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5800X Thurs

AMD Ryzen 7 5800X 8-Core testing with a ASRock X570 Pro4 (P3.40 BIOS) and Sapphire AMD Radeon RX 470/480/570/570X/580/580X/590 8GB on Ubuntu 20.10 via the Phoronix Test Suite.

Automated Executive Summary

2 had the most wins, coming in first place for 52% of the tests.

Based on the geometric mean of all complete results, the fastest (2) was 1.004x the speed of the slowest (3). 1 was 0.998x the speed of 2 and 3 was 0.999x the speed of 1.

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

rav1e (Speed: 10) at 1.064x
CloverLeaf (Lagrangian-Eulerian Hydrodynamics) at 1.044x
Mobile Neural Network (Model: inception-v3) at 1.023x
TNN (Target: CPU - Model: SqueezeNet v1.1) at 1.016x
rav1e (Speed: 6) at 1.015x
Mobile Neural Network (Model: SqueezeNetV1.0) at 1.015x
rav1e (Speed: 5) at 1.013x
Mobile Neural Network (Model: mobilenet-v1-1.0) at 1.009x
TNN (Target: CPU - Model: MobileNet v2) at 1.008x

RELION (Test: Basic - Device: CPU) at 1.006x.

Test Systems:

1

2

3

Processor: AMD Ryzen 7 5800X 8-Core @ 3.80GHz (8 Cores / 16 Threads), Motherboard: ASRock X570 Pro4 (P3.40 BIOS), Chipset: AMD Starship/Matisse, Memory: 16GB, Disk: 1000GB Sabrent Rocket 4.0 Plus, Graphics: Sapphire AMD Radeon RX 470/480/570/570X/580/580X/590 8GB (1560/2100MHz), Audio: AMD Ellesmere HDMI Audio, Monitor: LG Ultra HD, Network: Intel I211

OS: Ubuntu 20.10, Kernel: 5.11.0-rc1-phx (x86_64) 20201228, Desktop: GNOME Shell 3.38.1, Display Server: X Server 1.20.9, Display Driver: modesetting 1.20.9, OpenGL: 4.6 Mesa 20.2.1 (LLVM 11.0.0), Vulkan: 1.2.131, Compiler: GCC 10.2.0, 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++,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: acpi-cpufreq schedutil (Boost: Enabled) - CPU Microcode: 0xa201009
Python Notes: Python 3.8.6
Security Notes: itlb_multihit: Not affected + 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 Full AMD retpoline IBPB: conditional IBRS_FW STIBP: always-on RSB filling + srbds: Not affected + tsx_async_abort: Not affected

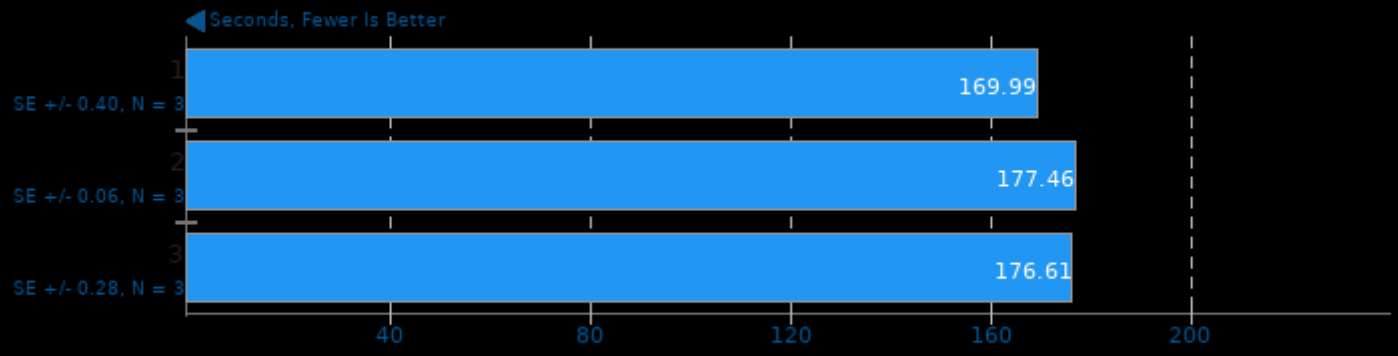
	1	2	3
CloverLeaf - L.E.H (sec)	**169.99**	**177.46**	176.61
Normalized	100%	95.79%	96.25%
Standard Deviation	0.4%	0.1%	0.3%
Quantum ESPRESSO - AUSURF112 (sec)	1524	**1522**	**1526**
Normalized	99.83%	100%	99.73%
Standard Deviation	0.2%	0.1%	0.5%
RELION - Basic - CPU (sec)	2010	**2019**	**2007**
Normalized	99.84%	99.41%	100%
Standard Deviation	0.2%	0.4%	0.3%
LAMMPS Molecular Dynamics Simulator - Rhodopsin Protein (ns/day)	7.612	**7.624**	**7.589**
Normalized	99.84%	100%	99.54%
Standard Deviation	0.4%	0.2%	0.3%

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LULESH (z/s)	**4500**	4498	**4493**
Normalized	100%	99.97%	99.86%
Standard Deviation	1.8%	1.6%	1.7%
rav1e - 1 (FPS)	**0.542**	**0.543**	**0.543**
Normalized	99.82%	100%	100%
Standard Deviation	0.4%	0.9%	0.6%
rav1e - 5 (FPS)	**1.463**	**1.482**	1.480
Normalized	98.72%	100%	99.87%
Standard Deviation	0.7%	1.1%	0.8%
rav1e - 6 (FPS)	**1.952**	**1.982**	1.971
Normalized	98.49%	100%	99.45%
Standard Deviation	0.6%	1.6%	1.6%
rav1e - 10 (FPS)	3.896	**4.134**	**3.885**
Normalized	94.24%	100%	93.98%
Standard Deviation	2.9%	2.3%	0.8%
Timed Godot Game Engine Compilation - Time To Compile (sec)	**126.450**	**126.973**	126.769
Normalized	100%	99.59%	99.75%
Standard Deviation	0.2%	0.5%	0.5%
Mobile Neural Network - SqueezeNetV1.0	3.869	**3.904**	**3.848**
Normalized	99.46%	98.57%	100%
Standard Deviation	0.7%	1.1%	0.9%
Mobile Neural Network - resnet-v2-50 (ms)	20.085	**20.016**	**20.115**
Normalized	99.66%	100%	99.51%
Standard Deviation	0.6%	0%	0.9%
Mobile Neural Network - MobileNetV2_224	**1.920**	**1.920**	**1.913**
Normalized	99.64%	99.64%	100%
Standard Deviation	0.4%	0.6%	0.5%
Mobile Neural Network - mobilenet-v1-1.0	1.897	**1.895**	**1.912**
Normalized	99.89%	100%	99.11%
Standard Deviation	0.4%	0.3%	0.5%
Mobile Neural Network - inception-v3 (ms)	**24.115**	**23.569**	23.753
Normalized	97.74%	100%	99.23%
Standard Deviation	2.3%	0.4%	1.3%
TNN - CPU - MobileNet v2 (ms)	**215.671**	216.946	**217.411**
Normalized	100%	99.41%	99.2%
Standard Deviation	0.2%	1.2%	0.6%
TNN - CPU - SqueezeNet v1.1 (ms)	**212.751**	**216.253**	214.962
Normalized	100%	98.38%	98.97%
Standard Deviation	0.8%	0.2%	0.6%

