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3990X n

AMD Ryzen Threadripper 3990X 64-Core testing with a Gigabyte TRX40 AORUS PRO WIFI (F4p BIOS) and AMD Radeon RX 5700 8GB on Pop 22.04 via the Phoronix Test Suite.

Automated Executive Summary

C had the most wins, coming in first place for 80% of the tests.

Based on the geometric mean of all complete results, the fastest (C) was 1.008x the speed of the slowest (B). A was 0.998x the speed of C and B was 0.994x the speed of A.

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

Glibc Benchmarks (Benchmark: sqrt) at 1.107x
x264 (Video Input: Bosphorus 4K) at 1.042x
x264 (Video Input: Bosphorus 1080p) at 1.024x
simdjson (Throughput Test: Kostya) at 1.015x
Glibc Benchmarks (Benchmark: cos) at 1.013x
simdjson (Throughput Test: LargeRandom) at 1.011x
Glibc Benchmarks (Benchmark: exp) at 1.01x
Glibc Benchmarks (Benchmark: modf) at 1.01x
Glibc Benchmarks (Benchmark: sinh) at 1.009x

Glibc Benchmarks (Benchmark: ffs) at 1.008x.

Test Systems:

A

B

C

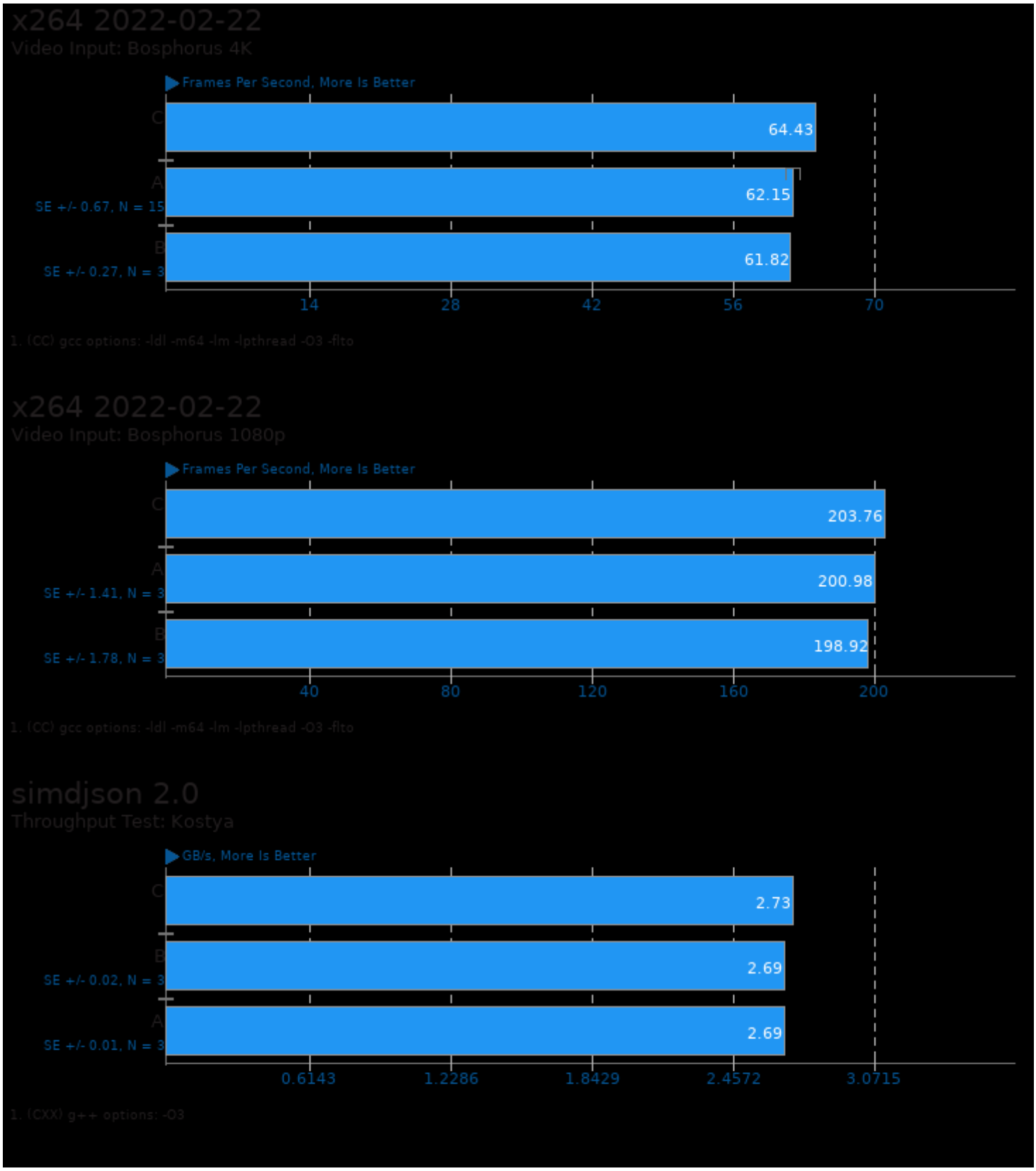
Processor: AMD Ryzen Threadripper 3990X 64-Core @ 2.90GHz (64 Cores / 128 Threads), Motherboard: Gigabyte TRX40 AORUS PRO WIFI (F4p BIOS), Chipset: AMD Starship/Matisse, Memory: 128GB, Disk: Samsung SSD 970 EVO Plus 500GB, Graphics: AMD Radeon RX 5700 8GB (1750/875MHz), Audio: AMD Navi 10 HDMI Audio, Monitor: DELL P2415Q, Network: Intel I211 + Intel Wi-Fi 6 AX200

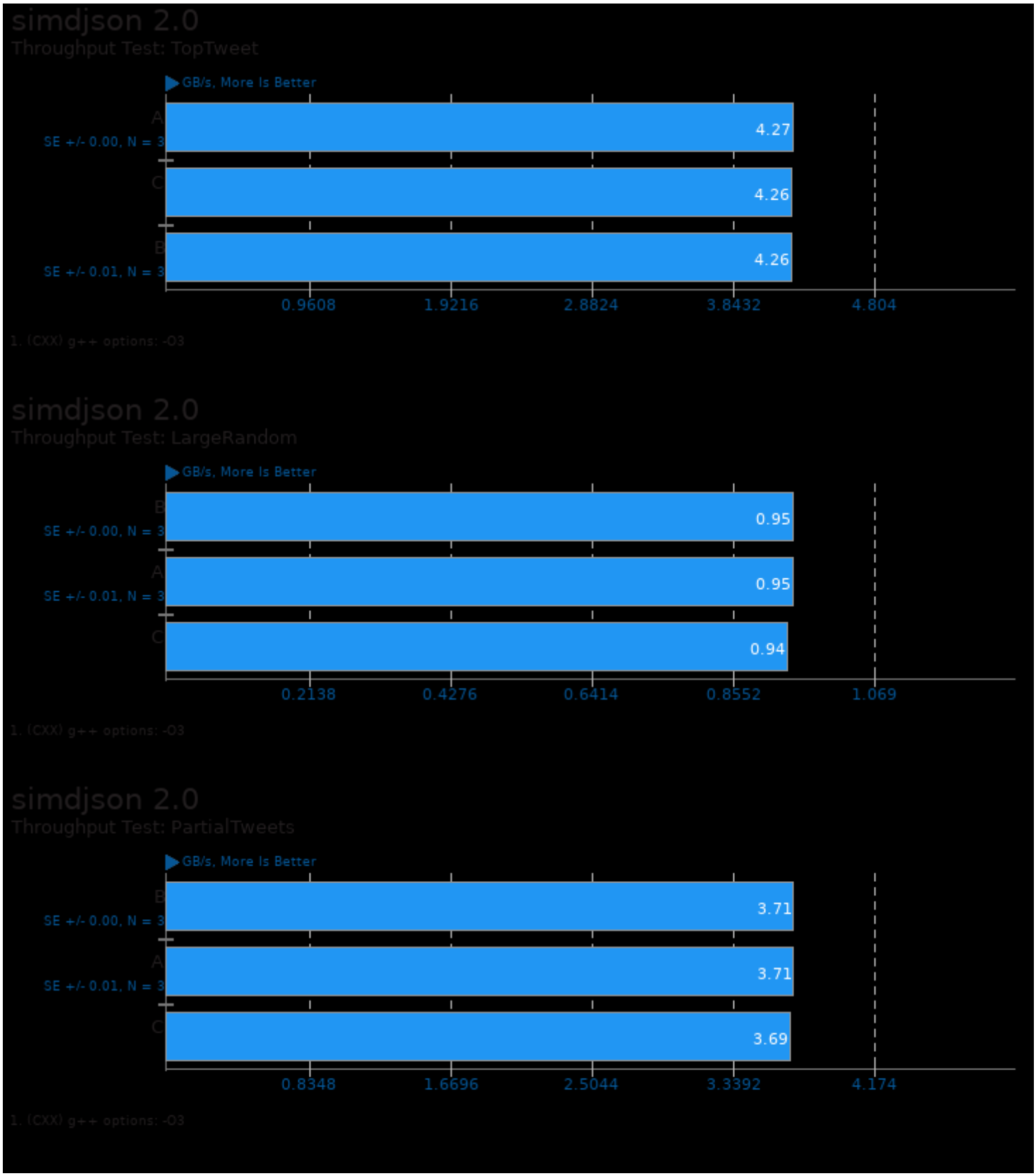
OS: Pop 22.04, Kernel: 5.17.5-76051705-generic (x86_64), Desktop: GNOME Shell 42.0, Display Server: X Server 1.21.1.3, OpenGL: 4.6 Mesa 22.0.1 (LLVM 13.0.1 DRM 3.44), Vulkan: 1.2.204, Compiler: GCC 11.2.0, File-System: ext4, Screen Resolution: 3840x2160

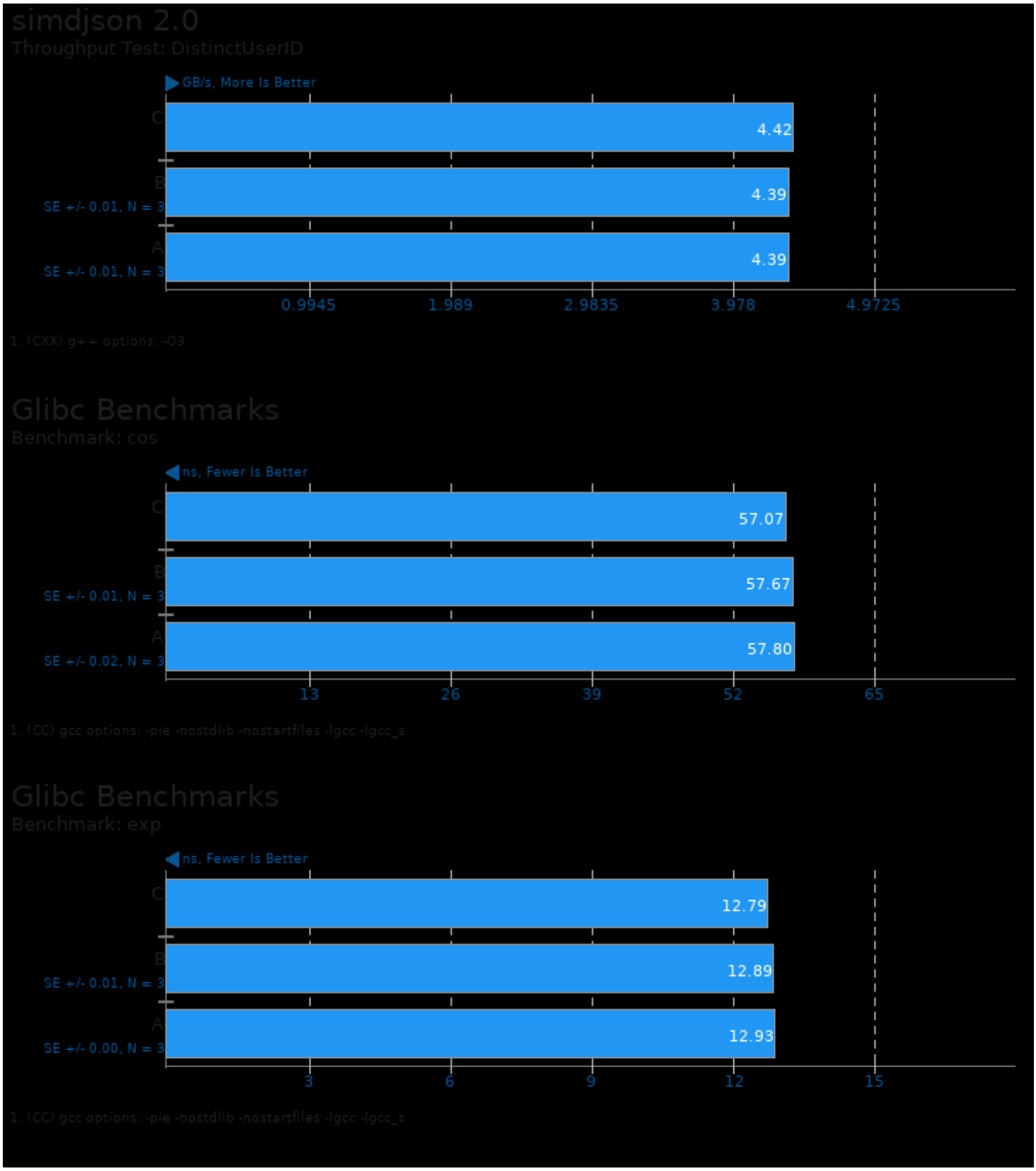
Kernel Notes: Transparent Huge Pages: madvise
Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --enable-cet --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,m2 --enable-libphobos-checking=release --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-link-serialization=2 --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-11-gBFGDP/gcc-11-11.2.0/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-11-gBFGDP/gcc-11-11.2.0/debian/tmp-gcn/usr --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-build-config=bootstrap-lto-lean --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq schedutil (Boost: Enabled) - CPU Microcode: 0x8301039
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Retpolines IBPB: conditional STIBP: conditional RSB filling + srbds: Not affected + tsx_async_abort: Not affected

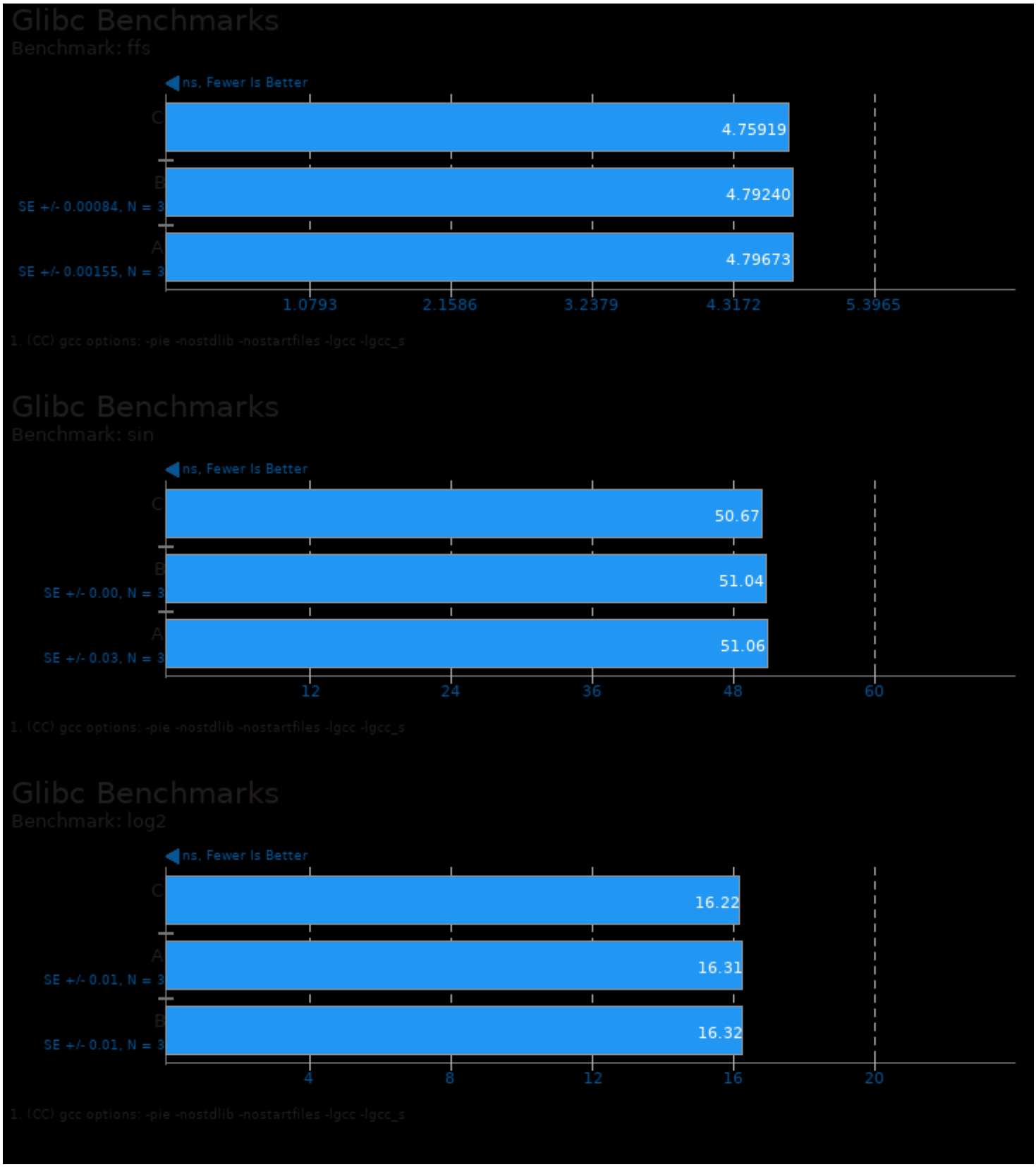
	A	B	C
x264 - Bosphorus 4K (FPS)	62.15	**61.82**	**64.43**
Normalized	96.46%	95.95%	100%
Standard Deviation	4.2%	0.8%	
x264 - Bosphorus 1080p (FPS)	200.98	**198.92**	**203.76**
Normalized	98.64%	97.62%	100%
Standard Deviation	1.2%	1.5%	
simdjson - Kostya (GB/s)	**2.69**	**2.69**	**2.73**
Normalized	98.53%	98.53%	100%
Standard Deviation	0.9%	1.3%	
simdjson - TopTweet (GB/s)	**4.27**	**4.26**	**4.26**
Normalized	100%	99.77%	99.77%
Standard Deviation	0%	0.2%	
simdjson - LargeRand (GB/s)	**0.95**	**0.95**	**0.94**
Normalized	100%	100%	98.95%

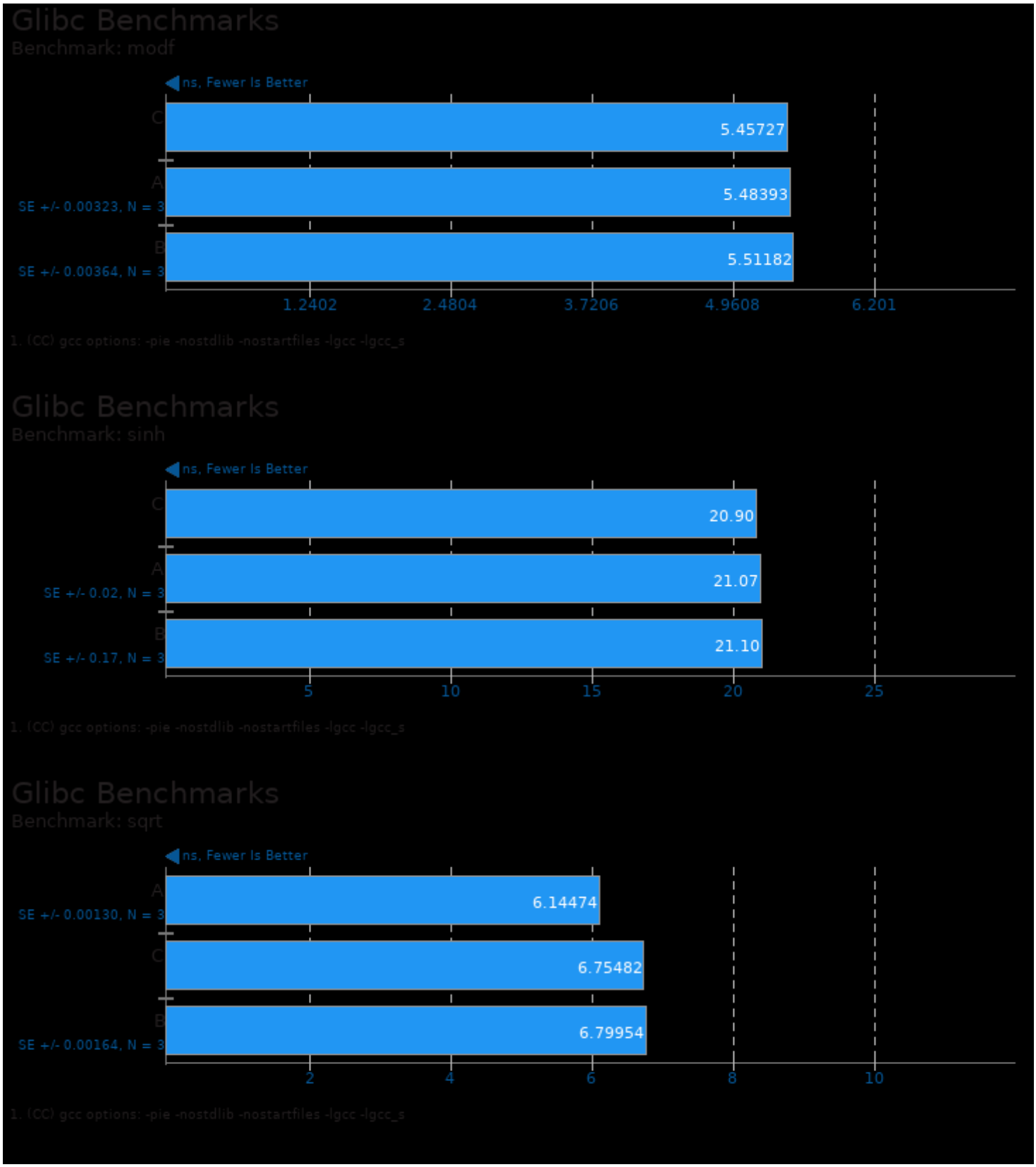
Standard Deviation	1.1%	0.6%	
simdjson - PartialTweets (GB/s)	**3.71**	**3.71**	**3.69**
Normalized	100%	100%	99.46%
Standard Deviation	0.3%	0.2%	
simdjson - DistinctUserID (GB/s)	**4.39**	**4.39**	**4.42**
Normalized	99.32%	99.32%	100%
Standard Deviation	0.5%	0.6%	
Glibc Benchmarks - cos (ns)	**57.8035**	57.6731	**57.0721**
Normalized	98.73%	98.96%	100%
Standard Deviation	0%	0%	
Glibc Benchmarks - exp (ns)	**12.9251**	12.8920	**12.7934**
Normalized	98.98%	99.24%	100%
Standard Deviation	0.1%	0.1%	
Glibc Benchmarks - ffs (ns)	**4.79673**	4.79240	**4.75919**
Normalized	99.22%	99.31%	100%
Standard Deviation	0.1%	0%	
Glibc Benchmarks - sin (ns)	**51.0618**	51.0448	**50.6666**
Normalized	99.23%	99.26%	100%
Standard Deviation	0.1%	0%	
Glibc Benchmarks - log2 (ns)	16.3070	**16.3171**	**16.2187**
Normalized	99.46%	99.4%	100%
Standard Deviation	0.1%	0.1%	
Glibc Benchmarks - modf (ns)	5.48393	**5.51182**	**5.45727**
Normalized	99.51%	99.01%	100%
Standard Deviation	0.1%	0.1%	
Glibc Benchmarks - sinh (ns)	21.0664	**21.1000**	**20.902**
Normalized	99.22%	99.06%	100%
Standard Deviation	0.2%	1.4%	
Glibc Benchmarks - sqrt (ns)	**6.14474**	**6.79954**	6.75482
Normalized	100%	90.37%	90.97%
Standard Deviation	0%	0%	
Glibc Benchmarks - tanh (ns)	30.0165	**30.0377**	**29.856**
Normalized	99.47%	99.4%	100%
Standard Deviation	0.1%	0.1%	
Glibc Benchmarks - asinh (ns)	24.7843	**24.8127**	**24.7199**
Normalized	99.74%	99.63%	100%
Standard Deviation	0.3%	0.3%	
Glibc Benchmarks - atanh (ns)	**29.3336**	29.3132	**29.2512**
Normalized	99.72%	99.79%	100%
Standard Deviation	0.1%	0%	
Glibc Benchmarks - ffsll (ns)	5.45401	**5.45914**	**5.42392**
Normalized	99.45%	99.35%	100%
Standard Deviation	0.3%	0.2%	
Glibc Benchmarks - sincos (ns)	**35.1009**	35.0996	**34.8575**
Normalized	99.31%	99.31%	100%
Standard Deviation	0.1%	0.2%	
Glibc Benchmarks - pthread_once (ns)	**4.76413**	4.76279	**4.75085**
Normalized	99.72%	99.75%	100%
Standard Deviation	0.1%	0%	

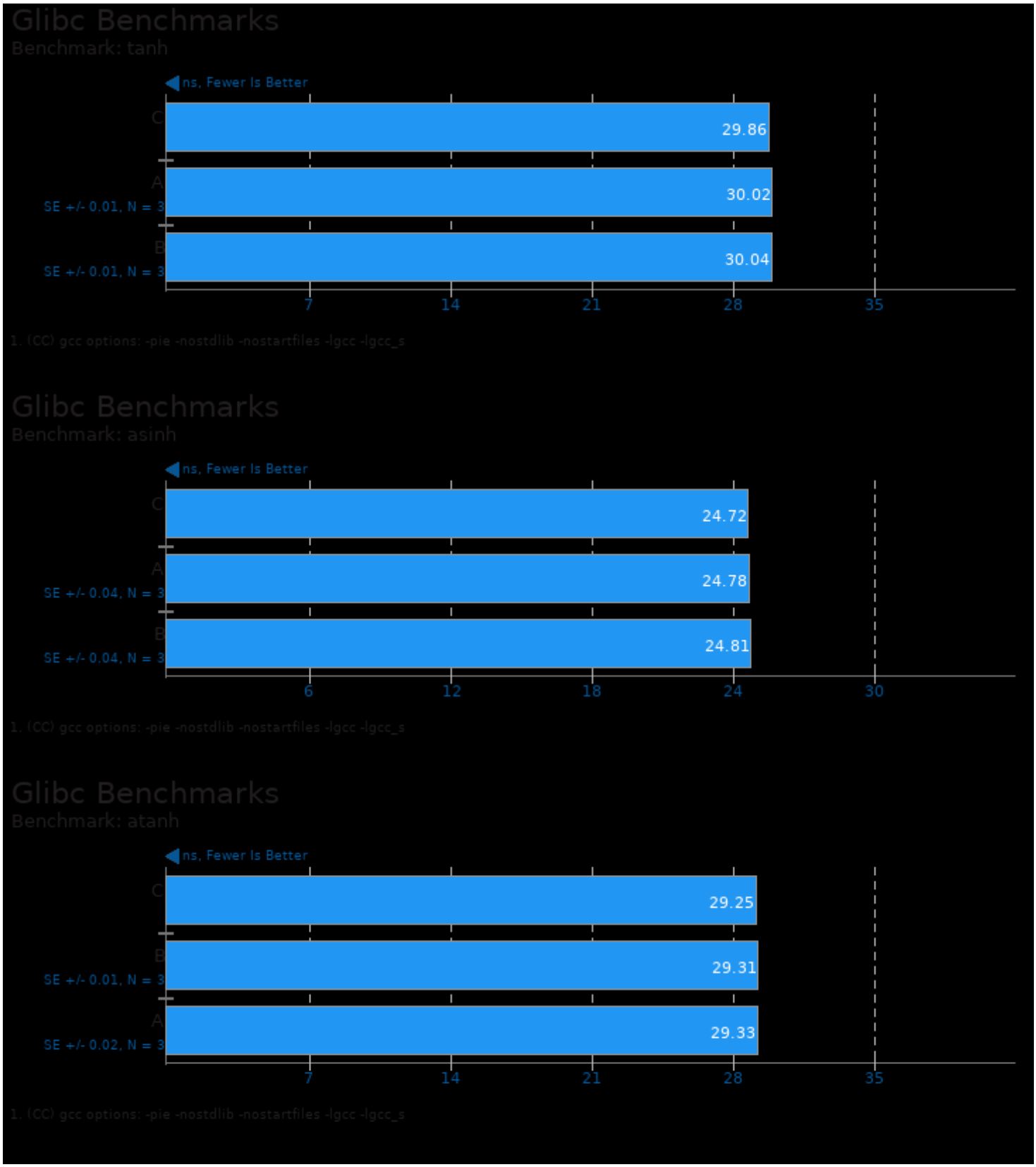

x264 2022-02-22
Video Input: Bosphorus 4K
Frames Per Second, More Is Better
C
64.43
A
62.15
SE +/- 0.67, N = 15
B
61.82
SE +/- 0.27, N = 3
14
28
42
56
70
1. (CC) gcc options: -ldl -m64 -lm -lpthread -O3 -flto
x264 2022-02-22
Video Input: Bosphorus 1080p
Frames Per Second, More Is Better
C
203.76
A
200.98
SE +/- 1.41, N = 3
B
198.92
SE +/- 1.78, N = 3
40
80
120
160
200
1. (CC) gcc options: -ldl -m64 -lm -lpthread -O3 -flto
simdjson 2.0
Throughput Test: Kostya
GB/s, More Is Better
C
2.73
B
2.69
SE +/- 0.02, N = 3
A
2.69
SE +/- 0.01, N = 3
0.6143
1.2286
1.8429
2.4572
3.0715
1. (CXX) g++ options: -O3

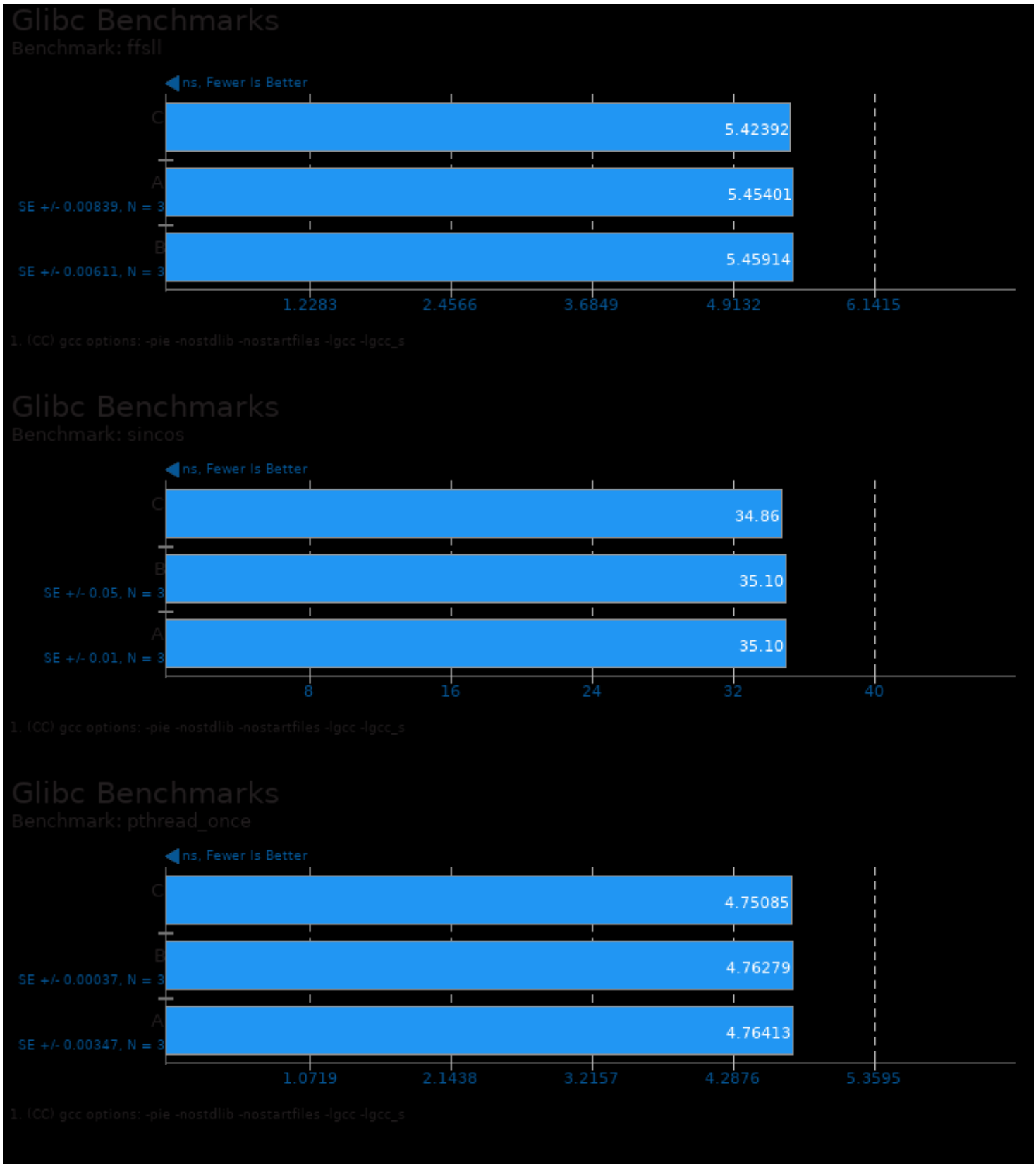

simdjson 2.0
Throughput Test: TopTweet
GB/s, More Is Better
A
SE +/- 0.00, N = 3
4.27
C
4.26
B
SE +/- 0.01, N = 3
4.26
0.9608
1.9216
2.8824
3.8432
4.804
1. (CXX) g++ options: -O3
simdjson 2.0
Throughput Test: LargeRandom
GB/s, More Is Better
B
SE +/- 0.00, N = 3
0.95
A
SE +/- 0.01, N = 3
0.95
C
0.94
0.2138
0.4276
0.6414
0.8552
1.069
1. (CXX) g++ options: -O3
simdjson 2.0
Throughput Test: PartialTweets
GB/s, More Is Better
B
SE +/- 0.00, N = 3
3.71
A
SE +/- 0.01, N = 3
3.71
C
3.69
0.8348
1.6696
2.5044
3.3392
4.174
1. (CXX) g++ options: -O3


simdjson 2.0
Throughput Test: DistinctUserID
GB/s, More Is Better
C
4.42
B
4.39
SE +/- 0.01, N = 3
A
4.39
SE +/- 0.01, N = 3
0.9945
1.989
2.9835
3.978
4.9725
1. (CXX) g++ options: -O3
Glibc Benchmarks
Benchmark: cos
ns, Fewer Is Better
C
57.07
B
57.67
SE +/- 0.01, N = 3
A
57.80
SE +/- 0.02, N = 3
13
26
39
52
65
1. (CC) gcc options: -pie -nostdlib -nostartfiles -lgcc -lgcc_s
Glibc Benchmarks
Benchmark: exp
ns, Fewer Is Better
C
12.79
B
12.89
SE +/- 0.01, N = 3
A
12.93
SE +/- 0.00, N = 3
3
6
9
12
15
1. (CC) gcc options: -pie -nostdlib -nostartfiles -lgcc -lgcc_s


Glibc Benchmarks
Benchmark: ffs
ns, Fewer Is Better
C
4.75919
B
4.79240
SE +/- 0.00084, N = 3
A
4.79673
SE +/- 0.00155, N = 3
1.0793
2.1586
3.2379
4.3172
5.3965
1. (CC) gcc options: -pie -nostdlib -nostartfiles -lgcc -lgcc_s
Glibc Benchmarks
Benchmark: sin
ns, Fewer Is Better
C
50.67
B
51.04
SE +/- 0.00, N = 3
A
51.06
SE +/- 0.03, N = 3
12
24
36
48
60
1. (CC) gcc options: -pie -nostdlib -nostartfiles -lgcc -lgcc_s
Glibc Benchmarks
Benchmark: log2
ns, Fewer Is Better
C
16.22
A
16.31
SE +/- 0.01, N = 3
B
16.32
SE +/- 0.01, N = 3
4
8
12
16
20
1. (CC) gcc options: -pie -nostdlib -nostartfiles -lgcc -lgcc_s


Glibc Benchmarks
Benchmark: modf
ns, Fewer Is Better
C
5.45727
A
5.48393
SE +/- 0.00323, N = 3
B
5.51182
SE +/- 0.00364, N = 3
1.2402
2.4804
3.7206
4.9608
6.201
1. (CC) gcc options: -pie -nostdlib -nostartfiles -lgcc -lgcc_s
Glibc Benchmarks
Benchmark: sinh
ns, Fewer Is Better
C
20.90
A
21.07
SE +/- 0.02, N = 3
B
21.10
SE +/- 0.17, N = 3
5
10
15
20
25
1. (CC) gcc options: -pie -nostdlib -nostartfiles -lgcc -lgcc_s
Glibc Benchmarks
Benchmark: sqrt
ns, Fewer Is Better
A
6.14474
SE +/- 0.00130, N = 3
C
6.75482
B
6.79954
SE +/- 0.00164, N = 3
2
4
6
8
10
1. (CC) gcc options: -pie -nostdlib -nostartfiles -lgcc -lgcc_s


Glibc Benchmarks
Benchmark: tanh
ns, Fewer Is Better
C
29.86
A
30.02
SE +/- 0.01, N = 3
B
30.04
SE +/- 0.01, N = 3
7
14
21
28
35
1. (CC) gcc options: -pie -nostdlib -nostartfiles -lgcc -lgcc_s
Glibc Benchmarks
Benchmark: asinh
ns, Fewer Is Better
C
24.72
A
24.78
SE +/- 0.04, N = 3
B
24.81
SE +/- 0.04, N = 3
6
12
18
24
30
1. (CC) gcc options: -pie -nostdlib -nostartfiles -lgcc -lgcc_s
Glibc Benchmarks
Benchmark: atanh
ns, Fewer Is Better
C
29.25
B
29.31
SE +/- 0.01, N = 3
A
29.33
SE +/- 0.02, N = 3
7
14
21
28
35
1. (CC) gcc options: -pie -nostdlib -nostartfiles -lgcc -lgcc_s

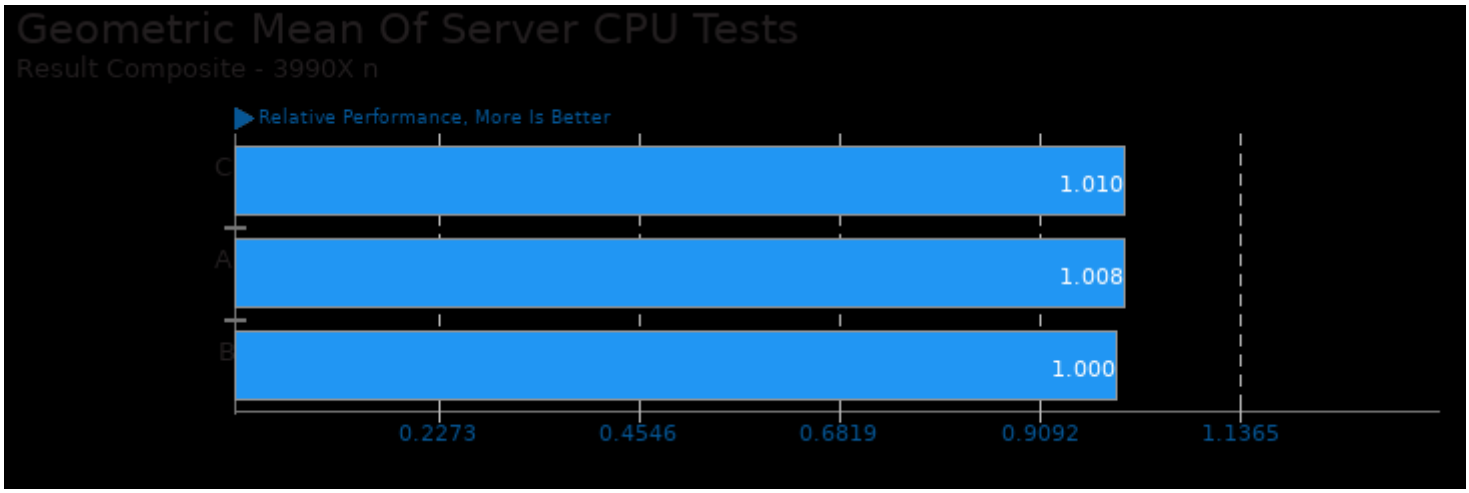

Glibc Benchmarks
Benchmark: ffsll
ns, Fewer Is Better
C
5.42392
A
5.45401
SE +/- 0.00839, N = 3
B
5.45914
SE +/- 0.00611, N = 3
1.2283
2.4566
3.6849
4.9132
6.1415
1. (CC) gcc options: -pie -nostdlib -nostartfiles -lgcc -lgcc_s
Glibc Benchmarks
Benchmark: sincos
ns, Fewer Is Better
C
34.86
B
35.10
SE +/- 0.05, N = 3
A
35.10
SE +/- 0.01, N = 3
8
16
24
32
40
1. (CC) gcc options: -pie -nostdlib -nostartfiles -lgcc -lgcc_s
Glibc Benchmarks
Benchmark: pthread_once
ns, Fewer Is Better
C
4.75085
B
4.76279
SE +/- 0.00037, N = 3
A
4.76413
SE +/- 0.00347, N = 3
1.0719
2.1438
3.2157
4.2876
5.3595
1. (CC) gcc options: -pie -nostdlib -nostartfiles -lgcc -lgcc_s

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



Geometric mean based upon tests: pts/x264 and pts/glibc-bench



Geometric mean based upon tests: pts/x264 and pts/glibc-bench

This file was automatically generated via the Phoronix Test Suite benchmarking software on Thursday, 28 March 2024 12:29.