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TEST_CPU

2 x Intel Xeon X5670 testing with a HP ProLiant DL380 G7 (P67 BIOS) and AMD ES1000 on Ubuntu 18.04 via the Phoronix Test Suite.

Test Systems:

2 x Intel Xeon E5-2678 v3

Processor: 2 x Intel Xeon E5-2678 v3 @ 3.30GHz (24 Cores), Motherboard: HP ProLiant DL380 Gen9 (P89 BIOS), Chipset: Intel Xeon E7 v3/Xeon, Memory: 8 x 16384 MB DDR4-2133MT/s 752369-081, Disk: 4 x 600GB HUC106060CSS600, Graphics: Matrox MGA G200EH, Monitor: BenQ FP73G, Network: 4 x Broadcom NetXtreme BCM5719 PCIe

OS: Ubuntu 18.04, Kernel: 5.4.0-65-generic (x86_64), Display Server: X Server 1.20.8, Compiler: GCC 7.5.0, File-System: overlayfs, Screen Resolution: 1280x1024

Kernel Notes: Transparent Huge Pages: madvise

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

TEST_CPU

```
--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: 0x44
```

Python Notes: Python 2.7.17 + Python 3.6.9

```
Security Notes: itlb_multihit: KVM: Mitigation of Split huge pages + 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/swaps
barriers and __user pointer sanitization + spectre_v2: Mitigation of Full generic retpoline IPBP: conditional IBRS_FW RSB filling + srbd: Not affected + tsx_async_abort:
Not affected
```

TEST_CPU

Processor: 2 x Intel Xeon X5670 @ 2.93GHz (12 Cores), Motherboard: HP ProLiant DL380 G7 (P67 BIOS), Chipset: Intel 5520 I/O + ICH10, Memory: 8 x 4096 MB DDR3-1333MT/s, Disk: 2 x 512GB LOGICAL VOLUME, Graphics: AMD ES1000, Monitor: BenQ FP73G, Network: 4 x Broadcom NetXtreme II BCM5709

OS: Ubuntu 18.04, Kernel: 5.4.0-65-generic (x86_64), Display Server: X Server 1.20.8, Compiler: GCC 7.5.0, File-System: overlayfs, Screen Resolution: 1024x768

Kernel Notes: Transparent Huge Pages: madvise

```
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: pcc-cpufreq performance - CPU Microcode: 0x1f
```

Python Notes: Python 2.7.17 + Python 3.6.9

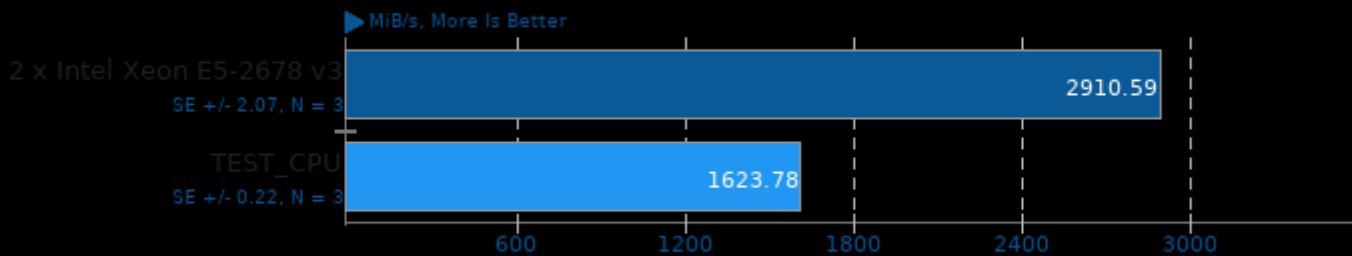
```
Security Notes: itlb_multihit: KVM: Mitigation of Split huge pages + l1tf: Mitigation of PTE Inversion; VMX: conditional cache flushes SMT disabled + mds: Vulnerable: Clear
buffers attempted no microcode; SMT disabled + meltdown: Mitigation of PTI + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1:
Mitigation of usercopy/swaps barriers and __user pointer sanitization + spectre_v2: Mitigation of Full generic retpoline IPBP: conditional IBRS_FW RSB filling + srbd: Not
affected + tsx_async_abort: Not affected
```

