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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 45% of the tests.

Based on the geometric mean of all complete results, the fastest (Core i7 8700K) was 3.596x the speed of the slowest (A10-7800).

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

Java JMH (Throughput) at 16.605x
PyBench (Total For Average Test Times) at 11.1x
PHPBench (PHP Benchmark Suite) at 10.667x
John The Ripper (Test: Blowfish) at 9.602x
LAME MP3 Encoding (WAV To MP3) at 8.156x
C-Ray (Total Time) at 7.386x
Rodinia (Test: OpenMP LavaMD) at 7.053x
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.

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

Cavium ThunderX 96-Core

Processor: Cavium ThunderX (96 Cores), Motherboard: FOXCONN C2U4N_MB (G31FB18A BIOS), Memory: 4 x 32 GB DDR4-2133MHz 36ASF4G72PZ-2G3B1, Disk: 250GB Samsung SSD 850, Graphics: ASPEED ASPEED Family, Network: Cavium THUNDERX Interface + Cavium THUNDERX BGX

OS: Ubuntu 16.04, Kernel: 4.10.0-38-generic (aarch64), Display Driver: modesetting 1.18.4, Compiler: GCC 5.4.0 20160609, File-System: ext4, Screen Resolution: 800x600

Compiler Notes: --build=aarch64-linux-gnu --disable-browser-plugin --disable-libquadmath --disable-werror --enable-checking=release --enable-clocale=gnu --enable-fix-cortex-a53-843419 --enable-gnu-unique-object --enable-gtk-cairo --enable-java-awt=gtk --enable-java-home --enable-languages=c,ada,c++,java,go,d,fortran,objc,obj-c++ --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-nls --enable-plugin --enable-shared --enable-threads=posix --host=aarch64-linux-gnu --target=aarch64-linux-gnu --with-arch-directory=aarch64 --with-default-libstdcxx-abi=new -v
Python Notes: Python 2.7.12 + Python 3.5.2

OldComputer

Processor: AMD Phenom II X4 965 @ 3.40GHz (4 Cores), Motherboard: Gigabyte GA-MA785GMT-UD2H (F10b BIOS), Chipset: AMD RS880 + SB7x0/SB8x0/SB9x0, Memory: 8192MB, Disk: 750GB Western Digital WD7501AALS-0 + 240GB Seagate ST240HM000-1G515, Graphics: eVGA NVIDIA GeForce GTX 950 2048MB (1189/3304MHz), Audio: Realtek ALC889A, Monitor: 24MB65, Network: Realtek RTL8111/8168/8411

OS: ManjaroLinux 17.1.6, Kernel: 4.15.5-1-MANJARO (x86_64), Desktop: Xfce 4.12, Display Driver: NVIDIA 390.25, OpenGL: 4.5.0, Compiler: GCC 7.3.0 + Clang 5.0.1 + LLVM 5.0.1, File-System: ext4, Screen Resolution: 1920x1200

Compiler Notes: --disable-libssp --disable-libstdcxx-pch --disable-libunwind-exceptions --disable-werror --enable-__cxa_atexit --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-default-ssp --enable-gnu-indirect-function --enable-gnu-unique-object --enable-install-libiberty --enable-languages=c,c++,ada,fortran,go,lto,objc,obj-c++ --enable-libmpx --enable-lto --enable-multilib --enable-plugin --enable-shared --enable-threads=posix --mandir=/usr/share/man --with-isl --with-linker-hash-style=gnu
Processor Notes: Scaling Governor: acpi-cpufreq ondemand
OpenCL Notes: GPU Compute Cores: 768
Python Notes: Python 3.6.4
Security Notes: __user pointer sanitization + Full AMD retpoline Protection

	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	Cavium ThunderX 96-Core	OldComputer
7-Zip Compression - C.S.T (MIPS)	9983	11431	22097	12601	15880	15744	17729	30627	33022	**89992**	12896	17221	14100	16595	15116	18079	17727	27028	21667	28967	39052	**51839**	11557
Normalized	19.26%	22.05%	42.63%	24.31%	30.63%	30.37%	34.21%	59.08%	63.71%	17.35%	24.88%	33.22%	27.21%	32.01%	29.16%	34.88%	34.20%	52.14%	41.81%	55.85%	75.31%	100%	22.29%
Standard Deviation	1.5%	1.4%	0.3%		1.8%	0.5%	3.3%	0.6%	1.5%	1.2%	0.1%	0.2%	3.1%	0.9%	0.1%	0.1%	0.3%	0.2%	1.3%	2.9%	1%	1.4%	0.6%

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%			
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		662.238
Normalized	23.18%	26.51%	49.96%	31.25%	35.36%	36.61%	52.72%	85.79%	96.79%	20.98%	28.94%	41.96%	31.42%	40.84%	38.26%	42.87%	43.82%	67.96%	52.57%	67.81%	100%		28.26%
Standard Deviation	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%		0.7%
asmFish - Performance / Cost - 1.H.M.2.D (Nodes/s)				697.5089	662.8909	665.0956	653.8056	695.5623	649.8181			827.0202						841.9999			652.8686			
Normalized				82.84%	78.73%	78.99%	77.63%	82.61%	77.18%			98.22%						100%			77.54%			
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	8.36	48.05
Normalized	13.54%	15.18%	29.85%	33.51%	38.81%	39.66%	42.96%	74.48%	86.19%	15.41%	19.94%	33.91%	21.41%	30.51%	31%	36.67%	37.52%	53.69%	34.14%	44.71%	65.46%	100%	17.41%
Standard Deviation	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%	2.6%	0%
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	33.95	85.89
Normalized	18.36%	21.36%	35.41%		28.23%	35.71%	53.94%	89.46%	100%	14.98%	24.77%	28.86%	22.13%	27.56%	26.64%	30.86%	31.16%	45.26%	47.68%	58.96%	79.82%	52.95%	20.91%
Standard Deviation	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%	2.6%	3.1%

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

Java JMH - Throughput	348	389	805	617	716	738	740	127	147	673	779	143	123	143	131	155	159	227	154	179	257	579	
	705	412	629	407	911	510	545	836	808	970	012	823	911	372	876	820	835	754	991	208	562	009	
	990	397	694	804	097	717	344	881	548	828	933	337	662	757	791	928	917	632	955	023	006	981	
	8	5	6	3	4	2	5	67	41	1	6	65	52	95	50	11	64	01	79	44	08	41	
Normalized	6.02	6.73	13.9	10.6	12.3	12.7	12.7	22.0	25.5	11.6	13.4	24.8	21.4	24.7	22.7	26.9	27.6	39.3	26.7	30.9	44.4	100	
	%	%	1%	6%	8%	5%	9%	8%	3%	4%	5%	4%	%	6%	8%	1%	1%	4%	7%	5%	8%	%	
Java JMH - Performance / Cost - Throughput (Ops/s/Dollar)				588	573	572	391	442	423			120						120			717		
				007	528	488	822	342	520			859						505			442		
				43	88	93	93	15	20			948						096			91		
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%		
John The Ripper - Blowfish (Real	337	377	682	371	439	454	602	104	124	300	385	441	299	408	404	478	491	699	680	888	127	287	371
	3	5	6	1	3	0	2	31	45	8	9	1	2	0	6	5	0	8	0	0	58	29	5
Normalized	11.7	13.1	23.7	12.9	15.2	15.8	20.9	36.3	43.3	10.4	13.4	15.3	10.4	14.2	14.0	16.6	17.0	24.3	23.6	30.9	44.4	100	12.9
	4%	4%	6%	2%	9%	%	6%	1%	2%	7%	3%	5%	1%	%	8%	6%	9%	6%	7%	1%	1%	%	3%
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%			0.2%	0.4%
John The Ripper - Performance / Cost - Blowfish (Real C/S/Dolla				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%		
LAME MP3 Encoding - WAV To MP3 (sec)	54.	48.	47.	39.	35.	37.	35.	36.	33.	38.	31.	33.	37.	33.	33.	30.	28.	30.	32.	27.	26.	212	65.
	17	37	03	68	78	13	19	59	50	94	08	30	36	25	51	95	77	01	54	50	07	.62	71
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	12.2	39.6
	3%	%	3%	%	6%	1%	8%	5%	2%	5%	8%	9%	8%	1%	%	3%	2%	7%	2%	%	%	6%	7%
Standard Deviation	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%	0.2%	0.2%

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

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**	89.06
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%	15.4%
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%	0.2%
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				68.2%	66.4%	65.8%	91.7%	99.4%	96.4%			100%						100%			94.7%	
NGINX Benchmark - S.W.P.S (Reqs/sec)	**191.13**	213.59	196.28	291.45	326.33	336.21	334.50	298.20	329.64	206.55	367.57	363.11	207.62	356.72	348.00	392.34	404.83	405.33	363.74	**454.76**	449.16	
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	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%	
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				90.9%	85.5%	85.4%	58%	33.8%	30.9%			100%						70.2%			41%	

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		192.79
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		26.0
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%		1% 0.3%
OpenSSL - R.4.b.P (Signs/s	299.73	339.70	705.20		710.53	734.20	793.80	138.0	159.3	308.97	597.13	104.3	499.23	645.10	942.73	114.3	114.8	167.1	689.30	131.3	1980		391.13
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		19.7
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%		6% 0%
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					64.2 5%	64.3 7%	47.5 1%	54.0 7%	51.5 8%			99.1 %						100 %			62.3 3%		
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	10.17	
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	54.8	
Standard Deviation	2% 0.1%	6% 0.3%	2% 0.4%	4% 0.4%	3% 0.1%	8% 0.7%	1% 0.6%	8% 0.7%	% 0.4%	9% 0.4%	% 1.1%	2% 0%	1% 0.2%	2% 0.2%	2% 0.1%	8% 0.1%	6% 0.2%	2% 0.1%	6% 1%	8% 1.7%	1% 0.3%	7% 0.9%	
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	63604	308499
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	9.37	45.4
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%	% 0.1%	7% 0.7%

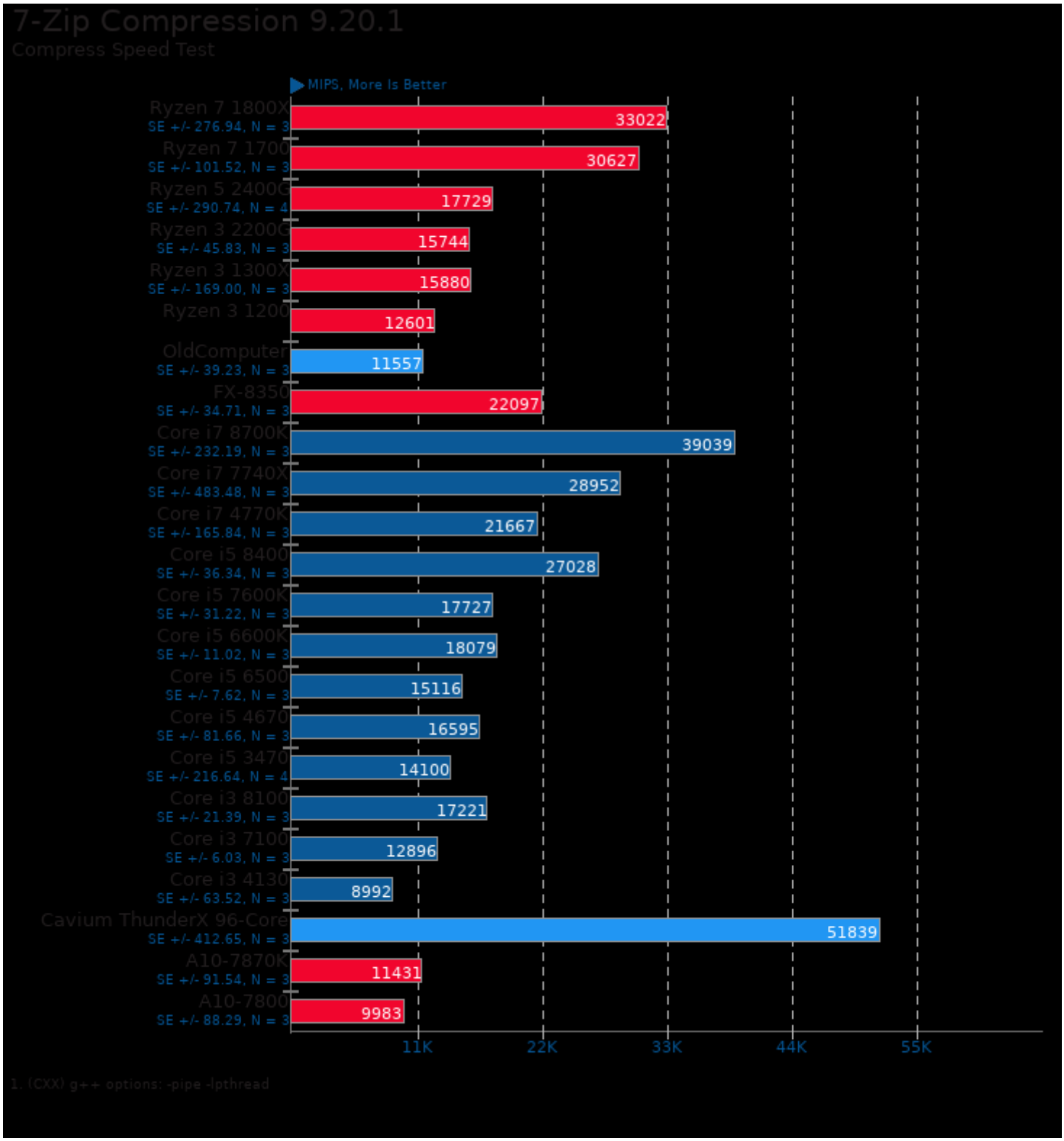
AMD Ryzen 3 2200G Linux CPU Benchmarks With Ryzen 5 2400G

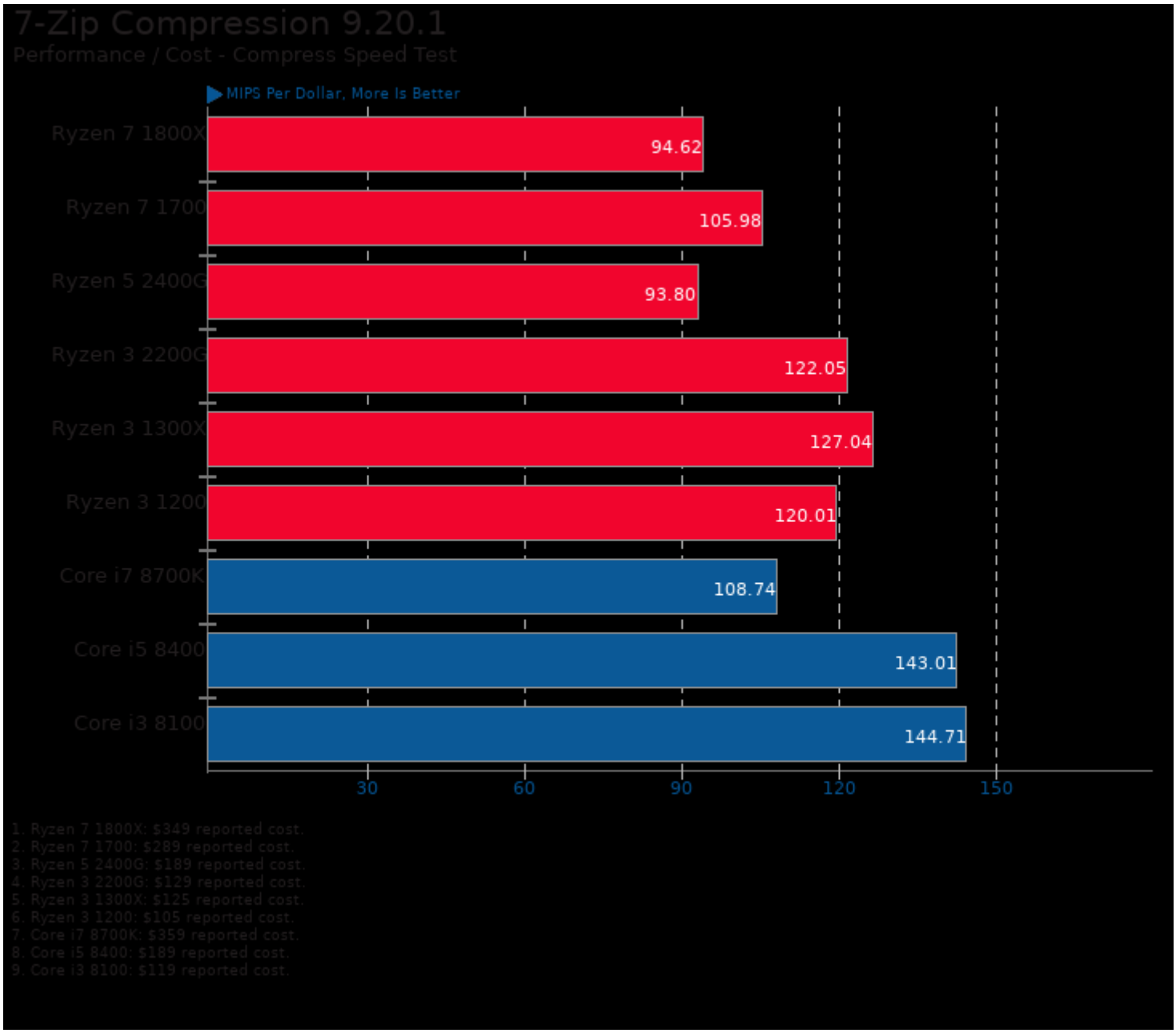
PHPBench - Performance / Cost - P.B.S (Score/Dollar)				3480	3243	3024	2190	1369	1235			4467						3115			1890		
Normalized				77.9	72.6	67.7	49.0	30.6	27.6			100						69.7			42.3		
POV-Ray - Trace Time (sec)	270.86	242.07	134.01	181.19	156.29	153.63	107.39	64.40	56.21	267.70	200.73	139.02	228.83	147.13	149.84	126.84	125.90	87.94	131.09	87.94	60.96		265.81
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		21.1
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%		5% 0.3%
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	1144	
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	9.01	
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%	% 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	66.27	467.37
Normalized	14.8	16.6	31.3	25.6	29.6	30.5	41.3	69.6	80.4	15.0	18.6	29.3	16.5	20.5	26.9	31.7	32.5	46.2	33.2	42.9	61.8	100	14.1
Standard Deviation	4% 0.1%	7% 0.4%	3% 0.1%	2% 0.2%	7% 0.2%	2% 0.2%	5% 0.1%	5% 0.1%	3% 0.1%	5% 0.1%	9% 0.3%	% 0%	6% 0.8%	4% 0.1%	2% 0.1%	3% 0%	9% 0.1%	9% 0.1%	4% 0%	2% 0.9%	2% 0.1%	% 2.2%	8% 0.4%
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	216.51	293.58
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	36.5	26.9
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%	3% 3.1%	4% 1.2%

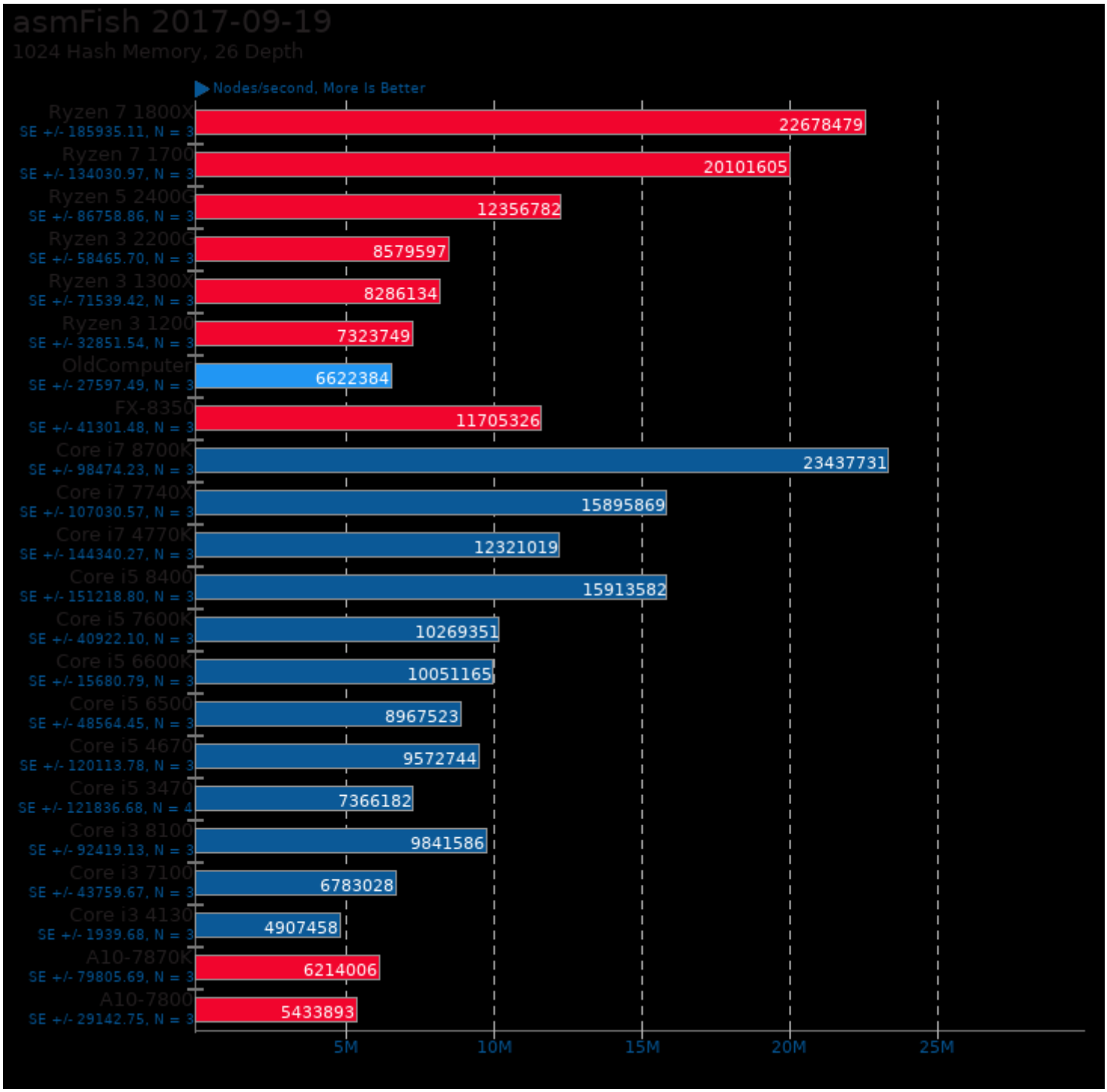
AMD Ryzen 3 2200G Linux CPU Benchmarks With Ryzen 5 2400G

