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renoir bench

AMD Ryzen 5 4500U testing with a LENOVO LNVNB161216 (EECN20WW BIOS) and AMD Renoir 512MB on Ubuntu 20.10 via the Phoronix Test Suite.

Automated Executive Summary

1 had the most wins, coming in first place for 40% of the tests.

Based on the geometric mean of all complete results, the fastest (1) was 1.003x the speed of the slowest (4). 2 was 0.999x the speed of 1, 3 was 1x the speed of 2, 4 was 0.998x the speed of 3.

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

Redis (Test: LPOP) at 1.118x
FinanceBench (Benchmark: Bonds OpenMP) at 1.047x
lzbench (Test: Zstd 8 - Process: Compression) at 1.047x
NAS Parallel Benchmarks (Test / Class: EP.D) at 1.045x
lzbench (Test: Crush 0 - Process: Compression) at 1.044x
lzbench (Test: Brotli 2 - Process: Compression) at 1.038x
FinanceBench (Benchmark: Repo OpenMP) at 1.038x
NAS Parallel Benchmarks (Test / Class: EP.C) at 1.035x
lzbench (Test: XZ 0 - Process: Compression) at 1.027x

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NAS Parallel Benchmarks (Test / Class: LU.C) at 1.025x.

Test Systems:

1

2

3

4

Processor: AMD Ryzen 5 4500U @ 2.38GHz (6 Cores), Motherboard: LENOVO LNVNB161216 (EECN20WW BIOS), Chipset: AMD Renoir Root Complex, Memory: 16GB, Disk: 256GB SK hynix HFM256GDHTNI-87A0B, Graphics: AMD Renoir 512MB (1500/400MHz), Audio: AMD Device 1637, Network: Realtek RTL8822CE 802.11ac PCIe

OS: Ubuntu 20.10, Kernel: 5.11.0-051100rc4daily20210122-generic (x86_64) 20210121, Desktop: GNOME Shell 3.38.1, Display Server: X Server 1.20.9, Display Driver: amdgpu 19.1.0, OpenGL: 4.6 Mesa 21.0.0-devel (git-448e603 2020-12-21 groovy-oibaf-ppa) (LLVM 11.0.0), Vulkan: 1.2.145, Compiler: GCC 10.2.0, File-System: ext4, Screen Resolution: 1920x1080

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: 0x8600102
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: disabled RSB filling + srbds: Not affected + tsx_async_abort: Not affected

	1	2	3	4
NAS Parallel Benchmarks - EP.C (Mop/s)	506.62	499.03	**509.61**	**492.18**
Normalized	99.41%	97.92%	100%	96.58%
Standard Deviation	0.9%	1.4%	1.8%	1.5%
NAS Parallel Benchmarks - EP.D (Mop/s)	**450.74**	469.73	466.03	**470.89**
Normalized	95.72%	99.75%	98.97%	100%
Standard Deviation	3.4%	2.7%	2.9%	1.4%

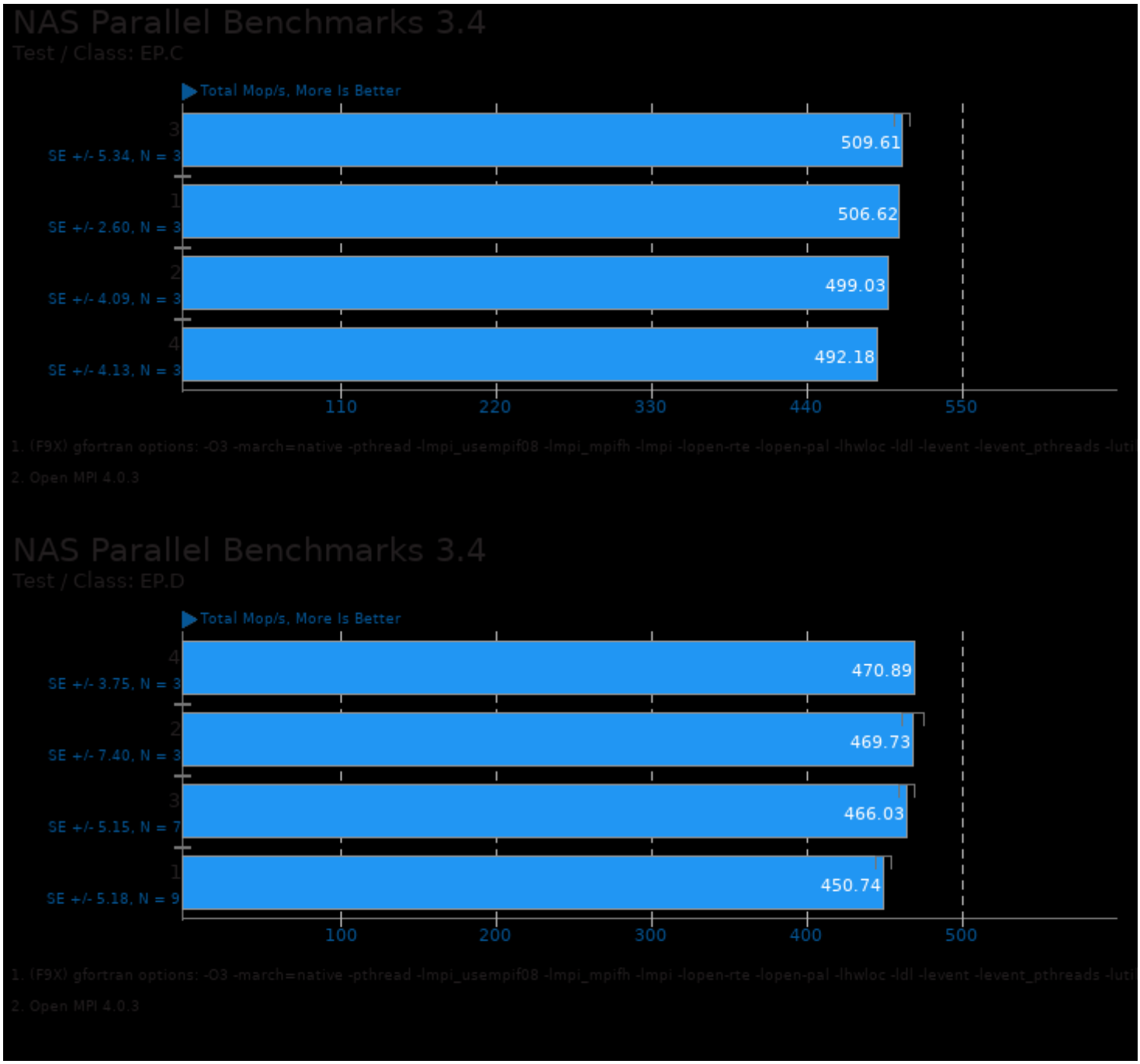
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NAS Parallel Benchmarks - LU.C (Mop/s)	16489	16909	16870	16794
Normalized	97.52%	100%	99.77%	99.32%
Standard Deviation	1.2%	0.4%	0.4%	0.5%
lzbench - XZ 0 - Compression (MB/s)	38	37	38	38
Normalized	100%	97.37%	100%	100%
lzbench - XZ 0 - Decompression	119	119	119	119
lzbench - Zstd 1 - Compression (MB/s)	515	515	517	519
Normalized	99.23%	99.23%	99.61%	100%
Standard Deviation	0.1%	0.4%		0.4%
lzbench - Zstd 1 - Decompression	1578	1576	1574	1576
Normalized	100%	99.87%	99.75%	99.87%
Standard Deviation	0.1%		0.3%	0.1%
lzbench - Zstd 8 - Compression (MB/s)	67	65	64	67
Normalized	100%	97.01%	95.52%	100%
Standard Deviation	1.7%	5.9%	5.4%	3%
lzbench - Zstd 8 - Decompression	1736	1723	1719	1714
Normalized	100%	99.25%	99.02%	98.73%
Standard Deviation	0.9%	1.2%	1.8%	0.8%
lzbench - Crush 0 - Compression	69	71	71	68
Normalized	97.18%	100%	100%	95.77%
Standard Deviation	3.2%			
lzbench - Crush 0 - Decompression (MB/s)	474	476	473	474
Normalized	99.58%	100%	99.37%	99.58%
Standard Deviation	0.5%	0.9%		0.8%
lzbench - Brotli 0 - Compression	490	489	484	489
Normalized	100%	99.8%	98.78%	99.8%
Standard Deviation	0.5%	0.3%	0.4%	0.5%
lzbench - Brotli 0 - Decompression (MB/s)	559	566	557	558
Normalized	98.76%	100%	98.41%	98.59%
Standard Deviation	0.5%	0.6%	0.2%	1%
lzbench - Brotli 2 - Compression	189	185	188	182
Normalized	100%	97.88%	99.47%	96.3%
Standard Deviation	2.1%	2.7%	1.1%	2.9%
lzbench - Brotli 2 - Decompression (MB/s)	638	637	640	637
Normalized	99.69%	99.53%	100%	99.53%
Standard Deviation	0.6%	0.8%	0.6%	0.2%
lzbench - Libdeflate 1 - Compression (MB/s)	247	247	247	248
Normalized	99.6%	99.6%	99.6%	100%
Cython Benchmark - N-Queens (sec)	24.658	25.283	24.973	24.896
Normalized	100%	97.53%	98.74%	99.04%
Standard Deviation	0.8%	0.3%	1.4%	0.2%
Gcrypt Library (sec)	217.110	217.178	217.465	217.874
Normalized	100%	99.97%	99.84%	99.65%
Standard Deviation	0.1%	0.4%	0.3%	0.4%
FinanceBench - Repo OpenMP (ms)	57355	55272	55447	55654
Normalized	96.37%	100%	99.69%	99.31%
Standard Deviation	0.8%	0.3%	0.4%	1.2%
FinanceBench - Bonds OpenMP (ms)	82190	78499	79300	78687
Normalized	95.51%	100%	98.99%	99.76%

