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xeon silver april

Intel Xeon Silver 4216 testing with a TYAN S7100AG2NR (V4.02 BIOS) and ASPEED on Debian 10 via the Phoronix Test Suite.

Automated Executive Summary

1 had the most wins, coming in first place for 48% of the tests.

Based on the geometric mean of all complete results, the fastest (3) was 1.003x the speed of the slowest (2). 1 was 0.998x the speed of 3 and 2 was 0.999x the speed of 1.

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

LuxCoreRender (Scene: Rainbow Colors and Prism - Acceleration: CPU) at 1.035x

ViennaCL (Test: CPU BLAS - sAXPY) at 1.028x

ViennaCL (Test: CPU BLAS - dGEMM-TT) at 1.028x

LuxCoreRender (Scene: Danish Mood - Acceleration: CPU) at 1.024x

ViennaCL (Test: CPU BLAS - dGEMV-N) at 1.022x

Timed LLVM Compilation (Build System: Unix Makefiles) at 1.021x

ViennaCL (Test: CPU BLAS - sCOPY) at 1.017x

LuxCoreRender (Scene: LuxCore Benchmark - Acceleration: CPU) at 1.015x

ViennaCL (Test: CPU BLAS - dCOPY) at 1.013x

ViennaCL (Test: CPU BLAS - dGEMM-TN) at 1.012x.

Test Systems:

1

2

3

Processor: Intel Xeon Silver 4216 @ 3.20GHz (16 Cores / 32 Threads), Motherboard: TYAN S7100AG2NR (V4.02 BIOS), Chipset: Intel Sky Lake-E DMI3 Registers, Memory: 24GB, Disk: 240GB Corsair Force MP500, Graphics: ASPEED, Audio: Realtek ALC892, Network: 2 x Intel I350

OS: Debian 10, Kernel: 4.19.0-9-amd64 (x86_64), Desktop: GNOME Shell 3.30.2, Display Server: X Server, Compiler: GCC 8.3.0, File-System: ext4, Screen Resolution: 1024x768

Kernel Notes: Transparent Huge Pages: always

Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --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++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --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 --with-tune=generic --without-cuda-driver -v

Processor Notes: Scaling Governor: intel_pstate powersave - CPU Microcode: 0x5000002c

Python Notes: Python 2.7.16 + Python 3.7.3

Security Notes: itlb_multihit: KVM: Mitigation of Split huge pages + 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 + srbs: Not affected + tsx_async_abort: Mitigation of TSX disabled

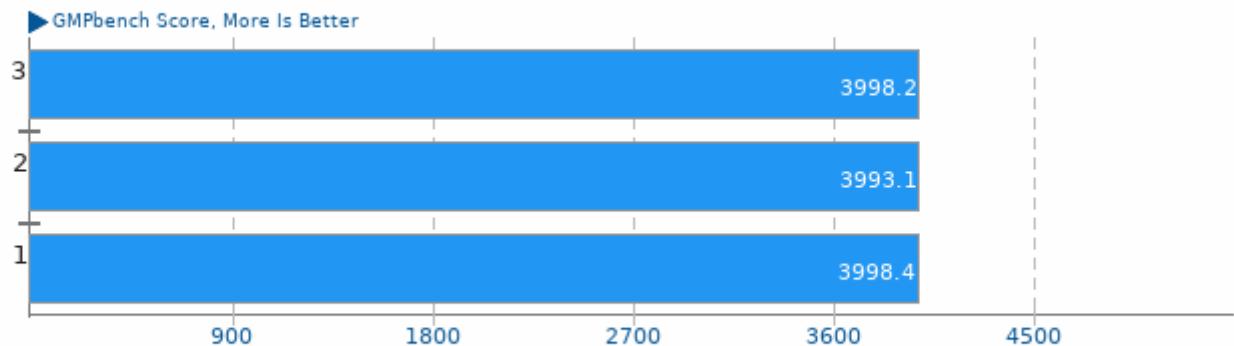
	1	2	3
GNU GMP GMPbench - Total Time (GMPbench Score)	3998	3993	3998
Normalized	100%	99.87%	99.99%
Xmrig - Monero - 1M (H/s)	6079	6026	6023
Normalized	100%	99.12%	99.07%
Standard Deviation	0.3%	0.4%	0.3%
Xmrig - Wownero - 1M (H/s)	9452	9407	9365
Normalized	100%	99.52%	99.07%
Standard Deviation	0.2%	0.1%	0.3%
Botan - KASUMI (MiB/s)	71.768	71.75	71.764
Normalized	100%	99.97%	99.99%
Standard Deviation	0.1%	0.1%	0.1%
Botan - KASUMI - Decrypt (MiB/s)	69.639	69.594	69.606
Normalized	100%	99.94%	99.95%
Standard Deviation	0%	0%	0%
Botan - AES-256 (MiB/s)	3057	3056	3057
Normalized	99.98%	99.97%	100%

	Standard Deviation	0.1%	0.1%	0.1%
Botan - AES-256 - Decrypt (MiB/s)	3066	3064	3064	
Normalized	100%	99.95%	99.95%	
Standard Deviation	0.1%	0.1%	0.1%	
Botan - Twofish (MiB/s)	277.071	275.626	276.632	
Normalized	100%	99.48%	99.84%	
Standard Deviation	0.1%	0.8%	0%	
Botan - Twofish - Decrypt (MiB/s)	278.218	276.648	278.078	
Normalized	100%	99.44%	99.95%	
Standard Deviation	0.1%	0.9%	0.1%	
Botan - Blowfish (MiB/s)	346.475	346.695	346.400	
Normalized	99.94%	100%	99.91%	
Standard Deviation	0.1%	0.1%	0.1%	
Botan - Blowfish - Decrypt (MiB/s)	345.576	345.860	346.048	
Normalized	99.86%	99.95%	100%	
Standard Deviation	0.1%	0.1%	0%	
Botan - CAST-256 (MiB/s)	109.457	109.543	109.499	
Normalized	99.92%	100%	99.96%	
Standard Deviation	0.1%	0%	0.1%	
Botan - CAST-256 - Decrypt (MiB/s)	109.656	109.551	109.605	
Normalized	100%	99.9%	99.95%	
Standard Deviation	0%	0.2%	0.1%	
Botan - ChaCha20Poly1305 (MiB/s)	506.443	506.580	505.493	
Normalized	99.97%	100%	99.79%	
Standard Deviation	0.1%	0.1%	0.4%	
Botan - ChaCha20Poly1305 - Decrypt (MiB/s)	500.926	500.997	500.963	
Normalized	99.99%	100%	99.99%	
Standard Deviation	0%	0.1%	0.1%	
LuxCoreRender - DLSC - CPU (M samples/sec)	1.83	1.85	1.83	
Normalized	98.92%	100%	98.92%	
Standard Deviation	1.4%	1.7%	1.4%	
LuxCoreRender - Danish Mood - CPU (M samples/sec)	1.26	1.23	1.26	
Normalized	100%	97.62%	100%	
Standard Deviation	2.4%	0.5%	2.1%	
LuxCoreRender - Orange Juice - CPU (M samples/sec)	2.95	2.94	2.94	
Normalized	100%	99.66%	99.66%	
Standard Deviation	0.2%	0.5%	0.4%	
LuxCoreRender - LuxCore Benchmark - CPU (M samples/sec)	1.34	1.35	1.36	
Normalized	98.53%	99.26%	100%	
Standard Deviation	0.9%	0.9%	0.4%	
LuxCoreRender - R.C.a.P - CPU (M samples/sec)	7.39	7.38	7.64	
Normalized	96.73%	96.6%	100%	
Standard Deviation	3.8%	2.3%	0.8%	
Timed LLVM Compilation - Ninja (sec)	473.567	473.684	473.736	
Normalized	100%	99.98%	99.96%	
Standard Deviation	0.1%	0.1%	0.1%	
Timed LLVM Compilation - Unix Makefiles	521.103	519.249	510.308	
Normalized	97.93%	98.28%	100%	
Standard Deviation	1.1%	0.8%	2.1%	
Helsing - 12 digit (sec)	5.127	5.13	5.153	
Normalized	100%	99.94%	99.5%	

Helsing - 14 digit (sec)	538.255	538.663	538.471
Normalized	100%	99.92%	99.96%
ViennaCL - CPU BLAS - sCOPY (GB/s)	71.9	70.7	70.7
Normalized	100%	98.33%	98.33%
Standard Deviation	0.6%	0.7%	2.1%
ViennaCL - CPU BLAS - sAXPY (GB/s)	110	107	108
Normalized	100%	97.27%	98.18%
Standard Deviation	1.1%	1.1%	1.9%
ViennaCL - CPU BLAS - sDOT (GB/s)	117	117	116
Normalized	100%	100%	99.15%
Standard Deviation	1.3%	1.8%	
ViennaCL - CPU BLAS - dCOPY (GB/s)	61.6	60.8	61.5
Normalized	100%	98.7%	99.84%
Standard Deviation	1.7%	2.6%	0.5%
ViennaCL - CPU BLAS - dAXPY (GB/s)	92.4	91.7	92.6
Normalized	99.78%	99.03%	100%
Standard Deviation	2%	2.6%	0.2%
ViennaCL - CPU BLAS - dDOT (GB/s)	104	104	104
Standard Deviation	1.5%	1.5%	0.6%
ViennaCL - CPU BLAS - dGEMV-N (GB/s)	92.9	94.1	94.9
Normalized	97.89%	99.16%	100%
Standard Deviation	3.4%	1.1%	0.6%
ViennaCL - CPU BLAS - dGEMV-T (GB/s)	107	108	108
Normalized	99.07%	100%	100%
Standard Deviation		2%	
ViennaCL - CPU BLAS - dGEMM-NN (GFLOPs/s)	40.7	40.8	40.6
Normalized	99.75%	100%	99.51%
Standard Deviation	0.1%	0.1%	0.8%
ViennaCL - CPU BLAS - dGEMM-NT (GFLOPs/s)	39.6	40.0	39.9
Normalized	99%	100%	99.75%
Standard Deviation	1.4%	0.3%	0.4%
ViennaCL - CPU BLAS - dGEMM-TN (GFLOPs/s)	40.9	41.4	41.3
Normalized	98.79%	100%	99.76%
Standard Deviation	1.9%	0.6%	1%
ViennaCL - CPU BLAS - dGEMM-TT (GFLOPs/s)	39.6	40.7	40.3
Normalized	97.3%	100%	99.02%
Standard Deviation		0%	1.4%
libjpeg-turbo tjbench - D.T (Megapixels/sec)	146.215852	145.425097	146.709279
Normalized	99.66%	99.12%	100%
Standard Deviation	1.2%	1.1%	0.6%
Google Draco - Lion (ms)	7438	7413	7382
Normalized	99.25%	99.58%	100%
Standard Deviation	0.3%		0.2%
Google Draco - Church Facade (ms)	9212	9192	9131
Normalized	99.12%	99.34%	100%
Standard Deviation	0.3%	0.2%	0.2%