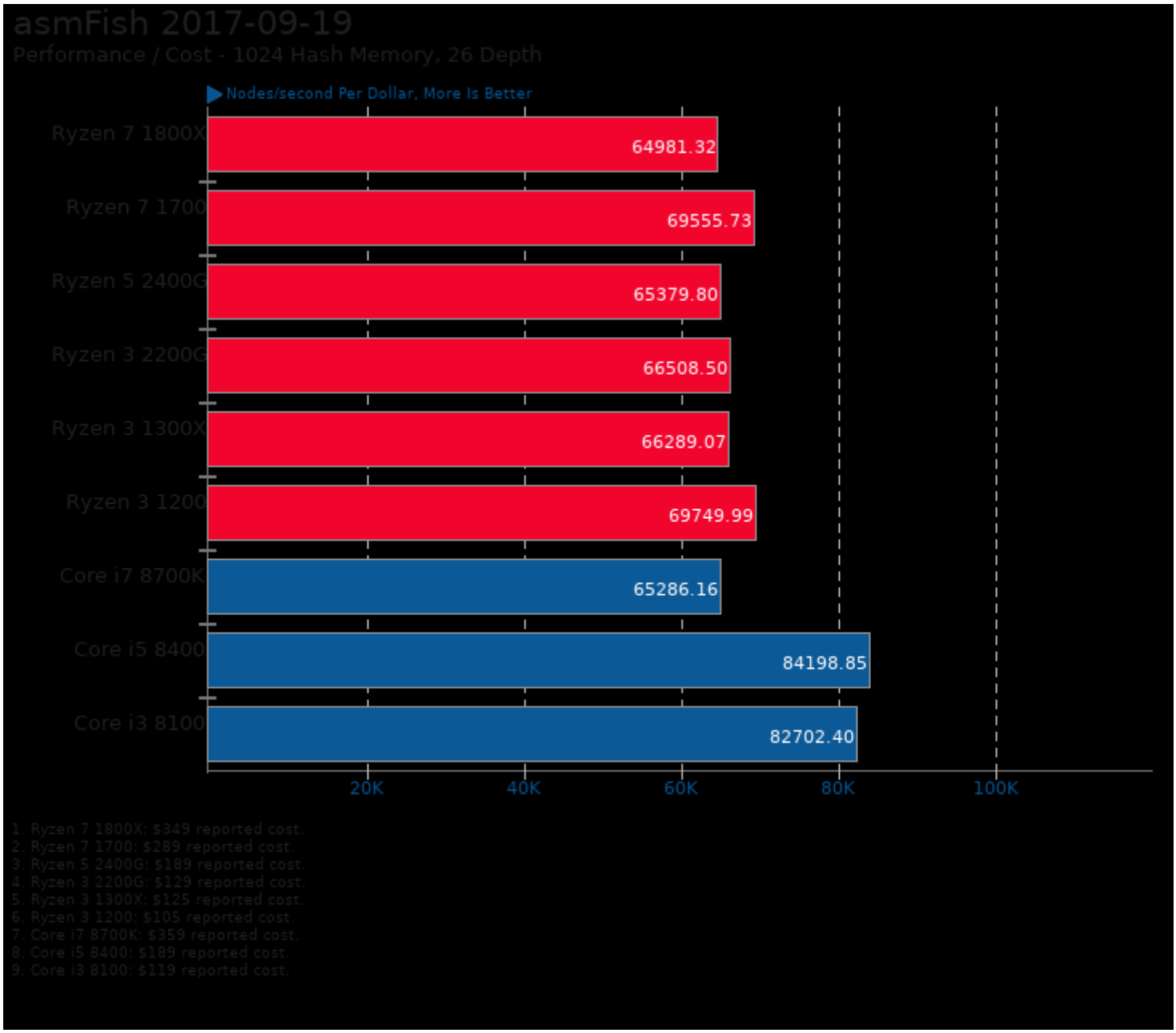
Timed MAFFT Alignment - M.S.A	11.96	10.40	5.92	7.25	5.99	6.27	5.73	4.26	**3.65**	10.45	7.85	5.71	6.93	5.85	6.32	5.36	5.42	3.68	4.88	3.97		**19.81**	10.16
Normalized	30.52%	35.1%	61.6%	50.3%	60.9%	58.2%	63.7%	85.6%	100%	34.9%	46.5%	63.9%	52.6%	62.3%	57.7%	68.1%	67.3%	99.1%	74.8%	91.9%		18.4%	35.9%
Standard 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%		7.1%	0.5%
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**		76.89
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%		19.6%
Standard Deviation	1%	7%	5%	9%	6%	9%	3%	2%	2%	8%	7%	6%	7%	7%	%	6%	7%	1%	6%	3%	%		3%
	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%		0.2%
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				82.9%	76.6%	97.8%	79.4%	67.3%	63.1%			100%						98.5%			77.3%		
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**	25.08	**14.28**
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%	34.3%	19.5%
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%	1.1%	0.3%

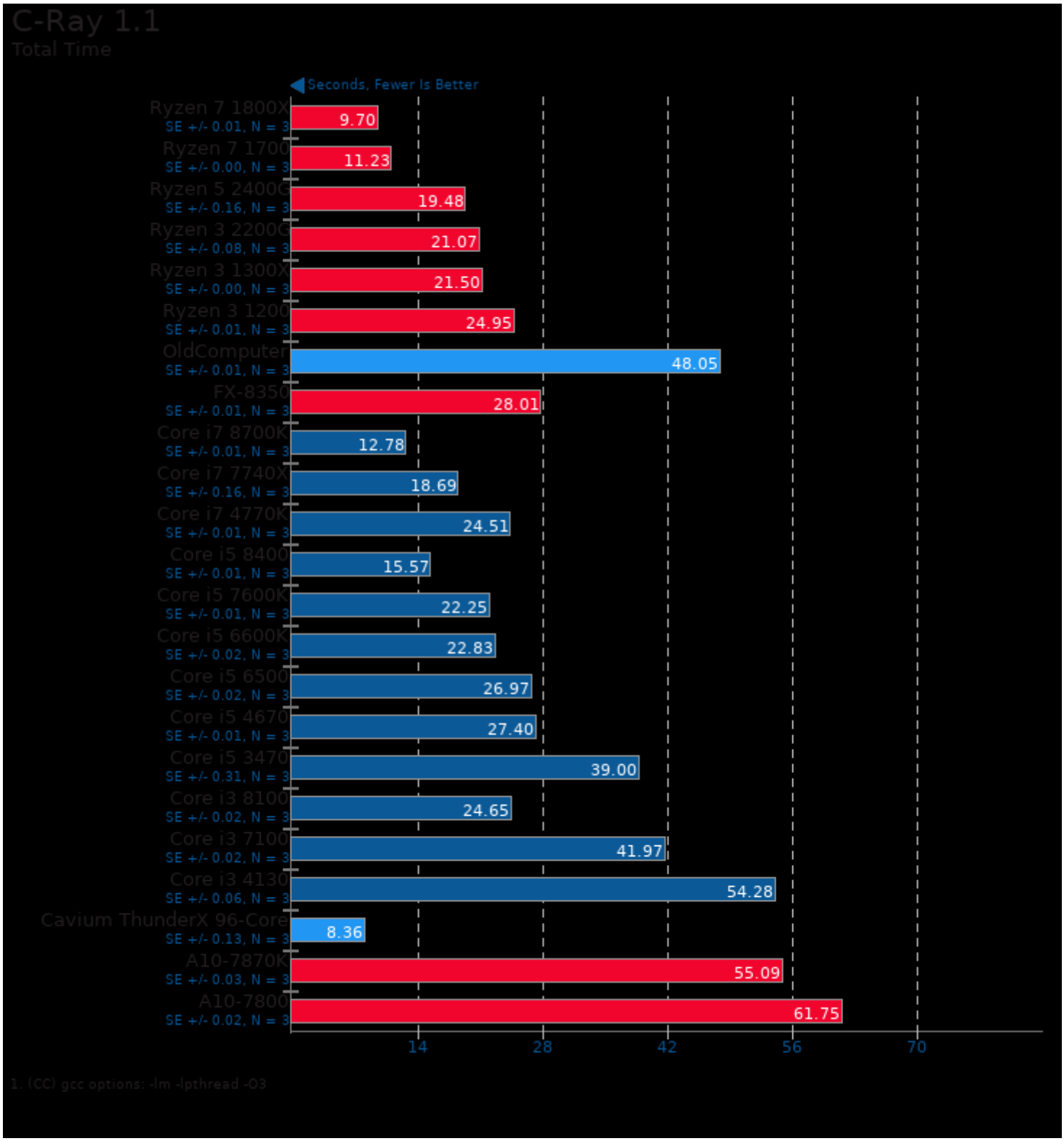
x264 - Performance / Cost - H.2.V.E (FPS/Dollar)	0.22	0.22	0.21	**0.18**	0.21	0.20	0.26	**0.30**	0.20
Normalized	73.33%	73.33%	70%	60%	70%	66.67%	86.67%	100%	66.67%

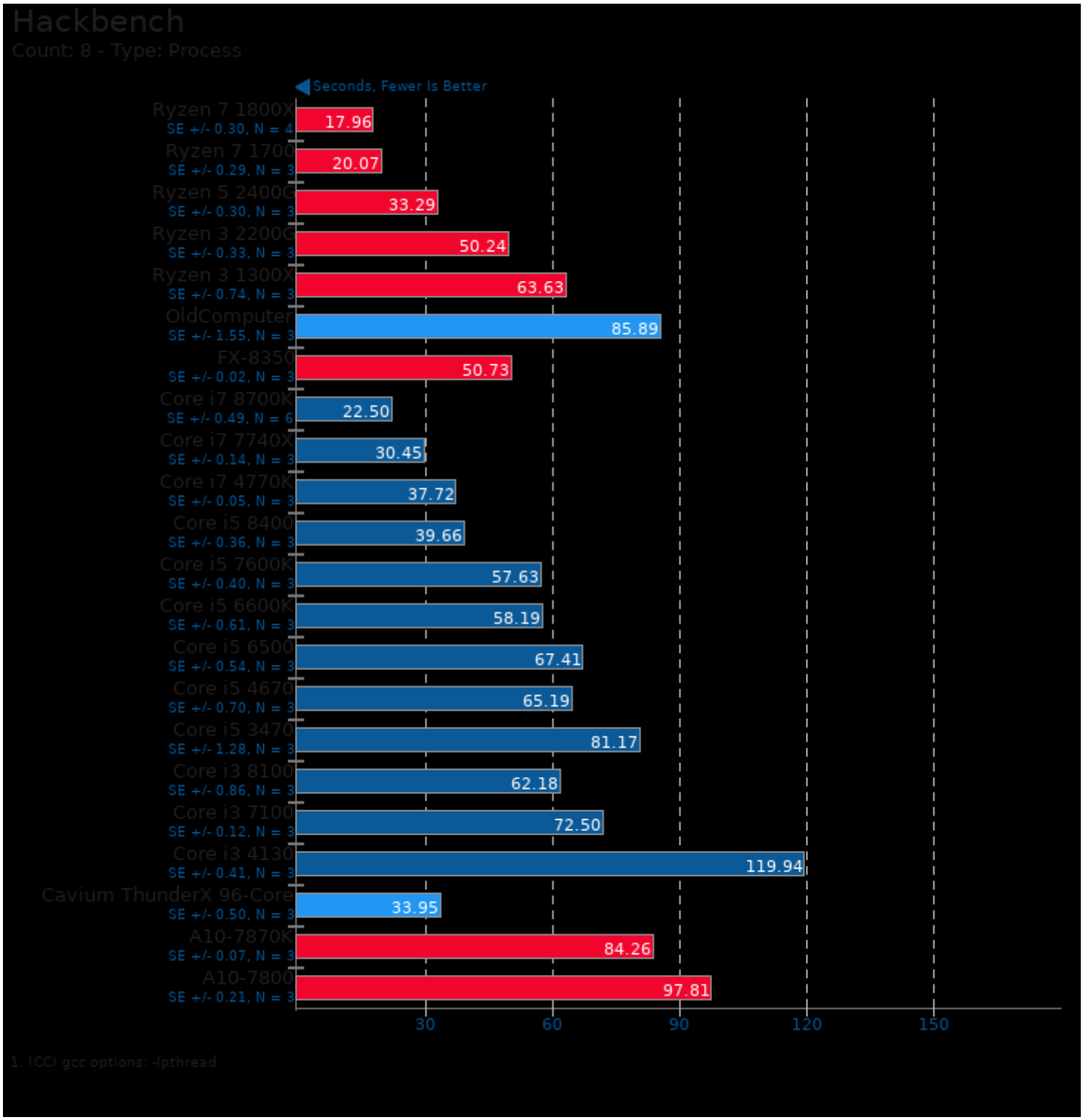

7-Zip Compression 9.20.1
Compress Speed Test
MIPS, More Is Better
Ryzen 7 1800X
SE +/- 276.94, N = 3
33022
Ryzen 7 1700
SE +/- 101.52, N = 3
30627
Ryzen 5 2400G
SE +/- 290.74, N = 4
17729
Ryzen 3 2200G
SE +/- 45.83, N = 3
15744
Ryzen 3 1300X
SE +/- 169.00, N = 3
15880
Ryzen 3 1200
12601
OldComputer
SE +/- 39.23, N = 3
11557
FX-8350
SE +/- 34.71, N = 3
22097
Core i7 8700K
SE +/- 232.19, N = 3
39039
Core i7 7740X
SE +/- 483.48, N = 3
28952
Core i7 4770K
SE +/- 165.84, N = 3
21667
Core i5 8400
SE +/- 36.34, N = 3
27028
Core i5 7600K
SE +/- 31.22, N = 3
17727
Core i5 6600K
SE +/- 11.02, N = 3
18079
Core i5 6500
SE +/- 7.62, N = 3
15116
Core i5 4670
SE +/- 81.66, N = 3
16595
Core i5 3470
SE +/- 216.64, N = 4
14100
Core i3 8100
SE +/- 21.39, N = 3
17221
Core i3 7100
SE +/- 6.03, N = 3
12896
Core i3 4130
SE +/- 63.52, N = 3
8992
Cavium ThunderX 96-Core
SE +/- 412.65, N = 3
51839
A10-7870K
SE +/- 91.54, N = 3
11431
A10-7800
SE +/- 88.29, N = 3
9983
11K
22K
33K
44K
55K
1. (CXX) g++ options: -pipe -lpthread

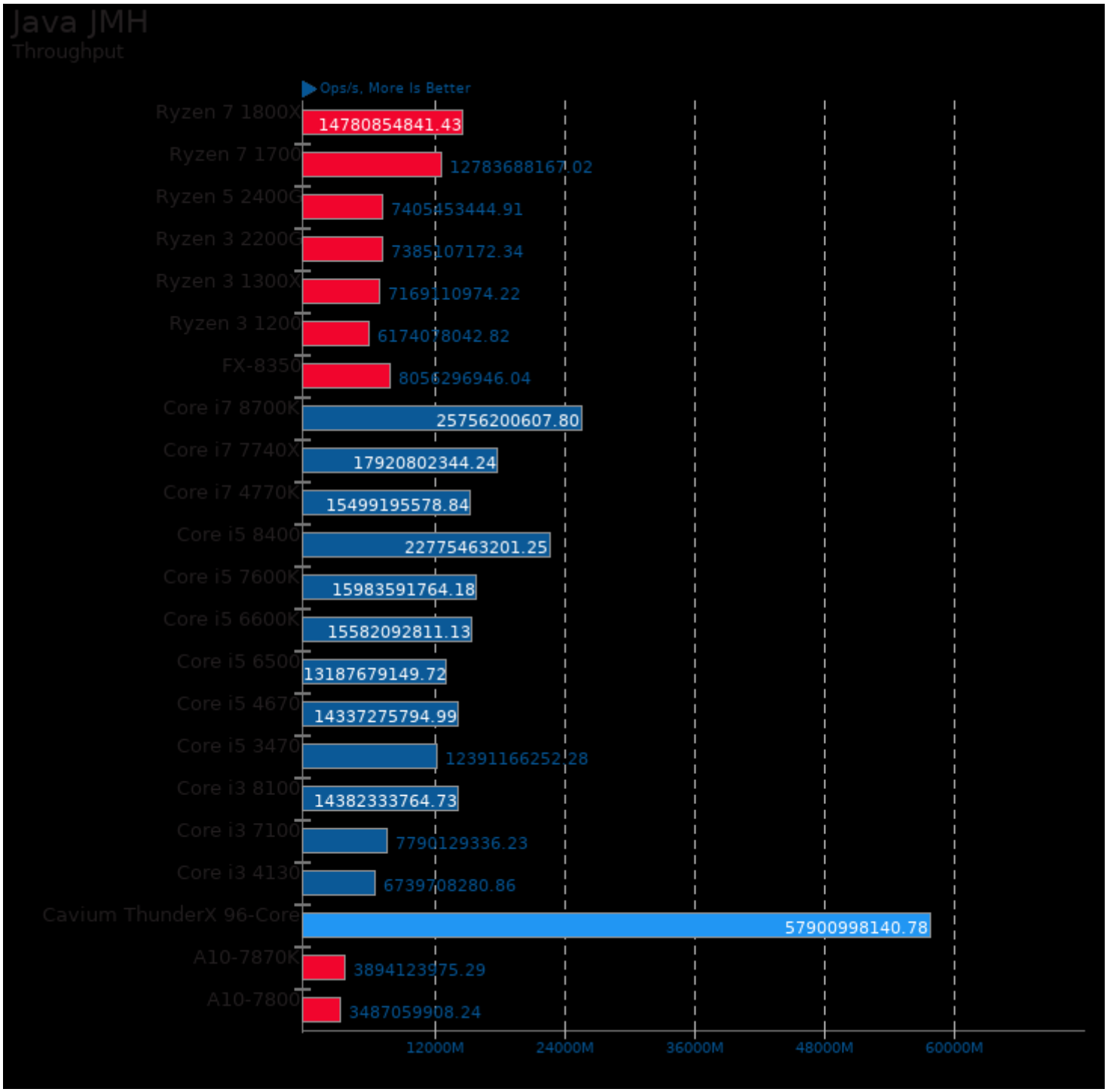

7-Zip Compression 9.20.1
Performance / Cost - Compress Speed Test
MIPS Per Dollar, More Is Better
Ryzen 7 1800X
94.62
Ryzen 7 1700
105.98
Ryzen 5 2400G
93.80
Ryzen 3 2200G
122.05
Ryzen 3 1300X
127.04
Ryzen 3 1200
120.01
Core i7 8700K
108.74
Core i5 8400
143.01
Core i3 8100
144.71
30
60
90
120
150
1.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

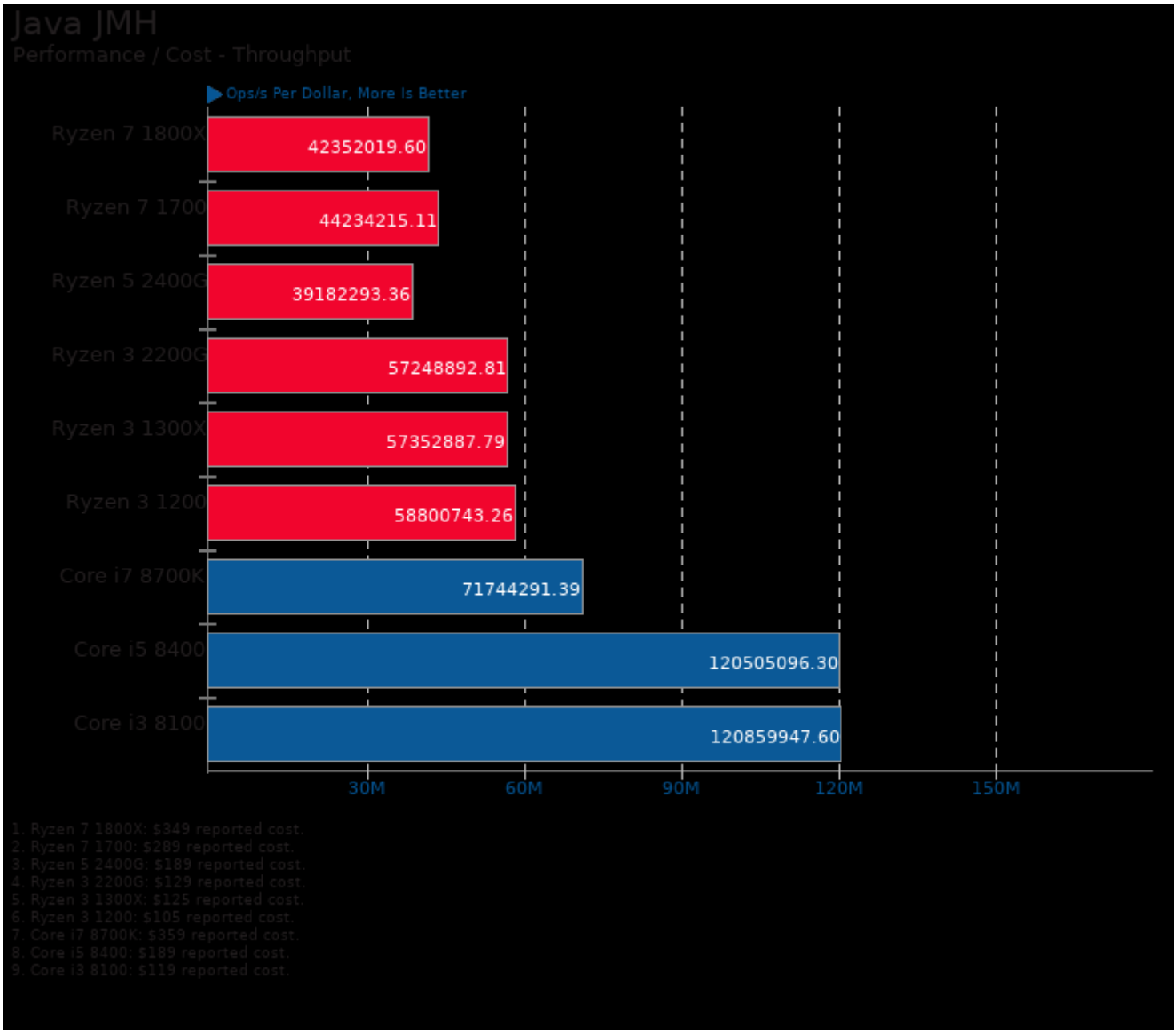

asmFish 2017-09-19
1024 Hash Memory, 26 Depth
Nodes/second, More Is Better
Ryzen 7 1800X
SE +/- 185935.11, N = 3
22678479
Ryzen 7 1700
SE +/- 134030.97, N = 3
20101605
Ryzen 5 2400G
SE +/- 86758.86, N = 3
12356782
Ryzen 3 2200G
SE +/- 58465.70, N = 3
8579597
Ryzen 3 1300X
SE +/- 71539.42, N = 3
8286134
Ryzen 3 1200
SE +/- 32851.54, N = 3
7323749
OldComputer
SE +/- 27597.49, N = 3
6622384
FX-8350
SE +/- 41301.48, N = 3
11705326
Core i7 8700K
SE +/- 98474.23, N = 3
23437731
Core i7 7740X
SE +/- 107030.57, N = 3
15895869
Core i7 4770K
SE +/- 144340.27, N = 3
12321019
Core i5 8400
SE +/- 151218.80, N = 3
15913582
Core i5 7600K
SE +/- 40922.10, N = 3
10269351
Core i5 6600K
SE +/- 15680.79, N = 3
10051165
Core i5 6500
SE +/- 48564.45, N = 3
8967523
Core i5 4670
SE +/- 120113.78, N = 3
9572744
Core i5 3470
SE +/- 121836.68, N = 4
7366182
Core i3 8100
SE +/- 92419.13, N = 3
9841586
Core i3 7100
SE +/- 43759.67, N = 3
6783028
Core i3 4130
SE +/- 1939.68, N = 3
4907458
A10-7870K
SE +/- 79805.69, N = 3
6214006
A10-7800
SE +/- 29142.75, N = 3
5433893
5M
10M
15M
20M
25M

