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AMD Ryzen 9 5950X Linux 5.11

Benchmarks by Michael Larabel.

Automated Executive Summary

Linux 5.11 Patched had the most wins, coming in first place for 47% of the tests.

Based on the geometric mean of all complete results, the fastest (Linux 5.11 Patched) was 1.041x the speed of the slowest (Linux 5.11). Linux 5.10.9 was 0.975x the speed of Linux 5.11 Patched and Linux 5.11 was 0.985x the speed of Linux 5.10.9.

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

DDraceNetwork (Resolution: 3840 x 2160 - Mode: Fullscreen - Renderer: OpenGL 2.0 - Zoom: Default - Demo: Multeasymap - Total Frame Time) at 4.333x
DDraceNetwork (Resolution: 3840 x 2160 - Mode: Fullscreen - Renderer: OpenGL 3.3 - Zoom: Default - Demo: Multeasymap - Total Frame Time) at 4.052x
dav1d (Video Input: Summer Nature 1080p) at 1.717x
GLmark2 (Resolution: 3840 x 2160) at 1.653x
dav1d (Video Input: Chimera 1080p) at 1.507x
oneDNN (Harness: Matrix Multiply Batch Shapes Transformer - Data Type: f32 - Engine: CPU) at 1.444x
Selenium (Benchmark: Kraken - Browser: Google Chrome) at 1.422x

dav1d (Video Input: Chimera 1080p 10-bit) at 1.406x
AOM AV1 (Encoder Mode: Speed 6 Realtime) at 1.382x
Selenium (Benchmark: ARES-6 - Browser: Firefox) at 1.328x.

Test Systems:

Linux 5.10.9

Processor: AMD Ryzen 9 5950X 16-Core @ 3.40GHz (16 Cores / 32 Threads), Motherboard: ASUS ROG CROSSHAIR VIII HERO (WI-FI) (3202 BIOS), Chipset: AMD Starship/Matisse, Memory: 32GB, Disk: 2000GB Corsair Force MP600 + 2000GB, 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: 5.10.9-051009-generic (x86_64), Desktop: GNOME Shell 3.38.1, Display Server: X Server 1.20.9, Display Driver: amdgpu 19.1.0, OpenGL: 4.6 Mesa 21.0.0-devel (git-f01bca8 2021-01-08 groovy-oibaf-ppa) (LLVM 11.0.1), Vulkan: 1.2.164, 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
Processor Notes: Scaling Governor: acpi-cpufreq schedutil (Boost: Enabled) - CPU Microcode: 0xa201009
Graphics Notes: GLAMOR
Java Notes: OpenJDK Runtime Environment (build 11.0.9.1+1-Ubuntu-0ubuntu1.20.10)
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

Processor: AMD Ryzen 9 5950X 16-Core @ 3.40GHz (16 Cores / 32 Threads), Motherboard: ASUS ROG CROSSHAIR VIII HERO (WI-FI) (3202 BIOS), Chipset: AMD Starship/Matisse, Memory: 32GB, Disk: 2000GB Corsair Force MP600 + 2000GB, 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: 5.11.0-051100rc4daily20210121-generic (x86_64) 20210120, Desktop: GNOME Shell 3.38.1, Display Server: X Server 1.20.9, Display Driver: amdgpu 19.1.0, OpenGL: 4.6 Mesa 21.0.0-devel (git-f01bca8 2021-01-08 groovy-oibaf-ppa) (LLVM 11.0.1), Vulkan: 1.2.164, 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
Processor Notes: Scaling Governor: acpi-cpufreq schedutil (Boost: Enabled) - CPU Microcode: 0xa201009
Graphics Notes: GLAMOR

Java Notes: OpenJDK Runtime Environment (build 11.0.9.1+1-Ubuntu-0ubuntu1.20.10)
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 Patched

Processor: AMD Ryzen 9 5950X 16-Core @ 3.40GHz (16 Cores / 32 Threads), Motherboard: ASUS ROG CROSSHAIR VIII HERO (WI-FI) (3202 BIOS), Chipset: AMD Starship/Matisse, Memory: 32GB, Disk: 2000GB Corsair Force MP600 + 2000GB, 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: 5.11.0-rc4-max-boost-inv-patch (x86_64) 20210121, Desktop: GNOME Shell 3.38.1, Display Server: X Server 1.20.9, Display Driver: amdgpu 19.1.0, OpenGL: 4.6 Mesa 21.0.0-devel (git-f01bca8 2021-01-08 groovy-oibaf-ppa) (LLVM 11.0.1), Vulkan: 1.2.164, 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
Processor Notes: Scaling Governor: acpi-cpufreq schedutil (Boost: Enabled) - CPU Microcode: 0xa201009
Java Notes: OpenJDK Runtime Environment (build 11.0.9.1+1-Ubuntu-0ubuntu1.20.10)
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 5.10.9	Linux 5.11	Linux 5.11 Patched
C-Blosc - blosclz (MB/s)	12484	**12134**	**14457**
Normalized	86.35%	83.93%	100%
Standard Deviation	1.4%	1.5%	1.1%
High Performance Conjugate Gradient (GFLOP/s)	4.25418	**4.25559**	**4.24824**
Normalized	99.97%	100%	99.83%
Standard Deviation	0.1%	0%	0.2%
NAS Parallel Benchmarks - BT.C (Mop/s)	24091	**24138**	**23613**
Normalized	99.81%	100%	97.82%
Standard Deviation	0.1%	0.2%	0.1%
NAS Parallel Benchmarks - CG.C (Mop/s)	**7110**	7010	**6901**
Normalized	100%	98.59%	97.06%
Standard Deviation	1.5%	1.3%	0.8%
NAS Parallel Benchmarks - EP.C (Mop/s)	1900	**1895**	**1902**
Normalized	99.87%	99.6%	100%
Standard Deviation	1.2%	0.9%	0.5%
NAS Parallel Benchmarks - FT.C (Mop/s)	12075	**12148**	**12056**
Normalized	99.4%	100%	99.25%
Standard Deviation	0%	0.2%	0.1%
NAS Parallel Benchmarks - IS.D (Mop/s)	649.99	**649.01**	**650.14**
Normalized	99.98%	99.83%	100%

Standard Deviation	0.2%	0.5%	0.6%
NAS Parallel Benchmarks - LU.C (Mop/s)	28133	28232	27471
Normalized	99.65%	100%	97.3%
Standard Deviation	0.2%	0.1%	0.2%
NAS Parallel Benchmarks - MG.C (Mop/s)	9937	9921	9813
Normalized	100%	99.84%	98.75%
Standard Deviation	0.2%	0.1%	0%
NAS Parallel Benchmarks - SP.B (Mop/s)	7895	7888	7647
Normalized	100%	99.91%	96.85%
Standard Deviation	0.4%	0.3%	0%
LeelaChessZero - BLAS (Nodes/s)	406	415	390
Normalized	97.83%	100%	93.98%
Standard Deviation	2.3%	2.4%	1.5%
LeelaChessZero - Eigen (Nodes/s)	407	400	392
Normalized	100%	98.28%	96.31%
Standard Deviation	0.2%	2.2%	1.7%
CloverLeaf - L.E.H (sec)	133.71	135.15	136.24
Normalized	100%	98.93%	98.14%
Standard Deviation	0.9%	0.1%	0.6%
CP2K Molecular Dynamics - Fayalite-FIST Data (sec)	793.202	794.73	888.218
Normalized	100%	99.81%	89.3%
CLOMP - Static OMP Speedup (Speedup)	20.3	20.6	21.3
Normalized	95.31%	96.71%	100%
Standard Deviation	1.2%	1.3%	0.5%
NAMD - ATPase Simulation - 327,506 Atoms (days/ns)	1.07576	1.08231	1.08745
Normalized	100%	99.39%	98.93%
Standard Deviation	1%	0.2%	0.7%
Dolfyn - C.F.D (sec)	13.381	13.390	13.051
Normalized	97.53%	97.47%	100%
Standard Deviation	0.5%	1%	0.3%
Algebraic Multi-Grid Benchmark (Figure Of Merit)	209751500	210448767	209237533
Normalized	99.67%	100%	99.42%
Standard Deviation	0.3%	0.3%	1%
FFTE - N.2.3.C.F.R (MFLOPS)	34957	34812	34674
Normalized	100%	99.58%	99.19%
Standard Deviation	0%	0.2%	0.3%
Timed MrBayes Analysis - P.P.A (sec)	62.959	63.178	62.991
Normalized	100%	99.65%	99.95%
Standard Deviation	0.1%	0.4%	0.4%
Incompact3D - Cylinder (sec)	183.715825	182.655787	182.896179
Normalized	99.42%	100%	99.87%
Standard Deviation	1.5%	0.3%	0.1%
Timed MAFFT Alignment - M.S.A - LSU RNA (sec)	7.888	8.592	7.413
Normalized	93.98%	86.28%	100%
Standard Deviation	0.1%	0.7%	0.7%
BLAKE2 (Cycles/Byte)	4.35	4.28	4.41
Normalized	98.39%	100%	97.05%
Standard Deviation	1%	2%	0.8%

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WebP Image Encode - Q.1.L (Encode Time - sec)	13.010	**13.026**	**12.957**
Normalized	99.59%	99.47%	100%
Standard Deviation	0.5%	0.9%	1.2%
WebP Image Encode - Q.1.L.H.C (Encode Time - sec)	**27.162**	**27.284**	27.173
Normalized	100%	99.55%	99.96%
Standard Deviation	0.2%	0.5%	0.2%
DaCapo Benchmark - Jython (msec)	3012	**3030**	**2948**
Normalized	97.88%	97.29%	100%
Standard Deviation	1.1%	1.1%	0.8%
DaCapo Benchmark - Tradebeans (msec)	3686	**3786**	**3460**
Normalized	93.87%	91.39%	100%
Standard Deviation	1.6%	2%	2.4%
Renaissance - Apache Spark ALS (ms)	1460	**1496**	**1396**
Normalized	95.59%	93.3%	100%
Standard Deviation	2.5%	1.8%	2%
Renaissance - T.H.R (ms)	**1943**	1914	**1890**
Normalized	97.28%	98.75%	100%
Standard Deviation	1.2%	2.2%	1.7%
Renaissance - I.M.D.S (ms)	3669	**3706**	**2850**
Normalized	77.69%	76.91%	100%
Standard Deviation	6.5%	5%	8.7%
Renaissance - A.U.C.T (ms)	**9312**	9184	**9117**
Normalized	97.91%	99.28%	100%
Standard Deviation	1.3%	2.7%	2.4%
LZ4 Compression - 3 - Compression Speed (MB/s)	**74.17**	70.55	**70.13**
Normalized	100%	95.12%	94.55%
Standard Deviation	2.5%	2.6%	2.5%
LZ4 Compression - 3 - D.S (MB/s)	**13226**	13155	**13131**
Normalized	100%	99.46%	99.28%
Standard Deviation	0.9%	0.3%	0.8%
LZ4 Compression - 9 - Compression Speed (MB/s)	**70.76**	69.14	**68.39**
Normalized	100%	97.71%	96.65%
Standard Deviation	2.9%	2.4%	1.5%
LZ4 Compression - 9 - D.S (MB/s)	**13242**	13175	**13095**
Normalized	100%	99.5%	98.89%
Standard Deviation	0.6%	0.7%	0.8%
Zstd Compression - 3 (MB/s)	4808	**4834**	**4798**
Normalized	99.45%	100%	99.26%
Standard Deviation	0.2%	0.4%	0.5%
Zstd Compression - 19 (MB/s)	**43.3**	**43.4**	**43.4**
Normalized	99.77%	100%	100%
Standard Deviation	0.2%	0.2%	0.2%
LibRaw - P.P.B (Mpix/sec)	53.96	**53.91**	**54.11**
Normalized	99.72%	99.63%	100%
Standard Deviation	0.9%	0.5%	0.3%
Crafty - Elapsed Time (Nodes/s)	**11675424**	11588672	**11356738**
Normalized	100%	99.26%	97.27%
Standard Deviation	0.7%	0.5%	1%
John The Ripper - Blowfish (Real C/S)	**38406**	38351	**38256**
Normalized	100%	99.86%	99.61%
Standard Deviation	0.3%	0.4%	0.5%

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John The Ripper - MD5 (Real C/S)	**2221333**	**2212000**	2217000
Normalized	100%	99.58%	99.8%
Standard Deviation	0.8%	0.6%	0.3%
oneDNN - IP Shapes 1D - f32 - CPU (ms)	**3.83570**	**3.92764**	3.89227
Normalized	100%	97.66%	98.55%
Standard Deviation	0.8%	0.6%	0.2%
oneDNN - IP Shapes 3D - f32 - CPU (ms)	**8.13842**	8.35037	**8.40829**
Normalized	100%	97.46%	96.79%
Standard Deviation	0.9%	1.6%	1.1%
oneDNN - C.B.S.A - f32 - CPU (ms)	**17.2598**	**16.9447**	16.9879
Normalized	98.17%	100%	99.75%
Standard Deviation	0.3%	0.4%	0.3%
oneDNN - D.B.s - f32 - CPU (ms)	**2.41886**	2.42791	**2.43083**
Normalized	100%	99.63%	99.51%
Standard Deviation	0.3%	0.3%	0.5%
oneDNN - D.B.s - f32 - CPU (ms)	**3.54830**	**3.53779**	3.54069
Normalized	99.7%	100%	99.92%
Standard Deviation	0.2%	0.2%	0.3%
oneDNN - R.N.N.T - f32 - CPU (ms)	**2534**	2574	**2657**
Normalized	100%	98.44%	95.34%
Standard Deviation	2%	1.3%	2%
oneDNN - R.N.N.I - f32 - CPU (ms)	**1653**	**1704**	1687
Normalized	100%	97.02%	98%
Standard Deviation	3.6%	6.7%	4.4%
oneDNN - M.M.B.S.T - f32 - CPU (ms)	**0.924960**	**0.640735**	0.645934
Normalized	69.27%	100%	99.2%
Standard Deviation	1.3%	0.5%	0.7%
dav1d - Chimera 1080p (FPS)	652.90	**597.38**	**900.42**
Normalized	72.51%	66.34%	100%
Standard Deviation	0.2%	0.3%	0%
dav1d - Summer Nature 4K (FPS)	236.83	**232.45**	**238.79**
Normalized	99.18%	97.34%	100%
Standard Deviation	0.6%	0.2%	0.3%
dav1d - S.N.1 (FPS)	576.69	**538.39**	**924.64**
Normalized	62.37%	58.23%	100%
Standard Deviation	0.8%	0.7%	0.8%
dav1d - C.1.1.b (FPS)	102.03	**96.48**	**135.62**
Normalized	75.23%	71.14%	100%
Standard Deviation	0.3%	0.2%	0.7%
OSPray - San Miguel - SciVis (FPS)	**29.71**	**30.01**	**30.01**
Normalized	99%	100%	100%
Standard Deviation	1.7%	1.7%	1.7%
OSPray - XFrog Forest - SciVis (FPS)	**5.50**	**5.49**	**5.49**
Normalized	100%	99.82%	99.82%
Standard Deviation	0.3%	0.5%	0%
OSPray - San Miguel - Path Tracer (FPS)	**2.48**	**2.47**	**2.47**
Normalized	100%	99.6%	99.6%
Standard Deviation	0.3%	0.1%	0.7%
OSPray - NASA Streamlines - SciVis (FPS)	40	40	40
OSPray - XFrog Forest - Path Tracer (FPS)	**2.95**	**2.95**	**2.94**
Normalized	100%	100%	99.66%
Standard Deviation	0.3%	0.3%	0.2%
OSPray - M.R - SciVis (FPS)	**22.06**	21.90	**21.74**
Normalized	100%	99.27%	98.55%
Standard Deviation	1.3%	1.3%	0%

OSPray - NASA Streamlines - Path Tracer (FPS)	8.26	8.26	8.26
Standard Deviation	0%	0%	0%
TTSIOD 3D Renderer - P.R.W.S.S.M (FPS)	1040	**1056**	**1038**
Normalized	98.44%	100%	98.25%
Standard Deviation	2.4%	2.1%	0.6%
AOM AV1 - Speed 6 Realtime (FPS)	22.34	**22.14**	**30.59**
Normalized	73.03%	72.38%	100%
Standard Deviation	0.9%	2.2%	3.6%
AOM AV1 - Speed 8 Realtime (FPS)	56.88	**52.99**	**57.52**
Normalized	98.89%	92.12%	100%
Standard Deviation	1.6%	4.8%	1.1%
Embree - Pathtracer - Crown (FPS)	24.2128	**24.0859**	**24.2868**
Normalized	99.7%	99.17%	100%
Standard Deviation	0.4%	1.1%	0.4%
Embree - Pathtracer ISPC - Crown (FPS)	23.8276	**23.6319**	**23.8476**
Normalized	99.92%	99.1%	100%
Standard Deviation	0.6%	0.1%	0.4%
Embree - Pathtracer - Asian Dragon (FPS)	**24.9964**	24.8480	**24.8096**
Normalized	100%	99.41%	99.25%
Standard Deviation	1.6%	0.5%	0.8%
Embree - Pathtracer ISPC - Asian Dragon (FPS)	25.5815	**25.3228**	**25.6582**
Normalized	99.7%	98.69%	100%
Standard Deviation	0.3%	0.2%	0.9%
Kvazaar - Bosphorus 4K - Very Fast (FPS)	29.11	**26.57**	**29.35**
Normalized	99.18%	90.53%	100%
Standard Deviation	0.3%	0.3%	0.3%
Kvazaar - Bosphorus 4K - Ultra Fast (FPS)	53.16	**49.15**	**53.40**
Normalized	99.55%	92.04%	100%
Standard Deviation	0.1%	0.8%	0.3%
SVT-AV1 - Enc Mode 4 - 1080p (FPS)	**6.049**	**6.134**	6.094
Normalized	98.61%	100%	99.35%
Standard Deviation	1.1%	0.8%	0.8%
SVT-AV1 - Enc Mode 8 - 1080p (FPS)	50.464	**48.757**	**51.966**
Normalized	97.11%	93.82%	100%
Standard Deviation	1.4%	1.3%	1%
SVT-VP9 - P.S.O - Bosphorus 1080p (FPS)	232.62	**233.27**	**228.67**
Normalized	99.72%	100%	98.03%
Standard Deviation	3.2%	2.9%	3.1%
SVT-VP9 - V.Q.O - Bosphorus 1080p (FPS)	223.02	**224.74**	**222.17**
Normalized	99.23%	100%	98.86%
Standard Deviation	0.3%	1%	0.3%
x264 - H.2.V.E (FPS)	196.51	**176.93**	**208.87**
Normalized	94.08%	84.71%	100%
Standard Deviation	2.5%	1.7%	2.6%
x265 - Bosphorus 4K (FPS)	27.04	**24.42**	**28.07**
Normalized	96.33%	87%	100%
Standard Deviation	0.1%	2.5%	0.3%
ACES DGEMM - S.F.P.R (GFLOP/s)	**9.464163**	9.441494	**9.415304**
Normalized	100%	99.76%	99.48%
Standard Deviation	2%	0.7%	3.8%

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Coremark - CoreMark Size 666 - I.P.S (Iterations/Sec)	**820504**	**812888**	813873
Normalized	100%	99.07%	99.19%
Standard Deviation	0.7%	0.3%	0.3%
Himeno Benchmark - P.P.S (MFLOPS)	**5343**	**5227**	5309
Normalized	100%	97.82%	99.37%
Standard Deviation	5.8%	3.9%	5.9%
7-Zip Compression - C.S.T (MIPS)	95379	**93931**	**95640**
Normalized	99.73%	98.21%	100%
Standard Deviation	0.3%	0.2%	0.4%
Stockfish - Total Time (Nodes/s)	**44197865**	**43240425**	43755897
Normalized	100%	97.83%	99%
Standard Deviation	3%	1.6%	1.2%
asmFish - 1.H.M.2.D (Nodes/s)	**60742608**	60022898	**59991962**
Normalized	100%	98.82%	98.76%
Standard Deviation	1.7%	1.5%	2.3%
Swet - Average (Operations/sec)	1110470194	**1097526391**	**1113589473**
Normalized	99.72%	98.56%	100%
Standard Deviation	0.8%	0.4%	1.5%
libavif avifenc - 8 (sec)	**4.317**	4.299	**4.277**
Normalized	99.07%	99.49%	100%
Standard Deviation	0.3%	1.1%	0.4%
libavif avifenc - 10 (sec)	**4.194**	4.150	**4.094**
Normalized	97.62%	98.65%	100%
Standard Deviation	0.6%	0.4%	1%
Timed GDB GNU Debugger Compilation - Time To Compile (sec)	**75.910**	65.454	**62.619**
Normalized	82.49%	95.67%	100%
Standard Deviation	0.6%	1.1%	0.8%
Timed Godot Game Engine Compilation - Time To Compile (sec)	79.736	**80.026**	**79.566**
Normalized	99.79%	99.43%	100%
Standard Deviation	0.3%	0.4%	0.2%
Timed Linux Kernel Compilation - Time To Compile (sec)	**46.310**	**45.556**	45.902
Normalized	98.37%	100%	99.25%
Standard Deviation	1.6%	2.4%	1.2%
Build2 - Time To Compile (sec)	**82.430**	**81.338**	81.571
Normalized	98.68%	100%	99.71%
Standard Deviation	1%	0.5%	0.1%
C-Ray - Total Time - 4.1.R.P.P (sec)	**30.912**	30.891	**30.865**
Normalized	99.85%	99.92%	100%
Standard Deviation	0.3%	0.1%	0.2%
Primesieve - 1.P.N.G (sec)	**11.163**	11.152	**11.149**
Normalized	99.87%	99.97%	100%
Standard Deviation	0.2%	0.3%	0.4%
Smallpt - G.I.R.1.S (sec)	4.925	**4.936**	**4.924**
Normalized	99.98%	99.76%	100%
Standard Deviation	0%	0.4%	0.4%
YafaRay - T.T.F.S.S (sec)	**66.648**	**66.562**	66.579
Normalized	99.87%	100%	99.97%
Standard Deviation	0.5%	0.8%	0.5%
XZ Compression - C.u.1.0.3.s.i.i.C.L.9 (sec)	**23.169**	23.148	**22.991**
Normalized	99.23%	99.32%	100%
Standard Deviation	0.4%	0.4%	1%

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DeepSpeech - CPU (sec)	66.66266	**70.53203**	**61.76937**
Normalized	92.66%	87.58%	100%
Standard Deviation	0.1%	0.6%	1.3%
FLAC Audio Encoding - WAV To FLAC (sec)	**6.374**	6.341	**6.332**
Normalized	99.34%	99.86%	100%
Standard Deviation	2.1%	1.2%	0.7%
Radiance Benchmark - SMP Parallel (sec)	138.05	**136.747**	**141.301**
Normalized	99.06%	100%	96.78%
RNNoise (sec)	**15.380**	**15.276**	15.338
Normalized	99.32%	100%	99.6%
Standard Deviation	0.5%	0.6%	0.2%
Tachyon - Total Time (sec)	**44.4286**	**44.5379**	44.4373
Normalized	100%	99.75%	99.98%
Standard Deviation	0.7%	0.5%	0.3%
Aircrack-ng (k/s)	**74815**	74944	**74981**
Normalized	99.78%	99.95%	100%
Standard Deviation	0.2%	0.1%	0.2%
FinanceBench - Repo OpenMP (ms)	27389	**27284**	**27738**
Normalized	99.62%	100%	98.36%
Standard Deviation	0.3%	0.4%	2.4%
FinanceBench - Bonds OpenMP (ms)	40036	**40215**	**39804**
Normalized	99.42%	98.98%	100%
Standard Deviation	0.3%	2.9%	0.6%
GROMACS - Water Benchmark (Ns/Day)	**1.255**	1.259	**1.260**
Normalized	99.6%	99.92%	100%
Standard Deviation	0.2%	0.2%	0.6%
TensorFlow Lite - SqueezeNet (us)	95107	**95244**	**95054**
Normalized	99.94%	99.8%	100%
Standard Deviation	0.1%	0.2%	0.2%
TensorFlow Lite - Inception V4 (us)	**1351443**	1352733	**1352833**
Normalized	100%	99.9%	99.9%
Standard Deviation	0.1%	0%	0.1%
TensorFlow Lite - NASNet Mobile (us)	104166	**104351**	**103996**
Normalized	99.84%	99.66%	100%
Standard Deviation	0.2%	0.5%	0.5%
TensorFlow Lite - Mobilenet Float (us)	**62744**	62776	**62793**
Normalized	100%	99.95%	99.92%
Standard Deviation	0.2%	0.1%	0.1%
TensorFlow Lite - Mobilenet Quant (us)	**68040**	68059	**68077**
Normalized	100%	99.97%	99.94%
Standard Deviation	0.1%	0.2%	0.2%
TensorFlow Lite - I.R.V (us)	1216837	**1216700**	**1217200**
Normalized	99.99%	100%	99.96%
Standard Deviation	0.1%	0.1%	0.1%
ASTC Encoder - Exhaustive (sec)	**100.50**	**100.64**	100.62
Normalized	100%	99.86%	99.88%
Standard Deviation	0.1%	0.1%	0.2%
GEGL - Scale (sec)	**4.829**	4.727	**4.520**
Normalized	93.6%	95.62%	100%
Standard Deviation	1.8%	3.3%	2.4%
GEGL - Color Enhance (sec)	**41.631**	41.330	**40.862**
Normalized	98.15%	98.87%	100%
Standard Deviation	0.1%	0.3%	0.8%
GEGL - Rotate 90 Degrees (sec)	29.993	**30.010**	**29.509**
Normalized	98.39%	98.33%	100%

Standard Deviation	0.3%	0.4%	0.4%
GIMP - resize (sec)	6.510	**6.738**	**5.434**
Normalized	83.47%	80.65%	100%
Standard Deviation	1.8%	2.1%	1.9%
GIMP - rotate (sec)	**9.459**	9.294	**8.454**
Normalized	89.38%	90.96%	100%
Standard Deviation	1.1%	1%	0.3%
GIMP - auto-levels (sec)	10.541	**11.233**	**9.542**
Normalized	90.52%	84.95%	100%
Standard Deviation	0.8%	1.3%	0.9%
GIMP - unsharp-mask (sec)	13.109	**14.615**	**12.122**
Normalized	92.47%	82.94%	100%
Standard Deviation	0.3%	1.1%	0.6%
Hugin - P.P.A.S.T (sec)	**35.089**	34.950	**34.076**
Normalized	97.11%	97.5%	100%
Standard Deviation	1.5%	1.2%	1.7%
OCRMyPDF - P.6.P.P.D (sec)	12.629	**12.781**	**12.473**
Normalized	98.76%	97.59%	100%
Standard Deviation	0.4%	2.4%	1.1%
Stress-NG - Crypto (Bogo Ops/s)	**4838**	**4846**	4838
Normalized	99.83%	100%	99.84%
Standard Deviation	0.3%	0.4%	0.4%
Stress-NG - CPU Cache (Bogo Ops/s)	**36.43**	36.76	**38.12**
Normalized	95.57%	96.43%	100%
Standard Deviation	3.8%	1.6%	3.6%
Stress-NG - CPU Stress (Bogo Ops/s)	12300	**12301**	**12206**
Normalized	99.99%	100%	99.23%
Standard Deviation	0.2%	2.1%	1.3%
Stress-NG - Vector Math (Bogo Ops/s)	172974	**173053**	**172877**
Normalized	99.95%	100%	99.9%
Standard Deviation	0.2%	0.2%	0.1%
GPAW - Carbon Nanotube (sec)	**324.634**	**326.421**	326.376
Normalized	100%	99.45%	99.47%
Standard Deviation	0.3%	0.2%	0.3%
Mobile Neural Network - SqueezeNetV1.0	5.186	**5.174**	**5.285**
Normalized	99.77%	100%	97.9%
Standard Deviation	4.8%	3.7%	2.4%
Mobile Neural Network - resnet-v2-50 (ms)	**24.156**	**23.969**	24.020
Normalized	99.23%	100%	99.79%
Standard Deviation	1.5%	1%	0.1%
Mobile Neural Network - inception-v3 (ms)	31.426	**31.138**	**31.558**
Normalized	99.08%	100%	98.67%
Standard Deviation	2.5%	1.9%	1.7%
NCNN - CPU - mobilenet (ms)	**12.22**	12.21	**12.20**
Normalized	99.84%	99.92%	100%
Standard Deviation	2.4%	2%	3.9%
NCNN - CPU-v2-v2 - mobilenet-v2 (ms)	**4.49**	4.48	**4.46**
Normalized	99.33%	99.55%	100%
Standard Deviation	0.4%	0.3%	0.3%
NCNN - CPU-v3-v3 - mobilenet-v3 (ms)	4.17	**4.18**	**4.16**
Normalized	99.76%	99.52%	100%
Standard Deviation	0.8%	0.6%	0.4%
NCNN - CPU - shufflenet-v2 (ms)	**4.46**	4.45	**4.44**
Normalized	99.55%	99.78%	100%
Standard Deviation	0.9%	0.5%	0.6%

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NCNN - CPU - mnasnet (ms)	**4.01**	**3.98**	4.00
Normalized	99.25%	100%	99.5%
Standard Deviation	2.1%	0.3%	2.9%
NCNN - CPU - efficientnet-b0 (ms)	**5.43**	**5.39**	5.40
Normalized	99.26%	100%	99.81%
Standard Deviation	1.6%	0.1%	2%
NCNN - CPU - blazeface (ms)	**1.84**	**1.83**	**1.83**
Normalized	99.46%	100%	100%
Standard Deviation	0.9%	0.3%	2.9%
NCNN - CPU - googlenet (ms)	13.17	**13.12**	**13.24**
Normalized	99.62%	100%	99.09%
Standard Deviation	1.5%	0.1%	4.2%
NCNN - CPU - vgg16 (ms)	**59.34**	60.13	**60.14**
Normalized	100%	98.69%	98.67%
Standard Deviation	0.6%	0%	0.2%
NCNN - CPU - resnet18 (ms)	**14.67**	14.69	**14.76**
Normalized	100%	99.86%	99.39%
Standard Deviation	0.7%	0.2%	2%
NCNN - CPU - alexnet (ms)	**11.37**	**11.13**	**11.37**
Normalized	97.89%	100%	97.89%
Standard Deviation	5.1%	0.2%	3.5%
NCNN - CPU - resnet50 (ms)	25.19	**25.11**	**25.45**
Normalized	99.68%	100%	98.66%
Standard Deviation	1.5%	0.3%	3.2%
NCNN - CPU - yolov4-tiny (ms)	21.62	**21.48**	**21.72**
Normalized	99.35%	100%	98.9%
Standard Deviation	3.2%	0.9%	3.5%
NCNN - CPU - squeezenet_ssd (ms)	**14.68**	**14.77**	14.70
Normalized	100%	99.39%	99.86%
Standard Deviation	1.5%	0.4%	1.6%
NCNN - CPU - regnety_400m (ms)	**17.97**	17.94	**17.74**
Normalized	98.72%	98.89%	100%
Standard Deviation	0.5%	0.3%	0.5%
TNN - CPU - MobileNet v2 (ms)	217.271	**218.723**	**214.925**
Normalized	98.92%	98.26%	100%
Standard Deviation	1.1%	1.5%	1.3%
TNN - CPU - SqueezeNet v1.1 (ms)	209.087	**208.568**	**209.487**
Normalized	99.75%	100%	99.56%
Standard Deviation	0.7%	0.6%	0.7%
PlaidML - No - Inference - VGG16 - CPU	20.96	**21.21**	**20.92**
Normalized	98.82%	100%	98.63%
Standard Deviation	1.5%	2.3%	1%
PlaidML - No - Inference - VGG19 - CPU	**17.21**	**17.38**	**17.38**
Normalized	99.02%	100%	100%
Standard Deviation	0.3%	0.3%	0.8%
PlaidML - No - Inference - ResNet 50 - CPU (FPS)	11.52	**11.60**	**11.46**
Normalized	99.31%	100%	98.79%
Standard Deviation	1.7%	0.9%	2.4%
Chaos Group V-RAY - CPU (Ksamples)	**32427**	32442	**32508**
Normalized	99.75%	99.8%	100%
Standard Deviation	0.4%	0.2%	0.7%
IndigoBench - CPU - Bedroom (M samples/s)	4.130	**4.114**	**4.142**
Normalized	99.71%	99.32%	100%
Standard Deviation	0.2%	0.3%	0.2%

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IndigoBench - CPU - Supercar (M samples/s)	**8.693**	**8.662**	8.674
Normalized	100%	99.64%	99.78%
Standard Deviation	0.1%	0.1%	0.3%
Appleseed - Emily (sec)	191.138557	**194.362976**	**190.538231**
Normalized	99.69%	98.03%	100%
Appleseed - Material Tester (sec)	**111.791755**	**113.431576**	112.252499
Normalized	100%	98.55%	99.59%
AI Benchmark Alpha - D.I.S (Score)	1514	**1481**	**1544**
Normalized	98.06%	95.92%	100%
AI Benchmark Alpha - D.T.S (Score)	1176	**1156**	**1199**
Normalized	98.08%	96.41%	100%
AI Benchmark Alpha - Device AI Score	2690	**2637**	**2743**
Normalized	98.07%	96.14%	100%
Selenium - ARES-6 - Firefox (ms)	50.04	**59.48**	**44.80**
Normalized	89.53%	75.32%	100%
Standard Deviation	0.7%	0.7%	1.4%
Selenium - Kraken - Firefox (ms)	**909.3**	**896.9**	903.2
Normalized	98.64%	100%	99.3%
Standard Deviation	2.1%	1.3%	0.7%
Selenium - StyleBench - Firefox (Runs /	**88.3**	89.2	**115**
Normalized	76.78%	77.57%	100%
Standard Deviation	1.6%	4.9%	
Selenium - Jetstream 2 - Firefox (Score)	84.980	**80.483**	**91.873**
Normalized	92.5%	87.6%	100%
Standard Deviation	2.3%	0.6%	1.9%
Selenium - Speedometer - Firefox (Runs/min)	122	**111**	**125**
Normalized	97.6%	88.8%	100%
Standard Deviation	1.4%	4.1%	1.2%
Selenium - ARES-6 - Google Chrome (ms)	17.19	**18.58**	**14.47**
Normalized	84.18%	77.88%	100%
Standard Deviation	1.8%	0.5%	1%
Selenium - Kraken - Google Chrome (ms)	616.8	**789.5**	**555.2**
Normalized	90.01%	70.32%	100%
Standard Deviation	1.4%	4.9%	1.1%
Selenium - PSPDFKit WASM - Firefox (Score)	3171	**3325**	**2826**
Normalized	89.12%	84.99%	100%
Standard Deviation	0.6%	1.9%	1.4%
Selenium - StyleBench - Google Chrome (Runs / Minute)	54.9	**52.3**	**55.2**
Normalized	99.46%	94.75%	100%
Standard Deviation	0.7%	1.3%	0.3%
Selenium - Jetstream 2 - Google Chrome (Score)	172.135	**161.812**	**196.476**
Normalized	87.61%	82.36%	100%
Standard Deviation	2.1%	2.3%	0.7%
Selenium - Speedometer - Google Chrome (Runs/min)	174	**159**	**179**
Normalized	97.21%	88.83%	100%
Standard Deviation	0.3%	2.4%	0.6%
Selenium - PSPDFKit WASM - Google Chrome (Score)	**3060**	**3110**	3061
Normalized	100%	98.39%	99.97%
Standard Deviation	0.9%	0.9%	0.4%
Selenium - W.i - Firefox (ms)	**24.4**	**23.9**	24.2

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Normalized	97.95%	100%	98.76%
Standard Deviation	0.4%	2.1%	0.4%
Selenium - W.c - Firefox (ms)	302.1	**298.7**	**302.9**
Normalized	98.87%	100%	98.61%
Standard Deviation	0.5%	1.4%	0.6%
Selenium - W.i - Google Chrome (ms)	24.5742	**24.4030**	**24.6737**
Normalized	99.3%	100%	98.9%
Standard Deviation	0.9%	2.5%	2.7%
Selenium - W.c - Google Chrome (ms)	**252.8077**	**254.4815**	253.0180
Normalized	100%	99.34%	99.92%
Standard Deviation	1.6%	2.2%	2.2%
Git - T.T.C.C.G.C (sec)	**38.222**	38.056	**38.028**
Normalized	99.49%	99.93%	100%
Standard Deviation	0.7%	1.2%	1.3%
Tesseract OCR - T.T.O.7.I (sec)	18.691	**18.643**	**18.824**
Normalized	99.74%	100%	99.04%
Standard Deviation	2.6%	1%	3.6%
Kripke (Throughput FoM)	**70949383**	**74758563**	73934070
Normalized	94.9%	100%	98.9%
Standard Deviation	3.1%	0.6%	1.1%
Tesseract - 1920 x 1080 (FPS)	516.8878	**400.6544**	**691.1239**
Normalized	74.79%	57.97%	100%
Standard Deviation	3.5%	6.9%	2.2%
Tesseract - 3840 x 2160 (FPS)	**345.9139**	363.7753	**426.4120**
Normalized	81.12%	85.31%	100%
Standard Deviation	2.5%	5.3%	0.9%
Unigine Superposition - 1920 x 1080 - Fullscreen - Low - OpenGL (FPS)	238.7	**218.6**	**241.4**
Normalized	98.88%	90.56%	100%
Standard Deviation	1.9%	9.3%	1%
Unigine Superposition - 3840 x 2160 - Fullscreen - Low - OpenGL (FPS)	**96.5**	**96.5**	**96.4**
Normalized	100%	100%	99.9%
Standard Deviation	0%	0.1%	0.1%
Warsow - 1920 x 1080 (FPS)	**954.6**	957.0	**957.9**
Normalized	99.66%	99.91%	100%
Standard Deviation	0.2%	0.2%	0.2%
Warsow - 3840 x 2160 (FPS)	**422.2**	431.9	**432.7**
Normalized	97.57%	99.82%	100%
Standard Deviation	0.1%	0.1%	0.1%
Xonotic - 3840 x 2160 - Low (FPS)	**667.3234012**	667.8954646	**675.2723592**
Normalized	98.82%	98.91%	100%
Standard Deviation	0.4%	0.3%	2.2%
Xonotic - 3840 x 2160 - High (FPS)	536.4375687	**385.3378538**	**540.7442902**
Normalized	99.2%	71.26%	100%
Standard Deviation	0.4%	21.9%	0.3%
Xonotic - 3840 x 2160 - Ultra (FPS)	468.1189340	**299.3136323**	**472.0354187**
Normalized	99.17%	63.41%	100%
Standard Deviation	0.5%	9.2%	0.2%
Xonotic - 3840 x 2160 - Ultimate (FPS)	371.7135044	**260.8848193**	**376.9448431**
Normalized	98.61%	69.21%	100%
Standard Deviation	0.5%	8.5%	0.6%
GLmark2 - 3840 x 2160 (Score)	**4631**	**2802**	2873
Normalized	100%	60.51%	62.04%

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GpuTest - GiMark - 3840 x 2160 - Fullscreen (Points)	**10912**	10884	**10870**
Normalized	100%	99.74%	99.62%
Standard Deviation	0.4%	0.1%	0.1%
GpuTest - Plot3D - 3840 x 2160 - Fullscreen (Points)	**69051**	68987	**68923**
Normalized	100%	99.91%	99.81%
Standard Deviation	0.1%	0.1%	0.1%
GpuTest - Furmark - 3840 x 2160 - Fullscreen (Points)	**4617**	**4617**	**4620**
Normalized	99.94%	99.94%	100%
Standard Deviation	0.1%	0.2%	0.1%
GpuTest - TessMark - 3840 x 2160 - Fullscreen (Points)	19604	**19625**	**19597**
Normalized	99.89%	100%	99.86%
Standard Deviation	0.1%	0.1%	0.1%
GpuTest - Triangle - 3840 x 2160 - Fullscreen (Points)	**425381**	**424446**	424552
Normalized	100%	99.78%	99.81%
Standard Deviation	0.3%	0.1%	0.1%
GpuTest - Pixmark Piano - 3840 x 2160 - Fullscreen (Points)	**845**	**847**	846
Normalized	99.76%	100%	99.88%
Standard Deviation	0.1%		0.1%
GpuTest - Pixmark Volplosion - 3840 x 2160 - Fullscreen (Points)	**2090**	**2094**	2091
Normalized	99.81%	100%	99.86%
Standard Deviation	0.1%	0.1%	0.1%
VKMark - 3840 x 2160 (VKMark Score)	**662**	**639**	640
Normalized	100%	96.53%	96.68%
ParaView - Wavelet Volume - 3840 x 2160 (Frames / Sec)	**221.12**	**253.67**	246.30
Normalized	87.17%	100%	97.09%
Standard Deviation	12.6%	0.7%	1.4%
ParaView - Wavelet Volume - 3840 x 2160 (MiVoxels / Sec)	**3538**	**4059**	3941
Normalized	87.17%	100%	97.1%
Standard Deviation	12.6%	0.7%	1.4%
ParaView - Wavelet Contour - 3840 x 2160 (Frames / Sec)	**192.77**	197.17	**197.32**
Normalized	97.69%	99.92%	100%
Standard Deviation	0.3%	0.1%	0.5%
ParaView - Wavelet Contour - 3840 x 2160 (MiPolys / Sec)	**2009**	2055	**2056**
Normalized	97.69%	99.92%	100%
Standard Deviation	0.3%	0.1%	0.5%
rav1e - 1 (FPS)	**0.544**	0.549	**0.555**
Normalized	98.02%	98.92%	100%
Standard Deviation	1%	1%	0.5%
rav1e - 5 (FPS)	1.553	**1.508**	**1.631**
Normalized	95.22%	92.46%	100%
Standard Deviation	0.5%	1.2%	1.5%
rav1e - 6 (FPS)	2.083	**2.004**	**2.191**

AMD Ryzen 9 5950X Linux 5.11

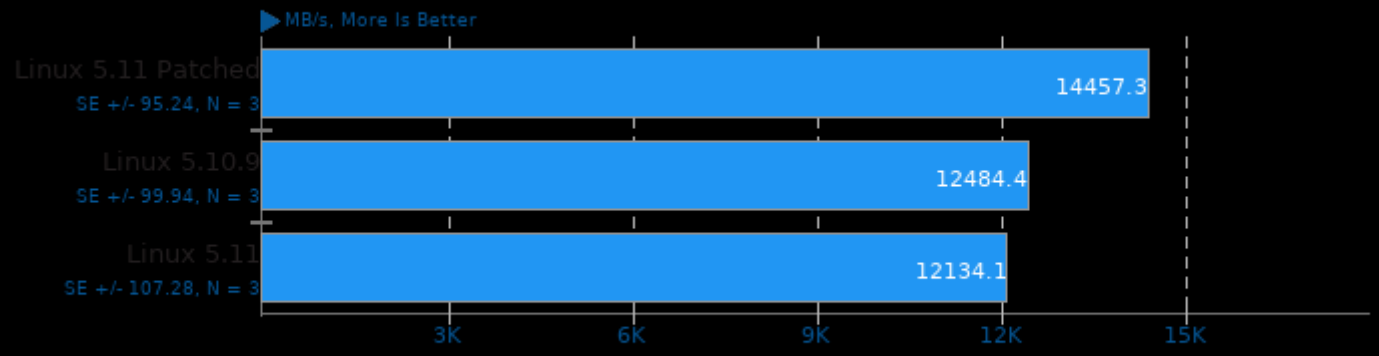
Normalized	95.07%	91.47%	100%
Standard Deviation	1.8%	1.1%	0.8%
rav1e - 10 (FPS)	4.397	**3.575**	**5.060**
Normalized	86.9%	70.65%	100%
Standard Deviation	2.2%	6%	1%
Rust Mandelbrot - T.T.C.S.P.M (sec)	32.467	**32.678**	**31.609**
Normalized	97.36%	96.73%	100%
Standard Deviation	0.7%	0.2%	1%
Rust Prime Benchmark - P.N.T.T.2.0.0 (sec)	**5.191**	**5.175**	5.182
Normalized	99.69%	100%	99.86%
Standard Deviation	0%	0%	0%
AOBench - 2048 x 2048 - Total Time (sec)	**27.682**	**27.152**	27.365
Normalized	98.09%	100%	99.22%
Standard Deviation	2.1%	1.6%	1.3%
FFmpeg - H.2.H.T.N.D (sec)	**6.968**	6.908	**6.453**
Normalized	92.61%	93.41%	100%
Standard Deviation	0.9%	3.2%	2.4%
Cpuminer-Opt - Magi (kH/s)	885.48	**901.00**	**867.39**
Normalized	98.28%	100%	96.27%
Standard Deviation	2%	2.1%	0.3%
Cpuminer-Opt - x25x (kH/s)	625.43	**626.31**	**623.19**
Normalized	99.86%	100%	99.5%
Standard Deviation	2.5%	0.6%	0.9%
Cpuminer-Opt - Deepcoin (kH/s)	**12127**	12170	**12223**
Normalized	99.21%	99.57%	100%
Standard Deviation	2.3%	1.3%	1.1%
Cpuminer-Opt - Garlicoin (kH/s)	3949	**3388**	**5233**
Normalized	75.46%	64.75%	100%
Standard Deviation	10.6%	2.3%	1.1%
Node.js V8 Web Tooling Benchmark (runs/s)	**14.88**	14.90	**15.23**
Normalized	97.7%	97.83%	100%
Standard Deviation	1.4%	1%	1.2%
ASKAP - tConvolve MT - Gridding (Million Grid Points/sec)	917.598	**919.710**	**915.039**
Normalized	99.77%	100%	99.49%
Standard Deviation	0.2%	0.1%	0.3%
ASKAP - tConvolve MT - Degridding (Million Grid Points/sec)	1890	**1895**	**1884**
Normalized	99.74%	100%	99.43%
Standard Deviation	0.7%	0.2%	0.6%
ASKAP - tConvolve OpenMP - Gridding (Million Grid Points/sec)	**3301**	3378	**3431**
Normalized	96.24%	98.47%	100%
Standard Deviation	1.9%	2.4%	4.2%
ASKAP - tConvolve OpenMP - Degridding (Million Grid Points/sec)	4226	**4276**	**4205**
Normalized	98.85%	100%	98.34%
Standard Deviation	0%	1.5%	1.1%
Sysbench - Memory (Events/sec)	**15246091**	15268296	**15419966**
Normalized	98.87%	99.02%	100%
Standard Deviation	0.3%	0.2%	0.1%
Sysbench - CPU (Events/sec)	**90776**	90627	**90585**
Normalized	100%	99.84%	99.79%
Standard Deviation	0.2%	0.1%	0.2%

AMD Ryzen 9 5950X Linux 5.11

Xsbench (Lookups/s)	**3146782**	**3071331**	3141666
Normalized	100%	97.6%	99.84%
Standard Deviation	0.1%	2.4%	0.2%
NeatBench - CPU (FPS)	**29.6**	32.1	**32.6**
Normalized	90.8%	98.47%	100%
Standard Deviation	4.1%	1.4%	0.8%
DDraceNetwork - 3840 x 2160 - Fullscreen - OpenGL 2.0 - Default - Multeasymap (FPS)	252.30	**243.23**	**305.92**
Normalized	82.47%	79.51%	100%
Standard Deviation	1.4%	5.6%	1.7%
DDraceNetwork - 3840 x 2160 - Fullscreen - OpenGL 3.3 - Default - Multeasymap (FPS)	**388.77**	415.31	**463.17**
Normalized	83.94%	89.67%	100%
Standard Deviation	1%	2.2%	3.9%
yquake2 - OpenGL 3.x - 3840 x 2160 (FPS)	**989.5**	988.5	**987.0**
Normalized	100%	99.9%	99.75%
Standard Deviation	0.1%	0.1%	0.4%
yquake2 - Software CPU - 3840 x 2160 (FPS)	49.0	**50.5**	**48.9**
Normalized	97.03%	100%	96.83%
Standard Deviation	0.4%	0.6%	1.6%

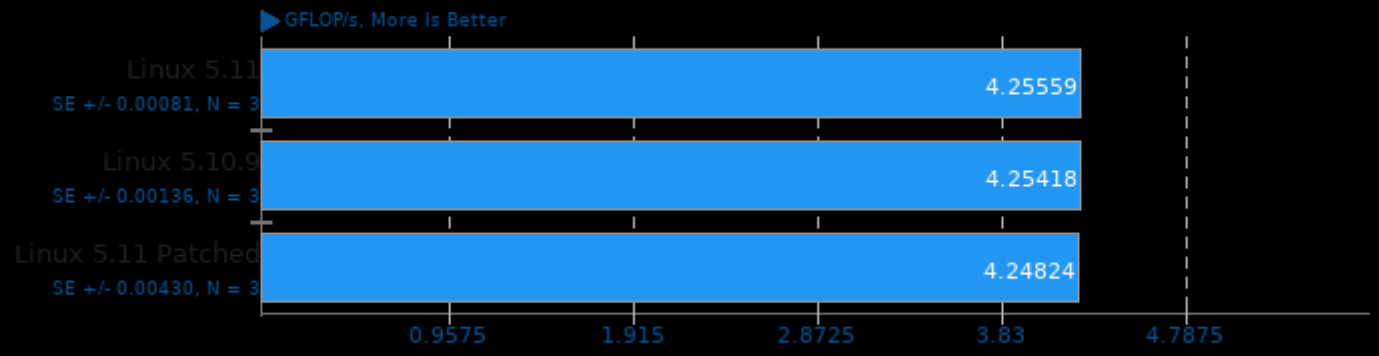
C-Blosc 2.0 Beta 5

Compressor: blosclz



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

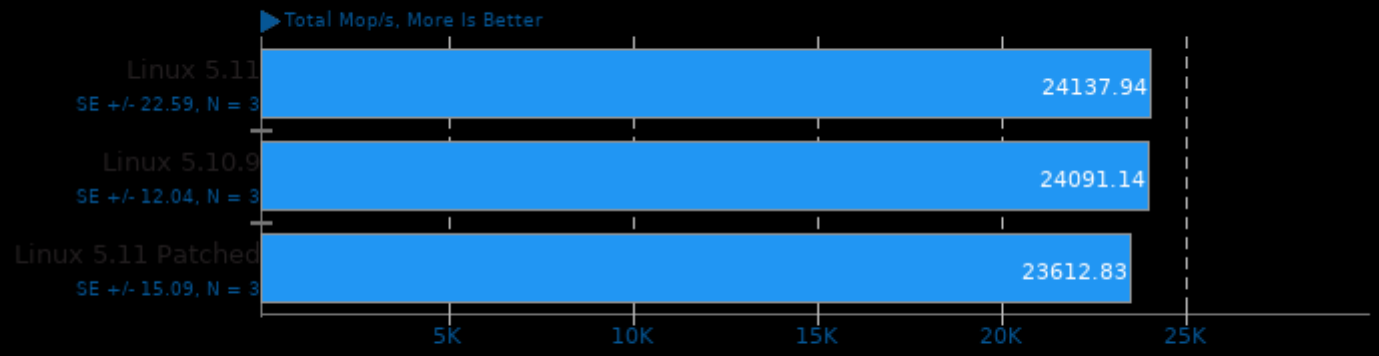
High Performance Conjugate Gradient 3.1



1. (CXX) g++ options: -O3 -ffast-math -ftree-vectorize -pthread -lmpi_cxx -lmpi

NAS Parallel Benchmarks 3.4

Test / Class: BT.C

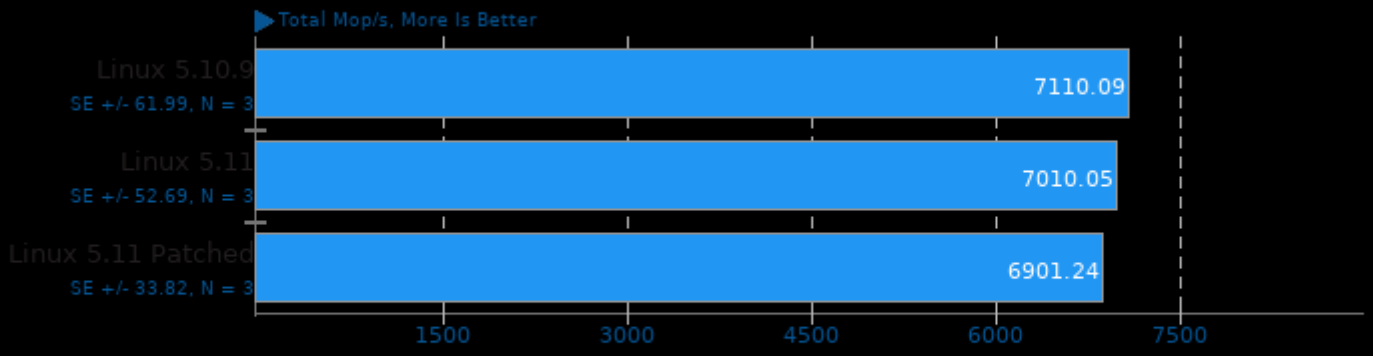


1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi_usempif08 -lmpi_mpifh -lmpi -lopen-rte -lopen-pal -lhwloc -ldl -levent -levent_pthreads -lut

2. Open MPI 4.0.3

NAS Parallel Benchmarks 3.4

Test / Class: CG.C

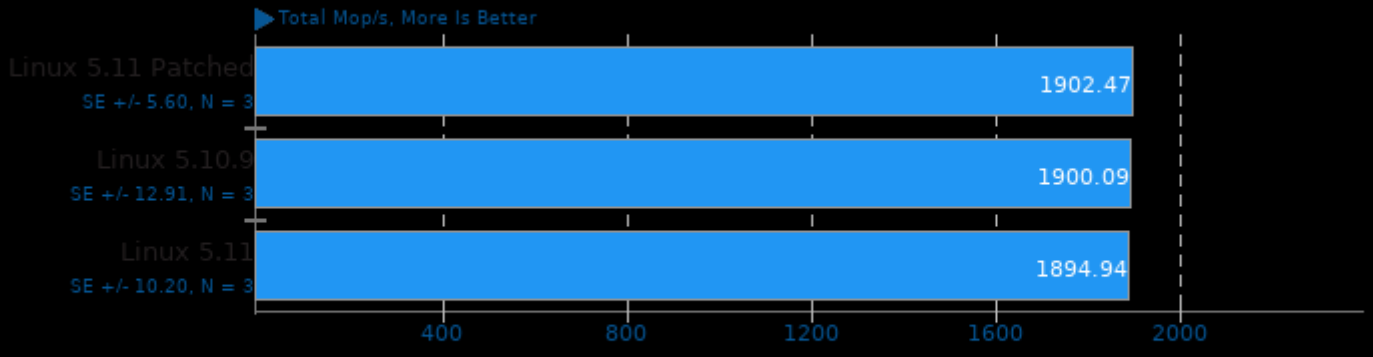


1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi_usempif08 -lmpi_mpifh -lmpi -lopen-rte -lopen-pal -lhwloc -ldl -levent -levent_pthreads -luti

2. Open MPI 4.0.3

NAS Parallel Benchmarks 3.4

Test / Class: EP.C

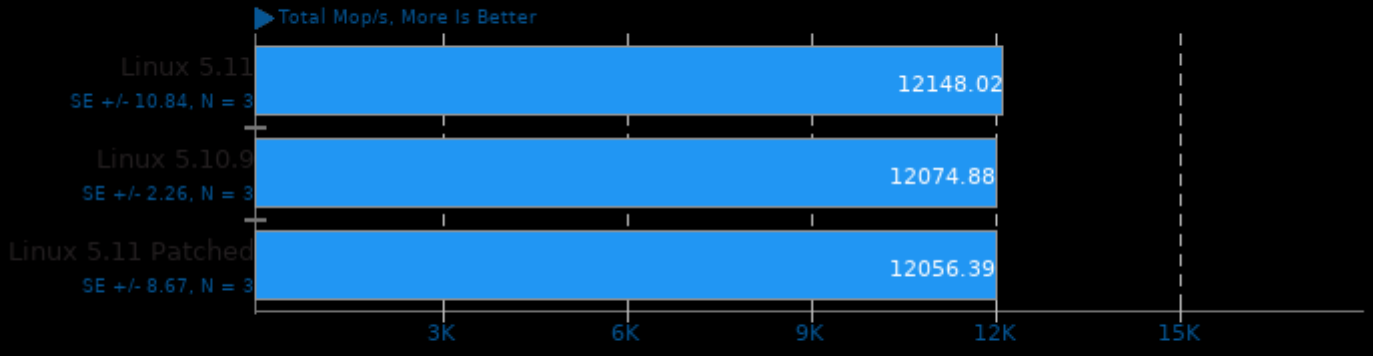


1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi_usempif08 -lmpi_mpifh -lmpi -lopen-rte -lopen-pal -lhwloc -ldl -levent -levent_pthreads -luti

2. Open MPI 4.0.3

NAS Parallel Benchmarks 3.4

Test / Class: FT.C

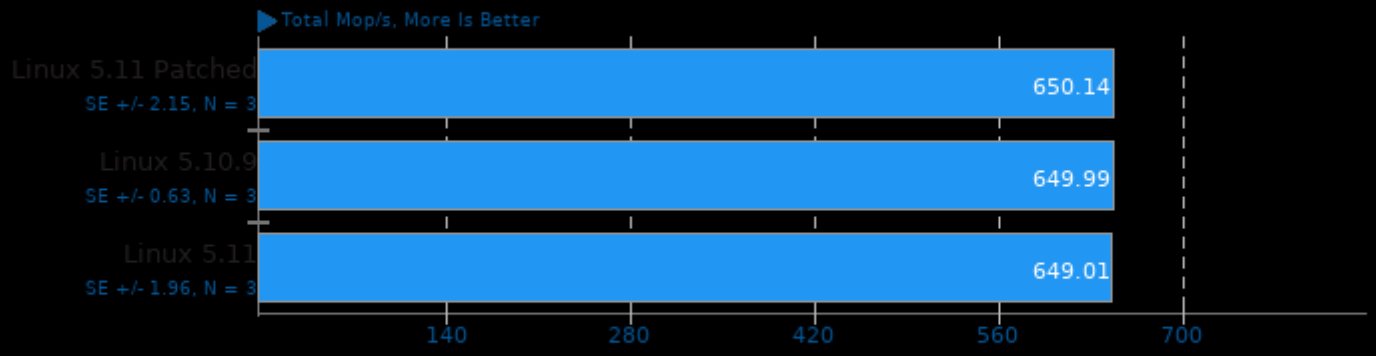


1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi_usempif08 -lmpi_mpifh -lmpi -lopen-rte -lopen-pal -lhwloc -ldl -levent -levent_pthreads -luti

2. Open MPI 4.0.3

NAS Parallel Benchmarks 3.4

Test / Class: IS.D

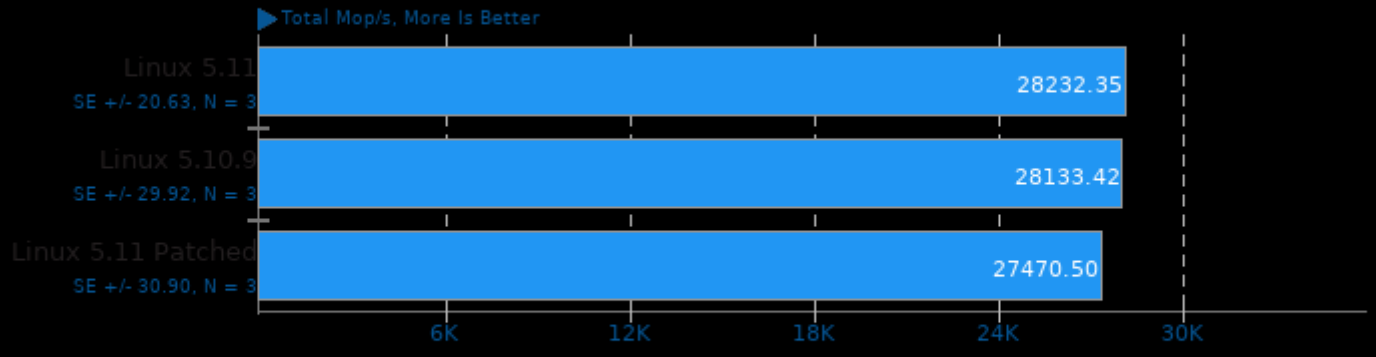


1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi_usempif08 -lmpi_mpifh -lmpi -lopen-rte -lopen-pal -lhwloc -ldl -levent -levent_pthreads -luti

