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AMD Ryzen 3 2200G Linux CPU Benchmarks With Ryzen 5 2400G

AMD Ryzen 3 2200G and Ryzen 5 2400G Linux CPU performance benchmark results for a future article on Phoronix.

Automated Executive Summary

Core i7 8700K had the most wins, coming in first place for 60% of the tests.

Based on the geometric mean of all complete results, the fastest (Core i7 8700K) was 4.05x the speed of the slowest (A10-7800).

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

Java JMH (Throughput) at 7.386x
NAS Parallel Benchmarks (Test / Class: EP.C) at 6.943x
Hackbench (Count: 8 - Type: Process) at 6.678x
OpenSSL (RSA 4096-bit Performance) at 6.605x
Parboil (Test: OpenMP CUTCP) at 6.403x
C-Ray (Total Time) at 6.366x
Timed Linux Kernel Compilation (Time To Compile) at 6.126x
TTSIOD 3D Renderer (Phong Rendering With Soft-Shadow Mapping) at 5.809x
Open FMM Nero2D (Total Time) at 5.592x
Rodinia (Test: OpenMP LavaMD) at 5.418x.

Test Systems:

A10-7800

Processor: AMD A10-7800 Radeon R7 12 Compute Cores 4C+8G @ 3.50GHz (2 Cores / 4 Threads), Motherboard: MSI A78M-E35 (MS-7721) v6.0 (V30.1 BIOS), Chipset: AMD Family 15h, Memory: 7168MB, Disk: 500GB Western Digital WD5000AZRX-0 + 525GB SABRENT, Graphics: MSI AMD Radeon R7 1024MB, Audio: AMD Kaveri HDMI/DP, Monitor: DELL S2409W, Network: Realtek RTL8111/8168/8411

OS: Ubuntu 17.10, Kernel: 4.15.2-041502-generic (x86_64), Desktop: GNOME Shell 3.26.2, Display Server: Wayland, Display Driver: modesetting 1.19.5, OpenGL: 4.5 Mesa 17.2.4 (LLVM 5.0.0), Compiler: GCC 7.2.0, 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++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --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 --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq ondemand
Python Notes: Python 2.7.14 + Python 3.6.3
Security Notes: __user pointer sanitization + Full AMD retpoline Protection

A10-7870K

Processor: AMD A10-7870K Radeon R7 12 Compute Cores 4C+8G @ 3.90GHz (2 Cores / 4 Threads), Motherboard: ASUS A88XM-E (2001 BIOS), Chipset: AMD Family 15h, Memory: 15360MB, Disk: 250GB Samsung SSD 850 + 525GB SABRENT, Graphics: ASUS AMD Radeon R7 1024MB, Audio: AMD Kaveri HDMI/DP, Monitor: VE228, Network: Realtek RTL8111/8168/8411

OS: Ubuntu 17.10, Kernel: 4.15.2-041502-generic (x86_64), Desktop: GNOME Shell 3.26.2, Display Server: Wayland, Display Driver: modesetting 1.19.5, OpenGL: 4.5 Mesa 17.2.4 (LLVM 5.0.0), Compiler: GCC 7.2.0, 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++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --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 --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq ondemand
Python Notes: Python 2.7.14 + Python 3.6.3
Security Notes: __user pointer sanitization + Full AMD retpoline Protection

FX-8350

Processor: AMD FX-8350 Eight-Core @ 4.00GHz (4 Cores / 8 Threads), Motherboard: Gigabyte 970A-D3P (FB BIOS), Chipset: AMD RD9x0/RX980, Memory: 16384MB, Disk: 250GB Samsung SSD 850 + 525GB SABRENT, Graphics: HIS AMD Radeon HD 6450/7450/8450 / R5 230 OEM 1024MB, Audio: Realtek ALC892, Monitor: DELL S2409W, Network: Realtek RTL8111/8168/8411

OS: Ubuntu 17.10, Kernel: 4.15.2-041502-generic (x86_64), Desktop: GNOME Shell 3.26.2, Display Server: Wayland, Display Driver: modesetting 1.19.5, OpenGL: 3.3 Mesa 17.2.4 (LLVM 5.0.0), Compiler: GCC 7.2.0, 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++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --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 --with-tune=generic --without-cuda-driver -v

Processor Notes: Scaling Governor: acpi-cpufreq ondemand
Python Notes: Python 2.7.14 + Python 3.6.3
Security Notes: __user pointer sanitization + Full AMD retpoline Protection

Ryzen 3 1200

Processor: AMD Ryzen 3 1200 @ 3.10GHz (4 Cores), Motherboard: MSI B350M GAMING PRO (MS-7A39) v1.0 (2.90 BIOS), Chipset: AMD Device 1450, Memory: 8192MB, Disk: 525GB SABRENT + 120GB ADATA SU700, Graphics: AMD FirePro V3800 512MB, Audio: AMD Redwood HDMI Audio, Monitor: DELL S2409W, Network: Realtek RTL8111/8168/8411

OS: Ubuntu 17.10, Kernel: 4.15.2-041502-generic (x86_64), Desktop: GNOME Shell 3.26.2, Display Server: Wayland, Display Driver: modesetting 1.19.5, OpenGL: 3.3 Mesa 17.2.4 (LLVM 5.0.0), Compiler: GCC 7.2.0, 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++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --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 --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq ondemand
Python Notes: Python 2.7.14 + Python 3.6.3
Security Notes: __user pointer sanitization + Full AMD retpoline Protection

Ryzen 3 1300X

Processor: AMD Ryzen 3 1300X @ 3.50GHz (4 Cores), Motherboard: ASRock AB350 Pro4 (P3.20 BIOS), Chipset: AMD Device 1450, Memory: 8192MB, Disk: 525GB SABRENT + 128GB ADATA SU800, Graphics: Sapphire AMD Radeon R7 260X/360 2048MB, Audio: AMD Tobago HDMI Audio, Monitor: VE228, Network: Realtek RTL8111/8168/8411

OS: Ubuntu 17.10, Kernel: 4.15.2-041502-generic (x86_64), Desktop: GNOME Shell 3.26.2, Display Server: Wayland, Display Driver: modesetting 1.19.5, OpenGL: 4.5 Mesa 17.2.4 (LLVM 5.0.0), Compiler: GCC 7.2.0, 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++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --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 --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq ondemand
Python Notes: Python 2.7.14 + Python 3.6.3
Security Notes: __user pointer sanitization + Full AMD retpoline Protection

Ryzen 3 2200G

Processor: AMD Ryzen 3 2200G @ 3.50GHz (4 Cores), Motherboard: MSI X370 XPOWER GAMING TITANIUM (MS-7A31) v1.0 (1.C0 BIOS), Chipset: AMD Device 15d0, Memory: 14336MB, Disk: 525GB SABRENT + 525GB Crucial_CT525MX3 + 120GB Force MP500, Graphics: llvmpipe 14080MB, Audio: AMD Device 15de, Network: Intel I211 Gigabit Connection

OS: Ubuntu 17.10, Kernel: 4.15.2-041502-generic (x86_64), Desktop: GNOME Shell 3.26.2, Display Driver: modesetting 1.19.5, OpenGL: 3.3 Mesa 18.1.0-devel- padoka PPA (LLVM 7.0 128 bits), Vulkan: 1.0.61, Compiler: GCC 7.2.0, File-System: ext4, Screen Resolution: 3840x2160

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++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --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 --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq ondemand
Python Notes: Python 2.7.14 + Python 3.6.3
Security Notes: __user pointer sanitization + Full AMD retpoline IBPB Protection

Ryzen 5 2400G

Processor: AMD Ryzen 5 2400G @ 3.60GHz (4 Cores / 8 Threads), Motherboard: MSI X370 XPOWER GAMING TITANIUM (MS-7A31) v1.0 (1.C0 BIOS), Chipset: AMD Device 15d0, Memory: 14336MB, Disk: 525GB SABRENT + 525GB Crucial_CT525MX3 + 120GB Force MP500, Graphics: llvmpipe 14080MB, Audio: AMD Device 15de, Network: Intel I211 Gigabit Connection

OS: Ubuntu 17.10, Kernel: 4.15.2-041502-generic (x86_64), Desktop: GNOME Shell 3.26.2, Display Driver: modesetting 1.19.5, OpenGL: 3.3 Mesa 18.1.0-devel- padoka PPA (LLVM 7.0 128 bits), Vulkan: 1.0.61, Compiler: GCC 7.2.0, File-System: ext4, Screen Resolution: 3840x2160

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++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --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 --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq ondemand
Python Notes: Python 2.7.14 + Python 3.6.3
Security Notes: __user pointer sanitization + Full AMD retpoline IBPB Protection

Ryzen 7 1700

Processor: AMD Ryzen 7 1700 Eight-Core @ 3.00GHz (8 Cores / 16 Threads), Motherboard: MSI B350 TOMAHAWK (MS-7A34) v1.0 (1.90 BIOS), Chipset: AMD Device 1450, Memory: 16384MB, Disk: 525GB SABRENT + 120GB Samsung SSD 840, Graphics: llvmpipe 16128MB, Audio: AMD Cape Verde/Pitcairn, Network: Realtek RTL8111/8168/8411

OS: Ubuntu 17.10, Kernel: 4.15.2-041502-generic (x86_64), Desktop: GNOME Shell 3.26.2, Display Driver: modesetting 1.19.5, OpenGL: 3.3 Mesa 17.2.4 (LLVM 5.0 128 bits), Compiler: GCC 7.2.0, File-System: ext4, Screen Resolution: 1280x1024

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++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --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 --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq ondemand
Python Notes: Python 2.7.14 + Python 3.6.3
Security Notes: __user pointer sanitization + Full AMD retpoline Protection

Ryzen 7 1800X

Processor: AMD Ryzen 7 1800X Eight-Core @ 3.60GHz (8 Cores / 16 Threads), Motherboard: MSI X370 XPOWER GAMING TITANIUM (MS-7A31) v1.0 (1.90 BIOS), Chipset: AMD Device 1450, Memory: 16384MB, Disk: 525GB SABRENT, Graphics: NV134 8192MB, Audio: NVIDIA GP104 HD Audio, Monitor: DELL P2415Q, Network: Intel I211 Gigabit Connection

OS: Ubuntu 17.10, Kernel: 4.15.2-041502-generic (x86_64), Desktop: GNOME Shell 3.26.2, Display Server: Wayland, Display Driver: modesetting 1.19.5, OpenGL: 4.3 Mesa 17.2.4, Compiler: GCC 7.2.0, File-System: ext4, Screen Resolution: 3840x2160

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++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --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 --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq ondemand
Python Notes: Python 2.7.14 + Python 3.6.3
Security Notes: __user pointer sanitization + Full AMD retpoline Protection

Core i3 4130

Processor: Intel Core i3-4130 @ 3.40GHz (2 Cores / 4 Threads), Motherboard: Intel DH87RL (RLH8710H.86A.0317.2013.0426.1724 BIOS), Chipset: Intel 4th Gen Core DRAM, Memory: 1536MB, Disk: 128GB TOSHIBA THNSNH12 + 525GB SABRENT, Graphics: Intel Haswell 1536MB (1150MHz), Audio: Intel Xeon E3-1200 v3/4th, Monitor: DELL S2409W, Network: Intel Connection I217-V

OS: Ubuntu 17.10, Kernel: 4.15.2-041502-generic (x86_64), Desktop: GNOME Shell 3.26.2, Display Server: Wayland, Display Driver: modesetting 1.19.5, OpenGL: 4.5 Mesa 17.2.4, Compiler: GCC 7.2.0, 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++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --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 --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: intel_pstate powersave
Python Notes: Python 2.7.14 + Python 3.6.3
Security Notes: KPTI + __user pointer sanitization + Full generic retpoline Protection

Core i3 7100

Processor: Intel Core i3-7100 @ 3.90GHz (2 Cores / 4 Threads), Motherboard: Gigabyte B250M-DS3H-CF (F1 BIOS), Chipset: Intel Xeon E3-1200 v6/7th + B250, Memory: 8192MB, Disk: 250GB Western Digital WDS250G1B0A- + 525GB SABRENT, Graphics: Intel HD 630 3072MB (1100MHz), Audio: Realtek ALC887-VD, Monitor: DELL S2409W, Network: Realtek RTL8111/8168/8411

OS: Ubuntu 17.10, Kernel: 4.15.2-041502-generic (x86_64), Desktop: GNOME Shell 3.26.2, Display Server: Wayland, Display Driver: modesetting 1.19.5, OpenGL: 4.5 Mesa 17.2.4, Compiler: GCC 7.2.0, 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++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --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 --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: intel_pstate powersave
Python Notes: Python 2.7.14 + Python 3.6.3
Security Notes: KPTI + __user pointer sanitization + Full generic retpoline Protection

Core i3 8100

Processor: Intel Core i3-8100 @ 3.60GHz (4 Cores), Motherboard: ASRock Z370M-ITX/ac (P1.20 BIOS), Chipset: Intel Device 3e1f, Memory: 8192MB, Disk: 525GB SABRENT + 60GB DREVO X1 SSD, Graphics: Intel HD 3072MB (1100MHz), Audio: Realtek ALC892, Monitor: DELL S2409W, Network: Intel Connection + Intel Device 24fb

OS: Ubuntu 17.10, Kernel: 4.15.2-041502-generic (x86_64), Desktop: GNOME Shell 3.26.2, Display Server: Wayland, Display Driver: modesetting 1.19.5, OpenGL: 4.5 Mesa 17.2.4, Compiler: GCC 7.2.0, 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++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --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 --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: intel_pstate powersave
Python Notes: Python 2.7.14 + Python 3.6.3
Security Notes: KPTI + __user pointer sanitization + Full generic retpoline Protection

Core i5 3470

Processor: Intel Core i5-3470 @ 3.60GHz (4 Cores), Motherboard: ECS H61H2-I3 v1.0 (4.6.5 BIOS), Chipset: Intel Xeon E3-1200 v2/3rd, Memory: 4096MB, Disk: 120GB Samsung SSD 850 + 525GB SABRENT, Graphics: Intel Ivybridge Desktop 1536MB (1100MHz), Audio: VIA VT1705, Monitor: DELL S2409W, Network: Realtek RTL8111/8168/8411

OS: Ubuntu 17.10, Kernel: 4.15.2-041502-generic (x86_64), Desktop: GNOME Shell 3.26.2, Display Server: Wayland, Display Driver: modesetting 1.19.5, OpenGL: 4.2 Mesa 17.2.4, Compiler: GCC 7.2.0, 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++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --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 --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: intel_pstate powersave
Python Notes: Python 2.7.14 + Python 3.6.3
Security Notes: KPTI + __user pointer sanitization + Full generic retpoline Protection

Core i5 4670

Processor: Intel Core i5-4670 @ 3.80GHz (4 Cores), Motherboard: MSI B85M-P33 (MS-7817) v1.0 (V4.5 BIOS), Chipset: Intel 4th Gen Core DRAM, Memory: 8192MB, Disk: 63GB SanDisk SDSSDP06 + 525GB SABRENT, Graphics: Intel Haswell Desktop 1536MB (1200MHz), Audio: Intel Xeon E3-1200 v3/4th, Monitor: DELL S2409W, Network: Realtek RTL8111/8168/8411

OS: Ubuntu 17.10, Kernel: 4.15.2-041502-generic (x86_64), Desktop: GNOME Shell 3.26.2, Display Server: Wayland, Display Driver: modesetting 1.19.5, OpenGL: 4.5 Mesa 17.2.4, Compiler: GCC 7.2.0, 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++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --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 --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: intel_pstate powersave
Python Notes: Python 2.7.14 + Python 3.6.3
Security Notes: KPTI + __user pointer sanitization + Full generic retpoline Protection

Core i5 6500

Processor: Intel Core i5-6500 @ 3.60GHz (4 Cores), Motherboard: Gigabyte Z170M-D3H-CF (F3 BIOS), Chipset: Intel Skylake, Memory: 8192MB, Disk: 250GB Samsung SSD 850 + 525GB SABRENT, Graphics: Intel HD 530 3072MB (1050MHz), Audio: Realtek ALC892, Monitor: DELL S2409W, Network: Intel Connection

OS: Ubuntu 17.10, Kernel: 4.15.2-041502-generic (x86_64), Desktop: GNOME Shell 3.26.2, Display Server: Wayland, Display Driver: modesetting 1.19.5, OpenGL: 4.5 Mesa 17.2.4, Compiler: GCC 7.2.0, 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++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --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 --with-tune=generic --without-cuda-driver -v

Processor Notes: Scaling Governor: intel_pstate powersave
Python Notes: Python 2.7.14 + Python 3.6.3
Security Notes: KPTI + __user pointer sanitization + Full generic retpoline Protection

Core i5 6600K

Processor: Intel Core i5-6600K @ 3.90GHz (4 Cores), Motherboard: MSI Z170A GAMING PRO (MS-7984) v1.0 (1.00 BIOS), Chipset: Intel Skylake, Memory: 15360MB, Disk: 525GB SABRENT + 256GB TS256GSSD370S, Graphics: Intel HD 530 3072MB (1150MHz), Audio: Realtek ALC1150, Monitor: Acer B286HK, Network: Intel Connection

OS: Ubuntu 17.10, Kernel: 4.15.2-041502-generic (x86_64), Desktop: GNOME Shell 3.26.2, Display Driver: modesetting 1.19.5, OpenGL: 4.5 Mesa 18.1.0-devel- padoka PPA, Vulkan: 1.0.61, Compiler: GCC 7.2.0, 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++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --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 --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: intel_pstate powersave
Python Notes: Python 2.7.14 + Python 3.6.3
Security Notes: KPTI + __user pointer sanitization + Full generic retpoline Protection

Core i5 7600K

Processor: Intel Core i5-7600K @ 4.20GHz (4 Cores), Motherboard: Gigabyte Z270M-D3H-CF (F1 BIOS), Chipset: Intel Device 591f + Z270, Memory: 8192MB, Disk: 250GB Samsung SSD 850 + 525GB SABRENT, Graphics: Intel HD 630 3072MB (1150MHz), Audio: Realtek ALC892, Monitor: DELL S2409W, Network: Intel Connection

OS: Ubuntu 17.10, Kernel: 4.15.2-041502-generic (x86_64), Desktop: GNOME Shell 3.26.2, Display Server: Wayland, Display Driver: modesetting 1.19.5, OpenGL: 4.5 Mesa 17.2.4, Compiler: GCC 7.2.0, 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++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --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 --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: intel_pstate powersave
Python Notes: Python 2.7.14 + Python 3.6.3
Security Notes: KPTI + __user pointer sanitization + Full generic retpoline Protection

Core i5 8400

Processor: Intel Core i5-8400 @ 4.00GHz (6 Cores), Motherboard: MSI Z370M MORTAR (MS-7B54) v1.0 (1.10 BIOS), Chipset: Intel Device 3ec2, Memory: 8192MB, Disk: 525GB SABRENT + 128GB ADATA SX6000NP, Graphics: Intel HD 3072MB (1050MHz), Audio: Realtek ALC892, Monitor: DELL S2409W, Network: Intel Connection

OS: Ubuntu 17.10, Kernel: 4.15.2-041502-generic (x86_64), Desktop: GNOME Shell 3.26.2, Display Server: Wayland, Display Driver: modesetting 1.19.5, OpenGL: 4.5 Mesa 17.2.4, Compiler: GCC 7.2.0, 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++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --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 --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: intel_pstate powersave
Python Notes: Python 2.7.14 + Python 3.6.3
Security Notes: KPTI + __user pointer sanitization + Full generic retpoline Protection

Core i7 4770K

Processor: Intel Core i7-4770K @ 3.90GHz (4 Cores / 8 Threads), Motherboard: Gigabyte Z97-HD3 (F10c BIOS), Chipset: Intel 4th Gen Core DRAM, Memory: 8192MB, Disk: 128GB Crucial_CT128MX1 + 525GB SABRENT, Graphics: Intel Haswell Desktop 1536MB (1250MHz), Audio: Intel Xeon E3-1200 v3/4th, Monitor: DELL S2409W, Network: Realtek RTL8111/8168/8411

OS: Ubuntu 17.10, Kernel: 4.15.2-041502-generic (x86_64), Desktop: GNOME Shell 3.26.2, Display Server: Wayland, Display Driver: modesetting 1.19.5, OpenGL: 4.5 Mesa 17.2.4, Compiler: GCC 7.2.0, 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++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --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 --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: intel_pstate powersave
Python Notes: Python 2.7.14 + Python 3.6.3
Security Notes: KPTI + __user pointer sanitization + Full generic retpoline Protection

Core i7 7740X

Processor: Intel Core i7-7740K @ 4.50GHz (4 Cores / 8 Threads), Motherboard: Gigabyte X299 AORUS Gaming-CF (F2d BIOS), Chipset: Intel Device 591f, Memory: 8192MB, Disk: 525GB SABRENT + 120GB Force MP500, Graphics: llvmpipe 7936MB, Audio: Realtek ALC1220, Monitor: VE228, Network: Intel Connection

OS: Ubuntu 17.10, Kernel: 4.15.2-041502-generic (x86_64), Desktop: GNOME Shell 3.26.2, Display Server: Wayland, Display Driver: modesetting 1.19.5, OpenGL: 3.3 Mesa 17.2.4 (LLVM 5.0 256 bits), Compiler: GCC 7.2.0, 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++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --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 --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: intel_pstate powersave
Python Notes: Python 2.7.14 + Python 3.6.3
Security Notes: KPTI + __user pointer sanitization + Full generic retpoline Protection

Core i7 8700K

Processor: Intel Core i7-8700K @ 4.70GHz (6 Cores / 12 Threads), Motherboard: ASUS PRIME Z370-A (0606 BIOS), Chipset: Intel Device 3ec2, Memory: 16384MB, Disk: 525GB SABRENT + 525GB Crucial_CT525MX3 + Samsung SSD 950 PRO 256GB, Graphics: MSI AMD Radeon RX 580 8192MB, Audio: Realtek ALC1220, Monitor: DELL P2415Q, Network: Intel Connection

OS: Ubuntu 17.10, Kernel: 4.15.2-041502-generic (x86_64), Desktop: GNOME Shell 3.26.2, Display Server: Wayland, OpenGL: 4.5 Mesa 17.2.4 (LLVM 5.0.0), Compiler: GCC 7.2.0, File-System: ext4, Screen Resolution: 3840x2160

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++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --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 --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: intel_pstate powersave
Python Notes: Python 2.7.14 + Python 3.6.3
Security Notes: KPTI + __user pointer sanitization + Full generic retpoline Protection

AMD Ryzen 3 2200G Linux CPU Benchmarks With Ryzen 5 2400G

	A10-7800	A10-7870K	FX-8350	Ryzen 3 1200	Ryzen 3 1300X	Ryzen 3 2200G	Ryzen 5 2400G	Ryzen 7 1700	Ryzen 7 1800X	Core i3 4130	Core i3 7100	Core i3 8100	Core i5 3470	Core i5 4670	Core i5 6500	Core i5 6600K	Core i5 7600K	Core i5 8400	Core i7 4770K	Core i7 7740X	Core i7 8700K
NAS Parallel Benchmarks - EP.C (Mop/s)	83.11	92.05	221.13	122.00	141.62	144.02	293.90	489.65	571.10	143.51	175.07	202.48	180.13	198.48	185.67	219.61	225.62	321.50	331.54	394.63	577.05
Normalized	14.4%	15.9%	38.3%	21.1%	24.5%	24.9%	50.9%	84.8%	98.9%	24.8%	30.3%	35.0%	31.2%	34.4%	32.1%	38.0%	39.1%	55.7%	57.4%	68.3%	100%
Standard Deviation	1.8%	0.3%	1.6%	0.5%	0.1%	0.3%	1%	2.5%	0.4%	1.1%	0.8%	0.3%	0.4%	0.2%	0.1%	0.1%	0.2%	0.1%	1%	1.1%	0.6%
Parboil - OpenMP CUTCP (sec)	35.73	31.60	16.90	17.36	15.03	15.64	11.34	6.49	5.58	30.51	22.87	14.95	17.82	15.80	16.21	13.82	13.46	9.47	12.99	10.13	7.08
Normalized	15.6%	17.6%	33.0%	32.1%	37.1%	35.6%	49.2%	85.9%	100%	18.2%	24.4%	37.3%	31.3%	35.3%	34.4%	40.3%	41.4%	58.9%	42.9%	55.0%	78.8%
Standard Deviation	0.1%	0.3%	0.4%	0.4%	0.1%	0.7%	0.6%	0.7%	0.4%	0.4%	1.1%	0%	0.2%	0.2%	0.1%	0.1%	0.2%	0.1%	1%	1.7%	0.3%
Rodinia - OpenMP LavaMD (sec)	446.42	397.52	211.52	258.67	223.34	217.13	160.28	95.15	82.39	440.27	354.52	226.21	400.13	322.61	246.20	208.84	203.35	143.15	199.36	154.42	107.19
Normalized	18.4%	20.7%	38.9%	31.8%	36.8%	37.9%	51.4%	86.5%	100%	18.7%	23.2%	36.4%	20.5%	25.5%	33.4%	39.4%	40.5%	57.5%	41.3%	53.3%	76.8%
Standard Deviation	0.1%	0.4%	0.1%	0.2%	0.2%	0.2%	0.1%	0.1%	0.1%	0.1%	0.3%	0%	0.8%	0.1%	0.1%	0%	0.1%	0.1%	0%	0.9%	0.1%
Timed MAFFT Alignment - M.S.A	11.96	10.40	5.92	7.25	5.99	6.27	5.73	4.26	3.65	10.45	7.85	5.71	6.93	5.85	6.32	5.36	5.42	3.68	4.88	3.97	
Normalized	30.5%	35.1%	61.6%	50.3%	60.9%	58.2%	63.7%	85.6%	100%	34.9%	46.5%	63.9%	52.6%	62.3%	57.7%	68.1%	67.3%	99.1%	74.8%	91.9%	
Standard Deviation	2%	7.5%	1.3%	0.4%	4.8%	5%	4.3%	3.1%	0.9%	3.7%	0.2%	6.4%	0.8%	6.8%	3.4%	3.9%	1%	4.7%	4.4%	8.7%	
John The Ripper - Blowfish (Real	3373	3775	6826	3711	4393	4540	6022	10431	12445	3008	3859	4411	2992	4080	4046	4785	4910	6998	6800	8880	12758
Normalized	26.4%	29.5%	53.5%	29.0%	34.4%	35.5%	47.2%	81.7%	97.5%	23.5%	30.2%	34.5%	23.4%	31.9%	31.7%	37.5%	38.4%	54.8%	53.3%	69.6%	100%
Standard Deviation	0.3%	0.1%	0.6%	0.8%	0.3%	0.2%	3.9%	0.8%	0.1%	8%	5%	0.2%	2.7%	0.2%	0.1%	0.1%	9%	5%	3.2%	%	%

AMD Ryzen 3 2200G Linux CPU Benchmarks With Ryzen 5 2400G

Open FMM Nero2D - Total Time (sec)	280.43	251.40	119.89	109.59	94.39	92.09	90.56	57.48	50.15	209.51	165.73	92.61	141.12	102.83	100.83	85.71	83.98	61.04	98.21	76.36	54.98
Normalized	17.8	19.9	41.8	45.7	53.1	54.4	55.3	87.2	100	23.9	30.2	54.1	35.5	48.7	49.7	58.5	59.7	82.1	51.0	65.6	91.2
Standard Deviation	8% 0.5%	5% 0.5%	3% 1.8%	6% 0.3%	3% 0.1%	6% 0.3%	8% 1%	5% 0.5%	% 1.1%	4% 0.9%	6% 0.4%	5% 0.7%	4% 2.2%	7% 1.1%	4% 0.2%	1% 0.4%	2% 0.7%	6% 1.2%	6% 0.6%	8% 0.5%	1% 1%
TTSIOD 3D Renderer - P.R.W.S.S.M (FPS)	67.42	82.93	142.75	122.95	134.97	178.17	211.60	274.64	312.22	73.55	121.69	168.27	129.90	155.77	158.22	184.72	187.90	263.63	204.31	277.43	391.67
Normalized	17.2	21.1	36.4	31.3	34.4	45.4	54.0	70.1	79.7	18.7	31.0	42.9	33.1	39.7	40.4	47.1	47.9	67.3	52.1	70.8	100
Standard Deviation	1% 0.3%	7% 0.2%	5% 1%	9% 0.7%	6% 0.2%	9% 0.8%	3% 1.4%	2% 0.1%	2% 0.2%	8% 0.9%	7% 0.3%	6% 0.6%	7% 2%	7% 0.4%	% 0.1%	6% 1.2%	7% 0.2%	1% 0.1%	6% 1.7%	3% 1.8%	% 0.3%
x264 - H.2.V.E (FPS)	15.61	17.58	30.58	23.47	27.33	27.60	34.75	60.90	71.46	15.47	23.89	30.42	19.83	28.16	28.47	33.11	33.49	56.11	37.64	49.95	72.96
Normalized	21.4	24.1	41.9	32.1	37.4	37.8	47.6	83.4	97.9	21.2	32.7	41.6	27.1	38.6	39.0	45.3	45.9	76.9	51.5	68.4	100
Standard Deviation	% 0.1%	% 0%	1% 0.2%	7% 3.4%	6% 0.2%	3% 0.1%	3% 3.3%	7% 3.3%	4% 0.5%	% 0.3%	4% 0.2%	9% 3.3%	8% 18.4 %	% 3.4%	2% 0.4%	8% 0.2%	% 0.1%	1% 0.2%	9% 0.1%	6% 0.6%	% 0.5%
7-Zip Compression - C.S.T (MIPS)	9983	11431	22097	12601	15880	15744	17729	30627	33022	8992	12896	17221	14100	16595	15116	18079	17727	27028	21667	28952	39039
Normalized	25.5	29.2	56.6	32.2	40.6	40.3	45.4	78.4	84.5	23.0	33.0	44.1	36.1	42.5	38.7	46.3	45.4	69.2	55.5	74.1	100
Standard Deviation	7% 1.5%	8% 1.4%	% 0.3%	8%	8% 1.8%	3% 0.5%	1% 3.3%	5% 0.6%	9% 1.5%	3% 1.2%	3% 0.1%	1% 0.2%	2% 3.1%	1% 0.9%	2% 0.1%	1% 0.1%	1% 0.3%	3% 0.2%	% 1.3%	6% 2.9%	% 1%
asmFish - 1.H.M.2.D	543.389	621.400	117.053	732.374	828.613	857.959	123.567	201.016	226.784	490.745	678.302	984.158	736.618	957.274	896.752	100.511	102.693	159.135	123.210	158.958	234.377
Normalized	23.1	26.5	49.9	31.2	35.3	36.6	52.7	85.7	96.7	20.9	28.9	41.9	31.4	40.8	38.2	42.8	43.8	67.9	52.5	67.8	100
Standard Deviation	8% 0.9%	1% 2.2%	4% 0.6%	5% 0.8%	5% 1.5%	1% 1.2%	2% 1.2%	7% 1.2%	6% 1.4%	4% 0.1%	4% 1.1%	9% 1.6%	3% 3.3%	4% 2.2%	6% 0.9%	8% 0.3%	2% 0.7%	% 1.6%	7% 2%	2% 1.2%	% 0.7%