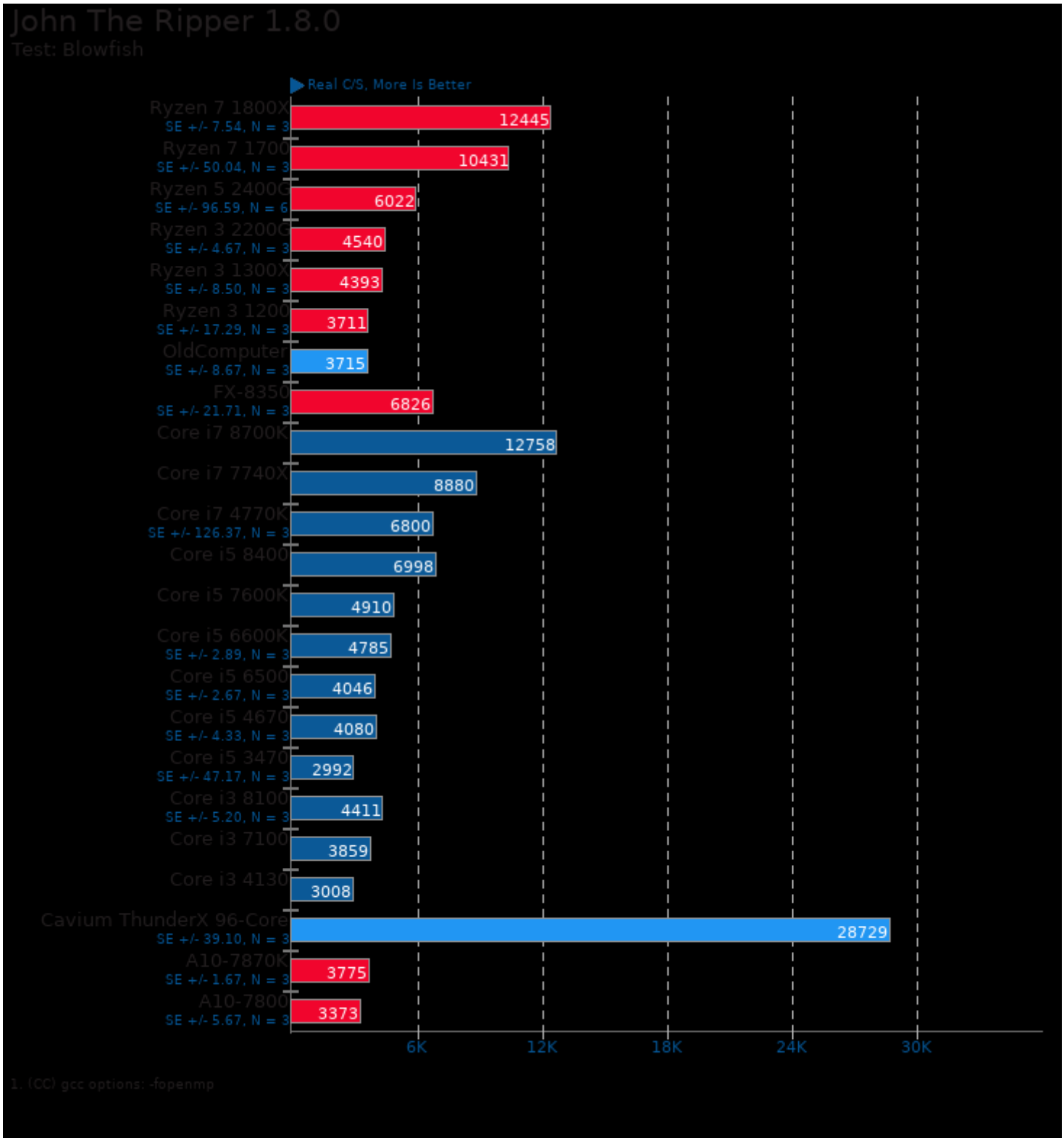

asmFish 2017-09-19
Performance / Cost - 1024 Hash Memory, 26 Depth
Nodes/second Per Dollar, More Is Better
Ryzen 7 1800X
64981.32
Ryzen 7 1700
69555.73
Ryzen 5 2400G
65379.80
Ryzen 3 2200G
66508.50
Ryzen 3 1300X
66289.07
Ryzen 3 1200
69749.99
Core i7 8700K
65286.16
Core i5 8400
84198.85
Core i3 8100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

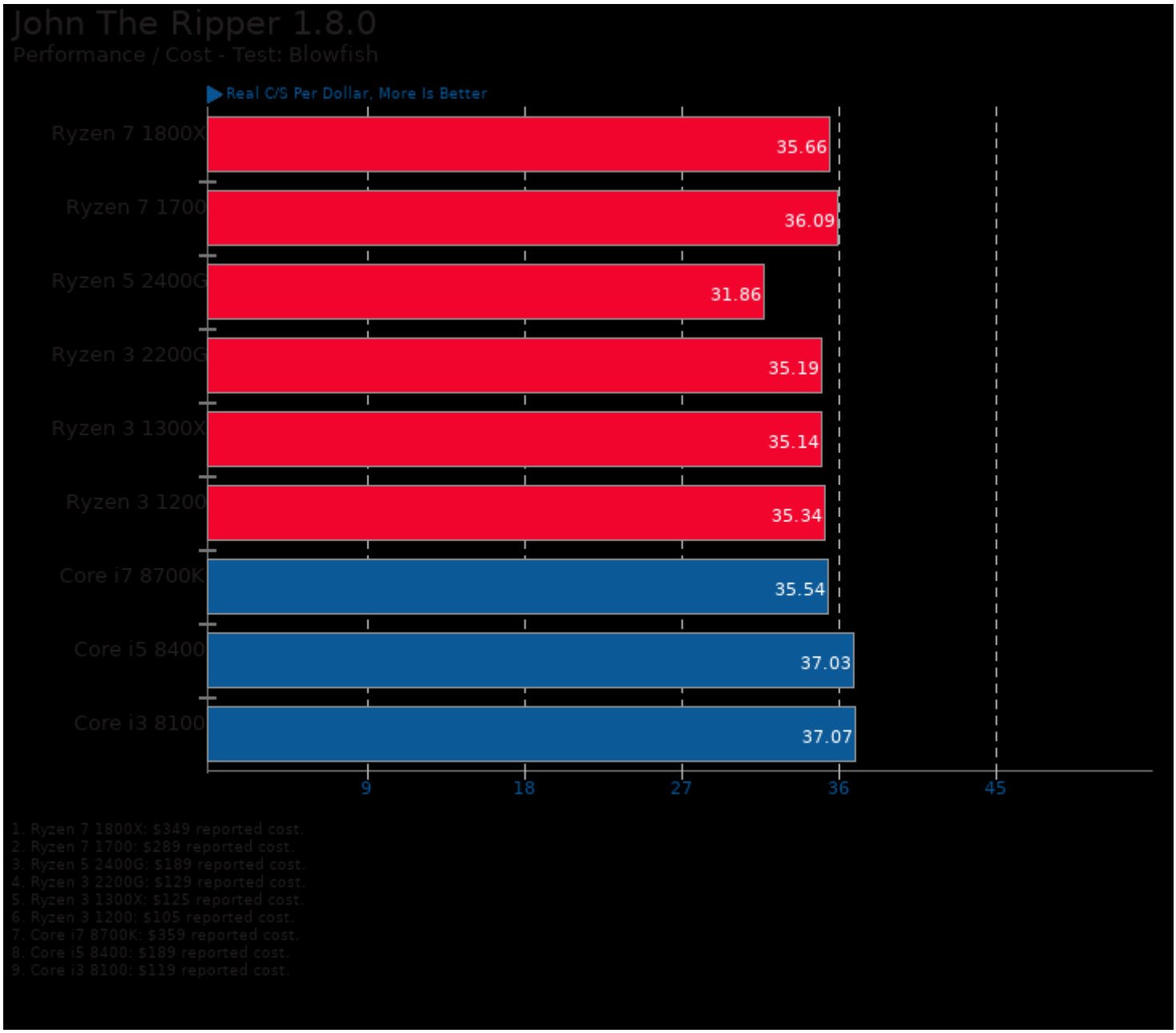

C-Ray 1.1
Total Time
Seconds, Fewer Is Better
Ryzen 7 1800X
SE +/- 0.01, N = 3
9.70
Ryzen 7 1700
SE +/- 0.00, N = 3
11.23
Ryzen 5 2400G
SE +/- 0.16, N = 3
19.48
Ryzen 3 2200G
SE +/- 0.08, N = 3
21.07
Ryzen 3 1300X
SE +/- 0.00, N = 3
21.50
Ryzen 3 1200
SE +/- 0.01, N = 3
24.95
OldComputer
SE +/- 0.01, N = 3
48.05
FX-8350
SE +/- 0.01, N = 3
28.01
Core i7 8700K
SE +/- 0.01, N = 3
12.78
Core i7 7740X
SE +/- 0.16, N = 3
18.69
Core i7 4770K
SE +/- 0.01, N = 3
24.51
Core i5 8400
SE +/- 0.01, N = 3
15.57
Core i5 7600K
SE +/- 0.01, N = 3
22.25
Core i5 6600K
SE +/- 0.02, N = 3
22.83
Core i5 6500
SE +/- 0.02, N = 3
26.97
Core i5 4670
SE +/- 0.01, N = 3
27.40
Core i5 3470
SE +/- 0.31, N = 3
39.00
Core i3 8100
SE +/- 0.02, N = 3
24.65
Core i3 7100
SE +/- 0.02, N = 3
41.97
Core i3 4130
SE +/- 0.06, N = 3
54.28
Cavium ThunderX 96-Core
SE +/- 0.13, N = 3
8.36
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

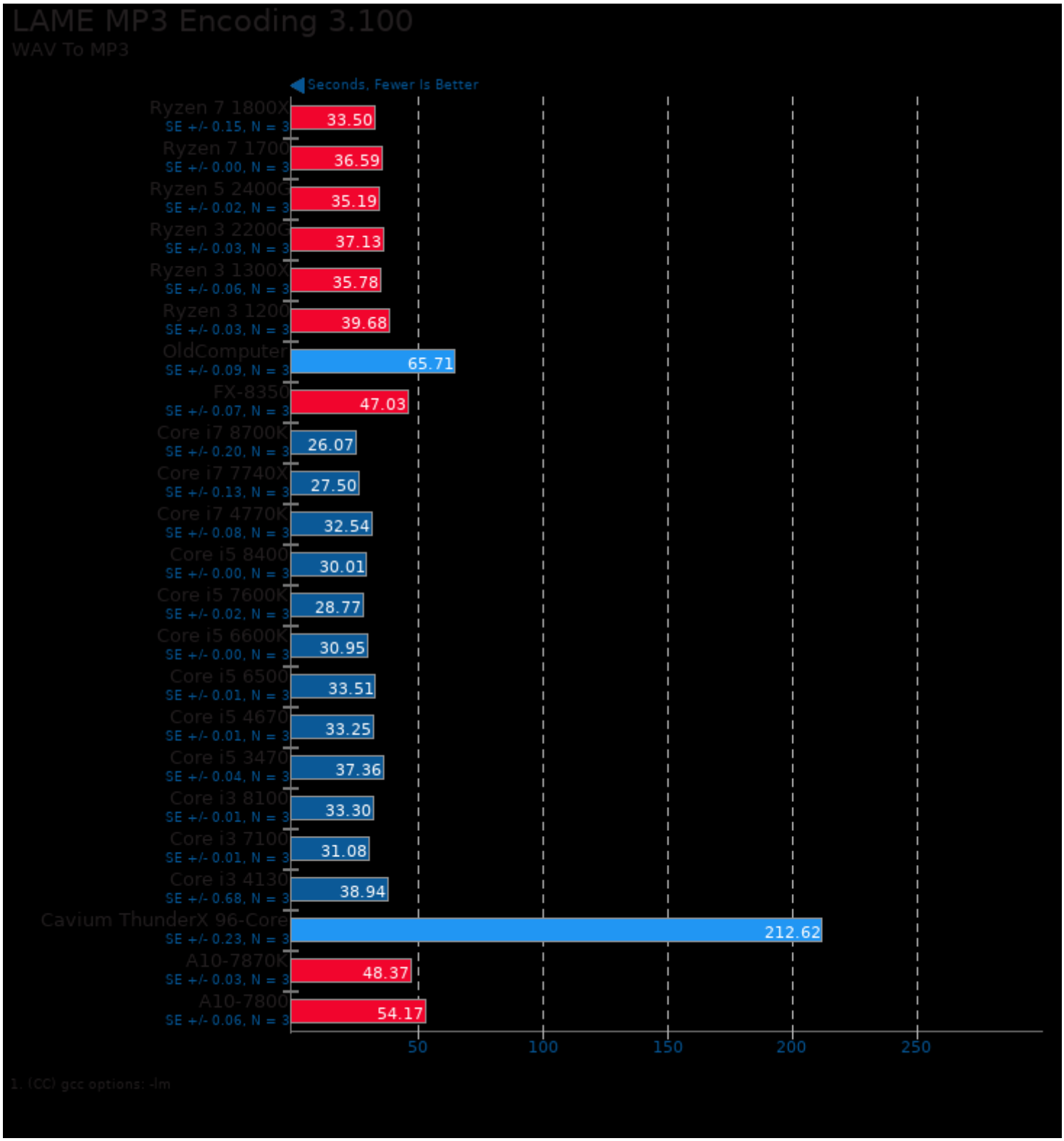

Hackbench
Count: 8 - Type: Process
Seconds, Fewer Is Better
Ryzen 7 1800X
SE +/- 0.30, N = 4
17.96
Ryzen 7 1700
SE +/- 0.29, N = 3
20.07
Ryzen 5 2400G
SE +/- 0.30, N = 3
33.29
Ryzen 3 2200G
SE +/- 0.33, N = 3
50.24
Ryzen 3 1300X
SE +/- 0.74, N = 3
63.63
OldComputer
SE +/- 1.55, N = 3
85.89
FX-8350
SE +/- 0.02, N = 3
50.73
Core i7 8700K
SE +/- 0.49, N = 6
22.50
Core i7 7740X
SE +/- 0.14, N = 3
30.45
Core i7 4770K
SE +/- 0.05, N = 3
37.72
Core i5 8400
SE +/- 0.36, N = 3
39.66
Core i5 7600K
SE +/- 0.40, N = 3
57.63
Core i5 6600K
SE +/- 0.61, N = 3
58.19
Core i5 6500
SE +/- 0.54, N = 3
67.41
Core i5 4670
SE +/- 0.70, N = 3
65.19
Core i5 3470
SE +/- 1.28, N = 3
81.17
Core i3 8100
SE +/- 0.86, N = 3
62.18
Core i3 7100
SE +/- 0.12, N = 3
72.50
Core i3 4130
SE +/- 0.41, N = 3
119.94
Cavium ThunderX 96-Core
SE +/- 0.50, N = 3
33.95
A10-7870K
SE +/- 0.07, N = 3
84.26
A10-7800
SE +/- 0.21, N = 3
97.81
30
60
90
120
150
1. (CC) gcc options: -lpthread

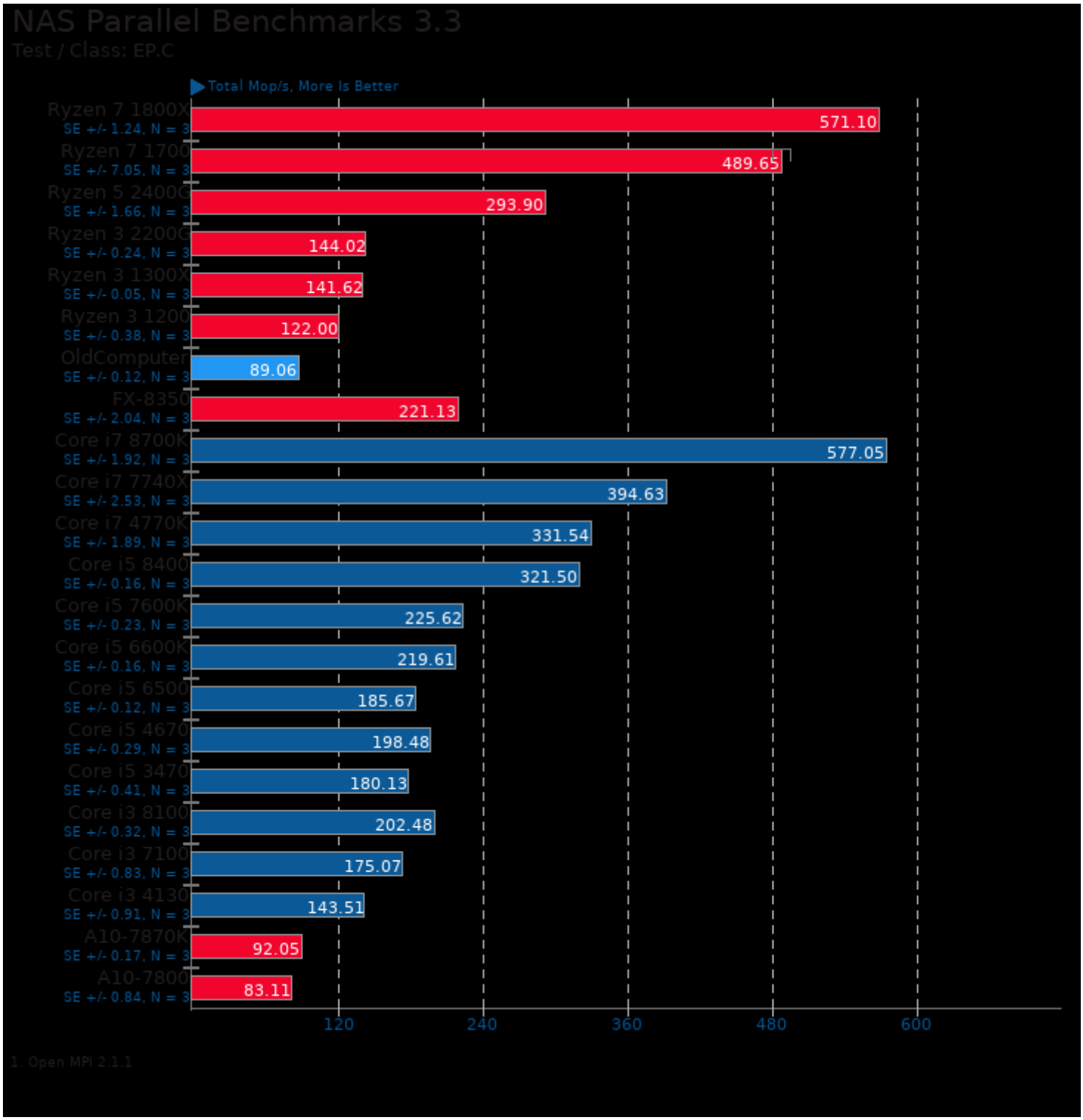

Java JMH
Throughput
Ops/s, More Is Better
Ryzen 7 1800X
14780854841.43
Ryzen 7 1700
12783688167.02
Ryzen 5 2400G
7405453444.91
Ryzen 3 2200G
7385107172.34
Ryzen 3 1300X
7169110974.22
Ryzen 3 1200
6174078042.82
FX-8350
8056296946.04
Core i7 8700K
25756200607.80
Core i7 7740X
17920802344.24
Core i7 4770K
15499195578.84
Core i5 8400
22775463201.25
Core i5 7600K
15983591764.18
Core i5 6600K
15582092811.13
Core i5 6500
13187679149.72
Core i5 4670
14337275794.99
Core i5 3470
12391166252.28
Core i3 8100
14382333764.73
Core i3 7100
7790129336.23
Core i3 4130
6739708280.86
Cavium ThunderX 96-Core
57900998140.78
A10-7870K
3894123975.29
A10-7800
3487059908.24
12000M
24000M
36000M
48000M
60000M

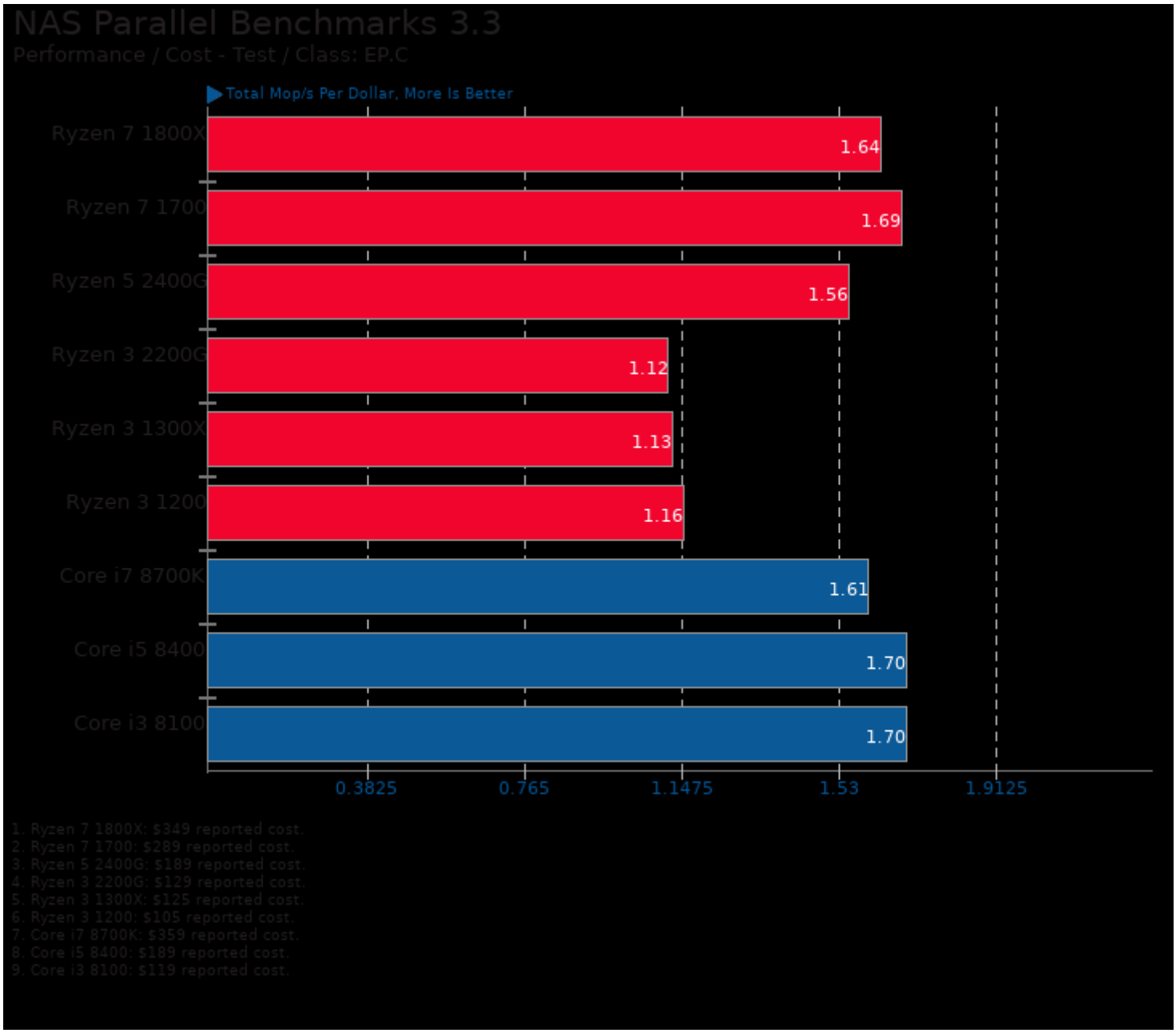

Java JMH
Performance / Cost - Throughput
Ops/s Per Dollar, More Is Better
Ryzen 7 1800X
42352019.60
Ryzen 7 1700
44234215.11
Ryzen 5 2400G
39182293.36
Ryzen 3 2200G
57248892.81
Ryzen 3 1300X
57352887.79
Ryzen 3 1200
58800743.26
Core i7 8700K
71744291.39
Core i5 8400
120505096.30
Core i3 8100
120859947.60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

