

www.phoronix-test-suite.com

Linux 5.13 AMD Ryzen 9 5950X

AMD Ryzen 9 5950X 16-Core testing with a ASUS ROG CROSSHAIR VIII HERO (WI-FI) (3302 BIOS) and AMD Radeon RX 5600 OEM/5600 XT / 5700/5700 8GB on Ubuntu 20.10 via the Phoronix Test Suite.

Automated Executive Summary

Linux 5.11 had the most wins, coming in first place for 41% of the tests.

Based on the geometric mean of all complete results, the fastest (Linux 5.12) was 1.007x the speed of the slowest (Linux 5.13 3May). Linux 5.11 was 0.996x the speed of Linux 5.12 and Linux 5.13 3May was 0.997x the speed of Linux 5.11.

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

Stress-NG (Test: Context Switching) at 1.347x
Stress-NG (Test: System V Message Passing) at 1.338x
Stress-NG (Test: Socket Activity) at 1.1x
Xmrig (Variant: Monero - Hash Count: 1M) at 1.097x
Tesseract (Resolution: 3840 x 2160) at 1.066x
Stress-NG (Test: CPU Stress) at 1.049x
ParaView (Test: Wavelet Volume - Resolution: 1920 x 1080) at 1.045x
ParaView (Test: Wavelet Volume - Resolution: 1920 x 1080) at 1.045x

Ethr (Server Address: localhost - Protocol: UDP - Test: Bandwidth - Threads: 8) at 1.044x
GIMP (Test: rotate) at 1.043x.

Test Systems:

Linux 5.11

Processor: AMD Ryzen 9 5950X 16-Core @ 3.40GHz (16 Cores / 32 Threads), Motherboard: ASUS ROG CROSSHAIR VIII HERO (WI-FI) (3302 BIOS), Chipset: AMD Starship/Matisse, Memory: 32GB, Disk: 2000GB Corsair Force MP600, Graphics: AMD Radeon RX 5600 OEM/5600 XT / 5700/5700 8GB (2100/875MHz), Audio: AMD Navi 10 HDMI Audio, Monitor: ASUS MG28U, Network: Realtek RTL8125 2.5GbE + Intel I211 + Intel Wi-Fi 6 AX200

OS: Ubuntu 20.10, Kernel: 5.11.18-051118-generic (x86_64), Desktop: GNOME Shell 3.38.2, Display Server: X Server 1.20.9, OpenGL: 4.6 Mesa 21.2.0-devel (git-55fb941 2021-04-16 groovy-oibaf-ppa) (LLVM 12.0.0), Vulkan: 1.2.168, Compiler: GCC 10.2.0, 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-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
Disk Notes: NONE / errors=remount-ro,relatime,rw / Block Size: 4096
Processor Notes: Scaling Governor: acpi-cpufreq schedutil (Boost: Enabled) - CPU Microcode: 0xa201009
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 5.12

Processor: AMD Ryzen 9 5950X 16-Core @ 3.40GHz (16 Cores / 32 Threads), Motherboard: ASUS ROG CROSSHAIR VIII HERO (WI-FI) (3302 BIOS), Chipset: AMD Starship/Matisse, Memory: 32GB, Disk: 2000GB Corsair Force MP600, Graphics: AMD Radeon RX 5600 OEM/5600 XT / 5700/5700 8GB (2100/875MHz), Audio: AMD Navi 10 HDMI Audio, Monitor: ASUS MG28U, Network: Realtek RTL8125 2.5GbE + Intel I211 + Intel Wi-Fi 6 AX200

OS: Ubuntu 20.10, Kernel: 5.12.1-051201-generic (x86_64), Desktop: GNOME Shell 3.38.2, Display Server: X Server 1.20.9, OpenGL: 4.6 Mesa 21.2.0-devel (git-55fb941 2021-04-16 groovy-oibaf-ppa) (LLVM 12.0.0), Vulkan: 1.2.168, Compiler: GCC 10.2.0, 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-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
Disk Notes: NONE / errors=remount-ro,relatime,rw / Block Size: 4096
Processor Notes: Scaling Governor: acpi-cpufreq schedutil (Boost: Enabled) - CPU Microcode: 0xa201009
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 5.13 3May

Processor: AMD Ryzen 9 5950X 16-Core @ 3.40GHz (16 Cores / 32 Threads), Motherboard: ASUS ROG CROSSHAIR VIII HERO (WI-FI) (3302 BIOS), Chipset: AMD Starship/Matisse, Memory: 32GB, Disk: 2000GB Corsair Force MP600, Graphics: AMD Radeon RX 5600 OEM/5600 XT / 5700/5700 8GB (2100/875MHz), Audio: AMD Navi 10 HDMI Audio, Monitor: ASUS MG28U, Network: Realtek RTL8125 2.5GbE + Intel I211 + Intel Wi-Fi 6 AX200

OS: Ubuntu 20.10, Kernel: 5.12.0-051200daily20210503-generic (x86_64), Desktop: GNOME Shell 3.38.2, Display Server: X Server 1.20.9, OpenGL: 4.6 Mesa 21.2.0-devel (git-55fb941 2021-04-16 groovy-oibaf-ppa) (LLVM 12.0.0), Vulkan: 1.2.168, Compiler: GCC 10.2.0, 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-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
Disk Notes: NONE / errors=remount-ro,relatime,rw / Block Size: 4096
Processor Notes: Scaling Governor: acpi-cpufreq schedutil (Boost: Enabled) - CPU Microcode: 0xa201009
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	Linux 5.12	Linux 5.13 3May
Stress-NG - Context Switching (Bogo Ops/s)	8345623	**8902940**	**6610342**
Normalized	93.74%	100%	74.25%
Standard Deviation	1%	0.1%	1.8%
Stress-NG - S.V.M.P (Bogo Ops/s)	**14629189**	**19577137**	14843965
Normalized	74.73%	100%	75.82%
Standard Deviation	0.5%	1.7%	3%
Stress-NG - Socket Activity (Bogo Ops/s)	**11841**	12044	**13024**
Normalized	90.92%	92.47%	100%
Standard Deviation	0.5%	3.4%	1.6%
Xmrig - Monero - 1M (H/s)	7001	**7586**	**6917**
Normalized	92.29%	100%	91.19%
Standard Deviation	1.1%	2.4%	1.8%
Tesseract - 3840 x 2160 (FPS)	407.5456	**423.6318**	**397.4433**
Normalized	96.2%	100%	93.82%
Standard Deviation	0.9%	4.4%	0.8%
Stress-NG - CPU Stress (Bogo Ops/s)	**11041**	**11586**	11426
Normalized	95.3%	100%	98.62%
Standard Deviation	1.2%	2.8%	2.9%
ParaView - Wavelet Volume - 1920 x 1080 (MiVoxels / Sec)	**8094**	**7748**	7960
Normalized	100%	95.73%	98.35%
Standard Deviation	1.1%	1%	1.5%
ParaView - Wavelet Volume - 1920 x 1080 (Frames / Sec)	**505.86**	**484.26**	497.50
Normalized	100%	95.73%	98.35%
Standard Deviation	1.1%	1%	1.5%
Ethr - UDP - Bandwidth - 8 (Mbits/s)	**206643**	215223	**215768**

Normalized	95.77%	99.75%	100%
Standard Deviation	0.9%	0.1%	0.4%
GIMP - rotate (sec)	**8.535**	8.768	**8.899**
Normalized	100%	97.34%	95.91%
Standard Deviation	0.6%	0.5%	2%
Stockfish - Total Time (Nodes/s)	**54460035**	**56726532**	56470673
Normalized	96%	100%	99.55%
Standard Deviation	1.3%	2.2%	0.5%
Ethr - TCP - Connections/s - 8 (Connections/sec)	**93430**	91373	**89758**
Normalized	100%	97.8%	96.07%
Standard Deviation	0.4%	5.4%	4.5%
vkpeak - fp32-scalar (GFLOPS)	**9813**	**9438**	9525
Normalized	100%	96.17%	97.07%
Standard Deviation	1.1%	0.8%	1.1%
Stress-NG - MEMFD (Bogo Ops/s)	**1392**	**1442**	1400
Normalized	96.54%	100%	97.12%
Standard Deviation	0.4%	0.1%	0.2%
srsLTE - PHY_DL_Test (UE Mb/s)	130.1	**131.4**	**127.1**
Normalized	99.01%	100%	96.73%
Standard Deviation	0.4%	1.1%	0.3%
srsLTE - OFDM_Test (Samples / Second)	**167600000**	**162130000**	162227273
Normalized	100%	96.74%	96.79%
Standard Deviation	1.9%	2.5%	2.4%
srsLTE - PHY_DL_Test (eNb Mb/s)	364.5	**370.0**	**358.4**
Normalized	98.51%	100%	96.86%
Standard Deviation	0.8%	1.4%	0%
Stress-NG - SENDFILE (Bogo Ops/s)	**408425**	**395855**	396816
Normalized	100%	96.92%	97.16%
Standard Deviation	0.2%	0.3%	0.3%
AOM AV1 - Speed 9 Realtime - Bosphorus 4K (FPS)	**48.69**	48.50	**47.21**
Normalized	100%	99.61%	96.96%
Standard Deviation	0.8%	2%	0.8%
Timed Linux Kernel Compilation - Time To Compile (sec)	50.056	**51.284**	**49.741**
Normalized	99.37%	96.99%	100%
Standard Deviation	1.2%	1.1%	1.2%
Compile Bench - Initial Create (MB/s)	**790.15**	777.33	**768.43**
Normalized	100%	98.38%	97.25%
Standard Deviation	2.4%	1.7%	2.1%
Xmrig - Wownero - 1M (H/s)	13530	**13851**	**13472**
Normalized	97.68%	100%	97.26%
Standard Deviation	1.3%	0.3%	1.3%
libjpeg-turbo tjbench - D.T (Megapixels/sec)	268.107535	**263.689680**	**270.782137**
Normalized	99.01%	97.38%	100%
Standard Deviation	0.4%	0.2%	1.4%
Google Draco - Church Facade (ms)	5322	**5410**	**5274**
Normalized	99.1%	97.49%	100%
Standard Deviation	2.4%	0.7%	0.5%
vkpeak - fp16-scalar (GFLOPS)	9755	**9869**	**9632**
Normalized	98.84%	100%	97.6%
Standard Deviation	0.7%	1.3%	0.6%
vkpeak - fp32-vec4 (GFLOPS)	**9608**	9486	**9386**
Normalized	100%	98.73%	97.68%

Standard Deviation	0.6%	0.7%	0.7%
Stress-NG - Malloc (Bogo Ops/s)	257938939	**253127888**	**259049400**
Normalized	99.57%	97.71%	100%
Standard Deviation	0.2%	0.2%	0.2%
Xonotic - 3840 x 2160 - Ultra (FPS)	**476.0800924**	**486.8252941**	482.7683938
Normalized	97.79%	100%	99.17%
Standard Deviation	1.3%	0.6%	0.5%
FS-Mark - 1.F.1.S (Files/s)	**701.0**	**686.2**	697.7
Normalized	100%	97.89%	99.53%
Standard Deviation	5.6%	1.9%	2.2%
SQLite Speedtest - Timed Time - Size 1,000 (sec)	**42.274**	42.601	**43.155**
Normalized	100%	99.23%	97.96%
Standard Deviation	1.2%	2.1%	1.3%
KeyDB (Ops/sec)	**819653**	832076	**835297**
Normalized	98.13%	99.61%	100%
Standard Deviation	0.5%	0.6%	0.2%
Chia Blockchain VDF - Square (IPS)	181433	**182300**	**179133**
Normalized	99.52%	100%	98.26%
Standard Deviation	0.8%	0.5%	2.2%
FS-Mark - 4.F.3.S.D.1.S (Files/s)	**705.2**	**717.6**	715.7
Normalized	98.27%	100%	99.74%
Standard Deviation	0.6%	1.4%	1.2%
SecureMark - SecureMark-TLS (marks)	319344	**317217**	**322534**
Normalized	99.01%	98.35%	100%
Standard Deviation	0.6%	1.6%	0.9%
Xonotic - 3840 x 2160 - High (FPS)	**542.4447503**	547.9433934	**551.3453352**
Normalized	98.39%	99.38%	100%
Standard Deviation	1%	2.1%	2%
vkpeak - fp16-vec4 (GFLOPS)	**9604**	**9451**	9520
Normalized	100%	98.4%	99.12%
Standard Deviation	0.4%	0.4%	0.5%
Hugin - P.P.A.S.T (sec)	**34.302**	34.561	**34.854**
Normalized	100%	99.25%	98.42%
Standard Deviation	1.7%	2.1%	0.7%
Timed Wasmer Compilation - Time To Compile (sec)	56.073	**55.803**	**56.659**
Normalized	99.52%	100%	98.49%
Standard Deviation	0.4%	1%	0.9%
InfluxDB - 4 - 10000 - 2,5000,1 - 10000	**1748594**	1728872	**1723348**
Normalized	100%	98.87%	98.56%
Standard Deviation	0.5%	0.4%	2%
SVT-AV1 - Enc Mode 8 - 1080p (FPS)	52.291	**51.836**	**52.554**
Normalized	99.5%	98.63%	100%
Standard Deviation	0.2%	1.3%	0.1%
vkpeak - int16-vec4 (GIOPS)	**4938**	**4871**	4891
Normalized	100%	98.64%	99.05%
Standard Deviation	0.1%	0.1%	0.2%
vkpeak - int16-scalar (GIOPS)	4889	**4915**	**4849**
Normalized	99.48%	100%	98.66%
Standard Deviation	0.4%	0.3%	0.3%
Xonotic - 3840 x 2160 - Ultimate (FPS)	**378.9641737**	**383.9420227**	381.3802971
Normalized	98.7%	100%	99.33%
Standard Deviation	0.4%	0.4%	0.7%

Linux 5.13 AMD Ryzen 9 5950X

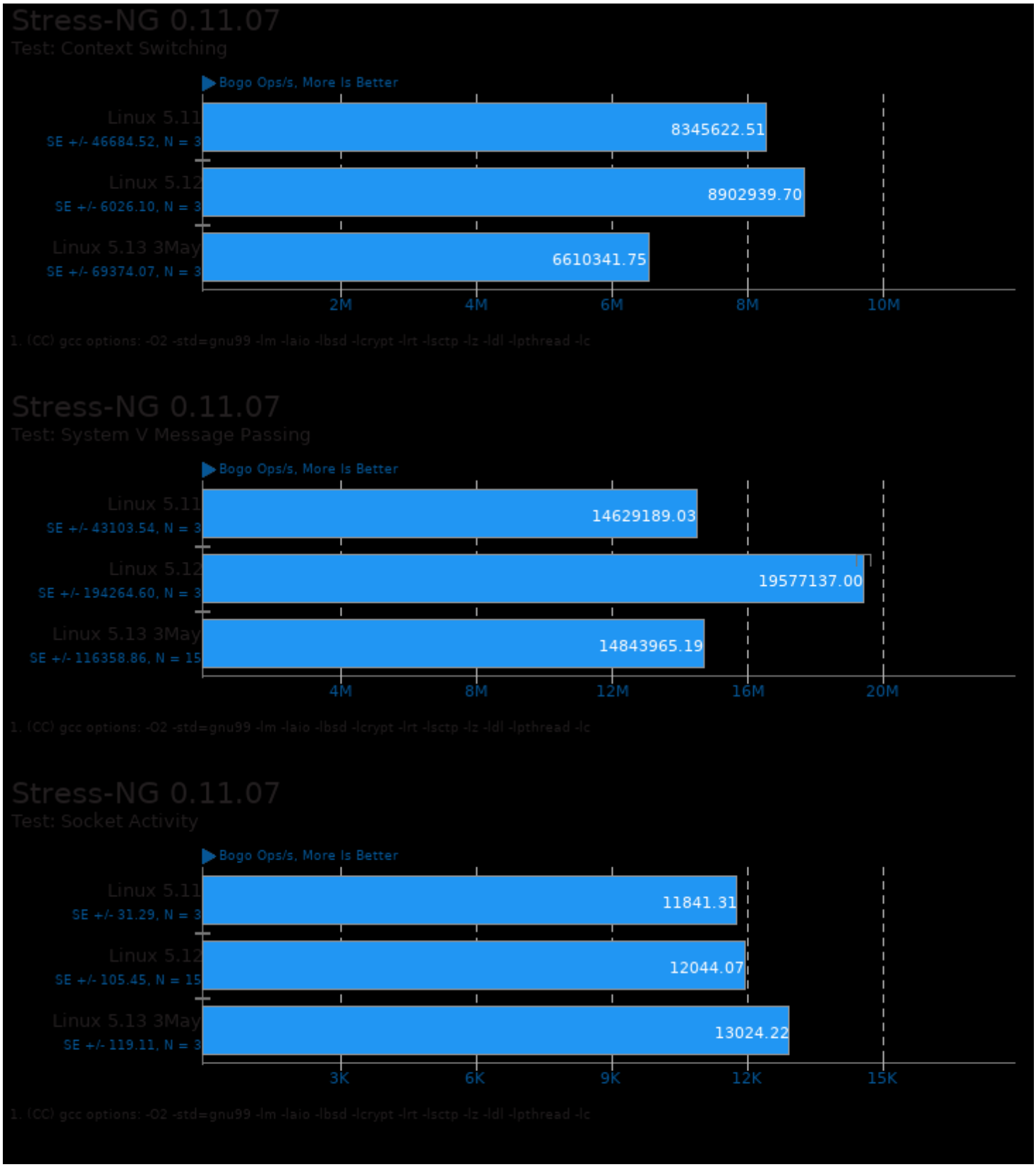
Timed Mesa Compilation - Time To Compile (sec)	32.143	**32.414**	**32.048**
Normalized	99.7%	98.87%	100%
Standard Deviation	0.3%	0.7%	0.2%
Ethr - HTTP - Bandwidth - 1 (Mbits/s)	**1078**	**1066**	1068
Normalized	100%	98.89%	99.07%
Standard Deviation	0.5%	0.6%	
LuaRadio - F.D.F (MiB/s)	**468.2**	465.7	**463.1**
Normalized	100%	99.47%	98.91%
Standard Deviation	0.9%	1%	0.6%
AOM AV1 - Speed 8 Realtime - Bosphorus 4K (FPS)	**40.53**	40.25	**40.09**
Normalized	100%	99.31%	98.91%
Standard Deviation	1.2%	4.2%	1.7%
Zstd Compression - 19, Long Mode - D.S (MB/s)	**4256**	4295	**4301**
Normalized	98.95%	99.86%	100%
Standard Deviation	1.7%	1.6%	1.3%
GIMP - auto-levels (sec)	**9.681**	**9.581**	9.671
Normalized	98.97%	100%	99.07%
Standard Deviation	1.1%	0.9%	0.4%
Darktable - Server Rack - CPU-only (sec)	**0.196**	**0.198**	**0.198**
Normalized	100%	98.99%	98.99%
Standard Deviation	0.3%	0.3%	0.5%
Stress-NG - Semaphores (Bogo Ops/s)	**2426814**	**2403606**	2419419
Normalized	100%	99.04%	99.7%
Standard Deviation	0.6%	0.6%	1.5%
OCRMyPDF - P.6.P.P.D (sec)	**12.543**	**12.424**	12.508
Normalized	99.05%	100%	99.33%
Standard Deviation	0.6%	1.4%	1.2%
LuaRadio - Hilbert Transform (MiB/s)	**129.5**	128.5	**128.3**
Normalized	100%	99.23%	99.07%
Standard Deviation	0.7%	0.7%	0.7%
ParaView - Wavelet Volume - 3840 x 2160 (Frames / Sec)	**259.66**	**262.05**	261.96
Normalized	99.09%	100%	99.97%
Standard Deviation	2.8%	0.2%	0.1%
ParaView - Wavelet Volume - 3840 x 2160 (MiVoxels / Sec)	**4155**	**4193**	4191
Normalized	99.09%	100%	99.97%
Standard Deviation	2.8%	0.2%	0.1%
SVT-VP9 - P.S.O - Bosphorus 1080p (FPS)	**233.46**	235.27	**235.45**
Normalized	99.15%	99.92%	100%
Standard Deviation	0.4%	0.4%	0.3%
LuaRadio - F.B.t.B.F.F (MiB/s)	**1739**	**1754**	1747
Normalized	99.16%	100%	99.62%
Standard Deviation	2.1%	1%	0.5%
Ethr - HTTP - Bandwidth - 8 (Mbits/s)	**5112**	**5069**	5078
Normalized	100%	99.16%	99.33%
Standard Deviation	1.3%	0.6%	0.9%
SVT-VP9 - VMAF Optimized - Bosphorus 1080p (FPS)	**227.49**	229.00	**229.34**
Normalized	99.19%	99.85%	100%
Standard Deviation	3%	2.9%	2.6%

Linux 5.13 AMD Ryzen 9 5950X

LuxCoreRender - DLSC - CPU (M	**3.70**	3.71	**3.73**
Normalized	99.2%	99.46%	100%
Standard Deviation	1.2%	1%	1%
Ethr - TCP - Bandwidth - 8 (Mbits/s)	**146912**	147374	**147975**
Normalized	99.28%	99.59%	100%
Standard Deviation	2.3%	1.2%	1%
InfluxDB - 64 - 10000 - 2,5000,1 - 10000 (val/sec)	**2136508**	**2122373**	2128686
Normalized	100%	99.34%	99.63%
Standard Deviation	0.1%	0.4%	0.2%
LuxCoreRender - Danish Mood - CPU (M samples/sec)	**3.10**	**3.10**	**3.12**
Normalized	99.36%	99.36%	100%
Standard Deviation	2.3%	0.9%	2%
SVT-HEVC - 10 - Bosphorus 1080p (FPS)	**363.87**	365.05	**366.02**
Normalized	99.41%	99.73%	100%
Standard Deviation	0.6%	0.6%	0.8%
SVT-HEVC - 7 - Bosphorus 1080p (FPS)	**217.81**	218.62	**218.99**
Normalized	99.46%	99.83%	100%
Standard Deviation	1.9%	1.1%	1.6%
NAMD - ATPase Simulation - 327,506 Atoms (days/ns)	**1.07862**	1.07989	**1.08446**
Normalized	100%	99.88%	99.46%
Standard Deviation	0.7%	0.9%	0.8%
LuxCoreRender - Orange Juice - CPU (M samples/sec)	**5.76**	5.77	**5.79**
Normalized	99.48%	99.65%	100%
Standard Deviation	0.5%	0.2%	0.4%
GIMP - unsharp-mask (sec)	**12.292**	12.244	**12.231**
Normalized	99.5%	99.89%	100%
Standard Deviation	0.6%	0.2%	0.9%
GIMP - resize (sec)	**5.671**	5.646	**5.643**
Normalized	99.51%	99.95%	100%
Standard Deviation	2.4%	2.5%	2.2%
Zstd Compression - 19 - D.S (MB/s)	**4312**	**4293**	4304
Normalized	100%	99.57%	99.84%
Standard Deviation	1.6%	1.1%	1.1%
Zstd Compression - 19 - Compression Speed (MB/s)	**51.5**	51.4	**51.3**
Normalized	100%	99.81%	99.61%
Standard Deviation	0.3%	0.3%	0.2%
Darktable - Masskrug - CPU-only (sec)	**5.924**	5.944	**5.947**
Normalized	100%	99.66%	99.61%
Standard Deviation	0.5%	0.2%	0.2%
ParaView - Many Spheres - 1920 x 1080 (MiPolys / Sec)	6647	**6628**	**6652**
Normalized	99.93%	99.64%	100%
Standard Deviation	0.1%	0.6%	0.2%
ParaView - Many Spheres - 1920 x 1080 (Frames / Sec)	66.30	**66.11**	**66.35**
Normalized	99.92%	99.64%	100%
Standard Deviation	0.1%	0.6%	0.2%
SVT-AV1 - Enc Mode 4 - 1080p (FPS)	**6.117**	6.130	**6.138**
Normalized	99.66%	99.87%	100%

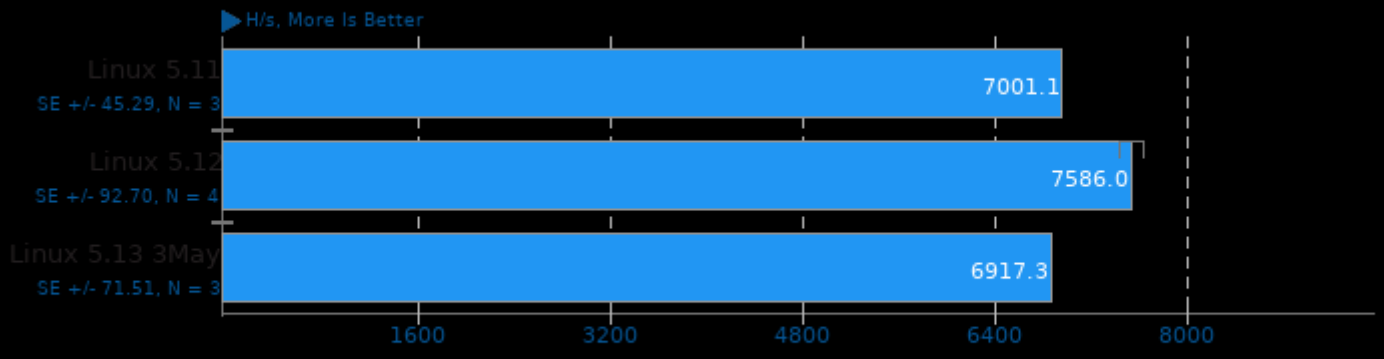
Standard Deviation	1%	0.5%	0.7%
ParaView - Wavelet Contour - 1920 x 1080 (Frames / Sec)	**370.30**	369.84	**369.10**
Normalized	100%	99.88%	99.68%
Standard Deviation	0%	0%	0%
Darktable - Server Room - CPU-only (sec)	**5.853**	**5.872**	5.871
Normalized	100%	99.68%	99.69%
Standard Deviation	0.2%	0.2%	0.3%
ParaView - Wavelet Contour - 1920 x 1080 (MiPolys / Sec)	**3859**	3854	**3846**
Normalized	100%	99.88%	99.68%
Standard Deviation	0%	0%	0%
Liquid-DSP - 16 - 256 - 57 (samples/s)	1041100000	**1044266667**	**1040966667**
Normalized	99.7%	100%	99.68%
Standard Deviation	0.2%	0.2%	0.8%
Zstd Compression - 19, Long Mode - Compression Speed (MB/s)	**36.5**	**36.5**	**36.4**
Normalized	100%	100%	99.73%
Standard Deviation	0.3%	0.2%	0%
Darktable - Boat - CPU-only (sec)	**14.515**	14.536	**14.554**
Normalized	100%	99.86%	99.73%
Standard Deviation	0.1%	0.2%	0%
Timed Godot Game Engine Compilation - Time To Compile (sec)	**80.167**	**79.960**	79.965
Normalized	99.74%	100%	99.99%
Standard Deviation	0.3%	0.4%	0.4%
LuaRadio - Complex Phase (MiB/s)	877.3	**878.5**	**876.5**
Normalized	99.86%	100%	99.77%
Standard Deviation	1.4%	0.5%	0.3%
Liquid-DSP - 32 - 256 - 57 (samples/s)	1098566667	**1100200000**	**1097766667**
Normalized	99.85%	100%	99.78%
Standard Deviation	0.1%	0.2%	0.3%
Stress-NG - Memory Copying (Bogo Ops/s)	**1479**	1477	**1477**
Normalized	100%	99.82%	99.81%
Standard Deviation	0.1%	0.3%	0.1%
Blender - Barbershop - CPU-Only (sec)	**295.76**	296.25	**296.32**
Normalized	100%	99.83%	99.81%
Standard Deviation	0.4%	0.2%	0.3%
ParaView - Wavelet Contour - 3840 x 2160 (Frames / Sec)	**249.59**	249.20	**249.15**
Normalized	100%	99.84%	99.82%
Standard Deviation	0%	0.1%	0.1%
ParaView - Wavelet Contour - 3840 x 2160 (MiPolys / Sec)	**2601**	2597	**2597**
Normalized	100%	99.85%	99.83%
Standard Deviation	0%	0.1%	0.1%
Waifu2x-NCNN Vulkan - 2x - 3 - Yes (sec)	**5.073**	**5.065**	5.072
Normalized	99.84%	100%	99.86%
Standard Deviation	0.9%	0.2%	0.6%
GROMACS - water_GMX50_bare (Ns/Day)	**1.269**	**1.267**	**1.267**
Normalized	100%	99.84%	99.84%
Standard Deviation	0.3%	0.2%	0.3%
Timed HMMer Search - P.D.S (sec)	**81.091**	81.014	**80.988**
Normalized	99.87%	99.97%	100%

Standard Deviation	0.1%	0.1%	0.2%
RawTherapee - T.B.T (sec)	**46.360**	46.368	**46.413**
Normalized	100%	99.98%	99.89%
Standard Deviation	0.3%	0.2%	0.1%
VkFFT (Benchmark Score)	20500	**20501**	**20480**
Normalized	100%	100%	99.9%
Standard Deviation	0.3%	0.2%	0.1%
RealSR-NCNN - 4x - Yes (sec)	57.613	**57.575**	**57.622**
Normalized	99.93%	100%	99.92%
Standard Deviation	0.2%	0%	0.1%
ParaView - Many Spheres - 3840 x 2160 (MiPolys / Sec)	6276	**6273**	**6277**
Normalized	99.97%	99.92%	100%
Standard Deviation	0.1%	0%	0.1%
vkpeak - int32-vec4 (GIOPS)	**2053**	2052	**2051**
Normalized	100%	99.95%	99.94%
Standard Deviation	0%	0%	0%
ParaView - Many Spheres - 3840 x 2160 (Frames / Sec)	62.60	**62.57**	**62.61**
Normalized	99.98%	99.94%	100%
Standard Deviation	0.1%	0%	0.1%
vkpeak - fp64-scalar (GFLOPS)	321.83	**321.90**	**321.72**
Normalized	99.98%	100%	99.94%
Standard Deviation	0%	0%	0%
vkpeak - int32-scalar (GIOPS)	**1581**	1581	**1581**
Normalized	100%	99.98%	99.96%
Standard Deviation	0%	0%	0%
vkpeak - fp64-vec4 (GFLOPS)	**321.73**	**321.60**	321.64
Normalized	100%	99.96%	99.97%
Standard Deviation	0%	0%	0%
ctx_clock - C.S.T (Clocks)	136	136	136
Google Draco - Lion (ms)	**4241**	4199	**4063**
Normalized	95.8%	96.76%	100%
Standard Deviation	10.8%	0.9%	2.1%
Ethr - TCP - Connections/s - 1 (Connections/sec)	**10019**	**9631**	9655
Normalized	100%	96.13%	96.37%
Standard Deviation	9.1%	7.3%	11.1%
Ethr - TCP - Latency - 8 (us)	**12.05**	11.71	**11.52**
Normalized	95.6%	98.38%	100%
Standard Deviation	8.9%	8.7%	5.7%
Ethr - TCP - Latency - 1 (us)	**11.82**	**11.52**	11.61
Normalized	97.46%	100%	99.22%
Standard Deviation	5.9%	7.5%	2%


Stress-NG 0.11.07
Test: Context Switching
Bogo Ops/s, More Is Better
Linux 5.11
SE +/- 46684.52, N = 3
8345622.51
Linux 5.12
SE +/- 6026.10, N = 3
8902939.70
Linux 5.13 3May
SE +/- 69374.07, N = 3
6610341.75
2M
4M
6M
8M
10M
1. (CC) gcc options: -O2 -std=gnu99 -lm -laio -lbsd -lcrypt -lrt -lsctp -lz -ldl -lpthread -lc
Stress-NG 0.11.07
Test: System V Message Passing
Bogo Ops/s, More Is Better
Linux 5.11
SE +/- 43103.54, N = 3
14629189.03
Linux 5.12
SE +/- 194264.60, N = 3
19577137.00
Linux 5.13 3May
SE +/- 116358.86, N = 15
14843965.19
4M
8M
12M
16M
20M
1. (CC) gcc options: -O2 -std=gnu99 -lm -laio -lbsd -lcrypt -lrt -lsctp -lz -ldl -lpthread -lc
Stress-NG 0.11.07
Test: Socket Activity
Bogo Ops/s, More Is Better
Linux 5.11
SE +/- 31.29, N = 3
11841.31
Linux 5.12
SE +/- 105.45, N = 15
12044.07
Linux 5.13 3May
SE +/- 119.11, N = 3
13024.22
3K
6K
9K
12K
15K
1. (CC) gcc options: -O2 -std=gnu99 -lm -laio -lbsd -lcrypt -lrt -lsctp -lz -ldl -lpthread -lc

Xmrig 6.12.1

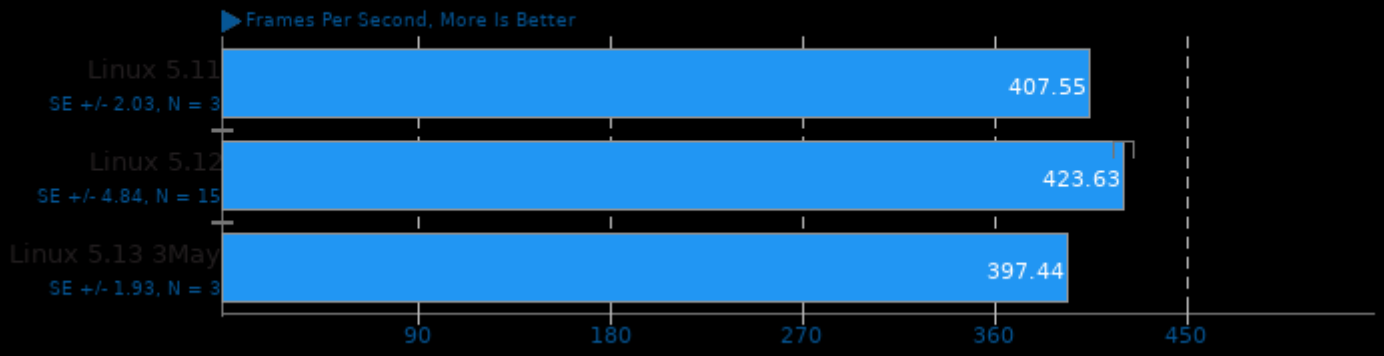
Variant: Monero - Hash Count: 1M



1. (CXX) g++ options: -fexceptions -fno-rtti -maes -O3 -Ofast -static-libgcc -static-libstdc++ -rdynamic -lssl -lcrypto -luv -lpthread -lrt -ldl -lhwloc

