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AMD Ryzen 7 5800X3D Linux Benchmarks

AMD Ryzen 7 5800X3D 8-Core benchmarks by Michael Larabel for a future article on a Phoronix.com review.

Automated Executive Summary

Ryzen 7 5800X had the most wins, coming in first place for 66% of the tests.

Based on the geometric mean of all complete results, the fastest (Ryzen 7 5800X) was 1.031x the speed of the slowest (Ryzen 7 5800X3D).

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

Redis (Test: GET) at 1.155x
InfluxDB (Concurrent Streams: 4 - Batch Size: 10000 - Tags: 2,5000,1 - Points Per Series: 10000) at 1.051x
Facebook RocksDB (Test: Random Read) at 1.032x
Geometric Mean Of All Test Results (Result Composite - AMD Ryzen 7 5800X3D Linux Benchmarks) at 1.031x
SQLite Speedtest (Timed Time - Size 1,000) at 1.029x
InfluxDB (Concurrent Streams: 64 - Batch Size: 10000 - Tags: 2,5000,1 - Points Per Series: 10000) at 1.028x
Redis (Test: SET) at 1.017x
Facebook RocksDB (Test: Read While Writing) at 1.014x
Facebook RocksDB (Test: Read Random Write Random) at 1.005x
Facebook RocksDB (Test: Update Random) at 1.003x.

Test Systems:

Ryzen 7 5800X

Processor: AMD Ryzen 7 5800X 8-Core @ 3.80GHz (8 Cores / 16 Threads), Motherboard: ASRock X570 Pro4 (P4.30 BIOS), Chipset: AMD Starship/Matisse, Memory: 16GB, Disk: 1000GB Sabrent Rocket 4.0 1TB, Graphics: AMD Radeon RX 6800 XT 16GB (2575/1000MHz), Audio: AMD Navi 21 HDMI Audio, Monitor: ASUS MG28U, Network: Intel I211

OS: Ubuntu 22.04, Kernel: 5.17.4-051704-generic (x86_64), Desktop: GNOME Shell 42.0, Display Server: X Server + Wayland, OpenGL: 4.6 Mesa 22.2.0-devel (git-092ac67 2022-04-21 jammy-oibaf-ppa) (LLVM 14.0.0 DRM 3.44), Vulkan: 1.3.211, 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: 0xa201016
Java Notes: OpenJDK Runtime Environment (build 11.0.14.1+1-Ubuntu-0ubuntu1)
Python Notes: Python 3.10.4
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 IBRS_FW STIBP: always-on RSB filling + srbds: Not affected + tsx_async_abort: Not affected

Ryzen 7 5800X3D

Processor: AMD Ryzen 7 5800X3D 8-Core @ 3.40GHz (8 Cores / 16 Threads), Motherboard: ASRock X570 Pro4 (P4.30 BIOS), Chipset: AMD Starship/Matisse, Memory: 16GB, Disk: 1000GB Sabrent Rocket 4.0 1TB, Graphics: AMD Radeon RX 6800 XT 16GB (2575/1000MHz), Audio: AMD Navi 21 HDMI Audio, Monitor: ASUS MG28U, Network: Intel I211

