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Tiger Lake Linux 5.11 Kernel

Intel Core i7-1165G7 testing with a Dell 0GG9PT (1.0.3 BIOS) and Intel UHD 3GB on Ubuntu 20.10 via the Phoronix Test Suite.

Automated Executive Summary

Linux 5.11 Git had the most wins, coming in first place for 75% of the tests.

Based on the geometric mean of all complete results, the fastest (Linux 5.11 Git) was 1.032x the speed of the slowest (Linux 5.10.2).

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

LevelDB (Benchmark: Fill Sync) at 1.5x
Stress-NG (Test: Context Switching) at 1.271x
Stress-NG (Test: NUMA) at 1.222x
CLOMP (Static OMP Speedup) at 1.136x
Hackbench (Count: 16 - Type: Thread) at 1.1x
Stress-NG (Test: Socket Activity) at 1.093x
Hackbench (Count: 16 - Type: Process) at 1.086x
oneDNN (Harness: IP Shapes 3D - Data Type: f32 - Engine: CPU) at 1.083x
Stress-NG (Test: Forking) at 1.079x

LevelDB (Benchmark: Fill Sync) at 1.076x.

Test Systems:

Linux 5.10.2

Processor: Intel Core i7-1165G7 @ 4.70GHz (4 Cores / 8 Threads), Motherboard: Dell 0GG9PT (1.0.3 BIOS), Chipset: Intel Tiger Lake-LP, Memory: 16GB, Disk: Kioxia KBG40ZNS256G NVMe 256GB, Graphics: Intel UHD 3GB (1300MHz), Audio: Realtek ALC289, Network: Intel Wi-Fi 6 AX201

OS: Ubuntu 20.10, Kernel: 5.10.2-051002-generic (x86_64), Desktop: GNOME Shell 3.38.1, Display Server: X Server 1.20.9, Display Driver: modesetting 1.20.9, OpenGL: 4.6 Mesa 20.2.1, Vulkan: 1.2.145, Compiler: GCC 10.2.0, File-System: ext4, Screen Resolution: 1920x1200

Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,m2 --enable-libphobos-checking=release --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-10-JvwpWM/gcc-10-10.2.0/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-10-JvwpWM/gcc-10-10.2.0/debian/tmp-gcn/usr,hsa --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v
Disk Notes: NONE / errors=remount-ro,relatime,rw / Block Size: 4096
Processor Notes: Scaling Governor: intel_pstate powersave - CPU Microcode: 0x60 - Thermald 2.3
Python Notes: Python 3.8.6
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Enhanced IBRS IBPB: conditional RSB filling + srbds: Not affected + tsx_async_abort: Not affected

Linux 5.11 Git

Processor: Intel Core i7-1165G7 @ 4.70GHz (4 Cores / 8 Threads), Motherboard: Dell 0GG9PT (1.0.3 BIOS), Chipset: Intel Tiger Lake-LP, Memory: 16GB, Disk: Kioxia KBG40ZNS256G NVMe 256GB, Graphics: Intel UHD 3GB (1300MHz), Audio: Realtek ALC289, Network: Intel Wi-Fi 6 AX201

OS: Ubuntu 20.10, Kernel: 5.10.0-051000rc7daily20201213-generic (x86_64) 20201212, Desktop: GNOME Shell 3.38.1, Display Server: X Server 1.20.9, Display Driver: modesetting 1.20.9, OpenGL: 4.6 Mesa 20.2.1, Vulkan: 1.2.145, Compiler: GCC 10.2.0, File-System: ext4, Screen Resolution: 1920x1200

Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,m2 --enable-libphobos-checking=release --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-10-JvwpWM/gcc-10-10.2.0/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-10-JvwpWM/gcc-10-10.2.0/debian/tmp-gcn/usr,hsa --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v
Disk Notes: NONE / errors=remount-ro,relatime,rw / Block Size: 4096
Processor Notes: Scaling Governor: intel_pstate powersave - CPU Microcode: 0x60 - Thermald 2.3
Python Notes: Python 3.8.6
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Enhanced IBRS IBPB: conditional RSB filling + srbds: Not affected + tsx_async_abort: Not affected

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	Linux 5.10.2	Linux 5.11 Git
LevelDB - Hot Read (us/Op)	**3.559**	**3.542**
Normalized	99.52%	100%
Standard Deviation	0.5%	1.1%
LevelDB - Fill Sync (MB/s)	**0.3**	**0.2**
Normalized	100%	66.67%
Standard Deviation	0%	0%
LevelDB - Fill Sync (us/Op)	**3285**	**3535**
Normalized	100%	92.92%
Standard Deviation	0.8%	0.5%
LevelDB - Overwrite (MB/s)	40.4	40.4
Standard Deviation	0.4%	0.9%
LevelDB - Overwrite (us/Op)	**21.898**	**21.894**
Normalized	99.98%	100%
Standard Deviation	0.4%	0.9%
LevelDB - Rand Fill (MB/s)	**40.4**	**40.6**
Normalized	99.51%	100%
Standard Deviation	0.1%	1.2%
LevelDB - Rand Fill (us/Op)	**21.898**	**21.800**
Normalized	99.55%	100%
Standard Deviation	0.1%	1.2%
LevelDB - Rand Read (us/Op)	**3.533**	**3.508**
Normalized	99.29%	100%
Standard Deviation	0.6%	0.7%
LevelDB - Seek Rand (us/Op)	**5.887**	**5.505**
Normalized	93.51%	100%
Standard Deviation	10.4%	10.3%
LevelDB - Rand Delete (us/Op)	**25.651**	**24.432**
Normalized	95.25%	100%
Standard Deviation	3.8%	3.8%
LevelDB - Seq Fill (MB/s)	**34.0**	**35.6**
Normalized	95.51%	100%
Standard Deviation	4.6%	4.8%
LevelDB - Seq Fill (us/Op)	**26.053**	**24.921**
Normalized	95.66%	100%
Standard Deviation	4%	4.2%
Flexible IO Tester - Rand Read - IO_uring - No - Yes - 2MB (MB/s)	**2020**	**2000**
Normalized	100%	99.01%
Standard Deviation	4.7%	5.4%
Flexible IO Tester - Rand Read - IO_uring - No - Yes - 2MB (IOPS)	**1006**	**997**
Normalized	100%	99.11%
Standard Deviation	4.7%	5.5%
Flexible IO Tester - Rand Read - IO_uring - No - Yes - 4KB (MB/s)	**1126**	**1105**
Normalized	100%	98.13%
Standard Deviation	9.7%	13.2%
Flexible IO Tester - Rand Read - IO_uring - No - Yes - 4KB (IOPS)	**288267**	**282800**
Normalized	100%	98.1%
Standard Deviation	9.7%	13.3%

Flexible IO Tester - Rand Read - Linux AIO - No - Yes - 2MB (MB/s)	**1827**	**1797**
Normalized	100%	98.36%
Standard Deviation	8.2%	6.3%
Flexible IO Tester - Rand Read - Linux AIO - No - Yes - 2MB (IOPS)	**910**	**895**
Normalized	100%	98.35%
Standard Deviation	8.3%	6.3%
Flexible IO Tester - Rand Read - Linux AIO - No - Yes - 4KB (MB/s)	**912**	**828**
Normalized	100%	90.79%
Standard Deviation	20.2%	1.1%
Flexible IO Tester - Rand Read - Linux AIO - No - Yes - 4KB (IOPS)	**233467**	**212000**
Normalized	100%	90.81%
Standard Deviation	20.2%	0.9%
Flexible IO Tester - Rand Write - IO_uring - No - Yes - 2MB (MB/s)	**194**	**239**
Normalized	81.17%	100%
Standard Deviation	10.4%	18.1%
Flexible IO Tester - Rand Write - IO_uring - No - Yes - 2MB (IOPS)	**93**	**116**
Normalized	80.17%	100%
Standard Deviation	10.8%	18.7%
Flexible IO Tester - Rand Write - IO_uring - No - Yes - 4KB (MB/s)	**131.5**	**170**
Normalized	77.35%	100%
Standard Deviation	25.3%	31.6%
Flexible IO Tester - Rand Write - IO_uring - No - Yes - 4KB (IOPS)	**33583**	**43615**
Normalized	77%	100%
Standard Deviation	24.9%	31.6%
Flexible IO Tester - Rand Write - Linux AIO - No - Yes - 2MB (MB/s)	**264**	**355**
Normalized	74.37%	100%
Standard Deviation	31.3%	15.8%
Flexible IO Tester - Rand Write - Linux AIO - No - Yes - 2MB (IOPS)	**128**	**174**
Normalized	73.56%	100%
Standard Deviation	32.1%	16.1%
Flexible IO Tester - Rand Write - Linux AIO - No - Yes - 4KB (MB/s)	**97.3**	**179**
Normalized	54.36%	100%
Standard Deviation	12.2%	9.4%
Flexible IO Tester - Rand Write - Linux AIO - No - Yes - 4KB (IOPS)	**24862**	**45753**
Normalized	54.34%	100%
Standard Deviation	12.5%	9.3%
Flexible IO Tester - Seq Read - IO_uring - No - Yes - 2MB (MB/s)	**2117**	**2141**
Normalized	98.88%	100%
Standard Deviation	2.4%	1.4%

Flexible IO Tester - Seq Read - IO_uring - No - Yes - 2MB (IOPS)	**1055**	**1067**
Normalized	98.88%	100%
Standard Deviation	2.4%	1.3%
Flexible IO Tester - Seq Read - IO_uring - No - Yes - 4KB (MB/s)	711	711
Flexible IO Tester - Seq Read - IO_uring - No - Yes - 4KB (IOPS)	182000	182000
Flexible IO Tester - Seq Read - Linux AIO - No - Yes - 2MB (MB/s)	**1918**	**1917**
Normalized	100%	99.95%
Standard Deviation	4.6%	4.2%
Flexible IO Tester - Seq Read - Linux AIO - No - Yes - 2MB (IOPS)	**956**	**955**
Normalized	100%	99.9%
Standard Deviation	4.6%	4.2%
Flexible IO Tester - Seq Read - Linux AIO - No - Yes - 4KB (MB/s)	**789**	**711**
Normalized	100%	90.11%
Standard Deviation	29.1%	
Flexible IO Tester - Seq Read - Linux AIO - No - Yes - 4KB (IOPS)	**202333**	**182000**
Normalized	100%	89.95%
Standard Deviation	29.1%	
Flexible IO Tester - Seq Write - IO_uring - No - Yes - 2MB (MB/s)	**397**	**416**
Normalized	95.43%	100%
Standard Deviation	7.4%	
Flexible IO Tester - Seq Write - IO_uring - No - Yes - 2MB (IOPS)	**195**	**205**
Normalized	95.12%	100%
Standard Deviation	7.6%	
Flexible IO Tester - Seq Write - IO_uring - No - Yes - 4KB (MB/s)	**254**	**289**
Normalized	87.89%	100%
Standard Deviation	15.5%	17.6%
Flexible IO Tester - Seq Write - IO_uring - No - Yes - 4KB (IOPS)	**64880**	**74008**
Normalized	87.67%	100%
Standard Deviation	15.6%	17.6%
Flexible IO Tester - Seq Write - Linux AIO - No - Yes - 2MB (MB/s)	**348**	**359**
Normalized	96.94%	100%
Standard Deviation	12.5%	12.8%
Flexible IO Tester - Seq Write - Linux AIO - No - Yes - 2MB (IOPS)	**170**	**176**
Normalized	96.59%	100%
Standard Deviation	12.8%	13%
Flexible IO Tester - Seq Write - Linux AIO - No - Yes - 4KB (MB/s)	**295**	**273**
Normalized	100%	92.54%
Standard Deviation	12%	15.4%

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Flexible IO Tester - Seq Write - Linux AIO - No - Yes - 4KB (IOPS)	**75393**	**69933**
Normalized	100%	92.76%
Standard Deviation	12%	15.5%
RealSR-NCNN - 4x - No (sec)	**69.658**	**67.923**
Normalized	97.51%	100%
Standard Deviation	1.7%	1.7%
RealSR-NCNN - 4x - Yes (sec)	**553.279**	**540.493**
Normalized	97.69%	100%
Standard Deviation	0.1%	0.2%
Waifu2x-NCNN Vulkan - 2x - 3 - No (sec)	**4.165**	**4.107**
Normalized	98.61%	100%
Standard Deviation	2%	0.9%
Waifu2x-NCNN Vulkan - 2x - 3 - Yes (sec)	**27.426**	**27.228**
Normalized	99.28%	100%
Standard Deviation	0.1%	0.2%
VkResample - 2x - Single (ms)	**126.023**	**123.206**
Normalized	97.76%	100%
Standard Deviation	0.5%	0%
ET: Legacy - Renderer2 - 1920 x 1200 (FPS)	**134.5**	**135.0**
Normalized	99.63%	100%
Standard Deviation	1.8%	2.4%
Tesseract - 1920 x 1200 (FPS)	**135.5831**	**136.1971**
Normalized	99.55%	100%
Standard Deviation	2.2%	2.3%
Xonotic - 1920 x 1200 - High (FPS)	**195.7381208**	**197.0598233**
Normalized	99.33%	100%
Standard Deviation	1.4%	1%
Xonotic - 1920 x 1200 - Ultra (FPS)	**160.3132746**	**160.9823648**
Normalized	99.58%	100%
Standard Deviation	0.9%	1.1%
Xonotic - 1920 x 1200 - Ultimate (FPS)	**123.1072409**	**123.5683286**
Normalized	99.63%	100%
Standard Deviation	0.7%	0.8%
yquake2 - OpenGL 3.x - 1920 x 1080 (FPS)	**762.5**	**763.9**
Normalized	99.82%	100%
Standard Deviation	2.4%	2.3%
yquake2 - Software CPU - 1920 x 1080 (FPS)	**131.1**	**132.6**
Normalized	98.87%	100%
Standard Deviation	0.3%	0.5%
GLmark2 - 1920 x 1200 (Score)	**836**	**842**
Normalized	99.29%	100%
VKMark - 1920 x 1200 (VKMark Score)	**921**	**924**
Normalized	99.68%	100%
Standard Deviation	0.3%	0.4%
perf-bench - Epoll Wait (ops/sec)	**190029**	**196174**
Normalized	96.87%	100%
Standard Deviation	0.6%	2%
perf-bench - Futex Hash (ops/sec)	**3970209**	**4155273**
Normalized	95.55%	100%
Standard Deviation	2.5%	2.2%
perf-bench - Memcpy 1MB (GB/sec)	**26.483346**	**26.959686**
Normalized	98.23%	100%
Standard Deviation	3.6%	2.4%
perf-bench - Memset 1MB (GB/sec)	**81.357399**	**80.587210**

Normalized	100%	99.05%
Standard Deviation	5.6%	5%
perf-bench - Sched Pipe (ops/sec)	**239417**	**236068**
Normalized	100%	98.6%
Standard Deviation	2.5%	3.3%
perf-bench - Futex Lock-Pi (ops/sec)	**1846**	**1861**
Normalized	99.19%	100%
Standard Deviation	1.8%	1.9%
perf-bench - Syscall Basic (ops/sec)	**22175225**	**22489430**
Normalized	98.6%	100%
Standard Deviation	1.9%	1.6%
OSBench - Create Files (us/Event)	**10.326676**	**10.187870**
Normalized	98.66%	100%
Standard Deviation	0.4%	0.4%
OSBench - Create Threads (us/Event)	**10.850430**	**10.746320**
Normalized	99.04%	100%
Standard Deviation	0.9%	0.8%
OSBench - Launch Programs (us/Event)	**38.574537**	**37.933190**
Normalized	98.34%	100%
Standard Deviation	0.3%	0.1%
OSBench - Create Processes (us/Event)	**28.856794**	**30.176640**
Normalized	100%	95.63%
Standard Deviation	5.2%	4%
OSBench - Memory Allocations (Ns/Event)	**67.847252**	**67.433675**
Normalized	99.39%	100%
Standard Deviation	0.5%	0.4%
IPC_benchmark - TCP Socket - 128 (Messages/sec)	**4592554**	**4662523**
Normalized	98.5%	100%
Standard Deviation	0.8%	0.7%
IPC_benchmark - TCP Socket - 4096 (Messages/sec)	**1574334**	**1589212**
Normalized	99.06%	100%
Standard Deviation	0.6%	2%
IPC_benchmark - Unnamed Pipe - 128 (Messages/sec)	**4948049**	**5214470**
Normalized	94.89%	100%
Standard Deviation	11%	9.7%
IPC_benchmark - Unnamed Pipe - 4096	**934184**	**863162**
Normalized	100%	92.4%
Standard Deviation	8.5%	9%
IPC_benchmark - FIFO Named Pipe - 128 (Messages/sec)	**5017388**	**5295630**
Normalized	94.75%	100%
Standard Deviation	15.5%	1.3%
IPC_benchmark - FIFO Named Pipe - 4096 (Messages/sec)	**841666**	**819392**
Normalized	100%	97.35%
Standard Deviation	1.7%	0.3%
IPC_benchmark - U.U.D.S - 128 (Messages/sec)	**1972896**	**2034690**
Normalized	96.96%	100%
Standard Deviation	4%	2.3%
IPC_benchmark - U.U.D.S - 4096 (Messages/sec)	**1002843**	**1009436**
Normalized	99.35%	100%
Standard Deviation	3.1%	3.7%
CLOMP - Static OMP Speedup (Speedup)	**4.4**	**5.0**
Normalized	88%	100%
Standard Deviation	0%	1.2%

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simdjson - Kostya (GB/s)	**0.77**	**0.79**
Normalized	97.47%	100%
Standard Deviation	0%	2.5%
simdjson - PartialTweets (GB/s)	0.91	0.91
Standard Deviation	0.6%	1.9%
oneDNN - IP Shapes 1D - f32 - CPU (ms)	**12.4922**	**12.51245**
Normalized	100%	99.84%
Standard Deviation	6%	7.7%
oneDNN - IP Shapes 3D - f32 - CPU (ms)	**7.03158**	**6.49333**
Normalized	92.35%	100%
Standard Deviation	2.3%	2.6%
oneDNN - C.B.S.A - f32 - CPU (ms)	**14.0823**	**13.6233**
Normalized	96.74%	100%
Standard Deviation	3.7%	4.7%
oneDNN - D.B.s - f32 - CPU (ms)	**14.8034**	**13.9495**
Normalized	94.23%	100%
Standard Deviation	1.7%	2.2%
oneDNN - D.B.s - f32 - CPU (ms)	**12.11845**	**11.39433**
Normalized	94.02%	100%
Standard Deviation	5.6%	5.6%
oneDNN - R.N.N.T - f32 - CPU (ms)	**9320**	**8931**
Normalized	95.83%	100%
Standard Deviation	0.4%	0%
oneDNN - R.N.N.I - f32 - CPU (ms)	**4821**	**4568**
Normalized	94.75%	100%
Standard Deviation	0.3%	0.1%
oneDNN - M.M.B.S.T - f32 - CPU (ms)	**5.39537**	**5.05659**
Normalized	93.72%	100%
Standard Deviation	0.8%	0.5%
Timed Linux Kernel Compilation - Time To Compile	**261.707**	**251.579**
Normalized	96.13%	100%
Standard Deviation	0.4%	0.7%
Build2 - Time To Compile (sec)	**428.098**	**414.749**
Normalized	96.88%	100%
Standard Deviation	0.1%	1.1%
Numpy Benchmark (Score)	**392.33**	**391.30**
Normalized	100%	99.74%
Standard Deviation	0.6%	0.9%
Timed Eigen Compilation - Time To Compile (sec)	**68.607**	**66.624**
Normalized	97.11%	100%
Standard Deviation	0.4%	0.3%
Ogg Audio Encoding - WAV To Ogg (sec)	**16.715**	**16.798**
Normalized	100%	99.51%
Standard Deviation	1.2%	1.3%
Opus Codec Encoding - WAV To Opus Encode (sec)	**7.415**	**7.374**
Normalized	99.45%	100%
Standard Deviation	0.5%	0.6%
eSpeak-NG Speech Engine - T.T.S.S (sec)	**30.446**	**29.763**
Normalized	97.76%	100%
Standard Deviation	5.4%	5.2%
Hackbench - 1 - Thread (sec)	**6.947**	**6.480**
Normalized	93.28%	100%
Standard Deviation	7%	6.9%
Hackbench - 2 - Thread (sec)	**14.320**	**13.544**
Normalized	94.58%	100%

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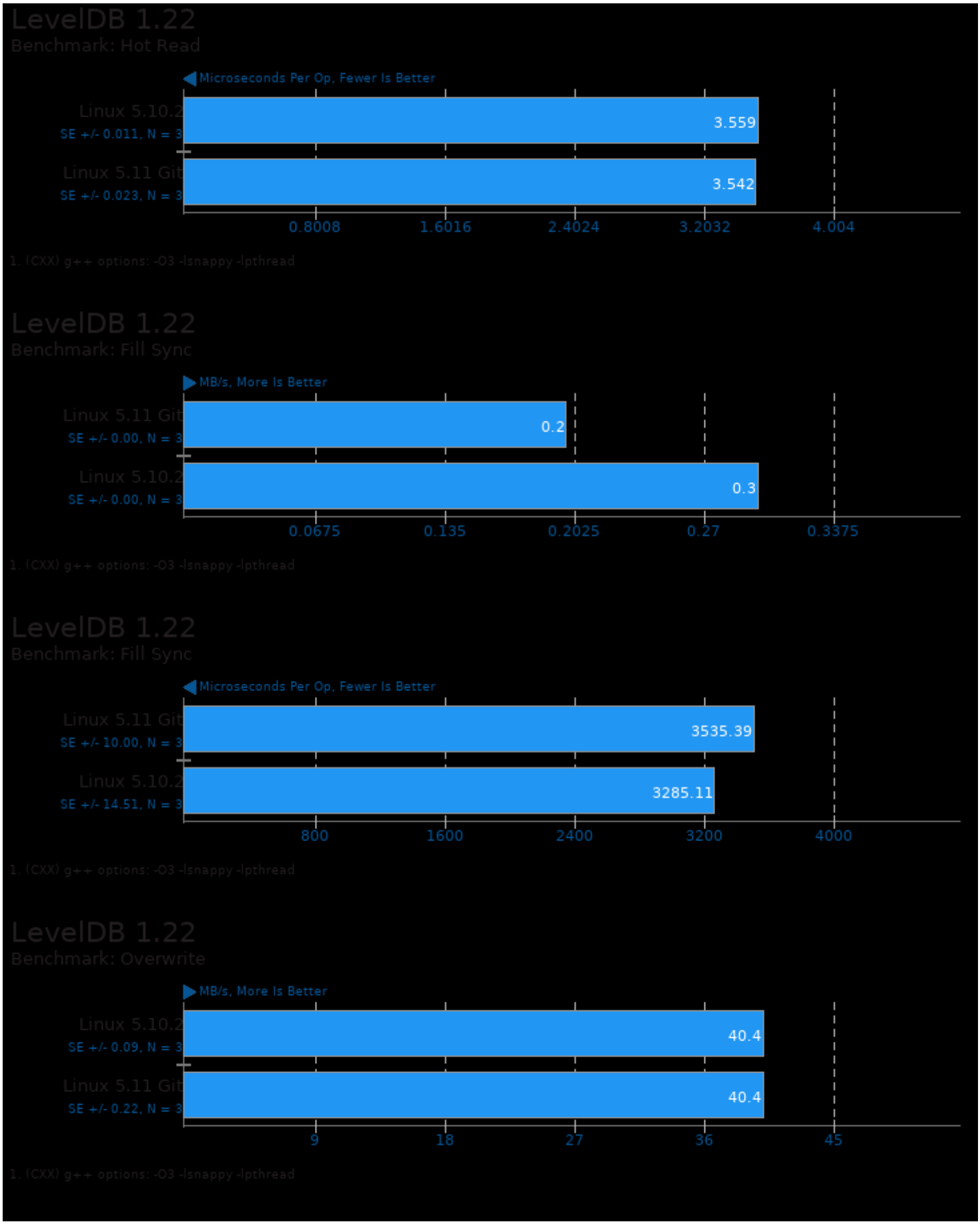
Standard Deviation	2.8%	3.3%
Hackbench - 4 - Thread (sec)	**29.138**	**27.694**
Normalized	95.04%	100%
Standard Deviation	2.5%	2.3%
Hackbench - 8 - Thread (sec)	**59.540**	**56.758**
Normalized	95.33%	100%
Standard Deviation	1.2%	1.6%
Hackbench - 1 - Process (sec)	**6.581**	**6.088**
Normalized	92.51%	100%
Standard Deviation	7.1%	6.3%
Hackbench - 16 - Thread (sec)	**129.447**	**117.642**
Normalized	90.88%	100%
Standard Deviation	1%	0.4%
Hackbench - 2 - Process (sec)	**13.585**	**12.889**
Normalized	94.88%	100%
Standard Deviation	3.3%	3.7%
Hackbench - 4 - Process (sec)	**28.019**	**26.905**
Normalized	96.02%	100%
Standard Deviation	3.8%	2.4%
Hackbench - 8 - Process (sec)	**58.792**	**56.121**
Normalized	95.46%	100%
Standard Deviation	1.1%	1.3%
Hackbench - 16 - Process (sec)	**130.029**	**119.756**
Normalized	92.1%	100%
Standard Deviation	0.5%	0.5%
Hackbench - 32 - Process (sec)	**267.109**	**255.864**
Normalized	95.79%	100%
Standard Deviation	0.2%	0.7%
MPV - B.B.B.S.4 - Software Only (FPS)	**153.28**	**154.79**
Normalized	99.02%	100%
Standard Deviation	0.3%	0.2%
MPV - B.B.B.S.1 - Software Only (FPS)	**404.83**	**413.24**
Normalized	97.96%	100%
Standard Deviation	0.8%	0.7%
SQLite Speedtest - Timed Time - Size 1,000 (sec)	**53.538**	**50.754**
Normalized	94.8%	100%
Standard Deviation	0.6%	1.2%
BenchmarkMutex - M.L.U.s (ns)	**21.8**	**21.3**
Normalized	97.71%	100%
Standard Deviation	1.3%	0.3%
BenchmarkMutex - M.L.U.s.m (ns)	**20.7**	**20.3**
Normalized	98.07%	100%
Standard Deviation	1%	1.9%
BenchmarkMutex - M.L.U.s.m (ns)	**15.4**	**15.0**
Normalized	97.4%	100%
Standard Deviation	1.9%	1%
BenchmarkMutex - M.L.U.p (ns)	**13.6**	**12.9**
Normalized	94.85%	100%
Standard Deviation	4.1%	0%
BenchmarkMutex - M.L.U.t (ns)	**13.9**	**14.1**
Normalized	100%	98.58%
Standard Deviation	3.1%	3.2%
Stress-NG - MMAP (Bogo Ops/s)	**35.48**	**36.63**
Normalized	96.86%	100%
Standard Deviation	2.5%	5.5%

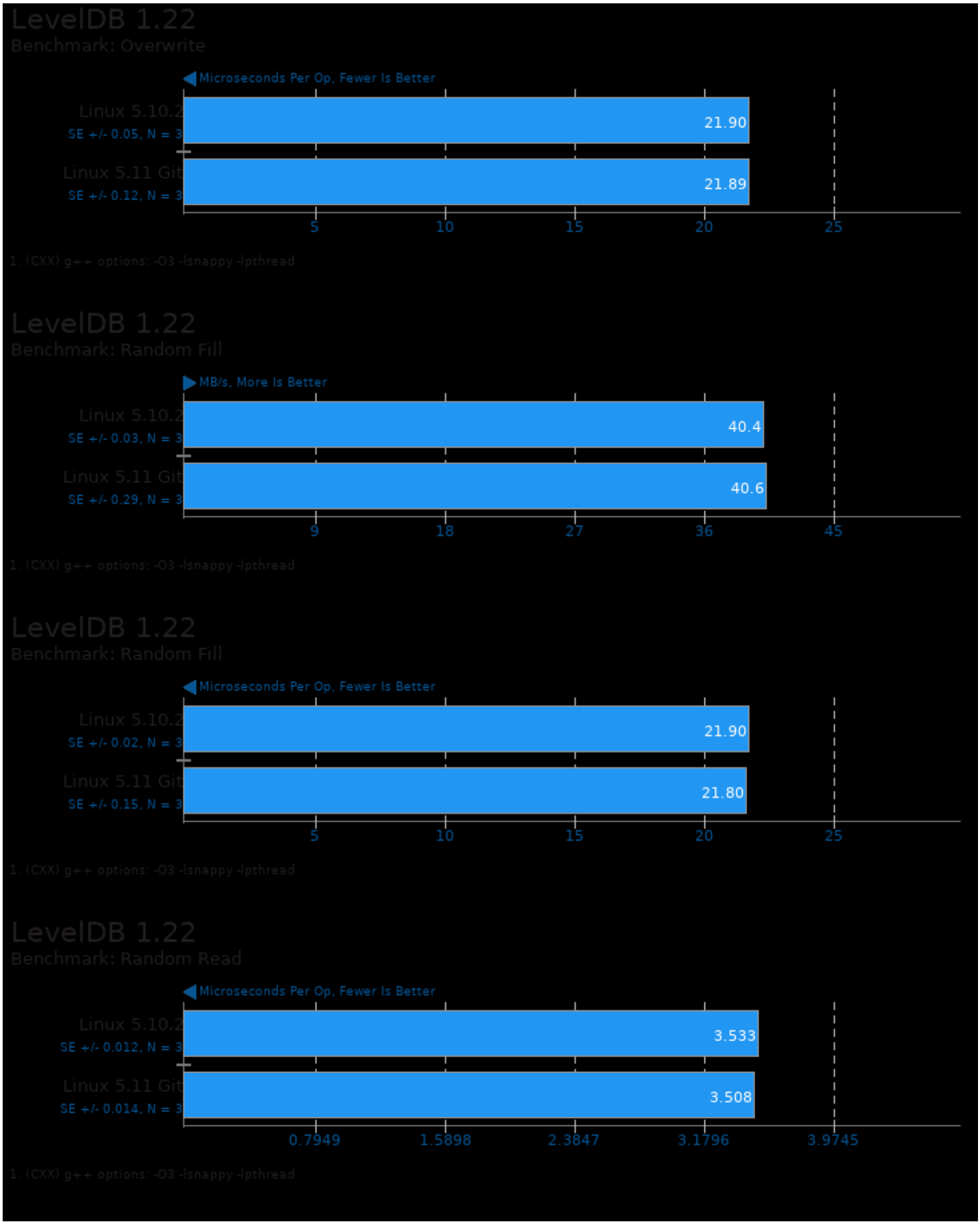
Tiger Lake Linux 5.11 Kernel

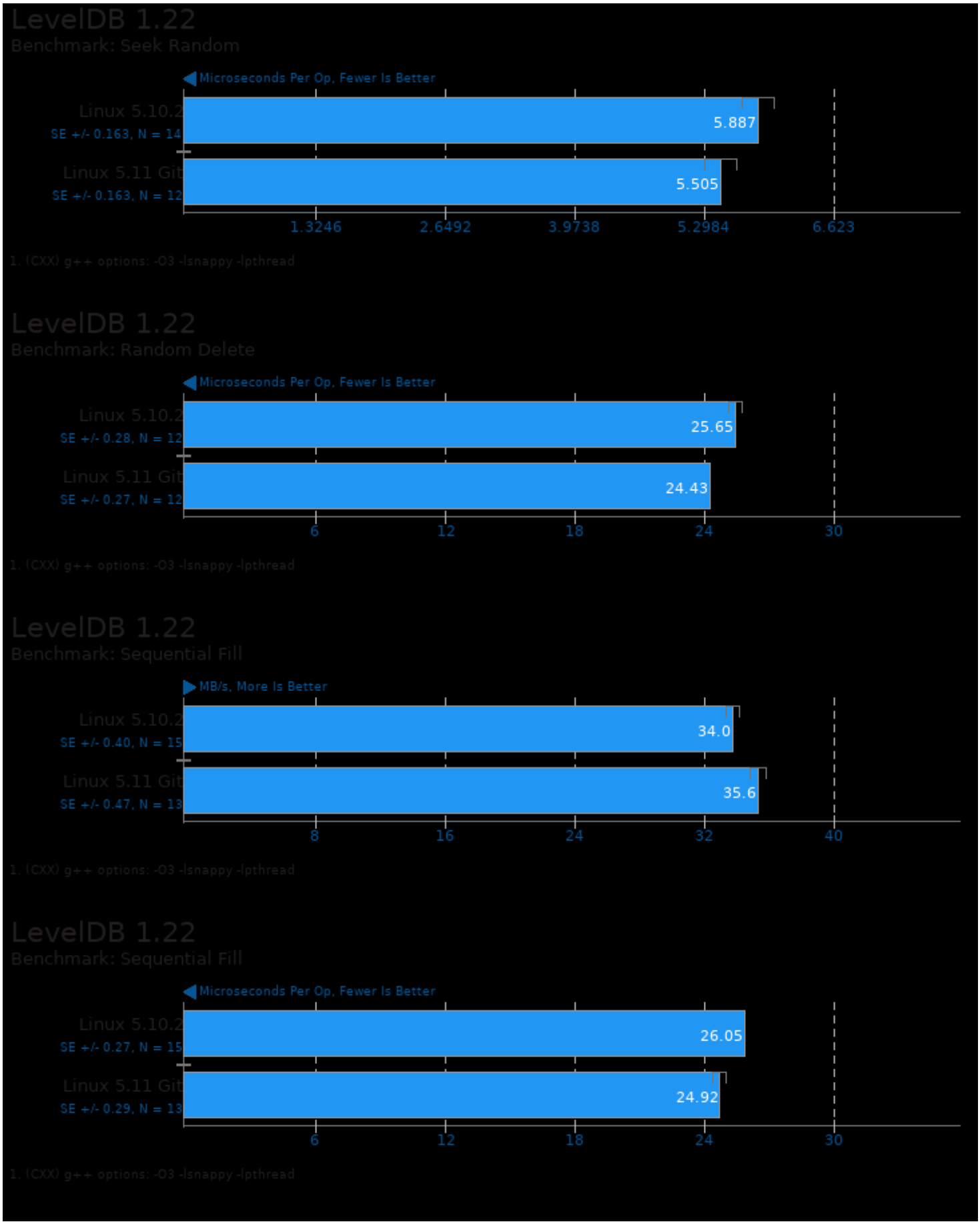
Stress-NG - NUMA (Bogo Ops/s)	**76.66**	**93.65**
Normalized	81.86%	100%
Standard Deviation	2.4%	2.2%
Stress-NG - MEMFD (Bogo Ops/s)	**221.47**	**231.80**
Normalized	95.54%	100%
Standard Deviation	2.2%	2.4%
Stress-NG - Atomic (Bogo Ops/s)	**268885**	**271007**
Normalized	99.22%	100%
Standard Deviation	4.3%	4.1%
Stress-NG - Crypto (Bogo Ops/s)	**637.23**	**659.40**
Normalized	96.64%	100%
Standard Deviation	2%	2.2%
Stress-NG - Malloc (Bogo Ops/s)	**30799335**	**32295498**
Normalized	95.37%	100%
Standard Deviation	1.9%	2.2%
Stress-NG - RdRand (Bogo Ops/s)	**37843**	**37777**
Normalized	100%	99.83%
Standard Deviation	0.8%	0.6%
Stress-NG - Forking (Bogo Ops/s)	**29138**	**31436**
Normalized	92.69%	100%
Standard Deviation	2.1%	2.3%
Stress-NG - SENDFILE (Bogo Ops/s)	**52844**	**52925**
Normalized	99.85%	100%
Standard Deviation	2.2%	2.2%
Stress-NG - CPU Cache (Bogo Ops/s)	**25.01**	**25.58**
Normalized	97.77%	100%
Standard Deviation	4.2%	2.8%
Stress-NG - CPU Stress (Bogo Ops/s)	**1762**	**1727**
Normalized	100%	97.99%
Standard Deviation	2%	2.2%
Stress-NG - Semaphores (Bogo Ops/s)	**536169**	**535278**
Normalized	100%	99.83%
Standard Deviation	0%	0%
Stress-NG - Matrix Math (Bogo Ops/s)	**14939**	**15449**
Normalized	96.7%	100%
Standard Deviation	2.6%	3.1%
Stress-NG - Vector Math (Bogo Ops/s)	**18494**	**18944**
Normalized	97.62%	100%
Standard Deviation	2.1%	2.4%
Stress-NG - Memory Copying (Bogo Ops/s)	**2719**	**2807**
Normalized	96.86%	100%
Standard Deviation	2.4%	2.5%
Stress-NG - Socket Activity (Bogo Ops/s)	**3471**	**3176**
Normalized	100%	91.52%
Standard Deviation	2.9%	0.6%
Stress-NG - Context Switching (Bogo Ops/s)	**1106084**	**1406362**
Normalized	78.65%	100%
Standard Deviation	5.4%	2.4%
Stress-NG - G.C.S.F (Bogo Ops/s)	**411951**	**415918**
Normalized	99.05%	100%
Standard Deviation	2.4%	5.7%
Stress-NG - G.Q.D.S (Bogo Ops/s)	**48.85**	**50.47**
Normalized	96.79%	100%
Standard Deviation	2.3%	2.2%
Stress-NG - S.V.M.P (Bogo Ops/s)	**4910885**	**2972642**

