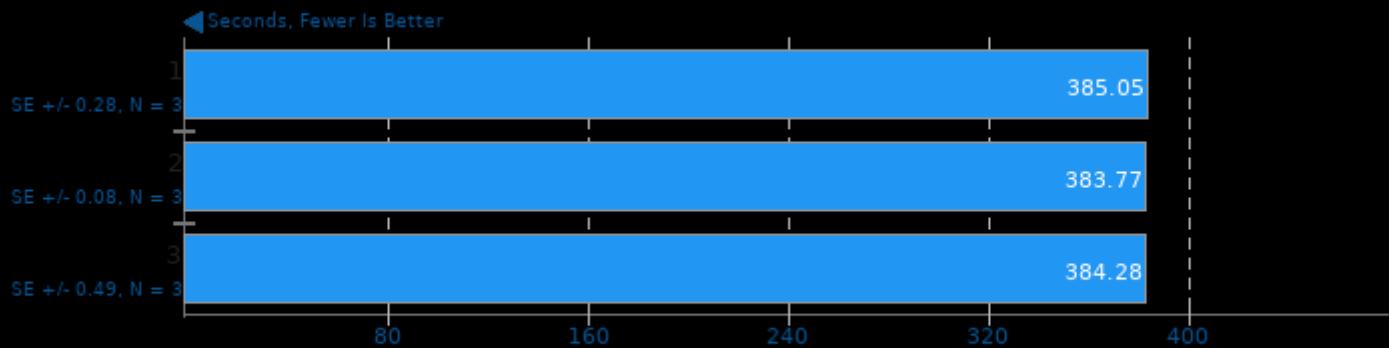
Algebraic Multi-Grid Benchmark 1.2



1. (CC) gcc options: -lparcsr_ls -lparcsr_mv -lseq_mv -lj_mv -lkrylov -lHYPRE_utilities -lm -fopenmp -pthread -lmpi

OpenFOAM 8

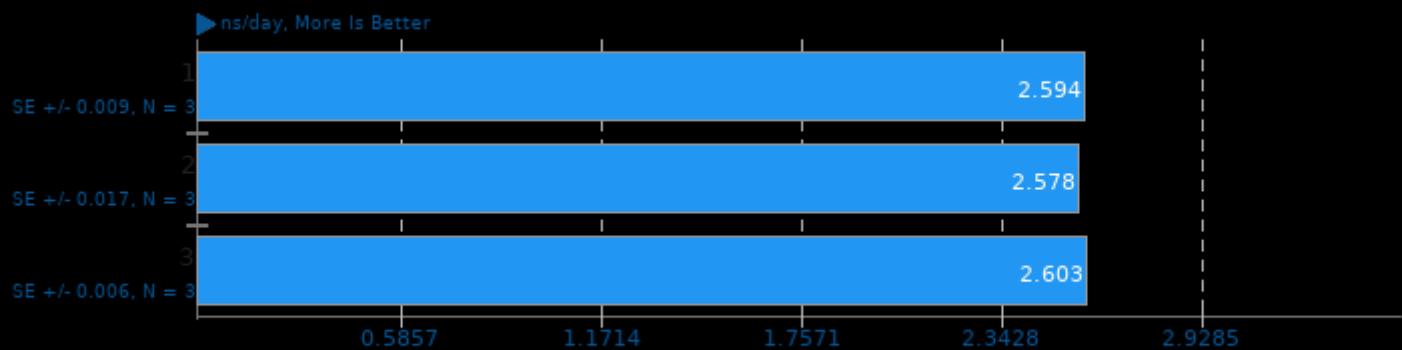
Input: Motorbike 30M



1. (CXX) g++ options: -std=c++11 -m64 -O3 -ftemplate-depth=100 -fPIC -fuse-lld=bfd -Xlinker --add-needed --no-as-needed -ldynamicMesh -lgenericPatch

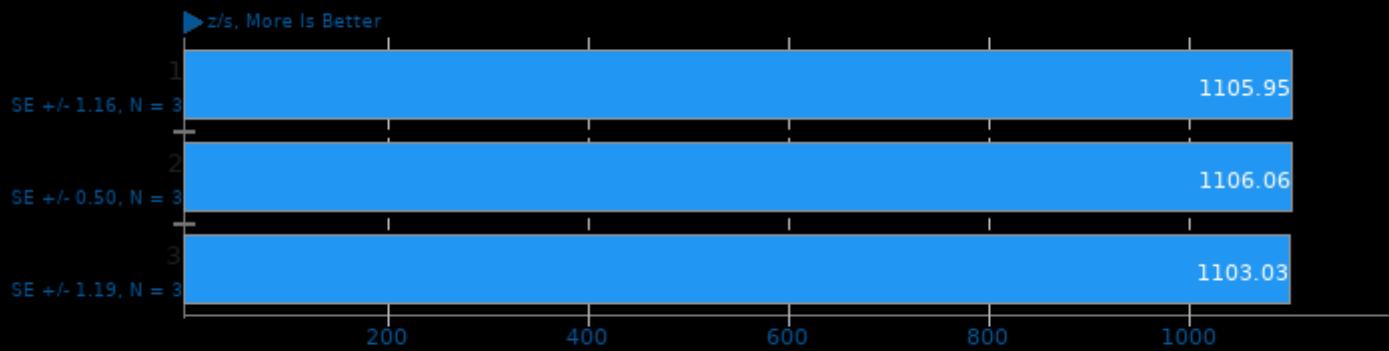
LAMMPS Molecular Dynamics Simulator 29Oct2020

