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AMD Ryzen 7 PRO 6850U testing with a LENOVO 21CM0001US (R22ET51W 1.21 BIOS) and AMD Radeon 680M 1GB on Ubuntu 22.10 via the Phoronix Test Suite.

Automated Executive Summary

a had the most wins, coming in first place for 46% of the tests.

Based on the geometric mean of all complete results, the fastest (a) was 1.002x the speed of the slowest (b). c was 0.999x the speed of a and b was 0.999x the speed of c.

Test Systems:

a

b

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c

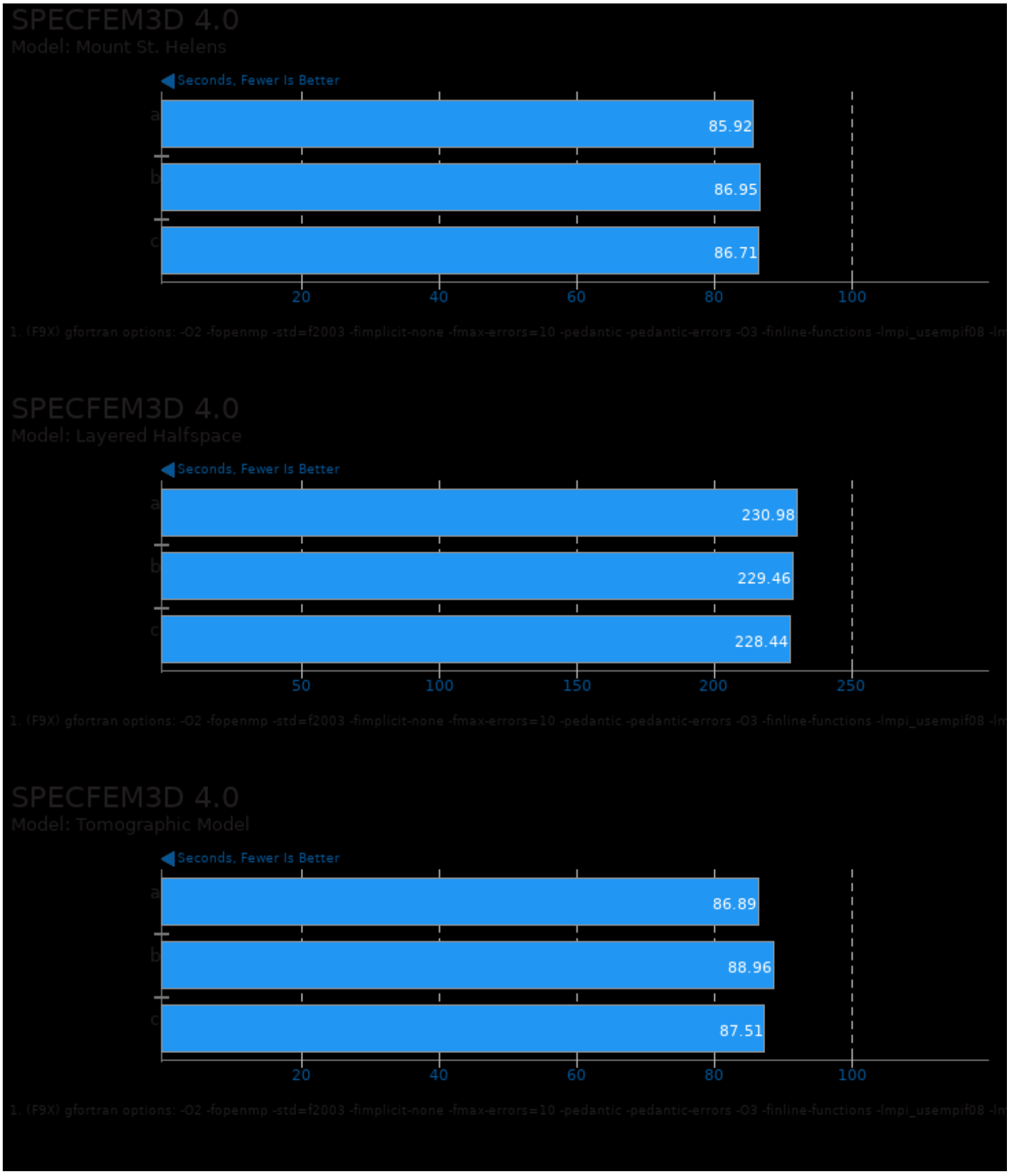
Processor: AMD Ryzen 7 PRO 6850U @ 4.77GHz (8 Cores / 16 Threads), Motherboard: LENOVO 21CM0001US (R22ET51W 1.21 BIOS), Chipset: AMD Device 14b5, Memory: 16GB, Disk: 512GB Micron MTFDKBA512TFK, Graphics: AMD Radeon 680M 1GB (2200/400MHz), Audio: AMD Rembrandt Radeon HD Audio, Network: Qualcomm QCNFA765