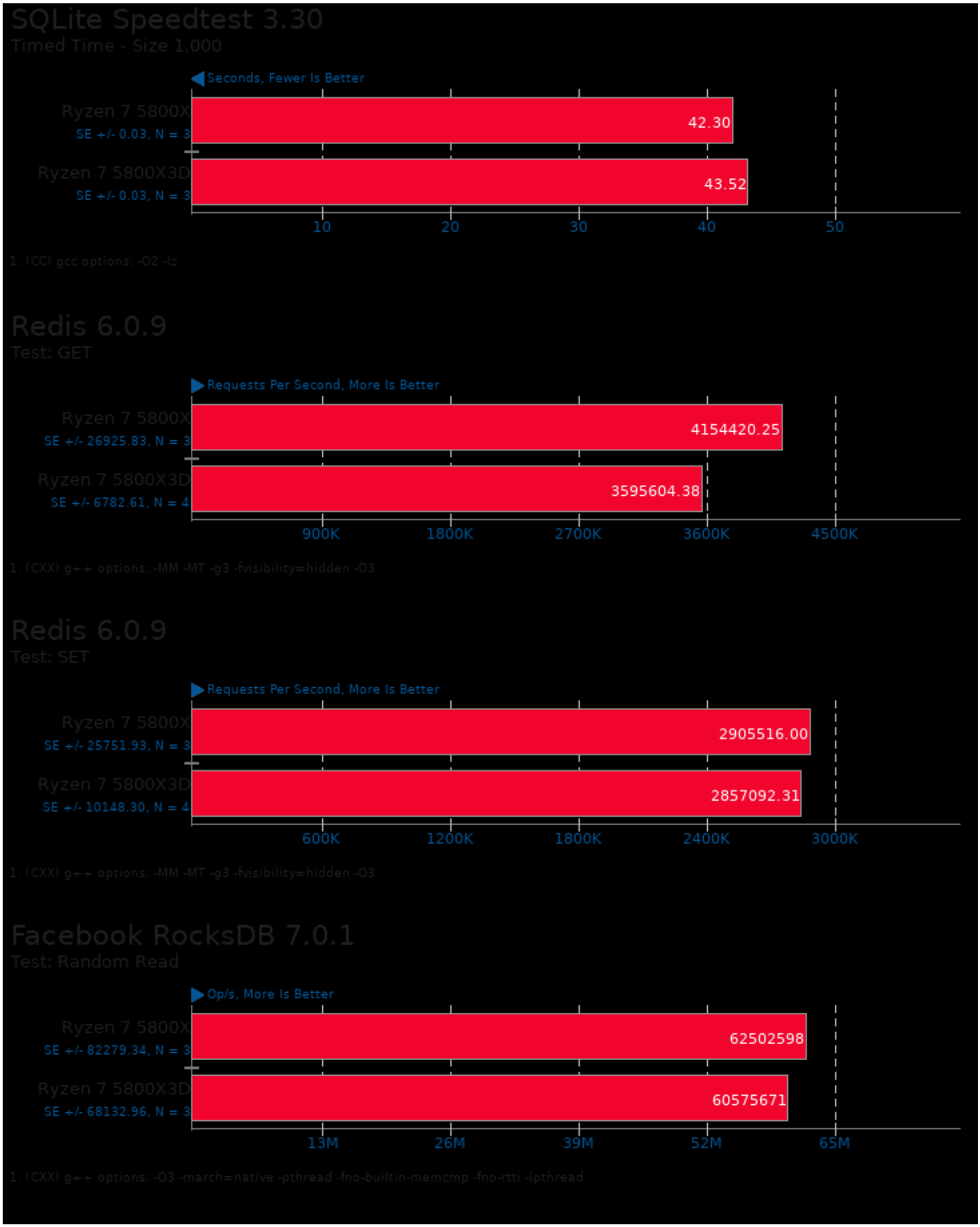
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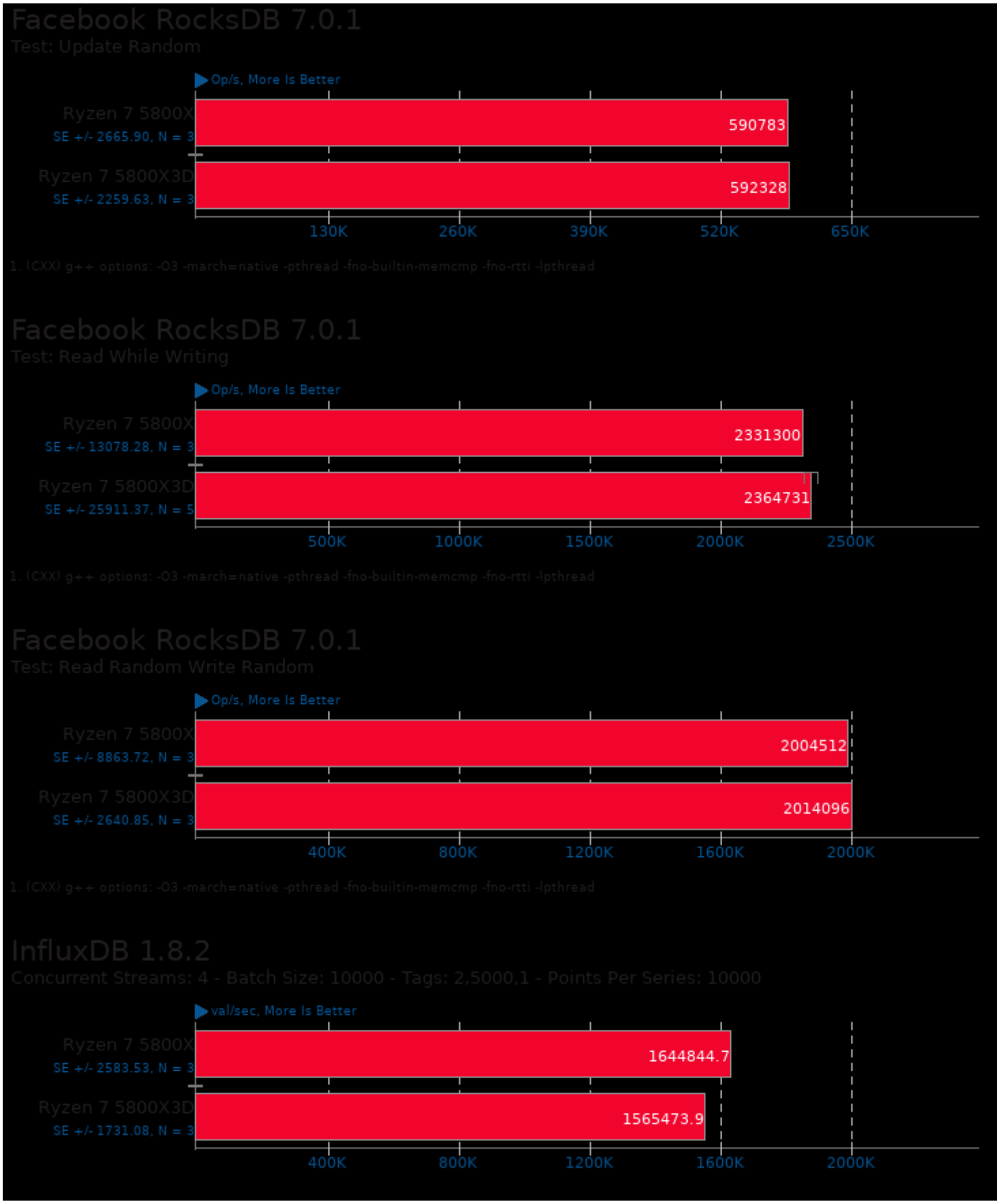
Kernel Notes: Transparent Huge Pages: madvise
Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --enable-cet --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,m2 --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: 0xa201205
Java Notes: OpenJDK Runtime Environment (build 11.0.14.1+1-Ubuntu-0ubuntu1)
Python Notes: Python 3.10.4
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 IBRS_FW STIBP: always-on RSB filling + srbds: Not affected + tsx_async_abort: Not affected