Model: Rhodopsin Protein



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

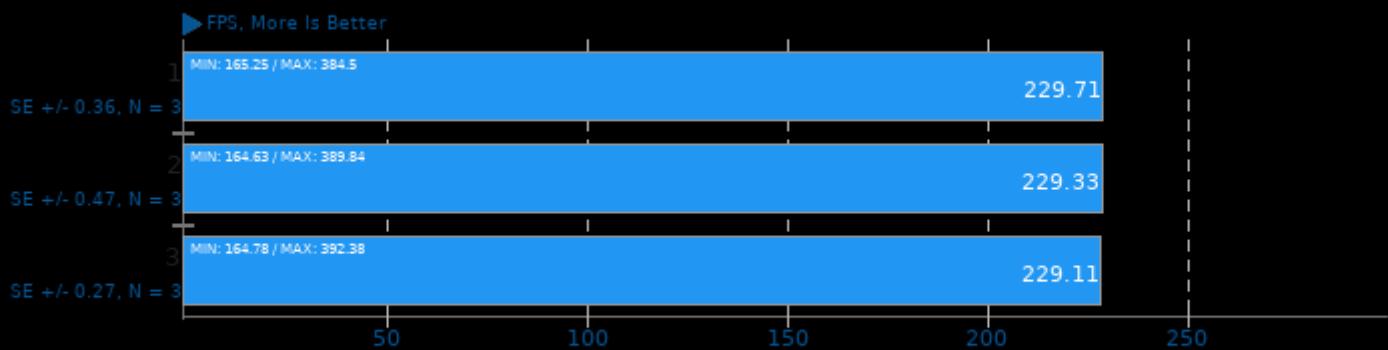
LULESH 2.0.3



1. (CXX) g++ options: -O3 -fopenmp -lm -pthread -lmpi_cxx -lmpi

dav1d 0.8.1

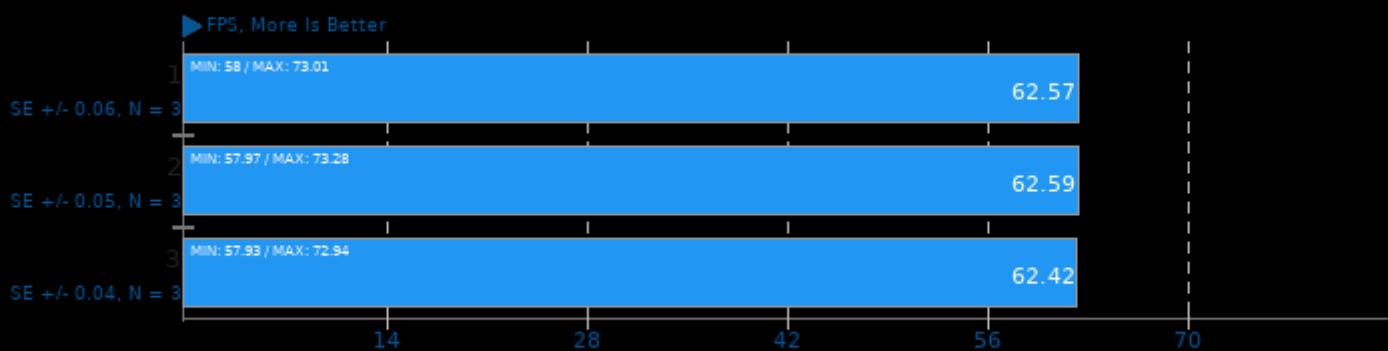
Video Input: Chimera 1080p



1. (CC) gcc options: -pthread

dav1d 0.8.1

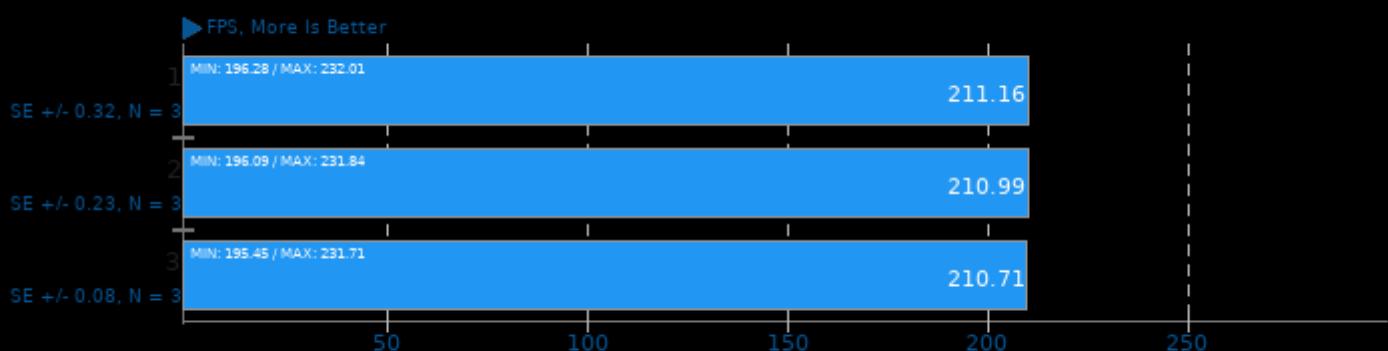
Video Input: Summer Nature 4K



1. (CC) gcc options: -pthread

dav1d 0.8.1

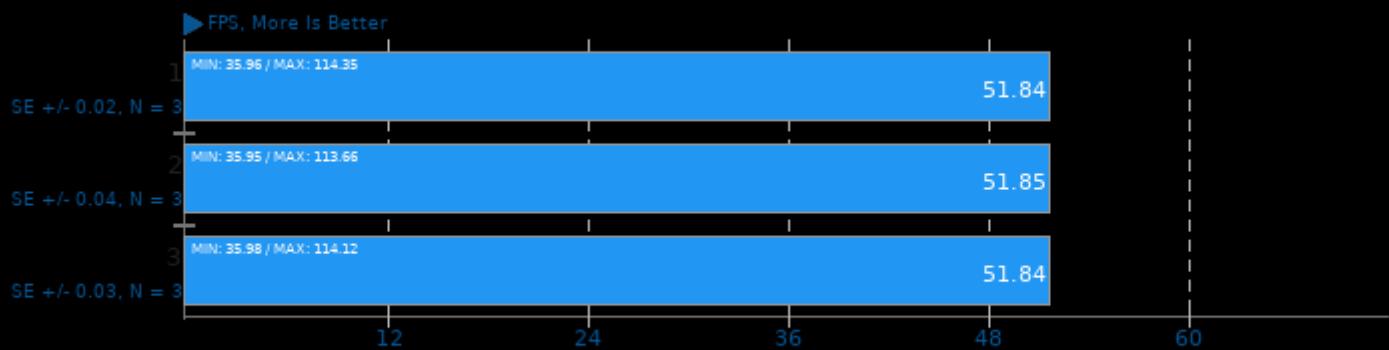
Video Input: Summer Nature 1080p



1. (CC) gcc options: -pthread

dav1d 0.8.1

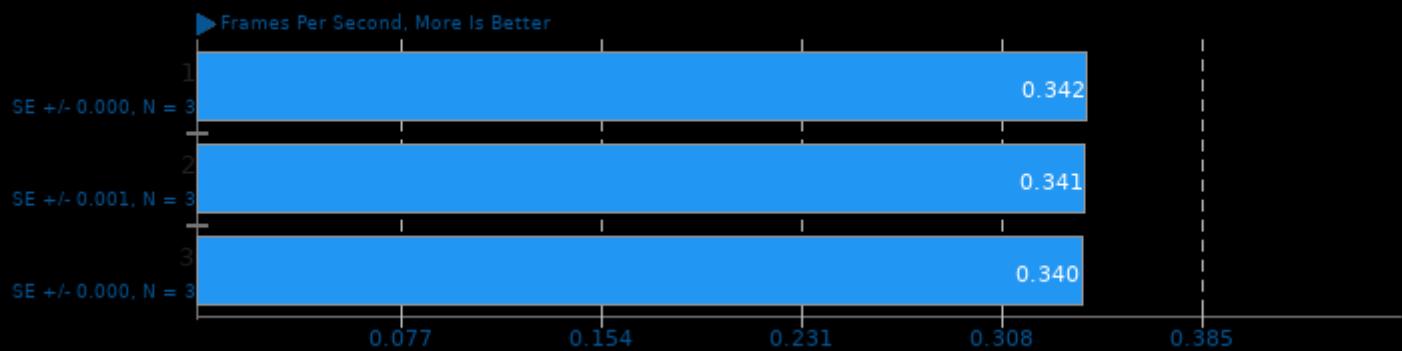
Video Input: Chimera 1080p 10-bit



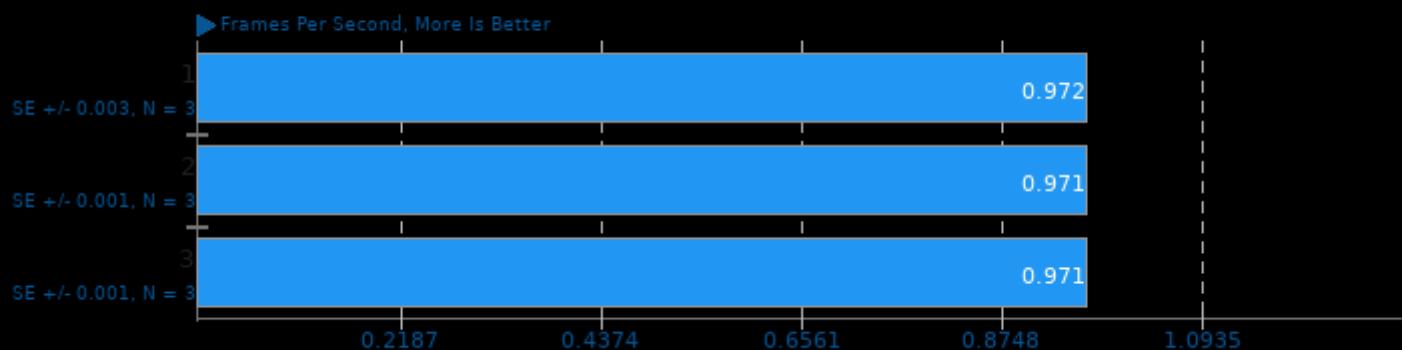
1. (CC) gcc options: -pthread