2. Open MPI 4.0.3

NAS Parallel Benchmarks 3.4

Test / Class: LU.C

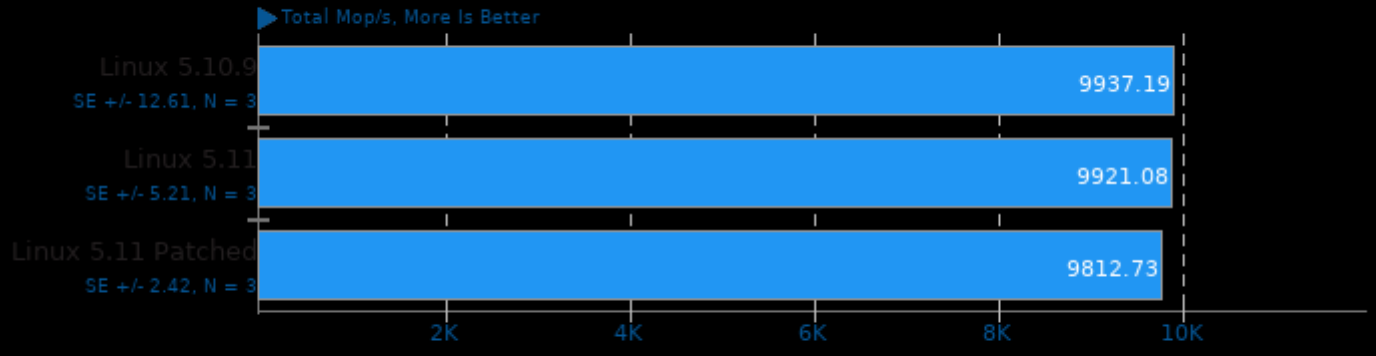


1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi_usempif08 -lmpi_mpifh -lmpi -lopen-rte -lopen-pal -lhwloc -ldl -levent -levent_pthreads -luti

2. Open MPI 4.0.3

NAS Parallel Benchmarks 3.4

Test / Class: MG.C

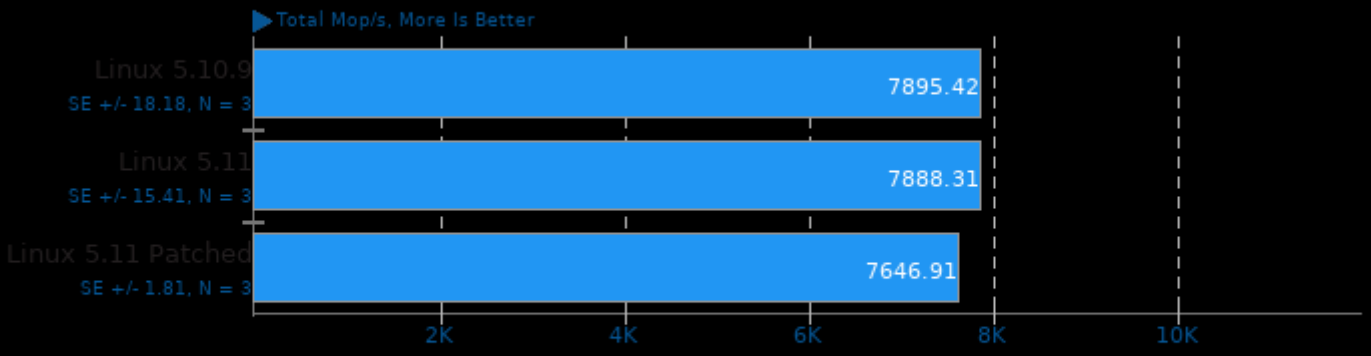


1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi_usempif08 -lmpi_mpifh -lmpi -lopen-rte -lopen-pal -lhwloc -ldl -levent -levent_pthreads -luti

2. Open MPI 4.0.3

NAS Parallel Benchmarks 3.4

Test / Class: SP.B

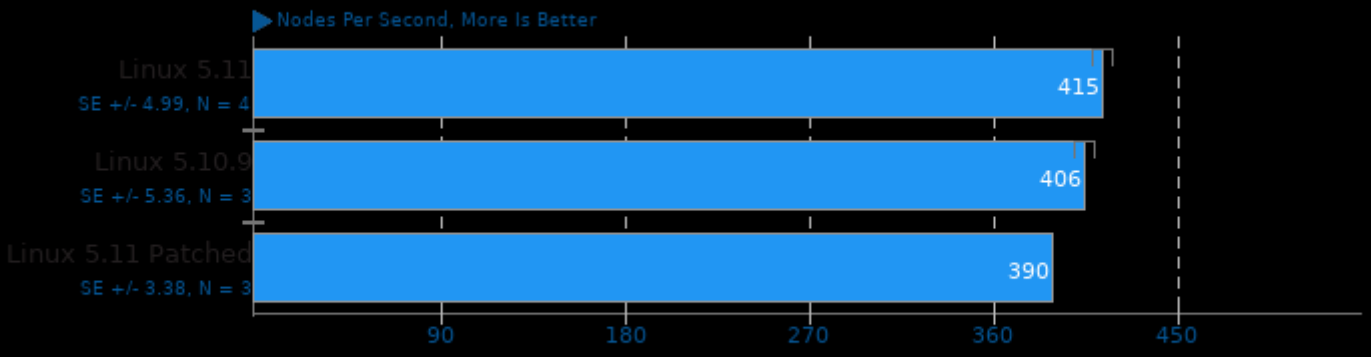


1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi_usempif08 -lmpi_mpifh -lmpi -lopen-rte -lopen-pal -lhwloc -ldl -levent -levent_pthreads -luti

2. Open MPI 4.0.3

LeelaChessZero 0.26

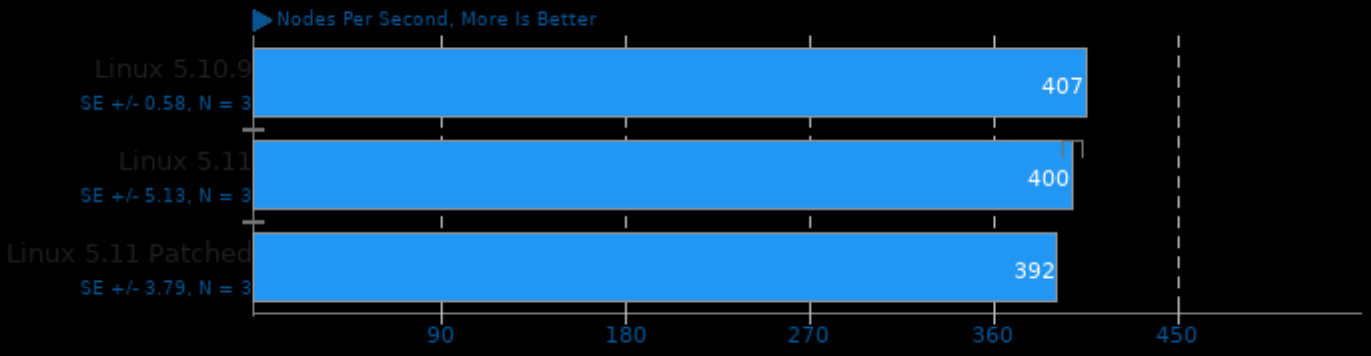
Backend: BLAS



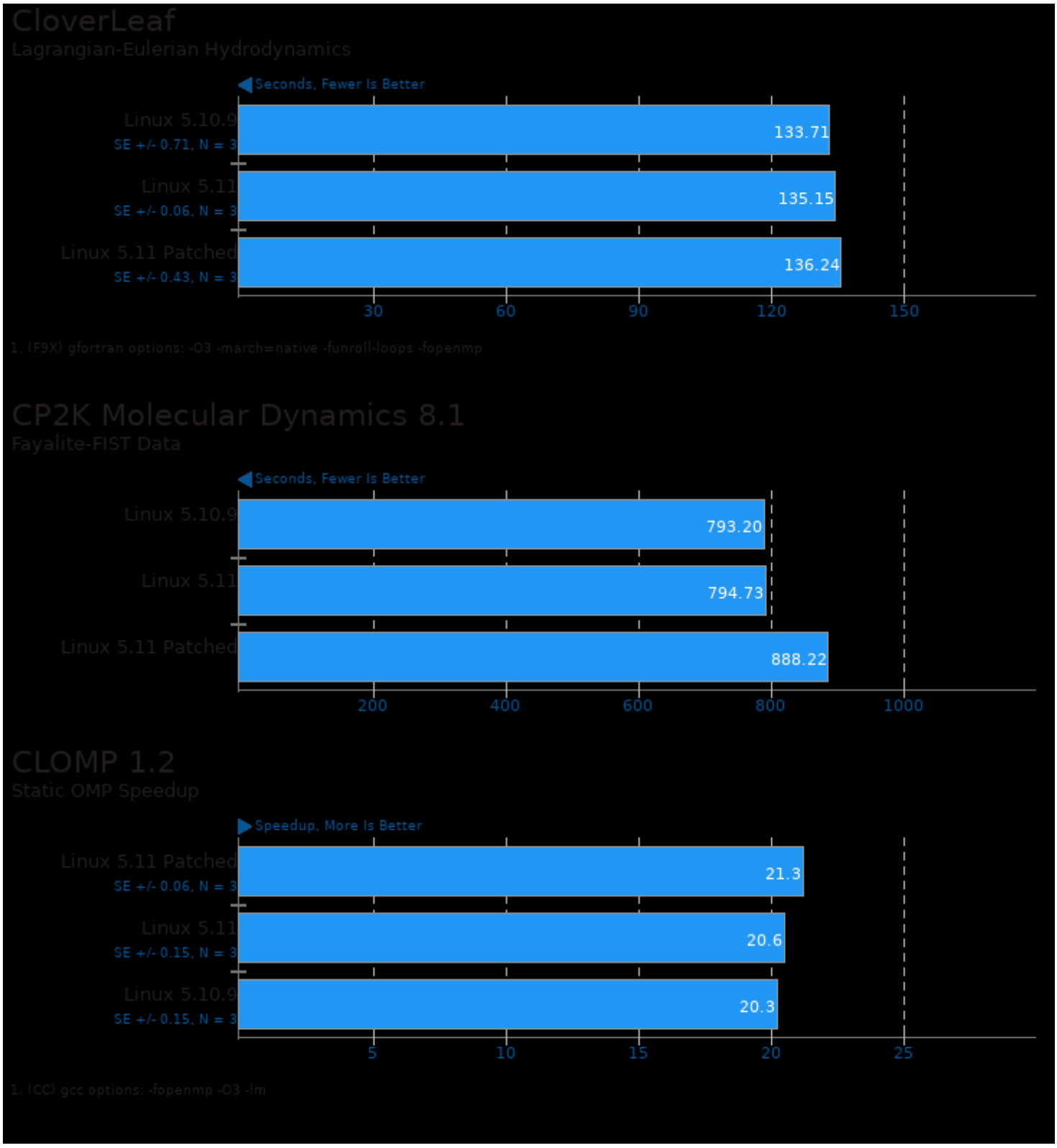
1. (CXX) g++ options: -flto -pthread

LeelaChessZero 0.26

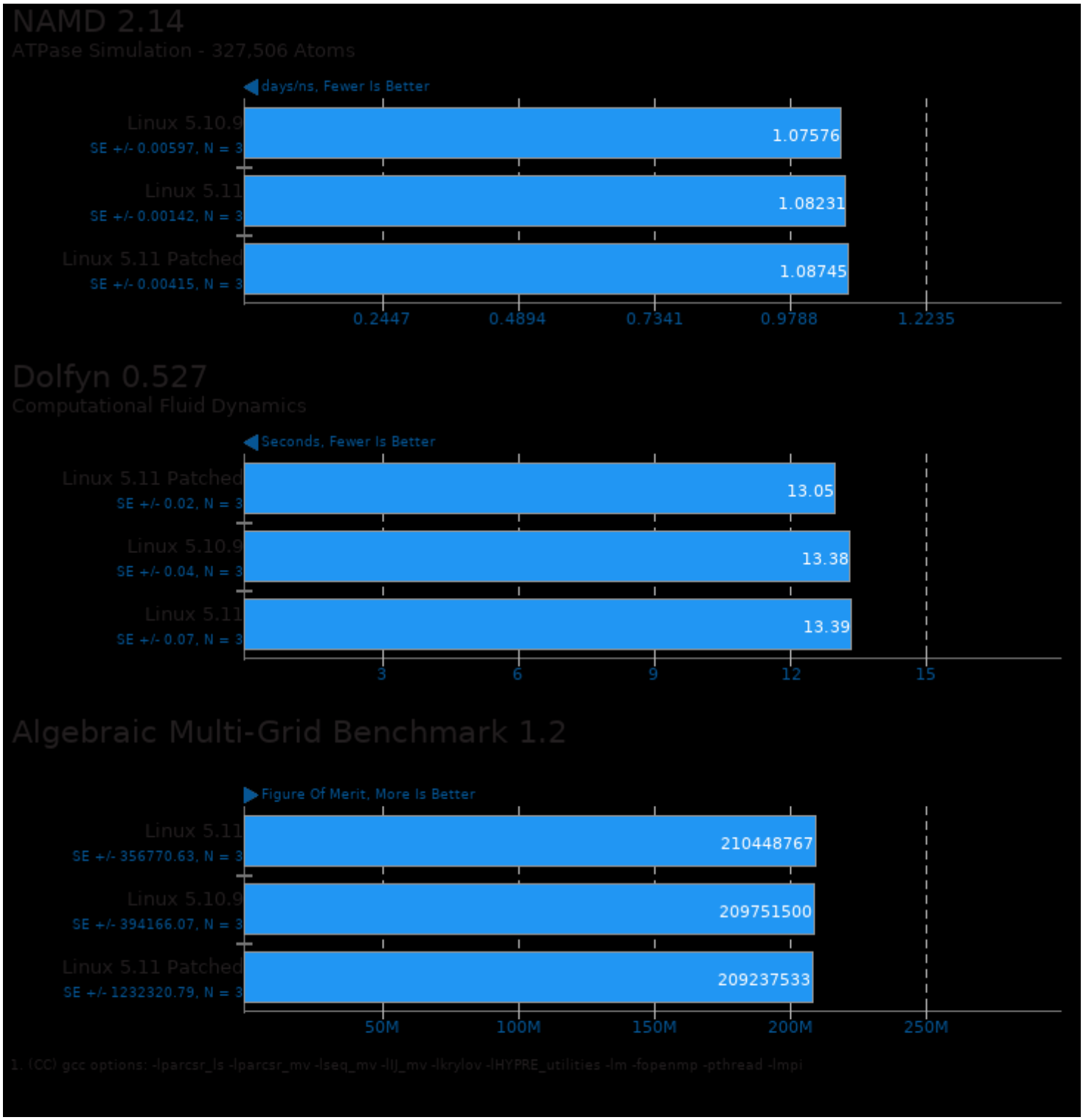
Backend: Eigen



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

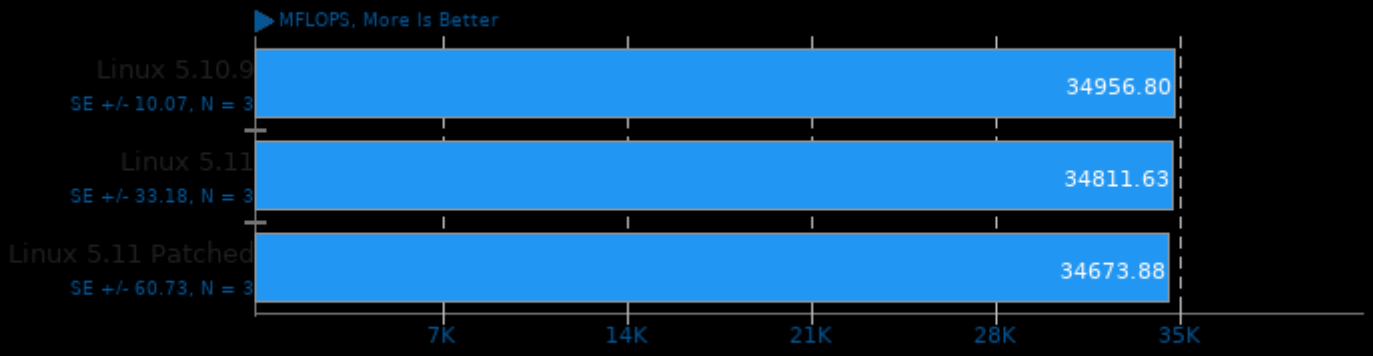

CloverLeaf
Lagrangian-Eulerian Hydrodynamics
Seconds, Fewer Is Better
Linux 5.10.9
SE +/- 0.71, N = 3
133.71
Linux 5.11
SE +/- 0.06, N = 3
135.15
Linux 5.11 Patched
SE +/- 0.43, N = 3
136.24
30
60
90
120
150
1. (F9X) gfortran options: -O3 -march=native -funroll-loops -fopenmp
CP2K Molecular Dynamics 8.1
Fayalite-FIST Data
Seconds, Fewer Is Better
Linux 5.10.9
793.20
Linux 5.11
794.73
Linux 5.11 Patched
888.22
200
400
600
800
1000
CLOMP 1.2
Static OMP Speedup
Speedup, More Is Better
Linux 5.11 Patched
SE +/- 0.06, N = 3
21.3
Linux 5.11
SE +/- 0.15, N = 3
20.6
Linux 5.10.9
SE +/- 0.15, N = 3
20.3
5
10
15
20
25
1. (CC) gcc options: -fopenmp -O3 -lm

AMD Ryzen 9 5950X Linux 5.11



FFTE 7.0

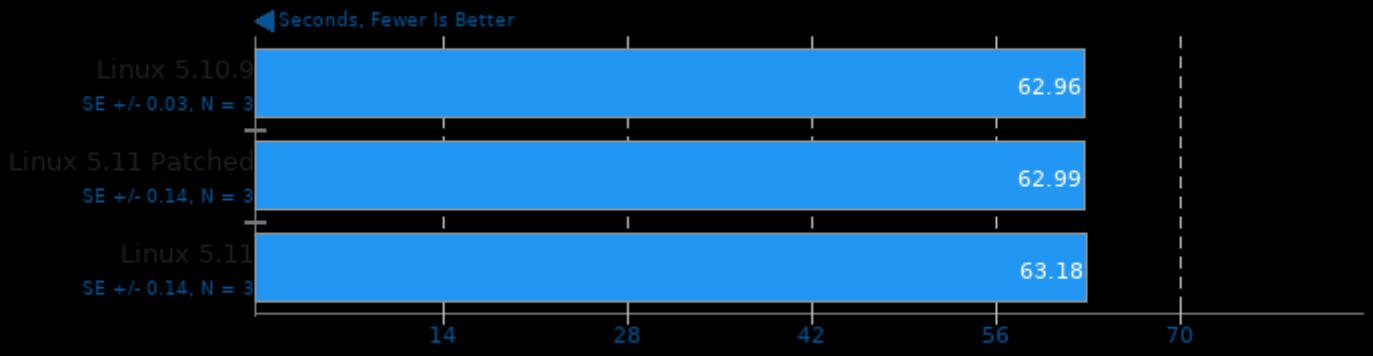
N=256, 3D Complex FFT Routine



1. (F9X) gfortran options: -O3 -fomit-frame-pointer -fopenmp

Timed MrBayes Analysis 3.2.7

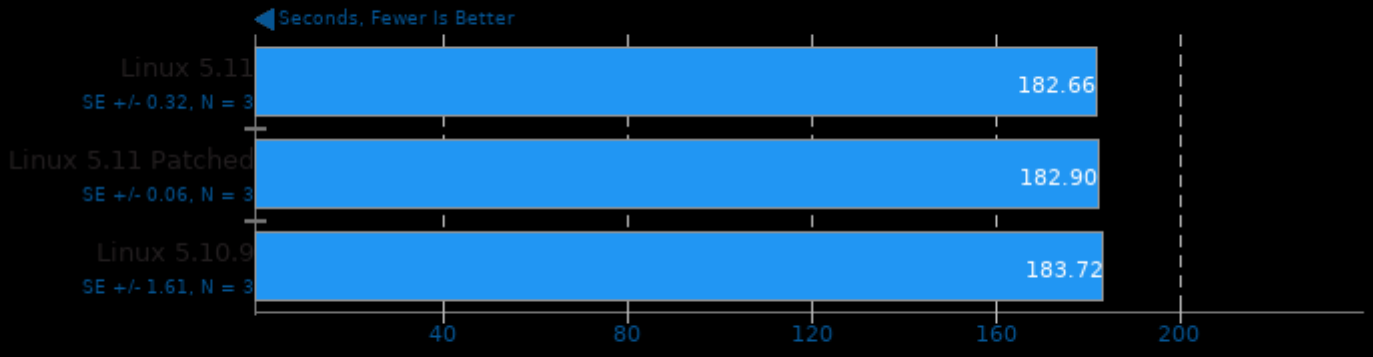
Primate Phylogeny Analysis



1. (CC) gcc options: -mmmx -msse -msse2 -msse3 -mssse3 -msse4.1 -msse4.2 -msse4a -msha -maes -mavx -mfma -mavx2 -mrdrnd -mbmi -mbmi2 -madx

Incompact3D 2020-09-17

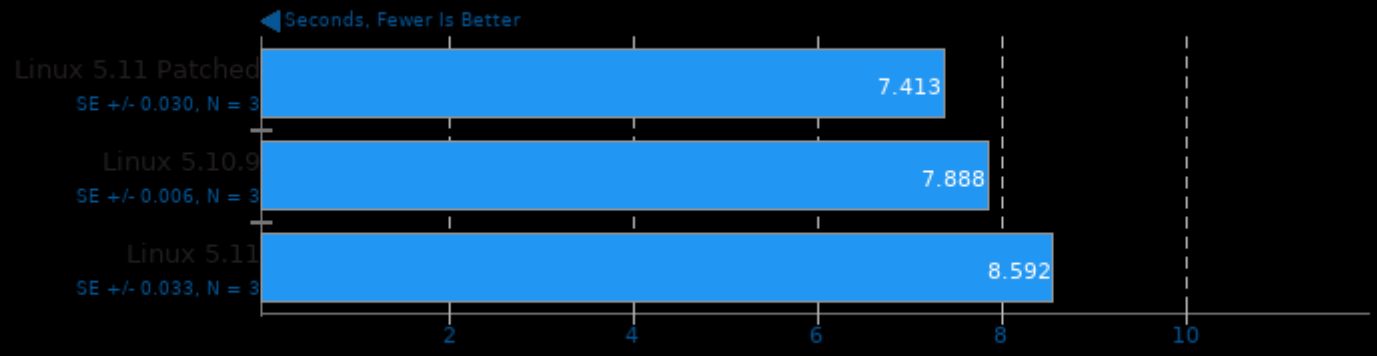
Input: Cylinder



1. (F9X) gfortran options: -cpp -funroll-loops -floop-optimize -fcray-pointer -fbacktrace -pthread -lmpi_usempif08 -lmpi_mpifh -lmpi -lopen-rte -lopen-pal

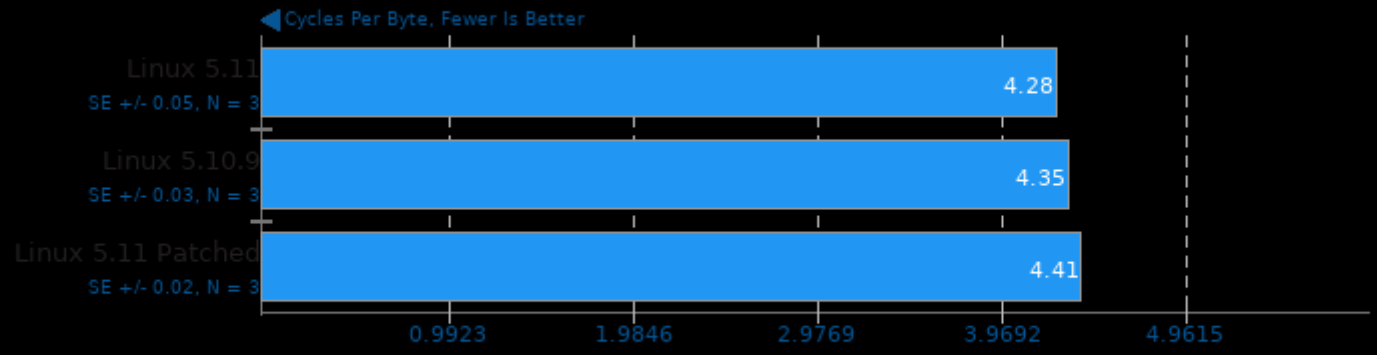
Timed MAFFT Alignment 7.471

Multiple Sequence Alignment - LSU RNA



1. (CC) gcc options: -std=c99 -O3 -lm -lpthread

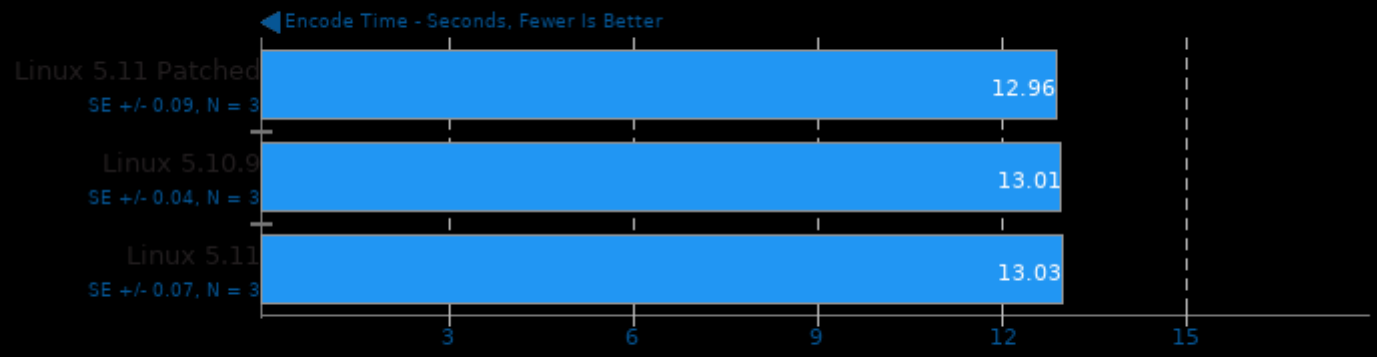
BLAKE2 20170307



1. (CC) gcc options: -O3 -march=native -lcrypto -lz

WebP Image Encode 1.1

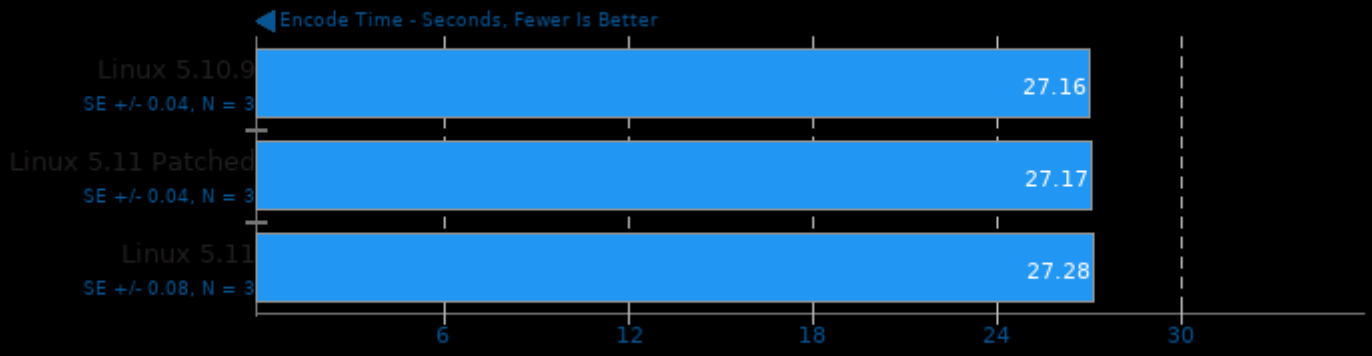
Encode Settings: Quality 100, Lossless



1. (CC) gcc options: -fvisibility=hidden -O2 -pthread -lm -ljpeg -lpng16 -ltiff

WebP Image Encode 1.1

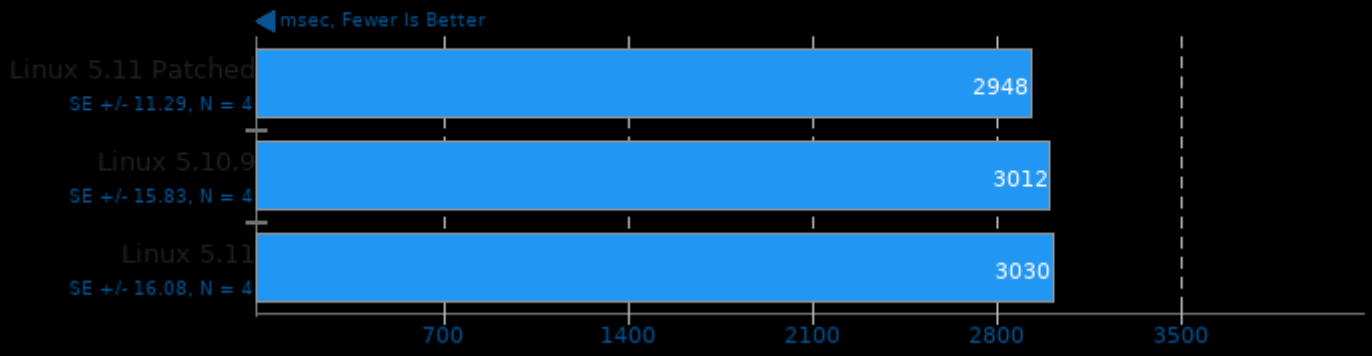
Encode Settings: Quality 100, Lossless, Highest Compression



1. (CC) gcc options: -fvisibility=hidden -O2 -pthread -lm -ljpeg -lpng16 -ltiff

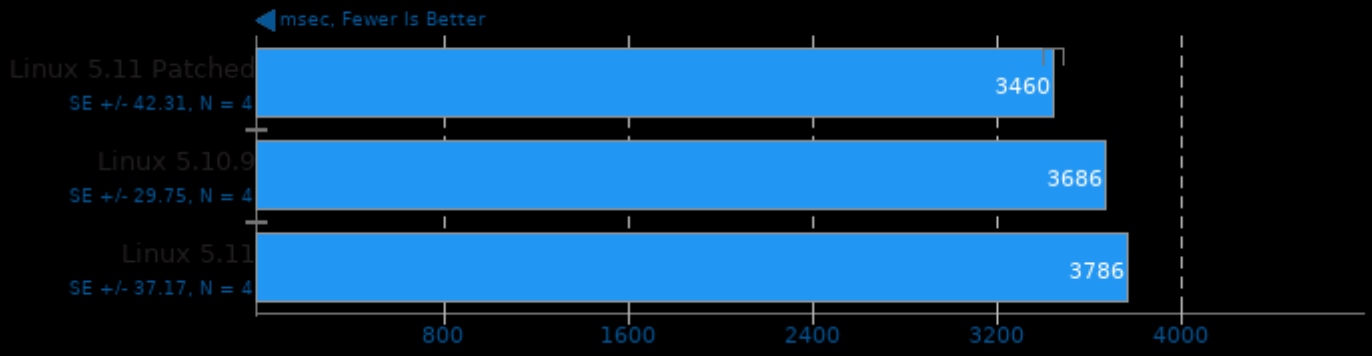
DaCapo Benchmark 9.12-MR1

Java Test: Jython

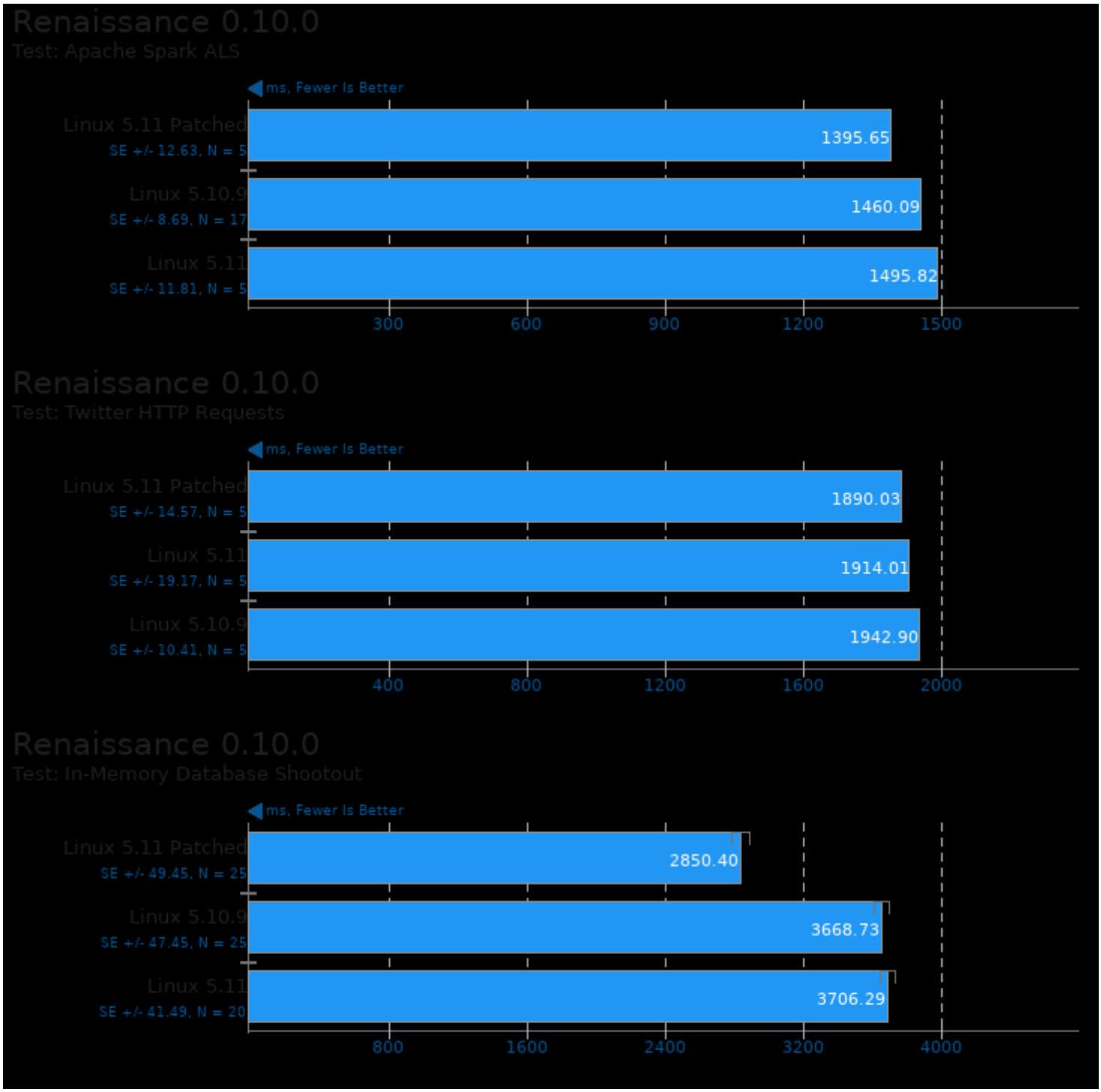


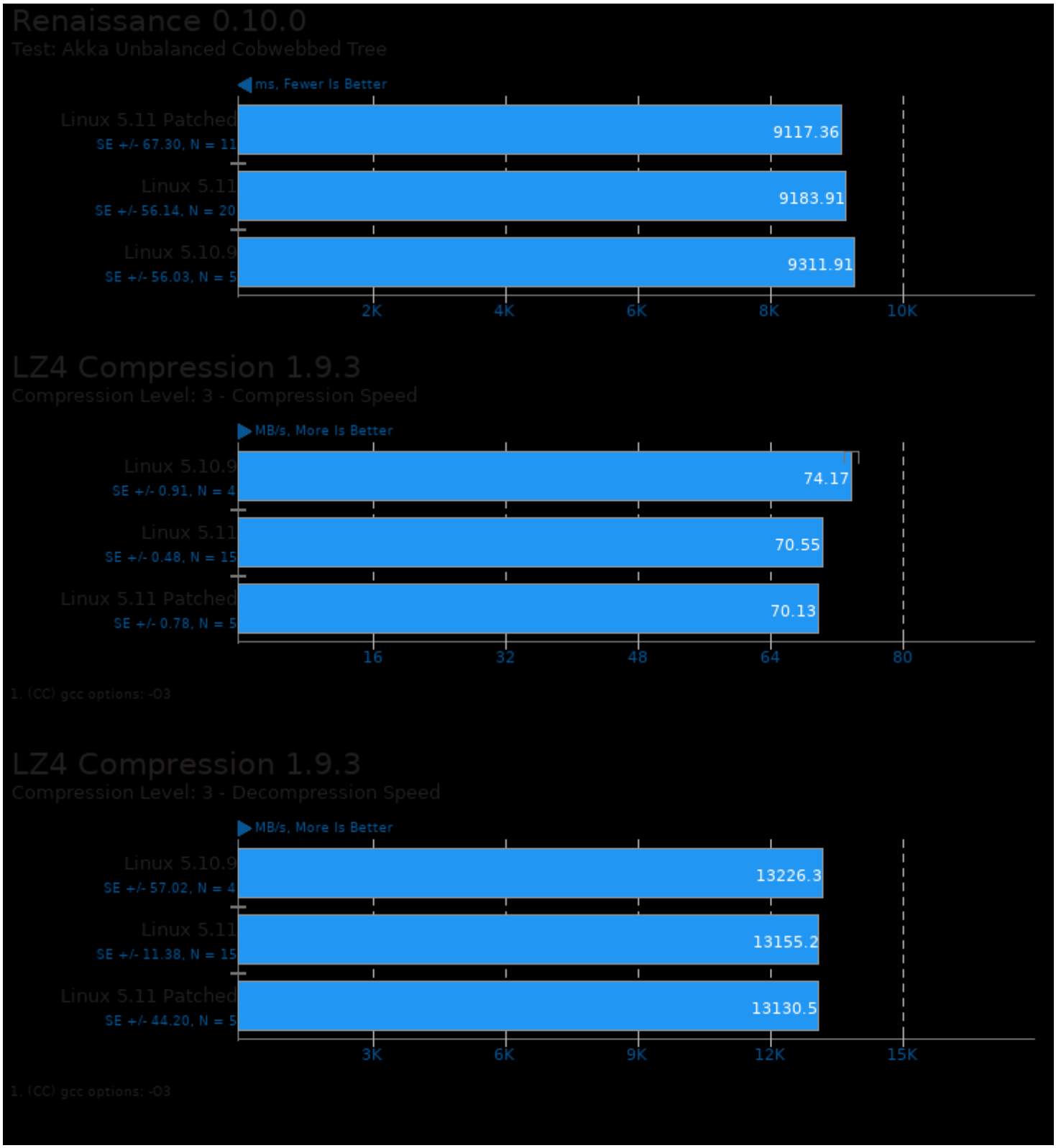
DaCapo Benchmark 9.12-MR1

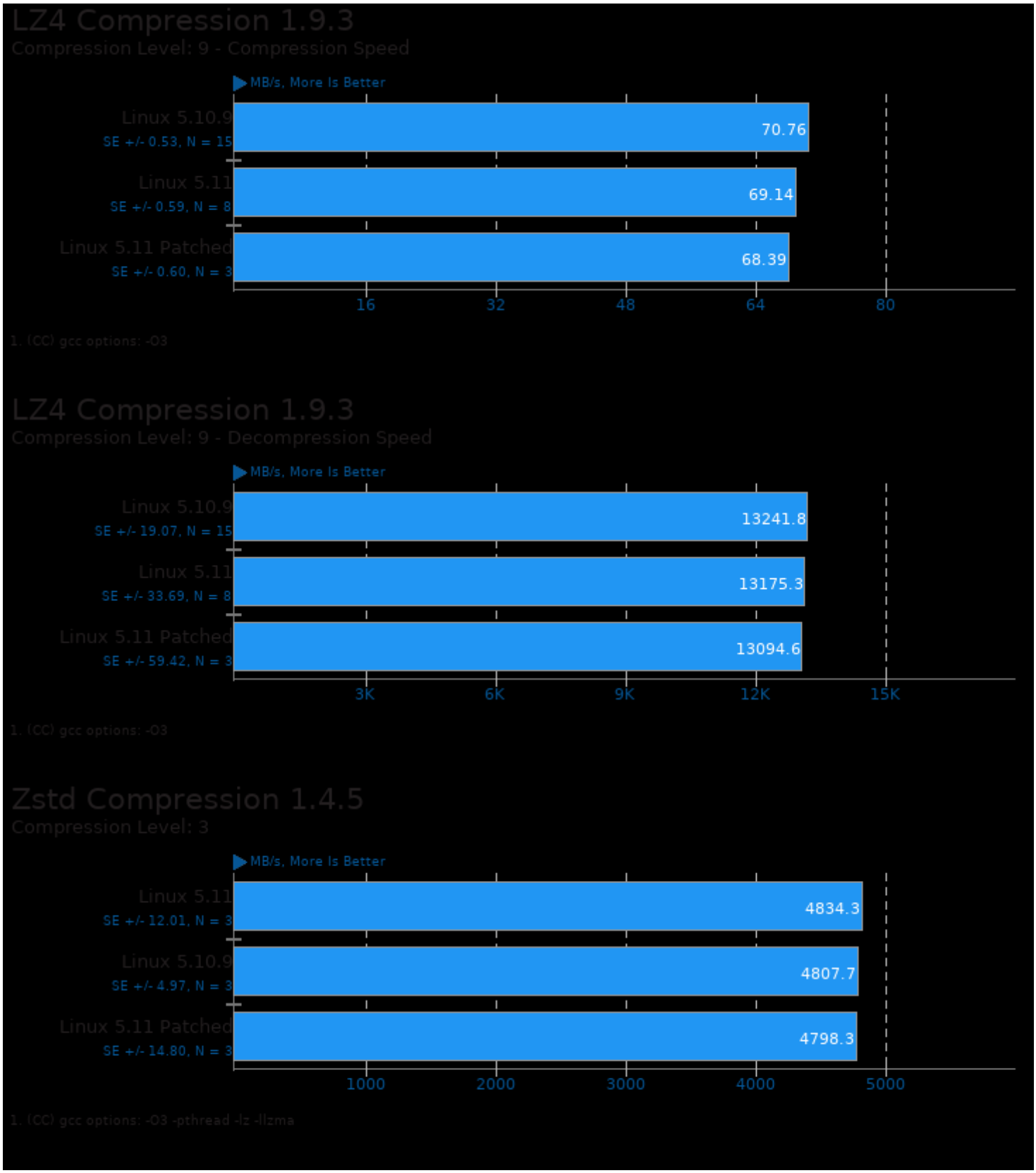
Java Test: Tradebeans



AMD Ryzen 9 5950X Linux 5.11

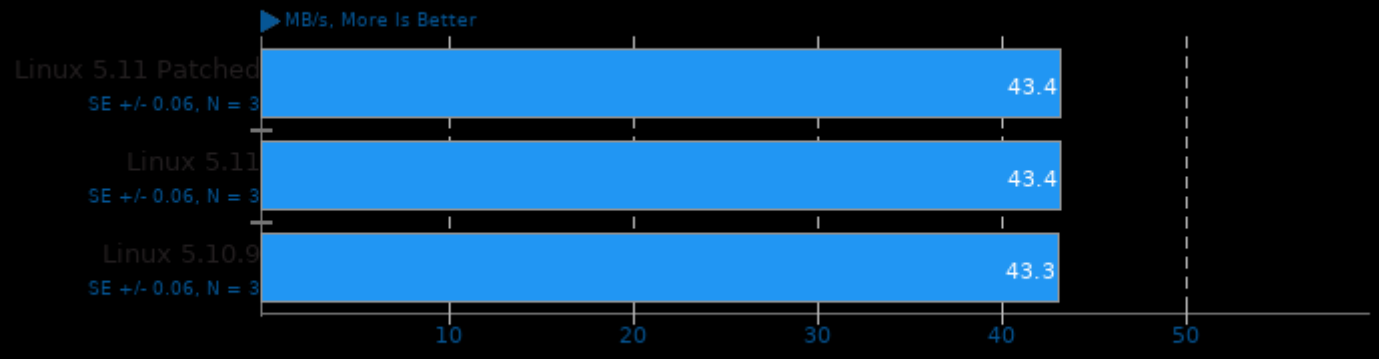



Renaissance 0.10.0
Test: Akka Unbalanced Cobwebbed Tree
ms, Fewer Is Better
Linux 5.11 Patched
SE +/- 67.30, N = 11
9117.36
Linux 5.11
SE +/- 56.14, N = 20
9183.91
Linux 5.10.9
SE +/- 56.03, N = 5
9311.91
2K
4K
6K
8K
10K
LZ4 Compression 1.9.3
Compression Level: 3 - Compression Speed
MB/s, More Is Better
Linux 5.10.9
SE +/- 0.91, N = 4
74.17
Linux 5.11
SE +/- 0.48, N = 15
70.55
Linux 5.11 Patched
SE +/- 0.78, N = 5
70.13
16
32
48
64
80
1. (CC) gcc options: -O3
LZ4 Compression 1.9.3
Compression Level: 3 - Decompression Speed
MB/s, More Is Better
Linux 5.10.9
SE +/- 57.02, N = 4
13226.3
Linux 5.11
SE +/- 11.38, N = 15
13155.2
Linux 5.11 Patched
SE +/- 44.20, N = 5
13130.5
3K
6K
9K
12K
15K
1. (CC) gcc options: -O3


LZ4 Compression 1.9.3
Compression Level: 9 - Compression Speed
MB/s, More Is Better
Linux 5.10.9
SE +/- 0.53, N = 15
70.76
Linux 5.11
SE +/- 0.59, N = 8
69.14
Linux 5.11 Patched
SE +/- 0.60, N = 3
68.39
16
32
48
64
80
1. (CC) gcc options: -O3
LZ4 Compression 1.9.3
Compression Level: 9 - Decompression Speed
MB/s, More Is Better
Linux 5.10.9
SE +/- 19.07, N = 15
13241.8
Linux 5.11
SE +/- 33.69, N = 8
13175.3
Linux 5.11 Patched
SE +/- 59.42, N = 3
13094.6
3K
6K
9K
12K
15K
1. (CC) gcc options: -O3
Zstd Compression 1.4.5
Compression Level: 3
MB/s, More Is Better
Linux 5.11
SE +/- 12.01, N = 3
4834.3
Linux 5.10.9
SE +/- 4.97, N = 3
4807.7
Linux 5.11 Patched
SE +/- 14.80, N = 3
4798.3
1000
2000
3000
4000
5000
1. (CC) gcc options: -O3 -pthread -lz -llzma

Zstd Compression 1.4.5

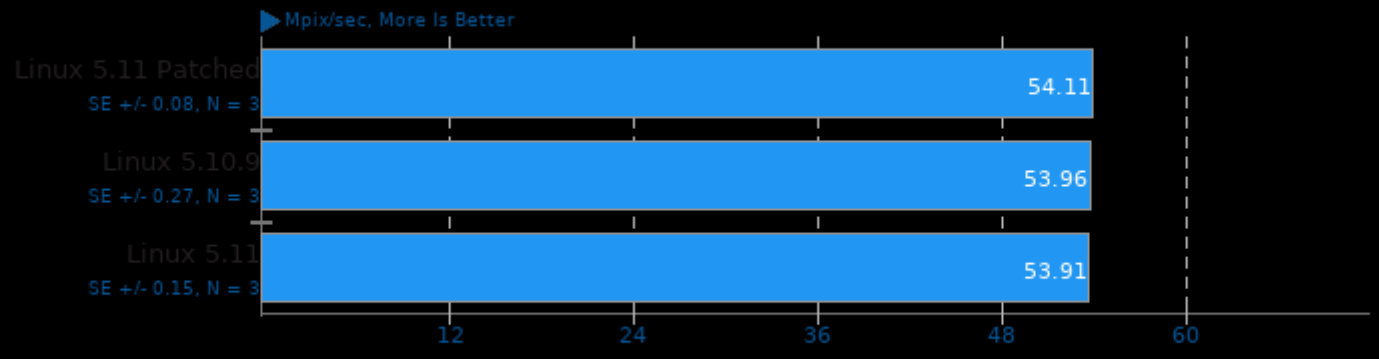
Compression Level: 19



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

LibRaw 0.20

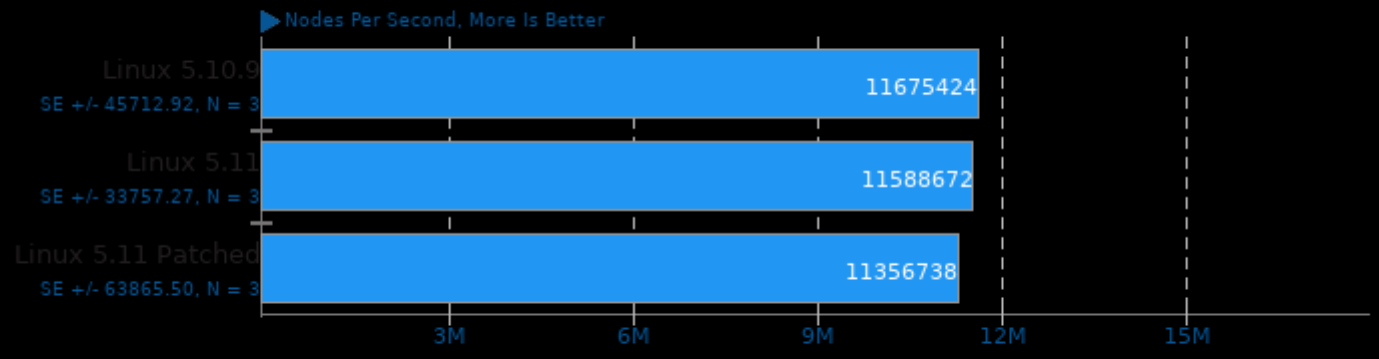
Post-Processing Benchmark



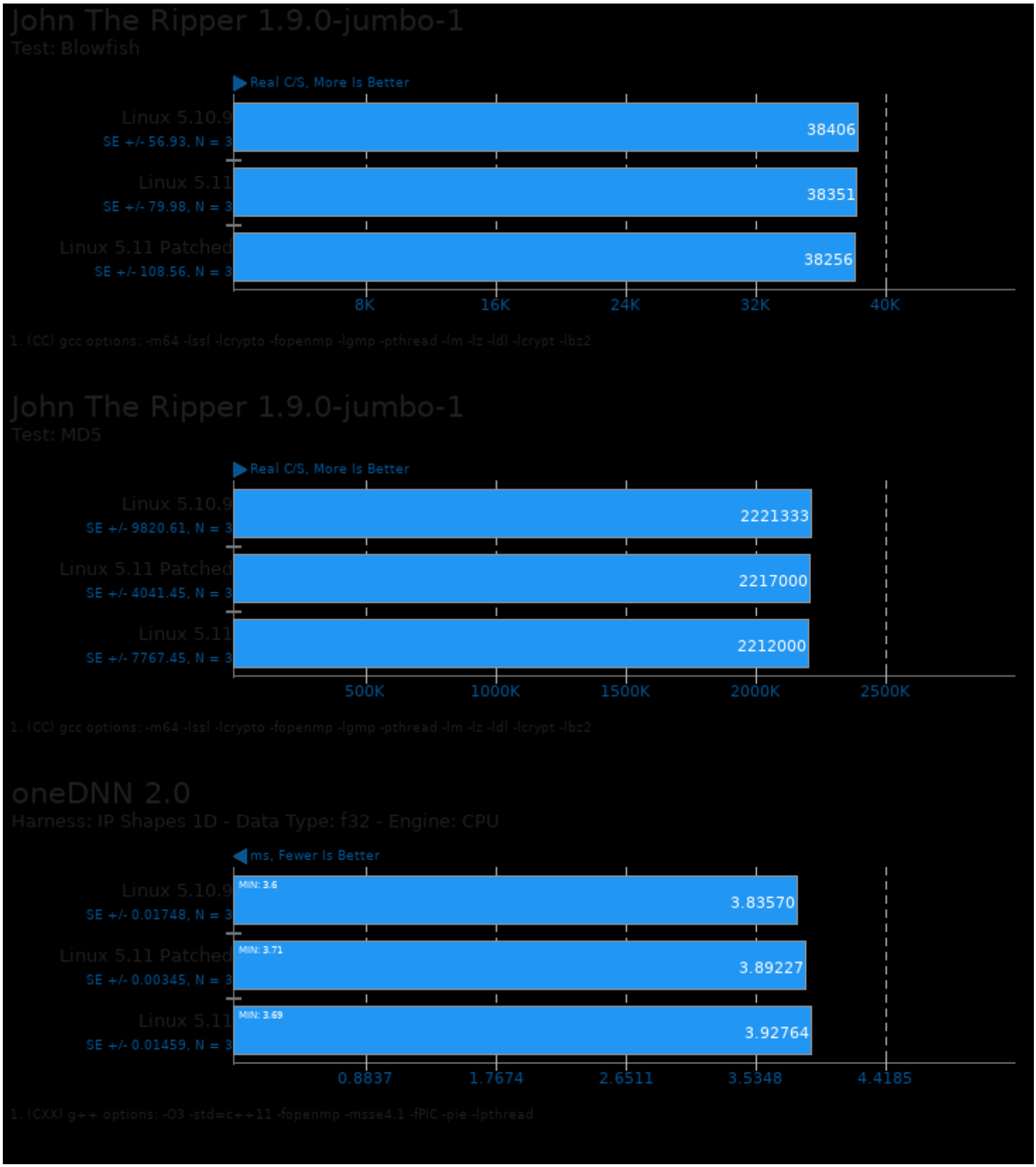
1. (CXX) g++ options: -O2 -fopenmp -ljpeg -lz -lm

