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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 4.01x the speed of the slowest (A10-7800).

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

Open FMM Nero2D (Total Time) at 14.512x
Java JMH (Throughput) at 7.386x
OpenSSL (RSA 4096-bit Performance) at 7.336x
NAS Parallel Benchmarks (Test / Class: EP.C) at 6.943x
Hackbench (Count: 8 - Type: Process) at 6.678x
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
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

Core i7 920 Stock

Processor: Intel Core i7 920 @ 2.67GHz (4 Cores / 8 Threads), Motherboard: MSI X58 PLATINUM(MS-7522) v1.0 (V1.5 BIOS), Chipset: Intel 5520/5500/X58 + ICH10R, Memory: 12288MB, Disk: 120GB KINGSTON SH103S3 + 480GB SSD2SC480G1SA754 + 240GB KINGSTON SHFS37A + 240GB KINGSTON SH103S3, Graphics: Sapphire AMD Radeon RX 570 4096MB, Audio: Realtek ALC888, Monitor: EV2455, Network: Realtek RTL8111/8168/8411

OS: Fedora 27, Kernel: 4.16.3-200.fc27.x86_64 (x86_64), Desktop: GNOME Shell 3.26.2, Display Driver: modesetting 1.19.6, OpenGL: 4.5 Mesa 17.3.6 (LLVM 5.0.1), File-System: ext4, Screen Resolution: 1920x1200

Processor Notes: Scaling Governor: acpi-cpufreq ondemand
Python Notes: Python 2.7.14 + Python 3.6.5
Security Notes: SELinux + KPTI + __user pointer sanitization + Full generic retpoline Protection

Core i7 920 BCLK166

Processor: Intel Core i7 920 @ 2.67GHz (4 Cores / 8 Threads), Motherboard: MSI X58 PLATINUM(MS-7522) v1.0 (V1.5 BIOS), Chipset: Intel 5520/5500/X58 + ICH10R, Memory: 12288MB, Disk: 120GB KINGSTON SH103S3 + 480GB SSD2SC480G1SA754 + 240GB KINGSTON SHFS37A + 240GB KINGSTON SH103S3 + 16GB DataTraveler 3.0, Graphics: Sapphire AMD Radeon RX 570 4096MB, Audio: Realtek ALC888, Monitor: EV2455, Network: Realtek RTL8111/8168/8411

OS: Fedora 27, Kernel: 4.16.3-200.fc27.x86_64 (x86_64), Desktop: GNOME Shell 3.26.2, Display Driver: modesetting 1.19.6, OpenGL: 4.5 Mesa 17.3.6 (LLVM 5.0.1), File-System: ext4, Screen Resolution: 1920x1200

Processor Notes: Scaling Governor: acpi-cpufreq ondemand
Python Notes: Python 2.7.14 + Python 3.6.5
Security Notes: SELinux + KPTI + __user pointer sanitization + Full generic retpoline Protection

Core i7 920 BCLK166 Turbo

Processor: Intel Core i7 920 @ 2.67GHz (4 Cores / 8 Threads), Motherboard: MSI X58 PLATINUM(MS-7522) v1.0 (V1.5 BIOS), Chipset: Intel 5520/5500/X58 + ICH10R, Memory: 12288MB, Disk: 120GB KINGSTON SH103S3 + 480GB SSD2SC480G1SA754 + 240GB KINGSTON SHFS37A + 240GB KINGSTON SH103S3, Graphics: Sapphire AMD Radeon RX 570 4096MB, Audio: Realtek ALC888, Monitor: EV2455, Network: Realtek RTL8111/8168/8411

OS: Fedora 27, Kernel: 4.16.3-200.fc27.x86_64 (x86_64), Desktop: GNOME Shell 3.26.2, Display Driver: modesetting 1.19.6, OpenGL: 4.5 Mesa 17.3.6 (LLVM 5.0.1), File-System: ext4, Screen Resolution: 1920x1200

Processor Notes: Scaling Governor: acpi-cpufreq ondemand
Python Notes: Python 2.7.14 + Python 3.6.5
Security Notes: SELinux + KPTI + __user pointer sanitization + Full generic retpoline Protection

	A10-7800	A10-8700K	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	Core i7 9200 Stock	Core i7 9200 BCLK 166	Core i7 9200 BCLK 166 Turb
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%			77.39%			
TTSIOD 3D Renderer - P.R.W. S.S.M (FPS)	**67.42**	82.93	14	12	13	17	21	27	31	73.55	12	16	12	15	15	18	18	26	20	27	**39**	12	15	16
			2.75	2.95	4.97	8.17	1.60	4.64	2.22		1.69	8.27	9.90	5.77	8.22	4.72	7.90	3.63	4.31	7.43	**1.67**	7.47	8.94	0.28
Normalized	17.21%	21.17%	36.45%	31.39%	34.46%	45.49%	54.03%	70.12%	79.72%	18.75%	31.07%	42.96%	33.17%	39.77%	40.46%	47.16%	47.90%	67.36%	52.11%	70.83%	100%	32.57%	40.58%	40.96%
Standard Deviation	0.3%	0.2%	1%	0.7%	0.2%	0.8%	1.4%	0.1%	0.2%	0.9%	0.3%	0.6%	2%	0.4%	0.1%	1.2%	0.2%	0.1%	1.7%	1.8%	0.3%	0.3%	0.5%	0.1%
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%	0.2%	3.4%	0.2%	0.1%	3.3%	3.3%	0.5%	0.3%	0.2%	3.3%	18.4%	3.4%	0.4%	0.2%	0.1%	0.2%	0.1%	0.6%	0.5%			

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%	84.34%	64.82%	73.24%	65.39%		100%							98.83%			75.14%				
7-Zip Compression - C.S.T (MIPS)	9983	1143	2209	1260	1588	1574	1772	3062	3302	**8992**	1289	1722	1410	1659	1511	1807	1717	2702	2166	2895	**3903**	1451	1764	1795
Normalized	25.57%	29.28%	56.63%	32.28%	40.68%	40.33%	45.41%	78.46%	84.59%	23.03%	33.06%	44.11%	36.12%	42.52%	38.72%	46.37%	45.45%	69.28%	55.57%	74.19%	100%	37.18%	45.26%	45.95%
Standard Deviation	1.57%	1.48%	0.33%		1.88%	0.57%	3.39%	0.66%	1.59%	1.29%	0.19%	0.29%	3.19%	0.99%	0.19%	0.19%	0.39%	0.29%	1.39%	2.99%	1.09%	0.69%	1.19%	0.79%
asmFish - Performance / Cost - 1.H.M.2.D (Nodes/s/Dollar			6975	6628	6650	6538	6955	**6498**		8270							**8419**			6528				
Normalized			82.84%	78.73%	78.97%	77.66%	82.61%	77.18%		98.22%							100%			77.54%				

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

asmFish - 1.H.M.2. D (Nodes/s)	54	62	11	73	82	85	12	20	22	49	67	98	73	95	89	10	10	15	12	15	23	82	10	10
	33	14	70	23	86	79	35	10	67	07	83	41	66	72	67	05	26	91	32	89	43	42	15	33
	89	00	53	74	13	59	67	16	84	45	02	58	18	74	52	11	93	35	10	58	77	64	70	98
	3	6	26	9	4	7	82	05	79	8	8	6	2	4	3	65	51	82	19	69	31	7	12	56
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	35.1	43.3	44.1
Standard Deviation	8%	1%	4%	5%	5%	1%	2%	7%	6%	4%	4%	9%	3%	4%	6%	8%	2%	%	7%	2%	%	7%	4%	2%
	0.9	2.2	0.6	0.8	1.5	1.2	1.2	1.2	1.4	0.1	1.1	1.6	3.3	2.2	0.9	0.3	0.7	1.6	2%	1.2	0.7	1.1	1.3	1%
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%		%	%	%	%	
Java JMH - Performance / Cost - Throughput (Ops/s/Dollar)				58	57	57	39	44	42			12						12			71			
				80	35	24	18	23	35			08						05			74			
				07	28	88	22	42	20			59						05			42			
				43	88	93	93	15	20			94						09			91			
												8						6						
Normalized				48.6	47.4	47.3	32.4	36.6	35.0			100						99.7			59.3			
				5%	5%	7%	2%	%	4%			%						1%			6%			
Java JMH - Throughput (Ops/s)	34	38	80	61	71	73	74	12	14	67	77	14	12	14	13	15	15	22	15	17	25	53	66	68
	87	94	56	74	69	85	05	78	78	39	90	38	39	33	18	58	98	77	49	92	75	24	40	23
	05	12	29	07	11	10	45	36	08	70	12	23	11	72	76	20	35	54	91	08	62	40	41	84
	99	39	69	80	09	71	34	88	54	82	93	33	66	75	79	92	91	63	95	02	00	80	28	94
	08	75	46	43	74	72	45	16	84	81	36	76	25	79	15	81	76	20	57	34	60	83	08	17
								7	1			5	2	5	0	1	4	1	9	4	8			
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	20.6	25.7	26.4
	4%	2%	8%	7%	3%	7%	5%	3%	9%	7%	5%	4%	1%	7%	%	%	6%	3%	8%	8%	%	7%	8%	9%
John The Ripper - Performance / Cost - Blowfish (Real C/S/Dollar)				35.	35.	35.	31.	36.	35.			37.						37.			35.			
				34	14	19	86	09	66			07						03			54			
Normalized				95.3	94.7	94.9	85.9	97.3	96.2			100						99.8			95.8			
				3%	9%	3%	5%	6%	%			%						9%			7%			

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

John The Ripper - Blowfish (Real C/S)	33 73	37 75	68 26	37 11	43 93	45 40	60 22	10 43 1	12 44 5	30 08	38 59	44 11	29 92	40 80	40 46	47 85	49 10	69 98	68 00	88 80	12 75 8	36 76	45 79	45 82
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	28.8	35.8	35.9
d	4%	9%	%	9%	3%	9%	%	6%	5%	8%	5%	7%	5%	8%	1%	1%	9%	5%	%	%	%	1%	9%	1%
Standard Deviation	0.3 %	0.1 %	0.6 %	0.8 %	0.3 %	0.2 %	3.9 %	0.8 %	0.1 %			0.2 %	2.7 %	0.2 %	0.1 %	0.1 %			3.2 %				0.4 %	0.1 %
NGINX Benchmark - Performance / Cost - S.W.P.S (Reqs/sec/Dollar)				27 7.5 7	26 1.0 7	26 0.6 3	17 6.9 8	10 3.1 8	94. 45			30 5.1 3						21 4.4 6			12 5.1 1			
Normalized				90.9	85.5	85.4	58%	33.8	30.9			100						70.2			41%			
d				7%	6%	2%		2%	5%			%						8%						
NGINX Benchmark - S.W.P.S (Reqs/sec)	19 11 3	21 35 9	19 62 8	29 14 5	32 63 3	33 62 1	33 45 0	29 82 0	32 96 4	20 65 5	36 75 7	36 31 1	20 76 2	35 67 2	34 80 0	39 23 4	40 48 3	40 53 3	36 37 4	45 47 6	44 91 6			
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			
d	3%	7%	6%	9%	6%	3%	5%	7%	9%	2%	3%	5%	5%	4%	2%	7%	2%	3%	8%	%	7%			
Standard Deviation	0.7 %	1.1 %	0.5 %	1.7 %	0.2 %			1.2 %	0.1 %	3%	0.4 %	0.6 %	0.2 %	0.2 %	0.5 %	0.8 %	1.6 %	0.5 %	0.4 %	1.1 %	3.3 %			
PHPBench - P.B.S (Score)	30 37 43	33 68 31	34 55 60	36 54 19	40 54 18	39 01 05	41 38 82	39 56 09	43 11 08	42 92 58	56 15 62	53 15 84	36 28 07	51 27 18	52 69 13	57 18 80	61 62 81	58 87 30	50 61 77	64 42 93	67 84 65	25 55 72	31 69 49	34 11 75
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	37.6	46.7	50.2
d	7%	5%	3%	6%	6%	%		1%	4%	7%	7%	5%	7%	7%	6%	9%	3%	7%	1%	6%	%	7%	2%	9%
Standard Deviation	1.7 %	1.6 %	0.9 %	0.7 %	1%	2.4 %	1.5 %	1%	3.2 %	4.9 %	1.3 %	0.1 %	1.6 %	0.2 %	0.5 %	0.3 %	0.2 %	0.1 %	3.1 %	1.7 %	1.2 %	0.2 %	0.7 %	1.9 %

PHPBench - Performance / Cost - P.B.S (Score/ Dollar)				34 80	32 43	30 24	21 90	13 69	**12 35**			**44 67**						31 15			18 90			
Normalized				77.9	72.6	67.7	49.0	30.6	27.6			100						69.7			42.3			
OpenSSL - R.4.b.P (Signs/ sec)	29 9.7 3	33 9.7 0	70 5.2 0		71 0.5 3	73 4.2 0	79 3.8 0	13 80	15 93	30 8.9 7	59 7.1 3	10 43	49 9.2 3	64 5.1 0	94 2.7 3	11 43	11 48	16 71	68 9.3 0	13	**19 80**	**26 9.8 3**	33 6.5 7	33 6.4 0
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	13.6	17%	16.9
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 %	3% 0.1 %	0%	9% 0%
OpenSSL - Performance / Cost - R.4.b.P (Signs/ sec/Dollar)					5.6 8	5.6 9	**4.2 0**	4.7 8	4.5 6			8.7 6						**8.8 4**			5.5 1			
Normalized					64.2	64.3	47.5	54.0	51.5			99.1						100			62.3			
NAS Parallel Benchmarks - EP.C (Mop/s)	**83. 11**	92. 05	22 1.1 3	12 2.0 0	14 1.6 2	14 4.0 2	29 3.9 0	48 9.6 5	57 1.1 0	14 3.5 1	17 5.0 7	20 2.4 8	18 0.1 3	19 8.4 8	18 5.6 7	21 9.6 1	22 5.6 2	32 1.5 0	33 1.5 4	39 4.6 3	**57 7.0 5**			
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 %	5% 0.3 %	2% 1.6 %	4% 0.5 %	4% 0.1 %	6% 0.3 %	3% 1%	5% 2.5 %	7% 0.4 %	7% 1.1 %	4% 0.8 %	9% 0.3 %	2% 0.4 %	% 0.2 %	8% 0.1 %	6% 0.1 %	% 0.2 %	1% 0.1 %	5% 1%	9% 1.1 %	% 0.6 %			

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

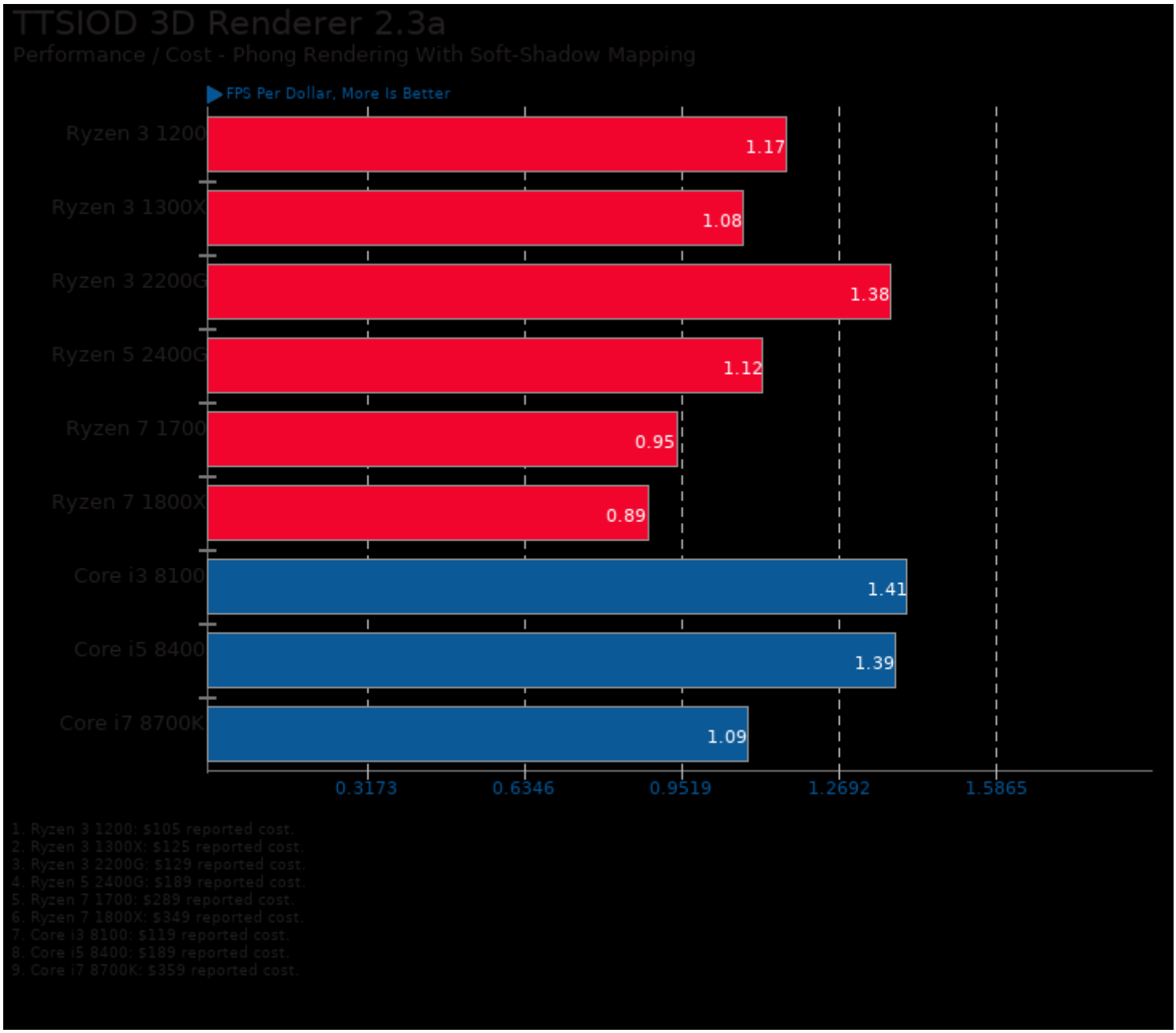
NAS Parallel Benchmarks - Performance / Cost - EP.C (Mop/s/Dollar)				1.16	1.13	**1.12**	1.56	1.69	1.64			**1.70**						**1.70**			1.61			
Normalized				68.2%	66.4%	65.8%	91.7%	99.4%	96.4%			100%						100%			94.7%			
PyBench - T.F.A.T.T (Milliseconds)	22064	20028	20048	16055	14098	15047	14058	15018	13095	15065	12037	13040	17023	13090	13042	12039	11049	12009	13056	10075	**10031**	**30052**	24037	22016
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	33.7	42.3	46.5
d	4%	4%	4%	%	3%	5%	1%	2%	1%	8%	5%	4%	4%	7%	3%	1%	3%	8%	3%	1%	%	8%	1%	3%
Standard Deviation	0.3 %	0.4 %	0.1 %	0.1 %	0.3 %	0.9 %	0.2 %	0.2 %	0.4 %	0.3 %	0.2 %	0.1 %	0.4 %		0.1 %	0.1 %		0.4 %	0.2 %	0.1 %	0.2 %	0.3 %	0.2 %	0.1 %
Parboil - OpenMP CUTCP	**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	25.34	19.89	19.72
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	22.0	28.0	28.3
d	2%	6%	2%	4%	3%	8%	1%	8%	%	9%	%	2%	1%	2%	2%	8%	6%	2%	6%	8%	1%	2%	5%	%
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 %	2.5 %	0.4 %	0.6 %
Rodinia - OpenMP LavaMD (sec)	**44.62**	39.75	21.52	25.87	22.33	21.73	16.02	95.15	**82.39**	44.07	35.22	22.16	40.13	32.61	24.20	20.84	20.53	14.55	19.36	15.24	10.79	38.09	31.75	31.60
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	21.1	26.2	26.4
d	6%	3%	5%	5%	9%	5%	%	9%	%	1%	4%	2%	9%	4%	6%	5%	2%	6%	3%	5%	6%	4%	5%	4%
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 %	0.4 %	1.1 %	0.2 %

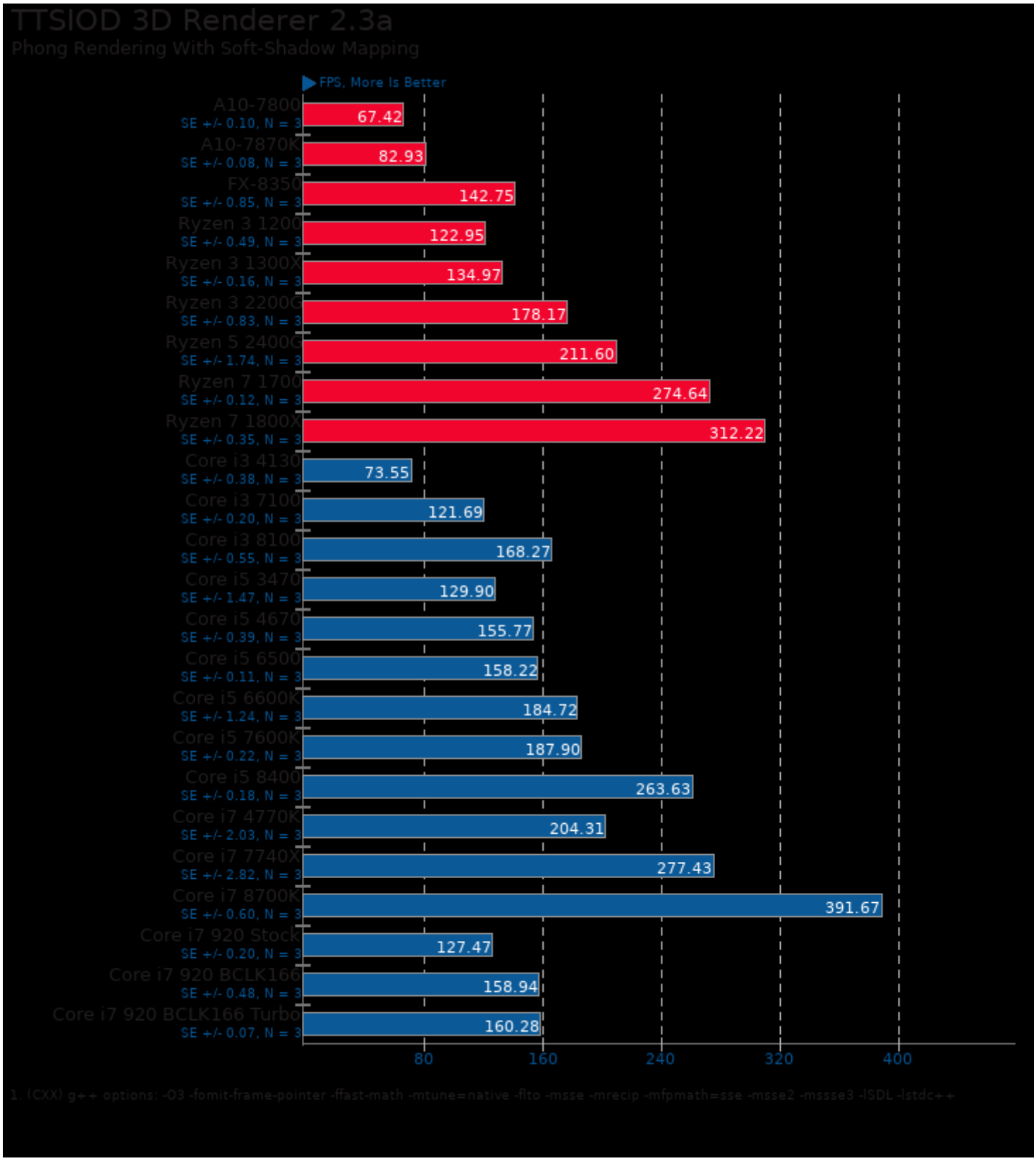
AMD Ryzen 3 2200G Linux CPU Benchmarks With Ryzen 5 2400G

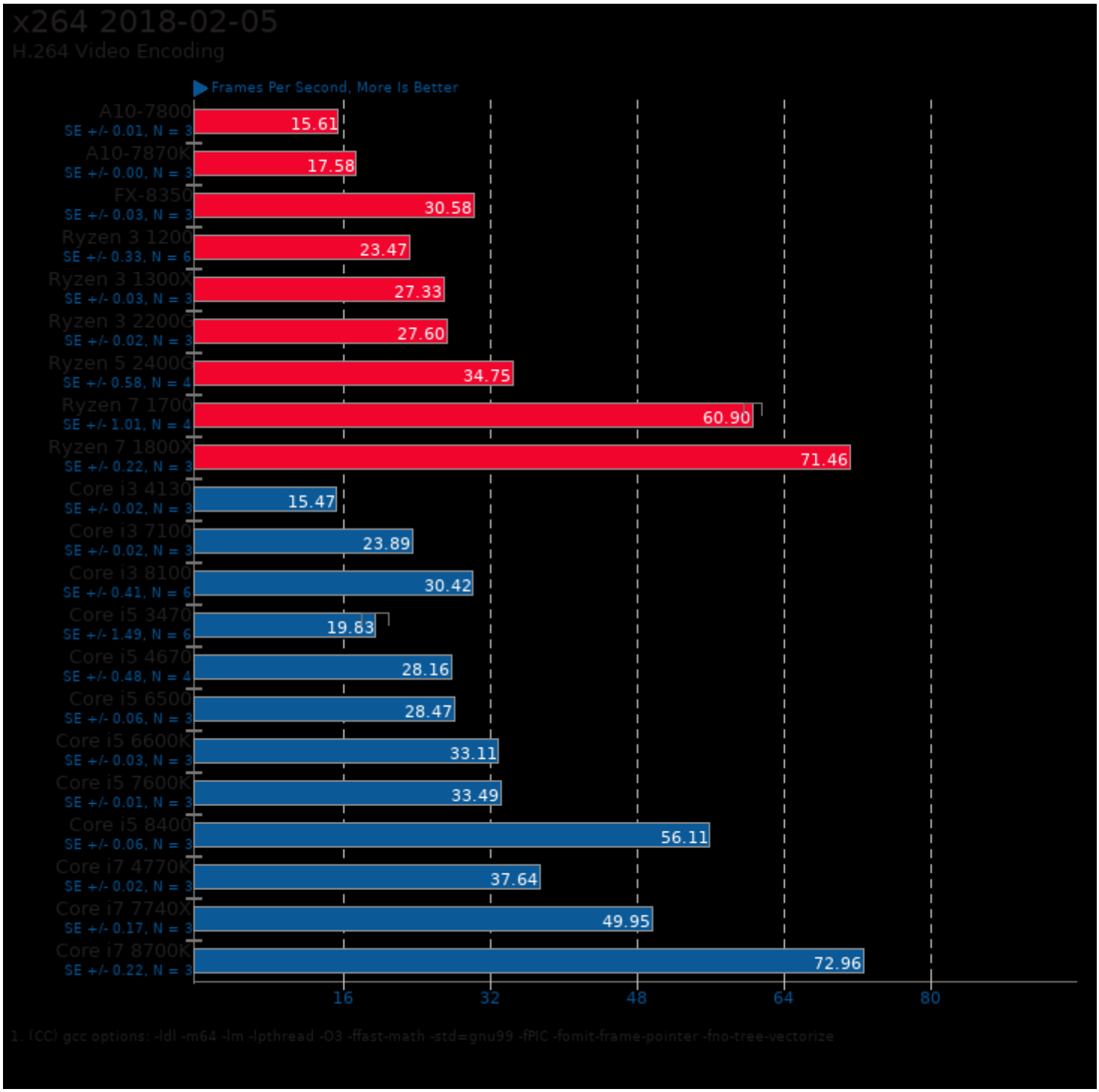
Timed MAFFT Alignment - M.S.A (sec)	**11.96**	10.40	5.92	7.25	5.99	6.27	5.73	4.26	**3.65**	10.45	7.85	5.71	6.93	5.85	6.32	5.36	5.42	3.68	4.88	3.97		9.43	7.07	7.03
Normalized	30.5	35.1	61.6	50.3	60.9	58.2	63.7	85.6	100	34.9	46.5	63.9	52.6	62.3	57.7	68.1	67.3	99.1	74.8	91.9		38.7	51.6	51.9
d	2%	%	6%	4%	3%	1%	%	8%	%	3%	%	2%	7%	9%	5%	%	4%	8%	%	4%		1%	3%	2%
Standard	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		11.4	1.5	1%
Deviation		%	%	%	%		%	%	%	%	%	%	%	%	%	%		%	%	%		%	%	
Open FMM Nero2D - Total Time (sec)	28.03	25.14	11.98	10.99	94.39	92.09	90.56	57.48	**50.15**	20.19.5	16.13	92.61	14.12	10.23	10.83	85.71	83.98	61.04	98.21	76.36	54.98	**72.79**	58.7.6	54.1.3
Normalize	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	6.89	8.58	9.26
d	8%	5%	3%	6%	3%	6%	8%	5%	%	4%	6%	5%	4%	7%	4%	1%	2%	6%	6%	8%	1%	%	%	%
Standard	0.5	0.5	1.8	0.3	0.1	0.3	1%	0.5	1.1	0.9	0.4	0.7	2.2	1.1	0.2	0.4	0.7	1.2	0.6	0.5	1%	0.3	0.2	0.9
Deviation	%	%	%	%	%	%		%	%	%	%	%	%	%	%	%	%	%	%	%		%	%	%
Timed Linux Kernel Compilation - Time To Compil	34.2.81	30.0.92	16.7.85	**48.4.77**	45.8.00	20.1.48	15.3.49	95.17	85.22	42.6.59	24.6.44	16.7.81	26.4.97	18.0.98	18.1.66	15.8.43	15.7.58	10.8.02	15.0.12	10.6.97	**79.10**	24.0.82	19.4.10	19.1.61
Normalize	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	32.8	40.7	41.2
d	7%	9%	3%	2%	7%	6%	3%	1%	2%	4%	%	4%	5%	1%	4%	3%	%	3%	9%	5%	%	5%	5%	8%
Standard	0.8	1.1	1.5	0.2	0.3	1%	1.2	2.2	2%	0.5	0.8	1%	1.1	1.2	1.1	1%	1%	1.7	1%	1%	7%	1%	1.1	1.2
Deviation	%	%	%	%	%		%	%		%	%		%	%	%			%					%	%
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	41.74	33.50	33.47
Normalize	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	23.2	28.9	28.9
d	1%	1%	3%	8%	2%	4%	9%	8%	%	7%	1%	5%	7%	%	7%	9%	%	%	8%	%	%	4%	6%	8%
Standard	0%	0.1	0%	0.1	0%	0.7	1.4	0%	0.1	0.2	0.1	0.1	1.4	0.1	0.1	0.2	0.1	0.1	0.1	1.5	0.1	0%	0.1	0.1
Deviation		%		%		%	%		%	%	%	%	%	%	%	%	%	%	%	%	%		%	%
POV-Ray - Trace Time (sec)	**27.0.86**	24.2.07	13.4.01	18.1.99	15.6.29	15.3.63	10.7.39	64.40	**56.21**	26.7.70	20.0.73	13.9.02	22.8.33	14.7.13	14.9.84	12.6.80	12.5.90	87.94	13.1.09	87.94	60.96	23.3.87	18.7.41	18.7.38
Normalize	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	24.0	29.9	30%
d	5%	2%	4%	2%	7%	9%	4%	8%	%			3%	6%	%	1%	2%	5%	2%	8%	2%	1%	3%	9%	
Standard	0.2	0.1	0.3	0.1	0.2	0.4	0.3	0%	0.1	0.2	0.1	0.1	2.5	0.1	0.1	0.1	0.9	0.1	0.2	0.1	0.2	0%	0.1	0%
Deviation	%	%	%	%	%	%	%		%	%	%	%	%	%	%	%	%	%	%	%	%		%	

