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epyc-7702-t

AMD EPYC 7702 64-Core testing with a ASRockRack EPYCD8 (P2.10 BIOS) and llvmpipe on Ubuntu 20.10 via the Phoronix Test Suite.

Automated Executive Summary

1 had the most wins, coming in first place for 33% of the tests.

Based on the geometric mean of all complete results, the fastest (3) was 1.009x the speed of the slowest (1a). 2 was 0.997x the speed of 3, 1 was 0.996x the speed of 2, 1a was 0.998x the speed of 1.

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

Cpuminer-Opt (Algorithm: Quad SHA-256, Pyrite) at 1.624x
Cpuminer-Opt (Algorithm: Blake-2 S) at 1.361x
Cpuminer-Opt (Algorithm: x25x) at 1.261x
Cpuminer-Opt (Algorithm: Deepcoin) at 1.18x
Cpuminer-Opt (Algorithm: Magi) at 1.142x
Cpuminer-Opt (Algorithm: LBC, LBRY Credits) at 1.125x
Memcached mcperf (Method: Get - Connections: 1) at 1.117x
Cpuminer-Opt (Algorithm: Triple SHA-256, Onecoin) at 1.115x
Cpuminer-Opt (Algorithm: Skeincoin) at 1.078x

Memcached mcperf (Method: Set - Connections: 1) at 1.061x.

Test Systems:

1

1a

2

3

Processor: AMD EPYC 7702 64-Core @ 2.00GHz (64 Cores / 128 Threads), Motherboard: ASRockRack EPYCD8 (P2.10 BIOS), Chipset: AMD Starship/Matisse, Memory: 126GB, Disk: 280GB INTEL SSDPED1D280GA, Graphics: llvmpipe, Audio: AMD Starship/Matisse, Network: 2 x Intel I350

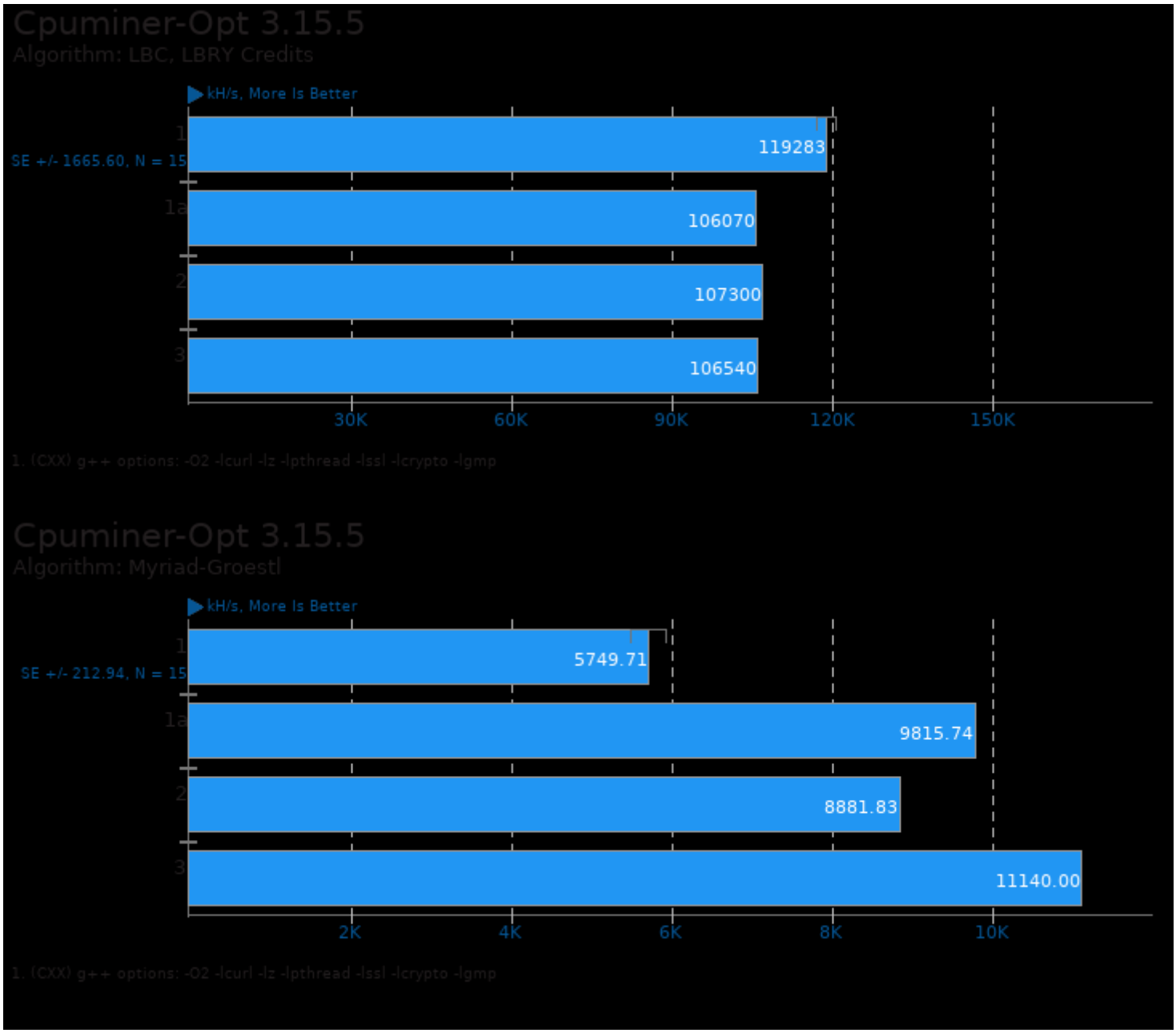
OS: Ubuntu 20.10, Kernel: 5.11.0-rc4-max-boost-inv-patch (x86_64) 20210121, Desktop: GNOME Shell 3.38.1, Display Server: X Server 1.20.9, Display Driver: modesetting 1.20.9, Compiler: GCC 10.2.0, File-System: ext4, Screen Resolution: 1024x768

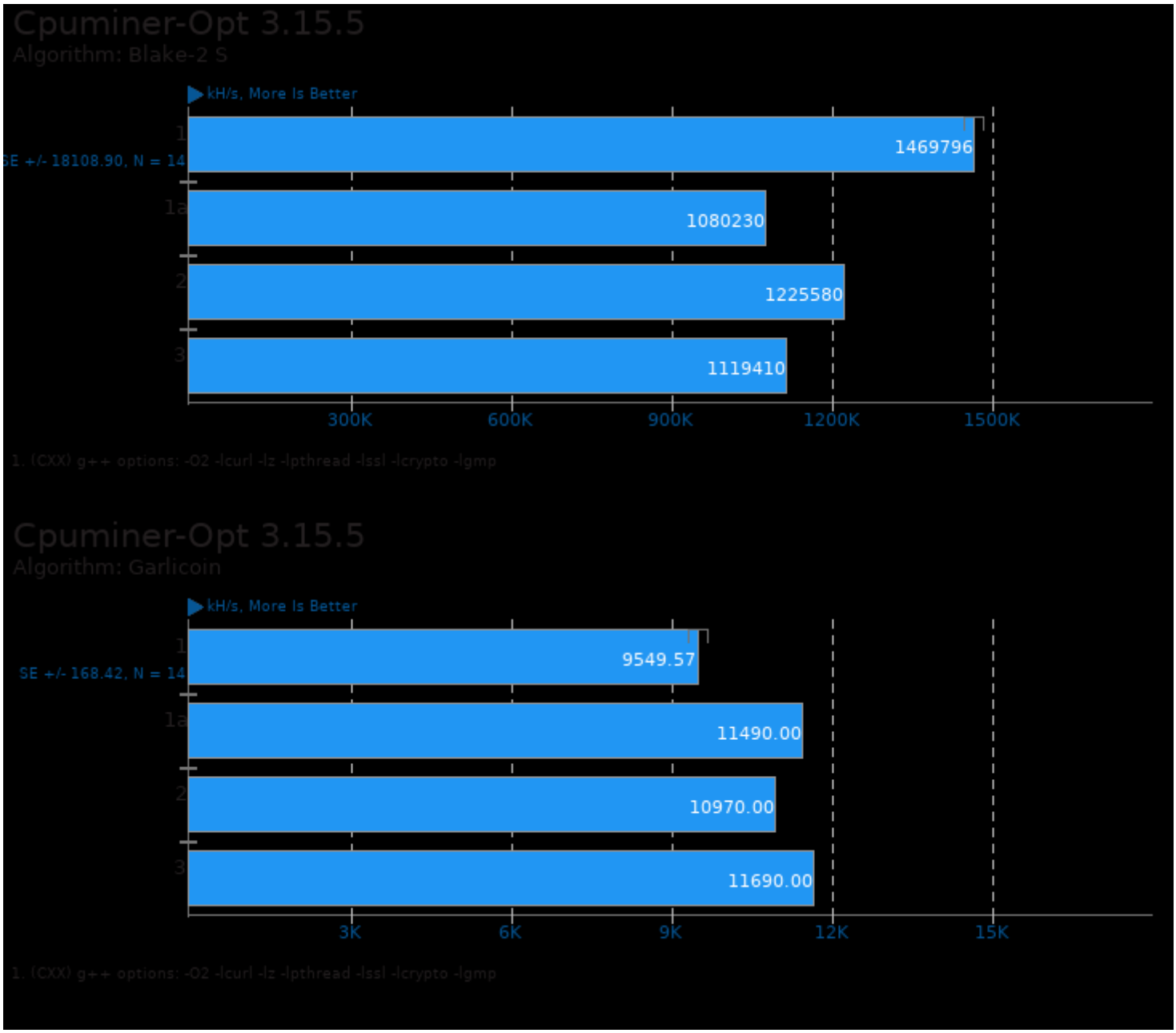
Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,m2 --enable-libphobos-checking=release --enable-libstdcxx-debug --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: 0x830101c
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 IBRS_FW STIBP: always-on RSB filling + srbds: Not affected + tsx_async_abort: Not affected

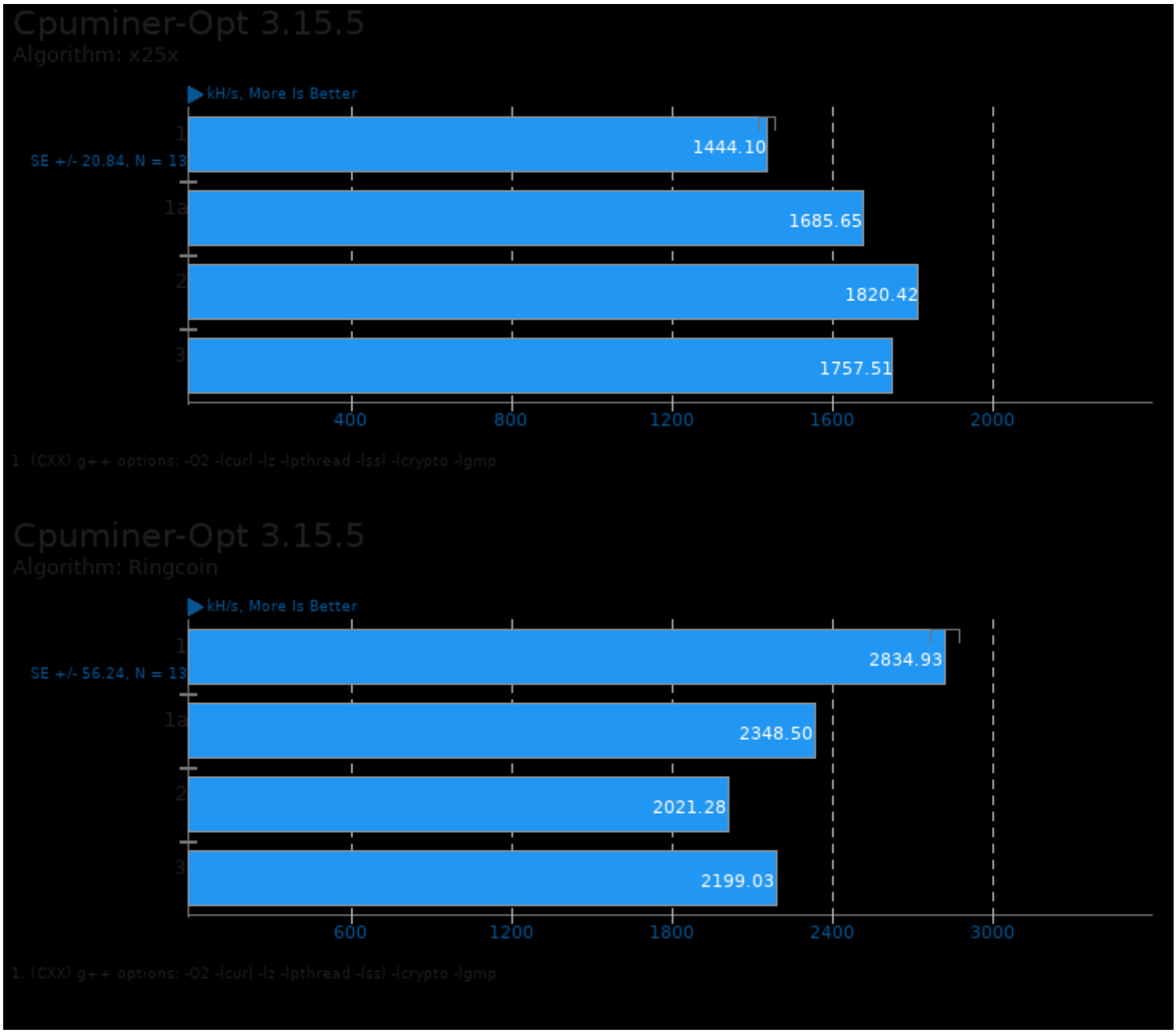
	1	1a	2	3
Cpuminer-Opt - LBC, LBRY Credits (kH/s)	**119283**	**106070**	107300	106540
Normalized	100%	88.92%	89.95%	89.32%
Standard Deviation	5.4%			
Cpuminer-Opt - Myriad-Groestl (kH/s)	**5750**	9816	8882	**11140**
Normalized	51.61%	88.11%	79.73%	100%
Standard Deviation	14.3%			
Cpuminer-Opt - Blake-2 S (kH/s)	**1469796**	**1080230**	1225580	1119410
Normalized	100%	73.5%	83.38%	76.16%
Standard Deviation	4.6%			
Cpuminer-Opt - Garlicoin (kH/s)	**9550**	11490	10970	**11690**
Normalized	81.69%	98.29%	93.84%	100%
Standard Deviation	6.6%			

