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Xeon Gold Cascade Lake Refresh LTS Linux Benchmarks

Intel Xeon Gold 6226R testing with a Supermicro X11SPL-F v1.02 (3.1 BIOS) and ASPEED on Ubuntu 20.10 via the Phoronix Test Suite.

Automated Executive Summary

Linux 5.15.83 had the most wins, coming in first place for 41% of the tests.

Based on the geometric mean of all complete results, the fastest (Linux 5.15.83) was 1.011x the speed of the slowest (Linux 6.1). Linux 5.10.130 was 0.995x the speed of Linux 5.15.83 and Linux 6.1 was 0.995x the speed of Linux 5.10.130.

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

Stress-NG (Test: Context Switching) at 2.677x
Stress-NG (Test: System V Message Passing) at 2.295x
Stress-NG (Test: MEMFD) at 1.51x
Stress-NG (Test: Malloc) at 1.4x
Stress-NG (Test: NUMA) at 1.395x
ctx_clock (Context Switch Time) at 1.299x
PostgreSQL (Scaling Factor: 100 - Clients: 500 - Mode: Read Only) at 1.262x
PostgreSQL (Scaling Factor: 100 - Clients: 500 - Mode: Read Only - Average Latency) at 1.262x

Stress-NG (Test: MMAP) at 1.258x
Stress-NG (Test: Mutex) at 1.222x.

Test Systems:

Linux 5.10.130

Processor: Intel Xeon Gold 6226R @ 3.90GHz (16 Cores / 32 Threads), Motherboard: Supermicro X11SPL-F v1.02 (3.1 BIOS), Chipset: Intel Sky Lake-E DMI3 Registers, Memory: 192GB, Disk: 280GB INTEL SSDPED1D280GA, Graphics: ASPEED, Monitor: VE228, Network: 2 x Intel I210

OS: Ubuntu 20.10, Kernel: 5.10.130-0510130-generic (x86_64), Desktop: GNOME Shell 3.38.1, Display Server: X Server 1.20.9, Compiler: GCC 10.3.0, File-System: ext4, Screen Resolution: 1920x1080

Kernel Notes: Transparent Huge Pages: madvise
Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,m2 --enable-libphobos-checking=release --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-link-mutex --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-10-poYruo/gcc-10-10.3.0/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-10-poYruo/gcc-10-10.3.0/debian/tmp-gcn/usr,hsa --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-build-config=bootstrap-lto-lean --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: intel_cpufreq performance - CPU Microcode: 0x5003102
Python Notes: Python 3.8.10
Security Notes: itlb_multihit: KVM: Mitigation of VMX disabled + l1tf: Not affected + mds: Not affected + meltdown: Not affected + mmio_stale_data: Vulnerable: Clear buffers attempted no microcode; SMT vulnerable + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Vulnerable: eIBRS with unprivileged eBPF + srbds: Not affected + tsx_async_abort: Mitigation of TSX disabled

Linux 5.15.83

Processor: Intel Xeon Gold 6226R @ 3.90GHz (16 Cores / 32 Threads), Motherboard: Supermicro X11SPL-F v1.02 (3.1 BIOS), Chipset: Intel Sky Lake-E DMI3 Registers, Memory: 192GB, Disk: 280GB INTEL SSDPED1D280GA, Graphics: ASPEED, Monitor: VE228, Network: 2 x Intel I210

OS: Ubuntu 20.10, Kernel: 5.15.83-051583-generic (x86_64), Desktop: GNOME Shell 3.38.1, Display Server: X Server 1.20.9, Compiler: GCC 10.3.0, File-System: ext4, Screen Resolution: 1920x1080

Kernel Notes: Transparent Huge Pages: madvise
Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,m2 --enable-libphobos-checking=release --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-link-mutex --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-10-poYruo/gcc-10-10.3.0/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-10-poYruo/gcc-10-10.3.0/debian/tmp-gcn/usr,hsa --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-build-config=bootstrap-lto-lean --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: intel_cpufreq performance - CPU Microcode: 0x5003102
Python Notes: Python 3.8.10
Security Notes: itlb_multihit: KVM: Mitigation of VMX disabled + l1tf: Not affected + mds: Not affected + meltdown: Not affected + mmio_stale_data: Vulnerable: Clear buffers attempted no microcode; SMT vulnerable + retbleed: Mitigation of Enhanced IBRS + 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 Enhanced IBRS IBPB: conditional RSB filling PBRSB-eIBRS: SW sequence + srbds: Not affected + tsx_async_abort: Mitigation of TSX disabled

Linux 6.1

Processor: Intel Xeon Gold 6226R @ 3.90GHz (16 Cores / 32 Threads), Motherboard: Supermicro X11SPL-F v1.02 (3.1 BIOS), Chipset: Intel Sky Lake-E DMI3 Registers, Memory: 192GB, Disk: 280GB INTEL SSDPED1D280GA, Graphics:

ASPEED, Monitor: VE228, Network: 2 x Intel I210

OS: Ubuntu 20.10, Kernel: 6.1.0-phx (x86_64), Desktop: GNOME Shell 3.38.1, Display Server: X Server 1.20.9, Compiler: GCC 10.3.0, File-System: ext4, Screen Resolution: 1920x1080

Kernel Notes: Transparent Huge Pages: madvise
Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,m2 --enable-libphobos-checking=release --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-link-mutex --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-10-poYruo/gcc-10-10.3.0/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-10-poYruo/gcc-10-10.3.0/debian/tmp-gcn/usr,hsa --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-build-config=bootstrap-lto-lean --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: intel_cpufreq performance - CPU Microcode: 0x5003102
Python Notes: Python 3.8.10
Security Notes: itlb_multihit: KVM: Mitigation of VMX disabled + l1tf: Not affected + mds: Not affected + meltdown: Not affected + mmio_stale_data: Vulnerable: Clear buffers attempted no microcode; SMT vulnerable + retbleed: Mitigation of Enhanced IBRS + spec_store_bypass: Mitigation of SSB disabled via prctl + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Enhanced IBRS IBPB: conditional RSB filling PBRSB-eIBRS: SW sequence + srbds: Not affected + tsx_async_abort: Mitigation of TSX disabled

	Linux 5.10.130	Linux 5.15.83	Linux 6.1
7-Zip Compression - Compression Rating (MIPS)	**106357**	**108058**	106968
Normalized	98.43%	100%	98.99%
Standard Deviation	0.2%	0.6%	0.9%
7-Zip Compression - D.R (MIPS)	**86432**	**86735**	86680
Normalized	99.65%	100%	99.94%
Standard Deviation	0.5%	0.3%	0.5%
Aircrack-ng (k/s)	**50606**	50608	**50609**
Normalized	99.99%	100%	100%
Standard Deviation	0.4%	0.4%	0.5%
AOM AV1 - Speed 6 Two-Pass - Bosphorus 4K (FPS)	11.70	**11.77**	**11.65**
Normalized	99.41%	100%	98.98%
Standard Deviation	0.3%	0.3%	0.4%
AOM AV1 - Speed 8 Realtime - Bosphorus 4K (FPS)	**37.88**	37.86	**36.10**
Normalized	100%	99.95%	95.3%
Standard Deviation	0.4%	0.9%	0.4%
AOM AV1 - Speed 9 Realtime - Bosphorus 4K (FPS)	**48.05**	47.66	**45.41**
Normalized	100%	99.19%	94.51%
Standard Deviation	0.2%	0.5%	0.4%
AOM AV1 - Speed 10 Realtime - Bosphorus 4K (FPS)	**48.34**	48.33	**45.97**
Normalized	100%	99.98%	95.1%
Standard Deviation	0.4%	0.7%	0.5%
ASTC Encoder - Fast (MT/s)	**193.1315**	193.0244	**192.9917**
Normalized	100%	99.94%	99.93%
Standard Deviation	0%	0%	0%
ASTC Encoder - Medium (MT/s)	**72.1595**	72.1219	**72.0972**
Normalized	100%	99.95%	99.91%
Standard Deviation	0%	0.1%	0.1%

ASTC Encoder - Thorough (MT/s)	9.3225	**9.3267**	**9.3103**
Normalized	99.95%	100%	99.82%
Standard Deviation	0%	0.1%	0.2%
ASTC Encoder - Exhaustive (MT/s)	0.9371	**0.9375**	**0.9368**
Normalized	99.96%	100%	99.93%
Standard Deviation	0%	0%	0.1%
Blender - BMW27 - CPU-Only (sec)	**106.13**	106.38	**106.46**
Normalized	100%	99.76%	99.69%
Standard Deviation	0.1%	0.1%	0%
Blender - Classroom - CPU-Only (sec)	318.28	**317.07**	**318.71**
Normalized	99.62%	100%	99.49%
Standard Deviation	0.2%	0.1%	0.3%
Blender - Fishy Cat - CPU-Only (sec)	**144.25**	**144.34**	144.29
Normalized	100%	99.94%	99.97%
Standard Deviation	0.1%	0.4%	0.1%
Blender - Barbershop - CPU-Only (sec)	**1146**	**1145**	1145
Normalized	99.91%	100%	99.97%
Standard Deviation	0.1%	0%	0.1%
Blender - Pabellon Barcelona - CPU-Only	373.74	**373.54**	**374.17**
Normalized	99.95%	100%	99.83%
Standard Deviation	0.2%	0.1%	0.2%
BRL-CAD - V.P.M (VGR Performance Metric)	167771	**166852**	**168334**
Normalized	99.67%	99.12%	100%
C-Blosc - blosclz shuffle (MB/s)	**15238**	**15999**	15256
Normalized	95.25%	100%	95.36%
Standard Deviation	0.7%	0.6%	0.3%
C-Blosc - blosclz bitshuffle (MB/s)	**10159**	**10556**	10161
Normalized	96.24%	100%	96.26%
Standard Deviation	0.3%	0.2%	0.4%
ClickHouse - 1.R.W.A.D.F.R.C.C (Queries/min, Geo Mean)	**205.76**	204.26	**198.51**
Normalized	100%	99.27%	96.48%
Standard Deviation	2.9%	2.9%	0.8%
ClickHouse - 1.R.W.A.D.S.R (Queries/min, Geo Mean)	**212.60**	209.58	**204.43**
Normalized	100%	98.58%	96.16%
Standard Deviation	1.6%	2.2%	3.6%
ClickHouse - 1.R.W.A.D.T.R (Queries/min, Geo Mean)	**212.42**	**215.02**	212.92
Normalized	98.79%	100%	99.02%
Standard Deviation	1.8%	1.4%	0.9%
Cpuminer-Opt - Magi (kH/s)	**374.94**	373.55	**373.45**
Normalized	100%	99.63%	99.6%
Standard Deviation	2.2%	1.9%	2.2%
Cpuminer-Opt - x25x (kH/s)	640.06	**641.61**	**638.64**
Normalized	99.76%	100%	99.54%
Standard Deviation	0.1%	0.4%	0.1%
Cpuminer-Opt - scrypt (kH/s)	**491.90**	**489.83**	491.85
Normalized	100%	99.58%	99.99%
Standard Deviation	1.4%	1.9%	0.9%
Cpuminer-Opt - Deepcoin (kH/s)	14497	**14500**	**14420**
Normalized	99.98%	100%	99.45%
Standard Deviation	0.6%	0.6%	
Cpuminer-Opt - Ringcoin (kH/s)	**2833**	2812	**2801**
Normalized	100%	99.27%	98.85%

Standard Deviation	1.7%	0%	0.1%
Cpuminer-Opt - Blake-2 S (kH/s)	1149103	**1150583**	**1137550**
Normalized	99.87%	100%	98.87%
Standard Deviation	1%	1.6%	0.5%
Cpuminer-Opt - Garlicoin (kH/s)	6573	**6594**	**6572**
Normalized	99.68%	100%	99.66%
Standard Deviation	0.1%	0.3%	0.1%
Cpuminer-Opt - Skeincoin (kH/s)	**135103**	134833	**134320**
Normalized	100%	99.8%	99.42%
Standard Deviation	0.2%	0%	0.4%
Cpuminer-Opt - Myriad-Groestl (kH/s)	**17363**	**17610**	17477
Normalized	98.6%	100%	99.24%
Standard Deviation	2.9%	1.8%	1.3%
Cpuminer-Opt - LBC, LBRY Credits (kH/s)	**96820**	96663	**96010**
Normalized	100%	99.84%	99.16%
Standard Deviation	1.2%	0.3%	1.1%
Cpuminer-Opt - Q.S.2.P (kH/s)	**218830**	218493	**217237**
Normalized	100%	99.85%	99.27%
Standard Deviation	0.6%	0%	0.2%
Cpuminer-Opt - T.S.2.O (kH/s)	**315913**	**313917**	315723
Normalized	100%	99.37%	99.94%
Standard Deviation	1.4%	0.4%	1.2%
ctx_clock - C.S.T (Clocks)	**154**	179	**200**
Normalized	100%	86.03%	77%
Standard Deviation		0.6%	
Dragonflydb - 50 - 1:1 (Ops/sec)	**978963**	1123954	**1130454**
Normalized	86.6%	99.42%	100%
Standard Deviation	7.2%	0.1%	0.2%
Dragonflydb - 50 - 1:5 (Ops/sec)	**1047699**	**1186278**	1180450
Normalized	88.32%	100%	99.51%
Standard Deviation	0.1%	0.2%	0.2%
Dragonflydb - 50 - 5:1 (Ops/sec)	**989149**	1068663	**1074996**
Normalized	92.01%	99.41%	100%
Standard Deviation	1.4%	0.6%	0.1%
Dragonflydb - 200 - 1:1 (Ops/sec)	**971725**	**1060251**	1046604
Normalized	91.65%	100%	98.71%
Standard Deviation	0.3%	0.2%	1%
Dragonflydb - 200 - 1:5 (Ops/sec)	**1021149**	**1117322**	1099078
Normalized	91.39%	100%	98.37%
Standard Deviation	0.1%	0.6%	0.1%
Dragonflydb - 200 - 5:1 (Ops/sec)	**918617**	**993338**	979549
Normalized	92.48%	100%	98.61%
Standard Deviation	0.8%	0.1%	0.3%
EnCodec - 3 kbps (sec)	29.141	**28.660**	**30.426**
Normalized	98.35%	100%	94.2%
Standard Deviation	1.2%	2.9%	2.8%
EnCodec - 6 kbps (sec)	**29.495**	29.530	**32.017**
Normalized	100%	99.88%	92.12%
Standard Deviation	0.6%	0.7%	0.5%
EnCodec - 24 kbps (sec)	34.162	**33.917**	**36.321**
Normalized	99.28%	100%	93.38%
Standard Deviation	0.1%	1%	0.6%
EnCodec - 1.5 kbps (sec)	**28.208**	28.349	**30.493**
Normalized	100%	99.5%	92.51%
Standard Deviation	2.9%	2%	2.9%

Facebook RocksDB - Rand Fill (Op/s)	**983199**	982848	**935285**
Normalized	100%	99.96%	95.13%
Standard Deviation	1.9%	2.1%	0.5%
Facebook RocksDB - Rand Read (Op/s)	**65094239**	65233649	**65337175**
Normalized	99.63%	99.84%	100%
Standard Deviation	1.5%	0.4%	1%
Facebook RocksDB - Update Rand (Op/s)	**625695**	616626	**594485**
Normalized	100%	98.55%	95.01%
Standard Deviation	1%	0.3%	0.6%
Facebook RocksDB - Seq Fill (Op/s)	**1204255**	1193837	**1134991**
Normalized	100%	99.13%	94.25%
Standard Deviation	1.5%	0.5%	1.8%
Facebook RocksDB - Rand Fill Sync (Op/s)	**216464**	**234969**	218454
Normalized	92.12%	100%	92.97%
Standard Deviation	0.2%	0.5%	0.1%
Facebook RocksDB - Read While Writing	**3100899**	3043279	**2985392**
Normalized	100%	98.14%	96.28%
Standard Deviation	2.8%	1.7%	0.8%
Facebook RocksDB - R.R.W.R (Op/s)	2132608	**2129359**	**2133528**
Normalized	99.96%	99.8%	100%
Standard Deviation	1.3%	0.7%	0.9%
FLAC Audio Encoding - WAV To FLAC (sec)	21.110	**21.098**	**21.376**
Normalized	99.94%	100%	98.7%
Standard Deviation	0.3%	0.3%	0.4%
GraphicsMagick - Swirl (Iterations/min)	**502**	499	**491**
Normalized	100%	99.4%	97.81%
Standard Deviation	0.8%	0.5%	0.5%
GraphicsMagick - Rotate (Iterations/min)	**757**	731	**668**
Normalized	100%	96.57%	88.24%
Standard Deviation	2.9%	0.4%	3.1%
GraphicsMagick - Sharpen (Iterations/min)	**199**	**199**	**197**
Normalized	100%	100%	98.99%
Standard Deviation	1.2%	1%	1.2%
GraphicsMagick - Enhanced (Iterations/min)	**315**	314	**311**
Normalized	100%	99.68%	98.73%
Standard Deviation	0.4%	0.4%	0.4%
GraphicsMagick - Resizing (Iterations/min)	**1333**	1321	**1299**
Normalized	100%	99.1%	97.45%
Standard Deviation	1%	0.4%	0.4%
GraphicsMagick - Noise-Gaussian (Iterations/min)	**335**	331	**322**
Normalized	100%	98.81%	96.12%
Standard Deviation		0.9%	
GraphicsMagick - HWB Color Space (Iterations/min)	**976**	957	**872**
Normalized	100%	98.05%	89.34%
Standard Deviation		0.3%	0.3%
JPEG XL Decoding libjxl - 1 (MP/s)	**38.17**	37.90	**36.37**
Normalized	100%	99.29%	95.28%
Standard Deviation	0.3%	0.2%	0.1%
JPEG XL Decoding libjxl - All (MP/s)	208.79	**209.18**	**181.54**
Normalized	99.81%	100%	86.79%
Standard Deviation	1.1%	0.3%	2%
JPEG XL libjxl - PNG - 80 (MP/s)	7.70	**7.71**	**7.36**
Normalized	99.87%	100%	95.46%

Standard Deviation	0.2%	0.1%	0.2%
JPEG XL libjxl - PNG - 90 (MP/s)	7.58	7.54	7.20
Normalized	100%	99.47%	94.99%
Standard Deviation	0.3%	0.4%	0.4%
JPEG XL libjxl - JPEG - 80 (MP/s)	7.45	7.40	7.08
Normalized	100%	99.33%	95.03%
Standard Deviation	0.2%	0.1%	0.3%
JPEG XL libjxl - JPEG - 90 (MP/s)	7.30	7.25	6.94
Normalized	100%	99.32%	95.07%
Standard Deviation	0.2%	0.1%	0.1%
JPEG XL libjxl - PNG - 100 (MP/s)	0.54	0.54	0.53
Normalized	100%	100%	98.15%
Standard Deviation	0%	0%	0%
JPEG XL libjxl - JPEG - 100 (MP/s)	0.53	0.53	0.52
Normalized	100%	100%	98.11%
Standard Deviation	0%	1.1%	0%
LAMMPS Molecular Dynamics Simulator - 20k Atoms (ns/day)	10.427	10.414	10.399
Normalized	100%	99.88%	99.73%
Standard Deviation	0.1%	0.2%	0.3%
LAMMPS Molecular Dynamics Simulator - Rhodopsin Protein (ns/day)	10.659	10.639	10.608
Normalized	100%	99.81%	99.52%
Standard Deviation	0.3%	0.2%	0.2%
libavif avifenc - 0 (sec)	145.012	144.709	145.036
Normalized	99.79%	100%	99.77%
Standard Deviation	0.5%	0.6%	0.2%
libavif avifenc - 2 (sec)	70.517	71.065	71.201
Normalized	100%	99.23%	99.04%
Standard Deviation	0.1%	1%	0.6%
libavif avifenc - 6 (sec)	6.689	6.749	6.798
Normalized	100%	99.11%	98.4%
Standard Deviation	1.5%	1.4%	0.9%
libavif avifenc - 6, Lossless (sec)	11.376	11.425	11.580
Normalized	100%	99.57%	98.24%
Standard Deviation	0.7%	0.1%	0.4%
libavif avifenc - 10, Lossless (sec)	6.637	6.666	6.909
Normalized	100%	99.56%	96.06%
Standard Deviation	0.5%	0.4%	0.7%
miniBUDE - OpenMP - BM1 (GFInst/s)	530.266	529.240	535.565
Normalized	99.01%	98.82%	100%
Standard Deviation	0%	0.1%	0.1%
miniBUDE - OpenMP - BM1 (Billion Interactions/s)	21.211	21.170	21.422
Normalized	99.02%	98.82%	100%
Standard Deviation	0%	0.1%	0.1%
miniBUDE - OpenMP - BM2 (GFInst/s)	534.738	532.924	538.790
Normalized	99.25%	98.91%	100%
Standard Deviation	0.1%	0%	0.1%
miniBUDE - OpenMP - BM2 (Billion Interactions/s)	21.389	21.317	21.552
Normalized	99.24%	98.91%	100%
Standard Deviation	0.1%	0%	0.1%
Mobile Neural Network - nasnet (ms)	14.910	14.880	15.122
Normalized	99.8%	100%	98.4%

Standard Deviation	1.4%	1.2%	3%
Mobile Neural Network - mobilenetV3 (ms)	**2.091**	**2.071**	2.083
Normalized	99.04%	100%	99.42%
Standard Deviation	0.8%	0.7%	1.3%
Mobile Neural Network - squeezenetv1.1	2.592	**2.537**	**2.606**
Normalized	97.88%	100%	97.35%
Standard Deviation	1.4%	1%	1.3%
Mobile Neural Network - resnet-v2-50 (ms)	**10.148**	**9.850**	9.932
Normalized	97.06%	100%	99.17%
Standard Deviation	1.7%	0.4%	1.1%
Mobile Neural Network - SqueezeNetV1.0	**4.892**	4.897	**4.969**
Normalized	100%	99.9%	98.45%
Standard Deviation	1.5%	0.3%	1.1%
Mobile Neural Network - MobileNetV2_224	**3.855**	**3.752**	3.831
Normalized	97.33%	100%	97.94%
Standard Deviation	0.3%	0.9%	1.5%
Mobile Neural Network - mobilenet-v1-1.0	**2.678**	**2.639**	2.640
Normalized	98.54%	100%	99.96%
Standard Deviation	2.9%	3.1%	3.2%
Mobile Neural Network - inception-v3 (ms)	22.733	**22.438**	**22.789**
Normalized	98.7%	100%	98.46%
Standard Deviation	2.7%	2.9%	4.3%
Natron - Spaceship (FPS)	3.6	3.6	3.6
Standard Deviation	0%	0%	0%
NCNN - CPU - mobilenet (ms)	14.54	**14.71**	**14.45**
Normalized	99.38%	98.23%	100%
Standard Deviation	0.3%	3%	0.1%
NCNN - CPU-v2-v2 - mobilenet-v2 (ms)	5.56	**5.53**	**5.57**
Normalized	99.46%	100%	99.28%
Standard Deviation	0.2%	0.3%	0.2%
NCNN - CPU-v3-v3 - mobilenet-v3 (ms)	4.95	4.95	4.95
Standard Deviation	0.2%	2.1%	0.3%
NCNN - CPU - shufflenet-v2 (ms)	**5.66**	**5.59**	5.63
Normalized	98.76%	100%	99.29%
Standard Deviation	0.5%	0.3%	0.3%
NCNN - CPU - mnasnet (ms)	**4.91**	**4.85**	4.89
Normalized	98.78%	100%	99.18%
Standard Deviation	0.9%	0.2%	0.2%
NCNN - CPU - efficientnet-b0 (ms)	**7.06**	**6.99**	7.04
Normalized	99.01%	100%	99.29%
Standard Deviation	0.4%	0.3%	0.1%
NCNN - CPU - blazeface (ms)	**2.38**	**2.29**	2.36
Normalized	96.22%	100%	97.03%
Standard Deviation	0.4%	0.2%	0.5%
NCNN - CPU - googlenet (ms)	**11.57**	**11.46**	11.48
Normalized	99.05%	100%	99.83%
Standard Deviation	0.8%	0.4%	0.3%
NCNN - CPU - vgg16 (ms)	26.95	**27.69**	**26.52**
Normalized	98.4%	95.77%	100%
Standard Deviation	0.8%	8.9%	0.6%
NCNN - CPU - resnet18 (ms)	**8.09**	8.05	**7.85**
Normalized	97.03%	97.52%	100%
Standard Deviation	0.8%	6.6%	0.3%
NCNN - CPU - alexnet (ms)	**5.46**	**5.48**	**5.46**
Normalized	100%	99.64%	100%

Standard Deviation	0.4%	3.6%	0.4%
NCNN - CPU - resnet50 (ms)	14.20	**14.21**	**13.83**
Normalized	97.39%	97.33%	100%
Standard Deviation	0.6%	5.8%	1.7%
NCNN - CPU - yolov4-tiny (ms)	23.60	**23.89**	**23.35**
Normalized	98.94%	97.74%	100%
Standard Deviation	0.5%	4%	0.7%
NCNN - CPU - squeezenet_ssd (ms)	**17.13**	16.85	**16.76**
Normalized	97.84%	99.47%	100%
Standard Deviation	1.2%	1.7%	1.4%
NCNN - CPU - regnety_400m (ms)	**18.83**	**18.67**	18.70
Normalized	99.15%	100%	99.84%
Standard Deviation	1.4%	0.2%	0.3%
NCNN - CPU - vision_transformer (ms)	**160.27**	**161.23**	160.39
Normalized	100%	99.4%	99.93%
Standard Deviation	1%	0.6%	0.7%
NCNN - CPU - FastestDet (ms)	**7.02**	**6.91**	6.96
Normalized	98.43%	100%	99.28%
Standard Deviation	0.8%	0.7%	0.5%
nekRS - TurboPipe Periodic (FLOP/s)	70649766667	**70923633333**	**70481500000**
Normalized	99.61%	100%	99.38%
Standard Deviation	0.4%	0.5%	0.1%
Neural Magic DeepSparse - N.D.C.o.b.u.o.I - A.M.S (items/sec)	**10.5210**	10.4539	**10.4097**
Normalized	100%	99.36%	98.94%
Standard Deviation	0.3%	0.9%	1.1%
Neural Magic DeepSparse - N.D.C.o.b.u.o.I - A.M.S (ms/batch)	**758.0277**	759.3525	**764.7425**
Normalized	100%	99.83%	99.12%
Standard Deviation	0.2%	0.5%	1%
Neural Magic DeepSparse - N.D.C.o.b.u.o.I - S.S.S (items/sec)	9.5996	**9.6141**	**9.5393**
Normalized	99.85%	100%	99.22%
Standard Deviation	0.5%	0.6%	1.5%
Neural Magic DeepSparse - N.D.C.o.b.u.o.I - S.S.S (ms/batch)	104.1622	**104.0054**	**104.8348**
Normalized	99.85%	100%	99.21%
Standard Deviation	0.5%	0.6%	1.5%
Neural Magic DeepSparse - N.Q.A.B.b.u.S.1.P - A.M.S (items/sec)	**55.4233**	**55.5849**	55.4366
Normalized	99.71%	100%	99.73%
Standard Deviation	0.5%	0.4%	0.5%
Neural Magic DeepSparse - N.Q.A.B.b.u.S.1.P - A.M.S (ms/batch)	**144.2410**	**143.8065**	144.2114
Normalized	99.7%	100%	99.72%
Standard Deviation	0.5%	0.4%	0.5%
Neural Magic DeepSparse - N.Q.A.B.b.u.S.1.P - S.S.S (items/sec)	**43.7612**	**42.9013**	43.3202
Normalized	100%	98.04%	98.99%
Standard Deviation	1%	2.9%	0.8%
Neural Magic DeepSparse - N.Q.A.B.b.u.S.1.P - S.S.S (ms/batch)	**22.8396**	**23.3139**	23.0718
Normalized	100%	97.97%	98.99%
Standard Deviation	1%	3%	0.8%

Neural Magic DeepSparse - C.D.Y.C - A.M.S (items/sec)	**86.6567**	**86.9402**	86.8832
Normalized	99.67%	100%	99.93%
Standard Deviation	0.2%	0.2%	0.1%
Neural Magic DeepSparse - C.D.Y.C - A.M.S (ms/batch)	**92.2142**	**91.9860**	92.0462
Normalized	99.75%	100%	99.93%
Standard Deviation	0.2%	0.2%	0.1%
Neural Magic DeepSparse - C.D.Y.C - S.S.S (items/sec)	75.2616	**75.0401**	**75.2635**
Normalized	100%	99.7%	100%
Standard Deviation	0%	0.3%	0.2%
Neural Magic DeepSparse - C.D.Y.C - S.S.S (ms/batch)	**13.2689**	**13.3089**	13.2691
Normalized	100%	99.7%	100%
Standard Deviation	0%	0.3%	0.2%
Neural Magic DeepSparse - C.C.R.5.I - A.M.S (items/sec)	**219.3569**	219.0088	**218.6936**
Normalized	100%	99.84%	99.7%
Standard Deviation	0.1%	0.4%	0.4%
Neural Magic DeepSparse - C.C.R.5.I - A.M.S (ms/batch)	**36.4390**	36.4973	**36.5392**
Normalized	100%	99.84%	99.73%
Standard Deviation	0.1%	0.4%	0.4%
Neural Magic DeepSparse - C.C.R.5.I - S.S.S (items/sec)	132.6485	**134.1326**	**132.5077**
Normalized	98.89%	100%	98.79%
Standard Deviation	2.2%	0.7%	2.8%
Neural Magic DeepSparse - C.C.R.5.I - S.S.S (ms/batch)	7.5265	**7.4408**	**7.5359**
Normalized	98.86%	100%	98.74%
Standard Deviation	2.2%	0.7%	2.8%
Neural Magic DeepSparse - N.T.C.D.m - A.M.S (items/sec)	108.5475	**108.3377**	**108.7443**
Normalized	99.82%	99.63%	100%
Standard Deviation	0.1%	0.8%	0.8%
Neural Magic DeepSparse - N.T.C.D.m - A.M.S (ms/batch)	73.6759	**73.8216**	**73.5456**
Normalized	99.82%	99.63%	100%
Standard Deviation	0.1%	0.8%	0.8%
Neural Magic DeepSparse - N.T.C.D.m - S.S.S (items/sec)	**73.6039**	72.0552	**71.8852**
Normalized	100%	97.9%	97.66%
Standard Deviation	1.5%	0.8%	1.2%
Neural Magic DeepSparse - N.T.C.D.m - S.S.S (ms/batch)	**13.5771**	13.8679	**13.9013**
Normalized	100%	97.9%	97.67%
Standard Deviation	1.5%	0.8%	1.2%
Neural Magic DeepSparse - N.T.C.B.b.u.S - A.M.S (items/sec)	**55.5433**	54.4332	**54.2726**
Normalized	100%	98%	97.71%
Standard Deviation	0.4%	0.9%	0.5%

Neural Magic DeepSparse - N.T.C.B.b.u.S - A.M.S (ms/batch)	**144.0062**	146.9505	**147.3804**
Normalized	100%	98%	97.71%
Standard Deviation	0.4%	0.9%	0.5%
Neural Magic DeepSparse - N.T.C.B.b.u.S - S.S.S (items/sec)	**38.4438**	37.7602	**37.2115**
Normalized	100%	98.22%	96.79%
Standard Deviation	0.7%	1.9%	1.4%
Neural Magic DeepSparse - N.T.C.B.b.u.S - S.S.S (ms/batch)	**26.0011**	26.4774	**26.8656**
Normalized	100%	98.2%	96.78%
Standard Deviation	0.7%	1.9%	1.5%
Neural Magic DeepSparse - N.T.C.B.b.u.c - A.M.S (items/sec)	**10.5403**	10.4339	**10.3832**
Normalized	100%	98.99%	98.51%
Standard Deviation	0.9%	0.7%	0.6%
Neural Magic DeepSparse - N.T.C.B.b.u.c - A.M.S (ms/batch)	**752.8319**	760.8374	**763.3064**
Normalized	100%	98.95%	98.63%
Standard Deviation	0.5%	0.4%	0.6%
Neural Magic DeepSparse - N.T.C.B.b.u.c - S.S.S (items/sec)	9.6153	**9.6111**	**9.6532**
Normalized	99.61%	99.56%	100%
Standard Deviation	1%	0.5%	0.4%
Neural Magic DeepSparse - N.T.C.B.b.u.c - S.S.S (ms/batch)	103.9960	**104.0376**	**103.5823**
Normalized	99.6%	99.56%	100%
Standard Deviation	1%	0.5%	0.4%
Numenta Anomaly Benchmark - KNN CAD (sec)	**185.330**	182.657	**180.519**
Normalized	97.4%	98.83%	100%
Standard Deviation	0.8%	0.6%	0.4%
Numenta Anomaly Benchmark - Relative Entropy (sec)	15.803	**15.813**	**15.525**
Normalized	98.24%	98.18%	100%
Standard Deviation	2.9%	0.9%	2.2%
Numenta Anomaly Benchmark - Windowed Gaussian (sec)	9.070	**9.018**	**9.073**
Normalized	99.43%	100%	99.39%
Standard Deviation	0.7%	0.9%	0.7%
Numenta Anomaly Benchmark - Earthgecko Skyline (sec)	**114.813**	115.529	**115.831**
Normalized	100%	99.38%	99.12%
Standard Deviation	0.7%	0.5%	1%
Numenta Anomaly Benchmark - B.C (sec)	**41.392**	41.433	**41.936**
Normalized	100%	99.9%	98.7%
Standard Deviation	0.7%	0.9%	0.8%
Numenta Anomaly Benchmark - C.A.D.O	55.734	**55.659**	**55.815**
Normalized	99.87%	100%	99.72%
Standard Deviation	0.9%	0.8%	0.5%
oneDNN - IP Shapes 1D - f32 - CPU (ms)	2.29636	**2.29385**	**2.29708**
Normalized	99.89%	100%	99.86%
Standard Deviation	0.2%	0.1%	0.1%

oneDNN - IP Shapes 3D - f32 - CPU (ms)	**3.10144**	**3.08561**	3.09433
Normalized	99.49%	100%	99.72%
Standard Deviation	0.3%	0.7%	0.3%
oneDNN - IP Shapes 1D - u8s8f32 - CPU (ms)	**0.496613**	**0.497248**	0.496776
Normalized	100%	99.87%	99.97%
Standard Deviation	0.1%	0.1%	0.1%
oneDNN - IP Shapes 3D - u8s8f32 - CPU (ms)	**1.25271**	1.25174	**1.24871**
Normalized	99.68%	99.76%	100%
Standard Deviation	0.4%	0.3%	0.5%
oneDNN - C.B.S.A - f32 - CPU (ms)	4.29153	**4.31178**	**4.28618**
Normalized	99.88%	99.41%	100%
Standard Deviation	0.4%	0.5%	0.3%
oneDNN - D.B.s - f32 - CPU (ms)	**4.70699**	4.70834	**4.98067**
Normalized	100%	99.97%	94.51%
Standard Deviation	0.6%	0.5%	0.9%
oneDNN - D.B.s - f32 - CPU (ms)	3.30606	**3.29633**	**3.31244**
Normalized	99.71%	100%	99.51%
Standard Deviation	0.2%	0.2%	0.4%
oneDNN - C.B.S.A - u8s8f32 - CPU (ms)	**4.15869**	**4.20343**	4.18096
Normalized	100%	98.94%	99.47%
Standard Deviation	0.5%	0.4%	0.3%
oneDNN - D.B.s - u8s8f32 - CPU (ms)	0.540654	**0.540452**	**0.541430**
Normalized	99.96%	100%	99.82%
Standard Deviation	0.2%	0.1%	0.1%
oneDNN - D.B.s - u8s8f32 - CPU (ms)	**0.851455**	0.846543	**0.831866**
Normalized	97.7%	98.27%	100%
Standard Deviation	1.3%	2.1%	0.8%
oneDNN - R.N.N.T - f32 - CPU (ms)	1613	**1611**	**1614**
Normalized	99.88%	100%	99.82%
Standard Deviation	0.1%	0%	0%
oneDNN - R.N.N.I - f32 - CPU (ms)	909.632	**912.066**	**909.147**
Normalized	99.95%	99.68%	100%
Standard Deviation	0.4%	0.2%	0.3%
oneDNN - R.N.N.T - u8s8f32 - CPU (ms)	**1622**	**1615**	1619
Normalized	99.57%	100%	99.75%
Standard Deviation	0.2%	0.4%	0.2%
oneDNN - R.N.N.I - u8s8f32 - CPU (ms)	911.816	**908.188**	**913.943**
Normalized	99.6%	100%	99.37%
Standard Deviation	0.2%	0.1%	0.5%
oneDNN - M.M.B.S.T - f32 - CPU (ms)	**0.956399**	0.961682	**0.963400**
Normalized	100%	99.45%	99.27%
Standard Deviation	0.3%	0.7%	0.5%
oneDNN - M.M.B.S.T - u8s8f32 - CPU (ms)	**0.313238**	**0.316005**	0.313975
Normalized	100%	99.12%	99.77%
Standard Deviation	0.4%	1%	0%
OpenFOAM - d.S.M.S - Mesh Time (sec)	**38.53511**	**38.235781**	38.361993
Normalized	99.22%	100%	99.67%
OpenFOAM - d.S.M.S - Execution Time (sec)	**188.28208**	**186.39843**	186.93467
Normalized	99%	100%	99.71%
OpenFOAM - d.M.M.S - Mesh Time (sec)	**241.48551**	242.25487	**242.92307**
Normalized	100%	99.68%	99.41%
OpenFOAM - d.M.M.S - Execution Time (sec)	**1599**	**1612**	1607
Normalized	100%	99.2%	99.46%
OpenRadioss - Bumper Beam (sec)	152.41	**151.82**	**153.23**
Normalized	99.61%	100%	99.08%

Standard Deviation	0.2%	0.2%	0.2%
OpenRadioss - C.P.D.T (sec)	**96.21**	**96.31**	96.30
Normalized	100%	99.9%	99.91%
Standard Deviation	0.4%	0.2%	0.1%
OpenRadioss - B.S.o.W (sec)	**256.43**	256.19	**255.89**
Normalized	99.79%	99.88%	100%
Standard Deviation	0.3%	0.1%	0.1%
OpenRadioss - R.O.R.S.I (sec)	159.75	**159.15**	**160.27**
Normalized	99.62%	100%	99.3%
Standard Deviation	0.1%	0.2%	0.3%
OpenRadioss - I.a.F.S.I.D.C (sec)	**443.72**	445.17	**446.66**
Normalized	100%	99.67%	99.34%
Standard Deviation	0.2%	0.2%	0.2%
OpenVINO - F.D.F - CPU (FPS)	**5.88**	**5.88**	**5.89**
Normalized	99.83%	99.83%	100%
Standard Deviation	1%	0.9%	0.6%
OpenVINO - F.D.F - CPU (ms)	**1357**	**1356**	1357
Normalized	99.92%	100%	99.94%
Standard Deviation	1%	1%	0.7%
OpenVINO - P.D.F - CPU (FPS)	**3.31**	3.30	**3.28**
Normalized	100%	99.7%	99.09%
Standard Deviation	0.8%	0.8%	0.3%
OpenVINO - P.D.F - CPU (ms)	**2400**	2402	**2415**
Normalized	100%	99.93%	99.37%
Standard Deviation	0.5%	0.5%	0.3%
OpenVINO - P.D.F - CPU (FPS)	**3.25**	**3.25**	**3.23**
Normalized	100%	100%	99.38%
Standard Deviation	0.7%	0.5%	0.5%
OpenVINO - P.D.F - CPU (ms)	**2436**	2442	**2451**
Normalized	100%	99.78%	99.4%
Standard Deviation	0.5%	0.7%	0.4%
OpenVINO - V.D.F - CPU (FPS)	272.09	**272.80**	**267.62**
Normalized	99.74%	100%	98.1%
Standard Deviation	0.7%	0%	0.8%
OpenVINO - V.D.F - CPU (ms)	29.37	**29.29**	**29.86**
Normalized	99.73%	100%	98.09%
Standard Deviation	0.7%	0.1%	0.8%
OpenVINO - F.D.F.I - CPU (FPS)	**19.11**	19.15	**19.17**
Normalized	99.69%	99.9%	100%
Standard Deviation	0%	0.2%	0.2%
OpenVINO - F.D.F.I - CPU (ms)	**417.71**	416.95	**416.16**
Normalized	99.63%	99.81%	100%
Standard Deviation	0.1%	0.2%	0.2%
OpenVINO - V.D.F.I - CPU (FPS)	**969.33**	**957.08**	957.41
Normalized	100%	98.74%	98.77%
Standard Deviation	1%	0.3%	0.1%
OpenVINO - V.D.F.I - CPU (ms)	**8.24**	**8.34**	8.33
Normalized	100%	98.8%	98.92%
Standard Deviation	1%	0.3%	0.1%
OpenVINO - W.P.D.F - CPU (FPS)	**625.50**	623.36	**620.61**
Normalized	100%	99.66%	99.22%
Standard Deviation	0.2%	0.2%	0.4%
OpenVINO - W.P.D.F - CPU (ms)	**25.53**	25.62	**25.73**
Normalized	100%	99.65%	99.22%
Standard Deviation	0.2%	0.3%	0.4%

OpenVINO - M.T.E.T.D.F - CPU (FPS)	**64.82**	64.28	**63.96**
Normalized	100%	99.17%	98.67%
Standard Deviation	1.9%	0.7%	1.1%
OpenVINO - M.T.E.T.D.F - CPU (ms)	**123.34**	124.34	**124.97**
Normalized	100%	99.2%	98.7%
Standard Deviation	1.9%	0.6%	1.1%
OpenVINO - W.P.D.F.I - CPU (FPS)	**1992**	**1994**	1992
Normalized	99.91%	100%	99.93%
Standard Deviation	0.1%	0.1%	0.1%
OpenVINO - W.P.D.F.I - CPU (ms)	**8.02**	**8.01**	**8.02**
Normalized	99.88%	100%	99.88%
Standard Deviation	0.1%	0.1%	0.1%
OpenVINO - P.V.B.D.F - CPU (FPS)	485.36	**485.19**	**491.24**
Normalized	98.8%	98.77%	100%
Standard Deviation	3%	1.6%	2.9%
OpenVINO - P.V.B.D.F - CPU (ms)	**16.47**	16.46	**16.27**
Normalized	98.79%	98.85%	100%
Standard Deviation	3%	1.6%	3%
OpenVINO - A.G.R.R.0.F - CPU (FPS)	**15260**	15259	**15144**
Normalized	100%	99.99%	99.24%
Standard Deviation	1.3%	1.2%	1.1%
OpenVINO - A.G.R.R.0.F - CPU (ms)	**1.04**	**1.03**	**1.04**
Normalized	99.04%	100%	99.04%
Standard Deviation	1.5%	1.1%	1%
OpenVINO - A.G.R.R.0.F.I - CPU (FPS)	**31168**	31007	**30632**
Normalized	100%	99.49%	98.28%
Standard Deviation	0.5%	0.2%	0.1%
OpenVINO - A.G.R.R.0.F.I - CPU (ms)	**0.50**	**0.5**	**0.51**
Normalized	100%	100%	98.04%
Standard Deviation	1.1%	0%	0%
OSPRay Studio - 1 - 4K - 1 - Path Tracer (ms)	**7055**	**7046**	7048
Normalized	99.87%	100%	99.97%
Standard Deviation	0.3%	0%	
OSPRay Studio - 2 - 4K - 1 - Path Tracer (ms)	**7242**	**7246**	7245
Normalized	100%	99.94%	99.96%
Standard Deviation	0.1%	0.1%	0.1%
OSPRay Studio - 3 - 4K - 1 - Path Tracer (ms)	**8633**	**8628**	**8633**
Normalized	99.94%	100%	99.94%
Standard Deviation	0.1%		0.2%
OSPRay Studio - 1 - 4K - 16 - Path Tracer	**121467**	121486	**123000**
Normalized	100%	99.98%	98.75%
Standard Deviation	0%	0.2%	2.8%
OSPRay Studio - 1 - 4K - 32 - Path Tracer	234216	**234142**	**234371**
Normalized	99.97%	100%	99.9%
Standard Deviation	0.2%	0%	0.2%
OSPRay Studio - 2 - 4K - 16 - Path Tracer	**124428**	124556	**126341**
Normalized	100%	99.9%	98.49%
Standard Deviation	0.1%	0.1%	2.6%
OSPRay Studio - 2 - 4K - 32 - Path Tracer	**239935**	240311	**240430**
Normalized	100%	99.84%	99.79%
Standard Deviation	0.1%	0%	0.1%
OSPRay Studio - 3 - 4K - 16 - Path Tracer	146583	**146570**	**146692**
Normalized	99.99%	100%	99.92%
Standard Deviation	0.1%	0.1%	0%
OSPRay Studio - 3 - 4K - 32 - Path Tracer (ms)	284699	**284853**	**284235**

Normalized	99.84%	99.78%	100%
Standard Deviation	0.1%	0.1%	0.1%
OSPRay Studio - 1 - 1080p - 1 - Path Tracer (ms)	**1778**	**1778**	**1779**
Normalized	100%	100%	99.94%
Standard Deviation	0.1%	0.1%	0.1%
OSPRay Studio - 2 - 1080p - 1 - Path Tracer (ms)	**1826**	**1826**	**1824**
Normalized	99.89%	99.89%	100%
Standard Deviation	0.1%	0.1%	0.1%
OSPRay Studio - 3 - 1080p - 1 - Path Tracer (ms)	**2178**	2176	**2173**
Normalized	99.77%	99.86%	100%
Standard Deviation	0.1%		0%
OSPRay Studio - 1 - 1080p - 16 - Path Tracer (ms)	**28409**	28417	**28479**
Normalized	100%	99.97%	99.75%
Standard Deviation	0%	0.1%	0.1%
OSPRay Studio - 1 - 1080p - 32 - Path Tracer (ms)	65271	**65242**	**65894**
Normalized	99.96%	100%	99.01%
Standard Deviation	0.1%	0.1%	1.4%
OSPRay Studio - 2 - 1080p - 16 - Path Tracer (ms)	29172	**29206**	**29165**
Normalized	99.98%	99.86%	100%
Standard Deviation	0.2%	0%	
OSPRay Studio - 2 - 1080p - 32 - Path Tracer (ms)	66823	**66817**	**67837**
Normalized	99.99%	100%	98.5%
Standard Deviation	0.1%	0.1%	3%
OSPRay Studio - 3 - 1080p - 16 - Path Tracer (ms)	34786	**34801**	**34779**
Normalized	99.98%	99.94%	100%
Standard Deviation	0.1%	0%	0%
OSPRay Studio - 3 - 1080p - 32 - Path Tracer (ms)	78016	**77997**	**79804**
Normalized	99.98%	100%	97.74%
Standard Deviation	0.2%	0.2%	3%
PostgreSQL - 100 - 100 - Read Only (TPS)	**465422**	515273	**523788**
Normalized	88.86%	98.37%	100%
Standard Deviation	0.7%	0%	0.7%
PostgreSQL - 100 - 100 - Read Only - Average Latency (ms)	**0.215**	0.194	**0.191**
Normalized	88.84%	98.45%	100%
Standard Deviation	0.8%	0%	0.9%
PostgreSQL - 100 - 250 - Read Only (TPS)	**413949**	475175	**487468**
Normalized	84.92%	97.48%	100%
Standard Deviation	1.2%	0.1%	2%
PostgreSQL - 100 - 250 - Read Only - Average Latency (ms)	**0.604**	0.526	**0.513**
Normalized	84.93%	97.53%	100%
Standard Deviation	1.2%	0.1%	1.9%
PostgreSQL - 100 - 500 - Read Only (TPS)	**370238**	426428	**467167**
Normalized	79.25%	91.28%	100%

Standard Deviation	0.4%	0.3%	0.3%
PostgreSQL - 100 - 500 - Read Only - Average Latency (ms)	1.350	1.173	1.070
Normalized	79.26%	91.22%	100%
Standard Deviation	0.4%	0.3%	0.3%
PostgreSQL - 100 - 100 - Read Write (TPS)	53656	56230	54365
Normalized	95.42%	100%	96.68%
Standard Deviation	0.5%	0.4%	0.3%
PostgreSQL - 100 - 100 - Read Write - Average Latency (ms)	1.864	1.779	1.839
Normalized	95.44%	100%	96.74%
Standard Deviation	0.5%	0.4%	0.3%
PostgreSQL - 100 - 250 - Read Write (TPS)	47676	45922	45223
Normalized	100%	96.32%	94.85%
Standard Deviation	0.5%	0.1%	0.3%
PostgreSQL - 100 - 250 - Read Write - Average Latency (ms)	5.244	5.444	5.528
Normalized	100%	96.33%	94.86%
Standard Deviation	0.5%	0.1%	0.3%
PostgreSQL - 100 - 500 - Read Write (TPS)	38503	33824	36109
Normalized	100%	87.85%	93.78%
Standard Deviation	0.3%	0.5%	0.4%
PostgreSQL - 100 - 500 - Read Write - Average Latency (ms)	12.986	14.783	13.847
Normalized	100%	87.84%	93.78%
Standard Deviation	0.3%	0.5%	0.4%
Primesieve - 1e12 (sec)	14.443	14.429	14.424
Normalized	99.87%	99.97%	100%
Standard Deviation	0.1%	0.6%	0.3%
Primesieve - 1e13 (sec)	174.722	174.658	174.977
Normalized	99.96%	100%	99.82%
Standard Deviation	0.4%	0.4%	0.5%
spaCy - en_core_web_lg (tokens/sec)	11314	11236	11231
Normalized	100%	99.31%	99.27%
Standard Deviation	0.2%	0.2%	0.3%
spaCy - en_core_web_trf (tokens/sec)	2446	2416	2341
Normalized	100%	98.77%	95.71%
Standard Deviation	0.7%	0.5%	0.6%
srsRAN - OFDM_Test (Samples / Second)	122000000	122633333	120733333
Normalized	99.48%	100%	98.45%
Standard Deviation	0.4%	0.5%	0.6%
srsRAN - 4.P.1.P.M.6.Q (eNb Mb/s)	279.8	282.7	280.2
Normalized	98.97%	100%	99.12%
Standard Deviation	0.1%	0.1%	0.2%
srsRAN - 4.P.1.P.M.6.Q (UE Mb/s)	117.3	118.3	117.1
Normalized	99.15%	100%	98.99%
Standard Deviation	0.4%	0.1%	0%
srsRAN - 4.P.1.P.S.6.Q (eNb Mb/s)	279.8	282.0	280.3
Normalized	99.22%	100%	99.4%
Standard Deviation	0.2%	0.1%	0.1%
srsRAN - 4.P.1.P.S.6.Q (UE Mb/s)	123.3	123.9	123.3
Normalized	99.52%	100%	99.52%
Standard Deviation	0%	0.1%	0.2%
srsRAN - 4.P.1.P.M.2.Q (eNb Mb/s)	303.4	310.0	307.4
Normalized	97.87%	100%	99.16%

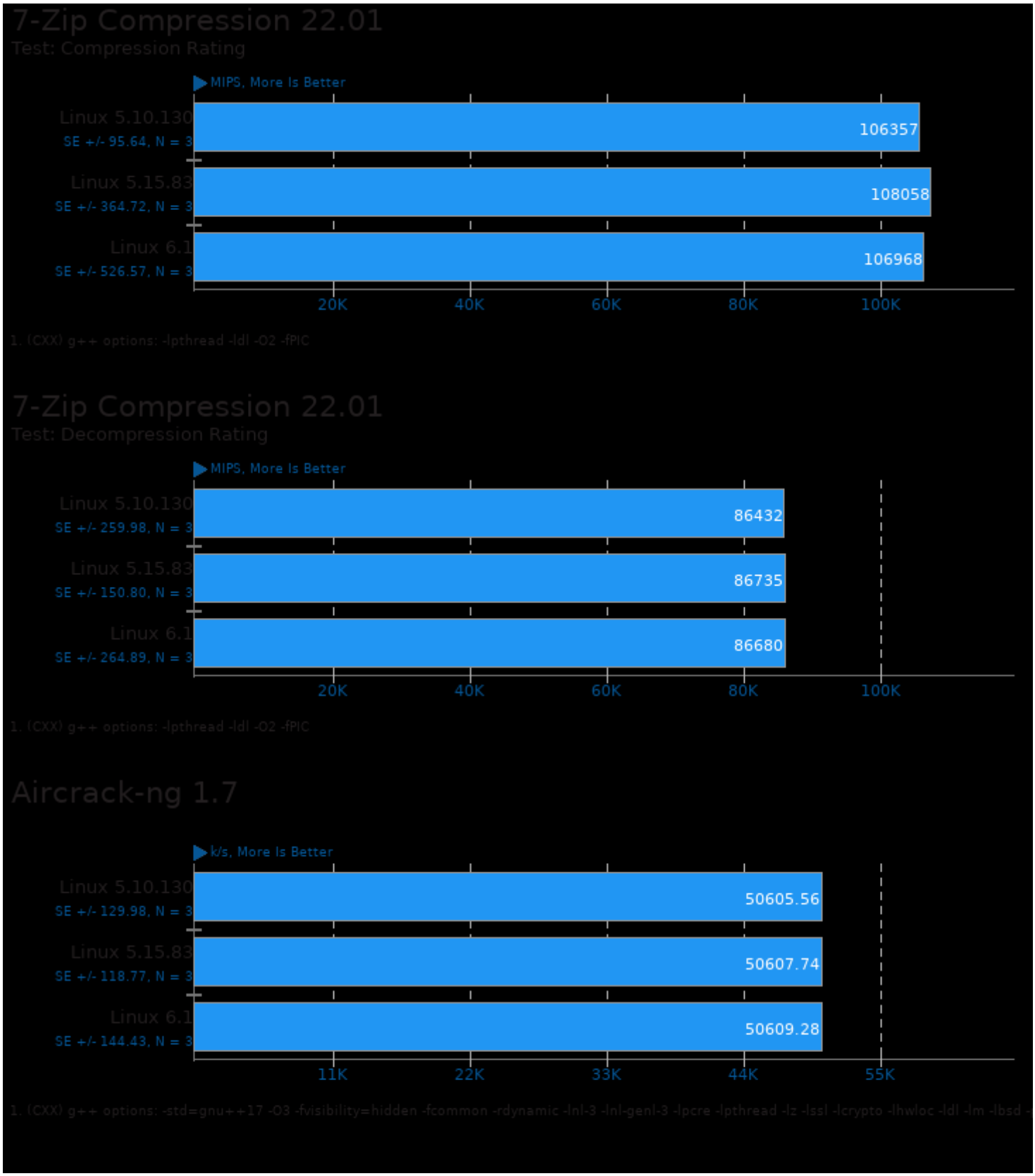
Standard Deviation	1%	0.1%	0.2%
srsRAN - 4.P.1.P.M.2.Q (UE Mb/s)	**126.9**	**128.0**	127.2
Normalized	99.14%	100%	99.38%
Standard Deviation	0.2%	0.2%	0.2%
srsRAN - 4.P.1.P.S.2.Q (eNb Mb/s)	307.0	**307.9**	**305.5**
Normalized	99.71%	100%	99.22%
Standard Deviation	0.1%	0.1%	0.1%
srsRAN - 4.P.1.P.S.2.Q (UE Mb/s)	131.0	**131.6**	**130.3**
Normalized	99.54%	100%	99.01%
Standard Deviation	0.1%	0.1%	0.2%
srsRAN - 5.P.T.5.P.S.6.Q (eNb Mb/s)	**98.6**	**98.6**	**98.3**
Normalized	100%	100%	99.7%
Standard Deviation	0.6%	0.2%	0.3%
srsRAN - 5.P.T.5.P.S.6.Q (UE Mb/s)	**65.9**	**66.0**	**65.9**
Normalized	99.85%	100%	99.85%
Standard Deviation	0.2%	0.4%	0.2%
Stargate Digital Audio Workstation - 44100 - 512 (Render Ratio)	3.909552	**3.972591**	**3.817268**
Normalized	98.41%	100%	96.09%
Standard Deviation	1.3%	0.8%	2.9%
Stargate Digital Audio Workstation - 96000 - 512 (Render Ratio)	2.537891	**2.579045**	**2.497164**
Normalized	98.4%	100%	96.83%
Standard Deviation	2.4%	0.9%	2.2%
Stargate Digital Audio Workstation - 192000 - 512 (Render Ratio)	1.536255	**1.567049**	**1.520040**
Normalized	98.03%	100%	97%
Standard Deviation	0.9%	1.9%	0.7%
Stargate Digital Audio Workstation - 44100 - 1024 (Render Ratio)	4.385893	**4.431098**	**4.311382**
Normalized	98.98%	100%	97.3%
Standard Deviation	0.1%	0.4%	1.9%
Stargate Digital Audio Workstation - 480000 - 512 (Render Ratio)	3.726933	**3.790321**	**3.718812**
Normalized	98.33%	100%	98.11%
Standard Deviation	0.9%	2.4%	2.1%
Stargate Digital Audio Workstation - 96000 - 1024 (Render Ratio)	**2.999611**	**3.063511**	3.012585
Normalized	97.91%	100%	98.34%
Standard Deviation	1%	0.3%	1.2%
Stargate Digital Audio Workstation - 192000 - 1024 (Render Ratio)	**1.889268**	**1.989680**	1.928814
Normalized	94.95%	100%	96.94%
Standard Deviation	1.5%	1%	1.2%
Stargate Digital Audio Workstation - 480000 - 1024 (Render Ratio)	**4.199568**	**4.270897**	4.208880
Normalized	98.33%	100%	98.55%
Standard Deviation	1.2%	0.6%	0.7%
Stress-NG - MMAP (Bogo Ops/s)	**390.20**	381.23	**310.22**
Normalized	100%	97.7%	79.5%
Standard Deviation	0.3%	0.3%	1.5%
Stress-NG - NUMA (Bogo Ops/s)	**358.05**	335.58	**256.61**
Normalized	100%	93.72%	71.67%
Standard Deviation	1.4%	0.5%	1.2%

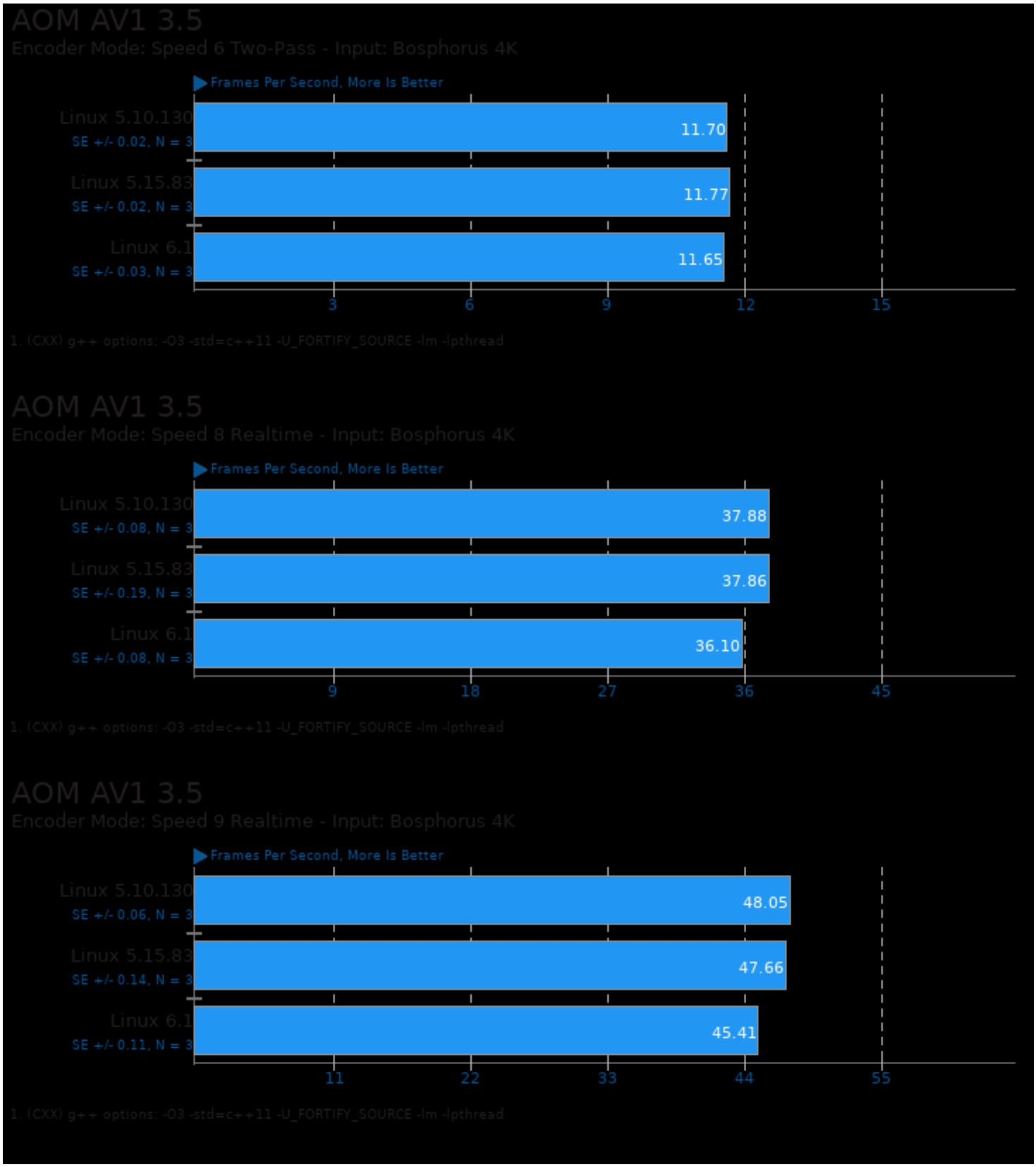
Stress-NG - Futex (Bogo Ops/s)	**1498829**	2364279	**2433807**
Normalized	61.58%	97.14%	100%
Standard Deviation	8.7%	2.4%	0.7%
Stress-NG - MEMFD (Bogo Ops/s)	**1009**	879.67	**667.82**
Normalized	100%	87.22%	66.21%
Standard Deviation	0.2%	0.1%	0.1%
Stress-NG - Mutex (Bogo Ops/s)	8606775	**9013626**	**7375258**
Normalized	95.49%	100%	81.82%
Standard Deviation	0.2%	4.8%	0.6%
Stress-NG - Atomic (Bogo Ops/s)	**223732**	225144	**225639**
Normalized	99.15%	99.78%	100%
Standard Deviation	1.1%	1.2%	2.8%
Stress-NG - Crypto (Bogo Ops/s)	**18743**	18733	**18728**
Normalized	100%	99.95%	99.92%
Standard Deviation	0.4%	0.8%	0.6%
Stress-NG - Malloc (Bogo Ops/s)	**22392194**	20930091	**15989080**
Normalized	100%	93.47%	71.4%
Standard Deviation	0.7%	1.1%	1%
Stress-NG - Forking (Bogo Ops/s)	56720	**60087**	**53633**
Normalized	94.4%	100%	89.26%
Standard Deviation	0.5%	0.5%	1.2%
Stress-NG - IO_uring (Bogo Ops/s)	**36489**	**32759**	32919
Normalized	100%	89.78%	90.22%
Standard Deviation	1.9%	2.7%	1.3%
Stress-NG - SENDFILE (Bogo Ops/s)	**241611**	**285767**	284966
Normalized	84.55%	100%	99.72%
Standard Deviation	1.8%	1.3%	1.2%
Stress-NG - CPU Cache (Bogo Ops/s)	116.33	**128.31**	**115.59**
Normalized	90.66%	100%	90.09%
Standard Deviation	9.6%	16.4%	6.7%
Stress-NG - CPU Stress (Bogo Ops/s)	**34274**	34239	**34059**
Normalized	100%	99.9%	99.38%
Standard Deviation	2.7%	0%	0.1%
Stress-NG - Semaphores (Bogo Ops/s)	**3214995**	3314461	**3315661**
Normalized	96.96%	99.96%	100%
Standard Deviation	0%	0.1%	0.1%
Stress-NG - Matrix Math (Bogo Ops/s)	**55915**	55890	**55875**
Normalized	100%	99.96%	99.93%
Standard Deviation	1.5%	1.6%	2%
Stress-NG - Vector Math (Bogo Ops/s)	55352	**55415**	**55344**
Normalized	99.89%	100%	99.87%
Standard Deviation	1.1%	1%	1%
Stress-NG - x86_64 RdRand (Bogo Ops/s)	252391	**252394**	**252372**
Normalized	100%	100%	99.99%
Standard Deviation	0%	0%	0%
Stress-NG - Memory Copying (Bogo Ops/s)	**4201**	**4129**	4182
Normalized	100%	98.29%	99.54%
Standard Deviation	1.3%	1.8%	1.2%
Stress-NG - Socket Activity (Bogo Ops/s)	**10161**	**17786**	16991
Normalized	57.13%	100%	95.53%
Standard Deviation	11.5%	0.8%	1.1%
Stress-NG - Context Switching (Bogo Ops/s)	**5500707**	2284154	**2054659**
Normalized	100%	41.52%	37.35%
Standard Deviation	2.3%	0.5%	0.3%
Stress-NG - G.C.S.F (Bogo Ops/s)	**911918**	916397	**916844**

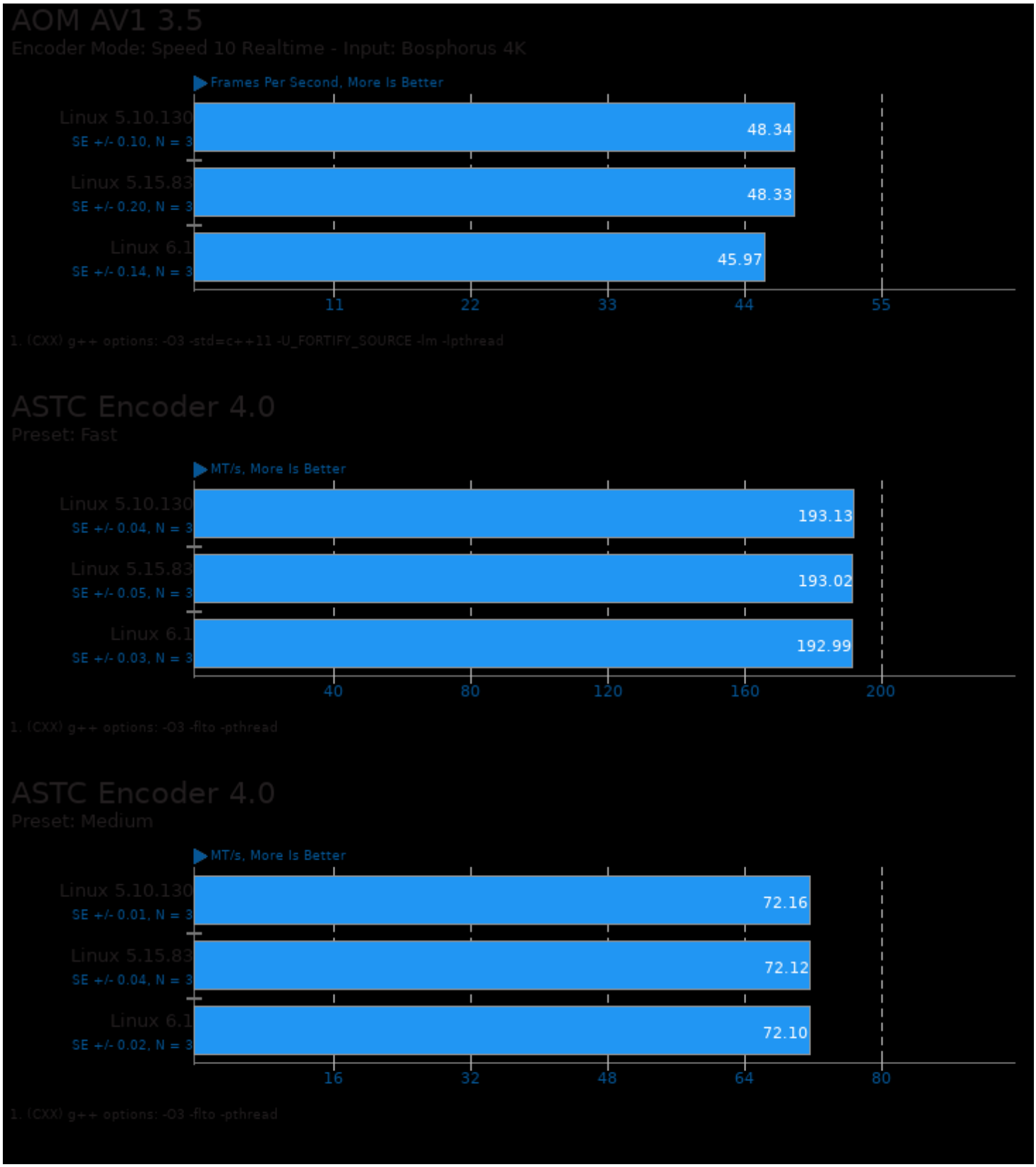
Normalized	99.46%	99.95%	100%
Standard Deviation	1.2%	0.7%	1.6%
Stress-NG - G.Q.D.S (Bogo Ops/s)	194.36	**194.88**	**194.30**
Normalized	99.73%	100%	99.7%
Standard Deviation	1.4%	1%	1.1%
Stress-NG - S.V.M.P (Bogo Ops/s)	**6490812**	8257907	**14896083**
Normalized	43.57%	55.44%	100%
Standard Deviation	0.6%	0.1%	0.3%
SVT-AV1 - Preset 4 - Bosphorus 4K (FPS)	2.475	**2.483**	**2.460**
Normalized	99.68%	100%	99.07%
Standard Deviation	0.2%	0.4%	0.3%
SVT-AV1 - Preset 8 - Bosphorus 4K (FPS)	**34.519**	**34.818**	34.723
Normalized	99.14%	100%	99.73%
Standard Deviation	0.3%	0.8%	1%
SVT-AV1 - Preset 12 - Bosphorus 4K (FPS)	**126.497**	**127.534**	126.763
Normalized	99.19%	100%	99.4%
Standard Deviation	0.6%	0.8%	0.4%
SVT-AV1 - Preset 13 - Bosphorus 4K (FPS)	**120.794**	**122.978**	121.596
Normalized	98.22%	100%	98.88%
Standard Deviation	1%	0.4%	0.9%
SVT-AV1 - Preset 4 - Bosphorus 1080p (FPS)	**7.046**	**6.985**	7.024
Normalized	100%	99.13%	99.69%
Standard Deviation	1.4%	0.4%	1.1%
SVT-AV1 - Preset 8 - Bosphorus 1080p (FPS)	**95.493**	**95.043**	95.151
Normalized	100%	99.53%	99.64%
Standard Deviation	0.7%	0.6%	0.8%
SVT-AV1 - Preset 12 - Bosphorus 1080p	415.136	**418.022**	**409.127**
Normalized	99.31%	100%	97.87%
Standard Deviation	0.4%	0.4%	1.1%
SVT-AV1 - Preset 13 - Bosphorus 1080p	423.649	**425.263**	**419.750**
Normalized	99.62%	100%	98.7%
Standard Deviation	0.3%	0.5%	0.7%
TensorFlow - CPU - 16 - AlexNet	166.55	**166.90**	**166.31**
Normalized	99.79%	100%	99.65%
Standard Deviation	0.5%	0.1%	0.2%
TensorFlow - CPU - 32 - AlexNet	211.25	**211.47**	**211.06**
Normalized	99.9%	100%	99.81%
Standard Deviation	0.4%	0.1%	0.2%
TensorFlow - CPU - 64 - AlexNet	**243.30**	242.73	**242.34**
Normalized	100%	99.77%	99.61%
Standard Deviation	0%	0.3%	0.2%
TensorFlow - CPU - 256 - AlexNet	**278.63**	279.05	**279.22**
Normalized	99.79%	99.94%	100%
Standard Deviation	0.3%	0.4%	0.2%
TensorFlow - CPU - 16 - GoogLeNet (images/sec)	**114.41**	115.15	**116.16**
Normalized	98.49%	99.13%	100%
Standard Deviation	0.2%	0.2%	0.2%
TensorFlow - CPU - 16 - ResNet-50 (images/sec)	**37.68**	**38.09**	38.01
Normalized	98.92%	100%	99.79%
Standard Deviation	0.2%	0.3%	0.1%

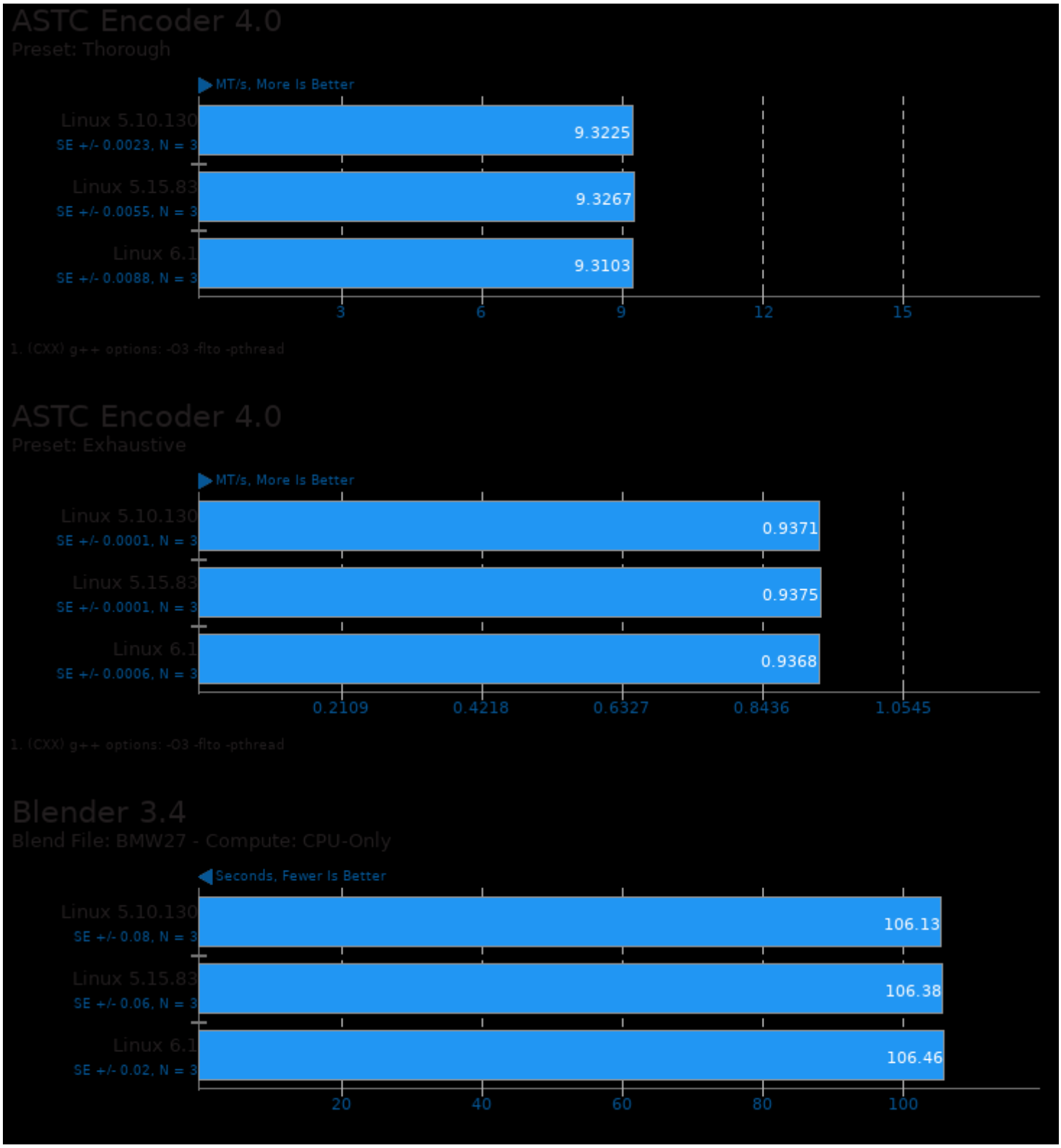
TensorFlow - CPU - 32 - GoogLeNet (images/sec)	**121.72**	122.18	**123.19**
Normalized	98.81%	99.18%	100%
Standard Deviation	0.2%	0.2%	0.2%
TensorFlow - CPU - 32 - ResNet-50 (images/sec)	**40.23**	**40.41**	40.32
Normalized	99.55%	100%	99.78%
Standard Deviation	0.1%	0.2%	0.1%
TensorFlow - CPU - 64 - GoogLeNet (images/sec)	**125.79**	126.29	**126.49**
Normalized	99.45%	99.84%	100%
Standard Deviation	0.1%	0.2%	0.2%
TensorFlow - CPU - 64 - ResNet-50 (images/sec)	**41.90**	42.05	**42.06**
Normalized	99.62%	99.98%	100%
Standard Deviation	0.1%	0.1%	0.2%
TensorFlow - CPU - 256 - GoogLeNet (images/sec)	**130.21**	130.40	**130.47**
Normalized	99.8%	99.95%	100%
Standard Deviation	0%	0.1%	0%
TensorFlow - CPU - 256 - ResNet-50 (images/sec)	**43.50**	43.41	**43.37**
Normalized	100%	99.79%	99.7%
Standard Deviation	0.1%	0.1%	0.1%
Timed CPython Compilation - Default (sec)	**19.449**	19.493	**19.777**
Normalized	100%	99.77%	98.34%
Timed CPython Compilation - R.B.P.L.O	**383.514**	383.962	**385.5**
Normalized	100%	99.88%	99.48%
Timed Erlang/OTP Compilation - Time To Compile (sec)	**91.560**	91.754	**93.739**
Normalized	100%	99.79%	97.68%
Standard Deviation	0.1%	0.3%	0.1%
Timed Godot Game Engine Compilation - Time To Compile (sec)	**97.246**	97.568	**99.420**
Normalized	100%	99.67%	97.81%
Standard Deviation	0.4%	0.6%	0.3%
Timed Linux Kernel Compilation - defconfig (sec)	**70.169**	70.488	**72.558**
Normalized	100%	99.55%	96.71%
Standard Deviation	0.6%	0.6%	0.7%
Timed Linux Kernel Compilation - allmodconfig (sec)	**907.748**	911.083	**934.265**
Normalized	100%	99.63%	97.16%
Standard Deviation	0%	0.2%	0.1%
Timed Node.js Compilation - Time To Compile (sec)	453.613	**453.307**	**459.753**
Normalized	99.93%	100%	98.6%
Standard Deviation	0.1%	0.1%	0.1%
Timed PHP Compilation - Time To Compile (sec)	65.325	**65.143**	**65.964**
Normalized	99.72%	100%	98.76%
Standard Deviation	0.9%	0.6%	1%
WebP Image Encode - Default (MP/s)	**14.37**	**14.40**	14.38

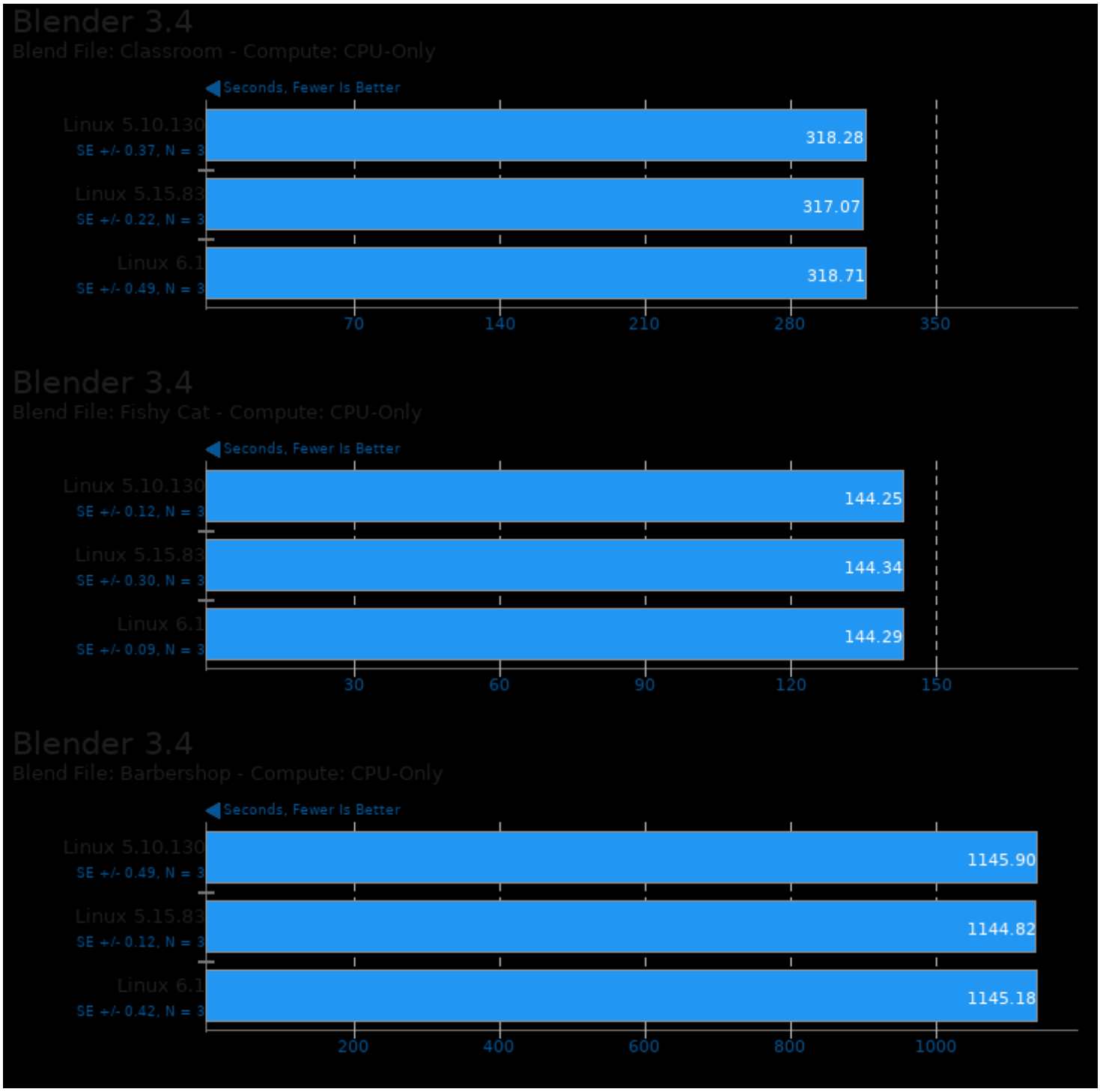
Normalized	99.79%	100%	99.86%
Standard Deviation	0.1%	0%	0.1%
WebP Image Encode - Quality 100 (MP/s)	9.00	**9.02**	**8.95**
Normalized	99.78%	100%	99.22%
Standard Deviation	0.1%	0%	0.2%
WebP Image Encode - Q.1.L (MP/s)	**1.27**	**1.28**	**1.27**
Normalized	99.22%	100%	99.22%
Standard Deviation	0.1%	0.1%	0.1%
WebP Image Encode - Q.1.H.C (MP/s)	**3.07**	**3.09**	3.08
Normalized	99.35%	100%	99.68%
Standard Deviation	1.1%	0.1%	0.1%
WebP Image Encode - Q.1.L.H.C (MP/s)	0.48	0.48	0.48
Standard Deviation	0.1%	0.1%	0.3%
Xmrig - Monero - 1M (H/s)	6795	**6830**	**6767**
Normalized	99.48%	100%	99.08%
Standard Deviation	0.1%	0.6%	1.4%
Xmrig - Wownero - 1M (H/s)	**9492**	**9531**	9528
Normalized	99.59%	100%	99.96%
Standard Deviation	1.2%	0.6%	0.9%
Y-Cruncher - 1B (sec)	**24.449**	**24.562**	24.455
Normalized	100%	99.54%	99.98%
Standard Deviation	0.1%	0.2%	0.2%
Y-Cruncher - 500M (sec)	11.345	**11.366**	**11.294**
Normalized	99.55%	99.37%	100%
Standard Deviation	0.2%	0.1%	0.1%

