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md xeon

Intel Core i7-10700T testing on Ubuntu 20.10 via the Phoronix Test Suite.

Automated Executive Summary

1 had the most wins, coming in first place for 50% of the tests.

Based on the geometric mean of all complete results, the fastest (1) was 1.002x the speed of the slowest (2). 3 was 0.999x the speed of 1 and 2 was 0.999x the speed of 3.

Test Systems:

1

2

3

Processor: Intel Core i7-10700T @ 4.50GHz (8 Cores / 16 Threads), Motherboard: Logic Supply RXM-181 (Z01-0002A026 BIOS), Chipset: Intel Comet Lake PCH, Memory: 32GB, Disk: 256GB TS256GMTS800, Graphics: (1200MHz), Audio: Realtek ALC233, Network: Intel I219-LM + Intel I210

OS: Ubuntu 20.10, Kernel: 5.8.0-43-generic (x86_64), Desktop: GNOME Shell 3.38.2, Display Server: X Server 1.20.9, Vulkan: 1.2.145, Compiler: GCC 10.2.0, File-System: ext4

Kernel Notes: Transparent Huge Pages: madvise

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++,m2 --enable-libphobos-checking=release --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-10-JvwpWM/gcc-10-10.2.0/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-10-JvwpWM/gcc-10-10.2.0/debian/tmp-gcn/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: 0xe0 - ThermalD 2.3

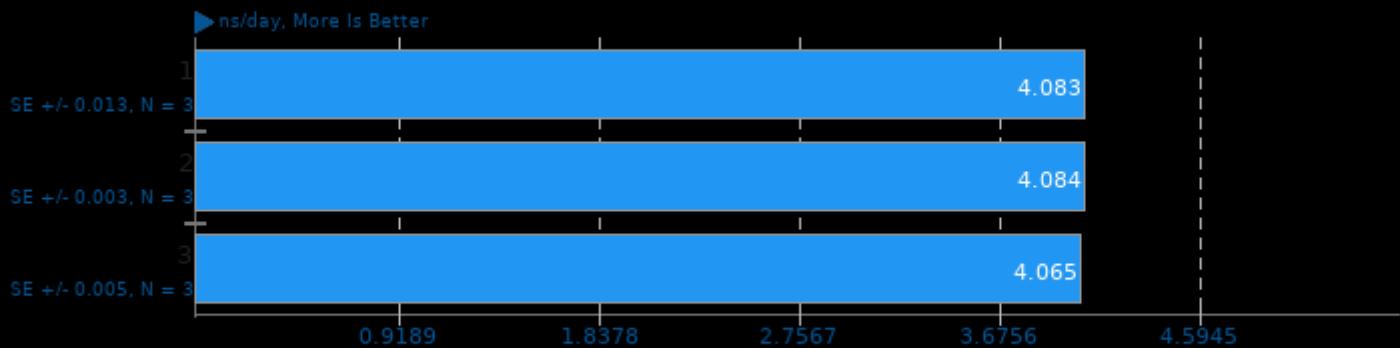
Security Notes: itlb_multihit: KVM: Mitigation of VMX disabled + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swaps barriers and __user pointer sanitization + spectre_v2: Mitigation of Enhanced IBRS IPB: conditional RSB filling + srbs: Not affected + tsx_async_abort: Not affected

	1	2	3
LAMMPS Molecular Dynamics Simulator - 20k Atoms (ns/day)	4.083	4.084	4.065
Normalized	99.98%	100%	99.53%
Standard Deviation	0.5%	0.1%	0.2%
OpenFOAM - Motorbike 60M (sec)	1309	1315	1313
Normalized	100%	99.58%	99.69%
Standard Deviation	0.4%	0.2%	0.2%
Incompact3D - Cylinder (sec)	567.994100	570.559957	569.465434
Normalized	100%	99.55%	99.74%
Standard Deviation	0.3%	0.4%	0.3%
CP2K Molecular Dynamics - Fayalite-FIST	1677	1660	1656
Data (sec)			
Normalized	98.77%	99.82%	100%
GROMACS - water_GMX50_bare (Ns/Day)	0.651	0.652	0.651
Normalized	99.85%	100%	99.85%
Standard Deviation	0.3%	0.3%	0.3%
OpenFOAM - Motorbike 30M (sec)	250.98	256.49	254.75
Normalized	100%	97.85%	98.52%
Standard Deviation	1.1%	2.3%	1.7%
CloverLeaf - L.E.H (sec)	160.96	161.16	161.04
Normalized	100%	99.88%	99.95%
Standard Deviation	0.1%	0%	0.2%
NAMD - ATPase Simulation - 327,506 Atoms	3.21167	3.21563	3.19349
(days/ns)			
Normalized	99.43%	99.31%	100%
Standard Deviation	0.5%	0.2%	0.3%
Pennant - sedovbig (Hydro Cycle Time - sec)	119.0813	119.5322	119.1626
Normalized	100%	99.62%	99.93%
Standard Deviation	0.9%	0.9%	1%
Pennant - leblancbig (Hydro Cycle Time - sec)	72.64834	72.76168	72.87373
Normalized	100%	99.84%	99.69%
Standard Deviation	0.3%	0.5%	0.2%

miniFE - Small (CG Mflops)	4697	4698	4699
Normalized	99.95%	99.97%	100%
Standard Deviation	0.3%	0.3%	0.3%
Dolfyn - C.F.D (sec)	22.141	22.029	22.184
Normalized	99.49%	100%	99.3%
Standard Deviation	0.7%	0%	0.5%
LULESH (z/s)	4551	4550	4571
Normalized	99.56%	99.53%	100%
Standard Deviation	1.9%	2.3%	2.2%
LAMMPS Molecular Dynamics Simulator - Rhodopsin Protein (ns/day)	5.691	5.639	5.670
Normalized	100%	99.09%	99.63%
Standard Deviation	0.3%	0.9%	0.6%