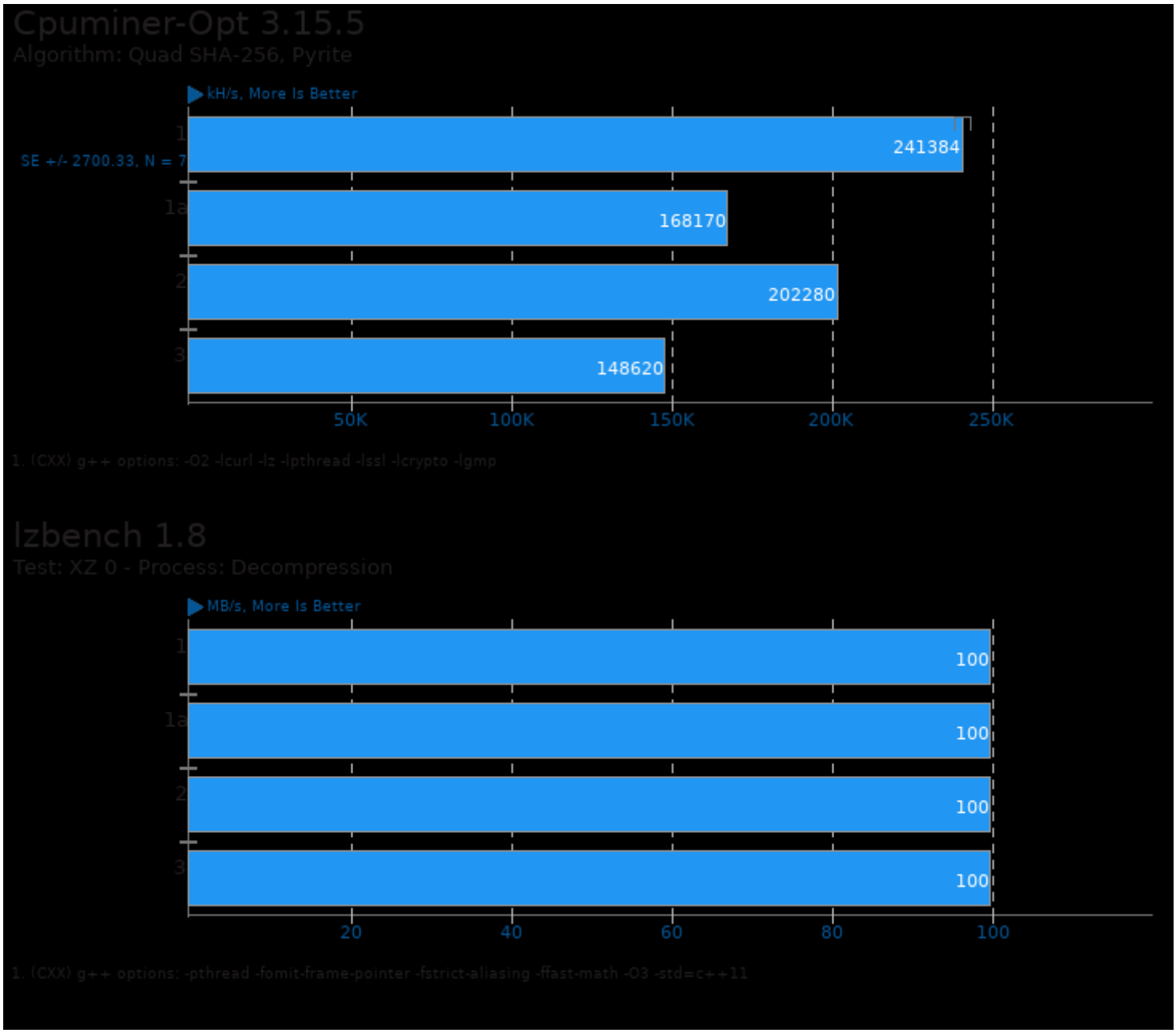
Cpuminer-Opt - x25x (kH/s)	**1444**	1686	**1820**	1758
Normalized	79.33%	92.6%	100%	96.54%
Standard Deviation	5.2%			
Cpuminer-Opt - Ringcoin (kH/s)	**2835**	2349	**2021**	2199
Normalized	100%	82.84%	71.3%	77.57%
Standard Deviation	7.2%			
Cpuminer-Opt - Q.S.2.P (kH/s)	**241384**	168170	202280	**148620**
Normalized	100%	69.67%	83.8%	61.57%
Standard Deviation	3%			
lzbench - XZ 0 - Decompression	100	100	100	100
lzbench - XZ 0 - Compression (MB/s)	33	33	33	33
FinanceBench - Bonds OpenMP (ms)		**60413**	**60519**	60422
Normalized		100%	99.82%	99.98%
Cpuminer-Opt - Skeincoin (kH/s)	**291862**	**270800**	291310	278200
Normalized	100%	92.78%	99.81%	95.32%
Standard Deviation	3%			
Memcached mcperf - Add - 1 (Operations/sec)		**39118**	**41052**	41012
Normalized		95.29%	100%	99.9%
Memcached mcperf - Set - 1 (Operations/sec)		**39702**	**42112**	39724
Normalized		94.28%	100%	94.33%
NAS Parallel Benchmarks - EP.D (Mop/s)	**3988**	3996	**4018**	4006
Normalized	99.24%	99.45%	100%	99.72%
Standard Deviation	0.1%			
FinanceBench - Repo OpenMP (ms)		**42043**	42049	**42056**
Normalized		100%	99.98%	99.97%
Cpuminer-Opt - Magi (kH/s)	2120	2115	**2105**	**2404**
Normalized	88.18%	87.97%	87.56%	100%
Standard Deviation	2.1%			
Cpuminer-Opt - Deepcoin (kH/s)	**49853**	56330	57260	**58820**
Normalized	84.76%	95.77%	97.35%	100%
Standard Deviation	1.2%			
Cython Benchmark - N-Queens (sec)	29.560	29.521	**29.62**	**29.489**
Normalized	99.76%	99.89%	99.56%	100%
Standard Deviation	1.1%			
Memcached mcperf - Get - 1 (Operations/sec)		**57572**	59449	**64291**
Normalized		89.55%	92.47%	100%
lzbench - Crush 0 - Decompression (MB/s)	404	404	404	404
Standard Deviation	0.1%			
lzbench - Crush 0 - Compression	**89**	**94**	93	93
Normalized	94.68%	100%	98.94%	98.94%
NAS Parallel Benchmarks - BT.C (Mop/s)	**125063**	125358	125553	**126040**
Normalized	99.23%	99.46%	99.61%	100%
Standard Deviation	0.1%			
lzbench - Brotli 2 - Decompression (MB/s)	580	582	**579**	**585**
Normalized	99.15%	99.49%	98.97%	100%
Standard Deviation	0.4%			

lzbench - Brotli 2 - Compression	**167**	**166**	**166**	**167**
Normalized	100%	99.4%	99.4%	100%
Standard Deviation	0.7%			
lzbench - Brotli 0 - Decompression (MB/s)	493	**492**	**492**	**496**
Normalized	99.4%	99.19%	99.19%	100%
Standard Deviation	1.1%			
lzbench - Brotli 0 - Compression	420	419	**423**	**418**
Normalized	99.29%	99.05%	100%	98.82%
Standard Deviation	0.5%			
lzbench - Zstd 8 - Decompression	1495	**1499**	1495	**1493**
Normalized	99.73%	100%	99.73%	99.6%
Standard Deviation	0.2%			
lzbench - Zstd 8 - Compression (MB/s)	84	84	84	84
Standard Deviation	1.4%			
lzbench - Zstd 1 - Decompression	1338	**1336**	**1339**	**1339**
Normalized	99.93%	99.78%	100%	100%
Standard Deviation	0.1%			
lzbench - Zstd 1 - Compression (MB/s)	434	**429**	**436**	434
Normalized	99.54%	98.39%	100%	99.54%
NAS Parallel Benchmarks - LU.C (Mop/s)	102020	102134	**102785**	**101017**
Normalized	99.26%	99.37%	100%	98.28%
Standard Deviation	0.5%			
Cpuminer-Opt - T.S.2.O (kH/s)		260160	**270120**	**242200**
Normalized		96.31%	100%	89.66%
NAS Parallel Benchmarks - IS.D	1979	1996	**1973**	**2031**
Normalized	97.46%	98.26%	97.15%	100%
Standard Deviation	1.3%			
lzbench - Libdeflate 1 - Compression (MB/s)	**210**	**211**	**210**	**211**
Normalized	99.53%	100%	99.53%	100%
Standard Deviation	0.5%			
NAS Parallel Benchmarks - CG.C (Mop/s)	**15682**	**15594**	15647	15638
Normalized	100%	99.44%	99.77%	99.72%
Standard Deviation	1.6%			
NAS Parallel Benchmarks - FT.C (Mop/s)	54973	54977	**54335**	**55426**
Normalized	99.18%	99.19%	98.03%	100%
Standard Deviation	0.8%			
NAS Parallel Benchmarks - SP.B (Mop/s)	78109	77127	**78568**	**76705**
Normalized	99.42%	98.17%	100%	97.63%
Standard Deviation	1.9%			
NAS Parallel Benchmarks - MG.C (Mop/s)	**52713**	51634	**50674**	51303
Normalized	100%	97.95%	96.13%	97.33%
Standard Deviation	0.3%			
NAS Parallel Benchmarks - EP.C (Mop/s)	**3897**	**3821**	3844	3893
Normalized	100%	98.05%	98.64%	99.88%
Standard Deviation	1.9%			


Cpuminer-Opt 3.15.5
Algorithm: LBC, LBRY Credits
kH/s, More Is Better
SE +/- 1665.60, N = 15
1
119283
1a
106070
2
107300
3
106540
30K
60K
90K
120K
150K
1. (CXX) g++ options: -O2 -lcurl -lz -lpthread -lssl -lcrypto -lgmp
Cpuminer-Opt 3.15.5
Algorithm: Myriad-Groestl
kH/s, More Is Better
SE +/- 212.94, N = 15
1
5749.71
1a
9815.74
2
8881.83
3
11140.00
2K
4K
6K
8K
10K
1. (CXX) g++ options: -O2 -lcurl -lz -lpthread -lssl -lcrypto -lgmp

