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Initial Ryzen 7 4700U Linux Laptop Tests

Ryzen 7 4700U tests for a future article.

Automated Executive Summary

Core i7 9750H had the most wins, coming in first place for 46% of the tests.

Based on the geometric mean of all complete results, the fastest (Core i7 9750H) was 3.684x the speed of the slowest (Ryzen 3 3200U).

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

OSPray (Demo: Magnetic Reconnection - Renderer: Path Tracer) at 6.211x
Intel Open Image Denoise (Scene: Memorial) at 5.949x
LAMMPS Molecular Dynamics Simulator (Model: Rhodopsin Protein) at 4.387x
GROMACS (Water Benchmark) at 4.317x
OSPray (Demo: NASA Streamlines - Renderer: SciVis) at 4.249x
NAMD (ATPase Simulation - 327,506 Atoms) at 3.862x
Tungsten Renderer (Scene: Hair) at 3.801x
Timed MPlayer Compilation (Time To Compile) at 3.778x
x264 (H.264 Video Encoding) at 3.753x
Chaos Group V-RAY (Mode: CPU) at 3.717x.

Test Systems:

Core i7 8550U

Processor: Intel Core i7-8550U @ 4.00GHz (4 Cores / 8 Threads), Motherboard: Dell 0H0VG3 (1.10.0 BIOS), Chipset: Intel Xeon E3-1200 v6/7th, Memory: 8GB, Disk: PM961 NVMe SAMSUNG 256GB, Graphics: Intel UHD 620 3GB (1150MHz), Audio: Realtek ALC3271, Network: Qualcomm Atheros QCA6174 802.11ac

OS: Ubuntu 20.04, Kernel: 5.4.0-29-generic (x86_64), Desktop: GNOME Shell 3.36.1, Display Server: X Server 1.20.8, Display Driver: modesetting 1.20.8, OpenGL: 4.6 Mesa 20.0.4, Compiler: GCC 9.3.0, File-System: ext4, Screen Resolution: 1920x1080

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++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none,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
Disk Notes: NONE / errors=remount-ro,relatime,rw
Processor Notes: Scaling Governor: intel_pstate powersave - CPU Microcode: 0xca
Python Notes: + Python 3.8.2
Security Notes: itlb_multihit: KVM: Mitigation of Split huge pages + l1tf: Mitigation of PTE Inversion; VMX: conditional cache flushes SMT vulnerable + mds: Mitigation of Clear buffers; SMT vulnerable + meltdown: Mitigation of PTI + 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 generic retpoline IBPB: conditional IBRS_FW STIBP: conditional RSB filling + tsx_async_abort: Not affected

Ryzen 7 4700U

Processor: AMD Ryzen 7 4700U @ 2.00GHz (8 Cores), Motherboard: LENOVO LNVNB161216 (DTCN18WWV1.04 BIOS), Chipset: AMD Renoir Root Complex, Memory: 16GB, Disk: 512GB SAMSUNG MZALQ512HALU-000L2, Graphics: AMD Renoir 512MB (1600/400MHz), Audio: AMD Device 1637, Network: Intel Wi-Fi 6 AX200

OS: Ubuntu 20.04, Kernel: 5.6.11-050611-generic (x86_64), Desktop: GNOME Shell 3.36.1, Display Server: X Server 1.20.8, Display Driver: modesetting 1.20.8, OpenGL: 4.6 Mesa 20.0.4 (LLVM 9.0.1), Compiler: GCC 9.3.0, File-System: ext4, Screen Resolution: 1920x1080

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++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none,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
Disk Notes: NONE / errors=remount-ro,relatime,rw
Processor Notes: Scaling Governor: acpi-cpufreq ondemand - CPU Microcode: 0x8600102
Python Notes: Python 3.8.2
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 + tsx_async_abort: Not affected

Core i7 8565U

Processor: Intel Core i7-8565U @ 4.60GHz (4 Cores / 8 Threads), Motherboard: Dell 0KTW76 (1.0.0 BIOS), Chipset: Intel Cannon Point-LP, Memory: 16GB, Disk: PC401 NVMe SK hynix 256GB, Graphics: Intel UHD 620 3GB (1150MHz), Audio: Realtek ALC3271, Network: Qualcomm Atheros QCA6174 802.11ac

OS: Ubuntu 20.04, Kernel: 5.4.0-31-generic (x86_64), Desktop: GNOME Shell 3.36.1, Display Server: X Server 1.20.8, Display Driver: modesetting 1.20.8, OpenGL: 4.6 Mesa 20.0.4, OpenCL: OpenCL 2.1, Compiler: GCC 9.3.0, File-System: ext4, Screen Resolution: 1920x1080

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++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none,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: intel_pstate powersave - CPU Microcode: 0xca
Python Notes: Python 3.8.2
Security Notes: itlb_multihit: KVM: Mitigation of Split huge pages + l1tf: Not affected + mds: Mitigation of Clear buffers; SMT vulnerable + 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 generic retpoline IBPB: conditional IBRS_FW STIBP: conditional RSB filling + tsx_async_abort: Not affected

Core i7 9750H

Processor: Intel Core i7-9750H @ 4.50GHz (6 Cores / 12 Threads), Motherboard: Notebook P95_96_97Ex Rx (1.07.13MIN29 BIOS), Chipset: Intel Cannon Lake PCH, Memory: 32GB, Disk: 1000GB Samsung SSD 970 EVO Plus 1TB, Graphics: Intel UHD 630 3GB (1150MHz), Audio: Realtek ALC1220, Network: Realtek RTL8111/8168/8411 + Intel-AC 9560

OS: Ubuntu 20.04, Kernel: 5.4.0-33-generic (x86_64), Desktop: GNOME Shell 3.36.1, Display Server: X Server 1.20.8, Display Driver: modesetting 1.20.8, OpenGL: 4.6 Mesa 20.0.4, Compiler: GCC 9.3.0, File-System: ext4, Screen Resolution: 1920x1080

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++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none,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: intel_pstate powersave - CPU Microcode: 0xca
Java Notes: OpenJDK Runtime Environment (build 11.0.7+10-post-Ubuntu-3ubuntu1)
Python Notes: Python 3.8.2
Security Notes: itlb_multihit: KVM: Mitigation of Split huge pages + l1tf: Mitigation of PTE Inversion; VMX: conditional cache flushes SMT vulnerable + mds: Mitigation of Clear buffers; SMT vulnerable + meltdown: Mitigation of PTI + 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 generic retpoline IBPB: conditional IBRS_FW STIBP: conditional RSB filling + tsx_async_abort: Not affected

Ryzen 3 3200U

Processor: AMD Ryzen 3 3200U @ 2.60GHz (2 Cores / 4 Threads), Motherboard: MOTILE PF4PU1F (N.1.03 BIOS), Chipset: AMD Raven/Raven2, Memory: 3584MB, Disk: 128GB BIWIN SSD, Graphics: AMD Picasso 512MB (1200/1200MHz), Audio: AMD Raven/Raven2/Fenghuang, Network: Realtek RTL8111/8168/8411 + Intel Dual Band-AC 3168NGW

OS: Ubuntu 20.04, Kernel: 5.4.0-28-generic (x86_64), Desktop: GNOME Shell 3.36.1, Display Server: X Server 1.20.8, Display Driver: amdgpu 19.1.0, OpenGL: 4.6 Mesa 20.0.4 (LLVM 9.0.1), Compiler: GCC 9.3.0, File-System: ext4, Screen Resolution: 1920x1080

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++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none,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
Disk Notes: MQ-DEADLINE / errors=remount-ro,relatime,rw
Processor Notes: Scaling Governor: acpi-cpufreq ondemand - CPU Microcode: 0x8108102
Graphics Notes: GLAMOR
Python Notes: + Python 3.8.2
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: disabled RSB filling + tsx_async_abort: Not affected

Core i7 1065G7

Processor: Intel Core i7-1065G7 @ 3.90GHz (4 Cores / 8 Threads), Motherboard: Dell 06CDVY (1.0.9 BIOS), Chipset: Intel Device 34ef, Memory: 16GB, Disk: KBG40ZPZ512G NVMe TOSHIBA 512GB, Graphics: Intel Iris Plus G7 3GB (1100MHz), Audio: Realtek ALC289, Network: Intel Killer Wi-Fi 6 AX1650i 160MHz

OS: Ubuntu 20.04, Kernel: 5.4.0-33-generic (x86_64), Desktop: GNOME Shell 3.36.2, Display Server: X Server 1.20.8, Display Driver: modesetting 1.20.8, OpenGL: 4.6 Mesa 20.0.4, Vulkan: 1.2.131, Compiler: GCC 9.3.0, File-System: ext4, Screen Resolution: 1920x1200

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++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none,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: intel_pstate powersave - CPU Microcode: 0x78
Java Notes: OpenJDK Runtime Environment (build 11.0.7+10-post-Ubuntu-3ubuntu1)
Python Notes: Python 3.8.2
Security Notes: itlb_multihit: KVM: Mitigation of Split huge pages + 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 Enhanced IBRS IBPB: conditional RSB filling + tsx_async_abort: Not affected

Core i5 5300U

Processor: Intel Core i5-5300U @ 2.90GHz (2 Cores / 4 Threads), Motherboard: HP 2216 (M71 Ver. 01.27 BIOS), Chipset: Intel Broadwell-U-OPI, Memory: 8GB, Disk: 256GB MTFDDAK256MAM-1K, Graphics: Intel HD 5500 (900MHz), Audio: Intel Broadwell-U Audio, Network: Intel I218-LM + Intel 7265

OS: Ubuntu 20.04, Kernel: 5.4.0-33-generic (x86_64), Desktop: GNOME Shell 3.36.1, Display Server: X Server 1.20.8, Display Driver: modesetting 1.20.8, OpenGL: 4.6 Mesa 20.0.4, Compiler: GCC 9.3.0, File-System: ext4, Screen Resolution: 1366x768

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++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none,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: intel_pstate powersave - CPU Microcode: 0x2e
Java Notes: OpenJDK Runtime Environment (build 11.0.7+10-post-Ubuntu-3ubuntu1)
Python Notes: Python 3.8.2
Security Notes: itlb_multihit: KVM: Mitigation of Split huge pages + l1tf: Mitigation of PTE Inversion; VMX: conditional cache flushes SMT vulnerable + mds: Mitigation of Clear buffers; SMT vulnerable + meltdown: Mitigation of PTI + 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 generic retpoline IBPB: conditional IBRS_FW STIBP: conditional RSB filling + tsx_async_abort: Mitigation of Clear buffers; SMT vulnerable

Ryzen 7 4700U - E14 1a

Processor: AMD Ryzen 7 4700U @ 2.00GHz (8 Cores), Motherboard: LENOVO 20T6002VRI (R1AET34W 1.10 BIOS), Chipset: AMD Renoir Root Complex, Memory: 2 x 8 GB DDR4-3200MT/s Samsung M471A1K43DB1-CWE, Disk: 512GB Western Digital PC SN530 SDBPMPZ-512G-1001, Graphics: AMD Renoir 512MB (1600/400MHz), Audio: AMD Device 1637, Network: Realtek RTL8111/8168/8411 + Intel Wi-Fi 6 AX200

OS: Slackware 14.2 x86_64, Kernel: 5.12.14-bs3 (x86_64), Desktop: KDE Plasma 5.22.2, Display Server: X Server 1.20.11, OpenGL: 4.6 Mesa 21.1.4 (LLVM 12.0.0), Vulkan: 1.2.168, Compiler: GCC 10.3.0 + Clang 12.0.0 + LLVM 12.0.0, File-System: ext4, Screen Resolution: 1920x1080

Kernel Notes: ipv6.disable=1 - Transparent Huge Pages: madvise
Compiler Notes: --build=x86_64-slackware-linux --disable-gtktest --disable-install-libiberty --disable-libssp --disable-libstdcxx-pch --disable-libunwind-exceptions --disable-werror --enable-__cxa_atexit --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-gnu-indirect-function --enable-gnu-unique-object --enable-languages=ada,brig,c,c++,d,fortran,go,lto,objc,obj-c++ --enable-libstdcxx-dual-abi --enable-lto --enable-multilib --enable-objc-gc --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-slackware-linux --mandir=/usr/man --target=x86_64-slackware-linux --verbose --with-arch-directory=amd64 --with-default-libstdcxx-abi=new --with-gnu-ld --with-isl --with-linker-hash-style=gnu
Processor Notes: Scaling Governor: acpi-cpufreq performance (Boost: Enabled) - CPU Microcode: 0x8600103 - ACPI Profile: balanced
Python Notes: Python 2.7.18 + Python 3.9.6
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: Vulnerable IBPB: disabled STIBP: disabled + srbds: Not affected + tsx_async_abort: Not affected

Ryzen 7 4700U - E14 4

Processor: AMD Ryzen 7 4700U @ 2.00GHz (8 Cores), Motherboard: LENOVO 20T6002VRI (R1AET34W 1.10 BIOS), Chipset: AMD Renoir Root Complex, Memory: 2 x 8 GB DDR4-3200MT/s Samsung M471A1K43DB1-CWE, Disk: 512GB Western Digital PC SN530 SDBPMPZ-512G-1001, Graphics: AMD Renoir 512MB (1600/400MHz), Audio: AMD Device 1637, Network: Realtek RTL8111/8168/8411 + Intel Wi-Fi 6 AX200

OS: Slackware 14.2 x86_64, Kernel: 5.12.14-bs4 (x86_64), Desktop: KDE Plasma 5.22.2, Display Server: X Server 1.20.11, OpenGL: 4.6 Mesa 21.1.4 (LLVM 12.0.0), Vulkan: 1.2.168, Compiler: GCC 10.3.0 + Clang 12.0.0 + LLVM 12.0.0, File-System: ext4, Screen Resolution: 1920x1080

Kernel Notes: ipv6.disable=1 - Transparent Huge Pages: madvise
Compiler Notes: --build=x86_64-slackware-linux --disable-gtktest --disable-install-libiberty --disable-libssp --disable-libstdcxx-pch --disable-libunwind-exceptions --disable-werror --enable-__cxa_atexit --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-gnu-indirect-function --enable-gnu-unique-object --enable-languages=ada,brig,c,c++,d,fortran,go,lto,objc,obj-c++ --enable-libstdcxx-dual-abi --enable-lto --enable-multilib --enable-objc-gc --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-slackware-linux --mandir=/usr/man --target=x86_64-slackware-linux --verbose --with-arch-directory=amd64 --with-default-libstdcxx-abi=new --with-gnu-ld --with-isl --with-linker-hash-style=gnu
Processor Notes: Scaling Governor: acpi-cpufreq performance (Boost: Enabled) - CPU Microcode: 0x8600103 - ACPI Profile: balanced
Python Notes: Python 2.7.18 + Python 3.9.6
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: Vulnerable IBPB: disabled STIBP: disabled + srbds: Not affected + tsx_async_abort: Not affected

Ryzen 7 4700U - E14 5

Processor: AMD Ryzen 7 4700U @ 2.00GHz (8 Cores), Motherboard: LENOVO 20T6002VRI (R1AET34W 1.10 BIOS), Chipset: AMD Renoir Root Complex, Memory: 2 x 8 GB DDR4-3200MT/s Samsung M471A1K43DB1-CWE, Disk: 512GB Western Digital PC SN530 SDBPMPZ-512G-1001, Graphics: AMD Renoir 512MB (1600/400MHz), Audio: AMD Device 1637, Network: Realtek RTL8111/8168/8411 + Intel Wi-Fi 6 AX200

OS: Slackware 14.2 x86_64, Kernel: 5.12.14-bs5 (x86_64), Desktop: KDE Plasma 5.22.2, Display Server: X Server 1.20.11, OpenGL: 4.6 Mesa 21.1.4 (LLVM 12.0.0), Vulkan: 1.2.168, Compiler: GCC 10.3.0 + Clang 12.0.0 + LLVM 12.0.0, File-System: ext4, Screen Resolution: 1920x1080

Kernel Notes: ipv6.disable=1 - Transparent Huge Pages: madvise
Compiler Notes: --build=x86_64-slackware-linux --disable-gtktest --disable-install-libiberty --disable-libssp --disable-libstdcxx-pch --disable-libunwind-exceptions --disable-werror --enable-__cxa_atexit --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-gnu-indirect-function --enable-gnu-unique-object --enable-languages=ada,brig,c,c++,d,fortran,go,lto,objc,obj-c++ --enable-libstdcxx-dual-abi --enable-lto --enable-multilib --enable-objc-gc --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-slackware-linux --mandir=/usr/man --target=x86_64-slackware-linux --verbose --with-arch-directory=amd64 --with-default-libstdcxx-abi=new --with-gnu-ld --with-isl --with-linker-hash-style=gnu
Processor Notes: Scaling Governor: acpi-cpufreq performance (Boost: Enabled) - CPU Microcode: 0x8600103 - ACPI Profile: balanced
Python Notes: Python 2.7.18 + Python 3.9.6
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: Vulnerable IBPB: disabled STIBP: disabled + srbds: Not affected + tsx_async_abort: Not affected

Ryzen 7 4700U - E14 6

Processor: AMD Ryzen 7 4700U @ 2.00GHz (8 Cores), Motherboard: LENOVO 20T6002VRI (R1AET34W 1.10 BIOS), Chipset: AMD Renoir Root Complex, Memory: 2 x 8 GB DDR4-3200MT/s Samsung M471A1K43DB1-CWE, Disk: 512GB Western Digital PC SN530 SDBPMPZ-512G-1001, Graphics: AMD Renoir 512MB (1600/400MHz), Audio: AMD Device 1637, Network: Realtek RTL8111/8168/8411 + Intel Wi-Fi 6 AX200

OS: Slackware 14.2 x86_64, Kernel: 5.12.14-bs6 (x86_64), Desktop: KDE Plasma 5.22.2, Display Server: X Server 1.20.11, OpenGL: 4.6 Mesa 21.1.4 (LLVM 12.0.0), Vulkan: 1.2.168, Compiler: GCC 10.3.0 + Clang 12.0.0 + LLVM 12.0.0, File-System: ext4, Screen Resolution: 1920x1080

Kernel Notes: ipv6.disable=1 - Transparent Huge Pages: madvise
Compiler Notes: --build=x86_64-slackware-linux --disable-gtktest --disable-install-libiberty --disable-libssp --disable-libstdcxx-pch --disable-libunwind-exceptions --disable-werror --enable-__cxa_atexit --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-gnu-indirect-function --enable-gnu-unique-object --enable-languages=ada,brig,c,c++,d,fortran,go,lto,objc,obj-c++ --enable-libstdcxx-dual-abi --enable-lto --enable-multilib --enable-objc-gc --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-slackware-linux --mandir=/usr/man --target=x86_64-slackware-linux --verbose --with-arch-directory=amd64 --with-default-libstdcxx-abi=new --with-gnu-ld --with-isl --with-linker-hash-style=gnu

Processor Notes: Scaling Governor: acpi-cpufreq performance (Boost: Enabled) - CPU Microcode: 0x8600103 - ACPI Profile: balanced
Python Notes: Python 2.7.18 + Python 3.9.6
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: Vulnerable IBPB: disabled STIBP: disabled + srbds: Not affected + tsx_async_abort: Not affected

Ryzen 7 4700U - E14 7

Processor: AMD Ryzen 7 4700U @ 2.00GHz (8 Cores), Motherboard: LENOVO 20T6002VRI (R1AET34W 1.10 BIOS), Chipset: AMD Renoir Root Complex, Memory: 2 x 8 GB DDR4-3200MT/s Samsung M471A1K43DB1-CWE, Disk: 512GB Western Digital PC SN530 SDBPMPZ-512G-1001, Graphics: AMD Renoir 512MB (1600/400MHz), Audio: AMD Device 1637, Network: Realtek RTL8111/8168/8411 + Intel Wi-Fi 6 AX200

OS: Slackware 14.2 x86_64, Kernel: 5.12.14-bs7 (x86_64), Desktop: KDE Plasma 5.22.2, Display Server: X Server 1.20.11, OpenGL: 4.6 Mesa 21.1.4 (LLVM 12.0.0), Vulkan: 1.2.168, Compiler: GCC 10.3.0 + Clang 12.0.0 + LLVM 12.0.0, File-System: ext4, Screen Resolution: 1920x1080

Kernel Notes: ipv6.disable=1 - Transparent Huge Pages: madvise
Compiler Notes: --build=x86_64-slackware-linux --disable-gtktest --disable-install-libiberty --disable-libssp --disable-libstdcxx-pch --disable-libunwind-exceptions --disable-werror --enable-__cxa_atexit --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-gnu-indirect-function --enable-gnu-unique-object --enable-languages=ada,brig,c,c++,d,fortran,go,lto,objc,obj-c++ --enable-libstdcxx-dual-abi --enable-lto --enable-multilib --enable-objc-gc --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-slackware-linux --mandir=/usr/man --target=x86_64-slackware-linux --verbose --with-arch-directory=amd64 --with-default-libstdcxx-abi=new --with-gnu-ld --with-isl --with-linker-hash-style=gnu
Processor Notes: Scaling Governor: acpi-cpufreq performance (Boost: Enabled) - CPU Microcode: 0x8600103 - ACPI Profile: balanced
Python Notes: Python 2.7.18 + Python 3.9.6
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: Vulnerable IBPB: disabled STIBP: disabled + srbds: Not affected + tsx_async_abort: Not affected

Ryzen 7 4700U - E14 13_4

Processor: AMD Ryzen 7 4700U @ 2.00GHz (8 Cores), Motherboard: LENOVO 20T6002VRI (R1AET34W 1.10 BIOS), Chipset: AMD Renoir Root Complex, Memory: 2 x 8 GB DDR4-3200MT/s Samsung M471A1K43DB1-CWE, Disk: 512GB Western Digital PC SN530 SDBPMPZ-512G-1001, Graphics: AMD Renoir 512MB (1600/400MHz), Audio: AMD Device 1637, Network: Realtek RTL8111/8168/8411 + Intel Wi-Fi 6 AX200

OS: Slackware 14.2 x86_64, Kernel: 5.13.0-bs4 (x86_64), Desktop: KDE Plasma 5.22.2, Display Server: X Server 1.20.11, OpenGL: 4.6 Mesa 21.1.4 (LLVM 12.0.0), Vulkan: 1.2.168, Compiler: GCC 10.3.0 + Clang 12.0.0 + LLVM 12.0.0, File-System: ext4, Screen Resolution: 1920x1080

Kernel Notes: ipv6.disable=1 - Transparent Huge Pages: madvise
Compiler Notes: --build=x86_64-slackware-linux --disable-gtktest --disable-install-libiberty --disable-libssp --disable-libstdcxx-pch --disable-libunwind-exceptions --disable-werror --enable-__cxa_atexit --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-gnu-indirect-function --enable-gnu-unique-object --enable-languages=ada,brig,c,c++,d,fortran,go,lto,objc,obj-c++ --enable-libstdcxx-dual-abi --enable-lto --enable-multilib --enable-objc-gc --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-slackware-linux --mandir=/usr/man --target=x86_64-slackware-linux --verbose --with-arch-directory=amd64 --with-default-libstdcxx-abi=new --with-gnu-ld --with-isl --with-linker-hash-style=gnu
Processor Notes: Scaling Governor: acpi-cpufreq performance (Boost: Enabled) - CPU Microcode: 0x8600103 - ACPI Profile: balanced
Python Notes: Python 2.7.18 + Python 3.9.6
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: Vulnerable IBPB: disabled STIBP: disabled + srbds: Not affected + tsx_async_abort: Not affected

Core i5 8265U

Processor: Intel Core i5-8265U @ 3.90GHz (4 Cores / 8 Threads), Motherboard: LENOVO 20N9S19A00 (R0YET28W 1.11 BIOS), Chipset: Intel Cannon Point-LP, Memory: 16GB, Disk: 256GB Western Digital WDS256G1X0C-00ENX0, Graphics: Intel UHD 620 3GB (1100MHz), Audio: Conexant CX8070, Monitor: HP 27er, Network: Realtek RTL8111/8168/8411 + Intel-AC 9260

OS: Ubuntu 20.04, Kernel: 5.10.0-1045-oem (x86_64), Display Server: X Server 1.20.11, OpenGL: 4.6 Mesa 21.0.3, Vulkan: 1.2.145, Compiler: GCC 9.3.0, File-System: ext4, Screen Resolution: 3286x1080

Initial Ryzen 7 4700U Linux Laptop Tests

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++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-9-HskZEa/gcc-9-9.3.0/debian/tmp-nvptx/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: intel_pstate powersave - CPU Microcode: 0xea
Java Notes: OpenJDK Runtime Environment (build 11.0.11+9-Ubuntu-0ubuntu2.20.04)
Python Notes: Python 3.8.10
Security Notes: itlb_multihit: KVM: Mitigation of VMX disabled + l1tf: Not affected + mds: Mitigation of Clear buffers; SMT vulnerable + 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 generic retpoline IBPB: conditional IBRS_FW STIBP: conditional RSB filling + srbds: Mitigation of Microcode + tsx_async_abort: Not affected

	Core i7 8550U	Ryzen 7 4700U	Core i7 8565U	Core i7 9750H	Ryzen 3 3200U	Core i7 1065G7	Core i5 5300U	Ryzen 7 4700U - E141a	Ryzen 7 4700U - E144	Ryzen 7 4700U - E145	Ryzen 7 4700U - E146	Ryzen 7 4700U - E147	Ryzen 7 4700U - E13_4	Core i5 8265U
NAMD - ATPase Simulation - 327,506 Atoms	6.39663	3.54061	6.93891	**3.19628**	**12.34447**	5.88158	11.03320	4.13874	4.11161	4.04480	3.97028	3.96956	4.08287	5.04257
Normalized	49.97%	90.27%	46.06%	100%	25.89%	54.34%	28.97%	77.23%	77.74%	79.02%	80.51%	80.52%	78.29%	63.39%
Standard Deviation	0.2%	0.1%	1%	0.3%	0.3%	0.1%	0.1%	1.7%	11.4%	9.6%	2.5%	0.5%	13.2%	1.1%
LAMMPS Molecular Dynamics Simulator - Rhodopsin Protein (ns/day)	2.141	**4.747**	2.090	3.755	1.223	2.418	**1.082**	3.808	4.033	4.079	4.157	4.107	4.054	2.570
Normalized	45.1%	100%	44.03%	79.1%	25.76%	50.94%	22.79%	80.22%	84.96%	85.93%	87.57%	86.52%	85.4%	54.14%
Standard Deviation	4.3%	0.2%	5.1%	0.4%	1.1%	7.4%	0.1%	5.7%	2.4%	1.5%	1.9%	1.3%	1.2%	1%
OSPray - NASA Streamlines - SciVis (FPS)	5.06	8.92	4.98	**10.24**	**2.41**	5.10	3.00	7.98	7.92	8.02	8.15	8.06	7.98	6.74
Normalized	49.41%	87.11%	48.63%	100%	23.54%	49.8%	29.3%	77.93%	77.34%	78.32%	79.59%	78.71%	77.93%	65.82%
Standard Deviation	0.3%	0.4%	0.2%	0.6%	0.1%	0%	0.3%	0.5%	0.5%	0.5%	0.5%	0%	0.5%	0.8%
OSPray - M.R - Path Tracer (FPS)	64.16	83.33	59.76	111.11	**23.00**	**142.86**	30.19	76.92	76.31	76.92	76.92	76.92	76.92	76.92
Normalized	44.91%	58.33%	41.83%	77.78%	16.1%	100%	21.13%	53.84%	53.42%	53.84%	53.84%	53.84%	53.84%	53.84%
Standard Deviation	7.2%	0%	18.7%	0%	2.2%	0%	1%	0%	2.4%	0%	0%	0%	0%	0%
Embree - Pathtracer - Crown (FPS)	2.8183	4.8415	2.7580	**5.5763**	1.6401	2.8196	**1.5878**	4.2967	4.3953	4.3404	4.3931	4.3271	4.2818	3.5328
Normalized	50.54%	86.82%	49.46%	100%	29.41%	50.56%	28.47%	77.05%	78.82%	77.84%	78.78%	77.6%	76.79%	63.35%
Standard Deviation	0.6%	2.9%	0.6%	0.3%	0.8%	0.8%	0.9%	0.2%	2.4%	0.1%	0.1%	0.8%	0.9%	1.2%

Initial Ryzen 7 4700U Linux Laptop Tests

SVT-AV1 - Enc Mode 8 - 1080p (FPS)	8.255	12.457	8.095	**14.986**	4.190	9.207	**4.159**						9.961
Normalized	55.08%	83.12%	54.02%	100%	27.96%	61.44%	27.75%						66.47%
Standard Deviation	1.3%	0.7%	1.2%	0.2%	0.3%	1.8%	0.4%						0.7%
SVT-VP9 - V.Q.O - Bosphorus 1080p (FPS)	48.45	75.96	47.80	**83.68**	**23.92**	51.11	24.87						58.32
Normalized	57.9%	90.77%	57.12%	100%	28.59%	61.08%	29.72%						69.69%
Standard Deviation	3.6%	1.8%	2.7%	0.7%	0.9%	3.2%	1.7%						0.9%
VP9 libvpx Encoding - Speed 5 (FPS)	16.24	18.93	16.21	**23.23**	**9.10**	16.76	9.27	20.36	20.45	20.69	20.15	20.78	20.63	17.82
Normalized	69.91%	81.49%	69.78%	100%	39.17%	72.15%	39.91%	87.65%	88.03%	89.07%	86.74%	89.45%	88.81%	76.71%
Standard Deviation	0.9%	0.8%	0.5%	0.3%	0.6%	1.6%	0.5%	1.4%	0.8%	0.4%	2.3%	1%	0.3%	0.1%
x264 - H.2.V.E (FPS)	28.37	51.19	27.79	**54.20**	15.77	28.32	**14.44**	46.41	46.87	46.68	45.81	46.68	46.51	34.63
Normalized	52.34%	94.45%	51.27%	100%	29.1%	52.25%	26.64%	85.63%	86.48%	86.13%	84.52%	86.13%	85.81%	63.89%
Standard Deviation	2.8%	1.8%	0.7%	2.9%	0.5%	2.9%	2.3%	2.2%	1.7%	2.1%	2.2%	1.8%	1.7%	1.5%
Intel Open Image Denoise - Memorial	2.24	**4.64**	2.21	4.29	**0.78**	4.56	1.27	4.34	4.51	4.38	4.00	4.10	3.87	2.79
Normalized	48.28%	100%	47.63%	92.46%	16.81%	98.28%	27.37%	93.53%	97.2%	94.4%	86.21%	88.36%	83.41%	60.13%
Standard Deviation	2%	4.5%	1.8%	0.1%	0.2%	2.8%	0.5%	0.5%	1.6%	0.9%	3.9%	4.8%	22.9%	1.2%
Timed FFmpeg Compilation - Time To	197.516	**98.890**	201.295	101.365	317.678	180.476	**354.809**	107.193	104.676	106.304	113.241	110.330	104.816	161.786
Normalized	50.07%	100%	49.13%	97.56%	31.13%	54.79%	27.87%	92.25%	94.47%	93.03%	87.33%	89.63%	94.35%	61.12%
Standard Deviation	0.3%	0.1%	0.1%	0.4%	1.2%	0.6%	0.2%	0.7%	2.5%	0.9%	0.4%	1.1%	2.9%	0.5%
Timed GDB GNU Debugger Compilation - Time To		156.144	210.836	**135.631**	**330.682**	193.638		158.324	156.434	160.206	153.458	163.981	149.337	189.977
Normalized		86.86%	64.33%	100%	41.02%	70.04%		85.67%	86.7%	84.66%	88.38%	82.71%	90.82%	71.39%
Standard Deviation		0.2%	0.1%	0.6%	0.2%	0.3%		0.3%	0.9%	0.5%	2.7%	1.7%	1%	0.2%
Timed Linux Kernel Compilation - Time To Compile (sec)	303.800	157.374	303.567	**152.935**	501.866	278.417	**560.120**							241.289
Normalized	50.34%	97.18%	50.38%	100%	30.47%	54.93%	27.3%							63.38%
Standard Deviation	0.4%	1.4%	0.6%	0.9%	0.2%	0.4%	0.3%							0.2%