GNU GMP GMPbench 6.2.1

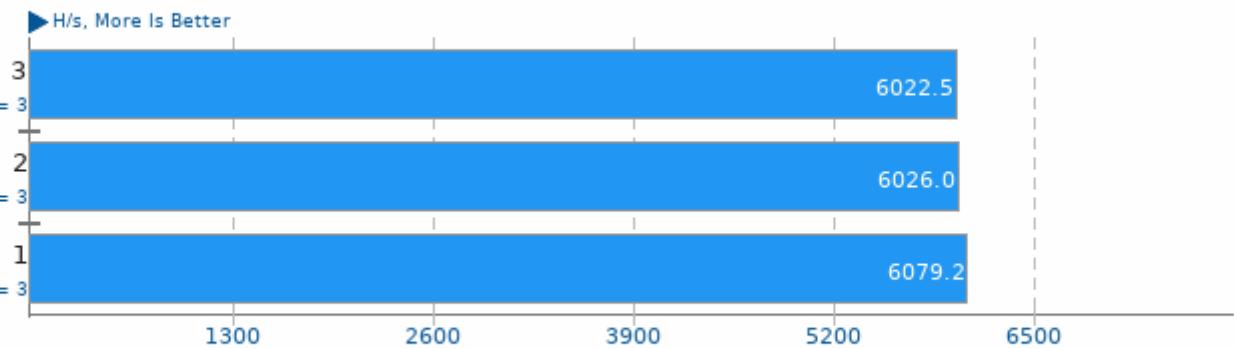
Total Time



1. (CC) gcc options: -O3 -fomit-frame-pointer -lm

Xmrig 6.12.1

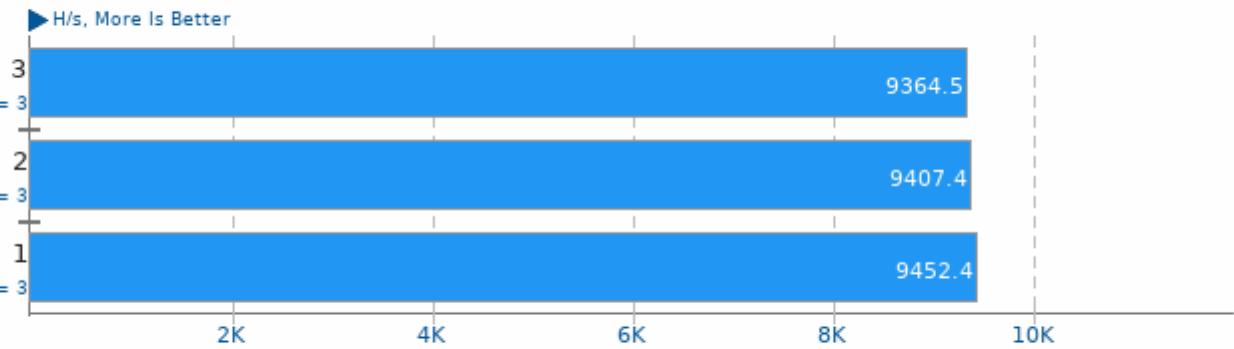
Variant: Monero - Hash Count: 1M



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

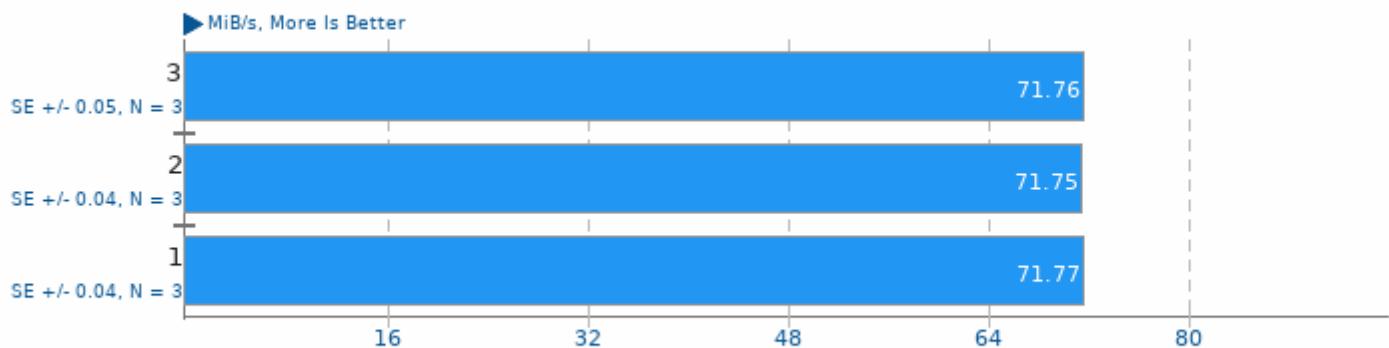
Variant: Wownero - Hash Count: 1M



1. (CXX) g++ options: -fexceptions -fno-rtti -maes -O3 -Ofast -static-libgcc -static-libstdc++ -rdynamic -lssl -lcrypto -luv -lpthread -lrt -ldl -lhwloc