AMD Ryzen 3 2200G Linux CPU Benchmarks With Ryzen 5 2400G

Timed Linux Kernel Compilation - Time To Compile (sec)	342.81	300.92	167.85	**484.57**	458.00	201.48	153.49	95.17	85.22	426.59	246.44	167.81	264.97	180.98	181.66	158.43	157.58	108.02	150.12	106.97	**79.10**
Normalized	23.0	26.2	47.1	16.3	17.2	39.2	51.5	83.1	92.8	18.5	32.1	47.1	29.8	43.7	43.5	49.9	50.2	73.2	52.6	73.9	100
Standard Deviation	7% 0.8%	9% 1.1%	3% 1.5%	2% 0.2%	7% 0.3%	6% 1%	3% 1.2%	1% 2.2%	2% 2%	4% 0.5%	% 0.8%	4% 1%	5% 1.1%	1% 1.2%	4% 1.1%	3% 1%	% 1%	3% 1.7%	9% 1%	5% 1%	% 7%
C-Ray - Total Time (sec)	**61.75**	55.09	28.01	24.95	21.50	21.07	19.48	11.23	**9.70**	54.28	41.97	24.65	39.00	27.40	26.97	22.83	22.25	15.57	24.51	18.69	12.78
Normalized	15.7	17.6	34.6	38.8	45.1	46.0	49.7	86.3	100	17.8	23.1	39.3	24.8	35.4	35.9	42.4	43.6	62.3	39.5	51.9	75.9
Standard Deviation	1% 0%	1% 0.1%	3% 0%	8% 0.1%	2% 0%	4% 0.7%	9% 1.4%	8% 0%	% 0.1%	7% 0.2%	1% 0.1%	5% 0.1%	7% 1.4%	% 0.1%	7% 0.1%	9% 0.2%	% 0.1%	% 0.1%	8% 0.1%	% 1.5%	% 0.1%
POV-Ray - Trace Time (sec)	**270.86**	242.07	134.01	181.19	156.29	153.63	107.39	64.40	**56.21**	267.70	200.73	139.02	228.83	147.13	149.84	126.84	125.90	87.94	131.09	87.94	60.96
Normalized	20.7	23.2	41.9	31.0	35.9	36.5	52.3	87.2	100	21%	28%	40.4	24.5	38.2	37.5	44.3	44.6	63.9	42.8	63.9	92.2
Standard Deviation	5% 0.2%	2% 0.1%	4% 0.3%	2% 0.1%	7% 0.2%	9% 0.4%	4% 0.3%	8% 0%	% 0.1%	0.2%	0.1%	3% 0.1%	6% 2.5%	% 0.1%	1% 0.1%	2% 0.1%	5% 0.9%	2% 0.1%	8% 0.2%	2% 0.1%	1% 0.2%
LAME MP3 Encoding - WAV To MP3 (sec)	**54.17**	48.37	47.03	39.68	35.78	37.13	35.19	36.59	33.50	38.94	31.08	33.30	37.36	33.25	33.51	30.95	28.77	30.01	32.54	27.50	**26.07**
Normalized	48.1	53.9	55.4	65.7	72.8	70.2	74.0	71.2	77.8	66.9	83.8	78.2	69.7	78.4	77.8	84.2	90.6	86.8	80.1	94.8	100
Standard Deviation	3% 0.2%	% 0.1%	3% 0.2%	% 0.1%	6% 0.3%	1% 0.2%	8% 0.1%	5% 0%	2% 0.8%	5% 3%	8% 0.1%	9% 0%	8% 0.2%	1% 0%	% 0%	3% 0%	2% 0.1%	7% 0%	2% 0.4%	% 0.8%	% 1.3%
Hackbench - 8 - Process (sec)	97.81	84.26	50.73		63.63	50.24	33.29	20.07	**17.96**	**119.94**	72.50	62.18	81.17	65.19	67.41	58.19	57.63	39.66	37.72	30.45	22.50
Normalized	18.3	21.3	35.4		28.2	35.7	53.9	89.4	100	14.9	24.7	28.8	22.1	27.5	26.6	30.8	31.1	45.2	47.6	58.9	79.8
Standard Deviation	6% 0.4%	1% 0.1%	% 0.1%		3% 2%	5% 1.1%	5% 1.6%	9% 2.5%	% 3.3%	7% 0.6%	7% 0.3%	8% 2.4%	3% 2.7%	5% 1.9%	4% 1.4%	6% 1.8%	6% 1.2%	8% 1.6%	1% 0.2%	8% 0.8%	2% 5.3%

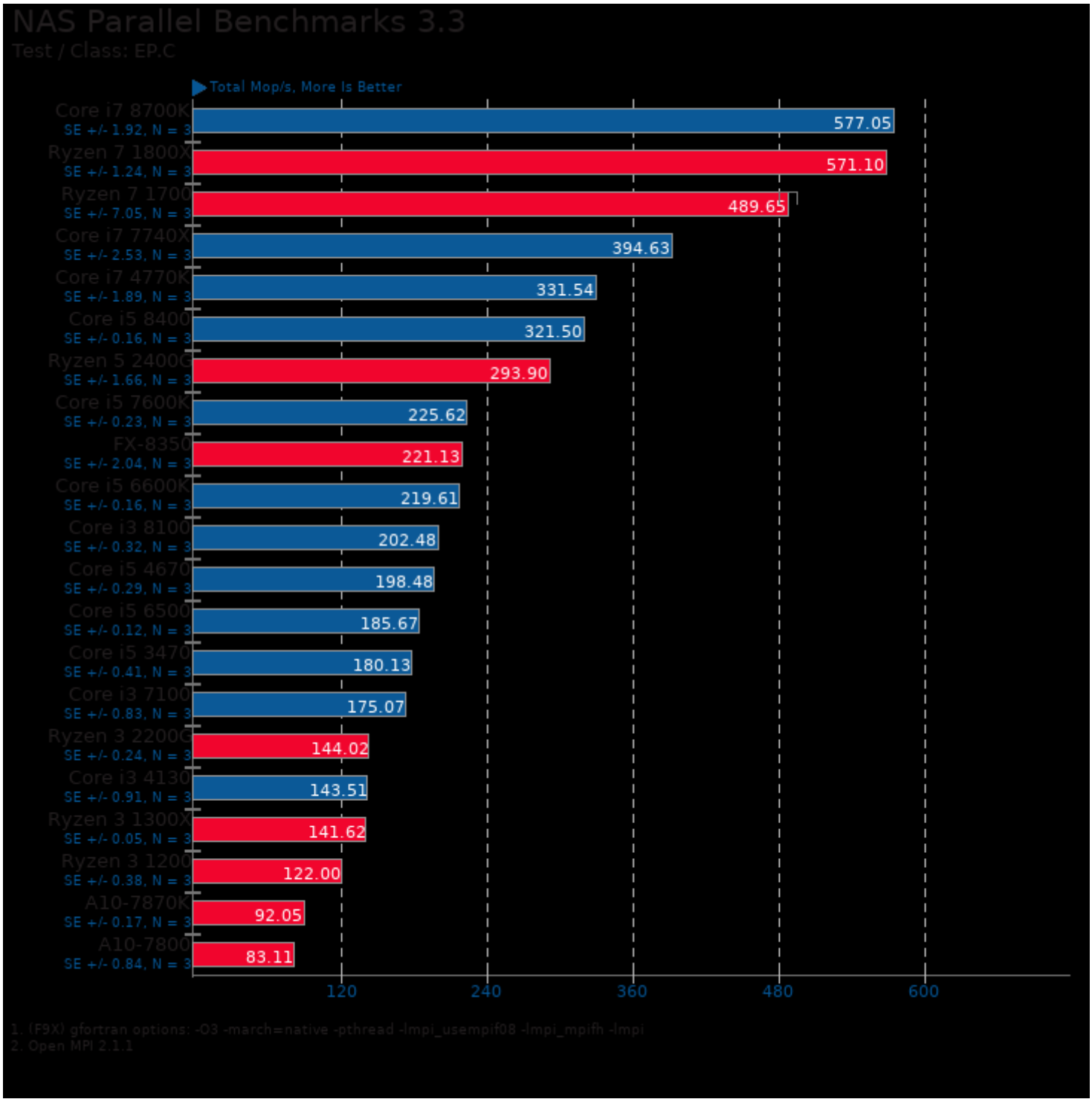
AMD Ryzen 3 2200G Linux CPU Benchmarks With Ryzen 5 2400G

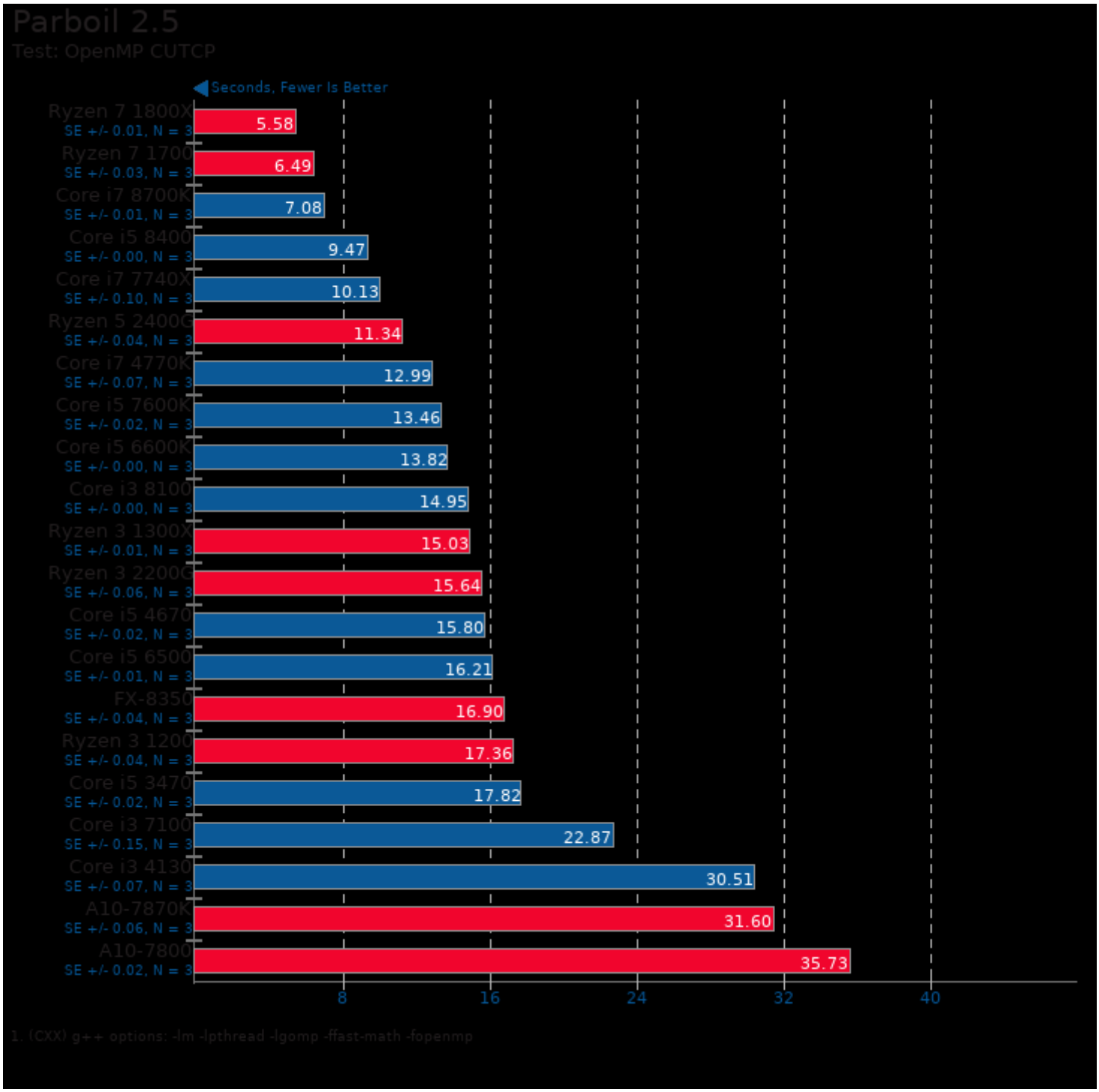
OpenSSL - R.4.b.P (Signs/s	**299.73**	339.70	705.20		710.53	734.20	793.80	1380	1593	308.97	597.13	1043	499.23	645.10	942.73	1143	1148	1671	689.30	1313	**1980**
Normalized	15.1	17.1	35.6		35.8	37.0	40.1	69.7	80.4	15.6	30.1	52.6	25.2	32.5	47.6	57.7	57.9	84.4	34.8	66.3	100
Standard Deviation	4% 1%	6% 0.5%	2% 0.1%		9% 6.4%	9% 1.1%	% 2.1%	2% 0.1%	7% 0.1%	1% 0%	6% 0.3%	8% 2.2%	2% 4%	9% 0.2%	2% 2.3%	6% 0%	8% 2.8%	2% 0%	2% 0.1%	2% 2.7%	% 0.1%
Java JMH - Throughput	**348705990**	389412397	805629694	617407804	716911097	738510717	740545344	127836881	147808548	673970828	779012933	143823337	123911662	143372757	131876791	155820928	159835917	227754632	154991955	179208023	**257562006**
Normalized	13.5	15.1	31.2	23.9	27.8	28.6	28.7	49.6	57.3	26.1	30.2	55.8	48.1	55.6	51.2	60.5	62.0	88.4	60.1	69.5	100
Standard Deviation	4% 0.3%	2% 0.4%	8% 0.1%	7% 0.1%	3% 0.3%	7% 0.9%	5% 0.2%	3% 0.2%	9% 0.4%	7% 0.3%	5% 0.2%	4% 0.1%	1% 0.4%	7%	% 0.1%	% 0.1%	6%	3% 0.4%	8% 0.2%	8% 0.1%	% 0.2%
PyBench - T.F.A.T.T (Milliseconds)	**2264**	2028	2048	1655	1498	1547	1458	1518	1395	1565	1237	1340	1723	1390	1342	1239	1149	1209	1356	1075	**1031**
Normalized	45.5	50.8	50.3	62.3	68.8	66.6	70.7	67.9	73.9	65.8	83.3	76.9	59.8	74.1	76.8	83.2	89.7	85.2	76.0	95.9	100
Standard Deviation	4% 0.3%	4% 0.4%	4% 0.1%	% 0.1%	3% 0.3%	5% 0.9%	1% 0.2%	2% 0.2%	1% 0.4%	8% 0.3%	5% 0.2%	4% 0.1%	4% 0.4%	7%	3% 0.1%	1% 0.1%	3%	8% 0.4%	3% 0.2%	1% 0.1%	% 0.2%
NGINX Benchmark - S.W.P.S (Reqs/sec)	**19113**	21359	19628	29145	32633	33621	33450	29820	32964	20655	36757	36311	20762	35672	34800	39234	40483	40533	36374	**45476**	44916
Normalized	42.0	46.9	43.1	64.0	71.7	73.9	73.5	65.5	72.4	45.4	80.8	79.8	45.6	78.4	76.5	86.2	89.0	89.1	79.9	100	98.7
Standard Deviation	3% 0.7%	7% 1.1%	6% 0.5%	9% 1.7%	6% 0.2%	3%	5%	7% 1.2%	9% 0.1%	2% 3%	3% 0.4%	5% 0.6%	5% 0.2%	4% 0.2%	2% 0.5%	7% 0.8%	2% 1.6%	3% 0.5%	8% 0.4%	% 1.1%	7% 3.3%
PHPBench - P.B.S	**303743**	336831	345560	365419	405418	390105	413882	395609	431108	429258	561562	531584	362807	512718	526913	571880	616281	588730	506177	644293	**678465**
Normalized	44.7	49.6	50.9	53.8	59.7	57.5	61%	58.3	63.5	63.2	82.7	78.3	53.4	75.5	77.6	84.2	90.8	86.7	74.6	94.9	100
Standard Deviation	7% 1.7%	5% 1.6%	3% 0.9%	6% 0.7%	6% 1%	% 2.4%	1.5%	1% 1%	4% 3.2%	7% 4.9%	7% 1.3%	5% 0.1%	7% 1.6%	7% 0.2%	6% 0.5%	9% 0.3%	3% 0.2%	7% 0.1%	1% 3.1%	6% 1.7%	% 1.2%

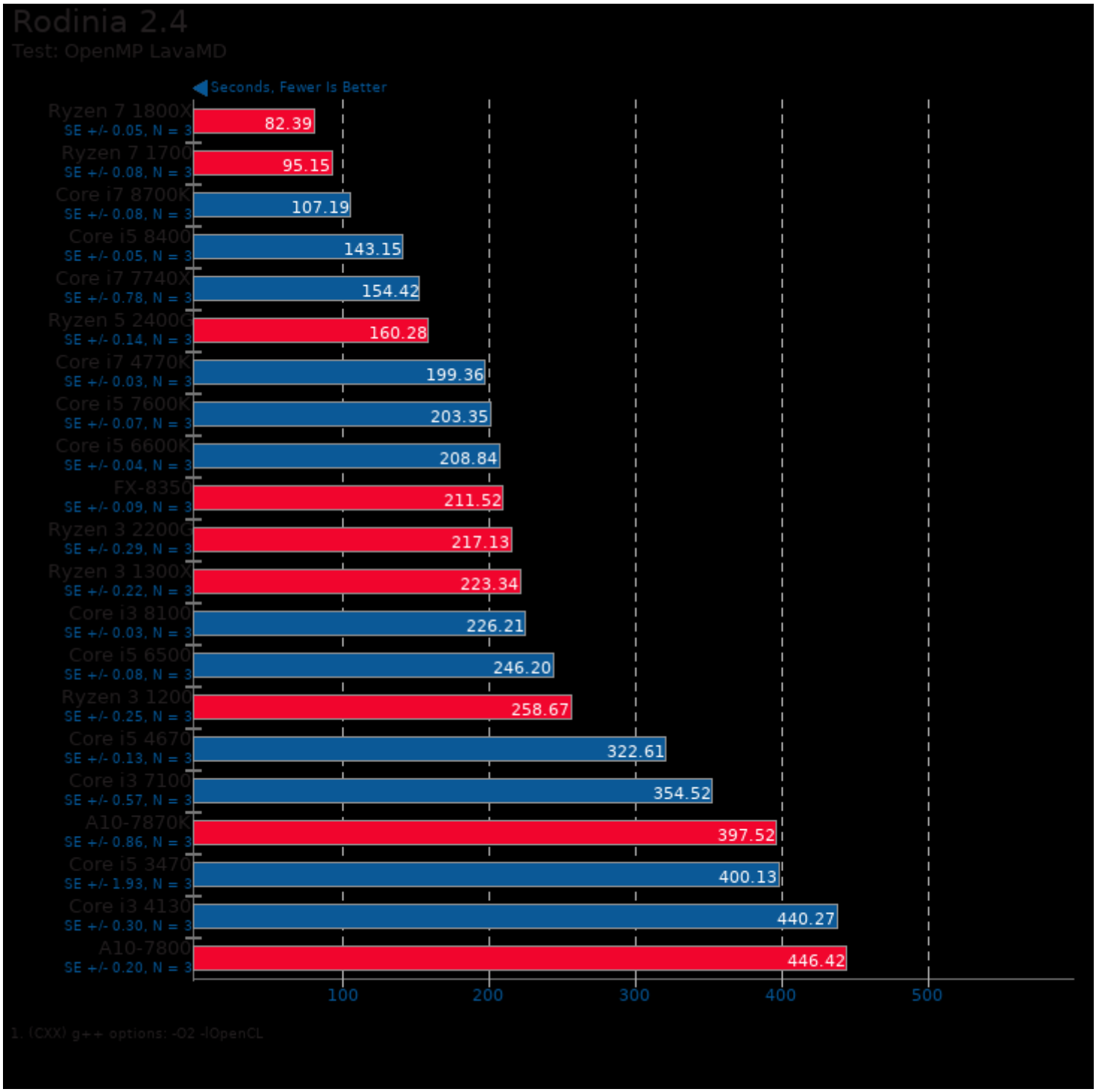
NAS Parallel Benchmarks - Performance / Cost - EP.C (Mop/s/Dollar)	1.16	1.13	**1.12**	1.56	1.69	1.64	**1.70**	**1.70**	1.61
Normalized	68.24%	66.47%	65.88%	91.76%	99.41%	96.47%	100%	100%	94.71%
John The Ripper - Performance / Cost - Blowfish (Real C/S/Dollar)	35.34	35.14	35.19	**31.86**	36.09	35.66	**37.07**	37.03	35.54
Normalized	95.33%	94.79%	94.93%	85.95%	97.36%	96.26%	100%	99.89%	95.87%
TTSIOD 3D Renderer - Performance / Cost - P.R.W.S. S.M (FPS/Dollar)	1.17	1.08	1.38	1.12	0.95	**0.89**	**1.41**	1.39	1.09
Normalized	82.98%	76.6%	97.87%	79.43%	67.38%	63.12%	100%	98.58%	77.3%
x264 - Performance / Cost - H.2.V.E (FPS/Dollar)	0.22	0.22	0.21	**0.18**	0.21	0.20	0.26	**0.30**	0.20
Normalized	73.33%	73.33%	70%	60%	70%	66.67%	86.67%	100%	66.67%

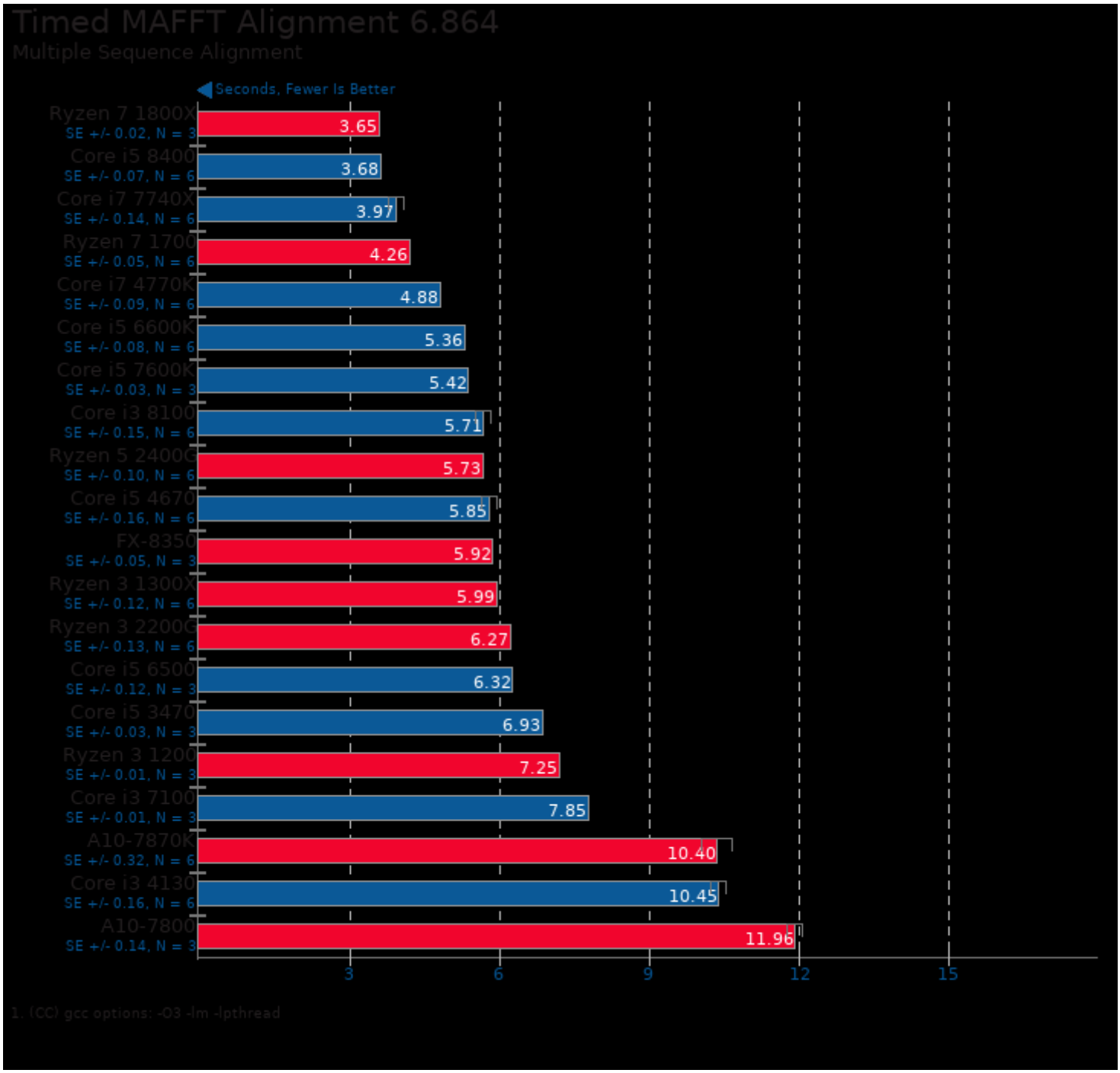
7-Zip Compression - Performance / Cost - C.S.T (MIPS/Dollar)	120.01	127.04	122.05	**93.80**	105.98	94.62	**144.71**	143.01	108.74
Normalized	82.93%	87.79%	84.44%	64.82%	73.24%	65.39%	100%	98.83%	75.14%
asmFish - Performance / Cost - 1.H.M.2.D (Nodes/s	697 50	662 89	665 09	653 80	695 56	**649 81**	827 02	**841 99**	652 86
Normalized	82.84%	78.73%	78.99%	77.65%	82.61%	77.18%	98.22%	100%	77.50%
Java JMH - Performance / Cost - Throughput (Ops/s/Dollar)	588 007 43	573 528 88	572 488 93	**391 822 93**	442 342 15	423 520 20	**120 859 948**	120 505 096	717 442 91
Normalized	48.65%	47.45%	47.37%	32.62%	36.96%	35.04%	100%	99.71%	59.36%
NGINX Benchmark - Performance / Cost - S.W.P.S (Reqs/sec/Dollar)	277.57	261.07	260.63	176.98	103.18	**94.45**	**305.13**	214.46	125.11
Normalized	90.97%	85.66%	85.42%	58%	33.82%	30.95%	100%	70.28%	41%

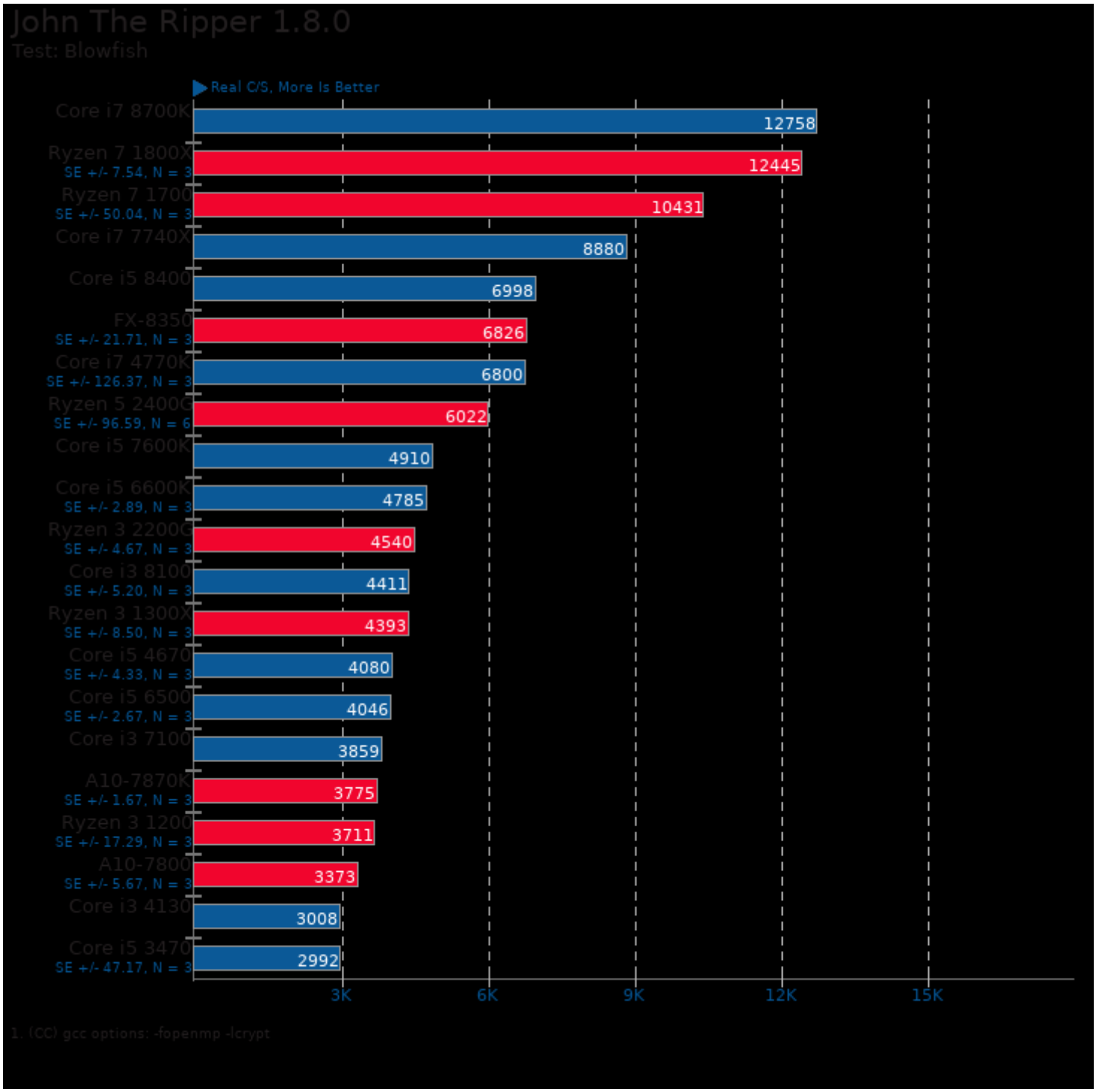
PHPBench - Performance / Cost - P.B.S (Score/Dollar)	3480	3243	3024	2190	1369	**1235**	**4467**	3115	1890
Normalized	77.91%	72.61%	67.7%	49.02%	30.64%	27.65%	100%	69.73%	42.31%
OpenSSL - Performance / Cost - R.4.b.P (Signs/sec/Dollar		5.68	5.69	**4.20**	4.78	4.56	8.76	**8.84**	5.51
Normalized		64.25%	64.37%	47.51%	54.07%	51.58%	99.1%	100%	62.33%

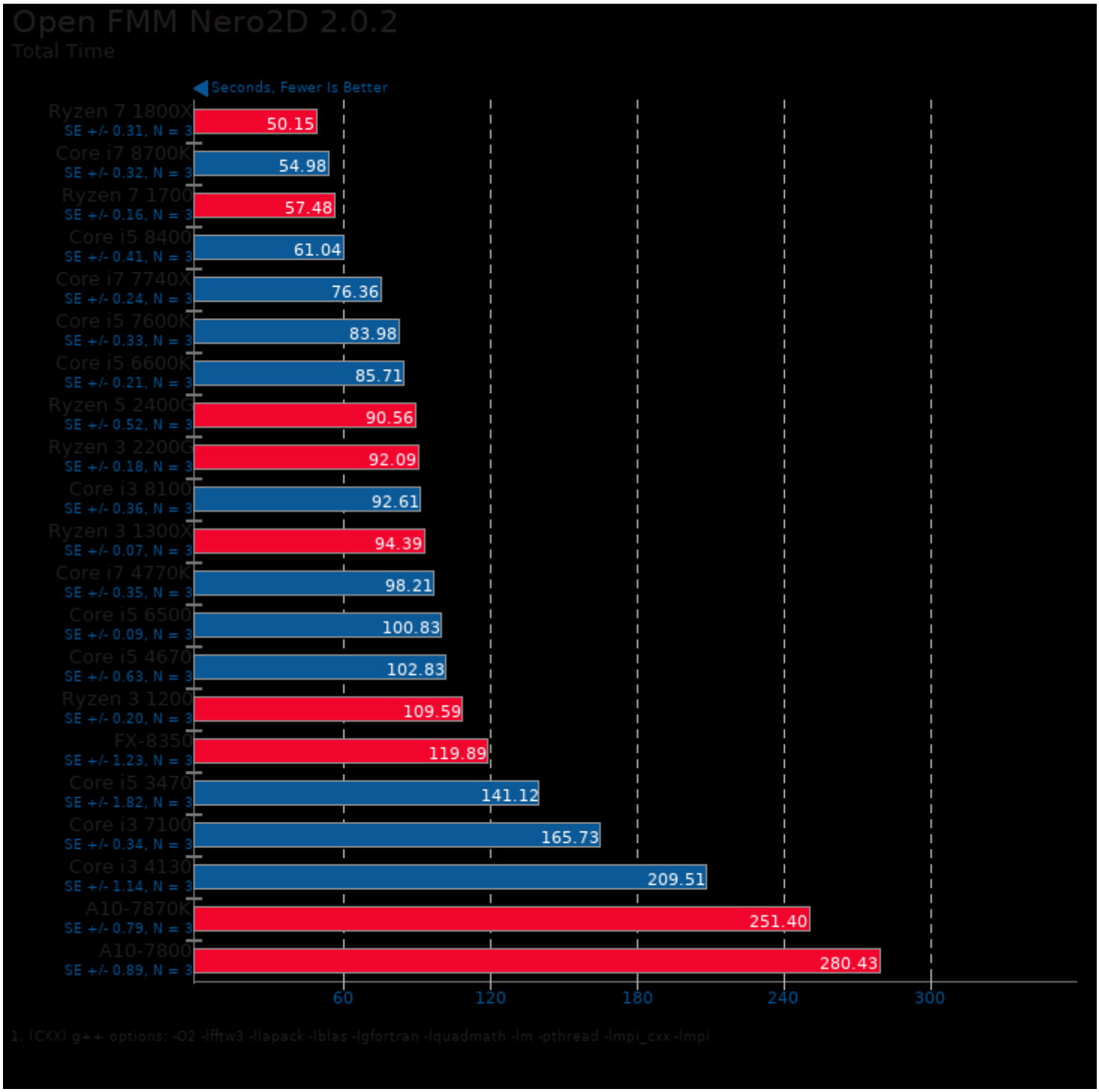

NAS Parallel Benchmarks 3.3
Test / Class: EP.C
Total Mop/s, More Is Better
Core i7 8700K
SE +/- 1.92, N = 3
577.05
Ryzen 7 1800X
SE +/- 1.24, N = 3
571.10
Ryzen 7 1700
SE +/- 7.05, N = 3
489.65
Core i7 7740X
SE +/- 2.53, N = 3
394.63
Core i7 4770K
SE +/- 1.89, N = 3
331.54
Core i5 8400
SE +/- 0.16, N = 3
321.50
Ryzen 5 2400G
SE +/- 1.66, N = 3
293.90
Core i5 7600K
SE +/- 0.23, N = 3
225.62
FX-8350
SE +/- 2.04, N = 3
221.13
Core i5 6600K
SE +/- 0.16, N = 3
219.61
Core i3 8100
SE +/- 0.32, N = 3
202.48
Core i5 4670
SE +/- 0.29, N = 3
198.48
Core i5 6500
SE +/- 0.12, N = 3
185.67
Core i5 3470
SE +/- 0.41, N = 3
180.13
Core i3 7100
SE +/- 0.83, N = 3
175.07
Ryzen 3 2200G
SE +/- 0.24, N = 3
144.02
Core i3 4130
SE +/- 0.91, N = 3
143.51
Ryzen 3 1300X
SE +/- 0.05, N = 3
141.62
Ryzen 3 1200
SE +/- 0.38, N = 3
122.00
A10-7870K
SE +/- 0.17, N = 3
92.05
A10-7800
SE +/- 0.84, N = 3
83.11
120
240
360
480
600
1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi_usempif08 -lmpi_mpifh -lmpi
2. Open MPI 2.1.1