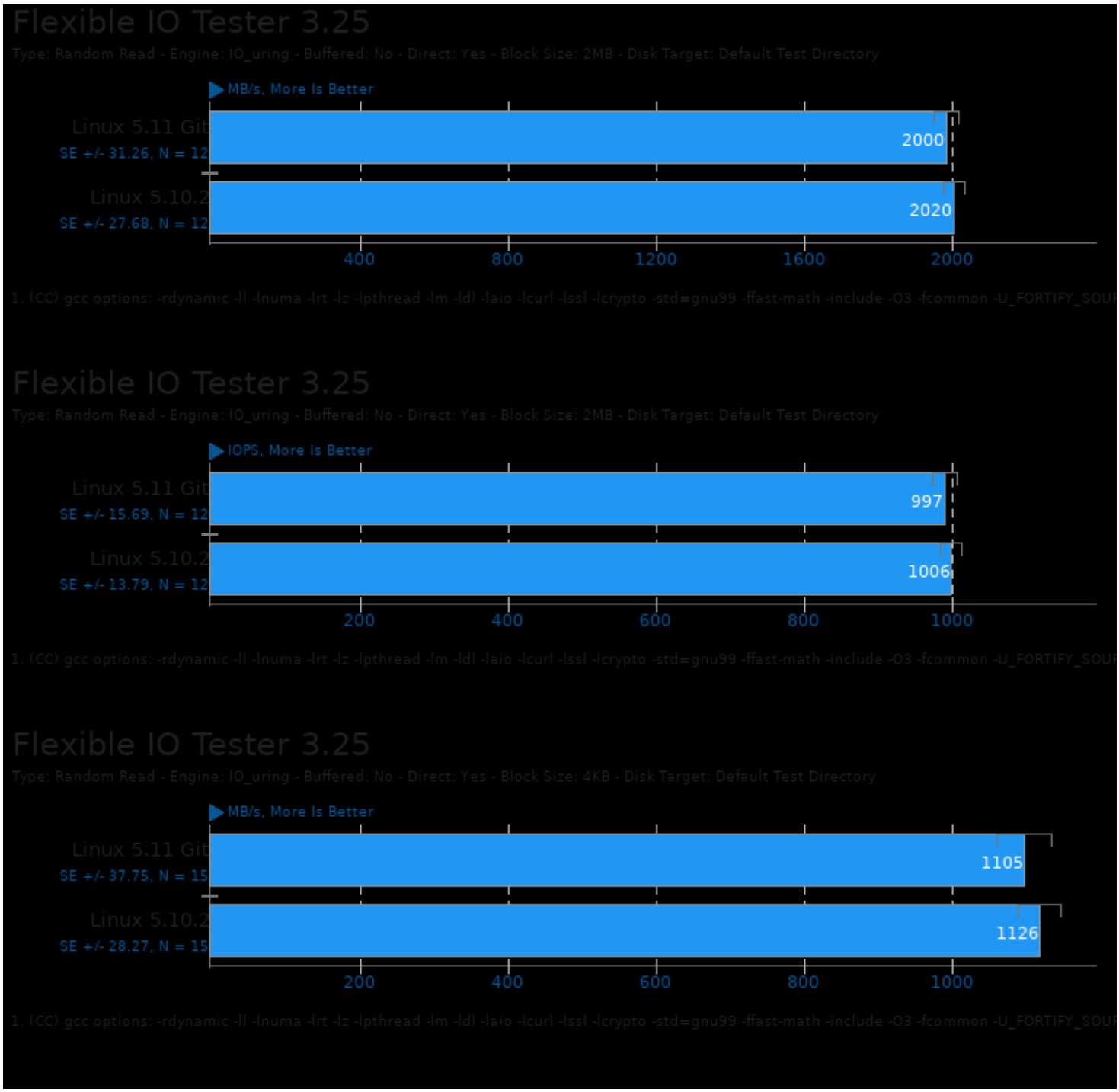
Tiger Lake Linux 5.11 Kernel

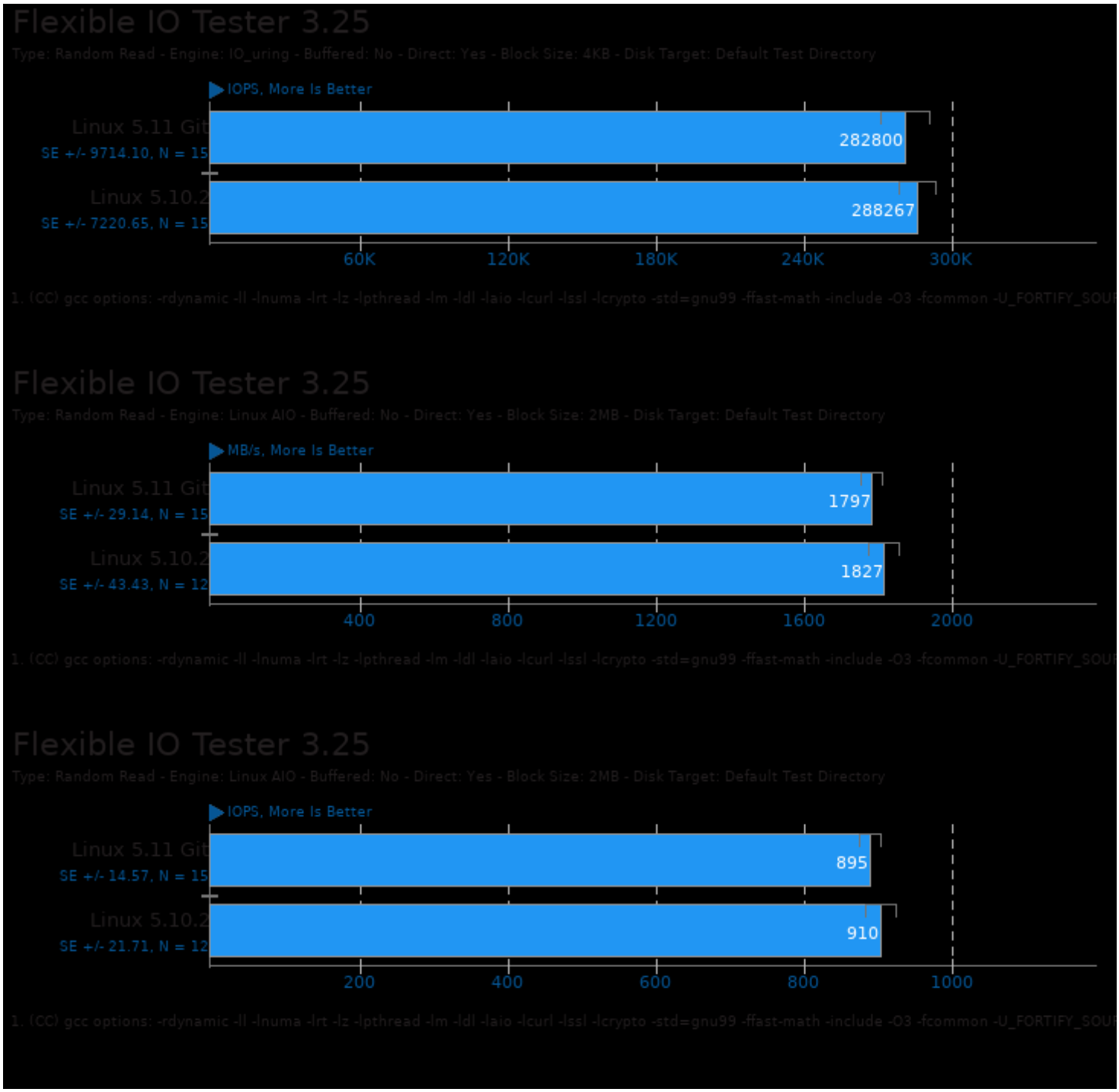
Normalized	100%	60.53%
Standard Deviation	4.4%	30.1%
Selenium - ARES-6 - Firefox (ms)	**46.98**	**45.10**
Normalized	96%	100%
Standard Deviation	0.3%	0.3%
Selenium - Kraken - Firefox (ms)	**1032**	**1011**
Normalized	97.99%	100%
Standard Deviation	0.8%	0.1%
Selenium - Octane - Firefox (Geometric Mean)	**21512**	**22570**
Normalized	95.31%	100%
Standard Deviation	2.3%	0.7%
Selenium - Jetstream - Firefox (Score)	**175.96**	**181.02**
Normalized	97.2%	100%
Standard Deviation	0.6%	0.2%
Selenium - CanvasMark - Firefox (Score)	**14648**	**14745**
Normalized	99.34%	100%
Standard Deviation	2%	0.8%
Selenium - MotionMark - Firefox (Score)	**347.73**	**394.53**
Normalized	88.14%	100%
Standard Deviation	24.6%	27.3%
Selenium - StyleBench - Firefox (Runs / Minute)	**101**	**103**
Normalized	98.06%	100%
Standard Deviation	1.7%	
Selenium - Jetstream 2 - Firefox (Score)	**83.093**	**86.367**
Normalized	96.21%	100%
Standard Deviation	1.1%	1.2%
Selenium - Maze Solver - Firefox (sec)	**5.2**	**5.3**
Normalized	100%	98.11%
Standard Deviation	1.9%	1.1%
Selenium - Speedometer - Firefox (Runs/min)	**117.5**	**122**
Normalized	96.31%	100%
Standard Deviation	3.7%	1.7%
Selenium - PSPDFKit WASM - Firefox (Score)	**3006**	**2982**
Normalized	99.2%	100%
Standard Deviation	0.4%	0.7%
Selenium - W.i - Firefox (ms)	**27.5**	**27.6**
Normalized	100%	99.64%
Standard Deviation	1.3%	2.5%
Selenium - W.c - Firefox (ms)	**336.3**	**338.4**
Normalized	100%	99.38%
Standard Deviation	2.2%	2.4%
WavPack Audio Encoding - WAV To WavPack (sec)	**13.466**	**13.391**
Normalized	99.44%	100%
Standard Deviation	2.4%	2.4%

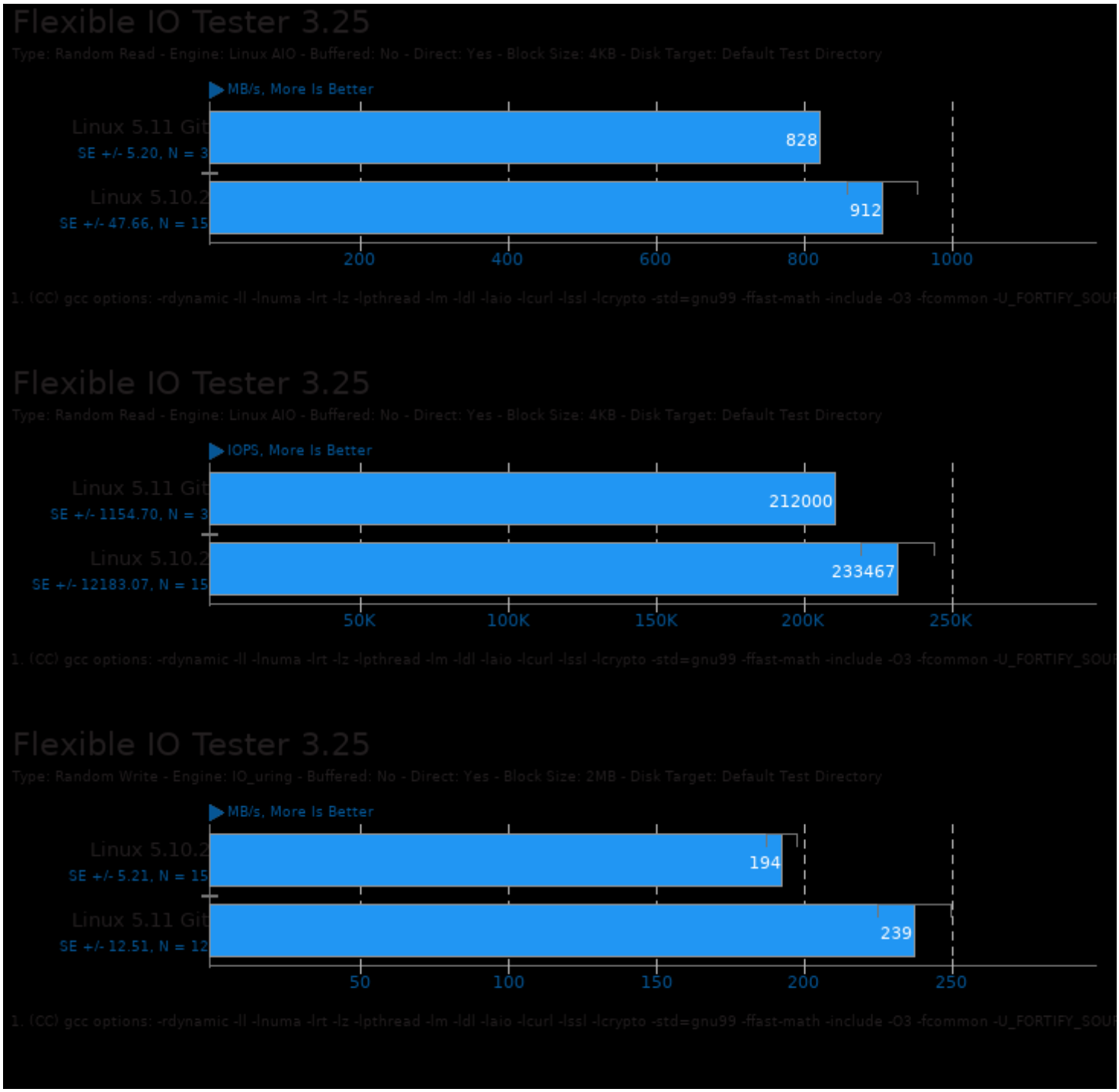

LevelDB 1.22
Benchmark: Hot Read
Microseconds Per Op, Fewer Is Better
Linux 5.10.2
SE +/- 0.011, N = 3
3.559
Linux 5.11 Git
SE +/- 0.023, N = 3
3.542
0.8008
1.6016
2.4024
3.2032
4.004
1. (CXX) g++ options: -O3 -lsnappy -lpthread
LevelDB 1.22
Benchmark: Fill Sync
MB/s, More Is Better
Linux 5.11 Git
SE +/- 0.00, N = 3
0.2
Linux 5.10.2
SE +/- 0.00, N = 3
0.3
0.0675
0.135
0.2025
0.27
0.3375
1. (CXX) g++ options: -O3 -lsnappy -lpthread
LevelDB 1.22
Benchmark: Fill Sync
Microseconds Per Op, Fewer Is Better
Linux 5.11 Git
SE +/- 10.00, N = 3
3535.39
Linux 5.10.2
SE +/- 14.51, N = 3
3285.11
800
1600
2400
3200
4000
1. (CXX) g++ options: -O3 -lsnappy -lpthread
LevelDB 1.22
Benchmark: Overwrite
MB/s, More Is Better
Linux 5.10.2
SE +/- 0.09, N = 3
40.4
Linux 5.11 Git
SE +/- 0.22, N = 3
40.4
9
18
27
36
45
1. (CXX) g++ options: -O3 -lsnappy -lpthread

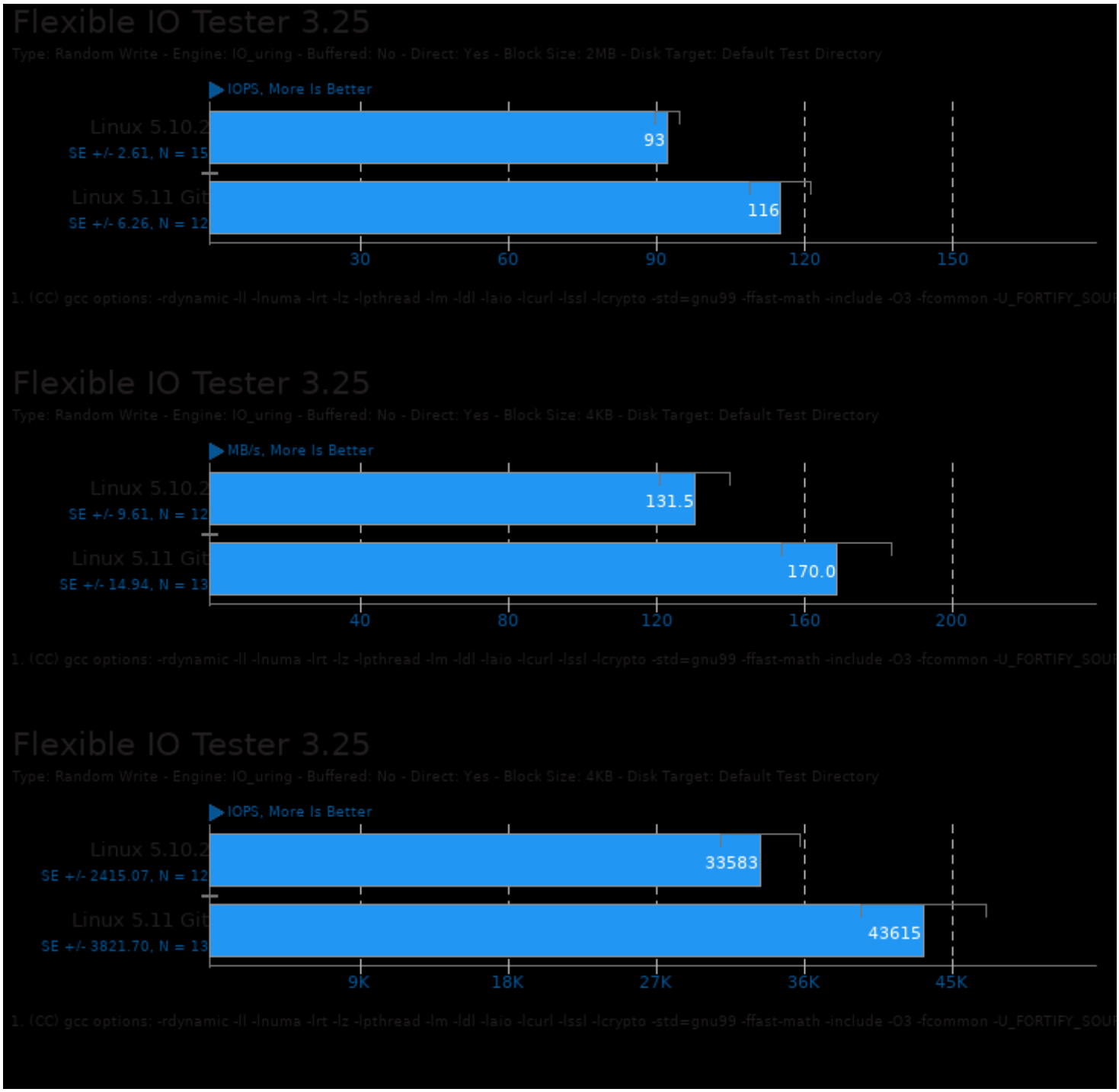

LevelDB 1.22
Benchmark: Overwrite
Microseconds Per Op, Fewer Is Better
Linux 5.10.2
SE +/- 0.05, N = 3
21.90
Linux 5.11 Git
SE +/- 0.12, N = 3
21.89
5
10
15
20
25
1. (CXX) g++ options: -O3 -lsnappy -lpthread
LevelDB 1.22
Benchmark: Random Fill
MB/s, More Is Better
Linux 5.10.2
SE +/- 0.03, N = 3
40.4
Linux 5.11 Git
SE +/- 0.29, N = 3
40.6
9
18
27
36
45
1. (CXX) g++ options: -O3 -lsnappy -lpthread
LevelDB 1.22
Benchmark: Random Fill
Microseconds Per Op, Fewer Is Better
Linux 5.10.2
SE +/- 0.02, N = 3
21.90
Linux 5.11 Git
SE +/- 0.15, N = 3
21.80
5
10
15
20
25
1. (CXX) g++ options: -O3 -lsnappy -lpthread
LevelDB 1.22
Benchmark: Random Read
Microseconds Per Op, Fewer Is Better
Linux 5.10.2
SE +/- 0.012, N = 3
3.533
Linux 5.11 Git
SE +/- 0.014, N = 3
3.508
0.7949
1.5898
2.3847
3.1796
3.9745
1. (CXX) g++ options: -O3 -lsnappy -lpthread

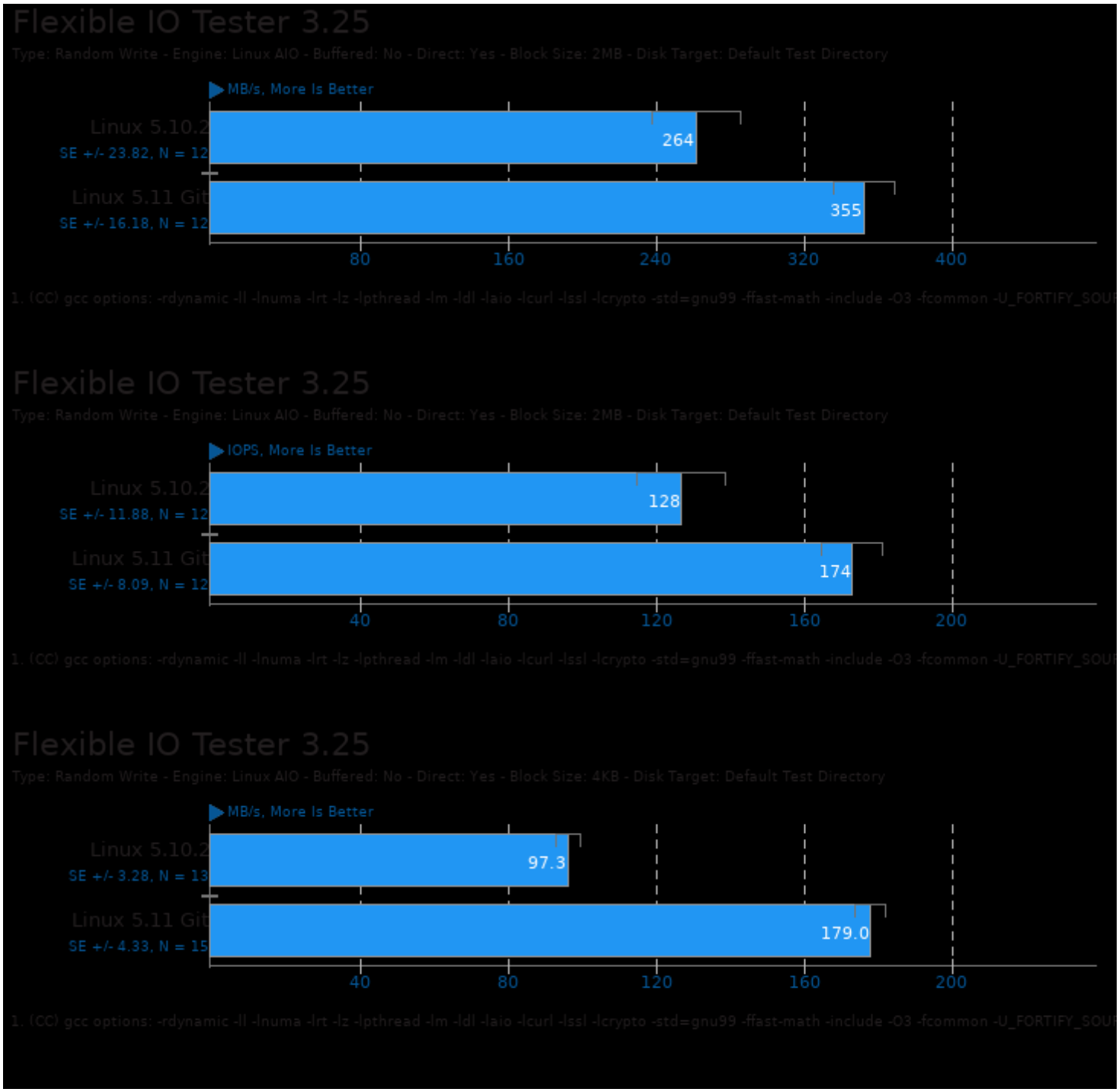

LevelDB 1.22
Benchmark: Seek Random
Microseconds Per Op, Fewer Is Better
Linux 5.10.2
SE +/- 0.163, N = 14
5.887
Linux 5.11 Git
SE +/- 0.163, N = 12
5.505
1.3246
2.6492
3.9738
5.2984
6.623
1. (CXX) g++ options: -O3 -lsnappy -lpthread
LevelDB 1.22
Benchmark: Random Delete
Microseconds Per Op, Fewer Is Better
Linux 5.10.2
SE +/- 0.28, N = 12
25.65
Linux 5.11 Git
SE +/- 0.27, N = 12
24.43
6
12
18
24
30
1. (CXX) g++ options: -O3 -lsnappy -lpthread
LevelDB 1.22
Benchmark: Sequential Fill
MB/s, More Is Better
Linux 5.10.2
SE +/- 0.40, N = 15
34.0
Linux 5.11 Git
SE +/- 0.47, N = 13
35.6
8
16
24
32
40
1. (CXX) g++ options: -O3 -lsnappy -lpthread
LevelDB 1.22
Benchmark: Sequential Fill
Microseconds Per Op, Fewer Is Better
Linux 5.10.2
SE +/- 0.27, N = 15
26.05
Linux 5.11 Git
SE +/- 0.29, N = 13
24.92
6
12
18
24
30
1. (CXX) g++ options: -O3 -lsnappy -lpthread

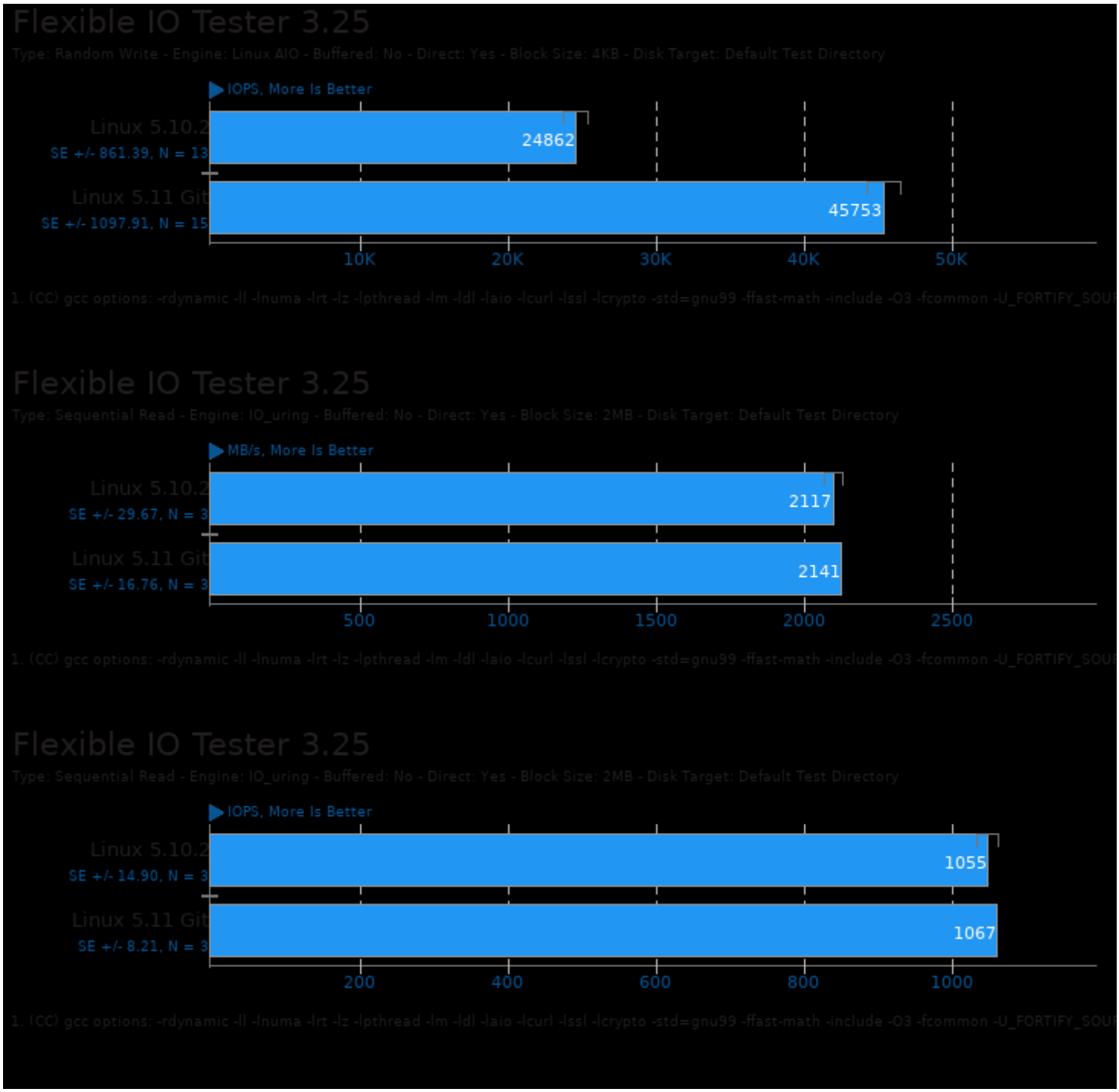

Flexible IO Tester 3.25
Type: Random Read - Engine: IO_uring - Buffered: No - Direct: Yes - Block Size: 2MB - Disk Target: Default Test Directory
MB/s, More Is Better
Linux 5.11 Git
SE +/- 31.26, N = 12
2000
Linux 5.10.2
SE +/- 27.68, N = 12
2020
400
800
1200
1600
2000
1. (CC) gcc options: -rdynamic -ll -lnuma -lrt -lz -lpthread -lm -ldl -laio -lcurl -lssl -lcrypto -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOU
Flexible IO Tester 3.25
Type: Random Read - Engine: IO_uring - Buffered: No - Direct: Yes - Block Size: 2MB - Disk Target: Default Test Directory
IOPS, More Is Better
Linux 5.11 Git
SE +/- 15.69, N = 12
997
Linux 5.10.2
SE +/- 13.79, N = 12
1006
200
400
600
800
1000
1. (CC) gcc options: -rdynamic -ll -lnuma -lrt -lz -lpthread -lm -ldl -laio -lcurl -lssl -lcrypto -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOU
Flexible IO Tester 3.25
Type: Random Read - Engine: IO_uring - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory
MB/s, More Is Better
Linux 5.11 Git
SE +/- 37.75, N = 15
1105
Linux 5.10.2
SE +/- 28.27, N = 15
1126
200
400
600
800
1000
1. (CC) gcc options: -rdynamic -ll -lnuma -lrt -lz -lpthread -lm -ldl -laio -lcurl -lssl -lcrypto -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOU

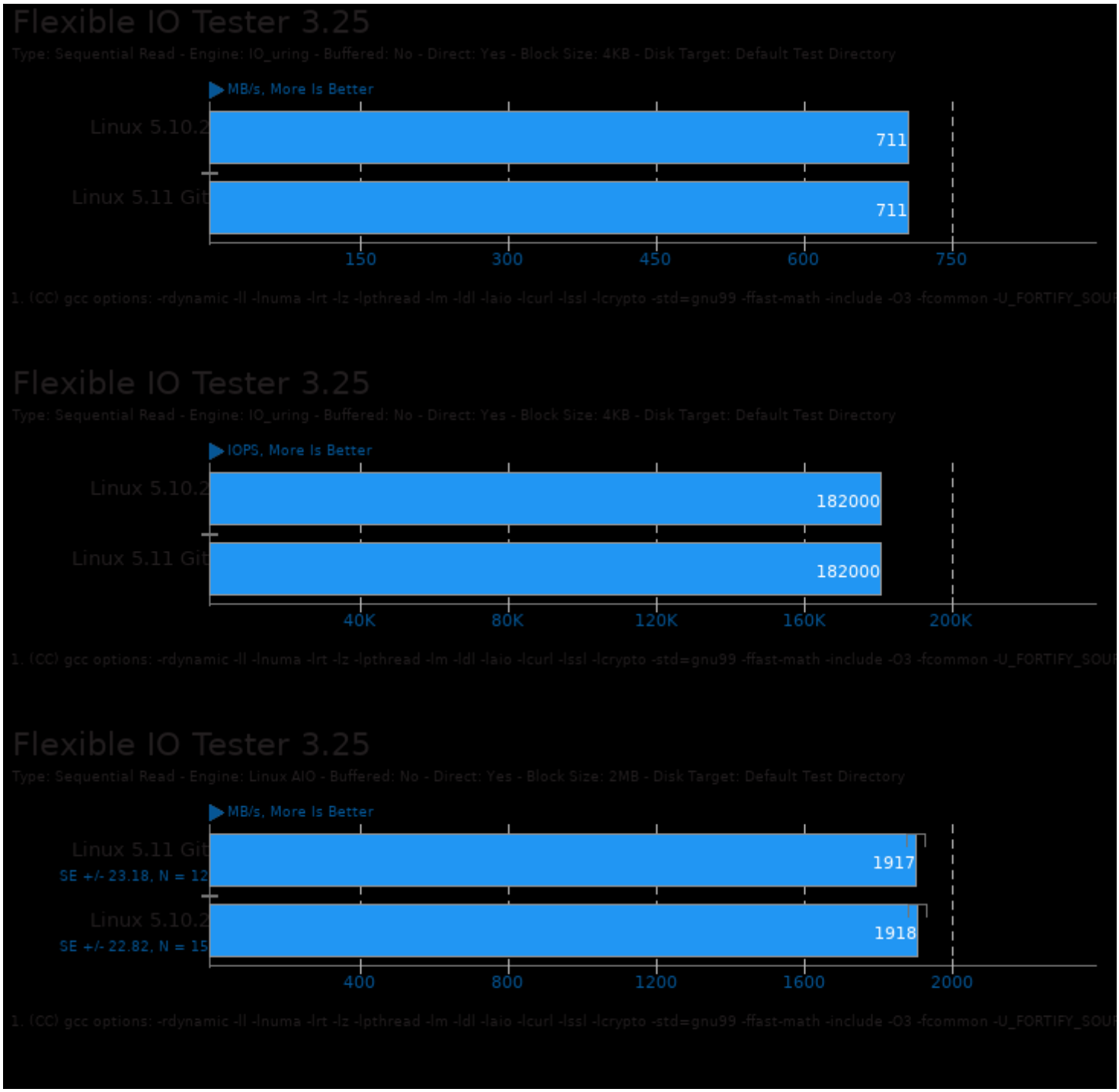

Flexible IO Tester 3.25
Type: Random Read - Engine: IO_uring - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory
IOPS, More Is Better
Linux 5.11 Git
SE +/- 9714.10, N = 15
282800
Linux 5.10.2
SE +/- 7220.65, N = 15
288267
60K
120K
180K
240K
300K
1. (CC) gcc options: -rdynamic -ll -lnuma -lrt -lz -lpthread -lm -ldl -laio -lcurl -lssl -lcrypto -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOU
Flexible IO Tester 3.25
Type: Random Read - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 2MB - Disk Target: Default Test Directory
MB/s, More Is Better
Linux 5.11 Git
SE +/- 29.14, N = 15
1797
Linux 5.10.2
SE +/- 43.43, N = 12
1827
400
800
1200
1600
2000
1. (CC) gcc options: -rdynamic -ll -lnuma -lrt -lz -lpthread -lm -ldl -laio -lcurl -lssl -lcrypto -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOU
Flexible IO Tester 3.25
Type: Random Read - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 2MB - Disk Target: Default Test Directory
IOPS, More Is Better
Linux 5.11 Git
SE +/- 14.57, N = 15
895
Linux 5.10.2
SE +/- 21.71, N = 12
910
200
400
600
800
1000
1. (CC) gcc options: -rdynamic -ll -lnuma -lrt -lz -lpthread -lm -ldl -laio -lcurl -lssl -lcrypto -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOU

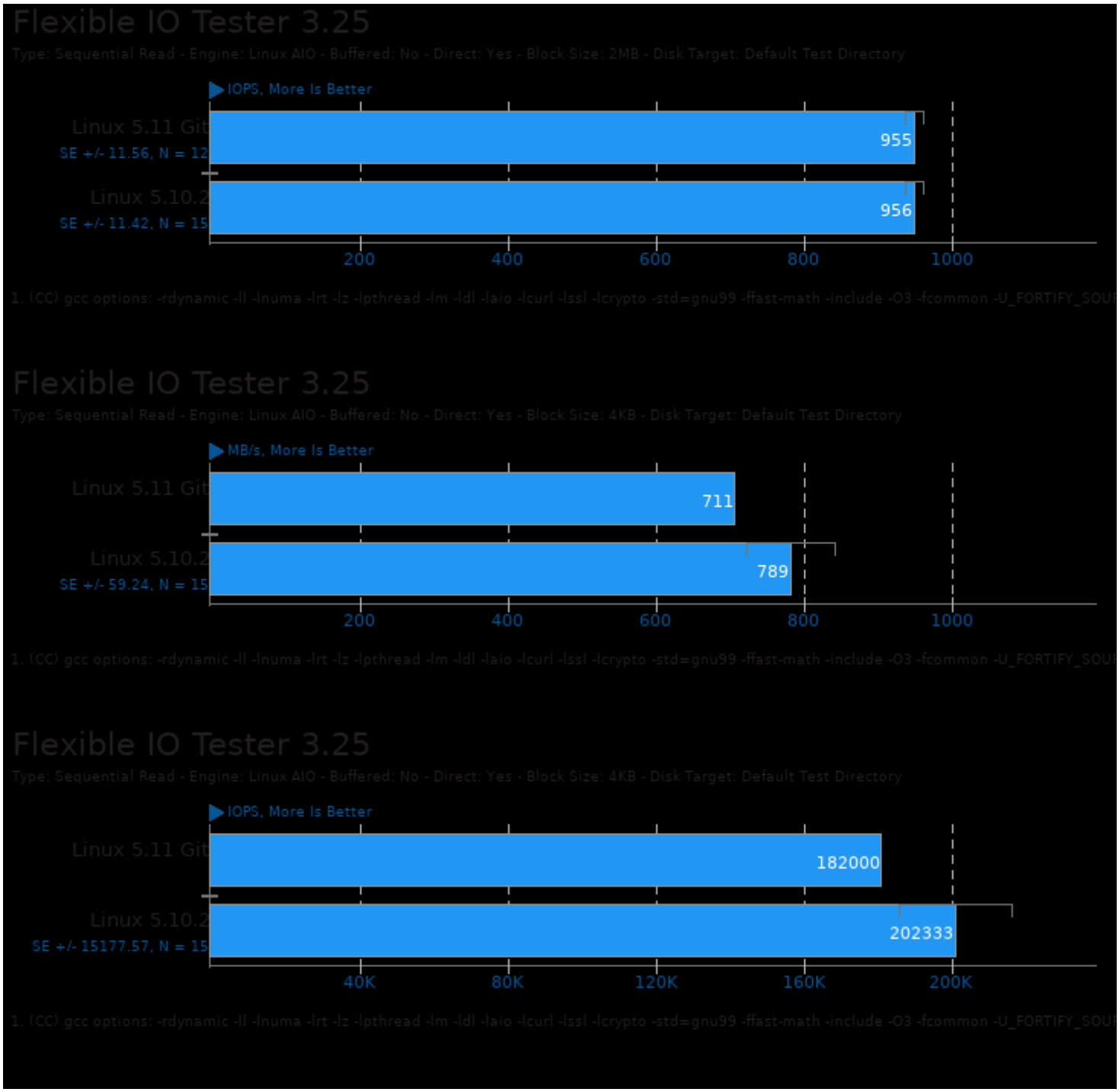

Flexible IO Tester 3.25
Type: Random Read - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory
MB/s, More Is Better
Linux 5.11 Git
SE +/- 5.20, N = 3
828
Linux 5.10.2
SE +/- 47.66, N = 15
912
200
400
600
800
1000
1. (CC) gcc options: -rdynamic -ll -lnuma -lrt -lz -lpthread -lm -ldl -laio -lcurl -lssl -lcrypto -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOU
Flexible IO Tester 3.25
Type: Random Read - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory
IOPS, More Is Better
Linux 5.11 Git
SE +/- 1154.70, N = 3
212000
Linux 5.10.2
SE +/- 12183.07, N = 15
233467
50K
100K
150K
200K
250K
1. (CC) gcc options: -rdynamic -ll -lnuma -lrt -lz -lpthread -lm -ldl -laio -lcurl -lssl -lcrypto -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOU
Flexible IO Tester 3.25
Type: Random Write - Engine: IO_uring - Buffered: No - Direct: Yes - Block Size: 2MB - Disk Target: Default Test Directory
MB/s, More Is Better
Linux 5.10.2
SE +/- 5.21, N = 15
194
Linux 5.11 Git
SE +/- 12.51, N = 12
239
50
100
150
200
250
1. (CC) gcc options: -rdynamic -ll -lnuma -lrt -lz -lpthread -lm -ldl -laio -lcurl -lssl -lcrypto -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOU

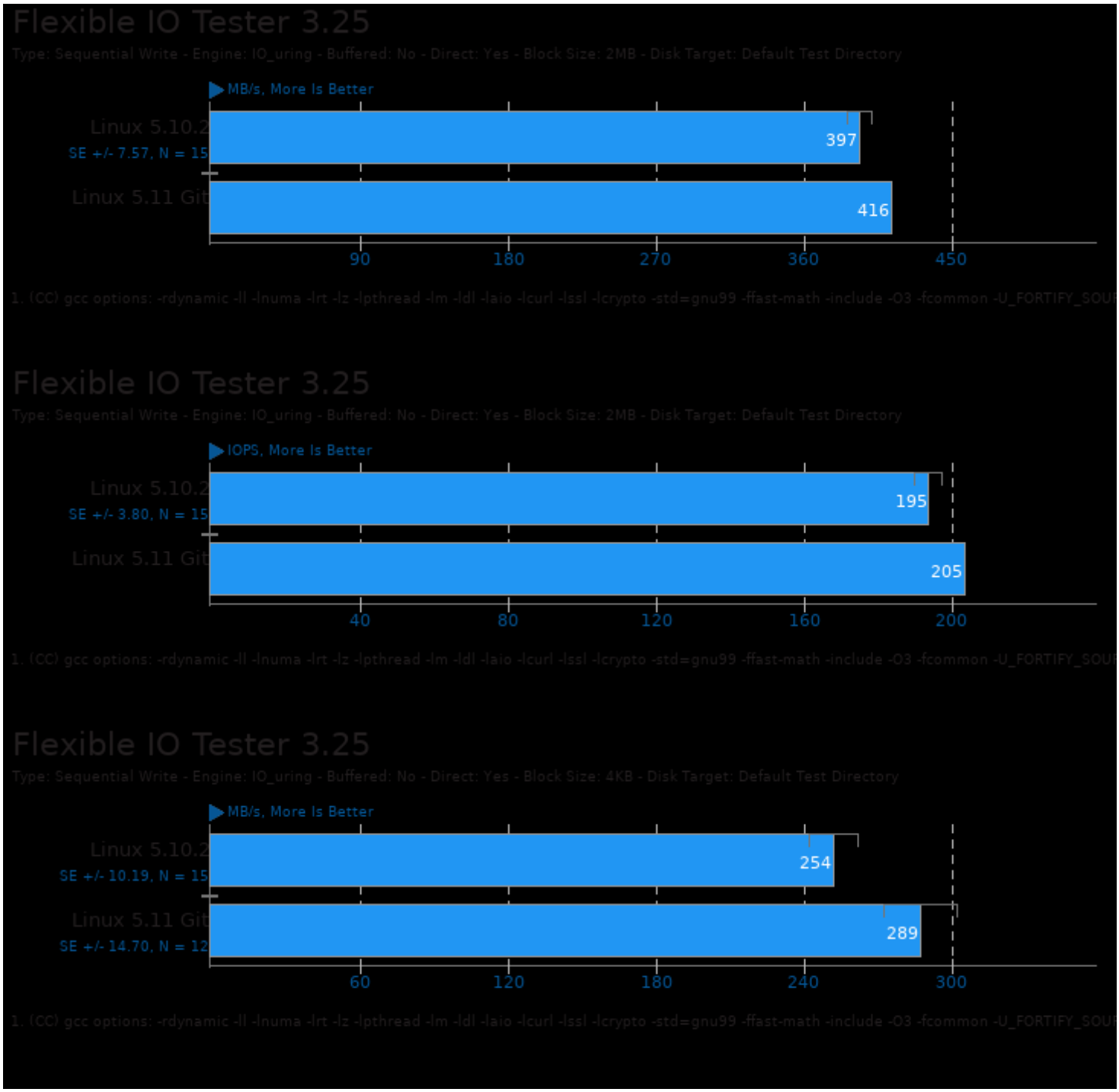

Flexible IO Tester 3.25
Type: Random Write - Engine: IO_uring - Buffered: No - Direct: Yes - Block Size: 2MB - Disk Target: Default Test Directory
IOPS, More Is Better
Linux 5.10.2
SE +/- 2.61, N = 15
93
Linux 5.11 Git
SE +/- 6.26, N = 12
116
30
60
90
120
150
1. (CC) gcc options: -rdynamic -ll -lnuma -lrt -lz -lpthread -lm -ldl -laio -lcurl -lssl -lcrypto -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOU
Flexible IO Tester 3.25
Type: Random Write - Engine: IO_uring - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory
MB/s, More Is Better
Linux 5.10.2
SE +/- 9.61, N = 12
131.5
Linux 5.11 Git
SE +/- 14.94, N = 13
170.0
40
80
120
160
200
1. (CC) gcc options: -rdynamic -ll -lnuma -lrt -lz -lpthread -lm -ldl -laio -lcurl -lssl -lcrypto -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOU
Flexible IO Tester 3.25
Type: Random Write - Engine: IO_uring - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory
IOPS, More Is Better
Linux 5.10.2
SE +/- 2415.07, N = 12
33583
Linux 5.11 Git
SE +/- 3821.70, N = 13
43615
9K
18K
27K
36K
45K
1. (CC) gcc options: -rdynamic -ll -lnuma -lrt -lz -lpthread -lm -ldl -laio -lcurl -lssl -lcrypto -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOU

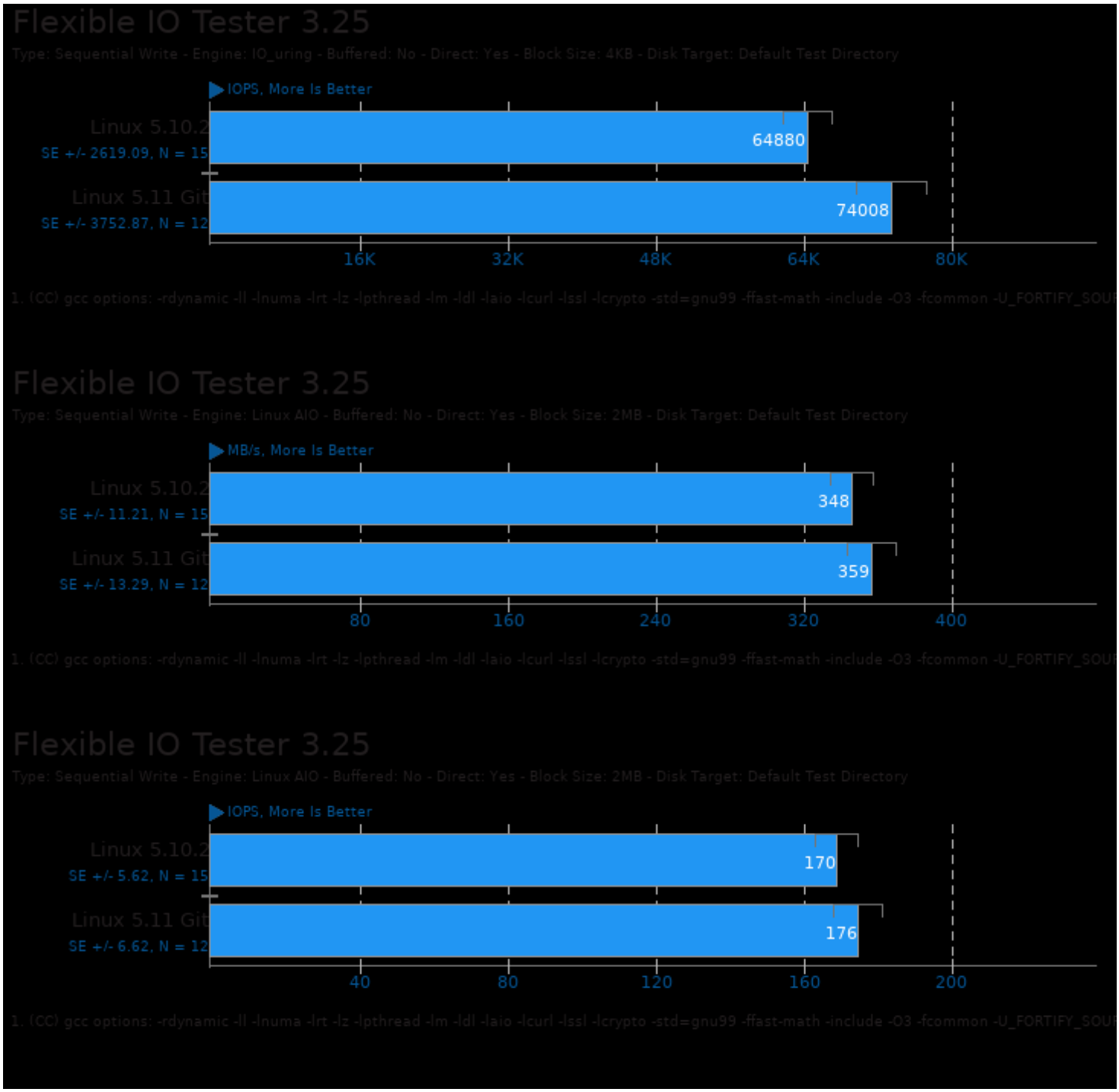

Flexible IO Tester 3.25
Type: Random Write - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 2MB - Disk Target: Default Test Directory
MB/s, More Is Better
Linux 5.10.2
SE +/- 23.82, N = 12
264
Linux 5.11 Git
SE +/- 16.18, N = 12
355
80
160
240
320
400
1. (CC) gcc options: -rdynamic -ll -lnuma -lrt -lz -lpthread -lm -ldl -laio -lcurl -lssl -lcrypto -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOU
Flexible IO Tester 3.25
Type: Random Write - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 2MB - Disk Target: Default Test Directory
IOPS, More Is Better
Linux 5.10.2
SE +/- 11.88, N = 12
128
Linux 5.11 Git
SE +/- 8.09, N = 12
174
40
80
120
160
200
1. (CC) gcc options: -rdynamic -ll -lnuma -lrt -lz -lpthread -lm -ldl -laio -lcurl -lssl -lcrypto -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOU
Flexible IO Tester 3.25
Type: Random Write - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory
MB/s, More Is Better
Linux 5.10.2
SE +/- 3.28, N = 13
97.3
Linux 5.11 Git
SE +/- 4.33, N = 15
179.0
40
80
120
160
200
1. (CC) gcc options: -rdynamic -ll -lnuma -lrt -lz -lpthread -lm -ldl -laio -lcurl -lssl -lcrypto -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOU

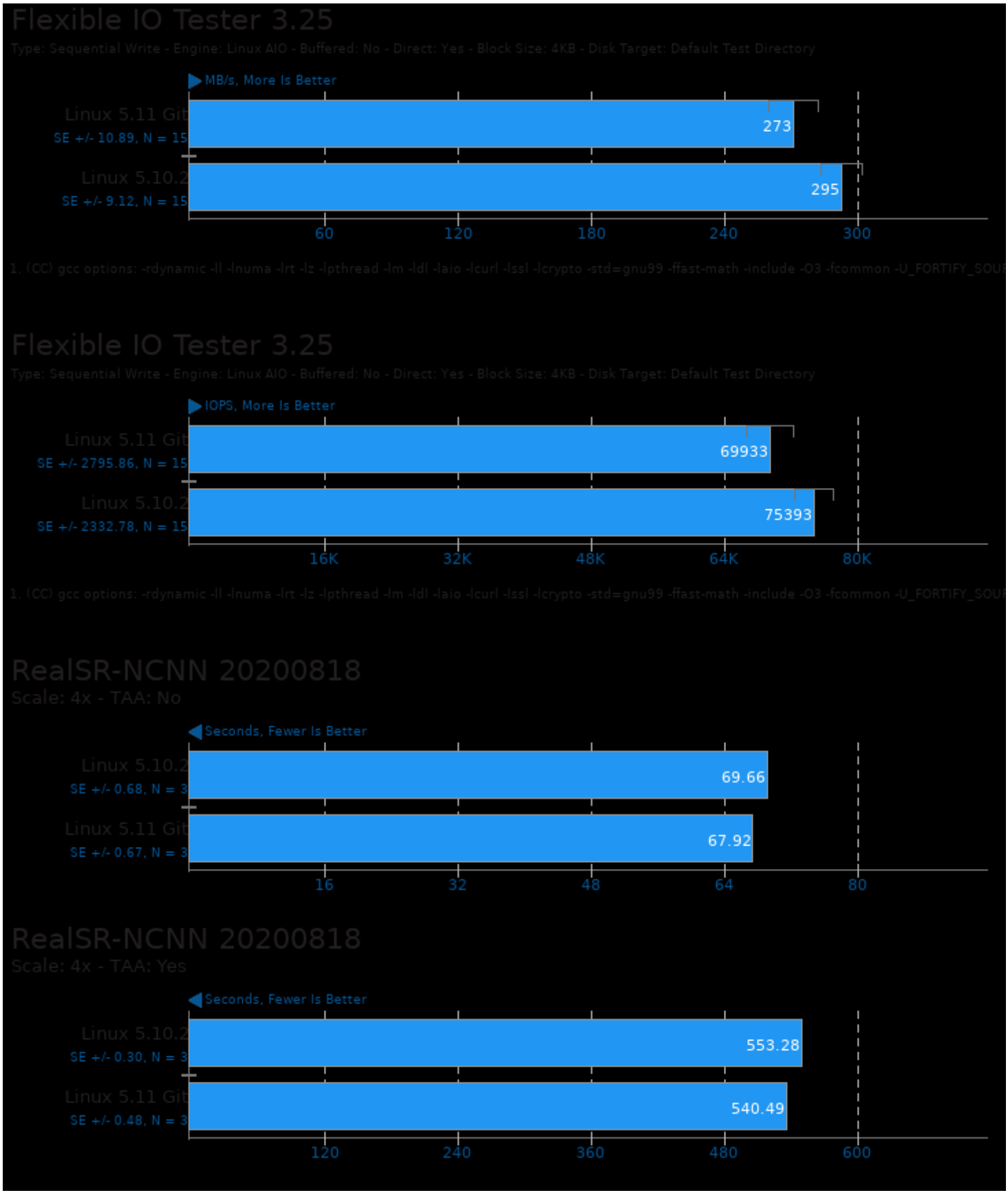

Flexible IO Tester 3.25
Type: Random Write - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory
IOPS, More Is Better
Linux 5.10.2
SE +/- 861.39, N = 13
24862
Linux 5.11 Git
SE +/- 1097.91, N = 15
45753
10K
20K
30K
40K
50K
1. (CC) gcc options: -rdynamic -ll -lnuma -lrt -lz -lpthread -lm -ldl -laio -lcurl -lssl -lcrypto -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOU
Flexible IO Tester 3.25
Type: Sequential Read - Engine: IO_uring - Buffered: No - Direct: Yes - Block Size: 2MB - Disk Target: Default Test Directory
MB/s, More Is Better
Linux 5.10.2
SE +/- 29.67, N = 3
2117
Linux 5.11 Git
SE +/- 16.76, N = 3
2141
500
1000
1500
2000
2500
1. (CC) gcc options: -rdynamic -ll -lnuma -lrt -lz -lpthread -lm -ldl -laio -lcurl -lssl -lcrypto -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOU
Flexible IO Tester 3.25
Type: Sequential Read - Engine: IO_uring - Buffered: No - Direct: Yes - Block Size: 2MB - Disk Target: Default Test Directory
IOPS, More Is Better
Linux 5.10.2
SE +/- 14.90, N = 3
1055
Linux 5.11 Git
SE +/- 8.21, N = 3
1067
200
400
600
800
1000
1. (CC) gcc options: -rdynamic -ll -lnuma -lrt -lz -lpthread -lm -ldl -laio -lcurl -lssl -lcrypto -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOU

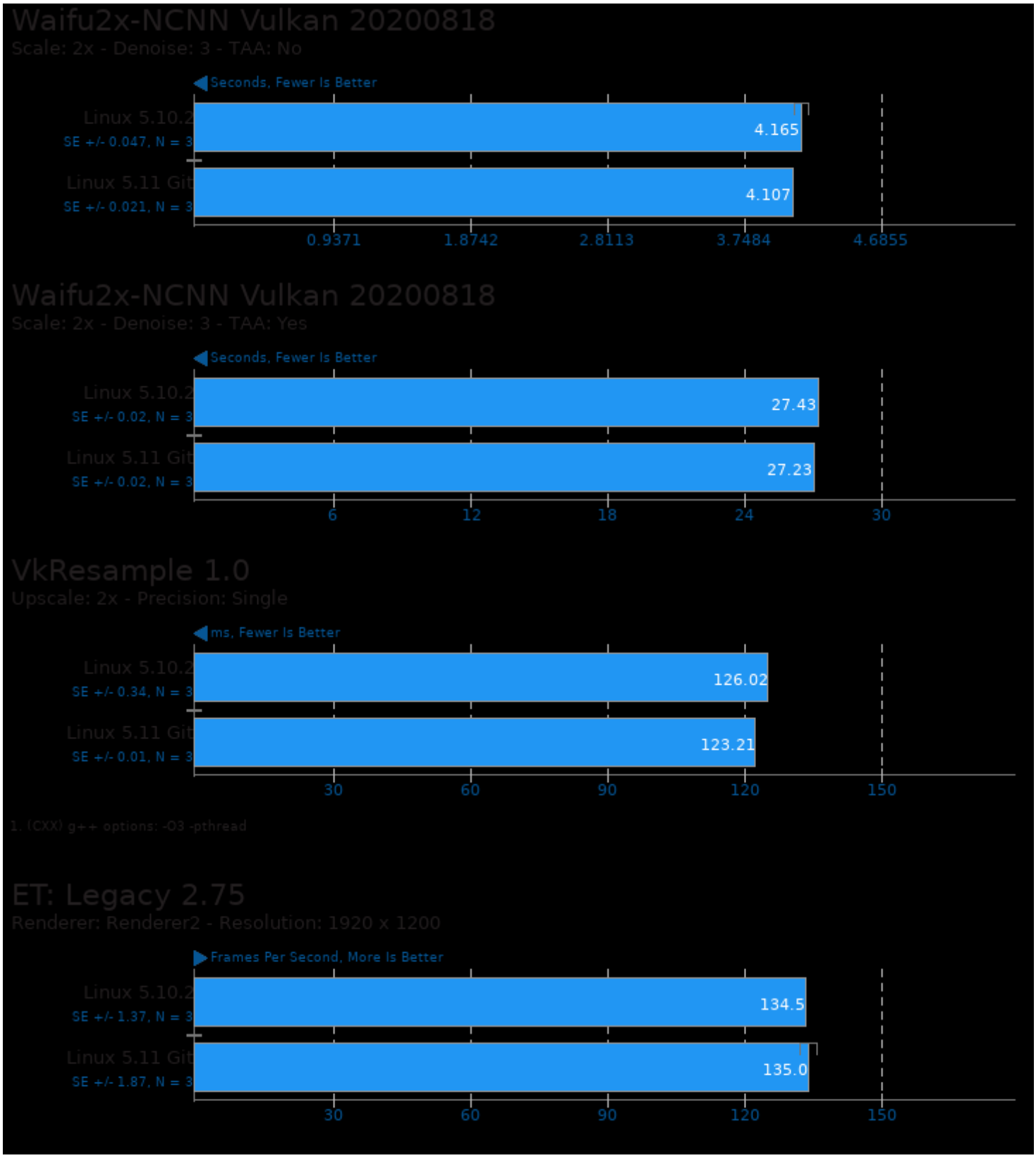

Flexible IO Tester 3.25
Type: Sequential Read - Engine: IO_uring - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory
MB/s, More Is Better
Linux 5.10.2
711
Linux 5.11 Git
711
150
300
450
600
750
1. (CC) gcc options: -rdynamic -ll -lnuma -lrt -lz -lpthread -lm -ldl -laio -lcurl -lssl -lcrypto -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOU
Flexible IO Tester 3.25
Type: Sequential Read - Engine: IO_uring - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory
IOPS, More Is Better
Linux 5.10.2
182000
Linux 5.11 Git
182000
40K
80K
120K
160K
200K
1. (CC) gcc options: -rdynamic -ll -lnuma -lrt -lz -lpthread -lm -ldl -laio -lcurl -lssl -lcrypto -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOU
Flexible IO Tester 3.25
Type: Sequential Read - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 2MB - Disk Target: Default Test Directory
MB/s, More Is Better
Linux 5.11 Git
SE +/- 23.18, N = 12
1917
Linux 5.10.2
SE +/- 22.82, N = 15
1918
400
800
1200
1600
2000
1. (CC) gcc options: -rdynamic -ll -lnuma -lrt -lz -lpthread -lm -ldl -laio -lcurl -lssl -lcrypto -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOU


Flexible IO Tester 3.25
Type: Sequential Read - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 2MB - Disk Target: Default Test Directory
IOPS, More Is Better
Linux 5.11 Git
SE +/- 11.56, N = 12
955
Linux 5.10.2
SE +/- 11.42, N = 15
956
200
400
600
800
1000
1. (CC) gcc options: -rdynamic -ll -lnuma -lrt -lz -lpthread -lm -ldl -laio -lcurl -lssl -lcrypto -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOU
Flexible IO Tester 3.25
Type: Sequential Read - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory
MB/s, More Is Better
Linux 5.11 Git
711
Linux 5.10.2
SE +/- 59.24, N = 15
789
200
400
600
800
1000
1. (CC) gcc options: -rdynamic -ll -lnuma -lrt -lz -lpthread -lm -ldl -laio -lcurl -lssl -lcrypto -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOU
Flexible IO Tester 3.25
Type: Sequential Read - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory
IOPS, More Is Better
Linux 5.11 Git
182000
Linux 5.10.2
SE +/- 15177.57, N = 15
202333
40K
80K
120K
160K
200K
1. (CC) gcc options: -rdynamic -ll -lnuma -lrt -lz -lpthread -lm -ldl -laio -lcurl -lssl -lcrypto -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOU

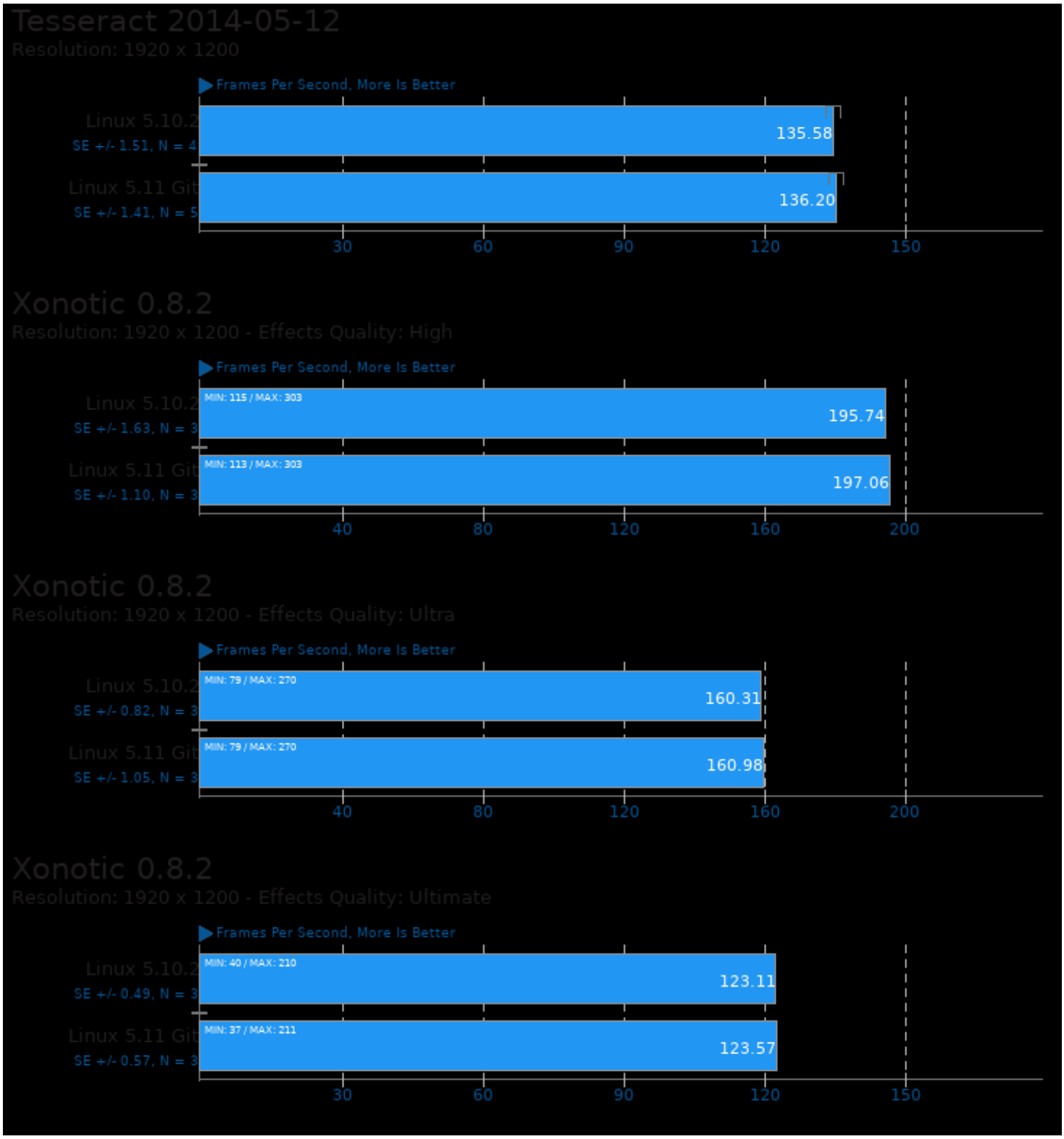

Flexible IO Tester 3.25
Type: Sequential Write - Engine: IO_uring - Buffered: No - Direct: Yes - Block Size: 2MB - Disk Target: Default Test Directory
MB/s, More Is Better
Linux 5.10.2
SE +/- 7.57, N = 15
397
Linux 5.11 Git
416
90
180
270
360
450
1. (CC) gcc options: -rdynamic -ll -lnuma -lrt -lz -lpthread -lm -ldl -laio -lcurl -lssl -lcrypto -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOU
Flexible IO Tester 3.25
Type: Sequential Write - Engine: IO_uring - Buffered: No - Direct: Yes - Block Size: 2MB - Disk Target: Default Test Directory
IOPS, More Is Better
Linux 5.10.2
SE +/- 3.80, N = 15
195
Linux 5.11 Git
205
40
80
120
160
200
1. (CC) gcc options: -rdynamic -ll -lnuma -lrt -lz -lpthread -lm -ldl -laio -lcurl -lssl -lcrypto -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOU
Flexible IO Tester 3.25
Type: Sequential Write - Engine: IO_uring - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory
MB/s, More Is Better
Linux 5.10.2
SE +/- 10.19, N = 15
254
Linux 5.11 Git
SE +/- 14.70, N = 12
289
60
120
180
240
300
1. (CC) gcc options: -rdynamic -ll -lnuma -lrt -lz -lpthread -lm -ldl -laio -lcurl -lssl -lcrypto -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOU

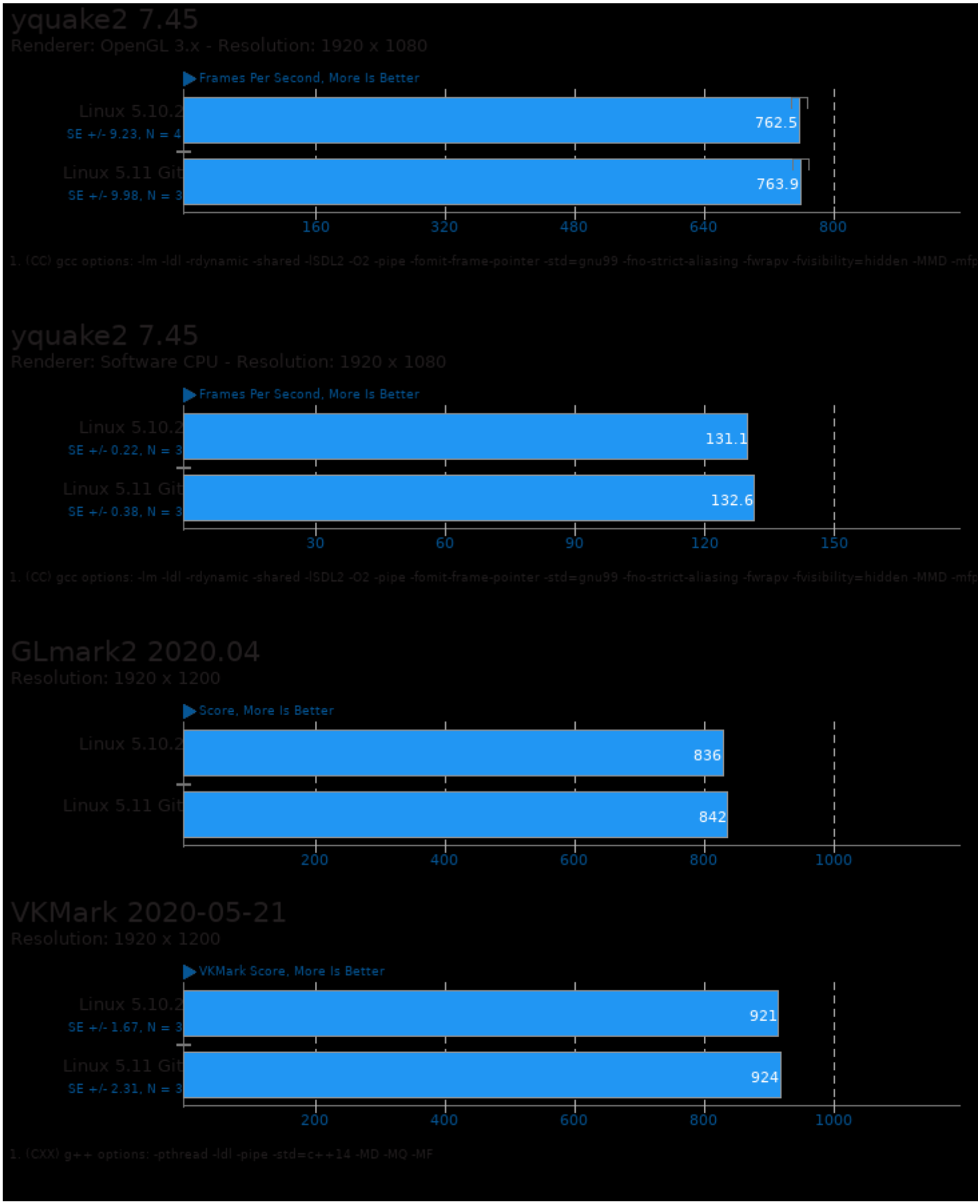

Flexible IO Tester 3.25
Type: Sequential Write - Engine: IO_uring - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory
IOPS, More Is Better
Linux 5.10.2
SE +/- 2619.09, N = 15
64880
Linux 5.11 Git
SE +/- 3752.87, N = 12
74008
16K
32K
48K
64K
80K
1. (CC) gcc options: -rdynamic -ll -lnuma -lrt -lz -lpthread -lm -ldl -laio -lcurl -lssl -lcrypto -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOU
Flexible IO Tester 3.25
Type: Sequential Write - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 2MB - Disk Target: Default Test Directory
MB/s, More Is Better
Linux 5.10.2
SE +/- 11.21, N = 15
348
Linux 5.11 Git
SE +/- 13.29, N = 12
359
80
160
240
320
400
1. (CC) gcc options: -rdynamic -ll -lnuma -lrt -lz -lpthread -lm -ldl -laio -lcurl -lssl -lcrypto -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOU
Flexible IO Tester 3.25
Type: Sequential Write - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 2MB - Disk Target: Default Test Directory
IOPS, More Is Better
Linux 5.10.2
SE +/- 5.62, N = 15
170
Linux 5.11 Git
SE +/- 6.62, N = 12
176
40
80
120
160
200
1. (CC) gcc options: -rdynamic -ll -lnuma -lrt -lz -lpthread -lm -ldl -laio -lcurl -lssl -lcrypto -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOU

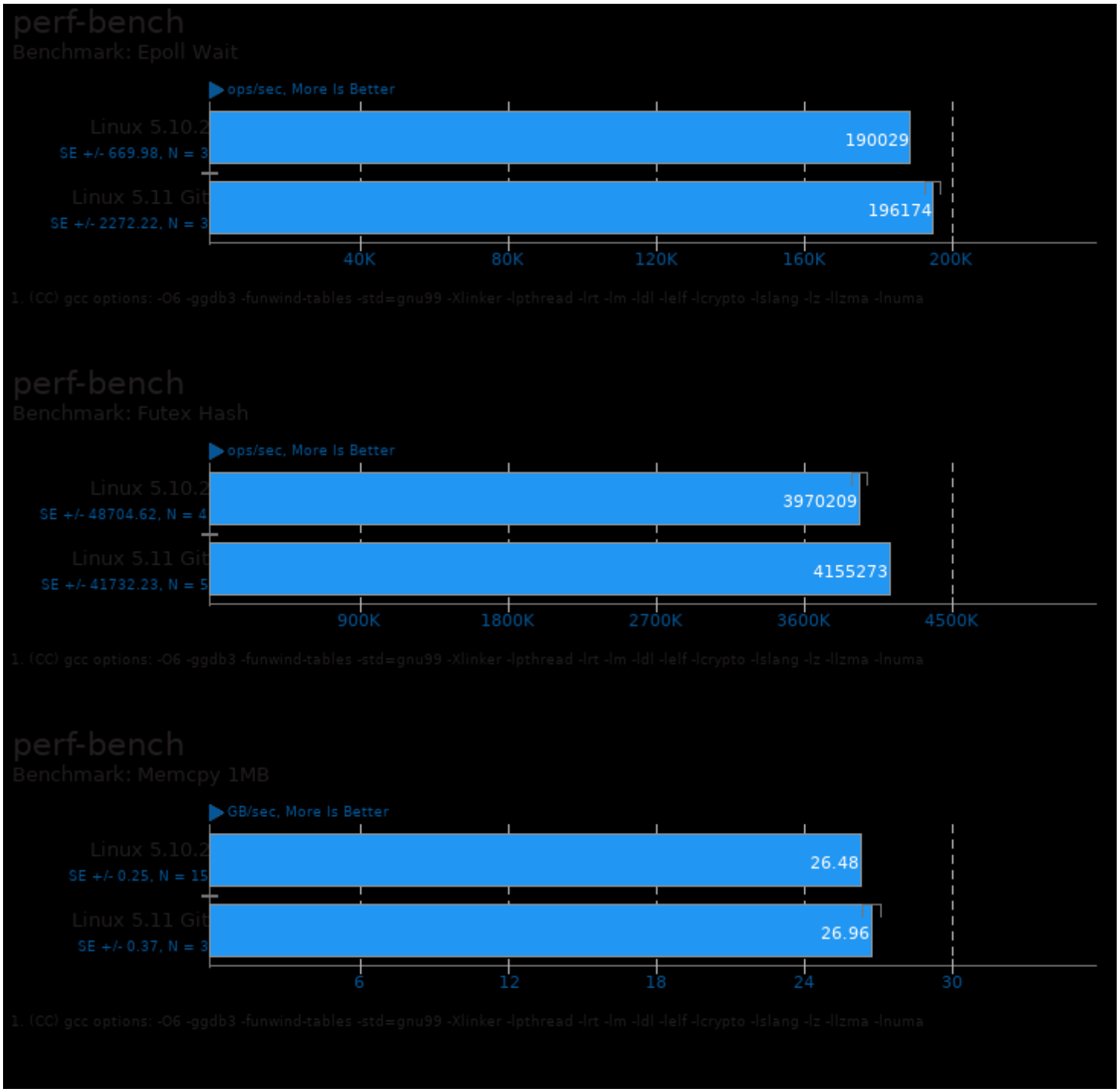

Flexible IO Tester 3.25
Type: Sequential Write - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory
MB/s, More Is Better
Linux 5.11 Git
SE +/- 10.89, N = 15
273
Linux 5.10.2
SE +/- 9.12, N = 15
295
60
120
180
240
300
1. (CC) gcc options: -rdynamic -ll -lnuma -lrt -lz -lpthread -lm -ldl -laio -lcurl -lssl -lcrypto -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOU
Flexible IO Tester 3.25
Type: Sequential Write - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory
IOPS, More Is Better
Linux 5.11 Git
SE +/- 2795.86, N = 15
69933
Linux 5.10.2
SE +/- 2332.78, N = 15
75393
16K
32K
48K
64K
80K
1. (CC) gcc options: -rdynamic -ll -lnuma -lrt -lz -lpthread -lm -ldl -laio -lcurl -lssl -lcrypto -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOU
RealSR-NCNN 20200818
Scale: 4x - TAA: No
Seconds, Fewer Is Better
Linux 5.10.2
SE +/- 0.68, N = 3
69.66
Linux 5.11 Git
SE +/- 0.67, N = 3
67.92
16
32
48
64
80
RealSR-NCNN 20200818
Scale: 4x - TAA: Yes
Seconds, Fewer Is Better
Linux 5.10.2
SE +/- 0.30, N = 3
553.28
Linux 5.11 Git
SE +/- 0.48, N = 3
540.49
120
240
360
480
600

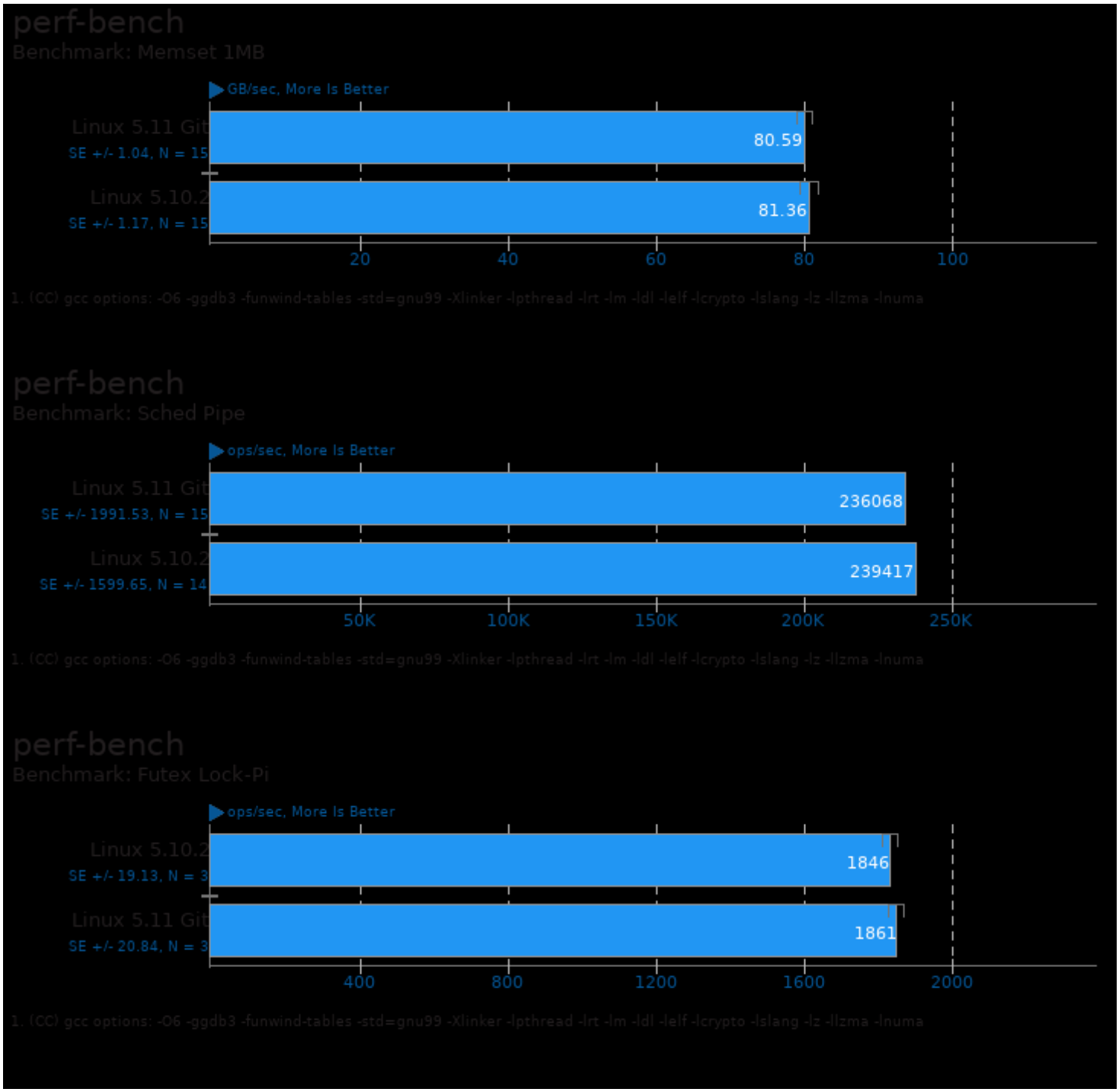

Waifu2x-NCNN Vulkan 20200818
Scale: 2x - Denoise: 3 - TAA: No
Seconds, Fewer Is Better
Linux 5.10.2
SE +/- 0.047, N = 3
4.165
Linux 5.11 Git
SE +/- 0.021, N = 3
4.107
0.9371
1.8742
2.8113
3.7484
4.6855
Waifu2x-NCNN Vulkan 20200818
Scale: 2x - Denoise: 3 - TAA: Yes
Seconds, Fewer Is Better
Linux 5.10.2
SE +/- 0.02, N = 3
27.43
Linux 5.11 Git
SE +/- 0.02, N = 3
27.23
6
12
18
24
30
VkResample 1.0
Upscale: 2x - Precision: Single
ms, Fewer Is Better
Linux 5.10.2
SE +/- 0.34, N = 3
126.02
Linux 5.11 Git
SE +/- 0.01, N = 3
123.21
30
60
90
120
150
1. (CXX) g++ options: -O3 -pthread
ET: Legacy 2.75
Renderer: Renderer2 - Resolution: 1920 x 1200
Frames Per Second, More Is Better
Linux 5.10.2
SE +/- 1.37, N = 3
134.5
Linux 5.11 Git
SE +/- 1.87, N = 3
135.0
30
60
90
120
150

Tiger Lake Linux 5.11 Kernel



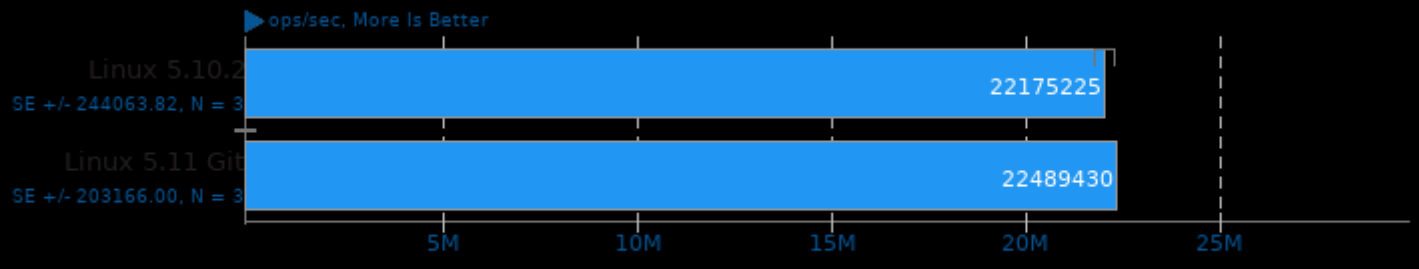

yquake2 7.45
Renderer: OpenGL 3.x - Resolution: 1920 x 1080
Frames Per Second, More Is Better
Linux 5.10.2
SE +/- 9.23, N = 4
762.5
Linux 5.11 Git
SE +/- 9.98, N = 3
763.9
160
320
480
640
800
1. (CC) gcc options: -lm -ldl -rdynamic -shared -lSDL2 -O2 -pipe -fomit-frame-pointer -std=gnu99 -fno-strict-aliasing -fwrapv -fvisibility=hidden -MMD -mf
yquake2 7.45
Renderer: Software CPU - Resolution: 1920 x 1080
Frames Per Second, More Is Better
Linux 5.10.2
SE +/- 0.22, N = 3
131.1
Linux 5.11 Git
SE +/- 0.38, N = 3
132.6
30
60
90
120
150
1. (CC) gcc options: -lm -ldl -rdynamic -shared -lSDL2 -O2 -pipe -fomit-frame-pointer -std=gnu99 -fno-strict-aliasing -fwrapv -fvisibility=hidden -MMD -mf
GLmark2 2020.04
Resolution: 1920 x 1200
Score, More Is Better
Linux 5.10.2
836
Linux 5.11 Git
842
200
400
600
800
1000
VKMark 2020-05-21
Resolution: 1920 x 1200
VKMark Score, More Is Better
Linux 5.10.2
SE +/- 1.67, N = 3
921
Linux 5.11 Git
SE +/- 2.31, N = 3
924
200
400
600
800
1000
1. (CXX) g++ options: -pthread -ldl -pipe -std=c++14 -MD -MQ -MF


perf-bench
Benchmark: Epoll Wait
ops/sec, More Is Better
Linux 5.10.2
SE +/- 669.98, N = 3
190029
Linux 5.11 Git
SE +/- 2272.22, N = 3
196174
40K
80K
120K
160K
200K
1. (CC) gcc options: -O6 -ggdb3 -funwind-tables -std=gnu99 -Xlinker -lpthread -lrt -lm -ldl -lelf -lcrypto -lslang -lz -llzma -lnuma
perf-bench
Benchmark: Futex Hash
ops/sec, More Is Better
Linux 5.10.2
SE +/- 48704.62, N = 4
3970209
Linux 5.11 Git
SE +/- 41732.23, N = 5
4155273
900K
1800K
2700K
3600K
4500K
1. (CC) gcc options: -O6 -ggdb3 -funwind-tables -std=gnu99 -Xlinker -lpthread -lrt -lm -ldl -lelf -lcrypto -lslang -lz -llzma -lnuma
perf-bench
Benchmark: Memcpy 1MB
GB/sec, More Is Better
Linux 5.10.2
SE +/- 0.25, N = 15
26.48
Linux 5.11 Git
SE +/- 0.37, N = 3
26.96
6
12
18
24
30
1. (CC) gcc options: -O6 -ggdb3 -funwind-tables -std=gnu99 -Xlinker -lpthread -lrt -lm -ldl -lelf -lcrypto -lslang -lz -llzma -lnuma


perf-bench
Benchmark: Memset 1MB
GB/sec, More Is Better
Linux 5.11 Git
SE +/- 1.04, N = 15
80.59
Linux 5.10.2
SE +/- 1.17, N = 15
81.36
20
40
60
80
100
1. (CC) gcc options: -O6 -ggdb3 -funwind-tables -std=gnu99 -Xlinker -lpthread -lrt -lm -ldl -lelf -lcrypto -lslang -lz -llzma -lnuma
perf-bench
Benchmark: Sched Pipe
ops/sec, More Is Better
Linux 5.11 Git
SE +/- 1991.53, N = 15
236068
Linux 5.10.2
SE +/- 1599.65, N = 14
239417
50K
100K
150K
200K
250K
1. (CC) gcc options: -O6 -ggdb3 -funwind-tables -std=gnu99 -Xlinker -lpthread -lrt -lm -ldl -lelf -lcrypto -lslang -lz -llzma -lnuma
perf-bench
Benchmark: Futex Lock-Pi
ops/sec, More Is Better
Linux 5.10.2
SE +/- 19.13, N = 3
1846
Linux 5.11 Git
SE +/- 20.84, N = 3
1861
400
800
1200
1600
2000
1. (CC) gcc options: -O6 -ggdb3 -funwind-tables -std=gnu99 -Xlinker -lpthread -lrt -lm -ldl -lelf -lcrypto -lslang -lz -llzma -lnuma

perf-bench

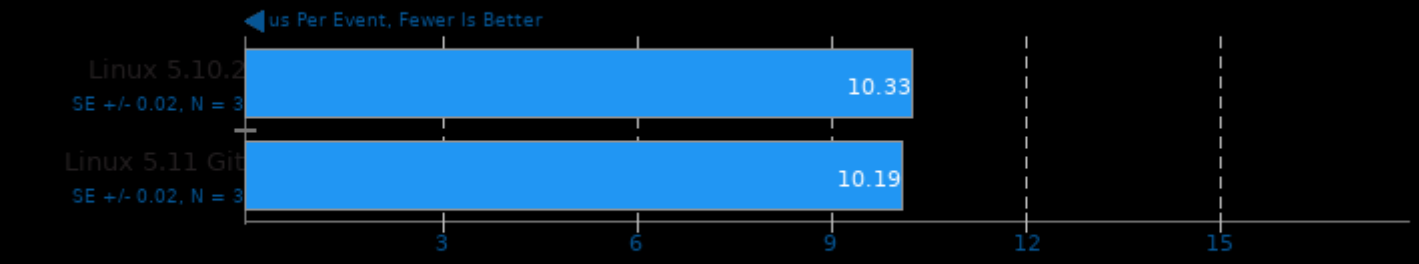
Benchmark: Syscall Basic



1. (CC) gcc options: -O6 -ggdb3 -funwind-tables -std=gnu99 -Xlinker -lpthread -lrt -lm -ldl -lelf -lcrypto -lslang -lz -llzma -lnuma