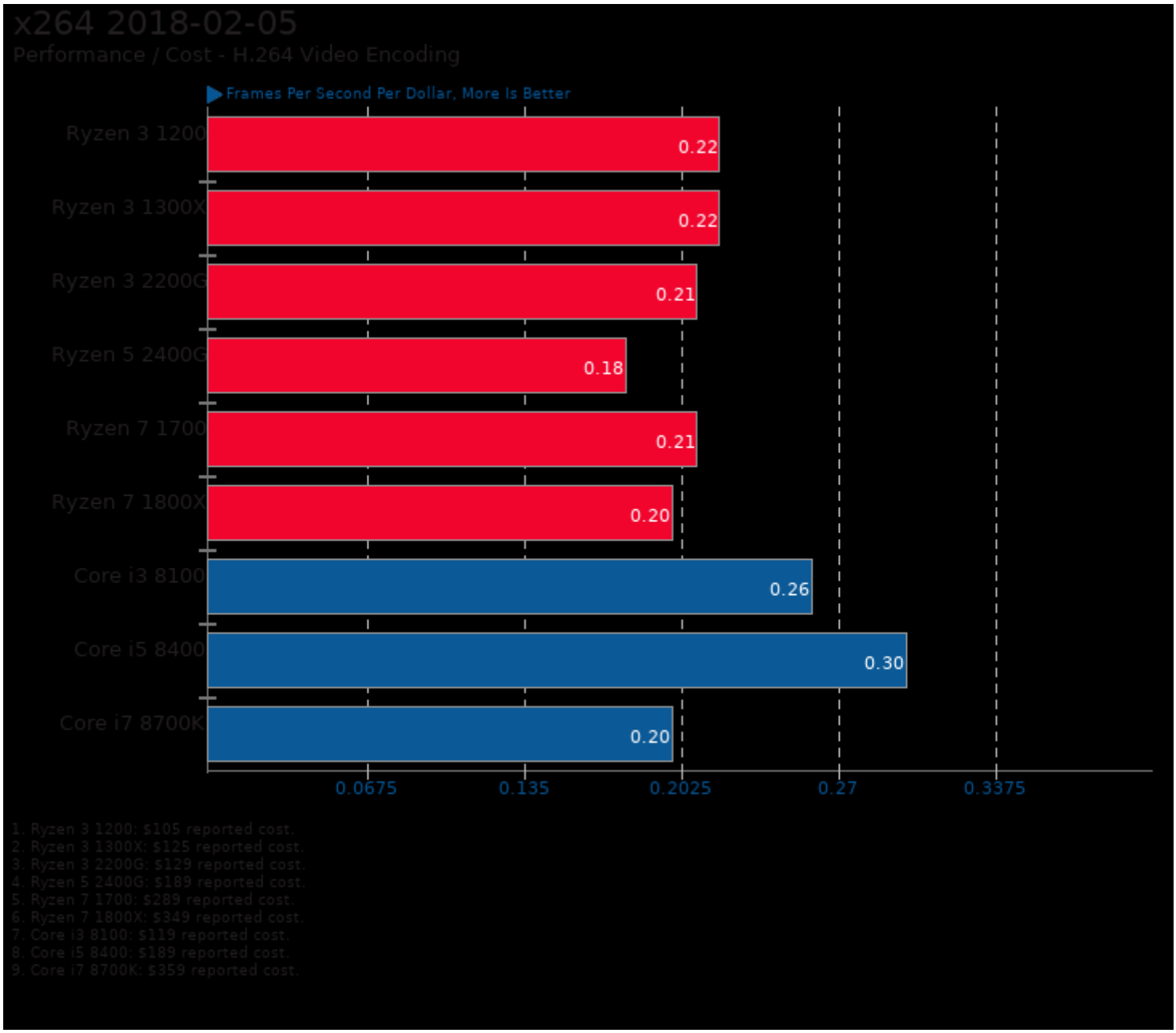
AMD Ryzen 3 2200G Linux CPU Benchmarks With Ryzen 5 2400G

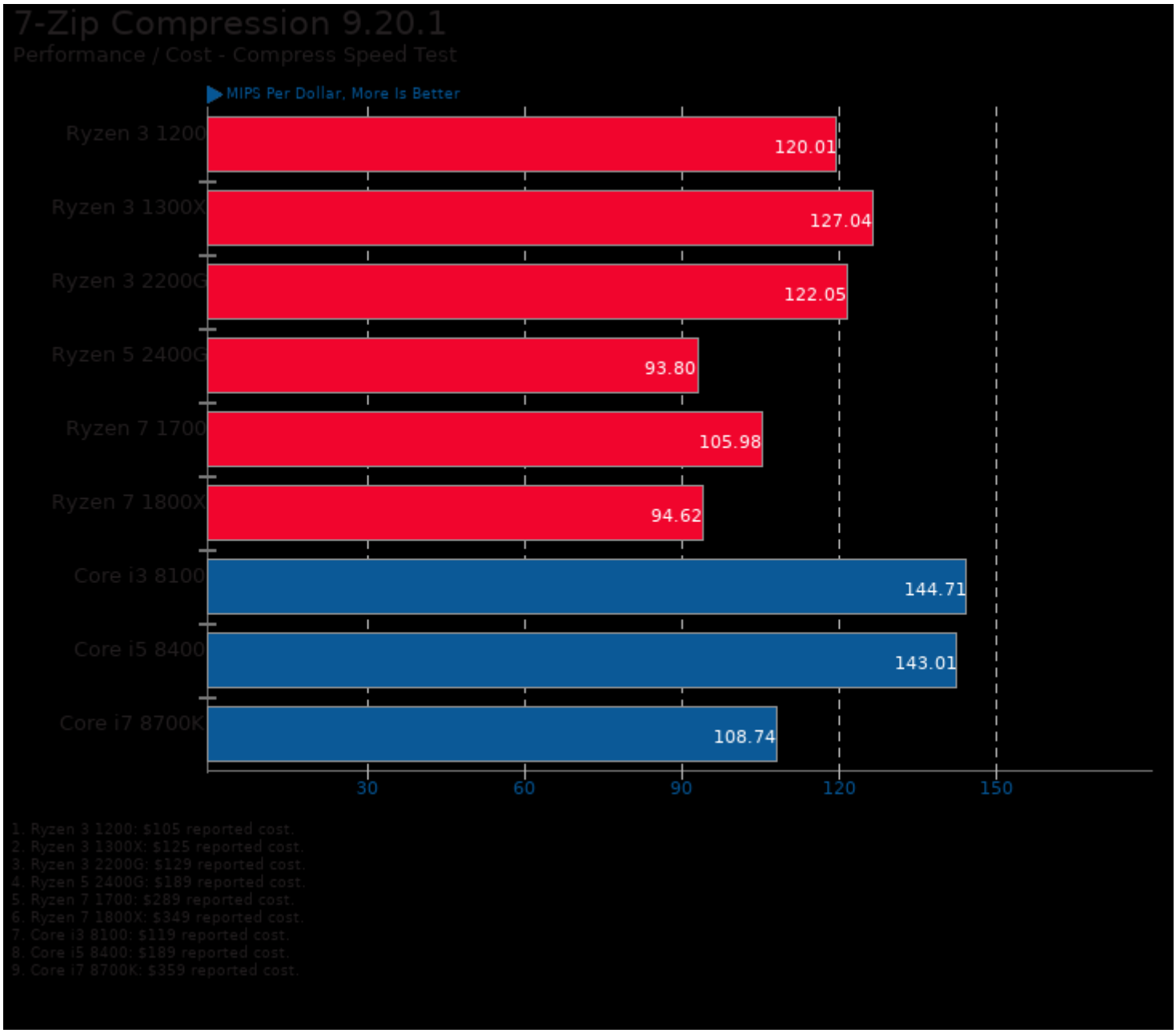
LAME MP3 Encoding - WAV To MP3	54.17	48.37	47.03	39.68	35.78	37.13	35.19	36.59	33.50	38.94	31.08	33.30	37.36	33.25	33.51	30.95	28.77	30.01	32.54	27.50	**26.07**	**65.62**	52.64	48.14
Normalized	48.1	53.9	55.4	65.7	72.8	70.2	74.0	71.2	77.8	66.9	83.8	78.2	69.7	78.4	77.8	84.2	90.6	86.8	80.1	94.8	100	39.7	49.5	54.1
Standard Deviation	3%	%	3%	%	6%	1%	8%	5%	2%	5%	8%	9%	8%	1%	%	3%	2%	7%	2%	%	%	3%	3%	5%
	0.2	0.1	0.2	0.1	0.3	0.2	0.1	0%	0.8	3%	0.1	0%	0.2	0%	0%	0%	0.1	0%	0.4	0.8	1.3	0%	0%	0.2
	%	%	%	%	%	%	%		%		%		%				%		%	%	%			%
Hackbench - 8 - Proces	97.81	84.26	50.73		63.63	50.24	33.29	20.07	**17.96**	**11 9.94**	72.50	62.18	81.17	65.19	67.41	58.19	57.63	39.66	37.72	30.45	22.50	92.99	80.76	67.65
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	19.3	22.2	26.5
Standard Deviation	6%	1%	%		3%	5%	5%	9%	%	7%	7%	8%	3%	5%	4%	6%	6%	8%	1%	8%	2%	1%	4%	5%
	0.4	0.1	0.1		2%	1.1	1.6	2.5	3.3	0.6	0.3	2.4	2.7	1.9	1.4	1.8	1.2	1.6	0.2	0.8	5.3	0.2	2.5	0.8
	%	%	%			%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%

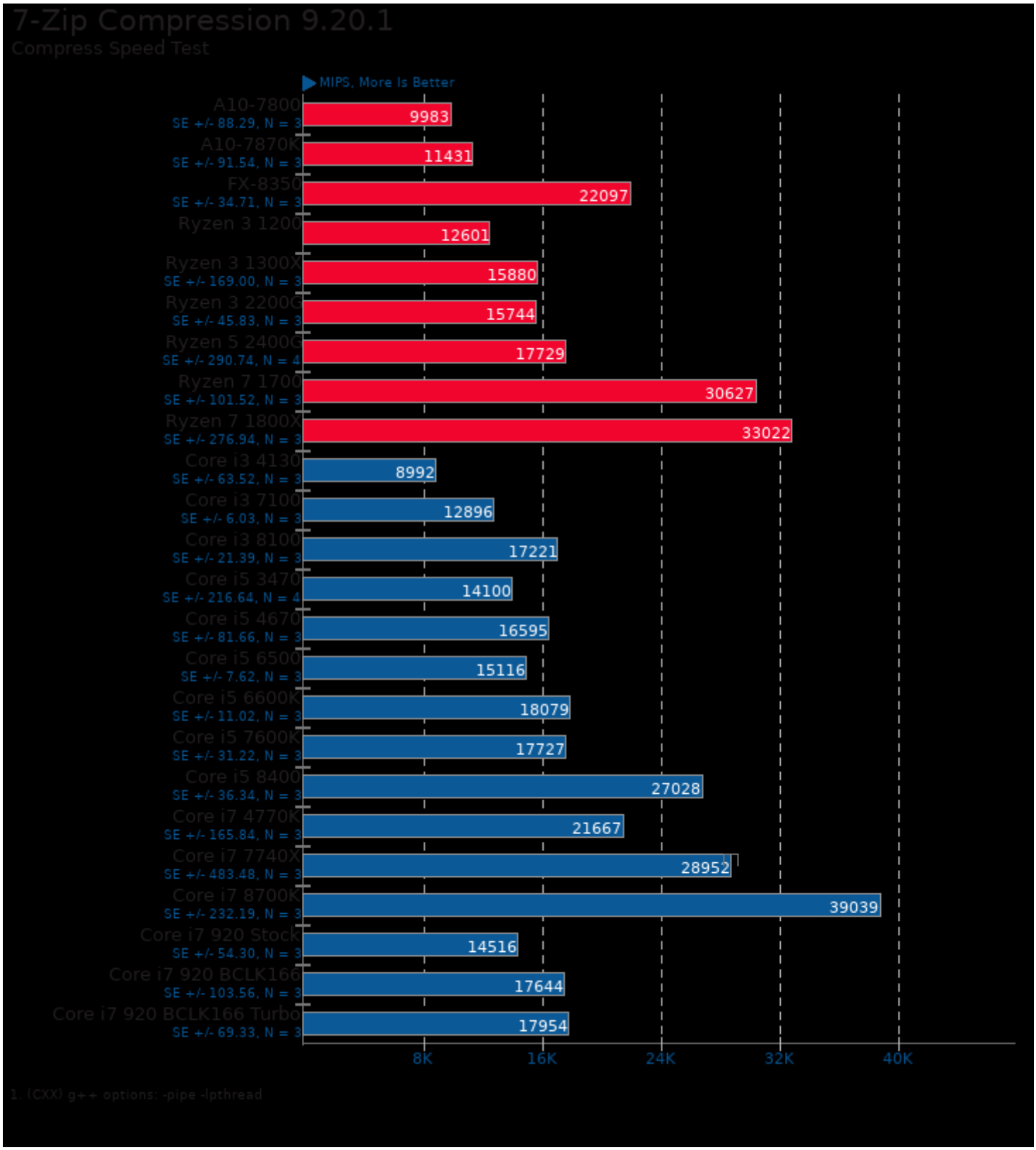

TTSIOD 3D Renderer 2.3a
Performance / Cost - Phong Rendering With Soft-Shadow Mapping
FPS Per Dollar, More Is Better
Ryzen 3 1200
1.17
Ryzen 3 1300X
1.08
Ryzen 3 2200G
1.38
Ryzen 5 2400G
1.12
Ryzen 7 1700
0.95
Ryzen 7 1800X
0.89
Core i3 8100
1.41
Core i5 8400
1.39
Core i7 8700K
1.09
0.3173
0.6346
0.9519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

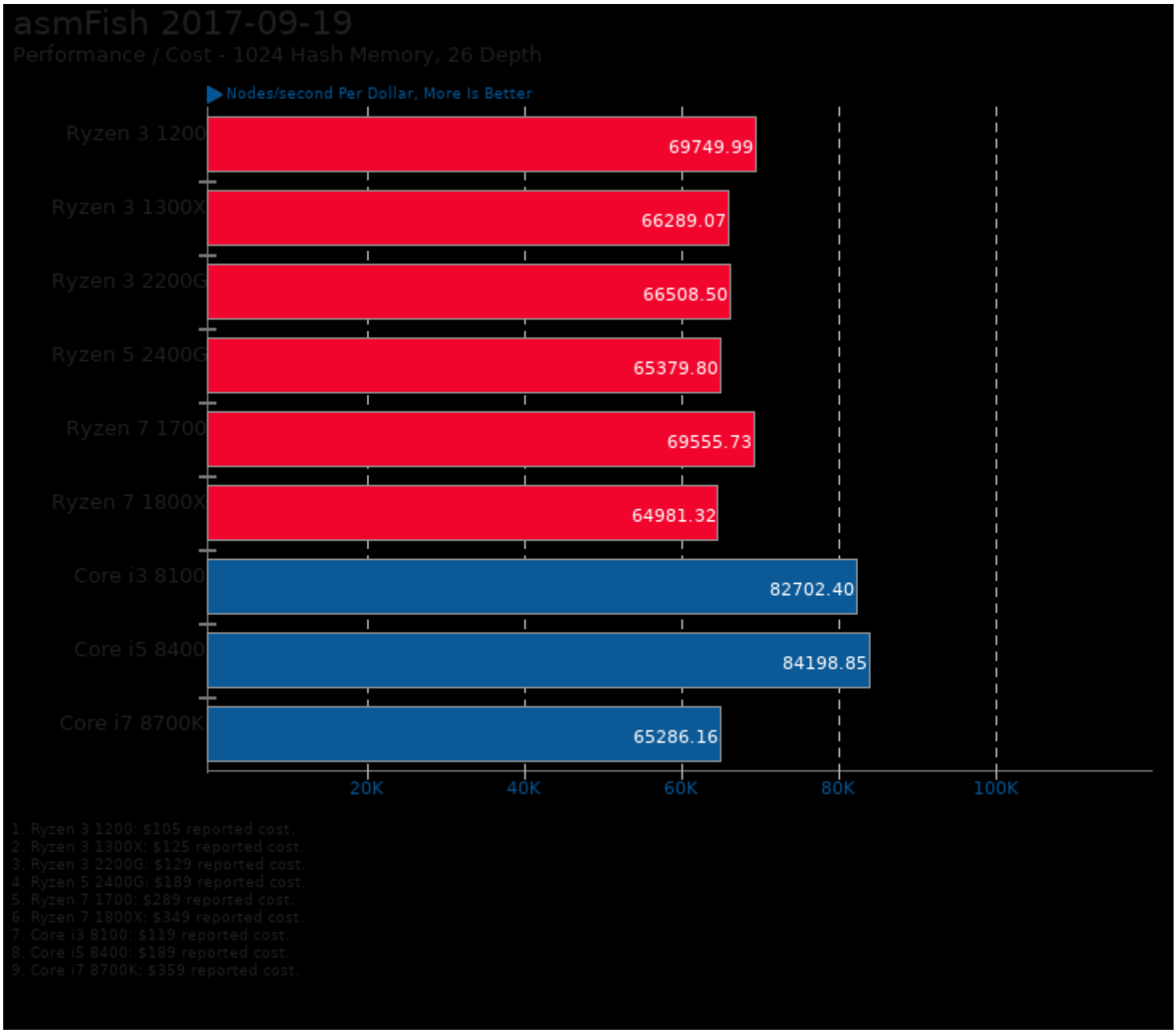

TTSIOD 3D Renderer 2.3a
Phong Rendering With Soft-Shadow Mapping
FPS, More Is Better
A10-7800
SE +/- 0.10, N = 3
67.42
A10-7870K
SE +/- 0.08, N = 3
82.93
FX-8350
SE +/- 0.85, N = 3
142.75
Ryzen 3 1200
SE +/- 0.49, N = 3
122.95
Ryzen 3 1300X
SE +/- 0.16, N = 3
134.97
Ryzen 3 2200G
SE +/- 0.83, N = 3
178.17
Ryzen 5 2400G
SE +/- 1.74, N = 3
211.60
Ryzen 7 1700
SE +/- 0.12, N = 3
274.64
Ryzen 7 1800X
SE +/- 0.35, N = 3
312.22
Core i3 4130
SE +/- 0.38, N = 3
73.55
Core i3 7100
SE +/- 0.20, N = 3
121.69
Core i3 8100
SE +/- 0.55, N = 3
168.27
Core i5 3470
SE +/- 1.47, N = 3
129.90
Core i5 4670
SE +/- 0.39, N = 3
155.77
Core i5 6500
SE +/- 0.11, N = 3
158.22
Core i5 6600K
SE +/- 1.24, N = 3
184.72
Core i5 7600K
SE +/- 0.22, N = 3
187.90
Core i5 8400
SE +/- 0.18, N = 3
263.63
Core i7 4770K
SE +/- 2.03, N = 3
204.31
Core i7 7740X
SE +/- 2.82, N = 3
277.43
Core i7 8700K
SE +/- 0.60, N = 3
391.67
Core i7 920 Stock
SE +/- 0.20, N = 3
127.47
Core i7 920 BCLK166
SE +/- 0.48, N = 3
158.94
Core i7 920 BCLK166 Turbo
SE +/- 0.07, N = 3
160.28
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++

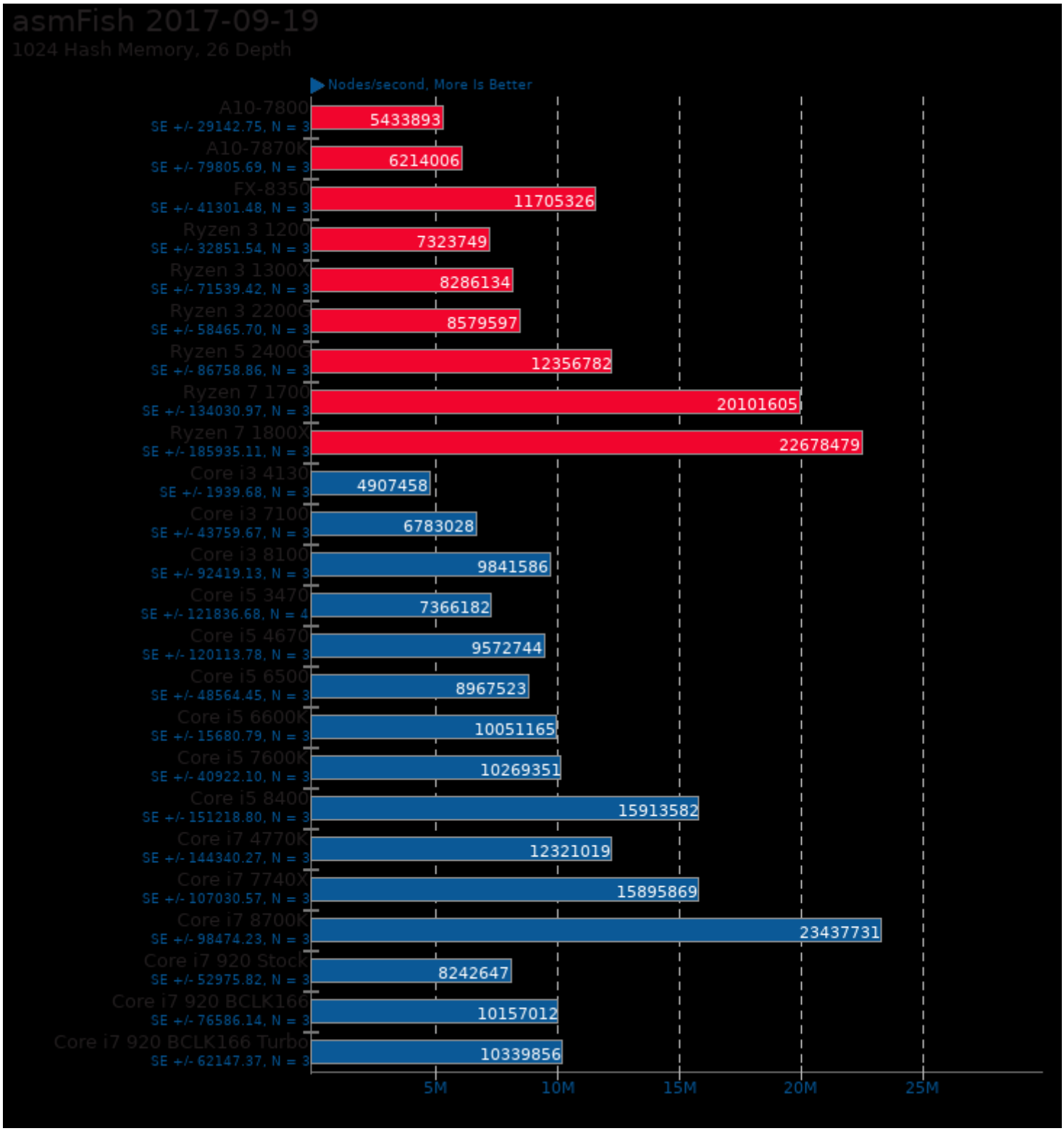

x264 2018-02-05
H.264 Video Encoding
Frames Per Second, More Is Better
A10-7800
SE +/- 0.01, N = 3
15.61
A10-7870K
SE +/- 0.00, N = 3
17.58
FX-8350
SE +/- 0.03, N = 3
30.58
Ryzen 3 1200
SE +/- 0.33, N = 6
23.47
Ryzen 3 1300X
SE +/- 0.03, N = 3
27.33
Ryzen 3 2200G
SE +/- 0.02, N = 3
27.60
Ryzen 5 2400G
SE +/- 0.58, N = 4
34.75
Ryzen 7 1700
SE +/- 1.01, N = 4
60.90
Ryzen 7 1800X
SE +/- 0.22, N = 3
71.46
Core i3 4130
SE +/- 0.02, N = 3
15.47
Core i3 7100
SE +/- 0.02, N = 3
23.89
Core i3 8100
SE +/- 0.41, N = 6
30.42
Core i5 3470
SE +/- 1.49, N = 6
19.83
Core i5 4670
SE +/- 0.48, N = 4
28.16
Core i5 6500
SE +/- 0.06, N = 3
28.47
Core i5 6600K
SE +/- 0.03, N = 3
33.11
Core i5 7600K
SE +/- 0.01, N = 3
33.49
Core i5 8400
SE +/- 0.06, N = 3
56.11
Core i7 4770K
SE +/- 0.02, N = 3
37.64
Core i7 7740X
SE +/- 0.17, N = 3
49.95
Core i7 8700K
SE +/- 0.22, N = 3
72.96
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