CloverLeaf

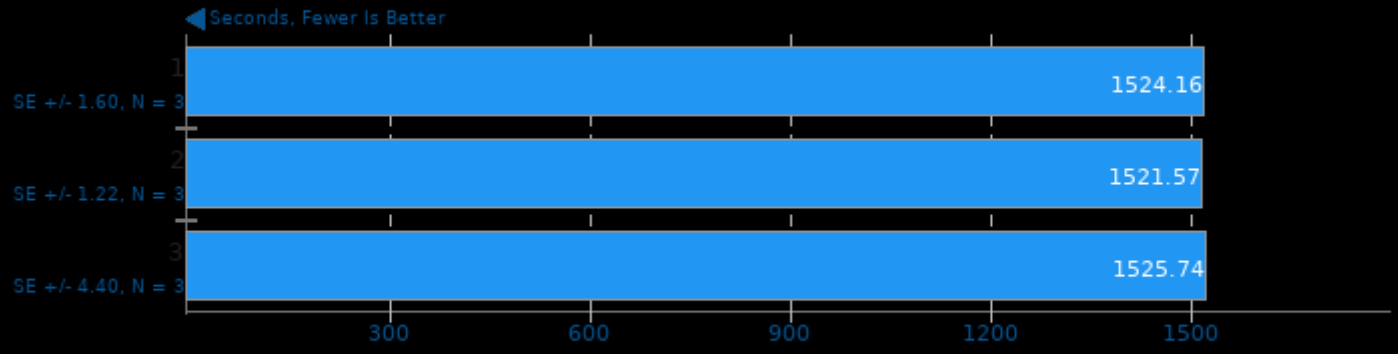
Lagrangian-Eulerian Hydrodynamics



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

Quantum ESPRESSO 6.7

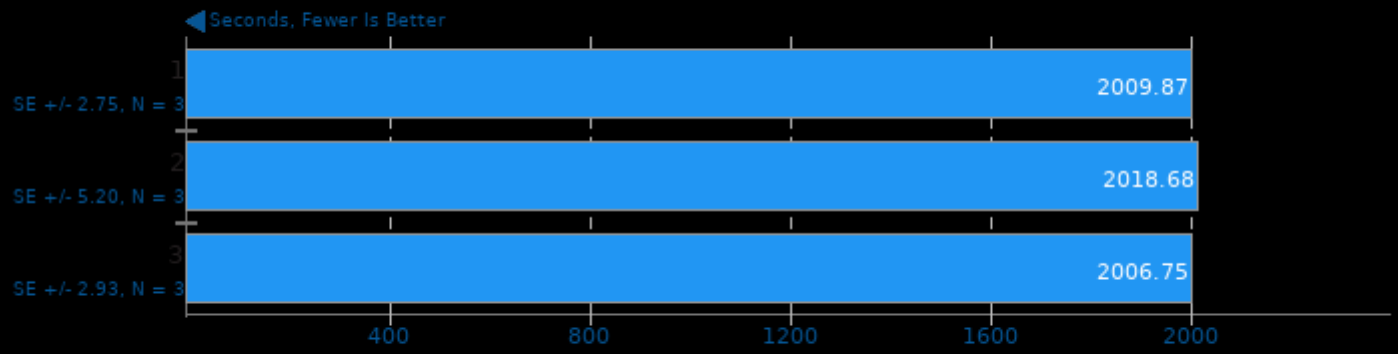
Input: AUSURF112



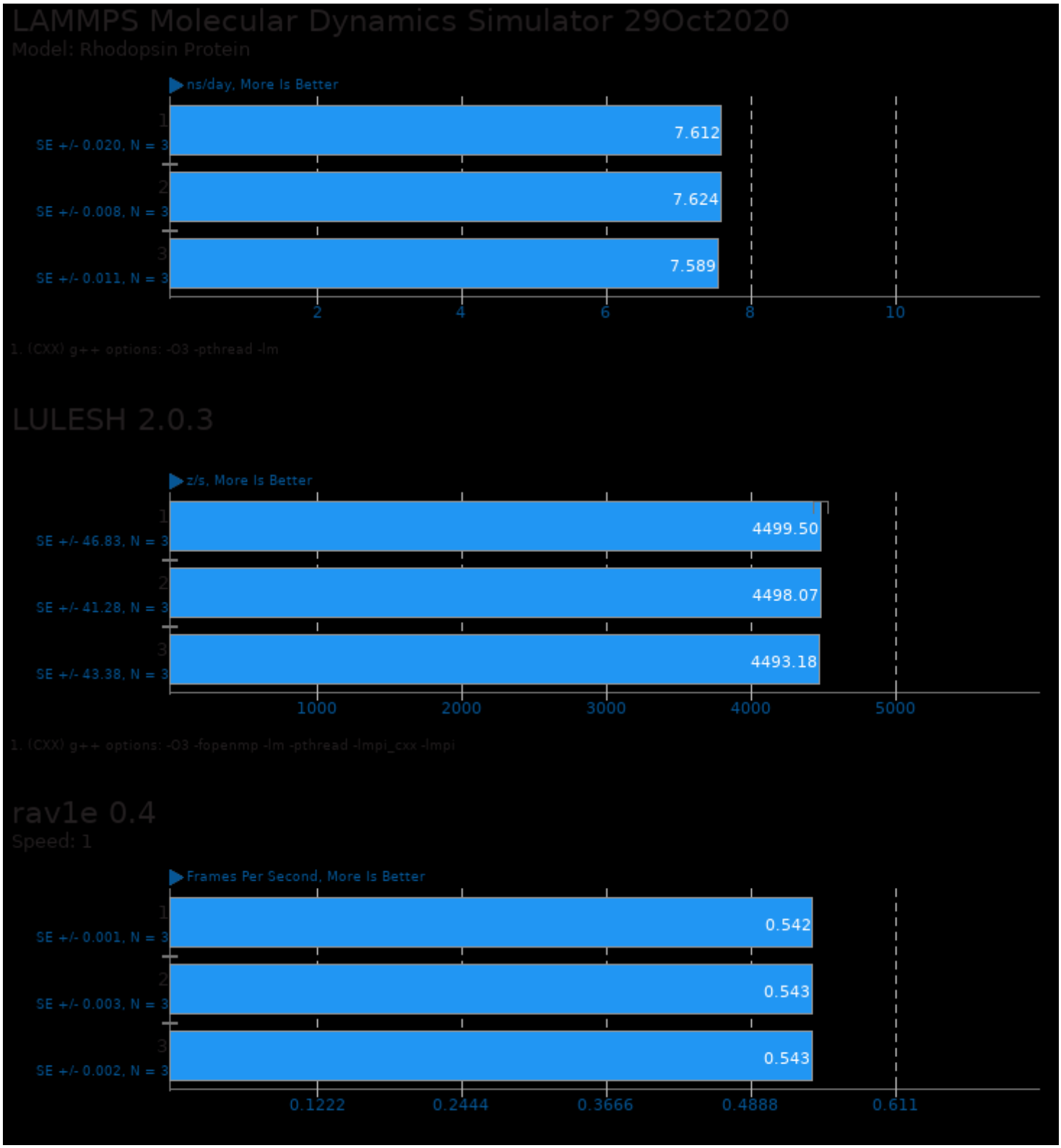
1. (F9X) gfortran options: -lopenblas -lFoX_dom -lFoX_sax -lFoX_wxml -lFoX_common -lFoX_utils -lFoX_fsys -lfftw3 -pthread -lmpi_usempif08 -lmpi_mpifh -