	2 x Intel Xeon E5-2678 v3	TEST_CPU
Botan - AES-256 (MiB/s)	2911	1624
Normalized	100%	55.79%
Standard Deviation	0.1%	0%
Botan - AES-256 - Decrypt (MiB/s)	2906	1647
Normalized	100%	56.69%
Standard Deviation	0.2%	0%
BYTE Unix Benchmark - Dhrystone 2 (LPS)	29453836	23122549
Normalized	100%	78.5%
Standard Deviation	2.5%	2.9%
Crafty - Elapsed Time (Nodes/s)	6225526	5398378
Normalized	100%	86.71%
Standard Deviation	0.4%	0.1%
Gcrypt Library (sec)	288.941	382.943
Normalized	100%	75.45%
Standard Deviation	0%	0.3%
GraphicsMagick - HWB Color Space (Iterations/min)	549	504
Normalized	100%	91.8%
Standard Deviation	1.6%	2.3%
Gzip Compression - L.S.T.A.T.t.g (sec)	42.700	46.223
Normalized	100%	92.38%
Standard Deviation	0.3%	0.5%
HPC Challenge - G-HPL (GFLOPS)	170.91867	45.71312
Normalized	100%	26.75%

	Standard Deviation	1.6%	8.2%
Numpy Benchmark (Score)	223.65	144.04	
	Normalized	100%	64.4%
	Standard Deviation	0.5%	0.3%
Timed HMMer Search - P.D.S (sec)	190.427	247.816	
	Normalized	100%	76.84%
	Standard Deviation	0.2%	2.2%
Timed Linux Kernel Compilation - Time To Compile	62.578	129.795	
	Normalized	100%	48.21%
	Standard Deviation	2.3%	0.9%
Timed MAFFT Alignment - M.S.A - LSU RNA (sec)	13.719	20.011	
	Normalized	100%	68.56%
	Standard Deviation	1.8%	0.8%

