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## AMD Ryzen 9 7950X Compilation Speed

AMD Ryzen 9 7950X code compilation benchmarks. Benchmarks by Michael Larabel for launch day embargo lift today on 26 Sep.

### Automated Executive Summary

Ryzen 9 7950X had the most wins, coming in first place for 57% of the tests.

Based on the geometric mean of all complete results, the fastest (Ryzen 9 7950X) was 1.01x the speed of the slowest (7950X Repeat). Ryzen 9 7950X was 1x the speed of AMD 7950X, AMD Ryzen 9 7950X was 0.994x the speed of Ryzen 9 7950X, 7950X Repeat was 0.996x the speed of AMD Ryzen 9 7950X.

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

Timed ImageMagick Compilation (Time To Compile) at 1.025x  
Timed LLVM Compilation (Build System: Unix Makefiles) at 1.023x  
Timed Godot Game Engine Compilation (Time To Compile) at 1.02x  
Timed PHP Compilation (Time To Compile) at 1.018x  
Timed Erlang/OTP Compilation (Time To Compile) at 1.016x  
Timed FFmpeg Compilation (Time To Compile) at 1.015x  
Timed Apache Compilation (Time To Compile) at 1.013x  
Timed CPython Compilation (Build Configuration: Default) at 1.012x

Timed CPython Compilation (Build Configuration: Released Build, PGO + LTO Optimized) at 1.012x  
 Timed Gem5 Compilation (Time To Compile) at 1.012x.

## Test Systems:

**Ryzen 9 7950X**

**AMD 7950X**

**AMD Ryzen 9 7950X**

### 7950X Repeat

Processor: AMD Ryzen 9 7950X 16-Core @ 5.88GHz (16 Cores / 32 Threads), Motherboard: ASUS ROG CROSSHAIR X670E HERO (0604 BIOS), Chipset: AMD Device 14d8, Memory: 32GB, Disk: 2000GB Samsung SSD 980 PRO 2TB, Graphics: AMD Radeon RX 6800 XT 16GB (2575/1000MHz), Audio: AMD Navi 21 HDMI Audio, Monitor: ASUS MG28U, Network: Intel I225-V + Intel Wi-Fi 6 AX210/AX211/AX411

OS: Ubuntu 22.04, Kernel: 6.0.0-060000rc1daily20220820-generic (x86\_64), Desktop: GNOME Shell 42.2, Display Server: X Server 1.21.1.3 + Wayland, OpenGL: 4.6 Mesa 22.3.0-devel (git-4685385 2022-08-23 jammy-oibaf-ppa) (LLVM 14.0.6 DRM 3.48), Vulkan: 1.3.224, Compiler: GCC 12.0.1 20220319, File-System: ext4, Screen Resolution: 3840x2160

Kernel Notes: Transparent Huge Pages: madvise  
 Compiler Notes: --build=x86\_64-linux-gnu --disable-vtable-verify --disable-werror --enable-cet --enable-checking=release --enable-clocale-gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,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-defaulted --enable-offload-targets=nvptx-none=/build/gcc-12-OcsLtf/gcc-12-12-20220319/debian/tmp-nvptx/usr,amdgn-amdhsa=/build/gcc-12-OcsLtf/gcc-12-12-20220319/debian/tm p-gcn/usr --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: amd-pstate performance (Boost: Enabled) - CPU Microcode: 0xa601203

Python Notes: Python 3.10.4

Security Notes: itlb\_multihit: Not affected + l1tf: 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 + 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 + srbd: Not affected + tsx\_async\_abort: Not affected

	Ryzen 9 7950X	AMD 7950X	AMD Ryzen 9 7950X	7950X Repeat
Timed Apache Compilation - Time To Compile (sec)	<b>13.093</b>	13.134	<b>13.269</b>	13.248
Normalized	100%	99.69%	98.67%	98.83%
Standard Deviation	0.2%	0.1%	0.3%	0.2%
Timed FFmpeg Compilation - Time To Compile (sec)	22.085	<b>22.018</b>	22.263	<b>22.339</b>
Normalized	99.7%	100%	98.9%	98.56%

## AMD Ryzen 9 7950X Compilation Speed

	Standard Deviation	0.6%	0.7%	0.6%	0.5%
<b>Timed GCC Compilation - Time To Compile (sec)</b>	Normalized	497.348	497.980	499.929	500.968
	Standard Deviation	0.3%	0.4%	0.4%	0.1%
<b>Timed GDB GNU Debugger</b>	Normalized	33.232	33.238	33.468	33.493
<b>Compilation - Time To Compile (sec)</b>	Normalized	100%	99.87%	99.48%	99.28%
	Standard Deviation	0.1%	0.4%	0.4%	0.1%
<b>Timed Gem5 Compilation - Time To Compile (sec)</b>	Normalized	196.205	197.170	197.568	198.576
	Standard Deviation	0.4%	0.5%	0.2%	0.2%
<b>Timed Godot Game Engine</b>	Normalized	53.661	53.750	54.658	54.727
<b>Compilation - Time To Compile (sec)</b>	Normalized	100%	99.51%	99.31%	98.81%
	Standard Deviation	0.2%	0.1%	0.1%	0.2%
<b>Timed ImageMagick Compilation - Time To Compile (sec)</b>	Normalized	13.747	13.740	13.912	14.080
	Standard Deviation	0.2%	0.1%	2.4%	2%
<b>Timed Linux Kernel Compilation - defconfig (sec)</b>	Normalized	40.677	40.694	41.139	41.037
	Standard Deviation	0.8%	0.2%	0.5%	1.2%
<b>Timed Linux Kernel Compilation - allmodconfig (sec)</b>	Normalized	468.850	469.687	471.868	471.926
	Standard Deviation	1.2%	1%	0.9%	1.1%
<b>Timed LLVM Compilation - Ninja (sec)</b>	Normalized	269.559	269.916	272.164	272.396
	Standard Deviation	0.1%	0.1%	0.2%	0%
<b>Timed LLVM Compilation - Unix</b>	Normalized	296.145	293.728	298.296	300.463
	Standard Deviation	0.1%	0.1%	0.2%	0.1%
<b>Timed Mesa Compilation - Time To Compile (sec)</b>	Normalized	23.212	23.200	23.230	23.417
	Standard Deviation	1.6%	1.3%	1.4%	2%
<b>Timed MPlayer Compilation - Time To Compile (sec)</b>	Normalized	15.913	15.921	15.991	16.029
	Standard Deviation	0.7%	0.5%	1%	0.2%
<b>Timed Node.js Compilation - Time To Compile (sec)</b>	Normalized	265.527	266.119	266.628	266.663
	Standard Deviation	0.2%	0%	0.2%	0.3%
<b>Timed PHP Compilation - Time To Compile (sec)</b>	Normalized	37.114	37.376	36.879	37.553
	Standard Deviation	0.1%	0.3%	0.3%	0.2%
	Normalized	99.37%	98.67%	100%	98.21%
	Standard Deviation	0.3%	0.1%	1.6%	0.2%