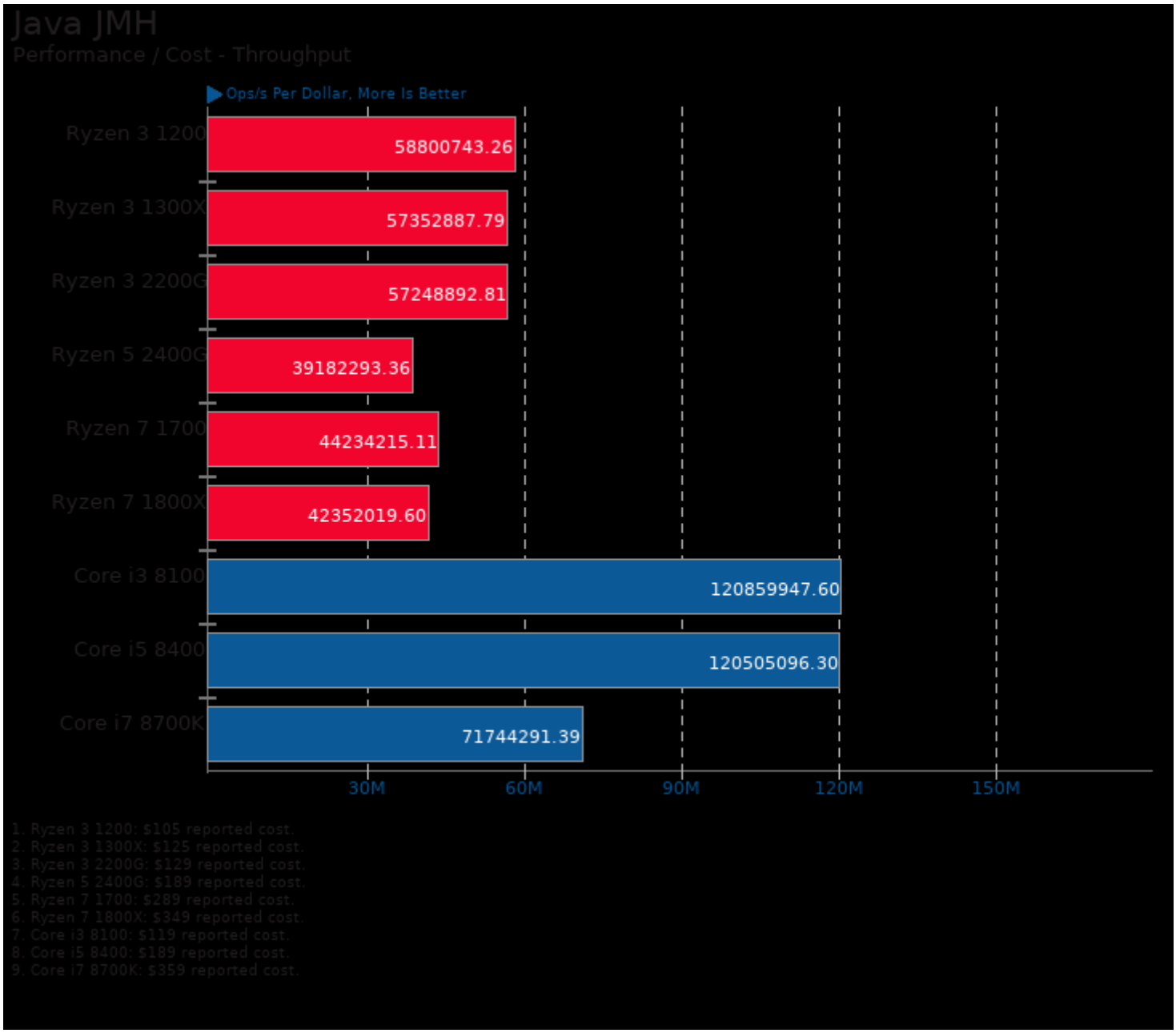

x264 2018-02-05
Performance / Cost - H.264 Video Encoding
Frames Per Second Per Dollar, More Is Better
Ryzen 3 1200
0.22
Ryzen 3 1300X
0.22
Ryzen 3 2200G
0.21
Ryzen 5 2400G
0.18
Ryzen 7 1700
0.21
Ryzen 7 1800X
0.20
Core i3 8100
0.26
Core i5 8400
0.30
Core i7 8700K
0.20
0.0675
0.135
0.2025
0.27
0.3375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

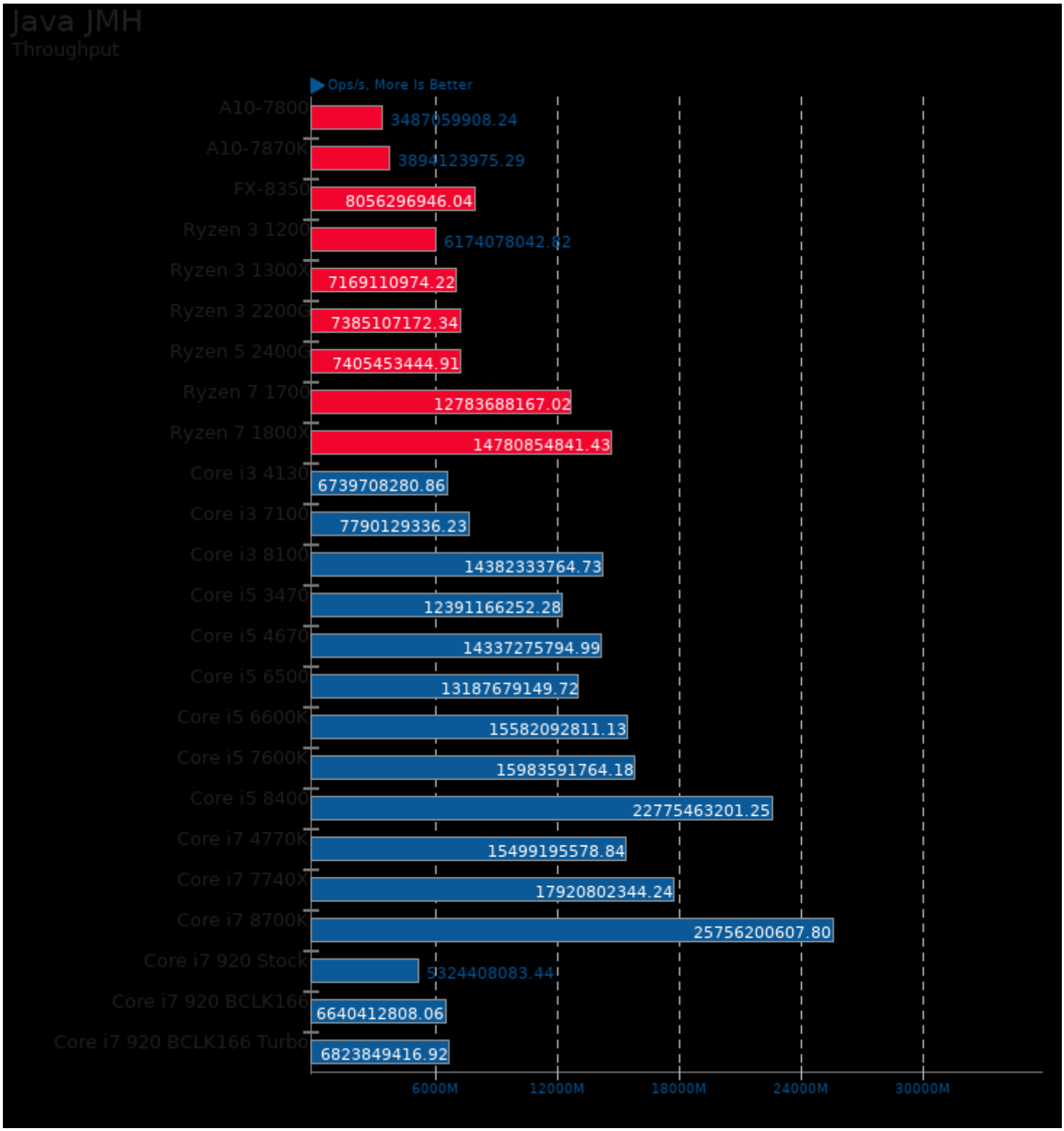

7-Zip Compression 9.20.1
Performance / Cost - Compress Speed Test
MIPS Per Dollar, More Is Better
Ryzen 3 1200
120.01
Ryzen 3 1300X
127.04
Ryzen 3 2200G
122.05
Ryzen 5 2400G
93.80
Ryzen 7 1700
105.98
Ryzen 7 1800X
94.62
Core i3 8100
144.71
Core i5 8400
143.01
Core i7 8700K
108.74
30
60
90
120
150
1.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

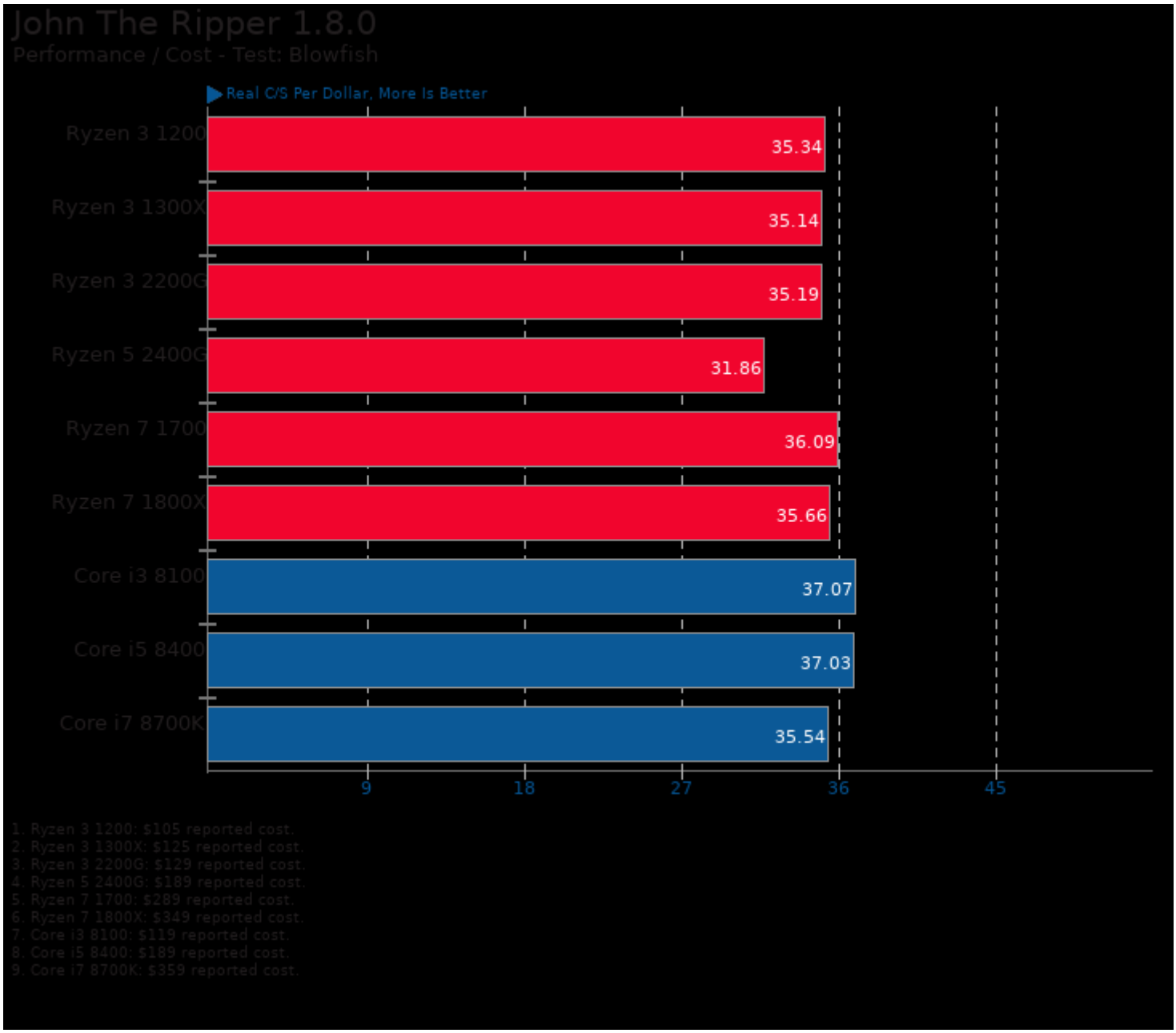

7-Zip Compression 9.20.1
Compress Speed Test
MIPS, More Is Better
A10-7800
SE +/- 88.29, N = 3
9983
A10-7870K
SE +/- 91.54, N = 3
11431
FX-8350
SE +/- 34.71, N = 3
22097
Ryzen 3 1200
12601
Ryzen 3 1300X
SE +/- 169.00, N = 3
15880
Ryzen 3 2200G
SE +/- 45.83, N = 3
15744
Ryzen 5 2400G
SE +/- 290.74, N = 4
17729
Ryzen 7 1700
SE +/- 101.52, N = 3
30627
Ryzen 7 1800X
SE +/- 276.94, N = 3
33022
Core i3 4130
SE +/- 63.52, N = 3
8992
Core i3 7100
SE +/- 6.03, N = 3
12896
Core i3 8100
SE +/- 21.39, N = 3
17221
Core i5 3470
SE +/- 216.64, N = 4
14100
Core i5 4670
SE +/- 81.66, N = 3
16595
Core i5 6500
SE +/- 7.62, N = 3
15116
Core i5 6600K
SE +/- 11.02, N = 3
18079
Core i5 7600K
SE +/- 31.22, N = 3
17727
Core i5 8400
SE +/- 36.34, N = 3
27028
Core i7 4770K
SE +/- 165.84, N = 3
21667
Core i7 7740X
SE +/- 483.48, N = 3
28952
Core i7 8700K
SE +/- 232.19, N = 3
39039
Core i7 920 Stock
SE +/- 54.30, N = 3
14516
Core i7 920 BCLK166
SE +/- 103.56, N = 3
17644
Core i7 920 BCLK166 Turbo
SE +/- 69.33, N = 3
17954
8K
16K
24K
32K
40K
1. (CXX) g++ options: -pipe -lpthread

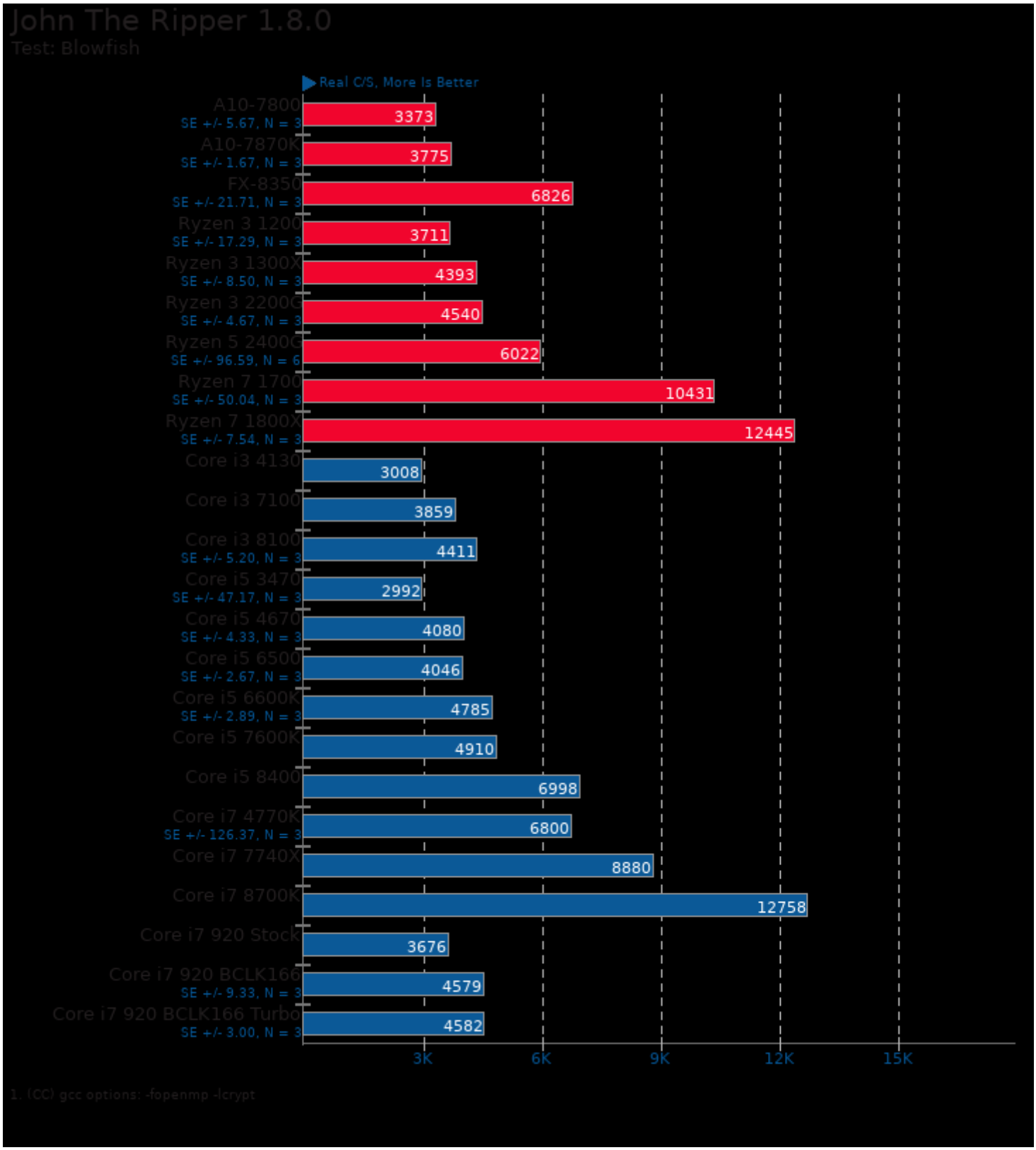

asmFish 2017-09-19
Performance / Cost - 1024 Hash Memory, 26 Depth
Nodes/second Per Dollar, More Is Better
Ryzen 3 1200
69749.99
Ryzen 3 1300X
66289.07
Ryzen 3 2200G
66508.50
Ryzen 5 2400G
65379.80
Ryzen 7 1700
69555.73
Ryzen 7 1800X
64981.32
Core i3 8100
82702.40
Core i5 8400
84198.85
Core i7 8700K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

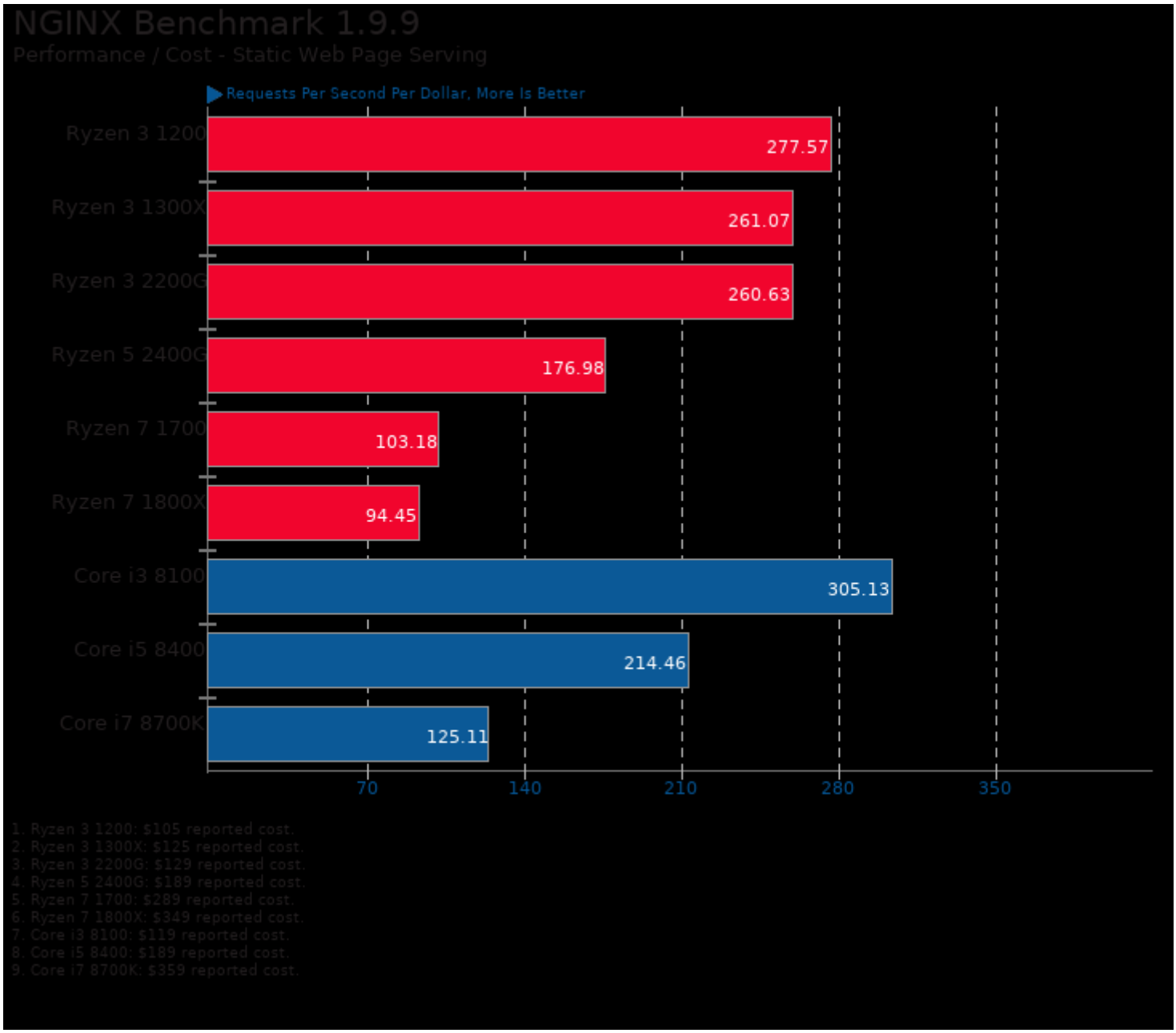

asmFish 2017-09-19
1024 Hash Memory, 26 Depth
Nodes/second, More Is Better
A10-7800
SE +/- 29142.75, N = 3
5433893
A10-7870K
SE +/- 79805.69, N = 3
6214006
FX-8350
SE +/- 41301.48, N = 3
11705326
Ryzen 3 1200
SE +/- 32851.54, N = 3
7323749
Ryzen 3 1300X
SE +/- 71539.42, N = 3
8286134
Ryzen 3 2200G
SE +/- 58465.70, N = 3
8579597
Ryzen 5 2400G
SE +/- 86758.86, N = 3
12356782
Ryzen 7 1700
SE +/- 134030.97, N = 3
20101605
Ryzen 7 1800X
SE +/- 185935.11, N = 3
22678479
Core i3 4130
SE +/- 1939.68, N = 3
4907458
Core i3 7100
SE +/- 43759.67, N = 3
6783028
Core i3 8100
SE +/- 92419.13, N = 3
9841586
Core i5 3470
SE +/- 121836.68, N = 4
7366182
Core i5 4670
SE +/- 120113.78, N = 3
9572744
Core i5 6500
SE +/- 48564.45, N = 3
8967523
Core i5 6600K
SE +/- 15680.79, N = 3
10051165
Core i5 7600K
SE +/- 40922.10, N = 3
10269351
Core i5 8400
SE +/- 151218.80, N = 3
15913582
Core i7 4770K
SE +/- 144340.27, N = 3
12321019
Core i7 7740X
SE +/- 107030.57, N = 3
15895869
Core i7 8700K
SE +/- 98474.23, N = 3
23437731
Core i7 920 Stock
SE +/- 52975.82, N = 3
8242647
Core i7 920 BCLK166
SE +/- 76586.14, N = 3
10157012
Core i7 920 BCLK166 Turbo
SE +/- 62147.37, N = 3
10339856
5M
10M
15M
20M
25M

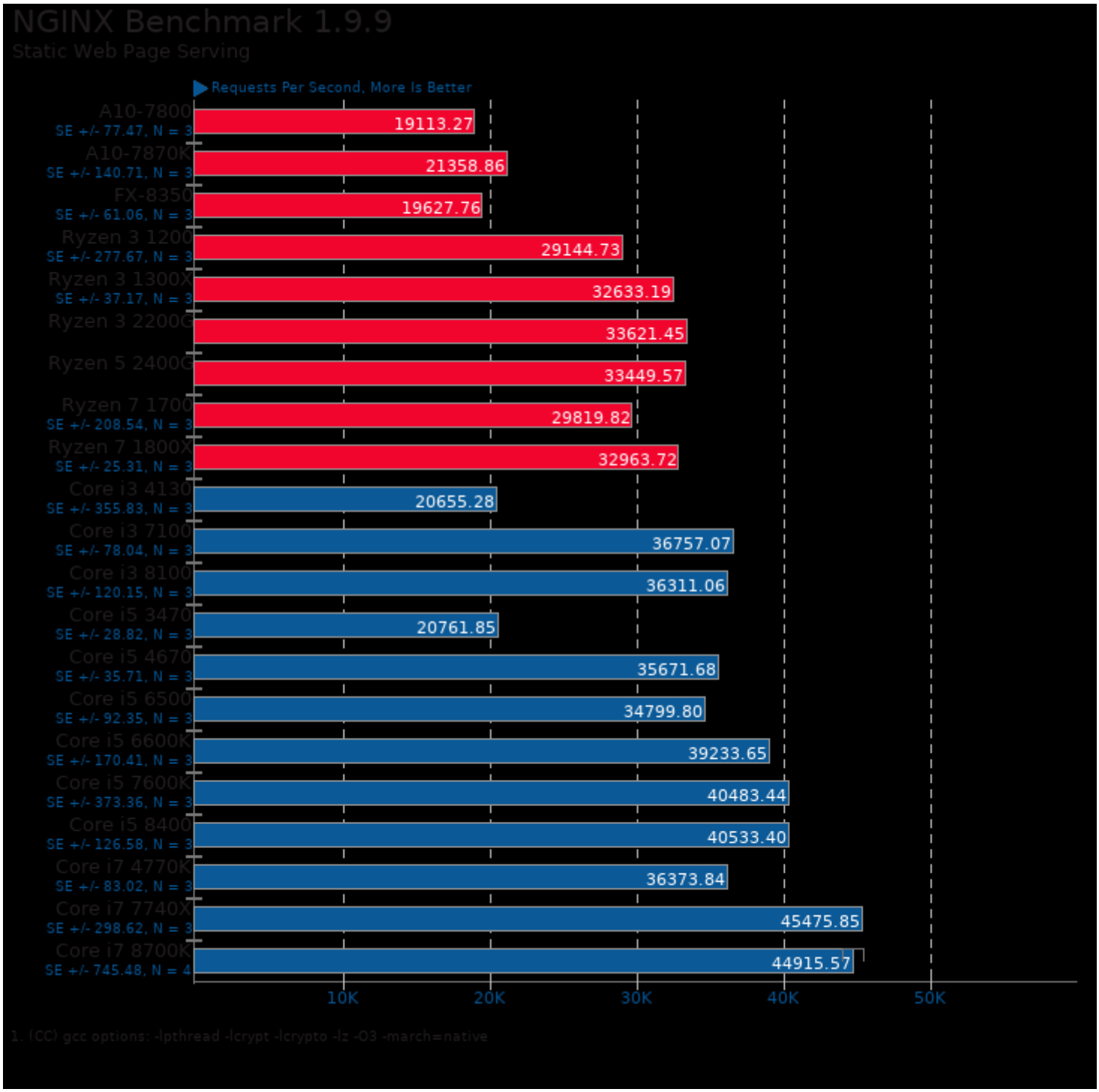

Java JMH
Performance / Cost - Throughput
Ops/s Per Dollar, More Is Better
Ryzen 3 1200
58800743.26
Ryzen 3 1300X
57352887.79
Ryzen 3 2200G
57248892.81
Ryzen 5 2400G
39182293.36
Ryzen 7 1700
44234215.11
Ryzen 7 1800X
42352019.60
Core i3 8100
120859947.60
Core i5 8400
120505096.30
Core i7 8700K
71744291.39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