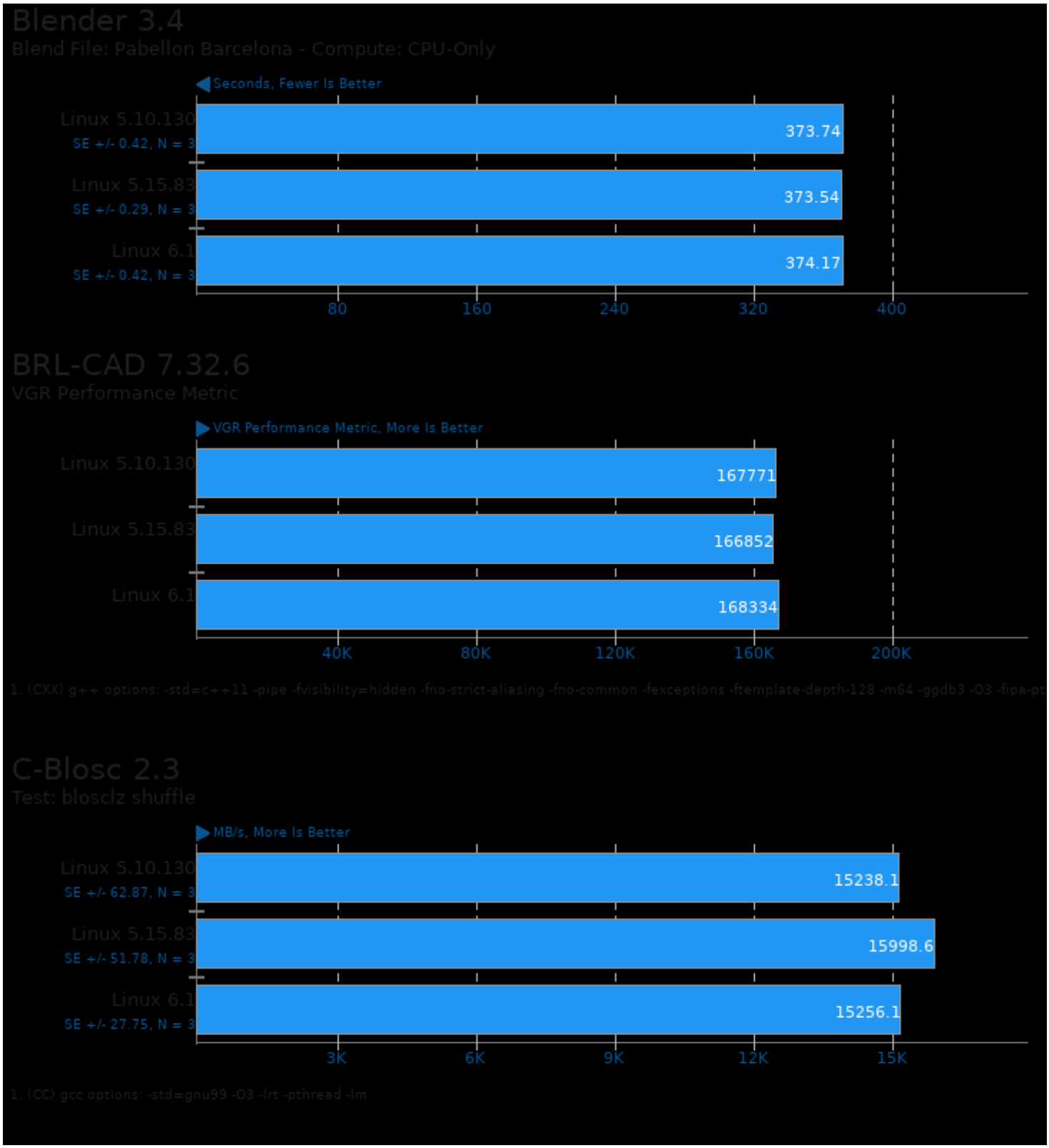

7-Zip Compression 22.01
Test: Compression Rating
MIPS, More Is Better
Linux 5.10.130
SE +/- 95.64, N = 3
106357
Linux 5.15.83
SE +/- 364.72, N = 3
108058
Linux 6.1
SE +/- 526.57, N = 3
106968
20K
40K
60K
80K
100K
1. (CXX) g++ options: -lpthread -ldl -O2 -fPIC
7-Zip Compression 22.01
Test: Decompression Rating
MIPS, More Is Better
Linux 5.10.130
SE +/- 259.98, N = 3
86432
Linux 5.15.83
SE +/- 150.80, N = 3
86735
Linux 6.1
SE +/- 264.89, N = 3
86680
20K
40K
60K
80K
100K
1. (CXX) g++ options: -lpthread -ldl -O2 -fPIC
Aircrack-ng 1.7
k/s, More Is Better
Linux 5.10.130
SE +/- 129.98, N = 3
50605.56
Linux 5.15.83
SE +/- 118.77, N = 3
50607.74
Linux 6.1
SE +/- 144.43, N = 3
50609.28
11K
22K
33K
44K
55K
1. (CXX) g++ options: -std=gnu++17 -O3 -fvisibility=hidden -fcommon -rdynamic -lnl-3 -lnl-genl-3 -lpcre -lpthread -lz -lssl -lcrypto -lhwloc -ldl -lm -lbsd


AOM AV1 3.5
Encoder Mode: Speed 6 Two-Pass - Input: Bosphorus 4K
Frames Per Second, More Is Better
Linux 5.10.130
SE +/- 0.02, N = 3
11.70
Linux 5.15.83
SE +/- 0.02, N = 3
11.77
Linux 6.1
SE +/- 0.03, N = 3
11.65
3
6
9
12
15
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm -lpthread
AOM AV1 3.5
Encoder Mode: Speed 8 Realtime - Input: Bosphorus 4K
Frames Per Second, More Is Better
Linux 5.10.130
SE +/- 0.08, N = 3
37.88
Linux 5.15.83
SE +/- 0.19, N = 3
37.86
Linux 6.1
SE +/- 0.08, N = 3
36.10
9
18
27
36
45
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm -lpthread
AOM AV1 3.5
Encoder Mode: Speed 9 Realtime - Input: Bosphorus 4K
Frames Per Second, More Is Better
Linux 5.10.130
SE +/- 0.06, N = 3
48.05
Linux 5.15.83
SE +/- 0.14, N = 3
47.66
Linux 6.1
SE +/- 0.11, N = 3
45.41
11
22
33
44
55
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm -lpthread


AOM AV1 3.5
Encoder Mode: Speed 10 Realtime - Input: Bosphorus 4K
Frames Per Second, More Is Better
Linux 5.10.130
SE +/- 0.10, N = 3
48.34
Linux 5.15.83
SE +/- 0.20, N = 3
48.33
Linux 6.1
SE +/- 0.14, N = 3
45.97
11
22
33
44
55
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm -lpthread
ASTC Encoder 4.0
Preset: Fast
MT/s, More Is Better
Linux 5.10.130
SE +/- 0.04, N = 3
193.13
Linux 5.15.83
SE +/- 0.05, N = 3
193.02
Linux 6.1
SE +/- 0.03, N = 3
192.99
40
80
120
160
200
1. (CXX) g++ options: -O3 -flto -pthread
ASTC Encoder 4.0
Preset: Medium
MT/s, More Is Better
Linux 5.10.130
SE +/- 0.01, N = 3
72.16
Linux 5.15.83
SE +/- 0.04, N = 3
72.12
Linux 6.1
SE +/- 0.02, N = 3
72.10
16
32
48
64
80
1. (CXX) g++ options: -O3 -flto -pthread

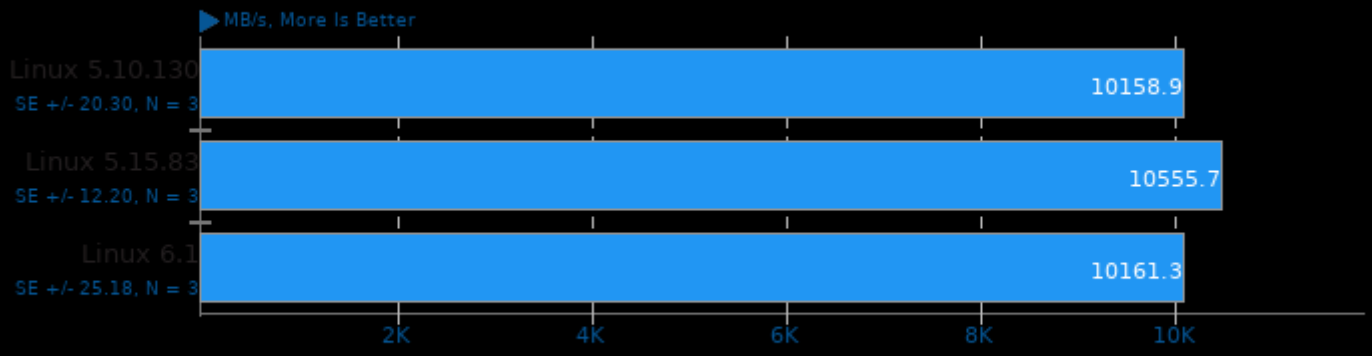

ASTC Encoder 4.0
Preset: Thorough
MT/s, More Is Better
Linux 5.10.130
SE +/- 0.0023, N = 3
9.3225
Linux 5.15.83
SE +/- 0.0055, N = 3
9.3267
Linux 6.1
SE +/- 0.0088, N = 3
9.3103
3
6
9
12
15
1. (CXX) g++ options: -O3 -flto -pthread
ASTC Encoder 4.0
Preset: Exhaustive
MT/s, More Is Better
Linux 5.10.130
SE +/- 0.0001, N = 3
0.9371
Linux 5.15.83
SE +/- 0.0001, N = 3
0.9375
Linux 6.1
SE +/- 0.0006, N = 3
0.9368
0.2109
0.4218
0.6327
0.8436
1.0545
1. (CXX) g++ options: -O3 -flto -pthread
Blender 3.4
Blend File: BMW27 - Compute: CPU-Only
Seconds, Fewer Is Better
Linux 5.10.130
SE +/- 0.08, N = 3
106.13
Linux 5.15.83
SE +/- 0.06, N = 3
106.38
Linux 6.1
SE +/- 0.02, N = 3
106.46
20
40
60
80
100


Blender 3.4
Blend File: Classroom - Compute: CPU-Only
Seconds, Fewer Is Better
Linux 5.10.130
SE +/- 0.37, N = 3
318.28
Linux 5.15.83
SE +/- 0.22, N = 3
317.07
Linux 6.1
SE +/- 0.49, N = 3
318.71
70
140
210
280
350
Blender 3.4
Blend File: Fishy Cat - Compute: CPU-Only
Seconds, Fewer Is Better
Linux 5.10.130
SE +/- 0.12, N = 3
144.25
Linux 5.15.83
SE +/- 0.30, N = 3
144.34
Linux 6.1
SE +/- 0.09, N = 3
144.29
30
60
90
120
150
Blender 3.4
Blend File: Barbershop - Compute: CPU-Only
Seconds, Fewer Is Better
Linux 5.10.130
SE +/- 0.49, N = 3
1145.90
Linux 5.15.83
SE +/- 0.12, N = 3
1144.82
Linux 6.1
SE +/- 0.42, N = 3
1145.18
200
400
600
800
1000


Blender 3.4
Blend File: Pabellon Barcelona - Compute: CPU-Only
Seconds, Fewer Is Better
Linux 5.10.130
SE +/- 0.42, N = 3
373.74
Linux 5.15.83
SE +/- 0.29, N = 3
373.54
Linux 6.1
SE +/- 0.42, N = 3
374.17
80
160
240
320
400
BRL-CAD 7.32.6
VGR Performance Metric
VGR Performance Metric, More Is Better
Linux 5.10.130
167771
Linux 5.15.83
166852
Linux 6.1
168334
40K
80K
120K
160K
200K
1. (CXX) g++ options: -std=c++11 -pipe -fvisibility=hidden -fno-strict-aliasing -fno-common -fexceptions -ftemplate-depth-128 -m64 -ggdb3 -O3 -fipa-pt
C-Blosc 2.3
Test: blosclz shuffle
MB/s, More Is Better
Linux 5.10.130
SE +/- 62.87, N = 3
15238.1
Linux 5.15.83
SE +/- 51.78, N = 3
15998.6
Linux 6.1
SE +/- 27.75, N = 3
15256.1
3K
6K
9K
12K
15K
1. (CC) gcc options: -std=gnu99 -O3 -lrt -pthread -lm

C-Blosc 2.3

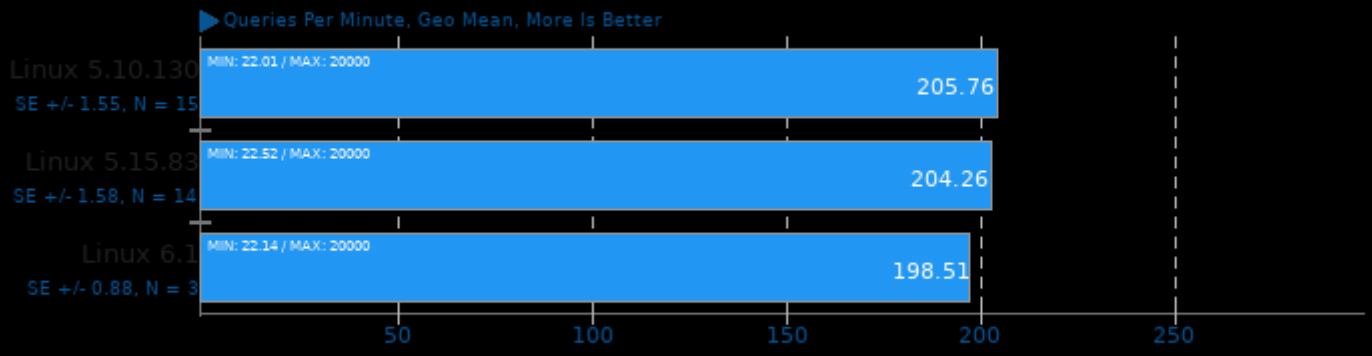
Test: blosclz bitshuffle



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

ClickHouse 22.5.4.19

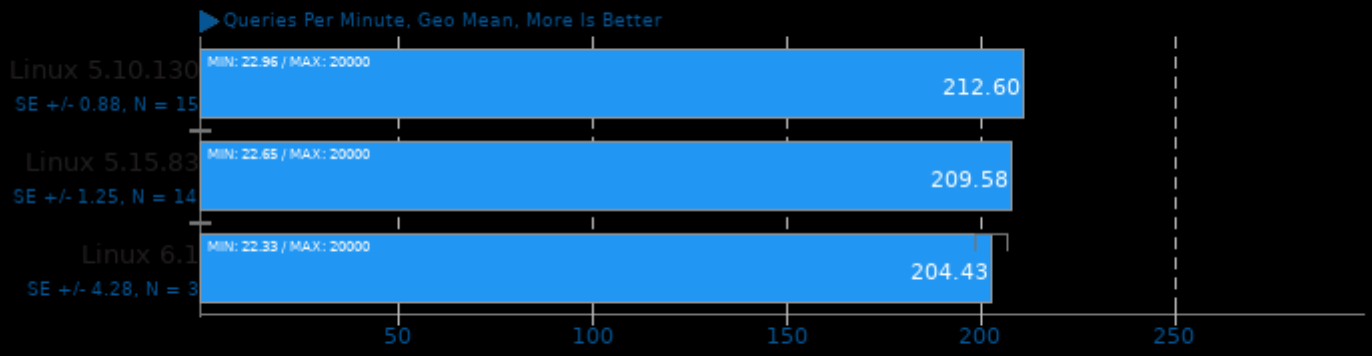
100M Rows Web Analytics Dataset, First Run / Cold Cache



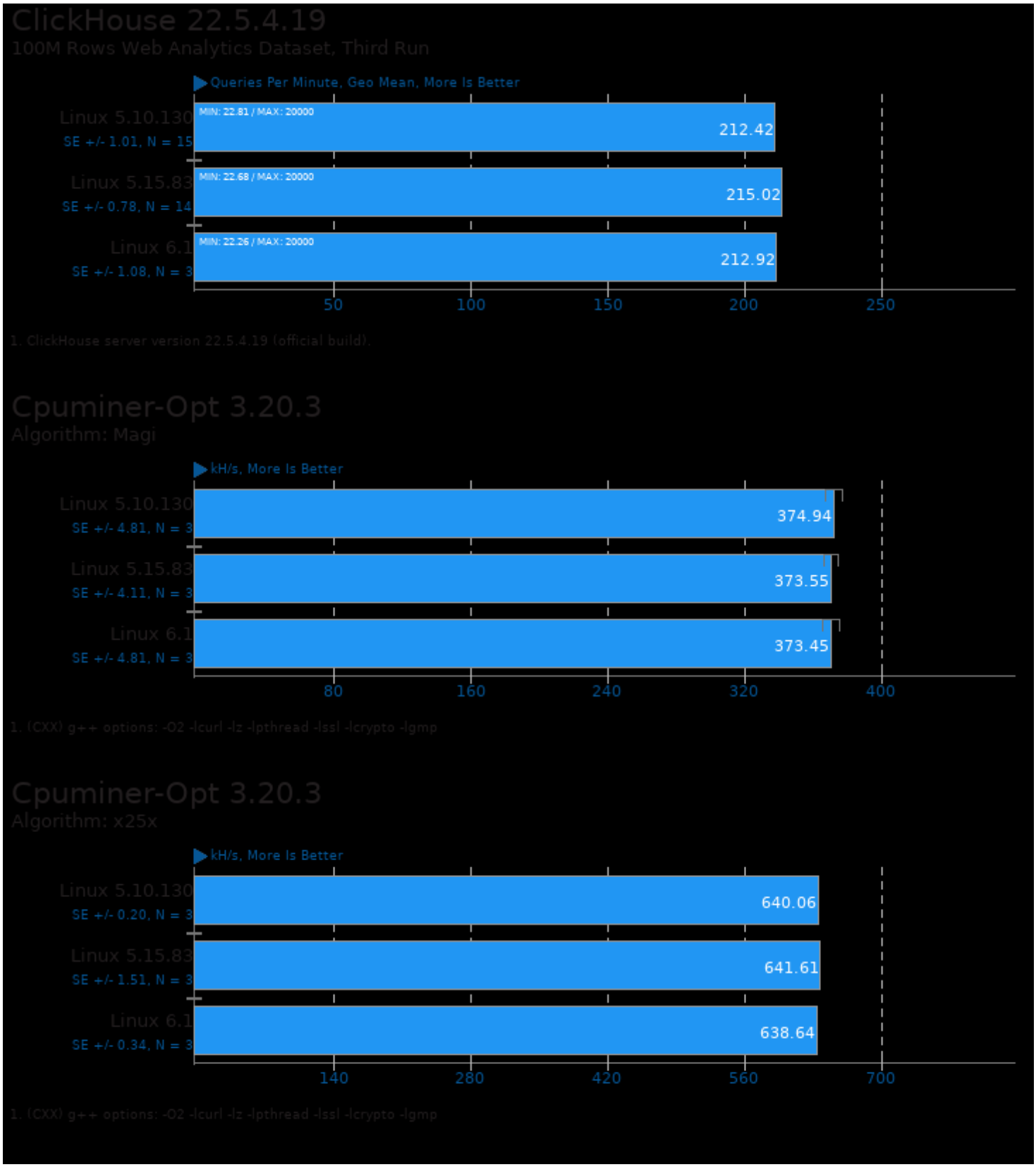
1. ClickHouse server version 22.5.4.19 (official build).

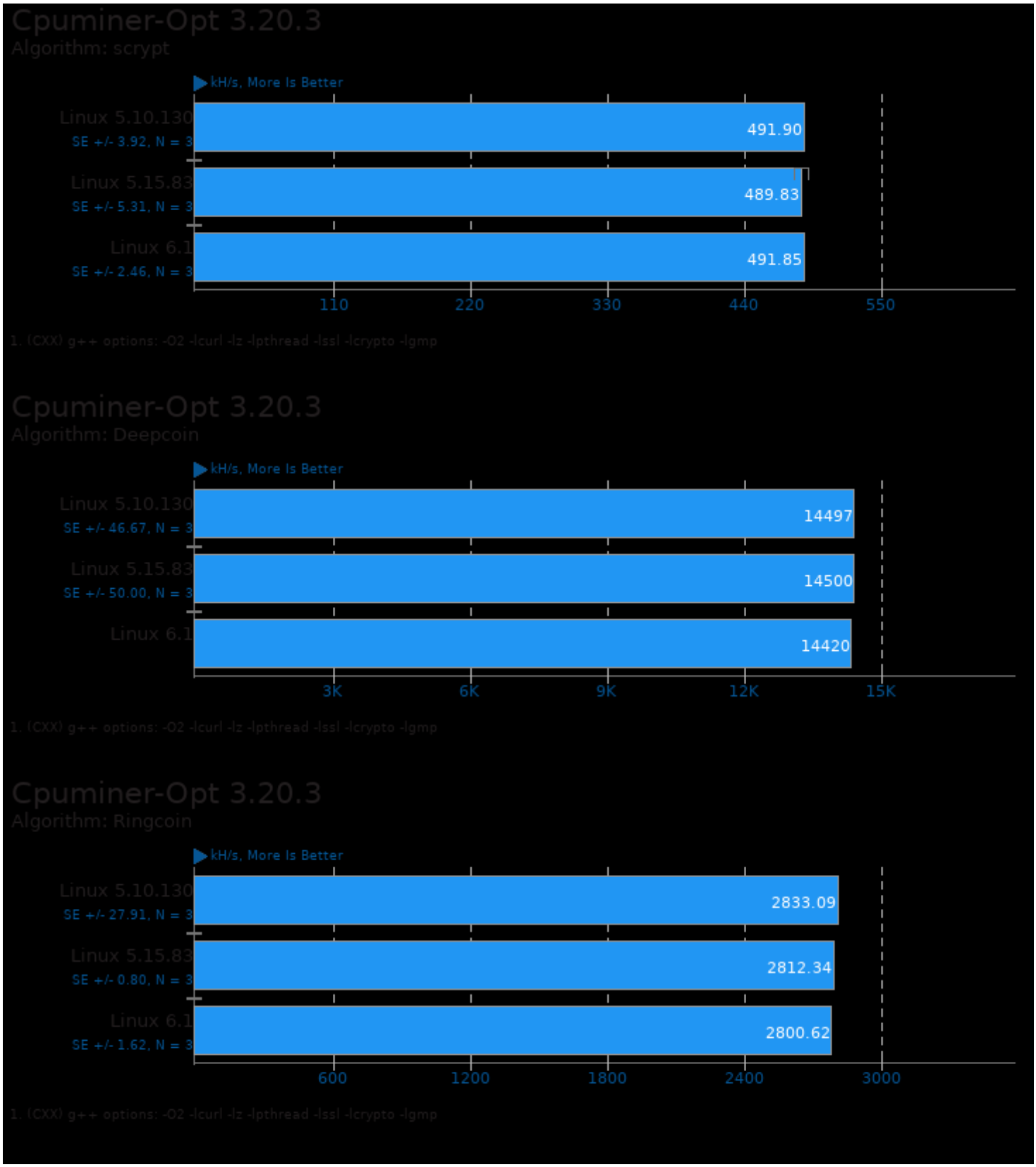
ClickHouse 22.5.4.19

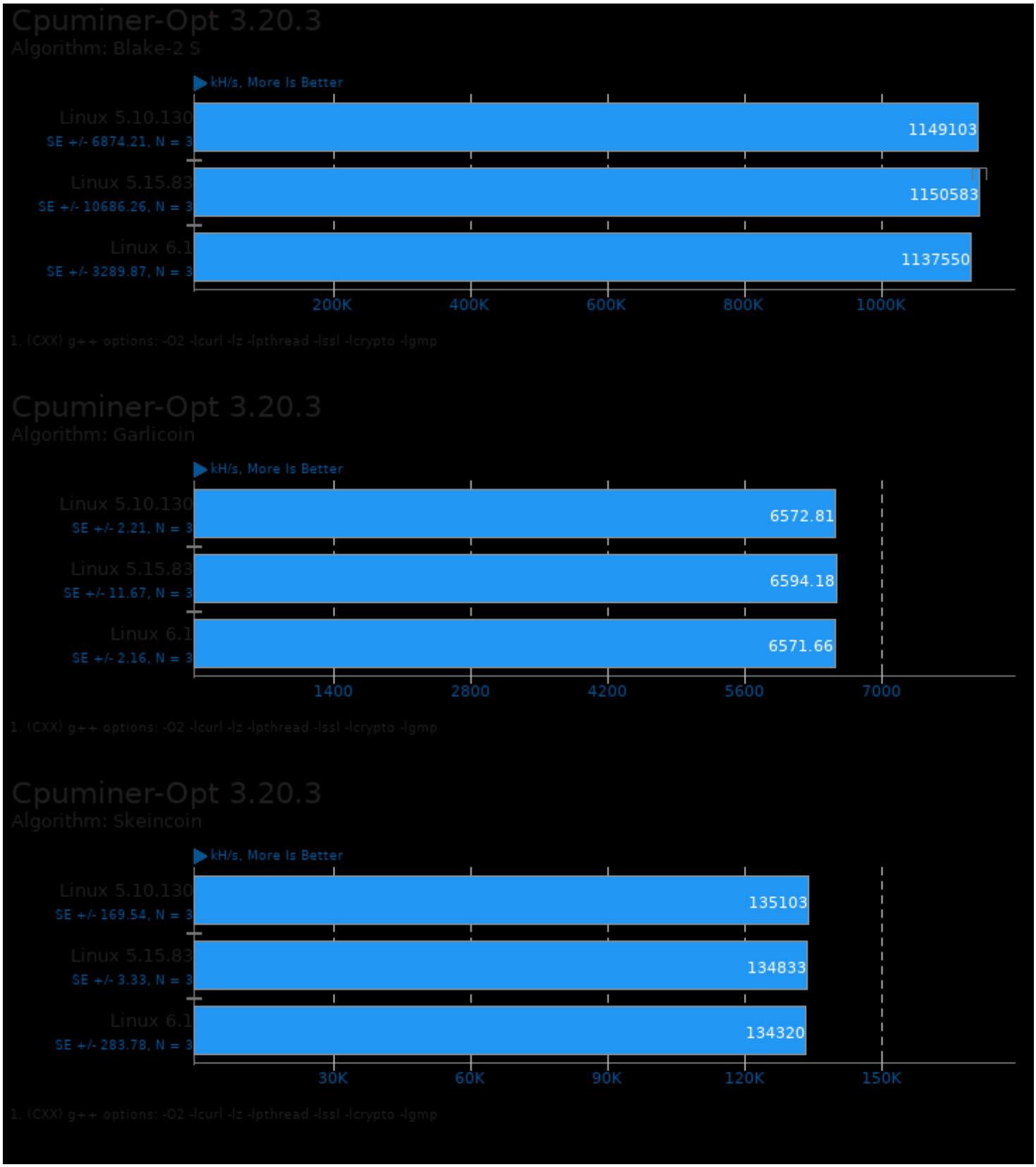
100M Rows Web Analytics Dataset, Second Run

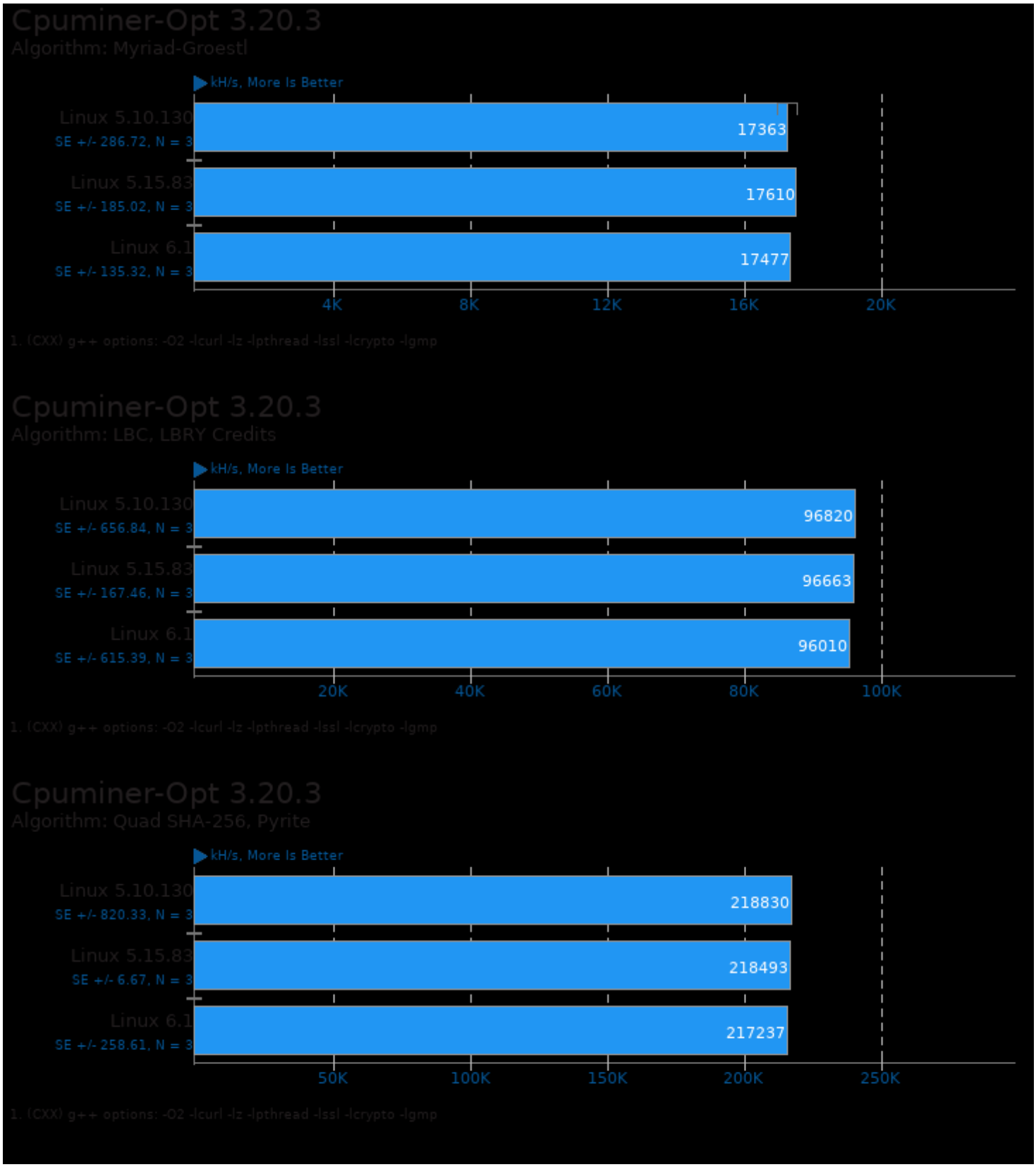


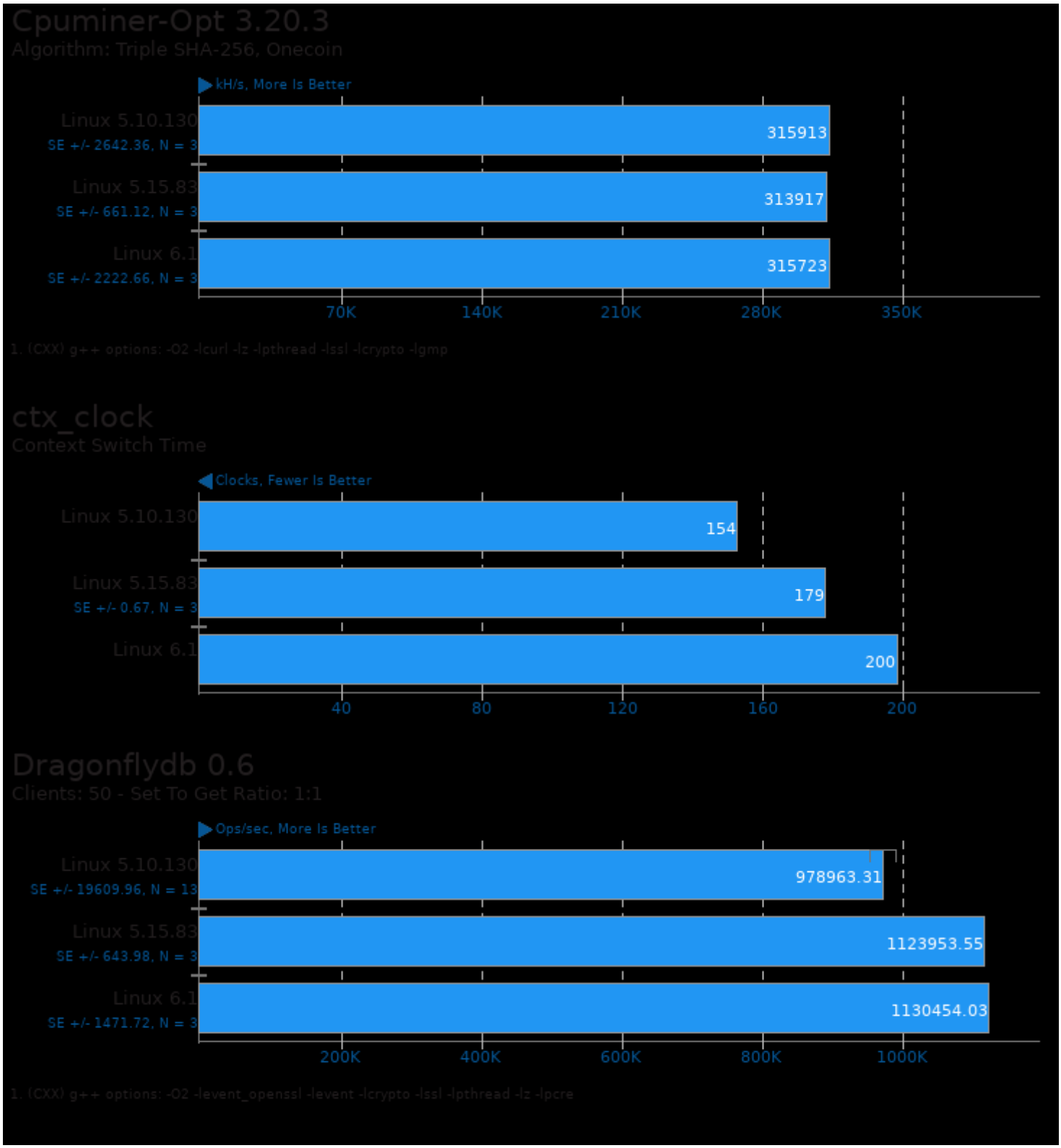
1. ClickHouse server version 22.5.4.19 (official build).

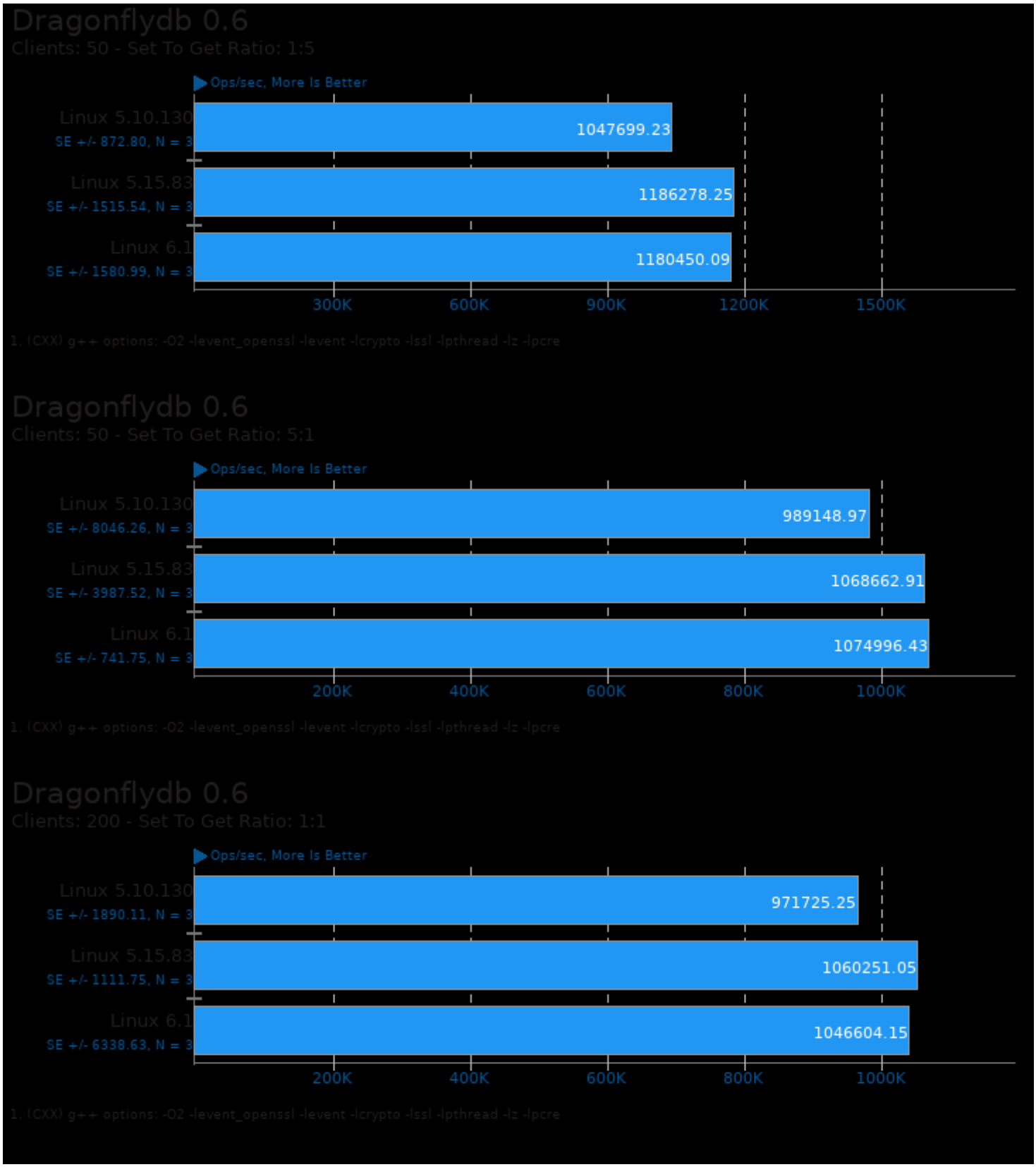

ClickHouse 22.5.4.19
100M Rows Web Analytics Dataset, Third Run
Queries Per Minute, Geo Mean, More Is Better
Linux 5.10.130
SE +/- 1.01, N = 15
MIN: 22.81 / MAX: 20000
212.42
Linux 5.15.83
SE +/- 0.78, N = 14
MIN: 22.68 / MAX: 20000
215.02
Linux 6.1
SE +/- 1.08, N = 3
MIN: 22.26 / MAX: 20000
212.92
50
100
150
200
250
1. ClickHouse server version 22.5.4.19 (official build).
Cpuminer-Opt 3.20.3
Algorithm: Magi
kH/s, More Is Better
Linux 5.10.130
SE +/- 4.81, N = 3
374.94
Linux 5.15.83
SE +/- 4.11, N = 3
373.55
Linux 6.1
SE +/- 4.81, N = 3
373.45
80
160
240
320
400
1. (CXX) g++ options: -O2 -lcurl -lz -lpthread -lssl -lcrypto -lgmp
Cpuminer-Opt 3.20.3
Algorithm: x25x
kH/s, More Is Better
Linux 5.10.130
SE +/- 0.20, N = 3
640.06
Linux 5.15.83
SE +/- 1.51, N = 3
641.61
Linux 6.1
SE +/- 0.34, N = 3
638.64
140
280
420
560
700
1. (CXX) g++ options: -O2 -lcurl -lz -lpthread -lssl -lcrypto -lgmp

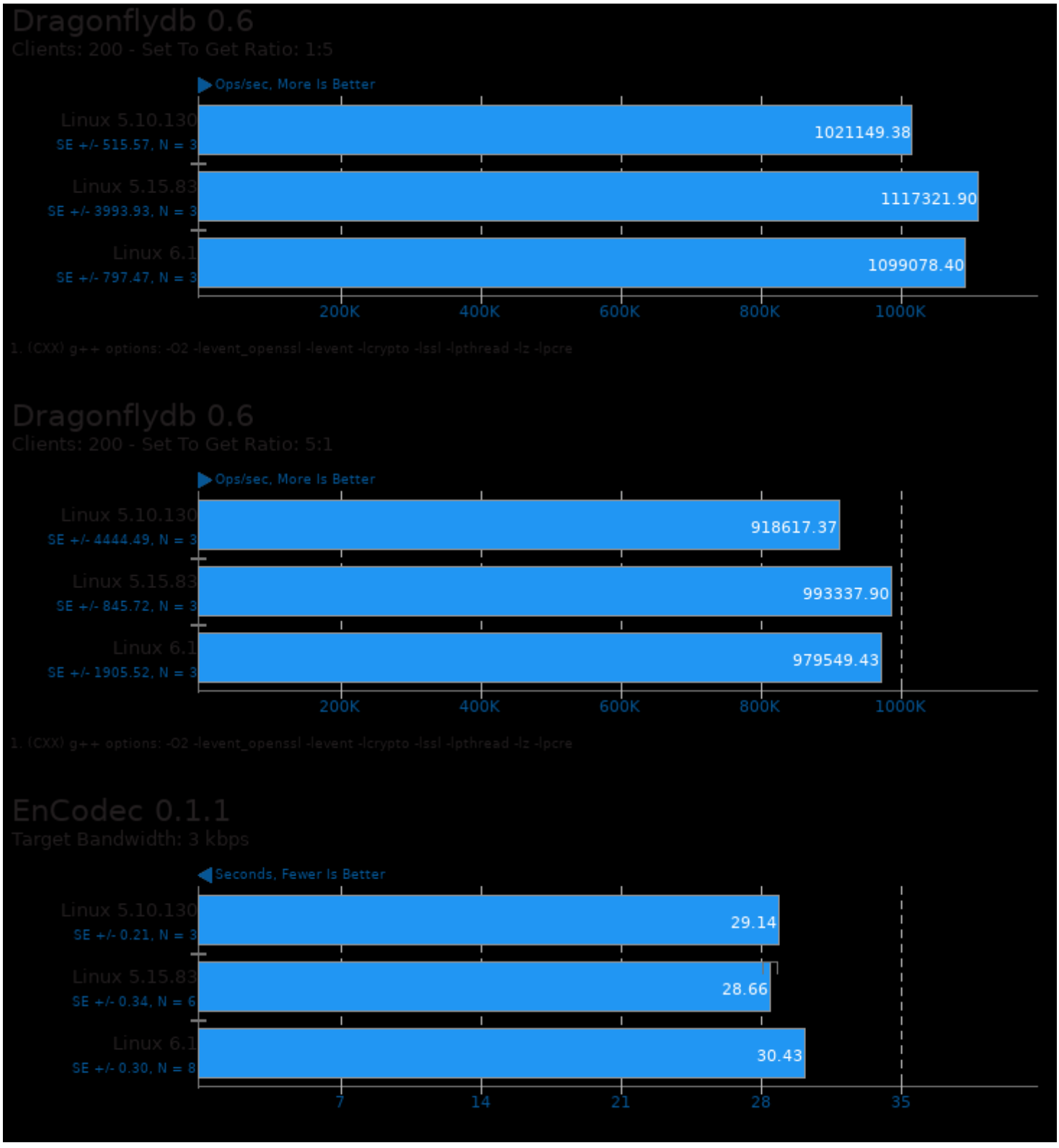

Cpuminer-Opt 3.20.3
Algorithm: scrypt
kH/s, More Is Better
Linux 5.10.130
SE +/- 3.92, N = 3
491.90
Linux 5.15.83
SE +/- 5.31, N = 3
489.83
Linux 6.1
SE +/- 2.46, N = 3
491.85
110
220
330
440
550
1. (CXX) g++ options: -O2 -lcurl -lz -lpthread -lssl -lcrypto -lgmp
Cpuminer-Opt 3.20.3
Algorithm: Deepcoin
kH/s, More Is Better
Linux 5.10.130
SE +/- 46.67, N = 3
14497
Linux 5.15.83
SE +/- 50.00, N = 3
14500
Linux 6.1
14420
3K
6K
9K
12K
15K
1. (CXX) g++ options: -O2 -lcurl -lz -lpthread -lssl -lcrypto -lgmp
Cpuminer-Opt 3.20.3
Algorithm: Ringcoin
kH/s, More Is Better
Linux 5.10.130
SE +/- 27.91, N = 3
2833.09
Linux 5.15.83
SE +/- 0.80, N = 3
2812.34
Linux 6.1
SE +/- 1.62, N = 3
2800.62
600
1200
1800
2400
3000
1. (CXX) g++ options: -O2 -lcurl -lz -lpthread -lssl -lcrypto -lgmp

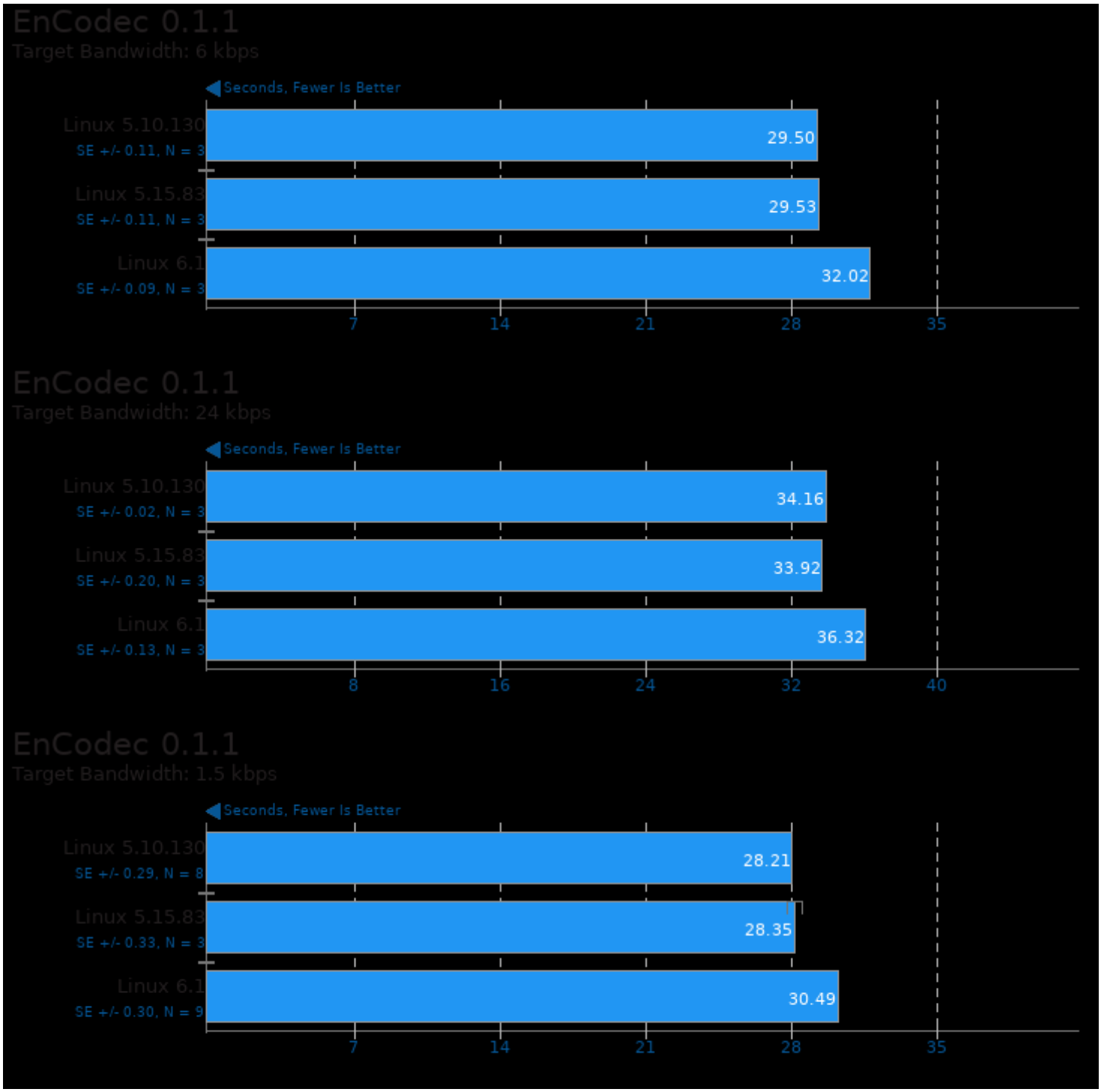

Cpuminer-Opt 3.20.3
Algorithm: Blake-2 S
kH/s, More Is Better
Linux 5.10.130
SE +/- 6874.21, N = 3
1149103
Linux 5.15.83
SE +/- 10686.26, N = 3
1150583
Linux 6.1
SE +/- 3289.87, N = 3
1137550
200K
400K
600K
800K
1000K
1. (CXX) g++ options: -O2 -lcurl -lz -lpthread -lssl -lcrypto -lgmp
Cpuminer-Opt 3.20.3
Algorithm: Garlicoin
kH/s, More Is Better
Linux 5.10.130
SE +/- 2.21, N = 3
6572.81
Linux 5.15.83
SE +/- 11.67, N = 3
6594.18
Linux 6.1
SE +/- 2.16, N = 3
6571.66
1400
2800
4200
5600
7000
1. (CXX) g++ options: -O2 -lcurl -lz -lpthread -lssl -lcrypto -lgmp
Cpuminer-Opt 3.20.3
Algorithm: Skeincoin
kH/s, More Is Better
Linux 5.10.130
SE +/- 169.54, N = 3
135103
Linux 5.15.83
SE +/- 3.33, N = 3
134833
Linux 6.1
SE +/- 283.78, N = 3
134320
30K
60K
90K
120K
150K
1. (CXX) g++ options: -O2 -lcurl -lz -lpthread -lssl -lcrypto -lgmp

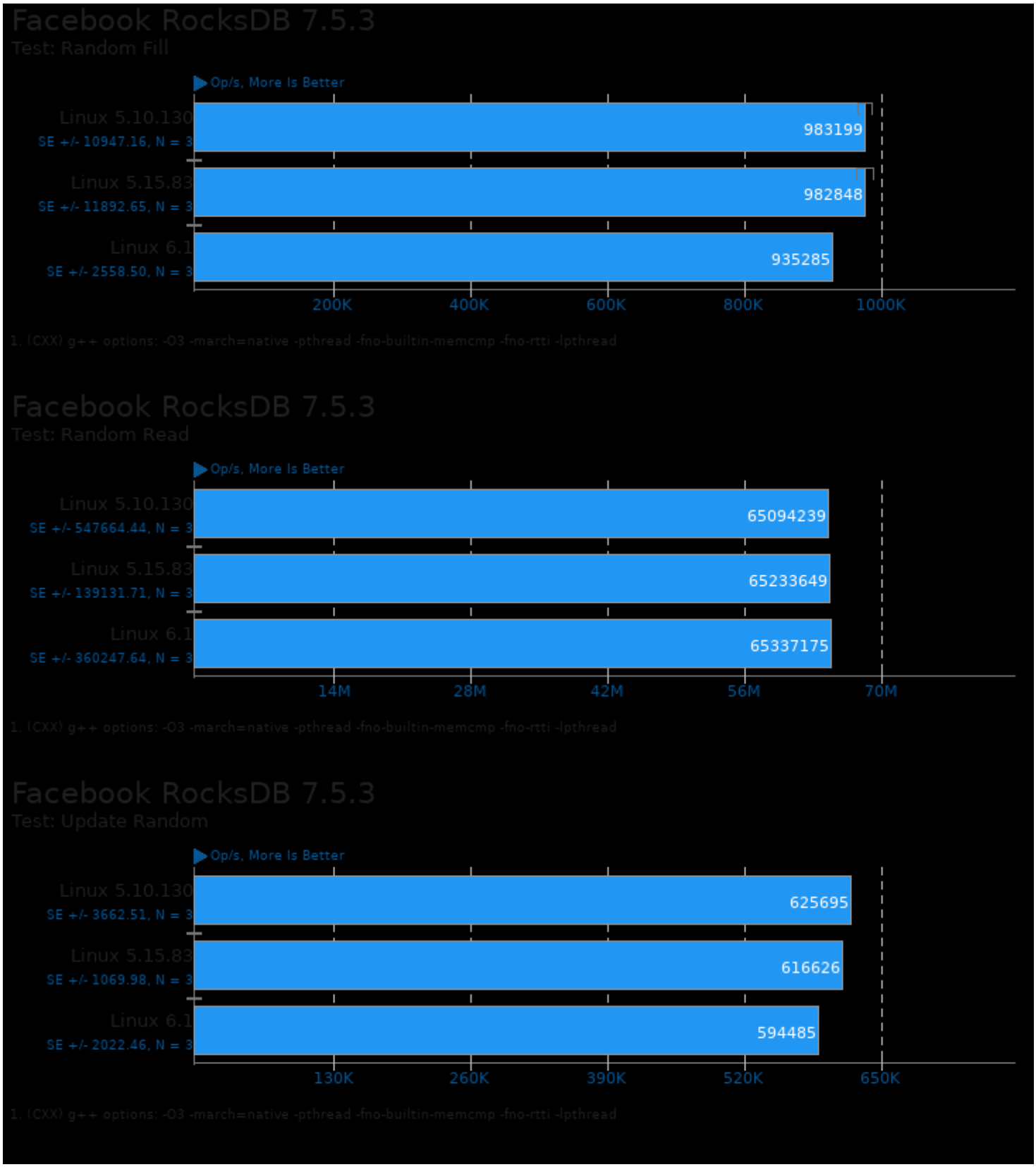

Cpuminer-Opt 3.20.3
Algorithm: Myriad-Groestl
kH/s, More Is Better
Linux 5.10.130
SE +/- 286.72, N = 3
17363
Linux 5.15.83
SE +/- 185.02, N = 3
17610
Linux 6.1
SE +/- 135.32, N = 3
17477
4K
8K
12K
16K
20K
1. (CXX) g++ options: -O2 -lcurl -lz -lpthread -lssl -lcrypto -lgmp
Cpuminer-Opt 3.20.3
Algorithm: LBC, LBRY Credits
kH/s, More Is Better
Linux 5.10.130
SE +/- 656.84, N = 3
96820
Linux 5.15.83
SE +/- 167.46, N = 3
96663
Linux 6.1
SE +/- 615.39, N = 3
96010
20K
40K
60K
80K
100K
1. (CXX) g++ options: -O2 -lcurl -lz -lpthread -lssl -lcrypto -lgmp
Cpuminer-Opt 3.20.3
Algorithm: Quad SHA-256, Pyrite
kH/s, More Is Better
Linux 5.10.130
SE +/- 820.33, N = 3
218830
Linux 5.15.83
SE +/- 6.67, N = 3
218493
Linux 6.1
SE +/- 258.61, N = 3
217237
50K
100K
150K
200K
250K
1. (CXX) g++ options: -O2 -lcurl -lz -lpthread -lssl -lcrypto -lgmp

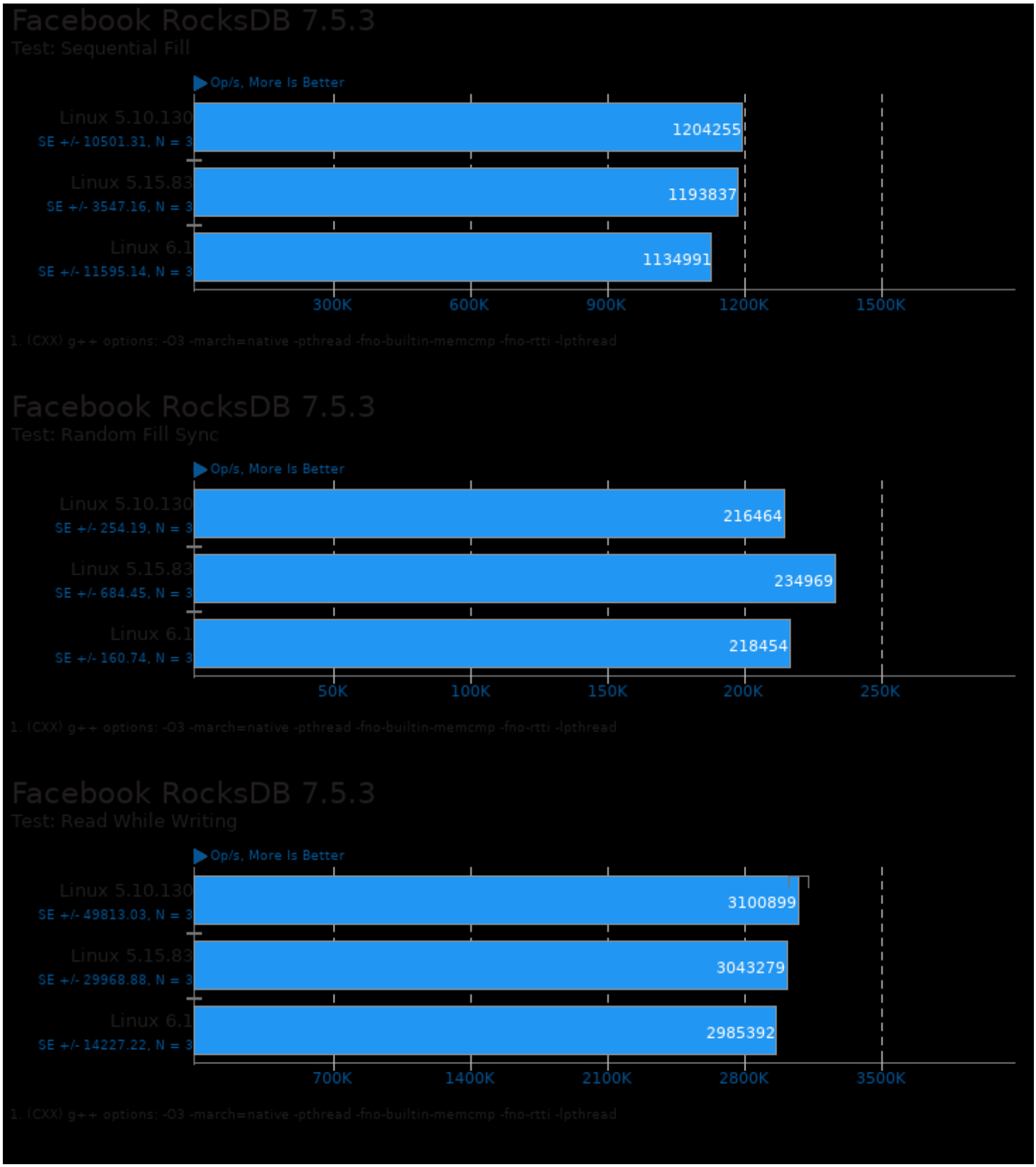

Cpuminer-Opt 3.20.3
Algorithm: Triple SHA-256, Onecoin
kH/s, More Is Better
Linux 5.10.130
SE +/- 2642.36, N = 3
315913
Linux 5.15.83
SE +/- 661.12, N = 3
313917
Linux 6.1
SE +/- 2222.66, N = 3
315723
70K
140K
210K
280K
350K
1. (CXX) g++ options: -O2 -lcurl -lz -lpthread -lssl -lcrypto -lgmp
ctx_clock
Context Switch Time
Clocks, Fewer Is Better
Linux 5.10.130
154
Linux 5.15.83
SE +/- 0.67, N = 3
179
Linux 6.1
200
40
80
120
160
200
Dragonflydb 0.6
Clients: 50 - Set To Get Ratio: 1:1
Ops/sec, More Is Better
Linux 5.10.130
SE +/- 19609.96, N = 13
978963.31
Linux 5.15.83
SE +/- 643.98, N = 3
1123953.55
Linux 6.1
SE +/- 1471.72, N = 3
1130454.03
200K
400K
600K
800K
1000K
1. (CXX) g++ options: -O2 -levent_openssl -levent -lcrypto -lssl -lpthread -lz -lpcre

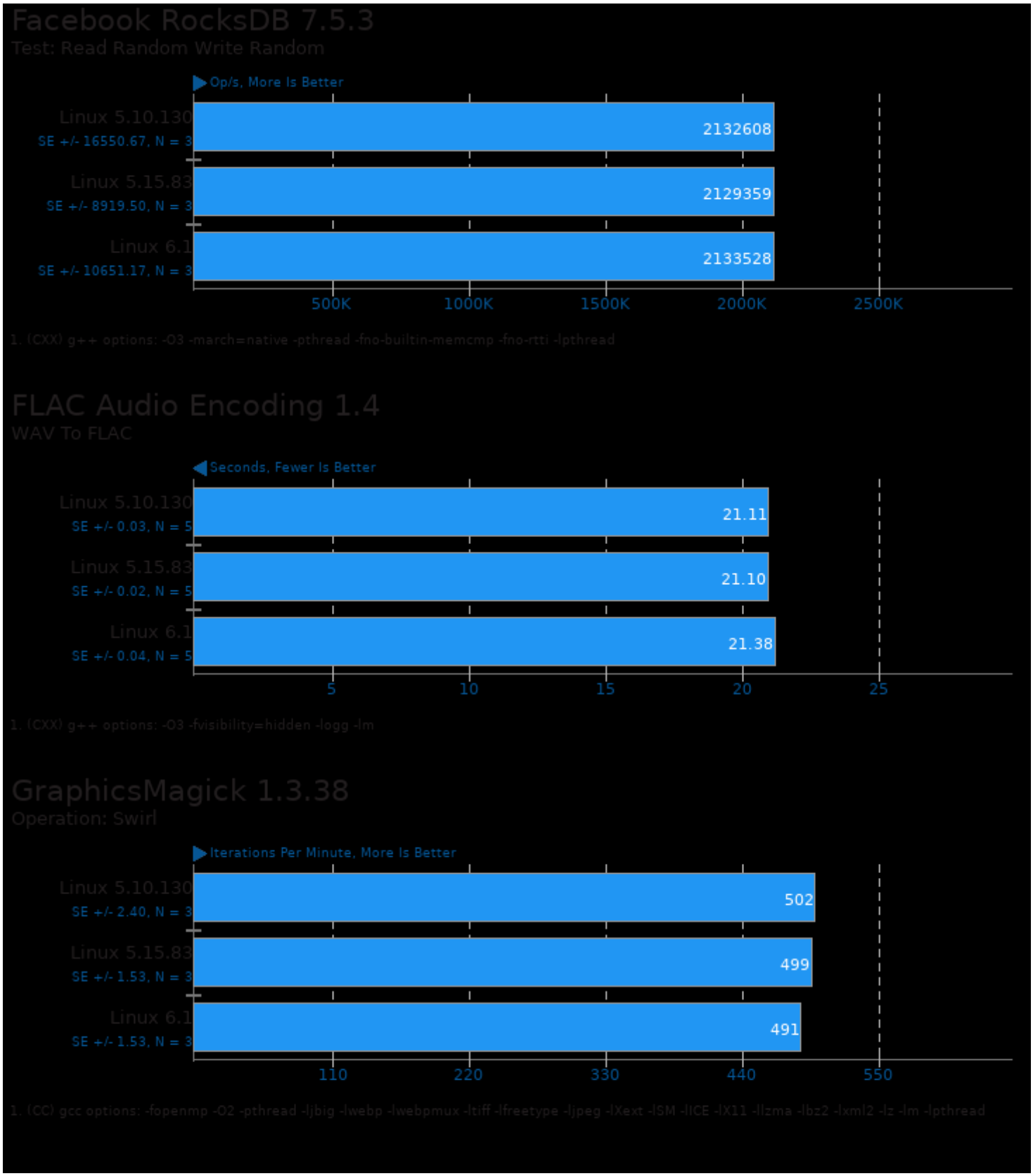

Dragonflydb 0.6
Clients: 50 - Set To Get Ratio: 1:5
Ops/sec, More Is Better
Linux 5.10.130
SE +/- 872.80, N = 3
1047699.23
Linux 5.15.83
SE +/- 1515.54, N = 3
1186278.25
Linux 6.1
SE +/- 1580.99, N = 3
1180450.09
300K
600K
900K
1200K
1500K
1. (CXX) g++ options: -O2 -levent_openssl -levent -lcrypto -lssl -lpthread -lz -lpcre
Dragonflydb 0.6
Clients: 50 - Set To Get Ratio: 5:1
Ops/sec, More Is Better
Linux 5.10.130
SE +/- 8046.26, N = 3
989148.97
Linux 5.15.83
SE +/- 3987.52, N = 3
1068662.91
Linux 6.1
SE +/- 741.75, N = 3
1074996.43
200K
400K
600K
800K
1000K
1. (CXX) g++ options: -O2 -levent_openssl -levent -lcrypto -lssl -lpthread -lz -lpcre
Dragonflydb 0.6
Clients: 200 - Set To Get Ratio: 1:1
Ops/sec, More Is Better
Linux 5.10.130
SE +/- 1890.11, N = 3
971725.25
Linux 5.15.83
SE +/- 1111.75, N = 3
1060251.05
Linux 6.1
SE +/- 6338.63, N = 3
1046604.15
200K
400K
600K
800K
1000K
1. (CXX) g++ options: -O2 -levent_openssl -levent -lcrypto -lssl -lpthread -lz -lpcre

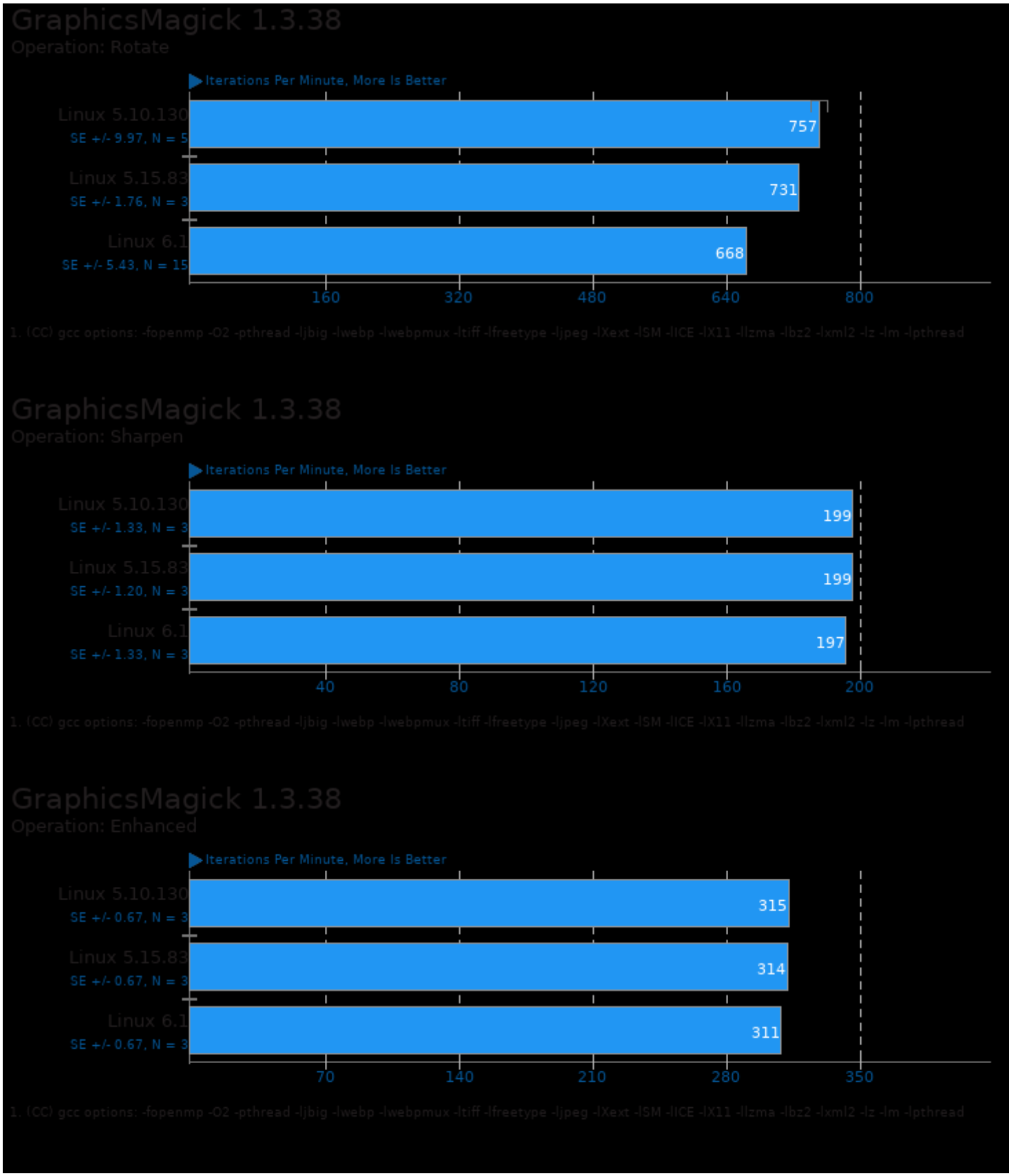

Dragonflydb 0.6
Clients: 200 - Set To Get Ratio: 1:5
Ops/sec, More Is Better
Linux 5.10.130
SE +/- 515.57, N = 3
1021149.38
Linux 5.15.83
SE +/- 3993.93, N = 3
1117321.90
Linux 6.1
SE +/- 797.47, N = 3
1099078.40
200K
400K
600K
800K
1000K
1. (CXX) g++ options: -O2 -levent_openssl -levent -lcrypto -lssl -lpthread -lz -lpcre
Dragonflydb 0.6
Clients: 200 - Set To Get Ratio: 5:1
Ops/sec, More Is Better
Linux 5.10.130
SE +/- 4444.49, N = 3
918617.37
Linux 5.15.83
SE +/- 845.72, N = 3
993337.90
Linux 6.1
SE +/- 1905.52, N = 3
979549.43
200K
400K
600K
800K
1000K
1. (CXX) g++ options: -O2 -levent_openssl -levent -lcrypto -lssl -lpthread -lz -lpcre
EnCodec 0.1.1
Target Bandwidth: 3 kbps
Seconds, Fewer Is Better
Linux 5.10.130
SE +/- 0.21, N = 3
29.14
Linux 5.15.83
SE +/- 0.34, N = 6
28.66
Linux 6.1
SE +/- 0.30, N = 8
30.43
7
14
21
28
35

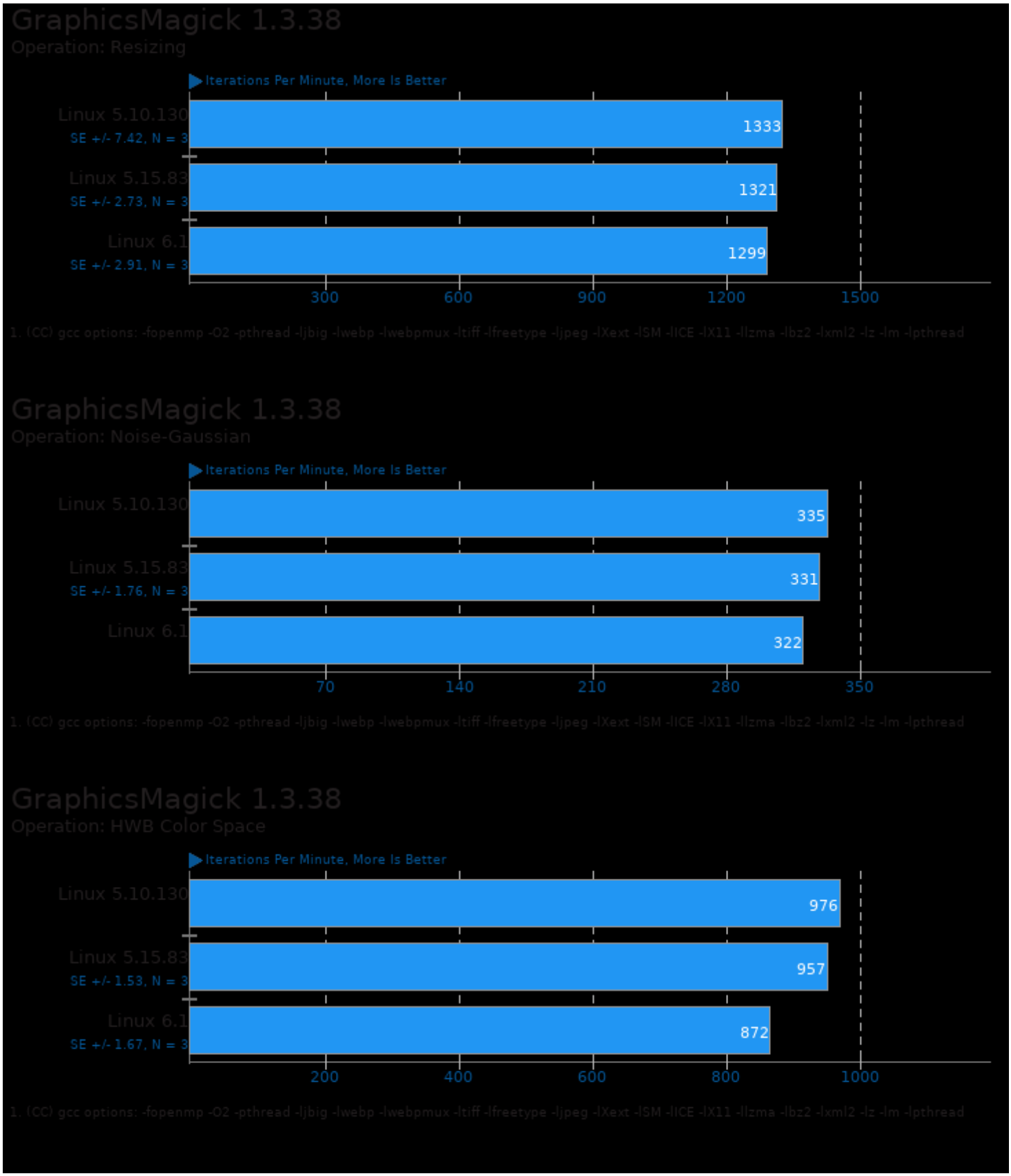

EnCodec 0.1.1
Target Bandwidth: 6 kbps
Seconds, Fewer Is Better
Linux 5.10.130
SE +/- 0.11, N = 3
29.50
Linux 5.15.83
SE +/- 0.11, N = 3
29.53
Linux 6.1
SE +/- 0.09, N = 3
32.02
7
14
21
28
35
EnCodec 0.1.1
Target Bandwidth: 24 kbps
Seconds, Fewer Is Better
Linux 5.10.130
SE +/- 0.02, N = 3
34.16
Linux 5.15.83
SE +/- 0.20, N = 3
33.92
Linux 6.1
SE +/- 0.13, N = 3
36.32
8
16
24
32
40
EnCodec 0.1.1
Target Bandwidth: 1.5 kbps
Seconds, Fewer Is Better
Linux 5.10.130
SE +/- 0.29, N = 8
28.21
Linux 5.15.83
SE +/- 0.33, N = 3
28.35
Linux 6.1
SE +/- 0.30, N = 9
30.49
7
14
21
28
35

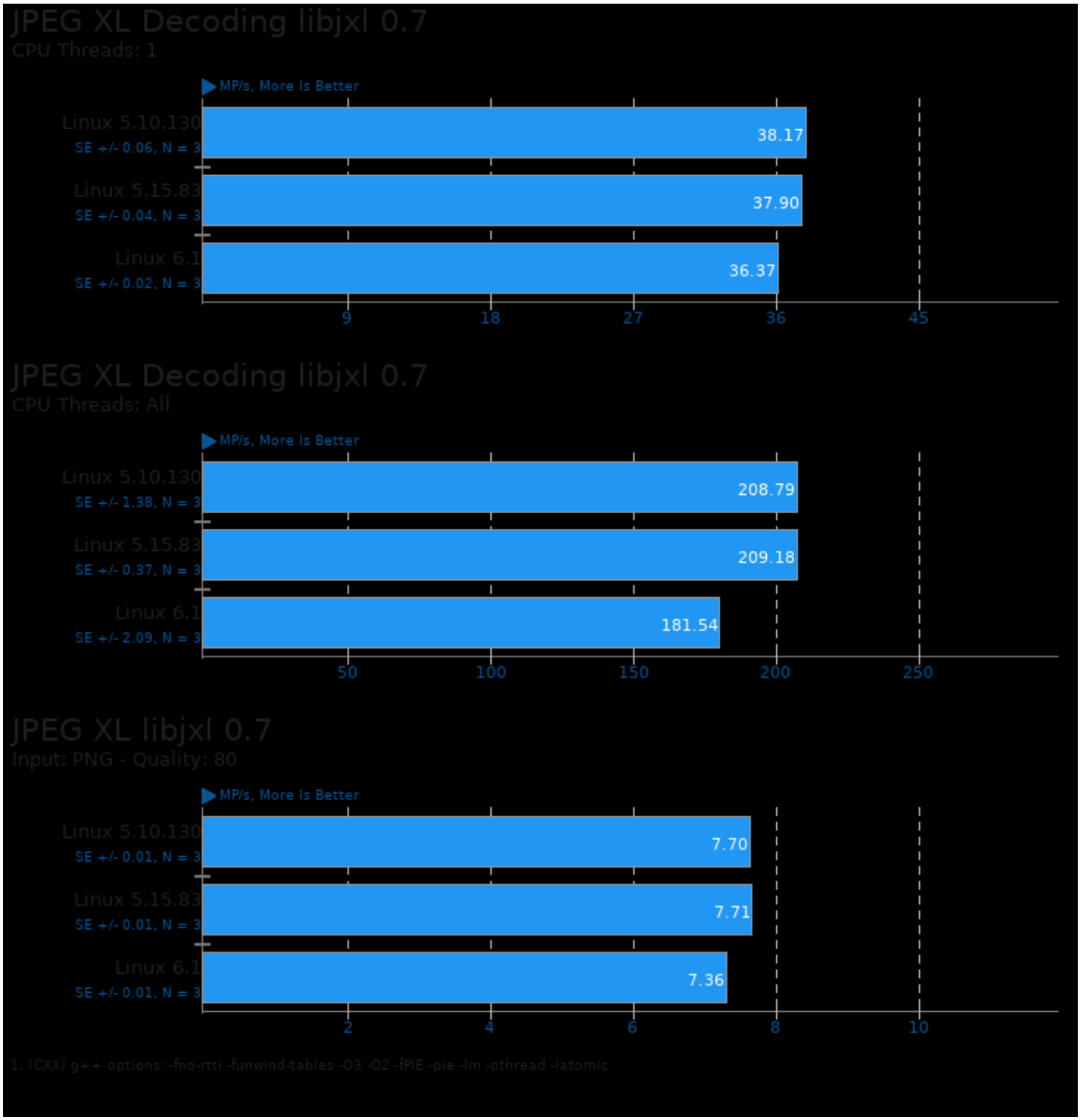

Facebook RocksDB 7.5.3
Test: Random Fill
Op/s, More Is Better
Linux 5.10.130
SE +/- 10947.16, N = 3
983199
Linux 5.15.83
SE +/- 11892.65, N = 3
982848
Linux 6.1
SE +/- 2558.50, N = 3
935285
200K
400K
600K
800K
1000K
1. (CXX) g++ options: -O3 -march=native -pthread -fno-builtin-memcmp -fno-rtti -lpthread
Facebook RocksDB 7.5.3
Test: Random Read
Op/s, More Is Better
Linux 5.10.130
SE +/- 547664.44, N = 3
65094239
Linux 5.15.83
SE +/- 139131.71, N = 3
65233649
Linux 6.1
SE +/- 360247.64, N = 3
65337175
14M
28M
42M
56M
70M
1. (CXX) g++ options: -O3 -march=native -pthread -fno-builtin-memcmp -fno-rtti -lpthread
Facebook RocksDB 7.5.3
Test: Update Random
Op/s, More Is Better
Linux 5.10.130
SE +/- 3662.51, N = 3
625695
Linux 5.15.83
SE +/- 1069.98, N = 3
616626
Linux 6.1
SE +/- 2022.46, N = 3
594485
130K
260K
390K
520K
650K
1. (CXX) g++ options: -O3 -march=native -pthread -fno-builtin-memcmp -fno-rtti -lpthread