OSBench

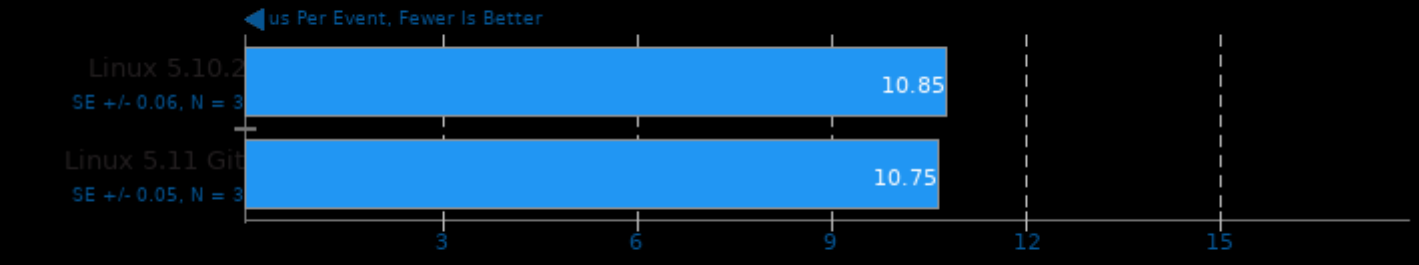
Test: Create Files



1. (CC) gcc options: -lm

OSBench

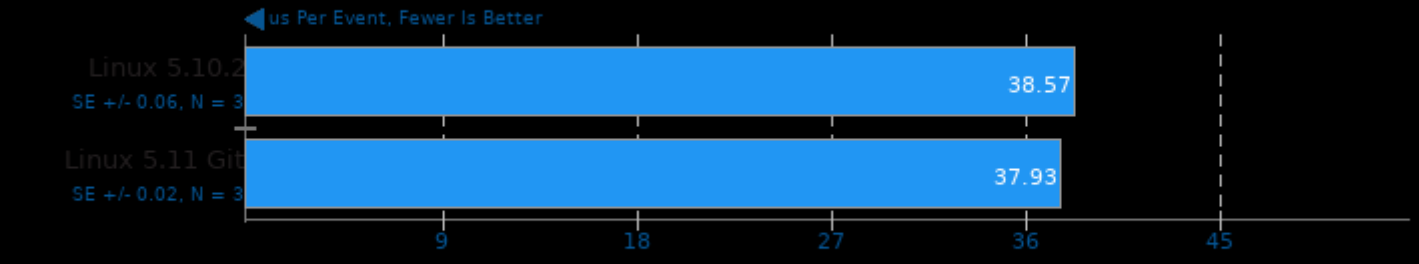
Test: Create Threads



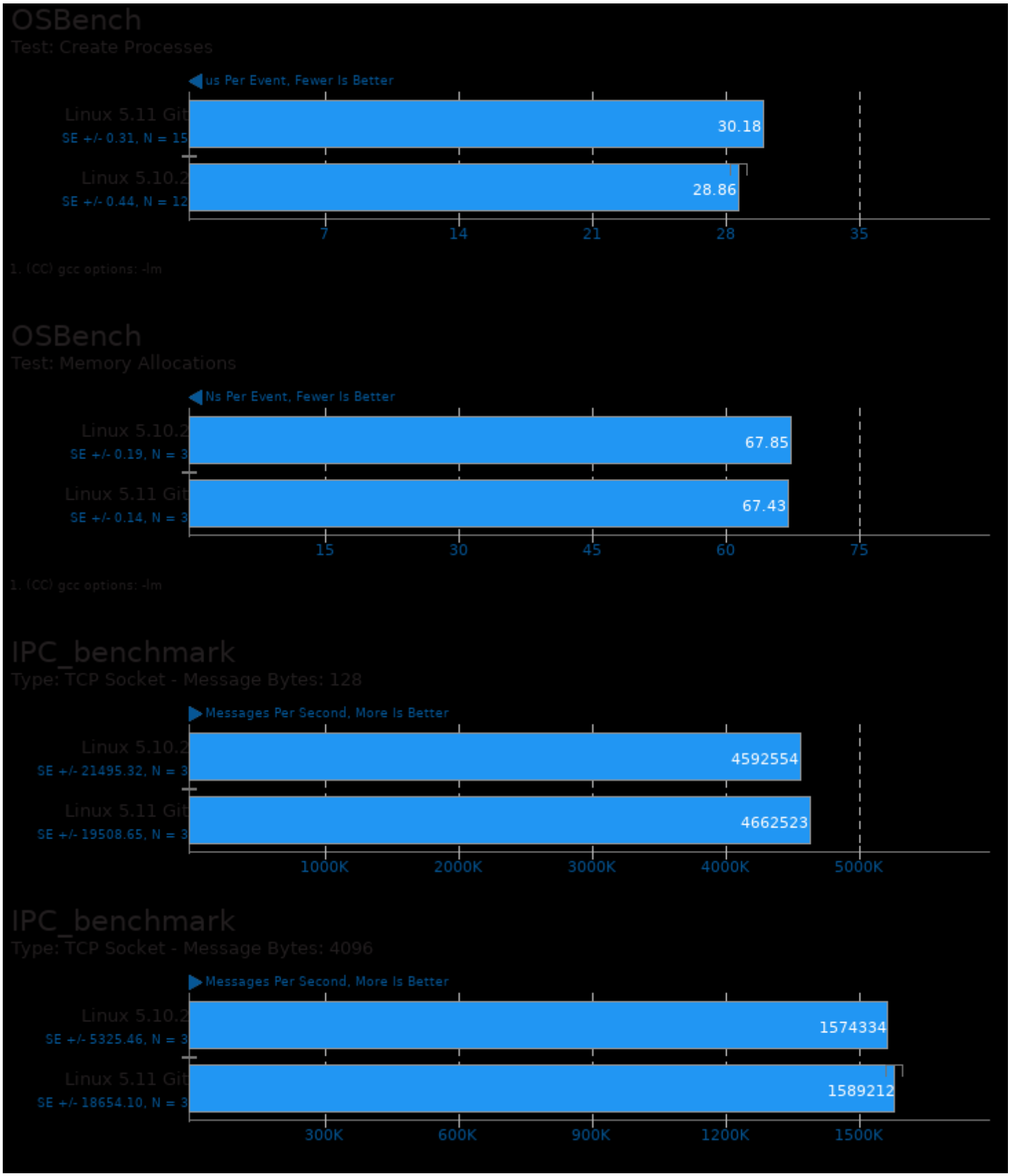
1. (CC) gcc options: -lm

OSBench

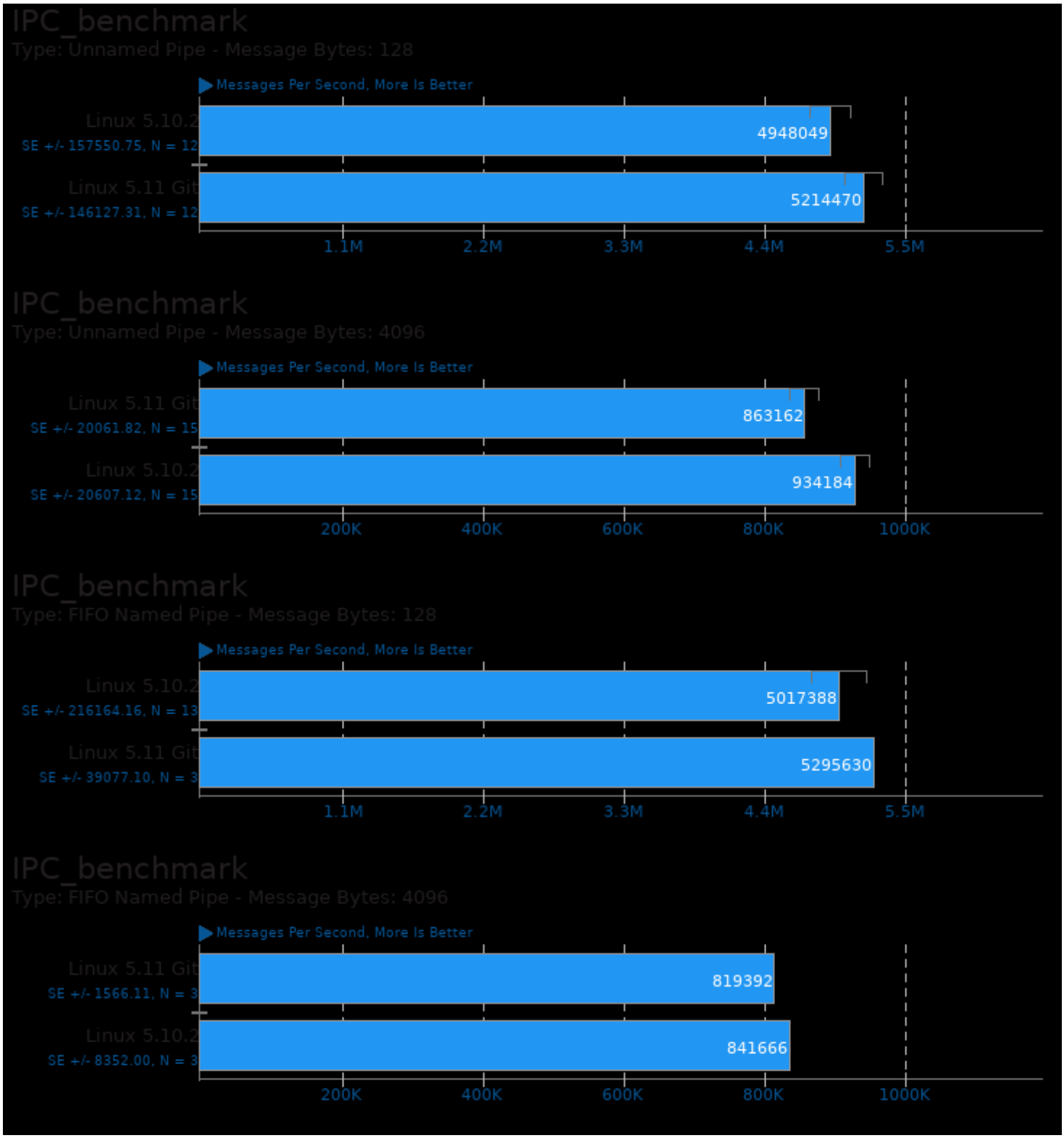
Test: Launch Programs

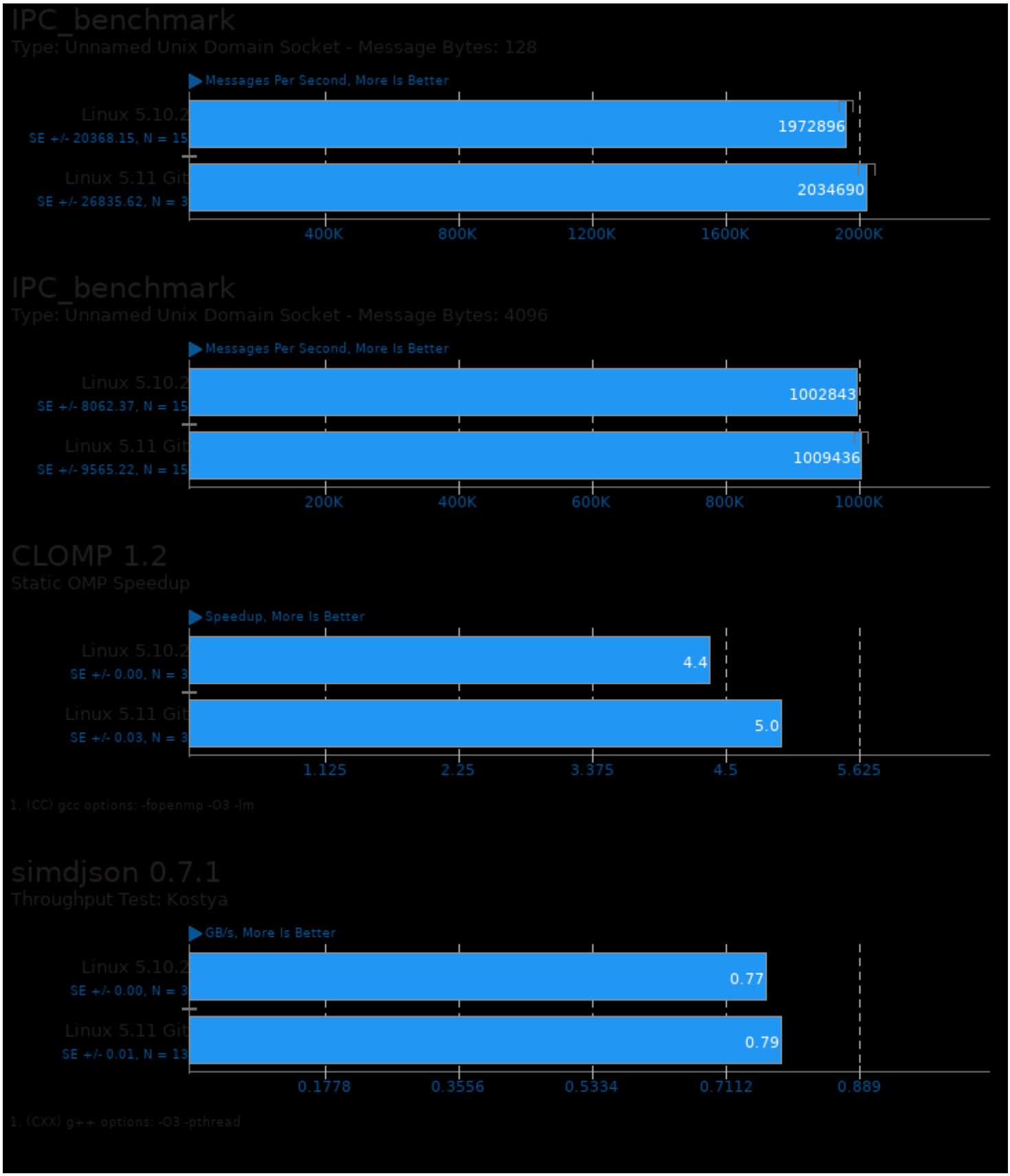


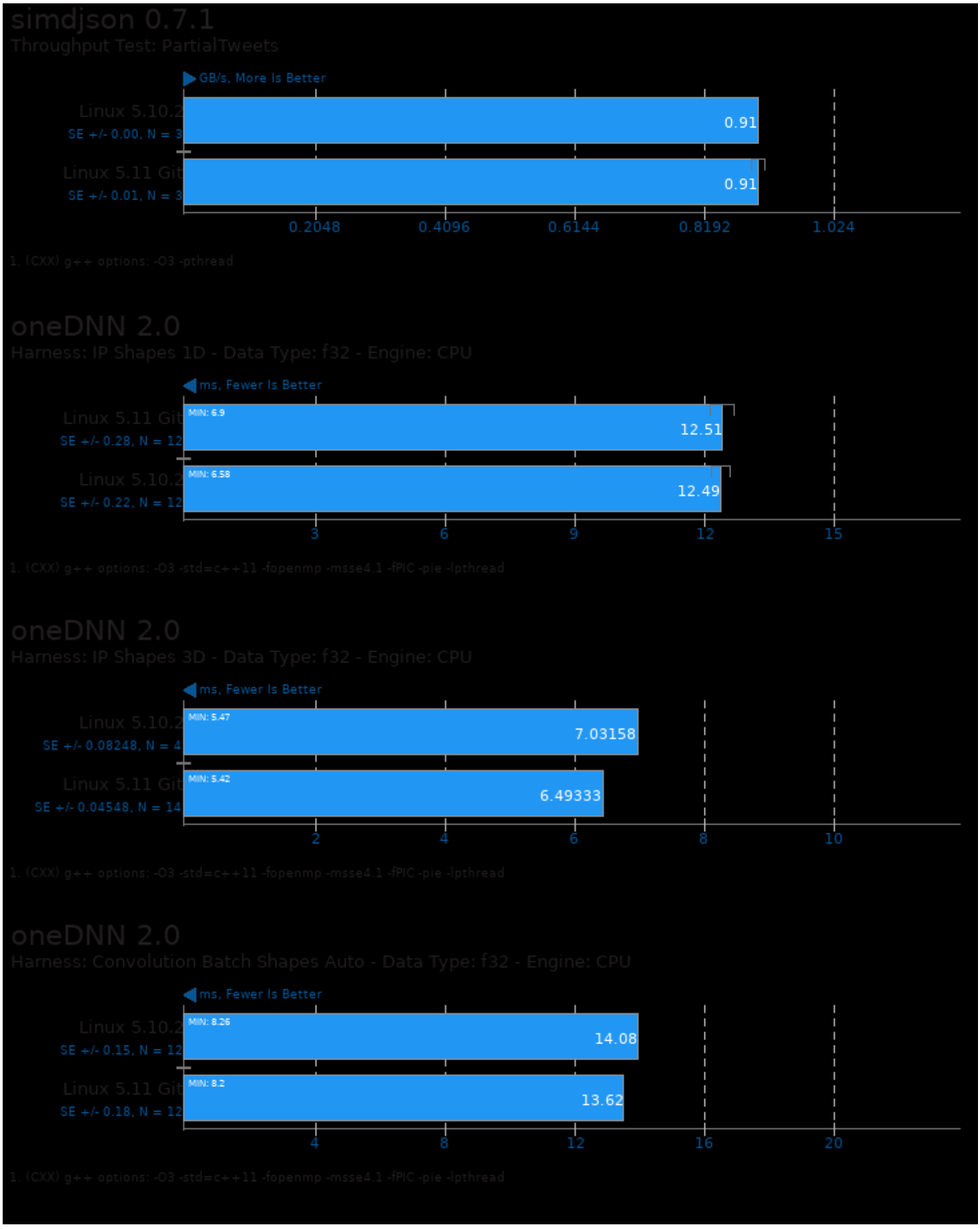
1. (CC) gcc options: -lm

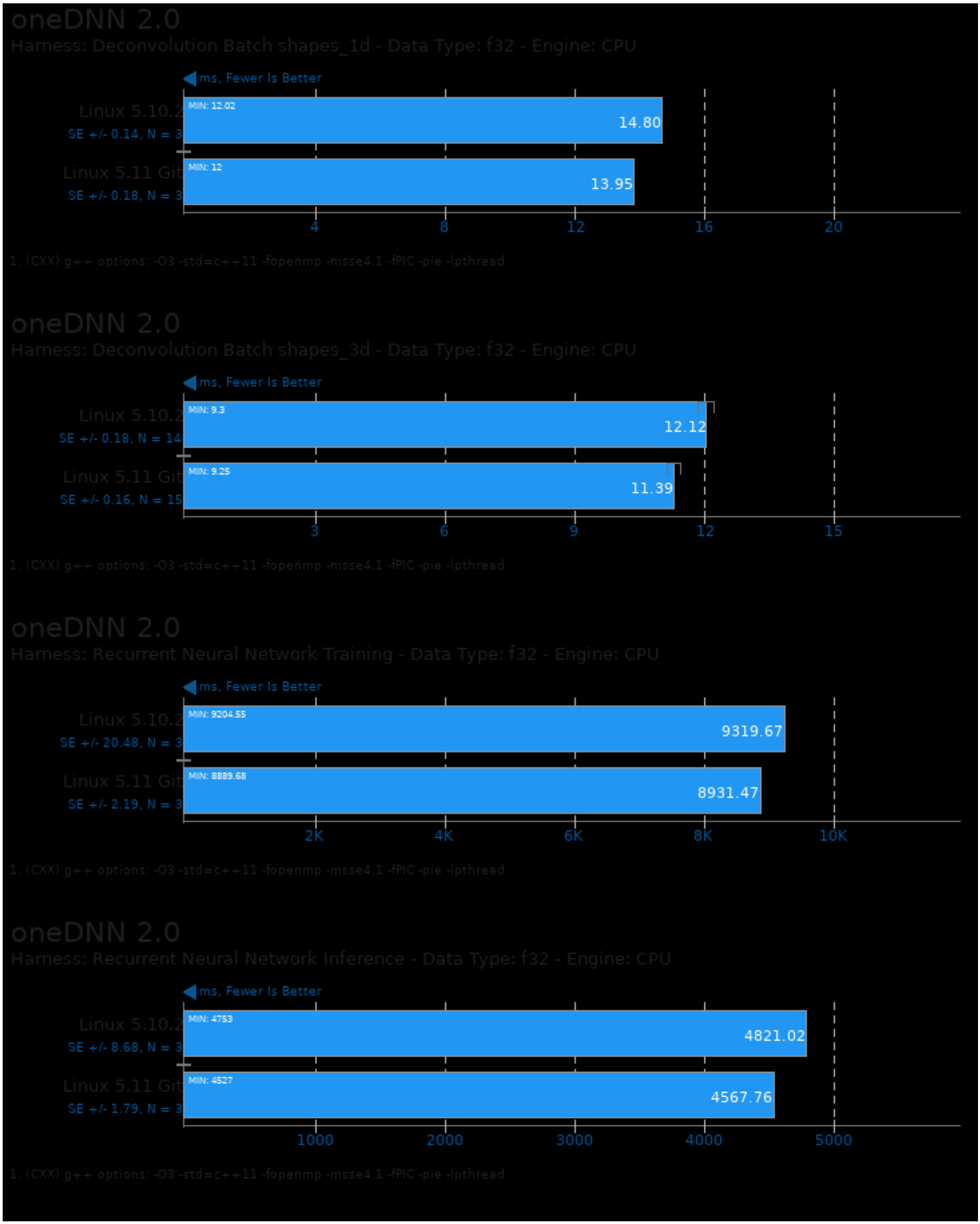

OSBench
Test: Create Processes
us Per Event, Fewer Is Better
Linux 5.11 Git
SE +/- 0.31, N = 15
30.18
Linux 5.10.2
SE +/- 0.44, N = 12
28.86
7
14
21
28
35
1. (CC) gcc options: -lm
OSBench
Test: Memory Allocations
Ns Per Event, Fewer Is Better
Linux 5.10.2
SE +/- 0.19, N = 3
67.85
Linux 5.11 Git
SE +/- 0.14, N = 3
67.43
15
30
45
60
75
1. (CC) gcc options: -lm
IPC_benchmark
Type: TCP Socket - Message Bytes: 128
Messages Per Second, More Is Better
Linux 5.10.2
SE +/- 21495.32, N = 3
4592554
Linux 5.11 Git
SE +/- 19508.65, N = 3
4662523
1000K
2000K
3000K
4000K
5000K
IPC_benchmark
Type: TCP Socket - Message Bytes: 4096
Messages Per Second, More Is Better
Linux 5.10.2
SE +/- 5325.46, N = 3
1574334
Linux 5.11 Git
SE +/- 18654.10, N = 3
1589212
300K
600K
900K
1200K
1500K

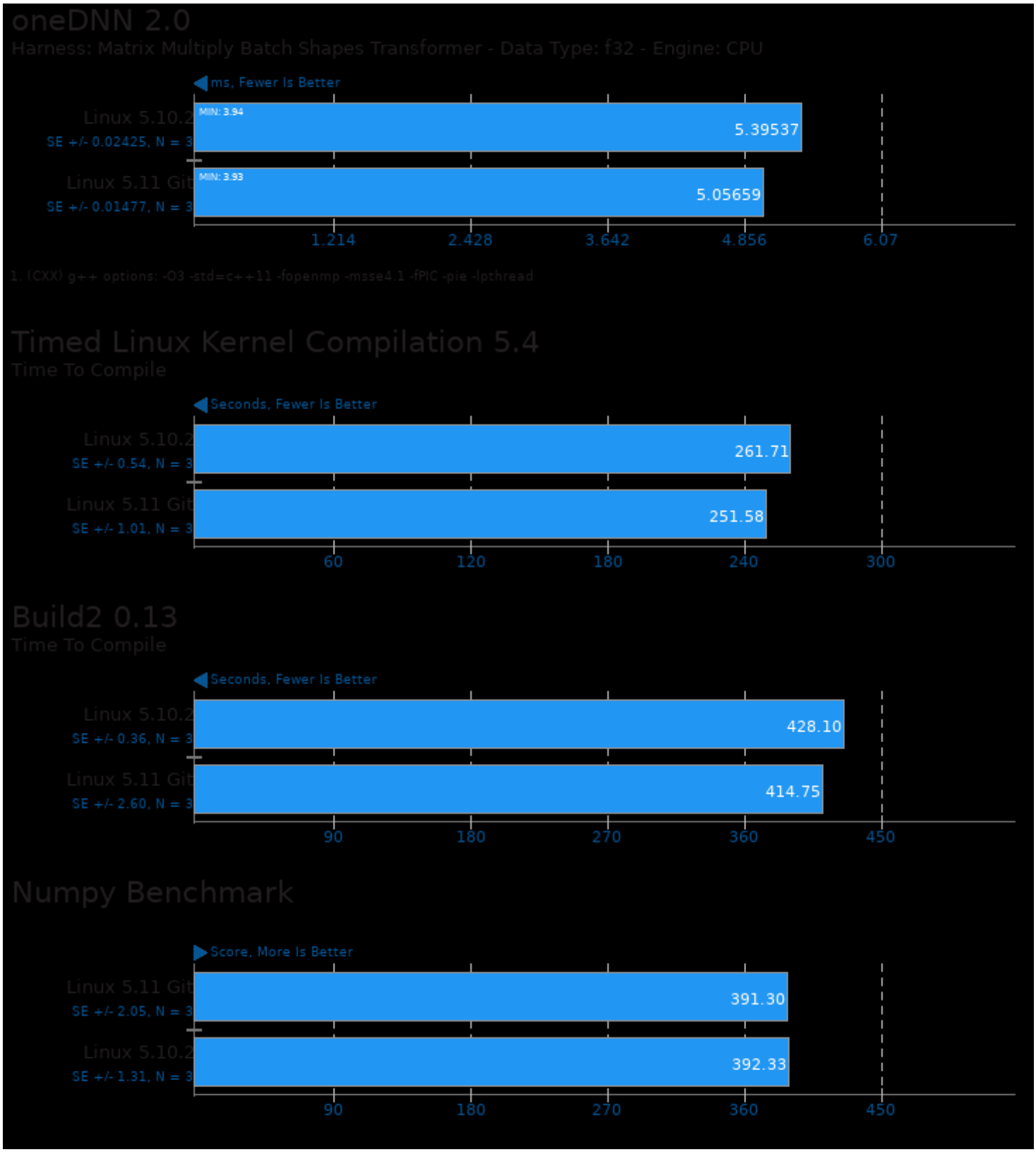
Tiger Lake Linux 5.11 Kernel

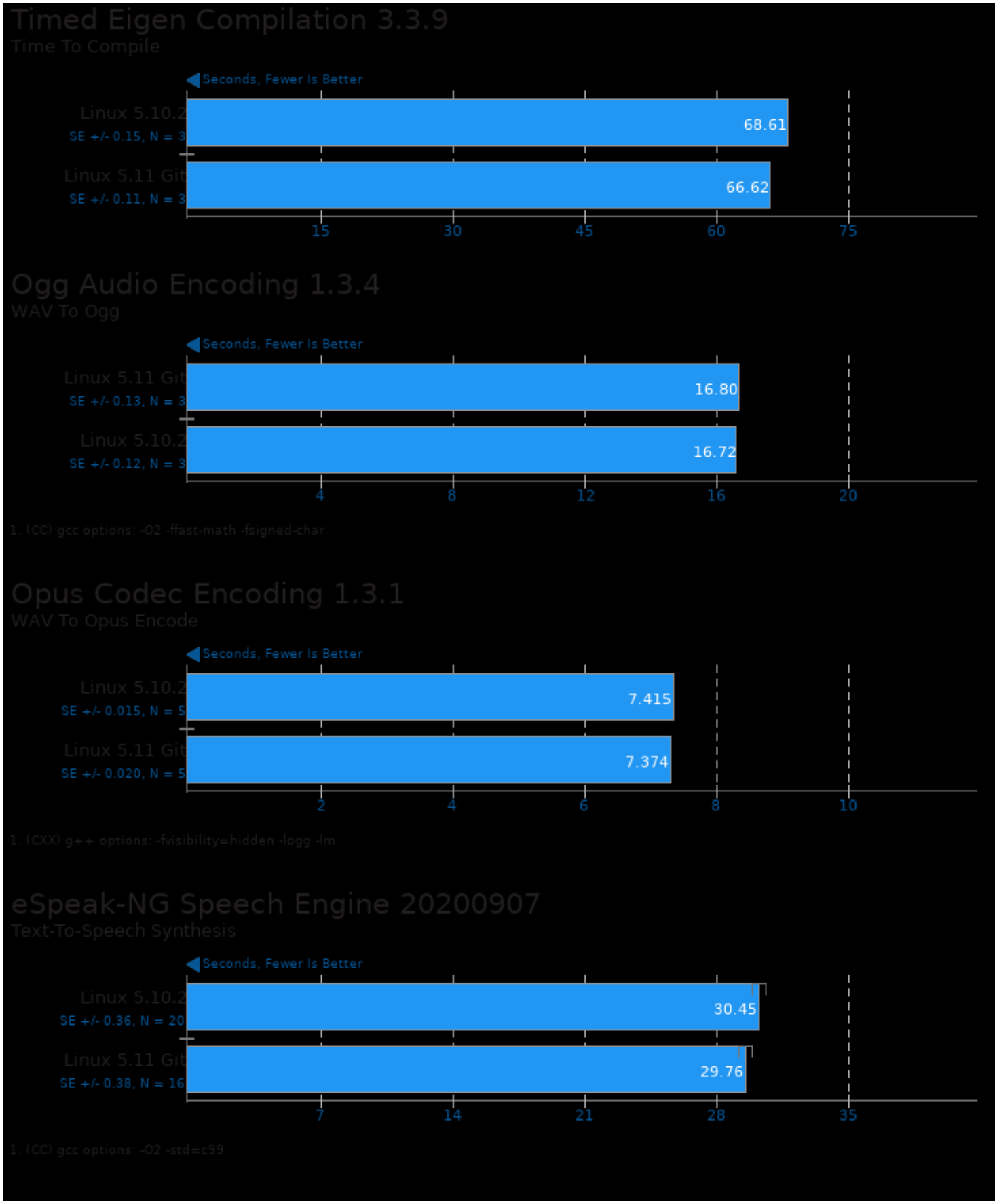



IPC_benchmark
Type: Unnamed Unix Domain Socket - Message Bytes: 128
Messages Per Second, More Is Better
Linux 5.10.2
SE +/- 20368.15, N = 15
1972896
Linux 5.11 Git
SE +/- 26835.62, N = 3
2034690
400K
800K
1200K
1600K
2000K
IPC_benchmark
Type: Unnamed Unix Domain Socket - Message Bytes: 4096
Messages Per Second, More Is Better
Linux 5.10.2
SE +/- 8062.37, N = 15
1002843
Linux 5.11 Git
SE +/- 9565.22, N = 15
1009436
200K
400K
600K
800K
1000K
CLOMP 1.2
Static OMP Speedup
Speedup, More Is Better
Linux 5.10.2
SE +/- 0.00, N = 3
4.4
Linux 5.11 Git
SE +/- 0.03, N = 3
5.0
1.125
2.25
3.375
4.5
5.625
1. (CC) gcc options: -fopenmp -O3 -lm
simdjson 0.7.1
Throughput Test: Kostya
GB/s, More Is Better
Linux 5.10.2
SE +/- 0.00, N = 3
0.77
Linux 5.11 Git
SE +/- 0.01, N = 13
0.79
0.1778
0.3556
0.5334
0.7112
0.889
1. (CXX) g++ options: -O3 -pthread

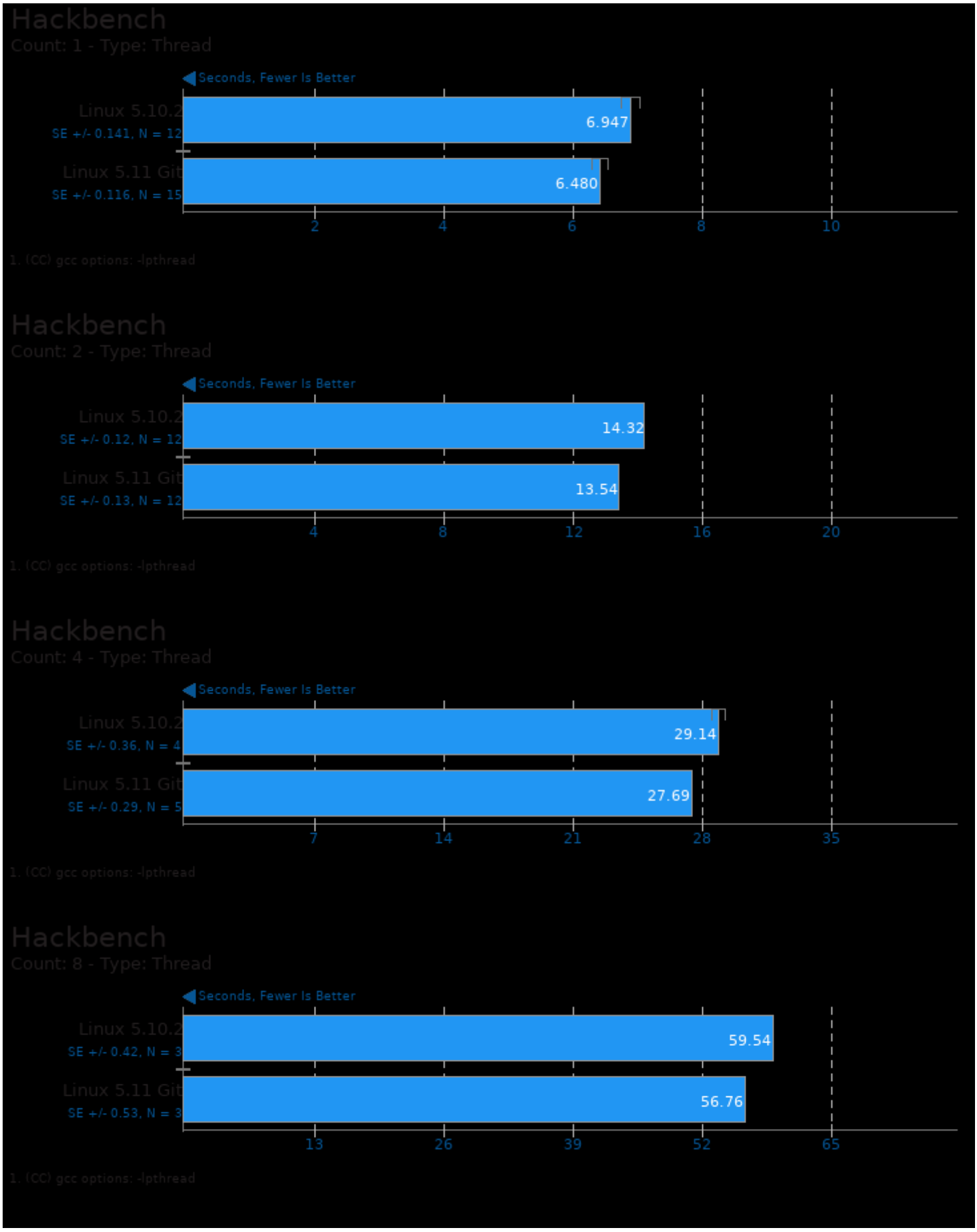

simdjson 0.7.1
Throughput Test: PartialTweets
GB/s, More Is Better
Linux 5.10.2
SE +/- 0.00, N = 3
0.91
Linux 5.11 Git
SE +/- 0.01, N = 3
0.91
0.2048
0.4096
0.6144
0.8192
1.024
1. (CXX) g++ options: -O3 -pthread
oneDNN 2.0
Harness: IP Shapes 1D - Data Type: f32 - Engine: CPU
ms, Fewer Is Better
Linux 5.11 Git
SE +/- 0.28, N = 12
MIN: 6.9
12.51
Linux 5.10.2
SE +/- 0.22, N = 12
MIN: 6.58
12.49
3
6
9
12
15
1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread
oneDNN 2.0
Harness: IP Shapes 3D - Data Type: f32 - Engine: CPU
ms, Fewer Is Better
Linux 5.10.2
SE +/- 0.08248, N = 4
MIN: 5.47
7.03158
Linux 5.11 Git
SE +/- 0.04548, N = 14
MIN: 5.42
6.49333
2
4
6
8
10
1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread
oneDNN 2.0
Harness: Convolution Batch Shapes Auto - Data Type: f32 - Engine: CPU
ms, Fewer Is Better
Linux 5.10.2
SE +/- 0.15, N = 12
MIN: 8.26
14.08
Linux 5.11 Git
SE +/- 0.18, N = 12
MIN: 8.2
13.62
4
8
12
16
20
1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread


oneDNN 2.0
Harness: Deconvolution Batch shapes_1d - Data Type: f32 - Engine: CPU
ms, Fewer Is Better
Linux 5.10.2
SE +/- 0.14, N = 3
MIN: 12.02
14.80
Linux 5.11 Git
SE +/- 0.18, N = 3
MIN: 12
13.95
4
8
12
16
20
1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread
oneDNN 2.0
Harness: Deconvolution Batch shapes_3d - Data Type: f32 - Engine: CPU
ms, Fewer Is Better
Linux 5.10.2
SE +/- 0.18, N = 14
MIN: 9.3
12.12
Linux 5.11 Git
SE +/- 0.16, N = 15
MIN: 9.25
11.39
3
6
9
12
15
1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread
oneDNN 2.0
Harness: Recurrent Neural Network Training - Data Type: f32 - Engine: CPU
ms, Fewer Is Better
Linux 5.10.2
SE +/- 20.48, N = 3
MIN: 9204.55
9319.67
Linux 5.11 Git
SE +/- 2.19, N = 3
MIN: 8889.68
8931.47
2K
4K
6K
8K
10K
1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread
oneDNN 2.0
Harness: Recurrent Neural Network Inference - Data Type: f32 - Engine: CPU
ms, Fewer Is Better
Linux 5.10.2
SE +/- 8.68, N = 3
MIN: 4753
4821.02
Linux 5.11 Git
SE +/- 1.79, N = 3
MIN: 4527
4567.76
1000
2000
3000
4000
5000
1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread

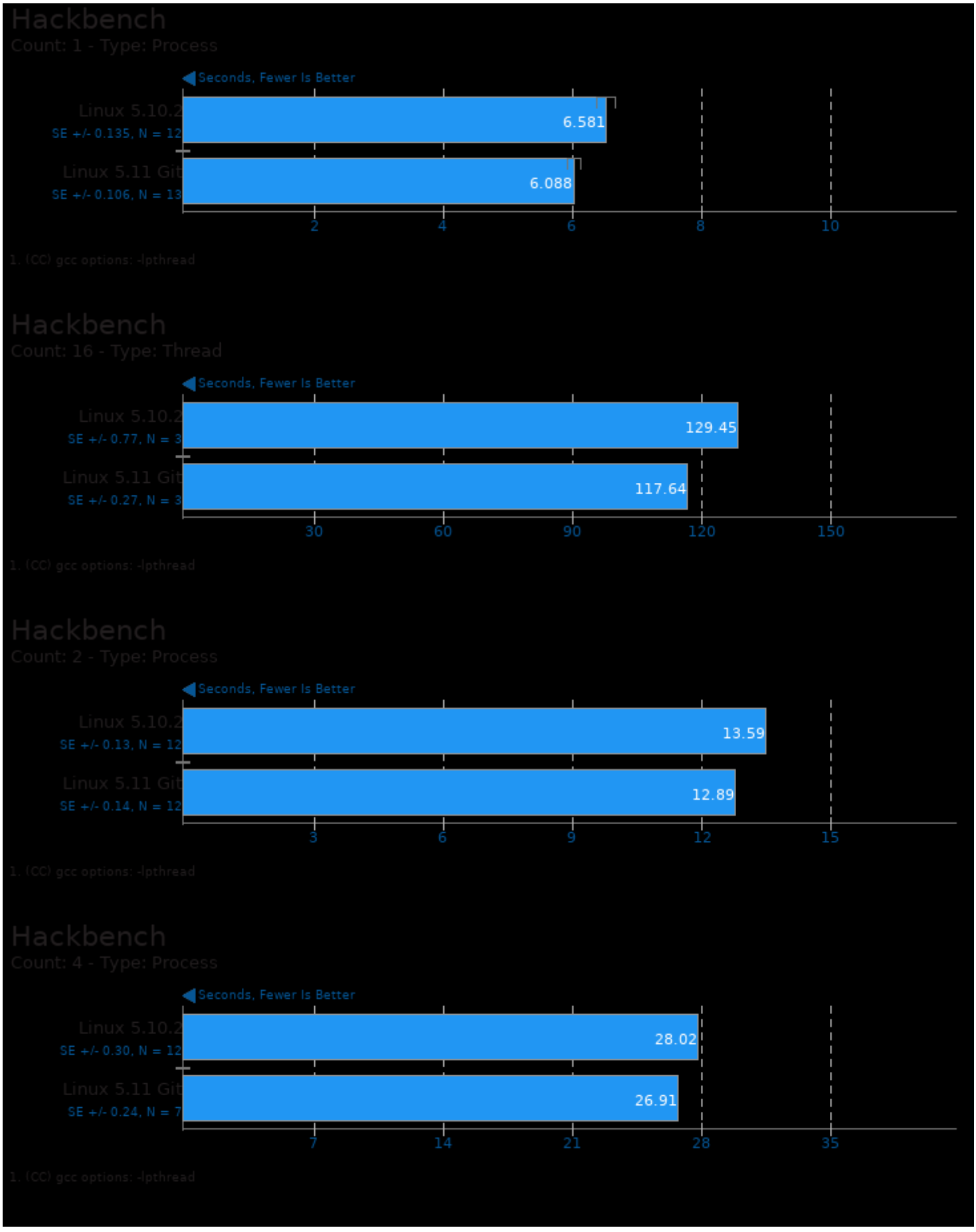

oneDNN 2.0
Harness: Matrix Multiply Batch Shapes Transformer - Data Type: f32 - Engine: CPU
ms, Fewer Is Better
Linux 5.10.2
SE +/- 0.02425, N = 3
MIN: 3.94
5.39537
Linux 5.11 Git
SE +/- 0.01477, N = 3
MIN: 3.93
5.05659
1.214
2.428
3.642
4.856
6.07
1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread
Timed Linux Kernel Compilation 5.4
Time To Compile
Seconds, Fewer Is Better
Linux 5.10.2
SE +/- 0.54, N = 3
261.71
Linux 5.11 Git
SE +/- 1.01, N = 3
251.58
60
120
180
240
300
Build2 0.13
Time To Compile
Seconds, Fewer Is Better
Linux 5.10.2
SE +/- 0.36, N = 3
428.10
Linux 5.11 Git
SE +/- 2.60, N = 3
414.75
90
180
270
360
450
Numpy Benchmark
Score, More Is Better
Linux 5.11 Git
SE +/- 2.05, N = 3
391.30
Linux 5.10.2
SE +/- 1.31, N = 3
392.33
90
180
270
360
450

