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ryzen-amd-linux-benchmarks

AMD Ryzen 7 3700X 8-Core testing with a MSI MEG X570 GODLIKE (MS-7C34) v1.0 (1.40 BIOS) and Gigabyte AMD Radeon RX 470/480/570/570X/580/580X 4GB on Ubuntu 18.04 via the Phoronix Test Suite.

Automated Executive Summary

Ryzen 7 3700X had the most wins, coming in first place for 91% of the tests.

Based on the geometric mean of all complete results, the fastest (AMD Ryzen 5 2600 Six-Core) was 4.882x the speed of the slowest (Ryzen 7 3700X). Ryzen 5 2600 was 0.997x the speed of AMD Ryzen 5 2600 Six-Core and Ryzen 7 3700X was 0.205x the speed of Ryzen 5 2600.

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

Pennant (Test: leblancbig) at 8.656x

Pennant (Test: sedovbig) at 8.022x

NeatBench (Acceleration: CPU) at 1.965x

Blender (Blend File: Pabellon Barcelona - Compute: CPU-Only) at 1.729x

QMCPACK at 1.707x

Geekbench (Test: CPU Multi Core - Face Detection) at 1.703x

Blender (Blend File: Fishy Cat - Compute: CPU-Only) at 1.694x

Blender (Blend File: BMW27 - Compute: CPU-Only) at 1.664x

Coremark (CoreMark Size 666 - Iterations Per Second) at 1.643x

Blender (Blend File: Barbershop - Compute: CPU-Only) at 1.637x.

Test Systems:

Ryzen 5 2600

AMD Ryzen 5 2600 Six-Core

Processor: AMD Ryzen 5 2600 Six-Core @ 3.40GHz (6 Cores / 12 Threads), Motherboard: MSI MEG X570 GODLIKE (MS-7C34) v1.0 (1.40 BIOS), Chipset: AMD 17h, Memory: 16384MB, Disk: Samsung SSD 970 EVO Plus 250GB, Graphics: Gigabyte AMD Radeon RX 470/480/570/570X/580/580X 4GB (1244/1750MHz), Audio: AMD Ellesmere, Monitor: ASUS PB278, Network: Realtek Device 2600 + Realtek Device 3000 + Intel Device 2723

OS: Ubuntu 18.04, Kernel: 5.2.0-999-generic (x86_64) 20190630, Desktop: GNOME Shell 3.28.4, Display Server: X Server 1.20.1, Display Driver: modesetting 1.20.1, OpenGL: 4.5 Mesa 18.2.8 (LLVM 7.0.0), Compiler: GCC 7.4.0, File-System: ext4, Screen Resolution: 2560x1440

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++ --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: acpi-cpufreq ondemand

Security Notes: I1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of __user pointer sanitization + spectre_v2: Mitigation of Full AMD retpoline IBPB: conditional STIBP: disabled RSB filling

Ryzen 7 3700X

Processor: AMD Ryzen 7 3700X 8-Core @ 3.60GHz (8 Cores / 16 Threads), Motherboard: MSI MEG X570 GODLIKE (MS-7C34) v1.0 (1.40 BIOS), Chipset: AMD Device 1480, Memory: 16384MB, Disk: Samsung SSD 970 EVO Plus 250GB, Graphics: Gigabyte AMD Radeon RX 470/480/570/570X/580/580X 4GB (1244/1750MHz), Audio: AMD Ellesmere, Monitor: ASUS PB278, Network: Realtek Device 2600 + Realtek Device 3000 + Intel Device 2723

OS: Ubuntu 18.04, Kernel: 5.2.0-999-generic (x86_64) 20190630, Desktop: GNOME Shell 3.28.4, Display Server: X Server 1.20.1, Display Driver: modesetting 1.20.1, OpenGL: 4.5 Mesa 18.2.8 (LLVM 7.0.0), Compiler: GCC 7.4.0, File-System: ext4, Screen Resolution: 2560x1440

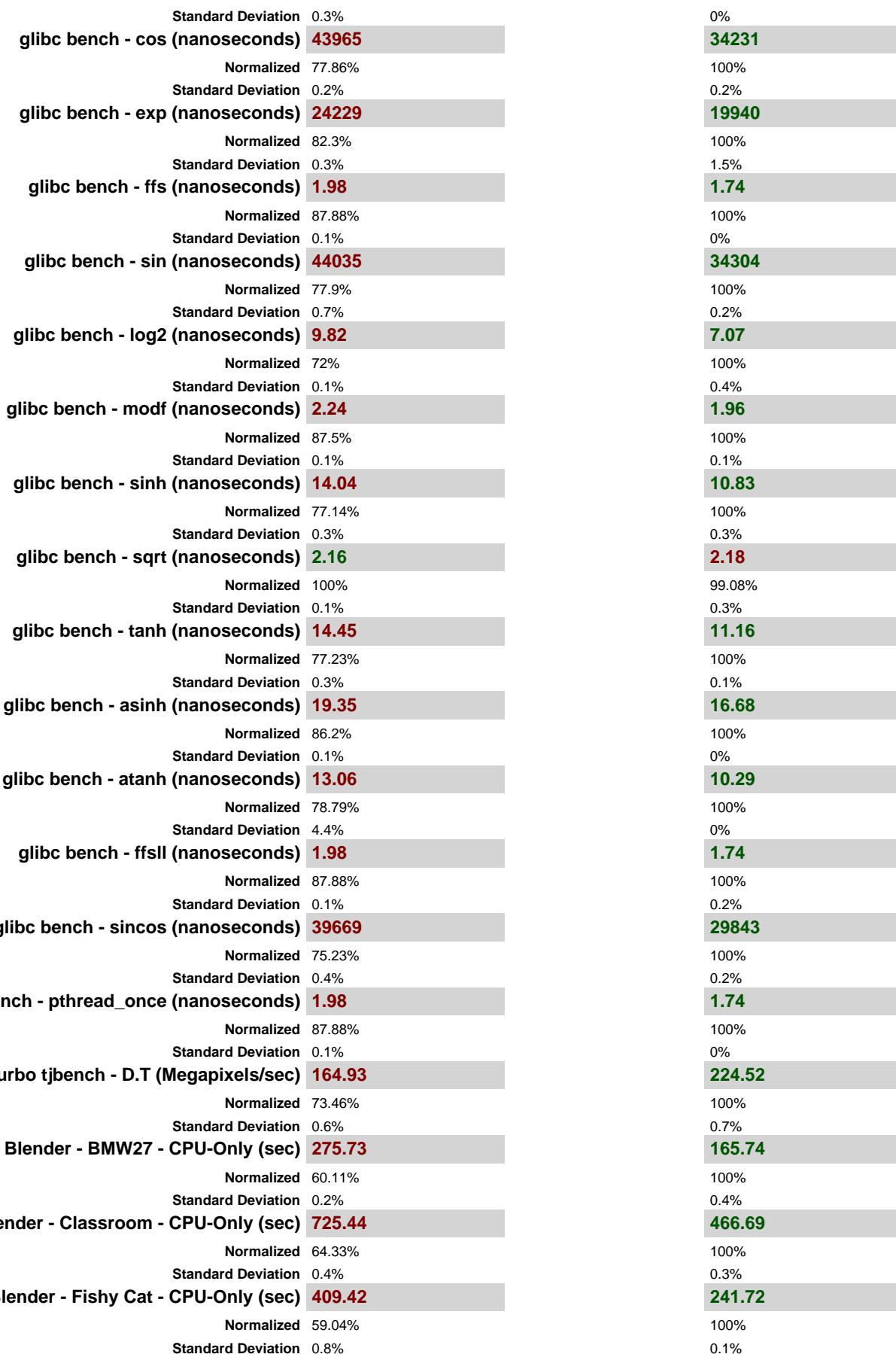
Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale-gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --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: acpi-cpufreq ondemand

Python Notes: Python 2.7.15+ + Python 3.6.8

Security Notes: I1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of __user pointer sanitization + spectre_v2: Mitigation of Full AMD retpoline IBPB: conditional STIBP: always-on RSB filling

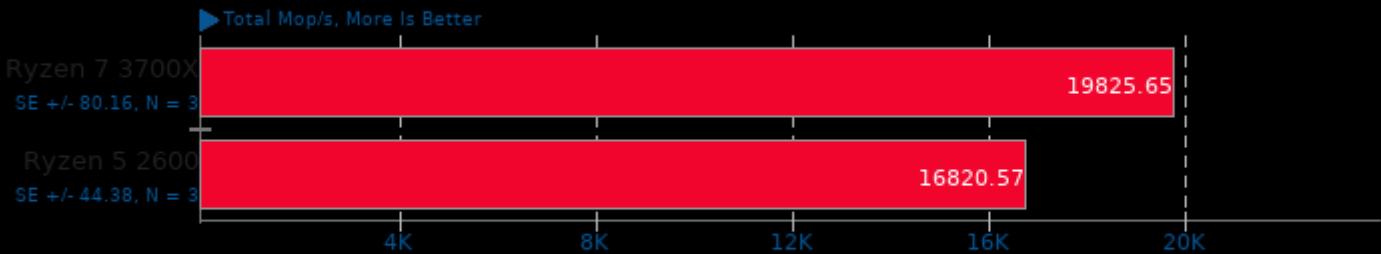
	Ryzen 5 2600	AMD Ryzen 5 2600 Six-Core	Ryzen 7 3700X
NAS Parallel Benchmarks - BT.C (Mop/s)	16821		19826
Normalized	84.84%		100%
Standard Deviation	0.5%		0.7%
NAS Parallel Benchmarks - EP.C (Mop/s)	218.63		336.49
Normalized	64.97%		100%
Standard Deviation	0%		0%
NAS Parallel Benchmarks - EP.D (Mop/s)	218.37		335.85
Normalized	65.02%		100%
Standard Deviation	0.1%		0.1%
NAS Parallel Benchmarks - FT.C (Mop/s)	8911		13138
Normalized	67.82%		100%
Standard Deviation	0.1%		0.4%
NAS Parallel Benchmarks - LU.C (Mop/s)	22459		23875
Normalized	94.07%		100%
Standard Deviation	0.3%		0.1%
NAS Parallel Benchmarks - MG.C (Mop/s)	10241		11903
Normalized	86.04%		100%
Standard Deviation	0.7%		0.1%
NAS Parallel Benchmarks - SP.B (Mop/s)	5470		5516
Normalized	99.16%		100%
Standard Deviation	0.4%		1.2%
Pennant - sedovbig (Hydro Cycle Time - sec)	248.57	248.18	1991
Normalized	99.84%	100%	12.47%
Standard Deviation	0%	0%	0%
Pennant - leblancbig (Hydro Cycle Time - sec)	221.26	221.58	1915
Normalized	100%	99.86%	11.55%
Standard Deviation	0%	0.4%	0%
QMCPACK (Execution Time - sec)	359.79	356.09	607.70
Normalized	98.97%	100%	58.6%
SVT-VP9 - 1.8.b.Y.T.V.V.E (FPS)	93.15		146.36
Normalized	63.64%		100%
Standard Deviation	0.7%		0.8%
x265 - H.2.1.V.E (FPS)	32.12		51.44
Normalized	62.44%		100%
Standard Deviation	0.8%		2.5%
Coremark - CoreMark Size 666 - I.P.S (Iterations/Sec)	222969		366381
Normalized	60.86%		100%
Standard Deviation	0.1%		0.2%
Tungsten Renderer - Hair (sec)	41.66		26.42
Normalized	63.42%		100%
Standard Deviation	0.1%		0.2%
Tungsten Renderer - Water Caustic (sec)	38.39		27.56
Normalized	71.79%		100%
Standard Deviation	1%		0.5%
Tungsten Renderer - Non-Exponential (sec)	13.83		9.39
Normalized	67.9%		100%
Standard Deviation	0.2%		0%
Tungsten Renderer - Volumetric Caustic	16.62		10.36
Normalized	62.33%		100%
Standard Deviation	0.3%		0.5%
LAME MP3 Encoding - WAV To MP3 (sec)	8.96		7.14
Normalized	79.69%		100%