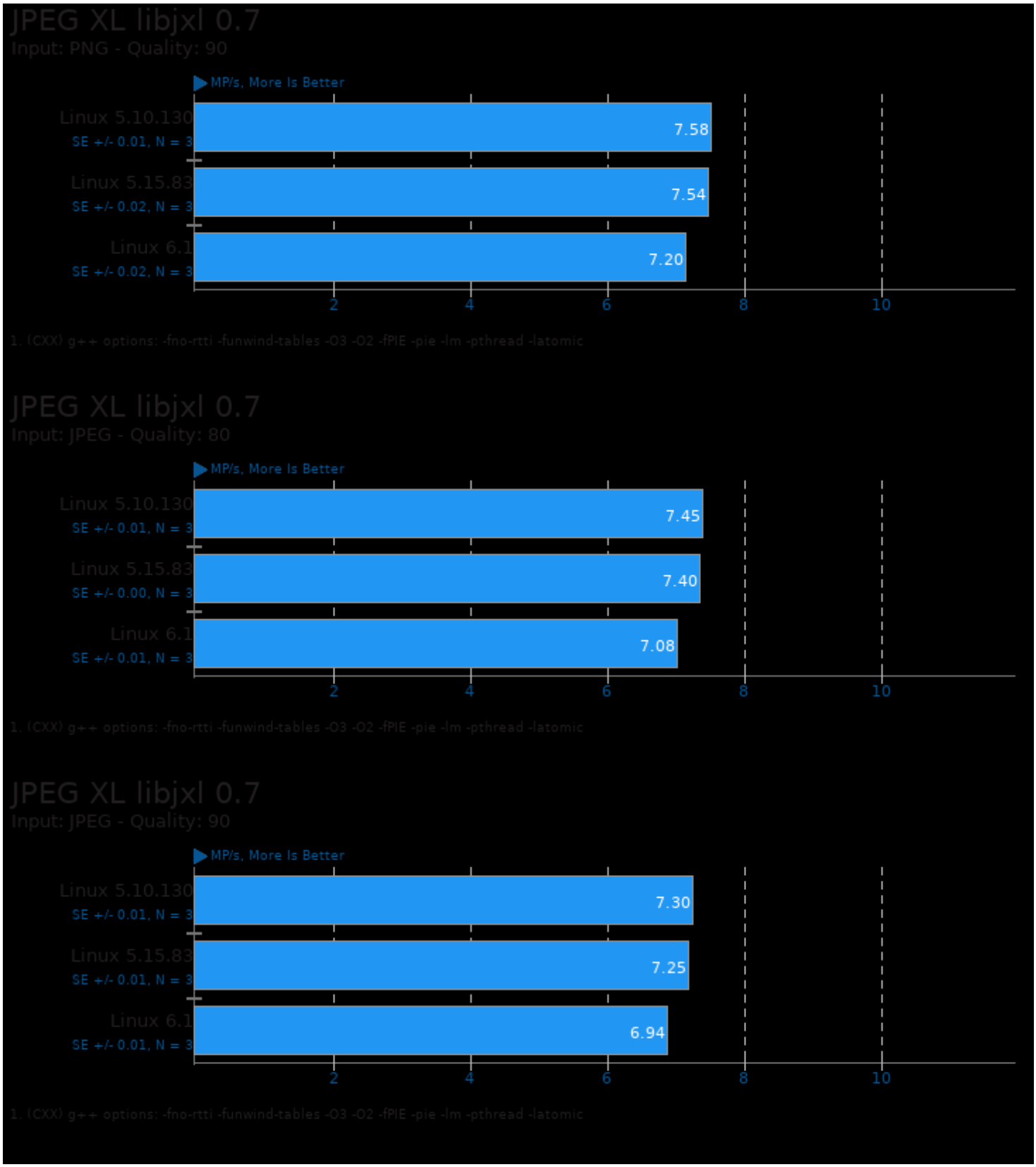

Facebook RocksDB 7.5.3
Test: Sequential Fill
Op/s, More Is Better
Linux 5.10.130
SE +/- 10501.31, N = 3
1204255
Linux 5.15.83
SE +/- 3547.16, N = 3
1193837
Linux 6.1
SE +/- 11595.14, N = 3
1134991
300K
600K
900K
1200K
1500K
1. (CXX) g++ options: -O3 -march=native -pthread -fno-builtin-memcmp -fno-rtti -lpthread
Facebook RocksDB 7.5.3
Test: Random Fill Sync
Op/s, More Is Better
Linux 5.10.130
SE +/- 254.19, N = 3
216464
Linux 5.15.83
SE +/- 684.45, N = 3
234969
Linux 6.1
SE +/- 160.74, N = 3
218454
50K
100K
150K
200K
250K
1. (CXX) g++ options: -O3 -march=native -pthread -fno-builtin-memcmp -fno-rtti -lpthread
Facebook RocksDB 7.5.3
Test: Read While Writing
Op/s, More Is Better
Linux 5.10.130
SE +/- 49813.03, N = 3
3100899
Linux 5.15.83
SE +/- 29968.88, N = 3
3043279
Linux 6.1
SE +/- 14227.22, N = 3
2985392
700K
1400K
2100K
2800K
3500K
1. (CXX) g++ options: -O3 -march=native -pthread -fno-builtin-memcmp -fno-rtti -lpthread

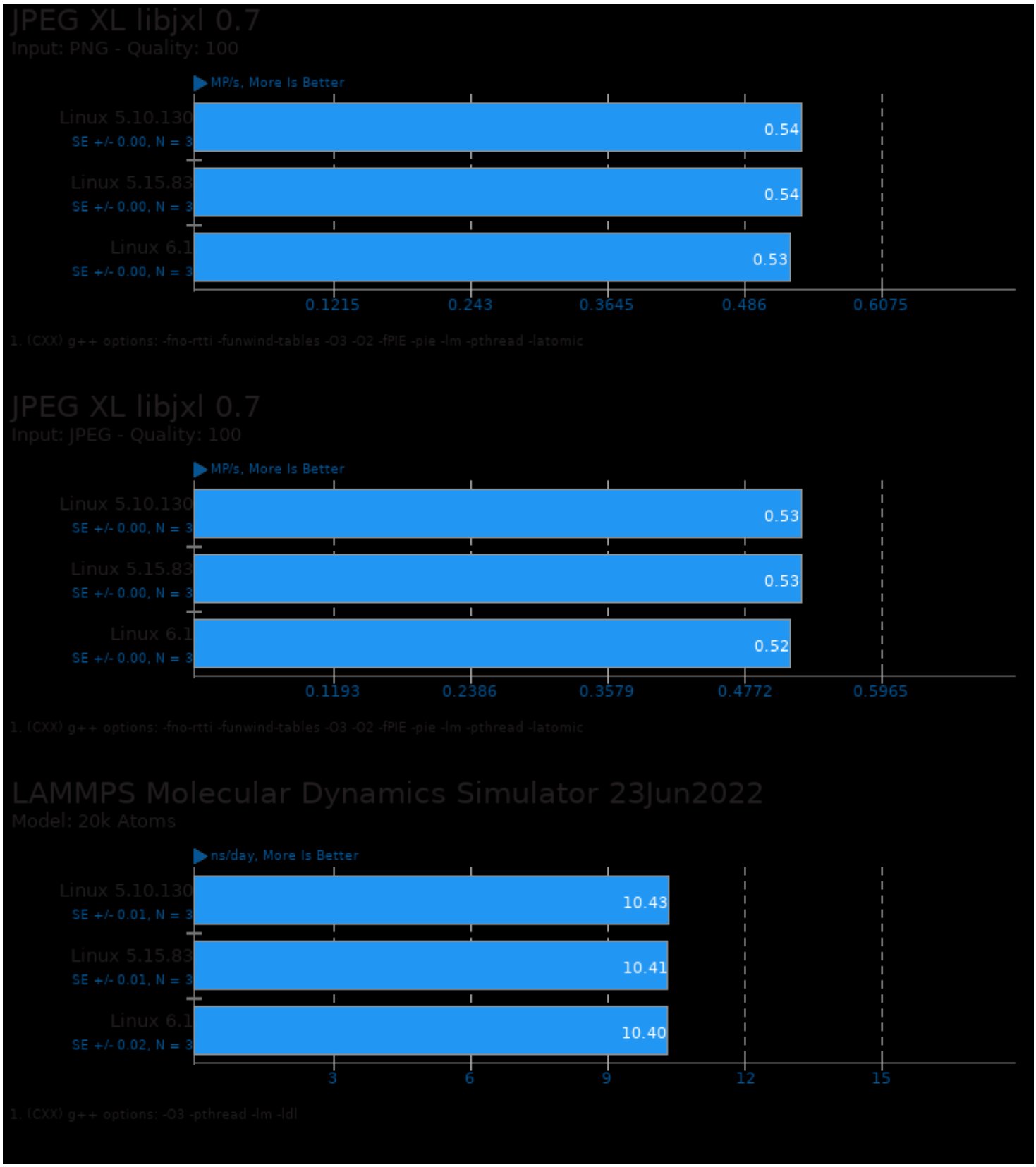

Facebook RocksDB 7.5.3
Test: Read Random Write Random
Op/s, More Is Better
Linux 5.10.130
SE +/- 16550.67, N = 3
2132608
Linux 5.15.83
SE +/- 8919.50, N = 3
2129359
Linux 6.1
SE +/- 10651.17, N = 3
2133528
500K
1000K
1500K
2000K
2500K
1. (CXX) g++ options: -O3 -march=native -pthread -fno-builtin-memcmp -fno-rtti -lpthread
FLAC Audio Encoding 1.4
WAV To FLAC
Seconds, Fewer Is Better
Linux 5.10.130
SE +/- 0.03, N = 5
21.11
Linux 5.15.83
SE +/- 0.02, N = 5
21.10
Linux 6.1
SE +/- 0.04, N = 5
21.38
5
10
15
20
25
1. (CXX) g++ options: -O3 -fvisibility=hidden -logg -lm
GraphicsMagick 1.3.38
Operation: Swirl
Iterations Per Minute, More Is Better
Linux 5.10.130
SE +/- 2.40, N = 3
502
Linux 5.15.83
SE +/- 1.53, N = 3
499
Linux 6.1
SE +/- 1.53, N = 3
491
110
220
330
440
550
1. (CC) gcc options: -fopenmp -O2 -pthread -ljbig -lwebp -lwebpmux -ltiff -lfreetype -ljpeg -lXext -lSM -lICE -lX11 -llzma -lbz2 -lxml2 -lz -lm -lpthread

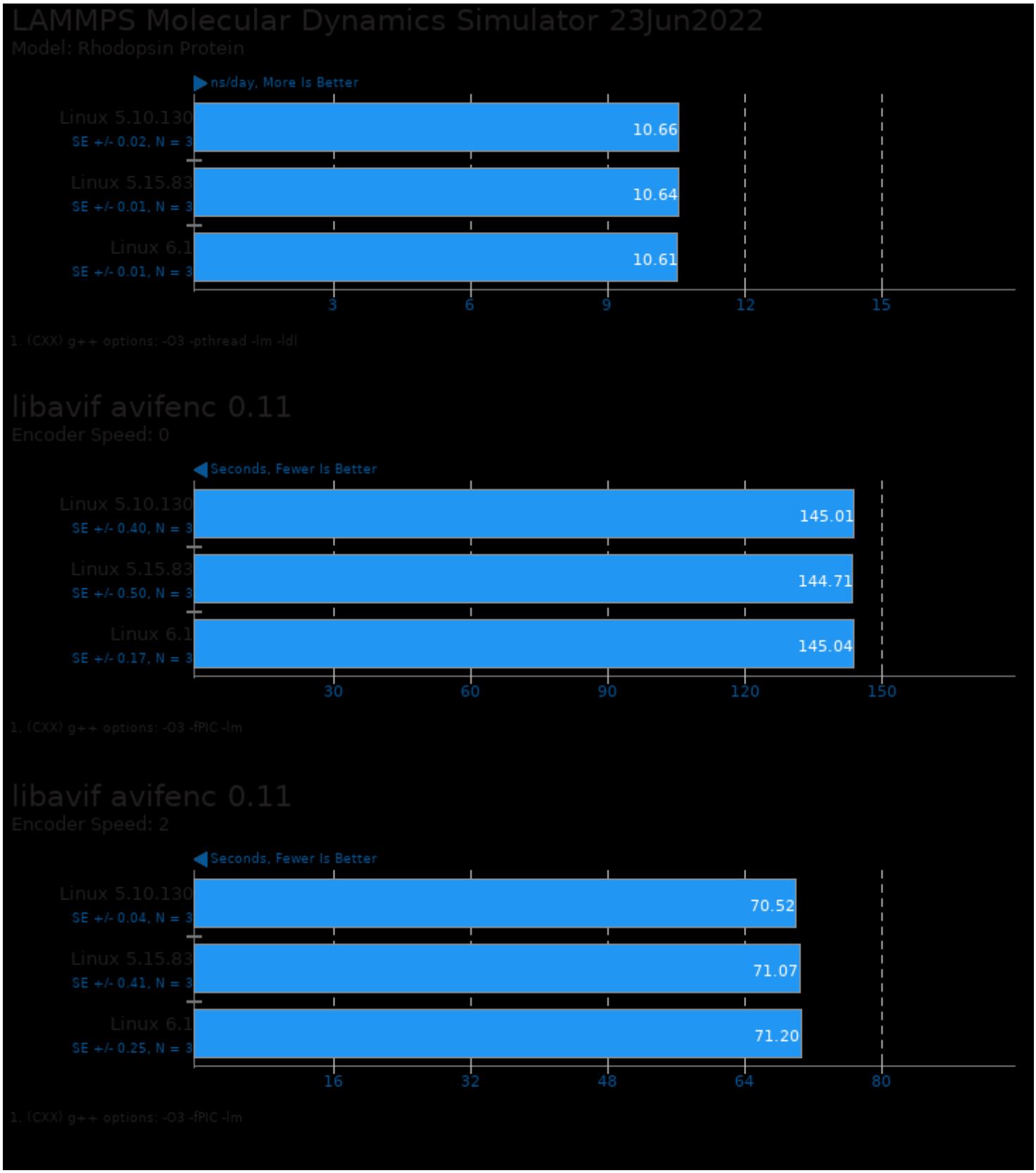

GraphicsMagick 1.3.38
Operation: Rotate
Iterations Per Minute, More Is Better
Linux 5.10.130
SE +/- 9.97, N = 5
757
Linux 5.15.83
SE +/- 1.76, N = 3
731
Linux 6.1
SE +/- 5.43, N = 15
668
160
320
480
640
800
1. (CC) gcc options: -fopenmp -O2 -pthread -ljbig -lwebp -lwebpmux -ltiff -lfreetype -ljpeg -lXext -lSM -lICE -lX11 -llzma -lbz2 -lxml2 -lz -lm -lpthread
GraphicsMagick 1.3.38
Operation: Sharpen
Iterations Per Minute, More Is Better
Linux 5.10.130
SE +/- 1.33, N = 3
199
Linux 5.15.83
SE +/- 1.20, N = 3
199
Linux 6.1
SE +/- 1.33, N = 3
197
40
80
120
160
200
1. (CC) gcc options: -fopenmp -O2 -pthread -ljbig -lwebp -lwebpmux -ltiff -lfreetype -ljpeg -lXext -lSM -lICE -lX11 -llzma -lbz2 -lxml2 -lz -lm -lpthread
GraphicsMagick 1.3.38
Operation: Enhanced
Iterations Per Minute, More Is Better
Linux 5.10.130
SE +/- 0.67, N = 3
315
Linux 5.15.83
SE +/- 0.67, N = 3
314
Linux 6.1
SE +/- 0.67, N = 3
311
70
140
210
280
350
1. (CC) gcc options: -fopenmp -O2 -pthread -ljbig -lwebp -lwebpmux -ltiff -lfreetype -ljpeg -lXext -lSM -lICE -lX11 -llzma -lbz2 -lxml2 -lz -lm -lpthread

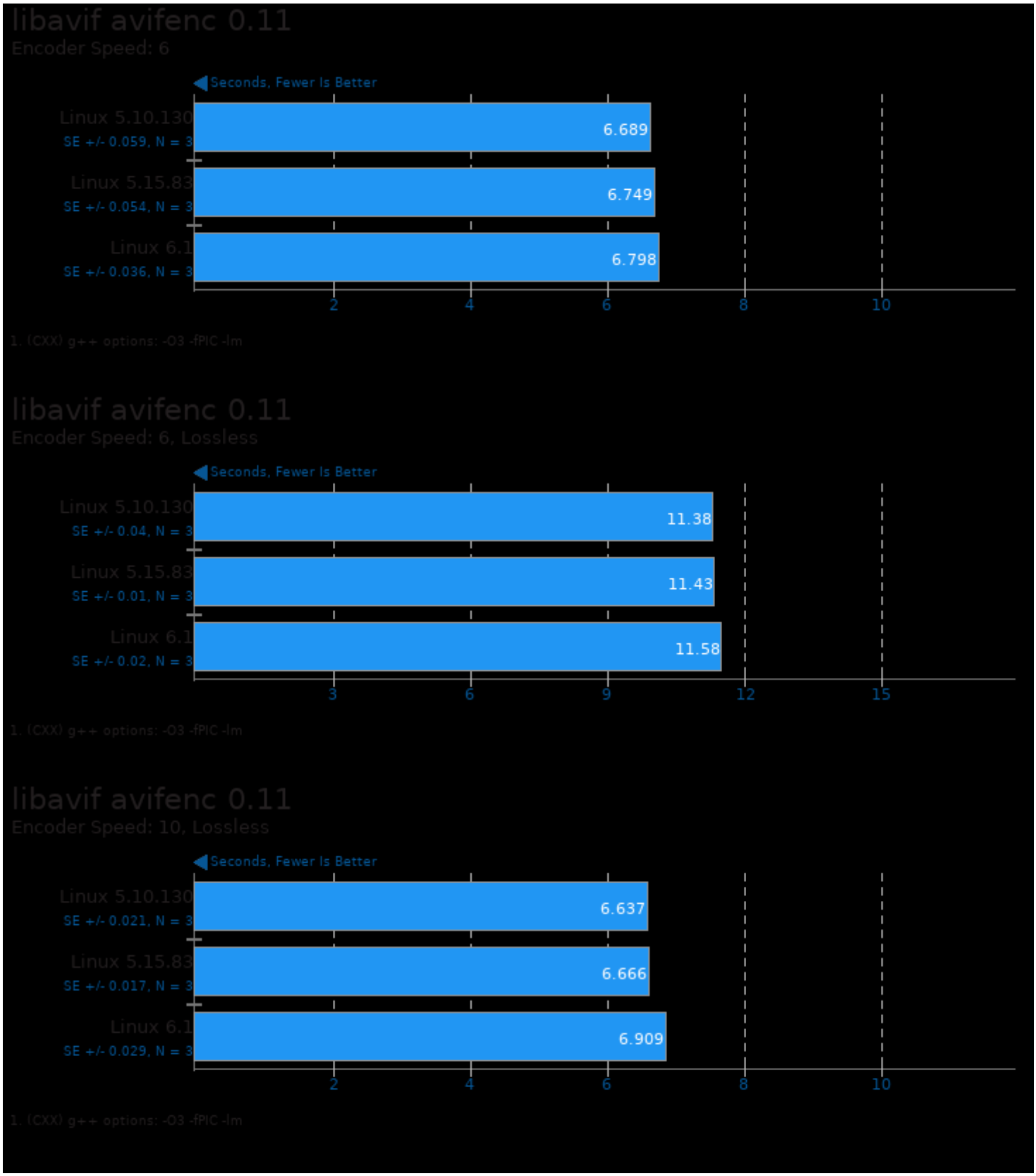

GraphicsMagick 1.3.38
Operation: Resizing
Iterations Per Minute, More Is Better
Linux 5.10.130
1333
Linux 5.15.83
SE +/- 2.73, N = 3
1321
Linux 6.1
SE +/- 2.91, N = 3
1299
300
600
900
1200
1500
1. (CC) gcc options: -fopenmp -O2 -pthread -ljbig -lwebp -lwebpmux -ltiff -lfreetype -ljpeg -lXext -lSM -lICE -lX11 -llzma -lbz2 -lxml2 -lz -lm -lpthread
GraphicsMagick 1.3.38
Operation: Noise-Gaussian
Iterations Per Minute, More Is Better
Linux 5.10.130
335
Linux 5.15.83
SE +/- 1.76, N = 3
331
Linux 6.1
322
70
140
210
280
350
1. (CC) gcc options: -fopenmp -O2 -pthread -ljbig -lwebp -lwebpmux -ltiff -lfreetype -ljpeg -lXext -lSM -lICE -lX11 -llzma -lbz2 -lxml2 -lz -lm -lpthread
GraphicsMagick 1.3.38
Operation: HWB Color Space
Iterations Per Minute, More Is Better
Linux 5.10.130
976
Linux 5.15.83
SE +/- 1.53, N = 3
957
Linux 6.1
SE +/- 1.67, N = 3
872
200
400
600
800
1000
1. (CC) gcc options: -fopenmp -O2 -pthread -ljbig -lwebp -lwebpmux -ltiff -lfreetype -ljpeg -lXext -lSM -lICE -lX11 -llzma -lbz2 -lxml2 -lz -lm -lpthread

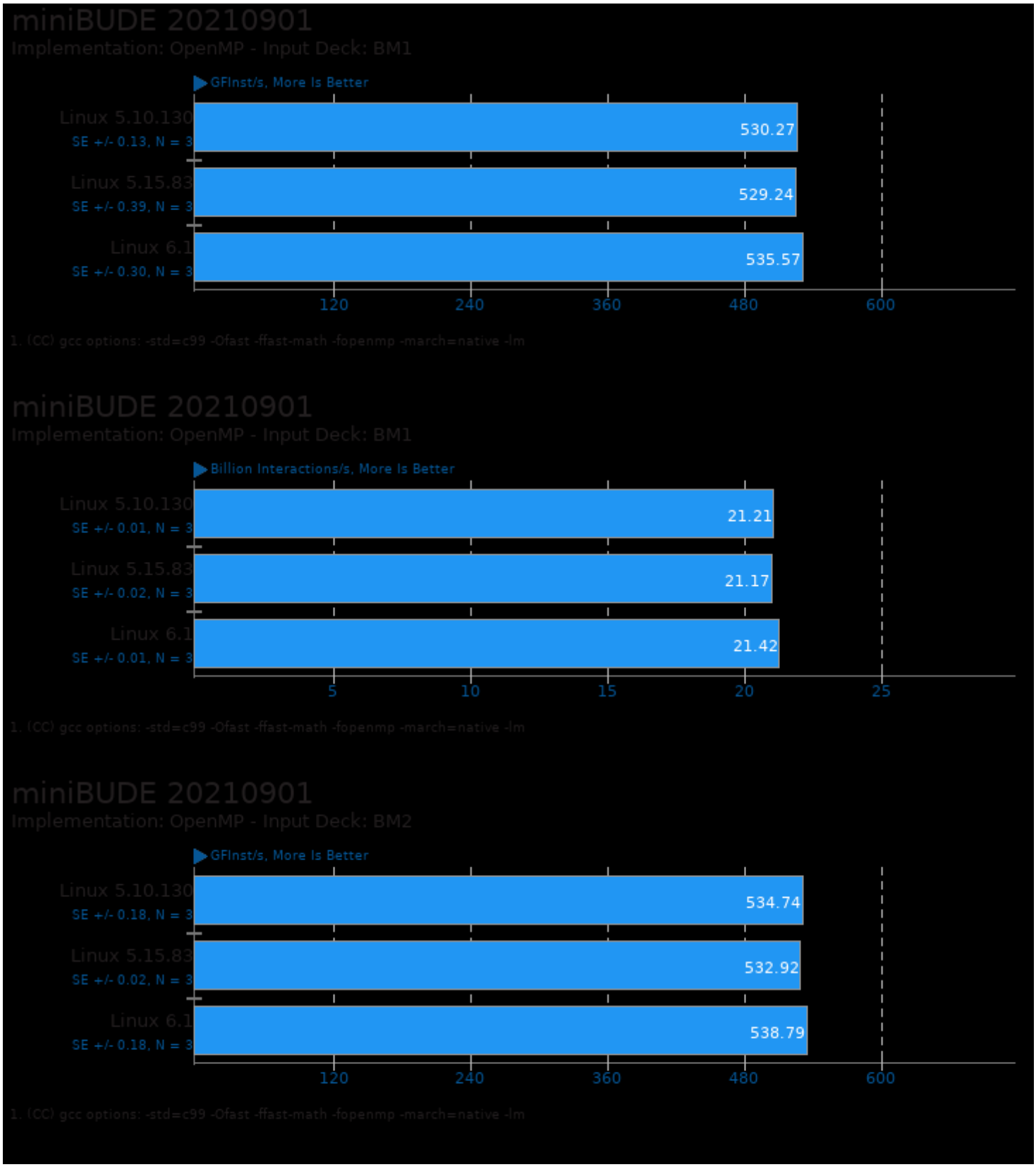

JPEG XL Decoding libjxl 0.7
CPU Threads: 1
MP/s, More Is Better
Linux 5.10.130
SE +/- 0.06, N = 3
38.17
Linux 5.15.83
SE +/- 0.04, N = 3
37.90
Linux 6.1
SE +/- 0.02, N = 3
36.37
9
18
27
36
45
JPEG XL Decoding libjxl 0.7
CPU Threads: All
MP/s, More Is Better
Linux 5.10.130
SE +/- 1.38, N = 3
208.79
Linux 5.15.83
SE +/- 0.37, N = 3
209.18
Linux 6.1
SE +/- 2.09, N = 3
181.54
50
100
150
200
250
JPEG XL libjxl 0.7
Input: PNG - Quality: 80
MP/s, More Is Better
Linux 5.10.130
SE +/- 0.01, N = 3
7.70
Linux 5.15.83
SE +/- 0.01, N = 3
7.71
Linux 6.1
SE +/- 0.01, N = 3
7.36
2
4
6
8
10
1. (CXX) g++ options: -fno-rtti -funwind-tables -O3 -O2 -fPIE -pie -lm -pthread -latomic

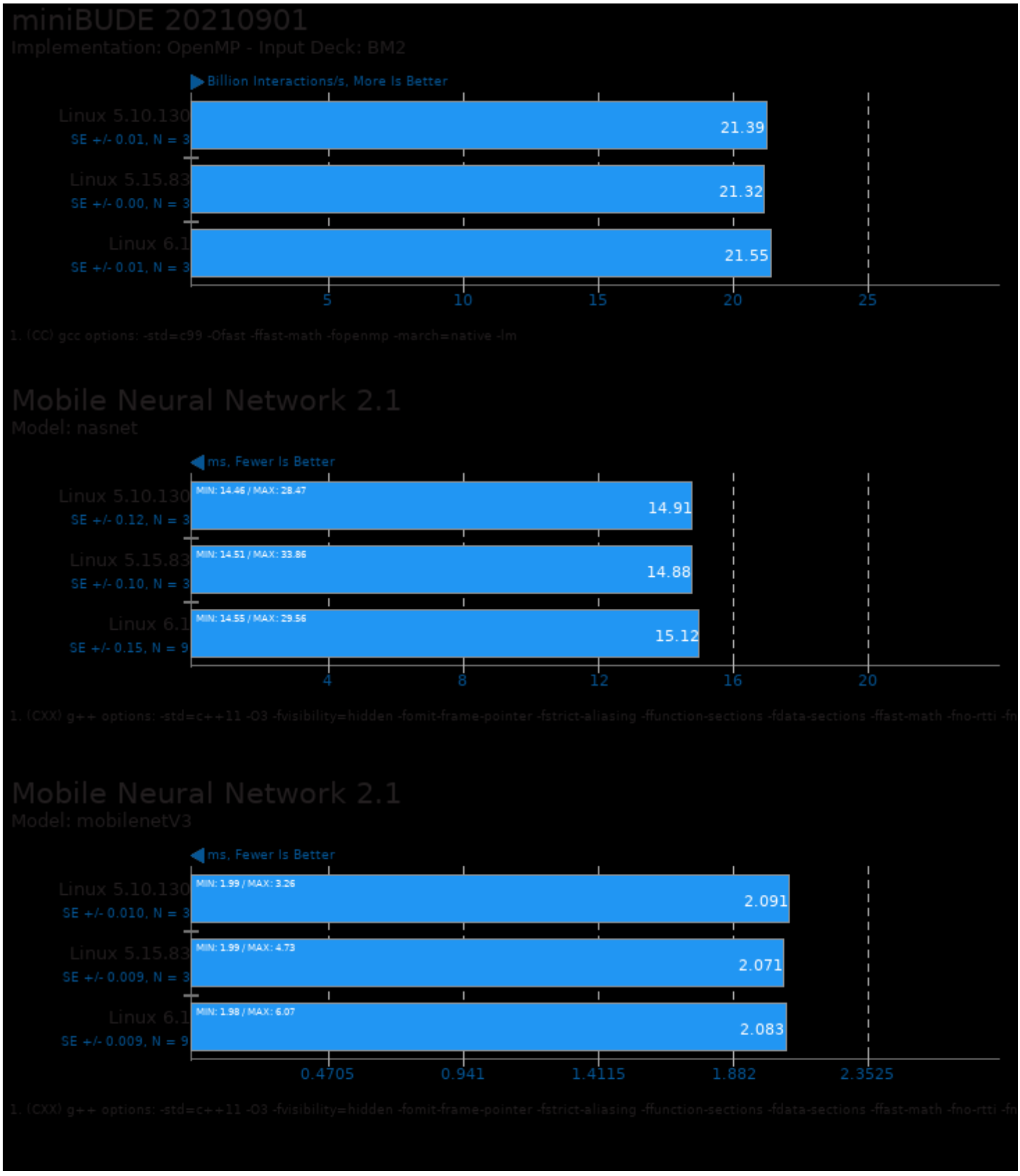

JPEG XL libjxl 0.7
Input: PNG - Quality: 90
MP/s, More Is Better
Linux 5.10.130
SE +/- 0.01, N = 3
7.58
Linux 5.15.83
SE +/- 0.02, N = 3
7.54
Linux 6.1
SE +/- 0.02, N = 3
7.20
2
4
6
8
10
1. (CXX) g++ options: -fno-rtti -funwind-tables -O3 -O2 -fPIE -pie -lm -pthread -latomic
JPEG XL libjxl 0.7
Input: JPEG - Quality: 80
MP/s, More Is Better
Linux 5.10.130
SE +/- 0.01, N = 3
7.45
Linux 5.15.83
SE +/- 0.00, N = 3
7.40
Linux 6.1
SE +/- 0.01, N = 3
7.08
2
4
6
8
10
1. (CXX) g++ options: -fno-rtti -funwind-tables -O3 -O2 -fPIE -pie -lm -pthread -latomic
JPEG XL libjxl 0.7
Input: JPEG - Quality: 90
MP/s, More Is Better
Linux 5.10.130
SE +/- 0.01, N = 3
7.30
Linux 5.15.83
SE +/- 0.01, N = 3
7.25
Linux 6.1
SE +/- 0.01, N = 3
6.94
2
4
6
8
10
1. (CXX) g++ options: -fno-rtti -funwind-tables -O3 -O2 -fPIE -pie -lm -pthread -latomic

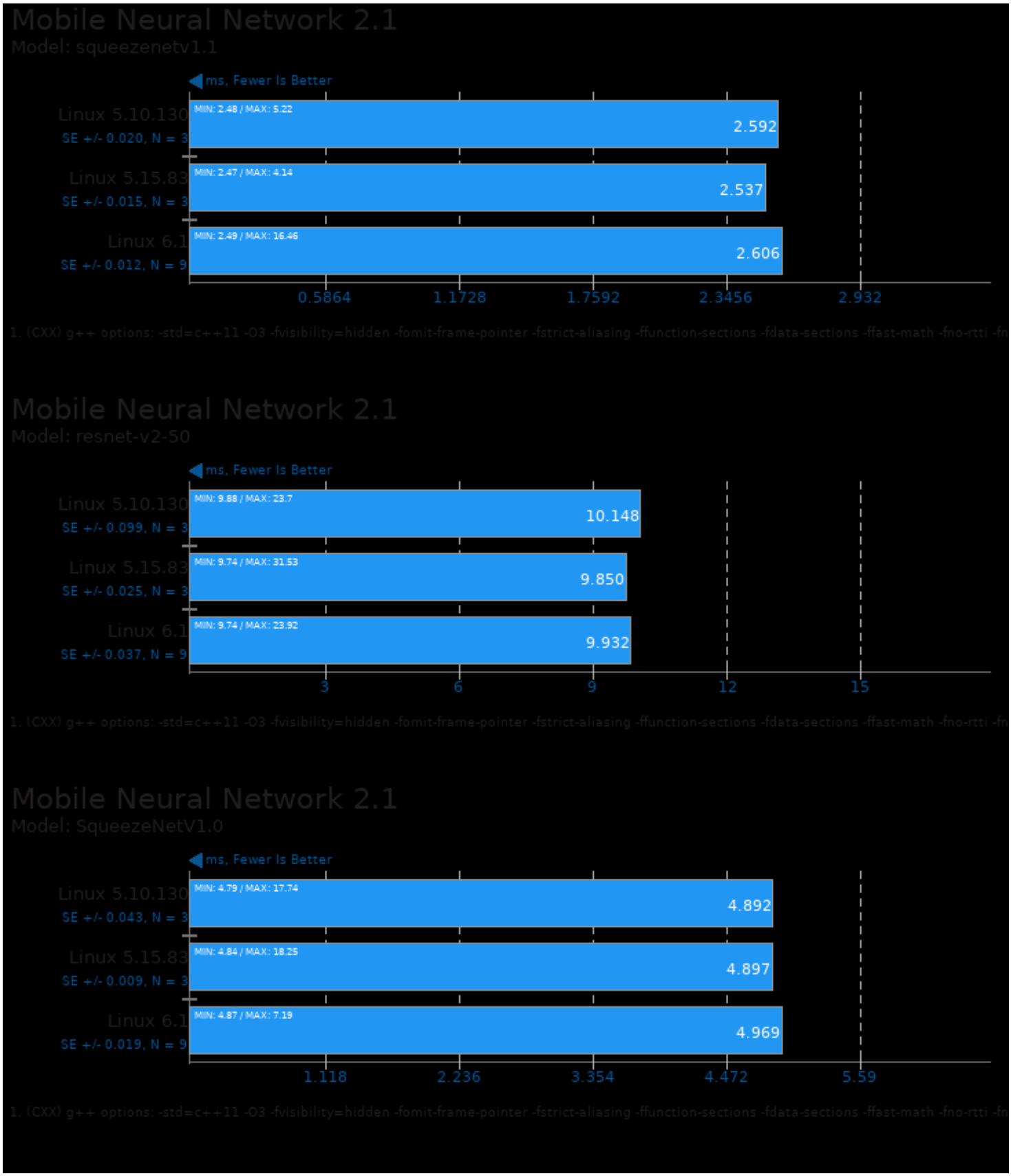

JPEG XL libjxl 0.7
Input: PNG - Quality: 100
MP/s, More Is Better
Linux 5.10.130
SE +/- 0.00, N = 3
0.54
Linux 5.15.83
SE +/- 0.00, N = 3
0.54
Linux 6.1
SE +/- 0.00, N = 3
0.53
0.1215
0.243
0.3645
0.486
0.6075
1. (CXX) g++ options: -fno-rtti -funwind-tables -O3 -O2 -fPIE -pie -lm -pthread -latomic
JPEG XL libjxl 0.7
Input: JPEG - Quality: 100
MP/s, More Is Better
Linux 5.10.130
SE +/- 0.00, N = 3
0.53
Linux 5.15.83
SE +/- 0.00, N = 3
0.53
Linux 6.1
SE +/- 0.00, N = 3
0.52
0.1193
0.2386
0.3579
0.4772
0.5965
1. (CXX) g++ options: -fno-rtti -funwind-tables -O3 -O2 -fPIE -pie -lm -pthread -latomic
LAMMPS Molecular Dynamics Simulator 23Jun2022
Model: 20k Atoms
ns/day, More Is Better
Linux 5.10.130
SE +/- 0.01, N = 3
10.43
Linux 5.15.83
SE +/- 0.01, N = 3
10.41
Linux 6.1
SE +/- 0.02, N = 3
10.40
3
6
9
12
15
1. (CXX) g++ options: -O3 -pthread -lm -ldl

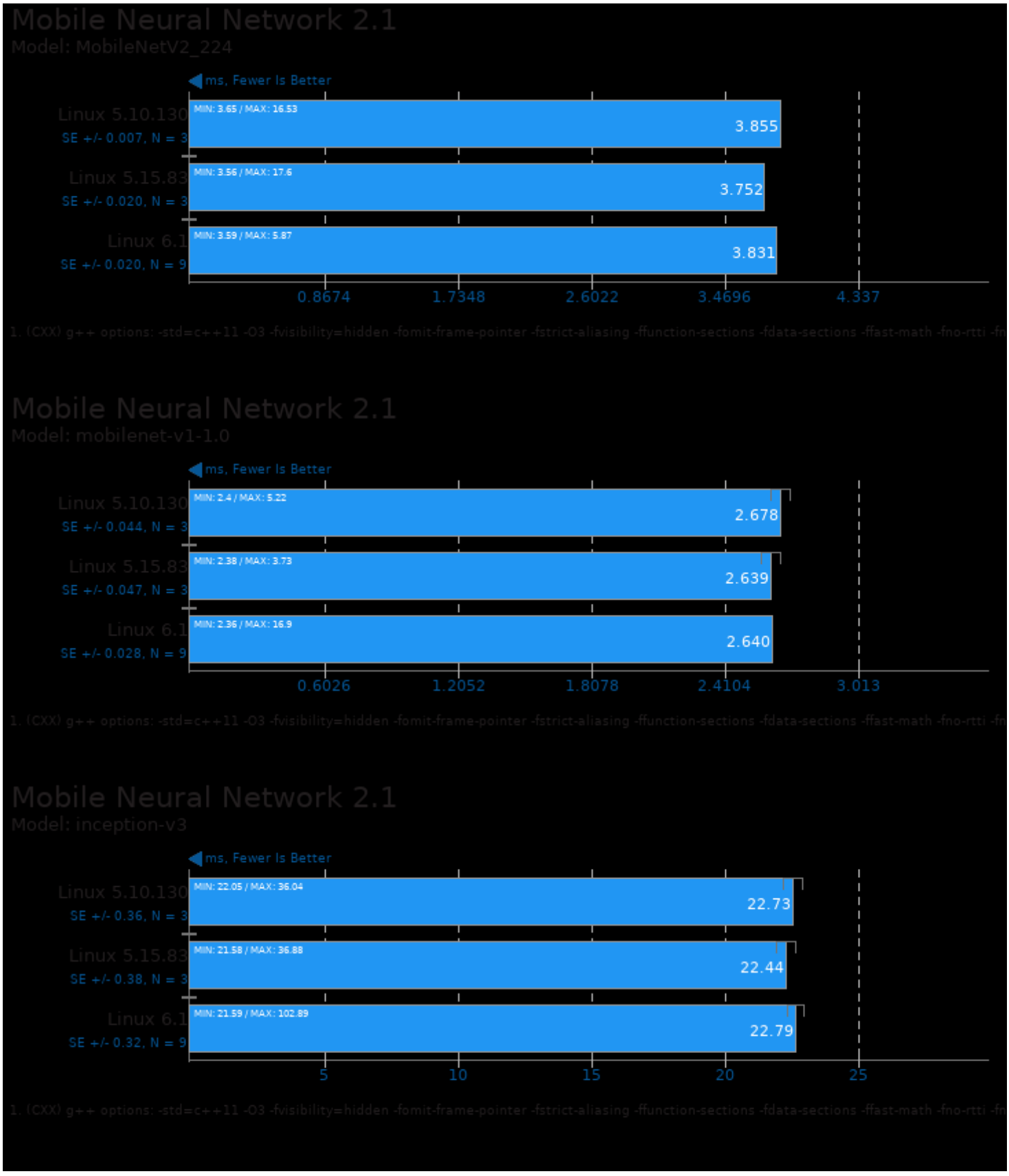

LAMMPS Molecular Dynamics Simulator 23Jun2022
Model: Rhodopsin Protein
ns/day, More Is Better
Linux 5.10.130
SE +/- 0.02, N = 3
10.66
Linux 5.15.83
SE +/- 0.01, N = 3
10.64
Linux 6.1
SE +/- 0.01, N = 3
10.61
3
6
9
12
15
1. (CXX) g++ options: -O3 -pthread -lm -ldl
libavif avifenc 0.11
Encoder Speed: 0
Seconds, Fewer Is Better
Linux 5.10.130
SE +/- 0.40, N = 3
145.01
Linux 5.15.83
SE +/- 0.50, N = 3
144.71
Linux 6.1
SE +/- 0.17, N = 3
145.04
30
60
90
120
150
1. (CXX) g++ options: -O3 -fPIC -lm
libavif avifenc 0.11
Encoder Speed: 2
Seconds, Fewer Is Better
Linux 5.10.130
SE +/- 0.04, N = 3
70.52
Linux 5.15.83
SE +/- 0.41, N = 3
71.07
Linux 6.1
SE +/- 0.25, N = 3
71.20
16
32
48
64
80
1. (CXX) g++ options: -O3 -fPIC -lm

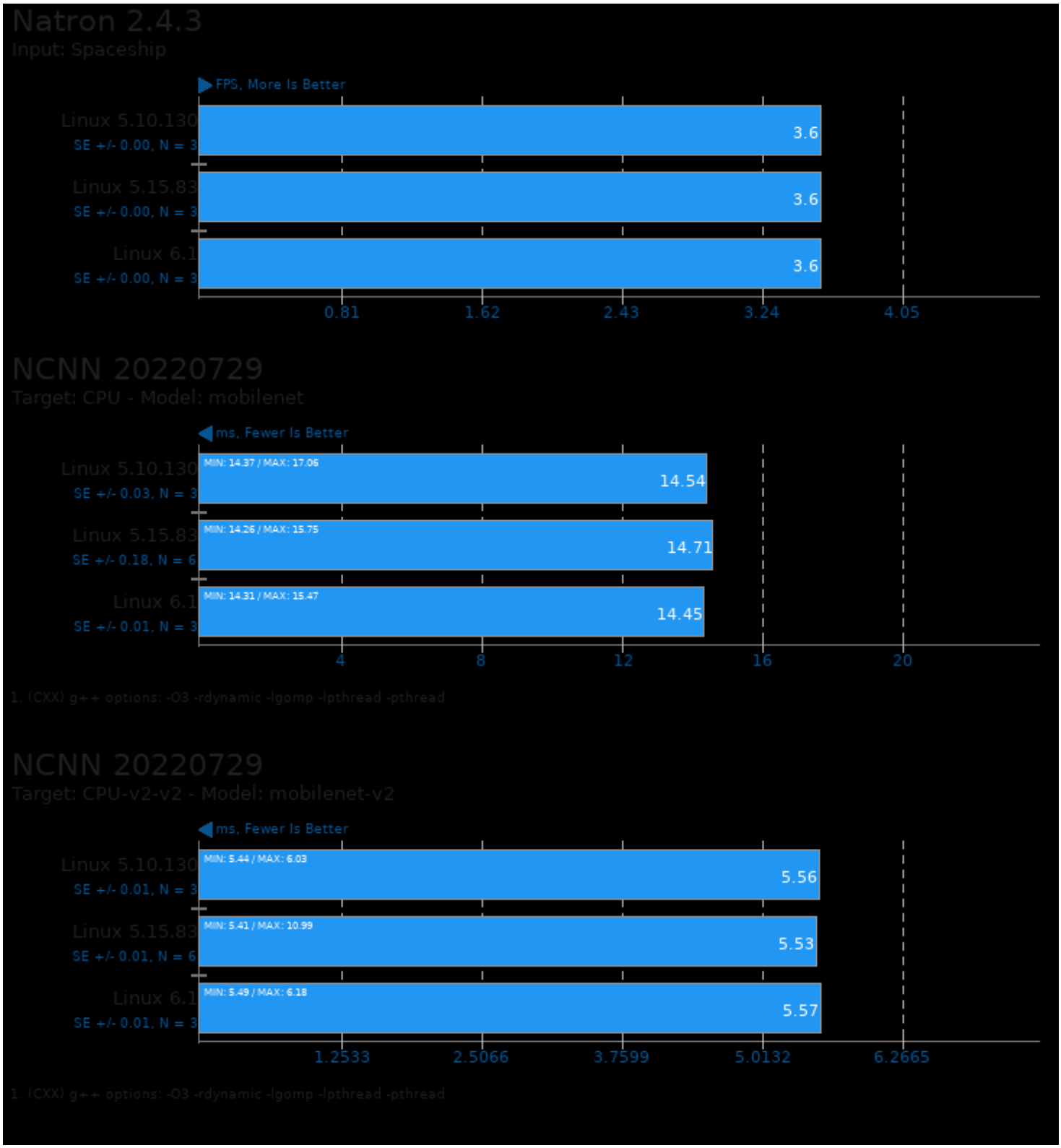

libavif avifenc 0.11
Encoder Speed: 6
Seconds, Fewer Is Better
Linux 5.10.130
SE +/- 0.059, N = 3
6.689
Linux 5.15.83
SE +/- 0.054, N = 3
6.749
Linux 6.1
SE +/- 0.036, N = 3
6.798
2
4
6
8
10
1. (CXX) g++ options: -O3 -fPIC -lm
libavif avifenc 0.11
Encoder Speed: 6, Lossless
Seconds, Fewer Is Better
Linux 5.10.130
SE +/- 0.04, N = 3
11.38
Linux 5.15.83
SE +/- 0.01, N = 3
11.43
Linux 6.1
SE +/- 0.02, N = 3
11.58
3
6
9
12
15
1. (CXX) g++ options: -O3 -fPIC -lm
libavif avifenc 0.11
Encoder Speed: 10, Lossless
Seconds, Fewer Is Better
Linux 5.10.130
SE +/- 0.021, N = 3
6.637
Linux 5.15.83
SE +/- 0.017, N = 3
6.666
Linux 6.1
SE +/- 0.029, N = 3
6.909
2
4
6
8
10
1. (CXX) g++ options: -O3 -fPIC -lm

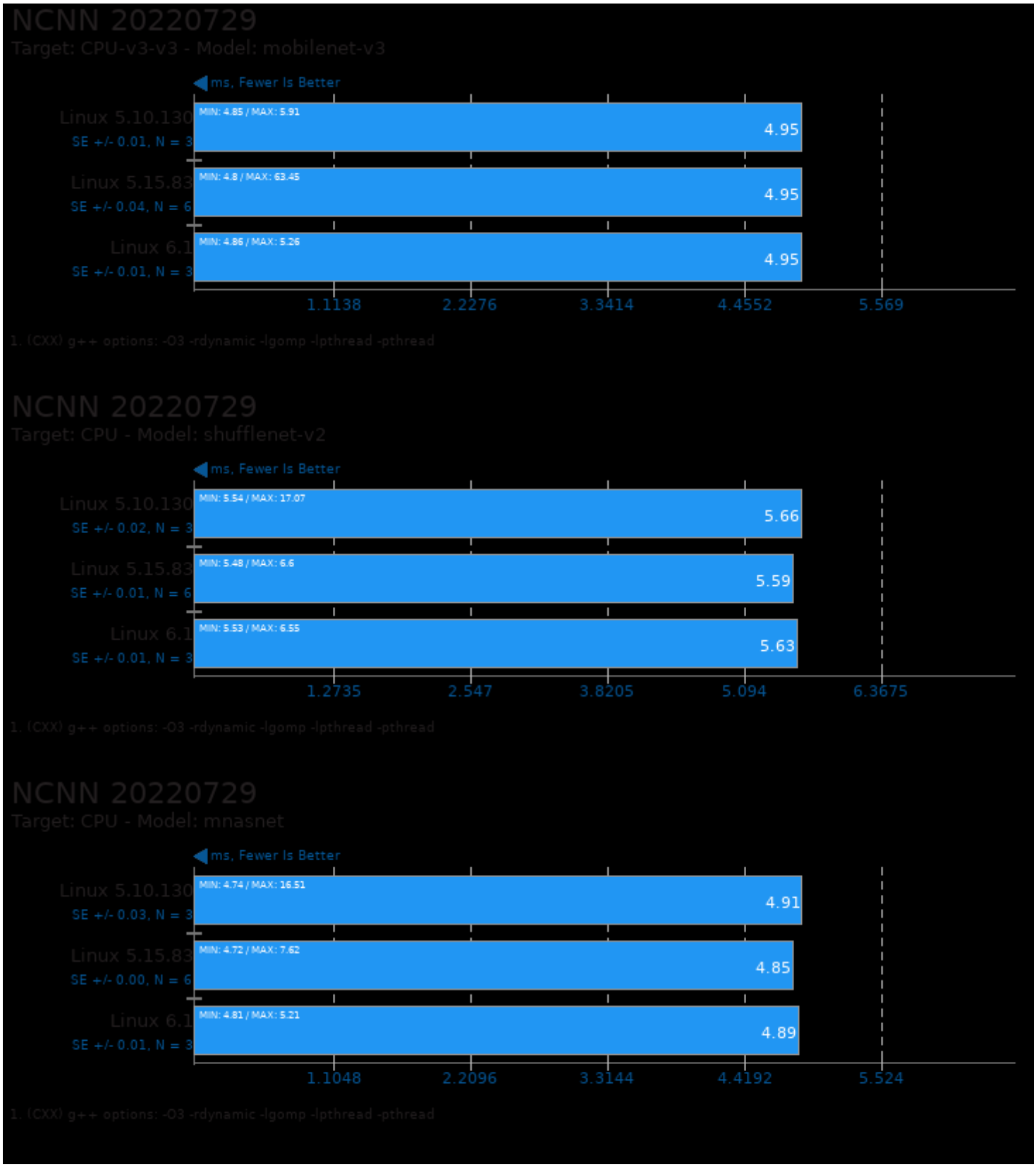

miniBUDE 20210901
Implementation: OpenMP - Input Deck: BM1
GFInst/s, More Is Better
Linux 5.10.130
SE +/- 0.13, N = 3
530.27
Linux 5.15.83
SE +/- 0.39, N = 3
529.24
Linux 6.1
SE +/- 0.30, N = 3
535.57
120
240
360
480
600
1. (CC) gcc options: -std=c99 -Ofast -ffast-math -fopenmp -march=native -lm
miniBUDE 20210901
Implementation: OpenMP - Input Deck: BM1
Billion Interactions/s, More Is Better
Linux 5.10.130
SE +/- 0.01, N = 3
21.21
Linux 5.15.83
SE +/- 0.02, N = 3
21.17
Linux 6.1
SE +/- 0.01, N = 3
21.42
5
10
15
20
25
1. (CC) gcc options: -std=c99 -Ofast -ffast-math -fopenmp -march=native -lm
miniBUDE 20210901
Implementation: OpenMP - Input Deck: BM2
GFInst/s, More Is Better
Linux 5.10.130
SE +/- 0.18, N = 3
534.74
Linux 5.15.83
SE +/- 0.02, N = 3
532.92
Linux 6.1
SE +/- 0.18, N = 3
538.79
120
240
360
480
600
1. (CC) gcc options: -std=c99 -Ofast -ffast-math -fopenmp -march=native -lm

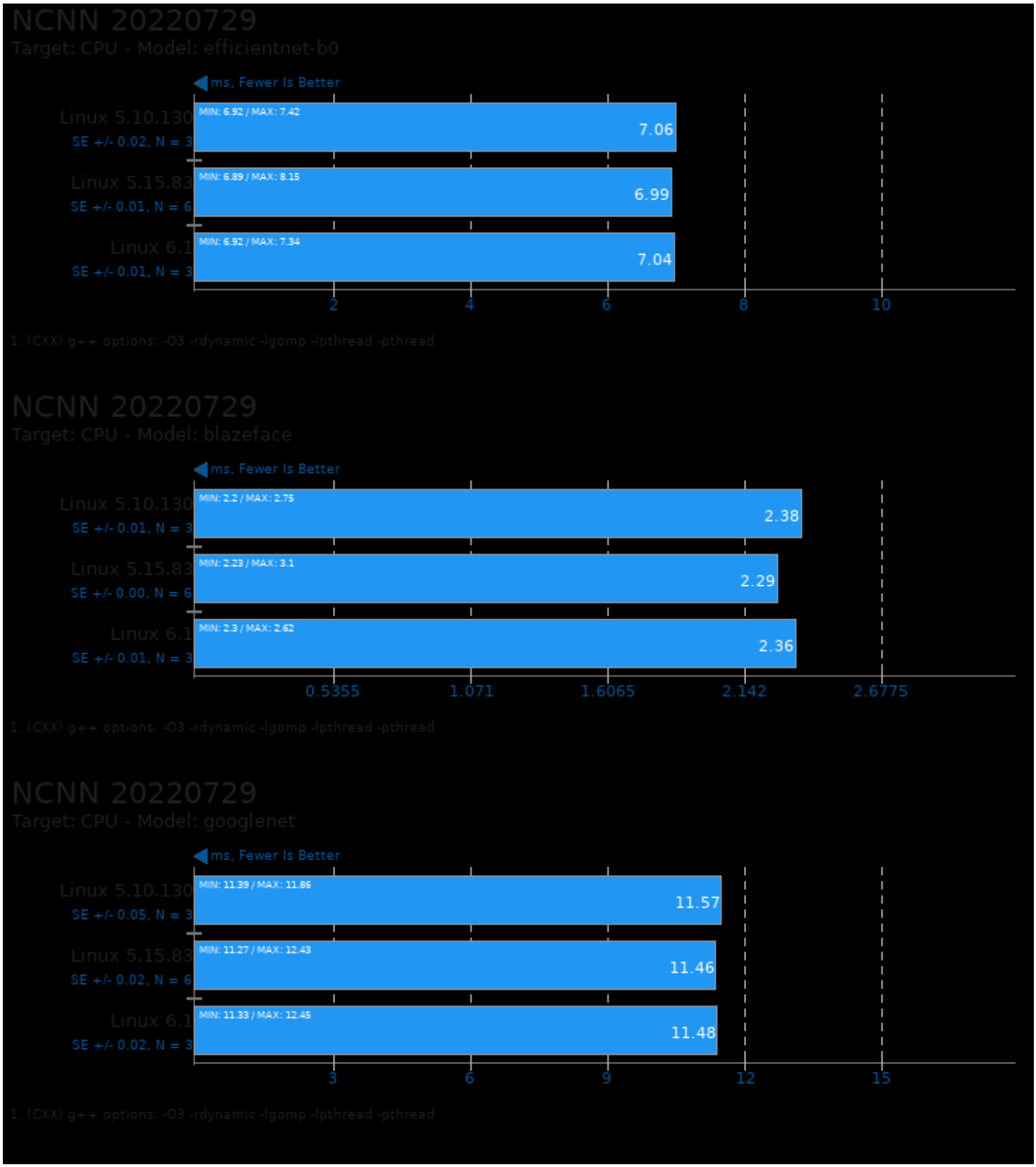

miniBUDE 20210901
Implementation: OpenMP - Input Deck: BM2
Billion Interactions/s, More Is Better
Linux 5.10.130
SE +/- 0.01, N = 3
21.39
Linux 5.15.83
SE +/- 0.00, N = 3
21.32
Linux 6.1
SE +/- 0.01, N = 3
21.55
5
10
15
20
25
1. (CC) gcc options: -std=c99 -Ofast -ffast-math -fopenmp -march=native -lm
Mobile Neural Network 2.1
Model: nasnet
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.12, N = 3
MIN: 14.46 / MAX: 28.47
14.91
Linux 5.15.83
SE +/- 0.10, N = 3
MIN: 14.51 / MAX: 33.86
14.88
Linux 6.1
SE +/- 0.15, N = 9
MIN: 14.55 / MAX: 29.56
15.12
4
8
12
16
20
1. (CXX) g++ options: -std=c++11 -O3 -fvisibility=hidden -fomit-frame-pointer -fstrict-aliasing -ffunction-sections -fdata-sections -ffast-math -fno-rtti -fn
Mobile Neural Network 2.1
Model: mobilenetV3
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.010, N = 3
MIN: 1.99 / MAX: 3.26
2.091
Linux 5.15.83
SE +/- 0.009, N = 3
MIN: 1.99 / MAX: 4.73
2.071
Linux 6.1
SE +/- 0.009, N = 9
MIN: 1.98 / MAX: 6.07
2.083
0.4705
0.941
1.4115
1.882
2.3525
1. (CXX) g++ options: -std=c++11 -O3 -fvisibility=hidden -fomit-frame-pointer -fstrict-aliasing -ffunction-sections -fdata-sections -ffast-math -fno-rtti -fn

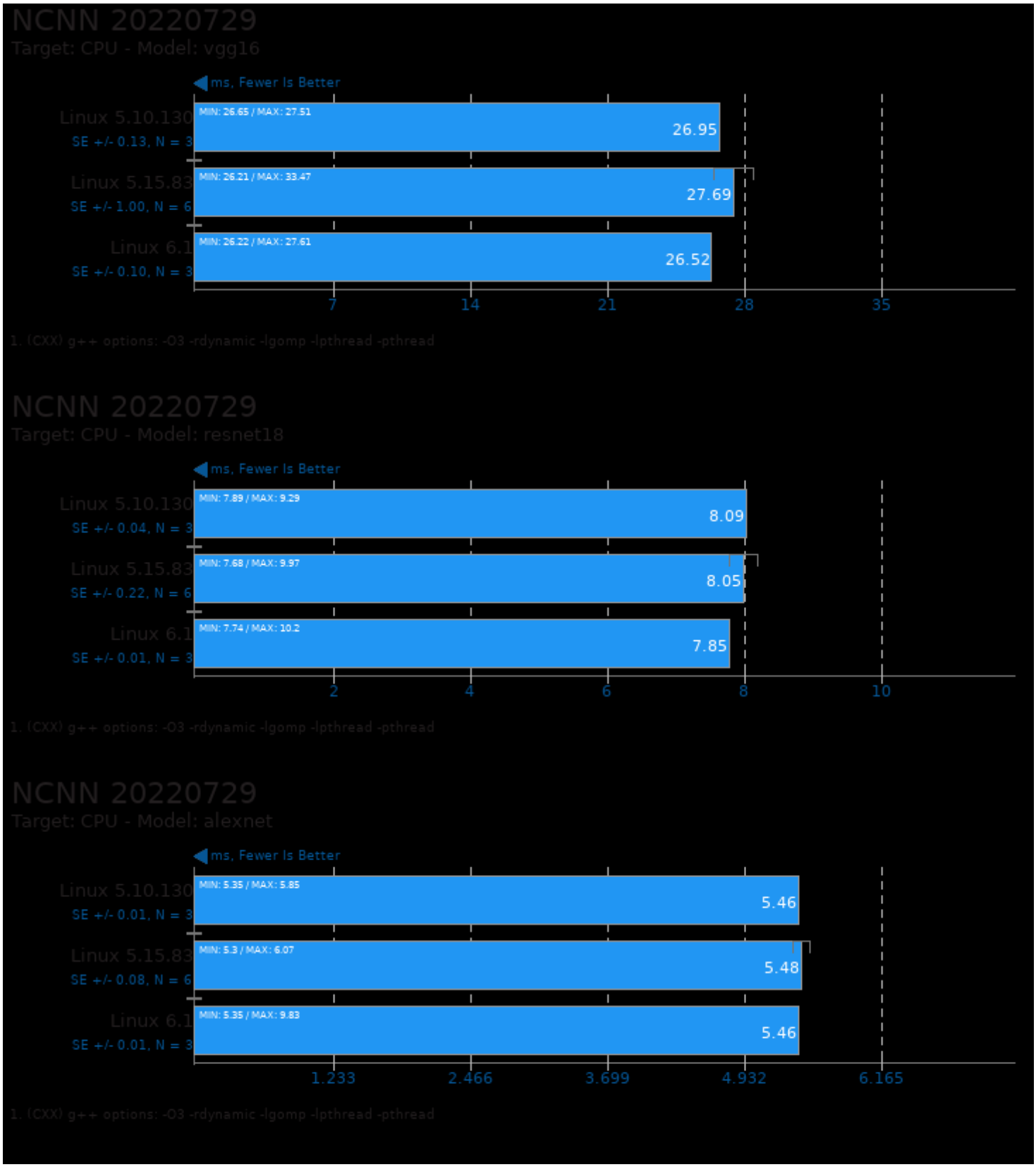

Mobile Neural Network 2.1
Model: squeezenetv1.1
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.020, N = 3
MIN: 2.48 / MAX: 5.22
2.592
Linux 5.15.83
SE +/- 0.015, N = 3
MIN: 2.47 / MAX: 4.14
2.537
Linux 6.1
SE +/- 0.012, N = 9
MIN: 2.49 / MAX: 16.46
2.606
0.5864
1.1728
1.7592
2.3456
2.932
1. (CXX) g++ options: -std=c++11 -O3 -fvisibility=hidden -fomit-frame-pointer -fstrict-aliasing -ffunction-sections -fdata-sections -ffast-math -fno-rtti -fv
Mobile Neural Network 2.1
Model: resnet-v2-50
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.099, N = 3
MIN: 9.88 / MAX: 23.7
10.148
Linux 5.15.83
SE +/- 0.025, N = 3
MIN: 9.74 / MAX: 31.53
9.850
Linux 6.1
SE +/- 0.037, N = 9
MIN: 9.74 / MAX: 23.92
9.932
3
6
9
12
15
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 2.1
Model: SqueezeNetV1.0
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.043, N = 3
MIN: 4.79 / MAX: 17.74
4.892
Linux 5.15.83
SE +/- 0.009, N = 3
MIN: 4.84 / MAX: 18.25
4.897
Linux 6.1
SE +/- 0.019, N = 9
MIN: 4.87 / MAX: 7.19
4.969
1.118
2.236
3.354
4.472
5.59
1. (CXX) g++ options: -std=c++11 -O3 -fvisibility=hidden -fomit-frame-pointer -fstrict-aliasing -ffunction-sections -fdata-sections -ffast-math -fno-rtti -fv

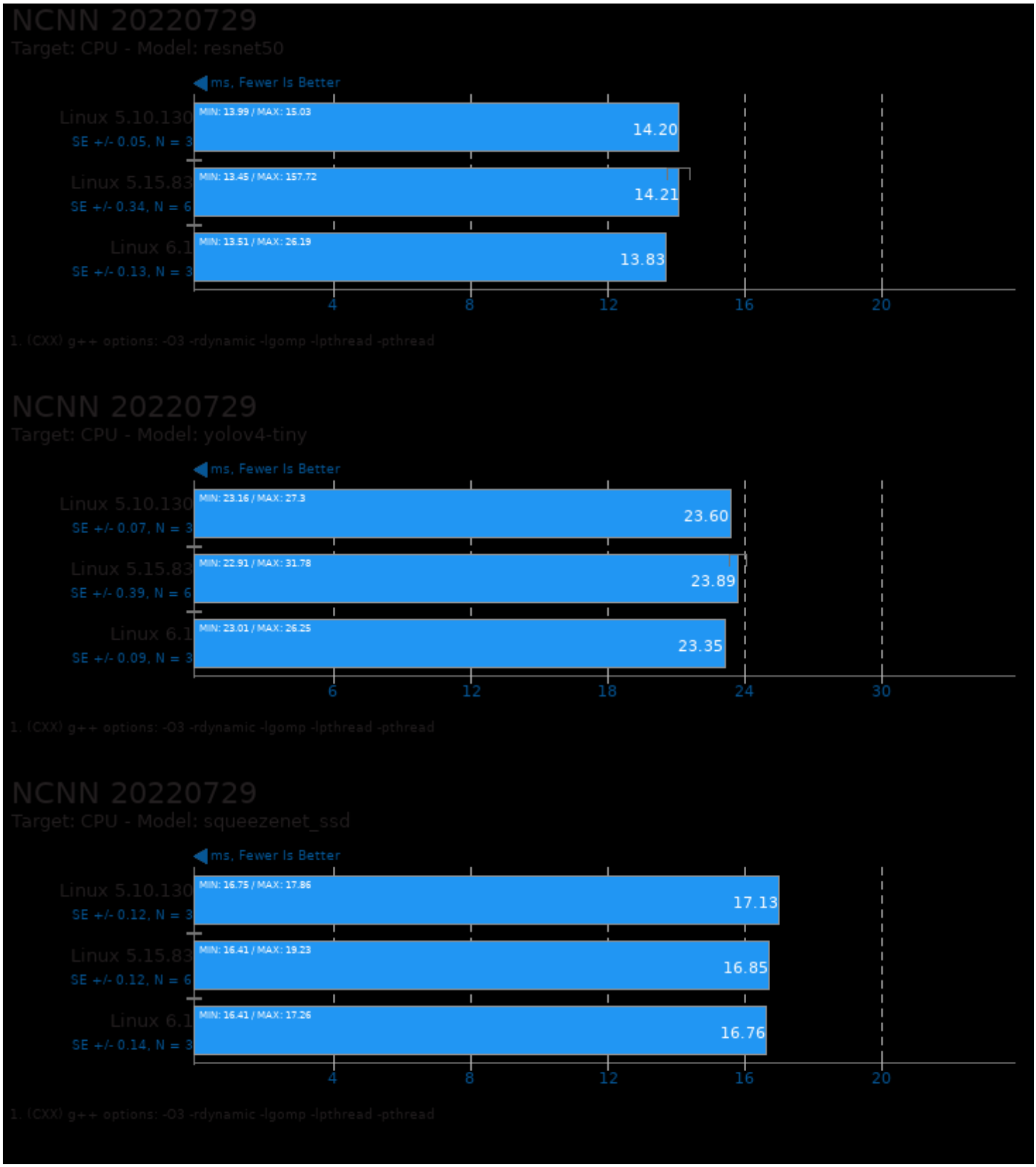

Mobile Neural Network 2.1
Model: MobileNetV2_224
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.007, N = 3
MIN: 3.65 / MAX: 16.53
3.855
Linux 5.15.83
SE +/- 0.020, N = 3
MIN: 3.56 / MAX: 17.6
3.752
Linux 6.1
SE +/- 0.020, N = 9
MIN: 3.59 / MAX: 5.87
3.831
0.8674
1.7348
2.6022
3.4696
4.337
1. (CXX) g++ options: -std=c++11 -O3 -fvisibility=hidden -fomit-frame-pointer -fstrict-aliasing -ffunction-sections -fdata-sections -ffast-math -fno-rtti -fv
Mobile Neural Network 2.1
Model: mobilenet-v1-1.0
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.044, N = 3
MIN: 2.4 / MAX: 5.22
2.678
Linux 5.15.83
SE +/- 0.047, N = 3
MIN: 2.38 / MAX: 3.73
2.639
Linux 6.1
SE +/- 0.028, N = 9
MIN: 2.36 / MAX: 16.9
2.640
0.6026
1.2052
1.8078
2.4104
3.013
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 2.1
Model: inception-v3
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.36, N = 3
MIN: 22.05 / MAX: 36.04
22.73
Linux 5.15.83
SE +/- 0.38, N = 3
MIN: 21.58 / MAX: 36.88
22.44
Linux 6.1
SE +/- 0.32, N = 9
MIN: 21.59 / MAX: 102.89
22.79
5
10
15
20
25
1. (CXX) g++ options: -std=c++11 -O3 -fvisibility=hidden -fomit-frame-pointer -fstrict-aliasing -ffunction-sections -fdata-sections -ffast-math -fno-rtti -fv

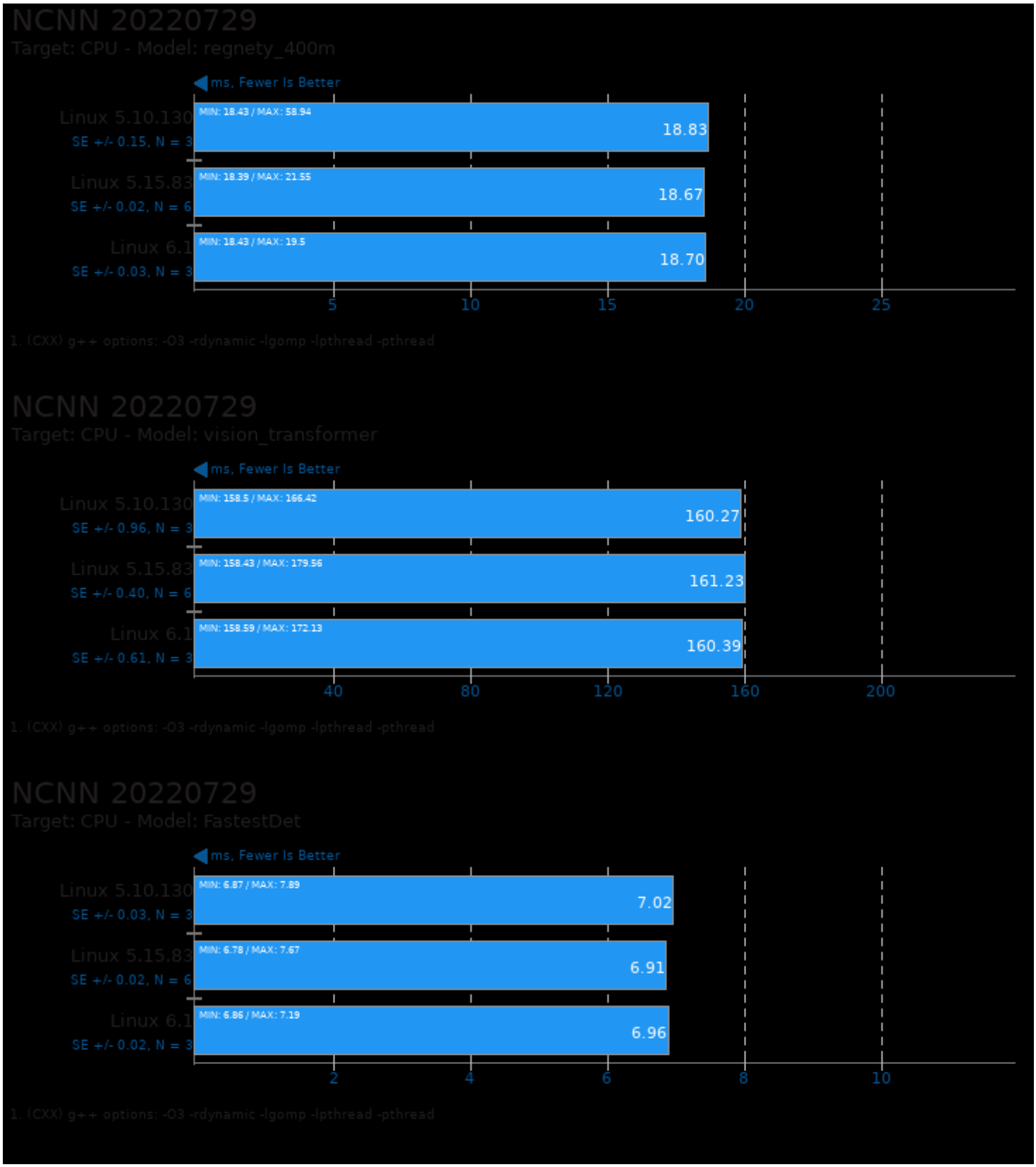

Natron 2.4.3
Input: Spaceship
FPS, More Is Better
Linux 5.10.130
SE +/- 0.00, N = 3
3.6
Linux 5.15.83
SE +/- 0.00, N = 3
3.6
Linux 6.1
SE +/- 0.00, N = 3
3.6
0.81
1.62
2.43
3.24
4.05
NCNN 20220729
Target: CPU - Model: mobilenet
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.03, N = 3
MIN: 14.37 / MAX: 17.06
14.54
Linux 5.15.83
SE +/- 0.18, N = 6
MIN: 14.26 / MAX: 15.75
14.71
Linux 6.1
SE +/- 0.01, N = 3
MIN: 14.31 / MAX: 15.47
14.45
4
8
12
16
20
1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread -pthread
NCNN 20220729
Target: CPU-v2-v2 - Model: mobilenet-v2
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.01, N = 3
MIN: 5.44 / MAX: 6.03
5.56
Linux 5.15.83
SE +/- 0.01, N = 6
MIN: 5.41 / MAX: 10.99
5.53
Linux 6.1
SE +/- 0.01, N = 3
MIN: 5.49 / MAX: 6.18
5.57
1.2533
2.5066
3.7599
5.0132
6.2665
1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread -pthread

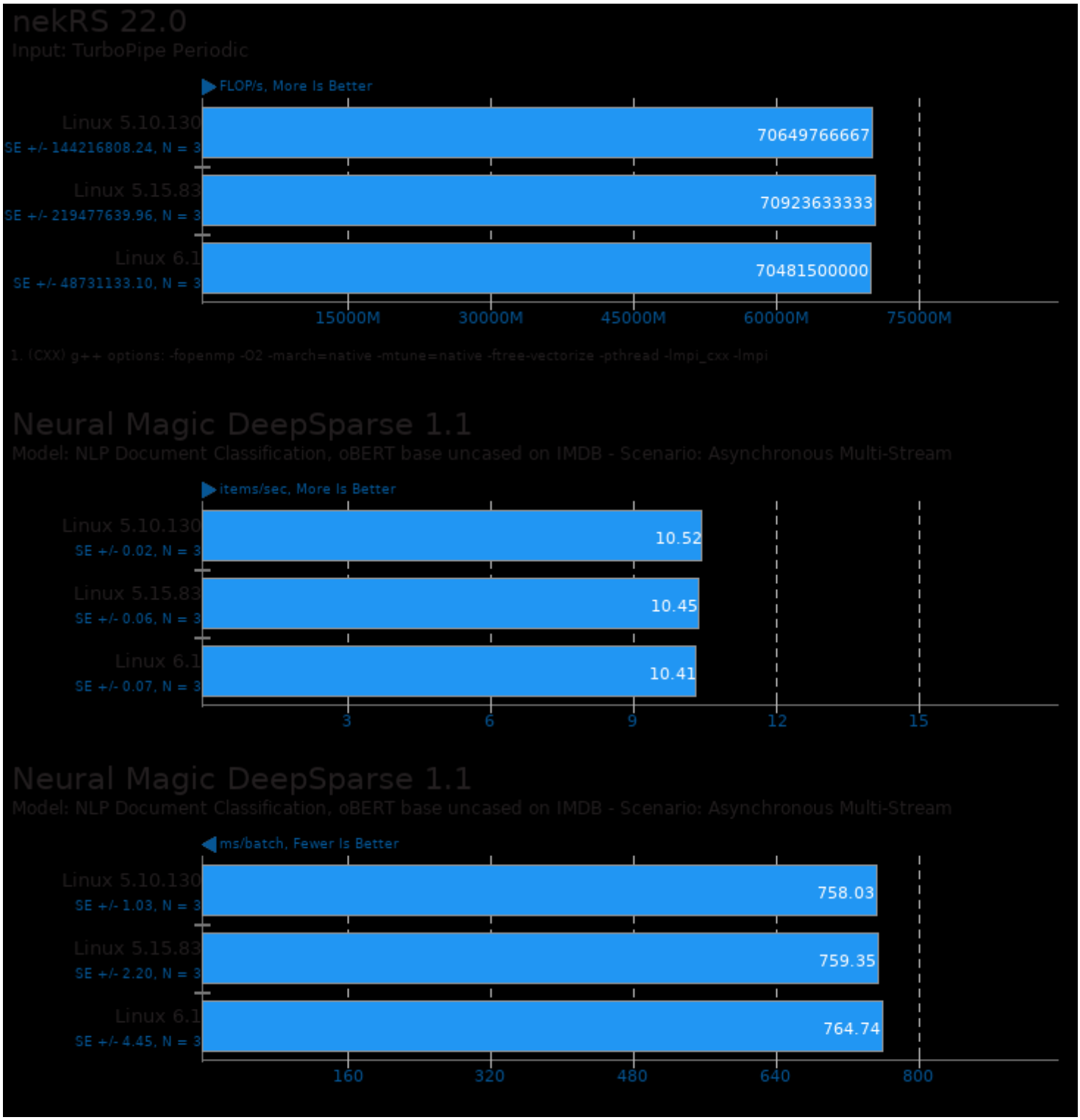

NCNN 20220729
Target: CPU-v3-v3 - Model: mobilenet-v3
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.01, N = 3
MIN: 4.85 / MAX: 5.91
4.95
Linux 5.15.83
SE +/- 0.04, N = 6
MIN: 4.8 / MAX: 63.45
4.95
Linux 6.1
SE +/- 0.01, N = 3
MIN: 4.86 / MAX: 5.26
4.95
1.1138
2.2276
3.3414
4.4552
5.569
1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread -pthread
NCNN 20220729
Target: CPU - Model: shufflenet-v2
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.02, N = 3
MIN: 5.54 / MAX: 17.07
5.66
Linux 5.15.83
SE +/- 0.01, N = 6
MIN: 5.48 / MAX: 6.6
5.59
Linux 6.1
SE +/- 0.01, N = 3
MIN: 5.53 / MAX: 6.55
5.63
1.2735
2.547
3.8205
5.094
6.3675
1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread -pthread
NCNN 20220729
Target: CPU - Model: mnasnet
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.03, N = 3
MIN: 4.74 / MAX: 16.51
4.91
Linux 5.15.83
SE +/- 0.00, N = 6
MIN: 4.72 / MAX: 7.62
4.85
Linux 6.1
SE +/- 0.01, N = 3
MIN: 4.81 / MAX: 5.21
4.89
1.1048
2.2096
3.3144
4.4192
5.524
1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread -pthread

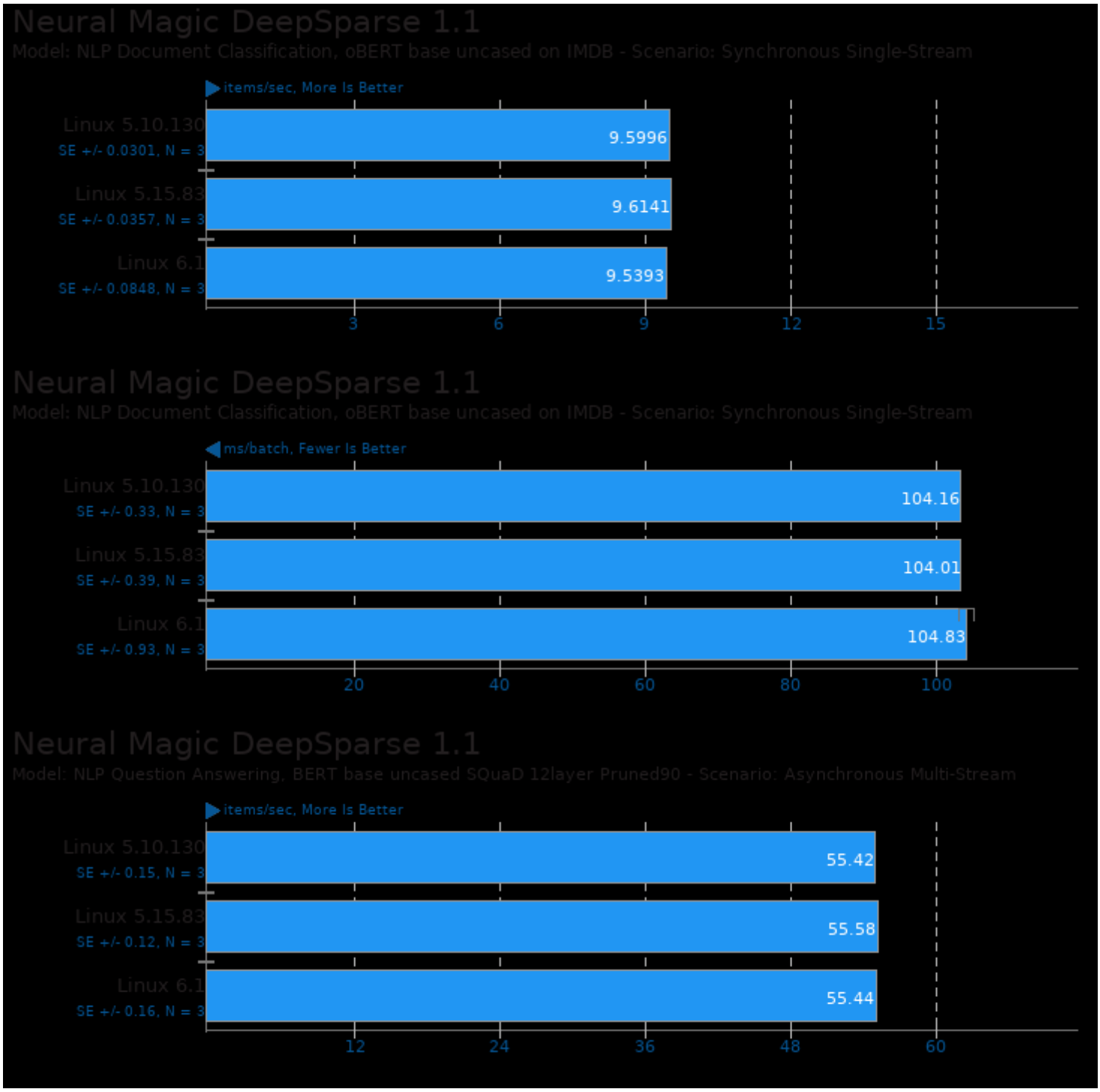

NCNN 20220729
Target: CPU - Model: efficientnet-b0
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.02, N = 3
MIN: 6.92 / MAX: 7.42
7.06
Linux 5.15.83
SE +/- 0.01, N = 6
MIN: 6.89 / MAX: 8.15
6.99
Linux 6.1
SE +/- 0.01, N = 3
MIN: 6.92 / MAX: 7.34
7.04
2
4
6
8
10
1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread -pthread
NCNN 20220729
Target: CPU - Model: blazeface
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.01, N = 3
MIN: 2.2 / MAX: 2.75
2.38
Linux 5.15.83
SE +/- 0.00, N = 6
MIN: 2.23 / MAX: 3.1
2.29
Linux 6.1
SE +/- 0.01, N = 3
MIN: 2.3 / MAX: 2.62
2.36
0.5355
1.071
1.6065
2.142
2.6775
1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread -pthread
NCNN 20220729
Target: CPU - Model: googlenet
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.05, N = 3
MIN: 11.39 / MAX: 11.86
11.57
Linux 5.15.83
SE +/- 0.02, N = 6
MIN: 11.27 / MAX: 12.43
11.46
Linux 6.1
SE +/- 0.02, N = 3
MIN: 11.33 / MAX: 12.45
11.48
3
6
9
12
15
1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread -pthread