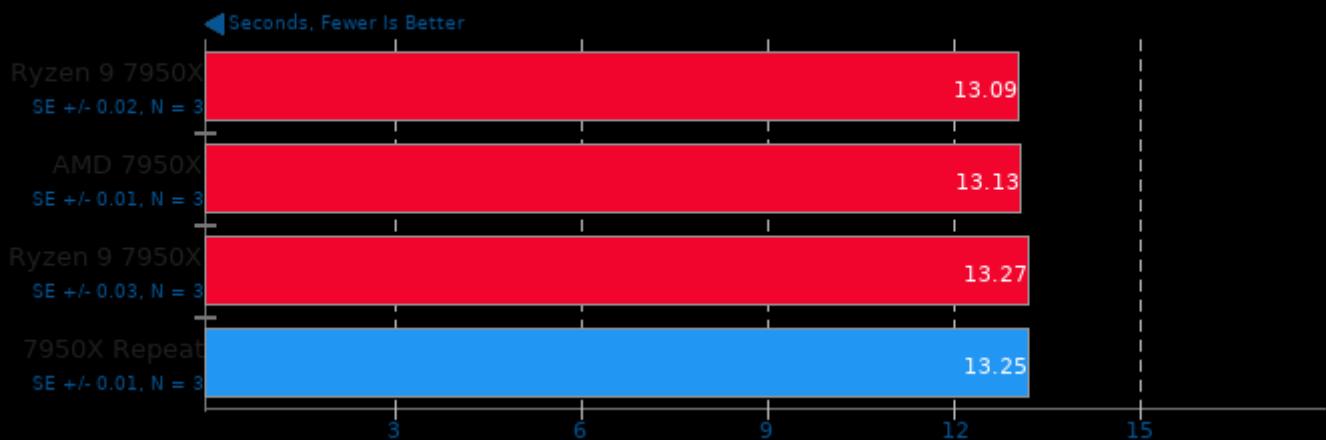
## AMD Ryzen 9 7950X Compilation Speed

Timed CPython Compilation - Default (sec)	12.236	<b>12.185</b>	12.307	<b>12.337</b>
Normalized	99.58%	100%	99.01%	98.77%
Timed CPython Compilation - R.B.P.L.O (sec)	179.965	<b>179.365</b>	181.074	<b>181.547</b>
Normalized	99.67%	100%	99.06%	98.8%
Build2 - Time To Compile (sec)	<b>58.269</b>	<b>57.582</b>	57.749	58.144
Normalized	98.82%	100%	99.71%	99.03%
Standard Deviation	1.4%	0.2%	0.1%	0.2%
Timed Eigen Compilation - Time To Compile (sec)	<b>52.496</b>	52.538	52.630	<b>52.838</b>
Normalized	100%	99.92%	99.75%	99.35%
Standard Deviation	0.2%	0.1%	0.3%	0.3%
Timed Erlang/OTP Compilation - Time To Compile (sec)	57.142	<b>56.903</b>	57.349	<b>57.800</b>
Normalized	99.58%	100%	99.22%	98.45%
Standard Deviation	0.4%	1%	0.4%	0.2%
Timed Wasmer Compilation - Time To Compile (sec)	<b>33.772</b>	33.978	<b>34.012</b>	33.899
Normalized	100%	99.39%	99.29%	99.63%
Standard Deviation	0.6%	0.3%	0.2%	0.6%

## AMD Ryzen 9 7950X Compilation Speed

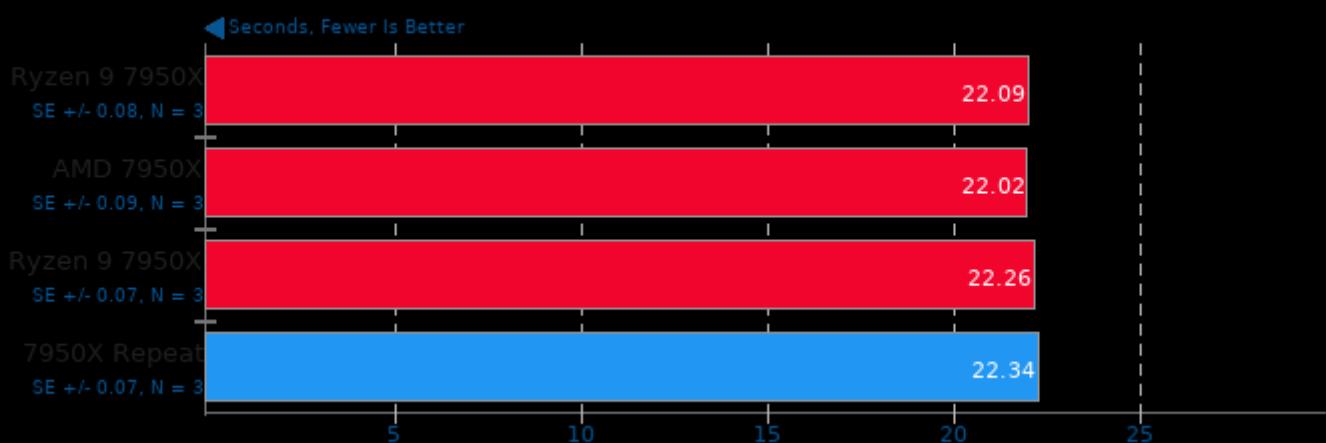
### Timed Apache Compilation 2.4.41

Time To Compile



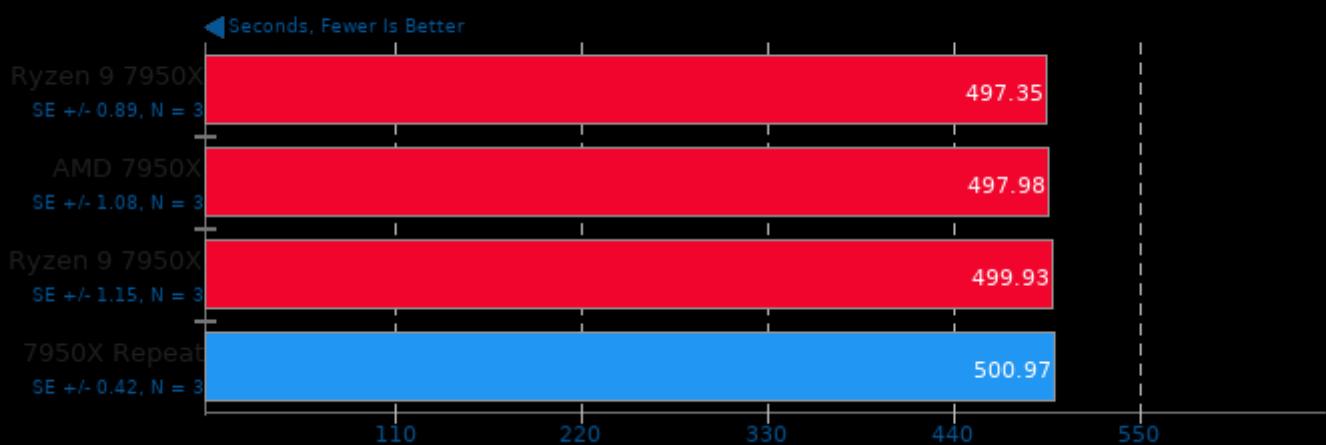
### Timed FFmpeg Compilation 4.4

Time To Compile



### Timed GCC Compilation 11.2.0

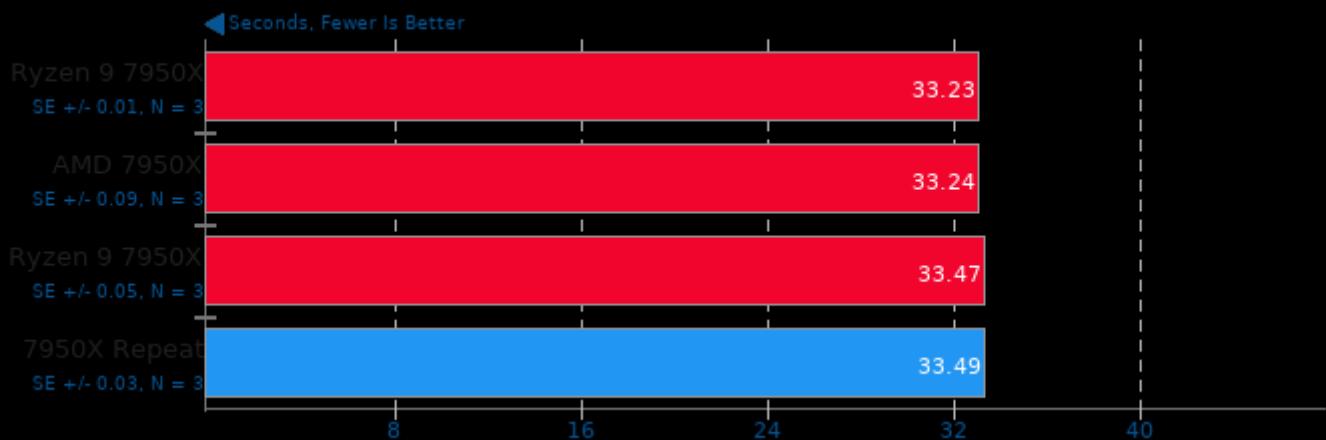
Time To Compile



## AMD Ryzen 9 7950X Compilation Speed

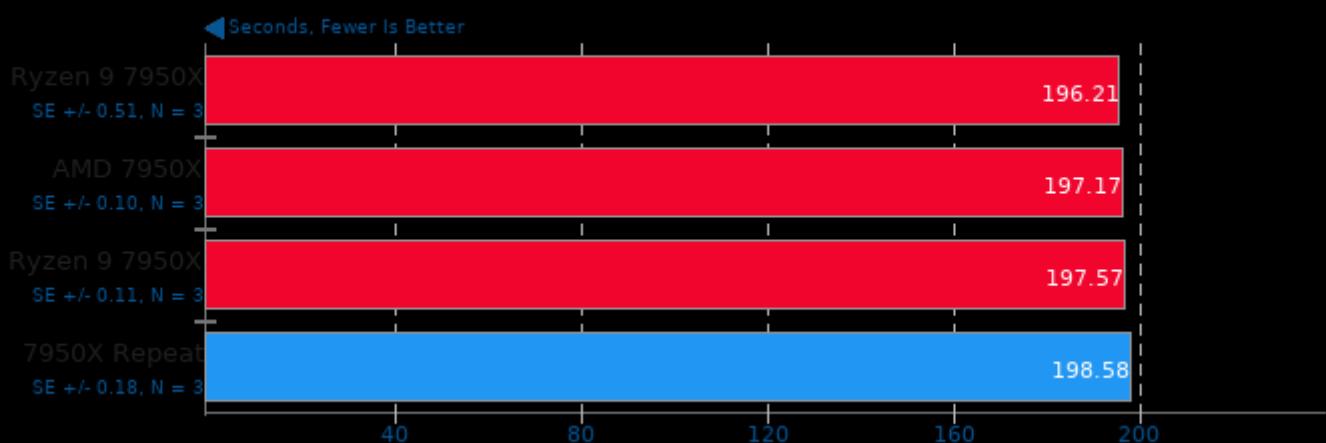
### Timed GDB GNU Debugger Compilation 10.2