LAMMPS Molecular Dynamics Simulator 29Oct2020

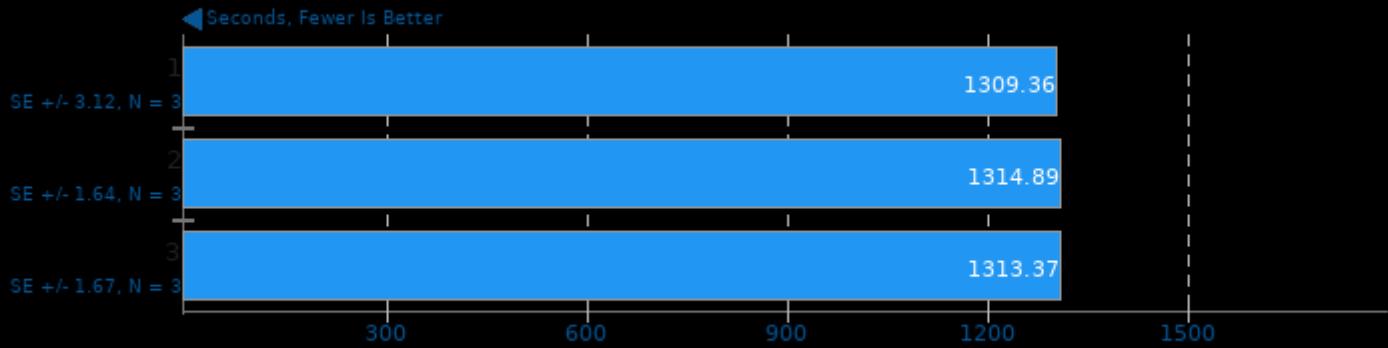
Model: 20k Atoms



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

OpenFOAM 8

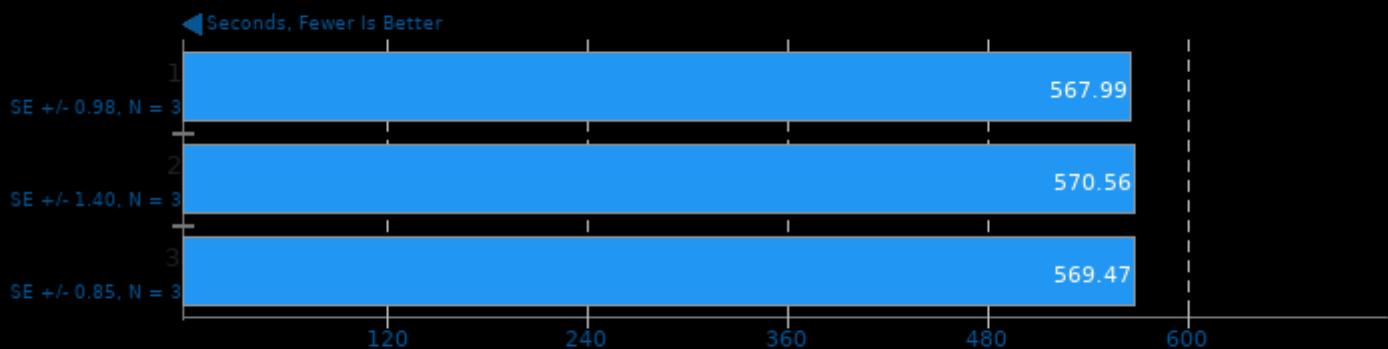
Input: Motorbike 60M



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

Incompact3D 2020-09-17

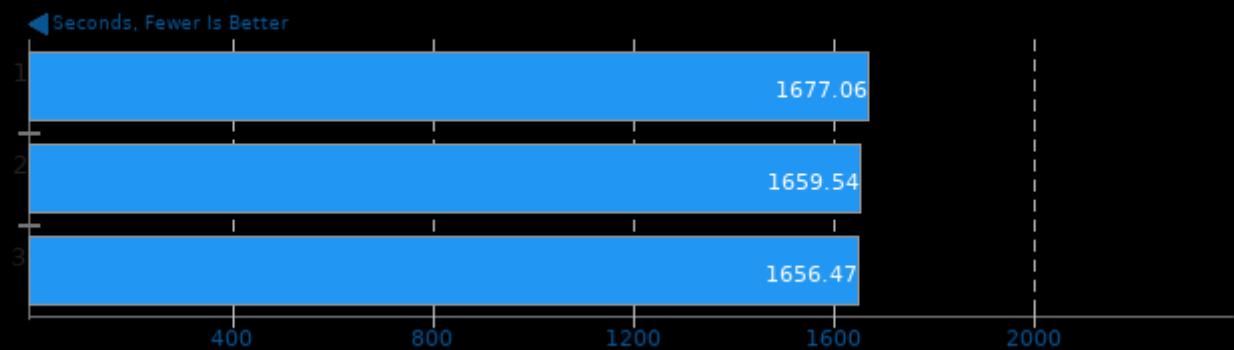
Input: Cylinder



1. (F9X) gfortran options: -cpp -funroll-loops -floop-optimize -fcray-pointer -fbacktrace -pthread -lmpi_usempif08 -lmpi_mpifh -lmpi -lopen-rte -lopen-pal

