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## 5950xCPU

stableOC

### Automated Executive Summary

*AMD Ryzen 9 5950X 16-Core had the most wins, coming in first place for 50% of the tests.*

*Based on the geometric mean of all complete results, the fastest (AMD Ryzen 9 5950X 16-Core) was 1.082x the speed of the slowest (stable). dajeCPU was 0.95x the speed of AMD Ryzen 9 5950X 16-Core and stable was 0.973x the speed of dajeCPU.*

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

*ctx\_clock (Context Switch Time) at 1.25x*

*Kvazaar (Video Input: Bosphorus 4K - Video Preset: Ultra Fast) at 1.221x*

*Rodinia (Test: OpenMP LavaMD) at 1.157x*

*Kvazaar (Video Input: Bosphorus 4K - Video Preset: Medium) at 1.123x*

*Kvazaar (Video Input: Bosphorus 4K - Video Preset: Slow) at 1.119x*

*Kvazaar (Video Input: Bosphorus 4K - Video Preset: Very Fast) at 1.118x*

*NAMD (ATPase Simulation - 327,506 Atoms) at 1.086x*

*Kvazaar (Video Input: Bosphorus 1080p - Video Preset: Very Fast) at 1.084x*

*Kvazaar (Video Input: Bosphorus 1080p - Video Preset: Slow) at 1.084x*

Kvazaar (Video Input: Bosphorus 1080p - Video Preset: Ultra Fast) at 1.081x.

## Test Systems:

### dajeCPU

Processor: AMD Ryzen 9 5950X 16-Core @ 3.40GHz (16 Cores / 32 Threads), Motherboard: MSI MAG B550M MORTAR (MS-7C94) v1.0 (1.70 BIOS), Chipset: AMD Starship/Matisse, Memory: 2 x 8 GB DDR4-3200MT/s LD4BU008G-3200XG, Disk: 1000GB Sabrent Rocket 4.0 1TB + 1000GB Western Digital WDS100T1B0A-, Graphics: Zotac NVIDIA GeForce GT 710 2GB, Audio: NVIDIA GK208 HDMI/DP, Monitor: DELL P1917S, Network: Realtek RTL8125 2.5GbE

OS: Debian GNU/Linux 11, Kernel: 5.15.83-1-pve (x86\_64), Display Server: X Server, Vulkan: 1.0.2, Compiler: GCC 10.2.1 20210110, File-System: ext4, 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,objc++,m2 --enable-libphobos-checking=release --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-link-mutex --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc-auto --enable-offload-targets=nvptx-none=/build/gcc-10-Km9U7s/gcc-10-10.2.1/debian/tmp-nvptx/usr,amdgn-amdhsa=/build/gcc-10-Km9U7s/gcc-10-10.2.1/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-build-config=bootstrap-lto-lean --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 performance (Boost: Enabled) - CPU Microcode: 0x0  
Security Notes: itlb\_multihit: Not affected + I1tf: Not affected + mds: Not affected + meltdown: Not affected + mmio\_stale\_data: Not affected + rebleed: 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 Retpolines IBPB: conditional IBRS\_FW STIBP: always-on RSB filling PBRSB-eIBRS: Not affected + srbds: Not affected + tsx\_async\_abort: Not affected

### AMD Ryzen 9 5950X 16-Core

Processor: AMD Ryzen 9 5950X 16-Core @ 4.60GHz (16 Cores / 32 Threads), Motherboard: MSI MAG B550M MORTAR (MS-7C94) v1.0 (1.70 BIOS), Chipset: AMD Starship/Matisse, Memory: 2 x 8 GB DDR4-3200MT/s LD4BU008G-3200XG, Disk: 1000GB Sabrent Rocket 4.0 1TB + 1000GB Western Digital WDS100T1B0A-, Graphics: Zotac NVIDIA GeForce GT 710 2GB, Audio: NVIDIA GK208 HDMI/DP, Monitor: DELL P1917S, Network: Realtek RTL8125 2.5GbE

OS: Debian GNU/Linux 11, Kernel: 5.15.83-1-pve (x86\_64), Display Server: X Server, Vulkan: 1.0.2, Compiler: GCC 10.2.1 20210110, File-System: ext4, 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,objc++,m2 --enable-libphobos-checking=release --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-link-mutex --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc-auto --enable-offload-targets=nvptx-none=/build/gcc-10-Km9U7s/gcc-10-10.2.1/debian/tmp-nvptx/usr,amdgn-amdhsa=/build/gcc-10-Km9U7s/gcc-10-10.2.1/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-build-config=bootstrap-lto-lean --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 performance (Boost: Enabled) - CPU Microcode: 0x0  
Security Notes: itlb\_multihit: Not affected + I1tf: Not affected + mds: Not affected + meltdown: Not affected + mmio\_stale\_data: Not affected + rebleed: 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 Retpolines IBPB: conditional IBRS\_FW STIBP: always-on RSB filling PBRSB-eIBRS: Not affected + srbds: Not affected + tsx\_async\_abort: Not affected

### stabile

Processor: AMD Ryzen 9 5950X 16-Core @ 3.40GHz (16 Cores / 32 Threads), Motherboard: MSI MAG B550M

MORTAR (MS-7C94) v1.0 (1.70 BIOS), Chipset: AMD Starship/Matisse, Memory: 2 x 8 GB DDR4-3200MT/s LD4BU008G-3200XG, Disk: 1000GB Sabrent Rocket 4.0 1TB + 1000GB Western Digital WDS100T1B0A-, Graphics: Zotac NVIDIA GeForce GT 710 2GB, Audio: NVIDIA GK208 HDMI/DP, Monitor: DELL P1917S, Network: Realtek RTL8125 2.5GbE

OS: Debian GNU/Linux 11, Kernel: 5.15.83-1-pve (x86\_64), Display Server: X Server, Vulkan: 1.0.2, Compiler: GCC 10.2.1 20210110, File-System: ext4, 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++,m2 --enable-libphobos-checking=release --enable-libstdcxx-debug
--enable-libstdcxx-time=yes --enable-link-mutex --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto
--enable-offload-targets=nvptx-none=/build/gcc-10-Km9U7s/gcc-10-10.2.1/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-10-Km9U7s/gcc-10-10.2.1/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-build-config=bootstrap-ldo-lean --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 performance (Boost: Enabled) - CPU Microcode: 0x0

Security Notes: itlb\_multihit: Not affected + I1tf: Not affected + mds: Not affected + meltdown: Not affected + mmio\_stale\_data: Not affected + rebleed: 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 Retpolines IPBP: conditional IBRS\_FW STIBP: always-on RSB filling PBRSB-eIBRS: Not affected + srbs: Not affected + tsx\_async\_abort: Not affected

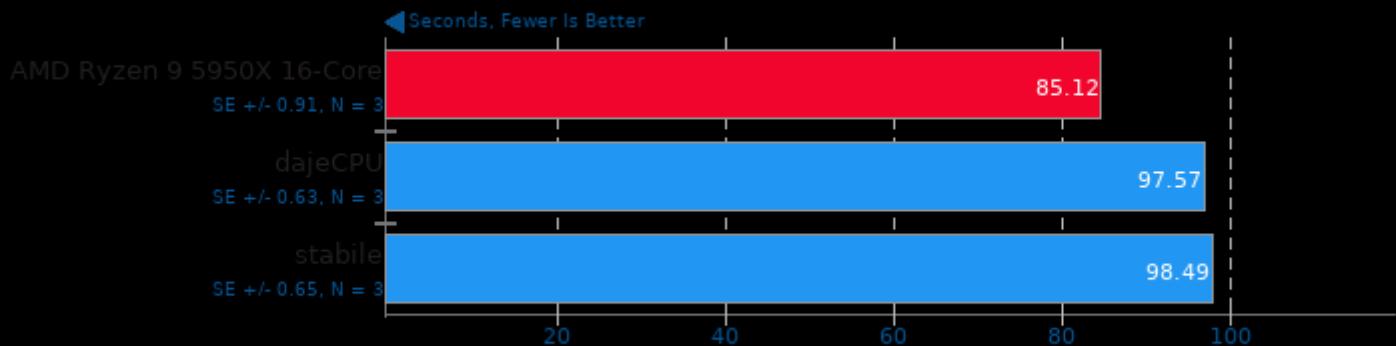
	dajeCPU	AMD Ryzen 9 5950X	stabile
	16-Core		
<b>Rodinia - OpenMP LavaMD (sec)</b>	97.565	<b>85.116</b>	<b>98.492</b>
Normalized	87.24%	100%	86.42%
Standard Deviation	1.1%	1.9%	1.1%
<b>Rodinia - OpenMP CFD Solver (sec)</b>	<b>11.104</b>	<b>10.746</b>	11.028
Normalized	96.78%	100%	97.44%
Standard Deviation	0.8%	0.7%	0.6%
<b>NAMD - ATPase Simulation - 327,506 Atoms (days/ns)</b>	<b>1.00772</b>	<b>0.92787</b>	0.99973
Normalized	92.08%	100%	92.81%
Standard Deviation	0.3%	0.6%	0.6%
<b>Kvazaar - Bosphorus 4K - Slow (FPS)</b>	16.98	<b>18.57</b>	<b>16.6</b>
Normalized	91.44%	100%	89.39%
Standard Deviation	1.6%	1.7%	1%
<b>Kvazaar - Bosphorus 4K - Medium (FPS)</b>	17.55	<b>19.29</b>	<b>17.18</b>
Normalized	90.98%	100%	89.06%
Standard Deviation	0.1%	0.1%	0.1%
<b>Kvazaar - Bosphorus 1080p - Slow (FPS)</b>	69.66	<b>71.99</b>	<b>66.44</b>
Normalized	96.76%	100%	92.29%
Standard Deviation	0.1%	2.4%	2.4%
<b>Kvazaar - Bosphorus 1080p - Medium (FPS)</b>	72.48	<b>75.43</b>	<b>69.80</b>
Normalized	96.09%	100%	92.54%
Standard Deviation	0.1%	0.1%	0%
<b>Kvazaar - Bosphorus 4K - Very Fast (FPS)</b>	38.46	<b>41.53</b>	<b>37.16</b>
Normalized	92.61%	100%	89.48%
Standard Deviation	0.3%	0.3%	0%
<b>Kvazaar - Bosphorus 4K - Ultra Fast (FPS)</b>	62.58	<b>67.62</b>	<b>55.39</b>
Normalized	92.55%	100%	81.91%
Standard Deviation	0.3%	0.3%	1%
<b>Kvazaar - Bosphorus 1080p - Very Fast (FPS)</b>	150.89	<b>158.01</b>	<b>145.70</b>
Normalized	95.49%	100%	92.21%