rav1e 0.4

Speed: 1

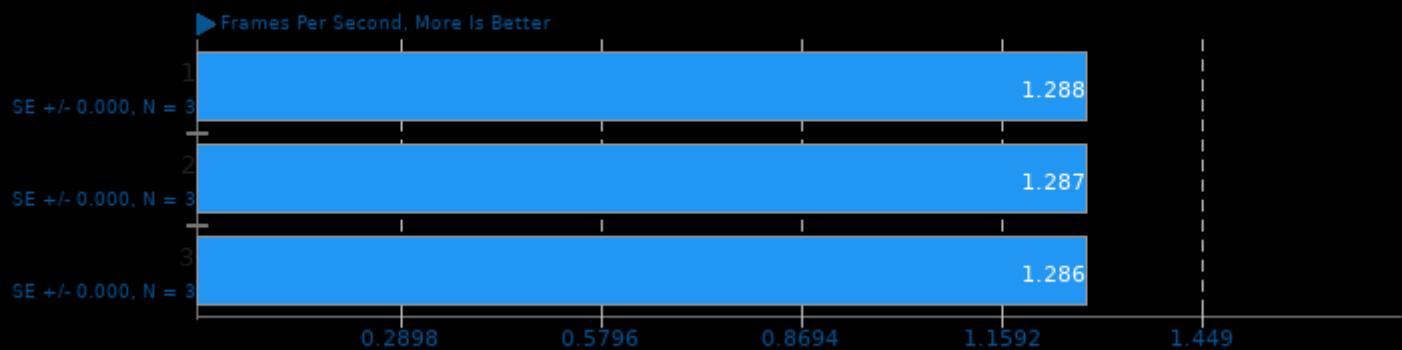
**rav1e 0.4**

Speed: 5

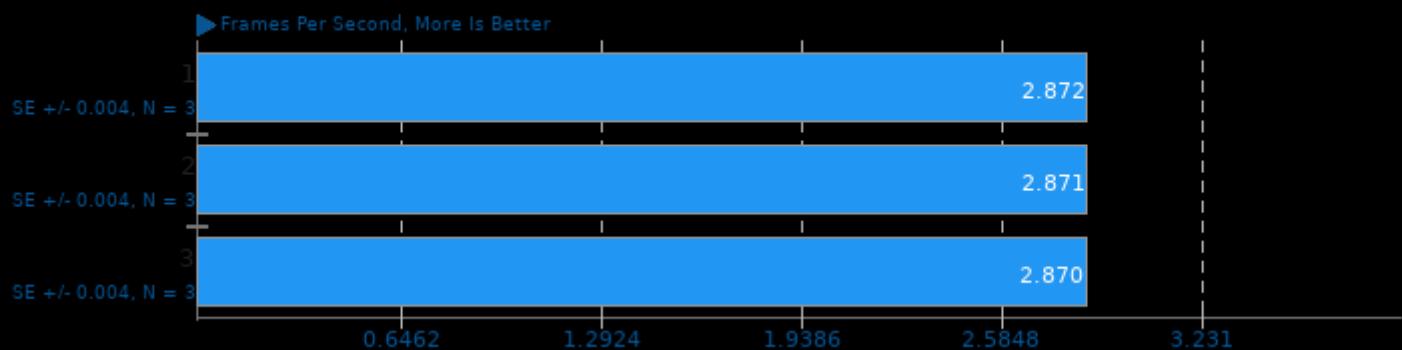


rav1e 0.4

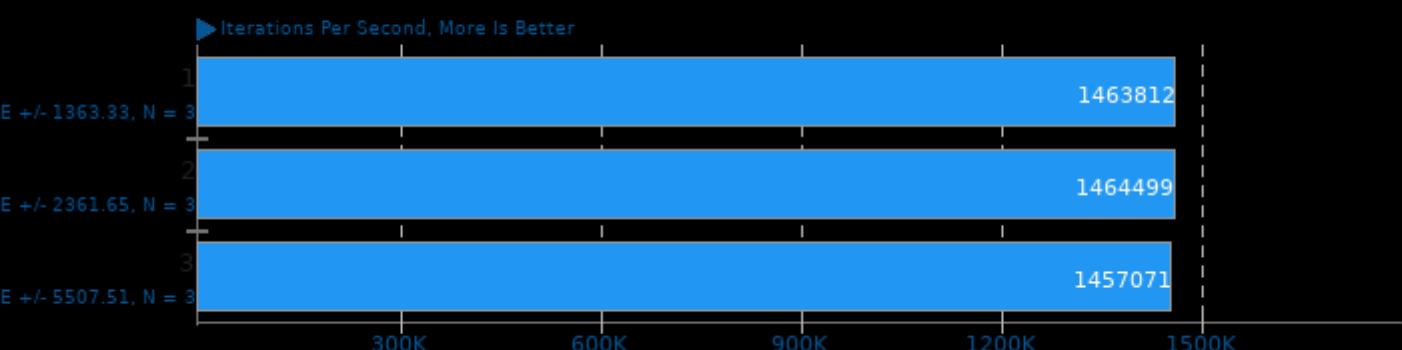
Speed: 6

**rav1e 0.4**

Speed: 10

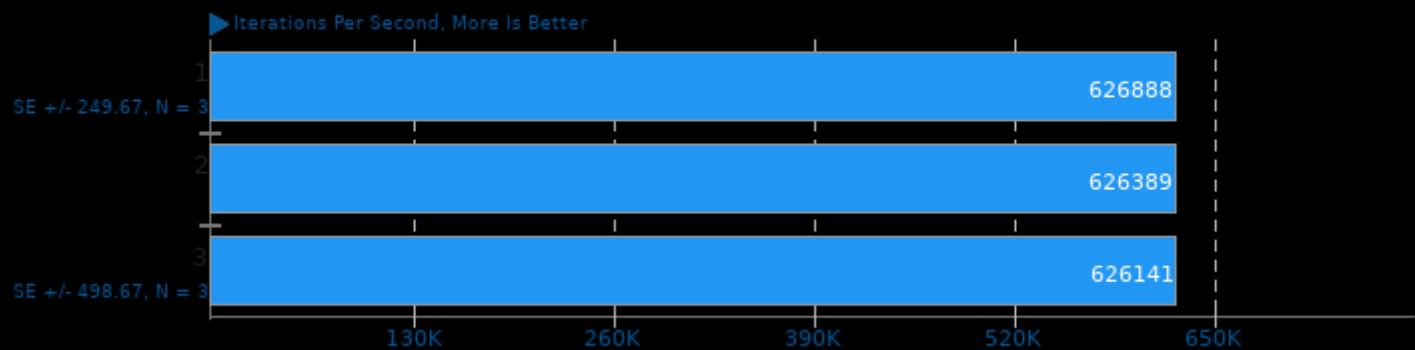
**Cryptsetup**

PBKDF2-sha512



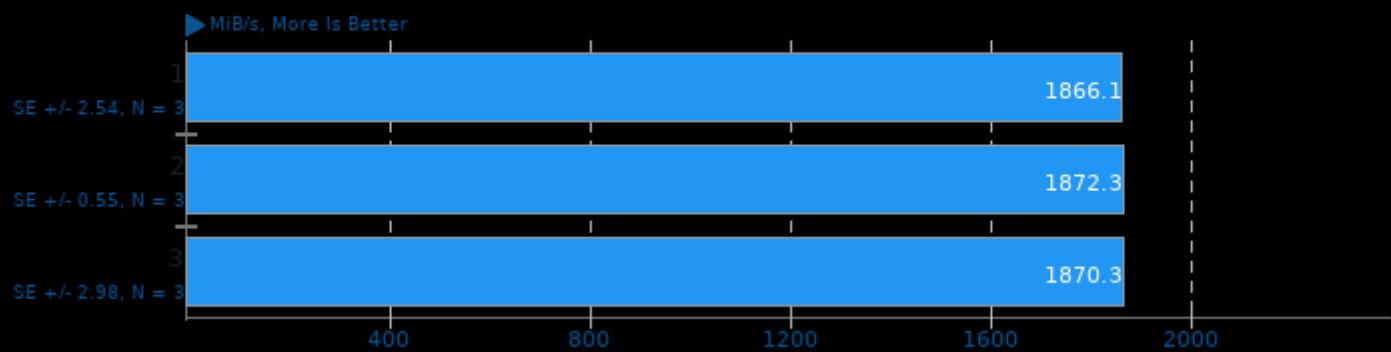
Cryptsetup

PBKDF2-whirlpool



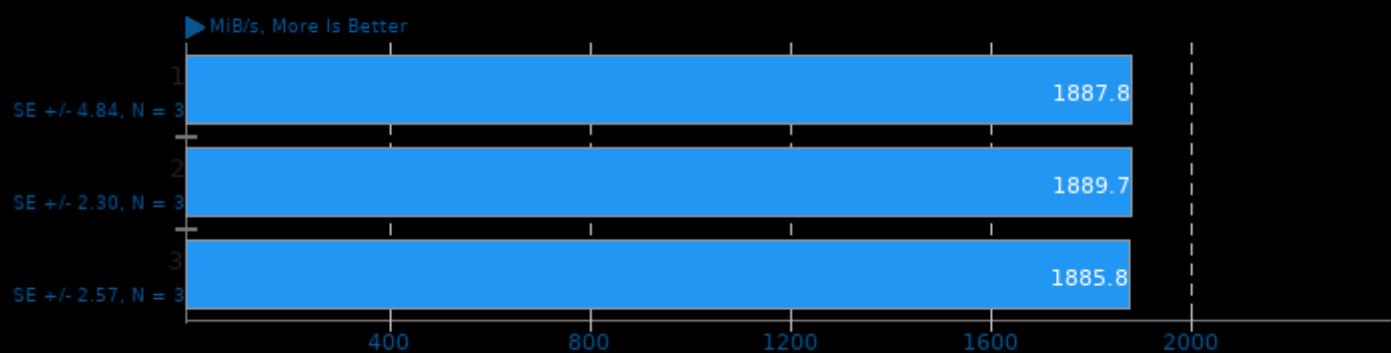
Cryptsetup

AES-XTS 256b Encryption



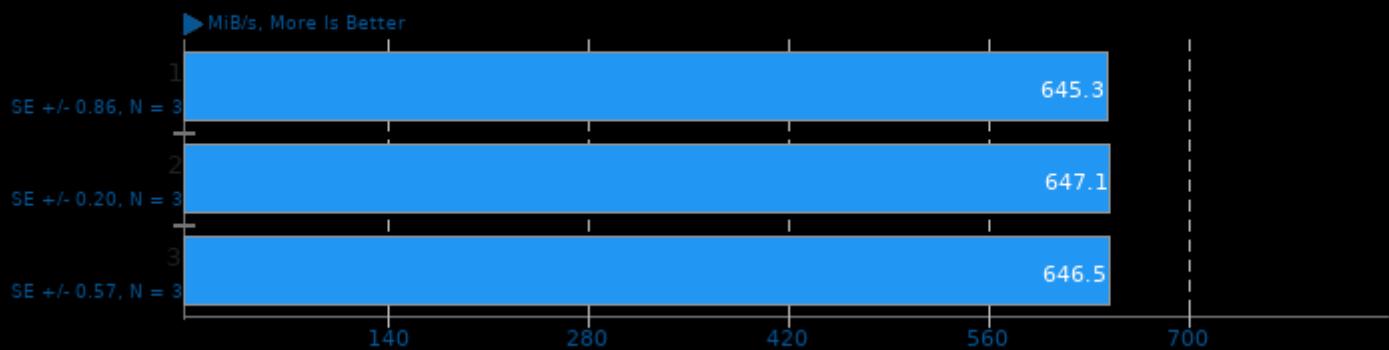
Cryptsetup

AES-XTS 256b Decryption



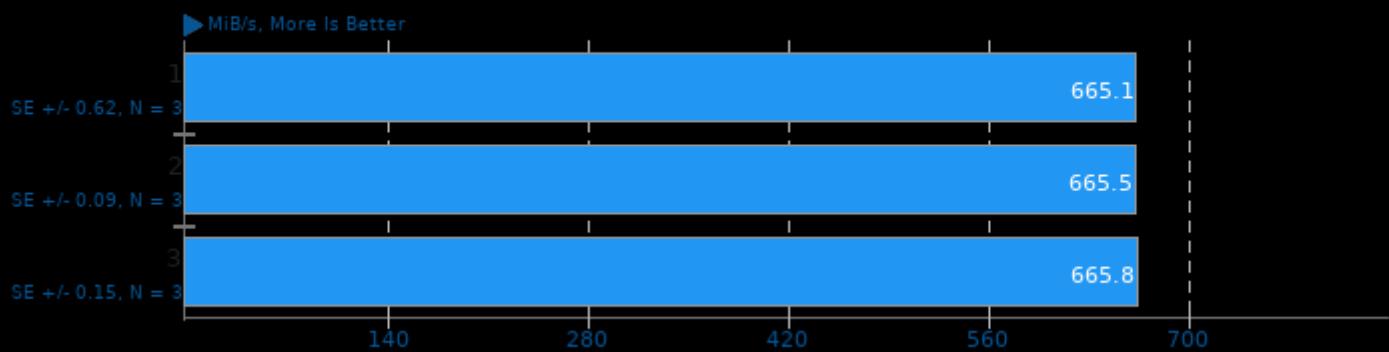
Cryptsetup

Serpent-XTS 256b Encryption



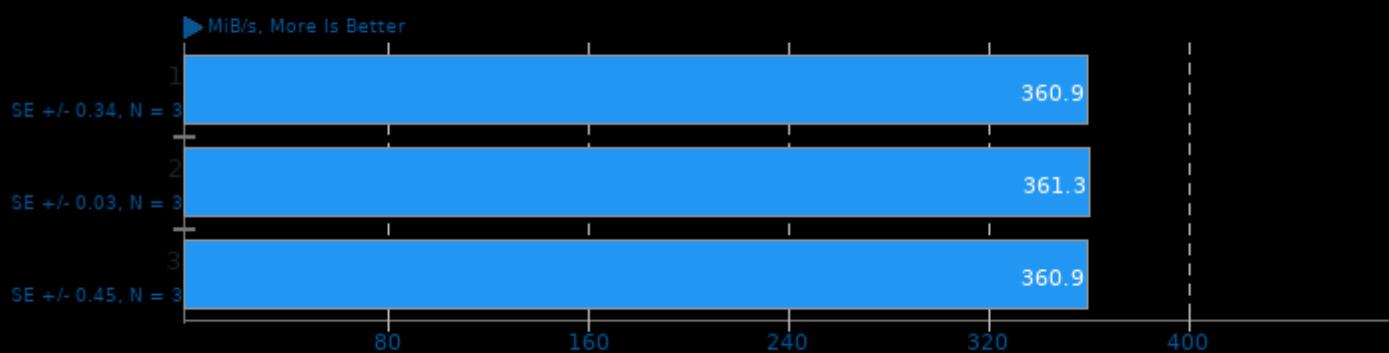
Cryptsetup

Serpent-XTS 256b Decryption