	Ryzen 7 5800X	Ryzen 7 5800X3D
SQLite Speedtest - Timed Time - Size 1,000 (sec)	42.299	43.518
Normalized	100%	97.2%

AMD Ryzen 7 5800X3D Linux Benchmarks

Standard Deviation	0.1%	0.1%
Redis - GET (Reqs/sec)	**4154420**	**3595604**
Normalized	100%	86.55%
Standard Deviation	1.1%	0.4%
Redis - SET (Reqs/sec)	**2905516**	**2857092**
Normalized	100%	98.33%
Standard Deviation	1.5%	0.7%
Facebook RocksDB - Rand Read (Op/s)	**62502598**	**60575671**
Normalized	100%	96.92%
Standard Deviation	0.2%	0.2%
Facebook RocksDB - Update Rand (Op/s)	**590783**	**592328**
Normalized	99.74%	100%
Standard Deviation	0.8%	0.7%
Facebook RocksDB - Read While Writing (Op/s)	**2331300**	**2364731**
Normalized	98.59%	100%
Standard Deviation	1%	2.5%
Facebook RocksDB - R.R.W.R (Op/s)	**2004512**	**2014096**
Normalized	99.52%	100%
Standard Deviation	0.8%	0.2%
InfluxDB - 4 - 10000 - 2,5000,1 - 10000 (val/sec)	**1644845**	**1565474**
Normalized	100%	95.17%
Standard Deviation	0.3%	0.2%
InfluxDB - 64 - 10000 - 2,5000,1 - 10000 (val/sec)	**1757043**	**1709607**
Normalized	100%	97.3%
Standard Deviation	0%	0.4%
Geometric Mean Of All Test Results - Result Composite - A.R.7.5.L.B (Geometric Mean)	**623455**	**604612**
Normalized	100%	96.98%