Time To Compile



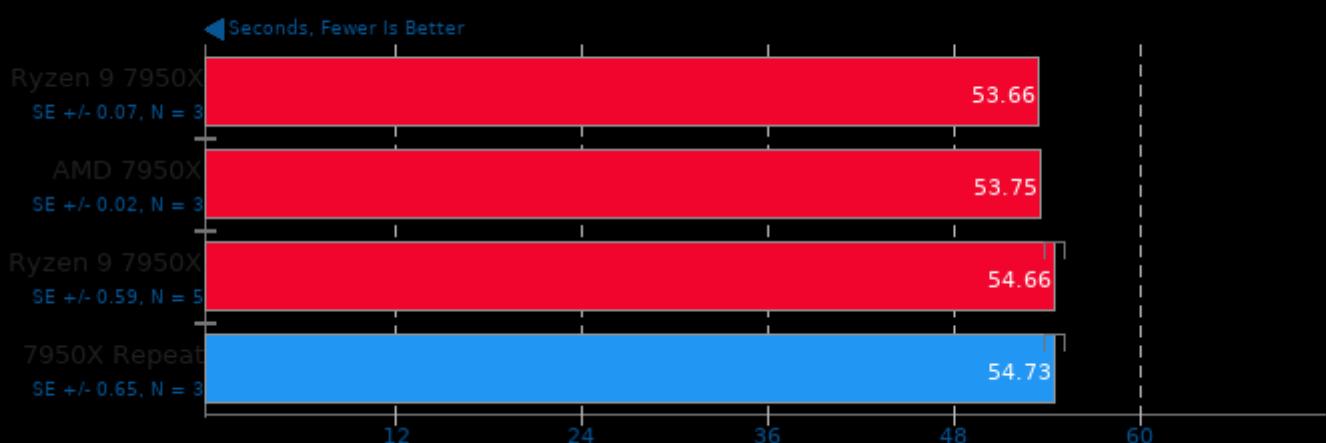
### Timed Gem5 Compilation 21.2

Time To Compile



### Timed Godot Game Engine Compilation 3.2.3

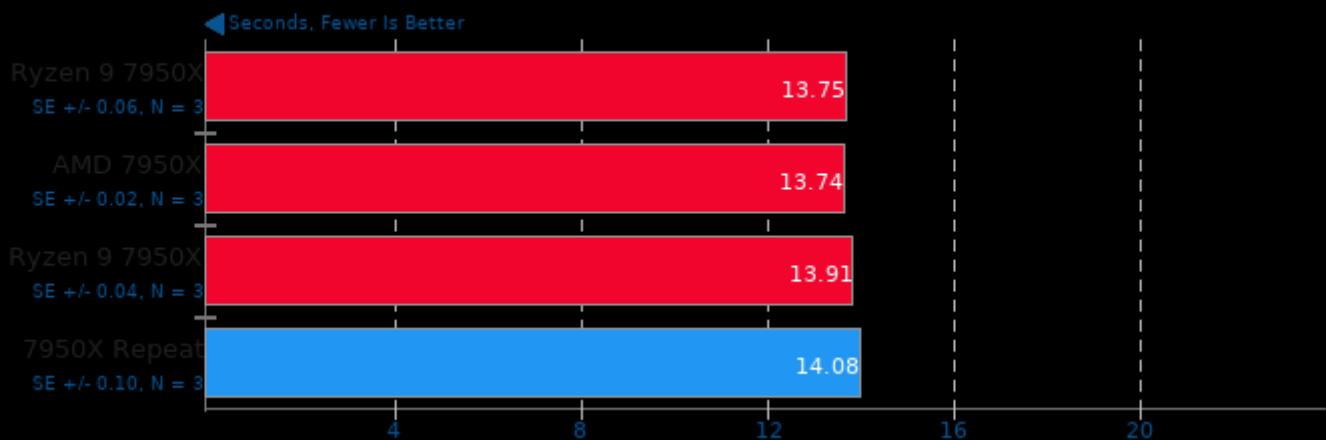
Time To Compile



## AMD Ryzen 9 7950X Compilation Speed

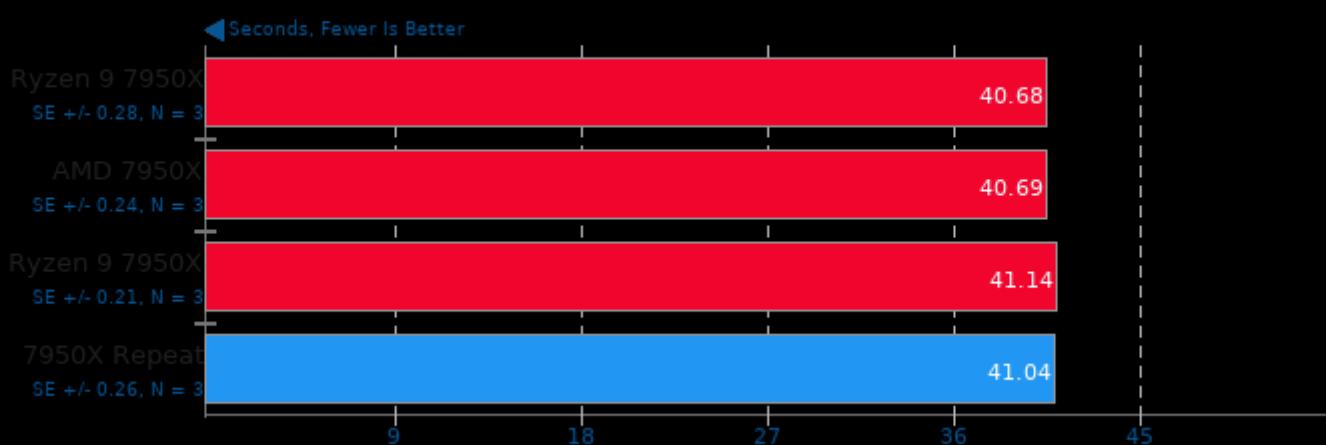
### Timed ImageMagick Compilation 6.9.0

Time To Compile



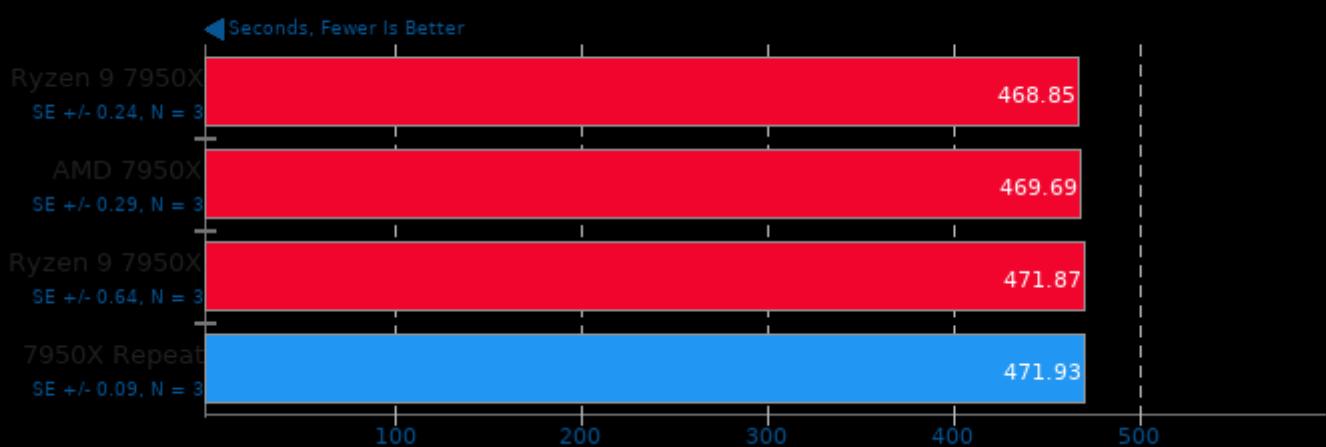
### Timed Linux Kernel Compilation 5.18

Build: defconfig



### Timed Linux Kernel Compilation 5.18

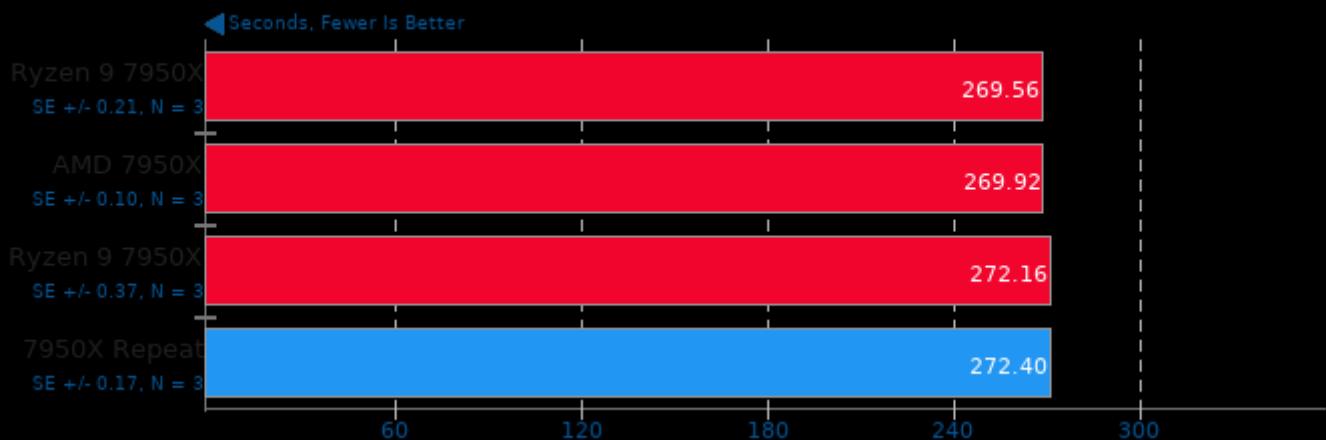
