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EPYC 7763 Linux 5.15 Code Compilation

2 x AMD EPYC 7763 64-Core testing with a AMD DAYTONA_X (RYM1001D BIOS) and ASPEED on Ubuntu 21.04 via the Phoronix Test Suite.

Automated Executive Summary

Linux 5.14 had the most wins, coming in first place for 93% of the tests.

Based on the geometric mean of all complete results, the fastest (Linux 5.15-rc1) was 1.002x the speed of the slowest (Linux 5.14).

Test Systems:

Linux 5.14

Processor: 2 x AMD EPYC 7763 64-Core @ 2.45GHz (128 Cores / 256 Threads), Motherboard: AMD DAYTONA_X (RYM1001D BIOS), Chipset: AMD Starship/Matisse, Memory: 504GB, Disk: 3841GB Micron_9300_MTFDHAL3T8TDP, Graphics: ASPEED, Monitor: VE228, Network: 2 x Mellanox MT27710

OS: Ubuntu 21.04, Kernel: 5.14.0-051400-generic (x86_64), Desktop: GNOME Shell 3.38.4, Display Server: X Server, Vulkan: 1.0.2, Compiler: GCC 10.3.0, 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-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-gDeRY6/gcc-10-10.3.0/debian/tmp-nvptx/usr,amdgn-amdhsa=/build/gcc-10-gDeRY6/gcc-10-10.3.0/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 schedutil (Boost: Enabled) - CPU Microcode: 0xa001119
 Python Notes: Python 3.9.5

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 + srbs: Not affected + tsx_async_abort: Not affected

Linux 5.15-rc1

Processor: 2 x AMD EPYC 7763 64-Core @ 2.45GHz (128 Cores / 256 Threads), Motherboard: AMD DAYTONA_X (RYM1001D BIOS), Chipset: AMD Starship/Matisse, Memory: 504GB, Disk: 3841GB Micron_9300_MTFDHAL3T8TDP, Graphics: ASPEED, Monitor: VE228, Network: 2 x Mellanox MT27710

OS: Ubuntu 21.04, Kernel: 5.15.0-rc1-phx (x86_64) 20210913, Desktop: GNOME Shell 3.38.4, Display Server: X Server, Vulkan: 1.0.2, Compiler: GCC 10.3.0, 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-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-gDeRY6/gcc-10-10.3.0/debian/tmp-nvptx/usr,amdgn-amdhsa=/build/gcc-10-gDeRY6/gcc-10-10.3.0/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 schedutil (Boost: Enabled) - CPU Microcode: 0xa001119
 Python Notes: Python 3.9.5

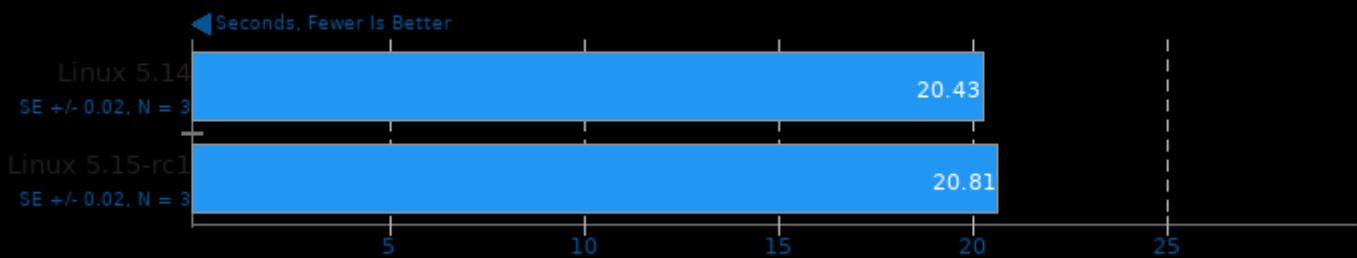
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swaps barriers and __user pointer sanitization + spectre_v2: Mitigation of Full AMD retpoline IBPB: conditional IBRS_FW STIBP: always-on RSB filling + srbs: Not affected + tsx_async_abort: Not affected

	Linux 5.14	Linux 5.15-rc1
Timed Apache Compilation - Time To Compile (sec)	20.434	20.807
Normalized	100%	98.21%
Standard Deviation	0.2%	0.2%
Timed FFmpeg Compilation - Time To Compile (sec)	14.716	14.987
Normalized	100%	98.19%
Standard Deviation	0.4%	4%
Timed GDB GNU Debugger Compilation - Time To Compile (sec)	44.478	46.256
Normalized	100%	96.16%
Standard Deviation	0.2%	1.1%
Timed Godot Game Engine Compilation - Time To Compile (sec)	50.821	52.300
Normalized	100%	97.17%
Standard Deviation	0.2%	0.6%
Timed ImageMagick Compilation - Time To Compile	11.301	11.658
Normalized	100%	96.94%