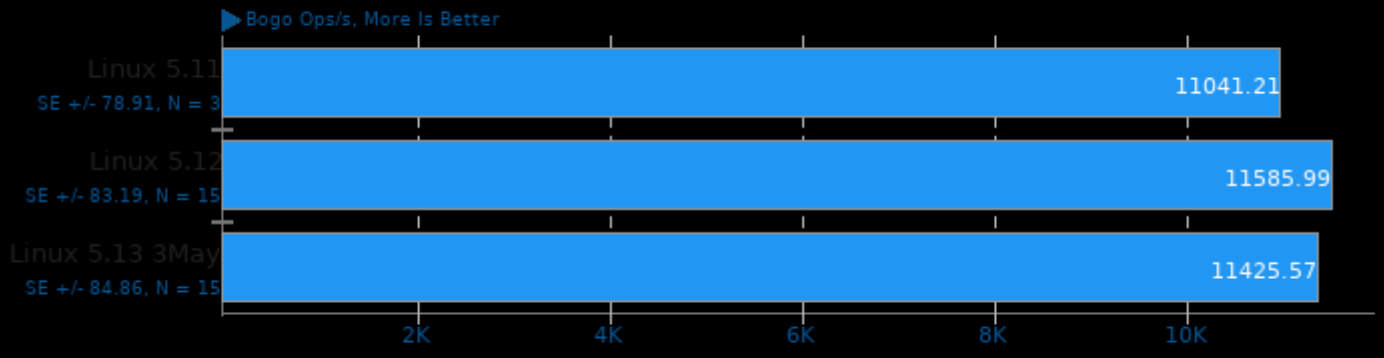
Tesseract 2014-05-12

Resolution: 3840 x 2160

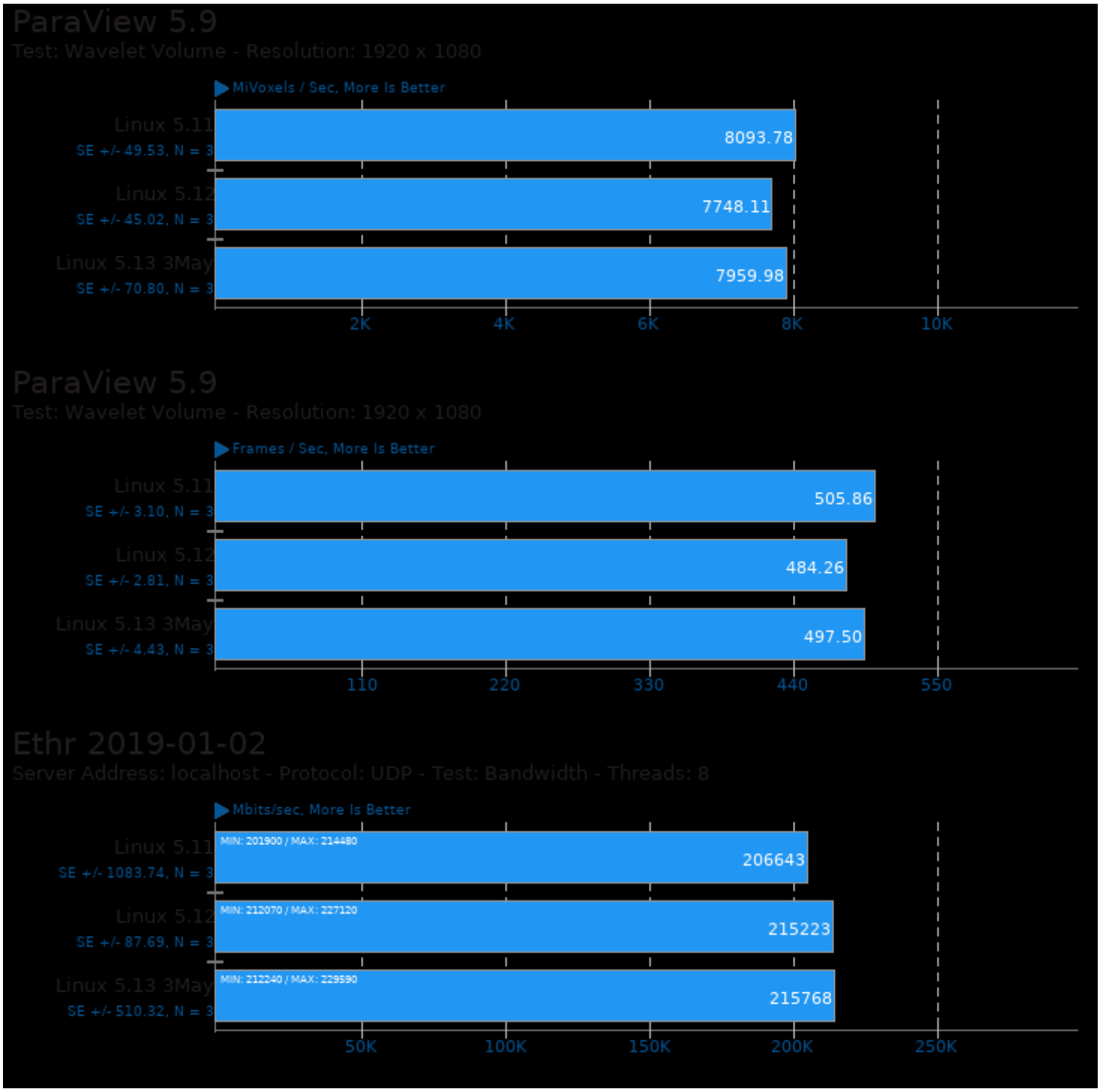


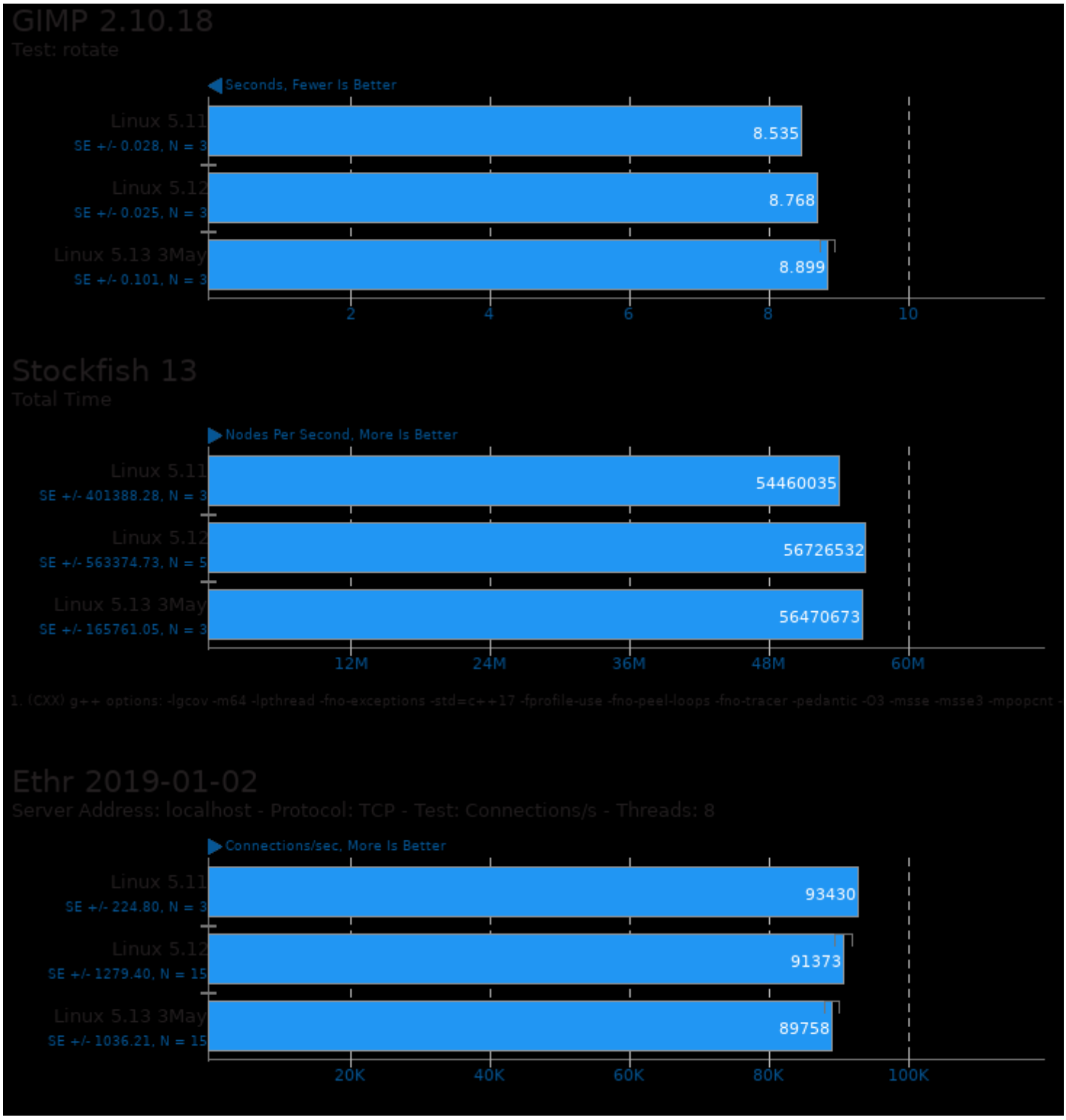
Stress-NG 0.11.07

Test: CPU Stress



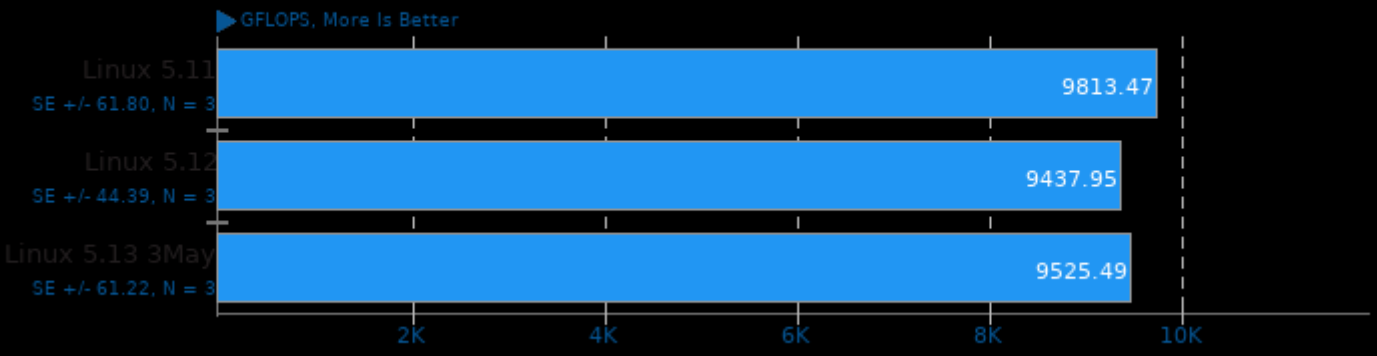
1. (CC) gcc options: -O2 -std=gnu99 -lm -laio -lbsd -lcrypt -lrt -lsctp -lz -ldl -lpthread -lc


ParaView 5.9
Test: Wavelet Volume - Resolution: 1920 x 1080
MiVoxels / Sec, More Is Better
Linux 5.11
SE +/- 49.53, N = 3
8093.78
Linux 5.12
SE +/- 45.02, N = 3
7748.11
Linux 5.13 3May
SE +/- 70.80, N = 3
7959.98
2K
4K
6K
8K
10K
ParaView 5.9
Test: Wavelet Volume - Resolution: 1920 x 1080
Frames / Sec, More Is Better
Linux 5.11
SE +/- 3.10, N = 3
505.86
Linux 5.12
SE +/- 2.81, N = 3
484.26
Linux 5.13 3May
SE +/- 4.43, N = 3
497.50
110
220
330
440
550
Ethr 2019-01-02
Server Address: localhost - Protocol: UDP - Test: Bandwidth - Threads: 8
Mbits/sec, More Is Better
Linux 5.11
SE +/- 1083.74, N = 3
MIN: 201900 / MAX: 214480
206643
Linux 5.12
SE +/- 87.69, N = 3
MIN: 212070 / MAX: 227120
215223
Linux 5.13 3May
SE +/- 510.32, N = 3
MIN: 212240 / MAX: 229590
215768
50K
100K
150K
200K
250K


GIMP 2.10.18
Test: rotate
Seconds, Fewer Is Better
Linux 5.11
SE +/- 0.028, N = 3
8.535
Linux 5.12
SE +/- 0.025, N = 3
8.768
Linux 5.13 3May
SE +/- 0.101, N = 3
8.899
2
4
6
8
10
Stockfish 13
Total Time
Nodes Per Second, More Is Better
Linux 5.11
SE +/- 401388.28, N = 3
54460035
Linux 5.12
SE +/- 563374.73, N = 5
56726532
Linux 5.13 3May
SE +/- 165761.05, N = 3
56470673
12M
24M
36M
48M
60M
1. (CXX) g++ options: -lgcov -m64 -lpthread -fno-exceptions -std=c++17 -fprofile-use -fno-peel-loops -fno-tracer -pedantic -O3 -msse -msse3 -mpopcnt
Ethr 2019-01-02
Server Address: localhost - Protocol: TCP - Test: Connections/s - Threads: 8
Connections/sec, More Is Better
Linux 5.11
SE +/- 224.80, N = 3
93430
Linux 5.12
SE +/- 1279.40, N = 15
91373
Linux 5.13 3May
SE +/- 1036.21, N = 15
89758
20K
40K
60K
80K
100K

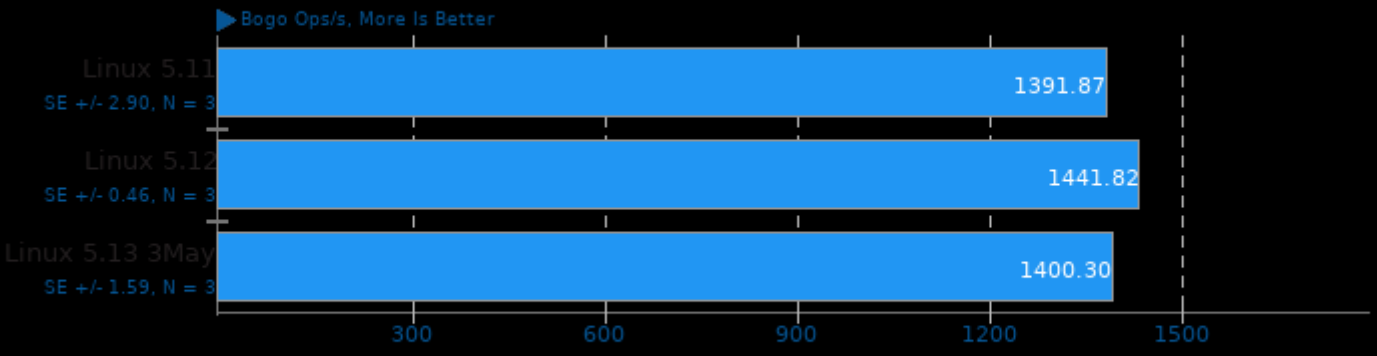
vkpeak 20210424

fp32-scalar



Stress-NG 0.11.07

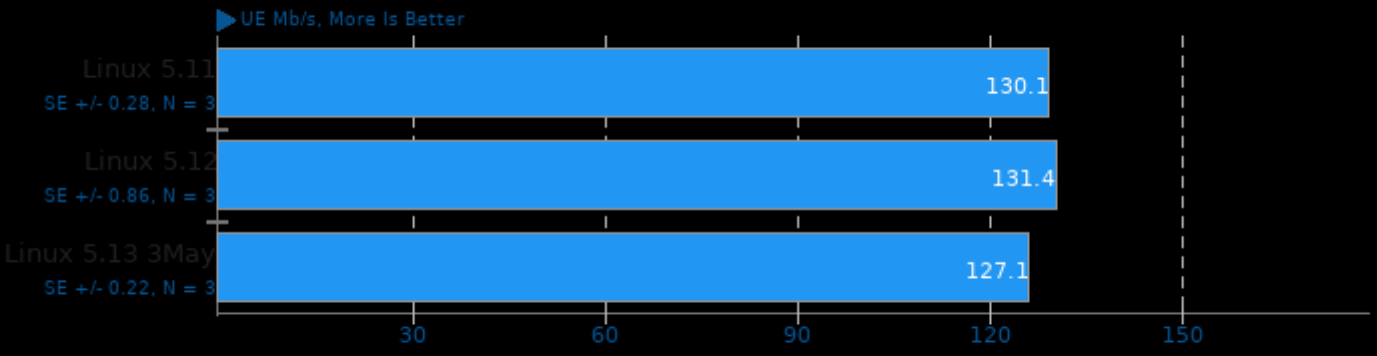
Test: MEMFD



1. (CC) gcc options: -O2 -std=gnu99 -lm -laio -lbsd -lcrypt -lrt -lsctp -lz -ldl -lpthread -lc

srsLTE 20.10.1

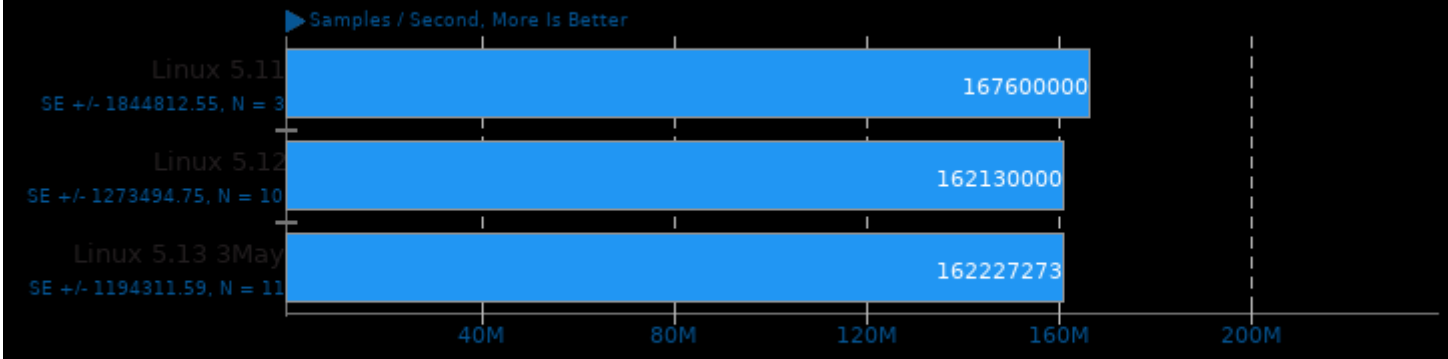
Test: PHY_DL_Test



1. (CXX) g++ options: -std=c++11 -fno-strict-aliasing -march=native -mfpmath=sse -mavx2 -fvisibility=hidden -O3 -fno-trapping-math -fno-math-errno

srsLTE 20.10.1

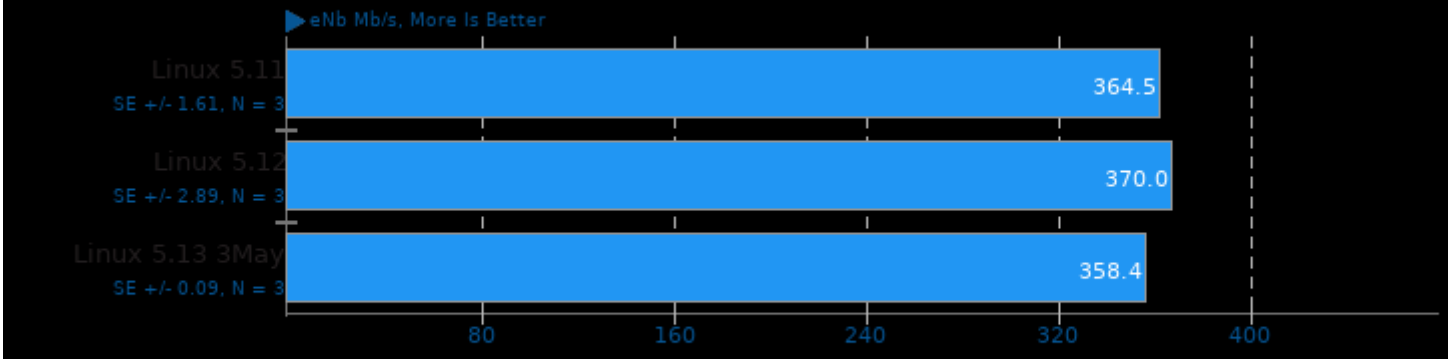
Test: OFDM_Test



1. (CXX) g++ options: -std=c++11 -fno-strict-aliasing -march=native -mfpmath=sse -mavx2 -fvisibility=hidden -O3 -fno-trapping-math -fno-math-errno

srsLTE 20.10.1

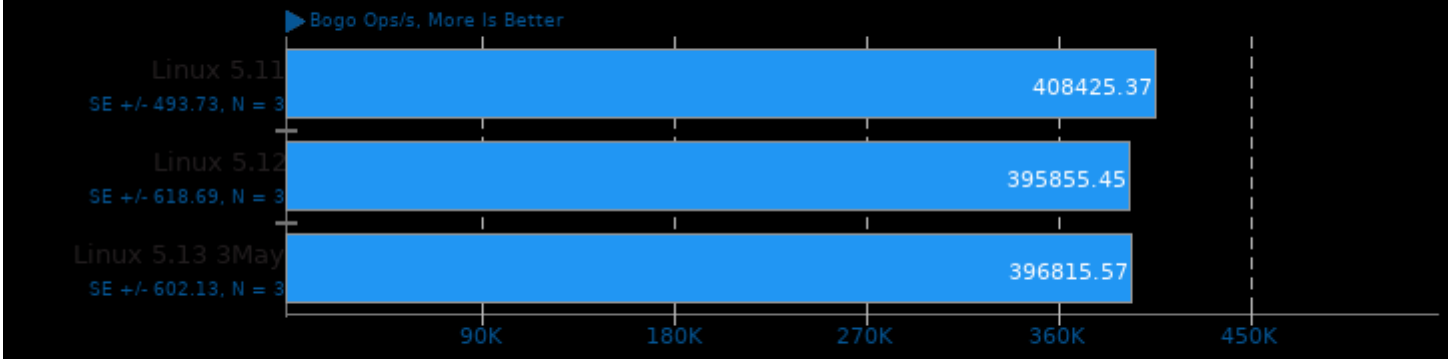
Test: PHY_DL_Test



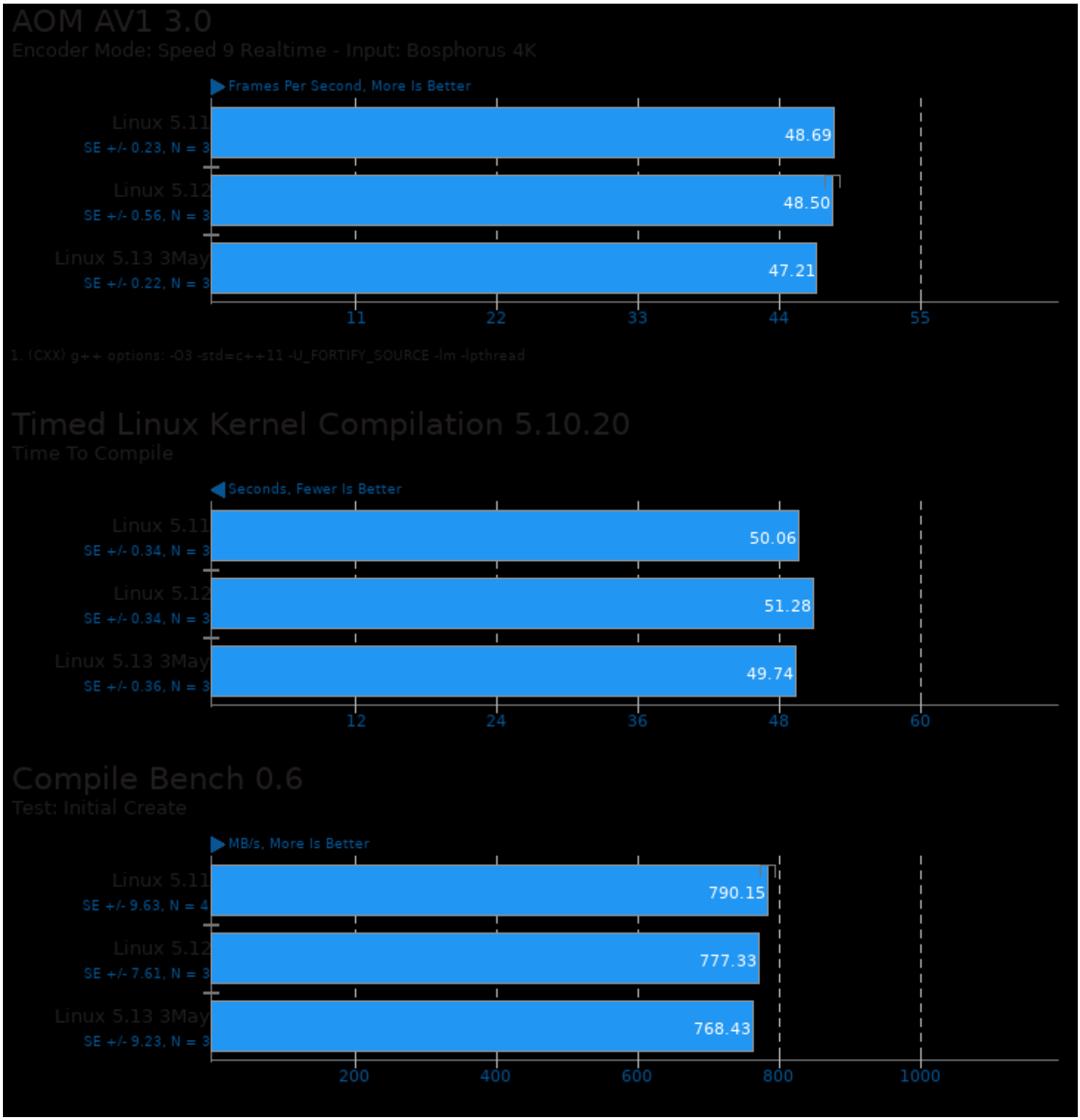
1. (CXX) g++ options: -std=c++11 -fno-strict-aliasing -march=native -mfpmath=sse -mavx2 -fvisibility=hidden -O3 -fno-trapping-math -fno-math-errno

Stress-NG 0.11.07

Test: SENDFILE

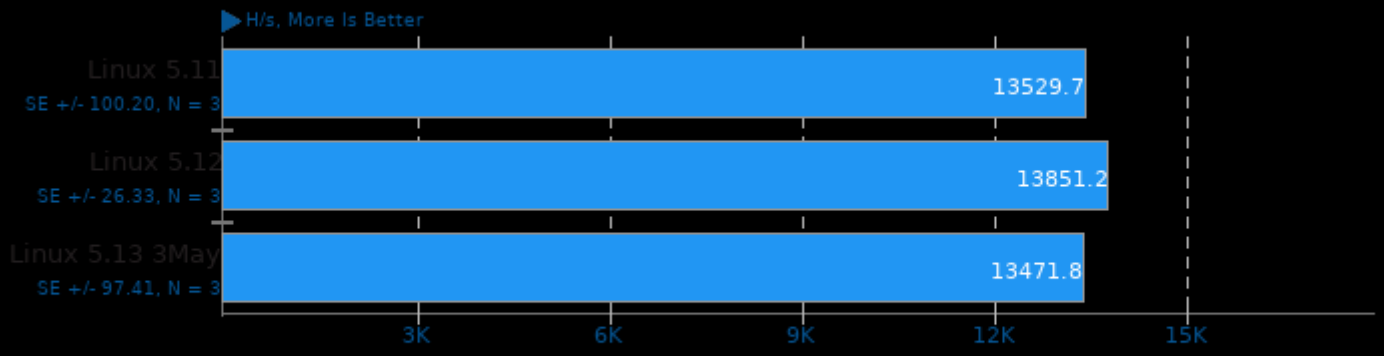


1. (CC) gcc options: -O2 -std=gnu99 -lm -laio -lbsd -lcrypt -lrt -lsctp -lz -ldl -lpthread -lc


AOM AV1 3.0
Encoder Mode: Speed 9 Realtime - Input: Bosphorus 4K
Frames Per Second, More Is Better
Linux 5.11
SE +/- 0.23, N = 3
48.69
Linux 5.12
SE +/- 0.56, N = 3
48.50
Linux 5.13 3May
SE +/- 0.22, N = 3
47.21
11
22
33
44
55
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm -lpthread
Timed Linux Kernel Compilation 5.10.20
Time To Compile
Seconds, Fewer Is Better
Linux 5.11
SE +/- 0.34, N = 3
50.06
Linux 5.12
SE +/- 0.34, N = 3
51.28
Linux 5.13 3May
SE +/- 0.36, N = 3
49.74
12
24
36
48
60
Compile Bench 0.6
Test: Initial Create
MB/s, More Is Better
Linux 5.11
SE +/- 9.63, N = 4
790.15
Linux 5.12
SE +/- 7.61, N = 3
777.33
Linux 5.13 3May
SE +/- 9.23, N = 3
768.43
200
400
600
800
1000