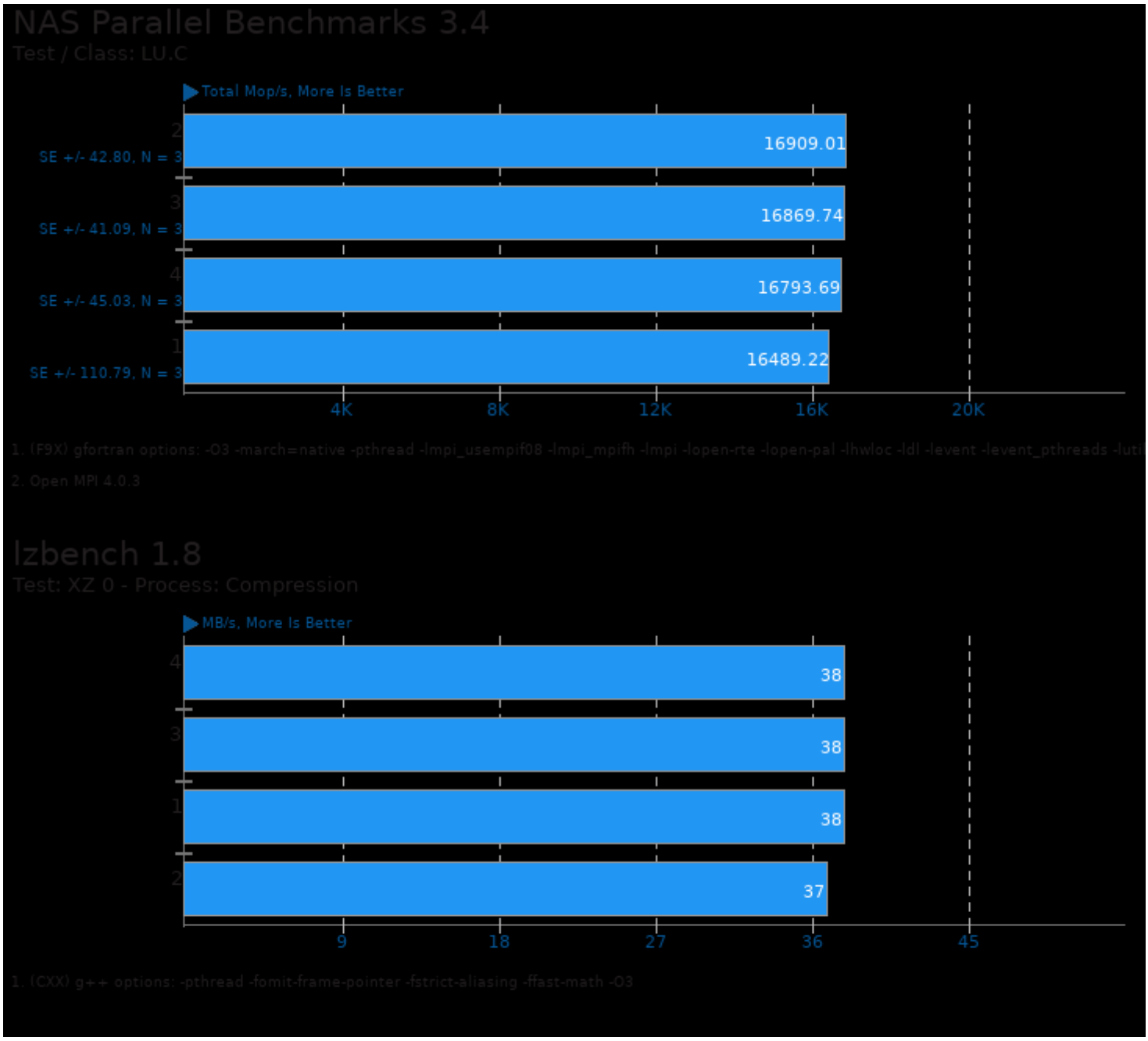
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Standard Deviation	1.9%	0.3%	1.2%	1.1%
ASKAP - tConvolve MT - Gridding (Million Grid Points/sec)	718.217	**718.445**	**712.991**	716.173
Normalized	99.97%	100%	99.24%	99.68%
Standard Deviation	0.4%	0.7%	0.6%	0.3%
ASKAP - tConvolve MT - Degridding (Million Grid Points/sec)	**1373**	**1357**	1360	1357
Normalized	100%	98.81%	99.06%	98.86%
Standard Deviation	0.8%	0.4%	0.7%	0.1%
ASKAP - tConvolve MPI - Degridding (Mpix/sec)	**1303**	**1333**	1324	1318
Normalized	97.79%	100%	99.33%	98.89%
Standard Deviation	0.7%	0.4%	0.4%	0.8%
ASKAP - tConvolve MPI - Gridding (Mpix/sec)	**1032**	**1038**	1034	1036
Normalized	99.48%	100%	99.65%	99.82%
Standard Deviation	0.6%	0.3%	0.6%	0%
ASKAP - tConvolve OpenMP - Gridding (Million Grid Points/sec)	**726.157**	728.811	727.479	**729.512**
Normalized	99.54%	99.9%	99.72%	100%
Standard Deviation	0.3%	0.4%	0.3%	1%
ASKAP - tConvolve OpenMP - Degridding (Million Grid Points/sec)	**1452**	**1458**	**1458**	**1452**
Normalized	99.64%	100%	100%	99.64%
Standard Deviation	0.3%	0.3%	0.3%	0.3%
ASKAP - H.C.O (Iterations/sec)	126.853	**127.503**	127.073	**126.425**
Normalized	99.49%	100%	99.66%	99.15%
Standard Deviation	0.6%	0.8%	1%	0.6%
Redis - LPOP (Reqs/sec)	**363357**	**324920**	325166	325086
Normalized	100%	89.42%	89.49%	89.47%
Standard Deviation	0.5%	0.6%	0.6%	0.4%
Redis - SADD (Reqs/sec)	**346749**	**348092**	346809	346917
Normalized	99.61%	100%	99.63%	99.66%
Standard Deviation	0.8%	1.4%	0.6%	0.8%
Redis - LPUSH (Reqs/sec)	**323428**	322889	322228	**321847**
Normalized	100%	99.83%	99.63%	99.51%
Standard Deviation	0.2%	0.1%	0.3%	0.6%
Redis - GET (Reqs/sec)	**362894**	359101	357983	**356853**
Normalized	100%	98.95%	98.65%	98.34%
Standard Deviation	0.2%	0.5%	0.4%	0.6%
Redis - SET (Reqs/sec)	337931	**337153**	**339461**	337964
Normalized	99.55%	99.32%	100%	99.56%
Standard Deviation	0.4%	0.8%	0.4%	0.7%