Initial Ryzen 7 4700U Linux Laptop Tests

Timed MPlayer Compilation - Time To	134.396	68.112	138.730	68.998	231.427	130.440	257.297	84.283	76.420	76.217	79.459	73.468	113.828
Normalized	50.68%	100%	49.1%	98.72%	29.43%	52.22%	26.47%	80.81%	89.13%	89.37%	85.72%	92.71%	59.84%
Standard Deviation	1%	0.1%	0.7%	0.1%	0.4%	0.7%	0.1%	0.9%	0.1%	0.4%	0.7%	3.2%	0.4%
POV-Ray - Trace Time (sec)	184.326	88.867	187.372	91.974	272.777	193.330	322.946	104.170	97.931	97.326	101.354	90.064	145.838
Normalized	48.21%	100%	47.43%	96.62%	32.58%	45.97%	27.52%	85.31%	90.74%	91.31%	87.68%	98.67%	60.94%
Standard Deviation	0.3%	0.1%	0.2%	0.1%	0.1%	0.4%	0.1%	3.2%	0.5%	0.4%	1.4%	2.5%	0.2%
Tungsten Renderer - Hair (sec)	105.818	51.662	103.263	52.939	149.163	96.766	188.772	56.077	57.046	54.590	57.797	49.660	83.077
Normalized	46.93%	96.12%	48.09%	93.81%	33.29%	51.32%	26.31%	88.56%	87.05%	90.97%	85.92%	100%	59.78%
Standard Deviation	1.3%	0.2%	1.1%	1.5%	0.1%	1%	0.6%	0.8%	0.2%	0.2%	2.1%	0.4%	0.6%
Tungsten Renderer - Volumetric Caustic (sec)	35.611	18.472	36.370	19.008	54.121	36.283	61.497	20.864	20.572	20.407	21.518	18.594	28.697
Normalized	51.87%	100%	50.79%	97.18%	34.13%	50.91%	30.04%	88.54%	89.79%	90.52%	85.85%	99.34%	64.37%
Standard Deviation	2.7%	0.2%	2.2%	0%	0.2%	2.3%	0.1%	0.8%	0.3%	0.7%	1.9%	0.7%	0.7%
Numpy Benchmark (Score)	295.77	286.02	321.48		220.25	362.36							
Normalized	81.62%	78.93%	88.72%		60.78%	100%							
Standard Deviation	1.4%	0.3%	1.7%		0.2%	0.6%							
FLAC Audio Encoding - WAV To FLAC (sec)	9.586	8.147	9.685	8.729	11.763	8.903	14.507	8.255	8.294	8.185	8.366	8.225	10.021
Normalized	84.99%	100%	84.12%	93.33%	69.26%	91.51%	56.16%	98.69%	98.23%	99.54%	97.38%	99.05%	81.3%
Standard Deviation	0.3%	0.2%	1.4%	0.7%	1.4%	0.8%	0.4%	0.6%	0.9%	0.2%	0.3%	0.1%	0.7%
GROMACS - Water Benchmark (Ns/Day)	0.344	0.534	0.350	0.626	0.145	0.381	0.182	0.480	0.476			0.514	0.400
Normalized	54.95%	85.3%	55.91%	100%	23.16%	60.86%	29.07%	76.68%	76.04%			82.11%	63.9%
Standard Deviation	0.9%	0.2%	0.7%	1.4%	0.4%	0.5%	1%	4.1%	3.6%			2.2%	0.8%
SQLite Speedtest - Timed Time - Size 1,000 (sec)	78.223	66.993	69.676	65.194	92.356	58.863	110.655	74.150	72.843			72.998	72.069
Normalized	75.25%	87.86%	84.48%	90.29%	63.73%	100%	53.2%	79.38%	80.81%			80.64%	81.68%
Standard Deviation	1.5%	1.6%	0.5%	0.5%	0.2%	0.5%	0.5%	2.2%	0.4%			1%	0.7%
GEGL - Crop (sec)	8.811	8.051	9.997	8.762	10.335	8.740		8.916	8.824			8.847	11.176
Normalized	91.37%	100%	80.53%	91.89%	77.9%	92.12%		90.3%	91.24%			91%	72.04%
Standard Deviation	1.7%	1%	2.9%	1.4%	2.4%	2.4%		1.3%	0.5%			0.5%	1.2%

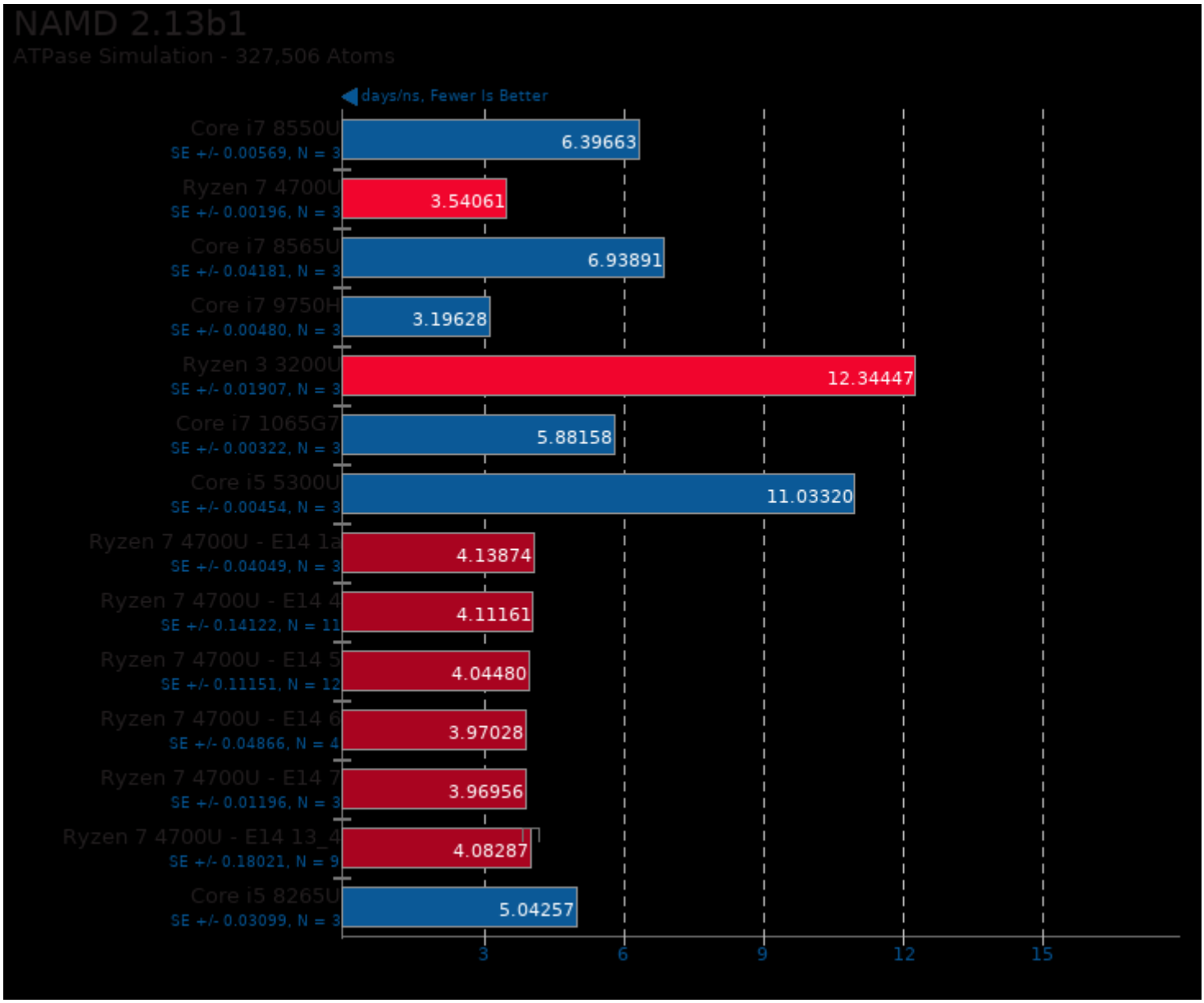
Initial Ryzen 7 4700U Linux Laptop Tests

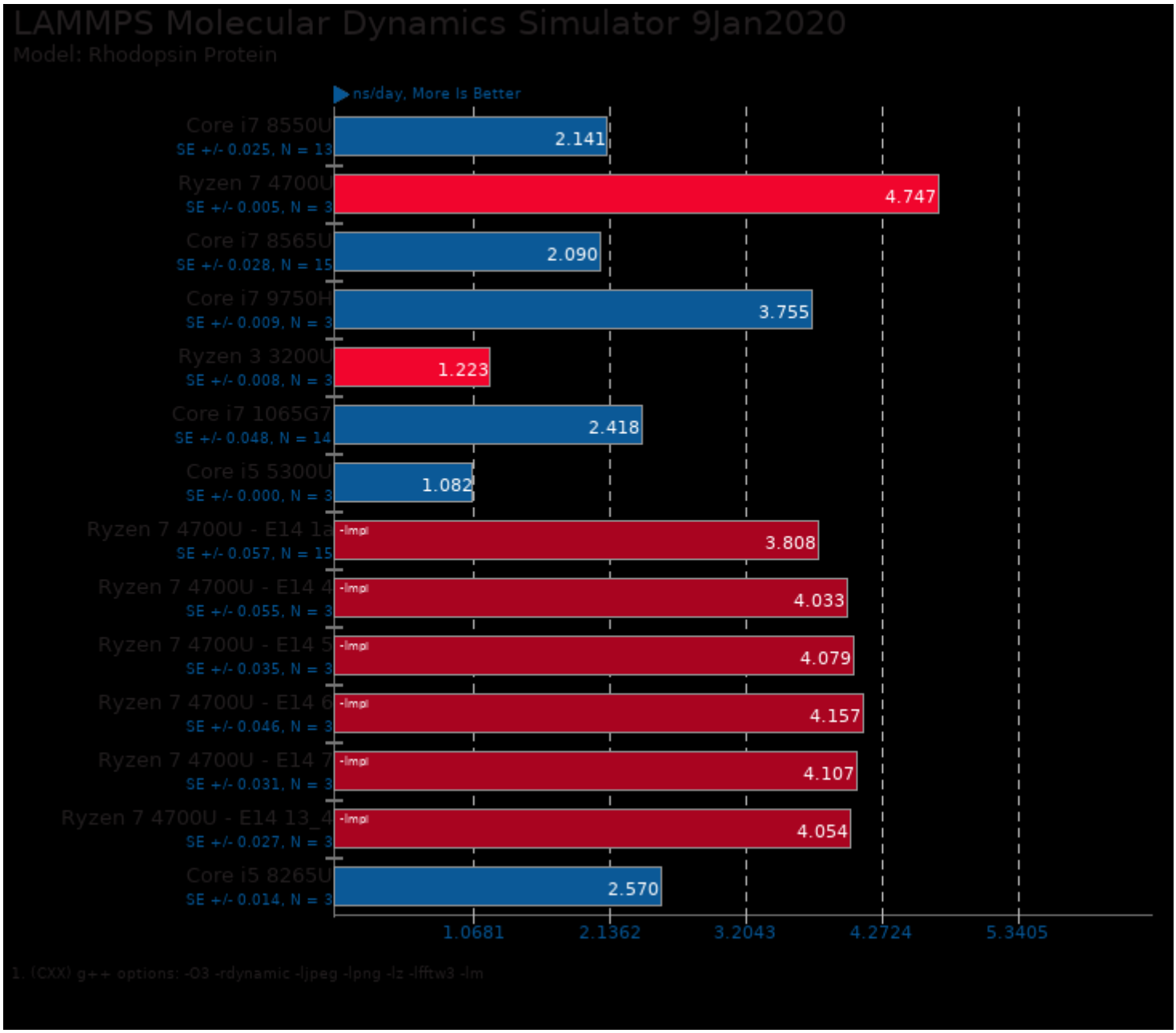
GEGL - Rotate 90 Degrees (sec)	48.217	**40.547**	49.246	41.107	**57.694**	45.109		41.000	40.707	40.662	49.992
Normalized	84.09%	100%	82.34%	98.64%	70.28%	89.89%		98.9%	99.61%	99.72%	81.11%
Standard Deviation	0.7%	0.4%	1%	0.6%	0.3%	1%		0.1%	0%	0.1%	0.2%
Chaos Group V-RAY - CPU (Ksamples)	3935	7067	3863	**7791**	2335	4090	**2096**				
Normalized	50.51%	90.71%	49.58%	100%	29.97%	52.5%	26.9%				
Standard Deviation	1%	4.8%	1%	0.3%	1.6%	0.7%	1.6%				
Java Gradle Build - Reactor (sec)			308.153	217.922	327.900	267.741	**406.172**	174.873	179.867	**170.074**	241.877
Normalized			55.19%	78.04%	51.87%	63.52%	41.87%	97.26%	94.56%	100%	70.31%
Standard Deviation			3%	2.8%	3.8%	6.1%	7.2%	6%	4.5%	4.3%	1.9%
Zstd Compression - 3 (MB/s)			1932	2965		**3128**	**1007**	2298	2289	2253	1907
Normalized			61.76%	94.8%		100%	32.2%	73.48%	73.18%	72.04%	60.97%
Standard Deviation			0.8%	0.4%		0.6%	1.2%	2.2%	1.5%	2.4%	2.2%
Zstd Compression - 19 (MB/s)			14.4	**25.9**		21.3	**9.49**	19.1	17.3	19.4	18.1
Normalized			55.6%	100%		82.24%	36.64%	73.75%	66.8%	74.9%	69.88%
Standard Deviation			1.2%	0.2%		0.3%	4.1%	0.3%	8.8%	0.3%	0.3%
Build2 - Time To Compile (sec)			388.692	**192.118**	683.828	351.168	**710.020**				304.660
Normalized			49.43%	100%	28.09%	54.71%	27.06%				63.06%
Standard Deviation			0.6%	0.6%	1.1%	0.2%	0.2%				1.7%
GNU Octave Benchmark (sec)			8.966	7.487	**11.369**	**6.754**					8.837
Normalized			75.33%	90.21%	59.41%	100%					76.43%
Standard Deviation			1.3%	0.6%	0.9%	0.8%					0.7%
RawTherapee - T.B.T (sec)			133.935	**79.022**	**176.238**	114.997					110.480
Normalized			59%	100%	44.84%	68.72%					71.53%
Standard Deviation			0.8%	0.9%	0.5%	1.2%					0.6%
Selenium - ARES-6 - Firefox (ms)			58.47	52.88	67.29	**45.53**	**88.92**				62.16
Normalized			77.87%	86.1%	67.66%	100%	51.2%				73.25%
Standard Deviation			1.1%	1.5%	0.4%	0.9%	1%				0.4%
Selenium - Kraken - Firefox (ms)			980.6	932.5	1123	**825.1**	**1484**				
Normalized			84.14%	88.48%	73.49%	100%	55.61%				
Standard Deviation			0.8%	0.3%	0.6%	0.1%	0.4%				

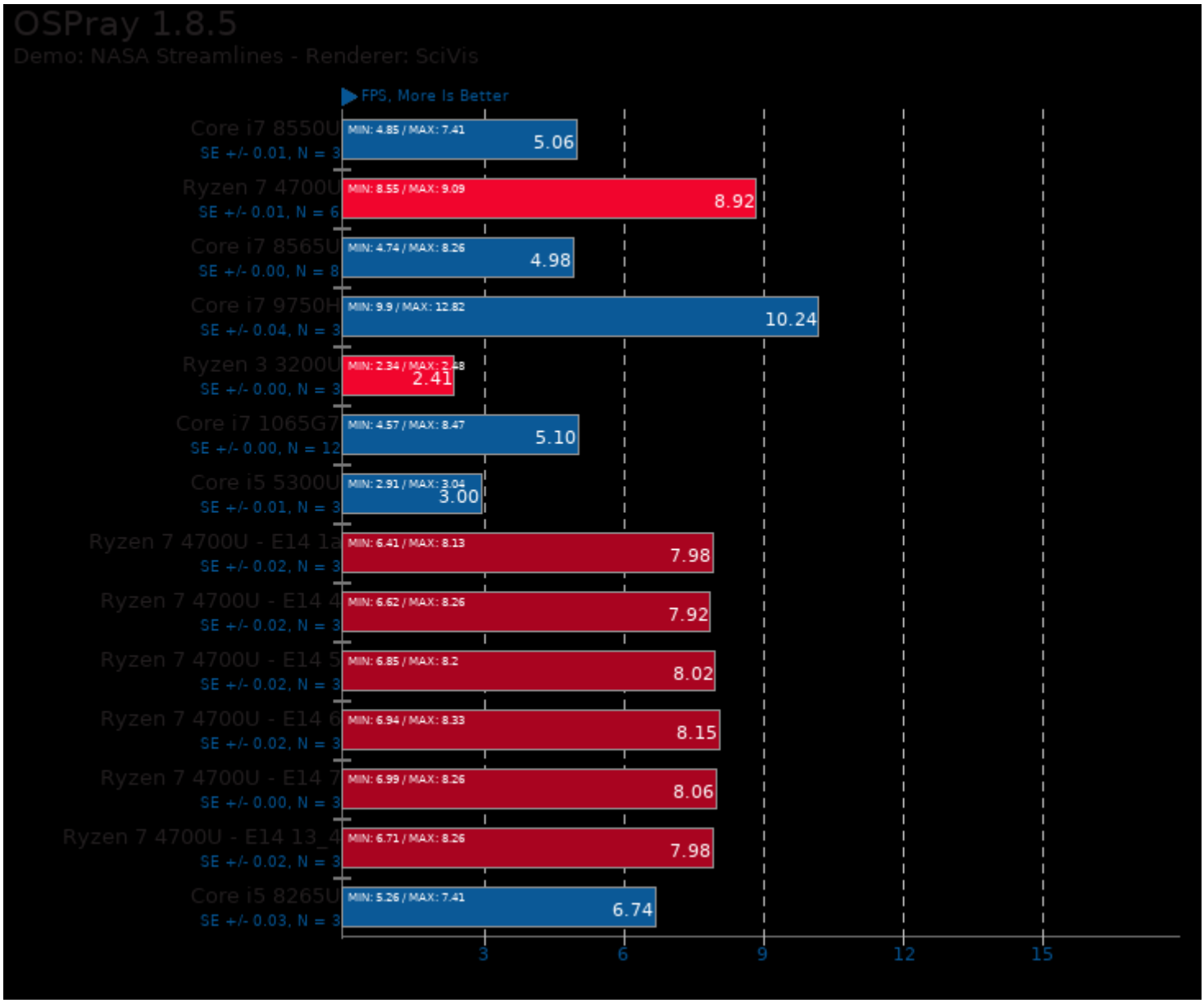
Initial Ryzen 7 4700U Linux Laptop Tests

Selenium - Octane - Firefox (Geometric Mean)	28246	30746	22561	**32773**	19505		**18747**
Normalized	86.19%	93.82%	68.84%	100%	59.52%		57.2%
Standard Deviation	1.4%	0.8%	0.9%	0.7%	1.2%		0.4%
Selenium - StyleBench - Firefox (Runs / Minute)	72.5	**91.2**	46.8	85.9	**46.0**		79.9
Normalized	79.5%	100%	51.32%	94.19%	50.44%		87.61%
Standard Deviation	0.3%	2%	0.1%	0.3%	0.3%		0.9%
Selenium - Jetstream 2 - Firefox	72.467	78.924	61.448	**88.366**	**52.702**		70.577
Normalized	82.01%	89.31%	69.54%	100%	59.64%		79.87%
Standard Deviation	0.7%	2.1%	2.6%	2.9%	0.3%		0.5%
Selenium - Speedometer - Firefox (Runs/min)	75.2	81.44	52.5	**88.22**	**42.5**		80.75
Normalized	85.24%	92.31%	59.51%	100%	48.18%		91.53%
Standard Deviation	0.3%	0.5%	0.3%	0.1%	0.4%		0.6%
Selenium - PSPDFKit WASM - Firefox	1886	**1482**	2366	1506	2826		**3510**
Normalized	78.58%	100%	62.64%	98.41%	52.44%		42.22%
Standard Deviation	3.2%	1.1%	1.9%	1.2%	0.4%		0.5%

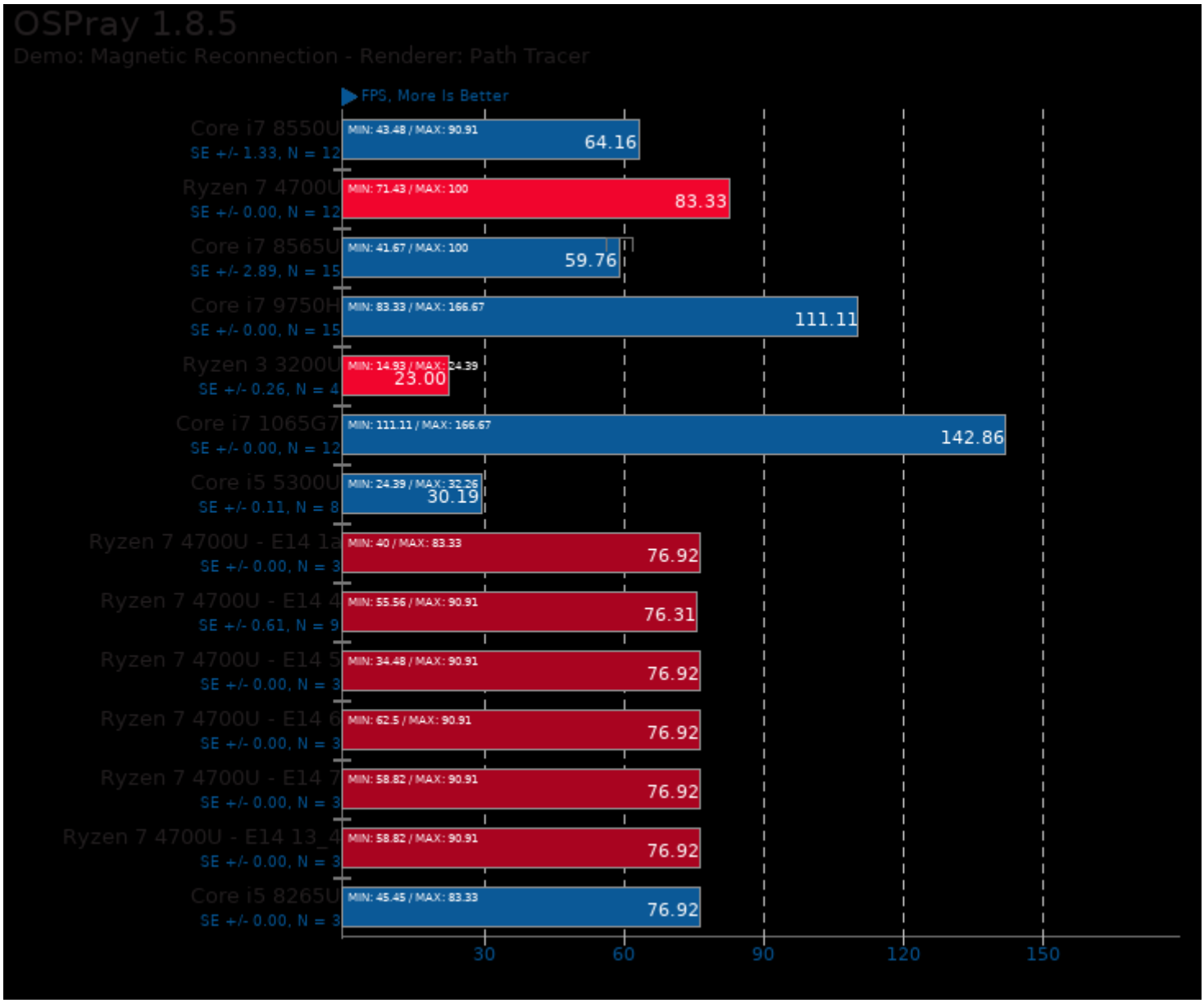
Initial Ryzen 7 4700U Linux Laptop Tests



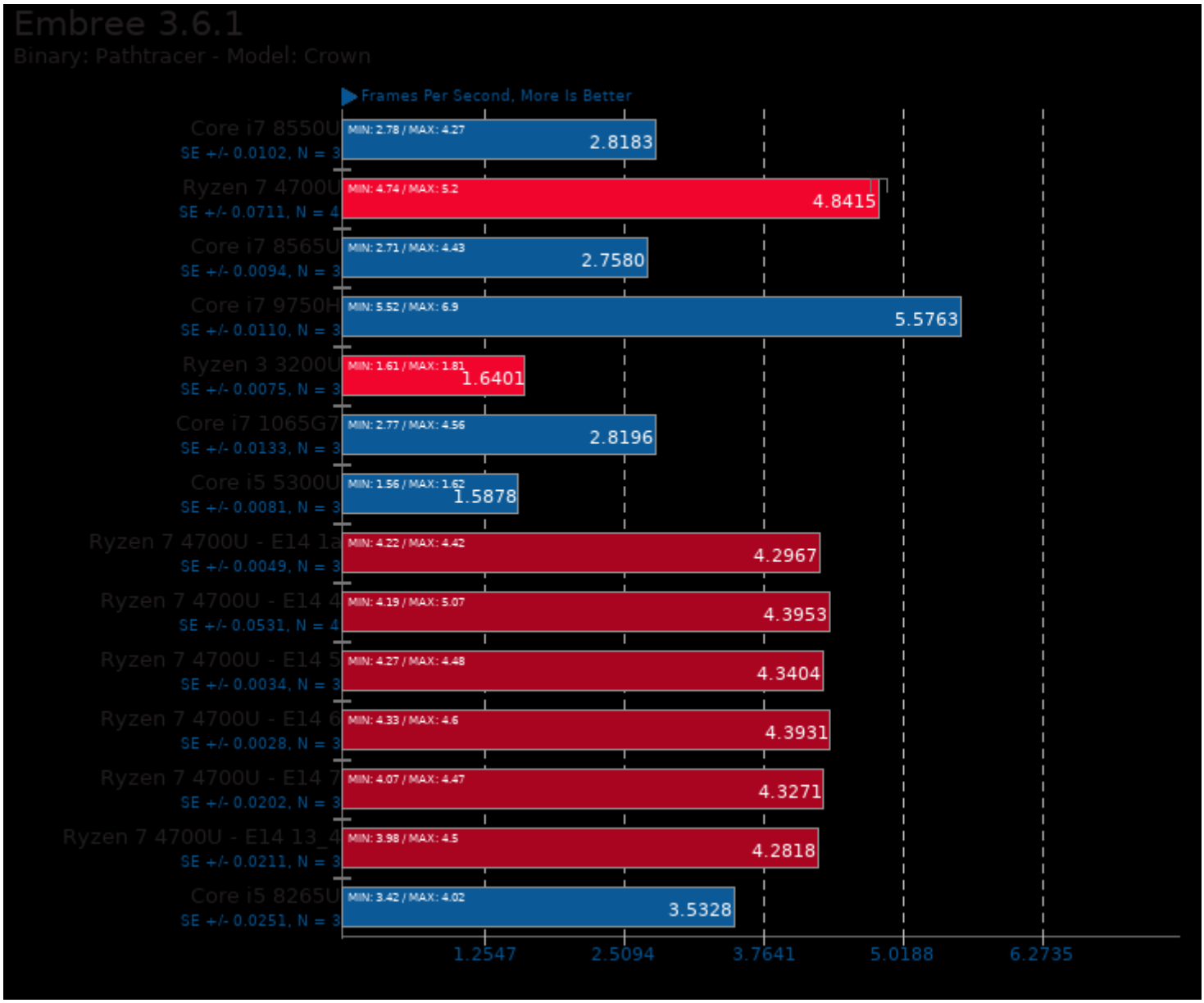

LAMMPS Molecular Dynamics Simulator 9Jan2020
Model: Rhodopsin Protein
ns/day, More Is Better
Core i7 8550U
SE +/- 0.025, N = 13
2.141
Ryzen 7 4700U
SE +/- 0.005, N = 3
4.747
Core i7 8565U
SE +/- 0.028, N = 15
2.090
Core i7 9750H
SE +/- 0.009, N = 3
3.755
Ryzen 3 3200U
SE +/- 0.008, N = 3
1.223
Core i7 1065G7
SE +/- 0.048, N = 14
2.418
Core i5 5300U
SE +/- 0.000, N = 3
1.082
Ryzen 7 4700U - E14 1
SE +/- 0.057, N = 15
-lmpi
3.808
Ryzen 7 4700U - E14 4
SE +/- 0.055, N = 3
-lmpi
4.033
Ryzen 7 4700U - E14 5
SE +/- 0.035, N = 3
-lmpi
4.079
Ryzen 7 4700U - E14 6
SE +/- 0.046, N = 3
-lmpi
4.157
Ryzen 7 4700U - E14 7
SE +/- 0.031, N = 3
-lmpi
4.107
Ryzen 7 4700U - E14 13_4
SE +/- 0.027, N = 3
-lmpi
4.054
Core i5 8265U
SE +/- 0.014, N = 3
2.570
1.0681
2.1362
3.2043
4.2724
5.3405
1. (CXX) g++ options: -O3 -rdynamic -ljpeg -lpng -lz -lfftw3 -lm


OSPray 1.8.5
Demo: NASA Streamlines - Renderer: SciVis
FPS, More Is Better
Core i7 8550U
SE +/- 0.01, N = 3
MIN: 4.85 / MAX: 7.41
5.06
Ryzen 7 4700U
SE +/- 0.01, N = 6
MIN: 8.55 / MAX: 9.09
8.92
Core i7 8565U
SE +/- 0.00, N = 8
MIN: 4.74 / MAX: 8.26
4.98
Core i7 9750H
SE +/- 0.04, N = 3
MIN: 9.9 / MAX: 12.82
10.24
Ryzen 3 3200U
SE +/- 0.00, N = 3
MIN: 2.34 / MAX: 2.48
2.41
Core i7 1065G7
SE +/- 0.00, N = 12
MIN: 4.57 / MAX: 8.47
5.10
Core i5 5300U
SE +/- 0.01, N = 3
MIN: 2.91 / MAX: 3.04
3.00
Ryzen 7 4700U - E14 1a
SE +/- 0.02, N = 3
MIN: 6.41 / MAX: 8.13
7.98
Ryzen 7 4700U - E14 4
SE +/- 0.02, N = 3
MIN: 6.62 / MAX: 8.26
7.92
Ryzen 7 4700U - E14 5
SE +/- 0.02, N = 3
MIN: 6.85 / MAX: 8.2
8.02
Ryzen 7 4700U - E14 6
SE +/- 0.02, N = 3
MIN: 6.94 / MAX: 8.33
8.15
Ryzen 7 4700U - E14 7
SE +/- 0.00, N = 3
MIN: 6.99 / MAX: 8.26
8.06
Ryzen 7 4700U - E14 13_4
SE +/- 0.02, N = 3
MIN: 6.71 / MAX: 8.26
7.98
Core i5 8265U
SE +/- 0.03, N = 3
MIN: 5.26 / MAX: 7.41
6.74
3
6
9
12
15

