

www.phoronix-test-suite.com

Linux 5.11 Invariance Regression Test

AMD EPYC 7702 64-Core testing with a ASRockRack EPYCD8 (P2.10 BIOS) and llvmpipe on Ubuntu 20.10 via the Phoronix Test Suite.

Automated Executive Summary

Linux 5.11 Git + Patch had the most wins, coming in first place for 78% of the tests.

Based on the geometric mean of all complete results, the fastest (Linux 5.11 Git + Patch) was 1.138x the speed of the slowest (Linux 5.11 Git). Linux 5.10 was 0.941x the speed of Linux 5.11 Git + Patch and Linux 5.11 Git was 0.934x the speed of Linux 5.10.

Test Systems:

Linux 5.10

Processor: AMD EPYC 7702 64-Core @ 2.00GHz (64 Cores / 128 Threads), Motherboard: ASRockRack EPYCD8 (P2.10 BIOS), Chipset: AMD Starship/Matisse, Memory: 126GB, Disk: 280GB INTEL SSDPED1D280GA, Graphics:

ASPEED, Audio: AMD Starship/Matisse, Monitor: VE228, Network: 2 x Intel I350

OS: Ubuntu 20.10, Kernel: 5.10.2-051002-generic (x86_64), Desktop: GNOME Shell 3.38.1, Display Server: X Server 1.20.9, Display Driver: modesetting 1.20.9, Compiler: GCC 10.2.0, File-System: ext4, Screen Resolution: 1920x1080

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++,m2 --enable-libphobos-checking=release --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-10-JvwpWM/gcc-10-10.2.0/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-10-JvwpWM/gcc-10-10.2.0/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-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: 0x830101c
Python Notes: Python 3.8.6
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/swapgs 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

Linux 5.11 Git

Processor: AMD EPYC 7702 64-Core @ 2.00GHz (64 Cores / 128 Threads), Motherboard: ASRockRack EPYCD8 (P2.10 BIOS), Chipset: AMD Starship/Matisse, Memory: 126GB, Disk: 280GB INTEL SSDPED1D280GA, Graphics: ASPEED, Audio: AMD Starship/Matisse, Monitor: VE228, Network: 2 x Intel I350

OS: Ubuntu 20.10, Kernel: 5.11.0-051100rc4daily20210121-generic (x86_64) 20210120, Desktop: GNOME Shell 3.38.1, Display Server: X Server 1.20.9, Display Driver: modesetting 1.20.9, Compiler: GCC 10.2.0, File-System: ext4, Screen Resolution: 1920x1080

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++,m2 --enable-libphobos-checking=release --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-10-JvwpWM/gcc-10-10.2.0/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-10-JvwpWM/gcc-10-10.2.0/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-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: 0x830101c
Python Notes: Python 3.8.6
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/swapgs 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

Linux 5.11 Git + Patch

Processor: AMD EPYC 7702 64-Core @ 2.00GHz (64 Cores / 128 Threads), Motherboard: ASRockRack EPYCD8 (P2.10 BIOS), Chipset: AMD Starship/Matisse, Memory: 126GB, Disk: 280GB INTEL SSDPED1D280GA, Graphics: llvmpipe, Audio: AMD Starship/Matisse, Network: 2 x Intel I350

OS: Ubuntu 20.10, Kernel: 5.11.0-rc4-max-boost-inv-patch (x86_64) 20210121, Desktop: GNOME Shell 3.38.1, Display Server: X Server 1.20.9, Display Driver: modesetting 1.20.9, Compiler: GCC 10.2.0, File-System: ext4, Screen Resolution: 1024x768

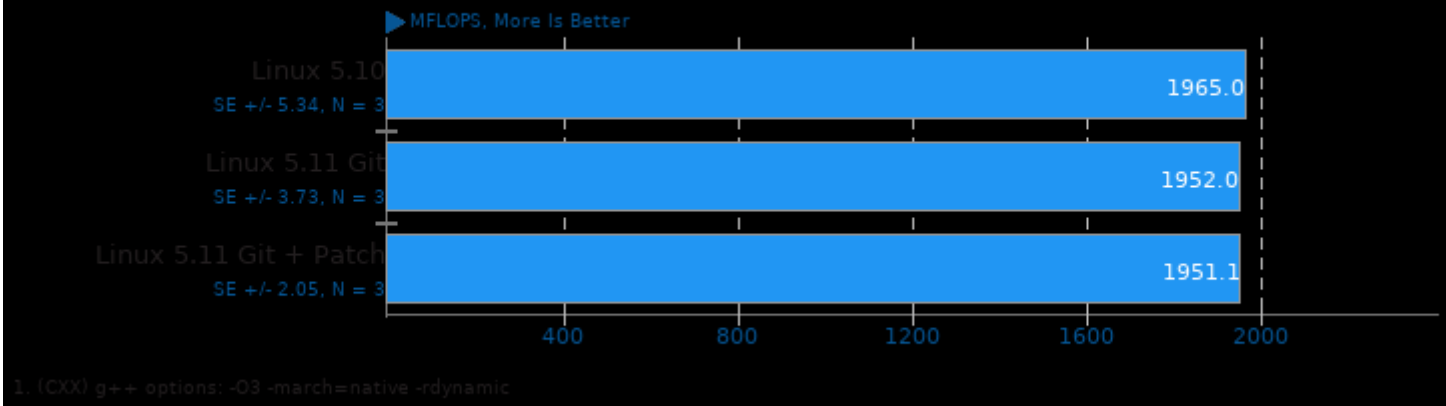
Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,m2 --enable-libphobos-checking=release --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-10-JvwpWM/gcc-10-10.2.0/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-10-JvwpWM/gcc-10-10.2.0/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-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: 0x830101c
Python Notes: Python 3.8.6
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/swapgs 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