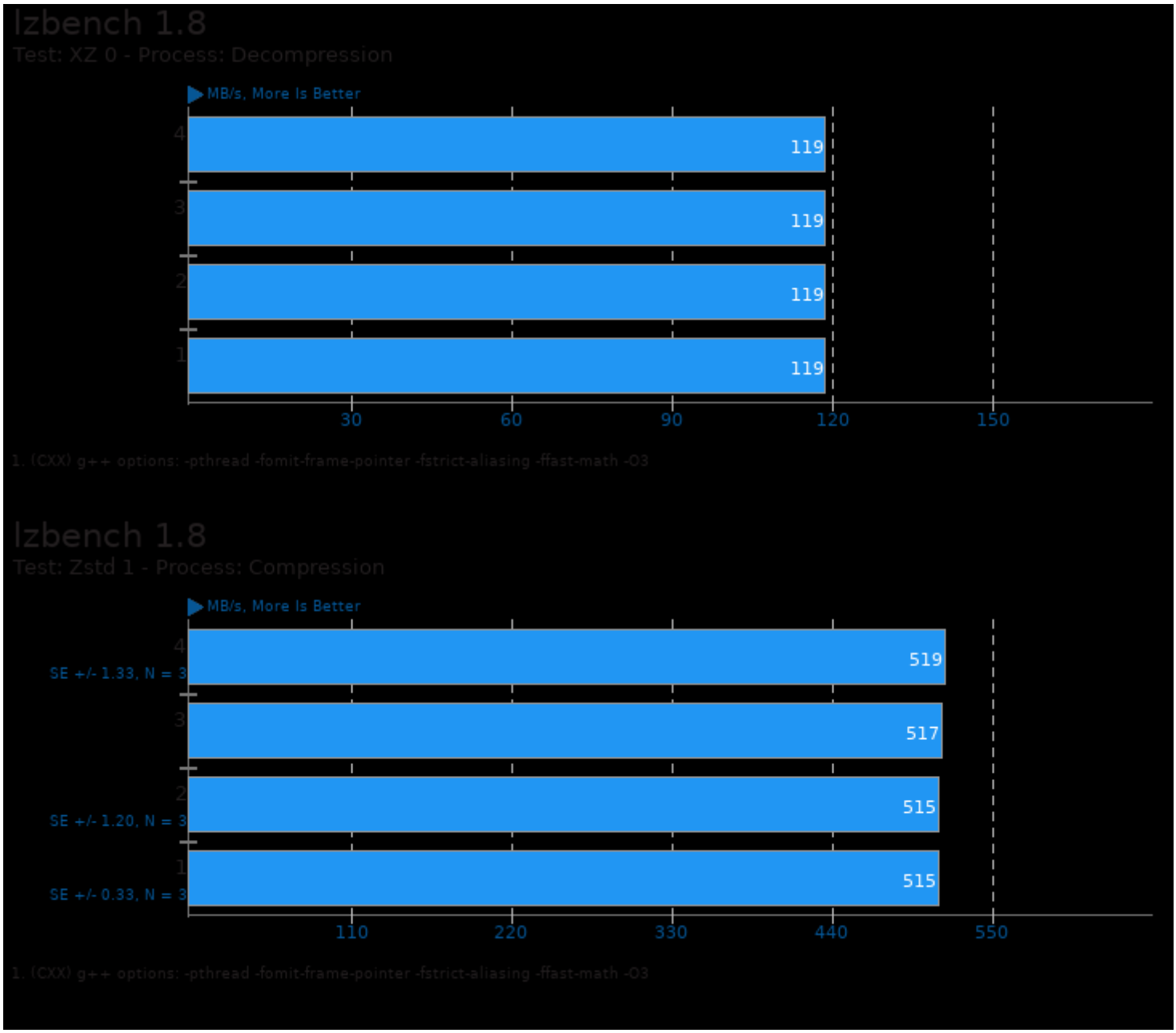
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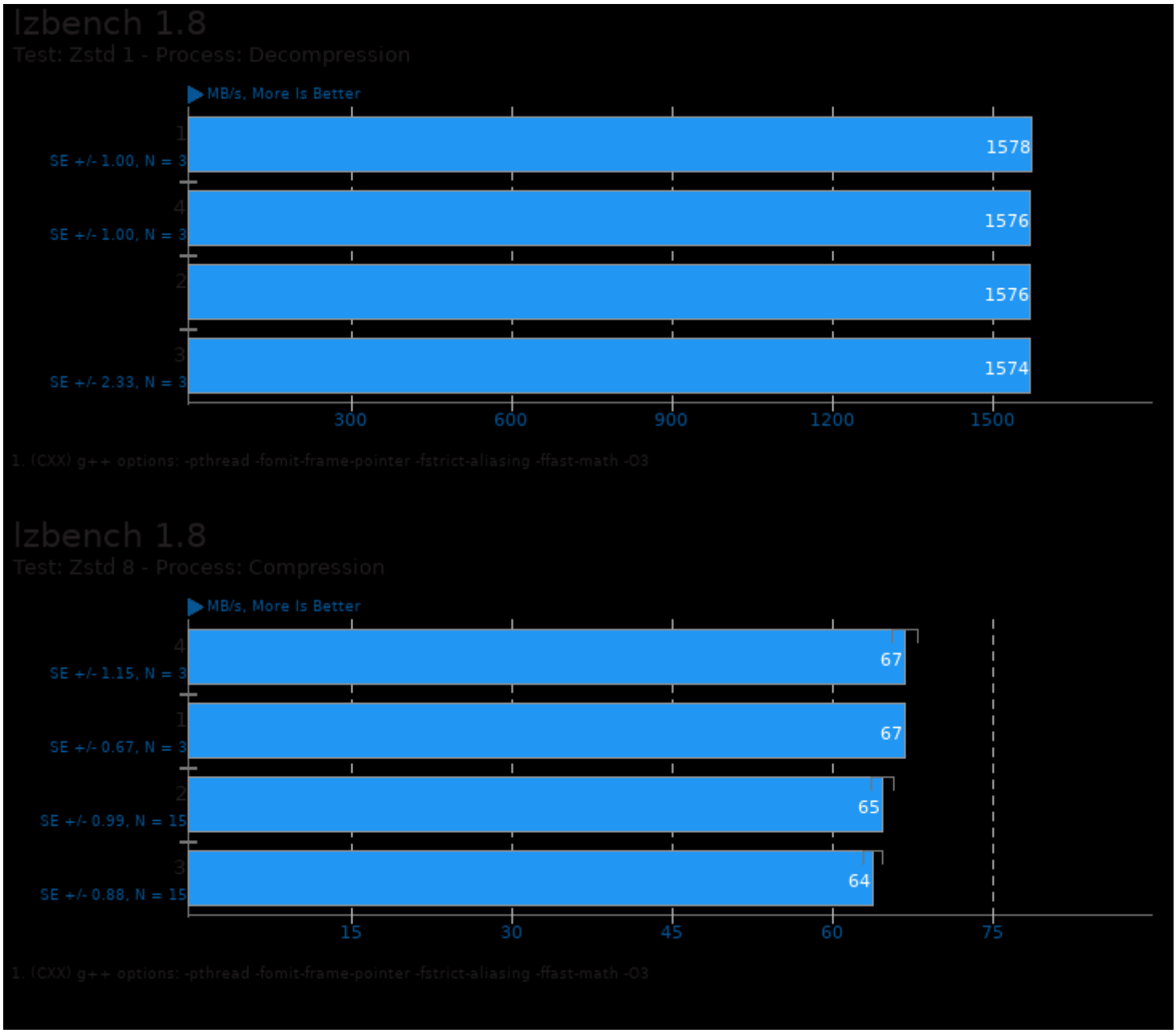
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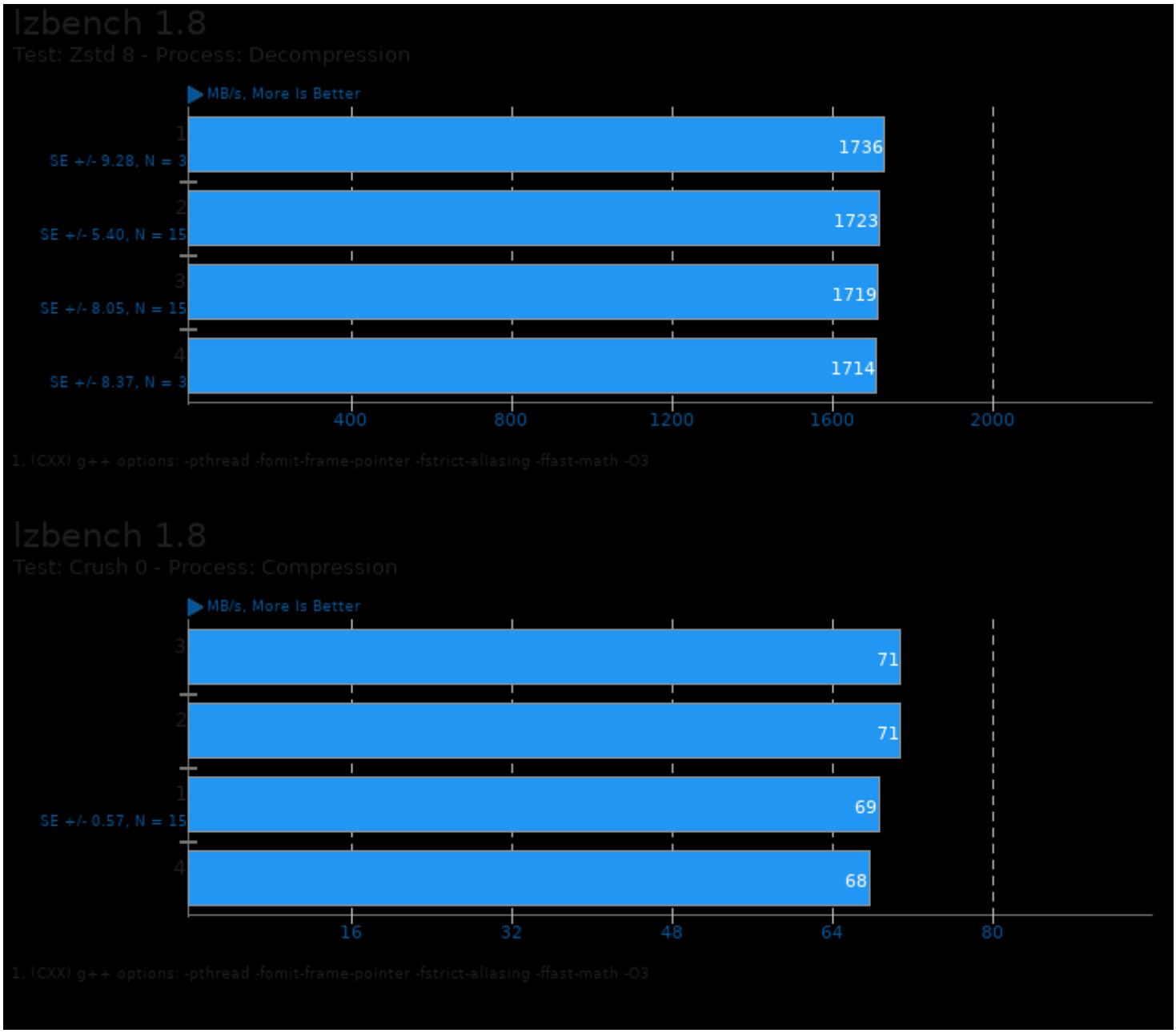
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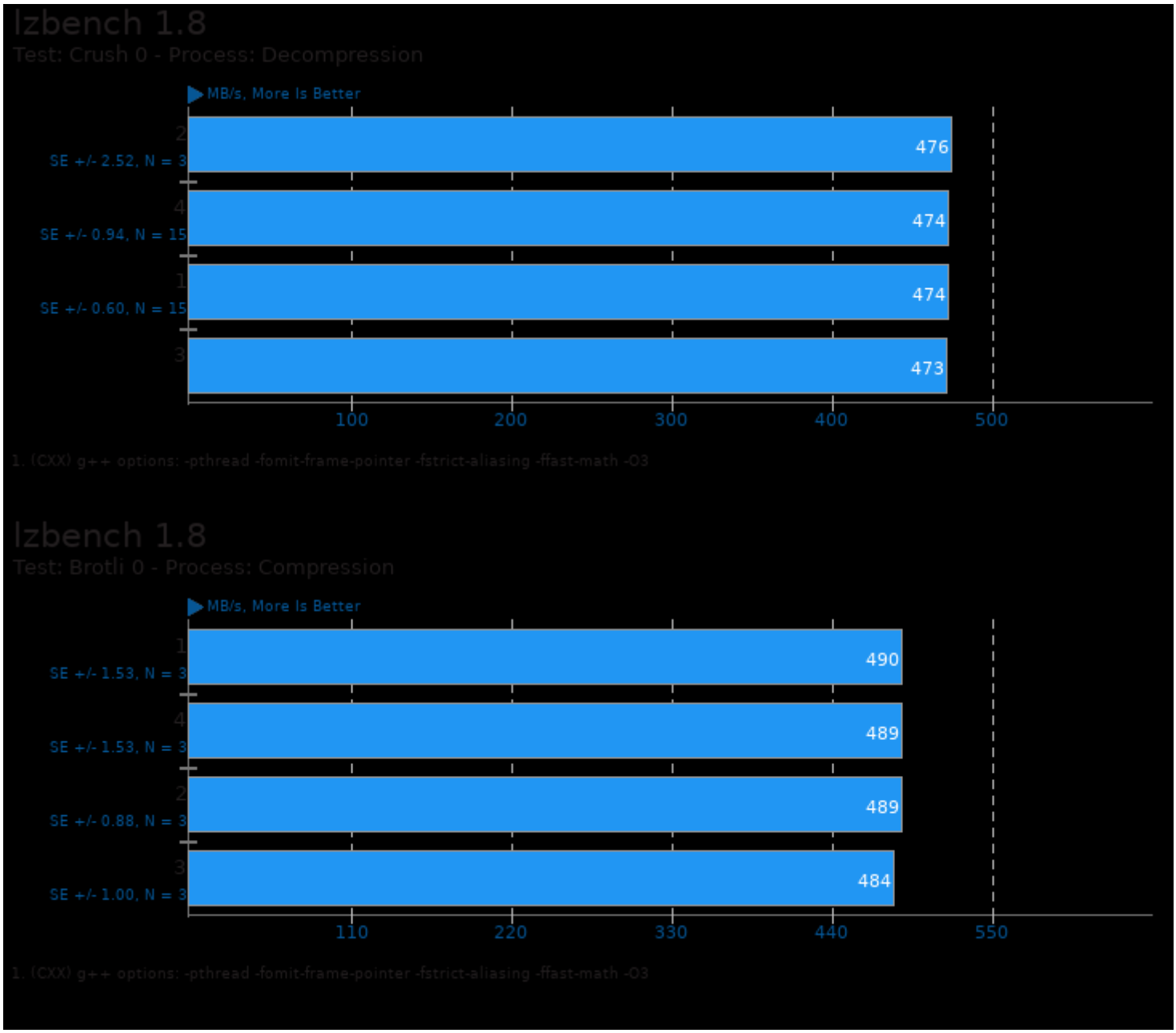
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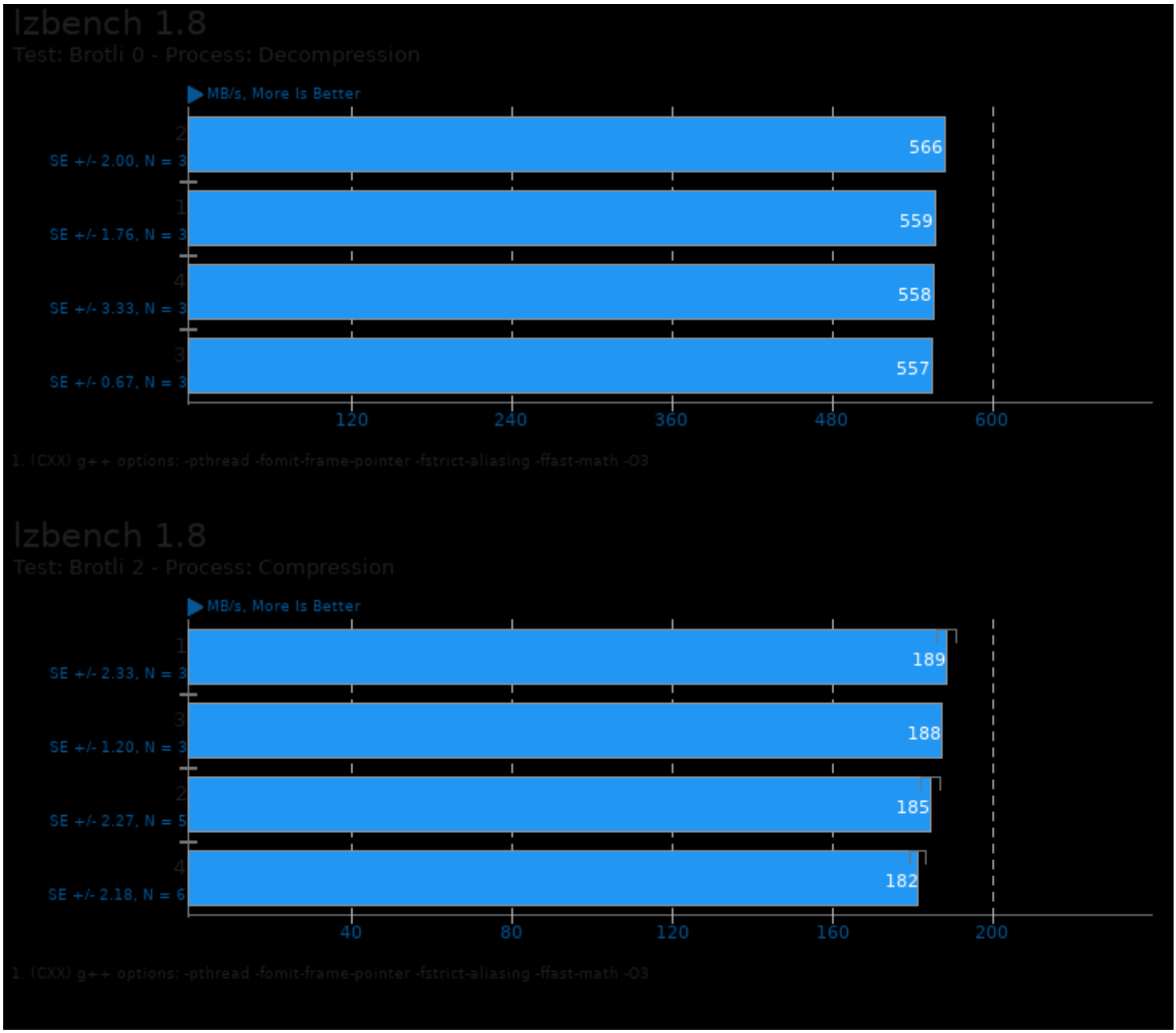
renoir bench