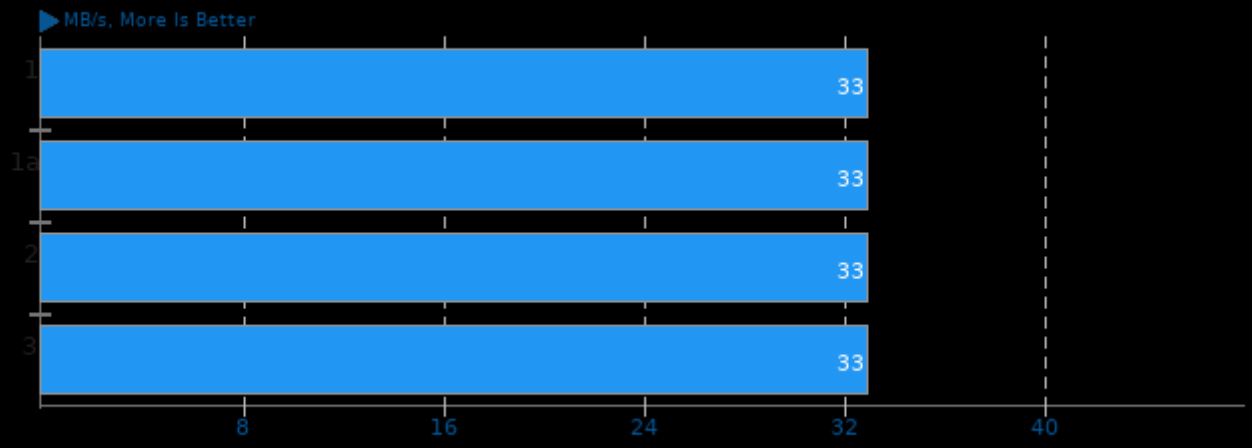

Cpuminer-Opt 3.15.5
Algorithm: Blake-2 S
kH/s, More Is Better
SE +/- 18108.90, N = 14
1469796
1080230
1225580
1119410
300K
600K
900K
1200K
1500K
1. (CXX) g++ options: -O2 -lcurl -lz -lpthread -lssl -lcrypto -lgmp
Cpuminer-Opt 3.15.5
Algorithm: Garlicoin
kH/s, More Is Better
SE +/- 168.42, N = 14
9549.57
11490.00
10970.00
11690.00
3K
6K
9K
12K
15K
1. (CXX) g++ options: -O2 -lcurl -lz -lpthread -lssl -lcrypto -lgmp


Cpuminer-Opt 3.15.5
Algorithm: x25x
kH/s, More Is Better
SE +/- 20.84, N = 13
1444.10
1685.65
1820.42
1757.51
400
800
1200
1600
2000
1. (CXX) g++ options: -O2 -lcurl -lz -lpthread -lssl -lcrypto -lgmp
Cpuminer-Opt 3.15.5
Algorithm: Ringcoin
kH/s, More Is Better
SE +/- 56.24, N = 13
2834.93
2348.50
2021.28
2199.03
600
1200
1800
2400
3000
1. (CXX) g++ options: -O2 -lcurl -lz -lpthread -lssl -lcrypto -lgmp


Cpuminer-Opt 3.15.5
Algorithm: Quad SHA-256, Pyrite
kH/s, More Is Better
SE +/- 2700.33, N = 7
241384
168170
202280
148620
50K
100K
150K
200K
250K
1. (CXX) g++ options: -O2 -lcurl -lz -lpthread -lssl -lcrypto -lgmp
lzbench 1.8
Test: XZ 0 - Process: Decompression
MB/s, More Is Better
100
100
100
100
20
40
60
80
100
1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3 -std=c++11

lzbench 1.8

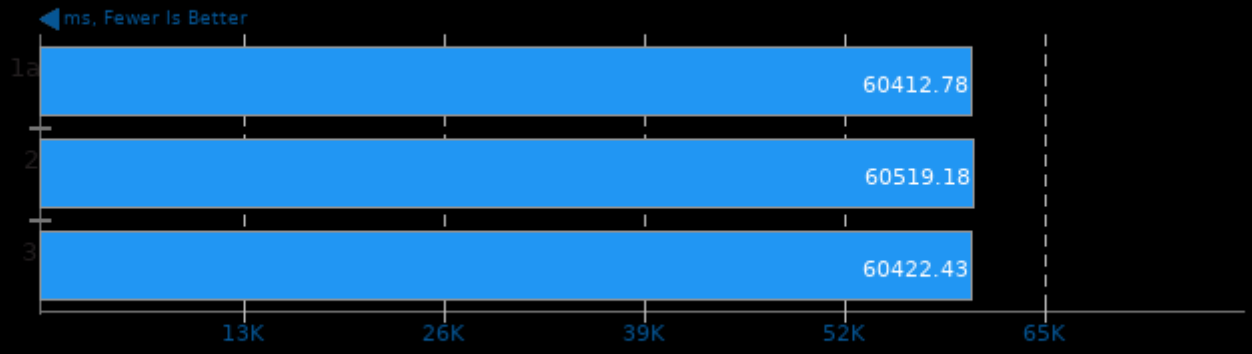
Test: XZ 0 - Process: Compression



1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3 -std=c++11

FinanceBench 2016-07-25

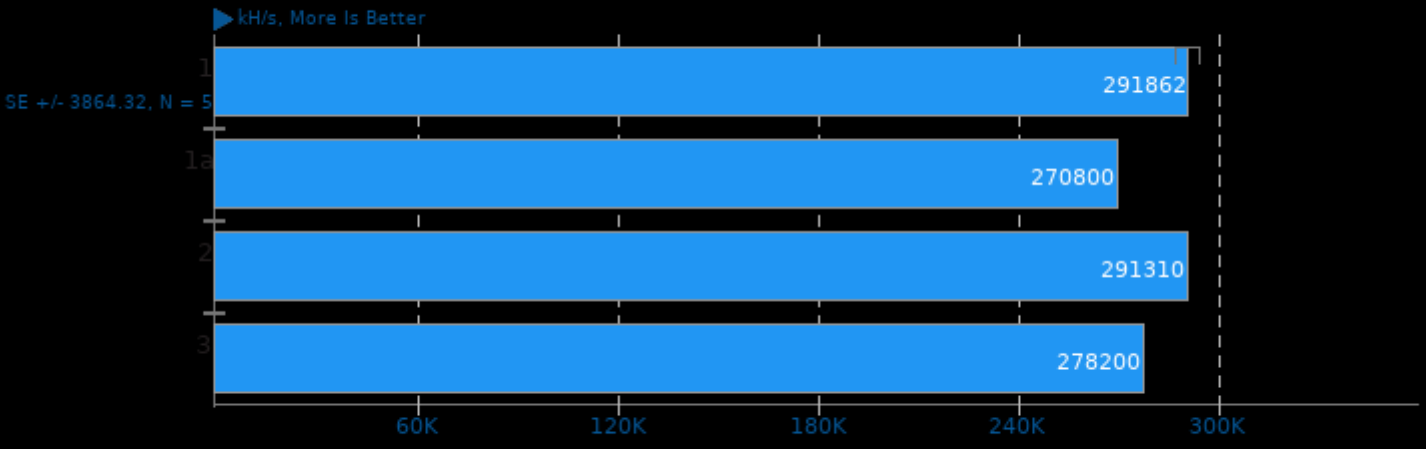
Benchmark: Bonds OpenMP



1. (CXX) g++ options: -O3 -march=native -fopenmp

Cpuminer-Opt 3.15.5

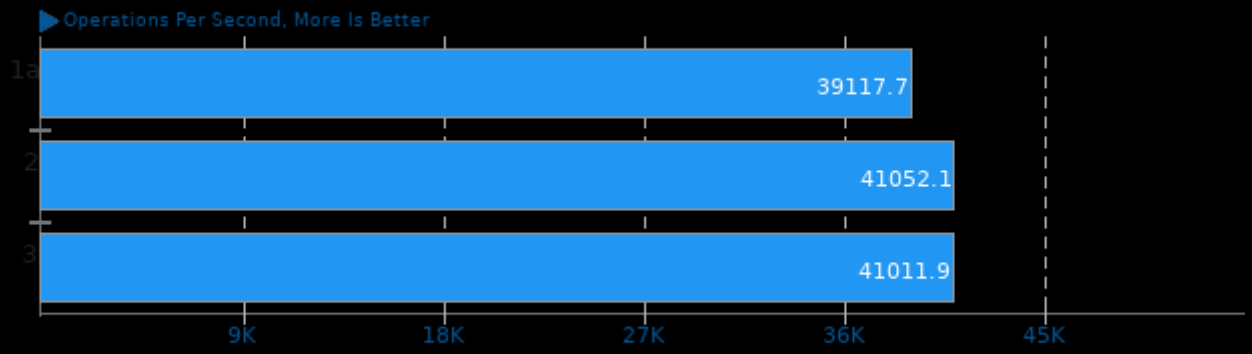
Algorithm: Skeincoin



1. (CXX) g++ options: -O2 -lcurl -lz -lpthread -lssl -lcrypto -lgmp

Memcached mcperf 1.6.9

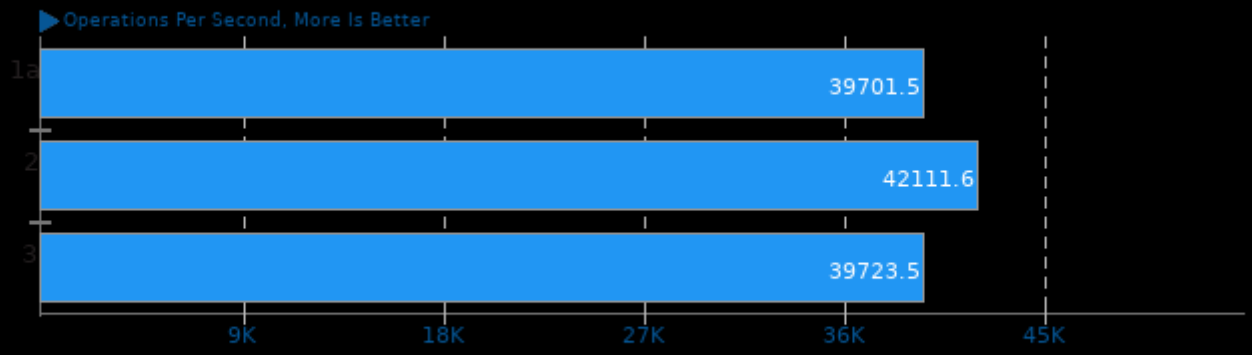
Method: Add - Connections: 1



1. (CC) gcc options: -O2 -lm -rdynamic

Memcached mcperf 1.6.9

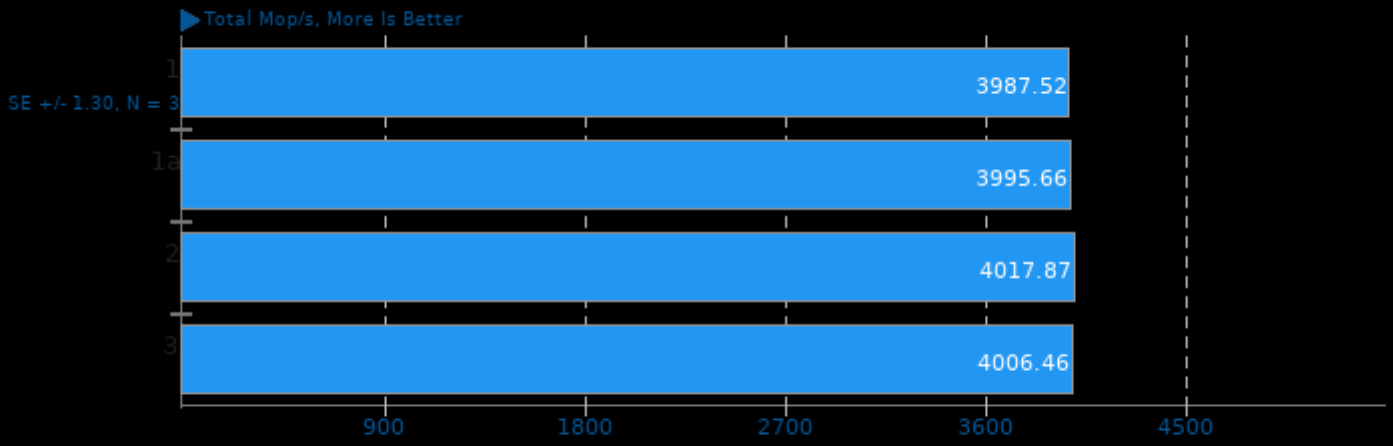
Method: Set - Connections: 1



1. (CC) gcc options: -O2 -lm -rdynamic

NAS Parallel Benchmarks 3.4

Test / Class: EP.D

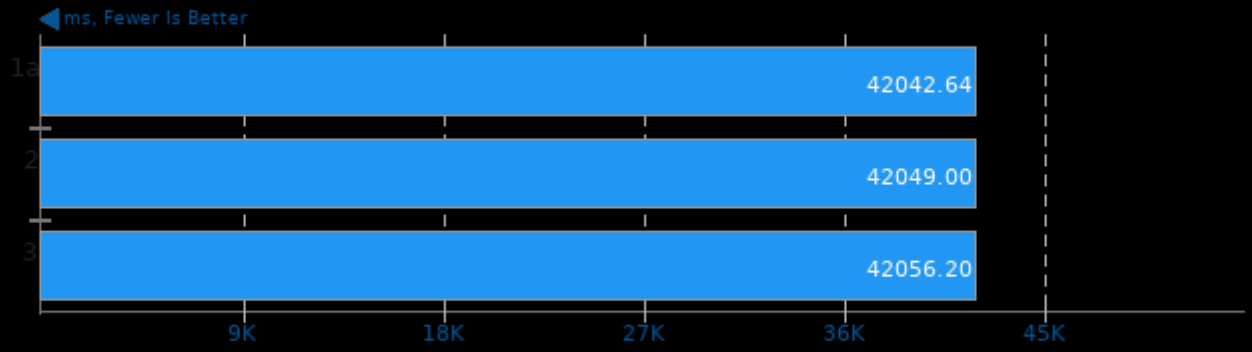


1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi_usempif08 -lmpi_mpifh -lmpi -lopen-rte -lopen-pal -lhwloc -ldl -levent -levent_pthreads -luti

2. Open MPI 4.0.3

FinanceBench 2016-07-25

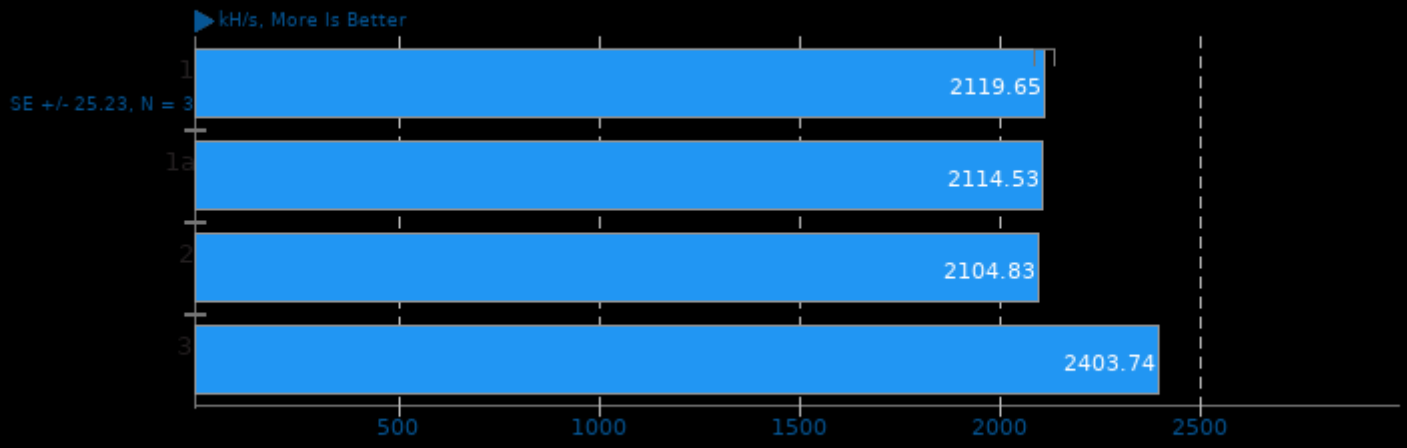
Benchmark: Repo OpenMP



1. (CXX) g++ options: -O3 -march=native -fopenmp

Cpuminer-Opt 3.15.5

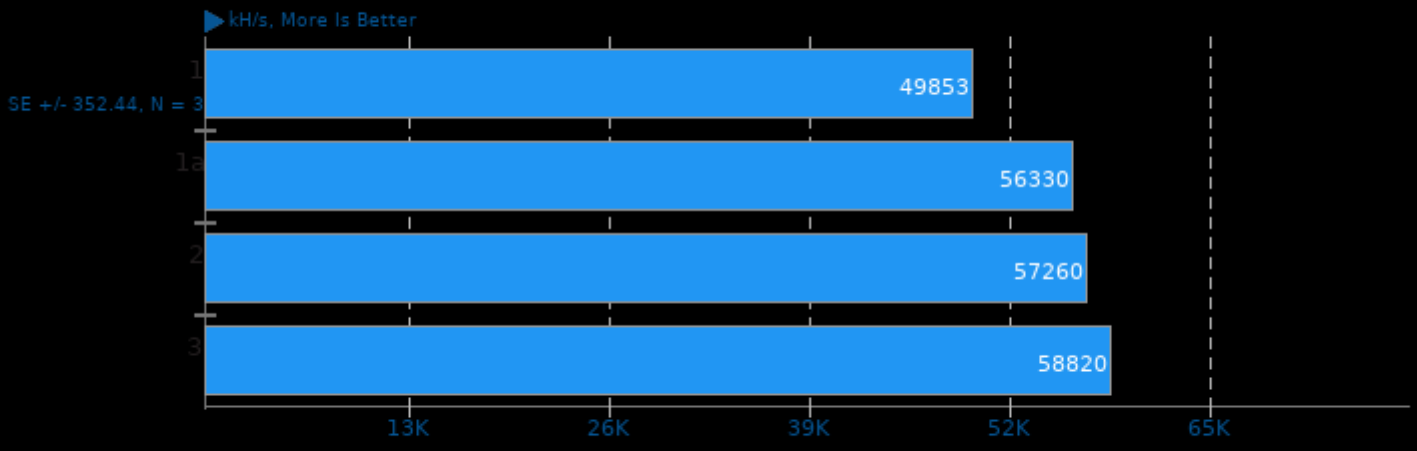
Algorithm: Magi



1. (CXX) g++ options: -O2 -lcurl -lz -lpthread -lssl -lcrypto -lgmp

Cpuminer-Opt 3.15.5

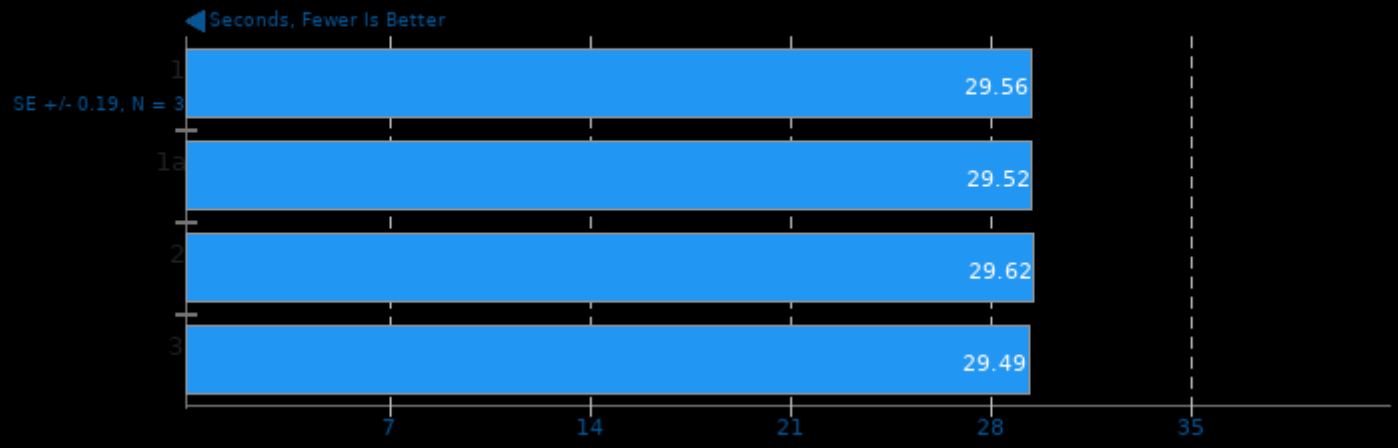
Algorithm: Deepcoin



1. (CXX) g++ options: -O2 -lcurl -lz -lpthread -lssl -lcrypto -lgmp

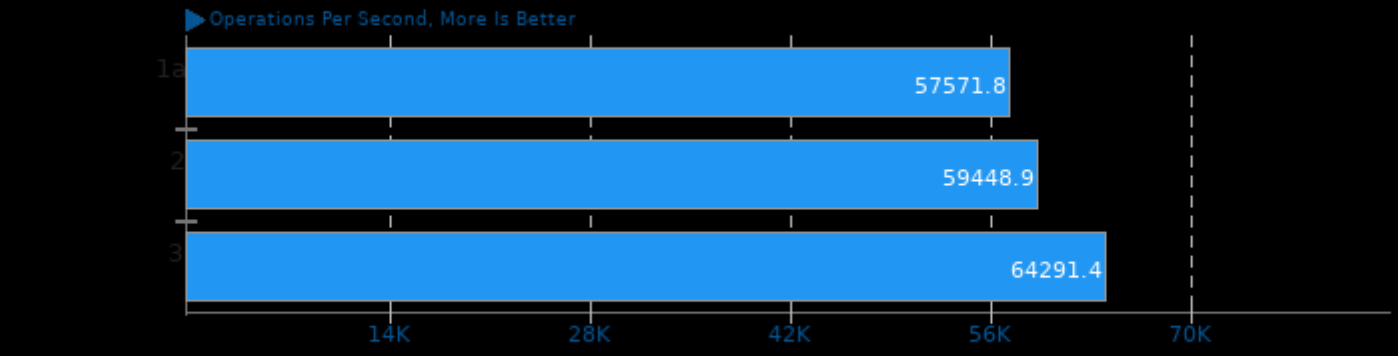
Cython Benchmark 0.29.21