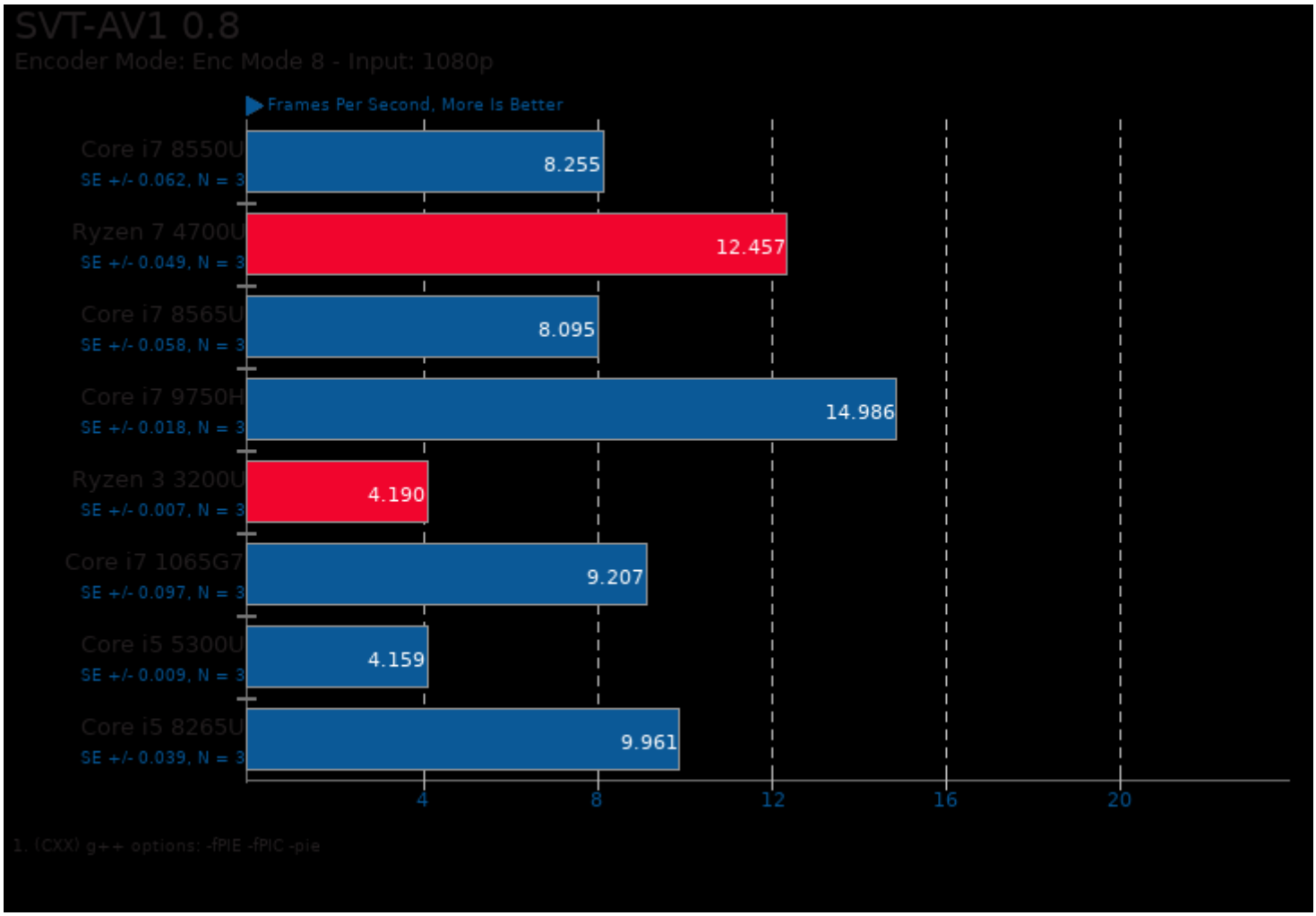
Initial Ryzen 7 4700U Linux Laptop Tests

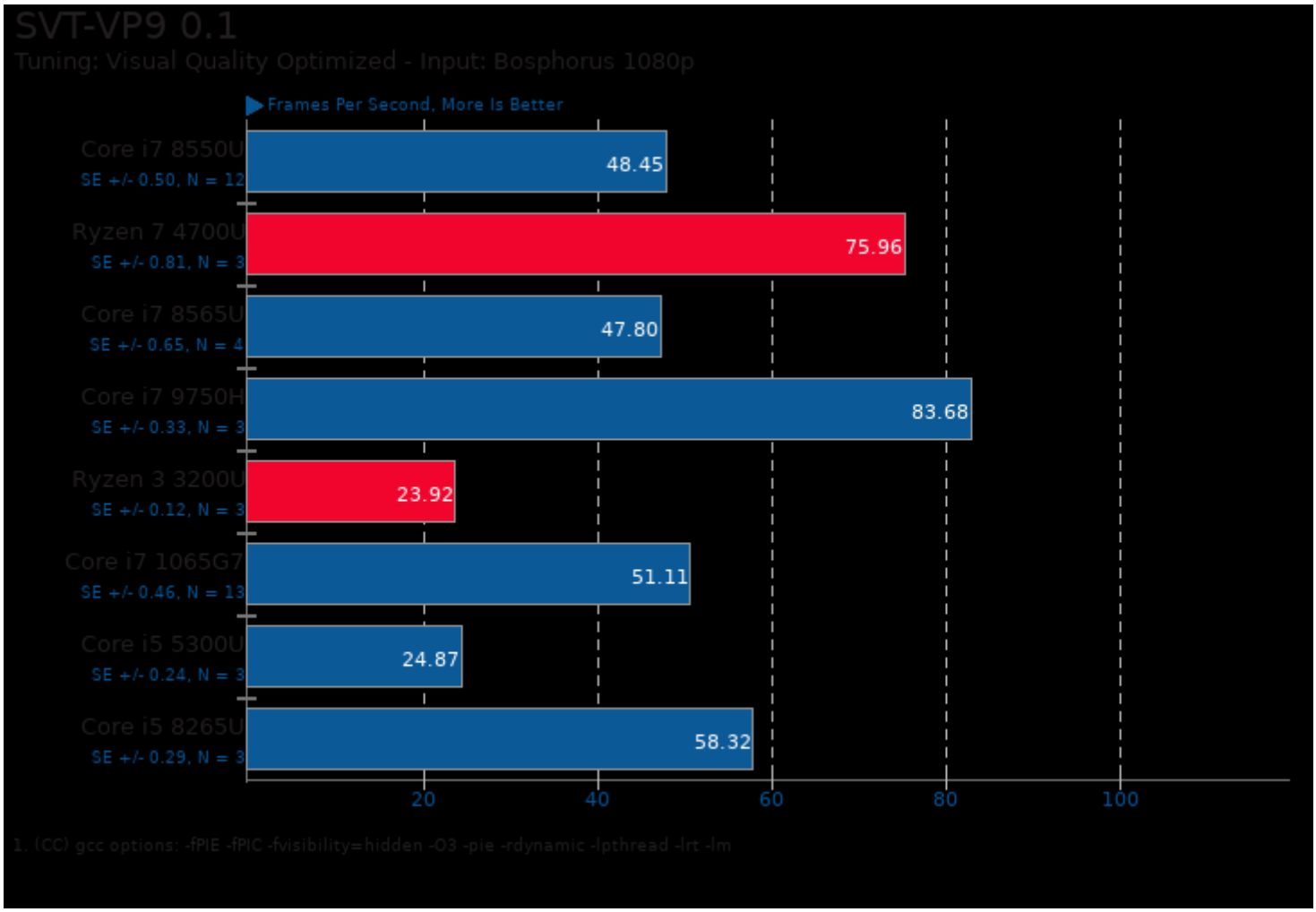


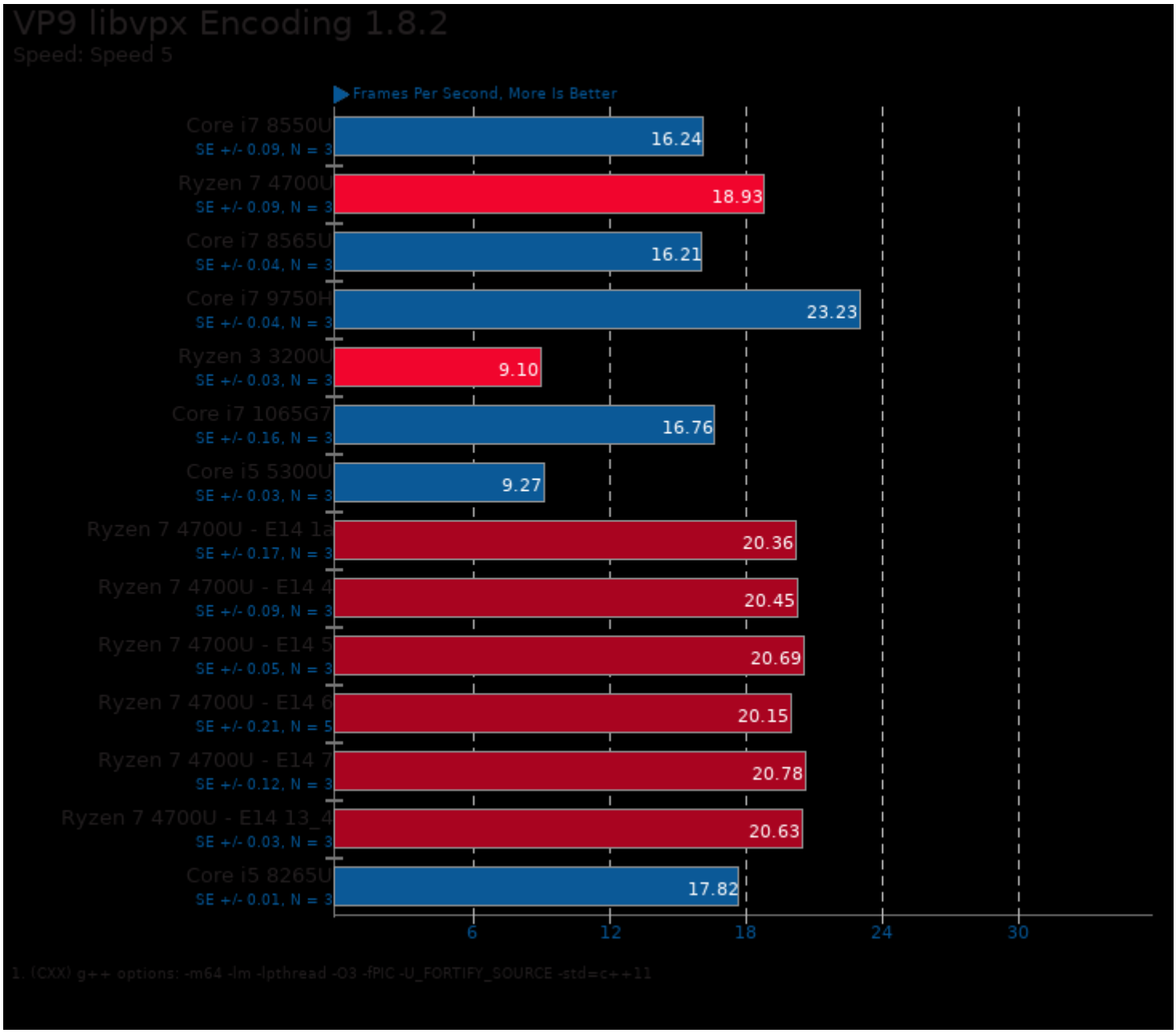
Initial Ryzen 7 4700U Linux Laptop Tests

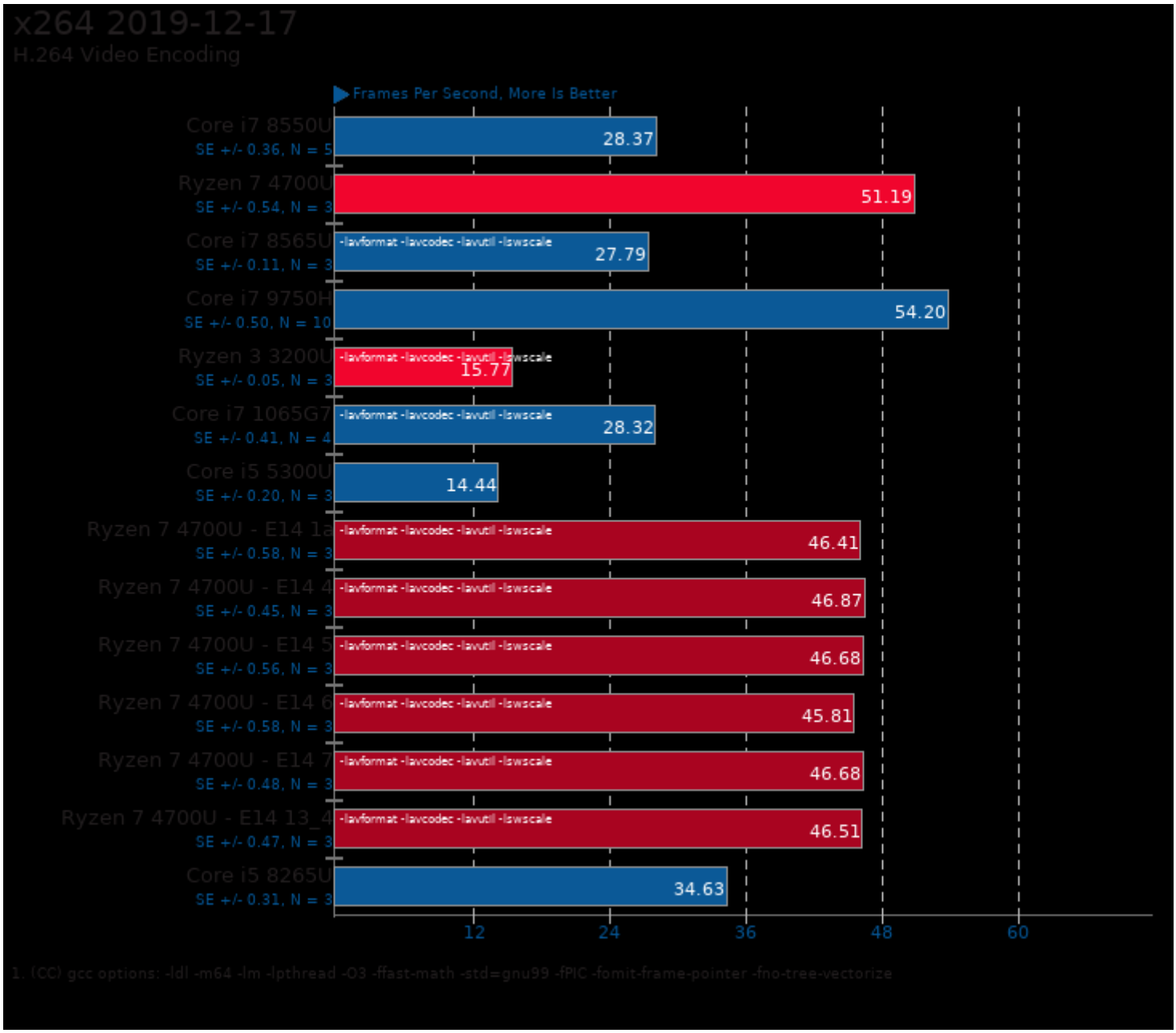


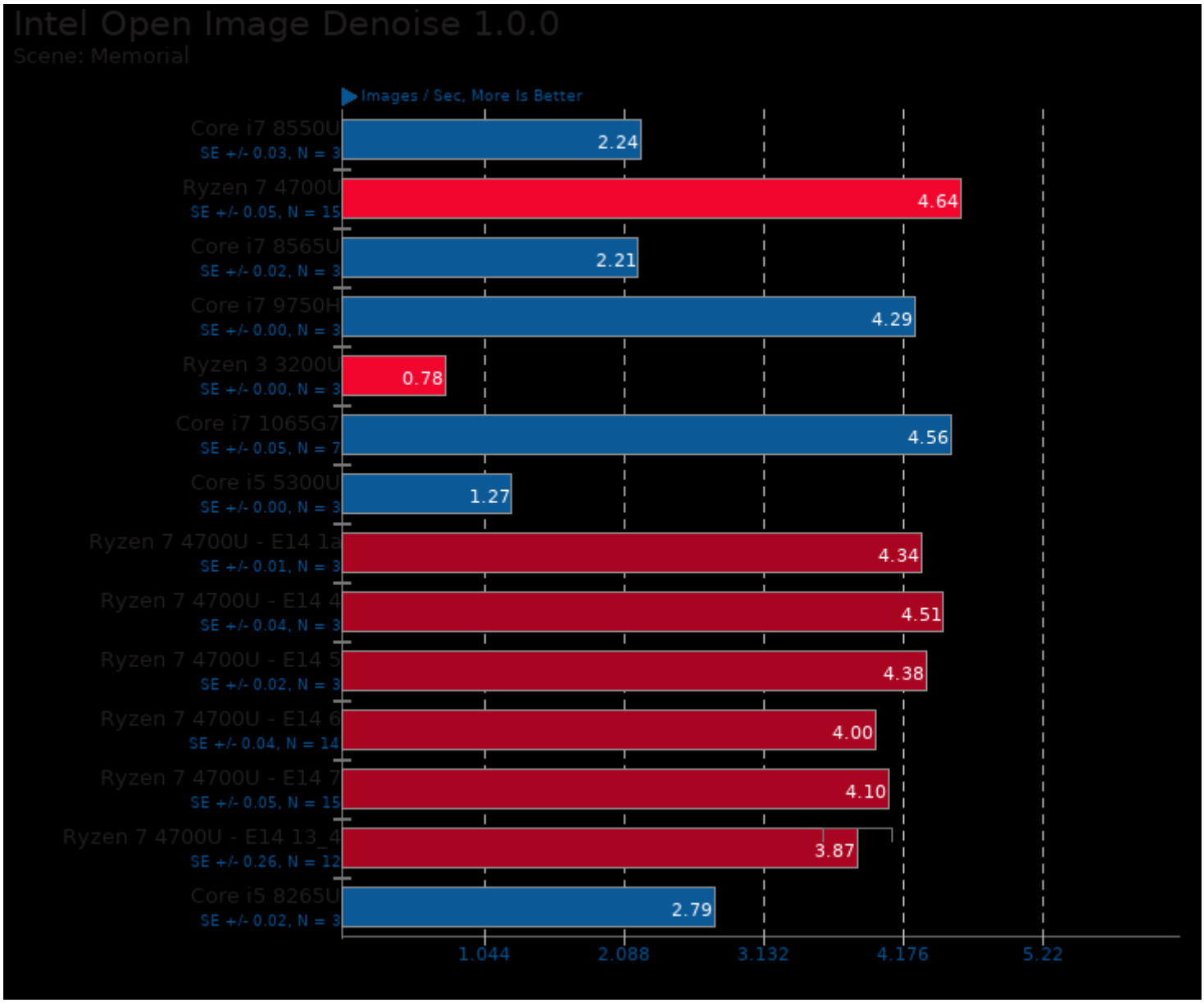
Initial Ryzen 7 4700U Linux Laptop Tests

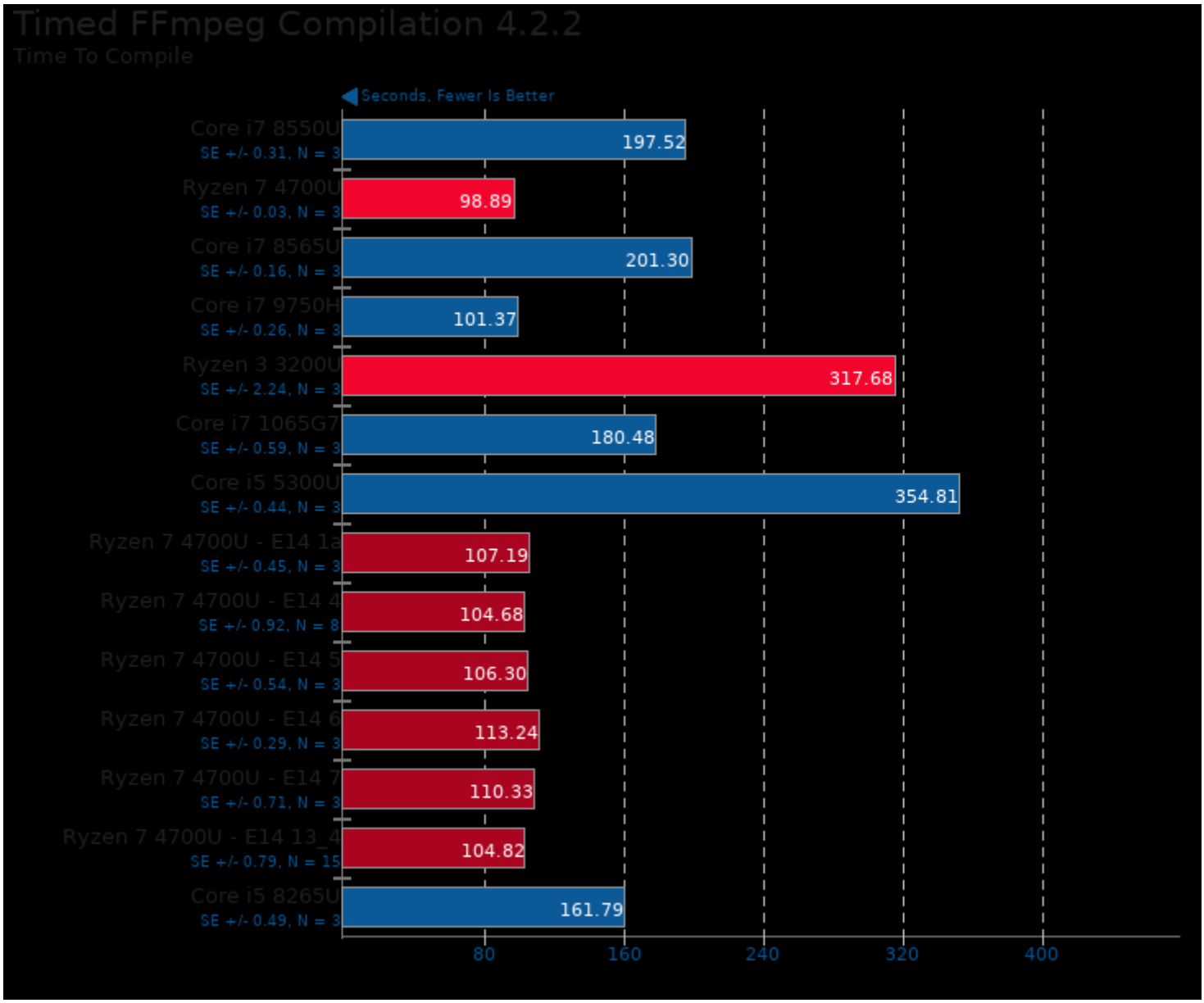


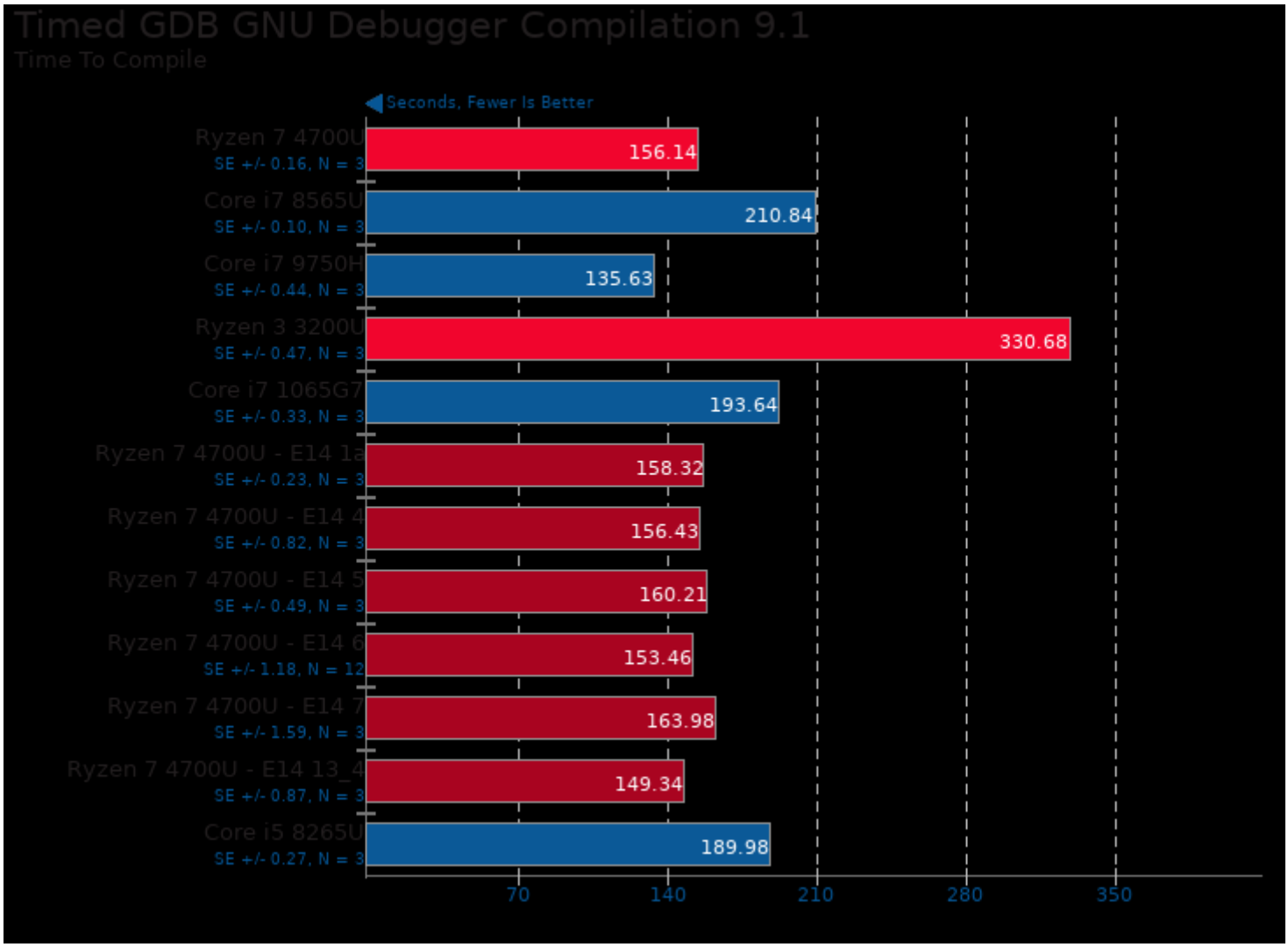

SVT-VP9 0.1
Tuning: Visual Quality Optimized - Input: Bosphorus 1080p
Frames Per Second, More Is Better
Core i7 8550U
SE +/- 0.50, N = 12
48.45
Ryzen 7 4700U
SE +/- 0.81, N = 3
75.96
Core i7 8565U
SE +/- 0.65, N = 4
47.80
Core i7 9750H
SE +/- 0.33, N = 3
83.68
Ryzen 3 3200U
SE +/- 0.12, N = 3
23.92
Core i7 1065G7
SE +/- 0.46, N = 13
51.11
Core i5 5300U
SE +/- 0.24, N = 3
24.87
Core i5 8265U
SE +/- 0.29, N = 3
58.32
20
40
60
80
100
1. (CC) gcc options: -fPIE -fPIC -fvisibility=hidden -O3 -pie -rdynamic -lpthread -lrt -lm

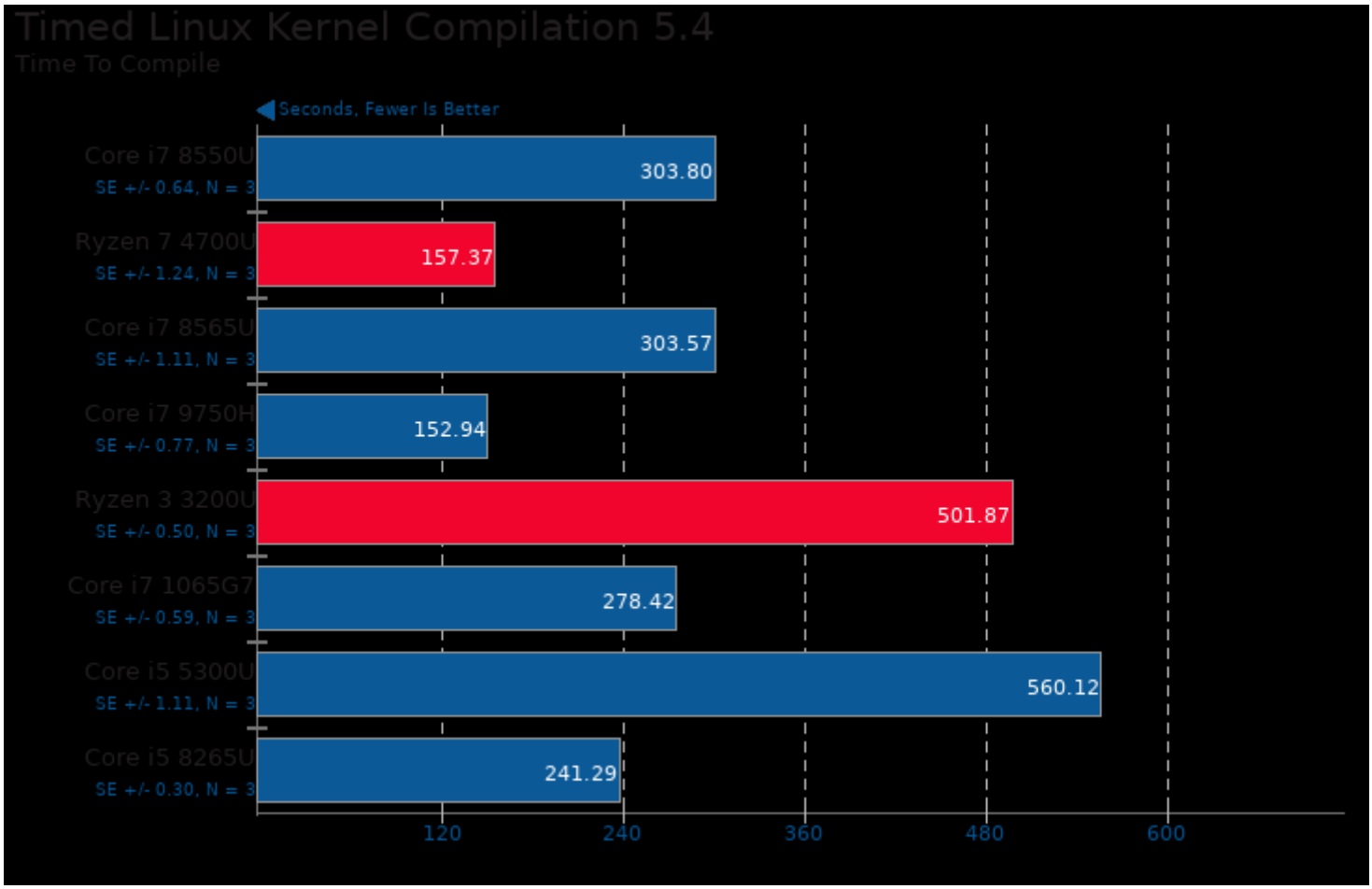

VP9 libvpx Encoding 1.8.2
Speed: Speed 5
Frames Per Second, More Is Better
Core i7 8550U
SE +/- 0.09, N = 3
16.24
Ryzen 7 4700U
SE +/- 0.09, N = 3
18.93
Core i7 8565U
SE +/- 0.04, N = 3
16.21
Core i7 9750H
SE +/- 0.04, N = 3
23.23
Ryzen 3 3200U
SE +/- 0.03, N = 3
9.10
Core i7 1065G7
SE +/- 0.16, N = 3
16.76
Core i5 5300U
SE +/- 0.03, N = 3
9.27
Ryzen 7 4700U - E14 1
SE +/- 0.17, N = 3
20.36
Ryzen 7 4700U - E14 4
SE +/- 0.09, N = 3
20.45
Ryzen 7 4700U - E14 5
SE +/- 0.05, N = 3
20.69
Ryzen 7 4700U - E14 6
SE +/- 0.21, N = 5
20.15
Ryzen 7 4700U - E14 7
SE +/- 0.12, N = 3
20.78
Ryzen 7 4700U - E14 13_4
SE +/- 0.03, N = 3
20.63
Core i5 8265U
SE +/- 0.01, N = 3
17.82
6
12
18
24
30
1. (CXX) g++ options: -m64 -lm -lpthread -O3 -fPIC -U_FORTIFY_SOURCE -std=c++11