Botan 2.17.3

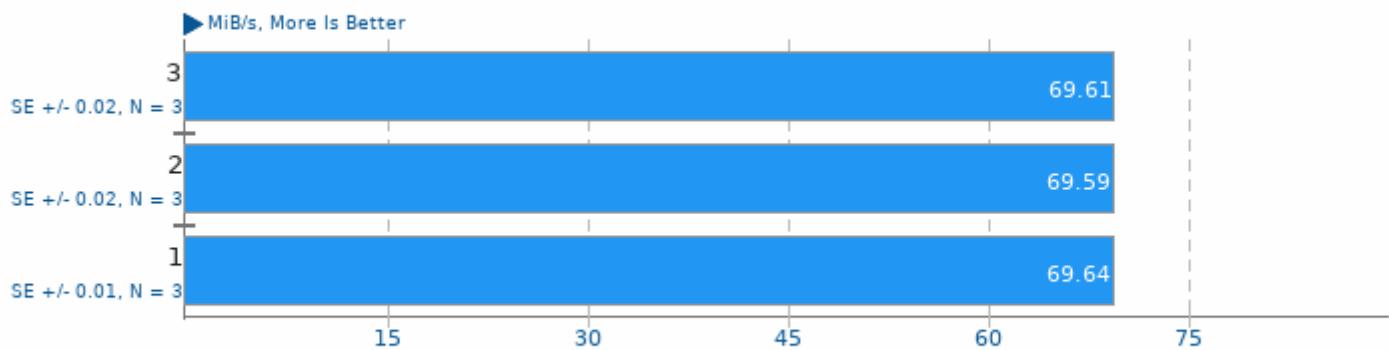
Test: KASUMI



1. (CXX) g++ options: -fstack-protector -m64 -pthread -lbotan-2 -ldl -lrt

Botan 2.17.3

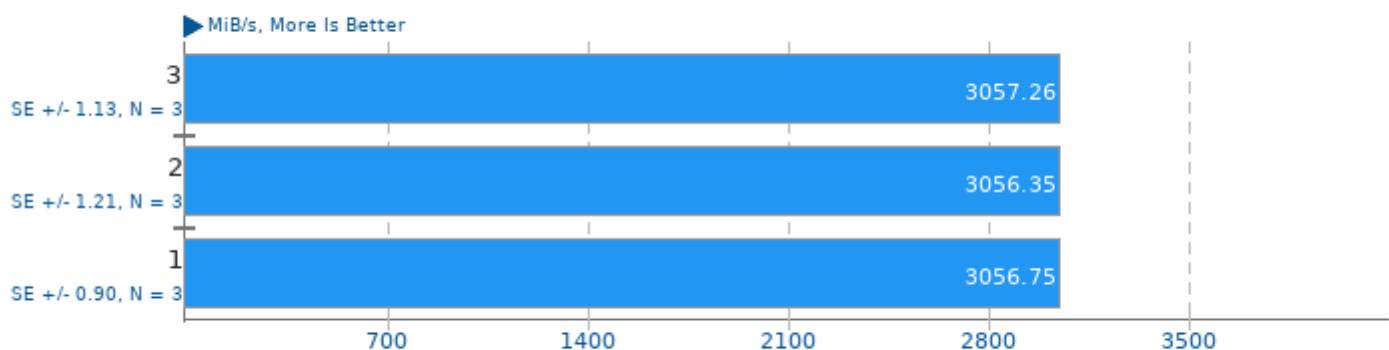
Test: KASUMI - Decrypt



1. (CXX) g++ options: -fstack-protector -m64 -pthread -lbotan-2 -ldl -lrt

Botan 2.17.3

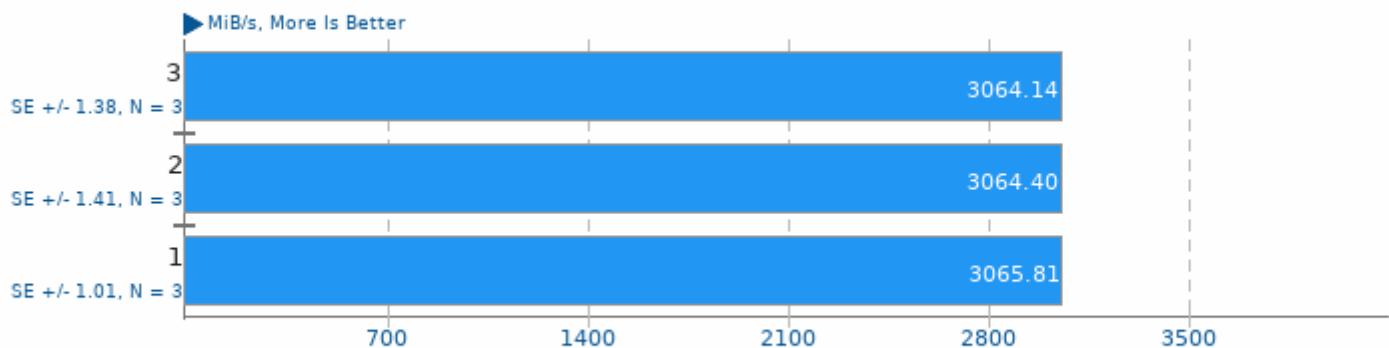
Test: AES-256



1. (CXX) g++ options: -fstack-protector -m64 -pthread -lbotan-2 -ldl -lrt

Botan 2.17.3

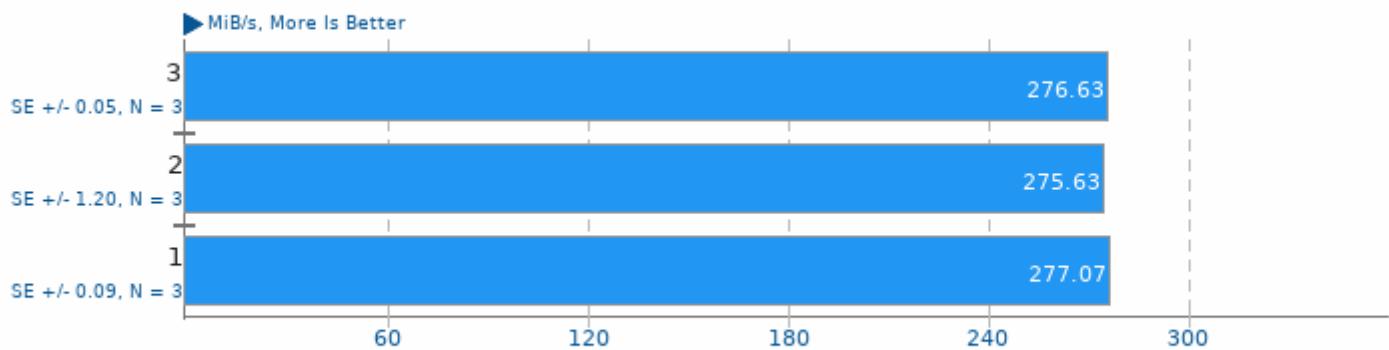
Test: AES-256 - Decrypt



1. (CXX) g++ options: -fstack-protector -m64 -pthread -lbotan-2 -ldl -lrt

Botan 2.17.3

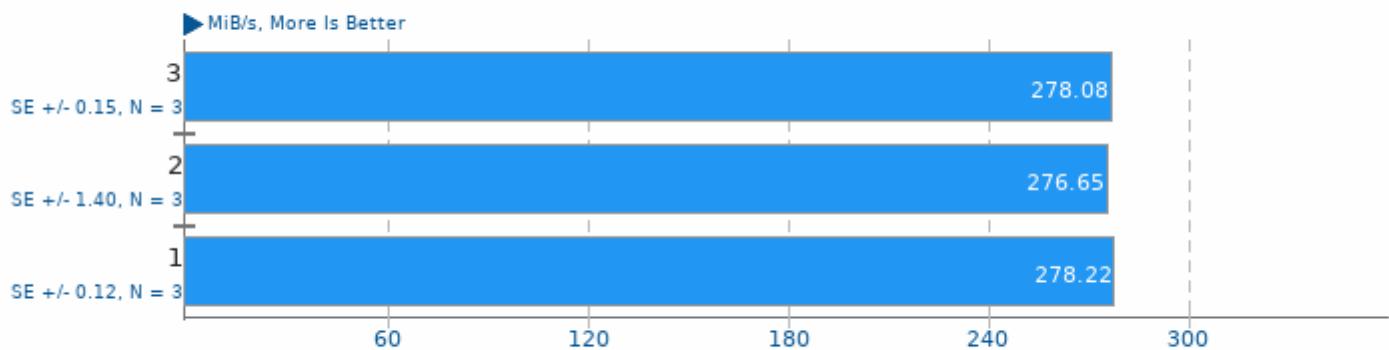
Test: Twofish



1. (CXX) g++ options: -fstack-protector -m64 -pthread -lbotan-2 -ldl -lrt

Botan 2.17.3

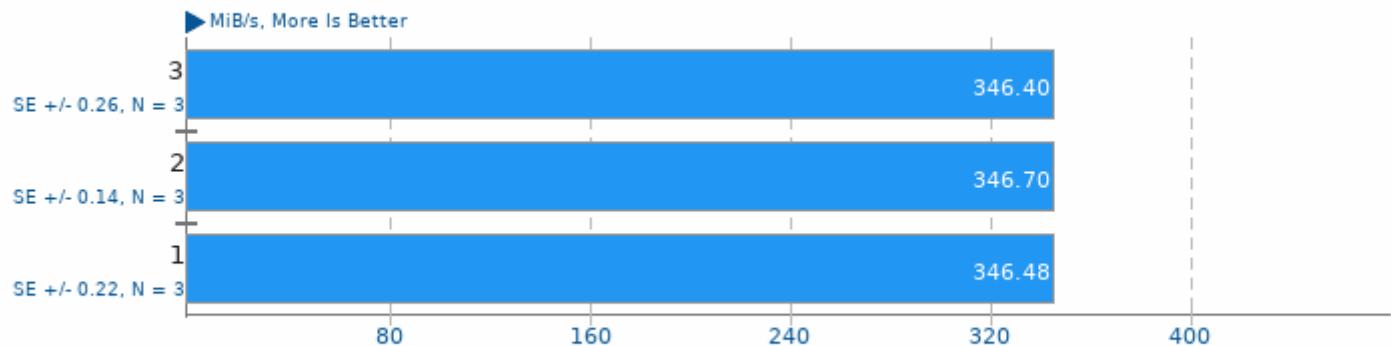
Test: Twofish - Decrypt



1. (CXX) g++ options: -fstack-protector -m64 -pthread -lbotan-2 -ldl -lrt

Botan 2.17.3

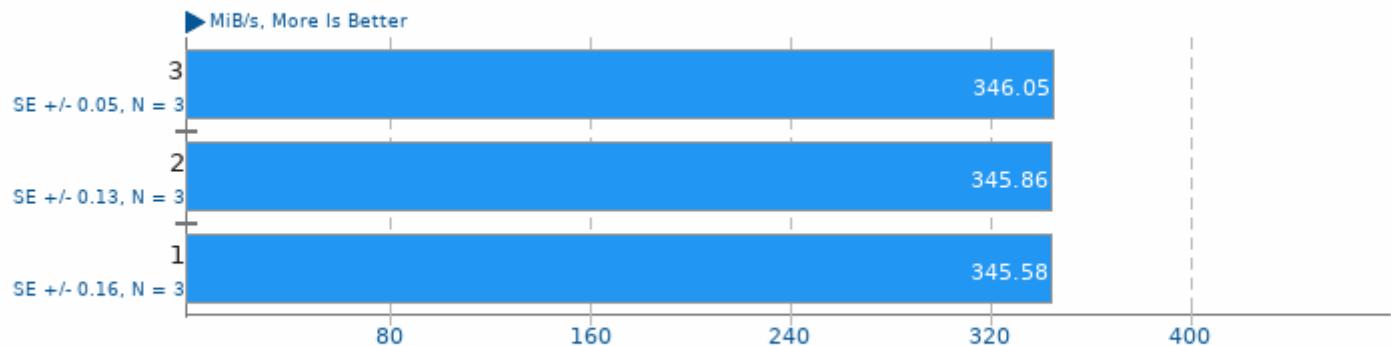
Test: Blowfish



1. (CXX) g++ options: -fstack-protector -m64 -pthread -lbotan-2 -ldl -lrt