OS: Ubuntu 22.10, Kernel: 6.1.0-060100rc2daily20221028-generic (x86_64), Desktop: GNOME Shell 43.0, Display Server: X Server + Wayland, OpenGL: 4.6 Mesa 22.2.1 (LLVM 15.0.2 DRM 3.49), Vulkan: 1.3.224, Compiler: GCC 12.2.0, File-System: ext4, Screen Resolution: 1920x1200

Kernel Notes: Transparent Huge Pages: madvise
Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-cet --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,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-defaulted --enable-offload-targets=nvptx-none=/build/gcc-12-U8K4Qv/gcc-12-12.2.0/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-12-U8K4Qv/gcc-12-12.2.0/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-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: amd-pstate schedutil (Boost: Enabled) - Platform Profile: performance - CPU Microcode: 0xa404102 - ACPI Profile: performance
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + mmio_stale_data: Not affected + retbleed: 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 PBRSB-eIBRS: Not affected + srbds: Not affected + tsx_async_abort: Not affected

	a	b	c
SPECFEM3D - Mount St. Helens (sec)	**85.922559256**	**86.947204777**	86.708711085
Normalized	100%	98.82%	99.09%
SPECFEM3D - Layered Halfspace (sec)	**230.978386966**	229.458919152	**228.435457869**
Normalized	98.9%	99.55%	100%
SPECFEM3D - Tomographic Model (sec)	**86.889739201**	**88.956409091**	87.50899919
Normalized	100%	97.68%	99.29%
SPECFEM3D - H.H (sec)	**112.244378467**	**112.683390257**	112.255694275
Normalized	100%	99.61%	99.99%
SPECFEM3D - W.I.H (sec)	**221.26178042**	221.281286709	**222.306865851**
Normalized	100%	99.99%	99.53%
OpenSSL - SHA256 (byte/s)	10134936210	**10135398880**	**10115414510**
Normalized	100%	100%	99.8%
OpenSSL - SHA512 (byte/s)	3285589670	**3287280570**	**3282310150**
Normalized	99.95%	100%	99.85%
OpenSSL - RSA4096 (sign/s)	**1937**	**1942**	1937
Normalized	99.73%	100%	99.74%
OpenSSL - RSA4096 (verify/s)	**123122**	123084	**123074**
Normalized	100%	99.97%	99.96%
OpenSSL - ChaCha20 (byte/s)	29338168520	**29299947660**	**29338644480**
Normalized	100%	99.87%	100%
OpenSSL - AES-128-GCM (byte/s)	32253847140	**32270233330**	**32250330320**
Normalized	99.95%	100%	99.94%
OpenSSL - AES-256-GCM (byte/s)	**29829310330**	29809979670	**29786954680**
Normalized	100%	99.94%	99.86%
OpenSSL - ChaCha20-Poly1305 (byte/s)	**19712137350**	**19788765050**	19776711070
Normalized	99.61%	100%	99.94%