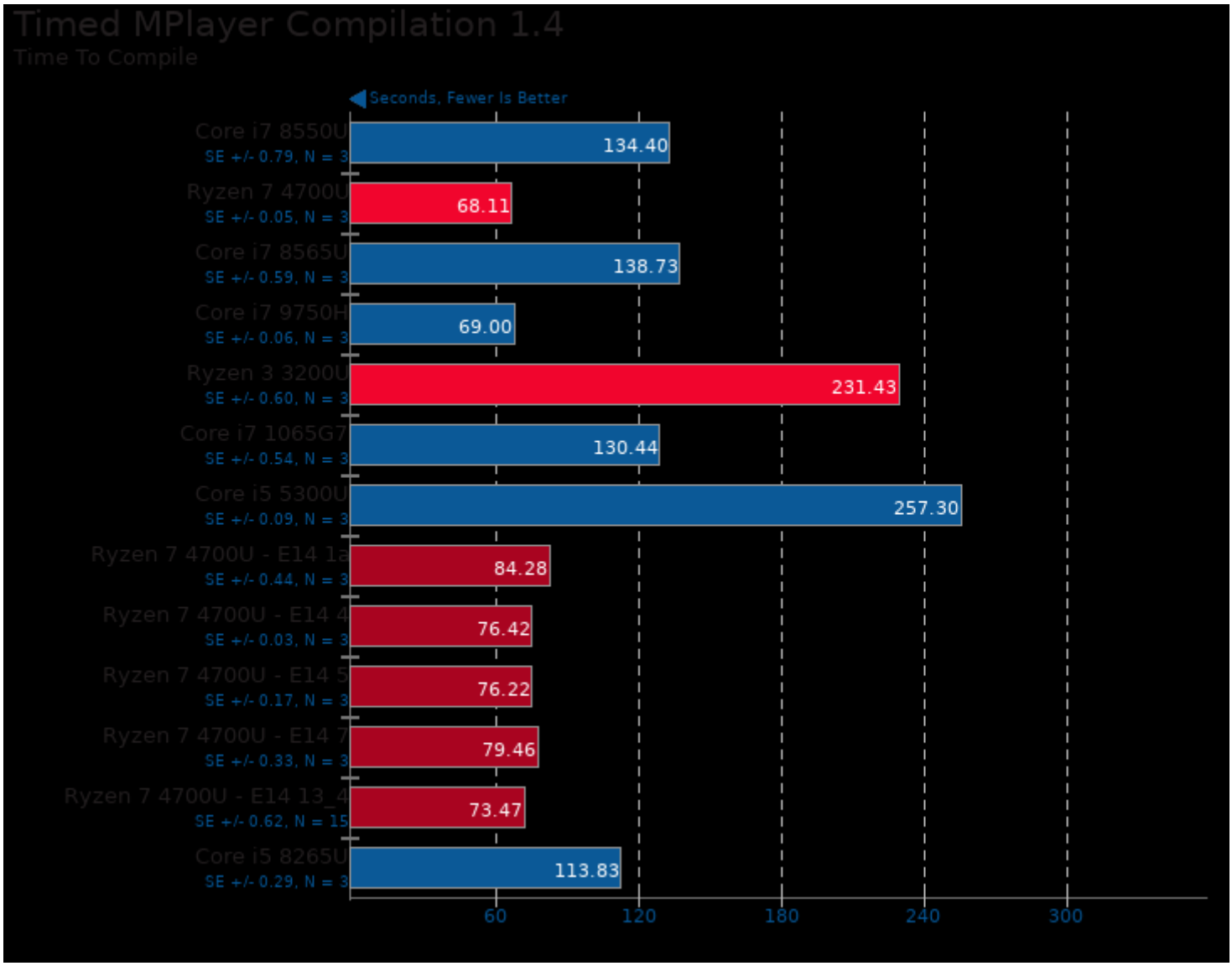

x264 2019-12-17
H.264 Video Encoding
Frames Per Second, More Is Better
Core i7 8550U
SE +/- 0.36, N = 5
28.37
Ryzen 7 4700U
SE +/- 0.54, N = 3
51.19
Core i7 8565U
SE +/- 0.11, N = 3
-lavformat -lavcodec -lavutil -lswscale
27.79
Core i7 9750H
SE +/- 0.50, N = 10
54.20
Ryzen 3 3200U
SE +/- 0.05, N = 3
-lavformat -lavcodec -lavutil -lswscale
15.77
Core i7 1065G7
SE +/- 0.41, N = 4
-lavformat -lavcodec -lavutil -lswscale
28.32
Core i5 5300U
SE +/- 0.20, N = 3
14.44
Ryzen 7 4700U - E14 1a
SE +/- 0.58, N = 3
-lavformat -lavcodec -lavutil -lswscale
46.41
Ryzen 7 4700U - E14 4
SE +/- 0.45, N = 3
-lavformat -lavcodec -lavutil -lswscale
46.87
Ryzen 7 4700U - E14 5
SE +/- 0.56, N = 3
-lavformat -lavcodec -lavutil -lswscale
46.68
Ryzen 7 4700U - E14 6
SE +/- 0.58, N = 3
-lavformat -lavcodec -lavutil -lswscale
45.81
Ryzen 7 4700U - E14 7
SE +/- 0.48, N = 3
-lavformat -lavcodec -lavutil -lswscale
46.68
Ryzen 7 4700U - E14 13_4
SE +/- 0.47, N = 3
-lavformat -lavcodec -lavutil -lswscale
46.51
Core i5 8265U
SE +/- 0.31, N = 3
34.63
12
24
36
48
60
1. (CC) gcc options: -ldl -m64 -lm -lpthread -O3 -ffast-math -std=gnu99 -fPIC -fomit-frame-pointer -fno-tree-vectorize

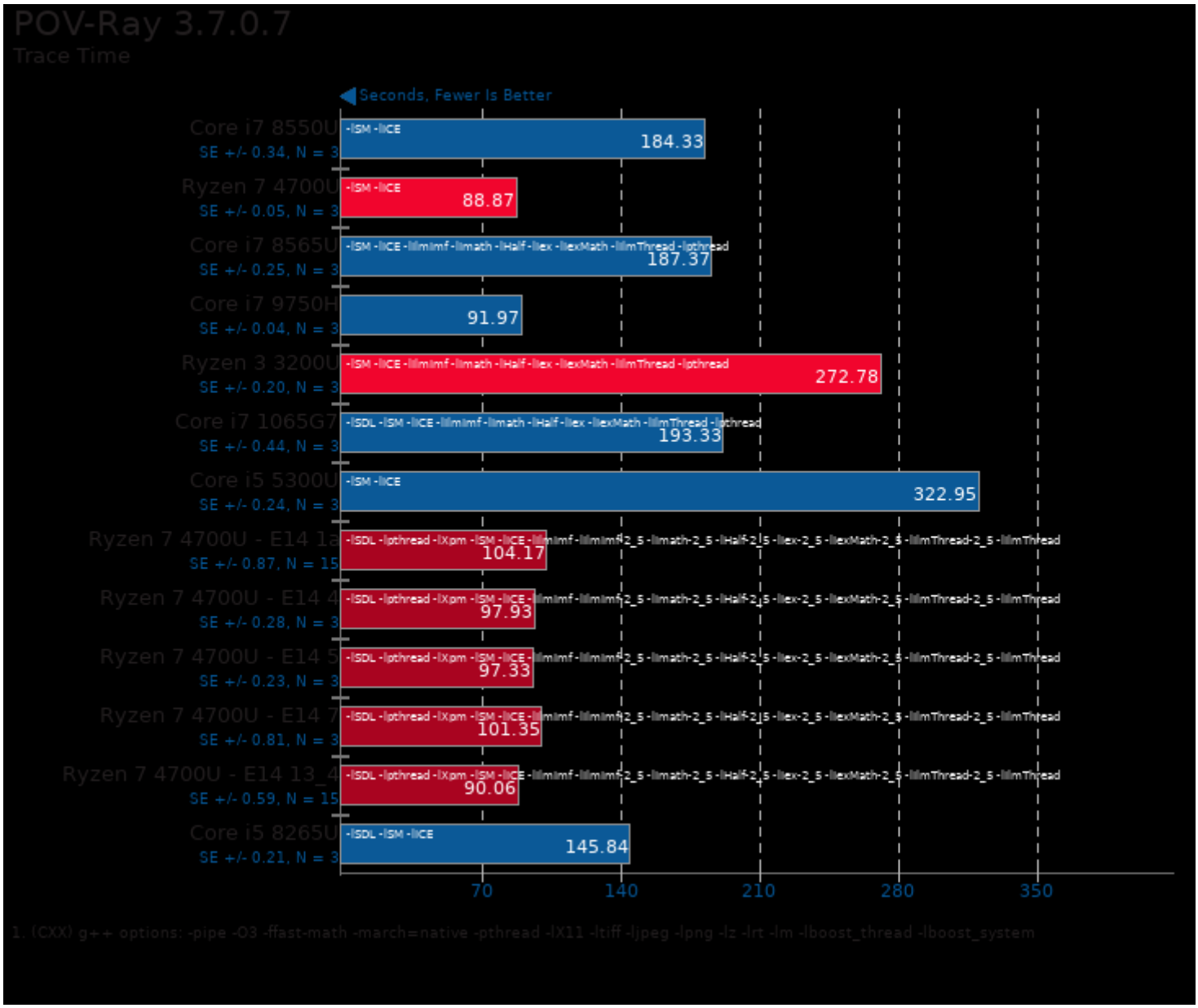

Intel Open Image Denoise 1.0.0
Scene: Memorial
Images / Sec, More Is Better
Core i7 8550U
SE +/- 0.03, N = 3
2.24
Ryzen 7 4700U
SE +/- 0.05, N = 15
4.64
Core i7 8565U
SE +/- 0.02, N = 3
2.21
Core i7 9750H
SE +/- 0.00, N = 3
4.29
Ryzen 3 3200U
SE +/- 0.00, N = 3
0.78
Core i7 1065G7
SE +/- 0.05, N = 7
4.56
Core i5 5300U
SE +/- 0.00, N = 3
1.27
Ryzen 7 4700U - E14 1a
SE +/- 0.01, N = 3
4.34
Ryzen 7 4700U - E14 4
SE +/- 0.04, N = 3
4.51
Ryzen 7 4700U - E14 5
SE +/- 0.02, N = 3
4.38
Ryzen 7 4700U - E14 6
SE +/- 0.04, N = 14
4.00
Ryzen 7 4700U - E14 7
SE +/- 0.05, N = 15
4.10
Ryzen 7 4700U - E14 13_4
SE +/- 0.26, N = 12
3.87
Core i5 8265U
SE +/- 0.02, N = 3
2.79
1.044
2.088
3.132
4.176
5.22

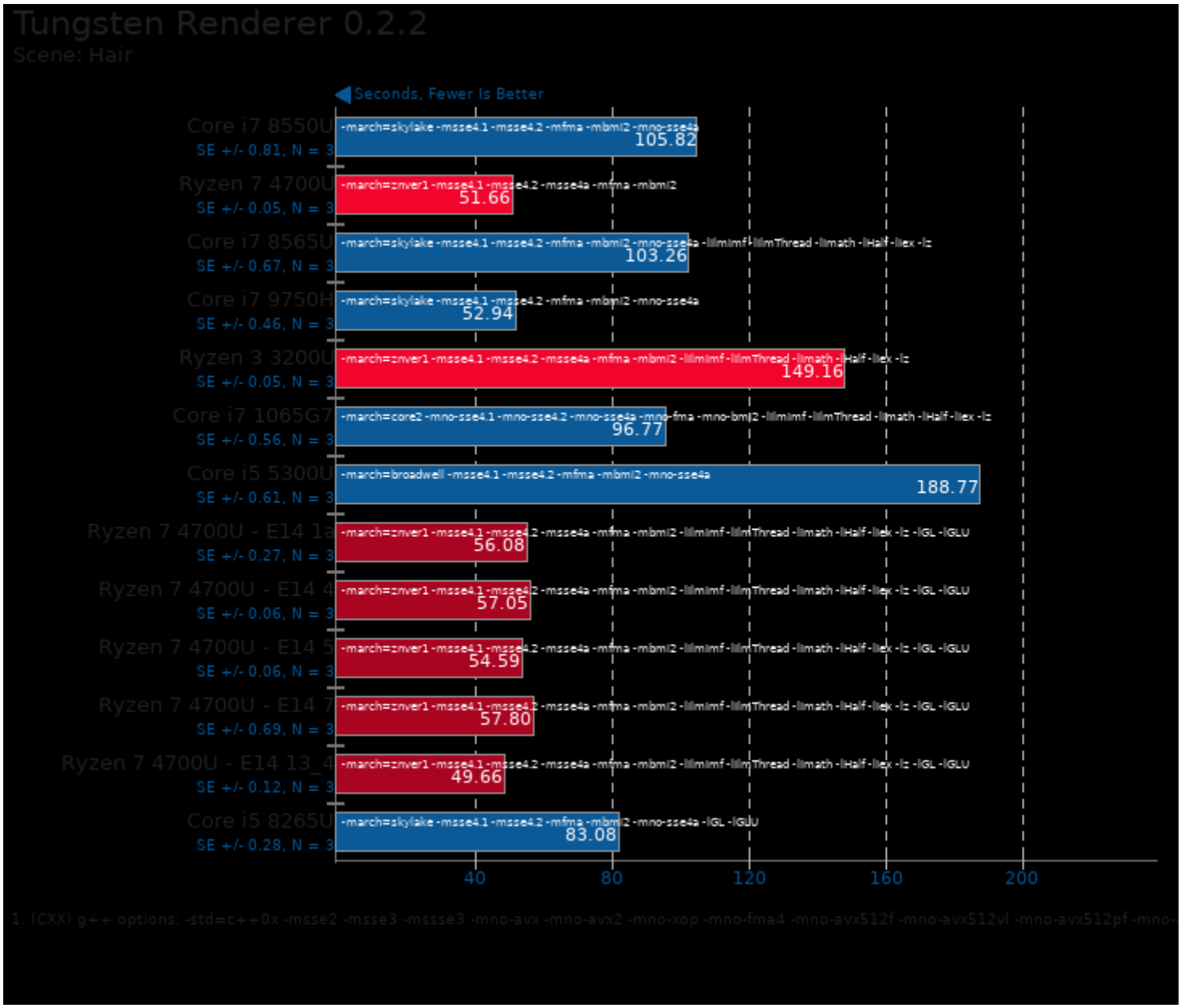

Timed FFmpeg Compilation 4.2.2
Time To Compile
Seconds, Fewer Is Better
Core i7 8550U
SE +/- 0.31, N = 3
197.52
Ryzen 7 4700U
SE +/- 0.03, N = 3
98.89
Core i7 8565U
SE +/- 0.16, N = 3
201.30
Core i7 9750H
SE +/- 0.26, N = 3
101.37
Ryzen 3 3200U
SE +/- 2.24, N = 3
317.68
Core i7 1065G7
SE +/- 0.59, N = 3
180.48
Core i5 5300U
SE +/- 0.44, N = 3
354.81
Ryzen 7 4700U - E14 1a
SE +/- 0.45, N = 3
107.19
Ryzen 7 4700U - E14 4
SE +/- 0.92, N = 8
104.68
Ryzen 7 4700U - E14 5
SE +/- 0.54, N = 3
106.30
Ryzen 7 4700U - E14 6
SE +/- 0.29, N = 3
113.24
Ryzen 7 4700U - E14 7
SE +/- 0.71, N = 3
110.33
Ryzen 7 4700U - E14 13_4
SE +/- 0.79, N = 15
104.82
Core i5 8265U
SE +/- 0.49, N = 3
161.79
80
160
240
320
400

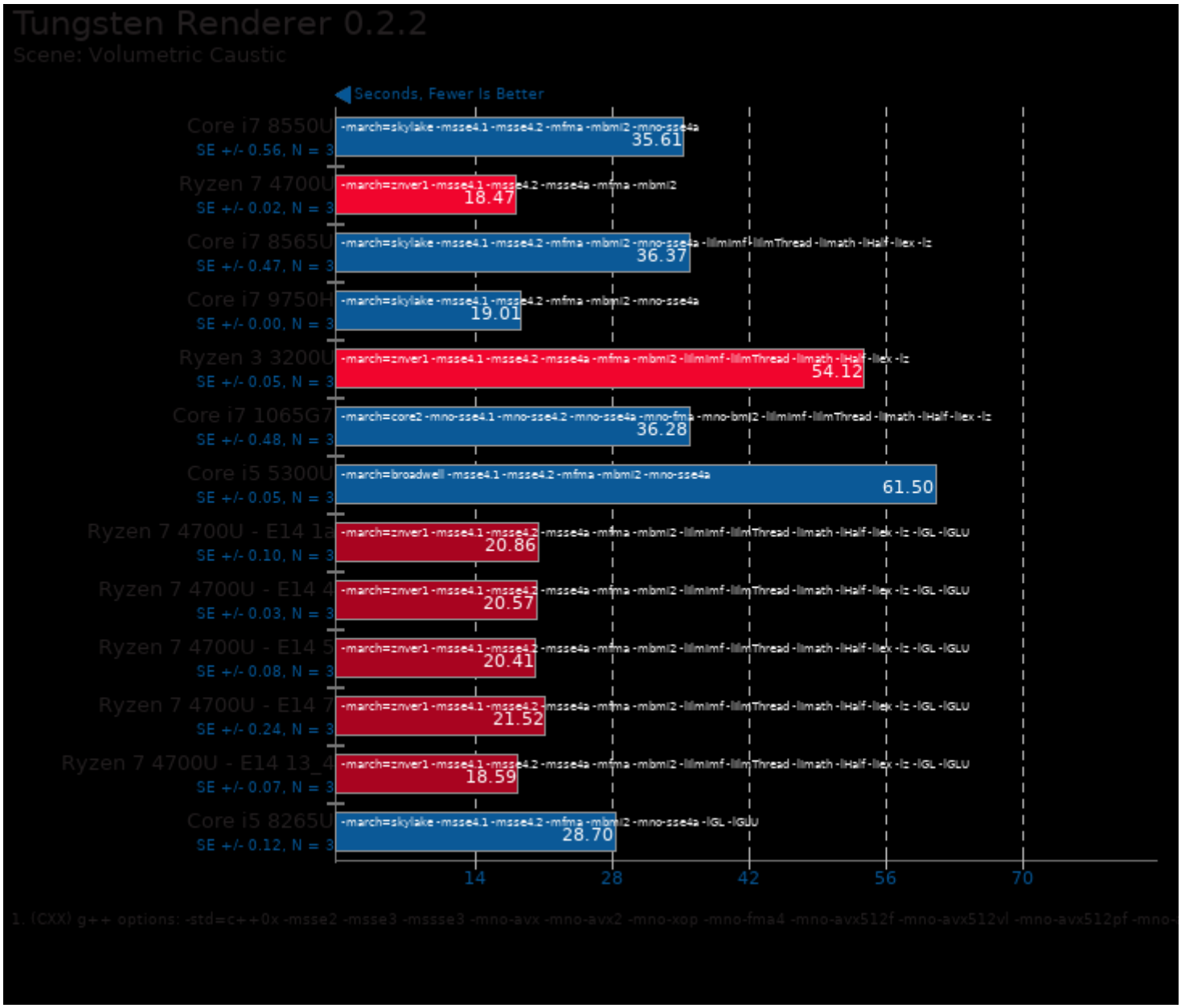

Timed GDB GNU Debugger Compilation 9.1
Time To Compile
Seconds, Fewer Is Better
Ryzen 7 4700U
SE +/- 0.16, N = 3
156.14
Core i7 8565U
SE +/- 0.10, N = 3
210.84
Core i7 9750H
SE +/- 0.44, N = 3
135.63
Ryzen 3 3200U
SE +/- 0.47, N = 3
330.68
Core i7 1065G7
SE +/- 0.33, N = 3
193.64
Ryzen 7 4700U - E14 1a
SE +/- 0.23, N = 3
158.32
Ryzen 7 4700U - E14 4
SE +/- 0.82, N = 3
156.43
Ryzen 7 4700U - E14 5
SE +/- 0.49, N = 3
160.21
Ryzen 7 4700U - E14 6
SE +/- 1.18, N = 12
153.46
Ryzen 7 4700U - E14 7
SE +/- 1.59, N = 3
163.98
Ryzen 7 4700U - E14 13_4
SE +/- 0.87, N = 3
149.34
Core i5 8265U
SE +/- 0.27, N = 3
189.98
70
140
210
280
350


Timed Linux Kernel Compilation 5.4
Time To Compile
Seconds, Fewer Is Better
Core i7 8550U
SE +/- 0.64, N = 3
303.80
Ryzen 7 4700U
SE +/- 1.24, N = 3
157.37
Core i7 8565U
SE +/- 1.11, N = 3
303.57
Core i7 9750H
SE +/- 0.77, N = 3
152.94
Ryzen 3 3200U
SE +/- 0.50, N = 3
501.87
Core i7 1065G7
SE +/- 0.59, N = 3
278.42
Core i5 5300U
SE +/- 1.11, N = 3
560.12
Core i5 8265U
SE +/- 0.30, N = 3
241.29
120
240
360
480
600

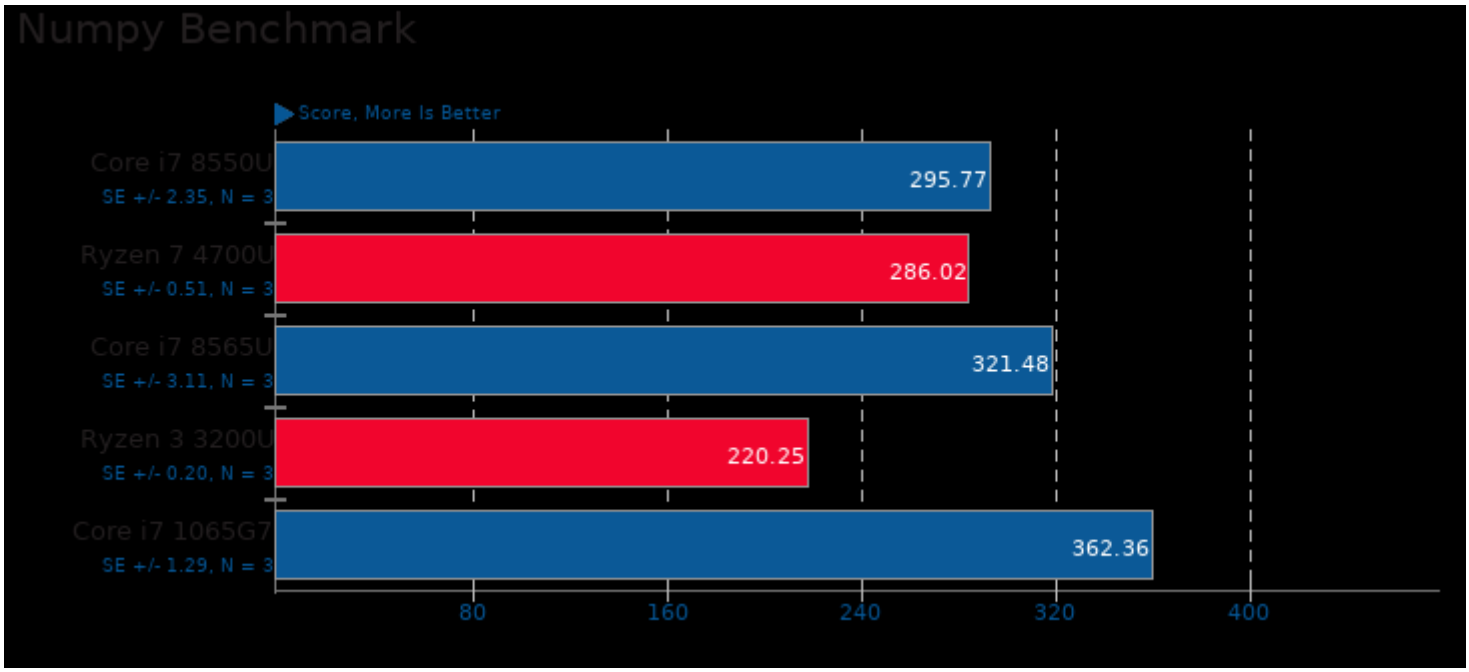

Timed MPlayer Compilation 1.4
Time To Compile
Seconds, Fewer Is Better
Core i7 8550U
SE +/- 0.79, N = 3
134.40
Ryzen 7 4700U
SE +/- 0.05, N = 3
68.11
Core i7 8565U
SE +/- 0.59, N = 3
138.73
Core i7 9750H
SE +/- 0.06, N = 3
69.00
Ryzen 3 3200U
SE +/- 0.60, N = 3
231.43
Core i7 1065G7
SE +/- 0.54, N = 3
130.44
Core i5 5300U
SE +/- 0.09, N = 3
257.30
Ryzen 7 4700U - E14 1a
SE +/- 0.44, N = 3
84.28
Ryzen 7 4700U - E14 4
SE +/- 0.03, N = 3
76.42
Ryzen 7 4700U - E14 5
SE +/- 0.17, N = 3
76.22
Ryzen 7 4700U - E14 7
SE +/- 0.33, N = 3
79.46
Ryzen 7 4700U - E14 13_4
SE +/- 0.62, N = 15
73.47
Core i5 8265U
SE +/- 0.29, N = 3
113.83
60
120
180
240
300

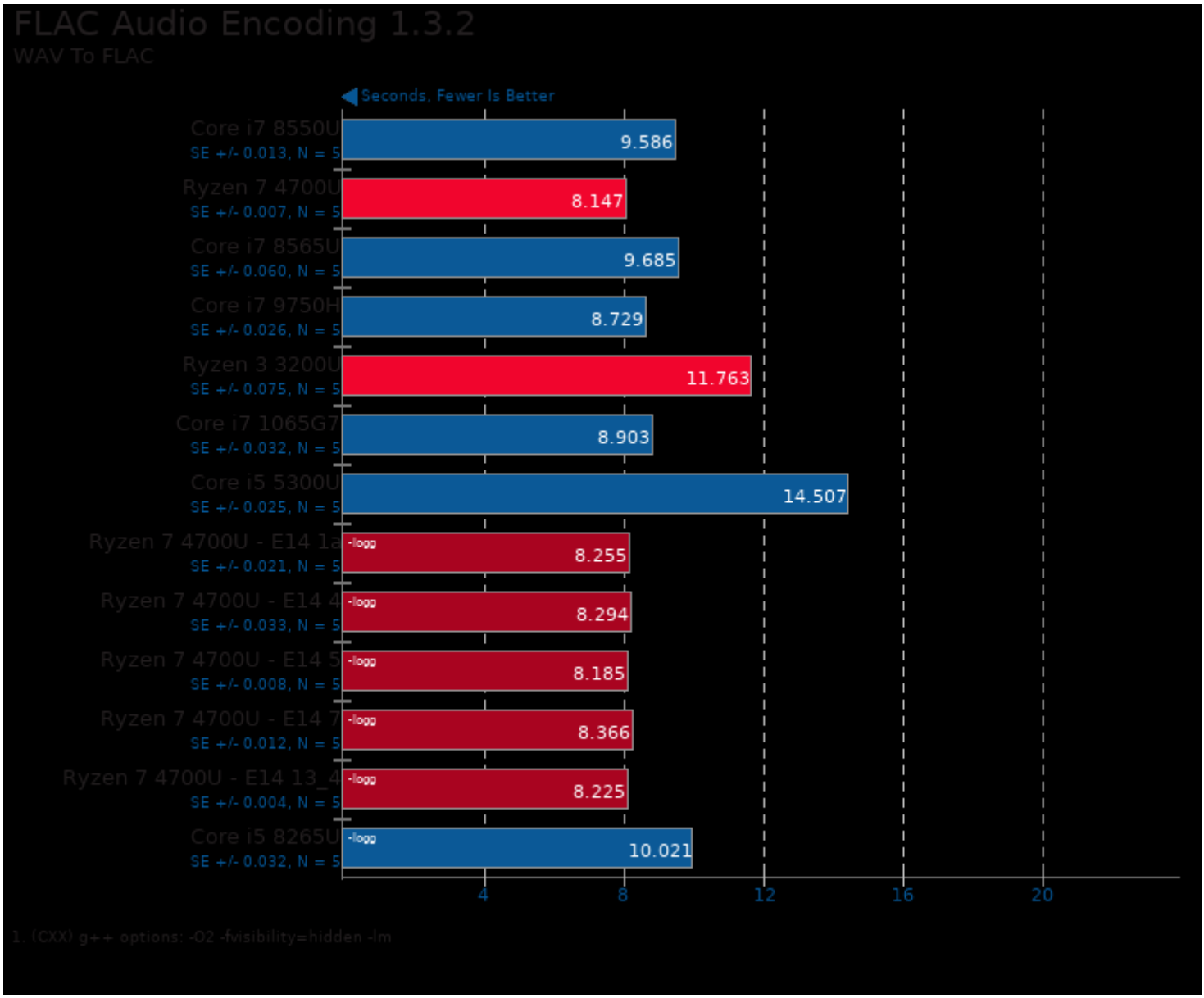

POV-Ray 3.7.0.7
Trace Time
Seconds, Fewer Is Better
Core i7 8550U
SE +/- 0.34, N = 3
-ISM -lICE
184.33
Ryzen 7 4700U
SE +/- 0.05, N = 3
-ISM -lICE
88.87
Core i7 8565U
SE +/- 0.25, N = 3
-ISM -lICE -lilmimf -limath -lHalf -llex -llexMath -lilmThread -lpthread
187.37
Core i7 9750H
SE +/- 0.04, N = 3
91.97
Ryzen 3 3200U
SE +/- 0.20, N = 3
-ISM -lICE -lilmimf -limath -lHalf -llex -llexMath -lilmThread -lpthread
272.78
Core i7 1065G7
SE +/- 0.44, N = 3
-lSDL -ISM -lICE -lilmimf -limath -lHalf -llex -llexMath -lilmThread -lpthread
193.33
Core i5 5300U
SE +/- 0.24, N = 3
-ISM -lICE
322.95
Ryzen 7 4700U - E14 1a
SE +/- 0.87, N = 15
-lSDL -lpthread -lXpm -ISM -lICE -lilmimf -lilmimf-2_5 -limath-2_5 -lHalf-2_5 -llex-2_5 -llexMath-2_5 -lilmThread-2_5 -lilmThread
104.17
Ryzen 7 4700U - E14 4
SE +/- 0.28, N = 3
-lSDL -lpthread -lXpm -ISM -lICE -lilmimf -lilmimf-2_5 -limath-2_5 -lHalf-2_5 -llex-2_5 -llexMath-2_5 -lilmThread-2_5 -lilmThread
97.93
Ryzen 7 4700U - E14 5
SE +/- 0.23, N = 3
-lSDL -lpthread -lXpm -ISM -lICE -lilmimf -lilmimf-2_5 -limath-2_5 -lHalf-2_5 -llex-2_5 -llexMath-2_5 -lilmThread-2_5 -lilmThread
97.33
Ryzen 7 4700U - E14 7
SE +/- 0.81, N = 3
-lSDL -lpthread -lXpm -ISM -lICE -lilmimf -lilmimf-2_5 -limath-2_5 -lHalf-2_5 -llex-2_5 -llexMath-2_5 -lilmThread-2_5 -lilmThread
101.35
Ryzen 7 4700U - E14 13_4
SE +/- 0.59, N = 15
-lSDL -lpthread -lXpm -ISM -lICE -lilmimf -lilmimf-2_5 -limath-2_5 -lHalf-2_5 -llex-2_5 -llexMath-2_5 -lilmThread-2_5 -lilmThread
90.06
Core i5 8265U
SE +/- 0.21, N = 3
-lSDL -ISM -lICE
145.84
70
140
210
280
350
1. (CXX) g++ options: -pipe -O3 -ffast-math -march=native -pthread -lX11 -ltiff -ljpeg -lpng -lz -lrt -lm -lboost_thread -lboost_system

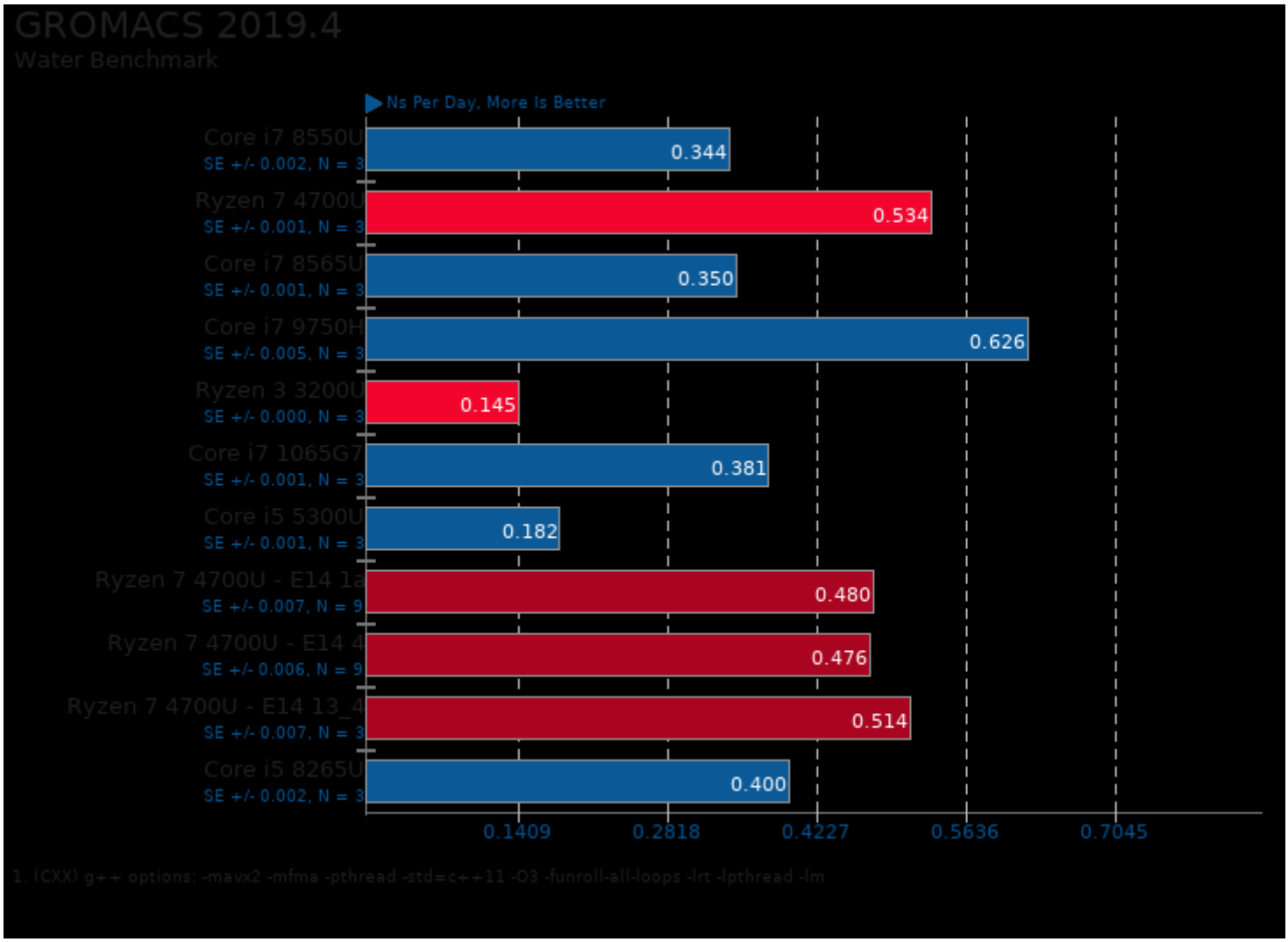

Tungsten Renderer 0.2.2
Scene: Hair
Seconds, Fewer Is Better
Core i7 8550U
SE +/- 0.81, N = 3
-march=skylake -msse4.1 -msse4.2 -mfma -mbmi2 -mno-sse4a
105.82
Ryzen 7 4700U
SE +/- 0.05, N = 3
-march=znver1 -msse4.1 -msse4.2 -msse4a -mfma -mbmi2
51.66
Core i7 8565U
SE +/- 0.67, N = 3
-march=skylake -msse4.1 -msse4.2 -mfma -mbmi2 -mno-sse4a -llimimf -llimThread -limath -lHalf -llex -lz
103.26
Core i7 9750H
SE +/- 0.46, N = 3
-march=skylake -msse4.1 -msse4.2 -mfma -mbmi2 -mno-sse4a
52.94
Ryzen 3 3200U
SE +/- 0.05, N = 3
-march=znver1 -msse4.1 -msse4.2 -msse4a -mfma -mbmi2 -llimimf -llimThread -limath -lHalf -llex -lz
149.16
Core i7 1065G7
SE +/- 0.56, N = 3
-march=core2 -mno-sse4.1 -mno-sse4.2 -mno-sse4a -mno-fma -mno-bmi2 -llimimf -llimThread -limath -lHalf -llex -lz
96.77
Core i5 5300U
SE +/- 0.61, N = 3
-march=broadwell -msse4.1 -msse4.2 -mfma -mbmi2 -mno-sse4a
188.77
Ryzen 7 4700U - E14 1a
SE +/- 0.27, N = 3
-march=znver1 -msse4.1 -msse4.2 -msse4a -mfma -mbmi2 -llimimf -llimThread -limath -lHalf -llex -lz -lGL -lGLU
56.08
Ryzen 7 4700U - E14 4
SE +/- 0.06, N = 3
-march=znver1 -msse4.1 -msse4.2 -msse4a -mfma -mbmi2 -llimimf -llimThread -limath -lHalf -llex -lz -lGL -lGLU
57.05
Ryzen 7 4700U - E14 5
SE +/- 0.06, N = 3
-march=znver1 -msse4.1 -msse4.2 -msse4a -mfma -mbmi2 -llimimf -llimThread -limath -lHalf -llex -lz -lGL -lGLU
54.59
Ryzen 7 4700U - E14 7
SE +/- 0.69, N = 3
-march=znver1 -msse4.1 -msse4.2 -msse4a -mfma -mbmi2 -llimimf -llimThread -limath -lHalf -llex -lz -lGL -lGLU
57.80
Ryzen 7 4700U - E14 13_4
SE +/- 0.12, N = 3
-march=znver1 -msse4.1 -msse4.2 -msse4a -mfma -mbmi2 -llimimf -llimThread -limath -lHalf -llex -lz -lGL -lGLU
49.66
Core i5 8265U
SE +/- 0.28, N = 3
-march=skylake -msse4.1 -msse4.2 -mfma -mbmi2 -mno-sse4a -lGL -lGLU
83.08
40
80
120
160
200
1. (CXX) g++ options: -std=c++0x -msse2 -msse3 -mssse3 -mno-avx -mno-avx2 -mno-xop -mno-fma4 -mno-avx512f -mno-avx512vl -mno-avx512pf -mno-


Tungsten Renderer 0.2.2
Scene: Volumetric Caustic
Seconds, Fewer Is Better
Core i7 8550U
SE +/- 0.56, N = 3
-march=skylake -msse4.1 -msse4.2 -mfma -mbmi2 -mno-sse4a
35.61
Ryzen 7 4700U
SE +/- 0.02, N = 3
-march=znver1 -msse4.1 -msse4.2 -msse4a -mfma -mbmi2
18.47
Core i7 8565U
SE +/- 0.47, N = 3
-march=skylake -msse4.1 -msse4.2 -mfma -mbmi2 -mno-sse4a -llimimf -llimThread -limath -lHalf -llex -lz
36.37
Core i7 9750H
SE +/- 0.00, N = 3
-march=skylake -msse4.1 -msse4.2 -mfma -mbmi2 -mno-sse4a
19.01
Ryzen 3 3200U
SE +/- 0.05, N = 3
-march=znver1 -msse4.1 -msse4.2 -msse4a -mfma -mbmi2 -llimimf -llimThread -limath -lHalf -llex -lz
54.12
Core i7 1065G7
SE +/- 0.48, N = 3
-march=core2 -mno-sse4.1 -mno-sse4.2 -mno-sse4a -mno-fma -mno-bmi2 -llimimf -llimThread -limath -lHalf -llex -lz
36.28
Core i5 5300U
SE +/- 0.05, N = 3
-march=broadwell -msse4.1 -msse4.2 -mfma -mbmi2 -mno-sse4a
61.50
Ryzen 7 4700U - E14 1a
SE +/- 0.10, N = 3
-march=znver1 -msse4.1 -msse4.2 -msse4a -mfma -mbmi2 -llimimf -llimThread -limath -lHalf -llex -lz -lGL -lGLU
20.86
Ryzen 7 4700U - E14 4
SE +/- 0.03, N = 3
-march=znver1 -msse4.1 -msse4.2 -msse4a -mfma -mbmi2 -llimimf -llimThread -limath -lHalf -llex -lz -lGL -lGLU
20.57
Ryzen 7 4700U - E14 5
SE +/- 0.08, N = 3
-march=znver1 -msse4.1 -msse4.2 -msse4a -mfma -mbmi2 -llimimf -llimThread -limath -lHalf -llex -lz -lGL -lGLU
20.41
Ryzen 7 4700U - E14 7
SE +/- 0.24, N = 3
-march=znver1 -msse4.1 -msse4.2 -msse4a -mfma -mbmi2 -llimimf -llimThread -limath -lHalf -llex -lz -lGL -lGLU
21.52
Ryzen 7 4700U - E14 13_4
SE +/- 0.07, N = 3
-march=znver1 -msse4.1 -msse4.2 -msse4a -mfma -mbmi2 -llimimf -llimThread -limath -lHalf -llex -lz -lGL -lGLU
18.59
Core i5 8265U
SE +/- 0.12, N = 3
-march=skylake -msse4.1 -msse4.2 -mfma -mbmi2 -mno-sse4a -lGL -lGLU
28.70
14
28
42
56
70
1. (CXX) g++ options: -std=c++0x -msse2 -msse3 -mssse3 -mno-avx -mno-avx2 -mno-xop -mno-fma4 -mno-avx512f -mno-avx512vl -mno-avx512pf -mno-

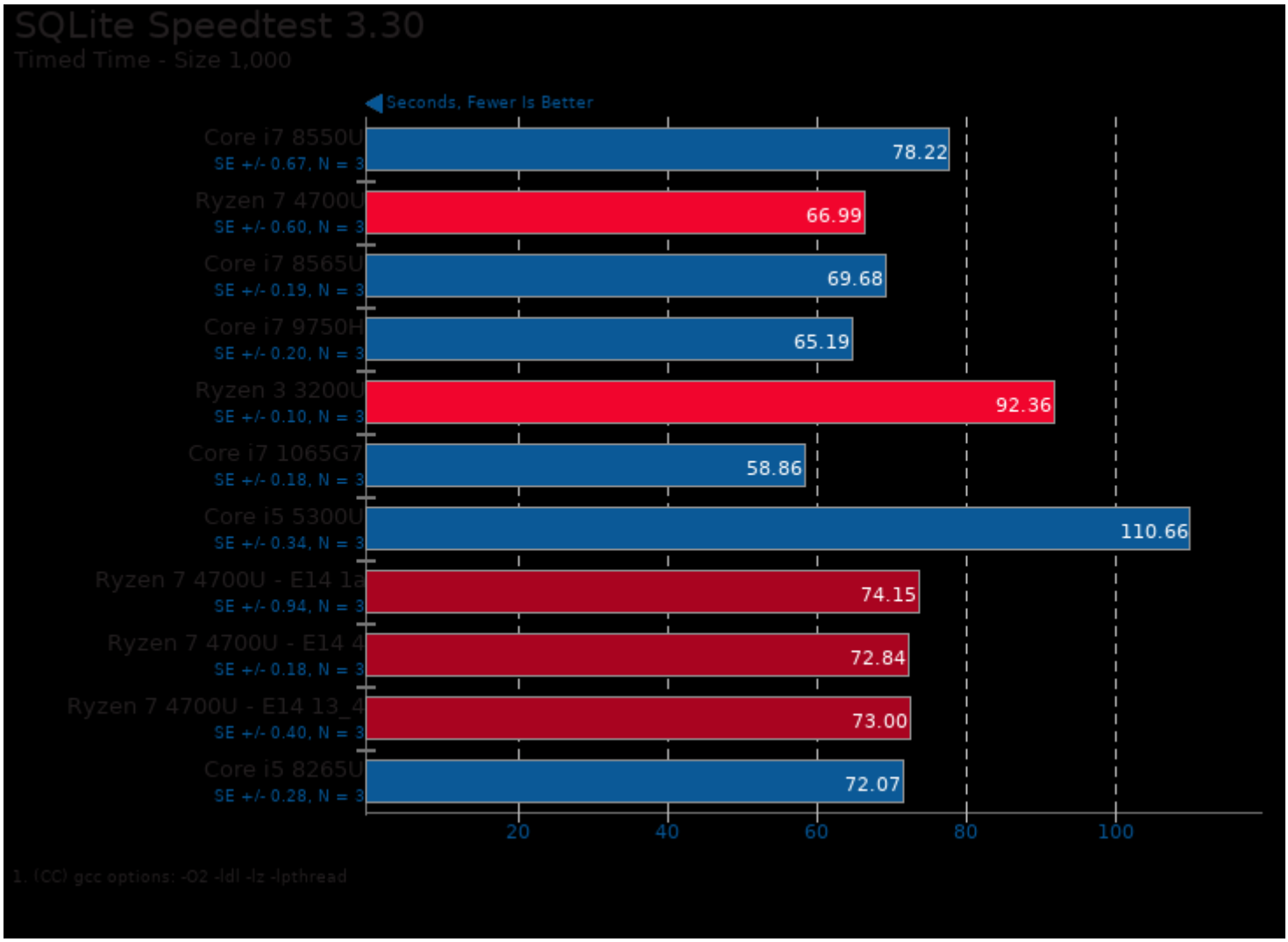
Initial Ryzen 7 4700U Linux Laptop Tests

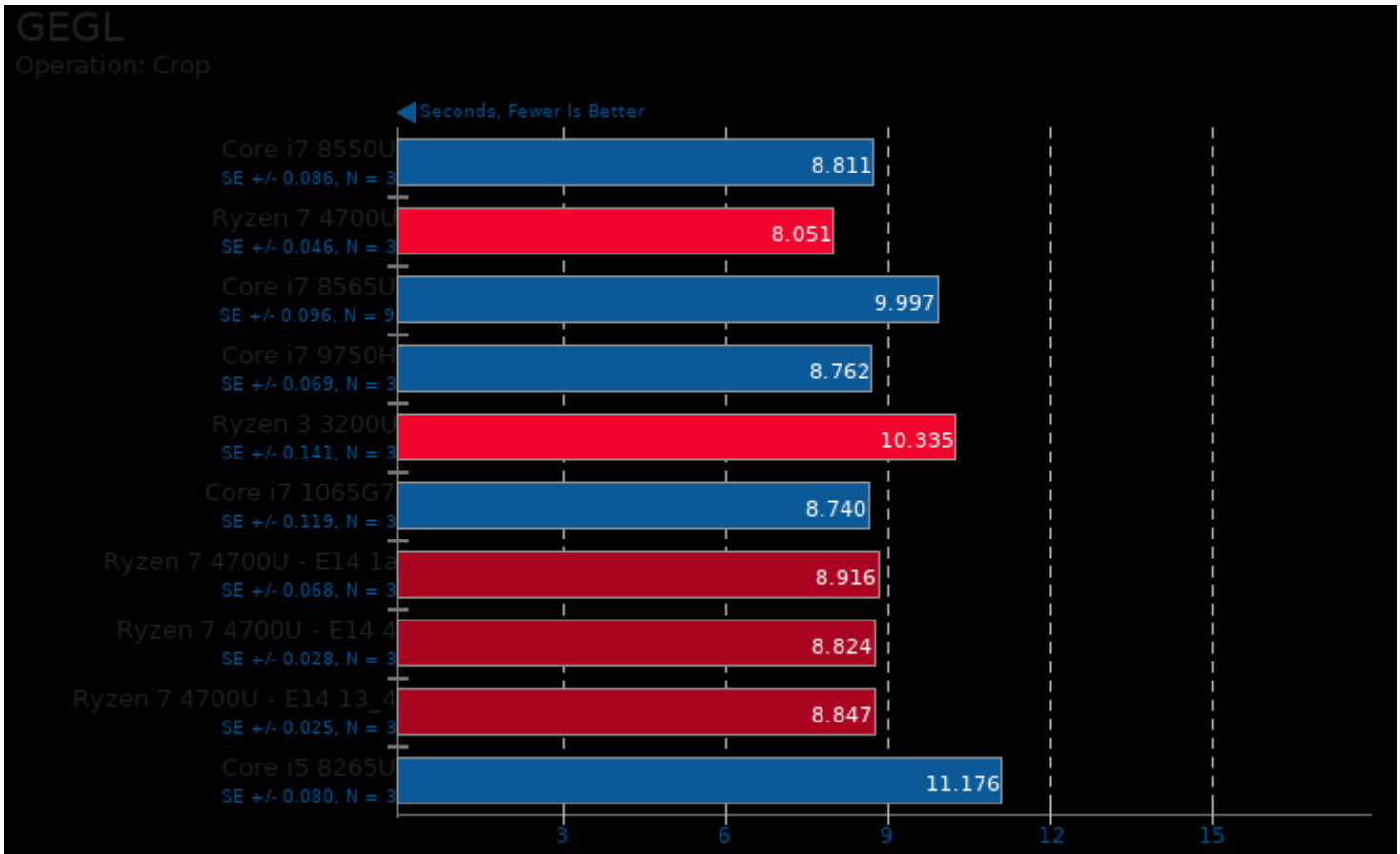


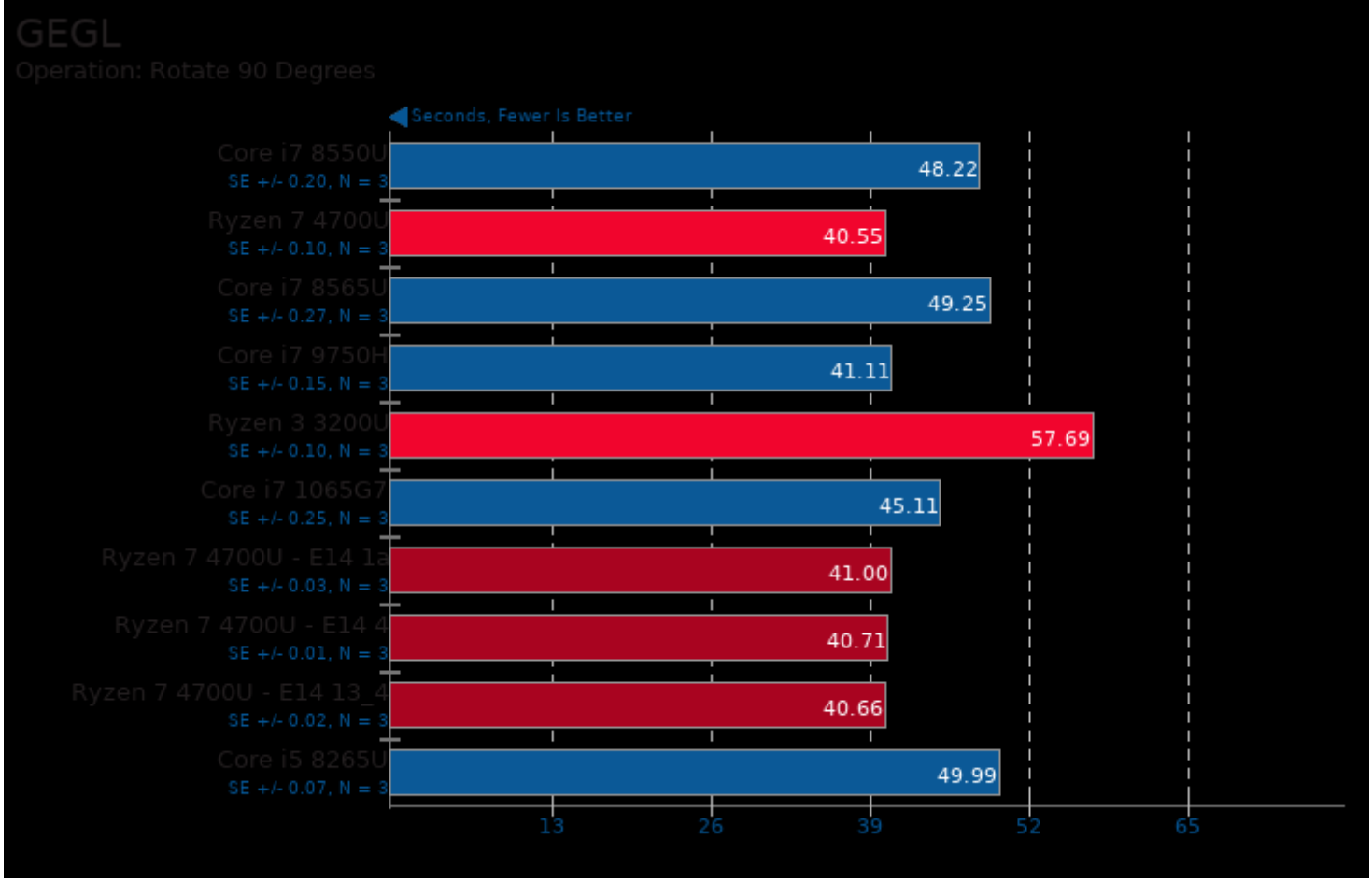

FLAC Audio Encoding 1.3.2
WAV To FLAC
Seconds, Fewer Is Better
Core i7 8550U
SE +/- 0.013, N = 5
9.586
Ryzen 7 4700U
SE +/- 0.007, N = 5
8.147
Core i7 8565U
SE +/- 0.060, N = 5
9.685
Core i7 9750H
SE +/- 0.026, N = 5
8.729
Ryzen 3 3200U
SE +/- 0.075, N = 5
11.763
Core i7 1065G7
SE +/- 0.032, N = 5
8.903
Core i5 5300U
SE +/- 0.025, N = 5
14.507
Ryzen 7 4700U - E14 1a
SE +/- 0.021, N = 5
-logg
8.255
Ryzen 7 4700U - E14 4
SE +/- 0.033, N = 5
-logg
8.294
Ryzen 7 4700U - E14 5
SE +/- 0.008, N = 5
-logg
8.185
Ryzen 7 4700U - E14 7
SE +/- 0.012, N = 5
-logg
8.366
Ryzen 7 4700U - E14 13_4
SE +/- 0.004, N = 5
-logg
8.225
Core i5 8265U
SE +/- 0.032, N = 5
-logg
10.021
4
8
12
16
20
1. (CXX) g++ options: -O2 -fvisibility=hidden -lm

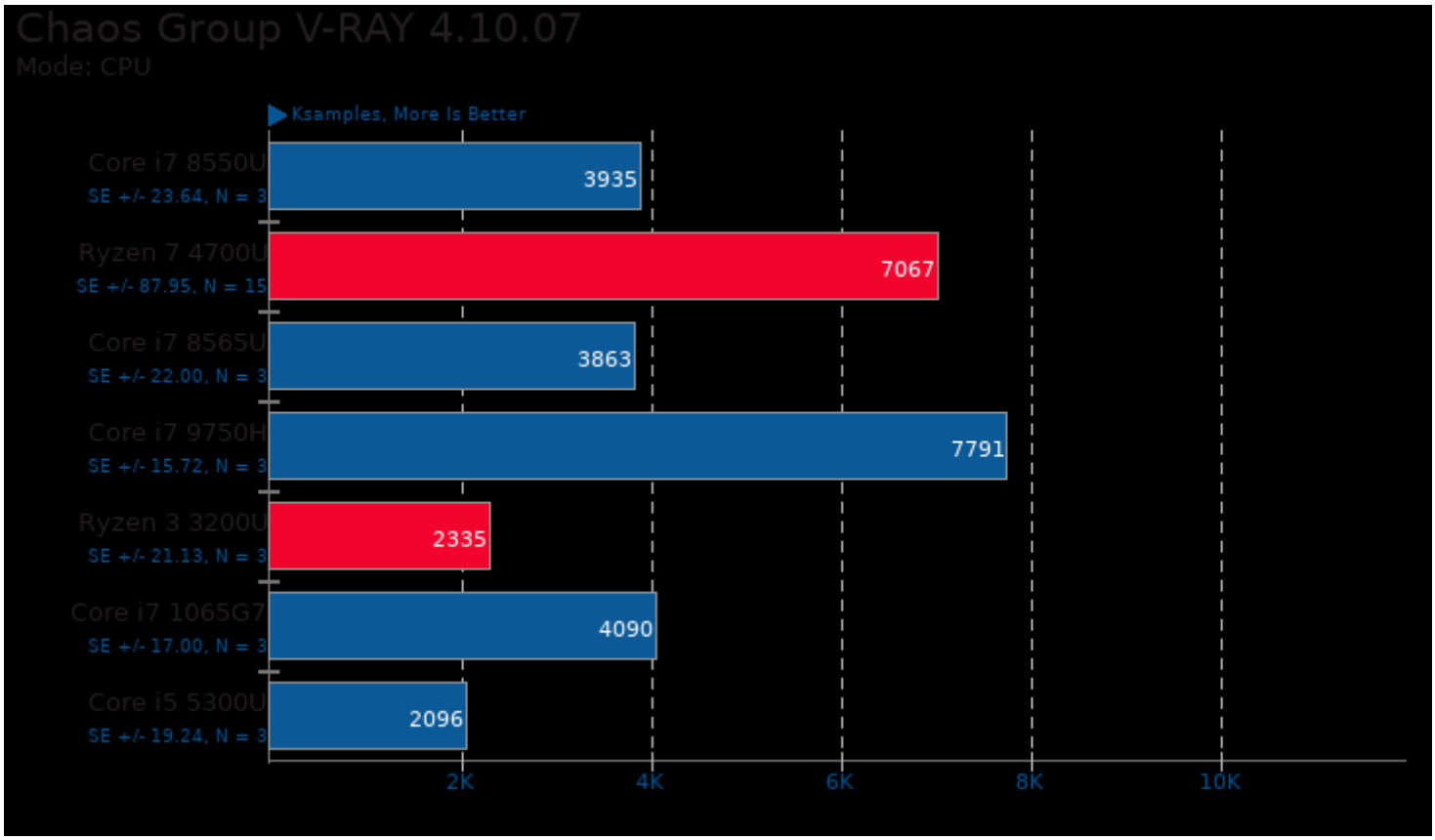

GROMACS 2019.4
Water Benchmark
Ns Per Day, More Is Better
Core i7 8550U
SE +/- 0.002, N = 3
0.344
Ryzen 7 4700U
SE +/- 0.001, N = 3
0.534
Core i7 8565U
SE +/- 0.001, N = 3
0.350
Core i7 9750H
SE +/- 0.005, N = 3
0.626
Ryzen 3 3200U
SE +/- 0.000, N = 3
0.145
Core i7 1065G7
SE +/- 0.001, N = 3
0.381
Core i5 5300U
SE +/- 0.001, N = 3
0.182
Ryzen 7 4700U - E14 1a
SE +/- 0.007, N = 9
0.480
Ryzen 7 4700U - E14 4
SE +/- 0.006, N = 9
0.476
Ryzen 7 4700U - E14 13_4
SE +/- 0.007, N = 3
0.514
Core i5 8265U
SE +/- 0.002, N = 3
0.400
0.1409
0.2818
0.4227
0.5636
0.7045
1. (CXX) g++ options: -mavx2 -mfma -pthread -std=c++11 -O3 -funroll-all-loops -lrt -lpthread -lm

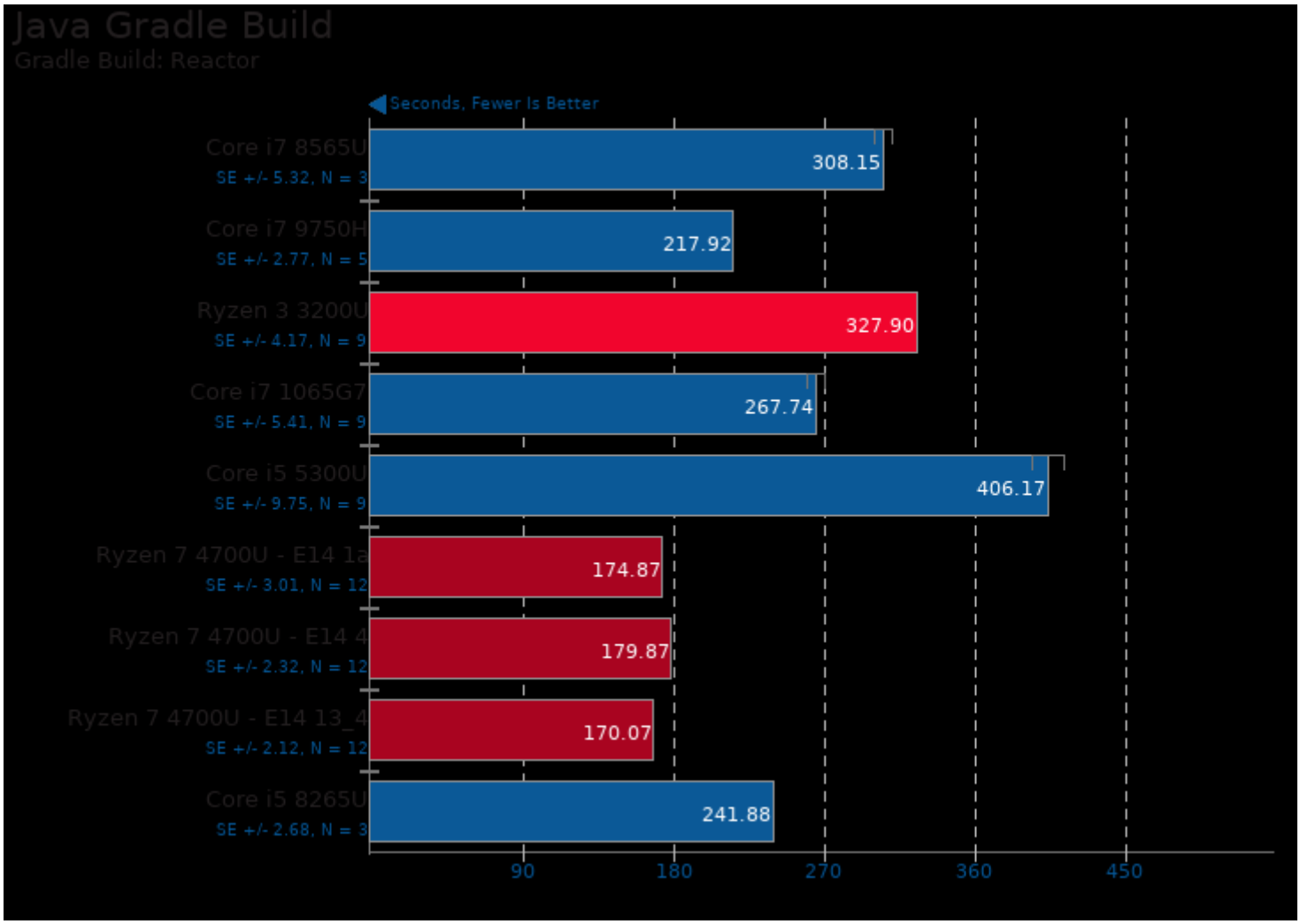
Initial Ryzen 7 4700U Linux Laptop Tests

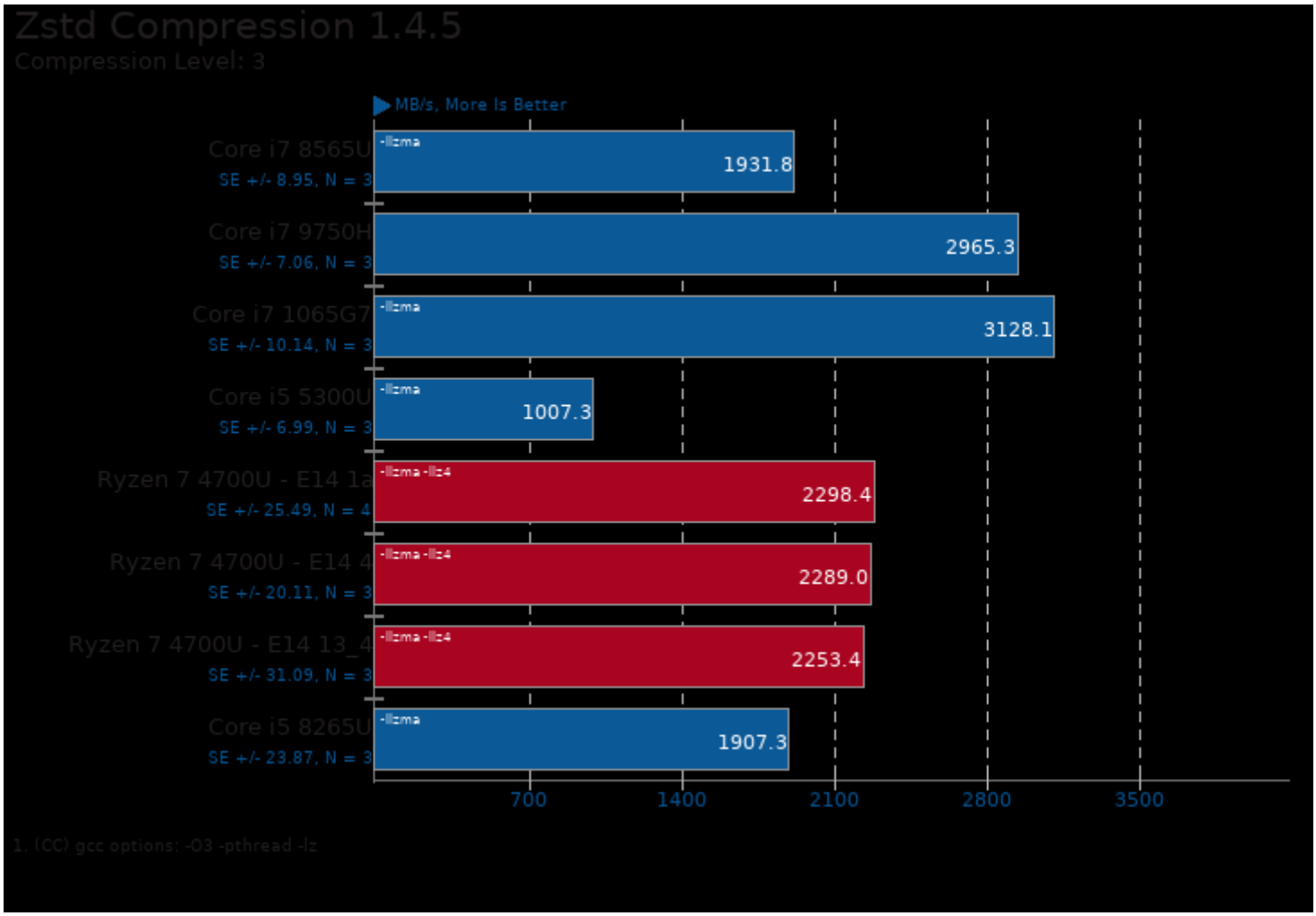


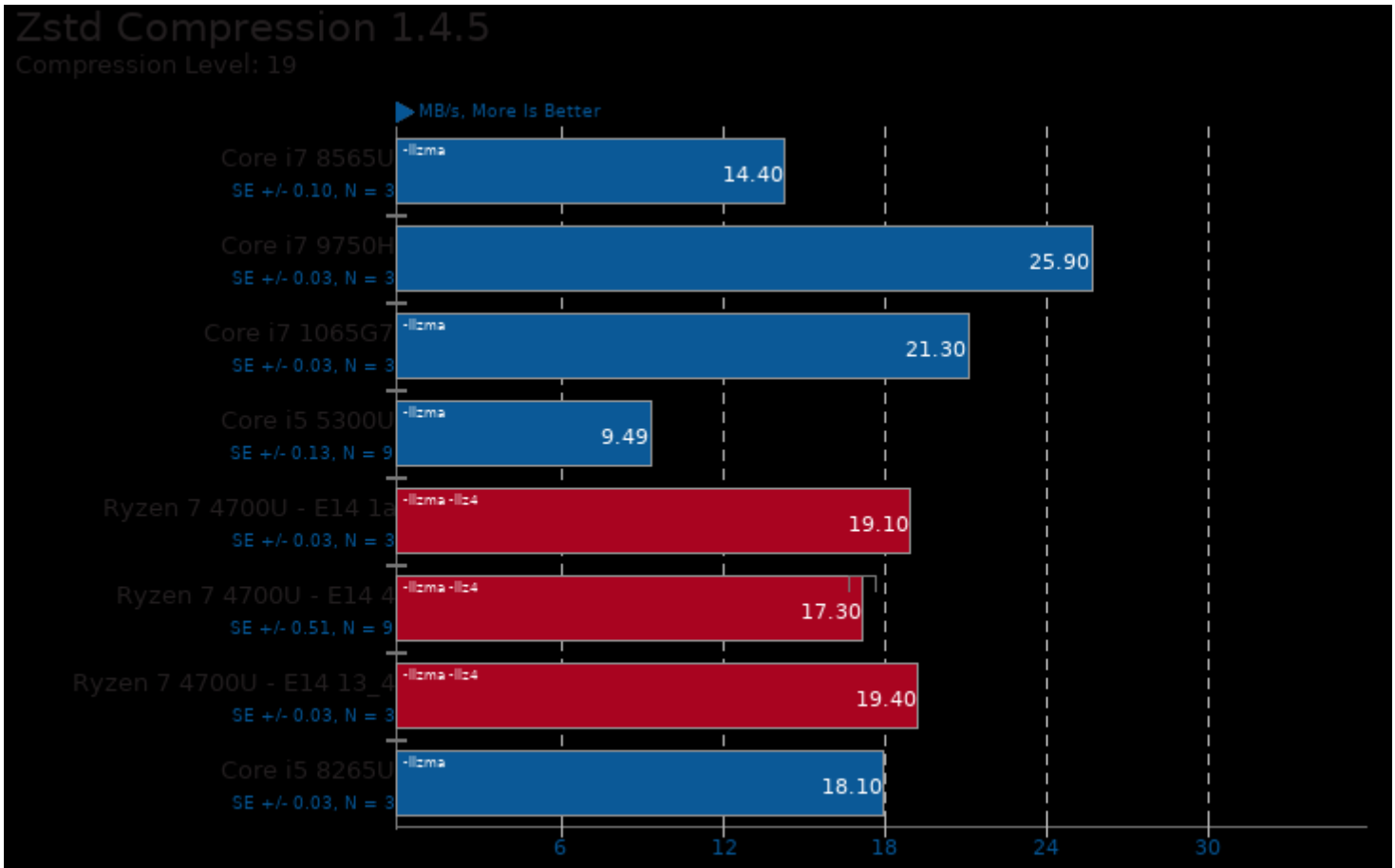

GEGL
Operation: Crop
Seconds, Fewer Is Better
Core i7 8550U
SE +/- 0.086, N = 3
8.811
Ryzen 7 4700U
SE +/- 0.046, N = 3
8.051
Core i7 8565U
SE +/- 0.096, N = 9
9.997
Core i7 9750H
SE +/- 0.069, N = 3
8.762
Ryzen 3 3200U
SE +/- 0.141, N = 3
10.335
Core i7 1065G7
SE +/- 0.119, N = 3
8.740
Ryzen 7 4700U - E14 1a
SE +/- 0.068, N = 3
8.916
Ryzen 7 4700U - E14 4
SE +/- 0.028, N = 3
8.824
Ryzen 7 4700U - E14 13_4
SE +/- 0.025, N = 3
8.847
Core i5 8265U
SE +/- 0.080, N = 3
11.176
3
6
9
12
15

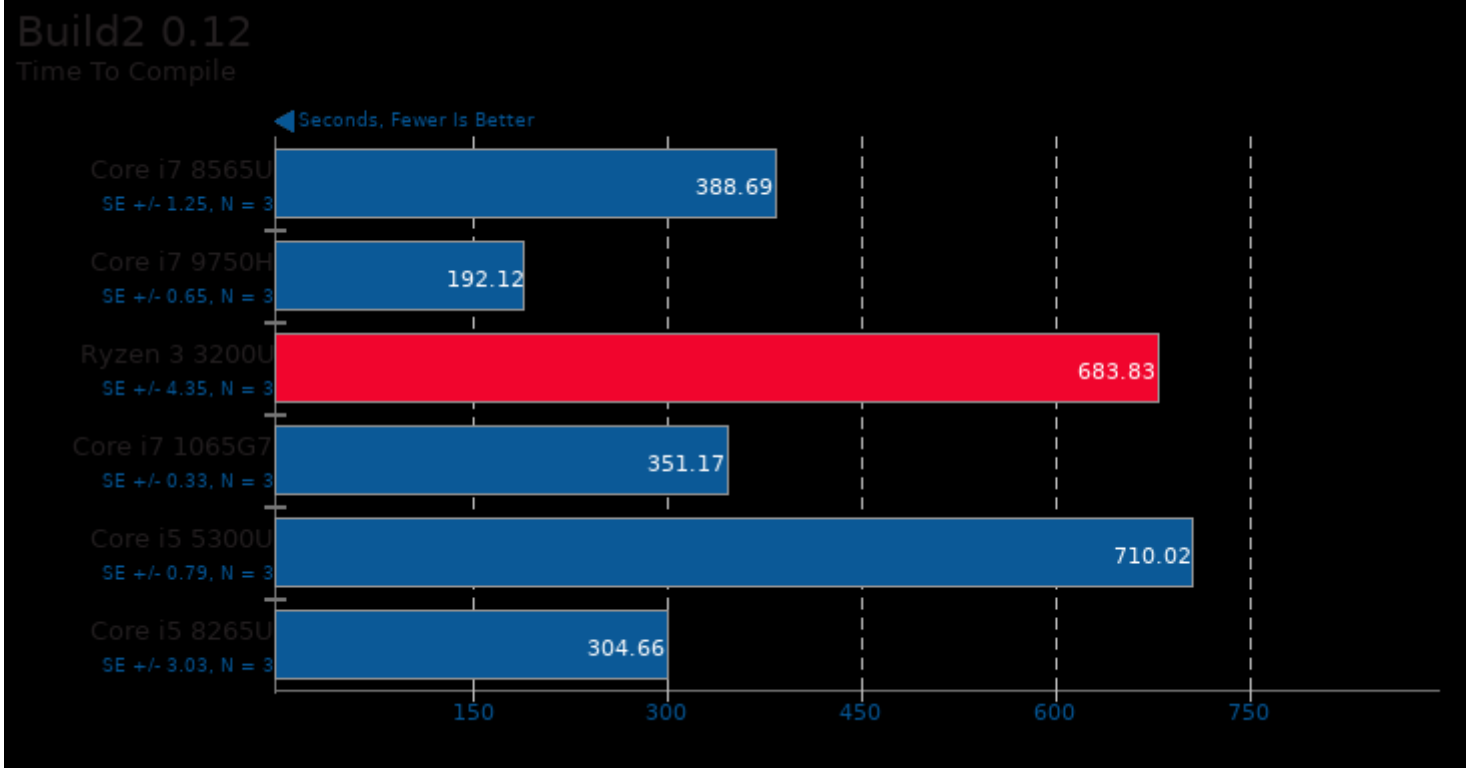

GEGL
Operation: Rotate 90 Degrees
Seconds, Fewer Is Better
Core i7 8550U
SE +/- 0.20, N = 3
48.22
Ryzen 7 4700U
SE +/- 0.10, N = 3
40.55
Core i7 8565U
SE +/- 0.27, N = 3
49.25
Core i7 9750H
SE +/- 0.15, N = 3
41.11
Ryzen 3 3200U
SE +/- 0.10, N = 3
57.69
Core i7 1065G7
SE +/- 0.25, N = 3
45.11
Ryzen 7 4700U - E14 1a
SE +/- 0.03, N = 3
41.00
Ryzen 7 4700U - E14 4
SE +/- 0.01, N = 3
40.71
Ryzen 7 4700U - E14 13_4
SE +/- 0.02, N = 3
40.66
Core i5 8265U
SE +/- 0.07, N = 3
49.99
13
26
39
52
65

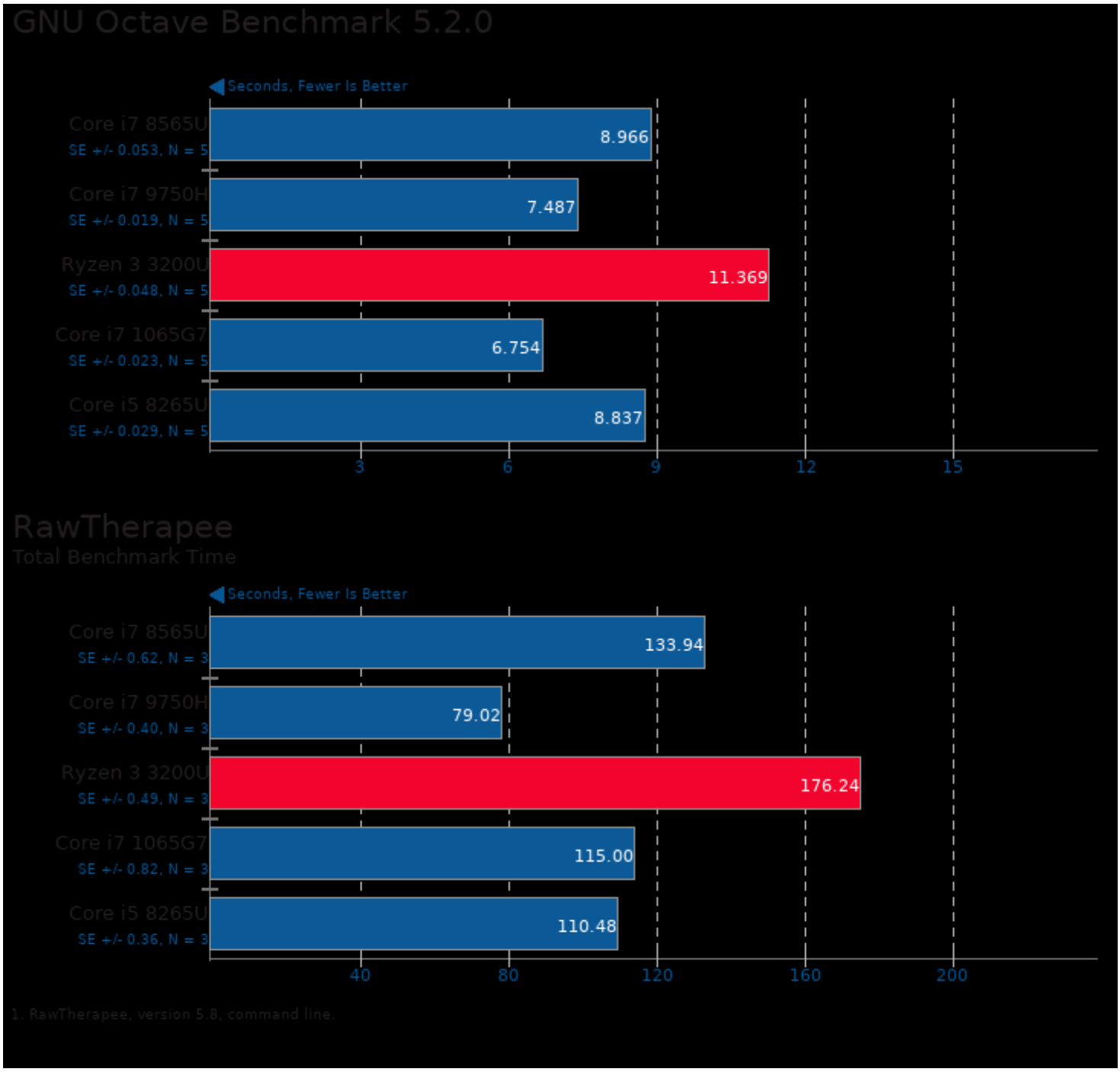

Chaos Group V-RAY 4.10.07
Mode: CPU
Ksamples, More Is Better
Core i7 8550U
SE +/- 23.64, N = 3
3935
Ryzen 7 4700U
SE +/- 87.95, N = 15
7067
Core i7 8565U
SE +/- 22.00, N = 3
3863
Core i7 9750H
SE +/- 15.72, N = 3
7791
Ryzen 3 3200U
SE +/- 21.13, N = 3
2335
Core i7 1065G7
SE +/- 17.00, N = 3
4090
Core i5 5300U
SE +/- 19.24, N = 3
2096
2K
4K
6K
8K
10K

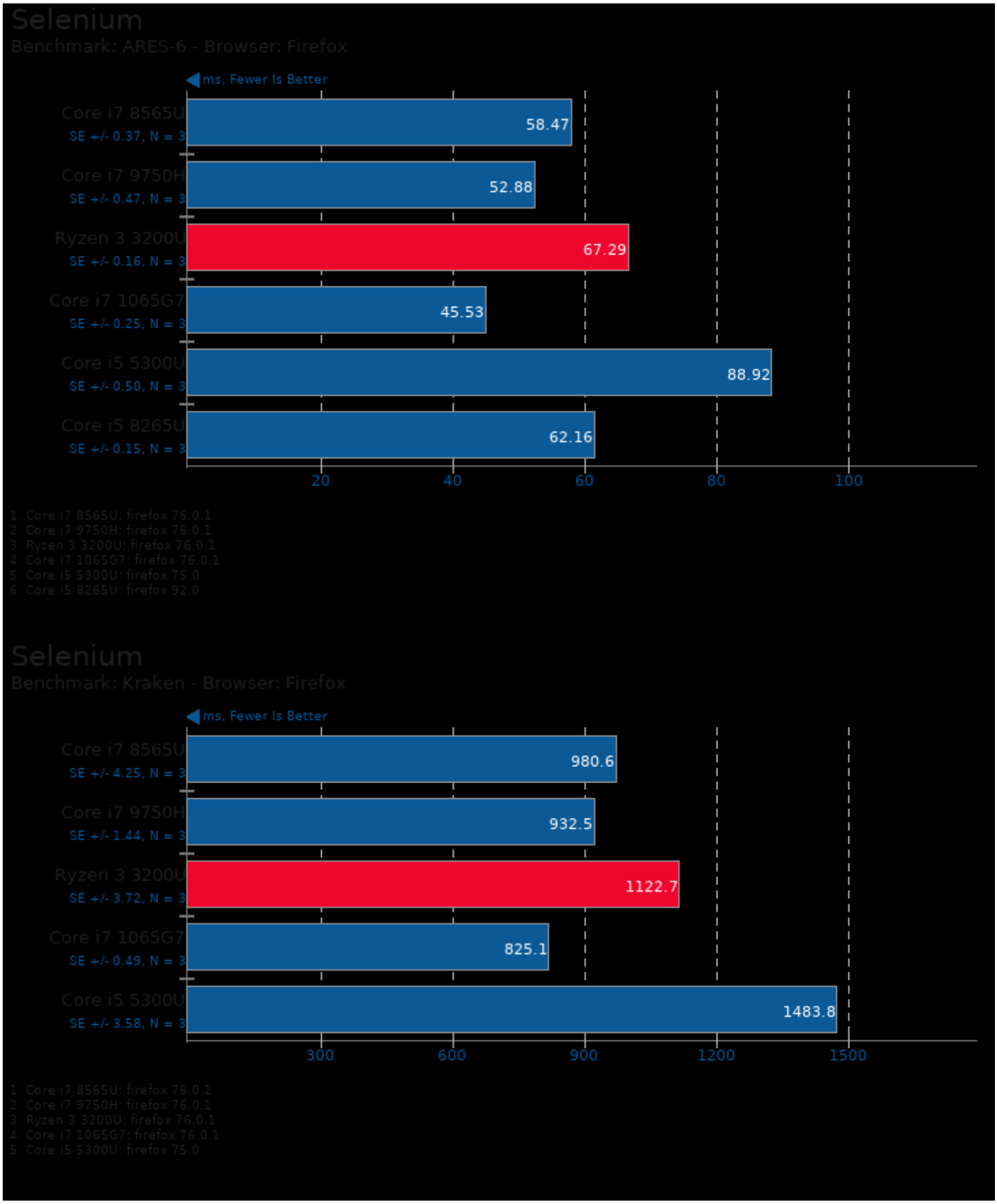

Java Gradle Build
Gradle Build: Reactor
Seconds, Fewer Is Better
Core i7 8565U
SE +/- 5.32, N = 3
308.15
Core i7 9750H
SE +/- 2.77, N = 5
217.92
Ryzen 3 3200U
SE +/- 4.17, N = 9
327.90
Core i7 1065G7
SE +/- 5.41, N = 9
267.74
Core i5 5300U
SE +/- 9.75, N = 9
406.17
Ryzen 7 4700U - E14 1a
SE +/- 3.01, N = 12
174.87
Ryzen 7 4700U - E14 4
SE +/- 2.32, N = 12
179.87
Ryzen 7 4700U - E14 13_4
SE +/- 2.12, N = 12
170.07
Core i5 8265U
SE +/- 2.68, N = 3
241.88
90
180
270
360
450


Zstd Compression 1.4.5
Compression Level: 3
MB/s, More Is Better
Core i7 8565U
SE +/- 8.95, N = 3
-llzma
1931.8
Core i7 9750H
SE +/- 7.06, N = 3
2965.3
Core i7 1065G7
SE +/- 10.14, N = 3
-llzma
3128.1
Core i5 5300U
SE +/- 6.99, N = 3
-llzma
1007.3
Ryzen 7 4700U - E14 1a
SE +/- 25.49, N = 4
-llzma -llz4
2298.4
Ryzen 7 4700U - E14 4
SE +/- 20.11, N = 3
-llzma -llz4
2289.0
Ryzen 7 4700U - E14 13_4
SE +/- 31.09, N = 3
-llzma -llz4
2253.4
Core i5 8265U
SE +/- 23.87, N = 3
-llzma
1907.3
700
1400
2100
2800
3500
1. (CC) gcc options: -O3 -pthread -lz


Zstd Compression 1.4.5
Compression Level: 19
MB/s, More Is Better
Core i7 8565U
SE +/- 0.10, N = 3
-llzma
14.40
Core i7 9750H
SE +/- 0.03, N = 3
25.90
Core i7 1065G7
SE +/- 0.03, N = 3
-llzma
21.30
Core i5 5300U
SE +/- 0.13, N = 9
-llzma
9.49
Ryzen 7 4700U - E14 1a
SE +/- 0.03, N = 3
-llzma -llz4
19.10
Ryzen 7 4700U - E14 4
SE +/- 0.51, N = 9
-llzma -llz4
17.30
Ryzen 7 4700U - E14 13_4
SE +/- 0.03, N = 3
-llzma -llz4
19.40
Core i5 8265U
SE +/- 0.03, N = 3
-llzma
18.10
6
12
18
24
30
1. (CC) gcc options: -O3 -pthread -lz

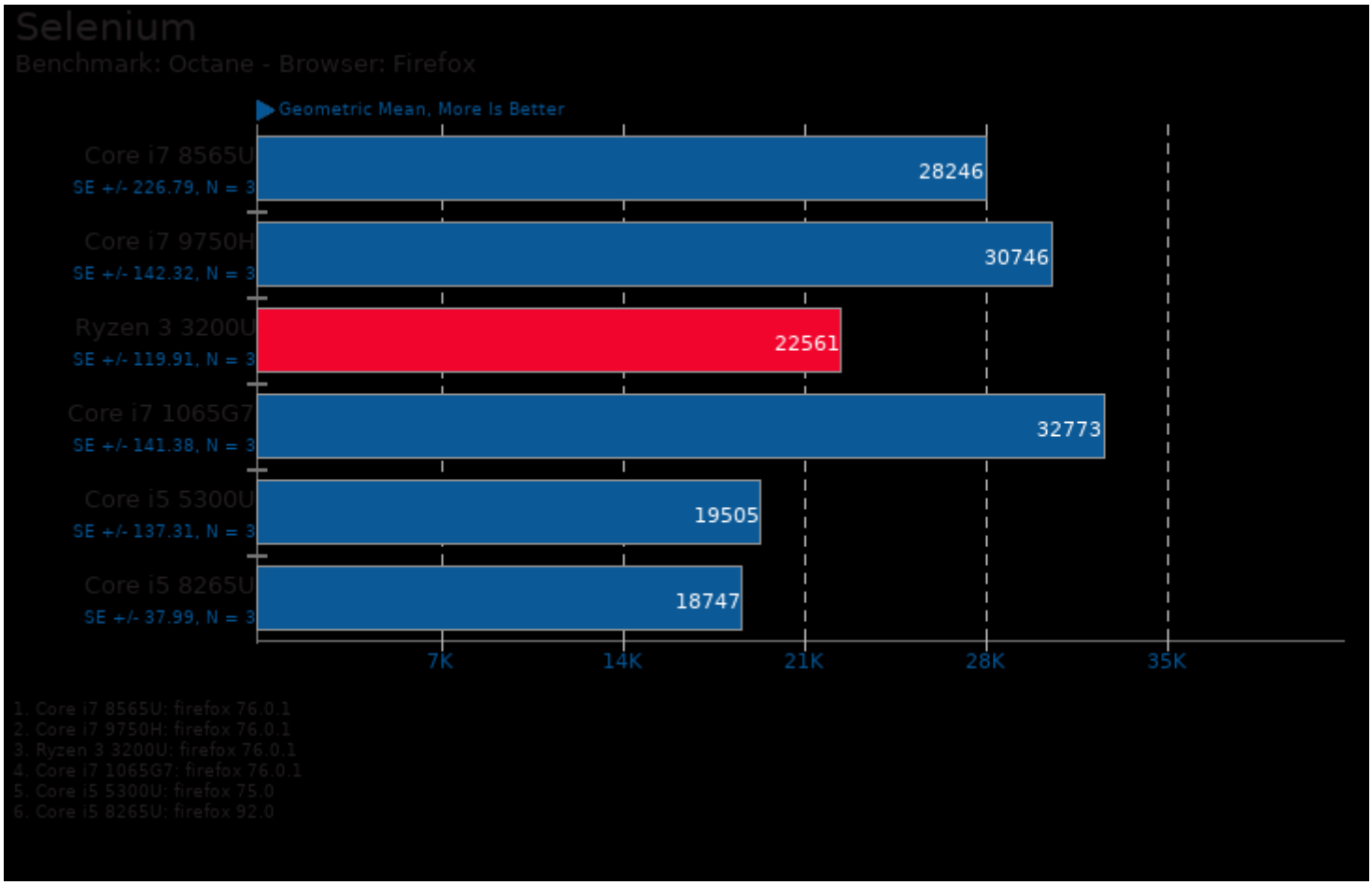

Build2 0.12
Time To Compile
Seconds, Fewer Is Better
Core i7 8565U
SE +/- 1.25, N = 3
388.69
Core i7 9750H
SE +/- 0.65, N = 3
192.12
Ryzen 3 3200U
SE +/- 4.35, N = 3
683.83
Core i7 1065G7
SE +/- 0.33, N = 3
351.17
Core i5 5300U
SE +/- 0.79, N = 3
710.02
Core i5 8265U
SE +/- 3.03, N = 3
304.66
150
300
450
600
750


GNU Octave Benchmark 5.2.0
Seconds, Fewer Is Better
Core i7 8565U
SE +/- 0.053, N = 5
8.966
Core i7 9750H
SE +/- 0.019, N = 5
7.487
Ryzen 3 3200U
SE +/- 0.048, N = 5
11.369
Core i7 1065G7
SE +/- 0.023, N = 5
6.754
Core i5 8265U
SE +/- 0.029, N = 5
8.837
3
6
9
12
15
RawTherapee
Total Benchmark Time
Seconds, Fewer Is Better
Core i7 8565U
SE +/- 0.62, N = 3
133.94
Core i7 9750H
SE +/- 0.40, N = 3
79.02
Ryzen 3 3200U
SE +/- 0.49, N = 3
176.24
Core i7 1065G7
SE +/- 0.82, N = 3
115.00
Core i5 8265U
SE +/- 0.36, N = 3
110.48
40
80
120
160
200
1. RawTherapee, version 5.8, command line.