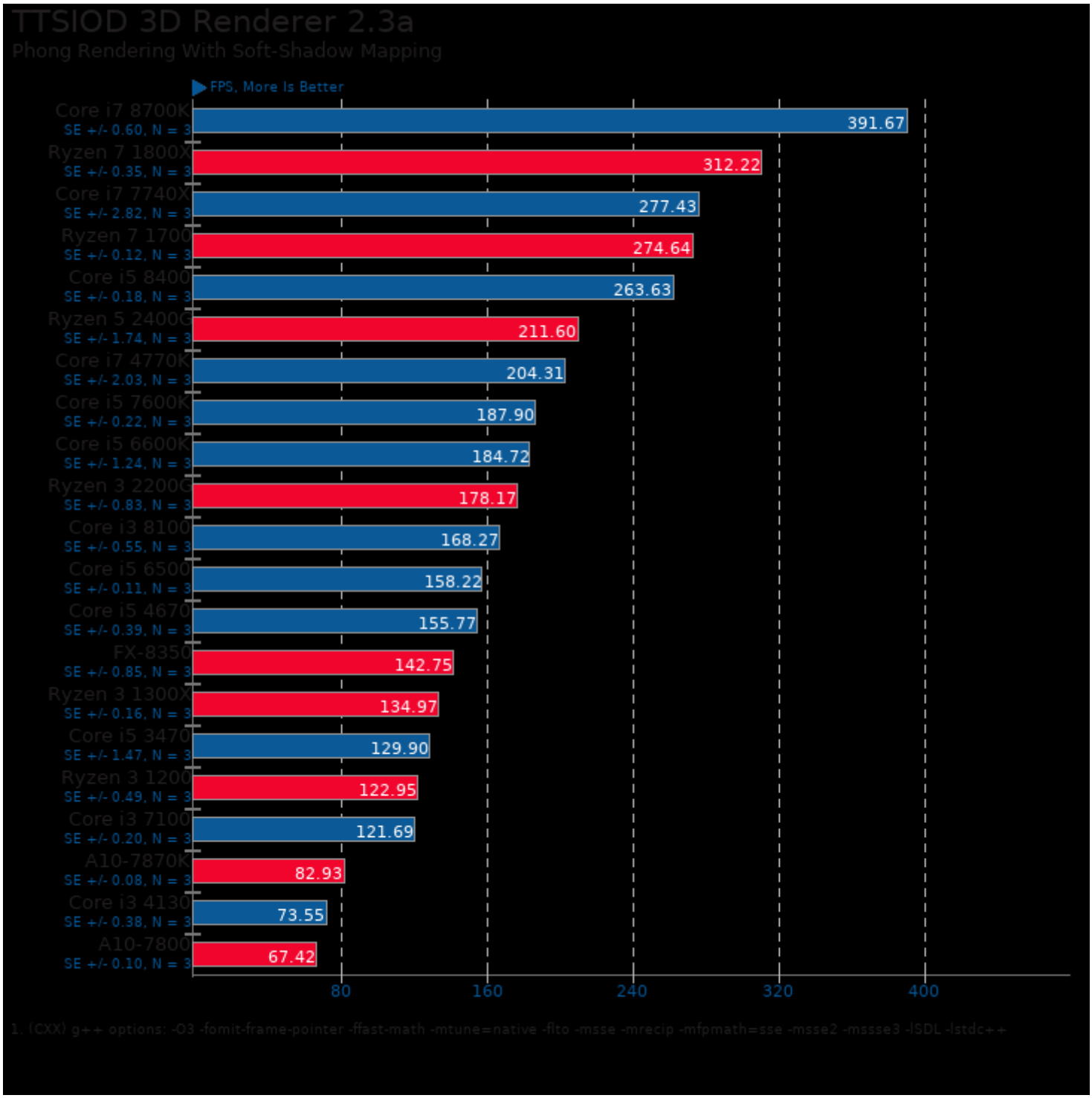

Parboil 2.5
Test: OpenMP CUTCP
Seconds, Fewer Is Better
Ryzen 7 1800X
SE +/- 0.01, N = 3
5.58
Ryzen 7 1700
SE +/- 0.03, N = 3
6.49
Core i7 8700K
SE +/- 0.01, N = 3
7.08
Core i5 8400
SE +/- 0.00, N = 3
9.47
Core i7 7740X
SE +/- 0.10, N = 3
10.13
Ryzen 5 2400G
SE +/- 0.04, N = 3
11.34
Core i7 4770K
SE +/- 0.07, N = 3
12.99
Core i5 7600K
SE +/- 0.02, N = 3
13.46
Core i5 6600K
SE +/- 0.00, N = 3
13.82
Core i3 8100
SE +/- 0.00, N = 3
14.95
Ryzen 3 1300X
SE +/- 0.01, N = 3
15.03
Ryzen 3 2200G
SE +/- 0.06, N = 3
15.64
Core i5 4670
SE +/- 0.02, N = 3
15.80
Core i5 6500
SE +/- 0.01, N = 3
16.21
FX-8350
SE +/- 0.04, N = 3
16.90
Ryzen 3 1200
SE +/- 0.04, N = 3
17.36
Core i5 3470
SE +/- 0.02, N = 3
17.82
Core i3 7100
SE +/- 0.15, N = 3
22.87
Core i3 4130
SE +/- 0.07, N = 3
30.51
A10-7870K
SE +/- 0.06, N = 3
31.60
A10-7800
SE +/- 0.02, N = 3
35.73
8
16
24
32
40
1. (CXX) g++ options: -lm -lpthread -lgomp -ffast-math -fopenmp

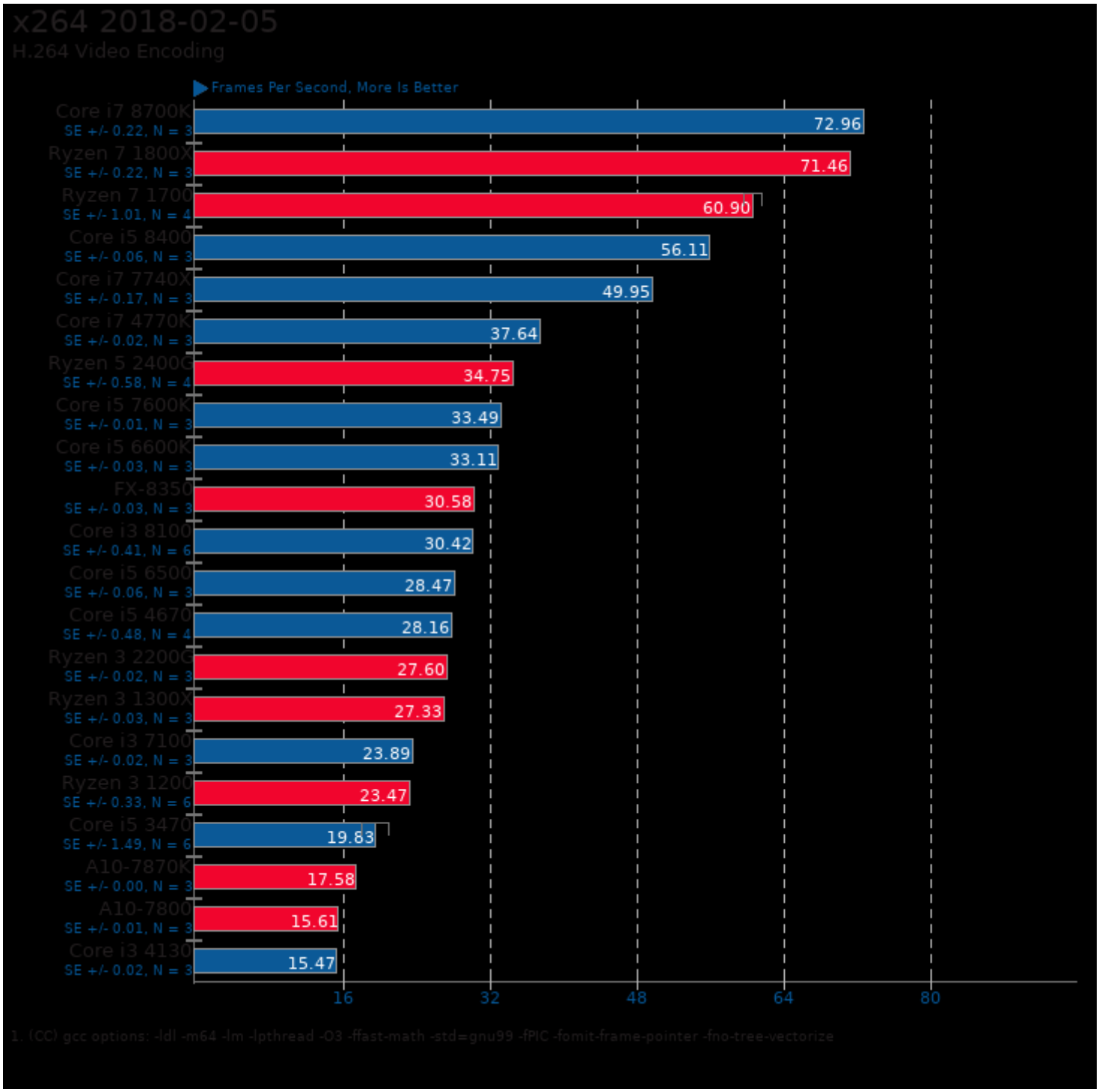

Rodinia 2.4
Test: OpenMP LavaMD
Seconds, Fewer Is Better
Ryzen 7 1800X
SE +/- 0.05, N = 3
82.39
Ryzen 7 1700
SE +/- 0.08, N = 3
95.15
Core i7 8700K
SE +/- 0.08, N = 3
107.19
Core i5 8400
SE +/- 0.05, N = 3
143.15
Core i7 7740X
SE +/- 0.78, N = 3
154.42
Ryzen 5 2400G
SE +/- 0.14, N = 3
160.28
Core i7 4770K
SE +/- 0.03, N = 3
199.36
Core i5 7600K
SE +/- 0.07, N = 3
203.35
Core i5 6600K
SE +/- 0.04, N = 3
208.84
FX-8350
SE +/- 0.09, N = 3
211.52
Ryzen 3 2200G
SE +/- 0.29, N = 3
217.13
Ryzen 3 1300X
SE +/- 0.22, N = 3
223.34
Core i3 8100
SE +/- 0.03, N = 3
226.21
Core i5 6500
SE +/- 0.08, N = 3
246.20
Ryzen 3 1200
SE +/- 0.25, N = 3
258.67
Core i5 4670
SE +/- 0.13, N = 3
322.61
Core i3 7100
SE +/- 0.57, N = 3
354.52
A10-7870K
SE +/- 0.86, N = 3
397.52
Core i5 3470
SE +/- 1.93, N = 3
400.13
Core i3 4130
SE +/- 0.30, N = 3
440.27
A10-7800
SE +/- 0.20, N = 3
446.42
100
200
300
400
500
1. (CXX) g++ options: -O2 -lOpenCL

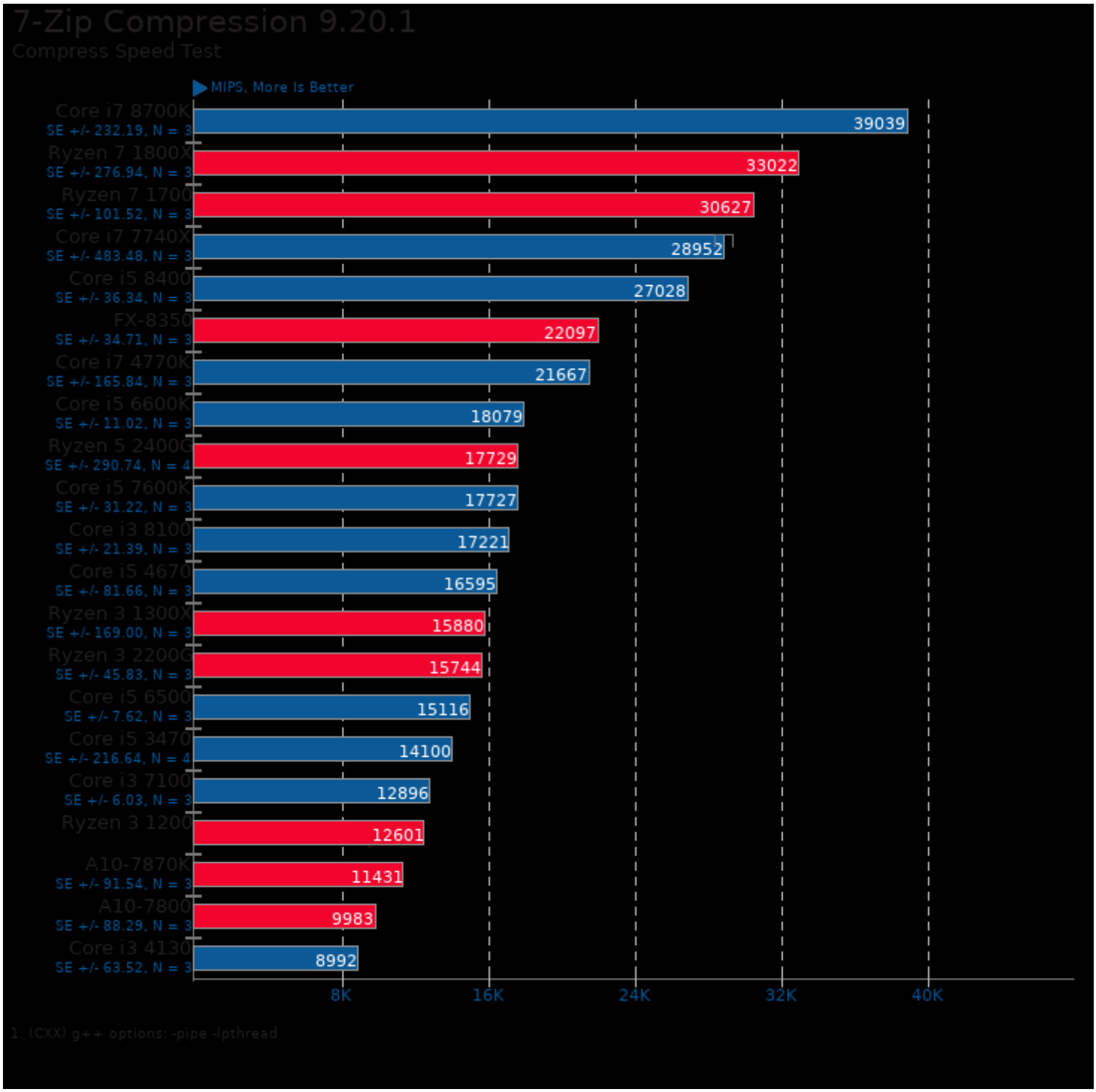

Timed MAFFT Alignment 6.864
Multiple Sequence Alignment
Seconds, Fewer Is Better
Ryzen 7 1800X
SE +/- 0.02, N = 3
3.65
Core i5 8400
SE +/- 0.07, N = 6
3.68
Core i7 7740X
SE +/- 0.14, N = 6
3.97
Ryzen 7 1700
SE +/- 0.05, N = 6
4.26
Core i7 4770K
SE +/- 0.09, N = 6
4.88
Core i5 6600K
SE +/- 0.08, N = 6
5.36
Core i5 7600K
SE +/- 0.03, N = 3
5.42
Core i3 8100
SE +/- 0.15, N = 6
5.71
Ryzen 5 2400G
SE +/- 0.10, N = 6
5.73
Core i5 4670
SE +/- 0.16, N = 6
5.85
FX-8350
SE +/- 0.05, N = 3
5.92
Ryzen 3 1300X
SE +/- 0.12, N = 6
5.99
Ryzen 3 2200G
SE +/- 0.13, N = 6
6.27
Core i5 6500
SE +/- 0.12, N = 3
6.32
Core i5 3470
SE +/- 0.03, N = 3
6.93
Ryzen 3 1200
SE +/- 0.01, N = 3
7.25
Core i3 7100
SE +/- 0.01, N = 3
7.85
A10-7870K
SE +/- 0.32, N = 6
10.40
Core i3 4130
SE +/- 0.16, N = 6
10.45
A10-7800
SE +/- 0.14, N = 3
11.96
3
6
9
12
15
1. (CC) gcc options: -O3 -lm -lpthread

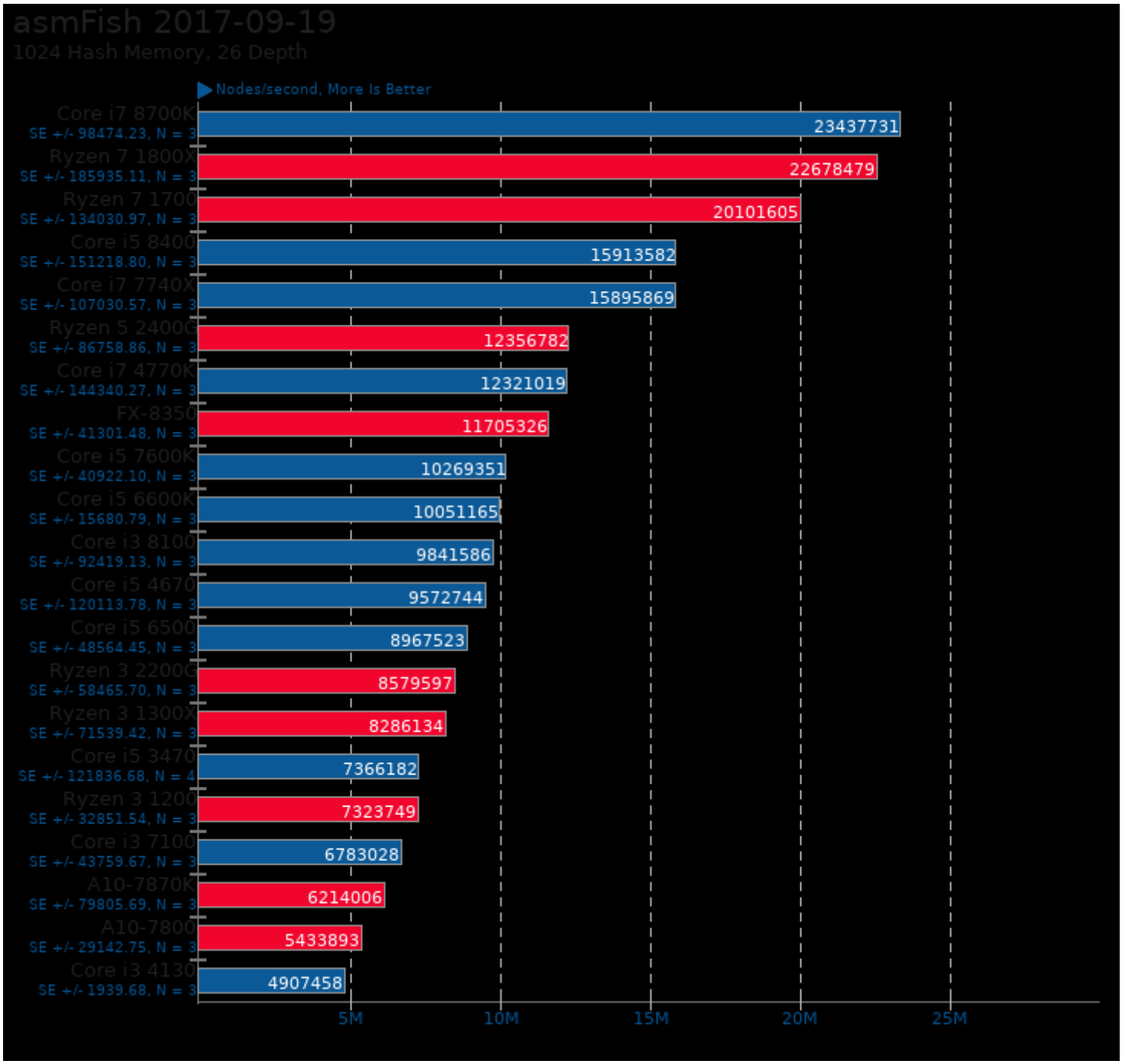

John The Ripper 1.8.0
Test: Blowfish
Real C/S, More Is Better
Core i7 8700K
12758
Ryzen 7 1800X
SE +/- 7.54, N = 3
12445
Ryzen 7 1700
SE +/- 50.04, N = 3
10431
Core i7 7740X
8880
Core i5 8400
6998
FX-8350
SE +/- 21.71, N = 3
6826
Core i7 4770K
SE +/- 126.37, N = 3
6800
Ryzen 5 2400G
SE +/- 96.59, N = 6
6022
Core i5 7600K
4910
Core i5 6600K
SE +/- 2.89, N = 3
4785
Ryzen 3 2200G
SE +/- 4.67, N = 3
4540
Core i3 8100
SE +/- 5.20, N = 3
4411
Ryzen 3 1300X
SE +/- 8.50, N = 3
4393
Core i5 4670
SE +/- 4.33, N = 3
4080
Core i5 6500
SE +/- 2.67, N = 3
4046
Core i3 7100
3859
A10-7870K
SE +/- 1.67, N = 3
3775
Ryzen 3 1200
SE +/- 17.29, N = 3
3711
A10-7800
SE +/- 5.67, N = 3
3373
Core i3 4130
3008
Core i5 3470
SE +/- 47.17, N = 3
2992
3K
6K
9K
12K
15K
1. (CC) gcc options: -fopenmp -lcrypt

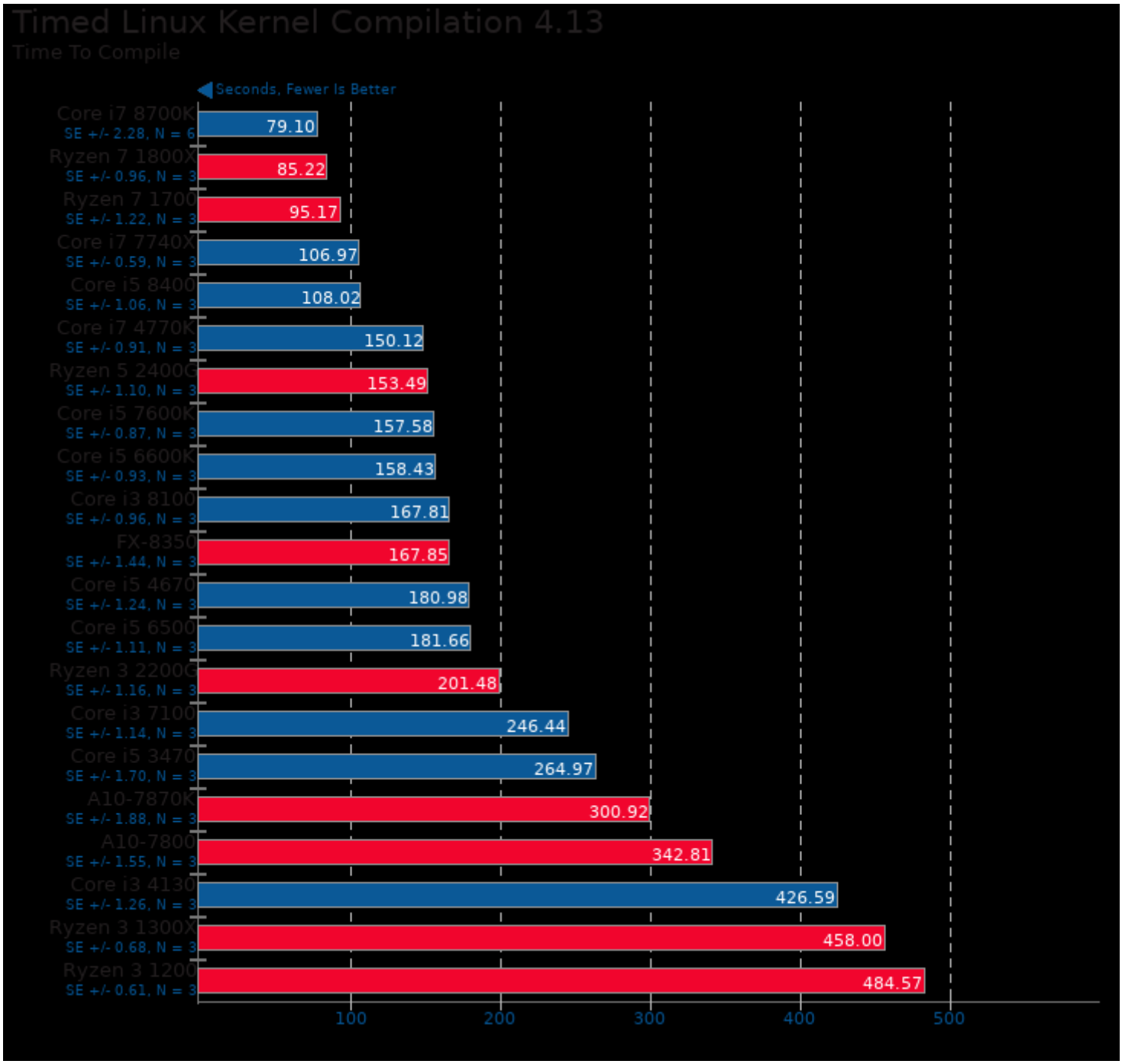

Open FMM Nero2D 2.0.2
Total Time
Seconds, Fewer Is Better
Ryzen 7 1800X
SE +/- 0.31, N = 3
50.15
Core i7 8700K
SE +/- 0.32, N = 3
54.98
Ryzen 7 1700
SE +/- 0.16, N = 3
57.48
Core i5 8400
SE +/- 0.41, N = 3
61.04
Core i7 7740X
SE +/- 0.24, N = 3
76.36
Core i5 7600K
SE +/- 0.33, N = 3
83.98
Core i5 6600K
SE +/- 0.21, N = 3
85.71
Ryzen 5 2400G
SE +/- 0.52, N = 3
90.56
Ryzen 3 2200G
SE +/- 0.18, N = 3
92.09
Core i3 8100
SE +/- 0.36, N = 3
92.61
Ryzen 3 1300X
SE +/- 0.07, N = 3
94.39
Core i7 4770K
SE +/- 0.35, N = 3
98.21
Core i5 6500
SE +/- 0.09, N = 3
100.83
Core i5 4670
SE +/- 0.63, N = 3
102.83
Ryzen 3 1200
SE +/- 0.20, N = 3
109.59
FX-8350
SE +/- 1.23, N = 3
119.89
Core i5 3470
SE +/- 1.82, N = 3
141.12
Core i3 7100
SE +/- 0.34, N = 3
165.73
Core i3 4130
SE +/- 1.14, N = 3
209.51
A10-7870K
SE +/- 0.79, N = 3
251.40
A10-7800
SE +/- 0.89, N = 3
280.43
60
120
180
240
300
1. (CXX) g++ options: -O2 -lfftw3 -llapack -lblas -lgfortran -lquadmath -lm -pthread -lmpi_cxx -lmpi

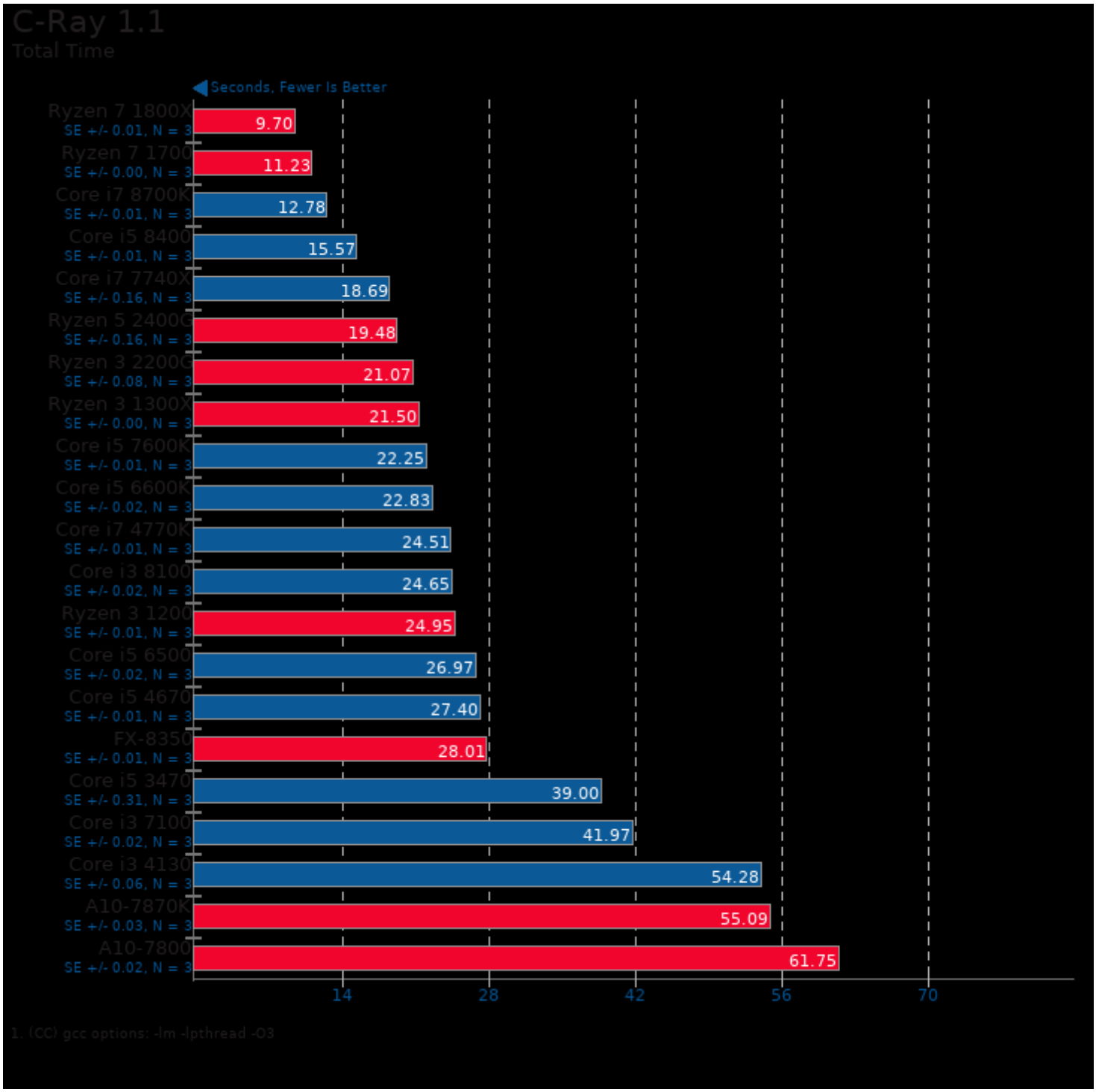

TTSIOD 3D Renderer 2.3a
Phong Rendering With Soft-Shadow Mapping
FPS, More Is Better
Core i7 8700K
SE +/- 0.60, N = 3
391.67
Ryzen 7 1800X
SE +/- 0.35, N = 3
312.22
Core i7 7740X
SE +/- 2.82, N = 3
277.43
Ryzen 7 1700
SE +/- 0.12, N = 3
274.64
Core i5 8400
SE +/- 0.18, N = 3
263.63
Ryzen 5 2400G
SE +/- 1.74, N = 3
211.60
Core i7 4770K
SE +/- 2.03, N = 3
204.31
Core i5 7600K
SE +/- 0.22, N = 3
187.90
Core i5 6600K
SE +/- 1.24, N = 3
184.72
Ryzen 3 2200G
SE +/- 0.83, N = 3
178.17
Core i3 8100
SE +/- 0.55, N = 3
168.27
Core i5 6500
SE +/- 0.11, N = 3
158.22
Core i5 4670
SE +/- 0.39, N = 3
155.77
FX-8350
SE +/- 0.85, N = 3
142.75
Ryzen 3 1300X
SE +/- 0.16, N = 3
134.97
Core i5 3470
SE +/- 1.47, N = 3
129.90
Ryzen 3 1200
SE +/- 0.49, N = 3
122.95
Core i3 7100
SE +/- 0.20, N = 3
121.69
A10-7870K
SE +/- 0.08, N = 3
82.93
Core i3 4130
SE +/- 0.38, N = 3
73.55
A10-7800
SE +/- 0.10, N = 3
67.42
80
160
240
320
400
1. (CXX) g++ options: -O3 -fomit-frame-pointer -ffast-math -mtune=native -flto -msse -mrecip -mfpmath=sse -msse2 -mssse3 -lSDL -lstdc++