Botan 2.17.3

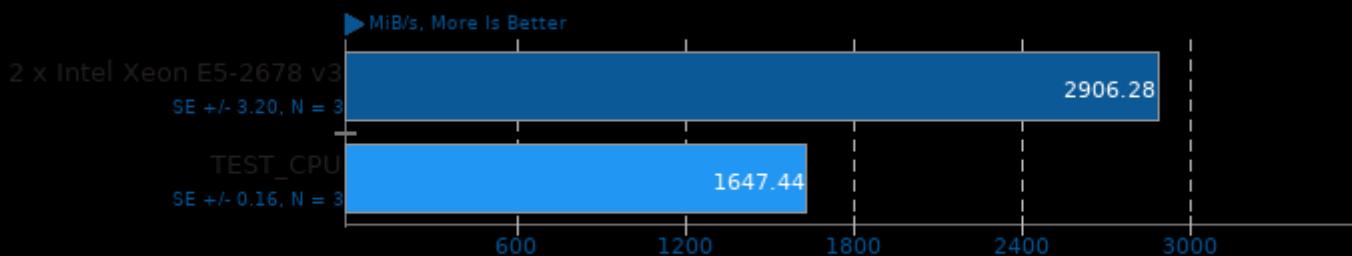
Test: AES-256



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

Botan 2.17.3

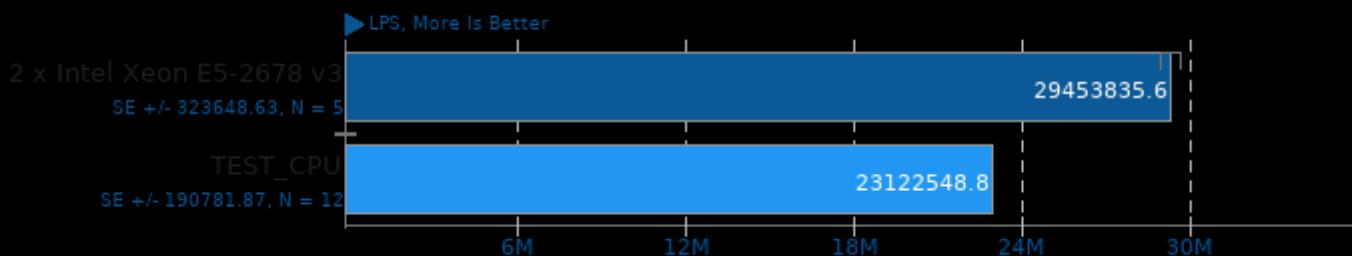
Test: AES-256 - Decrypt



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

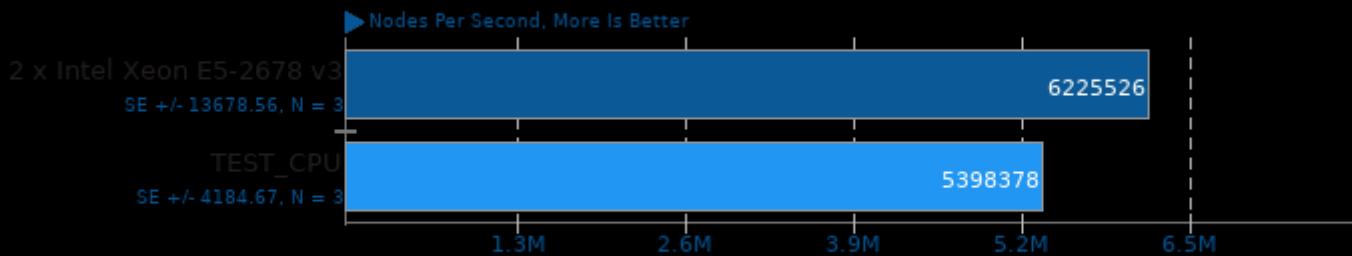
BYTE Unix Benchmark 3.6

Computational Test: Dhrystone 2



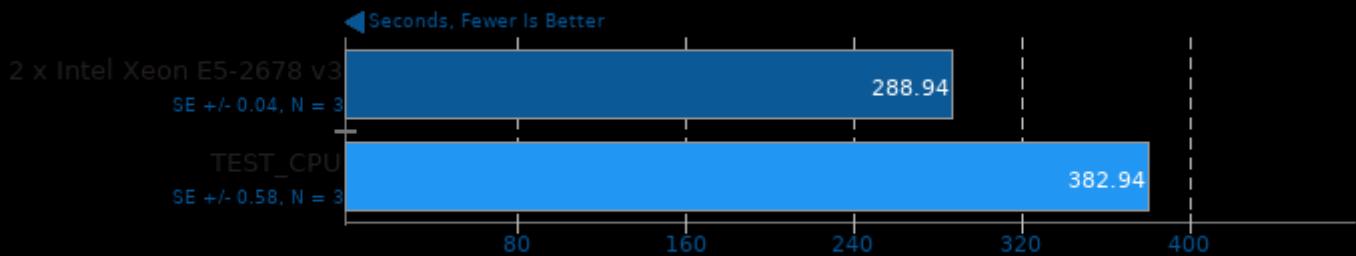
Crafty 25.2

Elapsed Time



1. (CC) gcc options: -pthread -stdc++ -fprofile-use -lm

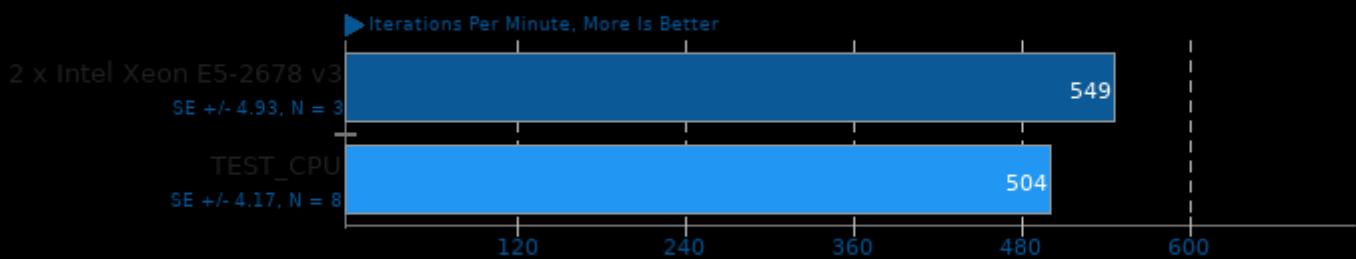