	Standard Deviation	1.1%	0.5%
Timed Linux Kernel Compilation - Time To Compile	17.804	18.107	
	Normalized	100%	98.33%
	Standard Deviation	2.7%	2.2%
Timed LLVM Compilation - Ninja (sec)	97.393	98.429	
	Normalized	100%	98.95%
	Standard Deviation	0.2%	0.5%
Timed LLVM Compilation - Unix Makefiles (sec)	177.016	178.734	
	Normalized	100%	99.04%
	Standard Deviation	0.6%	0.4%
Timed Mesa Compilation - Time To Compile (sec)	16.829	16.918	
	Normalized	100%	99.47%
	Standard Deviation	0.4%	0.2%
Timed MPlayer Compilation - Time To Compile (sec)	8.278	8.371	
	Normalized	100%	98.89%
	Standard Deviation	1%	0%
Timed Node.js Compilation - Time To Compile (sec)	72.247	72.715	
	Normalized	100%	99.36%
	Standard Deviation	0.4%	0.5%
Timed PHP Compilation - Time To Compile (sec)	34.850	35.271	
	Normalized	100%	98.81%
	Standard Deviation	0.7%	0.2%
Build2 - Time To Compile (sec)	55.147	55.492	
	Normalized	100%	99.38%
	Standard Deviation	0.5%	1.2%
Timed Erlang/OTP Compilation - Time To Compile	160.019	120.951	
	Normalized	75.59%	100%
	Standard Deviation	0.2%	0.8%
Timed Wasmer Compilation - Time To Compile (sec)	52.549	53.799	
	Normalized	100%	97.68%
	Standard Deviation	1.1%	1.7%
Timed GCC Compilation - Time To Compile (sec)	690.283	700.330	
	Normalized	100%	98.57%
	Standard Deviation	0.2%	0.3%