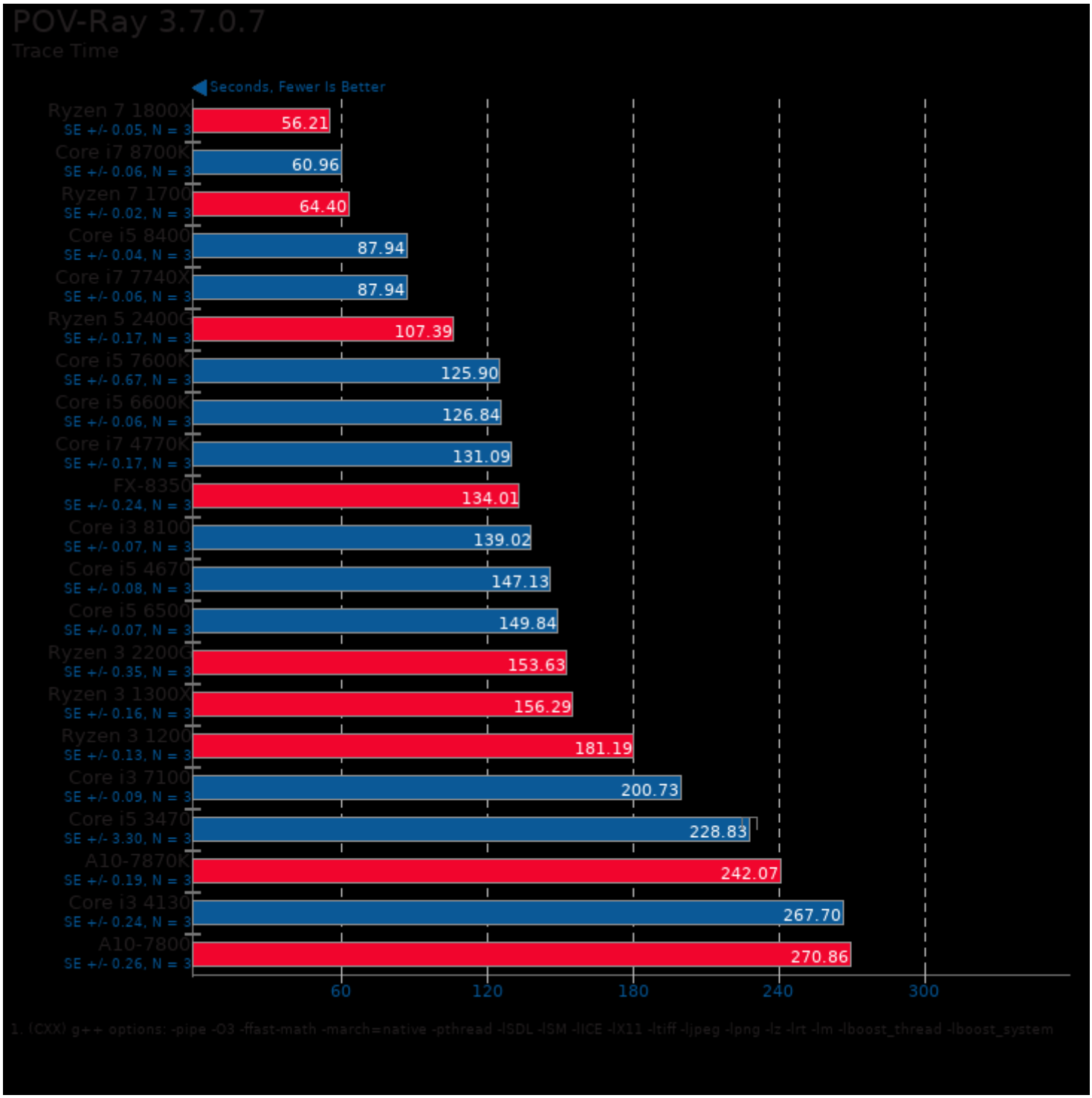

x264 2018-02-05
H.264 Video Encoding
Frames Per Second, More Is Better
Core i7 8700K
SE +/- 0.22, N = 3
72.96
Ryzen 7 1800X
SE +/- 0.22, N = 3
71.46
Ryzen 7 1700
SE +/- 1.01, N = 4
60.90
Core i5 8400
SE +/- 0.06, N = 3
56.11
Core i7 7740X
SE +/- 0.17, N = 3
49.95
Core i7 4770K
SE +/- 0.02, N = 3
37.64
Ryzen 5 2400G
SE +/- 0.58, N = 4
34.75
Core i5 7600K
SE +/- 0.01, N = 3
33.49
Core i5 6600K
SE +/- 0.03, N = 3
33.11
FX-8350
SE +/- 0.03, N = 3
30.58
Core i3 8100
SE +/- 0.41, N = 6
30.42
Core i5 6500
SE +/- 0.06, N = 3
28.47
Core i5 4670
SE +/- 0.48, N = 4
28.16
Ryzen 3 2200G
SE +/- 0.02, N = 3
27.60
Ryzen 3 1300X
SE +/- 0.03, N = 3
27.33
Core i3 7100
SE +/- 0.02, N = 3
23.89
Ryzen 3 1200
SE +/- 0.33, N = 6
23.47
Core i5 3470
SE +/- 1.49, N = 6
19.83
A10-7870K
SE +/- 0.00, N = 3
17.58
A10-7800
SE +/- 0.01, N = 3
15.61
Core i3 4130
SE +/- 0.02, N = 3
15.47
16
32
48
64
80
1. (CC) gcc options: -ldl -m64 -lm -lpthread -O3 -ffast-math -std=gnu99 -fPIC -fomit-frame-pointer -fno-tree-vectorize

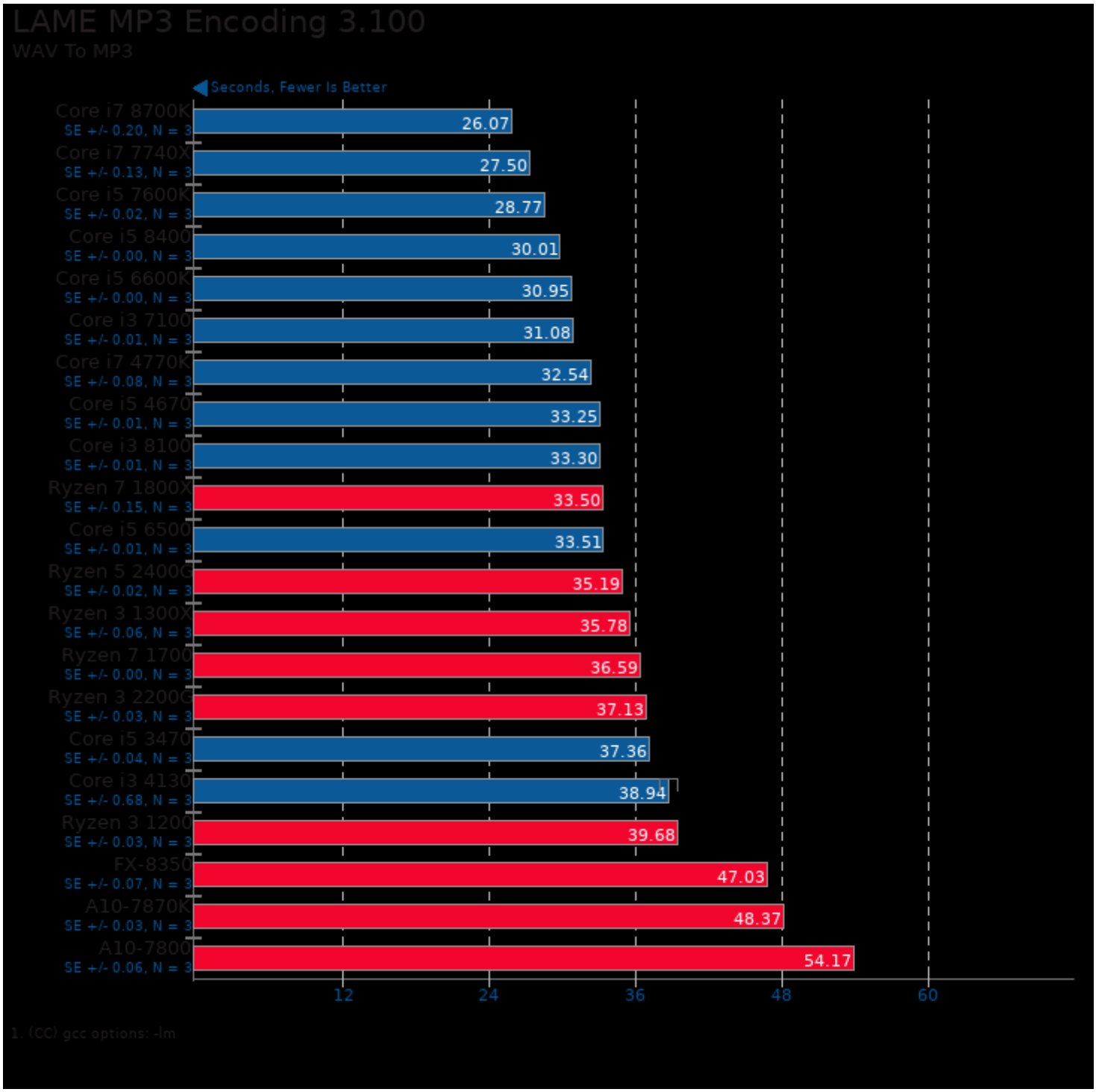

7-Zip Compression 9.20.1
Compress Speed Test
MIPS, More Is Better
Core i7 8700K
SE +/- 232.19, N = 3
39039
Ryzen 7 1800X
SE +/- 276.94, N = 3
33022
Ryzen 7 1700
SE +/- 101.52, N = 3
30627
Core i7 7740X
SE +/- 483.48, N = 3
28952
Core i5 8400
SE +/- 36.34, N = 3
27028
FX-8350
SE +/- 34.71, N = 3
22097
Core i7 4770K
SE +/- 165.84, N = 3
21667
Core i5 6600K
SE +/- 11.02, N = 3
18079
Ryzen 5 2400G
SE +/- 290.74, N = 4
17729
Core i5 7600K
SE +/- 31.22, N = 3
17727
Core i3 8100
SE +/- 21.39, N = 3
17221
Core i5 4670
SE +/- 81.66, N = 3
16595
Ryzen 3 1300X
SE +/- 169.00, N = 3
15880
Ryzen 3 2200G
SE +/- 45.83, N = 3
15744
Core i5 6500
SE +/- 7.62, N = 3
15116
Core i5 3470
SE +/- 216.64, N = 4
14100
Core i3 7100
SE +/- 6.03, N = 3
12896
Ryzen 3 1200
12601
A10-7870K
SE +/- 91.54, N = 3
11431
A10-7800
SE +/- 88.29, N = 3
9983
Core i3 4130
SE +/- 63.52, N = 3
8992
8K
16K
24K
32K
40K
1. (CXX) g++ options: -pipe -lpthread

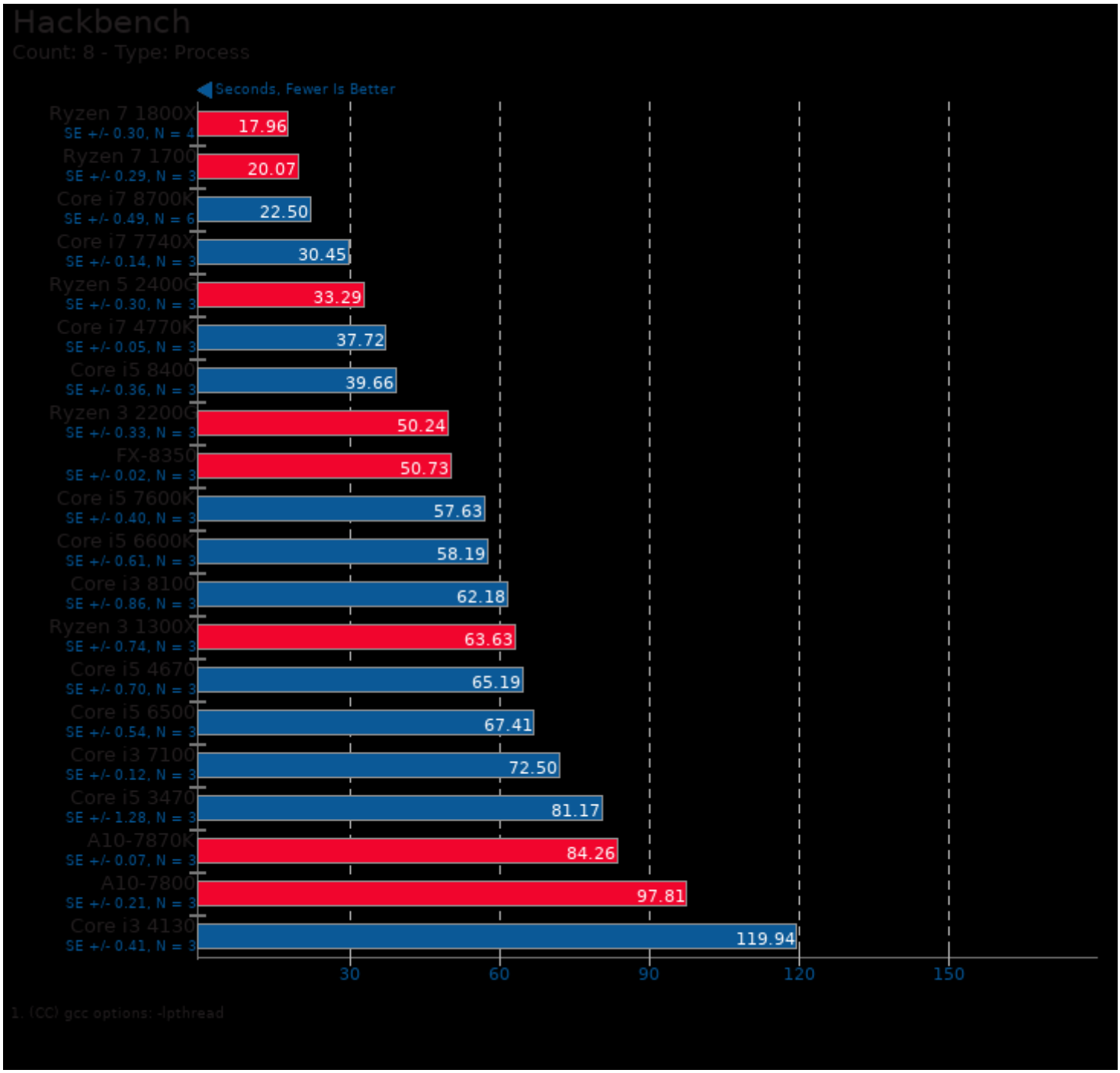

asmFish 2017-09-19
1024 Hash Memory, 26 Depth
Nodes/second, More Is Better
Core i7 8700K
SE +/- 98474.23, N = 3
23437731
Ryzen 7 1800X
SE +/- 185935.11, N = 3
22678479
Ryzen 7 1700
SE +/- 134030.97, N = 3
20101605
Core i5 8400
SE +/- 151218.80, N = 3
15913582
Core i7 7740X
SE +/- 107030.57, N = 3
15895869
Ryzen 5 2400G
SE +/- 86758.86, N = 3
12356782
Core i7 4770K
SE +/- 144340.27, N = 3
12321019
FX-8350
SE +/- 41301.48, N = 3
11705326
Core i5 7600K
SE +/- 40922.10, N = 3
10269351
Core i5 6600K
SE +/- 15680.79, N = 3
10051165
Core i3 8100
SE +/- 92419.13, N = 3
9841586
Core i5 4670
SE +/- 120113.78, N = 3
9572744
Core i5 6500
SE +/- 48564.45, N = 3
8967523
Ryzen 3 2200G
SE +/- 58465.70, N = 3
8579597
Ryzen 3 1300X
SE +/- 71539.42, N = 3
8286134
Core i5 3470
SE +/- 121836.68, N = 4
7366182
Ryzen 3 1200
SE +/- 32851.54, N = 3
7323749
Core i3 7100
SE +/- 43759.67, N = 3
6783028
A10-7870K
SE +/- 79805.69, N = 3
6214006
A10-7800
SE +/- 29142.75, N = 3
5433893
Core i3 4130
SE +/- 1939.68, N = 3
4907458
5M
10M
15M
20M
25M

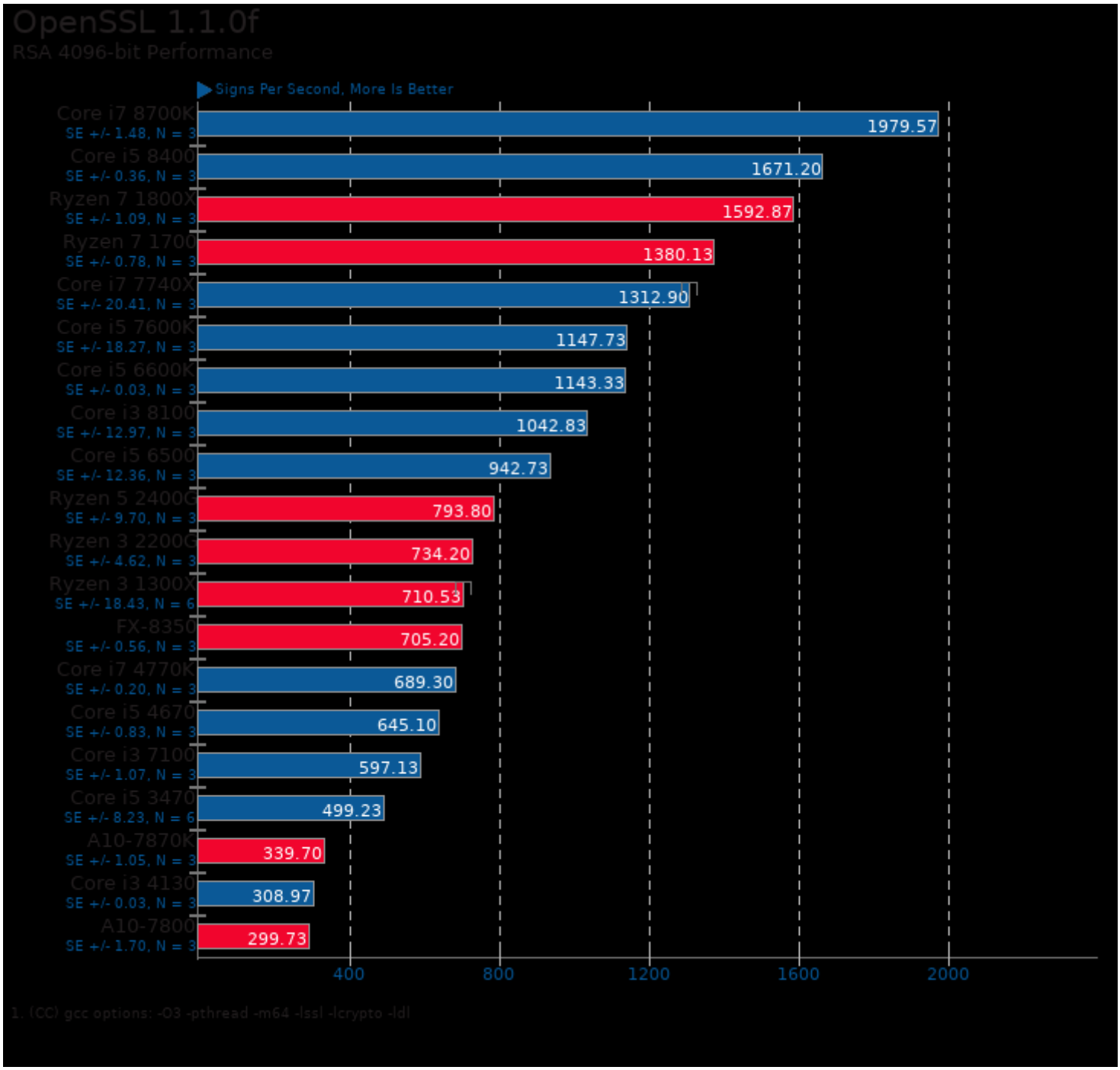

Timed Linux Kernel Compilation 4.13
Time To Compile
Seconds, Fewer Is Better
Core i7 8700K
SE +/- 2.28, N = 6
79.10
Ryzen 7 1800X
SE +/- 0.96, N = 3
85.22
Ryzen 7 1700
SE +/- 1.22, N = 3
95.17
Core i7 7740X
SE +/- 0.59, N = 3
106.97
Core i5 8400
SE +/- 1.06, N = 3
108.02
Core i7 4770K
SE +/- 0.91, N = 3
150.12
Ryzen 5 2400G
SE +/- 1.10, N = 3
153.49
Core i5 7600K
SE +/- 0.87, N = 3
157.58
Core i5 6600K
SE +/- 0.93, N = 3
158.43
Core i3 8100
SE +/- 0.96, N = 3
167.81
FX-8350
SE +/- 1.44, N = 3
167.85
Core i5 4670
SE +/- 1.24, N = 3
180.98
Core i5 6500
SE +/- 1.11, N = 3
181.66
Ryzen 3 2200G
SE +/- 1.16, N = 3
201.48
Core i3 7100
SE +/- 1.14, N = 3
246.44
Core i5 3470
SE +/- 1.70, N = 3
264.97
A10-7870K
SE +/- 1.88, N = 3
300.92
A10-7800
SE +/- 1.55, N = 3
342.81
Core i3 4130
SE +/- 1.26, N = 3
426.59
Ryzen 3 1300X
SE +/- 0.68, N = 3
458.00
Ryzen 3 1200
SE +/- 0.61, N = 3
484.57
100
200
300
400
500

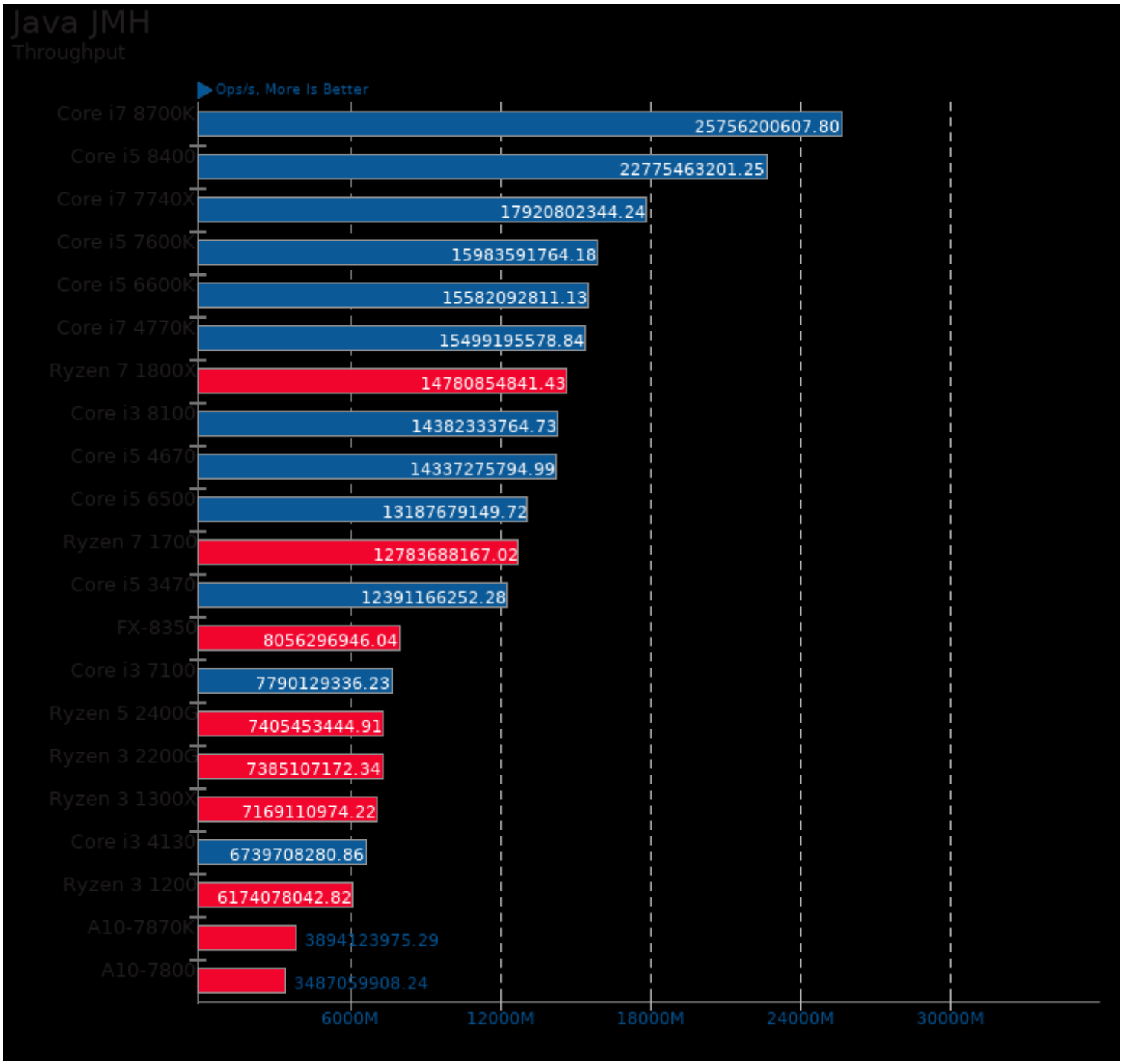

C-Ray 1.1
Total Time
Seconds, Fewer Is Better
Ryzen 7 1800X
SE +/- 0.01, N = 3
9.70
Ryzen 7 1700
SE +/- 0.00, N = 3
11.23
Core i7 8700K
SE +/- 0.01, N = 3
12.78
Core i5 8400
SE +/- 0.01, N = 3
15.57
Core i7 7740X
SE +/- 0.16, N = 3
18.69
Ryzen 5 2400G
SE +/- 0.16, N = 3
19.48
Ryzen 3 2200G
SE +/- 0.08, N = 3
21.07
Ryzen 3 1300X
SE +/- 0.00, N = 3
21.50
Core i5 7600K
SE +/- 0.01, N = 3
22.25
Core i5 6600K
SE +/- 0.02, N = 3
22.83
Core i7 4770K
SE +/- 0.01, N = 3
24.51
Core i3 8100
SE +/- 0.02, N = 3
24.65
Ryzen 3 1200
SE +/- 0.01, N = 3
24.95
Core i5 6500
SE +/- 0.02, N = 3
26.97
Core i5 4670
SE +/- 0.01, N = 3
27.40
FX-8350
SE +/- 0.01, N = 3
28.01
Core i5 3470
SE +/- 0.31, N = 3
39.00
Core i3 7100
SE +/- 0.02, N = 3
41.97
Core i3 4130
SE +/- 0.06, N = 3
54.28
A10-7870K
SE +/- 0.03, N = 3
55.09
A10-7800
SE +/- 0.02, N = 3
61.75
14
28
42
56
70
1. (CC) gcc options: -lm -lpthread -O3

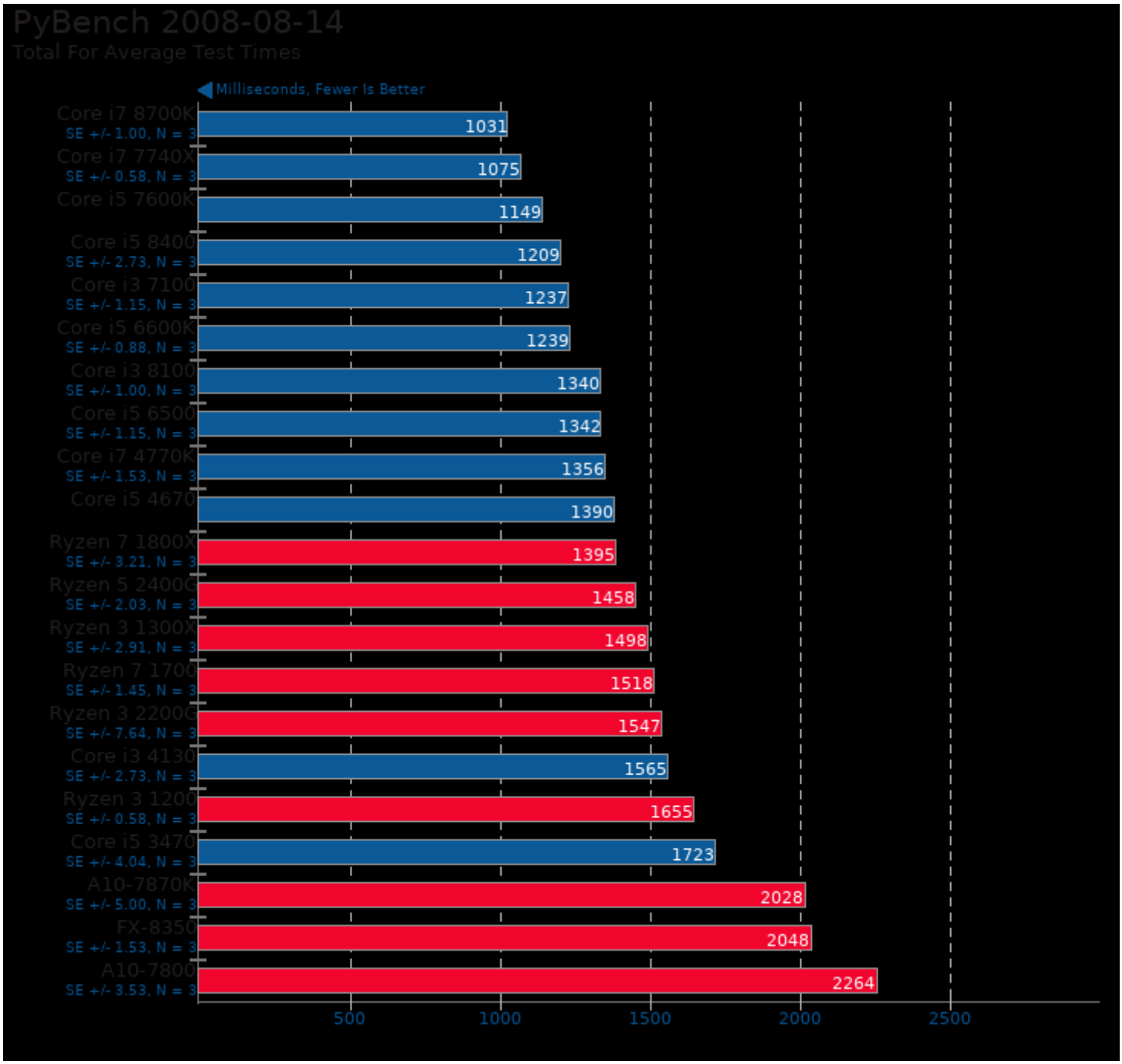

POV-Ray 3.7.0.7
Trace Time
Seconds, Fewer Is Better
Ryzen 7 1800X
SE +/- 0.05, N = 3
56.21
Core i7 8700K
SE +/- 0.06, N = 3
60.96
Ryzen 7 1700
SE +/- 0.02, N = 3
64.40
Core i5 8400
SE +/- 0.04, N = 3
87.94
Core i7 7740X
SE +/- 0.06, N = 3
87.94
Ryzen 5 2400G
SE +/- 0.17, N = 3
107.39
Core i5 7600K
SE +/- 0.67, N = 3
125.90
Core i5 6600K
SE +/- 0.06, N = 3
126.84
Core i7 4770K
SE +/- 0.17, N = 3
131.09
FX-8350
SE +/- 0.24, N = 3
134.01
Core i3 8100
SE +/- 0.07, N = 3
139.02
Core i5 4670
SE +/- 0.08, N = 3
147.13
Core i5 6500
SE +/- 0.07, N = 3
149.84
Ryzen 3 2200G
SE +/- 0.35, N = 3
153.63
Ryzen 3 1300X
SE +/- 0.16, N = 3
156.29
Ryzen 3 1200
SE +/- 0.13, N = 3
181.19
Core i3 7100
SE +/- 0.09, N = 3
200.73
Core i5 3470
SE +/- 3.30, N = 3
228.83
A10-7870K
SE +/- 0.19, N = 3
242.07
Core i3 4130
SE +/- 0.24, N = 3
267.70
A10-7800
SE +/- 0.26, N = 3
270.86
60
120
180
240
300
1. (CXX) g++ options: -pipe -O3 -ffast-math -march=native -pthread -lSDL -lSM -lICE -lX11 -ltiff -ljpeg -lpng -lz -lrt -lm -lboost_thread -lboost_system