Build: allmodconfig



## AMD Ryzen 9 7950X Compilation Speed

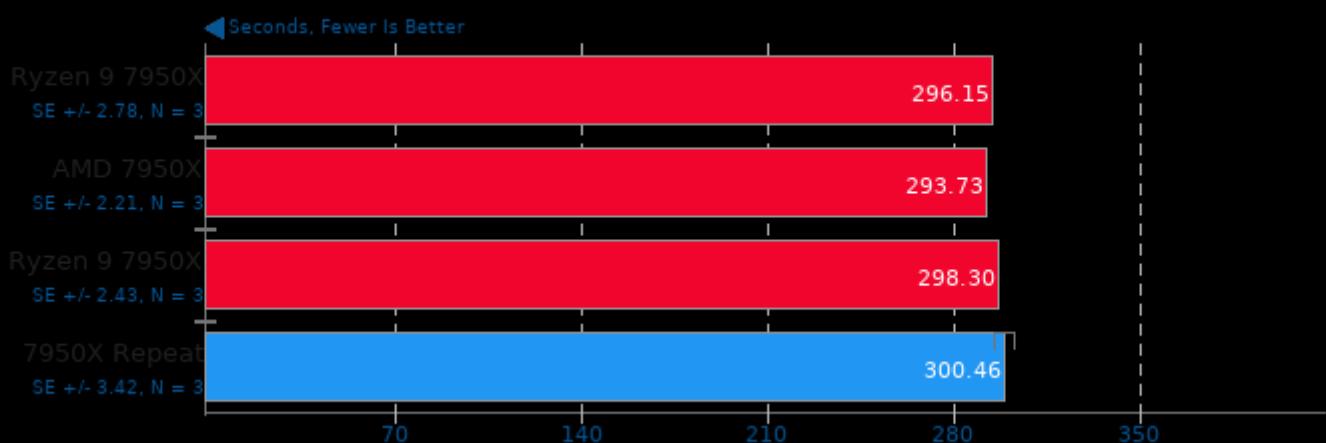
### Timed LLVM Compilation 13.0

Build System: Ninja



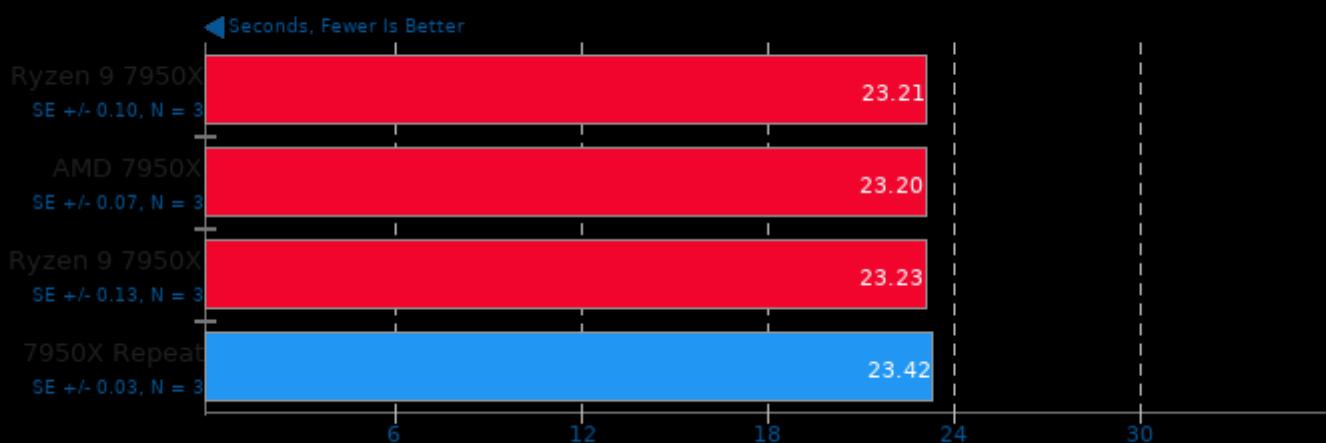
### Timed LLVM Compilation 13.0

Build System: Unix Makefiles



### Timed Mesa Compilation 21.0

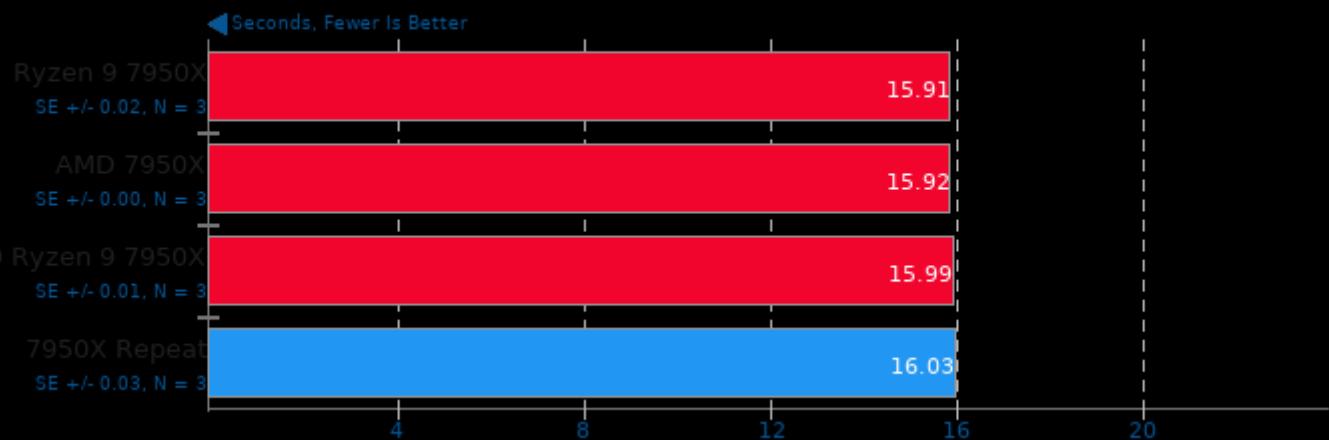
Time To Compile



## AMD Ryzen 9 7950X Compilation Speed

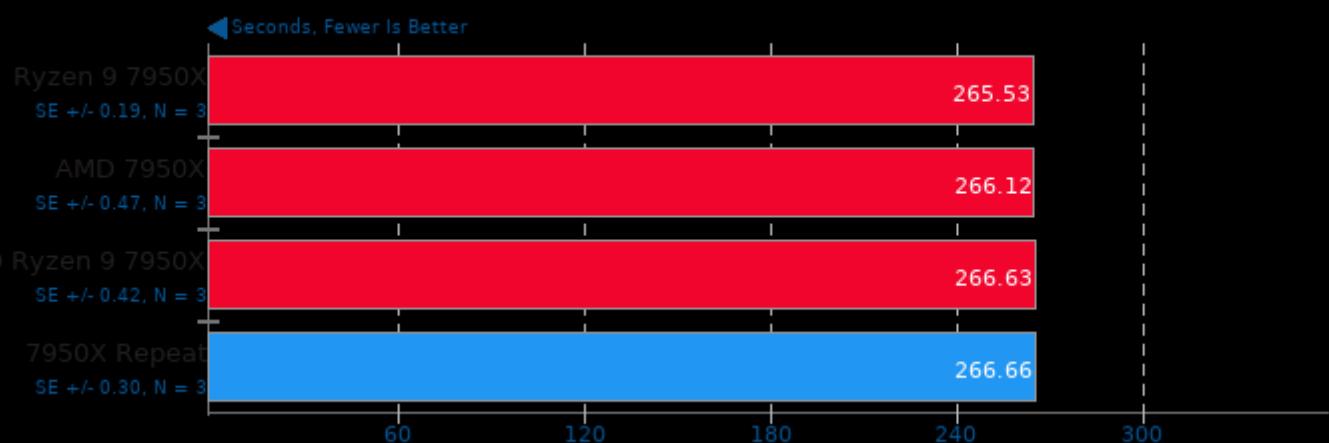
### Timed MPlayer Compilation 1.5

Time To Compile