	Standard Deviation	0.2%	0.3%	0.3%
<b>Kvazaar - Bosphorus 1080p - Ultra Fast</b>	Normalized	95.5%	100%	92.52%
	Standard Deviation	0.2%	0.2%	0.5%
<b>x264 - Bosphorus 4K (FPS)</b>	Normalized	98.38%	100%	94.9%
	Standard Deviation	15.9%	20.1%	18.1%
<b>x264 - Bosphorus 1080p (FPS)</b>	Normalized	95.78%	100%	92.42%
	Standard Deviation	16.3%	16.5%	15.6%
<b>x265 - Bosphorus 4K (FPS)</b>	Normalized	97.16%	100%	93.95%
	Standard Deviation	3.2%	2.6%	2.4%
<b>x265 - Bosphorus 1080p (FPS)</b>	Normalized	93.29	93.23	91.45
	Standard Deviation	0.9%	1.1%	1%
<b>7-Zip Compression - Compression Rating (MIPS)</b>	Normalized	99.43%	99.18%	100%
	Standard Deviation	0.2%	0.1%	0.6%
<b>7-Zip Compression - D.R (MIPS)</b>	Normalized	149990	153966	148858
	Standard Deviation	0.2%	0.2%	0.2%
<b>Stockfish - Total Time (Nodes/s)</b>	Normalized	56065368	56557496	56665759
	Standard Deviation	1.8%	3.9%	3.9%
<b>asmFish - 1.H.M.2.D (Nodes/s)</b>	Normalized	63855244	633.159	633.159
	Standard Deviation	1.6%	0.9%	0.9%
<b>Timed GCC Compilation - Time To Compile (sec)</b>	Normalized	637.364	52.493	52.252
	Standard Deviation	0.34%	0.4%	0.4%
<b>Timed Linux Kernel Compilation - defconfig (sec)</b>	Normalized	99.54%	100%	100%
	Standard Deviation	1.5%	2%	2%
<b>Timed Linux Kernel Compilation - allmodconfig (sec)</b>	Normalized	659.635	658.430	658.430
	Standard Deviation	0.82%	0.5%	0.5%
<b>POV-Ray - Trace Time (sec)</b>	Normalized	20.951	20.690	20.690
	Standard Deviation	0.75%	0.6%	0.6%
<b>Radiance Benchmark - Serial (sec)</b>	Normalized	421.588	420.959	420.959
	Standard Deviation	0.85%	100%	100%
<b>Radiance Benchmark - SMP Parallel (sec)</b>	Normalized	133.619	129.061	129.061
	Standard Deviation	0.59%	100%	100%
<b>OpenSSL - SHA256 (byte/s)</b>	Normalized	28831228430	29629629750	29629629750
	Standard Deviation	0.31%	0.2%	0.2%
<b>OpenSSL - RSA4096 (sign/s)</b>	Normalized	5198	5136	5136
	Standard Deviation	0.3%	0.1%	0.1%

<b>OpenSSL - RSA4096 (verify/s)</b>	<b>339156</b>	<b>333254</b>
<b>Normalized</b>	100%	98.26%
<b>Standard Deviation</b>	0.1%	0.1%
<b>ctx_clock - C.S.T (Clocks)</b>	<b>170</b>	<b>136</b>
<b>Normalized</b>	80%	100%
<b>Sysbench - CPU (Events/sec)</b>	<b>94434</b>	<b>96497</b>
<b>Normalized</b>	97.86%	100%
<b>Standard Deviation</b>	0.1%	0.1%

## Rodinia 3.1

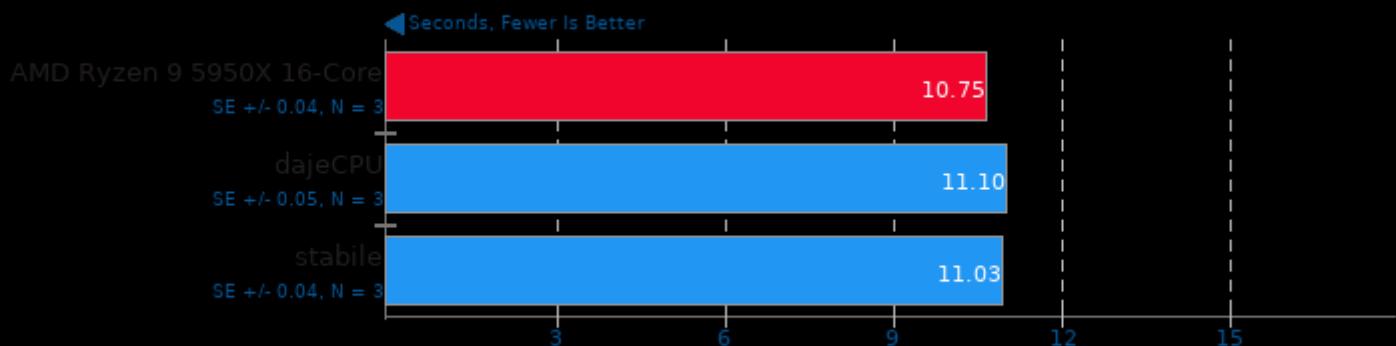
Test: OpenMP LavaMD



1. (CXX) g++ options: -O2 -fOpenCL

## Rodinia 3.1

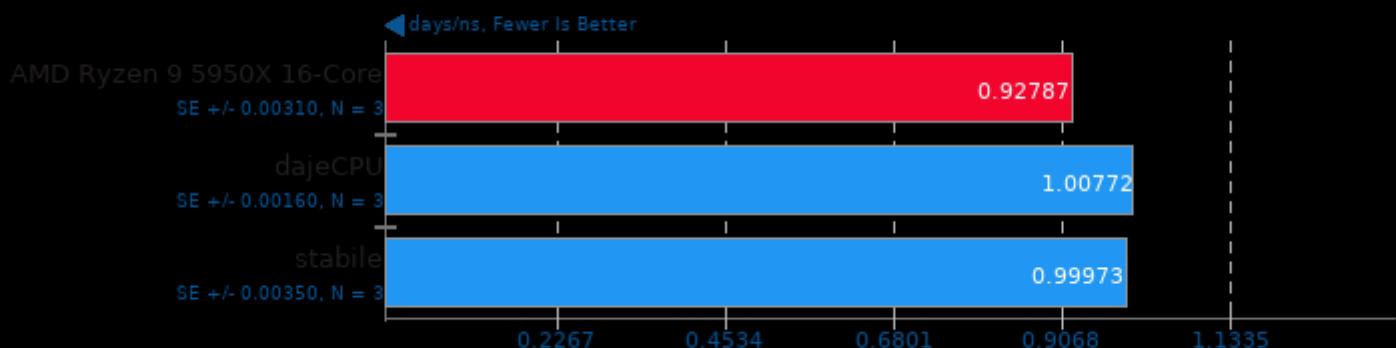
Test: OpenMP CFD Solver



1. (CXX) g++ options: -O2 -fOpenCL

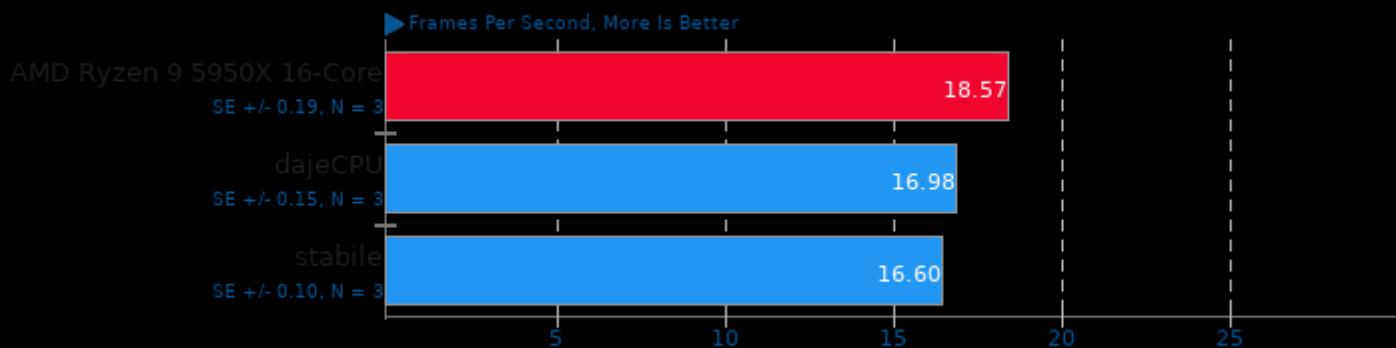
## NAMD 2.14

ATPase Simulation - 327,506 Atoms



## Kvazaar 2.2

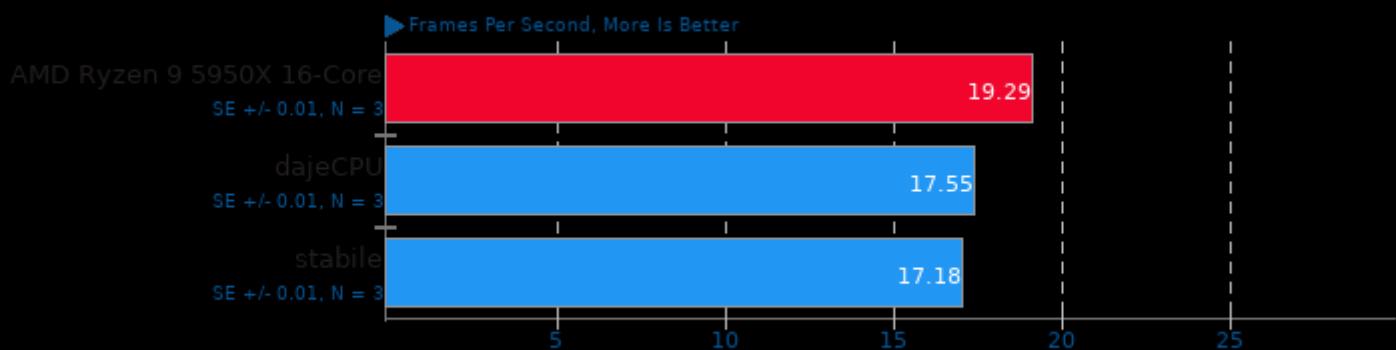
Video Input: Bosphorus 4K - Video Preset: Slow



