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Xeon 5220R Mid Week

2 x Intel Xeon Gold 5220R testing with a TYAN S7106 (V2.01.B40 BIOS) and llvmpipe on Ubuntu 20.04 via the Phoronix Test Suite.

Automated Executive Summary

Xeon 5220R 2P had the most wins, coming in first place for 46% of the tests.

Based on the geometric mean of all complete results, the fastest (Xeon 5220R 2P) was 1.014x the speed of the slowest (r3). r2 was 0.994x the speed of Xeon 5220R 2P and r3 was 0.993x the speed of r2.

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

perf-bench (Benchmark: Epoll Wait) at 1.195x
perf-bench (Benchmark: Memcpy 1MB) at 1.036x
eSpeak-NG Speech Engine (Text-To-Speech Synthesis) at 1.021x
perf-bench (Benchmark: Memset 1MB) at 1.013x
WebP Image Encode (Encode Settings: Quality 100, Lossless, Highest Compression) at 1.013x
InfluxDB (Concurrent Streams: 1024 - Batch Size: 10000 - Tags: 2,5000,1 - Points Per Series: 10000) at 1.011x
perf-bench (Benchmark: Futex Lock-Pi) at 1.009x
OSBench (Test: Create Processes) at 1.009x
OSBench (Test: Memory Allocations) at 1.009x

perf-bench (Benchmark: Sched Pipe) at 1.009x.

Test Systems:

Xeon 5220R 2P

r2

r3

Processor: 2 x Intel Xeon Gold 5220R @ 3.90GHz (36 Cores / 72 Threads), Motherboard: TYAN S7106 (V2.01.B40 BIOS), Chipset: Intel Sky Lake-E DMI3 Registers, Memory: 94GB, Disk: 500GB Samsung SSD 860, Graphics: llvmpipe, Monitor: VE228, Network: 2 x Intel I210 + 2 x QLogic cLOM8214 1/10GbE

OS: Ubuntu 20.04, Kernel: 5.9.0-050900rc6-generic (x86_64) 20200920, Desktop: GNOME Shell 3.36.4, Display Server: X Server 1.20.8, Display Driver: modesetting 1.20.8, OpenGL: 3.3 Mesa 20.0.4 (LLVM 9.0.1 256 bits), Compiler: GCC 9.3.0, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none,hsa --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: intel_pstate powersave - CPU Microcode: 0x5002f01
Security Notes: itlb_multihit: KVM: Mitigation of VMX disabled + 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: Mitigation of TSX disabled

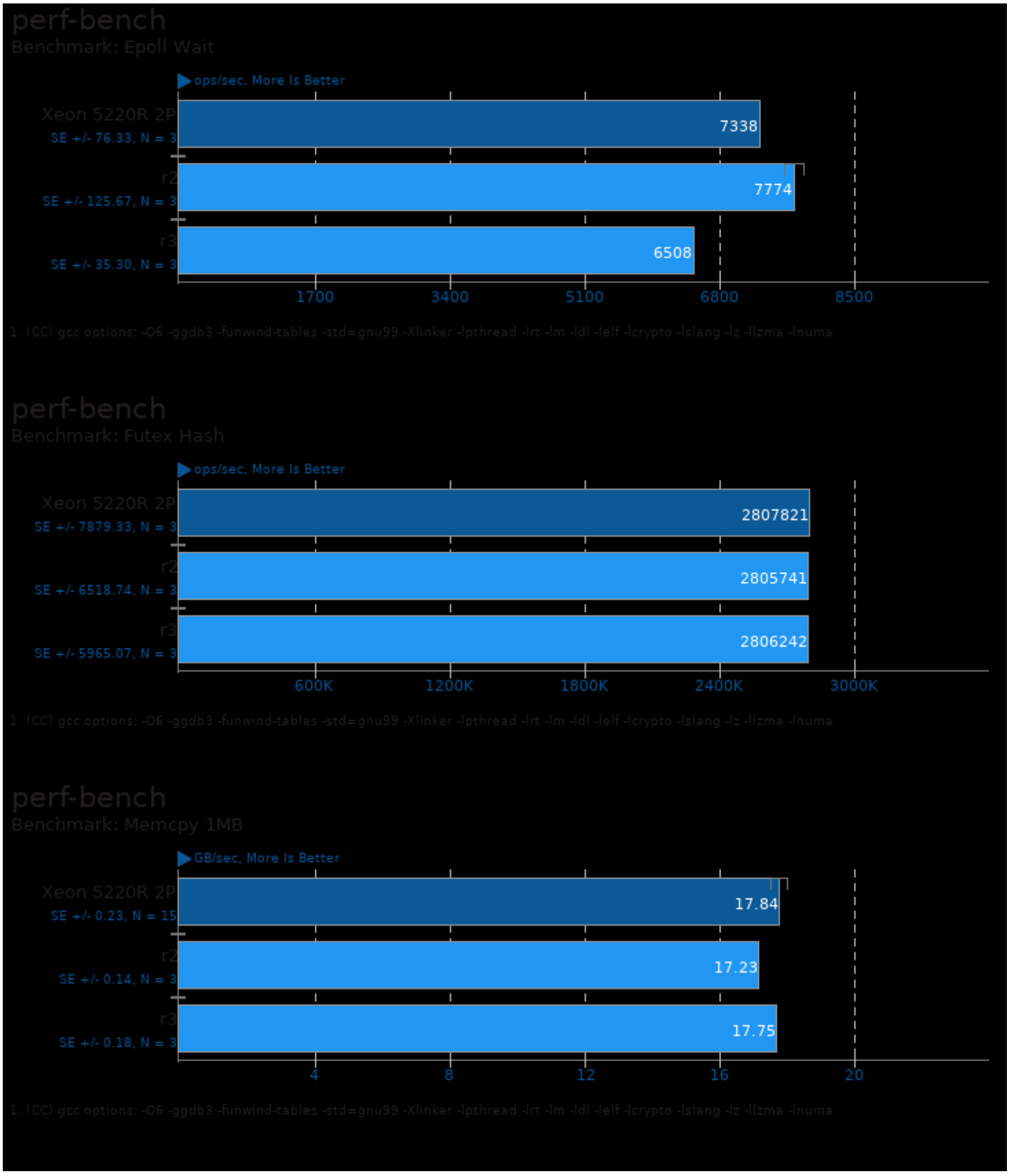
	Xeon 5220R 2P	r2	r3
perf-bench - Epoll Wait (ops/sec)	7338	**7774**	**6508**
Normalized	94.39%	100%	83.71%
Standard Deviation	1.8%	2.8%	0.9%
perf-bench - Futex Hash (ops/sec)	**2807821**	**2805741**	2806242
Normalized	100%	99.93%	99.94%
Standard Deviation	0.5%	0.4%	0.4%
perf-bench - Memcpy 1MB (GB/sec)	**17.843025**	**17.226687**	17.745251
Normalized	100%	96.55%	99.45%
Standard Deviation	4.9%	1.4%	1.8%
perf-bench - Memset 1MB (GB/sec)	57.681710	**57.339173**	**58.109372**
Normalized	99.26%	98.67%	100%
Standard Deviation	1.5%	2.5%	2.3%
perf-bench - Sched Pipe (ops/sec)	**150567**	151139	**151914**
Normalized	99.11%	99.49%	100%
Standard Deviation	0.5%	2.8%	3%
perf-bench - Futex Lock-Pi (ops/sec)	**106**	**106**	**107**
Normalized	99.07%	99.07%	100%