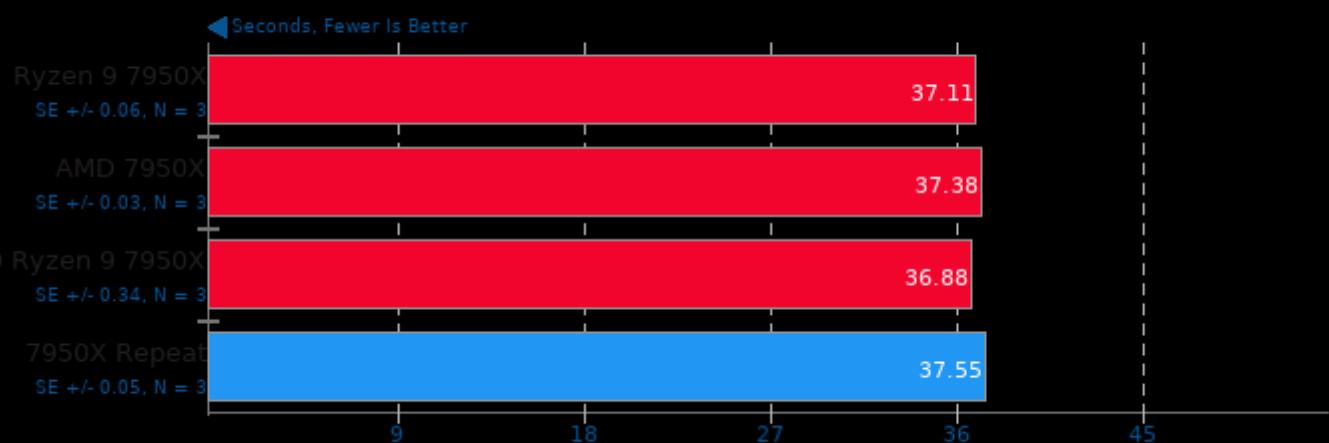
### Timed Node.js Compilation 18.8

Time To Compile



### Timed PHP Compilation 8.1.9

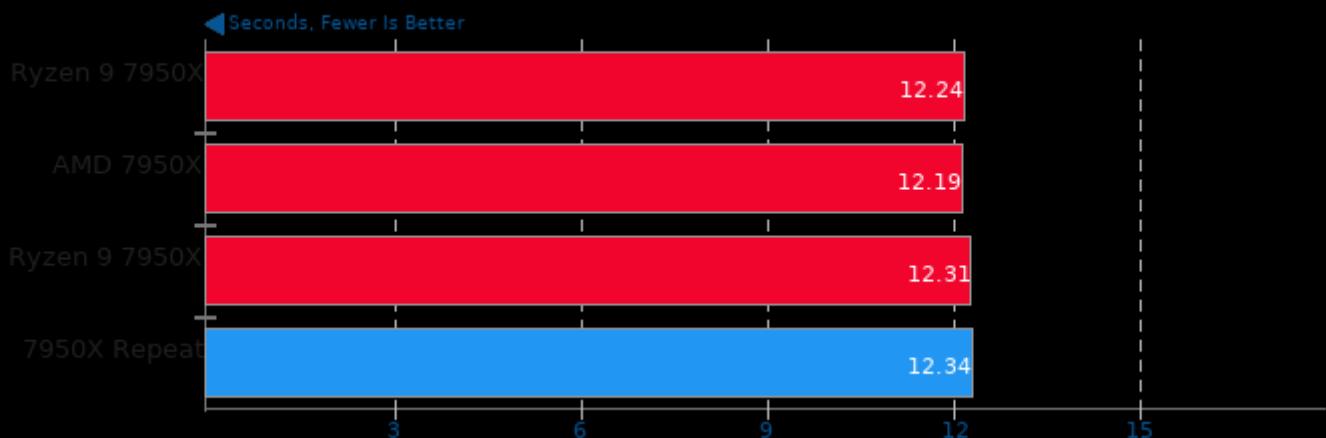
Time To Compile



## AMD Ryzen 9 7950X Compilation Speed

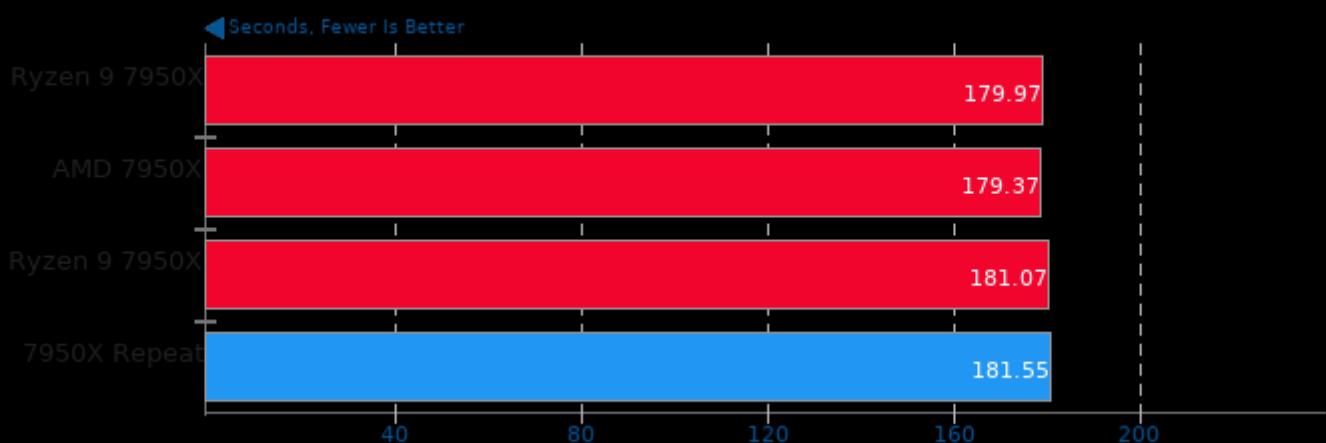
### Timed CPython Compilation 3.10.6

Build Configuration: Default



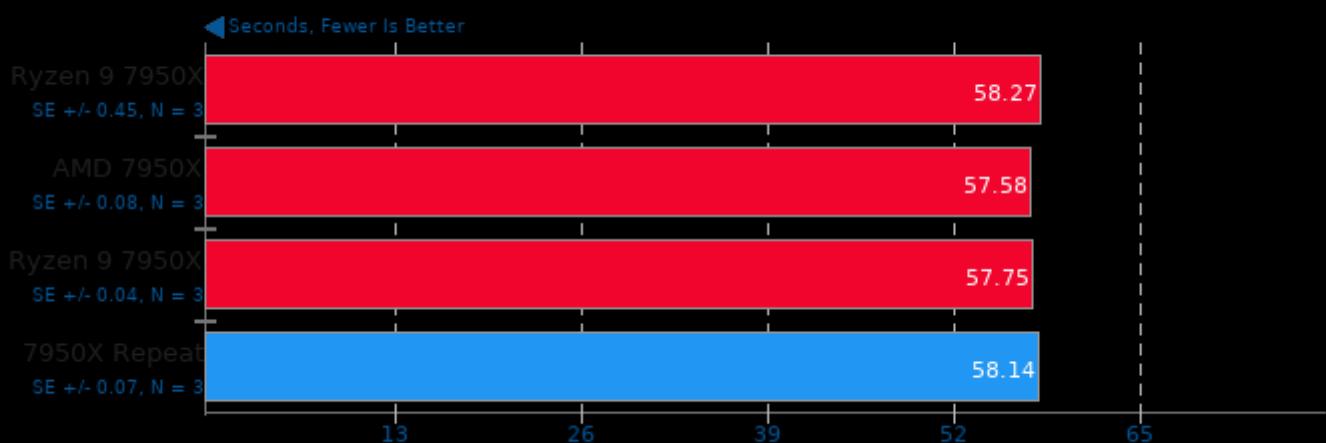
### Timed CPython Compilation 3.10.6

Build Configuration: Released Build, PGO + LTO Optimized



### Build2 0.13

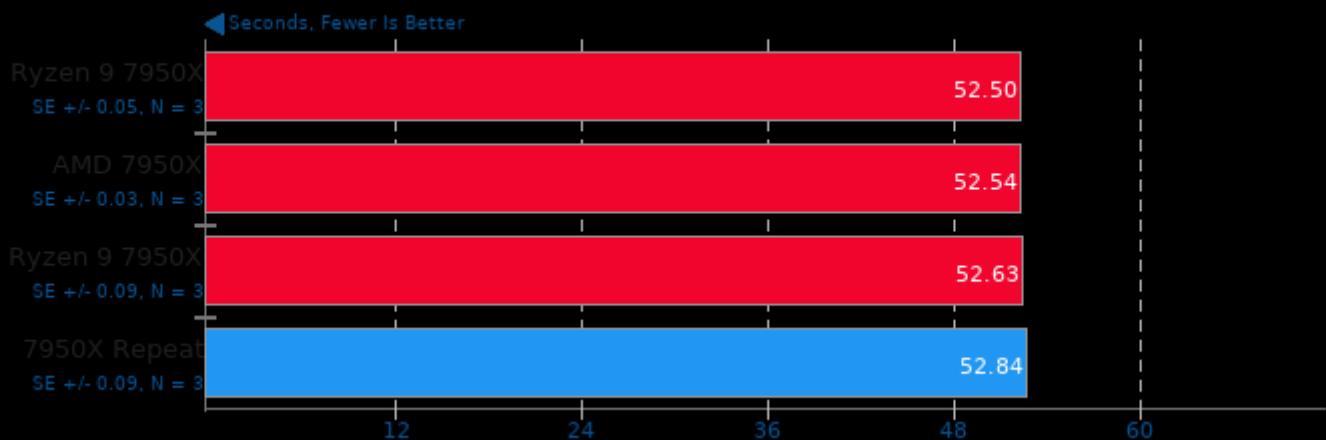
Time To Compile