1. (CC) gcc options: -pthread -fno-tree-vectorize -fvisibility=hidden -O2 -lpthread -lm -lrt

## Kvazaar 2.2

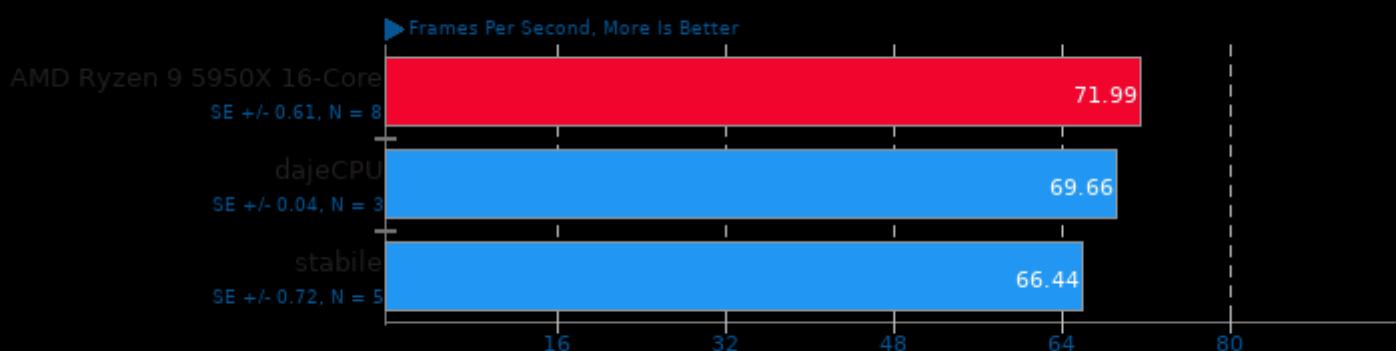
Video Input: Bosphorus 4K - Video Preset: Medium



1. (CC) gcc options: -pthread -fno-tree-vectorize -fvisibility=hidden -O2 -lpthread -lm -lrt

## Kvazaar 2.2

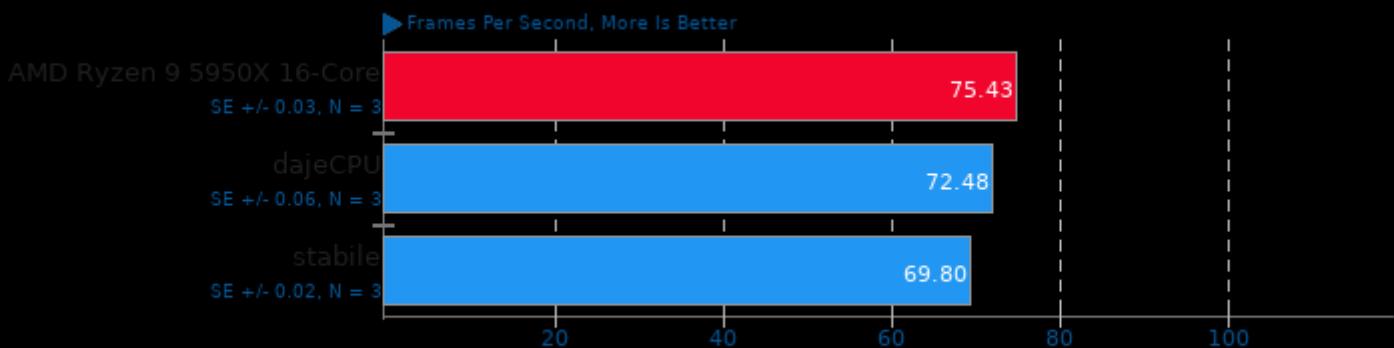
Video Input: Bosphorus 1080p - Video Preset: Slow



1. (CC) gcc options: -pthread -fno-tree-vectorize -fvisibility=hidden -O2 -lpthread -lm -lrt

## Kvazaar 2.2

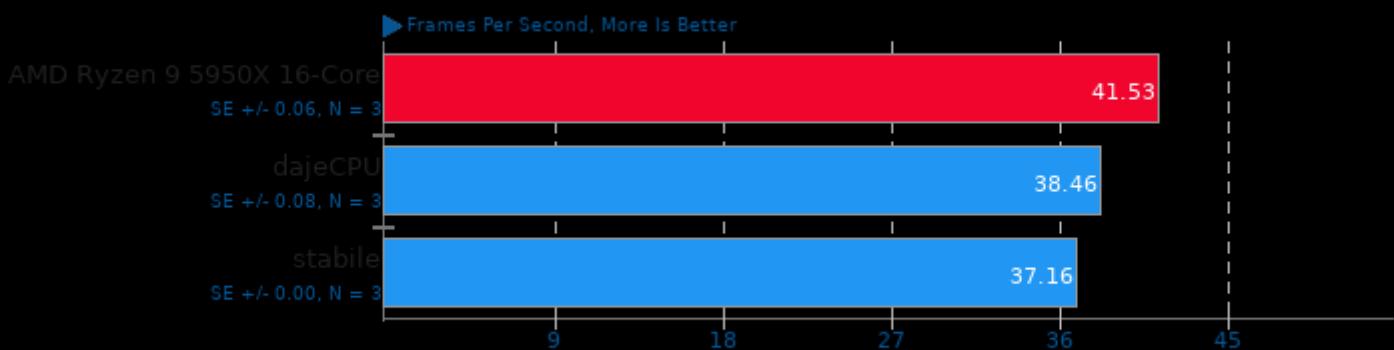
Video Input: Bosphorus 1080p - Video Preset: Medium



1. (CC) gcc options: -pthread -fno-tree-vectorize -fvisibility=hidden -O2 -lpthread -lm -lrt

## Kvazaar 2.2

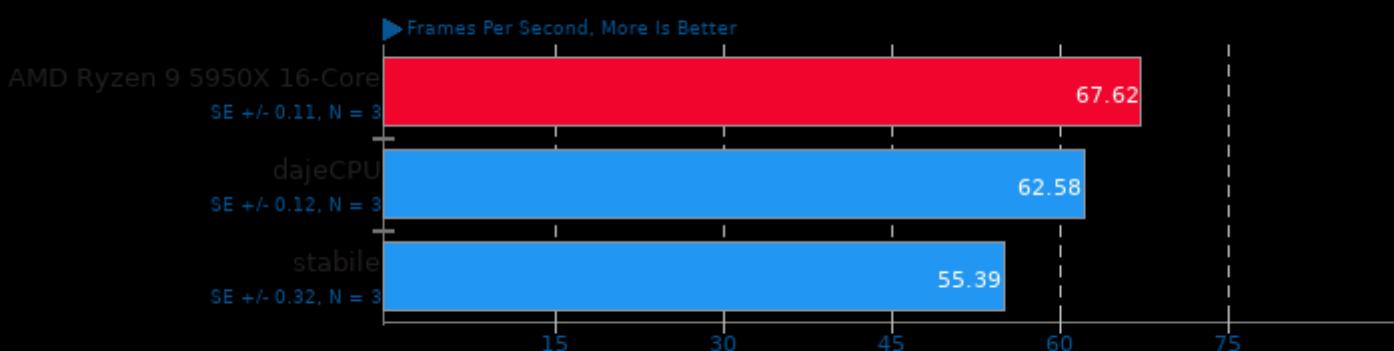
Video Input: Bosphorus 4K - Video Preset: Very Fast



1. (CC) gcc options: -pthread -fno-tree-vectorize -fvisibility=hidden -O2 -lpthread -lm -lrt

## Kvazaar 2.2

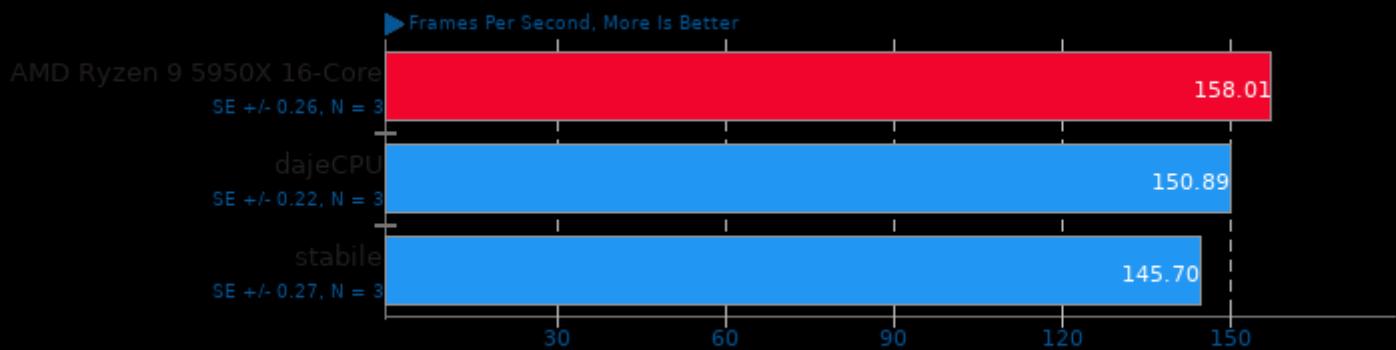
Video Input: Bosphorus 4K - Video Preset: Ultra Fast