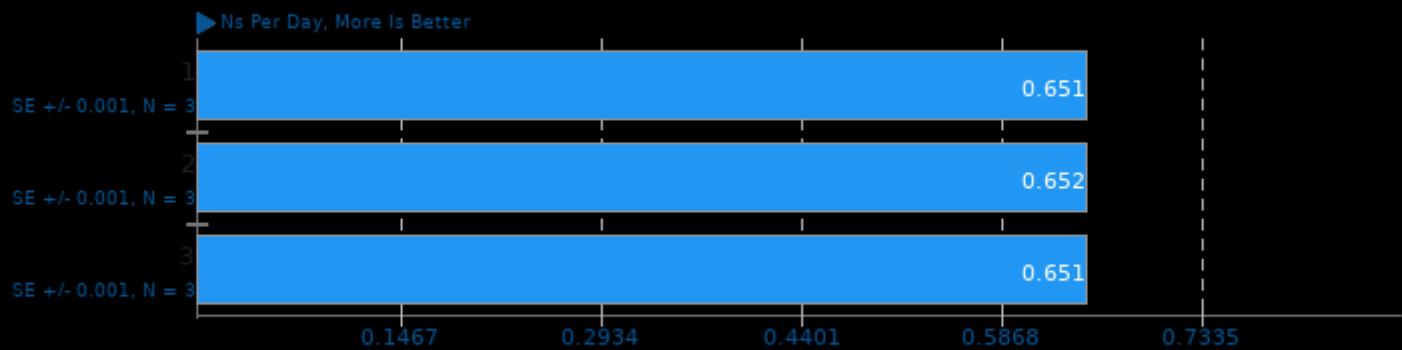
CP2K Molecular Dynamics 8.1

Fayalite-FIST Data



GROMACS 2021

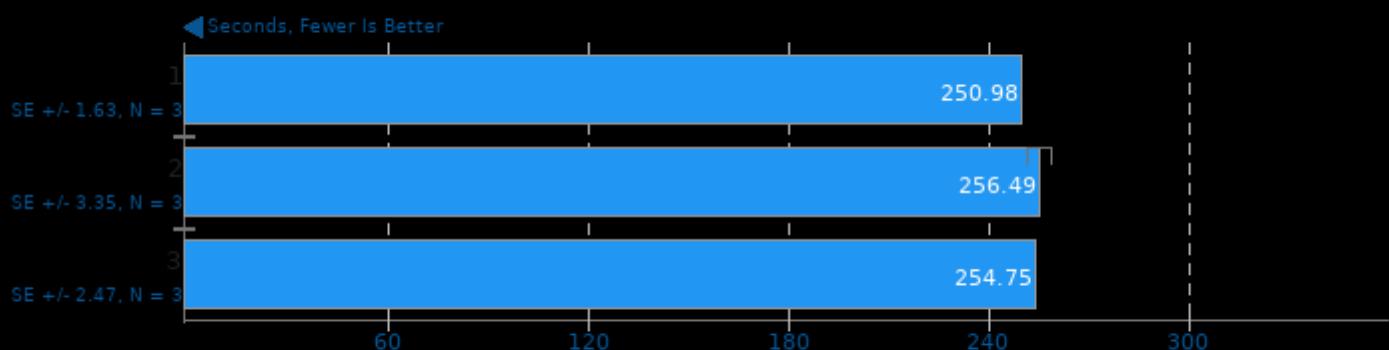
Input: water_GMX50_bare



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

OpenFOAM 8

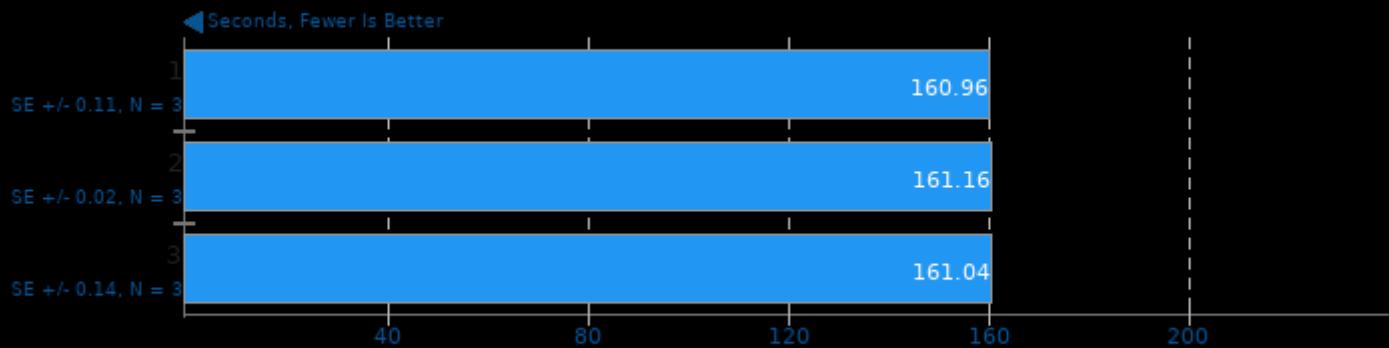
Input: Motorbike 30M



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