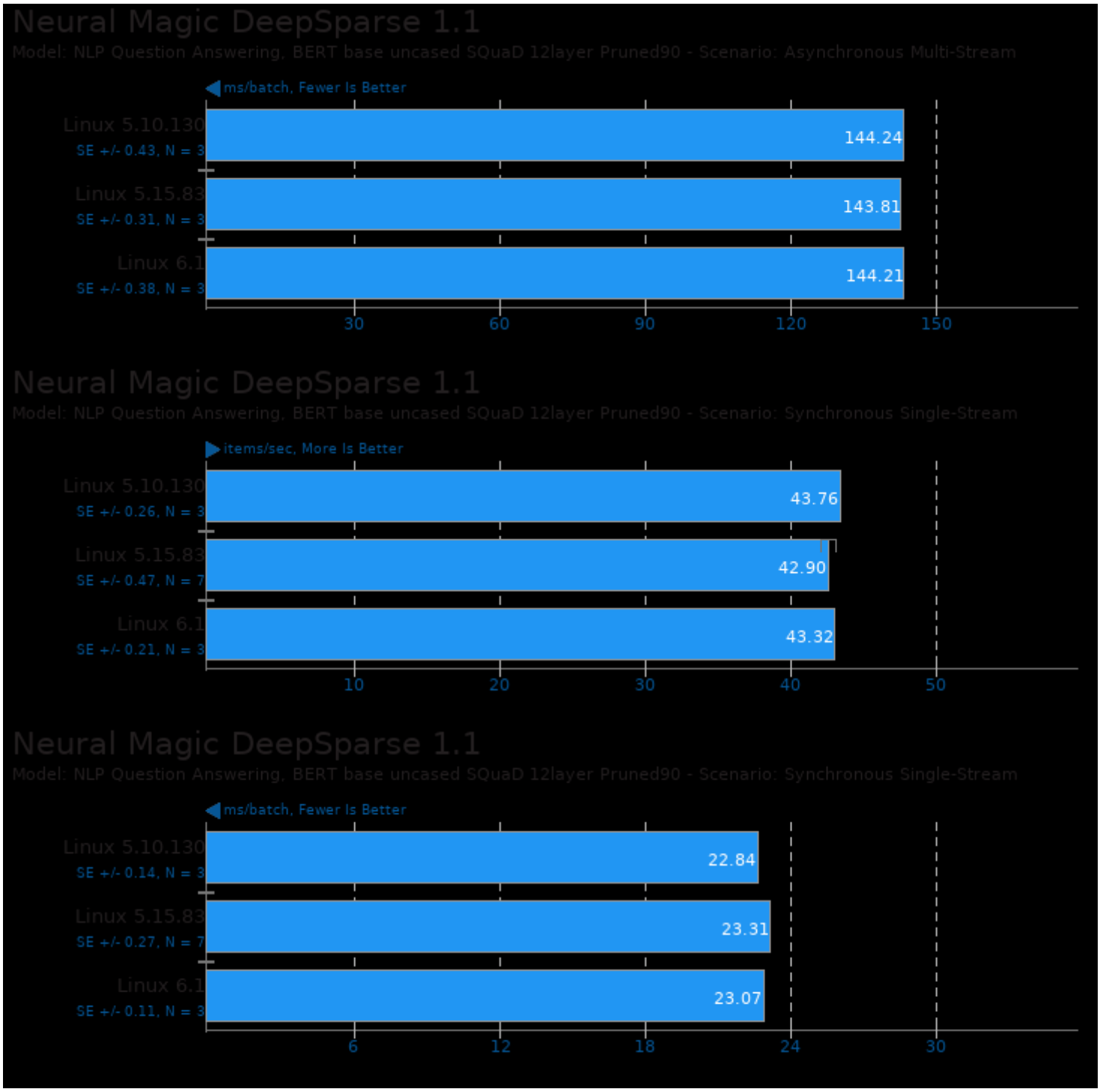

NCNN 20220729
Target: CPU - Model: vgg16
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.13, N = 3
MIN: 26.65 / MAX: 27.51
26.95
Linux 5.15.83
SE +/- 1.00, N = 6
MIN: 26.21 / MAX: 33.47
27.69
Linux 6.1
SE +/- 0.10, N = 3
MIN: 26.22 / MAX: 27.61
26.52
7
14
21
28
35
1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread -pthread
NCNN 20220729
Target: CPU - Model: resnet18
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.04, N = 3
MIN: 7.89 / MAX: 9.29
8.09
Linux 5.15.83
SE +/- 0.22, N = 6
MIN: 7.68 / MAX: 9.97
8.05
Linux 6.1
SE +/- 0.01, N = 3
MIN: 7.74 / MAX: 10.2
7.85
2
4
6
8
10
1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread -pthread
NCNN 20220729
Target: CPU - Model: alexnet
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.01, N = 3
MIN: 5.35 / MAX: 5.85
5.46
Linux 5.15.83
SE +/- 0.08, N = 6
MIN: 5.3 / MAX: 6.07
5.48
Linux 6.1
SE +/- 0.01, N = 3
MIN: 5.35 / MAX: 9.83
5.46
1.233
2.466
3.699
4.932
6.165
1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread -pthread

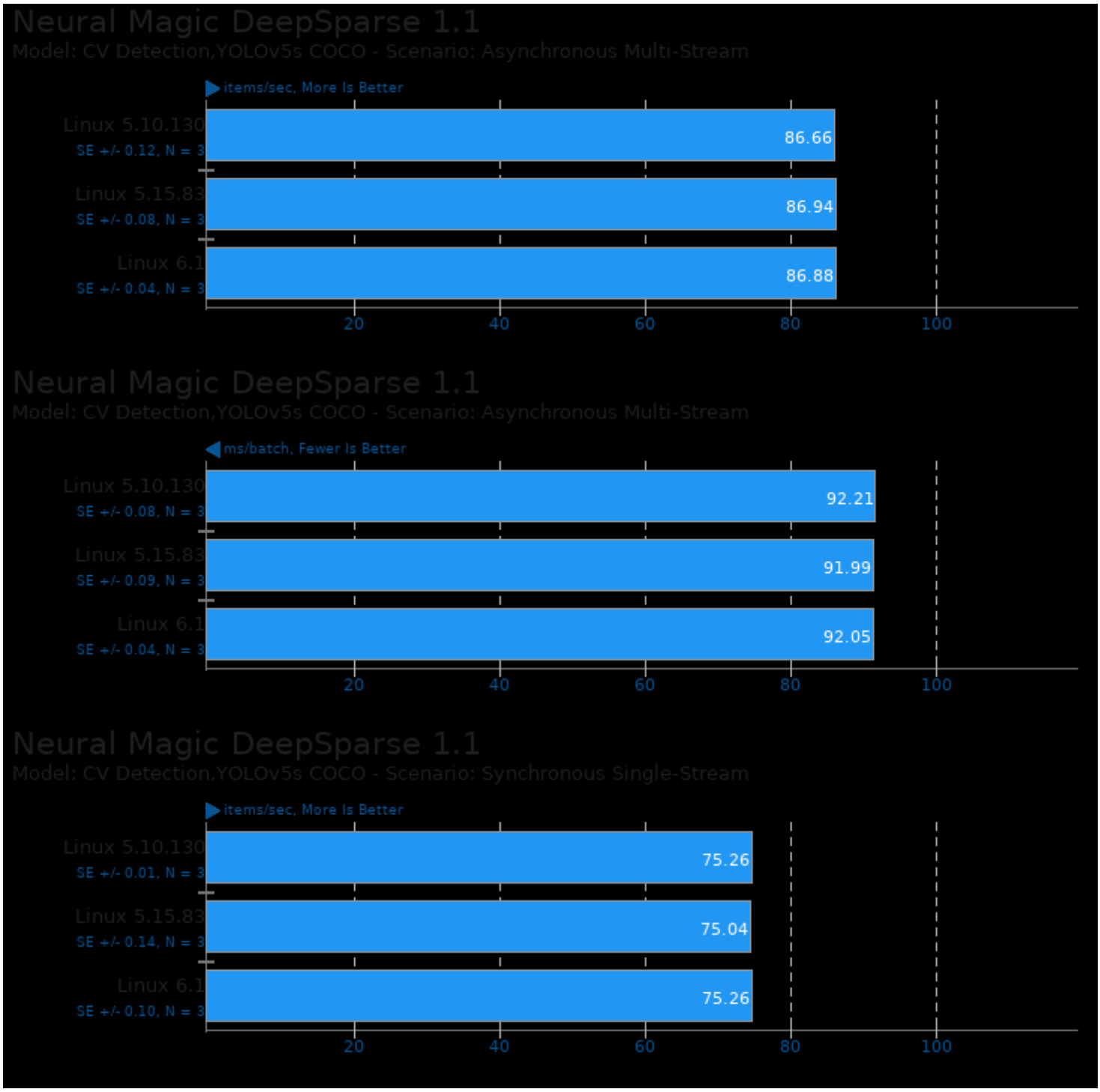

NCNN 20220729
Target: CPU - Model: resnet50
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.05, N = 3
MIN: 13.99 / MAX: 15.03
14.20
Linux 5.15.83
SE +/- 0.34, N = 6
MIN: 13.45 / MAX: 157.72
14.21
Linux 6.1
SE +/- 0.13, N = 3
MIN: 13.51 / MAX: 26.19
13.83
4
8
12
16
20
1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread -pthread
NCNN 20220729
Target: CPU - Model: yolov4-tiny
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.07, N = 3
MIN: 23.16 / MAX: 27.3
23.60
Linux 5.15.83
SE +/- 0.39, N = 6
MIN: 22.91 / MAX: 31.78
23.89
Linux 6.1
SE +/- 0.09, N = 3
MIN: 23.01 / MAX: 26.25
23.35
6
12
18
24
30
1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread -pthread
NCNN 20220729
Target: CPU - Model: squeezenet_ssd
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.12, N = 3
MIN: 16.75 / MAX: 17.86
17.13
Linux 5.15.83
SE +/- 0.12, N = 6
MIN: 16.41 / MAX: 19.23
16.85
Linux 6.1
SE +/- 0.14, N = 3
MIN: 16.41 / MAX: 17.26
16.76
4
8
12
16
20
1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread -pthread

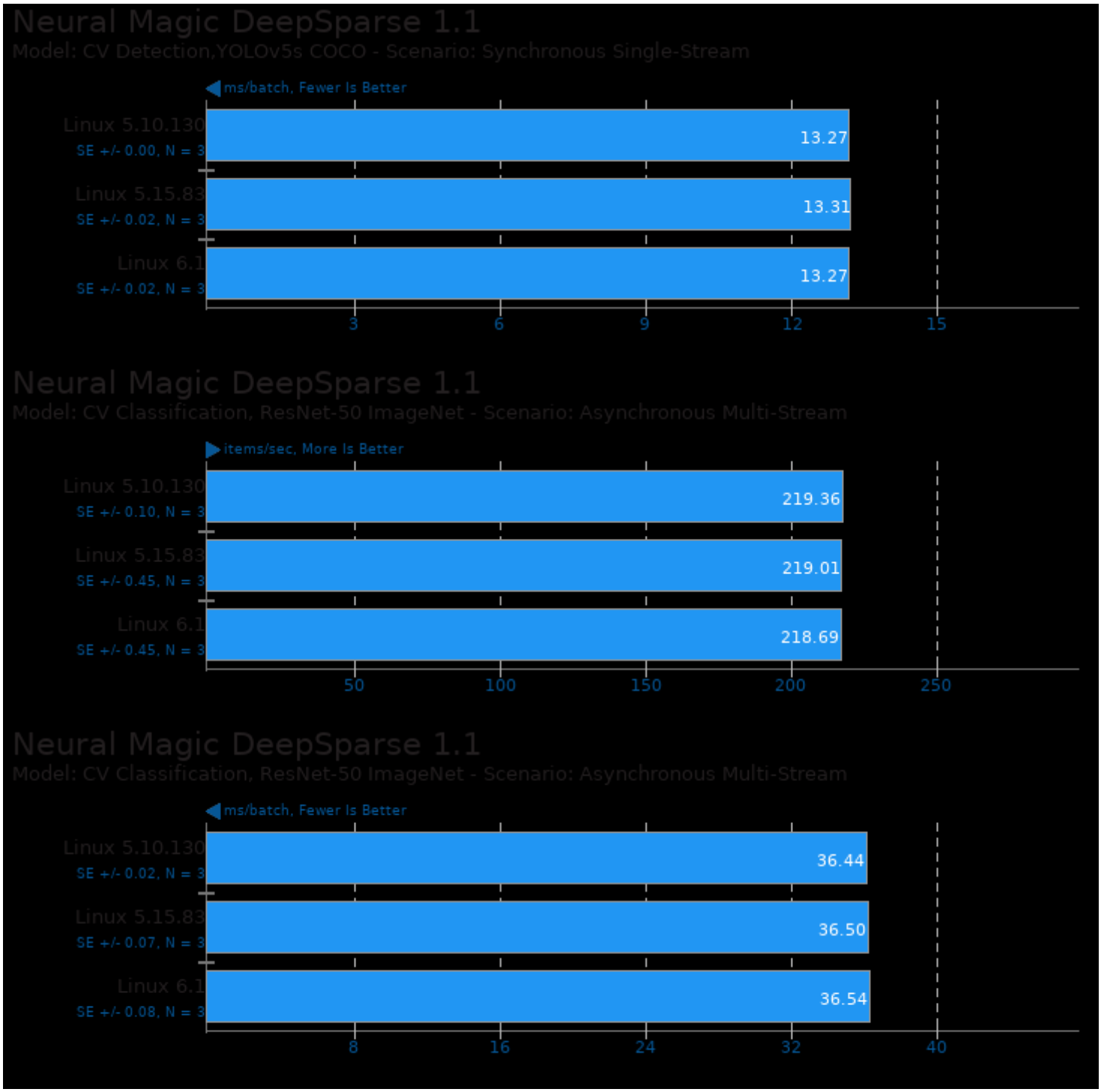

NCNN 20220729
Target: CPU - Model: regnety_400m
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.15, N = 3
MIN: 18.43 / MAX: 58.94
18.83
Linux 5.15.83
SE +/- 0.02, N = 6
MIN: 18.39 / MAX: 21.55
18.67
Linux 6.1
SE +/- 0.03, N = 3
MIN: 18.43 / MAX: 19.5
18.70
5
10
15
20
25
1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread -pthread
NCNN 20220729
Target: CPU - Model: vision_transformer
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.96, N = 3
MIN: 158.5 / MAX: 166.42
160.27
Linux 5.15.83
SE +/- 0.40, N = 6
MIN: 158.43 / MAX: 179.56
161.23
Linux 6.1
SE +/- 0.61, N = 3
MIN: 158.59 / MAX: 172.13
160.39
40
80
120
160
200
1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread -pthread
NCNN 20220729
Target: CPU - Model: FastestDet
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.03, N = 3
MIN: 6.87 / MAX: 7.89
7.02
Linux 5.15.83
SE +/- 0.02, N = 6
MIN: 6.78 / MAX: 7.67
6.91
Linux 6.1
SE +/- 0.02, N = 3
MIN: 6.86 / MAX: 7.19
6.96
2
4
6
8
10
1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread -pthread

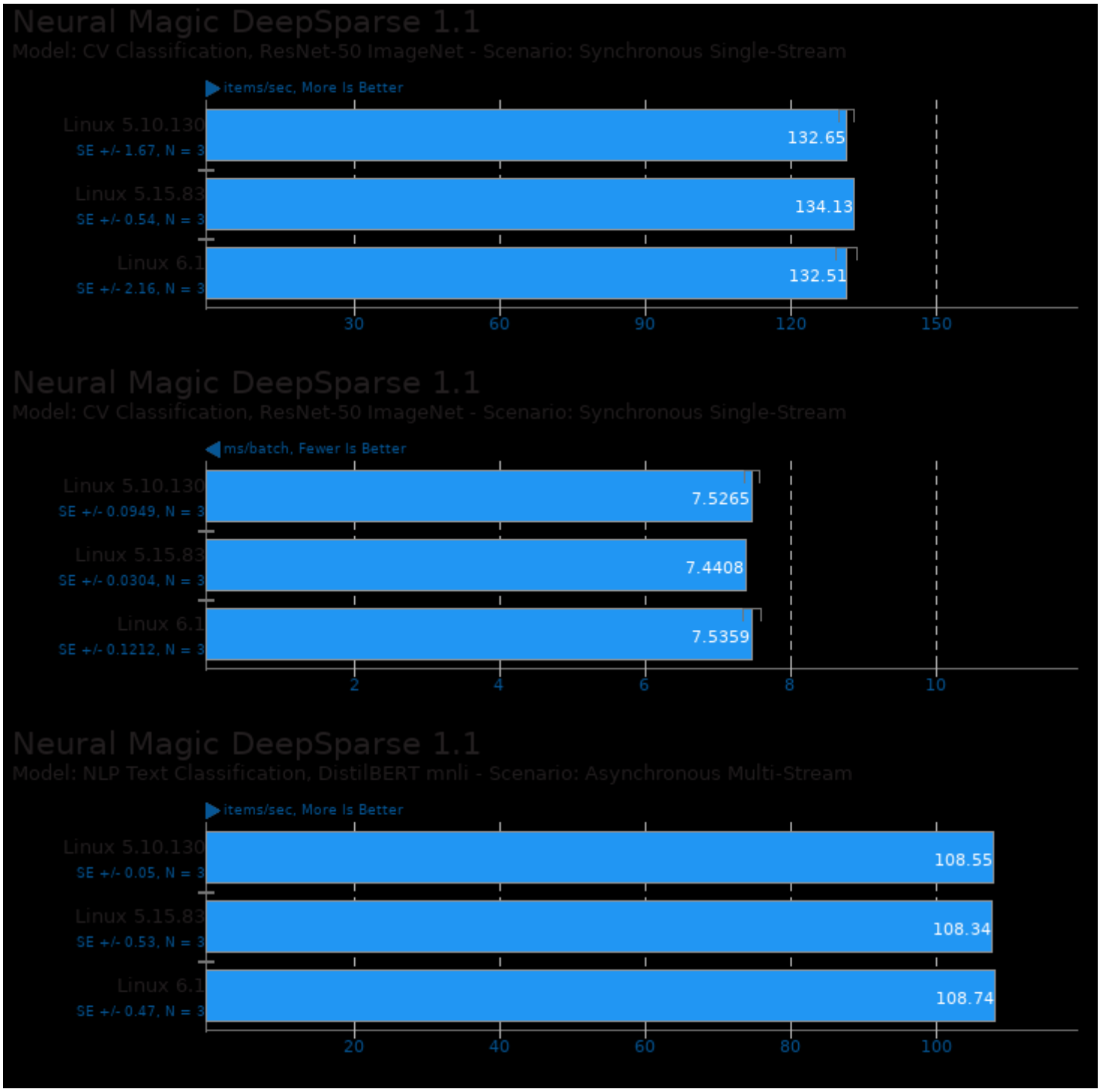

nekRS 22.0
Input: TurboPipe Periodic
FLOP/s, More Is Better
Linux 5.10.130
SE +/- 144216808.24, N = 3
70649766667
Linux 5.15.83
SE +/- 219477639.96, N = 3
70923633333
Linux 6.1
SE +/- 48731133.10, N = 3
70481500000
15000M
30000M
45000M
60000M
75000M
1. (CXX) g++ options: -fopenmp -O2 -march=native -mtune=native -ftree-vectorize -pthread -lmpi_cxx -lmpi
Neural Magic DeepSparse 1.1
Model: NLP Document Classification, oBERT base uncased on IMDB - Scenario: Asynchronous Multi-Stream
items/sec, More Is Better
Linux 5.10.130
SE +/- 0.02, N = 3
10.52
Linux 5.15.83
SE +/- 0.06, N = 3
10.45
Linux 6.1
SE +/- 0.07, N = 3
10.41
3
6
9
12
15
Neural Magic DeepSparse 1.1
Model: NLP Document Classification, oBERT base uncased on IMDB - Scenario: Asynchronous Multi-Stream
ms/batch, Fewer Is Better
Linux 5.10.130
SE +/- 1.03, N = 3
758.03
Linux 5.15.83
SE +/- 2.20, N = 3
759.35
Linux 6.1
SE +/- 4.45, N = 3
764.74
160
320
480
640
800

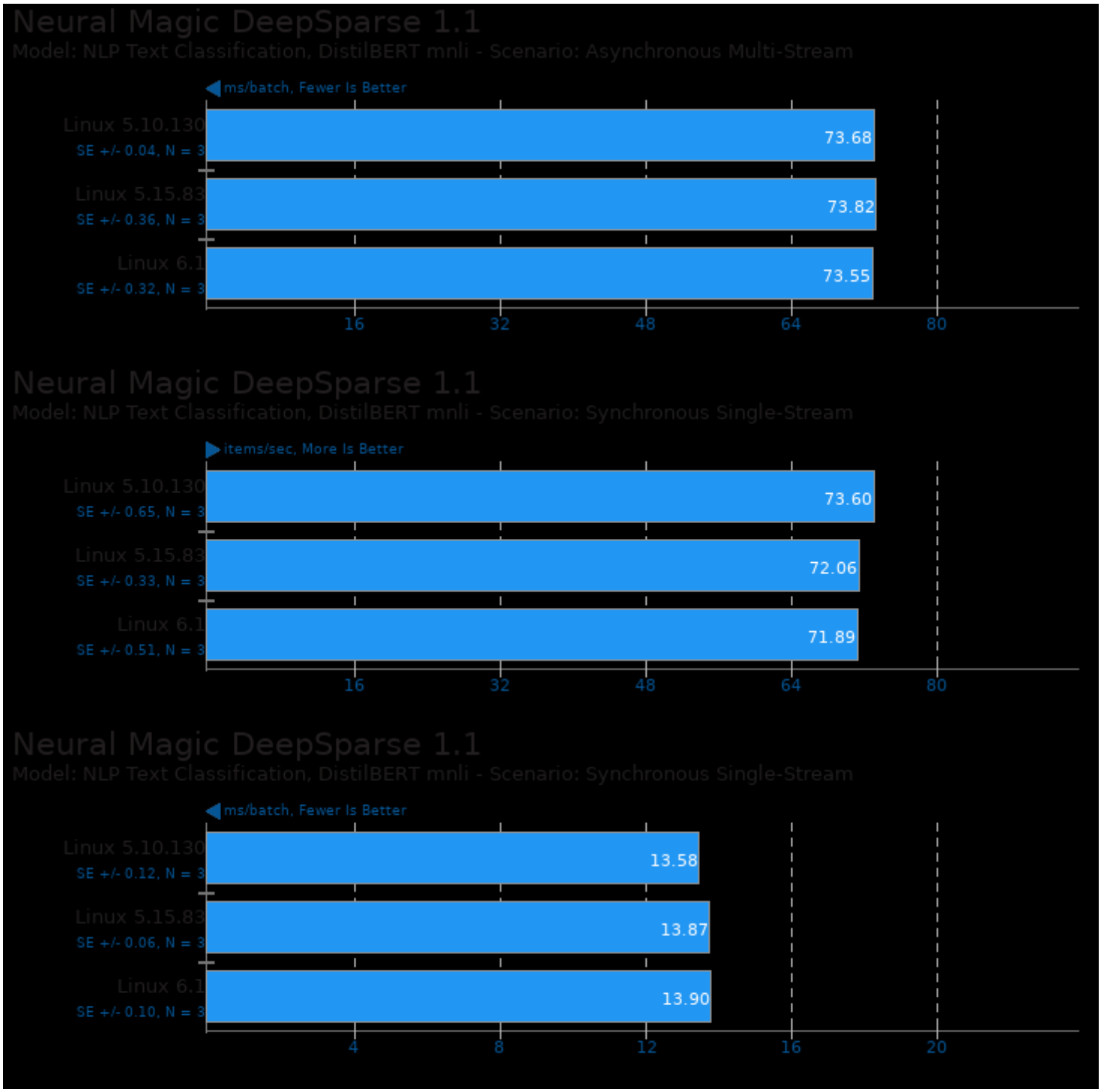

Neural Magic DeepSparse 1.1
Model: NLP Document Classification, oBERT base uncased on IMDB - Scenario: Synchronous Single-Stream
items/sec, More Is Better
Linux 5.10.130
SE +/- 0.0301, N = 3
9.5996
Linux 5.15.83
SE +/- 0.0357, N = 3
9.6141
Linux 6.1
SE +/- 0.0848, N = 3
9.5393
3
6
9
12
15
Neural Magic DeepSparse 1.1
Model: NLP Document Classification, oBERT base uncased on IMDB - Scenario: Synchronous Single-Stream
ms/batch, Fewer Is Better
Linux 5.10.130
SE +/- 0.33, N = 3
104.16
Linux 5.15.83
SE +/- 0.39, N = 3
104.01
Linux 6.1
SE +/- 0.93, N = 3
104.83
20
40
60
80
100
Neural Magic DeepSparse 1.1
Model: NLP Question Answering, BERT base uncased SQuaD 12layer Pruned90 - Scenario: Asynchronous Multi-Stream
items/sec, More Is Better
Linux 5.10.130
SE +/- 0.15, N = 3
55.42
Linux 5.15.83
SE +/- 0.12, N = 3
55.58
Linux 6.1
SE +/- 0.16, N = 3
55.44
12
24
36
48
60

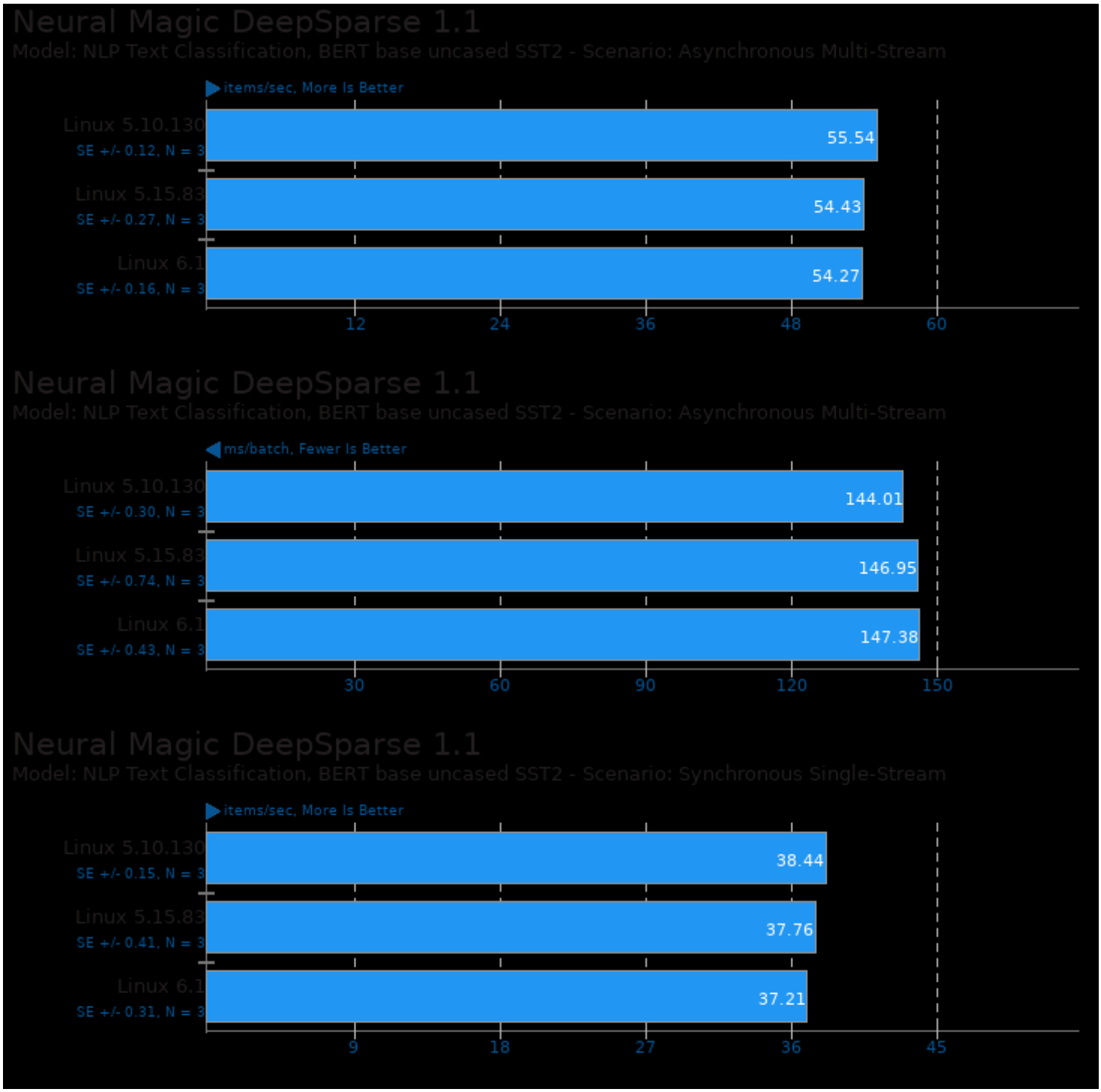

Neural Magic DeepSparse 1.1
Model: NLP Question Answering, BERT base uncased SQuaD 12layer Pruned90 - Scenario: Asynchronous Multi-Stream
ms/batch, Fewer Is Better
Linux 5.10.130
SE +/- 0.43, N = 3
144.24
Linux 5.15.83
SE +/- 0.31, N = 3
143.81
Linux 6.1
SE +/- 0.38, N = 3
144.21
30
60
90
120
150
Neural Magic DeepSparse 1.1
Model: NLP Question Answering, BERT base uncased SQuaD 12layer Pruned90 - Scenario: Synchronous Single-Stream
items/sec, More Is Better
Linux 5.10.130
SE +/- 0.26, N = 3
43.76
Linux 5.15.83
SE +/- 0.47, N = 7
42.90
Linux 6.1
SE +/- 0.21, N = 3
43.32
10
20
30
40
50
Neural Magic DeepSparse 1.1
Model: NLP Question Answering, BERT base uncased SQuaD 12layer Pruned90 - Scenario: Synchronous Single-Stream
ms/batch, Fewer Is Better
Linux 5.10.130
SE +/- 0.14, N = 3
22.84
Linux 5.15.83
SE +/- 0.27, N = 7
23.31
Linux 6.1
SE +/- 0.11, N = 3
23.07
6
12
18
24
30

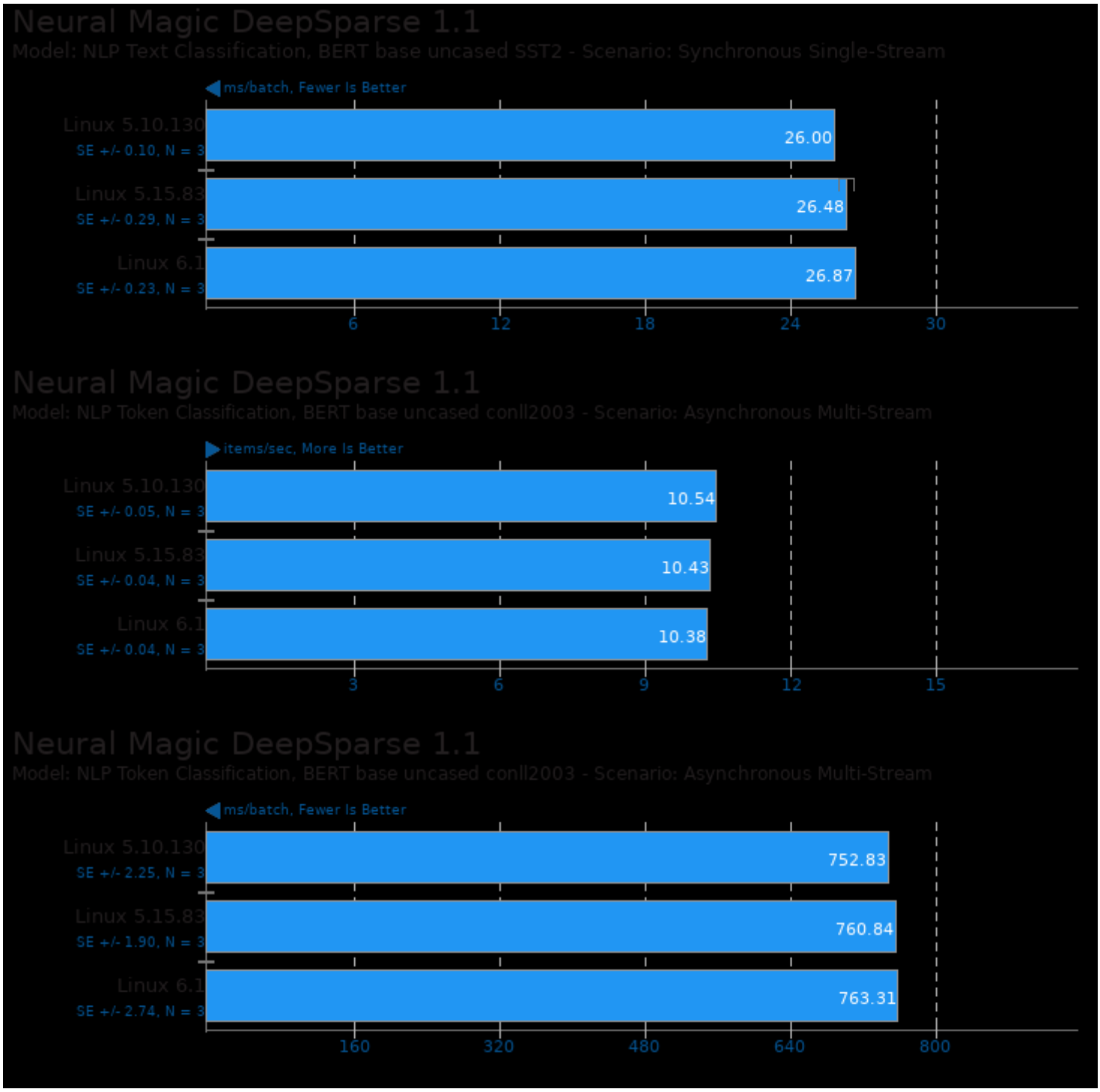

Neural Magic DeepSparse 1.1
Model: CV Detection,YOLOv5s COCO - Scenario: Asynchronous Multi-Stream
items/sec, More Is Better
Linux 5.10.130
SE +/- 0.12, N = 3
86.66
Linux 5.15.83
SE +/- 0.08, N = 3
86.94
Linux 6.1
SE +/- 0.04, N = 3
86.88
20
40
60
80
100
Neural Magic DeepSparse 1.1
Model: CV Detection,YOLOv5s COCO - Scenario: Asynchronous Multi-Stream
ms/batch, Fewer Is Better
Linux 5.10.130
SE +/- 0.08, N = 3
92.21
Linux 5.15.83
SE +/- 0.09, N = 3
91.99
Linux 6.1
SE +/- 0.04, N = 3
92.05
20
40
60
80
100
Neural Magic DeepSparse 1.1
Model: CV Detection,YOLOv5s COCO - Scenario: Synchronous Single-Stream
items/sec, More Is Better
Linux 5.10.130
SE +/- 0.01, N = 3
75.26
Linux 5.15.83
SE +/- 0.14, N = 3
75.04
Linux 6.1
SE +/- 0.10, N = 3
75.26
20
40
60
80
100

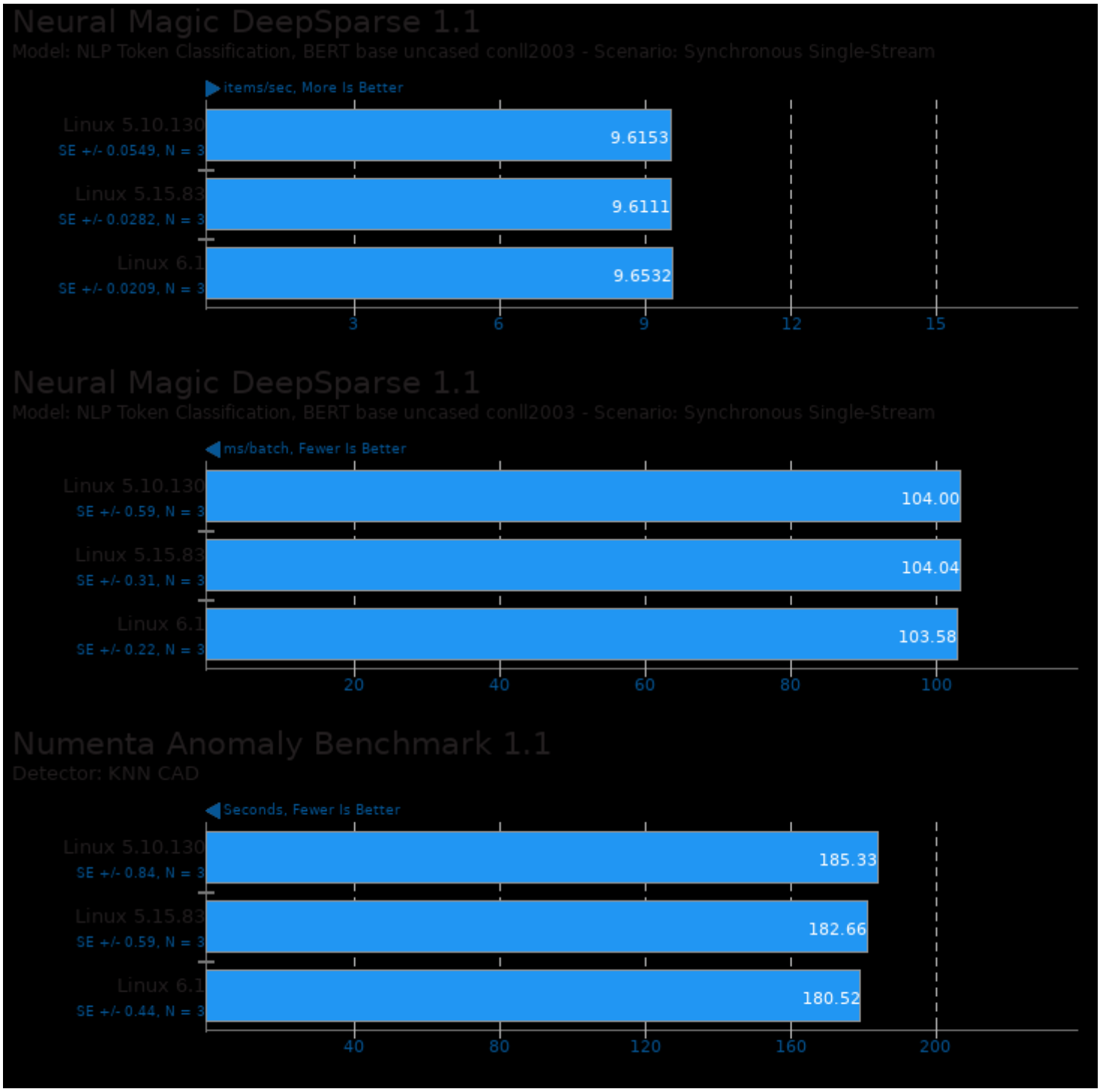

Neural Magic DeepSparse 1.1
Model: CV Detection,YOLOv5s COCO - Scenario: Synchronous Single-Stream
ms/batch, Fewer Is Better
Linux 5.10.130
SE +/- 0.00, N = 3
13.27
Linux 5.15.83
SE +/- 0.02, N = 3
13.31
Linux 6.1
SE +/- 0.02, N = 3
13.27
3
6
9
12
15
Neural Magic DeepSparse 1.1
Model: CV Classification, ResNet-50 ImageNet - Scenario: Asynchronous Multi-Stream
items/sec, More Is Better
Linux 5.10.130
SE +/- 0.10, N = 3
219.36
Linux 5.15.83
SE +/- 0.45, N = 3
219.01
Linux 6.1
SE +/- 0.45, N = 3
218.69
50
100
150
200
250
Neural Magic DeepSparse 1.1
Model: CV Classification, ResNet-50 ImageNet - Scenario: Asynchronous Multi-Stream
ms/batch, Fewer Is Better
Linux 5.10.130
SE +/- 0.02, N = 3
36.44
Linux 5.15.83
SE +/- 0.07, N = 3
36.50
Linux 6.1
SE +/- 0.08, N = 3
36.54
8
16
24
32
40

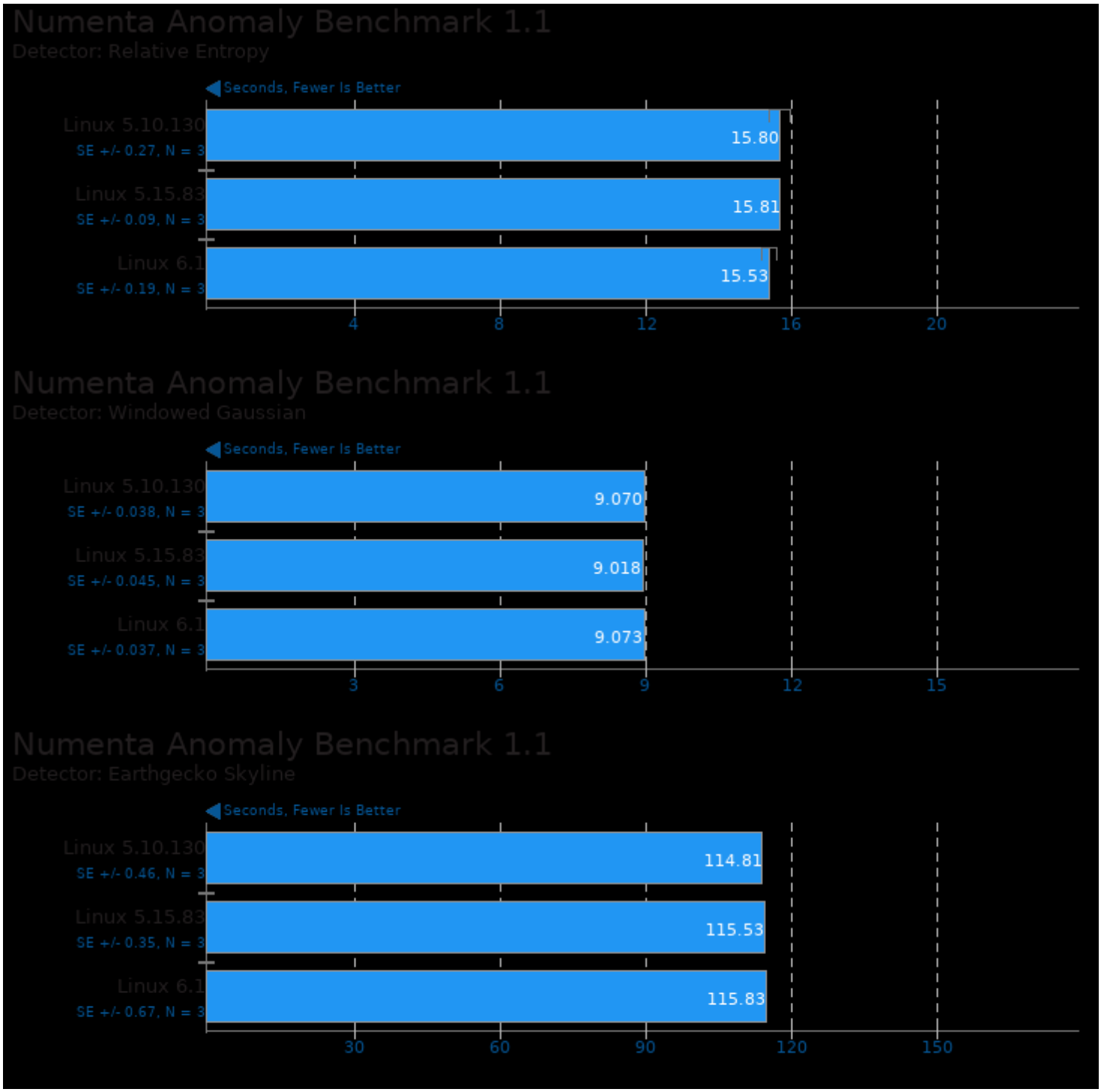

Neural Magic DeepSparse 1.1
Model: CV Classification, ResNet-50 ImageNet - Scenario: Synchronous Single-Stream
items/sec, More Is Better
Linux 5.10.130
SE +/- 1.67, N = 3
132.65
Linux 5.15.83
SE +/- 0.54, N = 3
134.13
Linux 6.1
SE +/- 2.16, N = 3
132.51
30
60
90
120
150
Neural Magic DeepSparse 1.1
Model: CV Classification, ResNet-50 ImageNet - Scenario: Synchronous Single-Stream
ms/batch, Fewer Is Better
Linux 5.10.130
SE +/- 0.0949, N = 3
7.5265
Linux 5.15.83
SE +/- 0.0304, N = 3
7.4408
Linux 6.1
SE +/- 0.1212, N = 3
7.5359
2
4
6
8
10
Neural Magic DeepSparse 1.1
Model: NLP Text Classification, DistilBERT mnli - Scenario: Asynchronous Multi-Stream
items/sec, More Is Better
Linux 5.10.130
SE +/- 0.05, N = 3
108.55
Linux 5.15.83
SE +/- 0.53, N = 3
108.34
Linux 6.1
SE +/- 0.47, N = 3
108.74
20
40
60
80
100

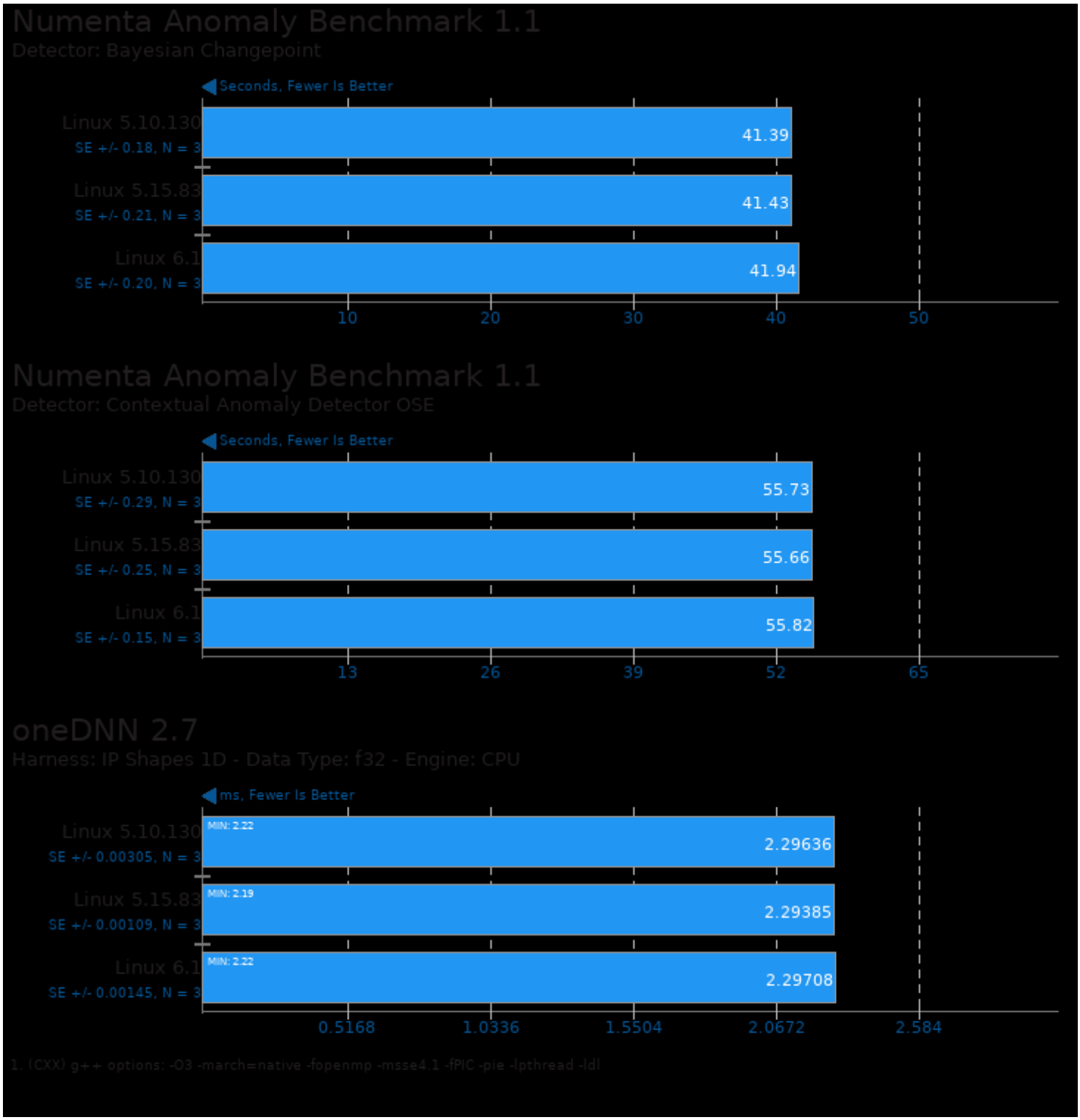

Neural Magic DeepSparse 1.1
Model: NLP Text Classification, DistilBERT mnli - Scenario: Asynchronous Multi-Stream
ms/batch, Fewer Is Better
Linux 5.10.130
SE +/- 0.04, N = 3
73.68
Linux 5.15.83
SE +/- 0.36, N = 3
73.82
Linux 6.1
SE +/- 0.32, N = 3
73.55
16
32
48
64
80
Neural Magic DeepSparse 1.1
Model: NLP Text Classification, DistilBERT mnli - Scenario: Synchronous Single-Stream
items/sec, More Is Better
Linux 5.10.130
SE +/- 0.65, N = 3
73.60
Linux 5.15.83
SE +/- 0.33, N = 3
72.06
Linux 6.1
SE +/- 0.51, N = 3
71.89
16
32
48
64
80
Neural Magic DeepSparse 1.1
Model: NLP Text Classification, DistilBERT mnli - Scenario: Synchronous Single-Stream
ms/batch, Fewer Is Better
Linux 5.10.130
SE +/- 0.12, N = 3
13.58
Linux 5.15.83
SE +/- 0.06, N = 3
13.87
Linux 6.1
SE +/- 0.10, N = 3
13.90
4
8
12
16
20

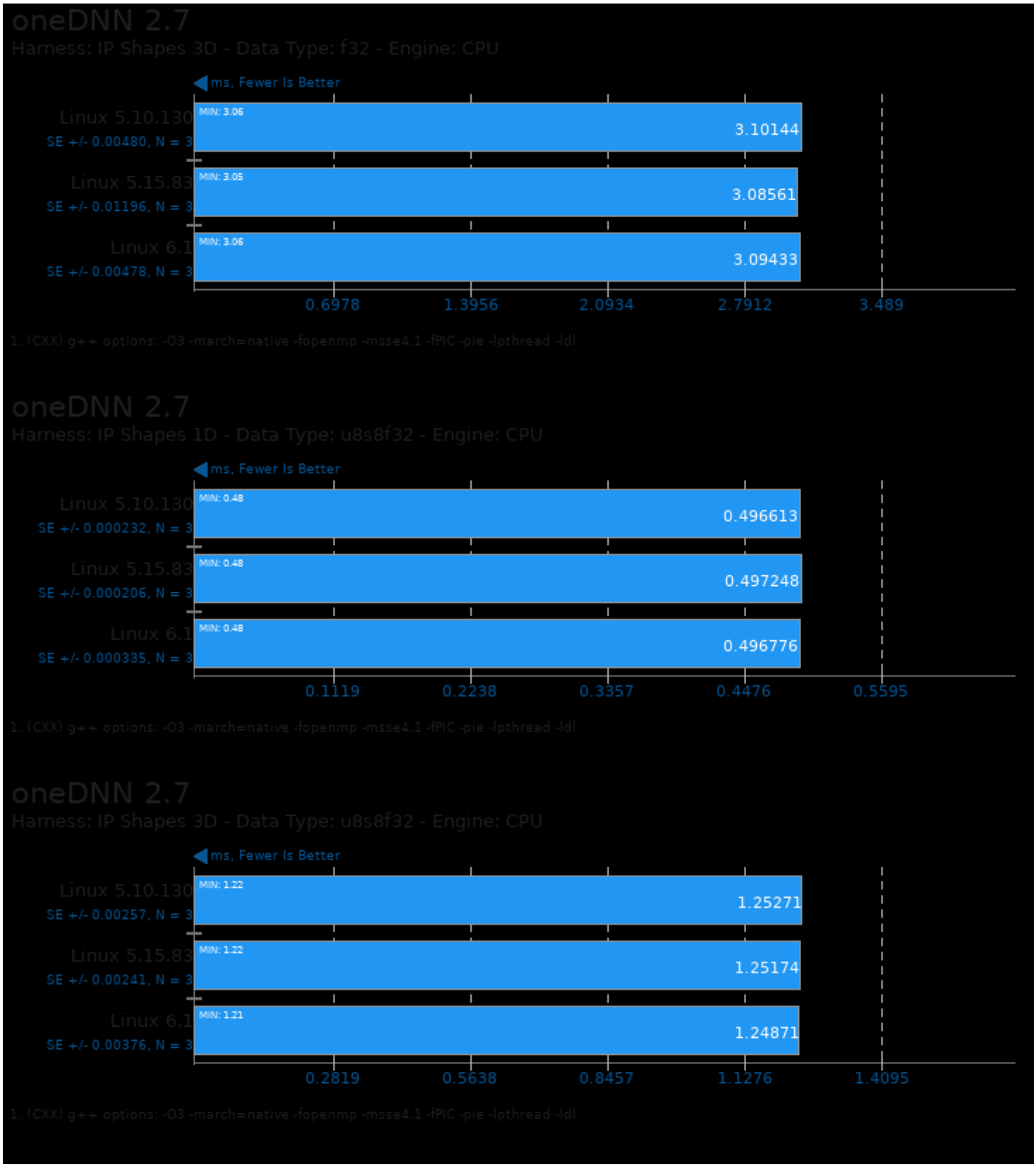

Neural Magic DeepSparse 1.1
Model: NLP Text Classification, BERT base uncased SST2 - Scenario: Asynchronous Multi-Stream
items/sec, More Is Better
Linux 5.10.130
SE +/- 0.12, N = 3
55.54
Linux 5.15.83
SE +/- 0.27, N = 3
54.43
Linux 6.1
SE +/- 0.16, N = 3
54.27
12
24
36
48
60
Neural Magic DeepSparse 1.1
Model: NLP Text Classification, BERT base uncased SST2 - Scenario: Asynchronous Multi-Stream
ms/batch, Fewer Is Better
Linux 5.10.130
SE +/- 0.30, N = 3
144.01
Linux 5.15.83
SE +/- 0.74, N = 3
146.95
Linux 6.1
SE +/- 0.43, N = 3
147.38
30
60
90
120
150
Neural Magic DeepSparse 1.1
Model: NLP Text Classification, BERT base uncased SST2 - Scenario: Synchronous Single-Stream
items/sec, More Is Better
Linux 5.10.130
SE +/- 0.15, N = 3
38.44
Linux 5.15.83
SE +/- 0.41, N = 3
37.76
Linux 6.1
SE +/- 0.31, N = 3
37.21
9
18
27
36
45

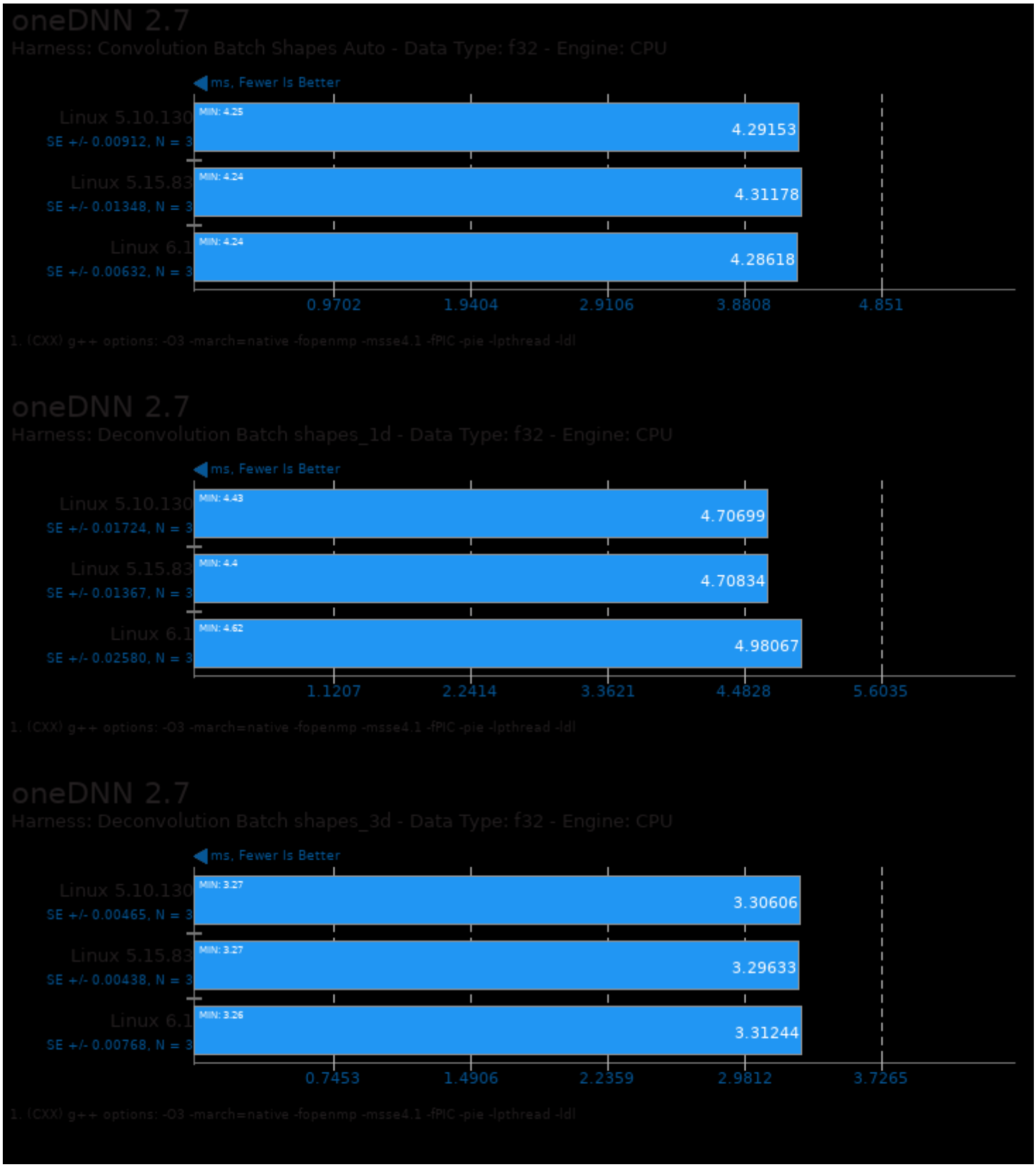

Neural Magic DeepSparse 1.1
Model: NLP Text Classification, BERT base uncased SST2 - Scenario: Synchronous Single-Stream
ms/batch, Fewer Is Better
Linux 5.10.130
SE +/- 0.10, N = 3
26.00
Linux 5.15.83
SE +/- 0.29, N = 3
26.48
Linux 6.1
SE +/- 0.23, N = 3
26.87
6
12
18
24
30
Neural Magic DeepSparse 1.1
Model: NLP Token Classification, BERT base uncased conll2003 - Scenario: Asynchronous Multi-Stream
items/sec, More Is Better
Linux 5.10.130
SE +/- 0.05, N = 3
10.54
Linux 5.15.83
SE +/- 0.04, N = 3
10.43
Linux 6.1
SE +/- 0.04, N = 3
10.38
3
6
9
12
15
Neural Magic DeepSparse 1.1
Model: NLP Token Classification, BERT base uncased conll2003 - Scenario: Asynchronous Multi-Stream
ms/batch, Fewer Is Better
Linux 5.10.130
SE +/- 2.25, N = 3
752.83
Linux 5.15.83
SE +/- 1.90, N = 3
760.84
Linux 6.1
SE +/- 2.74, N = 3
763.31
160
320
480
640
800

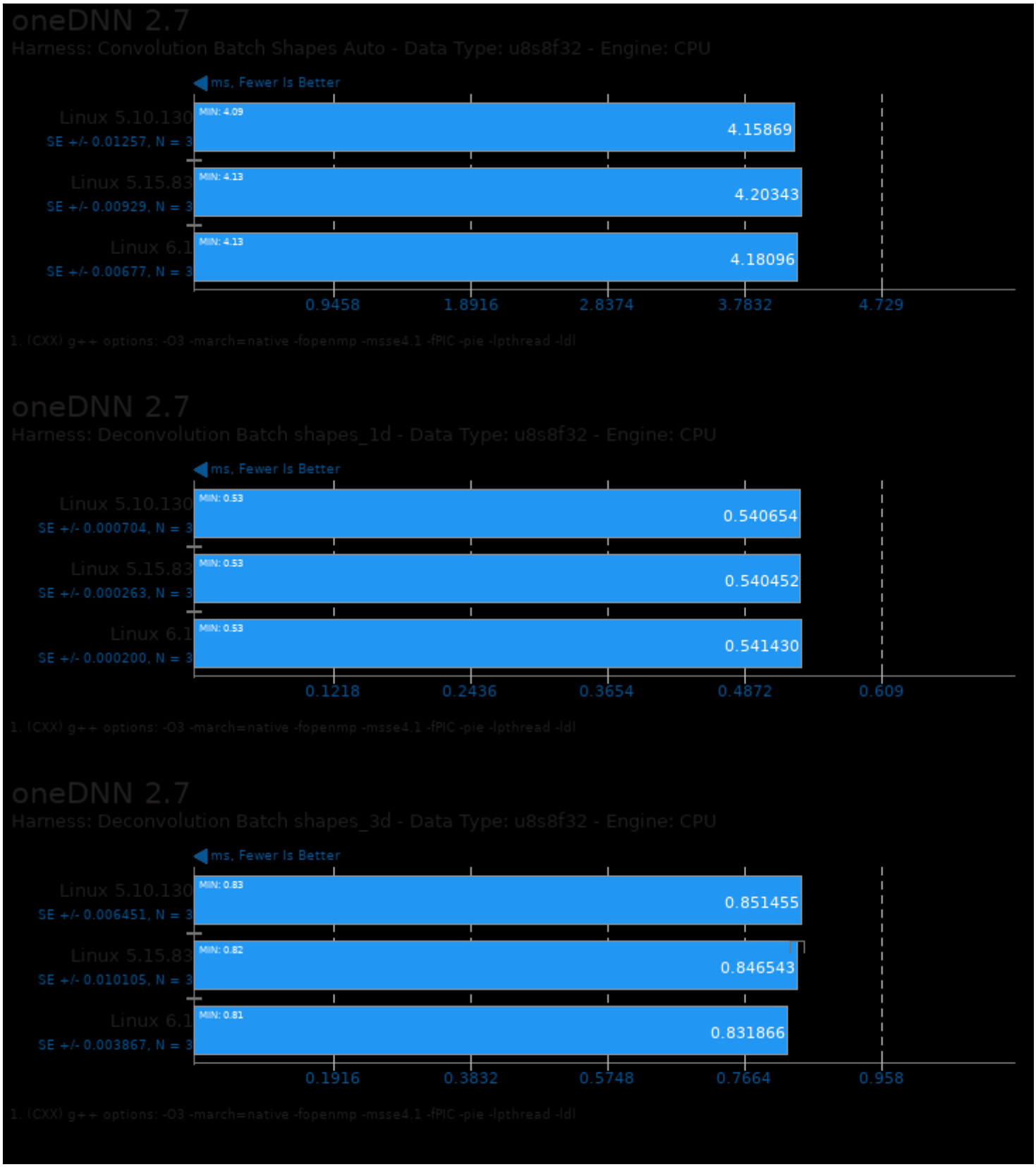

Neural Magic DeepSparse 1.1
Model: NLP Token Classification, BERT base uncased conll2003 - Scenario: Synchronous Single-Stream
items/sec, More Is Better
Linux 5.10.130
SE +/- 0.0549, N = 3
9.6153
Linux 5.15.83
SE +/- 0.0282, N = 3
9.6111
Linux 6.1
SE +/- 0.0209, N = 3
9.6532
3
6
9
12
15
Neural Magic DeepSparse 1.1
Model: NLP Token Classification, BERT base uncased conll2003 - Scenario: Synchronous Single-Stream
ms/batch, Fewer Is Better
Linux 5.10.130
SE +/- 0.59, N = 3
104.00
Linux 5.15.83
SE +/- 0.31, N = 3
104.04
Linux 6.1
SE +/- 0.22, N = 3
103.58
20
40
60
80
100
Numenta Anomaly Benchmark 1.1
Detector: KNN CAD
Seconds, Fewer Is Better
Linux 5.10.130
SE +/- 0.84, N = 3
185.33
Linux 5.15.83
SE +/- 0.59, N = 3
182.66
Linux 6.1
SE +/- 0.44, N = 3
180.52
40
80
120
160
200

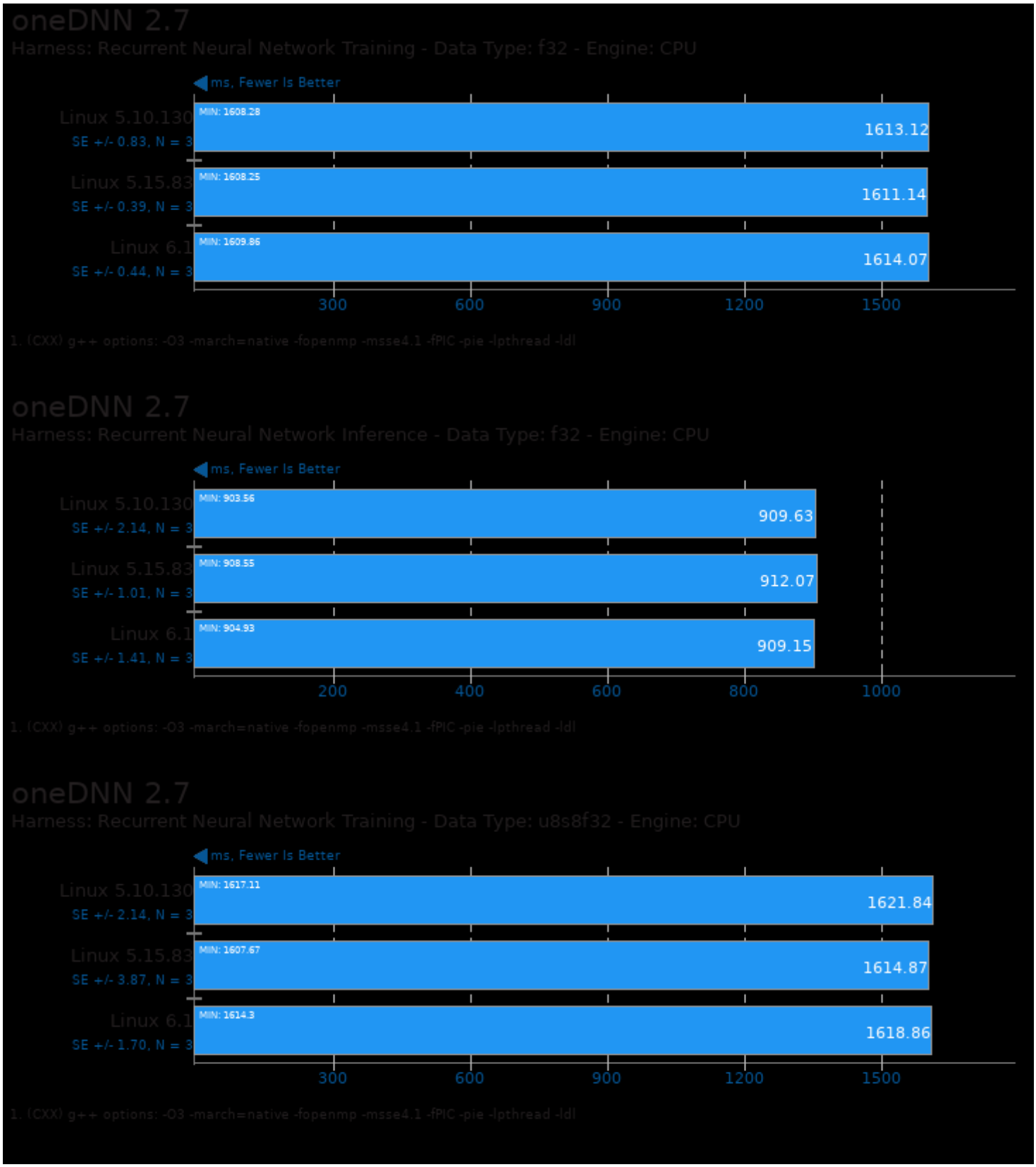

Numenta Anomaly Benchmark 1.1
Detector: Relative Entropy
Seconds, Fewer Is Better
Linux 5.10.130
SE +/- 0.27, N = 3
15.80
Linux 5.15.83
SE +/- 0.09, N = 3
15.81
Linux 6.1
SE +/- 0.19, N = 3
15.53
4
8
12
16
20
Numenta Anomaly Benchmark 1.1
Detector: Windowed Gaussian
Seconds, Fewer Is Better
Linux 5.10.130
SE +/- 0.038, N = 3
9.070
Linux 5.15.83
SE +/- 0.045, N = 3
9.018
Linux 6.1
SE +/- 0.037, N = 3
9.073
3
6
9
12
15
Numenta Anomaly Benchmark 1.1
Detector: Earthgecko Skyline
Seconds, Fewer Is Better
Linux 5.10.130
SE +/- 0.46, N = 3
114.81
Linux 5.15.83
SE +/- 0.35, N = 3
115.53
Linux 6.1
SE +/- 0.67, N = 3
115.83
30
60
90
120
150

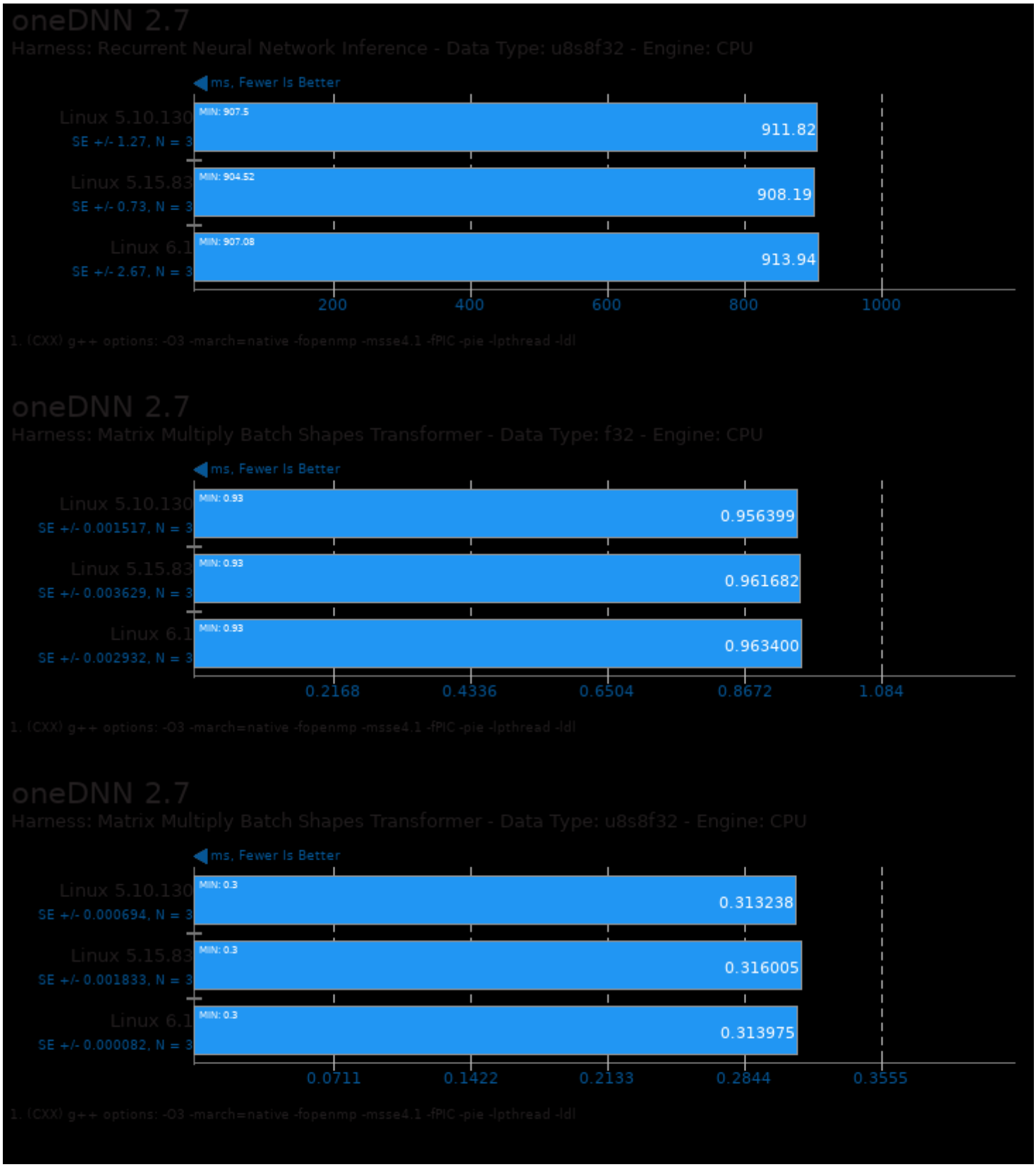

Numenta Anomaly Benchmark 1.1
Detector: Bayesian Changepoint
Seconds, Fewer Is Better
Linux 5.10.130
SE +/- 0.18, N = 3
41.39
Linux 5.15.83
SE +/- 0.21, N = 3
41.43
Linux 6.1
SE +/- 0.20, N = 3
41.94
10
20
30
40
50
Numenta Anomaly Benchmark 1.1
Detector: Contextual Anomaly Detector OSE
Seconds, Fewer Is Better
Linux 5.10.130
SE +/- 0.29, N = 3
55.73
Linux 5.15.83
SE +/- 0.25, N = 3
55.66
Linux 6.1
SE +/- 0.15, N = 3
55.82
13
26
39
52
65
oneDNN 2.7
Harness: IP Shapes 1D - Data Type: f32 - Engine: CPU
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.00305, N = 3
MIN: 2.22
2.29636
Linux 5.15.83
SE +/- 0.00109, N = 3
MIN: 2.19
2.29385
Linux 6.1
SE +/- 0.00145, N = 3
MIN: 2.22
2.29708
0.5168
1.0336
1.5504
2.0672
2.584
1. (CXX) g++ options: -O3 -march=native -fopenmp -msse4.1 -fPIC -pie -lpthread -ldl

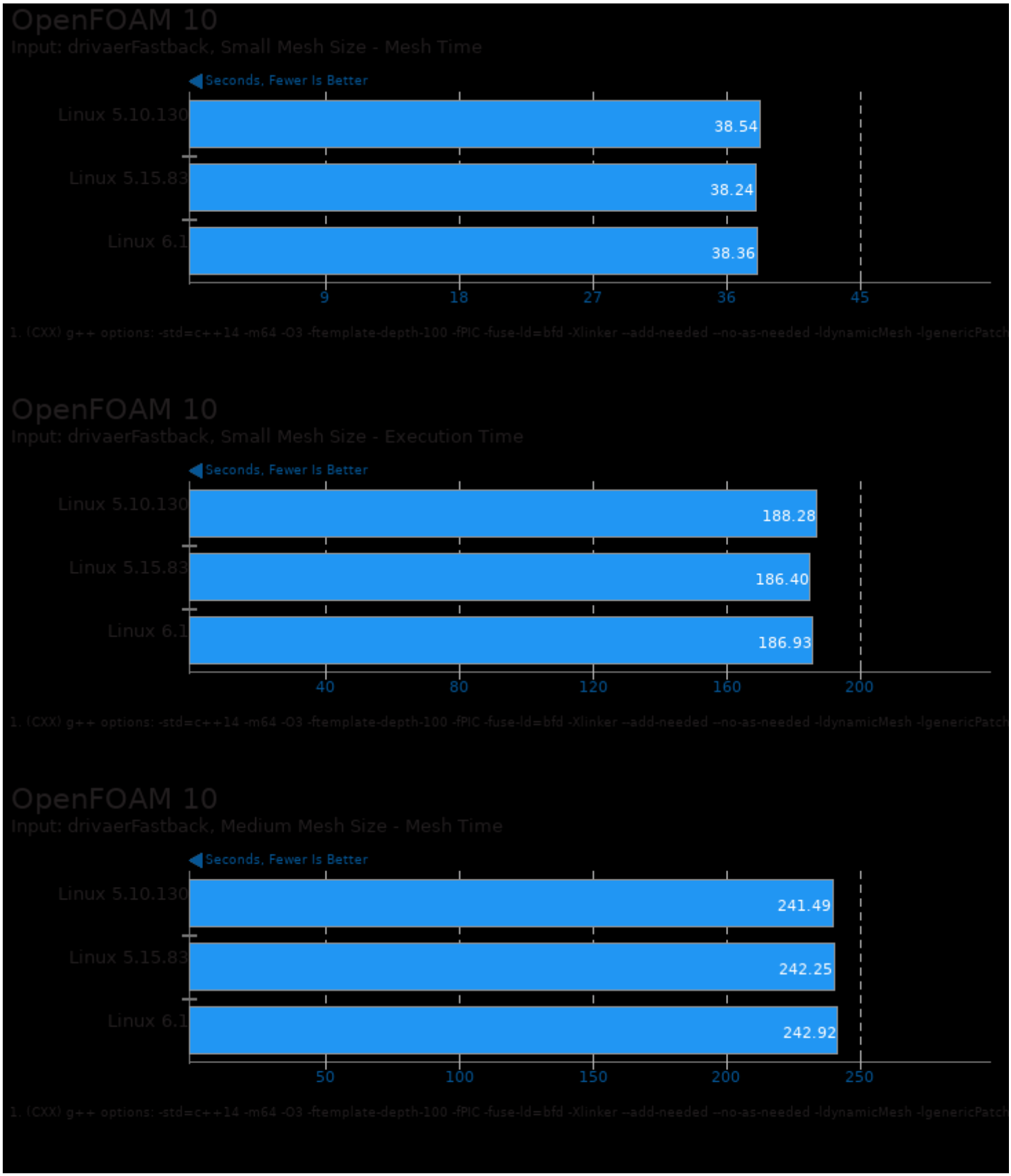

oneDNN 2.7
Harness: IP Shapes 3D - Data Type: f32 - Engine: CPU
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.00480, N = 3
MIN: 3.06
3.10144
Linux 5.15.83
SE +/- 0.01196, N = 3
MIN: 3.05
3.08561
Linux 6.1
SE +/- 0.00478, N = 3
MIN: 3.06
3.09433
0.6978
1.3956
2.0934
2.7912
3.489
1. (CXX) g++ options: -O3 -march=native -fopenmp -msse4.1 -fPIC -pie -lpthread -ldl
oneDNN 2.7
Harness: IP Shapes 1D - Data Type: u8s8f32 - Engine: CPU
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.000232, N = 3
MIN: 0.48
0.496613
Linux 5.15.83
SE +/- 0.000206, N = 3
MIN: 0.48
0.497248
Linux 6.1
SE +/- 0.000335, N = 3
MIN: 0.48
0.496776
0.1119
0.2238
0.3357
0.4476
0.5595
1. (CXX) g++ options: -O3 -march=native -fopenmp -msse4.1 -fPIC -pie -lpthread -ldl
oneDNN 2.7
Harness: IP Shapes 3D - Data Type: u8s8f32 - Engine: CPU
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.00257, N = 3
MIN: 1.22
1.25271
Linux 5.15.83
SE +/- 0.00241, N = 3
MIN: 1.22
1.25174
Linux 6.1
SE +/- 0.00376, N = 3
MIN: 1.21
1.24871
0.2819
0.5638
0.8457
1.1276
1.4095
1. (CXX) g++ options: -O3 -march=native -fopenmp -msse4.1 -fPIC -pie -lpthread -ldl