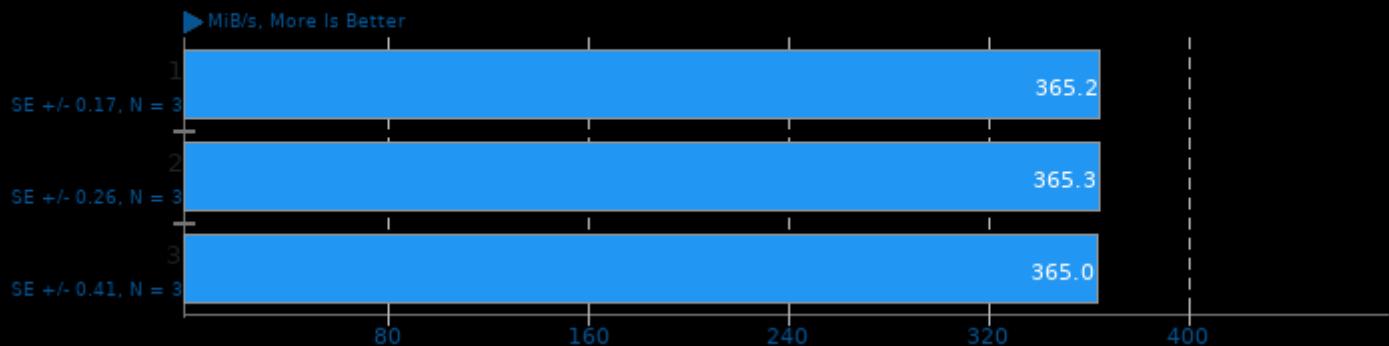
Cryptsetup

Twofish-XTS 256b Encryption



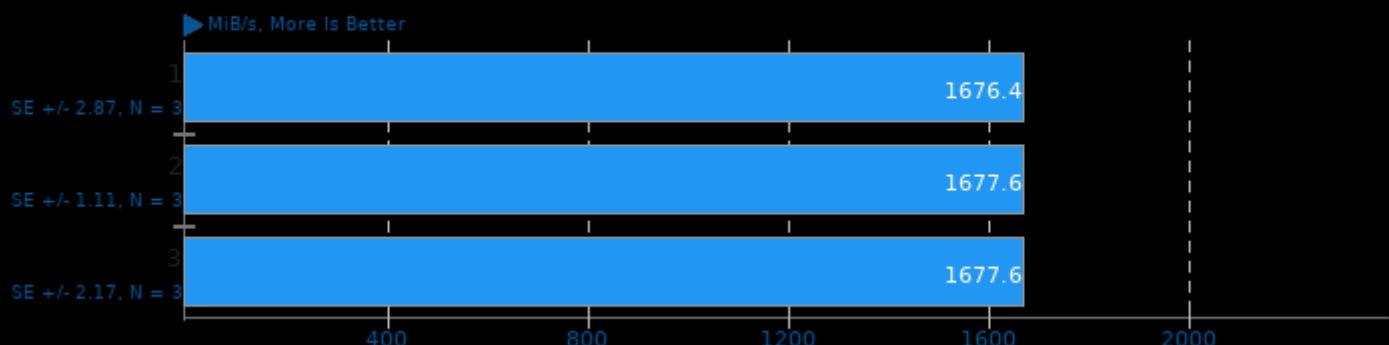
Cryptsetup

Twofish-XTS 256b Decryption



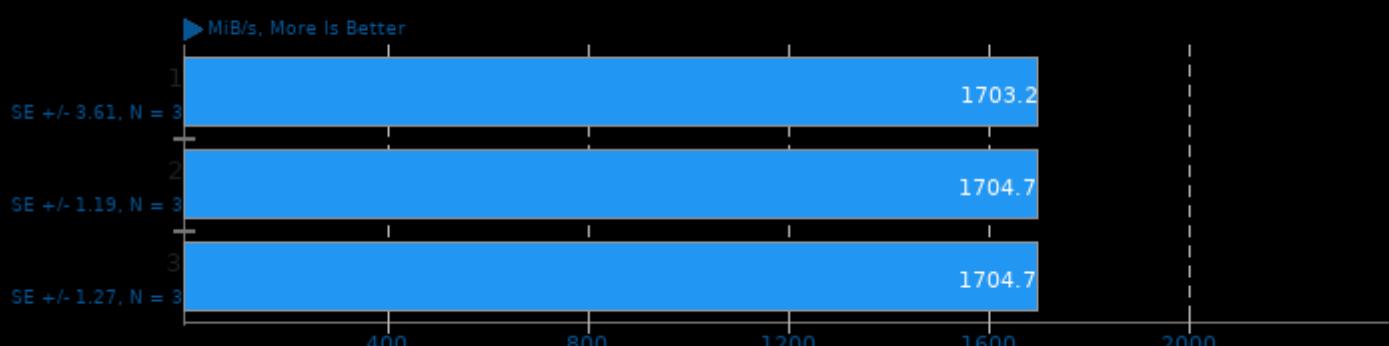
Cryptsetup

AES-XTS 512b Encryption



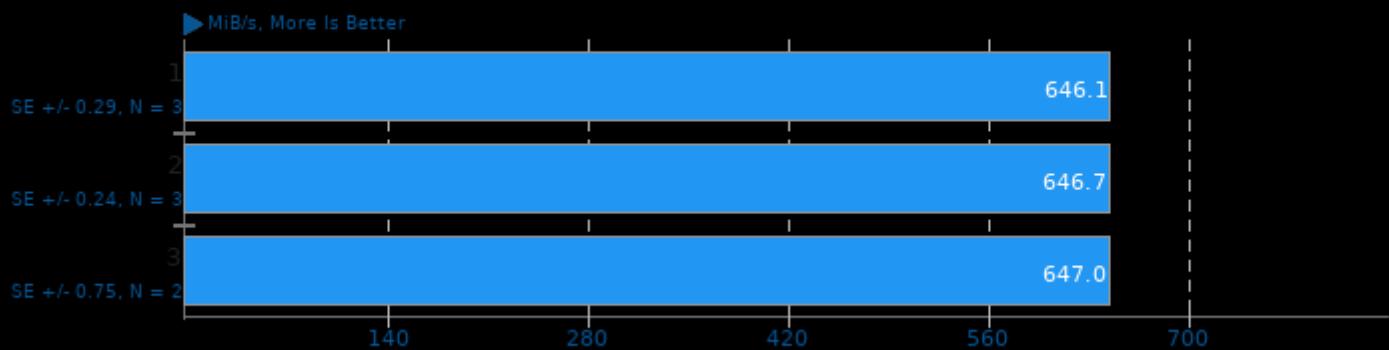
Cryptsetup

AES-XTS 512b Decryption



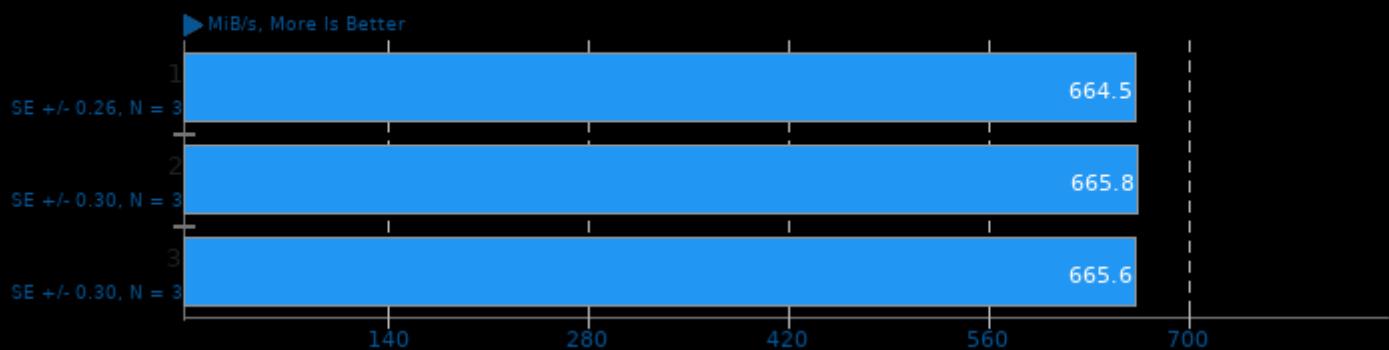
Cryptsetup

Serpent-XTS 512b Encryption



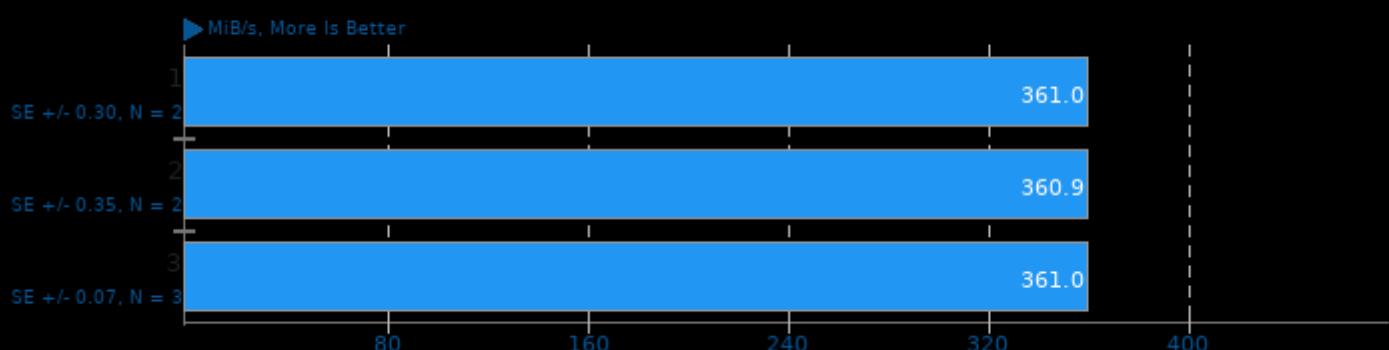
Cryptsetup

Serpent-XTS 512b Decryption



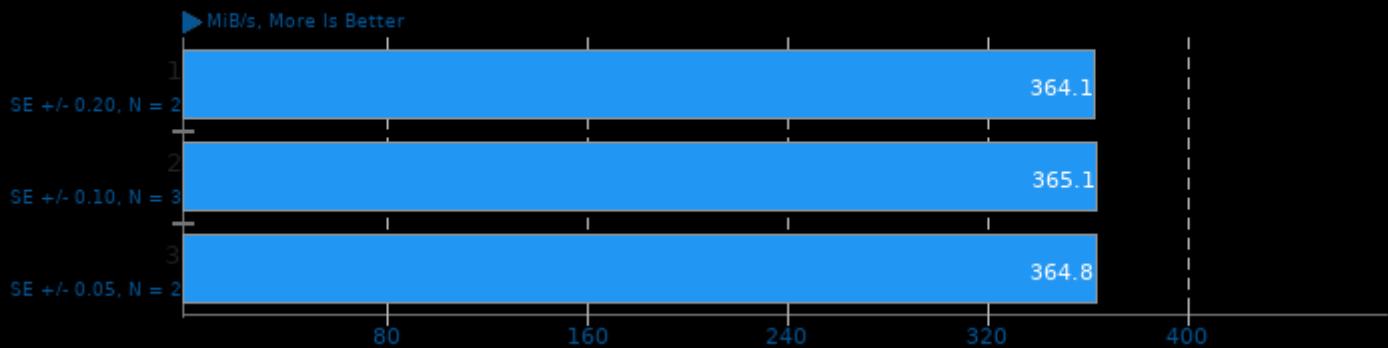
Cryptsetup

Twofish-XTS 512b Encryption



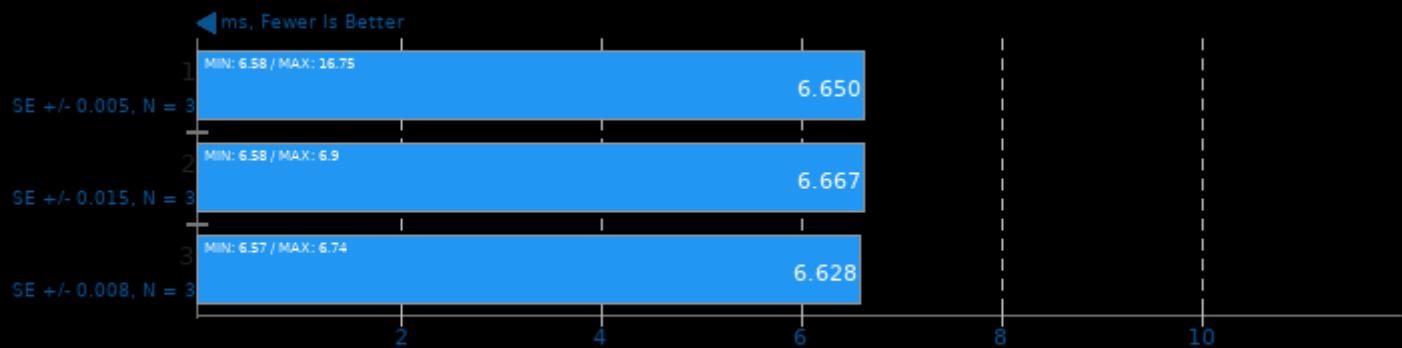
Cryptsetup

Twofish-XTS 512b Decryption



Mobile Neural Network 1.1.1

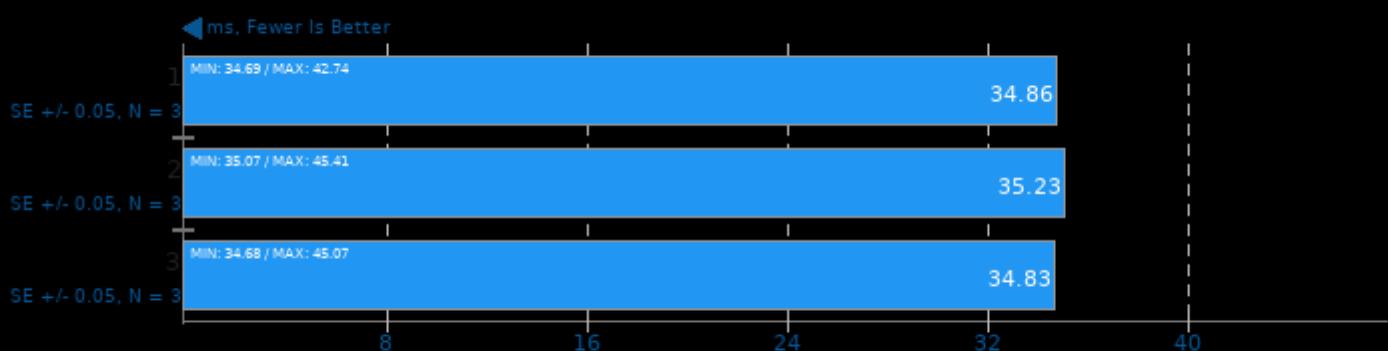