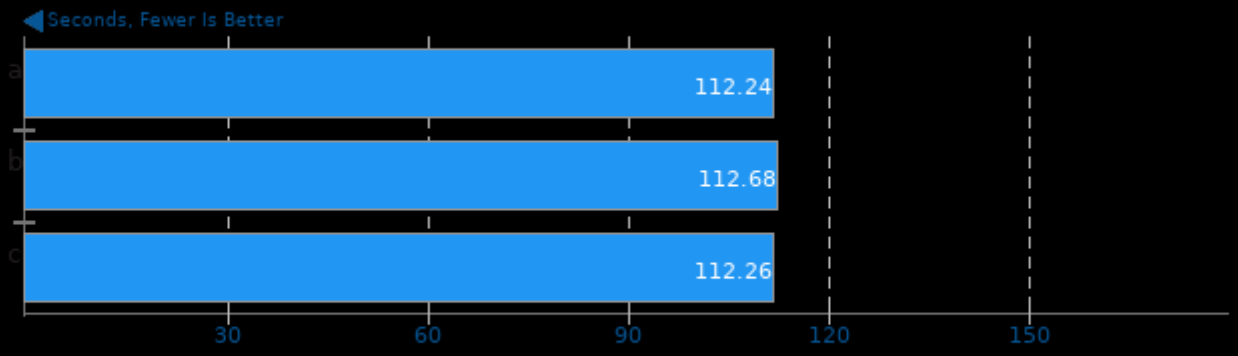
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SPECFEM3D 4.0

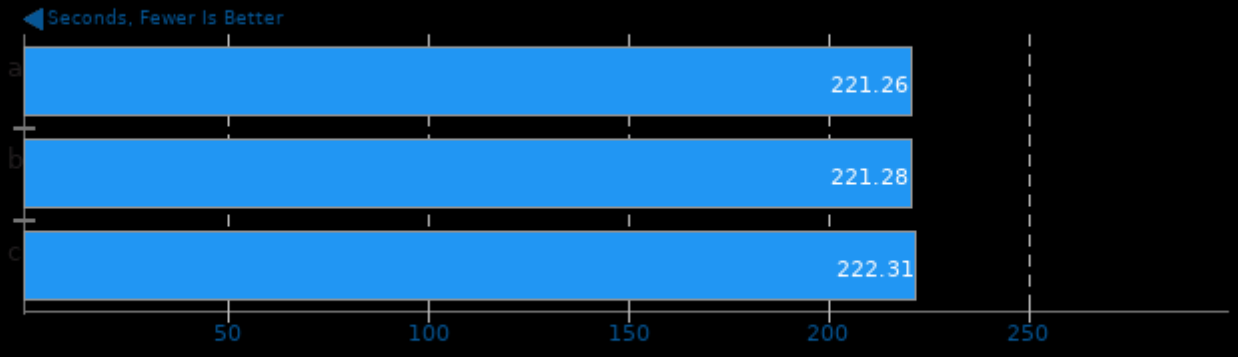
Model: Homogeneous Halfspace



1. (F9X) gfortran options: -O2 -fopenmp -std=f2003 -fimplicit-none -fmax-errors=10 -pedantic -pedantic-errors -O3 -finline-functions -lmpi_usempif08 -lm