renoir bench

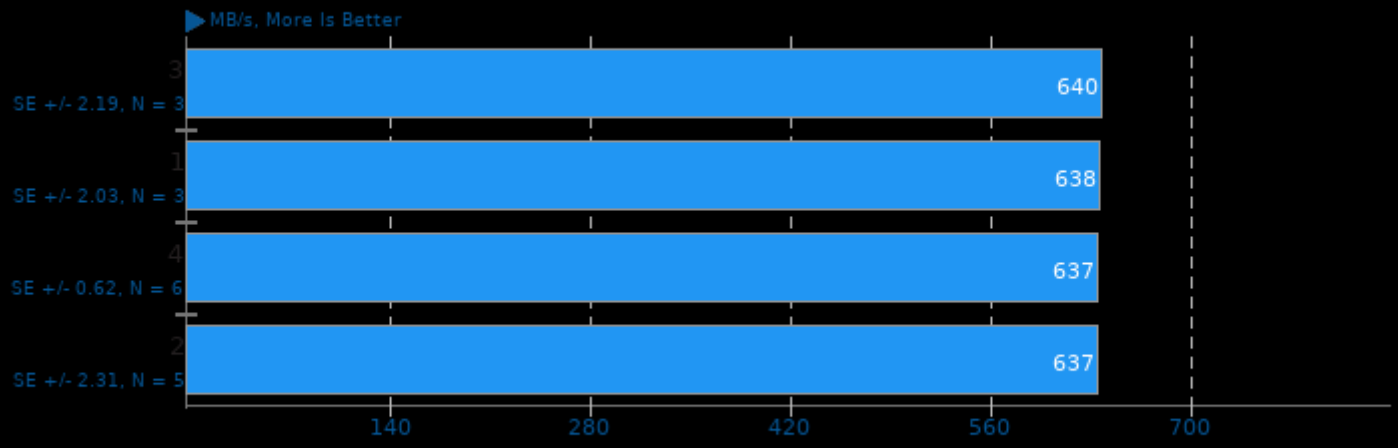


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lzbench 1.8

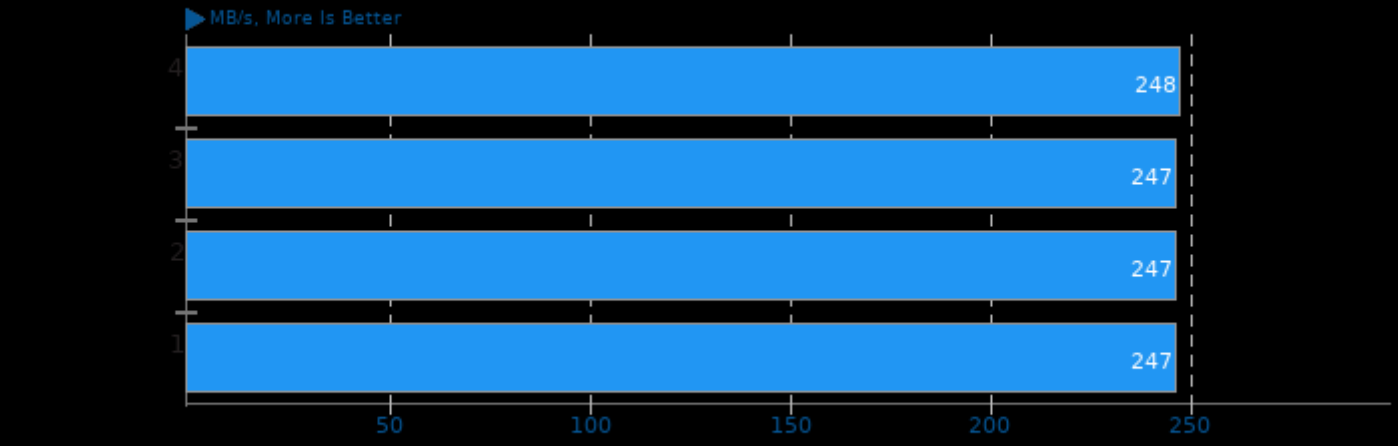
Test: Brotli 2 - Process: Decompression



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

lzbench 1.8

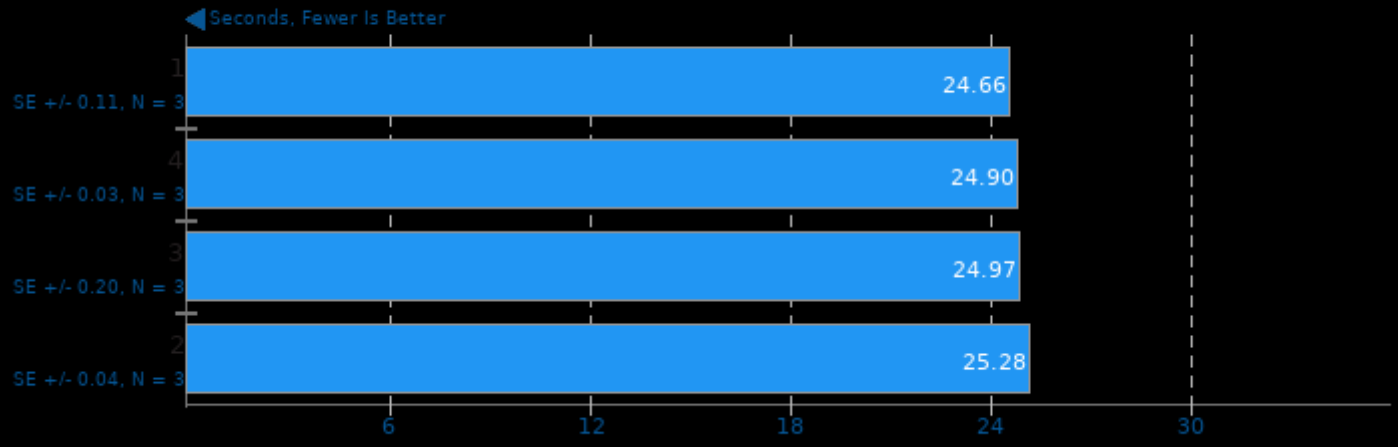
Test: Libdeflate 1 - Process: Compression



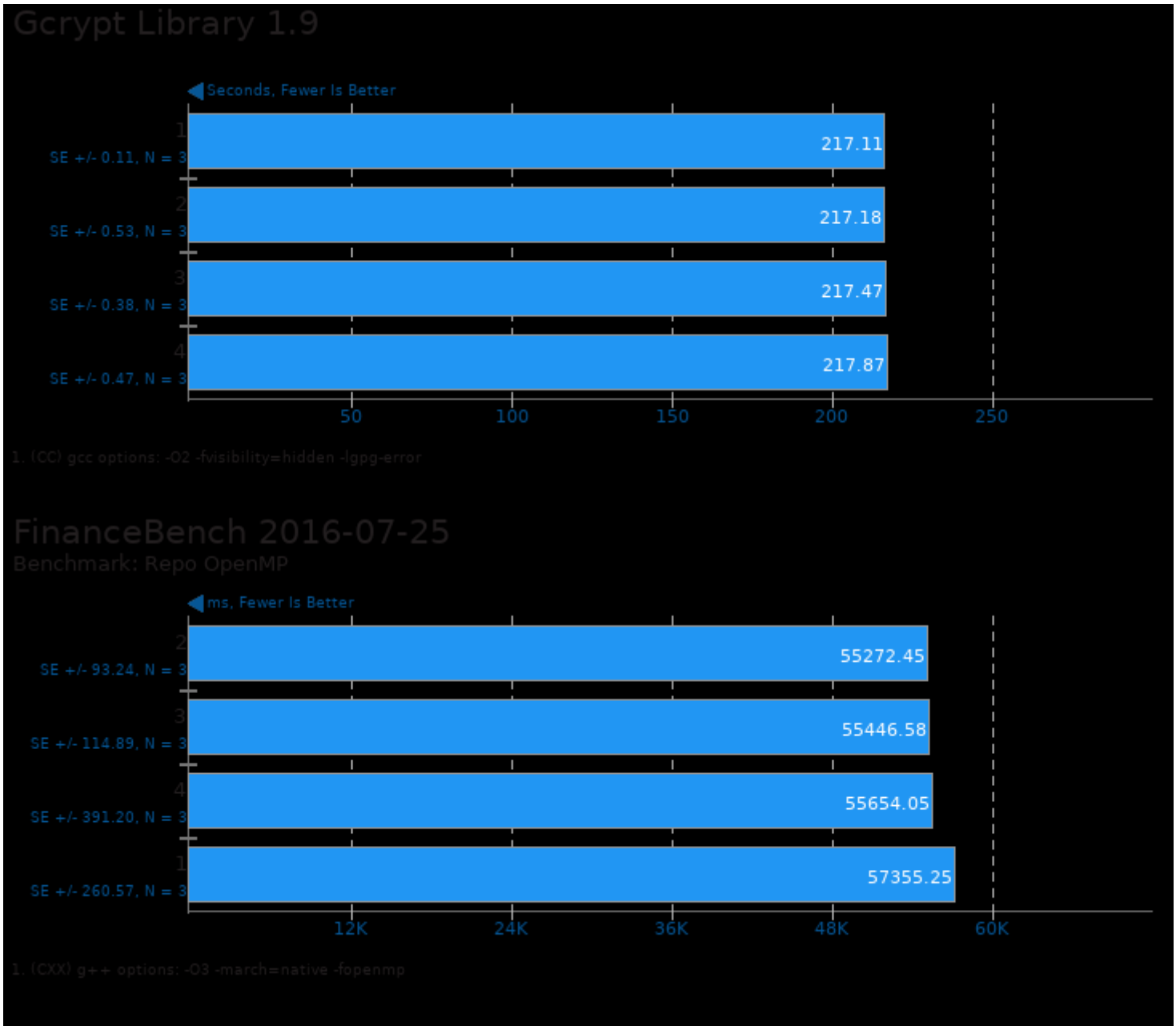
1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3