Standard Deviation		1.4%	
perf-bench - Syscall Basic (ops/sec)	**16949947**	16969813	**16978960**
Normalized	99.83%	99.95%	100%
Standard Deviation	0.1%	0.3%	0.1%
OSBench - Create Files (us/Event)	**15.345163**	**15.422570**	15.414299
Normalized	100%	99.5%	99.55%
Standard Deviation	0.4%	0.1%	0.1%
OSBench - Create Threads (us/Event)	**18.876394**	**18.737316**	18.850962
Normalized	99.26%	100%	99.4%
Standard Deviation	1.8%	0.8%	0.4%
OSBench - Launch Programs (us/Event)	**57.552815**	**58.017373**	57.703495
Normalized	100%	99.2%	99.74%
Standard Deviation	3%	3%	2.9%
OSBench - Create Processes (us/Event)	38.030148	**37.953059**	**38.302739**
Normalized	99.8%	100%	99.09%
Standard Deviation	1.5%	2%	2.8%
OSBench - Memory Allocations (Ns/Event)	**94.547034**	94.769319	**95.398665**
Normalized	100%	99.77%	99.11%
Standard Deviation	0.5%	0.9%	1.4%
WebP Image Encode - Default (Encode Time - sec)	**1.748**	**1.748**	**1.743**
Normalized	99.71%	99.71%	100%
Standard Deviation	0.5%	0.6%	0.1%
WebP Image Encode - Quality 100 (Encode Time - sec)	**2.753**	**2.741**	2.742
Normalized	99.56%	100%	99.96%
Standard Deviation	0.6%	0.3%	0.3%
WebP Image Encode - Q.1.L (Encode Time - sec)	19.790	**19.857**	**19.690**
Normalized	99.49%	99.16%	100%
Standard Deviation	0%	0.7%	0%
WebP Image Encode - Q.1.H.C (Encode Time - sec)	**8.167**	8.149	**8.142**
Normalized	99.69%	99.91%	100%
Standard Deviation	0.3%	0.2%	0%
WebP Image Encode - Q.1.L.H.C (Encode Time - sec)	43.729	**44.144**	**43.595**
Normalized	99.69%	98.76%	100%
Standard Deviation	0.1%	0%	0.1%
LibRaw - P.P.B (Mpix/sec)	**28.11**	**28.11**	**28.04**
Normalized	100%	100%	99.75%
Standard Deviation	1.4%	0.5%	1.3%
dcraw - R.T.P.I.C (sec)	**43.391**	43.417	**43.445**
Normalized	100%	99.94%	99.88%
Standard Deviation	0.1%	0%	0.2%
eSpeak-NG Speech Engine - T.T.S.S (sec)	**36.527**	**35.792**	36.268
Normalized	97.99%	100%	98.69%
Standard Deviation	2.9%	2.6%	1.2%
OpenCV - Features 2D (ms)	**228212**	265532	**278183**
Normalized	100%	85.95%	82.04%
Standard Deviation	10.1%	17.8%	7.9%
OpenCV - Object Detection (ms)	134356	**137519**	**133689**
Normalized	99.5%	97.21%	100%
Standard Deviation	7.1%	13.2%	13.7%

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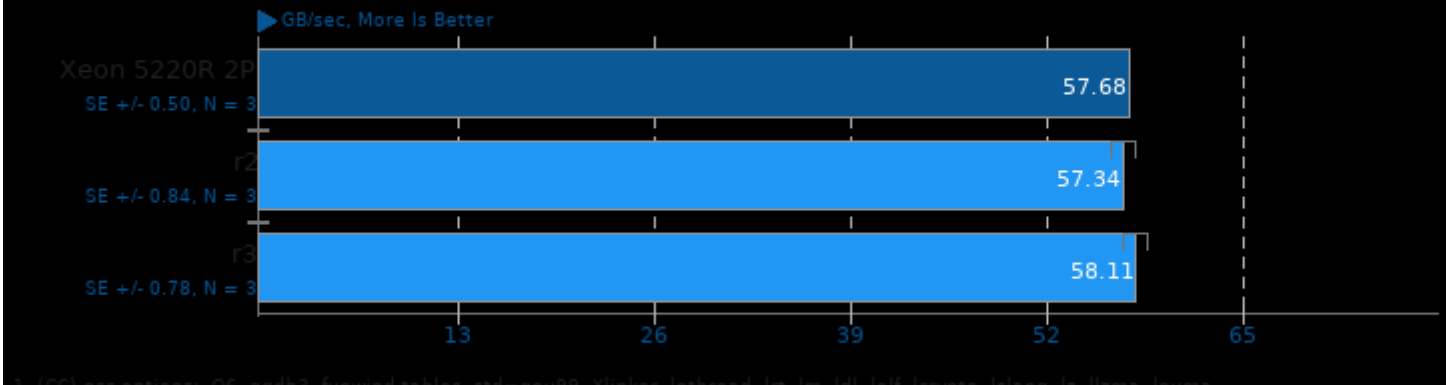
OpenCV - DNN - D.N.N (ms)	**10663**	10694	**11206**
Normalized	100%	99.71%	95.15%
Standard Deviation	5.5%	6.3%	2.7%
InfluxDB - 4 - 10000 - 2,5000,1 - 10000	**729561**	**727369**	728232
Normalized	100%	99.7%	99.82%
Standard Deviation	5.1%	5.1%	5.3%
InfluxDB - 64 - 10000 - 2,5000,1 - 10000 (val/sec)	**1304501**	**1296199**	1299220
Normalized	100%	99.36%	99.6%
Standard Deviation	0.3%	0.5%	0.5%
InfluxDB - 1024 - 10000 - 2,5000,1 - 10000 (val/sec)	**1378615**	**1364097**	1364951
Normalized	100%	98.95%	99.01%
Standard Deviation	0.6%	0.5%	0.2%