SPECFEM3D 4.0

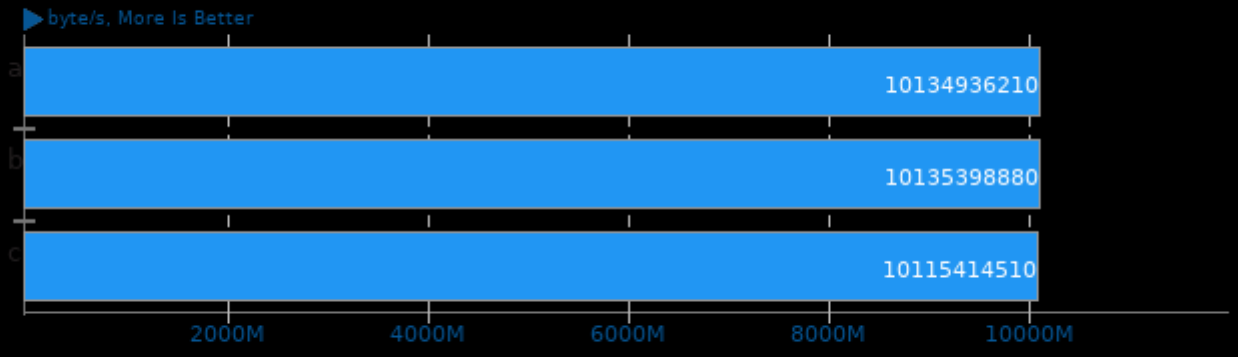
Model: Water-layered Halfspace



1. (F9X) gfortran options: -O2 -fopenmp -std=f2003 -fimplicit-none -fmax-errors=10 -pedantic -pedantic-errors -O3 -finline-functions -lmpi_usempif08 -lm