Model: SqueezeNetV1.0



1. (CXX) g++ options: -std=c++11 -O3 -fvisibility=hidden -fomit-frame-pointer -fstrict-aliasing -ffunction-sections -fdata-sections -ffast-math -fno-rtti -fr

Mobile Neural Network 1.1.1

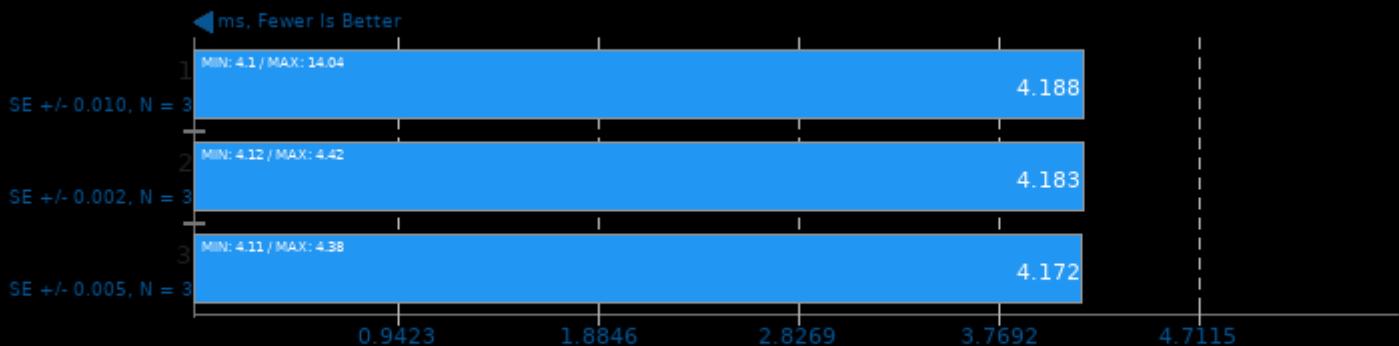
Model: resnet-v2-50



1. (CXX) g++ options: -std=c++11 -O3 -fvisibility=hidden -fomit-frame-pointer -fstrict-aliasing -ffunction-sections -fdata-sections -ffast-math -fno-rtti -fr

Mobile Neural Network 1.1.1

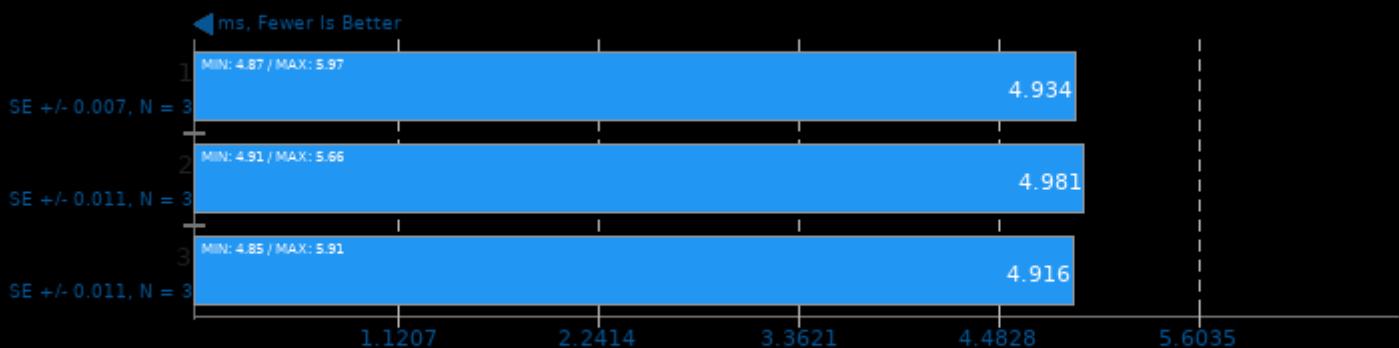
Model: MobileNetV2_224



1. (CXX) g++ options: -std=c++11 -O3 -fvisibility=hidden -fomit-frame-pointer -fstrict-aliasing -ffunction-sections -fdata-sections -ffast-math -fno-rtti -fr