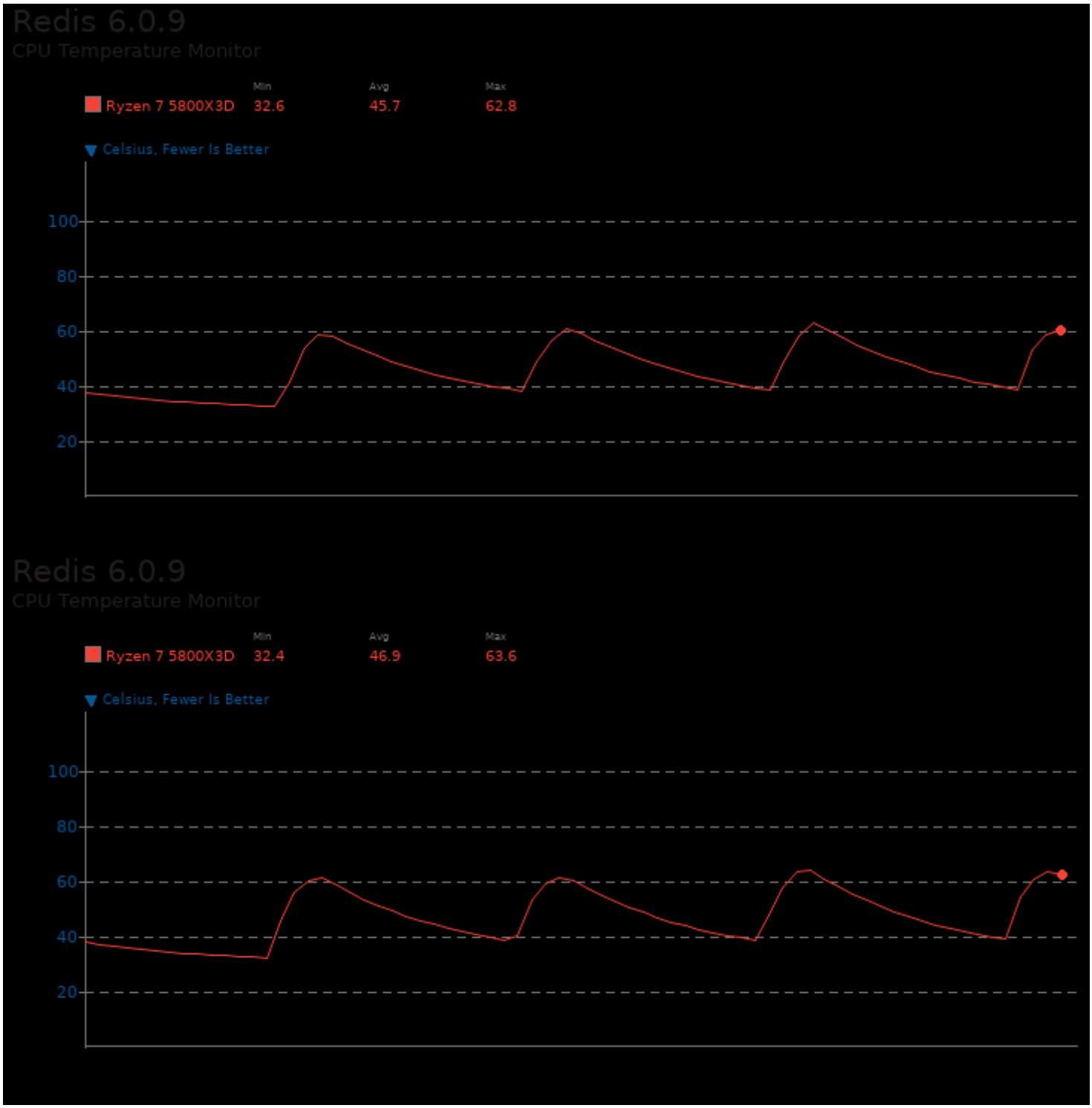

SQLite Speedtest 3.30
Timed Time - Size 1,000
Seconds, Fewer Is Better
Ryzen 7 5800X
SE +/- 0.03, N = 3
42.30
Ryzen 7 5800X3D
SE +/- 0.03, N = 3
43.52
10
20
30
40
50
1. (CC) gcc options: -O2 -lz
Redis 6.0.9
Test: GET
Requests Per Second, More Is Better
Ryzen 7 5800X
SE +/- 26925.83, N = 3
4154420.25
Ryzen 7 5800X3D
SE +/- 6782.61, N = 4
3595604.38
900K
1800K
2700K
3600K
4500K
1. (CXX) g++ options: -MM -MT -g3 -fvisibility=hidden -O3
Redis 6.0.9
Test: SET
Requests Per Second, More Is Better
Ryzen 7 5800X
SE +/- 25751.93, N = 3
2905516.00
Ryzen 7 5800X3D
SE +/- 10148.30, N = 4
2857092.31
600K
1200K
1800K
2400K
3000K
1. (CXX) g++ options: -MM -MT -g3 -fvisibility=hidden -O3
Facebook RocksDB 7.0.1
Test: Random Read
Op/s, More Is Better
Ryzen 7 5800X
SE +/- 82279.34, N = 3
62502598
Ryzen 7 5800X3D
SE +/- 68132.96, N = 3
60575671
13M
26M
39M
52M
65M
1. (CXX) g++ options: -O3 -march=native -pthread -fno-builtin-memcmp -fno-rtti -lpthread