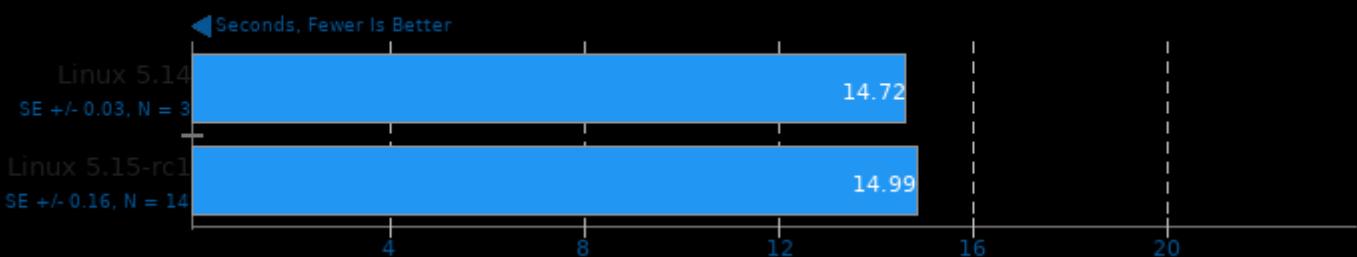
Timed Apache Compilation 2.4.41

Time To Compile



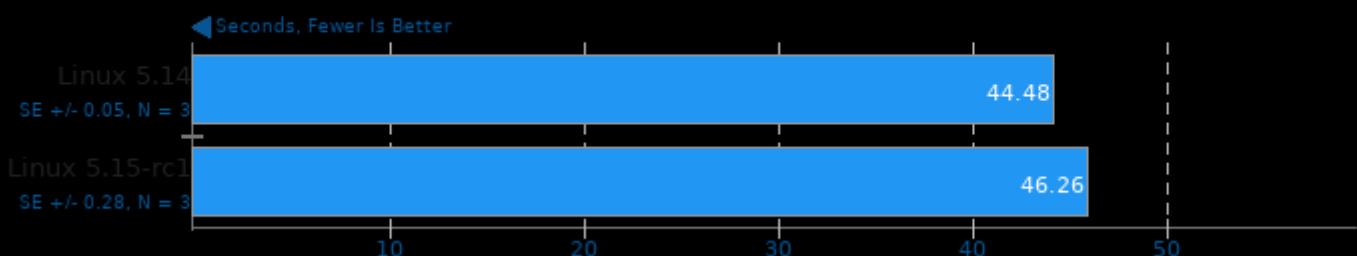
Timed FFmpeg Compilation 4.4

Time To Compile



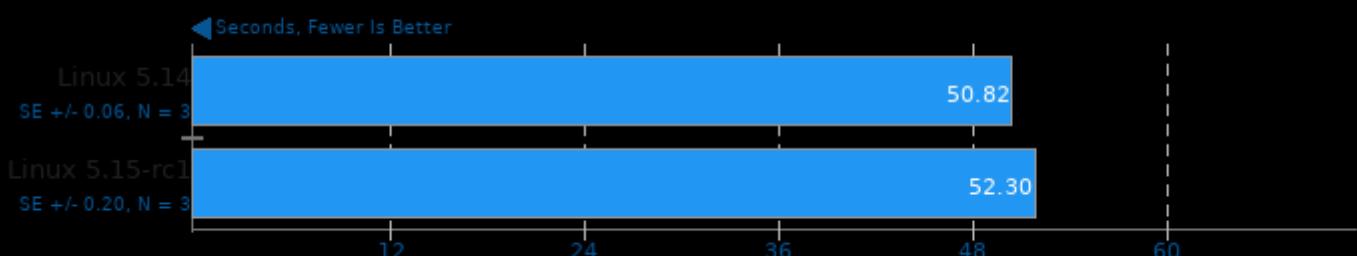
Timed GDB GNU Debugger Compilation 10.2

Time To Compile



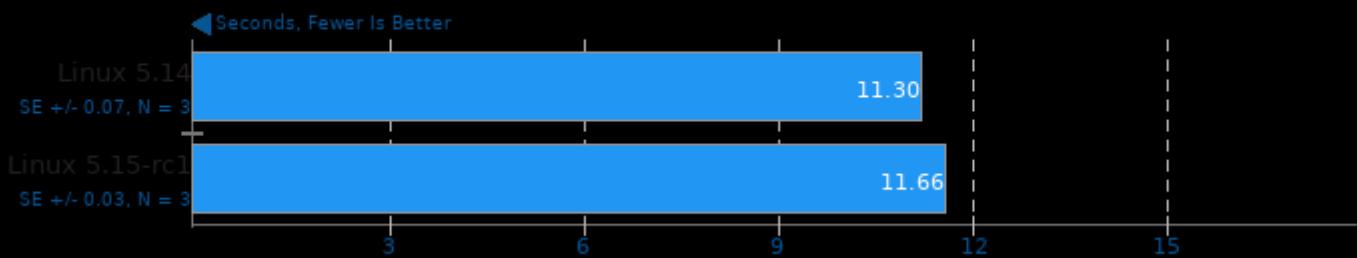
Timed Godot Game Engine Compilation 3.2.3