Cython Benchmark 0.29.21

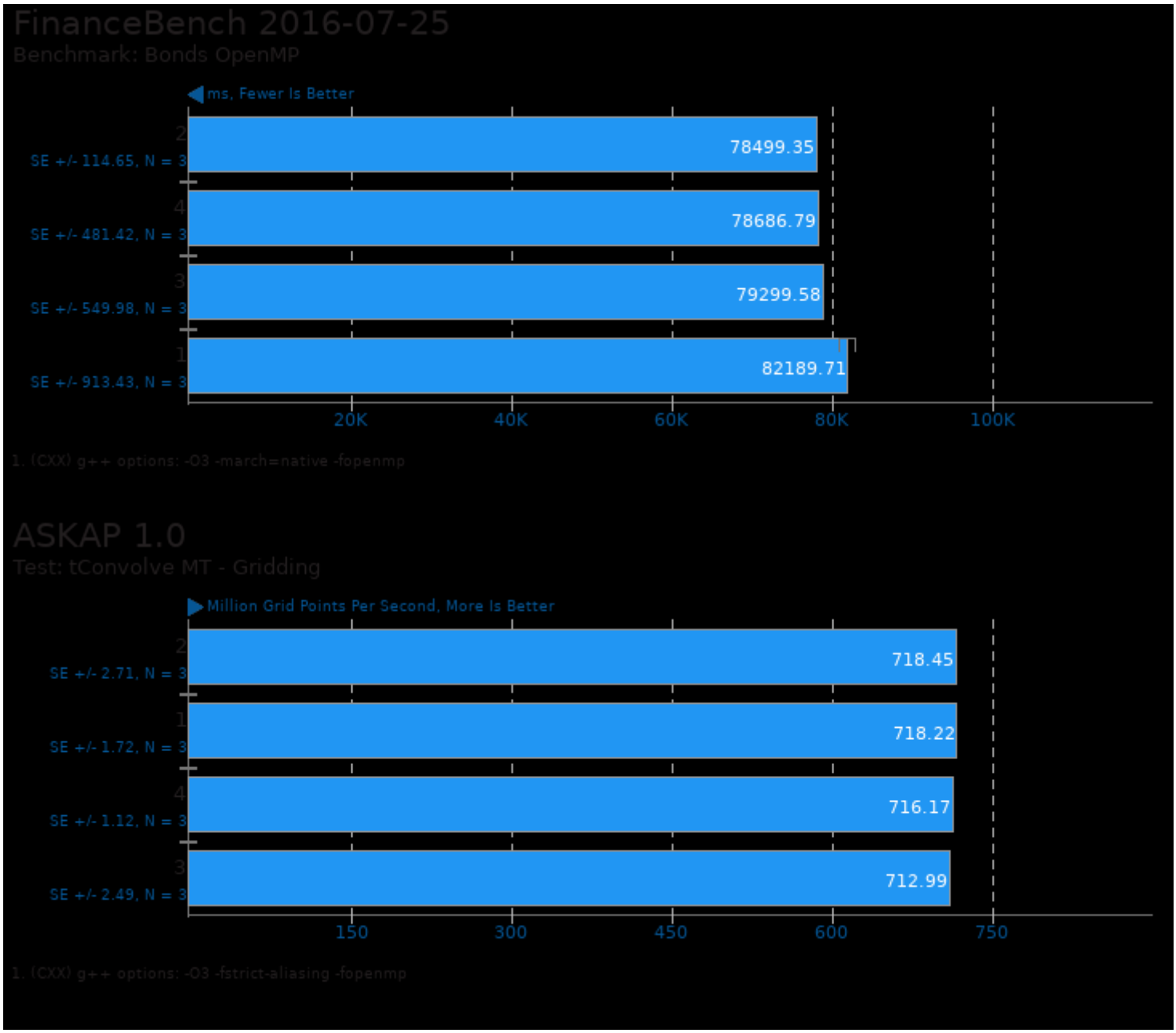
Test: N-Queens



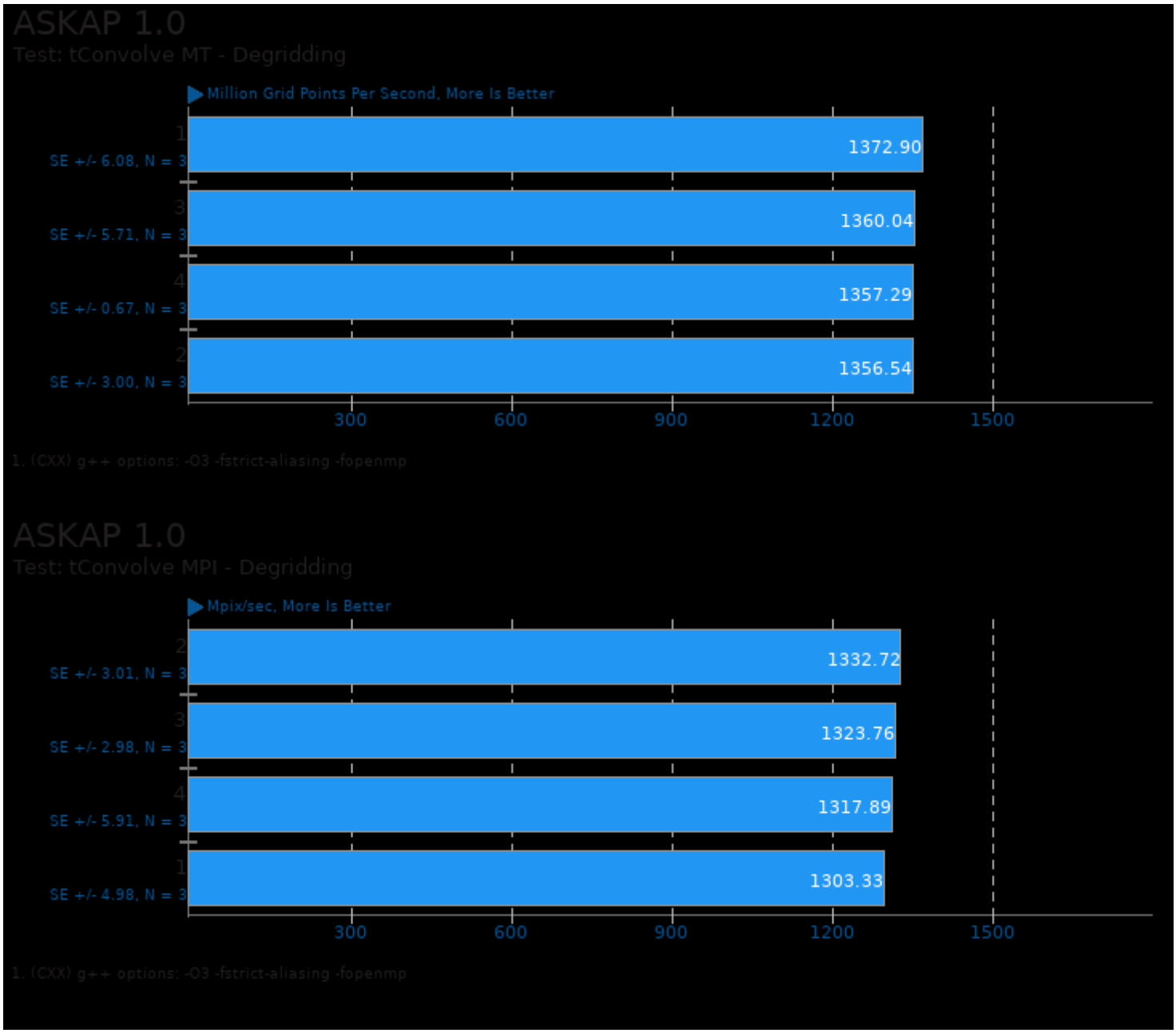
renoir bench



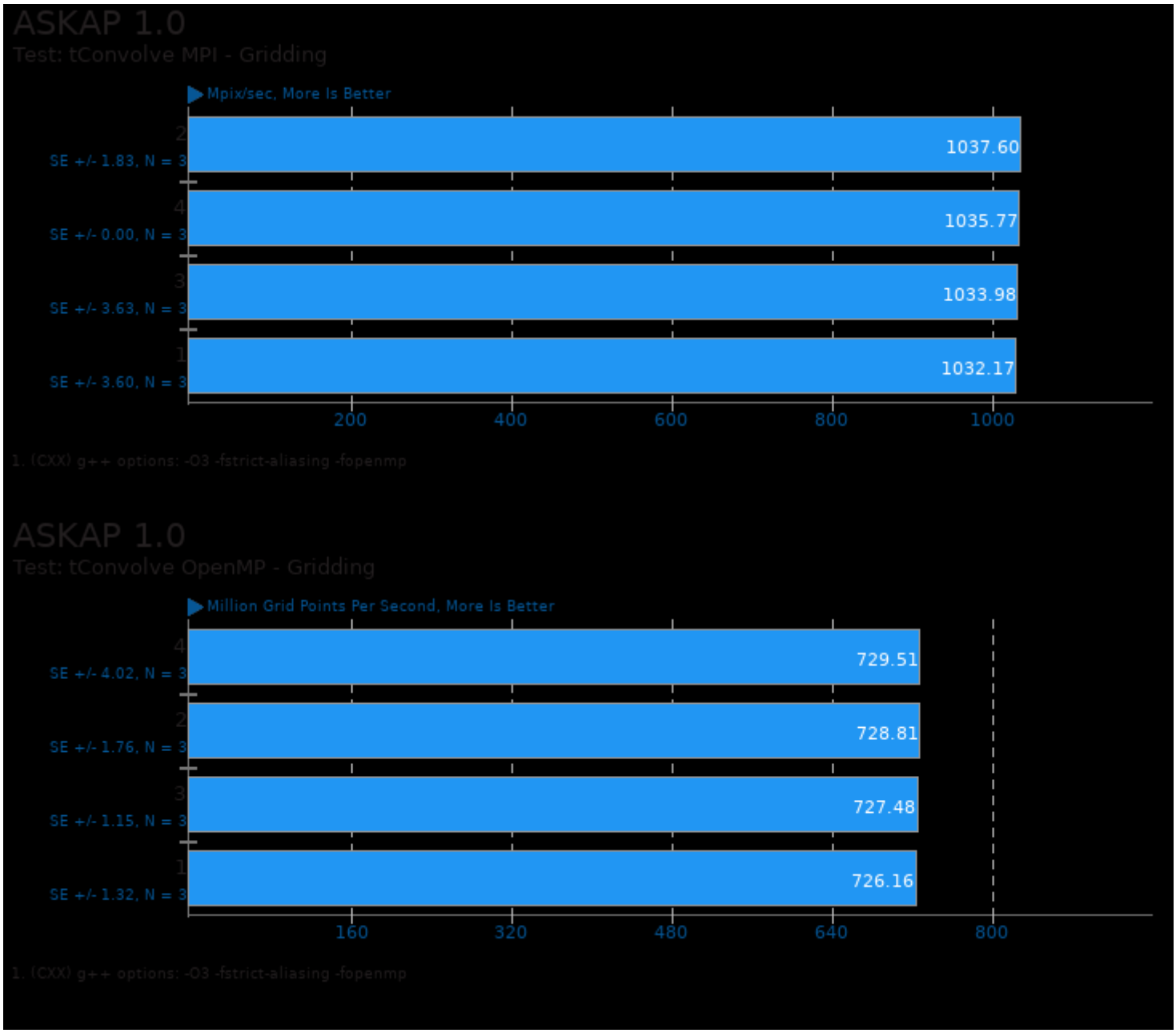
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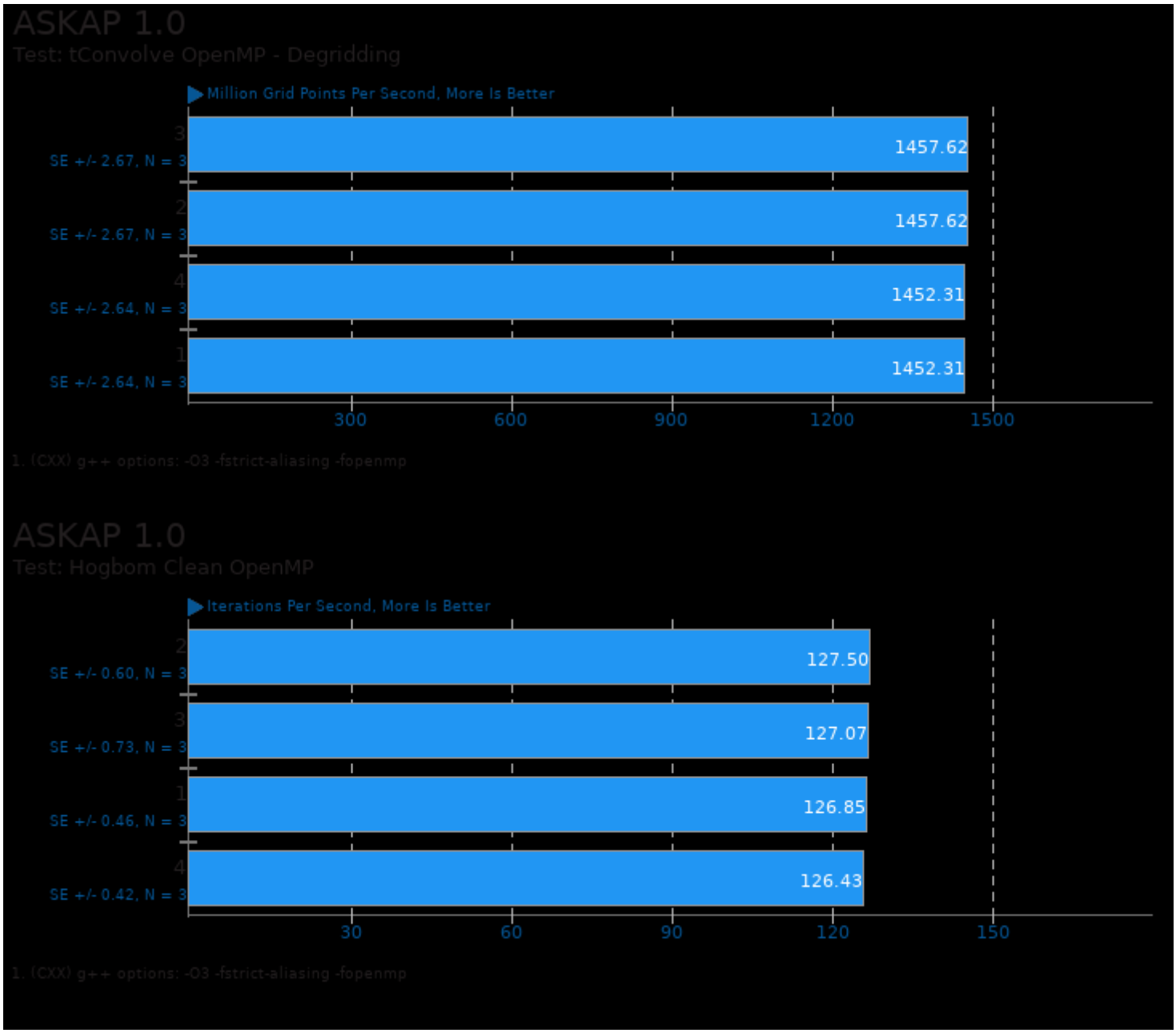
renoir bench