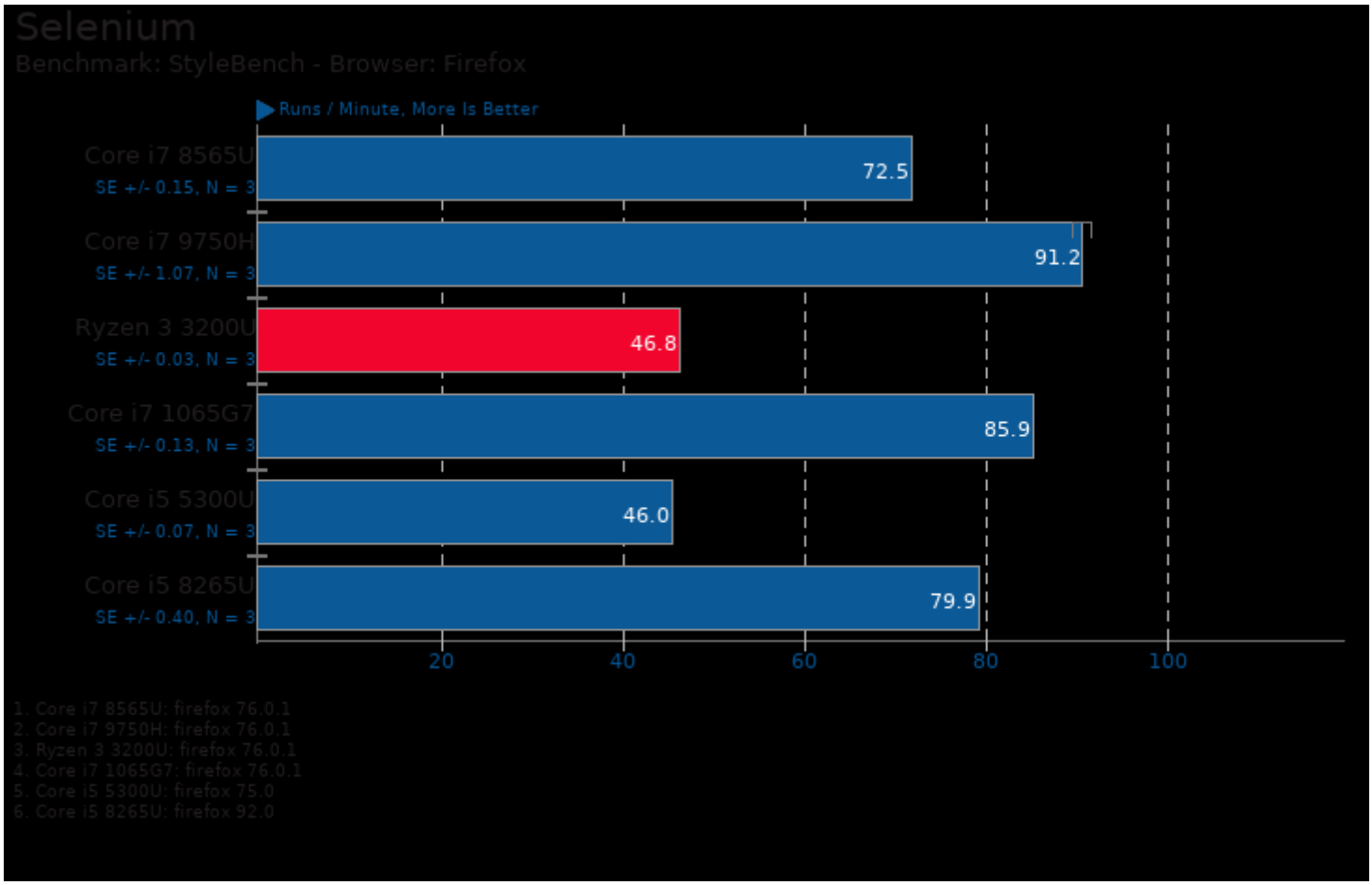

Selenium
Benchmark: ARES-6 - Browser: Firefox
ms, Fewer Is Better
Core i7 8565U
SE +/- 0.37, N = 3
58.47
Core i7 9750H
SE +/- 0.47, N = 3
52.88
Ryzen 3 3200U
SE +/- 0.16, N = 3
67.29
Core i7 1065G7
SE +/- 0.25, N = 3
45.53
Core i5 5300U
SE +/- 0.50, N = 3
88.92
Core i5 8265U
SE +/- 0.15, N = 3
62.16
20
40
60
80
100
1. Core i7 8565U: firefox 76.0.1
2. Core i7 9750H: firefox 76.0.1
3. Ryzen 3 3200U: firefox 76.0.1
4. Core i7 1065G7: firefox 76.0.1
5. Core i5 5300U: firefox 75.0
6. Core i5 8265U: firefox 92.0

Selenium
Benchmark: Kraken - Browser: Firefox
ms, Fewer Is Better
Core i7 8565U
SE +/- 4.25, N = 3
980.6
Core i7 9750H
SE +/- 1.44, N = 3
932.5
Ryzen 3 3200U
SE +/- 3.72, N = 3
1122.7
Core i7 1065G7
SE +/- 0.49, N = 3
825.1
Core i5 5300U
SE +/- 3.58, N = 3
1483.8
300
600
900
1200
1500
1. Core i7 8565U: firefox 76.0.1
2. Core i7 9750H: firefox 76.0.1
3. Ryzen 3 3200U: firefox 76.0.1
4. Core i7 1065G7: firefox 76.0.1
5. Core i5 5300U: firefox 75.0

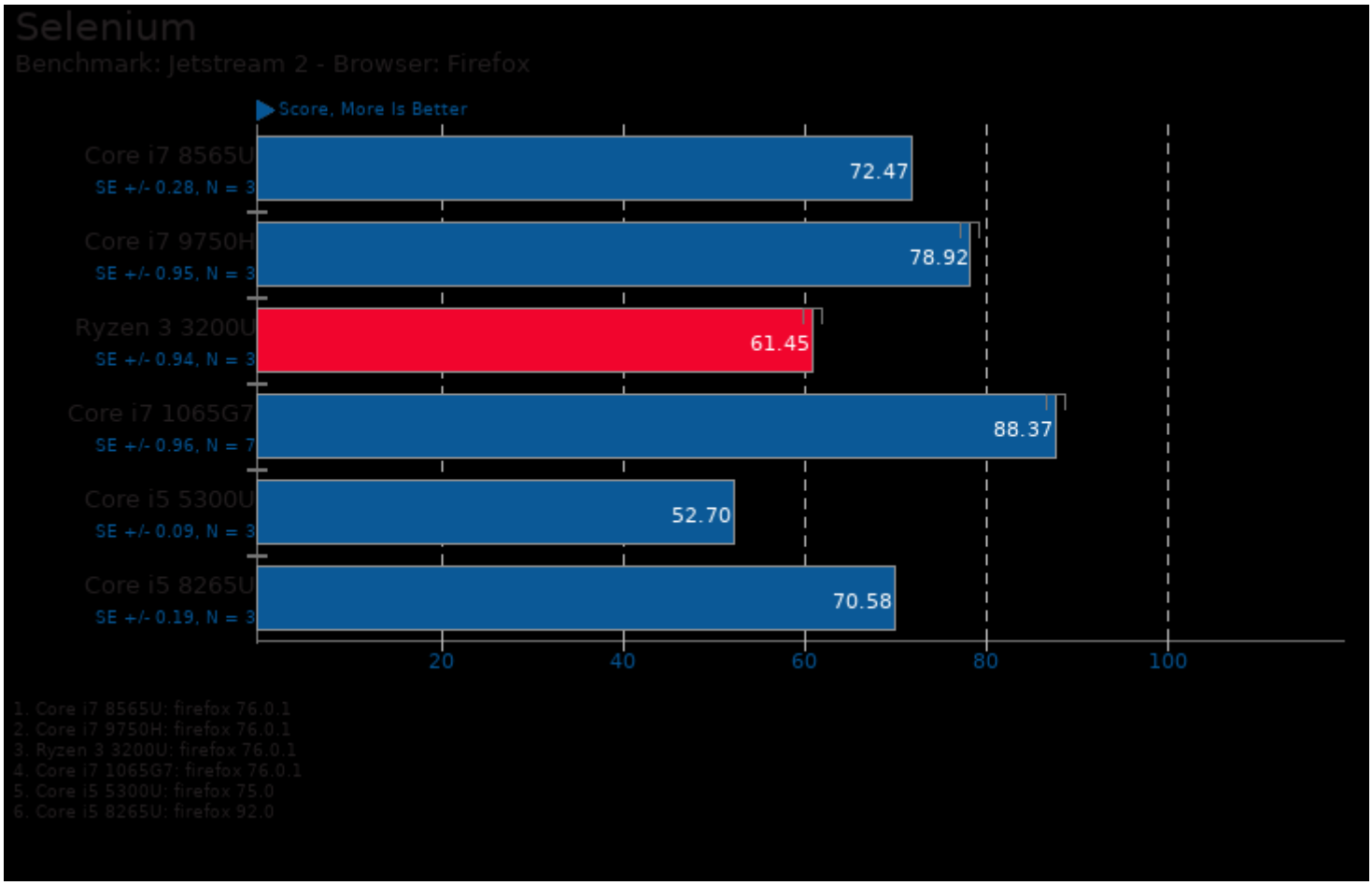
Initial Ryzen 7 4700U Linux Laptop Tests



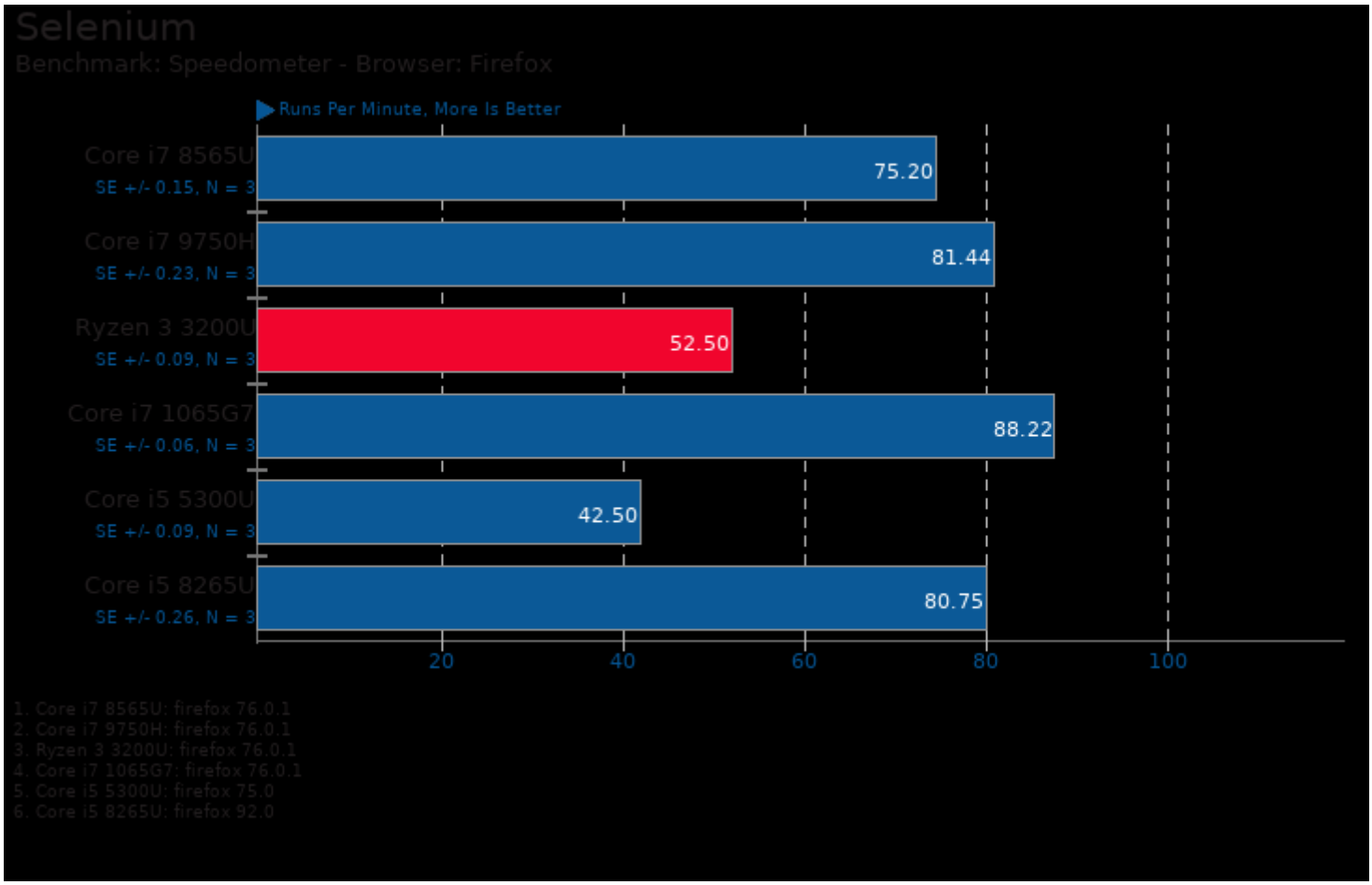
Initial Ryzen 7 4700U Linux Laptop Tests

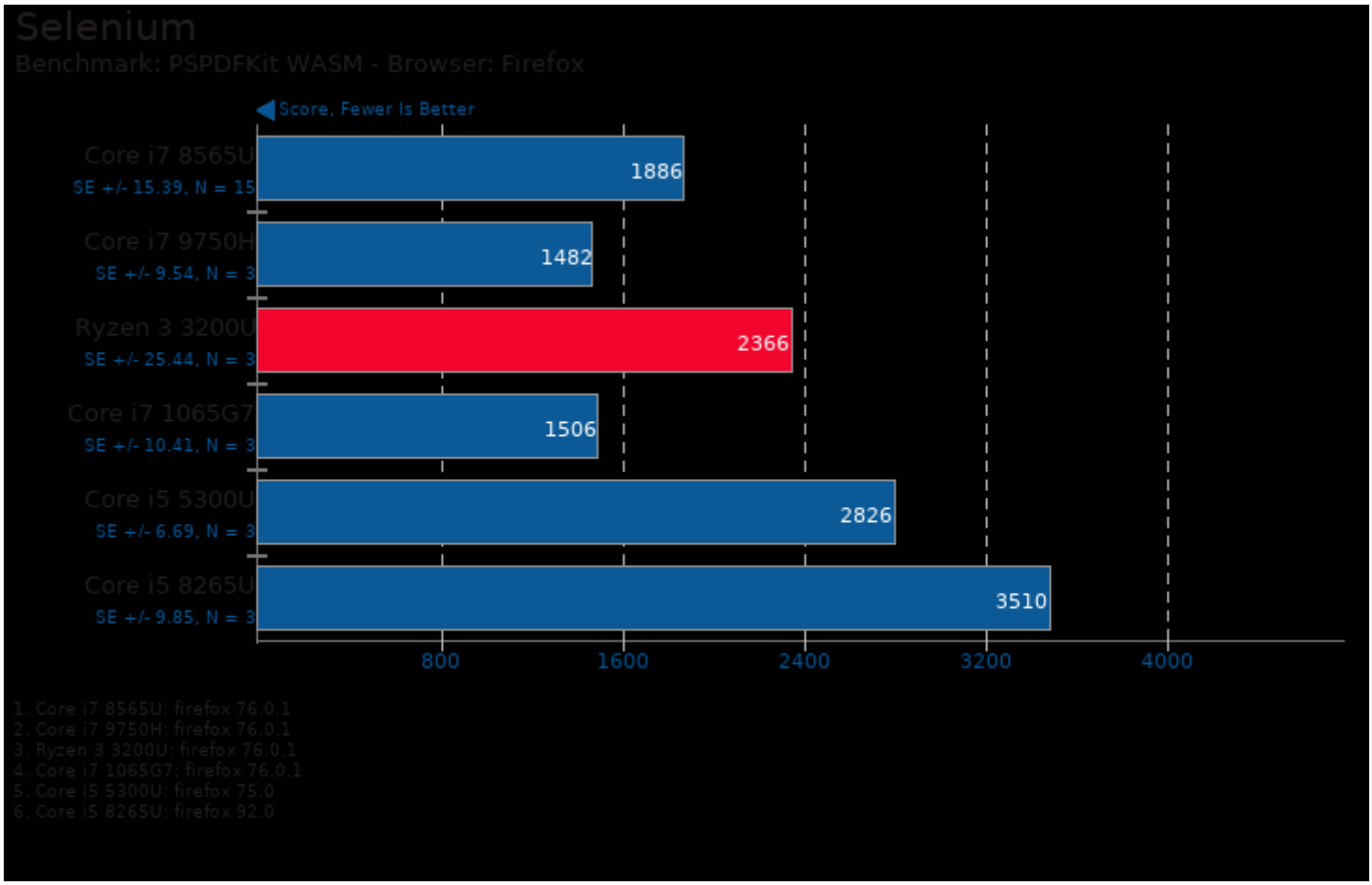


Initial Ryzen 7 4700U Linux Laptop Tests

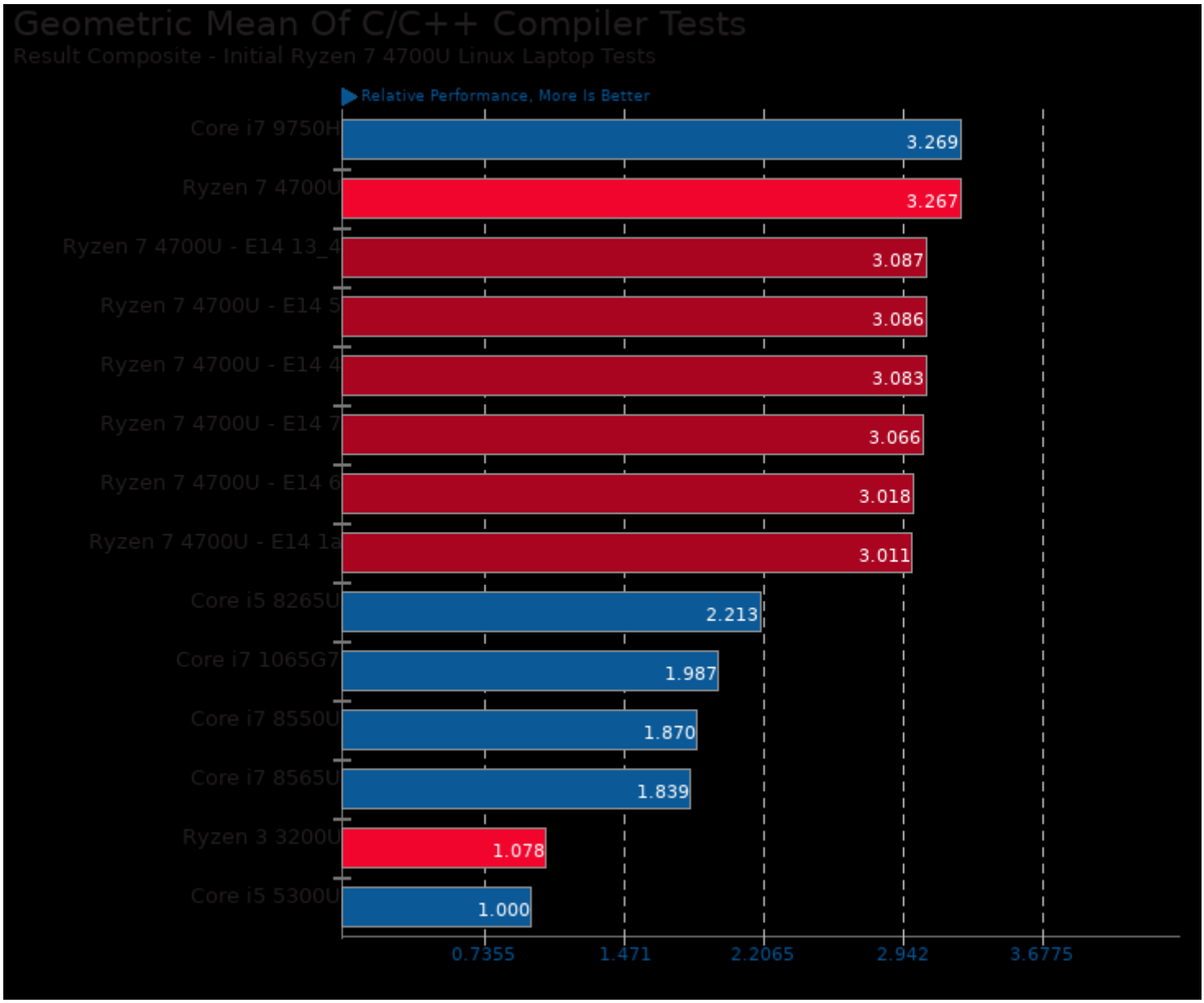


Initial Ryzen 7 4700U Linux Laptop Tests

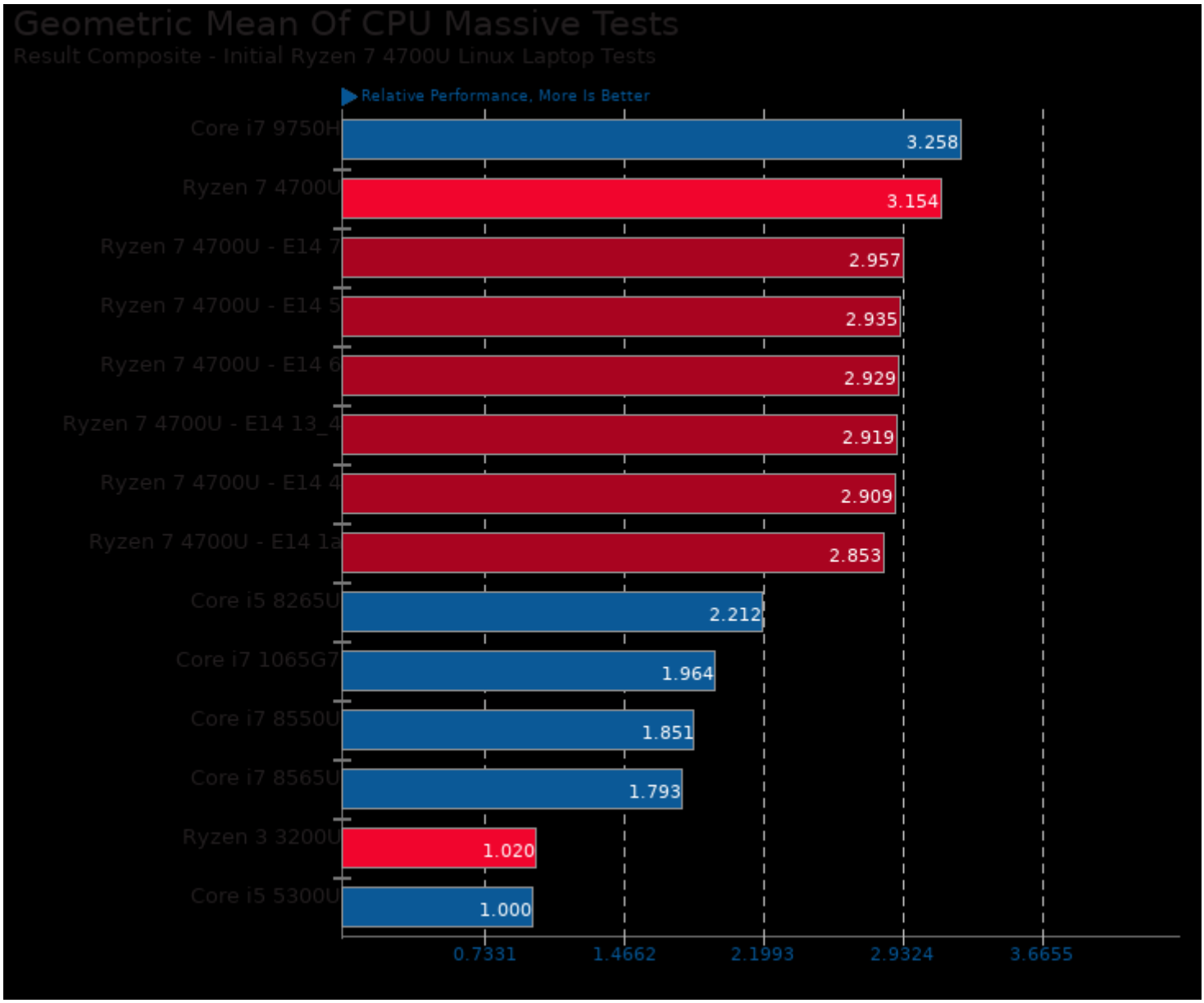



Selenium
Benchmark: PSPDFKit WASM - Browser: Firefox
Score, Fewer Is Better
Core i7 8565U
SE +/- 15.39, N = 15
1886
Core i7 9750H
SE +/- 9.54, N = 3
1482
Ryzen 3 3200U
SE +/- 25.44, N = 3
2366
Core i7 1065G7
SE +/- 10.41, N = 3
1506
Core i5 5300U
SE +/- 6.69, N = 3
2826
Core i5 8265U
SE +/- 9.85, N = 3
3510
800
1600
2400
3200
4000
1. Core i7 8565U: firefox 76.0.1
2. Core i7 9750H: firefox 76.0.1
3. Ryzen 3 3200U: firefox 76.0.1
4. Core i7 1065G7: firefox 76.0.1
5. Core i5 5300U: firefox 75.0
6. Core i5 8265U: firefox 92.0

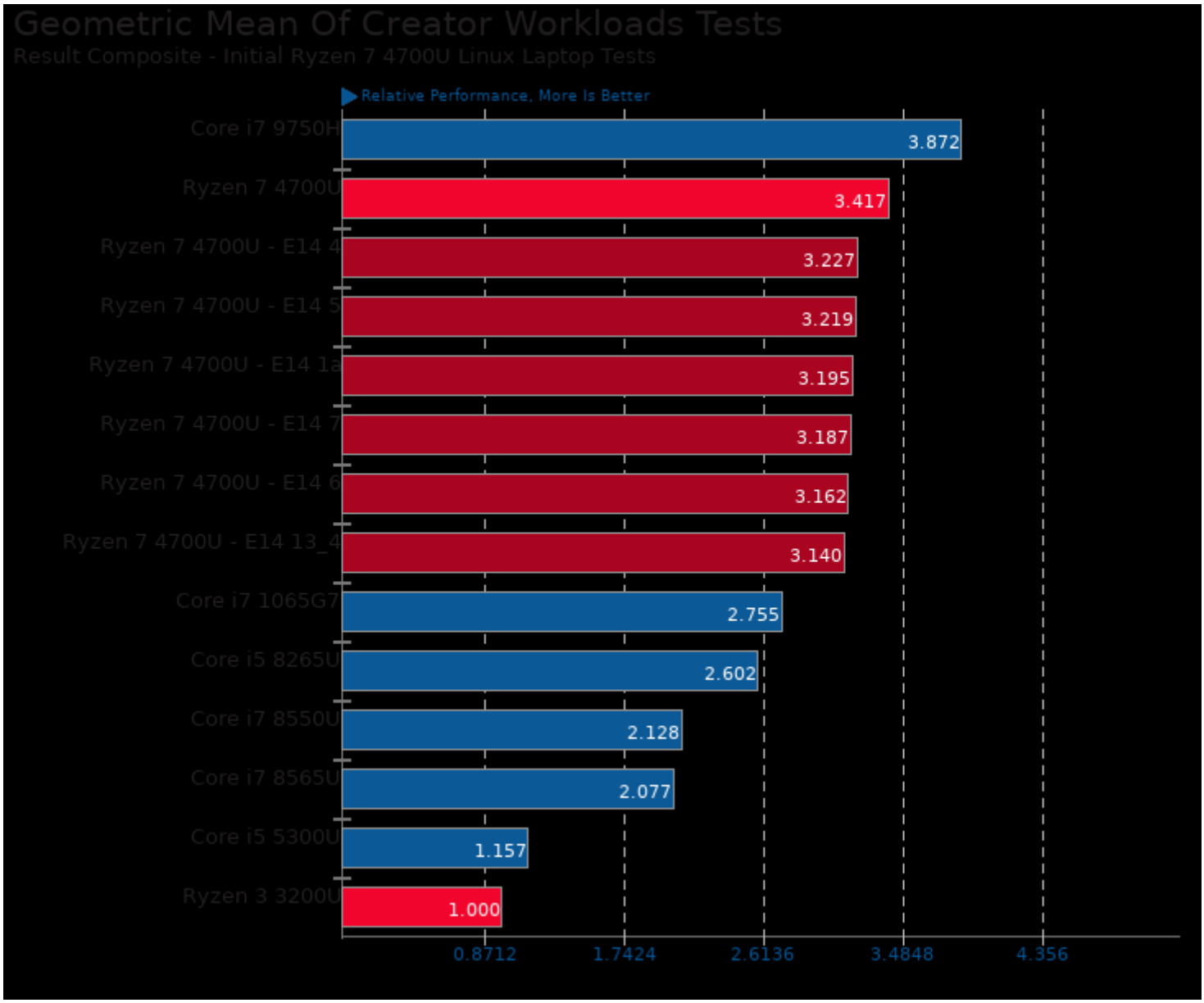
These geometric means are based upon test groupings / test suites for this result file.