Xmrig 6.12.1

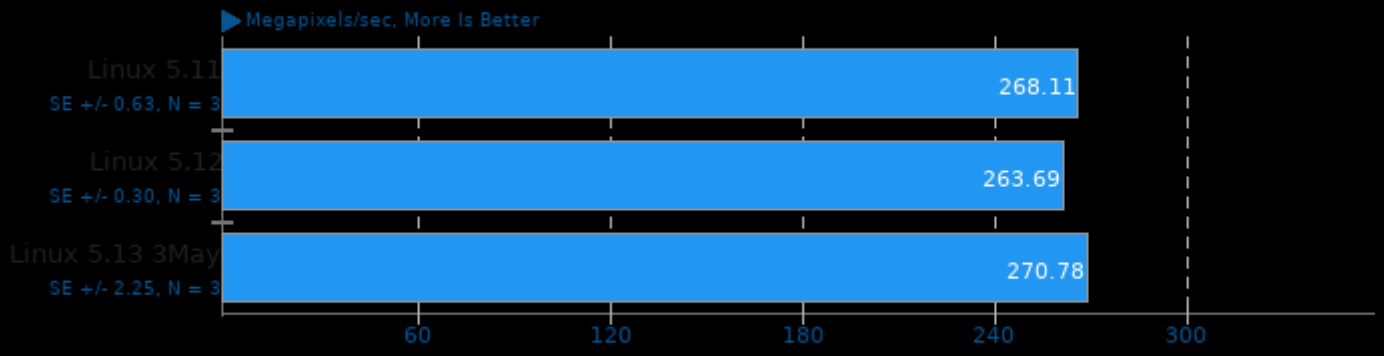
Variant: Wownero - Hash Count: 1M



1. (CXX) g++ options: -fexceptions -fno-rtti -maes -O3 -Ofast -static-libgcc -static-libstdc++ -rdynamic -lssl -lcrypto -luv -lpthread -lrt -ldl -lhwloc

libjpeg-turbo tjbench 2.1.0

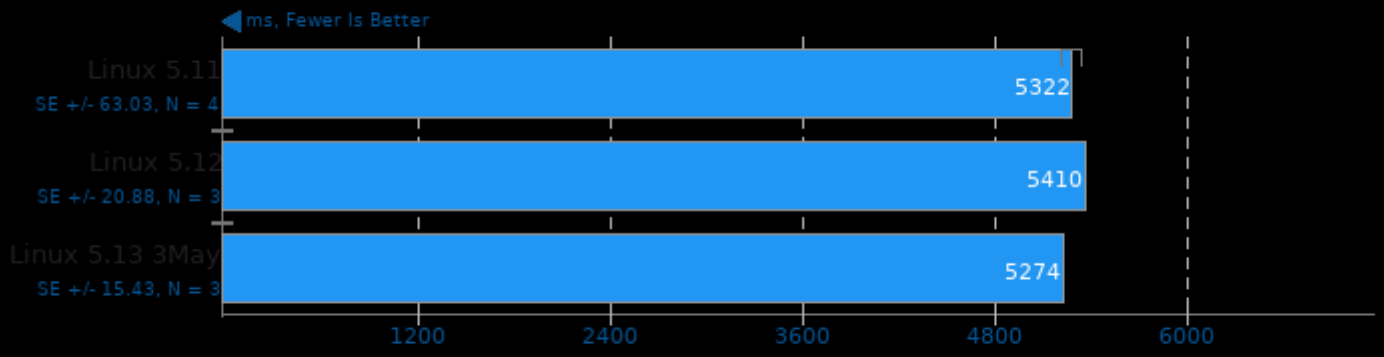
Test: Decompression Throughput



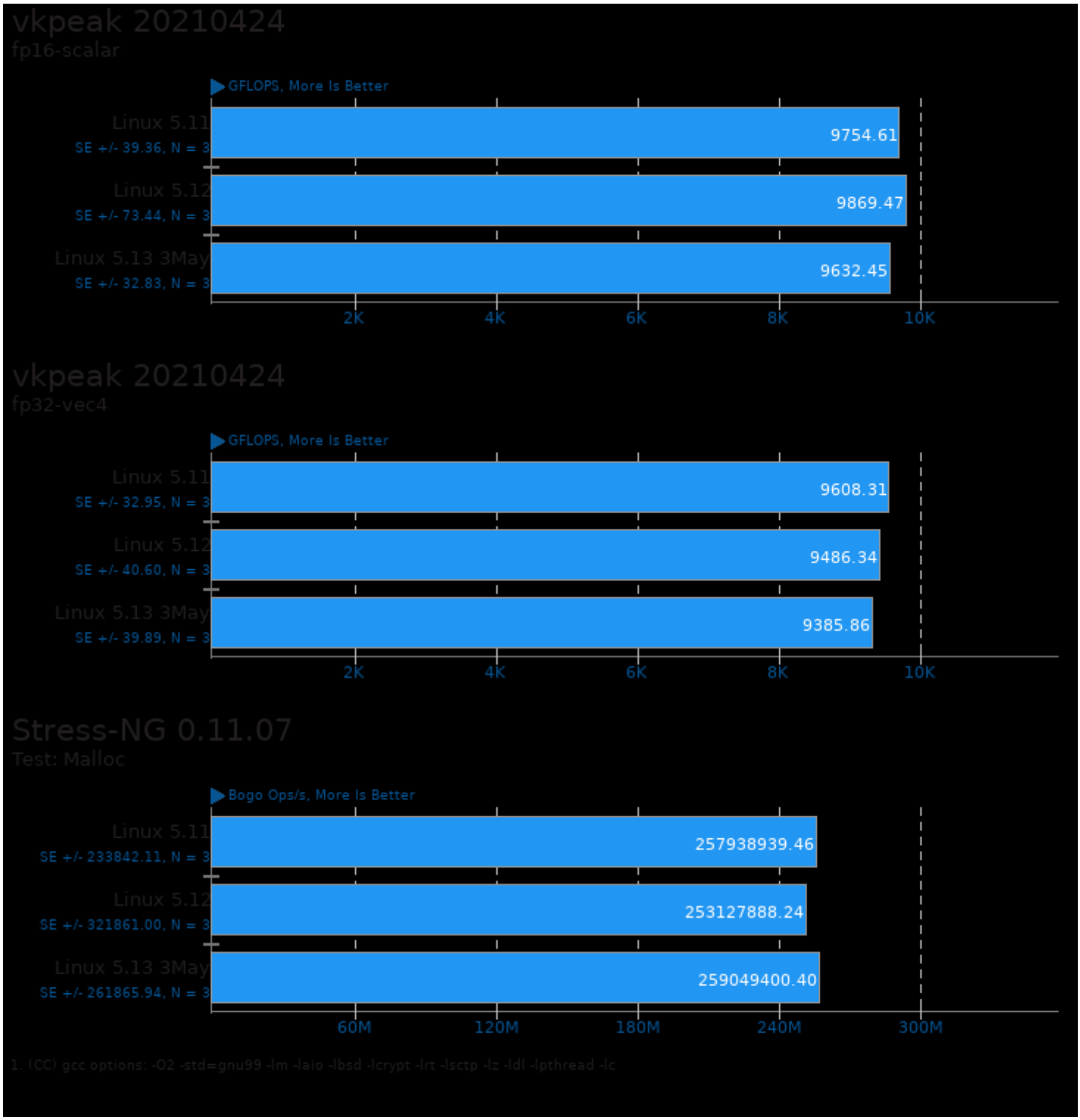
1. (CC) gcc options: -O3 -rdynamic

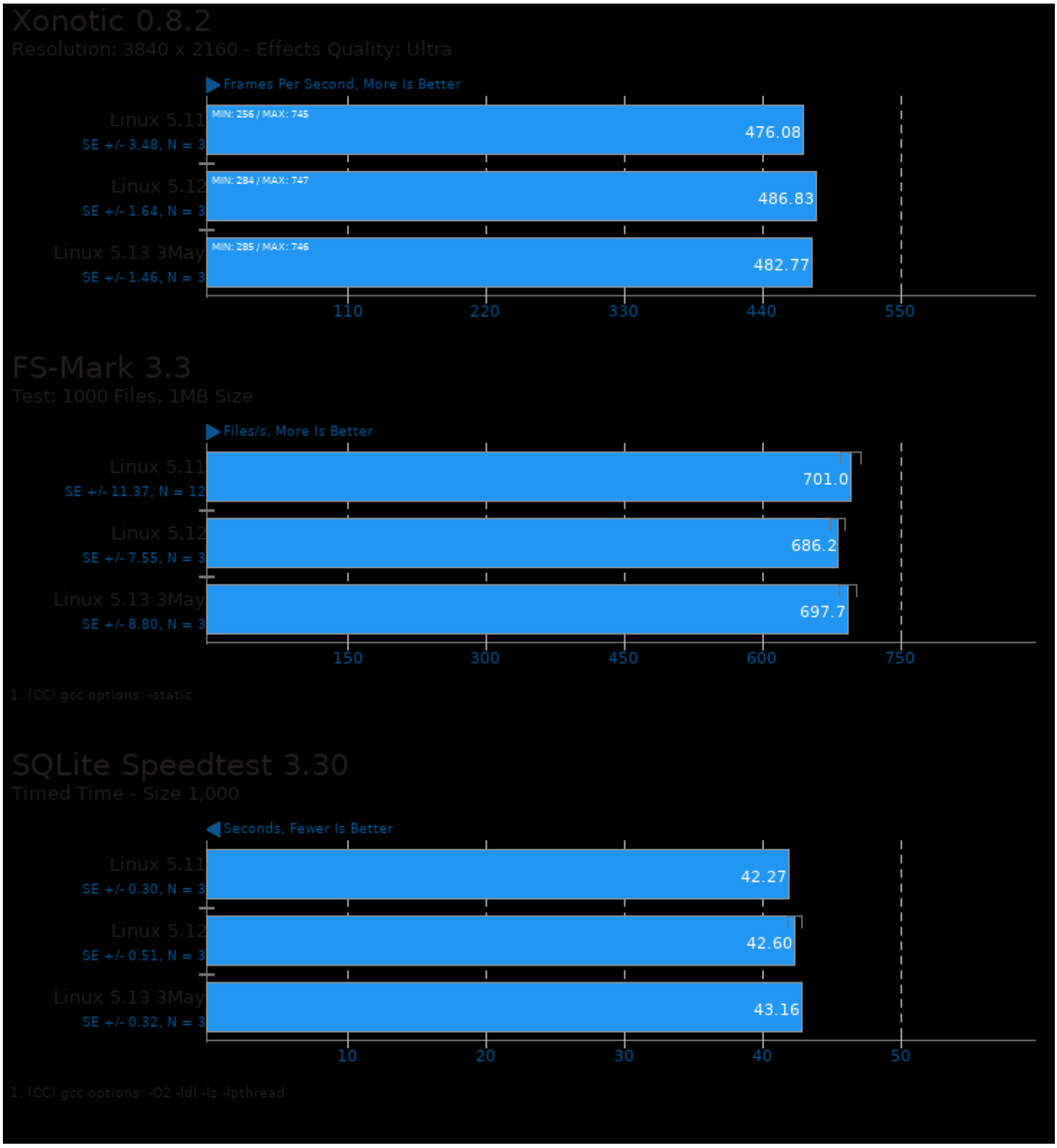
Google Draco 1.4.1

Model: Church Facade

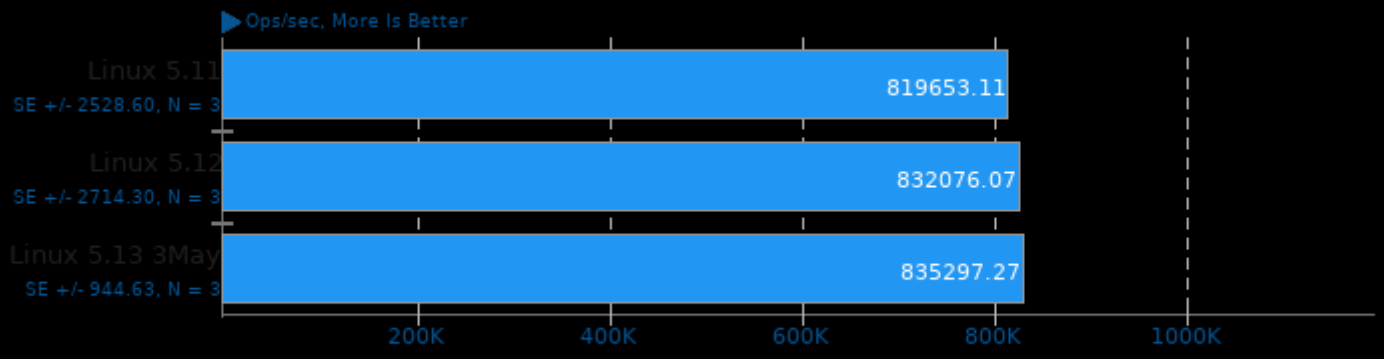


1. (CXX) g++ options: -O3


vkpeak 20210424
fp16-scalar
GFLOPS, More Is Better
Linux 5.11
SE +/- 39.36, N = 3
9754.61
Linux 5.12
SE +/- 73.44, N = 3
9869.47
Linux 5.13 3May
SE +/- 32.83, N = 3
9632.45
2K
4K
6K
8K
10K
vkpeak 20210424
fp32-vec4
GFLOPS, More Is Better
Linux 5.11
SE +/- 32.95, N = 3
9608.31
Linux 5.12
SE +/- 40.60, N = 3
9486.34
Linux 5.13 3May
SE +/- 39.89, N = 3
9385.86
2K
4K
6K
8K
10K
Stress-NG 0.11.07
Test: Malloc
Bogo Ops/s, More Is Better
Linux 5.11
SE +/- 233842.11, N = 3
257938939.46
Linux 5.12
SE +/- 321861.00, N = 3
253127888.24
Linux 5.13 3May
SE +/- 261865.94, N = 3
259049400.40
60M
120M
180M
240M
300M
1. (CC) gcc options: -O2 -std=gnu99 -lm -laio -lbsd -lcrypt -lrt -lsctp -lz -ldl -lpthread -lc


Xonotic 0.8.2
Resolution: 3840 x 2160 - Effects Quality: Ultra
Frames Per Second, More Is Better
Linux 5.11
SE +/- 3.48, N = 3
MIN: 256 / MAX: 745
476.08
Linux 5.12
SE +/- 1.64, N = 3
MIN: 284 / MAX: 747
486.83
Linux 5.13 3May
SE +/- 1.46, N = 3
MIN: 285 / MAX: 746
482.77
110
220
330
440
550
FS-Mark 3.3
Test: 1000 Files, 1MB Size
Files/s, More Is Better
Linux 5.11
SE +/- 11.37, N = 12
701.0
Linux 5.12
SE +/- 7.55, N = 3
686.2
Linux 5.13 3May
SE +/- 8.80, N = 3
697.7
150
300
450
600
750
1. (CC) gcc options: -static
SQLite Speedtest 3.30
Timed Time - Size 1,000
Seconds, Fewer Is Better
Linux 5.11
SE +/- 0.30, N = 3
42.27
Linux 5.12
SE +/- 0.51, N = 3
42.60
Linux 5.13 3May
SE +/- 0.32, N = 3
43.16
10
20
30
40
50
1. (CC) gcc options: -O2 -ldl -lz -lpthread

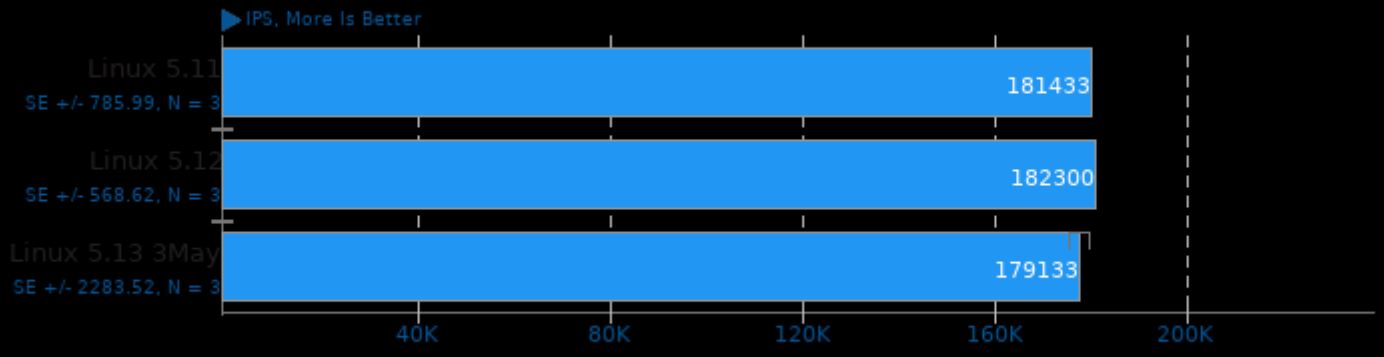
KeyDB 6.0.16



1. (CXX) g++ options: -O2 -levent_openssl -levent -lcrypto -lssl -lpthread -lz -lpcre

Chia Blockchain VDF 1.0.1

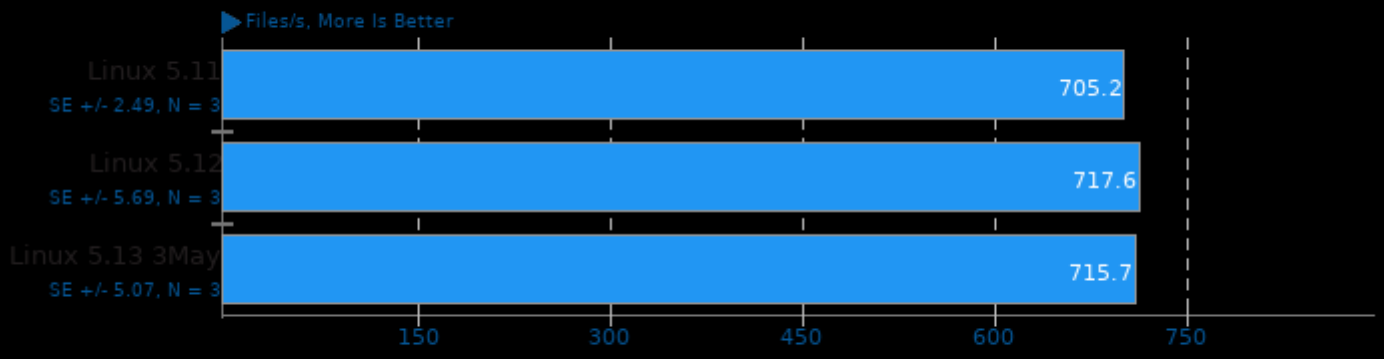
Test: Square



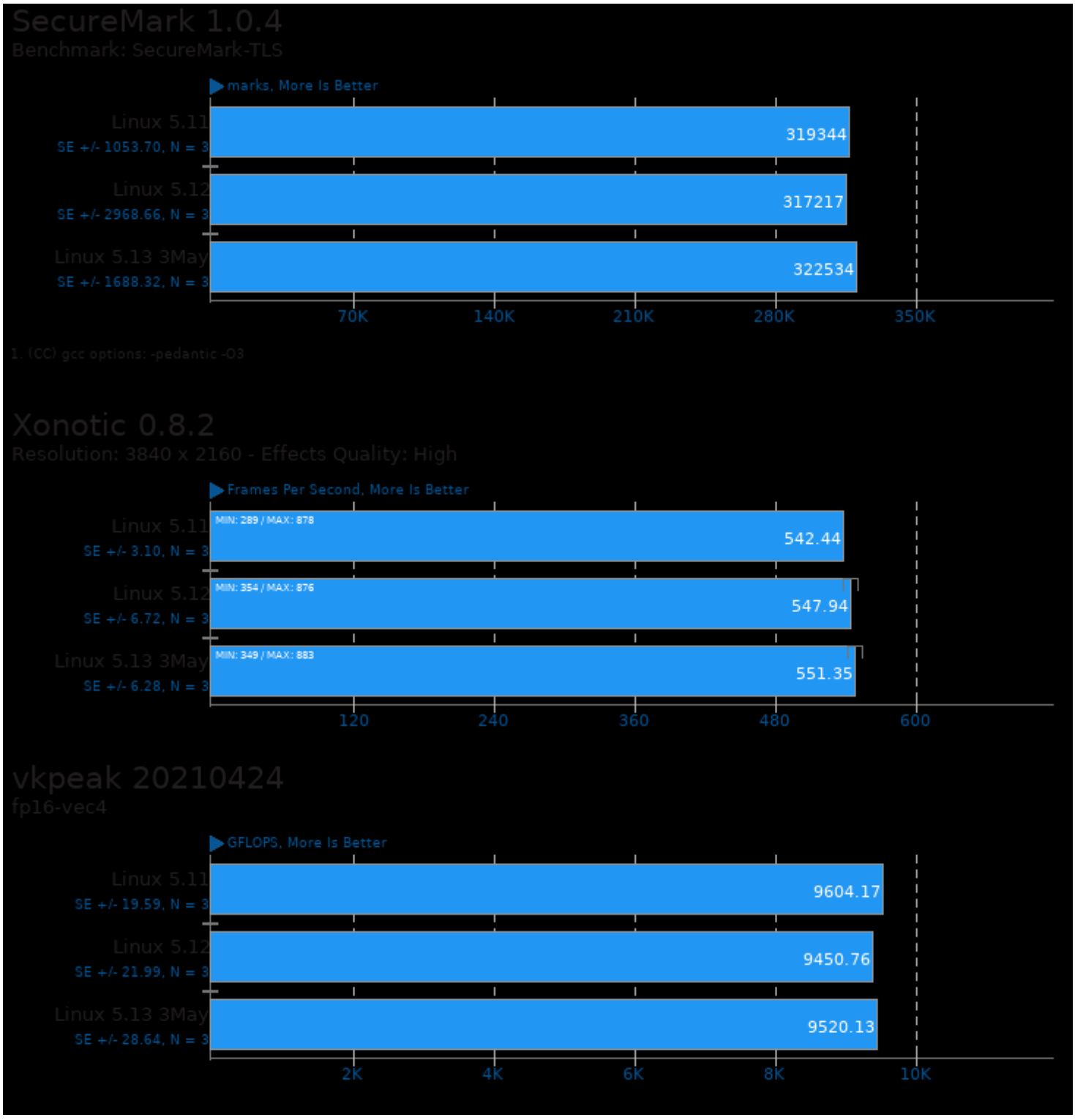
1. (CXX) g++ options: -flto -no-pie -lgmpxx -lgmp -lboost_system -pthread

FS-Mark 3.3

Test: 4000 Files, 32 Sub Dirs, 1MB Size

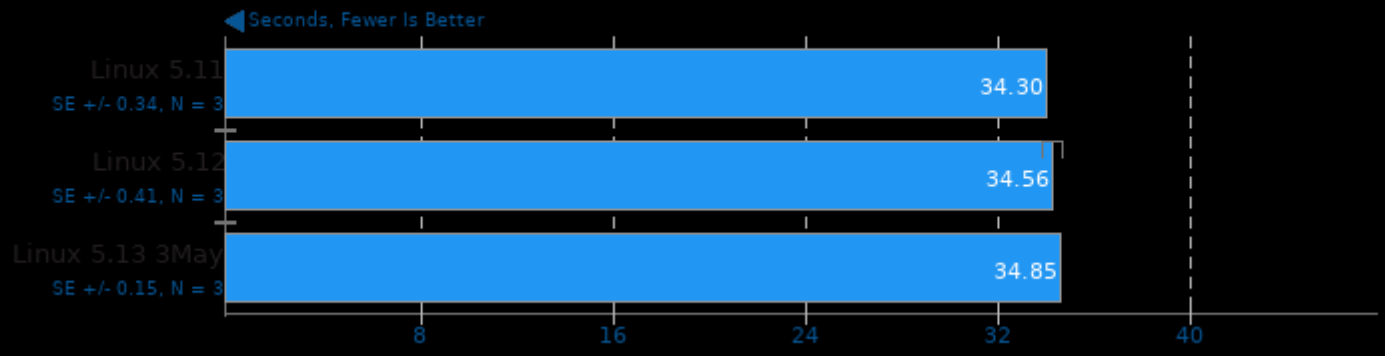


1. (CC) gcc options: -static


SecureMark 1.0.4
Benchmark: SecureMark-TLS
marks, More Is Better
Linux 5.11
SE +/- 1053.70, N = 3
319344
Linux 5.12
SE +/- 2968.66, N = 3
317217
Linux 5.13 3May
SE +/- 1688.32, N = 3
322534
70K
140K
210K
280K
350K
1. (CC) gcc options: -pedantic -O3
Xonotic 0.8.2
Resolution: 3840 x 2160 - Effects Quality: High
Frames Per Second, More Is Better
Linux 5.11
SE +/- 3.10, N = 3
MIN: 289 / MAX: 878
542.44
Linux 5.12
SE +/- 6.72, N = 3
MIN: 354 / MAX: 876
547.94
Linux 5.13 3May
SE +/- 6.28, N = 3
MIN: 349 / MAX: 883
551.35
120
240
360
480
600
vkpeak 20210424
fp16-vec4
GFLOPS, More Is Better
Linux 5.11
SE +/- 19.59, N = 3
9604.17
Linux 5.12
SE +/- 21.99, N = 3
9450.76
Linux 5.13 3May
SE +/- 28.64, N = 3
9520.13
2K
4K
6K
8K
10K

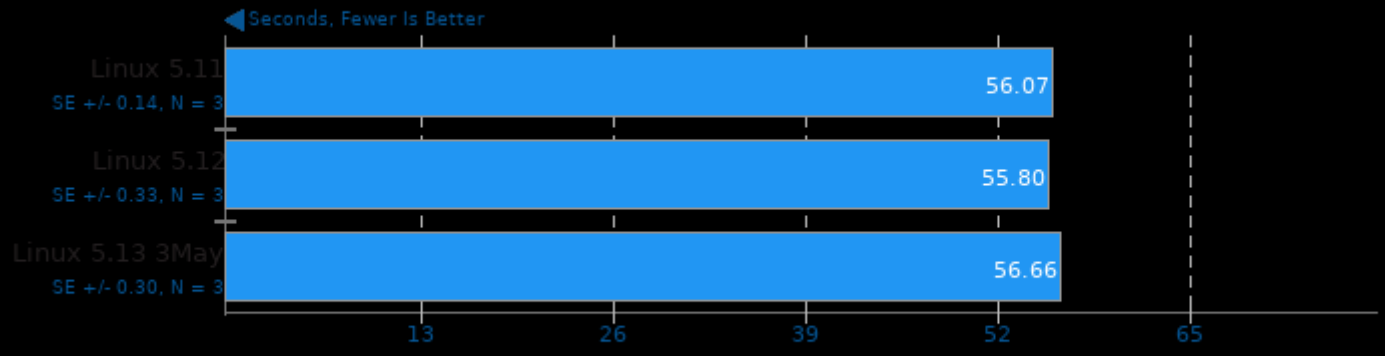
Hugin

Panorama Photo Assistant + Stitching Time



Timed Wasmer Compilation 1.0.2

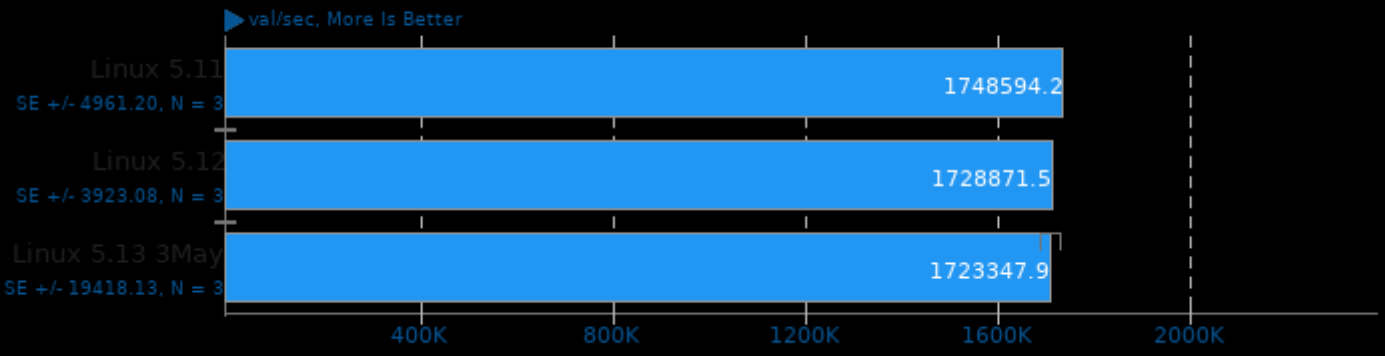
Time To Compile

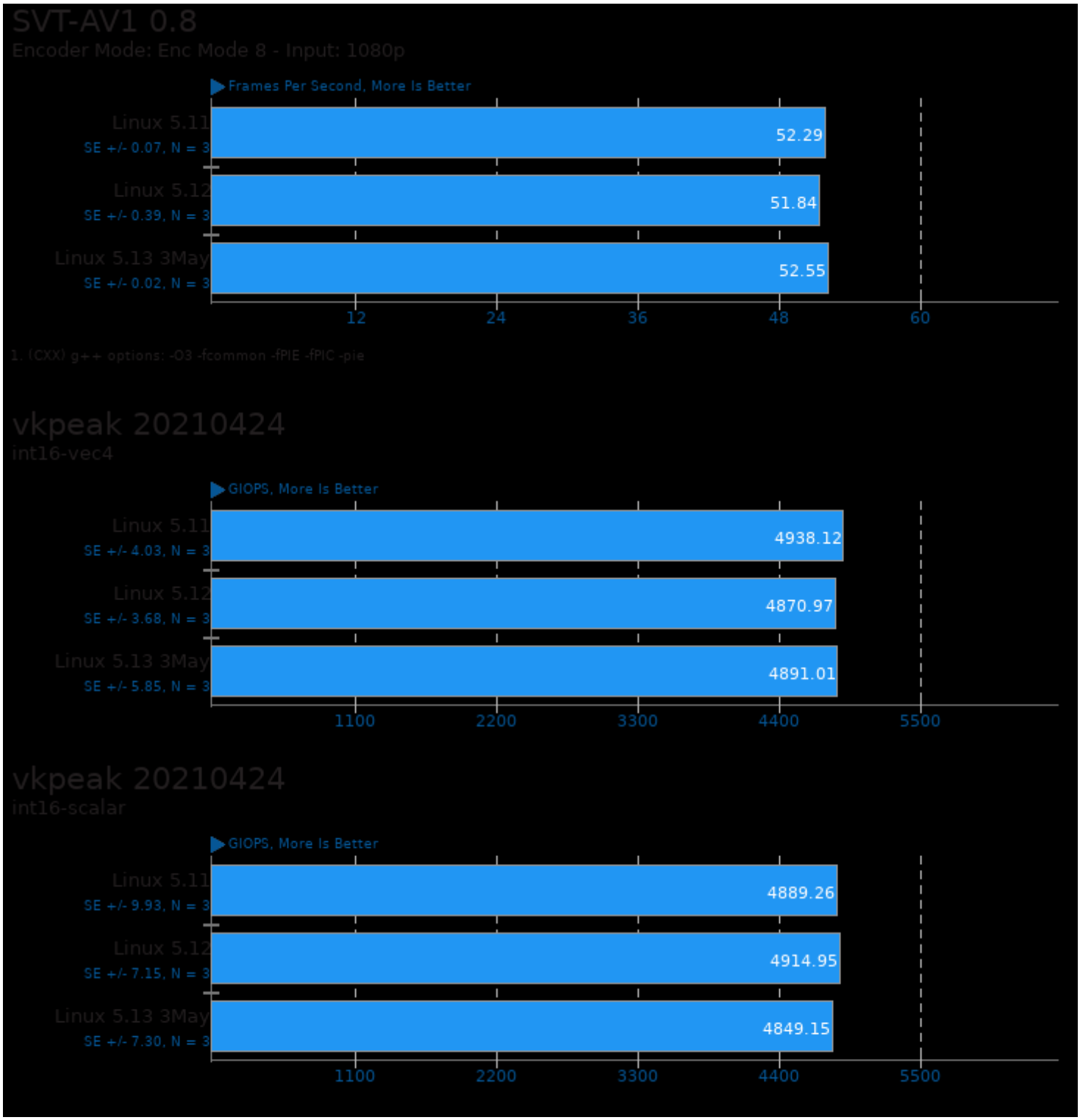


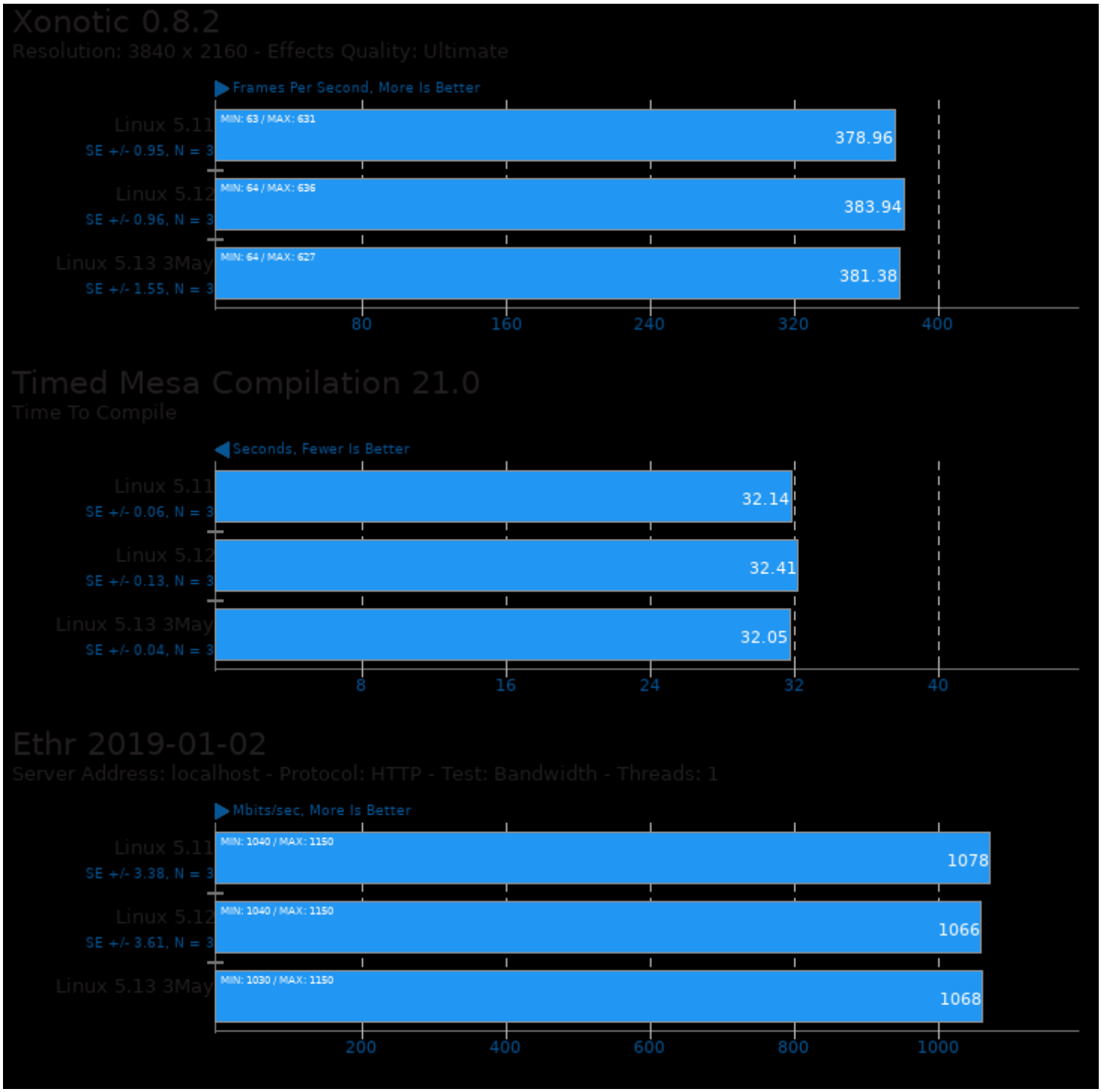
1. (CC) gcc options: -m64 -pie -nodefaultlibs -ldl -lrt -lpthread -lgcc_s -lc -lm -lutil