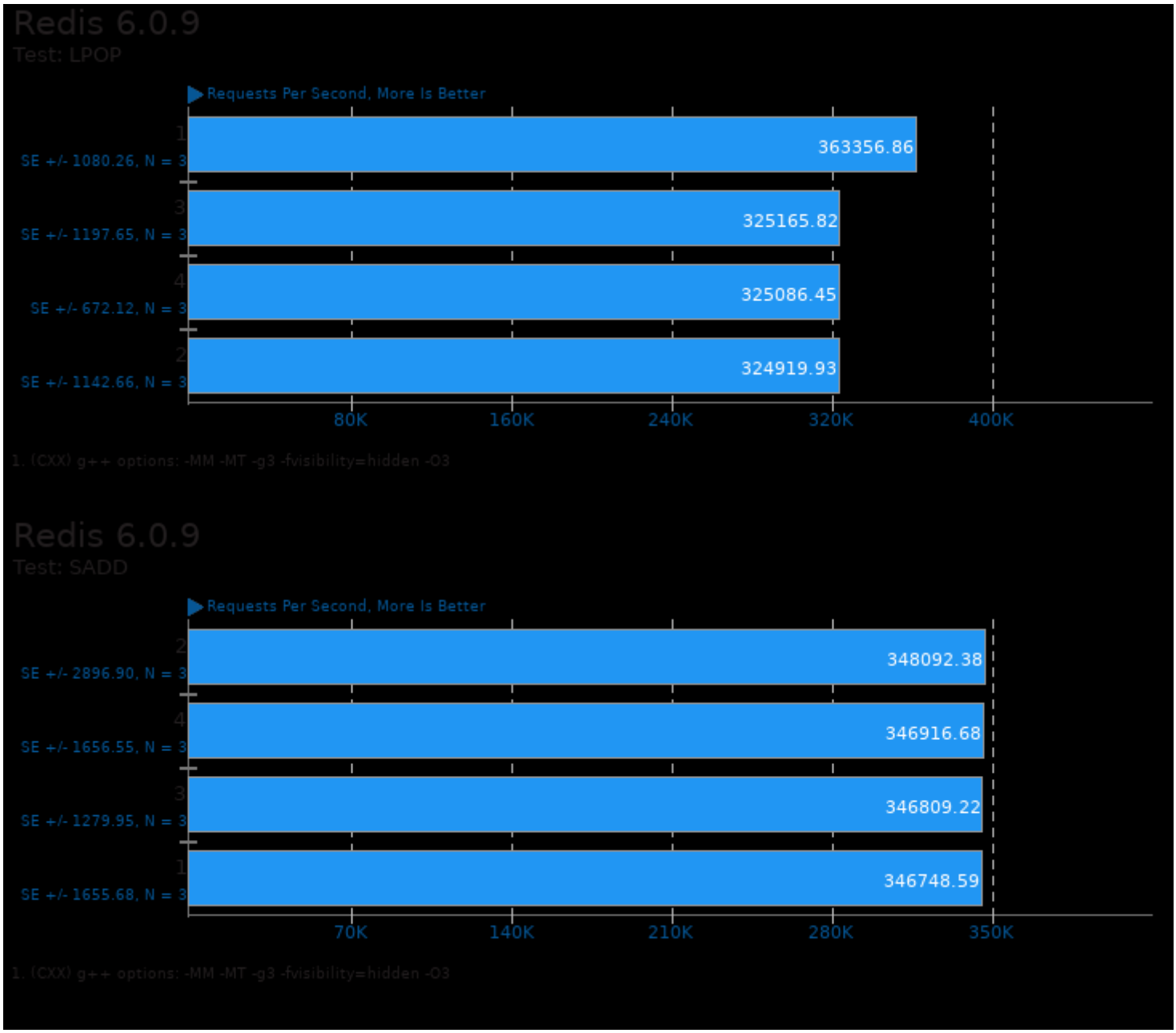


renoir bench

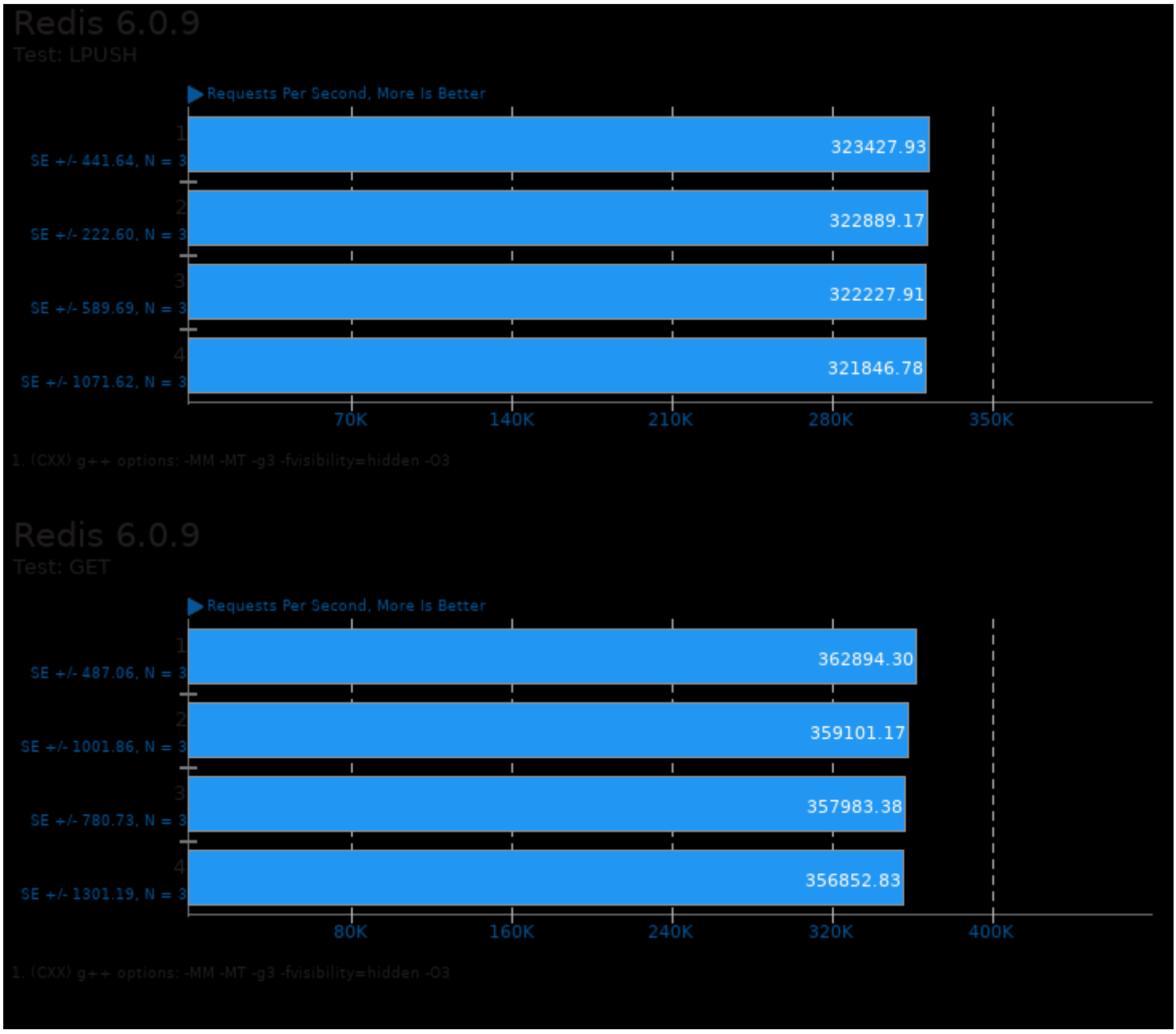


renoir bench

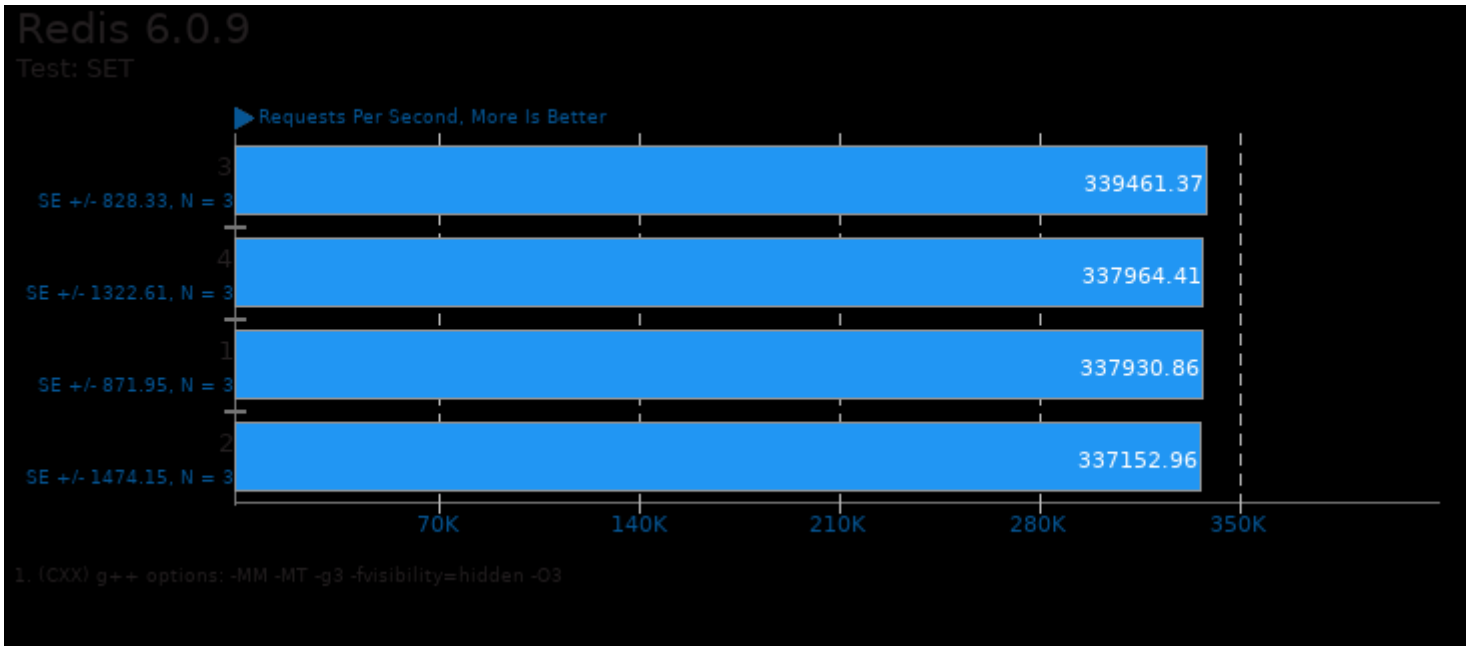



Redis 6.0.9
Test: LPOP
Requests Per Second, More Is Better
1
SE +/- 1080.26, N = 3
363356.86
3
SE +/- 1197.65, N = 3
325165.82
4
SE +/- 672.12, N = 3
325086.45
2
SE +/- 1142.66, N = 3
324919.93
80K
160K
240K
320K
400K
1. (CXX) g++ options: -MM -MT -g3 -fvisibility=hidden -O3
Redis 6.0.9
Test: SADD
Requests Per Second, More Is Better
2
SE +/- 2896.90, N = 3
348092.38
4
SE +/- 1656.55, N = 3
346916.68
3