Xeon 5220R Mid Week



perf-bench

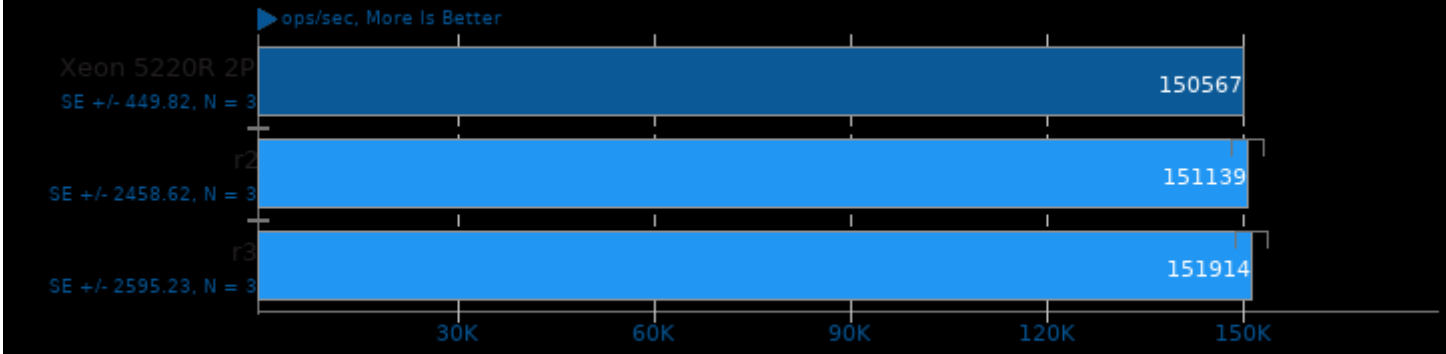
Benchmark: Memset 1MB



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

perf-bench

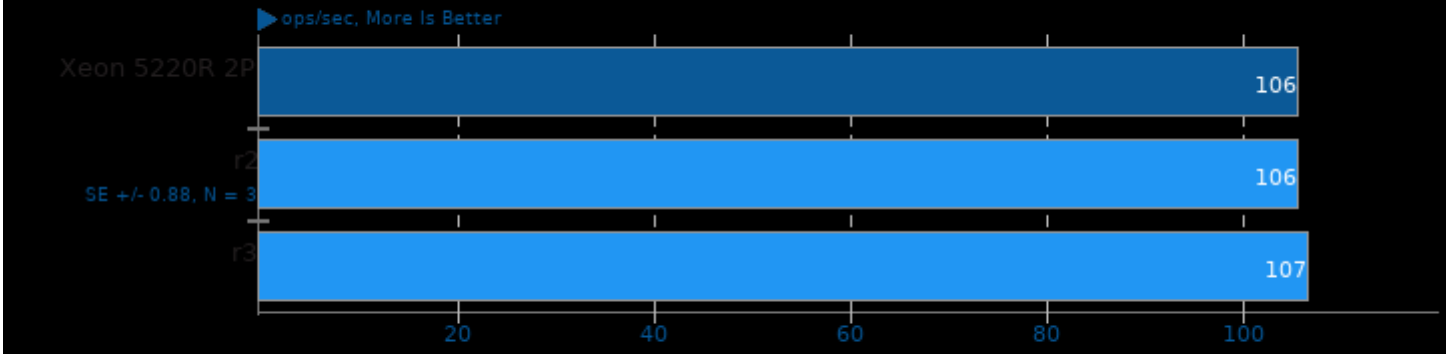
Benchmark: Sched Pipe



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

perf-bench

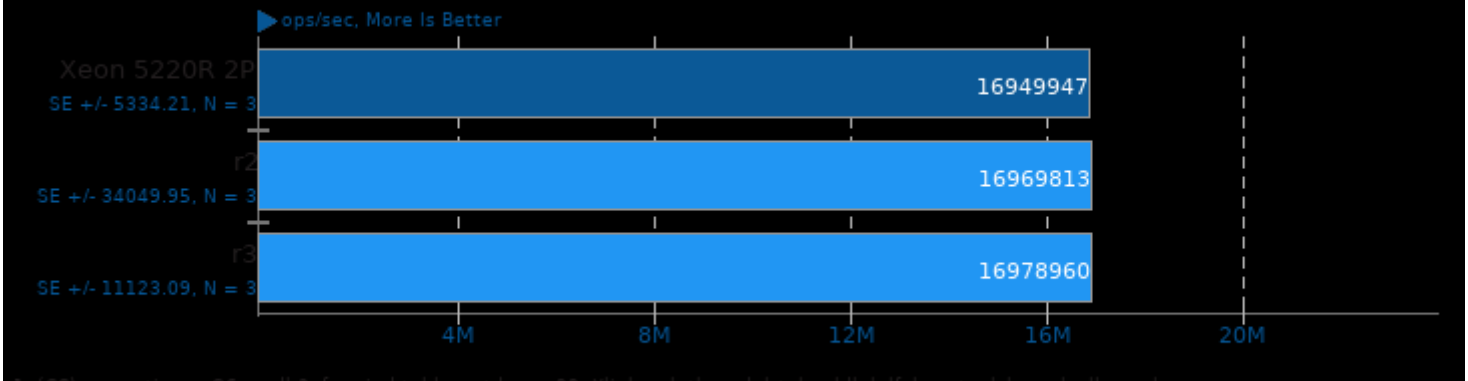
Benchmark: Futex Lock-Pi



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

perf-bench

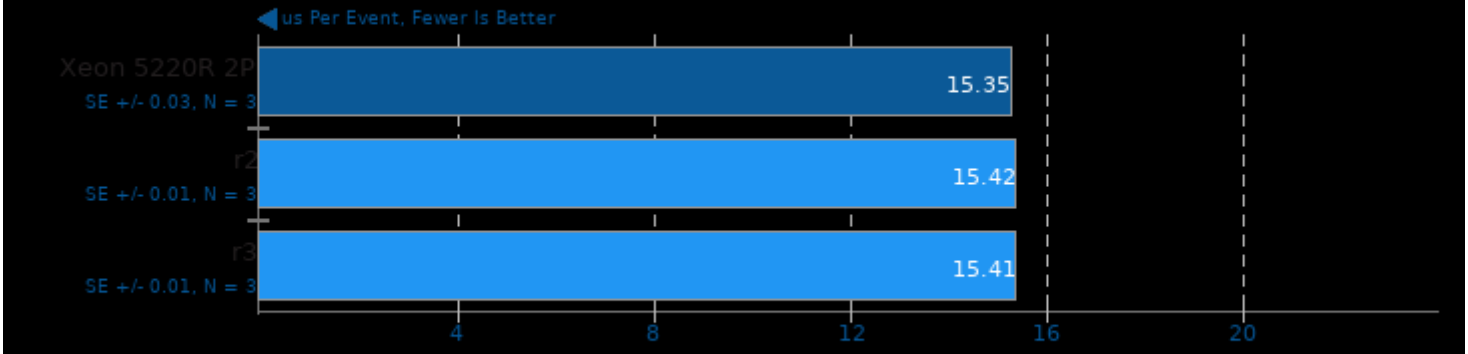
Benchmark: Syscall Basic



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

OSBench

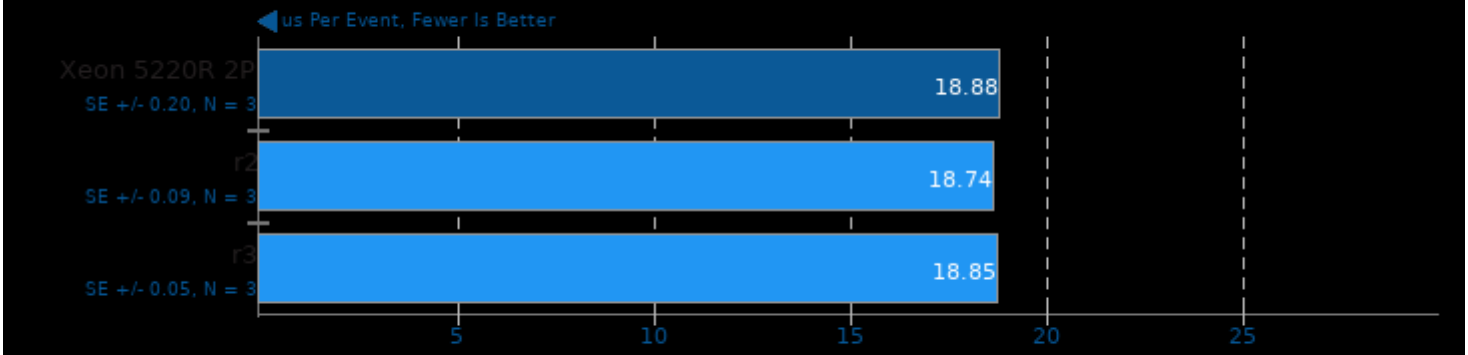