Linux 5.11 Invariance Regression Test

	Linux 5.10	Linux 5.11 Git	Linux 5.11 Git +
QuantLib (MFLOPS)	1965	1952	1951
Normalized	100%	99.34%	99.29%
Standard Deviation	0.5%	0.3%	0.2%
Etcpak - ETC1 (Mpx/s)	242.092	241.538	241.473
Normalized	100%	99.77%	99.74%
Standard Deviation	0.1%	0%	0%
OpenFOAM - Motorbike 30M (sec)	22.91	22.92	22.85
Normalized	99.74%	99.69%	100%
Standard Deviation	0.3%	0.7%	0.7%
Zstd Compression - 3 (MB/s)	8162	7863	8250
Normalized	98.94%	95.31%	100%
Standard Deviation	0.7%	0.8%	0.2%
OSPray - San Miguel - SciVis (FPS)	55.56	44.87	55.56
Normalized	100%	80.76%	100%
Standard Deviation	0%	4.9%	0%
x265 - Bosphorus 4K (FPS)	17.92	15.73	23.16
Normalized	77.37%	67.92%	100%
Standard Deviation	0.4%	0.3%	0.6%
Intel Open Image Denoise - Memorial (Images / Sec)	27.23	20.02	28.22
Normalized	96.49%	70.94%	100%
Standard Deviation	0.4%	0.5%	0.2%
Timed Godot Game Engine Compilation - Time To Compile (sec)	65.933	66.101	63.069
Normalized	95.66%	95.41%	100%
Standard Deviation	0.6%	0.6%	0.2%
FinanceBench - Repo OpenMP (ms)	42065	42326	42043
Normalized	99.95%	99.33%	100%
Standard Deviation	0%	0.7%	0%
AI Benchmark Alpha - D.I.S (Score)	1725	1654	1835
Normalized	94.01%	90.14%	100%
AI Benchmark Alpha - D.T.S (Score)	991	957	1023
Normalized	96.87%	93.55%	100%
AI Benchmark Alpha - Device AI Score	2716	2611	2858
Normalized	95.03%	91.36%	100%
InfluxDB - 4 - 10000 - 2,5000,1 - 10000	621169	575221	811352
Normalized	76.56%	70.9%	100%
Standard Deviation	0.7%	0.2%	0.5%
InfluxDB - 64 - 10000 - 2,5000,1 - 10000 (val/sec)	1059730	996333	1167156
Normalized	90.8%	85.36%	100%
Standard Deviation	0.8%	1.8%	0.7%