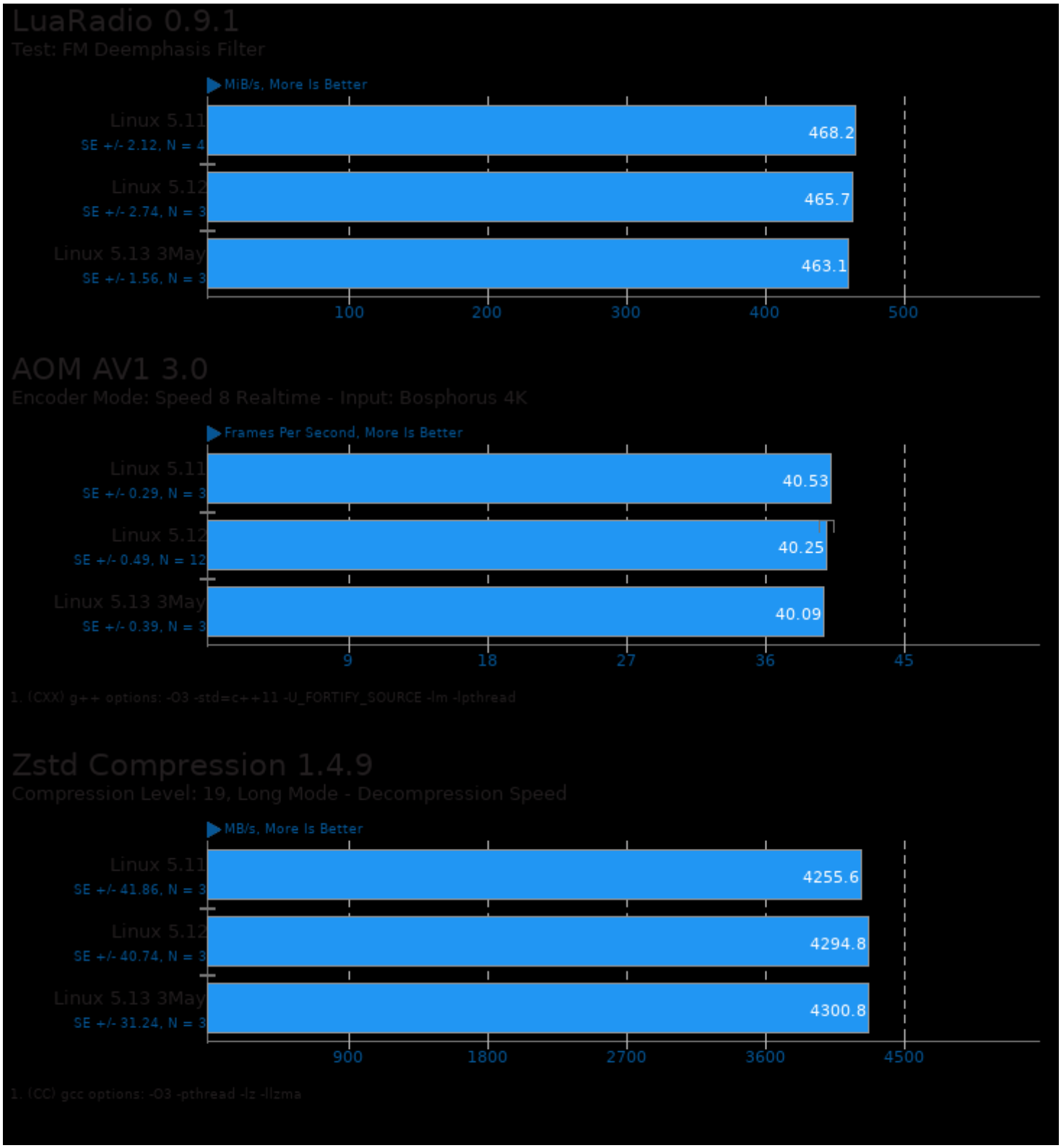
InfluxDB 1.8.2

Concurrent Streams: 4 - Batch Size: 10000 - Tags: 2,5000,1 - Points Per Series: 10000

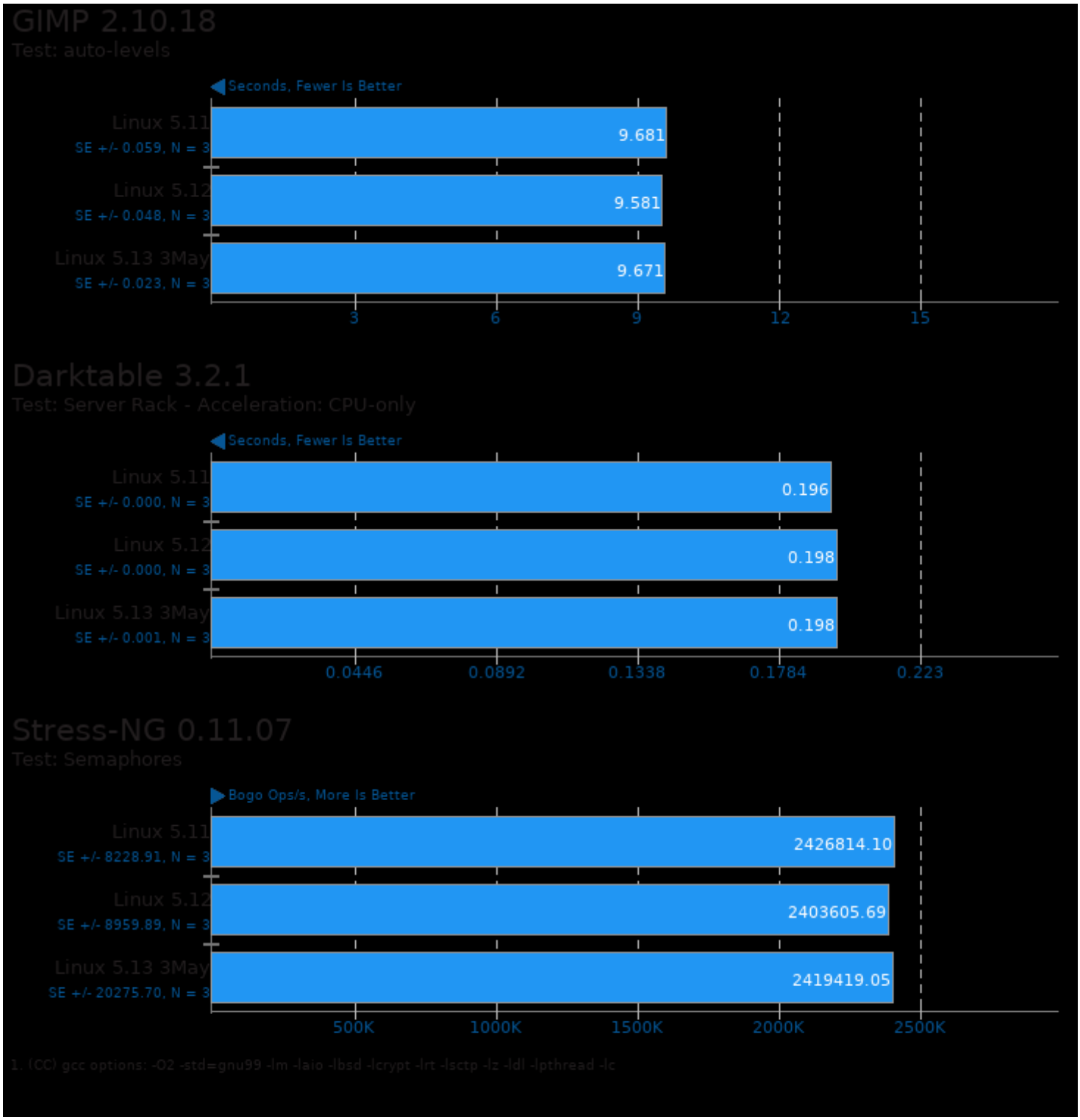


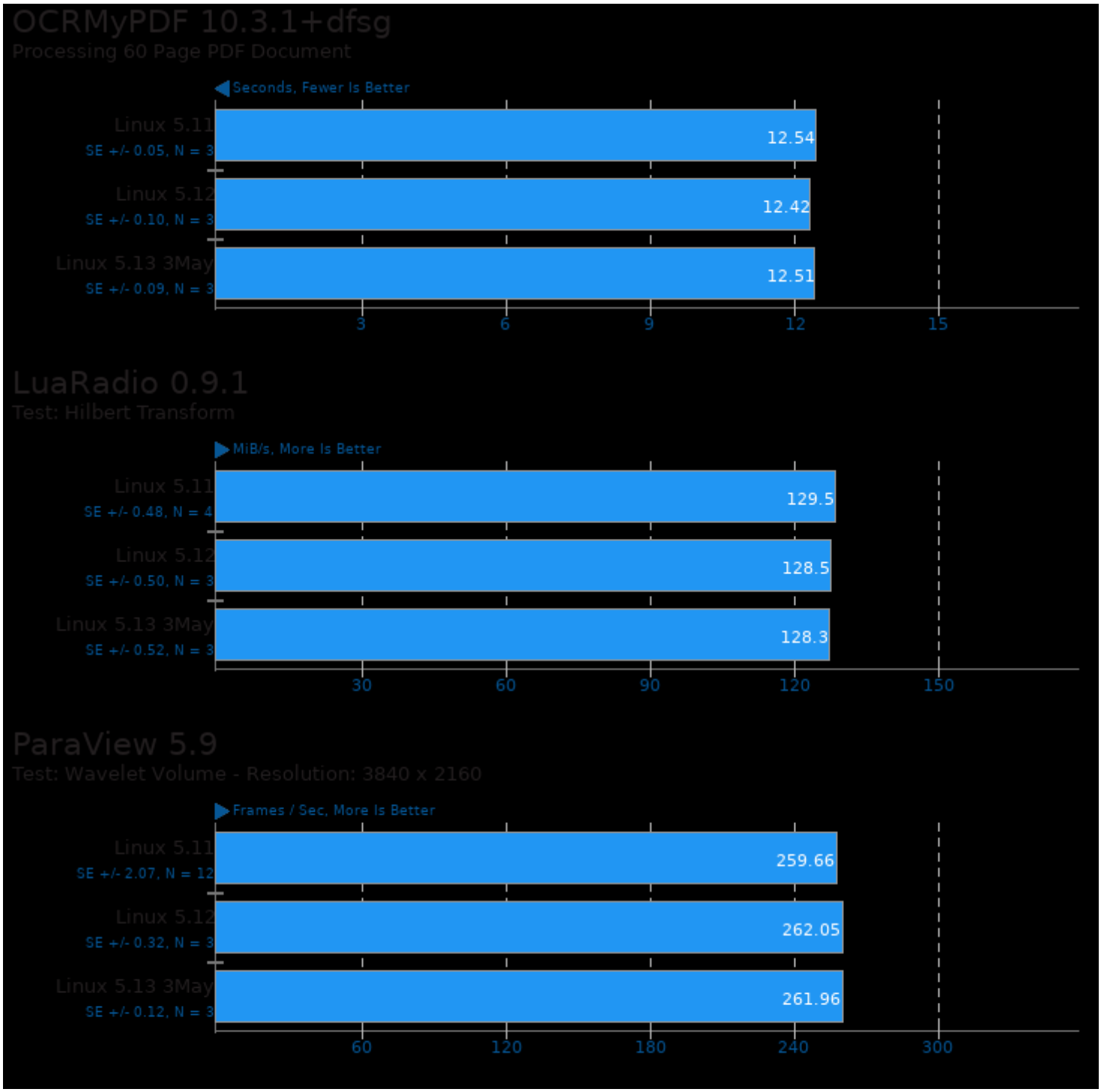

SVT-AV1 0.8
Encoder Mode: Enc Mode 8 - Input: 1080p
Frames Per Second, More Is Better
Linux 5.11
SE +/- 0.07, N = 3
52.29
Linux 5.12
SE +/- 0.39, N = 3
51.84
Linux 5.13 3May
SE +/- 0.02, N = 3
52.55
12
24
36
48
60
1. (CXX) g++ options: -O3 -fcommon -fPIE -fPIC -pie
vkpeak 20210424
int16-vec4
GIOPS, More Is Better
Linux 5.11
SE +/- 4.03, N = 3
4938.12
Linux 5.12
SE +/- 3.68, N = 3
4870.97
Linux 5.13 3May
SE +/- 5.85, N = 3
4891.01
1100
2200
3300
4400
5500
vkpeak 20210424
int16-scalar
GIOPS, More Is Better
Linux 5.11
SE +/- 9.93, N = 3
4889.26
Linux 5.12
SE +/- 7.15, N = 3
4914.95
Linux 5.13 3May
SE +/- 7.30, N = 3
4849.15
1100
2200
3300
4400
5500

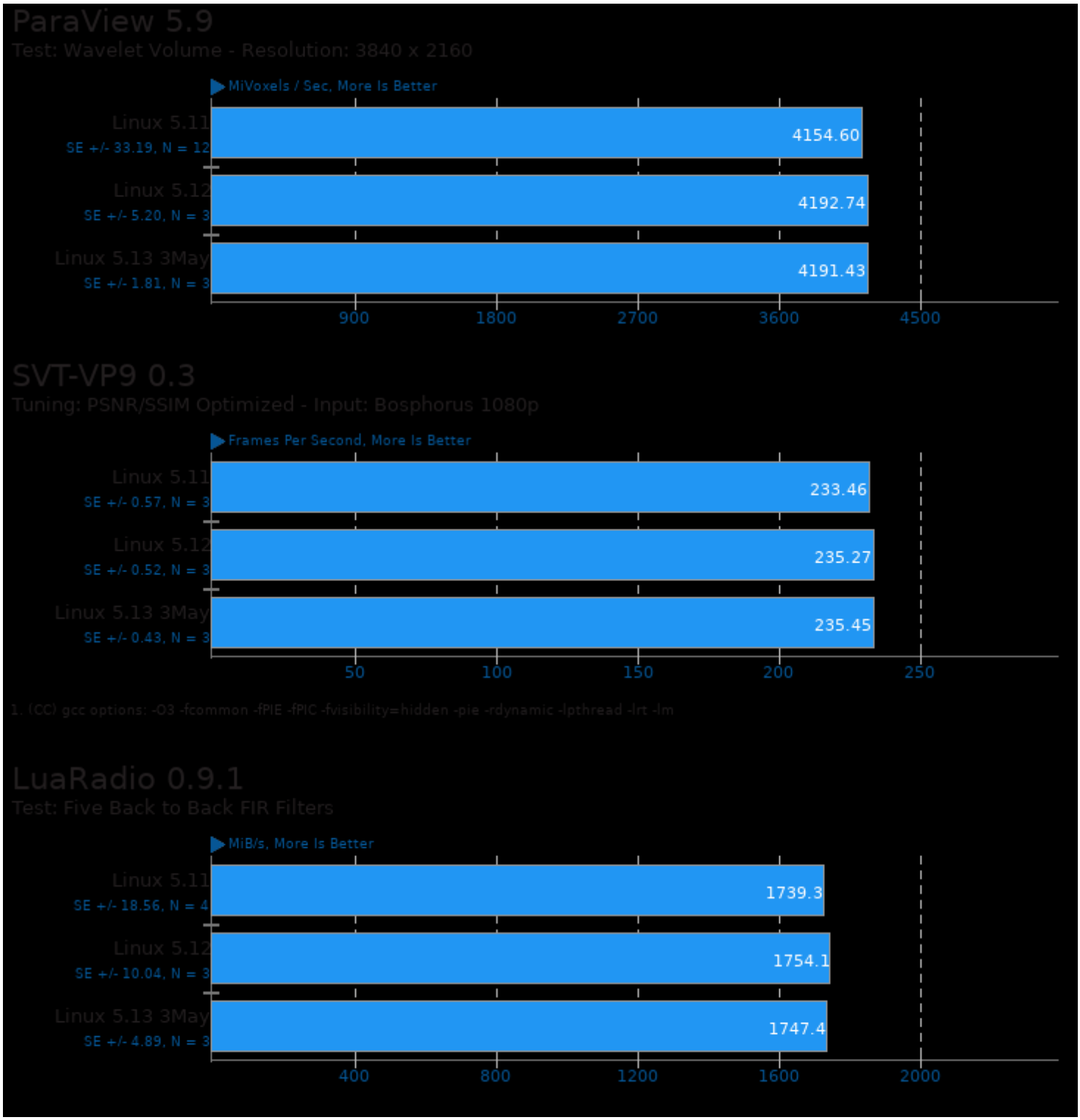

Xonotic 0.8.2
Resolution: 3840 x 2160 - Effects Quality: Ultimate
Frames Per Second, More Is Better
Linux 5.11
SE +/- 0.95, N = 3
MIN: 63 / MAX: 631
378.96
Linux 5.12
SE +/- 0.96, N = 3
MIN: 64 / MAX: 636
383.94
Linux 5.13 3May
SE +/- 1.55, N = 3
MIN: 64 / MAX: 627
381.38
80
160
240
320
400
Timed Mesa Compilation 21.0
Time To Compile
Seconds, Fewer Is Better
Linux 5.11
SE +/- 0.06, N = 3
32.14
Linux 5.12
SE +/- 0.13, N = 3
32.41
Linux 5.13 3May
SE +/- 0.04, N = 3
32.05
8
16
24
32
40
Ethr 2019-01-02
Server Address: localhost - Protocol: HTTP - Test: Bandwidth - Threads: 1
Mbits/sec, More Is Better
Linux 5.11
SE +/- 3.38, N = 3
MIN: 1040 / MAX: 1150
1078
Linux 5.12
SE +/- 3.61, N = 3
MIN: 1040 / MAX: 1150
1066
Linux 5.13 3May
MIN: 1030 / MAX: 1150
1068
200
400
600
800
1000

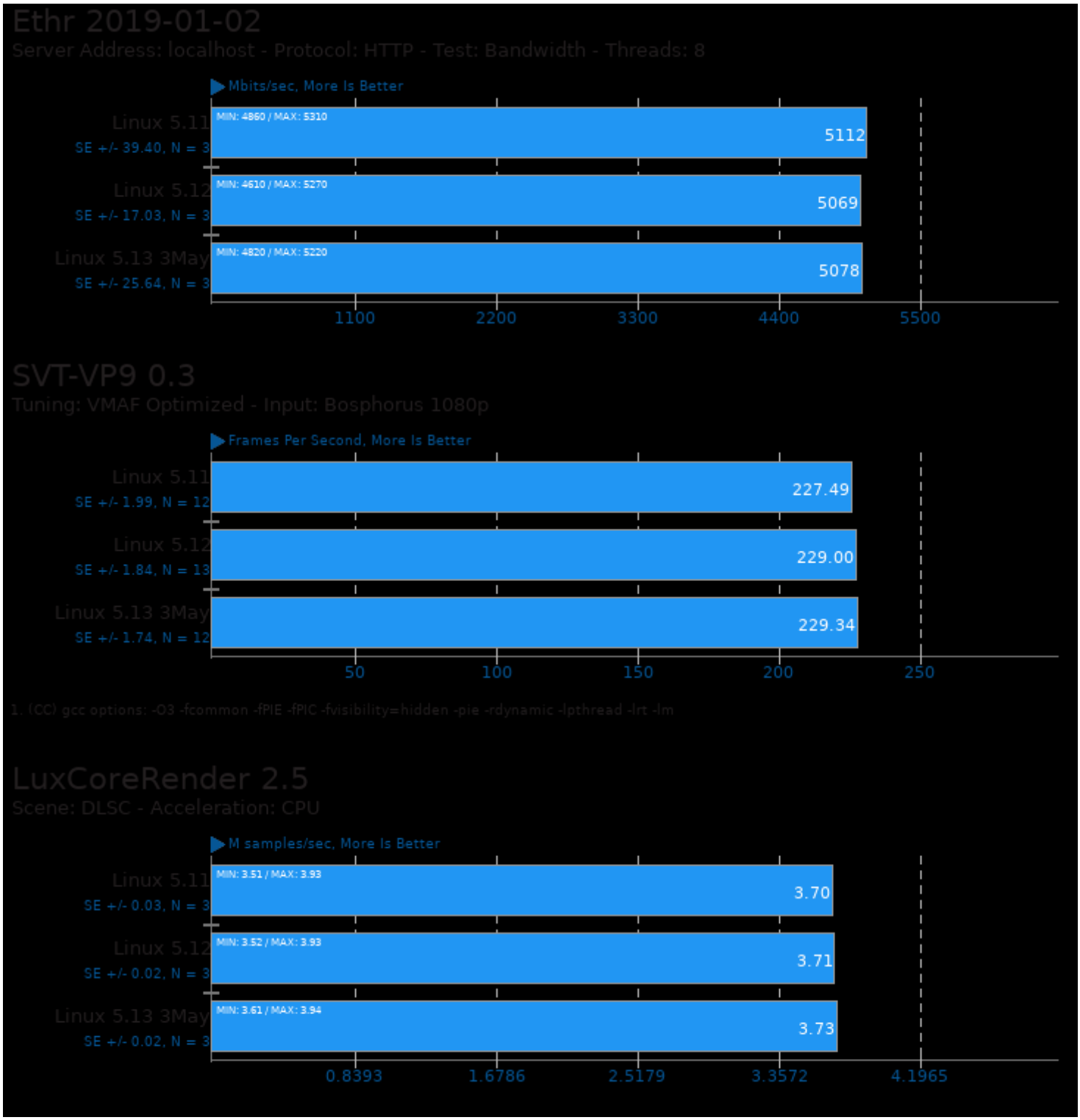

LuaRadio 0.9.1
Test: FM Deemphasis Filter
MiB/s, More Is Better
Linux 5.11
SE +/- 2.12, N = 4
468.2
Linux 5.12
SE +/- 2.74, N = 3
465.7
Linux 5.13 3May
SE +/- 1.56, N = 3
463.1
100
200
300
400
500
AOM AV1 3.0
Encoder Mode: Speed 8 Realtime - Input: Bosphorus 4K
Frames Per Second, More Is Better
Linux 5.11
SE +/- 0.29, N = 3
40.53
Linux 5.12
SE +/- 0.49, N = 12
40.25
Linux 5.13 3May
SE +/- 0.39, N = 3
40.09
9
18
27
36
45
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm -lpthread
Zstd Compression 1.4.9
Compression Level: 19, Long Mode - Decompression Speed
MB/s, More Is Better
Linux 5.11
SE +/- 41.86, N = 3
4255.6
Linux 5.12
SE +/- 40.74, N = 3
4294.8
Linux 5.13 3May
SE +/- 31.24, N = 3
4300.8
900
1800
2700
3600
4500
1. (CC) gcc options: -O3 -pthread -lz -llzma

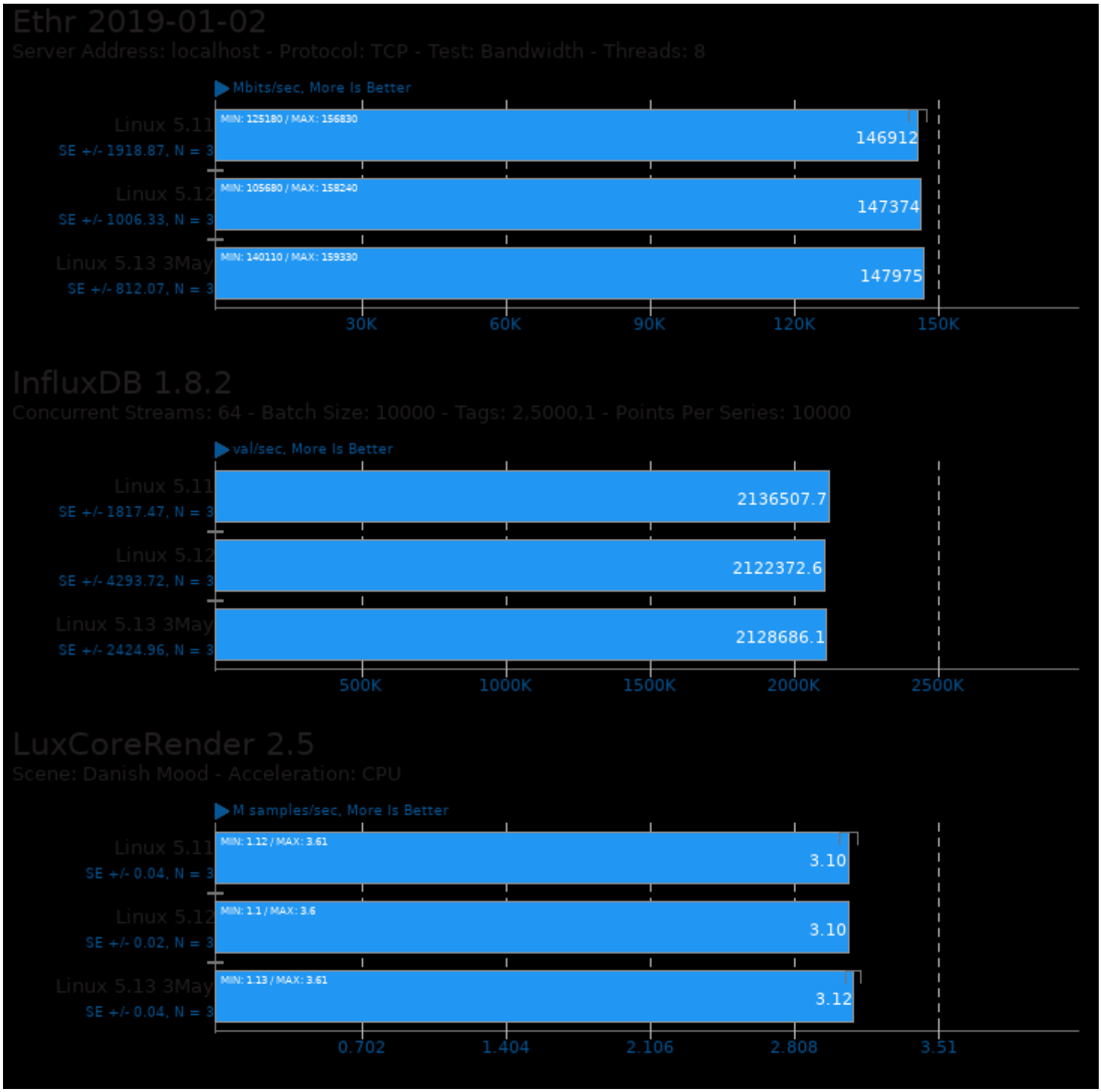
Linux 5.13 AMD Ryzen 9 5950X

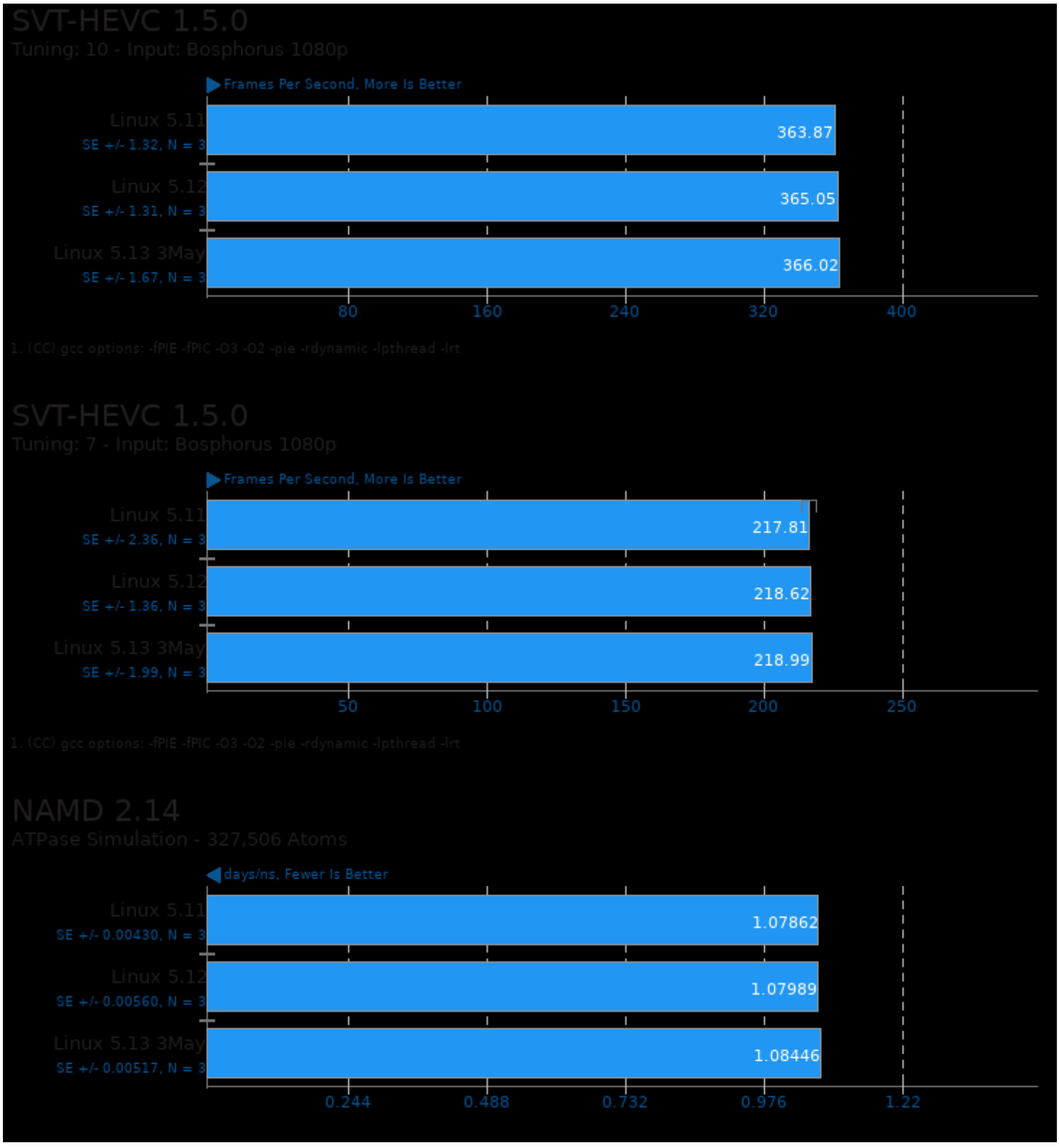


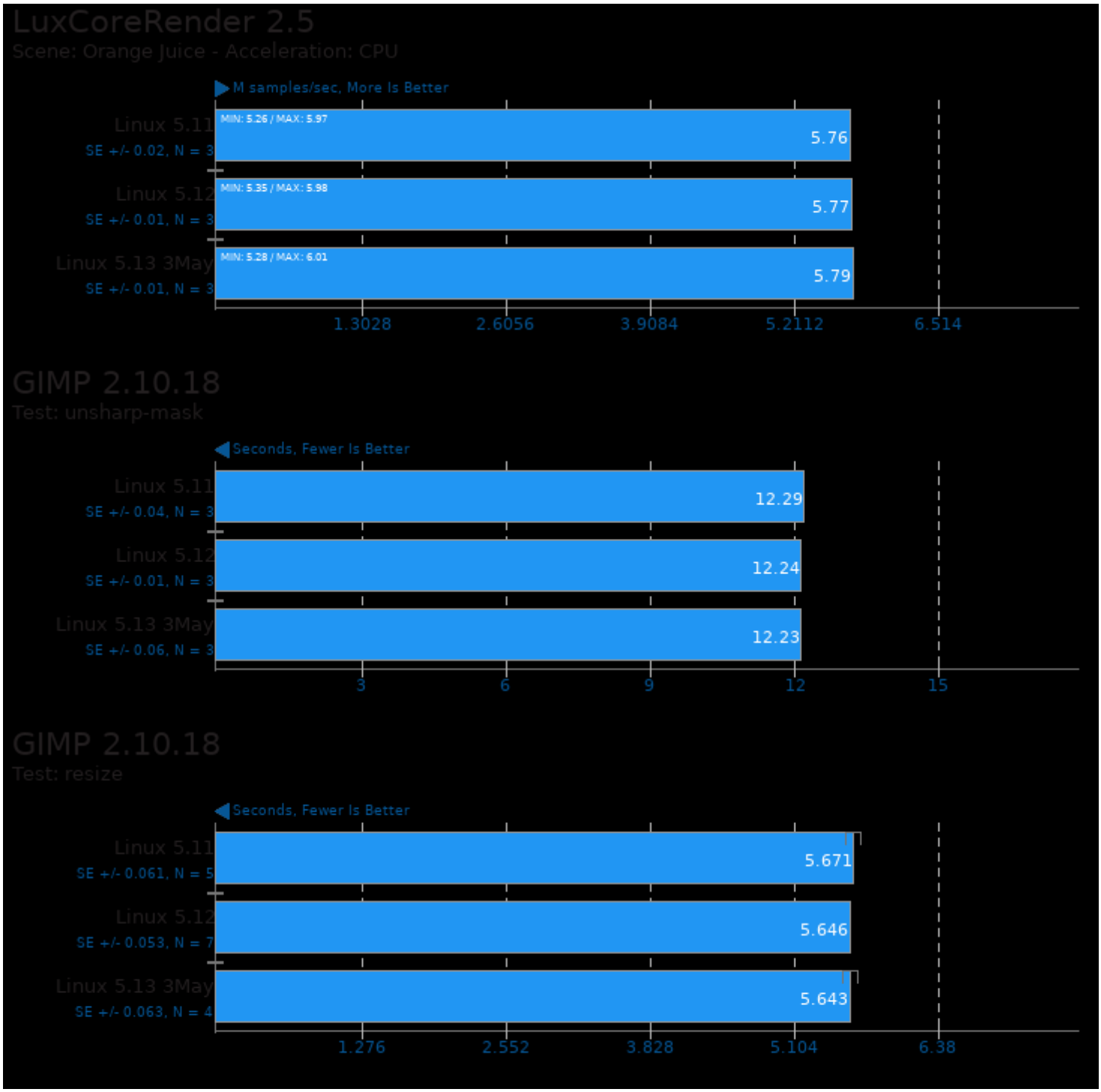

OCRMyPDF 10.3.1+dfsg
Processing 60 Page PDF Document
Seconds, Fewer Is Better
Linux 5.11
SE +/- 0.05, N = 3
12.54
Linux 5.12
SE +/- 0.10, N = 3
12.42
Linux 5.13 3May
SE +/- 0.09, N = 3
12.51
3
6
9
12
15
LuaRadio 0.9.1
Test: Hilbert Transform
MiB/s, More Is Better
Linux 5.11
SE +/- 0.48, N = 4
129.5
Linux 5.12
SE +/- 0.50, N = 3
128.5
Linux 5.13 3May
SE +/- 0.52, N = 3
128.3
30
60
90
120
150
ParaView 5.9
Test: Wavelet Volume - Resolution: 3840 x 2160
Frames / Sec, More Is Better
Linux 5.11
SE +/- 2.07, N = 12
259.66
Linux 5.12
SE +/- 0.32, N = 3
262.05
Linux 5.13 3May
SE +/- 0.12, N = 3
261.96
60
120
180
240
300