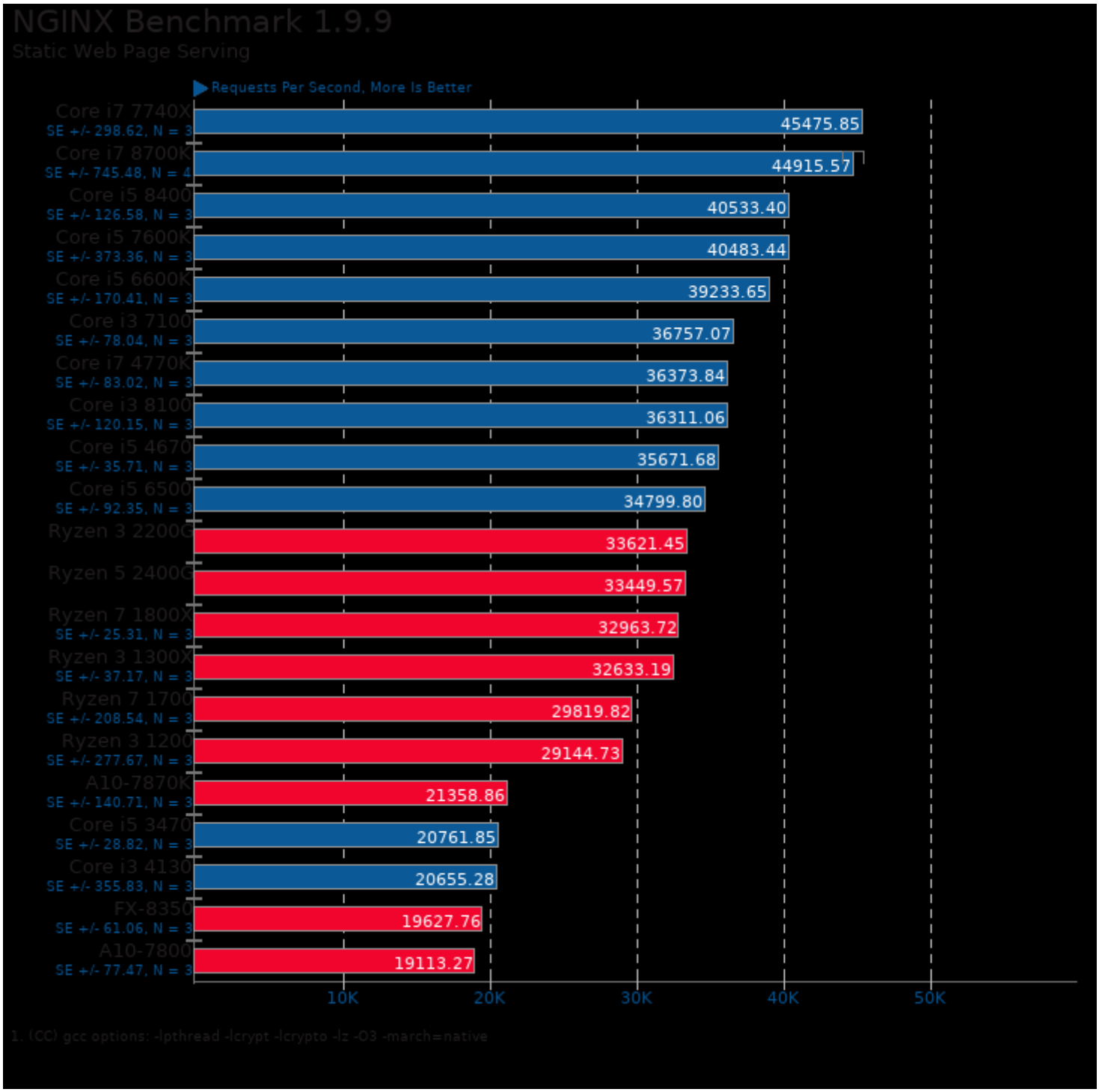

LAME MP3 Encoding 3.100
WAV To MP3
Seconds, Fewer Is Better
Core i7 8700K
SE +/- 0.20, N = 3
26.07
Core i7 7740X
SE +/- 0.13, N = 3
27.50
Core i5 7600K
SE +/- 0.02, N = 3
28.77
Core i5 8400
SE +/- 0.00, N = 3
30.01
Core i5 6600K
SE +/- 0.00, N = 3
30.95
Core i3 7100
SE +/- 0.01, N = 3
31.08
Core i7 4770K
SE +/- 0.08, N = 3
32.54
Core i5 4670
SE +/- 0.01, N = 3
33.25
Core i3 8100
SE +/- 0.01, N = 3
33.30
Ryzen 7 1800X
SE +/- 0.15, N = 3
33.50
Core i5 6500
SE +/- 0.01, N = 3
33.51
Ryzen 5 2400G
SE +/- 0.02, N = 3
35.19
Ryzen 3 1300X
SE +/- 0.06, N = 3
35.78
Ryzen 7 1700
SE +/- 0.00, N = 3
36.59
Ryzen 3 2200G
SE +/- 0.03, N = 3
37.13
Core i5 3470
SE +/- 0.04, N = 3
37.36
Core i3 4130
SE +/- 0.68, N = 3
38.94
Ryzen 3 1200
SE +/- 0.03, N = 3
39.68
FX-8350
SE +/- 0.07, N = 3
47.03
A10-7870K
SE +/- 0.03, N = 3
48.37
A10-7800
SE +/- 0.06, N = 3
54.17
12
24
36
48
60
1. (CC) gcc options: -lm

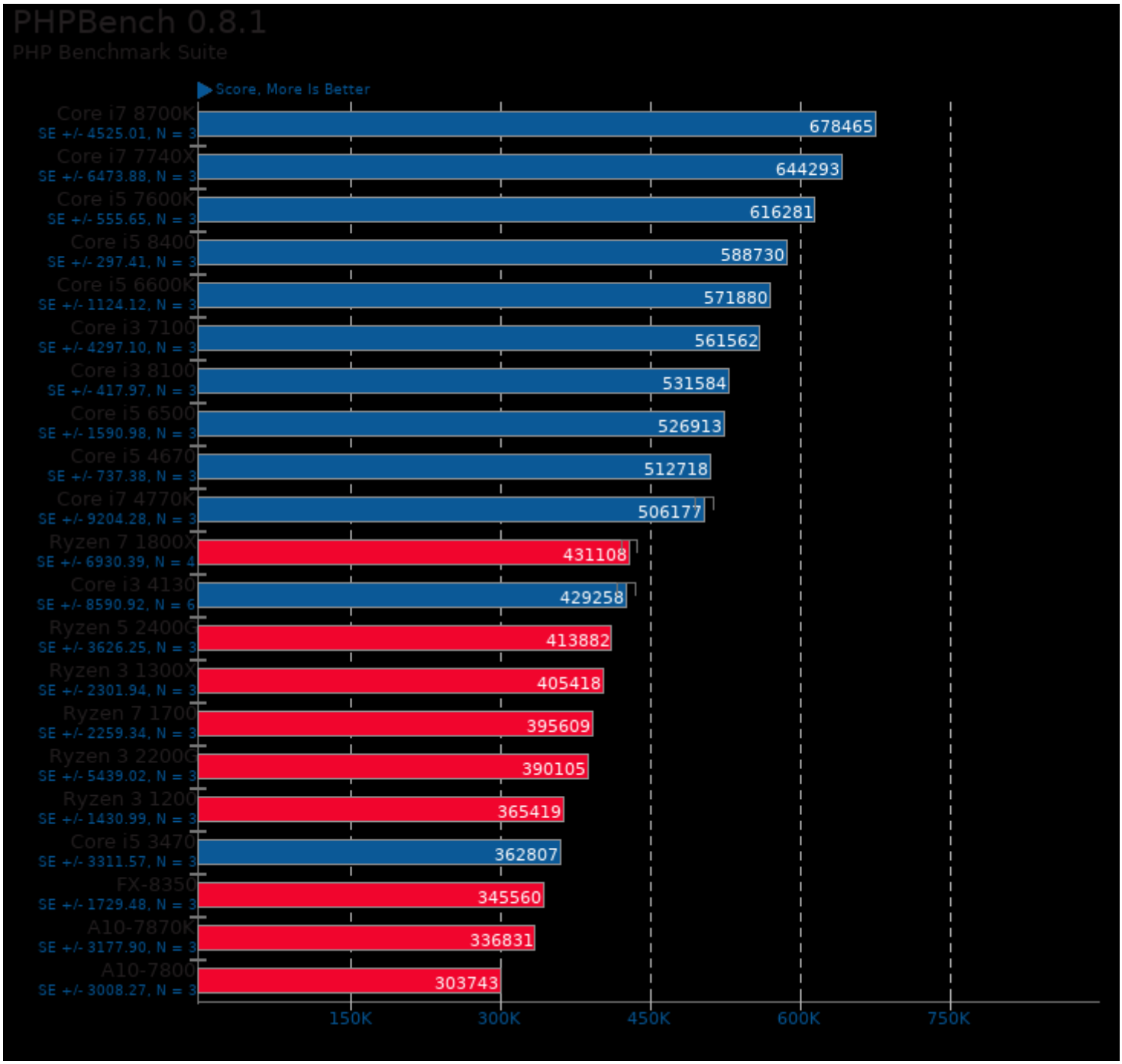

Hackbench
Count: 8 - Type: Process
Seconds, Fewer Is Better
Ryzen 7 1800X
SE +/- 0.30, N = 4
17.96
Ryzen 7 1700
SE +/- 0.29, N = 3
20.07
Core i7 8700K
SE +/- 0.49, N = 6
22.50
Core i7 7740X
SE +/- 0.14, N = 3
30.45
Ryzen 5 2400G
SE +/- 0.30, N = 3
33.29
Core i7 4770K
SE +/- 0.05, N = 3
37.72
Core i5 8400
SE +/- 0.36, N = 3
39.66
Ryzen 3 2200G
SE +/- 0.33, N = 3
50.24
FX-8350
SE +/- 0.02, N = 3
50.73
Core i5 7600K
SE +/- 0.40, N = 3
57.63
Core i5 6600K
SE +/- 0.61, N = 3
58.19
Core i3 8100
SE +/- 0.86, N = 3
62.18
Ryzen 3 1300X
SE +/- 0.74, N = 3
63.63
Core i5 4670
SE +/- 0.70, N = 3
65.19
Core i5 6500
SE +/- 0.54, N = 3
67.41
Core i3 7100
SE +/- 0.12, N = 3
72.50
Core i5 3470
SE +/- 1.28, N = 3
81.17
A10-7870K
SE +/- 0.07, N = 3
84.26
A10-7800
SE +/- 0.21, N = 3
97.81
Core i3 4130
SE +/- 0.41, N = 3
119.94
30
60
90
120
150
1. (CC) gcc options: -lpthread

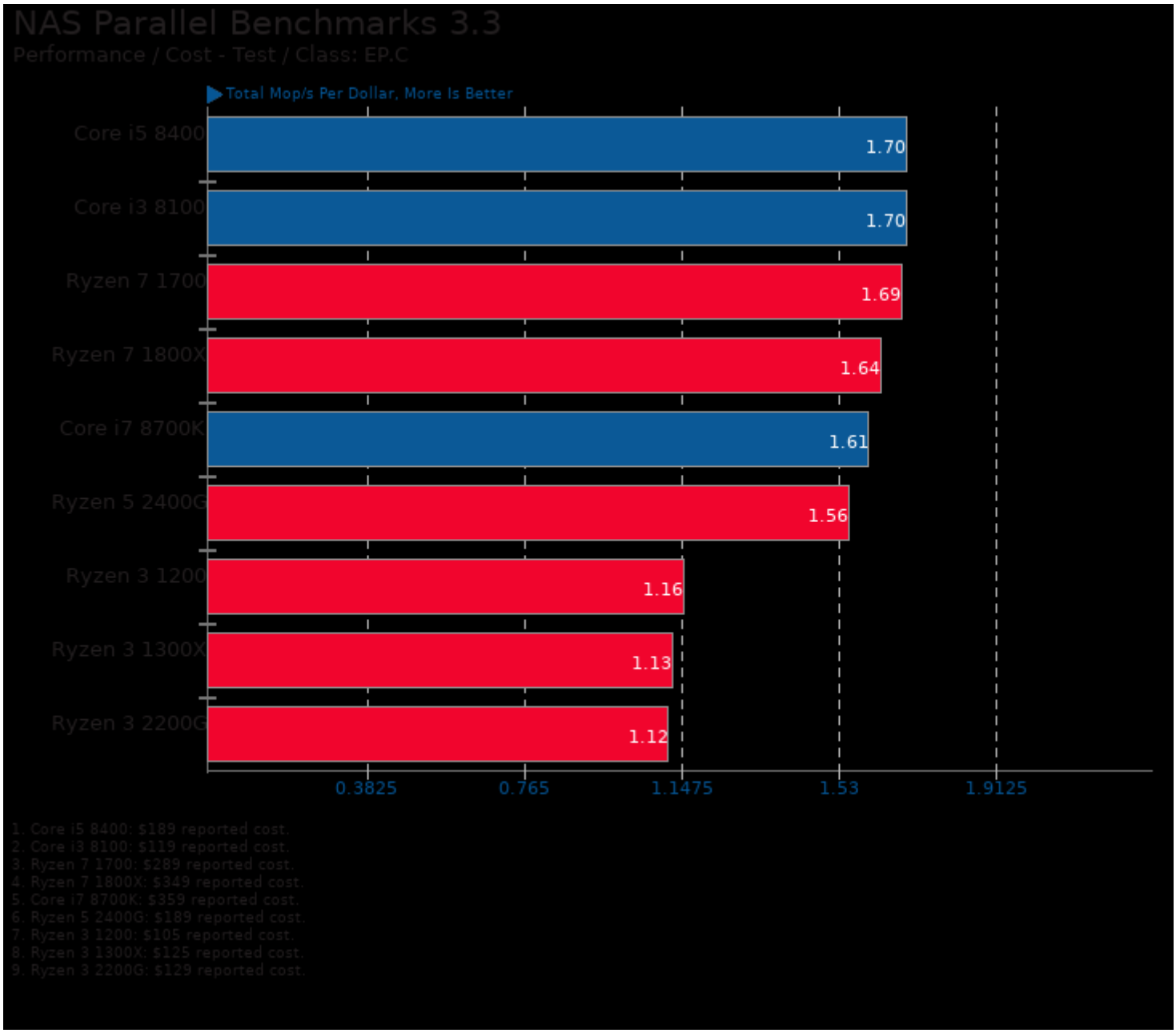

OpenSSL 1.1.0f
RSA 4096-bit Performance
Signs Per Second, More Is Better
Core i7 8700K
SE +/- 1.48, N = 3
1979.57
Core i5 8400
SE +/- 0.36, N = 3
1671.20
Ryzen 7 1800X
SE +/- 1.09, N = 3
1592.87
Ryzen 7 1700
SE +/- 0.78, N = 3
1380.13
Core i7 7740X
SE +/- 20.41, N = 3
1312.90
Core i5 7600K
SE +/- 18.27, N = 3
1147.73
Core i5 6600K
SE +/- 0.03, N = 3
1143.33
Core i3 8100
SE +/- 12.97, N = 3
1042.83
Core i5 6500
SE +/- 12.36, N = 3
942.73
Ryzen 5 2400G
SE +/- 9.70, N = 3
793.80
Ryzen 3 2200G
SE +/- 4.62, N = 3
734.20
Ryzen 3 1300X
SE +/- 18.43, N = 6
710.53
FX-8350
SE +/- 0.56, N = 3
705.20
Core i7 4770K
SE +/- 0.20, N = 3
689.30
Core i5 4670
SE +/- 0.83, N = 3
645.10
Core i3 7100
SE +/- 1.07, N = 3
597.13
Core i5 3470
SE +/- 8.23, N = 6
499.23
A10-7870K
SE +/- 1.05, N = 3
339.70
Core i3 4130
SE +/- 0.03, N = 3
308.97
A10-7800
SE +/- 1.70, N = 3
299.73
400
800
1200
1600
2000
1. (CC) gcc options: -O3 -pthread -m64 -lssl -lcrypto -ldl

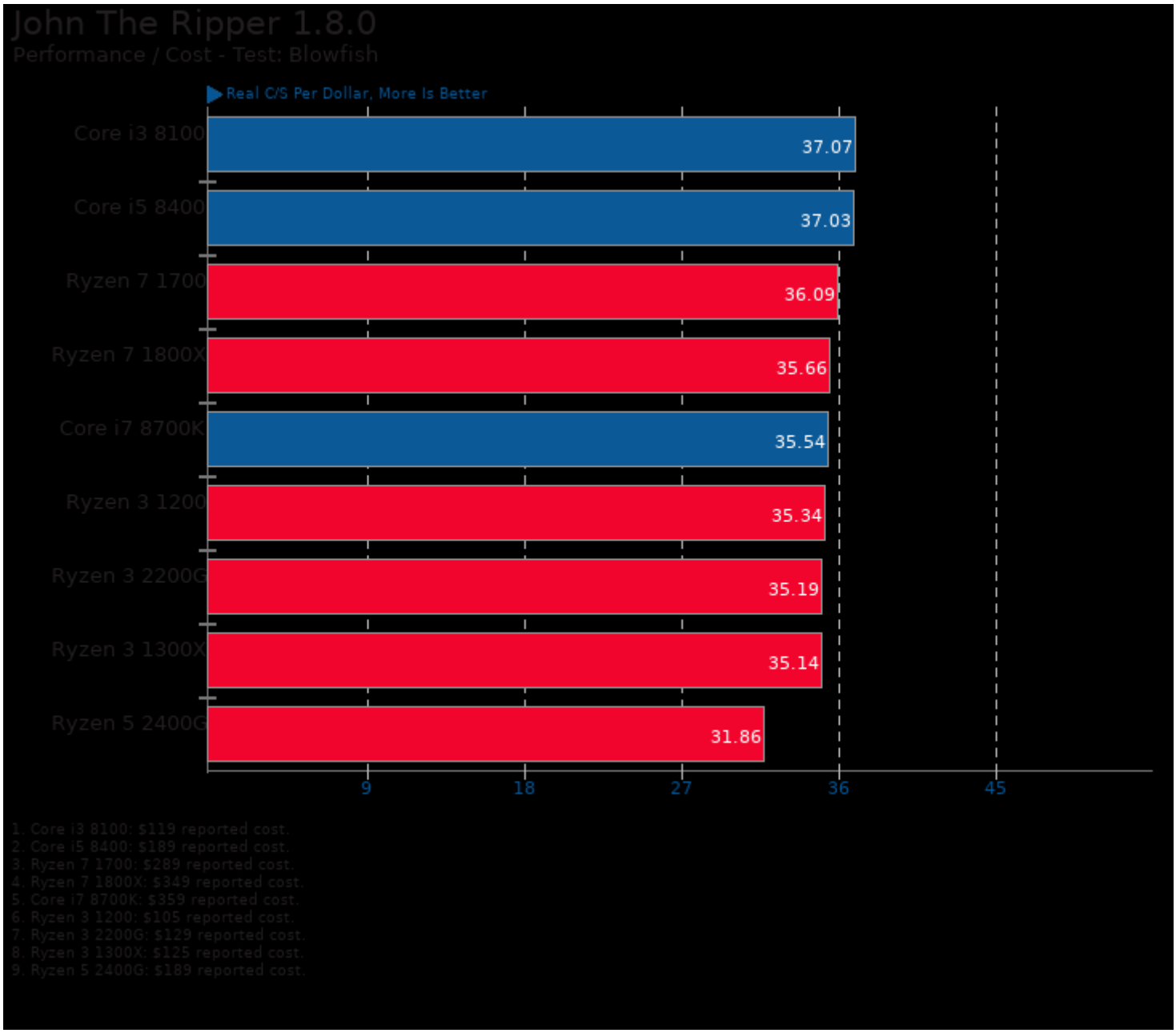

Java JMH
Throughput
Ops/s, More Is Better
Core i7 8700K
25756200607.80
Core i5 8400
22775463201.25
Core i7 7740X
17920802344.24
Core i5 7600K
15983591764.18
Core i5 6600K
15582092811.13
Core i7 4770K
15499195578.84
Ryzen 7 1800X
14780854841.43
Core i3 8100
14382333764.73
Core i5 4670
14337275794.99
Core i5 6500
13187679149.72
Ryzen 7 1700
12783688167.02
Core i5 3470
12391166252.28
FX-8350
8056296946.04
Core i3 7100
7790129336.23
Ryzen 5 2400G
7405453444.91
Ryzen 3 2200G
7385107172.34
Ryzen 3 1300X
7169110974.22
Core i3 4130
6739708280.86
Ryzen 3 1200
6174078042.82
A10-7870K
3894123975.29
A10-7800
3487059908.24
6000M
12000M
18000M
24000M
30000M

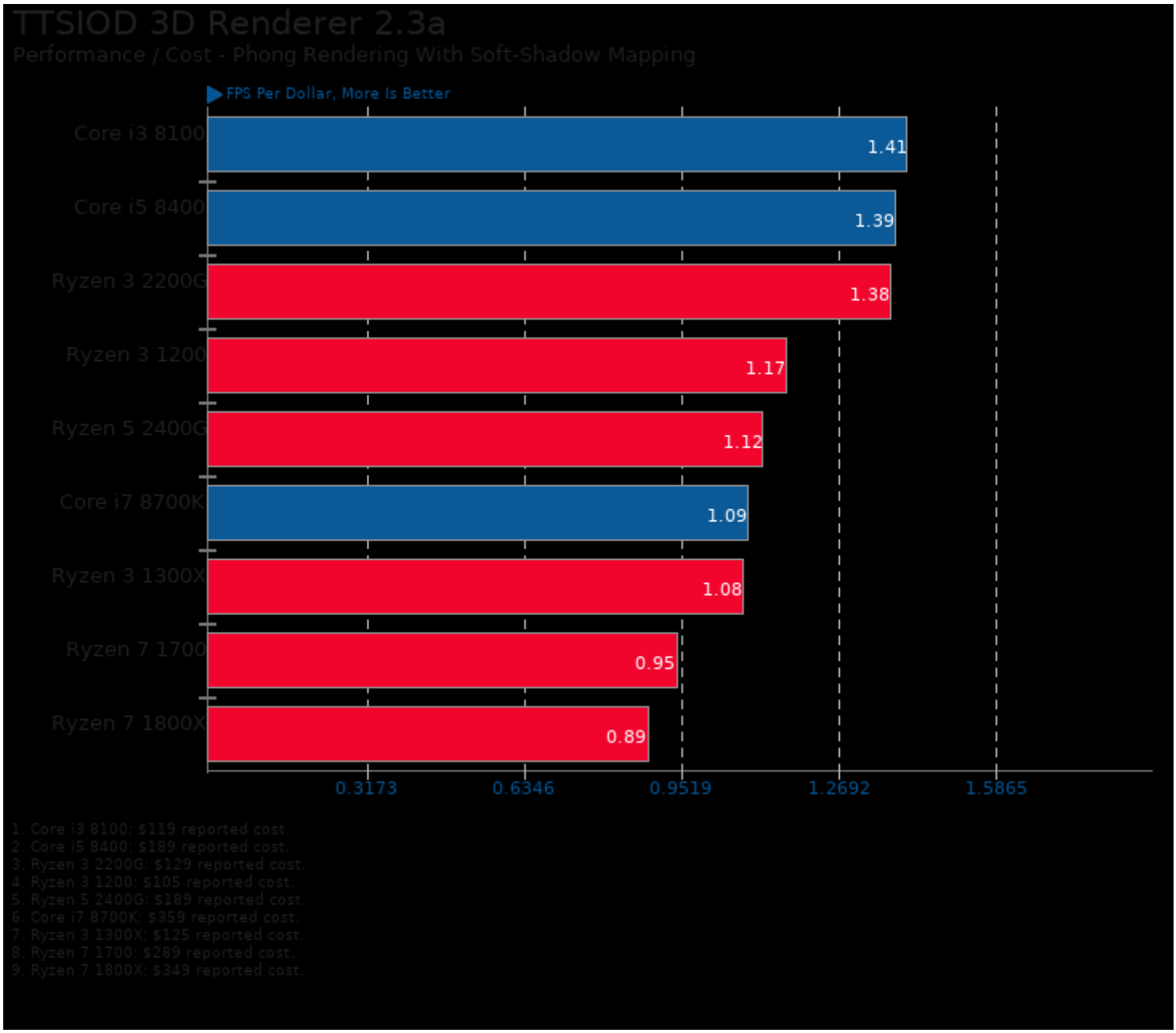

PyBench 2008-08-14
Total For Average Test Times
Milliseconds, Fewer Is Better
Core i7 8700K
SE +/- 1.00, N = 3
1031
Core i7 7740X
SE +/- 0.58, N = 3
1075
Core i5 7600K
1149
Core i5 8400
SE +/- 2.73, N = 3
1209
Core i3 7100
SE +/- 1.15, N = 3
1237
Core i5 6600K
SE +/- 0.88, N = 3
1239
Core i3 8100
SE +/- 1.00, N = 3
1340
Core i5 6500
SE +/- 1.15, N = 3
1342
Core i7 4770K
SE +/- 1.53, N = 3
1356
Core i5 4670
1390
Ryzen 7 1800X
SE +/- 3.21, N = 3
1395
Ryzen 5 2400G
SE +/- 2.03, N = 3
1458
Ryzen 3 1300X
SE +/- 2.91, N = 3
1498
Ryzen 7 1700
SE +/- 1.45, N = 3
1518
Ryzen 3 2200G
SE +/- 7.64, N = 3
1547
Core i3 4130
SE +/- 2.73, N = 3
1565
Ryzen 3 1200
SE +/- 0.58, N = 3
1655
Core i5 3470
SE +/- 4.04, N = 3
1723
A10-7870K
SE +/- 5.00, N = 3
2028
FX-8350
SE +/- 1.53, N = 3
2048
A10-7800
SE +/- 3.53, N = 3
2264
500
1000
1500
2000
2500

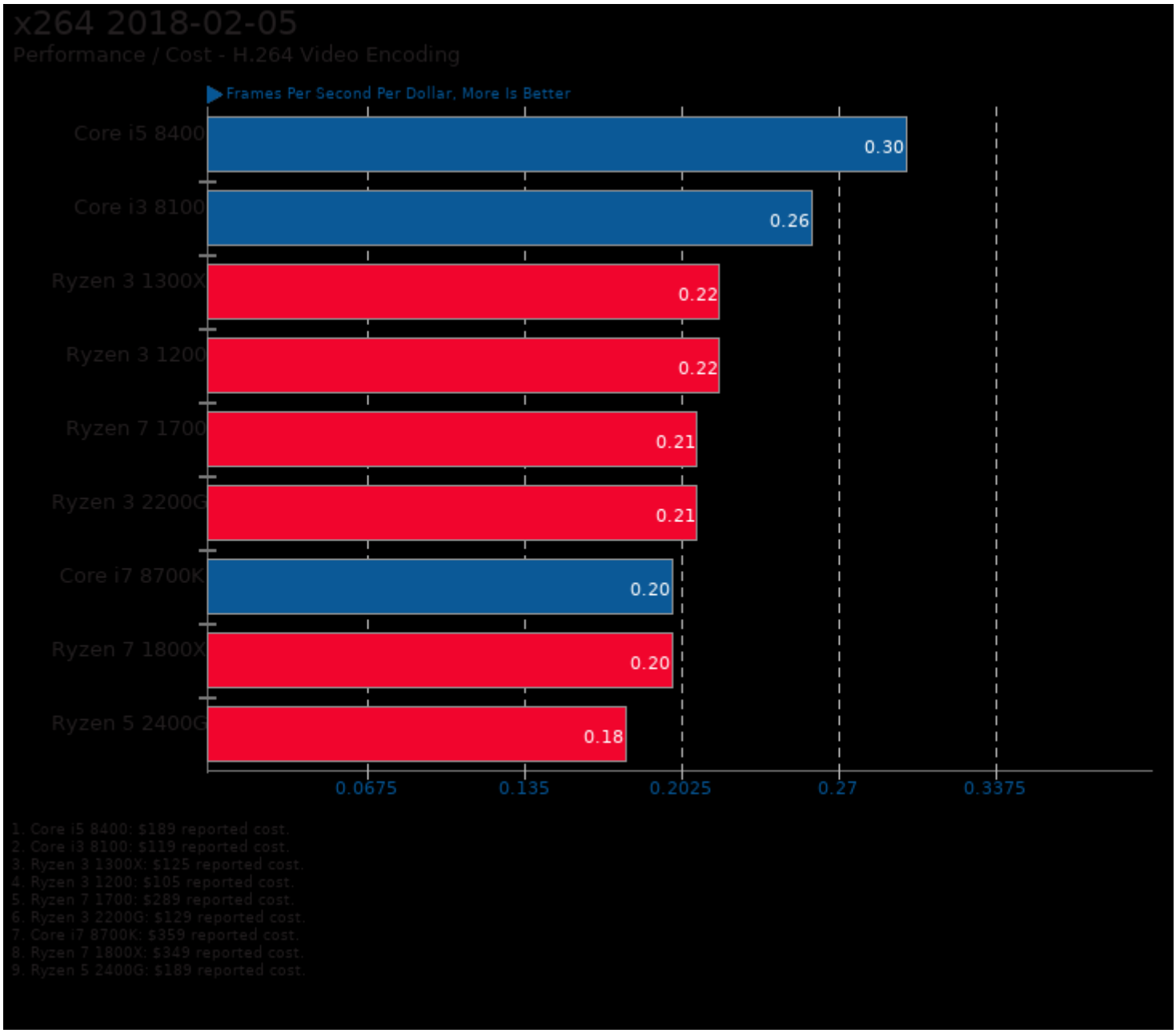

NGINX Benchmark 1.9.9
Static Web Page Serving
Requests Per Second, More Is Better
Core i7 7740X
SE +/- 298.62, N = 3
45475.85
Core i7 8700K
SE +/- 745.48, N = 4
44915.57
Core i5 8400
SE +/- 126.58, N = 3
40533.40
Core i5 7600K
SE +/- 373.36, N = 3
40483.44
Core i5 6600K
SE +/- 170.41, N = 3
39233.65
Core i3 7100
SE +/- 78.04, N = 3
36757.07
Core i7 4770K
SE +/- 83.02, N = 3
36373.84
Core i3 8100
SE +/- 120.15, N = 3
36311.06
Core i5 4670
SE +/- 35.71, N = 3
35671.68
Core i5 6500
SE +/- 92.35, N = 3
34799.80
Ryzen 3 2200G
33621.45
Ryzen 5 2400G
33449.57
Ryzen 7 1800X
SE +/- 25.31, N = 3
32963.72
Ryzen 3 1300X
SE +/- 37.17, N = 3
32633.19
Ryzen 7 1700
SE +/- 208.54, N = 3
29819.82
Ryzen 3 1200
SE +/- 277.67, N = 3
29144.73
A10-7870K
SE +/- 140.71, N = 3
21358.86
Core i5 3470
SE +/- 28.82, N = 3
20761.85
Core i3 4130
SE +/- 355.83, N = 3
20655.28
FX-8350
SE +/- 61.06, N = 3
19627.76
A10-7800
SE +/- 77.47, N = 3
19113.27
10K
20K
30K
40K
50K
1. (CC) gcc options: -lpthread -lcrypt -lcrypto -lz -O3 -march=native