Linux 5.11 Invariance Regression Test

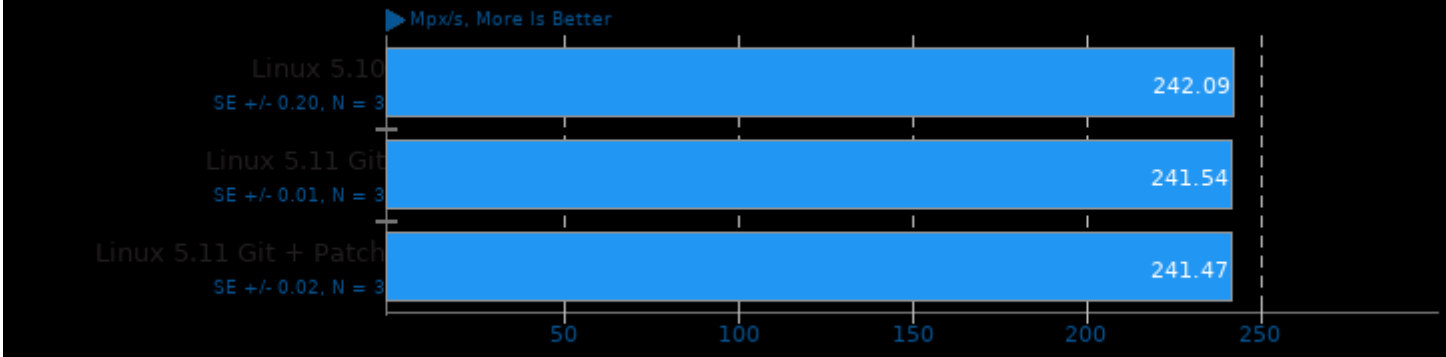
QuantLib 1.21



1. (CXX) g++ options: -O3 -march=native -rdynamic

Etcpak 0.7

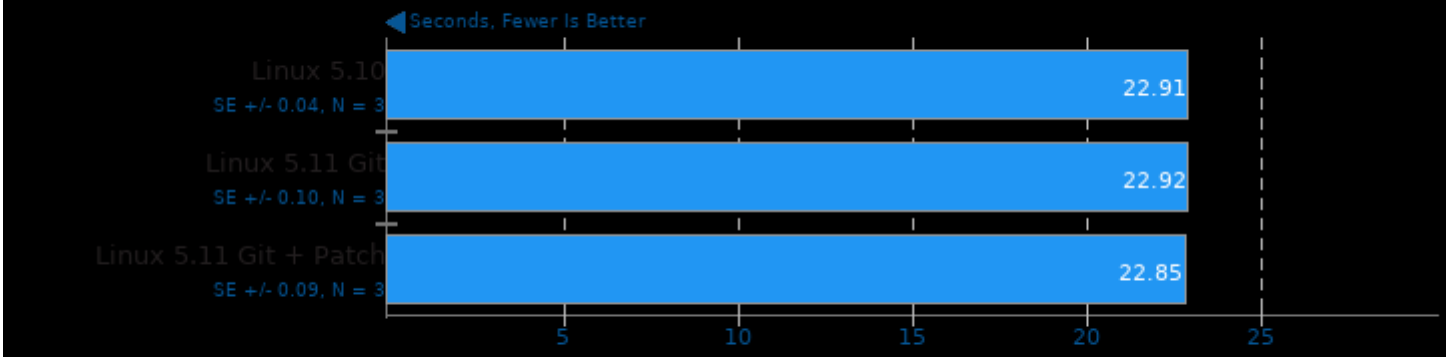
Configuration: ETC1



1. (CXX) g++ options: -O3 -march=native -std=c++11 -lpthread

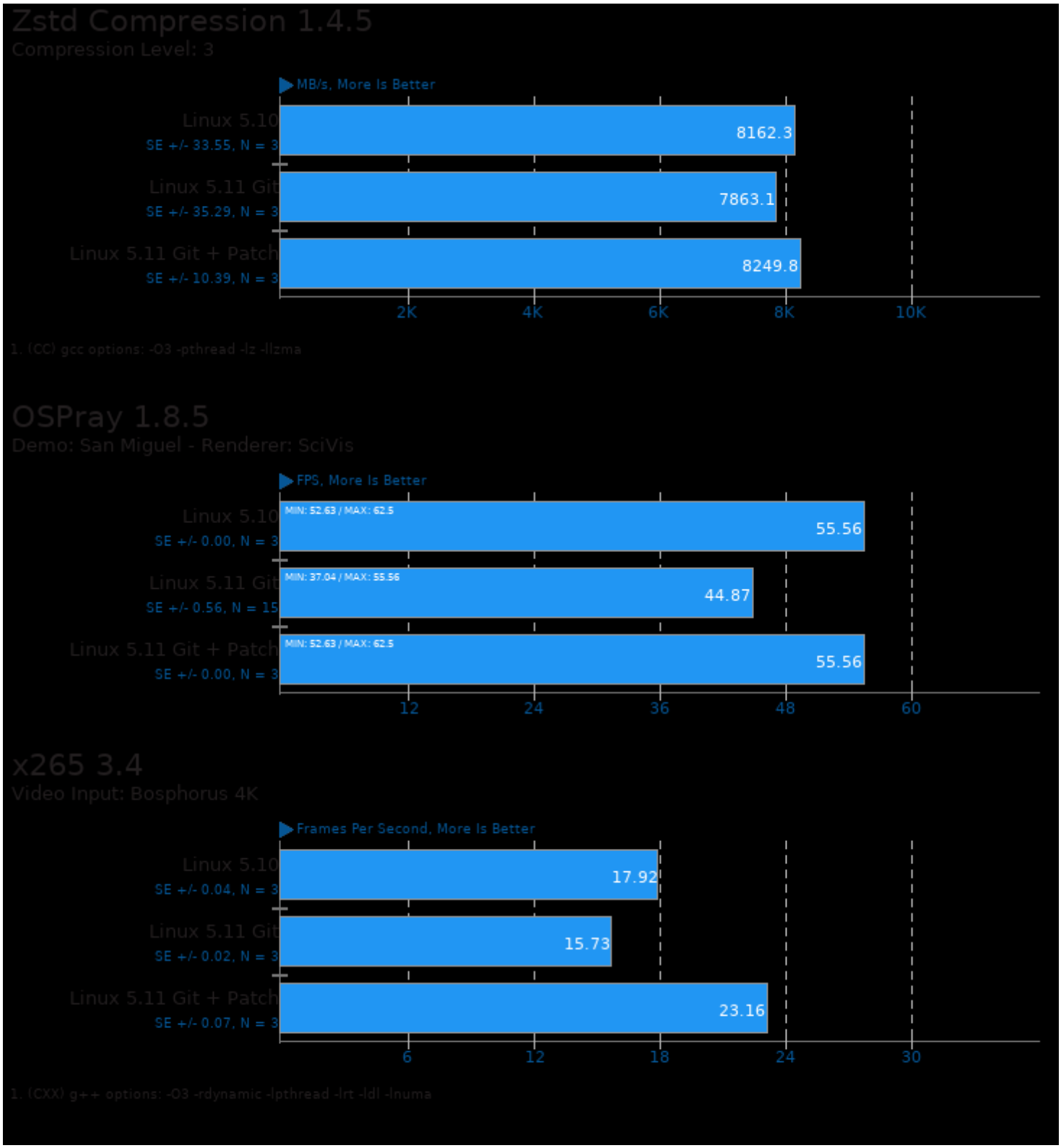
OpenFOAM 8

Input: Motorbike 30M

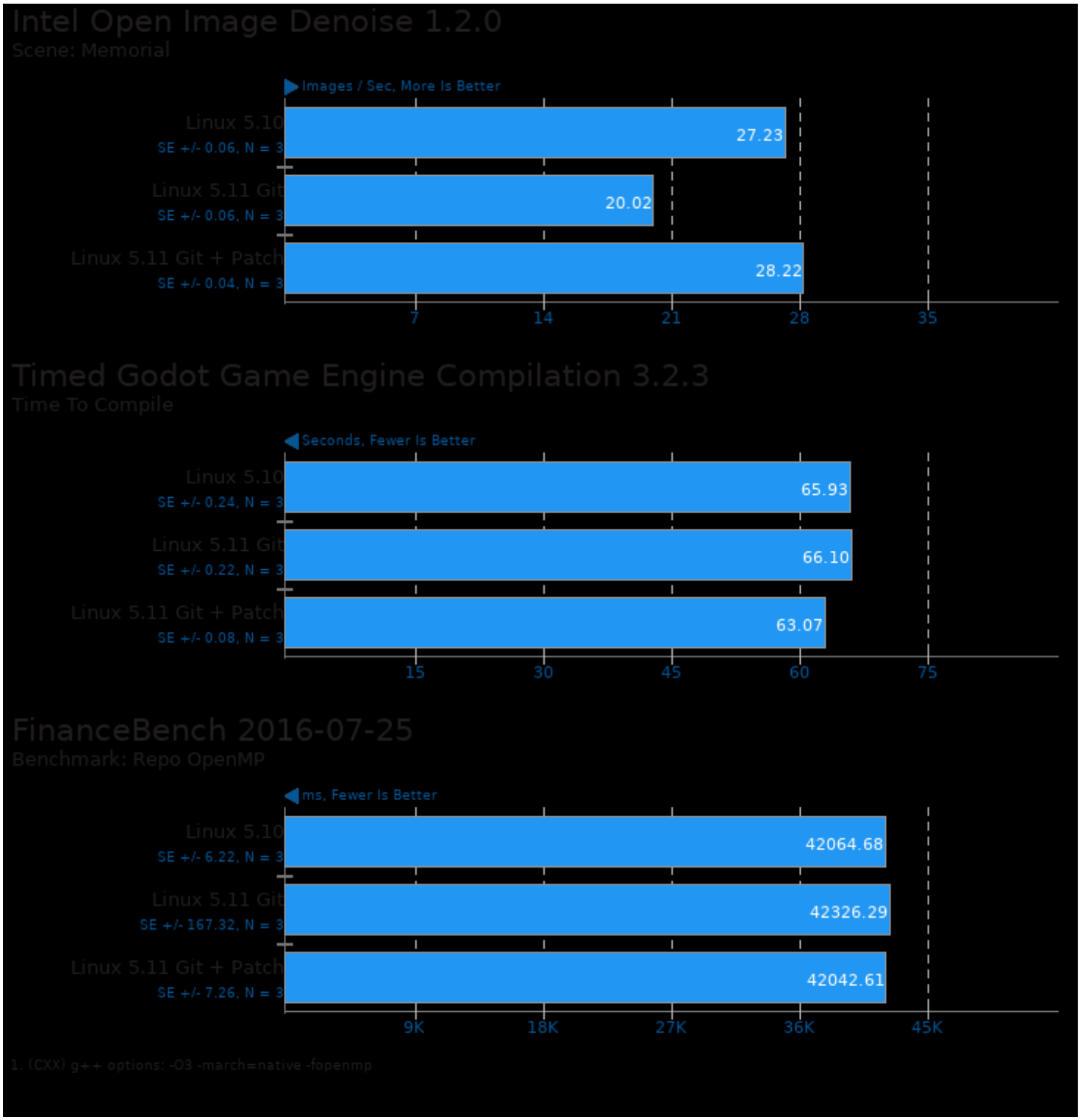


1. (CXX) g++ options: -std=c++11 -m64 -O3 -ftemplate-depth-100 -fPIC -fuse-ld=bfd -Xlinker --add-needed --no-as-needed -ldynamicMesh -ldecompose