SE +/- 1279.95, N = 3
346809.22
1
SE +/- 1655.68, N = 3
346748.59
70K
140K
210K
280K
350K
1. (CXX) g++ options: -MM -MT -g3 -fvisibility=hidden -O3

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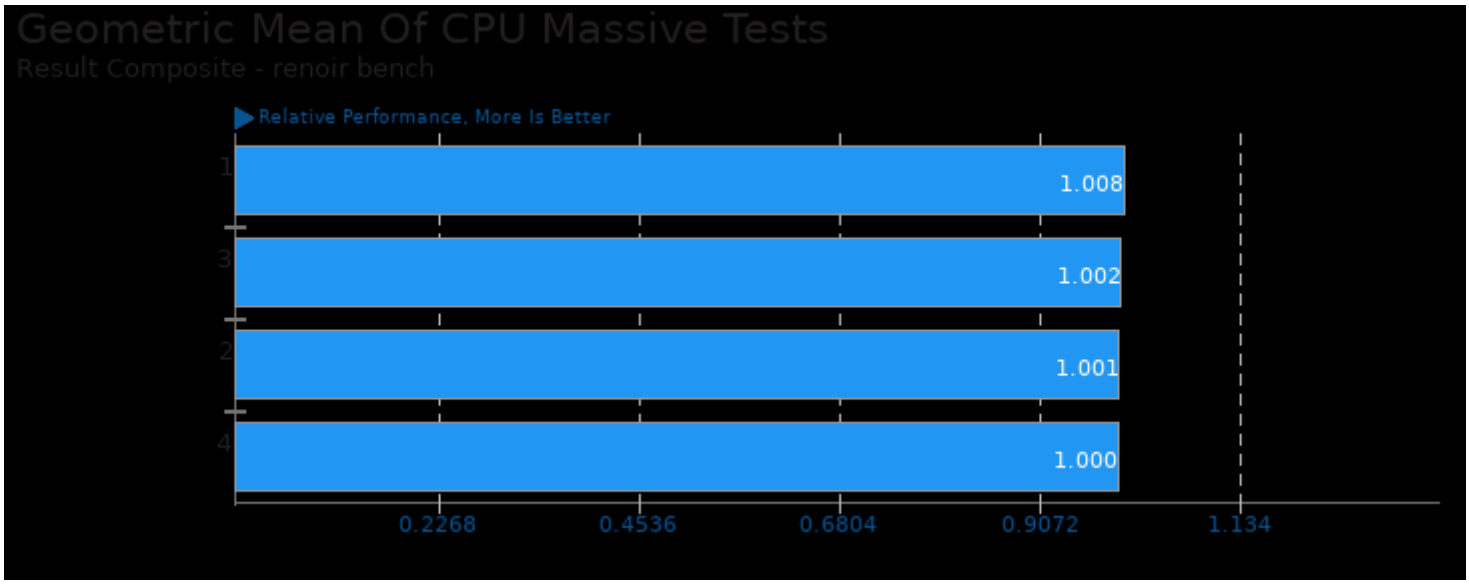


renoir bench

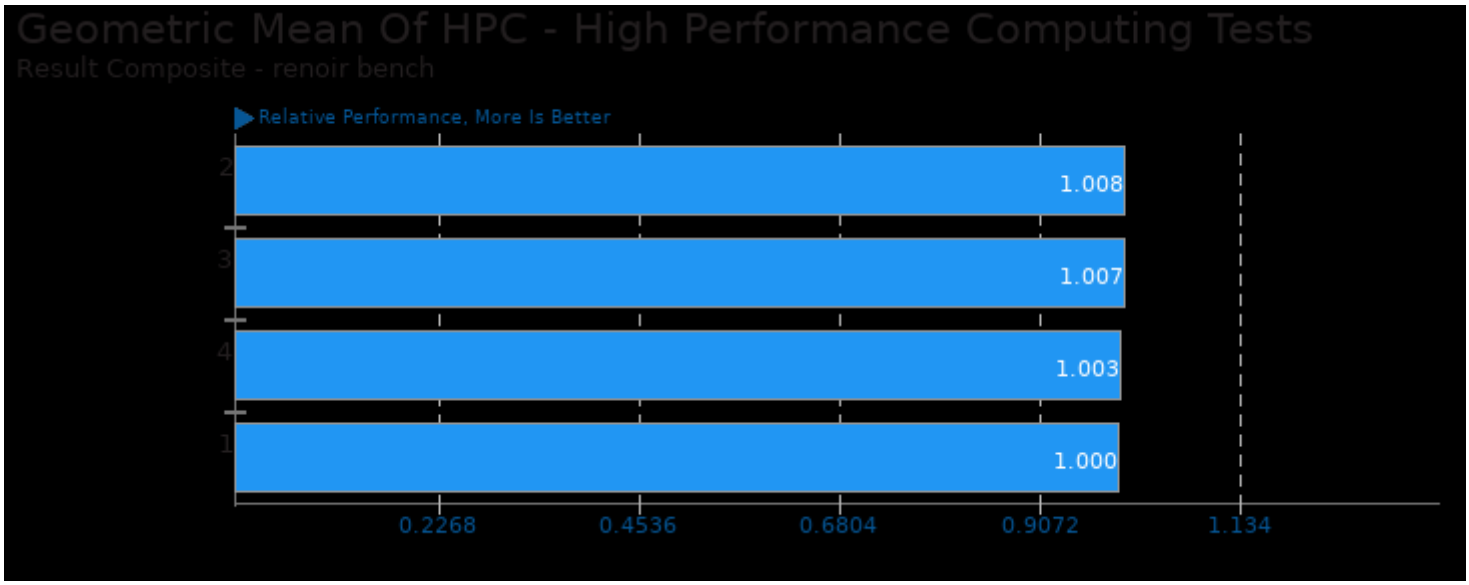


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These geometric means are based upon test groupings / test suites for this result file.

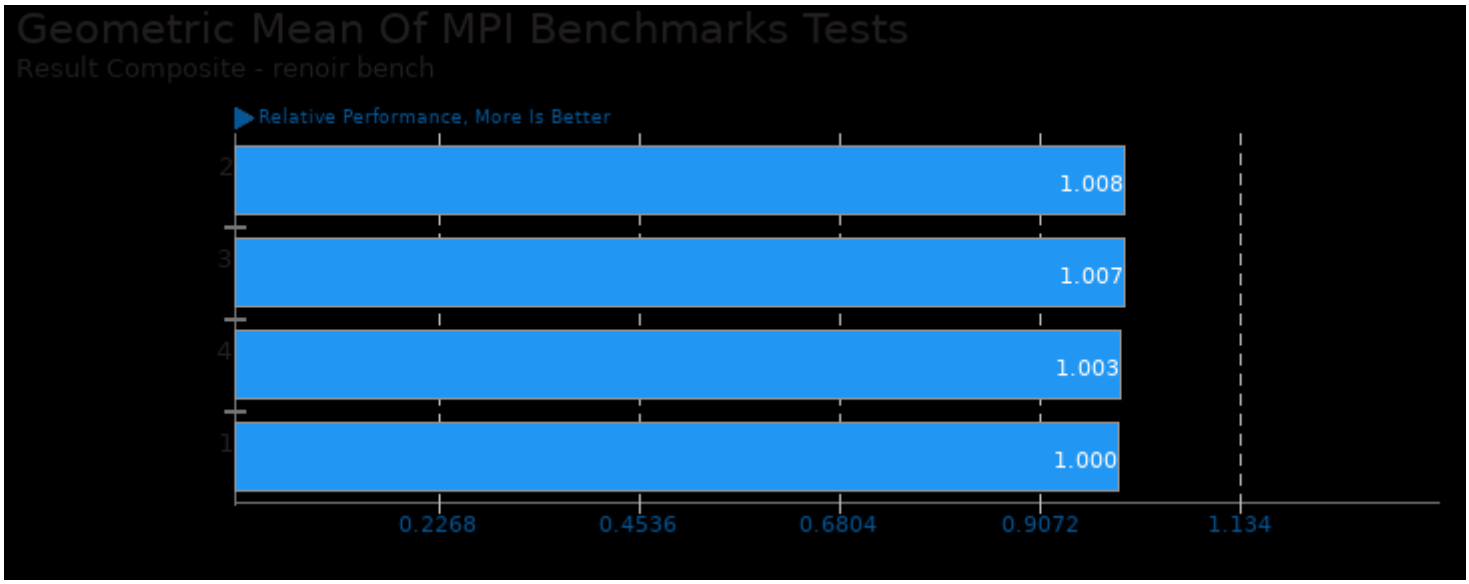


Geometric mean based upon tests: pts/cython-bench, pts/lzbench, pts/npb and pts/redis