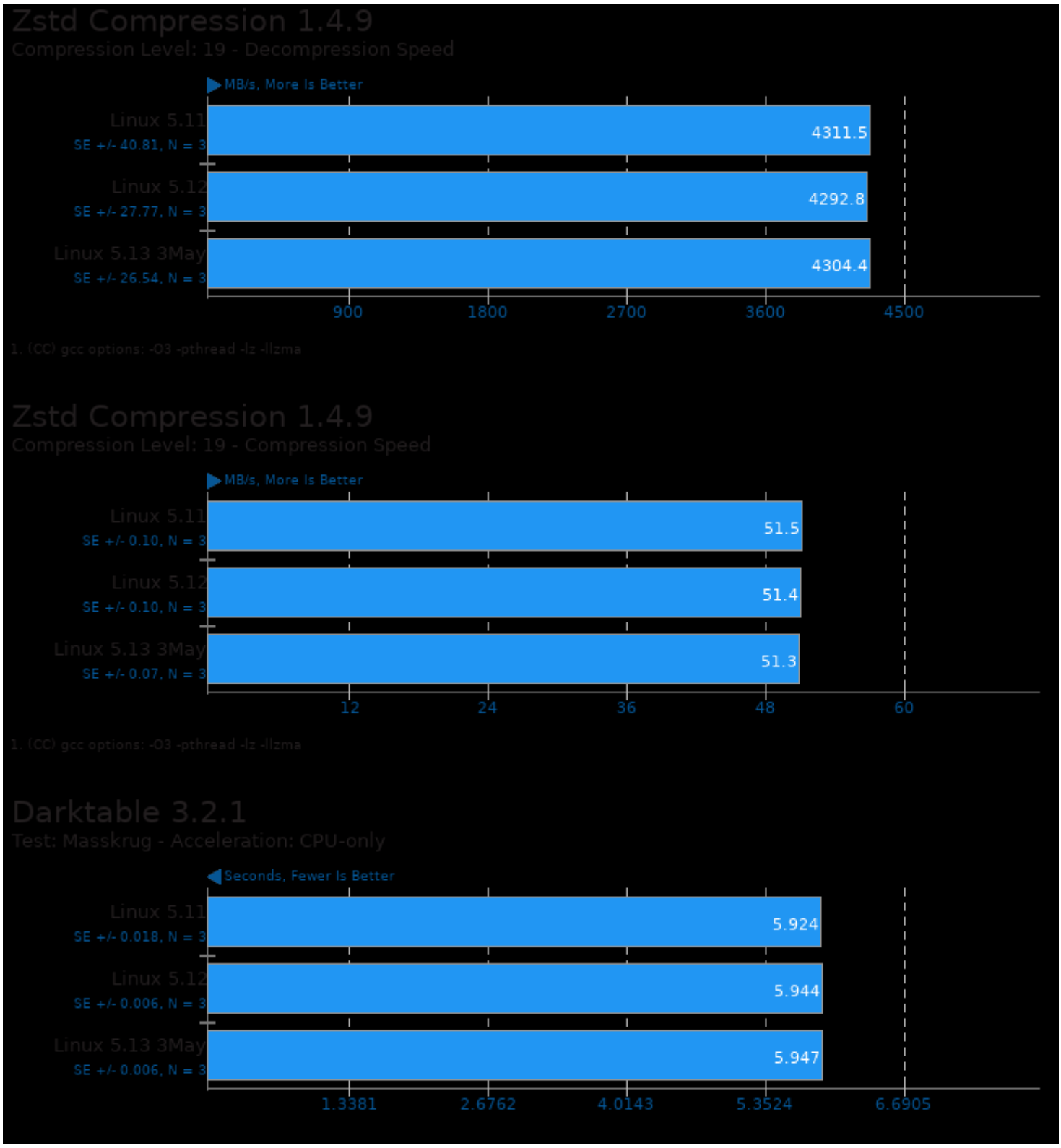

ParaView 5.9
Test: Wavelet Volume - Resolution: 3840 x 2160
MiVoxels / Sec, More Is Better
Linux 5.11
SE +/- 33.19, N = 12
4154.60
Linux 5.12
SE +/- 5.20, N = 3
4192.74
Linux 5.13 3May
SE +/- 1.81, N = 3
4191.43
900
1800
2700
3600
4500
SVT-VP9 0.3
Tuning: PSNR/SSIM Optimized - Input: Bosphorus 1080p
Frames Per Second, More Is Better
Linux 5.11
SE +/- 0.57, N = 3
233.46
Linux 5.12
SE +/- 0.52, N = 3
235.27
Linux 5.13 3May
SE +/- 0.43, N = 3
235.45
50
100
150
200
250
1. (CC) gcc options: -O3 -fcommon -fPIE -fPIC -fvisibility=hidden -pie -rdynamic -lpthread -lrt -lm
LuaRadio 0.9.1
Test: Five Back to Back FIR Filters
MiB/s, More Is Better
Linux 5.11
SE +/- 18.56, N = 4
1739.3
Linux 5.12
SE +/- 10.04, N = 3
1754.1
Linux 5.13 3May
SE +/- 4.89, N = 3
1747.4
400
800
1200
1600
2000

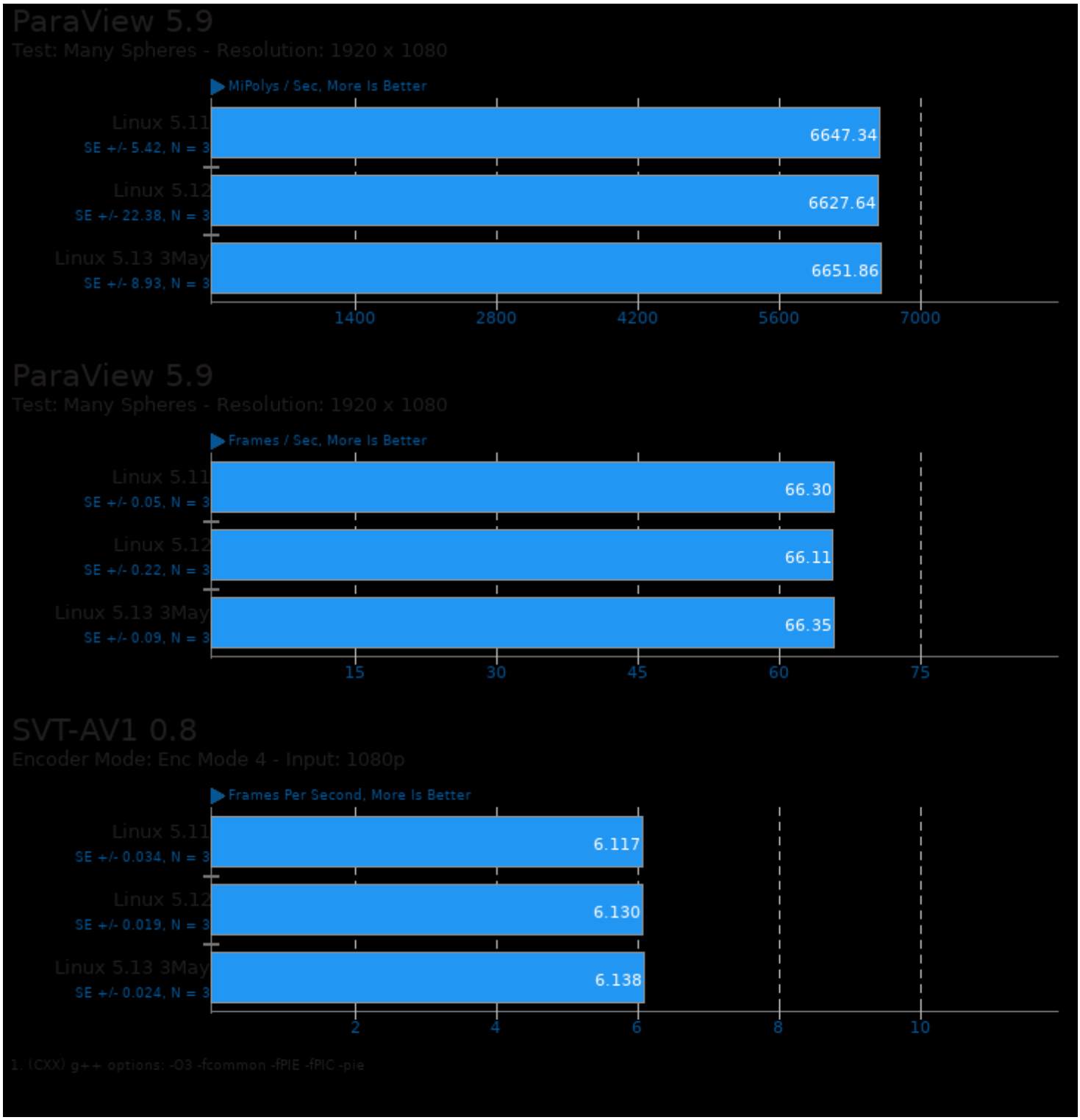

Ethr 2019-01-02
Server Address: localhost - Protocol: HTTP - Test: Bandwidth - Threads: 8
Mbits/sec, More Is Better
Linux 5.11
SE +/- 39.40, N = 3
MIN: 4860 / MAX: 5310
5112
Linux 5.12
SE +/- 17.03, N = 3
MIN: 4610 / MAX: 5270
5069
Linux 5.13 3May
SE +/- 25.64, N = 3
MIN: 4820 / MAX: 5220
5078
1100
2200
3300
4400
5500
SVT-VP9 0.3
Tuning: VMAF Optimized - Input: Bosphorus 1080p
Frames Per Second, More Is Better
Linux 5.11
SE +/- 1.99, N = 12
227.49
Linux 5.12
SE +/- 1.84, N = 13
229.00
Linux 5.13 3May
SE +/- 1.74, N = 12
229.34
50
100
150
200
250
1. (CC) gcc options: -O3 -fcommon -fPIE -fPIC -fvisibility=hidden -pie -rdynamic -lpthread -lrt -lm
LuxCoreRender 2.5
Scene: DLSC - Acceleration: CPU
M samples/sec, More Is Better
Linux 5.11
SE +/- 0.03, N = 3
MIN: 3.51 / MAX: 3.93
3.70
Linux 5.12
SE +/- 0.02, N = 3
MIN: 3.52 / MAX: 3.93
3.71
Linux 5.13 3May
SE +/- 0.02, N = 3
MIN: 3.61 / MAX: 3.94
3.73
0.8393
1.6786
2.5179
3.3572
4.1965

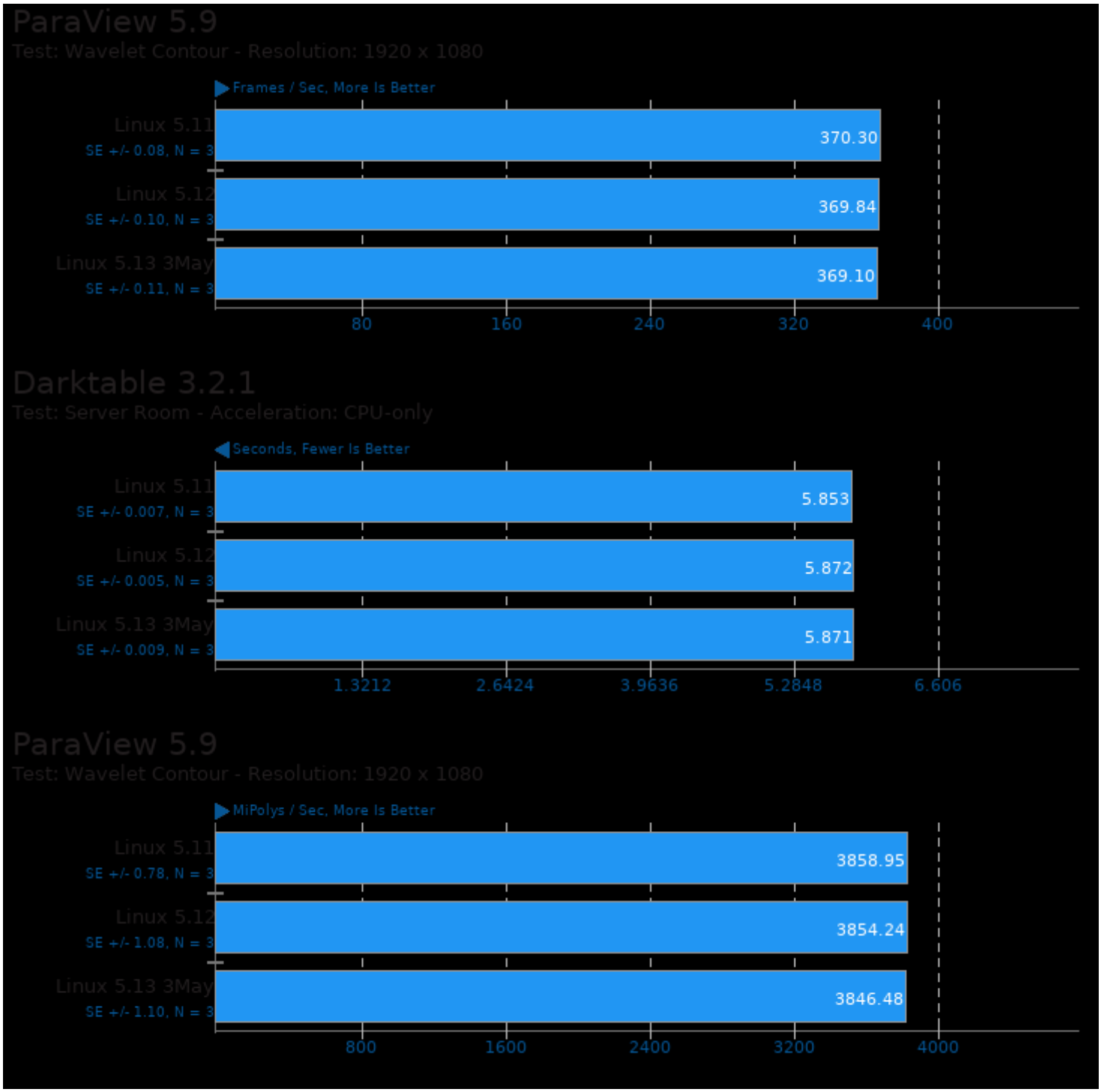

Ethr 2019-01-02
Server Address: localhost - Protocol: TCP - Test: Bandwidth - Threads: 8
Mbits/sec, More Is Better
Linux 5.11
SE +/- 1918.87, N = 3
MIN: 125180 / MAX: 156830
146912
Linux 5.12
SE +/- 1006.33, N = 3
MIN: 105680 / MAX: 158240
147374
Linux 5.13 3May
SE +/- 812.07, N = 3
MIN: 140110 / MAX: 159330
147975
30K
60K
90K
120K
150K
InfluxDB 1.8.2
Concurrent Streams: 64 - Batch Size: 10000 - Tags: 2,5000,1 - Points Per Series: 10000
val/sec, More Is Better
Linux 5.11
SE +/- 1817.47, N = 3
2136507.7
Linux 5.12
SE +/- 4293.72, N = 3
2122372.6
Linux 5.13 3May
SE +/- 2424.96, N = 3
2128686.1
500K
1000K
1500K
2000K
2500K
LuxCoreRender 2.5
Scene: Danish Mood - Acceleration: CPU
M samples/sec, More Is Better
Linux 5.11
SE +/- 0.04, N = 3
MIN: 1.12 / MAX: 3.61
3.10
Linux 5.12
SE +/- 0.02, N = 3
MIN: 1.1 / MAX: 3.6
3.10
Linux 5.13 3May
SE +/- 0.04, N = 3
MIN: 1.13 / MAX: 3.61
3.12
0.702
1.404
2.106
2.808
3.51


SVT-HEVC 1.5.0
Tuning: 10 - Input: Bosphorus 1080p
Frames Per Second, More Is Better
Linux 5.11
SE +/- 1.32, N = 3
363.87
Linux 5.12
SE +/- 1.31, N = 3
365.05
Linux 5.13 3May
SE +/- 1.67, N = 3
366.02
80
160
240
320
400
1. (CC) gcc options: -fPIE -fPIC -O3 -O2 -pie -rdynamic -lpthread -lrt
SVT-HEVC 1.5.0
Tuning: 7 - Input: Bosphorus 1080p
Frames Per Second, More Is Better
Linux 5.11
SE +/- 2.36, N = 3
217.81
Linux 5.12
SE +/- 1.36, N = 3
218.62
Linux 5.13 3May
SE +/- 1.99, N = 3
218.99
50
100
150
200
250
1. (CC) gcc options: -fPIE -fPIC -O3 -O2 -pie -rdynamic -lpthread -lrt
NAMD 2.14
ATPase Simulation - 327,506 Atoms
days/ns, Fewer Is Better
Linux 5.11
SE +/- 0.00430, N = 3
1.07862
Linux 5.12
SE +/- 0.00560, N = 3
1.07989
Linux 5.13 3May
SE +/- 0.00517, N = 3
1.08446
0.244
0.488
0.732
0.976
1.22


LuxCoreRender 2.5
Scene: Orange Juice - Acceleration: CPU
M samples/sec, More Is Better
Linux 5.11
SE +/- 0.02, N = 3
MIN: 5.26 / MAX: 5.97
5.76
Linux 5.12
SE +/- 0.01, N = 3
MIN: 5.35 / MAX: 5.98
5.77
Linux 5.13 3May
SE +/- 0.01, N = 3
MIN: 5.28 / MAX: 6.01
5.79
1.3028
2.6056
3.9084
5.2112
6.514
GIMP 2.10.18
Test: unsharp-mask
Seconds, Fewer Is Better
Linux 5.11
SE +/- 0.04, N = 3
12.29
Linux 5.12
SE +/- 0.01, N = 3
12.24
Linux 5.13 3May
SE +/- 0.06, N = 3
12.23
3
6
9
12
15
GIMP 2.10.18
Test: resize
Seconds, Fewer Is Better
Linux 5.11
SE +/- 0.061, N = 5
5.671
Linux 5.12
SE +/- 0.053, N = 7
5.646
Linux 5.13 3May
SE +/- 0.063, N = 4
5.643
1.276
2.552
3.828
5.104
6.38

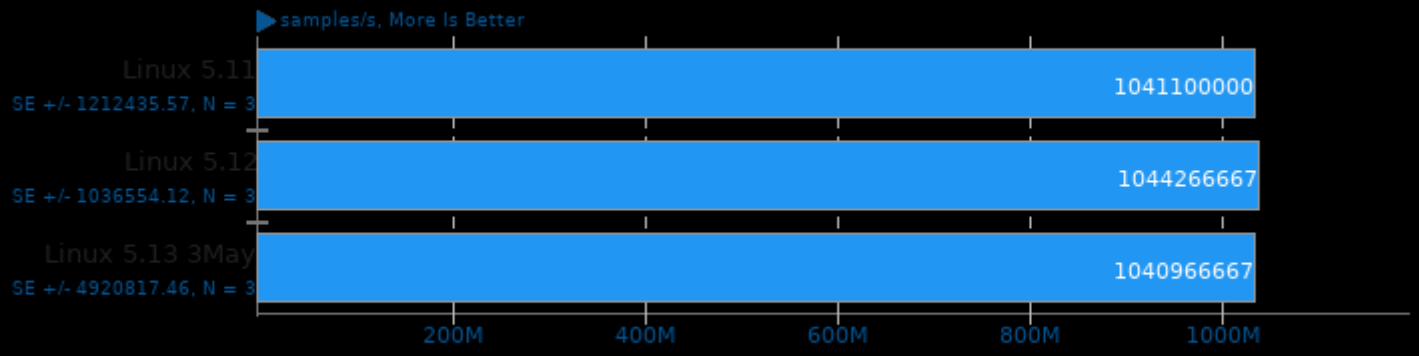

Zstd Compression 1.4.9
Compression Level: 19 - Decompression Speed
MB/s, More Is Better
Linux 5.11
SE +/- 40.81, N = 3
4311.5
Linux 5.12
SE +/- 27.77, N = 3
4292.8
Linux 5.13 3May
SE +/- 26.54, N = 3
4304.4
900
1800
2700
3600
4500
1. (CC) gcc options: -O3 -pthread -lz -llzma
Zstd Compression 1.4.9
Compression Level: 19 - Compression Speed
MB/s, More Is Better
Linux 5.11
SE +/- 0.10, N = 3
51.5
Linux 5.12
SE +/- 0.10, N = 3
51.4
Linux 5.13 3May
SE +/- 0.07, N = 3
51.3
12
24
36
48
60
1. (CC) gcc options: -O3 -pthread -lz -llzma
Darktable 3.2.1
Test: Masskrug - Acceleration: CPU-only
Seconds, Fewer Is Better
Linux 5.11
SE +/- 0.018, N = 3
5.924
Linux 5.12
SE +/- 0.006, N = 3
5.944
Linux 5.13 3May
SE +/- 0.006, N = 3
5.947
1.3381
2.6762
4.0143
5.3524
6.6905


ParaView 5.9
Test: Many Spheres - Resolution: 1920 x 1080
MiPolys / Sec, More Is Better
Linux 5.11
SE +/- 5.42, N = 3
6647.34
Linux 5.12
SE +/- 22.38, N = 3
6627.64
Linux 5.13 3May
SE +/- 8.93, N = 3
6651.86
1400
2800
4200
5600
7000
ParaView 5.9
Test: Many Spheres - Resolution: 1920 x 1080
Frames / Sec, More Is Better
Linux 5.11
SE +/- 0.05, N = 3
66.30
Linux 5.12
SE +/- 0.22, N = 3
66.11
Linux 5.13 3May
SE +/- 0.09, N = 3
66.35
15
30
45
60
75
SVT-AV1 0.8
Encoder Mode: Enc Mode 4 - Input: 1080p
Frames Per Second, More Is Better
Linux 5.11
SE +/- 0.034, N = 3
6.117
Linux 5.12
SE +/- 0.019, N = 3
6.130
Linux 5.13 3May
SE +/- 0.024, N = 3
6.138
2
4
6
8
10
1. (CXX) g++ options: -O3 -fcommon -fPIE -fPIC -pie


ParaView 5.9
Test: Wavelet Contour - Resolution: 1920 x 1080
Frames / Sec, More Is Better
Linux 5.11
SE +/- 0.08, N = 3
370.30
Linux 5.12
SE +/- 0.10, N = 3
369.84
Linux 5.13 3May
SE +/- 0.11, N = 3
369.10
80
160
240
320
400
Darktable 3.2.1
Test: Server Room - Acceleration: CPU-only
Seconds, Fewer Is Better
Linux 5.11
SE +/- 0.007, N = 3
5.853
Linux 5.12
SE +/- 0.005, N = 3
5.872
Linux 5.13 3May
SE +/- 0.009, N = 3
5.871
1.3212
2.6424
3.9636
5.2848
6.606
ParaView 5.9
Test: Wavelet Contour - Resolution: 1920 x 1080
MiPolys / Sec, More Is Better
Linux 5.11
SE +/- 0.78, N = 3
3858.95
Linux 5.12
SE +/- 1.08, N = 3
3854.24
Linux 5.13 3May
SE +/- 1.10, N = 3
3846.48
800
1600
2400
3200
4000

Liquid-DSP 2021.01.31

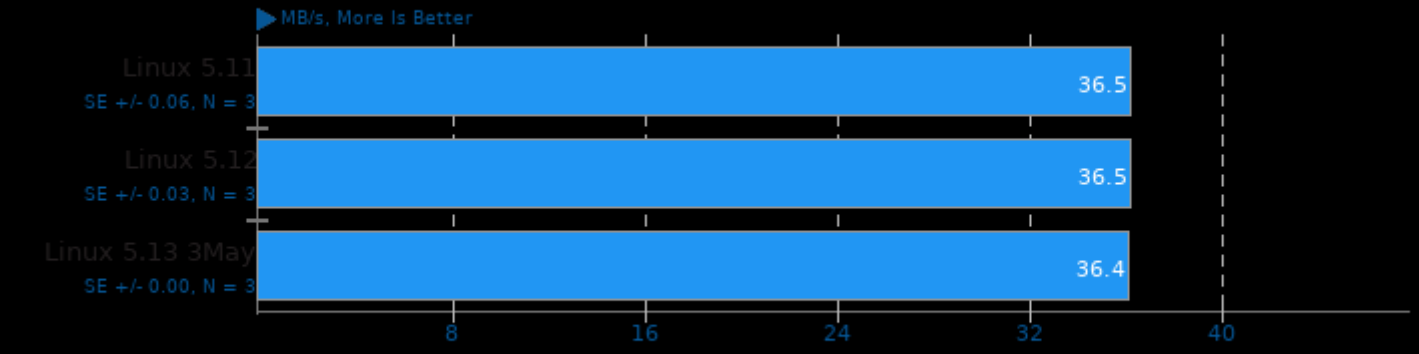
Threads: 16 - Buffer Length: 256 - Filter Length: 57



1. (CC) gcc options: -O3 -pthread -lm -lc -lliquid

Zstd Compression 1.4.9

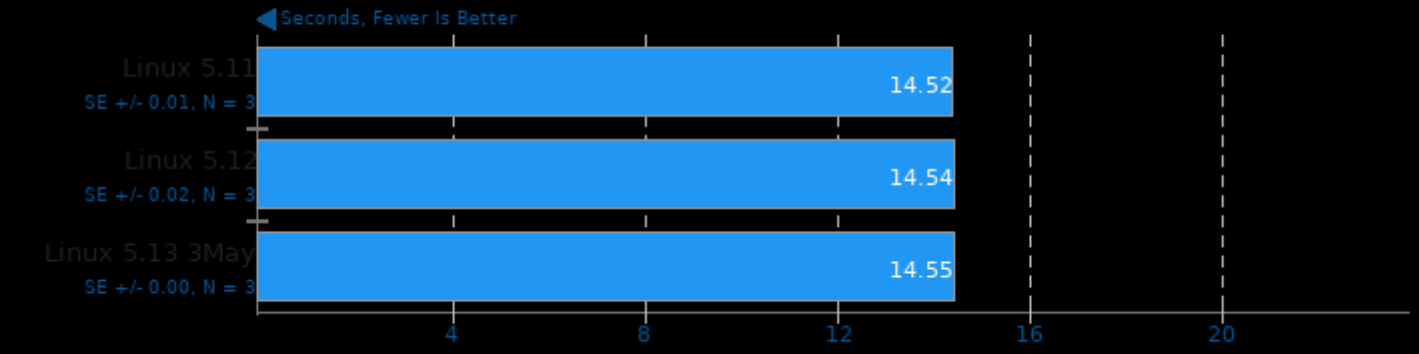
Compression Level: 19, Long Mode - Compression Speed

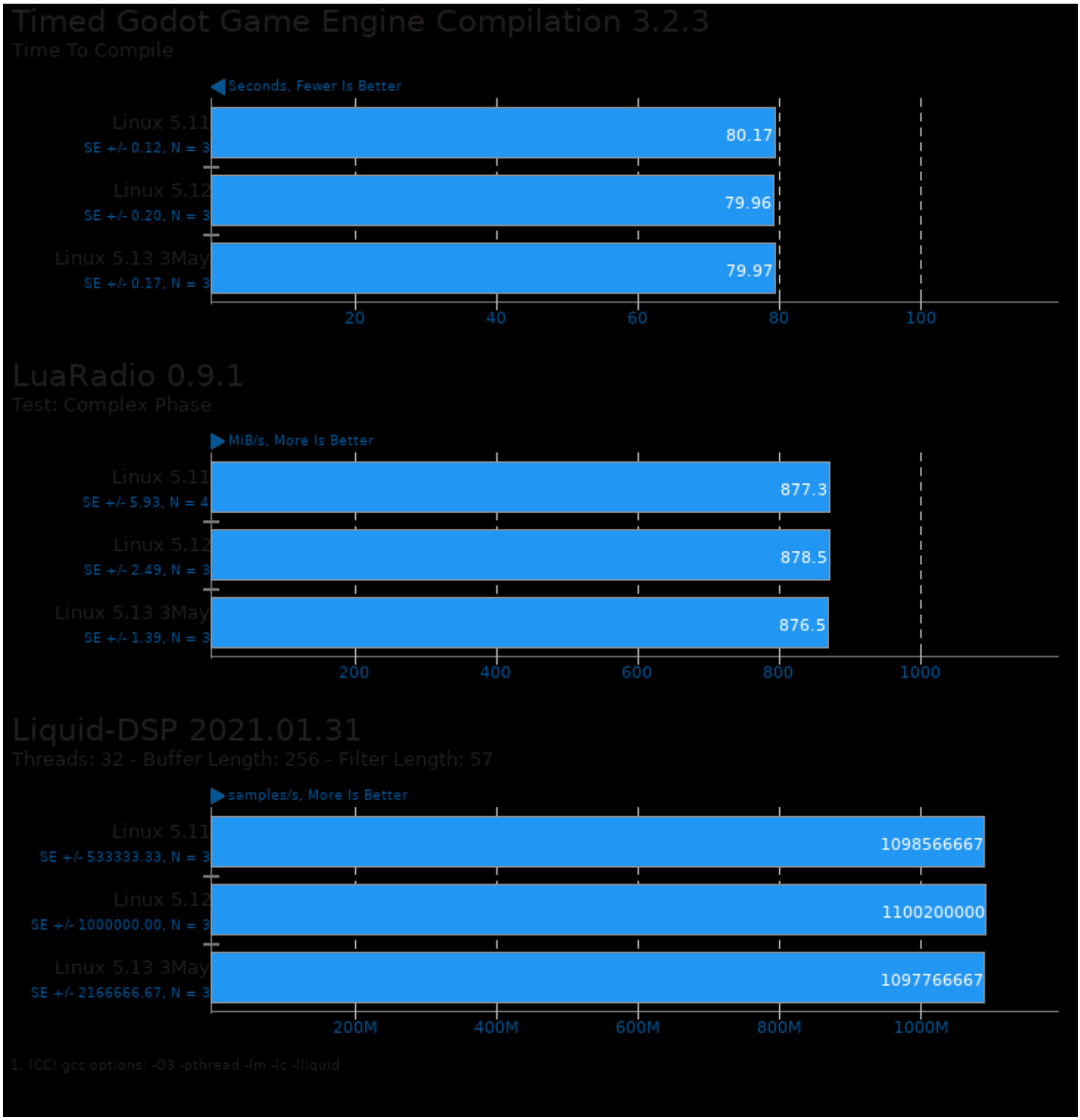


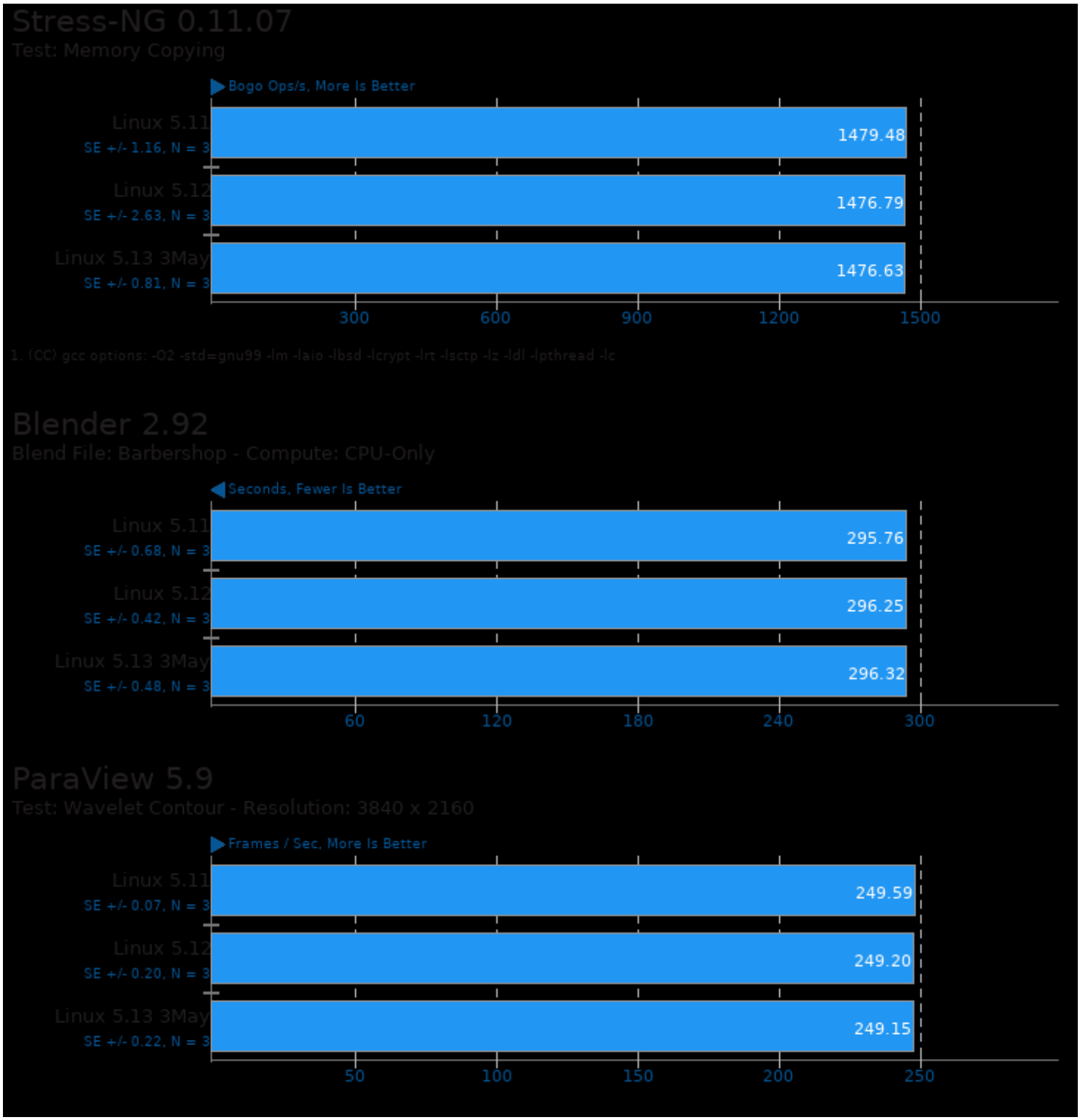
1. (CC) gcc options: -O3 -pthread -lz -llzma