Botan 2.17.3

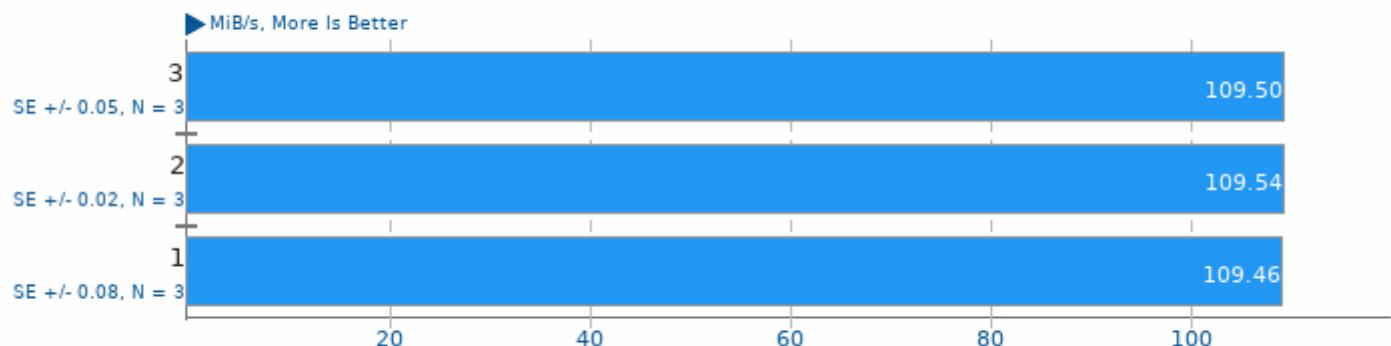
Test: Blowfish - Decrypt



1. (CXX) g++ options: -fstack-protector -m64 -pthread -lbotan-2 -ldl -lrt

Botan 2.17.3

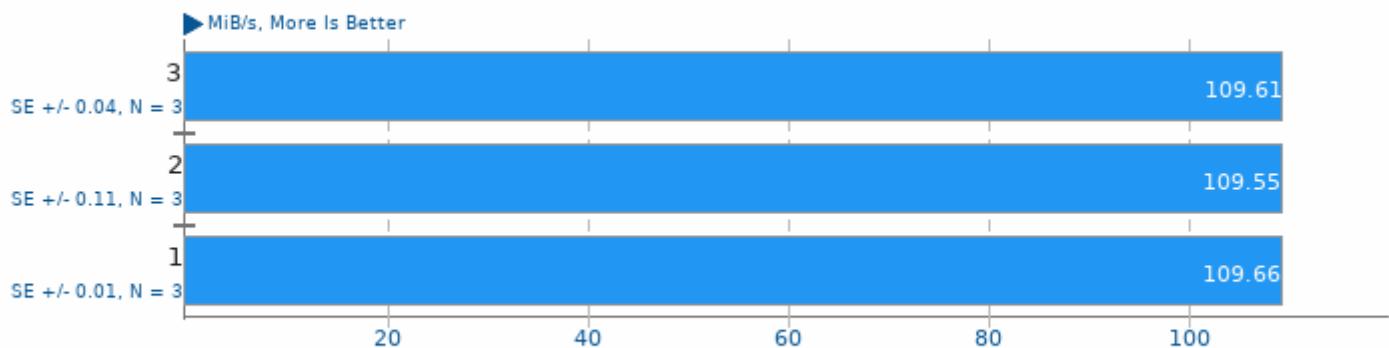
Test: CAST-256



1. (CXX) g++ options: -fstack-protector -m64 -pthread -lbotan-2 -ldl -lrt

Botan 2.17.3

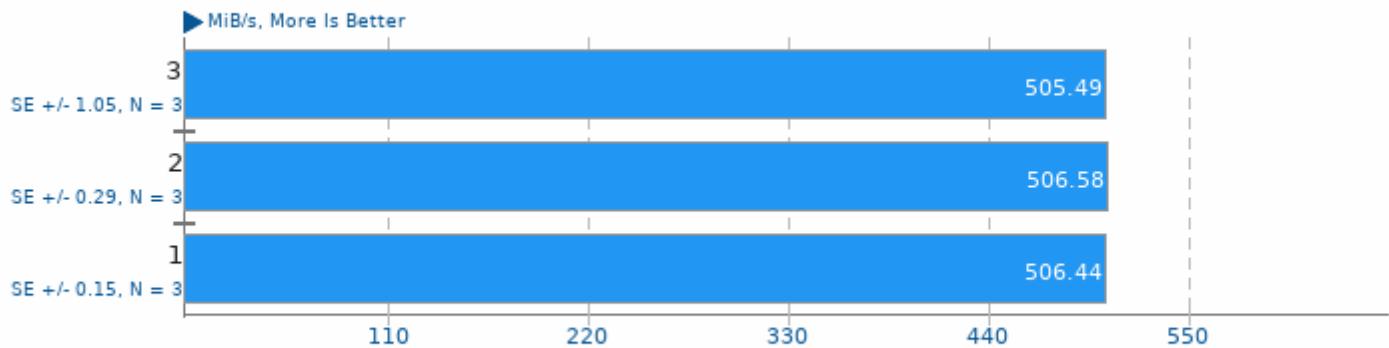
Test: CAST-256 - Decrypt



1. (CXX) g++ options: -fstack-protector -m64 -pthread -lbotan-2 -ldl -lrt

Botan 2.17.3

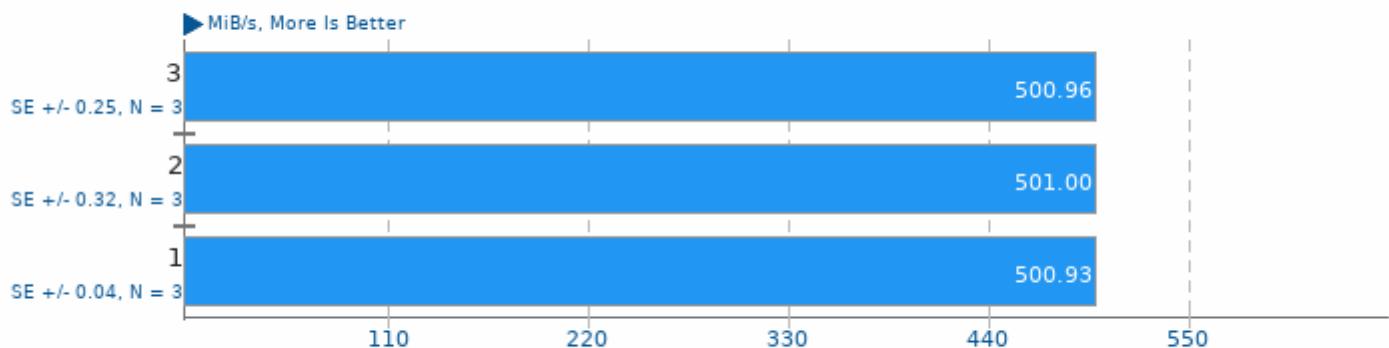
Test: ChaCha20Poly1305



1. (CXX) g++ options: -fstack-protector -m64 -pthread -lbotan-2 -ldl -lrt

Botan 2.17.3

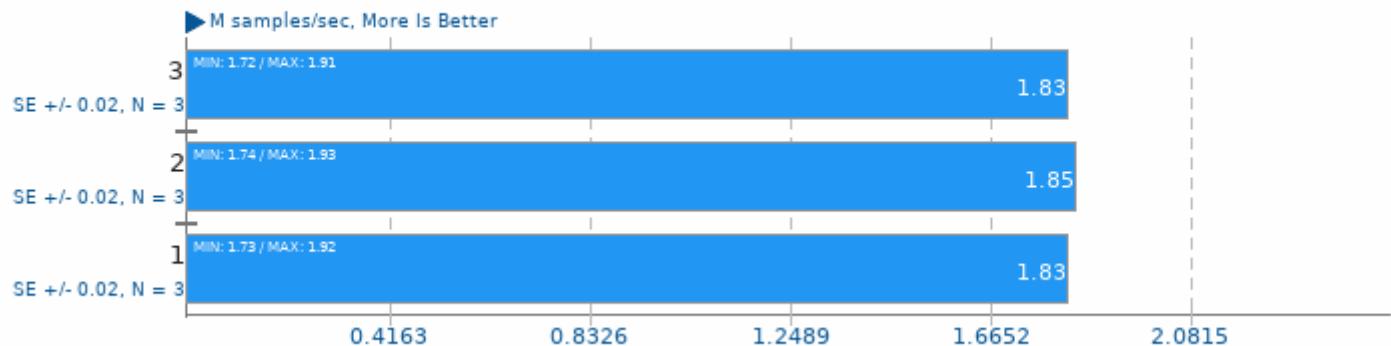
Test: ChaCha20Poly1305 - Decrypt



1. (CXX) g++ options: -fstack-protector -m64 -pthread -lbotan-2 -ldl -lrt

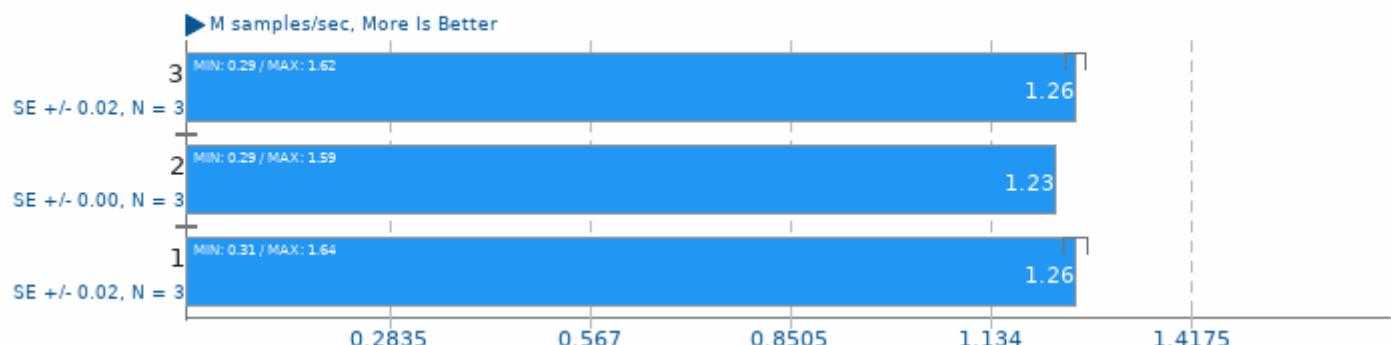
LuxCoreRender 2.5

Scene: DLSC - Acceleration: CPU



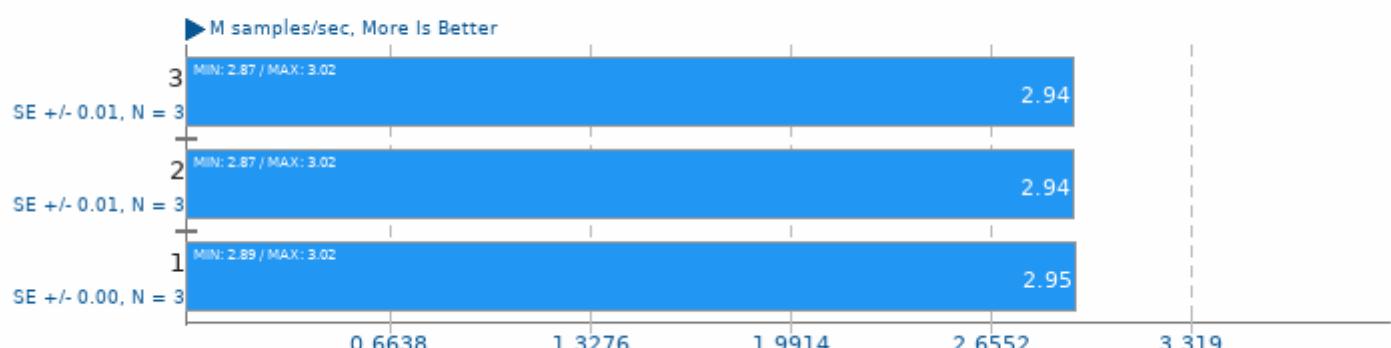
LuxCoreRender 2.5

Scene: Danish Mood - Acceleration: CPU



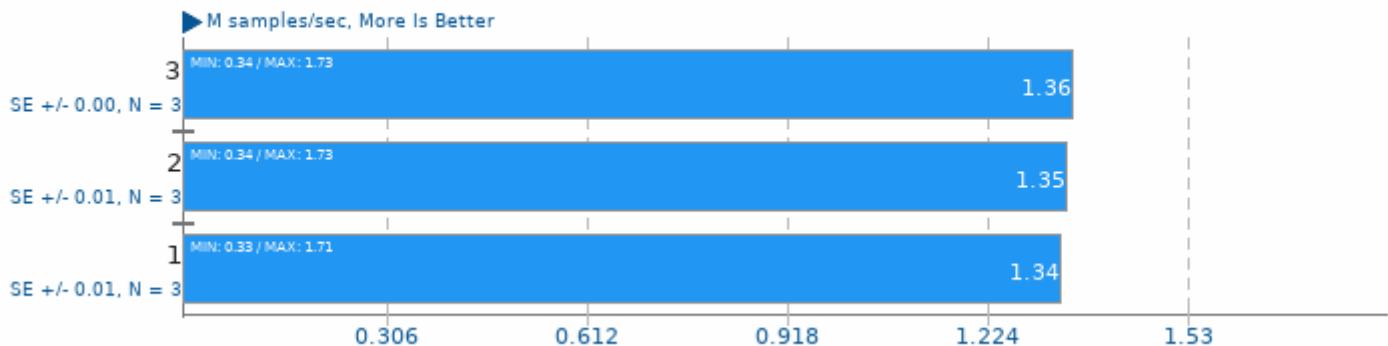
LuxCoreRender 2.5

Scene: Orange Juice - Acceleration: CPU