Test: Create Files



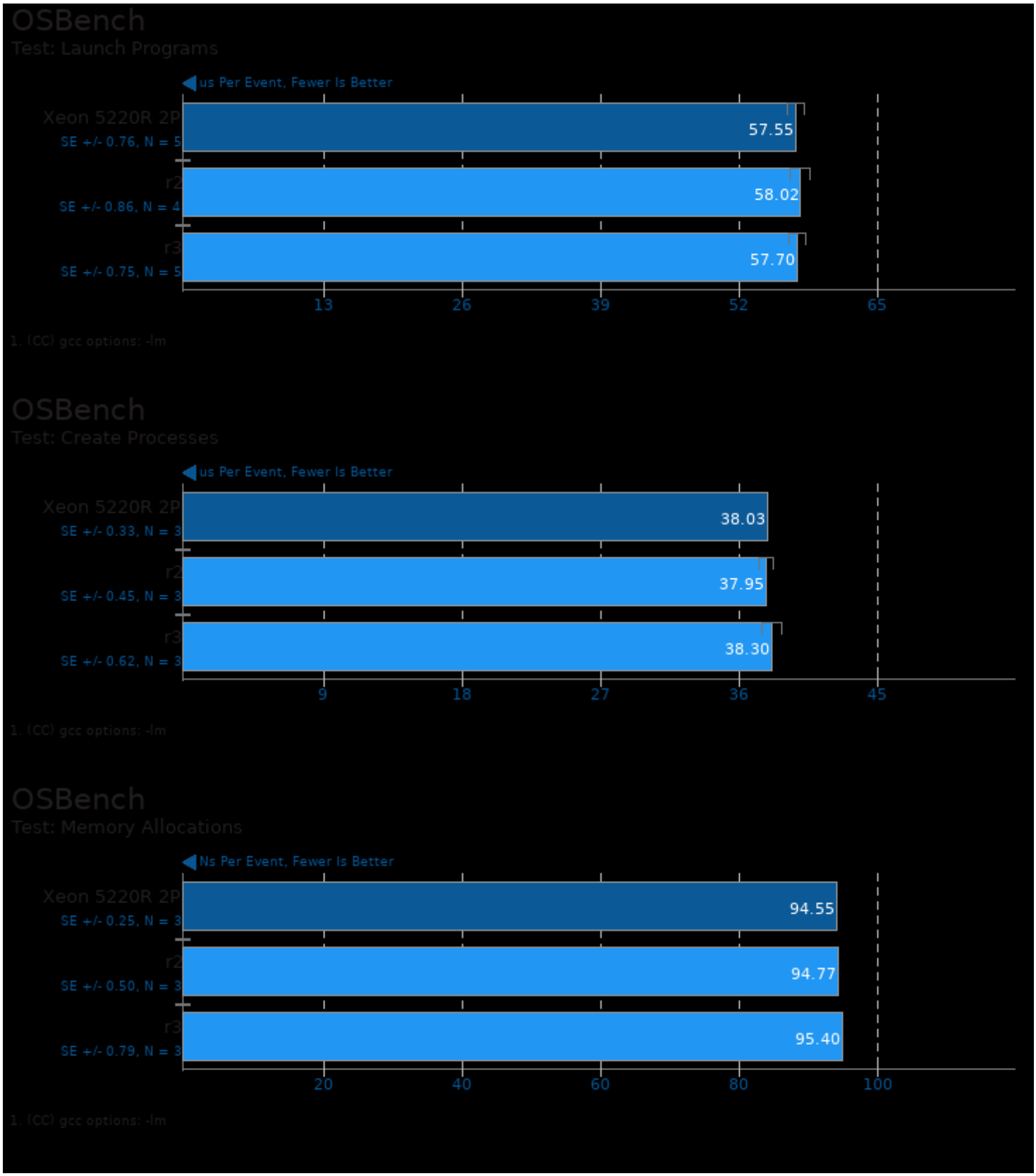
1. (CC) gcc options: -lm

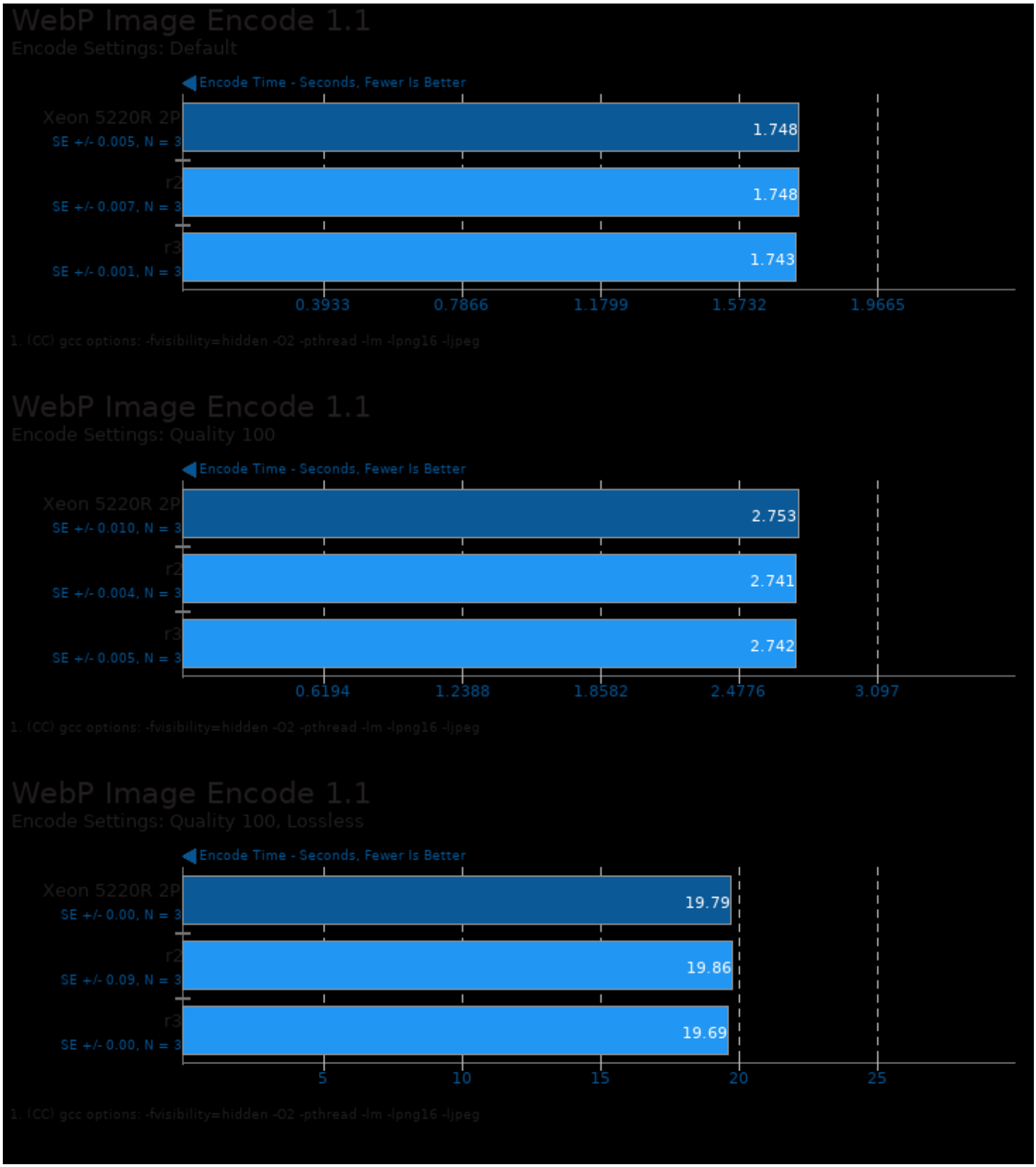
OSBench

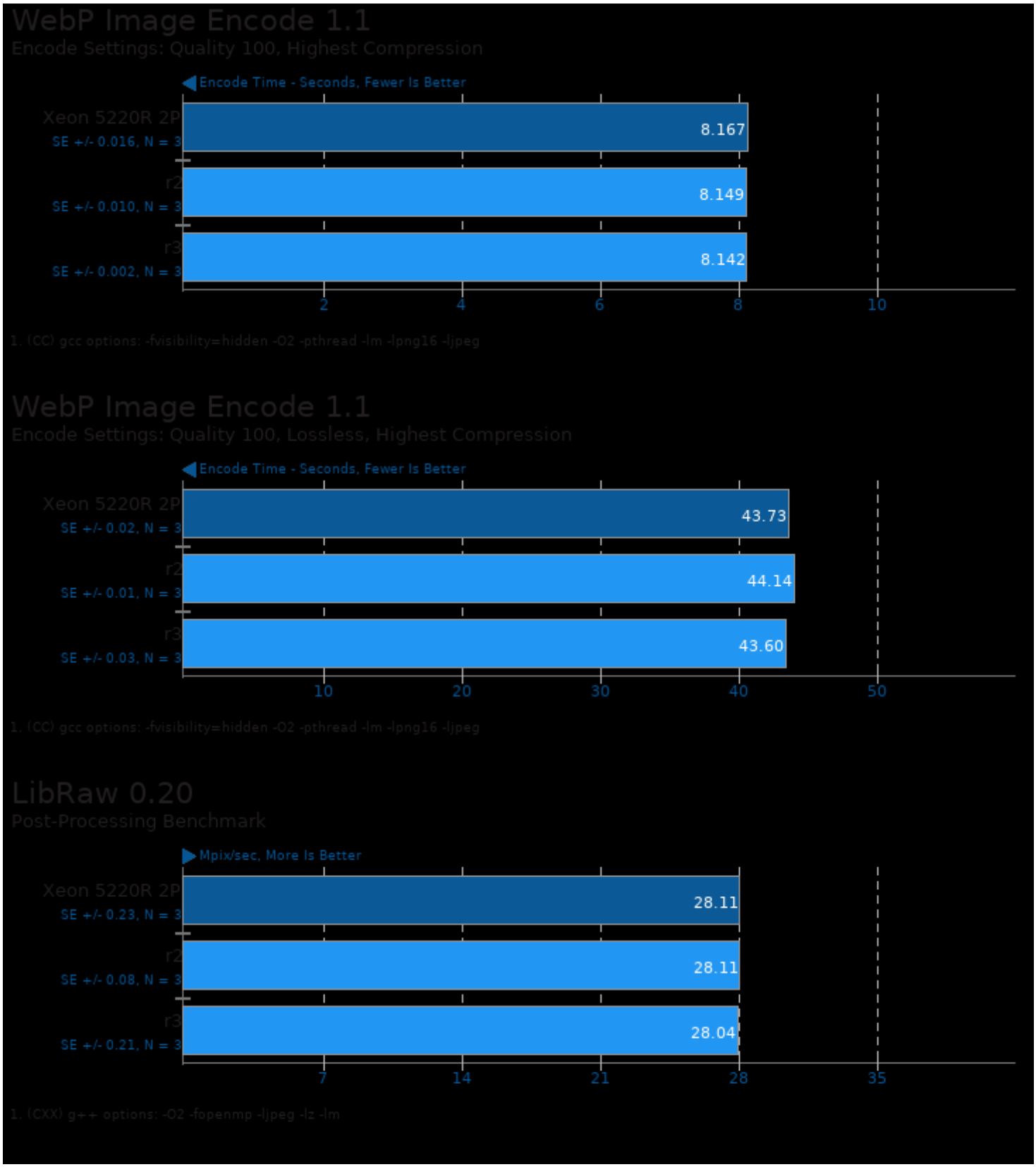
Test: Create Threads

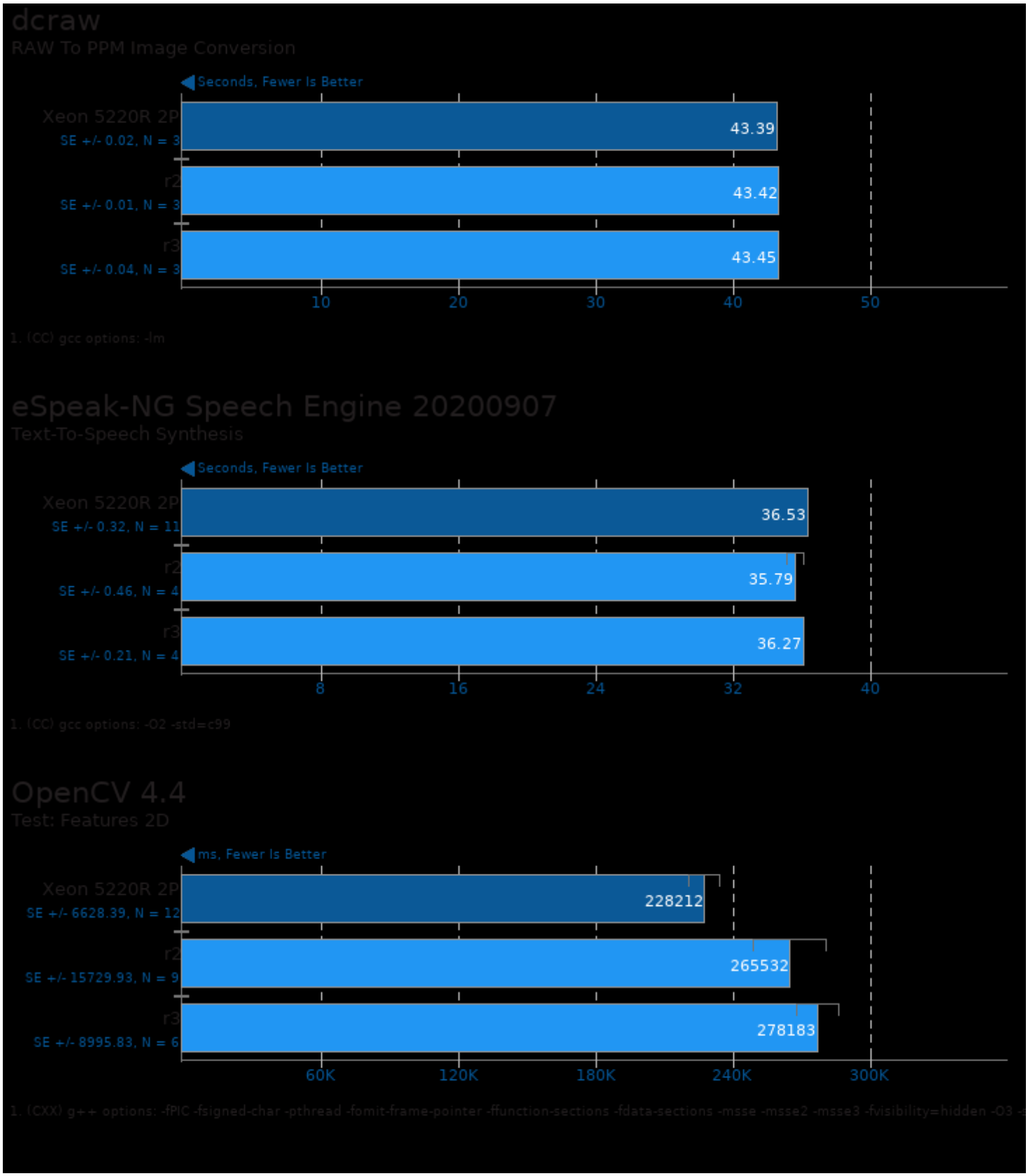


1. (CC) gcc options: -lm

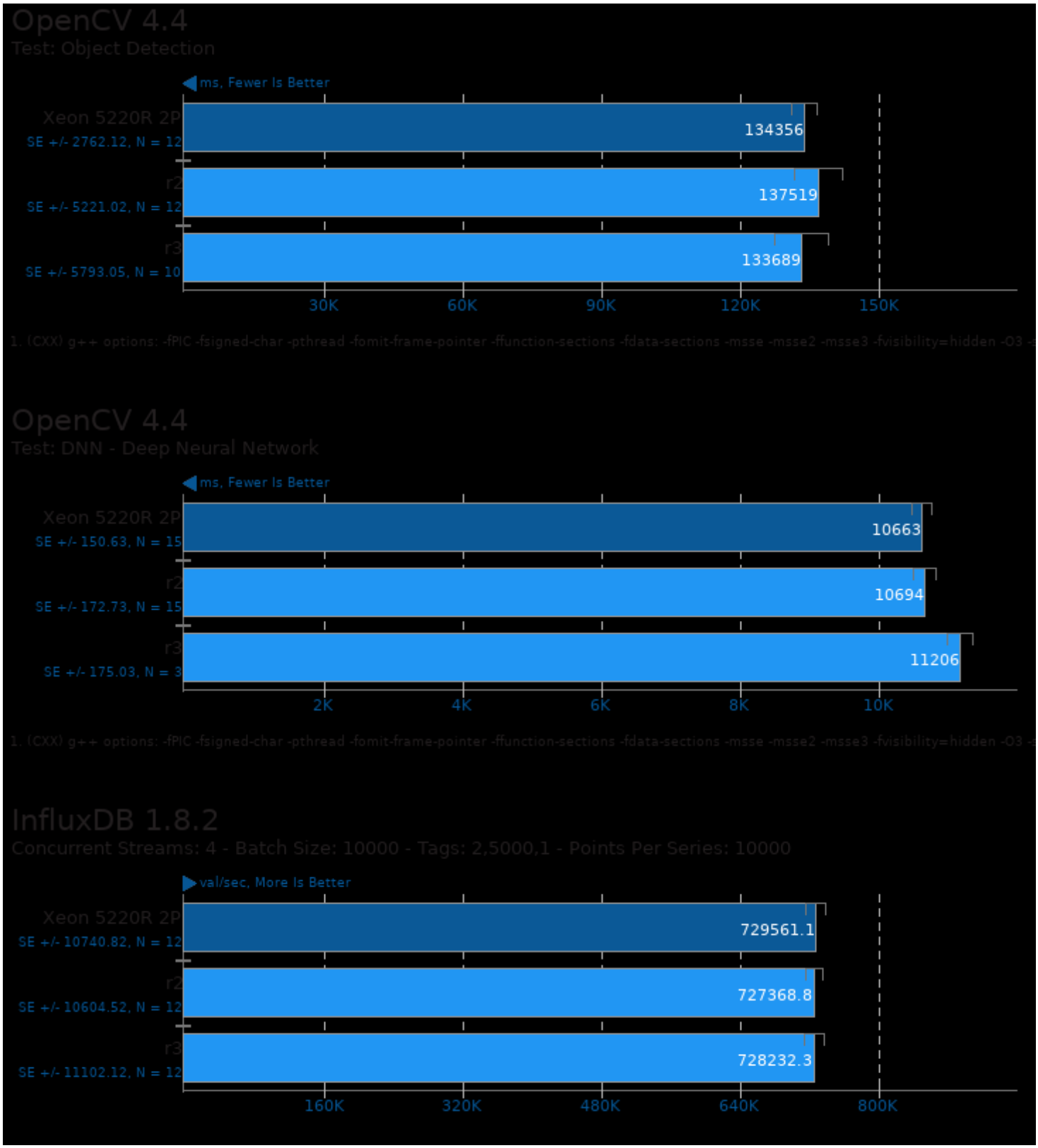

OSBench
Test: Launch Programs
us Per Event, Fewer Is Better
Xeon 5220R 2P
SE +/- 0.76, N = 5
57.55
r2
SE +/- 0.86, N = 4
58.02
r3
SE +/- 0.75, N = 5
57.70
13
26
39
52
65
1. (CC) gcc options: -lm
OSBench
Test: Create Processes
us Per Event, Fewer Is Better
Xeon 5220R 2P