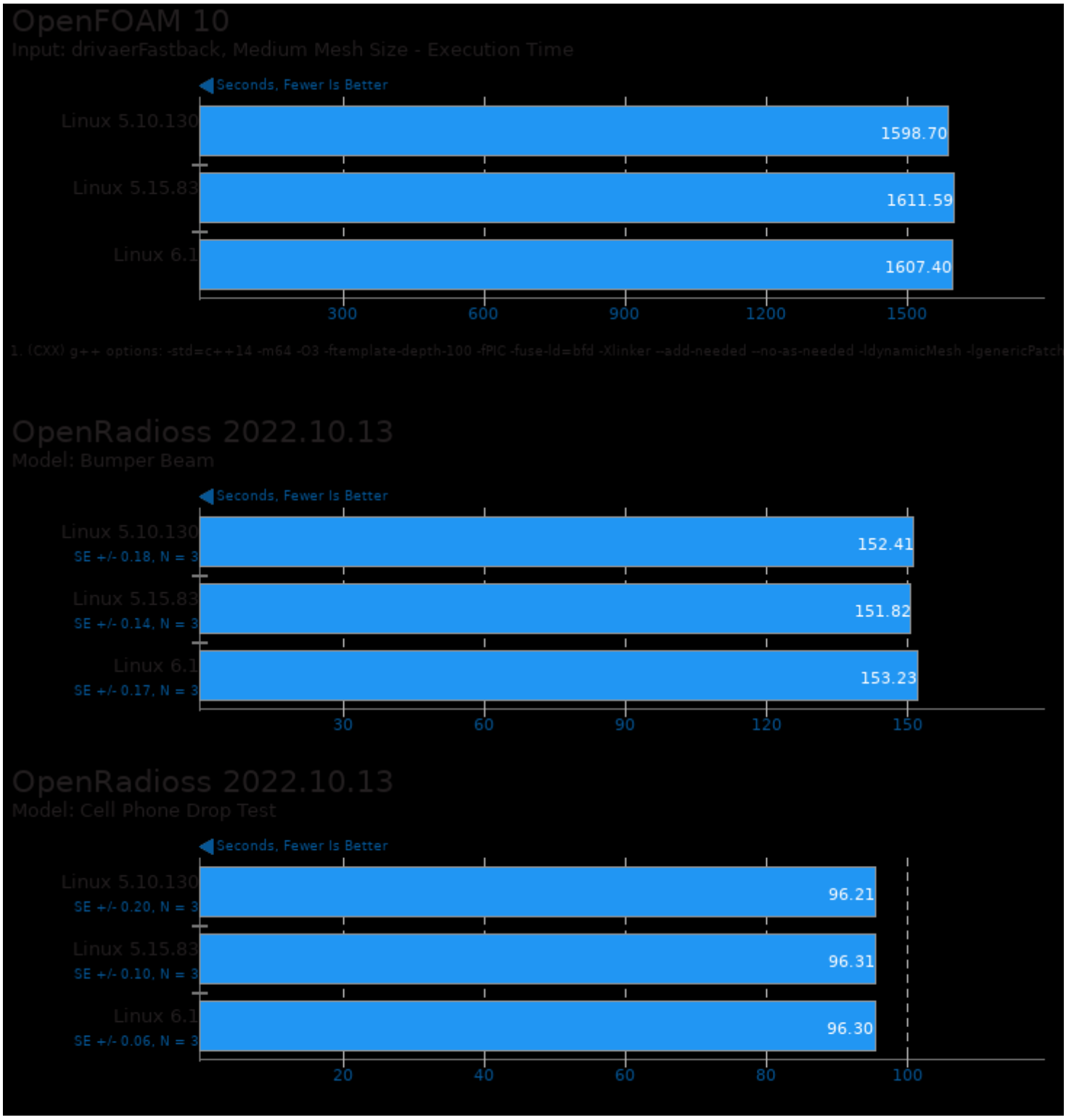

oneDNN 2.7
Harness: Convolution Batch Shapes Auto - Data Type: f32 - Engine: CPU
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.00912, N = 3
MIN: 4.25
4.29153
Linux 5.15.83
SE +/- 0.01348, N = 3
MIN: 4.24
4.31178
Linux 6.1
SE +/- 0.00632, N = 3
MIN: 4.24
4.28618
0.9702
1.9404
2.9106
3.8808
4.851
1. (CXX) g++ options: -O3 -march=native -fopenmp -msse4.1 -fPIC -pie -lpthread -ldl
oneDNN 2.7
Harness: Deconvolution Batch shapes_1d - Data Type: f32 - Engine: CPU
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.01724, N = 3
MIN: 4.43
4.70699
Linux 5.15.83
SE +/- 0.01367, N = 3
MIN: 4.4
4.70834
Linux 6.1
SE +/- 0.02580, N = 3
MIN: 4.62
4.98067
1.1207
2.2414
3.3621
4.4828
5.6035
1. (CXX) g++ options: -O3 -march=native -fopenmp -msse4.1 -fPIC -pie -lpthread -ldl
oneDNN 2.7
Harness: Deconvolution Batch shapes_3d - Data Type: f32 - Engine: CPU
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.00465, N = 3
MIN: 3.27
3.30606
Linux 5.15.83
SE +/- 0.00438, N = 3
MIN: 3.27
3.29633
Linux 6.1
SE +/- 0.00768, N = 3
MIN: 3.26
3.31244
0.7453
1.4906
2.2359
2.9812
3.7265
1. (CXX) g++ options: -O3 -march=native -fopenmp -msse4.1 -fPIC -pie -lpthread -ldl

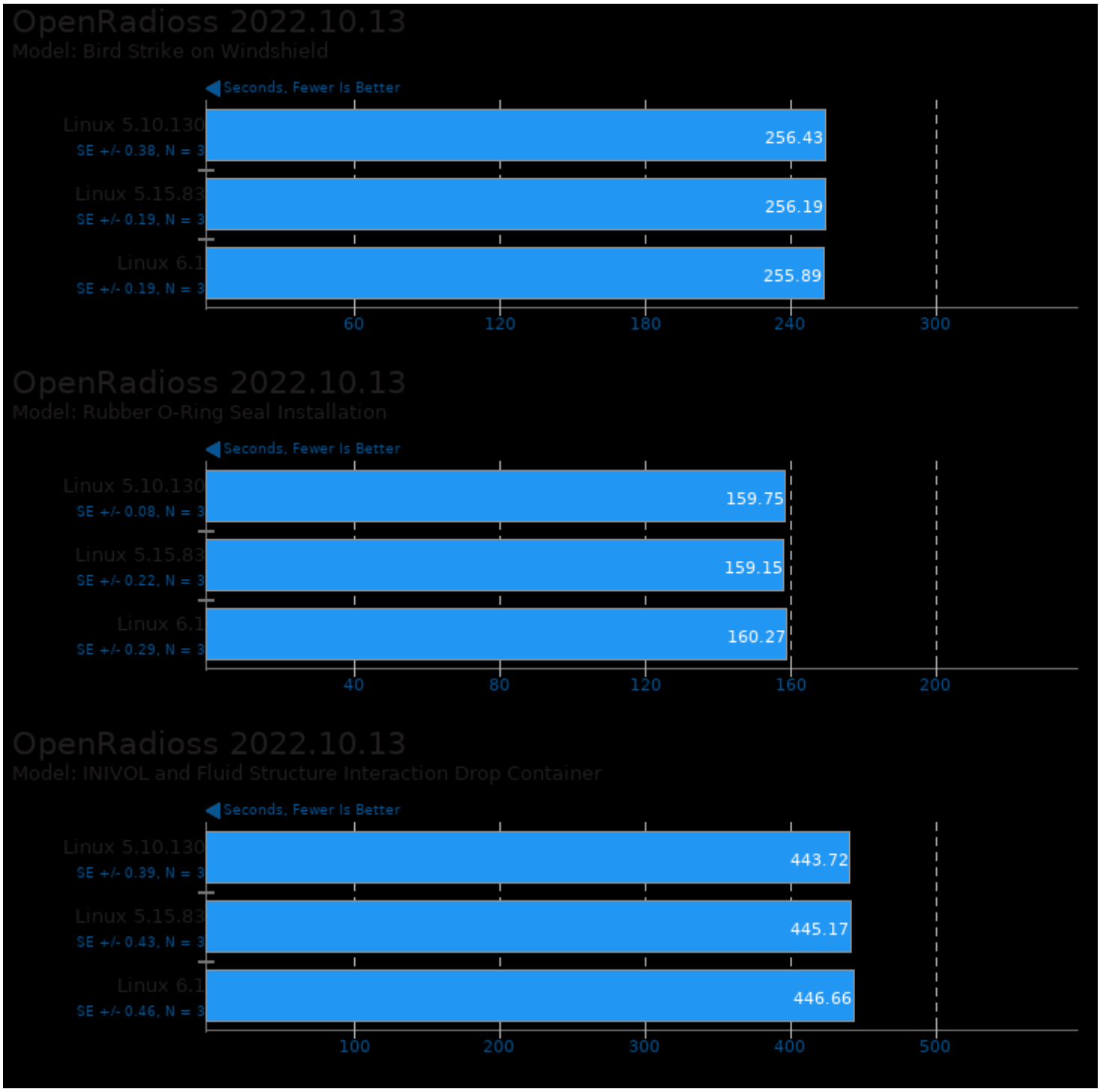

oneDNN 2.7
Harness: Convolution Batch Shapes Auto - Data Type: u8s8f32 - Engine: CPU
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.01257, N = 3
MIN: 4.09
4.15869
Linux 5.15.83
SE +/- 0.00929, N = 3
MIN: 4.13
4.20343
Linux 6.1
SE +/- 0.00677, N = 3
MIN: 4.13
4.18096
0.9458
1.8916
2.8374
3.7832
4.729
1. (CXX) g++ options: -O3 -march=native -fopenmp -msse4.1 -fPIC -pie -lpthread -ldl
oneDNN 2.7
Harness: Deconvolution Batch shapes_1d - Data Type: u8s8f32 - Engine: CPU
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.000704, N = 3
MIN: 0.53
0.540654
Linux 5.15.83
SE +/- 0.000263, N = 3
MIN: 0.53
0.540452
Linux 6.1
SE +/- 0.000200, N = 3
MIN: 0.53
0.541430
0.1218
0.2436
0.3654
0.4872
0.609
1. (CXX) g++ options: -O3 -march=native -fopenmp -msse4.1 -fPIC -pie -lpthread -ldl
oneDNN 2.7
Harness: Deconvolution Batch shapes_3d - Data Type: u8s8f32 - Engine: CPU
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.006451, N = 3
MIN: 0.83
0.851455
Linux 5.15.83
SE +/- 0.010105, N = 3
MIN: 0.82
0.846543
Linux 6.1
SE +/- 0.003867, N = 3
MIN: 0.81
0.831866
0.1916
0.3832
0.5748
0.7664
0.958
1. (CXX) g++ options: -O3 -march=native -fopenmp -msse4.1 -fPIC -pie -lpthread -ldl

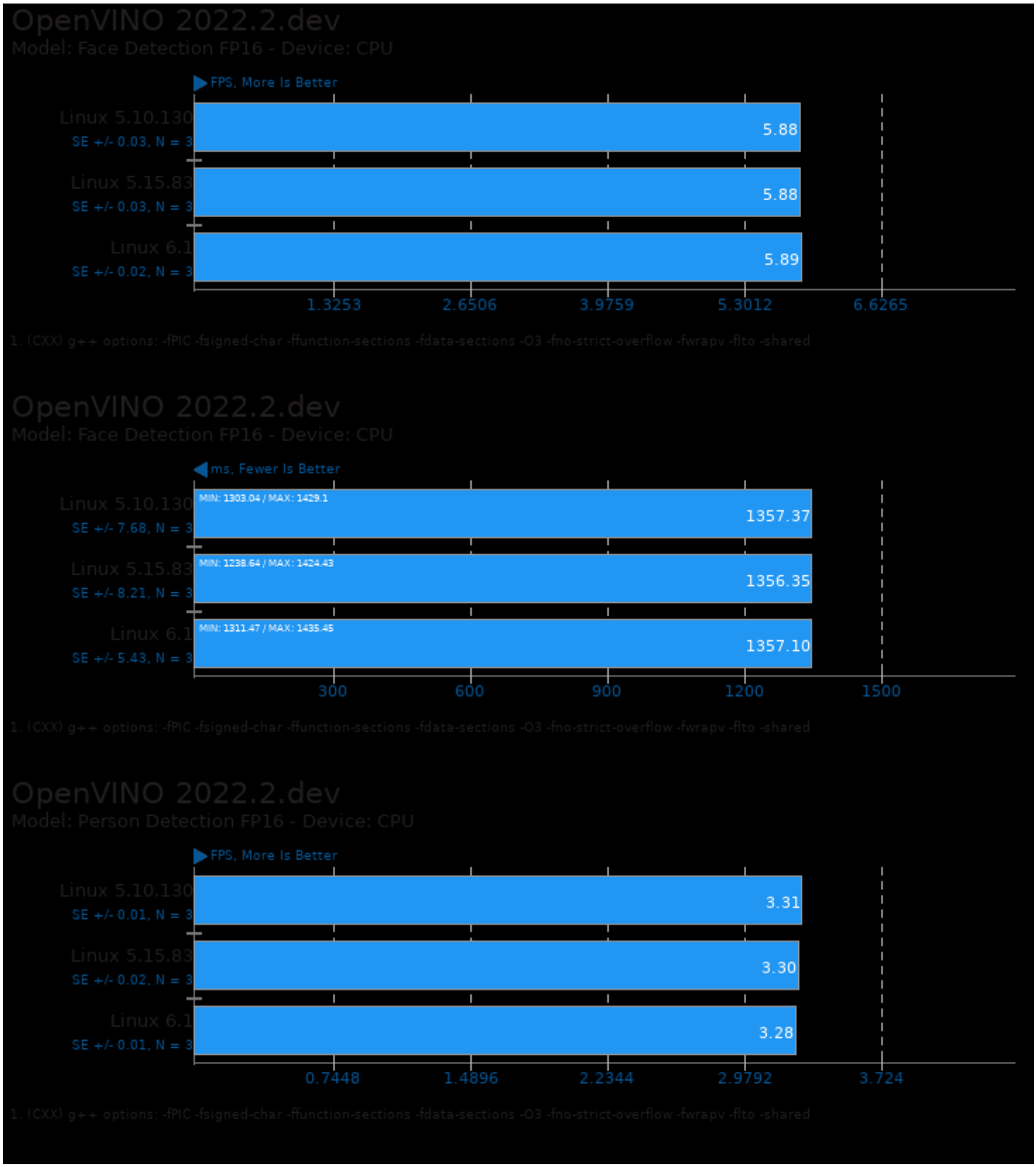

oneDNN 2.7
Harness: Recurrent Neural Network Training - Data Type: f32 - Engine: CPU
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.83, N = 3
MIN: 1608.28
1613.12
Linux 5.15.83
SE +/- 0.39, N = 3
MIN: 1608.25
1611.14
Linux 6.1
SE +/- 0.44, N = 3
MIN: 1609.86
1614.07
300
600
900
1200
1500
1. (CXX) g++ options: -O3 -march=native -fopenmp -msse4.1 -fPIC -pie -lpthread -ldl
oneDNN 2.7
Harness: Recurrent Neural Network Inference - Data Type: f32 - Engine: CPU
ms, Fewer Is Better
Linux 5.10.130
SE +/- 2.14, N = 3
MIN: 903.56
909.63
Linux 5.15.83
SE +/- 1.01, N = 3
MIN: 908.55
912.07
Linux 6.1
SE +/- 1.41, N = 3
MIN: 904.93
909.15
200
400
600
800
1000
1. (CXX) g++ options: -O3 -march=native -fopenmp -msse4.1 -fPIC -pie -lpthread -ldl
oneDNN 2.7
Harness: Recurrent Neural Network Training - Data Type: u8s8f32 - Engine: CPU
ms, Fewer Is Better
Linux 5.10.130
SE +/- 2.14, N = 3
MIN: 1617.11
1621.84
Linux 5.15.83
SE +/- 3.87, N = 3
MIN: 1607.67
1614.87
Linux 6.1
SE +/- 1.70, N = 3
MIN: 1614.3
1618.86
300
600
900
1200
1500
1. (CXX) g++ options: -O3 -march=native -fopenmp -msse4.1 -fPIC -pie -lpthread -ldl

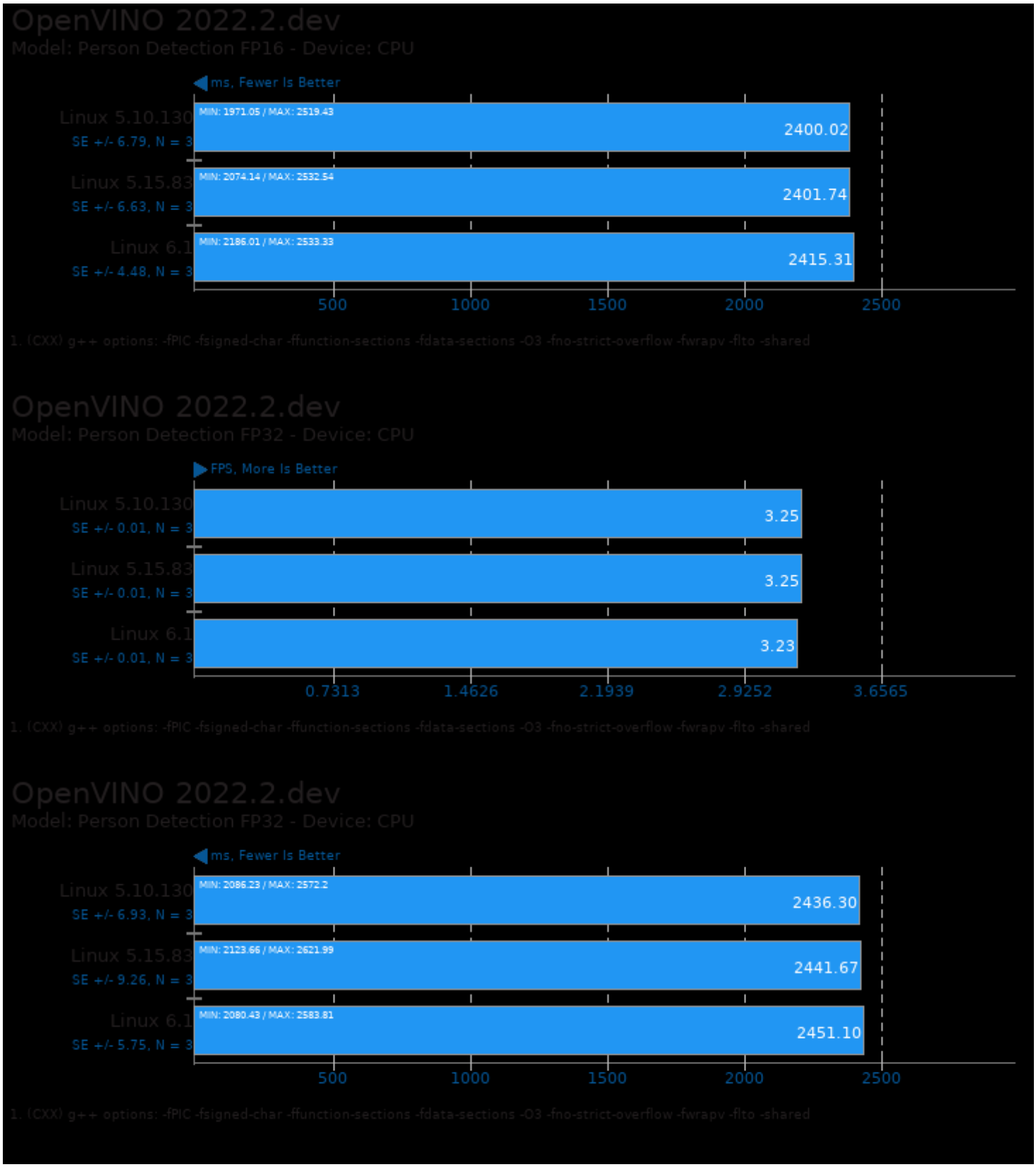

oneDNN 2.7
Harness: Recurrent Neural Network Inference - Data Type: u8s8f32 - Engine: CPU
ms, Fewer Is Better
Linux 5.10.130
SE +/- 1.27, N = 3
MIN: 907.5
911.82
Linux 5.15.83
SE +/- 0.73, N = 3
MIN: 904.52
908.19
Linux 6.1
SE +/- 2.67, N = 3
MIN: 907.08
913.94
200
400
600
800
1000
1. (CXX) g++ options: -O3 -march=native -fopenmp -msse4.1 -fPIC -pie -lpthread -ldl
oneDNN 2.7
Harness: Matrix Multiply Batch Shapes Transformer - Data Type: f32 - Engine: CPU
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.001517, N = 3
MIN: 0.93
0.956399
Linux 5.15.83
SE +/- 0.003629, N = 3
MIN: 0.93
0.961682
Linux 6.1
SE +/- 0.002932, N = 3
MIN: 0.93
0.963400
0.2168
0.4336
0.6504
0.8672
1.084
1. (CXX) g++ options: -O3 -march=native -fopenmp -msse4.1 -fPIC -pie -lpthread -ldl
oneDNN 2.7
Harness: Matrix Multiply Batch Shapes Transformer - Data Type: u8s8f32 - Engine: CPU
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.000694, N = 3
MIN: 0.3
0.313238
Linux 5.15.83
SE +/- 0.001833, N = 3
MIN: 0.3
0.316005
Linux 6.1
SE +/- 0.000082, N = 3
MIN: 0.3
0.313975
0.0711
0.1422
0.2133
0.2844
0.3555
1. (CXX) g++ options: -O3 -march=native -fopenmp -msse4.1 -fPIC -pie -lpthread -ldl

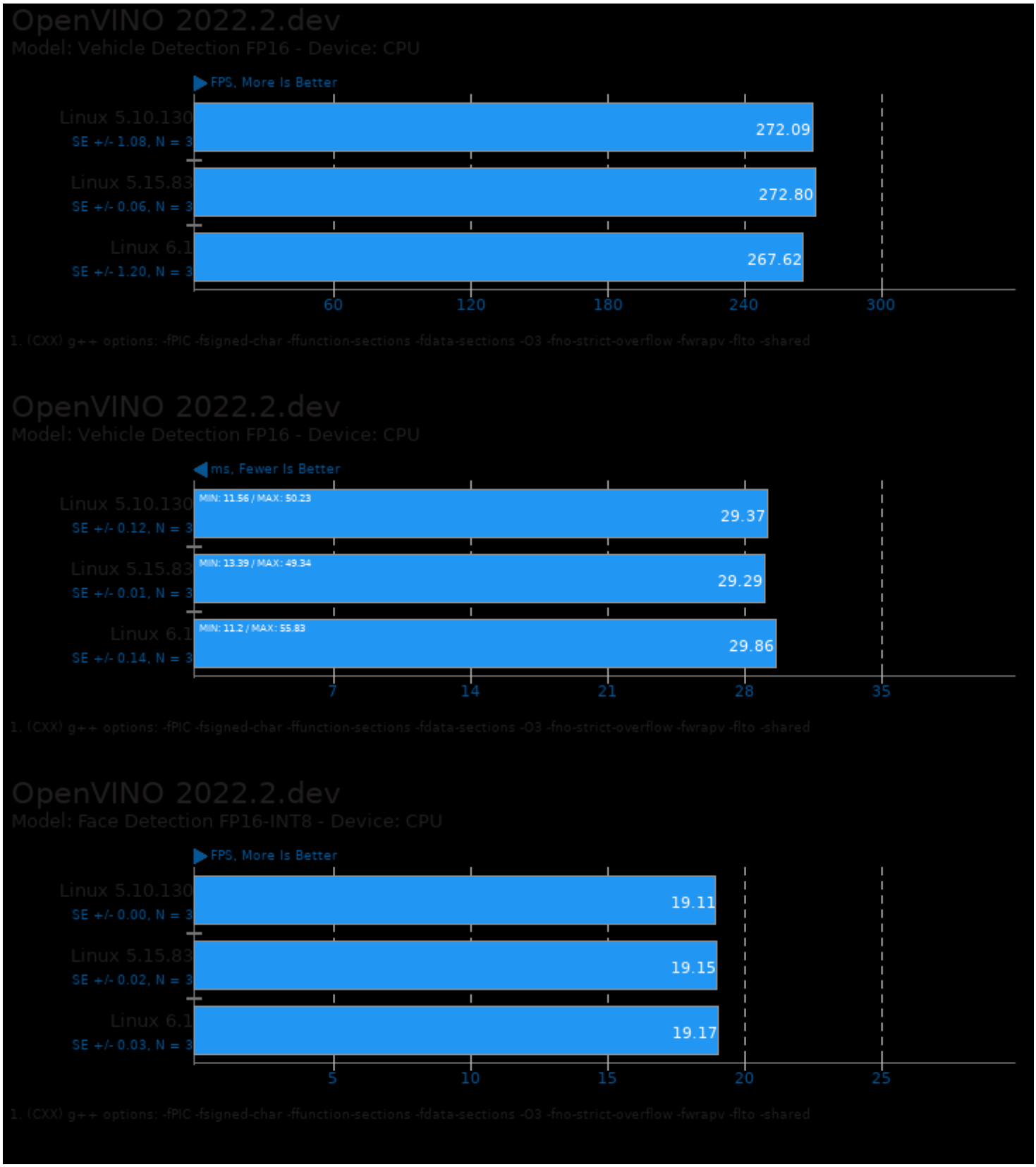

OpenFOAM 10
Input: drivaerFastback, Small Mesh Size - Mesh Time
Seconds, Fewer Is Better
Linux 5.10.130
38.54
Linux 5.15.83
38.24
Linux 6.1
38.36
9
18
27
36
45
1. (CXX) g++ options: -std=c++14 -m64 -O3 -ftemplate-depth-100 -fPIC -fuse-ld=bfd -Xlinker --add-needed --no-as-needed -ldynamicMesh -lgenericPatch
OpenFOAM 10
Input: drivaerFastback, Small Mesh Size - Execution Time
Seconds, Fewer Is Better
Linux 5.10.130
188.28
Linux 5.15.83
186.40
Linux 6.1
186.93
40
80
120
160
200
1. (CXX) g++ options: -std=c++14 -m64 -O3 -ftemplate-depth-100 -fPIC -fuse-ld=bfd -Xlinker --add-needed --no-as-needed -ldynamicMesh -lgenericPatch
OpenFOAM 10
Input: drivaerFastback, Medium Mesh Size - Mesh Time
Seconds, Fewer Is Better
Linux 5.10.130
241.49
Linux 5.15.83
242.25
Linux 6.1
242.92
50
100
150
200
250
1. (CXX) g++ options: -std=c++14 -m64 -O3 -ftemplate-depth-100 -fPIC -fuse-ld=bfd -Xlinker --add-needed --no-as-needed -ldynamicMesh -lgenericPatch

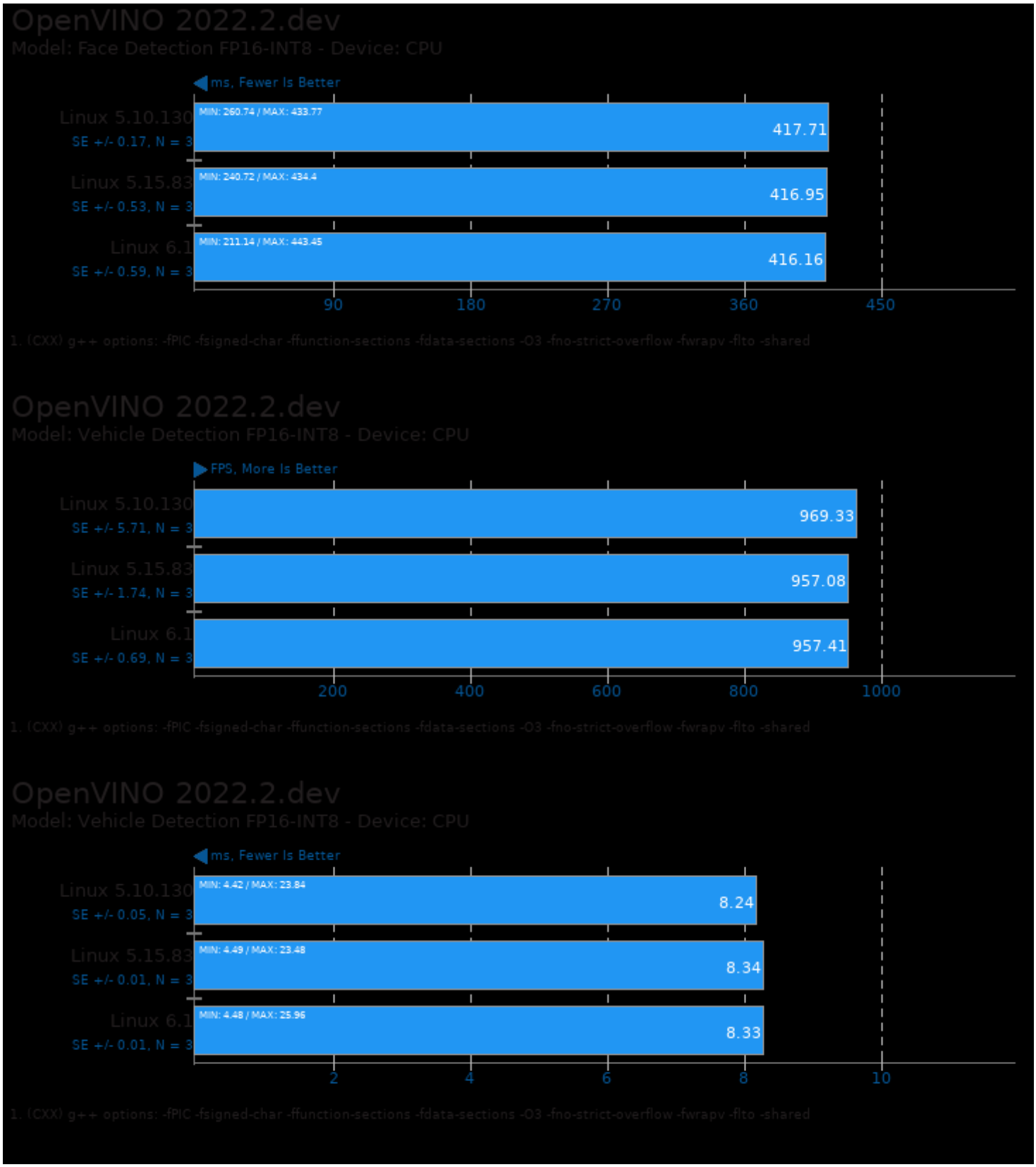

OpenFOAM 10
Input: drivaerFastback, Medium Mesh Size - Execution Time
Seconds, Fewer Is Better
Linux 5.10.130
1598.70
Linux 5.15.83
1611.59
Linux 6.1
1607.40
300
600
900
1200
1500
1. (CXX) g++ options: -std=c++14 -m64 -O3 -ftemplate-depth-100 -fPIC -fuse-ld=bfd -Xlinker --add-needed --no-as-needed -ldynamicMesh -lgenericPatch
OpenRadioss 2022.10.13
Model: Bumper Beam
Seconds, Fewer Is Better
Linux 5.10.130
SE +/- 0.18, N = 3
152.41
Linux 5.15.83
SE +/- 0.14, N = 3
151.82
Linux 6.1
SE +/- 0.17, N = 3
153.23
30
60
90
120
150
OpenRadioss 2022.10.13
Model: Cell Phone Drop Test
Seconds, Fewer Is Better
Linux 5.10.130
SE +/- 0.20, N = 3
96.21
Linux 5.15.83
SE +/- 0.10, N = 3
96.31
Linux 6.1
SE +/- 0.06, N = 3
96.30
20
40
60
80
100

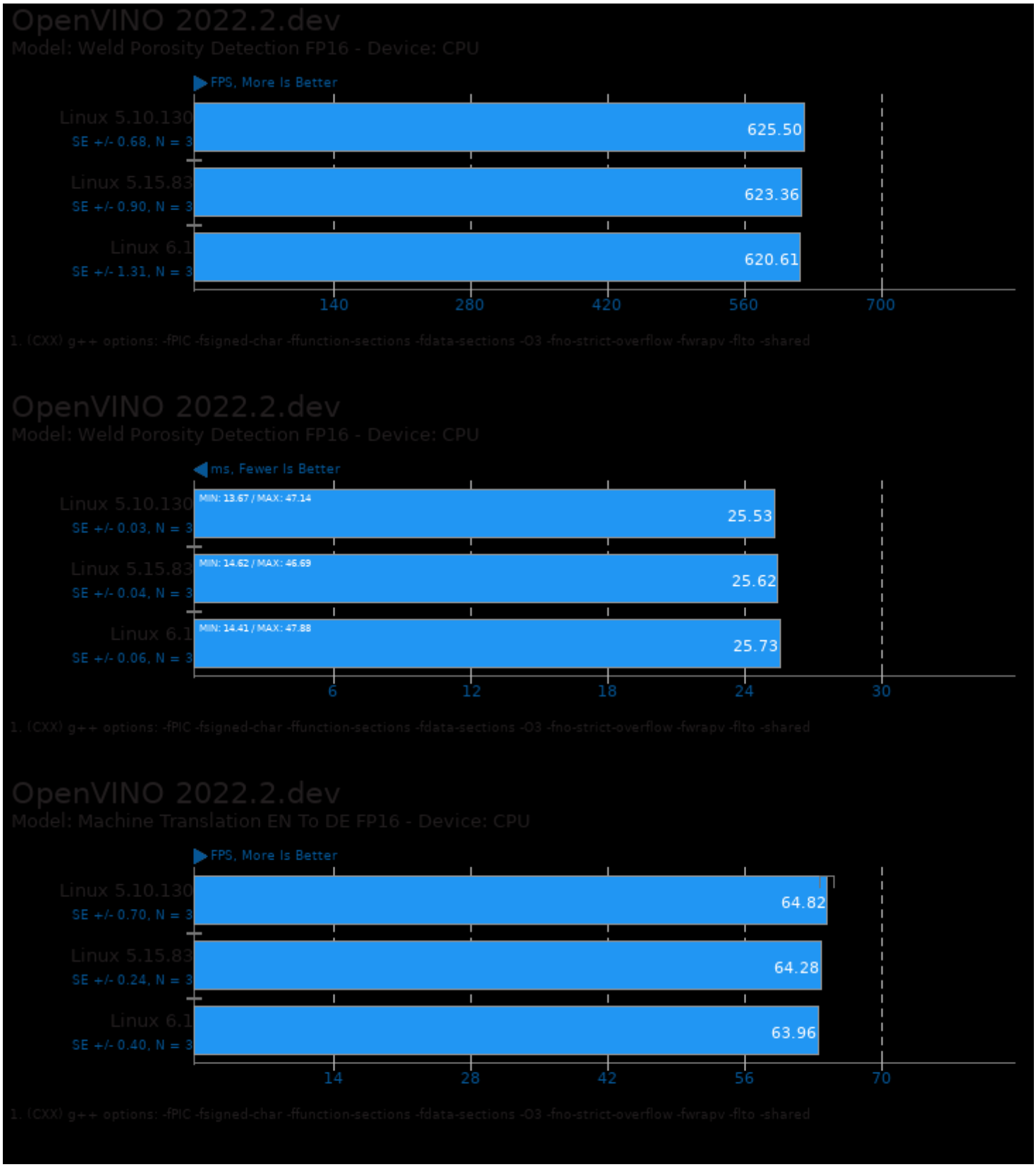

OpenRadioss 2022.10.13
Model: Bird Strike on Windshield
Seconds, Fewer Is Better
Linux 5.10.130
SE +/- 0.38, N = 3
256.43
Linux 5.15.83
SE +/- 0.19, N = 3
256.19
Linux 6.1
SE +/- 0.19, N = 3
255.89
60
120
180
240
300
OpenRadioss 2022.10.13
Model: Rubber O-Ring Seal Installation
Seconds, Fewer Is Better
Linux 5.10.130
SE +/- 0.08, N = 3
159.75
Linux 5.15.83
SE +/- 0.22, N = 3
159.15
Linux 6.1
SE +/- 0.29, N = 3
160.27
40
80
120
160
200
OpenRadioss 2022.10.13
Model: INIVOL and Fluid Structure Interaction Drop Container
Seconds, Fewer Is Better
Linux 5.10.130
SE +/- 0.39, N = 3
443.72
Linux 5.15.83
SE +/- 0.43, N = 3
445.17
Linux 6.1
SE +/- 0.46, N = 3
446.66
100
200
300
400
500

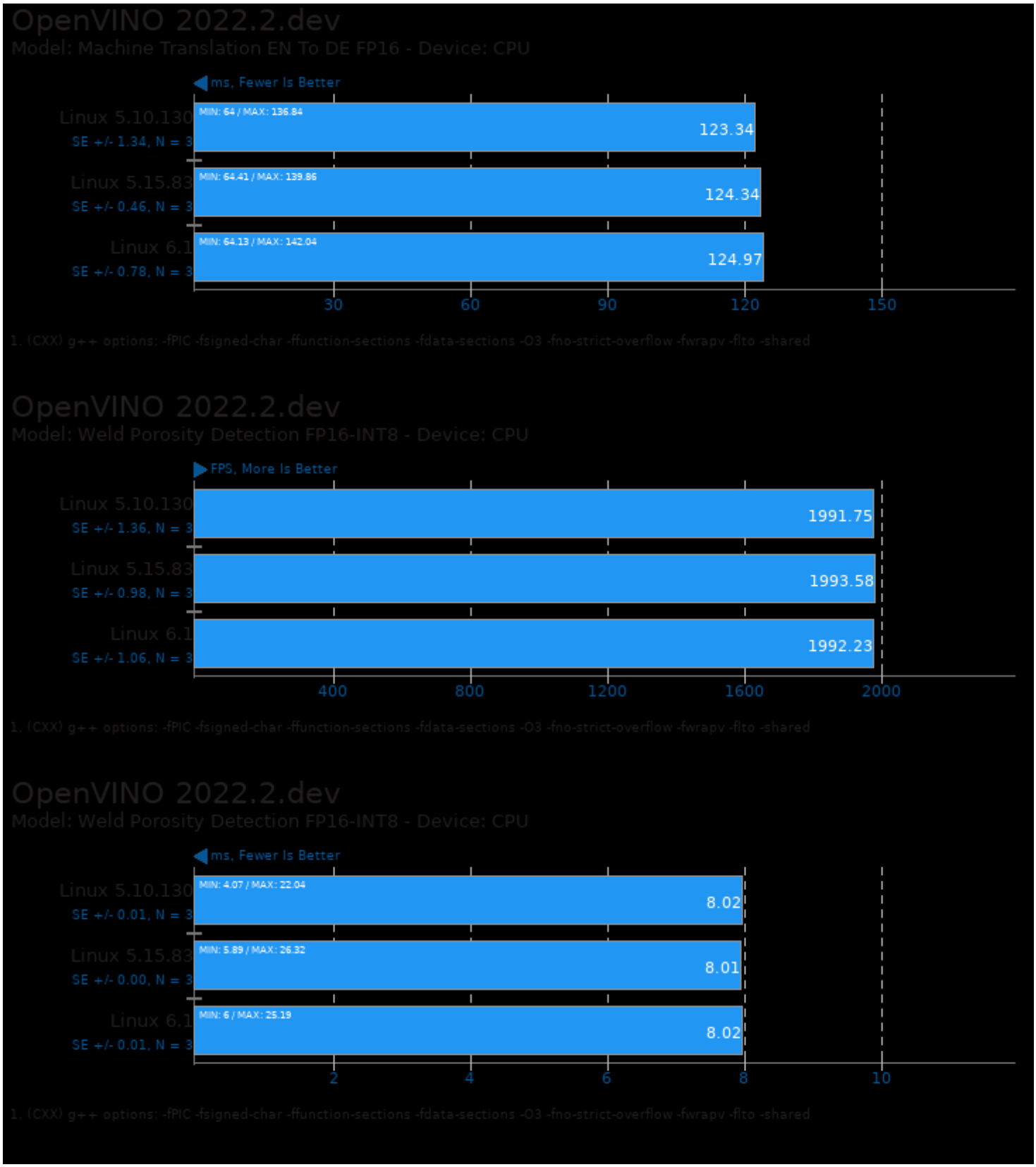

OpenVINO 2022.2.dev
Model: Face Detection FP16 - Device: CPU
FPS, More Is Better
Linux 5.10.130
SE +/- 0.03, N = 3
5.88
Linux 5.15.83
SE +/- 0.03, N = 3
5.88
Linux 6.1
SE +/- 0.02, N = 3
5.89
1.3253
2.6506
3.9759
5.3012
6.6265
1. (CXX) g++ options: -fPIC -fsigned-char -ffunction-sections -fdata-sections -O3 -fno-strict-overflow -fwrapv -flto -shared
OpenVINO 2022.2.dev
Model: Face Detection FP16 - Device: CPU
ms, Fewer Is Better
Linux 5.10.130
SE +/- 7.68, N = 3
MIN: 1303.04 / MAX: 1429.1
1357.37
Linux 5.15.83
SE +/- 8.21, N = 3
MIN: 1238.64 / MAX: 1424.43
1356.35
Linux 6.1
SE +/- 5.43, N = 3
MIN: 1311.47 / MAX: 1435.45
1357.10
300
600
900
1200
1500
1. (CXX) g++ options: -fPIC -fsigned-char -ffunction-sections -fdata-sections -O3 -fno-strict-overflow -fwrapv -flto -shared
OpenVINO 2022.2.dev
Model: Person Detection FP16 - Device: CPU
FPS, More Is Better
Linux 5.10.130
SE +/- 0.01, N = 3
3.31
Linux 5.15.83
SE +/- 0.02, N = 3
3.30
Linux 6.1
SE +/- 0.01, N = 3
3.28
0.7448
1.4896
2.2344
2.9792
3.724
1. (CXX) g++ options: -fPIC -fsigned-char -ffunction-sections -fdata-sections -O3 -fno-strict-overflow -fwrapv -flto -shared

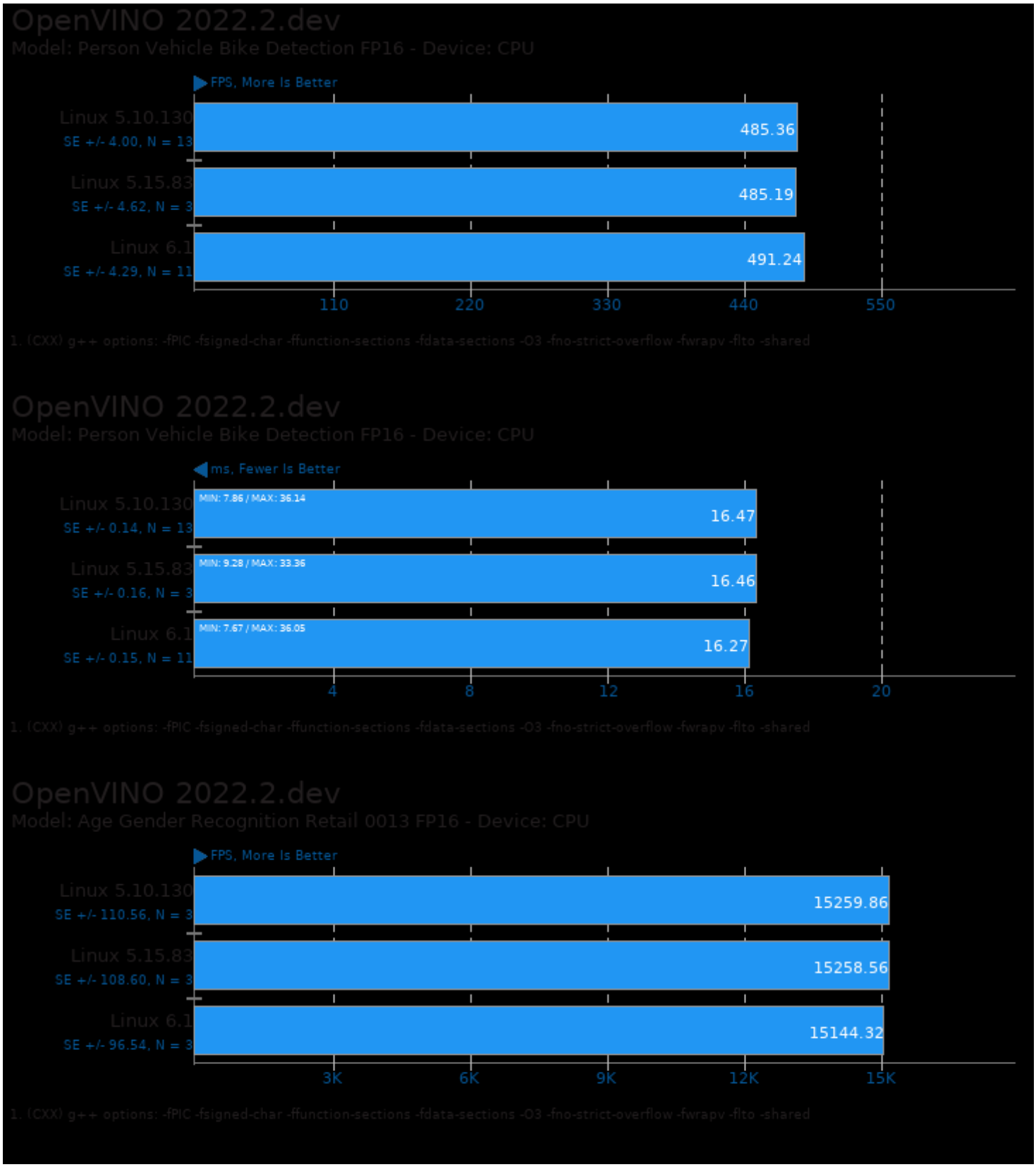

OpenVINO 2022.2.dev
Model: Person Detection FP16 - Device: CPU
ms, Fewer Is Better
Linux 5.10.130
SE +/- 6.79, N = 3
MIN: 1971.05 / MAX: 2519.43
2400.02
Linux 5.15.83
SE +/- 6.63, N = 3
MIN: 2074.14 / MAX: 2532.54
2401.74
Linux 6.1
SE +/- 4.48, N = 3
MIN: 2186.01 / MAX: 2533.33
2415.31
500
1000
1500
2000
2500
1. (CXX) g++ options: -fPIC -fsigned-char -ffunction-sections -fdata-sections -O3 -fno-strict-overflow -fwrapv -flto -shared
OpenVINO 2022.2.dev
Model: Person Detection FP32 - Device: CPU
FPS, More Is Better
Linux 5.10.130
SE +/- 0.01, N = 3
3.25
Linux 5.15.83
SE +/- 0.01, N = 3
3.25
Linux 6.1
SE +/- 0.01, N = 3
3.23
0.7313
1.4626
2.1939
2.9252
3.6565
1. (CXX) g++ options: -fPIC -fsigned-char -ffunction-sections -fdata-sections -O3 -fno-strict-overflow -fwrapv -flto -shared
OpenVINO 2022.2.dev
Model: Person Detection FP32 - Device: CPU
ms, Fewer Is Better
Linux 5.10.130
SE +/- 6.93, N = 3
MIN: 2086.23 / MAX: 2572.2
2436.30
Linux 5.15.83
SE +/- 9.26, N = 3
MIN: 2123.66 / MAX: 2621.99
2441.67
Linux 6.1
SE +/- 5.75, N = 3
MIN: 2080.43 / MAX: 2583.81
2451.10
500
1000
1500
2000
2500
1. (CXX) g++ options: -fPIC -fsigned-char -ffunction-sections -fdata-sections -O3 -fno-strict-overflow -fwrapv -flto -shared

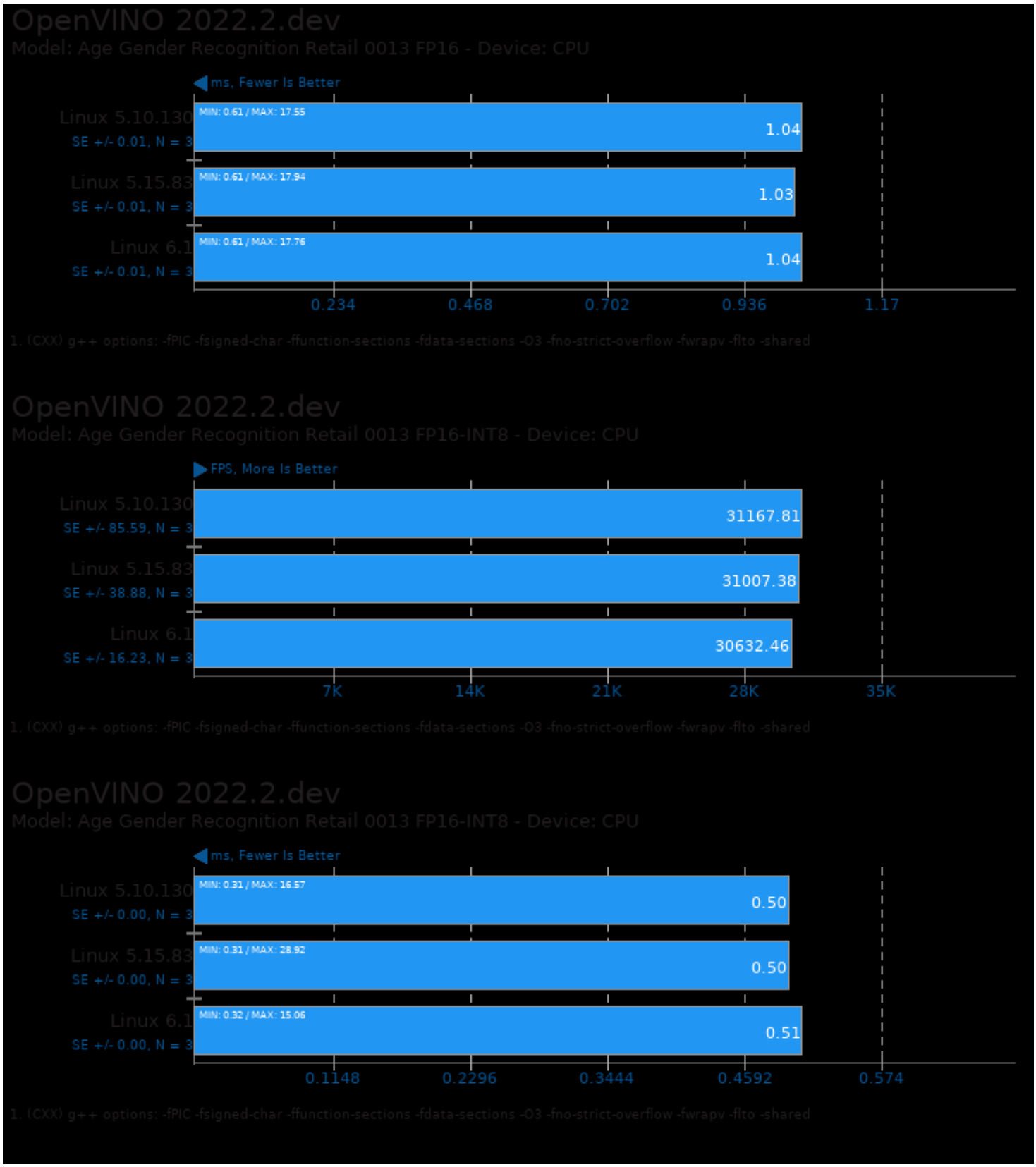

OpenVINO 2022.2.dev
Model: Vehicle Detection FP16 - Device: CPU
FPS, More Is Better
Linux 5.10.130
SE +/- 1.08, N = 3
272.09
Linux 5.15.83
SE +/- 0.06, N = 3
272.80
Linux 6.1
SE +/- 1.20, N = 3
267.62
60
120
180
240
300
1. (CXX) g++ options: -fPIC -fsigned-char -ffunction-sections -fdata-sections -O3 -fno-strict-overflow -fwrapv -flto -shared
OpenVINO 2022.2.dev
Model: Vehicle Detection FP16 - Device: CPU
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.12, N = 3
MIN: 11.56 / MAX: 50.23
29.37
Linux 5.15.83
SE +/- 0.01, N = 3
MIN: 13.39 / MAX: 49.34
29.29
Linux 6.1
SE +/- 0.14, N = 3
MIN: 11.2 / MAX: 55.83
29.86
7
14
21
28
35
1. (CXX) g++ options: -fPIC -fsigned-char -ffunction-sections -fdata-sections -O3 -fno-strict-overflow -fwrapv -flto -shared
OpenVINO 2022.2.dev
Model: Face Detection FP16-INT8 - Device: CPU
FPS, More Is Better
Linux 5.10.130
SE +/- 0.00, N = 3
19.11
Linux 5.15.83
SE +/- 0.02, N = 3
19.15
Linux 6.1
SE +/- 0.03, N = 3
19.17
5
10
15
20
25
1. (CXX) g++ options: -fPIC -fsigned-char -ffunction-sections -fdata-sections -O3 -fno-strict-overflow -fwrapv -flto -shared

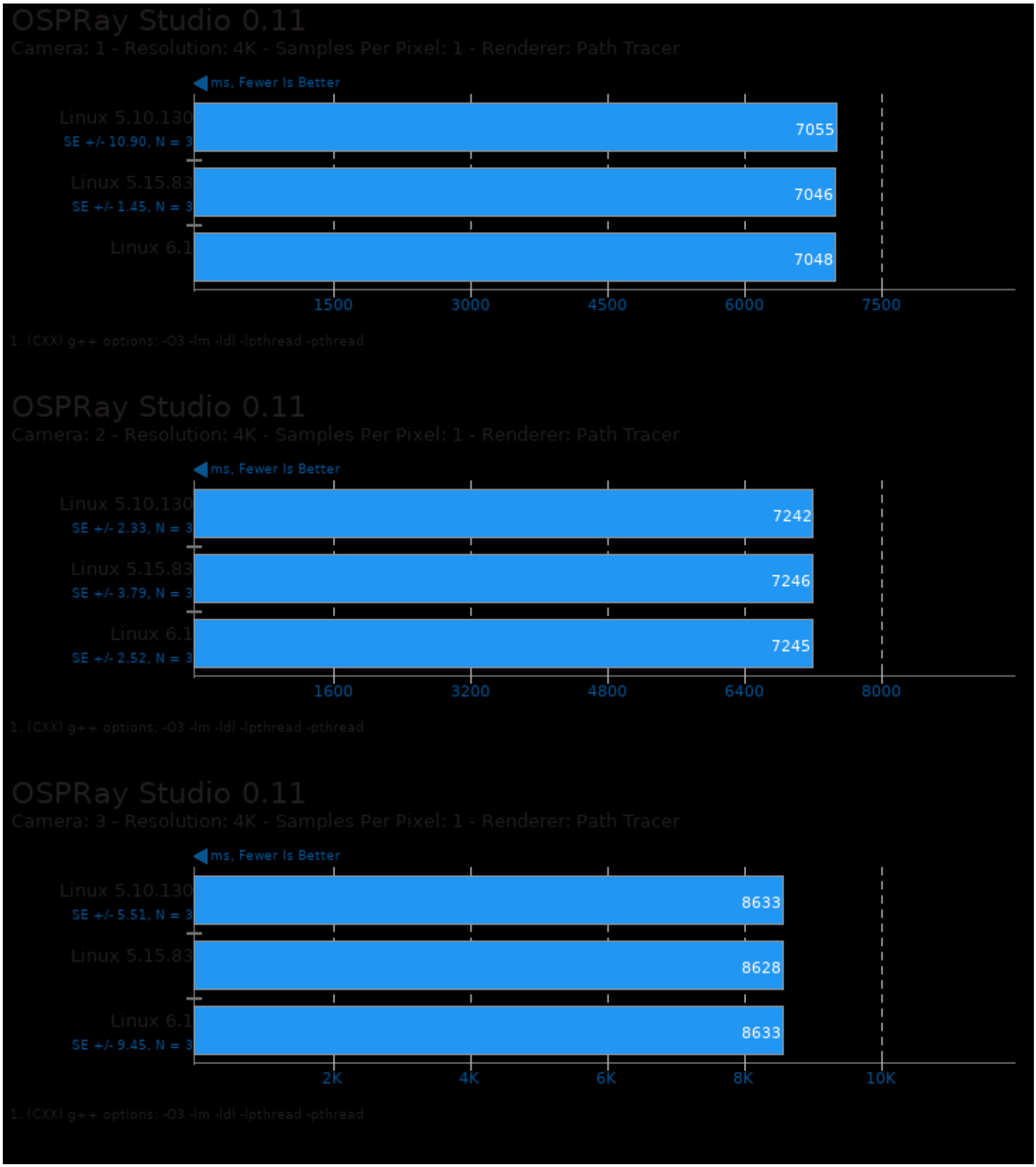

OpenVINO 2022.2.dev
Model: Face Detection FP16-INT8 - Device: CPU
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.17, N = 3
MIN: 260.74 / MAX: 433.77
417.71
Linux 5.15.83
SE +/- 0.53, N = 3
MIN: 240.72 / MAX: 434.4
416.95
Linux 6.1
SE +/- 0.59, N = 3
MIN: 211.14 / MAX: 443.45
416.16
90
180
270
360
450
1. (CXX) g++ options: -fPIC -fsigned-char -ffunction-sections -fdata-sections -O3 -fno-strict-overflow -fwrapv -flto -shared
OpenVINO 2022.2.dev
Model: Vehicle Detection FP16-INT8 - Device: CPU
FPS, More Is Better
Linux 5.10.130
SE +/- 5.71, N = 3
969.33
Linux 5.15.83
SE +/- 1.74, N = 3
957.08
Linux 6.1
SE +/- 0.69, N = 3
957.41
200
400
600
800
1000
1. (CXX) g++ options: -fPIC -fsigned-char -ffunction-sections -fdata-sections -O3 -fno-strict-overflow -fwrapv -flto -shared
OpenVINO 2022.2.dev
Model: Vehicle Detection FP16-INT8 - Device: CPU
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.05, N = 3
MIN: 4.42 / MAX: 23.84
8.24
Linux 5.15.83
SE +/- 0.01, N = 3
MIN: 4.49 / MAX: 23.48
8.34
Linux 6.1
SE +/- 0.01, N = 3
MIN: 4.48 / MAX: 25.96
8.33
2
4
6
8
10
1. (CXX) g++ options: -fPIC -fsigned-char -ffunction-sections -fdata-sections -O3 -fno-strict-overflow -fwrapv -flto -shared

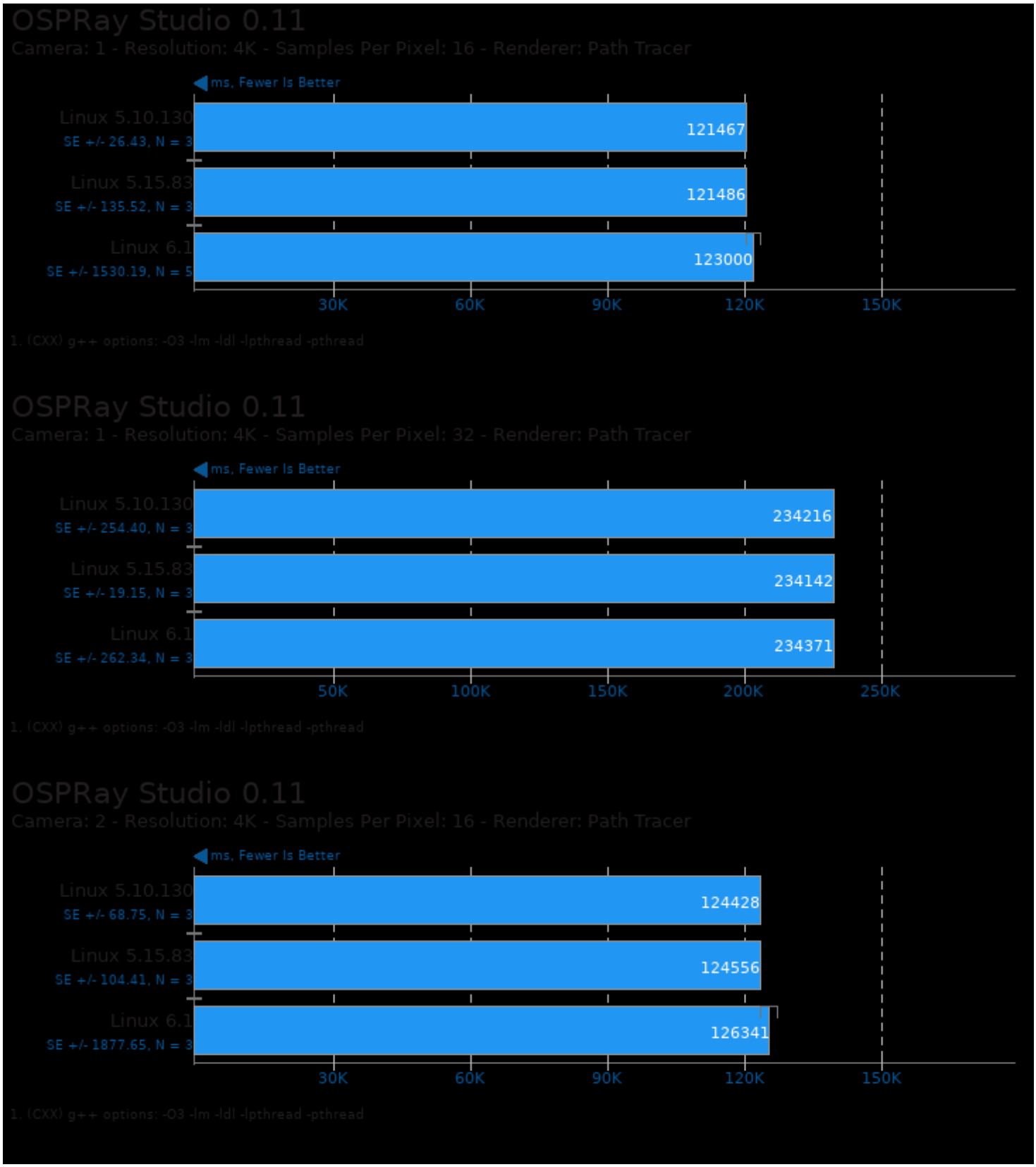

OpenVINO 2022.2.dev
Model: Weld Porosity Detection FP16 - Device: CPU
FPS, More Is Better
Linux 5.10.130
SE +/- 0.68, N = 3
625.50
Linux 5.15.83
SE +/- 0.90, N = 3
623.36
Linux 6.1
SE +/- 1.31, N = 3
620.61
140
280
420
560
700
1. (CXX) g++ options: -fPIC -fsigned-char -ffunction-sections -fdata-sections -O3 -fno-strict-overflow -fwrapv -flto -shared
OpenVINO 2022.2.dev
Model: Weld Porosity Detection FP16 - Device: CPU
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.03, N = 3
MIN: 13.67 / MAX: 47.14
25.53
Linux 5.15.83
SE +/- 0.04, N = 3
MIN: 14.62 / MAX: 46.69
25.62
Linux 6.1
SE +/- 0.06, N = 3
MIN: 14.41 / MAX: 47.88
25.73
6
12
18
24
30
1. (CXX) g++ options: -fPIC -fsigned-char -ffunction-sections -fdata-sections -O3 -fno-strict-overflow -fwrapv -flto -shared
OpenVINO 2022.2.dev
Model: Machine Translation EN To DE FP16 - Device: CPU
FPS, More Is Better
Linux 5.10.130
SE +/- 0.70, N = 3
64.82
Linux 5.15.83
SE +/- 0.24, N = 3
64.28
Linux 6.1
SE +/- 0.40, N = 3
63.96
14
28
42
56
70
1. (CXX) g++ options: -fPIC -fsigned-char -ffunction-sections -fdata-sections -O3 -fno-strict-overflow -fwrapv -flto -shared

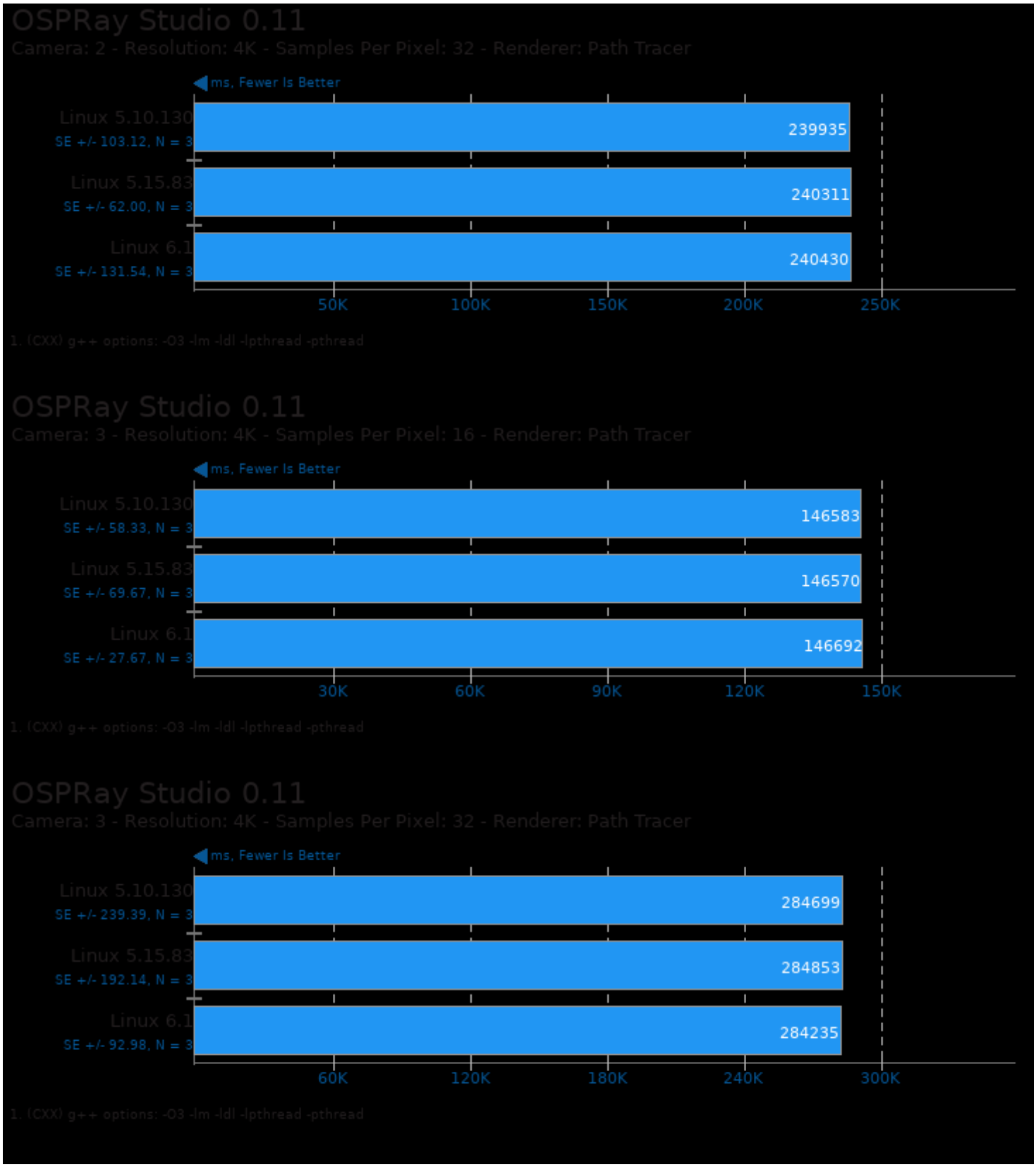

OpenVINO 2022.2.dev
Model: Machine Translation EN To DE FP16 - Device: CPU
ms, Fewer Is Better
Linux 5.10.130
SE +/- 1.34, N = 3
MIN: 64 / MAX: 136.84
123.34
Linux 5.15.83
SE +/- 0.46, N = 3
MIN: 64.41 / MAX: 139.86
124.34
Linux 6.1
SE +/- 0.78, N = 3
MIN: 64.13 / MAX: 142.04
124.97
30
60
90
120
150
1. (CXX) g++ options: -fPIC -fsigned-char -ffunction-sections -fdata-sections -O3 -fno-strict-overflow -fwrapv -flto -shared
OpenVINO 2022.2.dev
Model: Weld Porosity Detection FP16-INT8 - Device: CPU
FPS, More Is Better
Linux 5.10.130
SE +/- 1.36, N = 3
1991.75
Linux 5.15.83
SE +/- 0.98, N = 3
1993.58
Linux 6.1
SE +/- 1.06, N = 3
1992.23
400
800
1200
1600
2000
1. (CXX) g++ options: -fPIC -fsigned-char -ffunction-sections -fdata-sections -O3 -fno-strict-overflow -fwrapv -flto -shared
OpenVINO 2022.2.dev
Model: Weld Porosity Detection FP16-INT8 - Device: CPU
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.01, N = 3
MIN: 4.07 / MAX: 22.04
8.02
Linux 5.15.83
SE +/- 0.00, N = 3
MIN: 5.89 / MAX: 26.32
8.01
Linux 6.1
SE +/- 0.01, N = 3
MIN: 6 / MAX: 25.19
8.02
2
4
6
8
10
1. (CXX) g++ options: -fPIC -fsigned-char -ffunction-sections -fdata-sections -O3 -fno-strict-overflow -fwrapv -flto -shared

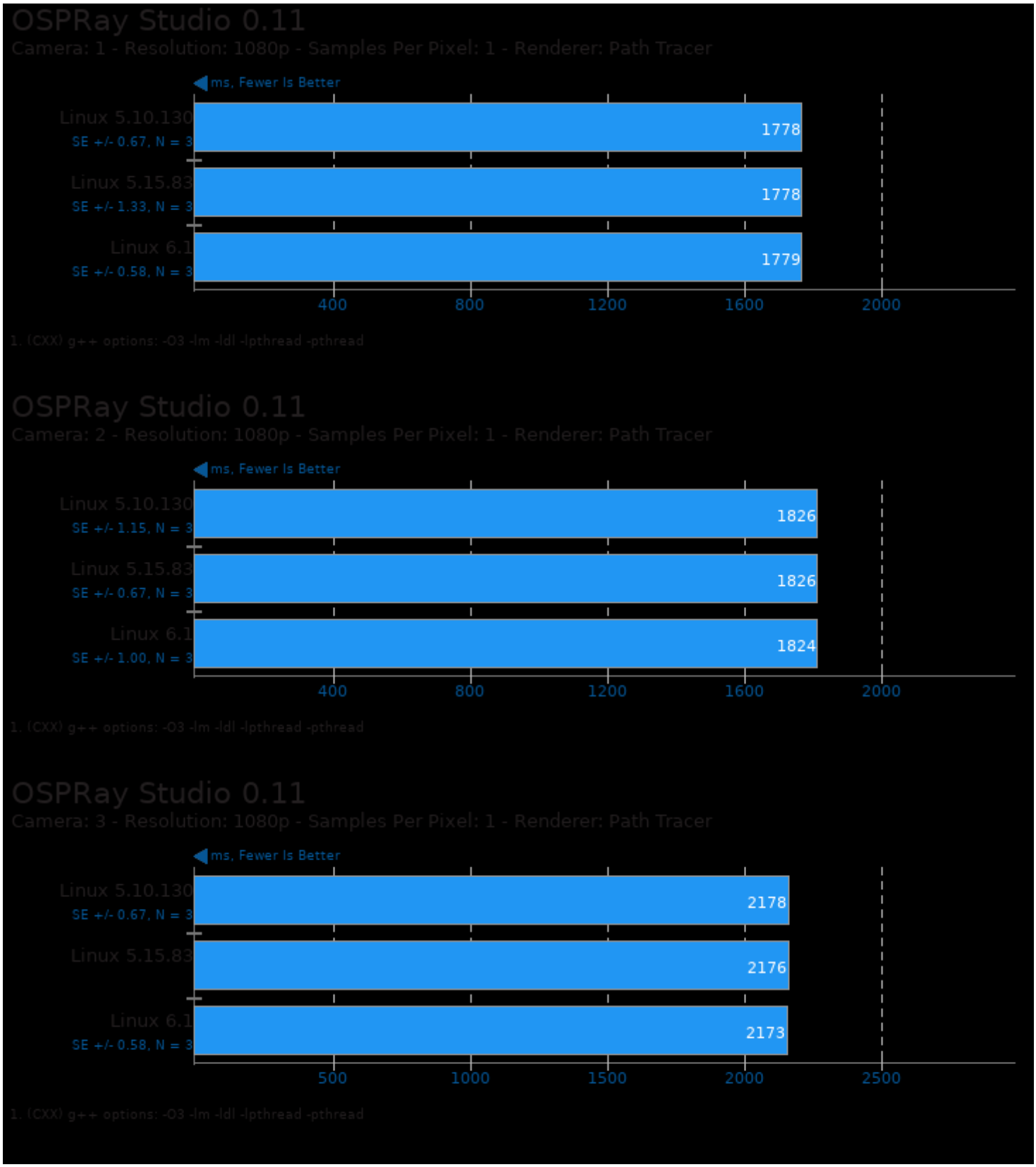

OpenVINO 2022.2.dev
Model: Person Vehicle Bike Detection FP16 - Device: CPU
FPS, More Is Better
Linux 5.10.130
SE +/- 4.00, N = 13
485.36
Linux 5.15.83
SE +/- 4.62, N = 3
485.19
Linux 6.1
SE +/- 4.29, N = 11
491.24
110
220
330
440
550
1. (CXX) g++ options: -fPIC -fsigned-char -ffunction-sections -fdata-sections -O3 -fno-strict-overflow -fwrapv -flto -shared
OpenVINO 2022.2.dev
Model: Person Vehicle Bike Detection FP16 - Device: CPU
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.14, N = 13
MIN: 7.86 / MAX: 36.14
16.47
Linux 5.15.83
SE +/- 0.16, N = 3
MIN: 9.28 / MAX: 33.36
16.46
Linux 6.1
SE +/- 0.15, N = 11
MIN: 7.67 / MAX: 36.05
16.27
4
8
12
16
20
1. (CXX) g++ options: -fPIC -fsigned-char -ffunction-sections -fdata-sections -O3 -fno-strict-overflow -fwrapv -flto -shared
OpenVINO 2022.2.dev
Model: Age Gender Recognition Retail 0013 FP16 - Device: CPU
FPS, More Is Better
Linux 5.10.130
SE +/- 110.56, N = 3
15259.86
Linux 5.15.83
SE +/- 108.60, N = 3
15258.56
Linux 6.1
SE +/- 96.54, N = 3
15144.32
3K
6K
9K
12K
15K
1. (CXX) g++ options: -fPIC -fsigned-char -ffunction-sections -fdata-sections -O3 -fno-strict-overflow -fwrapv -flto -shared

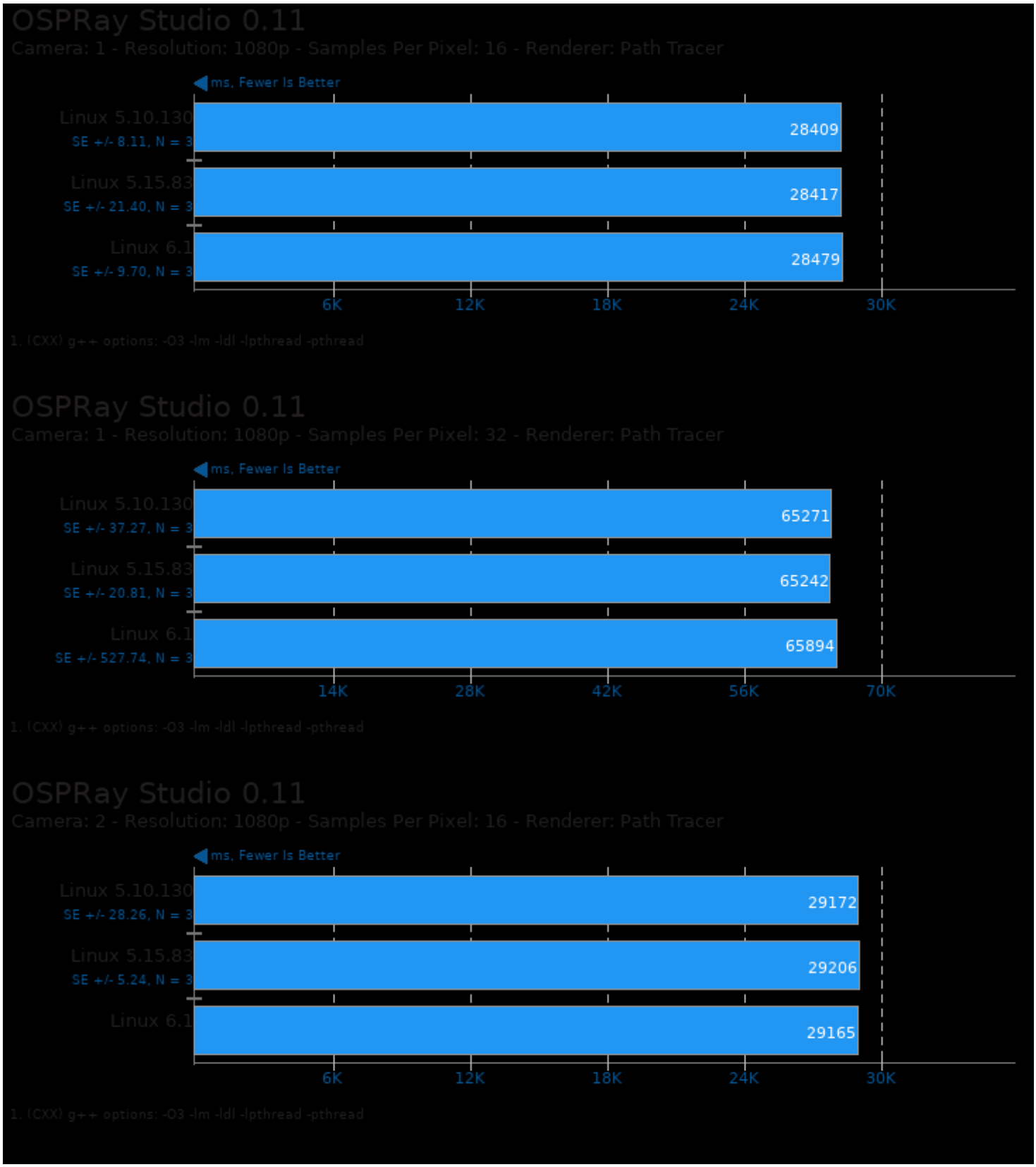

OpenVINO 2022.2.dev
Model: Age Gender Recognition Retail 0013 FP16 - Device: CPU
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.01, N = 3
MIN: 0.61 / MAX: 17.55
1.04
Linux 5.15.83
SE +/- 0.01, N = 3
MIN: 0.61 / MAX: 17.84
1.03
Linux 6.1
SE +/- 0.01, N = 3
MIN: 0.61 / MAX: 17.76
1.04
0.234
0.468
0.702
0.936
1.17
1. (CXX) g++ options: -fPIC -fsigned-char -ffunction-sections -fdata-sections -O3 -fno-strict-overflow -fwrapv -flto -shared
OpenVINO 2022.2.dev
Model: Age Gender Recognition Retail 0013 FP16-INT8 - Device: CPU
FPS, More Is Better
Linux 5.10.130
SE +/- 85.59, N = 3
31167.81
Linux 5.15.83
SE +/- 38.88, N = 3
31007.38
Linux 6.1
SE +/- 16.23, N = 3
30632.46
7K
14K
21K
28K
35K
1. (CXX) g++ options: -fPIC -fsigned-char -ffunction-sections -fdata-sections -O3 -fno-strict-overflow -fwrapv -flto -shared
OpenVINO 2022.2.dev
Model: Age Gender Recognition Retail 0013 FP16-INT8 - Device: CPU
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.00, N = 3
MIN: 0.31 / MAX: 16.57
0.50
Linux 5.15.83
SE +/- 0.00, N = 3
MIN: 0.31 / MAX: 28.92
0.50
Linux 6.1
SE +/- 0.00, N = 3
MIN: 0.32 / MAX: 15.06
0.51
0.1148
0.2296
0.3444
0.4592
0.574
1. (CXX) g++ options: -fPIC -fsigned-char -ffunction-sections -fdata-sections -O3 -fno-strict-overflow -fwrapv -flto -shared

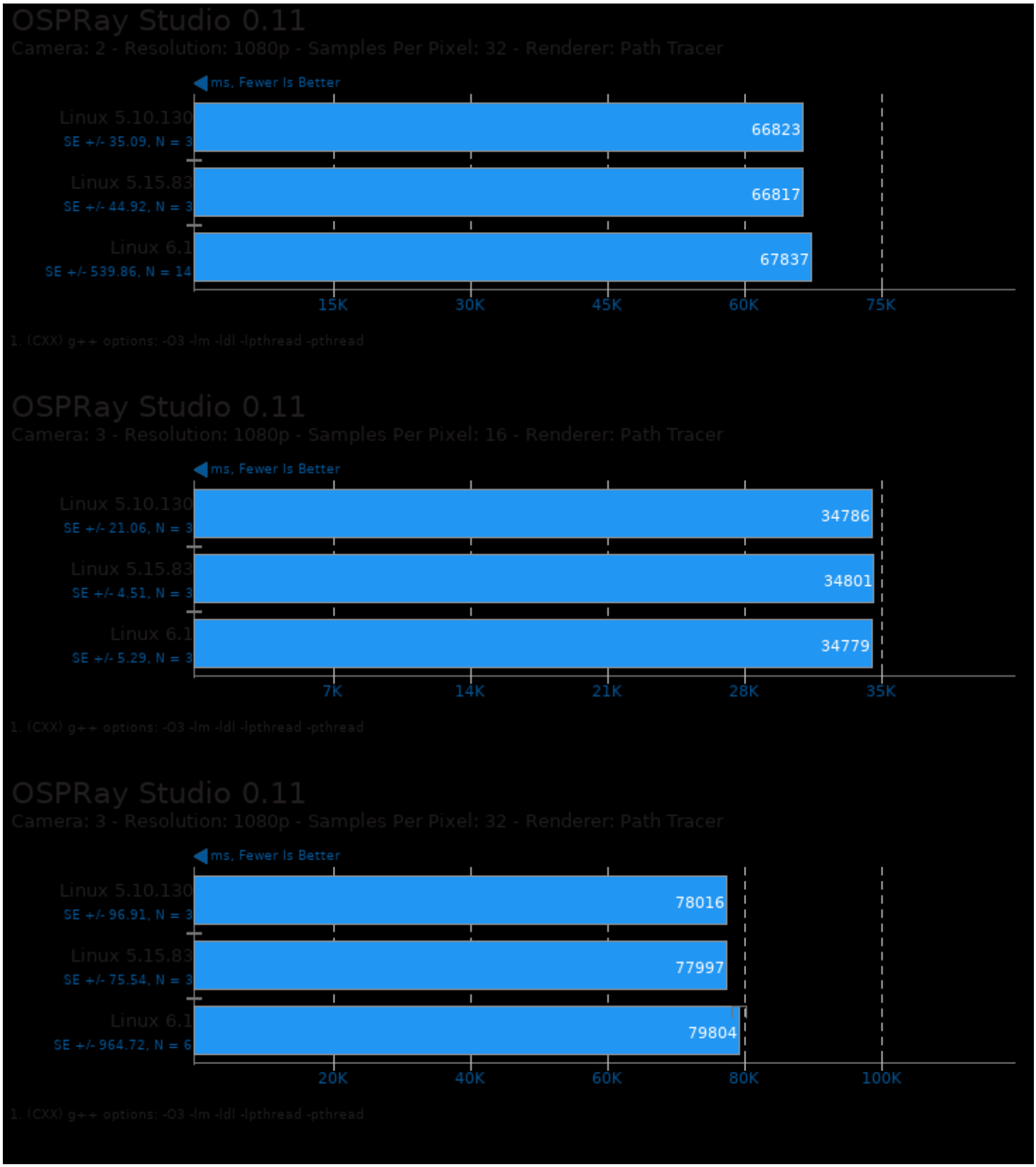

OSPRay Studio 0.11
Camera: 1 - Resolution: 4K - Samples Per Pixel: 1 - Renderer: Path Tracer
ms, Fewer Is Better
Linux 5.10.130
SE +/- 10.90, N = 3
7055
Linux 5.15.83
SE +/- 1.45, N = 3
7046
Linux 6.1
7048
1500
3000
4500
6000
7500
1. (CXX) g++ options: -O3 -lm -ldl -lpthread -pthread
OSPRay Studio 0.11
Camera: 2 - Resolution: 4K - Samples Per Pixel: 1 - Renderer: Path Tracer
ms, Fewer Is Better
Linux 5.10.130
SE +/- 2.33, N = 3
7242
Linux 5.15.83
SE +/- 3.79, N = 3
7246
Linux 6.1
SE +/- 2.52, N = 3
7245
1600
3200
4800
6400
8000
1. (CXX) g++ options: -O3 -lm -ldl -lpthread -pthread
OSPRay Studio 0.11
Camera: 3 - Resolution: 4K - Samples Per Pixel: 1 - Renderer: Path Tracer
ms, Fewer Is Better
Linux 5.10.130
SE +/- 5.51, N = 3
8633
Linux 5.15.83
8628
Linux 6.1
SE +/- 9.45, N = 3
8633
2K
4K
6K
8K
10K
1. (CXX) g++ options: -O3 -lm -ldl -lpthread -pthread

