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5950x_amd-pstate_vs_acpi-cpufreq

AMD Ryzen 9 5950X 16-Core testing with a Gigabyte X570 AORUS XTREME (F34 BIOS) and AMD Radeon RX 6900 XT on Arch rolling via the Phoronix Test Suite.

Automated Executive Summary

acpi-cpufreq_performance had the most wins, coming in first place for 61% of the tests.

Based on the geometric mean of all complete results, the fastest (acpi-cpufreq_performance) was 1.043x the speed of the slowest (amd-pstate_ondemand). amd-pstate_performance was 0.997x the speed of acpi-cpufreq_performance, acpi-cpufreq_schedutil was 0.995x the speed of amd-pstate_performance, acpi-cpufreq_ondemand was 0.997x the speed of acpi-cpufreq_schedutil, amd-pstate_schedutil was 0.974x the speed of acpi-cpufreq_ondemand, amd-pstate_ondemand was 0.997x the speed of amd-pstate_schedutil.

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

Timed GDB GNU Debugger Compilation (Time To Compile) at 1.127x

Timed Erlang/OTP Compilation (Time To Compile) at 1.118x

Timed GCC Compilation (Time To Compile) at 1.102x

Timed Clash Compilation (Time To Compile) at 1.102x

Timed Apache Compilation (Time To Compile) at 1.098x

Timed Eigen Compilation (Time To Compile) at 1.057x

Timed ImageMagick Compilation (Time To Compile) at 1.043x

Timed PHP Compilation (Time To Compile) at 1.036x

Timed LLVM Compilation (Build System: Unix Makefiles) at 1.034x

Build2 (Time To Compile) at 1.032x.

Test Systems:

amd-pstate_performance

amd-pstate_schedutil

amd-pstate_ondemand

Processor: AMD Ryzen 9 5950X 16-Core @ 5.27GHz (16 Cores / 32 Threads), Motherboard: Gigabyte X570 AORUS XTREME (F34 BIOS), Chipset: AMD Starship/Matisse, Memory: 32GB, Disk: 2 x 1000GB GIGABYTE GP-AG41TB, Graphics: AMD Radeon RX 6900 XT (2720/1000MHz), Audio: AMD Navi 21 HDMI Audio, Monitor: LG ULTRAGEAR + DELL U2719D, Network: Aquantia AQC107 NBase-T/IEEE + Intel I211 + Intel Wi-Fi 6 AX200

OS: Arch rolling, Kernel: 5.14.2 (x86_64), Vulkan: 1.2.188, Compiler: GCC 11.1.0 + Clang 14.0.0 + LLVM 14.0.0, File-System: btrfs, Screen Resolution: 3440x1440

Kernel Notes: amdgpu.dpm=1 amdgpu.dc=1 amdgpu.pffeaturemask=0xffffffff - Transparent Huge Pages: madvise

Environment Notes: NVM_CD_FLAGS=

Compiler Notes: --disable-libssp --disable-libstdcxx-pch --disable-libunwind-exceptions --disable-werror --enable-__cxa_atexit --enable-cet=auto --enable-checking=release --enable-clocale-gnu --enable-default-pie --enable-default-ssp --enable-gnu-indirect-function --enable-gnu-unique-object --enable-install-liberty --enable-languages=c,c++,ada,fortran,go,lto,objc,obj-c++,d --enable-lto --enable-multilib --enable-plugin --enable-shared --enable-threads=posix --mandir=/usr/share/man --with-isl --with-linker-hash-style=gnu

Processor Notes: Scaling Governor: amd-pstate ondemand (Boost: Enabled) - CPU Microcode: 0xa201016

Python Notes: Python 3.9.7

Security Notes: itlb_multithit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Vulnerable + spectre_v1: Vulnerable: __user pointer sanitization and usercopy barriers only; no swapgs barriers + spectre_v2: Vulnerable IBPB: disabled STIBP: disabled + srbs: Not affected + tsx_async_abort: Not affected

acpi-cpufreq_performance

acpi-cpufreq_schedutil

acpi-cpufreq_ondemand

Processor: AMD Ryzen 9 5950X 16-Core @ 3.40GHz (16 Cores / 32 Threads), Motherboard: Gigabyte X570 AORUS XTREME (F34 BIOS), Chipset: AMD Starship/Matisse, Memory: 32GB, Disk: 2 x 1000GB GIGABYTE GP-AG41TB, Graphics: AMD Radeon RX 6900 XT (2720/1000MHz), Audio: AMD Navi 21 HDMI Audio, Monitor: LG ULTRAGEAR + DELL U2719D, Network: Aquantia AQC107 NBase-T/IEEE + Intel I211 + Intel Wi-Fi 6 AX200

OS: Arch rolling, Kernel: 5.14.2 (x86_64), Vulkan: 1.2.188, Compiler: GCC 11.1.0 + Clang 14.0.0 + LLVM 14.0.0, File-System: btrfs, Screen Resolution: 3440x1440

Kernel Notes: amdgpu.dpm=1 amdgpu.dc=1 amdgpu.pffeaturemask=0xffffffff - Transparent Huge Pages: madvise

Environment Notes: NVM_CD_FLAGS=

Compiler Notes: --disable-libssp --disable-libstdcxx-pch --disable-libunwind-exceptions --disable-werror --enable-__cxa_atexit --enable-cet=auto --enable-checking=release --enable-clocale-gnu --enable-default-pie --enable-default-ssp --enable-gnu-indirect-function --enable-gnu-unique-object --enable-install-liberty

5950x_amd-pstate_vs_acpi-cpufreq

--enable-languages=c,c++,ada,fortran,go,ito,objc,obj-c++,d --enable-lto --enable-multilib --enable-plugin --enable-shared --enable-threads=posix --mandir=/usr/share/man
--with-isl --with-linker-hash-style-gnu
Processor Notes: Scaling Governor: acpi-cpufreq ondemand (Boost: Enabled) - CPU Microcode: 0xa201016
Python Notes: Python 3.9.7
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Vulnerable + spectre_v1: Vulnerable: __user pointer sanitization and usercopy barriers only; no swapgs barriers + spectre_v2: Vulnerable IBPB: disabled STIBP: disabled + srbs: Not affected + tsx_async_abort: Not affected

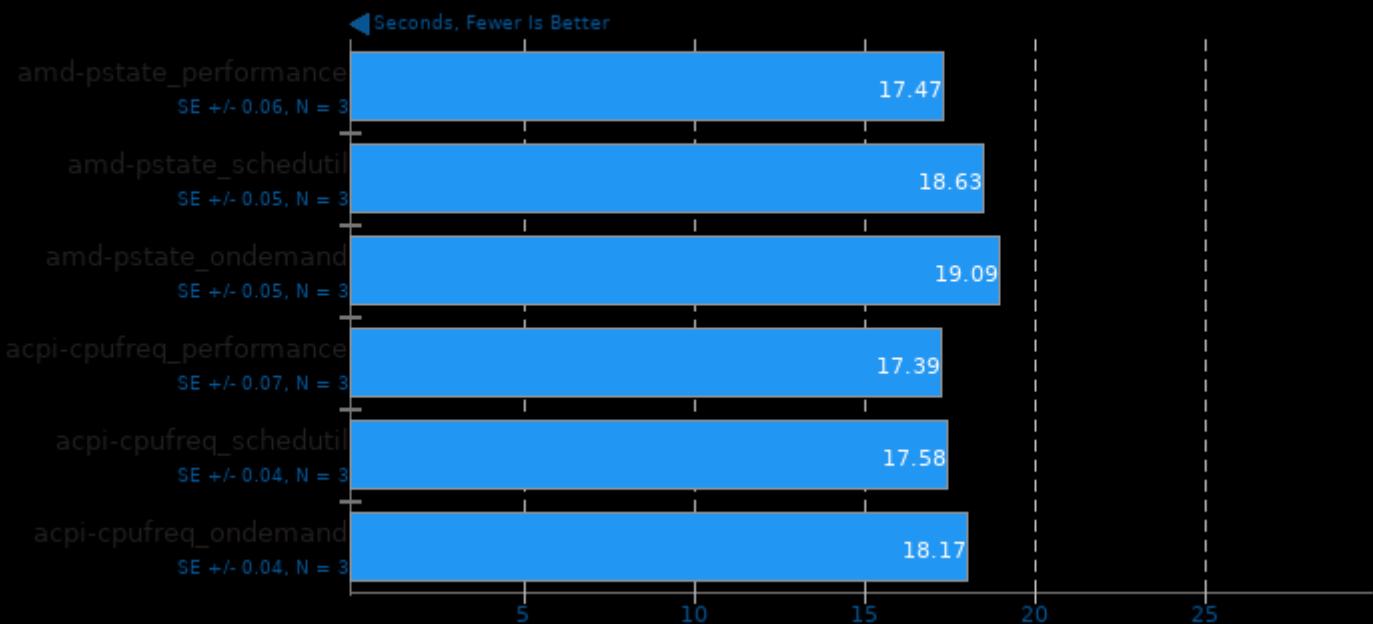
	amd-pstate_p erformance	amd-pstate_s chedutil	amd-pstate_o ndemand	acpi-cpufreq_ performance	acpi-cpufreq_ schedutil	acpi-cpufreq_ ondemand
Timed Apache Compilation - Time To Compile (sec)	17.471	18.632	19.093	17.389	17.577	18.173
Normalized	99.53%	93.33%	91.08%	100%	98.93%	95.69%
Standard Deviation	0.6%	0.5%	0.5%	0.7%	0.4%	0.4%
Timed Clash Compilation - Time To Compile (sec)	278.224	304.856	294.180	276.638	284.947	283.154
Normalized	99.43%	90.74%	94.04%	100%	97.08%	97.7%
Standard Deviation	0.7%	0.3%	0.1%	0.5%	0.2%	0.1%
Timed FFmpeg Compilation - Time To Compile (sec)	27.251	27.538	27.557	27.247	27.286	27.294
Normalized	99.99%	98.94%	98.88%	100%	99.86%	99.83%
Standard Deviation	0.1%	0.2%	0.3%	0.1%	0.3%	0.2%
Timed GCC Compilation - Time To Compile (sec)	620.070	660.395	681.636	618.483	628.706	638.974
Normalized	99.74%	93.65%	90.74%	100%	98.37%	96.79%
Standard Deviation	0.2%	0.1%	0.3%	0.1%	0.2%	0.3%
Timed GDB GNU Debugger Compilation - Time To Compile (sec)	46.207	50.347	51.941	46.068	46.536	47.993
Normalized	99.7%	91.5%	88.69%	100%	98.99%	95.99%
Standard Deviation	0.3%	0.3%	0.5%	0.2%	0.2%	0.1%
Timed Godot Game Engine Compilation - Time To Compile (sec)	67.308	68.769	68.179	67.271	67.615	67.191
Normalized	99.83%	97.71%	98.55%	99.88%	99.37%	100%
Standard Deviation	0.5%	0.9%	0.3%	0.4%	0.8%	0.6%
Timed ImageMagick Compilation - Time To Compile (sec)	15.816	16.501	16.145	15.860	16.023	16.024
Normalized	99.45%	96.94%	96.97%	100%	99.56%	99.5%
Standard Deviation	1.5%	2.4%	2.4%	1.4%	1.6%	1.9%
Timed LLVM Compilation - Ninja (sec)	322.596	324.425	323.447	322.115	322.179	321.219
Normalized	99.57%	99.01%	99.31%	99.72%	99.7%	100%
Standard Deviation	0%	0%	0.1%	0.1%	0.1%	0.1%

5950x_amd-pstate_vs_acpi-cpufreq

Timed LLVM Compilation -	352.870	355.283	355.576	343.809	350.911	352.472
Unix Makefiles (sec)						
Normalized	97.43%	96.77%	96.69%	100%	97.98%	97.54%
Standard Deviation	1.2%	2.3%	1.3%	1.7%	2.2%	1.6%
Timed Mesa Compilation -						
26.858	27.232	27.258	27.004	27.048	26.818	
Time To Compile (sec)						
Normalized	99.85%	98.48%	98.39%	99.31%	99.15%	100%
Standard Deviation	0.2%	0.8%	0.5%	0.2%	0.9%	0.2%
Timed MPlayer Compilation -	17.756	17.942	17.948	17.769	17.784	17.722
Time To Compile (sec)						
Normalized	99.81%	98.77%	98.74%	99.74%	99.65%	100%
Standard Deviation	0.2%	0.5%	0.1%	0.4%	0.3%	0.1%
Timed Node.js Compilation -	205.899	207.519	206.920	205.032	205.285	204.976
Time To Compile (sec)						
Normalized	99.55%	98.77%	99.06%	99.97%	99.85%	100%
Standard Deviation	0.1%	0.1%	0.3%	0.1%	0.1%	0.1%
Timed PHP Compilation -	35.979	36.983	37.269	36.000	36.206	36.127
Time To Compile (sec)						
Normalized	100%	97.29%	96.54%	99.94%	99.37%	99.59%
Standard Deviation	0.3%	1.5%	1.1%	0.2%	0.3%	0.9%
Build2 - Time To Compile	69.414	71.007	70.617	68.822	69.492	69.516
Normalized	99.15%	96.92%	97.46%	100%	99.04%	99%
Standard Deviation	0.6%	0%	0.2%	0.5%	0.1%	0.3%
Timed Eigen Compilation -	67.391	70.448	70.686	66.843	67.395	67.179
Time To Compile (sec)						
Normalized	99.19%	94.88%	94.56%	100%	99.18%	99.5%
Standard Deviation	0.1%	0.7%	0.4%	0.1%	0.1%	0%
Timed Erlang/OTP	77.939	83.881	86.947	77.764	79.595	80.587
Compilation - Time To						
Normalized	99.78%	92.71%	89.44%	100%	97.7%	96.5%
Standard Deviation	0.2%	0.3%	0.2%	0.1%	0.2%	0.2%
Timed Wasmer Compilation -	29.788	30.063	30.361	29.748	29.802	29.796
Time To Compile (sec)						
Normalized	99.87%	98.95%	97.98%	100%	99.82%	99.84%
Standard Deviation	0.5%	0.2%	0.7%	0.9%	0.4%	0.3%

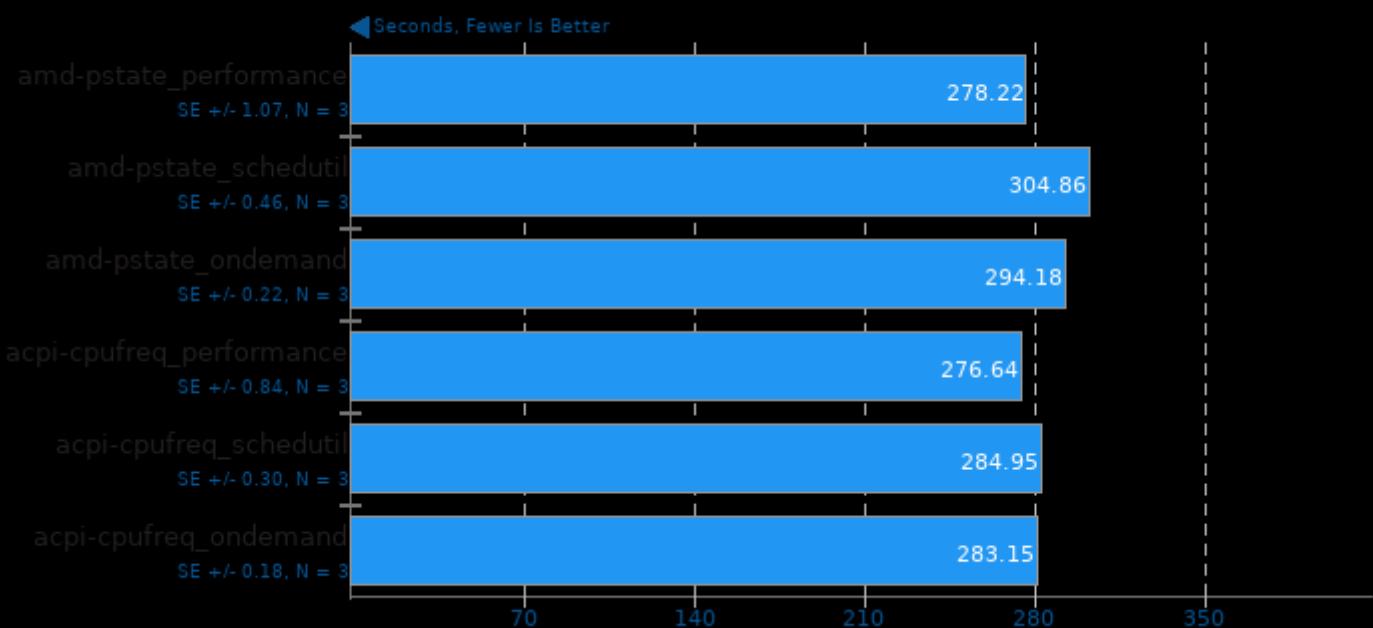
Timed Apache Compilation 2.4.41

Time To Compile



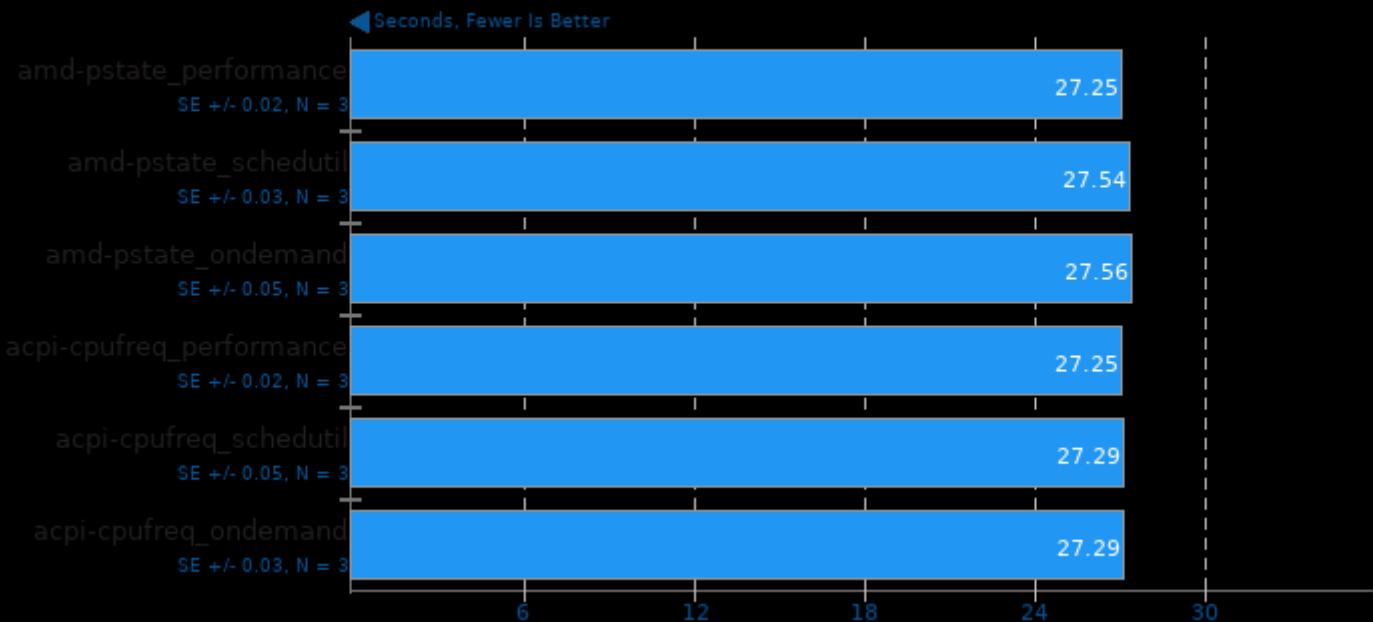
Timed Clash Compilation

Time To Compile



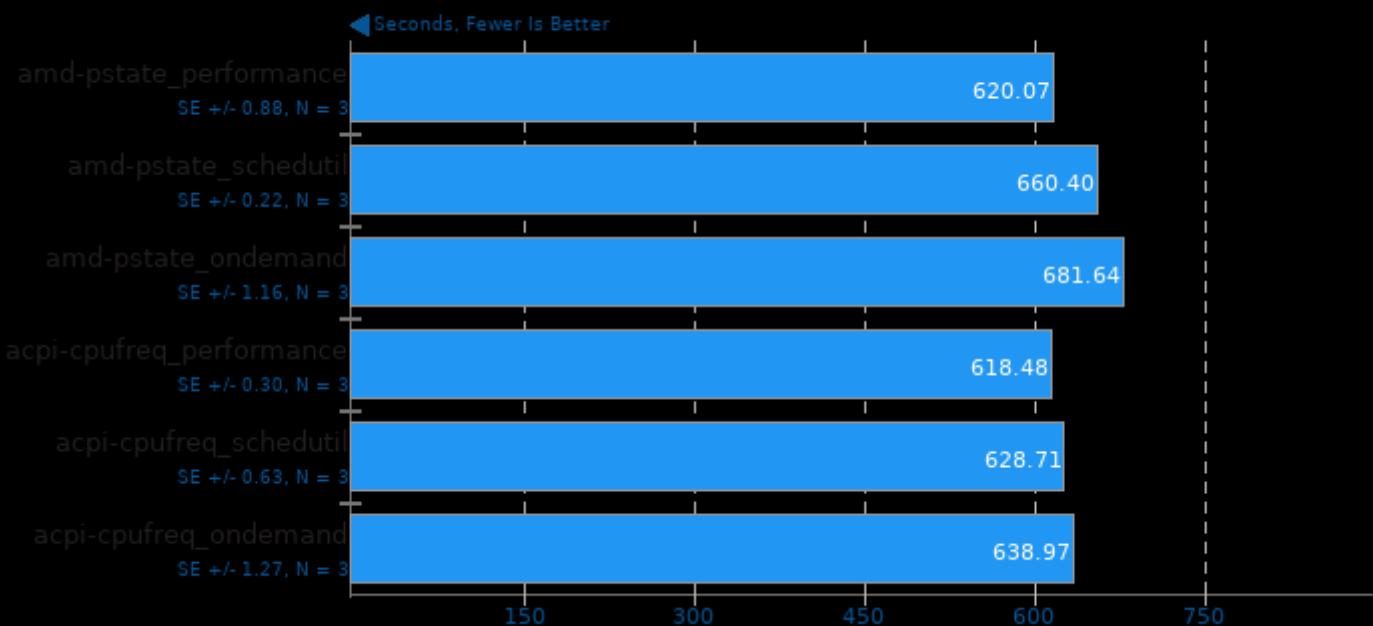
Timed FFmpeg Compilation 4.4

Time To Compile



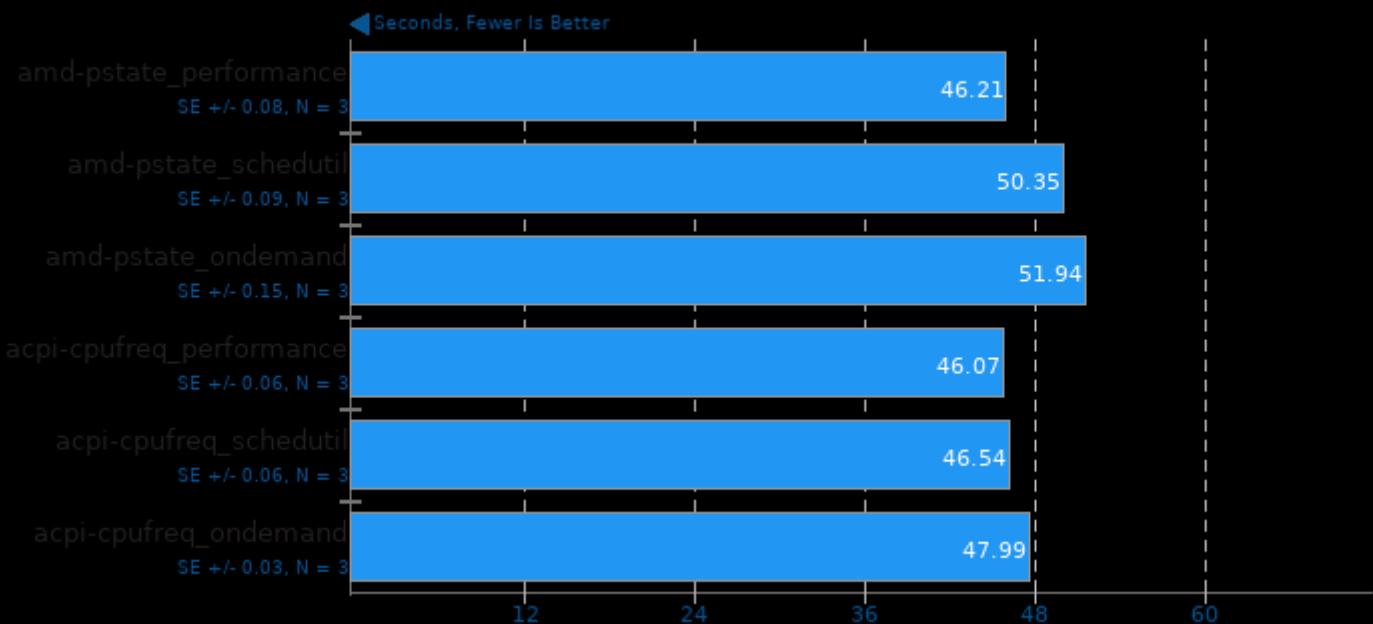
Timed GCC Compilation 11.2.0

Time To Compile



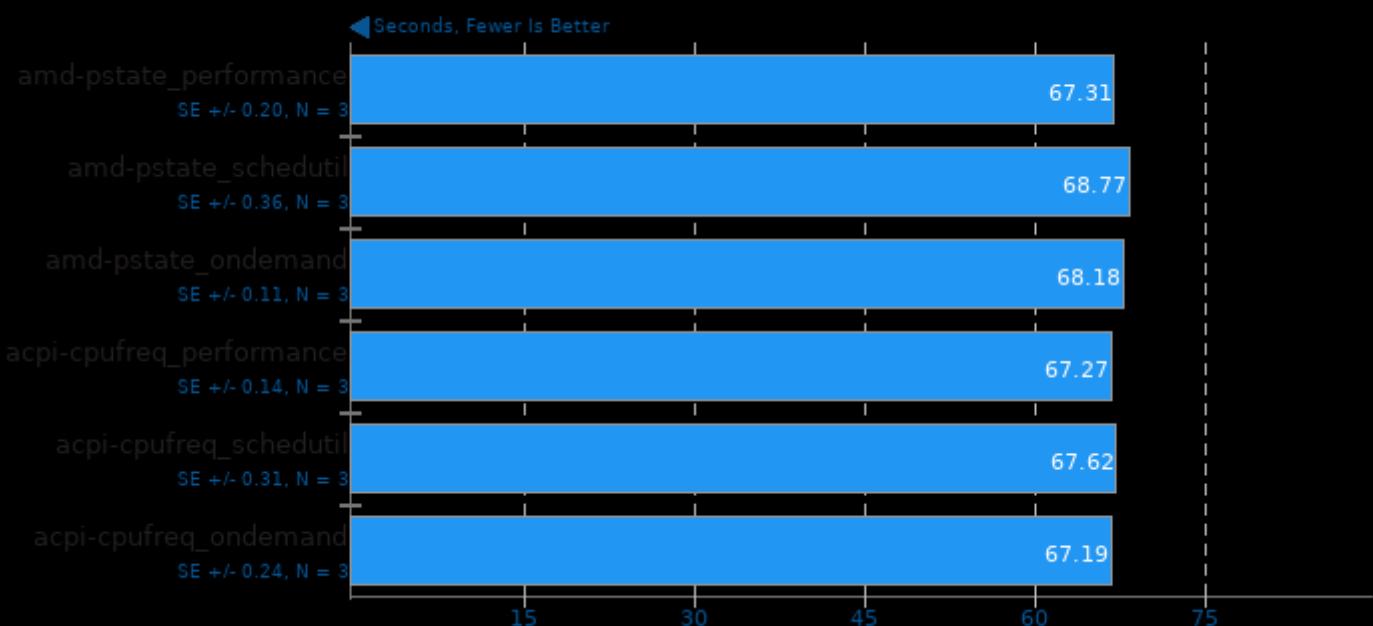
Timed GDB GNU Debugger Compilation 10.2

Time To Compile



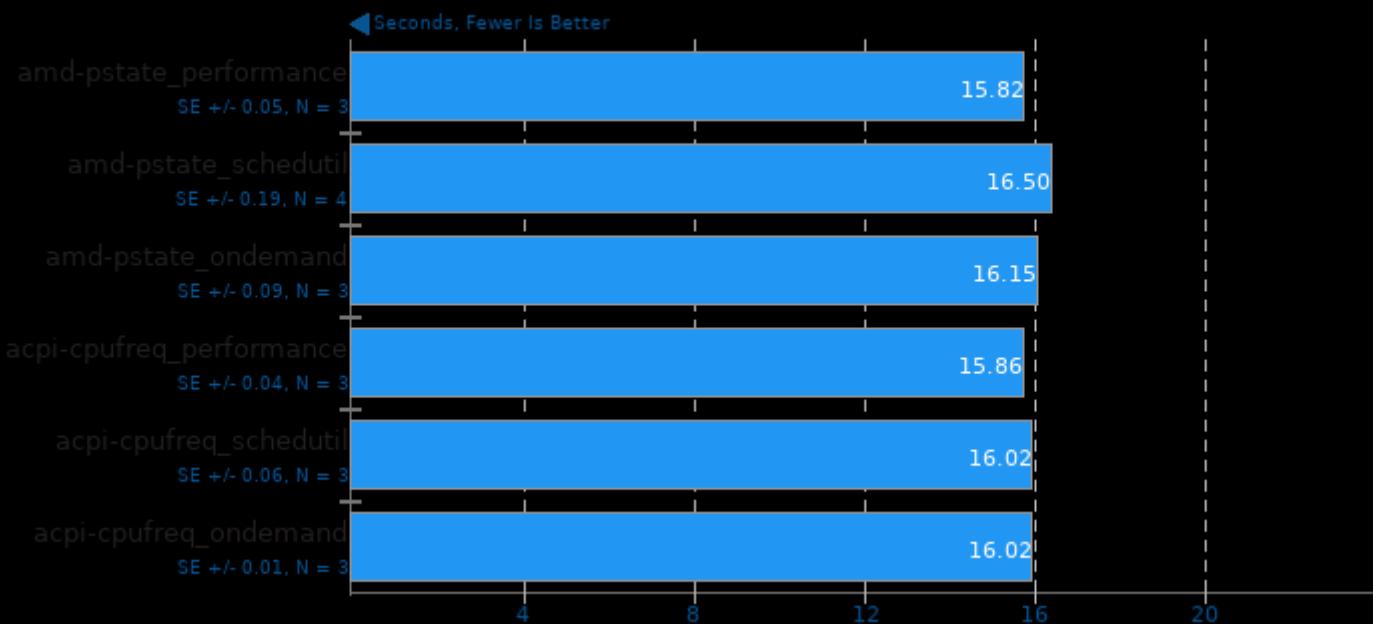
Timed Godot Game Engine Compilation 3.2.3

Time To Compile



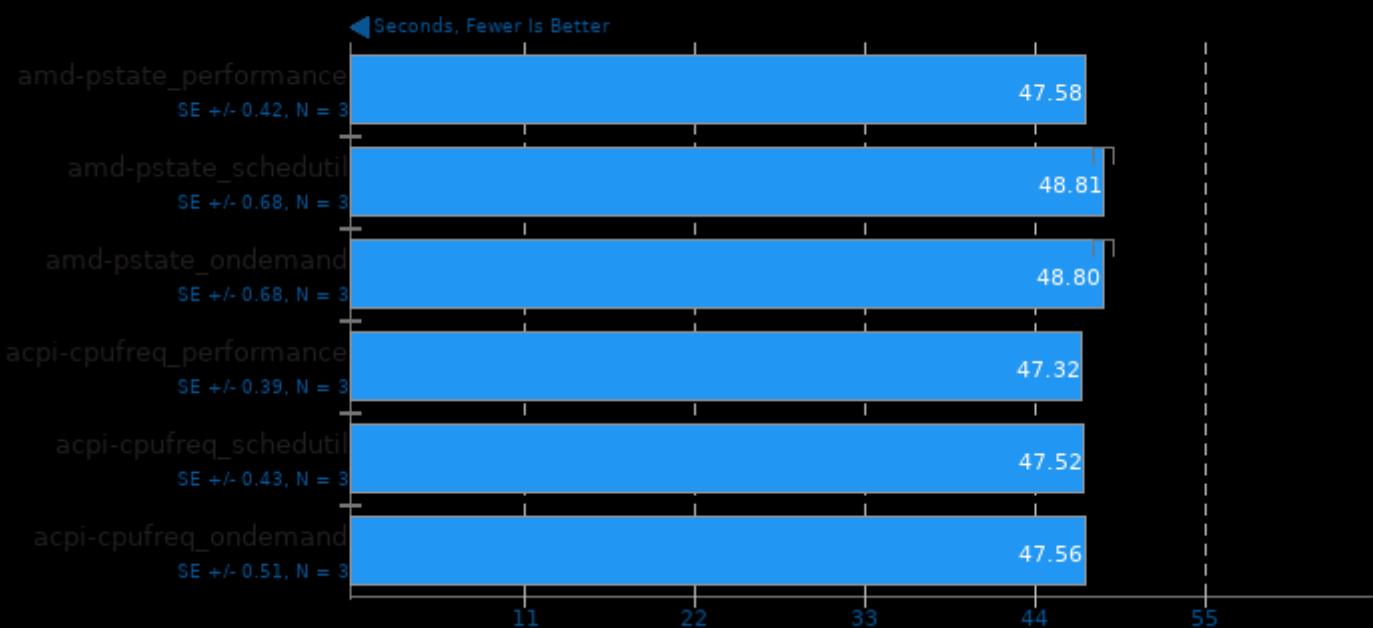
Timed ImageMagick Compilation 6.9.0

Time To Compile



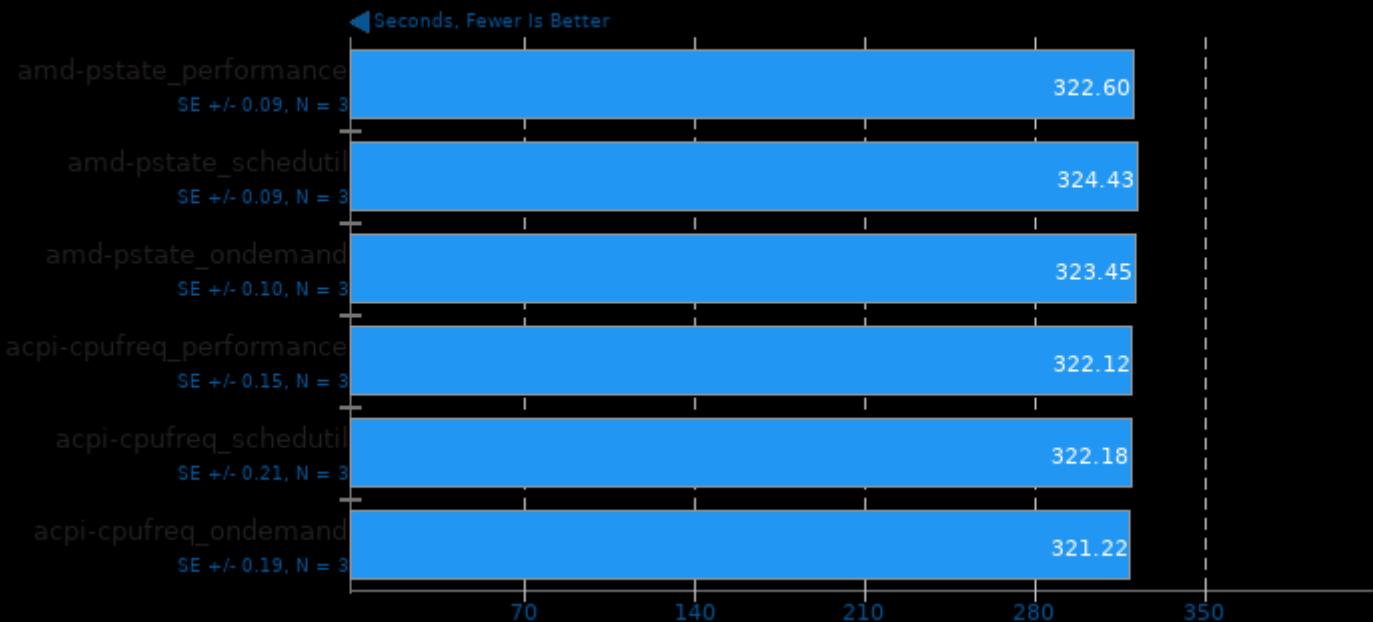
Timed Linux Kernel Compilation 5.14

Time To Compile



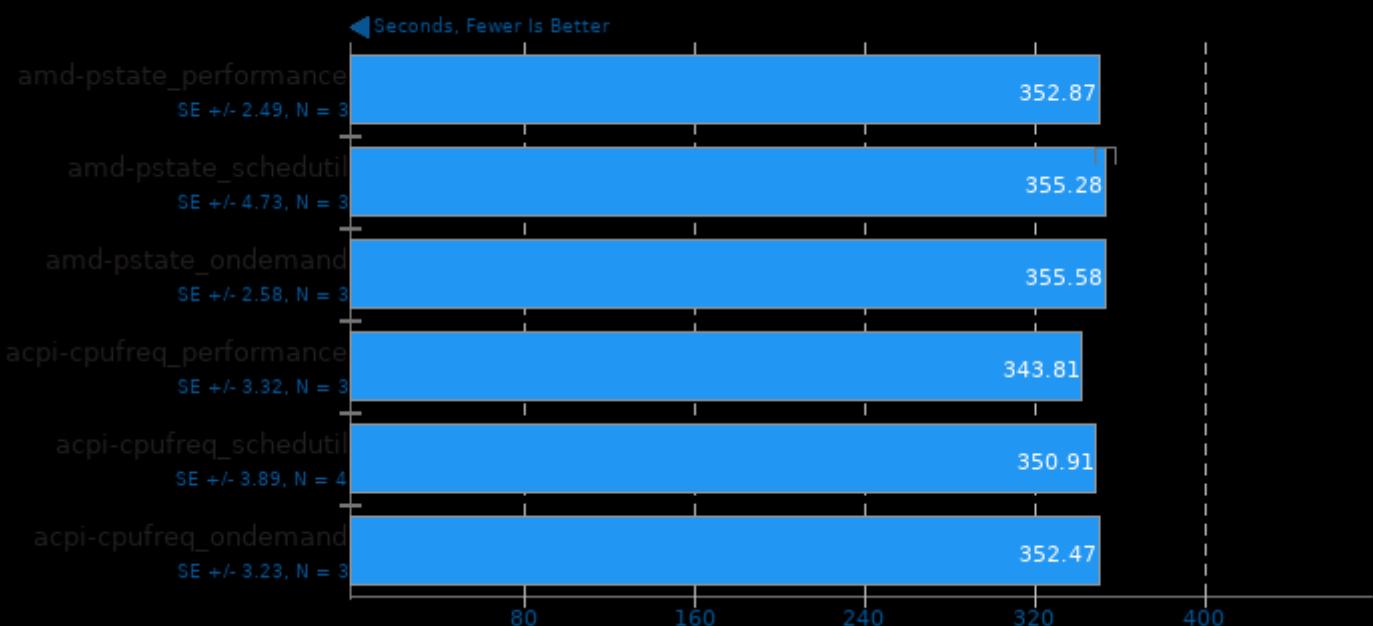
Timed LLVM Compilation 12.0

Build System: Ninja



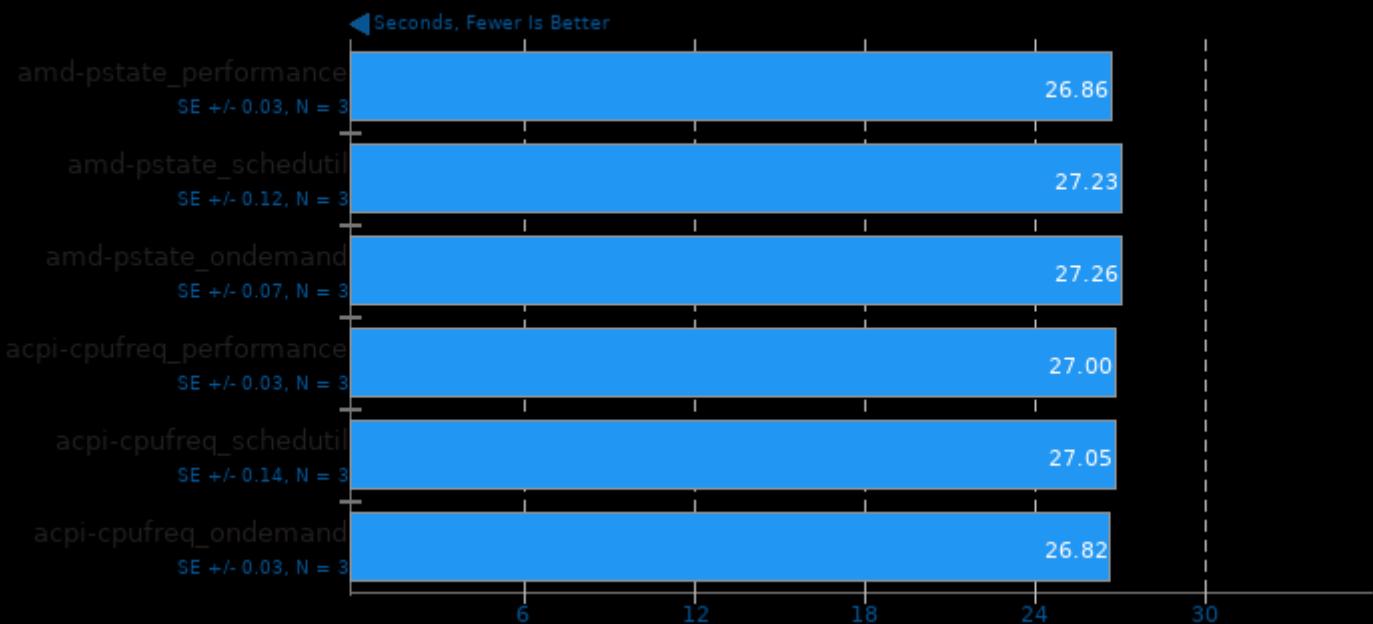
Timed LLVM Compilation 12.0

Build System: Unix Makefiles



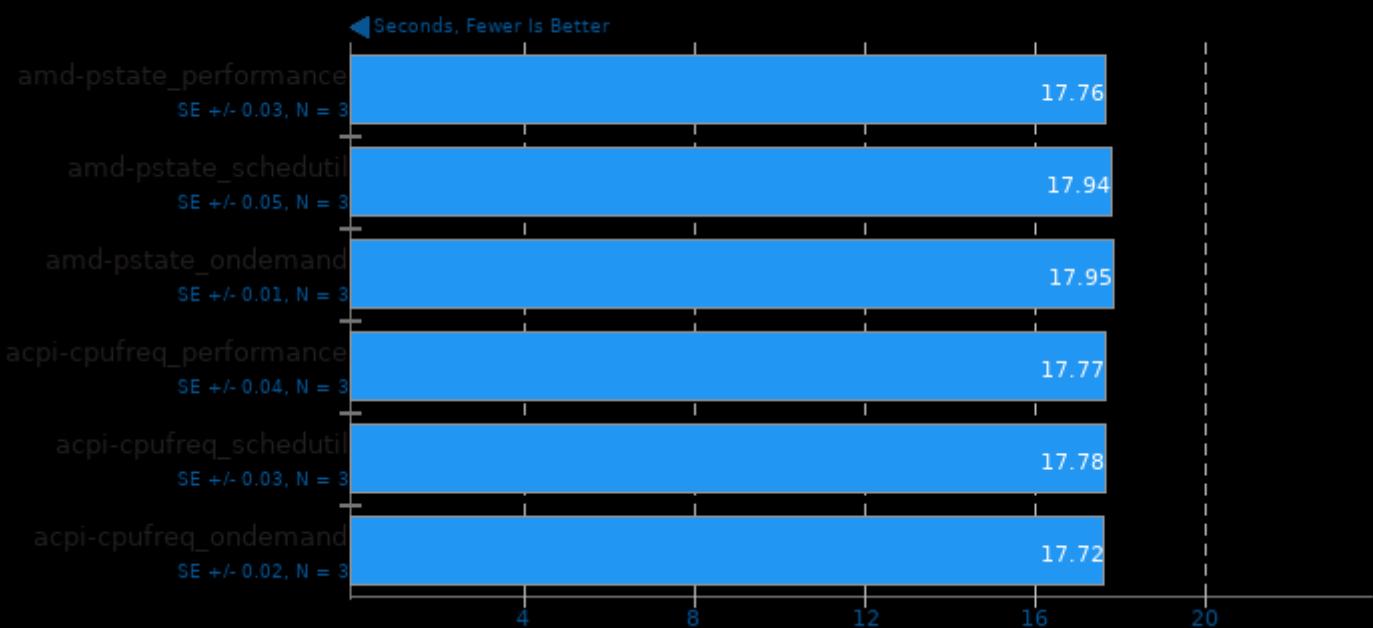
Timed Mesa Compilation 21.0

Time To Compile



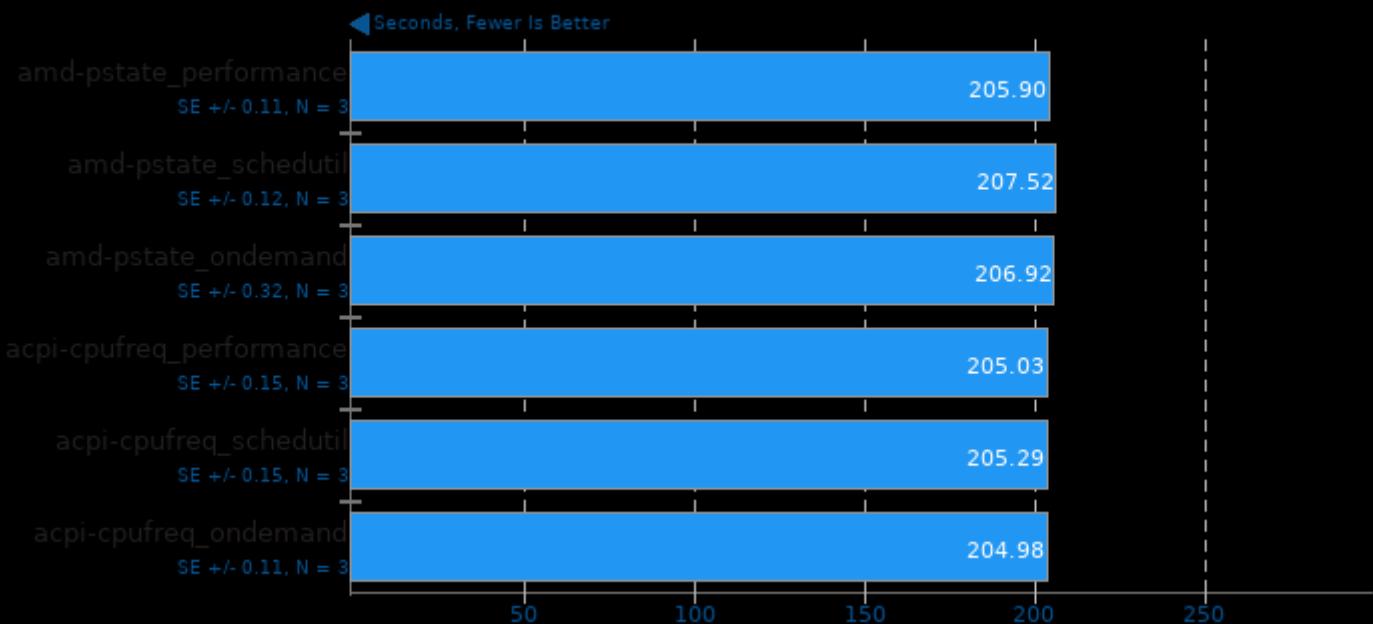
Timed MPlayer Compilation 1.4

Time To Compile



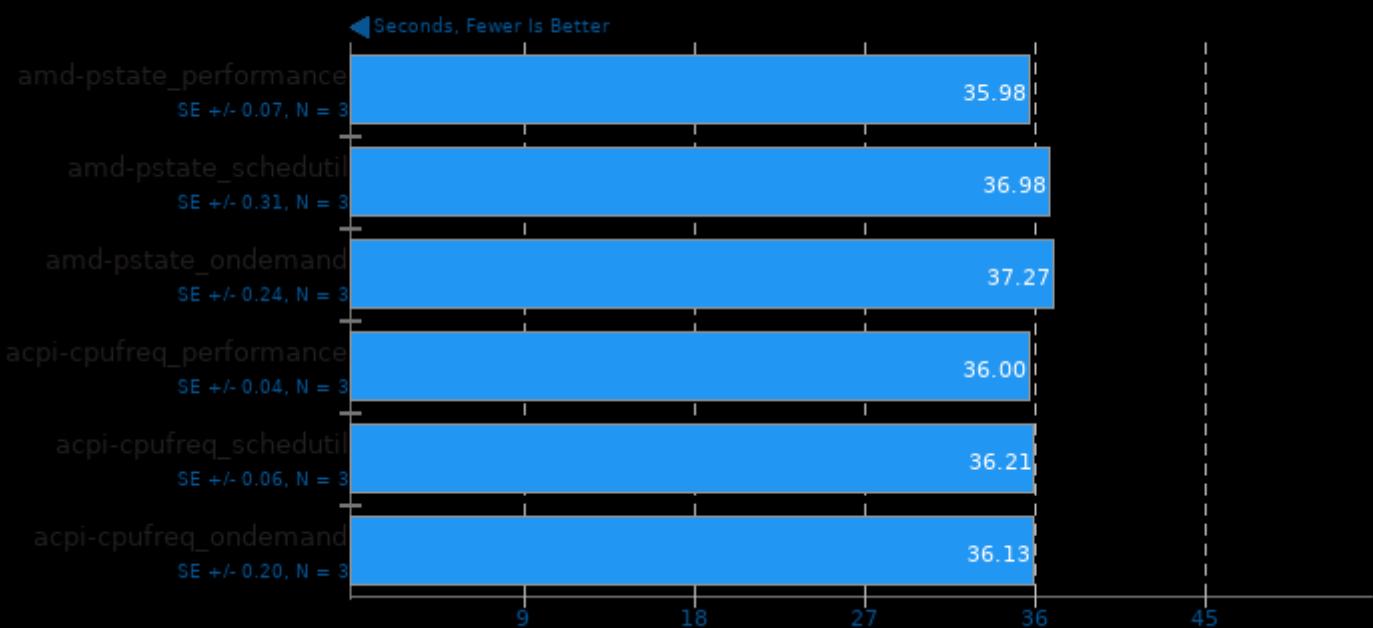
Timed Node.js Compilation 15.11

Time To Compile



Timed PHP Compilation 7.4.2

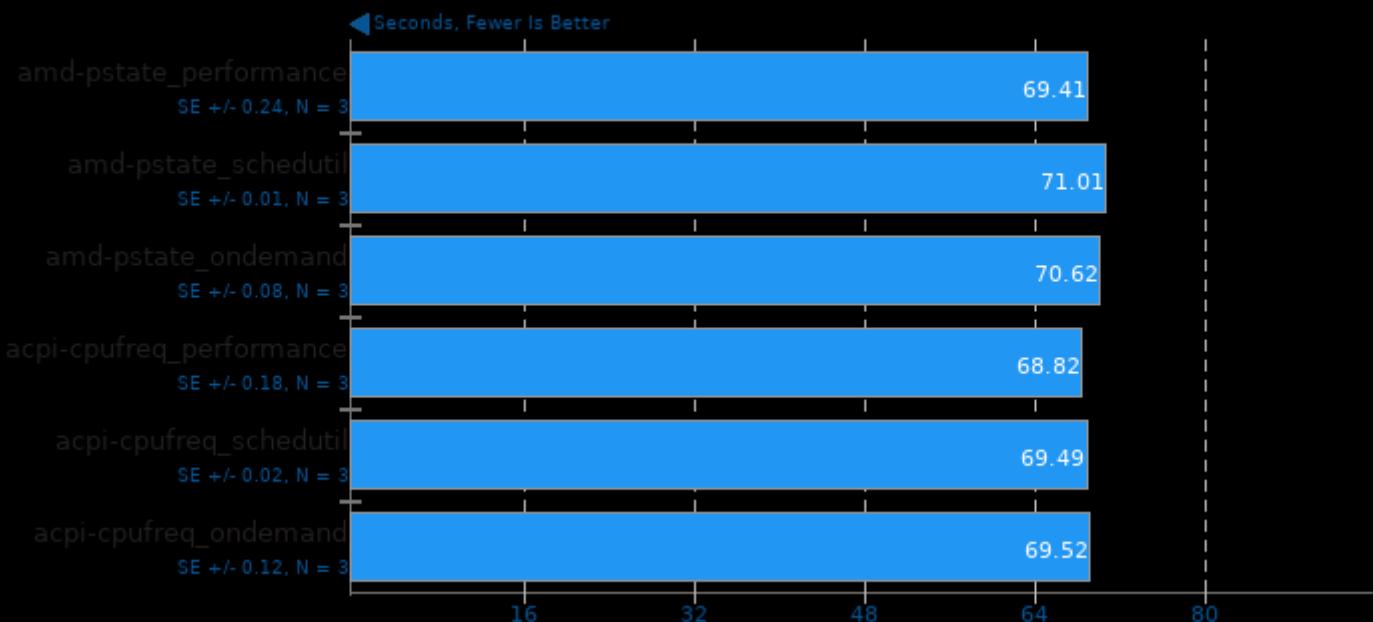
Time To Compile



5950x_amd-pstate_vs_acpi-cpufreq

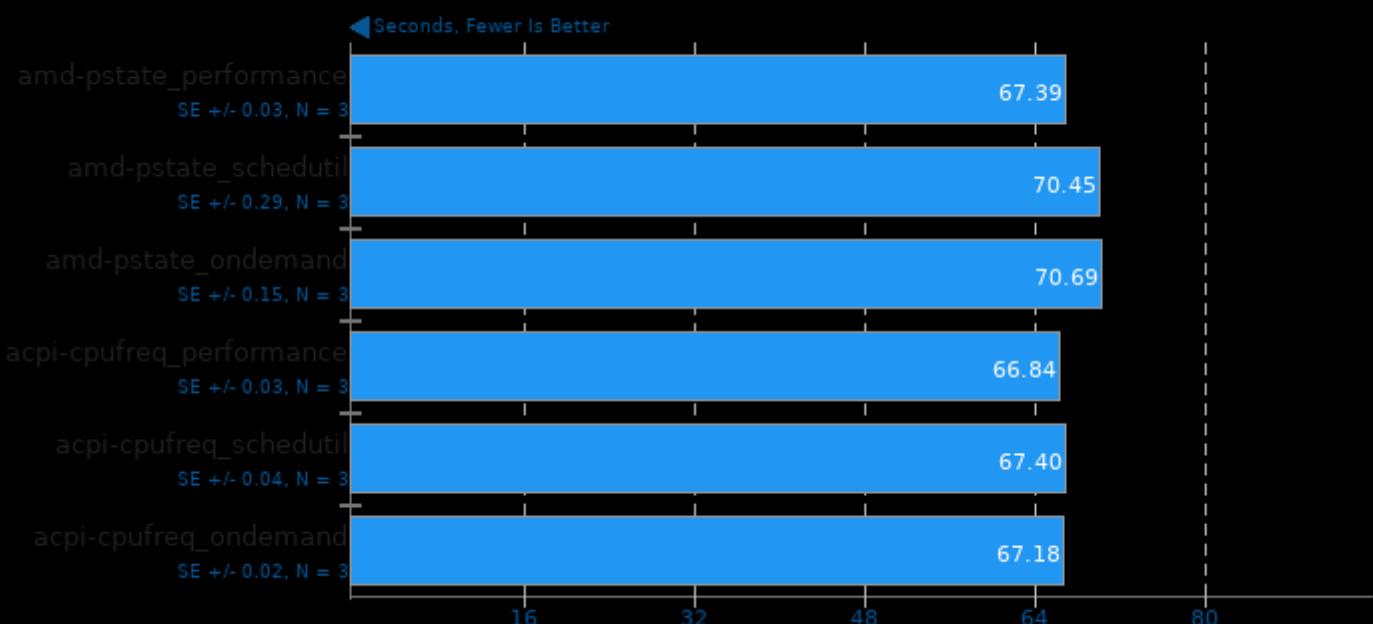
Build2 0.13

Time To Compile



Timed Eigen Compilation 3.3.9

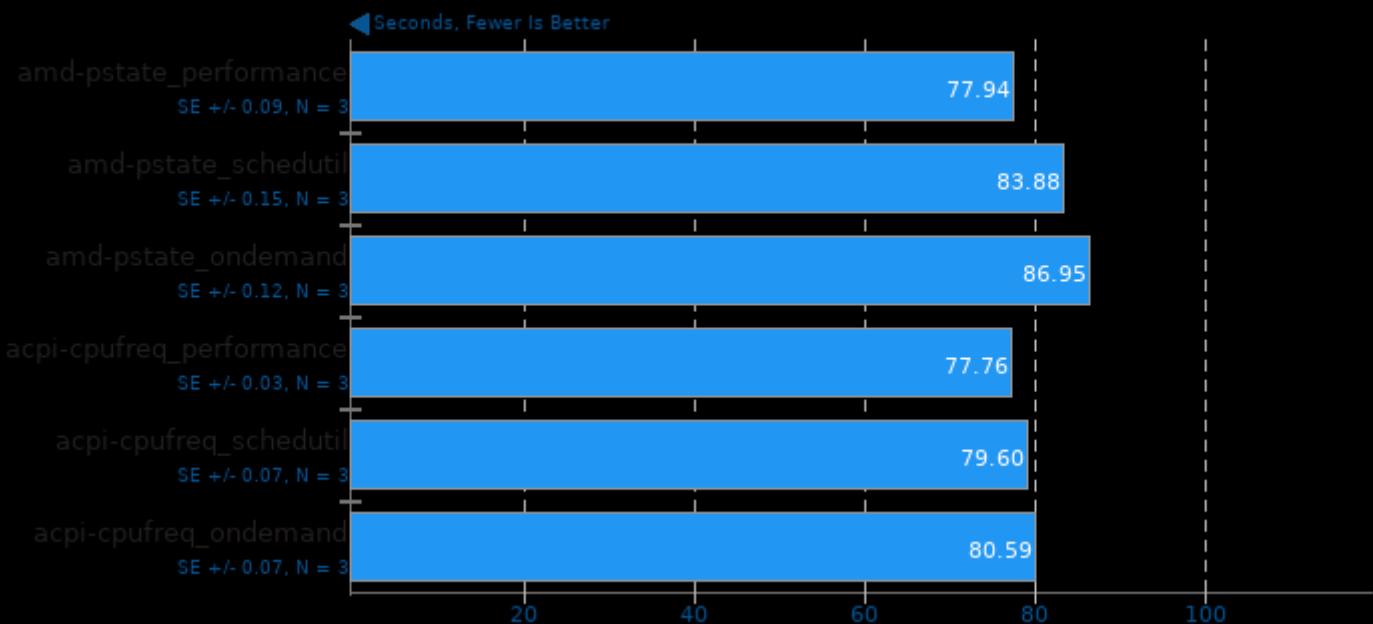
Time To Compile



5950x_amd-pstate_vs_acpi-cpufreq

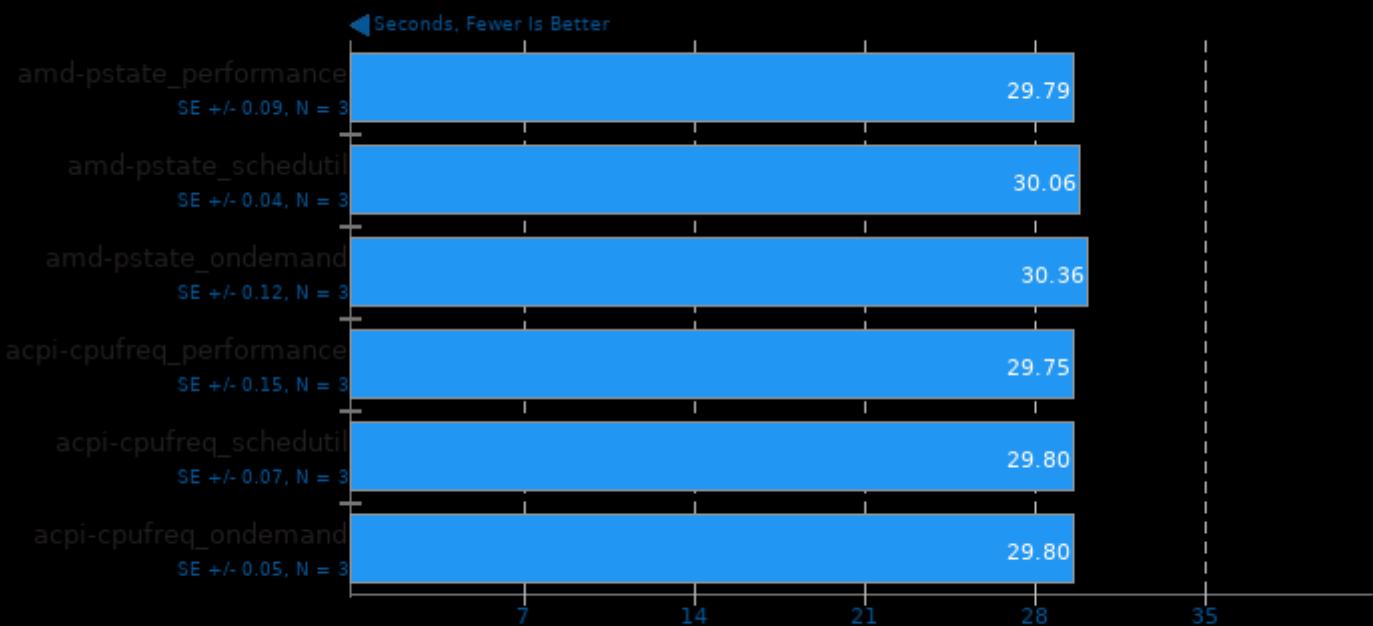
Timed Erlang/OTP Compilation 23.2

Time To Compile



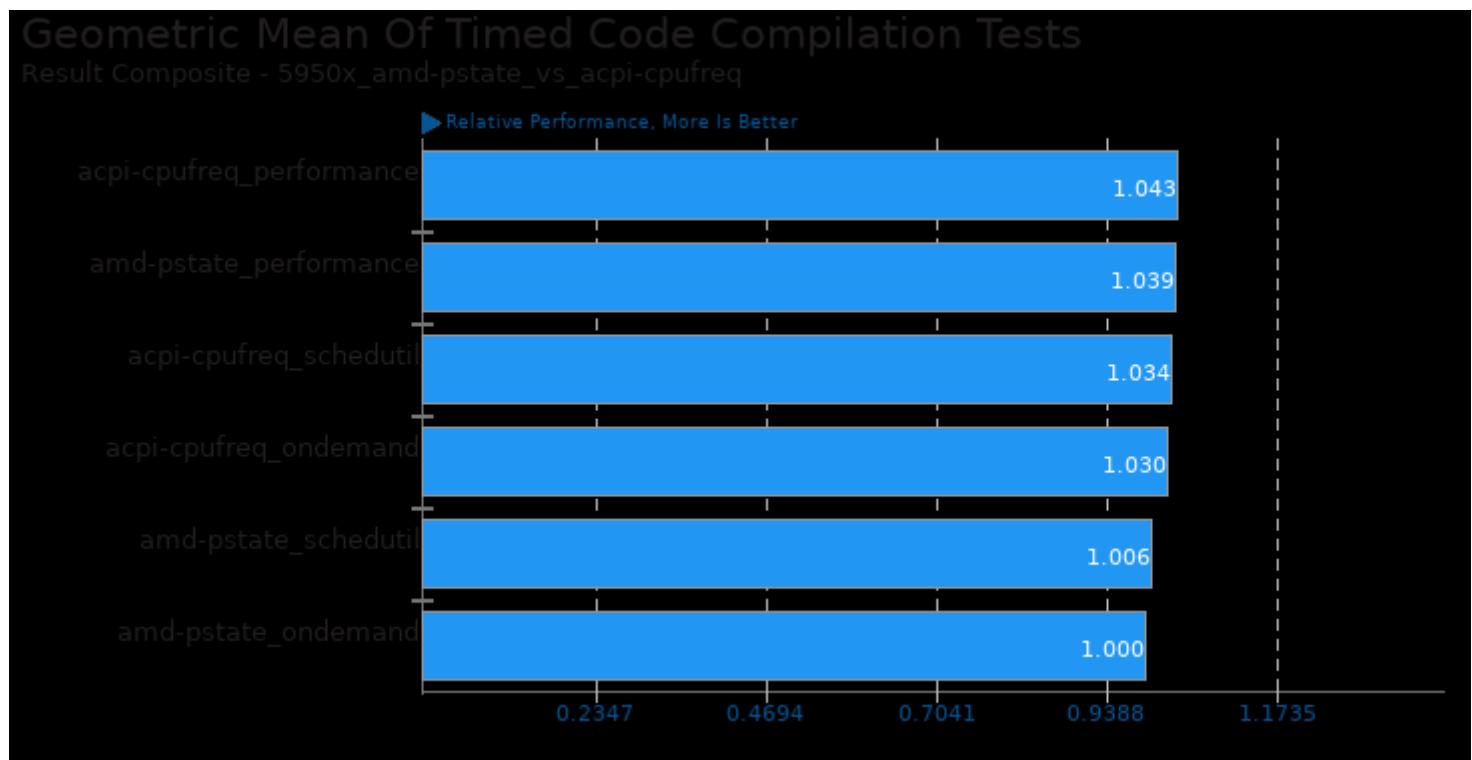
Timed Wasmer Compilation 1.0.2

Time To Compile

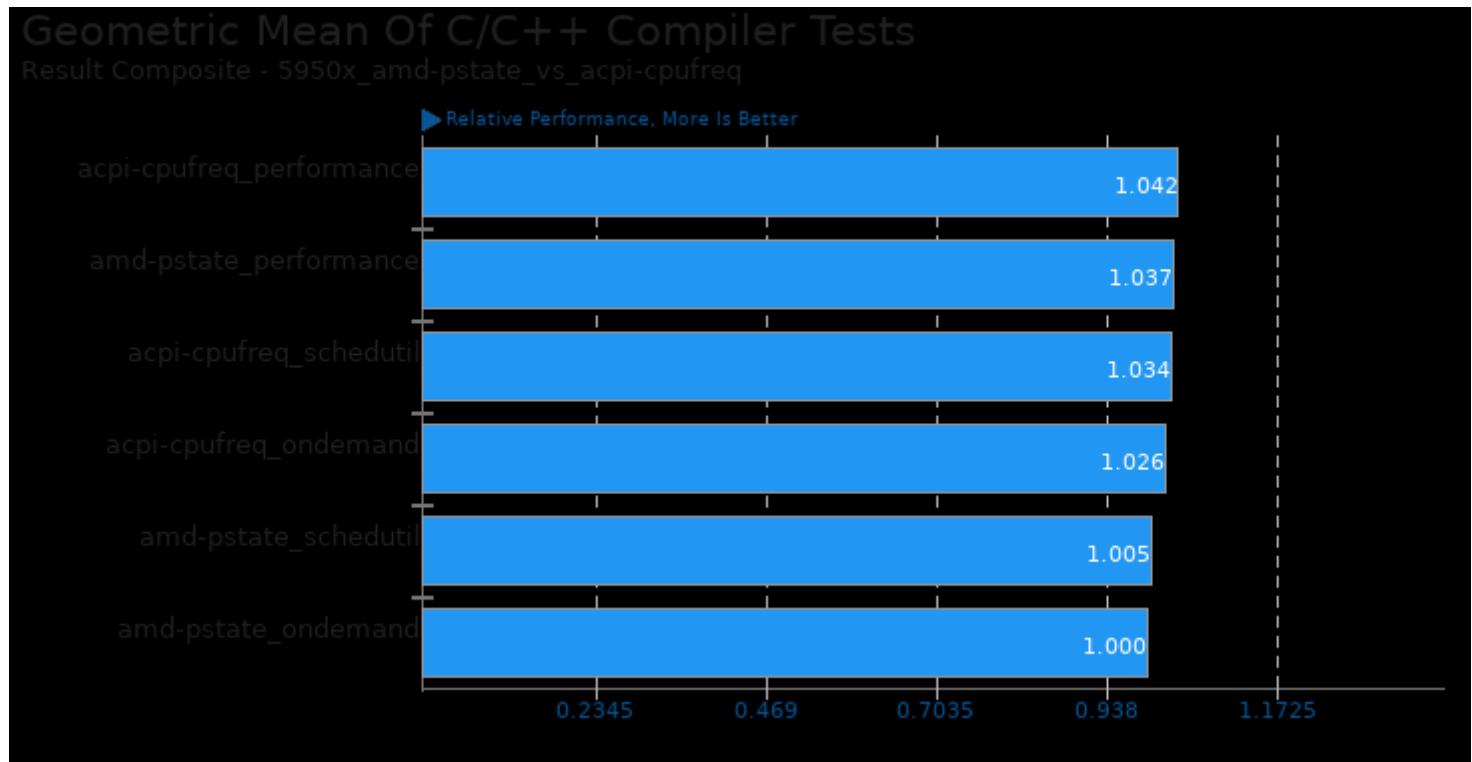


1. (CC) gcc options: -m64 -pie -nodefaultlibs -ldl -lgcc_s -lutil -lrt -lpthread -lm -lc

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



Geometric mean based upon tests: pts/build-apache, pts/build-php, pts/build-eigen, pts/build-linux-kernel, pts/build-imagemagick, pts/build-gcc, pts/build-gdb, pts/build-llvm, pts/build-ffmpeg, pts/build-mplayer, pts/build2, pts/build-godot, pts/build-erlang, pts/build-wasmer, pts/build-nodejs and pts/build-mesa

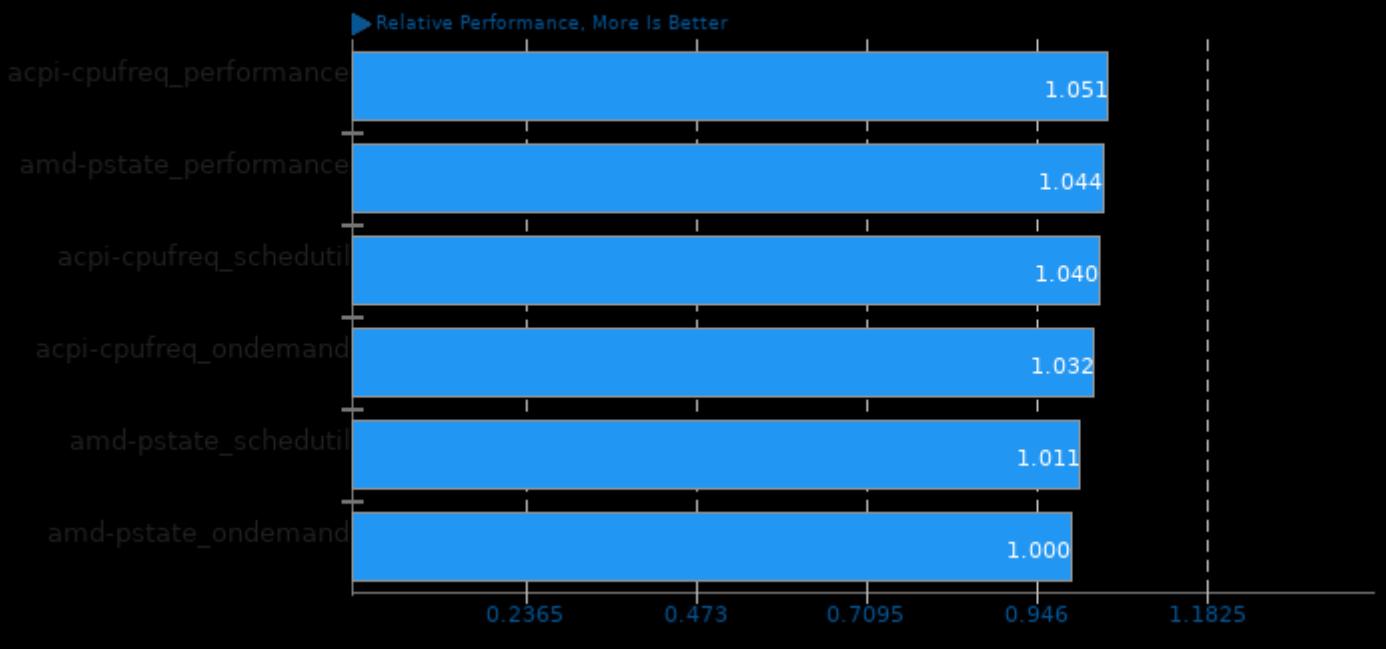


Geometric mean based upon tests: pts/build-php, pts/build-imagemagick, pts/build-llvm, pts/build-gdb, pts/build-ffmpeg, pts/build-apache and pts/build-mplayer

5950x_amd-pstate_vs_acpi-cpufreq

Geometric Mean Of CPU Massive Tests

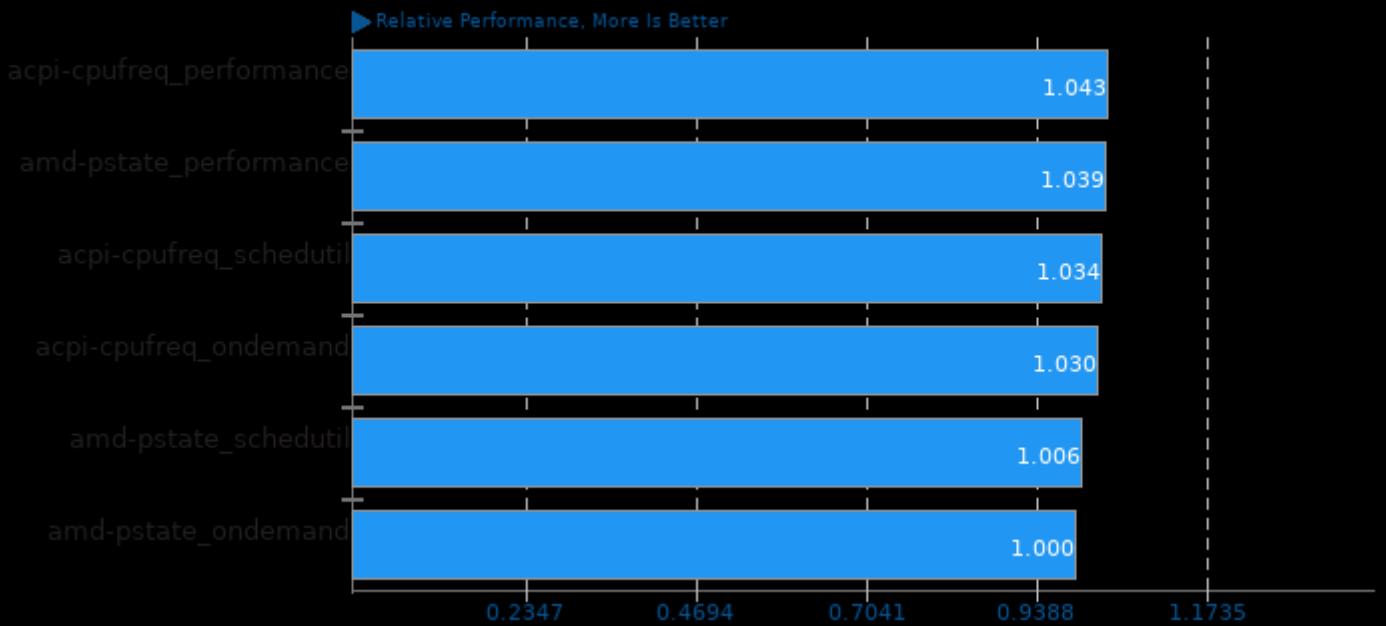
Result Composite - 5950x_amd-pstate_vs_acpi-cpufreq



Geometric mean based upon tests: pts/build-apache, pts/build-gcc, pts/build-llvm, pts/build-linux-kernel and pts/build-php

Geometric Mean Of Multi-Core Tests

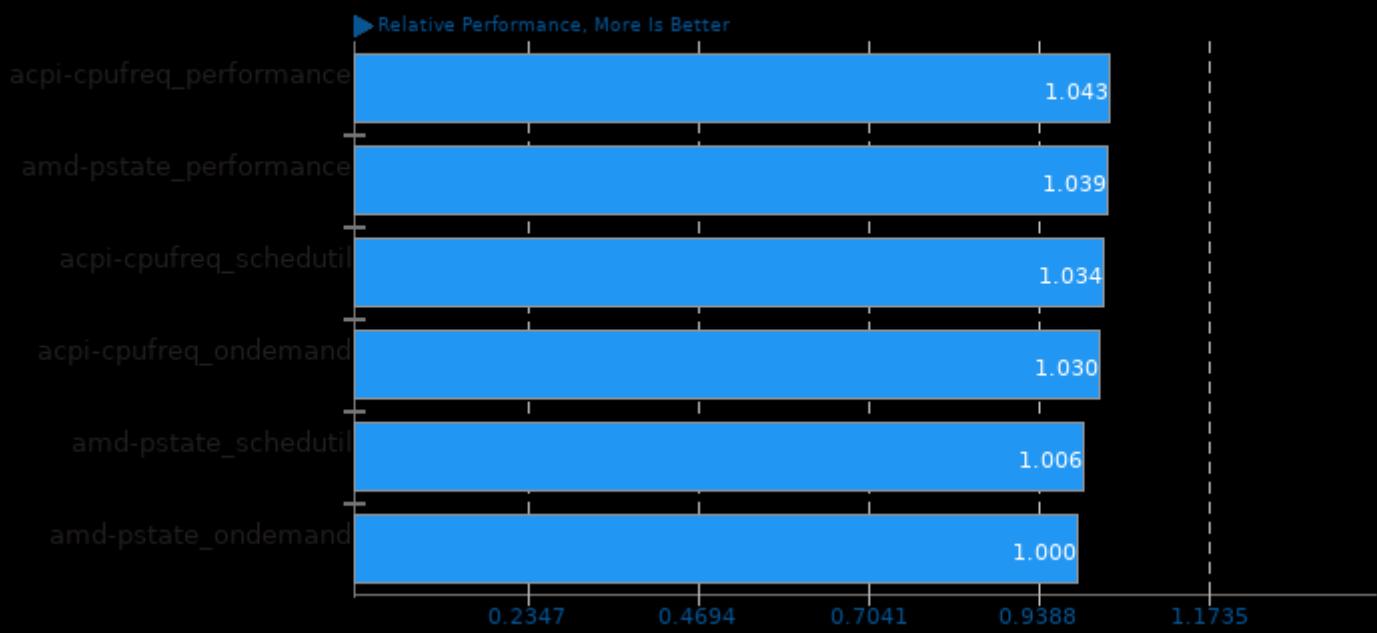
Result Composite - 5950x_amd-pstate_vs_acpi-cpufreq



Geometric mean based upon tests: pts/build-apache, pts/build-php, pts/build-eigen, pts/build-linux-kernel, pts/build-imagemagick, pts/build-gcc, pts/build-gdb, pts/build-llvm, pts/build-ffmpeg, pts/build-mplayer, pts/build2, pts/build-godot, pts/build-erlang, pts/build-wasmer, pts/build-nodejs and pts/build-mesa

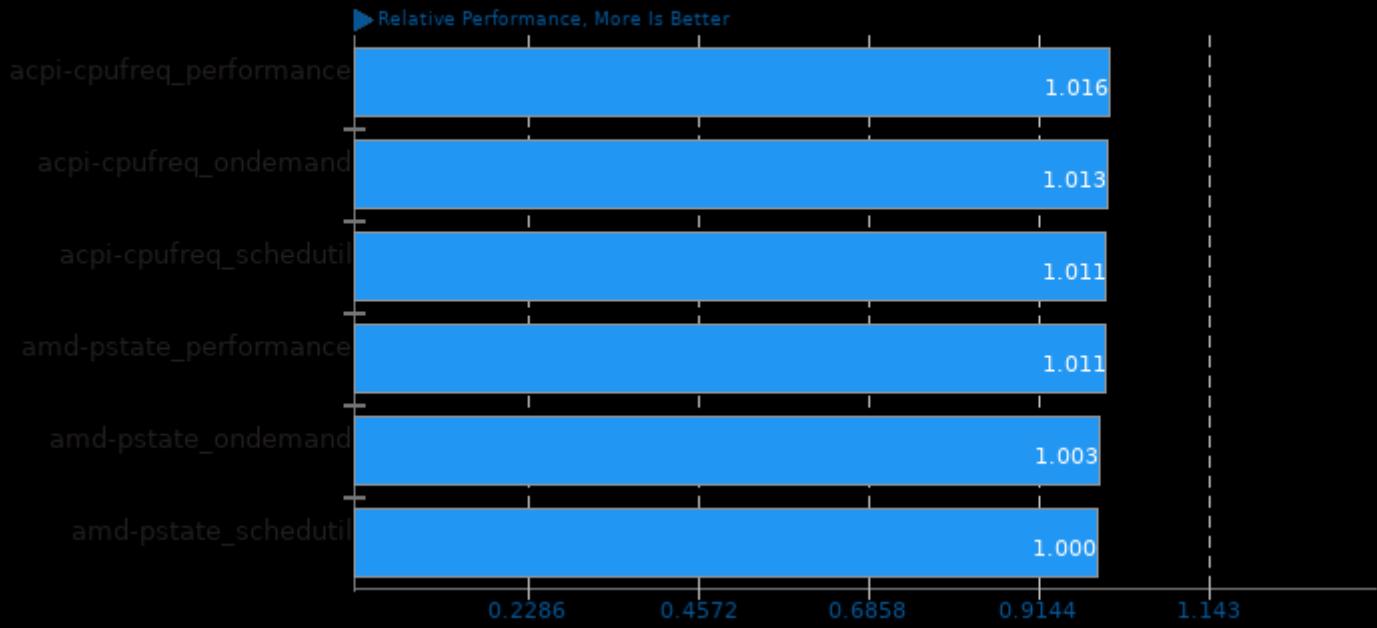
5950x_amd-pstate_vs_acpi-cpufreq

Geometric Mean Of Programmer / Developer System Benchmarks Tests
Result Composite - 5950x_amd-pstate_vs_acpi-cpufreq

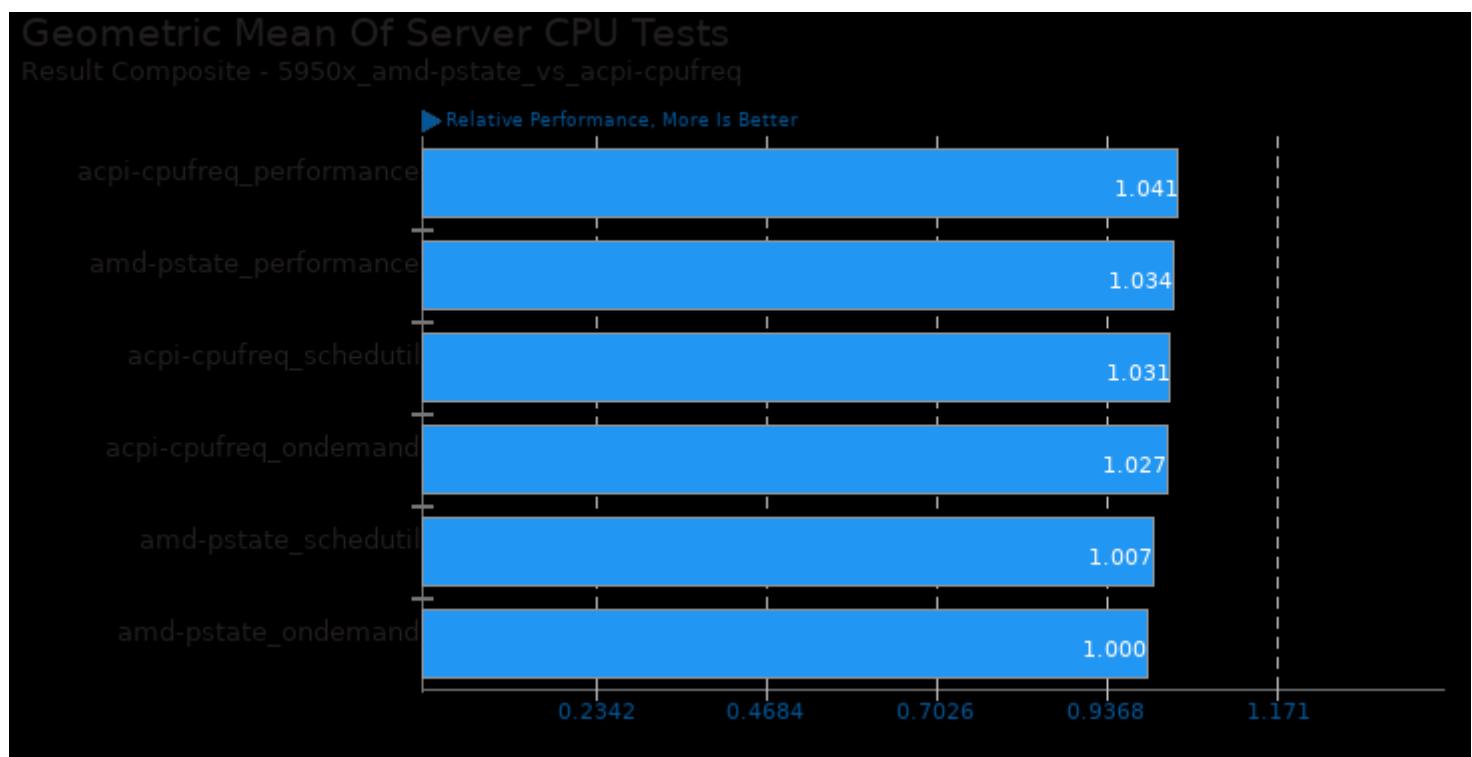


Geometric mean based upon tests: pts/build-apache, pts/build-php, pts/build-eigen, pts/build-linux-kernel, pts/build-imagemagick, pts/build-gcc, pts/build-gdb, pts/build-llvm, pts/build-ffmpeg, pts/build-mplayer, pts/build2, pts/build-godot, pts/build-erlang, pts/build-wasmer, pts/build-nodejs and pts/build-mesa

Geometric Mean Of Python Tests
Result Composite - 5950x_amd-pstate_vs_acpi-cpufreq



Geometric mean based upon tests: pts/build-godot, pts/build-llvm, pts/build-mesa and pts/build-nodejs



Geometric mean based upon tests: pts/build-gcc, pts/build-linux-kernel, pts/build-php and pts/build-llvm

This file was automatically generated via the Phoronix Test Suite benchmarking software on Thursday, 28 March 2024 16:42.