RELION 3.1.1

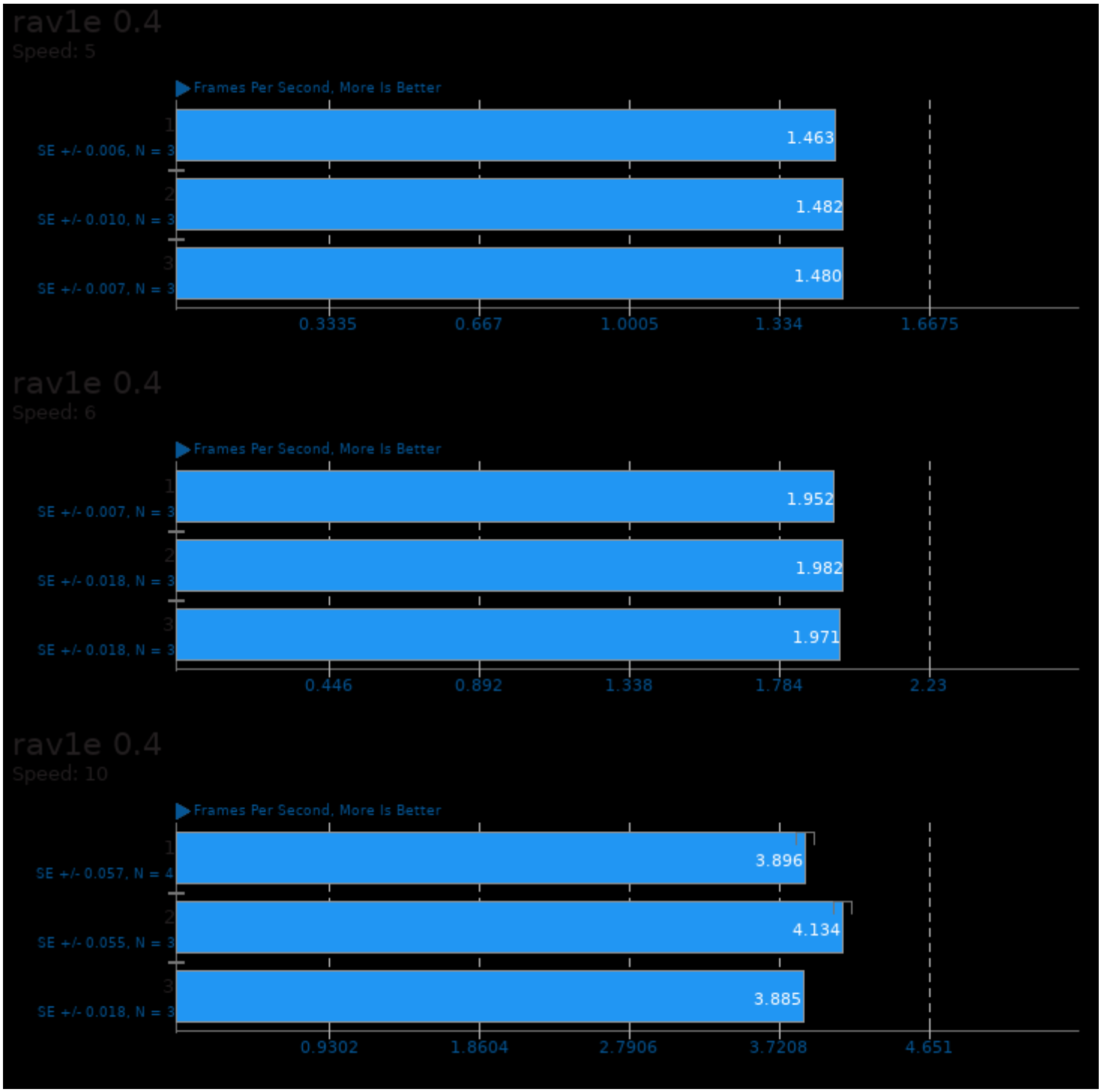
Test: Basic - Device: CPU



1. (CXX) g++ options: -fopenmp -std=c++0x -O3 -rdynamic -ldl -ltiff -lfftw3f -lfftw3 -lpng -pthread -lmpi_cxx -lmpi

