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

Threadripper 1920

Automated Executive Summary

THreadripper 1920 had the most wins, coming in first place for 65% of the tests.

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

Rodinia (Test: OpenMP LavaMD) at 14.954x
NAS Parallel Benchmarks (Test / Class: EP.C) at 12.499x
John The Ripper (Test: Blowfish) at 12.16x
POV-Ray (Trace Time) at 12.16x
C-Ray (Total Time) at 11.624x
OpenSSL (RSA 4096-bit Performance) at 10.254x
Parboil (Test: OpenMP CUTCP) at 9.881x
Hackbench (Count: 8 - Type: Process) at 9.671x
asmFish (1024 Hash Memory, 26 Depth) at 9.211x
x264 (H.264 Video Encoding) at 8.75x.

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

Athlon II 630

Processor: AMD Athlon II X4 630 @ 2.80GHz (4 Cores), Motherboard: MSI MS-7388 v1.0, Chipset: AMD RD780 + SB600, Memory: 3072MB, Disk: 320GB Seagate ST3320613AS + 250GB Seagate ST3250310AS, Graphics: AMD RV770 (DRM 2.50.0 / 4.15.10-1-default LLVM 5.0.1) 512MB, Audio: Realtek ALC888, Monitor: W1943, Network: Realtek RTL8111/8168/8411

OS: openSUSE 20180320, Kernel: 4.15.10-1-default (x86_64), Desktop: KDE Frameworks 5, Display Server: X Server 1.19.6, Display Driver: radeon 18.0.0, OpenGL: 3.3 Mesa 18.0.0-rc4, File-System: ext4, Screen Resolution: 1360x768

Compiler Notes: --build=x86_64-suse-linux --disable-libcc1 --disable-libssp --disable-libstdcxx-pch --disable-libvtv --disable-werror --enable-__cxa_atexit --enable-checking=release --enable-gnu-indirect-function --enable-languages=c,c++,objc,fortran,obj-c++,ada,go --enable-libstdcxx-allocator=new --enable-linux-futex --enable-multilib --enable-offload-targets=hsa,nvptx-none=/usr/nvptx-none, --enable-plugin --enable-ssp --enable-version-specific-runtime-libs --host=x86_64-suse-linux --mandir=/usr/share/man --with-arch-32=x86-64 --with-gcc-major-version-only --with-slibdir=/lib64 --with-tune=generic --without-cuda-driver --without-system-libunwind
Processor Notes: Scaling Governor: acpi-cpufreq ondemand
System Notes: Python 2.7.14.

Intel Core i5-2320

Optiplex-390-i5-2320-ARCH

Processor: Intel Core i5-2320 @ 3.00GHz (4 Cores), Motherboard: Dell 0F6X5P (A11 BIOS), Chipset: Intel 2nd Generation Core Family DRAM, Memory: 12288MB, Disk: 320GB Seagate ST3320620AS + 500GB nal USB 3.0, Graphics: Gigabyte NVIDIA GeForce GT 1030 2048MB (1227/3003MHz), Audio: Conexant CX20641, Monitor: KA251Q, Network: Realtek RTL8111/8168/8411

OS: Antergos Linux 18.4-Minimal-ISO-Rolling, Kernel: 4.15.15-1-ARCH (x86_64), Desktop: GNOME Shell 3.28.1, Display Driver: NVIDIA 390.48, OpenGL: 4.6.0, Compiler: GCC 7.3.1 20180312, File-System: ext4, Screen Resolution: 1920x1080

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: intel_pstate powersave
OpenCL Notes: GPU Compute Cores: 384
Python Notes: Python 3.6.4
Security Notes: KPTI + __user pointer sanitization + Full generic retpoline IBPB IBRS_FW Protection

Johns Ryzen 5 2400G

Processor: AMD Ryzen 5 2400G @ 3.85GHz (4 Cores / 8 Threads), Motherboard: MSI B350M GAMING PRO (MS-7A39) v1.0 (2.F0 BIOS), Chipset: AMD Device 15d0, Memory: 6144MB, Disk: Samsung SSD 960 EVO 250GB, Graphics: MSI AMD Radeon Vega / Radeon Vega Mobile 2048MB, Audio: AMD Device 15de, Monitor: DX-22L150A11, Network: Realtek RTL8111/8168/8411

OS: ManjaroLinux 17.1.8, Kernel: 4.17.0-1-MANJARO (x86_64), Desktop: KDE Plasma 5.12.4, Display Driver: modesetting 1.19.6, OpenGL: 4.5 Mesa 18.0.1 (LLVM 6.0.0), Compiler: GCC 7.3.1 20180312, File-System: ext4, Screen Resolution: 1360x768

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 schedutil
Python Notes: Python 3.6.5
Security Notes: __user pointer sanitization + Full AMD retpoline IBPB Protection

Pentium G3220T

Pentium G3220T /w Performance Scaling

Processor: Intel Pentium G3220T @ 2.60GHz (2 Cores), Motherboard: LENOVO SHARKBAY (FHKT73AUS BIOS), Chipset: Intel 4th Gen Core DRAM, Memory: 8192MB, Disk: 128GB Samsung SSD 840, Graphics: Intel Haswell Desktop 1536MB (1100MHz), Audio: Intel Xeon E3-1200 v3/4th, Monitor: HP P221, Network: Intel Connection I217-V

OS: Ubuntu 18.04, Kernel: 4.15.0-15-generic (x86_64), Desktop: GNOME Shell 3.28.1, Display Driver: modesetting 1.19.6, OpenGL: 4.5 Mesa 18.0.0-rc5, Compiler: GCC 7.3.0, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++ --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-as=/usr/bin/x86_64-linux-gnu-as --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-ld=/usr/bin/x86_64-linux-gnu-ld --with-multilib-list=m32,m64,mx32 --with-target-system-zlib --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: intel_pstate performance
Python Notes: Python 2.7.15rc1 + Python 3.6.5
Security Notes: KPTI + __user pointer sanitization + Full generic retpoline Protection

Xeon E3-1275L v3 /w Performance Scaling

Processor: Intel Xeon E3-1275L v3 @ 3.90GHz (4 Cores / 8 Threads), Motherboard: LENOVO SHARKBAY (FHKT73AUS BIOS), Chipset: Intel Xeon E3-1200 v3 DRAM, Memory: 8192MB, Disk: 128GB Samsung SSD 840, Graphics: Intel Haswell Server 1536MB (1200MHz), Audio: Intel Xeon E3-1200 v3/4th, Monitor: HP P221, Network: Intel Connection I217-V

OS: Ubuntu 18.04, Kernel: 4.15.0-15-generic (x86_64), Desktop: GNOME Shell 3.28.1, Display Driver: modesetting 1.19.6, OpenGL: 4.5 Mesa 18.0.0-rc5, Compiler: GCC 7.3.0, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++ --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-as=/usr/bin/x86_64-linux-gnu-as --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-ld=/usr/bin/x86_64-linux-gnu-ld --with-multilib-list=m32,m64,mx32 --with-target-system-zlib --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: intel_pstate performance
Python Notes: Python 2.7.15rc1 + Python 3.6.5
Security Notes: KPTI + __user pointer sanitization + Full generic retpoline Protection

THreadripper 1920

Processor: AMD Ryzen Threadripper 1920X 12-Core @ 3.50GHz (12 Cores / 24 Threads), Motherboard: ASRock X399 Professional Gaming (P2.00 BIOS), Chipset: AMD Family 17h, