



ws-upgrade-compare

AMD Ryzen 9 5950X 16-Core testing with a Gigabyte B550I AORUS PRO AX (F13g BIOS) and AMD Radeon 540/540X/550/550X / RX 540X/550/550X 4GB on Ubuntu 20.04 via the Phoronix Test Suite.

Automated Executive Summary

ryzen 5950x performance governor had the most wins, coming in first place for 87% of the tests.

Based on the geometric mean of all complete results, the fastest (ryzen 5950x performance governor) was 1.698x the speed of the slowest (2x e5-2630v4). ryzen 5950x after bios update was 0.947x the speed of ryzen 5950x performance governor, ryzen 5950x was 0.98x the speed of ryzen 5950x after bios update, 2x e5-2630v4 was 0.635x the speed of ryzen 5950x.

Test Systems:

2x e5-2630v4

Processor: 2 x Intel Xeon E5-2630 v4 @ 3.10GHz (20 Cores / 40 Threads), Motherboard: Dell 0KJCC5 (A30 BIOS),

Chipset: Intel Xeon E7 v4/Xeon, Memory: 96GB, Disk: 1000GB Samsung SSD 970 EVO Plus 1TB + Toshiba THNSN5512GPUK NVMe 512GB + 1000GB My Book 1110, Graphics: NVIDIA GF119 [NVS 310] 956MB, Audio: Realtek ALC3220, Network: Intel I217-LM

OS: Ubuntu 18.04, Kernel: 5.4.0-42-generic (x86_64), Desktop: GNOME Shell 3.28.4, Display Server: X Server 1.20.8, Display Driver: modesetting 1.20.8, OpenCL: OpenCL 1.2 CUDA 9.1.84, Compiler: GCC 7.5.0, File-System: ext4, Screen Resolution: 1920x1080

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++ --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: intel_pstate powersave - CPU Microcode: 0xb000038

Python Notes: Python 3.6.9

Security Notes: itlb_multihit: KVM: Mitigation of Split huge pages + l1tf: Mitigation of PTE Inversion; VMX: conditional cache flushes SMT vulnerable + mds: Mitigation of Clear buffers; SMT vulnerable + meltdown: Mitigation of PTI + 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 Full generic retpoline IBPB: conditional IBRS_FW STIBP: conditional RSB filling + srbds: Not affected + tsx_async_abort: Mitigation of Clear buffers; SMT vulnerable

ryzen 5950x

Processor: AMD Ryzen 9 5950X 16-Core @ 3.40GHz (16 Cores / 32 Threads), Motherboard: Gigabyte B550I AORUS PRO AX (F10 BIOS), Chipset: AMD Starship/Matisse, Memory: 64GB, Disk: 2 x 2000GB Samsung SSD 970 EVO Plus 2TB, Graphics: AMD Radeon 540/540X/550/550X / RX 540X/550/550X 4GB (1071/1500MHz), Audio: AMD Baffin HDMI/DP, Monitor: HDMI, Network: Realtek RTL8125 2.5GbE + Intel Wi-Fi 6 AX200

OS: Ubuntu 20.04, Kernel: 5.8.0-48-generic (x86_64), Desktop: GNOME Shell 3.36.7, Display Server: X Server 1.20.9, Vulkan: 1.2.131, Compiler: GCC 9.3.0, File-System: ext4, Screen Resolution: 1920x1080

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++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-9-HskZEa/gcc-9-9.3.0/debian/tmp-nvptx/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 ondemand (Boost: Enabled) - CPU Microcode: 0xa201006

Python Notes: Python 2.7.18 + Python 3.8.5

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/swaps 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

ryzen 5950x after bios update

ryzen 5950x performance governor

Processor: AMD Ryzen 9 5950X 16-Core @ 3.40GHz (16 Cores / 32 Threads), Motherboard: Gigabyte B550I AORUS PRO AX (F13g BIOS), Chipset: AMD Starship/Matisse, Memory: 64GB, Disk: 2 x 2000GB Samsung SSD 970 EVO Plus 2TB, Graphics: AMD Radeon 540/540X/550/550X / RX 540X/550/550X 4GB (1071/1500MHz), Audio: AMD Baffin HDMI/DP, Monitor: HDMI, Network: Realtek RTL8125 2.5GbE + Intel Wi-Fi 6 AX200

OS: Ubuntu 20.04, Kernel: 5.8.0-48-generic (x86_64), Desktop: GNOME Shell 3.36.7, Display Server: X Server 1.20.9, OpenGL: 4.6 Mesa 20.2.6 (LLVM 11.0.0), Vulkan: 1.2.131, Compiler: GCC 9.3.0, File-System: ext4, Screen Resolution: 1920x1080

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++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-9-HskZEa/gcc-9-9.3.0/debian/tmp-nvptx/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 performance (Boost: Enabled) - CPU Microcode: 0xa201009

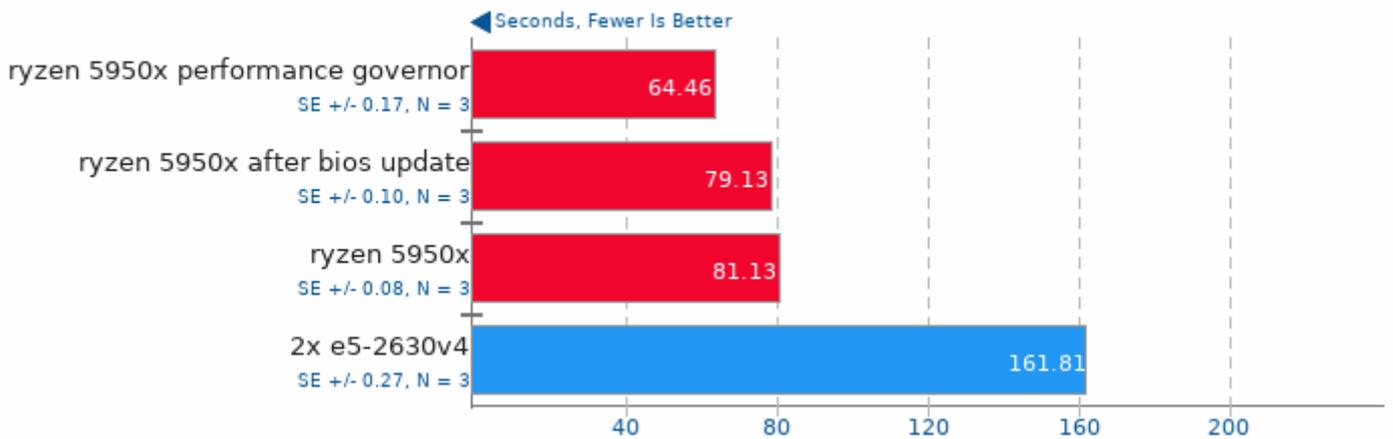
Python Notes: Python 2.7.18 + Python 3.8.5

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/swaps 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

	2x e5-2630v4	ryzen 5950x	ryzen 5950x after bios update	ryzen 5950x performance governor
Timed GDB GNU Debugger Compilation - Time To Compile (sec)	161.805	81.128	79.126	64.456
Normalized	39.84%	79.45%	81.46%	100%
Standard Deviation	0.3%	0.2%	0.2%	0.5%
Timed ImageMagick Compilation - Time To Compile (sec)	35.096	16.520	17.499	17.470
Normalized	47.07%	100%	94.41%	94.56%
Standard Deviation	2.1%	1.4%	0.4%	0.1%
Timed GCC Compilation - Time To Compile (sec)	1338	707.262	686.123	630.772
Normalized	47.14%	89.19%	91.93%	100%
Standard Deviation	0.3%	1.7%	0.5%	0.6%
Timed Apache Compilation - Time To Compile (sec)	30.906	17.499	17.266	16.011
Normalized	51.81%	91.5%	92.73%	100%
Standard Deviation	0.6%	0.2%	0.4%	0.7%
Build2 - Time To Compile (sec)	96.586	75.927	70.645	68.923
Normalized	71.36%	90.78%	97.56%	100%
Standard Deviation	0.4%	2.4%	0.7%	1%
Timed PHP Compilation - Time To Compile (sec)	55.086	40.239	40.649	39.960
Normalized	72.54%	99.31%	98.31%	100%
Standard Deviation	0.8%	0.9%	0.9%	0.3%
Timed Linux Kernel Compilation - Time To Compile (sec)	66.637	49.028	49.783	48.488
Normalized	72.76%	98.9%	97.4%	100%
Standard Deviation	3.2%	2.3%	0.8%	1.3%
Timed LLVM Compilation - Time To Compile (sec)	483.455	429.469	385.929	385.073
Normalized	79.65%	89.66%	99.78%	100%
Standard Deviation	2.3%	2.4%	0.9%	1.5%
Timed MPlayer Compilation - Time To Compile (sec)	30.061			
Standard Deviation	0.1%			
Timed FFmpeg Compilation - Time To Compile (sec)	51.794			
Standard Deviation	0.2%			

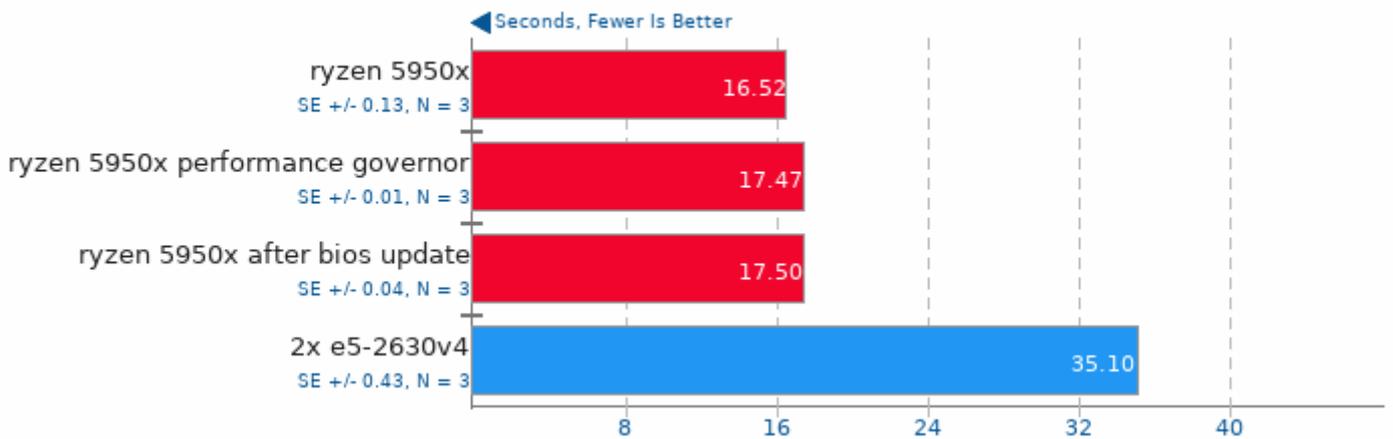
Timed GDB GNU Debugger Compilation 9.1

Time To Compile



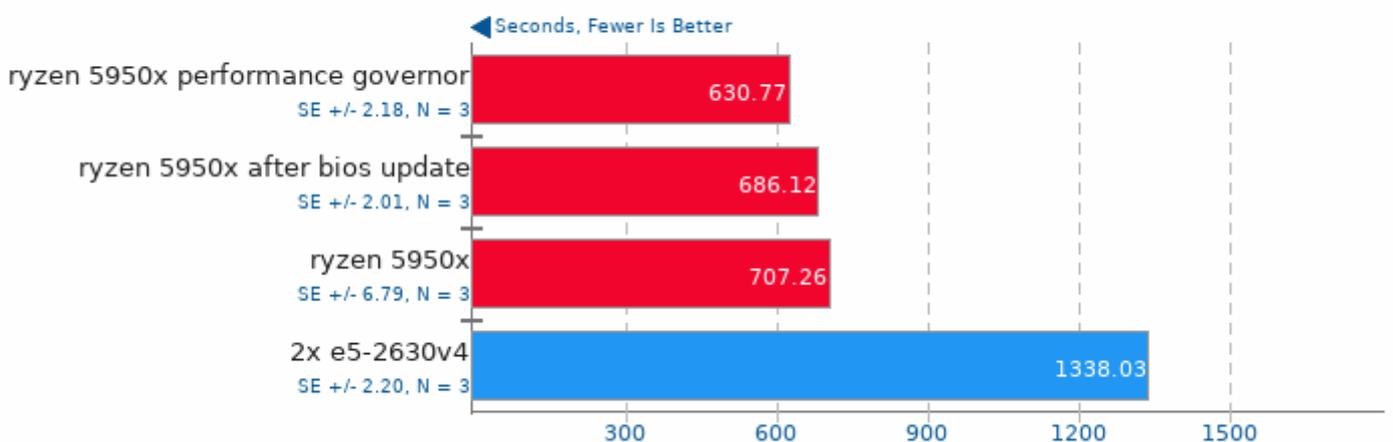
Timed ImageMagick Compilation 6.9.0

Time To Compile



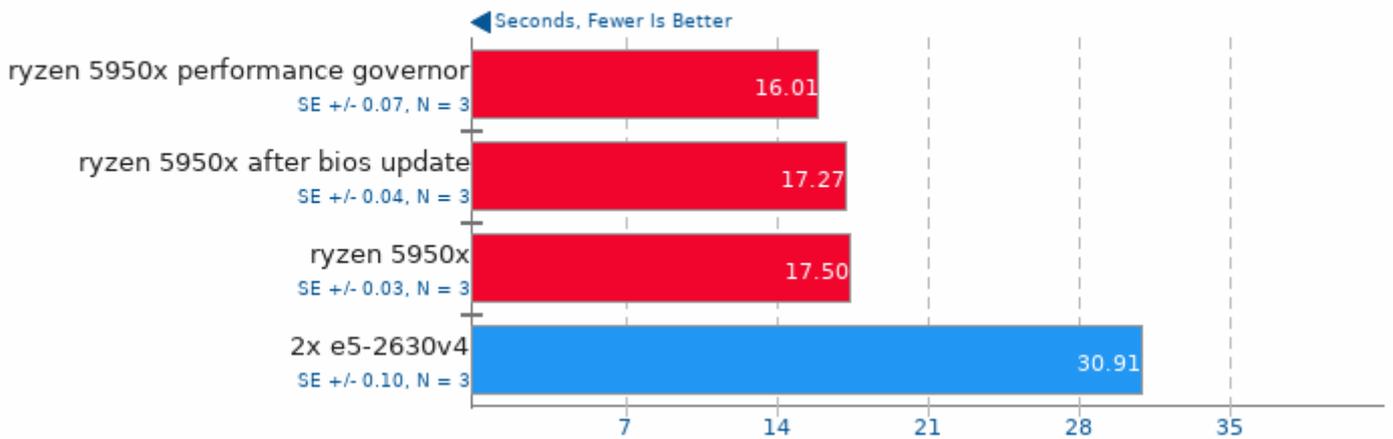
Timed GCC Compilation 9.3.0

Time To Compile



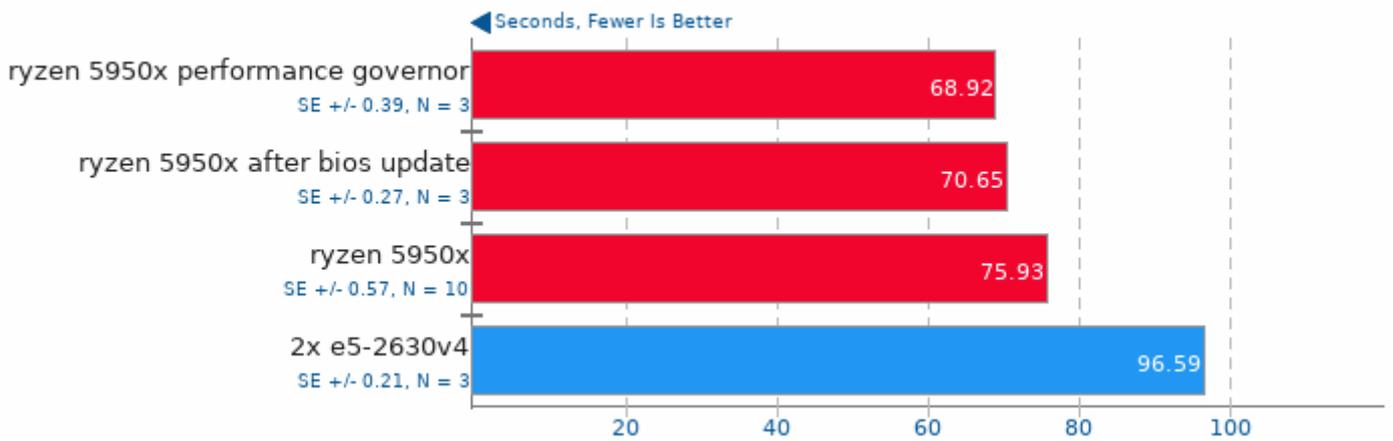
Timed Apache Compilation 2.4.41

Time To Compile



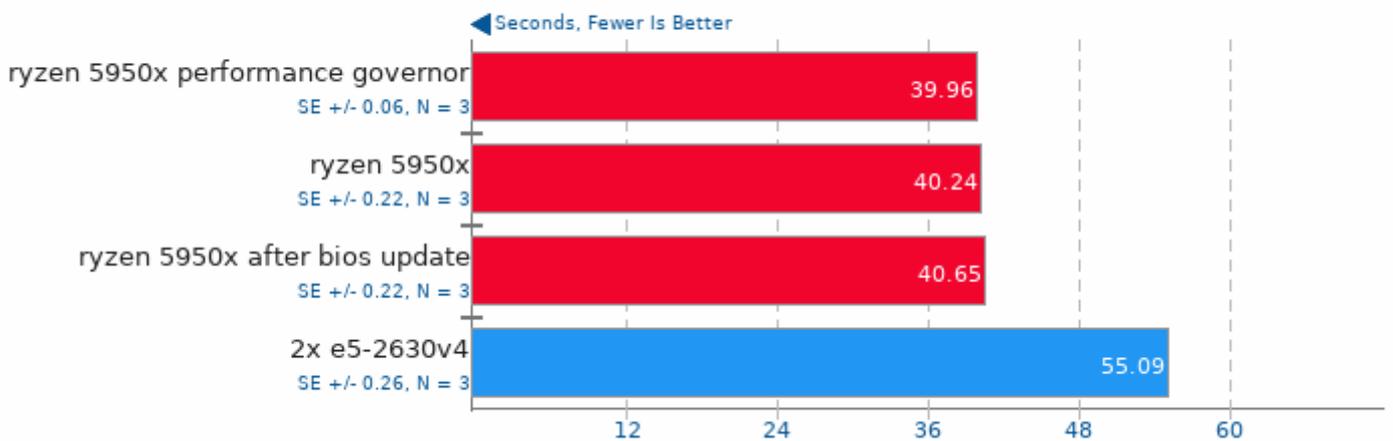
Build2 0.12

Time To Compile



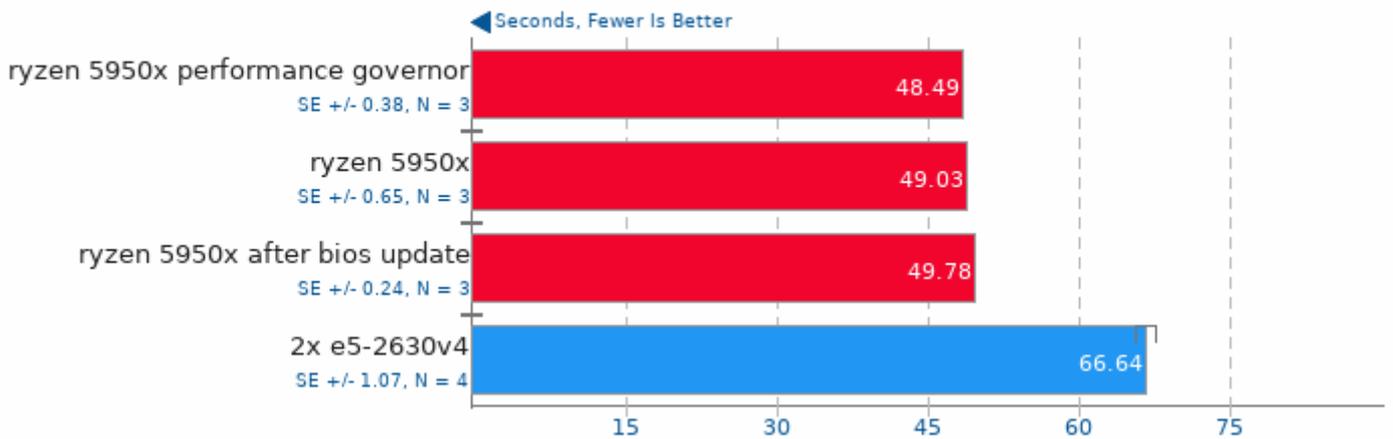
Timed PHP Compilation 7.4.2

Time To Compile



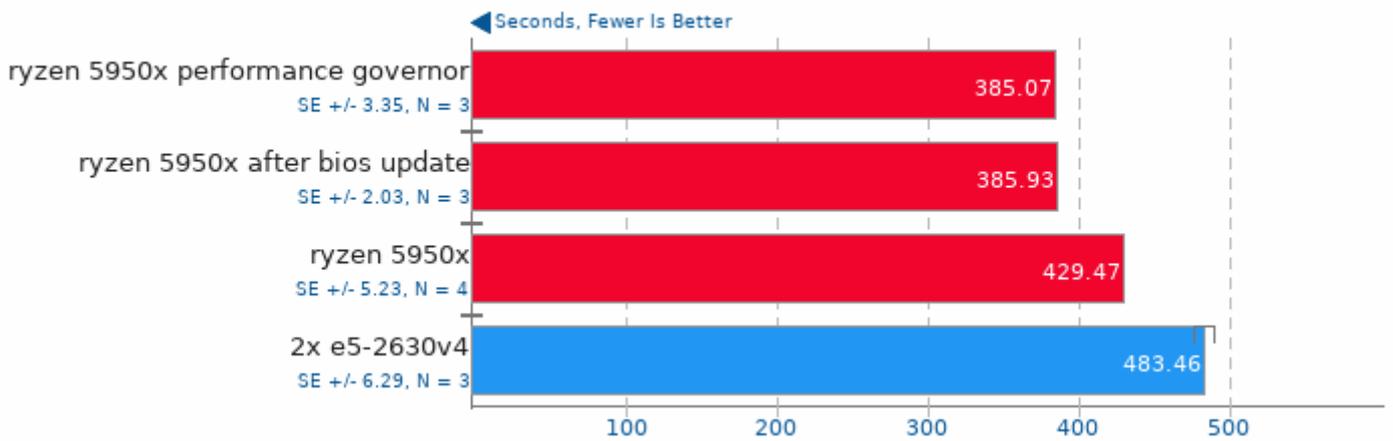
Timed Linux Kernel Compilation 5.4

Time To Compile



Timed LLVM Compilation 10.0

Time To Compile



Timed MPlayer Compilation 1.4

Time To Compile



Timed FFmpeg Compilation 4.2.2

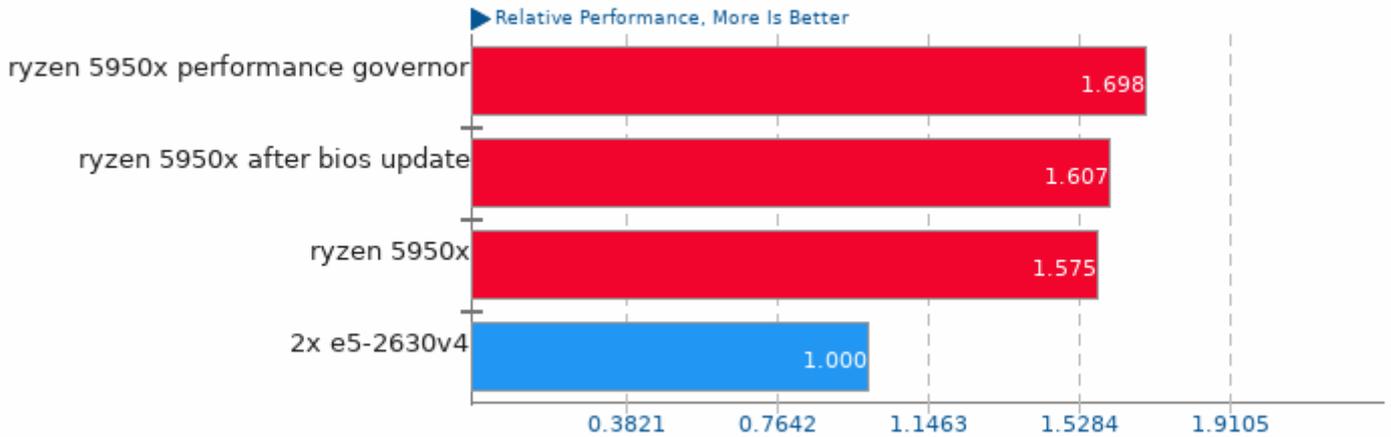
Time To Compile



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

Geometric Mean Of Timed Code Compilation Tests

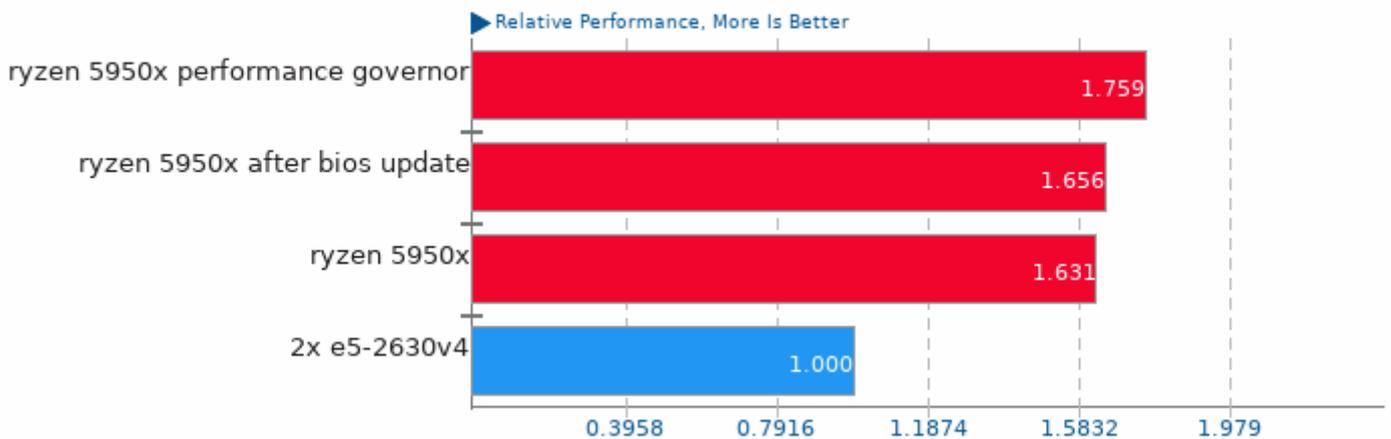
Result Composite - ws-upgrade-compare



Geometric mean based upon tests: pts/build-apache, pts/build-php, pts/build-linux-kernel, pts/build-imagemagick, pts/build-gcc, pts/build-gdb, pts/build-llvm, pts/build-ffmpeg, pts/build-mplayer and pts/build2

Geometric Mean Of C/C++ Compiler Tests

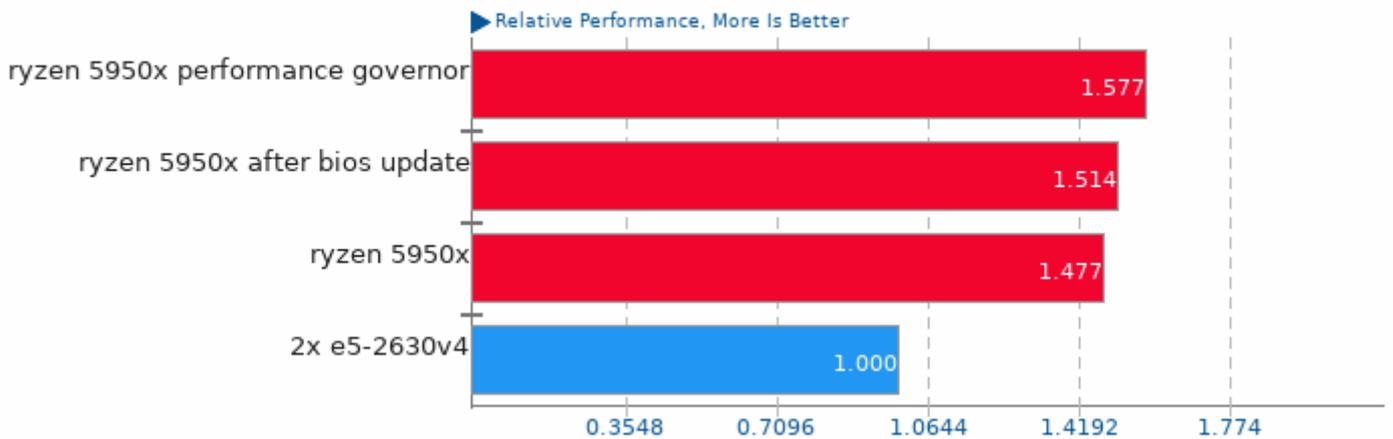
Result Composite - ws-upgrade-compare



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

Geometric Mean Of CPU Massive Tests

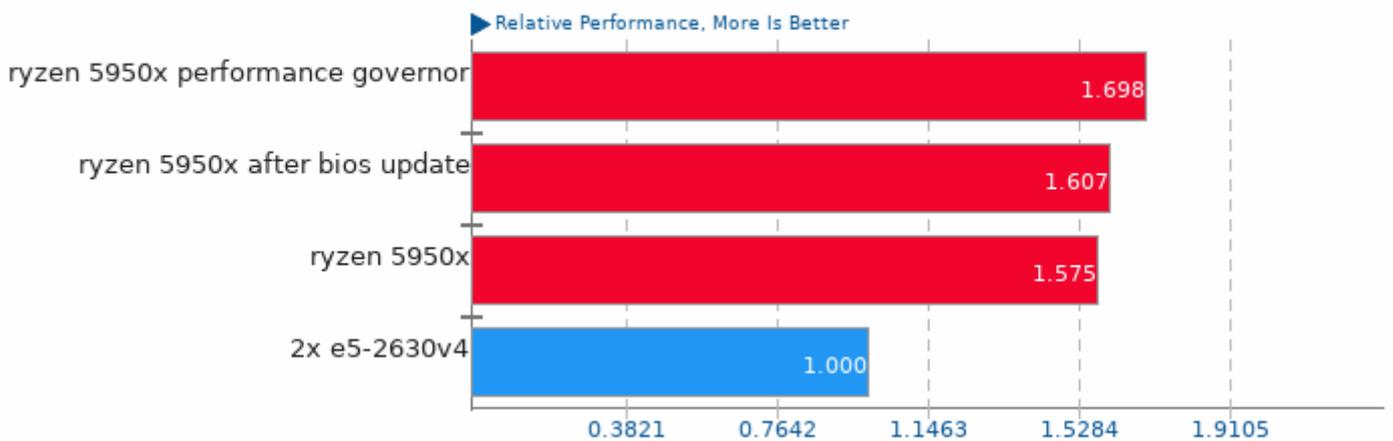
Result Composite - ws-upgrade-compare



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

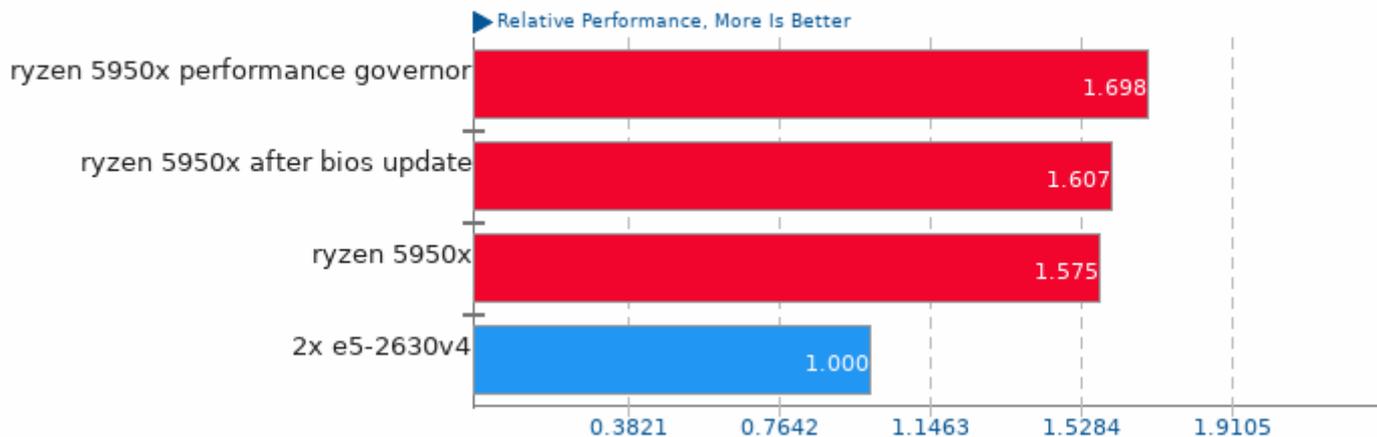
Result Composite - ws-upgrade-compare



Geometric mean based upon tests: pts/build-apache, pts/build-php, pts/build-linux-kernel, pts/build-imagemagick, pts/build-gcc, pts/build-gdb, pts/build-llvm, pts/build-ffmpeg, pts/build-mplayer and pts/build2