Gcrypt Library 1.9



1. (CC) gcc options: -O2 -fvisibility=hidden

GraphicsMagick 1.3.33

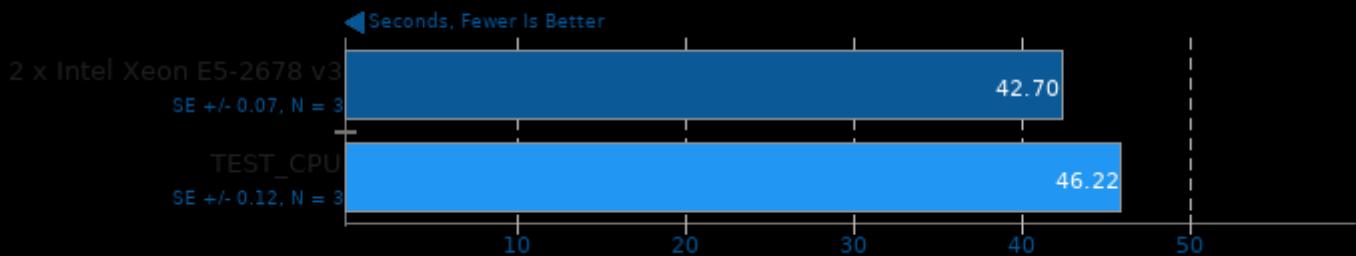
Operation: HWB Color Space



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

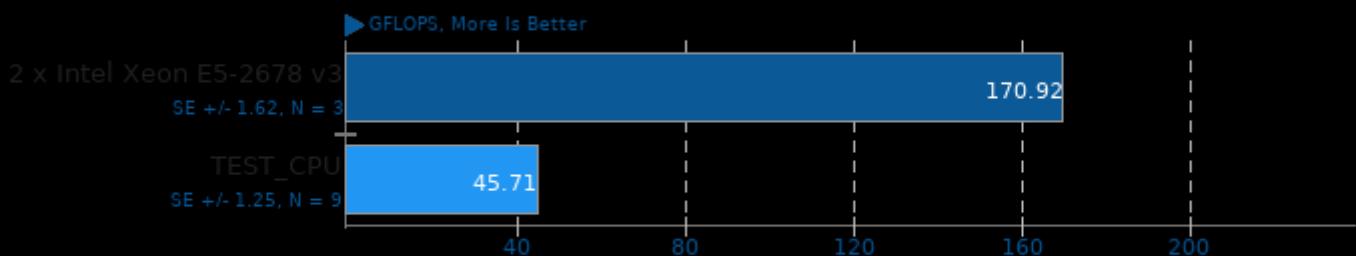
Gzip Compression

Linux Source Tree Archiving To .tar.gz



HPC Challenge 1.5.0

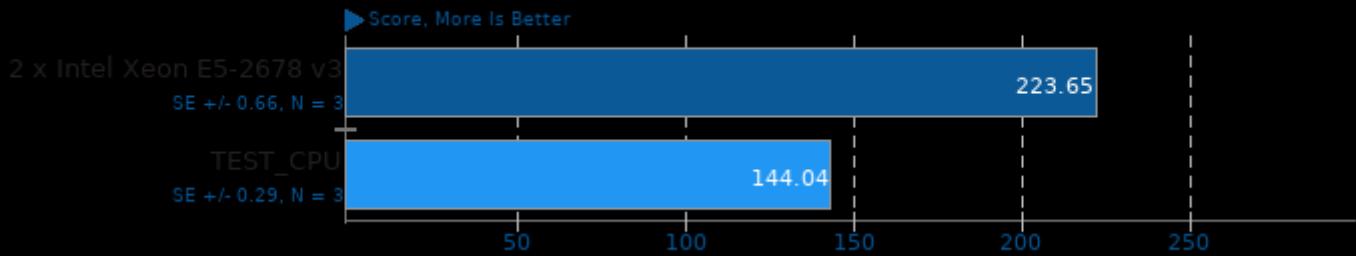
Test / Class: G-HPL



1. (CC) gcc options: -lblas -lm -pthread -lmpi -fomit-frame-pointer -funroll-loops
2. ATLAS + Open MPI 2.1.1