CloverLeaf

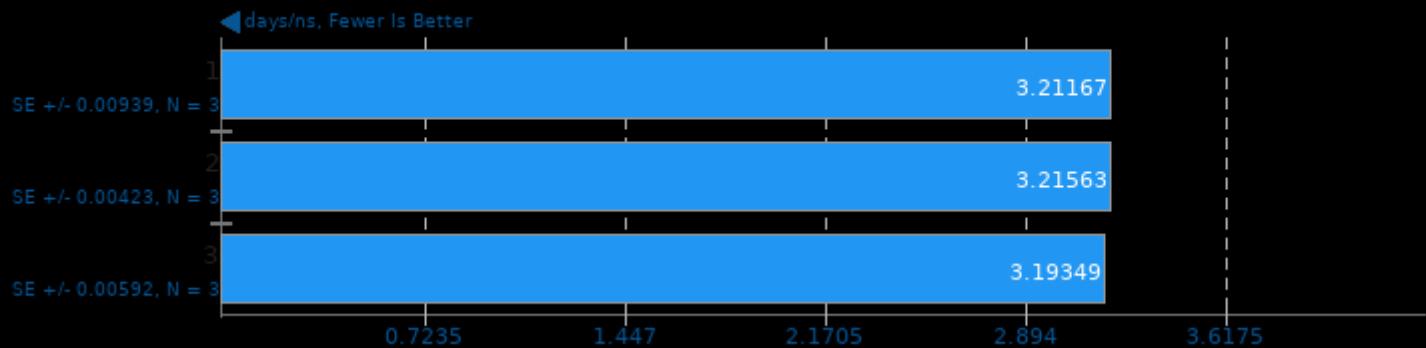
Lagrangian-Eulerian Hydrodynamics



1. (F9X) gfortran options: -O3 -march=native -funroll-loops -fopenmp

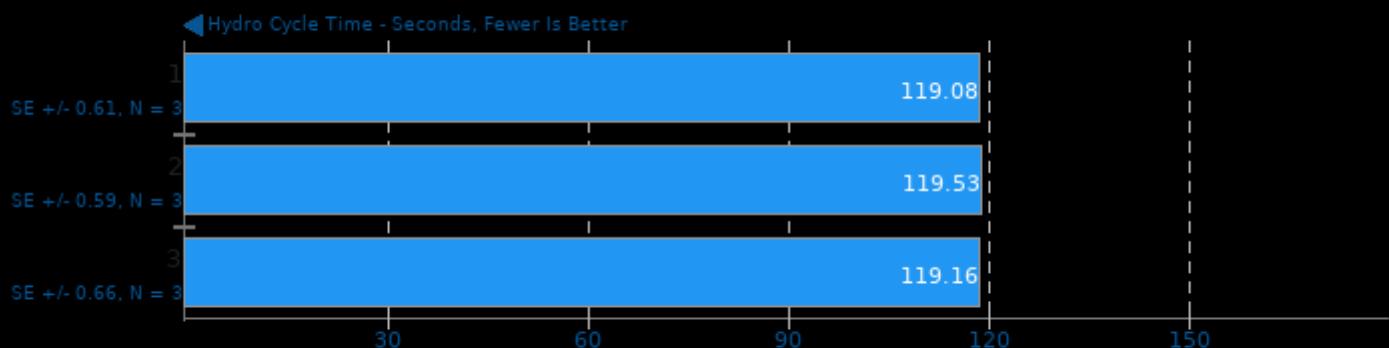
NAMD 2.14

ATPase Simulation - 327,506 Atoms



Pennant 1.0.1

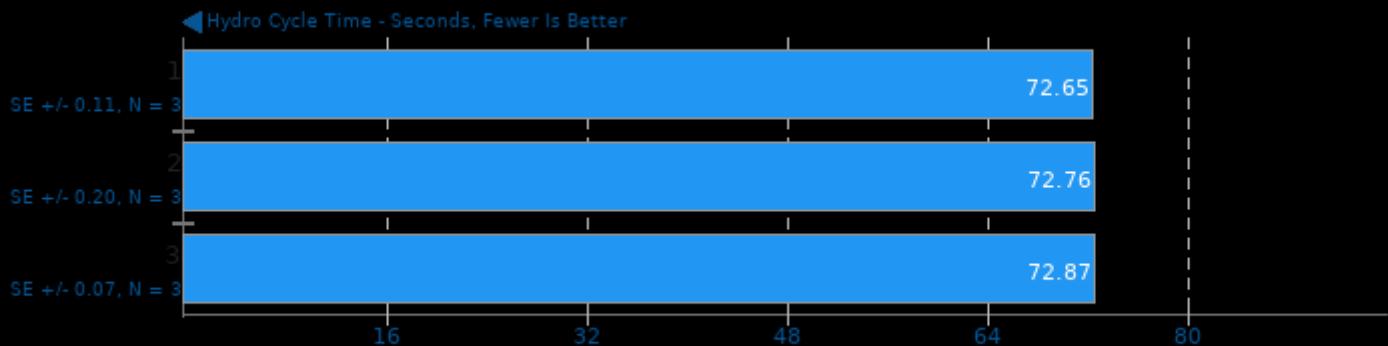
Test: sedovbig