Time To Compile



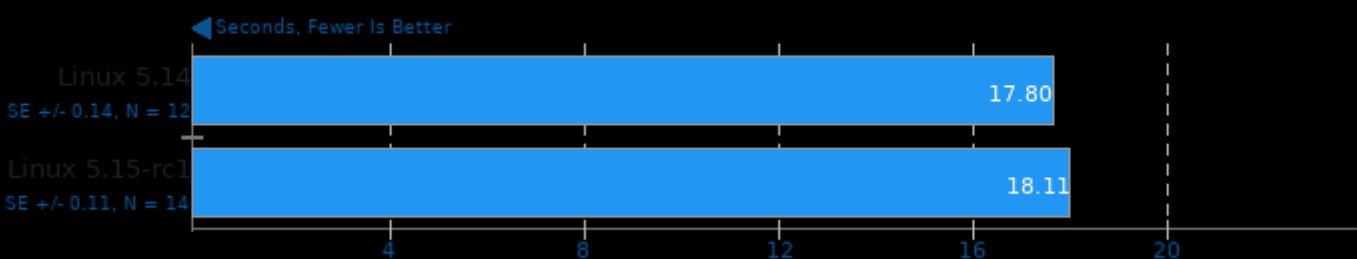
Timed ImageMagick Compilation 6.9.0

Time To Compile



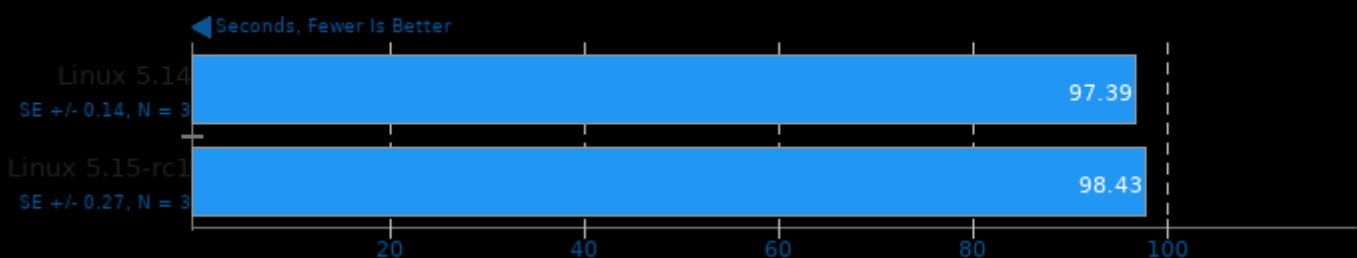
Timed Linux Kernel Compilation 5.14

Time To Compile



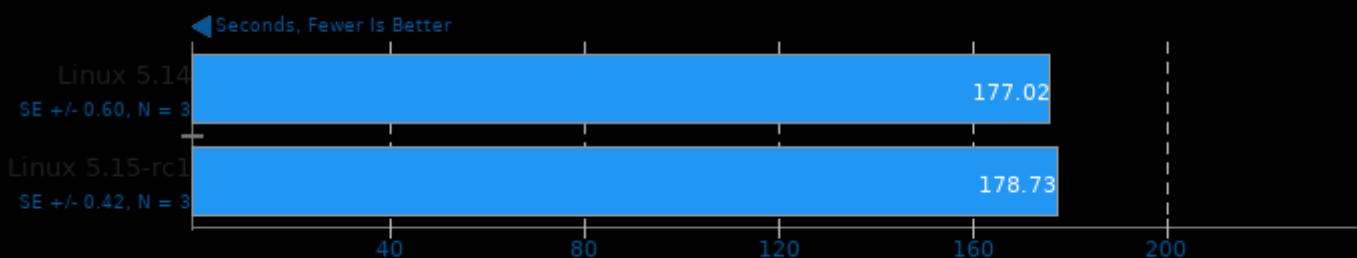
Timed LLVM Compilation 12.0

Build System: Ninja



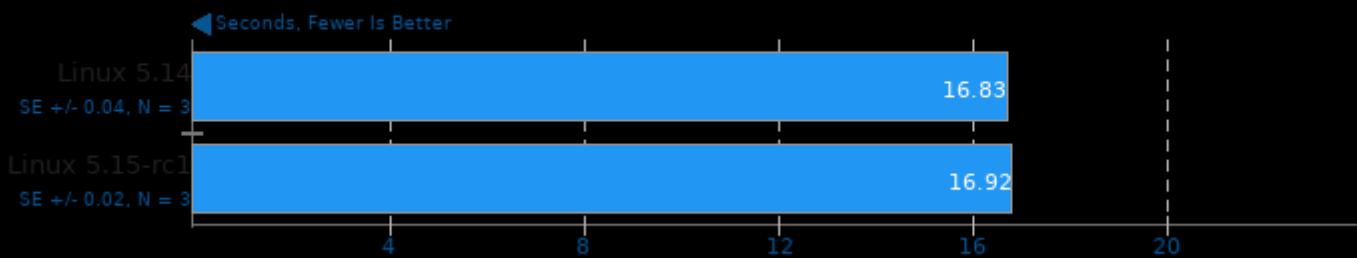
Timed LLVM Compilation 12.0