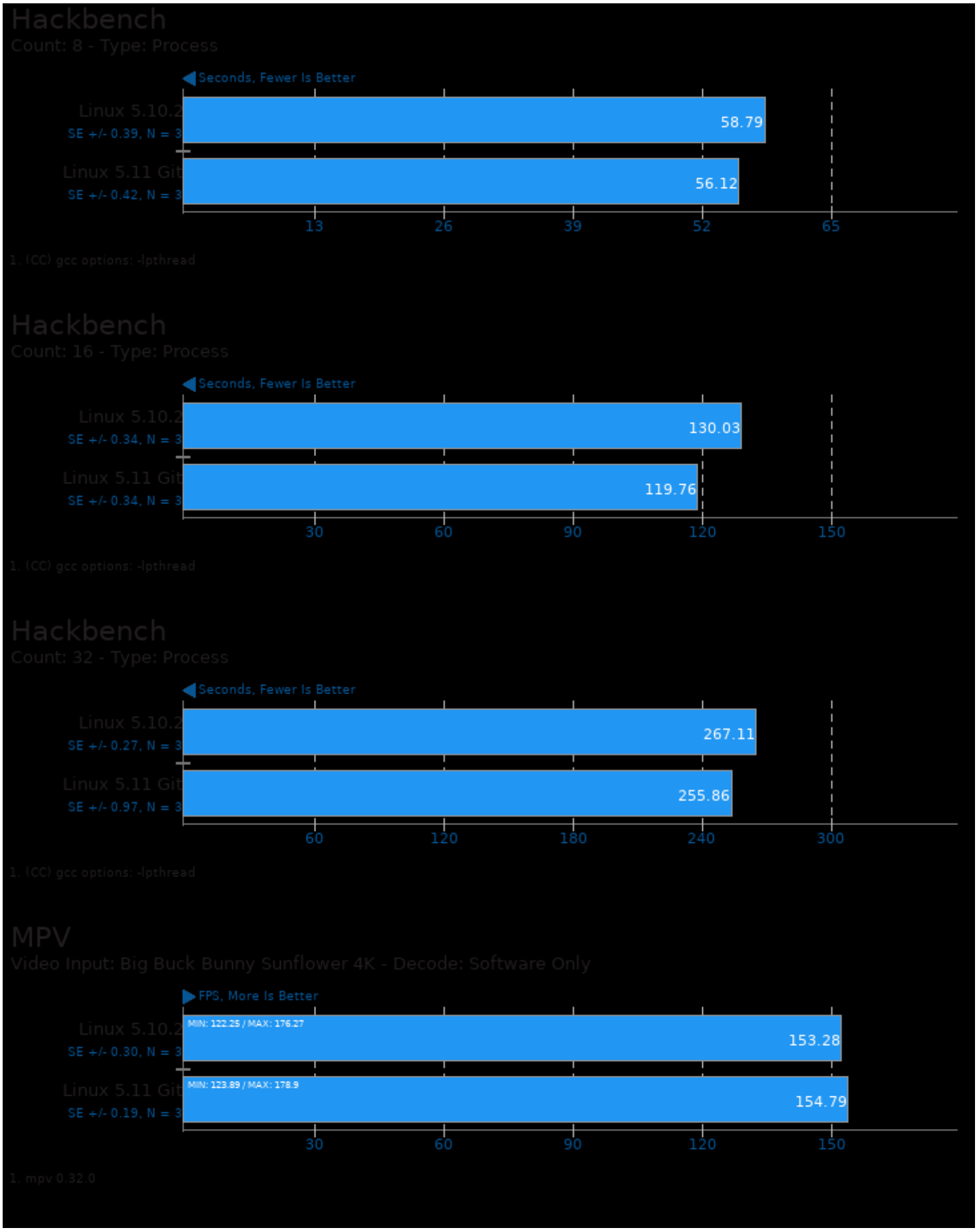

Timed Eigen Compilation 3.3.9
Time To Compile
Seconds, Fewer Is Better
Linux 5.10.2
SE +/- 0.15, N = 3
68.61
Linux 5.11 Git
SE +/- 0.11, N = 3
66.62
15
30
45
60
75
Ogg Audio Encoding 1.3.4
WAV To Ogg
Seconds, Fewer Is Better
Linux 5.11 Git
SE +/- 0.13, N = 3
16.80
Linux 5.10.2
SE +/- 0.12, N = 3
16.72
4
8
12
16
20
1. (CC) gcc options: -O2 -ffast-math -fsigned-char
Opus Codec Encoding 1.3.1
WAV To Opus Encode
Seconds, Fewer Is Better
Linux 5.10.2
SE +/- 0.015, N = 5
7.415
Linux 5.11 Git
SE +/- 0.020, N = 5
7.374
2
4
6
8
10
1. (CXX) g++ options: -fvisibility=hidden -logg -lm
eSpeak-NG Speech Engine 20200907
Text-To-Speech Synthesis
Seconds, Fewer Is Better
Linux 5.10.2
SE +/- 0.36, N = 20
30.45
Linux 5.11 Git
SE +/- 0.38, N = 16
29.76
7
14
21
28
35
1. (CC) gcc options: -O2 -std=c99

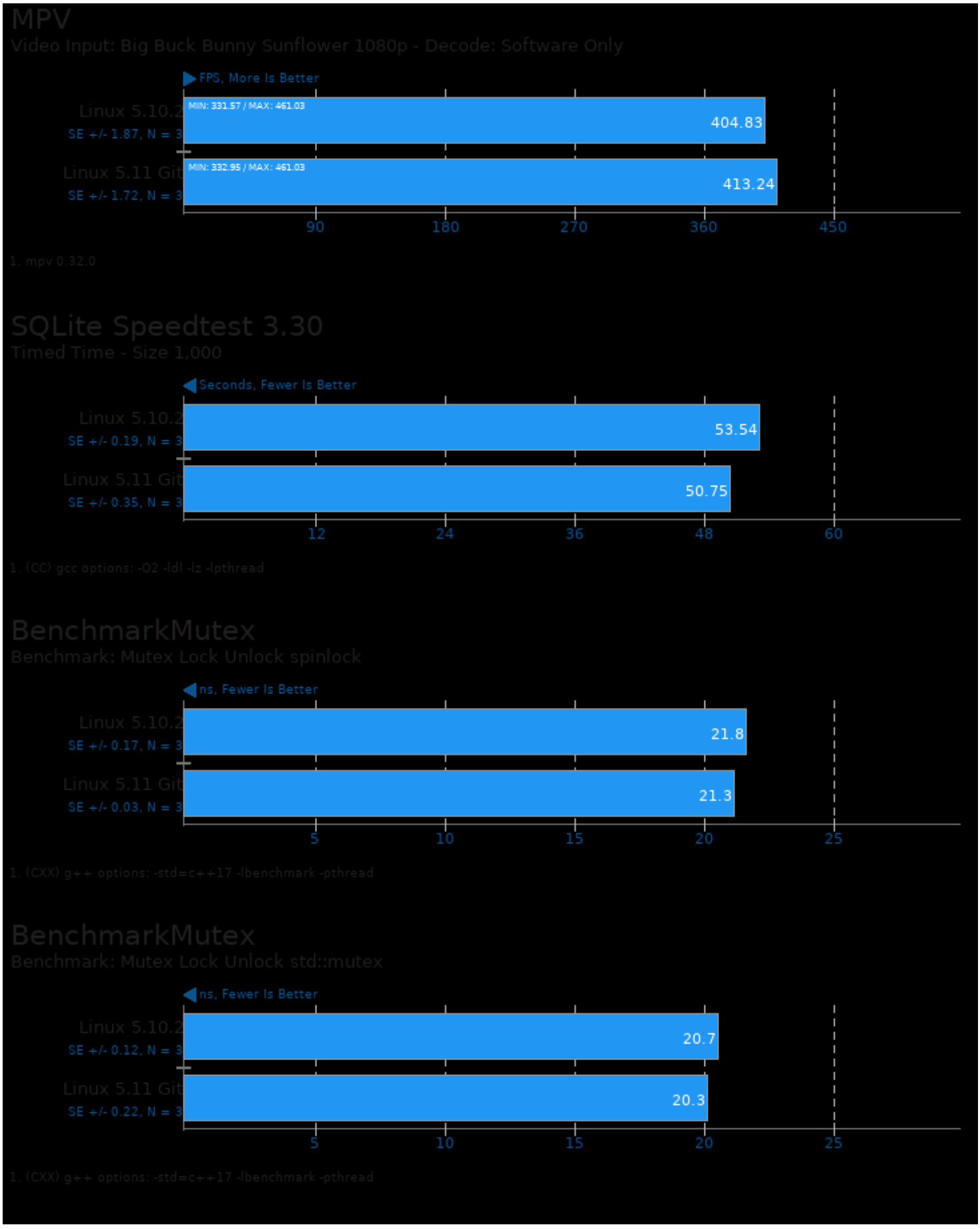
Tiger Lake Linux 5.11 Kernel

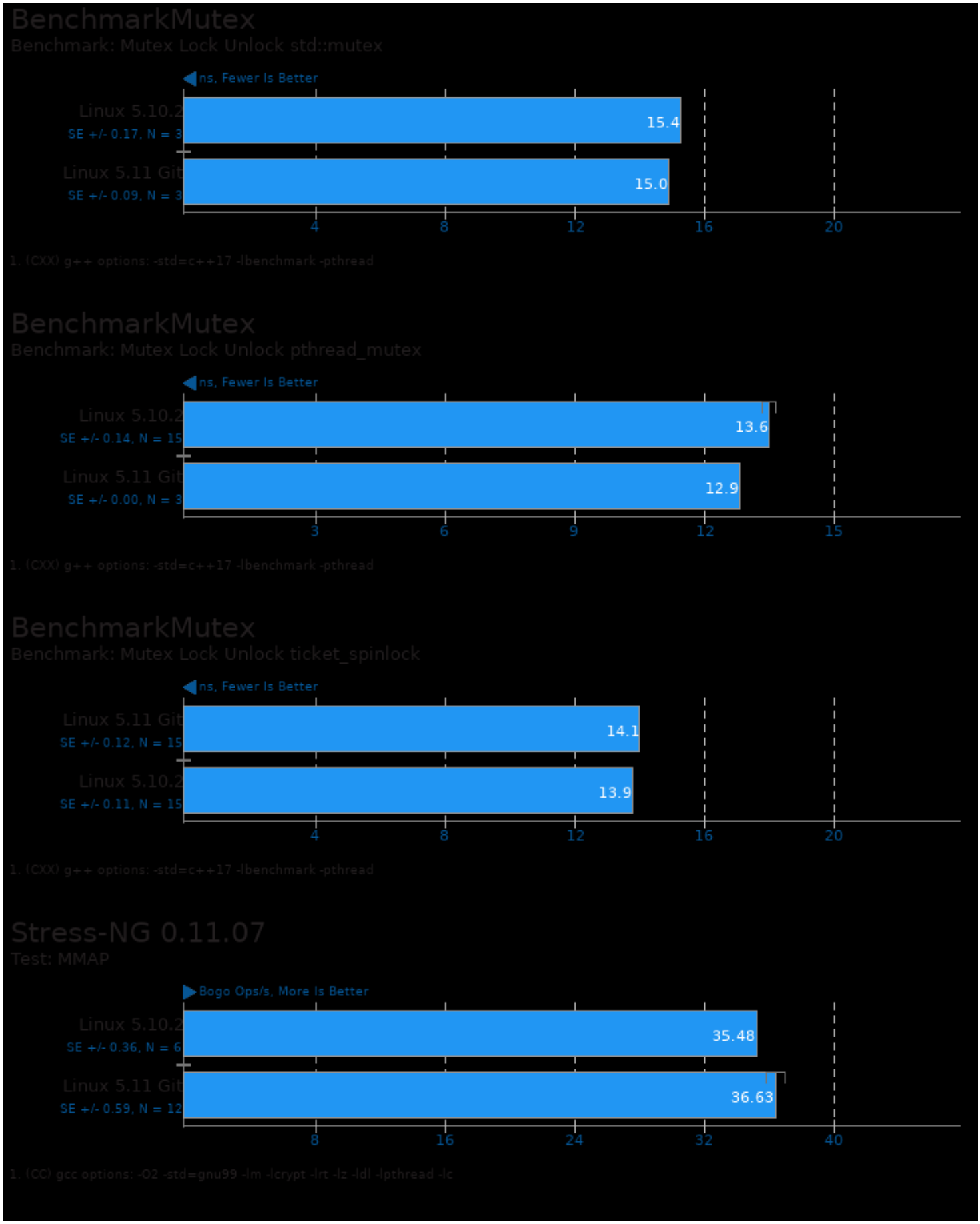


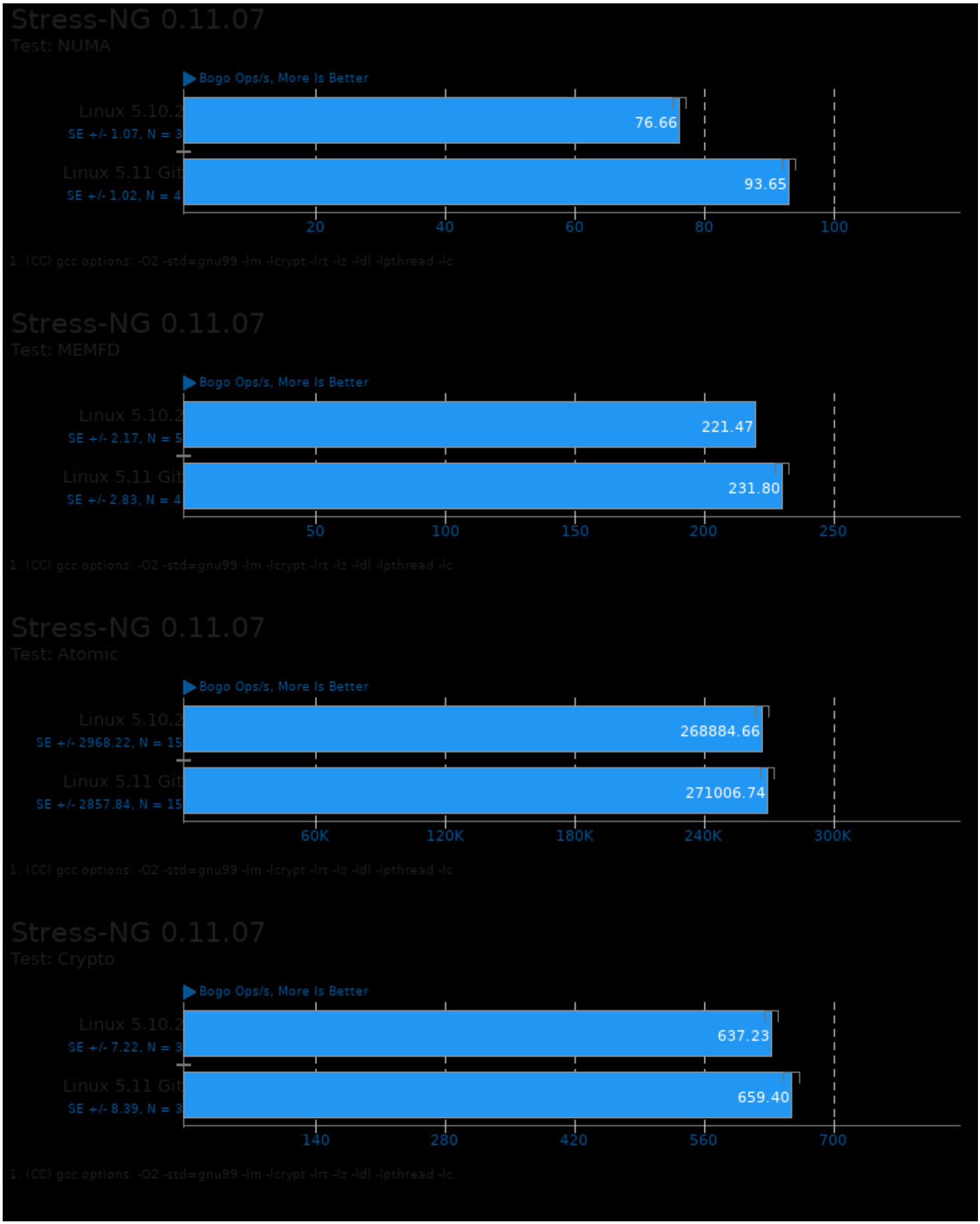
Tiger Lake Linux 5.11 Kernel

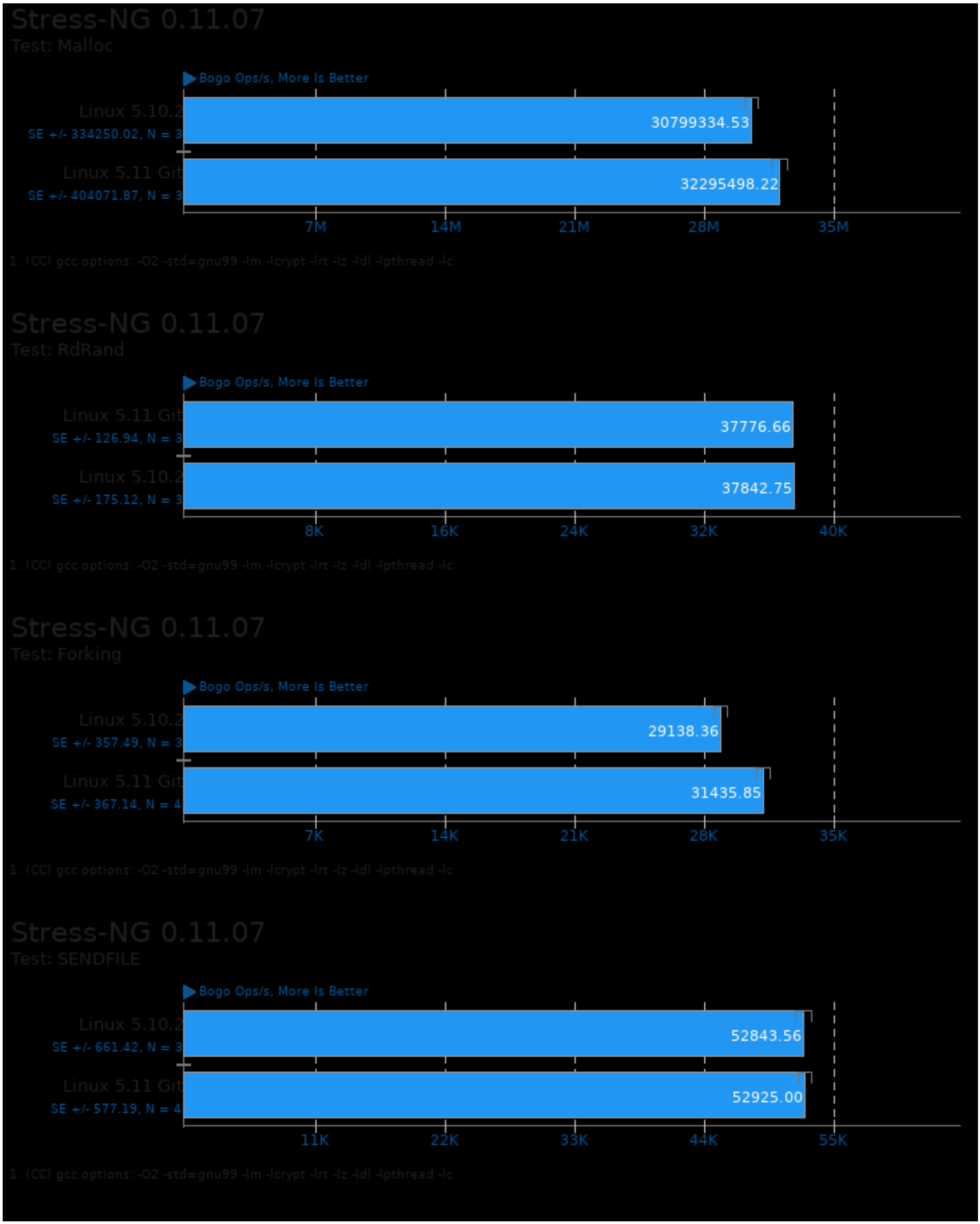


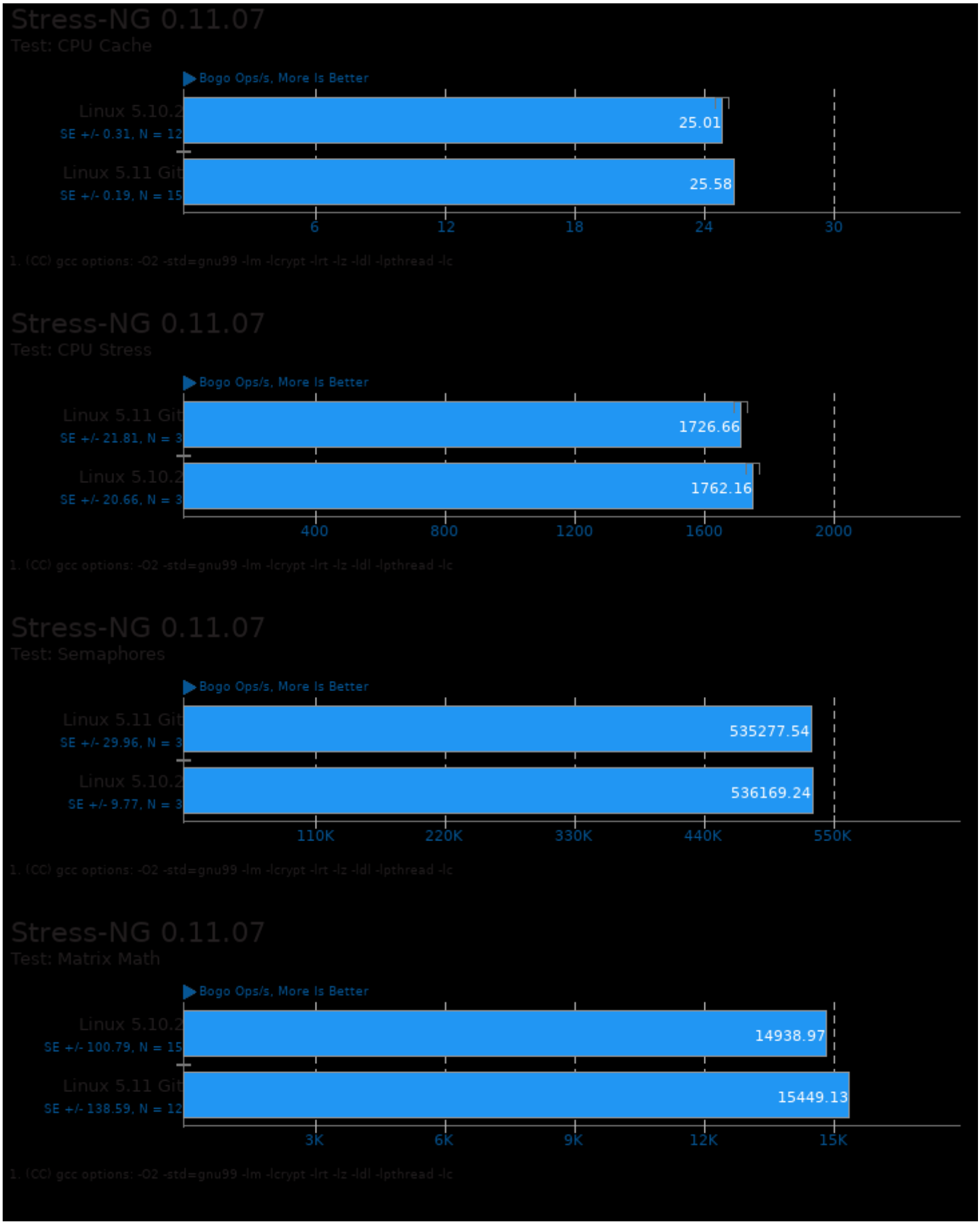

Hackbench
Count: 8 - Type: Process
Seconds, Fewer Is Better
Linux 5.10.2
SE +/- 0.39, N = 3
58.79
Linux 5.11 Git
SE +/- 0.42, N = 3
56.12
13
26
39
52
65
1. (CC) gcc options: -lpthread
Hackbench
Count: 16 - Type: Process
Seconds, Fewer Is Better
Linux 5.10.2
SE +/- 0.34, N = 3
130.03
Linux 5.11 Git
SE +/- 0.34, N = 3
119.76
30
60
90
120
150
1. (CC) gcc options: -lpthread
Hackbench
Count: 32 - Type: Process
Seconds, Fewer Is Better
Linux 5.10.2
SE +/- 0.27, N = 3
267.11
Linux 5.11 Git
SE +/- 0.97, N = 3
255.86
60
120
180
240
300
1. (CC) gcc options: -lpthread
MPV
Video Input: Big Buck Bunny Sunflower 4K - Decode: Software Only
FPS, More Is Better
Linux 5.10.2
SE +/- 0.30, N = 3
MIN: 122.25 / MAX: 176.27
153.28
Linux 5.11 Git
SE +/- 0.19, N = 3
MIN: 123.89 / MAX: 178.9
154.79
30
60
90
120
150
1. mpv 0.32.0

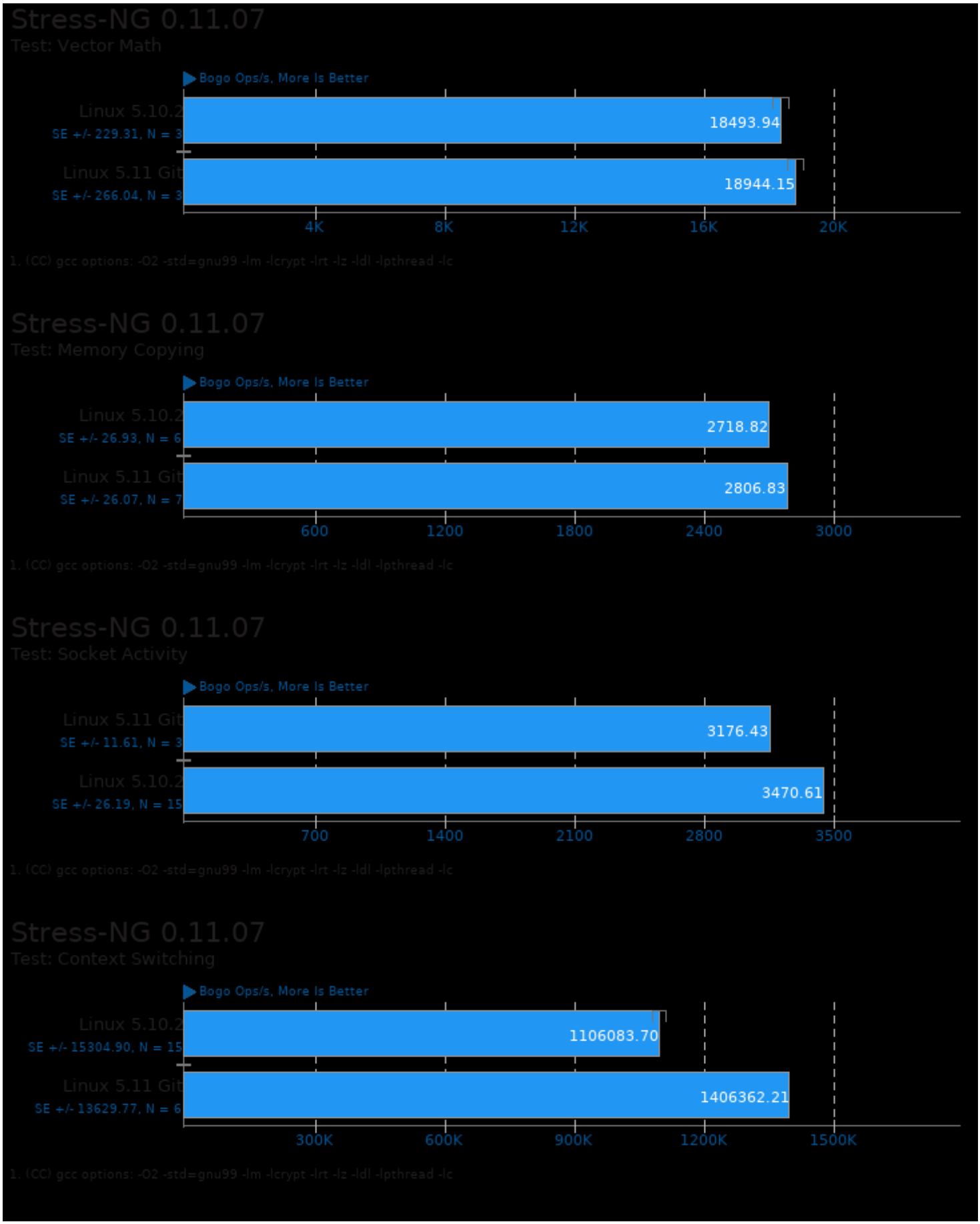

MPV
Video Input: Big Buck Bunny Sunflower 1080p - Decode: Software Only
FPS, More Is Better
Linux 5.10.2
SE +/- 1.87, N = 3
MIN: 331.57 / MAX: 461.03
404.83
Linux 5.11 Git
SE +/- 1.72, N = 3
MIN: 332.95 / MAX: 461.03
413.24
90
180
270
360
450
1. mpv 0.32.0
SQLite Speedtest 3.30
Timed Time - Size 1,000
Seconds, Fewer Is Better
Linux 5.10.2
SE +/- 0.19, N = 3
53.54
Linux 5.11 Git
SE +/- 0.35, N = 3
50.75
12
24
36
48
60
1. (CC) gcc options: -O2 -ldl -lz -lpthread
BenchmarkMutex
Benchmark: Mutex Lock Unlock spinlock
ns, Fewer Is Better
Linux 5.10.2
SE +/- 0.17, N = 3
21.8
Linux 5.11 Git
SE +/- 0.03, N = 3
21.3
5
10
15
20
25
1. (CXX) g++ options: -std=c++17 -lbenchmark -pthread
BenchmarkMutex
Benchmark: Mutex Lock Unlock std::mutex
ns, Fewer Is Better
Linux 5.10.2
SE +/- 0.12, N = 3
20.7
Linux 5.11 Git
SE +/- 0.22, N = 3
20.3
5
10
15
20
25
1. (CXX) g++ options: -std=c++17 -lbenchmark -pthread