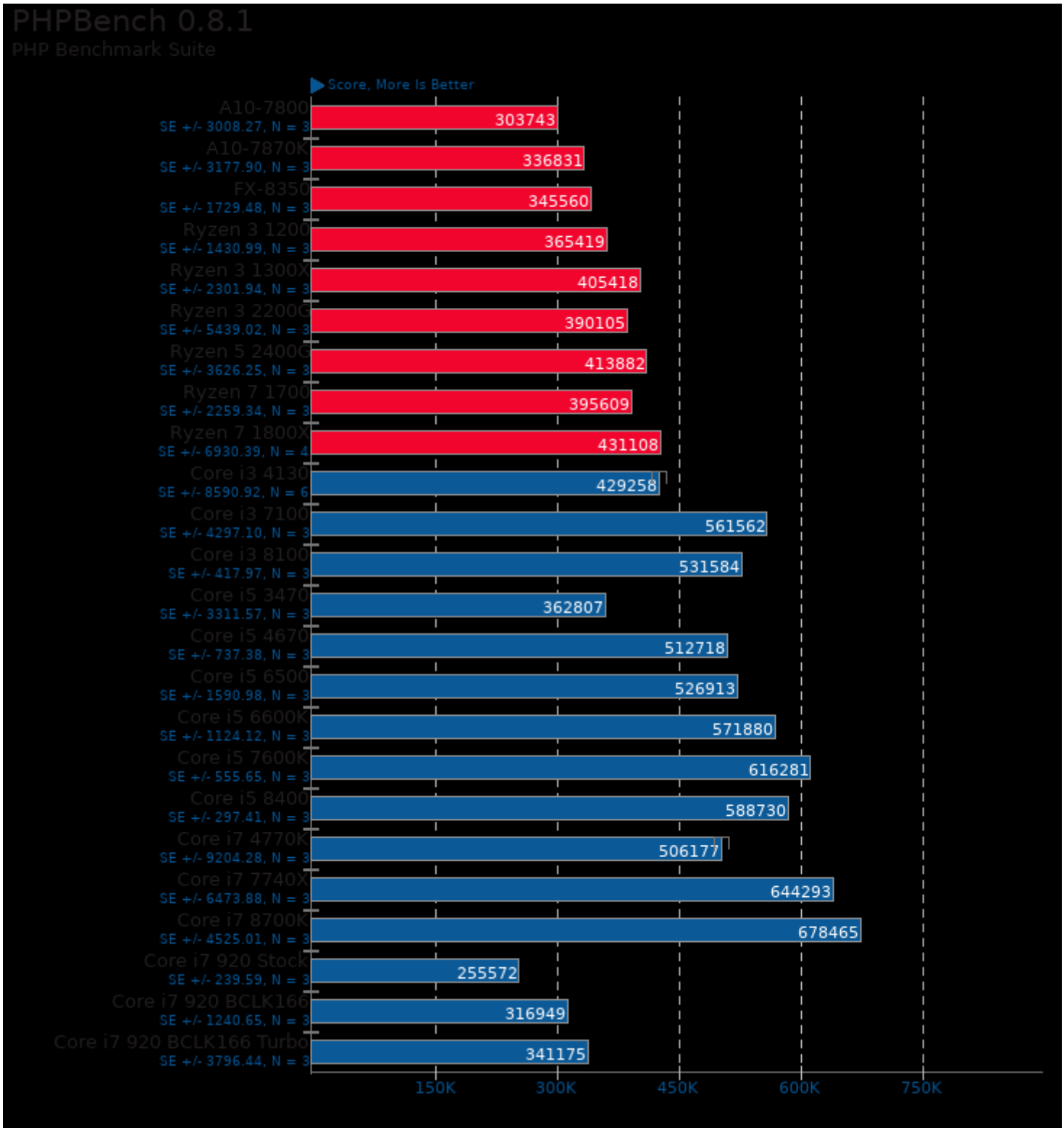

Java JMH
Throughput
Ops/s, More Is Better
A10-7800 3487059908.24
A10-7870K 3894123975.29
FX-8350 8056296946.04
Ryzen 3 1200 6174078042.82
Ryzen 3 1300X 7169110974.22
Ryzen 3 2200G 7385107172.34
Ryzen 5 2400G 7405453444.91
Ryzen 7 1700 12783688167.02
Ryzen 7 1800X 14780854841.43
Core i3 4130 6739708280.86
Core i3 7100 7790129336.23
Core i3 8100 14382333764.73
Core i5 3470 12391166252.28
Core i5 4670 14337275794.99
Core i5 6500 13187679149.72
Core i5 6600K 15582092811.13
Core i5 7600K 15983591764.18
Core i5 8400 22775463201.25
Core i7 4770K 15499195578.84
Core i7 7740X 17920802344.24
Core i7 8700K 25756200607.80
Core i7 920 Stock 5324408083.44
Core i7 920 BCLK166 6640412808.06
Core i7 920 BCLK166 Turbo 6823849416.92
6000M
12000M
18000M
24000M
30000M

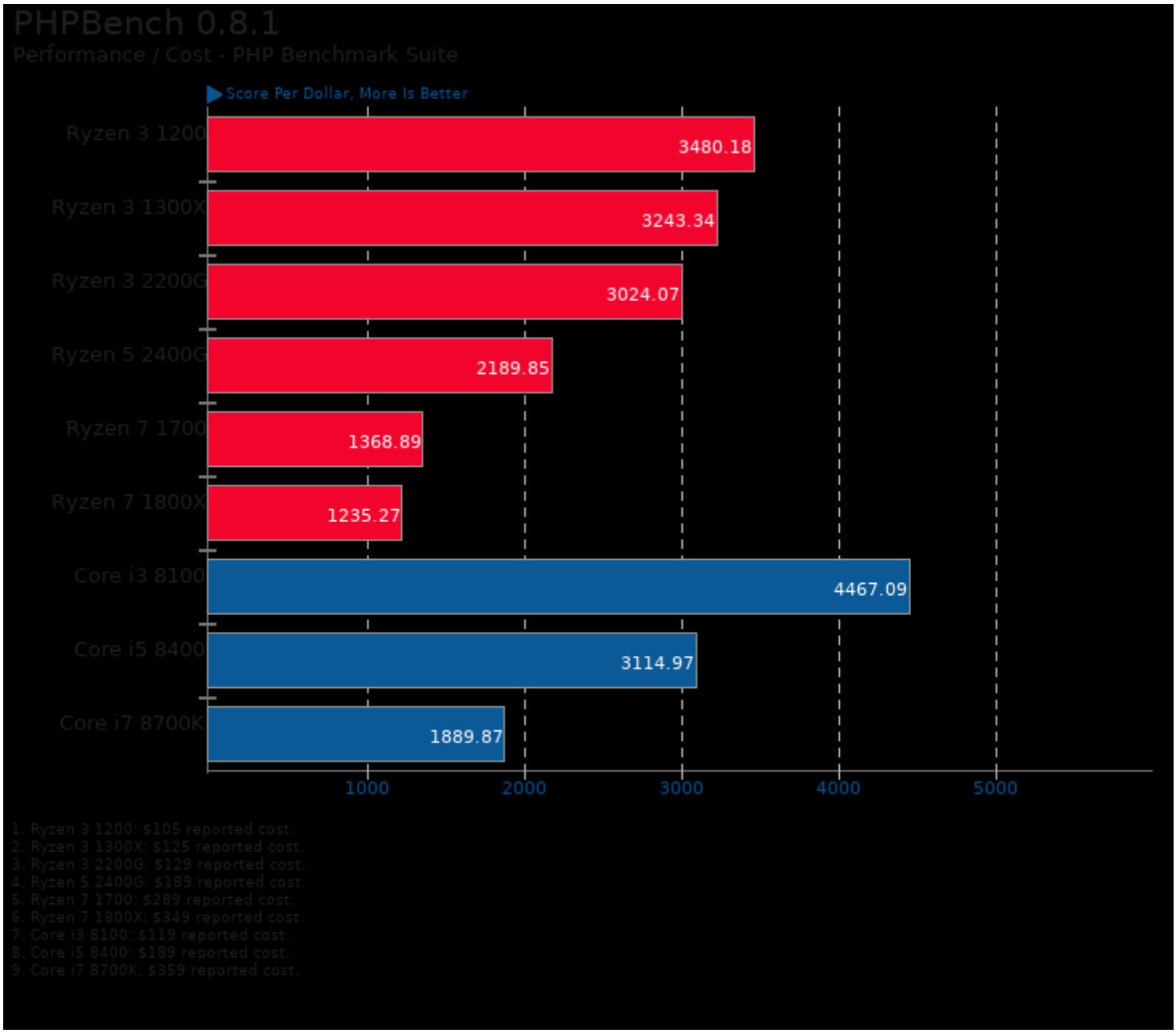

John The Ripper 1.8.0
Performance / Cost - Test: Blowfish
Real C/S Per Dollar, More Is Better
Ryzen 3 1200
35.34
Ryzen 3 1300X
35.14
Ryzen 3 2200G
35.19
Ryzen 5 2400G
31.86
Ryzen 7 1700
36.09
Ryzen 7 1800X
35.66
Core i3 8100
37.07
Core i5 8400
37.03
Core i7 8700K
35.54
9
18
27
36
45
1. Ryzen 3 1200: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

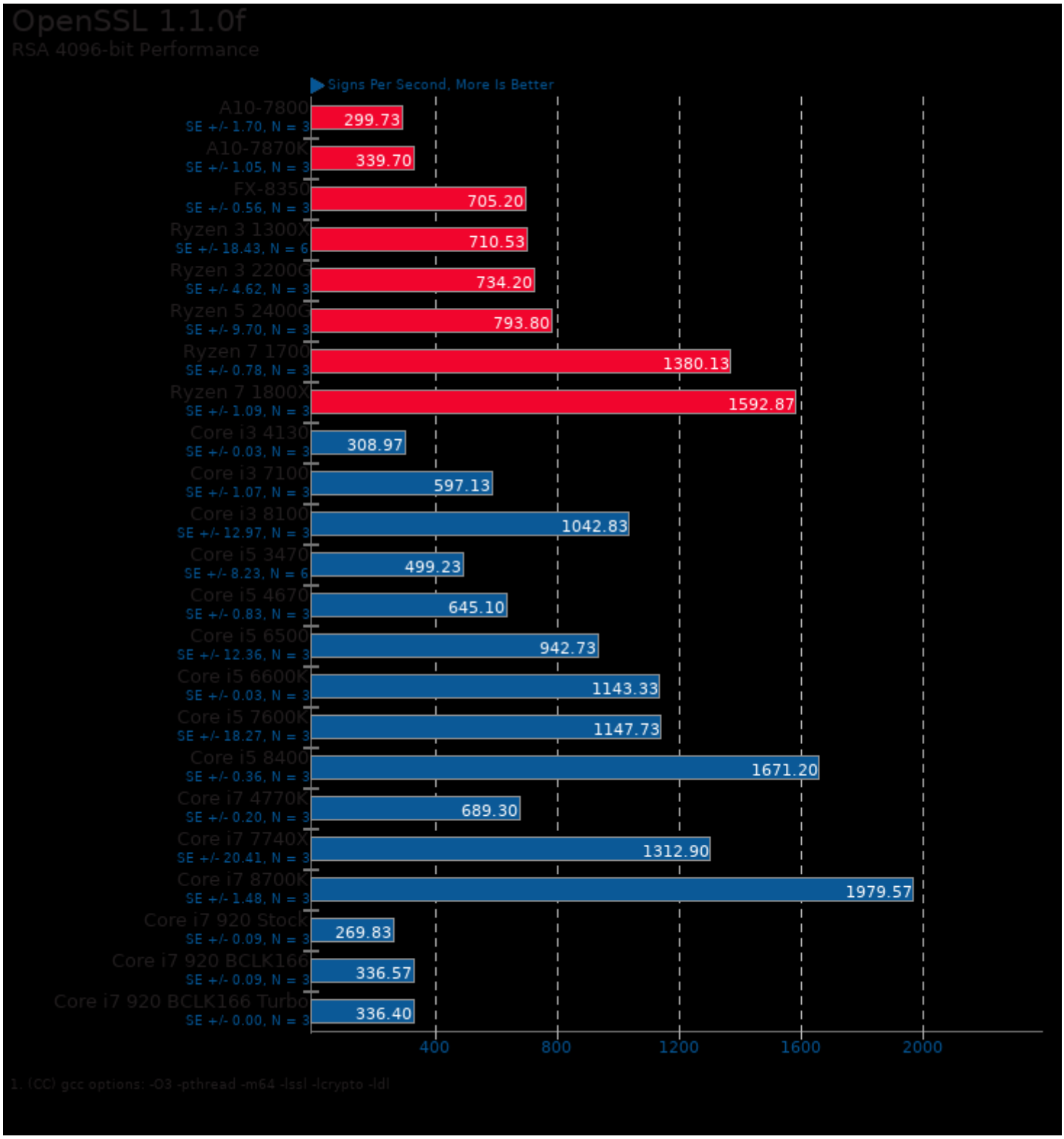

John The Ripper 1.8.0
Test: Blowfish
Real C/S, More Is Better
A10-7800
SE +/- 5.67, N = 3
3373
A10-7870K
SE +/- 1.67, N = 3
3775
FX-8350
SE +/- 21.71, N = 3
6826
Ryzen 3 1200
SE +/- 17.29, N = 3
3711
Ryzen 3 1300X
SE +/- 8.50, N = 3
4393
Ryzen 3 2200G
SE +/- 4.67, N = 3
4540
Ryzen 5 2400G
SE +/- 96.59, N = 6
6022
Ryzen 7 1700
SE +/- 50.04, N = 3
10431
Ryzen 7 1800X
SE +/- 7.54, N = 3
12445
Core i3 4130
3008
Core i3 7100
3859
Core i3 8100
SE +/- 5.20, N = 3
4411
Core i5 3470
SE +/- 47.17, N = 3
2992
Core i5 4670
SE +/- 4.33, N = 3
4080
Core i5 6500
SE +/- 2.67, N = 3
4046
Core i5 6600K
SE +/- 2.89, N = 3
4785
Core i5 7600K
4910
Core i5 8400
6998
Core i7 4770K
SE +/- 126.37, N = 3
6800
Core i7 7740X
8880
Core i7 8700K
12758
Core i7 920 Stock
3676
Core i7 920 BCLK166
SE +/- 9.33, N = 3
4579
Core i7 920 BCLK166 Turbo
SE +/- 3.00, N = 3
4582
3K
6K
9K
12K
15K
1. (CC) gcc options: -fopenmp -lcrypt

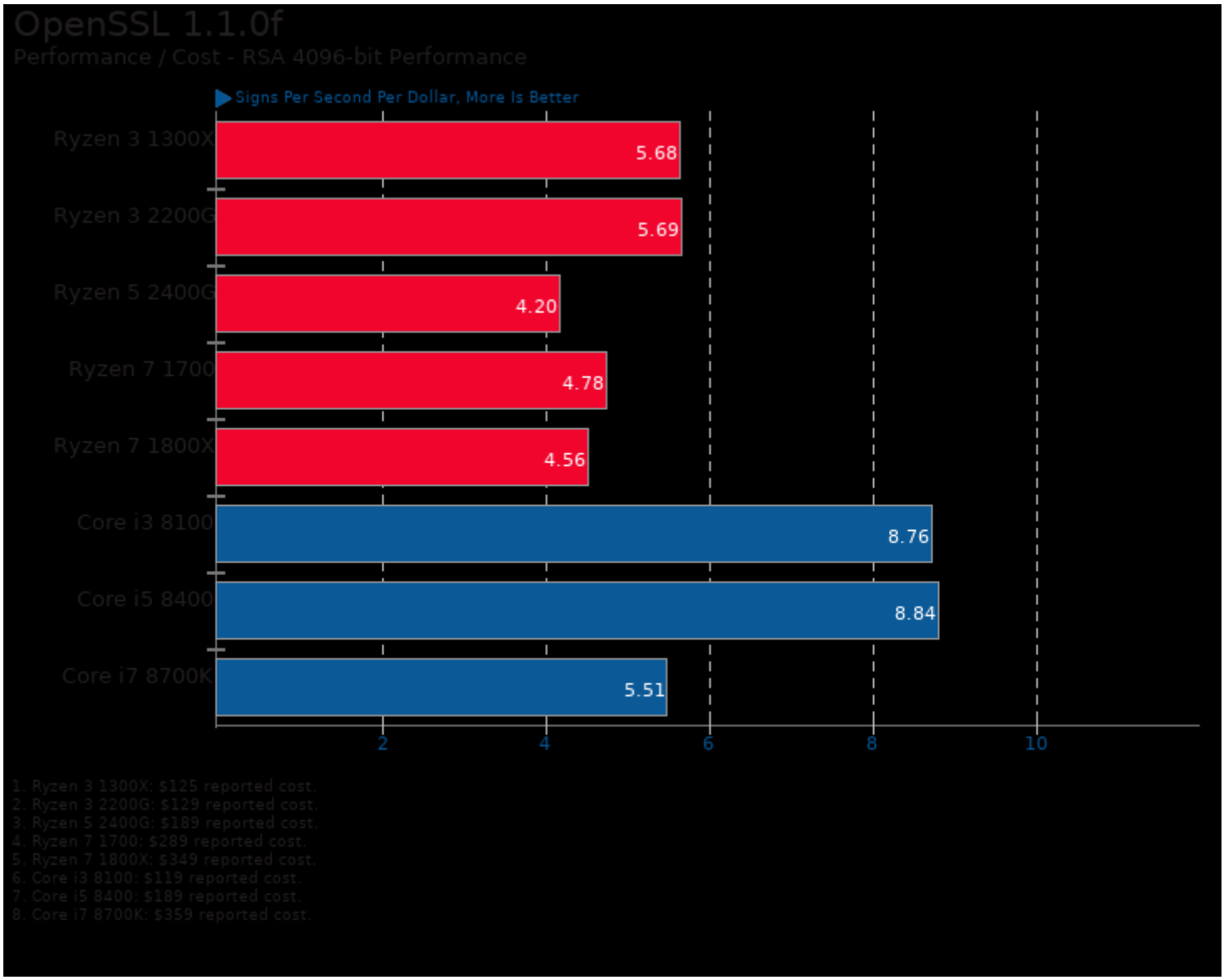

NGINX Benchmark 1.9.9
Performance / Cost - Static Web Page Serving
Requests Per Second Per Dollar, More Is Better
Ryzen 3 1200
277.57
Ryzen 3 1300X
261.07
Ryzen 3 2200G
260.63
Ryzen 5 2400G
176.98
Ryzen 7 1700
103.18
Ryzen 7 1800X
94.45
Core i3 8100
305.13
Core i5 8400
214.46
Core i7 8700K
125.11
70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

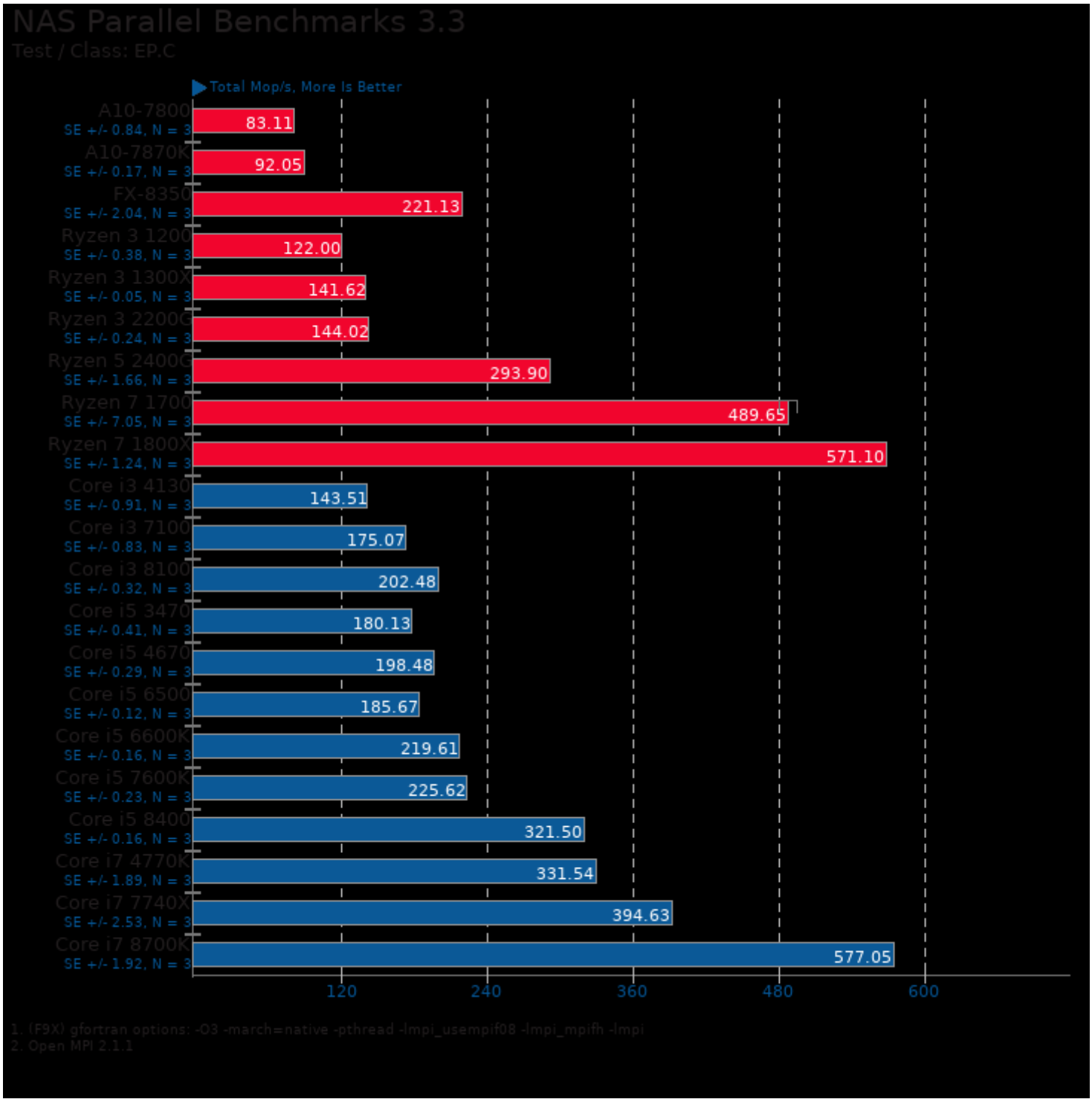

NGINX Benchmark 1.9.9
Static Web Page Serving
Requests Per Second, More Is Better
A10-7800
SE +/- 77.47, N = 3
19113.27
A10-7870K
SE +/- 140.71, N = 3
21358.86
FX-8350
SE +/- 61.06, N = 3
19627.76
Ryzen 3 1200
SE +/- 277.67, N = 3
29144.73
Ryzen 3 1300X
SE +/- 37.17, N = 3
32633.19
Ryzen 3 2200G
33621.45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

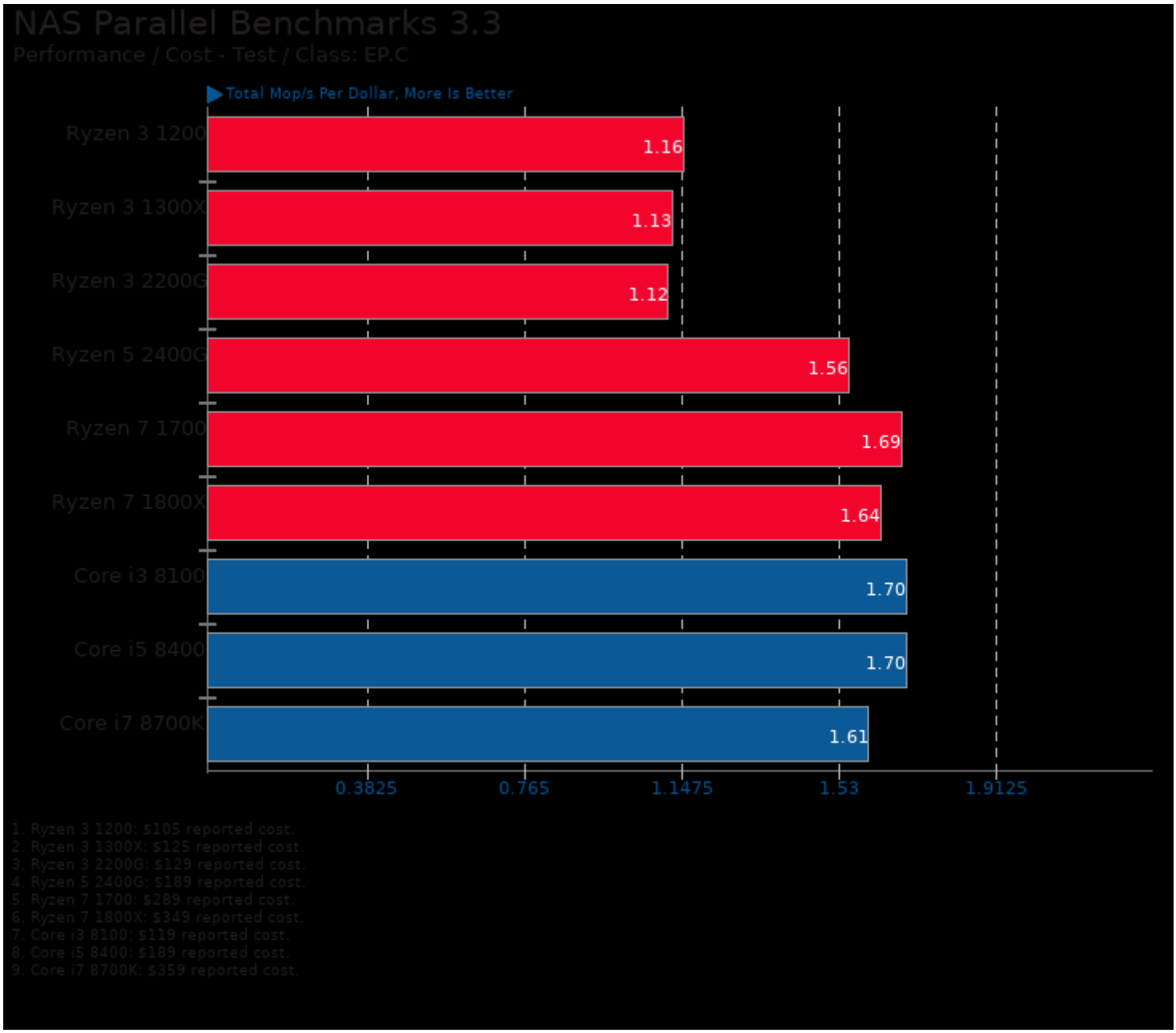

PHPBench 0.8.1
PHP Benchmark Suite
Score, More Is Better
A10-7800
SE +/- 3008.27, N = 3
303743
A10-7870K
SE +/- 3177.90, N = 3
336831
FX-8350
SE +/- 1729.48, N = 3
345560
Ryzen 3 1200
SE +/- 1430.99, N = 3
365419
Ryzen 3 1300X
SE +/- 2301.94, N = 3
405418
Ryzen 3 2200G
SE +/- 5439.02, N = 3
390105
Ryzen 5 2400G
SE +/- 3626.25, N = 3
413882
Ryzen 7 1700
SE +/- 2259.34, N = 3
395609
Ryzen 7 1800X
SE +/- 6930.39, N = 4
431108
Core i3 4130
SE +/- 8590.92, N = 6
429258
Core i3 7100
SE +/- 4297.10, N = 3
561562
Core i3 8100
SE +/- 417.97, N = 3
531584
Core i5 3470
SE +/- 3311.57, N = 3
362807
Core i5 4670
SE +/- 737.38, N = 3
512718
Core i5 6500
SE +/- 1590.98, N = 3
526913
Core i5 6600K
SE +/- 1124.12, N = 3
571880
Core i5 7600K
SE +/- 555.65, N = 3
616281
Core i5 8400
SE +/- 297.41, N = 3
588730
Core i7 4770K
SE +/- 9204.28, N = 3
506177
Core i7 7740X
SE +/- 6473.88, N = 3
644293
Core i7 8700K
SE +/- 4525.01, N = 3
678465
Core i7 920 Stock
SE +/- 239.59, N = 3
255572
Core i7 920 BCLK166
SE +/- 1240.65, N = 3
316949
Core i7 920 BCLK166 Turbo
SE +/- 3796.44, N = 3
341175
150K
300K
450K
600K
750K