Blender - Barbershop - CPU-Only (sec)	1093		667.49	
Normalized	61.08%		100%	
Standard Deviation	0.1%		0.1%	
Blender - Pabellon Barcelona - CPU-Only	993.59		574.52	
Normalized	57.82%		100%	
Standard Deviation	0.4%		0%	
NeatBench - CPU (FPS)	9.86		19.37	
Normalized	50.9%		100%	
Standard Deviation	4.2%		2.4%	
Geekbench - CPU Multi Core (Score)	5909		8239	
Normalized	71.72%		100%	
Standard Deviation	0.1%		0.3%	
Geekbench - CPU Multi Core - Gaussian Blur (Mpixels/sec)	333.63		529.47	
Normalized	63.01%		100%	
Standard Deviation	0.2%		0%	
Geekbench - CPU Multi Core - Face Detection (images/sec)	53.83		91.67	
Normalized	58.72%		100%	
Standard Deviation	0.3%		1%	
Geekbench - CPU Multi Core - Horizon Detection (Gpixels/sec)	154.53		206.20	
Normalized	74.94%		100%	
Standard Deviation	1%		0.7%	
Geekbench - CPU Single Core (Score)	1045		1319	
Normalized	79.23%		100%	
Standard Deviation	0.5%		0.6%	
Geekbench - CPU Single Core - Gaussian Blur (Mpixels/sec)	72.80		83.97	
Normalized	86.7%		100%	
Standard Deviation	0.5%		0.8%	
Geekbench - CPU Single Core - Face Detection (images/sec)	8.10		10.83	
Normalized	74.79%		100%	
Standard Deviation	1%		0.5%	
Geekbench - CPU Single Core - Horizon Detection (Gpixels/sec)	22.23		27.00	
Normalized	82.33%		100%	
Standard Deviation	3.6%		6.8%	
Selenium - ARES-6 - Firefox (ms)			51.71	
Standard Deviation			0.9%	
Selenium - Basemark - Firefox (Overall)			759.08	
Standard Deviation			1.9%	
Selenium - MotionMark - Firefox (Score)			94.47	
Standard Deviation			19%	
Selenium - Speedometer - Firefox (Runs/min)			95.54	
Standard Deviation			0.4%	
Selenium - WebXPRT - Firefox (Score)			253	
Selenium - Octane - Firefox (Geometric)			36981	
Standard Deviation			1.7%	
Selenium - Jetstream - Firefox (Score)			222.70	
Standard Deviation			0.7%	
Selenium - CanvasMark - Firefox (Score)			14136	
Standard Deviation			4.4%	

NAS Parallel Benchmarks 3.4

Test / Class: BT.C

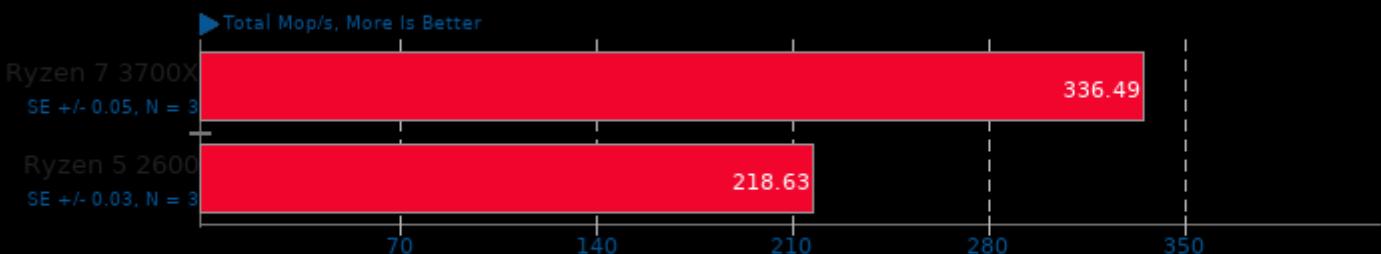


1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi_usempif08 -lmpi_mpifh -lmpi

2. Open MPI 2.1.1

NAS Parallel Benchmarks 3.4

Test / Class: EP.C

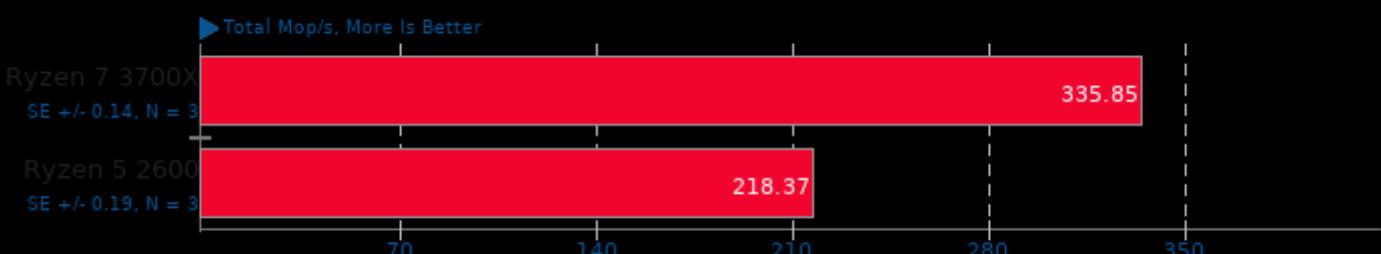


1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi_usempif08 -lmpi_mpifh -lmpi

2. Open MPI 2.1.1

NAS Parallel Benchmarks 3.4

Test / Class: EP.D

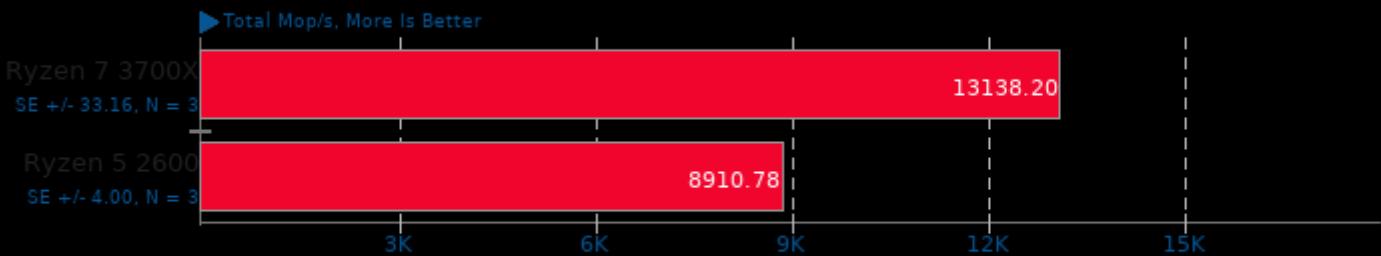


1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi_usempif08 -lmpi_mpifh -lmpi

2. Open MPI 2.1.1

NAS Parallel Benchmarks 3.4

Test / Class: FT.C

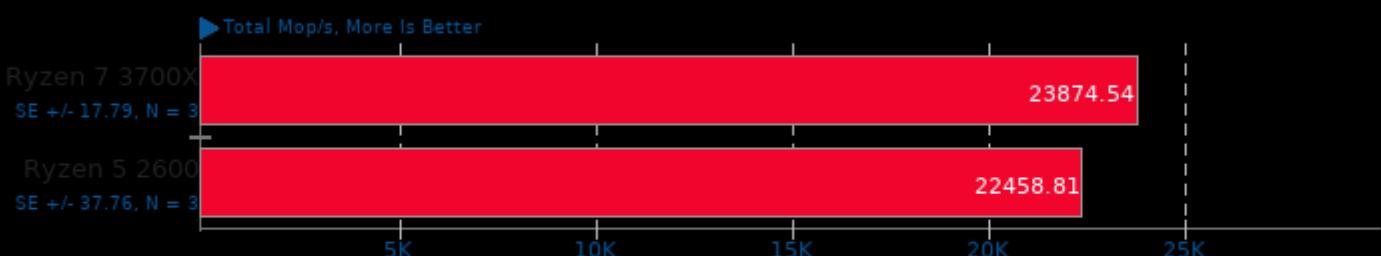


1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi_usempif08 -lmpi_mpifh -lmpi

2. Open MPI 2.1.1

NAS Parallel Benchmarks 3.4

Test / Class: LU.C

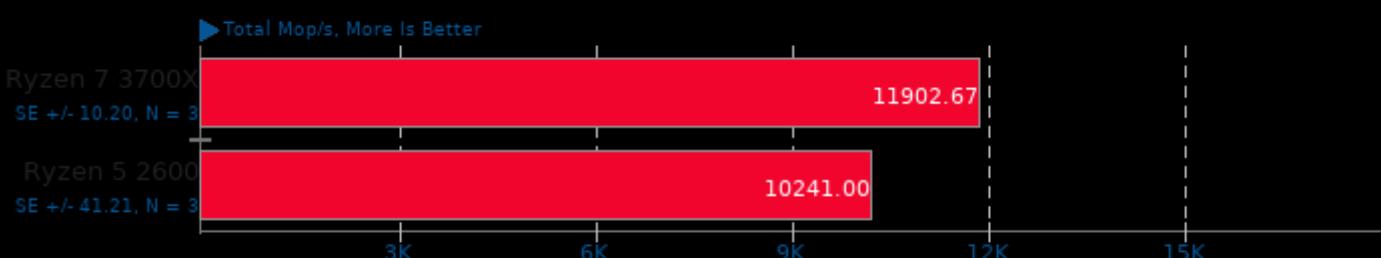


1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi_usempif08 -lmpi_mpifh -lmpi