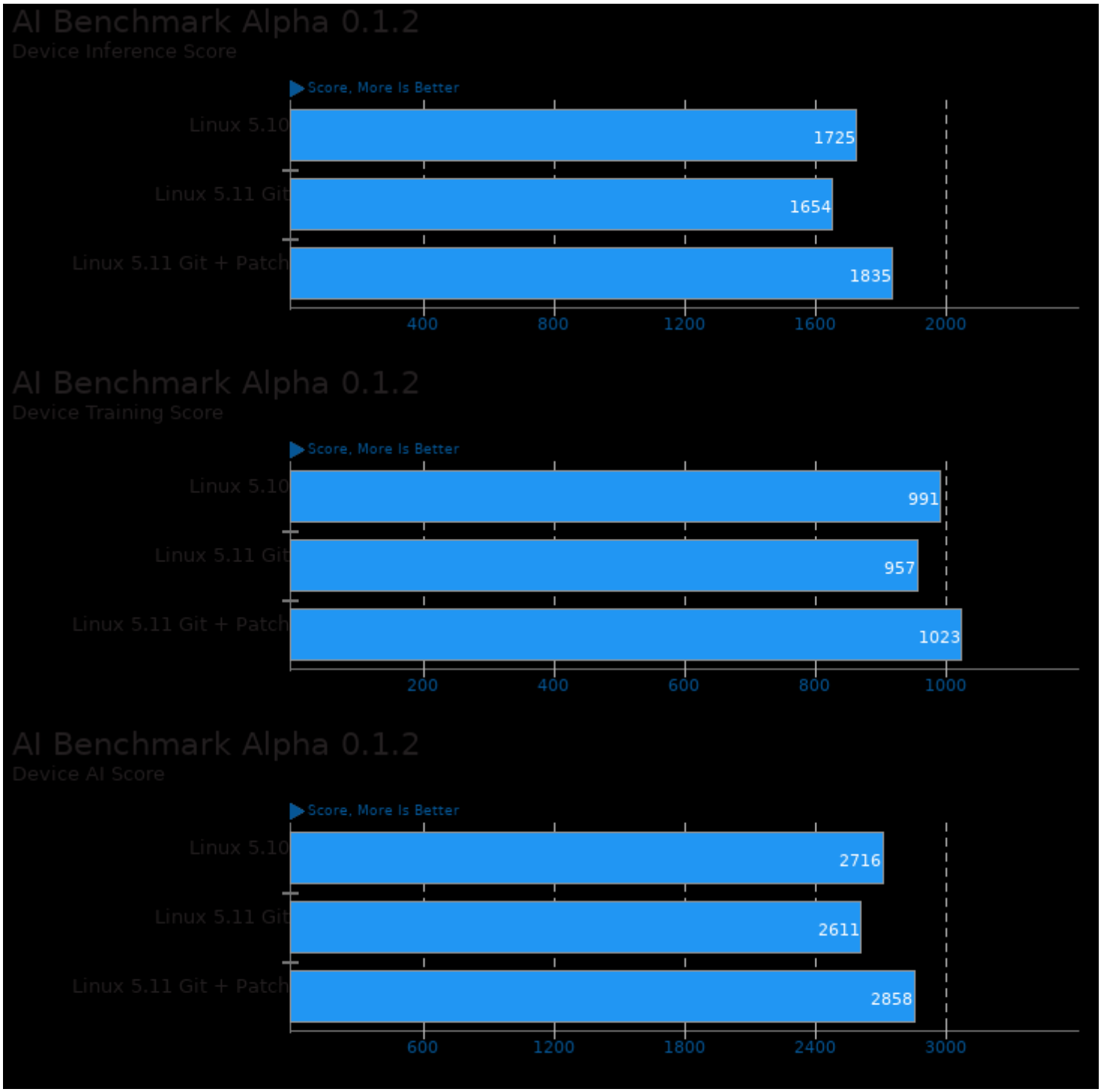
Linux 5.11 Invariance Regression Test



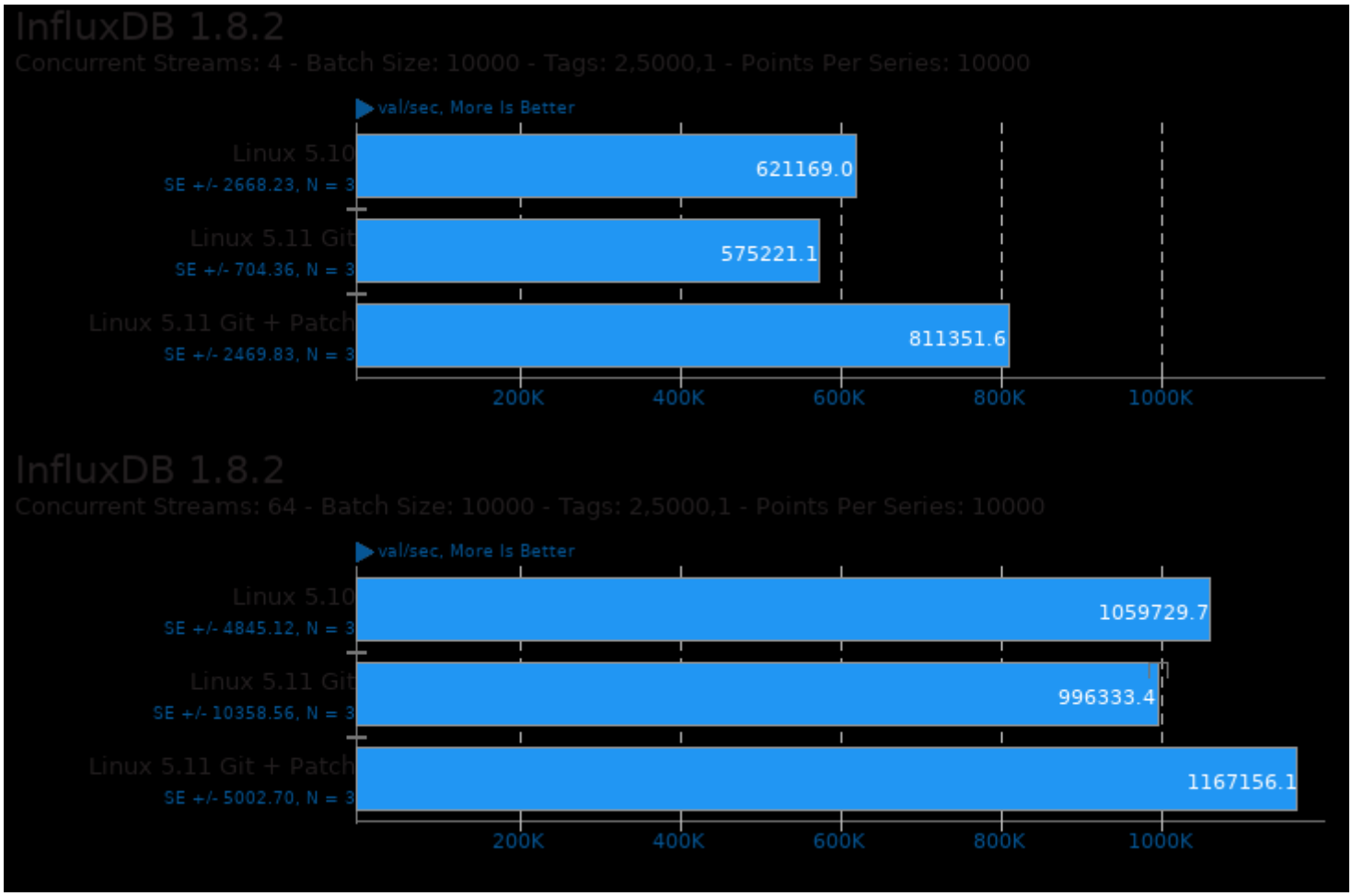
Linux 5.11 Invariance Regression Test



Linux 5.11 Invariance Regression Test

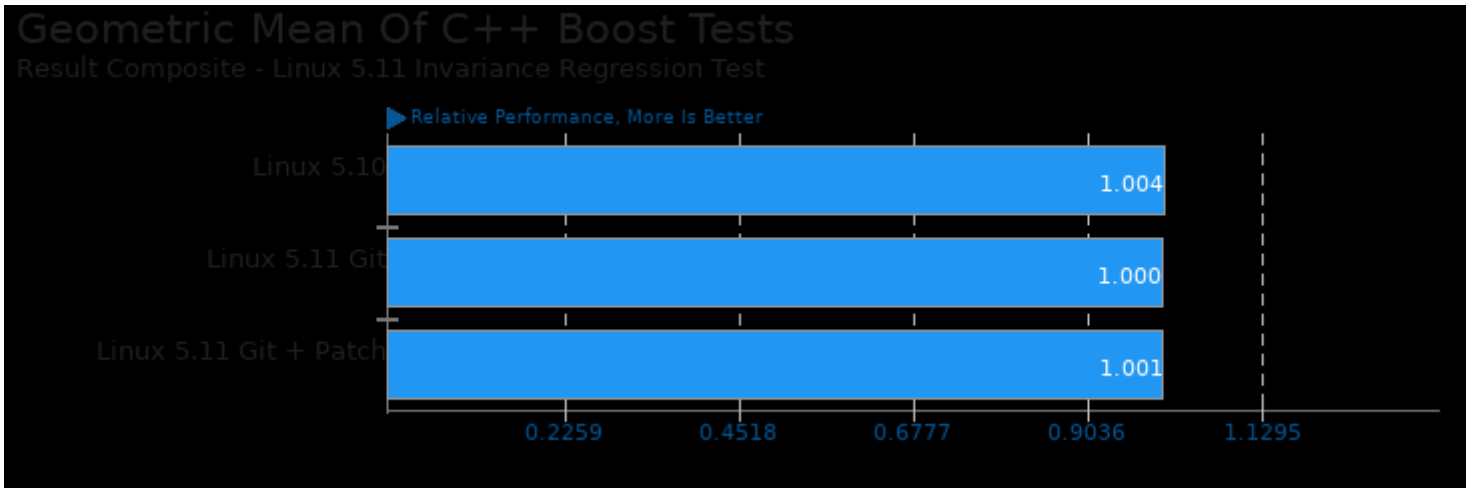


Linux 5.11 Invariance Regression Test