Test: N-Queens



Memcached mcperf 1.6.9

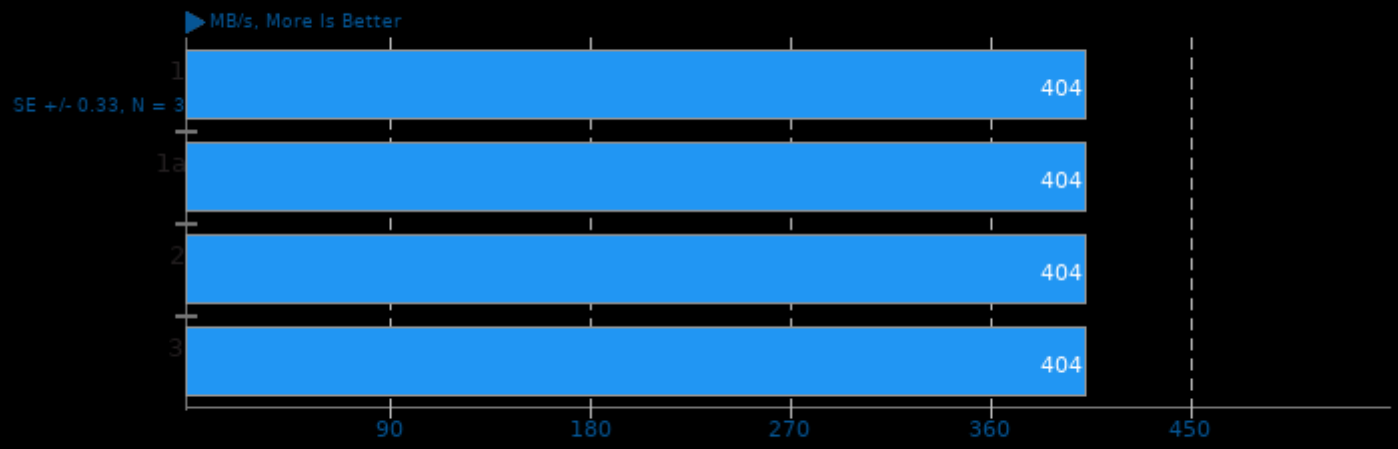
Method: Get - Connections: 1



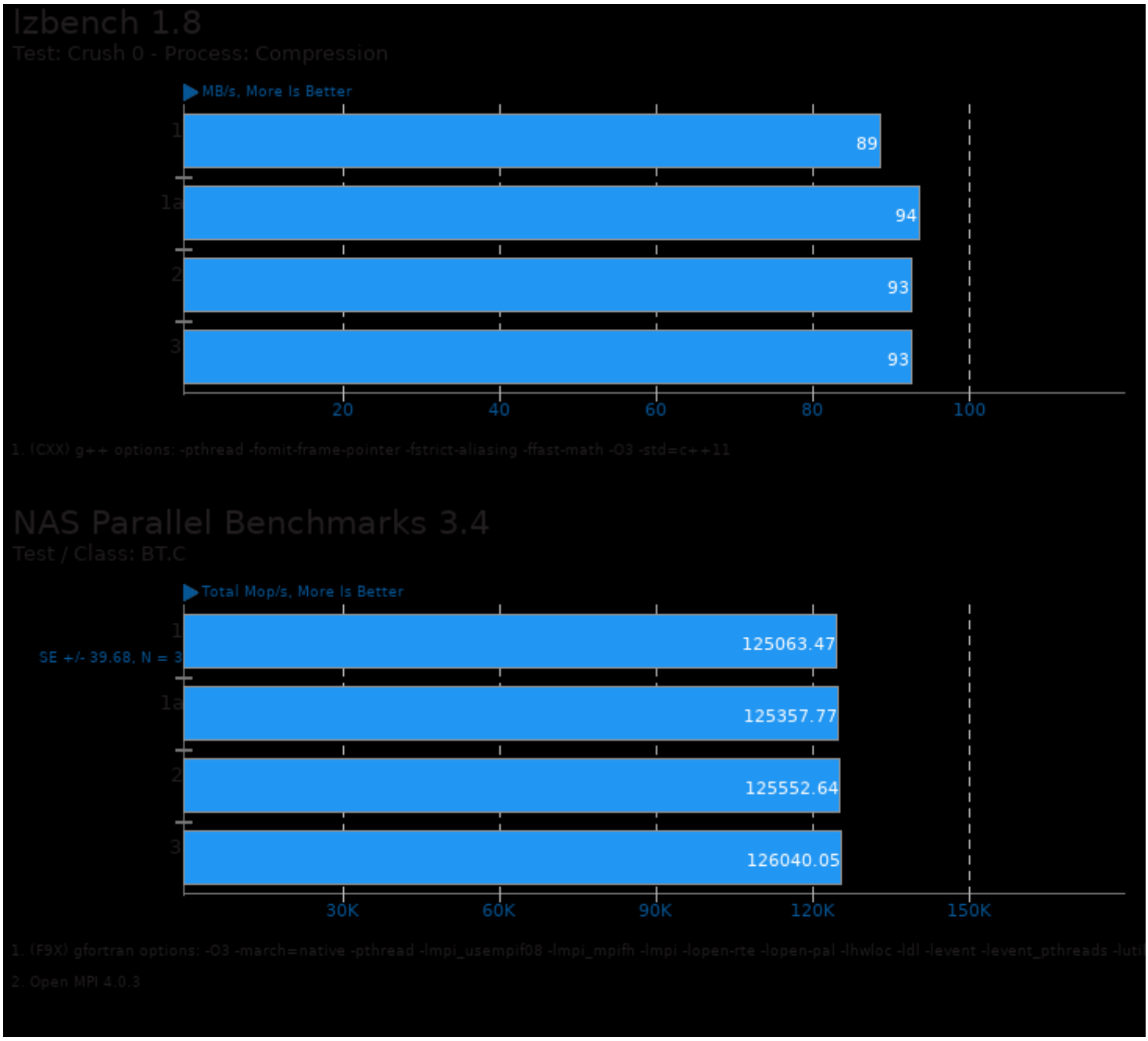
1. (CC) gcc options: -O2 -lm -rdynamic

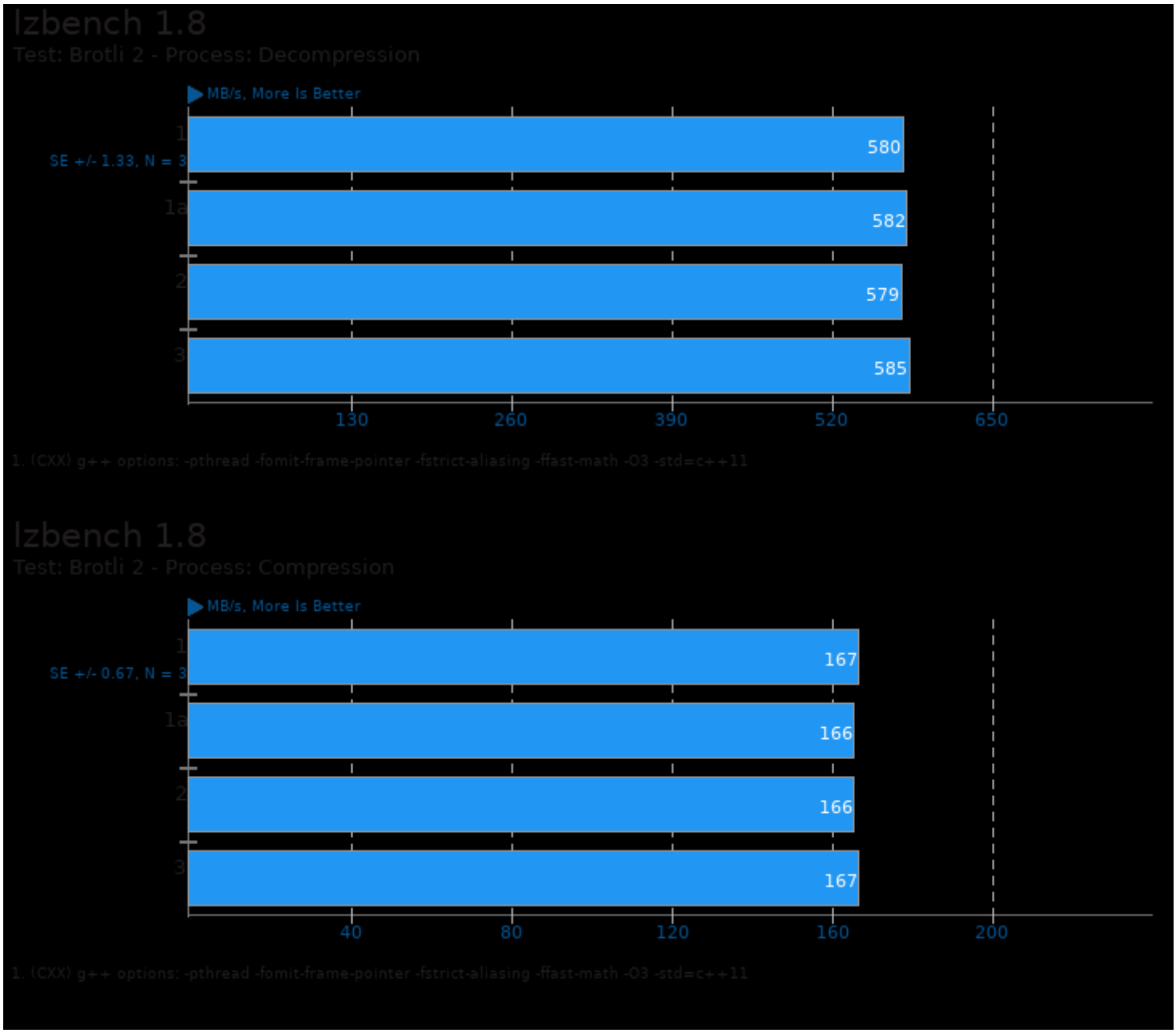
lzbench 1.8

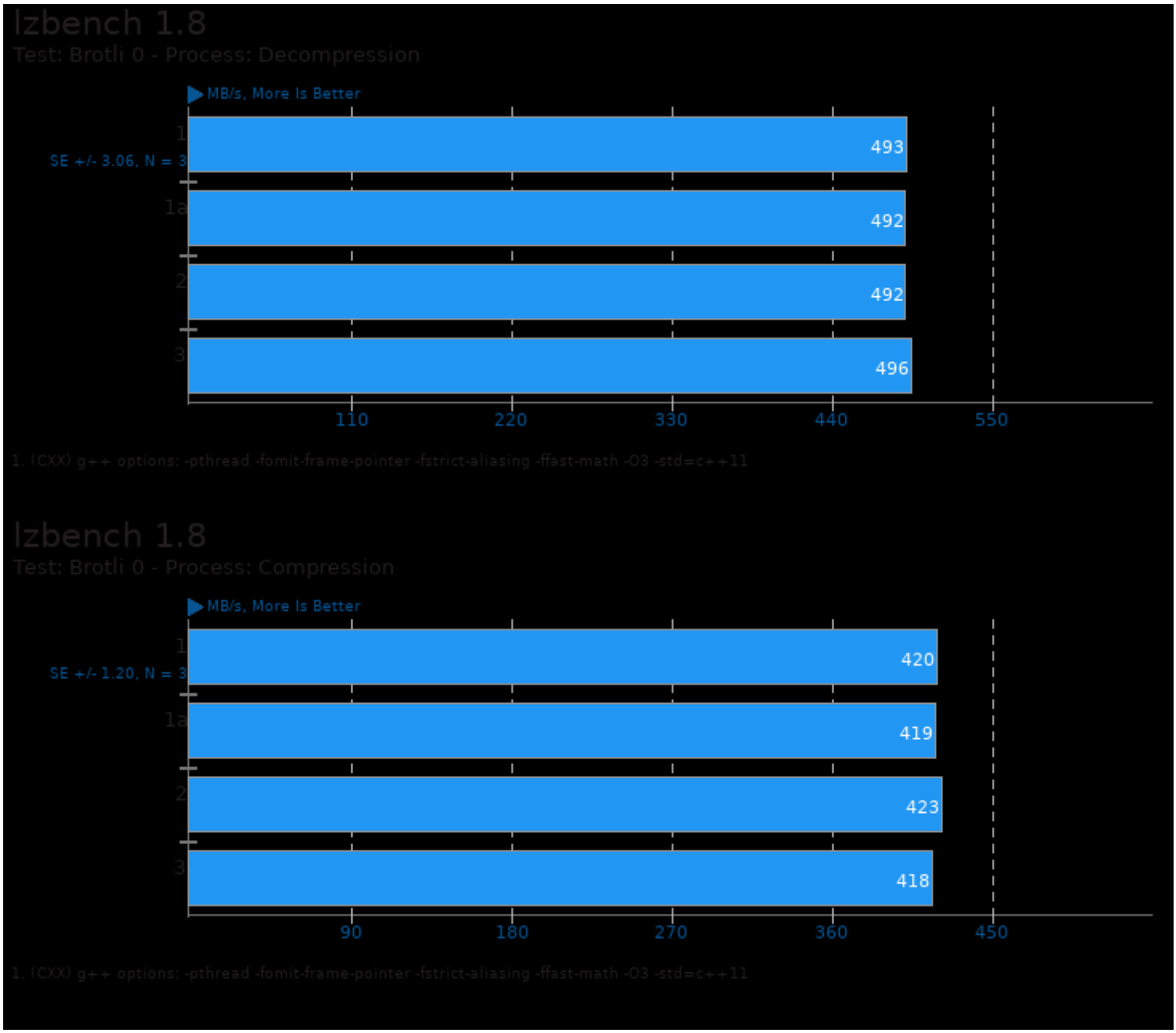
Test: Crush 0 - Process: Decompression

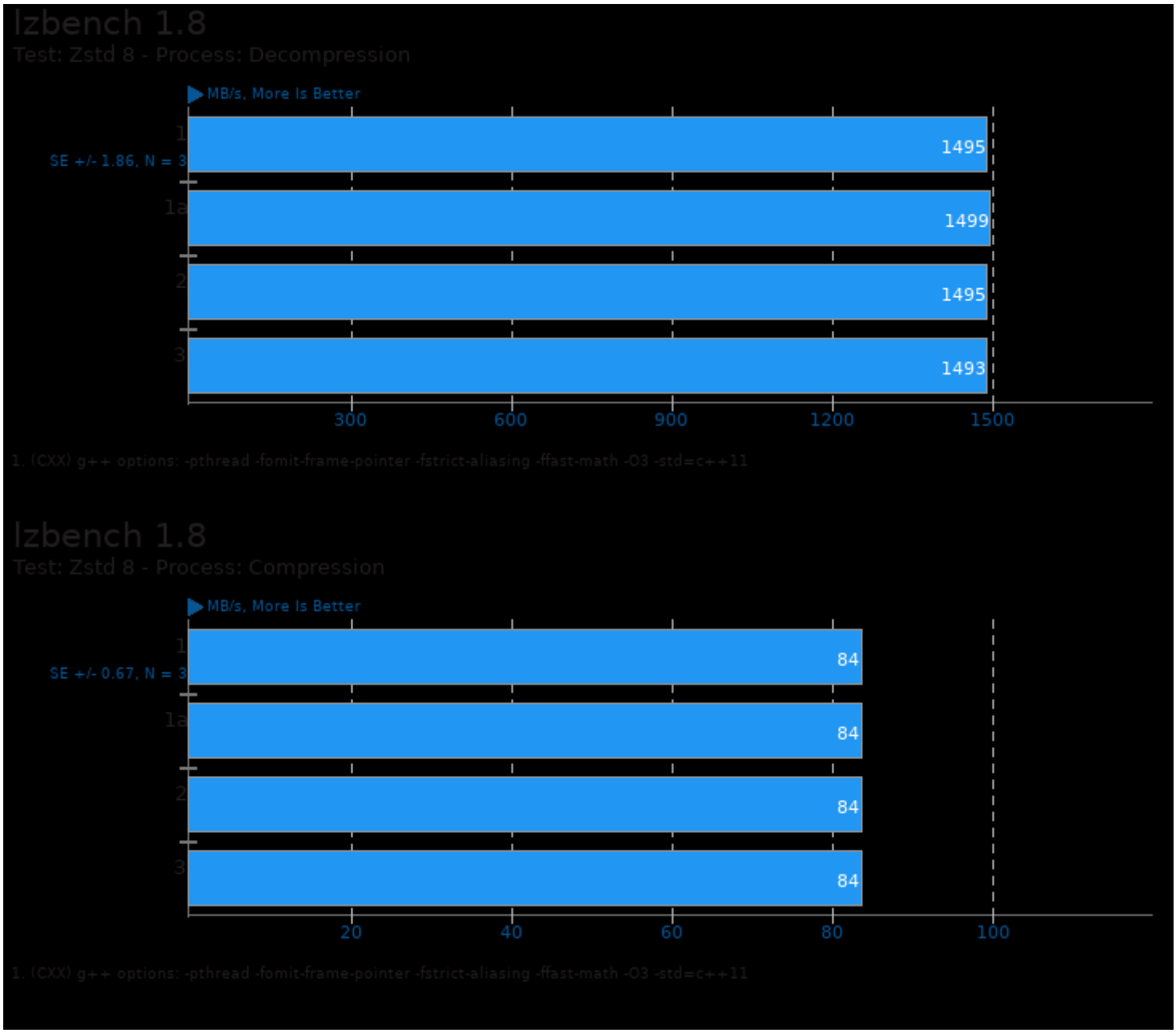


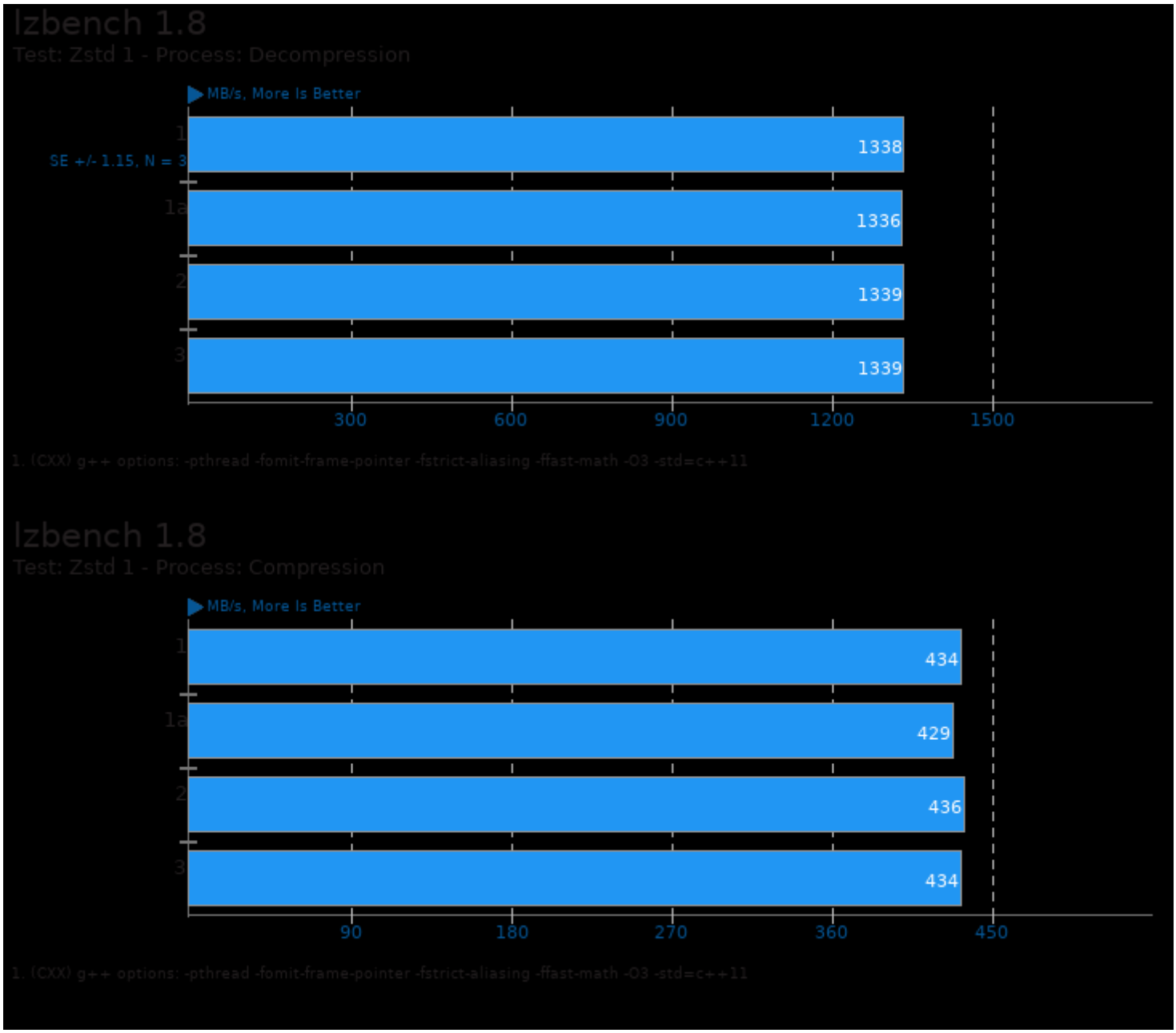
1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3 -std=c++11

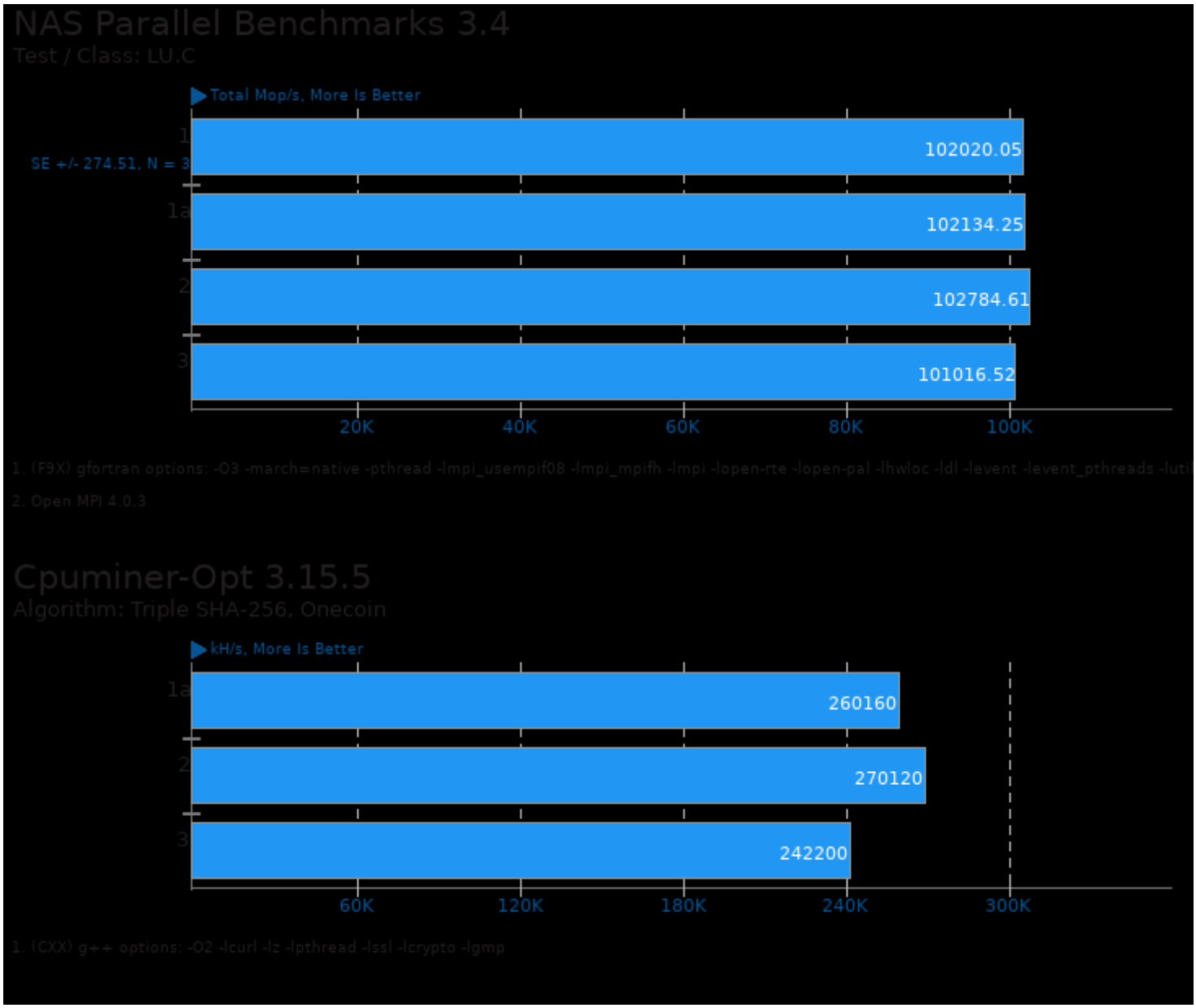

lzbench 1.8
Test: Crush 0 - Process: Compression
MB/s, More Is Better
1
89
1a
94
2
93
3
93
20
40
60
80
100
1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3 -std=c++11
NAS Parallel Benchmarks 3.4
Test / Class: BT.C
Total Mop/s, More Is Better
SE +/- 39.68, N = 3
1
125063.47
1a
125357.77
2
125552.64
3
126040.05
30K
60K
90K
120K
150K
1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi_usempif08 -lmpi_mpifh -lmpi -lopen-rte -lopen-pal -lhwloc -ldl -levent -levent_pthreads -lut
2. Open MPI 4.0.3