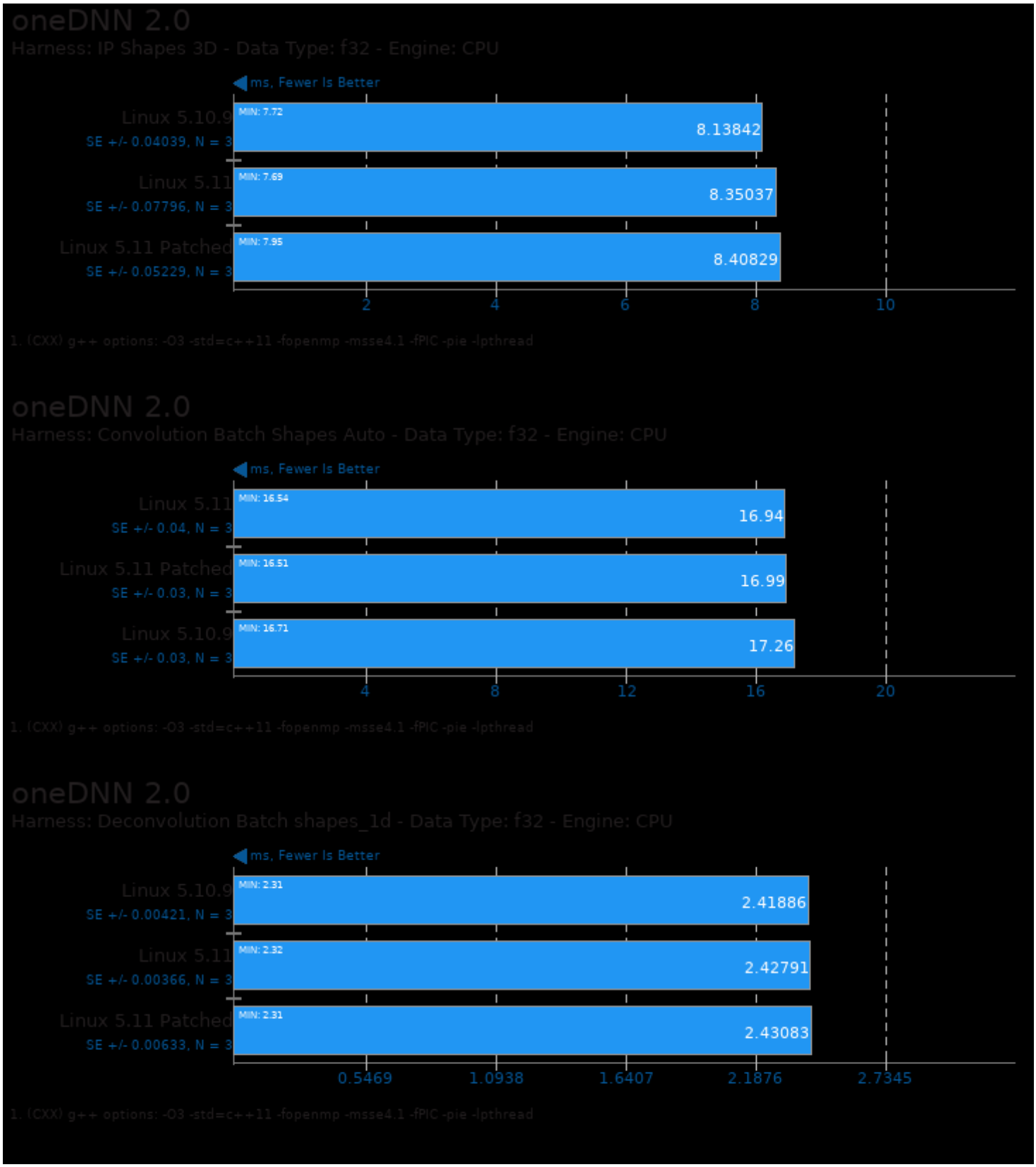
Crafty 25.2

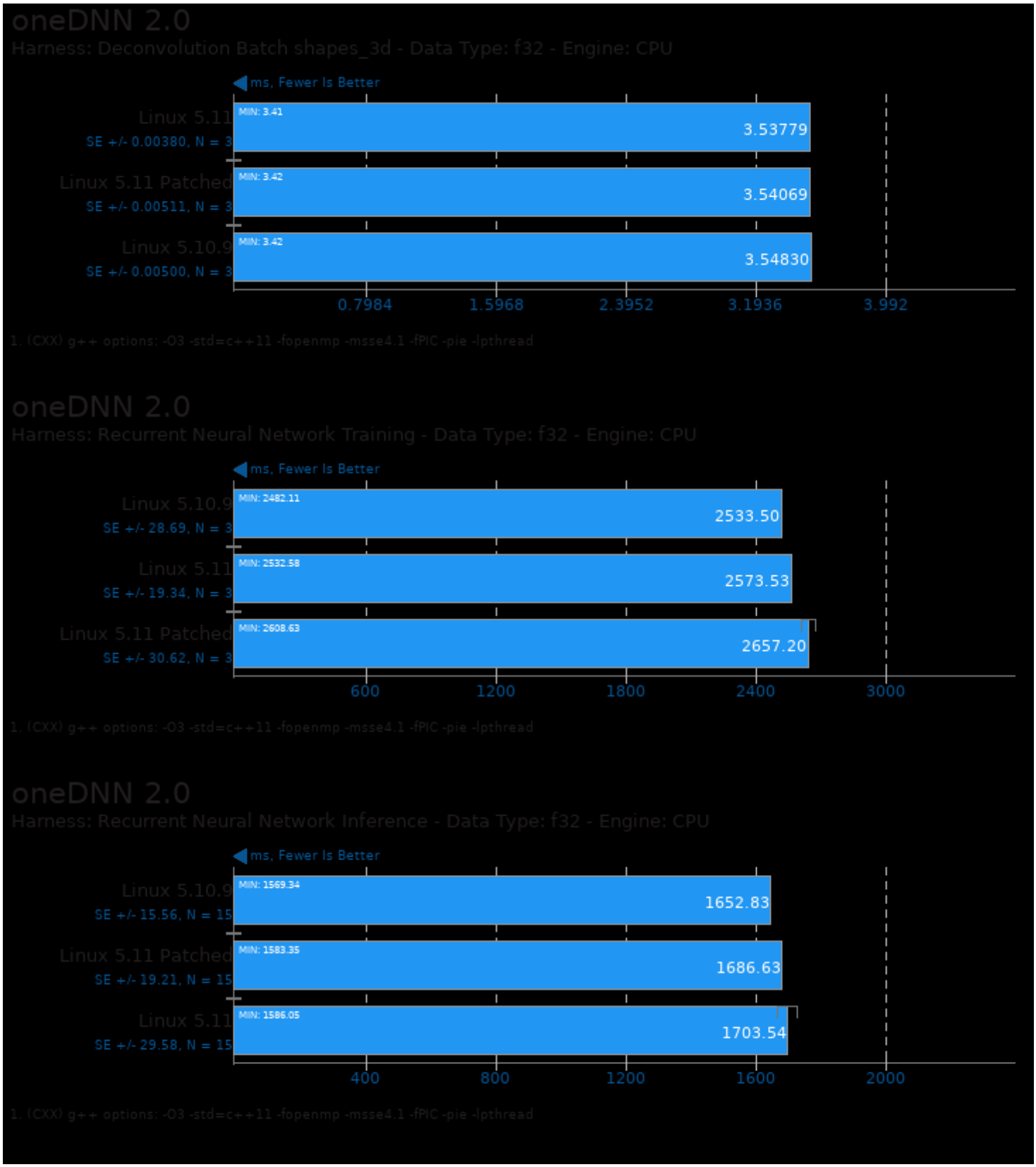
Elapsed Time

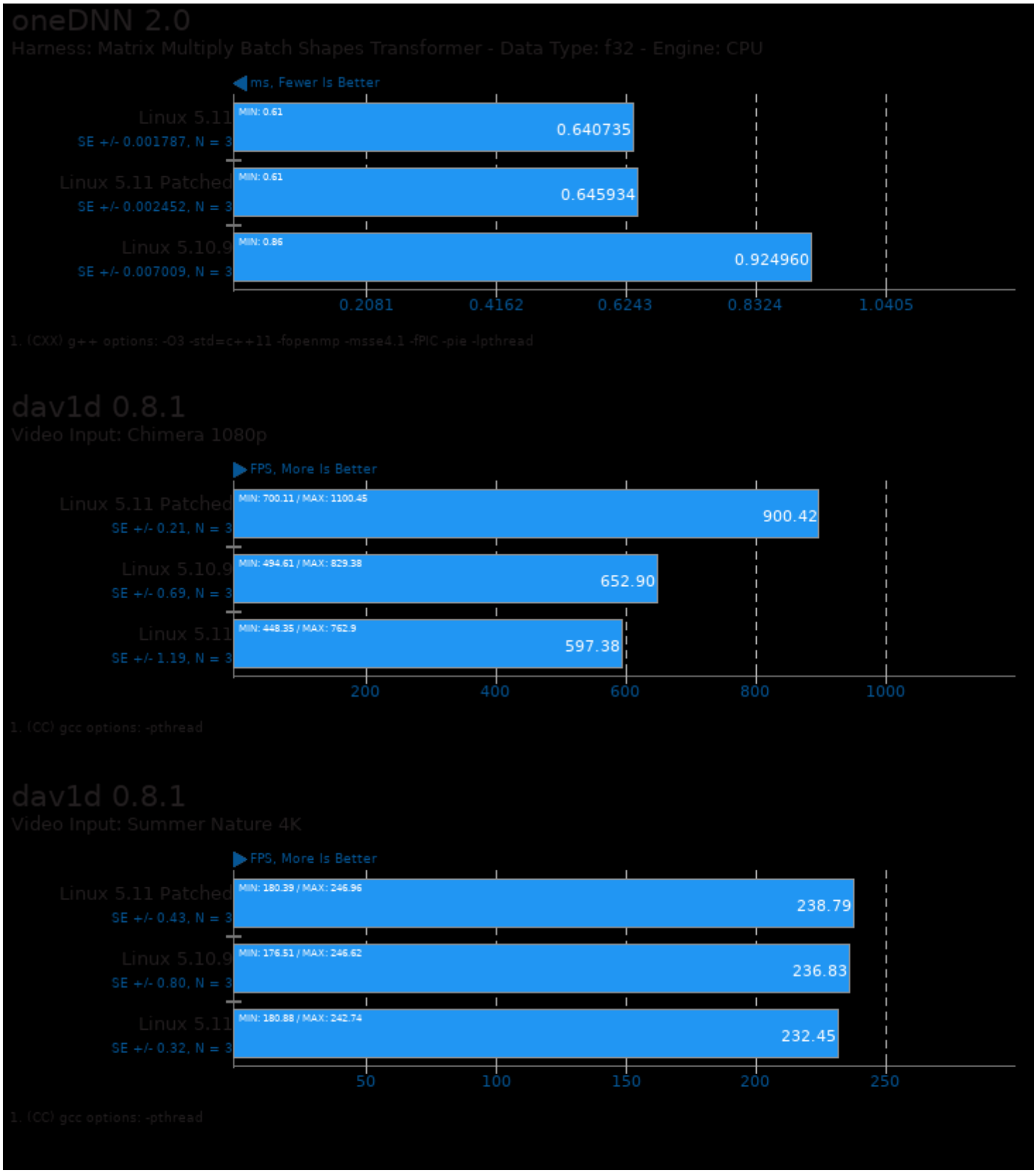


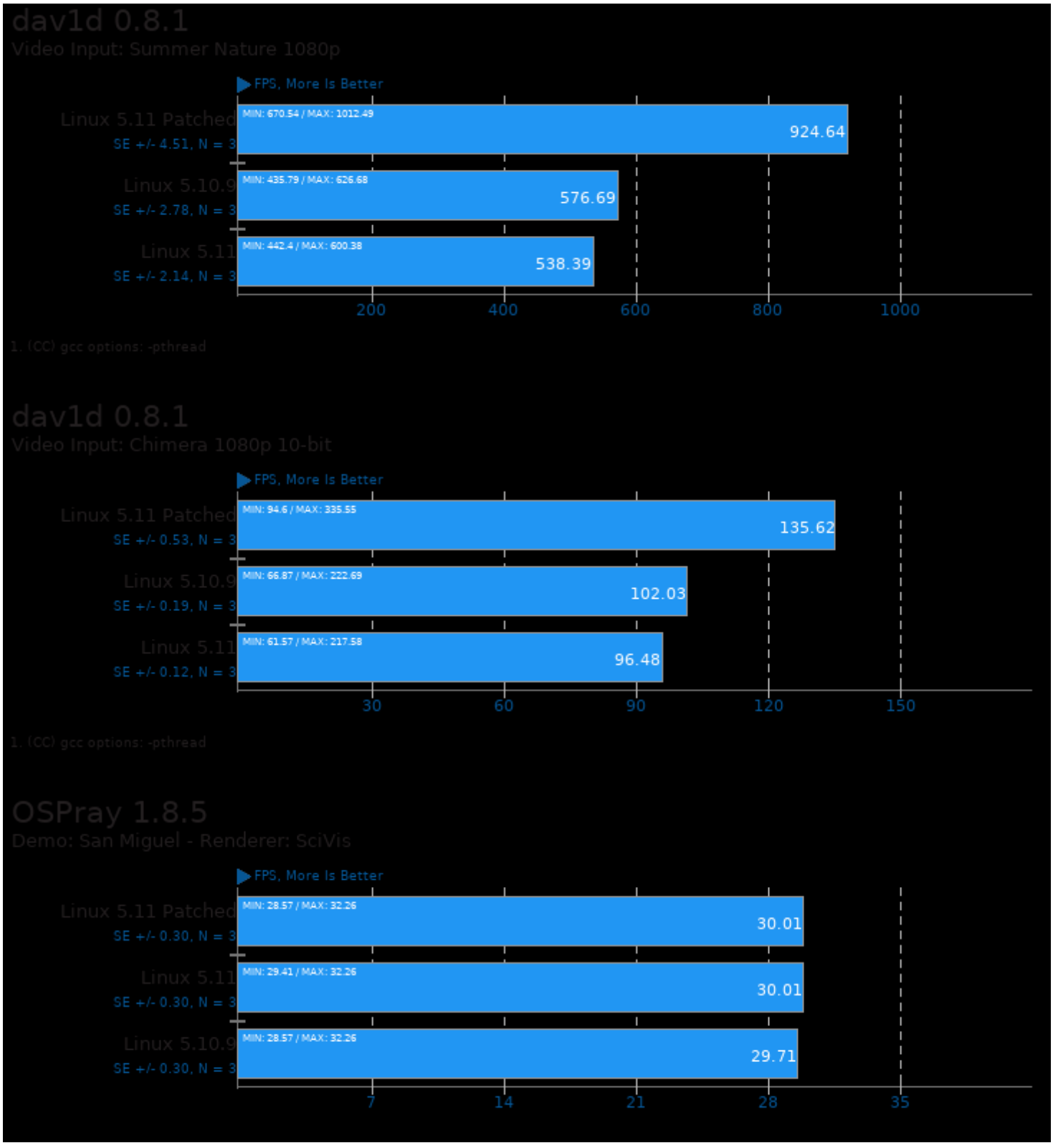
1. (CC) gcc options: -pthread -lstdc++ -fprofile-use -lm

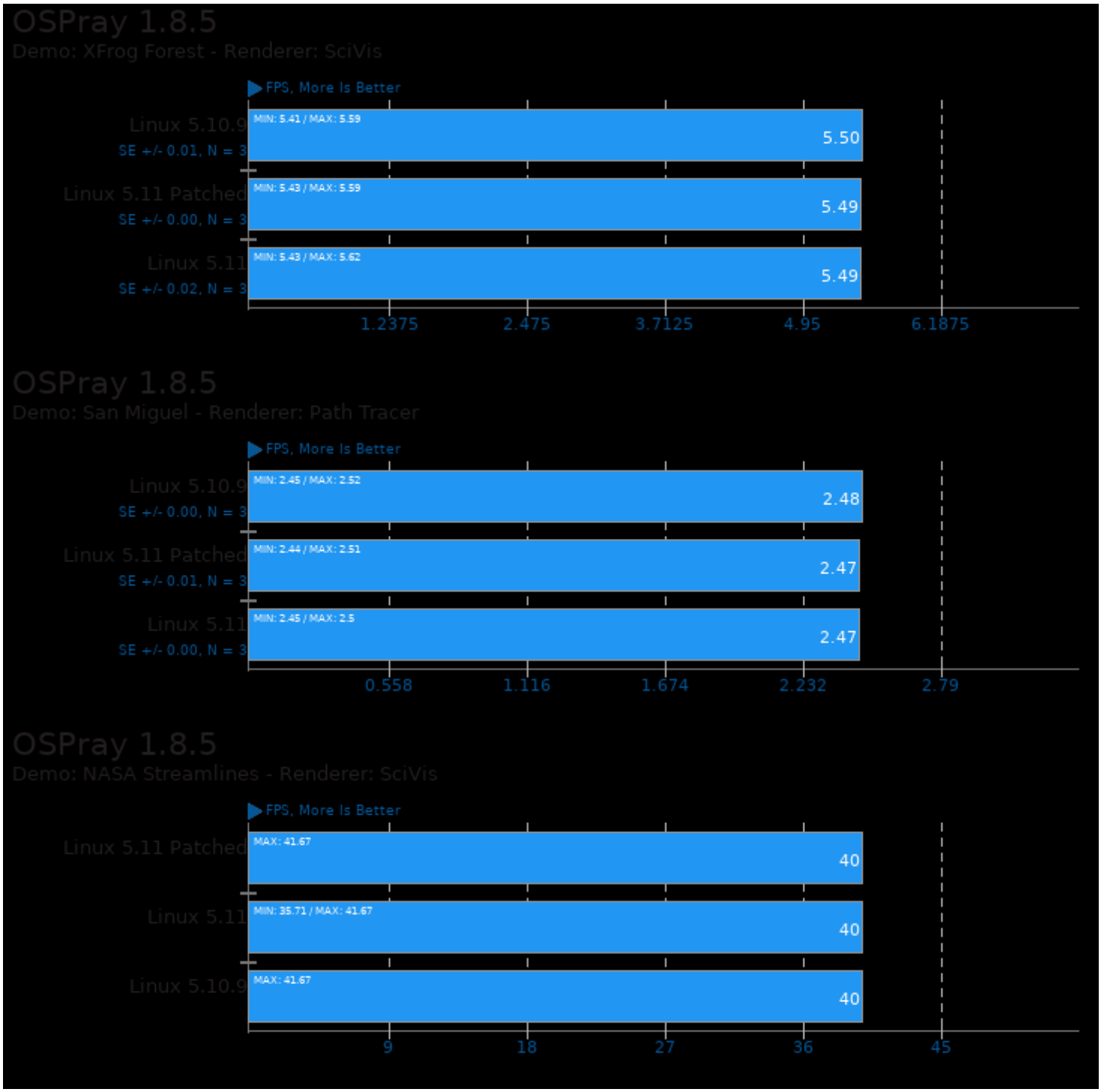

John The Ripper 1.9.0-jumbo-1
Test: Blowfish
Real C/S, More Is Better
Linux 5.10.9
SE +/- 56.93, N = 3
38406
Linux 5.11
SE +/- 79.98, N = 3
38351
Linux 5.11 Patched
SE +/- 108.56, N = 3
38256
8K
16K
24K
32K
40K
1. (CC) gcc options: -m64 -lssl -lcrypto -fopenmp -lgmp -pthread -lm -lz -ldl -lcrypt -lbz2
John The Ripper 1.9.0-jumbo-1
Test: MD5
Real C/S, More Is Better
Linux 5.10.9
SE +/- 9820.61, N = 3
2221333
Linux 5.11 Patched
SE +/- 4041.45, N = 3
2217000
Linux 5.11
SE +/- 7767.45, N = 3
2212000
500K
1000K
1500K
2000K
2500K
1. (CC) gcc options: -m64 -lssl -lcrypto -fopenmp -lgmp -pthread -lm -lz -ldl -lcrypt -lbz2
oneDNN 2.0
Harness: IP Shapes 1D - Data Type: f32 - Engine: CPU
ms, Fewer Is Better
Linux 5.10.9
SE +/- 0.01748, N = 3
MIN: 3.6
3.83570
Linux 5.11 Patched
SE +/- 0.00345, N = 3
MIN: 3.71
3.89227
Linux 5.11
SE +/- 0.01459, N = 3
MIN: 3.69
3.92764
0.8837
1.7674
2.6511
3.5348
4.4185
1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread


oneDNN 2.0
Harness: IP Shapes 3D - Data Type: f32 - Engine: CPU
ms, Fewer Is Better
Linux 5.10.9
SE +/- 0.04039, N = 3
MIN: 7.72
8.13842
Linux 5.11
SE +/- 0.07796, N = 3
MIN: 7.69
8.35037
Linux 5.11 Patched
SE +/- 0.05229, N = 3
MIN: 7.95
8.40829
2
4
6
8
10
1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread
oneDNN 2.0
Harness: Convolution Batch Shapes Auto - Data Type: f32 - Engine: CPU
ms, Fewer Is Better
Linux 5.11
SE +/- 0.04, N = 3
MIN: 16.54
16.94
Linux 5.11 Patched
SE +/- 0.03, N = 3
MIN: 16.51
16.99
Linux 5.10.9
SE +/- 0.03, N = 3
MIN: 16.71
17.26
4
8
12
16
20
1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread
oneDNN 2.0
Harness: Deconvolution Batch shapes_1d - Data Type: f32 - Engine: CPU
ms, Fewer Is Better
Linux 5.10.9
SE +/- 0.00421, N = 3
MIN: 2.31
2.41886
Linux 5.11
SE +/- 0.00366, N = 3
MIN: 2.32
2.42791
Linux 5.11 Patched
SE +/- 0.00633, N = 3
MIN: 2.31
2.43083
0.5469
1.0938
1.6407
2.1876
2.7345
1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread

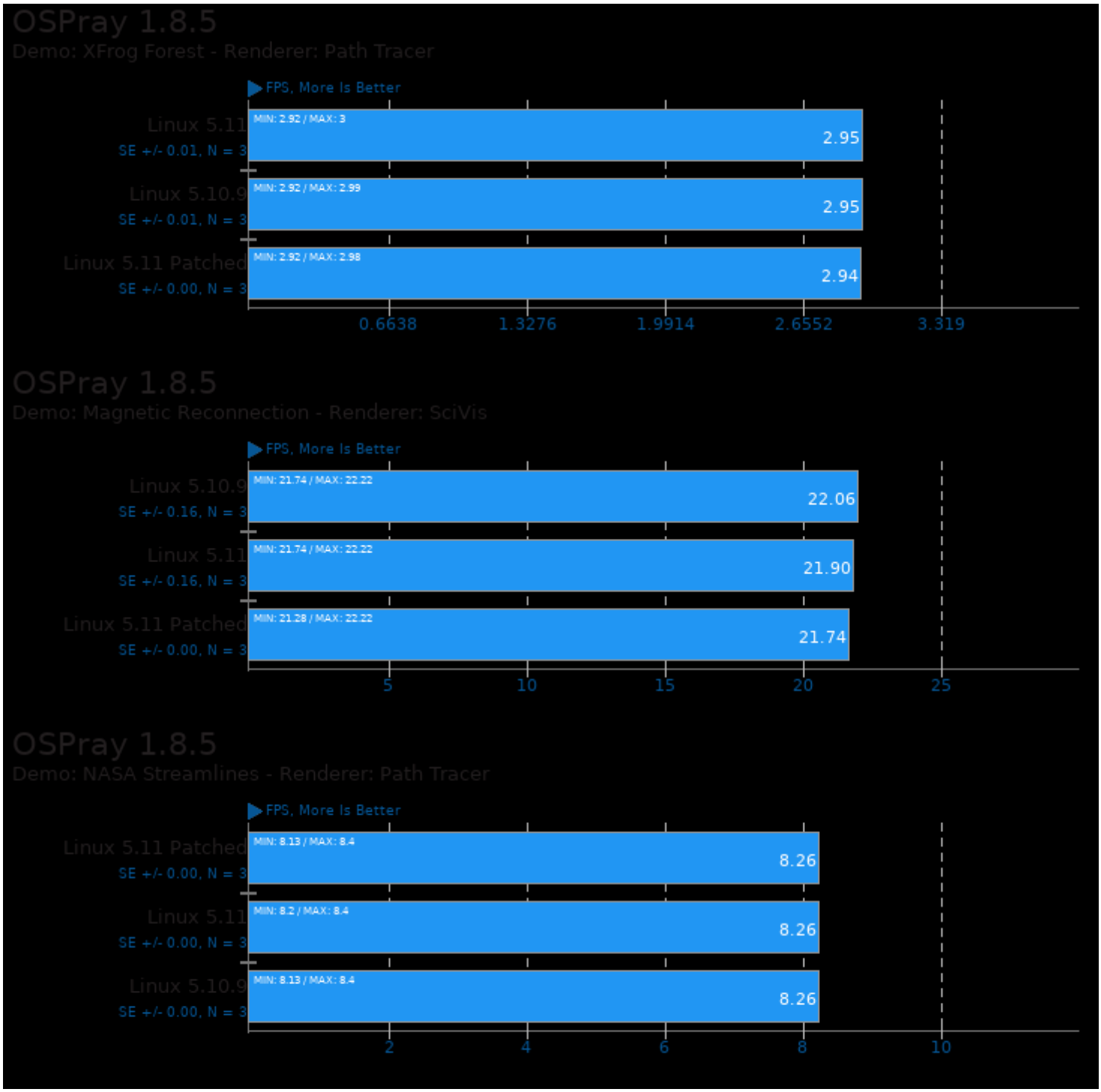

oneDNN 2.0
Harness: Deconvolution Batch shapes_3d - Data Type: f32 - Engine: CPU
ms, Fewer Is Better
Linux 5.11
SE +/- 0.00380, N = 3
MIN: 3.41
3.53779
Linux 5.11 Patched
SE +/- 0.00511, N = 3
MIN: 3.42
3.54069
Linux 5.10.9
SE +/- 0.00500, N = 3
MIN: 3.42
3.54830
0.7984
1.5968
2.3952
3.1936
3.992
1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread
oneDNN 2.0
Harness: Recurrent Neural Network Training - Data Type: f32 - Engine: CPU
ms, Fewer Is Better
Linux 5.10.9
SE +/- 28.69, N = 3
MIN: 2482.11
2533.50
Linux 5.11
SE +/- 19.34, N = 3
MIN: 2532.58
2573.53
Linux 5.11 Patched
SE +/- 30.62, N = 3
MIN: 2608.63
2657.20
600
1200
1800
2400
3000
1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread
oneDNN 2.0
Harness: Recurrent Neural Network Inference - Data Type: f32 - Engine: CPU
ms, Fewer Is Better
Linux 5.10.9
SE +/- 15.56, N = 15
MIN: 1569.34
1652.83
Linux 5.11 Patched
SE +/- 19.21, N = 15
MIN: 1583.35
1686.63
Linux 5.11
SE +/- 29.58, N = 15
MIN: 1586.05
1703.54
400
800
1200
1600
2000
1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread

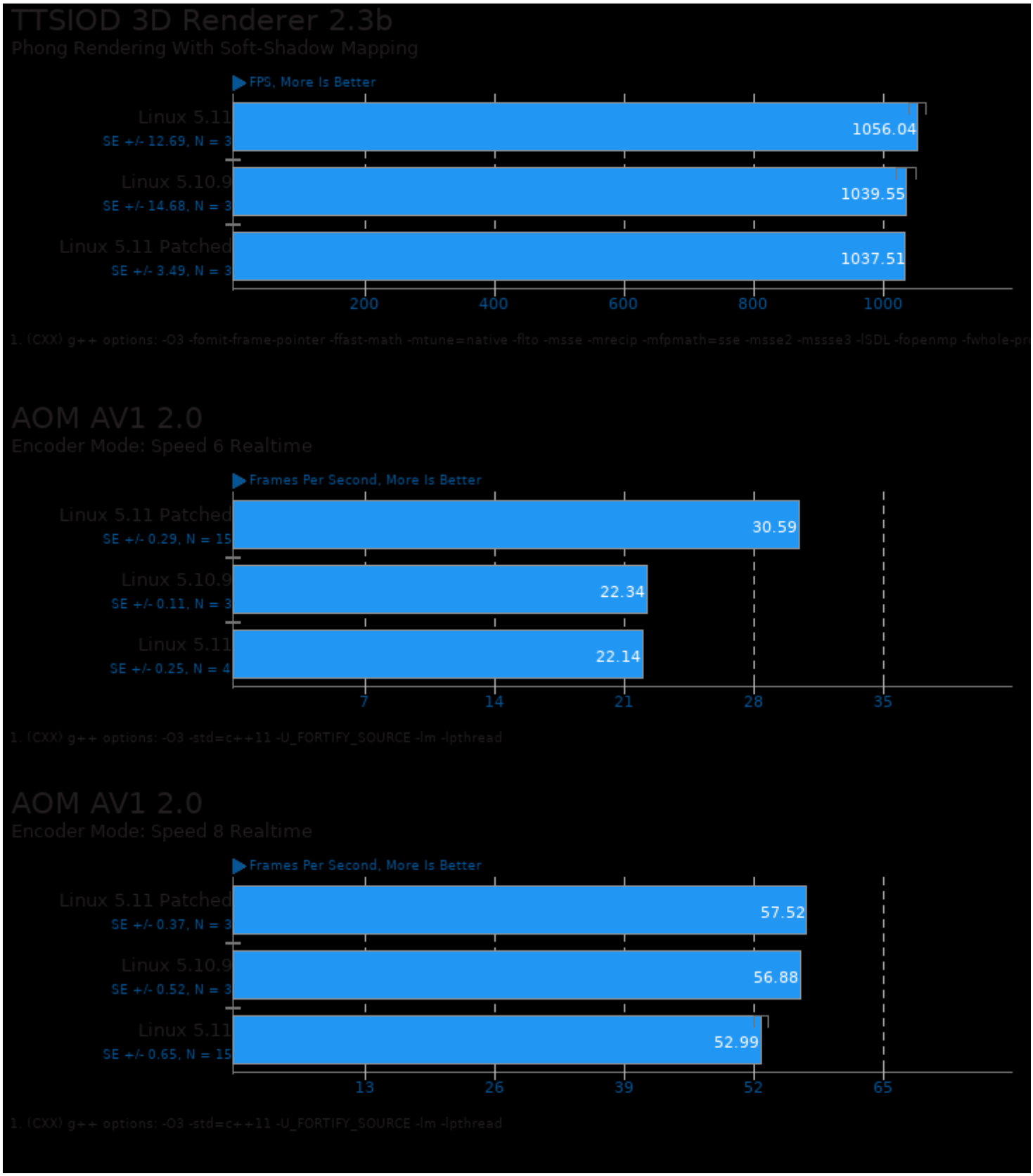

oneDNN 2.0
Harness: Matrix Multiply Batch Shapes Transformer - Data Type: f32 - Engine: CPU
ms, Fewer Is Better
Linux 5.11
SE +/- 0.001787, N = 3
MIN: 0.61
0.640735
Linux 5.11 Patched
SE +/- 0.002452, N = 3
MIN: 0.61
0.645934
Linux 5.10.9
SE +/- 0.007009, N = 3
MIN: 0.86
0.924960
0.2081
0.4162
0.6243
0.8324
1.0405
1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread
dav1d 0.8.1
Video Input: Chimera 1080p
FPS, More Is Better
Linux 5.11 Patched
SE +/- 0.21, N = 3
MIN: 700.11 / MAX: 1100.45
900.42
Linux 5.10.9
SE +/- 0.69, N = 3
MIN: 494.61 / MAX: 829.38
652.90
Linux 5.11
SE +/- 1.19, N = 3
MIN: 448.35 / MAX: 762.9
597.38
200
400
600
800
1000
1. (CC) gcc options: -pthread
dav1d 0.8.1
Video Input: Summer Nature 4K
FPS, More Is Better
Linux 5.11 Patched
SE +/- 0.43, N = 3
MIN: 180.39 / MAX: 246.96
238.79
Linux 5.10.9
SE +/- 0.80, N = 3
MIN: 176.51 / MAX: 246.62
236.83
Linux 5.11
SE +/- 0.32, N = 3
MIN: 180.88 / MAX: 242.74
232.45
50
100
150
200
250
1. (CC) gcc options: -pthread

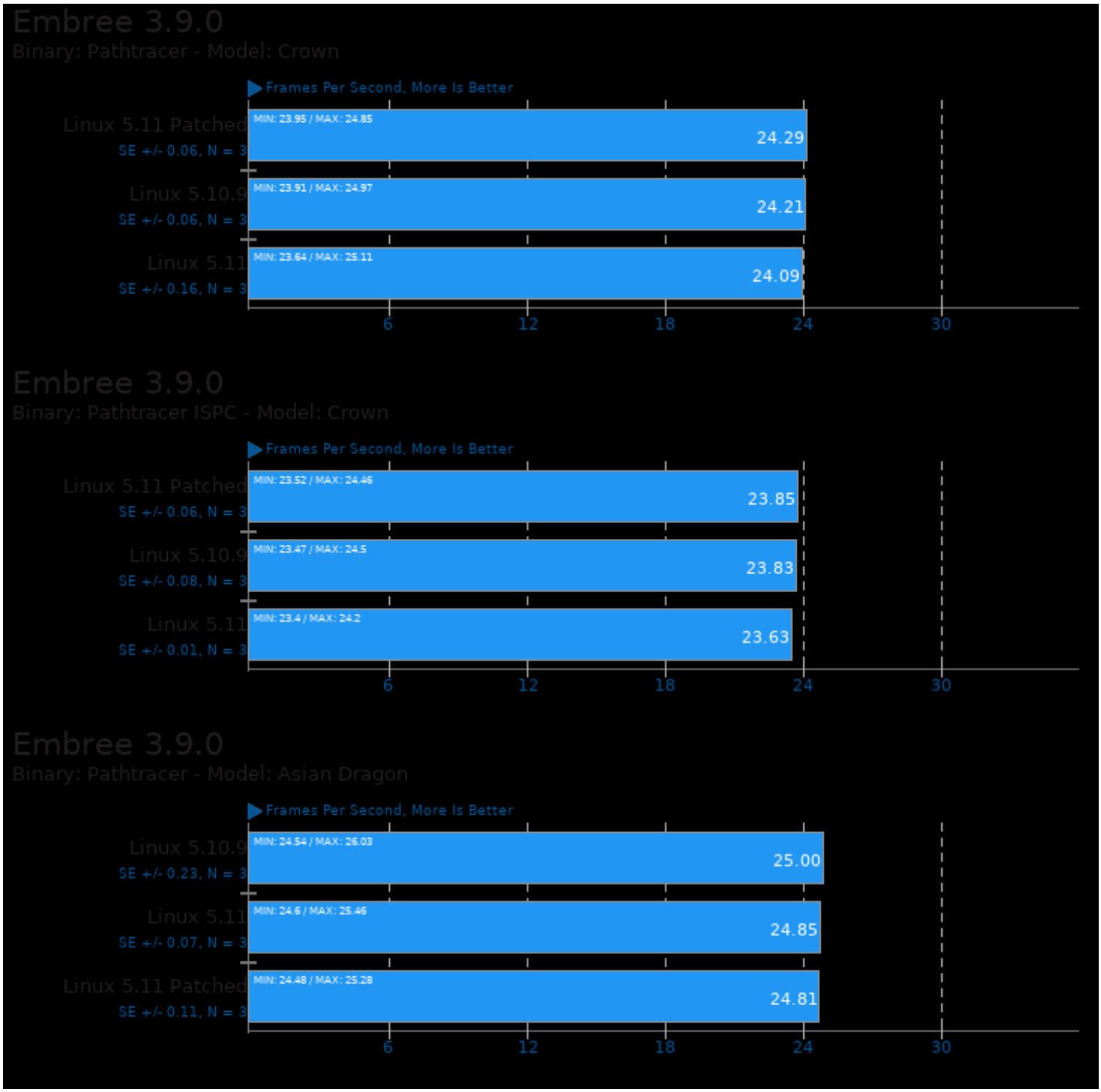

dav1d 0.8.1
Video Input: Summer Nature 1080p
FPS, More Is Better
Linux 5.11 Patched
SE +/- 4.51, N = 3
MIN: 670.54 / MAX: 1012.49
924.64
Linux 5.10.9
SE +/- 2.78, N = 3
MIN: 435.79 / MAX: 626.68
576.69
Linux 5.11
SE +/- 2.14, N = 3
MIN: 442.4 / MAX: 600.38
538.39
200
400
600
800
1000
1. (CC) gcc options: -pthread
dav1d 0.8.1
Video Input: Chimera 1080p 10-bit
FPS, More Is Better
Linux 5.11 Patched
SE +/- 0.53, N = 3
MIN: 94.6 / MAX: 335.55
135.62
Linux 5.10.9
SE +/- 0.19, N = 3
MIN: 66.87 / MAX: 222.69
102.03
Linux 5.11
SE +/- 0.12, N = 3
MIN: 61.57 / MAX: 217.58
96.48
30
60
90
120
150
1. (CC) gcc options: -pthread
OSPray 1.8.5
Demo: San Miguel - Renderer: SciVis
FPS, More Is Better
Linux 5.11 Patched
SE +/- 0.30, N = 3
MIN: 28.57 / MAX: 32.26
30.01
Linux 5.11
SE +/- 0.30, N = 3
MIN: 29.41 / MAX: 32.26
30.01
Linux 5.10.9
SE +/- 0.30, N = 3
MIN: 28.57 / MAX: 32.26
29.71
7
14
21
28
35

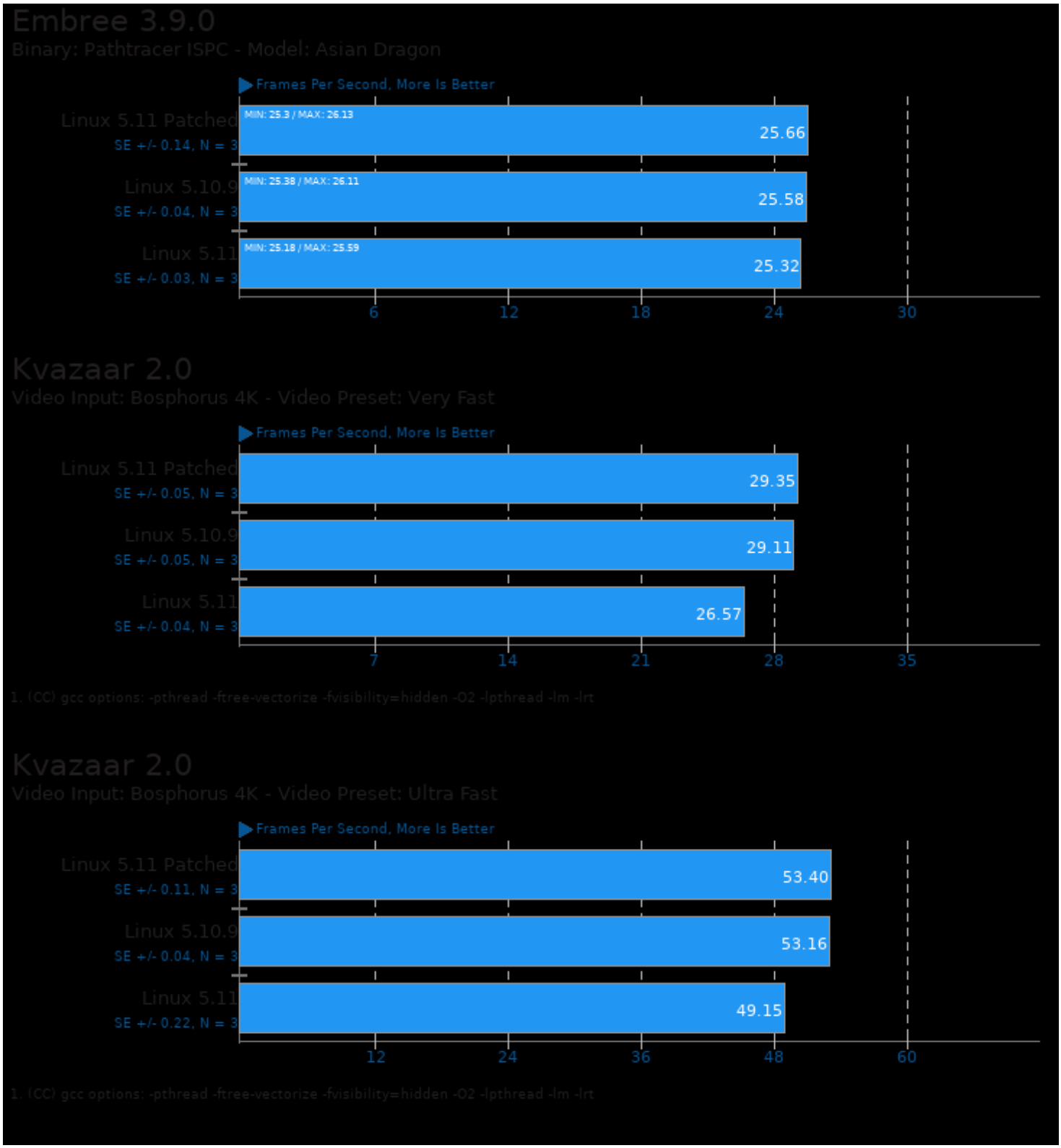

OSPray 1.8.5
Demo: XFrog Forest - Renderer: SciVis
FPS, More Is Better
Linux 5.10.9
SE +/- 0.01, N = 3
MIN: 5.41 / MAX: 5.59
5.50
Linux 5.11 Patched
SE +/- 0.00, N = 3
MIN: 5.43 / MAX: 5.59
5.49
Linux 5.11
SE +/- 0.02, N = 3
MIN: 5.43 / MAX: 5.62
5.49
1.2375
2.475
3.7125
4.95
6.1875
OSPray 1.8.5
Demo: San Miguel - Renderer: Path Tracer
FPS, More Is Better
Linux 5.10.9
SE +/- 0.00, N = 3
MIN: 2.45 / MAX: 2.52
2.48
Linux 5.11 Patched
SE +/- 0.01, N = 3
MIN: 2.44 / MAX: 2.51
2.47
Linux 5.11
SE +/- 0.00, N = 3
MIN: 2.45 / MAX: 2.5
2.47
0.558
1.116
1.674
2.232
2.79
OSPray 1.8.5
Demo: NASA Streamlines - Renderer: SciVis
FPS, More Is Better
Linux 5.11 Patched
MAX: 41.67
40
Linux 5.11
MIN: 35.71 / MAX: 41.67
40
Linux 5.10.9
MAX: 41.67
40
9
18
27
36
45

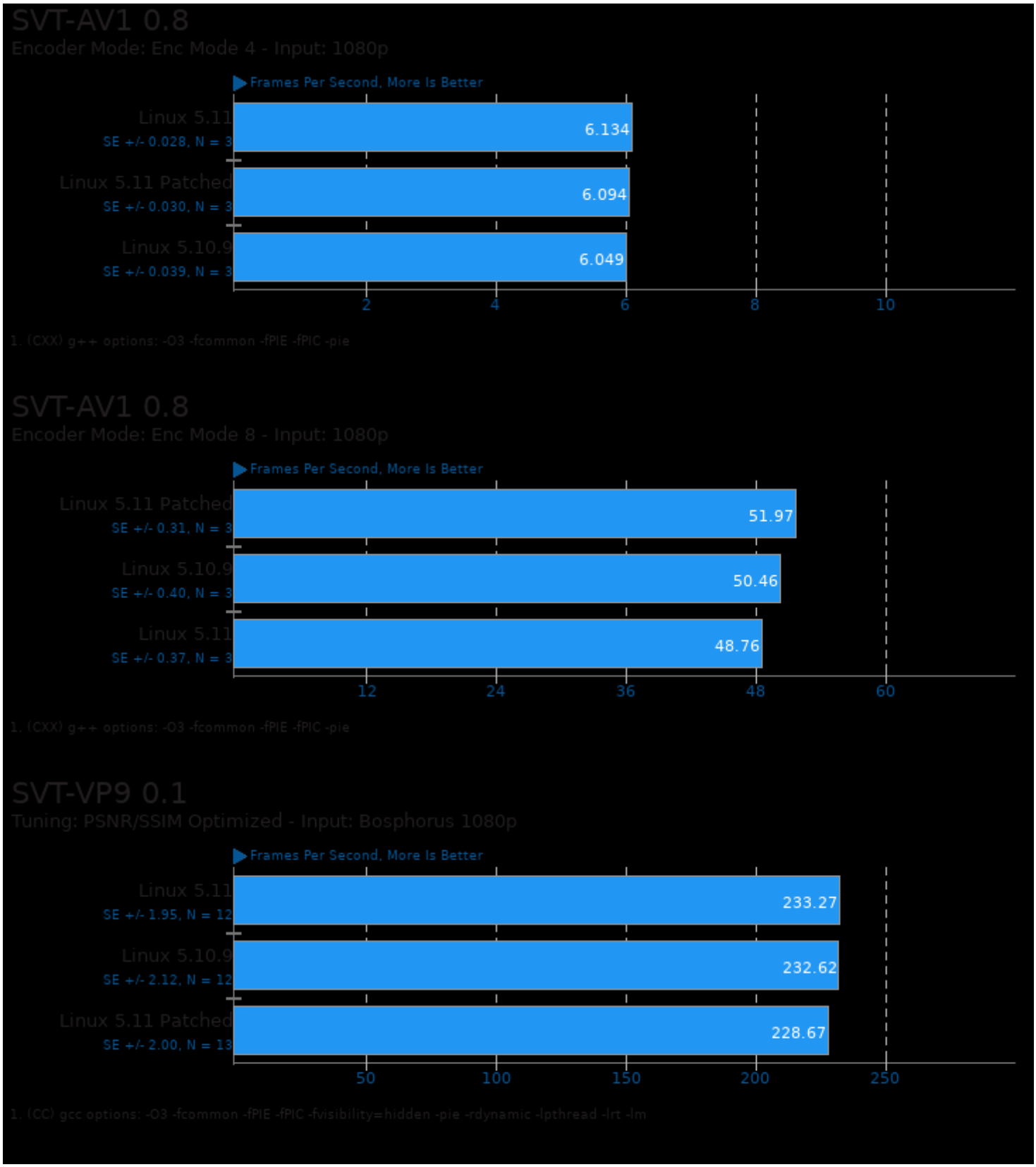
AMD Ryzen 9 5950X Linux 5.11

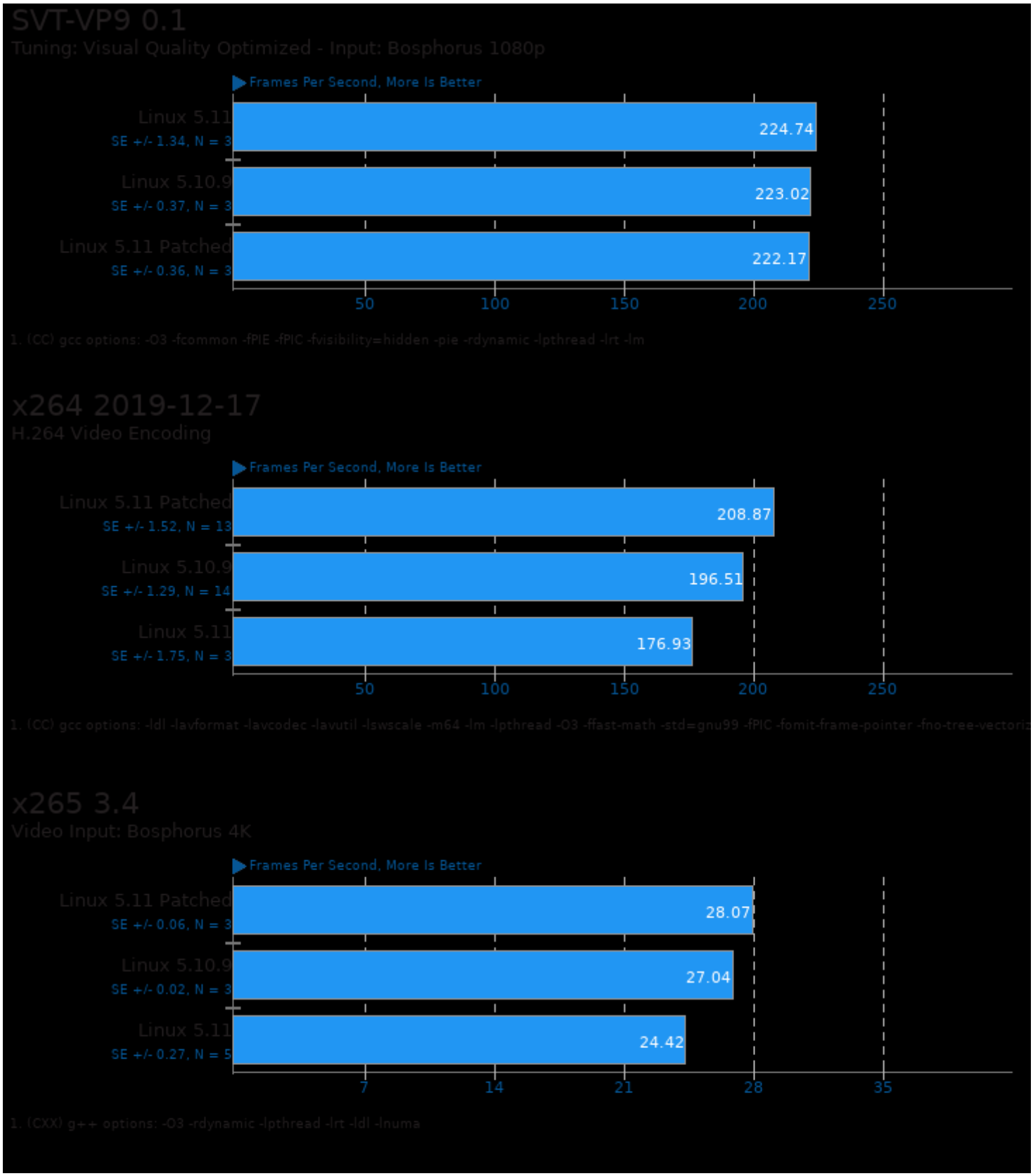


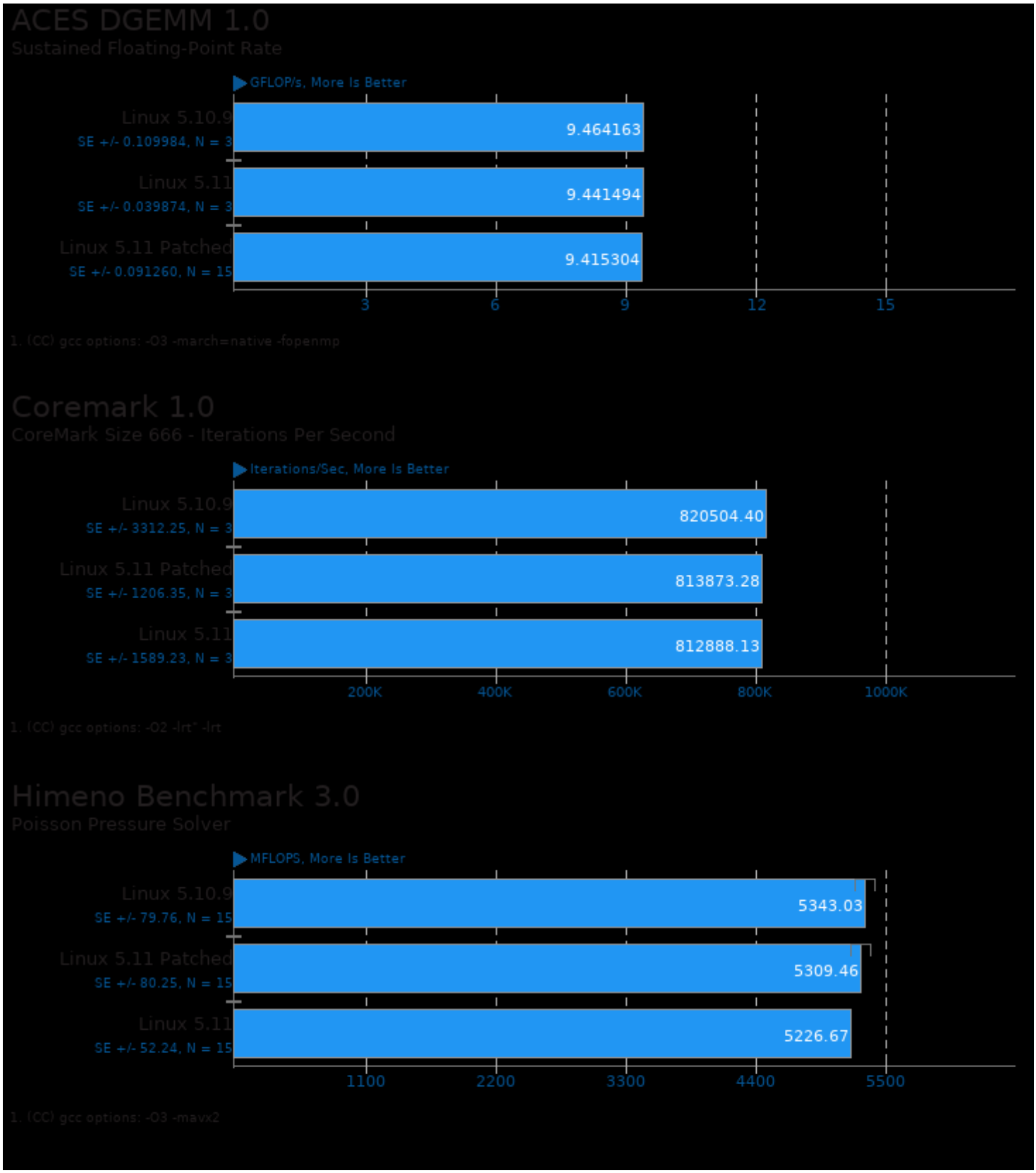

TTSIOD 3D Renderer 2.3b
Phong Rendering With Soft-Shadow Mapping
FPS, More Is Better
Linux 5.11
SE +/- 12.69, N = 3
1056.04
Linux 5.10.9
SE +/- 14.68, N = 3
1039.55
Linux 5.11 Patched
SE +/- 3.49, N = 3
1037.51
200
400
600
800
1000
1. (CXX) g++ options: -O3 -fomit-frame-pointer -ffast-math -mtune=native -flto -msse -mrecip -mfpmath=sse -msse2 -mssse3 -lSDL -fopenmp -fwhole-pr
AOM AV1 2.0
Encoder Mode: Speed 6 Realtime
Frames Per Second, More Is Better
Linux 5.11 Patched
SE +/- 0.29, N = 15
30.59
Linux 5.10.9
SE +/- 0.11, N = 3
22.34
Linux 5.11
SE +/- 0.25, N = 4
22.14
7
14
21
28
35
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm -lpthread
AOM AV1 2.0
Encoder Mode: Speed 8 Realtime
Frames Per Second, More Is Better
Linux 5.11 Patched
SE +/- 0.37, N = 3
57.52
Linux 5.10.9
SE +/- 0.52, N = 3
56.88
Linux 5.11
SE +/- 0.65, N = 15
52.99
13
26
39
52
65
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm -lpthread


Embree 3.9.0
Binary: Pathtracer - Model: Crown
Frames Per Second, More Is Better
Linux 5.11 Patched
SE +/- 0.06, N = 3
MIN: 23.95 / MAX: 24.85
24.29
Linux 5.10.9
SE +/- 0.06, N = 3
MIN: 23.91 / MAX: 24.97
24.21
Linux 5.11
SE +/- 0.16, N = 3
MIN: 23.64 / MAX: 25.11
24.09
6
12
18
24
30
Embree 3.9.0
Binary: Pathtracer ISPC - Model: Crown
Frames Per Second, More Is Better
Linux 5.11 Patched
SE +/- 0.06, N = 3
MIN: 23.52 / MAX: 24.46
23.85
Linux 5.10.9
SE +/- 0.08, N = 3
MIN: 23.47 / MAX: 24.5
23.83
Linux 5.11
SE +/- 0.01, N = 3
MIN: 23.4 / MAX: 24.2
23.63
6
12
18
24
30
Embree 3.9.0
Binary: Pathtracer - Model: Asian Dragon
Frames Per Second, More Is Better
Linux 5.10.9
SE +/- 0.23, N = 3
MIN: 24.54 / MAX: 26.03
25.00
Linux 5.11
SE +/- 0.07, N = 3
MIN: 24.6 / MAX: 25.46
24.85
Linux 5.11 Patched
SE +/- 0.11, N = 3
MIN: 24.48 / MAX: 25.28
24.81
6
12
18
24
30


Embree 3.9.0
Binary: Pathtracer ISPC - Model: Asian Dragon
Frames Per Second, More Is Better
Linux 5.11 Patched
SE +/- 0.14, N = 3
MIN: 25.3 / MAX: 26.13
25.66
Linux 5.10.9
SE +/- 0.04, N = 3
MIN: 25.38 / MAX: 26.11
25.58
Linux 5.11
SE +/- 0.03, N = 3
MIN: 25.18 / MAX: 25.59
25.32
6
12
18
24
30
Kvazaar 2.0
Video Input: Bosphorus 4K - Video Preset: Very Fast
Frames Per Second, More Is Better
Linux 5.11 Patched
SE +/- 0.05, N = 3
29.35
Linux 5.10.9
SE +/- 0.05, N = 3
29.11
Linux 5.11
SE +/- 0.04, N = 3
26.57
7
14
21
28
35
1. (CC) gcc options: -pthread -ftree-vectorize -fvisibility=hidden -O2 -lpthread -lm -lrt
Kvazaar 2.0
Video Input: Bosphorus 4K - Video Preset: Ultra Fast
Frames Per Second, More Is Better
Linux 5.11 Patched
SE +/- 0.11, N = 3
53.40
Linux 5.10.9
SE +/- 0.04, N = 3
53.16
Linux 5.11
SE +/- 0.22, N = 3
49.15
12
24
36
48
60
1. (CC) gcc options: -pthread -ftree-vectorize -fvisibility=hidden -O2 -lpthread -lm -lrt

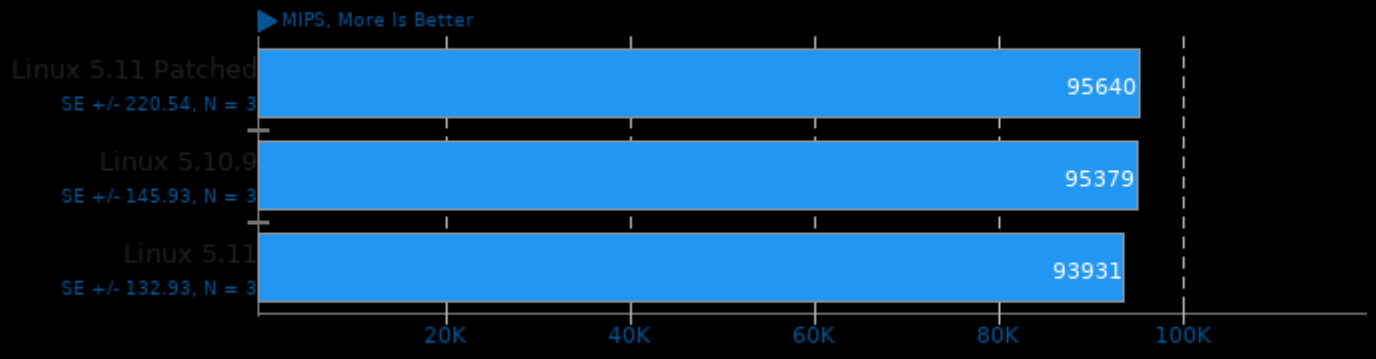

SVT-AV1 0.8
Encoder Mode: Enc Mode 4 - Input: 1080p
Frames Per Second, More Is Better
Linux 5.11
SE +/- 0.028, N = 3
6.134
Linux 5.11 Patched
SE +/- 0.030, N = 3
6.094
Linux 5.10.9
SE +/- 0.039, N = 3
6.049
2
4
6
8
10
1. (CXX) g++ options: -O3 -fcommon -fPIE -fPIC -pie
SVT-AV1 0.8
Encoder Mode: Enc Mode 8 - Input: 1080p
Frames Per Second, More Is Better
Linux 5.11 Patched
SE +/- 0.31, N = 3
51.97
Linux 5.10.9
SE +/- 0.40, N = 3
50.46
Linux 5.11
SE +/- 0.37, N = 3
48.76
12
24
36
48
60
1. (CXX) g++ options: -O3 -fcommon -fPIE -fPIC -pie
SVT-VP9 0.1
Tuning: PSNR/SSIM Optimized - Input: Bosphorus 1080p
Frames Per Second, More Is Better
Linux 5.11
SE +/- 1.95, N = 12
233.27
Linux 5.10.9
SE +/- 2.12, N = 12
232.62
Linux 5.11 Patched
SE +/- 2.00, N = 13
228.67
50
100
150
200
250
1. (CC) gcc options: -O3 -fcommon -fPIE -fPIC -fvisibility=hidden -pie -rdynamic -lpthread -lrt -lm


SVT-VP9 0.1
Tuning: Visual Quality Optimized - Input: Bosphorus 1080p
Frames Per Second, More Is Better
Linux 5.11
SE +/- 1.34, N = 3
224.74
Linux 5.10.9
SE +/- 0.37, N = 3
223.02
Linux 5.11 Patched
SE +/- 0.36, N = 3
222.17
50
100
150
200
250
1. (CC) gcc options: -O3 -fcommon -fPIE -fPIC -fvisibility=hidden -pie -rdynamic -lpthread -lrt -lm
x264 2019-12-17
H.264 Video Encoding
Frames Per Second, More Is Better
Linux 5.11 Patched
SE +/- 1.52, N = 13
208.87
Linux 5.10.9
SE +/- 1.29, N = 14
196.51
Linux 5.11
SE +/- 1.75, N = 3
176.93
50
100
150
200
250
1. (CC) gcc options: -ldl -lavformat -lavcodec -lavutil -lswscale -m64 -lm -lpthread -O3 -ffast-math -std=gnu99 -fPIC -fomit-frame-pointer -fno-tree-vectorize
x265 3.4
Video Input: Bosphorus 4K
Frames Per Second, More Is Better
Linux 5.11 Patched
SE +/- 0.06, N = 3
28.07
Linux 5.10.9
SE +/- 0.02, N = 3
27.04
Linux 5.11
SE +/- 0.27, N = 5
24.42
7
14
21
28
35
1. (CXX) g++ options: -O3 -rdynamic -lpthread -lrt -ldl -lnuma


ACES DGEMM 1.0
Sustained Floating-Point Rate
GFLOP/s, More Is Better
Linux 5.10.9
SE +/- 0.109984, N = 3
9.464163
Linux 5.11
SE +/- 0.039874, N = 3
9.441494
Linux 5.11 Patched
SE +/- 0.091260, N = 15
9.415304
3
6
9
12
15
1. (CC) gcc options: -O3 -march=native -fopenmp
Coremark 1.0
CoreMark Size 666 - Iterations Per Second
Iterations/Sec, More Is Better
Linux 5.10.9
SE +/- 3312.25, N = 3
820504.40
Linux 5.11 Patched
SE +/- 1206.35, N = 3
813873.28
Linux 5.11
SE +/- 1589.23, N = 3
812888.13
200K
400K
600K
800K
1000K
1. (CC) gcc options: -O2 -lrt -lrt
Himeno Benchmark 3.0
Poisson Pressure Solver
MFLOPS, More Is Better
Linux 5.10.9
SE +/- 79.76, N = 15
5343.03
Linux 5.11 Patched
SE +/- 80.25, N = 15
5309.46
Linux 5.11
SE +/- 52.24, N = 15
5226.67
1100
2200
3300
4400
5500
1. (CC) gcc options: -O3 -mavx2