1. (CC) gcc options: -pthread -fno-tree-vectorize -fvisibility=hidden -O2 -lpthread -lm -lrt

## Kvazaar 2.2

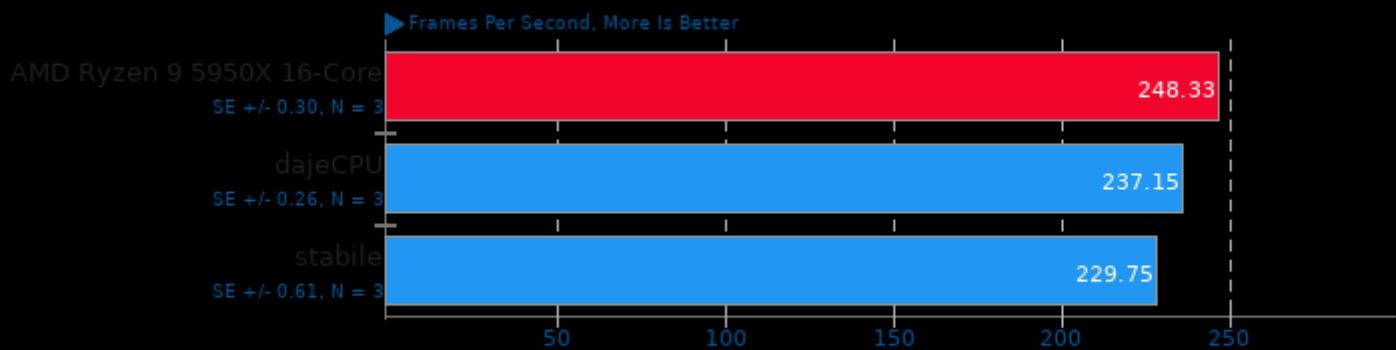
Video Input: Bosphorus 1080p - Video Preset: Very Fast



1. (CC) gcc options: -pthread -fno-tree-vectorize -fvisibility=hidden -O2 -lpthread -lm -lrt

## Kvazaar 2.2

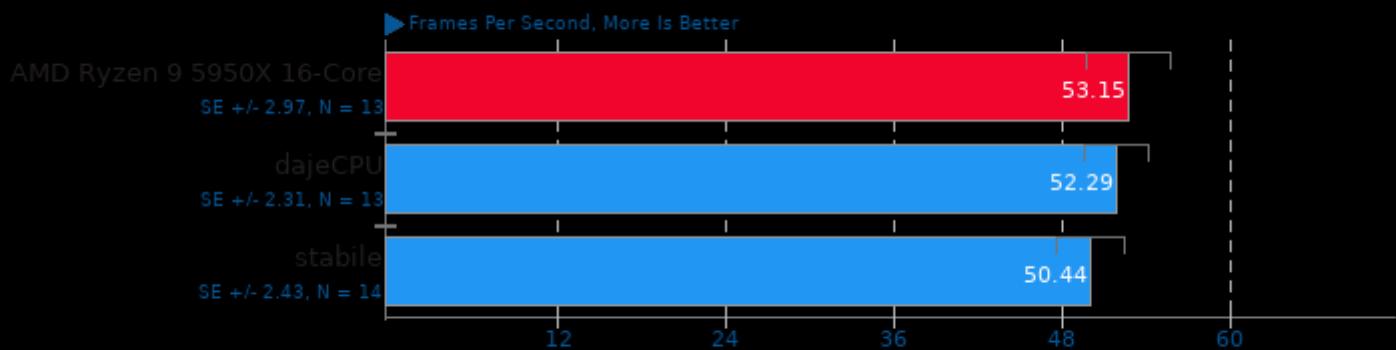
Video Input: Bosphorus 1080p - Video Preset: Ultra Fast



1. (CC) gcc options: -pthread -fno-tree-vectorize -fvisibility=hidden -O2 -lpthread -lm -lrt