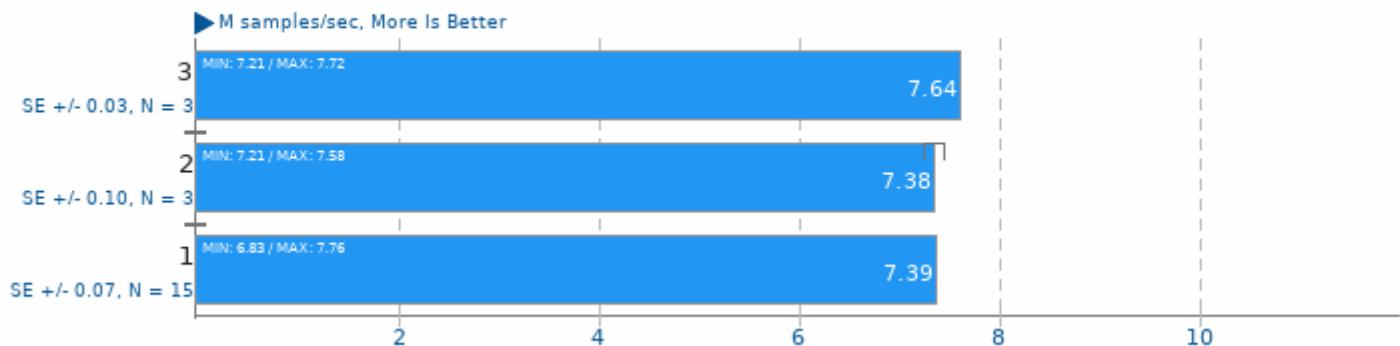
LuxCoreRender 2.5

Scene: LuxCore Benchmark - Acceleration: CPU



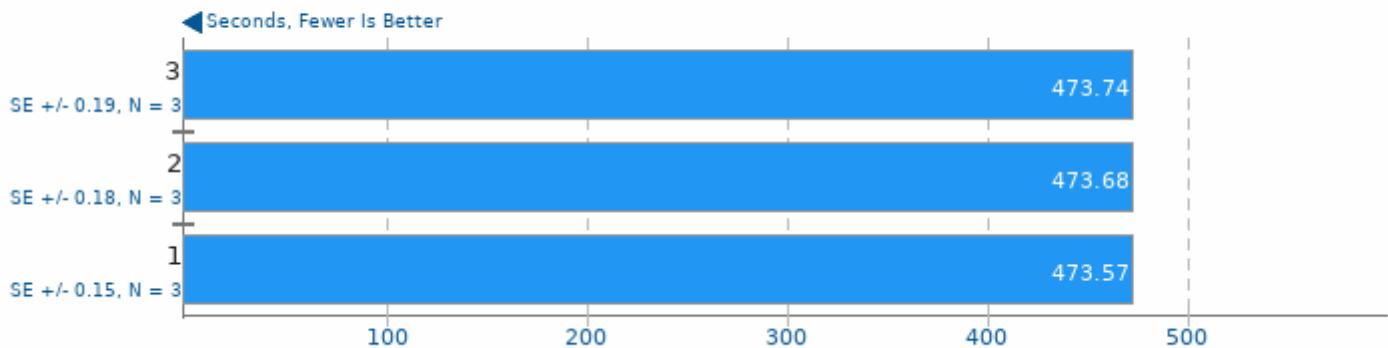
LuxCoreRender 2.5

Scene: Rainbow Colors and Prism - Acceleration: CPU



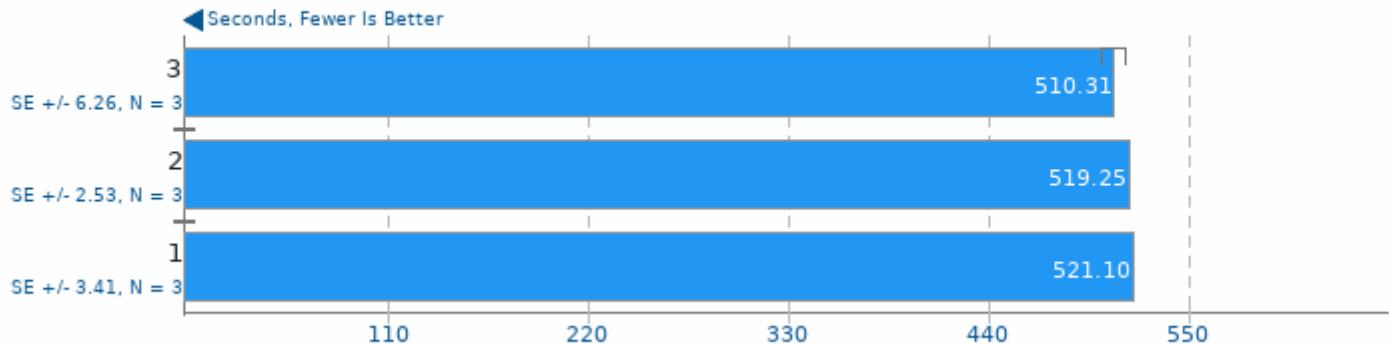
Timed LLVM Compilation 12.0

Build System: Ninja



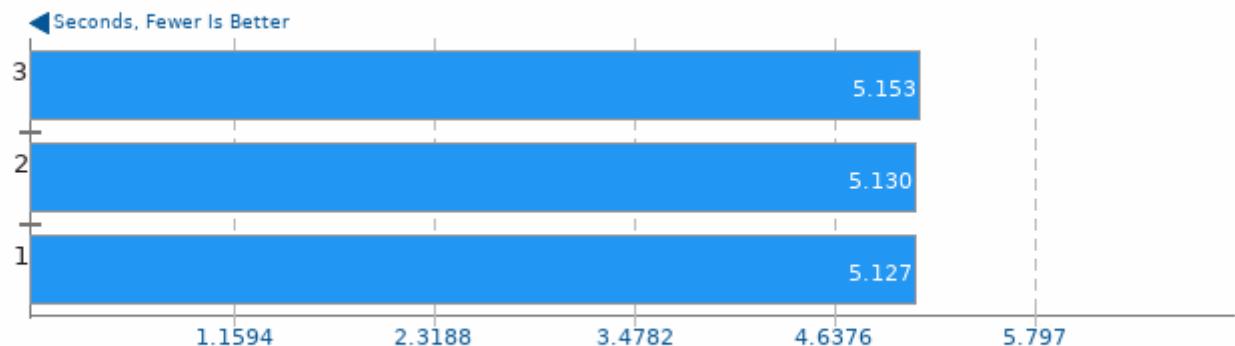
Timed LLVM Compilation 12.0

Build System: Unix Makefiles



Helsing 1.0-beta

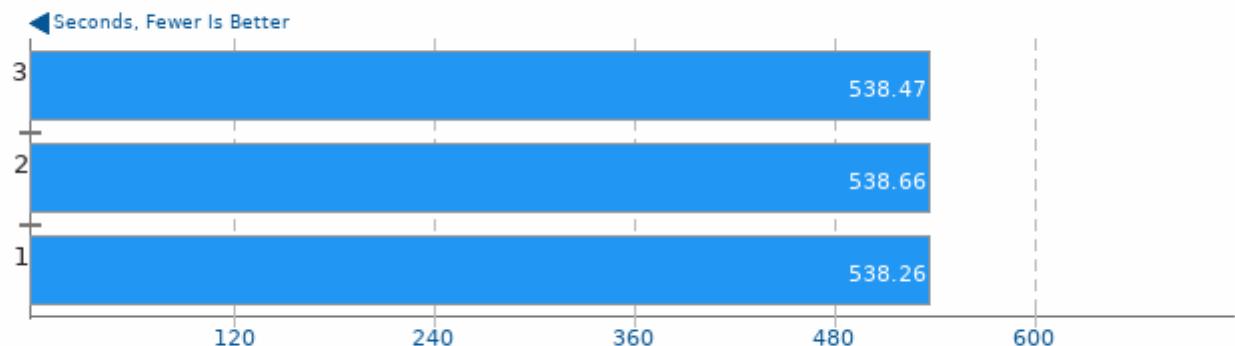
Digit Range: 12 digit



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

Helsing 1.0-beta

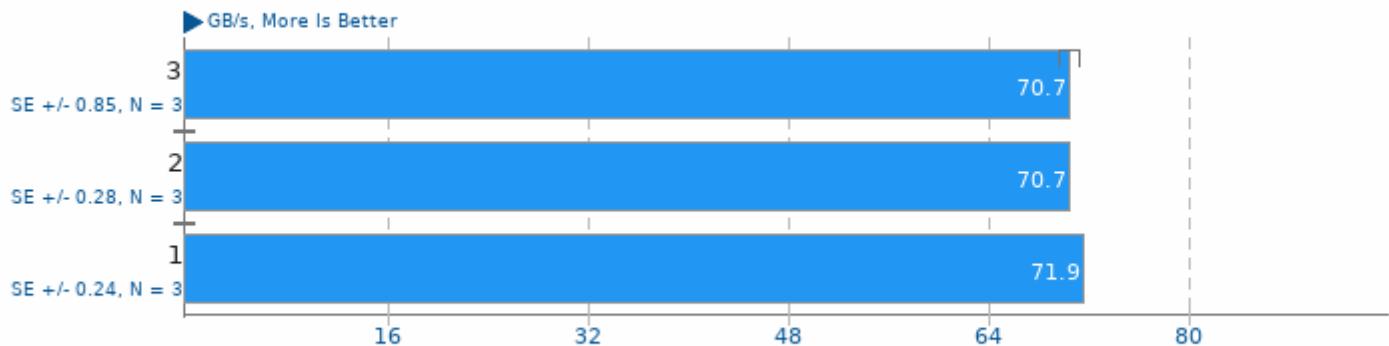
Digit Range: 14 digit



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

ViennaCL 1.7.1

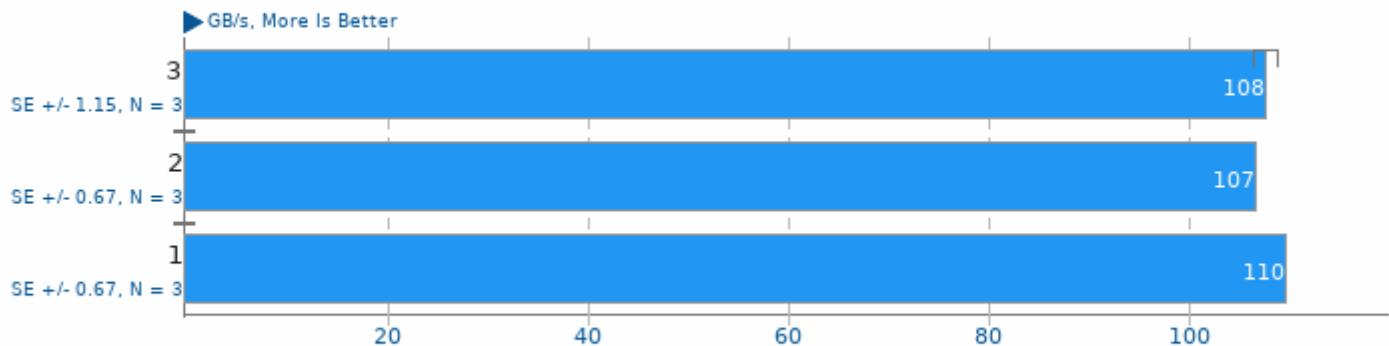
Test: CPU BLAS - sCOPY



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

ViennaCL 1.7.1

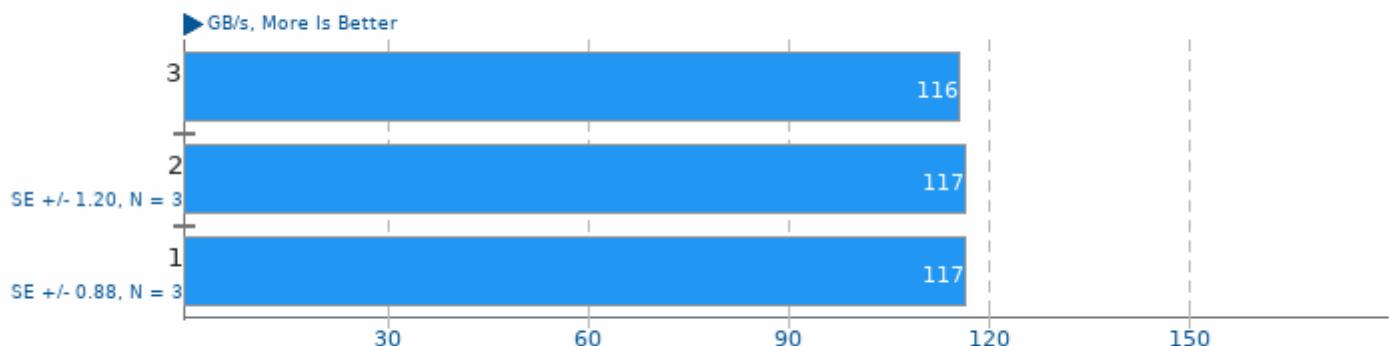
Test: CPU BLAS - sAXPY



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

ViennaCL 1.7.1

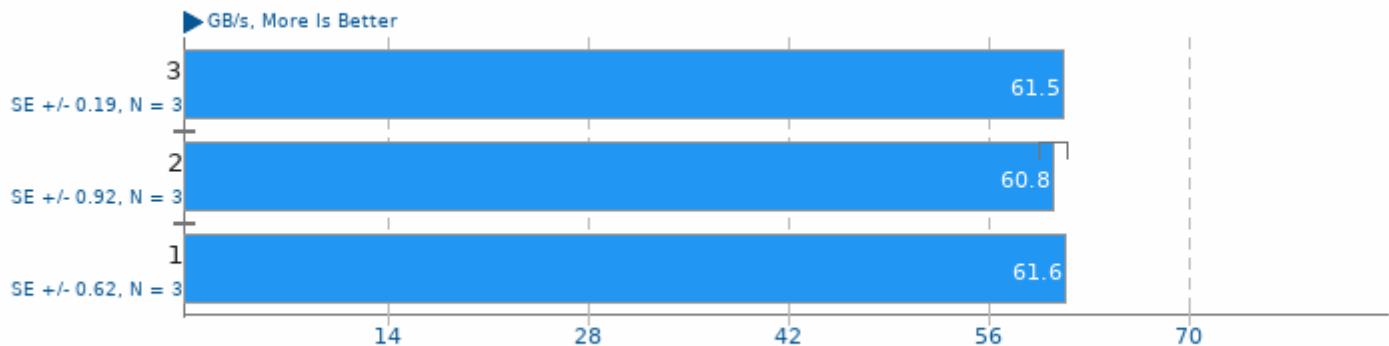
Test: CPU BLAS - sDOT