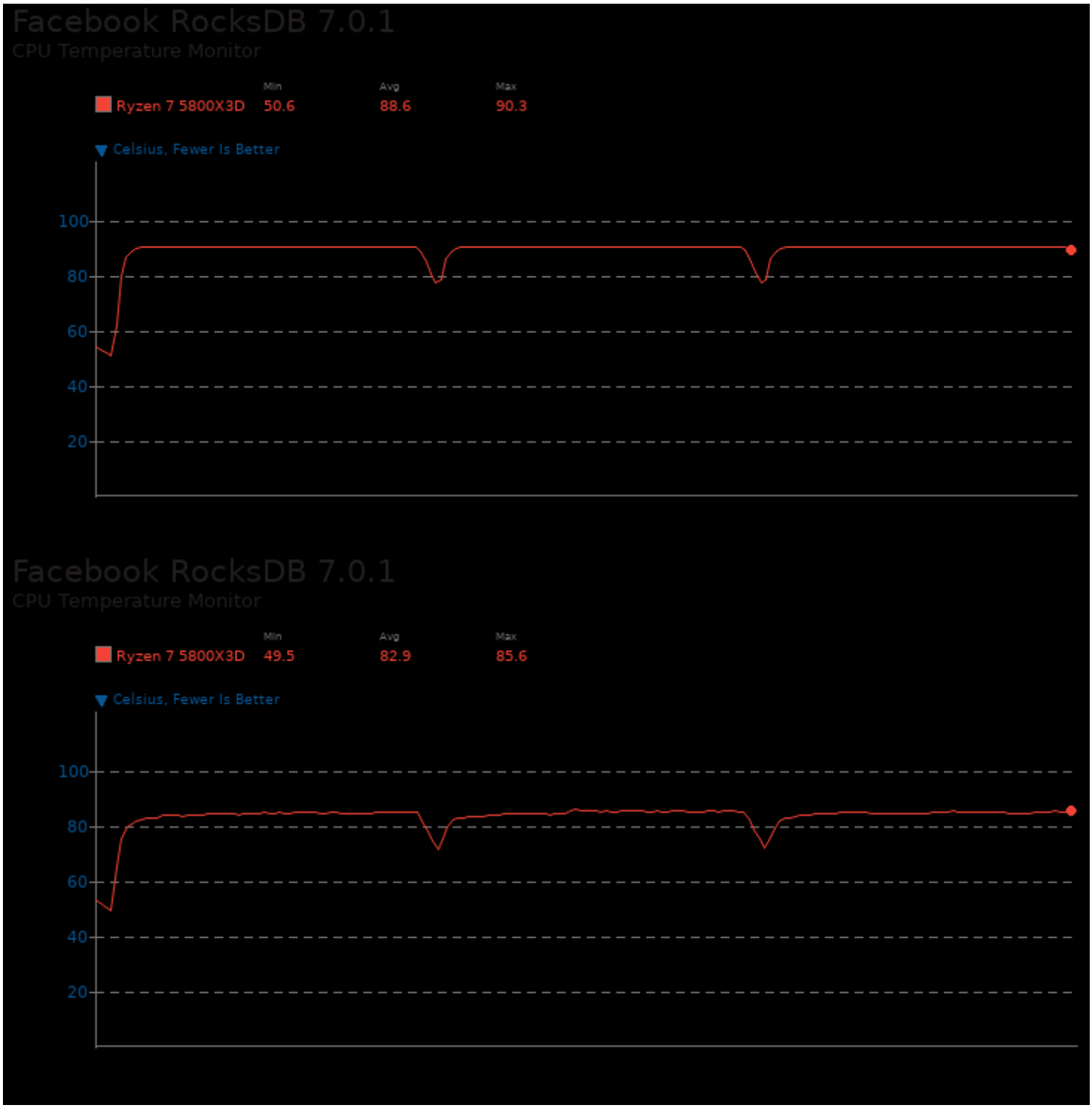

Facebook RocksDB 7.0.1
Test: Update Random
Op/s, More Is Better
Ryzen 7 5800X
SE +/- 2665.90, N = 3
590783
Ryzen 7 5800X3D
SE +/- 2259.63, N = 3
592328
130K
260K
390K
520K
650K
1. (CXX) g++ options: -O3 -march=native -pthread -fno-builtin-memcmp -fno-rtti -lpthread
Facebook RocksDB 7.0.1
Test: Read While Writing
Op/s, More Is Better
Ryzen 7 5800X
SE +/- 13078.28, N = 3
2331300
Ryzen 7 5800X3D
SE +/- 25911.37, N = 5
2364731
500K
1000K
1500K
2000K
2500K
1. (CXX) g++ options: -O3 -march=native -pthread -fno-builtin-memcmp -fno-rtti -lpthread
Facebook RocksDB 7.0.1
Test: Read Random Write Random
Op/s, More Is Better
Ryzen 7 5800X
SE +/- 8863.72, N = 3
2004512
Ryzen 7 5800X3D
SE +/- 2640.85, N = 3
2014096
400K
800K
1200K
1600K
2000K
1. (CXX) g++ options: -O3 -march=native -pthread -fno-builtin-memcmp -fno-rtti -lpthread
InfluxDB 1.8.2
Concurrent Streams: 4 - Batch Size: 10000 - Tags: 2,5000,1 - Points Per Series: 10000
val/sec, More Is Better
Ryzen 7 5800X
SE +/- 2583.53, N = 3
1644844.7
Ryzen 7 5800X3D
SE +/- 1731.08, N = 3
1565473.9
400K
800K
1200K
1600K
2000K

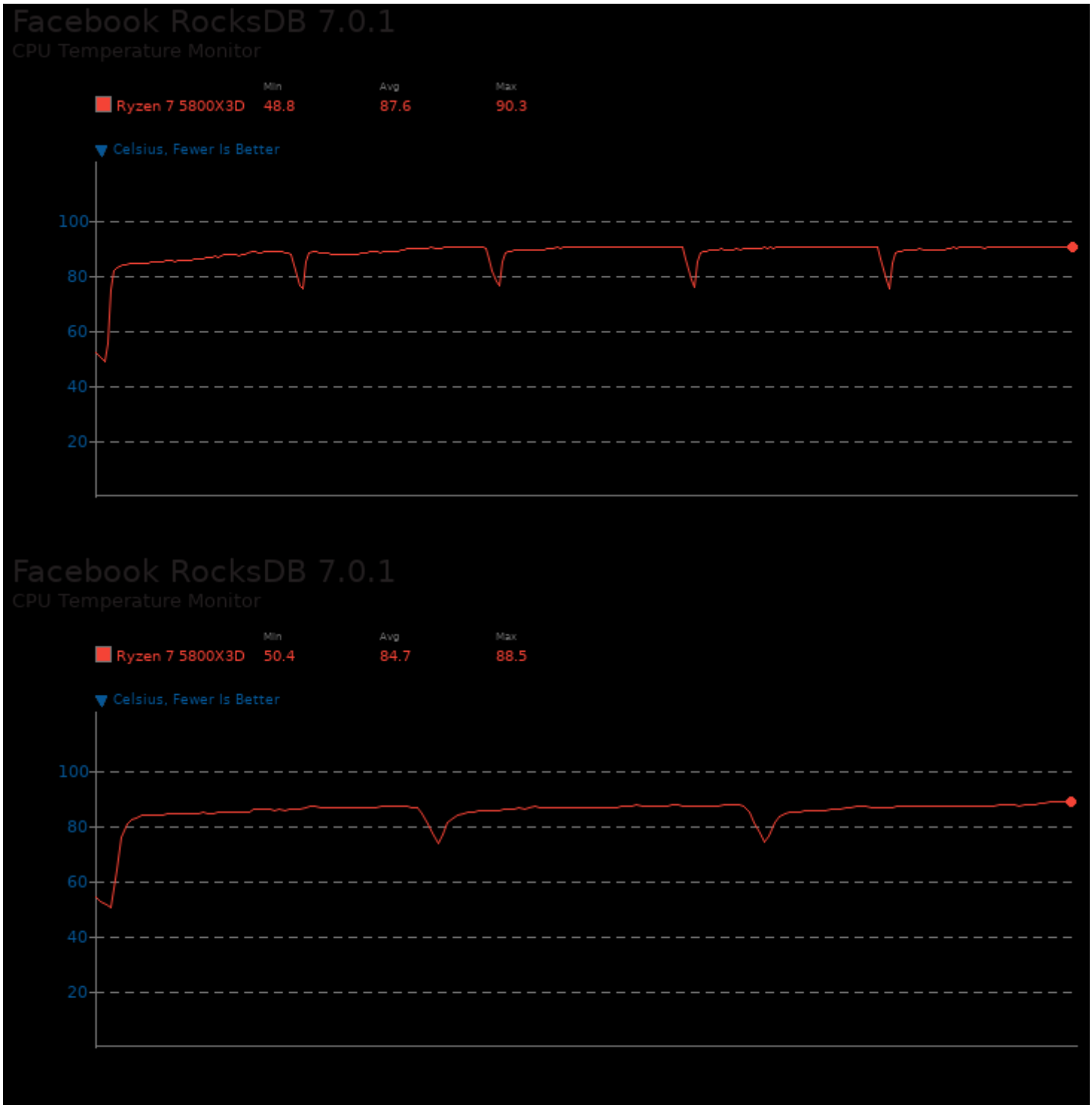
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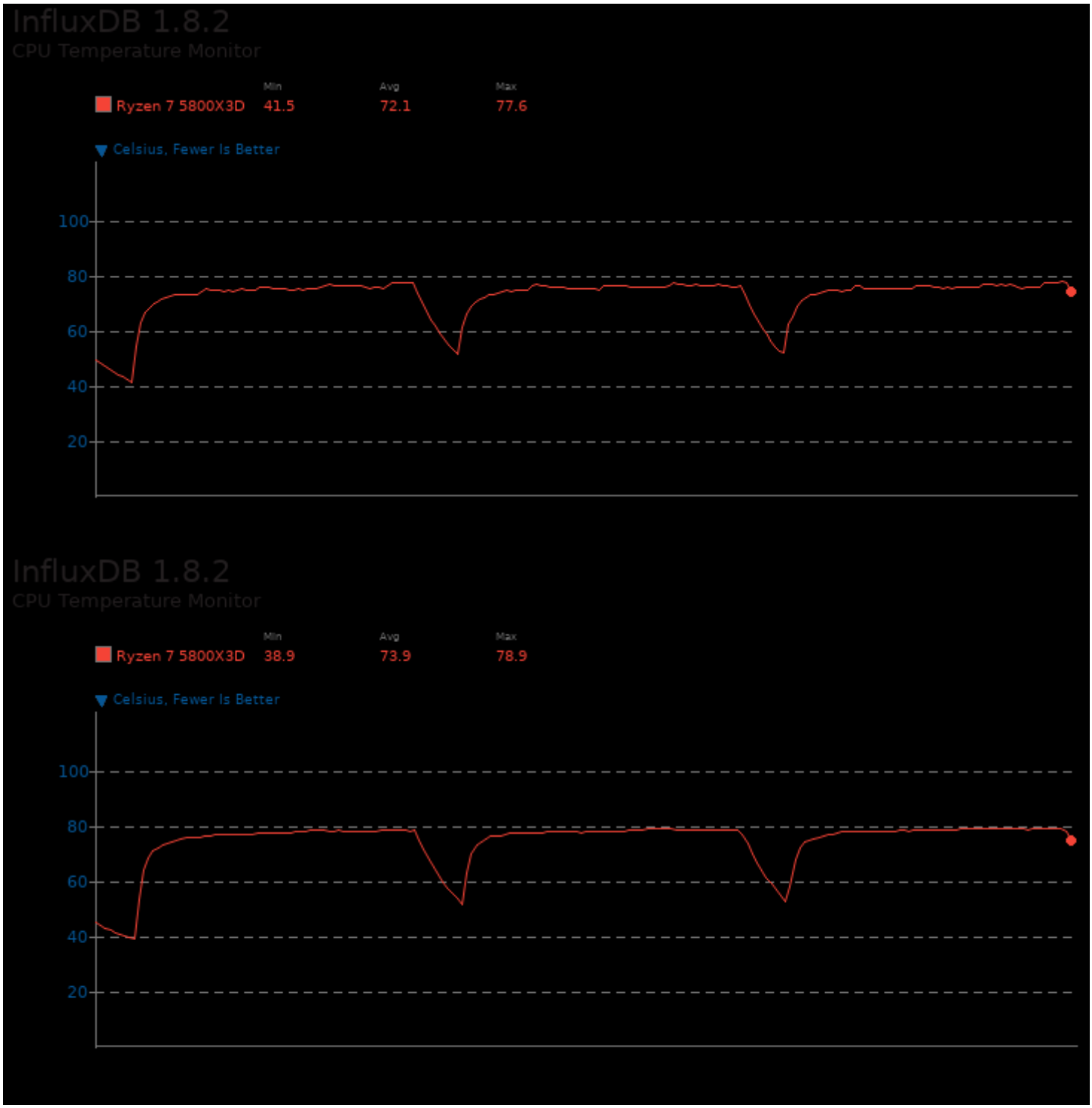