Mobile Neural Network 1.1.1

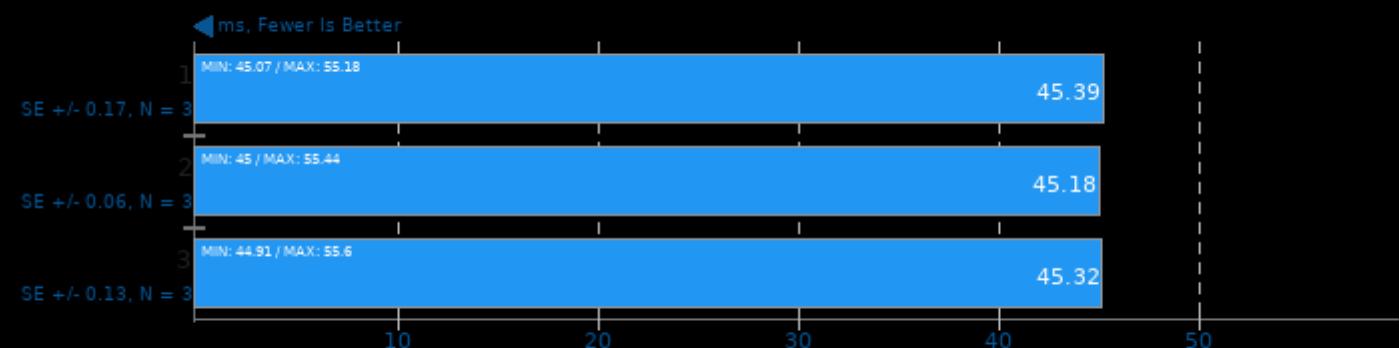
Model: mobilenet-v1-1.0



1. (CXX) g++ options: -std=c++11 -O3 -fvisibility=hidden -fomit-frame-pointer -fstrict-aliasing -ffunction-sections -fdata-sections -ffast-math -fno-rtti -fr

Mobile Neural Network 1.1.1

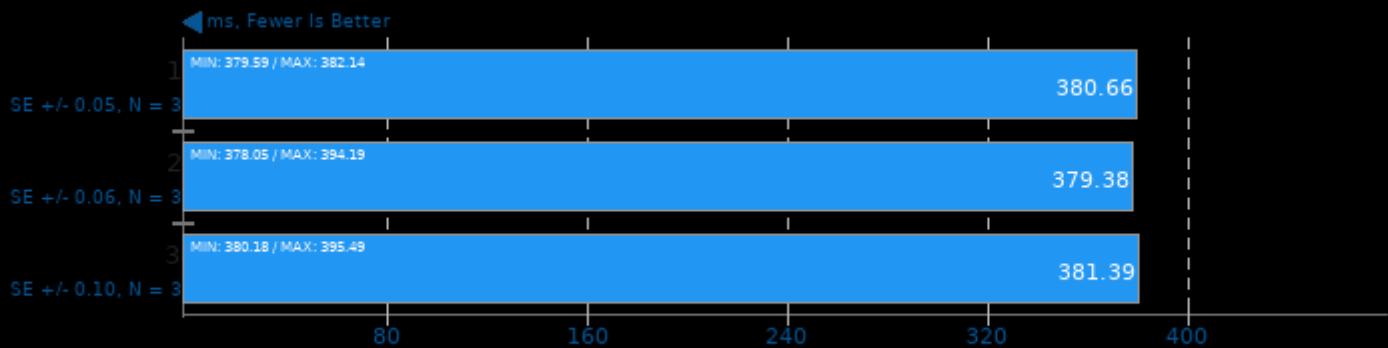
Model: inception-v3



1. (CXX) g++ options: -std=c++11 -O3 -fvisibility=hidden -fomit-frame-pointer -fstrict-aliasing -ffunction-sections -fdata-sections -ffast-math -fno-rtti -fr