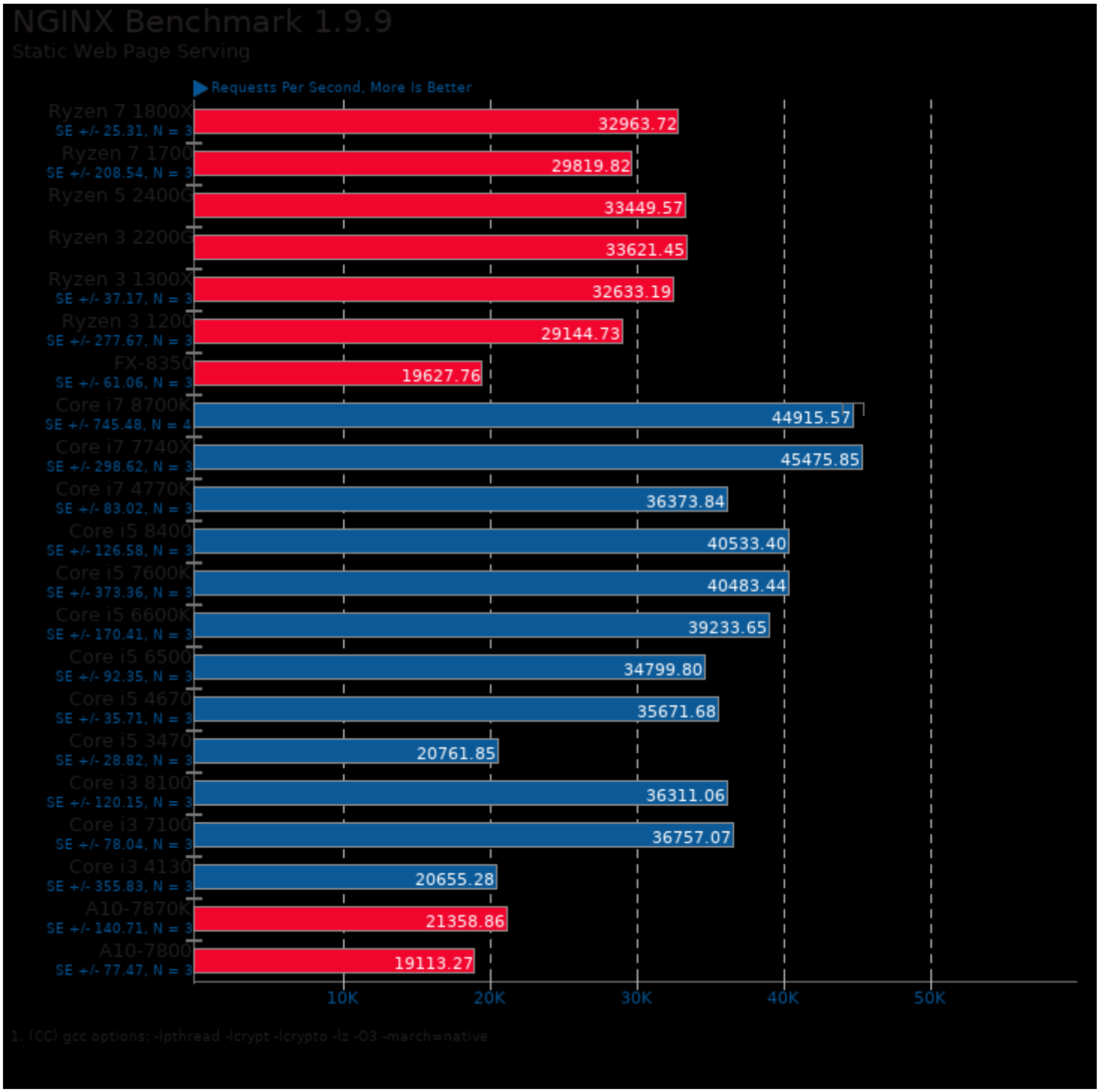

John The Ripper 1.8.0
Test: Blowfish
Real C/S, More Is Better
Ryzen 7 1800X
SE +/- 7.54, N = 3
12445
Ryzen 7 1700
SE +/- 50.04, N = 3
10431
Ryzen 5 2400G
SE +/- 96.59, N = 6
6022
Ryzen 3 2200G
SE +/- 4.67, N = 3
4540
Ryzen 3 1300X
SE +/- 8.50, N = 3
4393
Ryzen 3 1200
SE +/- 17.29, N = 3
3711
OldComputer
SE +/- 8.67, N = 3
3715
FX-8350
SE +/- 21.71, N = 3
6826
Core i7 8700K
12758
Core i7 7740X
8880
Core i7 4770K
SE +/- 126.37, N = 3
6800
Core i5 8400
6998
Core i5 7600K
4910
Core i5 6600K
SE +/- 2.89, N = 3
4785
Core i5 6500
SE +/- 2.67, N = 3
4046
Core i5 4670
SE +/- 4.33, N = 3
4080
Core i5 3470
SE +/- 47.17, N = 3
2992
Core i3 8100
SE +/- 5.20, N = 3
4411
Core i3 7100
3859
Core i3 4130
3008
Cavium ThunderX 96-Core
SE +/- 39.10, N = 3
28729
A10-7870K
SE +/- 1.67, N = 3
3775
A10-7800
SE +/- 5.67, N = 3
3373
6K
12K
18K
24K
30K
1. (CC) gcc options: -fopenmp

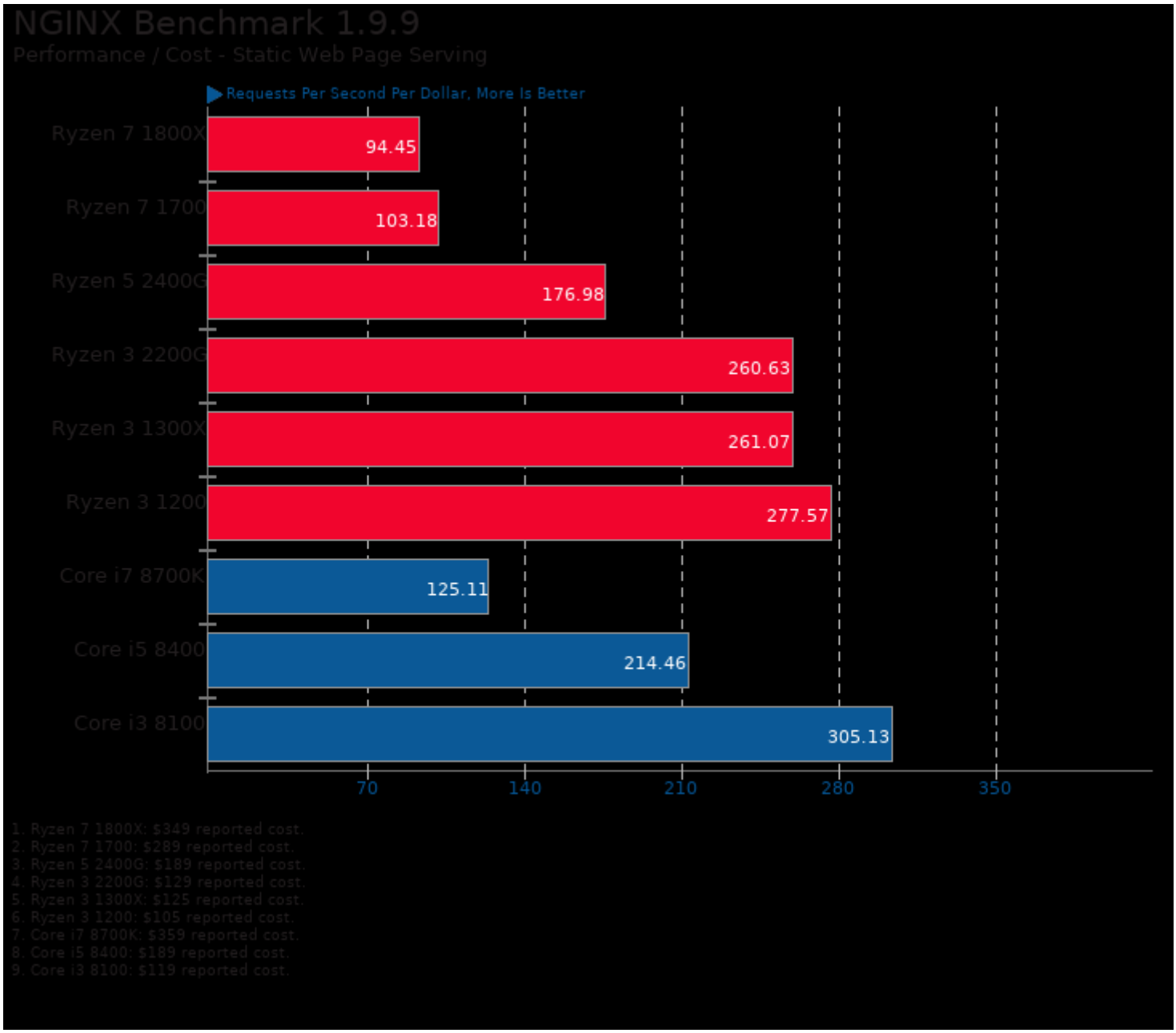

John The Ripper 1.8.0
Performance / Cost - Test: Blowfish
Real C/S Per Dollar, More Is Better
Ryzen 7 1800X
35.66
Ryzen 7 1700
36.09
Ryzen 5 2400G
31.86
Ryzen 3 2200G
35.19
Ryzen 3 1300X
35.14
Ryzen 3 1200
35.34
Core i7 8700K
35.54
Core i5 8400
37.03
Core i3 8100
37.07
9
18
27
36
45
1. Ryzen 7 1800X: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

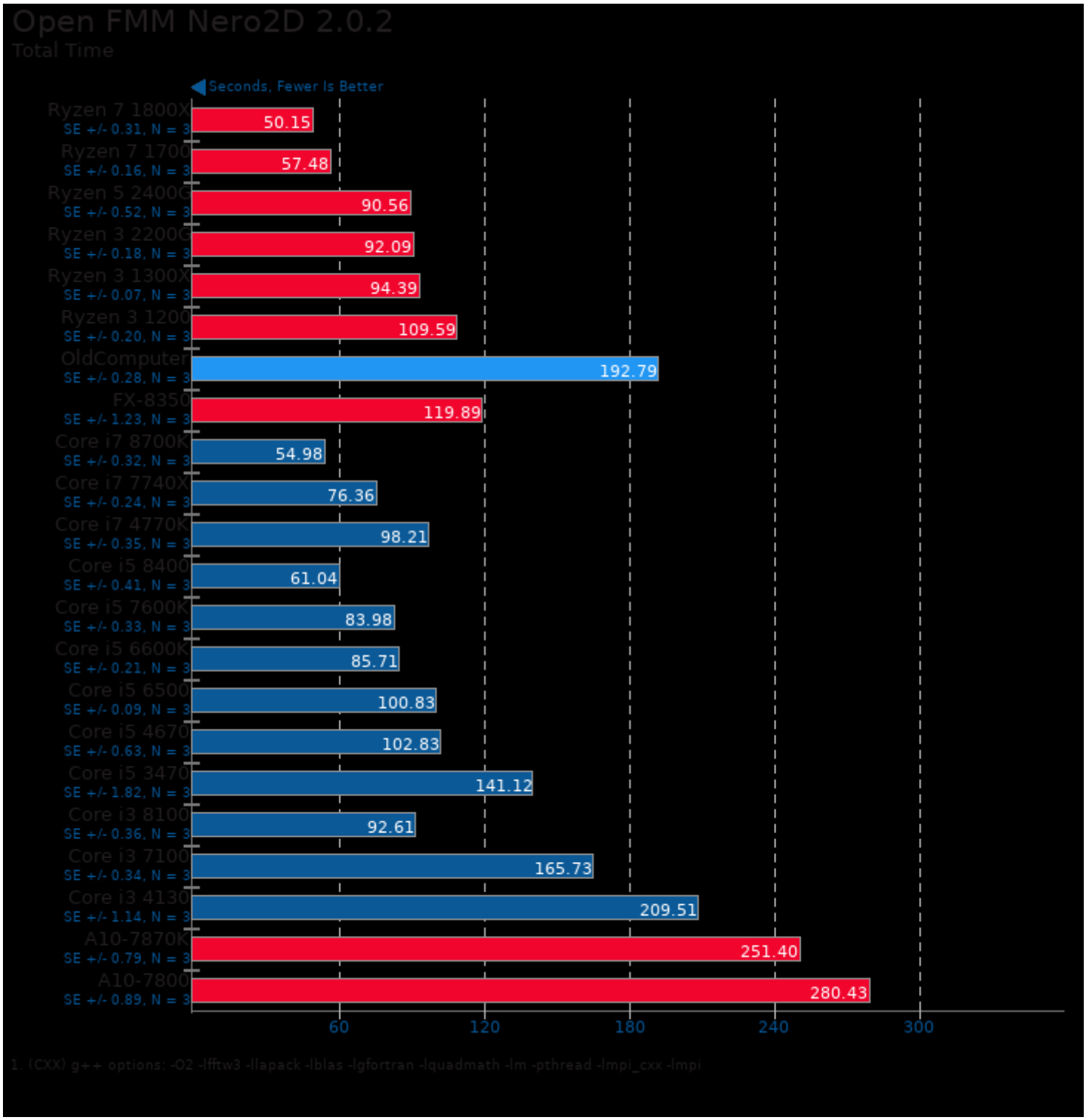

LAME MP3 Encoding 3.100
WAV To MP3
Seconds, Fewer Is Better
Ryzen 7 1800X
SE +/- 0.15, N = 3
33.50
Ryzen 7 1700
SE +/- 0.00, N = 3
36.59
Ryzen 5 2400G
SE +/- 0.02, N = 3
35.19
Ryzen 3 2200G
SE +/- 0.03, N = 3
37.13
Ryzen 3 1300X
SE +/- 0.06, N = 3
35.78
Ryzen 3 1200
SE +/- 0.03, N = 3
39.68
OldComputer
SE +/- 0.09, N = 3
65.71
FX-8350
SE +/- 0.07, N = 3
47.03
Core i7 8700K
SE +/- 0.20, N = 3
26.07
Core i7 7740X
SE +/- 0.13, N = 3
27.50
Core i7 4770K
SE +/- 0.08, N = 3
32.54
Core i5 8400
SE +/- 0.00, N = 3
30.01
Core i5 7600K
SE +/- 0.02, N = 3
28.77
Core i5 6600K
SE +/- 0.00, N = 3
30.95
Core i5 6500
SE +/- 0.01, N = 3
33.51
Core i5 4670
SE +/- 0.01, N = 3
33.25
Core i5 3470
SE +/- 0.04, N = 3
37.36
Core i3 8100
SE +/- 0.01, N = 3
33.30
Core i3 7100
SE +/- 0.01, N = 3
31.08
Core i3 4130
SE +/- 0.68, N = 3
38.94
Cavium ThunderX 96-Core
SE +/- 0.23, N = 3
212.62
A10-7870K
SE +/- 0.03, N = 3
48.37
A10-7800
SE +/- 0.06, N = 3
54.17
50
100
150
200
250
1. (CC) gcc options: -lm

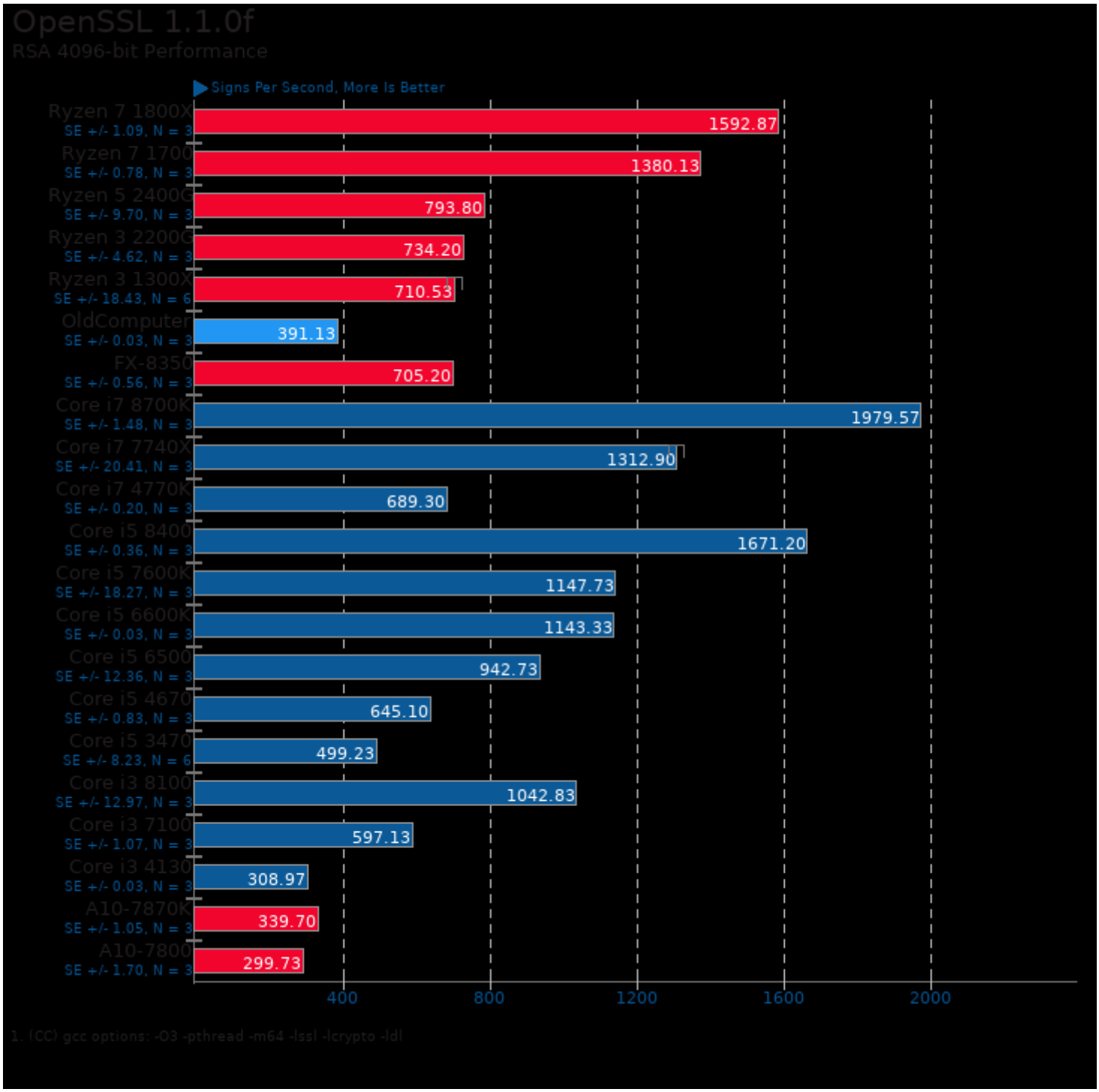

NAS Parallel Benchmarks 3.3
Test / Class: EP.C
Total Mop/s, More Is Better
Ryzen 7 1800X
SE +/- 1.24, N = 3
571.10
Ryzen 7 1700
SE +/- 7.05, N = 3
489.65
Ryzen 5 2400G
SE +/- 1.66, N = 3
293.90
Ryzen 3 2200G
SE +/- 0.24, N = 3
144.02
Ryzen 3 1300X
SE +/- 0.05, N = 3
141.62
Ryzen 3 1200
SE +/- 0.38, N = 3
122.00
OldComputer
SE +/- 0.12, N = 3
89.06
FX-8350
SE +/- 2.04, N = 3
221.13
Core i7 8700K
SE +/- 1.92, N = 3
577.05
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
Core i5 7600K
SE +/- 0.23, N = 3
225.62
Core i5 6600K
SE +/- 0.16, N = 3
219.61
Core i5 6500
SE +/- 0.12, N = 3
185.67
Core i5 4670
SE +/- 0.29, N = 3
198.48
Core i5 3470
SE +/- 0.41, N = 3
180.13
Core i3 8100
SE +/- 0.32, N = 3
202.48
Core i3 7100
SE +/- 0.83, N = 3
175.07
Core i3 4130
SE +/- 0.91, N = 3
143.51
A10-7870K
SE +/- 0.17, N = 3
92.05
A10-7800
SE +/- 0.84, N = 3
83.11
120
240
360
480
600
1. Open MPI 2.1.1

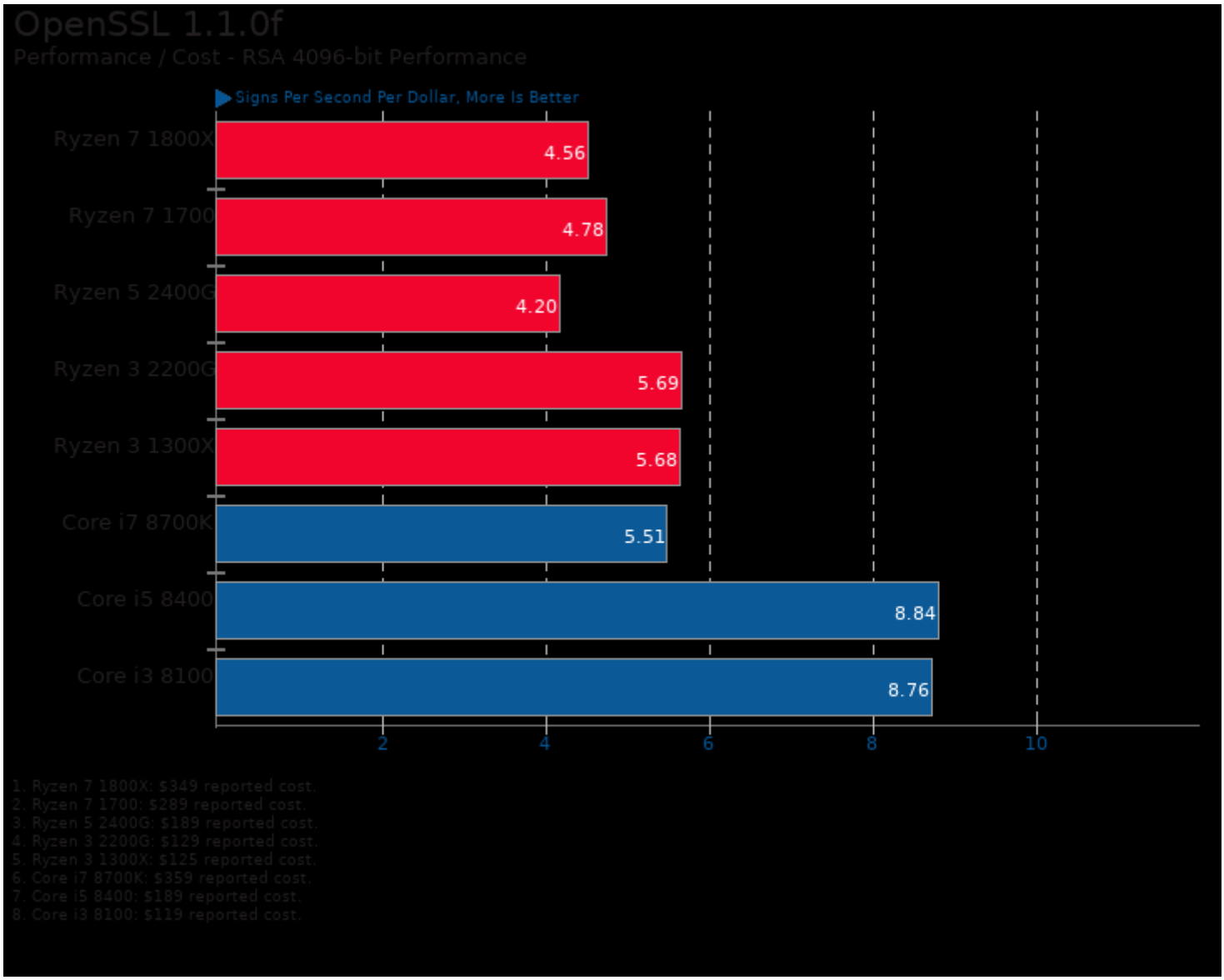

NAS Parallel Benchmarks 3.3
Performance / Cost - Test / Class: EP.C
Total Mop/s Per Dollar, More Is Better
Ryzen 7 1800X
1.64
Ryzen 7 1700
1.69
Ryzen 5 2400G
1.56
Ryzen 3 2200G
1.12
Ryzen 3 1300X
1.13
Ryzen 3 1200
1.16
Core i7 8700K
1.61
Core i5 8400
1.70
Core i3 8100
1.70
0.3825
0.765
1.1475
1.53
1.9125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