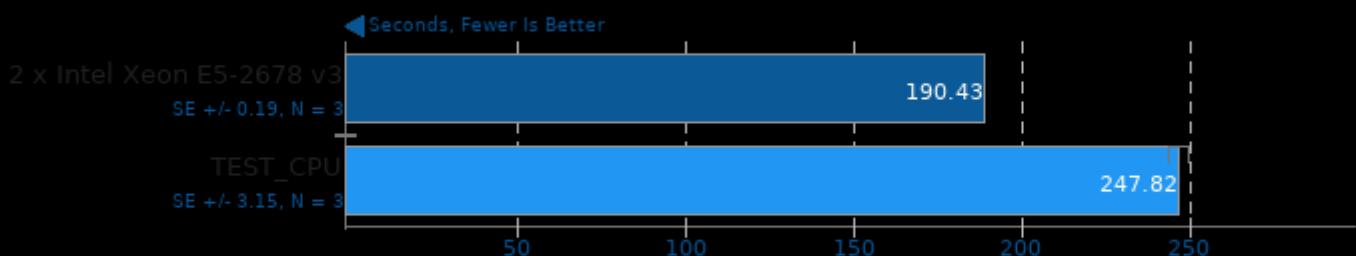
TEST_CPU

Numpy Benchmark



Timed HMMer Search 3.3.2

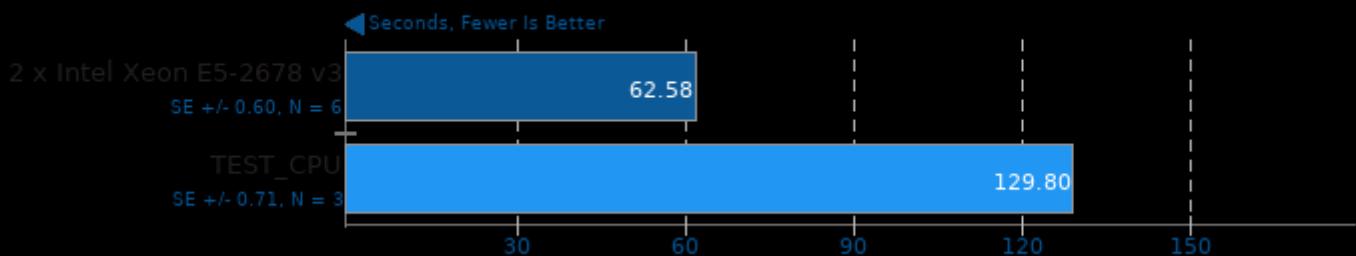
Pfam Database Search



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

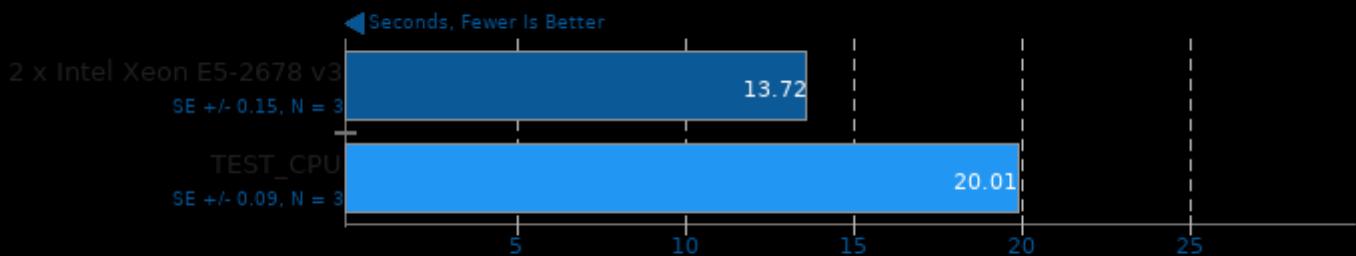
Timed Linux Kernel Compilation 5.10.20

Time To Compile



Timed MAFFT Alignment 7.471

Multiple Sequence Alignment - LSU RNA

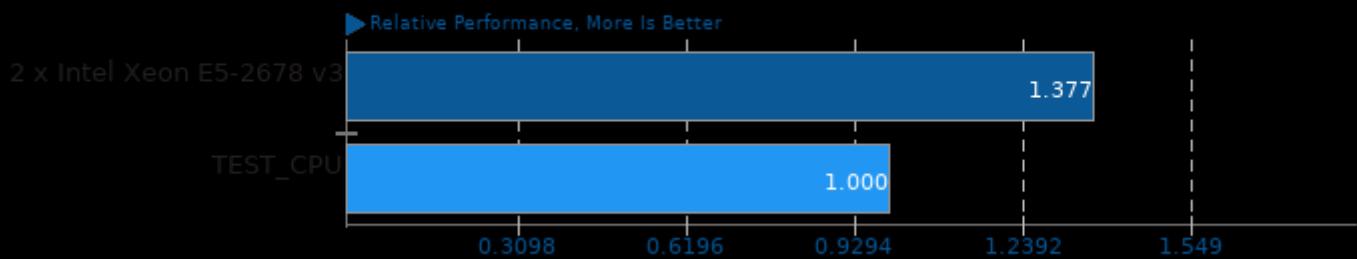


1. (CC) gcc options: -std=c99 -O3 -lm -lpthread

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

Geometric Mean Of Bioinformatics Tests