## AMD Ryzen 9 7950X Compilation Speed

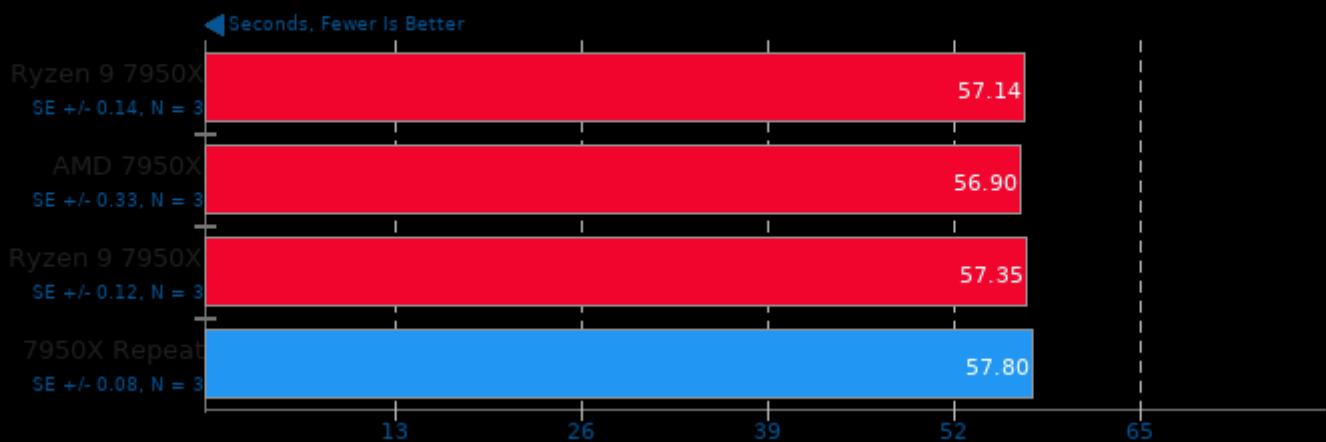
### Timed Eigen Compilation 3.3.9

Time To Compile



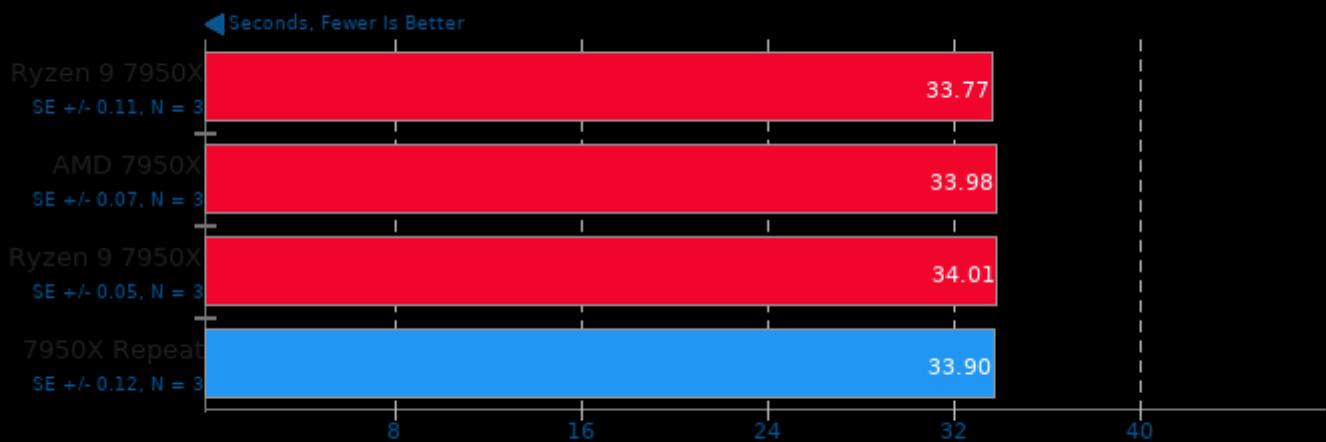
### Timed Erlang/OTP Compilation 25.0

Time To Compile



### Timed Wasmer Compilation 2.3

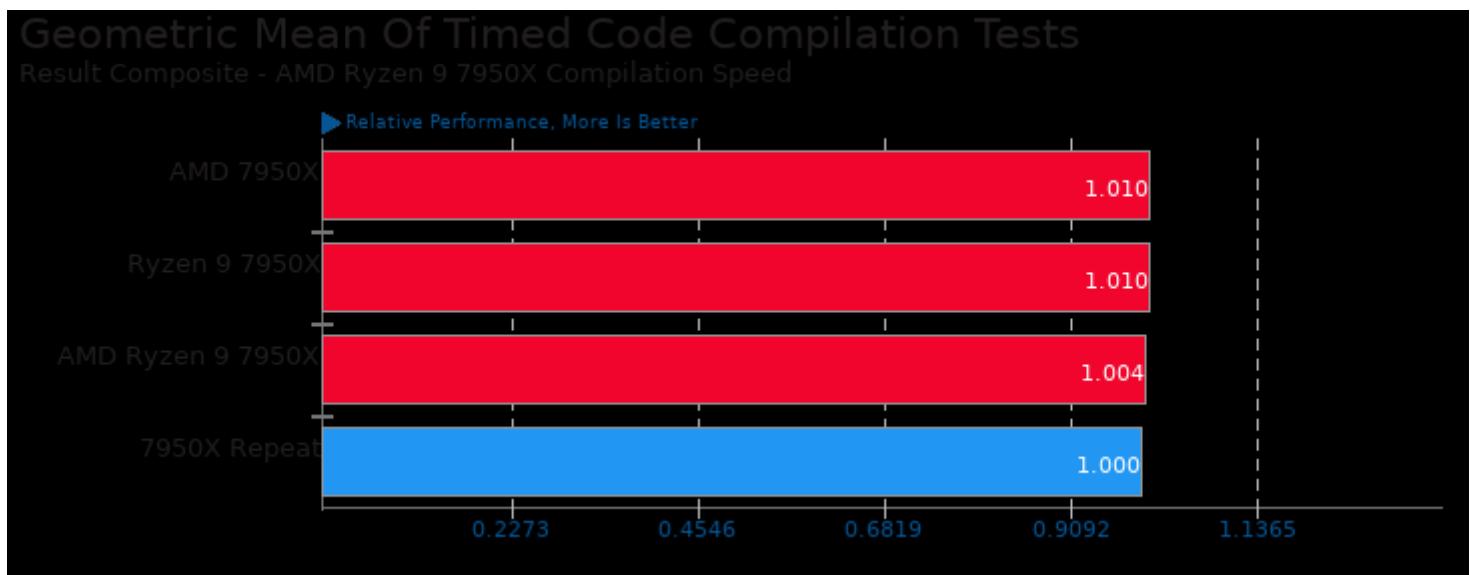
Time To Compile



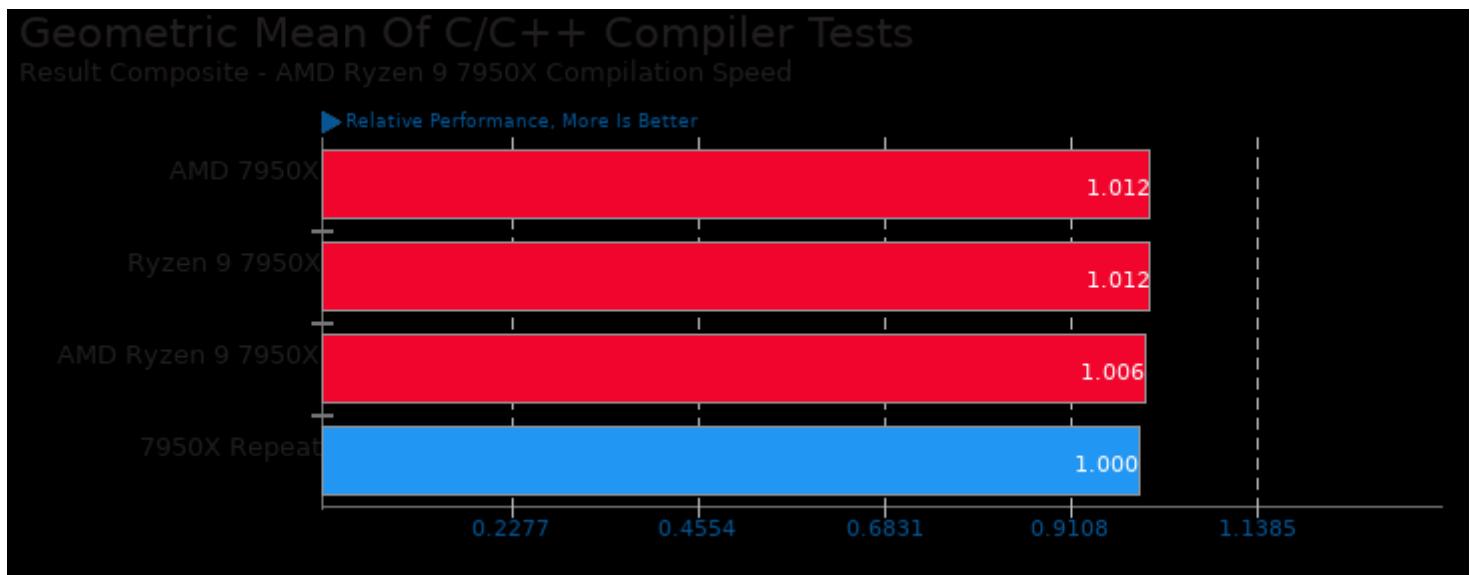
1. (CC) gcc options: -m64 -ldl -lgcc\_s -util -lrt -lpthread -lm -lc -pie -nodefaultlibs