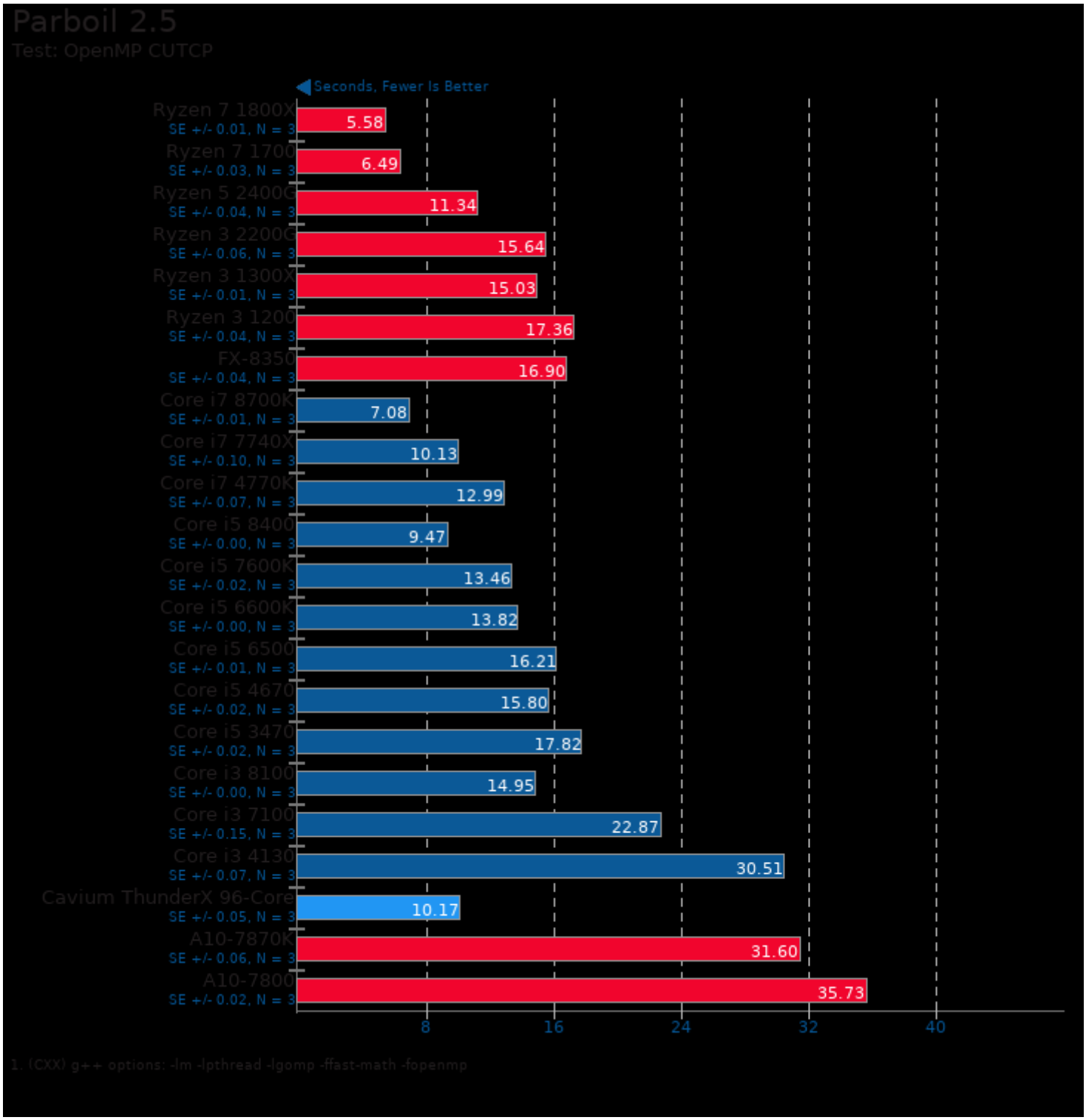

NGINX Benchmark 1.9.9
Static Web Page Serving
Requests Per Second, More Is Better
Ryzen 7 1800X
SE +/- 25.31, N = 3
32963.72
Ryzen 7 1700
SE +/- 208.54, N = 3
29819.82
Ryzen 5 2400G
33449.57
Ryzen 3 2200G
33621.45
Ryzen 3 1300X
SE +/- 37.17, N = 3
32633.19
Ryzen 3 1200
SE +/- 277.67, N = 3
29144.73
FX-8350
SE +/- 61.06, N = 3
19627.76
Core i7 8700K
SE +/- 745.48, N = 4
44915.57
Core i7 7740X
SE +/- 298.62, N = 3
45475.85
Core i7 4770K
SE +/- 83.02, N = 3
36373.84
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 i5 6500
SE +/- 92.35, N = 3
34799.80
Core i5 4670
SE +/- 35.71, N = 3
35671.68
Core i5 3470
SE +/- 28.82, N = 3
20761.85
Core i3 8100
SE +/- 120.15, N = 3
36311.06
Core i3 7100
SE +/- 78.04, N = 3
36757.07
Core i3 4130
SE +/- 355.83, N = 3
20655.28
A10-7870K
SE +/- 140.71, N = 3
21358.86
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

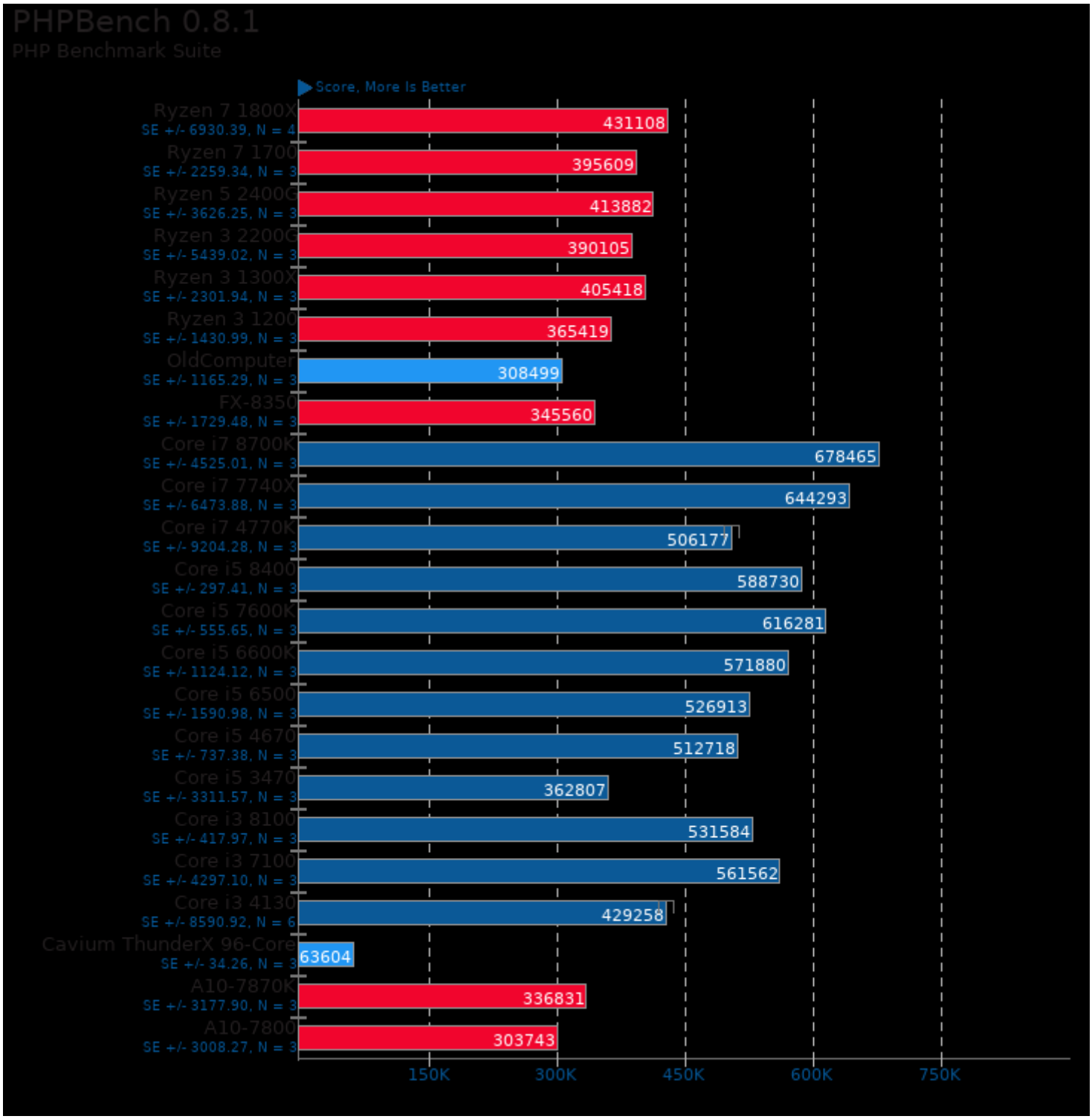

NGINX Benchmark 1.9.9
Performance / Cost - Static Web Page Serving
Requests Per Second Per Dollar, More Is Better
Ryzen 7 1800X
94.45
Ryzen 7 1700
103.18
Ryzen 5 2400G
176.98
Ryzen 3 2200G
260.63
Ryzen 3 1300X
261.07
Ryzen 3 1200
277.57
Core i7 8700K
125.11
Core i5 8400
214.46
Core i3 8100
305.13
70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

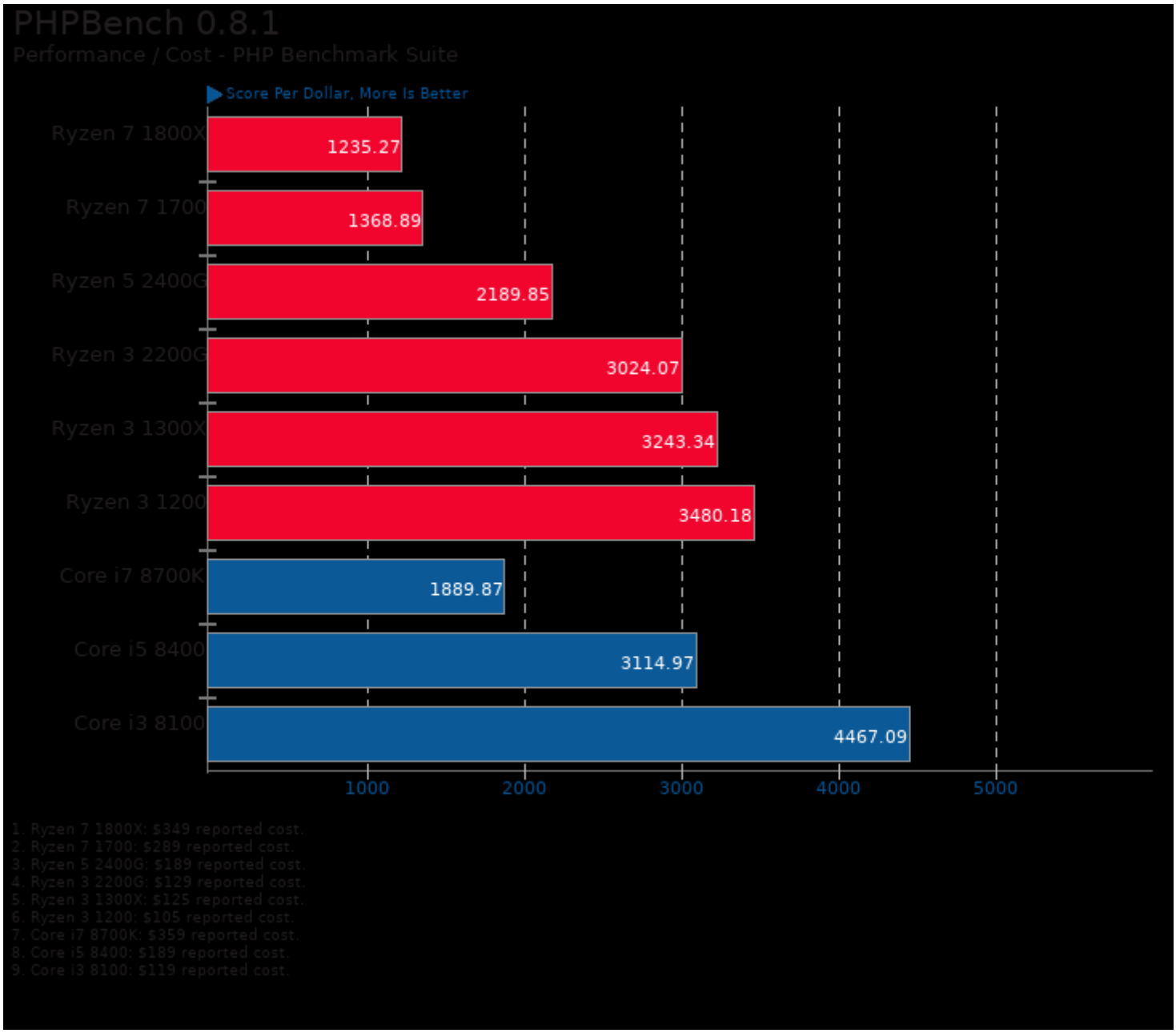

Open FMM Nero2D 2.0.2
Total Time
Seconds, Fewer Is Better
Ryzen 7 1800X
SE +/- 0.31, N = 3
50.15
Ryzen 7 1700
SE +/- 0.16, N = 3
57.48
Ryzen 5 2400G
SE +/- 0.52, N = 3
90.56
Ryzen 3 2200G
SE +/- 0.18, N = 3
92.09
Ryzen 3 1300X
SE +/- 0.07, N = 3
94.39
Ryzen 3 1200
SE +/- 0.20, N = 3
109.59
OldComputer
SE +/- 0.28, N = 3
192.79
FX-8350
SE +/- 1.23, N = 3
119.89
Core i7 8700K
SE +/- 0.32, N = 3
54.98
Core i7 7740X
SE +/- 0.24, N = 3
76.36
Core i7 4770K
SE +/- 0.35, N = 3
98.21
Core i5 8400
SE +/- 0.41, N = 3
61.04
Core i5 7600K
SE +/- 0.33, N = 3
83.98
Core i5 6600K
SE +/- 0.21, N = 3
85.71
Core i5 6500
SE +/- 0.09, N = 3
100.83
Core i5 4670
SE +/- 0.63, N = 3
102.83
Core i5 3470
SE +/- 1.82, N = 3
141.12
Core i3 8100
SE +/- 0.36, N = 3
92.61
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

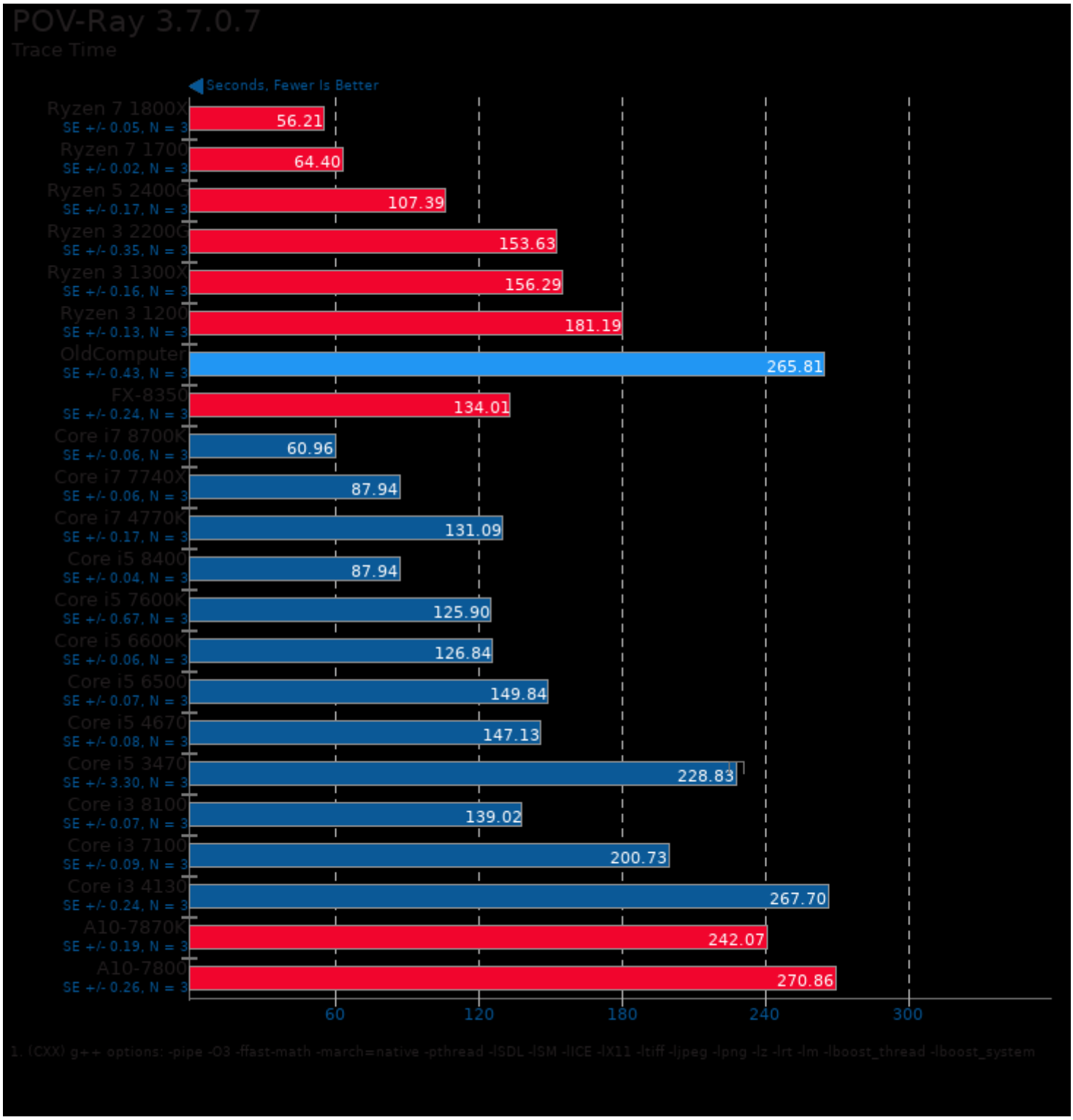

OpenSSL 1.1.0f
RSA 4096-bit Performance
Signs Per Second, More Is Better
Ryzen 7 1800X
SE +/- 1.09, N = 3
1592.87
Ryzen 7 1700
SE +/- 0.78, N = 3
1380.13
Ryzen 5 2400G
SE +/- 9.70, N = 3
793.80
Ryzen 3 2200G
SE +/- 4.62, N = 3
734.20
Ryzen 3 1300X
SE +/- 18.43, N = 6
710.53
OldComputer
SE +/- 0.03, N = 3
391.13
FX-8350
SE +/- 0.56, N = 3
705.20
Core i7 8700K
SE +/- 1.48, N = 3
1979.57
Core i7 7740X
SE +/- 20.41, N = 3
1312.90
Core i7 4770K
SE +/- 0.20, N = 3
689.30
Core i5 8400
SE +/- 0.36, N = 3
1671.20
Core i5 7600K
SE +/- 18.27, N = 3
1147.73
Core i5 6600K
SE +/- 0.03, N = 3
1143.33
Core i5 6500
SE +/- 12.36, N = 3
942.73
Core i5 4670
SE +/- 0.83, N = 3
645.10
Core i5 3470
SE +/- 8.23, N = 6
499.23
Core i3 8100
SE +/- 12.97, N = 3
1042.83
Core i3 7100
SE +/- 1.07, N = 3
597.13
Core i3 4130
SE +/- 0.03, N = 3
308.97
A10-7870K
SE +/- 1.05, N = 3
339.70
A10-7800
SE +/- 1.70, N = 3
299.73
400
800
1200
1600
2000
1. (CC) gcc options: -O3 -pthread -m64 -lssl -lcrypto -ldl

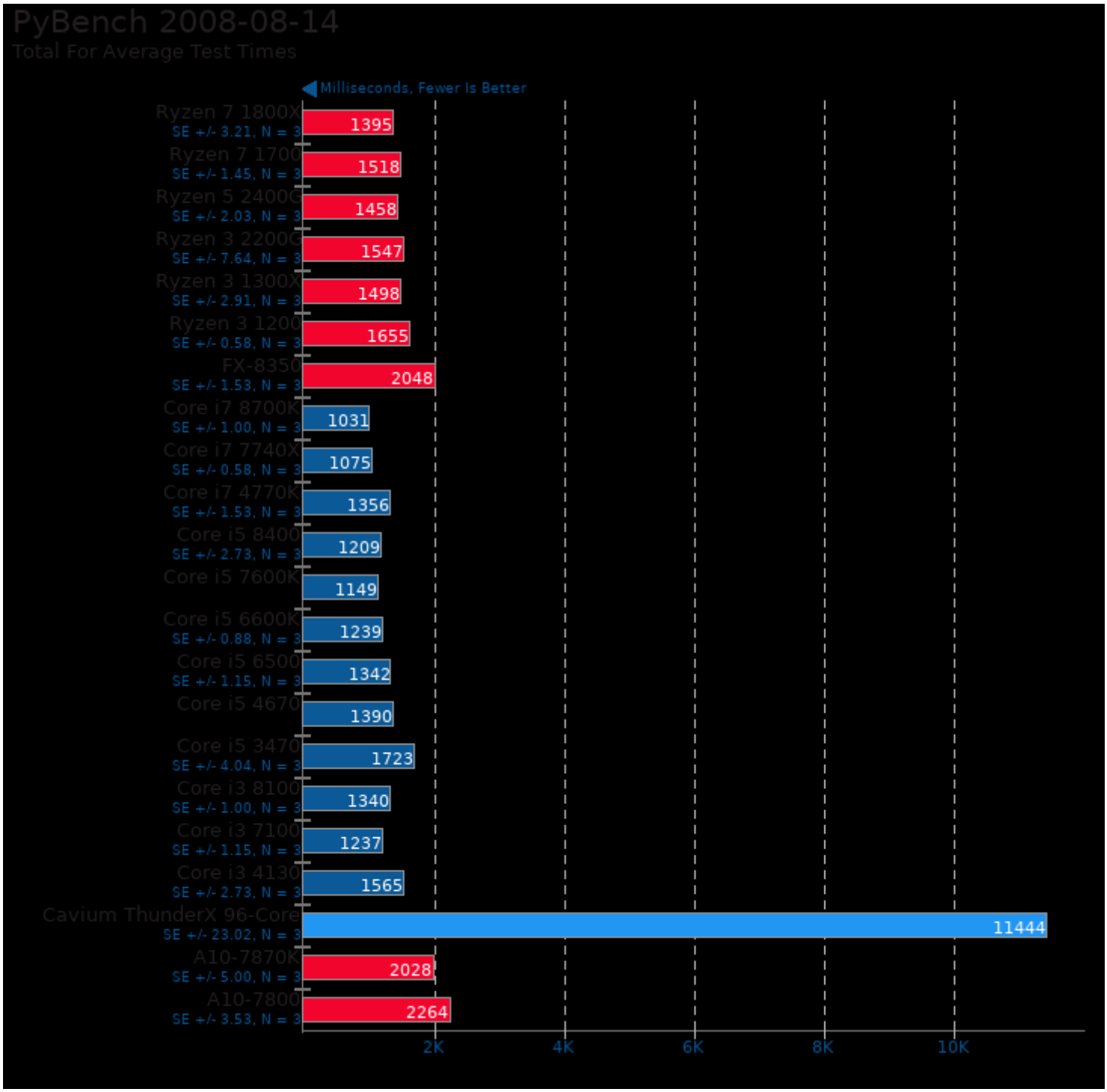

OpenSSL 1.1.0f
Performance / Cost - RSA 4096-bit Performance
Signs Per Second Per Dollar, More Is Better
Ryzen 7 1800X
4.56
Ryzen 7 1700
4.78
Ryzen 5 2400G
4.20
Ryzen 3 2200G
5.69
Ryzen 3 1300X
5.68
Core i7 8700K
5.51
Core i5 8400
8.84
Core i3 8100
8.76
2
4
6
8
10
1. Ryzen 7 1800X: $349 reported cost.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