## x264 2022-02-22

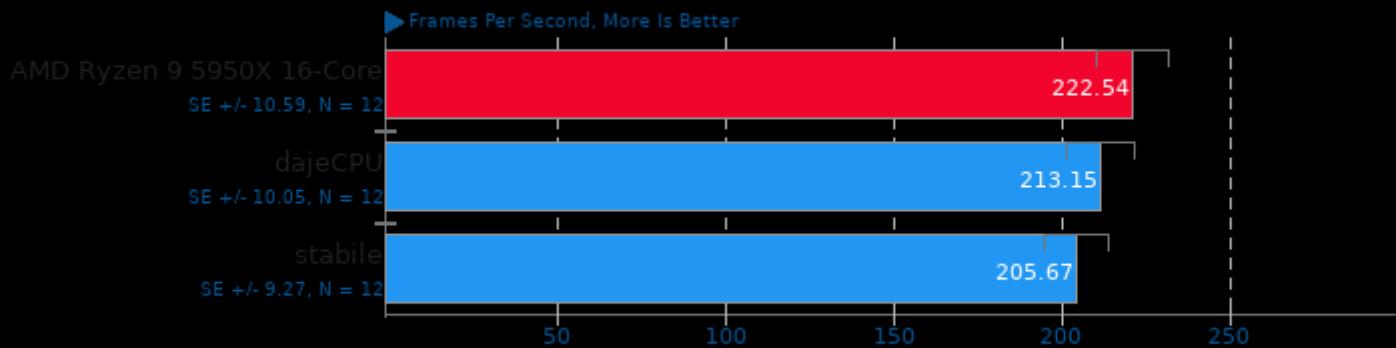
Video Input: Bosphorus 4K



1. (CC) gcc options: -ldl -m64 -lm -lpthread -O3 -fno

## x264 2022-02-22

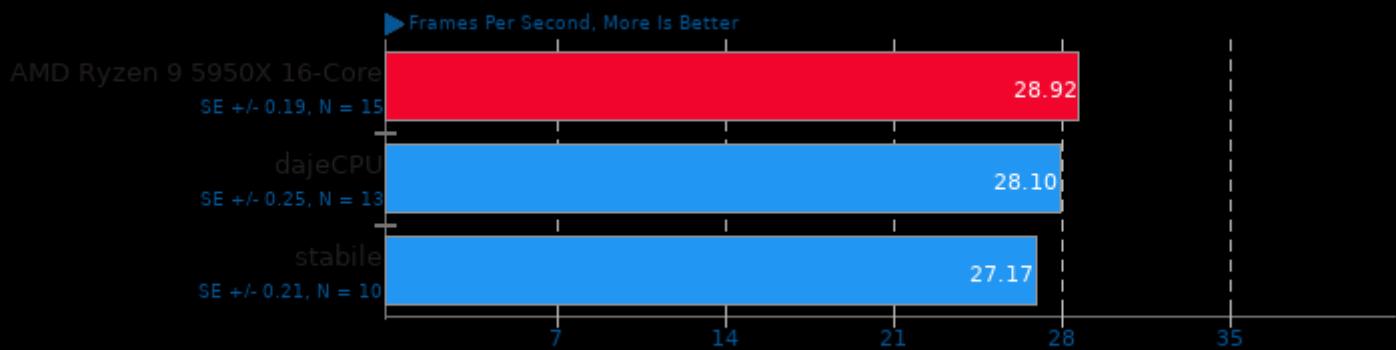
Video Input: Bosphorus 1080p



1. (CC) gcc options: -ldl -m64 -lm -lpthread -O3 -fno

## x265 3.4

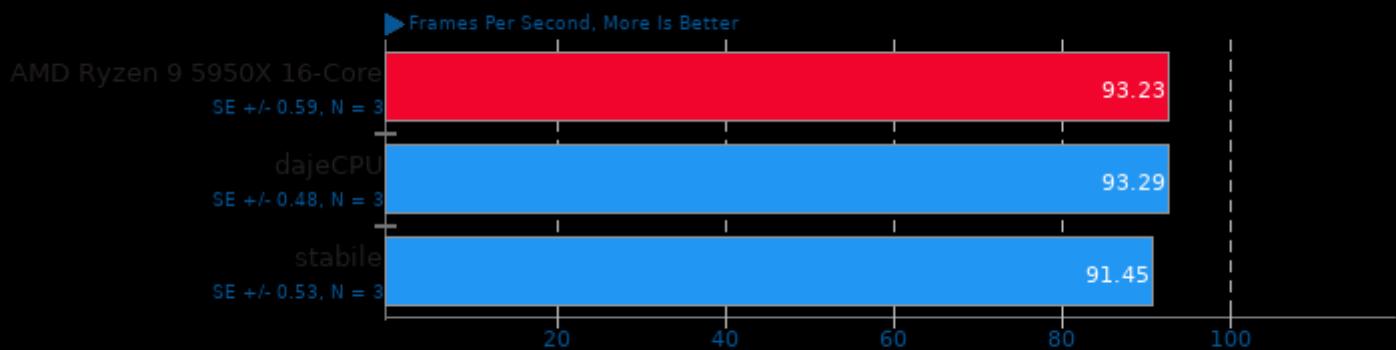
Video Input: Bosphorus 4K



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

## x265 3.4

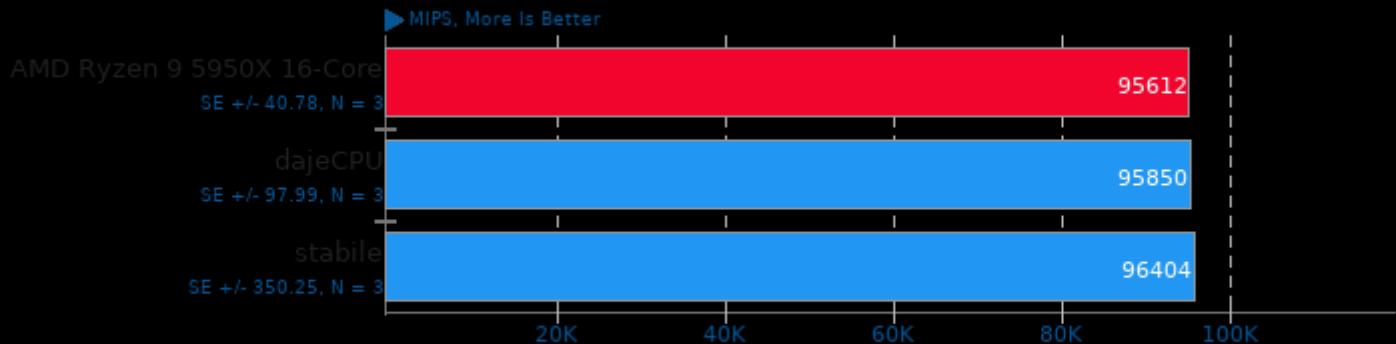
Video Input: Bosphorus 1080p



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

## 7-Zip Compression 22.01

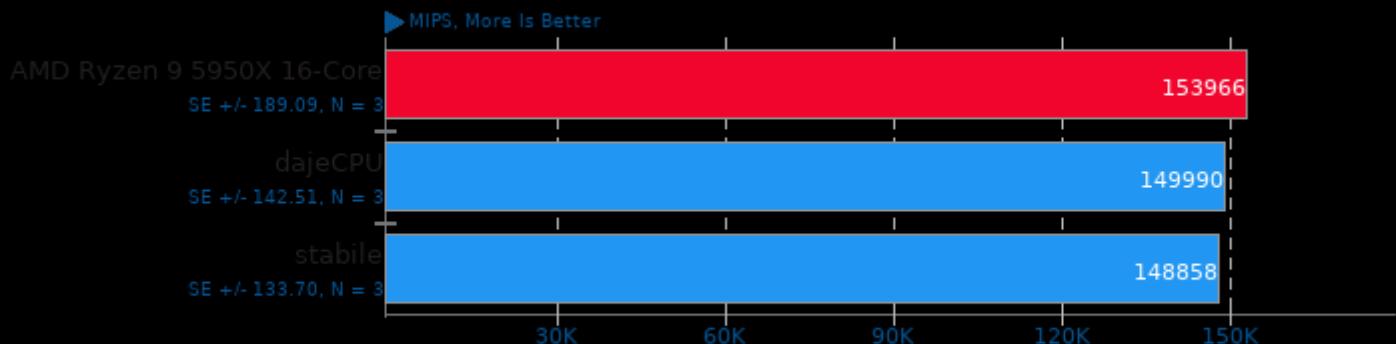
Test: Compression Rating



1. (CXX) g++ options: -lpthread -ldl -O2 -fPIC

## 7-Zip Compression 22.01

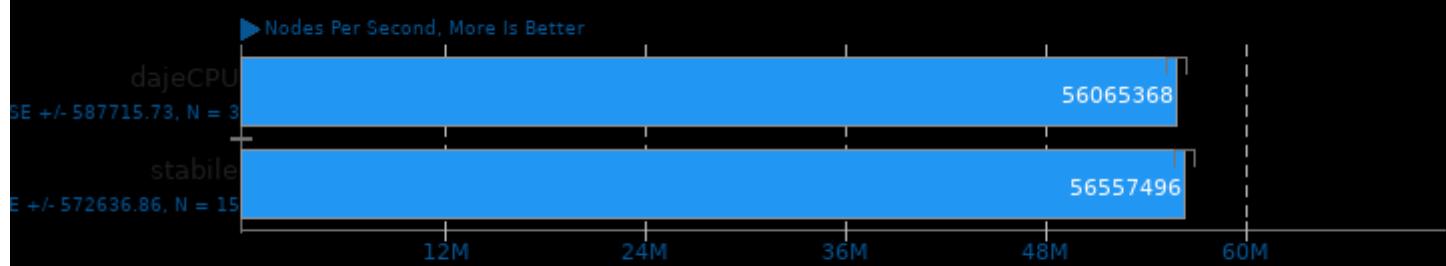
Test: Decompression Rating



1. (CXX) g++ options: -lpthread -ldl -O2 -fPIC

## Stockfish 15

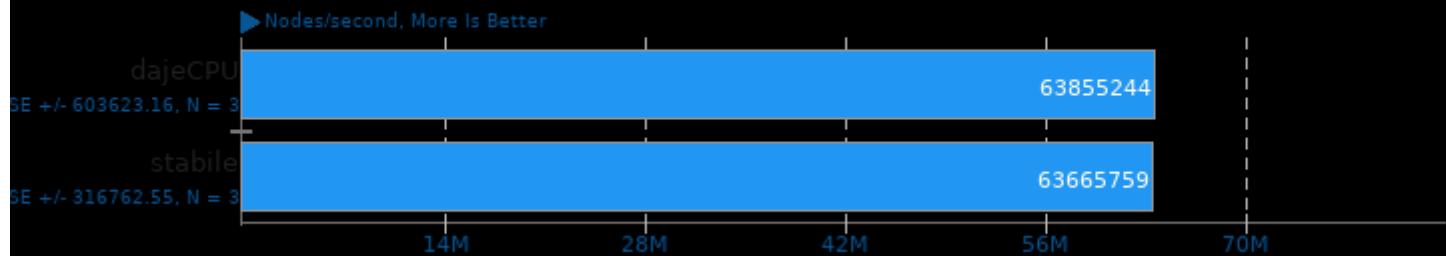
Total Time



1. (CXX) g++ options: -lgcov -m64 -lpthread -fno-exceptions -std=c++17 -fno-peel-loops -fno-tracer -pedantic -O3 -msse -msse3 -mpopcnt -mavx2 -msse