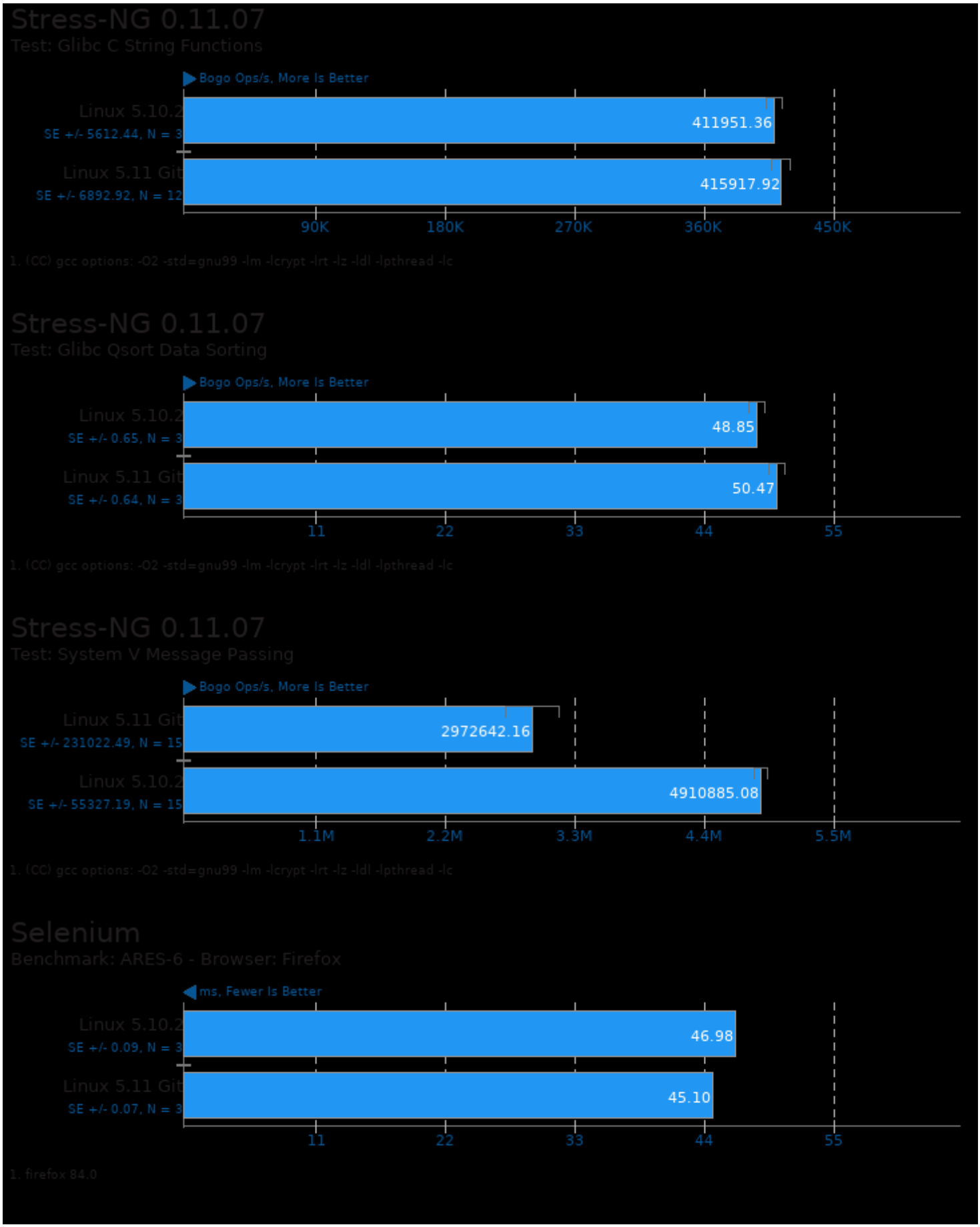

BenchmarkMutex
Benchmark: Mutex Lock Unlock std::mutex
ns, Fewer Is Better
Linux 5.10.2
SE +/- 0.17, N = 3
15.4
Linux 5.11 Git
SE +/- 0.09, N = 3
15.0
4
8
12
16
20
1. (CXX) g++ options: -std=c++17 -lbenchmark -pthread
BenchmarkMutex
Benchmark: Mutex Lock Unlock pthread_mutex
ns, Fewer Is Better
Linux 5.10.2
SE +/- 0.14, N = 15
13.6
Linux 5.11 Git
SE +/- 0.00, N = 3
12.9
3
6
9
12
15
1. (CXX) g++ options: -std=c++17 -lbenchmark -pthread
BenchmarkMutex
Benchmark: Mutex Lock Unlock ticket_spinlock
ns, Fewer Is Better
Linux 5.11 Git
SE +/- 0.12, N = 15
14.1
Linux 5.10.2
SE +/- 0.11, N = 15
13.9
4
8
12
16
20
1. (CXX) g++ options: -std=c++17 -lbenchmark -pthread
Stress-NG 0.11.07
Test: MMAP
Bogo Ops/s, More Is Better
Linux 5.10.2
SE +/- 0.36, N = 6
35.48
Linux 5.11 Git
SE +/- 0.59, N = 12
36.63
8
16
24
32
40
1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -lz -ldl -lpthread -lc

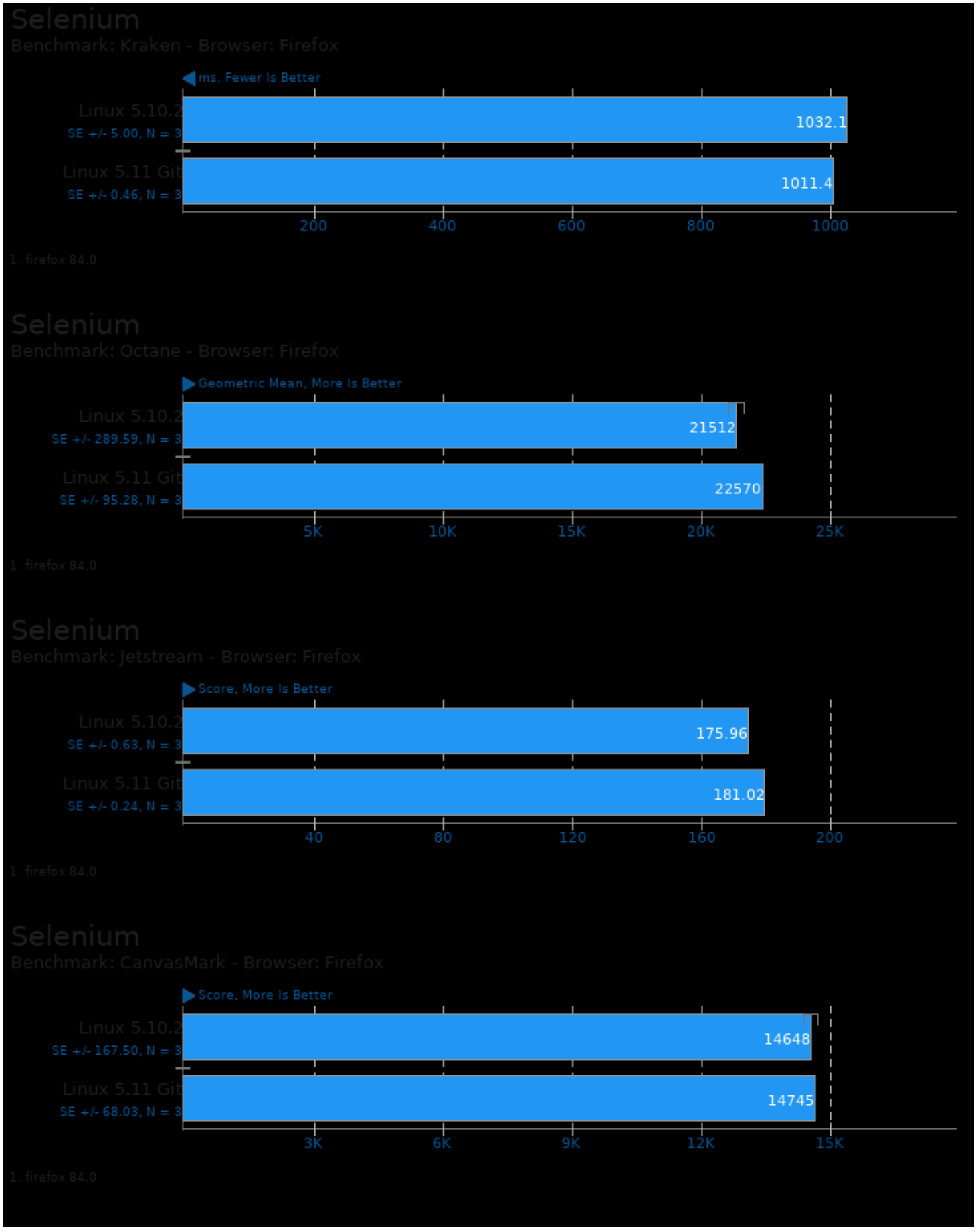

Stress-NG 0.11.07
Test: NUMA
Bogo Ops/s, More Is Better
Linux 5.10.2
SE +/- 1.07, N = 3
76.66
Linux 5.11 Git
SE +/- 1.02, N = 4
93.65
20
40
60
80
100
1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -lz -ldl -lpthread -lc
Stress-NG 0.11.07
Test: MEMFD
Bogo Ops/s, More Is Better
Linux 5.10.2
SE +/- 2.17, N = 5
221.47
Linux 5.11 Git
SE +/- 2.83, N = 4
231.80
50
100
150
200
250
1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -lz -ldl -lpthread -lc
Stress-NG 0.11.07
Test: Atomic
Bogo Ops/s, More Is Better
Linux 5.10.2
SE +/- 2968.22, N = 15
268884.66
Linux 5.11 Git
SE +/- 2857.84, N = 15
271006.74
60K
120K
180K
240K
300K
1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -lz -ldl -lpthread -lc
Stress-NG 0.11.07
Test: Crypto
Bogo Ops/s, More Is Better
Linux 5.10.2
SE +/- 7.22, N = 3
637.23
Linux 5.11 Git
SE +/- 8.39, N = 3
659.40
140
280
420
560
700
1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -lz -ldl -lpthread -lc

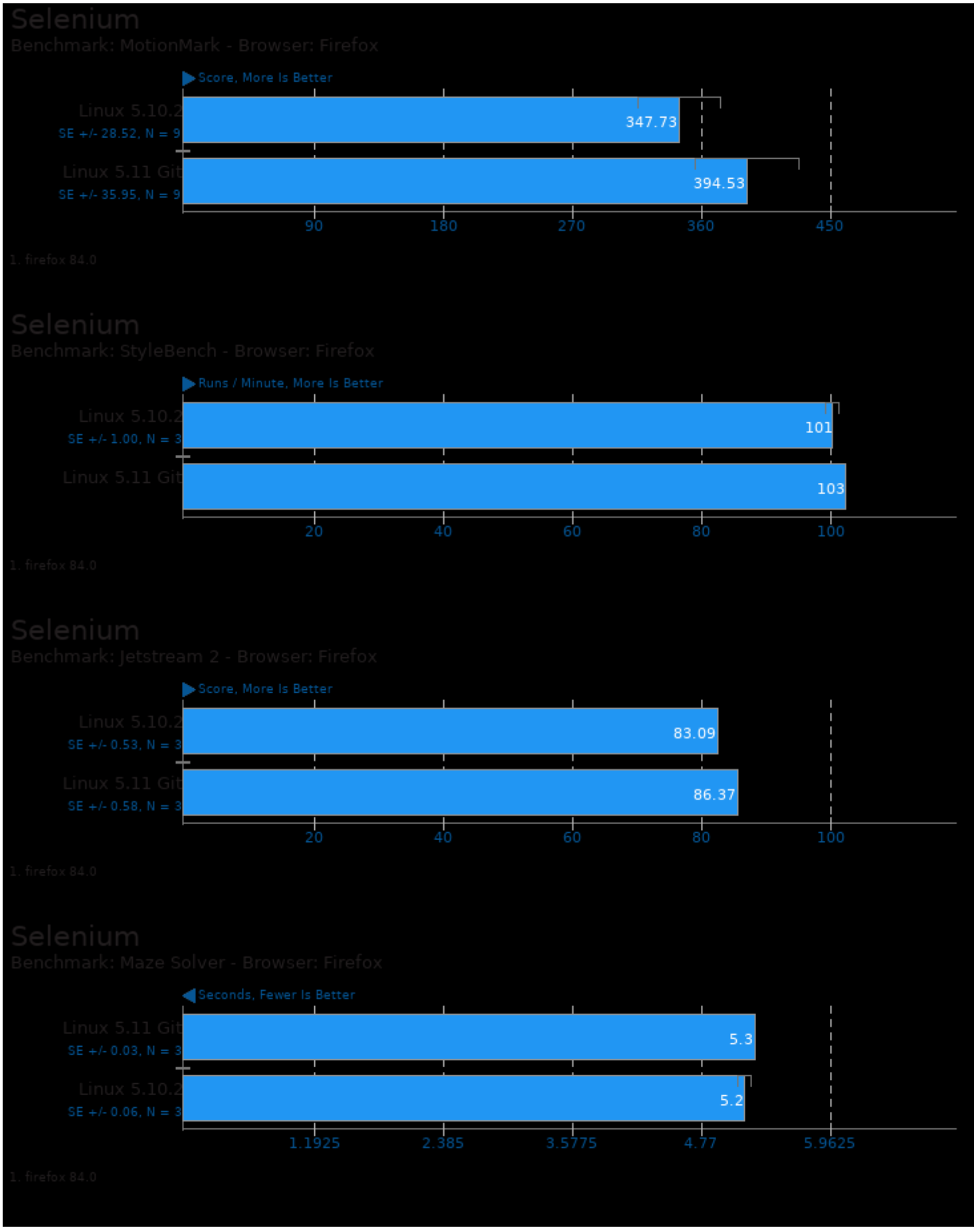

Stress-NG 0.11.07
Test: Malloc
Bogo Ops/s, More Is Better
Linux 5.10.2
SE +/- 334250.02, N = 3
30799334.53
Linux 5.11 Git
SE +/- 404071.87, N = 3
32295498.22
7M
14M
21M
28M
35M
1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -lz -ldl -lpthread -lc
Stress-NG 0.11.07
Test: RdRand
Bogo Ops/s, More Is Better
Linux 5.11 Git
SE +/- 126.94, N = 3
37776.66
Linux 5.10.2
SE +/- 175.12, N = 3
37842.75
8K
16K
24K
32K
40K
1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -lz -ldl -lpthread -lc
Stress-NG 0.11.07
Test: Forking
Bogo Ops/s, More Is Better
Linux 5.10.2
SE +/- 357.49, N = 3
29138.36
Linux 5.11 Git
SE +/- 367.14, N = 4
31435.85
7K
14K
21K
28K
35K
1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -lz -ldl -lpthread -lc
Stress-NG 0.11.07
Test: SENDFILE
Bogo Ops/s, More Is Better
Linux 5.10.2
SE +/- 661.42, N = 3
52843.56
Linux 5.11 Git
SE +/- 577.19, N = 4
52925.00
11K
22K
33K
44K
55K
1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -lz -ldl -lpthread -lc

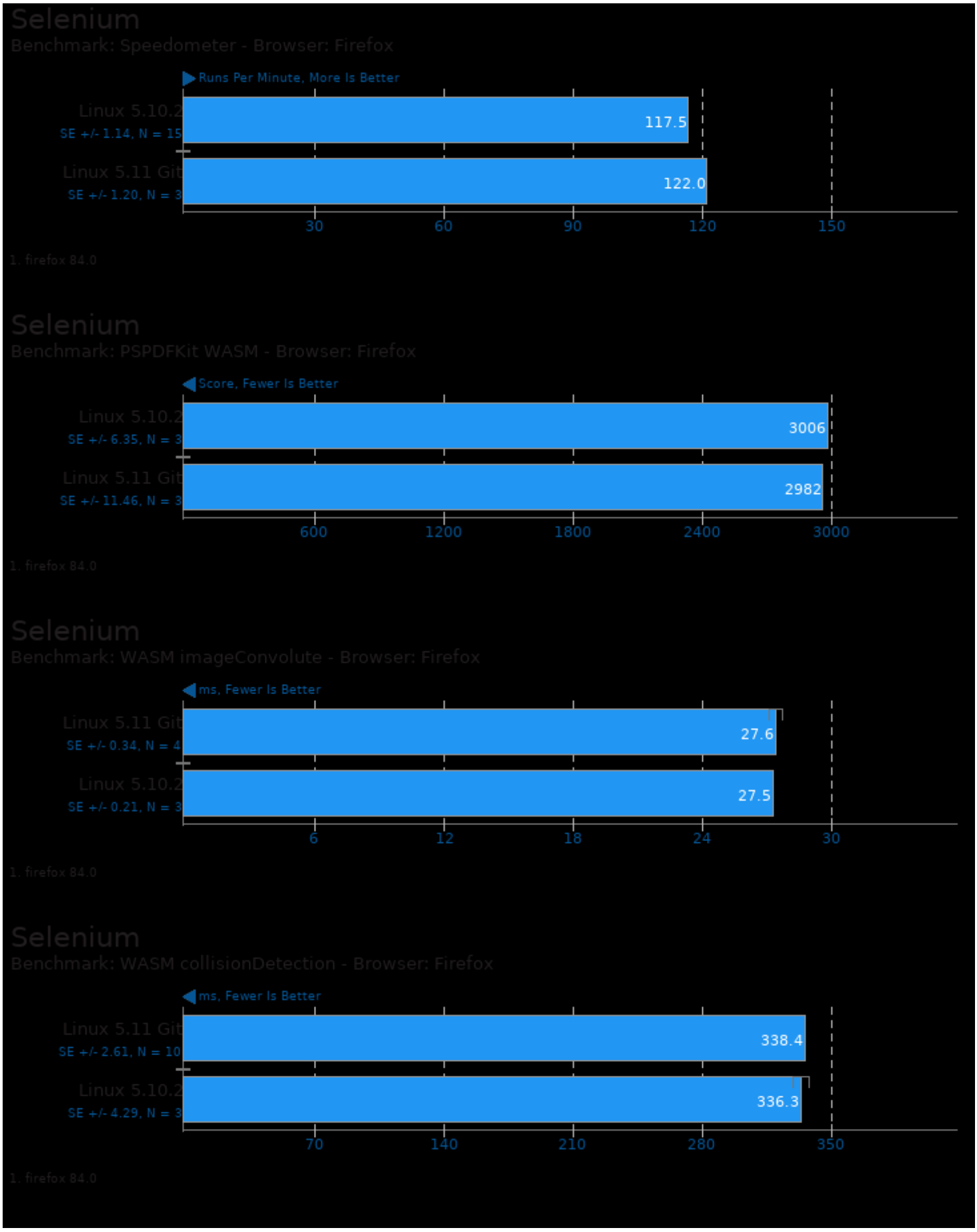

Stress-NG 0.11.07
Test: CPU Cache
Bogo Ops/s, More Is Better
Linux 5.10.2
SE +/- 0.31, N = 12
25.01
Linux 5.11 Git
SE +/- 0.19, N = 15
25.58
6
12
18
24
30
1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -lz -ldl -lpthread -lc
Stress-NG 0.11.07
Test: CPU Stress
Bogo Ops/s, More Is Better
Linux 5.11 Git
SE +/- 21.81, N = 3
1726.66
Linux 5.10.2
SE +/- 20.66, N = 3
1762.16
400
800
1200
1600
2000
1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -lz -ldl -lpthread -lc
Stress-NG 0.11.07
Test: Semaphores
Bogo Ops/s, More Is Better
Linux 5.11 Git
SE +/- 29.96, N = 3
535277.54
Linux 5.10.2
SE +/- 9.77, N = 3
536169.24
110K
220K
330K
440K
550K
1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -lz -ldl -lpthread -lc
Stress-NG 0.11.07
Test: Matrix Math
Bogo Ops/s, More Is Better
Linux 5.10.2
SE +/- 100.79, N = 15
14938.97
Linux 5.11 Git
SE +/- 138.59, N = 12
15449.13
3K
6K
9K
12K
15K
1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -lz -ldl -lpthread -lc

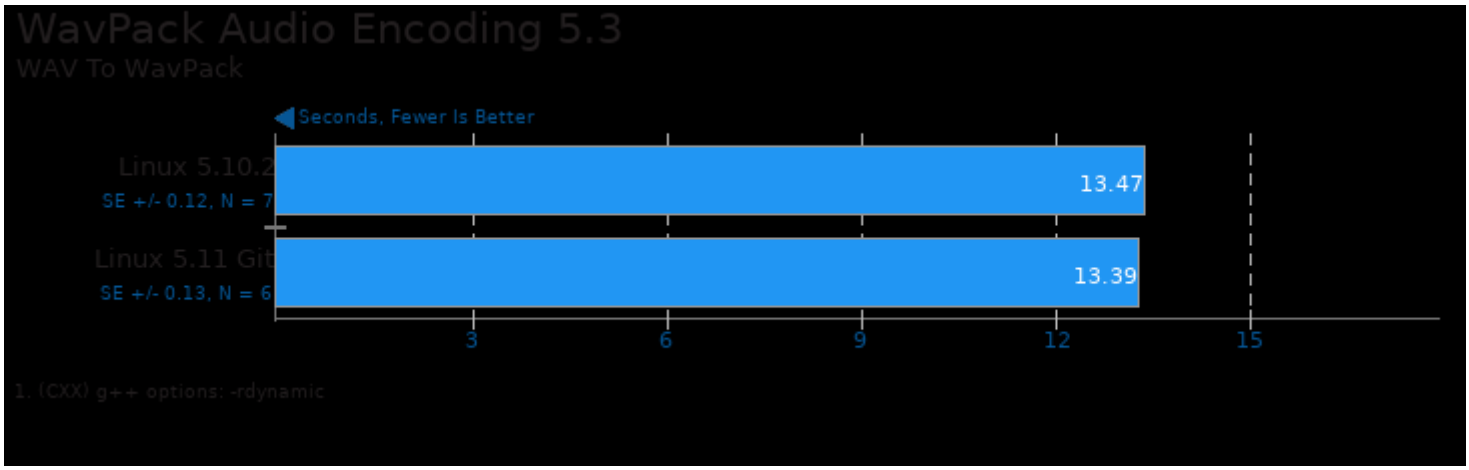

Stress-NG 0.11.07
Test: Vector Math
Bogo Ops/s, More Is Better
Linux 5.10.2
SE +/- 229.31, N = 3
18493.94
Linux 5.11 Git
SE +/- 266.04, N = 3
18944.15
4K
8K
12K
16K
20K
1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -lz -ldl -lpthread -lc
Stress-NG 0.11.07
Test: Memory Copying
Bogo Ops/s, More Is Better
Linux 5.10.2
SE +/- 26.93, N = 6
2718.82
Linux 5.11 Git
SE +/- 26.07, N = 7
2806.83
600
1200
1800
2400
3000
1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -lz -ldl -lpthread -lc
Stress-NG 0.11.07
Test: Socket Activity
Bogo Ops/s, More Is Better
Linux 5.11 Git
SE +/- 11.61, N = 3
3176.43
Linux 5.10.2
SE +/- 26.19, N = 15
3470.61
700
1400
2100
2800
3500
1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -lz -ldl -lpthread -lc
Stress-NG 0.11.07
Test: Context Switching
Bogo Ops/s, More Is Better
Linux 5.10.2
SE +/- 15304.90, N = 15
1106083.70
Linux 5.11 Git
SE +/- 13629.77, N = 6
1406362.21
300K
600K
900K
1200K
1500K
1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -lz -ldl -lpthread -lc


Stress-NG 0.11.07
Test: Glibc C String Functions
Bogo Ops/s, More Is Better
Linux 5.10.2
SE +/- 5612.44, N = 3
411951.36
Linux 5.11 Git
SE +/- 6892.92, N = 12
415917.92
90K
180K
270K
360K
450K
1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -lz -ldl -lpthread -lc
Stress-NG 0.11.07
Test: Glibc Qsort Data Sorting
Bogo Ops/s, More Is Better
Linux 5.10.2
SE +/- 0.65, N = 3
48.85
Linux 5.11 Git
SE +/- 0.64, N = 3
50.47
11
22
33
44
55
1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -lz -ldl -lpthread -lc
Stress-NG 0.11.07
Test: System V Message Passing
Bogo Ops/s, More Is Better
Linux 5.11 Git
SE +/- 231022.49, N = 15
2972642.16
Linux 5.10.2
SE +/- 55327.19, N = 15
4910885.08
1.1M
2.2M
3.3M
4.4M
5.5M
1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -lz -ldl -lpthread -lc
Selenium
Benchmark: ARES-6 - Browser: Firefox
ms, Fewer Is Better
Linux 5.10.2
SE +/- 0.09, N = 3
46.98
Linux 5.11 Git
SE +/- 0.07, N = 3
45.10
11
22
33
44
55
1. firefox 84.0

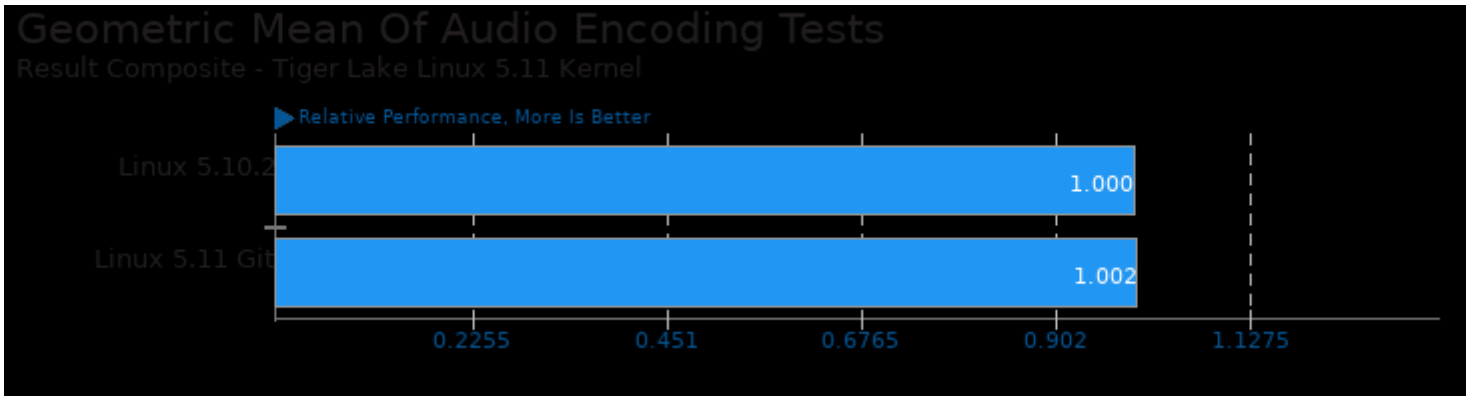

Selenium
Benchmark: Kraken - Browser: Firefox
ms, Fewer Is Better
Linux 5.10.2
SE +/- 5.00, N = 3
1032.1
Linux 5.11 Git
SE +/- 0.46, N = 3
1011.4
200
400
600
800
1000
1. firefox 84.0
Selenium
Benchmark: Octane - Browser: Firefox
Geometric Mean, More Is Better
Linux 5.10.2
SE +/- 289.59, N = 3
21512
Linux 5.11 Git
SE +/- 95.28, N = 3
22570
5K
10K
15K
20K
25K
1. firefox 84.0
Selenium
Benchmark: Jetstream - Browser: Firefox
Score, More Is Better
Linux 5.10.2
SE +/- 0.63, N = 3
175.96
Linux 5.11 Git
SE +/- 0.24, N = 3
181.02
40
80
120
160
200
1. firefox 84.0
Selenium
Benchmark: CanvasMark - Browser: Firefox
Score, More Is Better
Linux 5.10.2
SE +/- 167.50, N = 3
14648
Linux 5.11 Git
SE +/- 68.03, N = 3
14745
3K
6K
9K
12K
15K
1. firefox 84.0


Selenium
Benchmark: MotionMark - Browser: Firefox
Score, More Is Better
Linux 5.10.2
SE +/- 28.52, N = 9
347.73
Linux 5.11 Git
SE +/- 35.95, N = 9
394.53
90
180
270
360
450
1. firefox 84.0
Selenium
Benchmark: StyleBench - Browser: Firefox
Runs / Minute, More Is Better
Linux 5.10.2
SE +/- 1.00, N = 3
101
Linux 5.11 Git
103
20
40
60
80
100
1. firefox 84.0
Selenium
Benchmark: Jetstream 2 - Browser: Firefox
Score, More Is Better
Linux 5.10.2
SE +/- 0.53, N = 3
83.09
Linux 5.11 Git
SE +/- 0.58, N = 3
86.37
20
40
60
80
100
1. firefox 84.0
Selenium
Benchmark: Maze Solver - Browser: Firefox
Seconds, Fewer Is Better
Linux 5.11 Git
SE +/- 0.03, N = 3
5.3
Linux 5.10.2
SE +/- 0.06, N = 3
5.2
1.1925
2.385
3.5775
4.77
5.9625
1. firefox 84.0

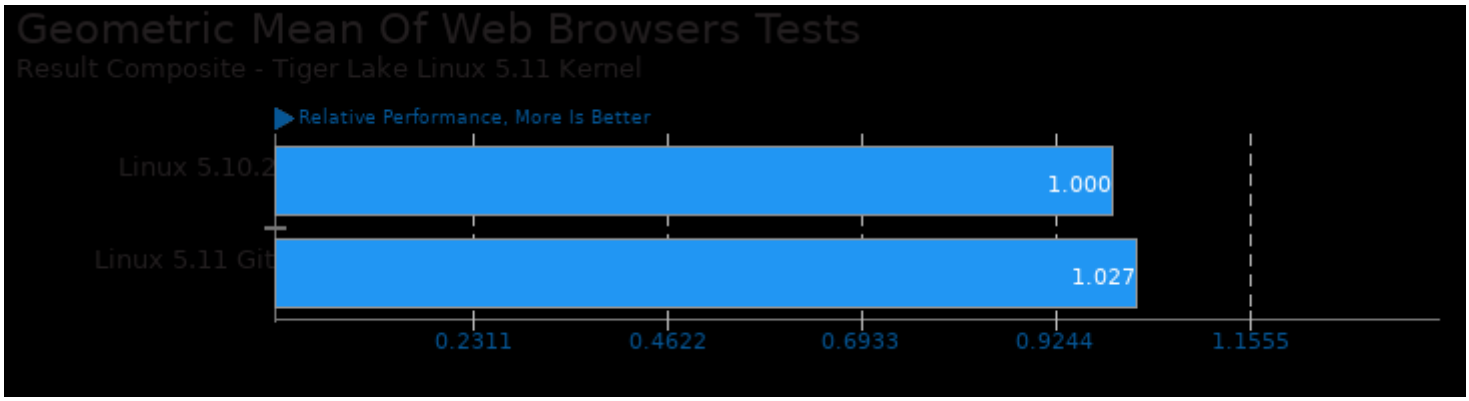

Selenium
Benchmark: Speedometer - Browser: Firefox
Runs Per Minute, More Is Better
Linux 5.10.2
SE +/- 1.14, N = 15
117.5
Linux 5.11 Git
SE +/- 1.20, N = 3
122.0
30
60
90
120
150
1. firefox 84.0
Selenium
Benchmark: PSPDFKit WASM - Browser: Firefox
Score, Fewer Is Better
Linux 5.10.2
SE +/- 6.35, N = 3
3006
Linux 5.11 Git
SE +/- 11.46, N = 3
2982
600
1200
1800
2400
3000
1. firefox 84.0
Selenium
Benchmark: WASM imageConvolute - Browser: Firefox
ms, Fewer Is Better
Linux 5.11 Git
SE +/- 0.34, N = 4
27.6
Linux 5.10.2
SE +/- 0.21, N = 3
27.5
6
12
18
24
30
1. firefox 84.0
Selenium
Benchmark: WASM collisionDetection - Browser: Firefox
ms, Fewer Is Better
Linux 5.11 Git
SE +/- 2.61, N = 10
338.4
Linux 5.10.2
SE +/- 4.29, N = 3
336.3
70
140
210
280
350
1. firefox 84.0


WavPack Audio Encoding 5.3
WAV To WavPack
Seconds, Fewer Is Better
Linux 5.10.2
SE +/- 0.12, N = 7
13.47
Linux 5.11 Git
SE +/- 0.13, N = 6
13.39
3
6
9
12
15
1. (CXX) g++ options: -rdynamic

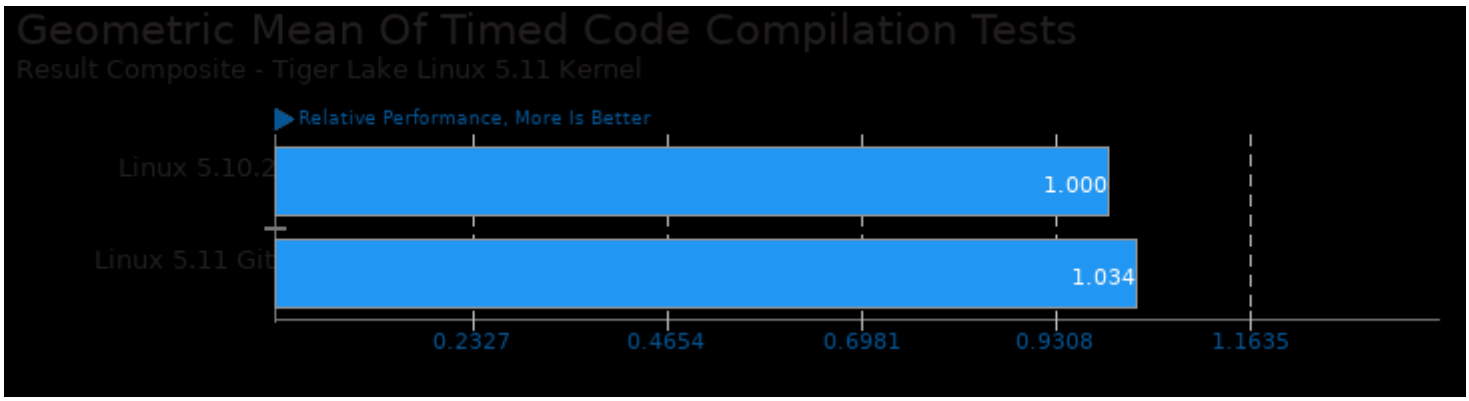
These geometric means are based upon test groupings / test suites for this result file.