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

Pennant 1.0.1

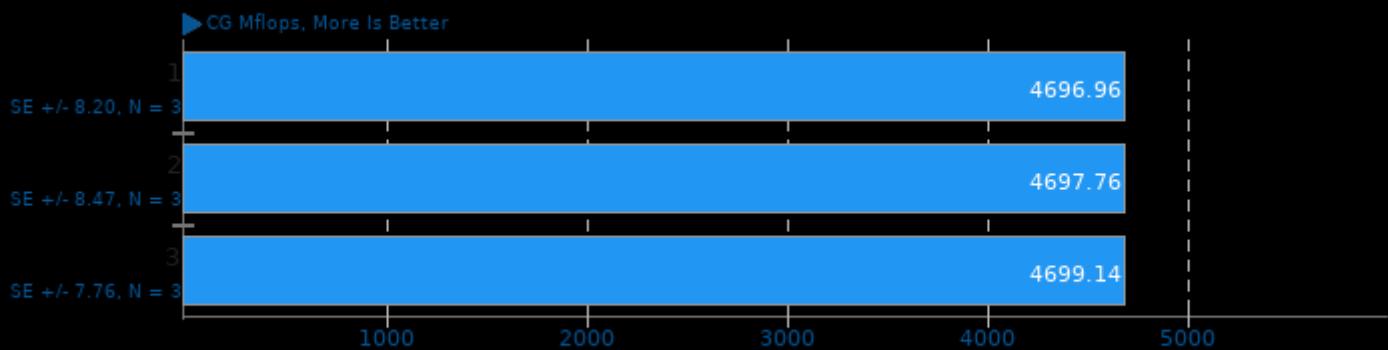
Test: leblancbig



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

miniFE 2.2

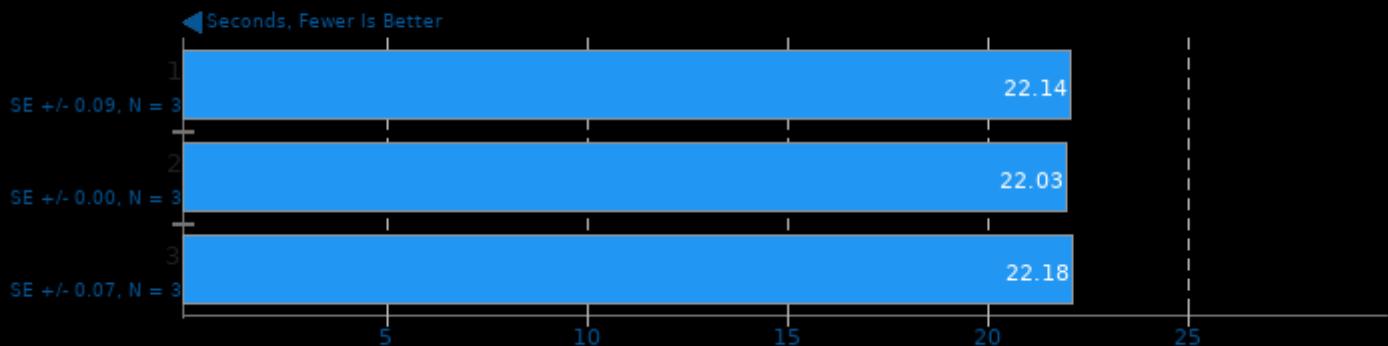
Problem Size: Small



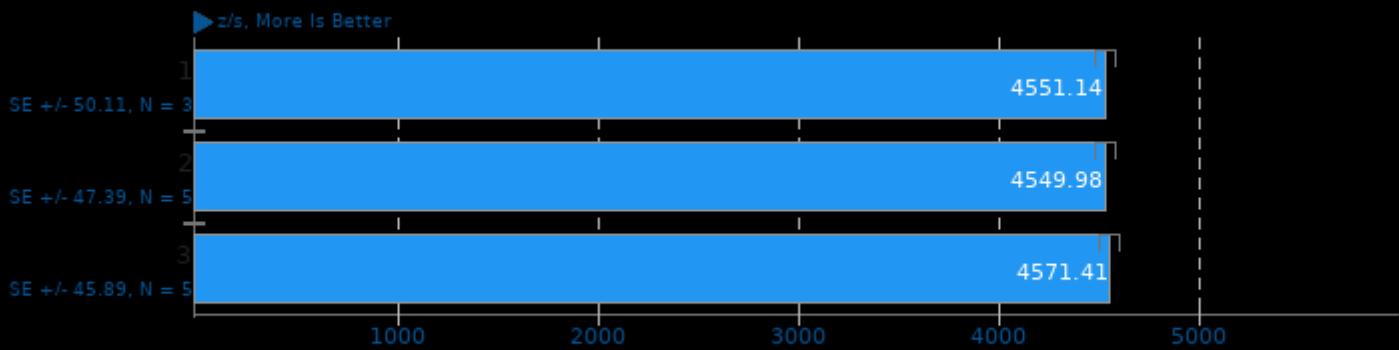
1. (CXX) g++ options: -O3 -fopenmp -pthread -lmpi_cxx -lmpi