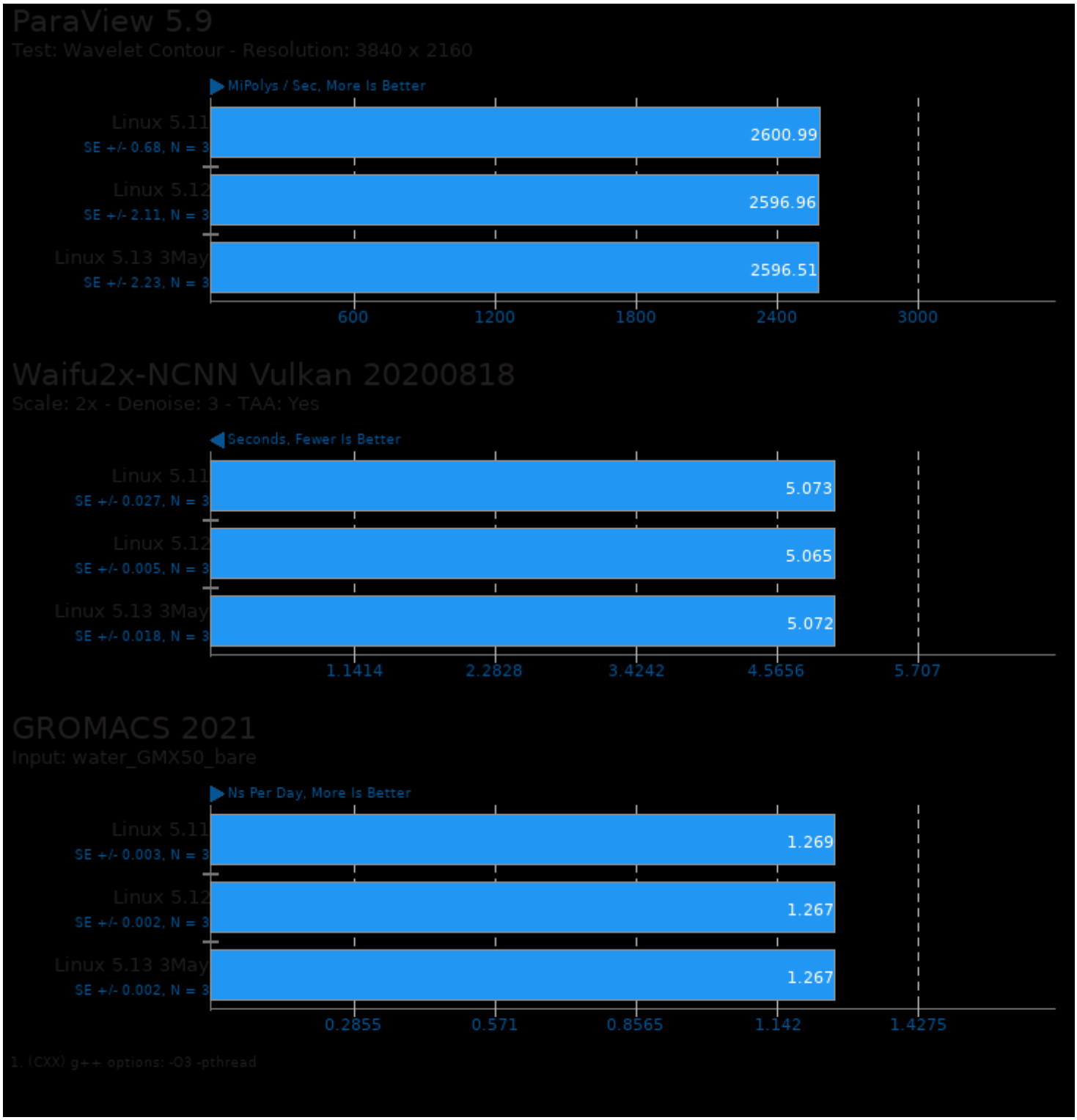
Darktable 3.2.1

Test: Boat - Acceleration: CPU-only



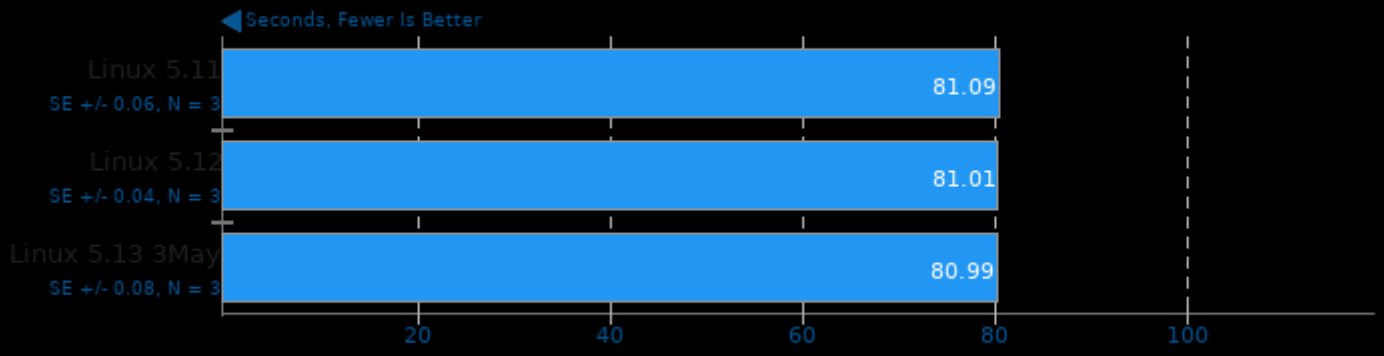

Timed Godot Game Engine Compilation 3.2.3
Time To Compile
Seconds, Fewer Is Better
Linux 5.11
SE +/- 0.12, N = 3
80.17
Linux 5.12
SE +/- 0.20, N = 3
79.96
Linux 5.13 3May
SE +/- 0.17, N = 3
79.97
20
40
60
80
100
LuaRadio 0.9.1
Test: Complex Phase
MiB/s, More Is Better
Linux 5.11
SE +/- 5.93, N = 4
877.3
Linux 5.12
SE +/- 2.49, N = 3
878.5
Linux 5.13 3May
SE +/- 1.39, N = 3
876.5
200
400
600
800
1000
Liquid-DSP 2021.01.31
Threads: 32 - Buffer Length: 256 - Filter Length: 57
samples/s, More Is Better
Linux 5.11
SE +/- 533333.33, N = 3
1098566667
Linux 5.12
SE +/- 1000000.00, N = 3
1100200000
Linux 5.13 3May
SE +/- 2166666.67, N = 3
1097766667
200M
400M
600M
800M
1000M
1. (CC) gcc options: -O3 -pthread -lm -lc -lliquid


Stress-NG 0.11.07
Test: Memory Copying
Bogo Ops/s, More Is Better
Linux 5.11
SE +/- 1.16, N = 3
1479.48
Linux 5.12
SE +/- 2.63, N = 3
1476.79
Linux 5.13 3May
SE +/- 0.81, N = 3
1476.63
300
600
900
1200
1500
1. (CC) gcc options: -O2 -std=gnu99 -lm -laio -lbsd -lcrypt -lrt -lsctp -lz -ldl -lpthread -lc
Blender 2.92
Blend File: Barbershop - Compute: CPU-Only
Seconds, Fewer Is Better
Linux 5.11
SE +/- 0.68, N = 3
295.76
Linux 5.12
SE +/- 0.42, N = 3
296.25
Linux 5.13 3May
SE +/- 0.48, N = 3
296.32
60
120
180
240
300
ParaView 5.9
Test: Wavelet Contour - Resolution: 3840 x 2160
Frames / Sec, More Is Better
Linux 5.11
SE +/- 0.07, N = 3
249.59
Linux 5.12
SE +/- 0.20, N = 3
249.20
Linux 5.13 3May
SE +/- 0.22, N = 3
249.15
50
100
150
200
250


ParaView 5.9
Test: Wavelet Contour - Resolution: 3840 x 2160
MiPolys / Sec, More Is Better
Linux 5.11
SE +/- 0.68, N = 3
2600.99
Linux 5.12
SE +/- 2.11, N = 3
2596.96
Linux 5.13 3May
SE +/- 2.23, N = 3
2596.51
600
1200
1800
2400
3000
Waifu2x-NCNN Vulkan 20200818
Scale: 2x - Denoise: 3 - TAA: Yes
Seconds, Fewer Is Better
Linux 5.11
SE +/- 0.027, N = 3
5.073
Linux 5.12
SE +/- 0.005, N = 3
5.065
Linux 5.13 3May
SE +/- 0.018, N = 3
5.072
1.1414
2.2828
3.4242
4.5656
5.707
GROMACS 2021
Input: water_GMX50_bare
Ns Per Day, More Is Better
Linux 5.11
SE +/- 0.003, N = 3
1.269
Linux 5.12
SE +/- 0.002, N = 3
1.267
Linux 5.13 3May
SE +/- 0.002, N = 3
1.267
0.2855
0.571
0.8565
1.142
1.4275
1. (CXX) g++ options: -O3 -pthread

Timed HMMer Search 3.3.1

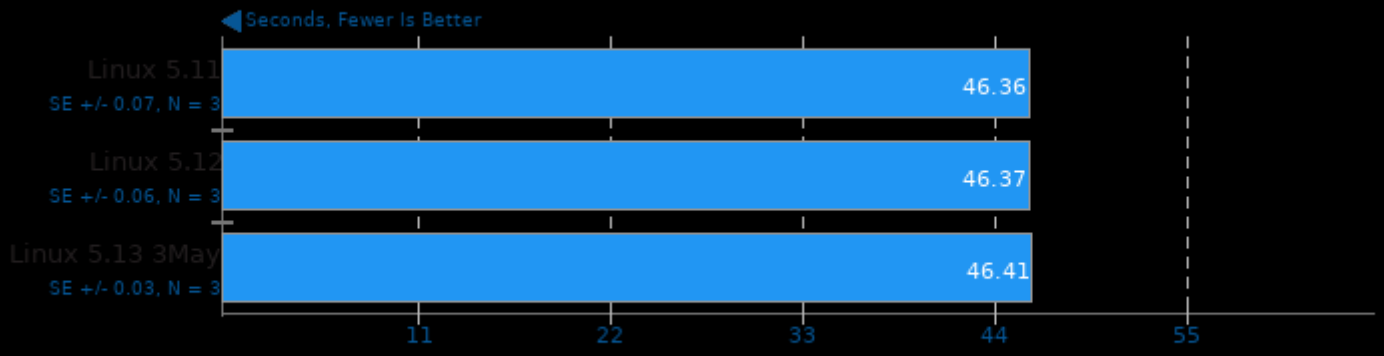
Pfam Database Search



1. (CC) gcc options: -O3 -pthread -lhmmer -leasel -lm

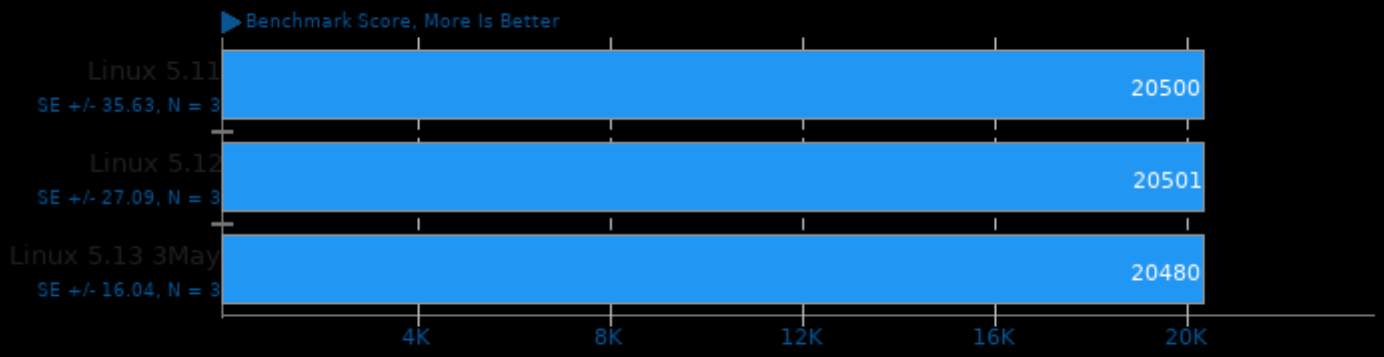
RawTherapee

Total Benchmark Time

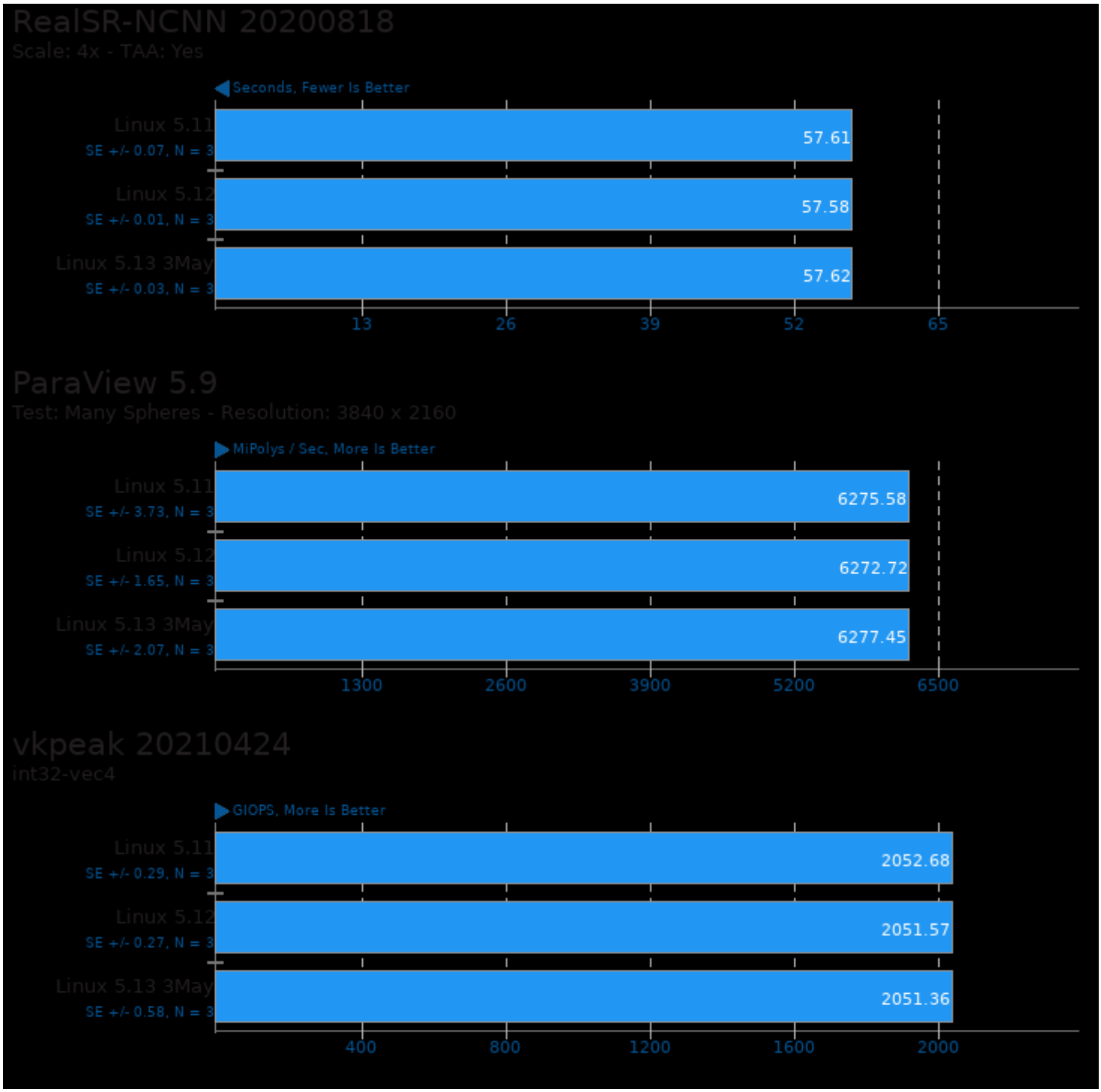


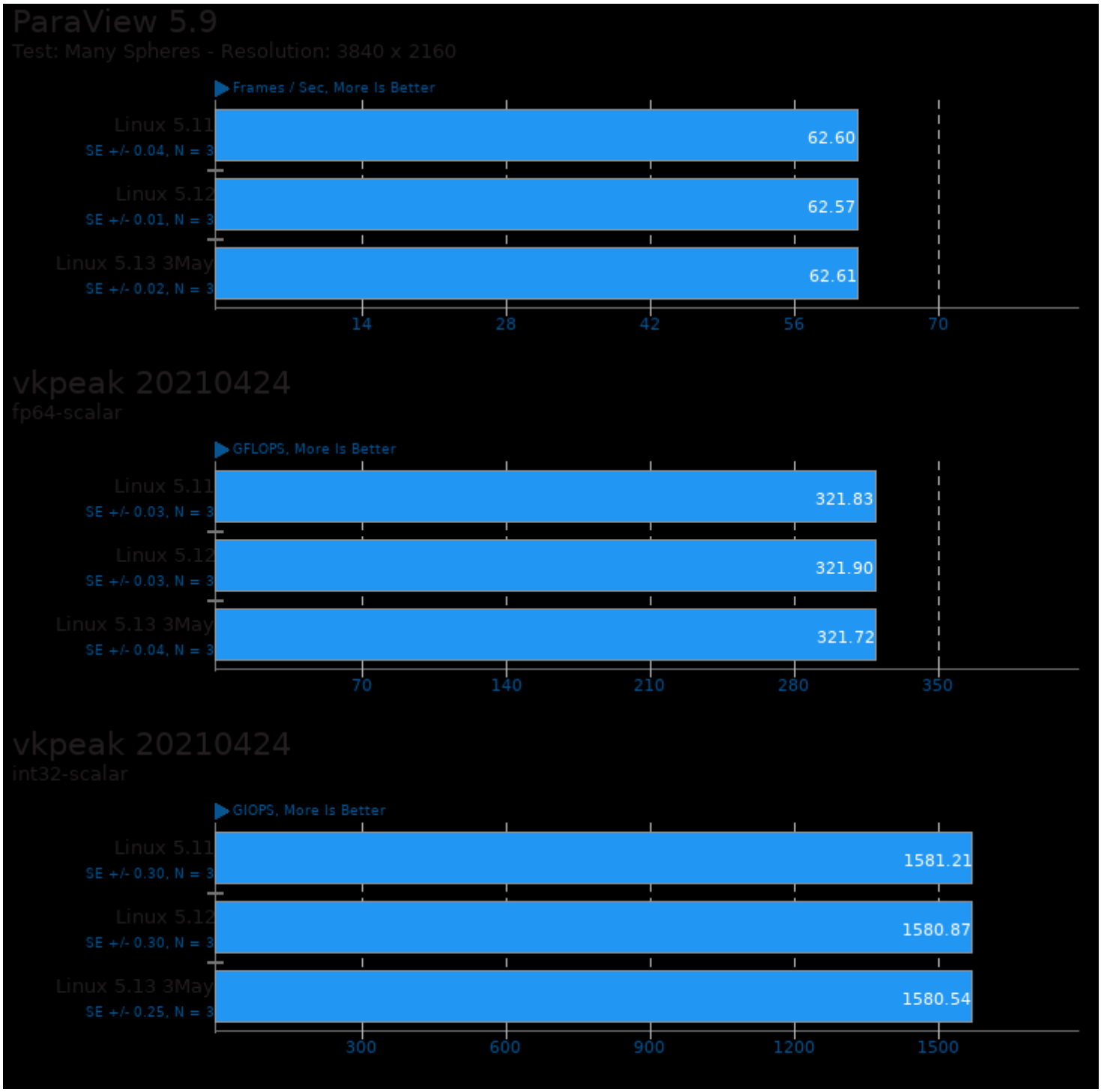
1. RawTherapee, version 5.8, command line.

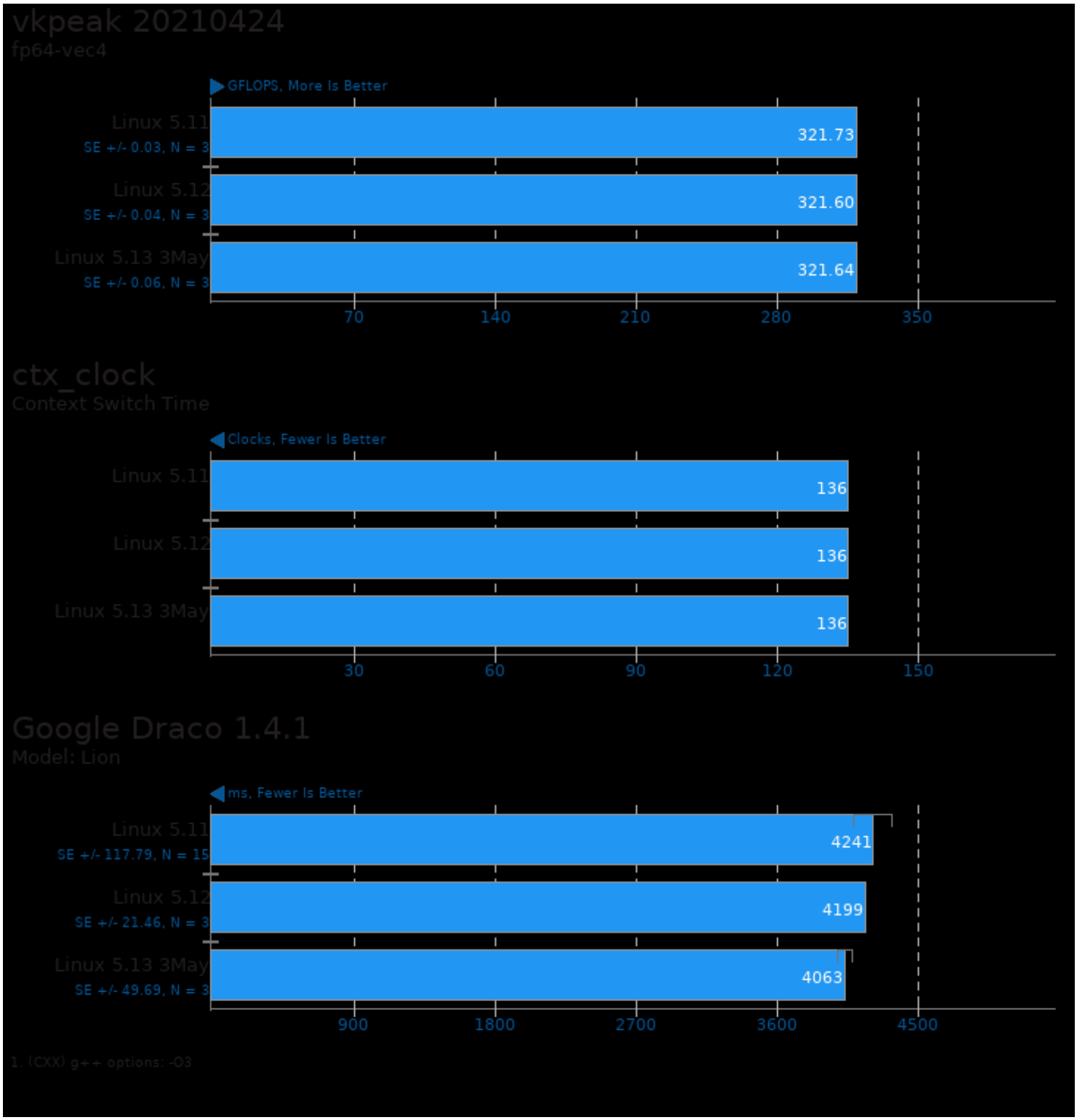
VkFFT 1.1.1

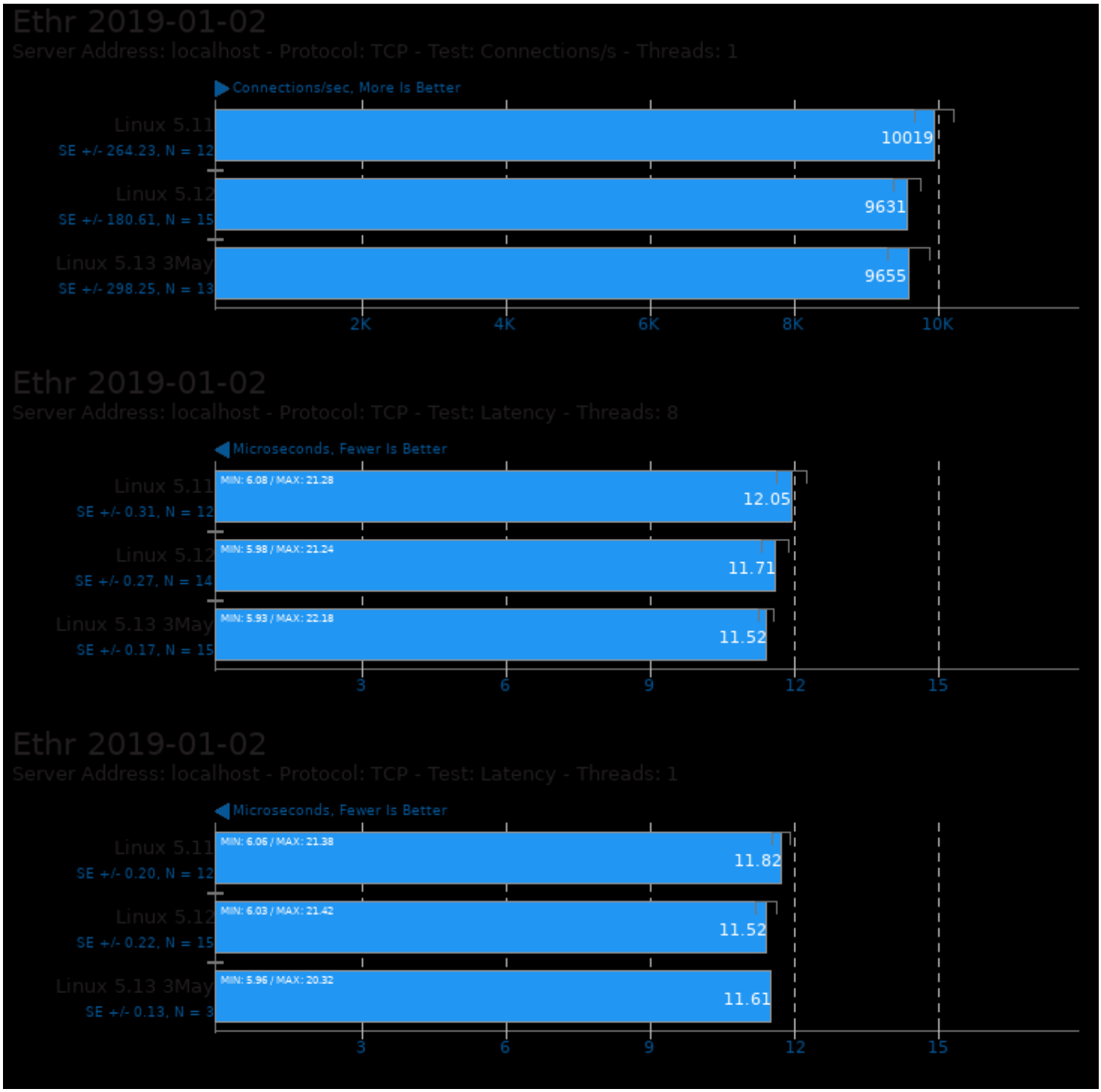


1. (CXX) g++ options: -O3 -pthread

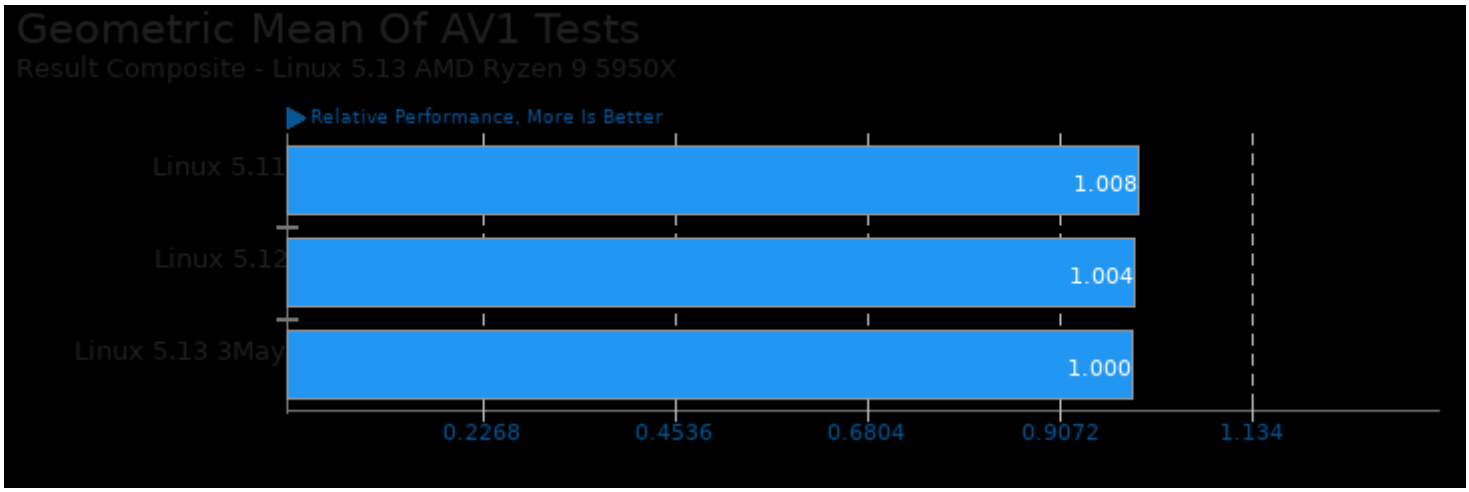

RealSR-NCNN 20200818
Scale: 4x - TAA: Yes
Seconds, Fewer Is Better
Linux 5.11
SE +/- 0.07, N = 3
57.61
Linux 5.12
SE +/- 0.01, N = 3
57.58
Linux 5.13 3May
SE +/- 0.03, N = 3
57.62
13
26
39
52
65
ParaView 5.9
Test: Many Spheres - Resolution: 3840 x 2160
MiPolys / Sec, More Is Better
Linux 5.11
SE +/- 3.73, N = 3
6275.58
Linux 5.12
SE +/- 1.65, N = 3
6272.72
Linux 5.13 3May
SE +/- 2.07, N = 3
6277.45
1300
2600
3900
5200
6500
vkpeak 20210424
int32-vec4
GIOPS, More Is Better
Linux 5.11
SE +/- 0.29, N = 3
2052.68
Linux 5.12
SE +/- 0.27, N = 3
2051.57
Linux 5.13 3May
SE +/- 0.58, N = 3
2051.36
400
800
1200
1600
2000


ParaView 5.9
Test: Many Spheres - Resolution: 3840 x 2160
Frames / Sec, More Is Better
Linux 5.11
SE +/- 0.04, N = 3
62.60
Linux 5.12
SE +/- 0.01, N = 3
62.57
Linux 5.13 3May
SE +/- 0.02, N = 3
62.61
14
28
42
56
70
vkpeak 20210424
fp64-scalar
GFLOPS, More Is Better
Linux 5.11
SE +/- 0.03, N = 3
321.83
Linux 5.12
SE +/- 0.03, N = 3
321.90
Linux 5.13 3May
SE +/- 0.04, N = 3
321.72
70
140
210
280
350
vkpeak 20210424
int32-scalar
GIOPS, More Is Better
Linux 5.11
SE +/- 0.30, N = 3
1581.21
Linux 5.12
SE +/- 0.30, N = 3
1580.87
Linux 5.13 3May
SE +/- 0.25, N = 3
1580.54
300
600
900
1200
1500