SE +/- 0.33, N = 3
38.03
r2
SE +/- 0.45, N = 3
37.95
r3
SE +/- 0.62, N = 3
38.30
9
18
27
36
45
1. (CC) gcc options: -lm
OSBench
Test: Memory Allocations
Ns Per Event, Fewer Is Better
Xeon 5220R 2P
SE +/- 0.25, N = 3
94.55
r2
SE +/- 0.50, N = 3
94.77
r3
SE +/- 0.79, N = 3
95.40
20
40
60
80
100
1. (CC) gcc options: -lm


WebP Image Encode 1.1
Encode Settings: Default
Encode Time - Seconds, Fewer Is Better
Xeon 5220R 2P
SE +/- 0.005, N = 3
1.748
r2
SE +/- 0.007, N = 3
1.748
r3
SE +/- 0.001, N = 3
1.743
0.3933
0.7866
1.1799
1.5732
1.9665
1. (CC) gcc options: -fvisibility=hidden -O2 -pthread -lm -lpng16 -ljpeg
WebP Image Encode 1.1
Encode Settings: Quality 100
Encode Time - Seconds, Fewer Is Better
Xeon 5220R 2P
SE +/- 0.010, N = 3
2.753
r2
SE +/- 0.004, N = 3
2.741
r3
SE +/- 0.005, N = 3
2.742
0.6194
1.2388
1.8582
2.4776
3.097
1. (CC) gcc options: -fvisibility=hidden -O2 -pthread -lm -lpng16 -ljpeg
WebP Image Encode 1.1
Encode Settings: Quality 100, Lossless
Encode Time - Seconds, Fewer Is Better
Xeon 5220R 2P
SE +/- 0.00, N = 3
19.79
r2
SE +/- 0.09, N = 3
19.86
r3
SE +/- 0.00, N = 3
19.69
5
10
15
20
25
1. (CC) gcc options: -fvisibility=hidden -O2 -pthread -lm -lpng16 -ljpeg