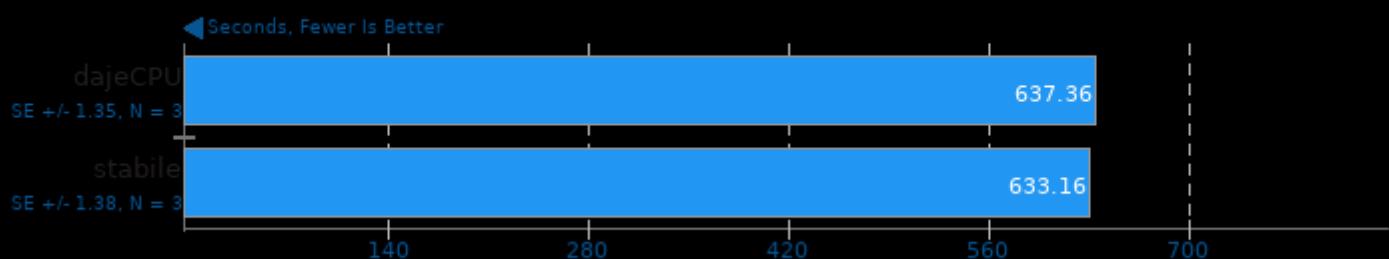
## asmFish 2018-07-23

1024 Hash Memory, 26 Depth



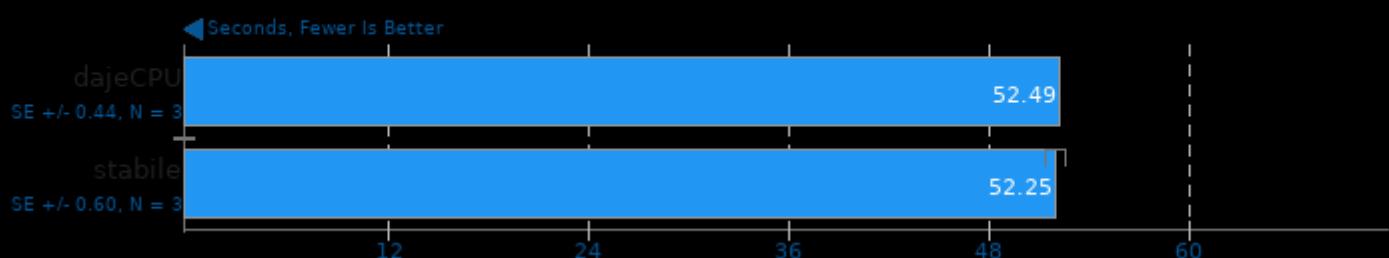
## Timed GCC Compilation 11.2.0

Time To Compile



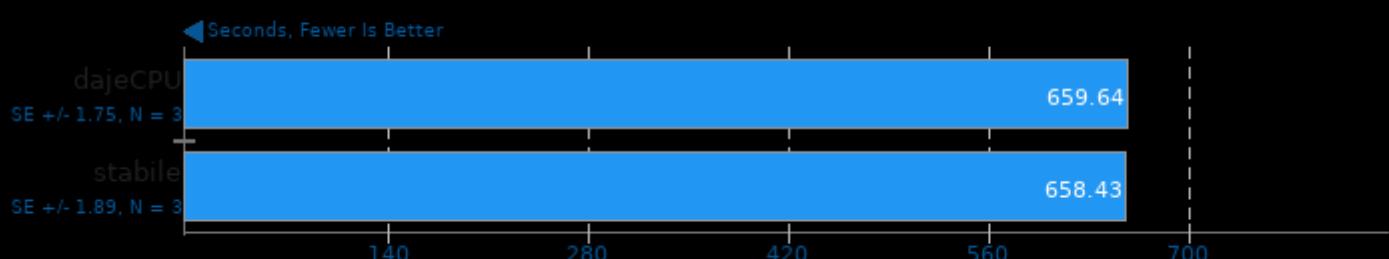
## Timed Linux Kernel Compilation 6.1

Build: defconfig



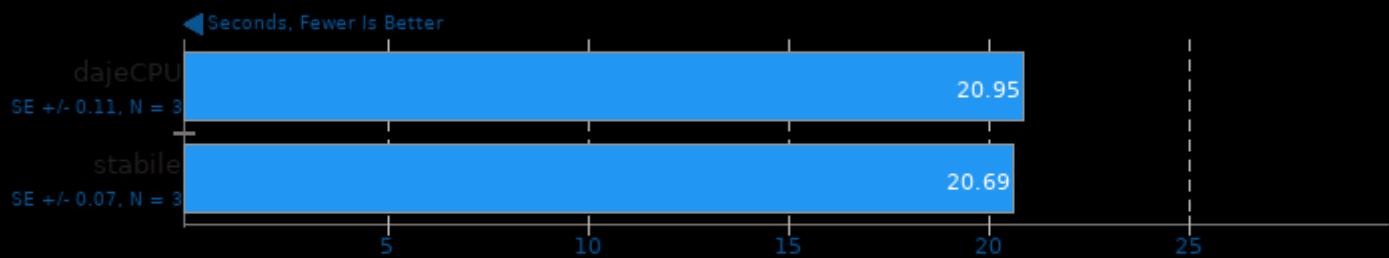
## Timed Linux Kernel Compilation 6.1

Build: allmodconfig



## POV-Ray 3.7.0.7

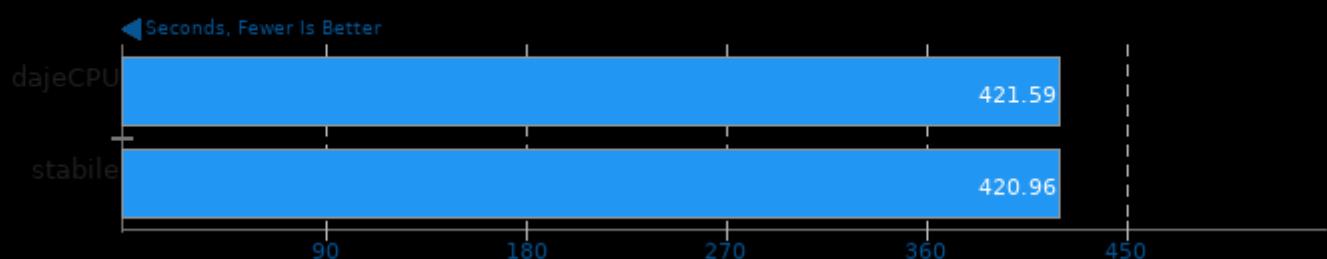
Trace Time



1. (CXX) g++ options: -pipe -O3 -ffast-math -march=native -pthread -fSM -fICE -fX11 -ftiff -fjpeg -fpng -lz -lrt -lm -fboost\_thread -fboost\_system