7-Zip Compression 16.02

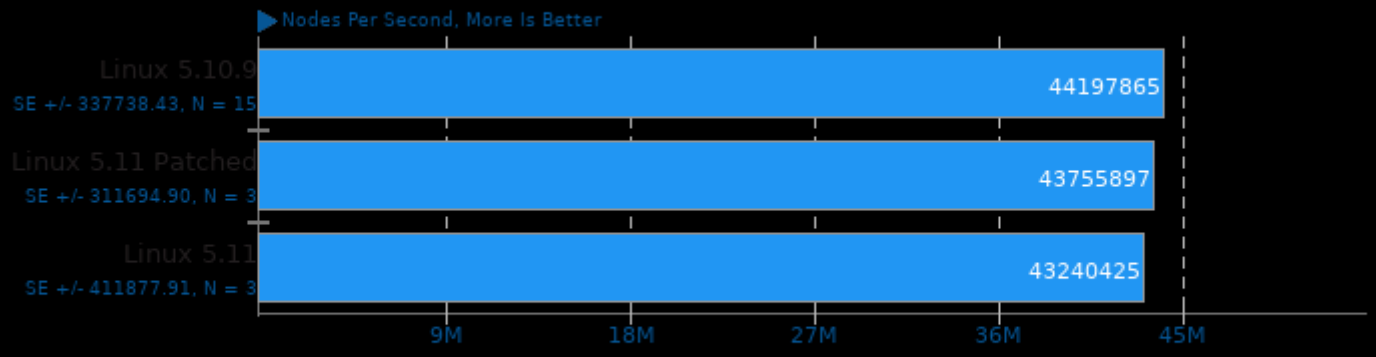
Compress Speed Test



1. (CXX) g++ options: -pipe -lpthread

Stockfish 12

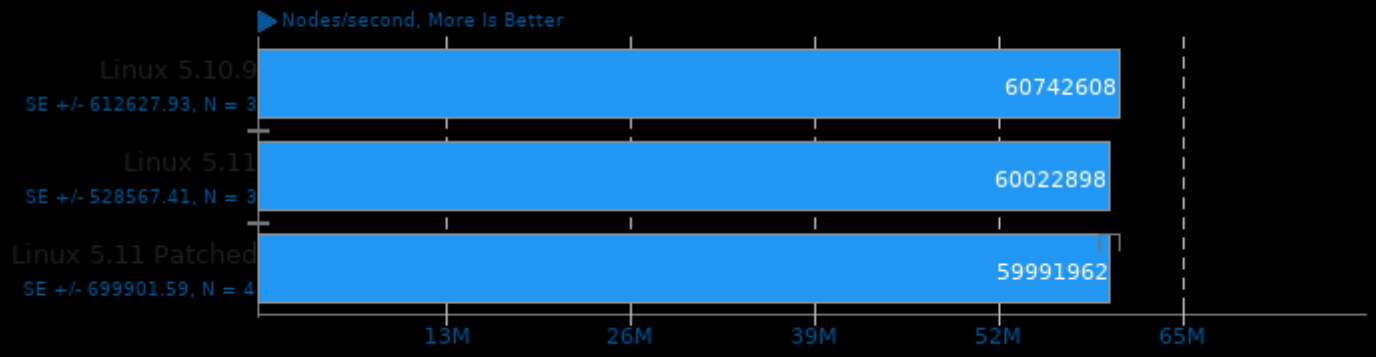
Total Time

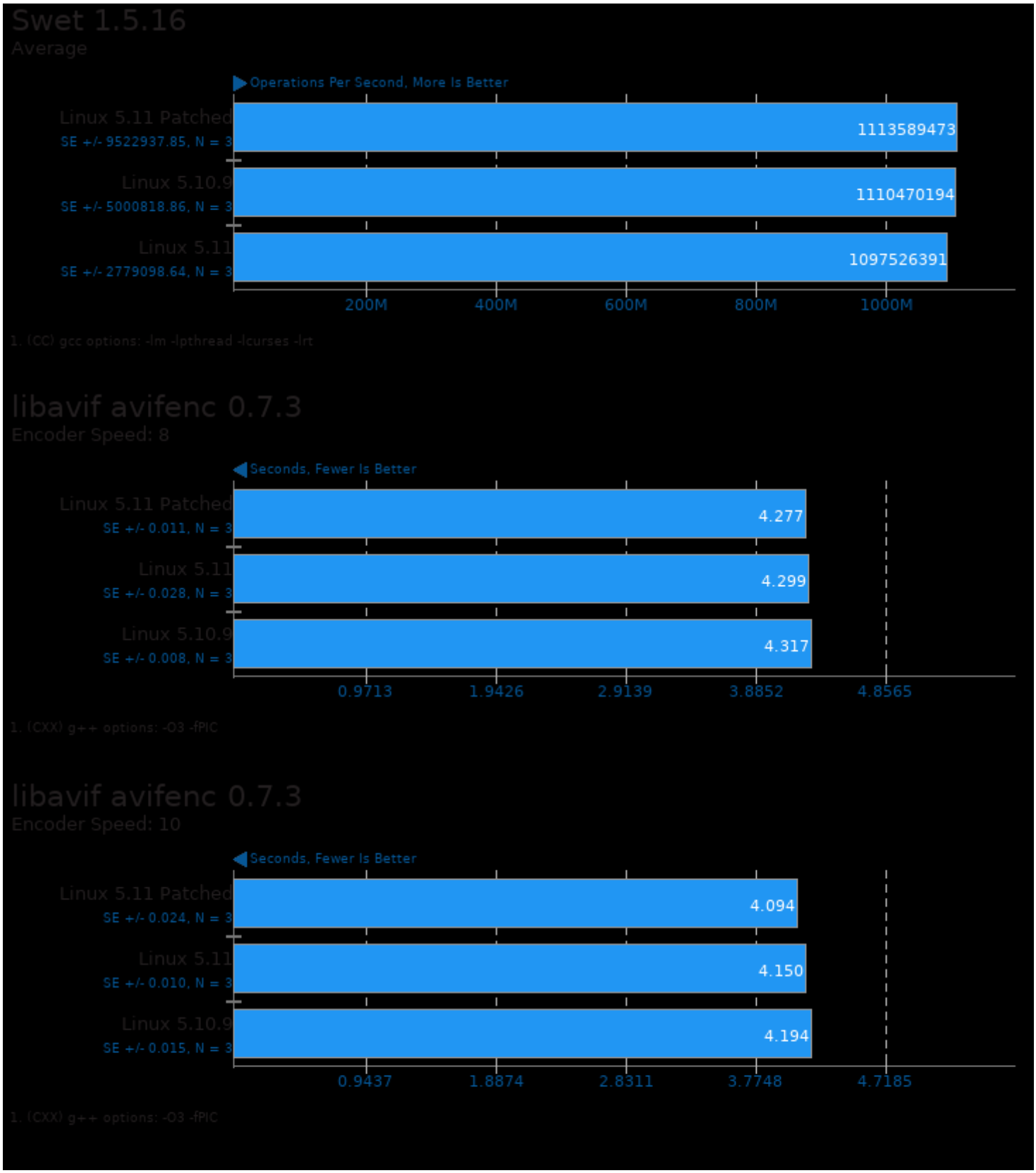


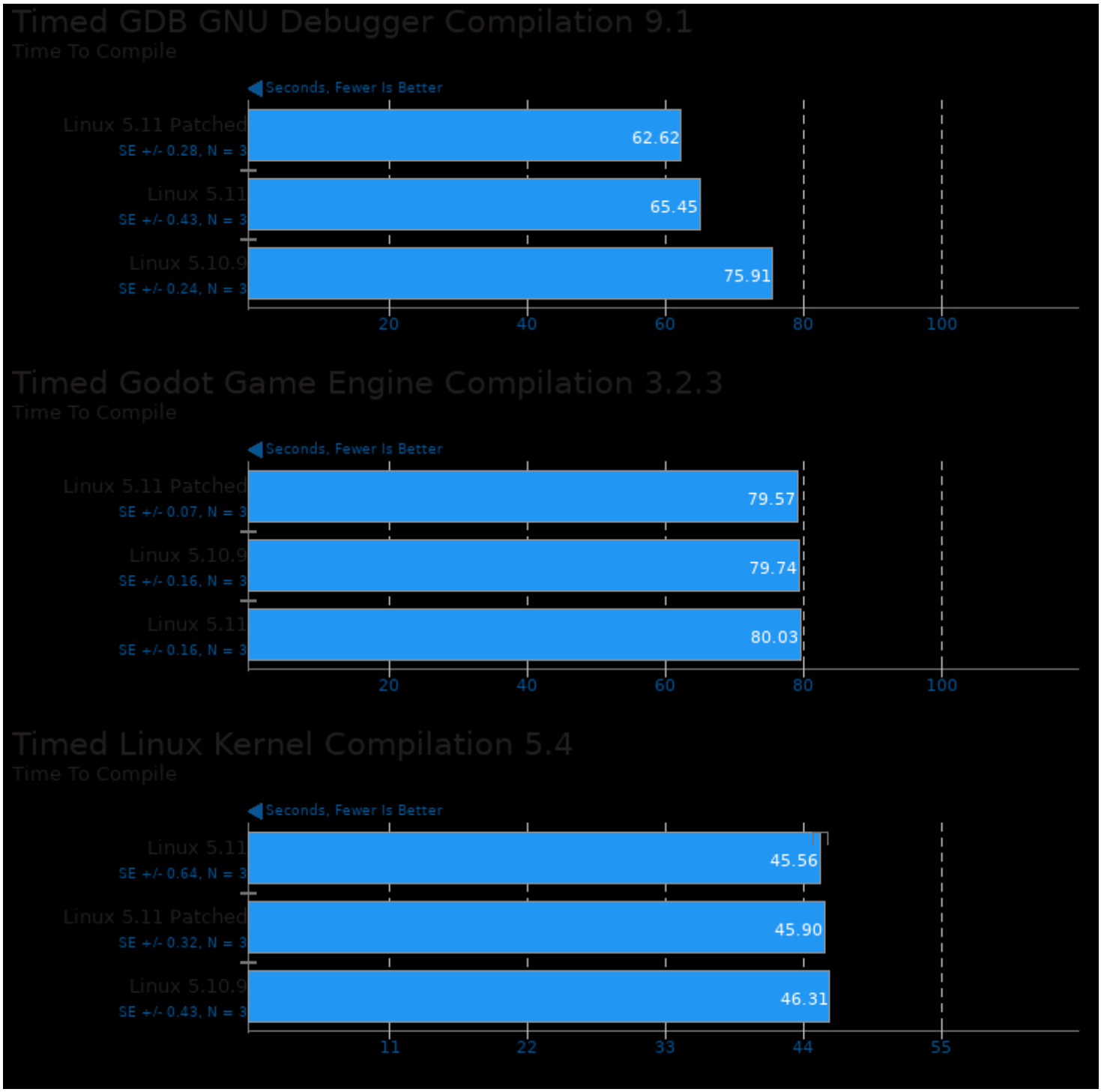
1. (CXX) g++ options: -m64 -lpthread -fno-exceptions -std=c++17 -pedantic -O3 -msse -msse3 -mpopcnt -msse4.1 -mssse3 -msse2 -flto -flto=jobserver

asmFish 2018-07-23

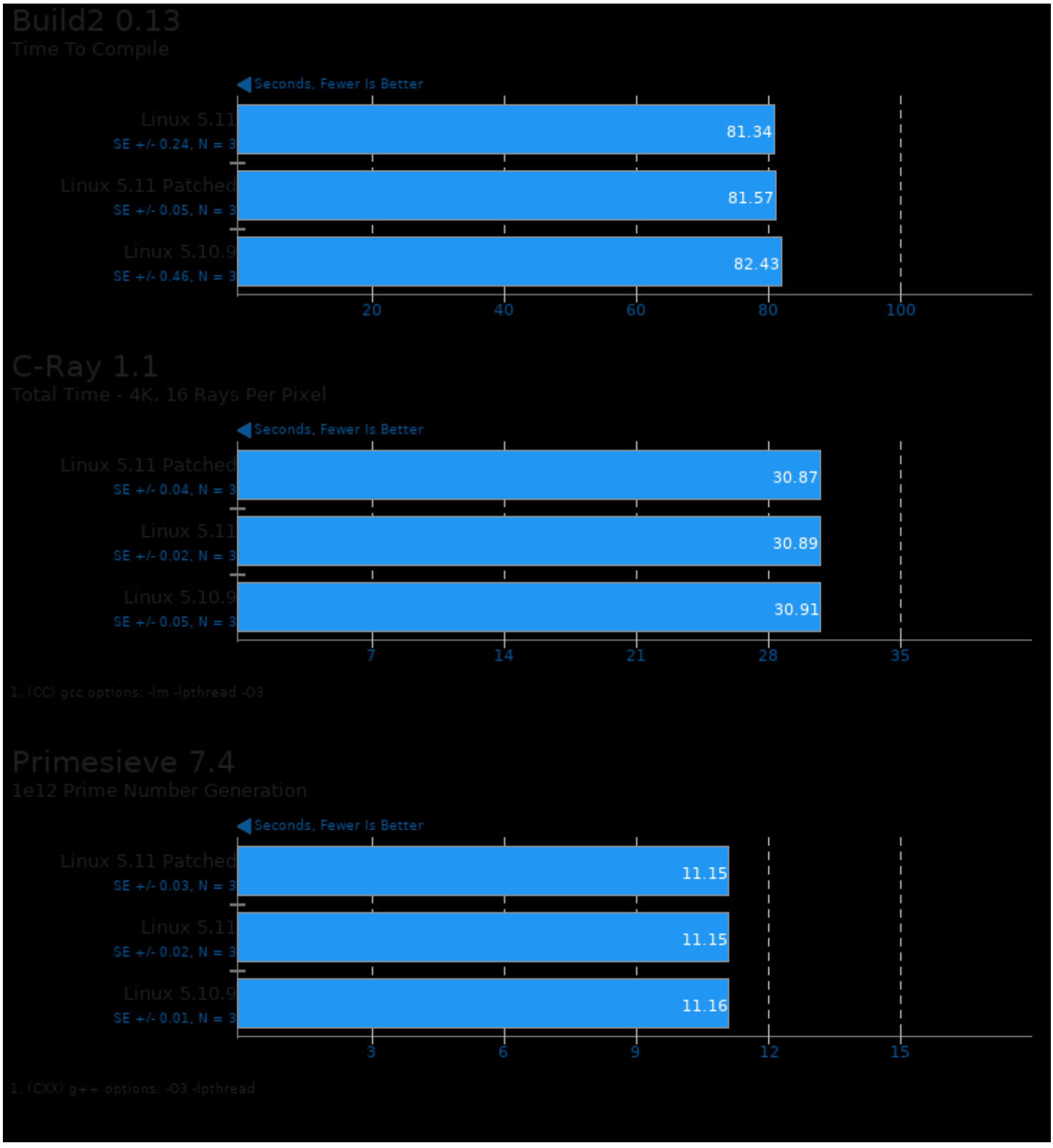
1024 Hash Memory, 26 Depth




Swet 1.5.16
Average
Operations Per Second, More Is Better
Linux 5.11 Patched
SE +/- 9522937.85, N = 3
1113589473
Linux 5.10.9
SE +/- 5000818.86, N = 3
1110470194
Linux 5.11
SE +/- 2779098.64, N = 3
1097526391
200M
400M
600M
800M
1000M
1. (CC) gcc options: -lm -lpthread -lcurses -lrt
libavif avifenc 0.7.3
Encoder Speed: 8
Seconds, Fewer Is Better
Linux 5.11 Patched
SE +/- 0.011, N = 3
4.277
Linux 5.11
SE +/- 0.028, N = 3
4.299
Linux 5.10.9
SE +/- 0.008, N = 3
4.317
0.9713
1.9426
2.9139
3.8852
4.8565
1. (CXX) g++ options: -O3 -fPIC
libavif avifenc 0.7.3
Encoder Speed: 10
Seconds, Fewer Is Better
Linux 5.11 Patched
SE +/- 0.024, N = 3
4.094
Linux 5.11
SE +/- 0.010, N = 3
4.150
Linux 5.10.9
SE +/- 0.015, N = 3
4.194
0.9437
1.8874
2.8311
3.7748
4.7185
1. (CXX) g++ options: -O3 -fPIC

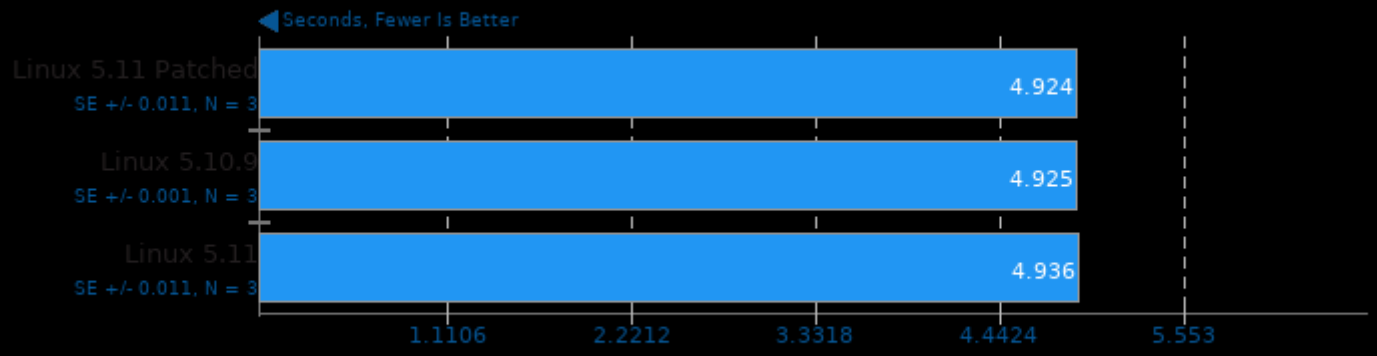

Timed GDB GNU Debugger Compilation 9.1
Time To Compile
Seconds, Fewer Is Better
Linux 5.11 Patched
SE +/- 0.28, N = 3
62.62
Linux 5.11
SE +/- 0.43, N = 3
65.45
Linux 5.10.9
SE +/- 0.24, N = 3
75.91
20
40
60
80
100
Timed Godot Game Engine Compilation 3.2.3
Time To Compile
Seconds, Fewer Is Better
Linux 5.11 Patched
SE +/- 0.07, N = 3
79.57
Linux 5.10.9
SE +/- 0.16, N = 3
79.74
Linux 5.11
SE +/- 0.16, N = 3
80.03
20
40
60
80
100
Timed Linux Kernel Compilation 5.4
Time To Compile
Seconds, Fewer Is Better
Linux 5.11
SE +/- 0.64, N = 3
45.56
Linux 5.11 Patched
SE +/- 0.32, N = 3
45.90
Linux 5.10.9
SE +/- 0.43, N = 3
46.31
11
22
33
44
55

AMD Ryzen 9 5950X Linux 5.11



Smallpt 1.0

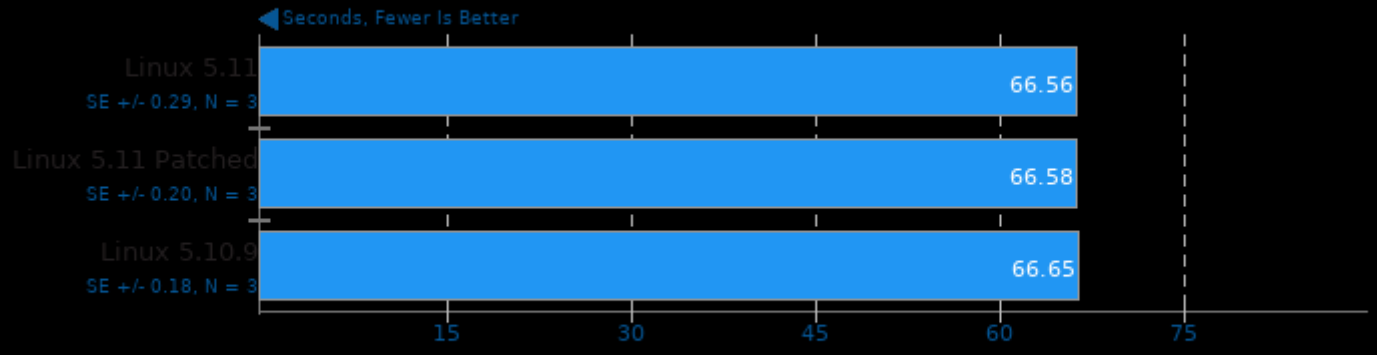
Global Illumination Renderer; 128 Samples



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

YafaRay 3.4.1

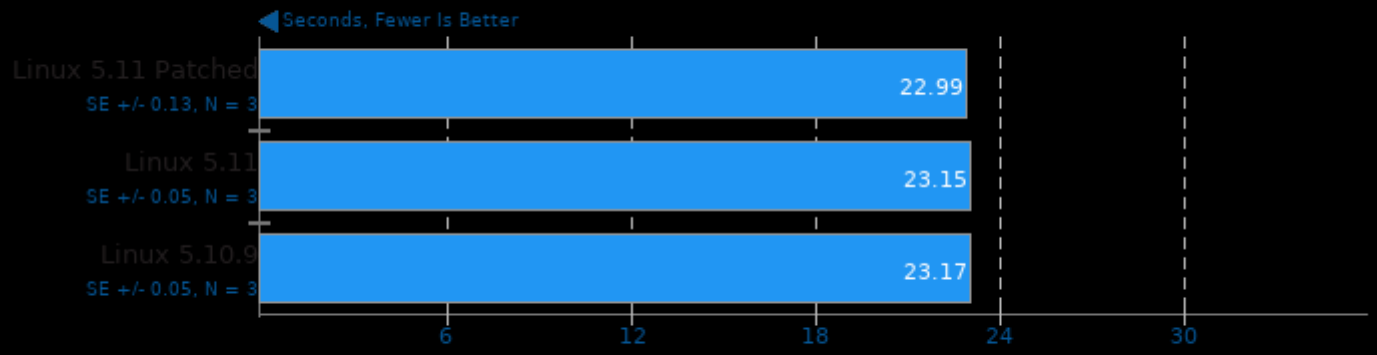
Total Time For Sample Scene



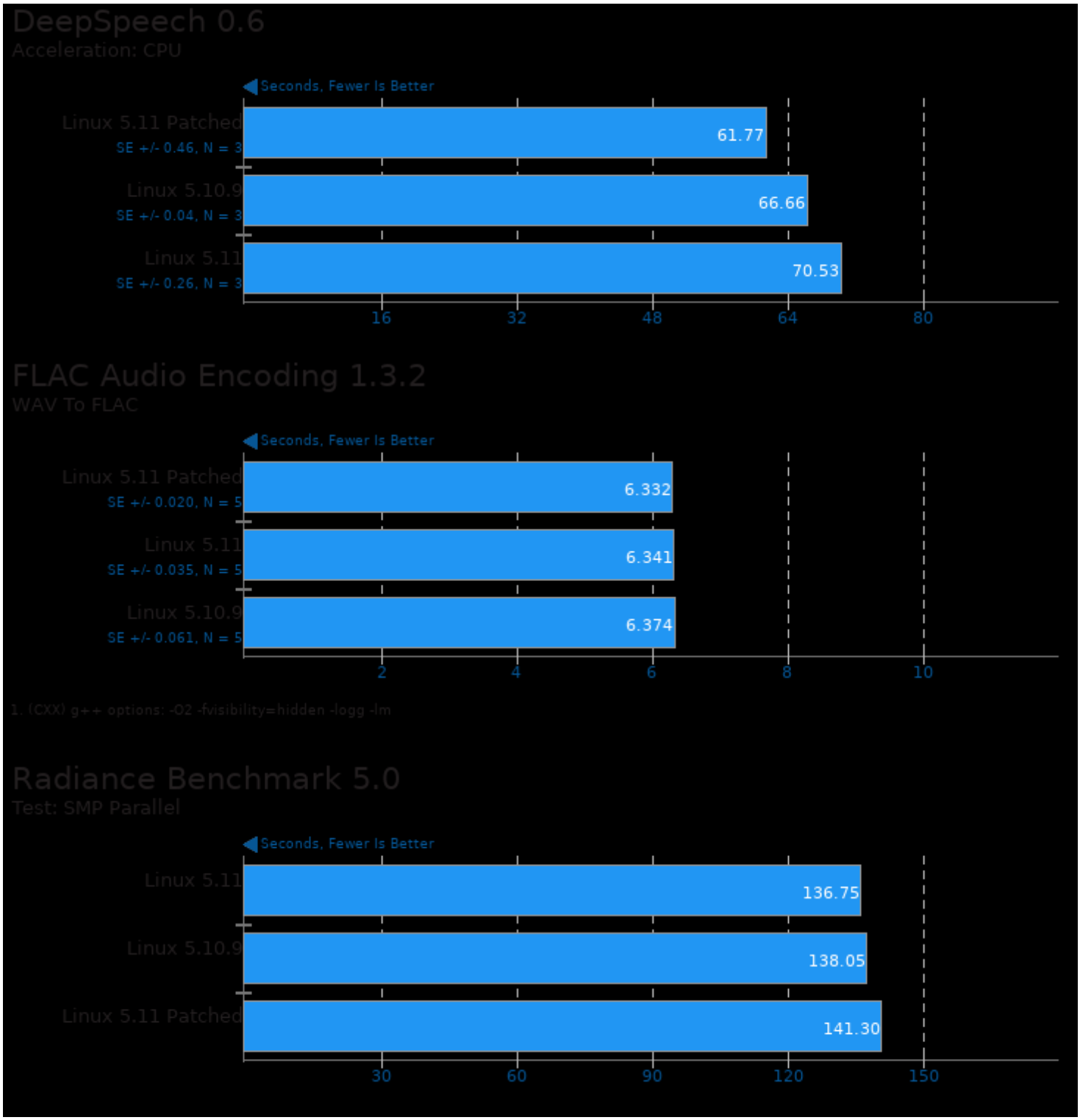
1. (CXX) g++ options: -std=c++11 -O3 -ffast-math -rdynamic -ldl -lImath -lIlmImf -lIex -lHalf -lz -lIlmThread -lxml2 -lfreetype -lpthread

XZ Compression 5.2.4

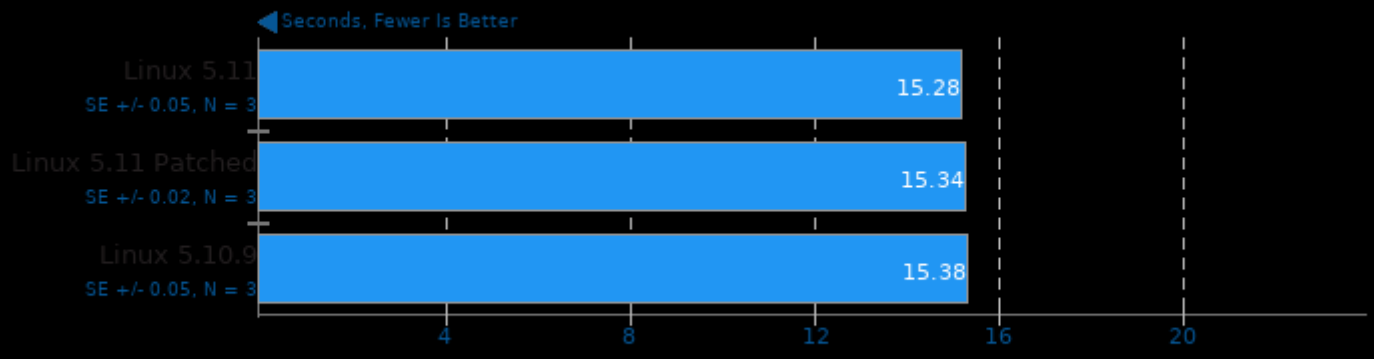
Compressing ubuntu-16.04.3-server-i386.img, Compression Level 9



1. (CC) gcc options: -pthread -fvisibility=hidden -O2


DeepSpeech 0.6
Acceleration: CPU
Seconds, Fewer Is Better
Linux 5.11 Patched
SE +/- 0.46, N = 3
61.77
Linux 5.10.9
SE +/- 0.04, N = 3
66.66
Linux 5.11
SE +/- 0.26, N = 3
70.53
16
32
48
64
80
FLAC Audio Encoding 1.3.2
WAV To FLAC
Seconds, Fewer Is Better
Linux 5.11 Patched
SE +/- 0.020, N = 5
6.332
Linux 5.11
SE +/- 0.035, N = 5
6.341
Linux 5.10.9
SE +/- 0.061, N = 5
6.374
2
4
6
8
10
1. (CXX) g++ options: -O2 -fvisibility=hidden -logg -lm
Radiance Benchmark 5.0
Test: SMP Parallel
Seconds, Fewer Is Better
Linux 5.11
136.75
Linux 5.10.9
138.05
Linux 5.11 Patched
141.30
30
60
90
120
150

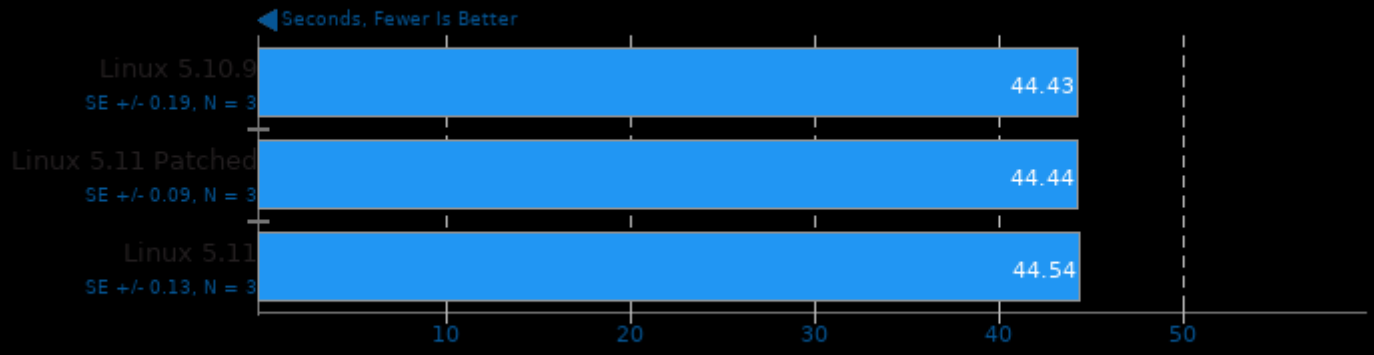
RNNoise 2020-06-28



1. (CC) gcc options: -O2 -pedantic -fvisibility=hidden

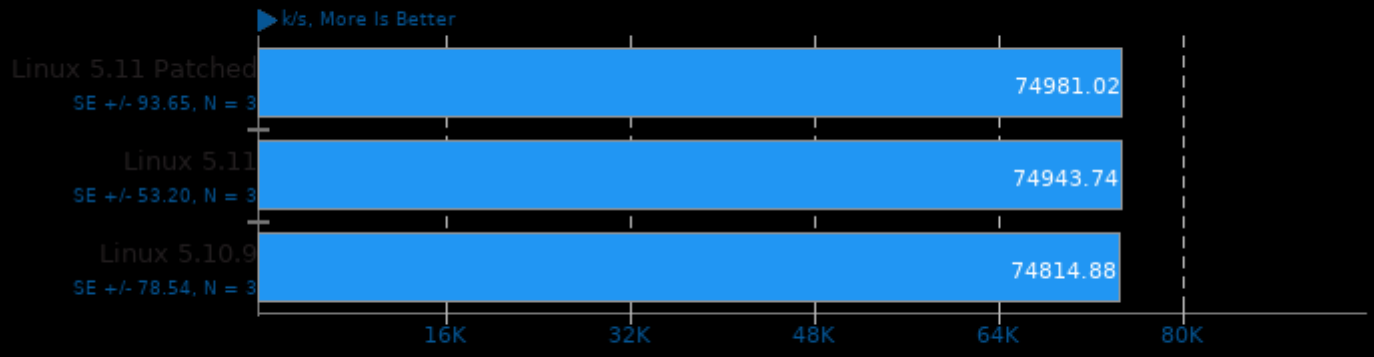
Tachyon 0.99b6

Total Time

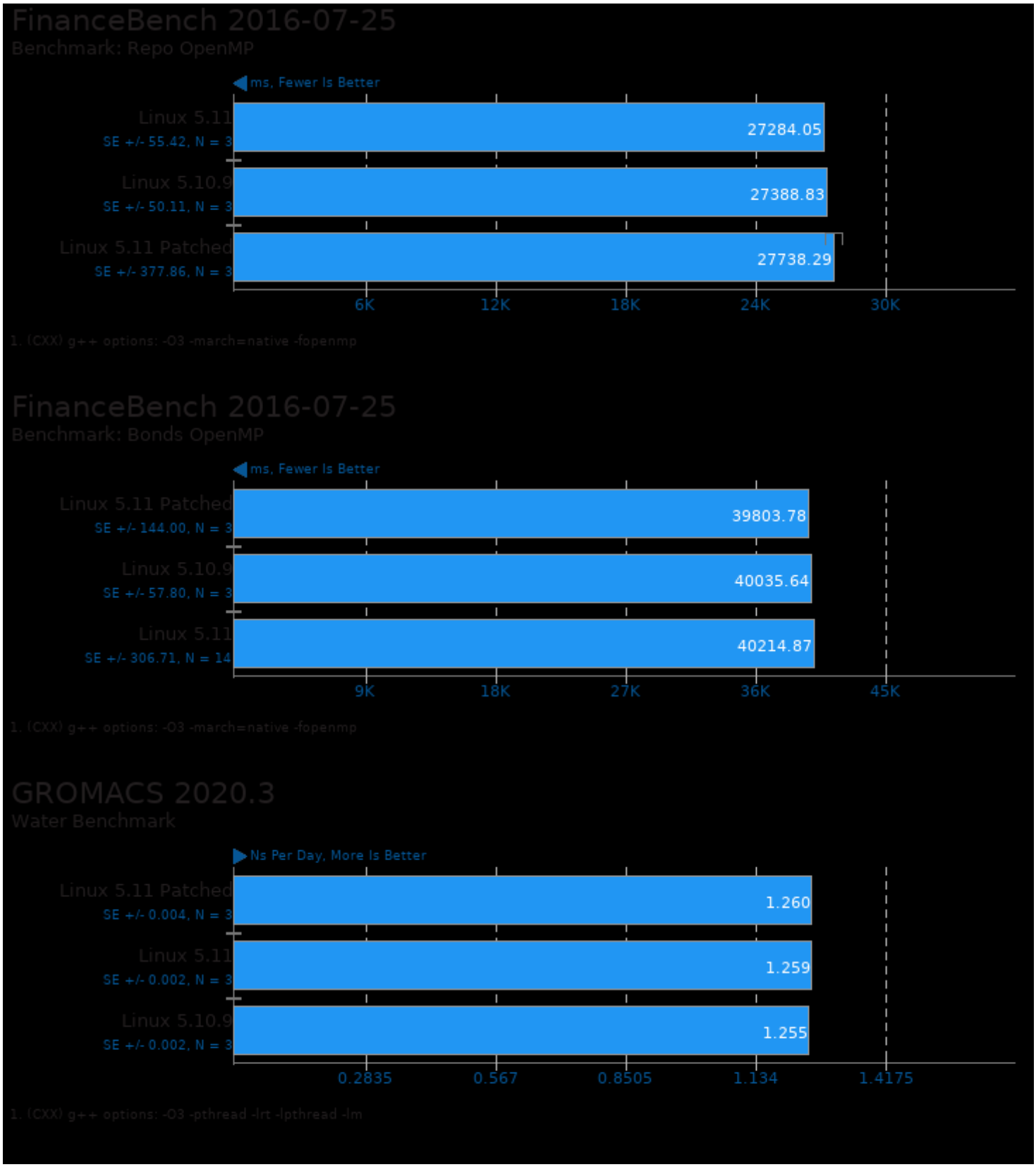


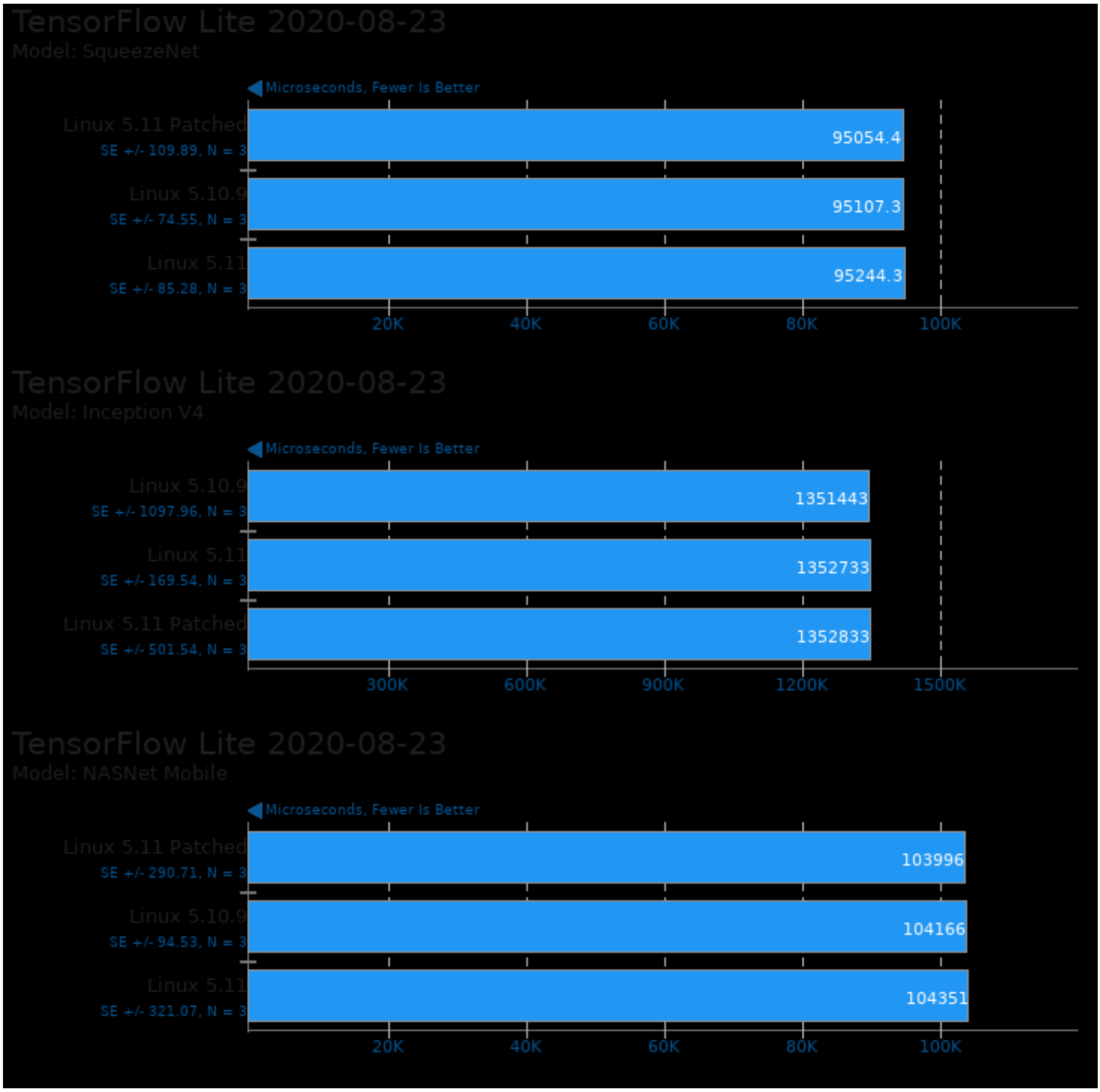
1. (CC) gcc options: -m64 -O3 -fomit-frame-pointer -ffast-math -ltachyon -lm -lpthread

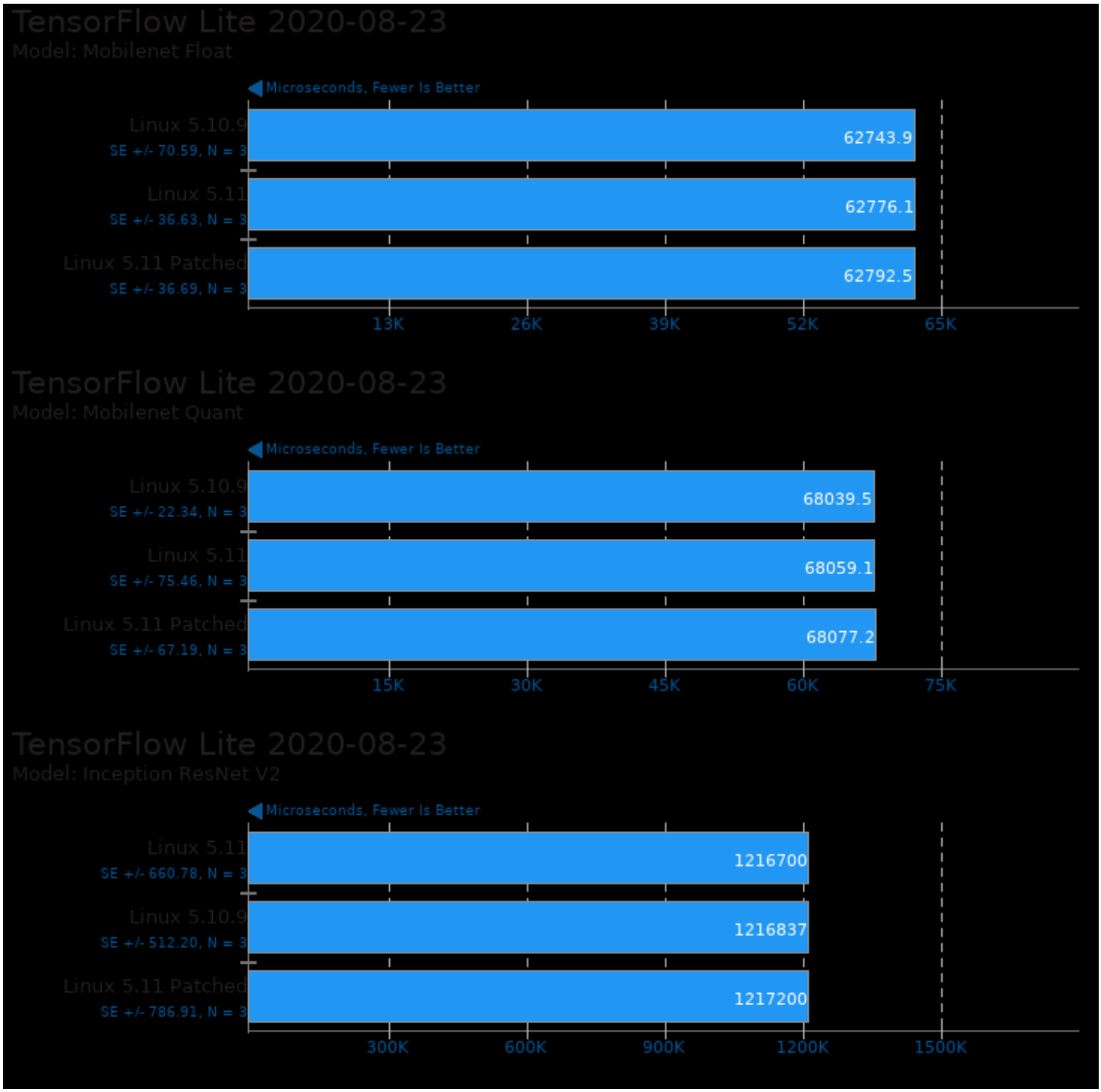
Aircrack-ng 1.5.2

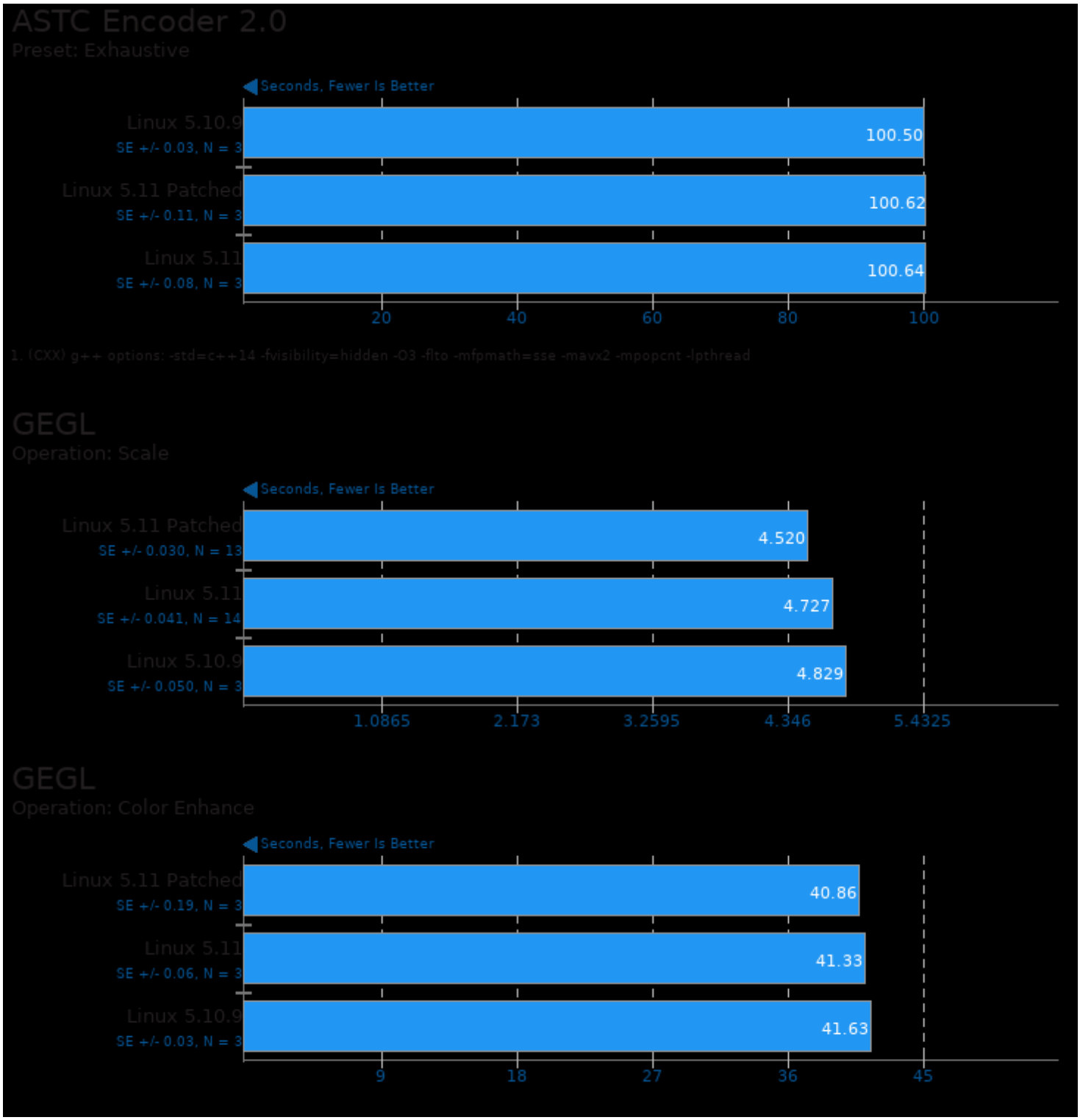


1. (CXX) g++ options: -O3 -fvisibility=hidden -masm=intel -fcommon -rdynamic -lpthread -lz -lcrypto -lhwloc -ldl -lm -pthread

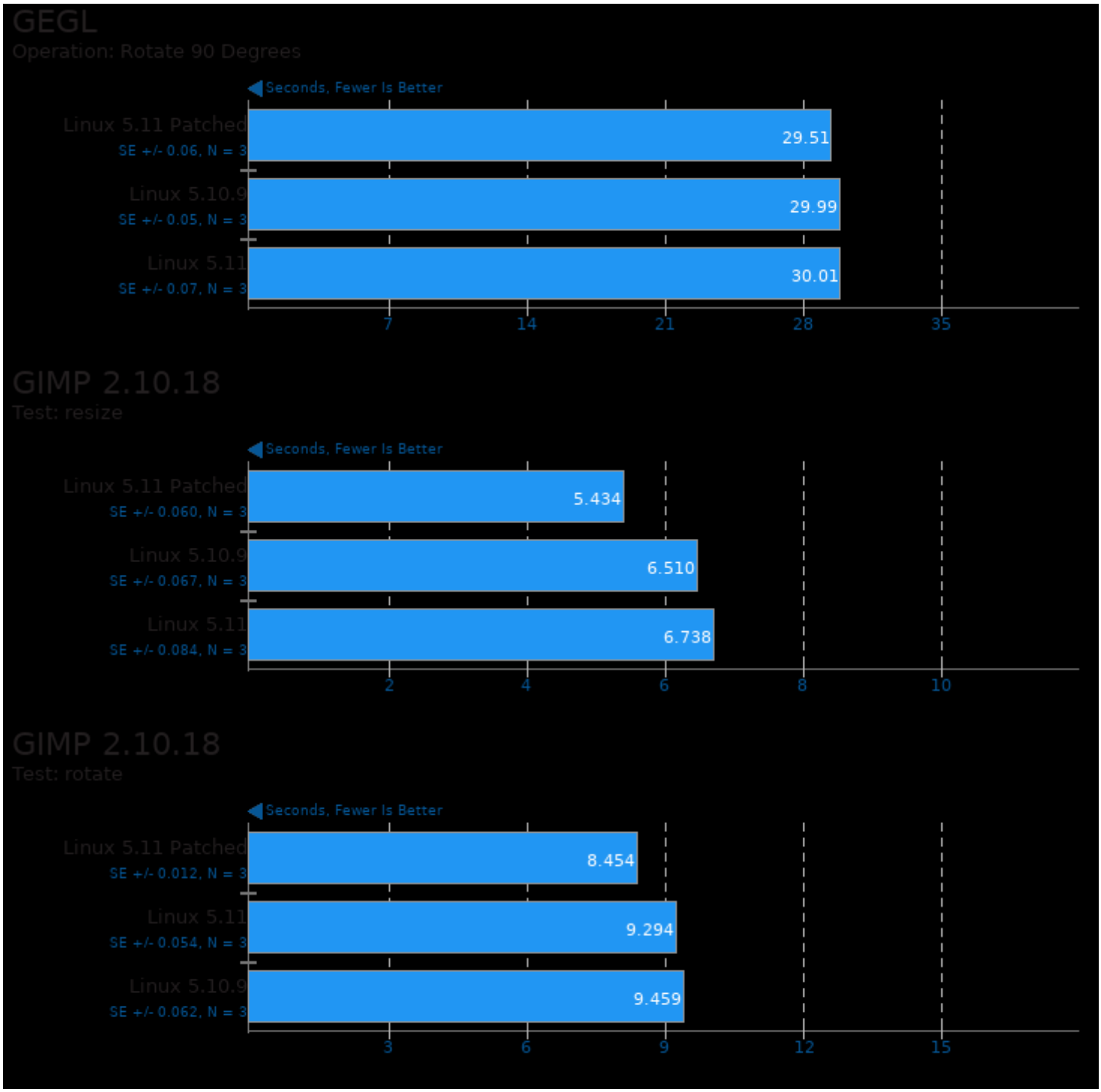

FinanceBench 2016-07-25
Benchmark: Repo OpenMP
ms, Fewer Is Better
Linux 5.11
SE +/- 55.42, N = 3
27284.05
Linux 5.10.9
SE +/- 50.11, N = 3
27388.83
Linux 5.11 Patched
SE +/- 377.86, N = 3
27738.29
6K
12K
18K
24K
30K
1. (CXX) g++ options: -O3 -march=native -fopenmp
FinanceBench 2016-07-25
Benchmark: Bonds OpenMP
ms, Fewer Is Better
Linux 5.11 Patched
SE +/- 144.00, N = 3
39803.78
Linux 5.10.9
SE +/- 57.80, N = 3
40035.64
Linux 5.11
SE +/- 306.71, N = 14
40214.87
9K
18K
27K
36K
45K
1. (CXX) g++ options: -O3 -march=native -fopenmp
GROMACS 2020.3
Water Benchmark
Ns Per Day, More Is Better
Linux 5.11 Patched
SE +/- 0.004, N = 3
1.260
Linux 5.11
SE +/- 0.002, N = 3
1.259
Linux 5.10.9
SE +/- 0.002, N = 3
1.255
0.2835
0.567
0.8505
1.134
1.4175
1. (CXX) g++ options: -O3 -pthread -lrt -lpthread -lm

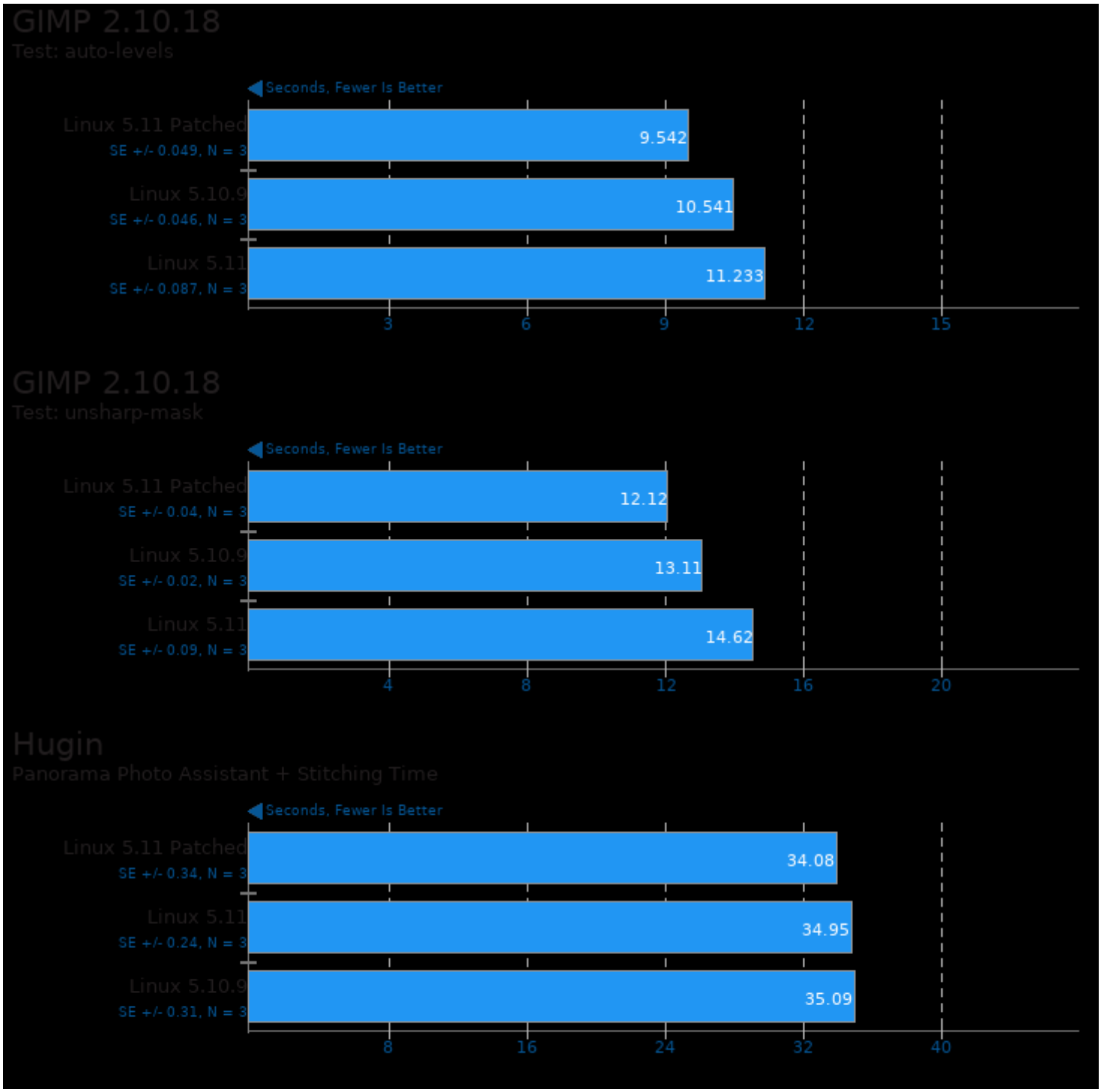

TensorFlow Lite 2020-08-23
Model: SqueezeNet
Microseconds, Fewer Is Better
Linux 5.11 Patched
SE +/- 109.89, N = 3
95054.4
Linux 5.10.9
SE +/- 74.55, N = 3
95107.3
Linux 5.11
SE +/- 85.28, N = 3
95244.3
20K
40K
60K
80K
100K
TensorFlow Lite 2020-08-23
Model: Inception V4
Microseconds, Fewer Is Better
Linux 5.10.9
SE +/- 1097.96, N = 3
1351443
Linux 5.11
SE +/- 169.54, N = 3
1352733
Linux 5.11 Patched
SE +/- 501.54, N = 3
1352833
300K
600K
900K
1200K
1500K
TensorFlow Lite 2020-08-23
Model: NASNet Mobile
Microseconds, Fewer Is Better
Linux 5.11 Patched
SE +/- 290.71, N = 3
103996
Linux 5.10.9
SE +/- 94.53, N = 3
104166
Linux 5.11
SE +/- 321.07, N = 3
104351
20K
40K
60K
80K
100K

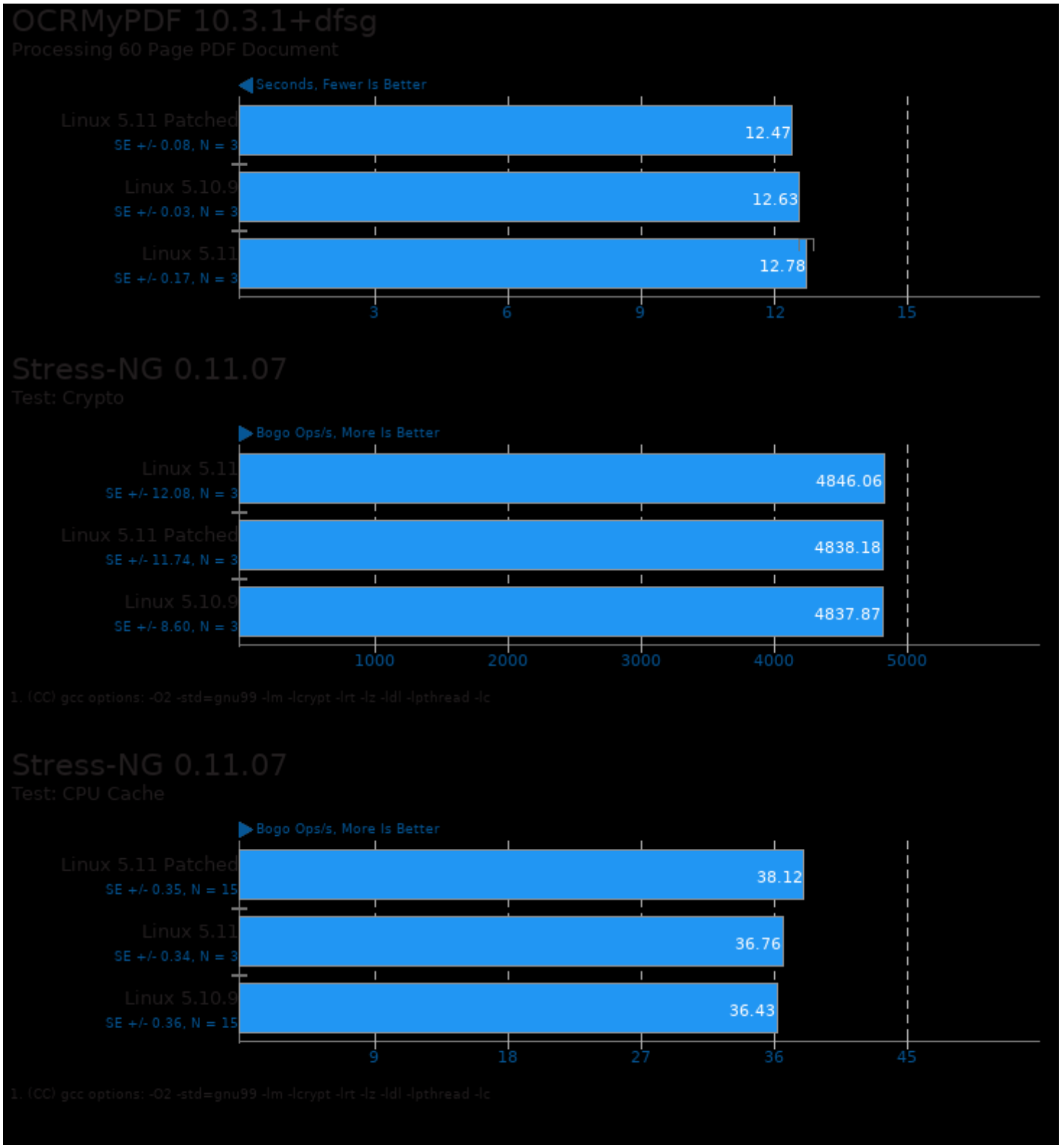

TensorFlow Lite 2020-08-23
Model: Mobilenet Float
Microseconds, Fewer Is Better
Linux 5.10.9
SE +/- 70.59, N = 3
62743.9
Linux 5.11
SE +/- 36.63, N = 3
62776.1
Linux 5.11 Patched
SE +/- 36.69, N = 3
62792.5
13K
26K
39K
52K
65K
TensorFlow Lite 2020-08-23
Model: Mobilenet Quant
Microseconds, Fewer Is Better
Linux 5.10.9
SE +/- 22.34, N = 3
68039.5
Linux 5.11
SE +/- 75.46, N = 3
68059.1
Linux 5.11 Patched
SE +/- 67.19, N = 3
68077.2
15K
30K
45K
60K
75K
TensorFlow Lite 2020-08-23
Model: Inception ResNet V2
Microseconds, Fewer Is Better
Linux 5.11
SE +/- 660.78, N = 3
1216700
Linux 5.10.9
SE +/- 512.20, N = 3
1216837
Linux 5.11 Patched
SE +/- 786.91, N = 3
1217200
300K
600K
900K
1200K
1500K