Geometric Mean Of Programmer / Developer System Benchmarks Tests

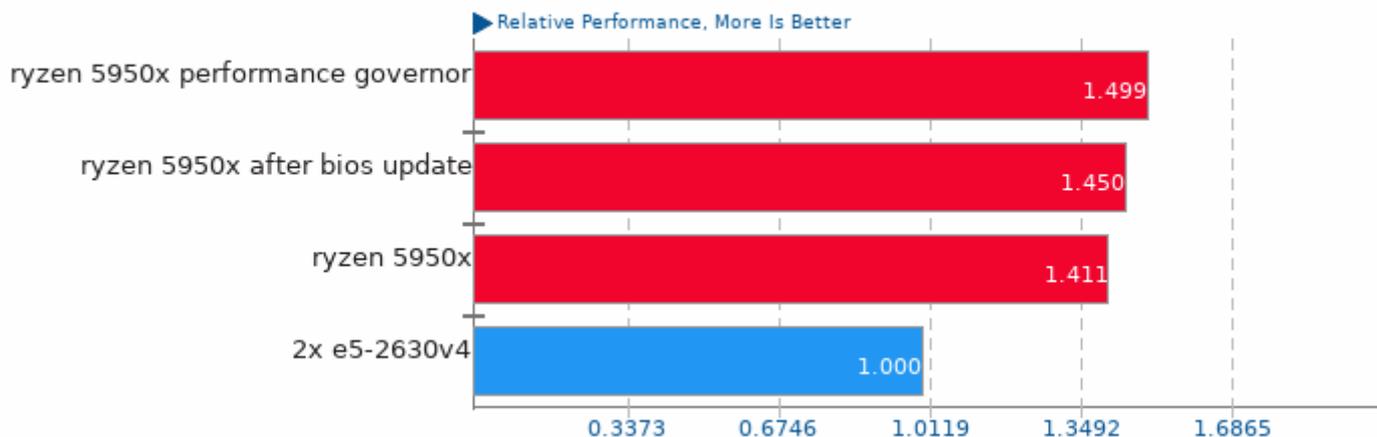
Result Composite - ws-upgrade-compare



Geometric mean based upon tests: pts/build-apache, pts/build-php, pts/build-linux-kernel, pts/build-imagemagick, pts/build-gcc, pts/build-gdb, pts/build-llvm, pts/build-ffmpeg, pts/build-mplayer and pts/build2

Geometric Mean Of Server CPU Tests

Result Composite - ws-upgrade-compare



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, 13 May 2021 12:15.