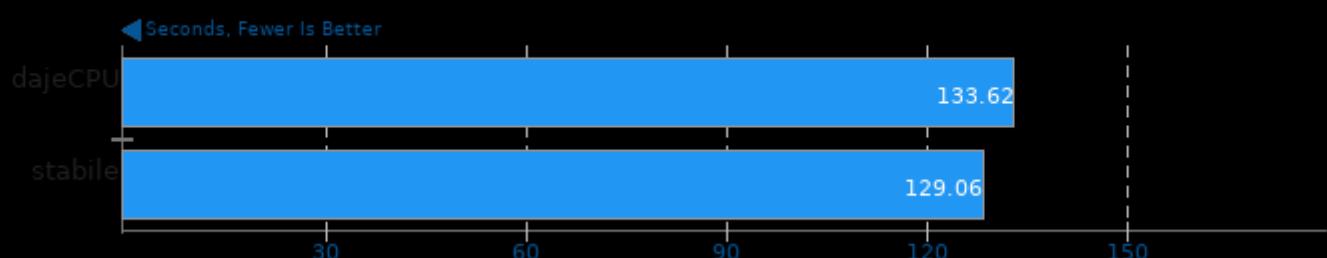
## Radiance Benchmark 5.0

Test: Serial



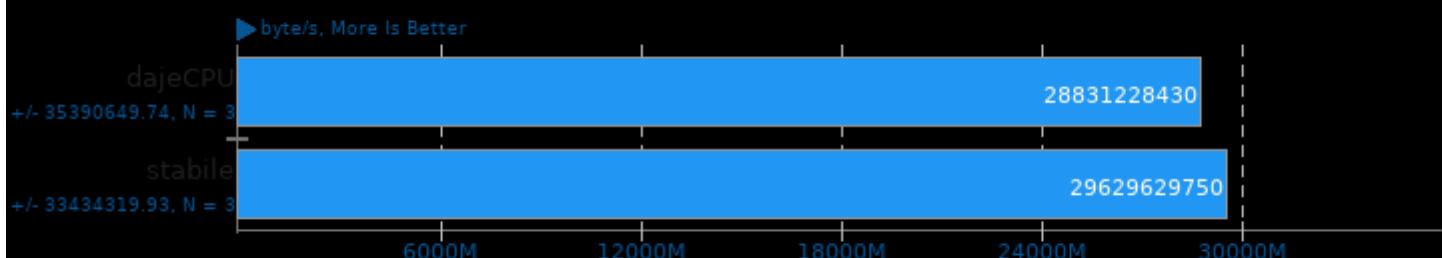
## Radiance Benchmark 5.0

Test: SMP Parallel



## OpenSSL 3.0

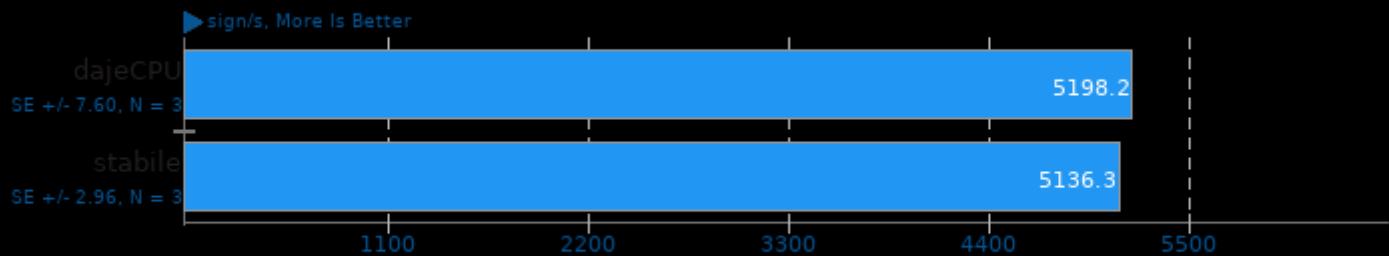
Algorithm: SHA256



1. (CC) gcc options: -pthread -m64 -O3 -fssl -fcrypto -ldl

## OpenSSL 3.0

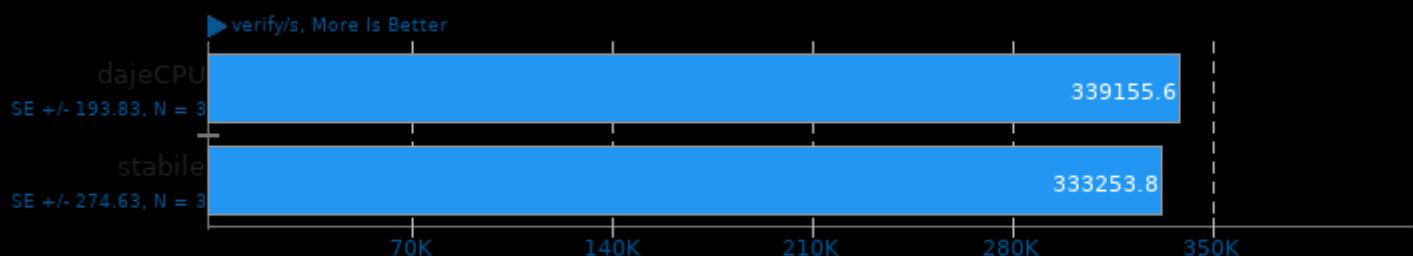
Algorithm: RSA4096



1. (CC) gcc options: -pthread -m64 -O3 -lssl -lcrypto -ldl

## OpenSSL 3.0

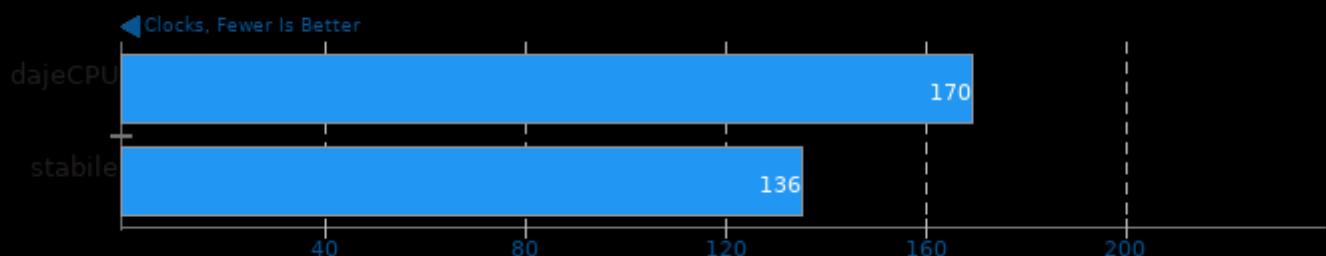
Algorithm: RSA4096



1. (CC) gcc options: -pthread -m64 -O3 -lssl -lcrypto -ldl

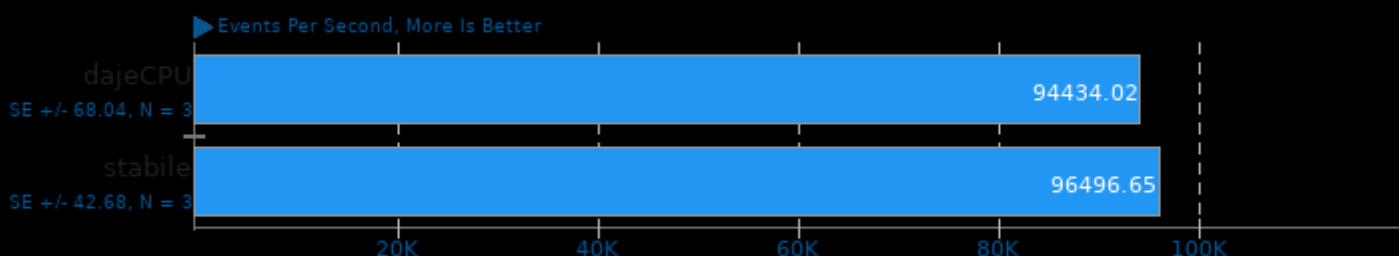
## ctx\_clock

Context Switch Time



## Sysbench 1.0.20

Test: CPU

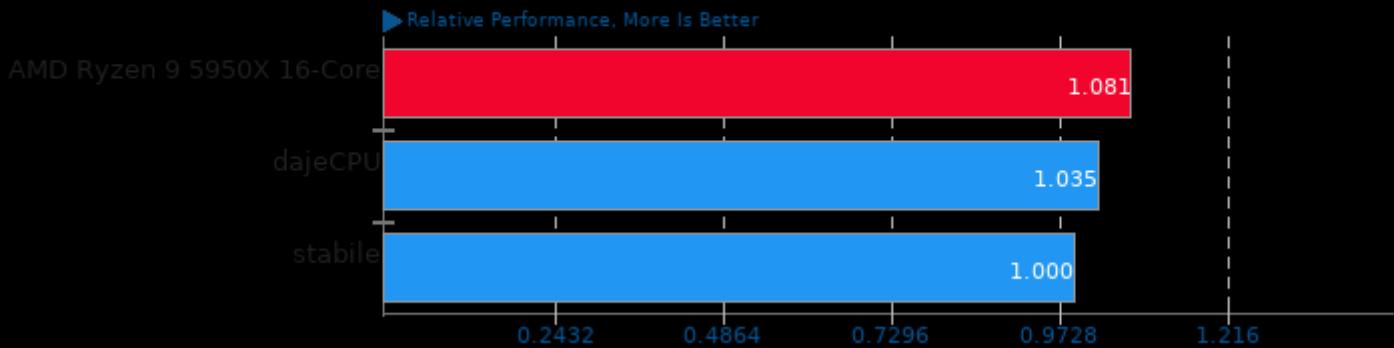


1. (CC) gcc options: -pthread -O2 -funroll-loops -rdynamic -ldl -lao -lm

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

### Geometric Mean Of C/C++ Compiler Tests

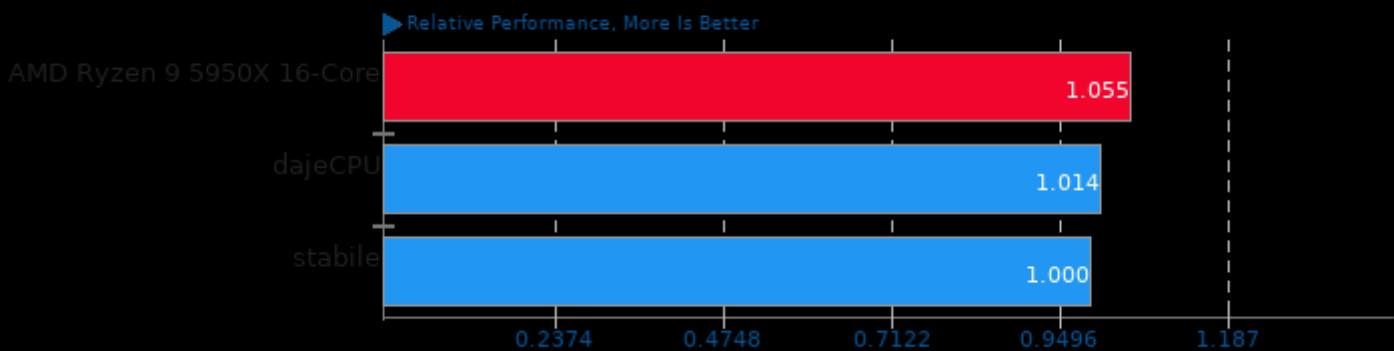
Result Composite - 5950xCPU



Geometric mean based upon tests: pts/stockfish, pts/compress-7zip, pts/x264, pts/x265, pts/kvazaar and pts/openssl

### Geometric Mean Of CPU Massive Tests

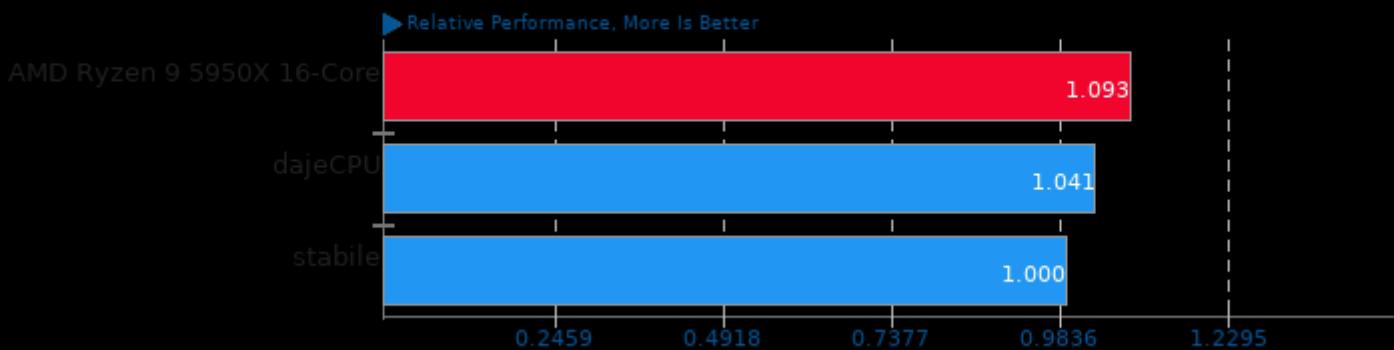
Result Composite - 5950xCPU



Geometric mean based upon tests: pts/asmfish, pts/build-gcc, pts/build-linux-kernel, pts/compress-7zip, pts/ctx-clock, pts/x264, pts/x265, pts/openssl, pts/namd, pts/povray, pts/radiance, pts/rodinia, pts/stockfish, pts/sysbench and pts/blender

### Geometric Mean Of Creator Workloads Tests

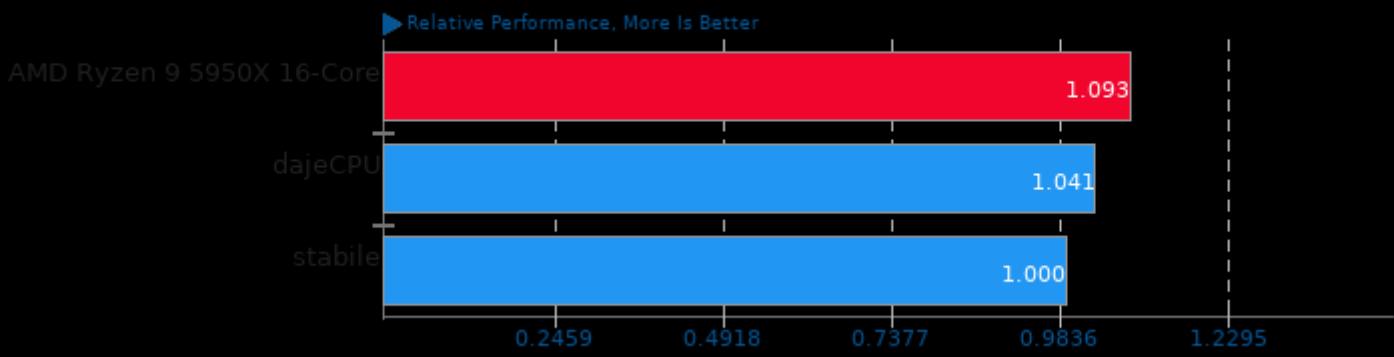
Result Composite - 5950xCPU



Geometric mean based upon tests: pts/povray, pts/blender, pts/radiance, pts/x264, pts/x265 and pts/kvazaar