2. Open MPI 2.1.1

NAS Parallel Benchmarks 3.4

Test / Class: MG.C

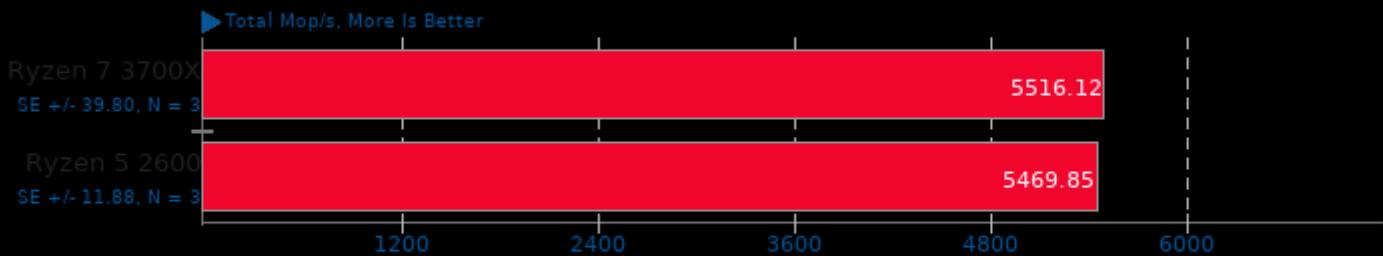


1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi_usempif08 -lmpi_mpifh -lmpi

2. Open MPI 2.1.1

NAS Parallel Benchmarks 3.4

Test / Class: SP.B

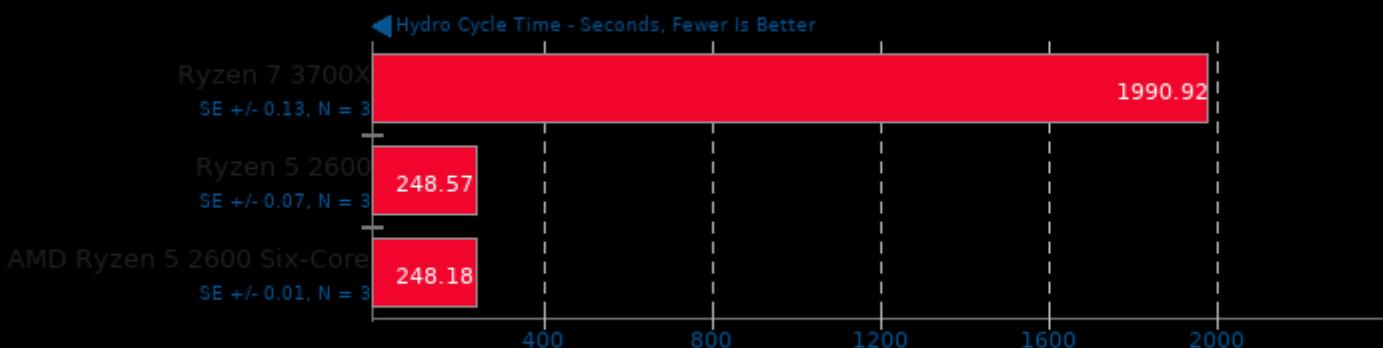


1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi_usempif08 -lmpi_mpifh -lmpi

2. Open MPI 2.1.1

Pennant 1.0.1

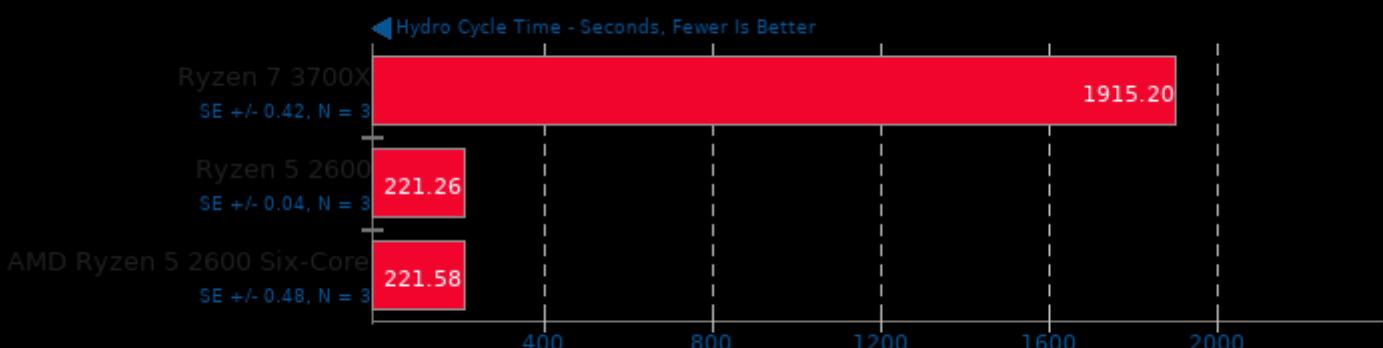
Test: sedovbig



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

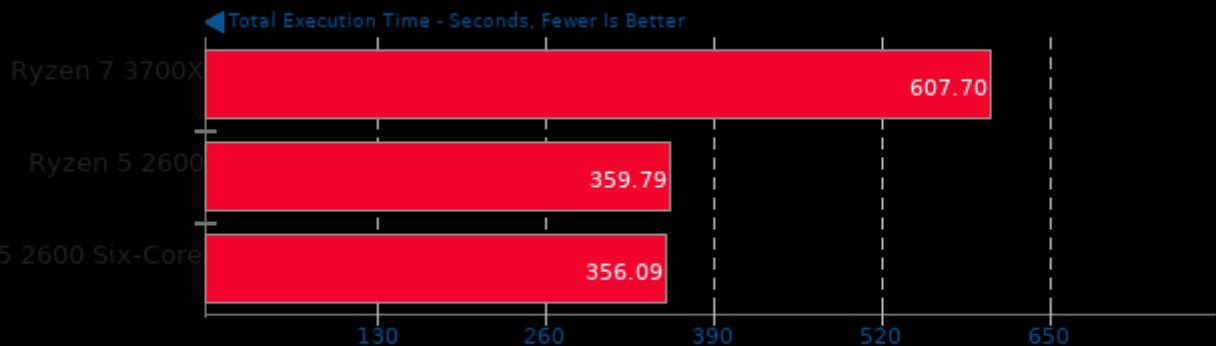
Pennant 1.0.1

Test: leblancbig



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

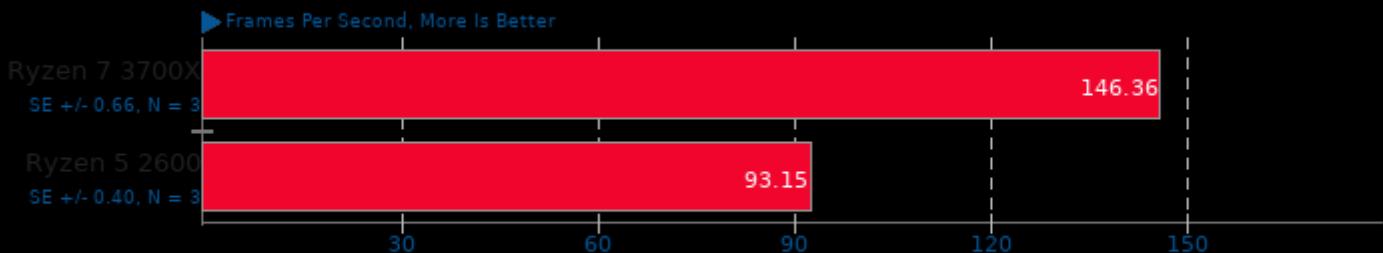
QMCPACK 3.8



1. (CXX) g++ options: -fopenmp -fomit-frame-pointer -finline-limit=1000 -fstrict-aliasing -funroll-all-loops -march=native -O3 -ffast-math -lm

SVT-VP9 2019-09-09

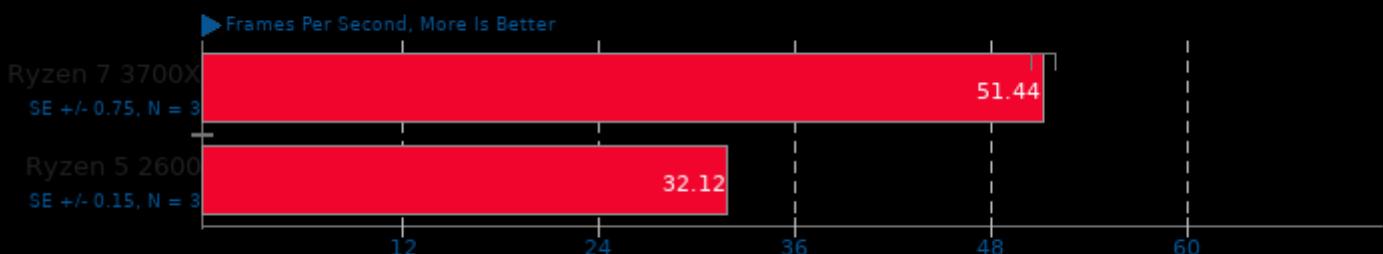
1080p 8-bit YUV To VP9 Video Encode



1. (CC) gcc options: -fPIE -fPIC -fno-tie -O3 -O2 -pie -rdynamic -lpthread -lrt -lm

x265 3.1.2

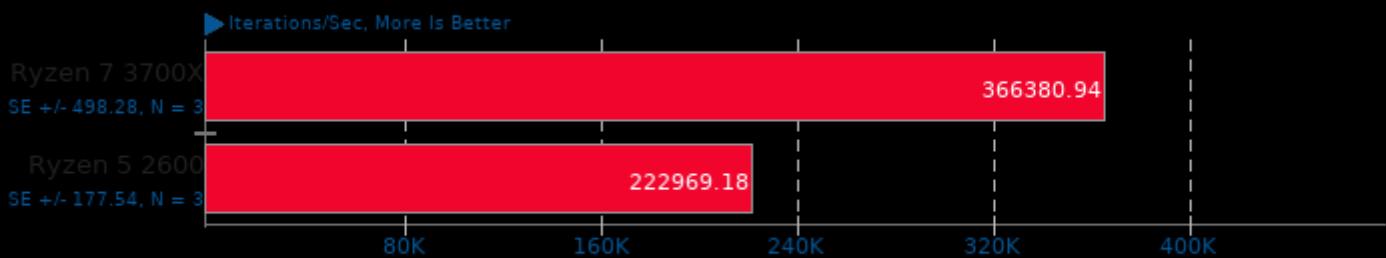
H.265 1080p Video Encoding



1. (CXX) g++ options: -O3 -rdynamic -lpthread -lrt -ldl -lnuma

Coremark 1.0

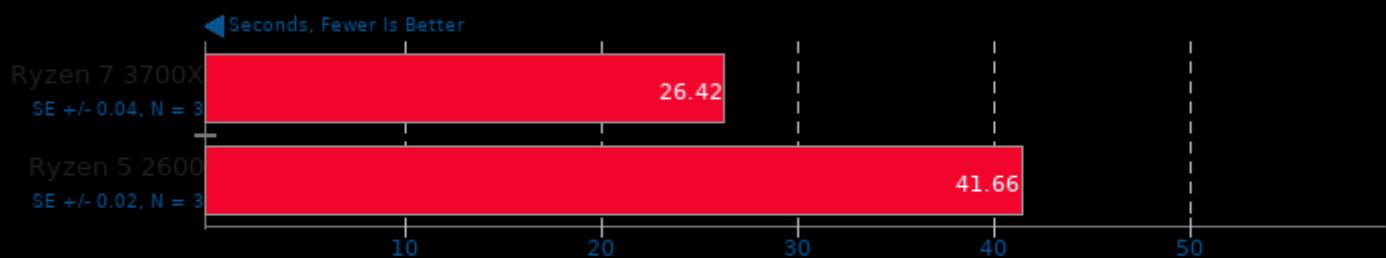
CoreMark Size 666 - Iterations Per Second