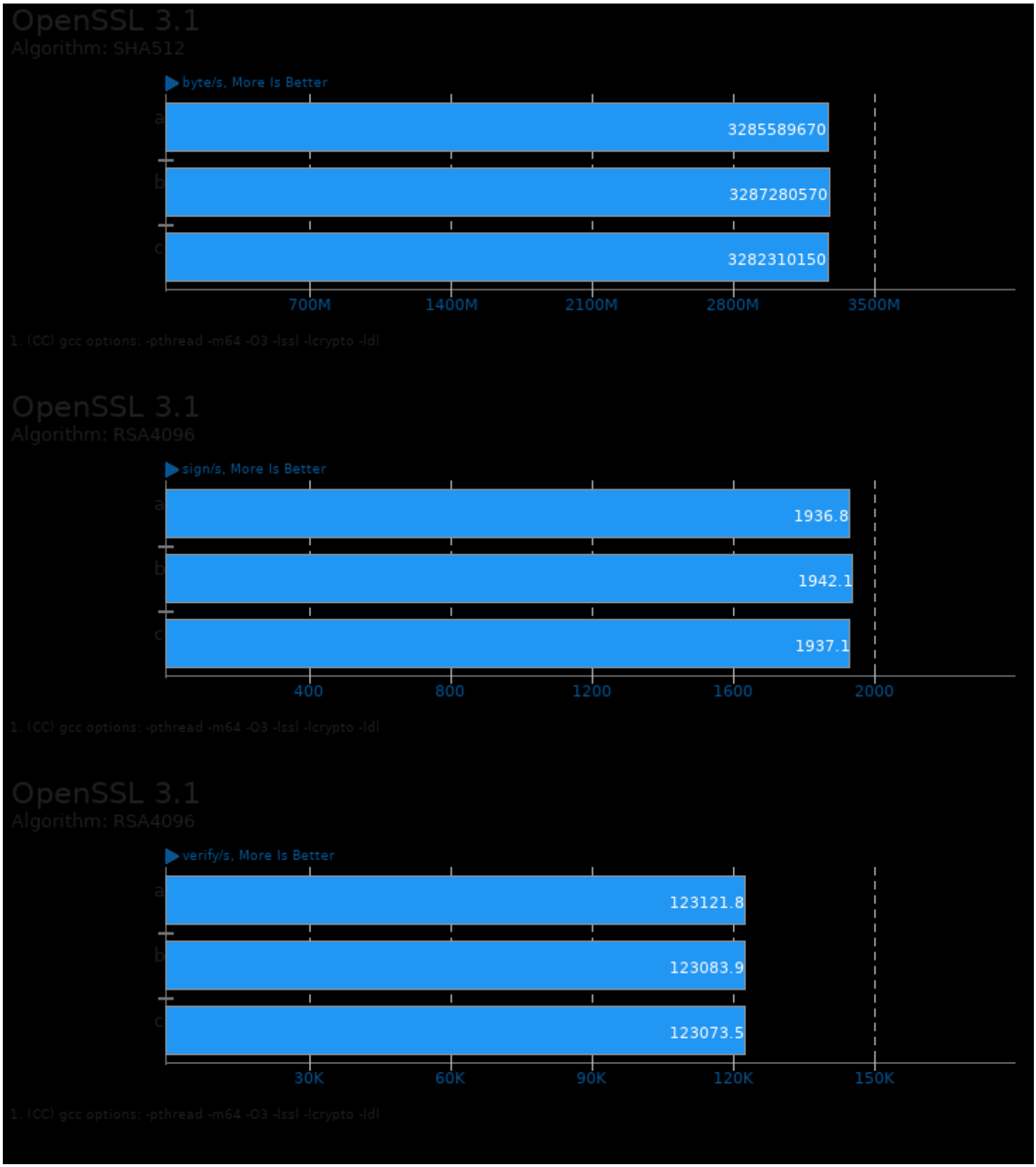
OpenSSL 3.1

Algorithm: SHA256

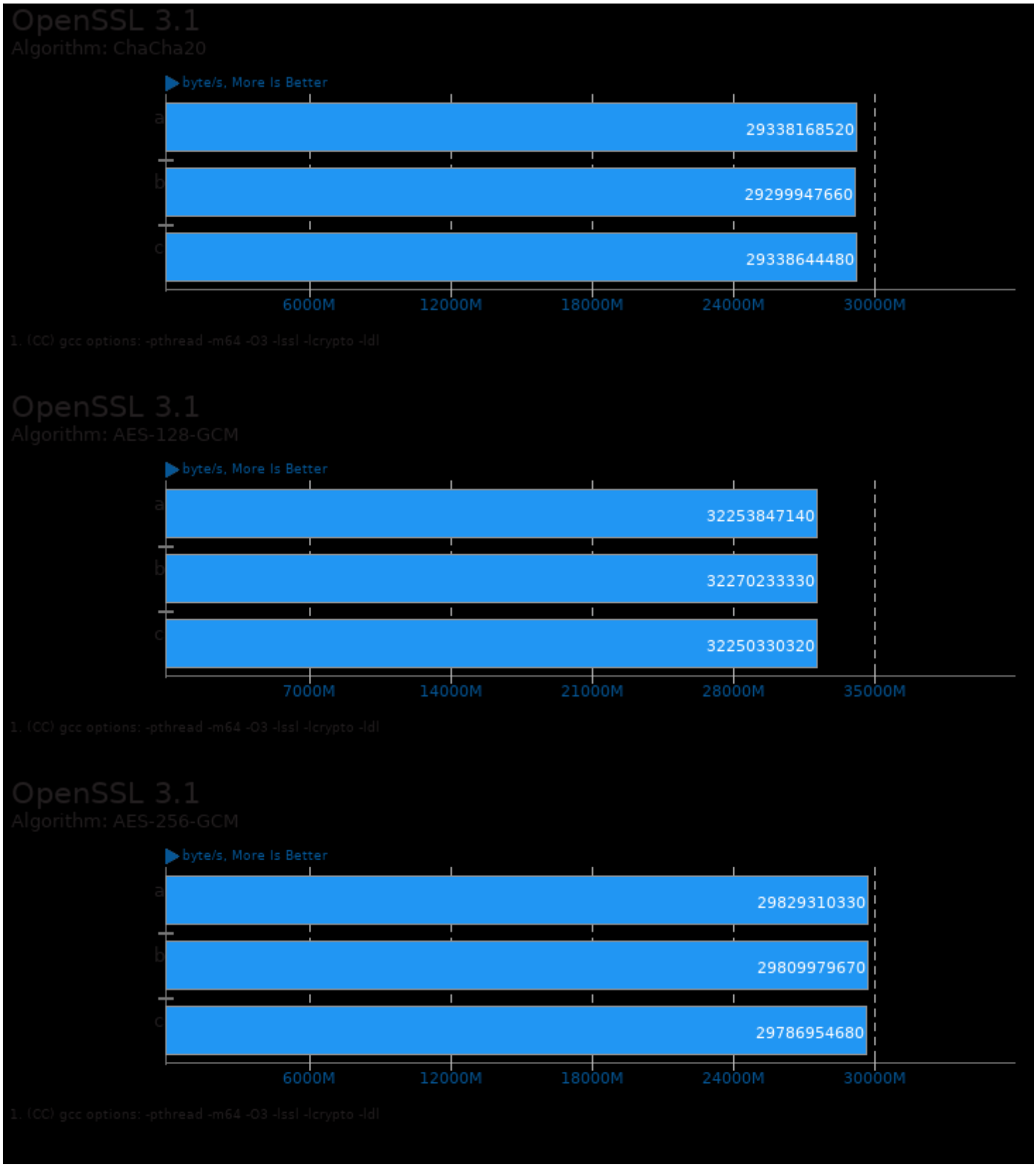