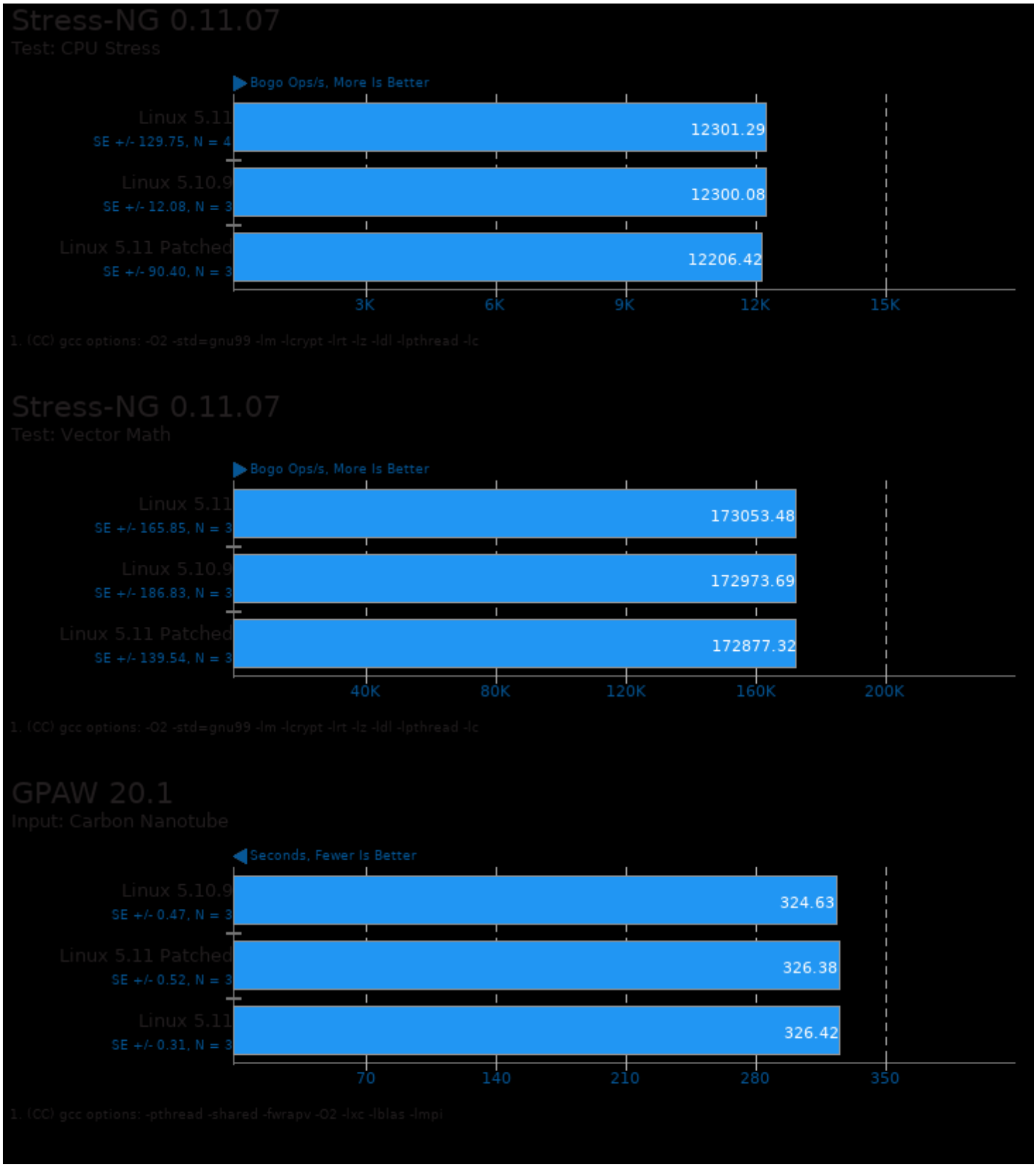

ASTC Encoder 2.0
Preset: Exhaustive
Seconds, Fewer Is Better
Linux 5.10.9
SE +/- 0.03, N = 3
100.50
Linux 5.11 Patched
SE +/- 0.11, N = 3
100.62
Linux 5.11
SE +/- 0.08, N = 3
100.64
20
40
60
80
100
1. (CXX) g++ options: -std=c++14 -fvisibility=hidden -O3 -flto -mfpmath=sse -mavx2 -mpopcnt -lpthread
GEGL
Operation: Scale
Seconds, Fewer Is Better
Linux 5.11 Patched
SE +/- 0.030, N = 13
4.520
Linux 5.11
SE +/- 0.041, N = 14
4.727
Linux 5.10.9
SE +/- 0.050, N = 3
4.829
1.0865
2.173
3.2595
4.346
5.4325
GEGL
Operation: Color Enhance
Seconds, Fewer Is Better
Linux 5.11 Patched
SE +/- 0.19, N = 3
40.86
Linux 5.11
SE +/- 0.06, N = 3
41.33
Linux 5.10.9
SE +/- 0.03, N = 3
41.63
9
18
27
36
45

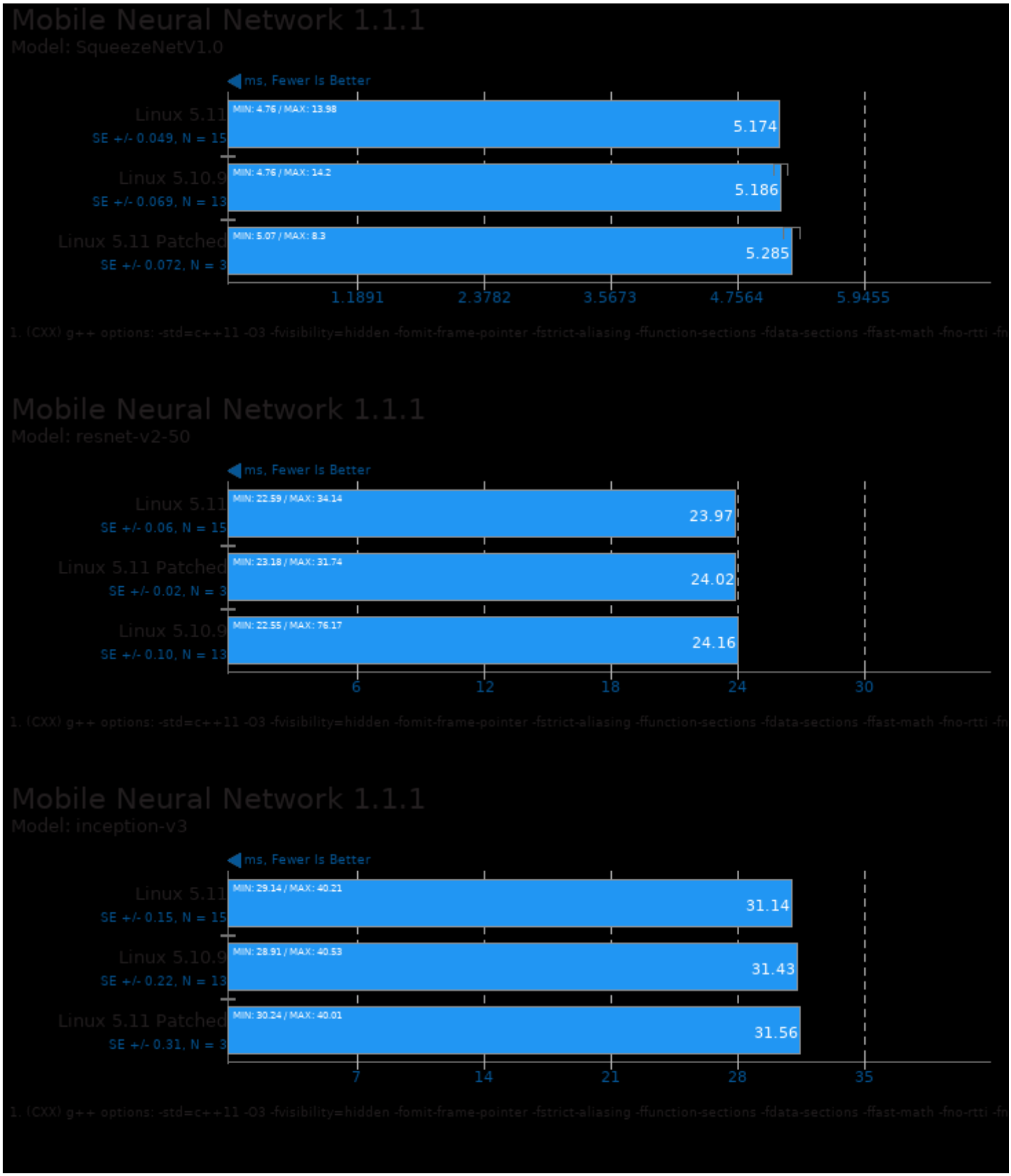
AMD Ryzen 9 5950X Linux 5.11

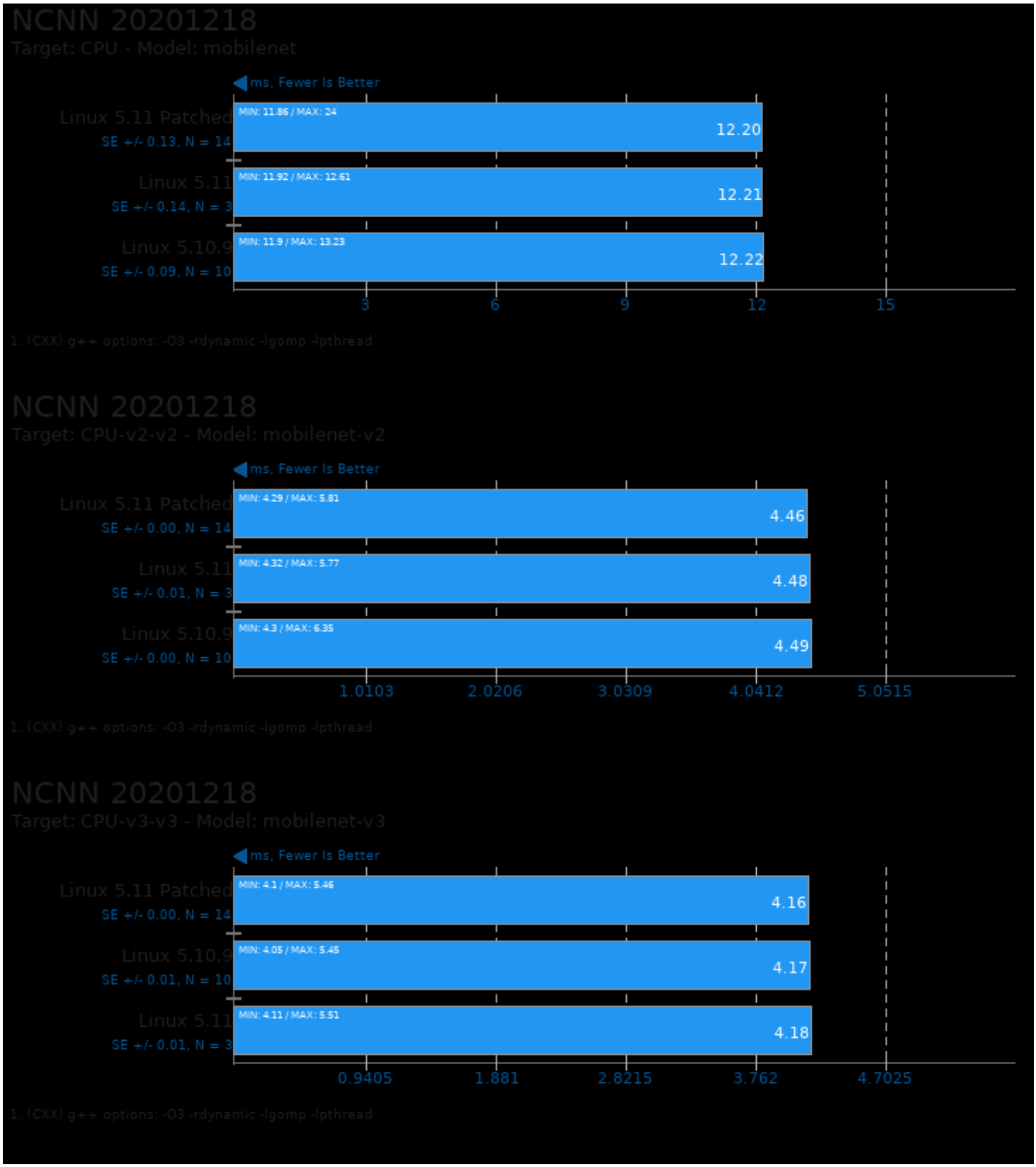


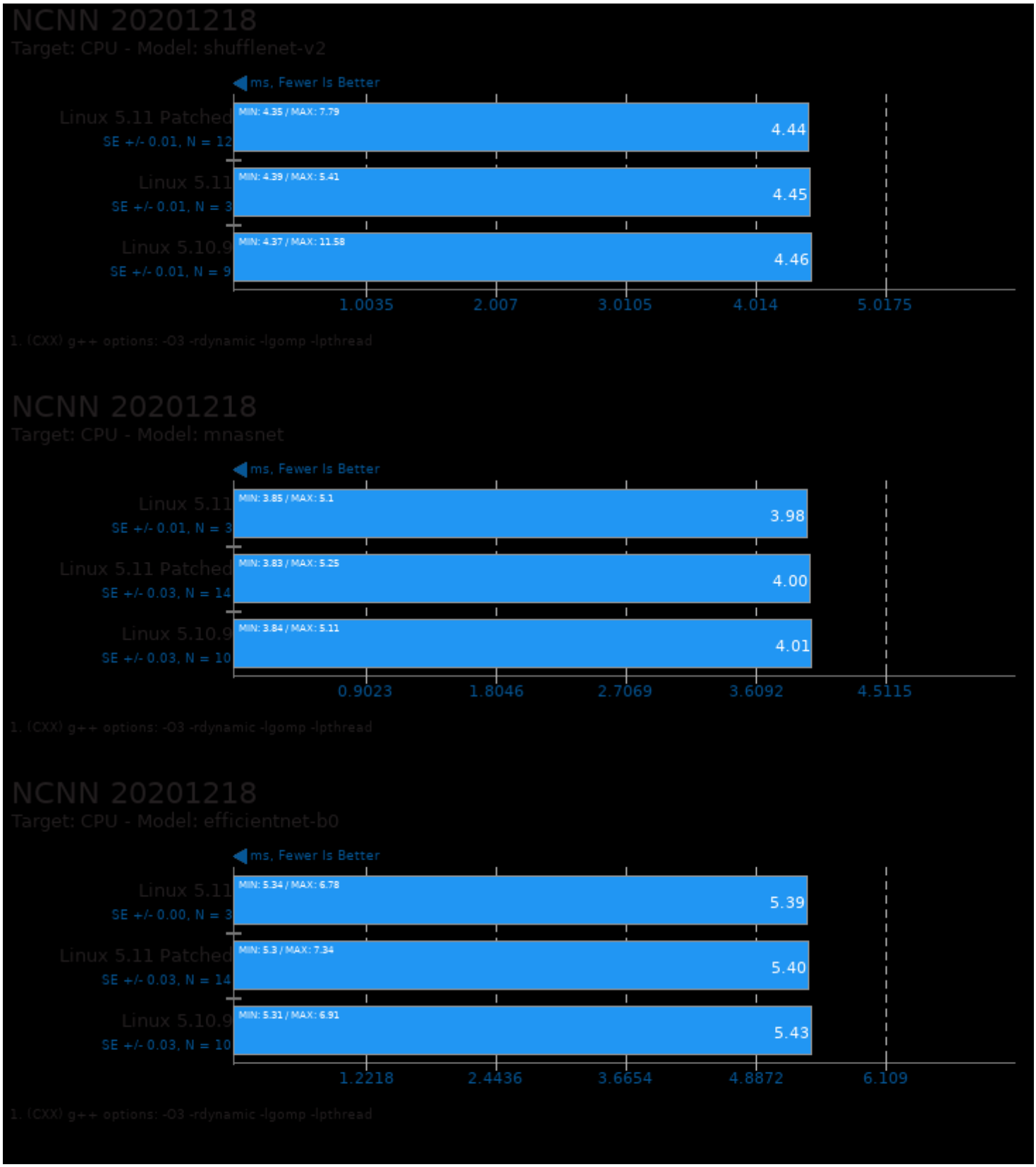

GIMP 2.10.18
Test: auto-levels
Seconds, Fewer Is Better
Linux 5.11 Patched
SE +/- 0.049, N = 3
9.542
Linux 5.10.9
SE +/- 0.046, N = 3
10.541
Linux 5.11
SE +/- 0.087, N = 3
11.233
3
6
9
12
15
GIMP 2.10.18
Test: unsharp-mask
Seconds, Fewer Is Better
Linux 5.11 Patched
SE +/- 0.04, N = 3
12.12
Linux 5.10.9
SE +/- 0.02, N = 3
13.11
Linux 5.11
SE +/- 0.09, N = 3
14.62
4
8
12
16
20
Hugin
Panorama Photo Assistant + Stitching Time
Seconds, Fewer Is Better
Linux 5.11 Patched
SE +/- 0.34, N = 3
34.08
Linux 5.11
SE +/- 0.24, N = 3
34.95
Linux 5.10.9
SE +/- 0.31, N = 3
35.09
8
16
24
32
40

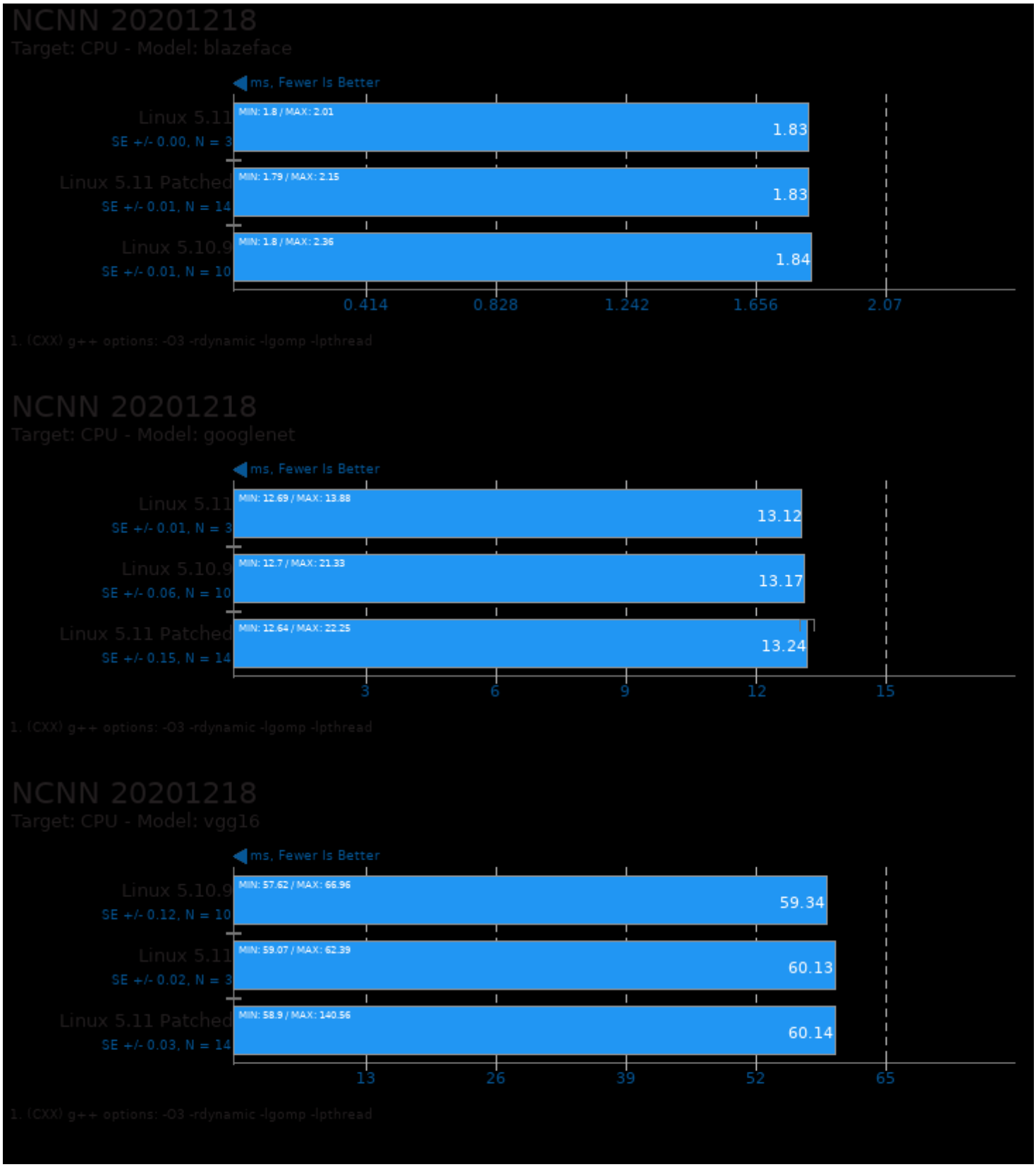

OCRMyPDF 10.3.1+dfsg
Processing 60 Page PDF Document
Seconds, Fewer Is Better
Linux 5.11 Patched
SE +/- 0.08, N = 3
12.47
Linux 5.10.9
SE +/- 0.03, N = 3
12.63
Linux 5.11
SE +/- 0.17, N = 3
12.78
3
6
9
12
15
Stress-NG 0.11.07
Test: Crypto
Bogo Ops/s, More Is Better
Linux 5.11
SE +/- 12.08, N = 3
4846.06
Linux 5.11 Patched
SE +/- 11.74, N = 3
4838.18
Linux 5.10.9
SE +/- 8.60, N = 3
4837.87
1000
2000
3000
4000
5000
1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -lz -ldl -lpthread -lc
Stress-NG 0.11.07
Test: CPU Cache
Bogo Ops/s, More Is Better
Linux 5.11 Patched
SE +/- 0.35, N = 15
38.12
Linux 5.11
SE +/- 0.34, N = 3
36.76
Linux 5.10.9
SE +/- 0.36, N = 15
36.43
9
18
27
36
45
1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -lz -ldl -lpthread -lc

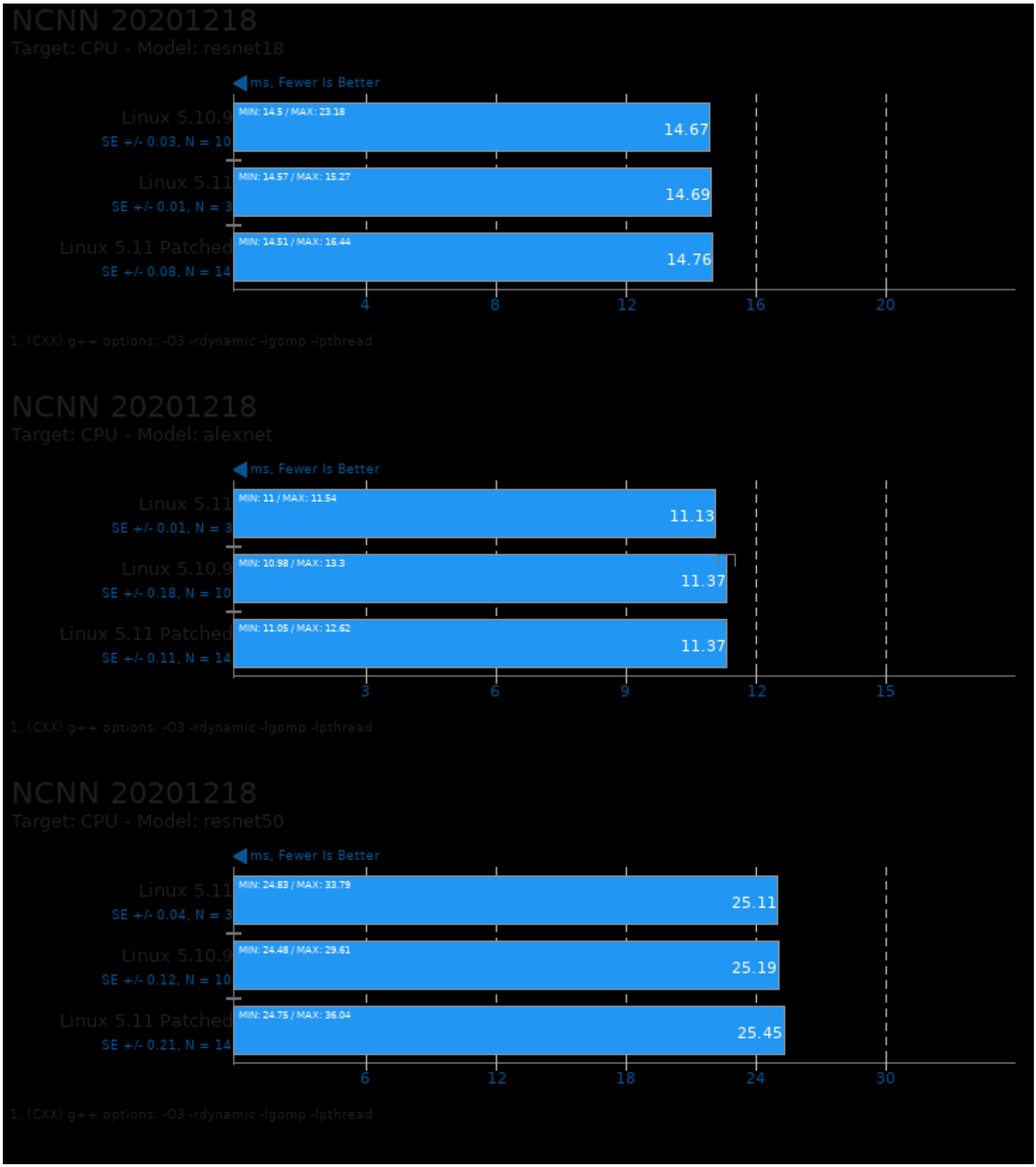

Stress-NG 0.11.07
Test: CPU Stress
Bogo Ops/s, More Is Better
Linux 5.11
SE +/- 129.75, N = 4
12301.29
Linux 5.10.9
SE +/- 12.08, N = 3
12300.08
Linux 5.11 Patched
SE +/- 90.40, N = 3
12206.42
3K
6K
9K
12K
15K
1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -lz -ldl -lpthread -lc
Stress-NG 0.11.07
Test: Vector Math
Bogo Ops/s, More Is Better
Linux 5.11
SE +/- 165.85, N = 3
173053.48
Linux 5.10.9
SE +/- 186.83, N = 3
172973.69
Linux 5.11 Patched
SE +/- 139.54, N = 3
172877.32
40K
80K
120K
160K
200K
1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -lz -ldl -lpthread -lc
GPAW 20.1
Input: Carbon Nanotube
Seconds, Fewer Is Better
Linux 5.10.9
SE +/- 0.47, N = 3
324.63
Linux 5.11 Patched
SE +/- 0.52, N = 3
326.38
Linux 5.11
SE +/- 0.31, N = 3
326.42
70
140
210
280
350
1. (CC) gcc options: -pthread -shared -fwrapv -O2 -lxc -lblas -lmpi

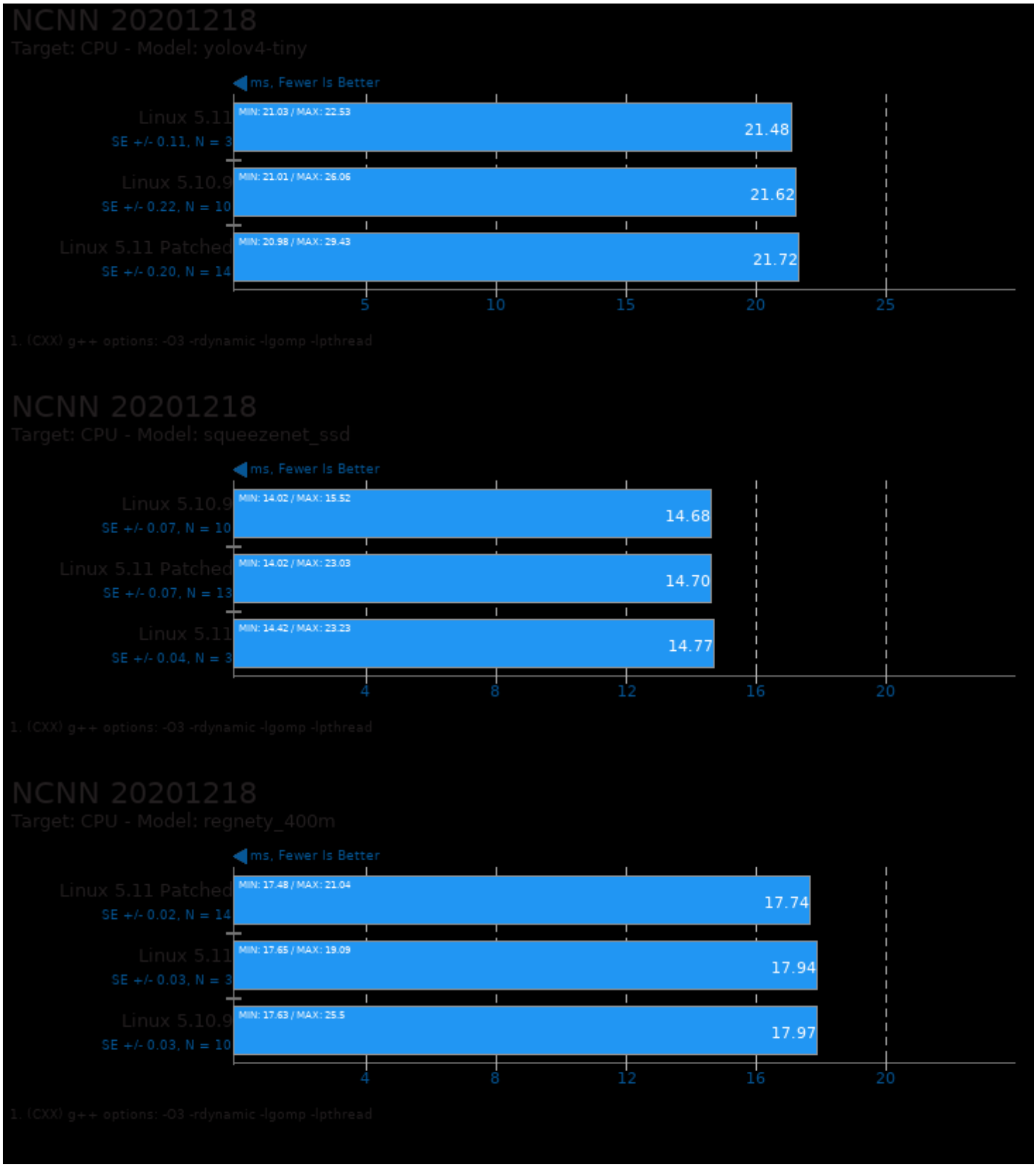

Mobile Neural Network 1.1.1
Model: SqueezeNetV1.0
ms, Fewer Is Better
Linux 5.11
SE +/- 0.049, N = 15
MIN: 4.76 / MAX: 13.98
5.174
Linux 5.10.9
SE +/- 0.069, N = 13
MIN: 4.76 / MAX: 14.2
5.186
Linux 5.11 Patched
SE +/- 0.072, N = 3
MIN: 5.07 / MAX: 8.3
5.285
1.1891
2.3782
3.5673
4.7564
5.9455
1. (CXX) g++ options: -std=c++11 -O3 -fvisibility=hidden -fomit-frame-pointer -fstrict-aliasing -ffunction-sections -fdata-sections -ffast-math -fno-rtti -fv
Mobile Neural Network 1.1.1
Model: resnet-v2-50
ms, Fewer Is Better
Linux 5.11
SE +/- 0.06, N = 15
MIN: 22.59 / MAX: 34.14
23.97
Linux 5.11 Patched
SE +/- 0.02, N = 3
MIN: 23.18 / MAX: 31.74
24.02
Linux 5.10.9
SE +/- 0.10, N = 13
MIN: 22.55 / MAX: 76.17
24.16
6
12
18
24
30
1. (CXX) g++ options: -std=c++11 -O3 -fvisibility=hidden -fomit-frame-pointer -fstrict-aliasing -ffunction-sections -fdata-sections -ffast-math -fno-rtti -fv
Mobile Neural Network 1.1.1
Model: inception-v3
ms, Fewer Is Better
Linux 5.11
SE +/- 0.15, N = 15
MIN: 29.14 / MAX: 40.21
31.14
Linux 5.10.9
SE +/- 0.22, N = 13
MIN: 28.91 / MAX: 40.53
31.43
Linux 5.11 Patched
SE +/- 0.31, N = 3
MIN: 30.24 / MAX: 40.01
31.56
7
14
21
28
35
1. (CXX) g++ options: -std=c++11 -O3 -fvisibility=hidden -fomit-frame-pointer -fstrict-aliasing -ffunction-sections -fdata-sections -ffast-math -fno-rtti -fv

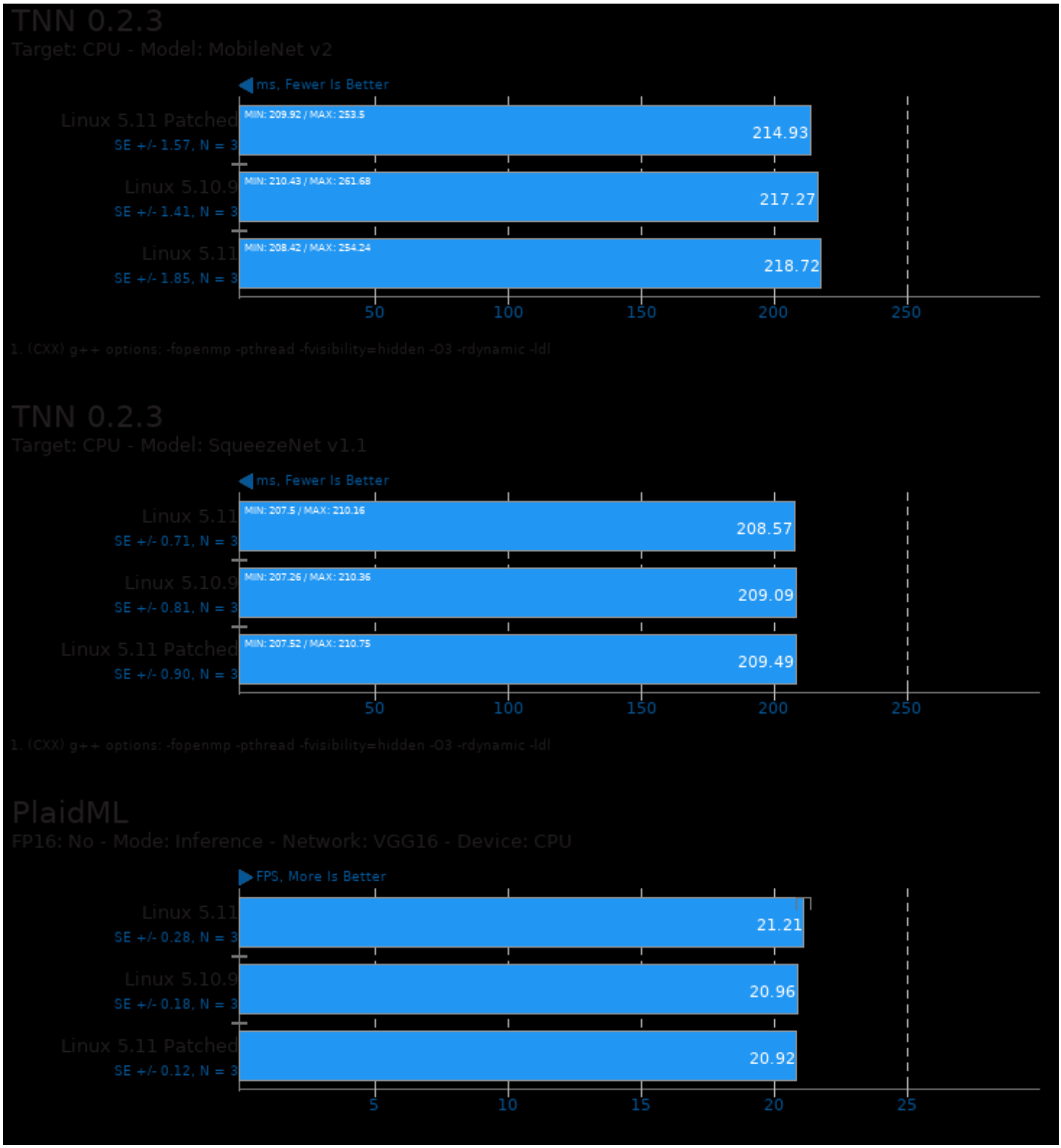

NCNN 20201218
Target: CPU - Model: mobilenet
ms, Fewer Is Better
Linux 5.11 Patched
SE +/- 0.13, N = 14
MIN: 11.86 / MAX: 24
12.20
Linux 5.11
SE +/- 0.14, N = 3
MIN: 11.92 / MAX: 12.61
12.21
Linux 5.10.9
SE +/- 0.09, N = 10
MIN: 11.9 / MAX: 13.23
12.22
3
6
9
12
15
1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread
NCNN 20201218
Target: CPU-v2-v2 - Model: mobilenet-v2
ms, Fewer Is Better
Linux 5.11 Patched
SE +/- 0.00, N = 14
MIN: 4.29 / MAX: 5.81
4.46
Linux 5.11
SE +/- 0.01, N = 3
MIN: 4.32 / MAX: 5.77
4.48
Linux 5.10.9
SE +/- 0.00, N = 10
MIN: 4.3 / MAX: 6.35
4.49
1.0103
2.0206
3.0309
4.0412
5.0515
1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread
NCNN 20201218
Target: CPU-v3-v3 - Model: mobilenet-v3
ms, Fewer Is Better
Linux 5.11 Patched
SE +/- 0.00, N = 14
MIN: 4.1 / MAX: 5.46
4.16
Linux 5.10.9
SE +/- 0.01, N = 10
MIN: 4.05 / MAX: 5.45
4.17
Linux 5.11
SE +/- 0.01, N = 3
MIN: 4.11 / MAX: 5.51
4.18
0.9405
1.881
2.8215
3.762
4.7025
1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

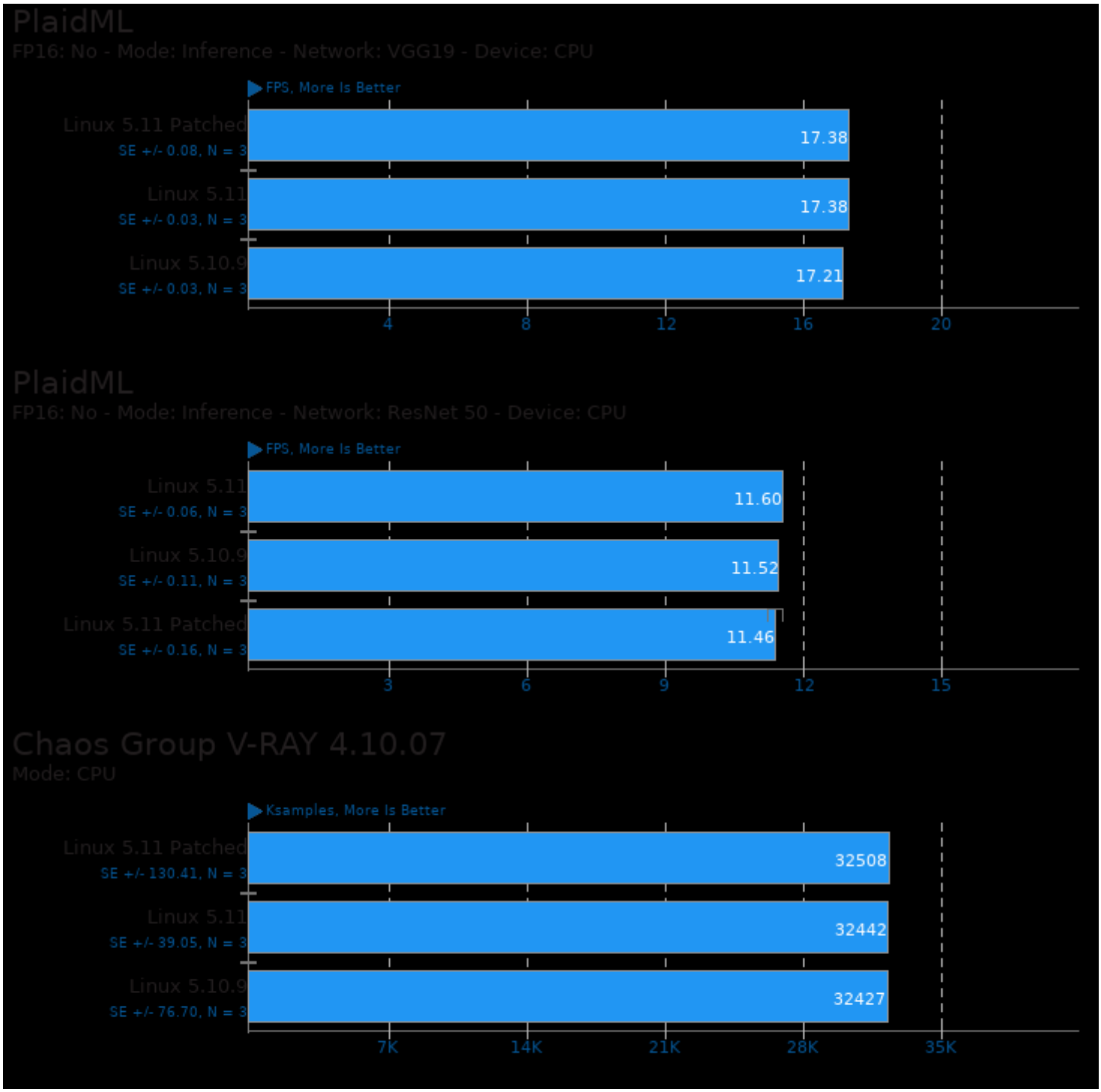

NCNN 20201218
Target: CPU - Model: shufflenet-v2
ms, Fewer Is Better
Linux 5.11 Patched
SE +/- 0.01, N = 12
MIN: 4.35 / MAX: 7.79
4.44
Linux 5.11
SE +/- 0.01, N = 3
MIN: 4.39 / MAX: 5.41
4.45
Linux 5.10.9
SE +/- 0.01, N = 9
MIN: 4.37 / MAX: 11.58
4.46
1.0035
2.007
3.0105
4.014
5.0175
1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread
NCNN 20201218
Target: CPU - Model: mnasnet
ms, Fewer Is Better
Linux 5.11
SE +/- 0.01, N = 3
MIN: 3.85 / MAX: 5.1
3.98
Linux 5.11 Patched
SE +/- 0.03, N = 14
MIN: 3.83 / MAX: 5.25
4.00
Linux 5.10.9
SE +/- 0.03, N = 10
MIN: 3.84 / MAX: 5.11
4.01
0.9023
1.8046
2.7069
3.6092
4.5115
1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread
NCNN 20201218
Target: CPU - Model: efficientnet-b0
ms, Fewer Is Better
Linux 5.11
SE +/- 0.00, N = 3
MIN: 5.34 / MAX: 6.78
5.39
Linux 5.11 Patched
SE +/- 0.03, N = 14
MIN: 5.3 / MAX: 7.34
5.40
Linux 5.10.9
SE +/- 0.03, N = 10
MIN: 5.31 / MAX: 6.91
5.43
1.2218
2.4436
3.6654
4.8872
6.109
1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

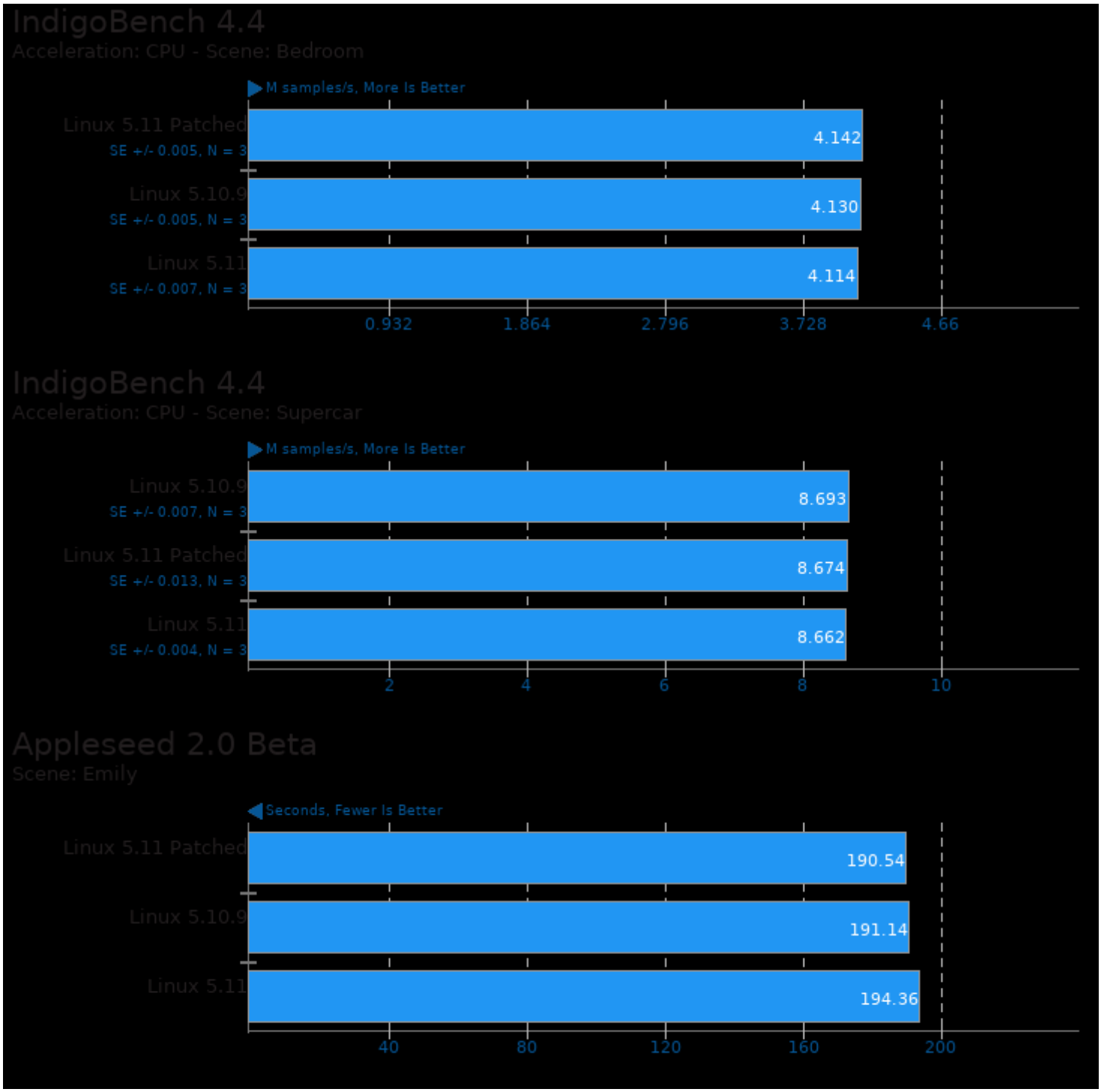

NCNN 20201218
Target: CPU - Model: blazeface
ms, Fewer Is Better
Linux 5.11
SE +/- 0.00, N = 3
MIN: 1.8 / MAX: 2.01
1.83
Linux 5.11 Patched
SE +/- 0.01, N = 14
MIN: 1.79 / MAX: 2.15
1.83
Linux 5.10.9
SE +/- 0.01, N = 10
MIN: 1.8 / MAX: 2.36
1.84
0.414
0.828
1.242
1.656
2.07
1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread
NCNN 20201218
Target: CPU - Model: googlenet
ms, Fewer Is Better
Linux 5.11
SE +/- 0.01, N = 3
MIN: 12.69 / MAX: 13.88
13.12
Linux 5.10.9
SE +/- 0.06, N = 10
MIN: 12.7 / MAX: 21.33
13.17
Linux 5.11 Patched
SE +/- 0.15, N = 14
MIN: 12.64 / MAX: 22.25
13.24
3
6
9
12
15
1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread
NCNN 20201218
Target: CPU - Model: vgg16
ms, Fewer Is Better
Linux 5.10.9
SE +/- 0.12, N = 10
MIN: 57.62 / MAX: 66.96
59.34
Linux 5.11
SE +/- 0.02, N = 3
MIN: 59.07 / MAX: 62.39
60.13
Linux 5.11 Patched
SE +/- 0.03, N = 14
MIN: 58.9 / MAX: 140.56
60.14
13
26
39
52
65
1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

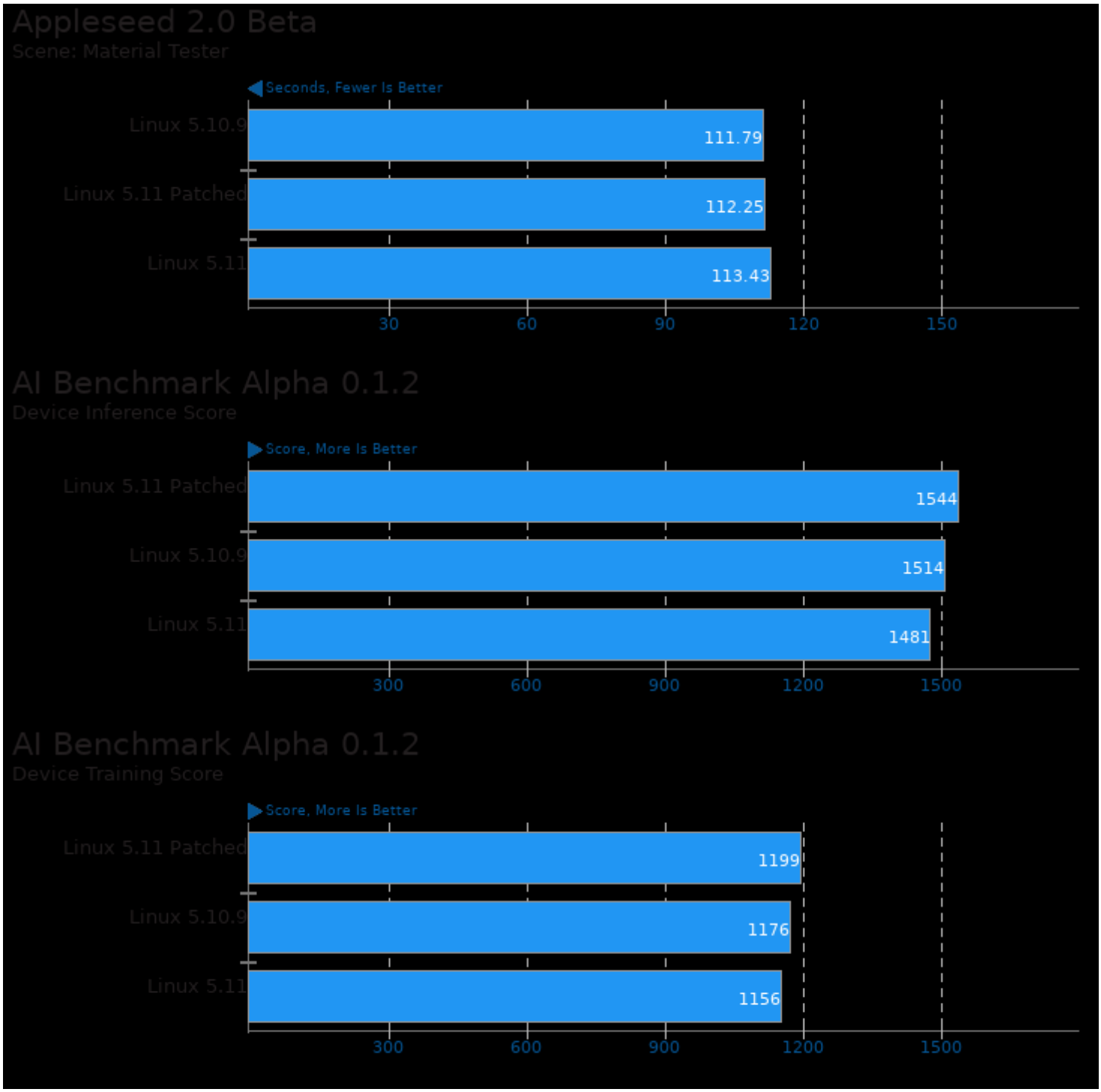

NCNN 20201218
Target: CPU - Model: resnet18
ms, Fewer Is Better
Linux 5.10.9
SE +/- 0.03, N = 10
MIN: 14.5 / MAX: 23.18
14.67
Linux 5.11
SE +/- 0.01, N = 3
MIN: 14.57 / MAX: 15.27
14.69
Linux 5.11 Patched
SE +/- 0.08, N = 14
MIN: 14.51 / MAX: 16.44
14.76
4
8
12
16
20
1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread
NCNN 20201218
Target: CPU - Model: alexnet
ms, Fewer Is Better
Linux 5.11
SE +/- 0.01, N = 3
MIN: 11 / MAX: 11.54
11.13
Linux 5.10.9
SE +/- 0.18, N = 10
MIN: 10.98 / MAX: 13.3
11.37
Linux 5.11 Patched
SE +/- 0.11, N = 14
MIN: 11.05 / MAX: 12.62
11.37
3
6
9
12
15
1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread
NCNN 20201218
Target: CPU - Model: resnet50
ms, Fewer Is Better
Linux 5.11
SE +/- 0.04, N = 3
MIN: 24.83 / MAX: 33.79
25.11
Linux 5.10.9
SE +/- 0.12, N = 10
MIN: 24.48 / MAX: 29.61
25.19
Linux 5.11 Patched
SE +/- 0.21, N = 14
MIN: 24.75 / MAX: 36.04
25.45
6
12
18
24
30
1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

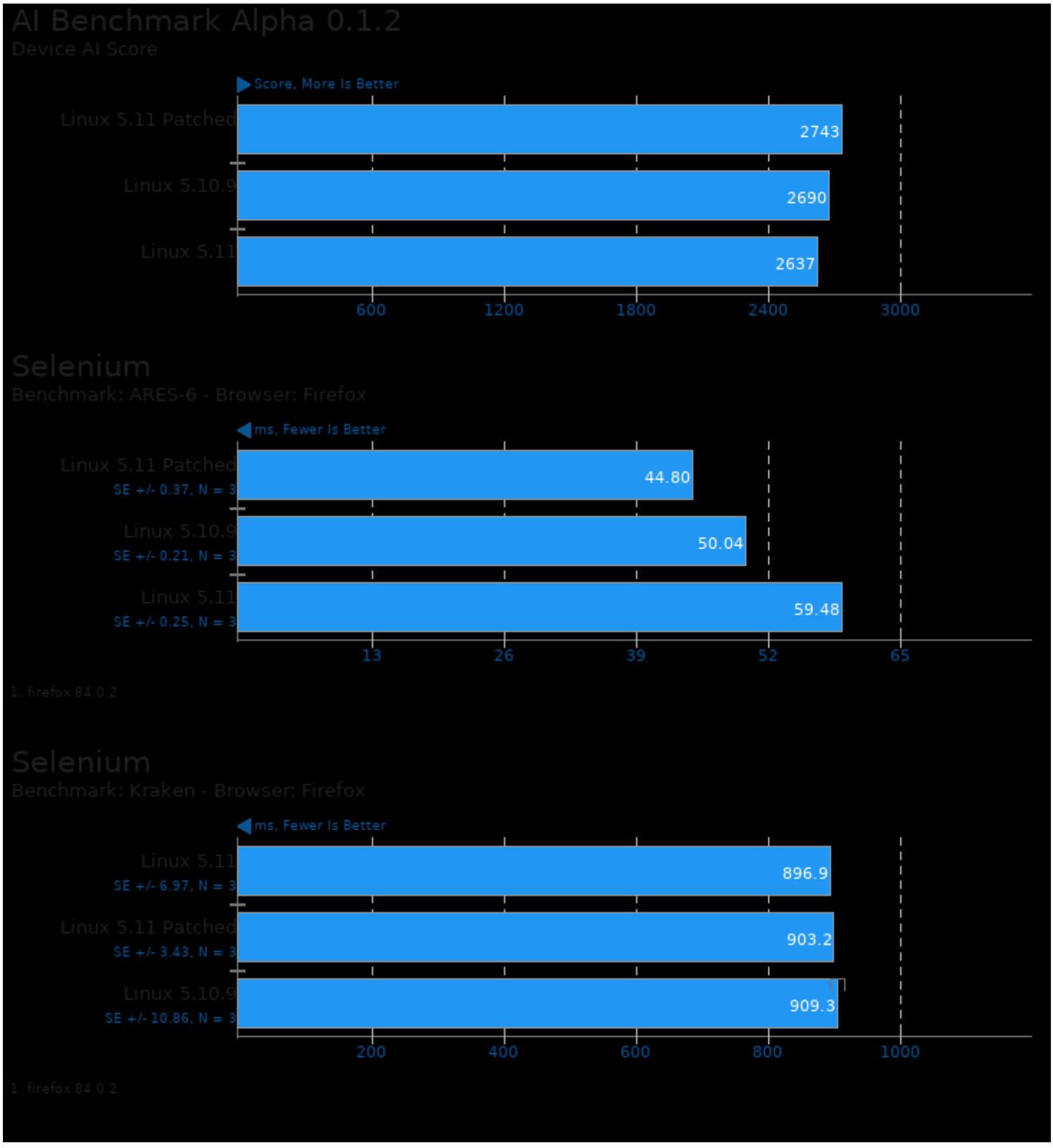

NCNN 20201218
Target: CPU - Model: yolov4-tiny
ms, Fewer Is Better
Linux 5.11
SE +/- 0.11, N = 3
MIN: 21.03 / MAX: 22.53
21.48
Linux 5.10.9
SE +/- 0.22, N = 10
MIN: 21.01 / MAX: 26.06
21.62
Linux 5.11 Patched
SE +/- 0.20, N = 14
MIN: 20.98 / MAX: 29.43
21.72
5
10
15
20
25
1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread
NCNN 20201218
Target: CPU - Model: squeezenet_ssd
ms, Fewer Is Better
Linux 5.10.9
SE +/- 0.07, N = 10
MIN: 14.02 / MAX: 15.52
14.68
Linux 5.11 Patched
SE +/- 0.07, N = 13
MIN: 14.02 / MAX: 23.03
14.70
Linux 5.11
SE +/- 0.04, N = 3
MIN: 14.42 / MAX: 23.23
14.77
4
8
12
16
20
1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread
NCNN 20201218
Target: CPU - Model: regnety_400m
ms, Fewer Is Better
Linux 5.11 Patched
SE +/- 0.02, N = 14
MIN: 17.48 / MAX: 21.04
17.74
Linux 5.11
SE +/- 0.03, N = 3
MIN: 17.65 / MAX: 19.09
17.94
Linux 5.10.9
SE +/- 0.03, N = 10
MIN: 17.63 / MAX: 25.5
17.97
4
8
12
16
20
1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