1. (CC) gcc options: -O2 -fipa -fipa

Tungsten Renderer 0.2.2

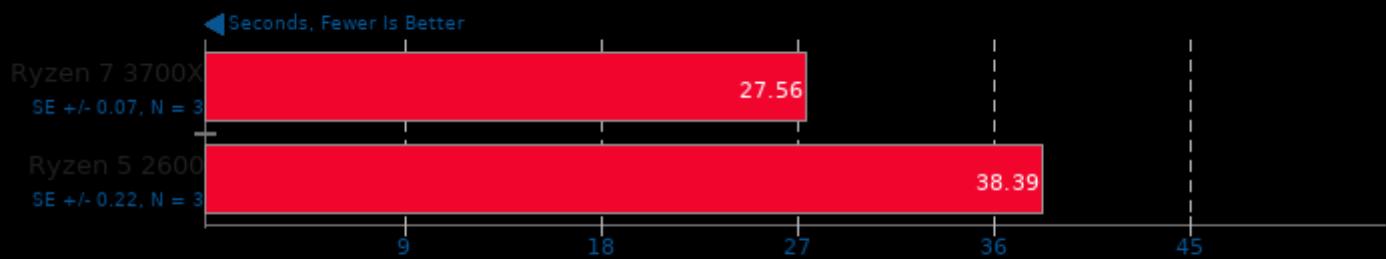
Scene: Hair



1. (CXX) g++ options: -std=c++0x -march=znver1 -msse2 -msse3 -mssse3 -msse4.1 -msse4.2 -mssse4a -mfma -mbmi2 -mno-avx -mno-avx2 -mno-xop -m

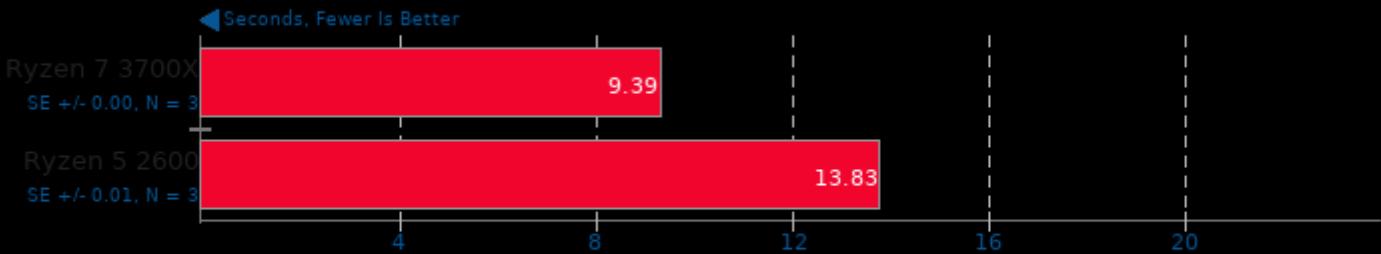
Tungsten Renderer 0.2.2

Scene: Water Caustic

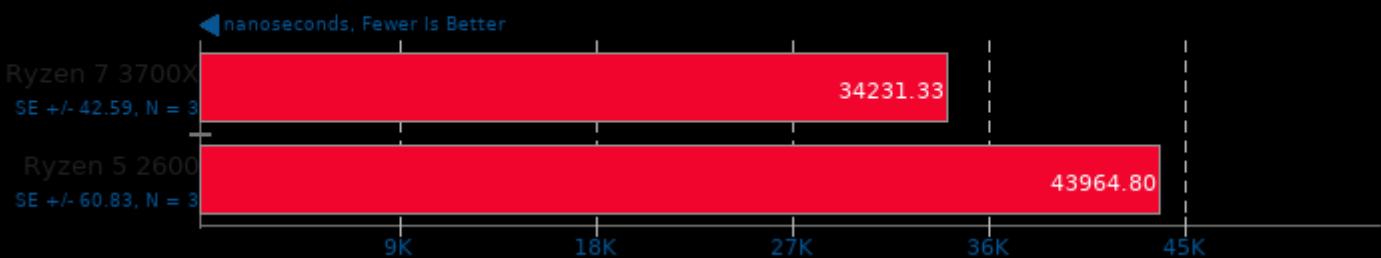
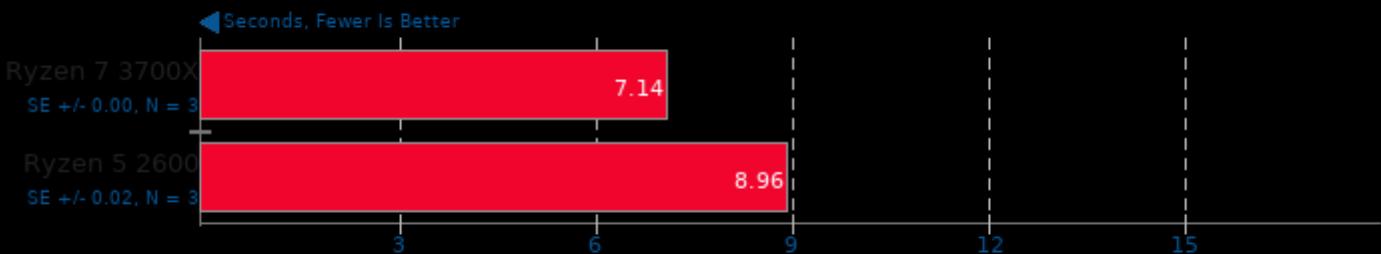
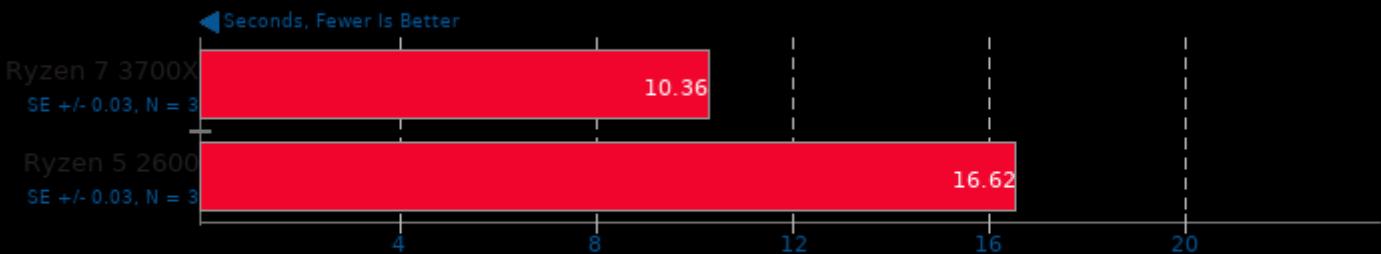


1. (CXX) g++ options: -std=c++0x -march=znver1 -msse2 -msse3 -mssse3 -msse4.1 -msse4.2 -mssse4a -mfma -mbmi2 -mno-avx -mno-avx2 -mno-xop -m

Tungsten Renderer 0.2.2

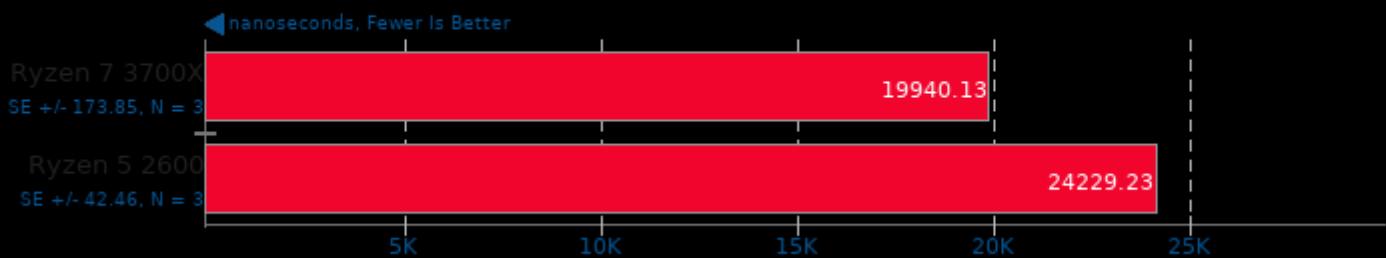


1. (CXX) g++ options: -std=c++0x -march=znver1 -mssse2 -mssse3 -mssse3 -mssse4_1 -mssse4_2 -mssse4a -mfma -mbmi2 -mno-avx -mno-avx2 -mno-xop -mno-fma4