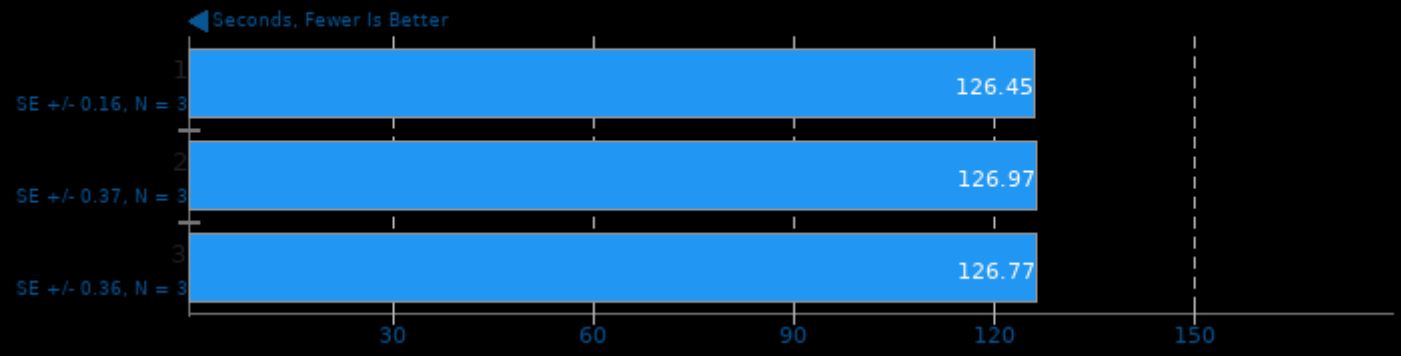

LAMMPS Molecular Dynamics Simulator 29Oct2020
Model: Rhodopsin Protein
ns/day, More Is Better
1
SE +/- 0.020, N = 3
7.612
2
SE +/- 0.008, N = 3
7.624
3
SE +/- 0.011, N = 3
7.589
2
4
6
8
10
1. (CXX) g++ options: -O3 -pthread -lm
LULESH 2.0.3
z/s, More Is Better
1
SE +/- 46.83, N = 3
4499.50
2
SE +/- 41.28, N = 3
4498.07
3
SE +/- 43.38, N = 3
4493.18
1000
2000
3000
4000
5000
1. (CXX) g++ options: -O3 -fopenmp -lm -pthread -lmpi_cxx -lmpi
rav1e 0.4
Speed: 1
Frames Per Second, More Is Better
1
SE +/- 0.001, N = 3
0.542
2
SE +/- 0.003, N = 3
0.543
3
SE +/- 0.002, N = 3
0.543
0.1222
0.2444
0.3666
0.4888
0.611

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rav1e 0.4
Speed: 5
Frames Per Second, More Is Better
1
SE +/- 0.006, N = 3
1.463
2
SE +/- 0.010, N = 3
1.482
3
SE +/- 0.007, N = 3
1.480
0.3335
0.667
1.0005
1.334
1.6675
rav1e 0.4
Speed: 6
Frames Per Second, More Is Better
1
SE +/- 0.007, N = 3
1.952
2
SE +/- 0.018, N = 3
1.982
3
SE +/- 0.018, N = 3
1.971
0.446
0.892
1.338
1.784
2.23
rav1e 0.4
Speed: 10
Frames Per Second, More Is Better
1
SE +/- 0.057, N = 4
3.896
2
SE +/- 0.055, N = 3
4.134
3
SE +/- 0.018, N = 3
3.885
0.9302
1.8604
2.7906
3.7208
4.651

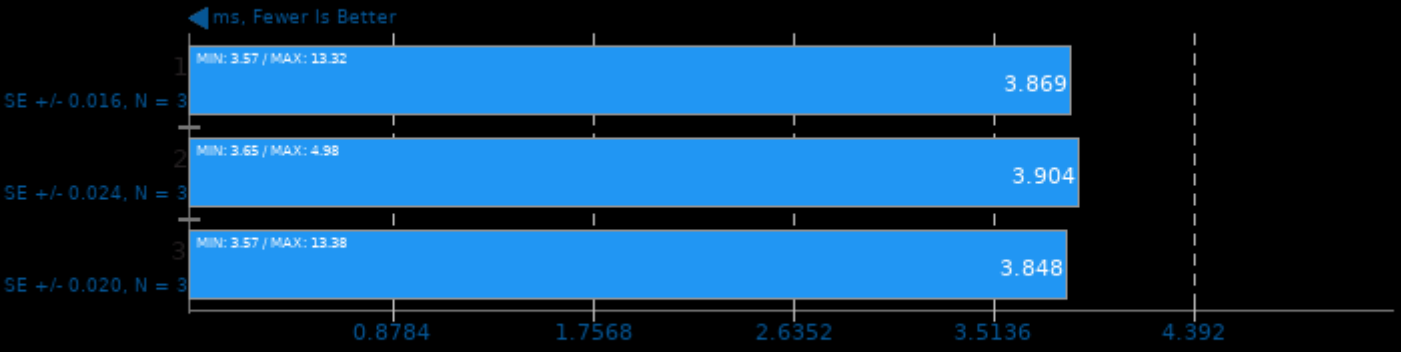
Timed Godot Game Engine Compilation 3.2.3