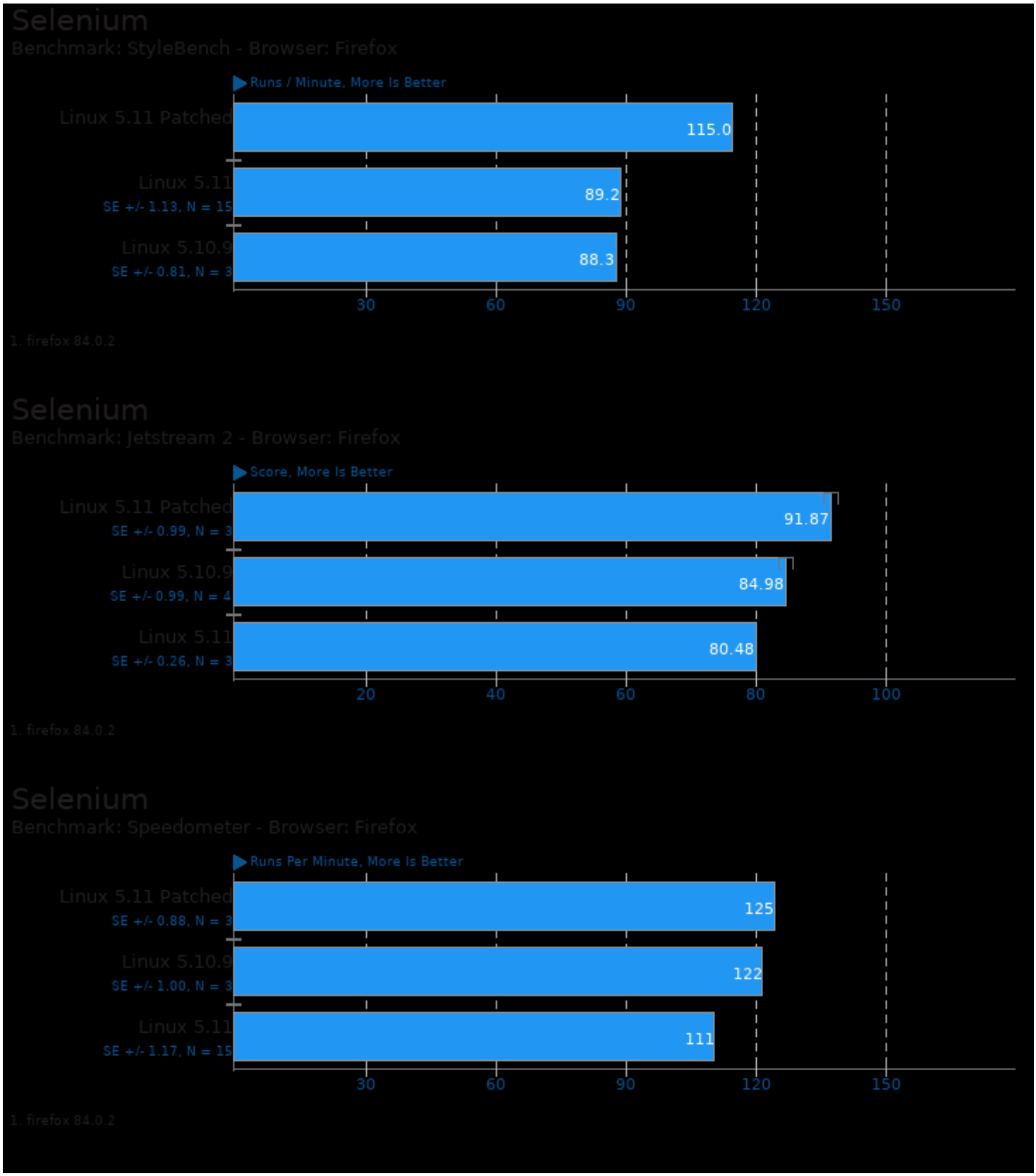

TNN 0.2.3
Target: CPU - Model: MobileNet v2
ms, Fewer Is Better
Linux 5.11 Patched
SE +/- 1.57, N = 3
MIN: 209.92 / MAX: 253.5
214.93
Linux 5.10.9
SE +/- 1.41, N = 3
MIN: 210.43 / MAX: 261.68
217.27
Linux 5.11
SE +/- 1.85, N = 3
MIN: 208.42 / MAX: 254.24
218.72
50
100
150
200
250
1. (CXX) g++ options: -fopenmp -pthread -fvisibility=hidden -O3 -rdynamic -ldl
TNN 0.2.3
Target: CPU - Model: SqueezeNet v1.1
ms, Fewer Is Better
Linux 5.11
SE +/- 0.71, N = 3
MIN: 207.5 / MAX: 210.16
208.57
Linux 5.10.9
SE +/- 0.81, N = 3
MIN: 207.26 / MAX: 210.36
209.09
Linux 5.11 Patched
SE +/- 0.90, N = 3
MIN: 207.52 / MAX: 210.75
209.49
50
100
150
200
250
1. (CXX) g++ options: -fopenmp -pthread -fvisibility=hidden -O3 -rdynamic -ldl
PlaidML
FP16: No - Mode: Inference - Network: VGG16 - Device: CPU
FPS, More Is Better
Linux 5.11
SE +/- 0.28, N = 3
21.21
Linux 5.10.9
SE +/- 0.18, N = 3
20.96
Linux 5.11 Patched
SE +/- 0.12, N = 3
20.92
5
10
15
20
25

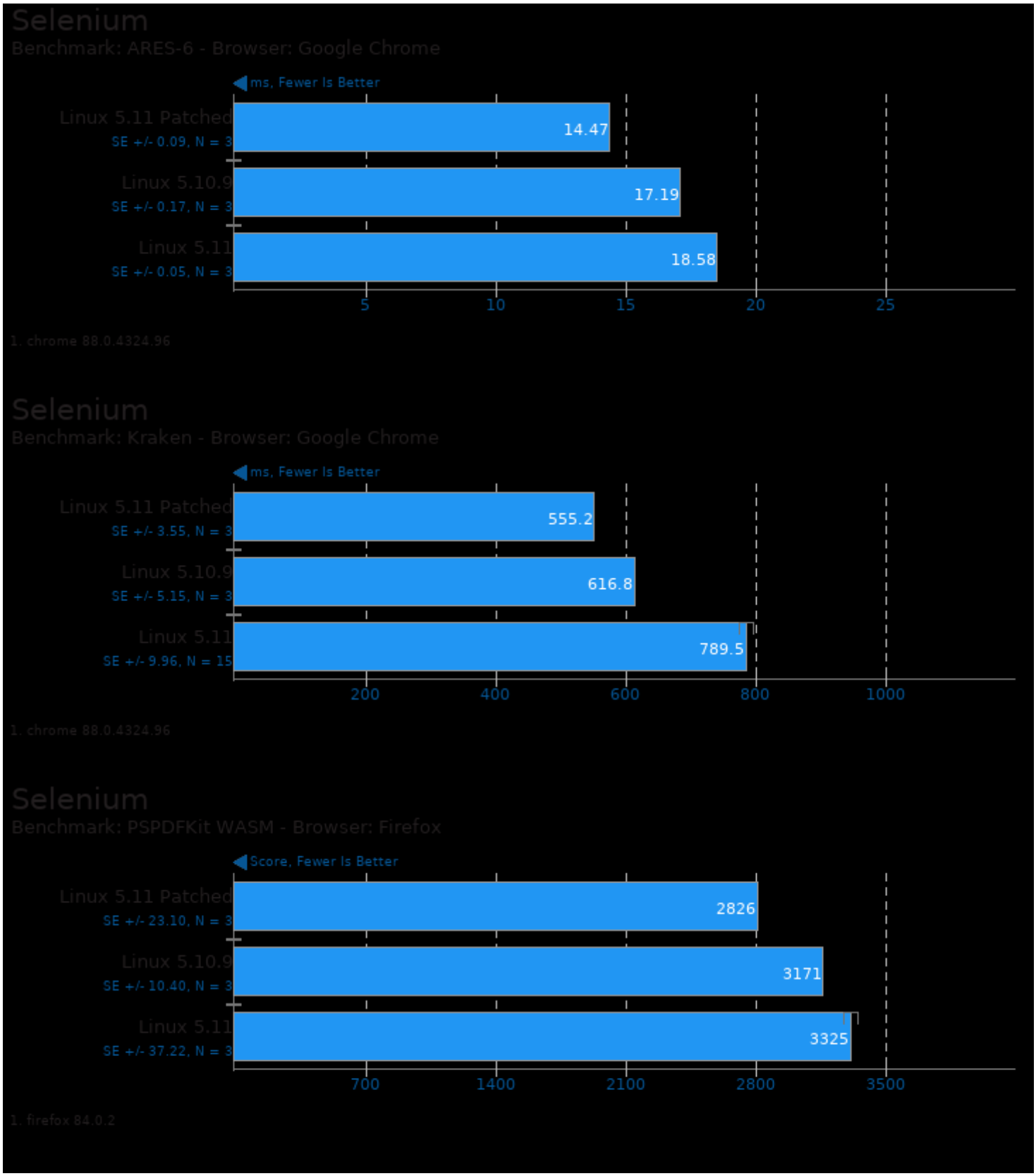

PlaidML
FP16: No - Mode: Inference - Network: VGG19 - Device: CPU
FPS, More Is Better
Linux 5.11 Patched
SE +/- 0.08, N = 3
17.38
Linux 5.11
SE +/- 0.03, N = 3
17.38
Linux 5.10.9
SE +/- 0.03, N = 3
17.21
4
8
12
16
20
PlaidML
FP16: No - Mode: Inference - Network: ResNet 50 - Device: CPU
FPS, More Is Better
Linux 5.11
SE +/- 0.06, N = 3
11.60
Linux 5.10.9
SE +/- 0.11, N = 3
11.52
Linux 5.11 Patched
SE +/- 0.16, N = 3
11.46
3
6
9
12
15
Chaos Group V-RAY 4.10.07
Mode: CPU
Ksamples, More Is Better
Linux 5.11 Patched
SE +/- 130.41, N = 3
32508
Linux 5.11
SE +/- 39.05, N = 3
32442
Linux 5.10.9
SE +/- 76.70, N = 3
32427
7K
14K
21K
28K
35K

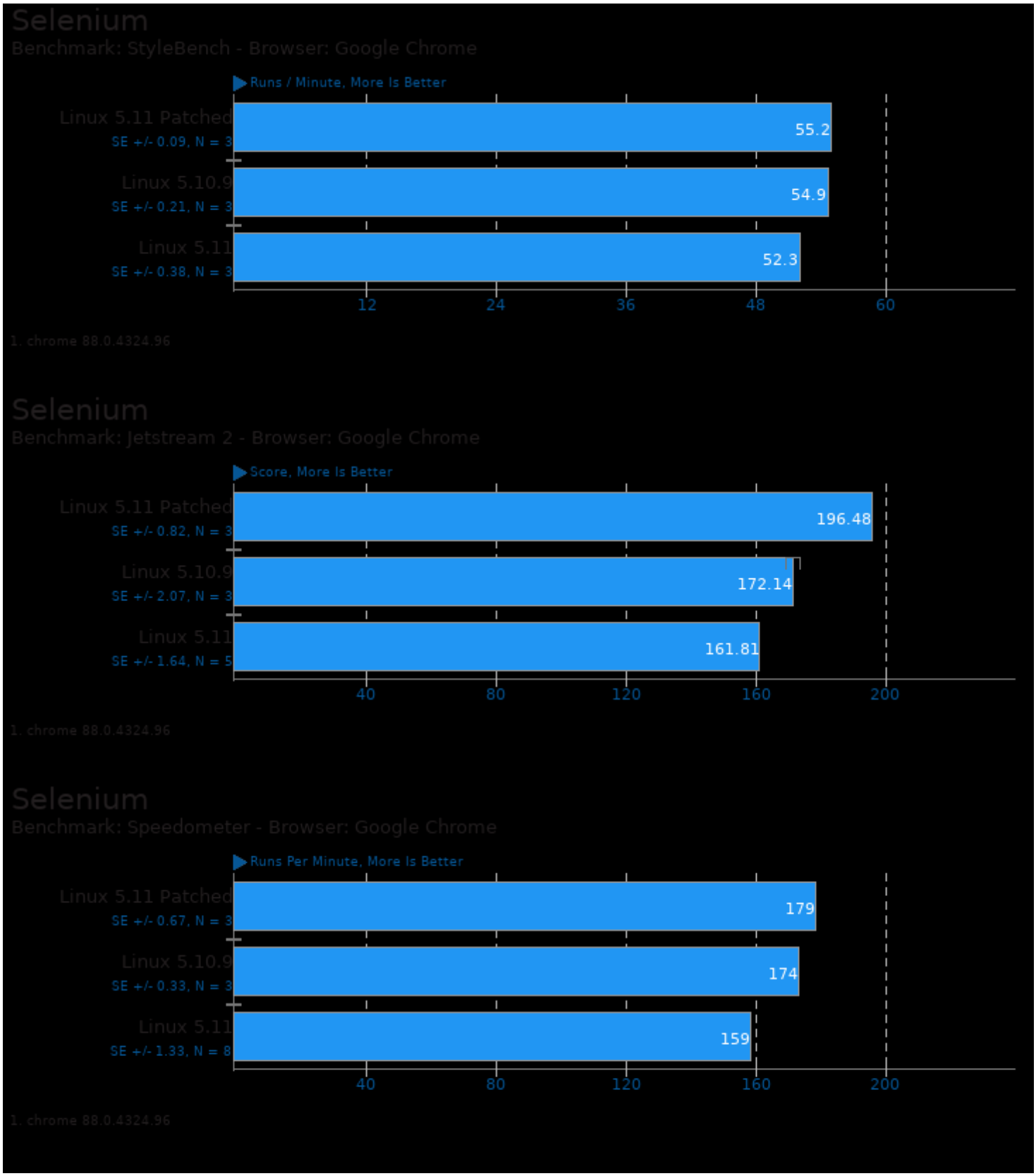

IndigoBench 4.4
Acceleration: CPU - Scene: Bedroom
M samples/s, More Is Better
Linux 5.11 Patched
SE +/- 0.005, N = 3
4.142
Linux 5.10.9
SE +/- 0.005, N = 3
4.130
Linux 5.11
SE +/- 0.007, N = 3
4.114
0.932
1.864
2.796
3.728
4.66
IndigoBench 4.4
Acceleration: CPU - Scene: Supercar
M samples/s, More Is Better
Linux 5.10.9
SE +/- 0.007, N = 3
8.693
Linux 5.11 Patched
SE +/- 0.013, N = 3
8.674
Linux 5.11
SE +/- 0.004, N = 3
8.662
2
4
6
8
10
Appleseed 2.0 Beta
Scene: Emily
Seconds, Fewer Is Better
Linux 5.11 Patched
190.54
Linux 5.10.9
191.14
Linux 5.11
194.36
40
80
120
160
200

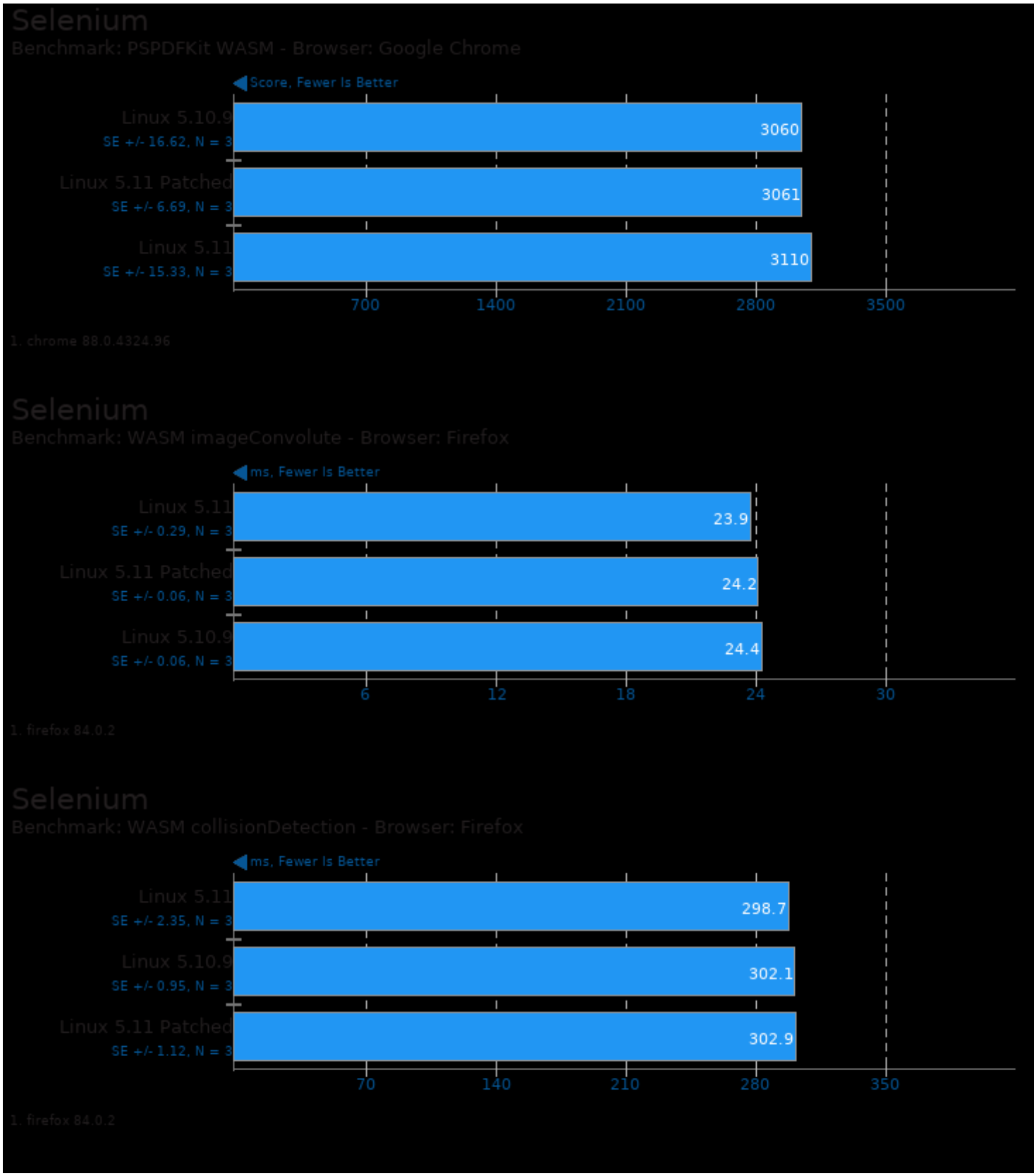

Appleseed 2.0 Beta
Scene: Material Tester
Seconds, Fewer Is Better
Linux 5.10.9
111.79
Linux 5.11 Patched
112.25
Linux 5.11
113.43
30
60
90
120
150
AI Benchmark Alpha 0.1.2
Device Inference Score
Score, More Is Better
Linux 5.11 Patched
1544
Linux 5.10.9
1514
Linux 5.11
1481
300
600
900
1200
1500
AI Benchmark Alpha 0.1.2
Device Training Score
Score, More Is Better
Linux 5.11 Patched
1199
Linux 5.10.9
1176
Linux 5.11
1156
300
600
900
1200
1500


AI Benchmark Alpha 0.1.2
Device AI Score
Score, More Is Better
Linux 5.11 Patched
2743
Linux 5.10.9
2690
Linux 5.11
2637
600
1200
1800
2400
3000
Selenium
Benchmark: ARES-6 - Browser: Firefox
ms, Fewer Is Better
Linux 5.11 Patched
SE +/- 0.37, N = 3
44.80
Linux 5.10.9
SE +/- 0.21, N = 3
50.04
Linux 5.11
SE +/- 0.25, N = 3
59.48
13
26
39
52
65
1. firefox 84.0.2
Selenium
Benchmark: Kraken - Browser: Firefox
ms, Fewer Is Better
Linux 5.11
SE +/- 6.97, N = 3
896.9
Linux 5.11 Patched
SE +/- 3.43, N = 3
903.2
Linux 5.10.9
SE +/- 10.86, N = 3
909.3
200
400
600
800
1000
1. firefox 84.0.2


Selenium
Benchmark: StyleBench - Browser: Firefox
Runs / Minute, More Is Better
Linux 5.11 Patched
115.0
Linux 5.11
SE +/- 1.13, N = 15
89.2
Linux 5.10.9
SE +/- 0.81, N = 3
88.3
30
60
90
120
150
1. firefox 84.0.2
Selenium
Benchmark: Jetstream 2 - Browser: Firefox
Score, More Is Better
Linux 5.11 Patched
SE +/- 0.99, N = 3
91.87
Linux 5.10.9
SE +/- 0.99, N = 4
84.98
Linux 5.11
SE +/- 0.26, N = 3
80.48
20
40
60
80
100
1. firefox 84.0.2
Selenium
Benchmark: Speedometer - Browser: Firefox
Runs Per Minute, More Is Better
Linux 5.11 Patched
SE +/- 0.88, N = 3
125
Linux 5.10.9
SE +/- 1.00, N = 3
122
Linux 5.11
SE +/- 1.17, N = 15
111
30
60
90
120
150
1. firefox 84.0.2

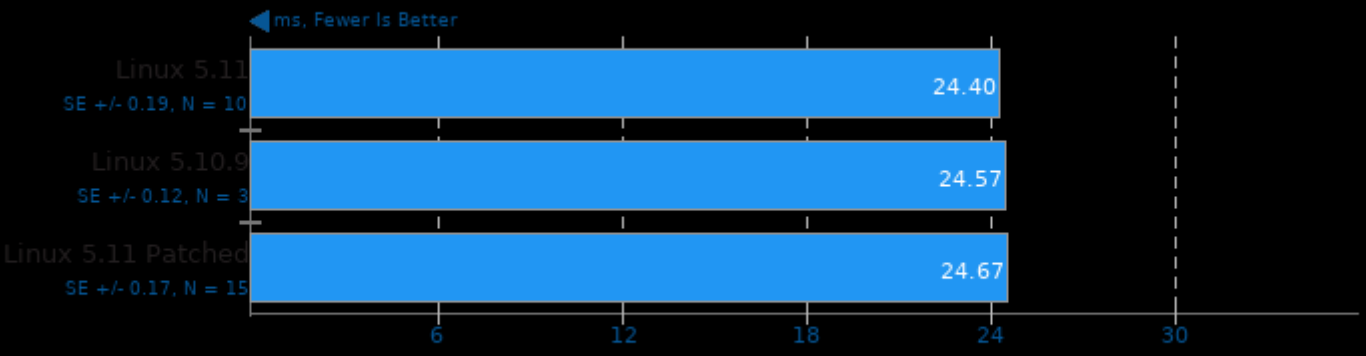

Selenium
Benchmark: ARES-6 - Browser: Google Chrome
ms, Fewer Is Better
Linux 5.11 Patched
SE +/- 0.09, N = 3
14.47
Linux 5.10.9
SE +/- 0.17, N = 3
17.19
Linux 5.11
SE +/- 0.05, N = 3
18.58
5
10
15
20
25
1. chrome 88.0.4324.96
Selenium
Benchmark: Kraken - Browser: Google Chrome
ms, Fewer Is Better
Linux 5.11 Patched
SE +/- 3.55, N = 3
555.2
Linux 5.10.9
SE +/- 5.15, N = 3
616.8
Linux 5.11
SE +/- 9.96, N = 15
789.5
200
400
600
800
1000
1. chrome 88.0.4324.96
Selenium
Benchmark: PSPDFKit WASM - Browser: Firefox
Score, Fewer Is Better
Linux 5.11 Patched
SE +/- 23.10, N = 3
2826
Linux 5.10.9
SE +/- 10.40, N = 3
3171
Linux 5.11
SE +/- 37.22, N = 3
3325
700
1400
2100
2800
3500
1. firefox 84.0.2


Selenium
Benchmark: StyleBench - Browser: Google Chrome
Runs / Minute, More Is Better
Linux 5.11 Patched
SE +/- 0.09, N = 3
55.2
Linux 5.10.9
SE +/- 0.21, N = 3
54.9
Linux 5.11
SE +/- 0.38, N = 3
52.3
12
24
36
48
60
1. chrome 88.0.4324.96
Selenium
Benchmark: Jetstream 2 - Browser: Google Chrome
Score, More Is Better
Linux 5.11 Patched
SE +/- 0.82, N = 3
196.48
Linux 5.10.9
SE +/- 2.07, N = 3
172.14
Linux 5.11
SE +/- 1.64, N = 5
161.81
40
80
120
160
200
1. chrome 88.0.4324.96
Selenium
Benchmark: Speedometer - Browser: Google Chrome
Runs Per Minute, More Is Better
Linux 5.11 Patched
SE +/- 0.67, N = 3
179
Linux 5.10.9
SE +/- 0.33, N = 3
174
Linux 5.11
SE +/- 1.33, N = 8
159
40
80
120
160
200
1. chrome 88.0.4324.96


Selenium
Benchmark: PSPDFKit WASM - Browser: Google Chrome
Score, Fewer Is Better
Linux 5.10.9
SE +/- 16.62, N = 3
3060
Linux 5.11 Patched
SE +/- 6.69, N = 3
3061
Linux 5.11
SE +/- 15.33, N = 3
3110
700
1400
2100
2800
3500
1. chrome 88.0.4324.96
Selenium
Benchmark: WASM imageConvolute - Browser: Firefox
ms, Fewer Is Better
Linux 5.11
SE +/- 0.29, N = 3
23.9
Linux 5.11 Patched
SE +/- 0.06, N = 3
24.2
Linux 5.10.9
SE +/- 0.06, N = 3
24.4
6
12
18
24
30
1. firefox 84.0.2
Selenium
Benchmark: WASM collisionDetection - Browser: Firefox
ms, Fewer Is Better
Linux 5.11
SE +/- 2.35, N = 3
298.7
Linux 5.10.9
SE +/- 0.95, N = 3
302.1
Linux 5.11 Patched
SE +/- 1.12, N = 3
302.9
70
140
210
280
350
1. firefox 84.0.2

Selenium

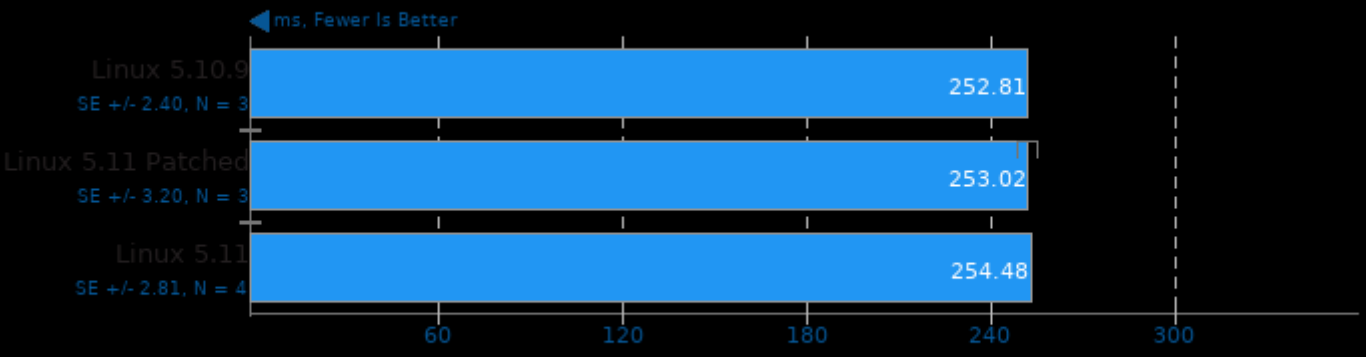
Benchmark: WASM imageConvolute - Browser: Google Chrome



1. chrome 88.0.4324.96

Selenium

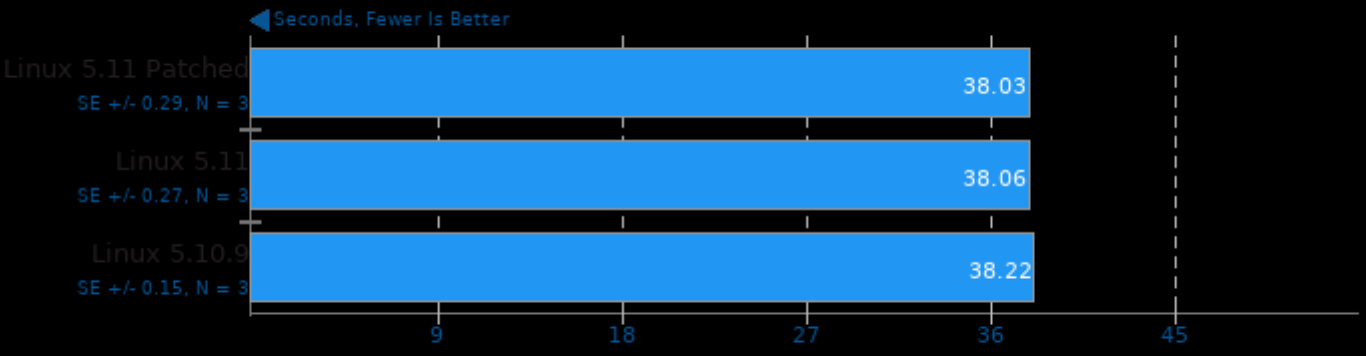
Benchmark: WASM collisionDetection - Browser: Google Chrome



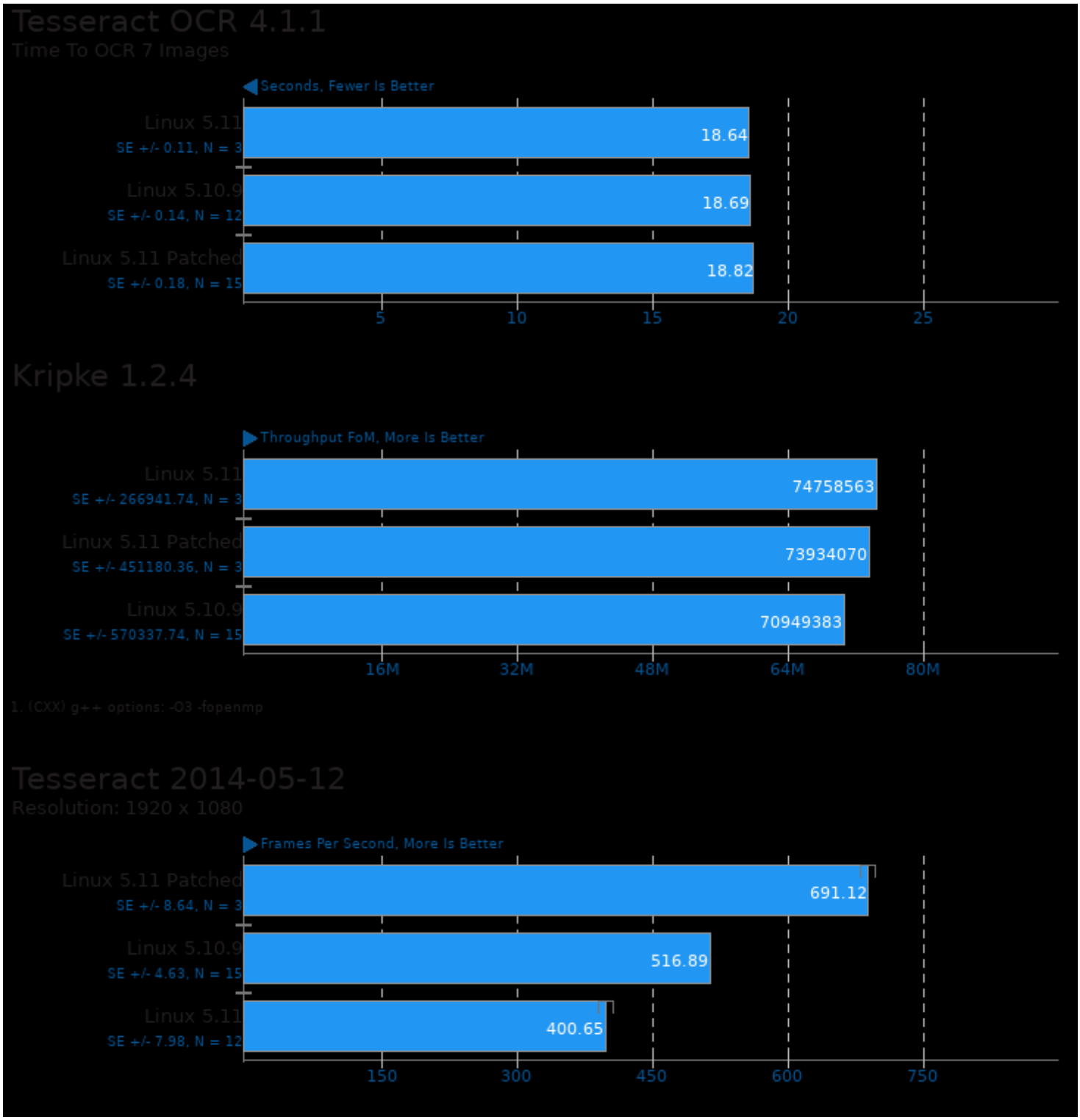
1. chrome 88.0.4324.96

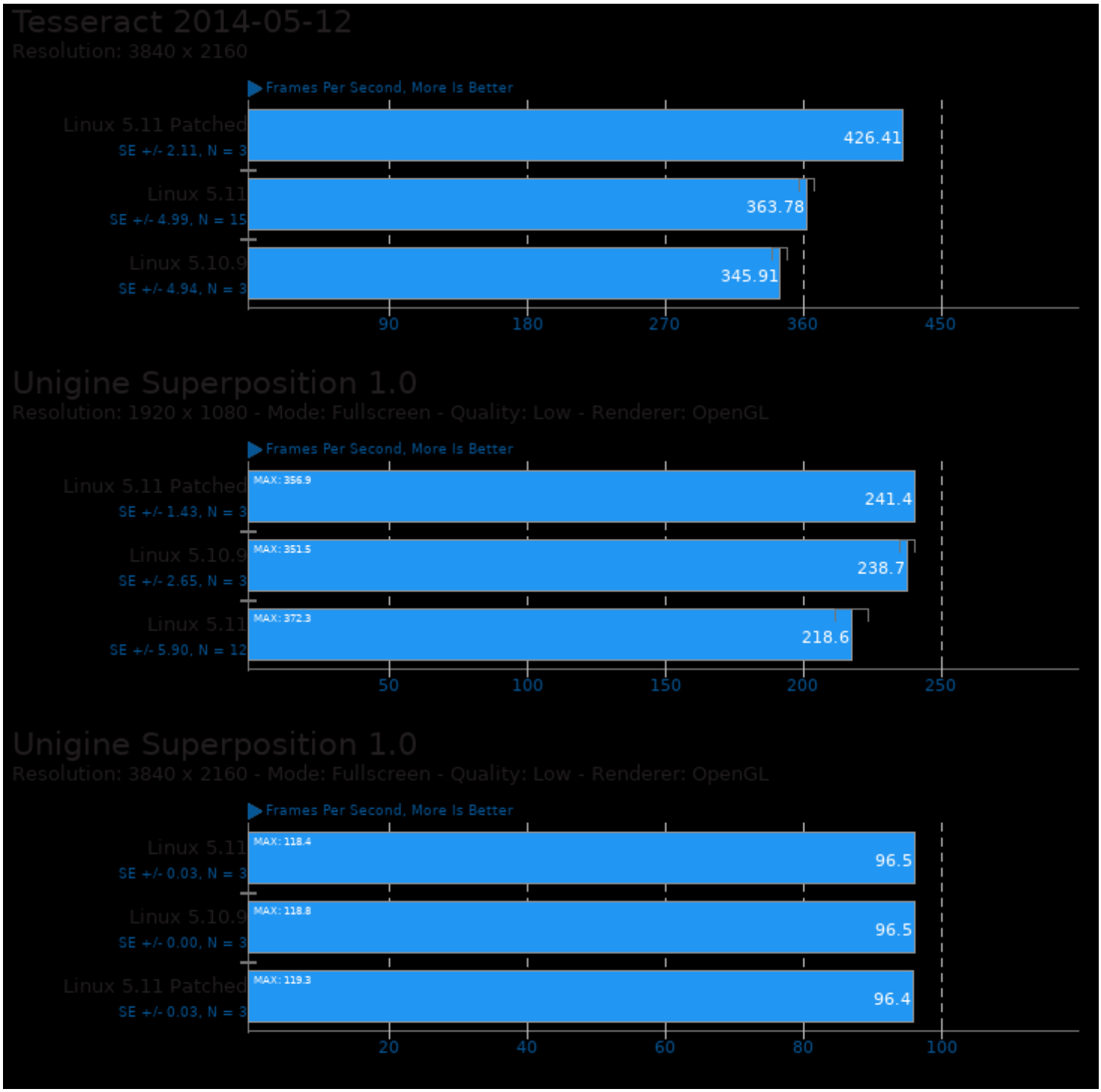
Git

Time To Complete Common Git Commands

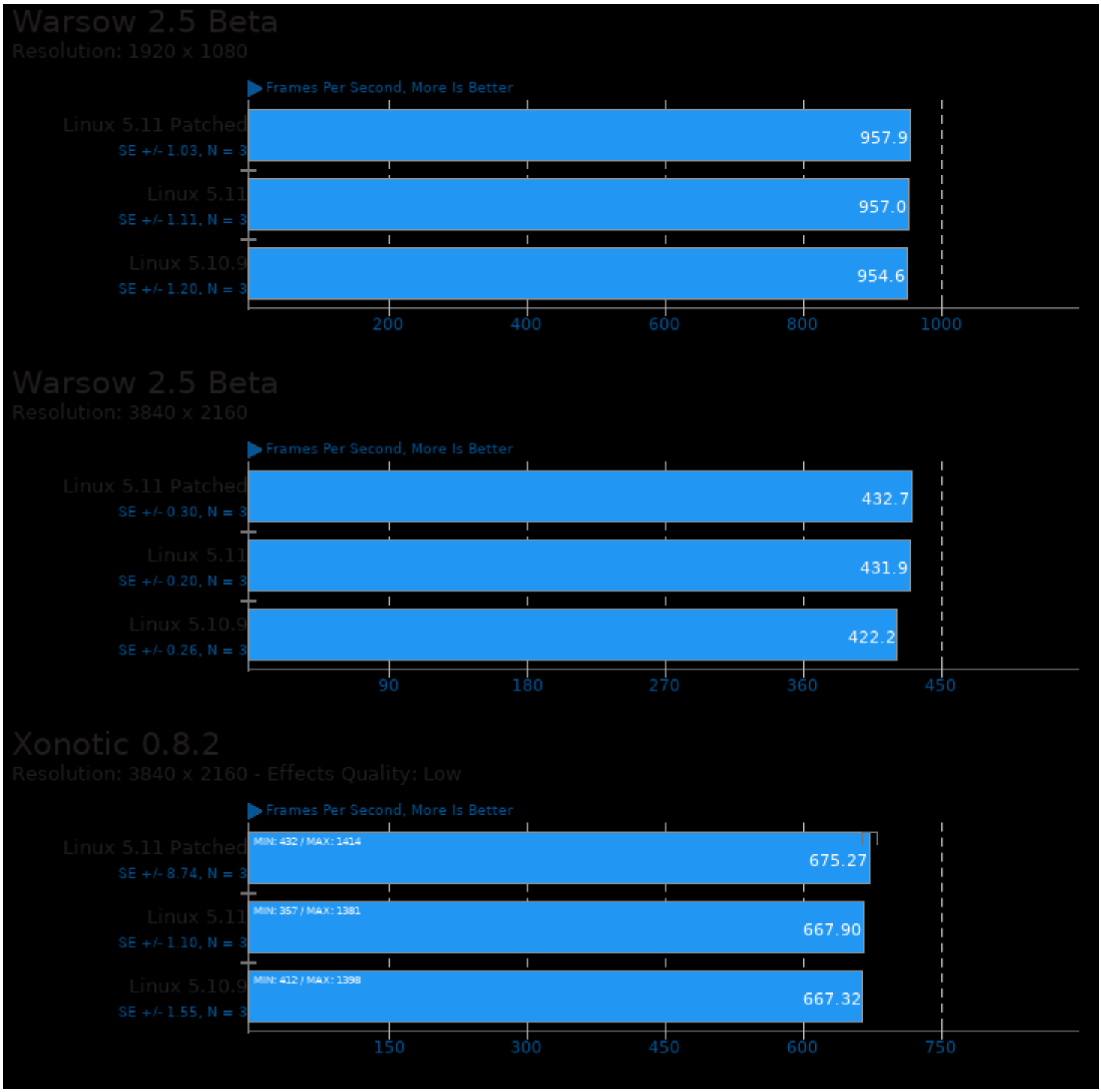


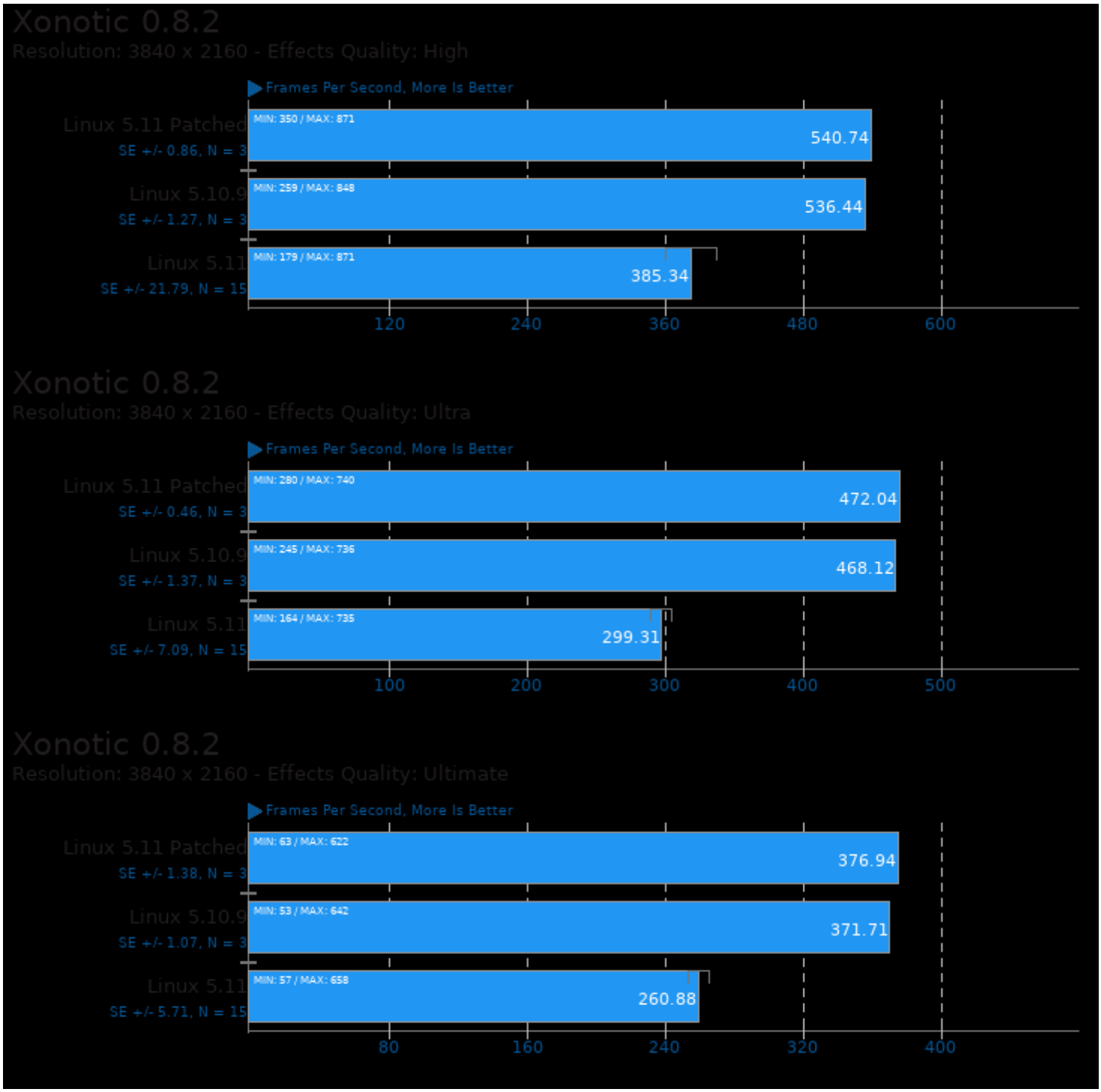
1. git version 2.27.0

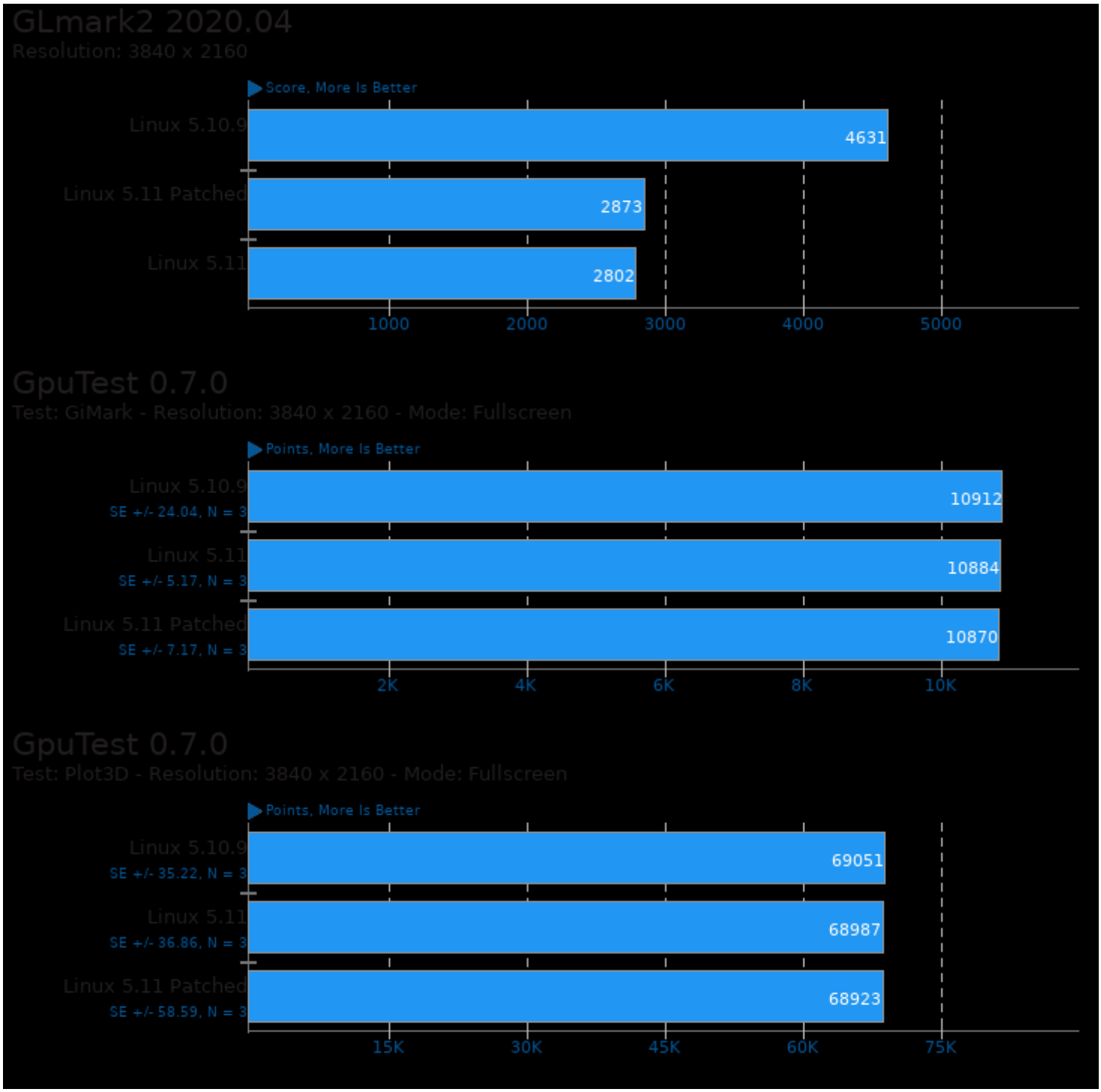

Tesseract OCR 4.1.1
Time To OCR 7 Images
Seconds, Fewer Is Better
Linux 5.11
SE +/- 0.11, N = 3
18.64
Linux 5.10.9
SE +/- 0.14, N = 12
18.69
Linux 5.11 Patched
SE +/- 0.18, N = 15
18.82
5
10
15
20
25
Kripke 1.2.4
Throughput FoM, More Is Better
Linux 5.11
SE +/- 266941.74, N = 3
74758563
Linux 5.11 Patched
SE +/- 451180.36, N = 3
73934070
Linux 5.10.9
SE +/- 570337.74, N = 15
70949383
16M
32M
48M
64M
80M
1. (CXX) g++ options: -O3 -fopenmp
Tesseract 2014-05-12
Resolution: 1920 x 1080
Frames Per Second, More Is Better
Linux 5.11 Patched
SE +/- 8.64, N = 3
691.12
Linux 5.10.9
SE +/- 4.63, N = 15
516.89
Linux 5.11
SE +/- 7.98, N = 12
400.65
150
300
450
600
750


Tesseract 2014-05-12
Resolution: 3840 x 2160
Frames Per Second, More Is Better
Linux 5.11 Patched
SE +/- 2.11, N = 3
426.41
Linux 5.11
SE +/- 4.99, N = 15
363.78
Linux 5.10.9
SE +/- 4.94, N = 3
345.91
90
180
270
360
450
Unigine Superposition 1.0
Resolution: 1920 x 1080 - Mode: Fullscreen - Quality: Low - Renderer: OpenGL
Frames Per Second, More Is Better
Linux 5.11 Patched
SE +/- 1.43, N = 3
MAX: 356.9
241.4
Linux 5.10.9
SE +/- 2.65, N = 3
MAX: 351.5
238.7
Linux 5.11
SE +/- 5.90, N = 12
MAX: 372.3
218.6
50
100
150
200
250
Unigine Superposition 1.0
Resolution: 3840 x 2160 - Mode: Fullscreen - Quality: Low - Renderer: OpenGL
Frames Per Second, More Is Better
Linux 5.11
SE +/- 0.03, N = 3
MAX: 118.4
96.5
Linux 5.10.9
SE +/- 0.00, N = 3
MAX: 118.8
96.5
Linux 5.11 Patched
SE +/- 0.03, N = 3
MAX: 119.3
96.4
20
40
60
80
100

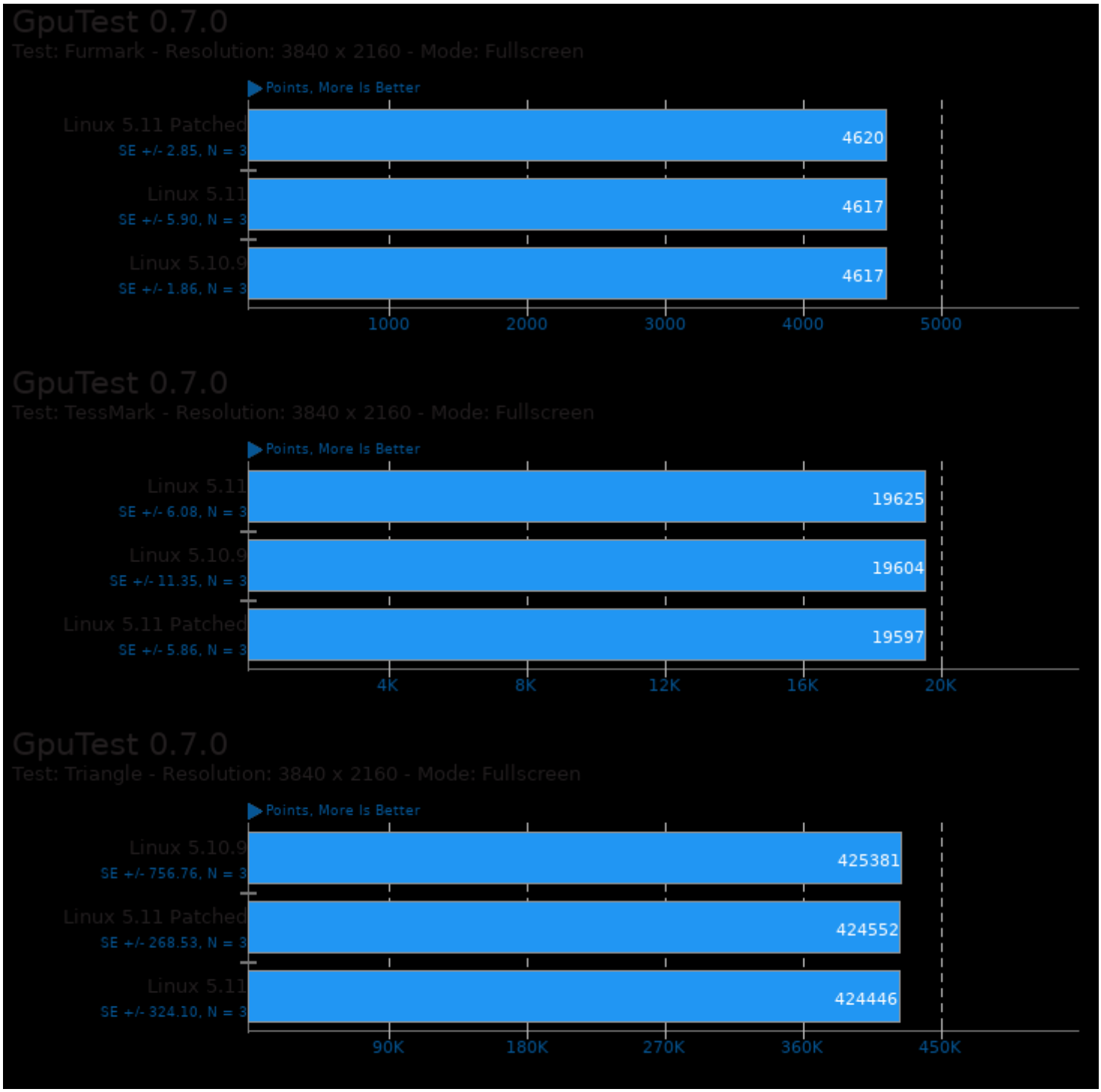
AMD Ryzen 9 5950X Linux 5.11

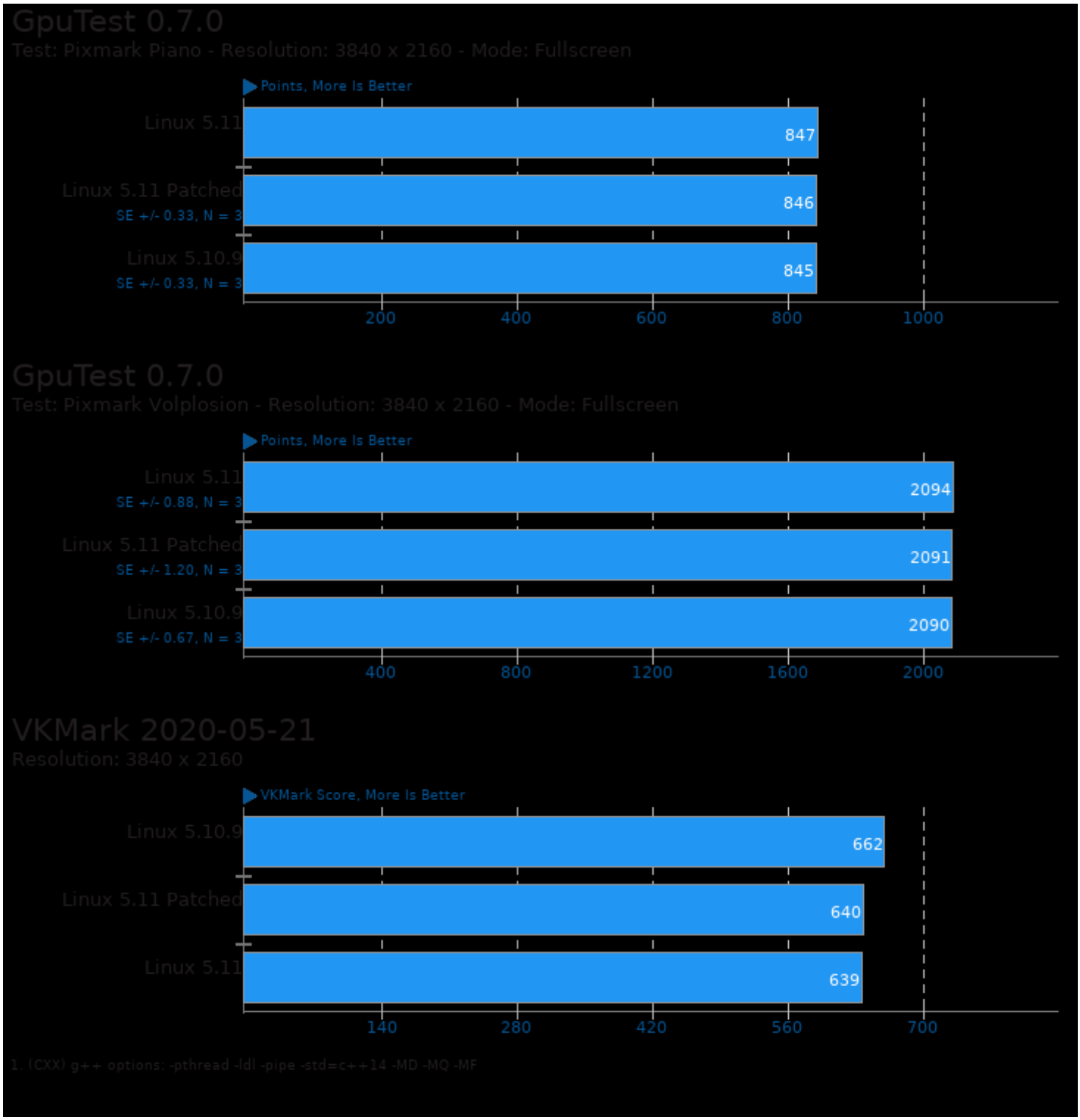


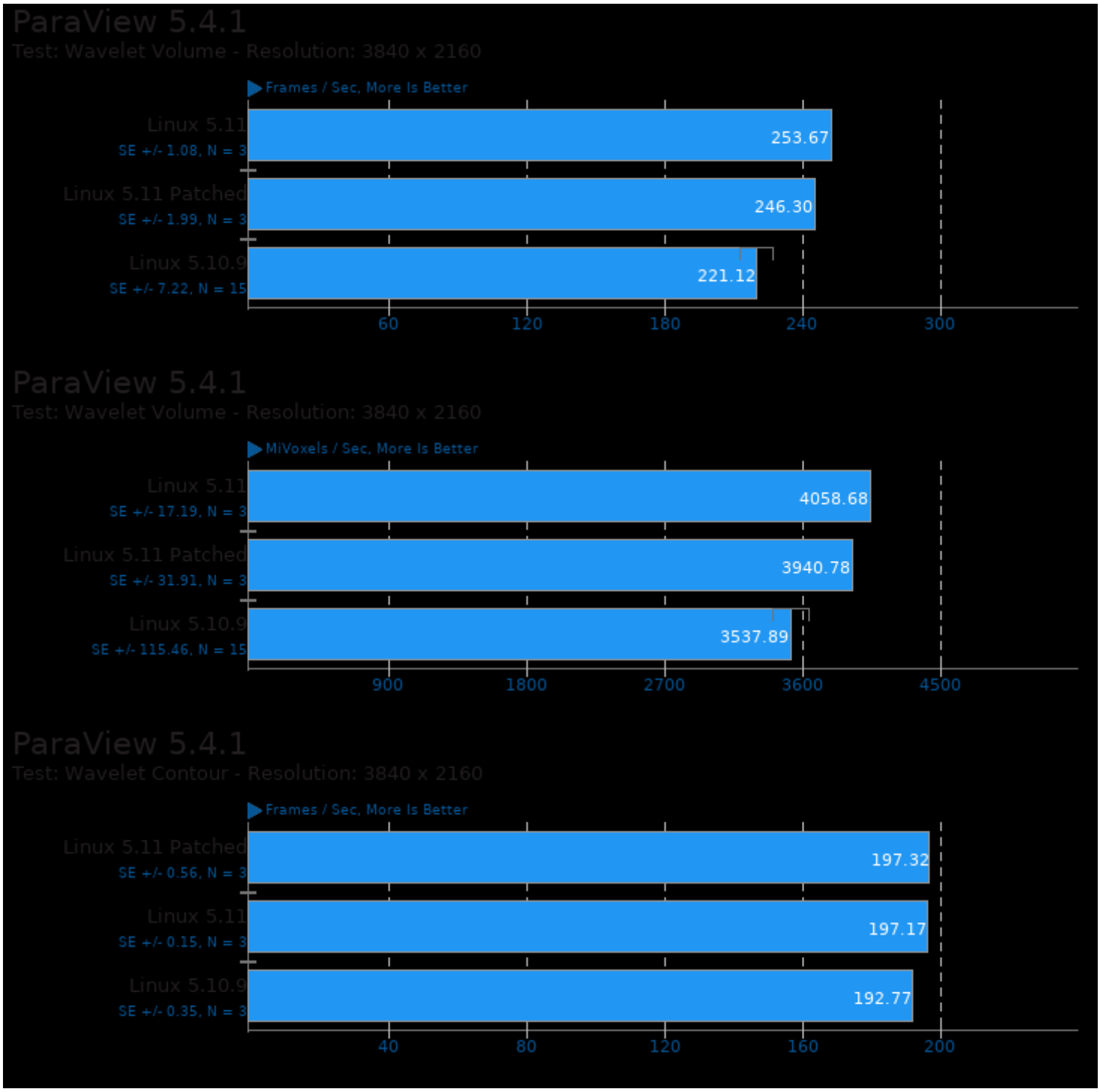

Xonotic 0.8.2
Resolution: 3840 x 2160 - Effects Quality: High
Frames Per Second, More Is Better
Linux 5.11 Patched
SE +/- 0.86, N = 3
MIN: 350 / MAX: 871
540.74
Linux 5.10.9
SE +/- 1.27, N = 3
MIN: 259 / MAX: 848
536.44
Linux 5.11
SE +/- 21.79, N = 15
MIN: 179 / MAX: 871
385.34
120
240
360
480
600
Xonotic 0.8.2
Resolution: 3840 x 2160 - Effects Quality: Ultra
Frames Per Second, More Is Better
Linux 5.11 Patched
SE +/- 0.46, N = 3
MIN: 280 / MAX: 740
472.04
Linux 5.10.9
SE +/- 1.37, N = 3
MIN: 245 / MAX: 736
468.12
Linux 5.11
SE +/- 7.09, N = 15
MIN: 164 / MAX: 735
299.31
100
200
300
400
500
Xonotic 0.8.2
Resolution: 3840 x 2160 - Effects Quality: Ultimate
Frames Per Second, More Is Better
Linux 5.11 Patched
SE +/- 1.38, N = 3
MIN: 63 / MAX: 622
376.94
Linux 5.10.9
SE +/- 1.07, N = 3
MIN: 53 / MAX: 642
371.71
Linux 5.11
SE +/- 5.71, N = 15
MIN: 57 / MAX: 658
260.88
80
160
240
320
400