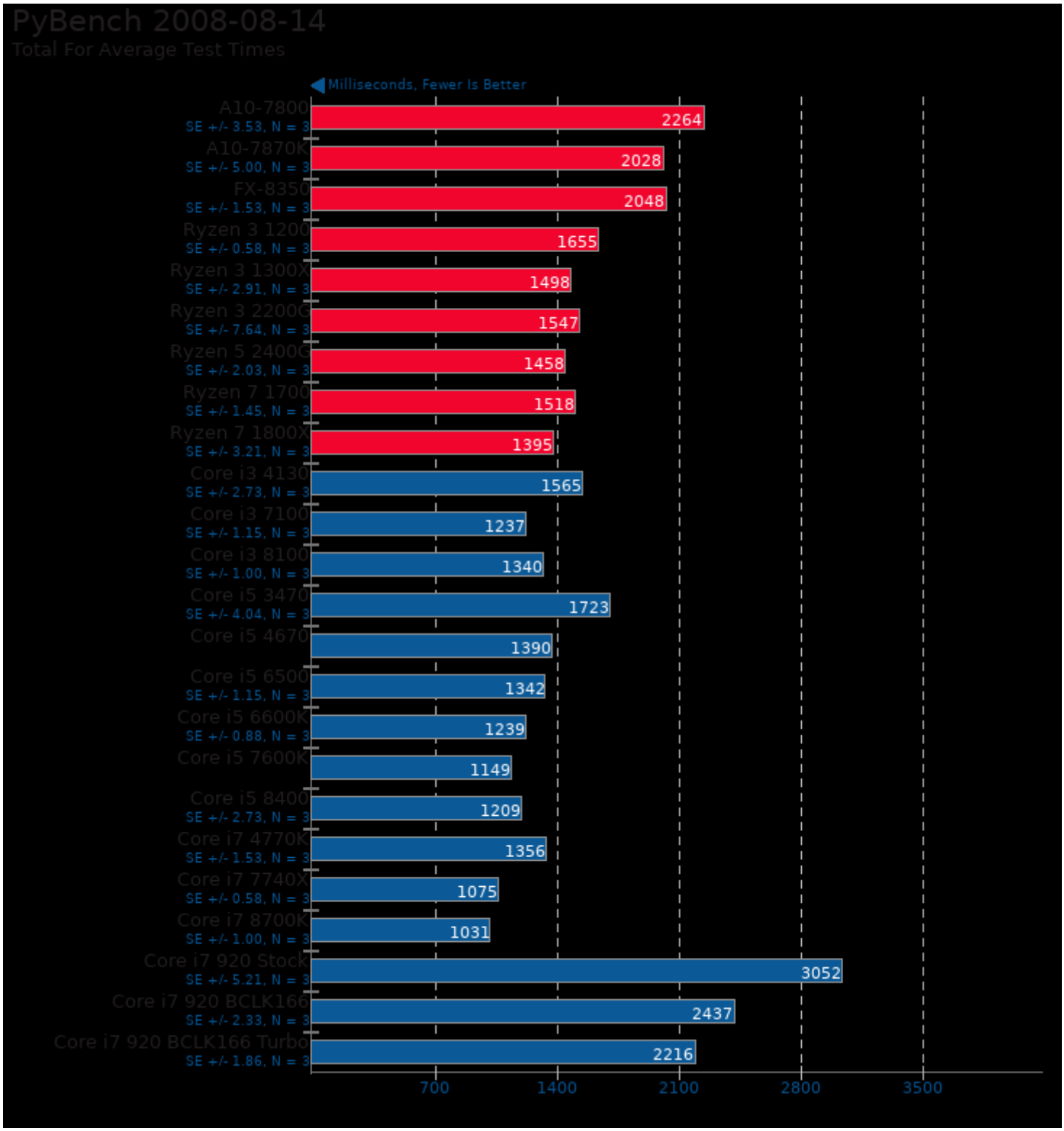

PHPBench 0.8.1
Performance / Cost - PHP Benchmark Suite
Score Per Dollar, More Is Better
Ryzen 3 1200
3480.18
Ryzen 3 1300X
3243.34
Ryzen 3 2200G
3024.07
Ryzen 5 2400G
2189.85
Ryzen 7 1700
1368.89
Ryzen 7 1800X
1235.27
Core i3 8100
4467.09
Core i5 8400
3114.97
Core i7 8700K
1889.87
1000
2000
3000
4000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

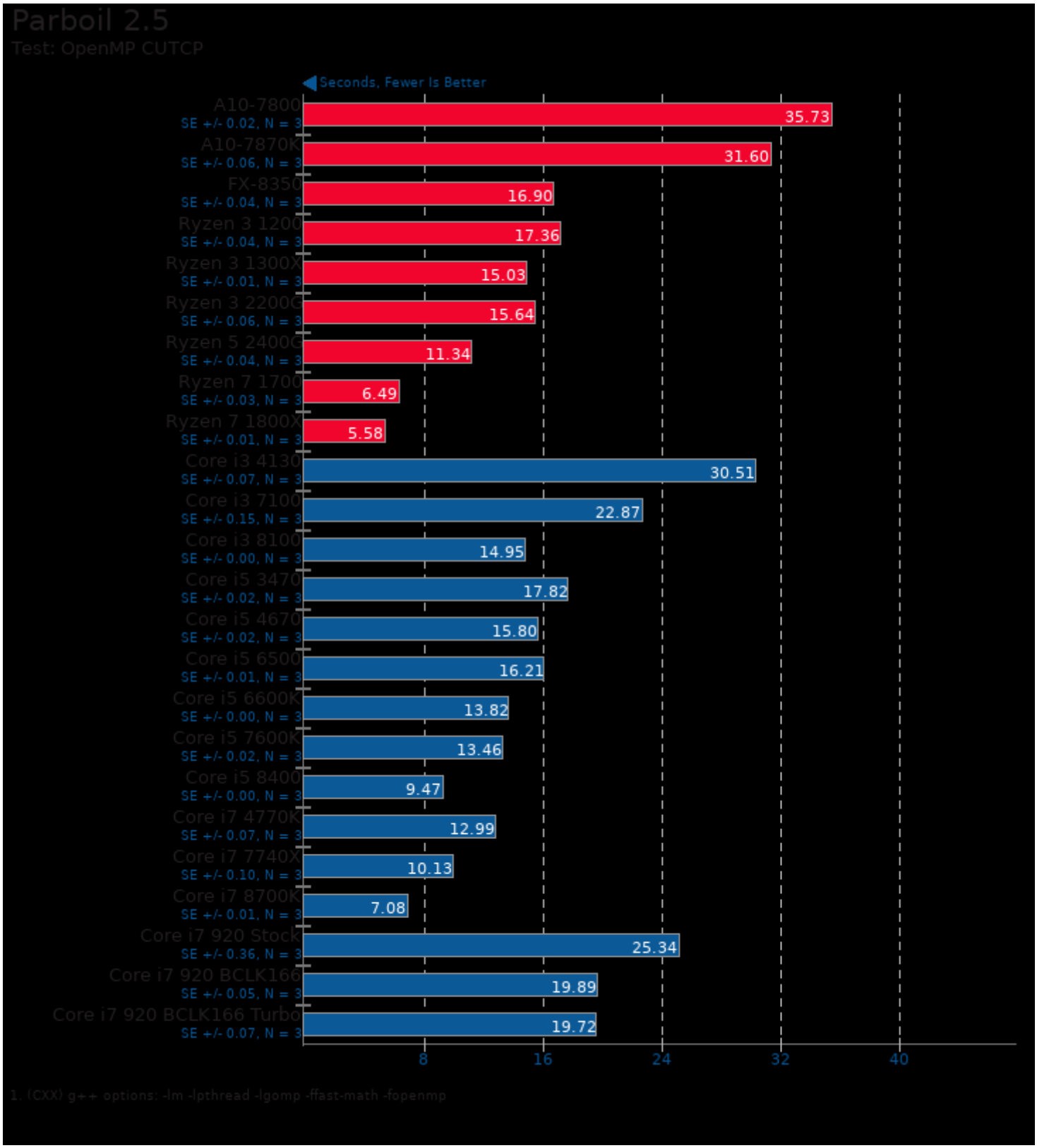

OpenSSL 1.1.0f
RSA 4096-bit Performance
Signs Per Second, More Is Better
A10-7800
SE +/- 1.70, N = 3
299.73
A10-7870K
SE +/- 1.05, N = 3
339.70
FX-8350
SE +/- 0.56, N = 3
705.20
Ryzen 3 1300X
SE +/- 18.43, N = 6
710.53
Ryzen 3 2200G
SE +/- 4.62, N = 3
734.20
Ryzen 5 2400G
SE +/- 9.70, N = 3
793.80
Ryzen 7 1700
SE +/- 0.78, N = 3
1380.13
Ryzen 7 1800X
SE +/- 1.09, N = 3
1592.87
Core i3 4130
SE +/- 0.03, N = 3
308.97
Core i3 7100
SE +/- 1.07, N = 3
597.13
Core i3 8100
SE +/- 12.97, N = 3
1042.83
Core i5 3470
SE +/- 8.23, N = 6
499.23
Core i5 4670
SE +/- 0.83, N = 3
645.10
Core i5 6500
SE +/- 12.36, N = 3
942.73
Core i5 6600K
SE +/- 0.03, N = 3
1143.33
Core i5 7600K
SE +/- 18.27, N = 3
1147.73
Core i5 8400
SE +/- 0.36, N = 3
1671.20
Core i7 4770K
SE +/- 0.20, N = 3
689.30
Core i7 7740X
SE +/- 20.41, N = 3
1312.90
Core i7 8700K
SE +/- 1.48, N = 3
1979.57
Core i7 920 Stock
SE +/- 0.09, N = 3
269.83
Core i7 920 BCLK166
SE +/- 0.09, N = 3
336.57
Core i7 920 BCLK166 Turbo
SE +/- 0.00, N = 3
336.40
400
800
1200
1600
2000
1. (CC) gcc options: -O3 -pthread -m64 -lssl -lcrypto -ldl

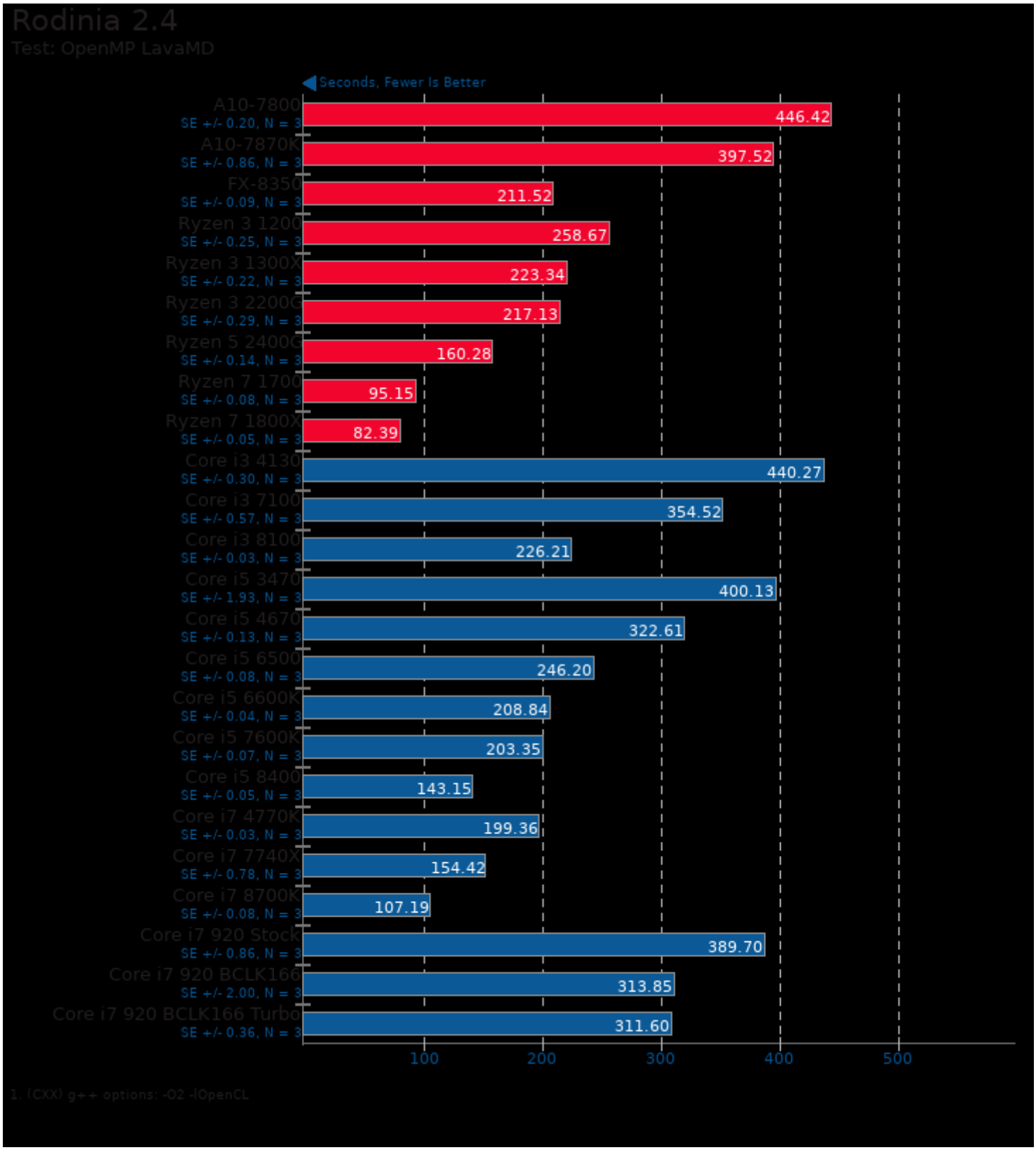

OpenSSL 1.1.0f
Performance / Cost - RSA 4096-bit Performance
Signs Per Second Per Dollar, More Is Better
Ryzen 3 1300X
5.68
Ryzen 3 2200G
5.69
Ryzen 5 2400G
4.20
Ryzen 7 1700
4.78
Ryzen 7 1800X
4.56
Core i3 8100
8.76
Core i5 8400
8.84
Core i7 8700K
5.51
2
4
6
8
10
1. Ryzen 3 1300X: $125 reported cost.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

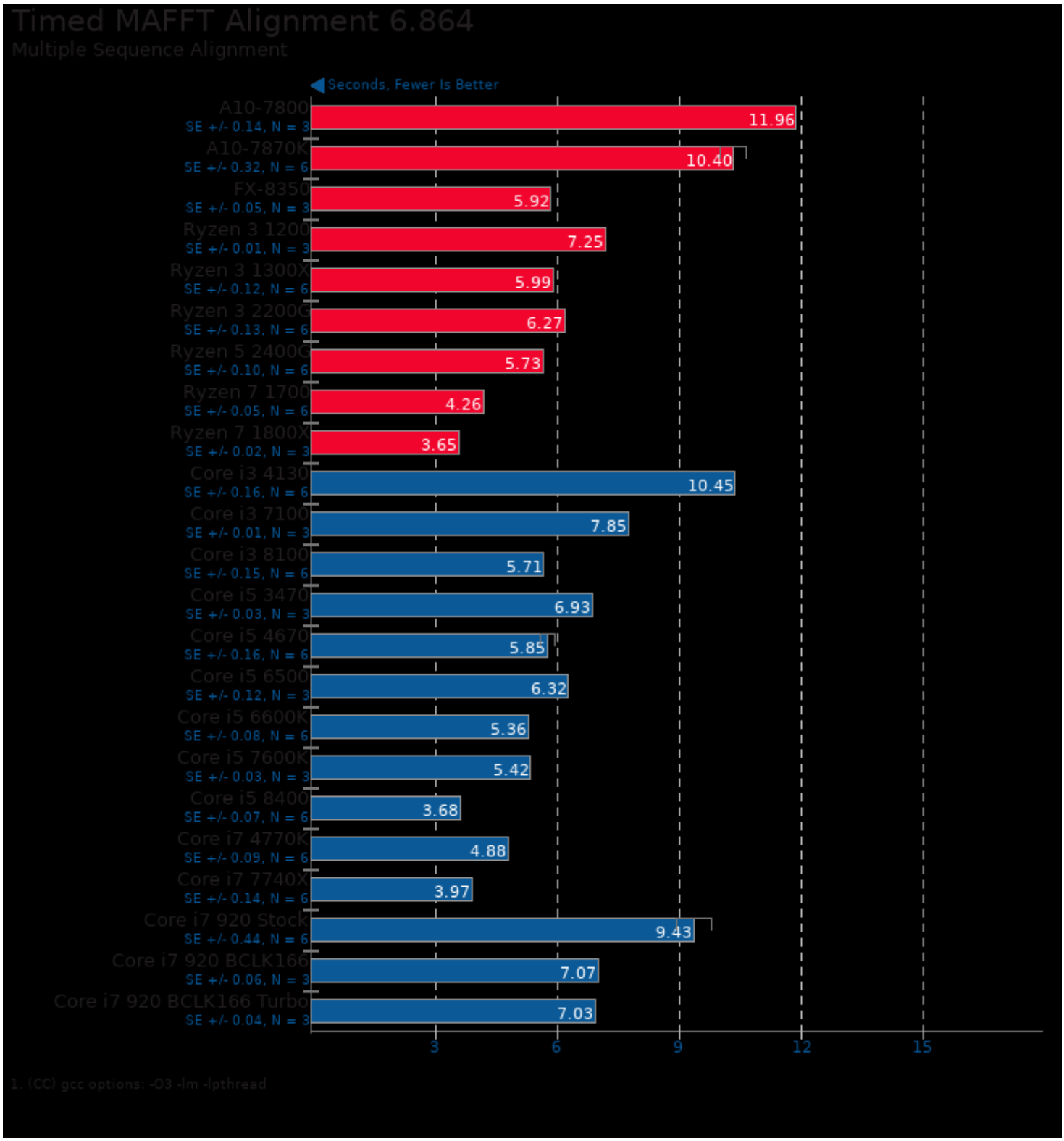

NAS Parallel Benchmarks 3.3
Test / Class: EP.C
Total Mop/s, More Is Better
A10-7800
SE +/- 0.84, N = 3
83.11
A10-7870K
SE +/- 0.17, N = 3
92.05
FX-8350
SE +/- 2.04, N = 3
221.13
Ryzen 3 1200
SE +/- 0.38, N = 3
122.00
Ryzen 3 1300X
SE +/- 0.05, N = 3
141.62
Ryzen 3 2200G
SE +/- 0.24, N = 3
144.02
Ryzen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

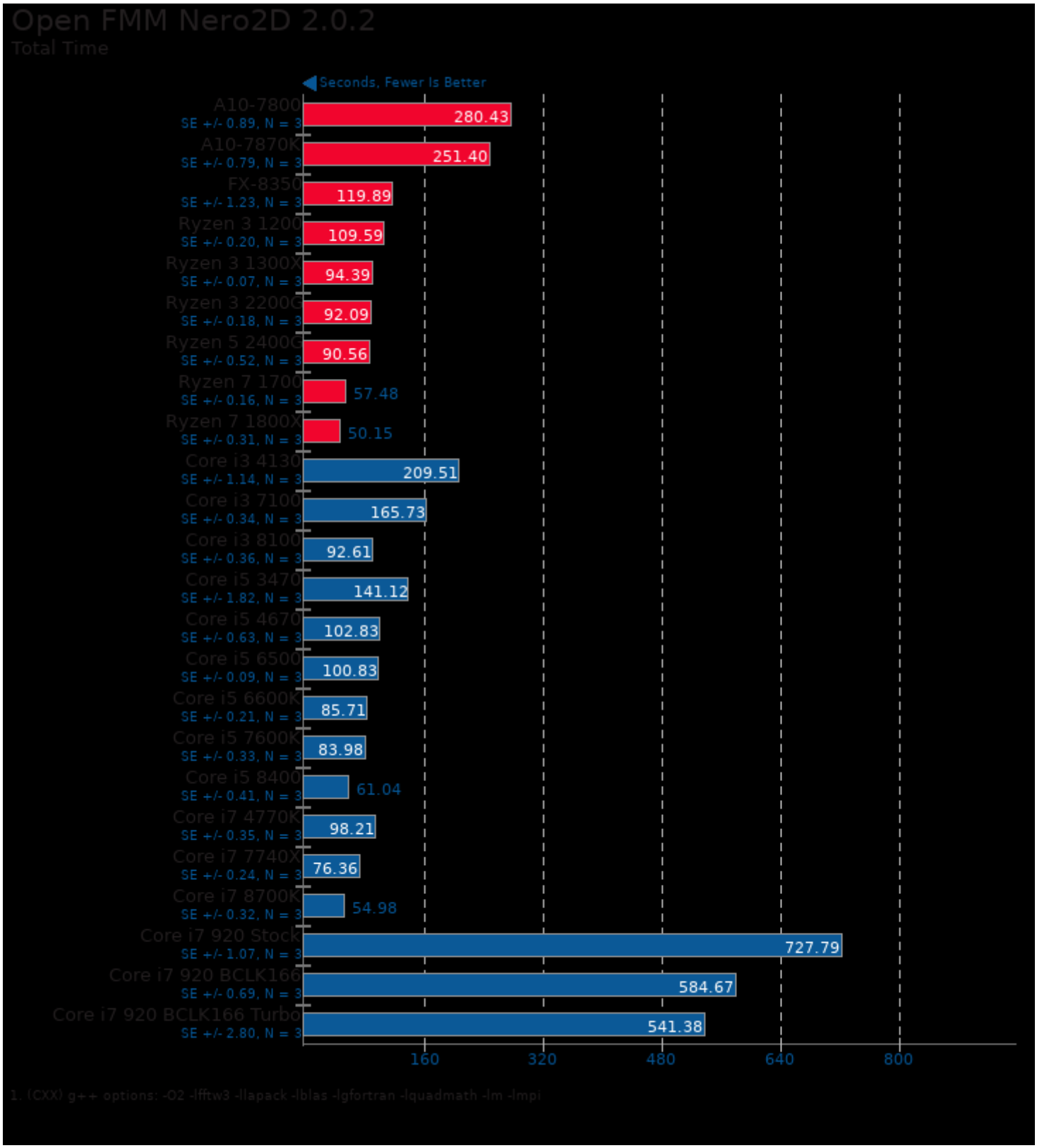

NAS Parallel Benchmarks 3.3
Performance / Cost - Test / Class: EP.C
Total Mop/s Per Dollar, More Is Better
Ryzen 3 1200
1.16
Ryzen 3 1300X
1.13
Ryzen 3 2200G
1.12
Ryzen 5 2400G
1.56
Ryzen 7 1700
1.69
Ryzen 7 1800X
1.64
Core i3 8100
1.70
Core i5 8400
1.70
Core i7 8700K
1.61
0.3825
0.765
1.1475
1.53
1.9125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

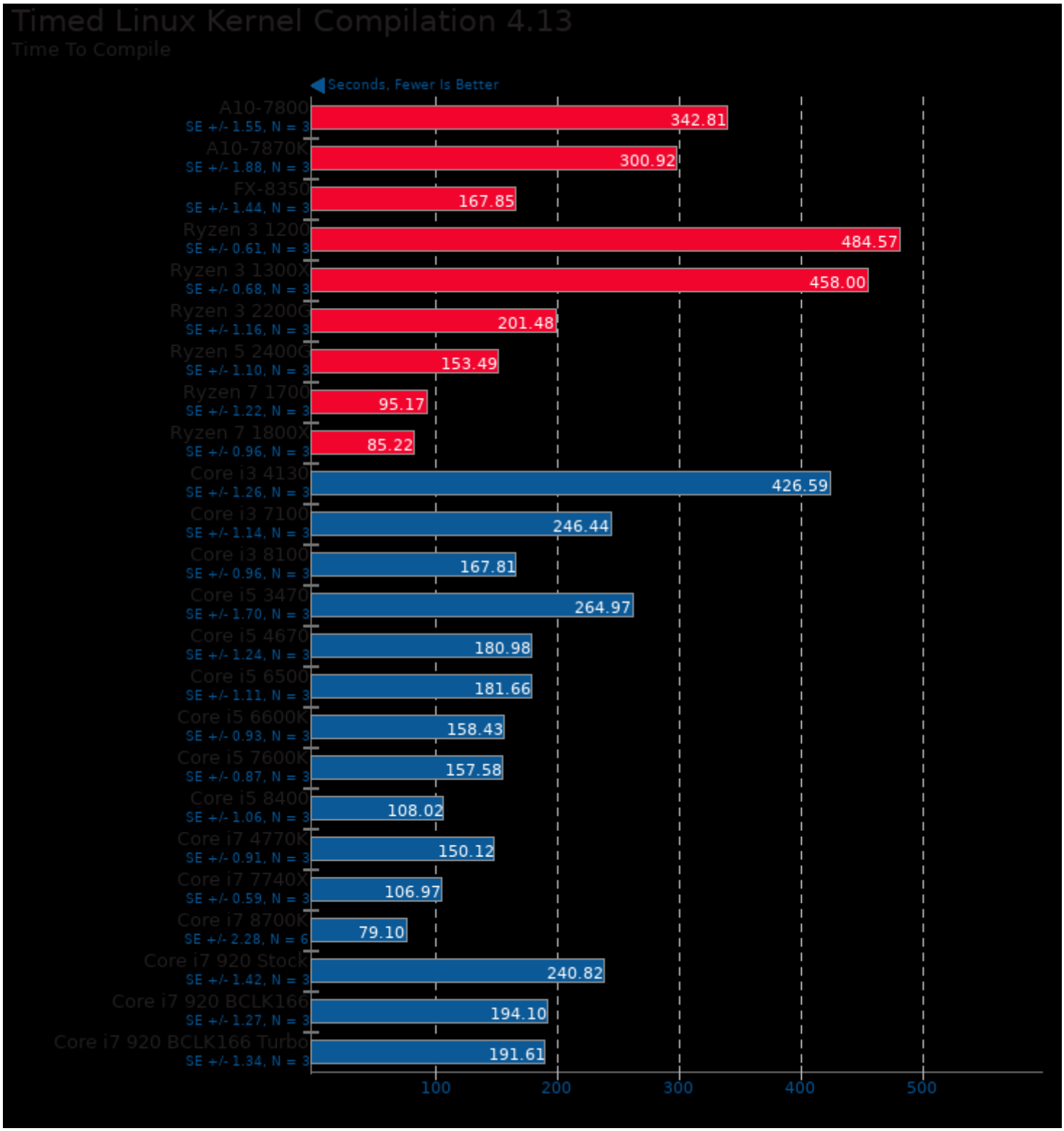

PyBench 2008-08-14
Total For Average Test Times
Milliseconds, Fewer Is Better
A10-7800
SE +/- 3.53, N = 3
2264
A10-7870K
SE +/- 5.00, N = 3
2028
FX-8350
SE +/- 1.53, N = 3
2048
Ryzen 3 1200
SE +/- 0.58, N = 3
1655
Ryzen 3 1300X
SE +/- 2.91, N = 3
1498
Ryzen 3 2200G
SE +/- 7.64, N = 3
1547
Ryzen 5 2400G
SE +/- 2.03, N = 3
1458
Ryzen 7 1700
SE +/- 1.45, N = 3
1518
Ryzen 7 1800X
SE +/- 3.21, N = 3
1395
Core i3 4130
SE +/- 2.73, N = 3
1565
Core i3 7100
SE +/- 1.15, N = 3
1237
Core i3 8100
SE +/- 1.00, N = 3
1340
Core i5 3470
SE +/- 4.04, N = 3
1723
Core i5 4670
1390
Core i5 6500
SE +/- 1.15, N = 3
1342
Core i5 6600K
SE +/- 0.88, N = 3
1239
Core i5 7600K
1149
Core i5 8400
SE +/- 2.73, N = 3
1209
Core i7 4770K
SE +/- 1.53, N = 3
1356
Core i7 7740X
SE +/- 0.58, N = 3
1075
Core i7 8700K
SE +/- 1.00, N = 3
1031
Core i7 920 Stock
SE +/- 5.21, N = 3
3052
Core i7 920 BCLK166
SE +/- 2.33, N = 3
2437
Core i7 920 BCLK166 Turbo
SE +/- 1.86, N = 3
2216
700
1400
2100
2800
3500