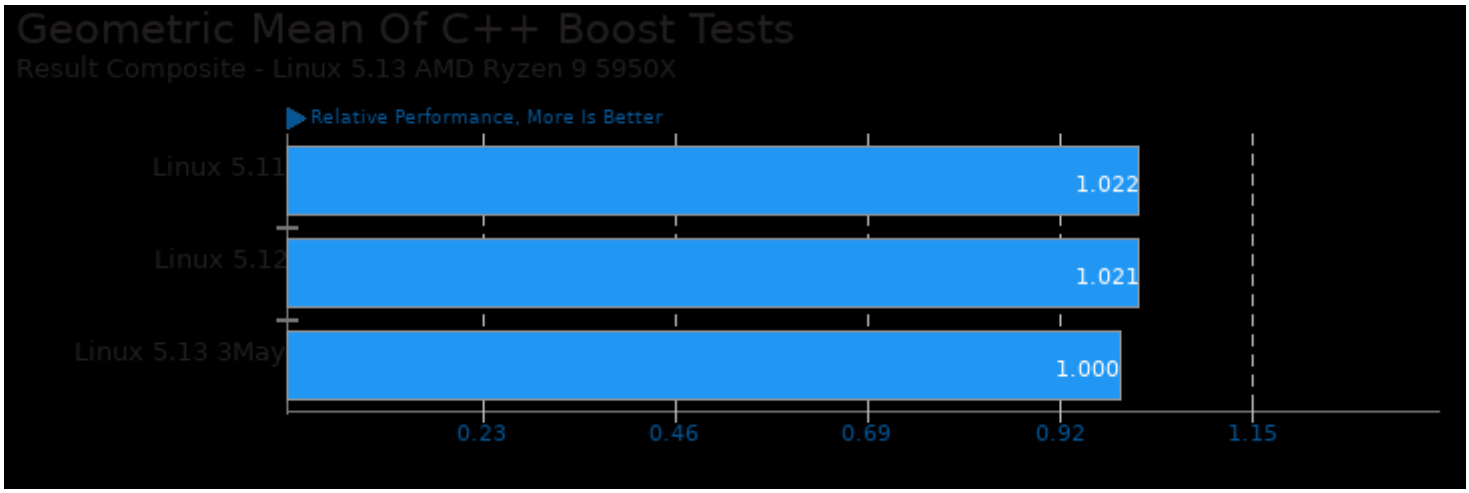

vkpeak 20210424
fp64-vec4
GFLOPS, More Is Better
Linux 5.11
SE +/- 0.03, N = 3
321.73
Linux 5.12
SE +/- 0.04, N = 3
321.60
Linux 5.13 3May
SE +/- 0.06, N = 3
321.64
70
140
210
280
350
ctx_clock
Context Switch Time
Clocks, Fewer Is Better
Linux 5.11
136
Linux 5.12
136
Linux 5.13 3May
136
30
60
90
120
150
Google Draco 1.4.1
Model: Lion
ms, Fewer Is Better
Linux 5.11
SE +/- 117.79, N = 15
4241
Linux 5.12
SE +/- 21.46, N = 3
4199
Linux 5.13 3May
SE +/- 49.69, N = 3
4063
900
1800
2700
3600
4500
1. (CXX) g++ options: -O3


Ethr 2019-01-02
Server Address: localhost - Protocol: TCP - Test: Connections/s - Threads: 1
Connections/sec, More Is Better
Linux 5.11
SE +/- 264.23, N = 12
10019
Linux 5.12
SE +/- 180.61, N = 15
9631
Linux 5.13 3May
SE +/- 298.25, N = 13
9655
2K
4K
6K
8K
10K
Ethr 2019-01-02
Server Address: localhost - Protocol: TCP - Test: Latency - Threads: 8
Microseconds, Fewer Is Better
Linux 5.11
SE +/- 0.31, N = 12
MIN: 6.08 / MAX: 21.28
12.05
Linux 5.12
SE +/- 0.27, N = 14
MIN: 5.98 / MAX: 21.24
11.71
Linux 5.13 3May
SE +/- 0.17, N = 15
MIN: 5.93 / MAX: 22.18
11.52
3
6
9
12
15
Ethr 2019-01-02
Server Address: localhost - Protocol: TCP - Test: Latency - Threads: 1
Microseconds, Fewer Is Better
Linux 5.11
SE +/- 0.20, N = 12
MIN: 6.06 / MAX: 21.38
11.82
Linux 5.12
SE +/- 0.22, N = 15
MIN: 6.03 / MAX: 21.42
11.52
Linux 5.13 3May
SE +/- 0.13, N = 3
MIN: 5.96 / MAX: 20.32
11.61
3
6
9
12
15

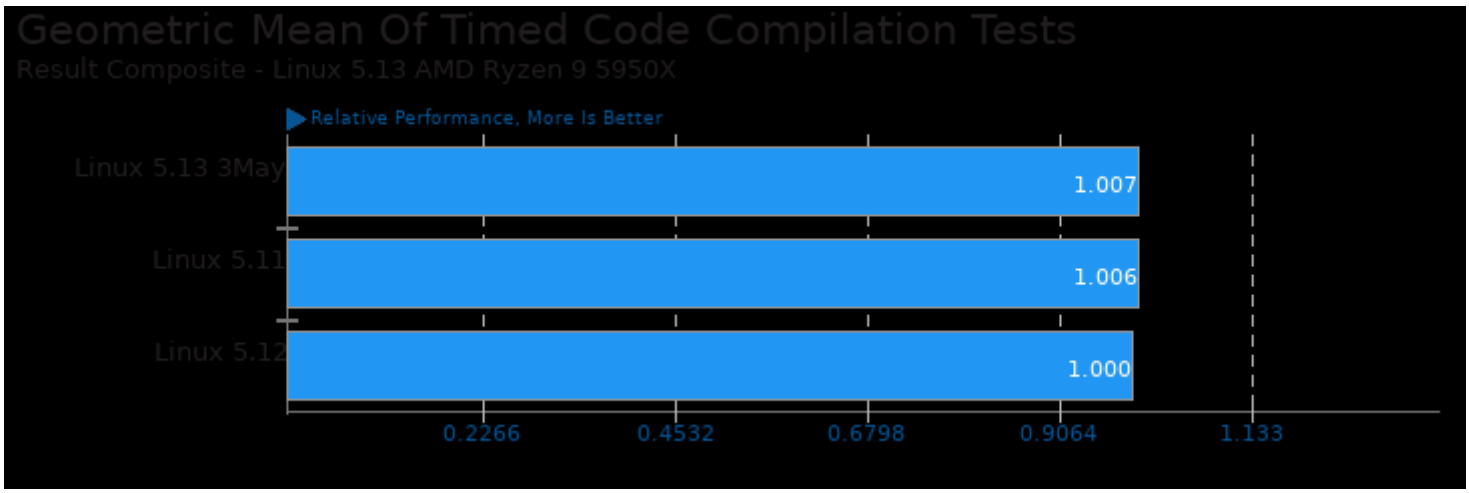
These geometric means are based upon test groupings / test suites for this result file.



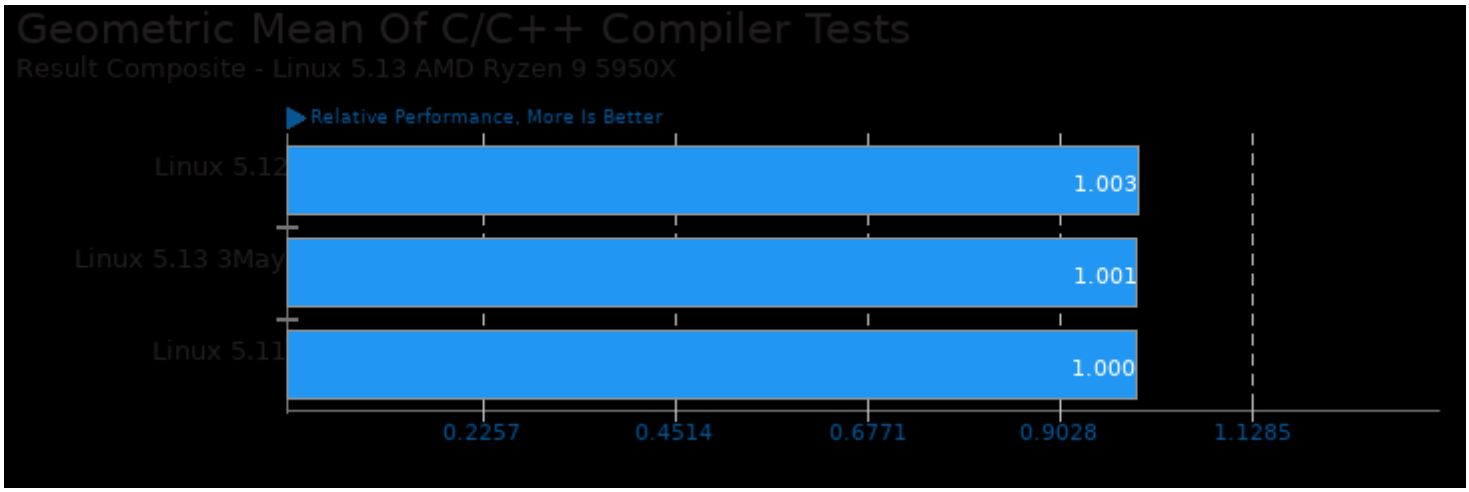
Geometric mean based upon tests: pts/aom-av1 and pts/svt-av1



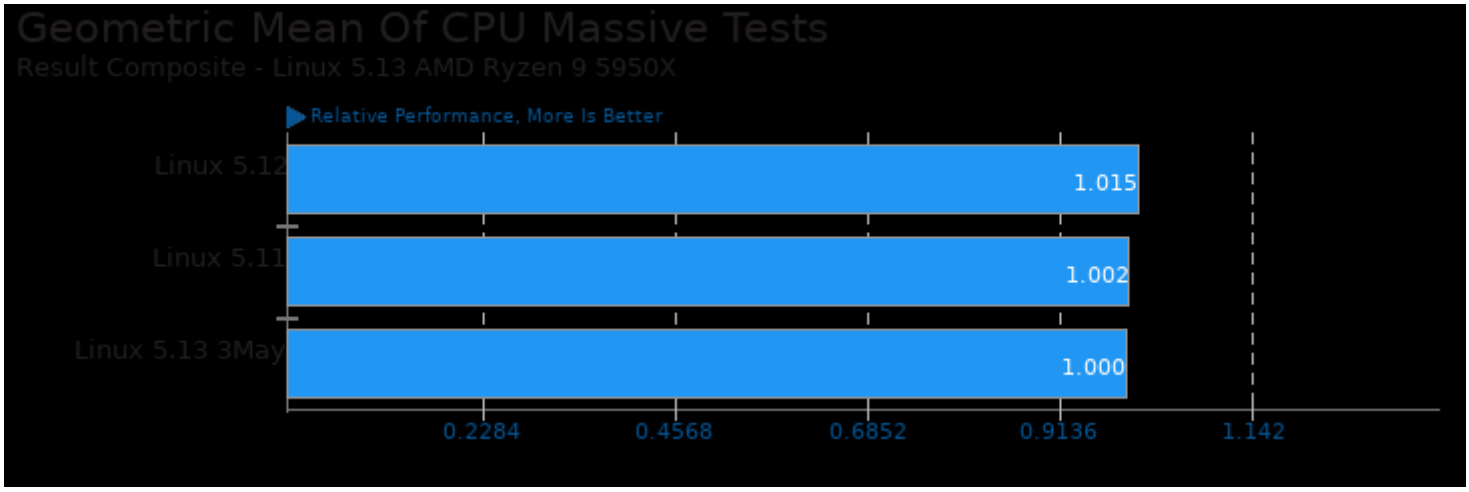
Geometric mean based upon tests: pts/srslte and pts/chia-vdf



Geometric mean based upon tests: pts/build-linux-kernel, pts/build-godot, pts/build-wasmer and pts/build-mesa



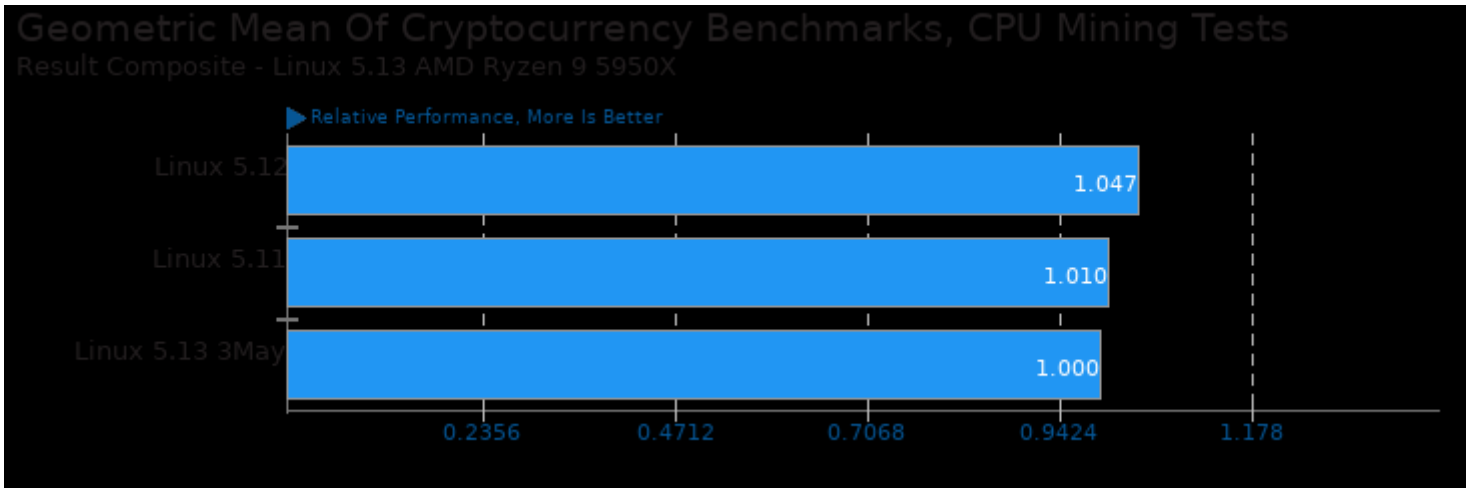
Geometric mean based upon tests: pts/stockfish, pts/hmmer, pts/sqlite-speedtest, pts/compress-zstd, pts/aom-av1, pts/svt-av1, pts/svt-vp9, pts/gromacs and pts/keydb



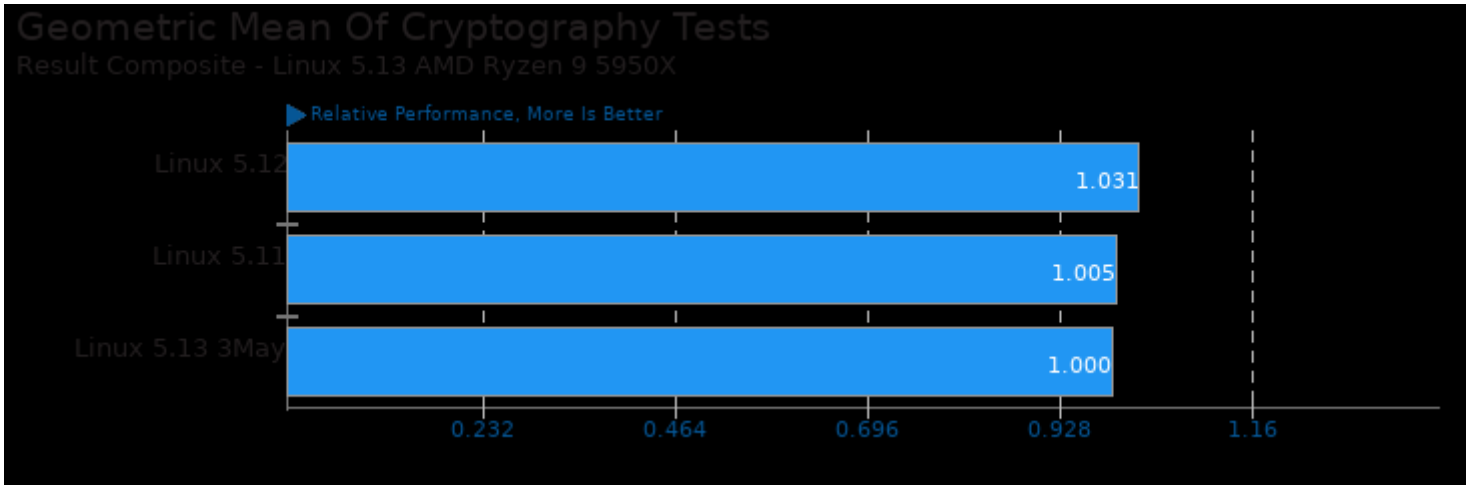
Geometric mean based upon tests: pts/build-linux-kernel, pts/compilebench, pts/compress-zstd, pts/ctx-clock, pts/svt-av1, pts/svt-hevc, pts/svt-vp9, pts/hmmer, pts/namd, pts/stockfish, pts/stress-ng, pts/blender, system/darktable and pts/tjbench



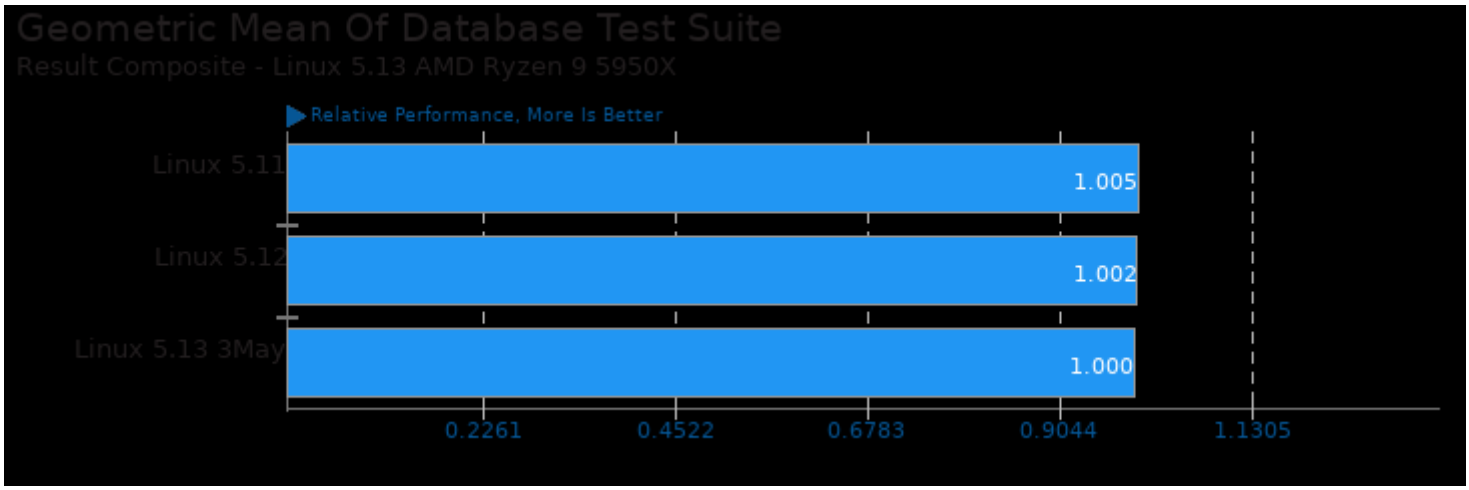
Geometric mean based upon tests: pts/blender, pts/luxcorerender, system/ocrmypdf, pts/svt-vp9, pts/svt-hevc, pts/aom-av1, pts/svt-av1, system/rawtherapee, pts/tjbench, system/gimp, system/hugin, system/darktable, pts/draco and pts/build-godot



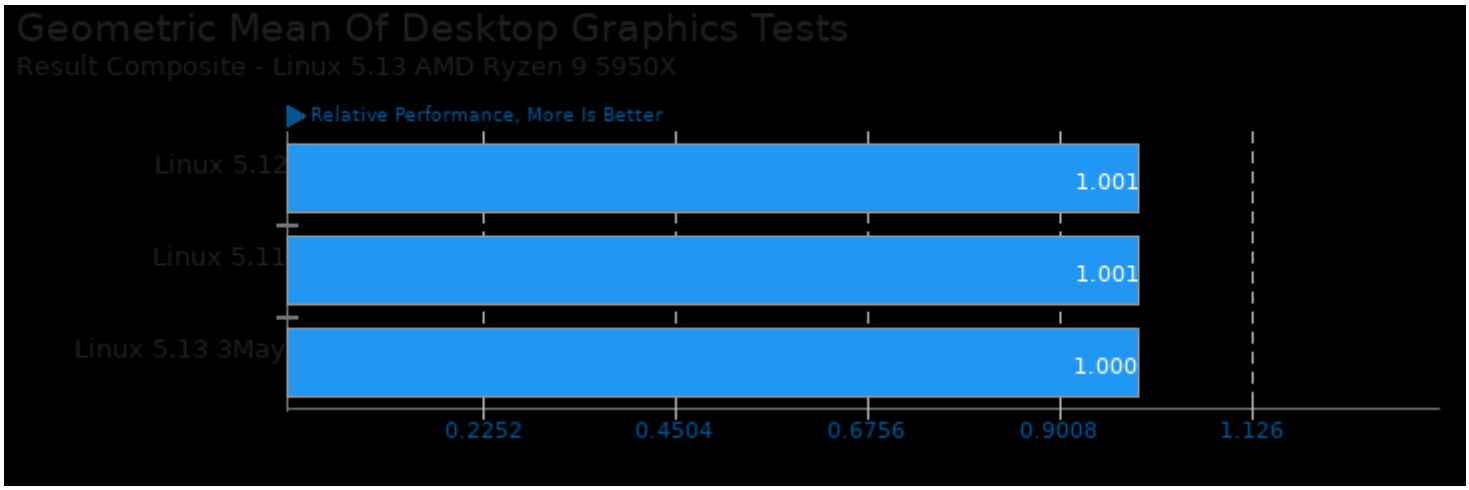
Geometric mean based upon tests: pts/xmrig and pts/chia-vdf



Geometric mean based upon tests: pts/securemark, pts/xmrig and pts/chia-vdf



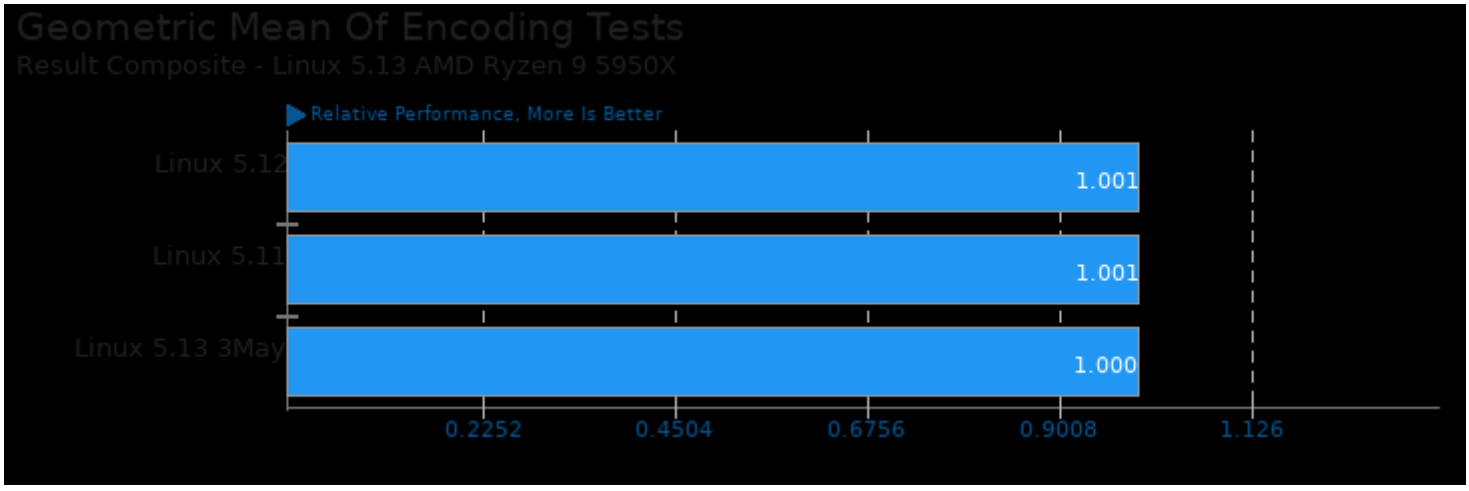
Geometric mean based upon tests: pts/sqlite-speedtest, pts/keydb and pts/influxdb



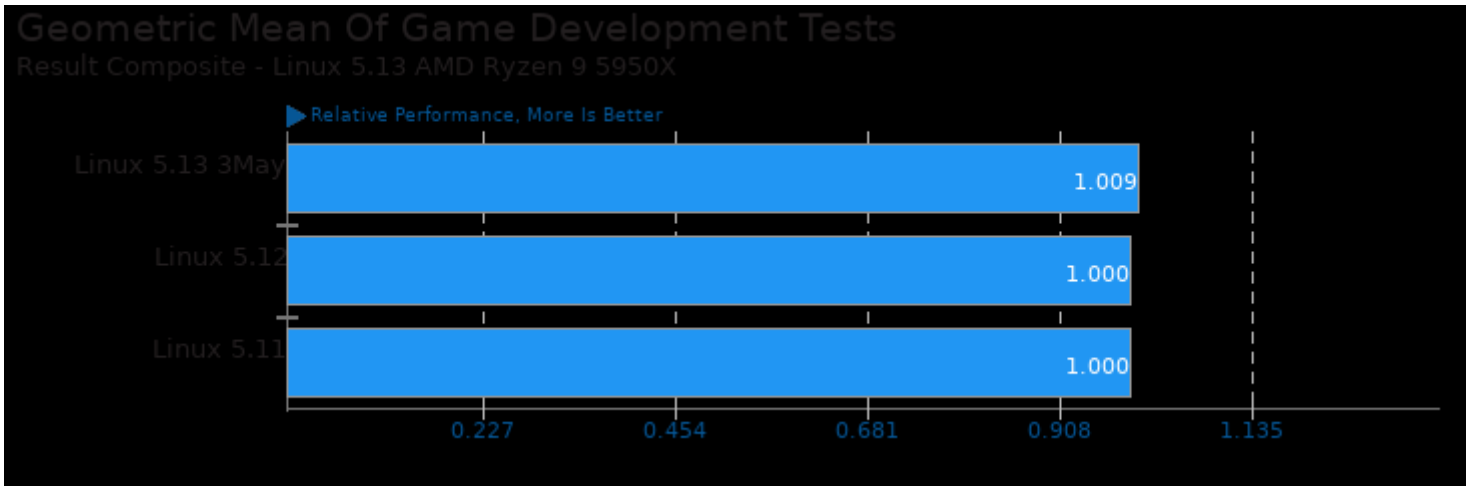
Geometric mean based upon tests: pts/xonotic, pts/tesseract and pts/paraview



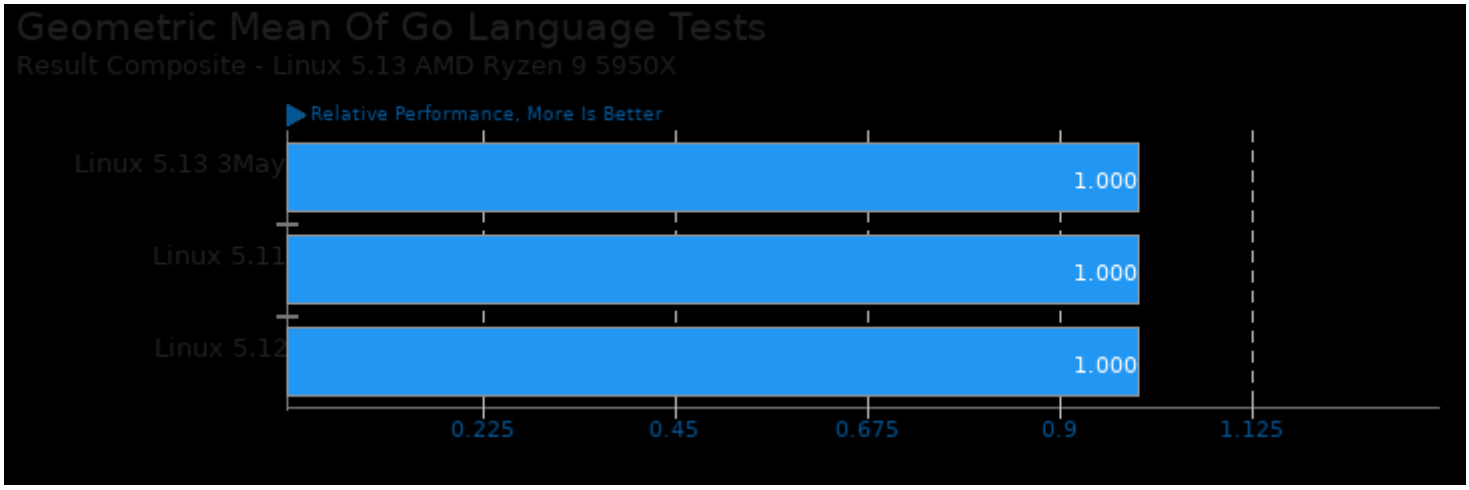
Geometric mean based upon tests: pts/fs-mark and pts/compilebench



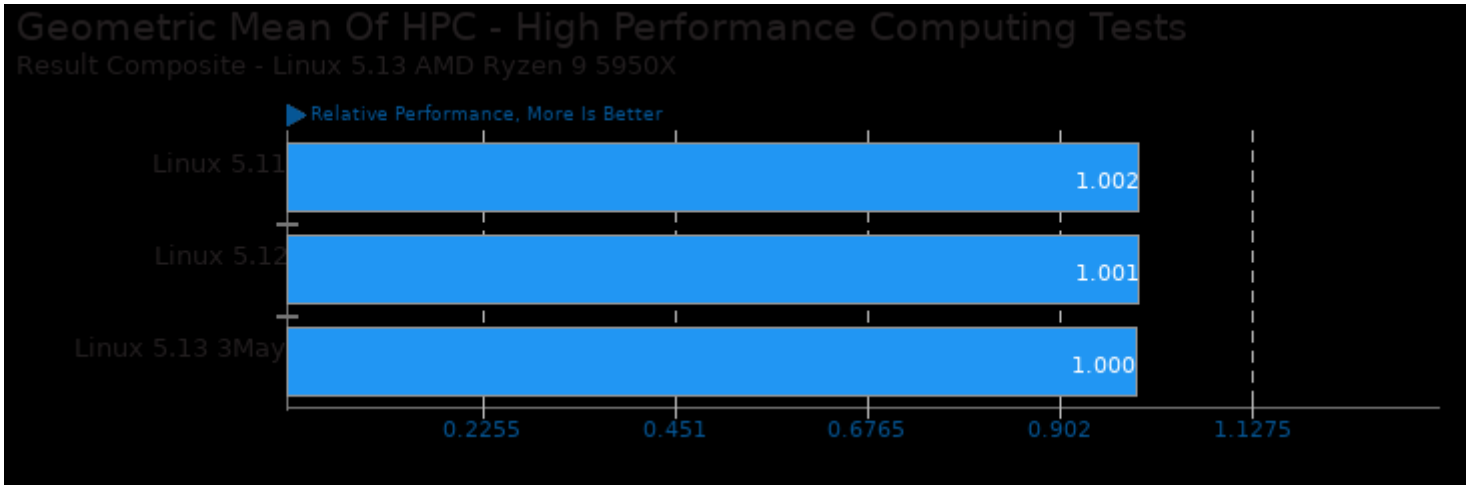
Geometric mean based upon tests: pts/svt-vp9, pts/svt-hevc, pts/aom-av1 and pts/svt-av1



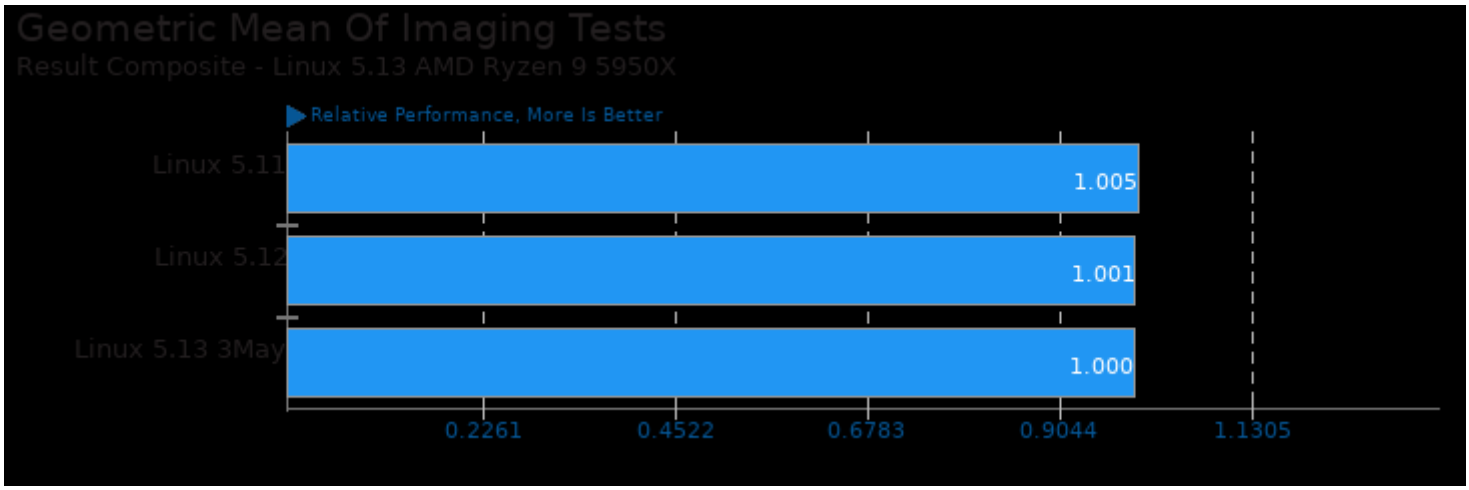
Geometric mean based upon tests: pts/draco, pts/build-godot and pts/blender