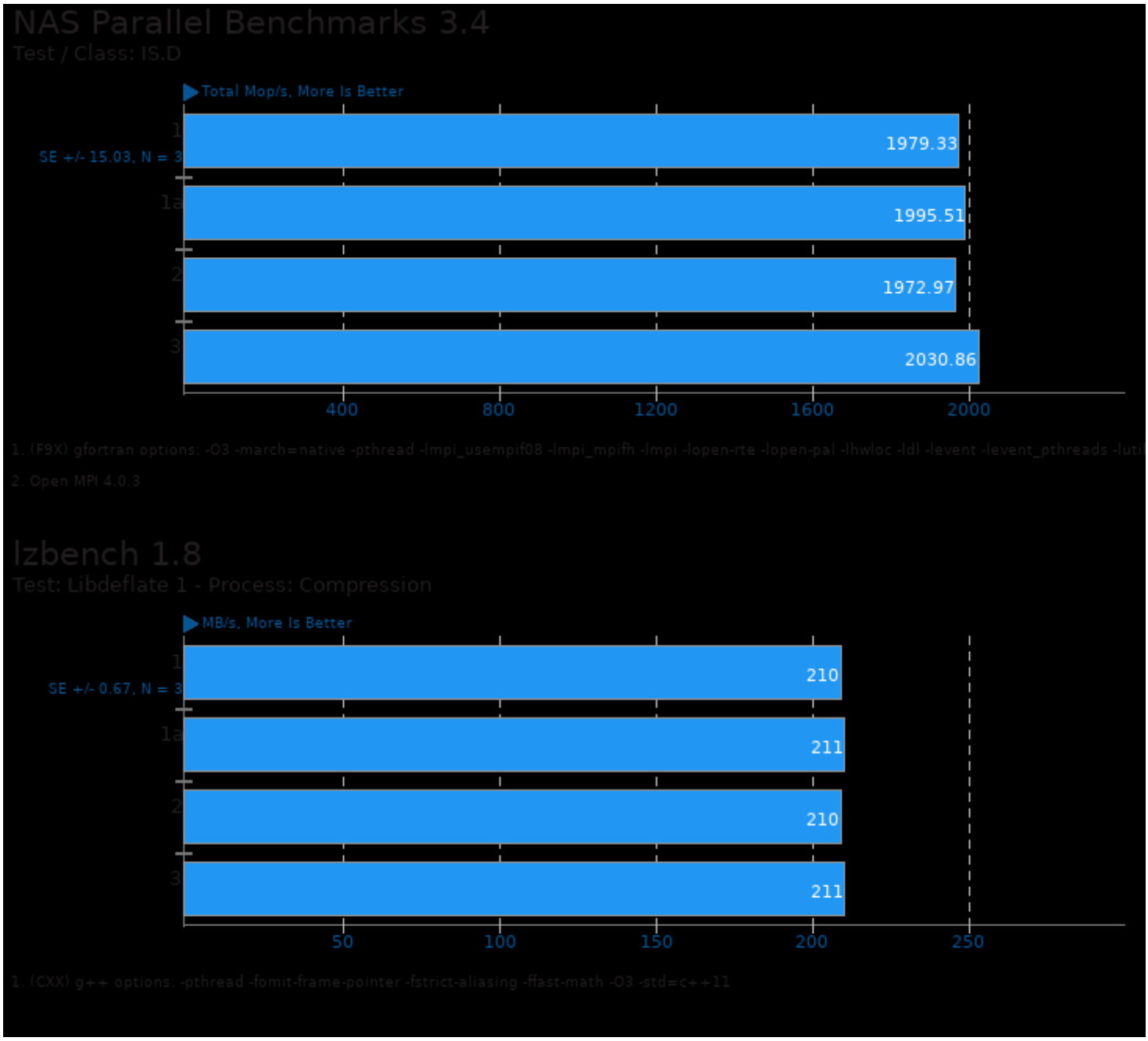

lzbench 1.8
Test: Brotli 2 - Process: Decompression
MB/s, More Is Better
SE +/- 1.33, N = 3
1
1a
2
3
580
582
579
585
130
260
390
520
650
1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3 -std=c++11
lzbench 1.8
Test: Brotli 2 - Process: Compression
MB/s, More Is Better
SE +/- 0.67, N = 3
1
1a
2
3
167
166
166
167
40
80
120
160
200
1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3 -std=c++11

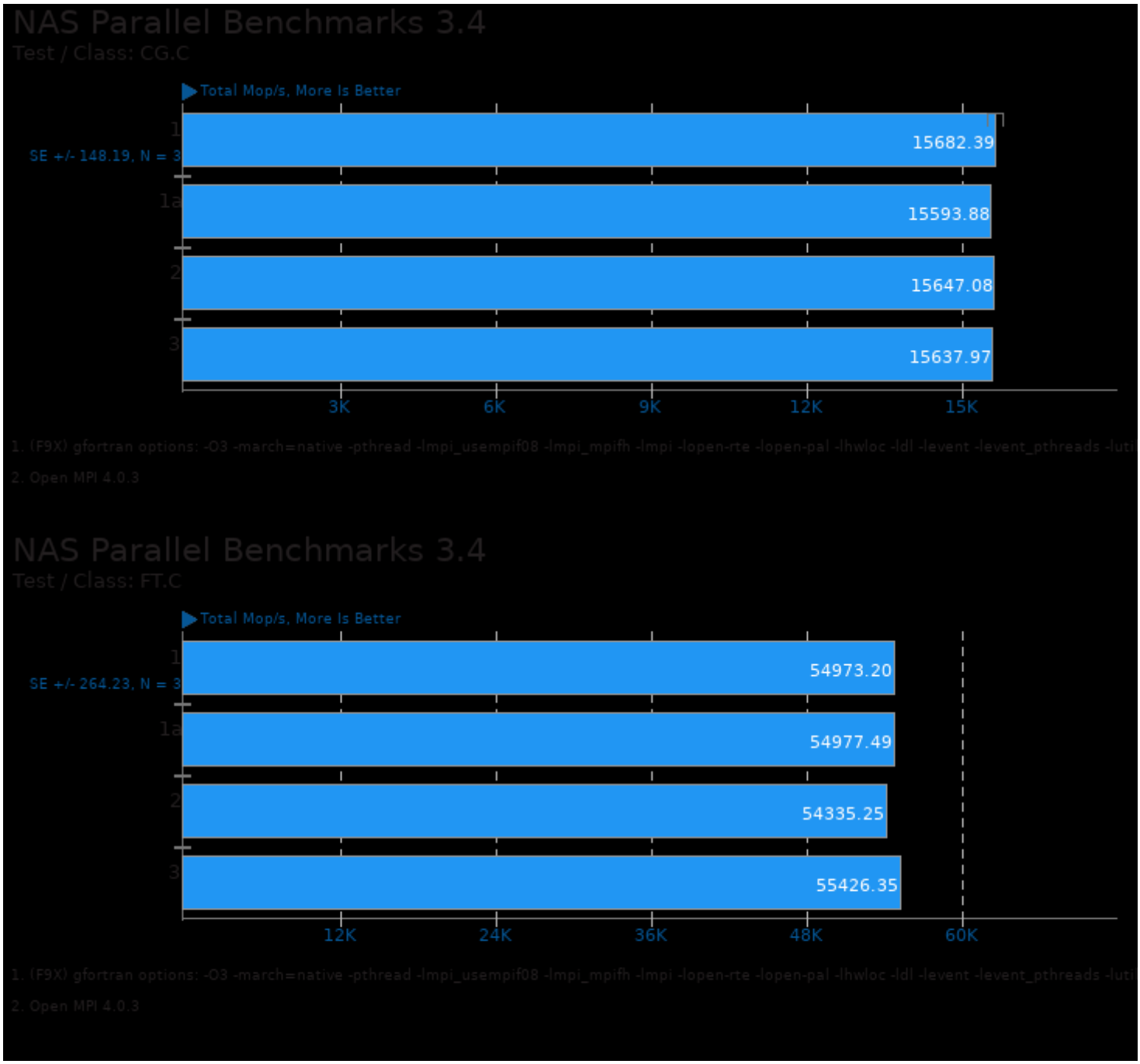

lzbench 1.8
Test: Brotli 0 - Process: Decompression
MB/s, More Is Better
SE +/- 3.06, N = 3
1
1a
2
3
493
492
492
496
110
220
330
440
550
1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3 -std=c++11
lzbench 1.8
Test: Brotli 0 - Process: Compression
MB/s, More Is Better
SE +/- 1.20, N = 3
1
1a
2
3
420
419
423
418
90
180
270
360
450
1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3 -std=c++11

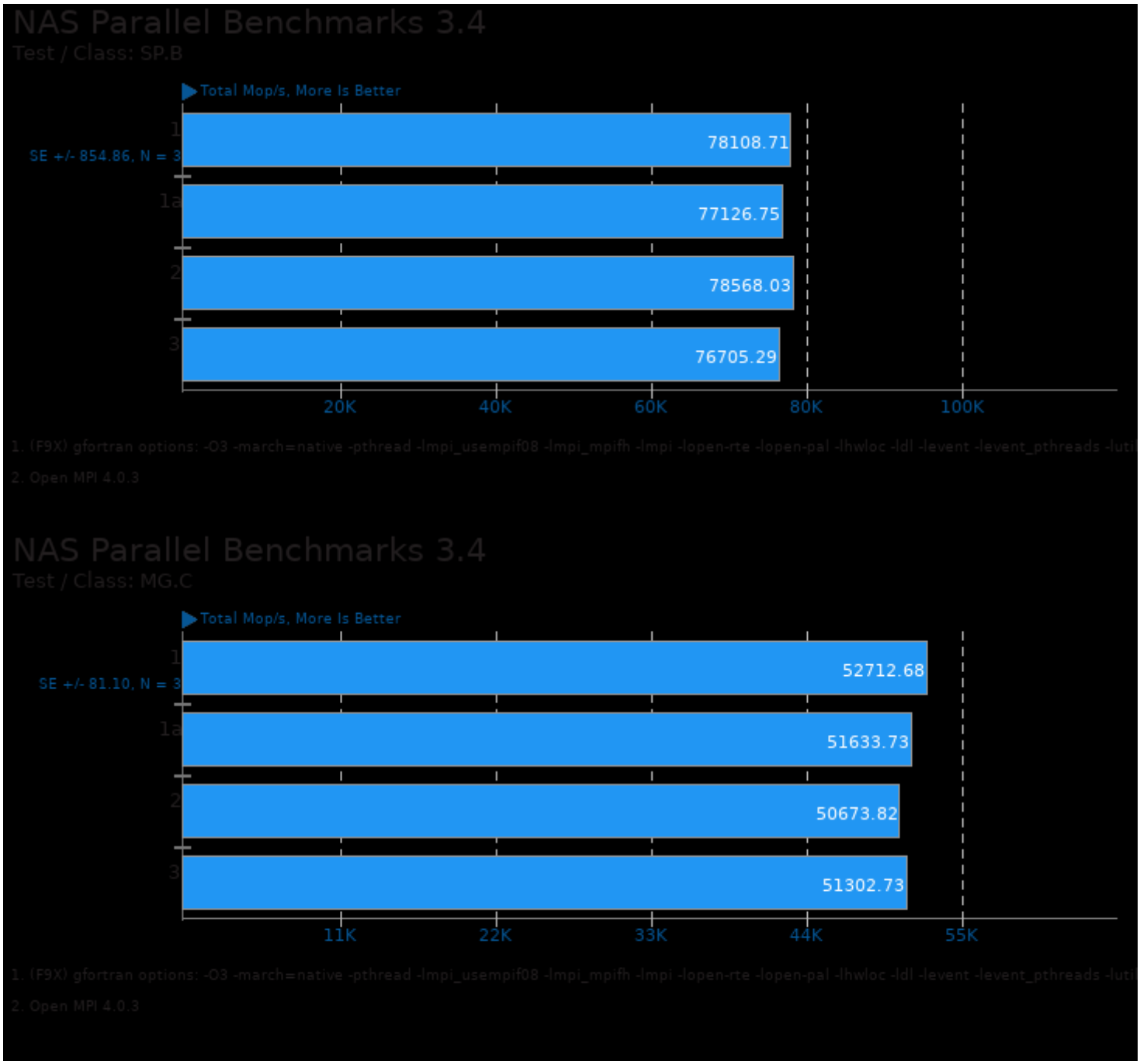

lzbench 1.8
Test: Zstd 8 - Process: Decompression
MB/s, More Is Better
SE +/- 1.86, N = 3
1
1a
2
3
1495
1499
1495
1493
300
600
900
1200
1500
1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3 -std=c++11
lzbench 1.8
Test: Zstd 8 - Process: Compression
MB/s, More Is Better
SE +/- 0.67, N = 3
1
1a
2
3
84
84
84
84
20
40
60
80
100
1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3 -std=c++11

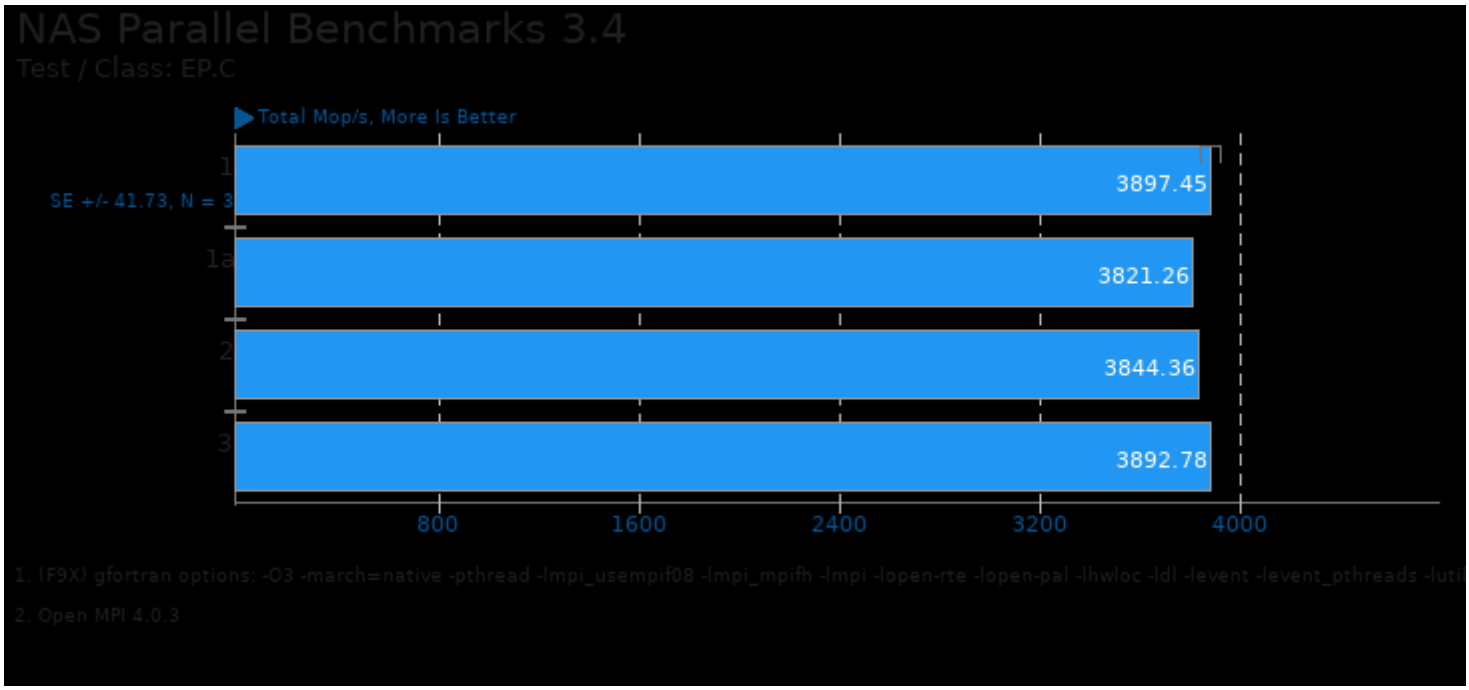

lzbench 1.8
Test: Zstd 1 - Process: Decompression
MB/s, More Is Better
SE +/- 1.15, N = 3
1
1a
2
3
1338
1336
1339
1339
300
600
900
1200
1500
1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3 -std=c++11
lzbench 1.8
Test: Zstd 1 - Process: Compression
MB/s, More Is Better
1
1a
2
3
434
429
436
434
90
180
270
360
450
1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3 -std=c++11