Build System: Unix Makefiles



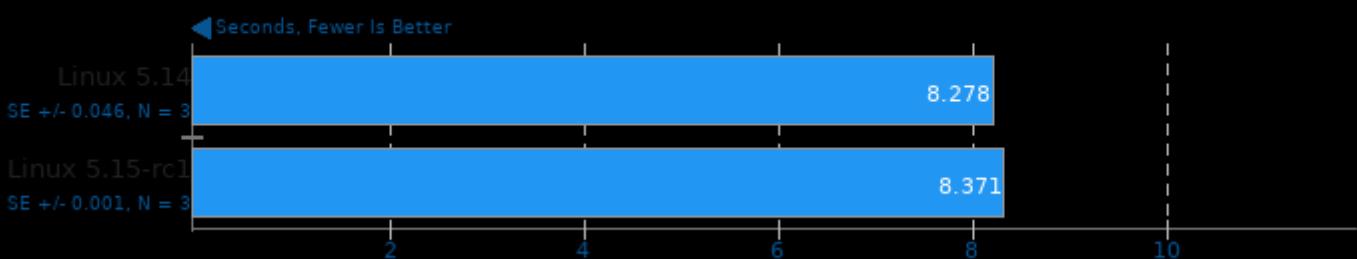
Timed Mesa Compilation 21.0

Time To Compile



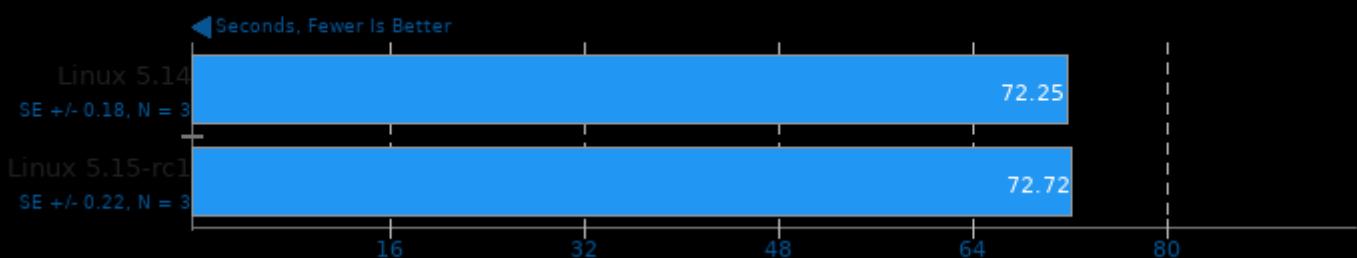
Timed MPlayer Compilation 1.4

Time To Compile



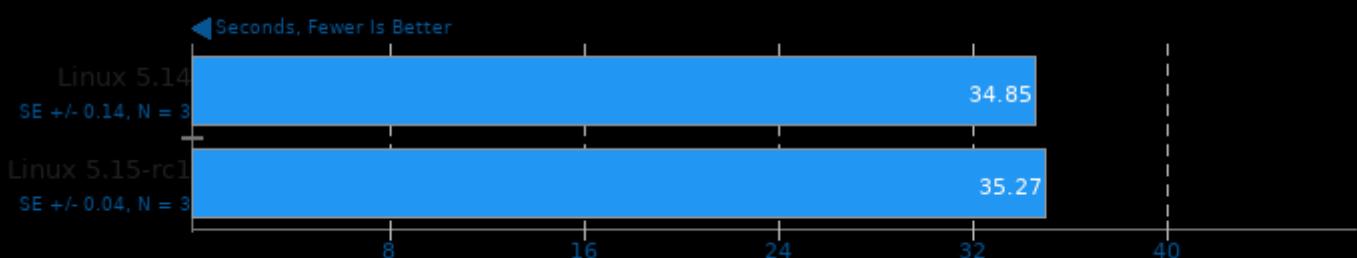
Timed Node.js Compilation 15.11

Time To Compile



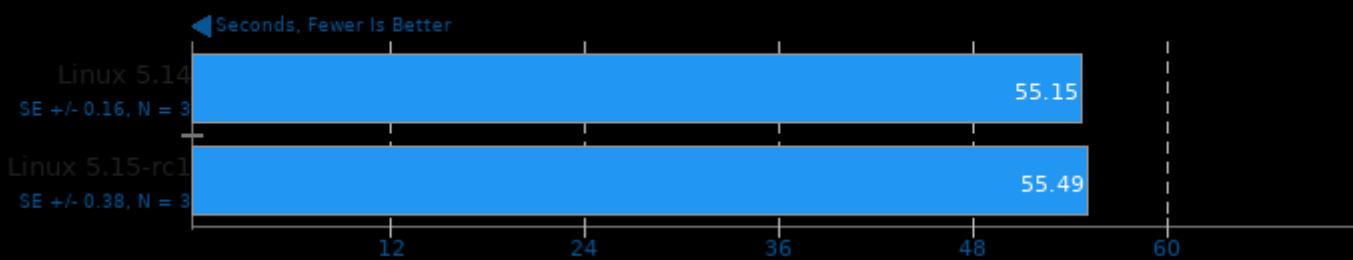
Timed PHP Compilation 7.4.2

Time To Compile