TNN 0.2.3

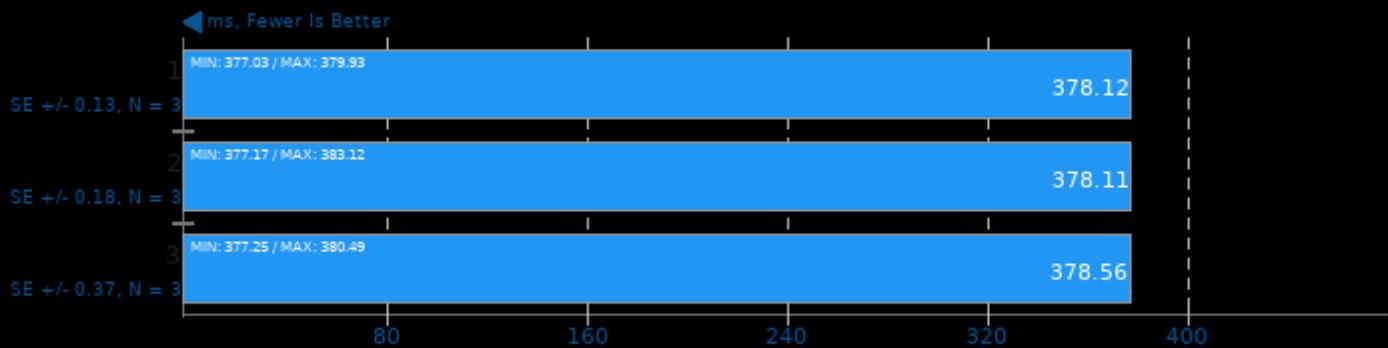
Target: CPU - Model: MobileNet v2



1. (CXX) g++ options: -fopenmp -pthread -fvisibility=hidden -O3 -rdynamic -ldl

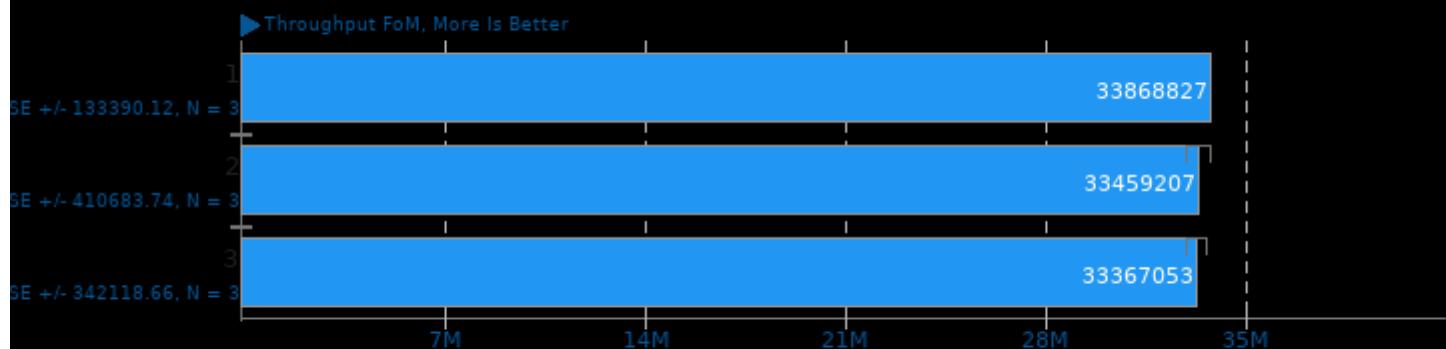
TNN 0.2.3

Target: CPU - Model: SqueezeNet v1.1



1. (CXX) g++ options: -fopenmp -pthread -fvisibility=hidden -O3 -rdynamic -ldl

Kripke 1.2.4

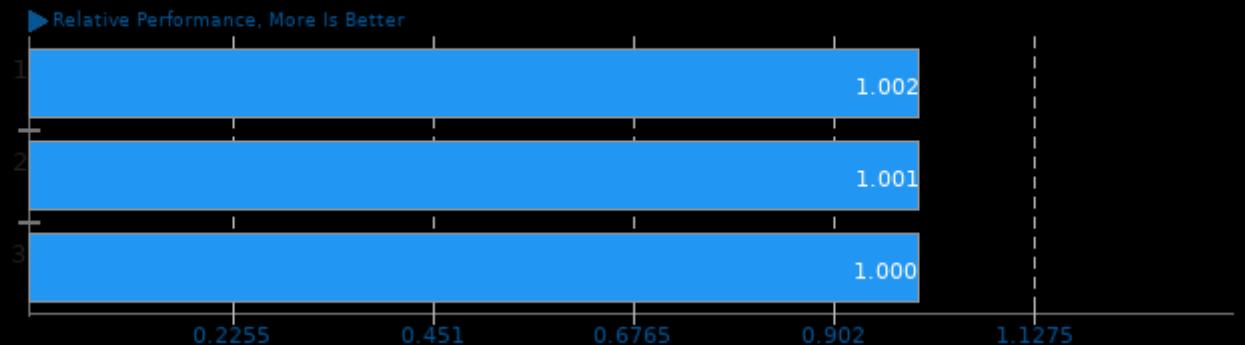


1. (CXX) g++ options: -O3 -fopenmp

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

Geometric Mean Of AV1 Tests

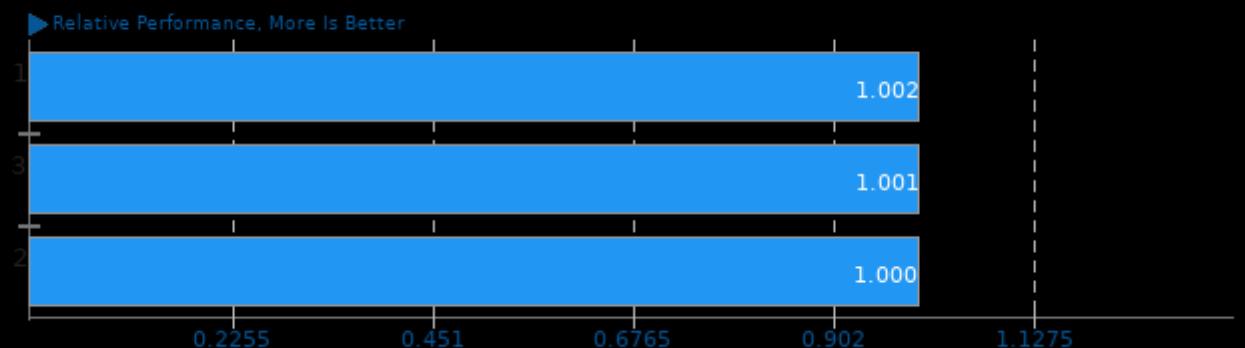
Result Composite - 6500 2921



Geometric mean based upon tests: pts/dav1d and pts/rav1e

Geometric Mean Of C/C++ Compiler Tests

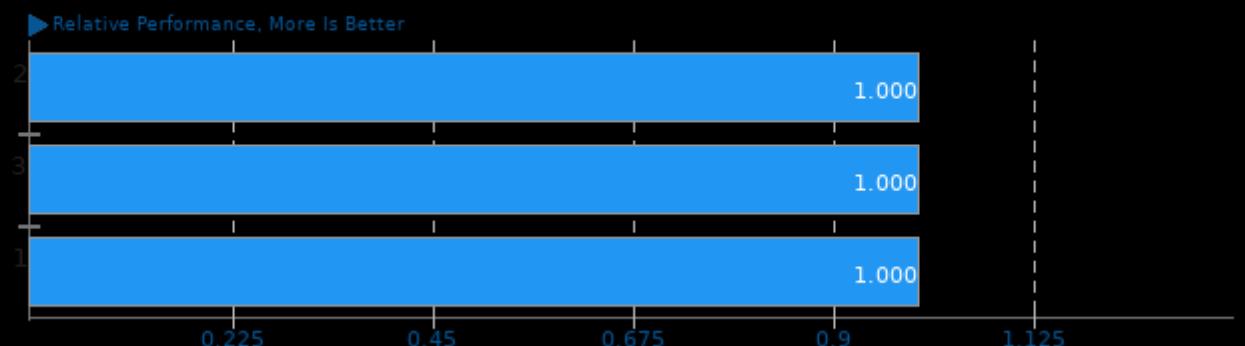
Result Composite - 6500 2921



Geometric mean based upon tests: pts/dav1d and pts/lammps

Geometric Mean Of CPU Massive Tests

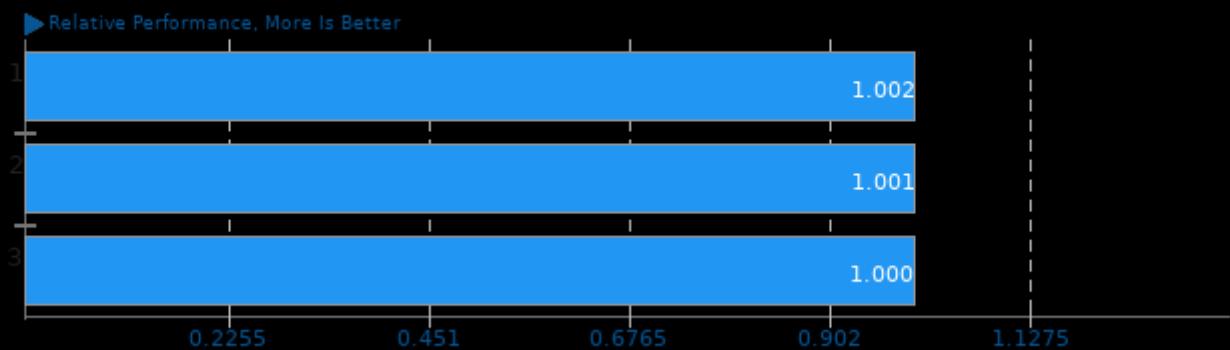
Result Composite - 6500 2921



Geometric mean based upon tests: pts/dav1d, pts/lammps and system/cryptsetup

Geometric Mean Of Creator Workloads Tests

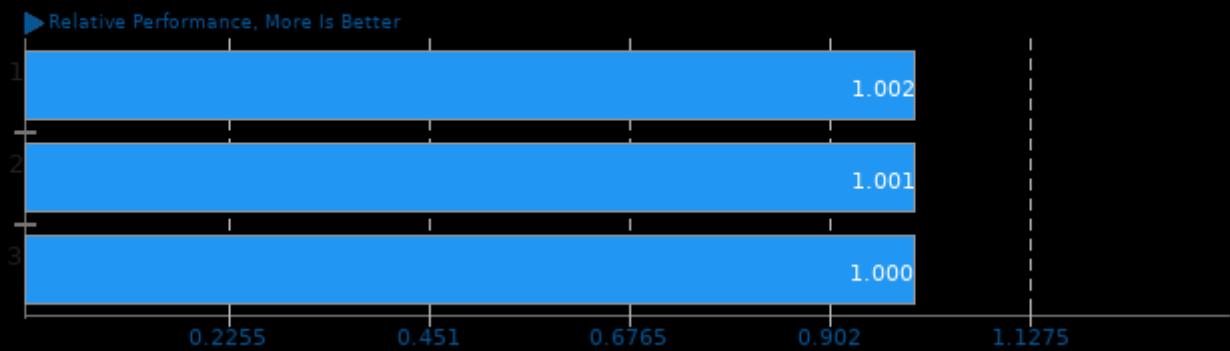
Result Composite - 6500 2921



Geometric mean based upon tests: pts/dav1d and pts/rav1e

Geometric Mean Of Encoding Tests

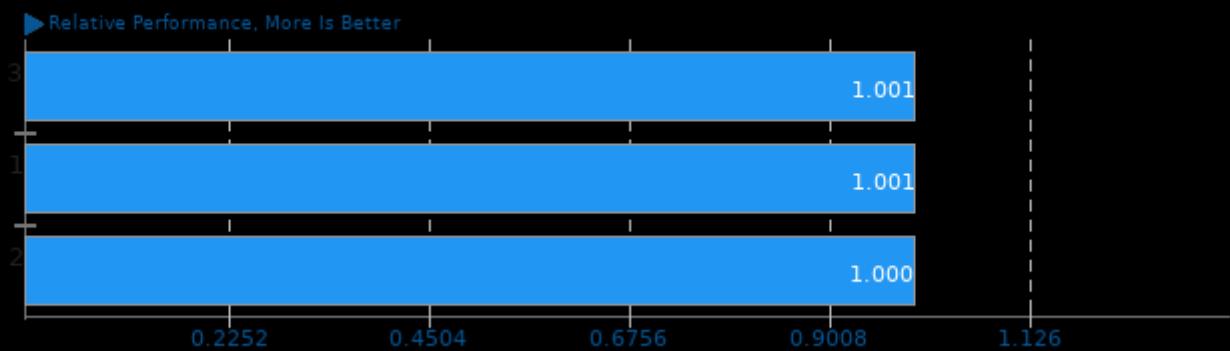
Result Composite - 6500 2921



Geometric mean based upon tests: pts/dav1d and pts/rav1e

Geometric Mean Of HPC - High Performance Computing Tests

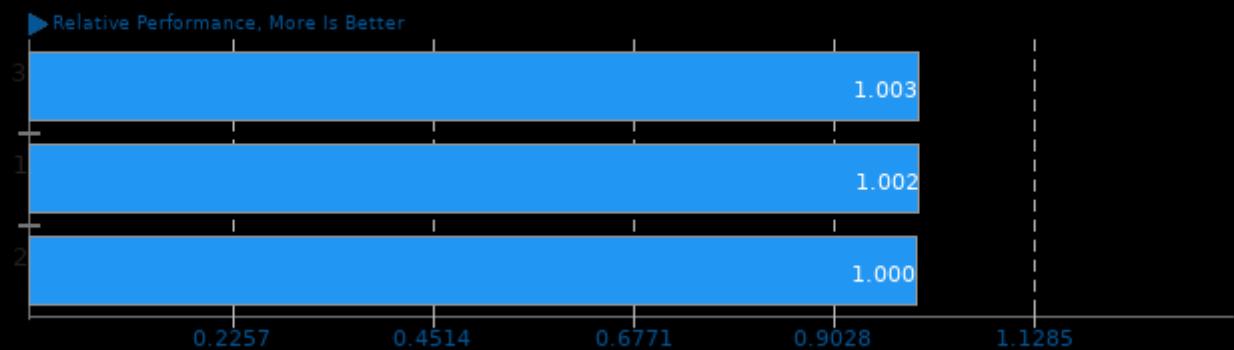
Result Composite - 6500 2921



Geometric mean based upon tests: pts/amg, pts/cp2k, pts/lammps, pts/lulesh, pts/openfoam, pts/kripke, pts/mnn and pts/tnn