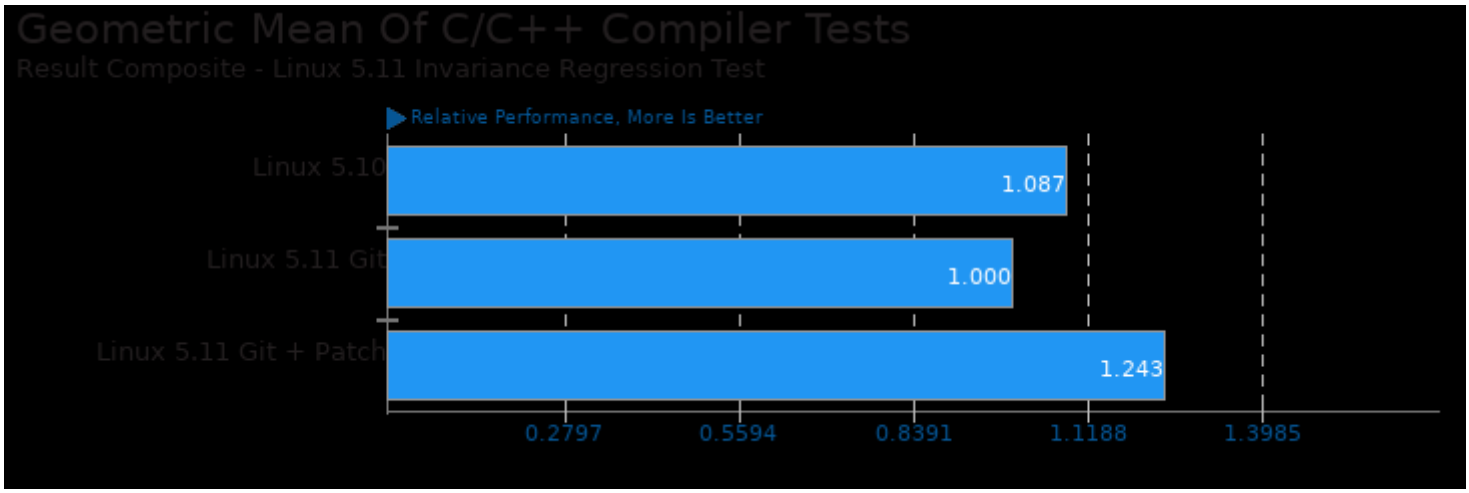


Linux 5.11 Invariance Regression Test

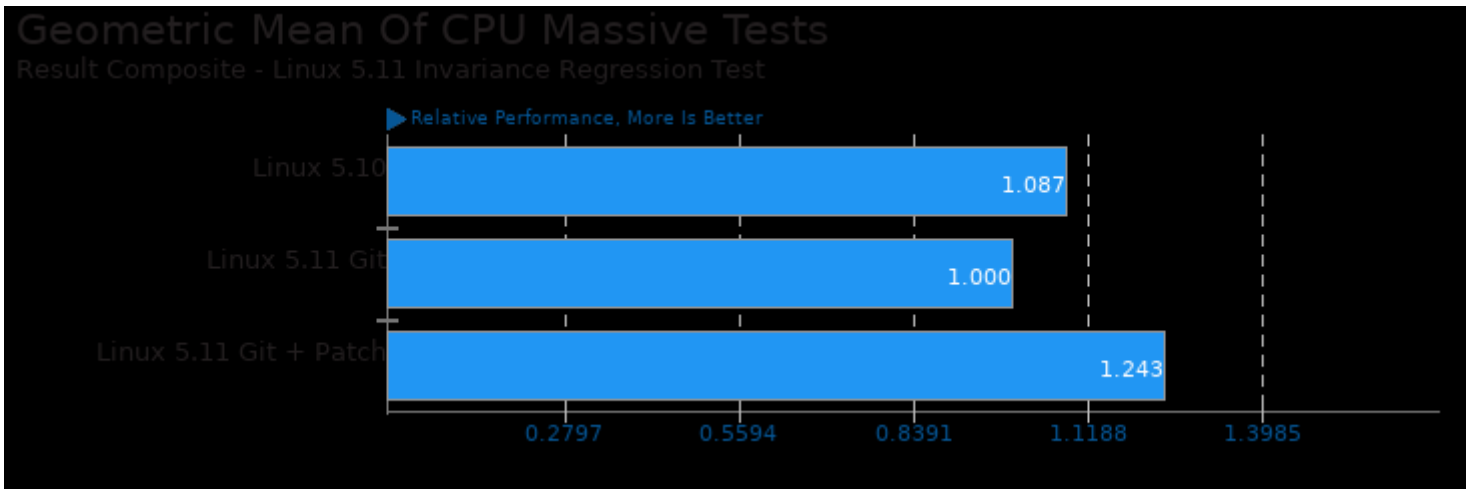
These geometric means are based upon test groupings / test suites for this result file.



Geometric mean based upon tests: pts/quantlib and pts/openfoam

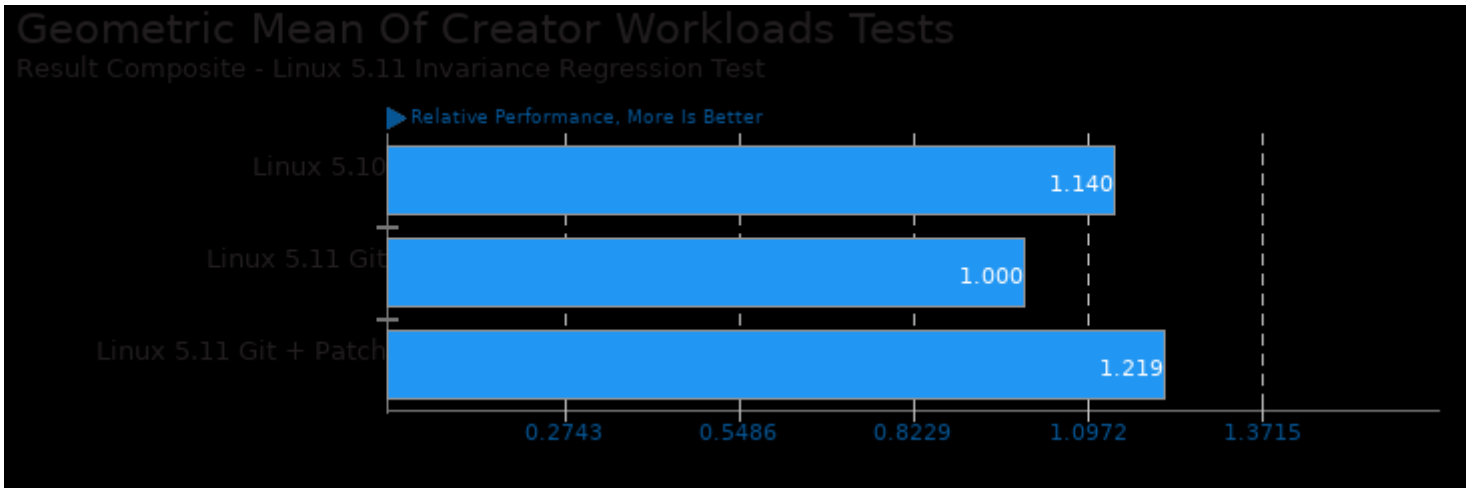