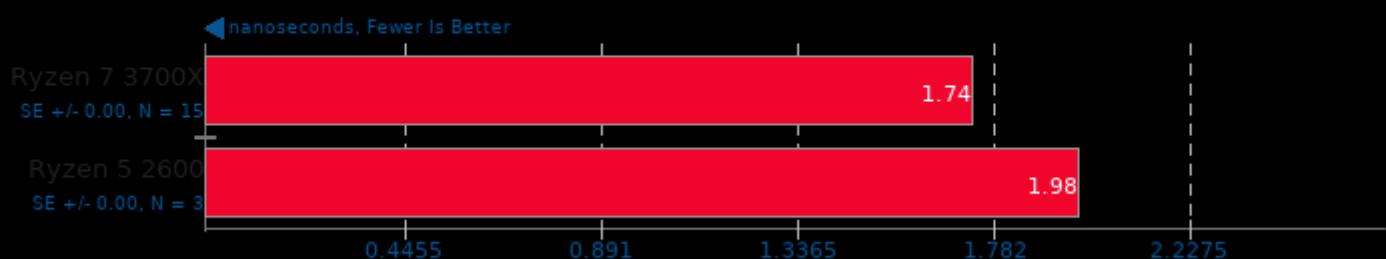


glibc bench 1.0

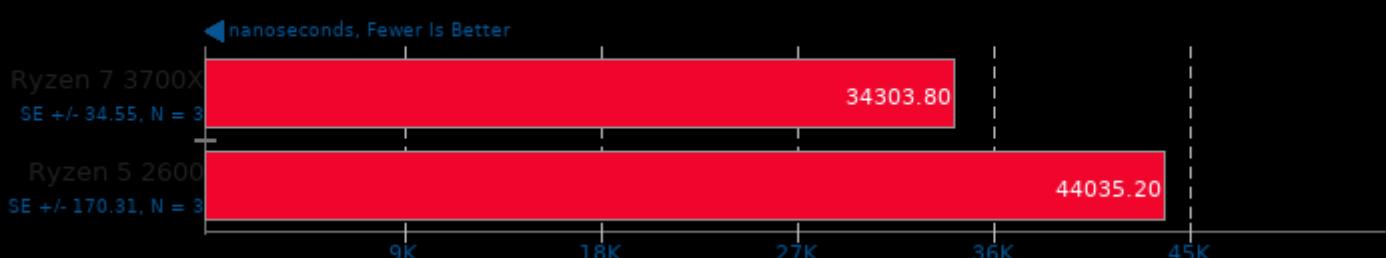
Benchmark: exp

**glibc bench 1.0**

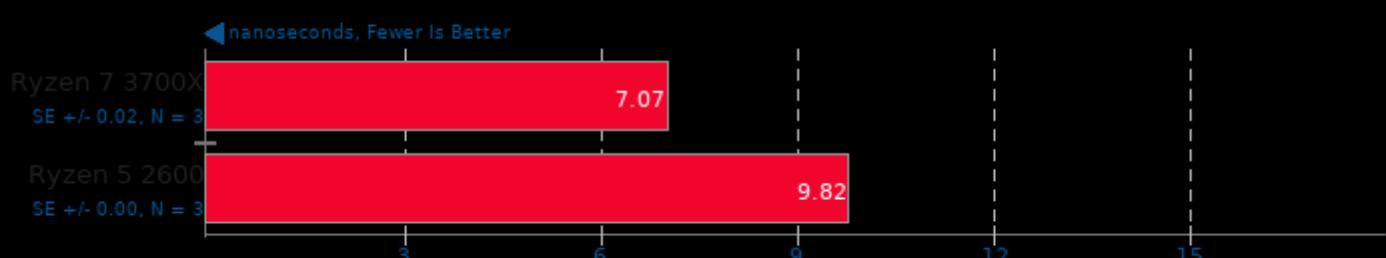
Benchmark: ffs

**glibc bench 1.0**

Benchmark: sin

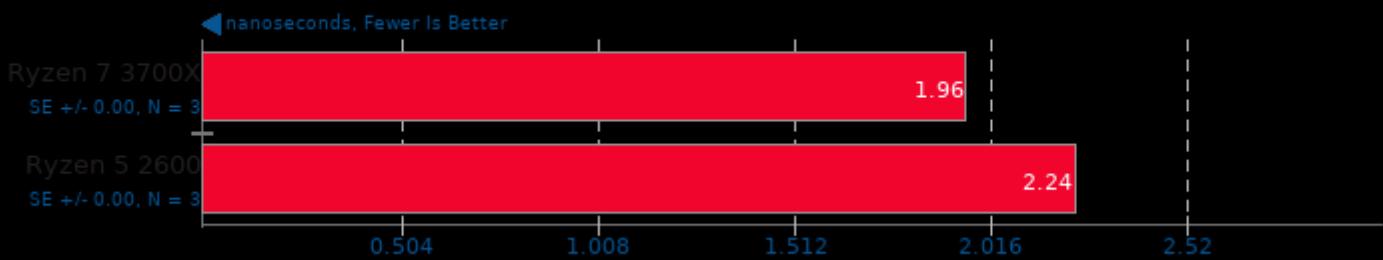
**glibc bench 1.0**

Benchmark: log2

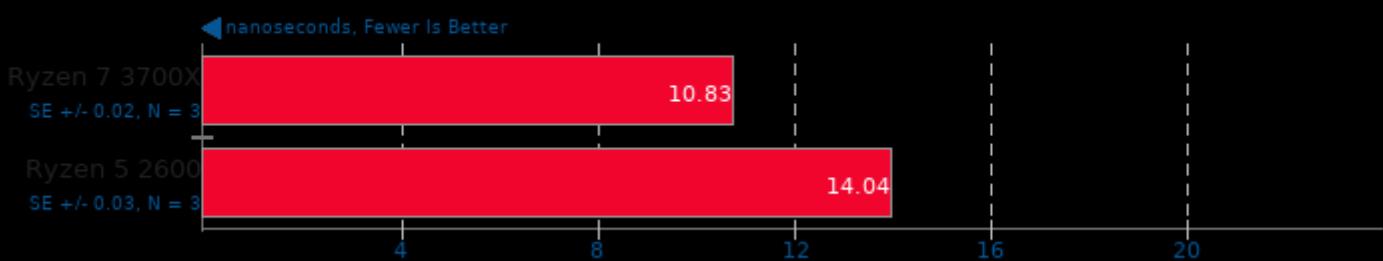


glibc bench 1.0

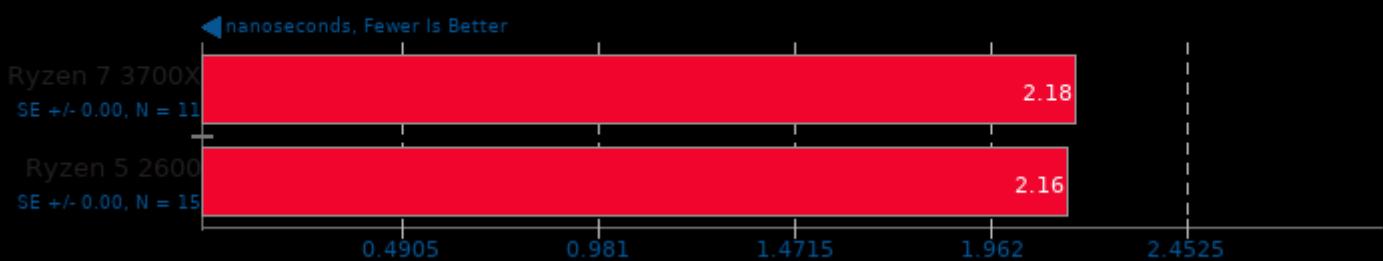
Benchmark: modf

**glibc bench 1.0**

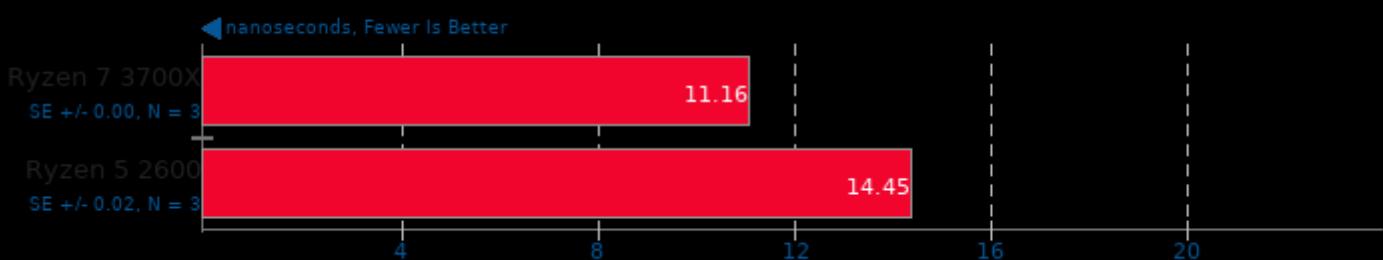
Benchmark: sinh

**glibc bench 1.0**

Benchmark: sqrt

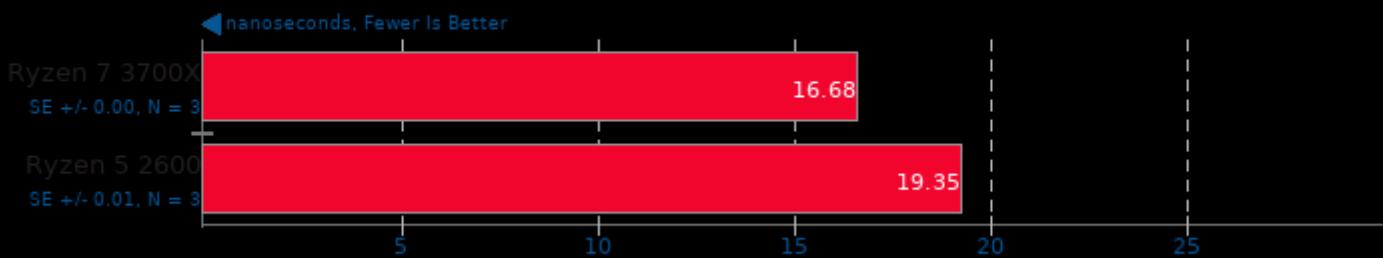
**glibc bench 1.0**

Benchmark: tanh

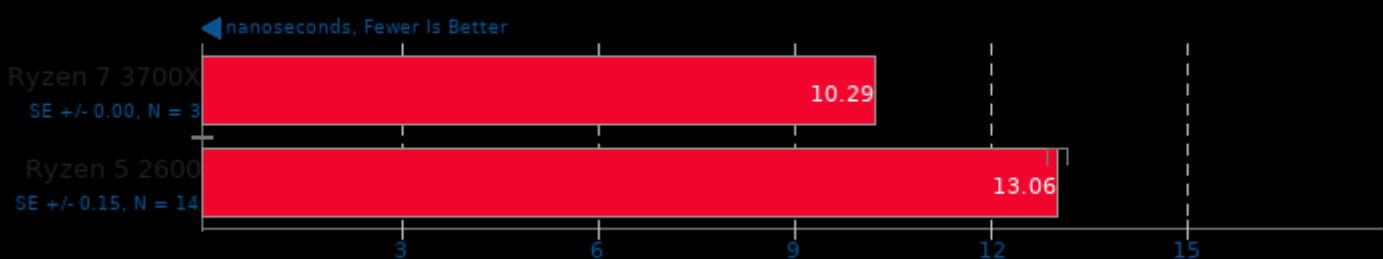


glibc bench 1.0

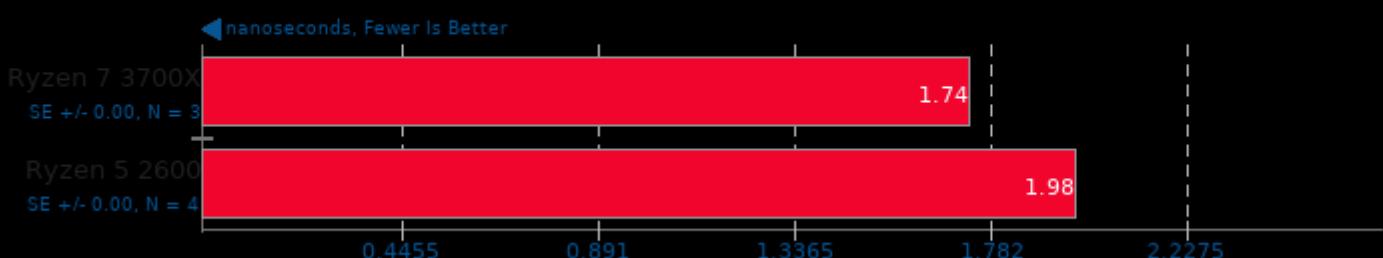
Benchmark: asinh

**glibc bench 1.0**

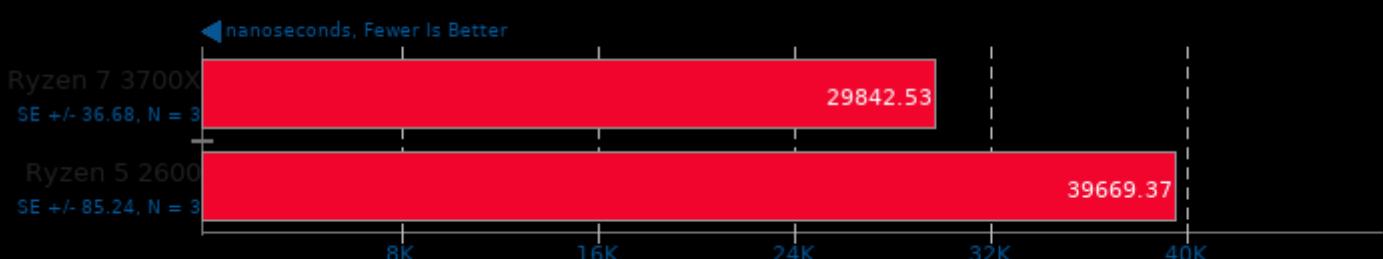
Benchmark: atanh

**glibc bench 1.0**

Benchmark: ffsl

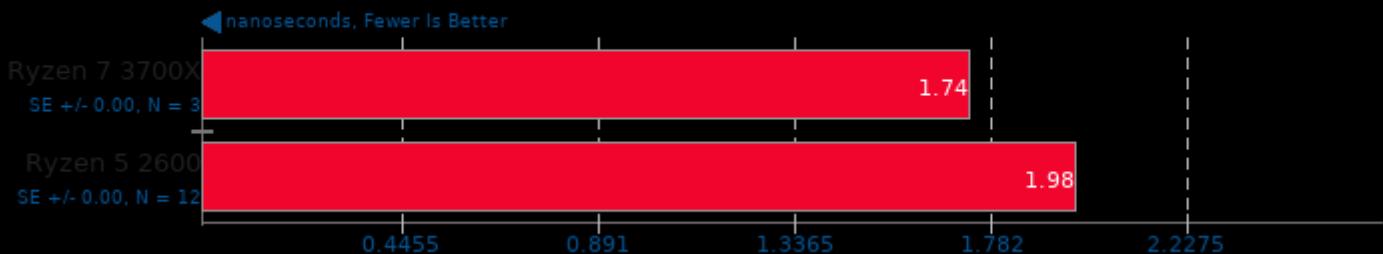
**glibc bench 1.0**

Benchmark: sincos

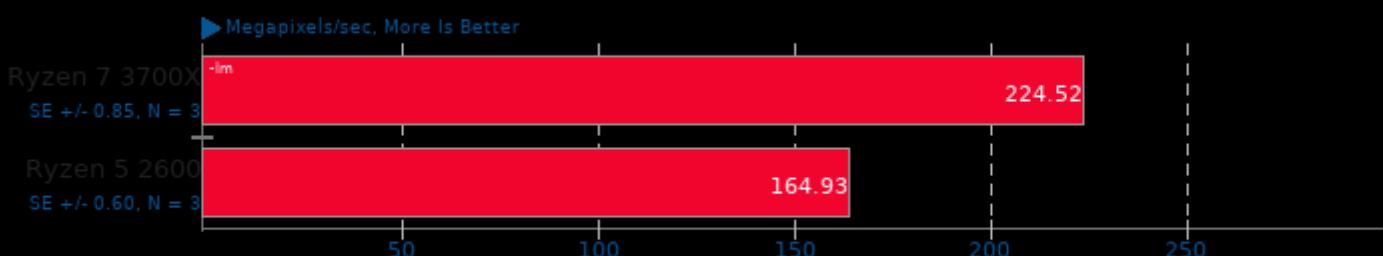