Geometric Mean Of Machine Learning Tests

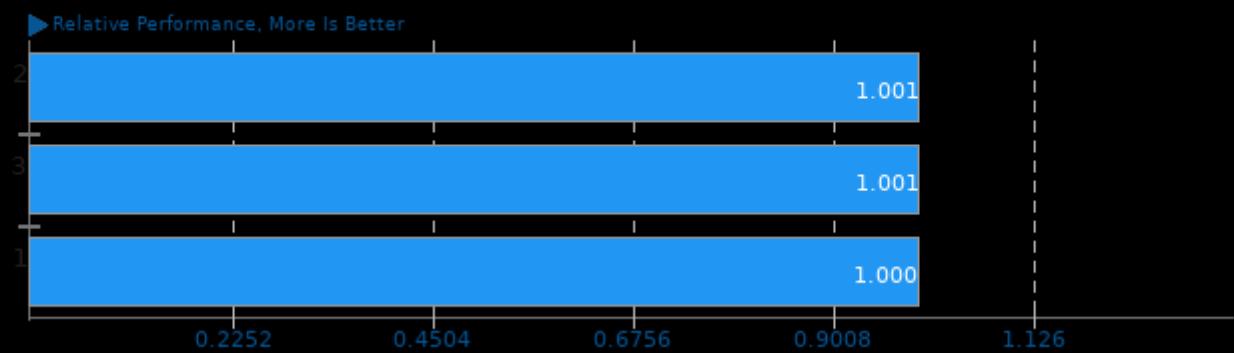
Result Composite - 6500 2921



Geometric mean based upon tests: pts/mnn and pts/tnn

Geometric Mean Of Molecular Dynamics Tests

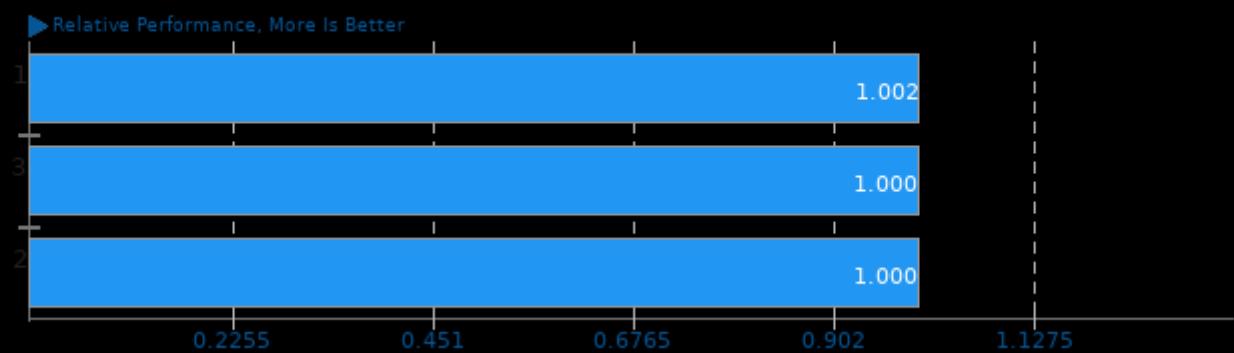
Result Composite - 6500 2921



Geometric mean based upon tests: pts/cp2k, pts/lammps, pts/lulesh and pts/openfoam

Geometric Mean Of Multi-Core Tests

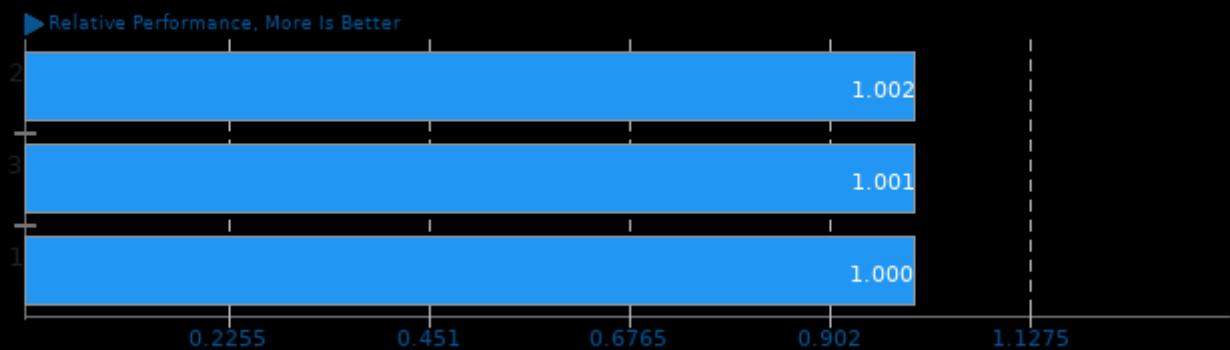
Result Composite - 6500 2921



Geometric mean based upon tests: pts/dav1d, pts/rav1e and pts/lammps

Geometric Mean Of OpenMPI Tests

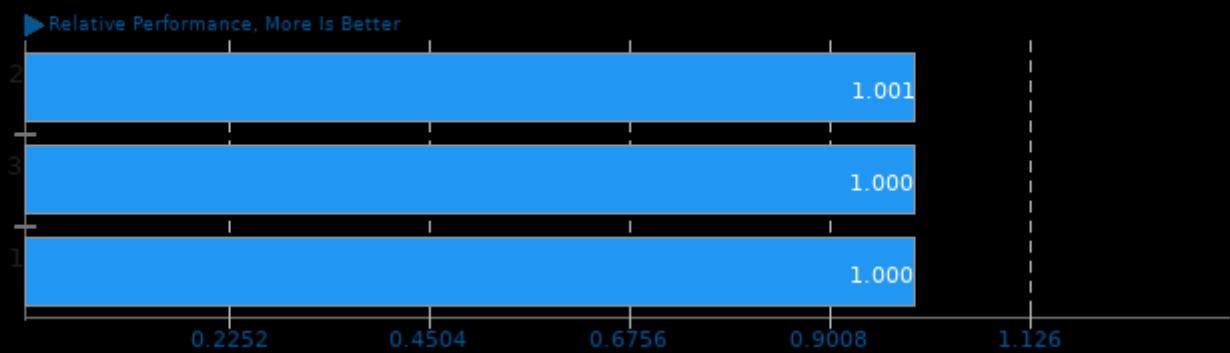
Result Composite - 6500 2921



Geometric mean based upon tests: pts/cp2k, pts/amg, pts/openfoam, pts/lammps and pts/lulesh

Geometric Mean Of Programmer / Developer System Benchmarks Tests

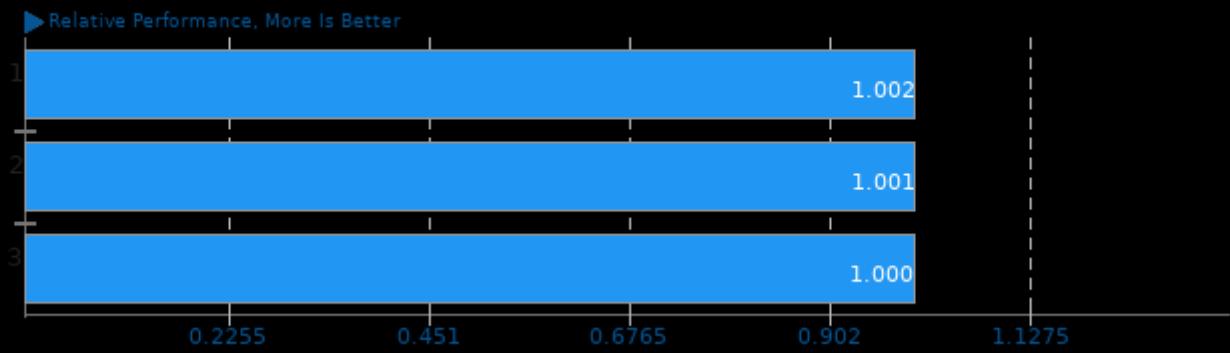
Result Composite - 6500 2921



Geometric mean based upon tests: system/cryptsetup and pts/amg

Geometric Mean Of Scientific Computing Tests

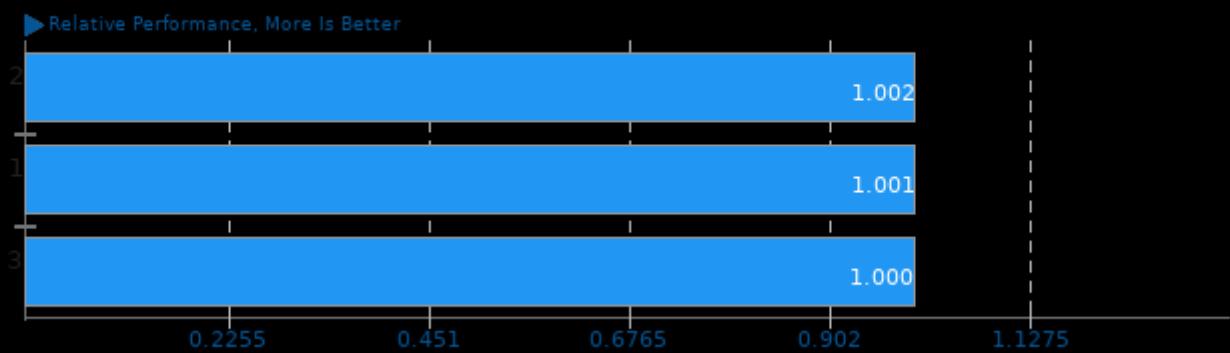
Result Composite - 6500 2921



Geometric mean based upon tests: pts/amg, pts/cp2k, pts/lammps, pts/lulesh, pts/openfoam and pts/kripke

Geometric Mean Of Server CPU Tests

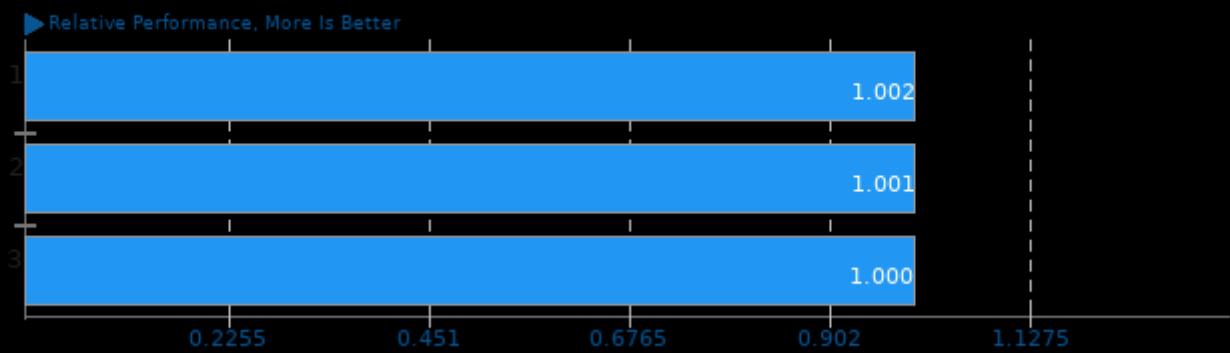
Result Composite - 6500 2921



Geometric mean based upon tests: pts/cp2k and pts/dav1d

Geometric Mean Of Video Encoding Tests

Result Composite - 6500 2921



Geometric mean based upon tests: pts/dav1d and pts/rav1e

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