Time To Compile



Mobile Neural Network 1.1.1

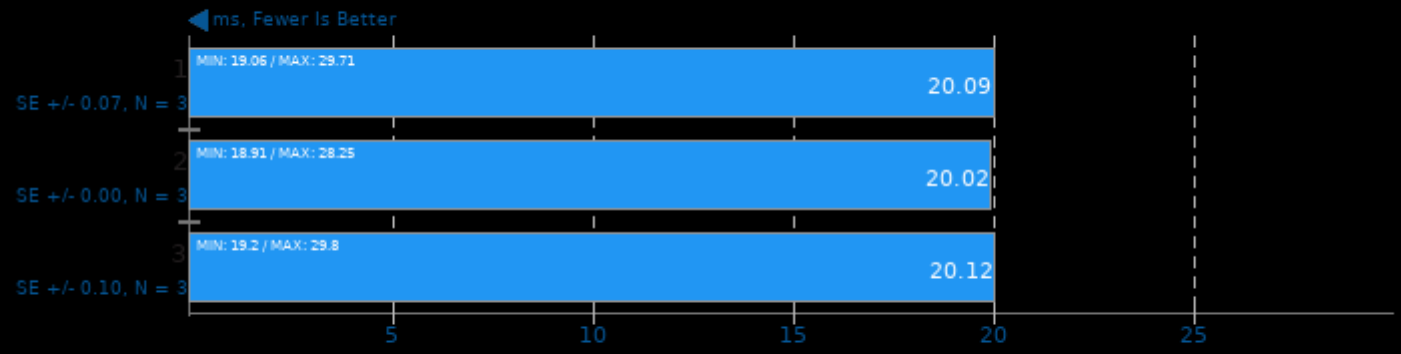
Model: SqueezeNetV1.0



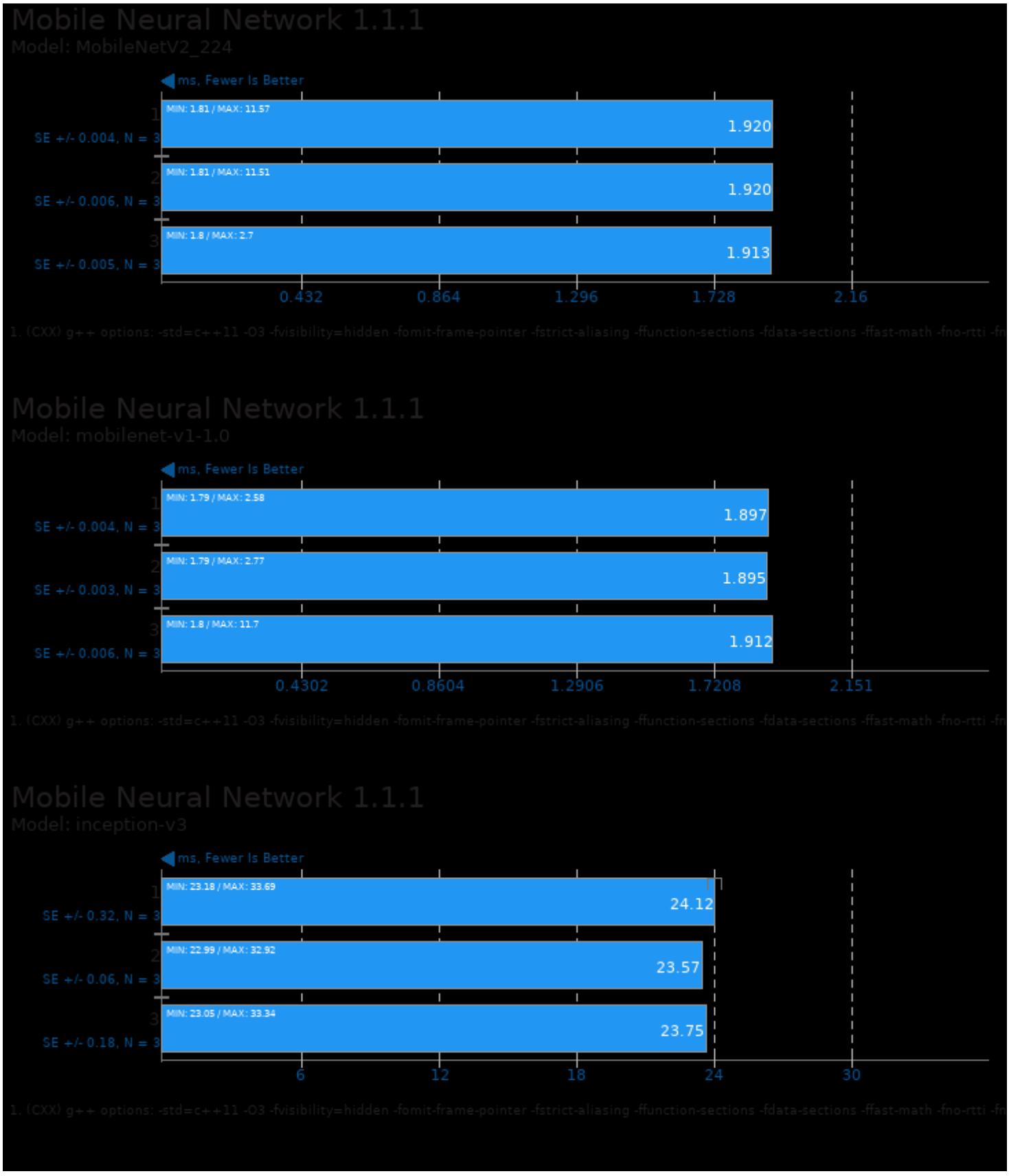
1. (CXX) g++ options: -std=c++11 -O3 -fvisibility=hidden -fomit-frame-pointer -fstrict-aliasing -ffunction-sections -fdata-sections -ffast-math -fno-rtti -fr