glibc bench 1.0

Benchmark: pthread_once

**libjpeg-turbo tjbench 2.0.2**

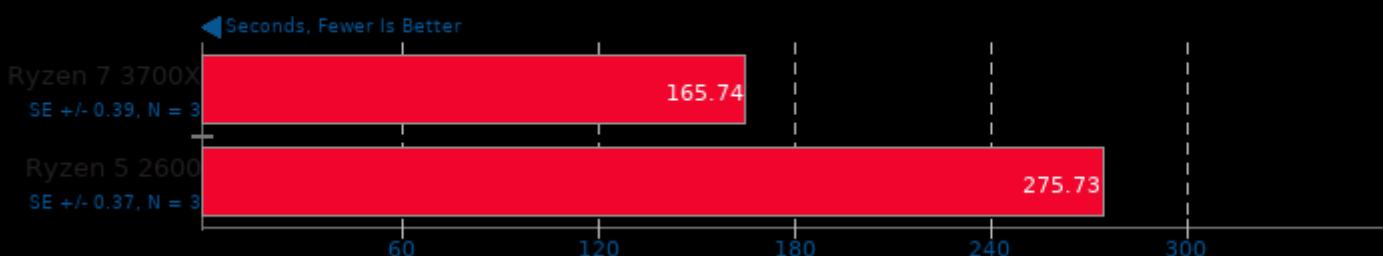
Test: Decompression Throughput



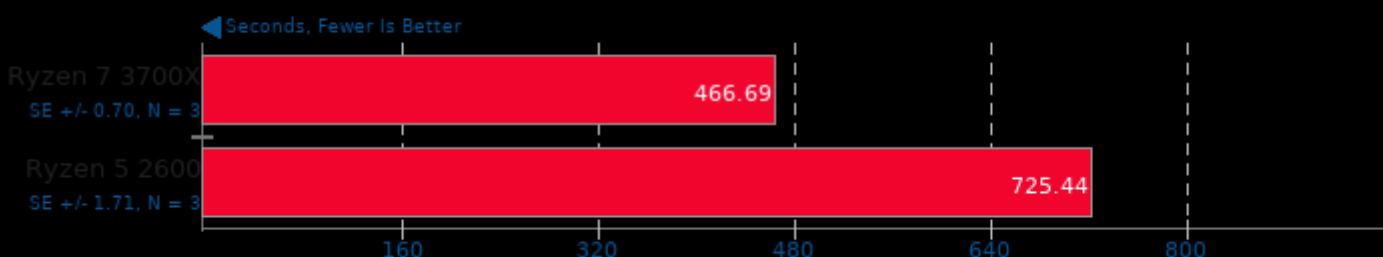
1. (CC) gcc options: -O3 -rdynamic

Blender 2.80

Blend File: BMW27 - Compute: CPU-Only

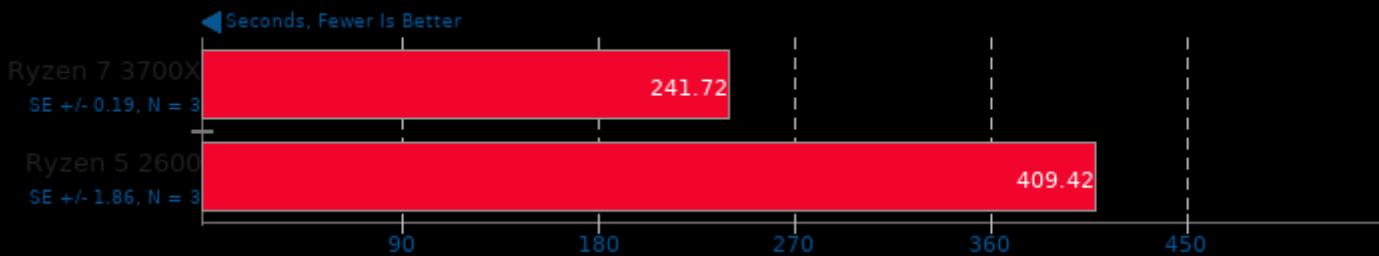
**Blender 2.80**

Blend File: Classroom - Compute: CPU-Only



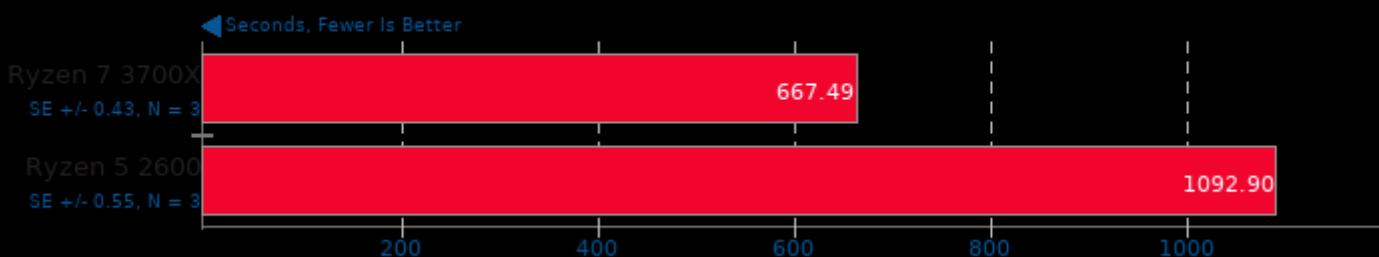
Blender 2.80

Blend File: Fishy Cat - Compute: CPU-Only



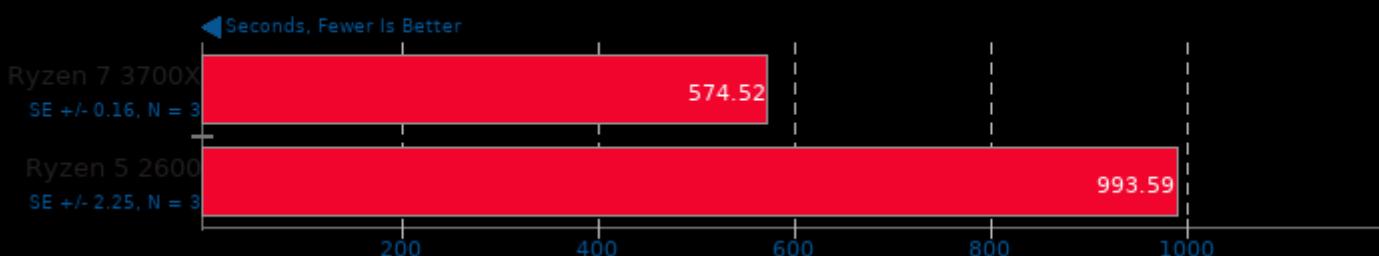
Blender 2.80

Blend File: Barbershop - Compute: CPU-Only



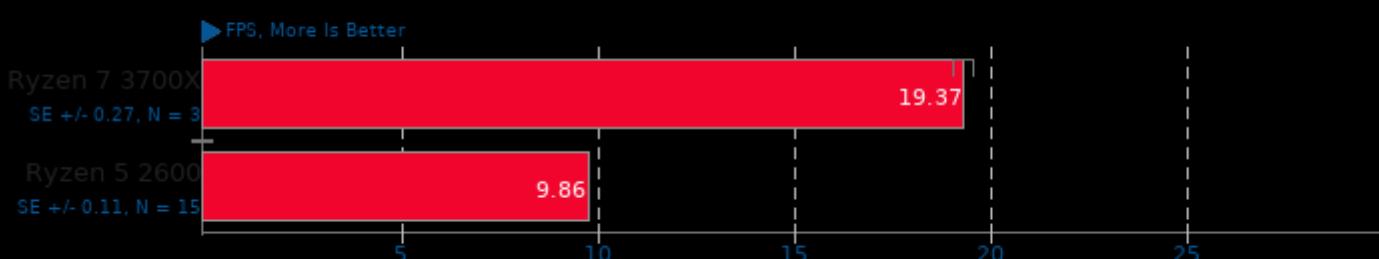
Blender 2.80

Blend File: Pabellon Barcelona - Compute: CPU-Only



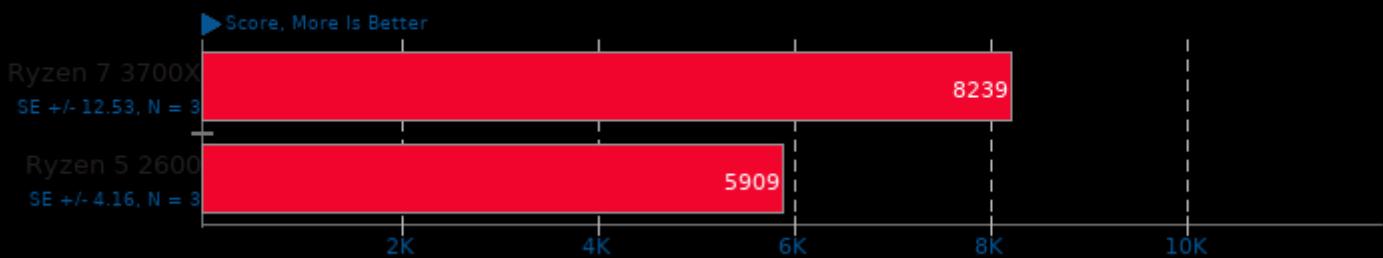
NeatBench 5

Acceleration: CPU



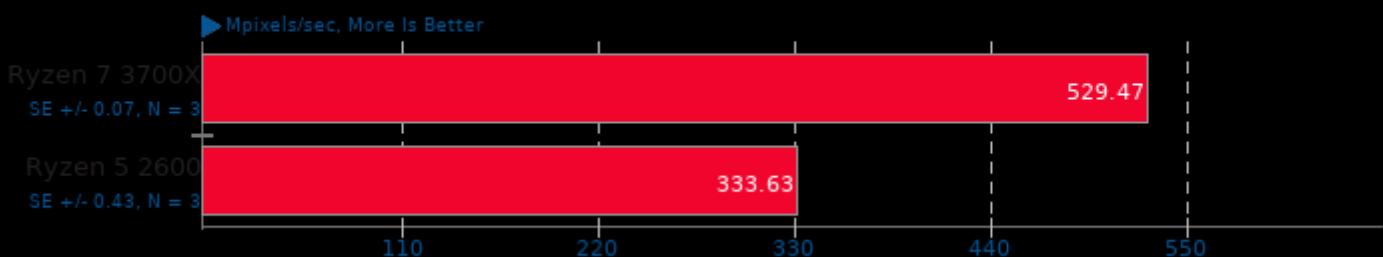
Geekbench 5.0

Test: CPU Multi Core



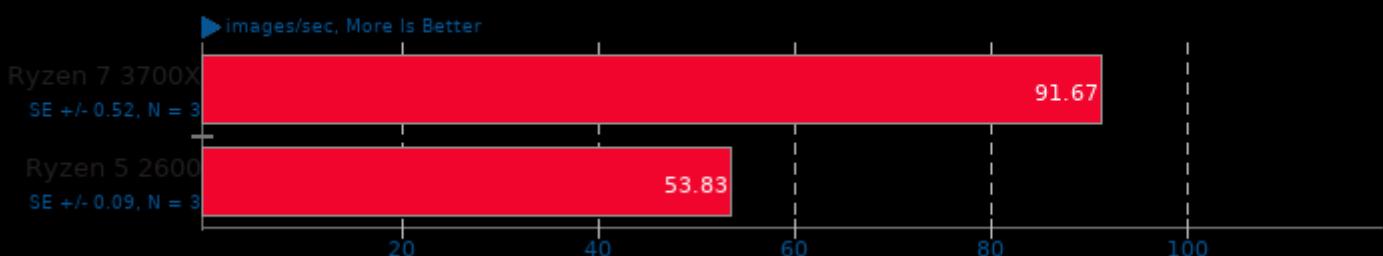
Geekbench 5.0

Test: CPU Multi Core - Gaussian Blur