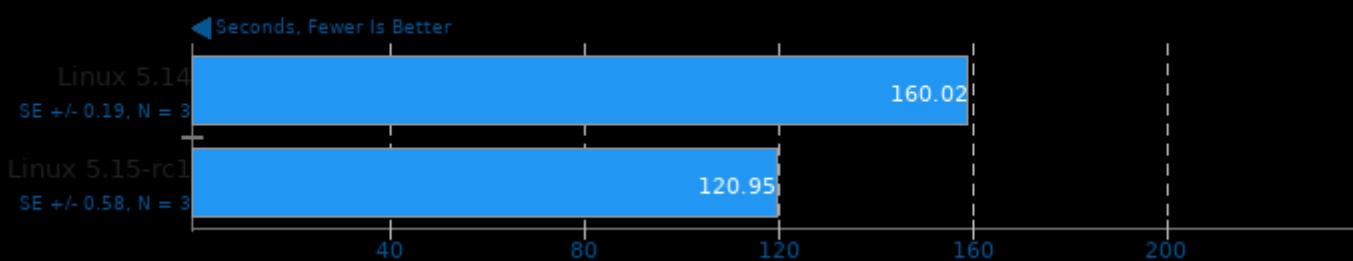
Build2 0.13

Time To Compile



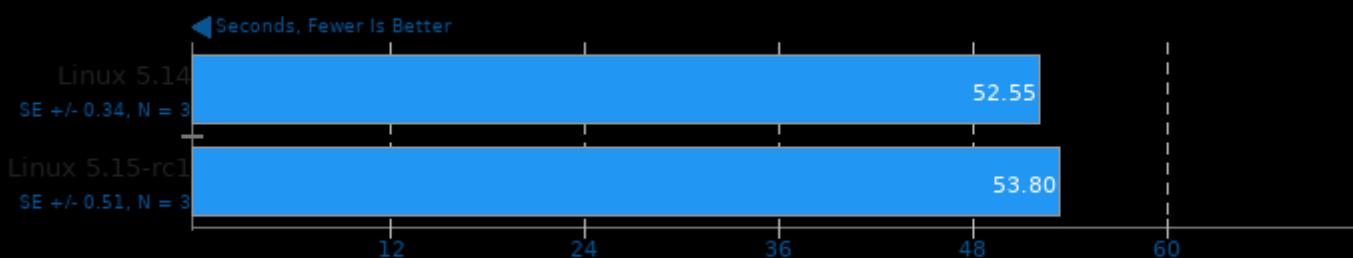
Timed Erlang/OTP Compilation 23.2

Time To Compile



Timed Wasmer Compilation 1.0.2

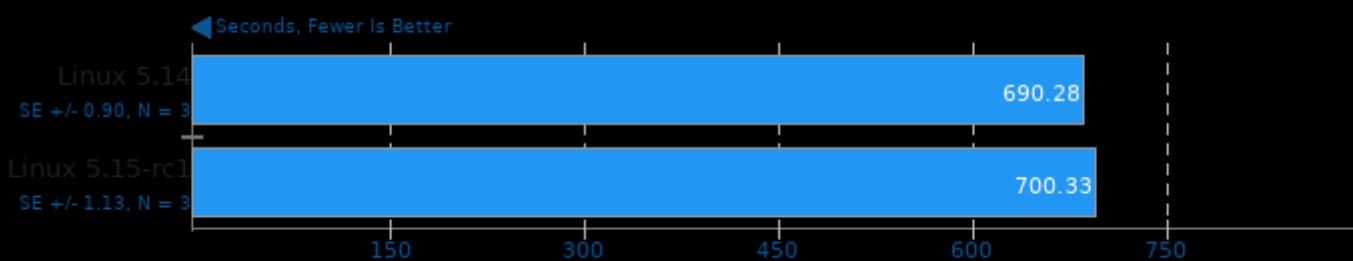
Time To Compile



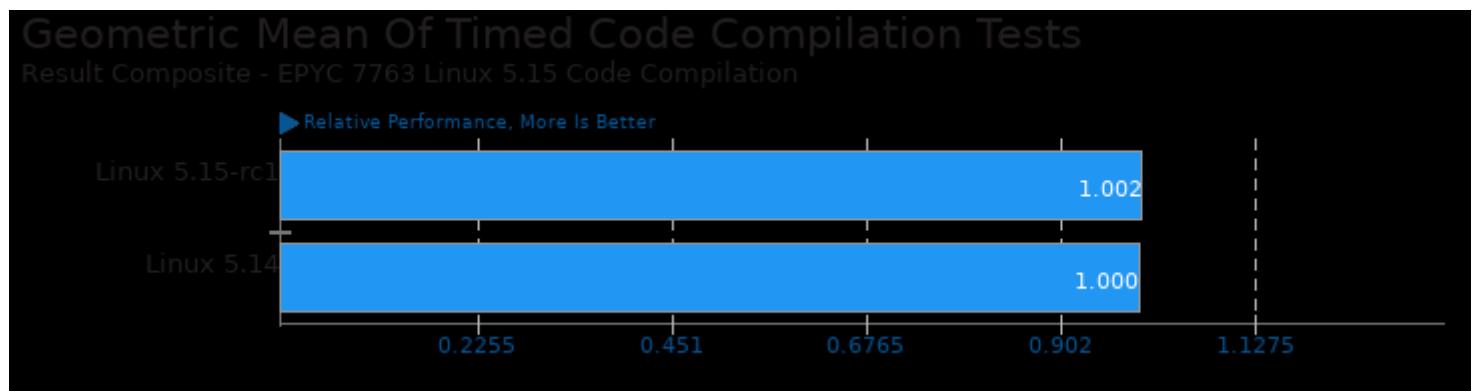
1. (CC) gcc options: -m64 -pie -nodefaultlibs -ldl -lgcc_s -util -lrt -lpthread -lm -lc