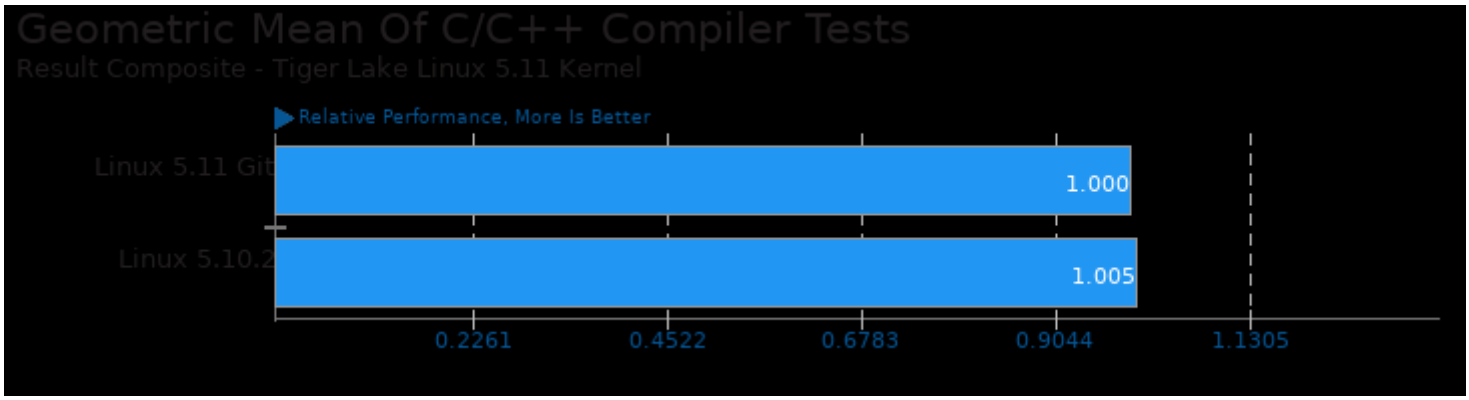
Geometric mean based upon tests: pts/encode-ogg, pts/encode-wavpack and pts/encode-opus



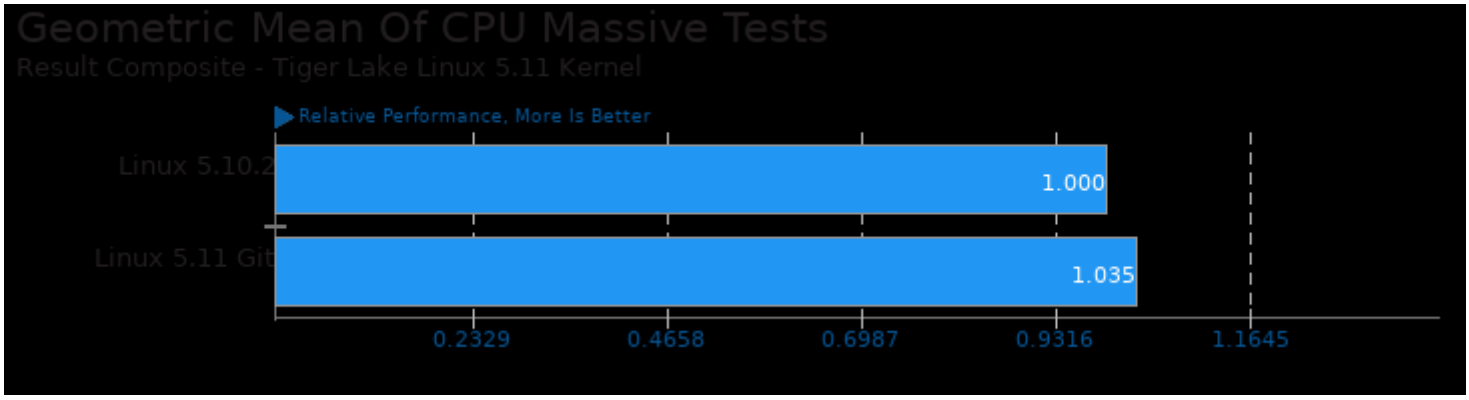
Geometric mean based upon tests: system/selenium



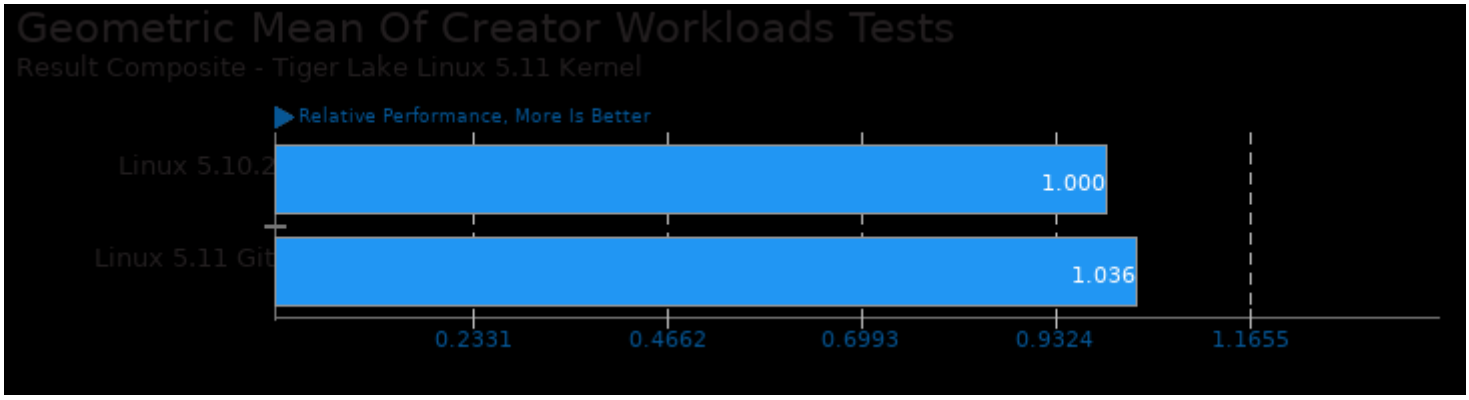
Geometric mean based upon tests: pts/build-eigen, pts/build-linux-kernel and pts/build2



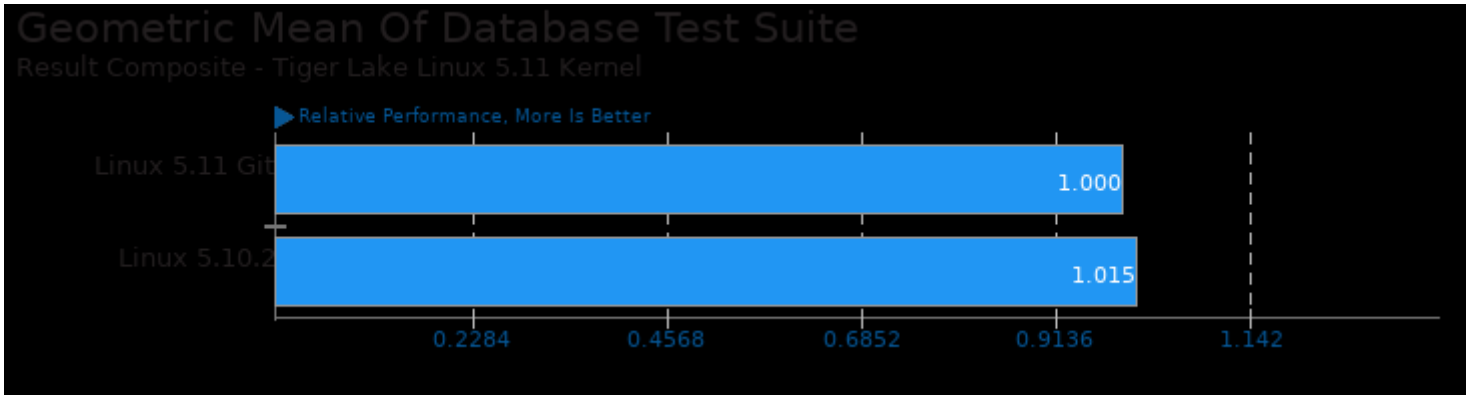
Geometric mean based upon tests: pts/sqlite-speedtest, pts/clomp and pts/leveldb



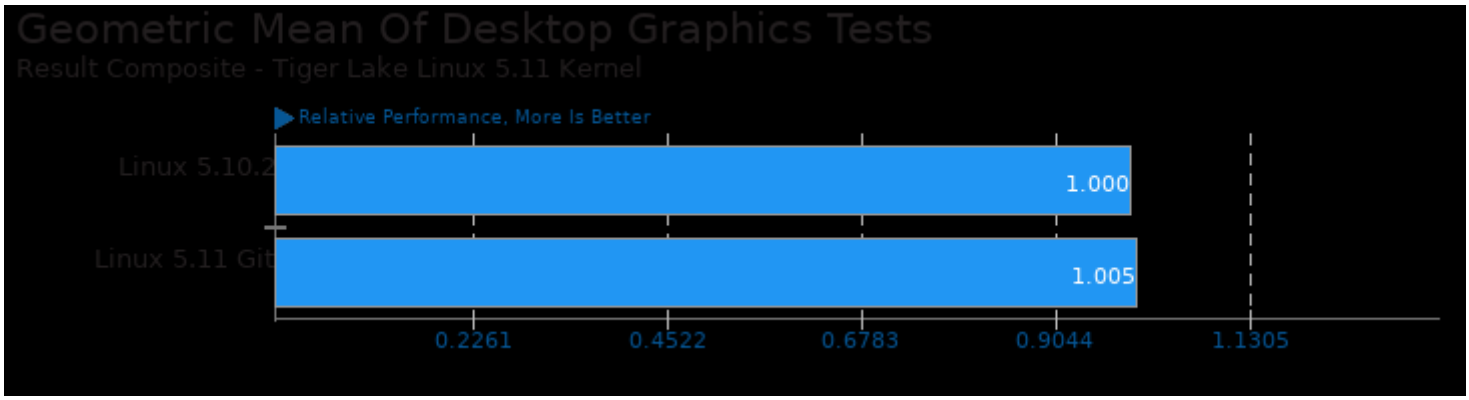
Geometric mean based upon tests: pts/build-linux-kernel, pts/hackbench, pts/onednn, pts/numpy, pts/stress-ng and pts/clomp



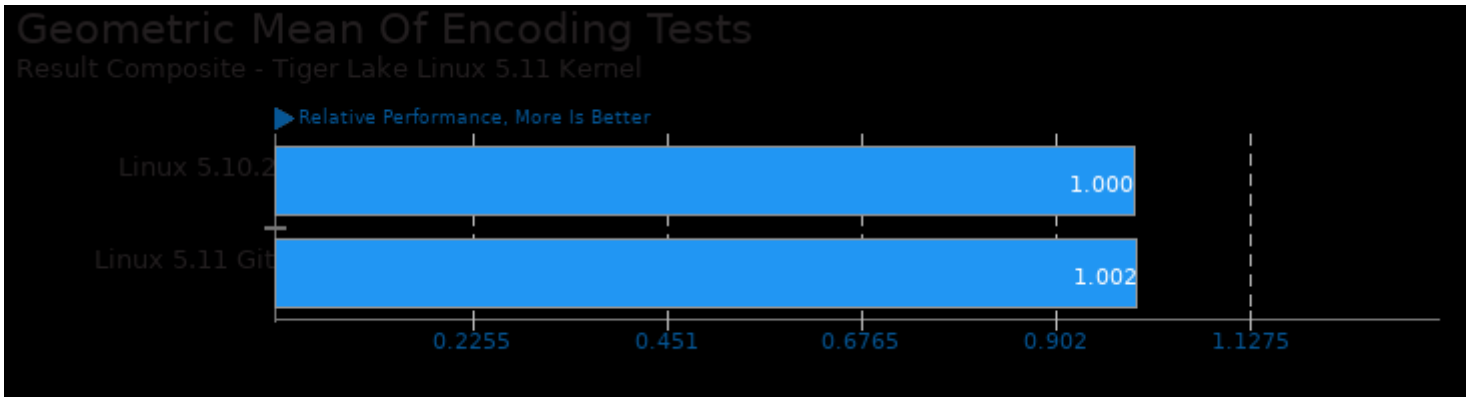
Geometric mean based upon tests: pts/encode-ogg, pts/encode-wavpack, pts/encode-opus, pts/onednn and pts/espeak



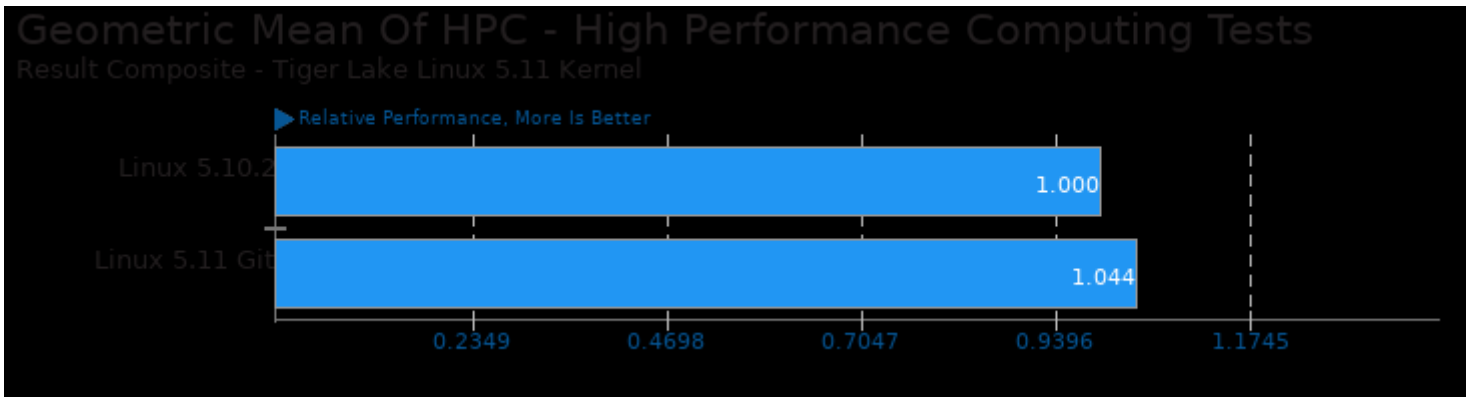
Geometric mean based upon tests: pts/sqlite-speedtest and pts/leveldb



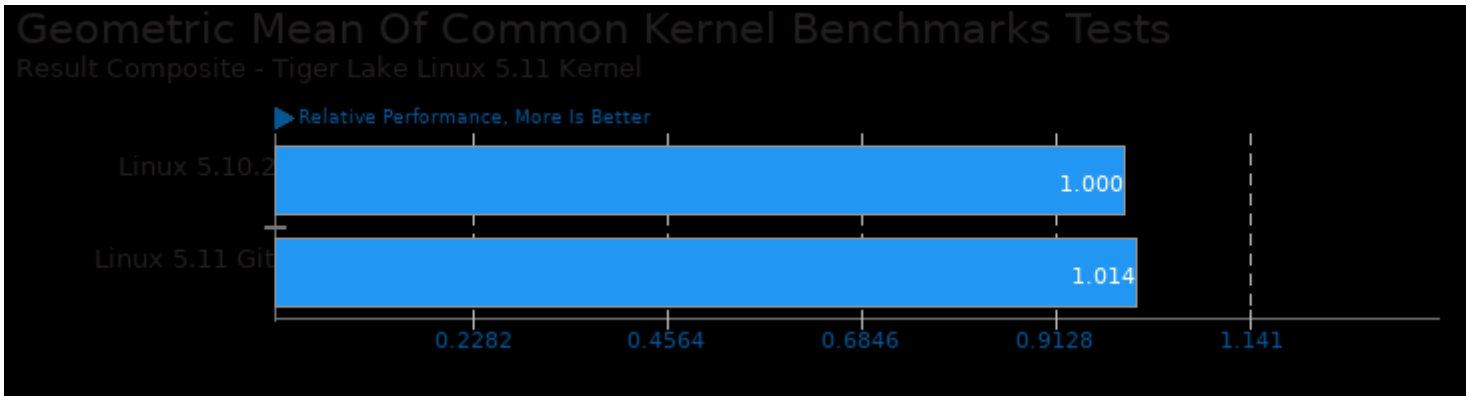
Geometric mean based upon tests: pts/xonotic, pts/tesseract and pts/glmark2



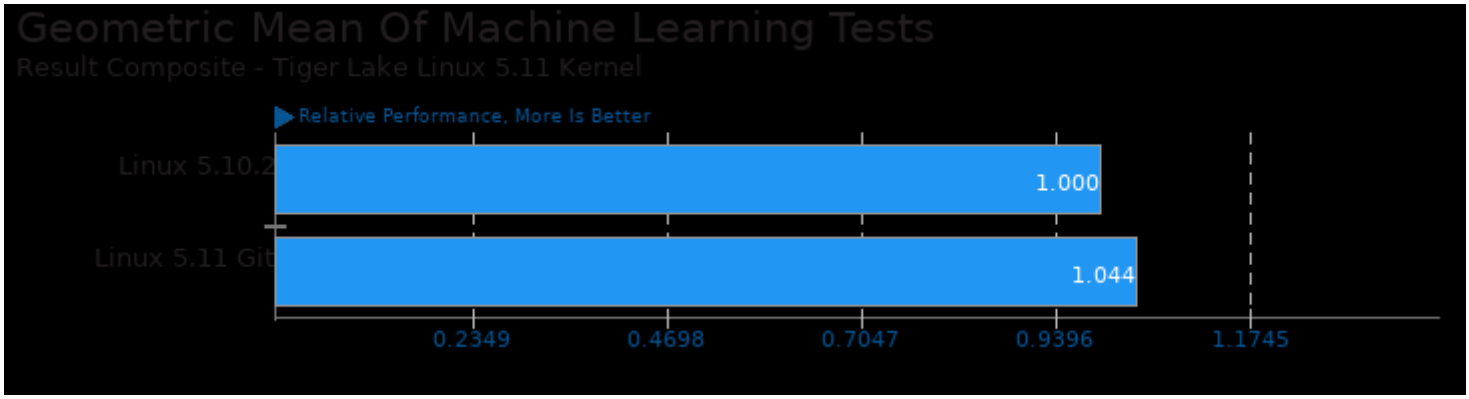
Geometric mean based upon tests: pts/encode-ogg, pts/encode-wavpack and pts/encode-opus



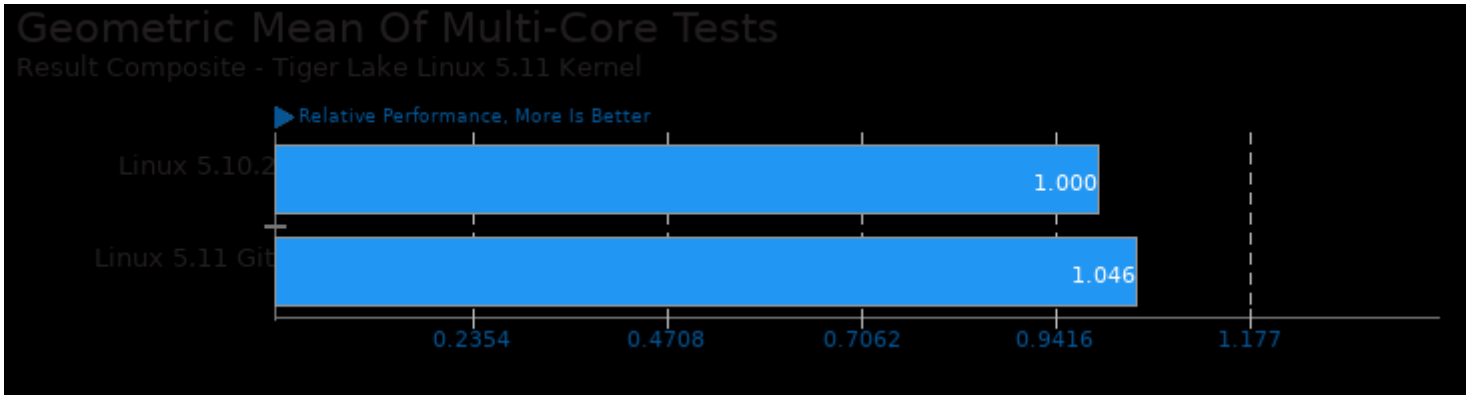
Geometric mean based upon tests: pts/numpy and pts/onednn



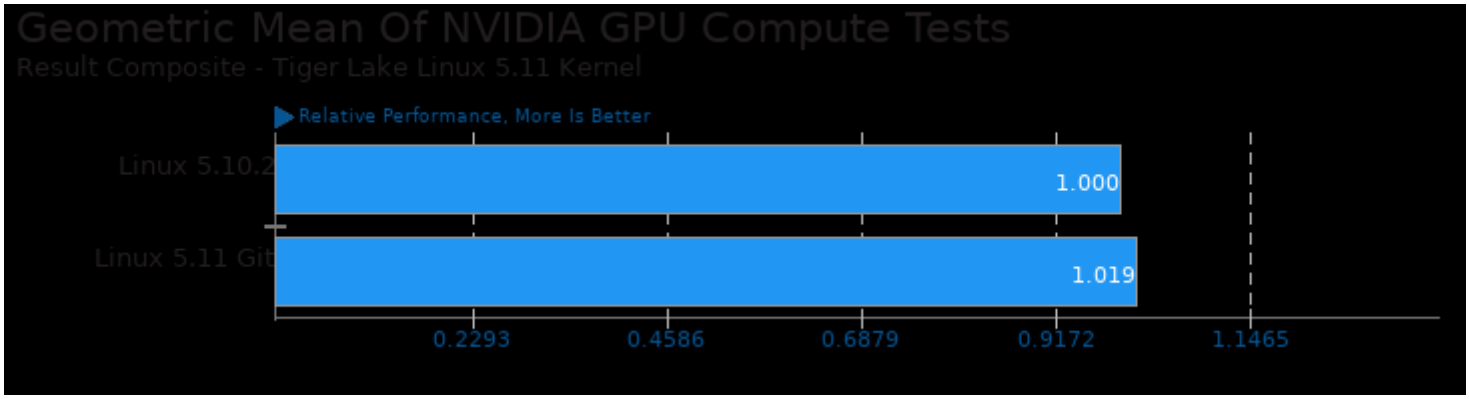
Geometric mean based upon tests: pts/sqlite-speedtest, pts/perf-bench, pts/hackbench, pts/mutex, pts/ipc-benchmark, pts/stress-ng, pts/osbench and pts/leveldb



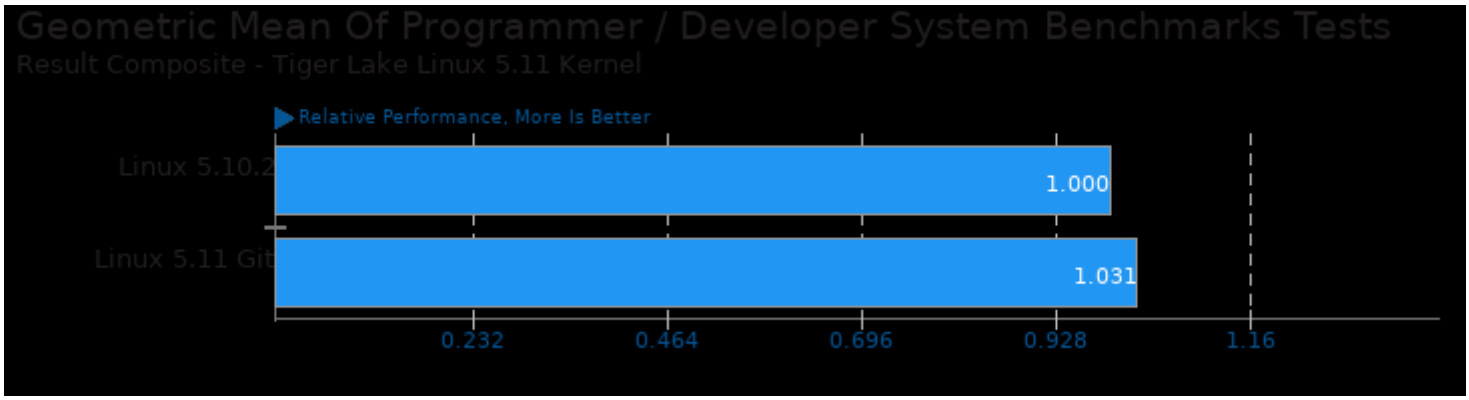
Geometric mean based upon tests: pts/numpy and pts/onednn



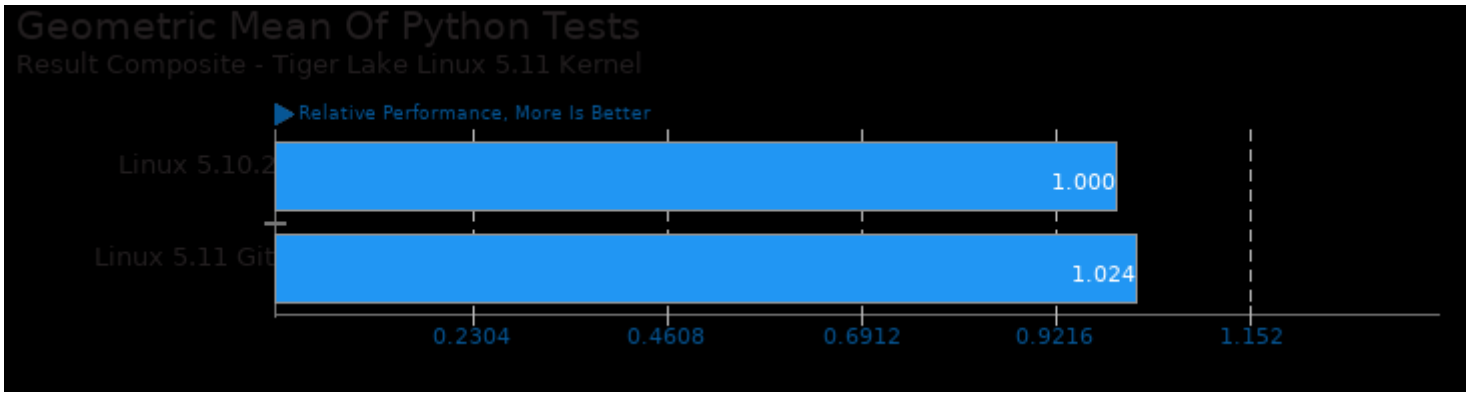
Geometric mean based upon tests: pts/onednn, pts/build-eigen, pts/build-linux-kernel and pts/build2



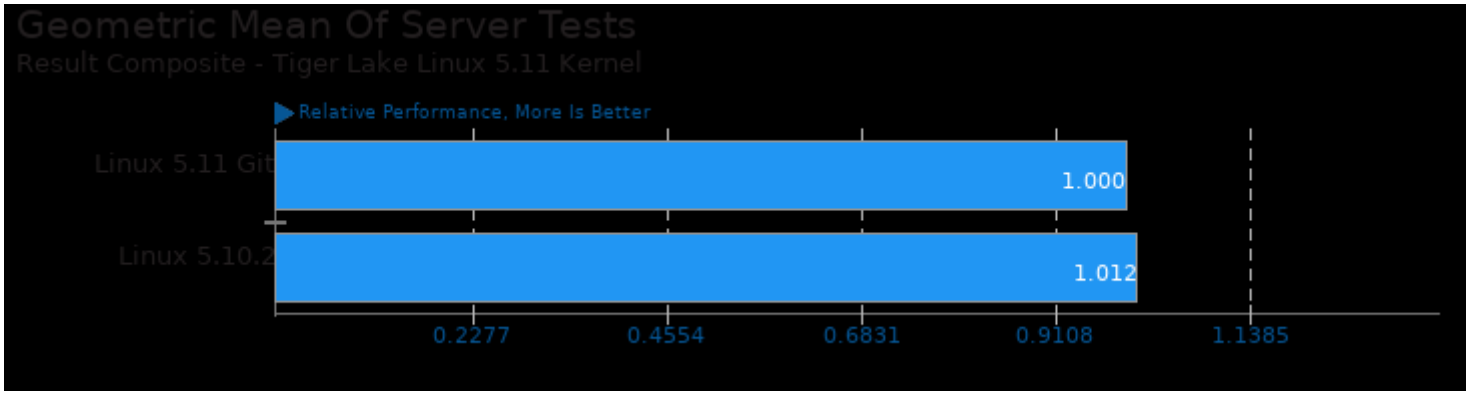
Geometric mean based upon tests: pts/vkresample, pts/realsr-ncnn and pts/waifu2x-ncnn



Geometric mean based upon tests: pts/simdjson, pts/sqlite-speedtest, pts/build-eigen, pts/build-linux-kernel and pts/build2

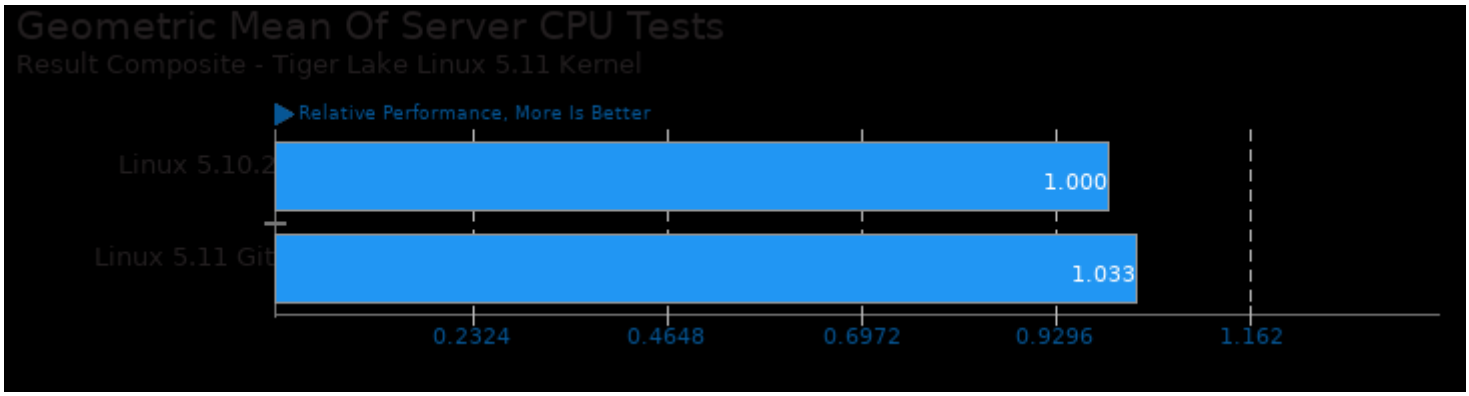


Geometric mean based upon tests: pts/glmark2, pts/numpy and system/selenium

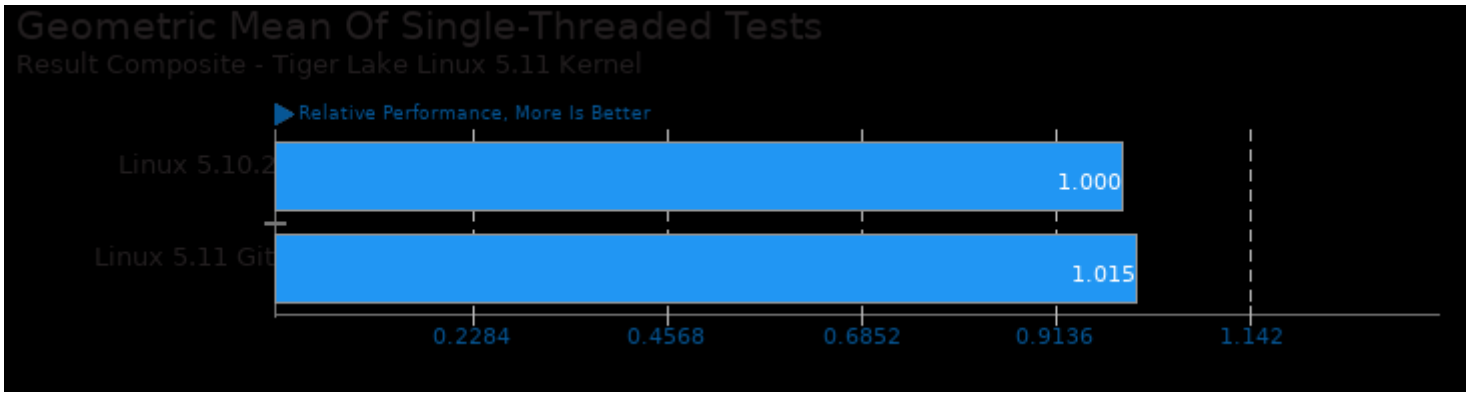


Geometric mean based upon tests: pts/simdjson, pts/sqlite-speedtest and pts/leveldb

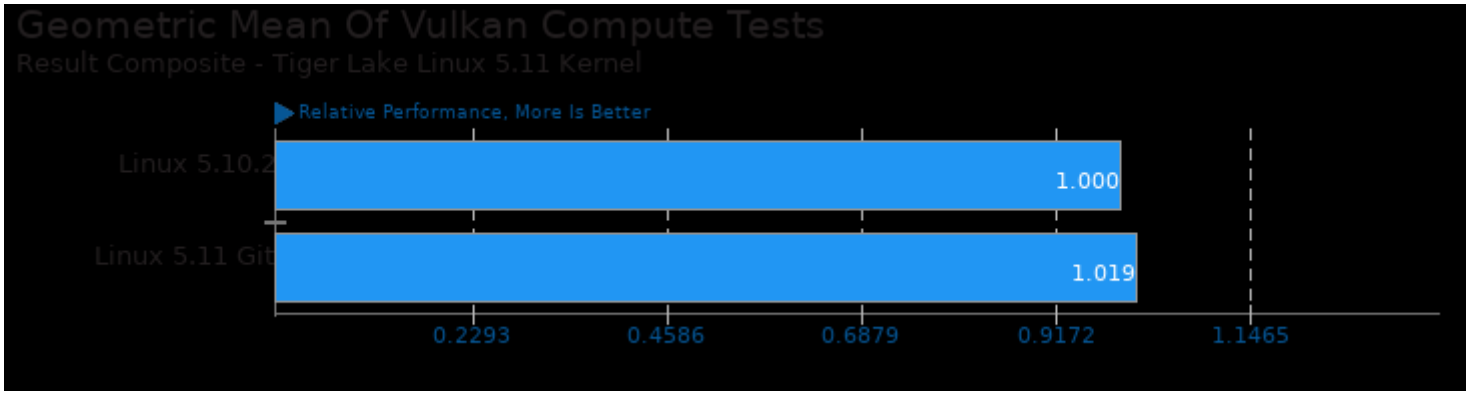
Tiger Lake Linux 5.11 Kernel



Geometric mean based upon tests: pts/onednn, pts/build-linux-kernel, pts/hackbench, pts/stress-ng and pts/numpy



Geometric mean based upon tests: pts/numpy, pts/encode-ogg, pts/espeak and pts/mutex



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

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