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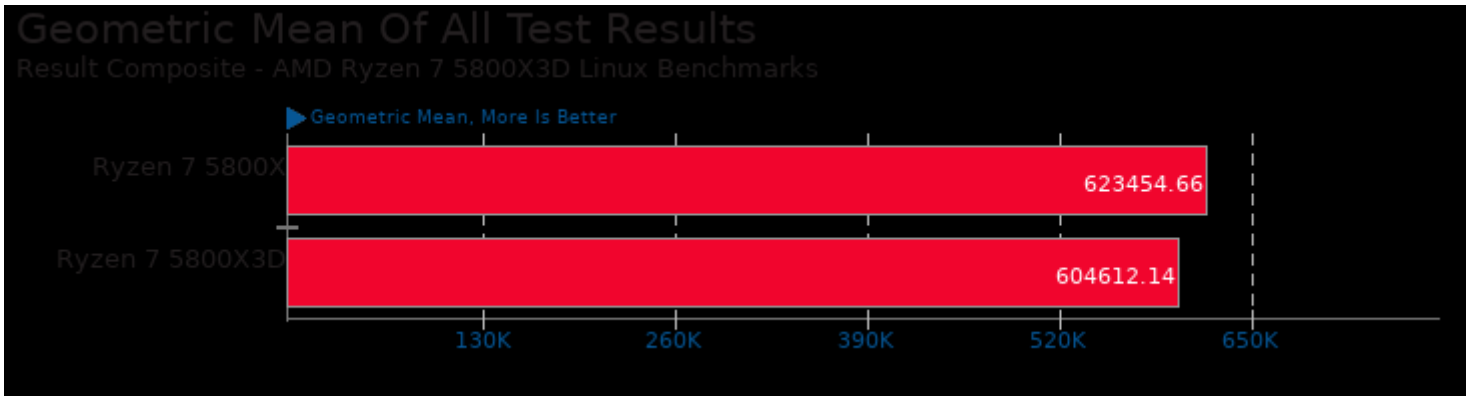