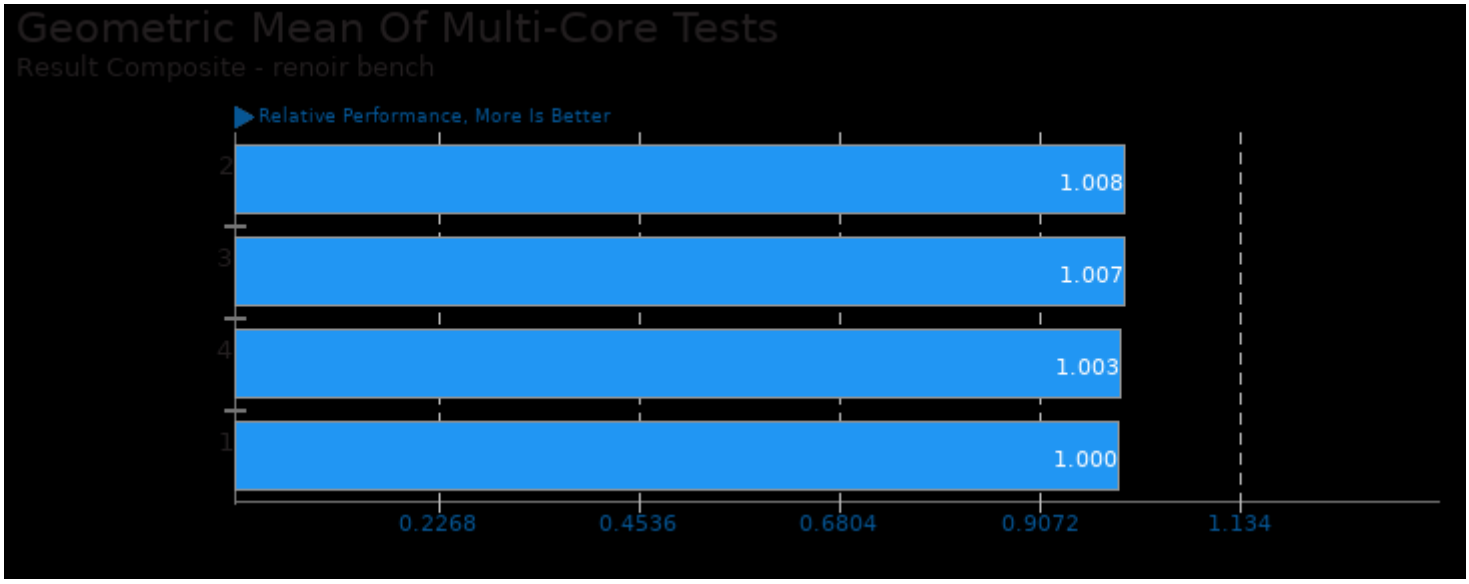


Geometric mean based upon tests: pts/npb and pts/askap

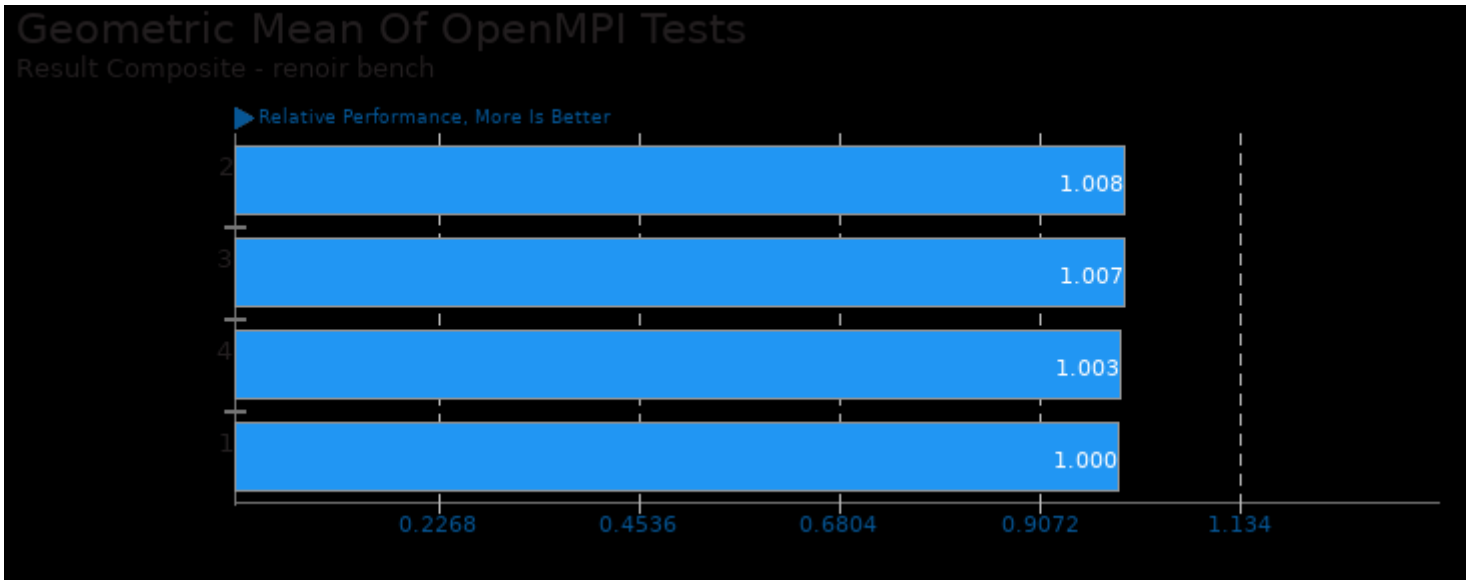
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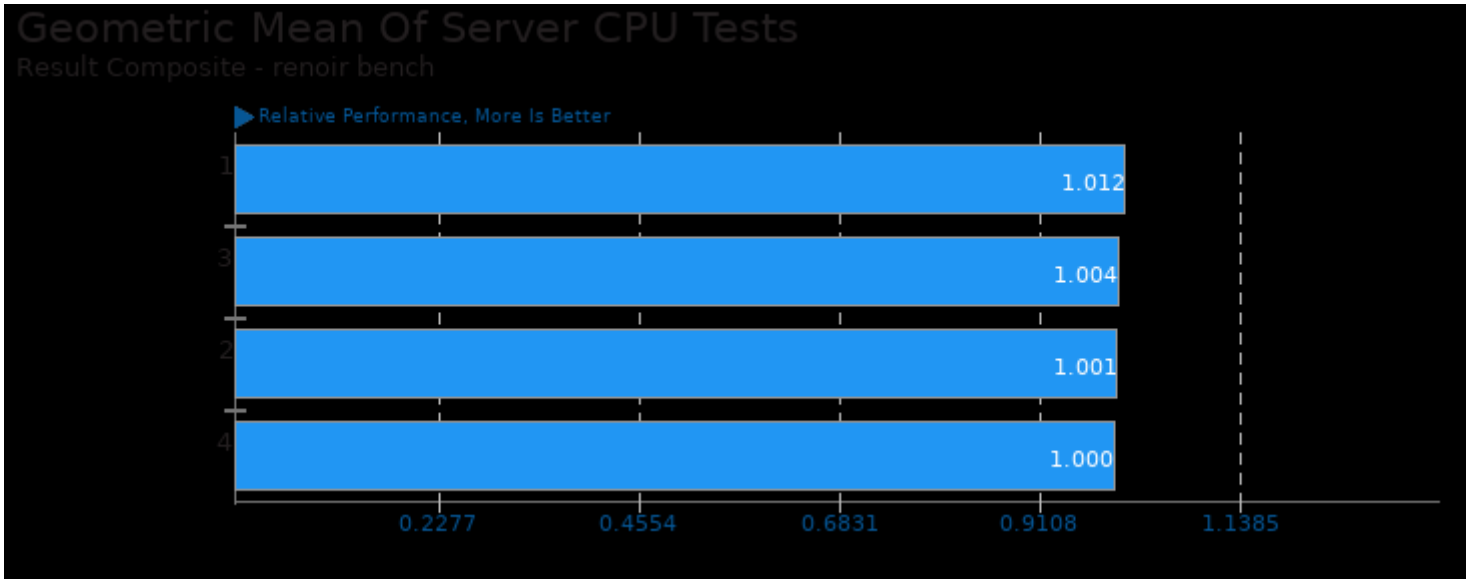
Geometric mean based upon tests: pts/askap and pts/npb



Geometric mean based upon tests: pts/askap and pts/npb

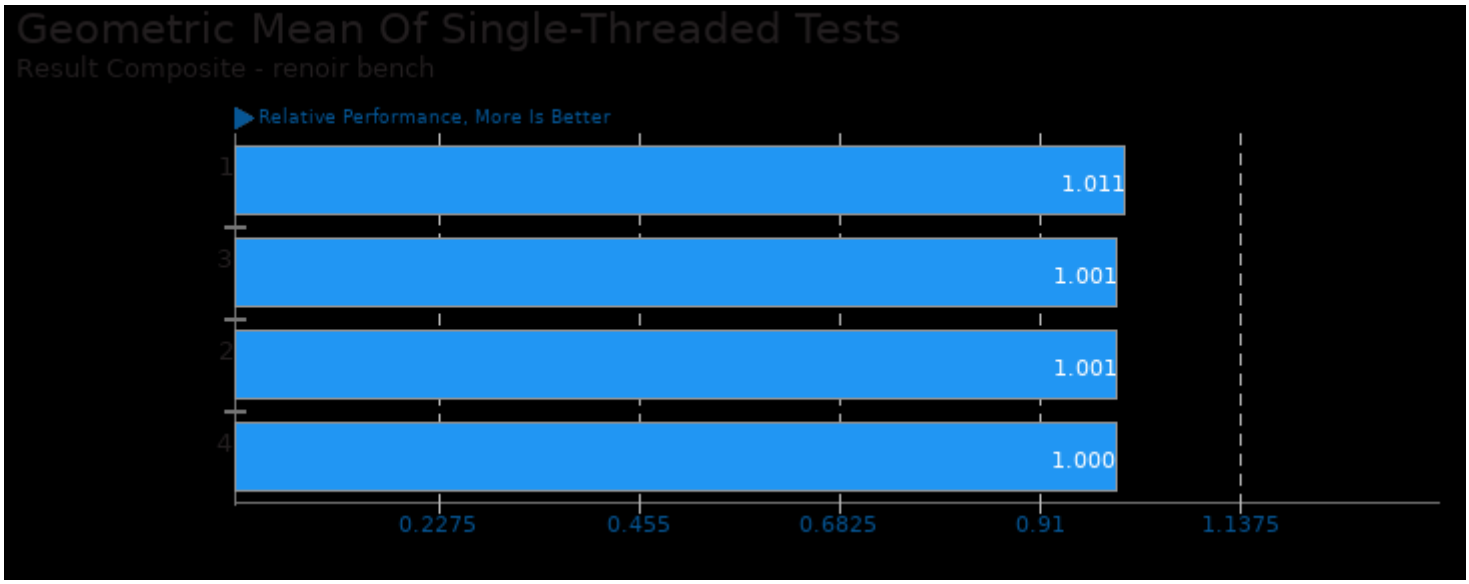


Geometric mean based upon tests: pts/npb and pts/askap



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

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Geometric mean based upon tests: pts/lzbench and pts/redis

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