## Geometric Mean Of Encoding Tests

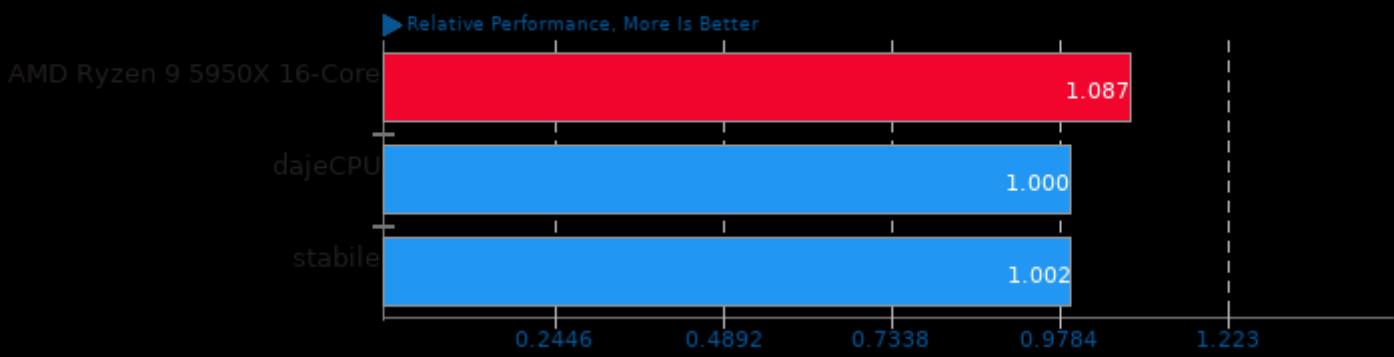
Result Composite - 5950xCPU



Geometric mean based upon tests: pts/x264, pts/x265 and pts/kvazaar

## Geometric Mean Of HPC - High Performance Computing Tests

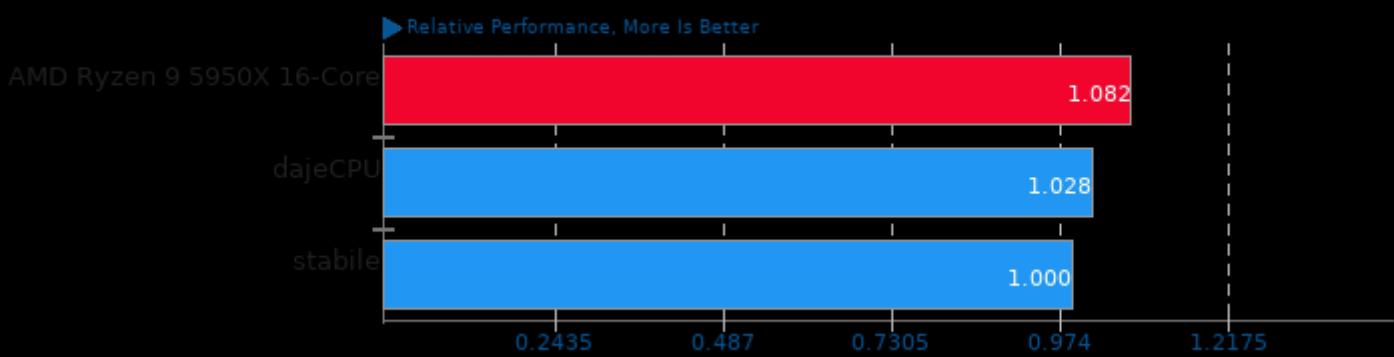
Result Composite - 5950xCPU



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

## Geometric Mean Of Multi-Core Tests

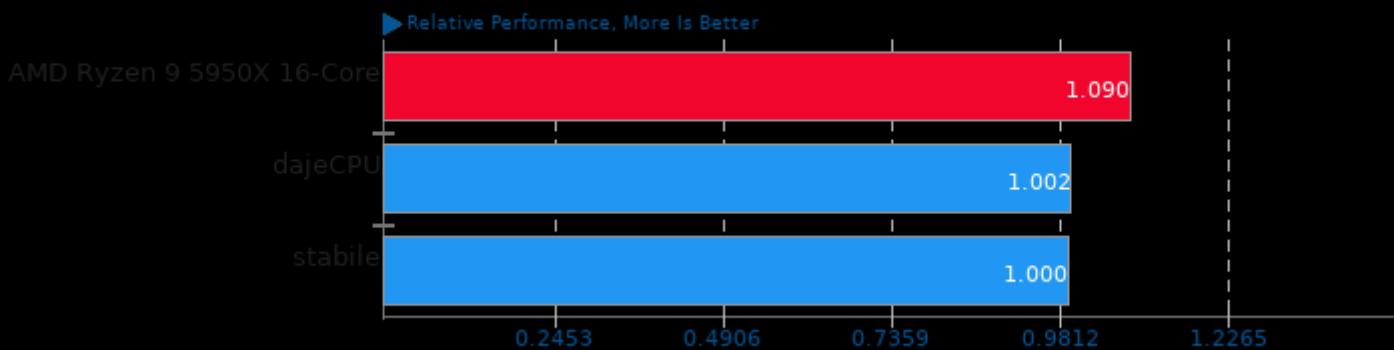
Result Composite - 5950xCPU



Geometric mean based upon tests: pts/blender, pts/sysbench, pts/povray, pts/stockfish, pts/x264, pts/x265, pts/kvazaar, pts/rodinia, pts/namd, pts/asmfish, pts/compress-7zip, pts/build-linux-kernel, pts/build-gcc and pts/radiance

## Geometric Mean Of NVIDIA GPU Compute Tests

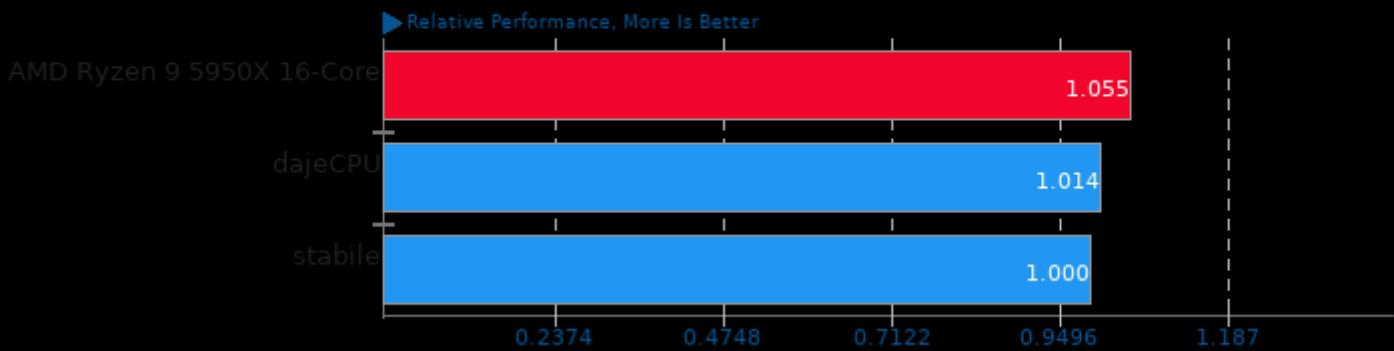
Result Composite - 5950xCPU



Geometric mean based upon tests: pts/rodinia and pts/blender

## Geometric Mean Of Server CPU Tests

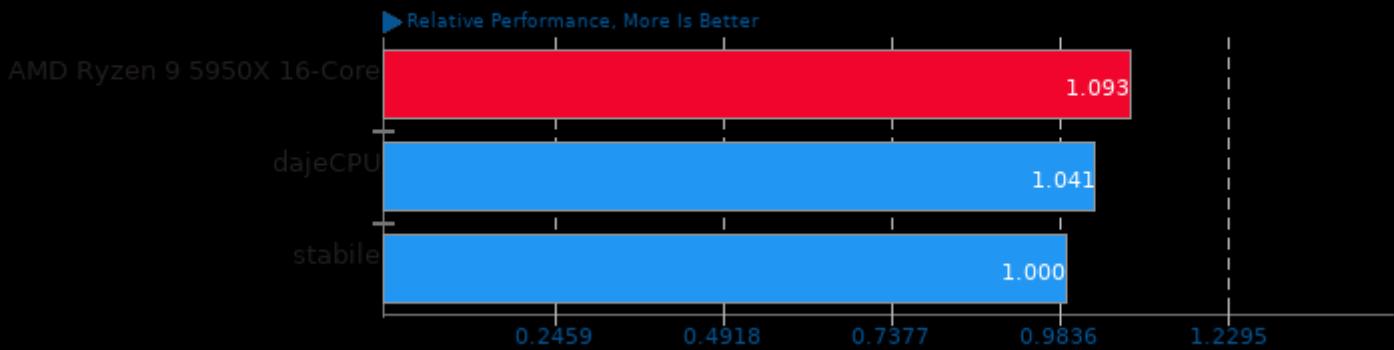
Result Composite - 5950xCPU



Geometric mean based upon tests: pts/rodinia, pts/namd, pts/x264, pts/x265, pts/compress-7zip, pts/stockfish, pts/asmfish, pts/build-gcc, pts/build-linux-kernel, pts/povray, pts/radiance, pts/openssl, pts/ctx-clock, pts/sysbench and pts/blender

## Geometric Mean Of Video Encoding Tests

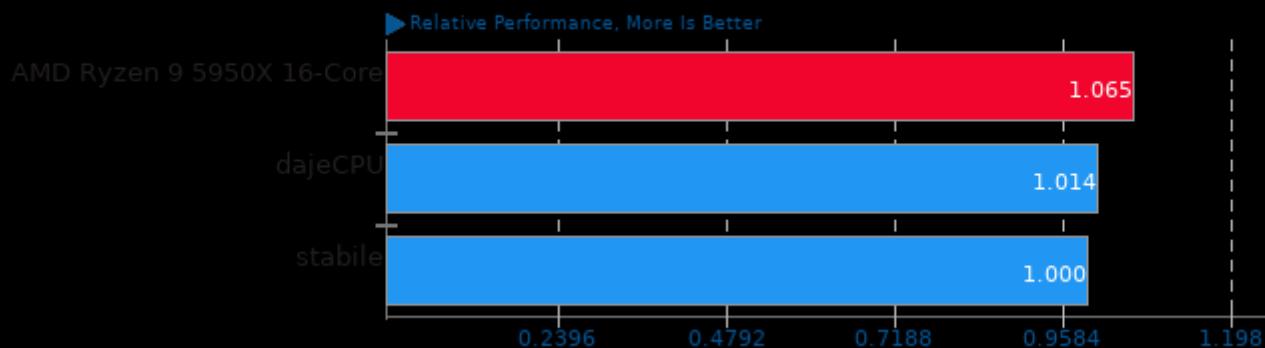
Result Composite - 5950xCPU



Geometric mean based upon tests: pts/x264, pts/x265 and pts/kvazaar

## Geometric Mean Of Common Workstation Benchmarks Tests

Result Composite - 5950xCPU



Geometric mean based upon tests: pts/blender, pts/rodinia, pts/x265 and pts/sysbench

*This file was automatically generated via the Phoronix Test Suite benchmarking software on Friday, 8 November 2024 06:32.*