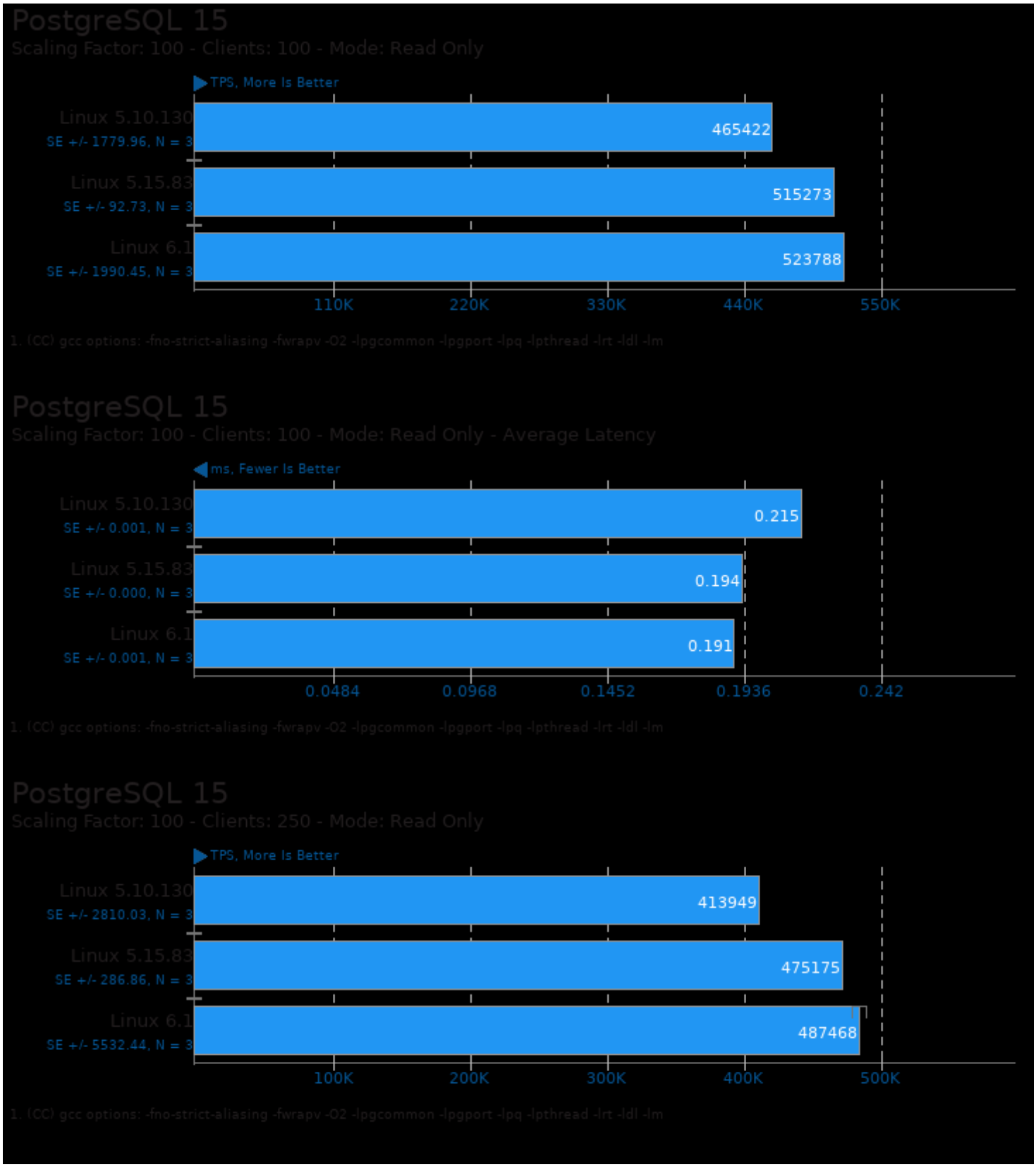

OSPRay Studio 0.11
Camera: 1 - Resolution: 4K - Samples Per Pixel: 16 - Renderer: Path Tracer
ms, Fewer Is Better
Linux 5.10.130
SE +/- 26.43, N = 3
121467
Linux 5.15.83
SE +/- 135.52, N = 3
121486
Linux 6.1
SE +/- 1530.19, N = 5
123000
30K
60K
90K
120K
150K
1. (CXX) g++ options: -O3 -lm -ldl -lpthread -pthread
OSPRay Studio 0.11
Camera: 1 - Resolution: 4K - Samples Per Pixel: 32 - Renderer: Path Tracer
ms, Fewer Is Better
Linux 5.10.130
SE +/- 254.40, N = 3
234216
Linux 5.15.83
SE +/- 19.15, N = 3
234142
Linux 6.1
SE +/- 262.34, N = 3
234371
50K
100K
150K
200K
250K
1. (CXX) g++ options: -O3 -lm -ldl -lpthread -pthread
OSPRay Studio 0.11
Camera: 2 - Resolution: 4K - Samples Per Pixel: 16 - Renderer: Path Tracer
ms, Fewer Is Better
Linux 5.10.130
SE +/- 68.75, N = 3
124428
Linux 5.15.83
SE +/- 104.41, N = 3
124556
Linux 6.1
SE +/- 1877.65, N = 3
126341
30K
60K
90K
120K
150K
1. (CXX) g++ options: -O3 -lm -ldl -lpthread -pthread

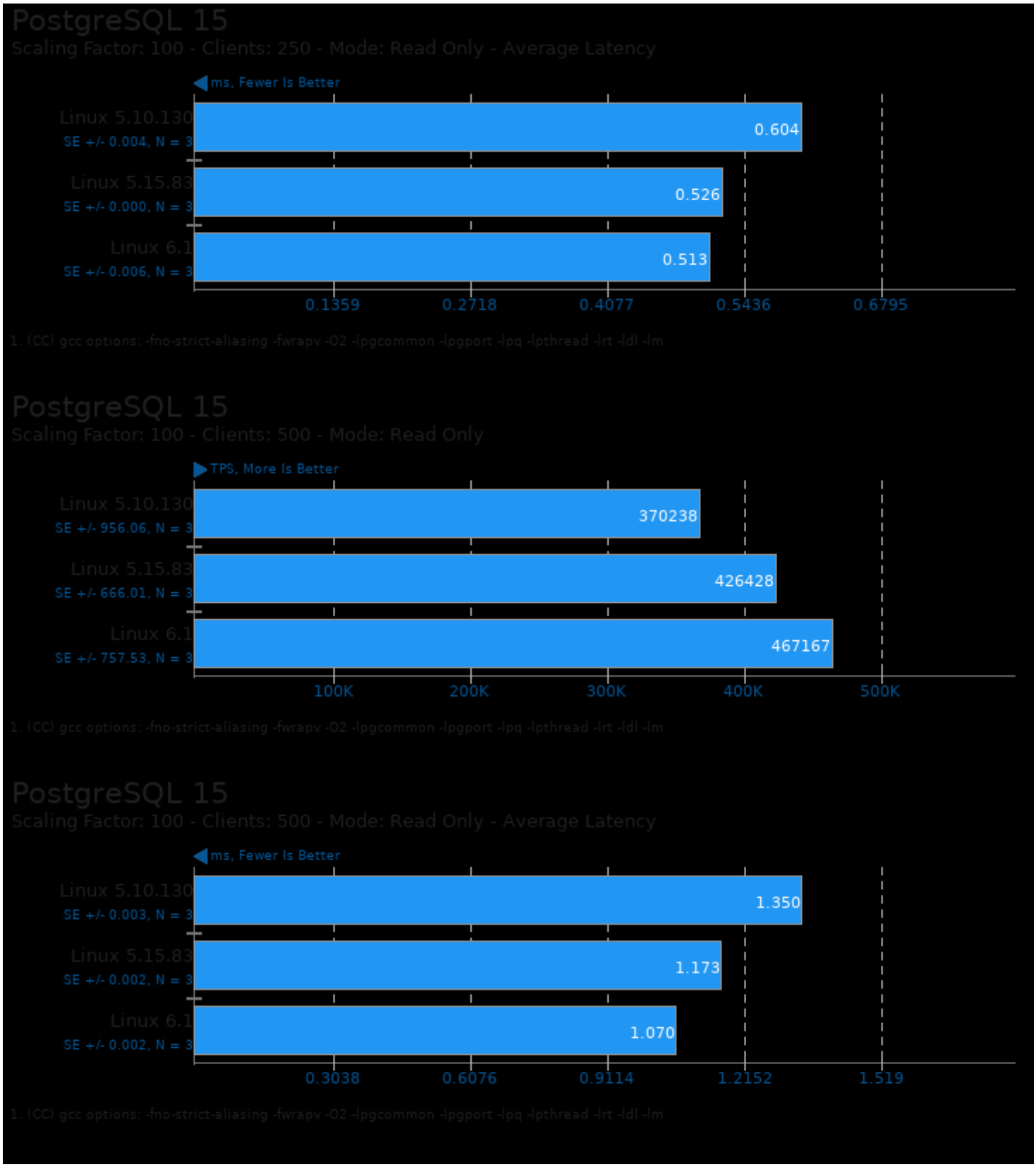

OSPRay Studio 0.11
Camera: 2 - Resolution: 4K - Samples Per Pixel: 32 - Renderer: Path Tracer
ms, Fewer Is Better
Linux 5.10.130
SE +/- 103.12, N = 3
239935
Linux 5.15.83
SE +/- 62.00, N = 3
240311
Linux 6.1
SE +/- 131.54, N = 3
240430
50K
100K
150K
200K
250K
1. (CXX) g++ options: -O3 -lm -ldl -lpthread -pthread
OSPRay Studio 0.11
Camera: 3 - Resolution: 4K - Samples Per Pixel: 16 - Renderer: Path Tracer
ms, Fewer Is Better
Linux 5.10.130
SE +/- 58.33, N = 3
146583
Linux 5.15.83
SE +/- 69.67, N = 3
146570
Linux 6.1
SE +/- 27.67, N = 3
146692
30K
60K
90K
120K
150K
1. (CXX) g++ options: -O3 -lm -ldl -lpthread -pthread
OSPRay Studio 0.11
Camera: 3 - Resolution: 4K - Samples Per Pixel: 32 - Renderer: Path Tracer
ms, Fewer Is Better
Linux 5.10.130
SE +/- 239.39, N = 3
284699
Linux 5.15.83
SE +/- 192.14, N = 3
284853
Linux 6.1
SE +/- 92.98, N = 3
284235
60K
120K
180K
240K
300K
1. (CXX) g++ options: -O3 -lm -ldl -lpthread -pthread

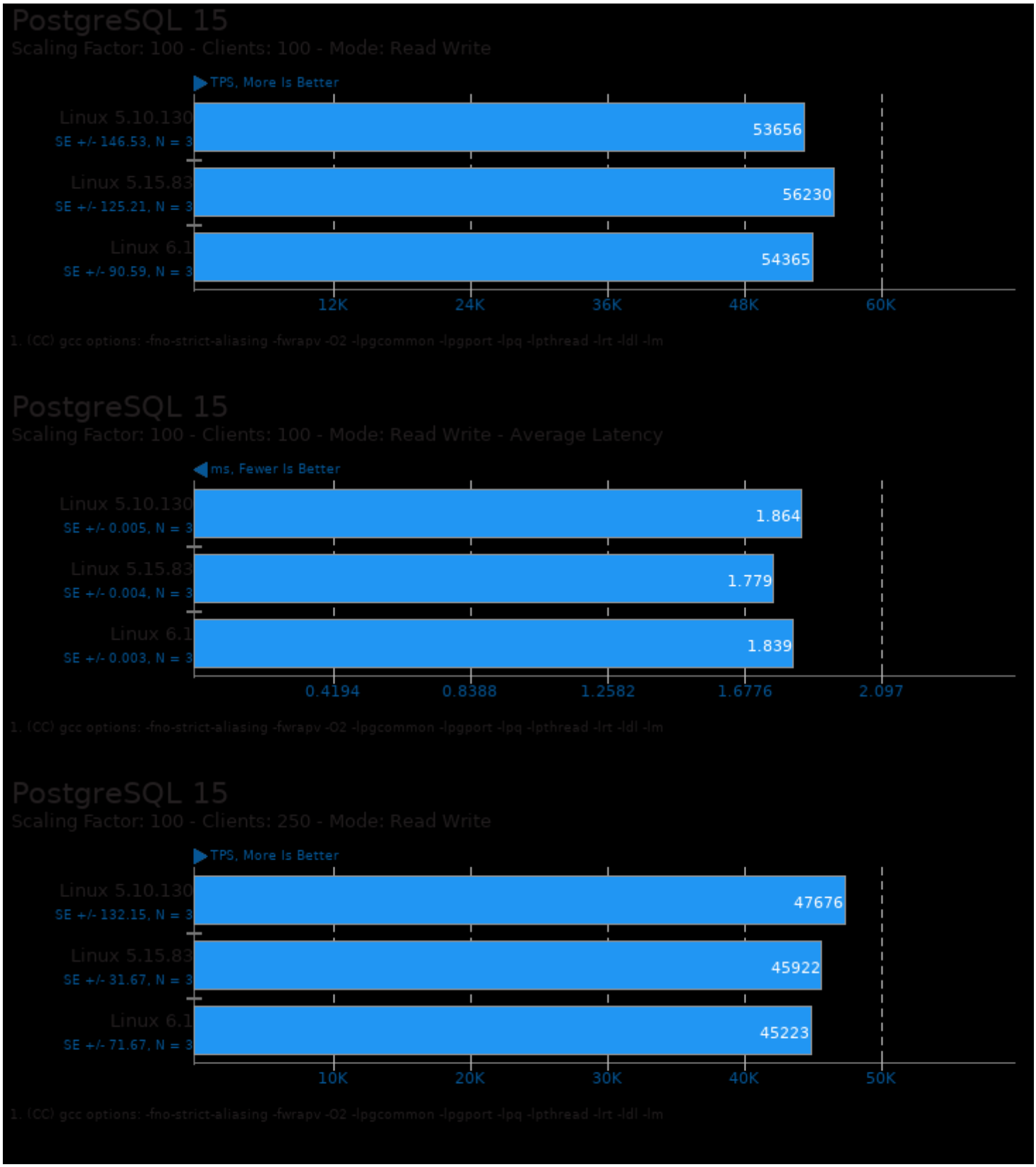

OSPRay Studio 0.11
Camera: 1 - Resolution: 1080p - Samples Per Pixel: 1 - Renderer: Path Tracer
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.67, N = 3
1778
Linux 5.15.83
SE +/- 1.33, N = 3
1778
Linux 6.1
SE +/- 0.58, N = 3
1779
400
800
1200
1600
2000
1. (CXX) g++ options: -O3 -lm -ldl -lpthread -pthread
OSPRay Studio 0.11
Camera: 2 - Resolution: 1080p - Samples Per Pixel: 1 - Renderer: Path Tracer
ms, Fewer Is Better
Linux 5.10.130
SE +/- 1.15, N = 3
1826
Linux 5.15.83
SE +/- 0.67, N = 3
1826
Linux 6.1
SE +/- 1.00, N = 3
1824
400
800
1200
1600
2000
1. (CXX) g++ options: -O3 -lm -ldl -lpthread -pthread
OSPRay Studio 0.11
Camera: 3 - Resolution: 1080p - Samples Per Pixel: 1 - Renderer: Path Tracer
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.67, N = 3
2178
Linux 5.15.83
2176
Linux 6.1
SE +/- 0.58, N = 3
2173
500
1000
1500
2000
2500
1. (CXX) g++ options: -O3 -lm -ldl -lpthread -pthread

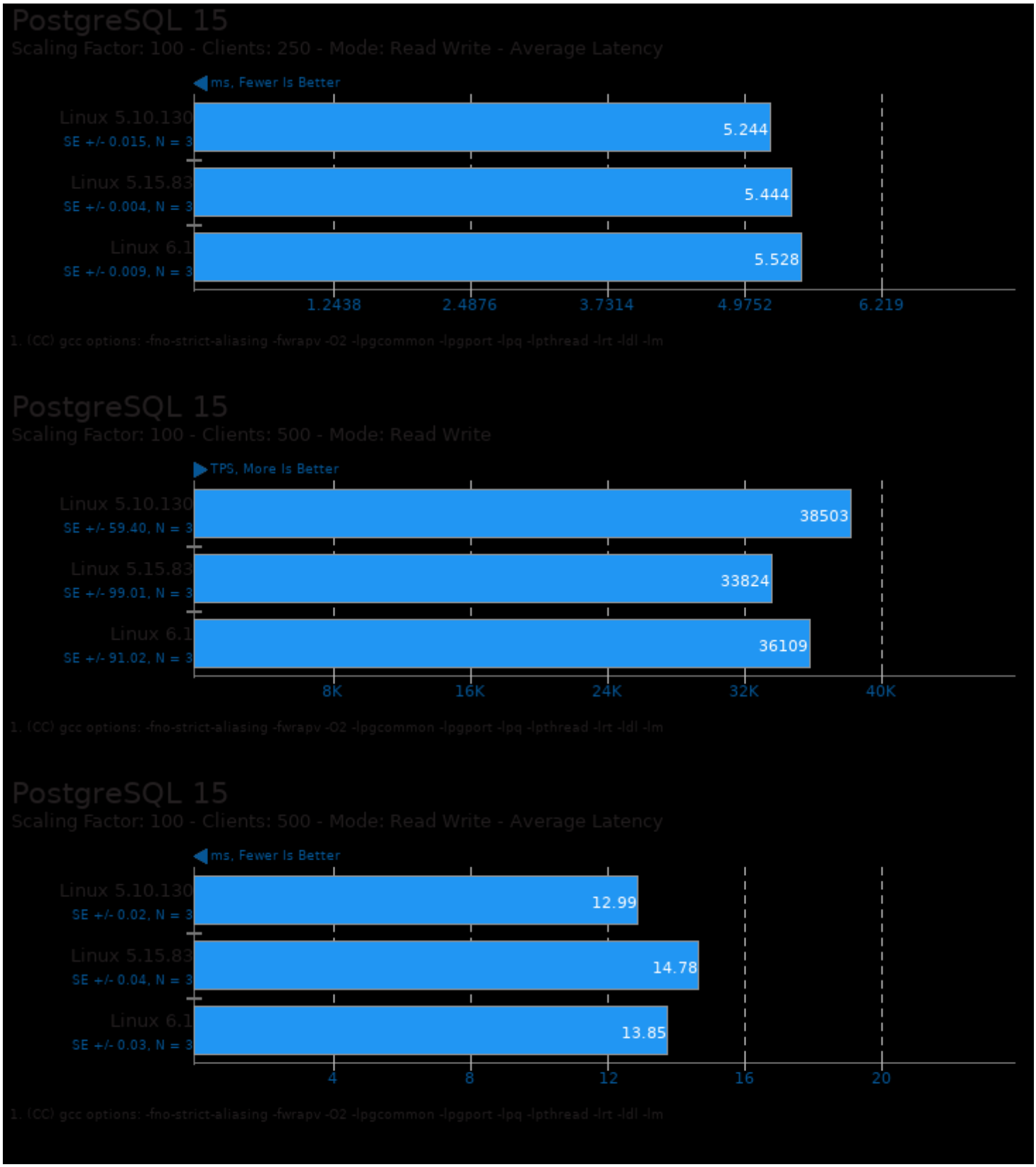

OSPRay Studio 0.11
Camera: 1 - Resolution: 1080p - Samples Per Pixel: 16 - Renderer: Path Tracer
ms, Fewer Is Better
Linux 5.10.130
SE +/- 8.11, N = 3
28409
Linux 5.15.83
SE +/- 21.40, N = 3
28417
Linux 6.1
SE +/- 9.70, N = 3
28479
6K
12K
18K
24K
30K
1. (CXX) g++ options: -O3 -lm -ldl -lpthread -pthread
OSPRay Studio 0.11
Camera: 1 - Resolution: 1080p - Samples Per Pixel: 32 - Renderer: Path Tracer
ms, Fewer Is Better
Linux 5.10.130
SE +/- 37.27, N = 3
65271
Linux 5.15.83
SE +/- 20.81, N = 3
65242
Linux 6.1
SE +/- 527.74, N = 3
65894
14K
28K
42K
56K
70K
1. (CXX) g++ options: -O3 -lm -ldl -lpthread -pthread
OSPRay Studio 0.11
Camera: 2 - Resolution: 1080p - Samples Per Pixel: 16 - Renderer: Path Tracer
ms, Fewer Is Better
Linux 5.10.130
SE +/- 28.26, N = 3
29172
Linux 5.15.83
SE +/- 5.24, N = 3
29206
Linux 6.1
29165
6K
12K
18K
24K
30K
1. (CXX) g++ options: -O3 -lm -ldl -lpthread -pthread

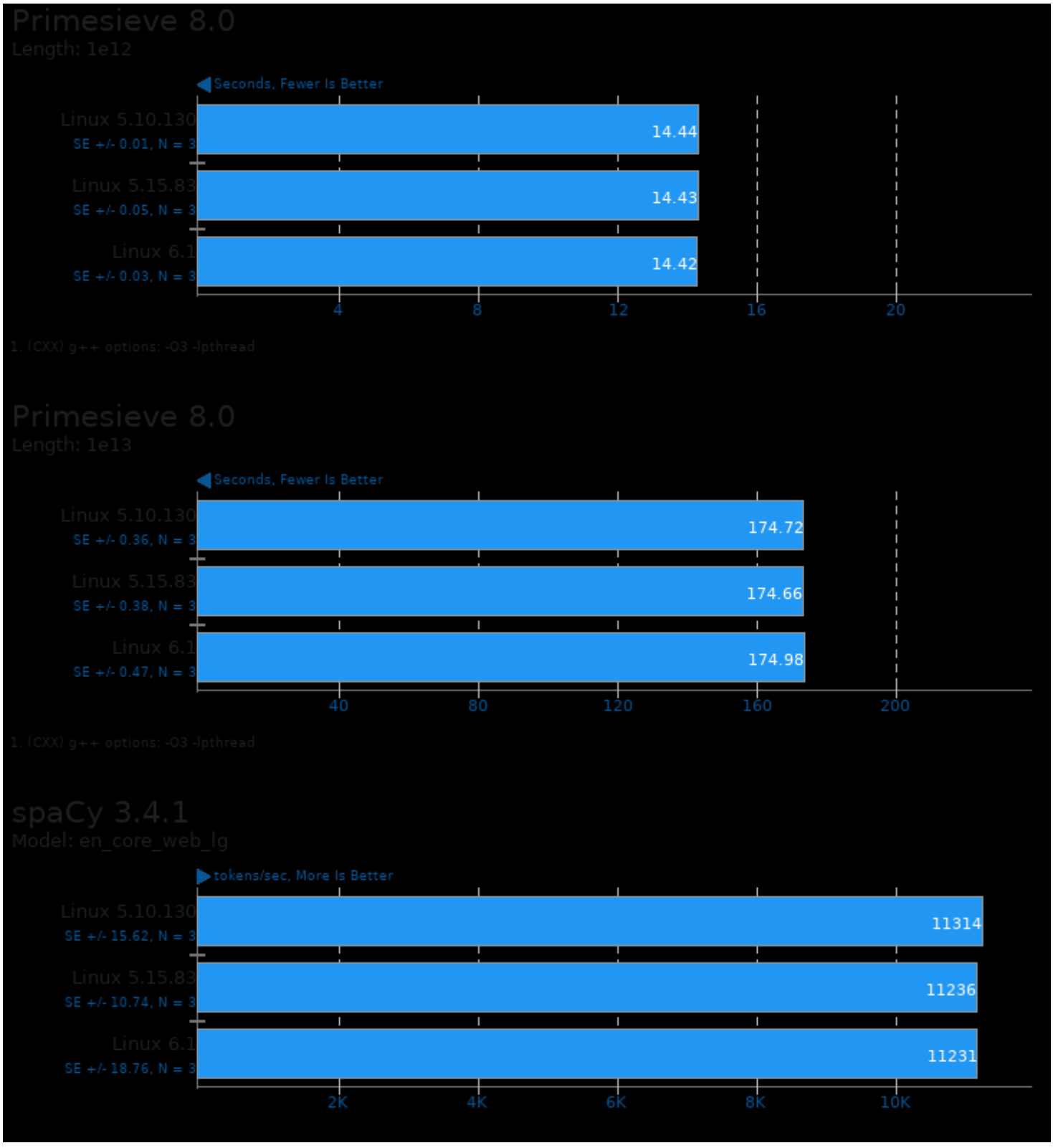

OSPRay Studio 0.11
Camera: 2 - Resolution: 1080p - Samples Per Pixel: 32 - Renderer: Path Tracer
ms, Fewer Is Better
Linux 5.10.130
SE +/- 35.09, N = 3
66823
Linux 5.15.83
SE +/- 44.92, N = 3
66817
Linux 6.1
SE +/- 539.86, N = 14
67837
15K
30K
45K
60K
75K
1. (CXX) g++ options: -O3 -lm -ldl -lpthread -pthread
OSPRay Studio 0.11
Camera: 3 - Resolution: 1080p - Samples Per Pixel: 16 - Renderer: Path Tracer
ms, Fewer Is Better
Linux 5.10.130
SE +/- 21.06, N = 3
34786
Linux 5.15.83
SE +/- 4.51, N = 3
34801
Linux 6.1
SE +/- 5.29, N = 3
34779
7K
14K
21K
28K
35K
1. (CXX) g++ options: -O3 -lm -ldl -lpthread -pthread
OSPRay Studio 0.11
Camera: 3 - Resolution: 1080p - Samples Per Pixel: 32 - Renderer: Path Tracer
ms, Fewer Is Better
Linux 5.10.130
SE +/- 96.91, N = 3
78016
Linux 5.15.83
SE +/- 75.54, N = 3
77997
Linux 6.1
SE +/- 964.72, N = 6
79804
20K
40K
60K
80K
100K
1. (CXX) g++ options: -O3 -lm -ldl -lpthread -pthread

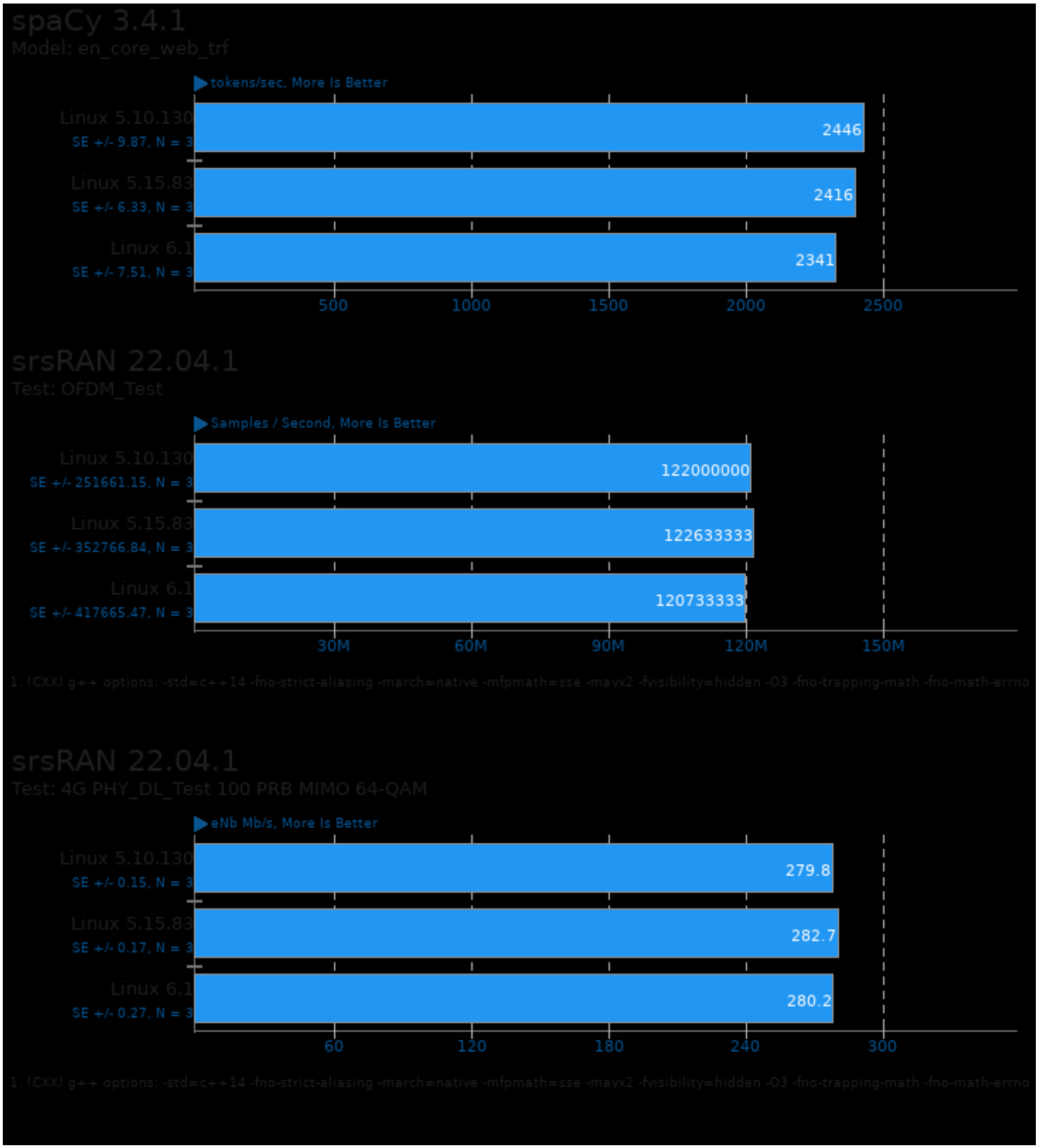

PostgreSQL 15
Scaling Factor: 100 - Clients: 100 - Mode: Read Only
TPS, More Is Better
Linux 5.10.130
SE +/- 1779.96, N = 3
465422
Linux 5.15.83
SE +/- 92.73, N = 3
515273
Linux 6.1
SE +/- 1990.45, N = 3
523788
110K
220K
330K
440K
550K
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm
PostgreSQL 15
Scaling Factor: 100 - Clients: 100 - Mode: Read Only - Average Latency
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.001, N = 3
0.215
Linux 5.15.83
SE +/- 0.000, N = 3
0.194
Linux 6.1
SE +/- 0.001, N = 3
0.191
0.0484
0.0968
0.1452
0.1936
0.242
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm
PostgreSQL 15
Scaling Factor: 100 - Clients: 250 - Mode: Read Only
TPS, More Is Better
Linux 5.10.130
SE +/- 2810.03, N = 3
413949
Linux 5.15.83
SE +/- 286.86, N = 3
475175
Linux 6.1
SE +/- 5532.44, N = 3
487468
100K
200K
300K
400K
500K
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm

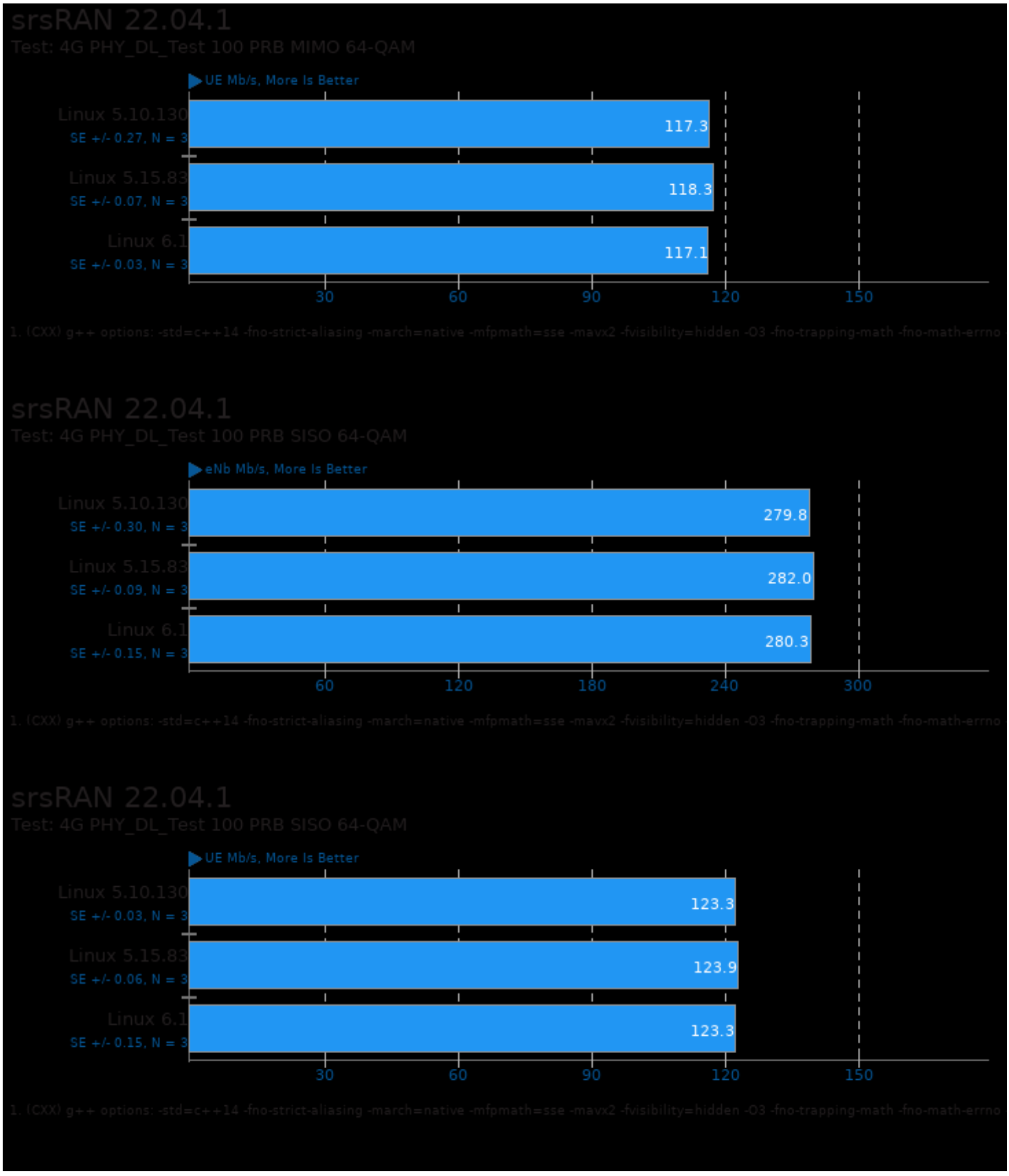

PostgreSQL 15
Scaling Factor: 100 - Clients: 250 - Mode: Read Only - Average Latency
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.004, N = 3
0.604
Linux 5.15.83
SE +/- 0.000, N = 3
0.526
Linux 6.1
SE +/- 0.006, N = 3
0.513
0.1359
0.2718
0.4077
0.5436
0.6795
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm
PostgreSQL 15
Scaling Factor: 100 - Clients: 500 - Mode: Read Only
TPS, More Is Better
Linux 5.10.130
SE +/- 956.06, N = 3
370238
Linux 5.15.83
SE +/- 666.01, N = 3
426428
Linux 6.1
SE +/- 757.53, N = 3
467167
100K
200K
300K
400K
500K
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm
PostgreSQL 15
Scaling Factor: 100 - Clients: 500 - Mode: Read Only - Average Latency
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.003, N = 3
1.350
Linux 5.15.83
SE +/- 0.002, N = 3
1.173
Linux 6.1
SE +/- 0.002, N = 3
1.070
0.3038
0.6076
0.9114
1.2152
1.519
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm

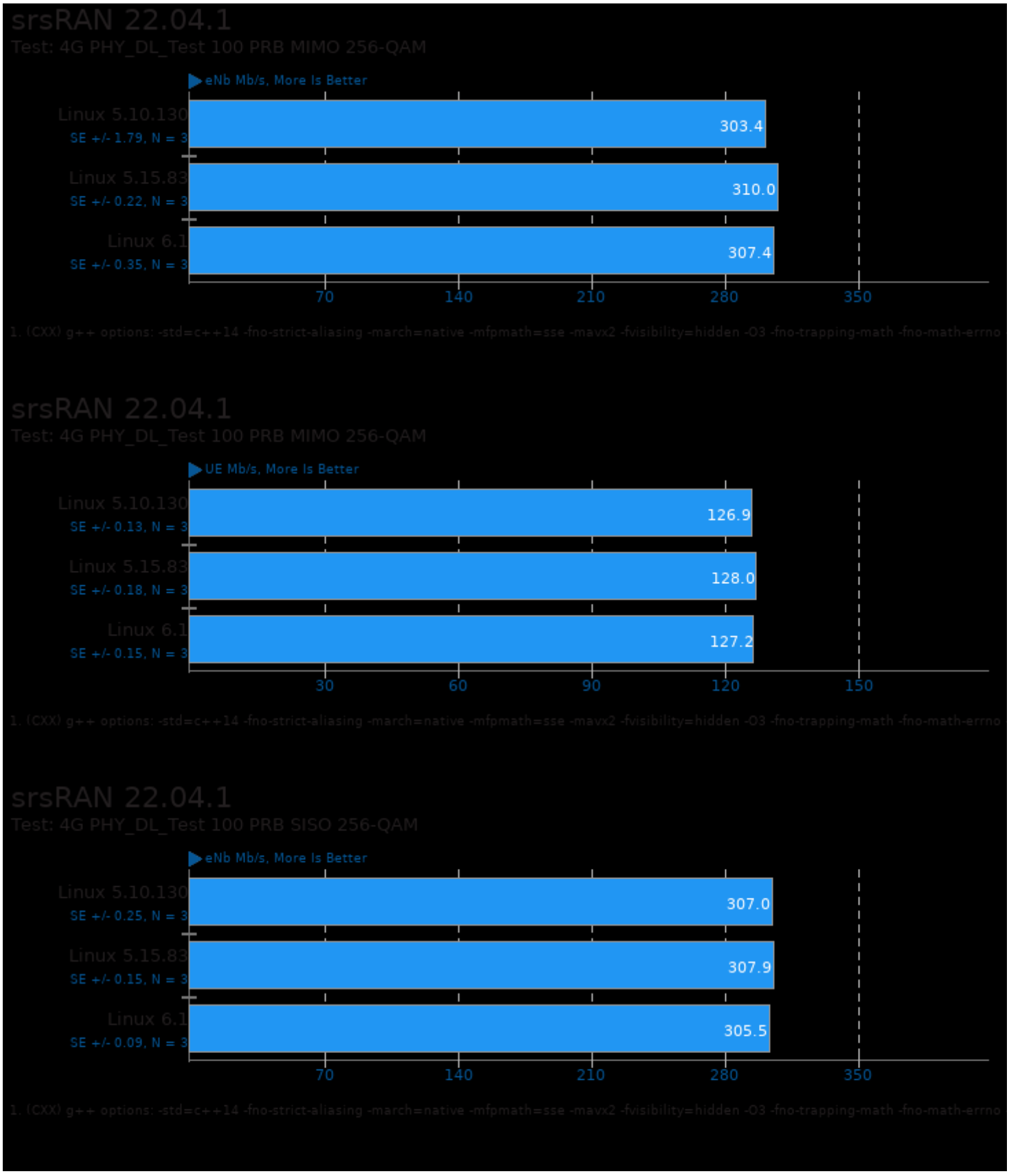

PostgreSQL 15
Scaling Factor: 100 - Clients: 100 - Mode: Read Write
TPS, More Is Better
Linux 5.10.130
SE +/- 146.53, N = 3
53656
Linux 5.15.83
SE +/- 125.21, N = 3
56230
Linux 6.1
SE +/- 90.59, N = 3
54365
12K
24K
36K
48K
60K
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm
PostgreSQL 15
Scaling Factor: 100 - Clients: 100 - Mode: Read Write - Average Latency
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.005, N = 3
1.864
Linux 5.15.83
SE +/- 0.004, N = 3
1.779
Linux 6.1
SE +/- 0.003, N = 3
1.839
0.4194
0.8388
1.2582
1.6776
2.097
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm
PostgreSQL 15
Scaling Factor: 100 - Clients: 250 - Mode: Read Write
TPS, More Is Better
Linux 5.10.130
SE +/- 132.15, N = 3
47676
Linux 5.15.83
SE +/- 31.67, N = 3
45922
Linux 6.1
SE +/- 71.67, N = 3
45223
10K
20K
30K
40K
50K
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm

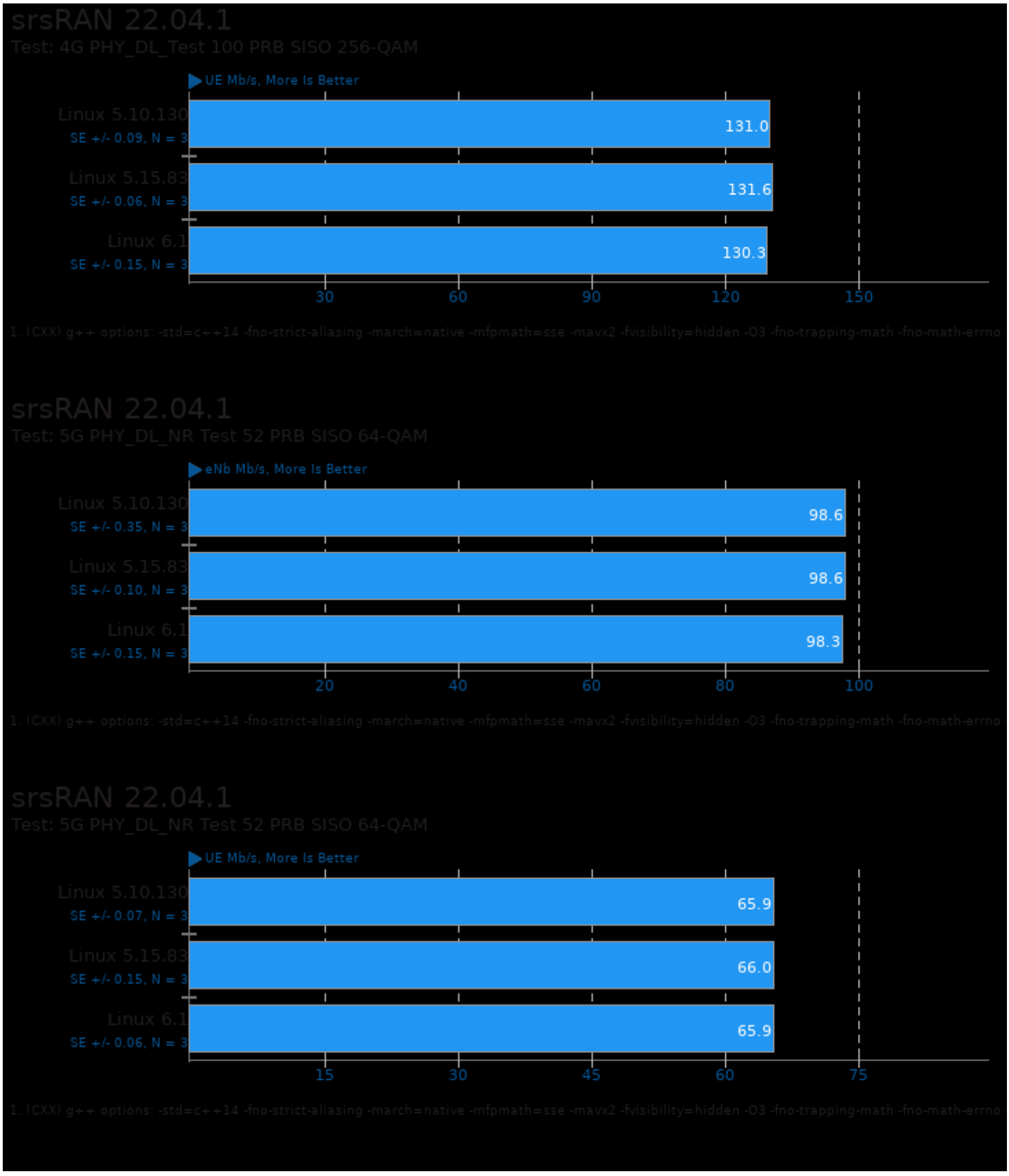

PostgreSQL 15
Scaling Factor: 100 - Clients: 250 - Mode: Read Write - Average Latency
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.015, N = 3
5.244
Linux 5.15.83
SE +/- 0.004, N = 3
5.444
Linux 6.1
SE +/- 0.009, N = 3
5.528
1.2438
2.4876
3.7314
4.9752
6.219
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm
PostgreSQL 15
Scaling Factor: 100 - Clients: 500 - Mode: Read Write
TPS, More Is Better
Linux 5.10.130
SE +/- 59.40, N = 3
38503
Linux 5.15.83
SE +/- 99.01, N = 3
33824
Linux 6.1
SE +/- 91.02, N = 3
36109
8K
16K
24K
32K
40K
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm
PostgreSQL 15
Scaling Factor: 100 - Clients: 500 - Mode: Read Write - Average Latency
ms, Fewer Is Better
Linux 5.10.130
SE +/- 0.02, N = 3
12.99
Linux 5.15.83
SE +/- 0.04, N = 3
14.78
Linux 6.1
SE +/- 0.03, N = 3
13.85
4
8
12
16
20
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm

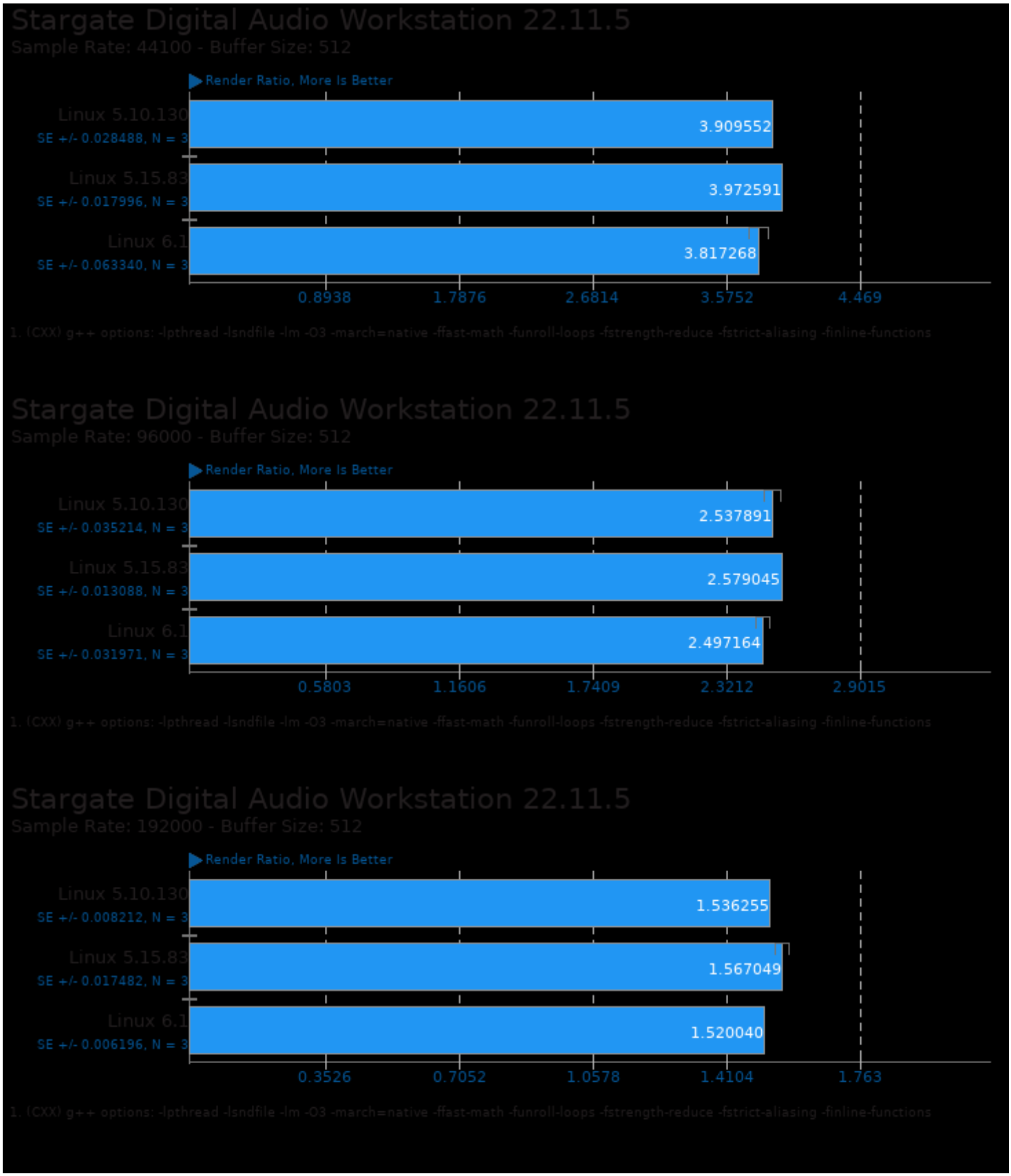

Primesieve 8.0
Length: 1e12
Seconds, Fewer Is Better
Linux 5.10.130
SE +/- 0.01, N = 3
14.44
Linux 5.15.83
SE +/- 0.05, N = 3
14.43
Linux 6.1
SE +/- 0.03, N = 3
14.42
4
8
12
16
20
1. (CXX) g++ options: -O3 -lpthread
Primesieve 8.0
Length: 1e13
Seconds, Fewer Is Better
Linux 5.10.130
SE +/- 0.36, N = 3
174.72
Linux 5.15.83
SE +/- 0.38, N = 3
174.66
Linux 6.1
SE +/- 0.47, N = 3
174.98
40
80
120
160
200
1. (CXX) g++ options: -O3 -lpthread
spaCy 3.4.1
Model: en_core_web_lg
tokens/sec, More Is Better
Linux 5.10.130
SE +/- 15.62, N = 3
11314
Linux 5.15.83
SE +/- 10.74, N = 3
11236
Linux 6.1
SE +/- 18.76, N = 3
11231
2K
4K
6K
8K
10K

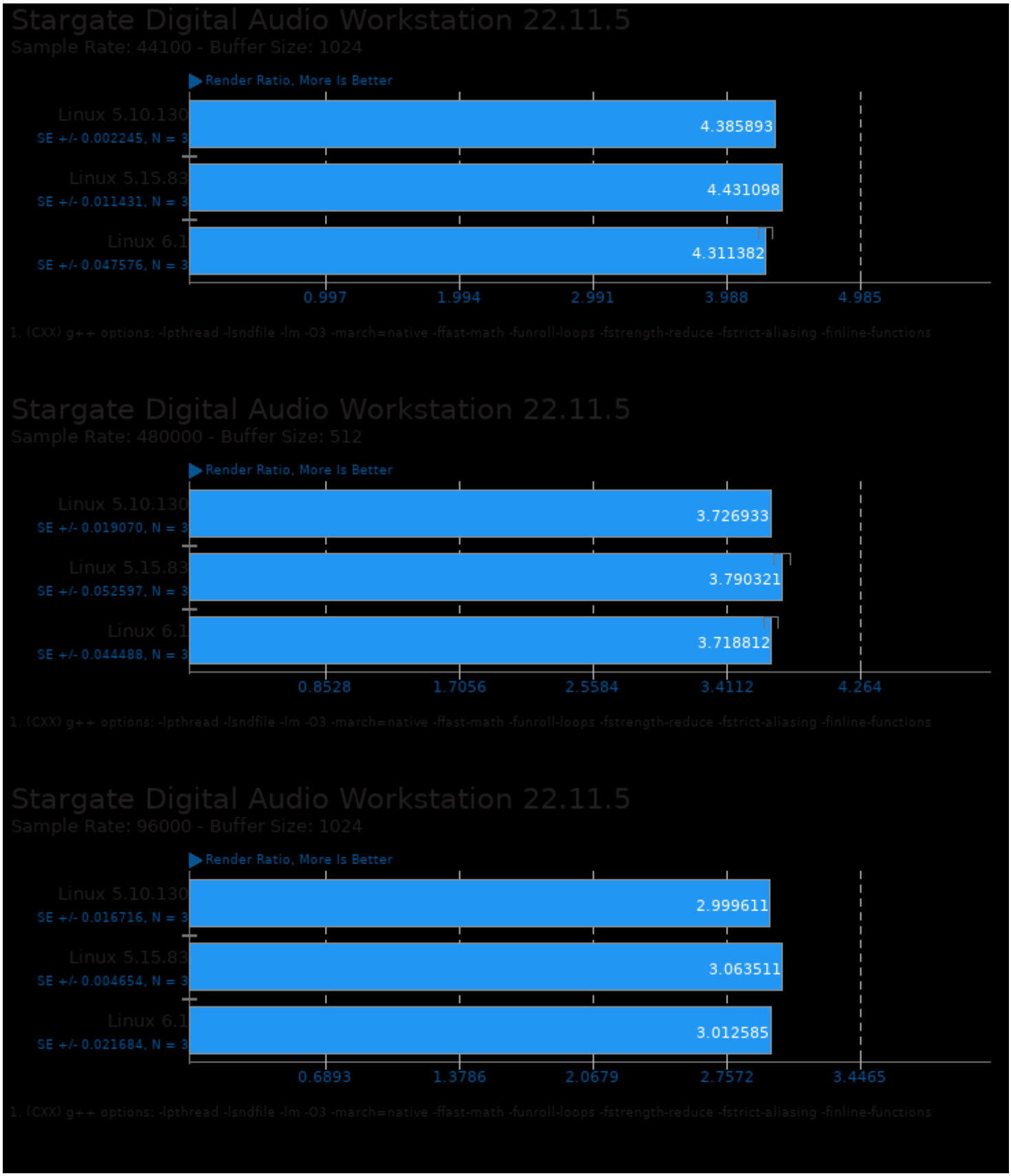

spaCy 3.4.1
Model: en_core_web_trf
tokens/sec, More Is Better
Linux 5.10.130
SE +/- 9.87, N = 3
2446
Linux 5.15.83
SE +/- 6.33, N = 3
2416
Linux 6.1
SE +/- 7.51, N = 3
2341
500
1000
1500
2000
2500
srsRAN 22.04.1
Test: OFDM_Test
Samples / Second, More Is Better
Linux 5.10.130
SE +/- 251661.15, N = 3
122000000
Linux 5.15.83
SE +/- 352766.84, N = 3
122633333
Linux 6.1
SE +/- 417665.47, N = 3
120733333
30M
60M
90M
120M
150M
1. (CXX) g++ options: -std=c++14 -fno-strict-aliasing -march=native -mfpmath=sse -mavx2 -fvisibility=hidden -O3 -fno-trapping-math -fno-math-errno
srsRAN 22.04.1
Test: 4G PHY_DL_Test 100 PRB MIMO 64-QAM
eNb Mb/s, More Is Better
Linux 5.10.130
SE +/- 0.15, N = 3
279.8
Linux 5.15.83
SE +/- 0.17, N = 3
282.7
Linux 6.1
SE +/- 0.27, N = 3
280.2
60
120
180
240
300
1. (CXX) g++ options: -std=c++14 -fno-strict-aliasing -march=native -mfpmath=sse -mavx2 -fvisibility=hidden -O3 -fno-trapping-math -fno-math-errno

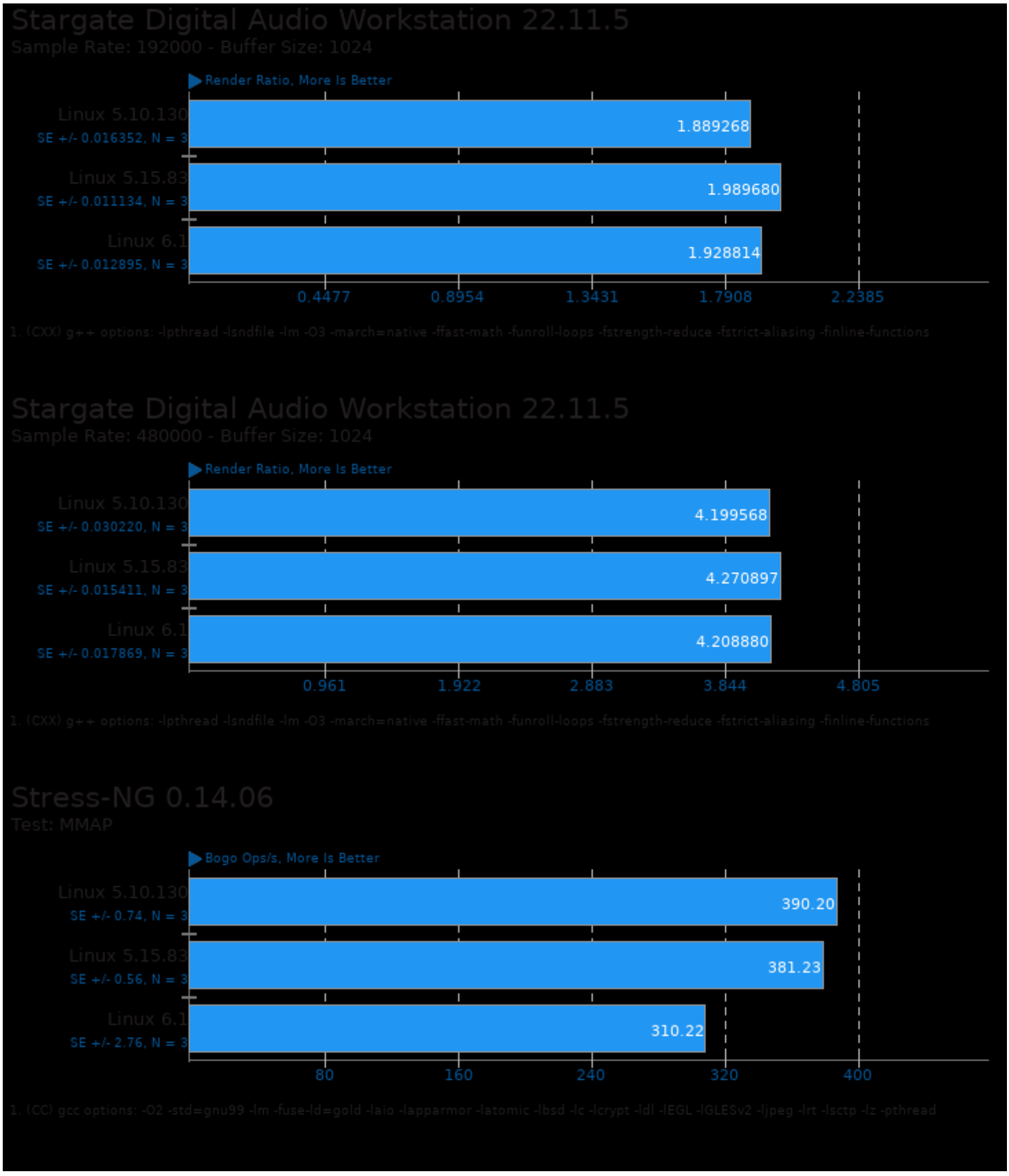

srsRAN 22.04.1
Test: 4G PHY_DL_Test 100 PRB MIMO 64-QAM
UE Mb/s, More Is Better
Linux 5.10.130
SE +/- 0.27, N = 3
117.3
Linux 5.15.83
SE +/- 0.07, N = 3
118.3
Linux 6.1
SE +/- 0.03, N = 3
117.1
30
60
90
120
150
1. (CXX) g++ options: -std=c++14 -fno-strict-aliasing -march=native -mfpmath=sse -mavx2 -fvisibility=hidden -O3 -fno-trapping-math -fno-math-errno
srsRAN 22.04.1
Test: 4G PHY_DL_Test 100 PRB SISO 64-QAM
eNb Mb/s, More Is Better
Linux 5.10.130
SE +/- 0.30, N = 3
279.8
Linux 5.15.83
SE +/- 0.09, N = 3
282.0
Linux 6.1
SE +/- 0.15, N = 3
280.3
60
120
180
240
300
1. (CXX) g++ options: -std=c++14 -fno-strict-aliasing -march=native -mfpmath=sse -mavx2 -fvisibility=hidden -O3 -fno-trapping-math -fno-math-errno
srsRAN 22.04.1
Test: 4G PHY_DL_Test 100 PRB SISO 64-QAM
UE Mb/s, More Is Better
Linux 5.10.130
SE +/- 0.03, N = 3
123.3
Linux 5.15.83
SE +/- 0.06, N = 3
123.9
Linux 6.1
SE +/- 0.15, N = 3
123.3
30
60
90
120
150
1. (CXX) g++ options: -std=c++14 -fno-strict-aliasing -march=native -mfpmath=sse -mavx2 -fvisibility=hidden -O3 -fno-trapping-math -fno-math-errno

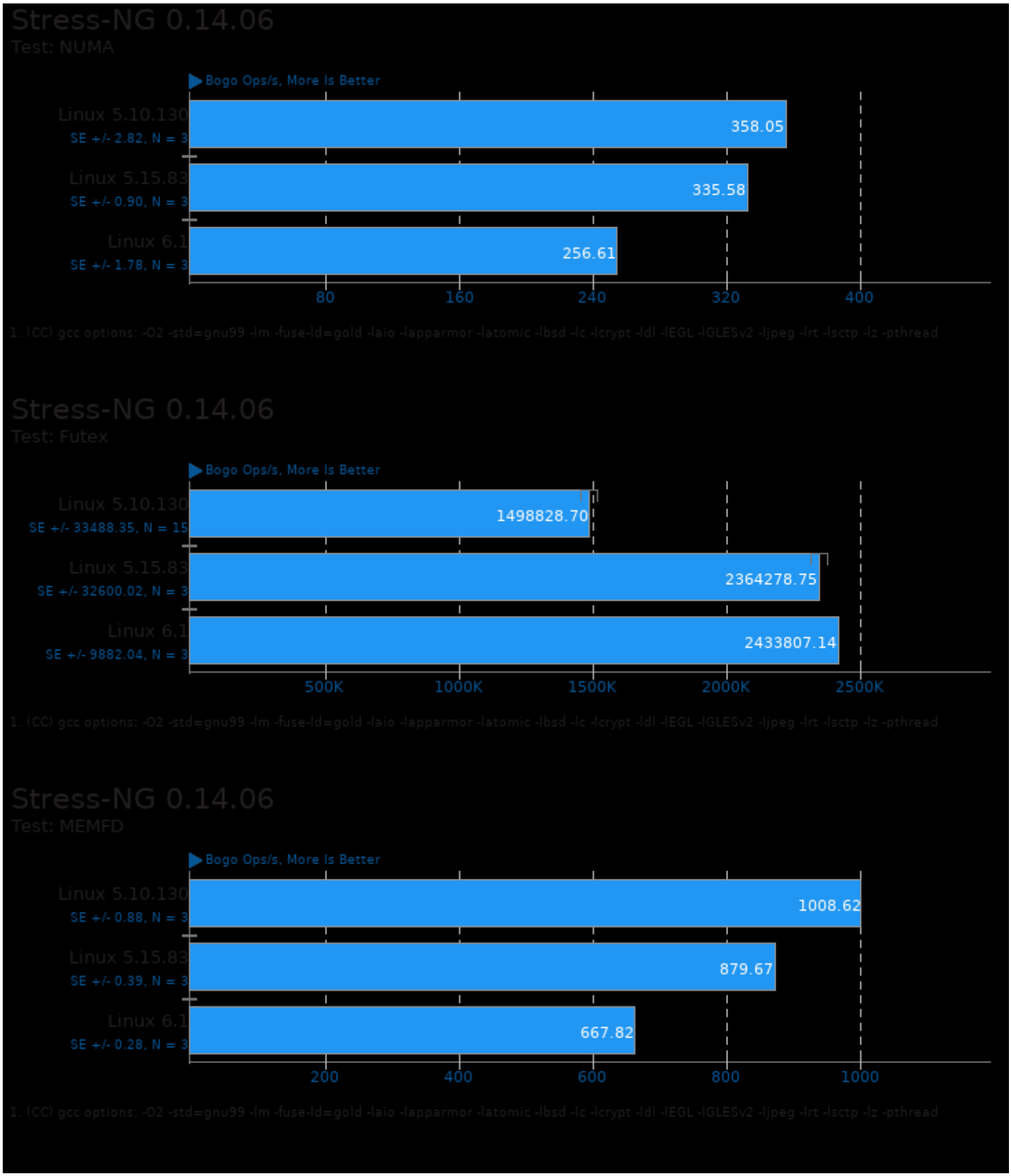

srsRAN 22.04.1
Test: 4G PHY_DL_Test 100 PRB MIMO 256-QAM
eNb Mb/s, More Is Better
Linux 5.10.130
SE +/- 1.79, N = 3
303.4
Linux 5.15.83
SE +/- 0.22, N = 3
310.0
Linux 6.1
SE +/- 0.35, N = 3
307.4
70
140
210
280
350
1. (CXX) g++ options: -std=c++14 -fno-strict-aliasing -march=native -mfpmath=sse -mavx2 -fvisibility=hidden -O3 -fno-trapping-math -fno-math-errno
srsRAN 22.04.1
Test: 4G PHY_DL_Test 100 PRB MIMO 256-QAM
UE Mb/s, More Is Better
Linux 5.10.130
SE +/- 0.13, N = 3
126.9
Linux 5.15.83
SE +/- 0.18, N = 3
128.0
Linux 6.1
SE +/- 0.15, N = 3
127.2
30
60
90
120
150
1. (CXX) g++ options: -std=c++14 -fno-strict-aliasing -march=native -mfpmath=sse -mavx2 -fvisibility=hidden -O3 -fno-trapping-math -fno-math-errno
srsRAN 22.04.1
Test: 4G PHY_DL_Test 100 PRB SISO 256-QAM
eNb Mb/s, More Is Better
Linux 5.10.130
SE +/- 0.25, N = 3
307.0
Linux 5.15.83
SE +/- 0.15, N = 3
307.9
Linux 6.1
SE +/- 0.09, N = 3
305.5
70
140
210
280
350
1. (CXX) g++ options: -std=c++14 -fno-strict-aliasing -march=native -mfpmath=sse -mavx2 -fvisibility=hidden -O3 -fno-trapping-math -fno-math-errno

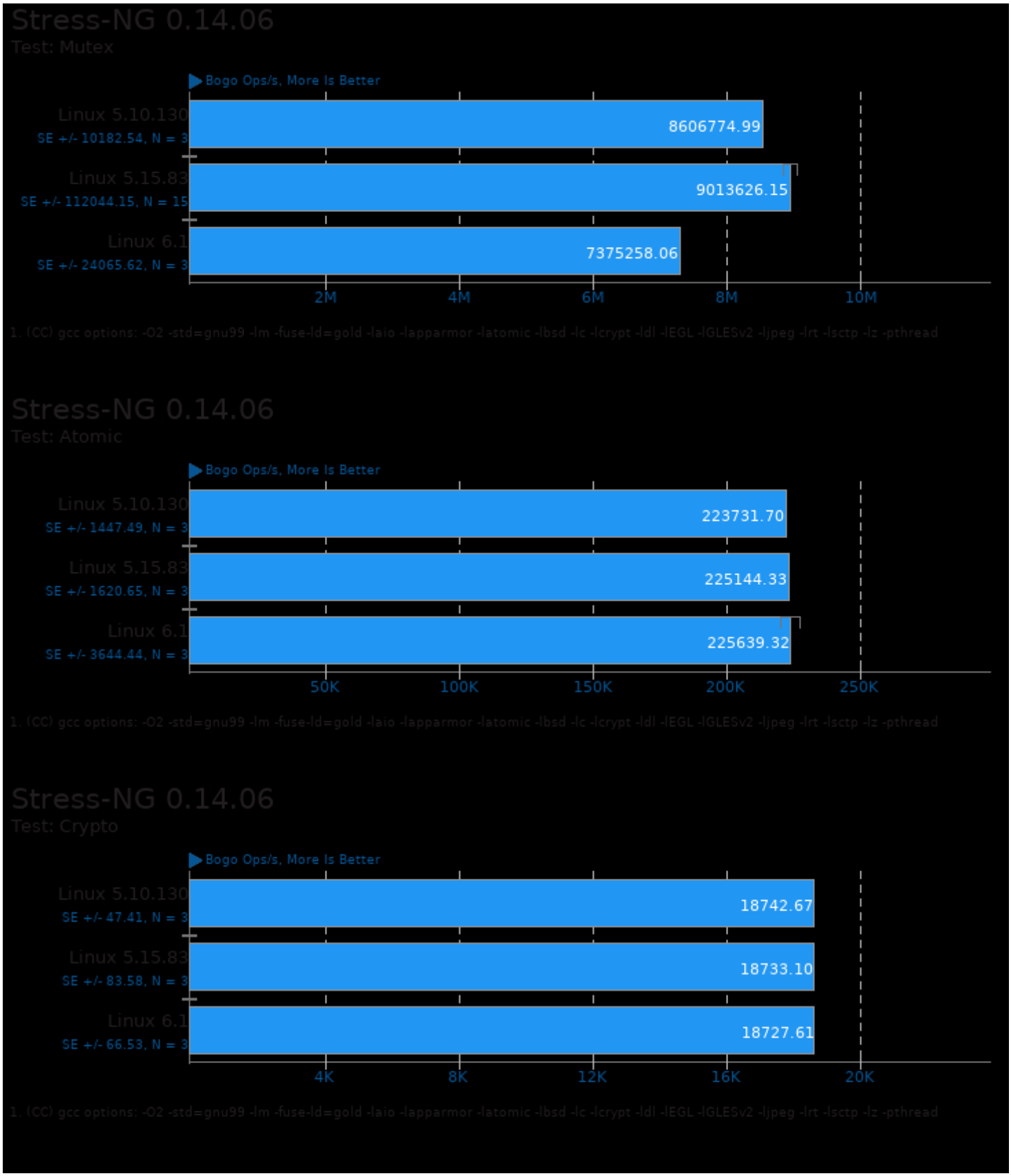

srsRAN 22.04.1
Test: 4G PHY_DL_Test 100 PRB SISO 256-QAM
UE Mb/s, More Is Better
Linux 5.10.130
SE +/- 0.09, N = 3
131.0
Linux 5.15.83
SE +/- 0.06, N = 3
131.6
Linux 6.1
SE +/- 0.15, N = 3
130.3
30
60
90
120
150
1. (CXX) g++ options: -std=c++14 -fno-strict-aliasing -march=native -mfpmath=sse -mavx2 -fvisibility=hidden -O3 -fno-trapping-math -fno-math-errno
srsRAN 22.04.1
Test: 5G PHY_DL_NR Test 52 PRB SISO 64-QAM
eNb Mb/s, More Is Better
Linux 5.10.130
SE +/- 0.35, N = 3
98.6
Linux 5.15.83
SE +/- 0.10, N = 3
98.6
Linux 6.1
SE +/- 0.15, N = 3
98.3
20
40
60
80
100
1. (CXX) g++ options: -std=c++14 -fno-strict-aliasing -march=native -mfpmath=sse -mavx2 -fvisibility=hidden -O3 -fno-trapping-math -fno-math-errno
srsRAN 22.04.1
Test: 5G PHY_DL_NR Test 52 PRB SISO 64-QAM
UE Mb/s, More Is Better
Linux 5.10.130
SE +/- 0.07, N = 3
65.9
Linux 5.15.83
SE +/- 0.15, N = 3
66.0
Linux 6.1
SE +/- 0.06, N = 3
65.9
15
30
45
60
75
1. (CXX) g++ options: -std=c++14 -fno-strict-aliasing -march=native -mfpmath=sse -mavx2 -fvisibility=hidden -O3 -fno-trapping-math -fno-math-errno

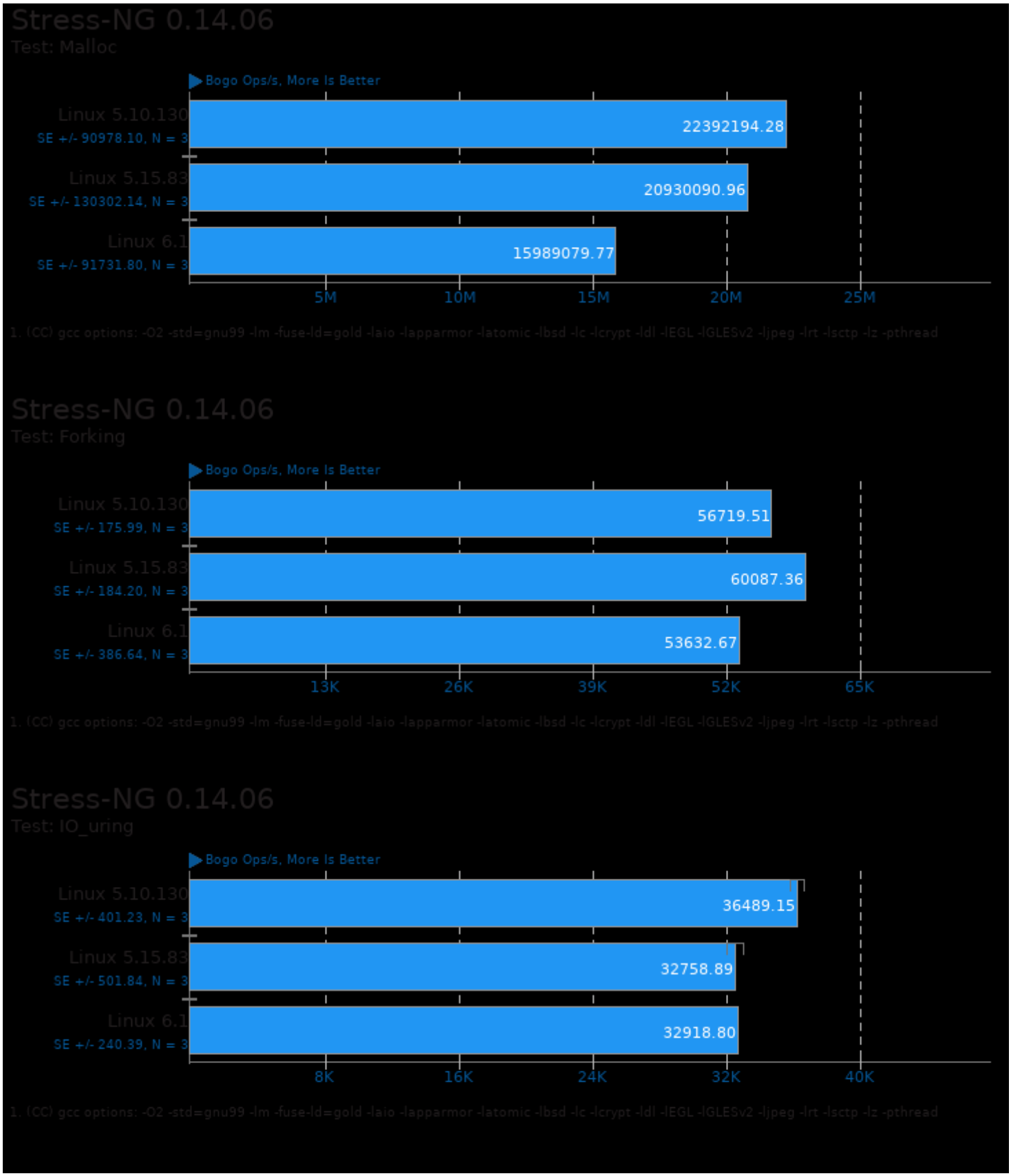

Stargate Digital Audio Workstation 22.11.5
Sample Rate: 44100 - Buffer Size: 512
Render Ratio, More Is Better
Linux 5.10.130
SE +/- 0.028488, N = 3
3.909552
Linux 5.15.83
SE +/- 0.017996, N = 3
3.972591
Linux 6.1
SE +/- 0.063340, N = 3
3.817268
0.8938
1.7876
2.6814
3.5752
4.469
1. (CXX) g++ options: -lpthread -lsndfile -lm -O3 -march=native -ffast-math -funroll-loops -fstrength-reduce -fstrict-aliasing -finline-functions
Stargate Digital Audio Workstation 22.11.5
Sample Rate: 96000 - Buffer Size: 512
Render Ratio, More Is Better
Linux 5.10.130
SE +/- 0.035214, N = 3
2.537891
Linux 5.15.83
SE +/- 0.013088, N = 3
2.579045
Linux 6.1
SE +/- 0.031971, N = 3
2.497164
0.5803
1.1606
1.7409
2.3212
2.9015
1. (CXX) g++ options: -lpthread -lsndfile -lm -O3 -march=native -ffast-math -funroll-loops -fstrength-reduce -fstrict-aliasing -finline-functions
Stargate Digital Audio Workstation 22.11.5
Sample Rate: 192000 - Buffer Size: 512
Render Ratio, More Is Better
Linux 5.10.130
SE +/- 0.008212, N = 3
1.536255
Linux 5.15.83
SE +/- 0.017482, N = 3
1.567049
Linux 6.1
SE +/- 0.006196, N = 3
1.520040
0.3526
0.7052
1.0578
1.4104
1.763
1. (CXX) g++ options: -lpthread -lsndfile -lm -O3 -march=native -ffast-math -funroll-loops -fstrength-reduce -fstrict-aliasing -finline-functions