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

ViennaCL 1.7.1

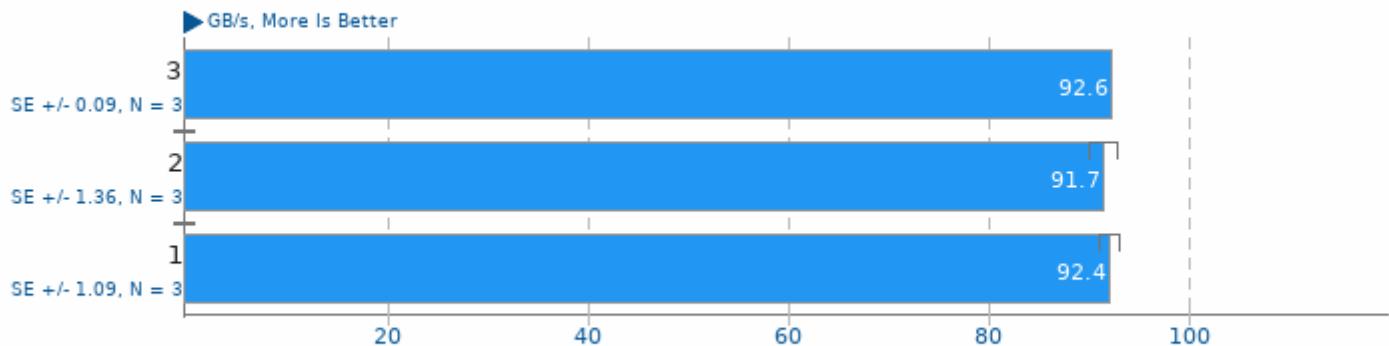
Test: CPU BLAS - dCOPY



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

ViennaCL 1.7.1

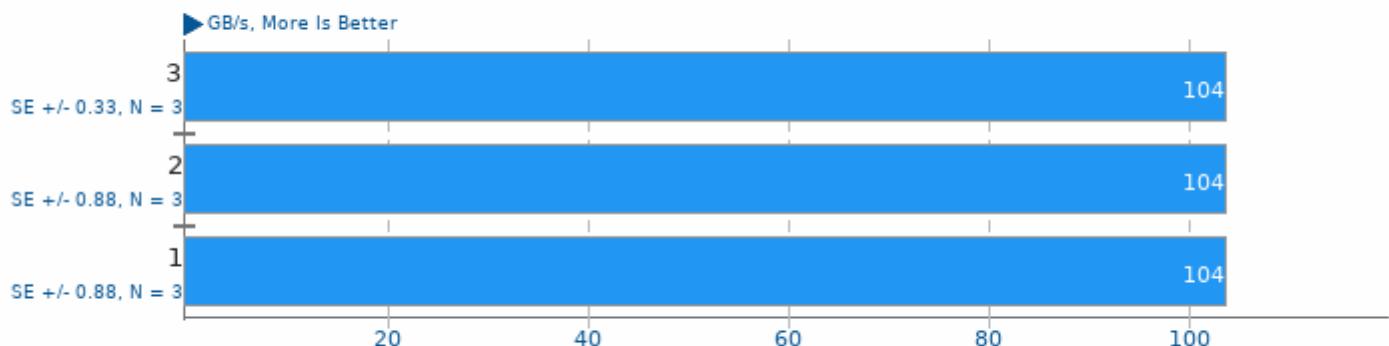
Test: CPU BLAS - dAXPY



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

ViennaCL 1.7.1

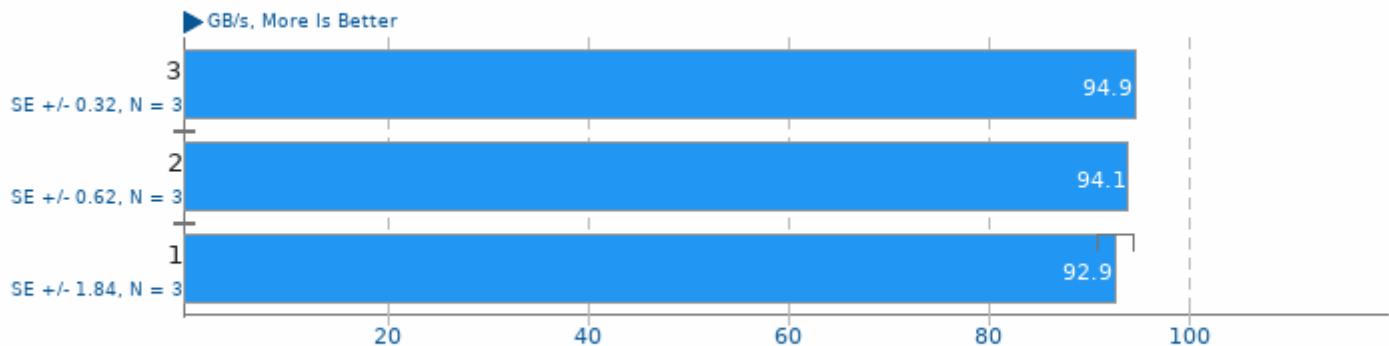
Test: CPU BLAS - dDOT



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

ViennaCL 1.7.1

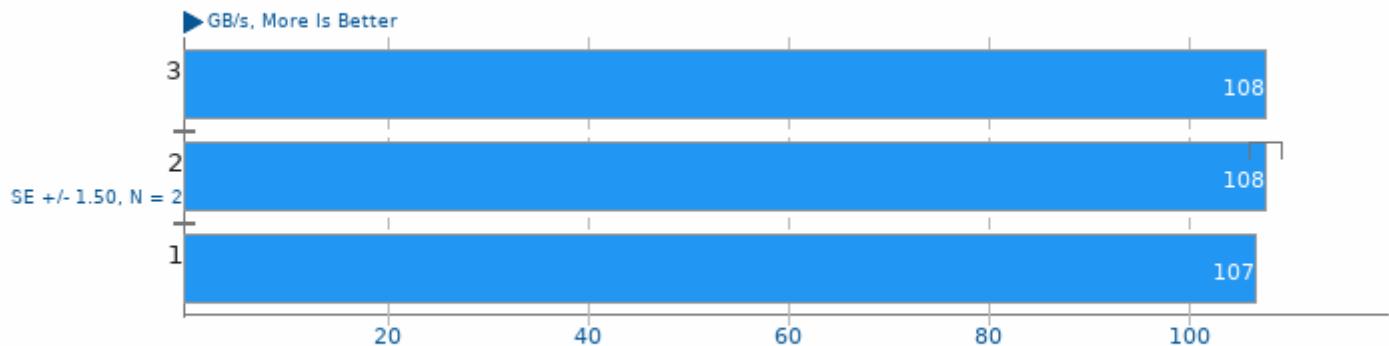
Test: CPU BLAS - dGEMV-N



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

ViennaCL 1.7.1

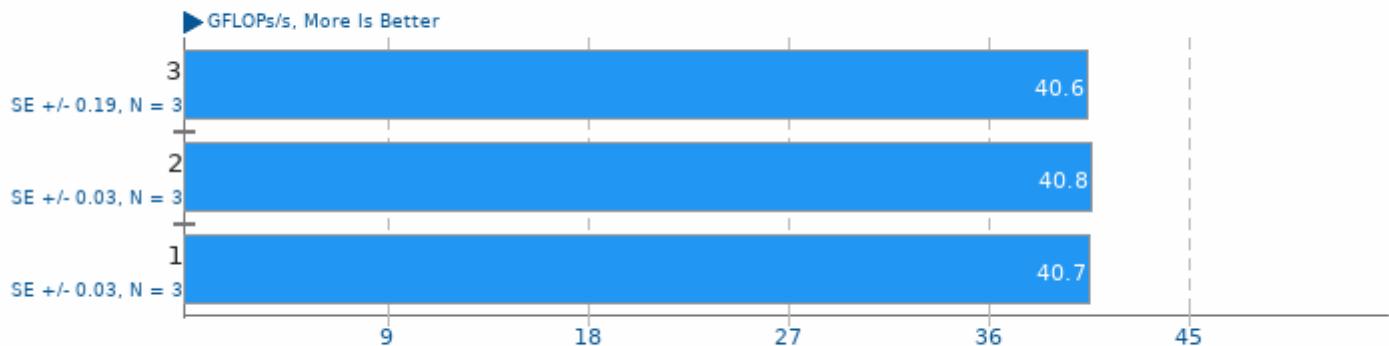
Test: CPU BLAS - dGEMV-T



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

ViennaCL 1.7.1

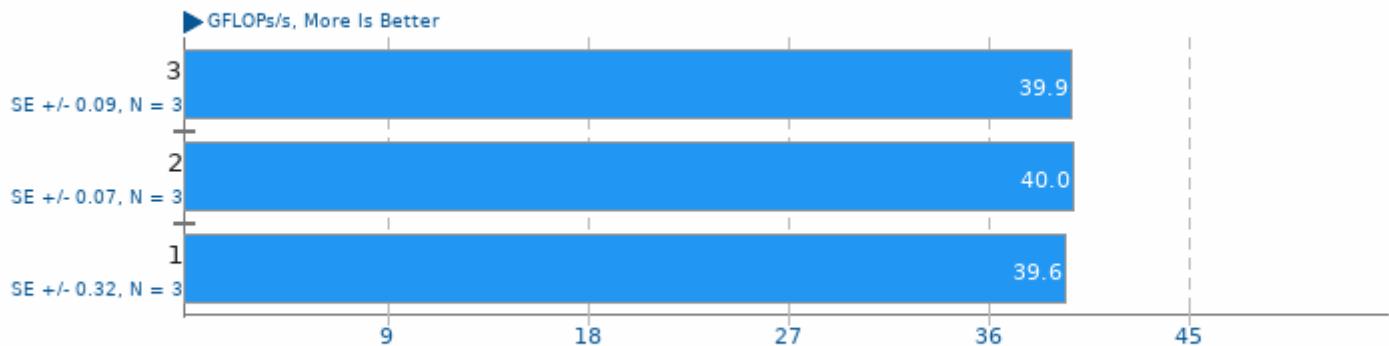
Test: CPU BLAS - dGEMM-NN



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

ViennaCL 1.7.1

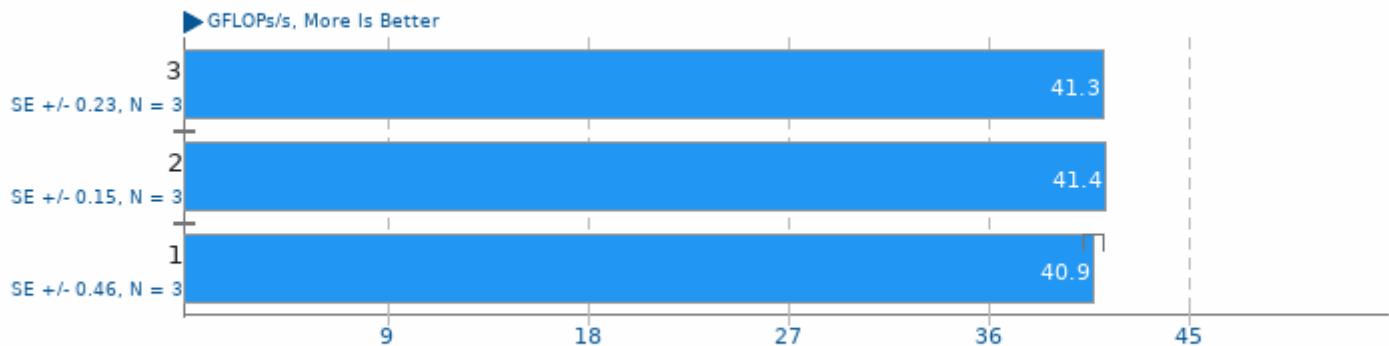
Test: CPU BLAS - dGEMM-NT



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

ViennaCL 1.7.1