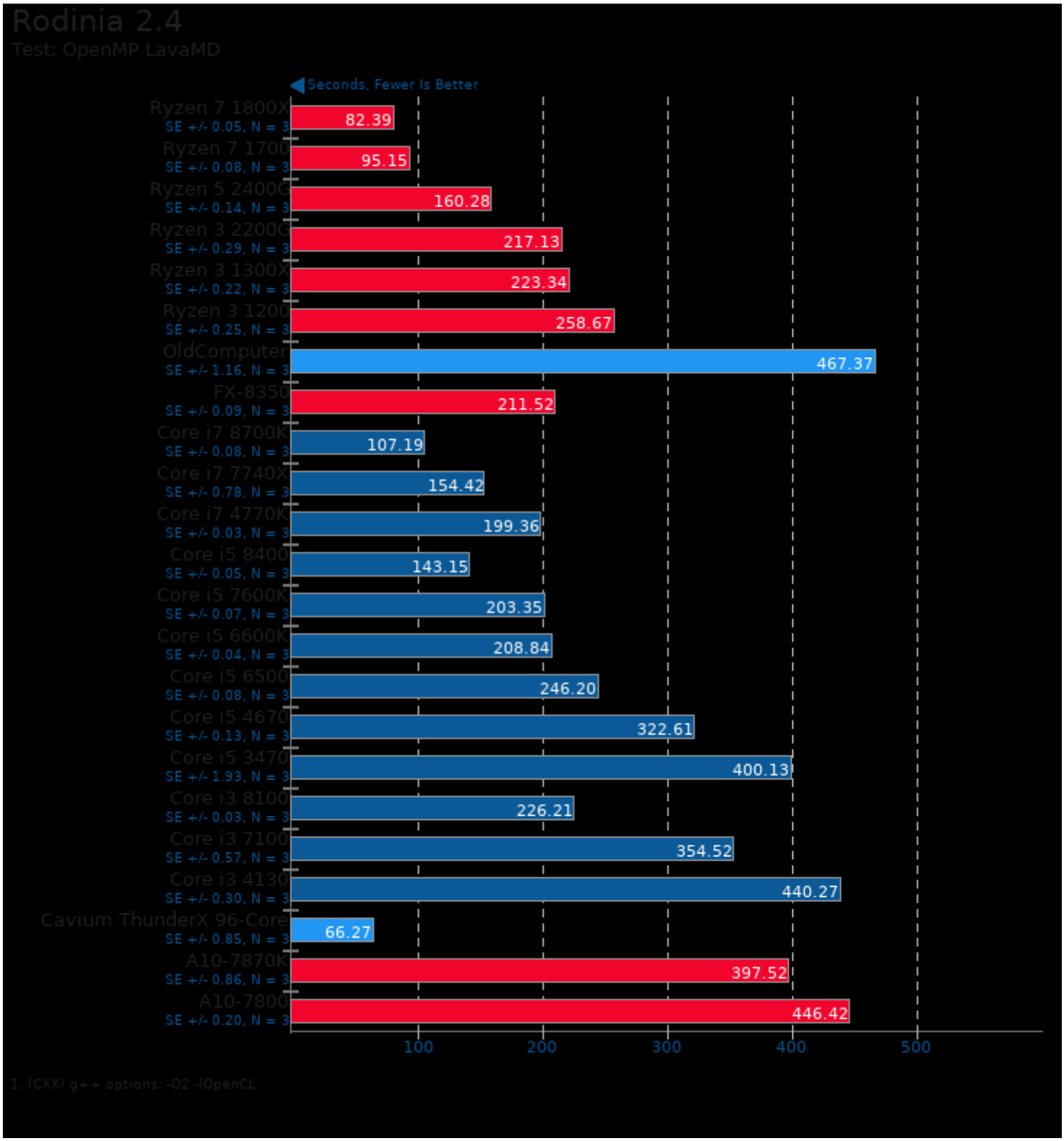

Parboil 2.5
Test: OpenMP CUTCP
Seconds, Fewer Is Better
Ryzen 7 1800X
SE +/- 0.01, N = 3
5.58
Ryzen 7 1700
SE +/- 0.03, N = 3
6.49
Ryzen 5 2400G
SE +/- 0.04, N = 3
11.34
Ryzen 3 2200G
SE +/- 0.06, N = 3
15.64
Ryzen 3 1300X
SE +/- 0.01, N = 3
15.03
Ryzen 3 1200
SE +/- 0.04, N = 3
17.36
FX-8350
SE +/- 0.04, N = 3
16.90
Core i7 8700K
SE +/- 0.01, N = 3
7.08
Core i7 7740X
SE +/- 0.10, N = 3
10.13
Core i7 4770K
SE +/- 0.07, N = 3
12.99
Core i5 8400
SE +/- 0.00, N = 3
9.47
Core i5 7600K
SE +/- 0.02, N = 3
13.46
Core i5 6600K
SE +/- 0.00, N = 3
13.82
Core i5 6500
SE +/- 0.01, N = 3
16.21
Core i5 4670
SE +/- 0.02, N = 3
15.80
Core i5 3470
SE +/- 0.02, N = 3
17.82
Core i3 8100
SE +/- 0.00, N = 3
14.95
Core i3 7100
SE +/- 0.15, N = 3
22.87
Core i3 4130
SE +/- 0.07, N = 3
30.51
Cavium ThunderX 96-Core
SE +/- 0.05, N = 3
10.17
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

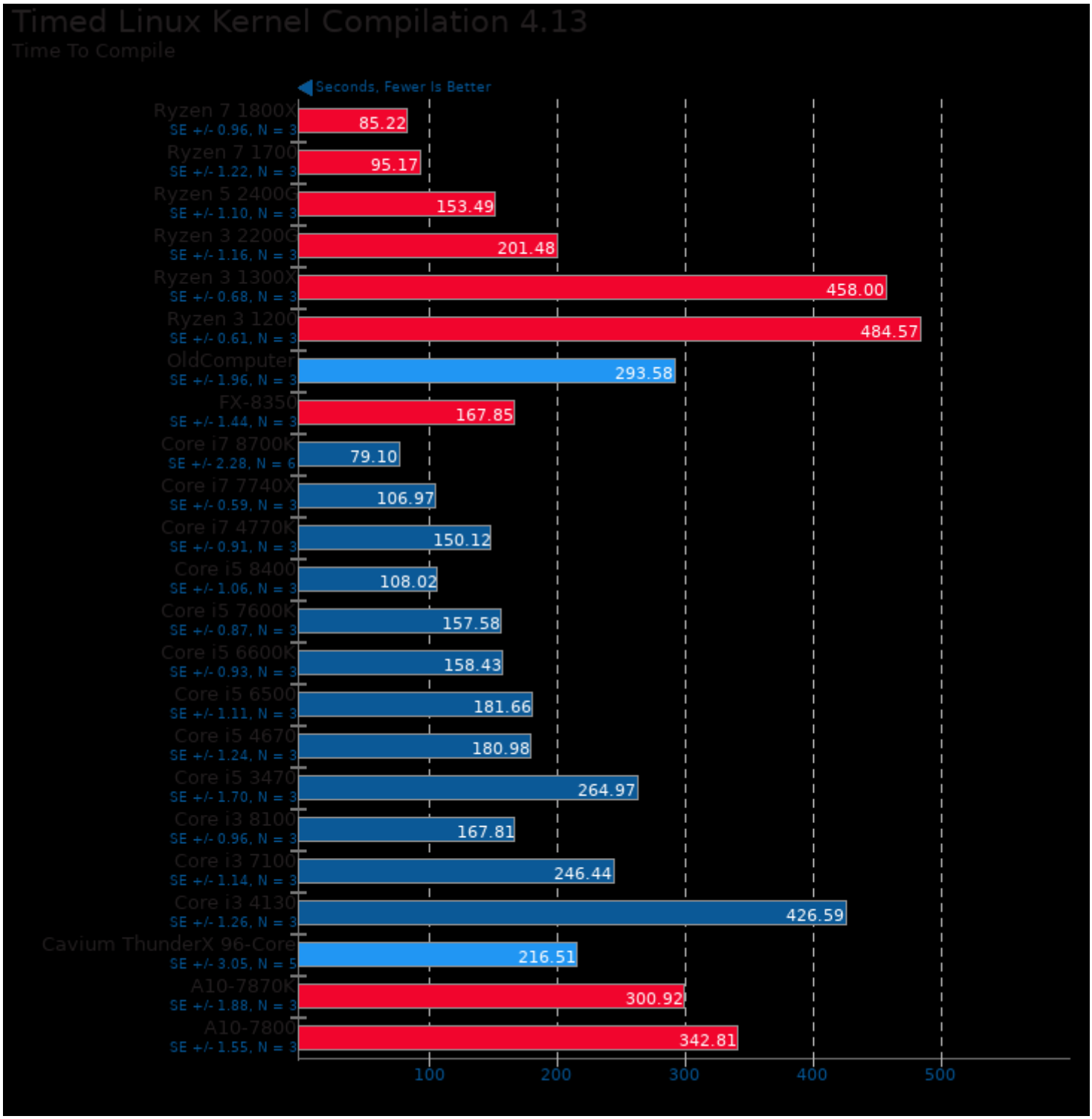

PHPBench 0.8.1
PHP Benchmark Suite
Score, More Is Better
Ryzen 7 1800X
SE +/- 6930.39, N = 4
431108
Ryzen 7 1700
SE +/- 2259.34, N = 3
395609
Ryzen 5 2400G
SE +/- 3626.25, N = 3
413882
Ryzen 3 2200G
SE +/- 5439.02, N = 3
390105
Ryzen 3 1300X
SE +/- 2301.94, N = 3
405418
Ryzen 3 1200
SE +/- 1430.99, N = 3
365419
OldComputer
SE +/- 1165.29, N = 3
308499
FX-8350
SE +/- 1729.48, N = 3
345560
Core i7 8700K
SE +/- 4525.01, N = 3
678465
Core i7 7740X
SE +/- 6473.88, N = 3
644293
Core i7 4770K
SE +/- 9204.28, N = 3
506177
Core i5 8400
SE +/- 297.41, N = 3
588730
Core i5 7600K
SE +/- 555.65, N = 3
616281
Core i5 6600K
SE +/- 1124.12, N = 3
571880
Core i5 6500
SE +/- 1590.98, N = 3
526913
Core i5 4670
SE +/- 737.38, N = 3
512718
Core i5 3470
SE +/- 3311.57, N = 3
362807
Core i3 8100
SE +/- 417.97, N = 3
531584
Core i3 7100
SE +/- 4297.10, N = 3
561562
Core i3 4130
SE +/- 8590.92, N = 6
429258
Cavium ThunderX 96-Core
SE +/- 34.26, N = 3
63604
A10-7870K
SE +/- 3177.90, N = 3
336831
A10-7800
SE +/- 3008.27, N = 3
303743
150K
300K
450K
600K
750K

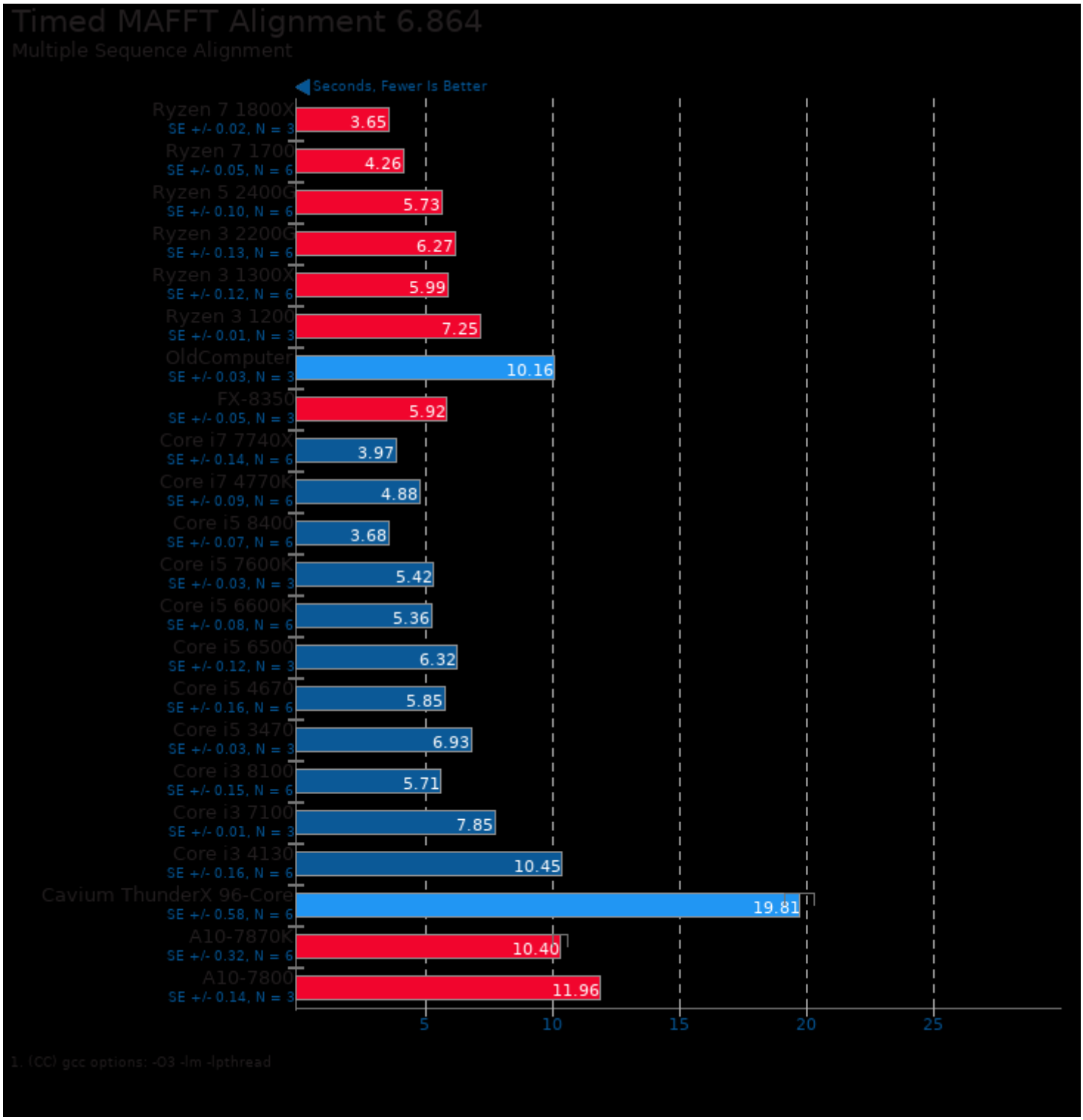

PHPBench 0.8.1
Performance / Cost - PHP Benchmark Suite
Score Per Dollar, More Is Better
Ryzen 7 1800X
1235.27
Ryzen 7 1700
1368.89
Ryzen 5 2400G
2189.85
Ryzen 3 2200G
3024.07
Ryzen 3 1300X
3243.34
Ryzen 3 1200
3480.18
Core i7 8700K
1889.87
Core i5 8400
3114.97
Core i3 8100
4467.09
1000
2000
3000
4000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

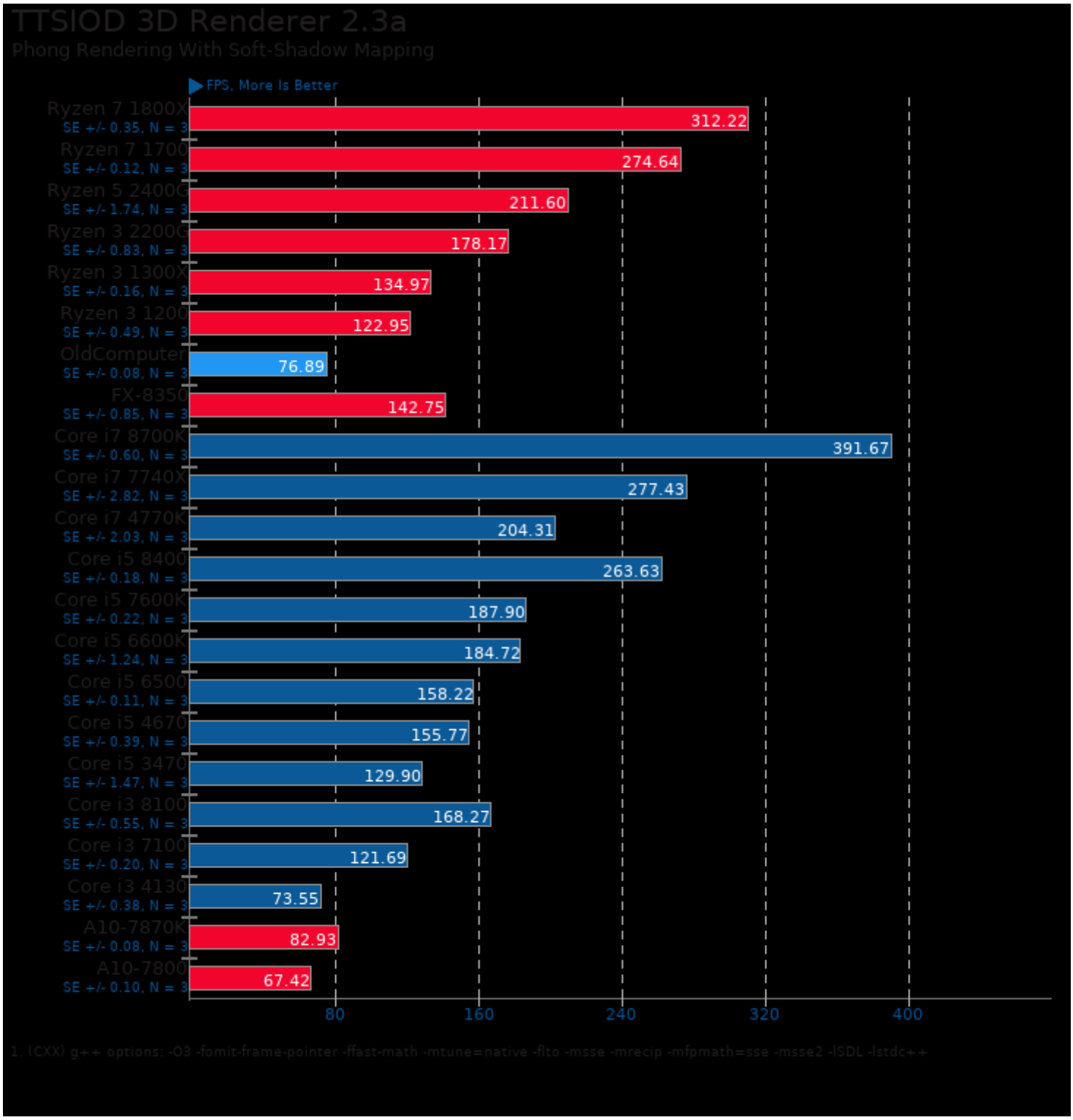

POV-Ray 3.7.0.7
Trace Time
Seconds, Fewer Is Better
Ryzen 7 1800X
SE +/- 0.05, N = 3
56.21
Ryzen 7 1700
SE +/- 0.02, N = 3
64.40
Ryzen 5 2400G
SE +/- 0.17, N = 3
107.39
Ryzen 3 2200G
SE +/- 0.35, N = 3
153.63
Ryzen 3 1300X
SE +/- 0.16, N = 3
156.29
Ryzen 3 1200
SE +/- 0.13, N = 3
181.19
OldComputer
SE +/- 0.43, N = 3
265.81
FX-8350
SE +/- 0.24, N = 3
134.01
Core i7 8700K
SE +/- 0.06, N = 3
60.96
Core i7 7740X
SE +/- 0.06, N = 3
87.94
Core i7 4770K
SE +/- 0.17, N = 3
131.09
Core i5 8400
SE +/- 0.04, N = 3
87.94
Core i5 7600K
SE +/- 0.67, N = 3
125.90
Core i5 6600K
SE +/- 0.06, N = 3
126.84
Core i5 6500
SE +/- 0.07, N = 3
149.84
Core i5 4670
SE +/- 0.08, N = 3
147.13
Core i5 3470
SE +/- 3.30, N = 3
228.83
Core i3 8100
SE +/- 0.07, N = 3
139.02
Core i3 7100
SE +/- 0.09, N = 3
200.73
Core i3 4130
SE +/- 0.24, N = 3
267.70
A10-7870K
SE +/- 0.19, N = 3
242.07
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