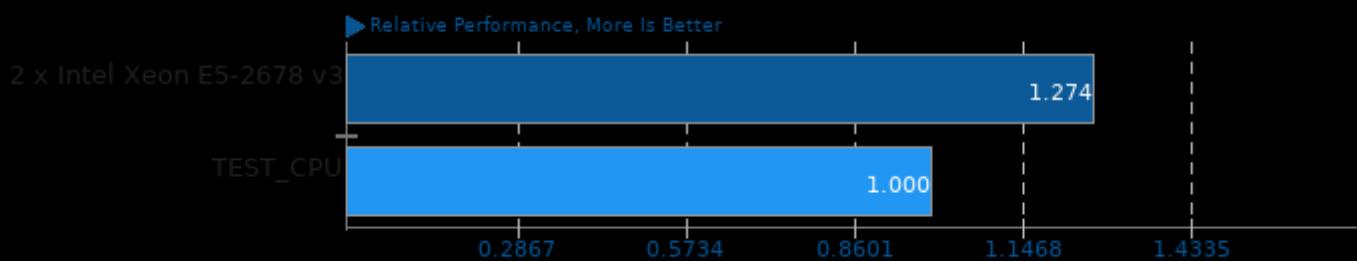
Result Composite - TEST_CPU



Geometric mean based upon tests: pts/hmmer and pts/mafft

Geometric Mean Of C/C++ Compiler Tests

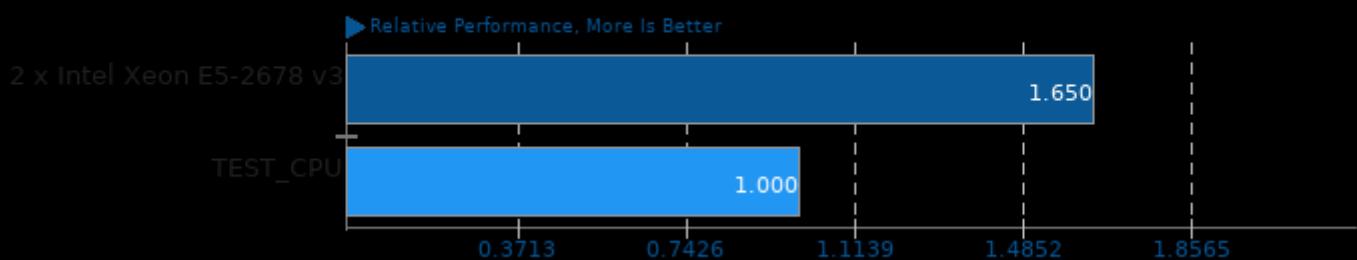
Result Composite - TEST_CPU



Geometric mean based upon tests: pts/mafft, pts/graphics-magick and pts/hmmer

Geometric Mean Of CPU Massive Tests

Result Composite - TEST_CPU

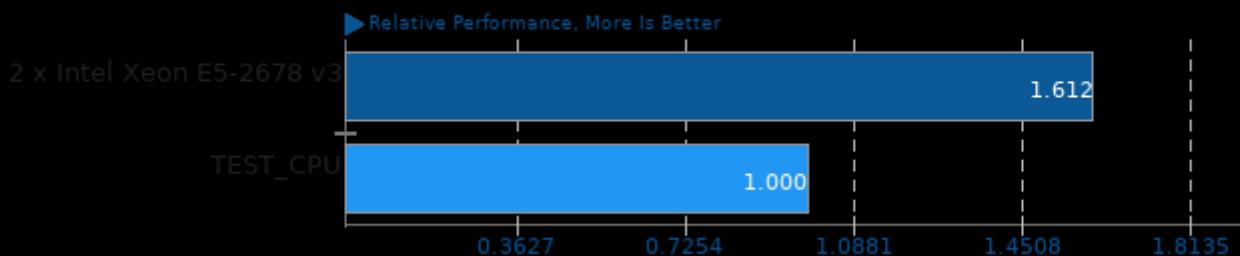


Geometric mean based upon tests: pts/build-linux-kernel, pts/crafty, pts/graphics-magick, pts/hmmer, pts/hpcc, pts/mafft, pts/numpy and pts/botan