Dolfyn 0.527

Computational Fluid Dynamics



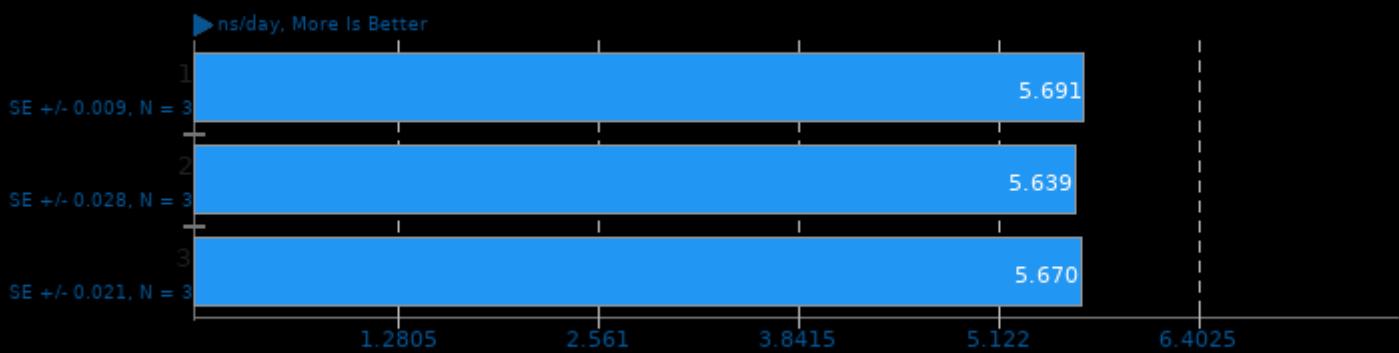
LULESH 2.0.3



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

LAMMPS Molecular Dynamics Simulator 29Oct2020

Model: Rhodopsin Protein

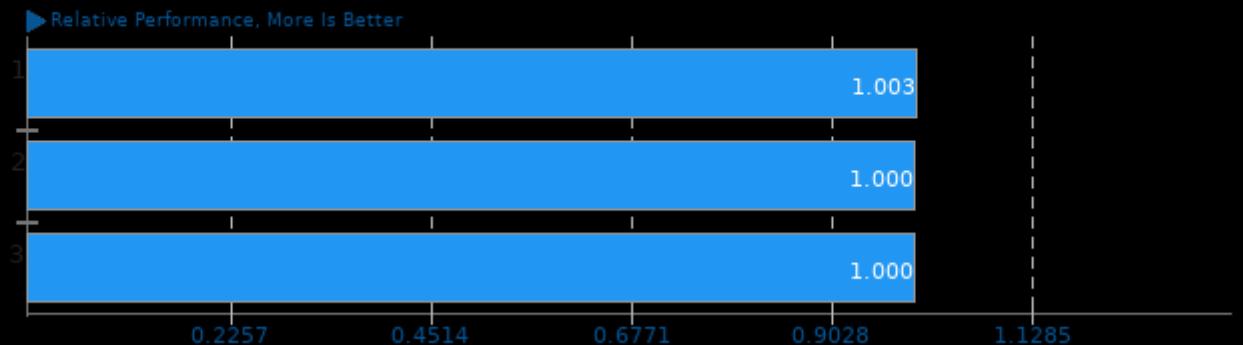


1. (CXX) g++ options: -O3 -pthread -lm

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

Geometric Mean Of C/C++ Compiler Tests

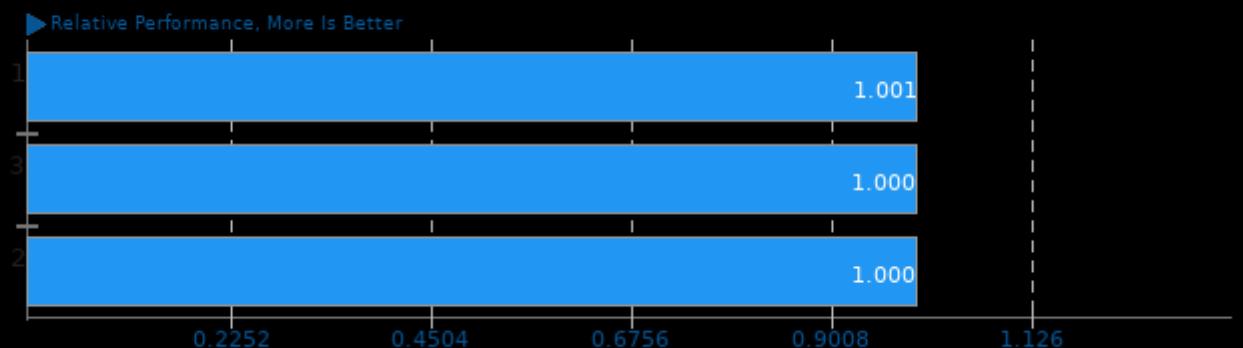
Result Composite - md xeon



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

Geometric Mean Of CPU Massive Tests

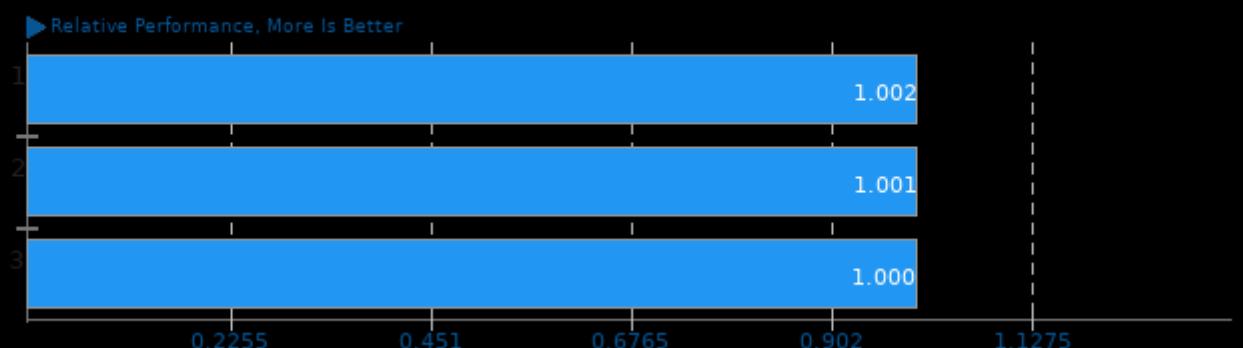
Result Composite - md xeon



Geometric mean based upon tests: pts/cloverleaf, pts/dolfyn, pts/lammps and pts/namd