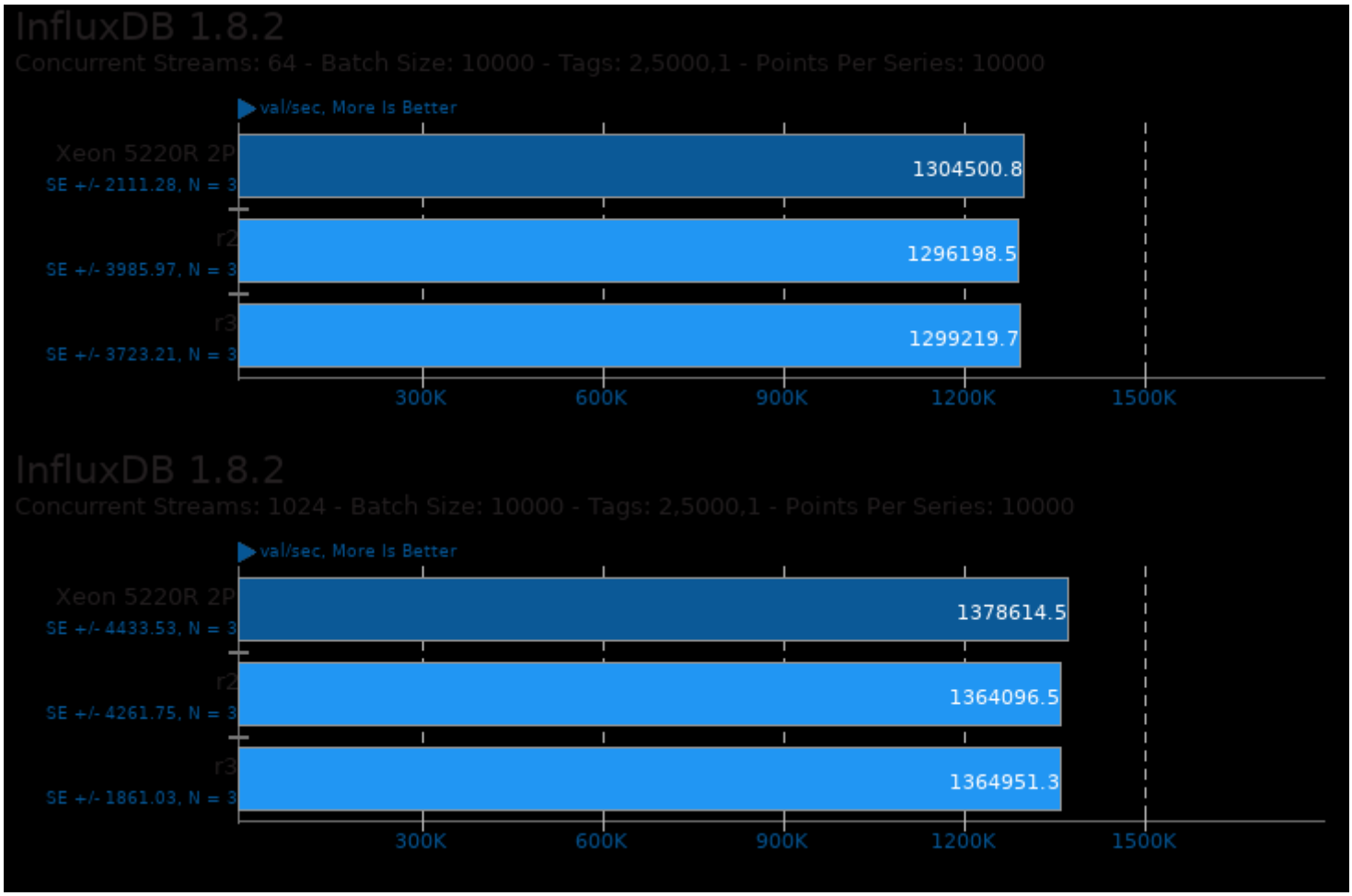

WebP Image Encode 1.1
Encode Settings: Quality 100, Highest Compression
Encode Time - Seconds, Fewer Is Better
Xeon 5220R 2P
SE +/- 0.016, N = 3
8.167
r2
SE +/- 0.010, N = 3
8.149
r3
SE +/- 0.002, N = 3
8.142
2
4
6
8
10
1. (CC) gcc options: -fvisibility=hidden -O2 -pthread -lm -lpng16 -ljpeg
WebP Image Encode 1.1
Encode Settings: Quality 100, Lossless, Highest Compression
Encode Time - Seconds, Fewer Is Better
Xeon 5220R 2P
SE +/- 0.02, N = 3
43.73
r2
SE +/- 0.01, N = 3
44.14
r3
SE +/- 0.03, N = 3
43.60
10
20
30
40
50
1. (CC) gcc options: -fvisibility=hidden -O2 -pthread -lm -lpng16 -ljpeg
LibRaw 0.20
Post-Processing Benchmark
Mpix/sec, More Is Better
Xeon 5220R 2P
SE +/- 0.23, N = 3
28.11
r2
SE +/- 0.08, N = 3
28.11
r3
SE +/- 0.21, N = 3
28.04
7
14
21
28
35
1. (CXX) g++ options: -O2 -fopenmp -ljpeg -lz -lm


dcraw
RAW To PPM Image Conversion
Seconds, Fewer Is Better
Xeon 5220R 2P
SE +/- 0.02, N = 3
43.39
r2
SE +/- 0.01, N = 3
43.42
r3
SE +/- 0.04, N = 3
43.45
10
20
30
40
50
1. (CC) gcc options: -lm
eSpeak-NG Speech Engine 20200907
Text-To-Speech Synthesis
Seconds, Fewer Is Better
Xeon 5220R 2P
SE +/- 0.32, N = 11
36.53
r2
SE +/- 0.46, N = 4
35.79
r3
SE +/- 0.21, N = 4
36.27
8
16
24
32
40
1. (CC) gcc options: -O2 -std=c99
OpenCV 4.4
Test: Features 2D
ms, Fewer Is Better
Xeon 5220R 2P
SE +/- 6628.39, N = 12
228212
r2
SE +/- 15729.93, N = 9
265532
r3
SE +/- 8995.83, N = 6
278183
60K
120K
180K
240K
300K
1. (CXX) g++ options: -fPIC -fsigned-char -pthread -fomit-frame-pointer -ffunction-sections -fdata-sections -msse -msse2 -msse3 -fvisibility=hidden -O3