Facebook RocksDB 7.0.1
CPU Temperature Monitor
Min
Avg
Max
Ryzen 7 5800X3D
50.6
88.6
90.3
Celsius, Fewer Is Better
100
80
60
40
20
Facebook RocksDB 7.0.1
CPU Temperature Monitor
Min
Avg
Max
Ryzen 7 5800X3D
49.5
82.9
85.6
Celsius, Fewer Is Better
100
80
60
40
20


Facebook RocksDB 7.0.1
CPU Temperature Monitor
Min
Avg
Max
Ryzen 7 5800X3D
48.8
87.6
90.3
Celsius, Fewer Is Better
100
80
60
40
20
Facebook RocksDB 7.0.1
CPU Temperature Monitor
Min
Avg
Max
Ryzen 7 5800X3D
50.4
84.7
88.5
Celsius, Fewer Is Better
100
80
60
40
20

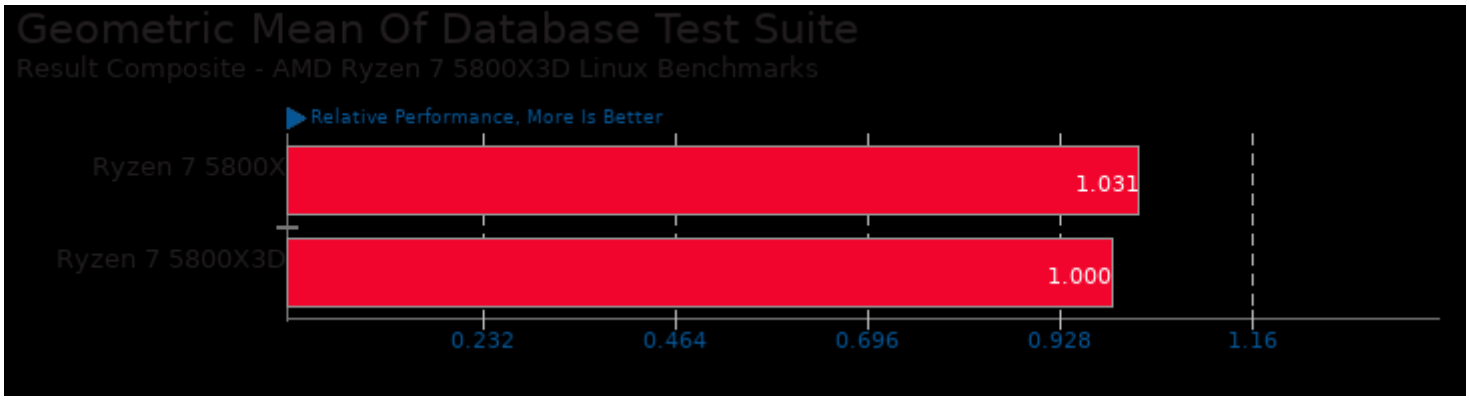
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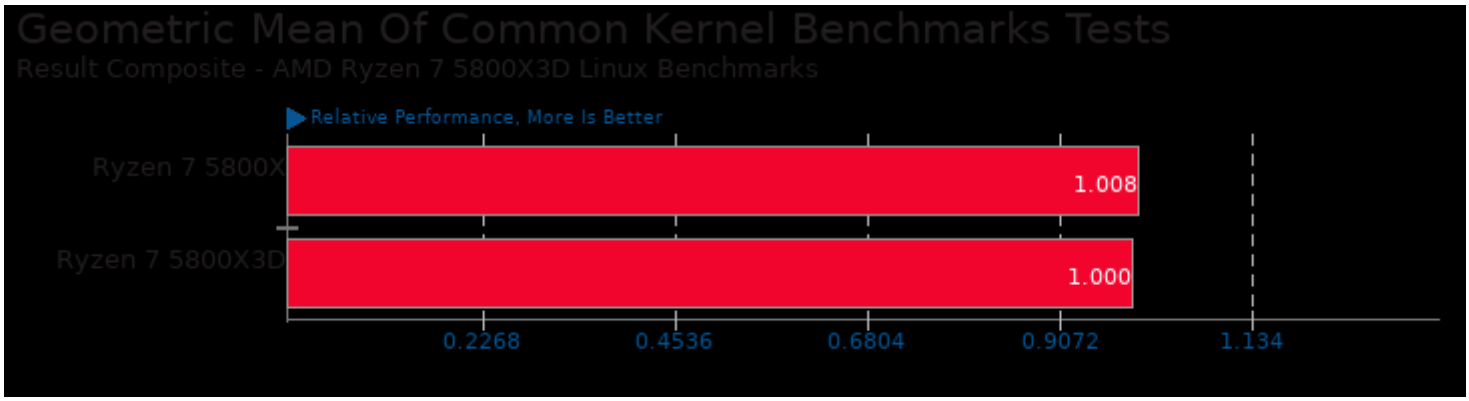
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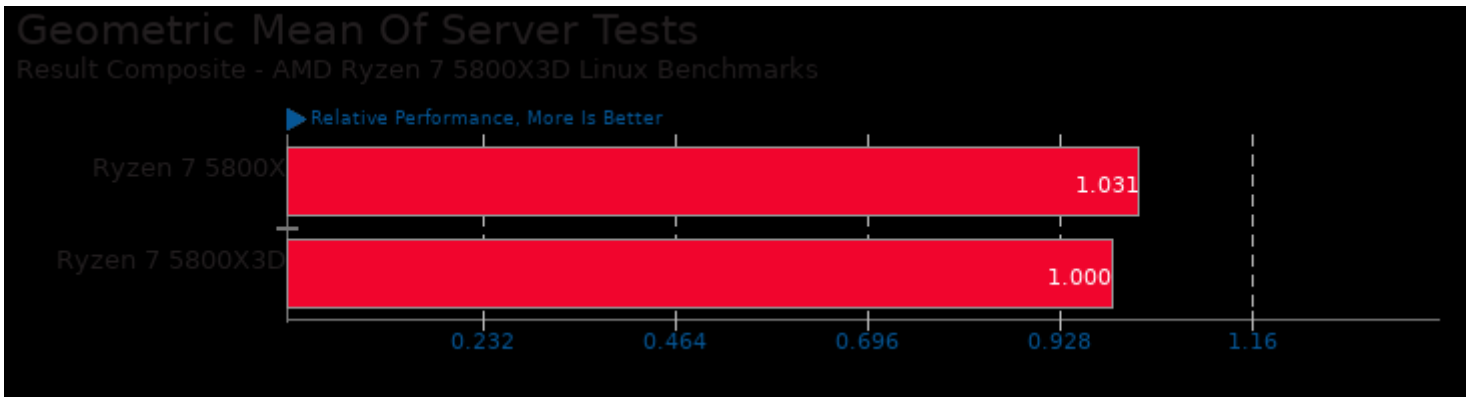
These geometric means are based upon test groupings / test suites for this result file.



Geometric mean based upon tests: pts/sqlite-speedtest, pts/redis, pts/rocksdb and pts/influxdb



Geometric mean based upon tests: pts/sqlite-speedtest and pts/rocksdb



Geometric mean based upon tests: pts/redis, pts/rocksdb, pts/sqlite-speedtest and pts/influxdb

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