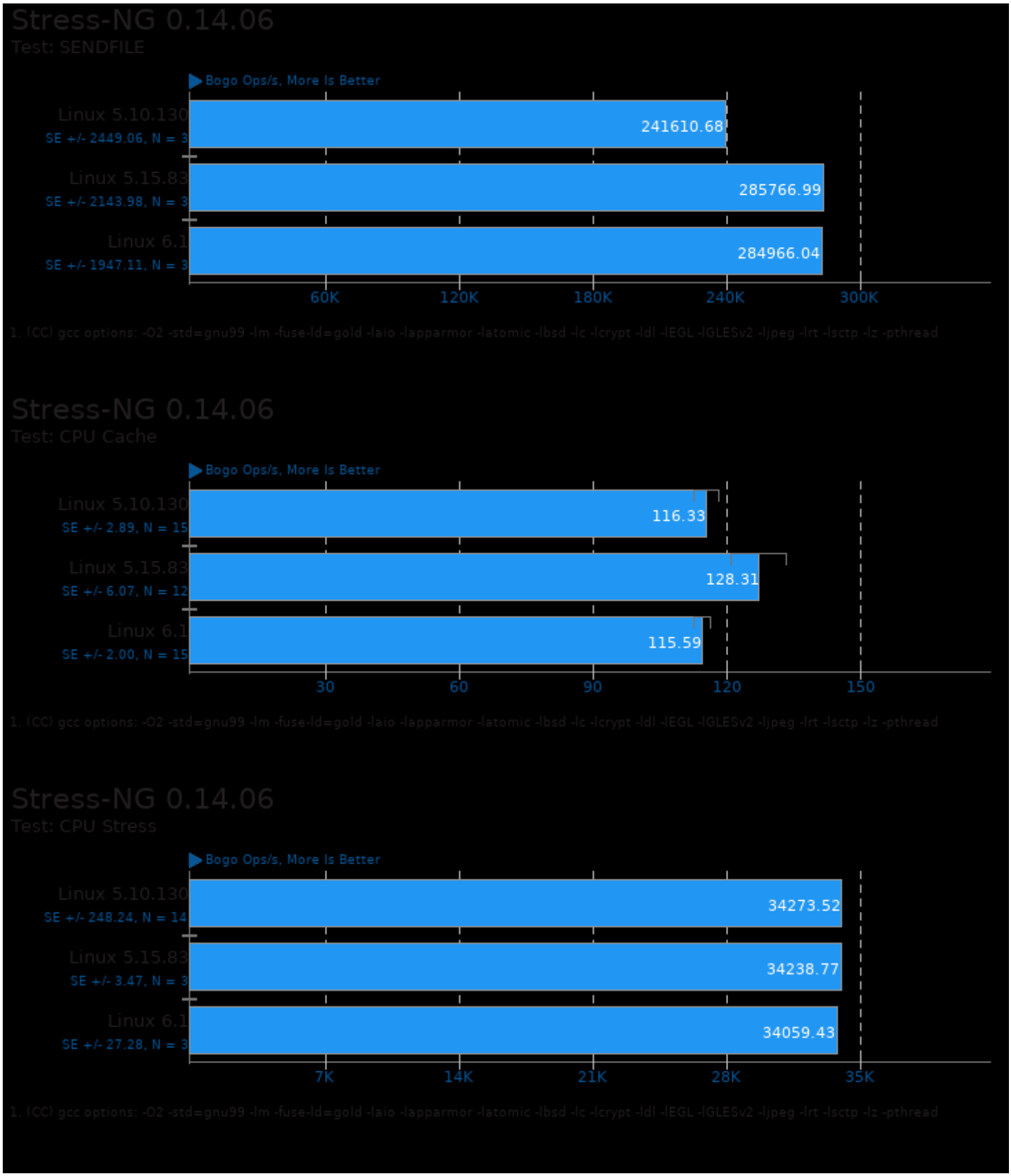

Stargate Digital Audio Workstation 22.11.5
Sample Rate: 44100 - Buffer Size: 1024
Render Ratio, More Is Better
Linux 5.10.130
SE +/- 0.002245, N = 3
4.385893
Linux 5.15.83
SE +/- 0.011431, N = 3
4.431098
Linux 6.1
SE +/- 0.047576, N = 3
4.311382
0.997
1.994
2.991
3.988
4.985
1. (CXX) g++ options: -lpthread -lsndfile -lm -O3 -march=native -ffast-math -funroll-loops -fstrength-reduce -fstrict-aliasing -finline-functions
Stargate Digital Audio Workstation 22.11.5
Sample Rate: 480000 - Buffer Size: 512
Render Ratio, More Is Better
Linux 5.10.130
SE +/- 0.019070, N = 3
3.726933
Linux 5.15.83
SE +/- 0.052597, N = 3
3.790321
Linux 6.1
SE +/- 0.044488, N = 3
3.718812
0.8528
1.7056
2.5584
3.4112
4.264
1. (CXX) g++ options: -lpthread -lsndfile -lm -O3 -march=native -ffast-math -funroll-loops -fstrength-reduce -fstrict-aliasing -finline-functions
Stargate Digital Audio Workstation 22.11.5
Sample Rate: 96000 - Buffer Size: 1024
Render Ratio, More Is Better
Linux 5.10.130
SE +/- 0.016716, N = 3
2.999611
Linux 5.15.83
SE +/- 0.004654, N = 3
3.063511
Linux 6.1
SE +/- 0.021684, N = 3
3.012585
0.6893
1.3786
2.0679
2.7572
3.4465
1. (CXX) g++ options: -lpthread -lsndfile -lm -O3 -march=native -ffast-math -funroll-loops -fstrength-reduce -fstrict-aliasing -finline-functions

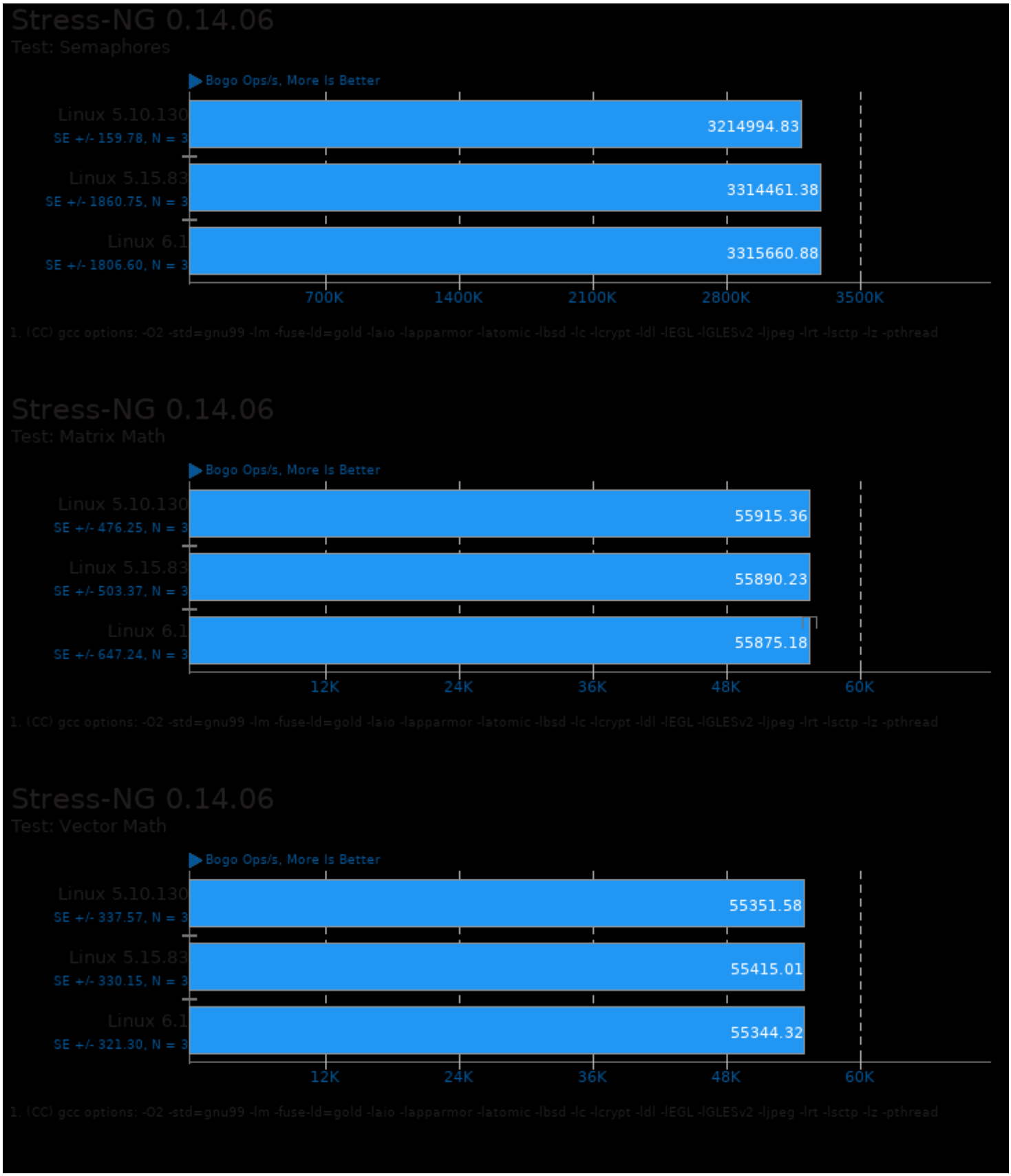

Stargate Digital Audio Workstation 22.11.5
Sample Rate: 192000 - Buffer Size: 1024
Render Ratio, More Is Better
Linux 5.10.130
SE +/- 0.016352, N = 3
1.889268
Linux 5.15.83
SE +/- 0.011134, N = 3
1.989680
Linux 6.1
SE +/- 0.012895, N = 3
1.928814
0.4477
0.8954
1.3431
1.7908
2.2385
1. (CXX) g++ options: -lpthread -lsndfile -lm -O3 -march=native -ffast-math -funroll-loops -fstrength-reduce -fstrict-aliasing -finline-functions
Stargate Digital Audio Workstation 22.11.5
Sample Rate: 480000 - Buffer Size: 1024
Render Ratio, More Is Better
Linux 5.10.130
SE +/- 0.030220, N = 3
4.199568
Linux 5.15.83
SE +/- 0.015411, N = 3
4.270897
Linux 6.1
SE +/- 0.017869, N = 3
4.208880
0.961
1.922
2.883
3.844
4.805
1. (CXX) g++ options: -lpthread -lsndfile -lm -O3 -march=native -ffast-math -funroll-loops -fstrength-reduce -fstrict-aliasing -finline-functions
Stress-NG 0.14.06
Test: MMAP
Bogo Ops/s, More Is Better
Linux 5.10.130
SE +/- 0.74, N = 3
390.20
Linux 5.15.83
SE +/- 0.56, N = 3
381.23
Linux 6.1
SE +/- 2.76, N = 3
310.22
80
160
240
320
400
1. (CC) gcc options: -O2 -std=gnu99 -lm -fuse-ld=gold -laio -lapparmor -latomic -lbsd -lc -lcrypt -ldl -lEGL -lGLESv2 -ljpeg -lrt -lsctp -lz -pthread

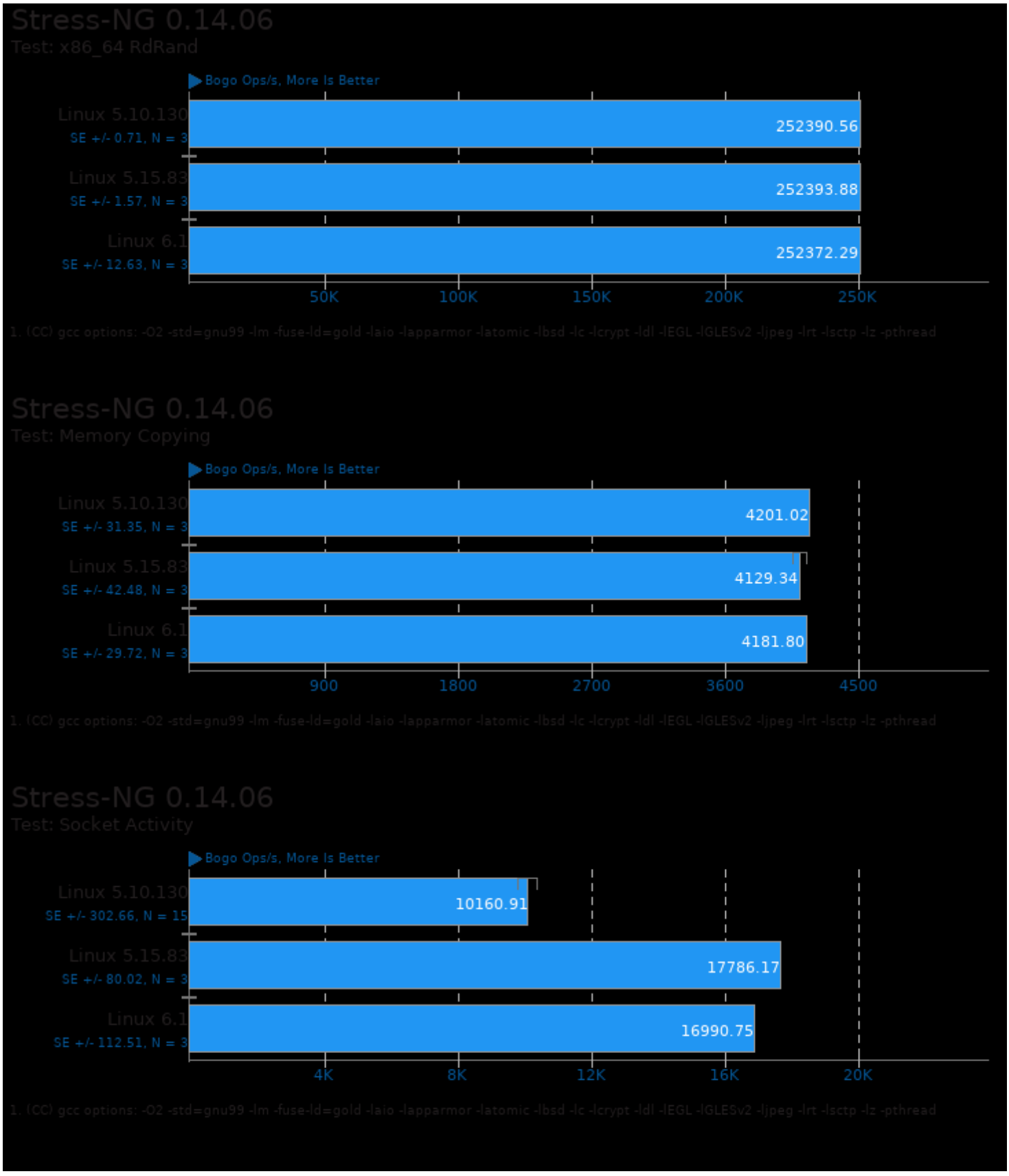

Stress-NG 0.14.06
Test: NUMA
Bogo Ops/s, More Is Better
Linux 5.10.130
SE +/- 2.82, N = 3
358.05
Linux 5.15.83
SE +/- 0.90, N = 3
335.58
Linux 6.1
SE +/- 1.78, N = 3
256.61
80
160
240
320
400
1. (CC) gcc options: -O2 -std=gnu99 -lm -fuse-ld=gold -laio -lapparmor -latomic -lbsd -lc -lcrypt -ldl -lEGL -lGLESv2 -ljpeg -lrt -lsctp -lz -pthread
Stress-NG 0.14.06
Test: Futex
Bogo Ops/s, More Is Better
Linux 5.10.130
SE +/- 33488.35, N = 15
1498828.70
Linux 5.15.83
SE +/- 32600.02, N = 3
2364278.75
Linux 6.1
SE +/- 9882.04, N = 3
2433807.14
500K
1000K
1500K
2000K
2500K
1. (CC) gcc options: -O2 -std=gnu99 -lm -fuse-ld=gold -laio -lapparmor -latomic -lbsd -lc -lcrypt -ldl -lEGL -lGLESv2 -ljpeg -lrt -lsctp -lz -pthread
Stress-NG 0.14.06
Test: MEMFD
Bogo Ops/s, More Is Better
Linux 5.10.130
SE +/- 0.88, N = 3
1008.62
Linux 5.15.83
SE +/- 0.39, N = 3
879.67
Linux 6.1
SE +/- 0.28, N = 3
667.82
200
400
600
800
1000
1. (CC) gcc options: -O2 -std=gnu99 -lm -fuse-ld=gold -laio -lapparmor -latomic -lbsd -lc -lcrypt -ldl -lEGL -lGLESv2 -ljpeg -lrt -lsctp -lz -pthread

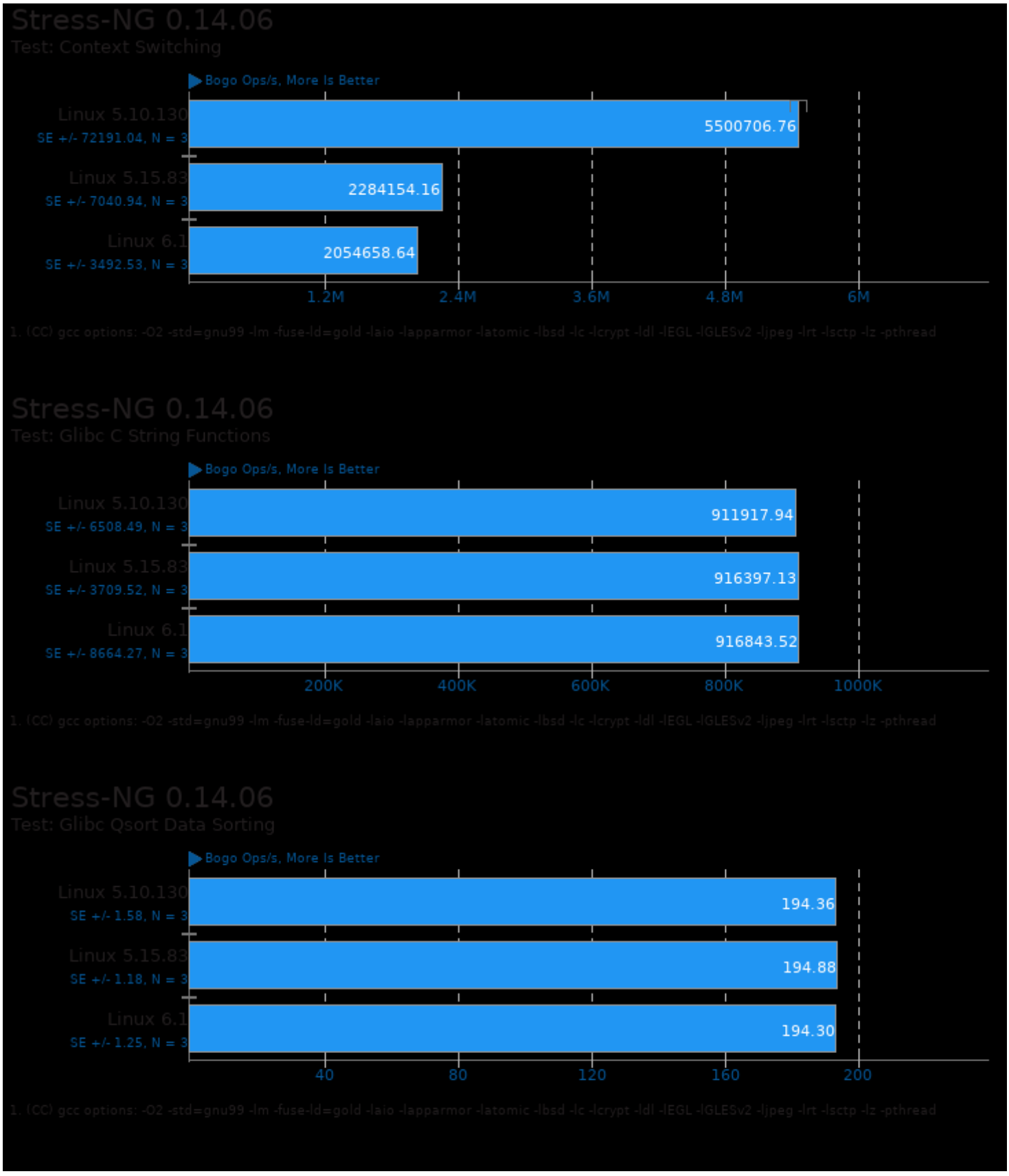

Stress-NG 0.14.06
Test: Mutex
Bogo Ops/s, More Is Better
Linux 5.10.130
SE +/- 10182.54, N = 3
8606774.99
Linux 5.15.83
SE +/- 112044.15, N = 15
9013626.15
Linux 6.1
SE +/- 24065.62, N = 3
7375258.06
2M
4M
6M
8M
10M
1. (CC) gcc options: -O2 -std=gnu99 -lm -fuse-ld=gold -laio -lapparmor -latomic -lbsd -lc -lcrypt -ldl -lEGL -lGLESv2 -ljpeg -lrt -lsctp -lz -pthread
Stress-NG 0.14.06
Test: Atomic
Bogo Ops/s, More Is Better
Linux 5.10.130
SE +/- 1447.49, N = 3
223731.70
Linux 5.15.83
SE +/- 1620.65, N = 3
225144.33
Linux 6.1
SE +/- 3644.44, N = 3
225639.32
50K
100K
150K
200K
250K
1. (CC) gcc options: -O2 -std=gnu99 -lm -fuse-ld=gold -laio -lapparmor -latomic -lbsd -lc -lcrypt -ldl -lEGL -lGLESv2 -ljpeg -lrt -lsctp -lz -pthread
Stress-NG 0.14.06
Test: Crypto
Bogo Ops/s, More Is Better
Linux 5.10.130
SE +/- 47.41, N = 3
18742.67
Linux 5.15.83
SE +/- 83.58, N = 3
18733.10
Linux 6.1
SE +/- 66.53, N = 3
18727.61
4K
8K
12K
16K
20K
1. (CC) gcc options: -O2 -std=gnu99 -lm -fuse-ld=gold -laio -lapparmor -latomic -lbsd -lc -lcrypt -ldl -lEGL -lGLESv2 -ljpeg -lrt -lsctp -lz -pthread


Stress-NG 0.14.06
Test: Malloc
Bogo Ops/s, More Is Better
Linux 5.10.130
SE +/- 90978.10, N = 3
22392194.28
Linux 5.15.83
SE +/- 130302.14, N = 3
20930090.96
Linux 6.1
SE +/- 91731.80, N = 3
15989079.77
5M
10M
15M
20M
25M
1. (CC) gcc options: -O2 -std=gnu99 -lm -fuse-ld=gold -laio -lapparmor -latomic -lbsd -lc -lcrypt -ldl -lEGL -lGLESv2 -ljpeg -lrt -lsctp -lz -pthread
Stress-NG 0.14.06
Test: Forking
Bogo Ops/s, More Is Better
Linux 5.10.130
SE +/- 175.99, N = 3
56719.51
Linux 5.15.83
SE +/- 184.20, N = 3
60087.36
Linux 6.1
SE +/- 386.64, N = 3
53632.67
13K
26K
39K
52K
65K
1. (CC) gcc options: -O2 -std=gnu99 -lm -fuse-ld=gold -laio -lapparmor -latomic -lbsd -lc -lcrypt -ldl -lEGL -lGLESv2 -ljpeg -lrt -lsctp -lz -pthread
Stress-NG 0.14.06
Test: IO_uring
Bogo Ops/s, More Is Better
Linux 5.10.130
SE +/- 401.23, N = 3
36489.15
Linux 5.15.83
SE +/- 501.84, N = 3
32758.89
Linux 6.1
SE +/- 240.39, N = 3
32918.80
8K
16K
24K
32K
40K
1. (CC) gcc options: -O2 -std=gnu99 -lm -fuse-ld=gold -laio -lapparmor -latomic -lbsd -lc -lcrypt -ldl -lEGL -lGLESv2 -ljpeg -lrt -lsctp -lz -pthread


Stress-NG 0.14.06
Test: SENDFILE
Bogo Ops/s, More Is Better
Linux 5.10.130
SE +/- 2449.06, N = 3
241610.68
Linux 5.15.83
SE +/- 2143.98, N = 3
285766.99
Linux 6.1
SE +/- 1947.11, N = 3
284966.04
60K
120K
180K
240K
300K
1. (CC) gcc options: -O2 -std=gnu99 -lm -fuse-ld=gold -laio -lapparmor -latomic -lbsd -lc -lcrypt -ldl -lEGL -lGLESv2 -ljpeg -lrt -lsctp -lz -pthread
Stress-NG 0.14.06
Test: CPU Cache
Bogo Ops/s, More Is Better
Linux 5.10.130
SE +/- 2.89, N = 15
116.33
Linux 5.15.83
SE +/- 6.07, N = 12
128.31
Linux 6.1
SE +/- 2.00, N = 15
115.59
30
60
90
120
150
1. (CC) gcc options: -O2 -std=gnu99 -lm -fuse-ld=gold -laio -lapparmor -latomic -lbsd -lc -lcrypt -ldl -lEGL -lGLESv2 -ljpeg -lrt -lsctp -lz -pthread
Stress-NG 0.14.06
Test: CPU Stress
Bogo Ops/s, More Is Better
Linux 5.10.130
SE +/- 248.24, N = 14
34273.52
Linux 5.15.83
SE +/- 3.47, N = 3
34238.77
Linux 6.1
SE +/- 27.28, N = 3
34059.43
7K
14K
21K
28K
35K
1. (CC) gcc options: -O2 -std=gnu99 -lm -fuse-ld=gold -laio -lapparmor -latomic -lbsd -lc -lcrypt -ldl -lEGL -lGLESv2 -ljpeg -lrt -lsctp -lz -pthread

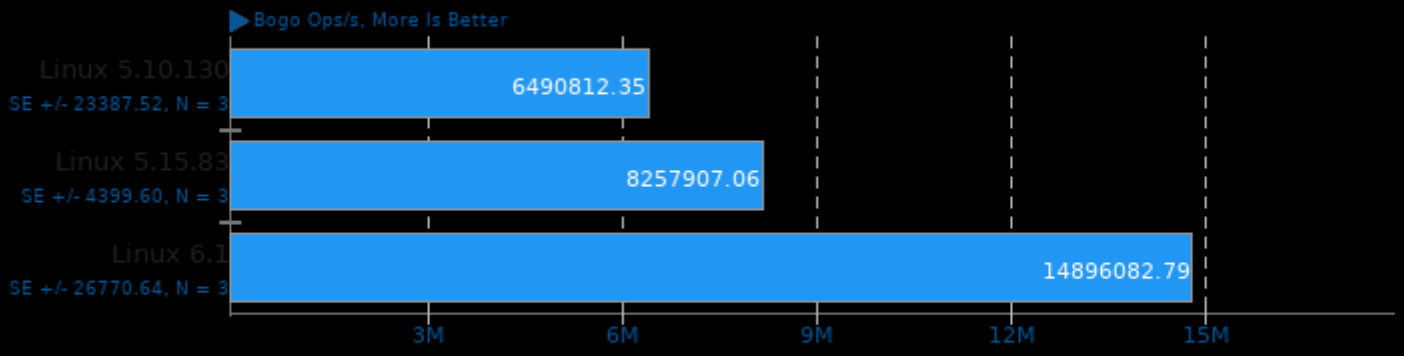

Stress-NG 0.14.06
Test: Semaphores
Bogo Ops/s, More Is Better
Linux 5.10.130
SE +/- 159.78, N = 3
3214994.83
Linux 5.15.83
SE +/- 1860.75, N = 3
3314461.38
Linux 6.1
SE +/- 1806.60, N = 3
3315660.88
700K
1400K
2100K
2800K
3500K
1. (CC) gcc options: -O2 -std=gnu99 -lm -fuse-ld=gold -laio -lapparmor -latomic -lbsd -lc -lcrypt -ldl -lEGL -lGLESv2 -ljpeg -lrt -lsctp -lz -pthread
Stress-NG 0.14.06
Test: Matrix Math
Bogo Ops/s, More Is Better
Linux 5.10.130
SE +/- 476.25, N = 3
55915.36
Linux 5.15.83
SE +/- 503.37, N = 3
55890.23
Linux 6.1
SE +/- 647.24, N = 3
55875.18
12K
24K
36K
48K
60K
1. (CC) gcc options: -O2 -std=gnu99 -lm -fuse-ld=gold -laio -lapparmor -latomic -lbsd -lc -lcrypt -ldl -lEGL -lGLESv2 -ljpeg -lrt -lsctp -lz -pthread
Stress-NG 0.14.06
Test: Vector Math
Bogo Ops/s, More Is Better
Linux 5.10.130
SE +/- 337.57, N = 3
55351.58
Linux 5.15.83
SE +/- 330.15, N = 3
55415.01
Linux 6.1
SE +/- 321.30, N = 3
55344.32
12K
24K
36K
48K
60K
1. (CC) gcc options: -O2 -std=gnu99 -lm -fuse-ld=gold -laio -lapparmor -latomic -lbsd -lc -lcrypt -ldl -lEGL -lGLESv2 -ljpeg -lrt -lsctp -lz -pthread


Stress-NG 0.14.06
Test: x86_64 RdRand
Bogo Ops/s, More Is Better
Linux 5.10.130
SE +/- 0.71, N = 3
252390.56
Linux 5.15.83
SE +/- 1.57, N = 3
252393.88
Linux 6.1
SE +/- 12.63, N = 3
252372.29
50K
100K
150K
200K
250K
1. (CC) gcc options: -O2 -std=gnu99 -lm -fuse-ld=gold -laio -lapparmor -latomic -lbsd -lc -lcrypt -ldl -lEGL -lGLESv2 -ljpeg -lrt -lsctp -lz -pthread
Stress-NG 0.14.06
Test: Memory Copying
Bogo Ops/s, More Is Better
Linux 5.10.130
SE +/- 31.35, N = 3
4201.02
Linux 5.15.83
SE +/- 42.48, N = 3
4129.34
Linux 6.1
SE +/- 29.72, N = 3
4181.80
900
1800
2700
3600
4500
1. (CC) gcc options: -O2 -std=gnu99 -lm -fuse-ld=gold -laio -lapparmor -latomic -lbsd -lc -lcrypt -ldl -lEGL -lGLESv2 -ljpeg -lrt -lsctp -lz -pthread
Stress-NG 0.14.06
Test: Socket Activity
Bogo Ops/s, More Is Better
Linux 5.10.130
SE +/- 302.66, N = 15
10160.91
Linux 5.15.83
SE +/- 80.02, N = 3
17786.17
Linux 6.1
SE +/- 112.51, N = 3
16990.75
4K
8K
12K
16K
20K
1. (CC) gcc options: -O2 -std=gnu99 -lm -fuse-ld=gold -laio -lapparmor -latomic -lbsd -lc -lcrypt -ldl -lEGL -lGLESv2 -ljpeg -lrt -lsctp -lz -pthread


Stress-NG 0.14.06
Test: Context Switching
Bogo Ops/s, More Is Better
Linux 5.10.130
SE +/- 72191.04, N = 3
5500706.76
Linux 5.15.83
SE +/- 7040.94, N = 3
2284154.16
Linux 6.1
SE +/- 3492.53, N = 3
2054658.64
1.2M
2.4M
3.6M
4.8M
6M
1. (CC) gcc options: -O2 -std=gnu99 -lm -fuse-ld=gold -laio -lapparmor -latomic -lbsd -lc -lcrypt -ldl -lEGL -lGLESv2 -ljpeg -lrt -lsctp -lz -pthread
Stress-NG 0.14.06
Test: Glibc C String Functions
Bogo Ops/s, More Is Better
Linux 5.10.130
SE +/- 6508.49, N = 3
911917.94
Linux 5.15.83
SE +/- 3709.52, N = 3
916397.13
Linux 6.1
SE +/- 8664.27, N = 3
916843.52
200K
400K
600K
800K
1000K
1. (CC) gcc options: -O2 -std=gnu99 -lm -fuse-ld=gold -laio -lapparmor -latomic -lbsd -lc -lcrypt -ldl -lEGL -lGLESv2 -ljpeg -lrt -lsctp -lz -pthread
Stress-NG 0.14.06
Test: Glibc Qsort Data Sorting
Bogo Ops/s, More Is Better
Linux 5.10.130
SE +/- 1.58, N = 3
194.36
Linux 5.15.83
SE +/- 1.18, N = 3
194.88
Linux 6.1
SE +/- 1.25, N = 3
194.30
40
80
120
160
200
1. (CC) gcc options: -O2 -std=gnu99 -lm -fuse-ld=gold -laio -lapparmor -latomic -lbsd -lc -lcrypt -ldl -lEGL -lGLESv2 -ljpeg -lrt -lsctp -lz -pthread

Stress-NG 0.14.06

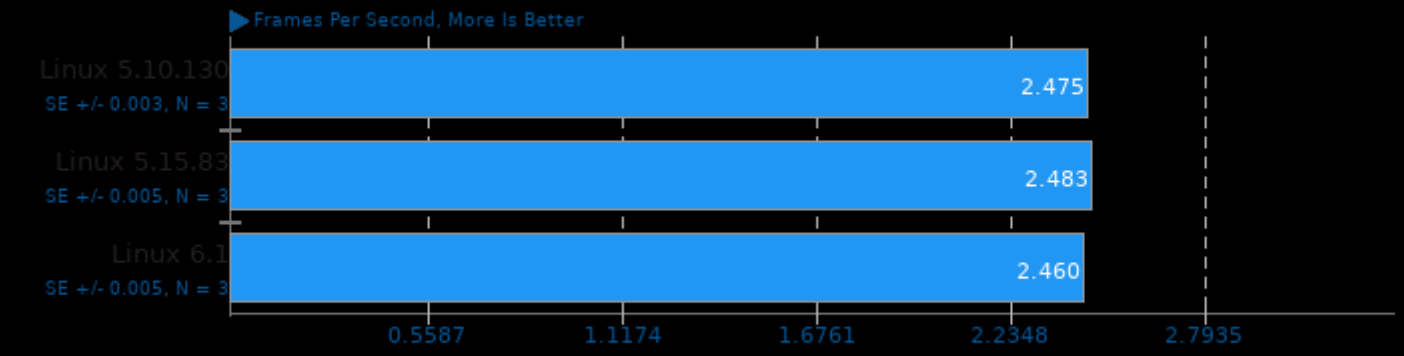
Test: System V Message Passing



1. (CC) gcc options: -O2 -std=gnu99 -lm -fuse-ld=gold -laio -lapparmor -latomic -lbsd -lc -lcrypt -ldl -lEGL -lGLESv2 -ljpeg -lrt -lsctp -lz -pthread

SVT-AV1 1.4

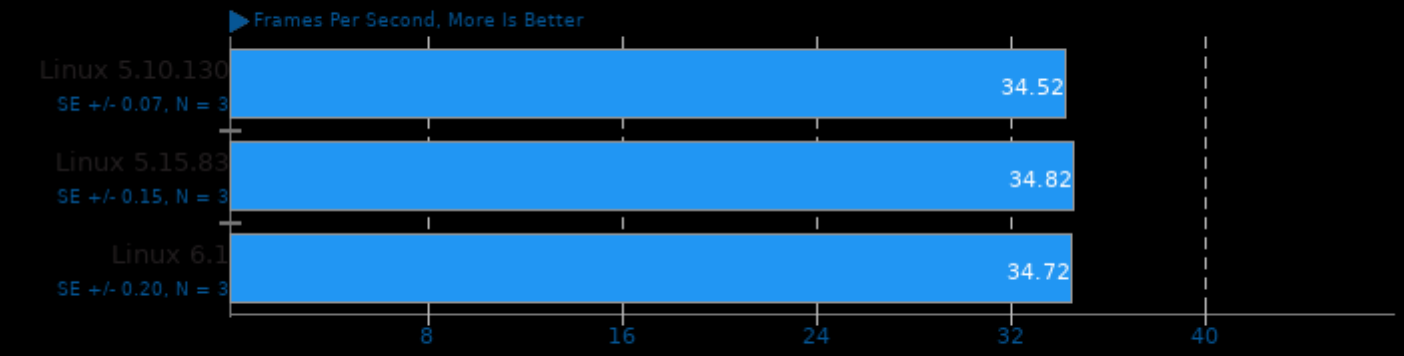
Encoder Mode: Preset 4 - Input: Bosphorus 4K



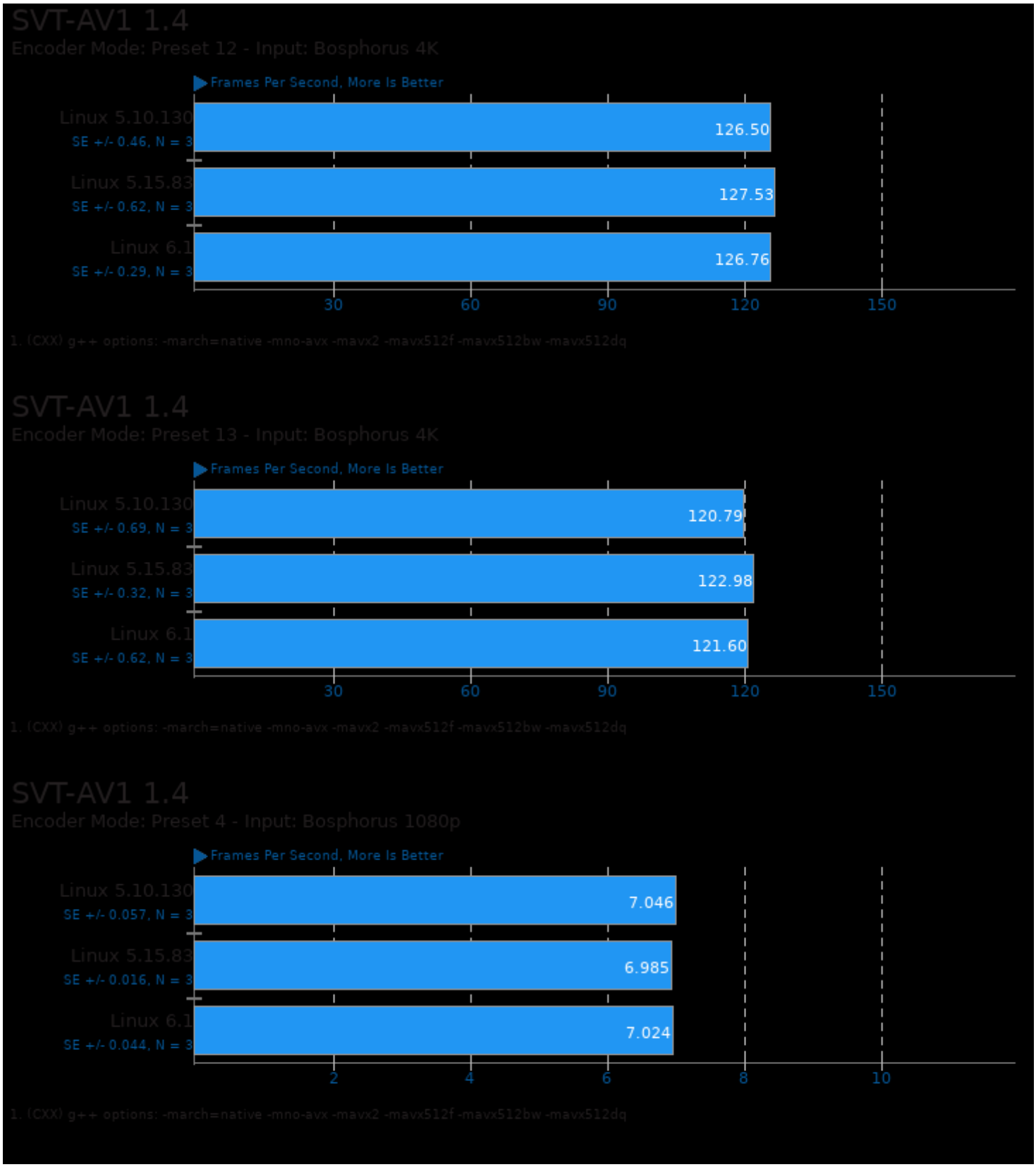
1. (CXX) g++ options: -march=native -mno-avx -mavx2 -mavx512f -mavx512bw -mavx512dq

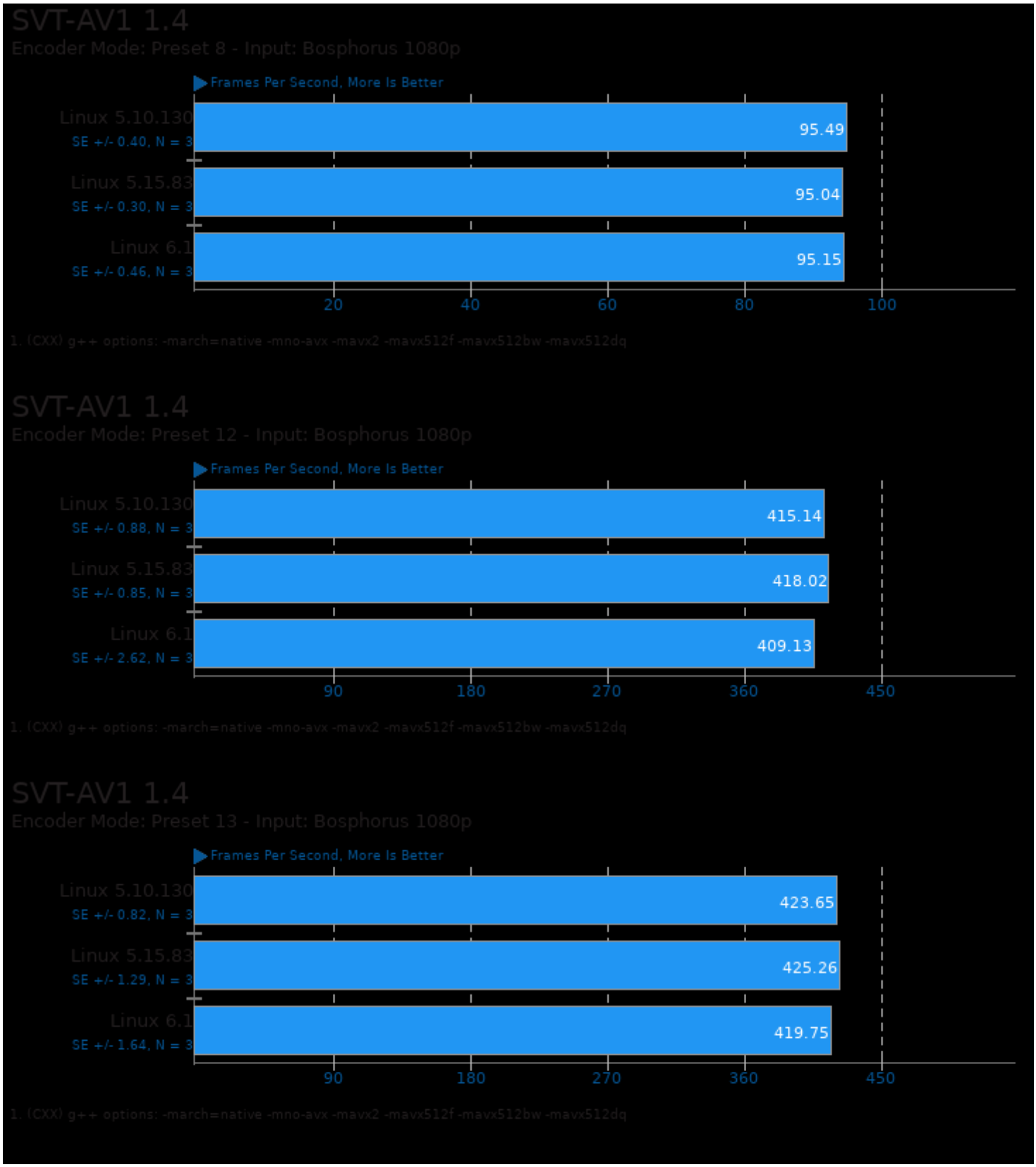
SVT-AV1 1.4

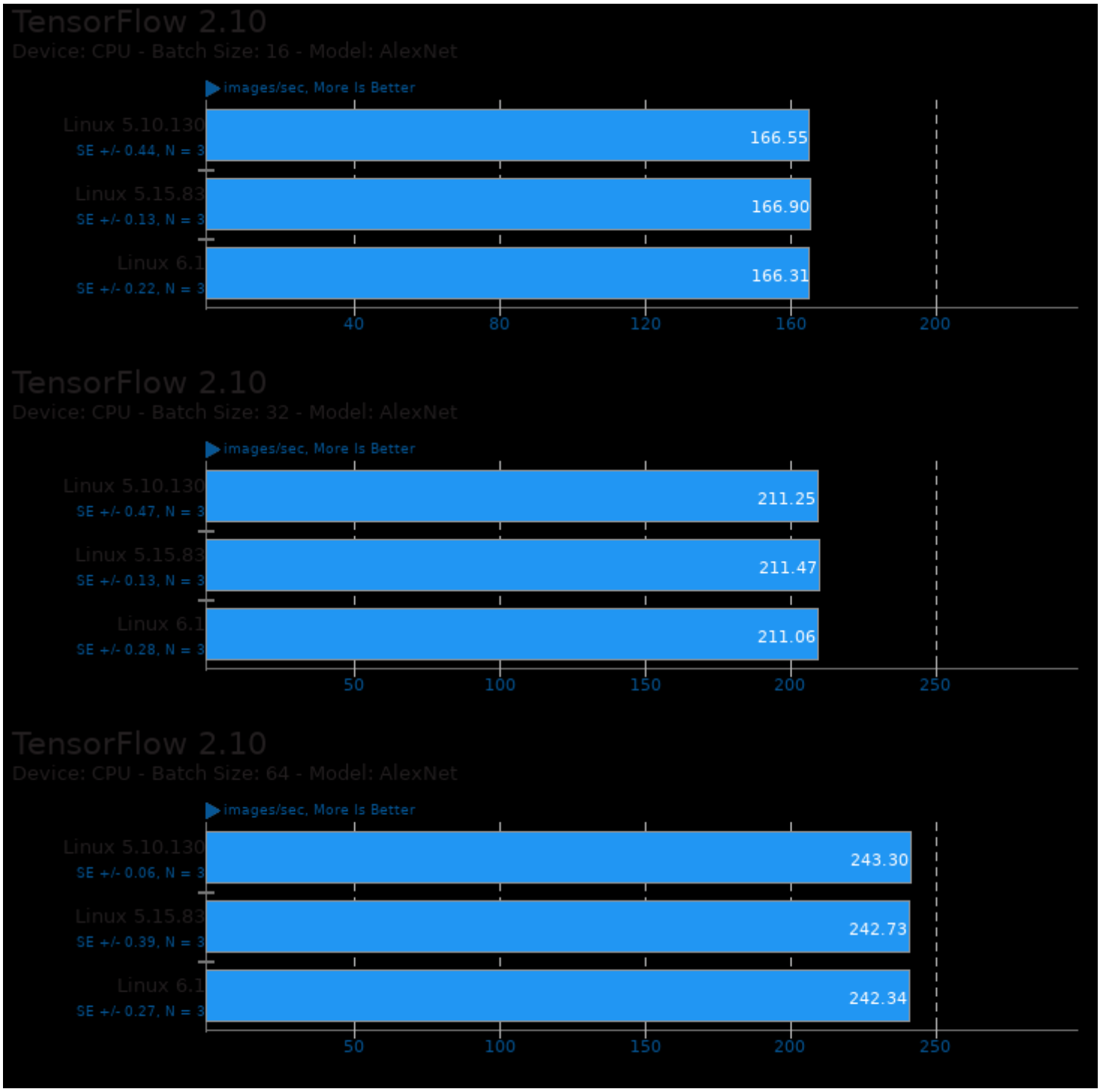
Encoder Mode: Preset 8 - Input: Bosphorus 4K

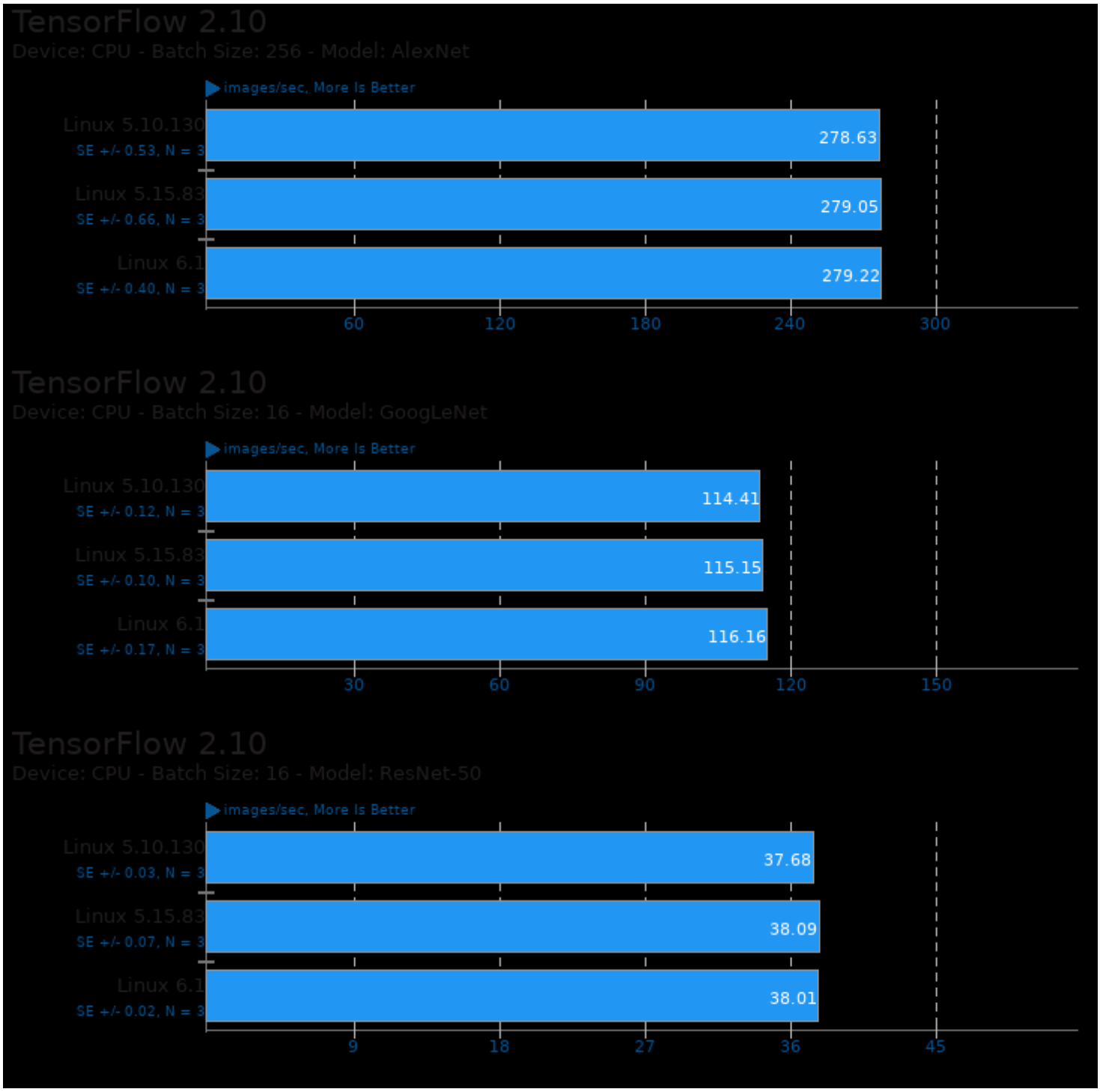


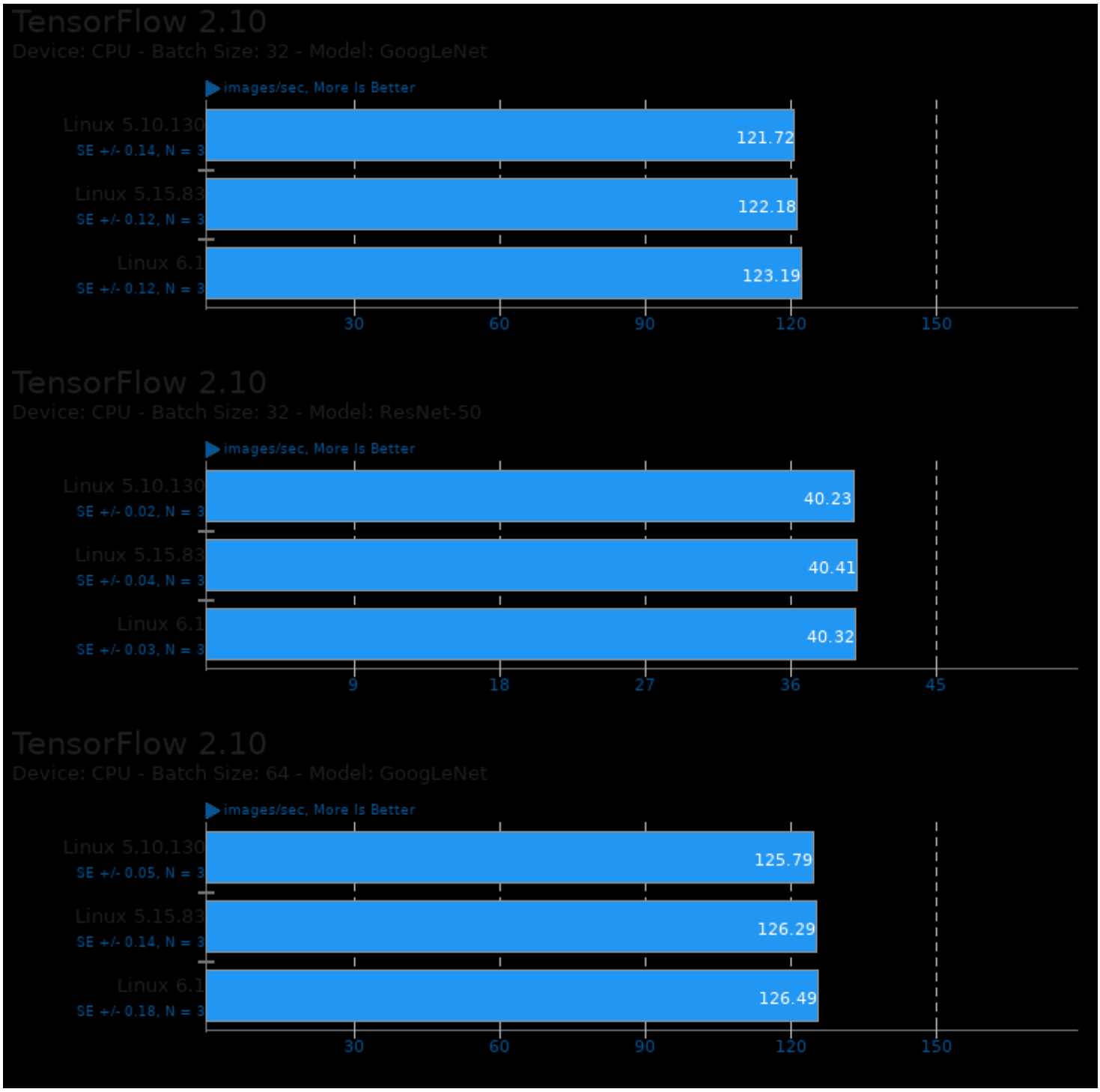
1. (CXX) g++ options: -march=native -mno-avx -mavx2 -mavx512f -mavx512bw -mavx512dq

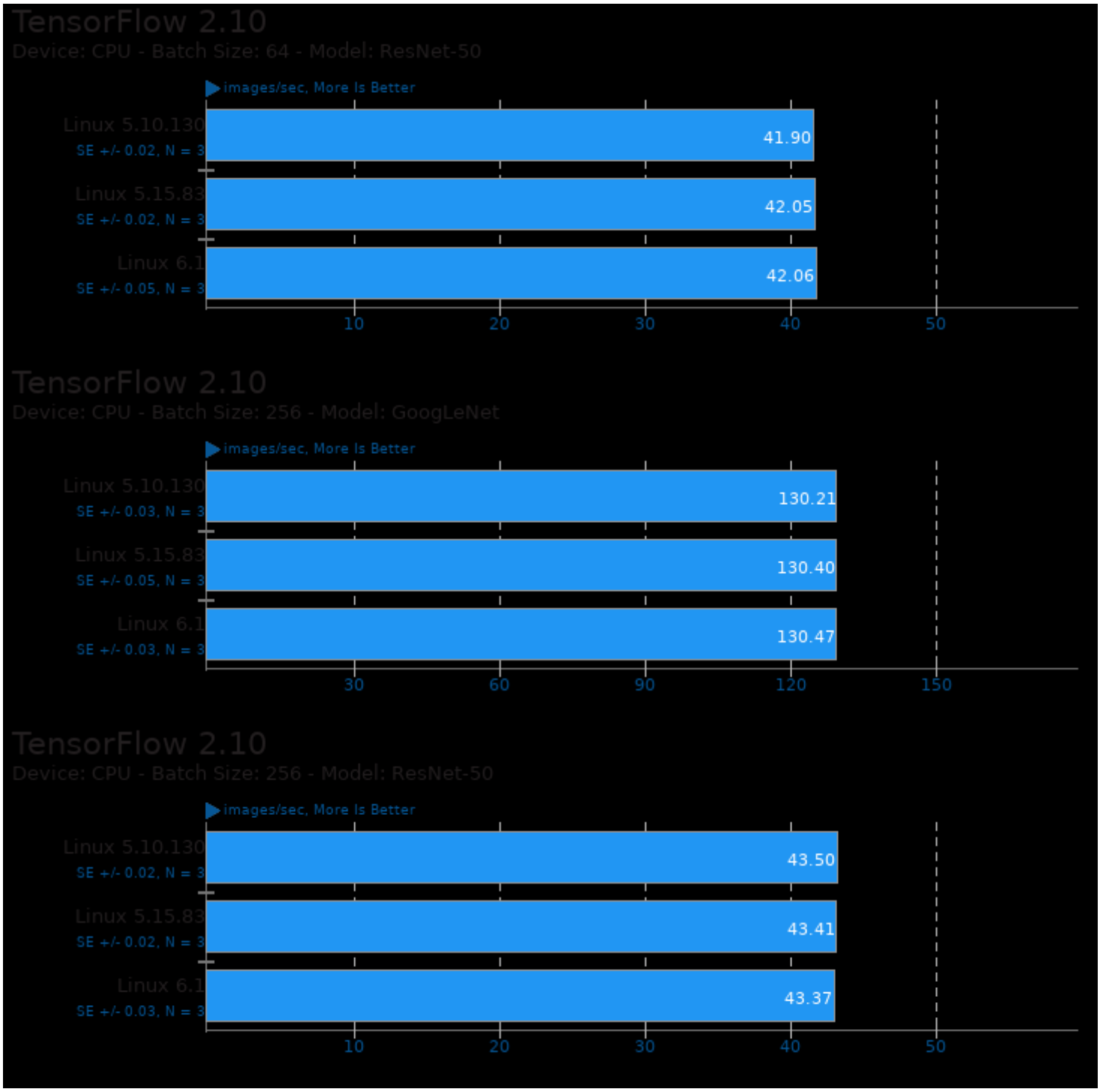

SVT-AV1 1.4
Encoder Mode: Preset 12 - Input: Bosphorus 4K
Frames Per Second, More Is Better
Linux 5.10.130
SE +/- 0.46, N = 3
126.50
Linux 5.15.83
SE +/- 0.62, N = 3
127.53
Linux 6.1
SE +/- 0.29, N = 3
126.76
30
60
90
120
150
1. (CXX) g++ options: -march=native -mno-avx -mavx2 -mavx512f -mavx512bw -mavx512dq
SVT-AV1 1.4
Encoder Mode: Preset 13 - Input: Bosphorus 4K
Frames Per Second, More Is Better
Linux 5.10.130
SE +/- 0.69, N = 3
120.79
Linux 5.15.83
SE +/- 0.32, N = 3
122.98
Linux 6.1
SE +/- 0.62, N = 3
121.60
30
60
90
120
150
1. (CXX) g++ options: -march=native -mno-avx -mavx2 -mavx512f -mavx512bw -mavx512dq
SVT-AV1 1.4
Encoder Mode: Preset 4 - Input: Bosphorus 1080p
Frames Per Second, More Is Better
Linux 5.10.130
SE +/- 0.057, N = 3
7.046
Linux 5.15.83
SE +/- 0.016, N = 3
6.985
Linux 6.1
SE +/- 0.044, N = 3
7.024
2
4
6
8
10
1. (CXX) g++ options: -march=native -mno-avx -mavx2 -mavx512f -mavx512bw -mavx512dq

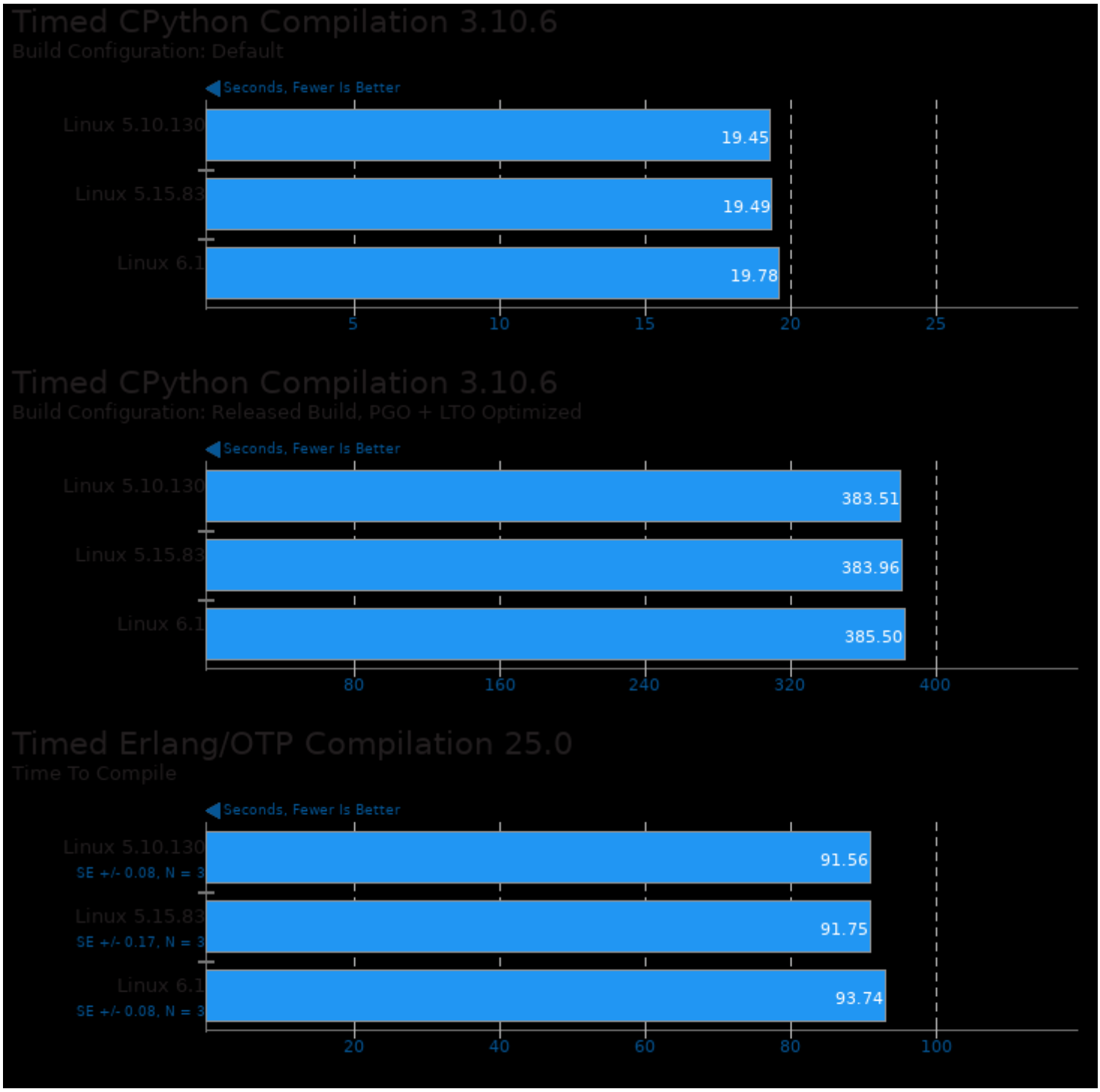

SVT-AV1 1.4
Encoder Mode: Preset 8 - Input: Bosphorus 1080p
Frames Per Second, More Is Better
Linux 5.10.130
SE +/- 0.40, N = 3
95.49
Linux 5.15.83
SE +/- 0.30, N = 3
95.04
Linux 6.1
SE +/- 0.46, N = 3
95.15
20
40
60
80
100
1. (CXX) g++ options: -march=native -mno-avx -mavx2 -mavx512f -mavx512bw -mavx512dq
SVT-AV1 1.4
Encoder Mode: Preset 12 - Input: Bosphorus 1080p
Frames Per Second, More Is Better
Linux 5.10.130
SE +/- 0.88, N = 3
415.14
Linux 5.15.83
SE +/- 0.85, N = 3
418.02
Linux 6.1
SE +/- 2.62, N = 3
409.13
90
180
270
360
450
1. (CXX) g++ options: -march=native -mno-avx -mavx2 -mavx512f -mavx512bw -mavx512dq
SVT-AV1 1.4
Encoder Mode: Preset 13 - Input: Bosphorus 1080p
Frames Per Second, More Is Better
Linux 5.10.130
SE +/- 0.82, N = 3
423.65
Linux 5.15.83
SE +/- 1.29, N = 3
425.26
Linux 6.1
SE +/- 1.64, N = 3
419.75
90
180
270
360
450
1. (CXX) g++ options: -march=native -mno-avx -mavx2 -mavx512f -mavx512bw -mavx512dq

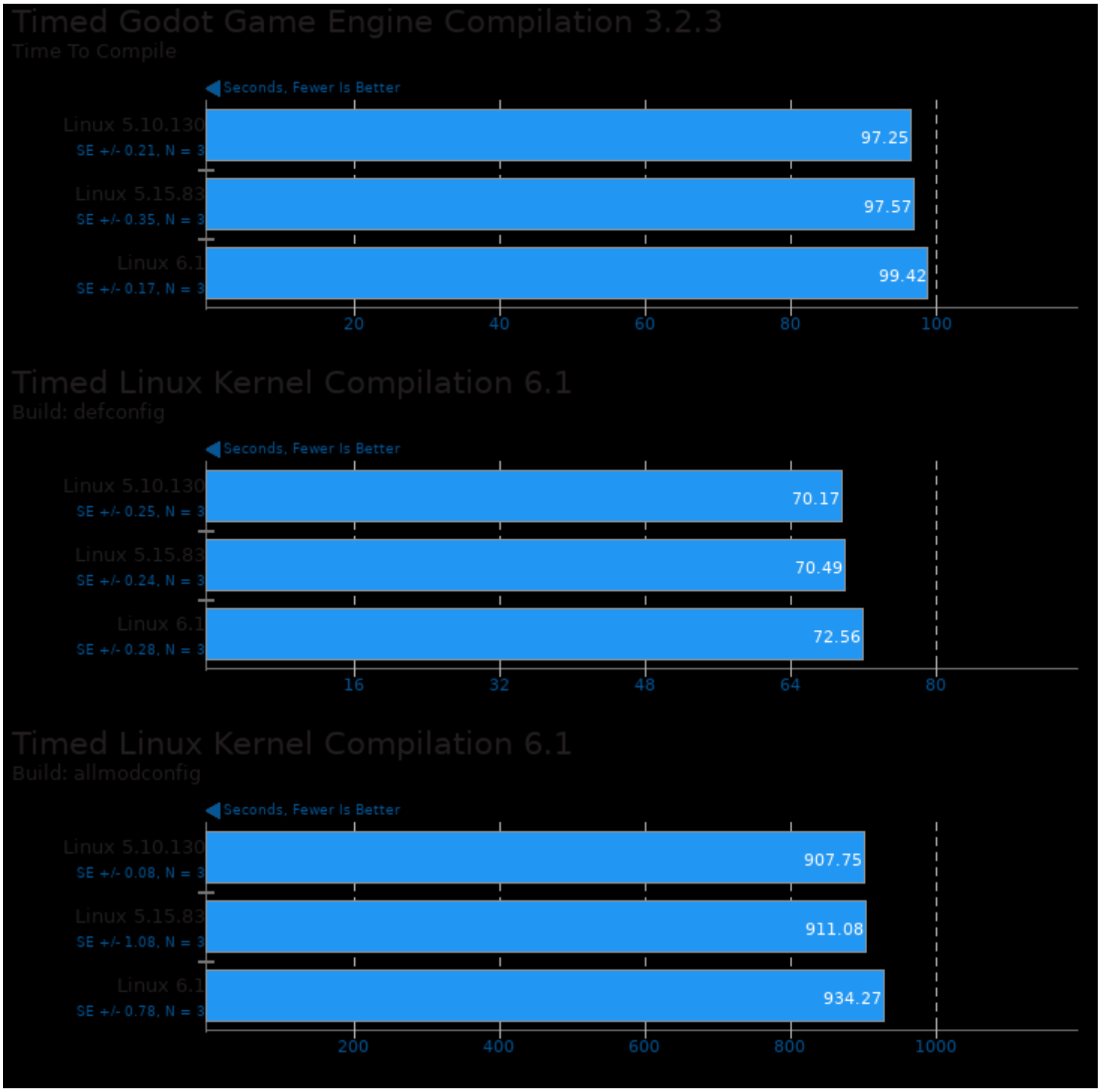

TensorFlow 2.10
Device: CPU - Batch Size: 16 - Model: AlexNet
images/sec, More Is Better
Linux 5.10.130
SE +/- 0.44, N = 3
166.55
Linux 5.15.83
SE +/- 0.13, N = 3
166.90
Linux 6.1
SE +/- 0.22, N = 3
166.31
40
80
120
160
200
TensorFlow 2.10
Device: CPU - Batch Size: 32 - Model: AlexNet
images/sec, More Is Better
Linux 5.10.130
SE +/- 0.47, N = 3
211.25
Linux 5.15.83
SE +/- 0.13, N = 3
211.47
Linux 6.1
SE +/- 0.28, N = 3
211.06
50
100
150
200
250
TensorFlow 2.10
Device: CPU - Batch Size: 64 - Model: AlexNet
images/sec, More Is Better
Linux 5.10.130
SE +/- 0.06, N = 3
243.30
Linux 5.15.83
SE +/- 0.39, N = 3
242.73
Linux 6.1
SE +/- 0.27, N = 3
242.34
50
100
150
200
250

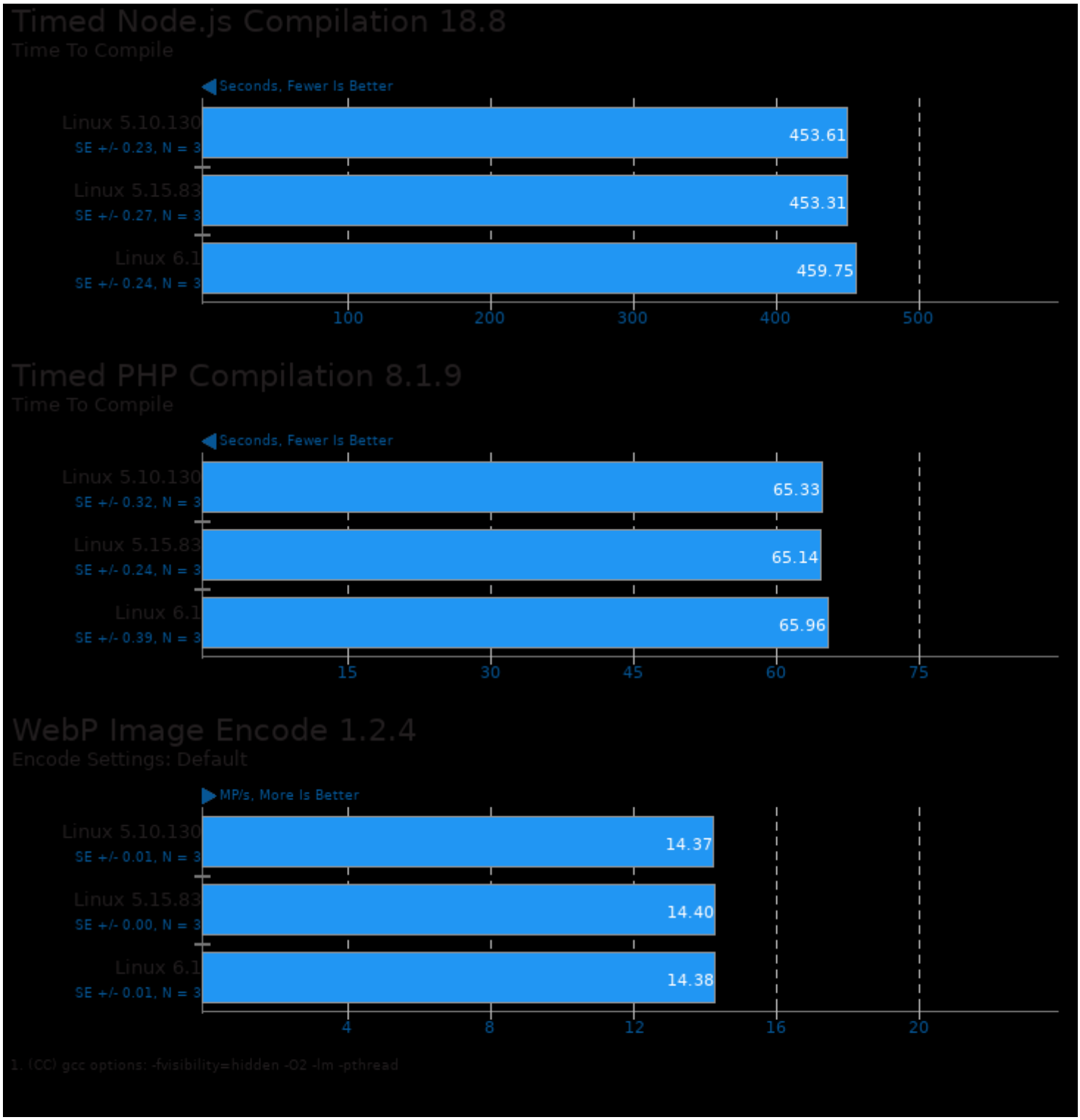

TensorFlow 2.10
Device: CPU - Batch Size: 256 - Model: AlexNet
images/sec, More Is Better
Linux 5.10.130
SE +/- 0.53, N = 3
278.63
Linux 5.15.83
SE +/- 0.66, N = 3
279.05
Linux 6.1
SE +/- 0.40, N = 3
279.22
60
120
180
240
300
TensorFlow 2.10
Device: CPU - Batch Size: 16 - Model: GoogLeNet
images/sec, More Is Better
Linux 5.10.130
SE +/- 0.12, N = 3
114.41
Linux 5.15.83
SE +/- 0.10, N = 3
115.15
Linux 6.1
SE +/- 0.17, N = 3
116.16
30
60
90
120
150
TensorFlow 2.10
Device: CPU - Batch Size: 16 - Model: ResNet-50
images/sec, More Is Better
Linux 5.10.130
SE +/- 0.03, N = 3
37.68
Linux 5.15.83
SE +/- 0.07, N = 3
38.09
Linux 6.1
SE +/- 0.02, N = 3
38.01
9
18
27
36
45

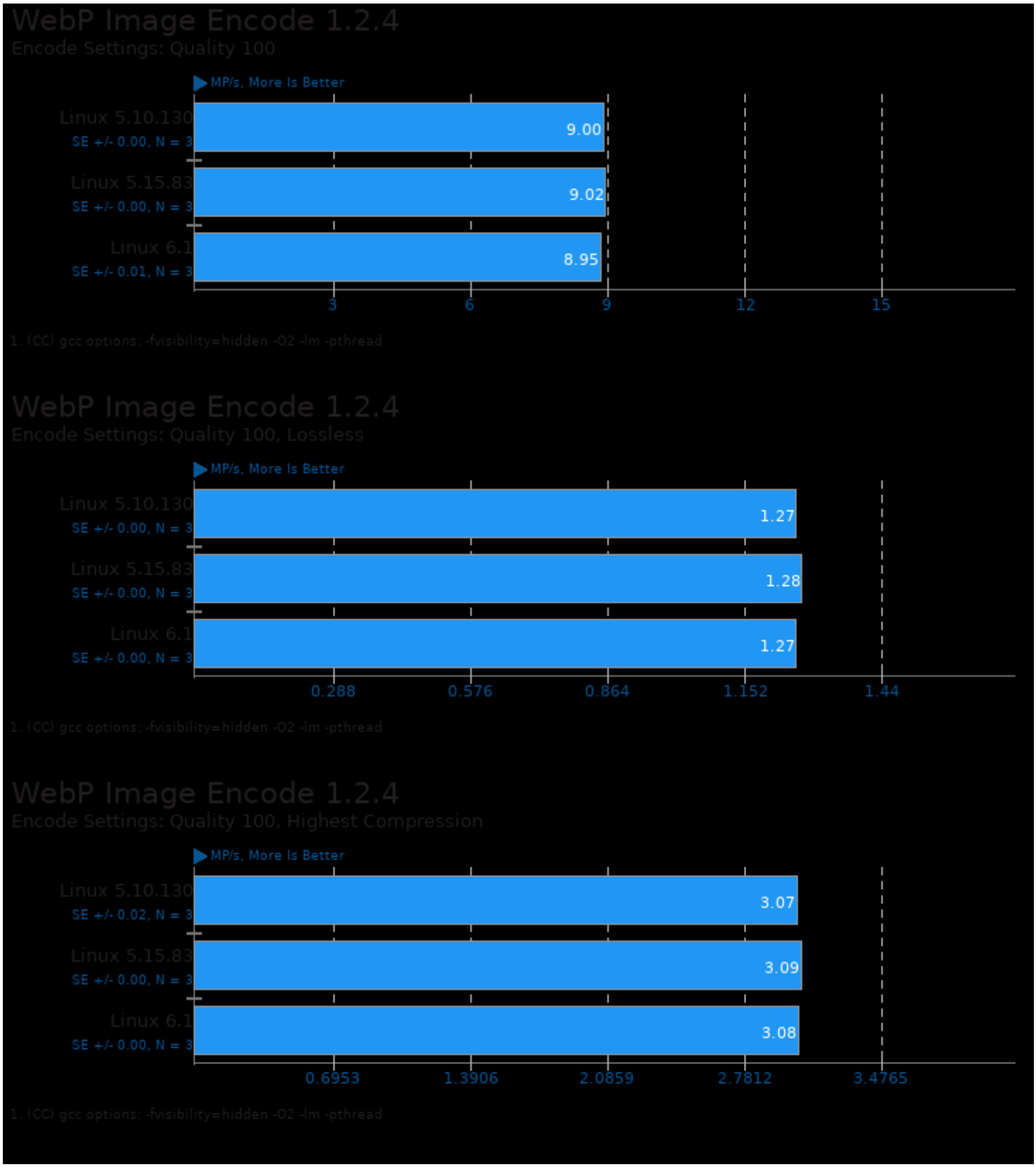

TensorFlow 2.10
Device: CPU - Batch Size: 32 - Model: GoogLeNet
images/sec, More Is Better
Linux 5.10.130
SE +/- 0.14, N = 3
121.72
Linux 5.15.83
SE +/- 0.12, N = 3
122.18
Linux 6.1
SE +/- 0.12, N = 3
123.19
30
60
90
120
150
TensorFlow 2.10
Device: CPU - Batch Size: 32 - Model: ResNet-50
images/sec, More Is Better
Linux 5.10.130
SE +/- 0.02, N = 3
40.23
Linux 5.15.83
SE +/- 0.04, N = 3
40.41
Linux 6.1
SE +/- 0.03, N = 3
40.32
9
18
27
36
45
TensorFlow 2.10
Device: CPU - Batch Size: 64 - Model: GoogLeNet
images/sec, More Is Better
Linux 5.10.130
SE +/- 0.05, N = 3
125.79
Linux 5.15.83
SE +/- 0.14, N = 3
126.29
Linux 6.1
SE +/- 0.18, N = 3
126.49
30
60
90
120
150


TensorFlow 2.10
Device: CPU - Batch Size: 64 - Model: ResNet-50
images/sec, More Is Better
Linux 5.10.130
SE +/- 0.02, N = 3
41.90
Linux 5.15.83
SE +/- 0.02, N = 3
42.05
Linux 6.1
SE +/- 0.05, N = 3
42.06
10
20
30
40
50
TensorFlow 2.10
Device: CPU - Batch Size: 256 - Model: GoogLeNet
images/sec, More Is Better
Linux 5.10.130
SE +/- 0.03, N = 3
130.21
Linux 5.15.83
SE +/- 0.05, N = 3
130.40
Linux 6.1
SE +/- 0.03, N = 3
130.47
30
60
90
120
150
TensorFlow 2.10
Device: CPU - Batch Size: 256 - Model: ResNet-50
images/sec, More Is Better
Linux 5.10.130
SE +/- 0.02, N = 3
43.50
Linux 5.15.83
SE +/- 0.02, N = 3
43.41
Linux 6.1
SE +/- 0.03, N = 3
43.37
10
20
30
40
50


Timed CPython Compilation 3.10.6
Build Configuration: Default
Seconds, Fewer Is Better
Linux 5.10.130
19.45
Linux 5.15.83
19.49
Linux 6.1
19.78
5
10
15
20
25
Timed CPython Compilation 3.10.6
Build Configuration: Released Build, PGO + LTO Optimized
Seconds, Fewer Is Better
Linux 5.10.130
383.51
Linux 5.15.83
383.96
Linux 6.1
385.50
80
160
240
320
400
Timed Erlang/OTP Compilation 25.0
Time To Compile
Seconds, Fewer Is Better
Linux 5.10.130
SE +/- 0.08, N = 3
91.56
Linux 5.15.83
SE +/- 0.17, N = 3
91.75
Linux 6.1
SE +/- 0.08, N = 3
93.74
20
40
60
80
100

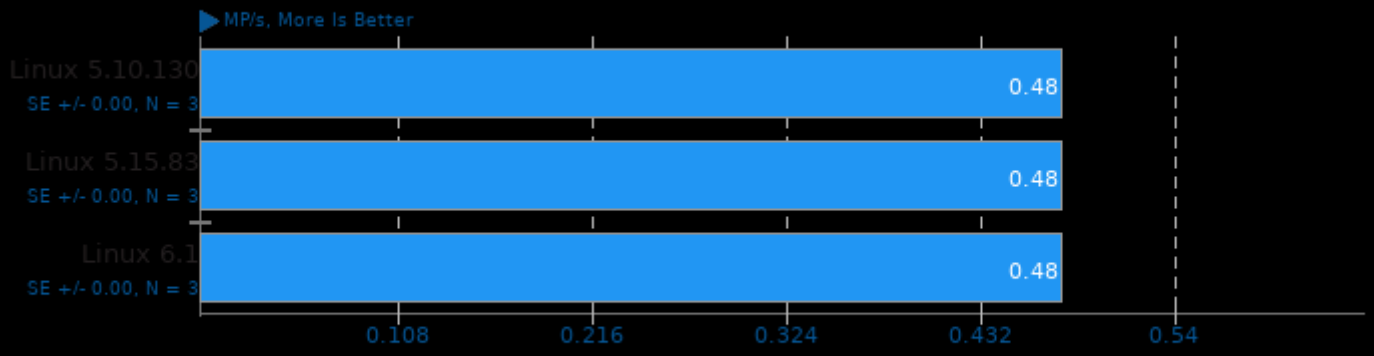

Timed Godot Game Engine Compilation 3.2.3
Time To Compile
Seconds, Fewer Is Better
Linux 5.10.130
SE +/- 0.21, N = 3
97.25
Linux 5.15.83
SE +/- 0.35, N = 3
97.57
Linux 6.1
SE +/- 0.17, N = 3
99.42
20
40
60
80
100
Timed Linux Kernel Compilation 6.1
Build: defconfig
Seconds, Fewer Is Better
Linux 5.10.130
SE +/- 0.25, N = 3
70.17
Linux 5.15.83
SE +/- 0.24, N = 3
70.49
Linux 6.1
SE +/- 0.28, N = 3
72.56
16
32
48
64
80
Timed Linux Kernel Compilation 6.1
Build: allmodconfig
Seconds, Fewer Is Better
Linux 5.10.130
SE +/- 0.08, N = 3
907.75
Linux 5.15.83
SE +/- 1.08, N = 3
911.08
Linux 6.1
SE +/- 0.78, N = 3
934.27
200
400
600
800
1000