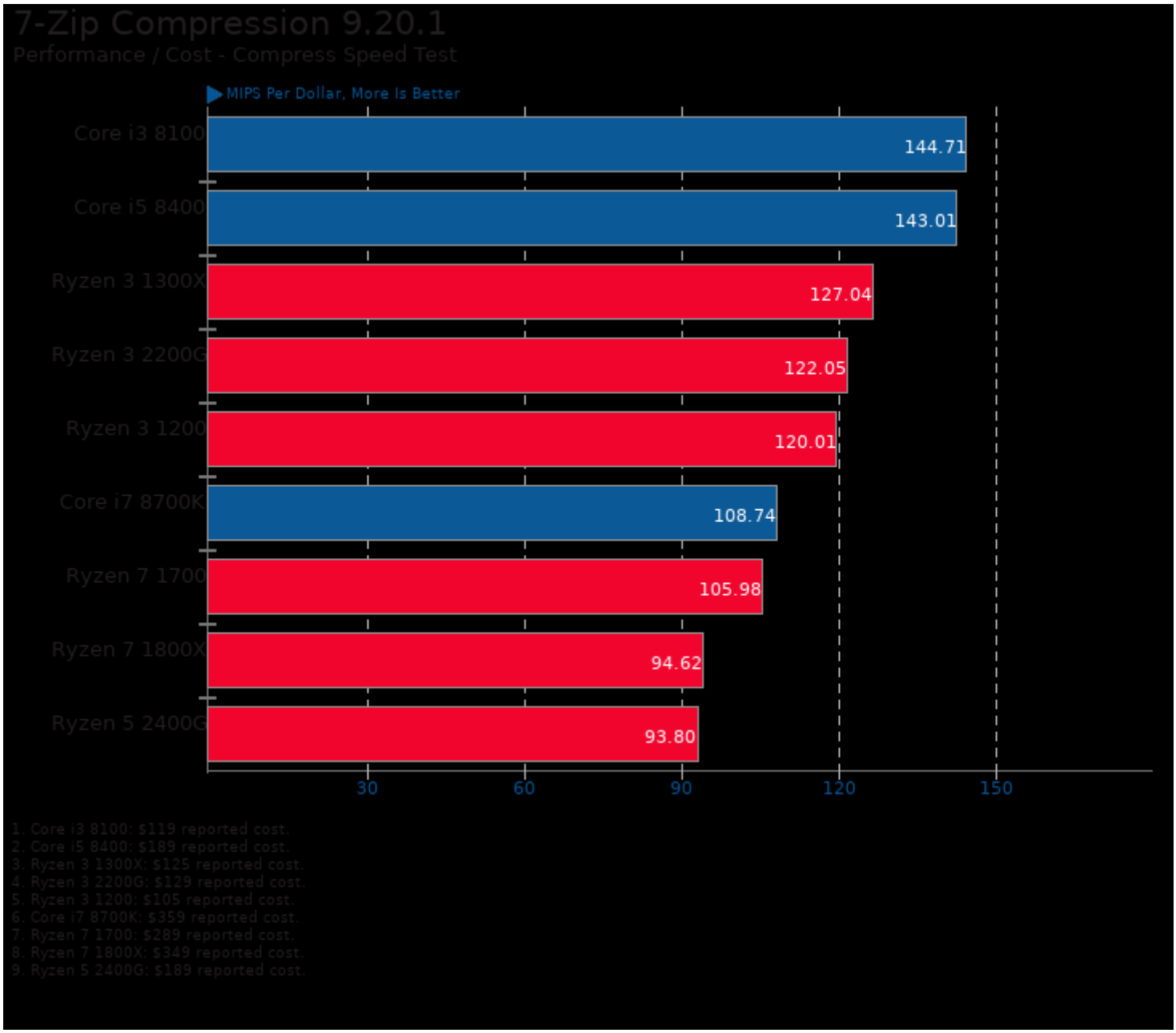

PHPBench 0.8.1
PHP Benchmark Suite
Score, More Is Better
Core i7 8700K
SE +/- 4525.01, N = 3
678465
Core i7 7740X
SE +/- 6473.88, N = 3
644293
Core i5 7600K
SE +/- 555.65, N = 3
616281
Core i5 8400
SE +/- 297.41, N = 3
588730
Core i5 6600K
SE +/- 1124.12, N = 3
571880
Core i3 7100
SE +/- 4297.10, N = 3
561562
Core i3 8100
SE +/- 417.97, N = 3
531584
Core i5 6500
SE +/- 1590.98, N = 3
526913
Core i5 4670
SE +/- 737.38, N = 3
512718
Core i7 4770K
SE +/- 9204.28, N = 3
506177
Ryzen 7 1800X
SE +/- 6930.39, N = 4
431108
Core i3 4130
SE +/- 8590.92, N = 6
429258
Ryzen 5 2400G
SE +/- 3626.25, N = 3
413882
Ryzen 3 1300X
SE +/- 2301.94, N = 3
405418
Ryzen 7 1700
SE +/- 2259.34, N = 3
395609
Ryzen 3 2200G
SE +/- 5439.02, N = 3
390105
Ryzen 3 1200
SE +/- 1430.99, N = 3
365419
Core i5 3470
SE +/- 3311.57, N = 3
362807
FX-8350
SE +/- 1729.48, N = 3
345560
A10-7870K
SE +/- 3177.90, N = 3
336831
A10-7800
SE +/- 3008.27, N = 3
303743
150K
300K
450K
600K
750K

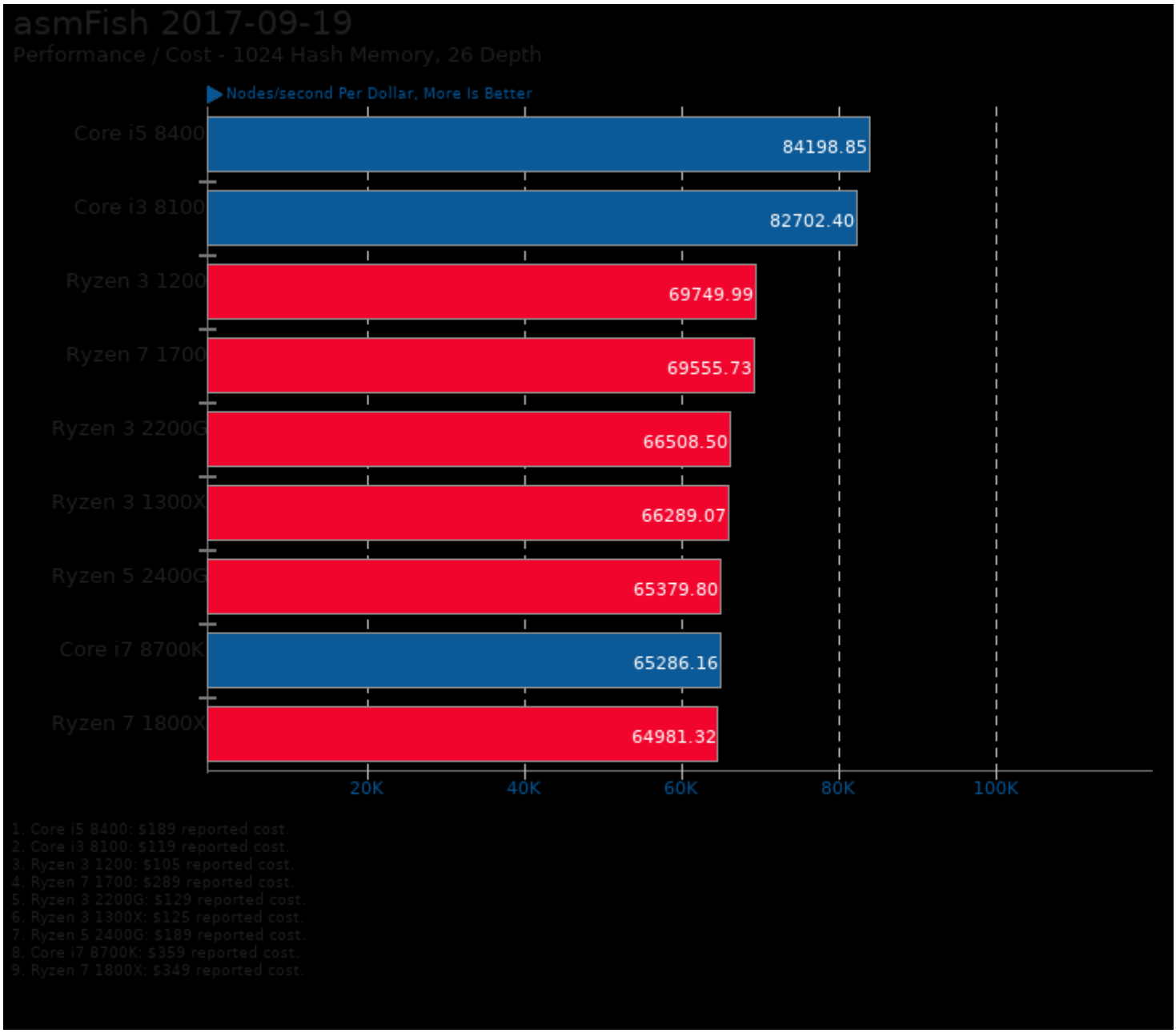

NAS Parallel Benchmarks 3.3
Performance / Cost - Test / Class: EP.C
Total Mop/s Per Dollar, More Is Better
Core i5 8400
1.70
Core i3 8100
1.70
Ryzen 7 1700
1.69
Ryzen 7 1800X
1.64
Core i7 8700K
1.61
Ryzen 5 2400G
1.56
Ryzen 3 1200
1.16
Ryzen 3 1300X
1.13
Ryzen 3 2200G
1.12
0.3825
0.765
1.1475
1.53
1.9125
1. Core i5 8400: $189 reported cost.
2. Core i3 8100: $119 reported cost.
3. Ryzen 7 1700: $289 reported cost.
4. Ryzen 7 1800X: $349 reported cost.
5. Core i7 8700K: $359 reported cost.
6. Ryzen 5 2400G: $189 reported cost.
7. Ryzen 3 1200: $105 reported cost.
8. Ryzen 3 1300X: $125 reported cost.
9. Ryzen 3 2200G: $129 reported cost.

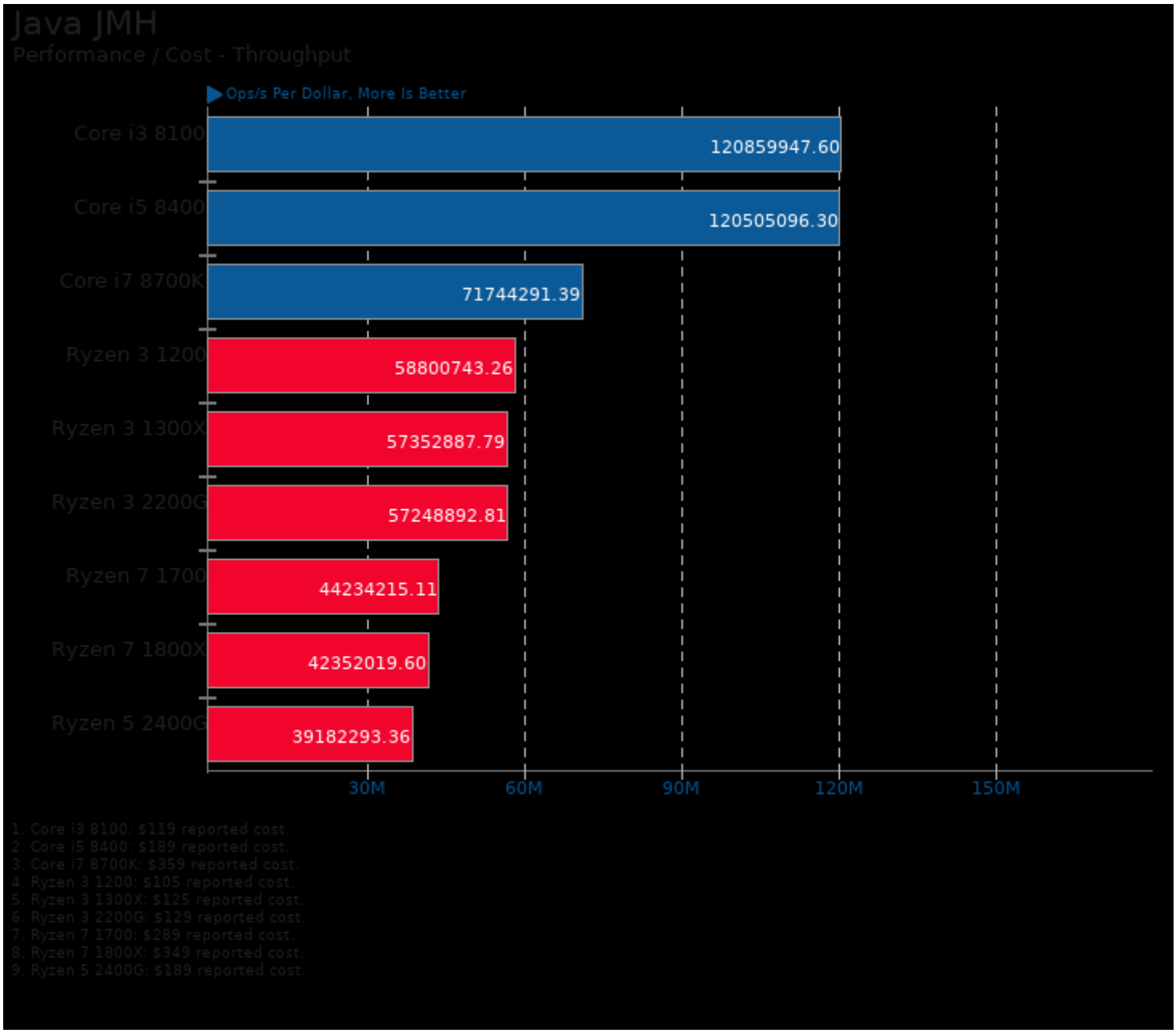

John The Ripper 1.8.0
Performance / Cost - Test: Blowfish
Real C/S Per Dollar, More Is Better
Core i3 8100
37.07
Core i5 8400
37.03
Ryzen 7 1700
36.09
Ryzen 7 1800X
35.66
Core i7 8700K
35.54
Ryzen 3 1200
35.34
Ryzen 3 2200G
35.19
Ryzen 3 1300X
35.14
Ryzen 5 2400G
31.86
9
18
27
36
45
1. Core i3 8100: $119 reported cost.
2. Core i5 8400: $189 reported cost.
3. Ryzen 7 1700: $289 reported cost.
4. Ryzen 7 1800X: $349 reported cost.
5. Core i7 8700K: $359 reported cost.
6. Ryzen 3 1200: $105 reported cost.
7. Ryzen 3 2200G: $129 reported cost.
8. Ryzen 3 1300X: $125 reported cost.
9. Ryzen 5 2400G: $189 reported cost.

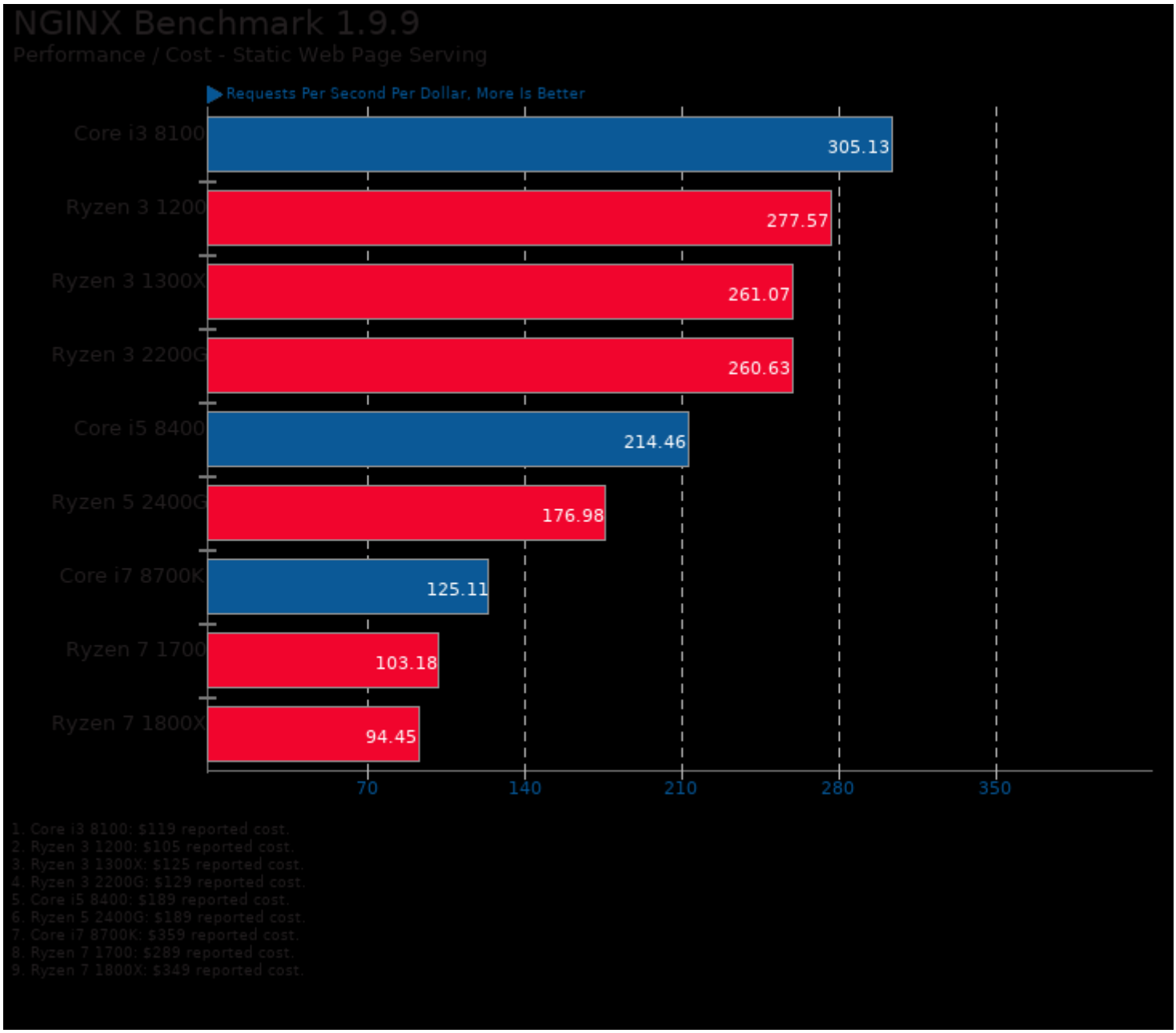

TTSIOD 3D Renderer 2.3a
Performance / Cost - Phong Rendering With Soft-Shadow Mapping
FPS Per Dollar, More Is Better
Core i3 8100
1.41
Core i5 8400
1.39
Ryzen 3 2200G
1.38
Ryzen 3 1200
1.17
Ryzen 5 2400G
1.12
Core i7 8700K
1.09
Ryzen 3 1300X
1.08
Ryzen 7 1700
0.95
Ryzen 7 1800X
0.89
0.3173
0.6346
0.9519
1.2692
1.5865
1. Core i3 8100: $119 reported cost.
2. Core i5 8400: $189 reported cost.
3. Ryzen 3 2200G: $129 reported cost.
4. Ryzen 3 1200: $105 reported cost.
5. Ryzen 5 2400G: $189 reported cost.
6. Core i7 8700K: $359 reported cost.
7. Ryzen 3 1300X: $125 reported cost.
8. Ryzen 7 1700: $289 reported cost.
9. Ryzen 7 1800X: $349 reported cost.

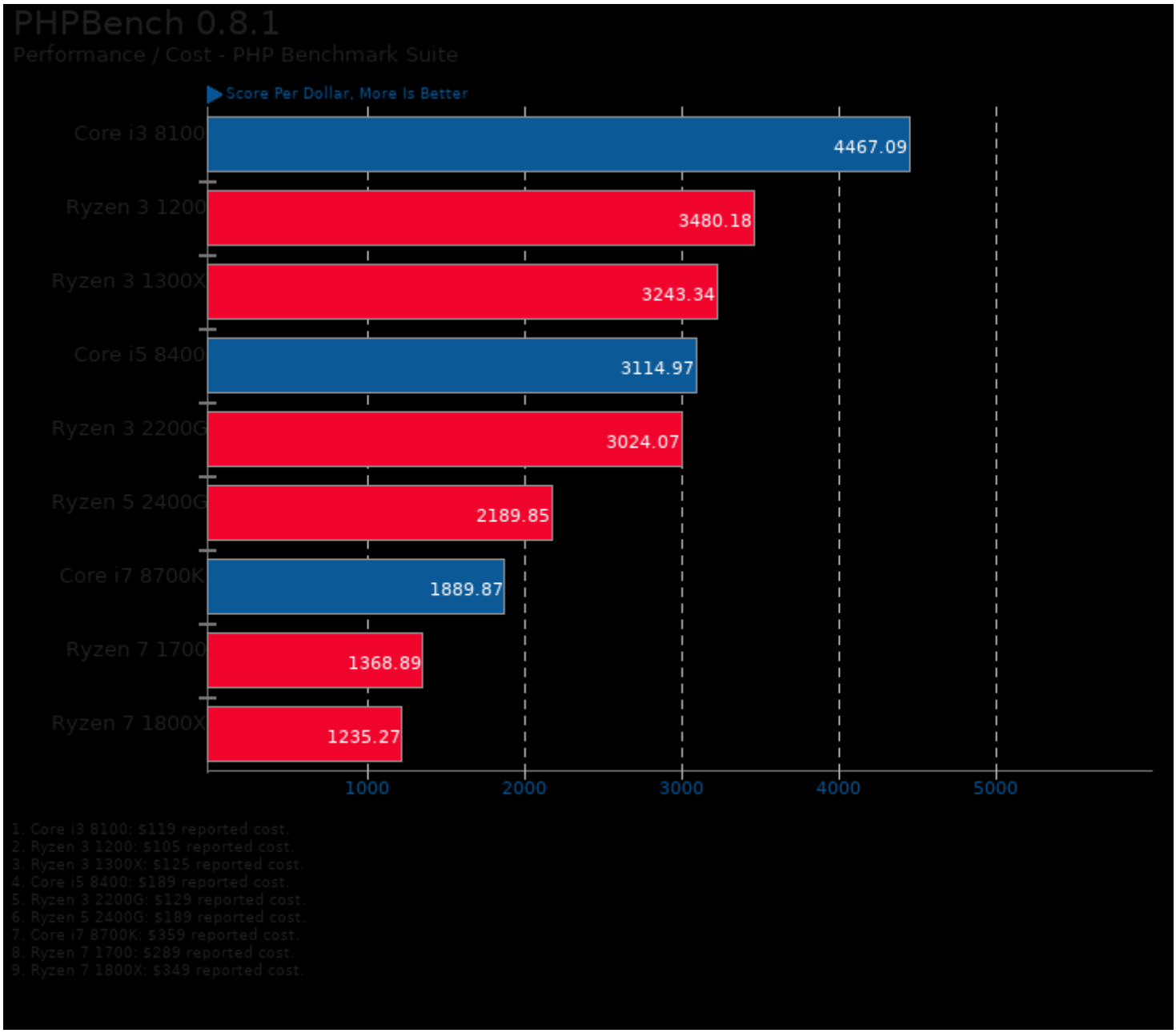

x264 2018-02-05
Performance / Cost - H.264 Video Encoding
Frames Per Second Per Dollar, More Is Better
Core i5 8400
0.30
Core i3 8100
0.26
Ryzen 3 1300X
0.22
Ryzen 3 1200
0.22
Ryzen 7 1700
0.21
Ryzen 3 2200G
0.21
Core i7 8700K
0.20
Ryzen 7 1800X
0.20
Ryzen 5 2400G
0.18
0.0675
0.135
0.2025
0.27
0.3375
1. Core i5 8400: $189 reported cost.
2. Core i3 8100: $119 reported cost.
3. Ryzen 3 1300X: $125 reported cost.
4. Ryzen 3 1200: $105 reported cost.
5. Ryzen 7 1700: $289 reported cost.
6. Ryzen 3 2200G: $129 reported cost.
7. Core i7 8700K: $359 reported cost.
8. Ryzen 7 1800X: $349 reported cost.
9. Ryzen 5 2400G: $189 reported cost.

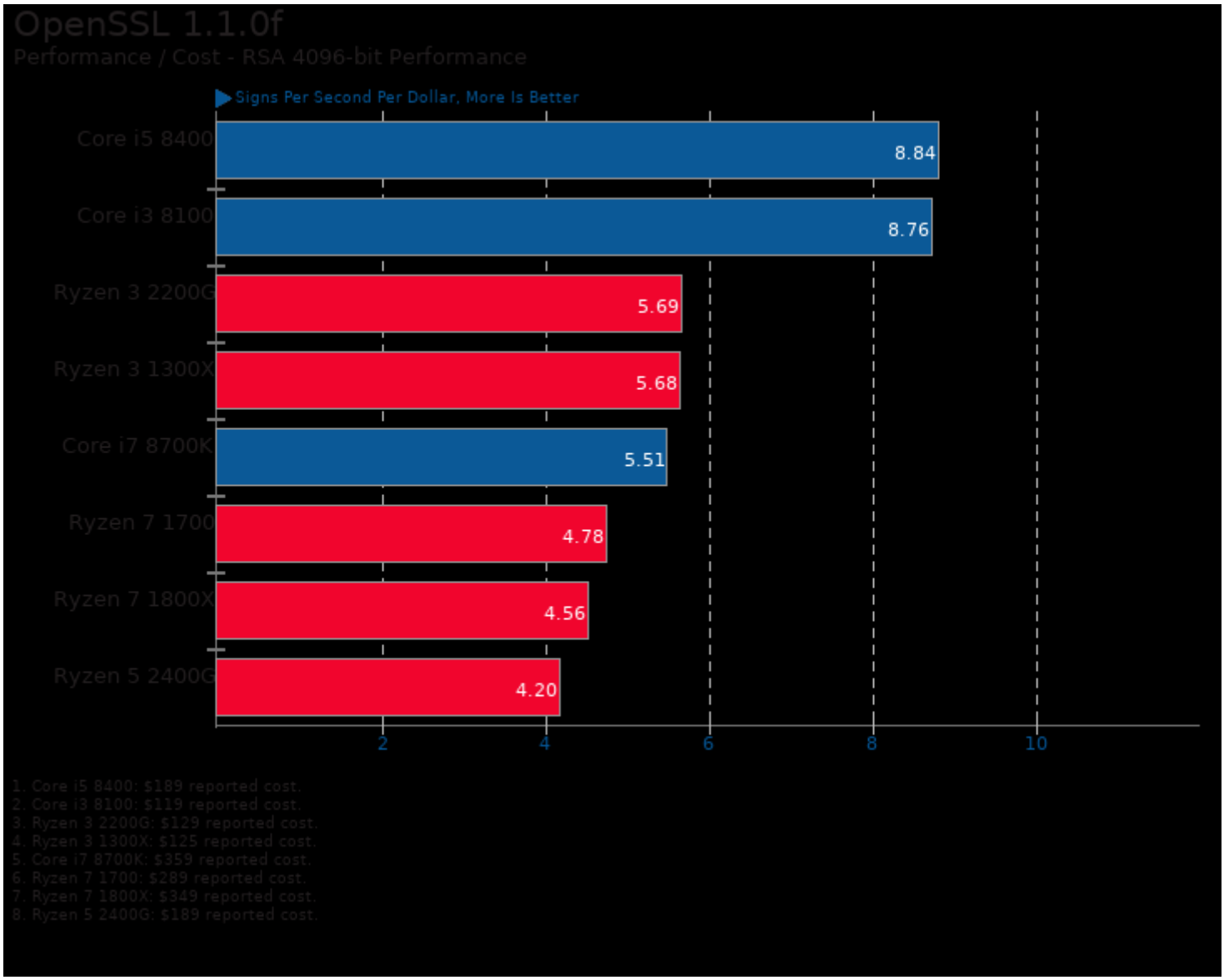

7-Zip Compression 9.20.1
Performance / Cost - Compress Speed Test
MIPS Per Dollar, More Is Better
Core i3 8100
144.71
Core i5 8400
143.01
Ryzen 3 1300X
127.04
Ryzen 3 2200G
122.05
Ryzen 3 1200
120.01
Core i7 8700K
108.74
Ryzen 7 1700
105.98
Ryzen 7 1800X
94.62
Ryzen 5 2400G
93.80
30
60
90
120
150
1. Core i3 8100: $119 reported cost.
2. Core i5 8400: $189 reported cost.
3. Ryzen 3 1300X: $125 reported cost.
4. Ryzen 3 2200G: $129 reported cost.
5. Ryzen 3 1200: $105 reported cost.
6. Core i7 8700K: $359 reported cost.
7. Ryzen 7 1700: $289 reported cost.
8. Ryzen 7 1800X: $349 reported cost.
9. Ryzen 5 2400G: $189 reported cost.


asmFish 2017-09-19
Performance / Cost - 1024 Hash Memory, 26 Depth
Nodes/second Per Dollar, More Is Better
Core i5 8400
84198.85
Core i3 8100
82702.40
Ryzen 3 1200
69749.99
Ryzen 7 1700
69555.73
Ryzen 3 2200G
66508.50
Ryzen 3 1300X
66289.07
Ryzen 5 2400G
65379.80
Core i7 8700K
65286.16
Ryzen 7 1800X
64981.32
20K
40K
60K
80K
100K
1. Core i5 8400: $189 reported cost.
2. Core i3 8100: $119 reported cost.
3. Ryzen 3 1200: $105 reported cost.
4. Ryzen 7 1700: $289 reported cost.
5. Ryzen 3 2200G: $129 reported cost.
6. Ryzen 3 1300X: $125 reported cost.
7. Ryzen 5 2400G: $189 reported cost.
8. Core i7 8700K: $359 reported cost.
9. Ryzen 7 1800X: $349 reported cost.

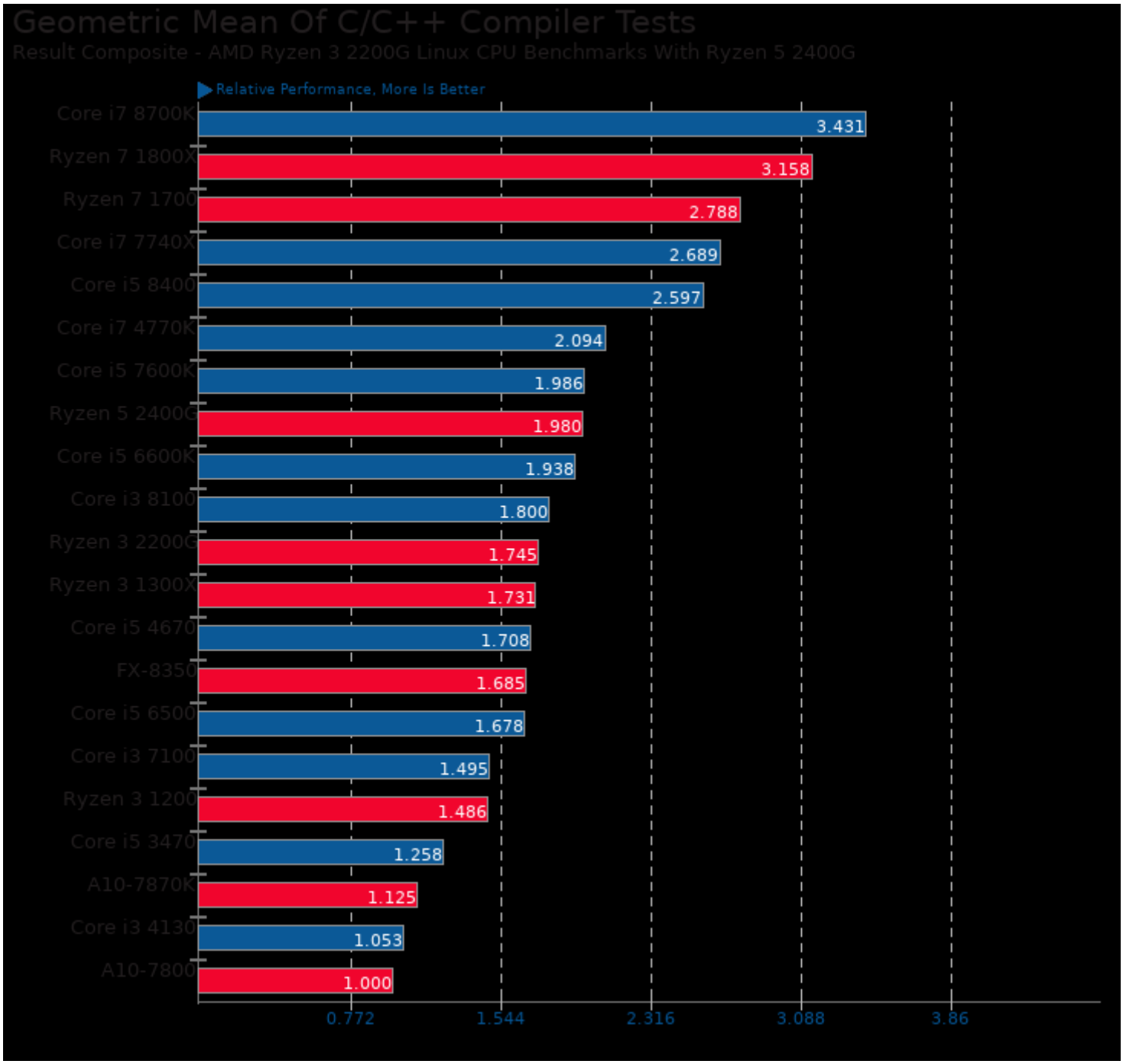

Java JMH
Performance / Cost - Throughput
Ops/s Per Dollar, More Is Better
Core i3 8100
120859947.60
Core i5 8400
120505096.30
Core i7 8700K
71744291.39
Ryzen 3 1200
58800743.26
Ryzen 3 1300X
57352887.79
Ryzen 3 2200G
57248892.81
Ryzen 7 1700
44234215.11
Ryzen 7 1800X
42352019.60
Ryzen 5 2400G
39182293.36
30M
60M
90M
120M
150M
1. Core i3 8100: $119 reported cost.
2. Core i5 8400: $189 reported cost.
3. Core i7 8700K: $359 reported cost.
4. Ryzen 3 1200: $105 reported cost.
5. Ryzen 3 1300X: $125 reported cost.
6. Ryzen 3 2200G: $129 reported cost.
7. Ryzen 7 1700: $289 reported cost.
8. Ryzen 7 1800X: $349 reported cost.
9. Ryzen 5 2400G: $189 reported cost.