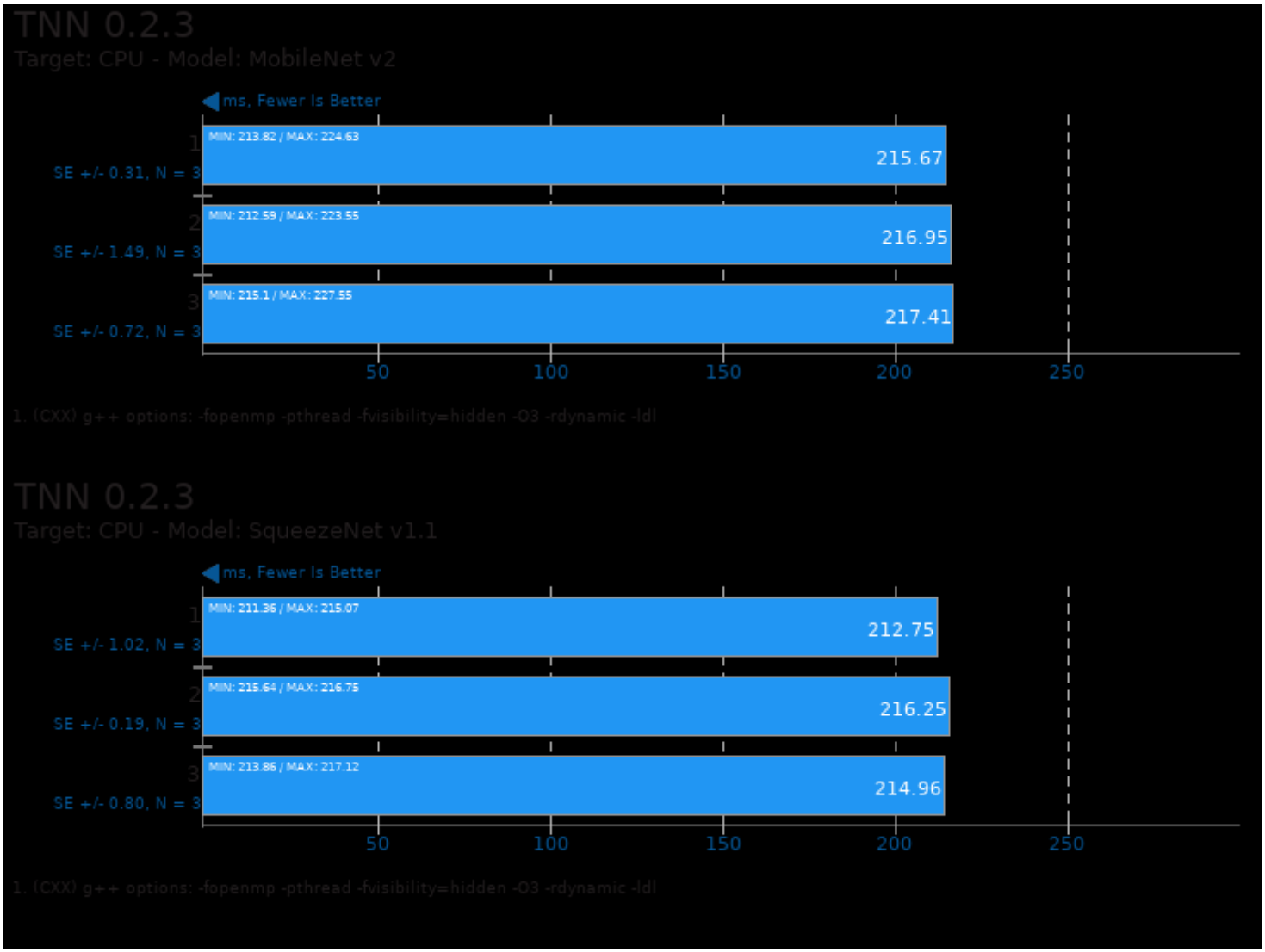
Mobile Neural Network 1.1.1

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
ms, Fewer Is Better
MIN: 1.81 / MAX: 11.57
1.920
SE +/- 0.004, N = 3
MIN: 1.81 / MAX: 11.51
1.920
SE +/- 0.006, N = 3
MIN: 1.8 / MAX: 2.7
1.913
SE +/- 0.005, N = 3
0.432
0.864
1.296
1.728
2.16
1. (CXX) g++ options: -std=c++11 -O3 -fvisibility=hidden -fomit-frame-pointer -fstrict-aliasing -ffunction-sections -fdata-sections -ffast-math -fno-rtti -fv
Mobile Neural Network 1.1.1
Model: mobilenet-v1-1.0
ms, Fewer Is Better
MIN: 1.79 / MAX: 2.58
1.897
SE +/- 0.004, N = 3
MIN: 1.79 / MAX: 2.77
1.895
SE +/- 0.003, N = 3
MIN: 1.8 / MAX: 11.7
1.912
SE +/- 0.006, N = 3
0.4302
0.8604
1.2906
1.7208
2.151
1. (CXX) g++ options: -std=c++11 -O3 -fvisibility=hidden -fomit-frame-pointer -fstrict-aliasing -ffunction-sections -fdata-sections -ffast-math -fno-rtti -fv
Mobile Neural Network 1.1.1
Model: inception-v3
ms, Fewer Is Better
MIN: 23.18 / MAX: 33.69
24.12
SE +/- 0.32, N = 3
MIN: 22.99 / MAX: 32.92
23.57
SE +/- 0.06, N = 3
MIN: 23.05 / MAX: 33.34
23.75
SE +/- 0.18, N = 3
6
12
18
24
30
1. (CXX) g++ options: -std=c++11 -O3 -fvisibility=hidden -fomit-frame-pointer -fstrict-aliasing -ffunction-sections -fdata-sections -ffast-math -fno-rtti -fv


TNN 0.2.3
Target: CPU - Model: MobileNet v2
ms, Fewer Is Better
1
MIN: 213.82 / MAX: 224.63
215.67
SE +/- 0.31, N = 3
2
MIN: 212.59 / MAX: 223.55
216.95
SE +/- 1.49, N = 3
3
MIN: 215.1 / MAX: 227.55
217.41
SE +/- 0.72, N = 3
50
100
150
200
250
1. (CXX) g++ options: -fopenmp -pthread -fvisibility=hidden -O3 -rdynamic -ldl
TNN 0.2.3
Target: CPU - Model: SqueezeNet v1.1
ms, Fewer Is Better
1
MIN: 211.36 / MAX: 215.07
212.75
SE +/- 1.02, N = 3
2
MIN: 215.64 / MAX: 216.75
216.25
SE +/- 0.19, N = 3
3
MIN: 213.86 / MAX: 217.12
214.96
SE +/- 0.80, N = 3
50
100
150
200
250
1. (CXX) g++ options: -fopenmp -pthread -fvisibility=hidden -O3 -rdynamic -ldl

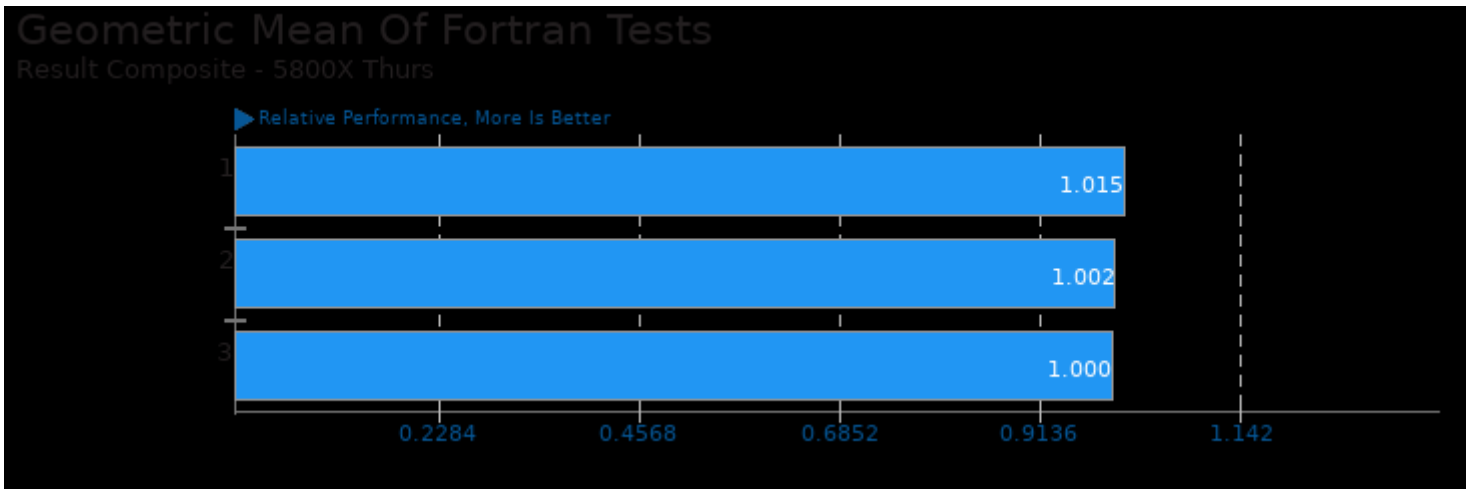
These geometric means are based upon test groupings / test suites for this result file.