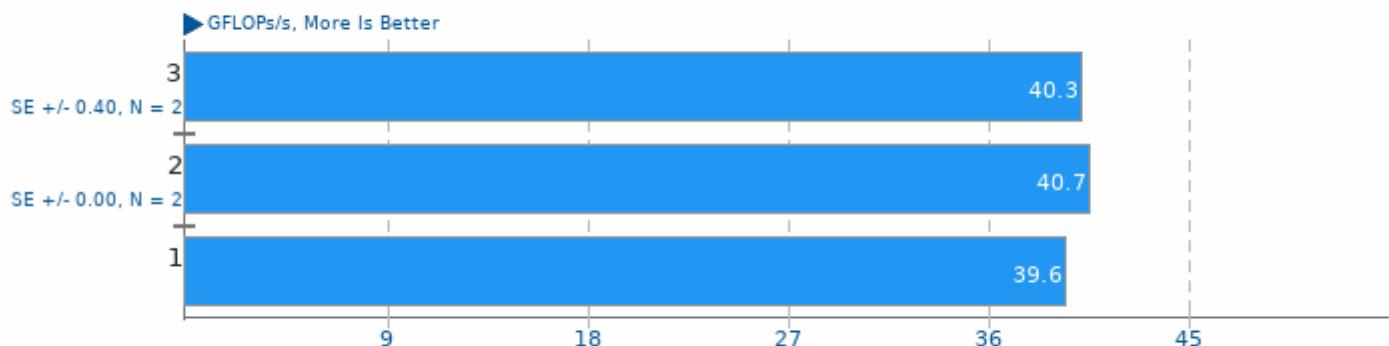
Test: CPU BLAS - dGEMM-TN



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

ViennaCL 1.7.1

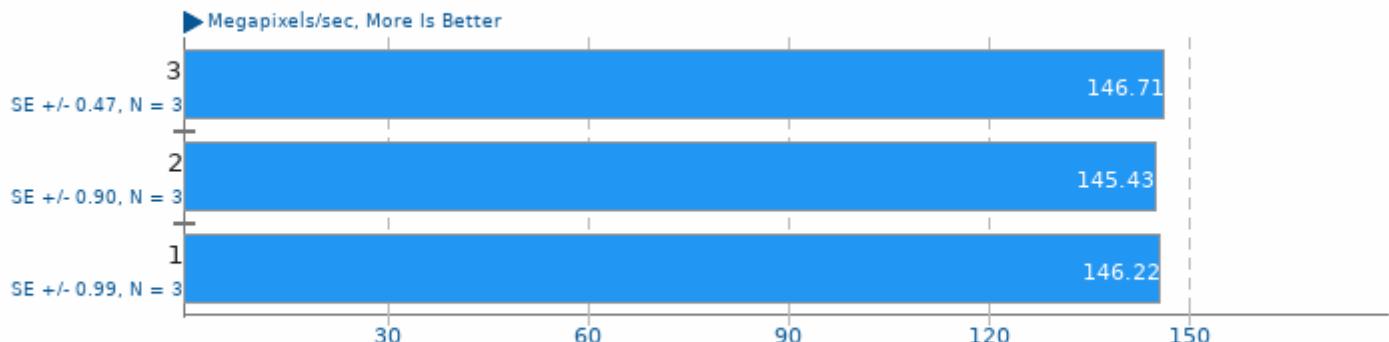
Test: CPU BLAS - dGEMM-TT



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

libjpeg-turbo tjbench 2.1.0

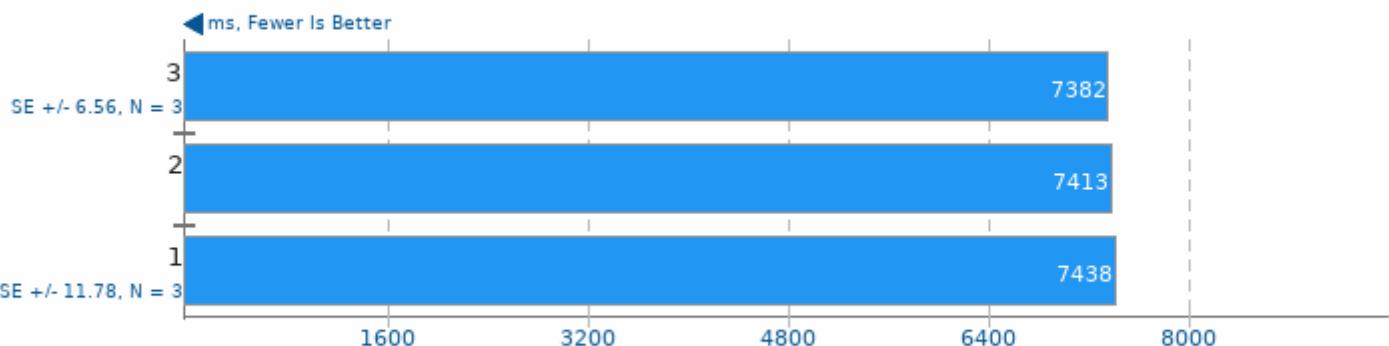
Test: Decompression Throughput



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

Google Draco 1.4.1

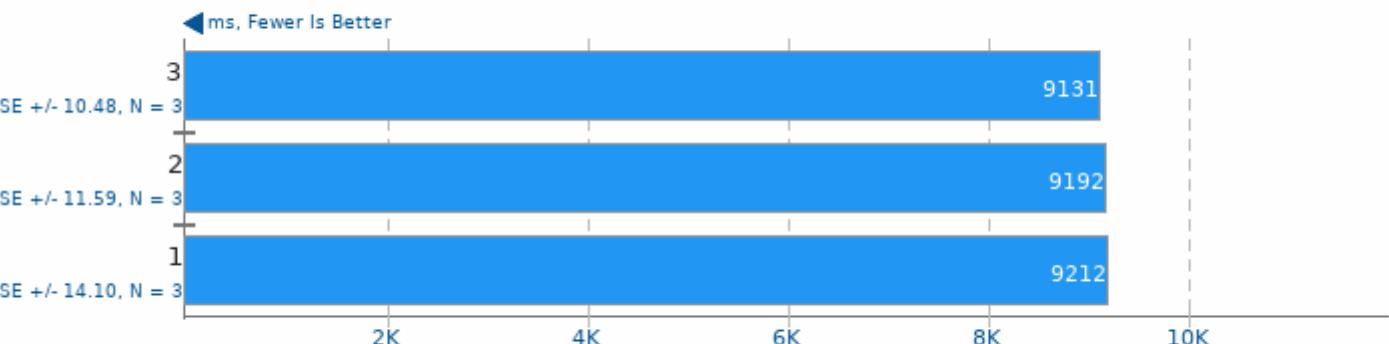
Model: Lion



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

Google Draco 1.4.1

Model: Church Facade

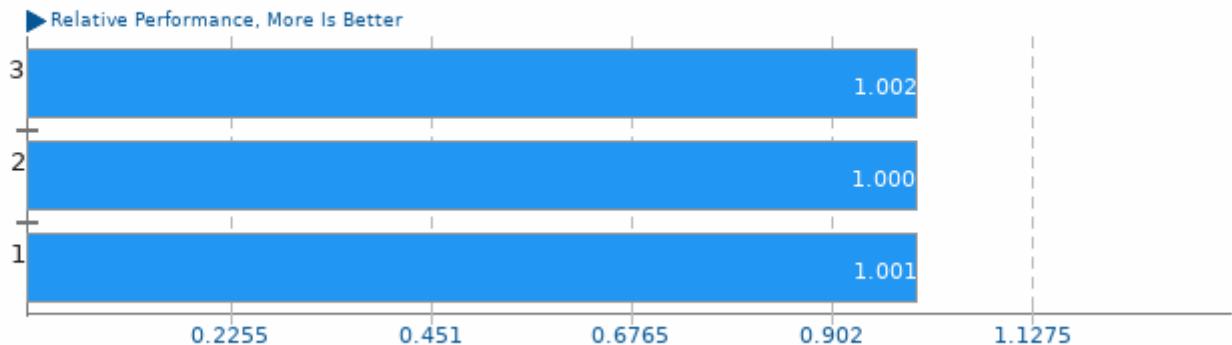


1. (CXX) g++ options: -O3

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

Geometric Mean Of CPU Massive Tests

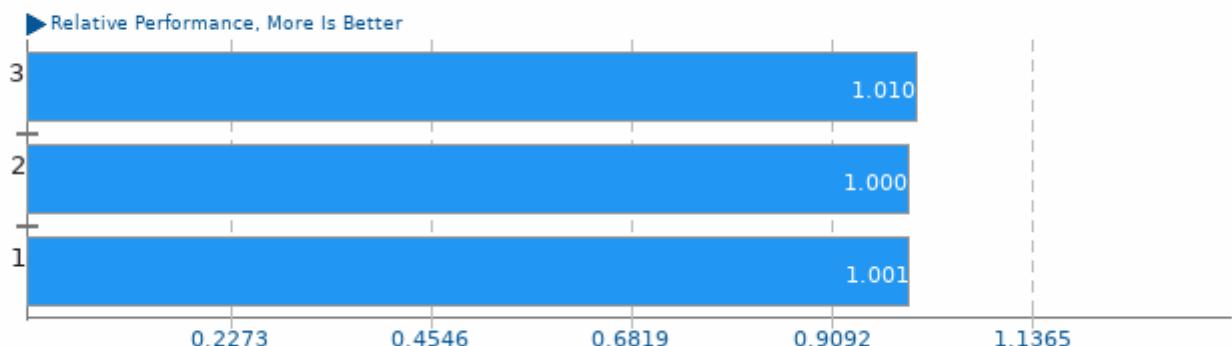
Result Composite - xeon silver april



Geometric mean based upon tests: pts/build-llvm, pts/botan and pts/tjbench

Geometric Mean Of Creator Workloads Tests

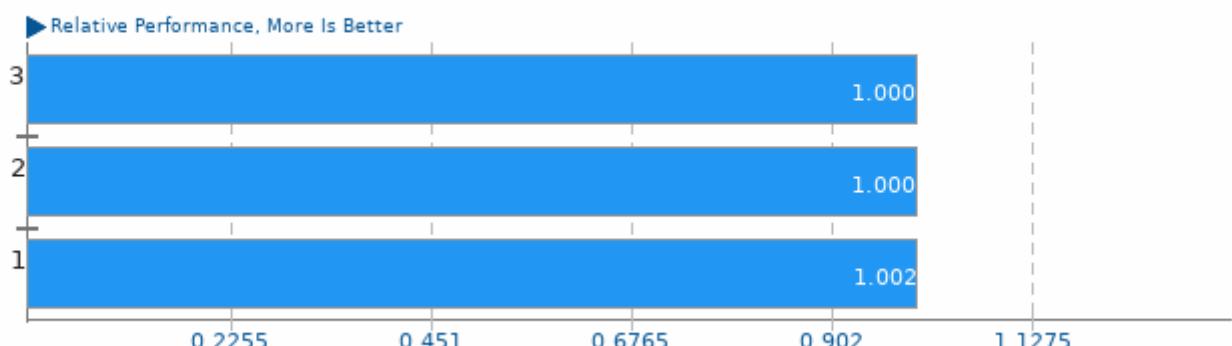
Result Composite - xeon silver april