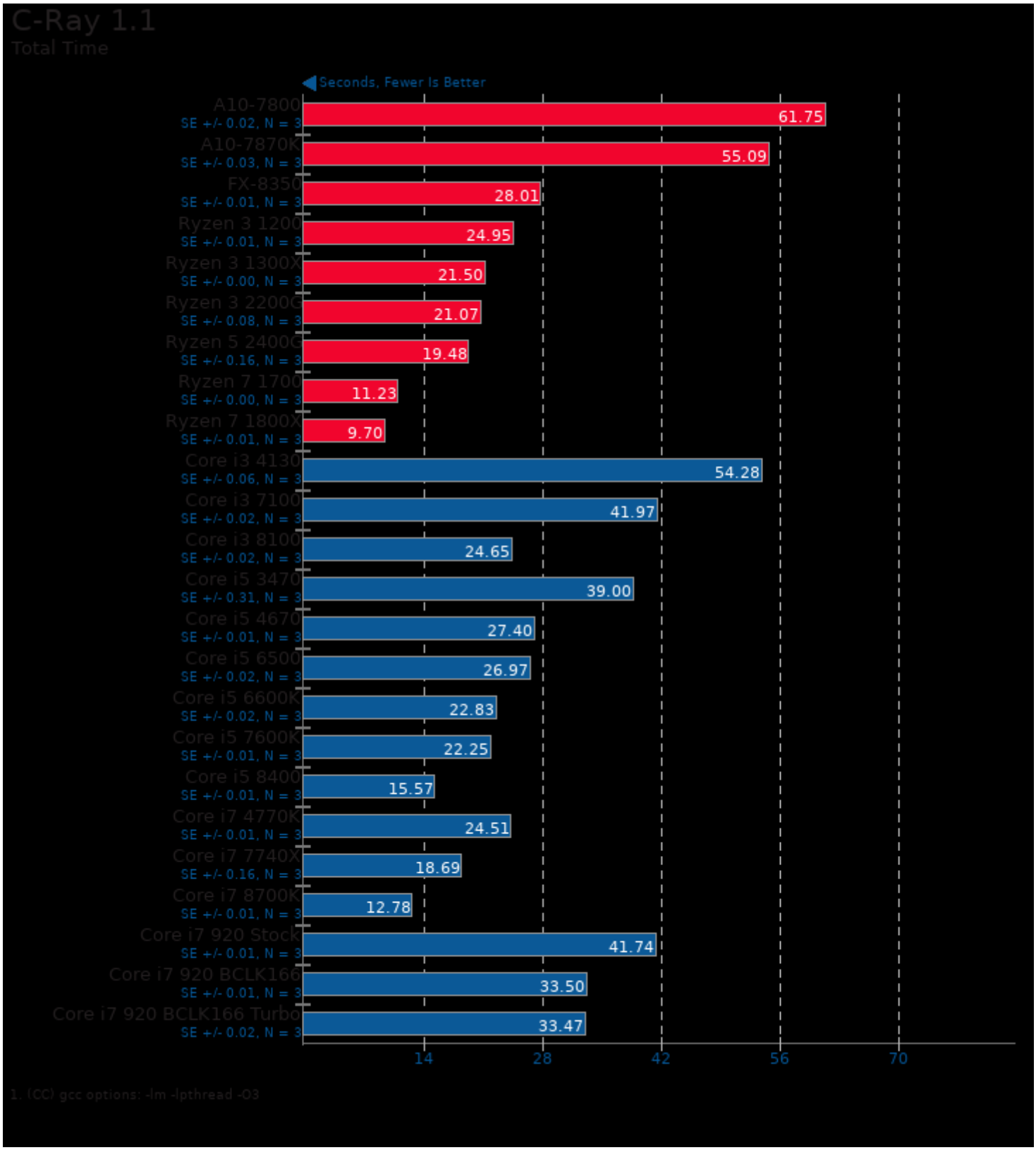

Parboil 2.5
Test: OpenMP CUTCP
Seconds, Fewer Is Better
A10-7800
SE +/- 0.02, N = 3
35.73
A10-7870K
SE +/- 0.06, N = 3
31.60
FX-8350
SE +/- 0.04, N = 3
16.90
Ryzen 3 1200
SE +/- 0.04, N = 3
17.36
Ryzen 3 1300X
SE +/- 0.01, N = 3
15.03
Ryzen 3 2200G
SE +/- 0.06, N = 3
15.64
Ryzen 5 2400G
SE +/- 0.04, N = 3
11.34
Ryzen 7 1700
SE +/- 0.03, N = 3
6.49
Ryzen 7 1800X
SE +/- 0.01, N = 3
5.58
Core i3 4130
SE +/- 0.07, N = 3
30.51
Core i3 7100
SE +/- 0.15, N = 3
22.87
Core i3 8100
SE +/- 0.00, N = 3
14.95
Core i5 3470
SE +/- 0.02, N = 3
17.82
Core i5 4670
SE +/- 0.02, N = 3
15.80
Core i5 6500
SE +/- 0.01, N = 3
16.21
Core i5 6600K
SE +/- 0.00, N = 3
13.82
Core i5 7600K
SE +/- 0.02, N = 3
13.46
Core i5 8400
SE +/- 0.00, N = 3
9.47
Core i7 4770K
SE +/- 0.07, N = 3
12.99
Core i7 7740X
SE +/- 0.10, N = 3
10.13
Core i7 8700K
SE +/- 0.01, N = 3
7.08
Core i7 920 Stock
SE +/- 0.36, N = 3
25.34
Core i7 920 BCLK166
SE +/- 0.05, N = 3
19.89
Core i7 920 BCLK166 Turbo
SE +/- 0.07, N = 3
19.72
8
16
24
32
40
1. (CXX) g++ options: -lm -lpthread -lgomp -ffast-math -fopenmp

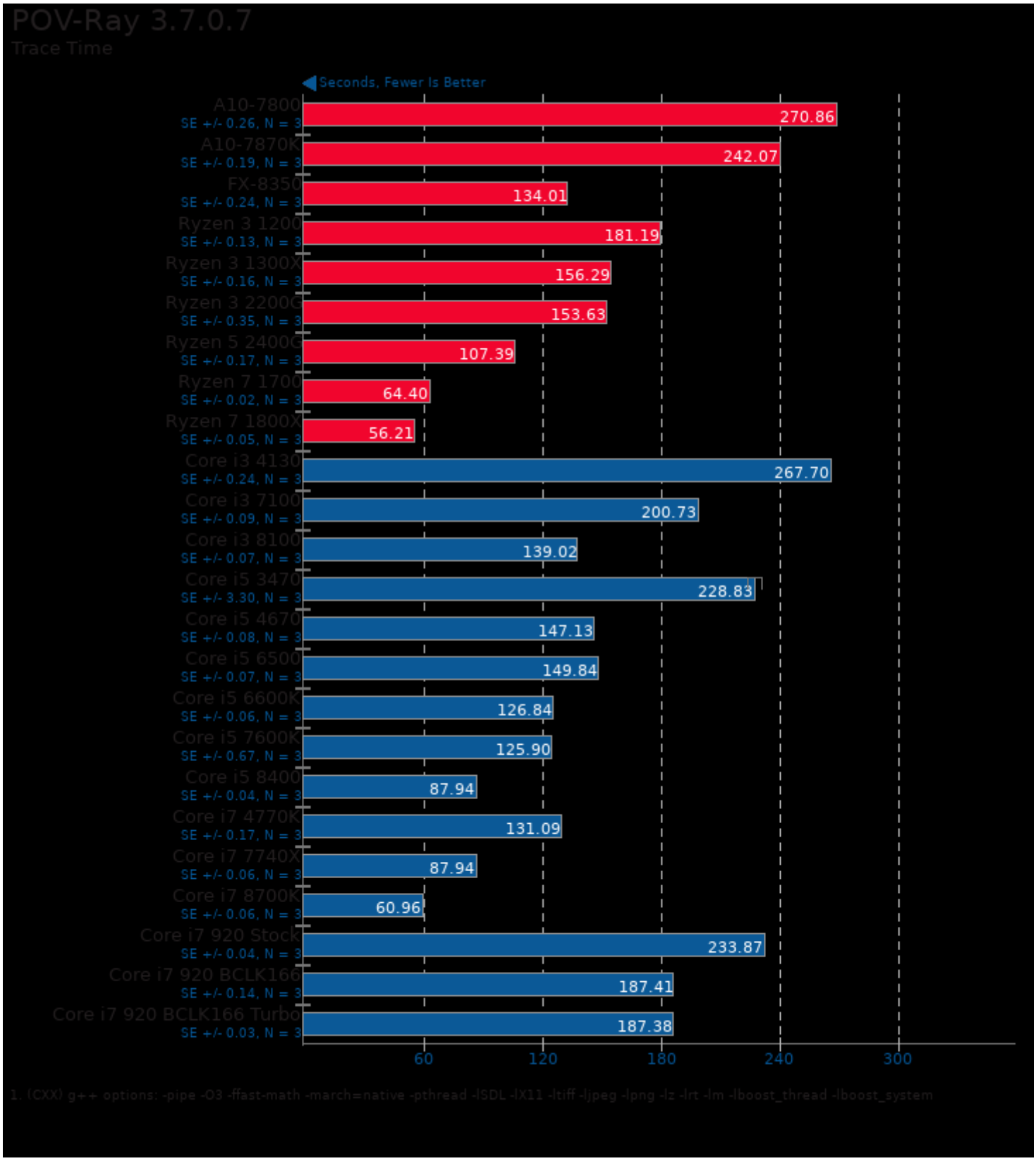

Rodinia 2.4
Test: OpenMP LavaMD
Seconds, Fewer Is Better
A10-7800
SE +/- 0.20, N = 3
446.42
A10-7870K
SE +/- 0.86, N = 3
397.52
FX-8350
SE +/- 0.09, N = 3
211.52
Ryzen 3 1200
SE +/- 0.25, N = 3
258.67
Ryzen 3 1300X
SE +/- 0.22, N = 3
223.34
Ryzen 3 2200G
SE +/- 0.29, N = 3
217.13
Ryzen 5 2400G
SE +/- 0.14, N = 3
160.28
Ryzen 7 1700
SE +/- 0.08, N = 3
95.15
Ryzen 7 1800X
SE +/- 0.05, N = 3
82.39
Core i3 4130
SE +/- 0.30, N = 3
440.27
Core i3 7100
SE +/- 0.57, N = 3
354.52
Core i3 8100
SE +/- 0.03, N = 3
226.21
Core i5 3470
SE +/- 1.93, N = 3
400.13
Core i5 4670
SE +/- 0.13, N = 3
322.61
Core i5 6500
SE +/- 0.08, N = 3
246.20
Core i5 6600K
SE +/- 0.04, N = 3
208.84
Core i5 7600K
SE +/- 0.07, N = 3
203.35
Core i5 8400
SE +/- 0.05, N = 3
143.15
Core i7 4770K
SE +/- 0.03, N = 3
199.36
Core i7 7740X
SE +/- 0.78, N = 3
154.42
Core i7 8700K
SE +/- 0.08, N = 3
107.19
Core i7 920 Stock
SE +/- 0.86, N = 3
389.70
Core i7 920 BCLK166
SE +/- 2.00, N = 3
313.85
Core i7 920 BCLK166 Turbo
SE +/- 0.36, N = 3
311.60
100
200
300
400
500
1. (CXX) g++ options: -O2 -lOpenCL

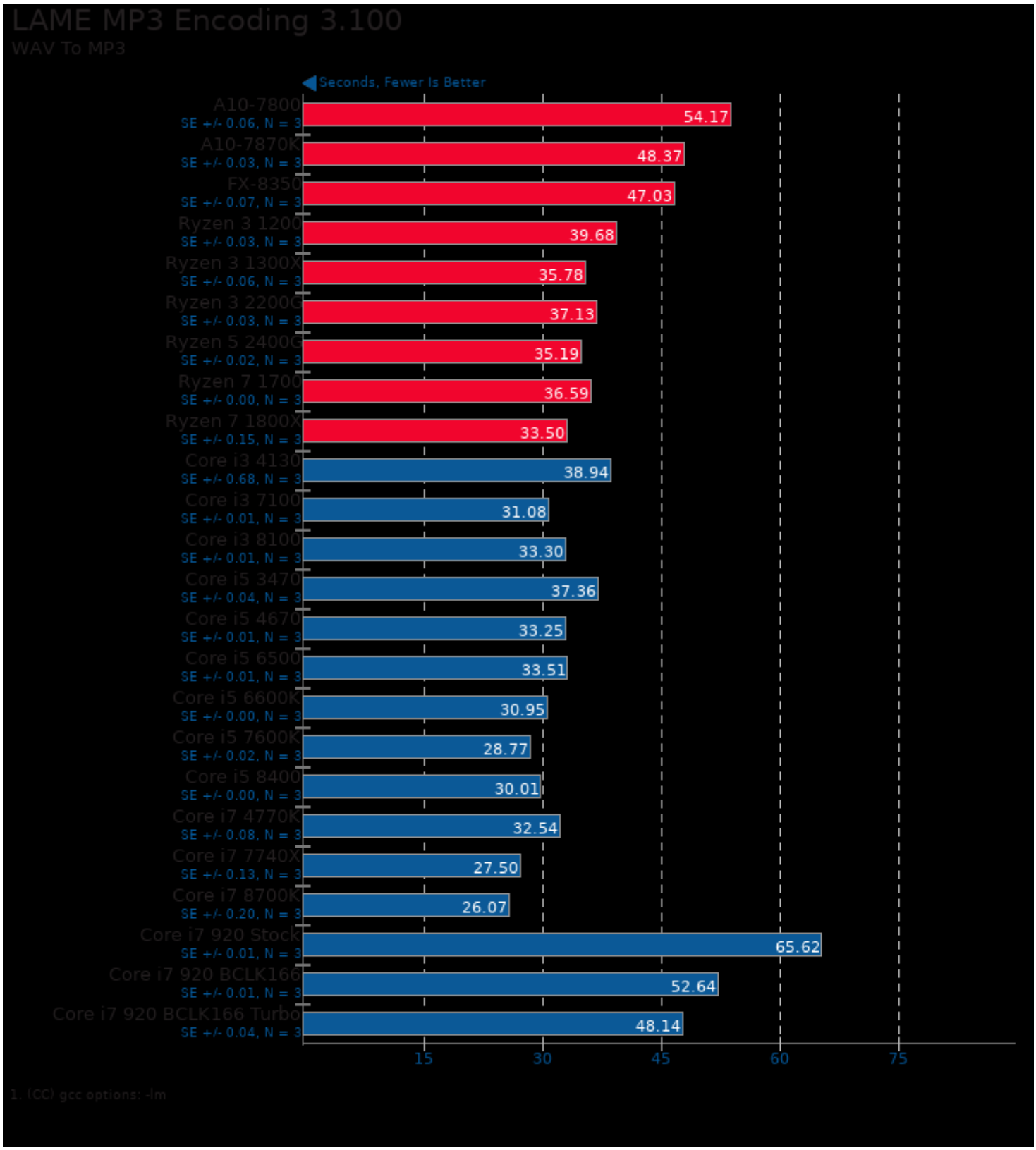

Timed MAFFT Alignment 6.864
Multiple Sequence Alignment
Seconds, Fewer Is Better
A10-7800
SE +/- 0.14, N = 3
11.96
A10-7870K
SE +/- 0.32, N = 6
10.40
FX-8350
SE +/- 0.05, N = 3
5.92
Ryzen 3 1200
SE +/- 0.01, N = 3
7.25
Ryzen 3 1300X
SE +/- 0.12, N = 6
5.99
Ryzen 3 2200G
SE +/- 0.13, N = 6
6.27
Ryzen 5 2400G
SE +/- 0.10, N = 6
5.73
Ryzen 7 1700
SE +/- 0.05, N = 6
4.26
Ryzen 7 1800X
SE +/- 0.02, N = 3
3.65
Core i3 4130
SE +/- 0.16, N = 6
10.45
Core i3 7100
SE +/- 0.01, N = 3
7.85
Core i3 8100
SE +/- 0.15, N = 6
5.71
Core i5 3470
SE +/- 0.03, N = 3
6.93
Core i5 4670
SE +/- 0.16, N = 6
5.85
Core i5 6500
SE +/- 0.12, N = 3
6.32
Core i5 6600K
SE +/- 0.08, N = 6
5.36
Core i5 7600K
SE +/- 0.03, N = 3
5.42
Core i5 8400
SE +/- 0.07, N = 6
3.68
Core i7 4770K
SE +/- 0.09, N = 6
4.88
Core i7 7740X
SE +/- 0.14, N = 6
3.97
Core i7 920 Stock
SE +/- 0.44, N = 6
9.43
Core i7 920 BCLK166
SE +/- 0.06, N = 3
7.07
Core i7 920 BCLK166 Turbo
SE +/- 0.04, N = 3
7.03
3
6
9
12
15
1. (CC) gcc options: -O3 -lm -lpthread

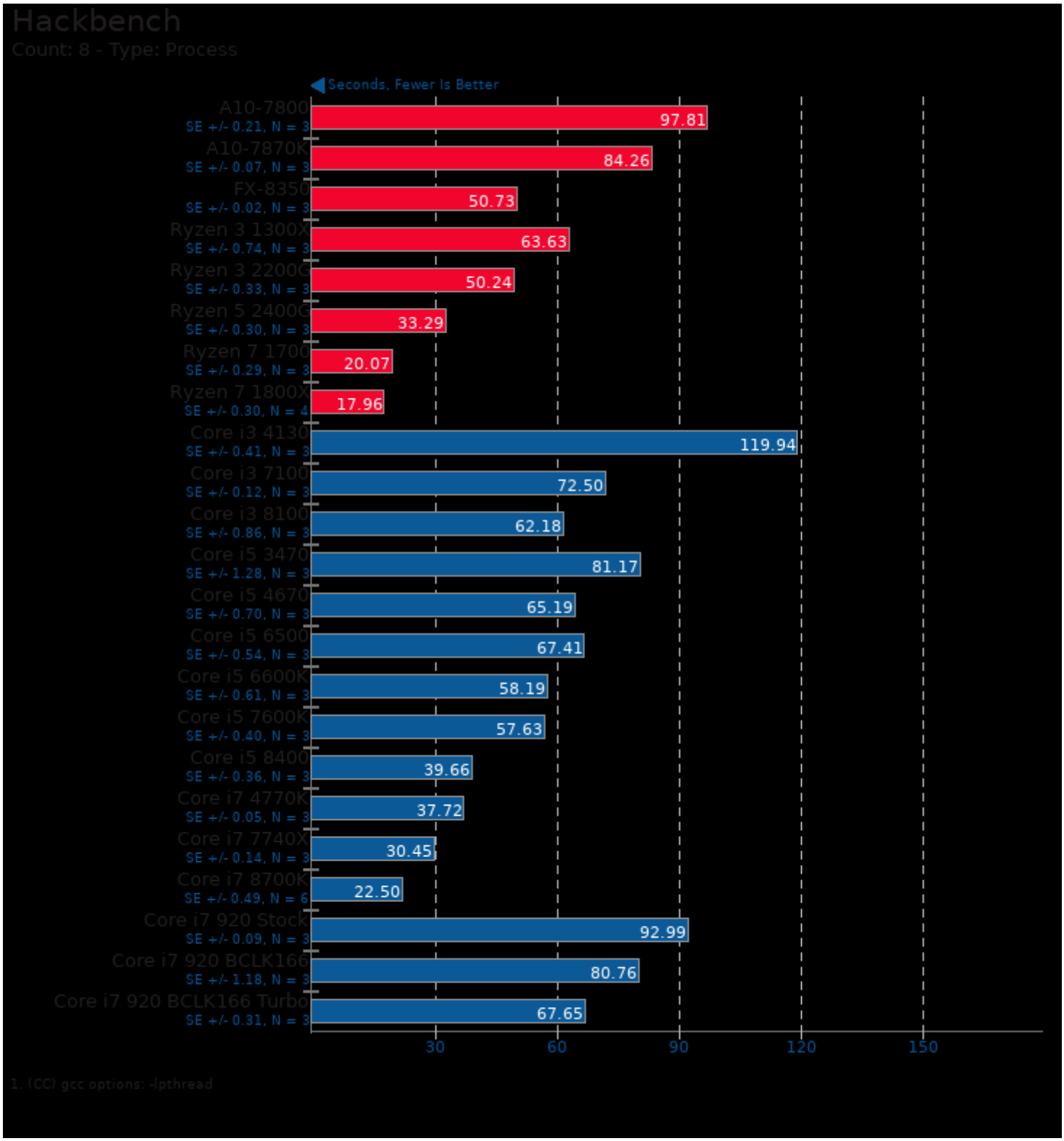

Open FMM Nero2D 2.0.2
Total Time
Seconds, Fewer Is Better
A10-7800
SE +/- 0.89, N = 3
280.43
A10-7870K
SE +/- 0.79, N = 3
251.40
FX-8350
SE +/- 1.23, N = 3
119.89
Ryzen 3 1200
SE +/- 0.20, N = 3
109.59
Ryzen 3 1300X
SE +/- 0.07, N = 3
94.39
Ryzen 3 2200G
SE +/- 0.18, N = 3
92.09
Ryzen 5 2400G
SE +/- 0.52, N = 3
90.56
Ryzen 7 1700
SE +/- 0.16, N = 3
57.48
Ryzen 7 1800X
SE +/- 0.31, N = 3
50.15
Core i3 4130
SE +/- 1.14, N = 3
209.51
Core i3 7100
SE +/- 0.34, N = 3
165.73
Core i3 8100
SE +/- 0.36, N = 3
92.61
Core i5 3470
SE +/- 1.82, N = 3
141.12
Core i5 4670
SE +/- 0.63, N = 3
102.83
Core i5 6500
SE +/- 0.09, N = 3
100.83
Core i5 6600K
SE +/- 0.21, N = 3
85.71
Core i5 7600K
SE +/- 0.33, N = 3
83.98
Core i5 8400
SE +/- 0.41, N = 3
61.04
Core i7 4770K
SE +/- 0.35, N = 3
98.21
Core i7 7740X
SE +/- 0.24, N = 3
76.36
Core i7 8700K
SE +/- 0.32, N = 3
54.98
Core i7 920 Stock
SE +/- 1.07, N = 3
727.79
Core i7 920 BCLK166
SE +/- 0.69, N = 3
584.67
Core i7 920 BCLK166 Turbo
SE +/- 2.80, N = 3
541.38
160
320
480
640
800
1. (CXX) g++ options: -O2 -lfftw3 -llapack -lblas -lgfortran -lquadmath -lm -lmpi


Timed Linux Kernel Compilation 4.13
Time To Compile
Seconds, Fewer Is Better
A10-7800
SE +/- 1.55, N = 3
342.81
A10-7870K
SE +/- 1.88, N = 3
300.92
FX-8350
SE +/- 1.44, N = 3
167.85
Ryzen 3 1200
SE +/- 0.61, N = 3
484.57
Ryzen 3 1300X
SE +/- 0.68, N = 3
458.00
Ryzen 3 2200G
SE +/- 1.16, N = 3
201.48
Ryzen 5 2400G
SE +/- 1.10, N = 3
153.49
Ryzen 7 1700
SE +/- 1.22, N = 3
95.17
Ryzen 7 1800X
SE +/- 0.96, N = 3
85.22
Core i3 4130
SE +/- 1.26, N = 3
426.59
Core i3 7100
SE +/- 1.14, N = 3
246.44
Core i3 8100
SE +/- 0.96, N = 3
167.81
Core i5 3470
SE +/- 1.70, N = 3
264.97
Core i5 4670
SE +/- 1.24, N = 3
180.98
Core i5 6500
SE +/- 1.11, N = 3
181.66
Core i5 6600K
SE +/- 0.93, N = 3
158.43
Core i5 7600K
SE +/- 0.87, N = 3
157.58
Core i5 8400
SE +/- 1.06, N = 3
108.02
Core i7 4770K
SE +/- 0.91, N = 3
150.12
Core i7 7740X
SE +/- 0.59, N = 3
106.97
Core i7 8700K
SE +/- 2.28, N = 6
79.10
Core i7 920 Stock
SE +/- 1.42, N = 3
240.82
Core i7 920 BCLK166
SE +/- 1.27, N = 3
194.10
Core i7 920 BCLK166 Turbo
SE +/- 1.34, N = 3
191.61
100
200
300
400
500