Geometric mean based upon tests: pts/x265 and pts/compress-zstd



Geometric mean based upon tests: pts/compress-zstd and pts/x265

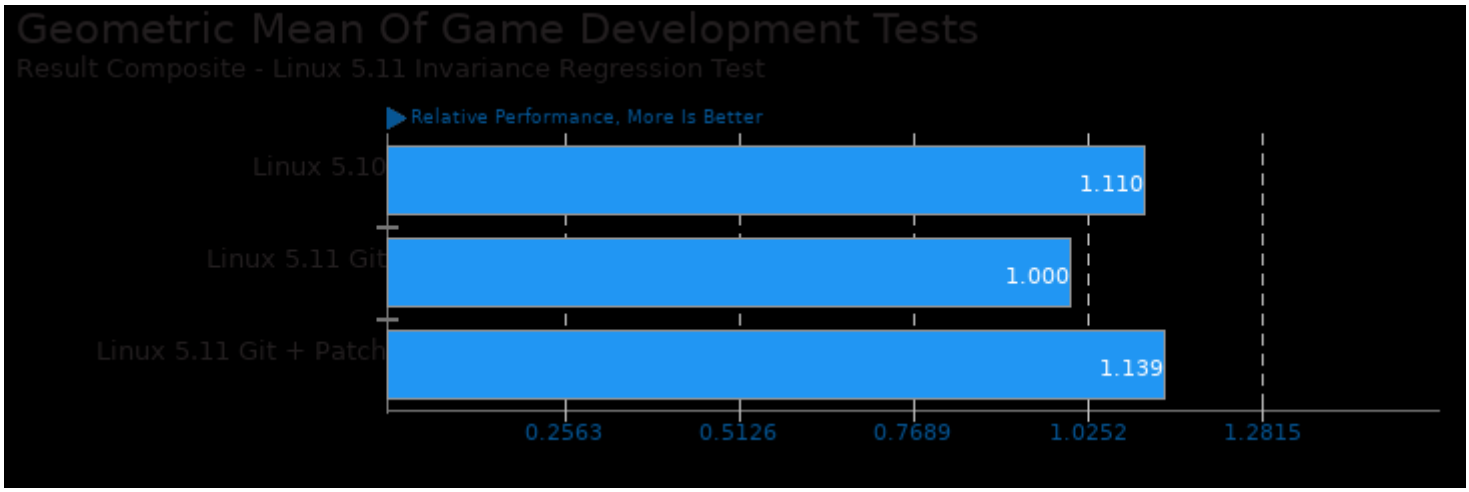
Linux 5.11 Invariance Regression Test



Geometric mean based upon tests: pts/ospray, pts/x265, pts/oidn, pts/etcpak and pts/build-godot