NGINX Benchmark 1.9.9
Performance / Cost - Static Web Page Serving
Requests Per Second Per Dollar, More Is Better
Core i3 8100
305.13
Ryzen 3 1200
277.57
Ryzen 3 1300X
261.07
Ryzen 3 2200G
260.63
Core i5 8400
214.46
Ryzen 5 2400G
176.98
Core i7 8700K
125.11
Ryzen 7 1700
103.18
Ryzen 7 1800X
94.45
70
140
210
280
350
1. Core i3 8100: $119 reported cost.
2. Ryzen 3 1200: $105 reported cost.
3. Ryzen 3 1300X: $125 reported cost.
4. Ryzen 3 2200G: $129 reported cost.
5. Core i5 8400: $189 reported cost.
6. Ryzen 5 2400G: $189 reported cost.
7. Core i7 8700K: $359 reported cost.
8. Ryzen 7 1700: $289 reported cost.
9. Ryzen 7 1800X: $349 reported cost.

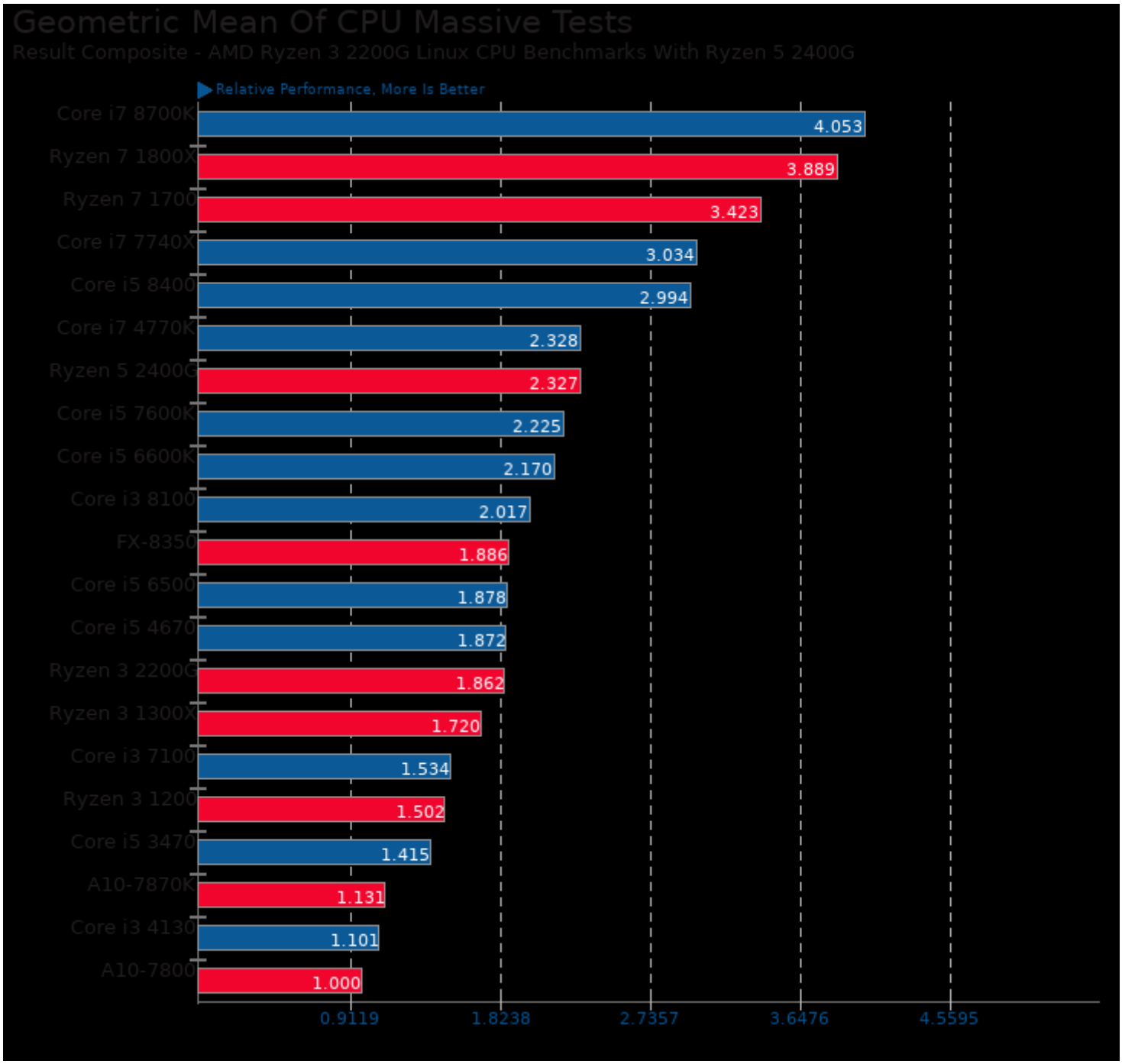

PHPBench 0.8.1
Performance / Cost - PHP Benchmark Suite
Score Per Dollar, More Is Better
Core i3 8100
4467.09
Ryzen 3 1200
3480.18
Ryzen 3 1300X
3243.34
Core i5 8400
3114.97
Ryzen 3 2200G
3024.07
Ryzen 5 2400G
2189.85
Core i7 8700K
1889.87
Ryzen 7 1700
1368.89
Ryzen 7 1800X
1235.27
1000
2000
3000
4000
5000
1. Core i3 8100: $119 reported cost.
2. Ryzen 3 1200: $105 reported cost.
3. Ryzen 3 1300X: $125 reported cost.
4. Core i5 8400: $189 reported cost.
5. Ryzen 3 2200G: $129 reported cost.
6. Ryzen 5 2400G: $189 reported cost.
7. Core i7 8700K: $359 reported cost.
8. Ryzen 7 1700: $289 reported cost.
9. Ryzen 7 1800X: $349 reported cost.


OpenSSL 1.1.0f
Performance / Cost - RSA 4096-bit Performance
Signs Per Second Per Dollar, More Is Better
Core i5 8400
8.84
Core i3 8100
8.76
Ryzen 3 2200G
5.69
Ryzen 3 1300X
5.68
Core i7 8700K
5.51
Ryzen 7 1700
4.78
Ryzen 7 1800X
4.56
Ryzen 5 2400G
4.20
2
4
6
8
10
1. Core i5 8400: $189 reported cost.
2. Core i3 8100: $119 reported cost.
3. Ryzen 3 2200G: $129 reported cost.
4. Ryzen 3 1300X: $125 reported cost.
5. Core i7 8700K: $359 reported cost.
6. Ryzen 7 1700: $289 reported cost.
7. Ryzen 7 1800X: $349 reported cost.
8. Ryzen 5 2400G: $189 reported cost.

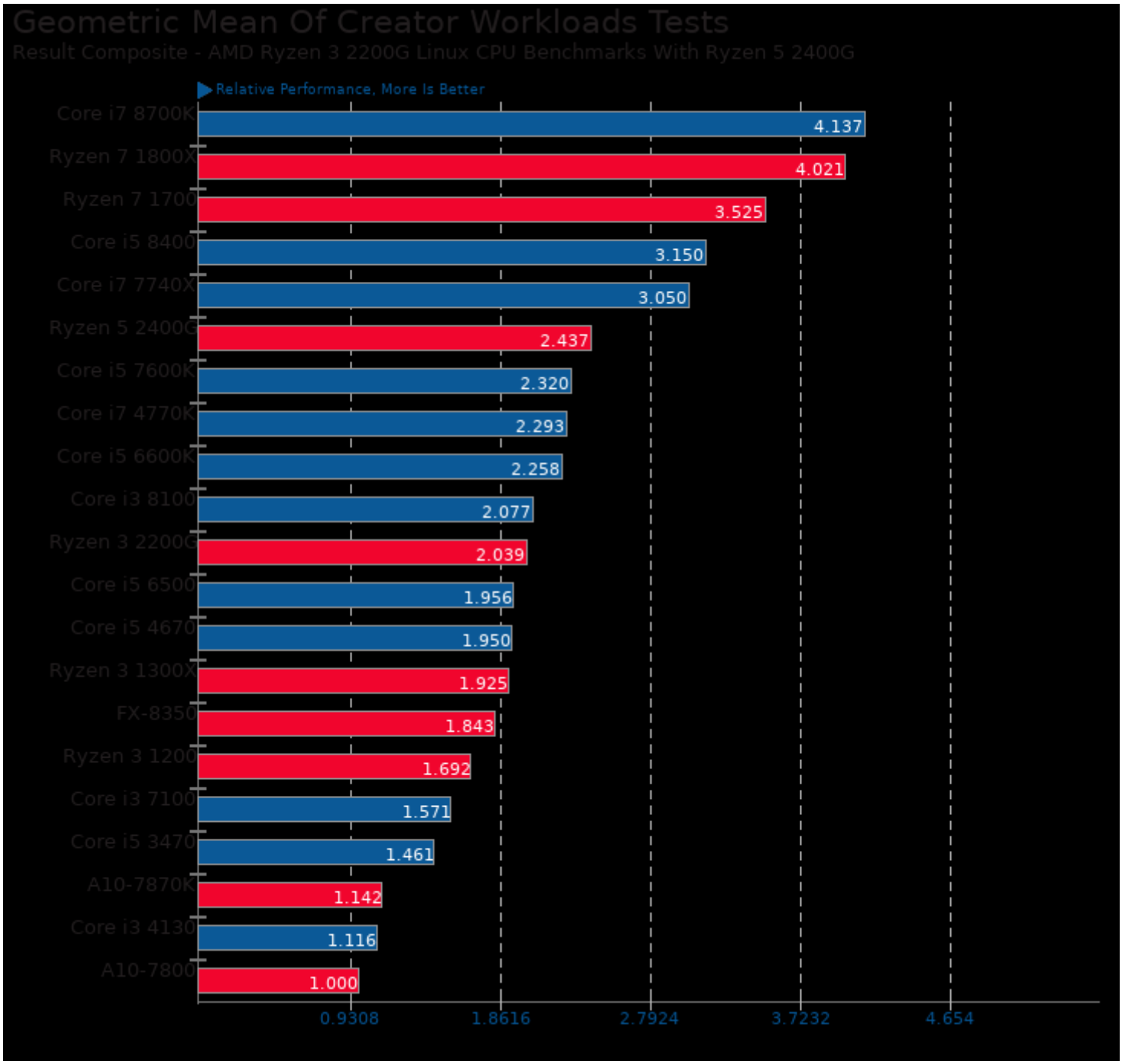
These geometric means are based upon test groupings / test suites for this result file.



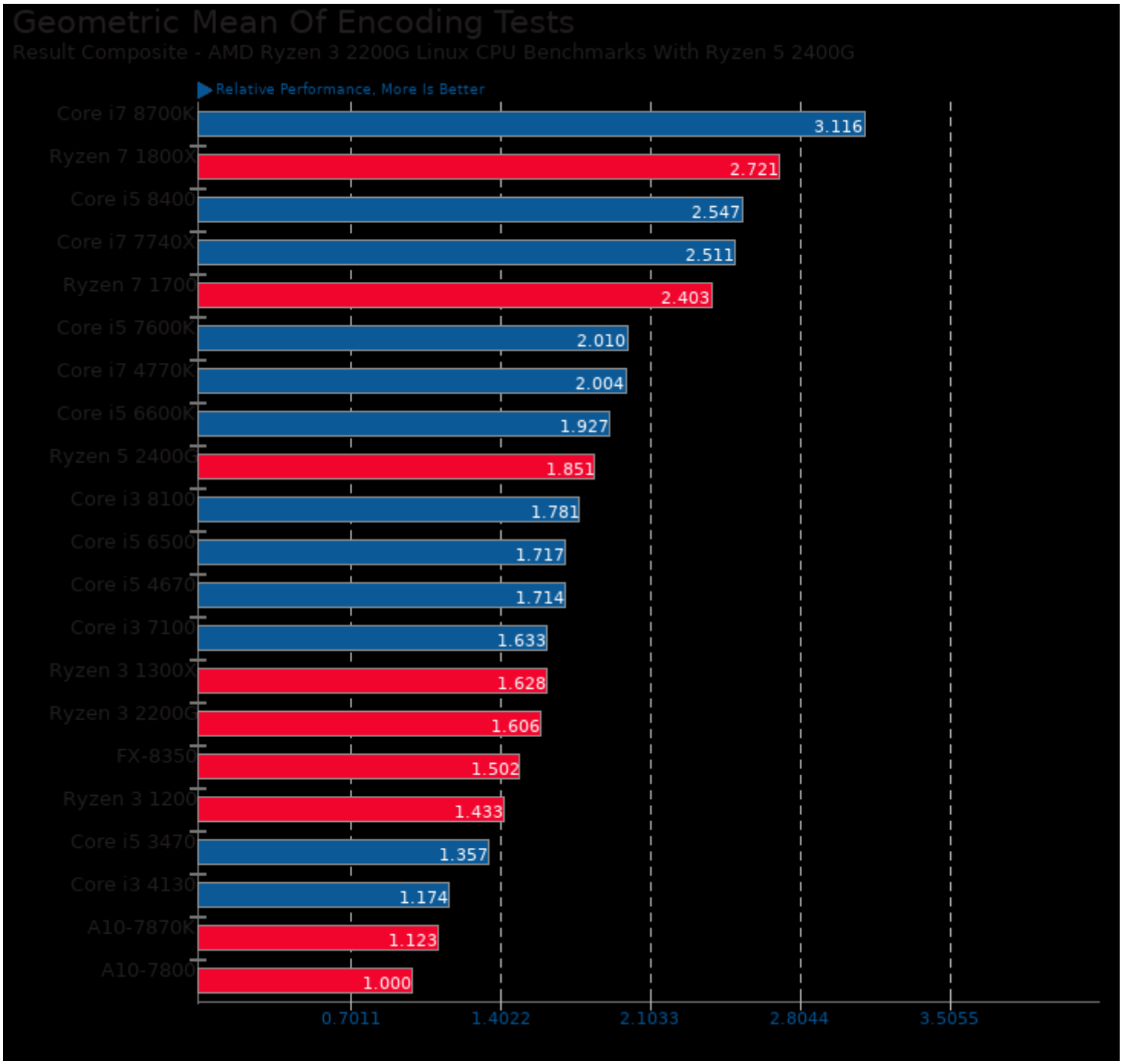
Geometric mean based upon tests: pts/mafft, pts/c-ray, pts/compress-7zip, pts/encode-mp3, pts/john-the-ripper, pts/x264, pts/openssl and pts/nginx



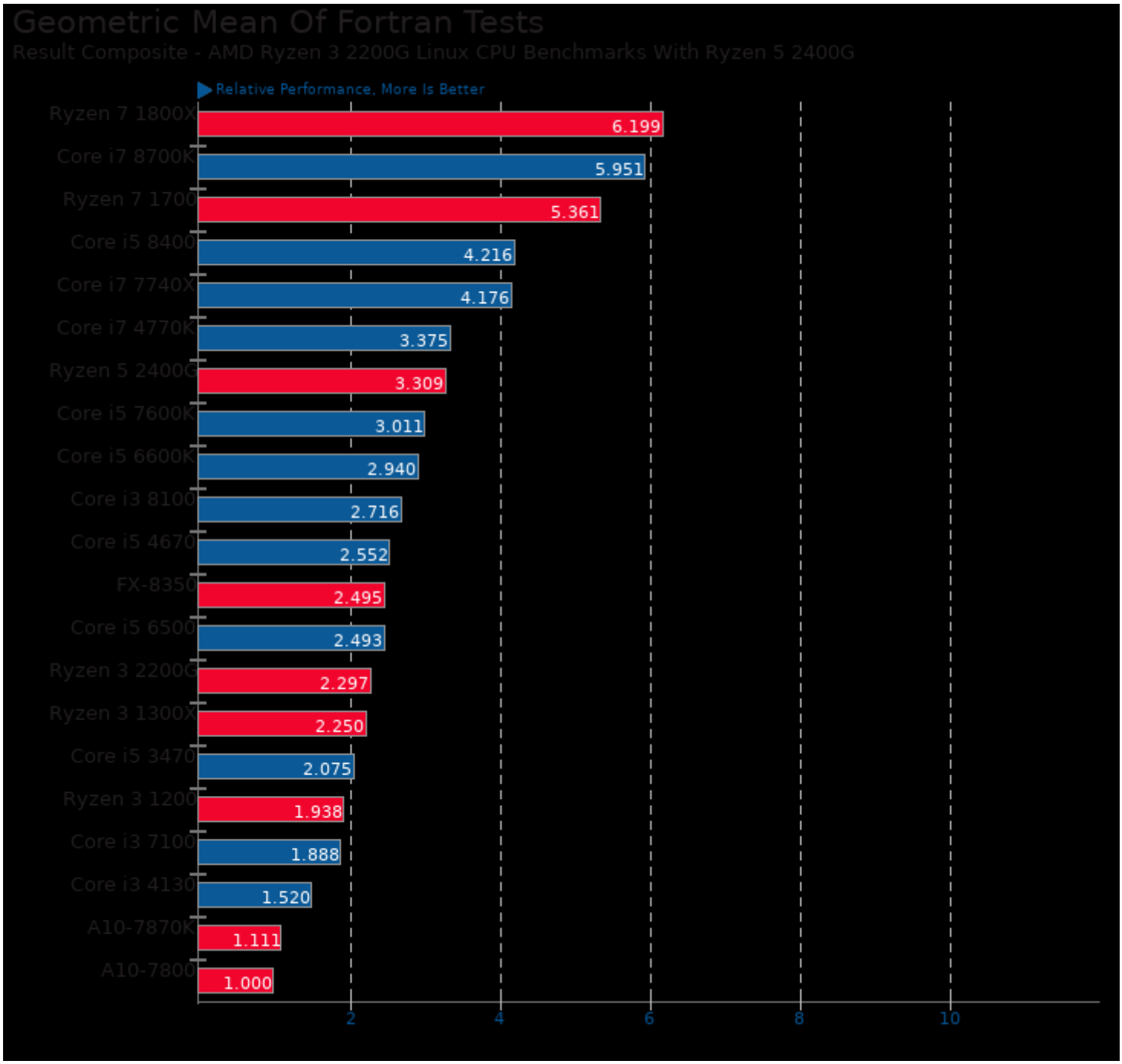
Geometric mean based upon tests: pts/asmfish, pts/build-linux-kernel, pts/c-ray, pts/compress-7zip, pts/x264, pts/encode-mp3, pts/hackbench, pts/john-the-ripper, pts/openssl, pts/mafft, pts/nero2d, pts/nginx, pts/npb, pts/parboil, pts/phpbench, pts/povray, pts/rodinia and pts/ttsiod-renderer



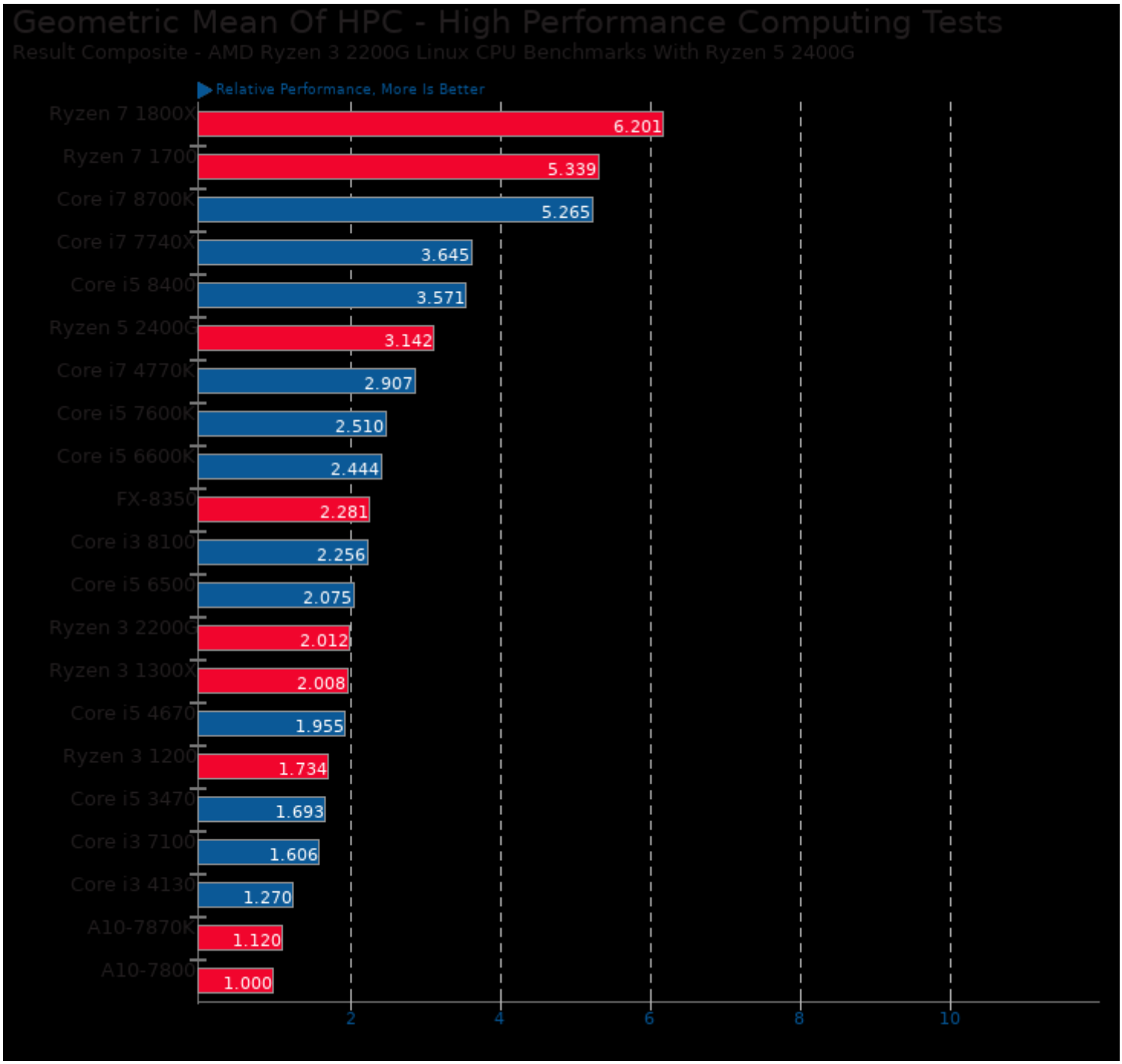
Geometric mean based upon tests: pts/c-ray, pts/povray, pts/ttsiod-renderer, pts/x264 and pts/encode-mp3



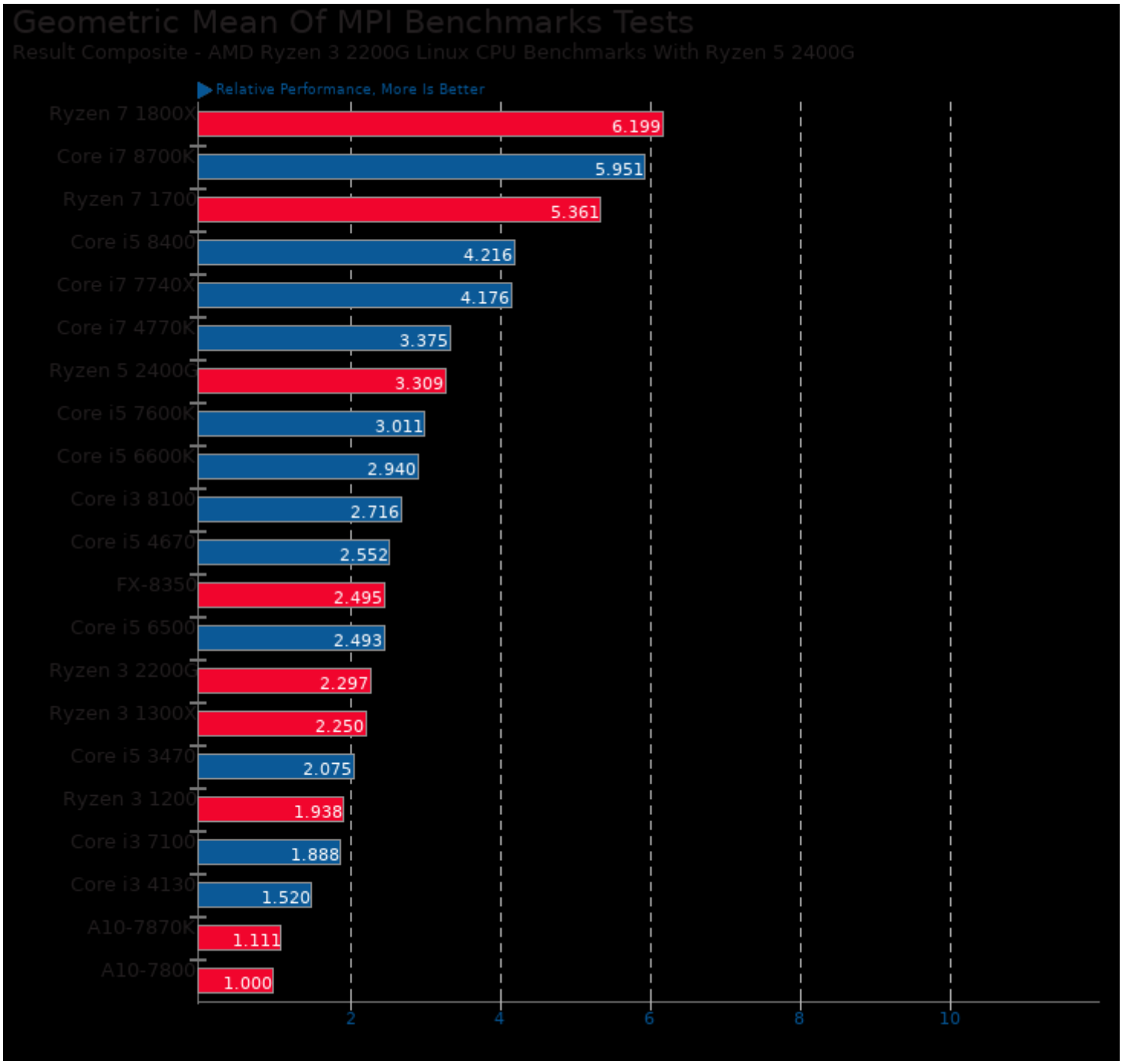
Geometric mean based upon tests: pts/encode-mp3 and pts/x264



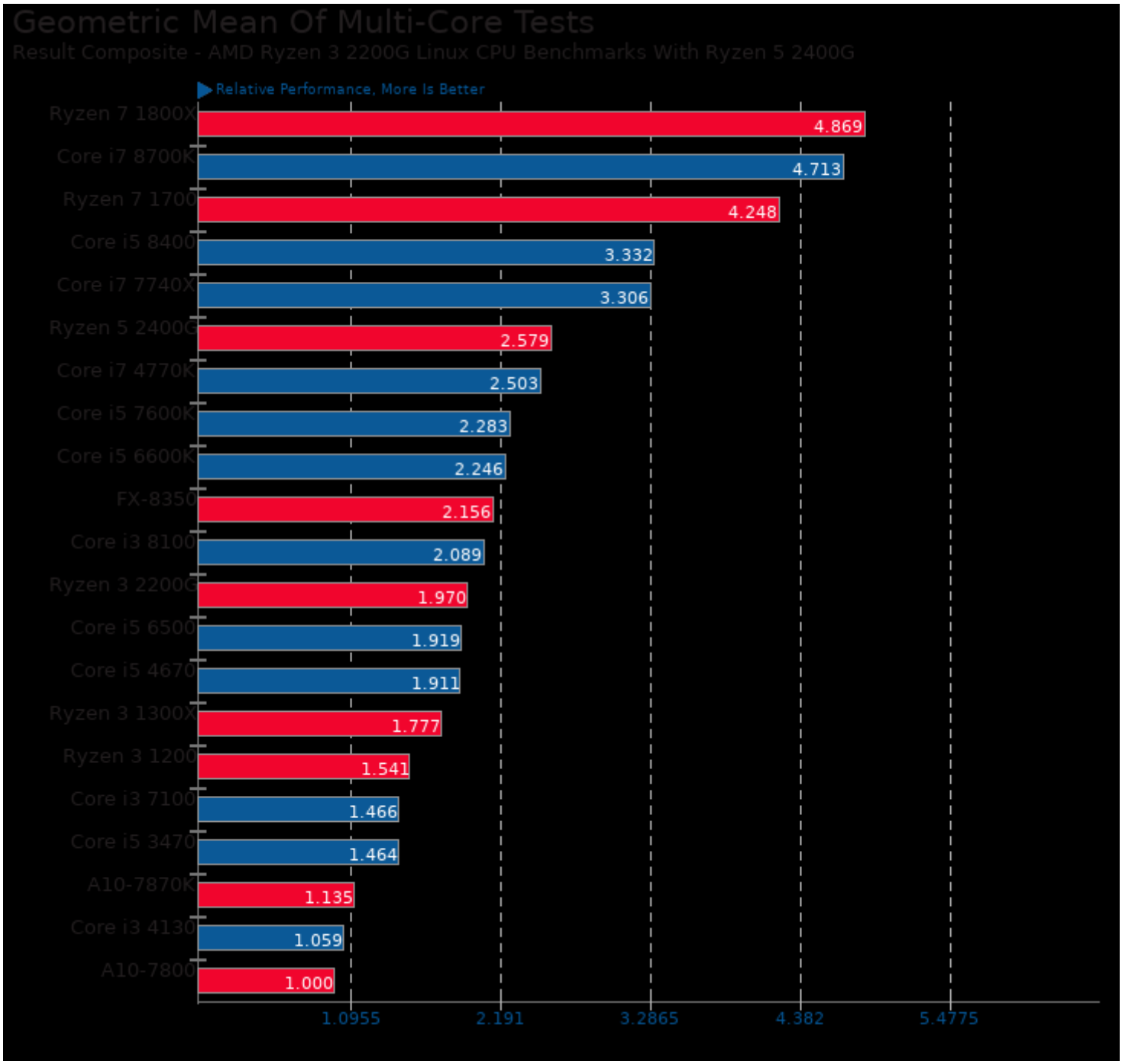
Geometric mean based upon tests: pts/npb and pts/nero2d



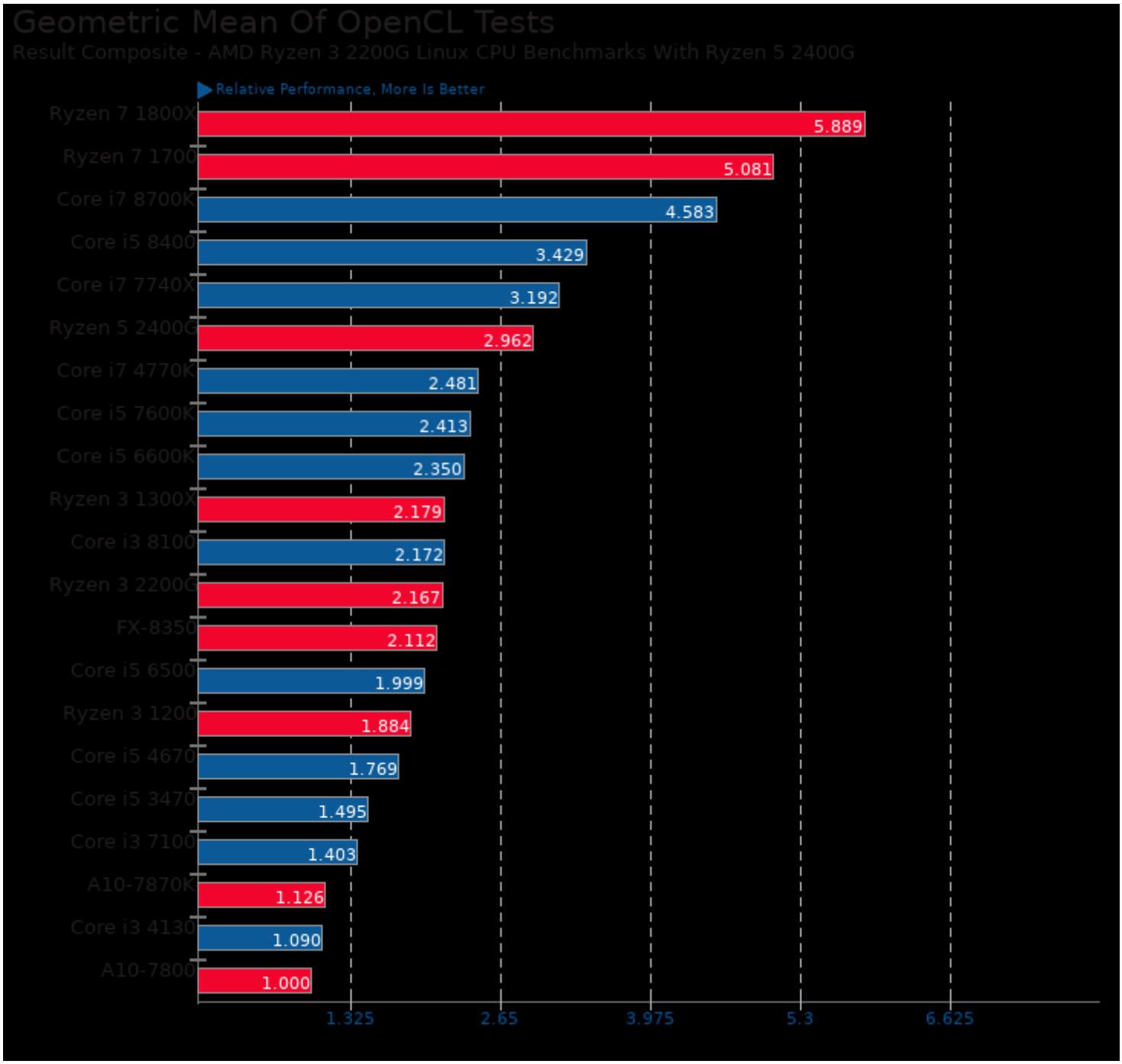
Geometric mean based upon tests: pts/npb, pts/rodinia, pts/parboil and pts/mafft