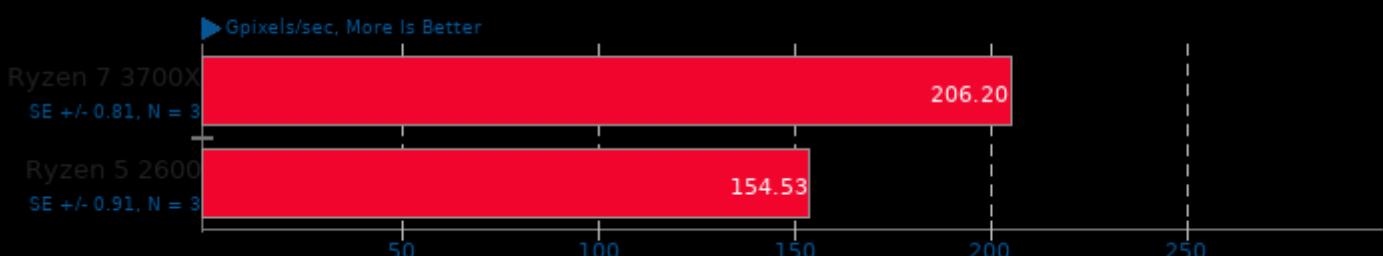
Geekbench 5.0

Test: CPU Multi Core - Face Detection



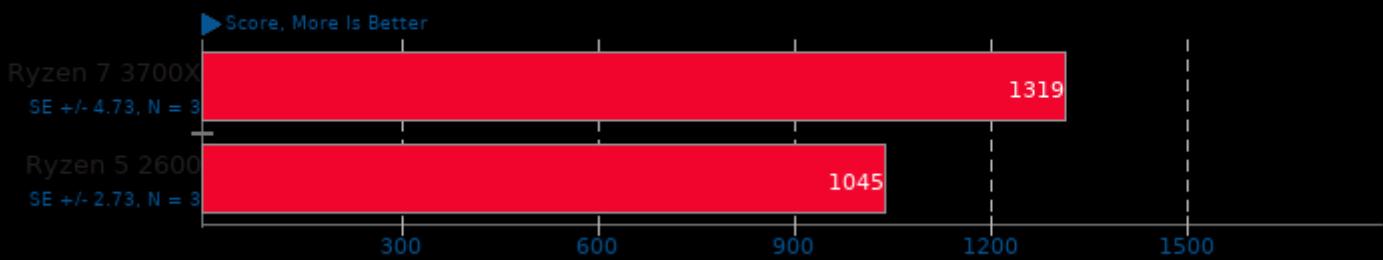
Geekbench 5.0

Test: CPU Multi Core - Horizon Detection



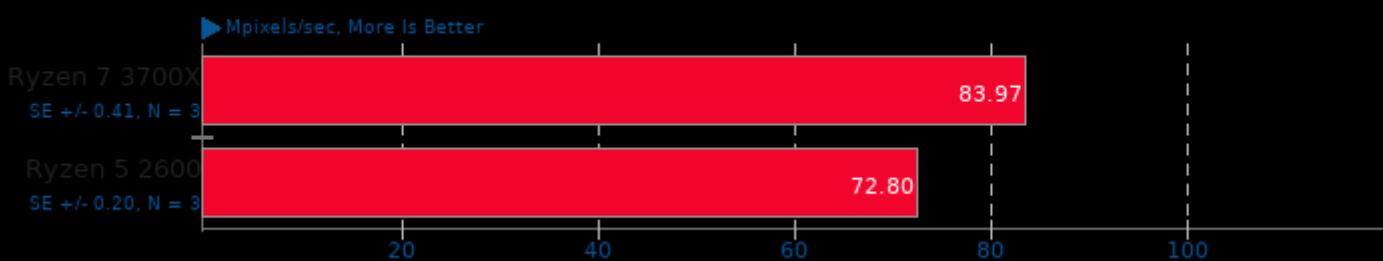
Geekbench 5.0

Test: CPU Single Core



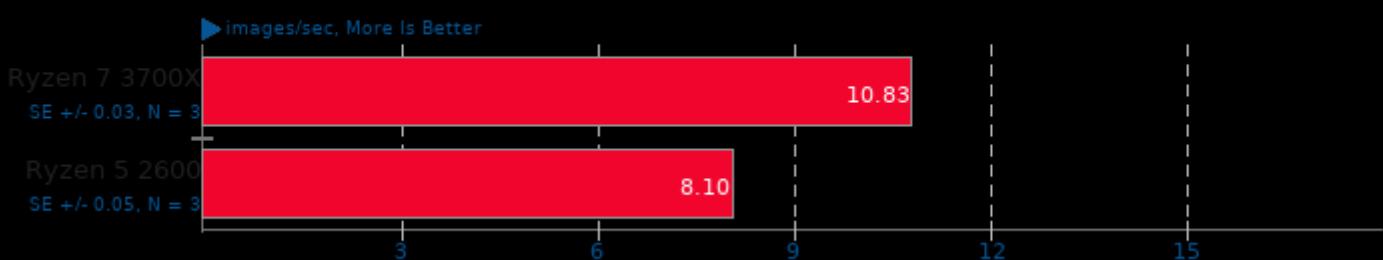
Geekbench 5.0

Test: CPU Single Core - Gaussian Blur



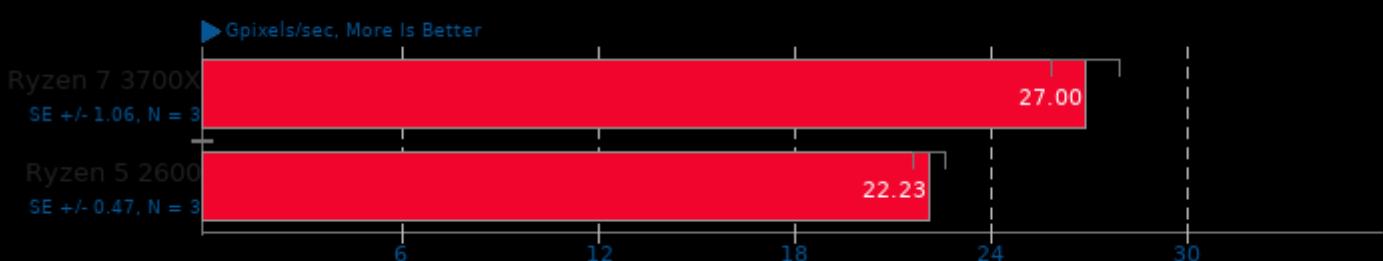
Geekbench 5.0

Test: CPU Single Core - Face Detection



Geekbench 5.0

Test: CPU Single Core - Horizon Detection



Selenium

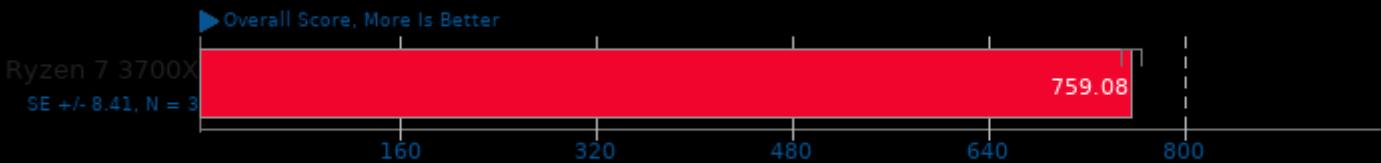
Benchmark: ARES-6 - Browser: Firefox



1. firefox 68.0

Selenium

Benchmark: Basemark - Browser: Firefox



1. firefox 68.0

Selenium

Benchmark: MotionMark - Browser: Firefox



1. firefox 68.0

Selenium

Benchmark: Speedometer - Browser: Firefox



1. firefox 68.0

Selenium

Benchmark: WebXPRT - Browser: Firefox



1. firefox 68.0

Selenium

Benchmark: Octane - Browser: Firefox