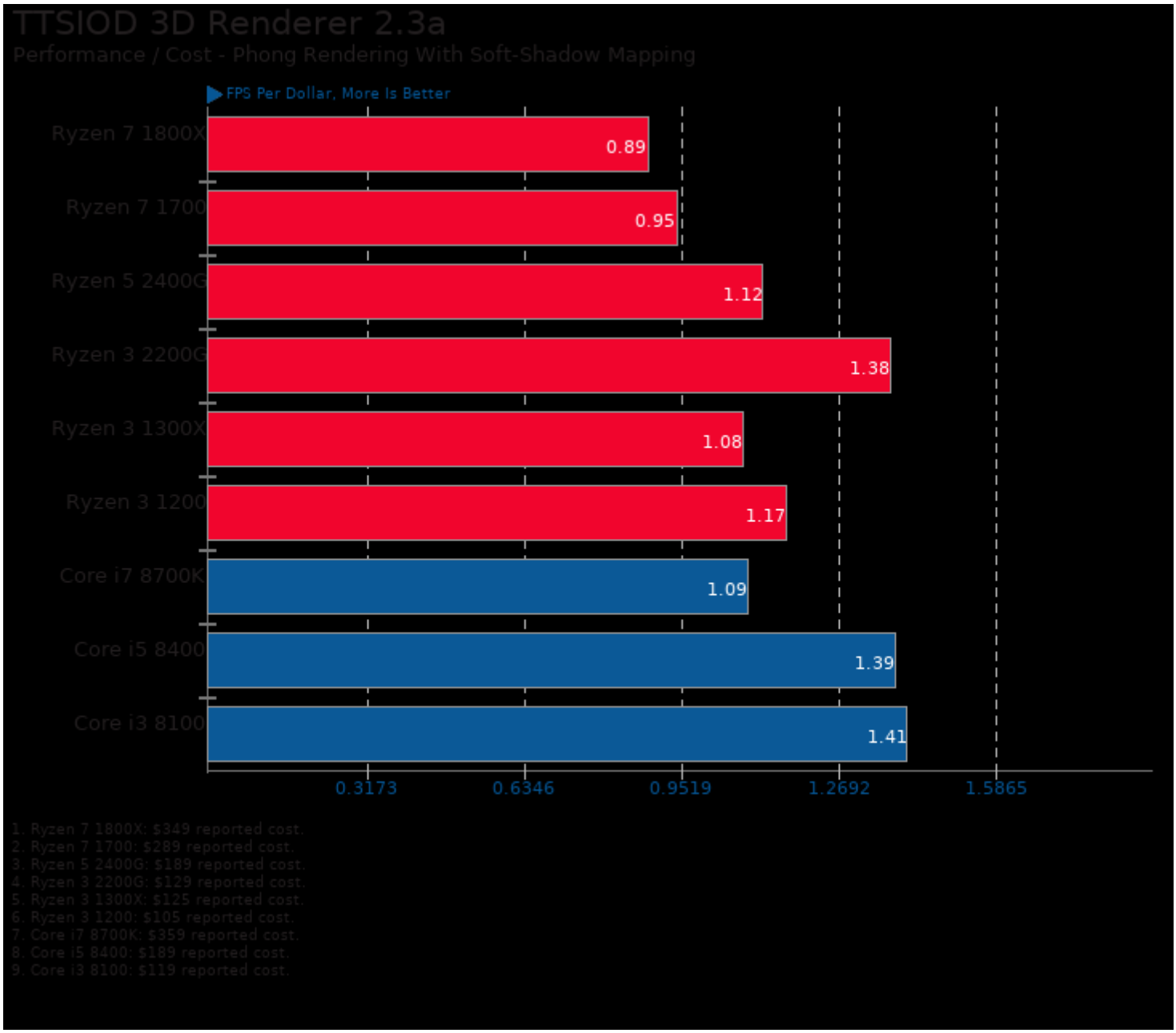

PyBench 2008-08-14
Total For Average Test Times
Milliseconds, Fewer Is Better
Ryzen 7 1800X
SE +/- 3.21, N = 3
1395
Ryzen 7 1700
SE +/- 1.45, N = 3
1518
Ryzen 5 2400G
SE +/- 2.03, N = 3
1458
Ryzen 3 2200G
SE +/- 7.64, N = 3
1547
Ryzen 3 1300X
SE +/- 2.91, N = 3
1498
Ryzen 3 1200
SE +/- 0.58, N = 3
1655
FX-8350
SE +/- 1.53, N = 3
2048
Core i7 8700K
SE +/- 1.00, N = 3
1031
Core i7 7740X
SE +/- 0.58, N = 3
1075
Core i7 4770K
SE +/- 1.53, N = 3
1356
Core i5 8400
SE +/- 2.73, N = 3
1209
Core i5 7600K
1149
Core i5 6600K
SE +/- 0.88, N = 3
1239
Core i5 6500
SE +/- 1.15, N = 3
1342
Core i5 4670
1390
Core i5 3470
SE +/- 4.04, N = 3
1723
Core i3 8100
SE +/- 1.00, N = 3
1340
Core i3 7100
SE +/- 1.15, N = 3
1237
Core i3 4130
SE +/- 2.73, N = 3
1565
Cavium ThunderX 96-Core
SE +/- 23.02, N = 3
11444
A10-7870K
SE +/- 5.00, N = 3
2028
A10-7800
SE +/- 3.53, N = 3
2264
2K
4K
6K
8K
10K

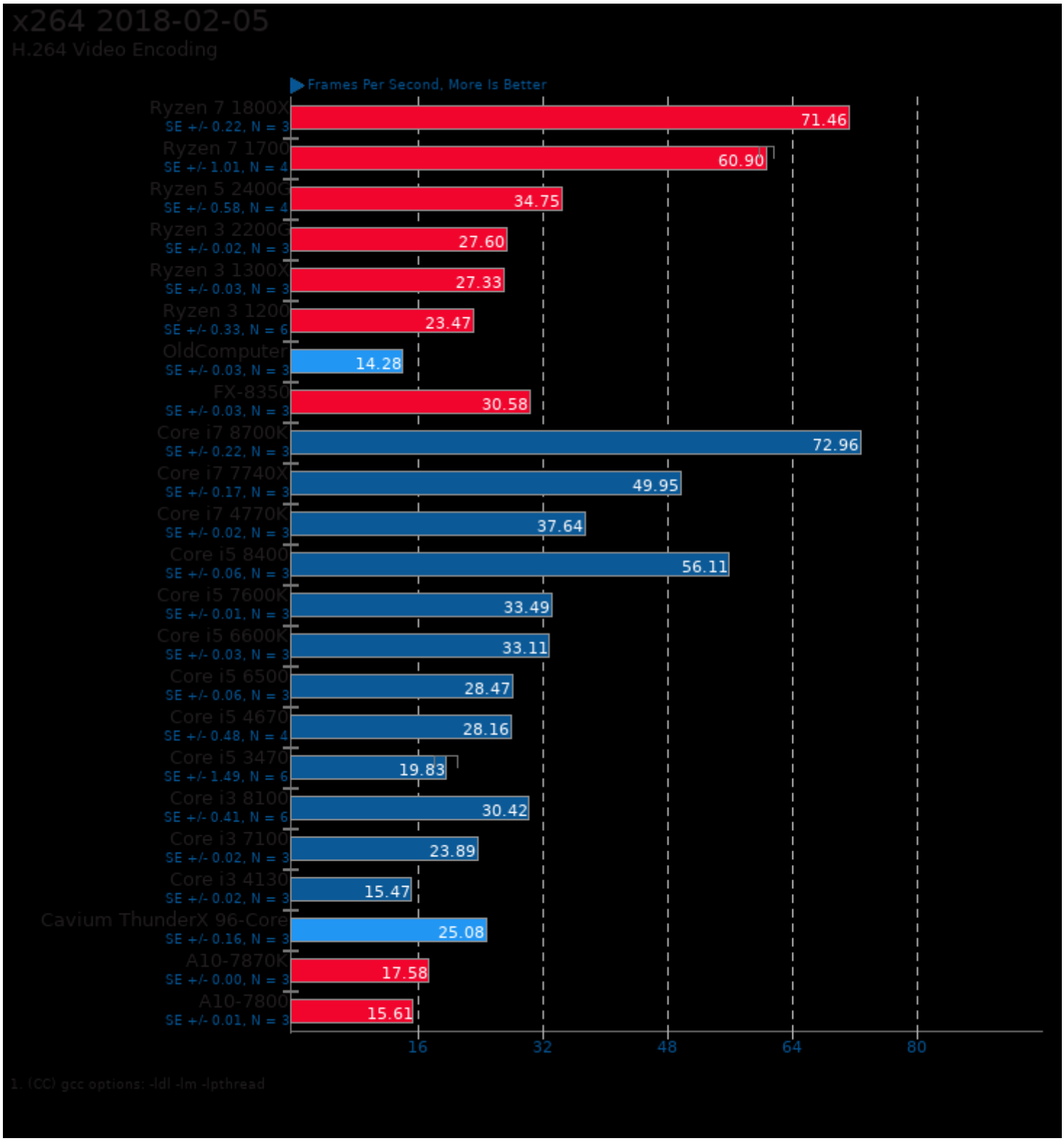

Rodinia 2.4
Test: OpenMP LavaMD
Seconds, Fewer Is Better
Ryzen 7 1800X
SE +/- 0.05, N = 3
82.39
Ryzen 7 1700
SE +/- 0.08, N = 3
95.15
Ryzen 5 2400G
SE +/- 0.14, N = 3
160.28
Ryzen 3 2200G
SE +/- 0.29, N = 3
217.13
Ryzen 3 1300X
SE +/- 0.22, N = 3
223.34
Ryzen 3 1200
SE +/- 0.25, N = 3
258.67
OldComputer
SE +/- 1.16, N = 3
467.37
FX-8350
SE +/- 0.09, N = 3
211.52
Core i7 8700K
SE +/- 0.08, N = 3
107.19
Core i7 7740X
SE +/- 0.78, N = 3
154.42
Core i7 4770K
SE +/- 0.03, N = 3
199.36
Core i5 8400
SE +/- 0.05, N = 3
143.15
Core i5 7600K
SE +/- 0.07, N = 3
203.35
Core i5 6600K
SE +/- 0.04, N = 3
208.84
Core i5 6500
SE +/- 0.08, N = 3
246.20
Core i5 4670
SE +/- 0.13, N = 3
322.61
Core i5 3470
SE +/- 1.93, N = 3
400.13
Core i3 8100
SE +/- 0.03, N = 3
226.21
Core i3 7100
SE +/- 0.57, N = 3
354.52
Core i3 4130
SE +/- 0.30, N = 3
440.27
Cavium ThunderX 96-Core
SE +/- 0.85, N = 3
66.27
A10-7870K
SE +/- 0.86, N = 3
397.52
A10-7800
SE +/- 0.20, N = 3
446.42
100
200
300
400
500
1. (CXX) g++ options: -O2 -lOpenCL

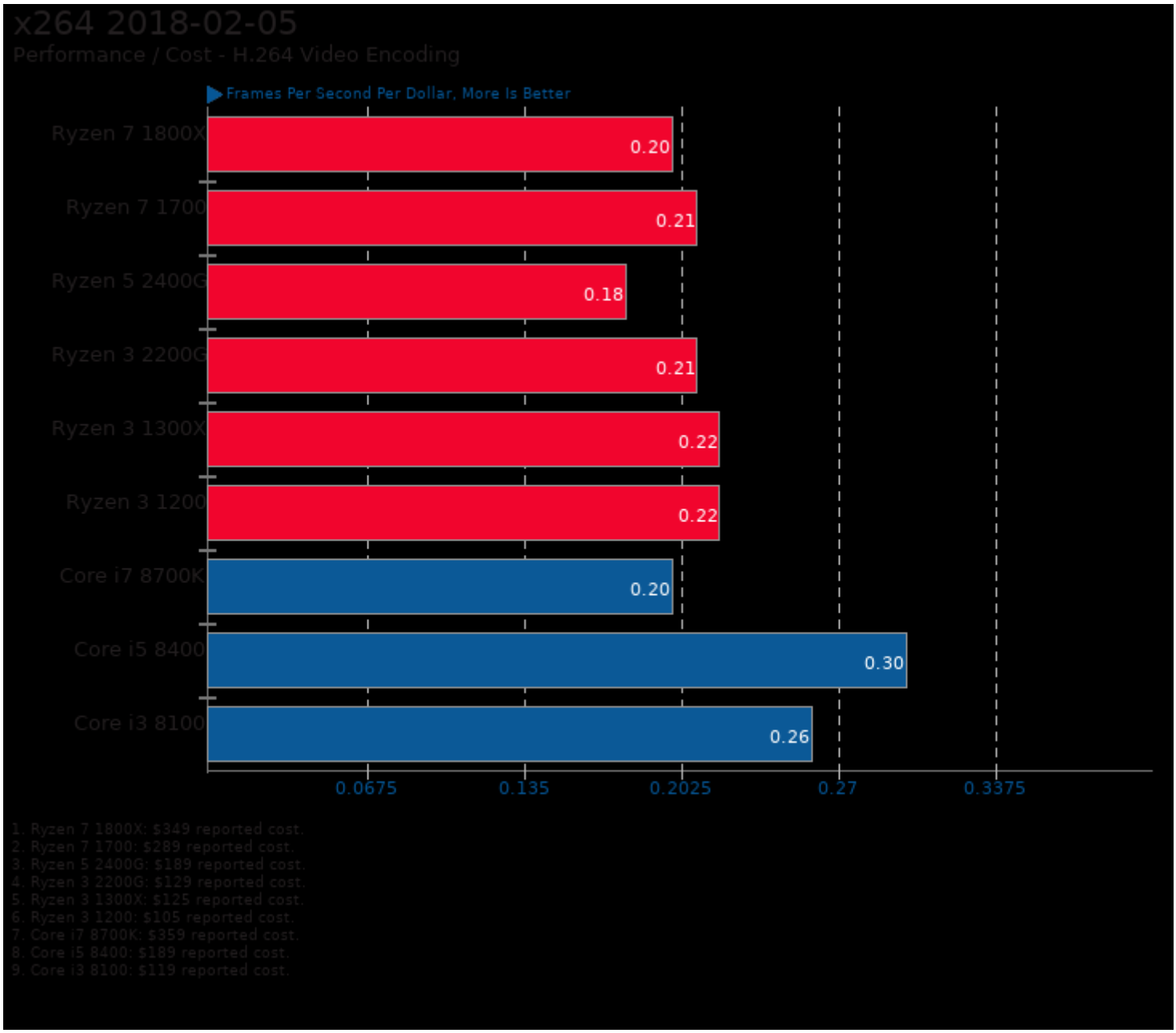

Timed Linux Kernel Compilation 4.13
Time To Compile
Seconds, Fewer Is Better
Ryzen 7 1800X
SE +/- 0.96, N = 3
85.22
Ryzen 7 1700
SE +/- 1.22, N = 3
95.17
Ryzen 5 2400G
SE +/- 1.10, N = 3
153.49
Ryzen 3 2200G
SE +/- 1.16, N = 3
201.48
Ryzen 3 1300X
SE +/- 0.68, N = 3
458.00
Ryzen 3 1200
SE +/- 0.61, N = 3
484.57
OldComputer
SE +/- 1.96, N = 3
293.58
FX-8350
SE +/- 1.44, N = 3
167.85
Core i7 8700K
SE +/- 2.28, N = 6
79.10
Core i7 7740X
SE +/- 0.59, N = 3
106.97
Core i7 4770K
SE +/- 0.91, N = 3
150.12
Core i5 8400
SE +/- 1.06, N = 3
108.02
Core i5 7600K
SE +/- 0.87, N = 3
157.58
Core i5 6600K
SE +/- 0.93, N = 3
158.43
Core i5 6500
SE +/- 1.11, N = 3
181.66
Core i5 4670
SE +/- 1.24, N = 3
180.98
Core i5 3470
SE +/- 1.70, N = 3
264.97
Core i3 8100
SE +/- 0.96, N = 3
167.81
Core i3 7100
SE +/- 1.14, N = 3
246.44
Core i3 4130
SE +/- 1.26, N = 3
426.59
Cavium ThunderX 96-Core
SE +/- 3.05, N = 5
216.51
A10-7870K
SE +/- 1.88, N = 3
300.92
A10-7800
SE +/- 1.55, N = 3
342.81
100
200
300
400
500


Timed MAFFT Alignment 6.864
Multiple Sequence Alignment
Seconds, Fewer Is Better
Ryzen 7 1800X
SE +/- 0.02, N = 3
3.65
Ryzen 7 1700
SE +/- 0.05, N = 6
4.26
Ryzen 5 2400G
SE +/- 0.10, N = 6
5.73
Ryzen 3 2200G
SE +/- 0.13, N = 6
6.27
Ryzen 3 1300X
SE +/- 0.12, N = 6
5.99
Ryzen 3 1200
SE +/- 0.01, N = 3
7.25
OldComputer
SE +/- 0.03, N = 3
10.16
FX-8350
SE +/- 0.05, N = 3
5.92
Core i7 7740X
SE +/- 0.14, N = 6
3.97
Core i7 4770K
SE +/- 0.09, N = 6
4.88
Core i5 8400
SE +/- 0.07, N = 6
3.68
Core i5 7600K
SE +/- 0.03, N = 3
5.42
Core i5 6600K
SE +/- 0.08, N = 6
5.36
Core i5 6500
SE +/- 0.12, N = 3
6.32
Core i5 4670
SE +/- 0.16, N = 6
5.85
Core i5 3470
SE +/- 0.03, N = 3
6.93
Core i3 8100
SE +/- 0.15, N = 6
5.71
Core i3 7100
SE +/- 0.01, N = 3
7.85
Core i3 4130
SE +/- 0.16, N = 6
10.45
Cavium ThunderX 96-Core
SE +/- 0.58, N = 6
19.81
A10-7870K
SE +/- 0.32, N = 6
10.40
A10-7800
SE +/- 0.14, N = 3
11.96
5
10
15
20
25
1. (CC) gcc options: -O3 -lm -lpthread

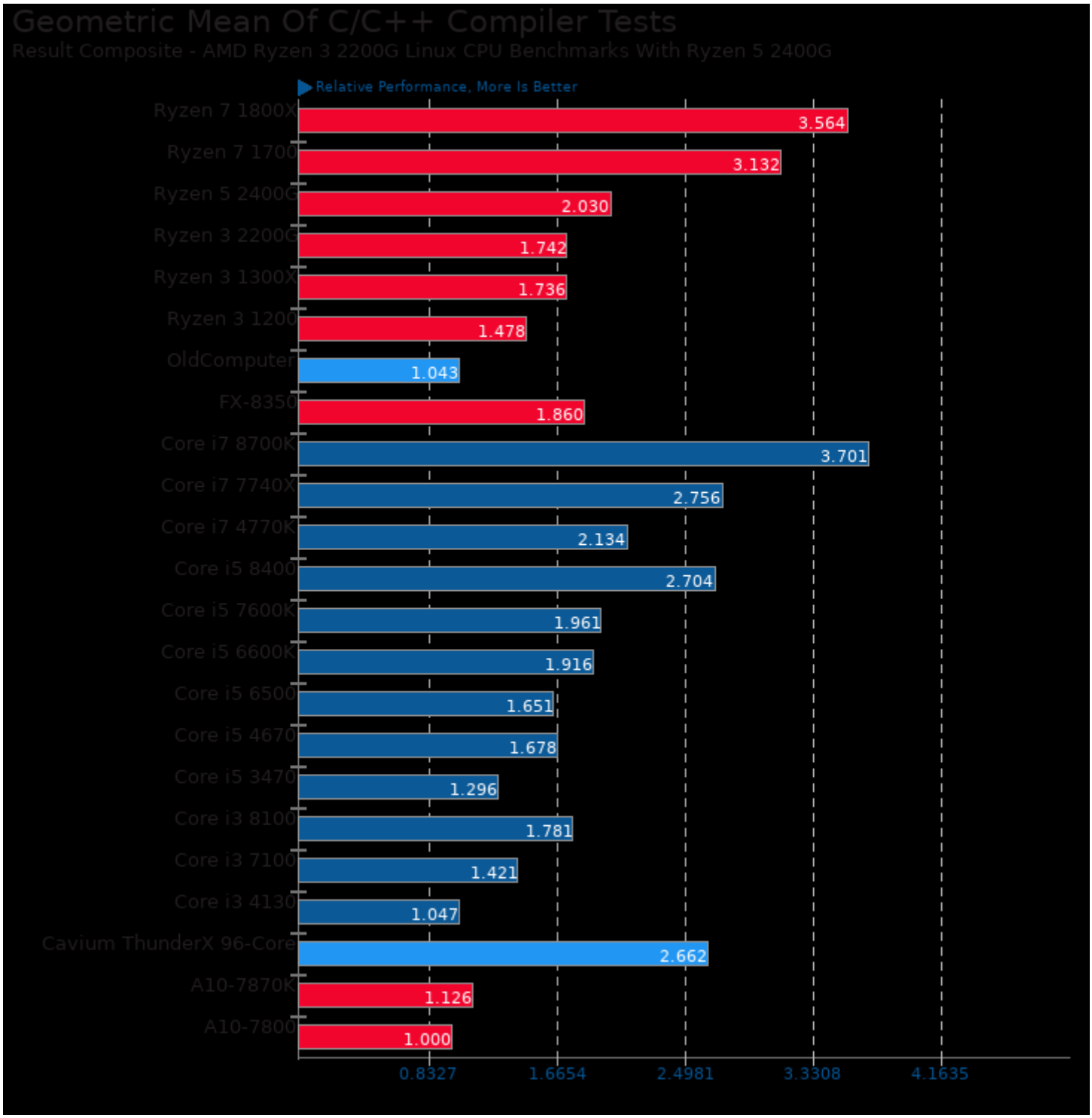

TTSIOD 3D Renderer 2.3a
Phong Rendering With Soft-Shadow Mapping
FPS, More Is Better
Ryzen 7 1800X
SE +/- 0.35, N = 3
312.22
Ryzen 7 1700
SE +/- 0.12, N = 3
274.64
Ryzen 5 2400G
SE +/- 1.74, N = 3
211.60
Ryzen 3 2200G
SE +/- 0.83, N = 3
178.17
Ryzen 3 1300X
SE +/- 0.16, N = 3
134.97
Ryzen 3 1200
SE +/- 0.49, N = 3
122.95
OldComputer
SE +/- 0.08, N = 3
76.89
FX-8350
SE +/- 0.85, N = 3
142.75
Core i7 8700K
SE +/- 0.60, N = 3
391.67
Core i7 7740X
SE +/- 2.82, N = 3
277.43
Core i7 4770K
SE +/- 2.03, N = 3
204.31
Core i5 8400
SE +/- 0.18, N = 3
263.63
Core i5 7600K
SE +/- 0.22, N = 3
187.90
Core i5 6600K
SE +/- 1.24, N = 3
184.72
Core i5 6500
SE +/- 0.11, N = 3
158.22
Core i5 4670
SE +/- 0.39, N = 3
155.77
Core i5 3470
SE +/- 1.47, N = 3
129.90
Core i3 8100
SE +/- 0.55, N = 3
168.27
Core i3 7100
SE +/- 0.20, N = 3
121.69
Core i3 4130
SE +/- 0.38, N = 3
73.55
A10-7870K
SE +/- 0.08, N = 3
82.93
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 -lSDL -lstdc++