Geometric Mean Of Fortran Tests

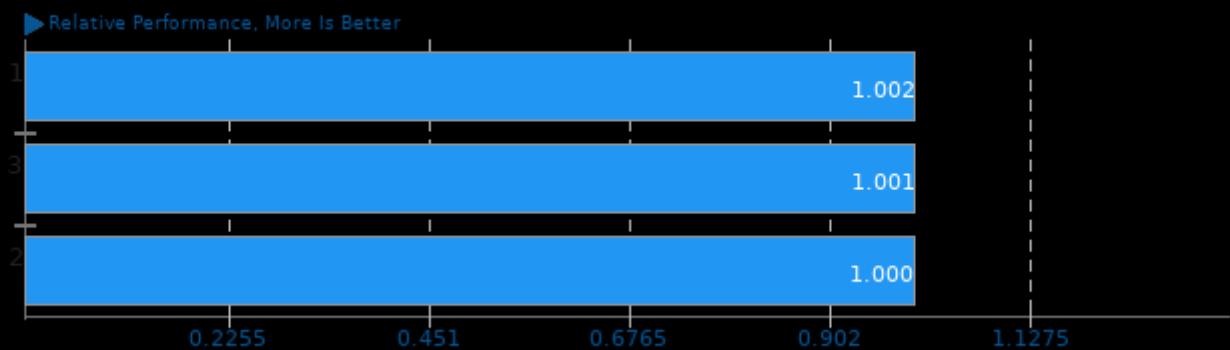
Result Composite - md xeon



Geometric mean based upon tests: pts/lammps, pts/incompact3d, pts/cloverleaf and pts/dolfyn

Geometric Mean Of HPC - High Performance Computing Tests

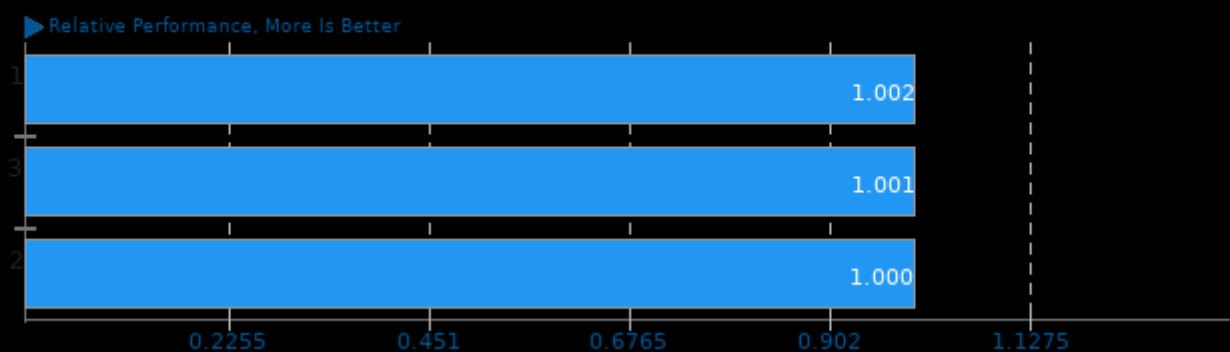
Result Composite - md xeon



Geometric mean based upon tests: pts/namd, pts/gromacs, pts/cp2k, pts/dolfin, pts/cloverleaf, pts/lammps, pts/minife, pts/lulesh, pts/pennant, pts/incompact3d and pts/openfoam

Geometric Mean Of Molecular Dynamics Tests

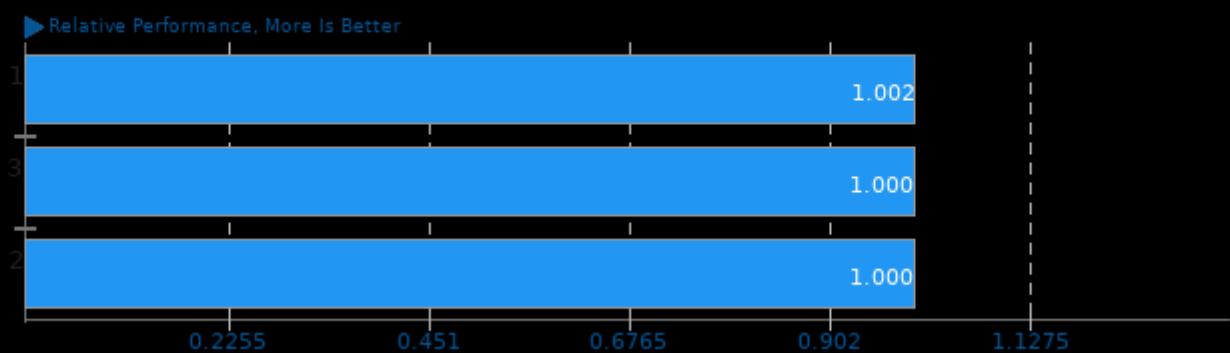
Result Composite - md xeon



Geometric mean based upon tests: pts/namd, pts/gromacs, pts/cp2k, pts/dolfin, pts/cloverleaf, pts/lammps, pts/minife, pts/lulesh, pts/pennant, pts/incompact3d and pts/openfoam

Geometric Mean Of MPI Benchmarks Tests

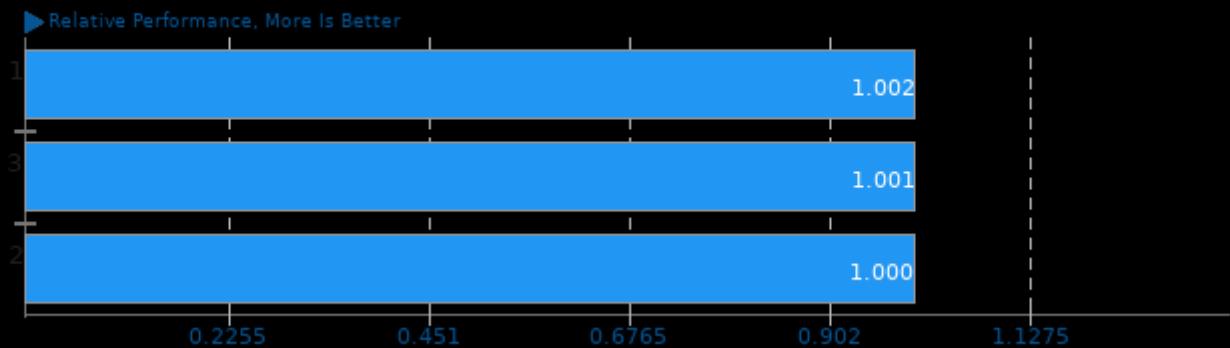
Result Composite - md xeon



Geometric mean based upon tests: pts/lammps, pts/incompact3d, pts/gromacs, pts/pennant and pts/minife