1. firefox 68.0

Selenium

Benchmark: Jetstream - Browser: Firefox



1. firefox 68.0

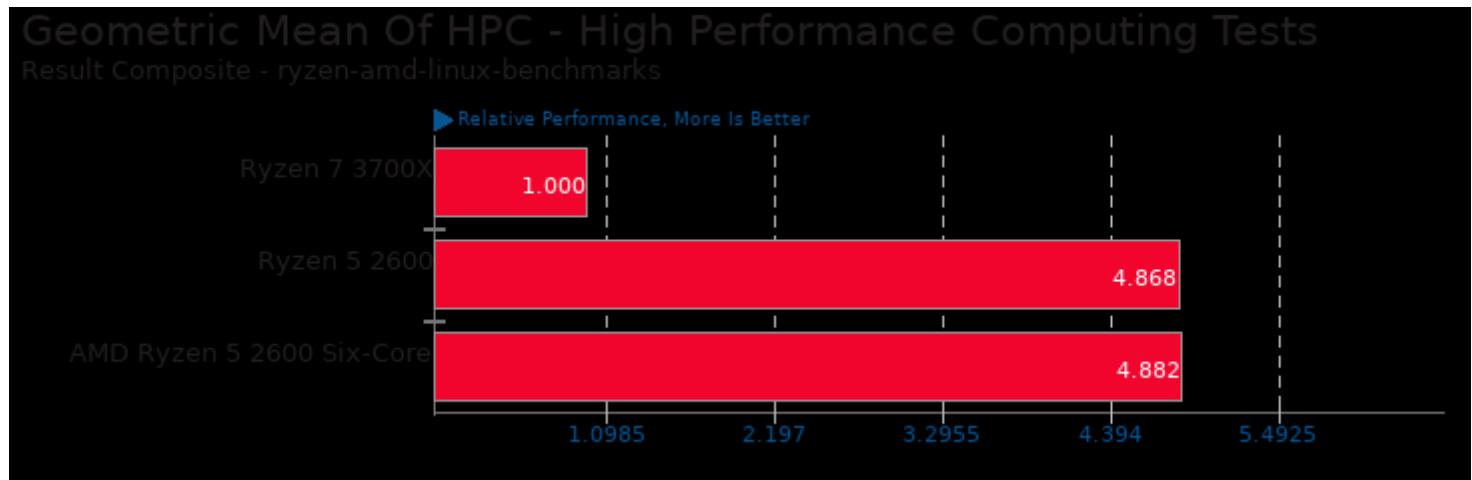
Selenium

Benchmark: CanvasMark - Browser: Firefox

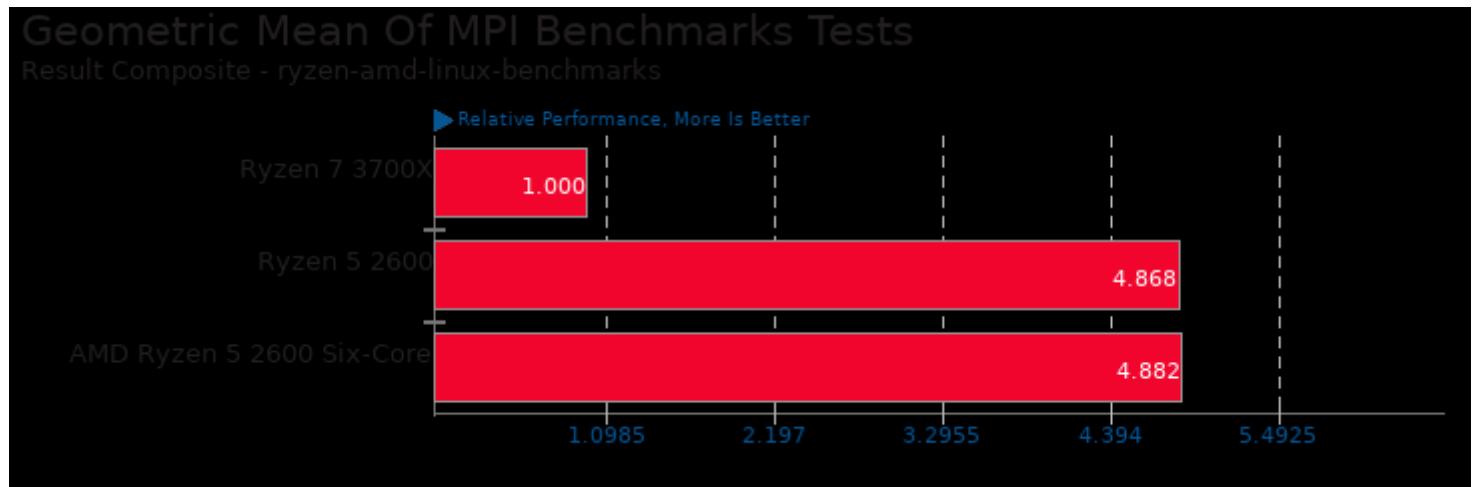


1. firefox 68.0

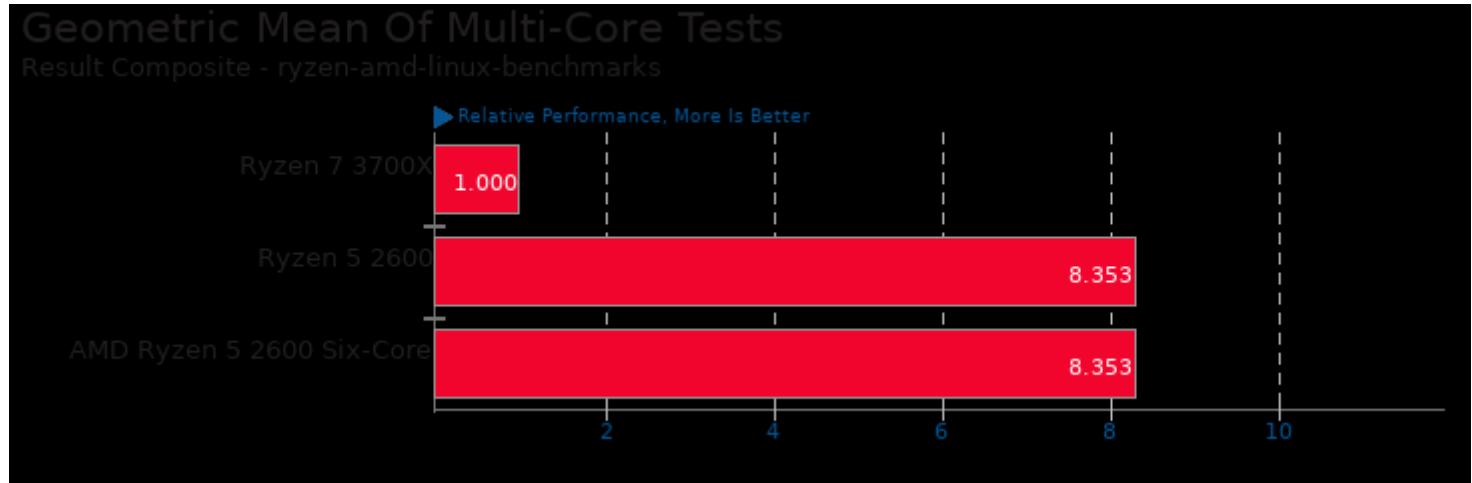
These geometric means are based upon test groupings / test suites for this result file.



Geometric mean based upon tests: pts/npb, pts/pennant and pts/qmcpack



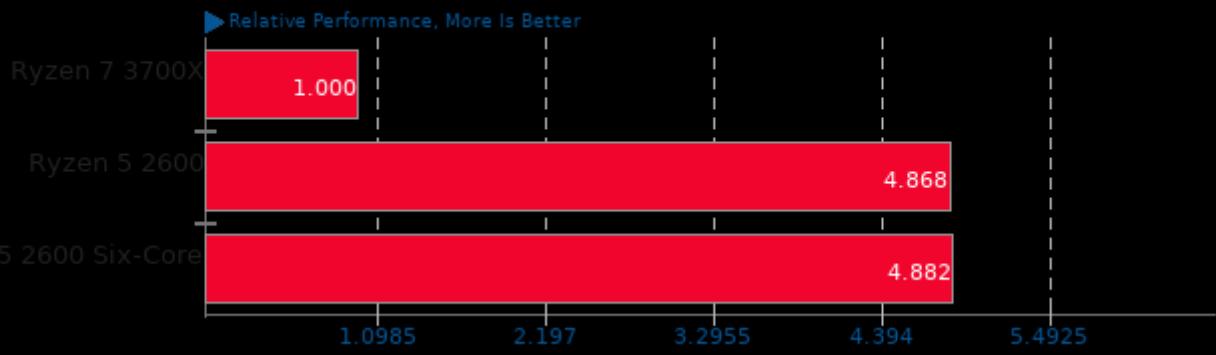
Geometric mean based upon tests: pts/qmcpack, pts/pennant and pts/npb



Geometric mean based upon tests: pts/blender, pts/coremark, pts/svt-vp9, pts/x265, pts/npb, pts/pennant, pts/tungsten and pts/neatbench

Geometric Mean Of Scientific Computing Tests

Result Composite - ryzen-amd-linux-benchmarks



Geometric mean based upon tests: pts/pennant and pts/qmcpack

This file was automatically generated via the Phoronix Test Suite benchmarking software on Thursday, 28 March 2024 17:36.