Geometric mean based upon tests: pts/vpxenc, pts/encode-flac, pts/sqlite-speedtest, pts/x264, pts/tungsten, pts/compress-zstd, pts/lammps, pts/svt-av1, pts/svt-vp9, pts/gromacs, pts/build-gdb, pts/build-ffmpeg and pts/build-mplayer

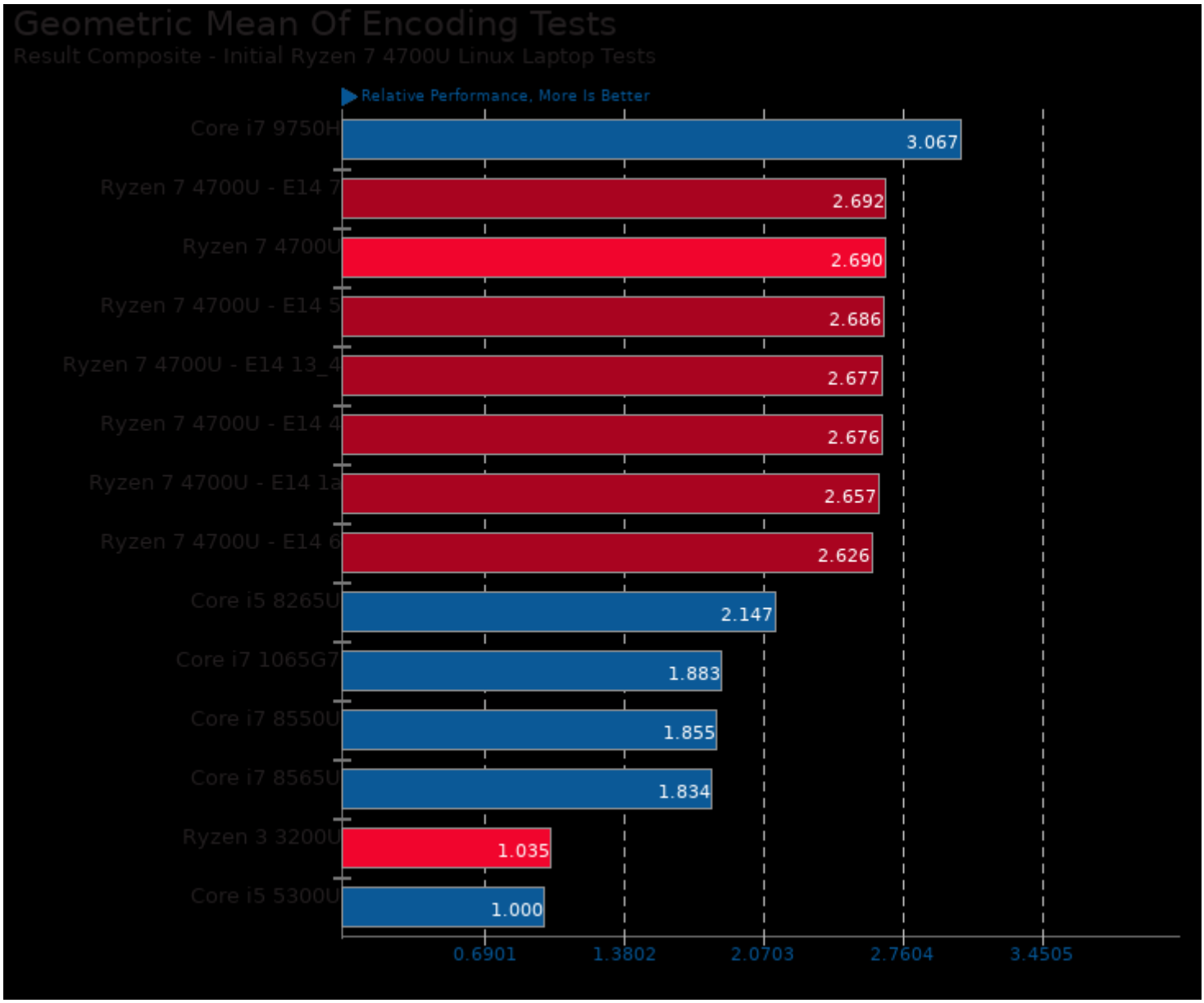


Geometric mean based upon tests: pts/build-linux-kernel, pts/compress-zstd, pts/svt-av1, pts/svt-vp9, pts/vpxenc, pts/x264, pts/encode-flac, pts/java-gradle-perf, pts/lammps, pts/namd, pts/numpy, pts/povray, pts/v-ray and system/octave-benchmark

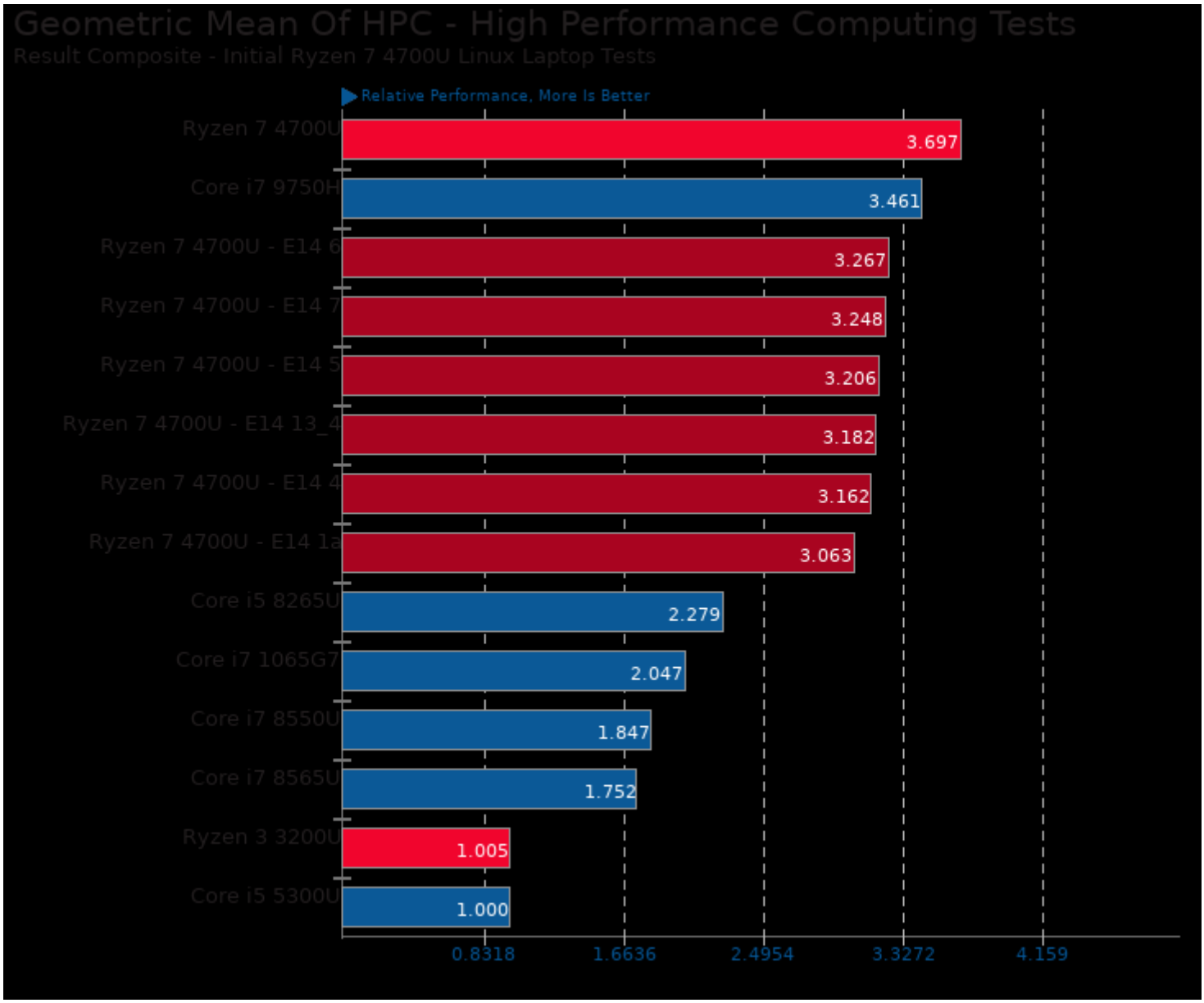


Geometric mean based upon tests: pts/ospray, pts/povray, pts/tungsten, pts/v-ray, pts/svt-vp9, pts/x264, pts/vpxenc, pts/svt-av1, pts/encode-flac, system/rawtherapee, system/gegl, pts/embree and pts/oidn

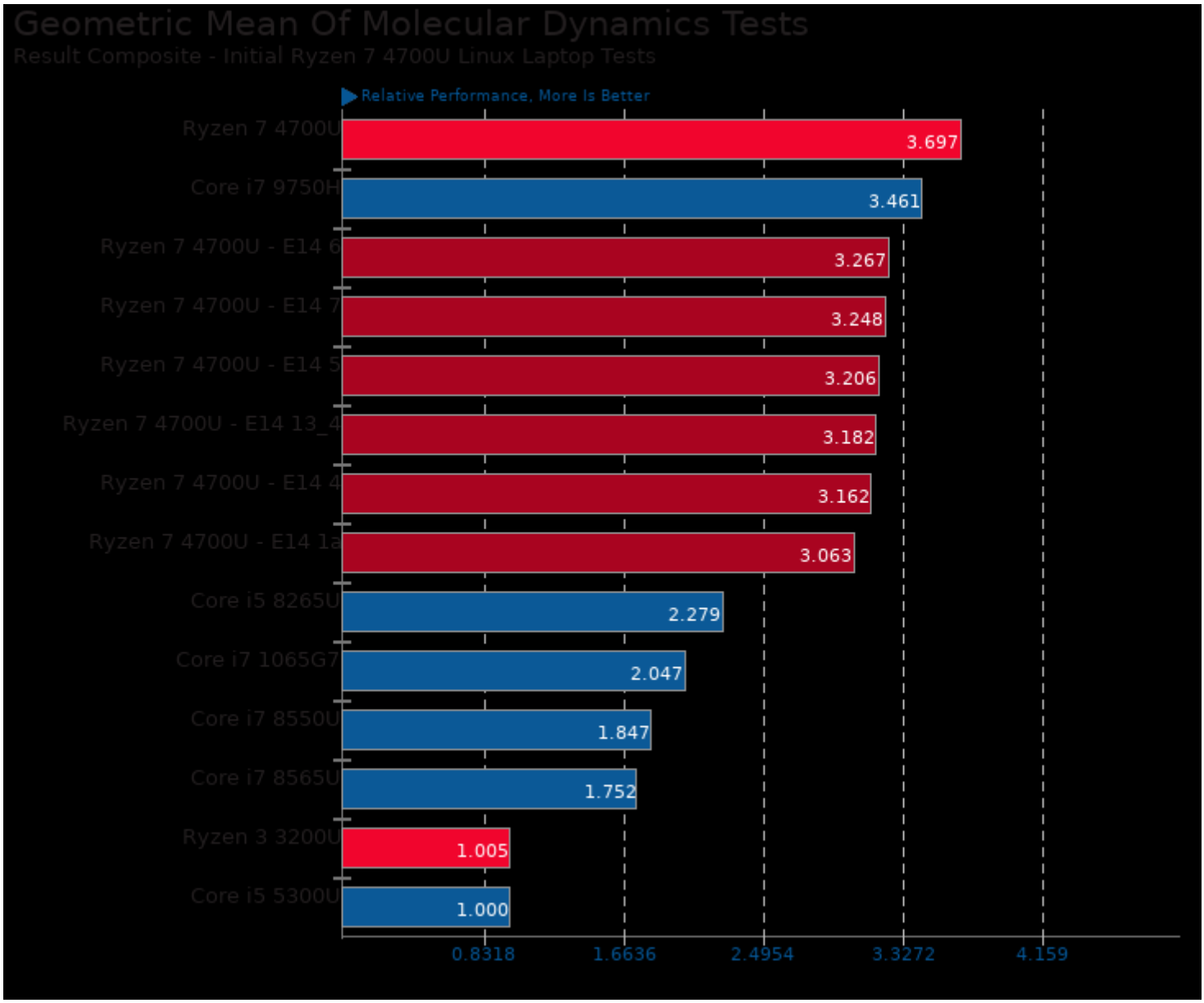
Initial Ryzen 7 4700U Linux Laptop Tests



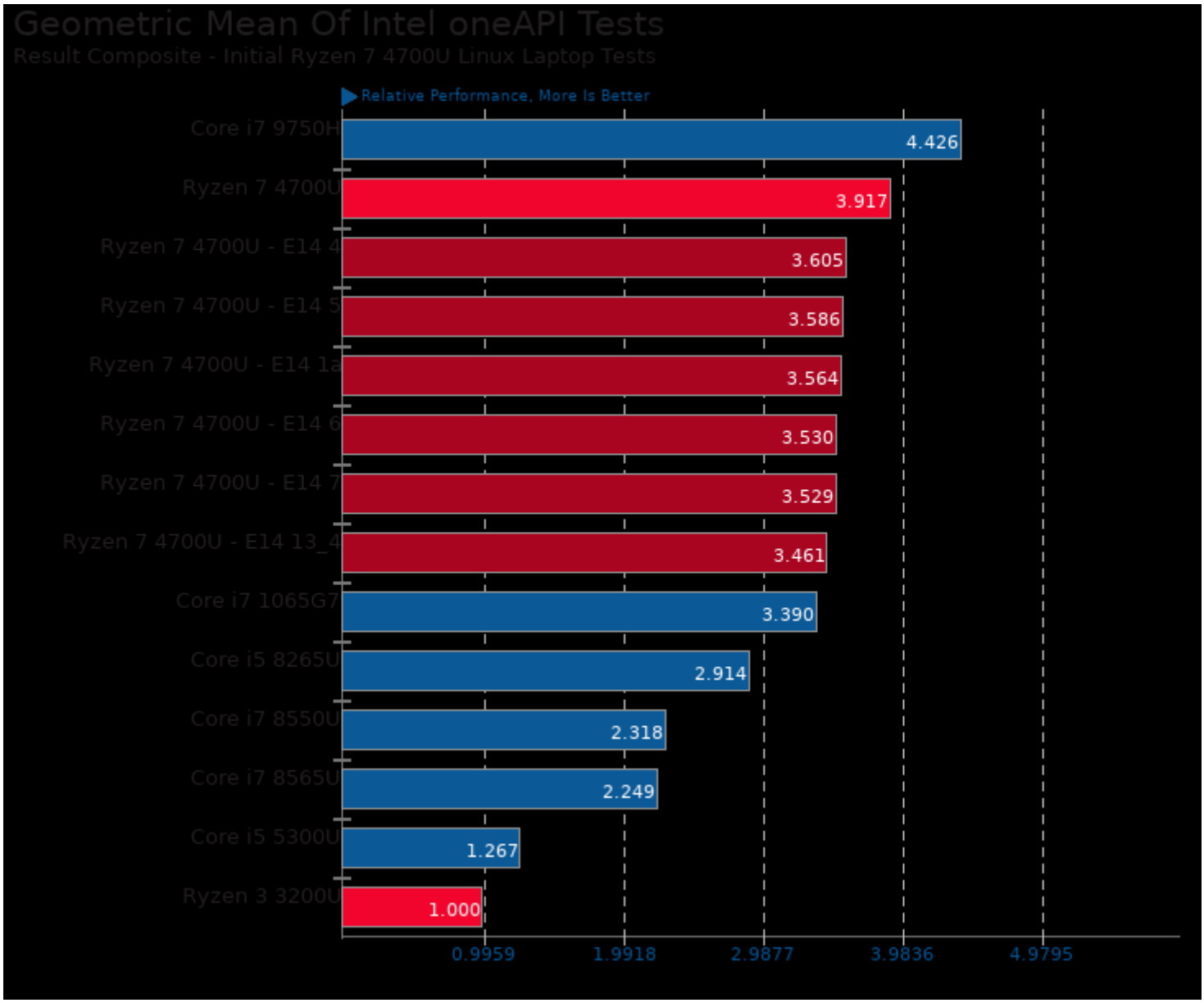
Geometric mean based upon tests: pts/encode-flac, pts/svt-vp9, pts/x264, pts/vpxenc and pts/svt-av1



Geometric mean based upon tests: system/octave-benchmark, pts/namd, pts/gromacs, pts/lammps and pts/numpy

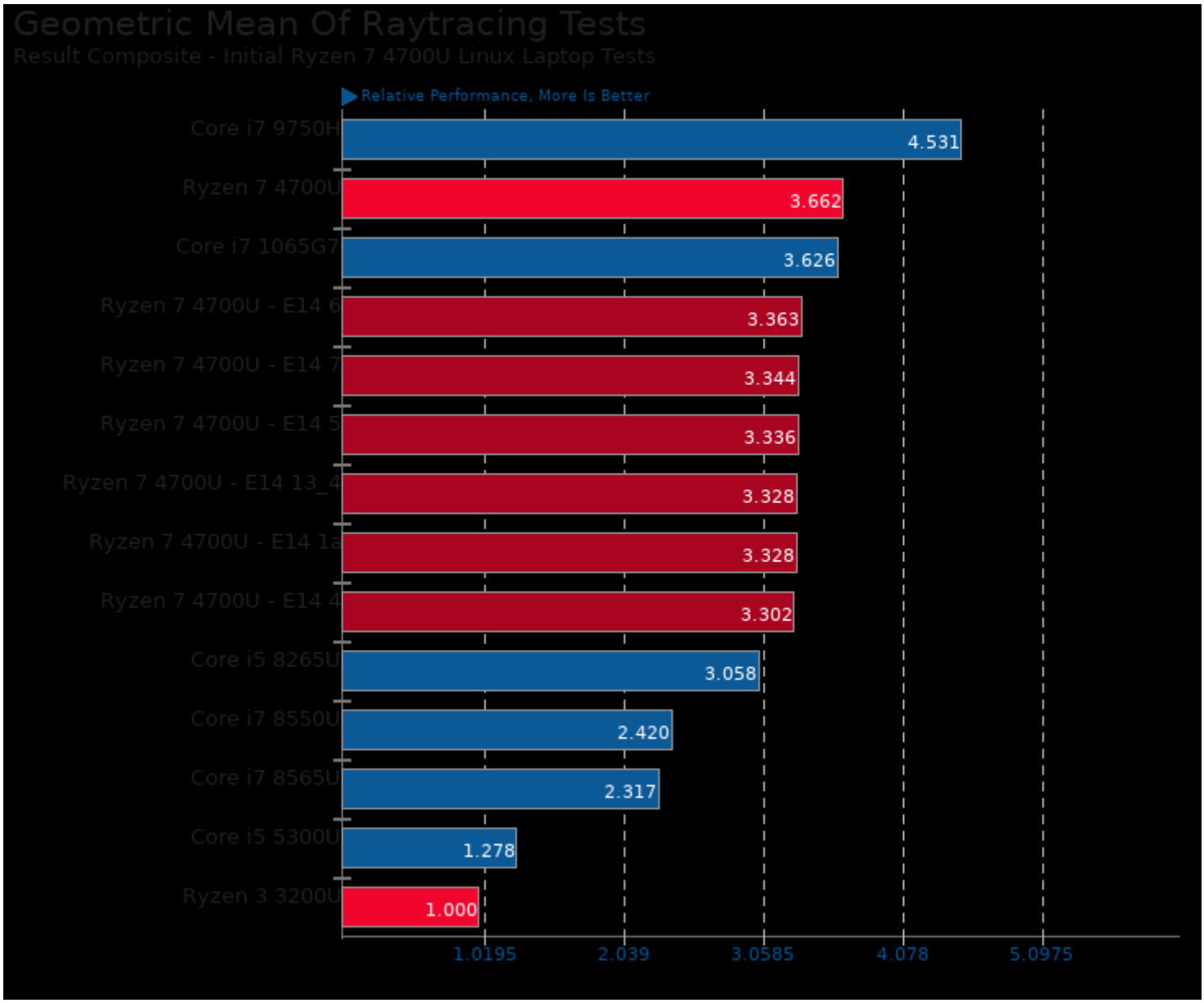


Geometric mean based upon tests: pts/namd, pts/gromacs and pts/lammps



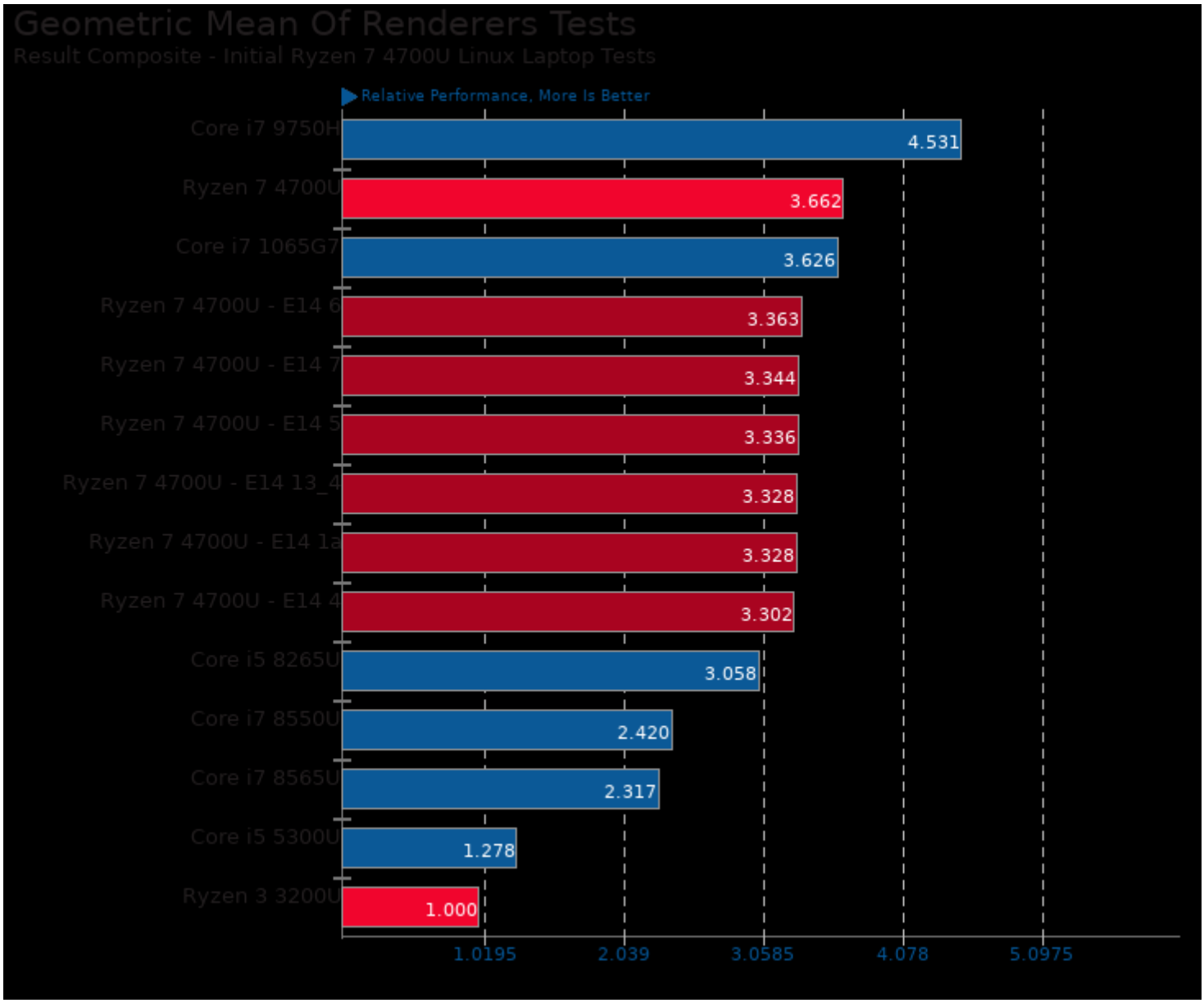
Geometric mean based upon tests: pts/embree, pts/oidn, pts/ospray and pts/tungsten

Initial Ryzen 7 4700U Linux Laptop Tests

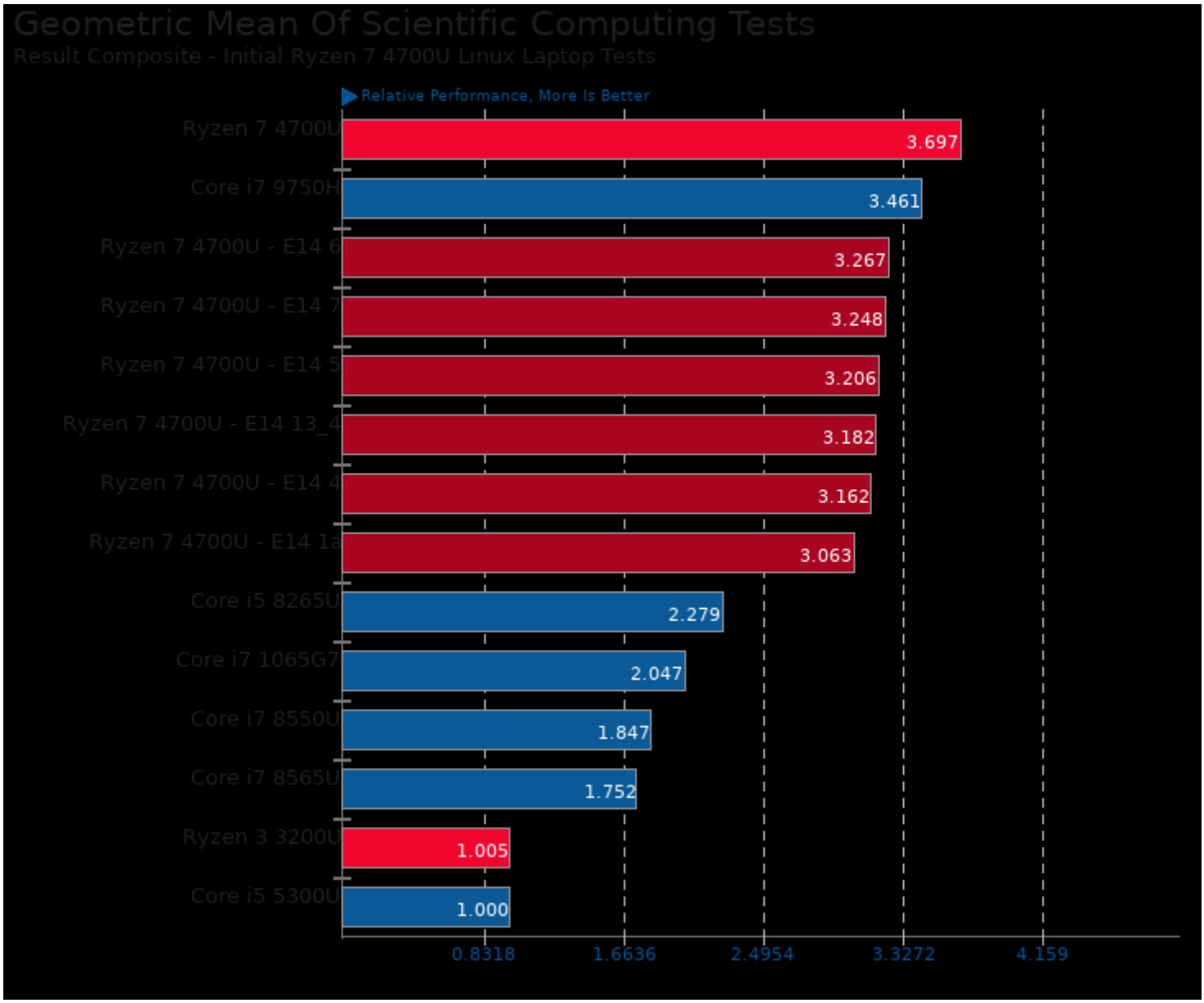


Geometric mean based upon tests: pts/ospray and pts/povray

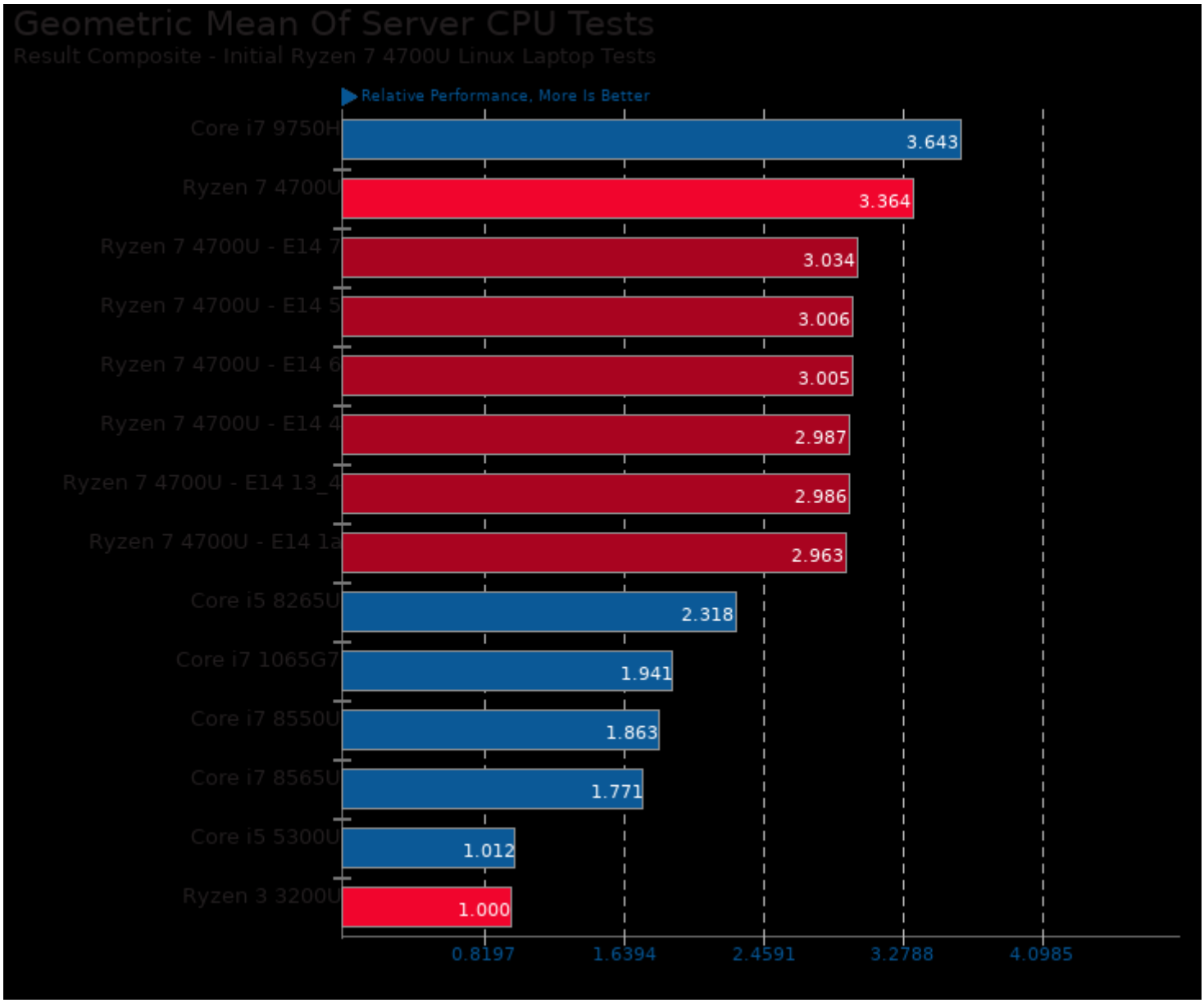
Initial Ryzen 7 4700U Linux Laptop Tests



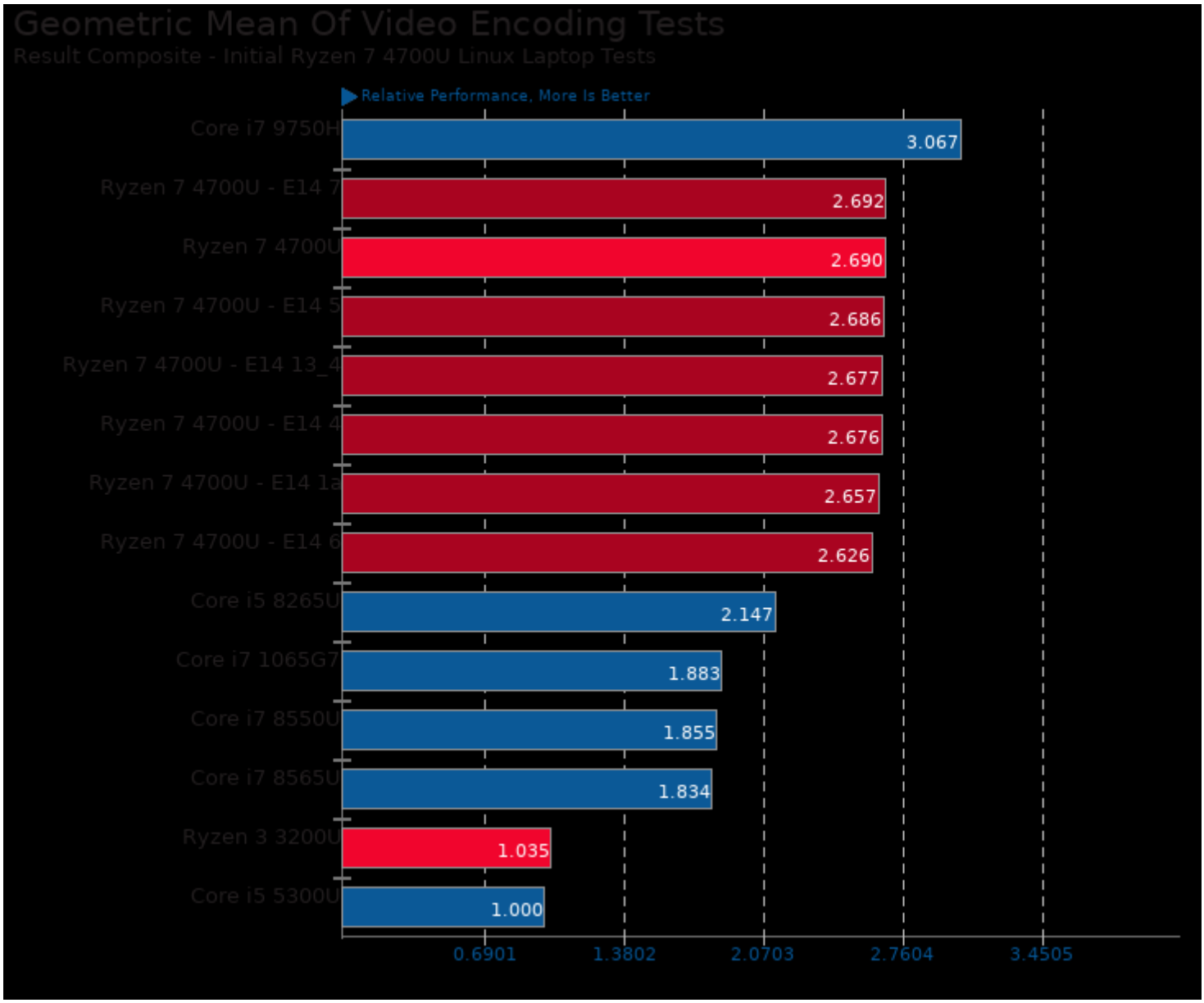
Geometric mean based upon tests: pts/ospray, pts/povray, pts/tungsten and pts/v-ray



Geometric mean based upon tests: system/octave-benchmark, pts/namd, pts/gromacs and pts/lammps



Geometric mean based upon tests: pts/namd, pts/svt-av1, pts/svt-vp9, pts/x264, pts/build-linux-kernel, pts/povray, pts/compress-zstd and pts/numpy



Geometric mean based upon tests: pts/svt-vp9, pts/x264, pts/vpxenc and pts/svt-av1

This file was automatically generated via the Phoronix Test Suite benchmarking software on Thursday, 28 March 2024 09:04.