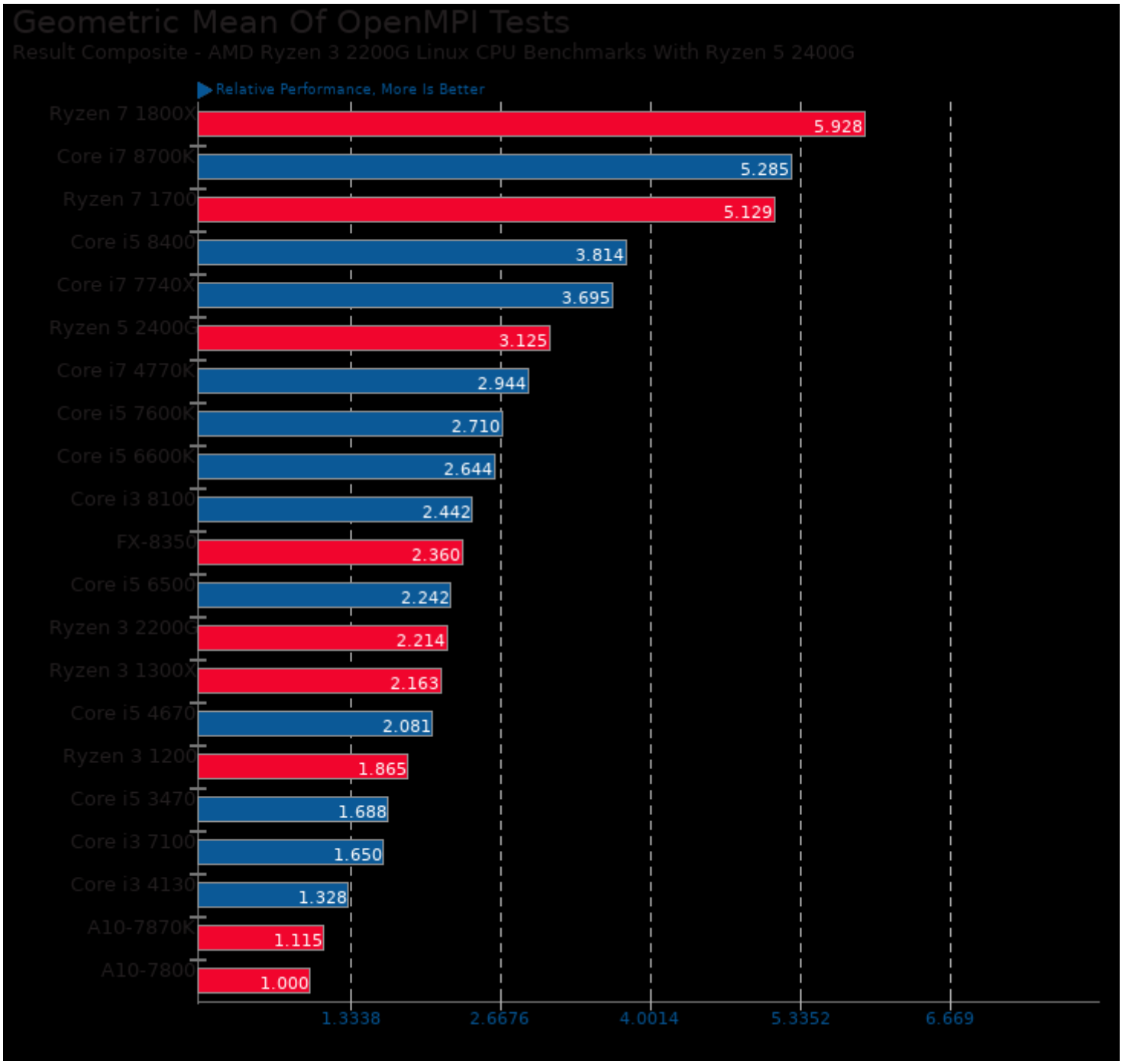
Geometric mean based upon tests: pts/nero2d and pts/npb



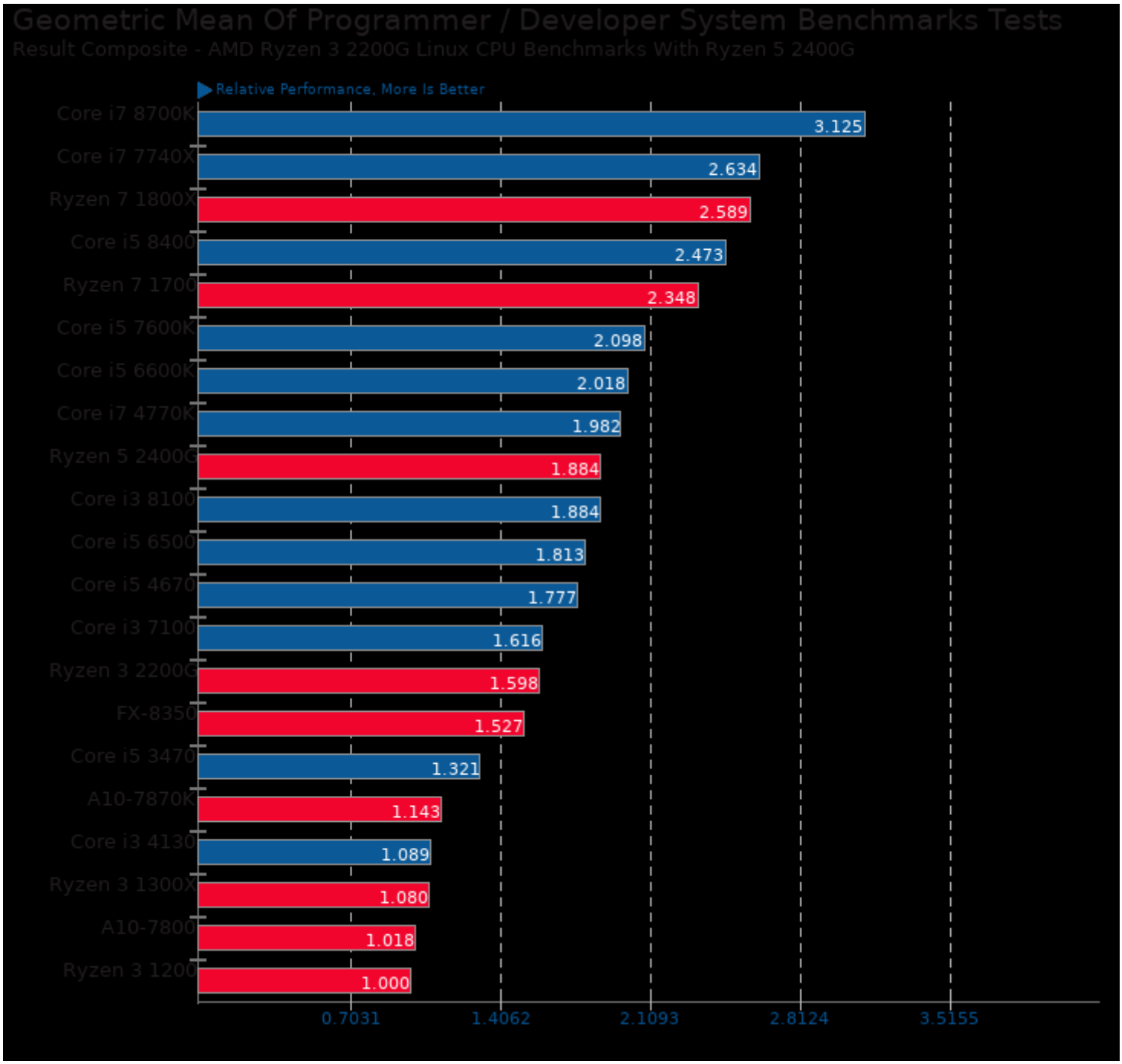
Geometric mean based upon tests: pts/c-ray, pts/povray, pts/x264, pts/rodinia, pts/parboil, pts/npb, pts/john-the-ripper, pts/asmfish, pts/nero2d, pts/compress-7zip, pts/build-linux-kernel and pts/ttsiod-renderer



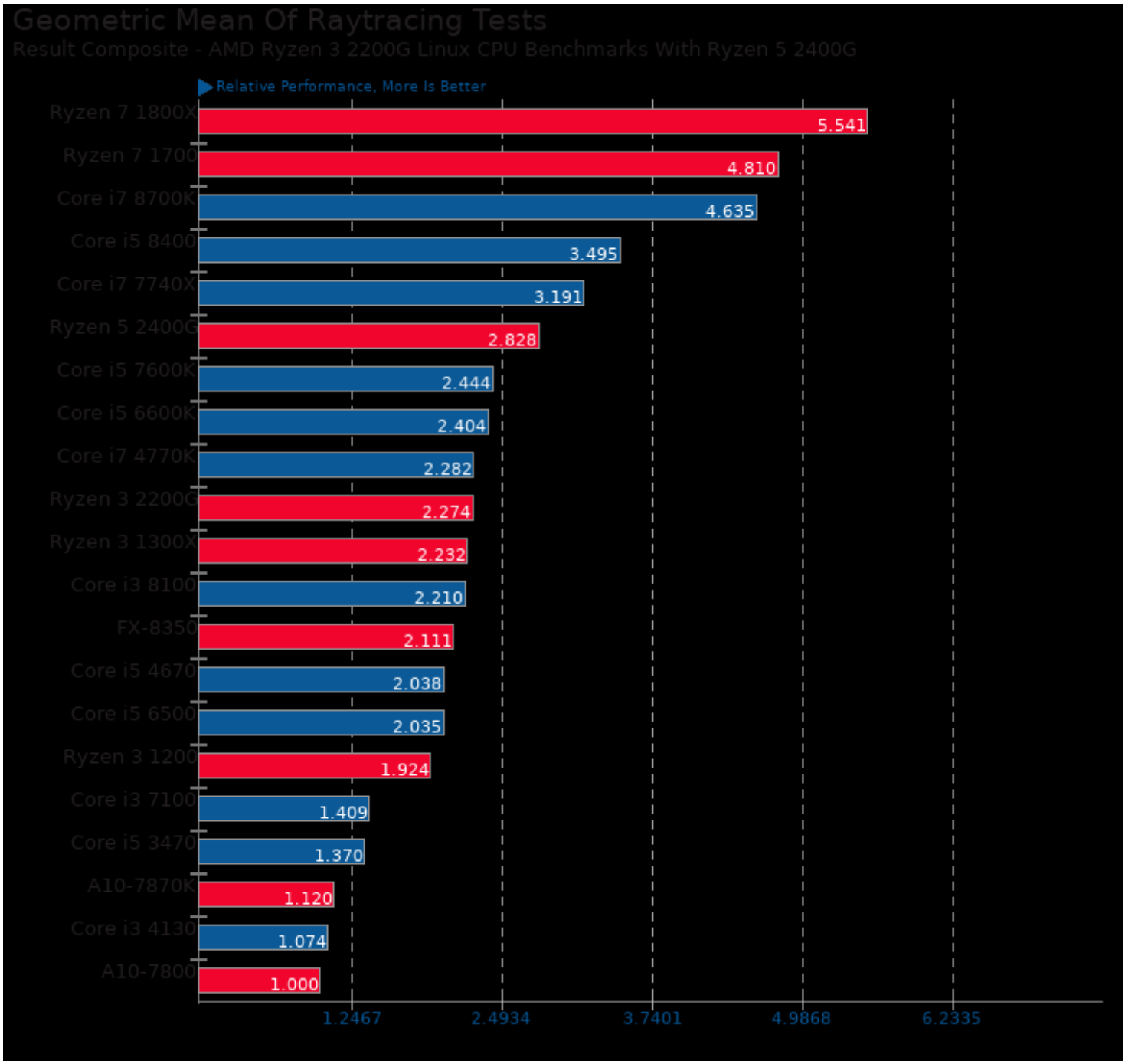
Geometric mean based upon tests: pts/rodinia and pts/parboil



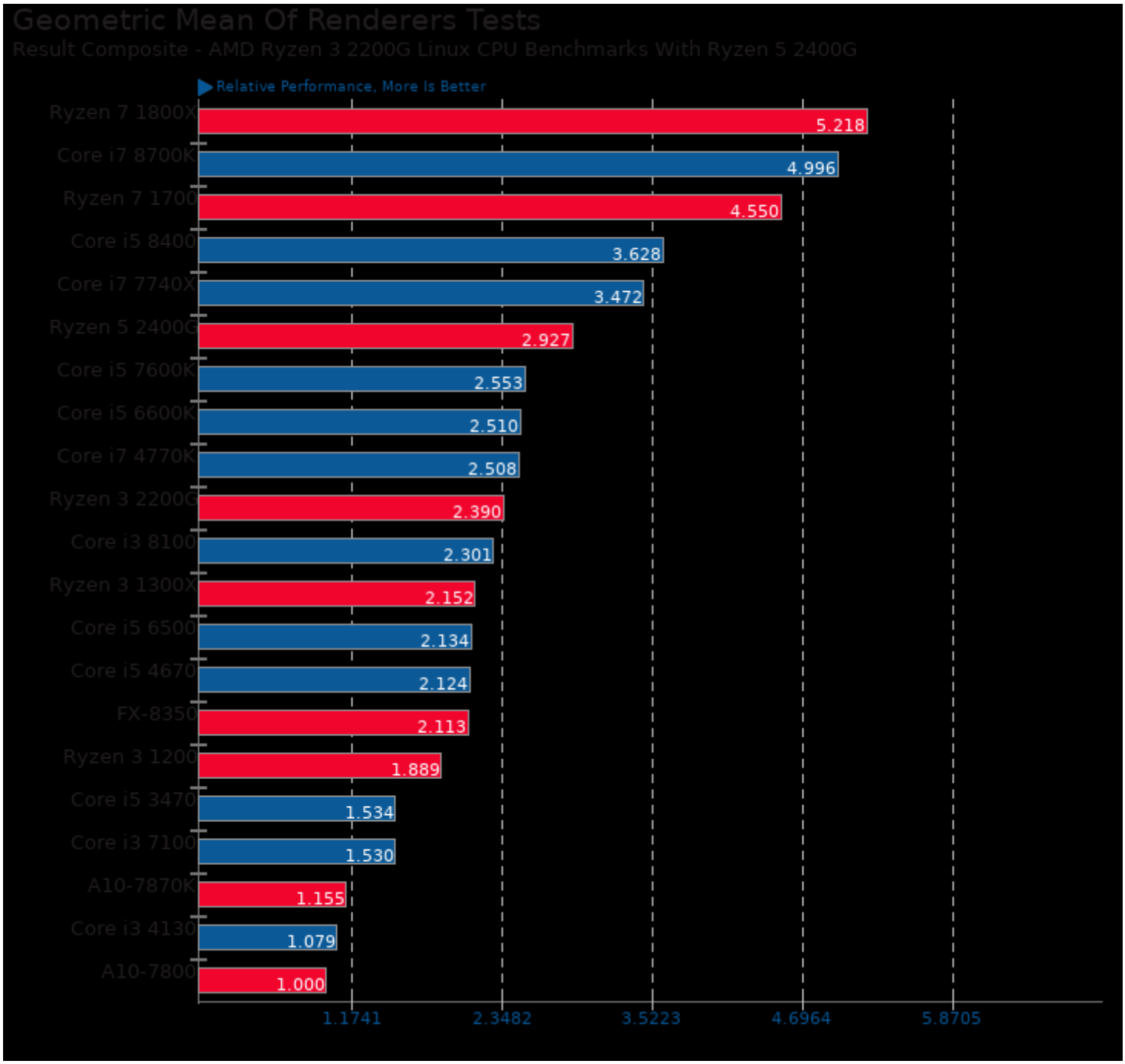
Geometric mean based upon tests: pts/npb, pts/rodinia and pts/nero2d



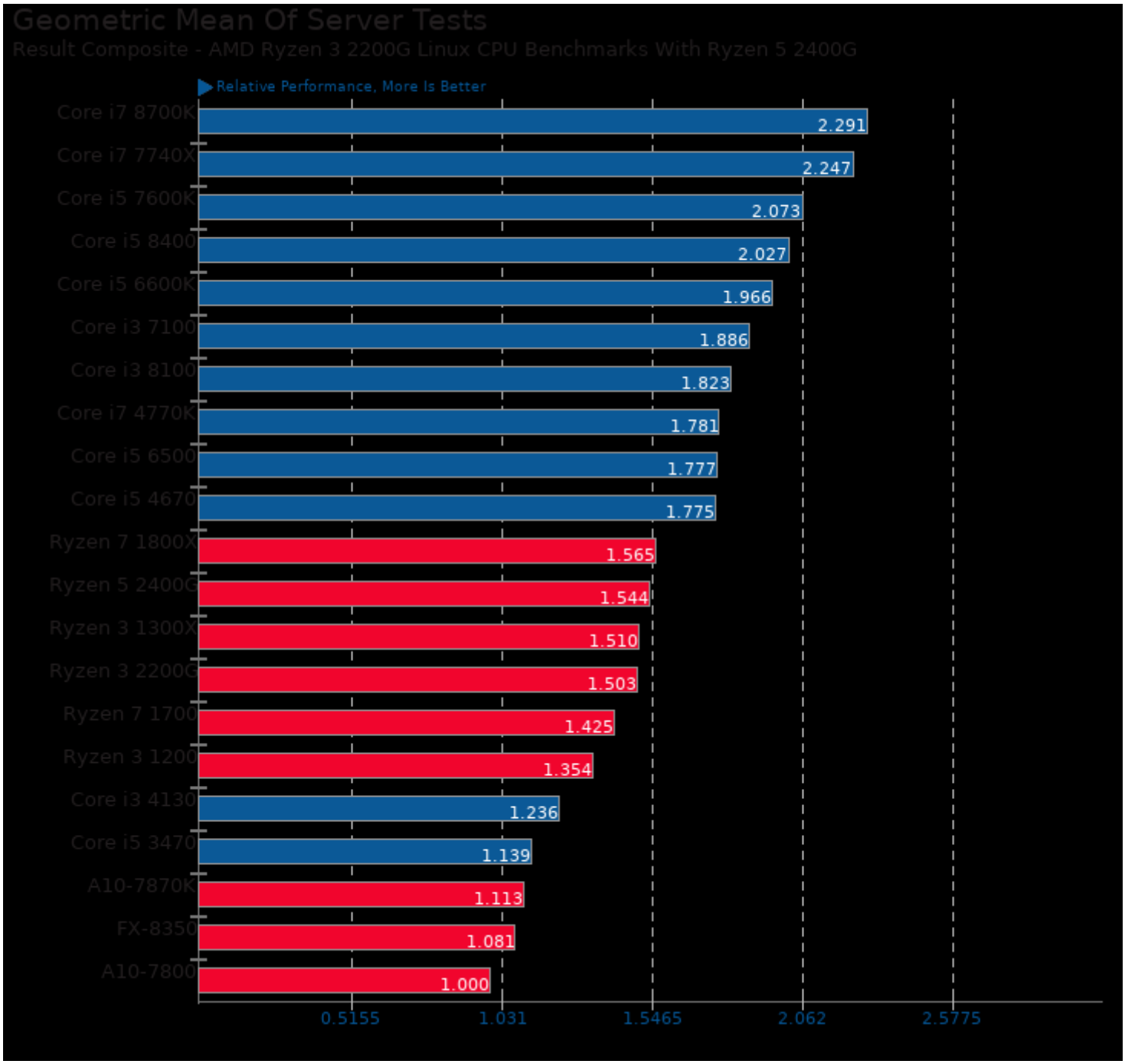
Geometric mean based upon tests: pts/pybench and pts/build-linux-kernel



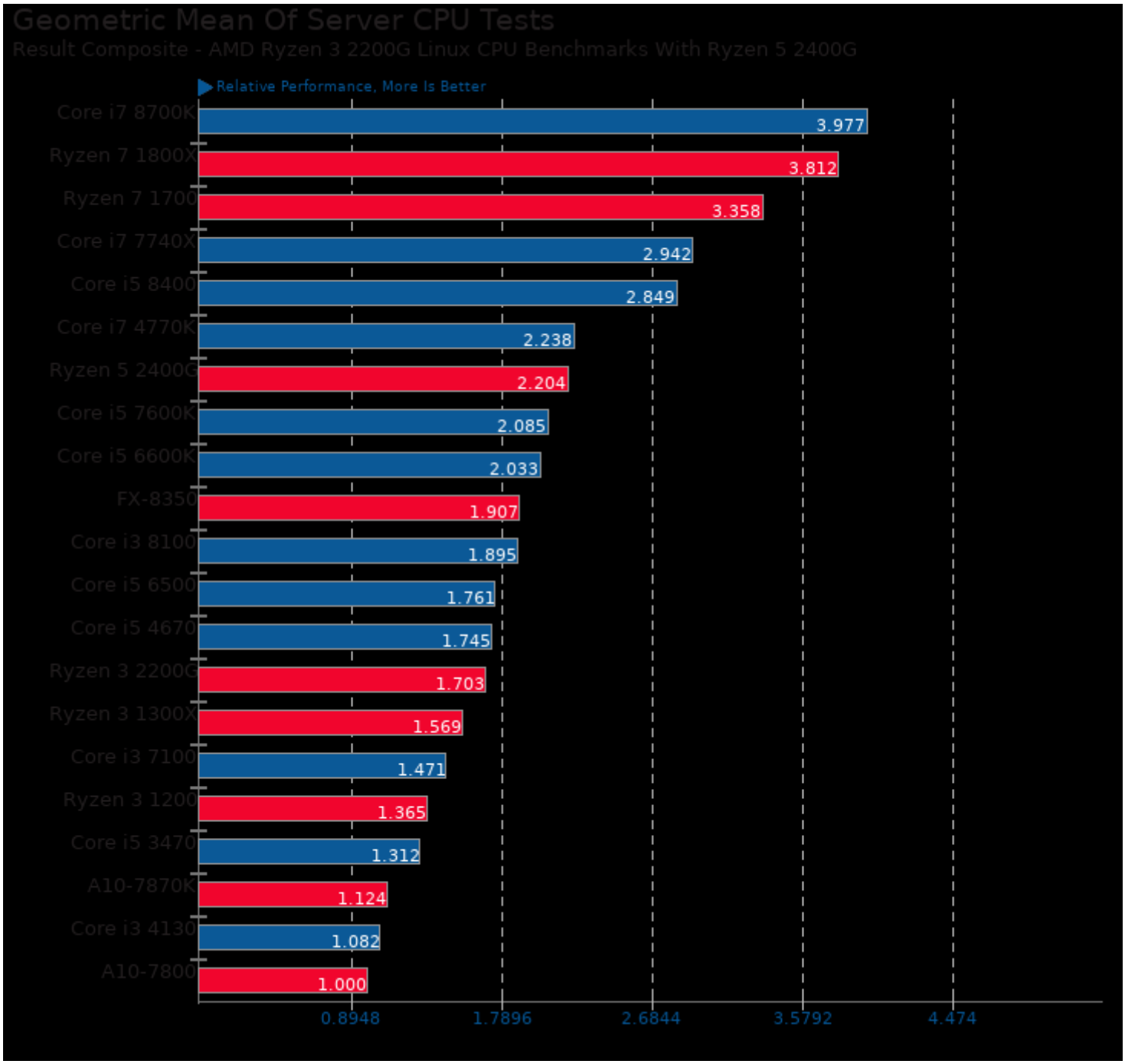
Geometric mean based upon tests: pts/c-ray and pts/povray



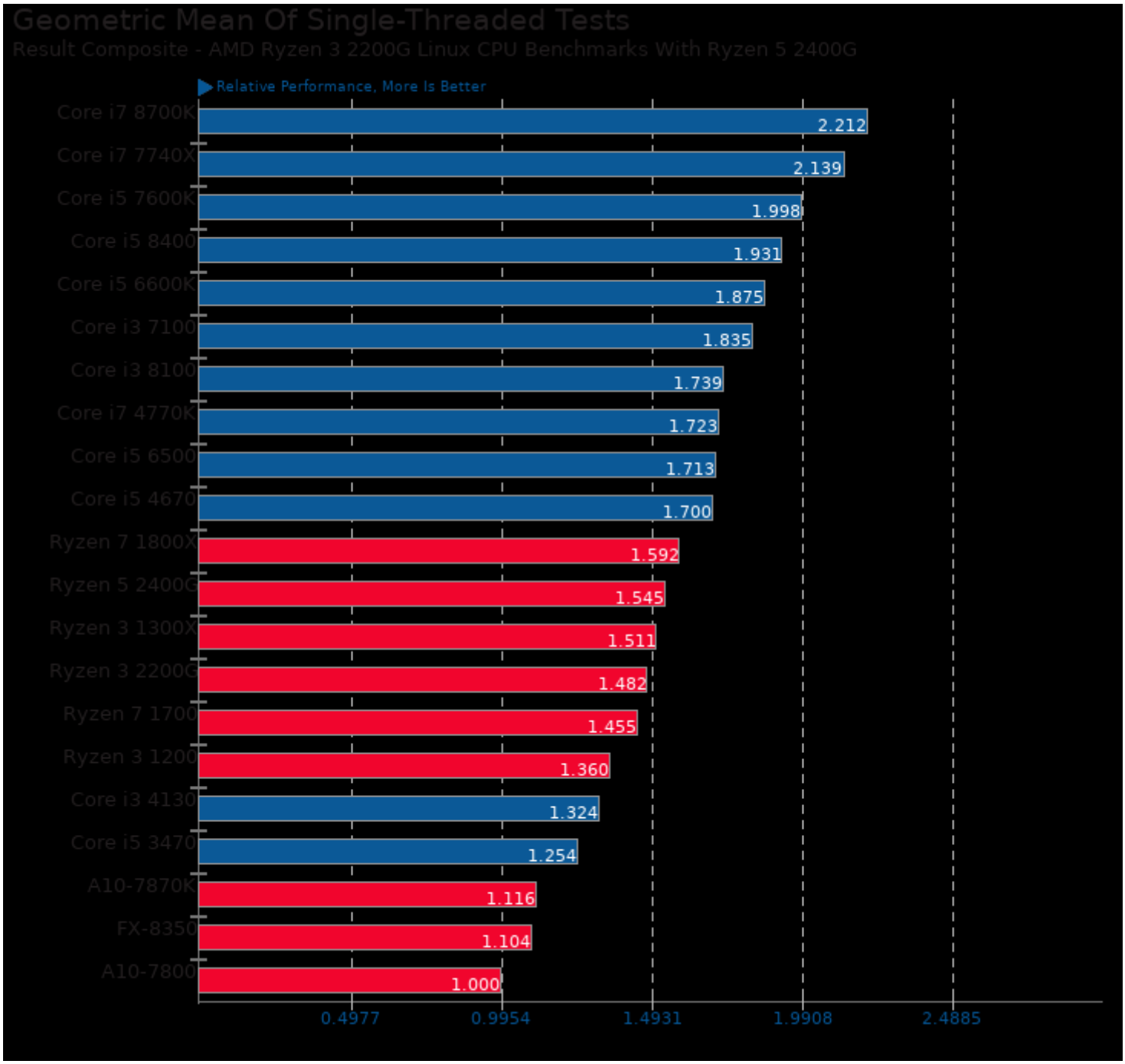
Geometric mean based upon tests: pts/c-ray, pts/povray and pts/ttsiod-renderer



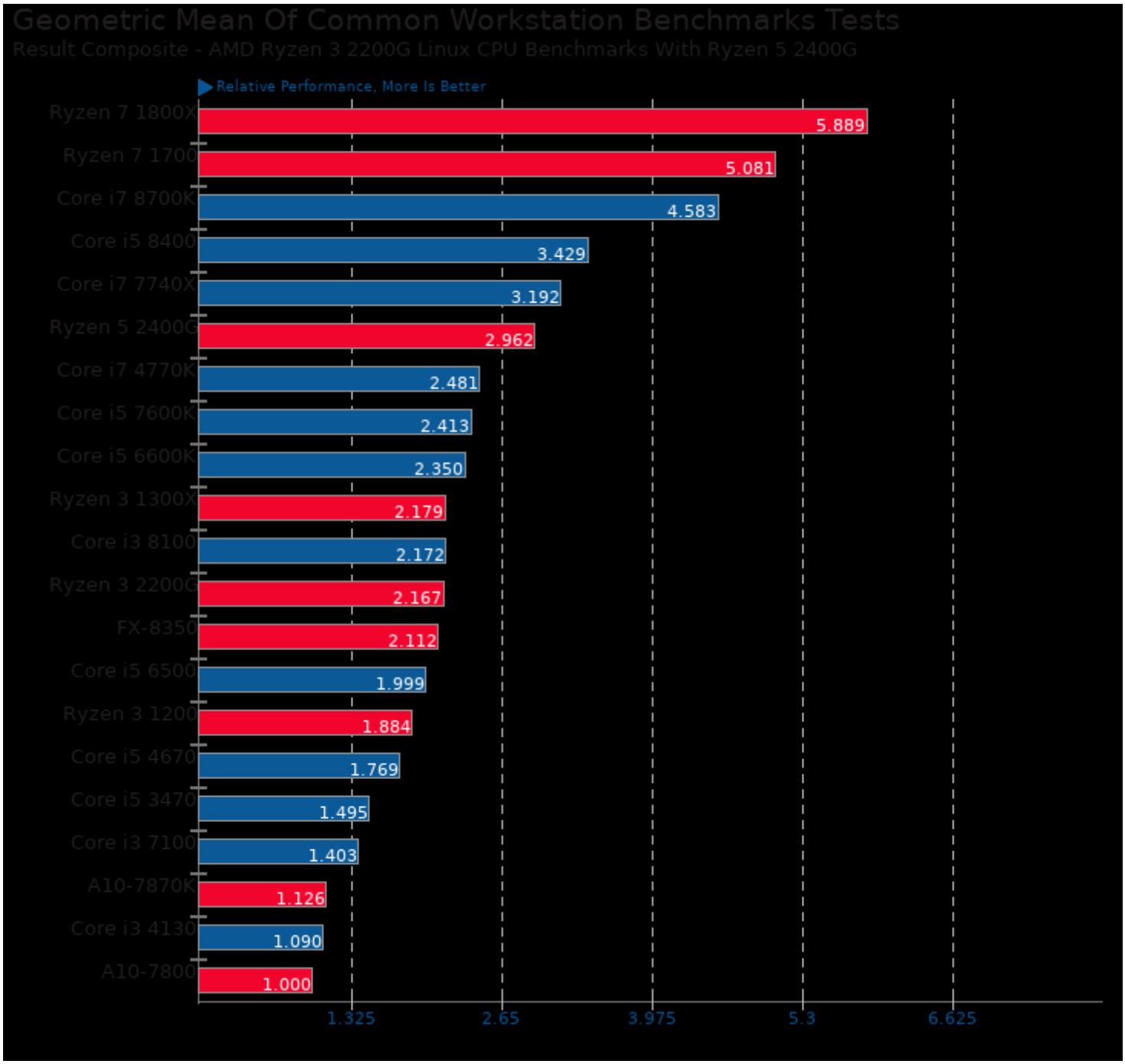
Geometric mean based upon tests: pts/nginx, pts/phpbench and pts/openssl



Geometric mean based upon tests: pts/npb, pts/rodinia, pts/john-the-ripper, pts/x264, pts/compress-7zip, pts/asmfish, pts/build-linux-kernel, pts/c-ray, pts/povray, pts/hackbench, pts/openssl, pts/pybench and pts/phpbench



Geometric mean based upon tests: pts/encode-mp3, pts/pybench, pts/phpbench and pts/nginx



Geometric mean based upon tests: pts/rodinia and pts/parboil

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