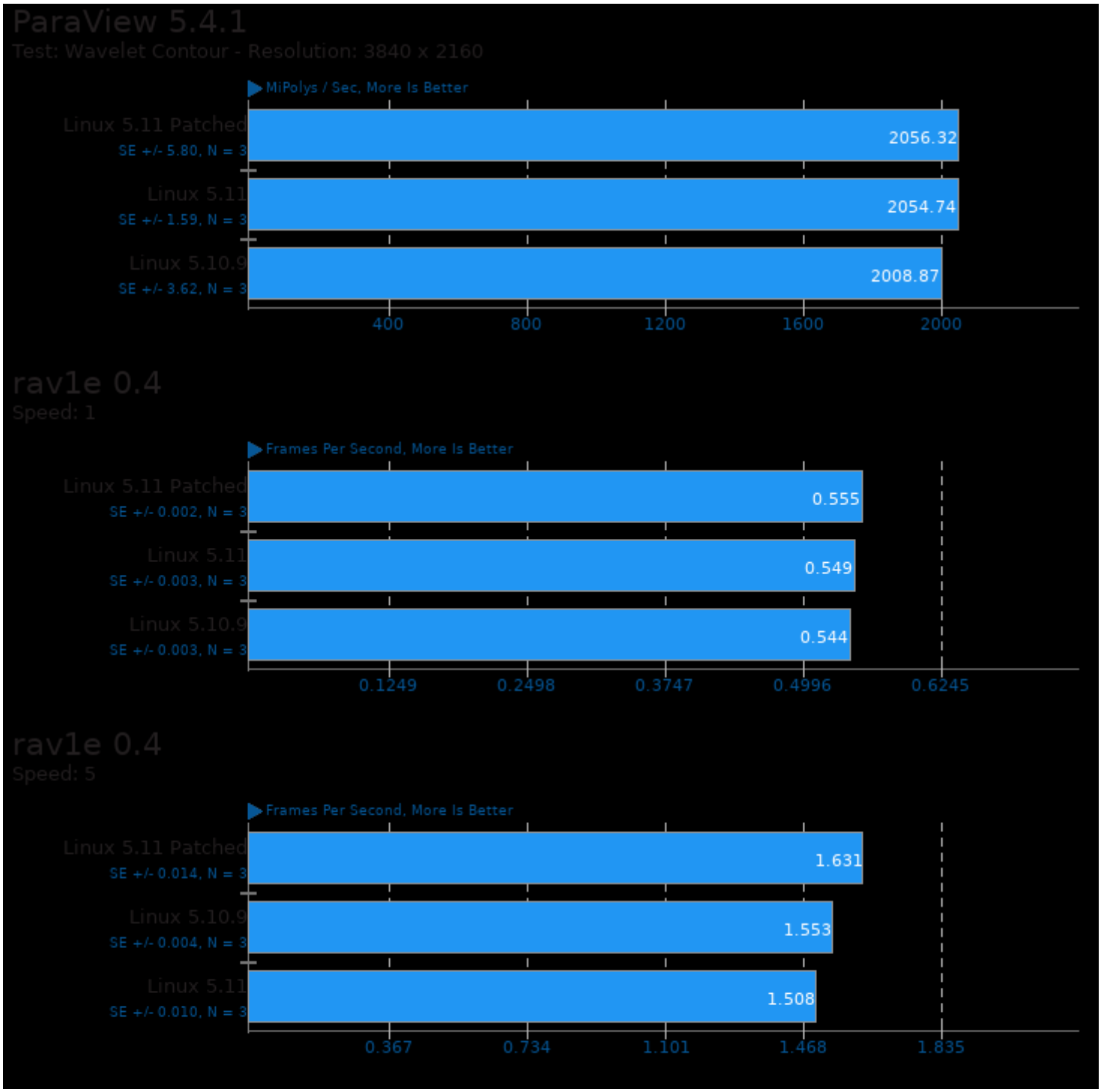

GLmark2 2020.04
Resolution: 3840 x 2160
Score, More Is Better
Linux 5.10.9
4631
Linux 5.11 Patched
2873
Linux 5.11
2802
1000
2000
3000
4000
5000
GpuTest 0.7.0
Test: GiMark - Resolution: 3840 x 2160 - Mode: Fullscreen
Points, More Is Better
Linux 5.10.9
SE +/- 24.04, N = 3
10912
Linux 5.11
SE +/- 5.17, N = 3
10884
Linux 5.11 Patched
SE +/- 7.17, N = 3
10870
2K
4K
6K
8K
10K
GpuTest 0.7.0
Test: Plot3D - Resolution: 3840 x 2160 - Mode: Fullscreen
Points, More Is Better
Linux 5.10.9
SE +/- 35.22, N = 3
69051
Linux 5.11
SE +/- 36.86, N = 3
68987
Linux 5.11 Patched
SE +/- 58.59, N = 3
68923
15K
30K
45K
60K
75K

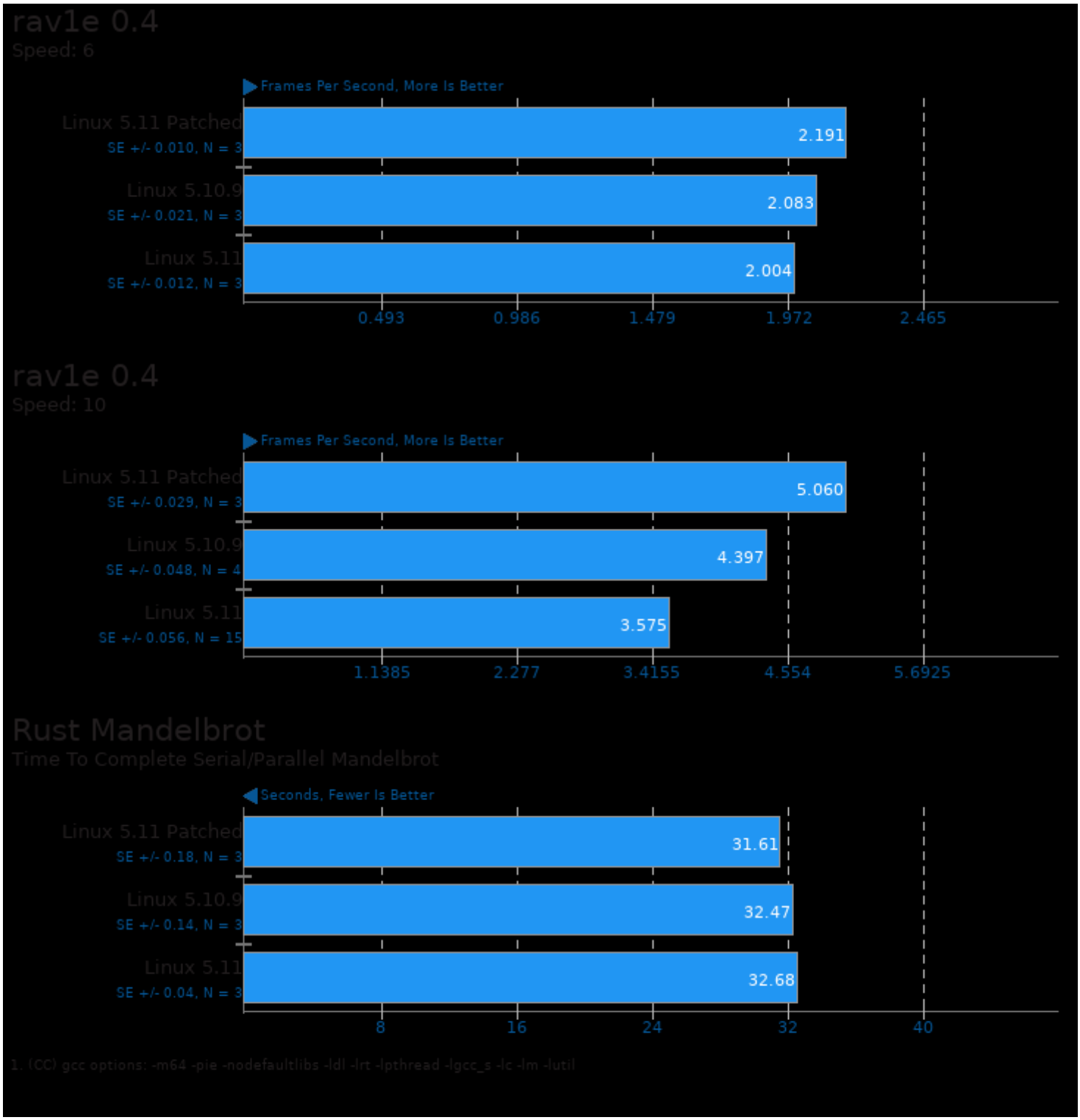
AMD Ryzen 9 5950X Linux 5.11

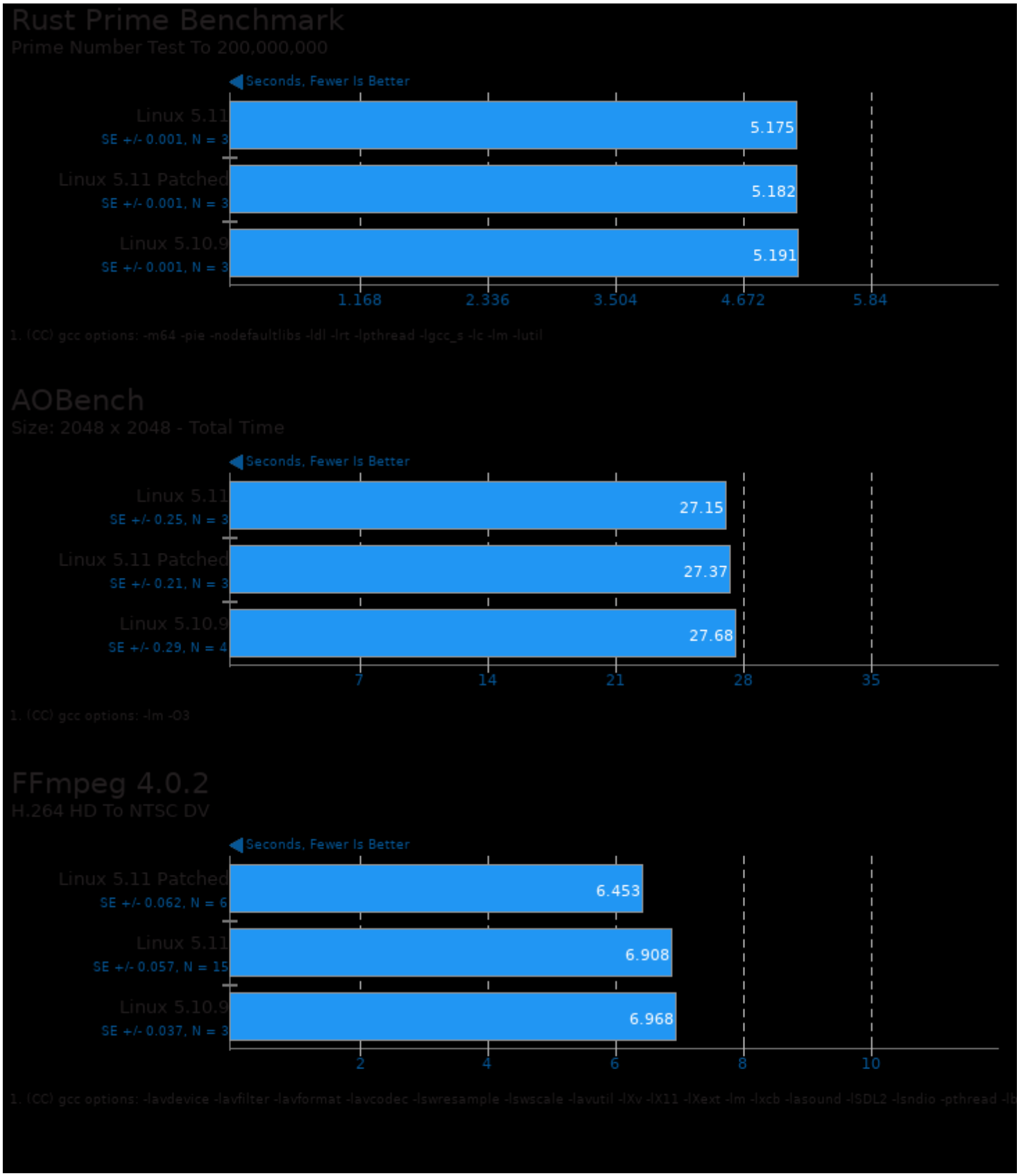


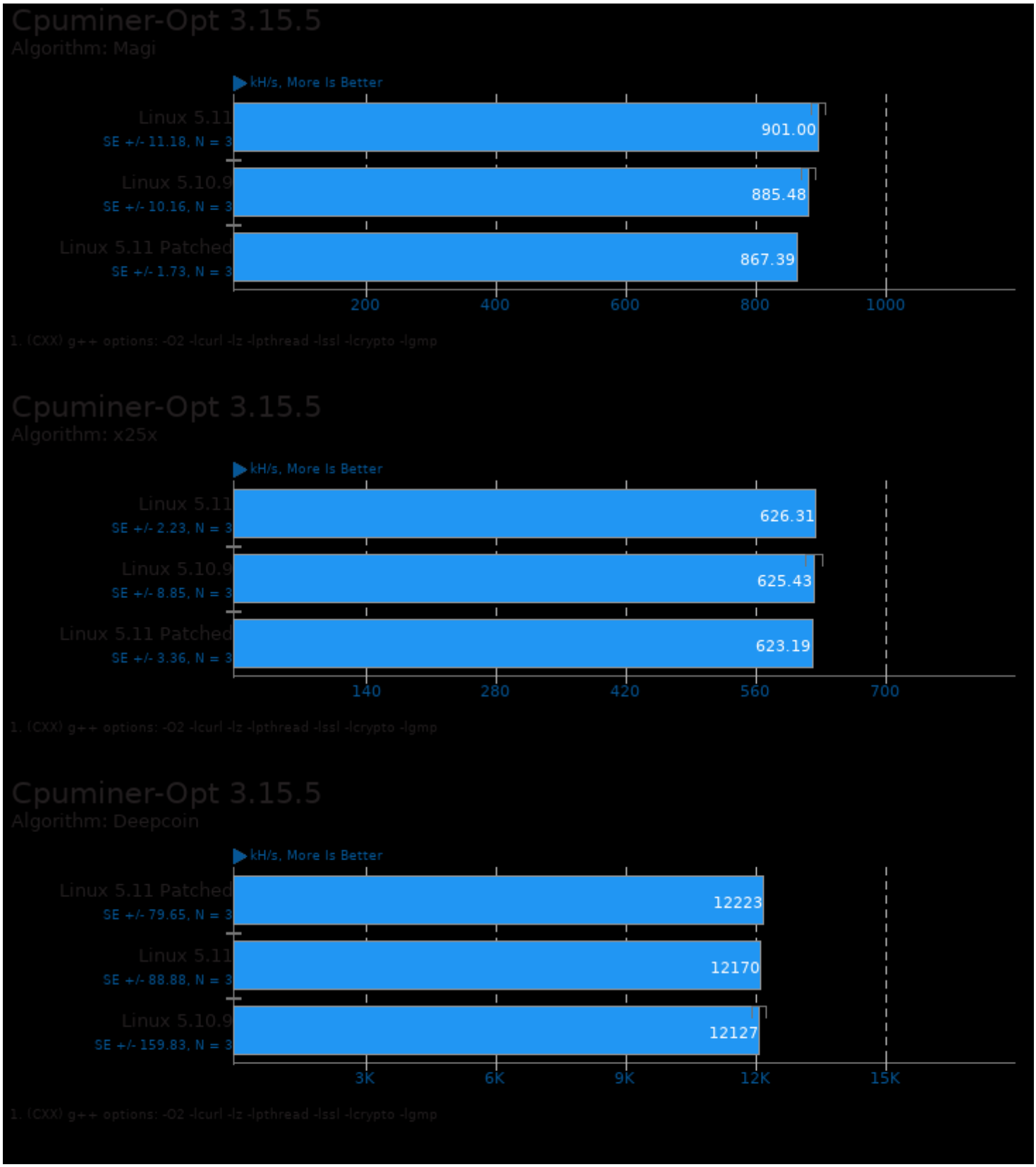

GpuTest 0.7.0
Test: Pixmark Piano - Resolution: 3840 x 2160 - Mode: Fullscreen
Points, More Is Better
Linux 5.11
847
Linux 5.11 Patched
SE +/- 0.33, N = 3
846
Linux 5.10.9
SE +/- 0.33, N = 3
845
200
400
600
800
1000
GpuTest 0.7.0
Test: Pixmark Volplosion - Resolution: 3840 x 2160 - Mode: Fullscreen
Points, More Is Better
Linux 5.11
SE +/- 0.88, N = 3
2094
Linux 5.11 Patched
SE +/- 1.20, N = 3
2091
Linux 5.10.9
SE +/- 0.67, N = 3
2090
400
800
1200
1600
2000
VKMark 2020-05-21
Resolution: 3840 x 2160
VKMark Score, More Is Better
Linux 5.10.9
662
Linux 5.11 Patched
640
Linux 5.11
639
140
280
420
560
700
1. (CXX) g++ options: -pthread -ldl -pipe -std=c++14 -MD -MQ -MF


ParaView 5.4.1
Test: Wavelet Volume - Resolution: 3840 x 2160
Frames / Sec, More Is Better
Linux 5.11
SE +/- 1.08, N = 3
253.67
Linux 5.11 Patched
SE +/- 1.99, N = 3
246.30
Linux 5.10.9
SE +/- 7.22, N = 15
221.12
60
120
180
240
300
ParaView 5.4.1
Test: Wavelet Volume - Resolution: 3840 x 2160
MiVoxels / Sec, More Is Better
Linux 5.11
SE +/- 17.19, N = 3
4058.68
Linux 5.11 Patched
SE +/- 31.91, N = 3
3940.78
Linux 5.10.9
SE +/- 115.46, N = 15
3537.89
900
1800
2700
3600
4500
ParaView 5.4.1
Test: Wavelet Contour - Resolution: 3840 x 2160
Frames / Sec, More Is Better
Linux 5.11 Patched
SE +/- 0.56, N = 3
197.32
Linux 5.11
SE +/- 0.15, N = 3
197.17
Linux 5.10.9
SE +/- 0.35, N = 3
192.77
40
80
120
160
200


ParaView 5.4.1
Test: Wavelet Contour - Resolution: 3840 x 2160
MiPolys / Sec, More Is Better
Linux 5.11 Patched
SE +/- 5.80, N = 3
2056.32
Linux 5.11
SE +/- 1.59, N = 3
2054.74
Linux 5.10.9
SE +/- 3.62, N = 3
2008.87
400
800
1200
1600
2000
rav1e 0.4
Speed: 1
Frames Per Second, More Is Better
Linux 5.11 Patched
SE +/- 0.002, N = 3
0.555
Linux 5.11
SE +/- 0.003, N = 3
0.549
Linux 5.10.9
SE +/- 0.003, N = 3
0.544
0.1249
0.2498
0.3747
0.4996
0.6245
rav1e 0.4
Speed: 5
Frames Per Second, More Is Better
Linux 5.11 Patched
SE +/- 0.014, N = 3
1.631
Linux 5.10.9
SE +/- 0.004, N = 3
1.553
Linux 5.11
SE +/- 0.010, N = 3
1.508
0.367
0.734
1.101
1.468
1.835

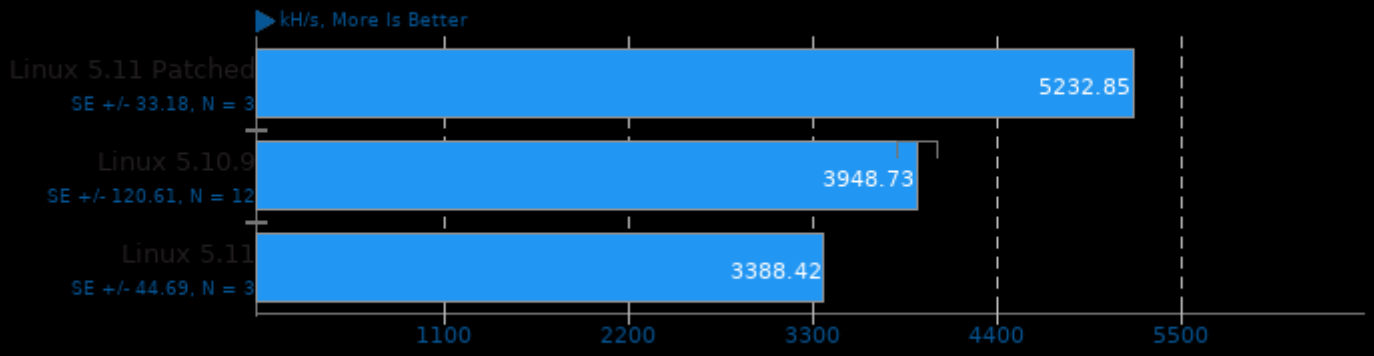

rav1e 0.4
Speed: 6
Frames Per Second, More Is Better
Linux 5.11 Patched
SE +/- 0.010, N = 3
2.191
Linux 5.10.9
SE +/- 0.021, N = 3
2.083
Linux 5.11
SE +/- 0.012, N = 3
2.004
0.493
0.986
1.479
1.972
2.465
rav1e 0.4
Speed: 10
Frames Per Second, More Is Better
Linux 5.11 Patched
SE +/- 0.029, N = 3
5.060
Linux 5.10.9
SE +/- 0.048, N = 4
4.397
Linux 5.11
SE +/- 0.056, N = 15
3.575
1.1385
2.277
3.4155
4.554
5.6925
Rust Mandelbrot
Time To Complete Serial/Parallel Mandelbrot
Seconds, Fewer Is Better
Linux 5.11 Patched
SE +/- 0.18, N = 3
31.61
Linux 5.10.9
SE +/- 0.14, N = 3
32.47
Linux 5.11
SE +/- 0.04, N = 3
32.68
8
16
24
32
40
1. (CC) gcc options: -m64 -pie -nodefaultlibs -ldl -lrt -lpthread -lgcc_s -lc -lm -lutil


Rust Prime Benchmark
Prime Number Test To 200,000,000
Seconds, Fewer Is Better
Linux 5.11
SE +/- 0.001, N = 3
5.175
Linux 5.11 Patched
SE +/- 0.001, N = 3
5.182
Linux 5.10.9
SE +/- 0.001, N = 3
5.191
1.168
2.336
3.504
4.672
5.84
1. (CC) gcc options: -m64 -pie -nodefaultlibs -ldl -lrt -lpthread -lgcc_s -lc -lm -lutil
AOBench
Size: 2048 x 2048 - Total Time
Seconds, Fewer Is Better
Linux 5.11
SE +/- 0.25, N = 3
27.15
Linux 5.11 Patched
SE +/- 0.21, N = 3
27.37
Linux 5.10.9
SE +/- 0.29, N = 4
27.68
7
14
21
28
35
1. (CC) gcc options: -lm -O3
FFmpeg 4.0.2
H.264 HD To NTSC DV
Seconds, Fewer Is Better
Linux 5.11 Patched
SE +/- 0.062, N = 6
6.453
Linux 5.11
SE +/- 0.057, N = 15
6.908
Linux 5.10.9
SE +/- 0.037, N = 3
6.968
2
4
6
8
10
1. (CC) gcc options: -lavdevice -lavfilter -lavformat -lavcodec -lswresample -lswscale -lavutil -lXv -lX11 -lXext -lm -lxcb -lasound -lSDL2 -lsndio -pthread -l


Cpuminer-Opt 3.15.5
Algorithm: Magi
kH/s, More Is Better
Linux 5.11
SE +/- 11.18, N = 3
901.00
Linux 5.10.9
SE +/- 10.16, N = 3
885.48
Linux 5.11 Patched
SE +/- 1.73, N = 3
867.39
200
400
600
800
1000
1. (CXX) g++ options: -O2 -lcurl -lz -lpthread -lssl -lcrypto -lgmp
Cpuminer-Opt 3.15.5
Algorithm: x25x
kH/s, More Is Better
Linux 5.11
SE +/- 2.23, N = 3
626.31
Linux 5.10.9
SE +/- 8.85, N = 3
625.43
Linux 5.11 Patched
SE +/- 3.36, N = 3
623.19
140
280
420
560
700
1. (CXX) g++ options: -O2 -lcurl -lz -lpthread -lssl -lcrypto -lgmp
Cpuminer-Opt 3.15.5
Algorithm: Deepcoin
kH/s, More Is Better
Linux 5.11 Patched
SE +/- 79.65, N = 3
12223
Linux 5.11
SE +/- 88.88, N = 3
12170
Linux 5.10.9
SE +/- 159.83, N = 3
12127
3K
6K
9K
12K
15K
1. (CXX) g++ options: -O2 -lcurl -lz -lpthread -lssl -lcrypto -lgmp

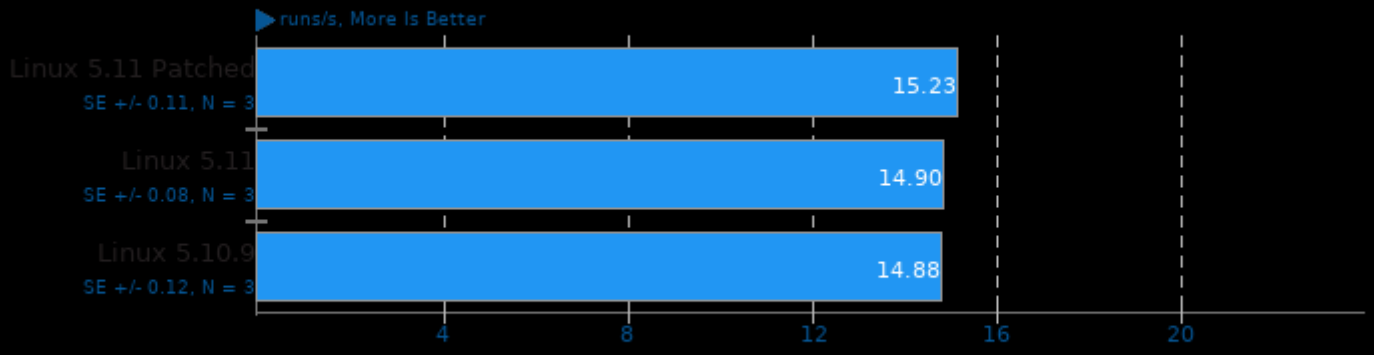
Cpuminer-Opt 3.15.5

Algorithm: Garlicoin



1. (CXX) g++ options: -O2 -lcurl -lz -lpthread -lssl -lcrypto -lgmp

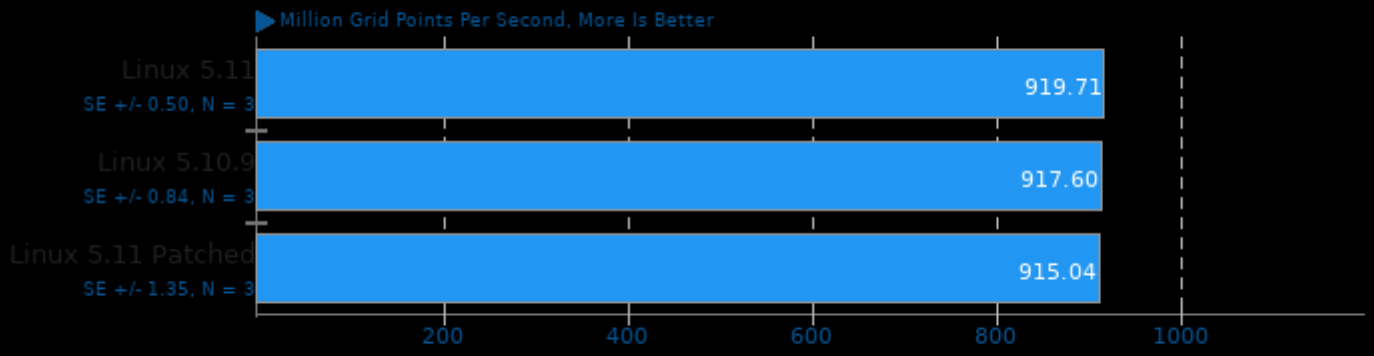
Node.js V8 Web Tooling Benchmark



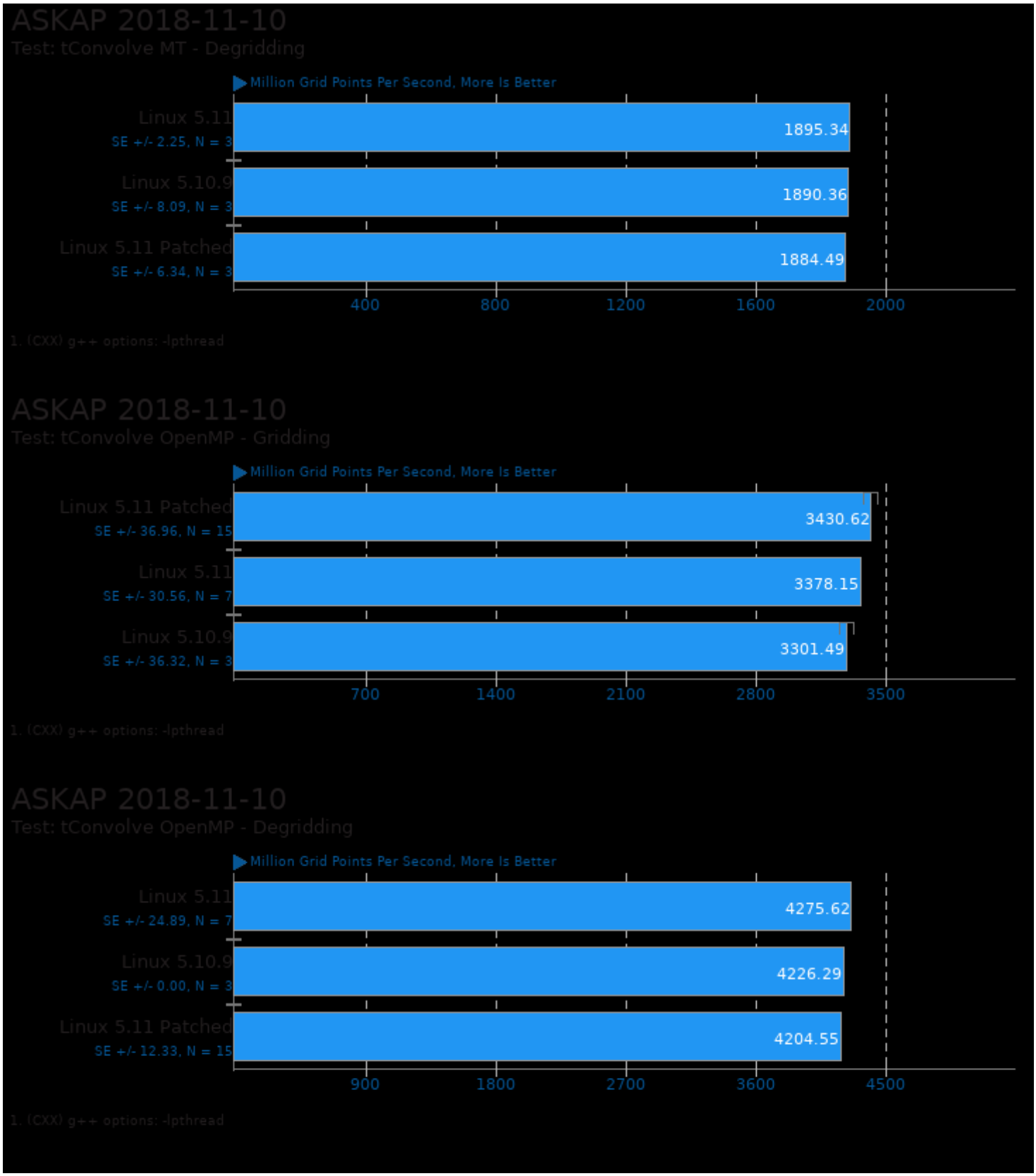
1. Nodejs v12.18.2

ASKAP 2018-11-10

Test: tConvolve MT - Gridding

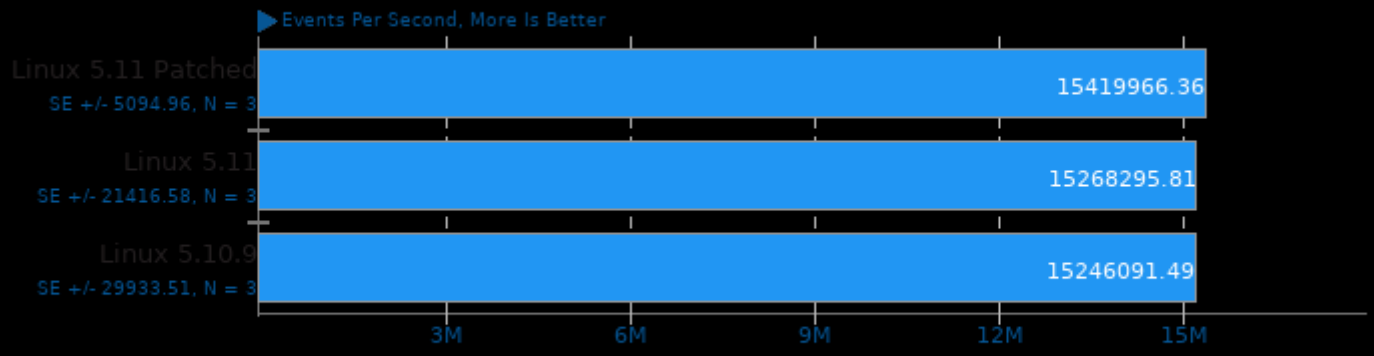


1. (CXX) g++ options: -lpthread


ASKAP 2018-11-10
Test: tConvolve MT - Degridding
Million Grid Points Per Second, More Is Better
Linux 5.11
SE +/- 2.25, N = 3
1895.34
Linux 5.10.9
SE +/- 8.09, N = 3
1890.36
Linux 5.11 Patched
SE +/- 6.34, N = 3
1884.49
400
800
1200
1600
2000
1. (CXX) g++ options: -lpthread
ASKAP 2018-11-10
Test: tConvolve OpenMP - Gridding
Million Grid Points Per Second, More Is Better
Linux 5.11 Patched
SE +/- 36.96, N = 15
3430.62
Linux 5.11
SE +/- 30.56, N = 7
3378.15
Linux 5.10.9
SE +/- 36.32, N = 3
3301.49
700
1400
2100
2800
3500
1. (CXX) g++ options: -lpthread
ASKAP 2018-11-10
Test: tConvolve OpenMP - Degridding
Million Grid Points Per Second, More Is Better
Linux 5.11
SE +/- 24.89, N = 7
4275.62
Linux 5.10.9
SE +/- 0.00, N = 3
4226.29
Linux 5.11 Patched
SE +/- 12.33, N = 15
4204.55
900
1800
2700
3600
4500
1. (CXX) g++ options: -lpthread

Sysbench 2018-07-28

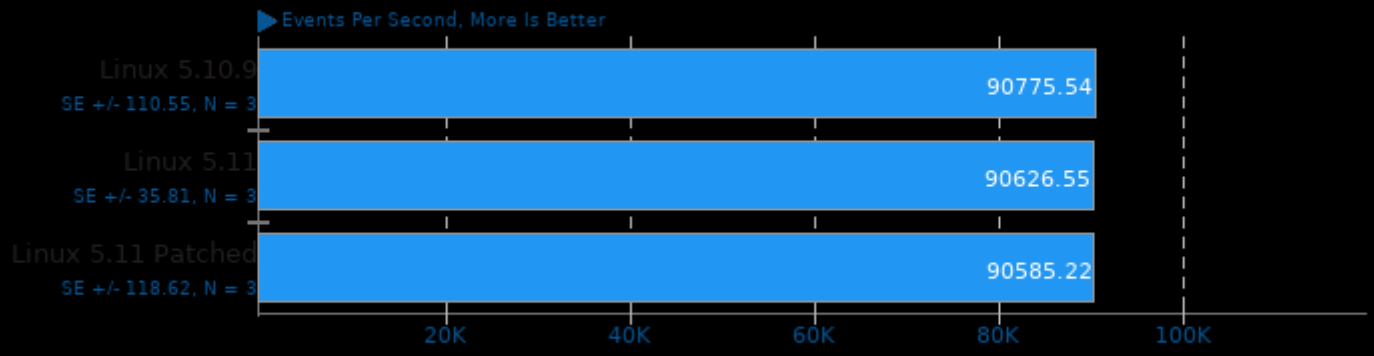
Test: Memory



1. (CC) gcc options: -pthread -O3 -funroll-loops -ggdb3 -march=amdfam10 -rdynamic -ldl -laio -lm

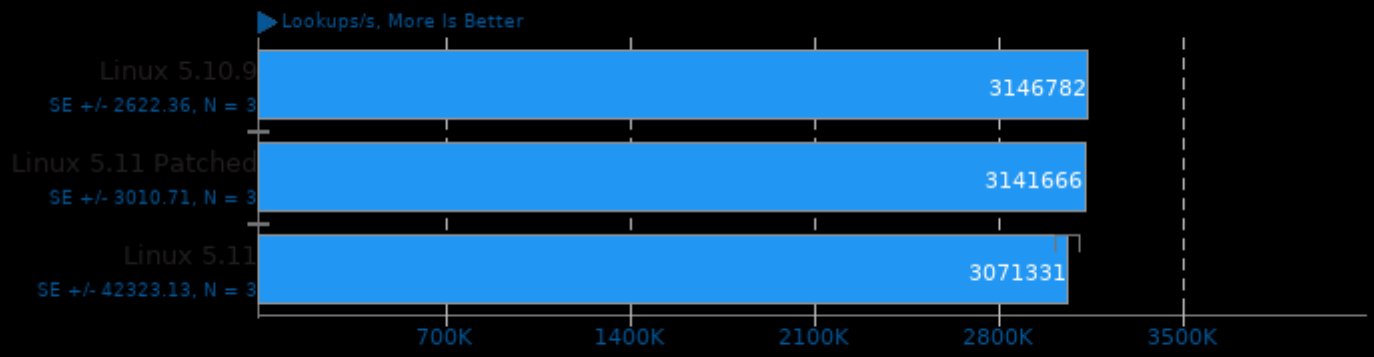
Sysbench 2018-07-28

Test: CPU

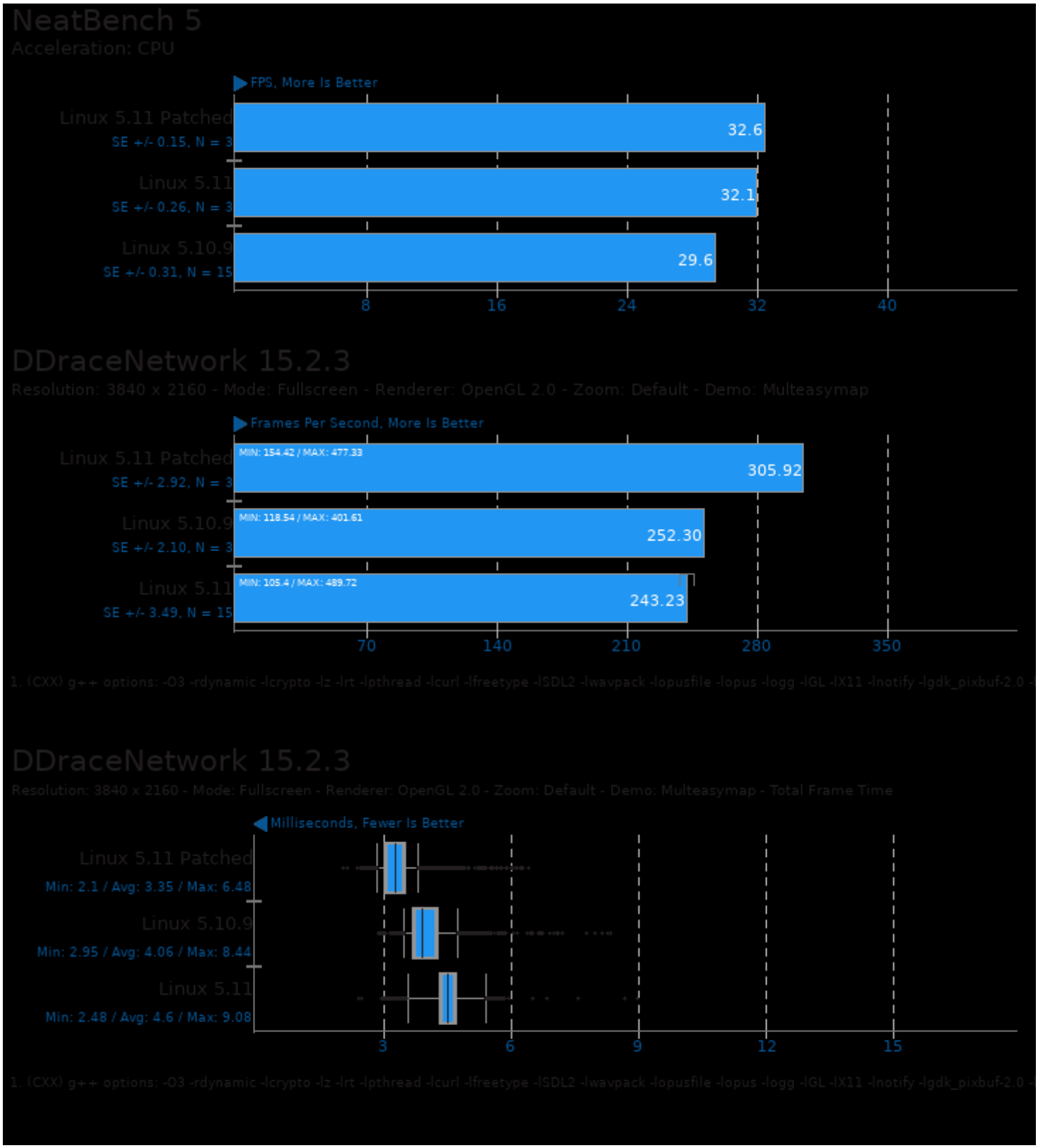


1. (CC) gcc options: -pthread -O3 -funroll-loops -ggdb3 -march=amdfam10 -rdynamic -ldl -laio -lm

Xsbench 2017-07-06

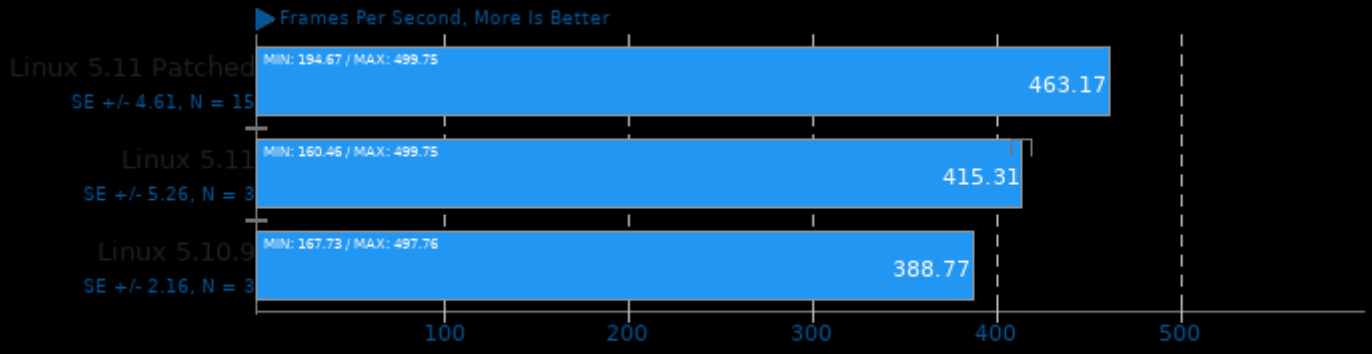


1. (CC) gcc options: -std=gnu99 -fopenmp -O3 -lm


NeatBench 5
Acceleration: CPU
FPS, More Is Better
Linux 5.11 Patched
SE +/- 0.15, N = 3
32.6
Linux 5.11
SE +/- 0.26, N = 3
32.1
Linux 5.10.9
SE +/- 0.31, N = 15
29.6
8
16
24
32
40
DDraceNetwork 15.2.3
Resolution: 3840 x 2160 - Mode: Fullscreen - Renderer: OpenGL 2.0 - Zoom: Default - Demo: Multeasymap
Frames Per Second, More Is Better
Linux 5.11 Patched
SE +/- 2.92, N = 3
MIN: 154.42 / MAX: 477.33
305.92
Linux 5.10.9
SE +/- 2.10, N = 3
MIN: 118.54 / MAX: 401.61
252.30
Linux 5.11
SE +/- 3.49, N = 15
MIN: 105.4 / MAX: 489.72
243.23
70
140
210
280
350
1. (CXX) g++ options: -O3 -rdynamic -lcrypto -lz -lrt -lpthread -lcurl -lfreetype -lSDL2 -lwavpack -lopusfile -lopus -logg -lGL -lX11 -lnotify -lgdk_pixbuf-2.0
DDraceNetwork 15.2.3
Resolution: 3840 x 2160 - Mode: Fullscreen - Renderer: OpenGL 2.0 - Zoom: Default - Demo: Multeasymap - Total Frame Time
Milliseconds, Fewer Is Better
Linux 5.11 Patched
Min: 2.1 / Avg: 3.35 / Max: 6.48
Linux 5.10.9
Min: 2.95 / Avg: 4.06 / Max: 8.44
Linux 5.11
Min: 2.48 / Avg: 4.6 / Max: 9.08
3
6
9
12
15
1. (CXX) g++ options: -O3 -rdynamic -lcrypto -lz -lrt -lpthread -lcurl -lfreetype -lSDL2 -lwavpack -lopusfile -lopus -logg -lGL -lX11 -lnotify -lgdk_pixbuf-2.0

DDraceNetwork 15.2.3

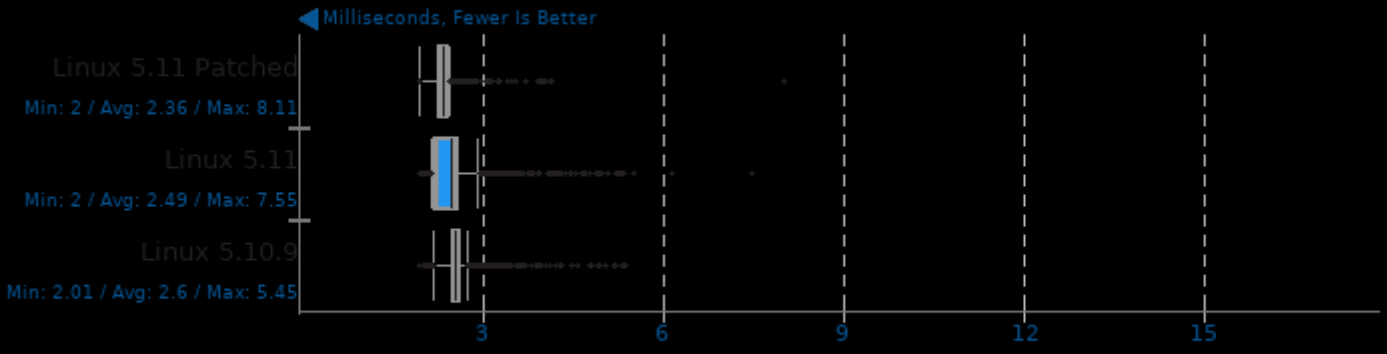
Resolution: 3840 x 2160 - Mode: Fullscreen - Renderer: OpenGL 3.3 - Zoom: Default - Demo: Multeasymap



1. (CXX) g++ options: -O3 -rdynamic -lcrypto -lz -lrt -lpthread -lcurl -lfreetype -lSDL2 -lwavpack -lopusfile -lopus -logg -lGL -lX11 -lnotify -lgdk_pixbuf-2.0 -

DDraceNetwork 15.2.3

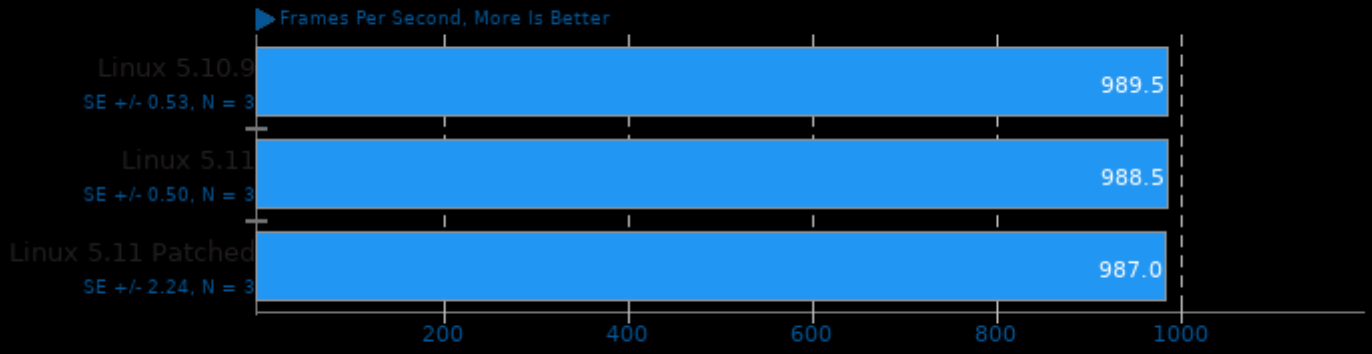
Resolution: 3840 x 2160 - Mode: Fullscreen - Renderer: OpenGL 3.3 - Zoom: Default - Demo: Multeasymap - Total Frame Time



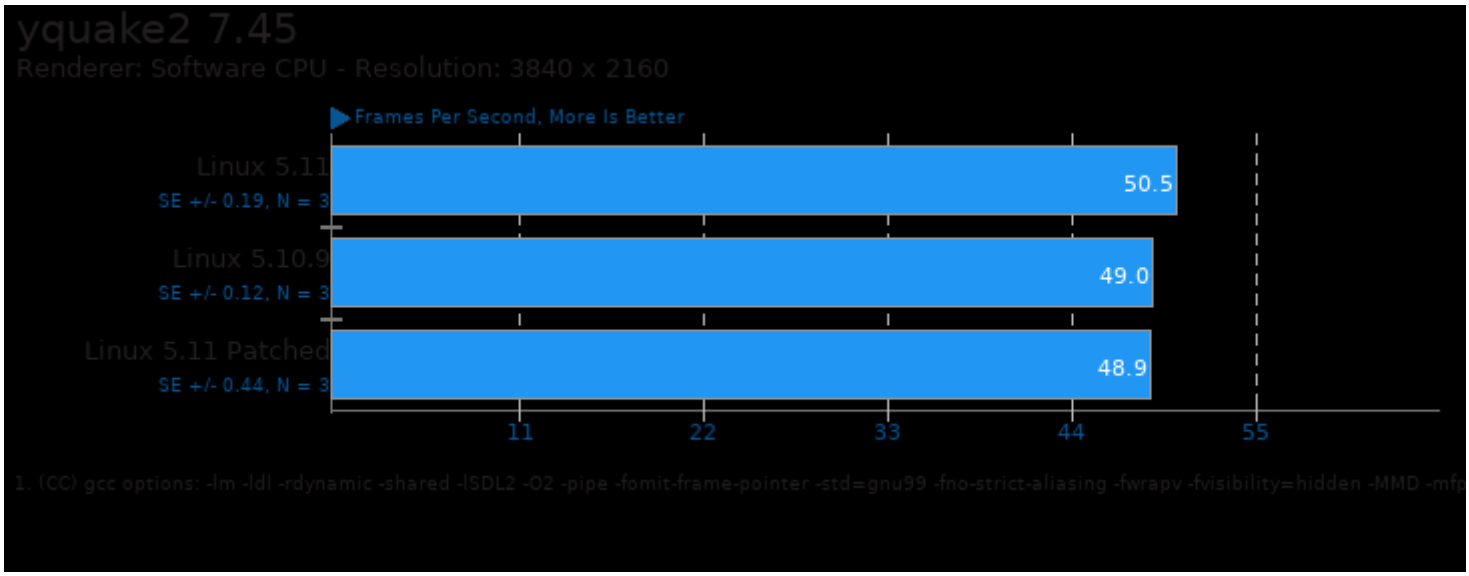
1. (CXX) g++ options: -O3 -rdynamic -lcrypto -lz -lrt -lpthread -lcurl -lfreetype -lSDL2 -lwavpack -lopusfile -lopus -logg -lGL -lX11 -lnotify -lgdk_pixbuf-2.0 -

yquake2 7.45

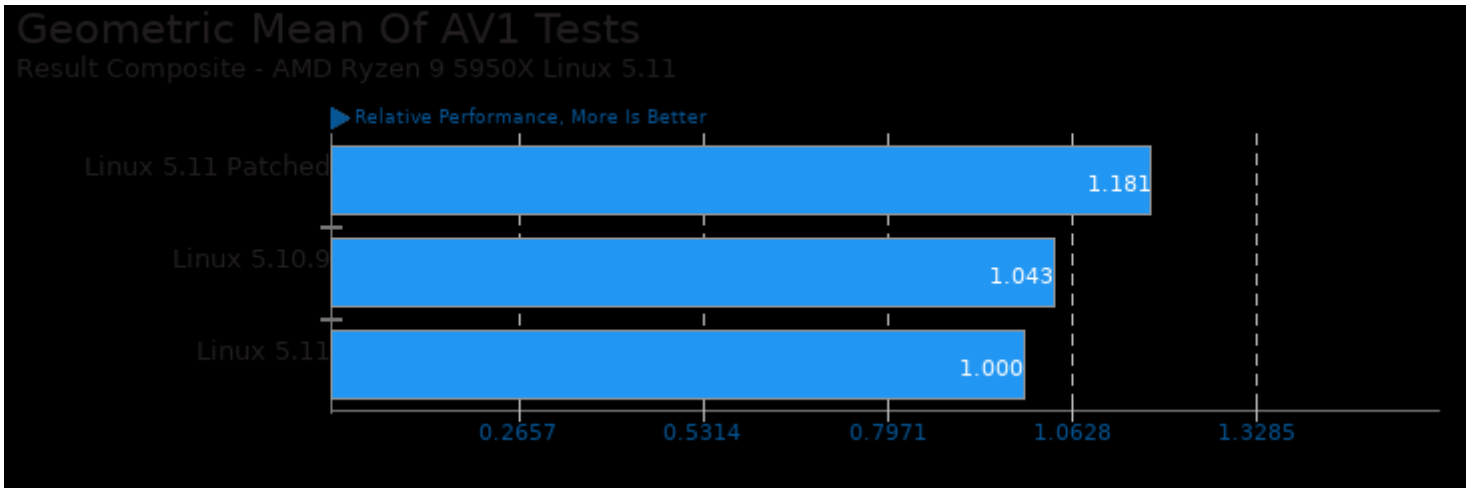
Renderer: OpenGL 3.x - Resolution: 3840 x 2160



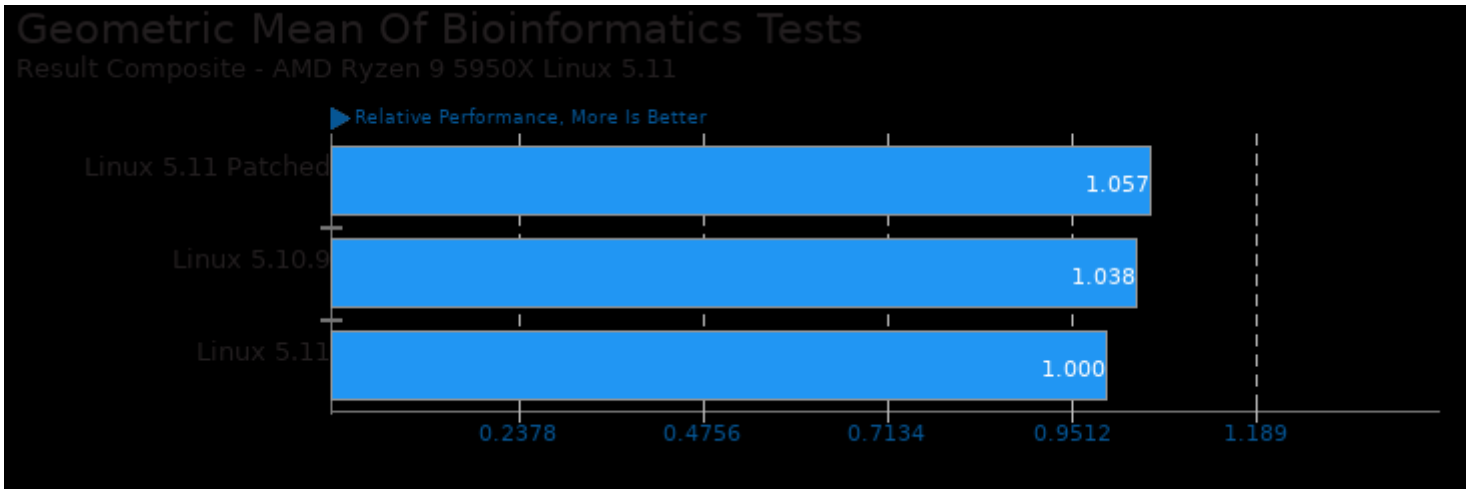
1. (CC) gcc options: -lm -ldl -rdynamic -shared -lSDL2 -O2 -pipe -fomit-frame-pointer -std=gnu99 -fno-strict-aliasing -fwrapv -fvisibility=hidden -MMD -mf


yquake2 7.45
Renderer: Software CPU - Resolution: 3840 x 2160
Frames Per Second, More Is Better
Linux 5.11
SE +/- 0.19, N = 3
50.5
Linux 5.10.9
SE +/- 0.12, N = 3
49.0
Linux 5.11 Patched
SE +/- 0.44, N = 3
48.9
11
22
33
44
55
1. (CC) gcc options: -lm -ldl -rdynamic -shared -lSDL2 -O2 -pipe -fomit-frame-pointer -std=gnu99 -fno-strict-aliasing -fwrapv -fvisibility=hidden -MMD -mf

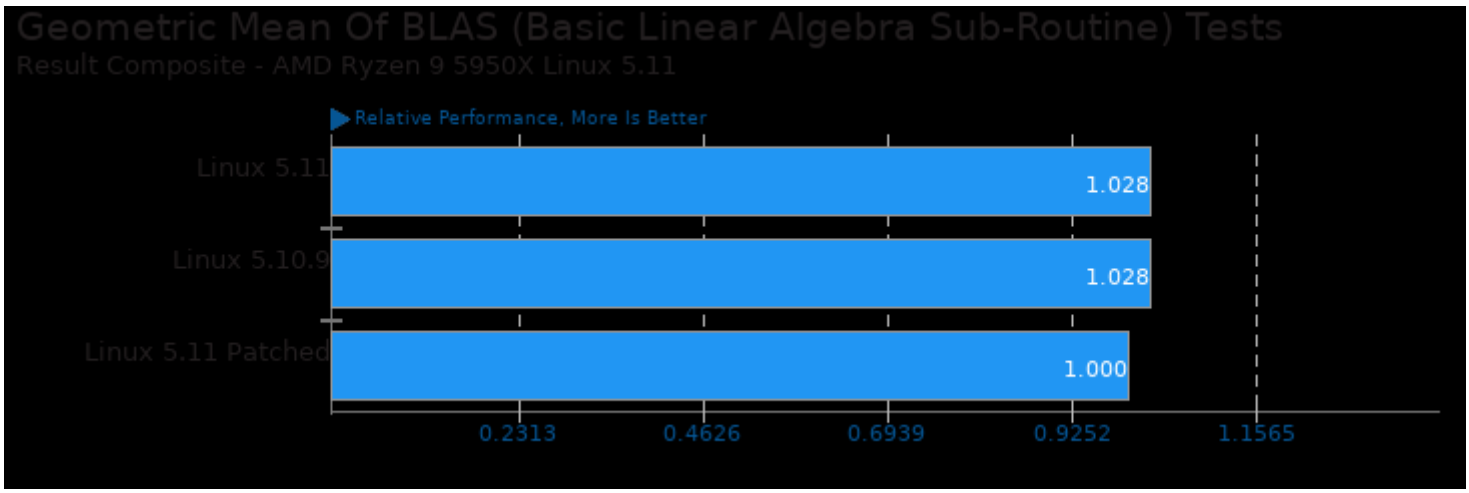
These geometric means are based upon test groupings / test suites for this result file.