NAS Parallel Benchmarks 3.4
Test / Class: LU.C
Total Mop/s, More Is Better
SE +/- 274.51, N = 3
1
1a
2
3
102020.05
102134.25
102784.61
101016.52
20K
40K
60K
80K
100K
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
Cpuminer-Opt 3.15.5
Algorithm: Triple SHA-256, Onecoin
kH/s, More Is Better
1a
2
3
260160
270120
242200
60K
120K
180K
240K
300K
1. (CXX) g++ options: -O2 -lcurl -lz -lpthread -lssl -lcrypto -lgmp

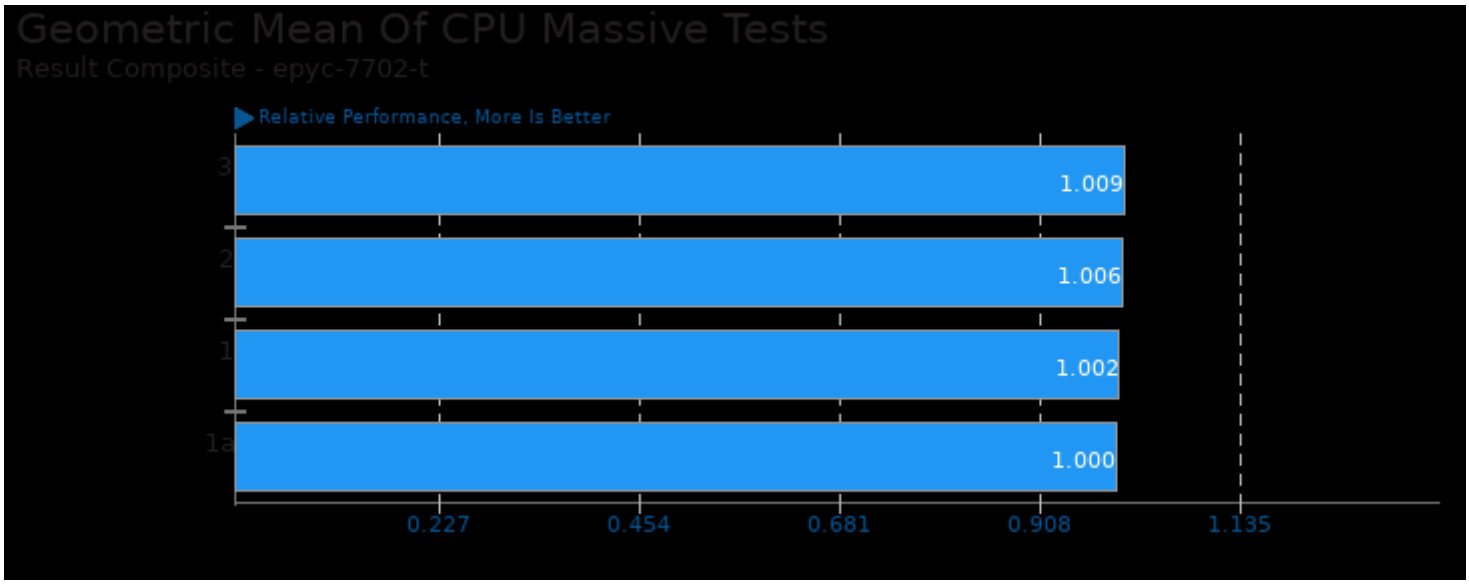

NAS Parallel Benchmarks 3.4
Test / Class: IS.D
Total Mop/s, More Is Better
SE +/- 15.03, N = 3
1979.33
1995.51
1972.97
2030.86
400
800
1200
1600
2000
1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi_usempif08 -lmpi_mpifh -lmpi -lopen-rte -lopen-pal -lhwloc -ldl -levent -levent_pthreads -luti
2. Open MPI 4.0.3
lzbench 1.8
Test: Libdeflate 1 - Process: Compression
MB/s, More Is Better
SE +/- 0.67, N = 3
210
211
210
211
50
100
150
200
250
1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3 -std=c++11


NAS Parallel Benchmarks 3.4
Test / Class: CG.C
Total Mop/s, More Is Better
SE +/- 148.19, N = 3
15682.39
15593.88
15647.08
15637.97
3K
6K
9K
12K
15K
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
SE +/- 264.23, N = 3
54973.20
54977.49
54335.25
55426.35
12K
24K
36K
48K
60K
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

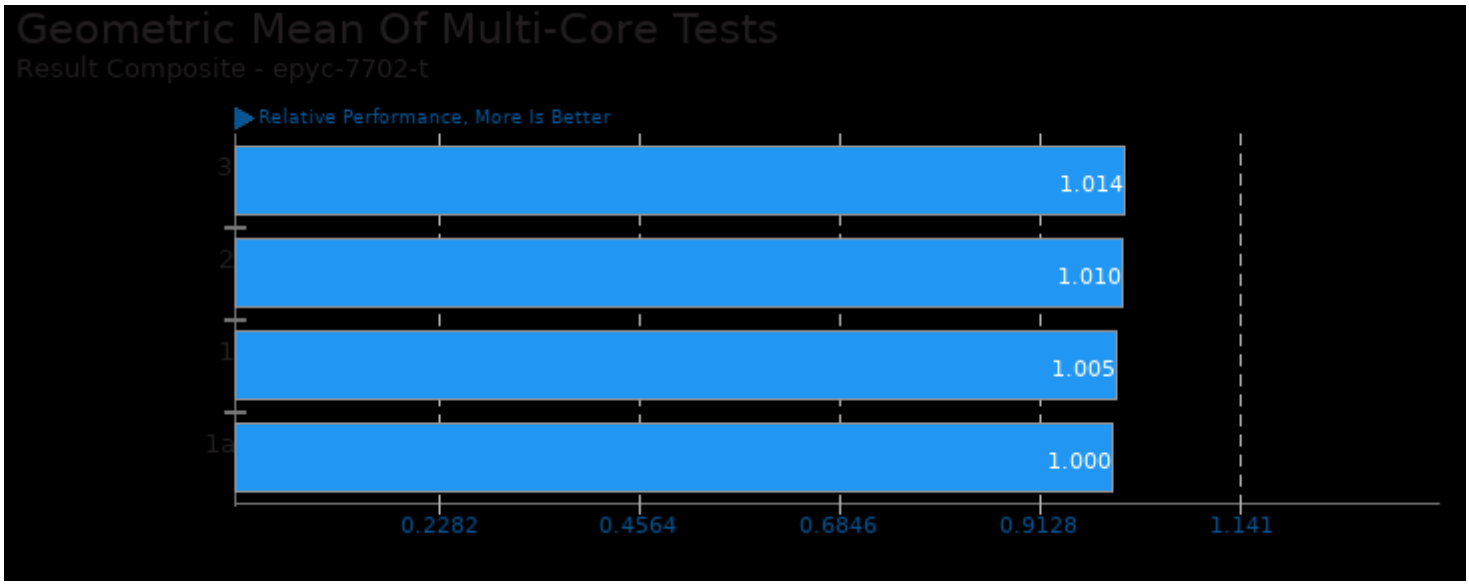

NAS Parallel Benchmarks 3.4
Test / Class: SP.B
Total Mop/s, More Is Better
SE +/- 854.86, N = 3
78108.71
77126.75
78568.03
76705.29
20K
40K
60K
80K
100K
1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi_usempif08 -lmpi_mpifh -lmpi -lopen-rte -lopen-pal -lhwloc -ldl -levent -levent_pthreads -luti
2. Open MPI 4.0.3
NAS Parallel Benchmarks 3.4
Test / Class: MG.C
Total Mop/s, More Is Better
SE +/- 81.10, N = 3
52712.68
51633.73
50673.82
51302.73
11K
22K
33K
44K
55K
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
SE +/- 41.73, N = 3
1
1a
2
3
3897.45
3821.26
3844.36
3892.78
800
1600
2400
3200
4000
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

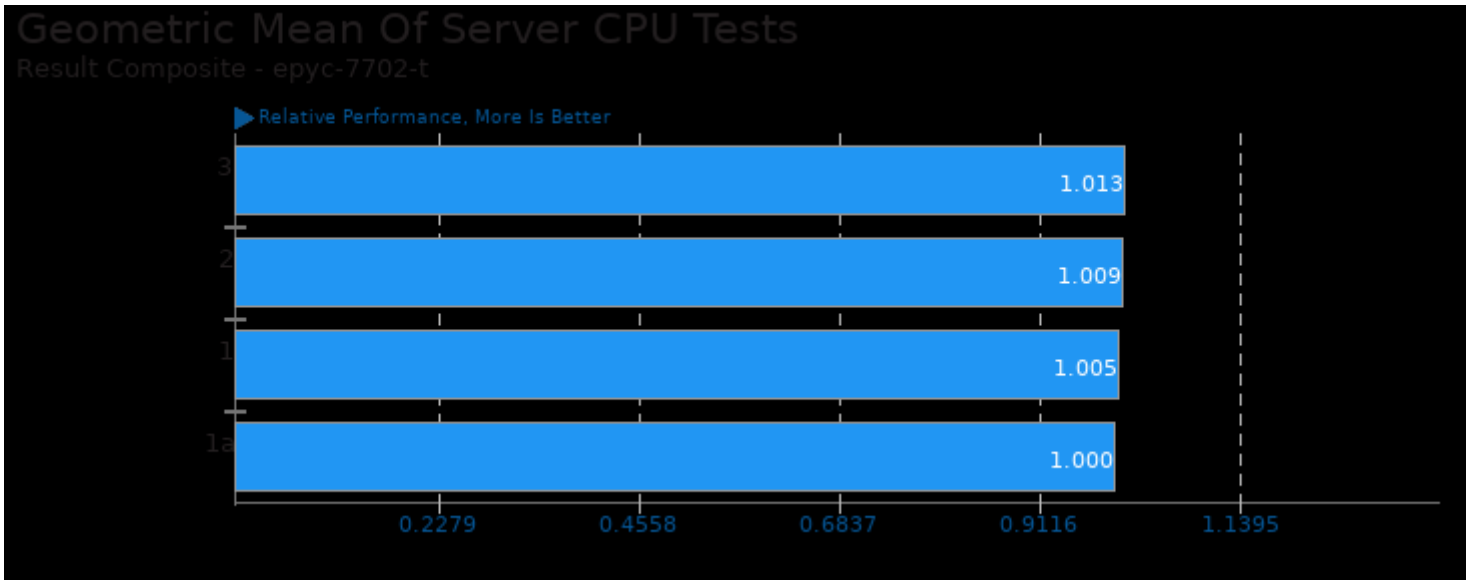
These geometric means are based upon test groupings / test suites for this result file.



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



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



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

This file was automatically generated via the Phoronix Test Suite benchmarking software on Thursday, 28 March 2024 05:36.