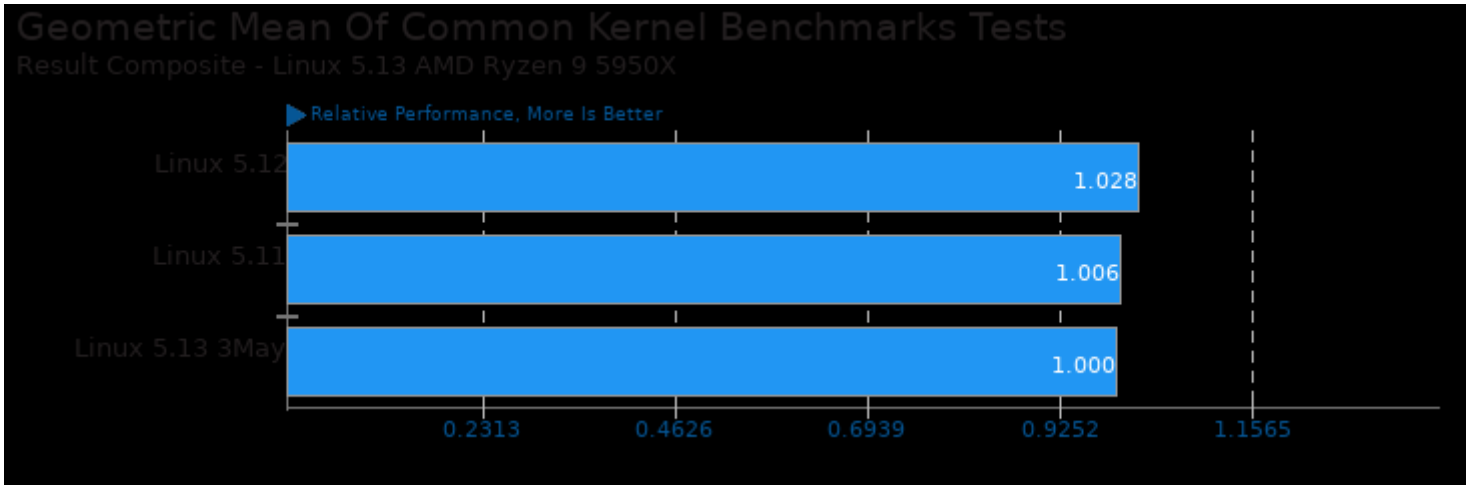
Geometric mean based upon tests: pts/ethr and pts/influxdb



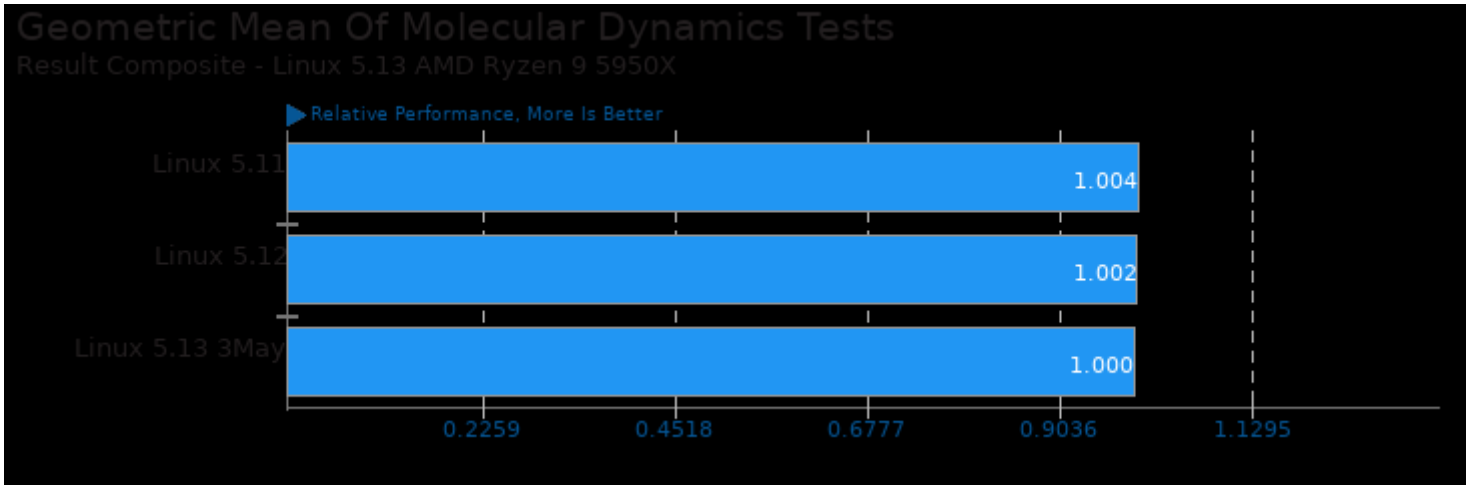
Geometric mean based upon tests: pts/namd, pts/gromacs and pts/hmmer



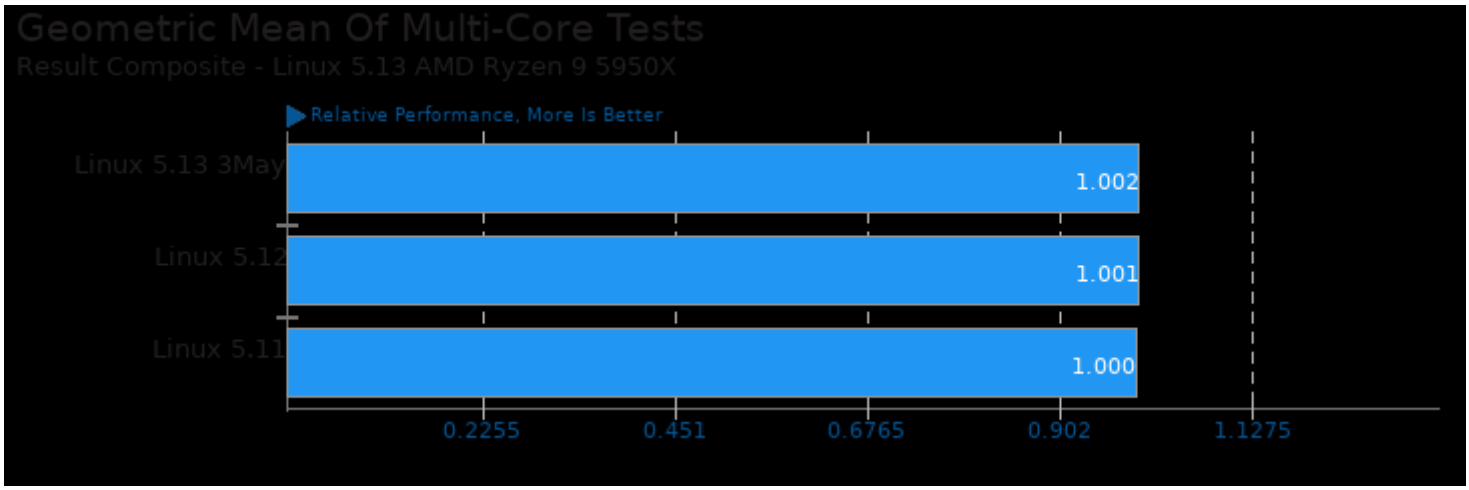
Geometric mean based upon tests: system/rawtherapee, pts/tjbench, system/gimp, system/hugin and system/darktable



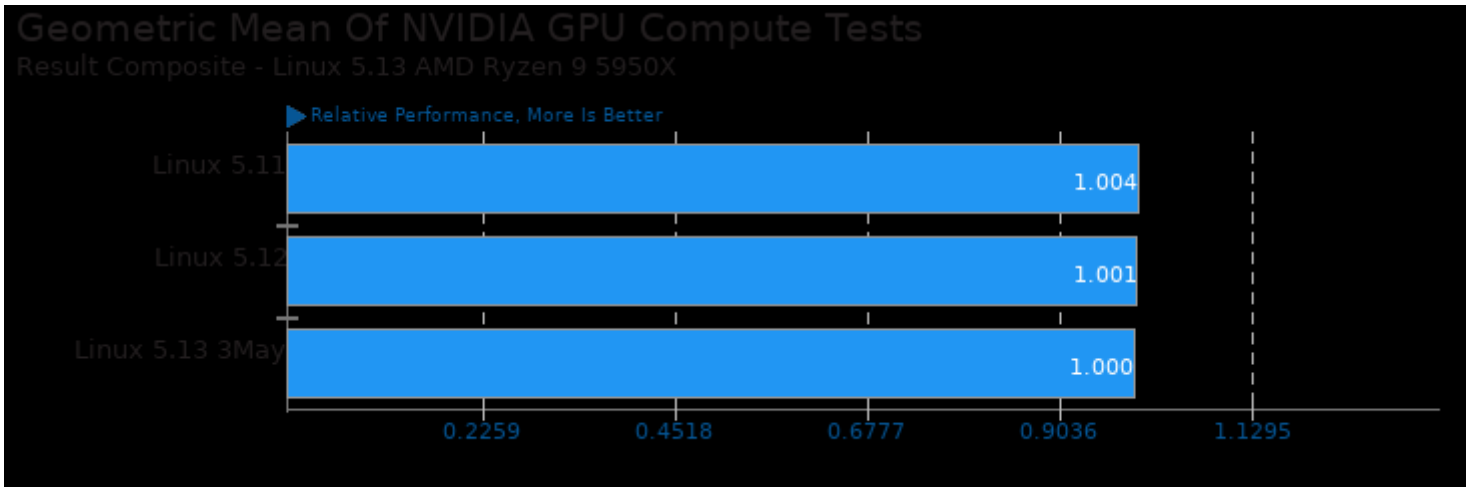
Geometric mean based upon tests: pts/sqlite-speedtest, pts/ctx-clock, pts/stress-ng and pts/ethr



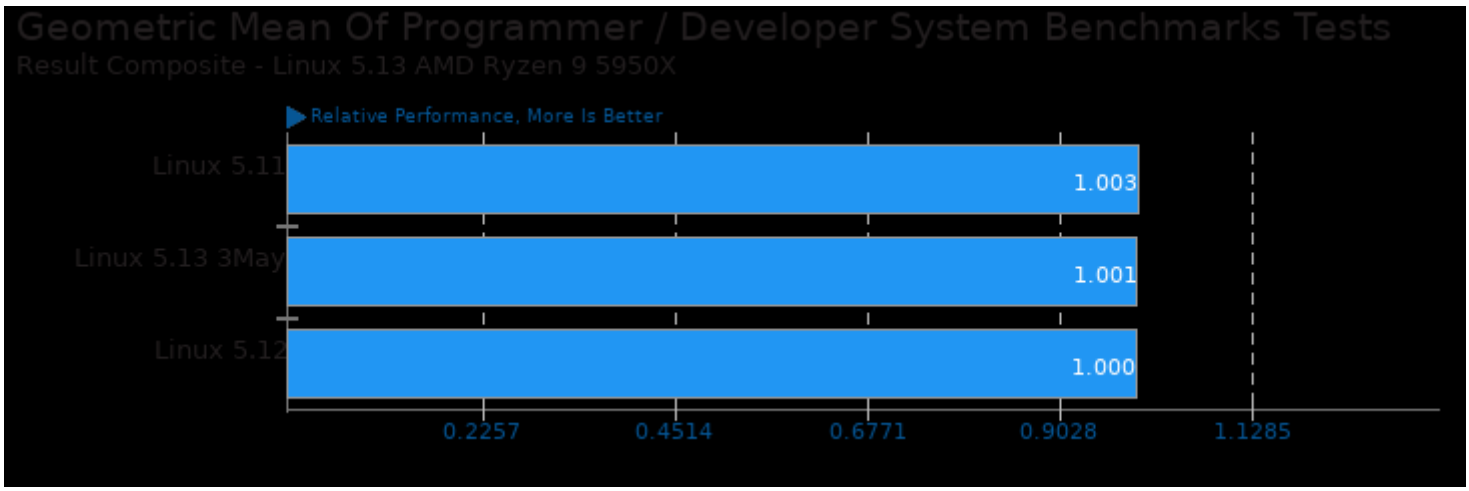
Geometric mean based upon tests: pts/namd and pts/gromacs



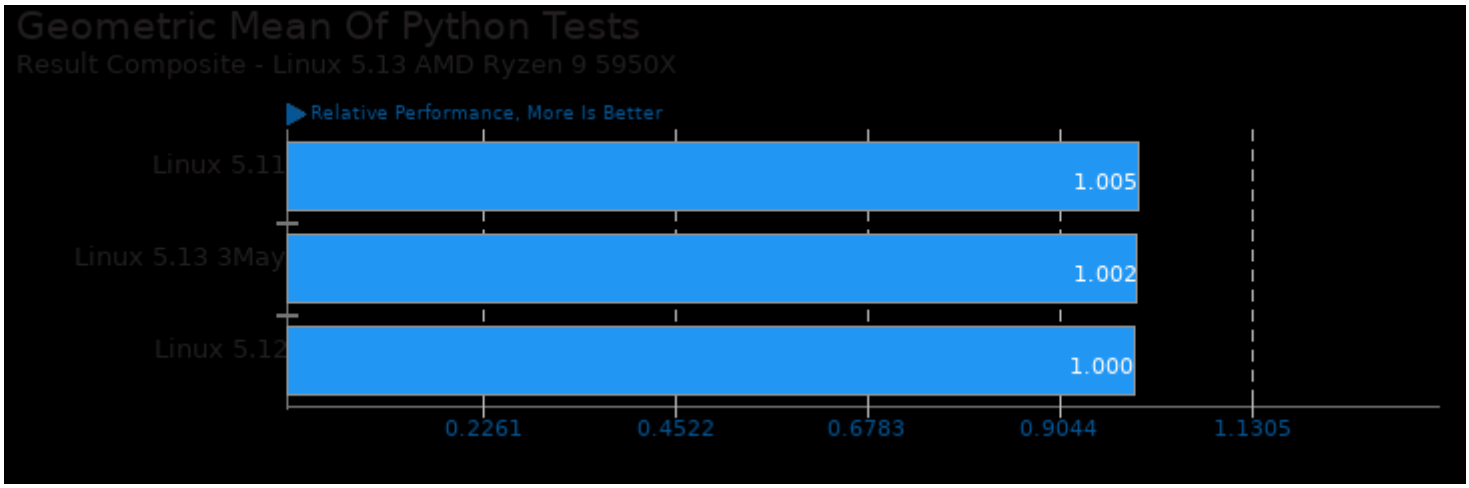
Geometric mean based upon tests: pts/blender, pts/stockfish, pts/svt-vp9, pts/svt-hevc, pts/aom-av1, pts/svt-av1, pts/namd, pts/gromacs, pts/compress-zstd, pts/build-linux-kernel, pts/build-godot, pts/build-wasmer, pts/build-mesa and pts/luxcorerender



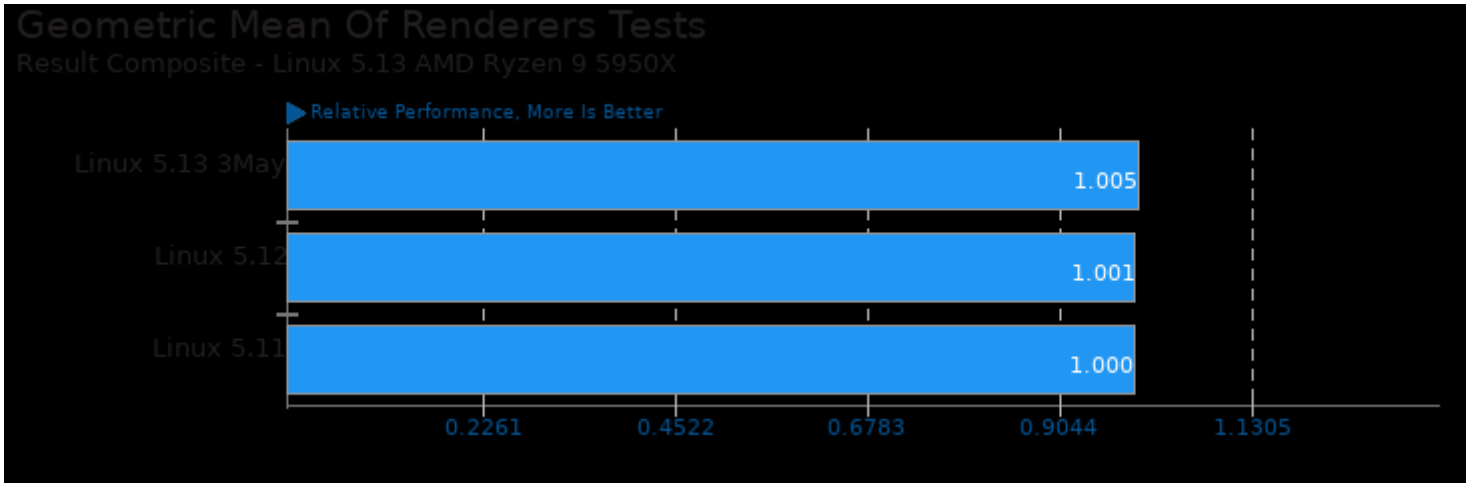
Geometric mean based upon tests: pts/gromacs, pts/luxcorerender, pts/blender, pts/vkfft, pts/vkpeak, pts/realsr-ncnn and pts/waifu2x-ncnn



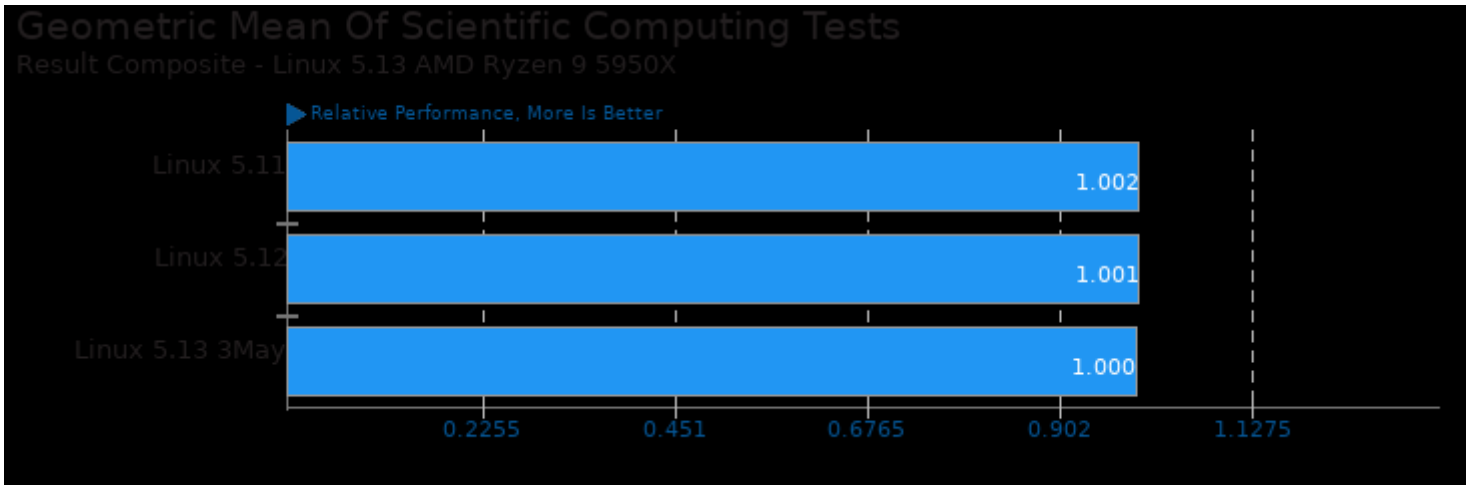
Geometric mean based upon tests: pts/sqlite-speedtest, pts/compress-zstd, pts/build-linux-kernel, pts/build-godot, pts/build-wasmer and pts/build-mesa



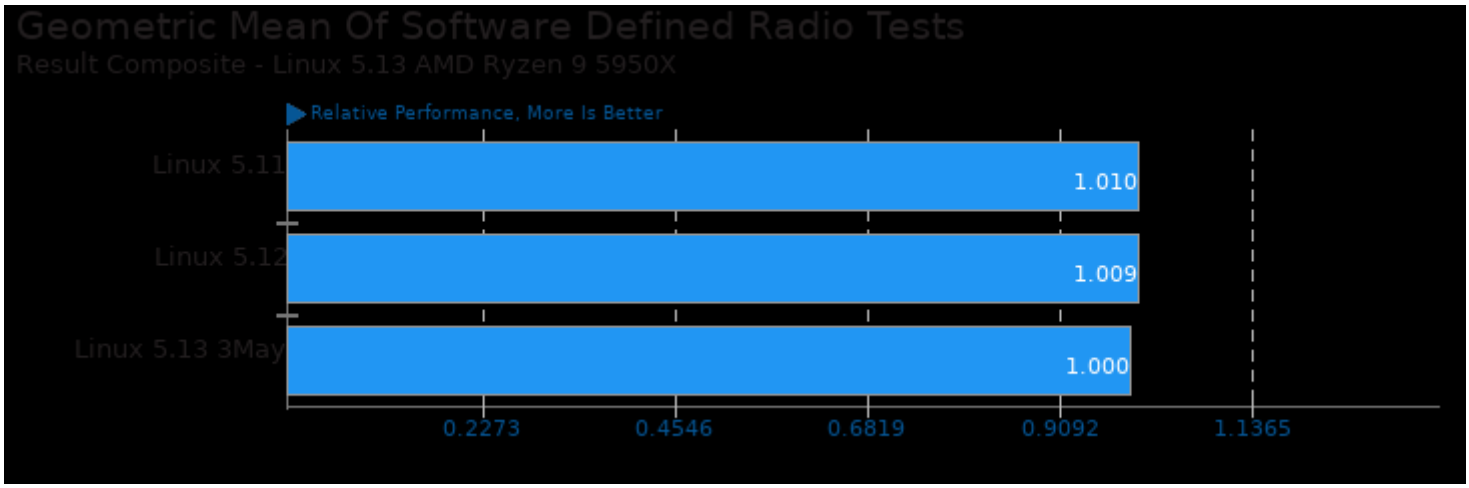
Geometric mean based upon tests: pts/paraview, pts/compilebench, pts/chia-vdf, pts/build-mesa, system/ocrmypdf and pts/build-godot



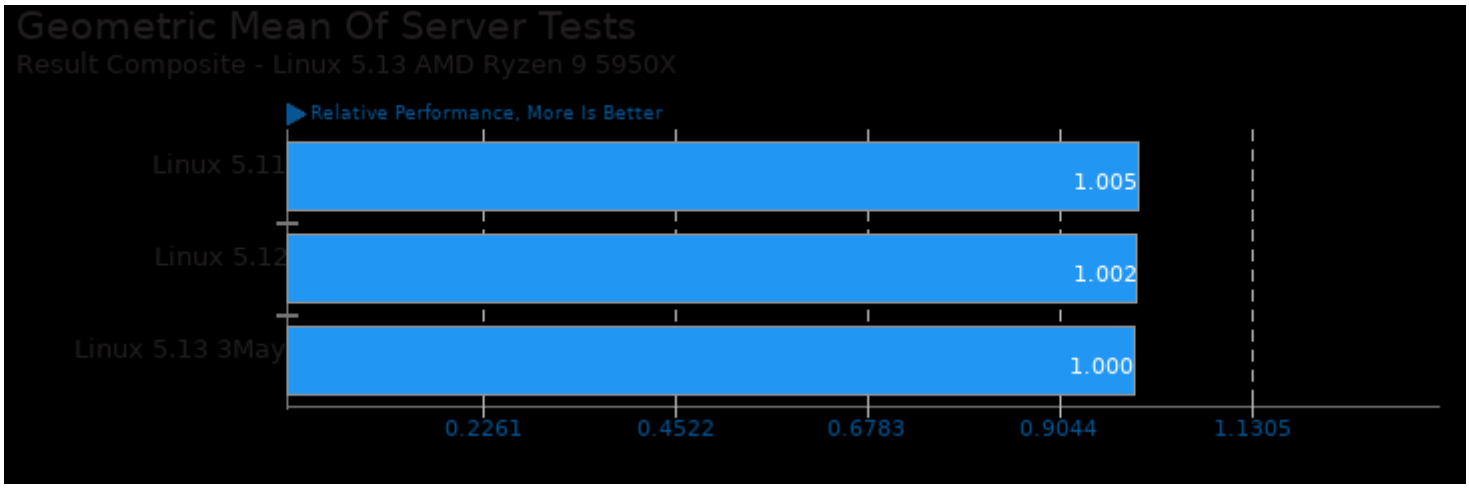
Geometric mean based upon tests: pts/blender and pts/luxcorerender



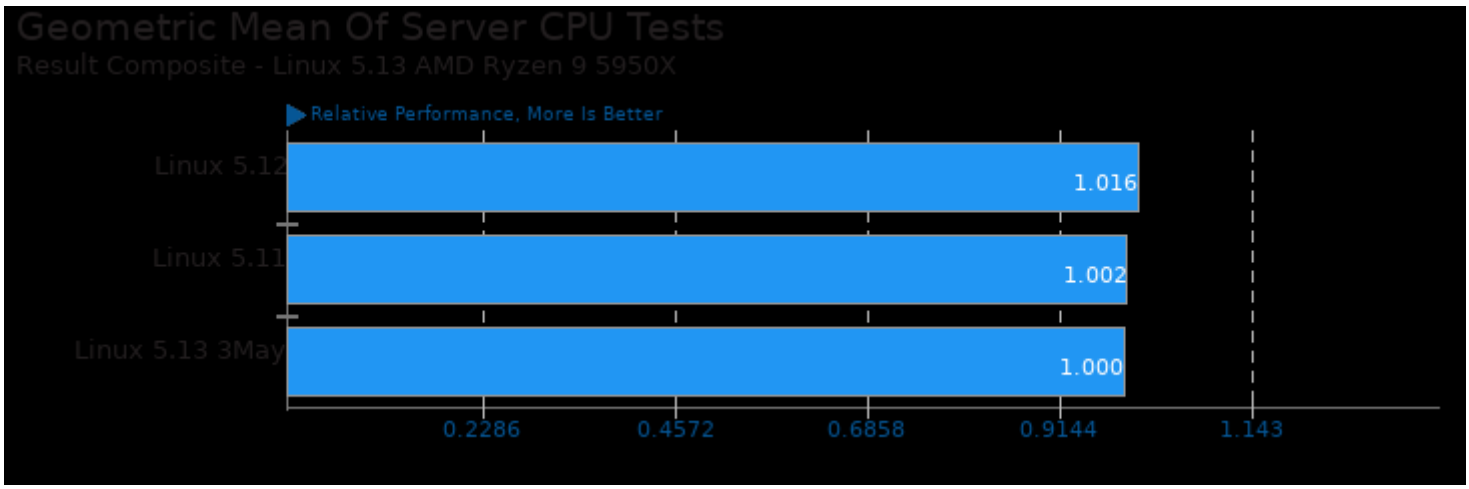
Geometric mean based upon tests: pts/namd, pts/gromacs and pts/hmmer



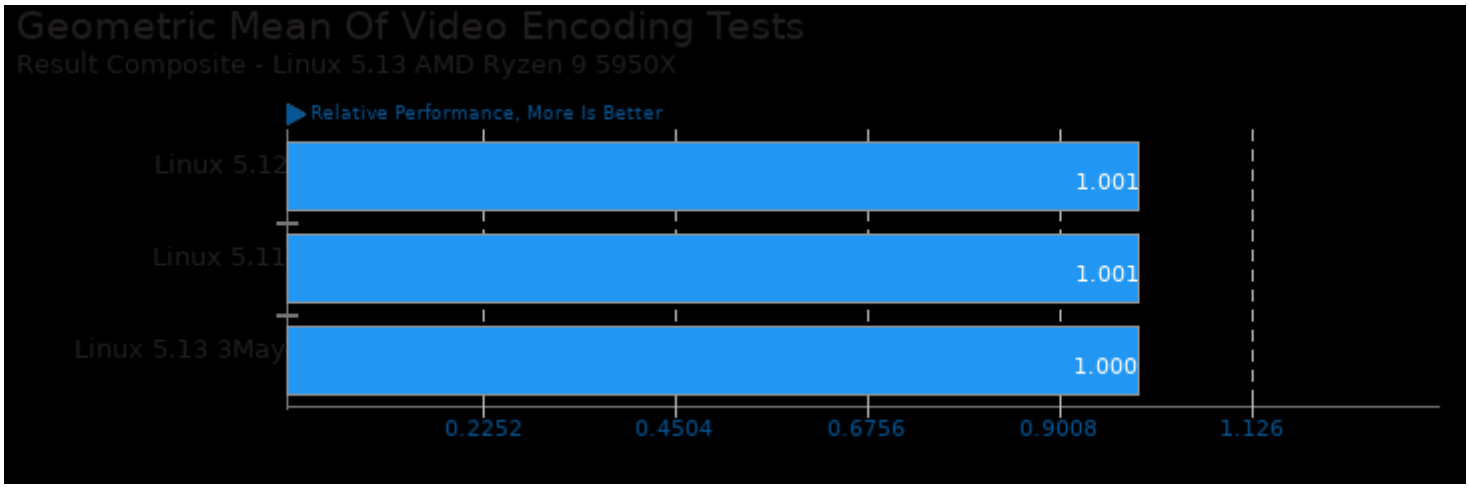
Geometric mean based upon tests: pts/liquid-dsp, pts/srslte and pts/luaradio



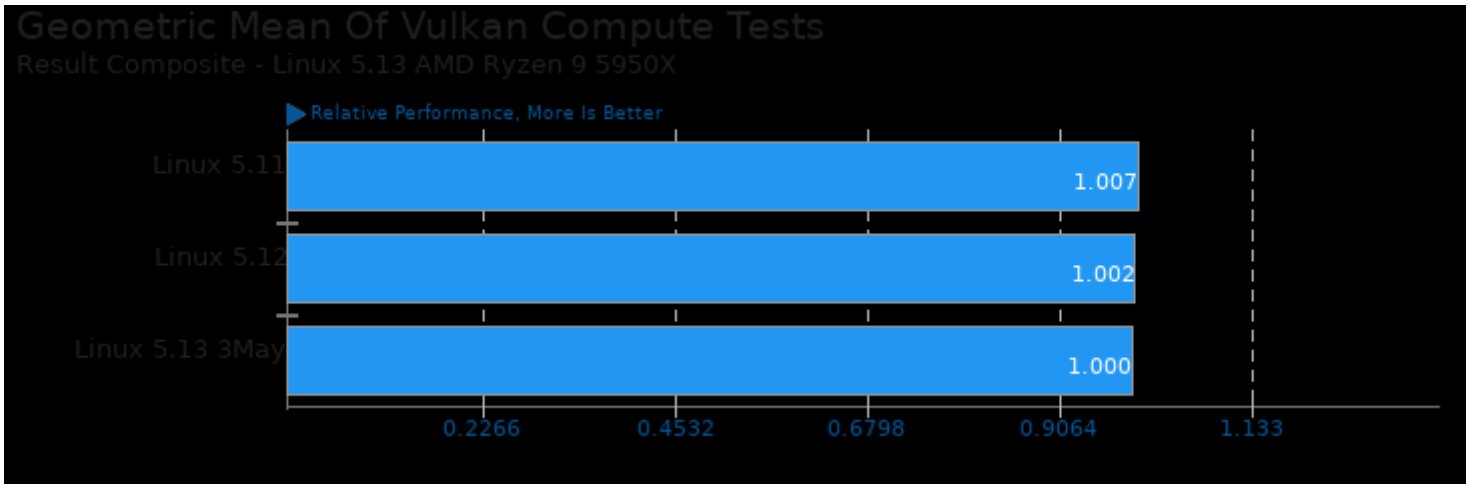
Geometric mean based upon tests: pts/keydb, pts/sqlite-speedtest and pts/influxdb



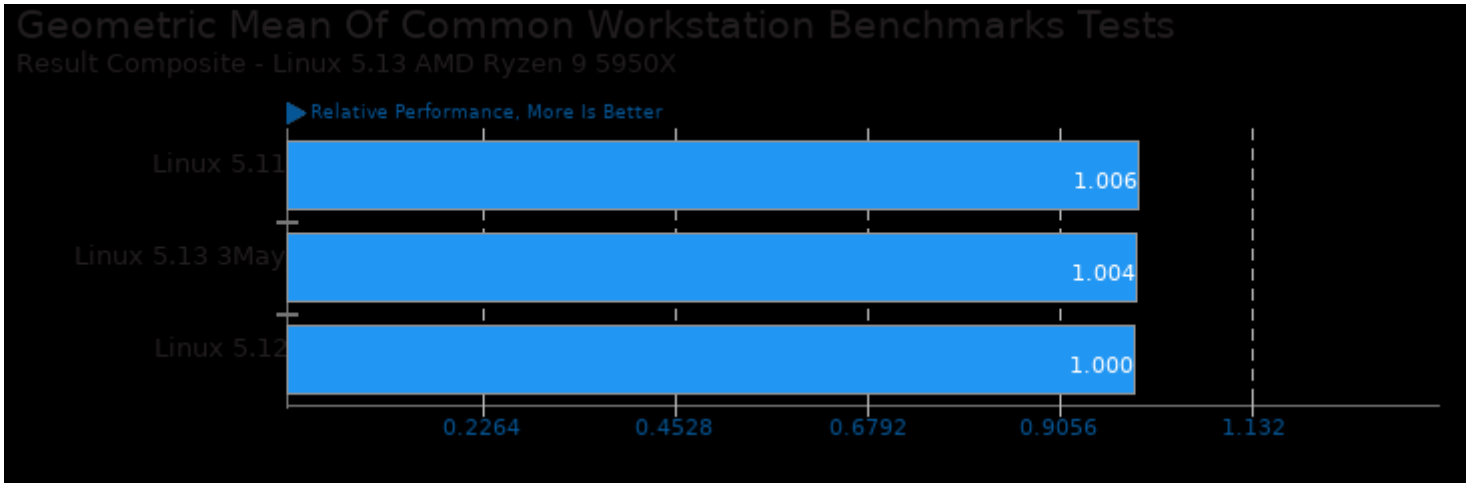
Geometric mean based upon tests: pts/namd, pts/svt-av1, pts/svt-hevc, pts/svt-vp9, pts/stockfish, pts/build-linux-kernel, pts/compress-zstd, pts/tjbench, system/gimp, pts/stress-ng, pts/ctx-clock and pts/blender



Geometric mean based upon tests: pts/svt-vp9, pts/svt-hevc, pts/aom-av1 and pts/svt-av1



Geometric mean based upon tests: pts/vkfft, pts/vkpeak, pts/realsr-ncnn and pts/waifu2x-ncnn



Geometric mean based upon tests: pts/blender and pts/paraview

This file was automatically generated via the Phoronix Test Suite benchmarking software on Thursday, 28 March 2024 14:31.