Timed GCC Compilation 11.2.0

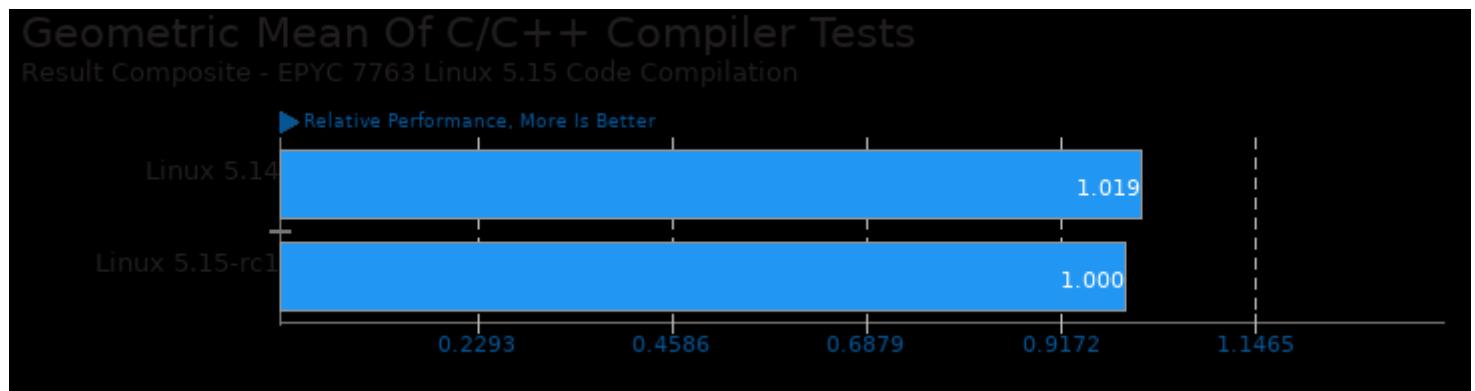
Time To Compile



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-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



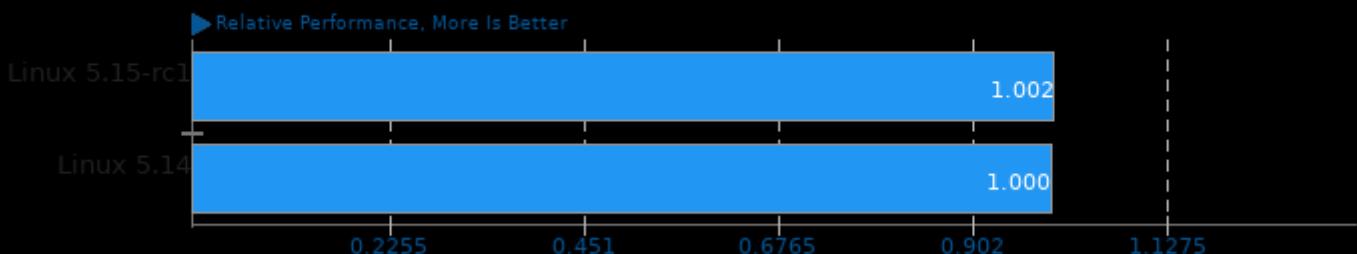
Geometric mean based upon tests: pts/build-php, pts/build-imagemagick, pts/build-llvm, pts/build-gdb, pts/build-ffmpeg, pts/build-apache and pts/build-mplayer