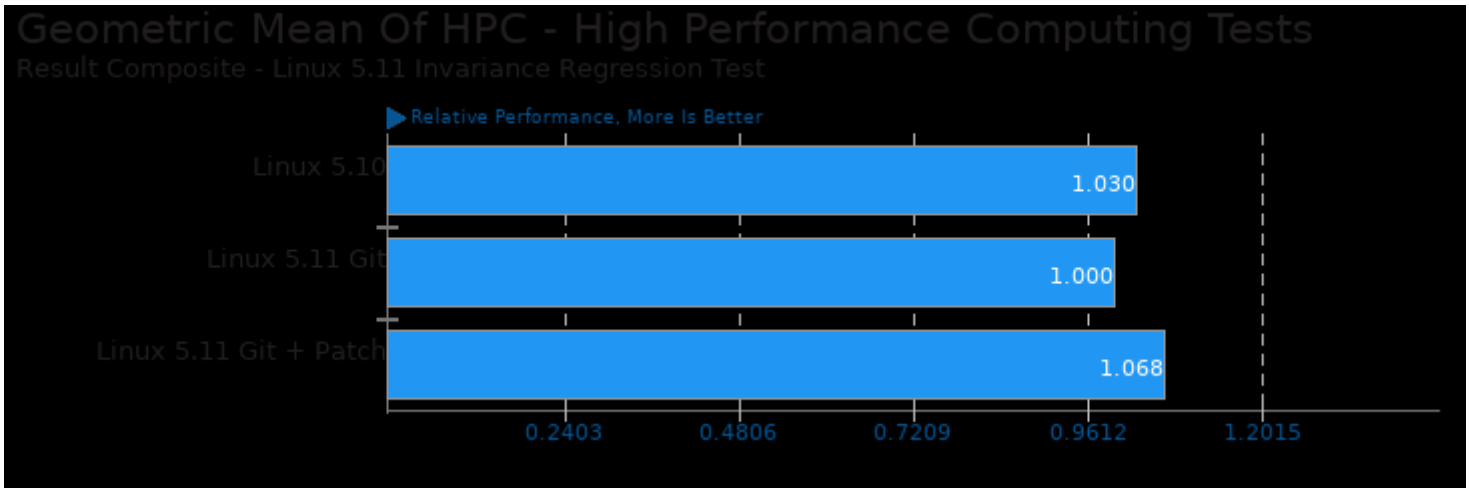


Geometric mean based upon tests: pts/financebench and pts/quantlib

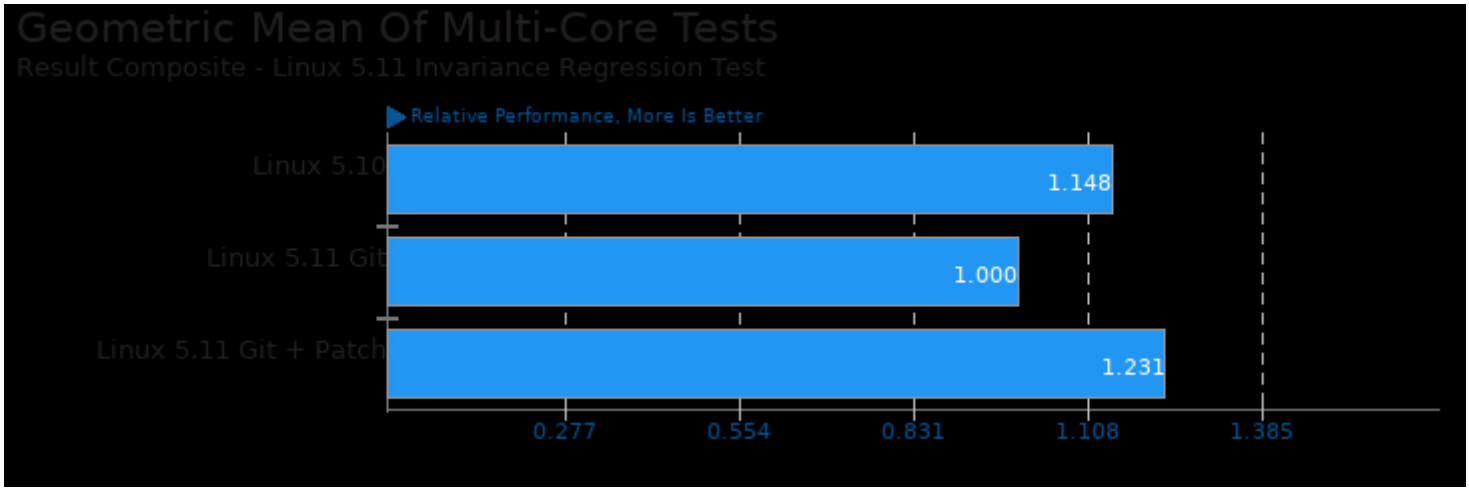


Geometric mean based upon tests: pts/etcpak, pts/build-godot and pts/oidn

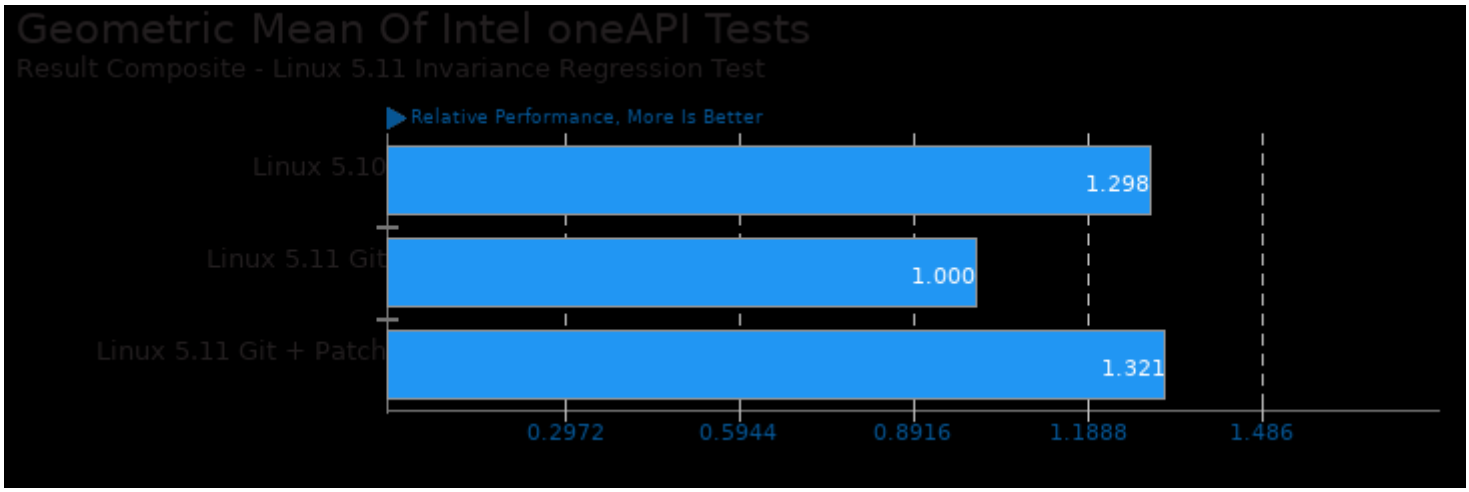
Linux 5.11 Invariance Regression Test



Geometric mean based upon tests: pts/openfoam and pts/ai-benchmark

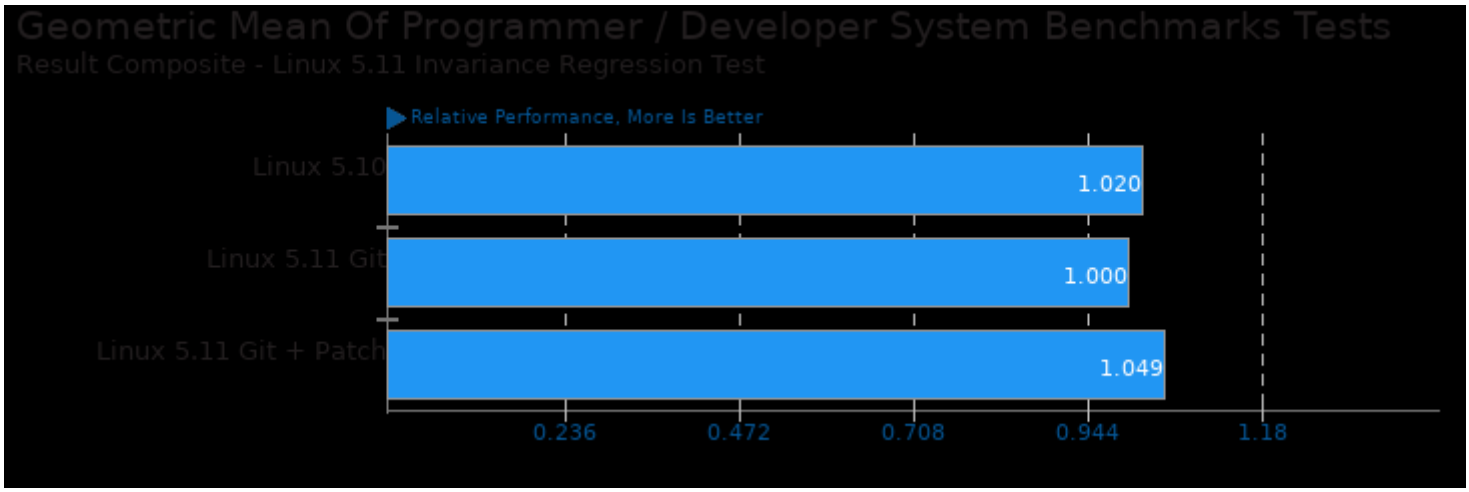


Geometric mean based upon tests: pts/ospray, pts/x265, pts/compress-zstd, pts/build-godot and pts/oidn