Geometric mean based upon tests: pts/luxcorerender, pts/tjbench and pts/draco

Geometric Mean Of Cryptography Tests

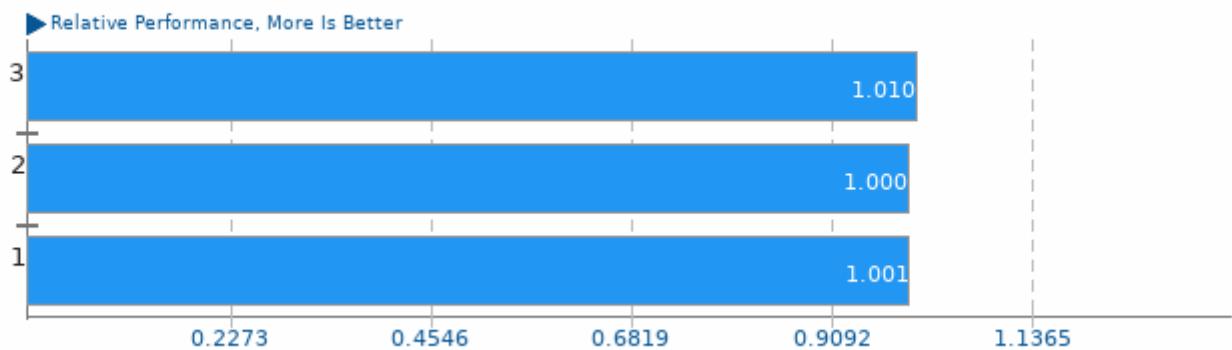
Result Composite - xeon silver april



Geometric mean based upon tests: pts/botan and pts/xmrig

Geometric Mean Of Multi-Core Tests

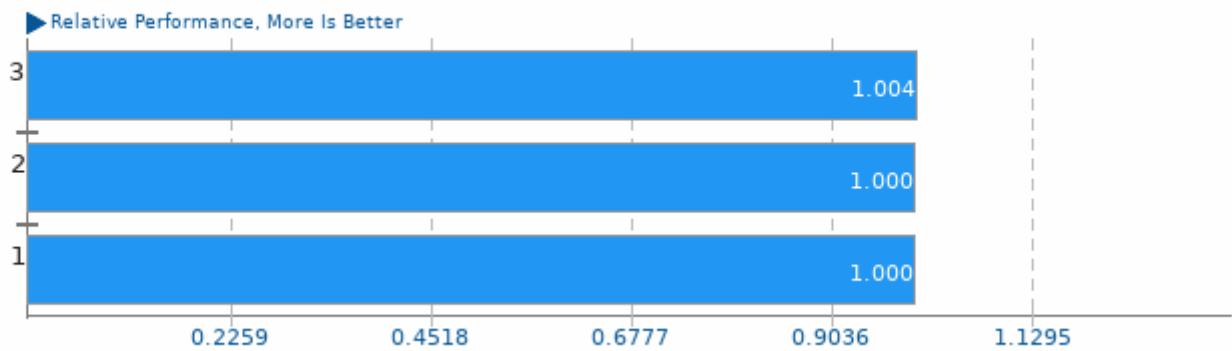
Result Composite - xeon silver april



Geometric mean based upon tests: pts/build-llvm and pts/luxcorerender

Geometric Mean Of NVIDIA GPU Compute Tests

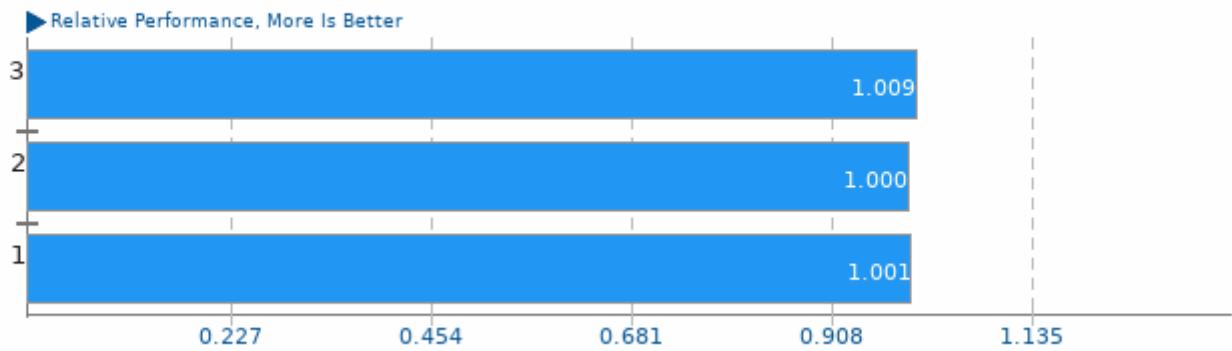
Result Composite - xeon silver april



Geometric mean based upon tests: pts/luxcorerender and pts/viennacl

Geometric Mean Of Server CPU Tests

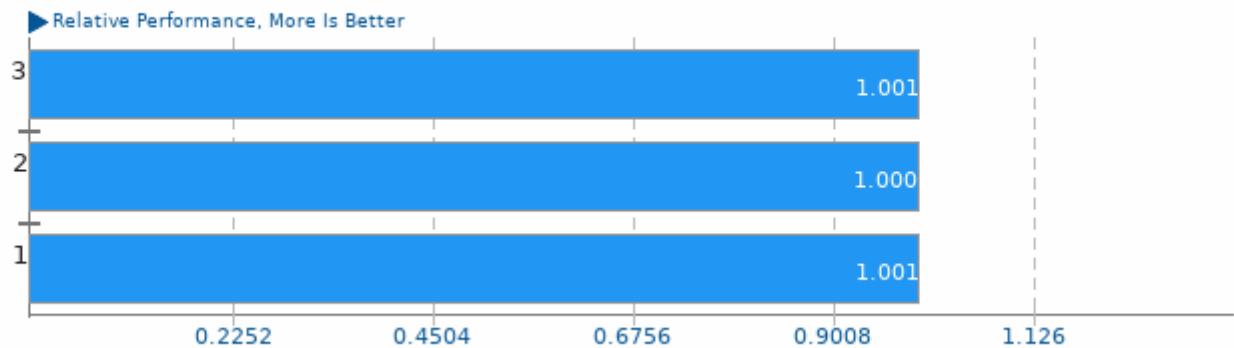
Result Composite - xeon silver april



Geometric mean based upon tests: pts/build-llvm and pts/tjbench

Geometric Mean Of Single-Threaded Tests

Result Composite - xeon silver april



Geometric mean based upon tests: pts/gmpbench, pts/botan and pts/tjbench

This file was automatically generated via the Phoronix Test Suite benchmarking software on Thursday, 2 December 2021 22:42.