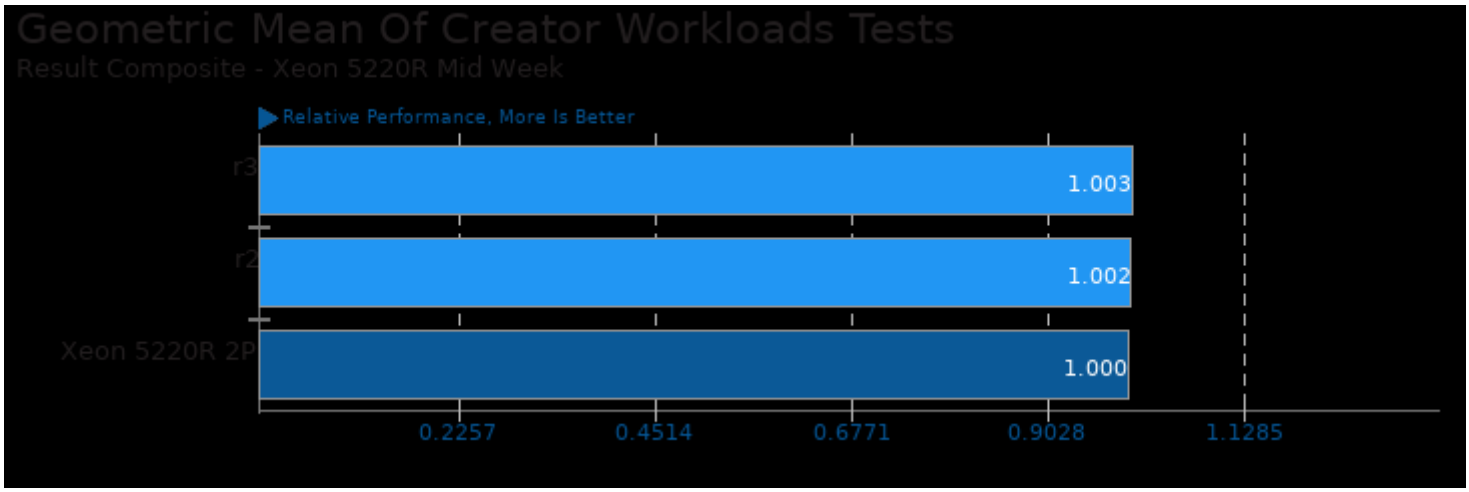
Xeon 5220R Mid Week



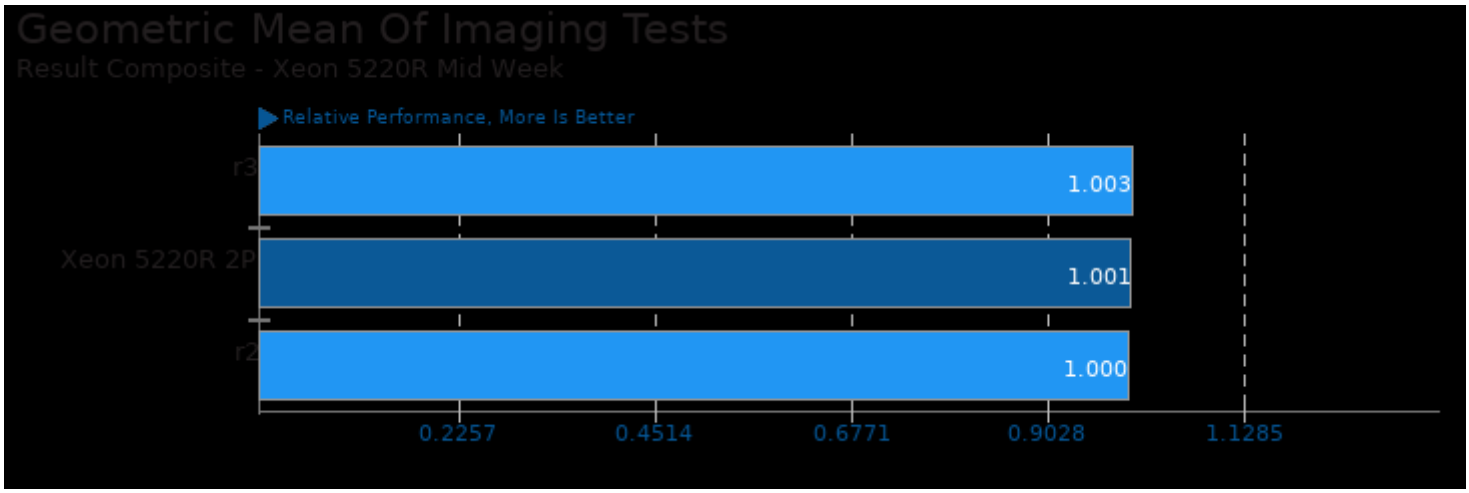
Xeon 5220R Mid Week



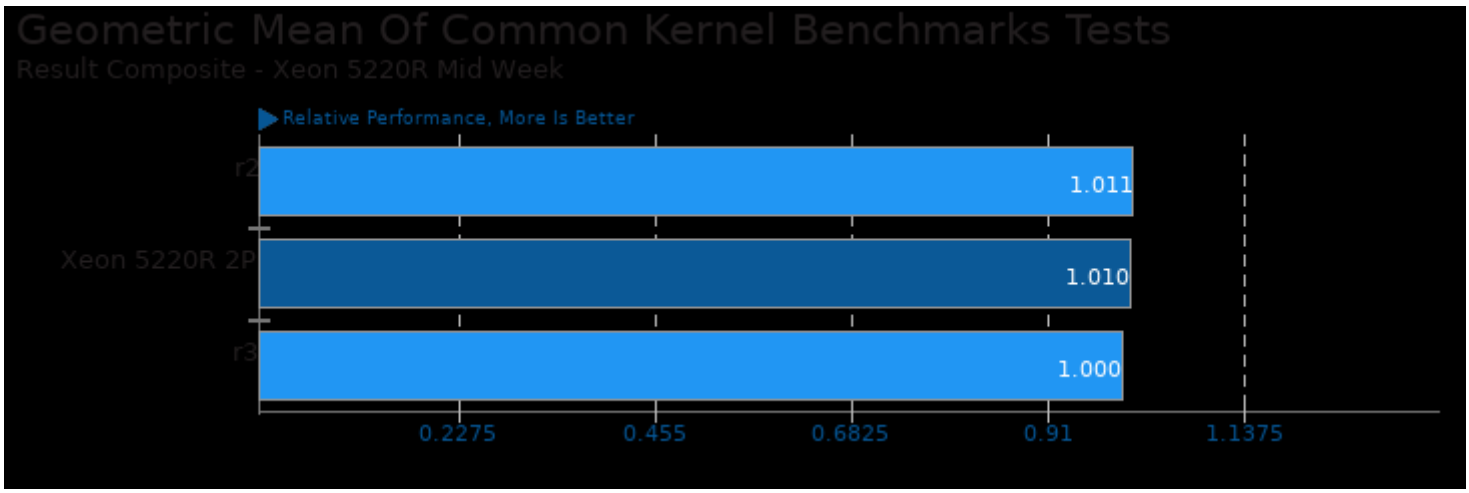
These geometric means are based upon test groupings / test suites for this result file.



Geometric mean based upon tests: pts/libraw, pts/webp, pts/dcraw and pts/espeak

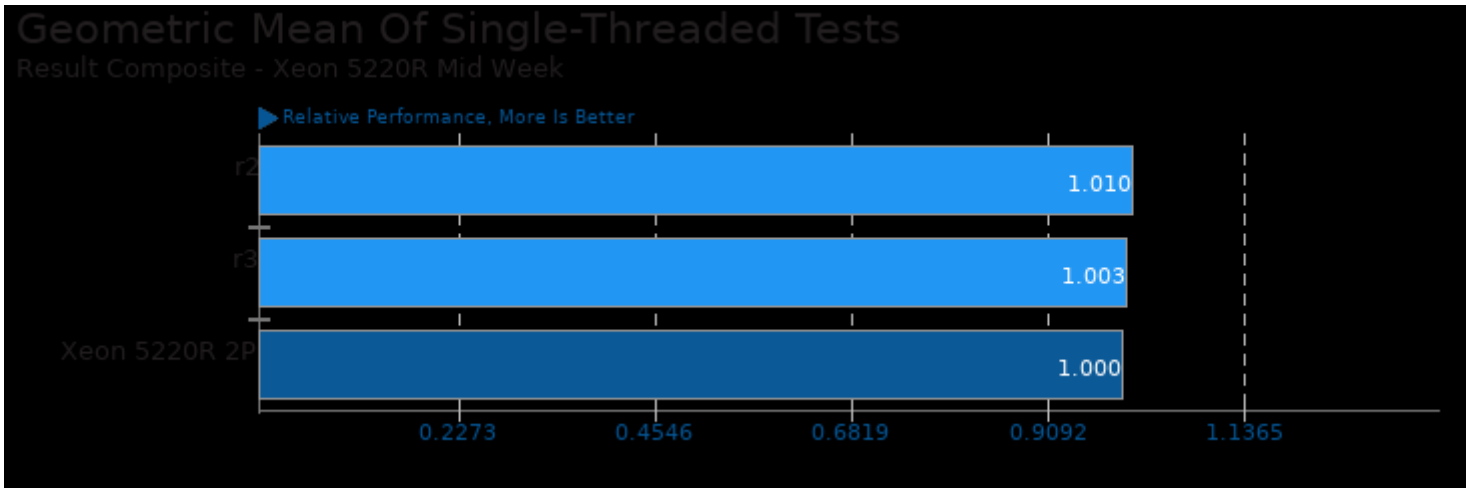


Geometric mean based upon tests: pts/libraw, pts/webp and pts/dcraw



Geometric mean based upon tests: pts/perf-bench and pts/osbench

Xeon 5220R Mid Week



Geometric mean based upon tests: pts/dcraw and pts/espeak

This file was automatically generated via the Phoronix Test Suite benchmarking software on Thursday, 28 March 2024 05:10.