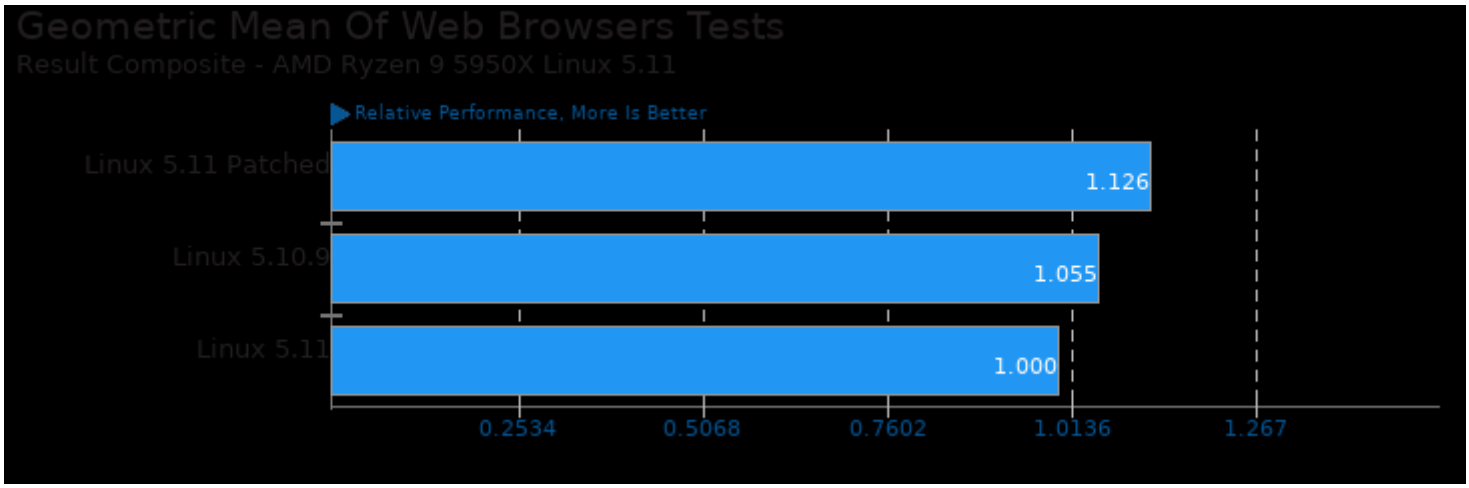
Geometric mean based upon tests: pts/dav1d, pts/aom-av1, pts/svt-av1, pts/rav1e and pts/avifenc



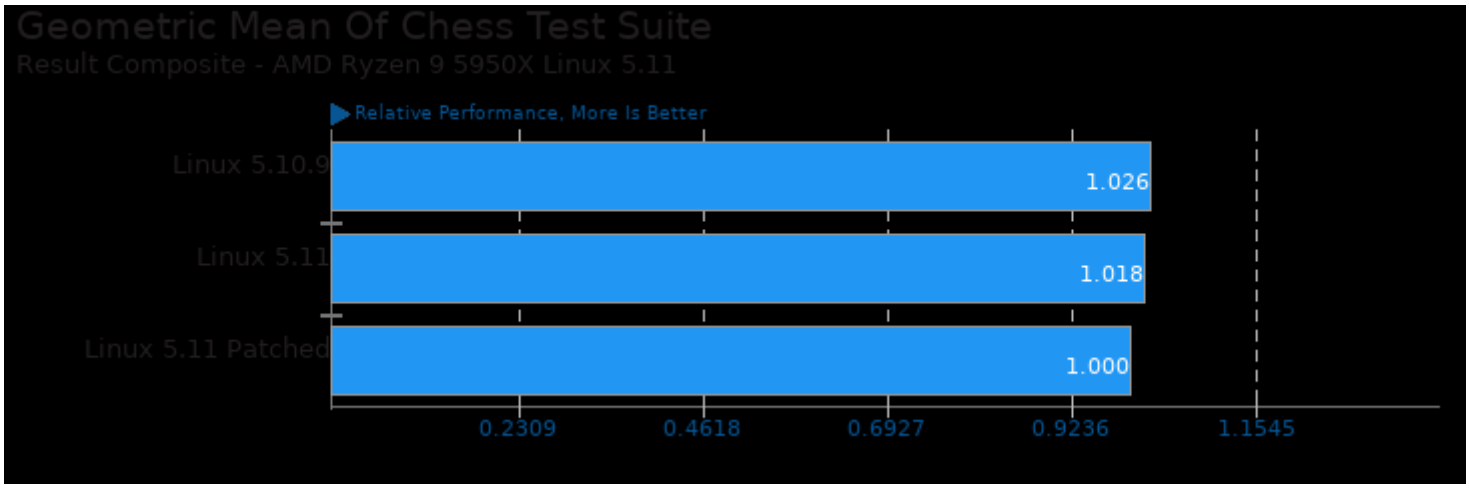
Geometric mean based upon tests: pts/himeno, pts/mrbayes and pts/mafft



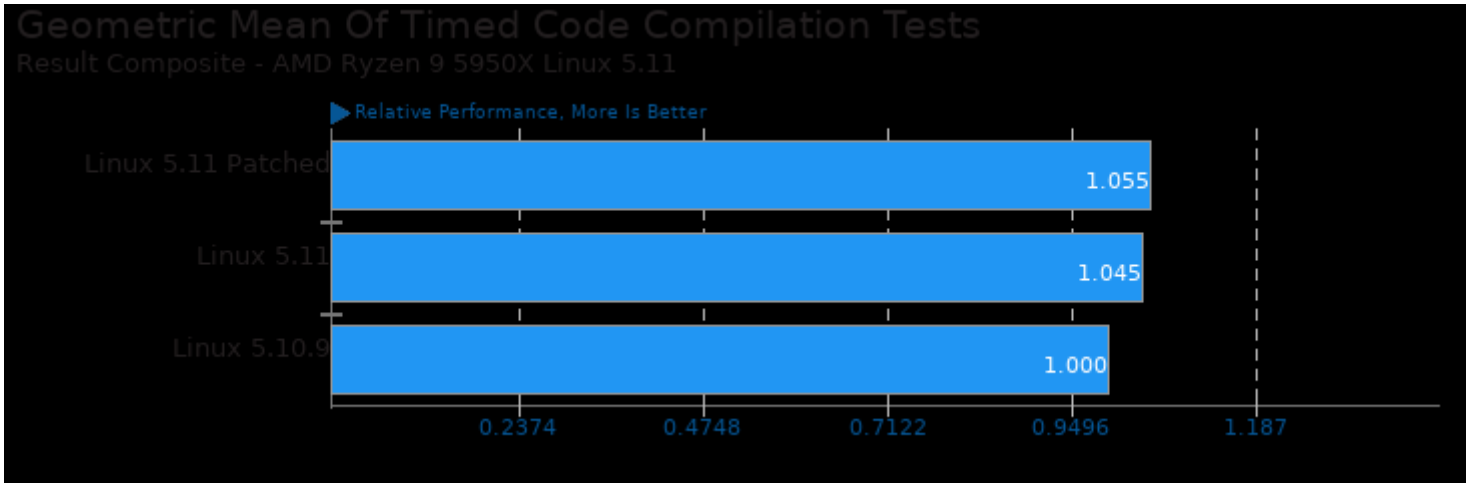
Geometric mean based upon tests: pts/lczero and pts/gpaw



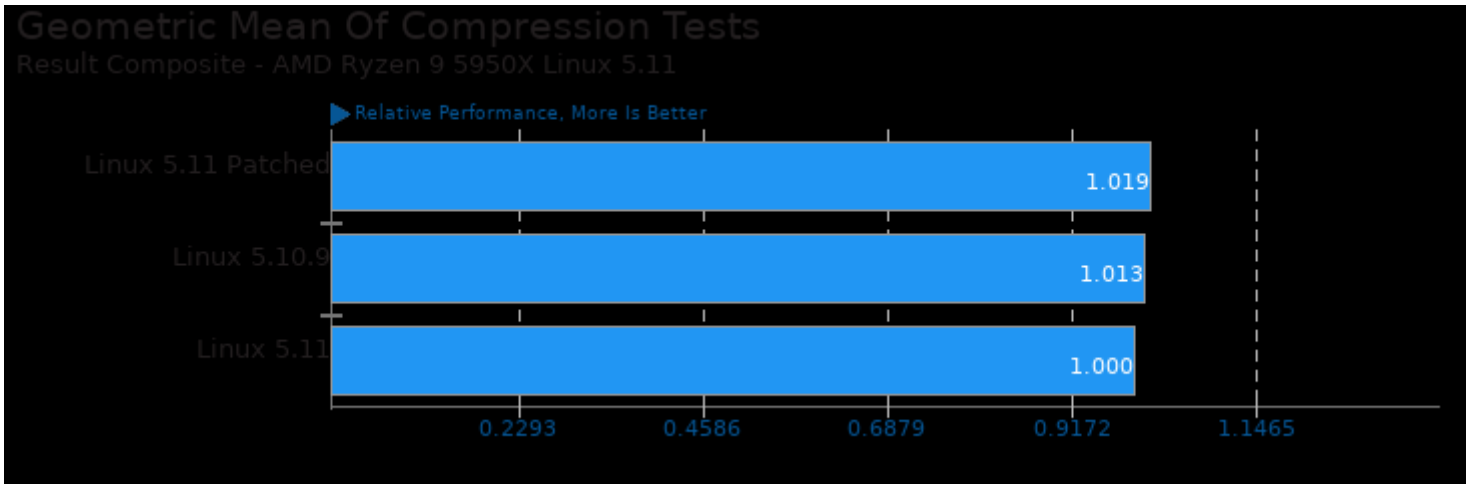
Geometric mean based upon tests: system/selenium



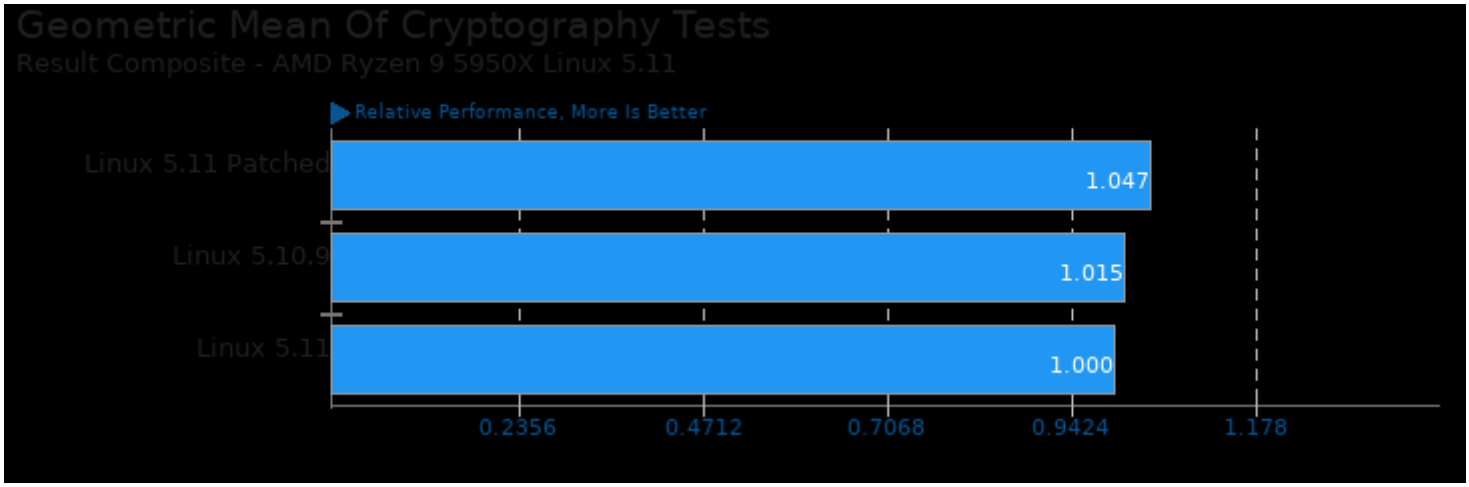
Geometric mean based upon tests: pts/crafty, pts/lczero, pts/stockfish and pts/asmfish



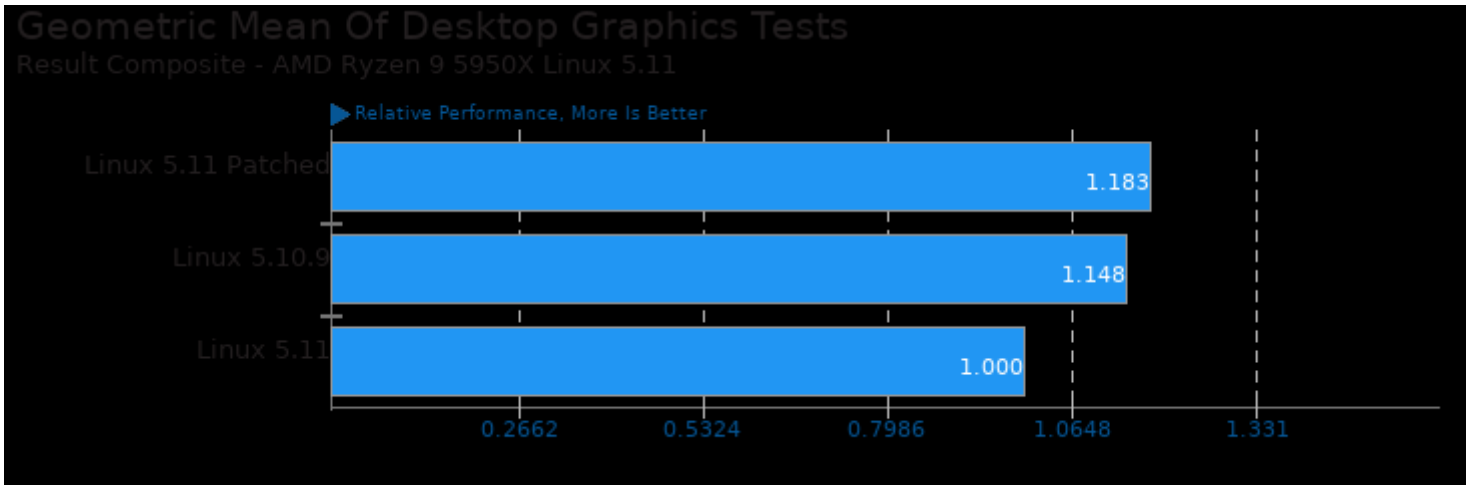
Geometric mean based upon tests: pts/build-linux-kernel, pts/build-gdb, pts/build2 and pts/build-godot



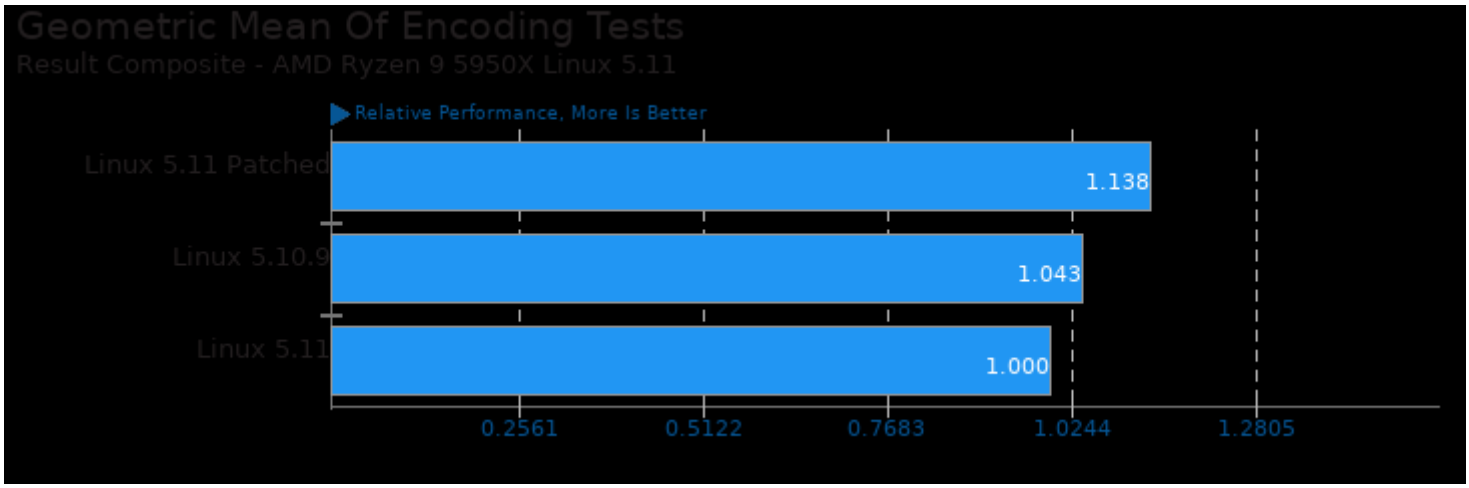
Geometric mean based upon tests: pts/compress-7zip, pts/compress-zstd, pts/compress-lz4, pts/compress-xz and pts/blosc



Geometric mean based upon tests: pts/blake2, pts/john-the-ripper, pts/aircrack-ng and pts/cpuminer-opt



Geometric mean based upon tests: pts/xonotic, pts/tesseract, pts/paraview and pts/glmark2



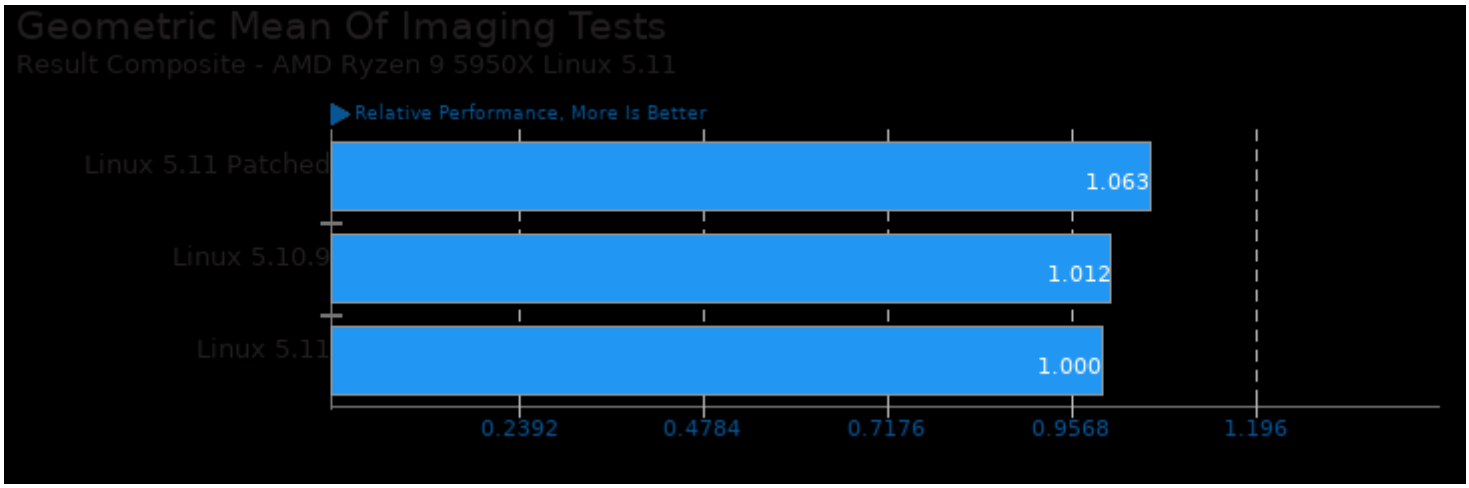
Geometric mean based upon tests: pts/encode-flac, pts/svt-vp9, pts/x264, pts/x265, pts/kvazaar, pts/ffmpeg, pts/dav1d, pts/aom-av1, pts/svt-av1, pts/rav1e and pts/avifenc



Geometric mean based upon tests: pts/hpcg, pts/npb, pts/cloverleaf, pts/dolfyn, pts/ffte and pts/incompact3d



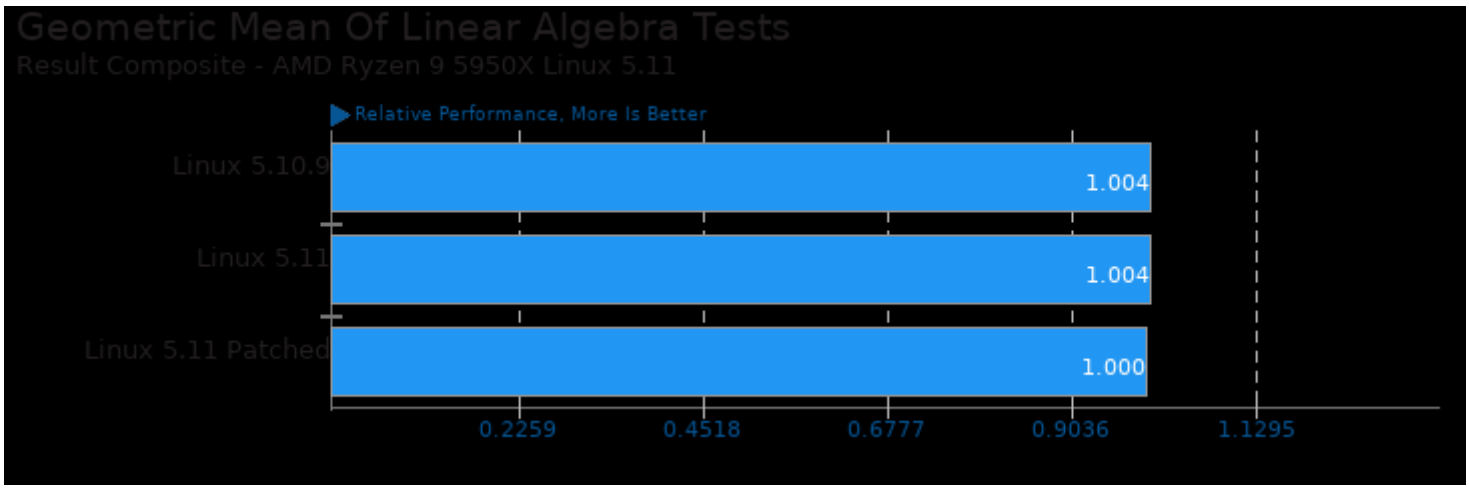
Geometric mean based upon tests: pts/astcenc and pts/build-godot



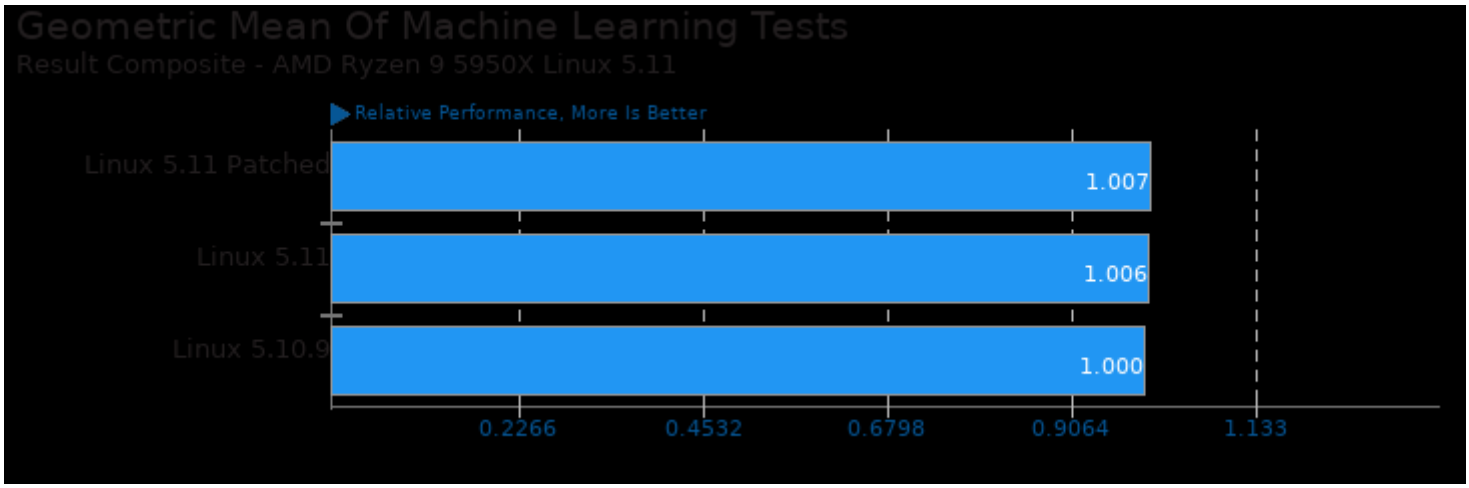
Geometric mean based upon tests: pts/libraw, pts/webp, system/gimp, system/hugin, system/gegl and pts/avifenc



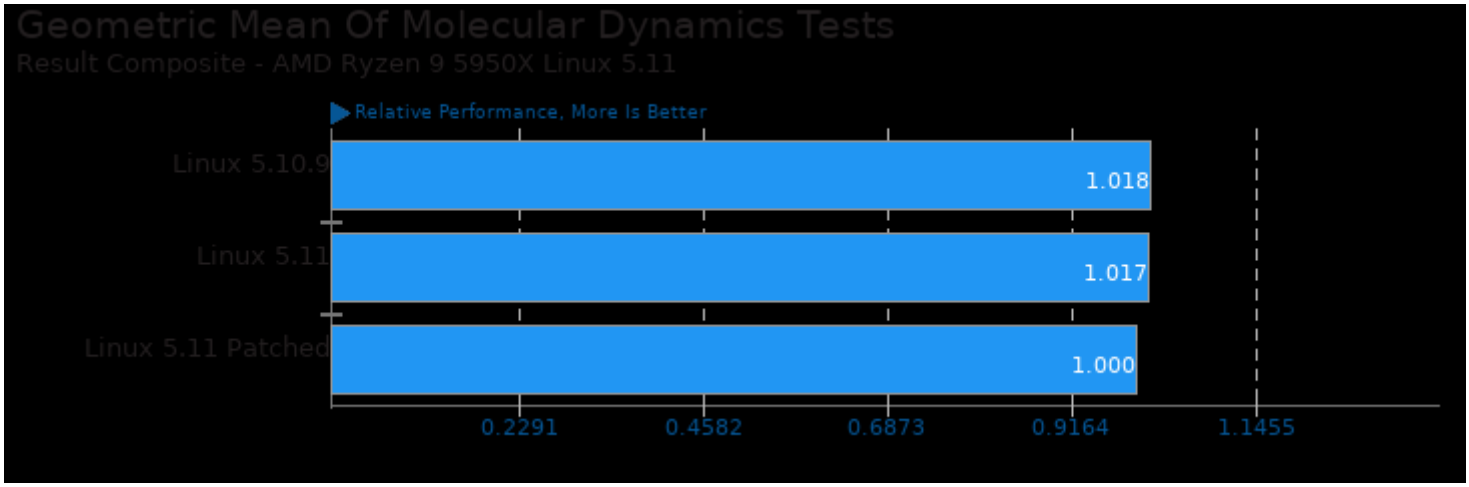
Geometric mean based upon tests: pts/dacapobench and pts/renaissance



Geometric mean based upon tests: pts/mt-dgemm and pts/amg



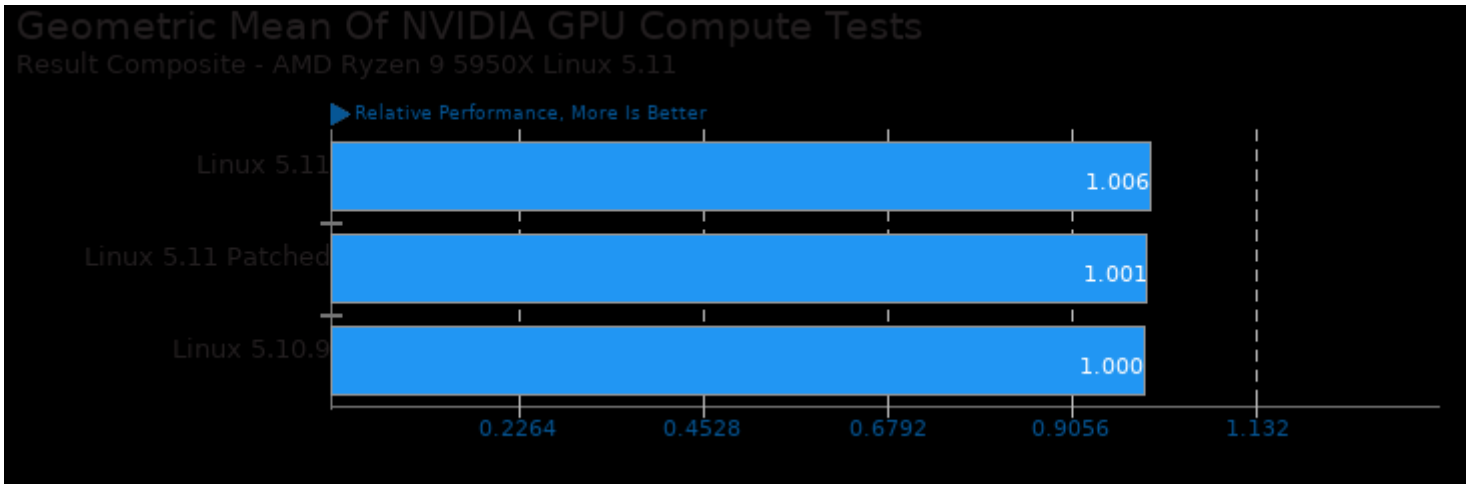
Geometric mean based upon tests: pts/mnn, pts/ncnn, pts/tnn, pts/ai-benchmark, pts/deepspeech, pts/rnnoise, pts/tensorflow-lite, pts/onednn, pts/plaidml and pts/lczero



Geometric mean based upon tests: pts/namd, pts/gromacs, pts/cp2k, pts/dolfyn, pts/cloverleaf and pts/incompact3d



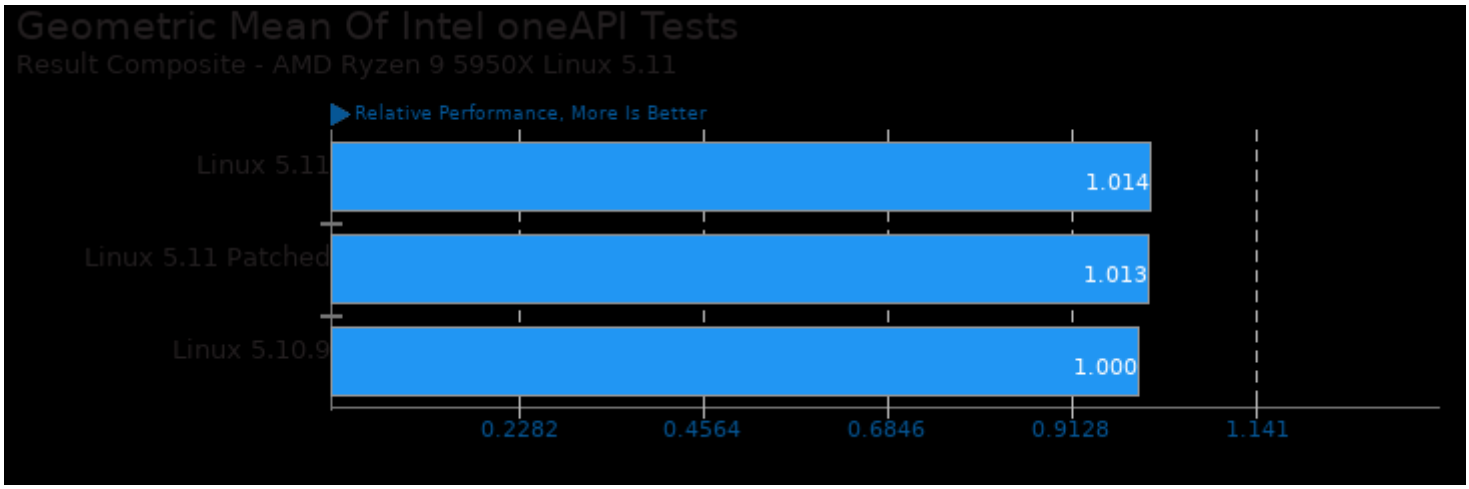
Geometric mean based upon tests: pts/askap, pts/incompact3d, pts/gpaw, pts/gromacs, pts/hpcg, pts/mrbayes and pts/npb



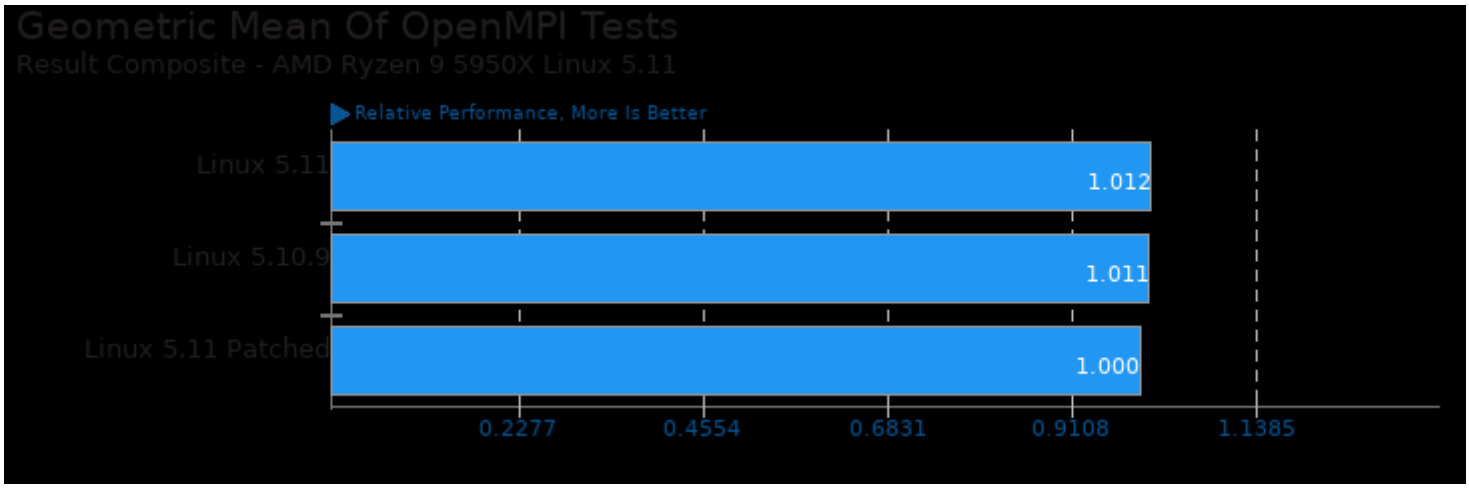
Geometric mean based upon tests: pts/gromacs, pts/neatbench, pts/financebench, pts/plaidml, pts/lczero, pts/indigobench, pts/v-ray and pts/ncnn



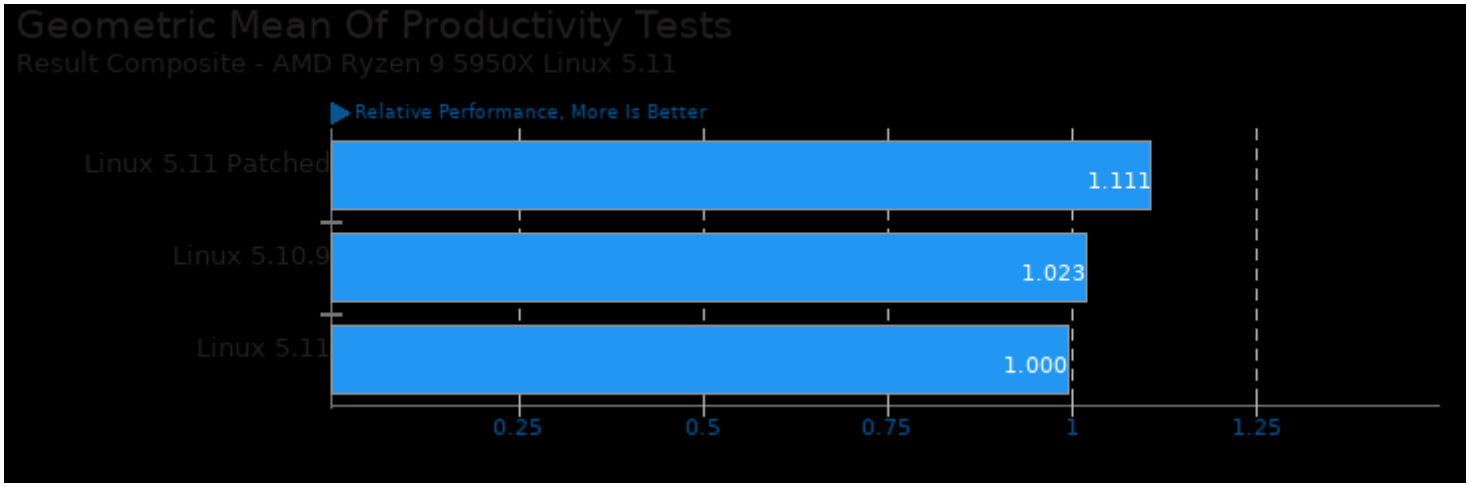
Geometric mean based upon tests: system/tesseract-ocr and system/ocrmypdf



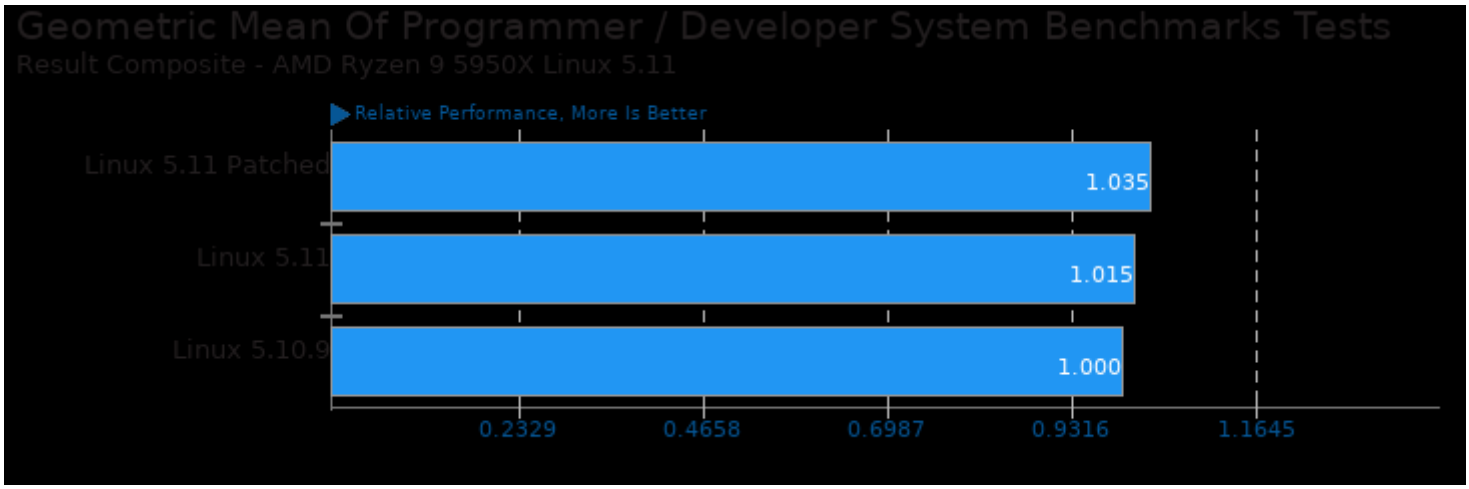
Geometric mean based upon tests: pts/embree, pts/onednn and pts/ospray



Geometric mean based upon tests: pts/hpcg, pts/npb, pts/cloverleaf, pts/cp2k, pts/amg, pts/mrbayes, pts/incompact3d, pts/gromacs, pts/gpaw and pts/askap



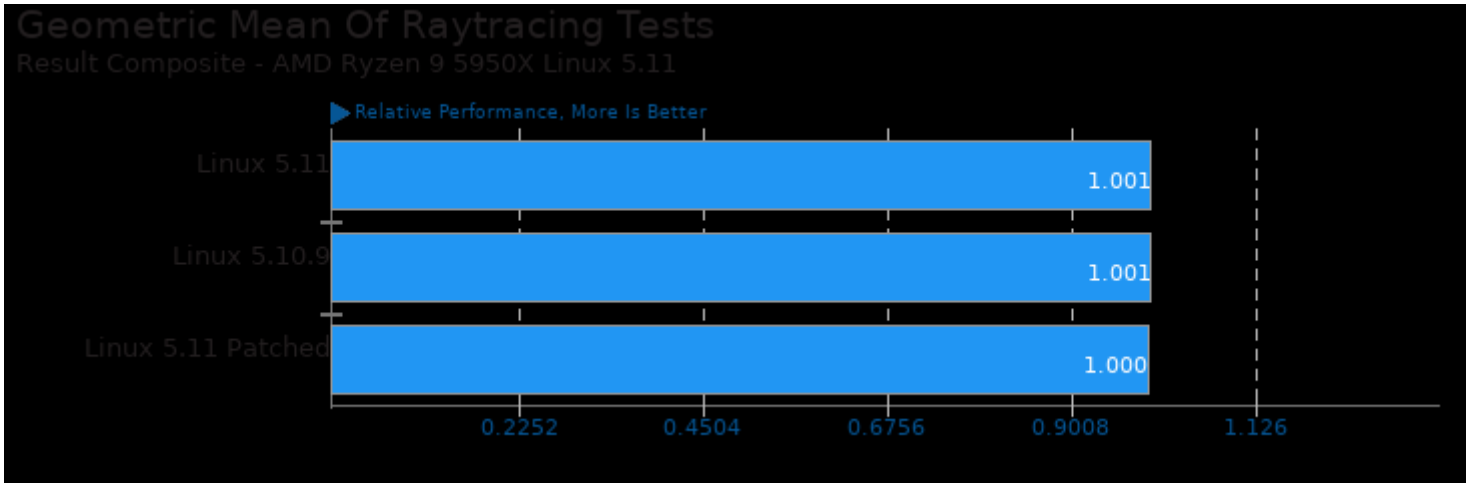
Geometric mean based upon tests: system/gimp and system/gegl



Geometric mean based upon tests: pts/node-web-tooling, pts/git, pts/blosc, pts/compress-zstd, pts/build-linux-kernel, pts/build-gdb, pts/build2, pts/build-godot, pts/mt-dgemm and pts/amg



Geometric mean based upon tests: pts/build-godot, pts/yafaray, system/ocrmypdf, pts/gpaw, pts/plaidml, pts/ai-benchmark, system/selenium, pts/glmark2 and pts/paraview



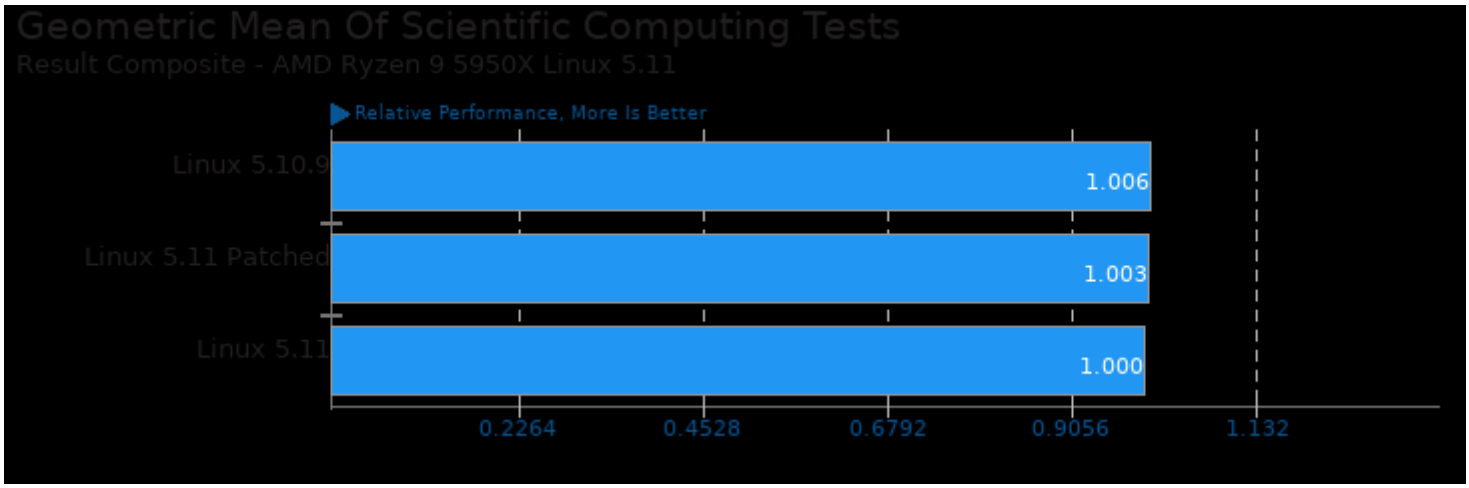
Geometric mean based upon tests: pts/ospray, pts/c-ray, pts/tachyon and pts/yafaray



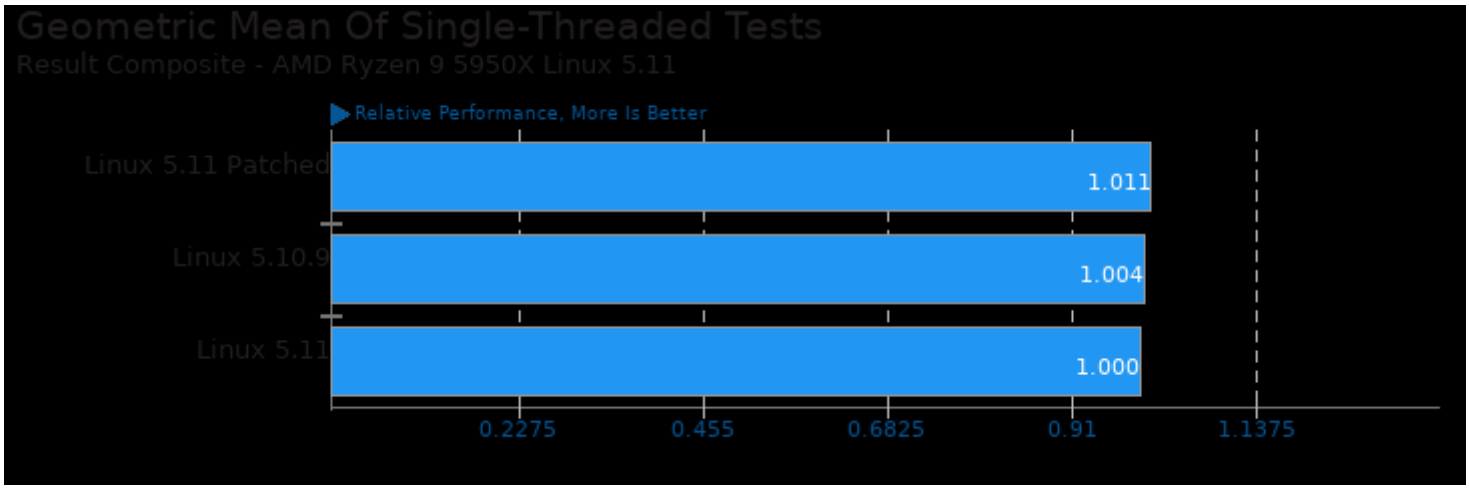
Geometric mean based upon tests: pts/ospray, pts/c-ray, pts/tachyon, pts/yafaray, pts/appleseed, pts/radiance, pts/aobench, pts/smallpt, pts/ttsiod-renderer, pts/v-ray and pts/indigobench



Geometric mean based upon tests: pts/rav1e, pts/rust-mandel and pts/rust-prime



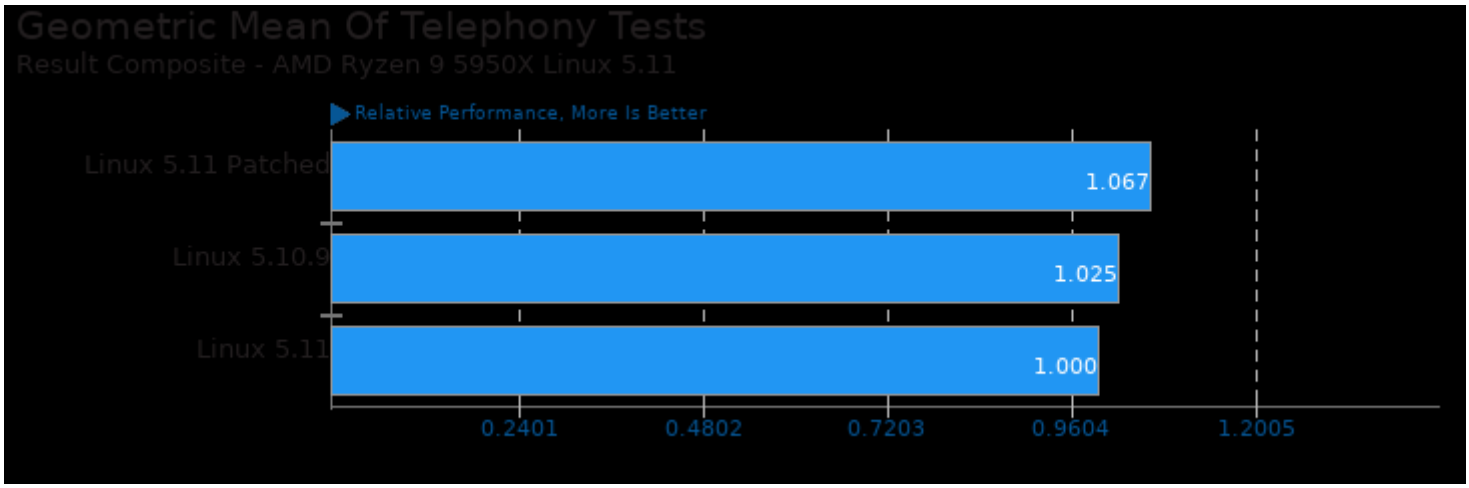
Geometric mean based upon tests: pts/ffte, pts/mt-dgemm, pts/amg, pts/namd, pts/gromacs, pts/cp2k, pts/dolfyn, pts/cloverleaf, pts/incompact3d, pts/himeno, pts/mrbayes, pts/mafft, pts/gpaw and pts/kripke



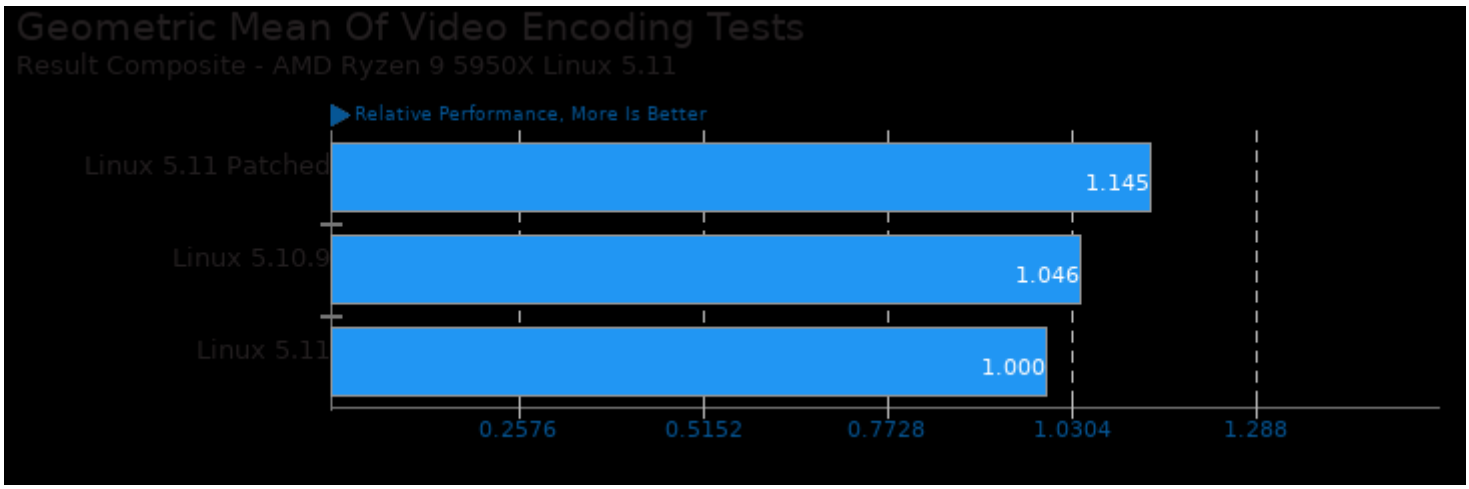
Geometric mean based upon tests: pts/blake2, pts/swet, pts/deepspeech, pts/encode-flac, pts/radiance, pts/git and system/tesseract-ocr



Geometric mean based upon tests: pts/deepspeech and pts/rnnoise



Geometric mean based upon tests: pts/deepspeech and pts/rnnoise



Geometric mean based upon tests: pts/svt-vp9, pts/x264, pts/x265, pts/kvazaar, pts/ffmpeg, pts/dav1d, pts/aom-av1, pts/svt-av1, pts/rav1e and pts/avifenc

AMD Ryzen 9 5950X Linux 5.11



Geometric mean based upon tests: pts/himeno, pts/x265, pts/paraview, pts/swet, pts/sysbench and pts/git

This file was automatically generated via the Phoronix Test Suite benchmarking software on Friday, 29 March 2024 10:11.