Geometric mean based upon tests: pts/oidn and pts/ospray

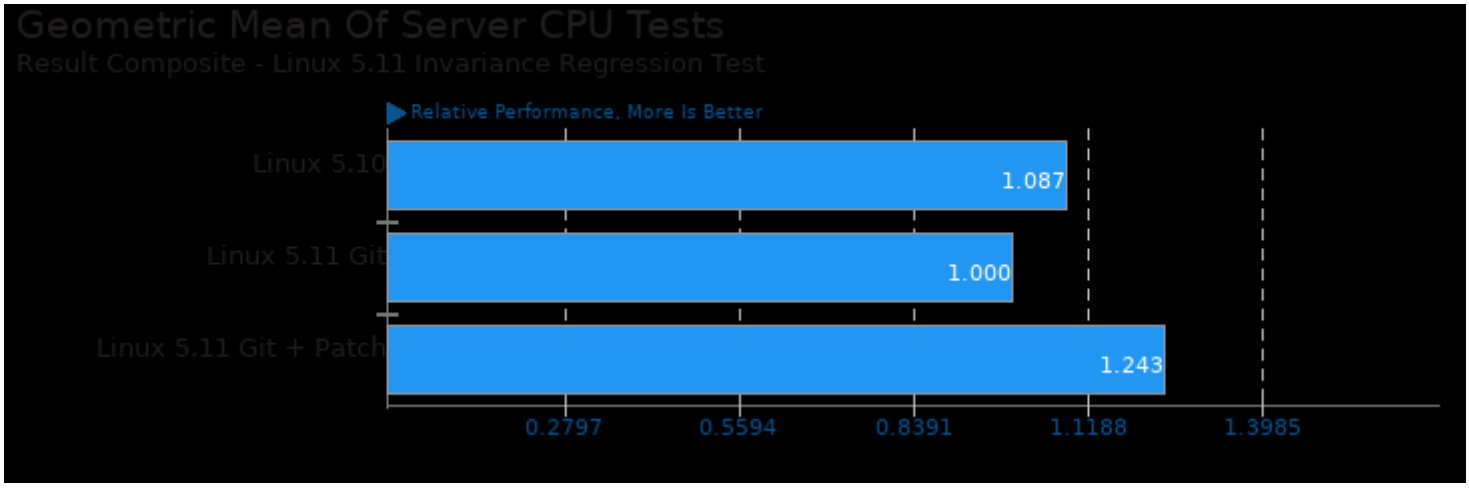
Linux 5.11 Invariance Regression Test



Geometric mean based upon tests: pts/compress-zstd and pts/build-godot



Geometric mean based upon tests: pts/build-godot and pts/ai-benchmark



Geometric mean based upon tests: pts/x265 and pts/compress-zstd

This file was automatically generated via the Phoronix Test Suite benchmarking software on Friday, 29 March 2024 01:33.