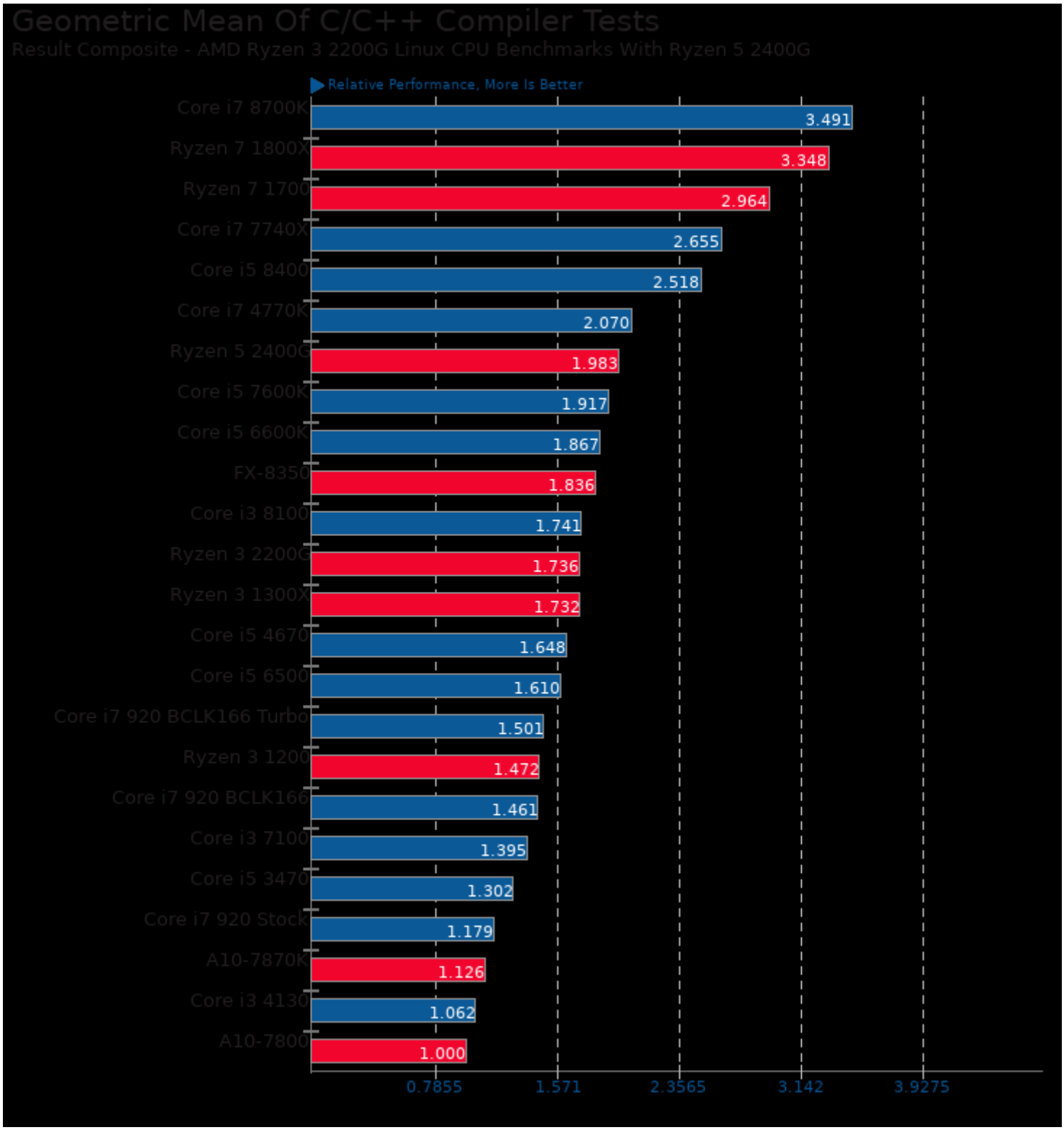

C-Ray 1.1
Total Time
Seconds, Fewer Is Better
A10-7800
SE +/- 0.02, N = 3
61.75
A10-7870K
SE +/- 0.03, N = 3
55.09
FX-8350
SE +/- 0.01, N = 3
28.01
Ryzen 3 1200
SE +/- 0.01, N = 3
24.95
Ryzen 3 1300X
SE +/- 0.00, N = 3
21.50
Ryzen 3 2200G
SE +/- 0.08, N = 3
21.07
Ryzen 5 2400G
SE +/- 0.16, N = 3
19.48
Ryzen 7 1700
SE +/- 0.00, N = 3
11.23
Ryzen 7 1800X
SE +/- 0.01, N = 3
9.70
Core i3 4130
SE +/- 0.06, N = 3
54.28
Core i3 7100
SE +/- 0.02, N = 3
41.97
Core i3 8100
SE +/- 0.02, N = 3
24.65
Core i5 3470
SE +/- 0.31, N = 3
39.00
Core i5 4670
SE +/- 0.01, N = 3
27.40
Core i5 6500
SE +/- 0.02, N = 3
26.97
Core i5 6600K
SE +/- 0.02, N = 3
22.83
Core i5 7600K
SE +/- 0.01, N = 3
22.25
Core i5 8400
SE +/- 0.01, N = 3
15.57
Core i7 4770K
SE +/- 0.01, N = 3
24.51
Core i7 7740X
SE +/- 0.16, N = 3
18.69
Core i7 8700K
SE +/- 0.01, N = 3
12.78
Core i7 920 Stock
SE +/- 0.01, N = 3
41.74
Core i7 920 BCLK166
SE +/- 0.01, N = 3
33.50
Core i7 920 BCLK166 Turbo
SE +/- 0.02, N = 3
33.47
14
28
42
56
70
1. (CC) gcc options: -lm -lpthread -O3


POV-Ray 3.7.0.7
Trace Time
Seconds, Fewer Is Better
A10-7800
SE +/- 0.26, N = 3
270.86
A10-7870K
SE +/- 0.19, N = 3
242.07
FX-8350
SE +/- 0.24, N = 3
134.01
Ryzen 3 1200
SE +/- 0.13, N = 3
181.19
Ryzen 3 1300X
SE +/- 0.16, N = 3
156.29
Ryzen 3 2200G
SE +/- 0.35, N = 3
153.63
Ryzen 5 2400G
SE +/- 0.17, N = 3
107.39
Ryzen 7 1700
SE +/- 0.02, N = 3
64.40
Ryzen 7 1800X
SE +/- 0.05, N = 3
56.21
Core i3 4130
SE +/- 0.24, N = 3
267.70
Core i3 7100
SE +/- 0.09, N = 3
200.73
Core i3 8100
SE +/- 0.07, N = 3
139.02
Core i5 3470
SE +/- 3.30, N = 3
228.83
Core i5 4670
SE +/- 0.08, N = 3
147.13
Core i5 6500
SE +/- 0.07, N = 3
149.84
Core i5 6600K
SE +/- 0.06, N = 3
126.84
Core i5 7600K
SE +/- 0.67, N = 3
125.90
Core i5 8400
SE +/- 0.04, N = 3
87.94
Core i7 4770K
SE +/- 0.17, N = 3
131.09
Core i7 7740X
SE +/- 0.06, N = 3
87.94
Core i7 8700K
SE +/- 0.06, N = 3
60.96
Core i7 920 Stock
SE +/- 0.04, N = 3
233.87
Core i7 920 BCLK166
SE +/- 0.14, N = 3
187.41
Core i7 920 BCLK166 Turbo
SE +/- 0.03, N = 3
187.38
60
120
180
240
300
1. (CXX) g++ options: -pipe -O3 -ffast-math -march=native -pthread -lSDL -lX11 -ltiff -ljpeg -lpng -lz -lrt -lm -lboost_thread -lboost_system

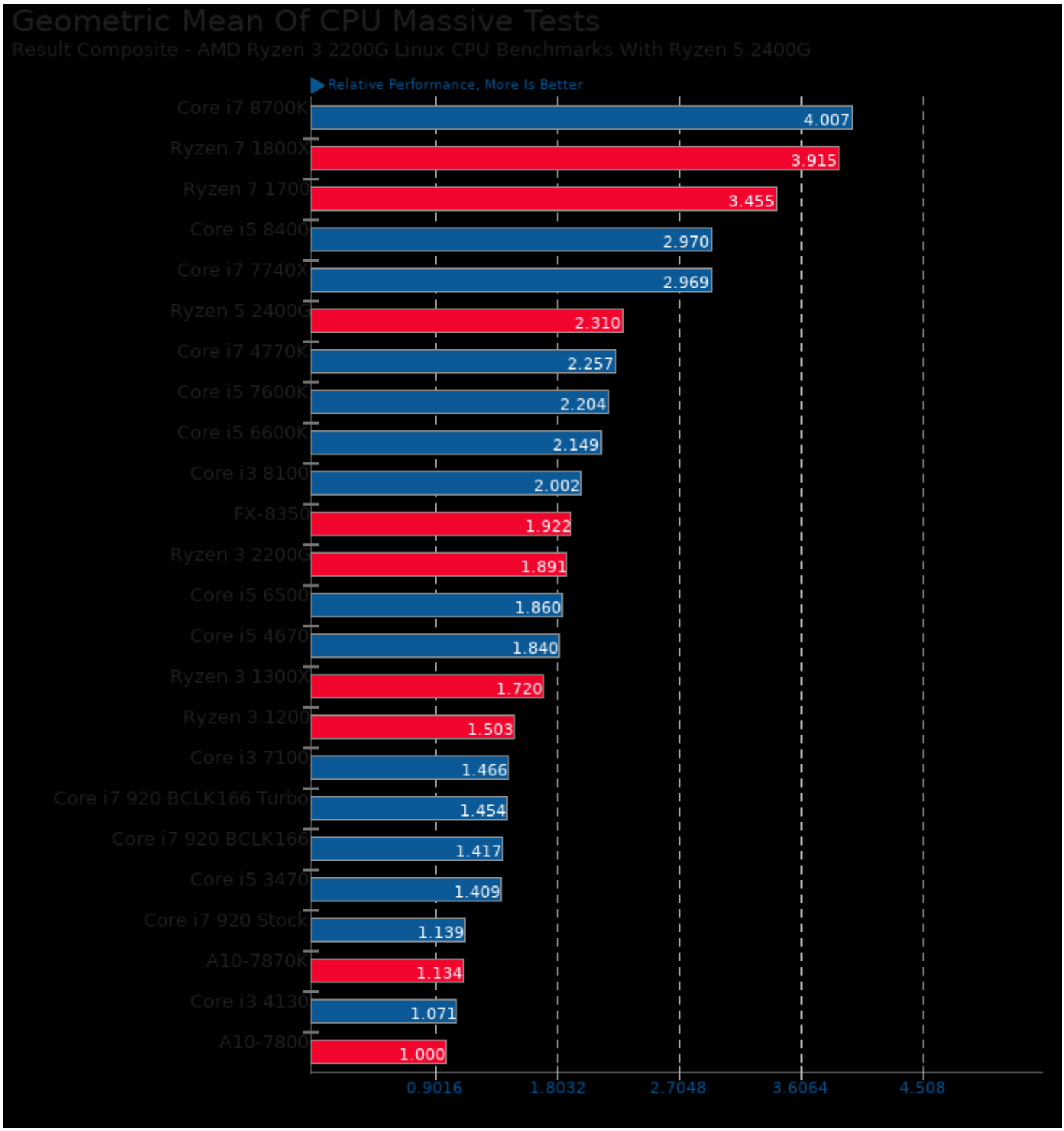

LAME MP3 Encoding 3.100
WAV To MP3
Seconds, Fewer Is Better
A10-7800
SE +/- 0.06, N = 3
54.17
A10-7870K
SE +/- 0.03, N = 3
48.37
FX-8350
SE +/- 0.07, N = 3
47.03
Ryzen 3 1200
SE +/- 0.03, N = 3
39.68
Ryzen 3 1300X
SE +/- 0.06, N = 3
35.78
Ryzen 3 2200G
SE +/- 0.03, N = 3
37.13
Ryzen 5 2400G
SE +/- 0.02, N = 3
35.19
Ryzen 7 1700
SE +/- 0.00, N = 3
36.59
Ryzen 7 1800X
SE +/- 0.15, N = 3
33.50
Core i3 4130
SE +/- 0.68, N = 3
38.94
Core i3 7100
SE +/- 0.01, N = 3
31.08
Core i3 8100
SE +/- 0.01, N = 3
33.30
Core i5 3470
SE +/- 0.04, N = 3
37.36
Core i5 4670
SE +/- 0.01, N = 3
33.25
Core i5 6500
SE +/- 0.01, N = 3
33.51
Core i5 6600K
SE +/- 0.00, N = 3
30.95
Core i5 7600K
SE +/- 0.02, N = 3
28.77
Core i5 8400
SE +/- 0.00, N = 3
30.01
Core i7 4770K
SE +/- 0.08, N = 3
32.54
Core i7 7740X
SE +/- 0.13, N = 3
27.50
Core i7 8700K
SE +/- 0.20, N = 3
26.07
Core i7 920 Stock
SE +/- 0.01, N = 3
65.62
Core i7 920 BCLK166
SE +/- 0.01, N = 3
52.64
Core i7 920 BCLK166 Turbo
SE +/- 0.04, N = 3
48.14
15
30
45
60
75
1. (CC) gcc options: -lm


Hackbench
Count: 8 - Type: Process
Seconds, Fewer Is Better
A10-7800
SE +/- 0.21, N = 3
97.81
A10-7870K
SE +/- 0.07, N = 3
84.26
FX-8350
SE +/- 0.02, N = 3
50.73
Ryzen 3 1300X
SE +/- 0.74, N = 3
63.63
Ryzen 3 2200G
SE +/- 0.33, N = 3
50.24
Ryzen 5 2400G
SE +/- 0.30, N = 3
33.29
Ryzen 7 1700
SE +/- 0.29, N = 3
20.07
Ryzen 7 1800X
SE +/- 0.30, N = 4
17.96
Core i3 4130
SE +/- 0.41, N = 3
119.94
Core i3 7100
SE +/- 0.12, N = 3
72.50
Core i3 8100
SE +/- 0.86, N = 3
62.18
Core i5 3470
SE +/- 1.28, N = 3
81.17
Core i5 4670
SE +/- 0.70, N = 3
65.19
Core i5 6500
SE +/- 0.54, N = 3
67.41
Core i5 6600K
SE +/- 0.61, N = 3
58.19
Core i5 7600K
SE +/- 0.40, N = 3
57.63
Core i5 8400
SE +/- 0.36, N = 3
39.66
Core i7 4770K
SE +/- 0.05, N = 3
37.72
Core i7 7740X
SE +/- 0.14, N = 3
30.45
Core i7 8700K
SE +/- 0.49, N = 6
22.50
Core i7 920 Stock
SE +/- 0.09, N = 3
92.99
Core i7 920 BCLK166
SE +/- 1.18, N = 3
80.76
Core i7 920 BCLK166 Turbo
SE +/- 0.31, N = 3
67.65
30
60
90
120
150
1. (CC) gcc options: -lpthread

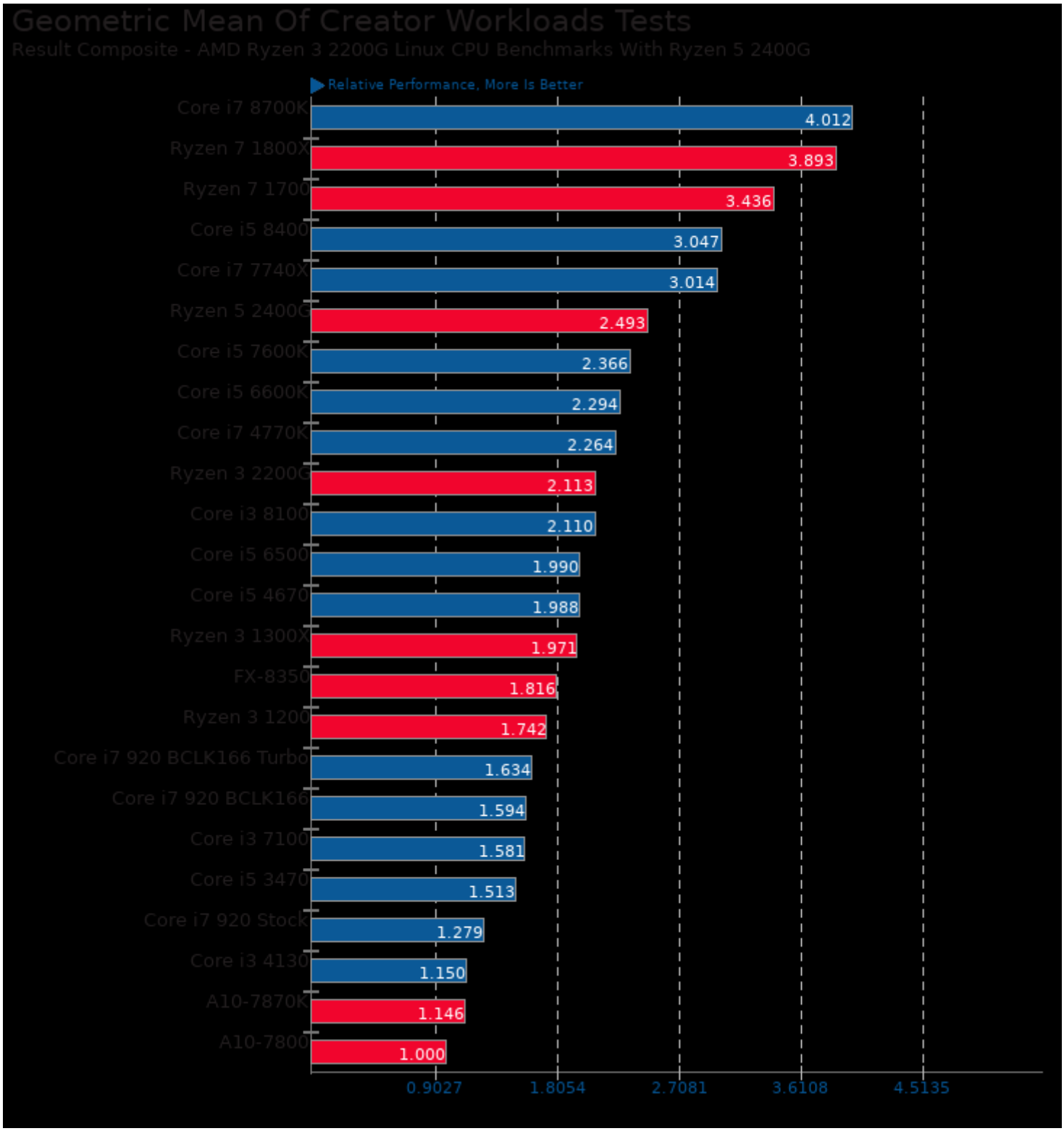
These geometric means are based upon test groupings / test suites for this result file.



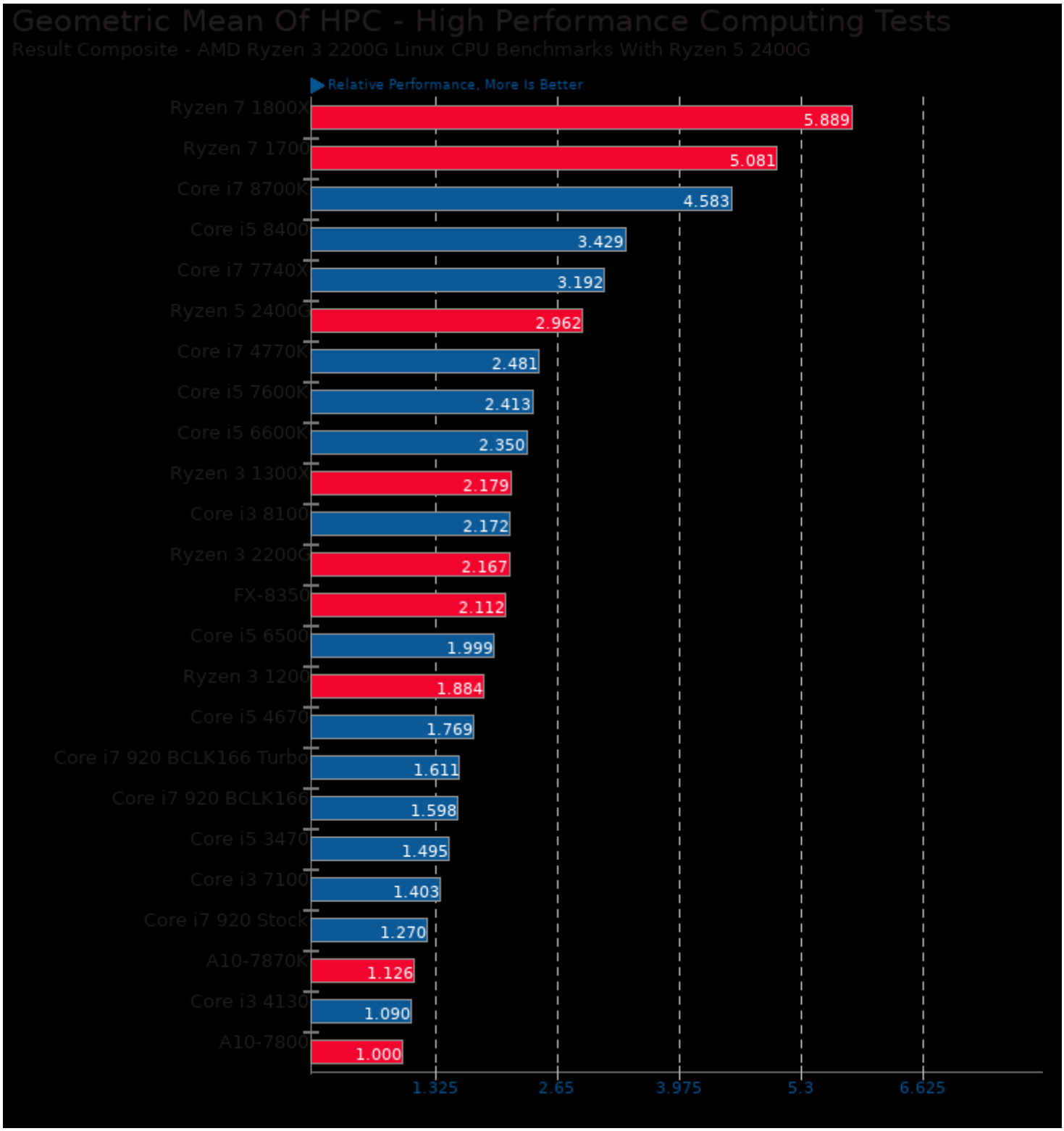
Geometric mean based upon tests: pts/mafft, pts/c-ray, pts/compress-7zip, pts/encode-mp3, pts/john-the-ripper, pts/x264, pts/openssl and pts/nginx



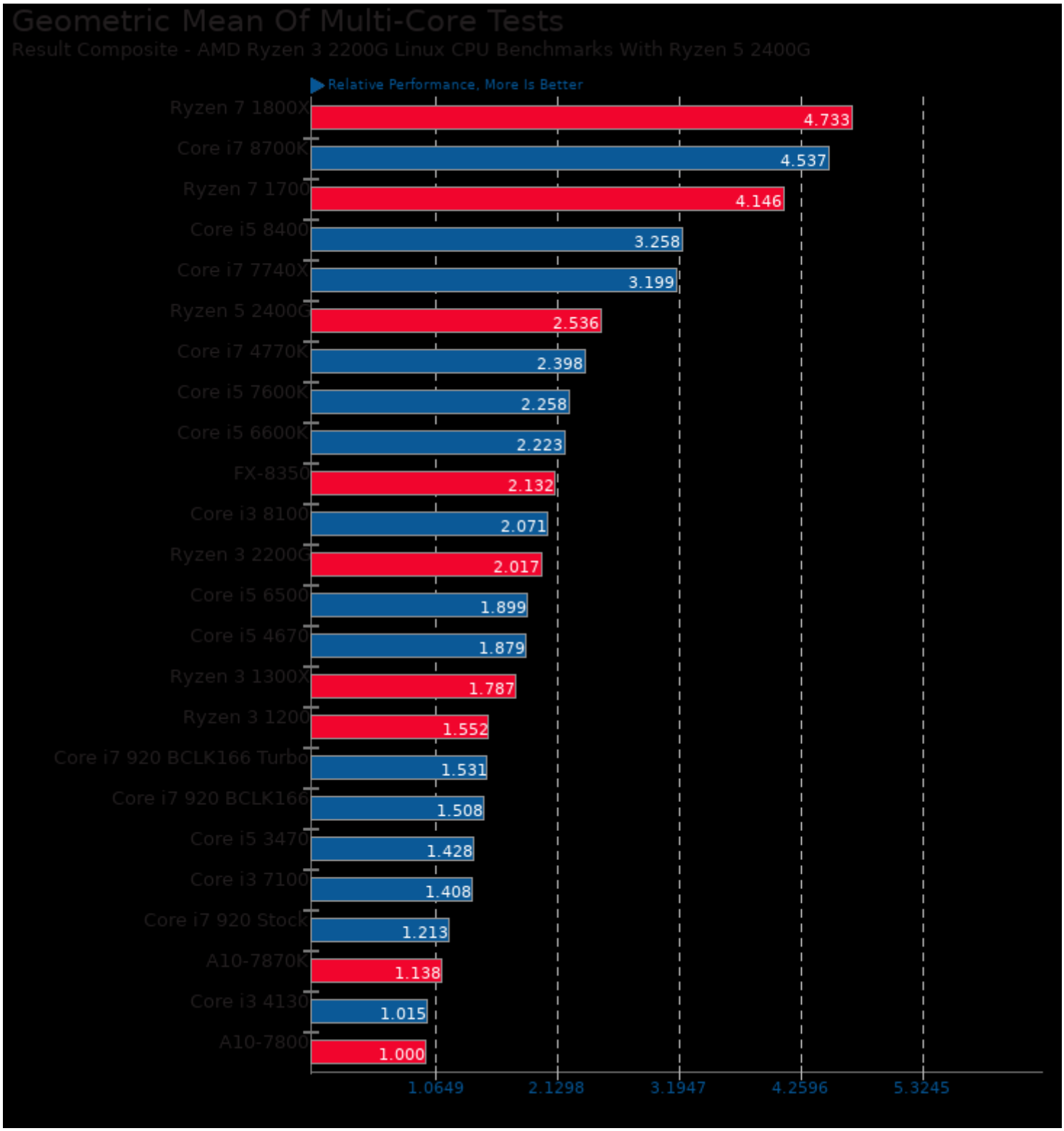
Geometric mean based upon tests: pts/asmfish, pts/build-linux-kernel, pts/c-ray, pts/compress-7zip, pts/x264, pts/encode-mp3, pts/hackbench, pts/john-the-ripper, pts/openssl, pts/mafft, pts/nero2d, pts/nginx, pts/npb, pts/parboil, pts/phpbench, pts/povray, pts/rodinia and pts/ttsiod-renderer



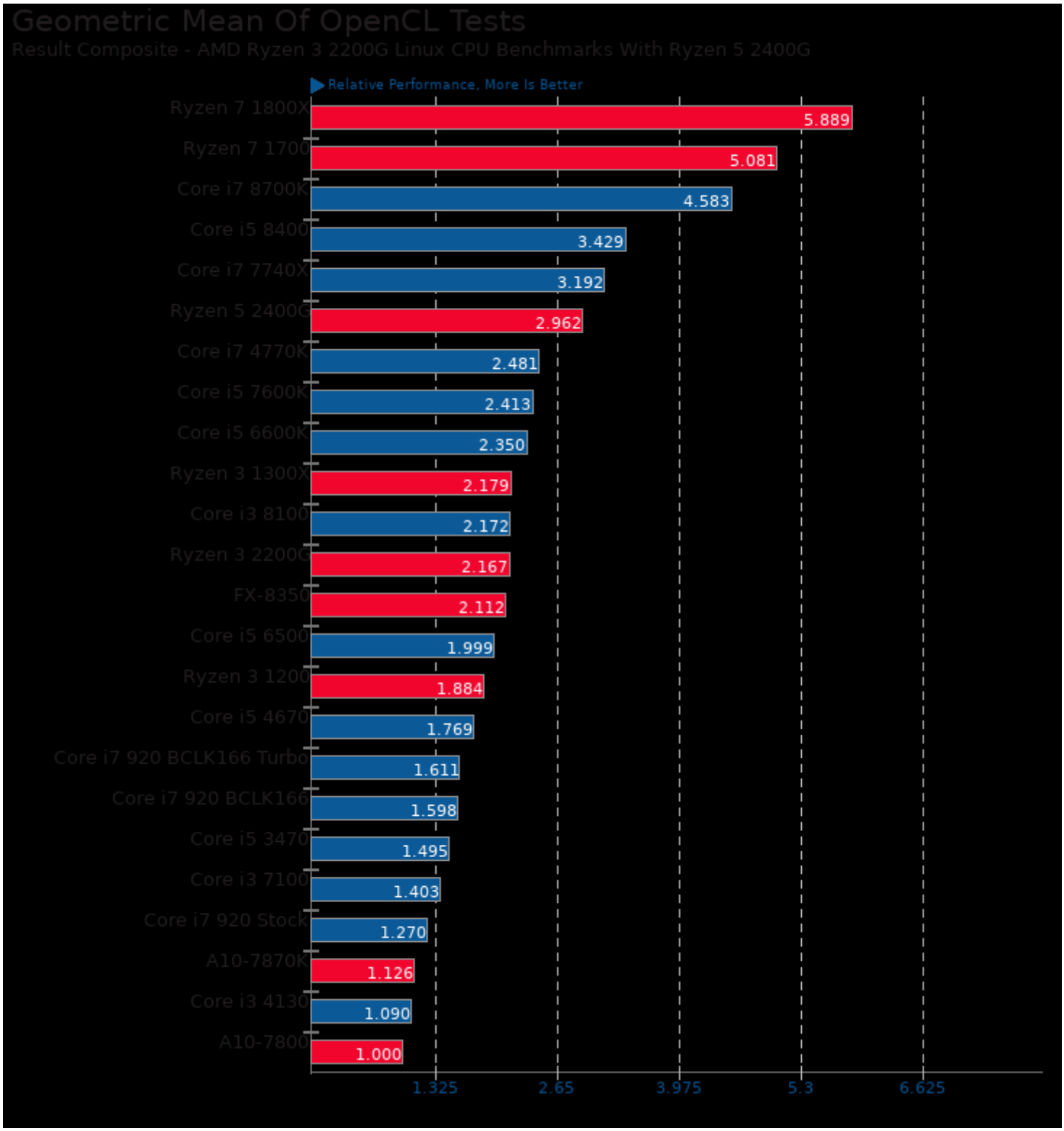
Geometric mean based upon tests: pts/c-ray, pts/povray, pts/ttsiod-renderer, pts/x264 and pts/encode-mp3