Timed Node.js Compilation 18.8
Time To Compile
Seconds, Fewer Is Better
Linux 5.10.130
SE +/- 0.23, N = 3
453.61
Linux 5.15.83
SE +/- 0.27, N = 3
453.31
Linux 6.1
SE +/- 0.24, N = 3
459.75
100
200
300
400
500
Timed PHP Compilation 8.1.9
Time To Compile
Seconds, Fewer Is Better
Linux 5.10.130
SE +/- 0.32, N = 3
65.33
Linux 5.15.83
SE +/- 0.24, N = 3
65.14
Linux 6.1
SE +/- 0.39, N = 3
65.96
15
30
45
60
75
WebP Image Encode 1.2.4
Encode Settings: Default
MP/s, More Is Better
Linux 5.10.130
SE +/- 0.01, N = 3
14.37
Linux 5.15.83
SE +/- 0.00, N = 3
14.40
Linux 6.1
SE +/- 0.01, N = 3
14.38
4
8
12
16
20
1. (CC) gcc options: -fvisibility=hidden -O2 -lm -pthread


WebP Image Encode 1.2.4
Encode Settings: Quality 100
MP/s, More Is Better
Linux 5.10.130
SE +/- 0.00, N = 3
9.00
Linux 5.15.83
SE +/- 0.00, N = 3
9.02
Linux 6.1
SE +/- 0.01, N = 3
8.95
3
6
9
12
15
1. (CC) gcc options: -fvisibility=hidden -O2 -lm -pthread
WebP Image Encode 1.2.4
Encode Settings: Quality 100, Lossless
MP/s, More Is Better
Linux 5.10.130
SE +/- 0.00, N = 3
1.27
Linux 5.15.83
SE +/- 0.00, N = 3
1.28
Linux 6.1
SE +/- 0.00, N = 3
1.27
0.288
0.576
0.864
1.152
1.44
1. (CC) gcc options: -fvisibility=hidden -O2 -lm -pthread
WebP Image Encode 1.2.4
Encode Settings: Quality 100, Highest Compression
MP/s, More Is Better
Linux 5.10.130
SE +/- 0.02, N = 3
3.07
Linux 5.15.83
SE +/- 0.00, N = 3
3.09
Linux 6.1
SE +/- 0.00, N = 3
3.08
0.6953
1.3906
2.0859
2.7812
3.4765
1. (CC) gcc options: -fvisibility=hidden -O2 -lm -pthread

WebP Image Encode 1.2.4

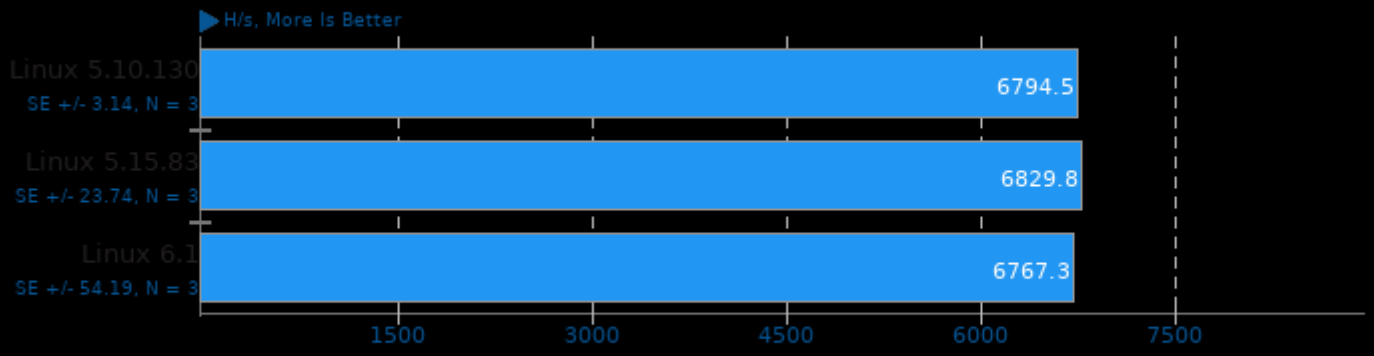
Encode Settings: Quality 100, Lossless, Highest Compression



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

Xmrig 6.18.1

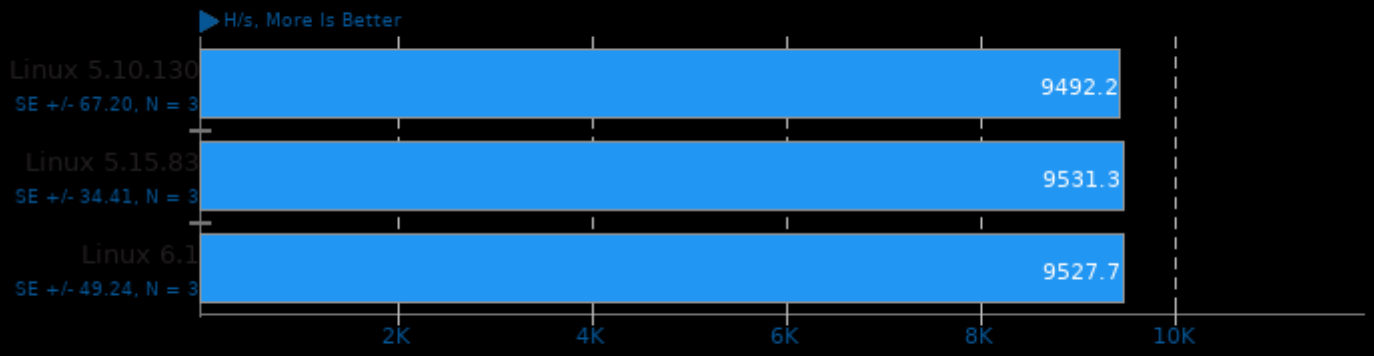
Variant: Monero - Hash Count: 1M



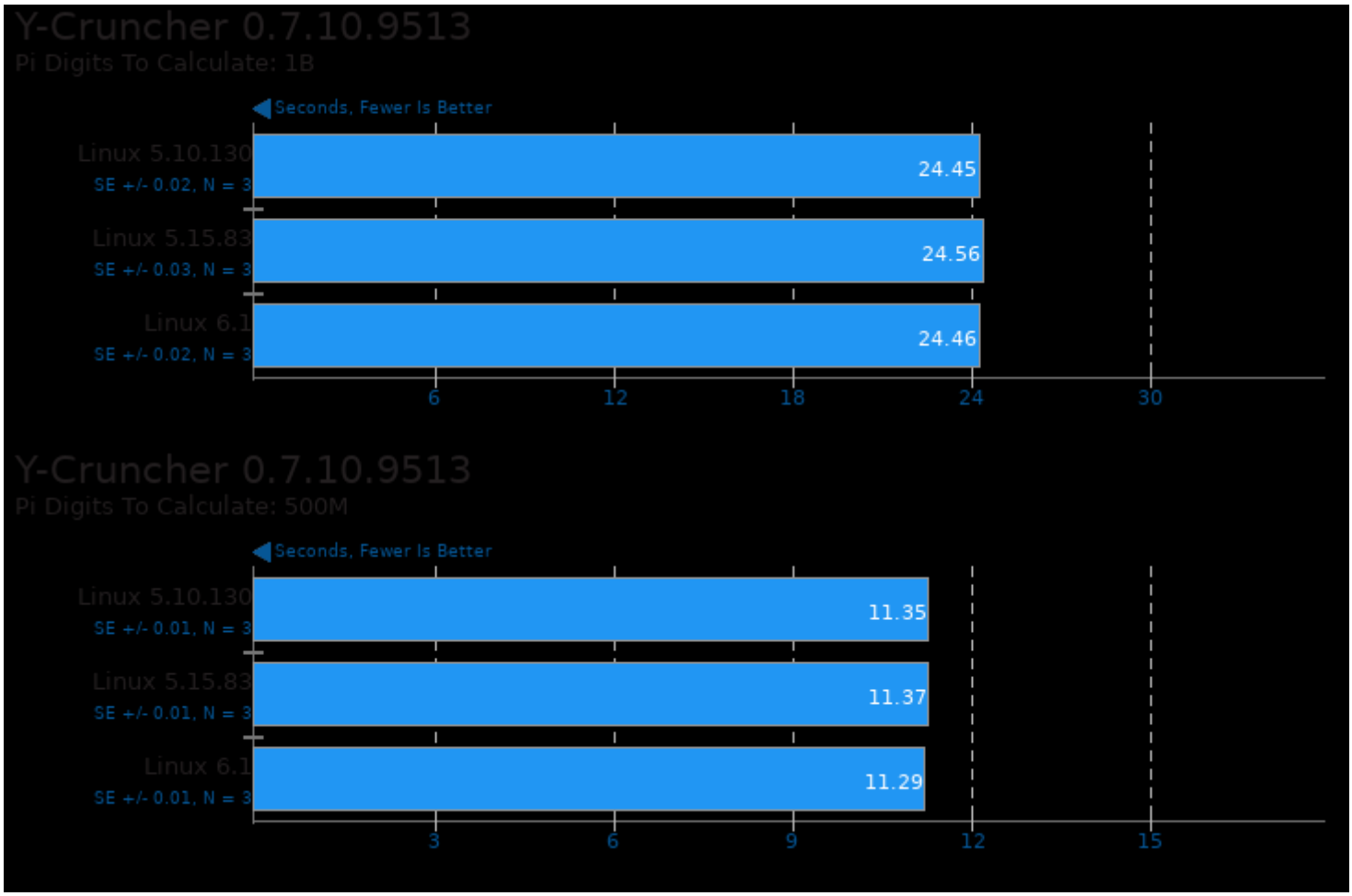
1. (CXX) g++ options: -fexceptions -fno-rtti -maes -O3 -Ofast -static-libgcc -static-libstdc++ -rdynamic -lssl -lcrypto -luv -lpthread -lrt -ldl -lhwloc

Xmrig 6.18.1

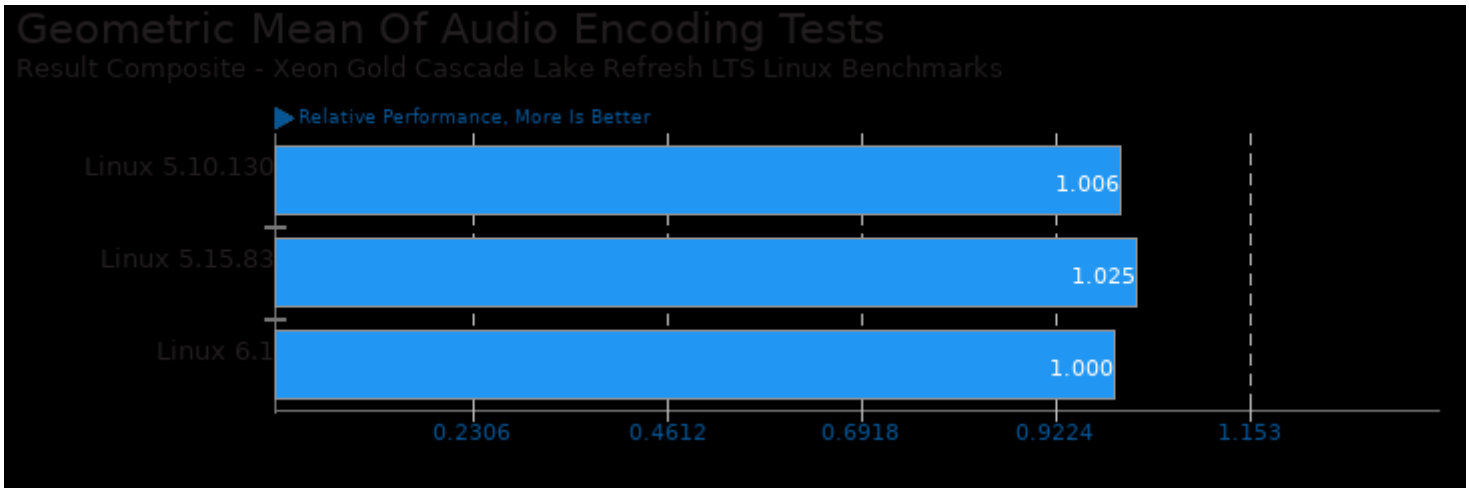
Variant: Wownero - Hash Count: 1M



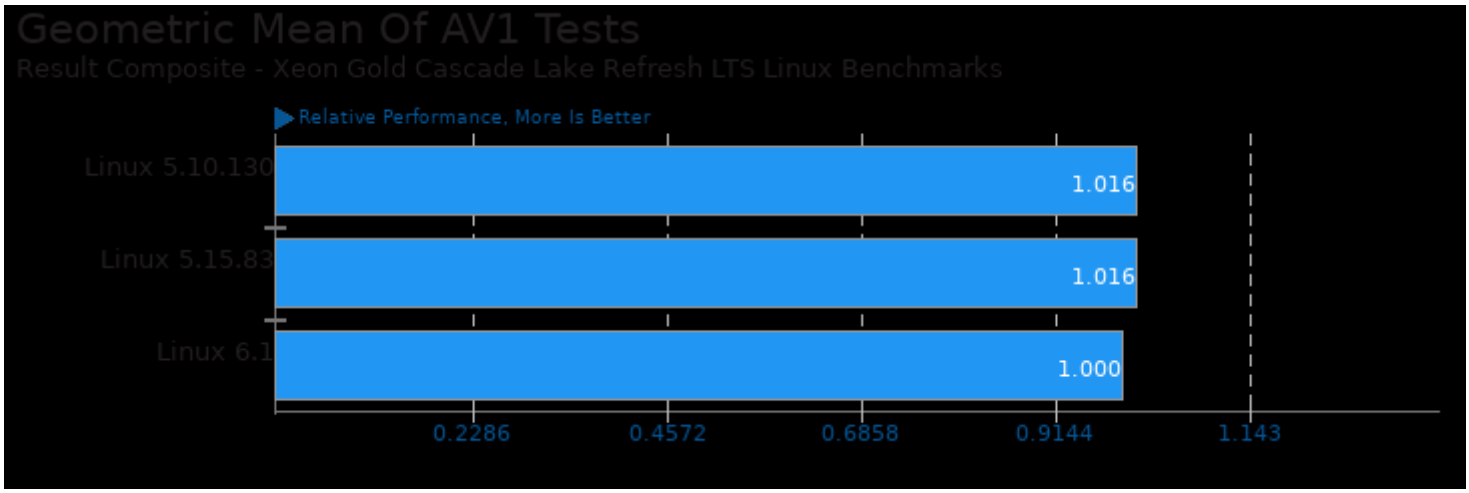
1. (CXX) g++ options: -fexceptions -fno-rtti -maes -O3 -Ofast -static-libgcc -static-libstdc++ -rdynamic -lssl -lcrypto -luv -lpthread -lrt -ldl -lhwloc


Y-Cruncher 0.7.10.9513
Pi Digits To Calculate: 1B
Seconds, Fewer Is Better
Linux 5.10.130
SE +/- 0.02, N = 3
24.45
Linux 5.15.83
SE +/- 0.03, N = 3
24.56
Linux 6.1
SE +/- 0.02, N = 3
24.46
6
12
18
24
30
Y-Cruncher 0.7.10.9513
Pi Digits To Calculate: 500M
Seconds, Fewer Is Better
Linux 5.10.130
SE +/- 0.01, N = 3
11.35
Linux 5.15.83
SE +/- 0.01, N = 3
11.37
Linux 6.1
SE +/- 0.01, N = 3
11.29
3
6
9
12
15

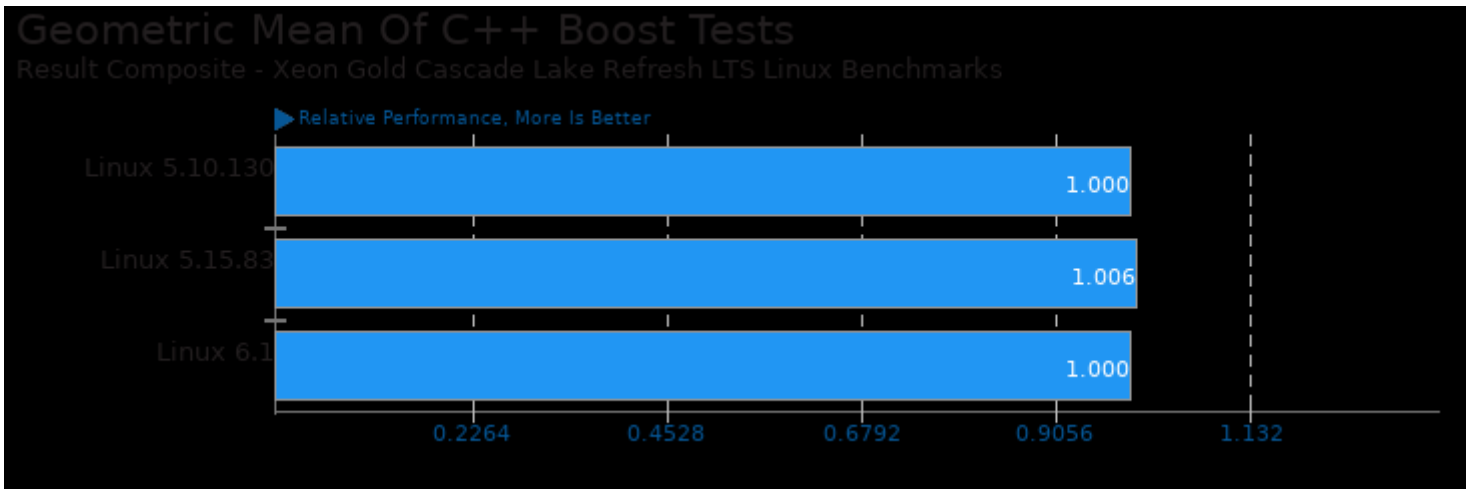
These geometric means are based upon test groupings / test suites for this result file.



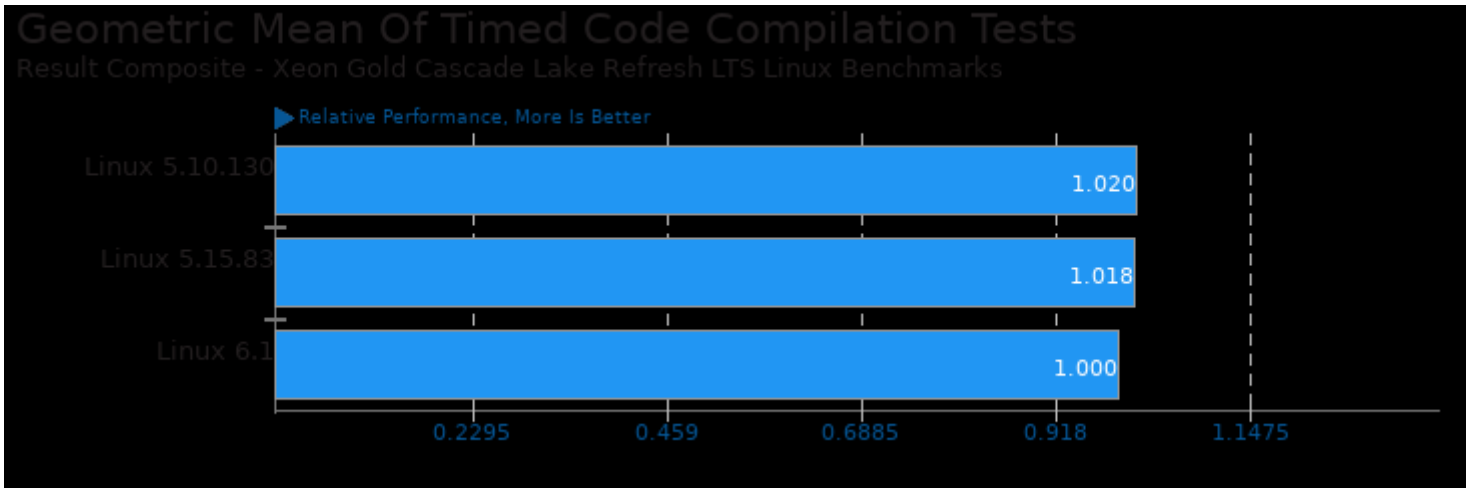
Geometric mean based upon tests: pts/encode-flac and pts/stargate



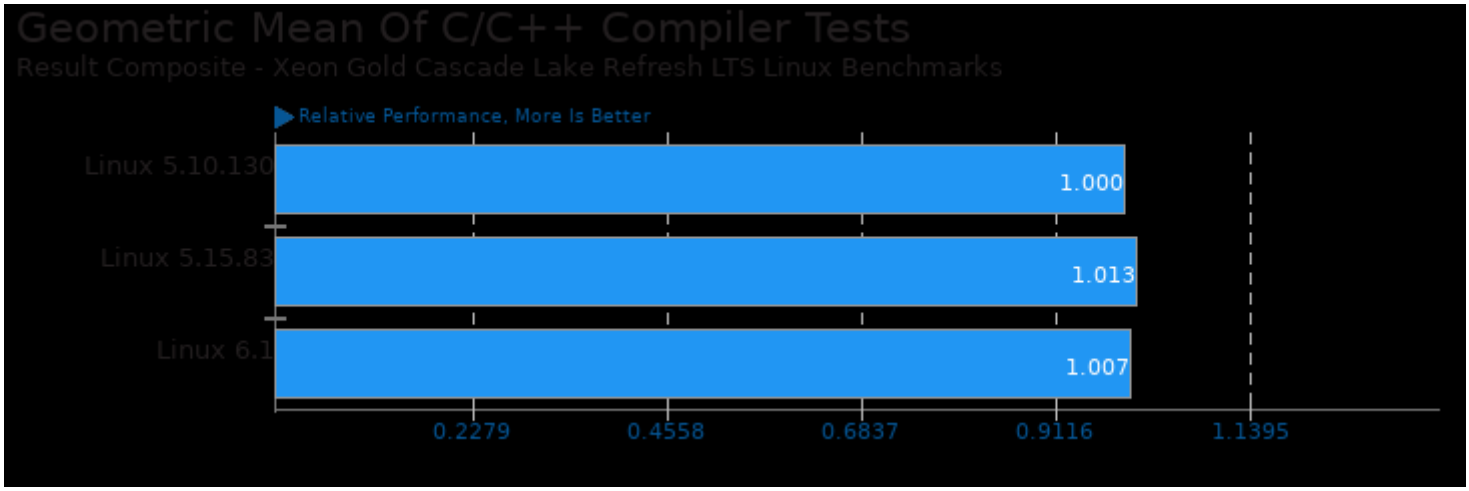
Geometric mean based upon tests: pts/aom-av1, pts/svt-av1 and pts/avifenc



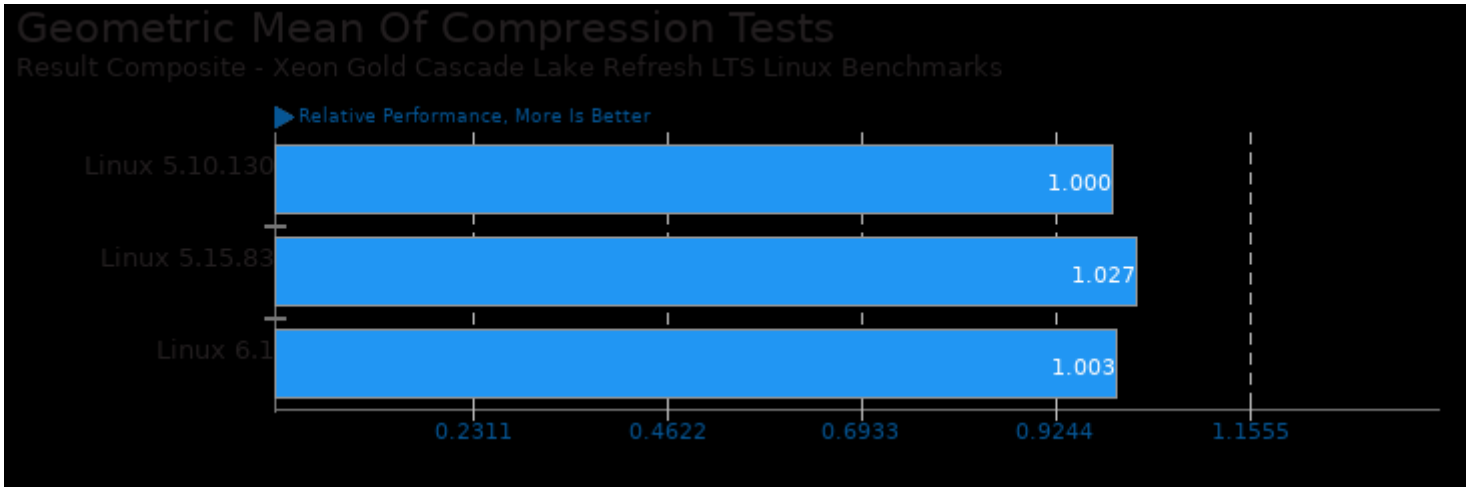
Geometric mean based upon tests: pts/openfoam and pts/srsran



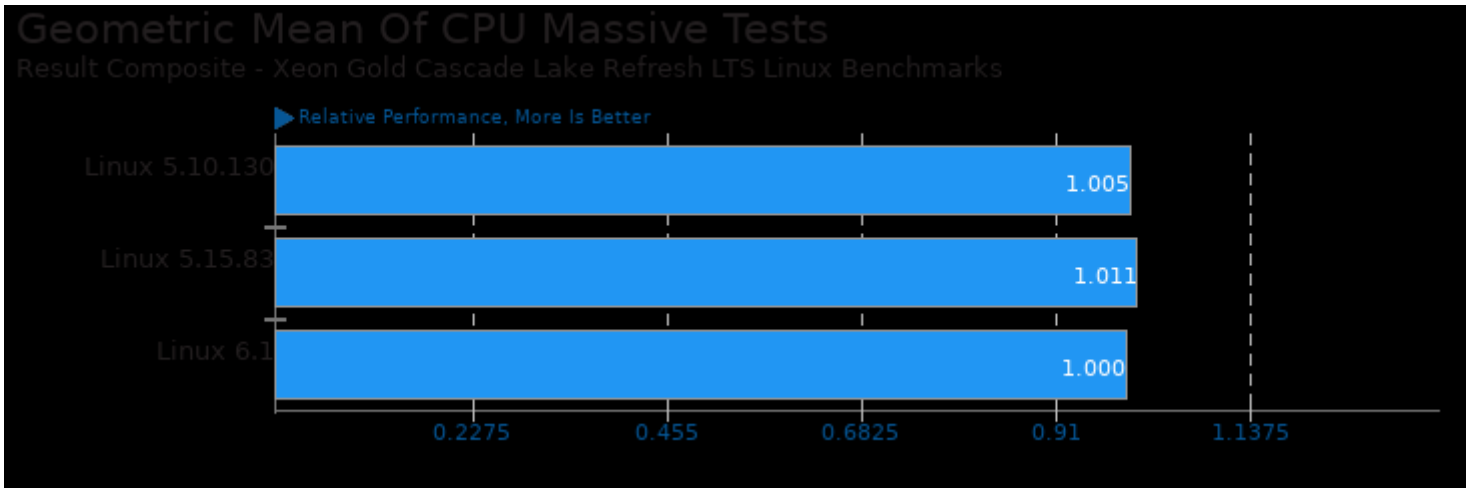
Geometric mean based upon tests: pts/build-php, pts/build-linux-kernel, pts/build-python, pts/build-godot, pts/build-erlang and pts/build-nodejs



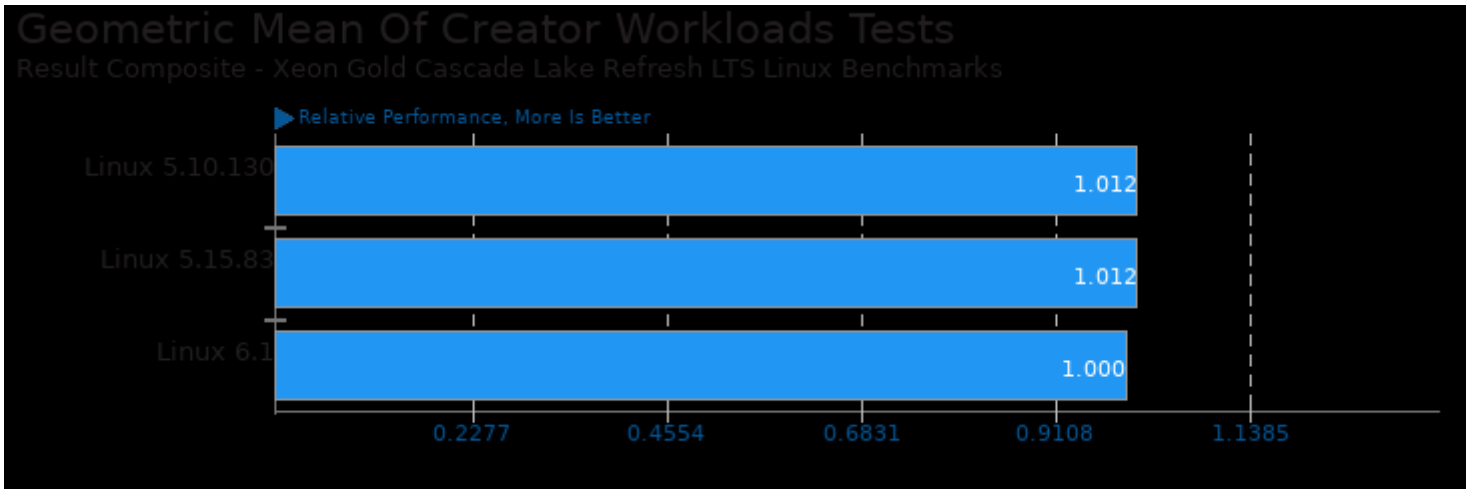
Geometric mean based upon tests: pts/graphics-magick, pts/build-php, pts/compress-7zip, pts/encode-flac, pts/pgbench, pts/lammps, pts/aircrack-ng, pts/aom-av1 and pts/svt-av1



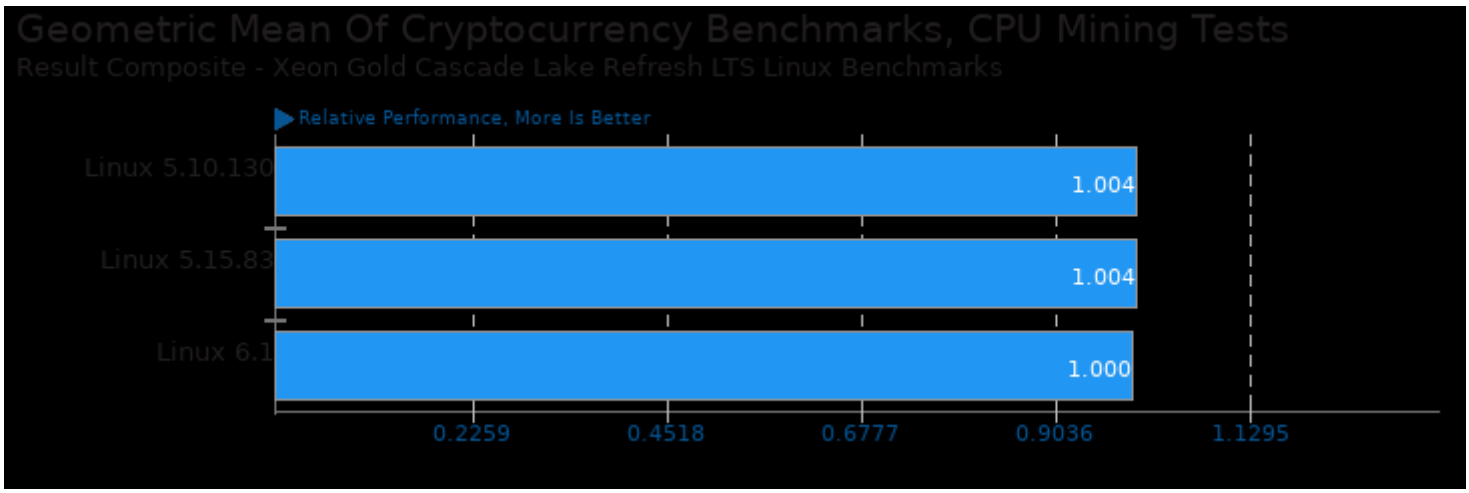
Geometric mean based upon tests: pts/compress-7zip and pts/blosc



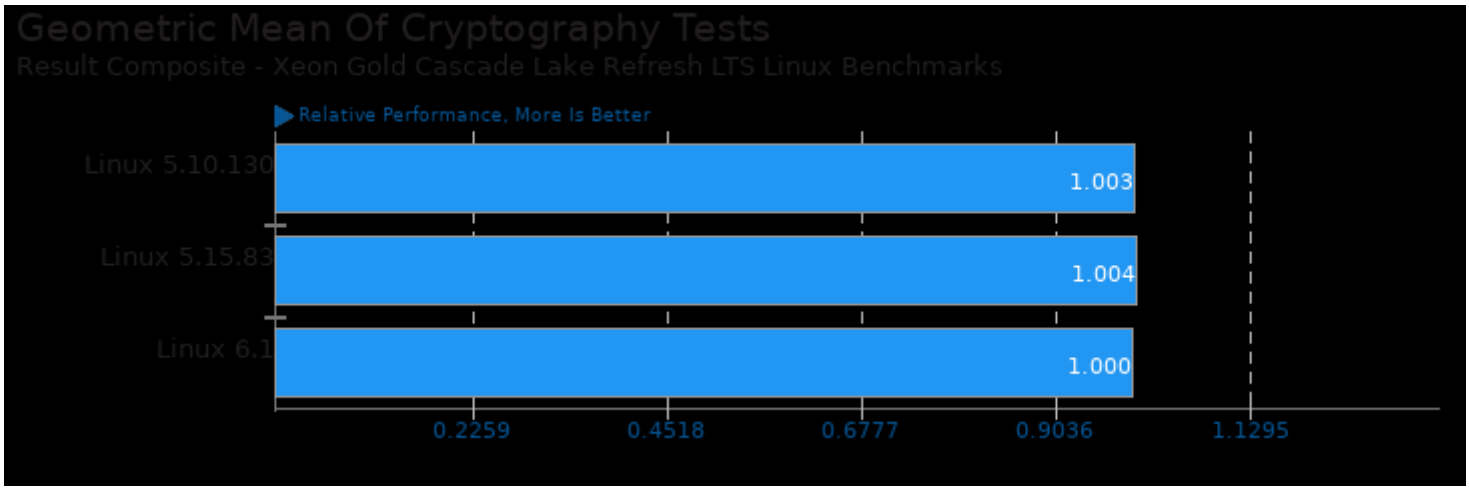
Geometric mean based upon tests: pts/brl-cad, pts/build-linux-kernel, pts/build-php, pts/compress-7zip, pts/ctx-clock, pts/svt-av1, pts/encode-flac, pts/graphics-magick, pts/lammps, pts/onednn, pts/numenta-nab, pts/pgbench, pts/primesieve, pts/stress-ng, pts/tensorflow, pts/blender and pts/cpuminer-opt



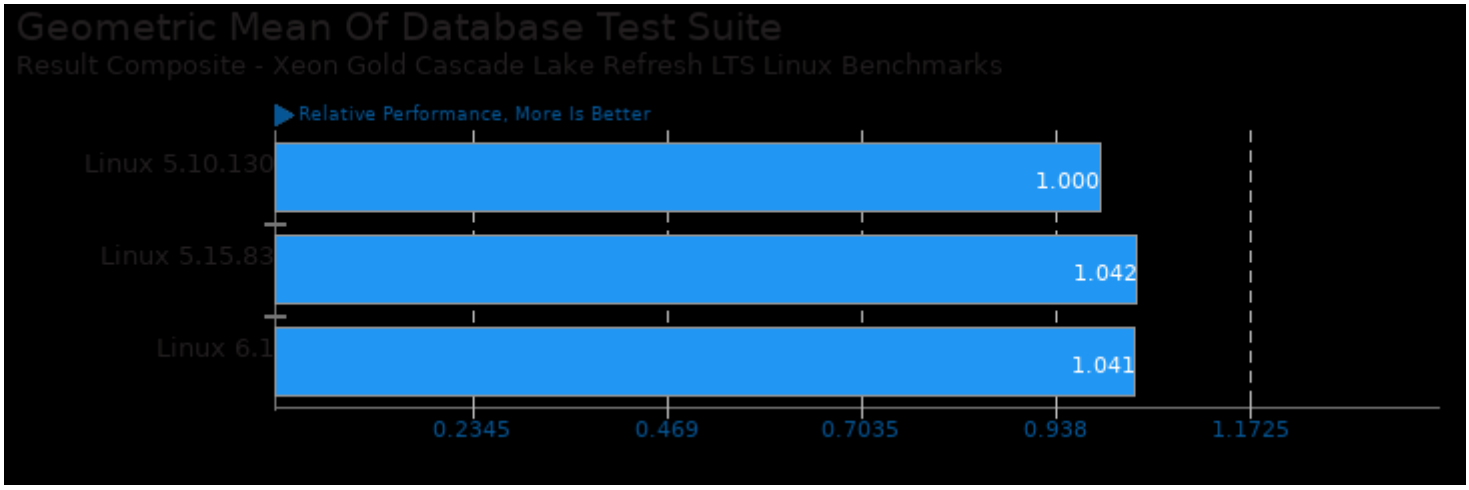
Geometric mean based upon tests: pts/ospray-studio, pts/blender, pts/natron, pts/aom-av1, pts/svt-av1, pts/avifenc, pts/encode-flac, pts/stargate, pts/graphics-magick, pts/webp, pts/jpegxl, pts/jpegxl-decode, pts/onednn, pts/openvino, pts/astcenc, pts/build-godot and pts/brl-cad



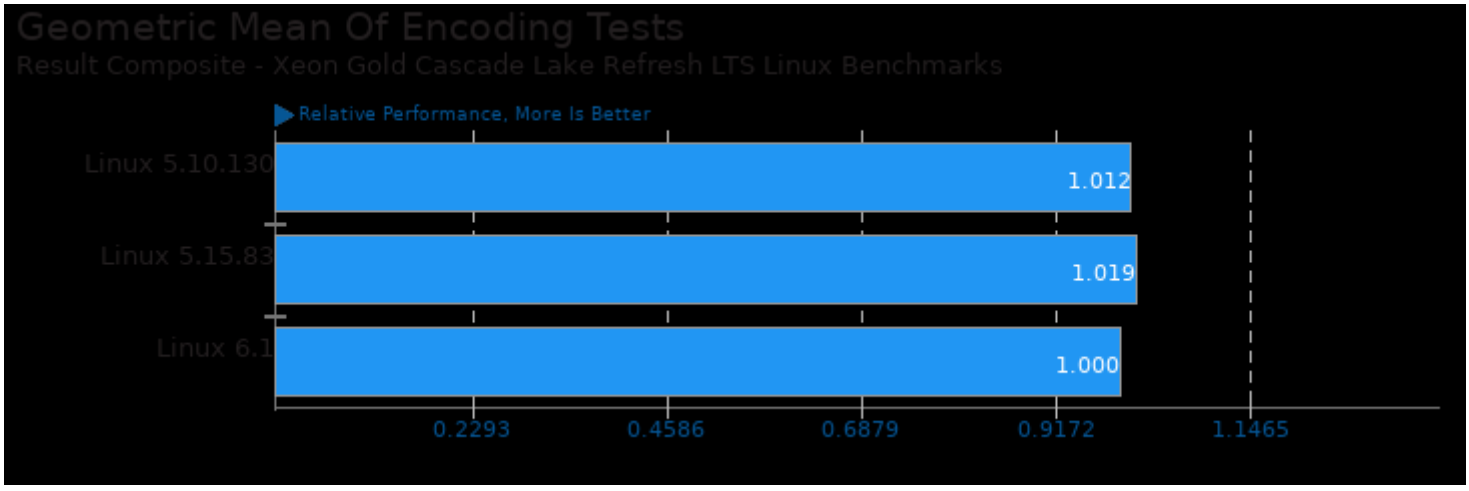
Geometric mean based upon tests: pts/cpuminer-opt and pts/xmrig



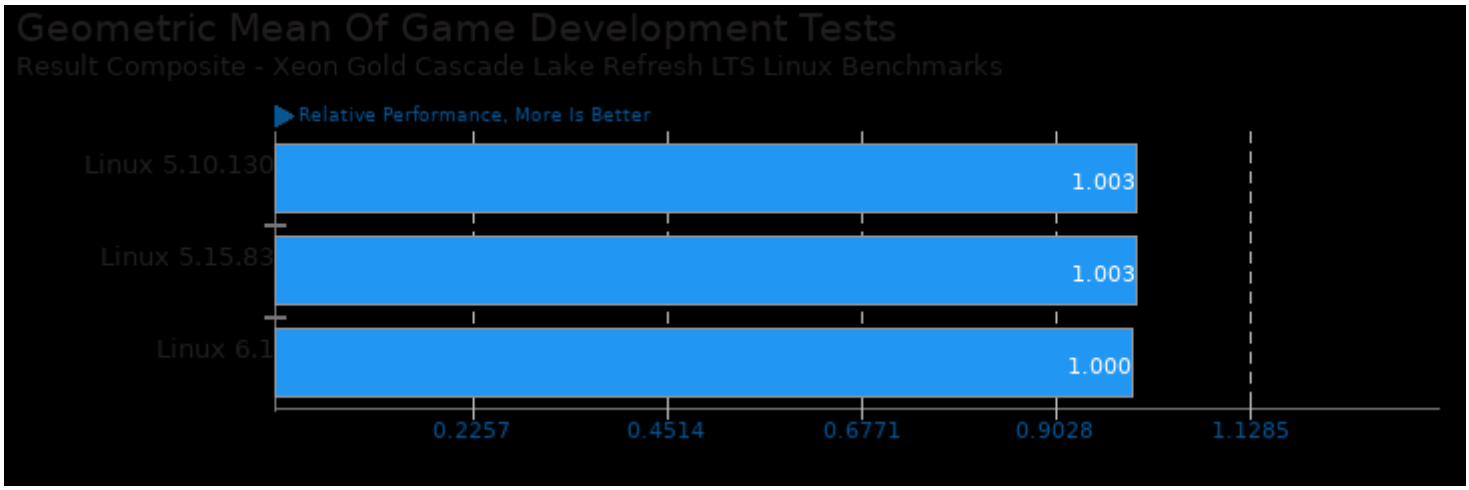
Geometric mean based upon tests: pts/aircrack-ng, pts/cpuminer-opt and pts/xmrig



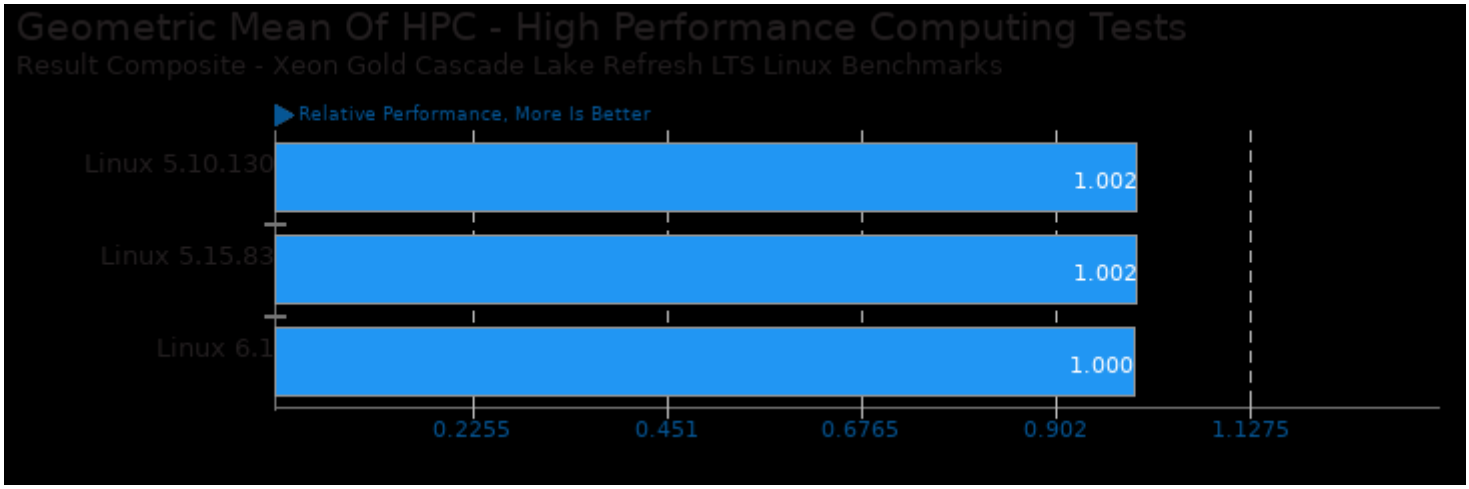
Geometric mean based upon tests: pts/dragonflydb, pts/rocksdb, pts/pgbench and pts/clickhouse



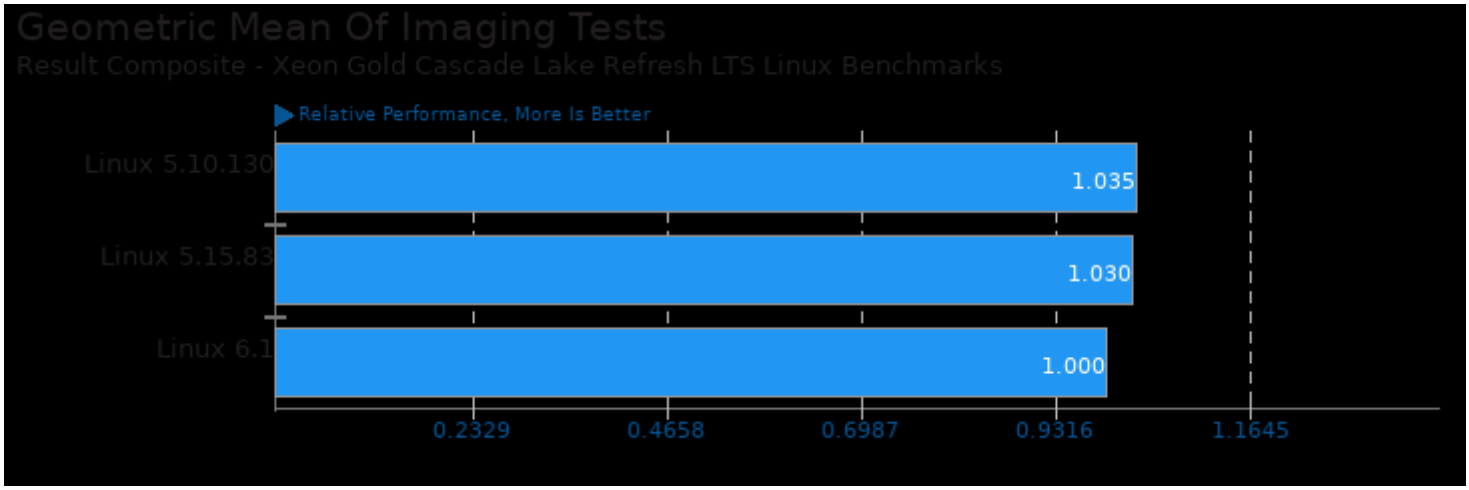
Geometric mean based upon tests: pts/encode-flac, pts/stargate, pts/aom-av1, pts/svt-av1 and pts/avifenc



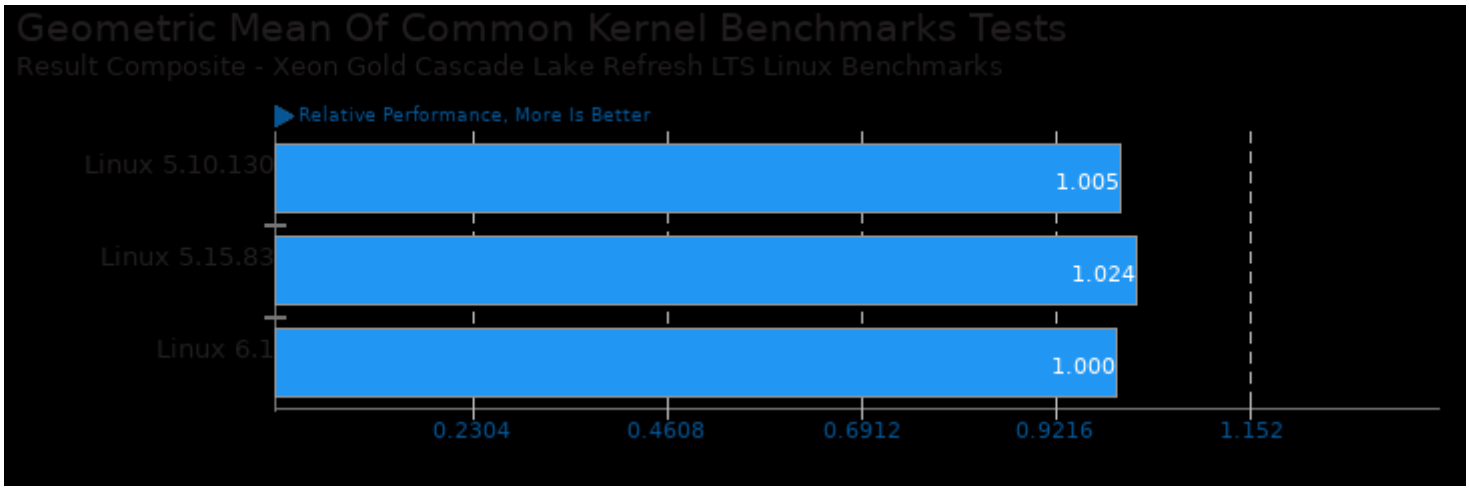
Geometric mean based upon tests: pts/astcenc, pts/build-godot and pts/blender



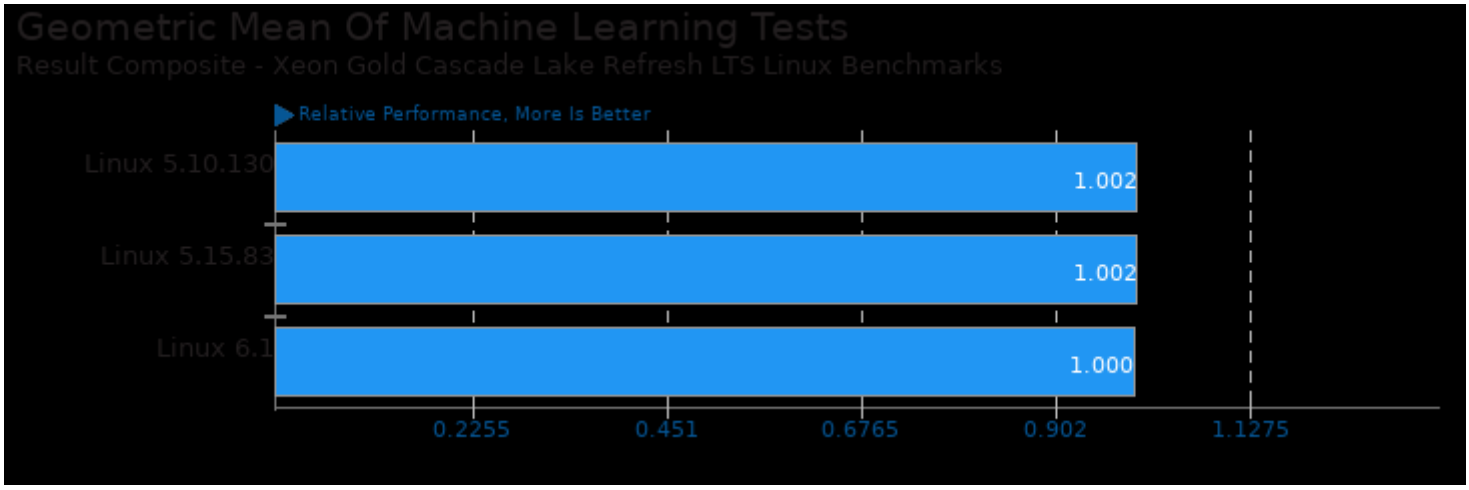
Geometric mean based upon tests: pts/lammps, pts/openfoam, pts/mnn, pts/ncnn, pts/numenta-nab, pts/tensorflow, pts/onednn, pts/openvino, pts/spacy, pts/deepsparse, pts/openradioss, pts/nekrs and pts/minibude



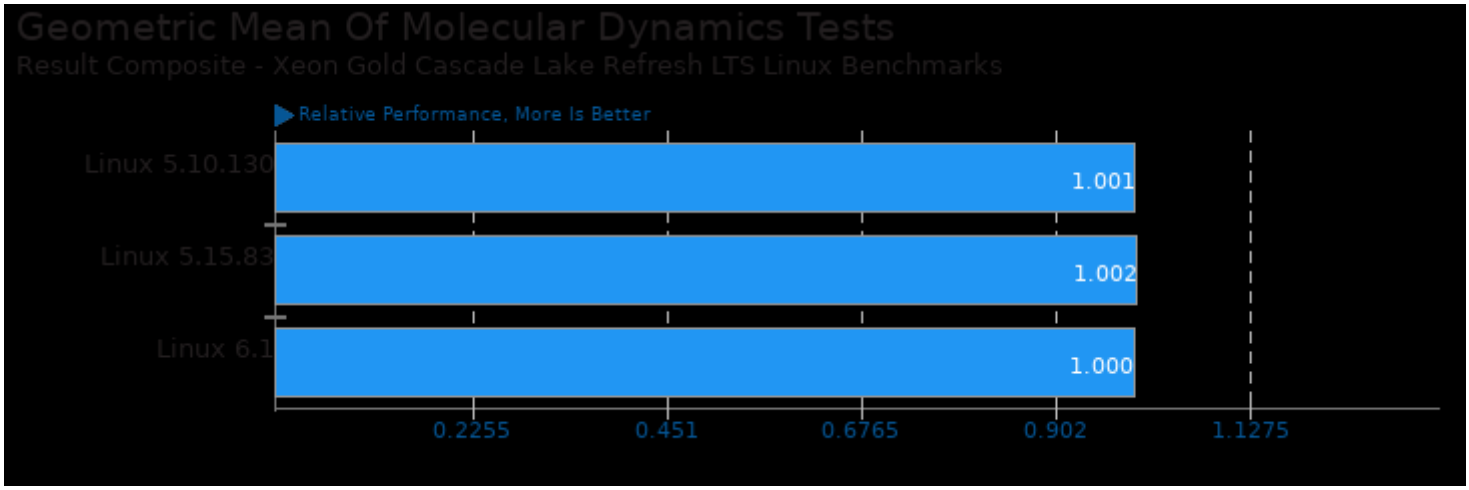
Geometric mean based upon tests: pts/graphics-magick, pts/webp, pts/jpegxl, pts/jpegxl-decode and pts/avifenc



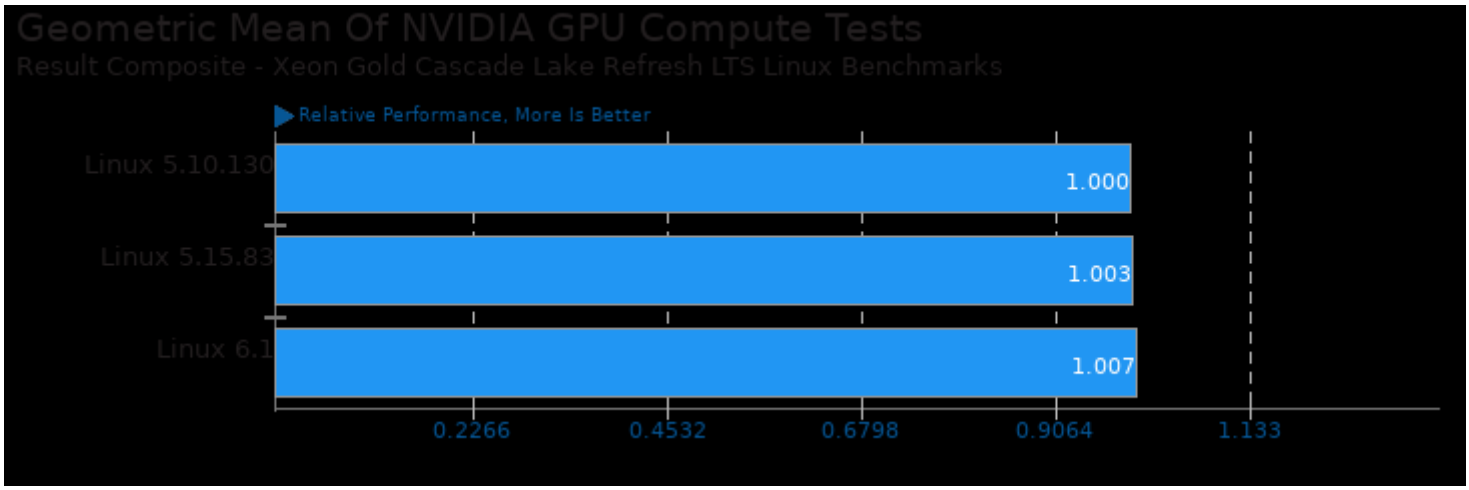
Geometric mean based upon tests: pts/pgbench, pts/ctx-clock, pts/stress-ng and pts/rocksdb



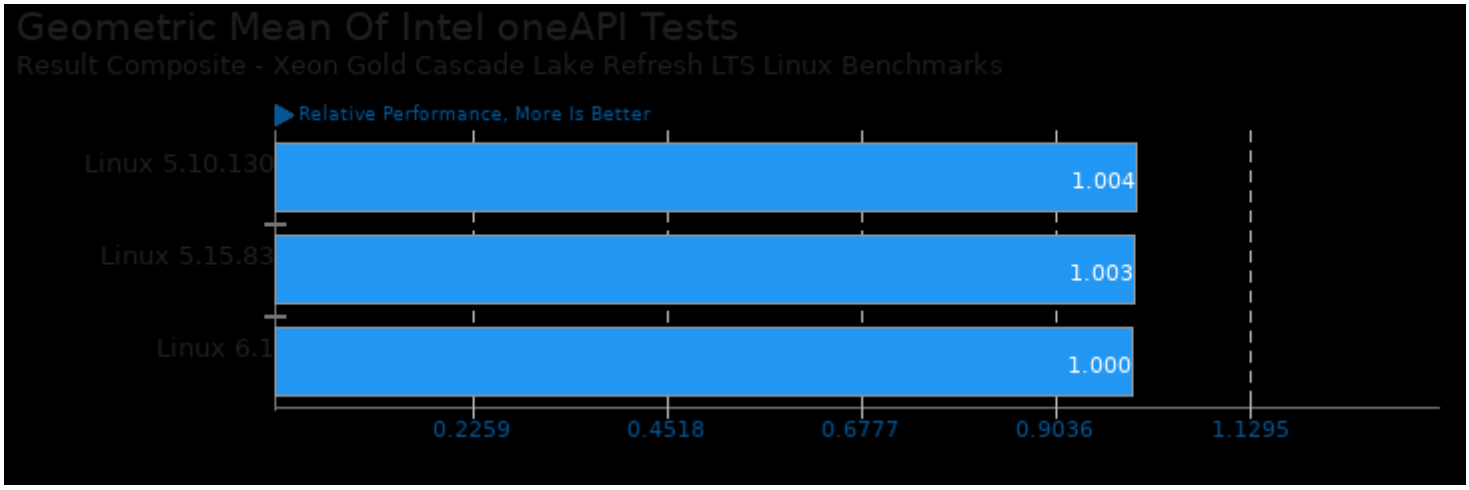
Geometric mean based upon tests: pts/mnn, pts/ncnn, pts/numenta-nab, pts/tensorflow, pts/onednn, pts/openvino, pts/spacy and pts/deepsparse



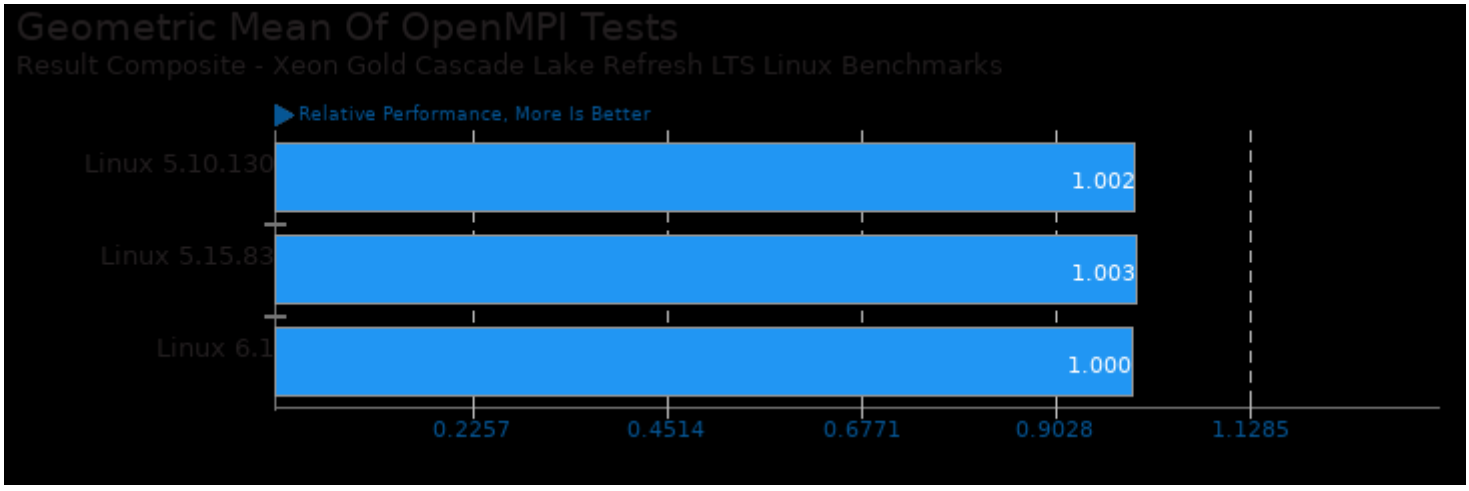
Geometric mean based upon tests: pts/lammps and pts/openfoam



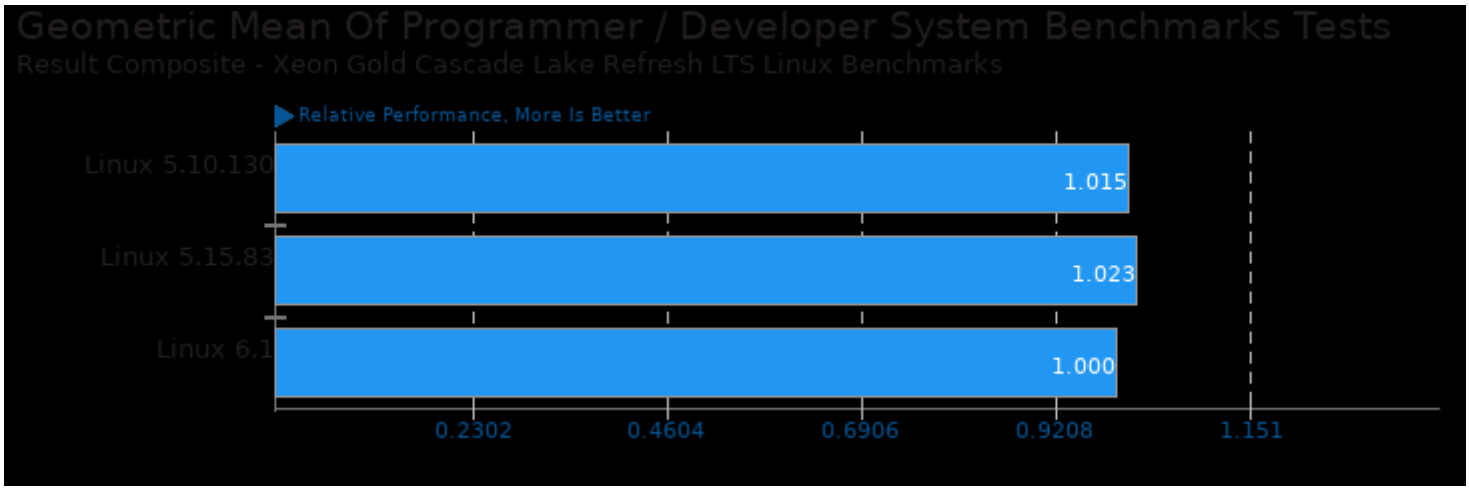
Geometric mean based upon tests: pts/blender and pts/ncnn



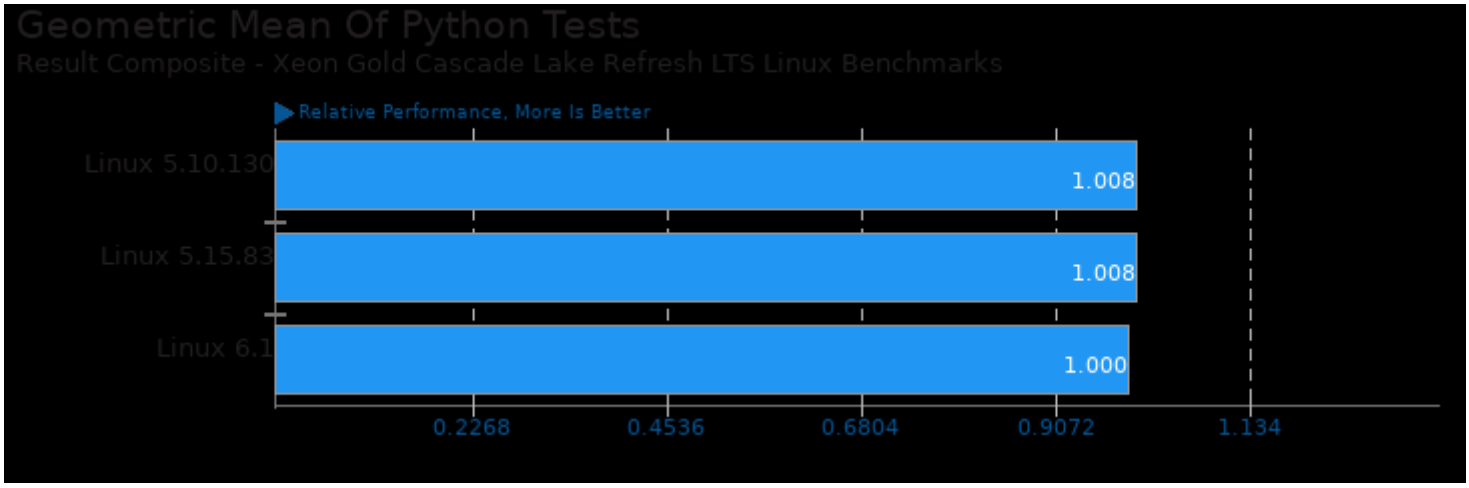
Geometric mean based upon tests: pts/onednn, pts/ospray-studio and pts/openvino



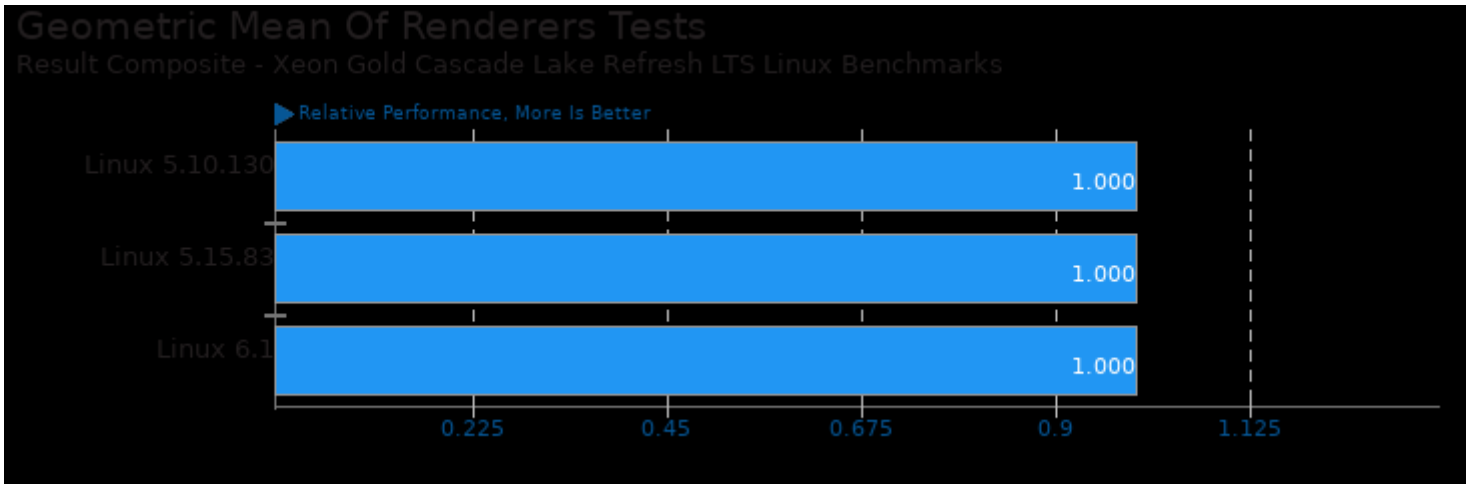
Geometric mean based upon tests: pts/lammps, pts/nekrs, pts/openfoam and pts/openradioss



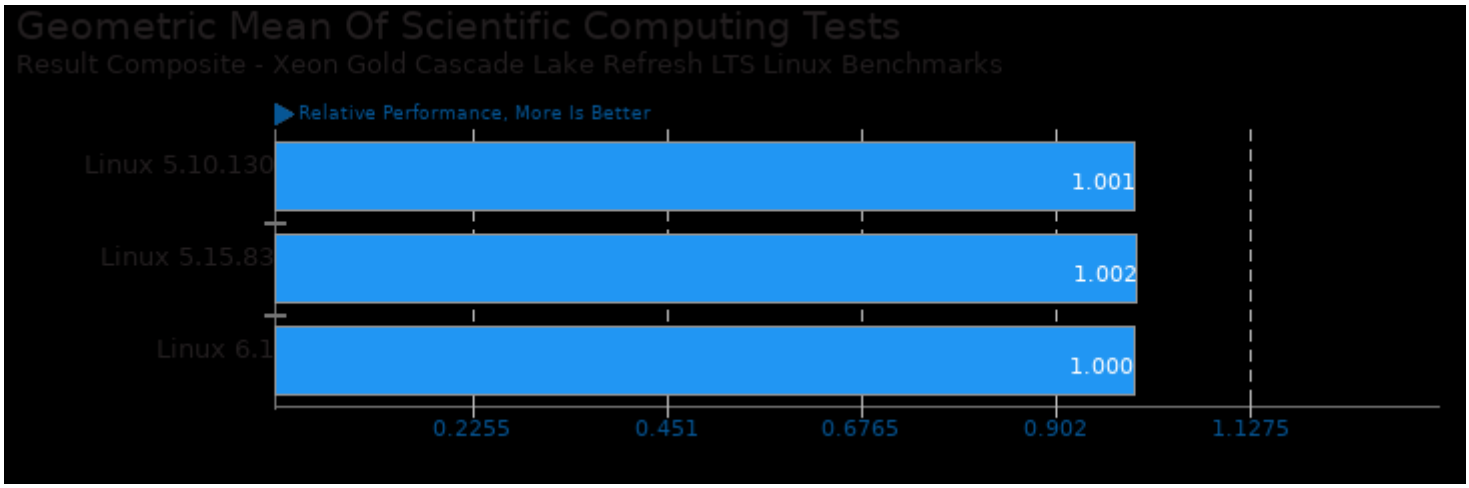
Geometric mean based upon tests: pts/blosc, pts/build-php, pts/build-linux-kernel, pts/build-python, pts/build-godot, pts/build-erlang and pts/build-nodejs



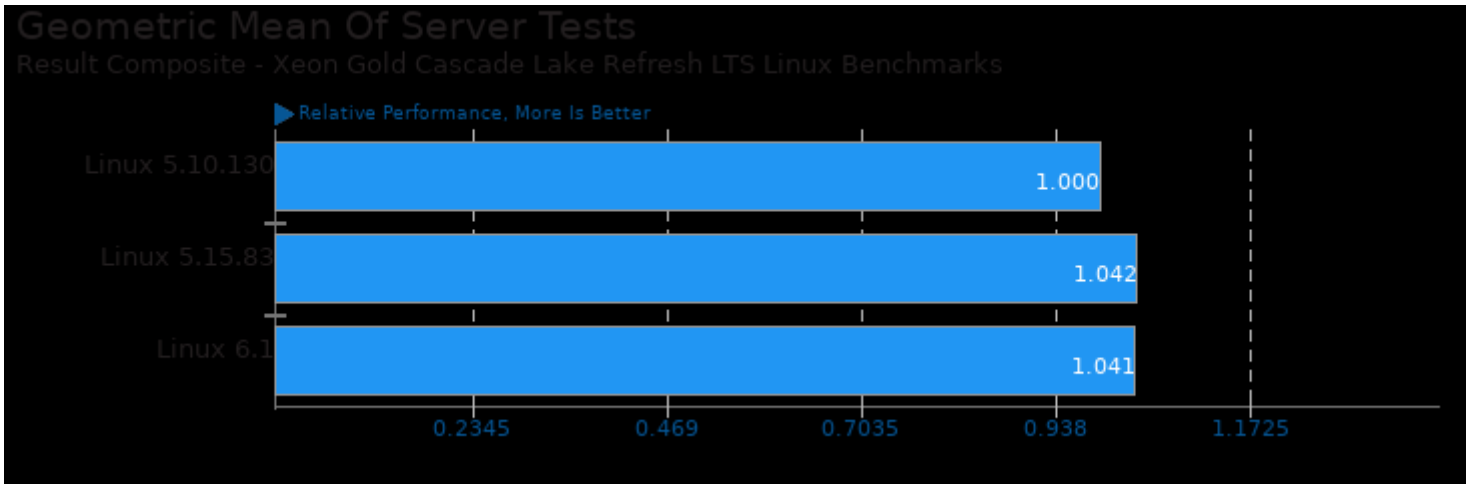
Geometric mean based upon tests: pts/encodec, pts/deepsparse, pts/numenta-nab, pts/openvino, pts/spacy, pts/stargate, pts/tensorflow, pts/build-godot and pts/build-nodejs



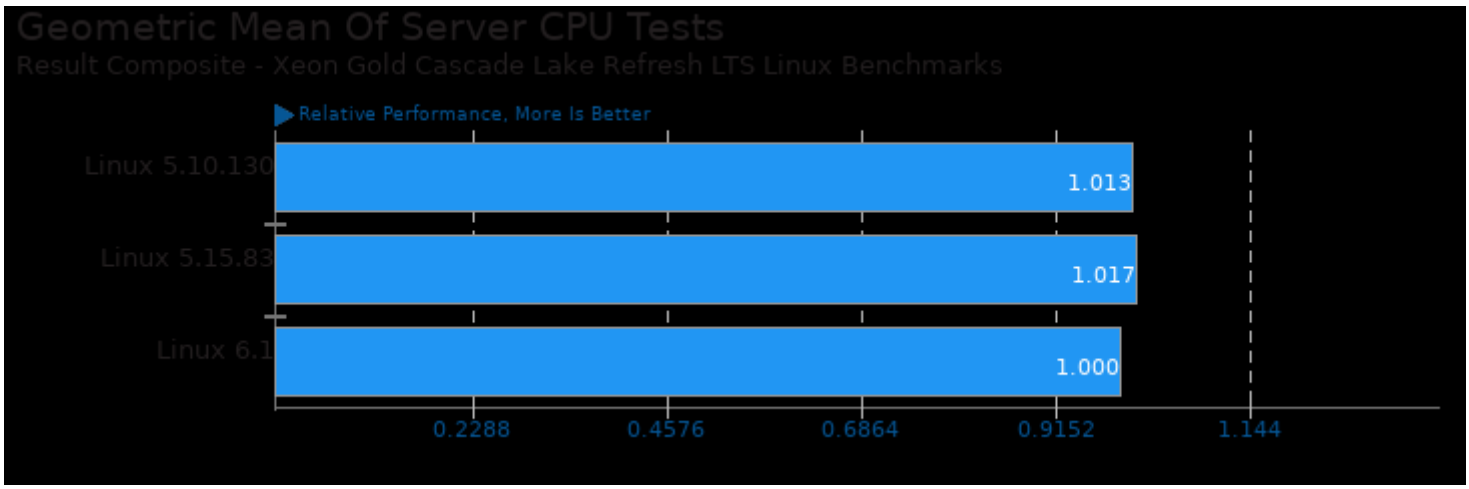
Geometric mean based upon tests: pts/ospray-studio, pts/blender and pts/natron



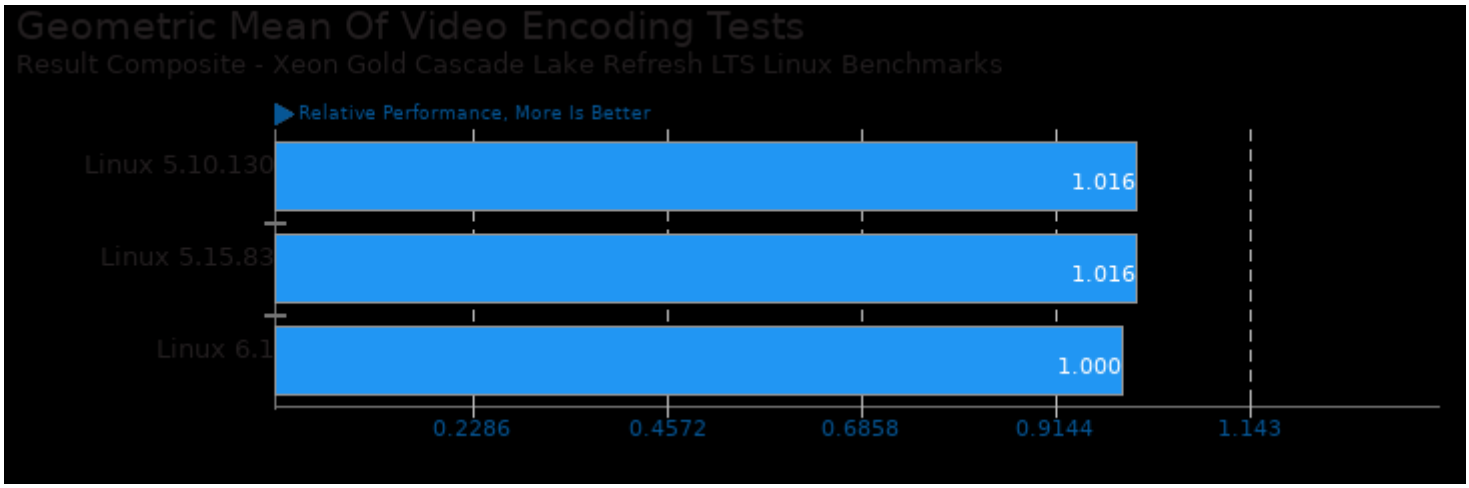
Geometric mean based upon tests: pts/lammps and pts/openfoam



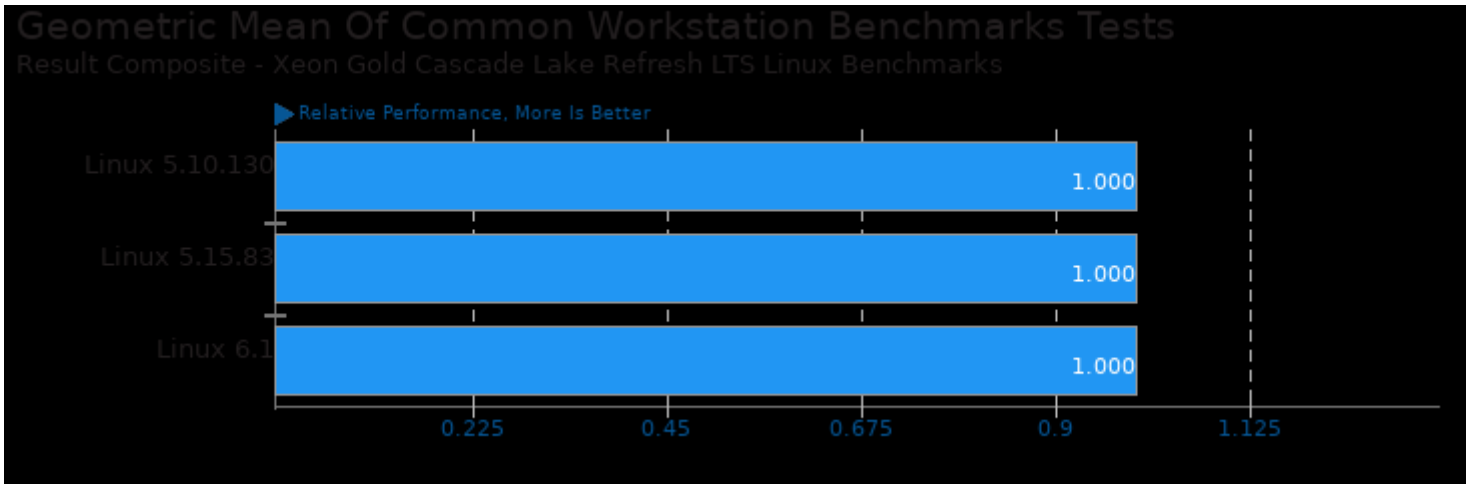
Geometric mean based upon tests: pts/pgbench, pts/rocksdb, pts/dragonflydb and pts/clickhouse



Geometric mean based upon tests: pts/onednn, pts/svt-av1, pts/compress-7zip, pts/build-linux-kernel, pts/build-php, pts/stress-ng, pts/ctx-clock, pts/blender, pts/numenta-nab and pts/cpuminer-opt



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



Geometric mean based upon tests: pts/blender and pts/brl-cad

This file was automatically generated via the Phoronix Test Suite benchmarking software on Thursday, 28 March 2024 08:46.