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

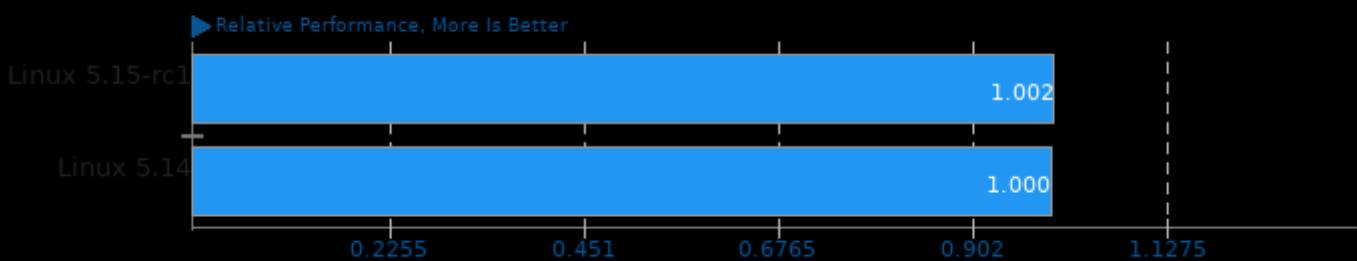
Result Composite - EPYC 7763 Linux 5.15 Code Compilation



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, pts/build2, pts/build-godot, pts/build-erlang, pts/build-wasmer, pts/build-nodejs and pts/build-mesa

Geometric Mean Of Programmer / Developer System Benchmarks Tests

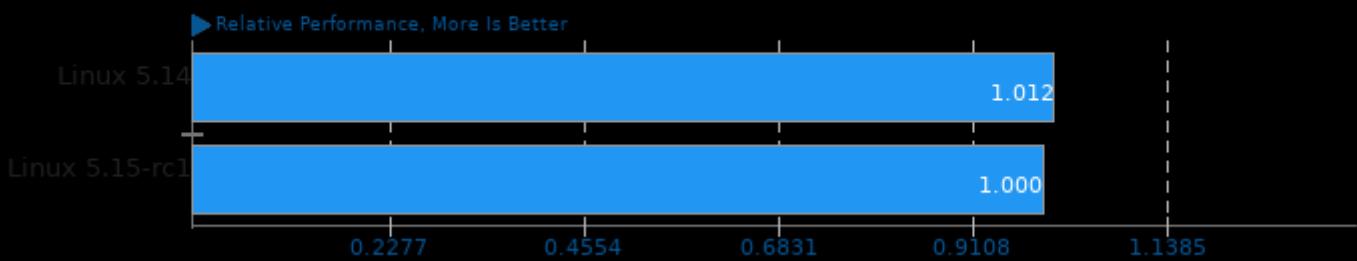
Result Composite - EPYC 7763 Linux 5.15 Code Compilation



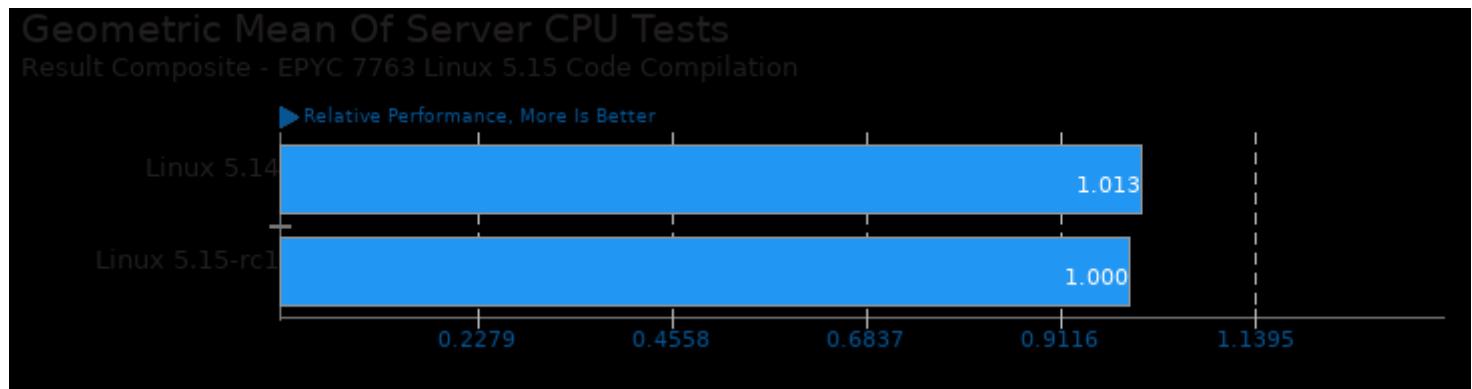
Geometric mean based upon tests: pts/build-apache, pts/build-php, pts/build-linux-kernel, pts/build-imagemagick, pts/build-gcc, pts/build-gdb, pts/build-llvm, pts/build-ffmpeg, pts/build-mplayer, pts/build2, pts/build-godot, pts/build-erlang, pts/build-wasmer, pts/build-nodejs and pts/build-mesa

Geometric Mean Of Python Tests

Result Composite - EPYC 7763 Linux 5.15 Code Compilation



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 Friday, 29 March 2024 01:04.