TEST_CPU

Geometric Mean Of Cryptography Tests

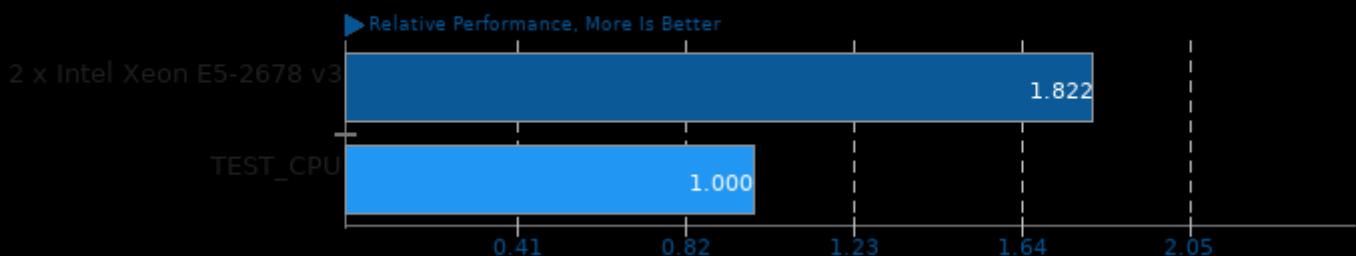
Result Composite - TEST_CPU



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

Geometric Mean Of HPC - High Performance Computing Tests

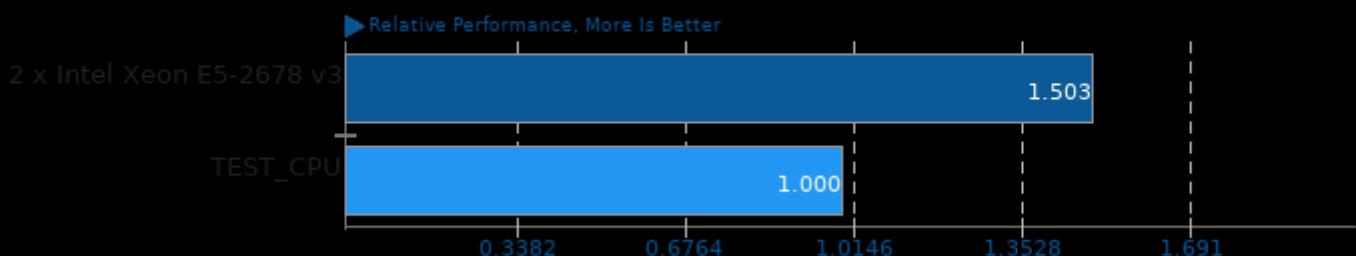
Result Composite - TEST_CPU



Geometric mean based upon tests: pts/hpcc, pts/hmmer, pts/mafft and pts/numpy

Geometric Mean Of Multi-Core Tests

Result Composite - TEST_CPU



Geometric mean based upon tests: pts/graphics-magick and pts/build-linux-kernel

Geometric Mean Of OpenMPI Tests

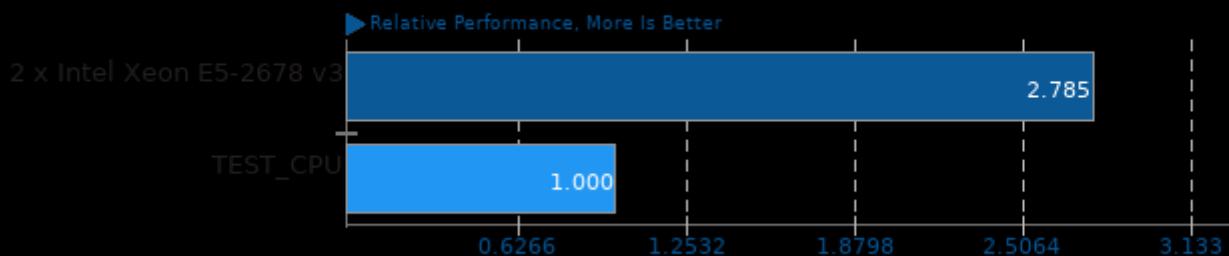
Result Composite - TEST_CPU



Geometric mean based upon tests: pts/hpcc and pts/hmmer

TEST_CPU