## AMD Ryzen 9 7950X Compilation Speed

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-python, pts/build-godot, pts/build-erlang, pts/build-wasmer, pts/build-nodejs, pts/build-mesa and pts/build-gem5

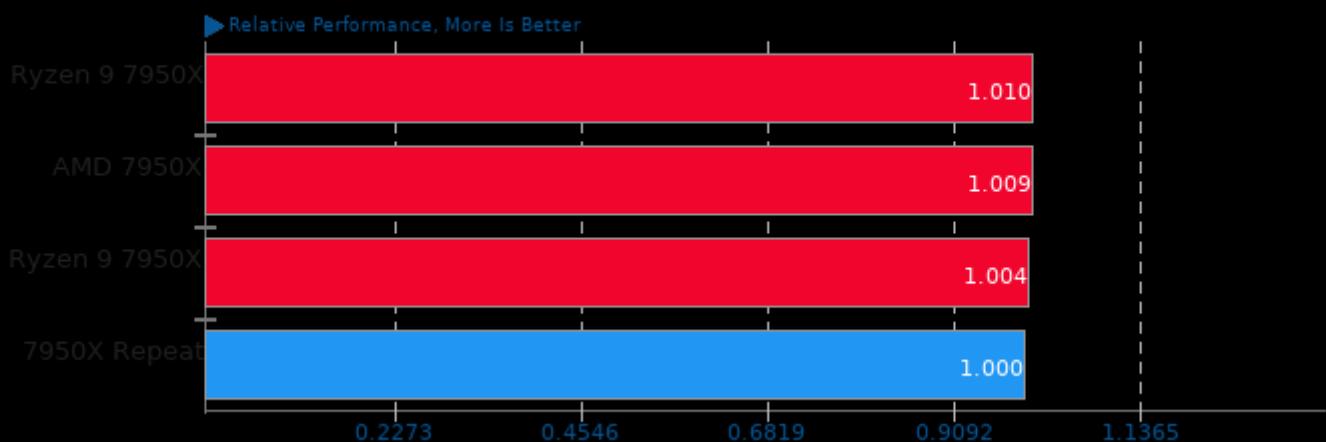


Geometric mean based upon tests: pts/build-php, pts/build-imagemagick, pts/build-llvm, pts/build-gdb, pts/build-ffmpeg, pts/build-apache and pts/build-mplayer

## AMD Ryzen 9 7950X Compilation Speed

### Geometric Mean Of CPU Massive Tests

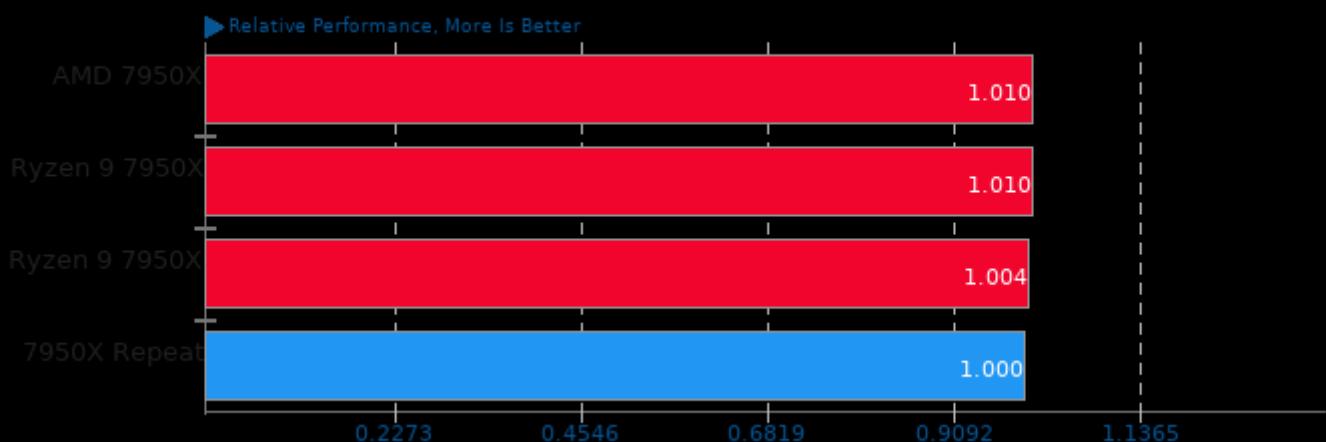
Result Composite - AMD Ryzen 9 7950X Compilation Speed