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

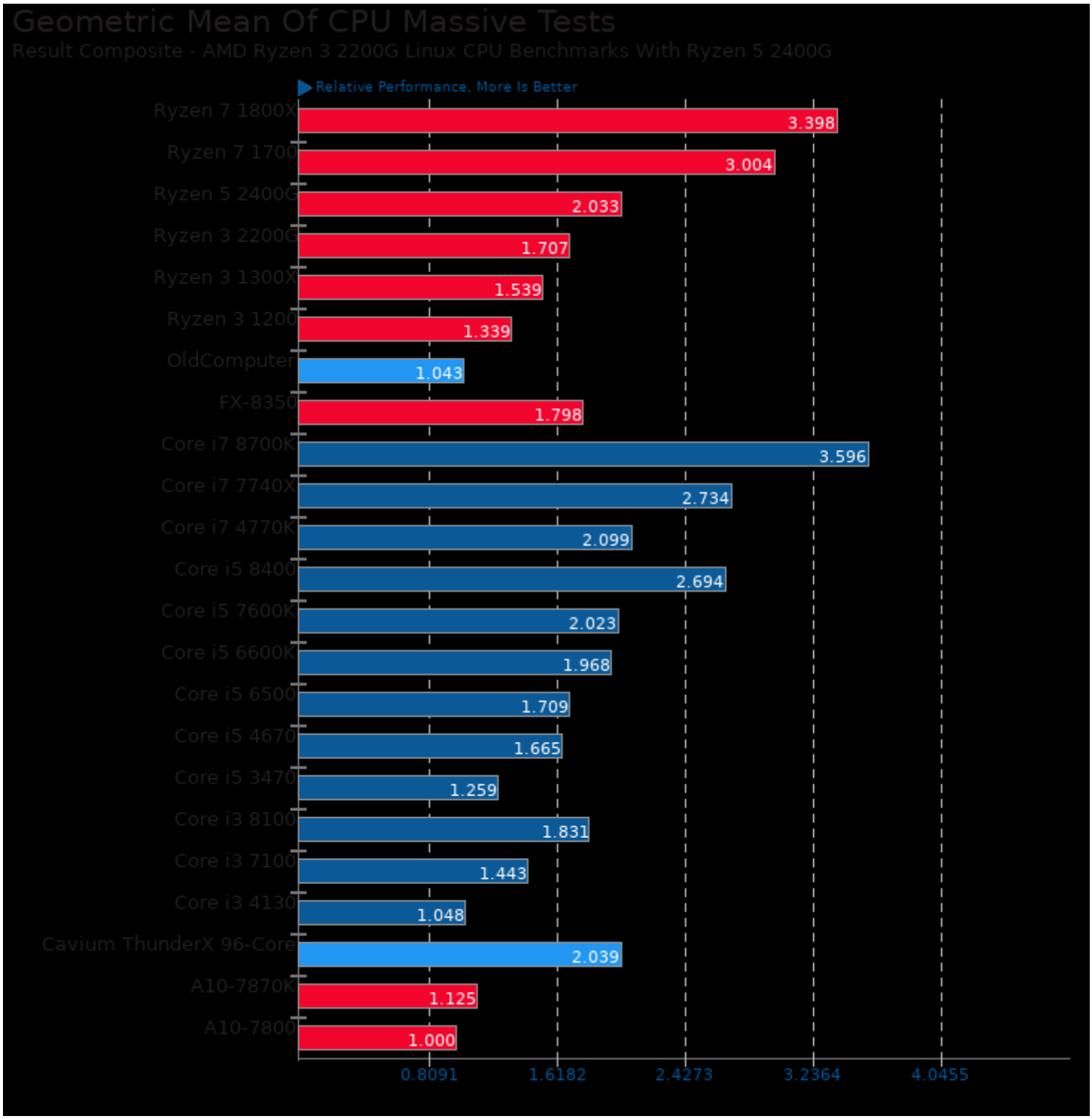

x264 2018-02-05
H.264 Video Encoding
Frames Per Second, More Is Better
Ryzen 7 1800X
SE +/- 0.22, N = 3
71.46
Ryzen 7 1700
SE +/- 1.01, N = 4
60.90
Ryzen 5 2400G
SE +/- 0.58, N = 4
34.75
Ryzen 3 2200G
SE +/- 0.02, N = 3
27.60
Ryzen 3 1300X
SE +/- 0.03, N = 3
27.33
Ryzen 3 1200
SE +/- 0.33, N = 6
23.47
OldComputer
SE +/- 0.03, N = 3
14.28
FX-8350
SE +/- 0.03, N = 3
30.58
Core i7 8700K
SE +/- 0.22, N = 3
72.96
Core i7 7740X
SE +/- 0.17, N = 3
49.95
Core i7 4770K
SE +/- 0.02, N = 3
37.64
Core i5 8400
SE +/- 0.06, N = 3
56.11
Core i5 7600K
SE +/- 0.01, N = 3
33.49
Core i5 6600K
SE +/- 0.03, N = 3
33.11
Core i5 6500
SE +/- 0.06, N = 3
28.47
Core i5 4670
SE +/- 0.48, N = 4
28.16
Core i5 3470
SE +/- 1.49, N = 6
19.83
Core i3 8100
SE +/- 0.41, N = 6
30.42
Core i3 7100
SE +/- 0.02, N = 3
23.89
Core i3 4130
SE +/- 0.02, N = 3
15.47
Cavium ThunderX 96-Core
SE +/- 0.16, N = 3
25.08
A10-7870K
SE +/- 0.00, N = 3
17.58
A10-7800
SE +/- 0.01, N = 3
15.61
16
32
48
64
80
1. (CC) gcc options: -ldl -lm -lpthread


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

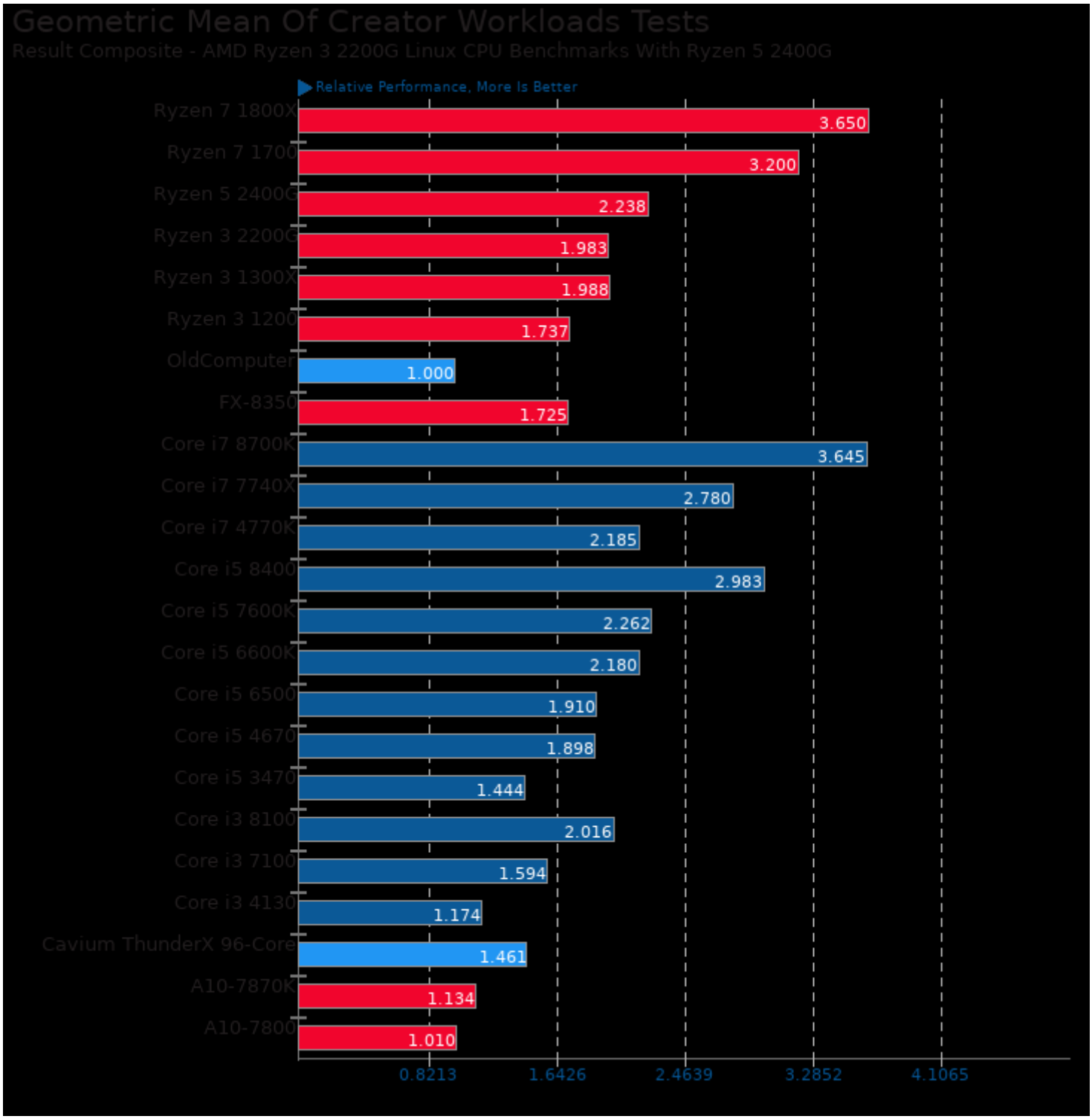
These geometric means are based upon test groupings / test suites for this result file.



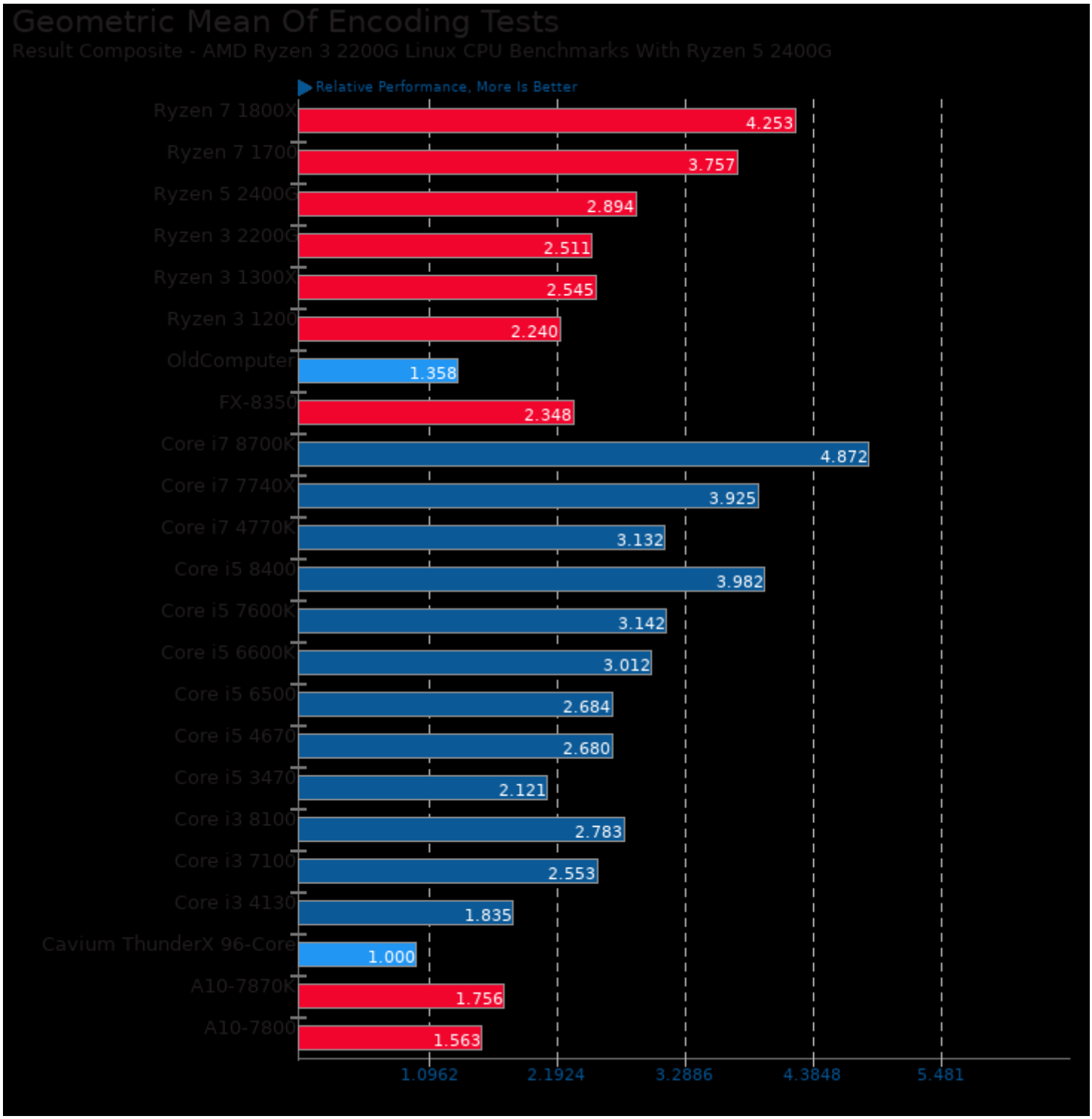
Geometric mean based upon tests: pts/mafft, pts/c-ray, pts/compress-7zip, pts/encode-mp3, pts/john-the-ripper, pts/x264, pts/openssl and pts/nginx



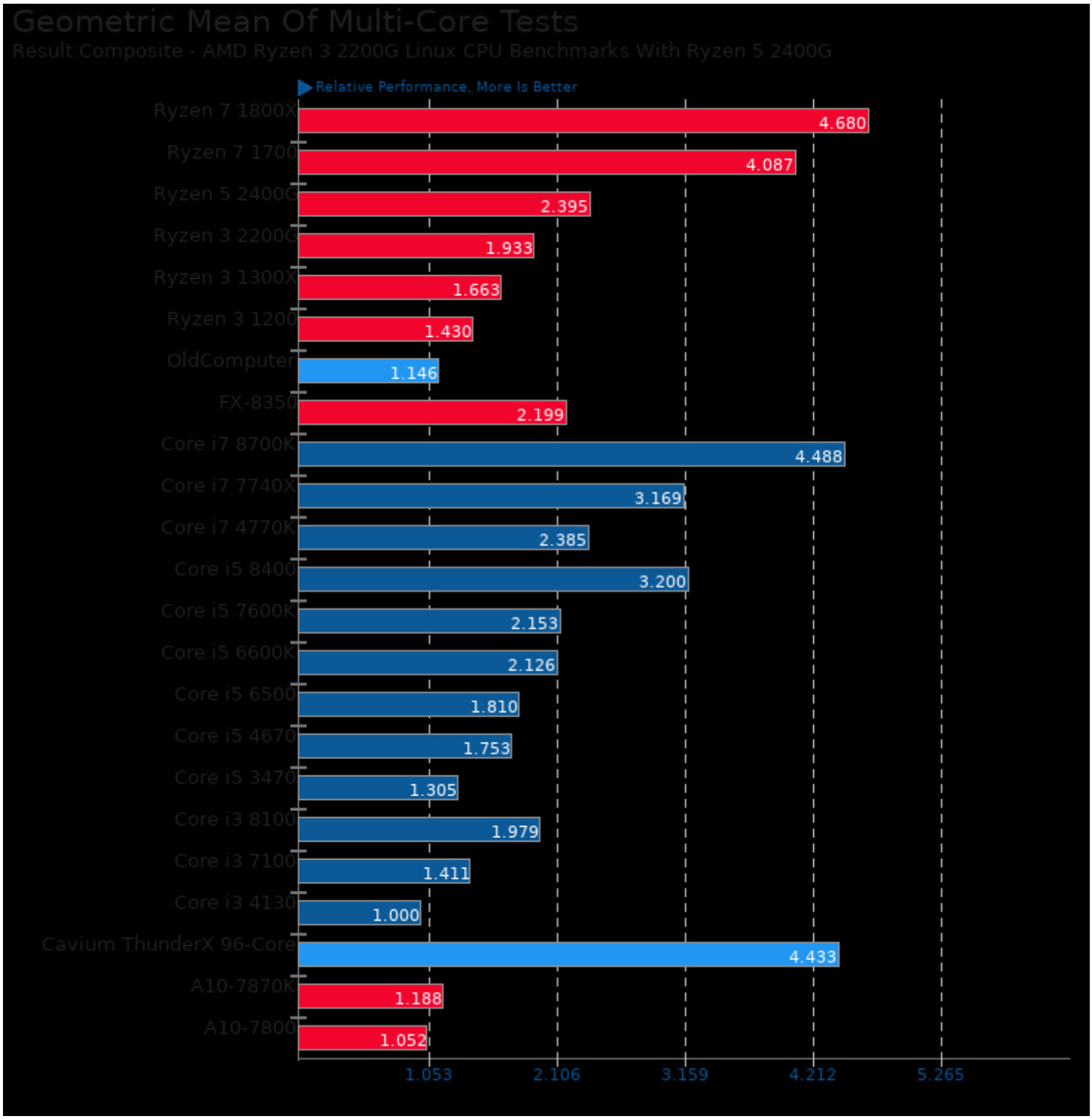
Geometric mean based upon tests: pts/asmfish, pts/build-linux-kernel, pts/c-ray, pts/compress-7zip, pts/x264, pts/encode-mp3, pts/hackbench, pts/john-the-ripper, pts/openssl, pts/mafft, pts/nero2d, pts/nginx, pts/npb, pts/parboil, pts/phpbench, pts/povray, pts/rodinia and pts/ttsiod-renderer



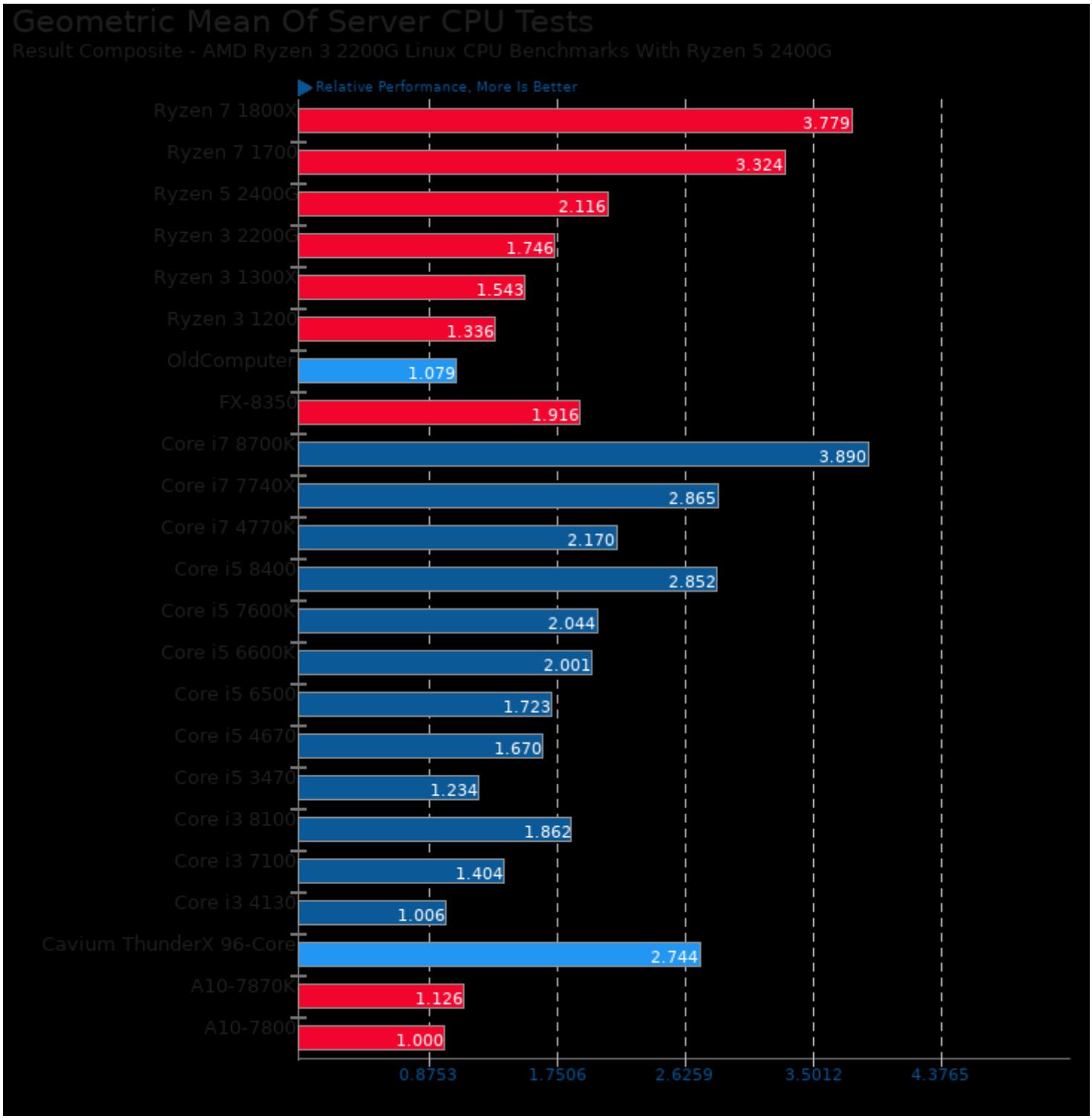
Geometric mean based upon tests: pts/c-ray, pts/povray, pts/ttsiod-renderer, pts/x264 and pts/encode-mp3



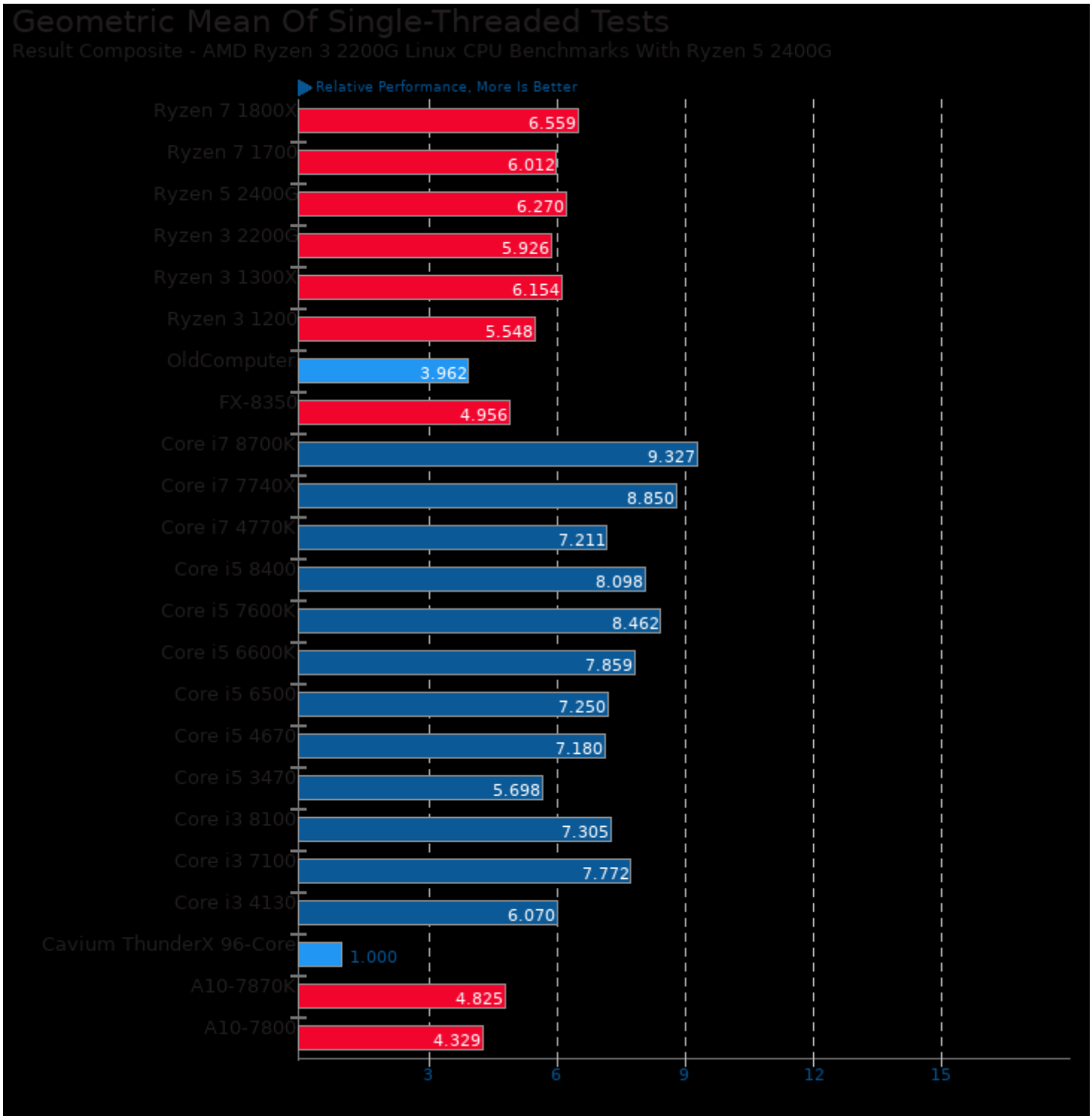
Geometric mean based upon tests: pts/encode-mp3 and pts/x264



Geometric mean based upon tests: pts/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/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

This file was automatically generated via the Phoronix Test Suite benchmarking software on Friday, 29 March 2024 09:20.