Geometric Mean Of Programmer / Developer System Benchmarks Tests Result Composite - TEST_CPU



Geometric mean based upon tests: pts/build-linux-kernel and pts/hpcc

Geometric Mean Of Scientific Computing Tests

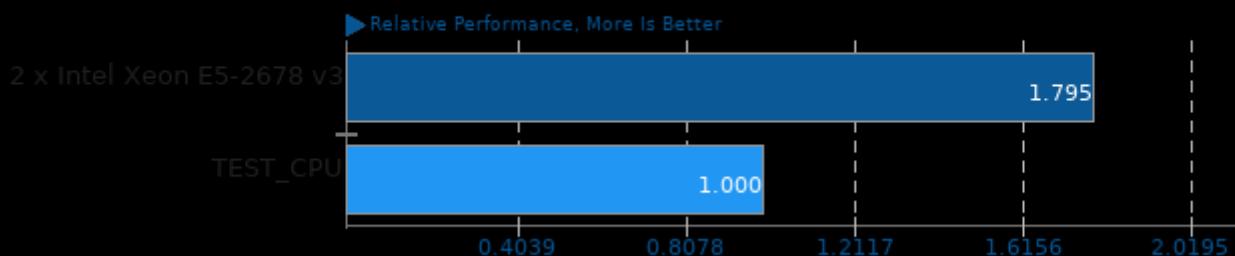
Result Composite - TEST_CPU



Geometric mean based upon tests: pts/hpcc, pts/hmmer and pts/mafft

Geometric Mean Of Server CPU Tests

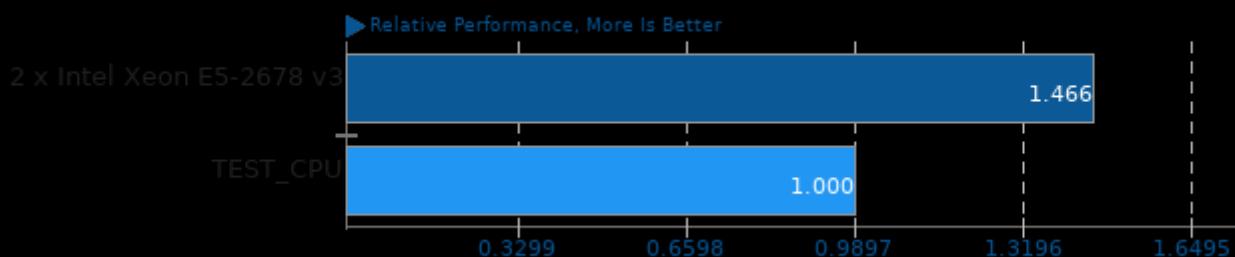
Result Composite - TEST_CPU



Geometric mean based upon tests: pts/build-linux-kernel and pts/numpy

Geometric Mean Of Single-Threaded Tests

Result Composite - TEST_CPU



Geometric mean based upon tests: pts/byte, pts/botan, pts/numpy and pts/compress-gzip

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