Geometric Mean Of Multi-Core Tests

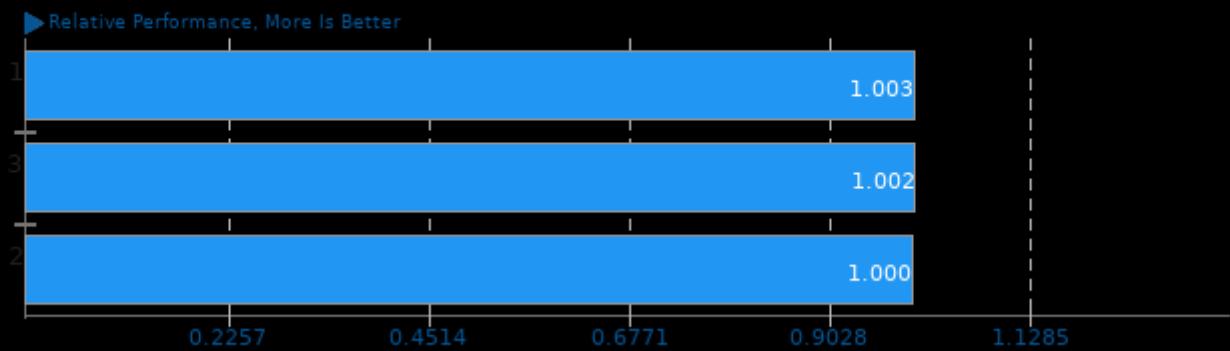
Result Composite - md xeon



Geometric mean based upon tests: pts/pennant, pts/namd, pts/lammps and pts/gromacs

Geometric Mean Of OpenMPI Tests

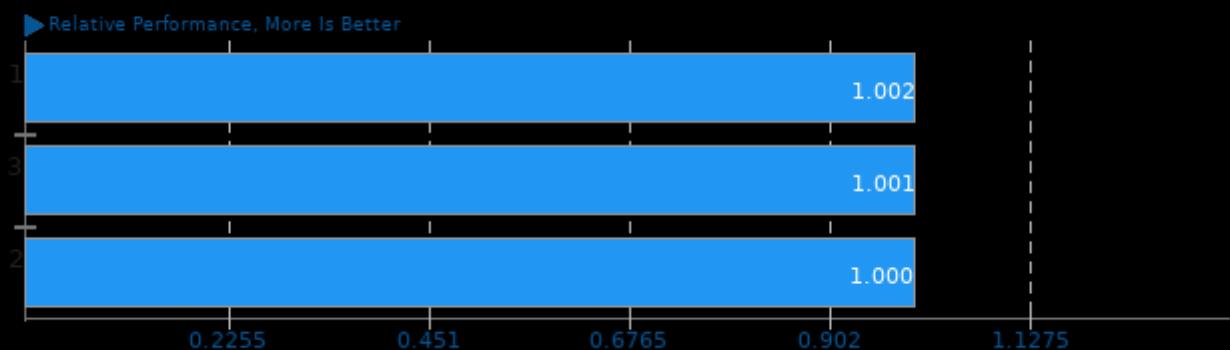
Result Composite - md xeon



Geometric mean based upon tests: pts/lammps, pts/openfoam, pts/incompact3d, pts/cp2k, pts/gromacs, pts/cloverleaf, pts/pennant, pts/minife and pts/lulesh

Geometric Mean Of Scientific Computing Tests

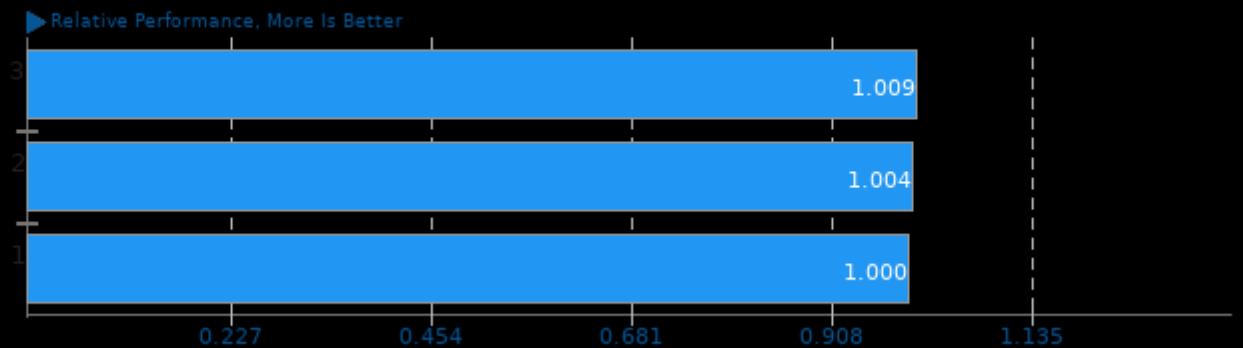
Result Composite - md xeon



Geometric mean based upon tests: pts/namd, pts/gromacs, pts/cp2k, pts/dolfin, pts/cloverleaf, pts/lammps, pts/minife, pts/lulesh, pts/pennant, pts/incompact3d and pts/openfoam

Geometric Mean Of Server CPU Tests

Result Composite - md xeon



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

This file was automatically generated via the Phoronix Test Suite benchmarking software on Friday, 29 March 2024 08:06.