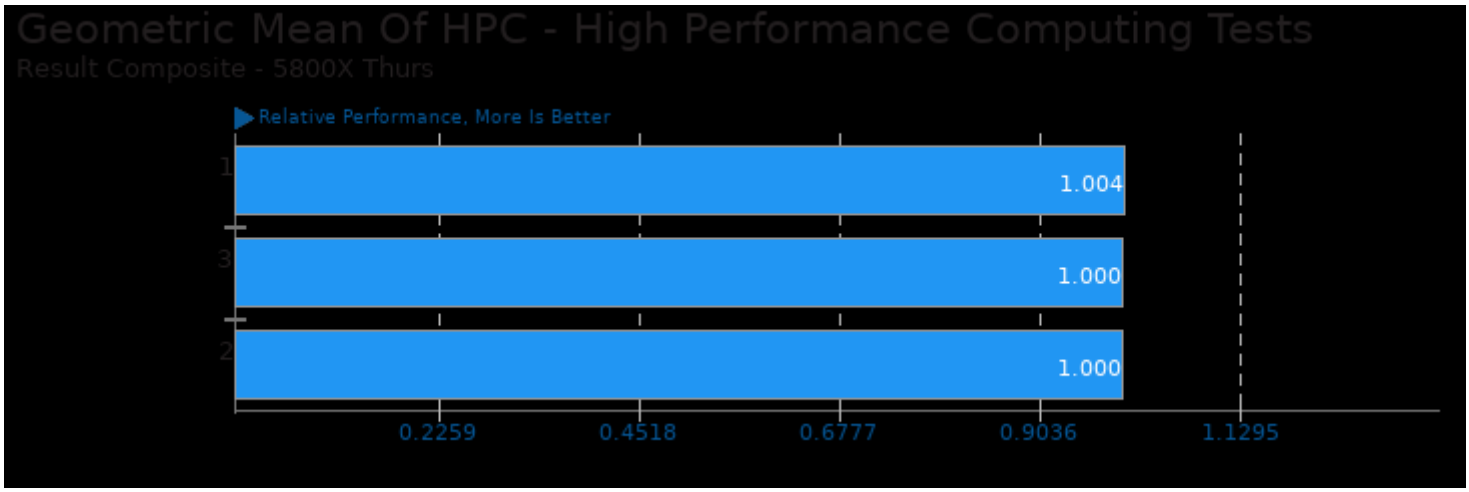
Geometric mean based upon tests: pts/cloverleaf and pts/lammps



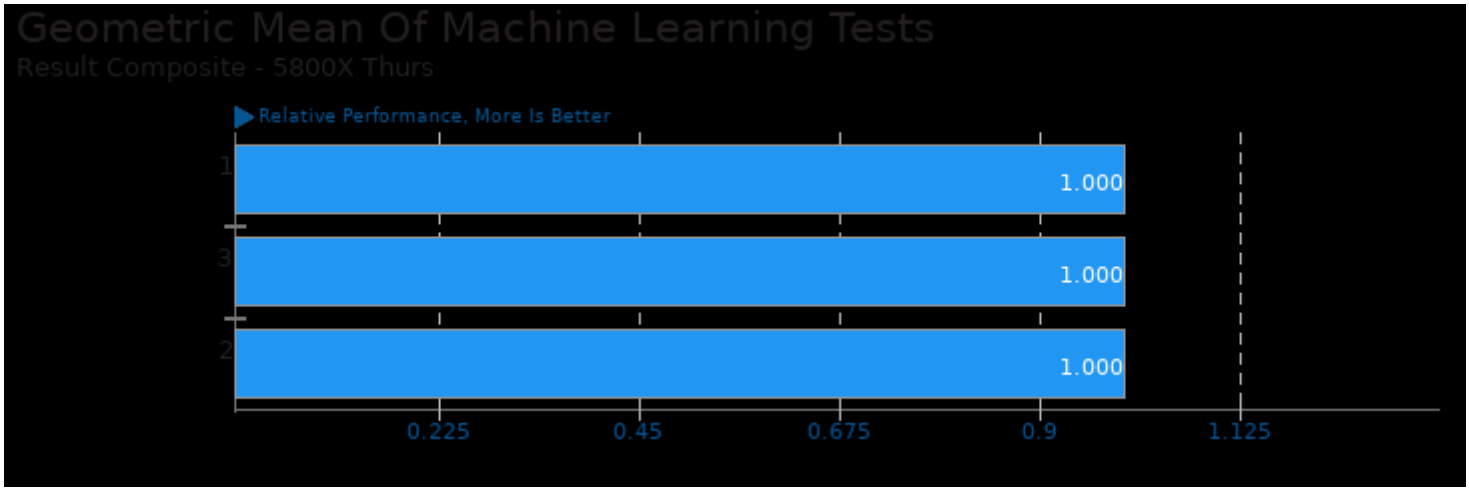
Geometric mean based upon tests: pts/rav1e and pts/build-godot



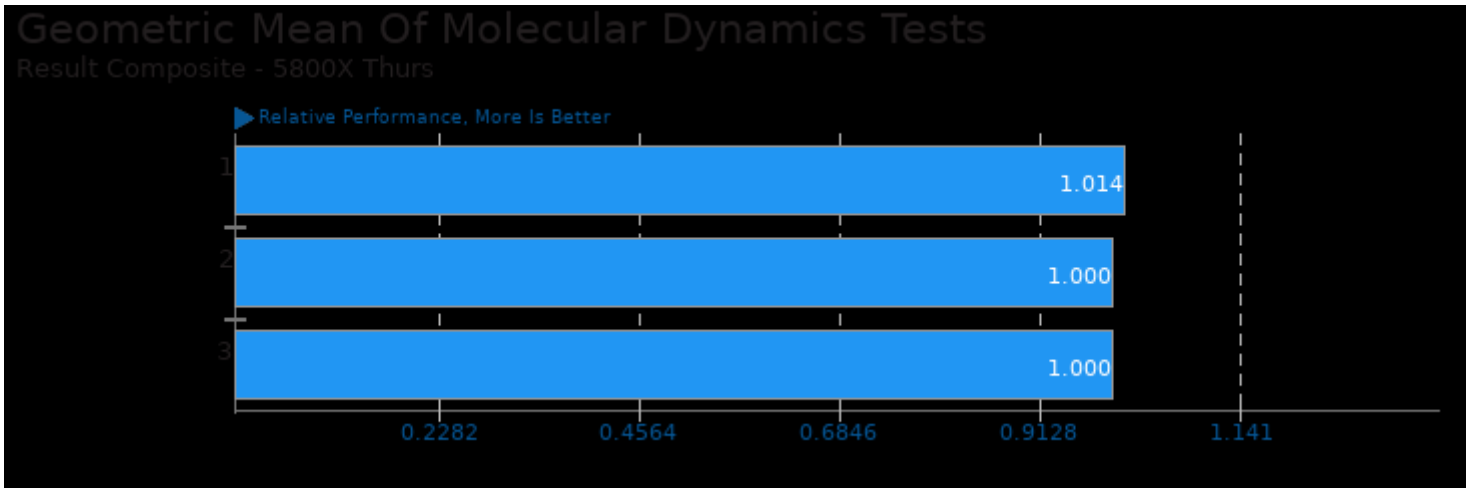
Geometric mean based upon tests: pts/cloverleaf, pts/qe and pts/lammps