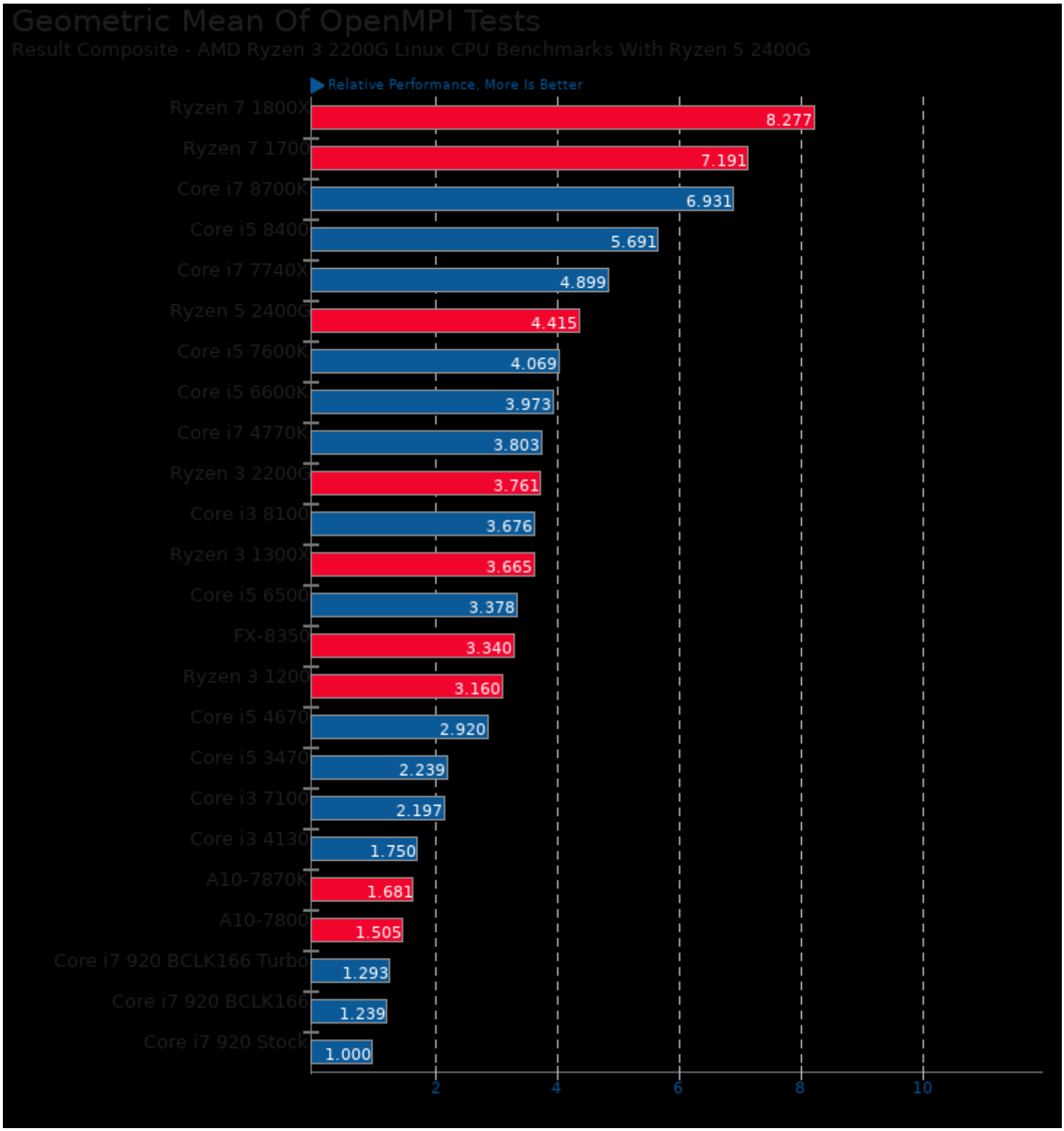
Geometric mean based upon tests: pts/npb, pts/rodinia, pts/parboil and pts/mafft



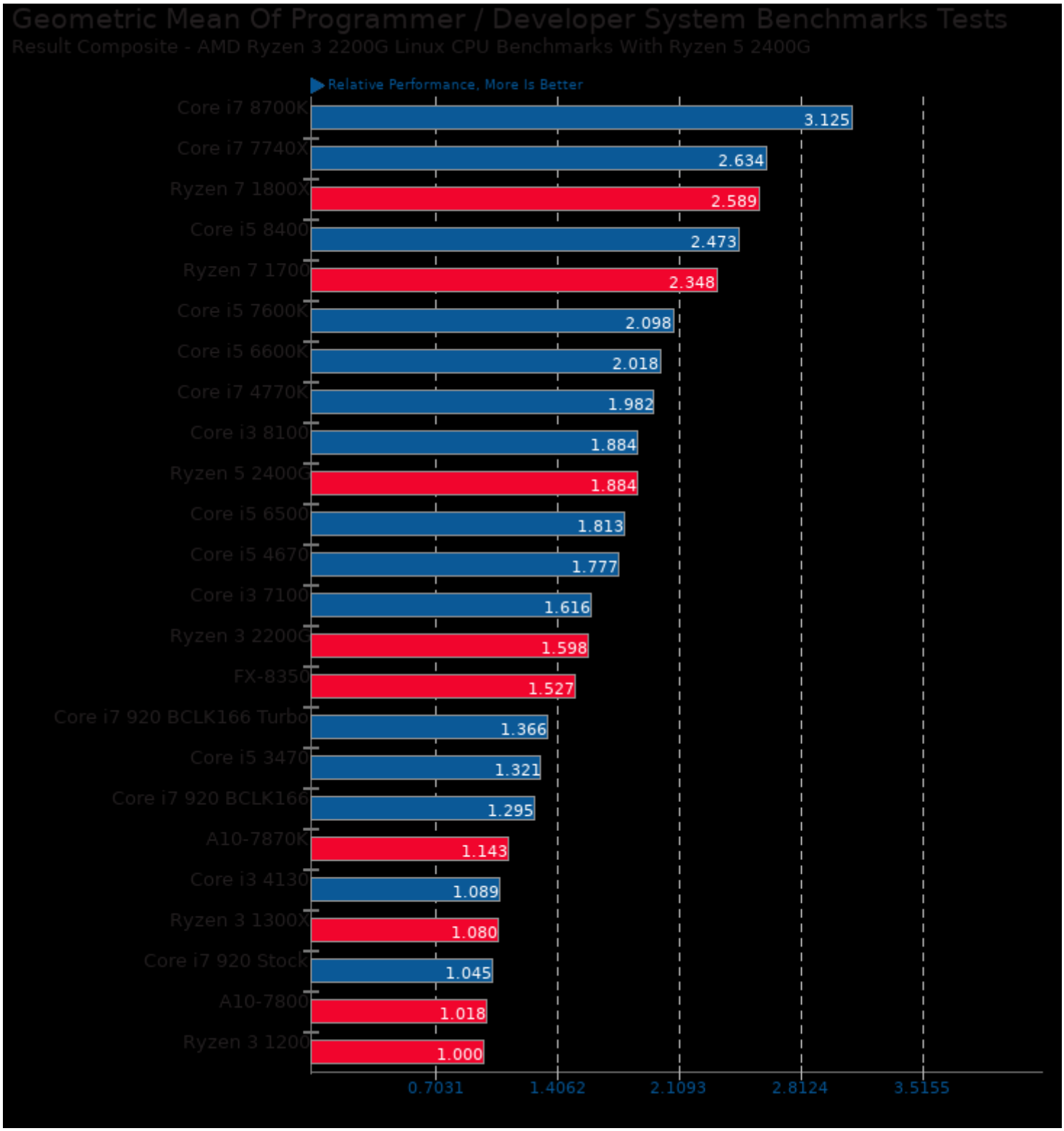
Geometric mean based upon tests: pts/c-ray, pts/povray, pts/x264, pts/rodinia, pts/parboil, pts/npb, pts/john-the-ripper, pts/asmfish, pts/nero2d, pts/compress-7zip, pts/build-linux-kernel and pts/ttsiod-renderer



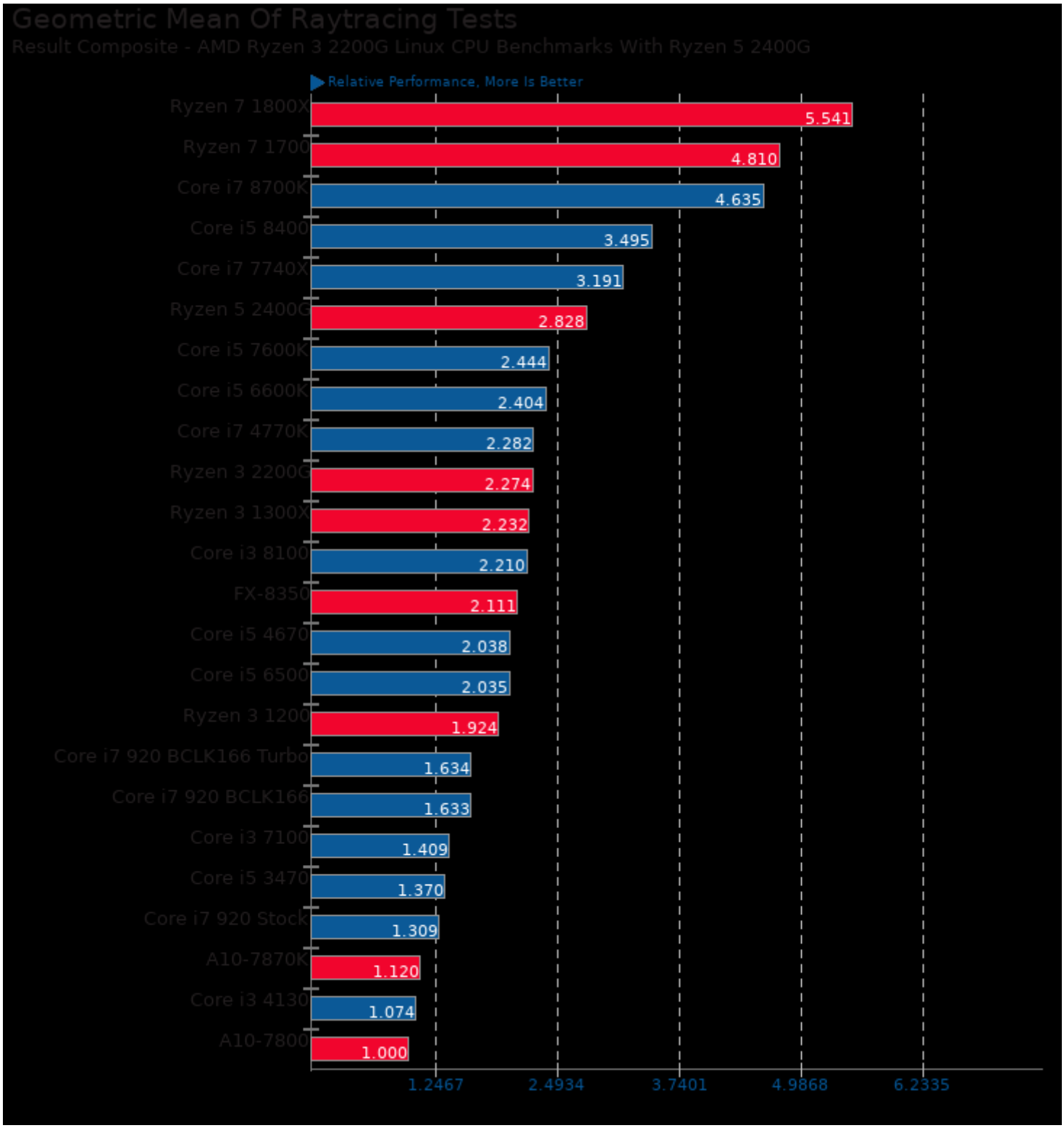
Geometric mean based upon tests: pts/rodinia and pts/parboil



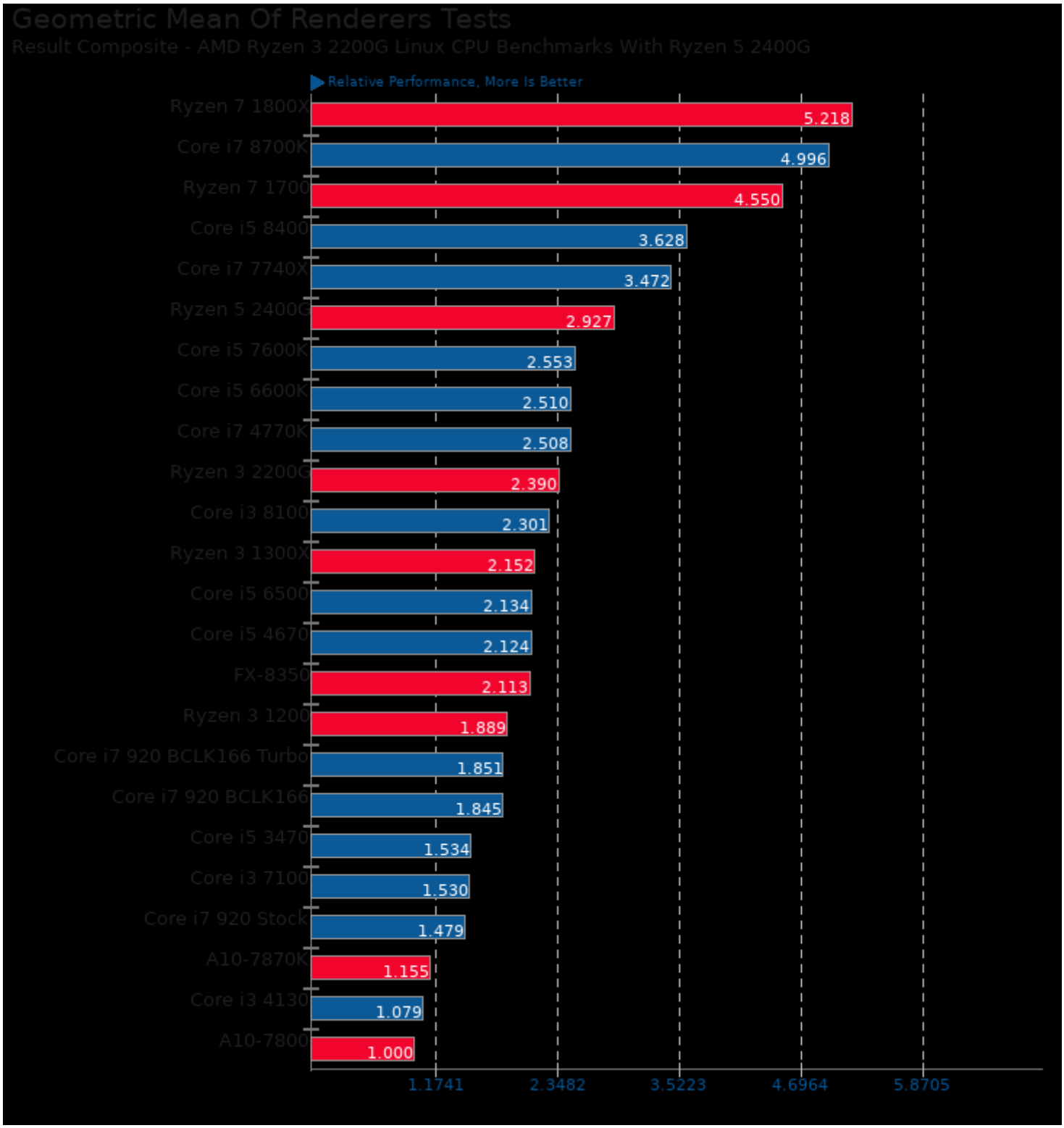
Geometric mean based upon tests: pts/npb, pts/rodinia and pts/nero2d



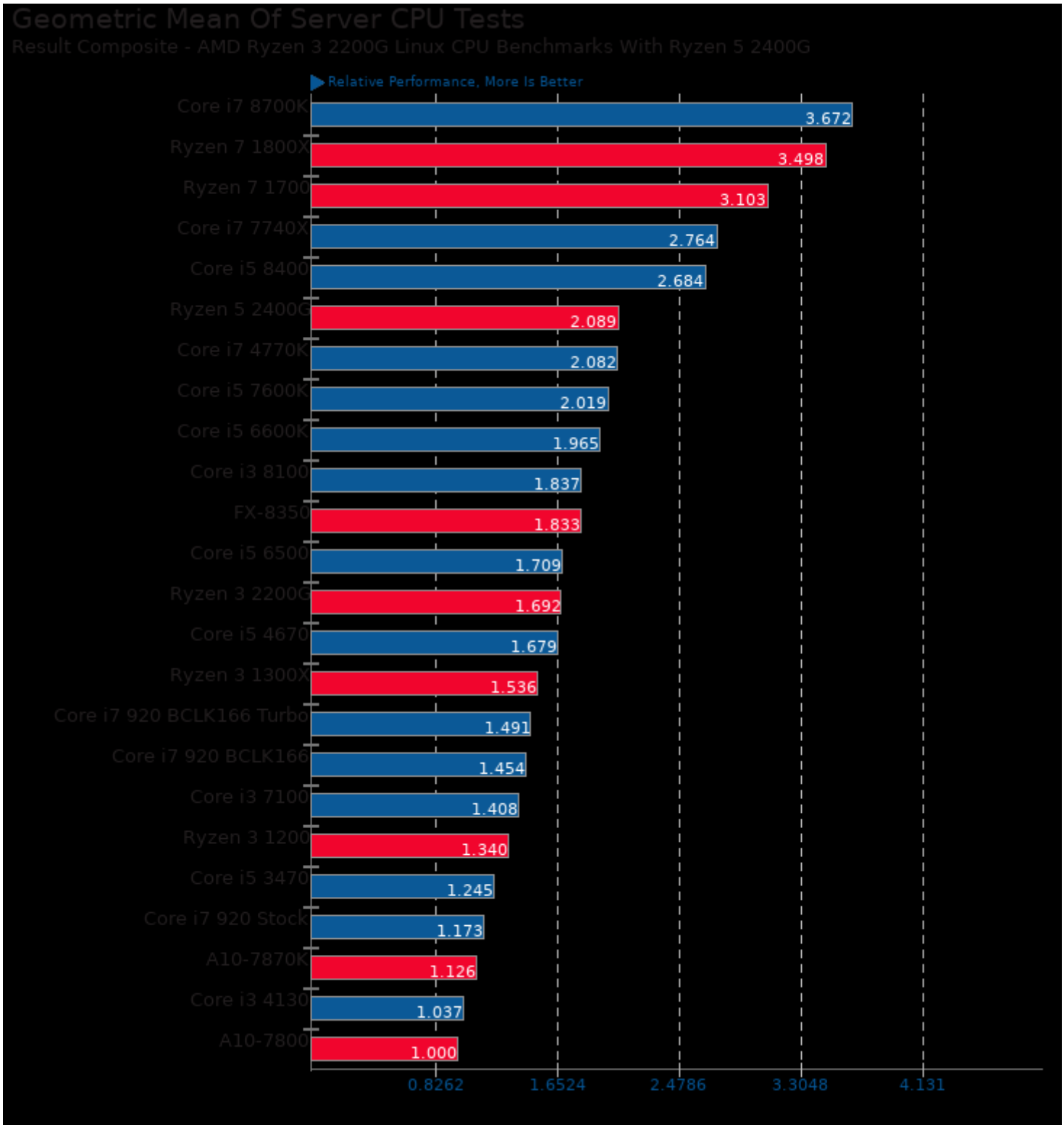
Geometric mean based upon tests: pts/pybench and pts/build-linux-kernel



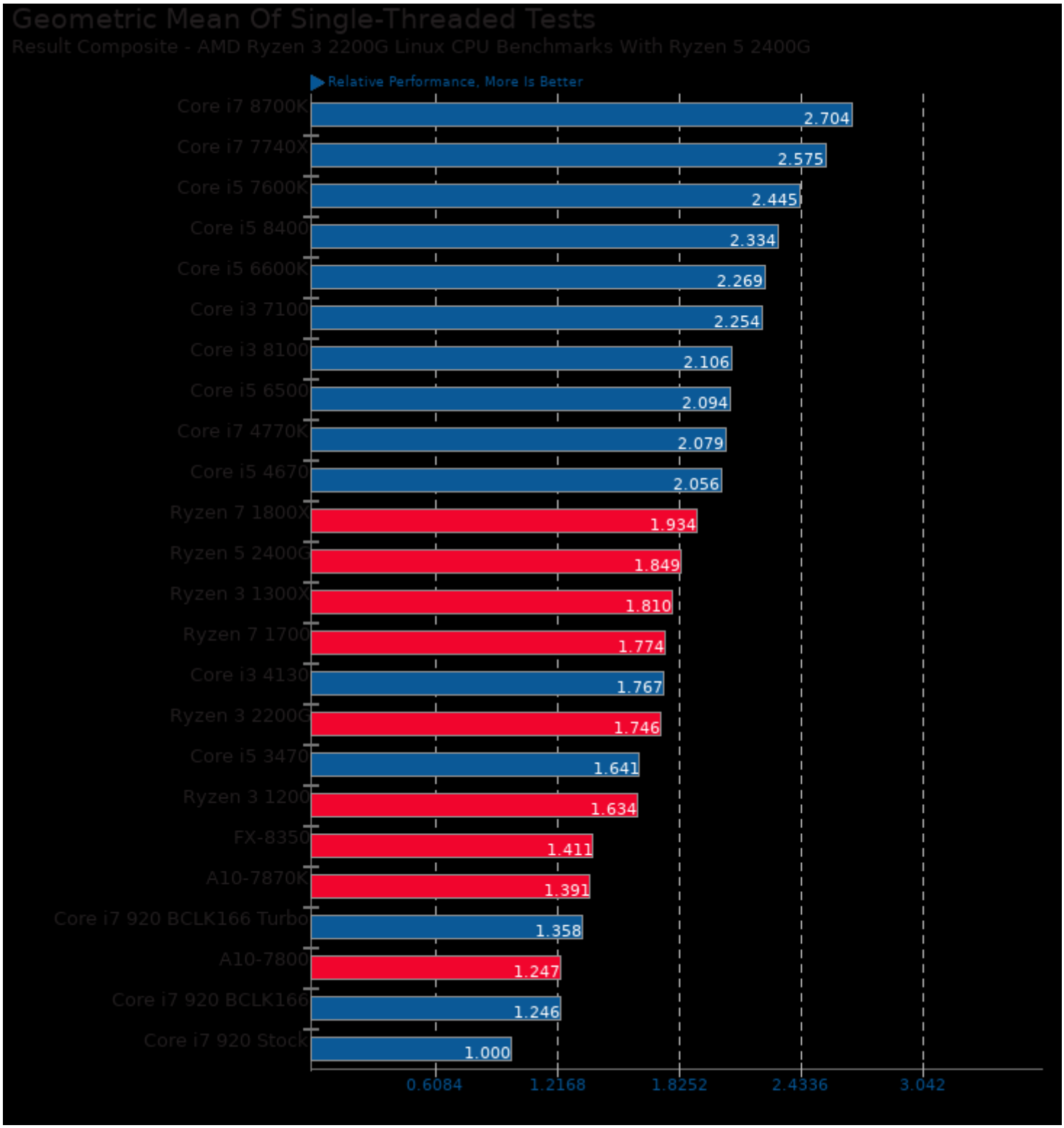
Geometric mean based upon tests: pts/c-ray and pts/povray



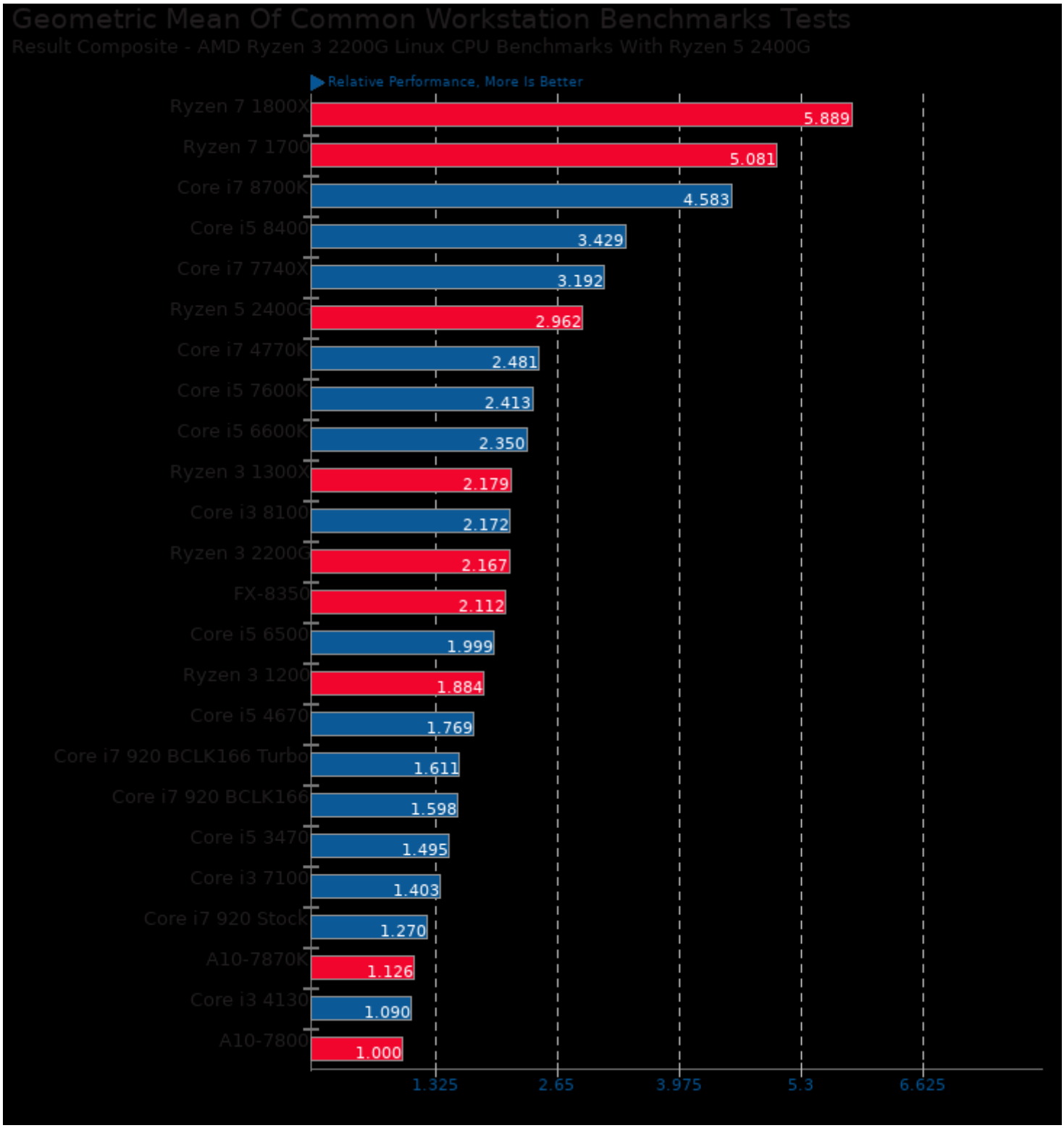
Geometric mean based upon tests: pts/c-ray, pts/povray and pts/ttsiod-renderer



Geometric mean based upon tests: pts/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

This file was automatically generated via the Phoronix Test Suite benchmarking software on Friday, 29 March 2024 06:05.