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TR 3970X Thu

AMD Ryzen Threadripper 3970X 32-Core testing with a ASUS ROG ZENITH II EXTREME (1201 BIOS) and AMD Radeon RX 5600 OEM/5600 XT / 5700/5700 8GB on Ubuntu 20.10 via the Phoronix Test Suite.

Automated Executive Summary

1 had the most wins, coming in first place for 65% of the tests.

Based on the geometric mean of all complete results, the fastest (1) was 1.002x the speed of the slowest (3). 2 was 1x the speed of 1 and 3 was 0.999x the speed of 2.

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

lzbench (Test: Crush 0 - Process: Compression) at 1.082x
lzbench (Test: XZ 0 - Process: Compression) at 1.023x
lzbench (Test: XZ 0 - Process: Decompression) at 1.023x
Cython Benchmark (Test: N-Queens) at 1.023x
lzbench (Test: Zstd 8 - Process: Decompression) at 1.014x
lzbench (Test: Zstd 1 - Process: Compression) at 1.011x
lzbench (Test: Zstd 1 - Process: Decompression) at 1.01x
lzbench (Test: Zstd 8 - Process: Compression) at 1.009x
lzbench (Test: Brotli 2 - Process: Compression) at 1.009x

lzbench (Test: Libdeflate 1 - Process: Compression) at 1.007x.

Test Systems:

1

2

3

Processor: AMD Ryzen Threadripper 3970X 32-Core @ 3.70GHz (32 Cores / 64 Threads), Motherboard: ASUS ROG ZENITH II EXTREME (1201 BIOS), Chipset: AMD Starship/Matisse, Memory: 64GB, Disk: Samsung SSD 980 PRO 500GB, Graphics: AMD Radeon RX 5600 OEM/5600 XT / 5700/5700 8GB (1750/875MHz), Audio: AMD Navi 10 HDMI Audio, Monitor: ASUS VP28U, Network: Aquantia AQC107 NBase-T/IEEE + Intel I211 + Intel Wi-Fi 6 AX200

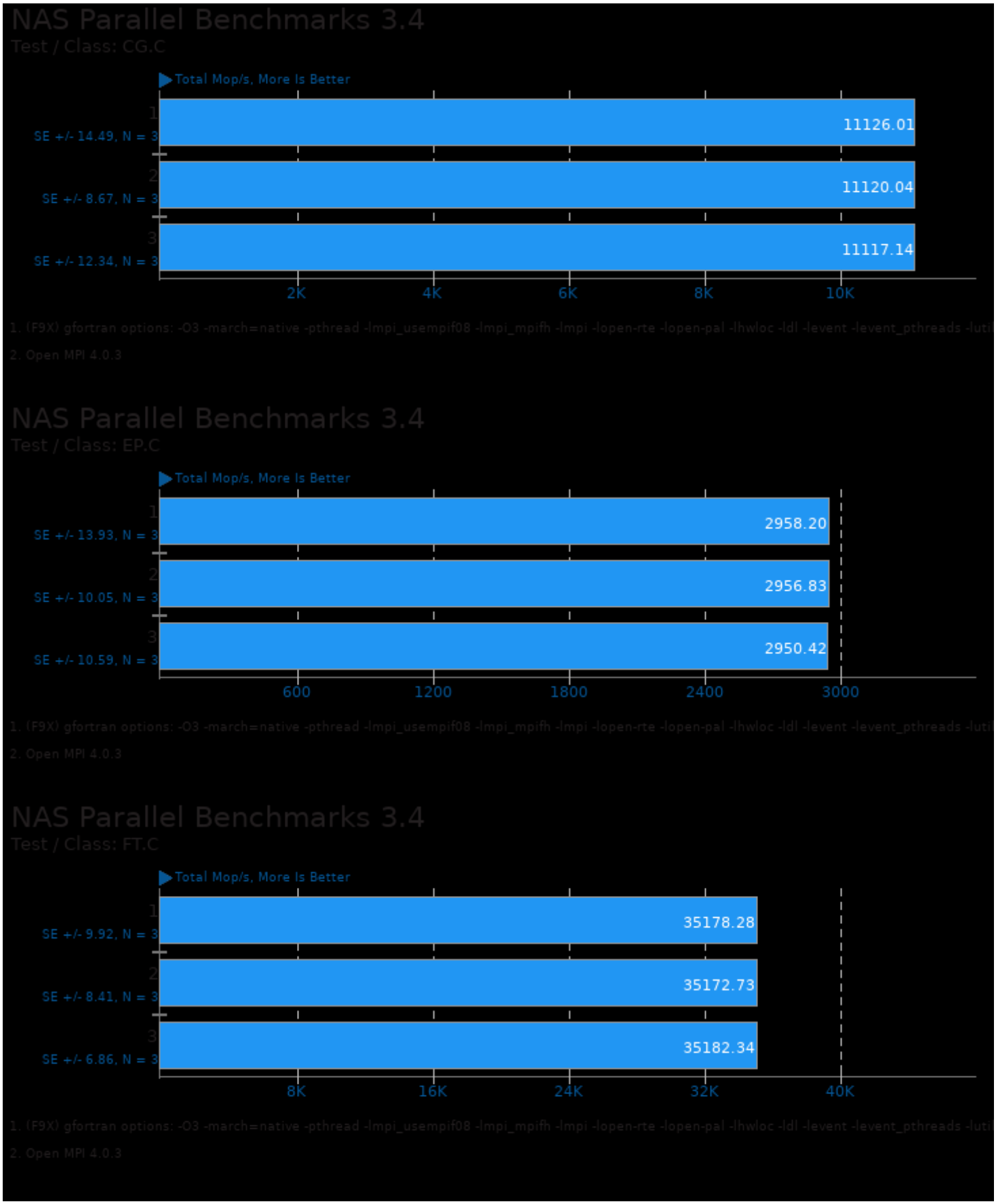
OS: Ubuntu 20.10, Kernel: 5.11.0-rc1-phx (x86_64) 20201228, Desktop: GNOME Shell 3.38.1, Display Server: X Server 1.20.9, Display Driver: amdgpu 19.1.0, OpenGL: 4.6 Mesa 20.2.1 (LLVM 11.0.0), Vulkan: 1.2.131, Compiler: GCC 10.2.0, File-System: ext4, Screen Resolution: 3840x2160

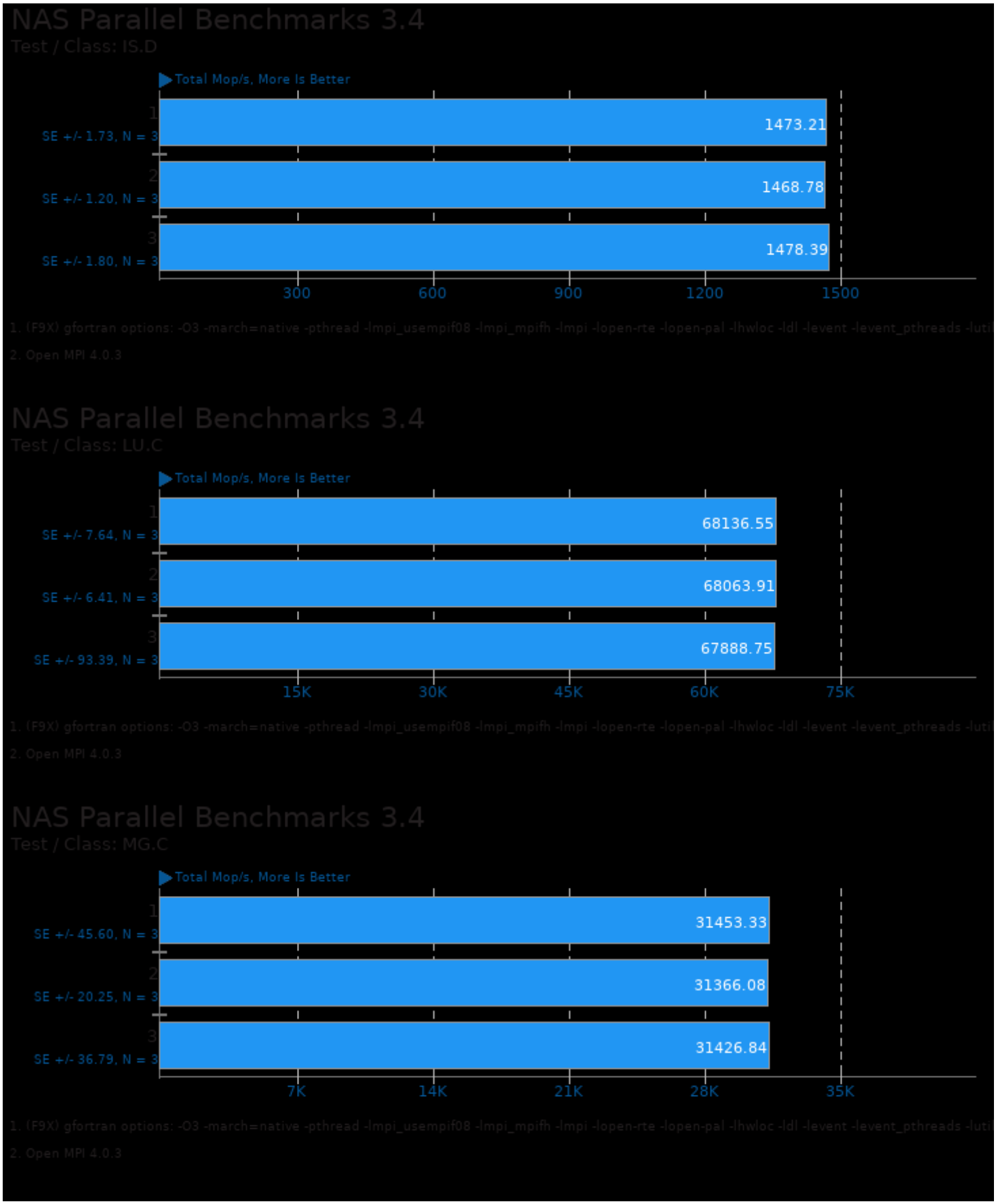
Kernel Notes: Transparent Huge Pages: madvise
Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,m2 --enable-libphobos-checking=release --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-10-JvwpWM/gcc-10-10.2.0/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-10-JvwpWM/gcc-10-10.2.0/debian/tmp-gcn/usr,hsa --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq schedutil (Boost: Enabled) - CPU Microcode: 0x8301039
Python Notes: Python 3.8.6
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Full AMD retpoline IBPB: conditional STIBP: conditional RSB filling + srbds: Not affected + tsx_async_abort: Not affected

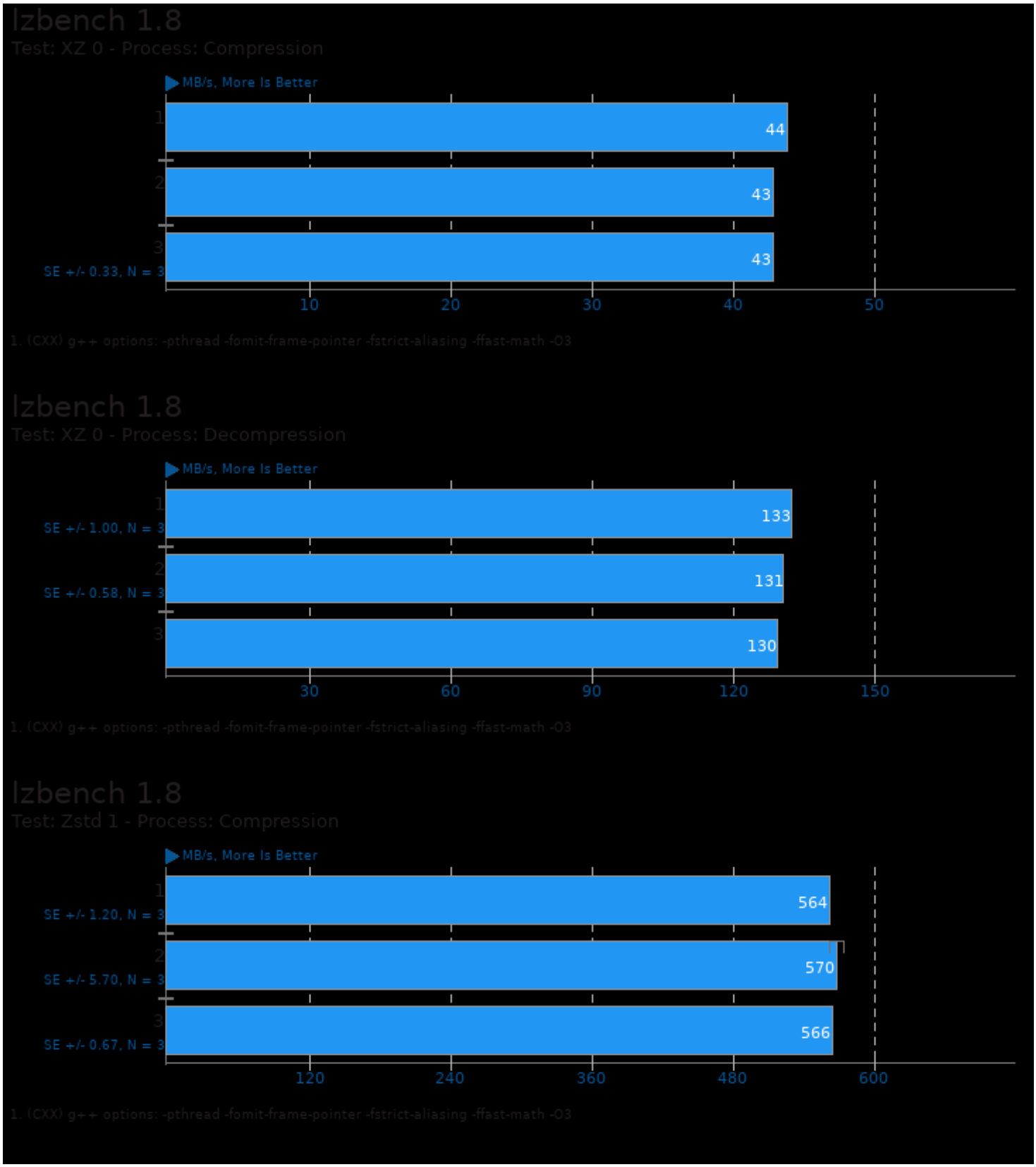
	1	2	3
NAS Parallel Benchmarks - CG.C (Mop/s)	**11126**	11120	**11117**
Normalized	100%	99.95%	99.92%
Standard Deviation	0.2%	0.1%	0.2%
NAS Parallel Benchmarks - EP.C (Mop/s)	**2958**	2957	**2950**
Normalized	100%	99.95%	99.74%
Standard Deviation	0.8%	0.6%	0.6%
NAS Parallel Benchmarks - FT.C (Mop/s)	35178	**35173**	**35182**
Normalized	99.99%	99.97%	100%
Standard Deviation	0%	0%	0%
NAS Parallel Benchmarks - IS.D (Mop/s)	1473	**1469**	**1478**
Normalized	99.65%	99.35%	100%
Standard Deviation	0.2%	0.1%	0.2%
NAS Parallel Benchmarks - LU.C (Mop/s)	**68137**	68064	**67889**

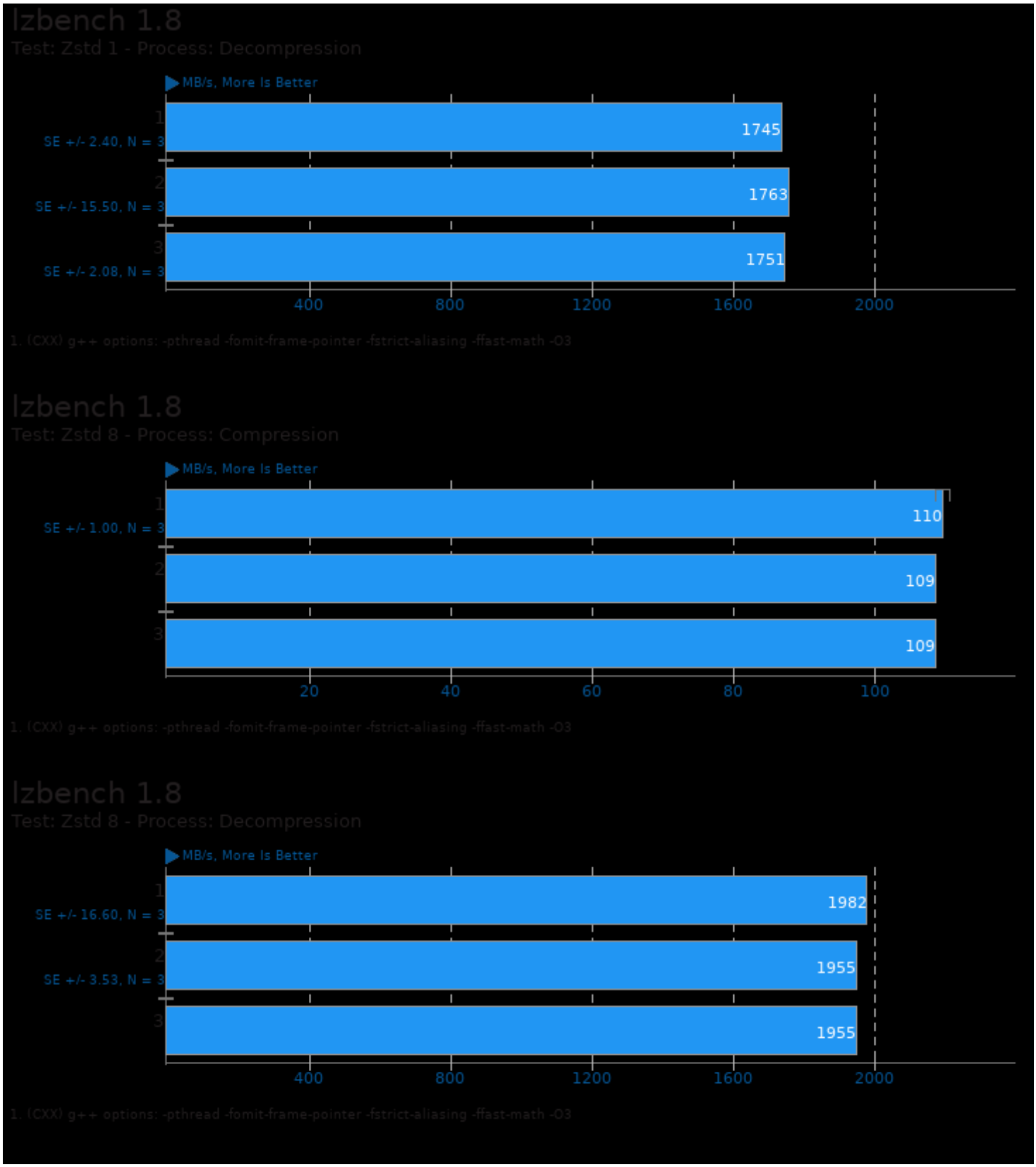
Normalized	100%	99.89%	99.64%
Standard Deviation	0%	0%	0.2%
NAS Parallel Benchmarks - MG.C (Mop/s)	**31453**	**31366**	31427
Normalized	100%	99.72%	99.92%
Standard Deviation	0.3%	0.1%	0.2%
lzbench - XZ 0 - Compression (MB/s)	**44**	**43**	**43**
Normalized	100%	97.73%	97.73%
Standard Deviation			1.4%
lzbench - XZ 0 - Decompression (MB/s)	**133**	131	**130**
Normalized	100%	98.5%	97.74%
Standard Deviation	1.3%	0.8%	
lzbench - Zstd 1 - Compression (MB/s)	**564**	**570**	566
Normalized	98.95%	100%	99.3%
Standard Deviation	0.4%	1.7%	0.2%
lzbench - Zstd 1 - Decompression (MB/s)	**1745**	**1763**	1751
Normalized	98.98%	100%	99.32%
Standard Deviation	0.2%	1.5%	0.2%
lzbench - Zstd 8 - Compression (MB/s)	**110**	**109**	**109**
Normalized	100%	99.09%	99.09%
Standard Deviation	1.6%		
lzbench - Zstd 8 - Decompression (MB/s)	**1982**	**1955**	**1955**
Normalized	100%	98.64%	98.64%
Standard Deviation	1.5%	0.3%	
lzbench - Crush 0 - Compression (MB/s)	**110**	**119**	118
Normalized	92.44%	100%	99.16%
Standard Deviation		3%	2.5%
lzbench - Crush 0 - Decompression (MB/s)	**529**	**530**	**530**
Normalized	99.81%	100%	100%
Standard Deviation		0.3%	0.2%
lzbench - Brotli 0 - Compression (MB/s)	**553**	**549**	**549**
Normalized	100%	99.28%	99.28%
Standard Deviation	1.5%	0.5%	
lzbench - Brotli 0 - Decompression (MB/s)	**646**	**643**	**646**
Normalized	100%	99.54%	100%
Standard Deviation	1.6%	0.9%	0.8%
lzbench - Brotli 2 - Compression (MB/s)	**222**	**220**	221
Normalized	100%	99.1%	99.55%
Standard Deviation	1.9%	0.5%	
lzbench - Brotli 2 - Decompression (MB/s)	**762**	**761**	**762**
Normalized	100%	99.87%	100%
Standard Deviation	1.3%	0.4%	0.5%
lzbench - Libdeflate 1 - Compression (MB/s)	**273**	**271**	272
Normalized	100%	99.27%	99.63%
Standard Deviation	1.7%		
Cython Benchmark - N-Queens (sec)	**22.210**	22.326	**22.717**
Normalized	100%	99.48%	97.77%
Standard Deviation	1.3%	1.2%	1.5%
Gcrypt Library (sec)	**198.716**		**198.386**
Normalized	99.83%		100%
Standard Deviation	0.5%		0.4%
FinanceBench - Repo OpenMP (ms)	**33177**		**33075**
Normalized	99.69%		100%
Standard Deviation	0.4%		0.1%
FinanceBench - Bonds OpenMP (ms)	**47101**		**47168**
Normalized	100%		99.86%

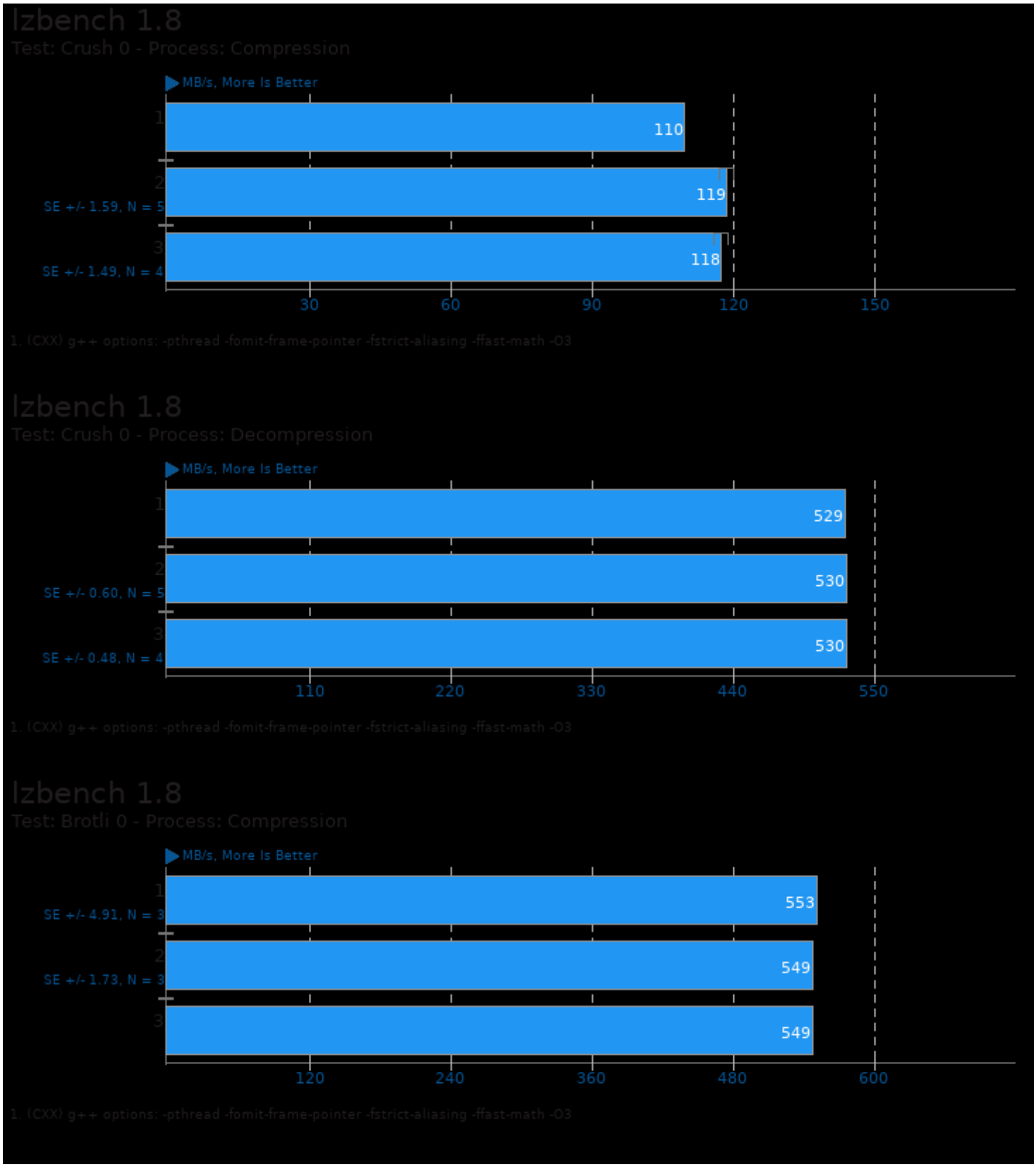
Standard Deviation	0.1%	0.3%

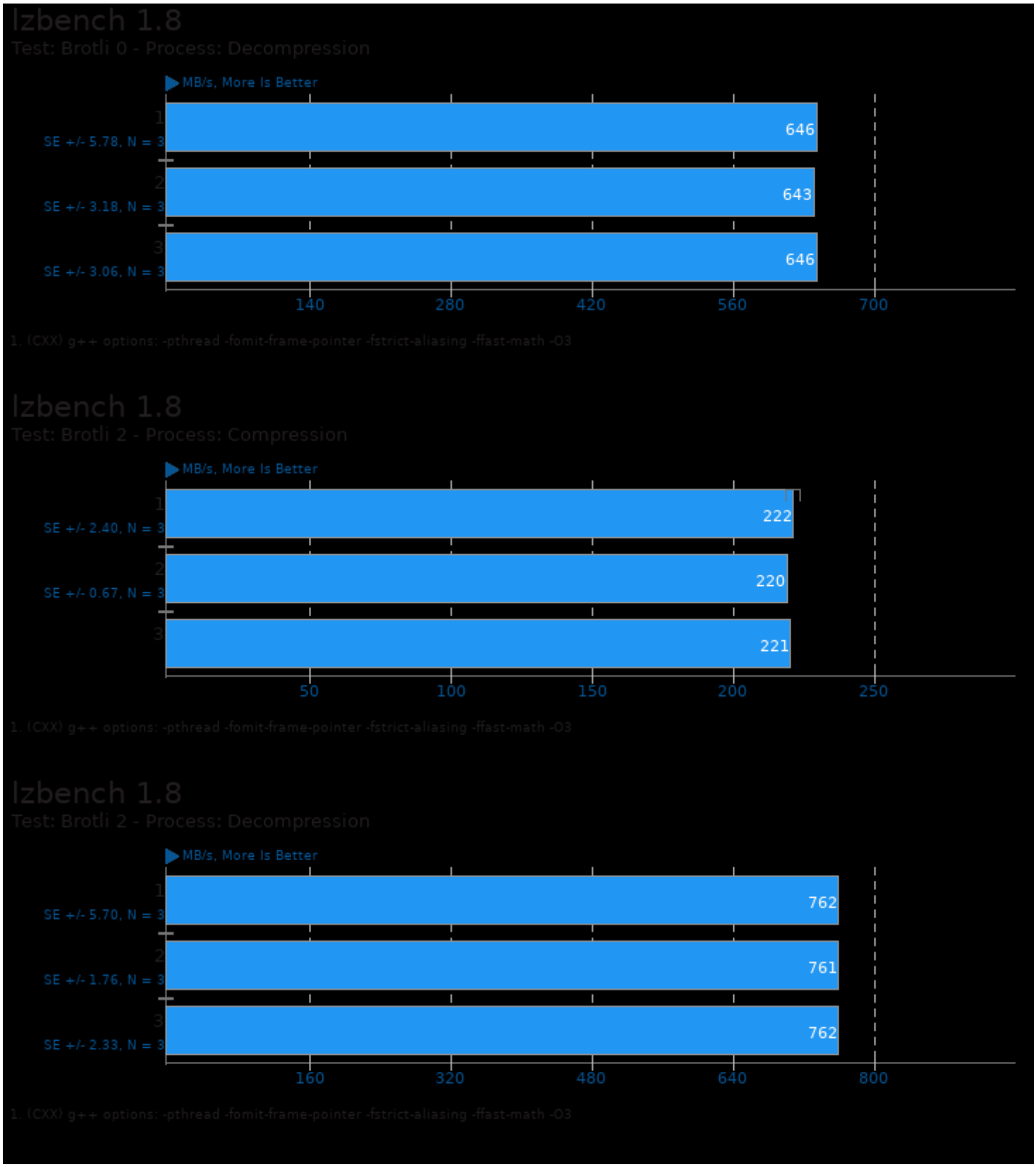

NAS Parallel Benchmarks 3.4
Test / Class: CG.C
Total Mop/s, More Is Better
1
SE +/- 14.49, N = 3
11126.01
2
SE +/- 8.67, N = 3
11120.04
3
SE +/- 12.34, N = 3
11117.14
2K
4K
6K
8K
10K
1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi_usempif08 -lmpi_mpifh -lmpi -lopen-rte -lopen-pal -lhwloc -ldl -levent -levent_pthreads -luti
2. Open MPI 4.0.3
NAS Parallel Benchmarks 3.4
Test / Class: EP.C
Total Mop/s, More Is Better
1
SE +/- 13.93, N = 3
2958.20
2
SE +/- 10.05, N = 3
2956.83
3
SE +/- 10.59, N = 3
2950.42
600
1200
1800
2400
3000
1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi_usempif08 -lmpi_mpifh -lmpi -lopen-rte -lopen-pal -lhwloc -ldl -levent -levent_pthreads -luti
2. Open MPI 4.0.3
NAS Parallel Benchmarks 3.4
Test / Class: FT.C
Total Mop/s, More Is Better
1
SE +/- 9.92, N = 3
35178.28
2
SE +/- 8.41, N = 3
35172.73
3
SE +/- 6.86, N = 3
35182.34
8K
16K
24K
32K
40K
1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi_usempif08 -lmpi_mpifh -lmpi -lopen-rte -lopen-pal -lhwloc -ldl -levent -levent_pthreads -luti
2. Open MPI 4.0.3

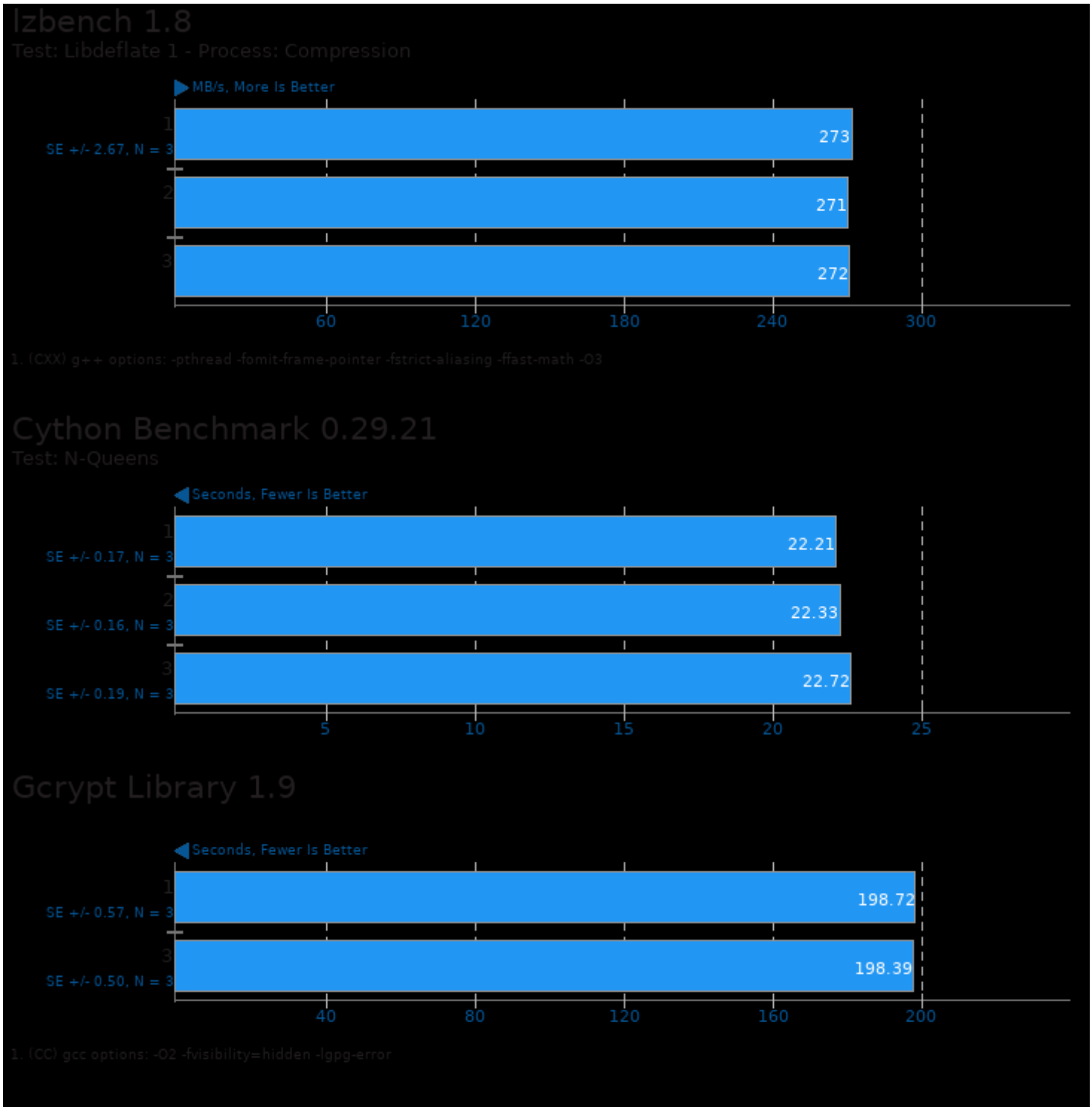

NAS Parallel Benchmarks 3.4
Test / Class: IS.D
Total Mop/s, More Is Better
1
SE +/- 1.73, N = 3
1473.21
2
SE +/- 1.20, N = 3
1468.78
3
SE +/- 1.80, N = 3
1478.39
300
600
900
1200
1500
1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi_usempif08 -lmpi_mpifh -lmpi -lopen-rte -lopen-pal -lhwloc -ldl -levent -levent_pthreads -luti
2. Open MPI 4.0.3
NAS Parallel Benchmarks 3.4
Test / Class: LU.C
Total Mop/s, More Is Better
1
SE +/- 7.64, N = 3
68136.55
2
SE +/- 6.41, N = 3
68063.91
3
SE +/- 93.39, N = 3
67888.75
15K
30K
45K
60K
75K
1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi_usempif08 -lmpi_mpifh -lmpi -lopen-rte -lopen-pal -lhwloc -ldl -levent -levent_pthreads -luti
2. Open MPI 4.0.3
NAS Parallel Benchmarks 3.4
Test / Class: MG.C
Total Mop/s, More Is Better
1
SE +/- 45.60, N = 3
31453.33
2
SE +/- 20.25, N = 3
31366.08
3
SE +/- 36.79, N = 3
31426.84
7K
14K
21K
28K
35K
1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi_usempif08 -lmpi_mpifh -lmpi -lopen-rte -lopen-pal -lhwloc -ldl -levent -levent_pthreads -luti
2. Open MPI 4.0.3

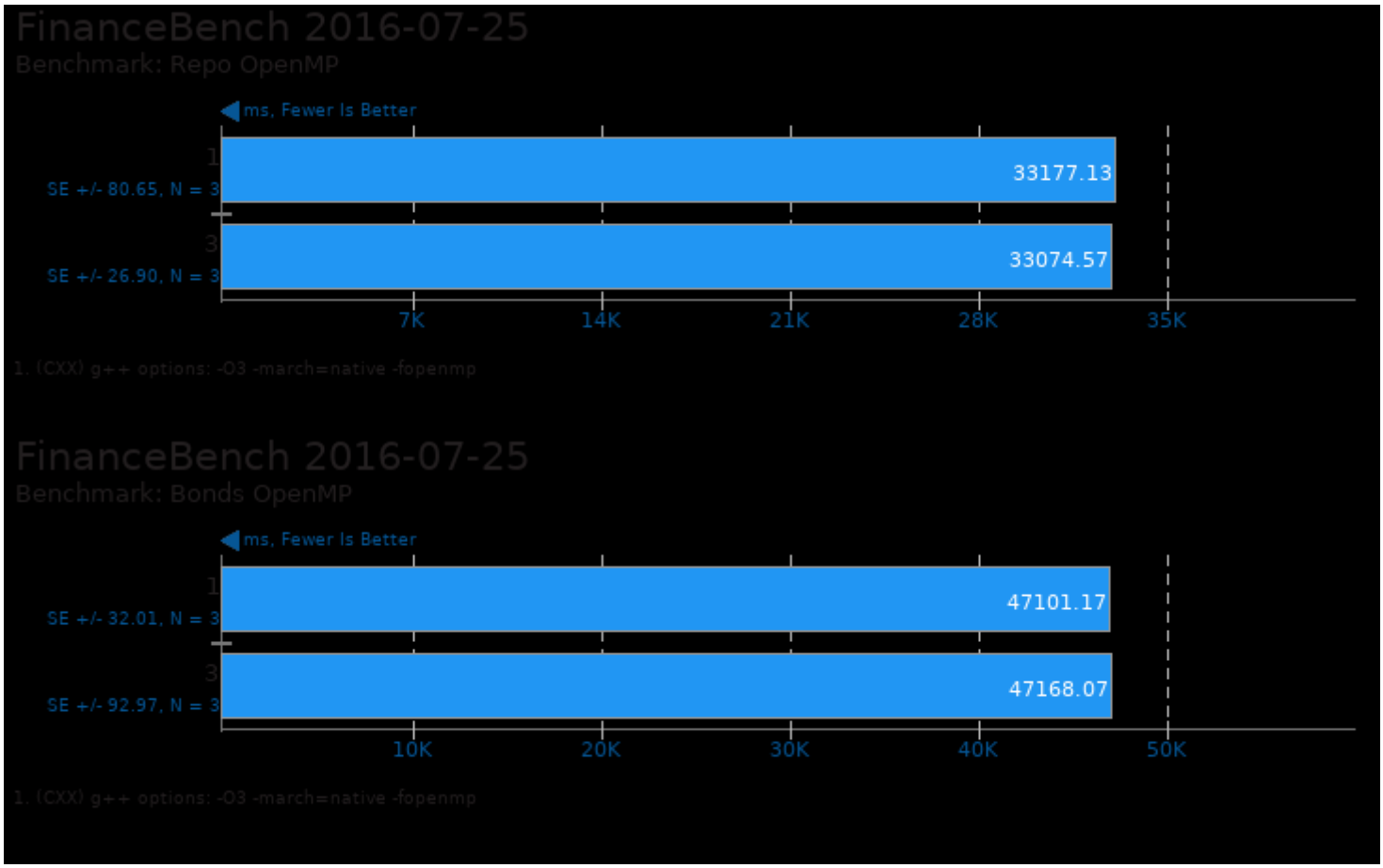

lzbench 1.8
Test: XZ 0 - Process: Compression
MB/s, More Is Better
1
2
3
44
43
43
SE +/- 0.33, N = 3
10
20
30
40
50
1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3
lzbench 1.8
Test: XZ 0 - Process: Decompression
MB/s, More Is Better
1
2
3
133
131
130
SE +/- 1.00, N = 3
SE +/- 0.58, N = 3
30
60
90
120
150
1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3
lzbench 1.8
Test: Zstd 1 - Process: Compression
MB/s, More Is Better
1
2
3
564
570
566
SE +/- 1.20, N = 3
SE +/- 5.70, N = 3
SE +/- 0.67, N = 3
120
240
360
480
600
1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3


lzbench 1.8
Test: Zstd 1 - Process: Decompression
MB/s, More Is Better
1
SE +/- 2.40, N = 3
1745
2
SE +/- 15.50, N = 3
1763
3
SE +/- 2.08, N = 3
1751
400
800
1200
1600
2000
1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3
lzbench 1.8
Test: Zstd 8 - Process: Compression
MB/s, More Is Better
1
SE +/- 1.00, N = 3
110
2
109
3
109
20
40
60
80
100
1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3
lzbench 1.8
Test: Zstd 8 - Process: Decompression
MB/s, More Is Better
1
SE +/- 16.60, N = 3
1982
2
SE +/- 3.53, N = 3
1955
3
1955
400
800
1200
1600
2000
1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3


lzbench 1.8
Test: Crush 0 - Process: Compression
MB/s, More Is Better
1
2
3
110
119
118
SE +/- 1.59, N = 5
SE +/- 1.49, N = 4
30
60
90
120
150
1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3
lzbench 1.8
Test: Crush 0 - Process: Decompression
MB/s, More Is Better
1
2
3
529
530
530
SE +/- 0.60, N = 5
SE +/- 0.48, N = 4
110
220
330
440
550
1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3
lzbench 1.8
Test: Brotli 0 - Process: Compression
MB/s, More Is Better
1
2
3
553
549
549
SE +/- 4.91, N = 3
SE +/- 1.73, N = 3
120
240
360
480
600
1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3


lzbench 1.8
Test: Brotli 0 - Process: Decompression
MB/s, More Is Better
1
SE +/- 5.78, N = 3
646
2
SE +/- 3.18, N = 3
643
3
SE +/- 3.06, N = 3
646
140
280
420
560
700
1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3
lzbench 1.8
Test: Brotli 2 - Process: Compression
MB/s, More Is Better
1
SE +/- 2.40, N = 3
222
2
SE +/- 0.67, N = 3
220
3
221
50
100
150
200
250
1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3
lzbench 1.8
Test: Brotli 2 - Process: Decompression
MB/s, More Is Better
1
SE +/- 5.70, N = 3
762
2
SE +/- 1.76, N = 3
761
3
SE +/- 2.33, N = 3
762
160
320
480
640
800
1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3

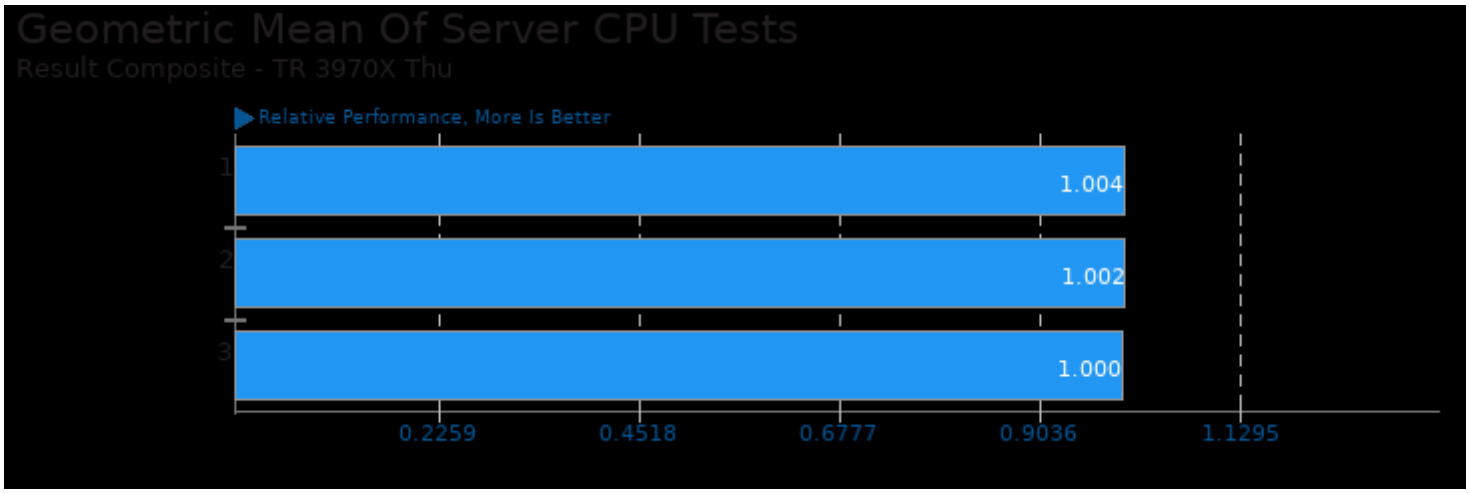

lzbench 1.8
Test: Libdeflate 1 - Process: Compression
MB/s, More Is Better
1
SE +/- 2.67, N = 3
273
2
271
3
272
60
120
180
240
300
1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3
Cython Benchmark 0.29.21
Test: N-Queens
Seconds, Fewer Is Better
1
SE +/- 0.17, N = 3
22.21
2
SE +/- 0.16, N = 3
22.33
3
SE +/- 0.19, N = 3
22.72
5
10
15
20
25
Gcrypt Library 1.9
Seconds, Fewer Is Better
1
SE +/- 0.57, N = 3
198.72
3
SE +/- 0.50, N = 3
198.39
40
80
120
160
200
1. (CC) gcc options: -O2 -fvisibility=hidden -lgpg-error


FinanceBench 2016-07-25
Benchmark: Repo OpenMP
ms, Fewer Is Better
1
SE +/- 80.65, N = 3
33177.13
3
SE +/- 26.90, N = 3
33074.57
7K
14K
21K
28K
35K
1. (CXX) g++ options: -O3 -march=native -fopenmp
FinanceBench 2016-07-25
Benchmark: Bonds OpenMP
ms, Fewer Is Better
1
SE +/- 32.01, N = 3
47101.17
3
SE +/- 92.97, N = 3
47168.07
10K
20K
30K
40K
50K
1. (CXX) g++ options: -O3 -march=native -fopenmp

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



Geometric mean based upon tests: pts/cython-bench, pts/lzbench and pts/npb



Geometric mean based upon tests: pts/npb and pts/cython-bench

This file was automatically generated via the Phoronix Test Suite benchmarking software on Friday, 29 March 2024 04:31.