Geometric mean based upon tests: pts/qe, pts/cloverleaf, pts/lammps, pts/lulesh, pts/relion, pts/mnn and pts/tnn



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

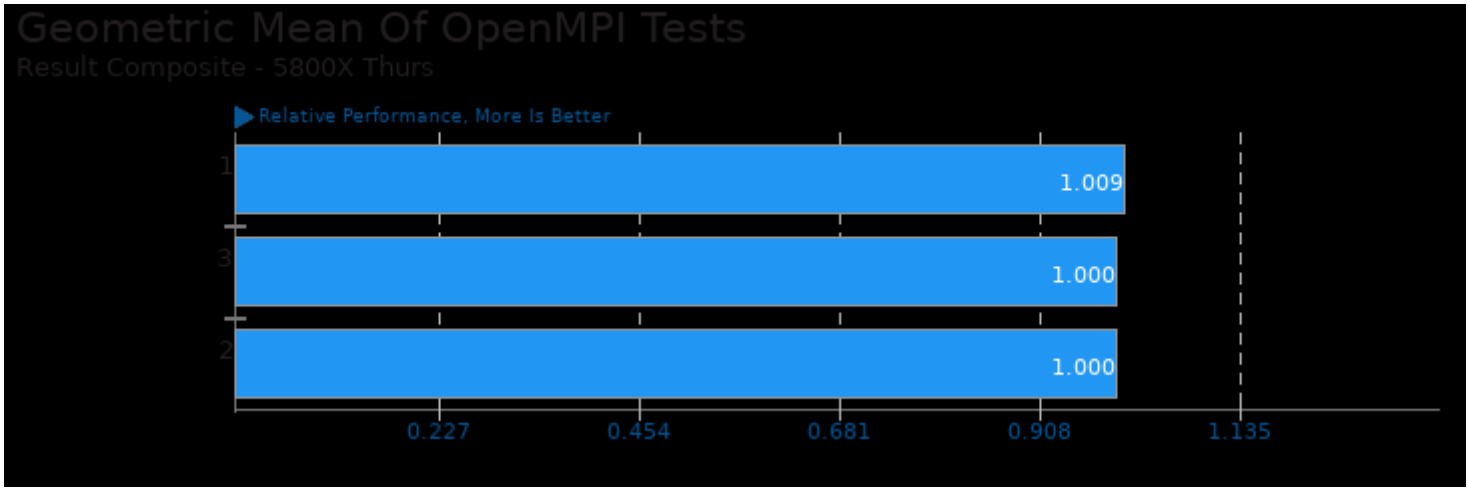


Geometric mean based upon tests: pts/cloverleaf, pts/lammps and pts/lulesh

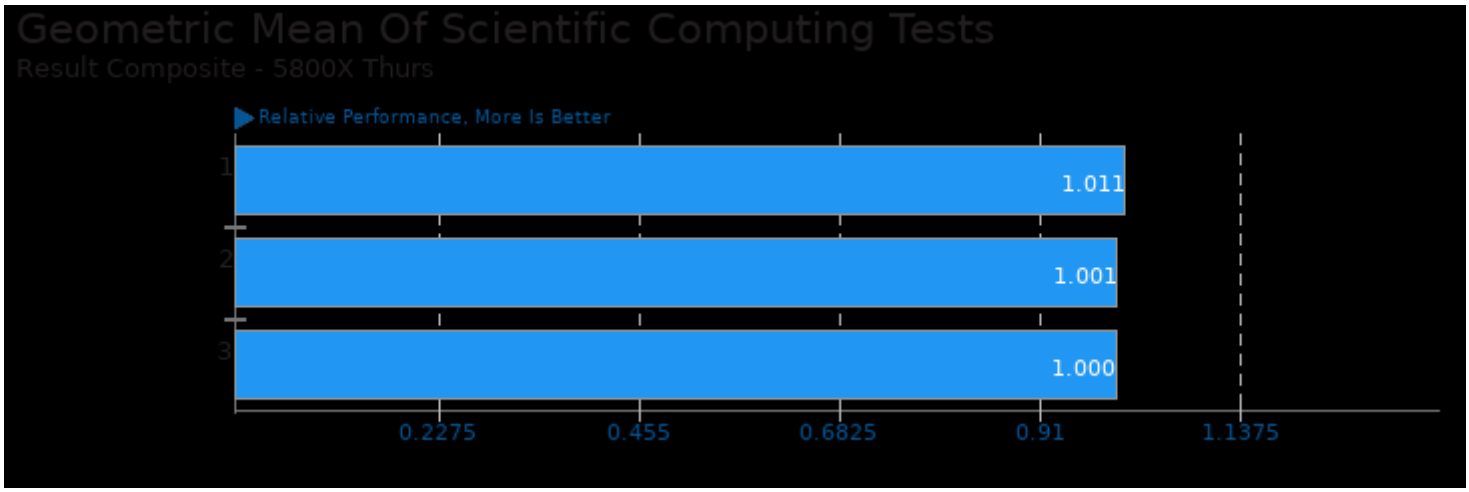
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Geometric mean based upon tests: pts/rav1e, pts/lammps and pts/build-godot



Geometric mean based upon tests: pts/cloverleaf, pts/qe, pts/relion, pts/lammps and pts/lulesh



Geometric mean based upon tests: pts/cloverleaf, pts/lammps, pts/lulesh and pts/qe

This file was automatically generated via the Phoronix Test Suite benchmarking software on Thursday, 28 March 2024 18:11.