1. (CC) gcc options: -pthread -m64 -O3 -lssl -lcrypto -ldl

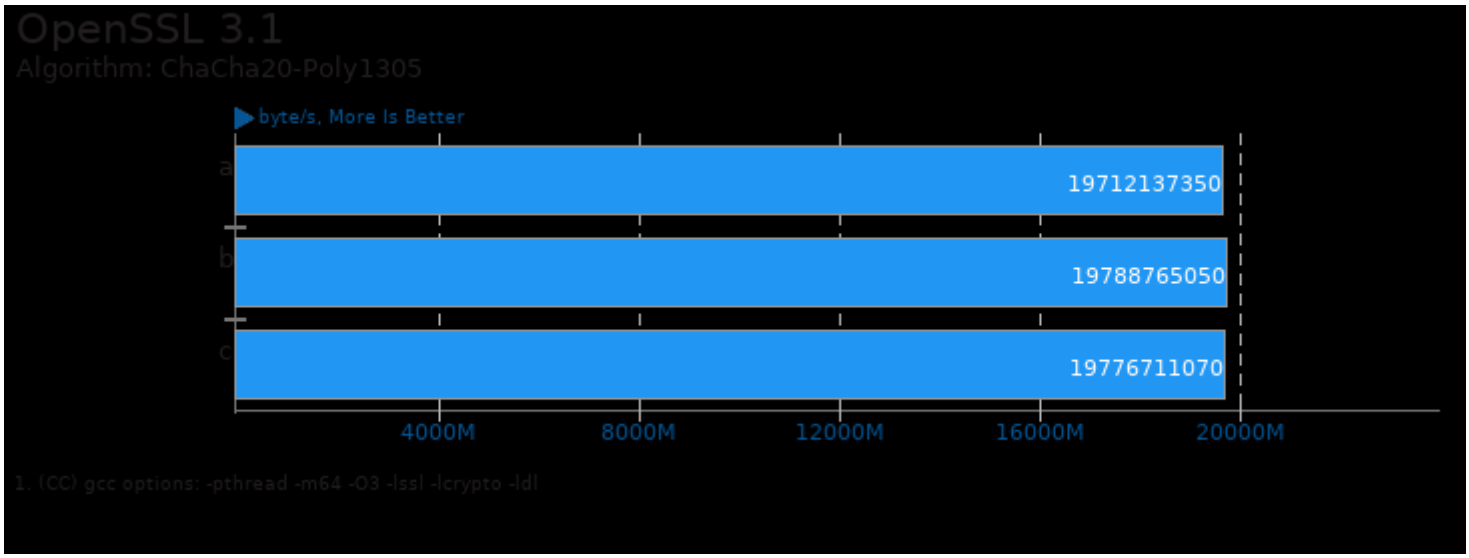
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