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

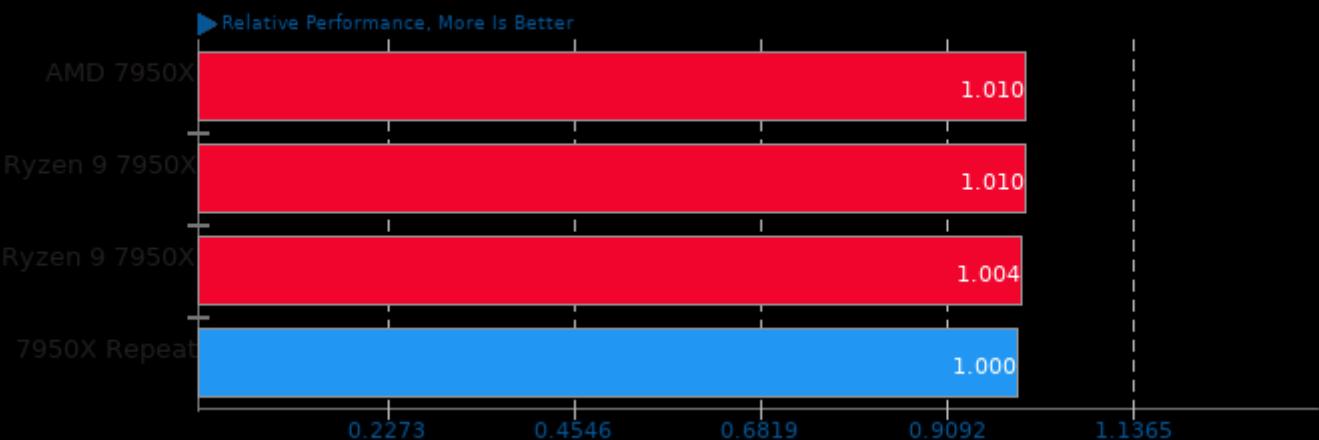
Result Composite - AMD Ryzen 9 7950X Compilation Speed



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-python, pts/build-godot, pts/build-erlang, pts/build-wasmer, pts/build-nodejs, pts/build-mesa and pts/build-gem5

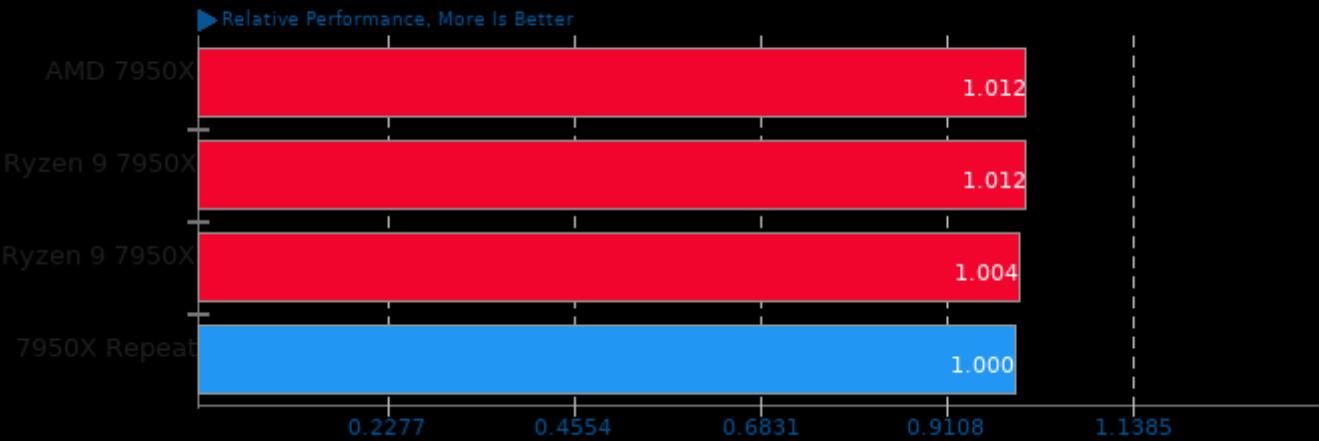
## AMD Ryzen 9 7950X Compilation Speed

**Geometric Mean Of Programmer / Developer System Benchmarks Tests**  
Result Composite - AMD Ryzen 9 7950X Compilation Speed



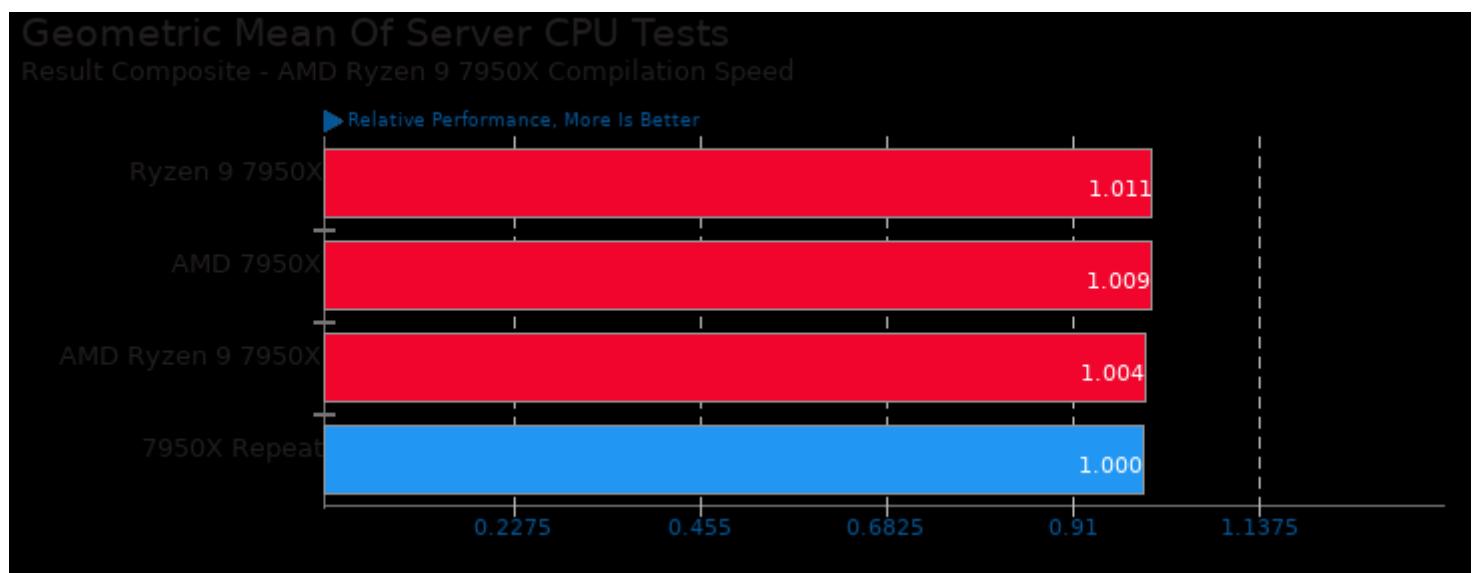
Geometric mean based upon tests: pts/build-apache, pts/build-php, pts/build-eigen, pts/build-linux-kernel, pts/build-imagemagick, pts/build-gcc, pts/build-gdb, pts/build-llvm, pts/build-ffmpeg, pts/build-mplayer, pts/build2, pts/build-python, pts/build-godot, pts/build-erlang, pts/build-wasmer, pts/build-nodejs, pts/build-mesa and pts/build-gem5

**Geometric Mean Of Python Tests**  
Result Composite - AMD Ryzen 9 7950X Compilation Speed



Geometric mean based upon tests: pts/build-gem5, pts/build-godot, pts/build-llvm, pts/build-mesa and pts/build-nodejs

## AMD Ryzen 9 7950X Compilation Speed



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 15:48.*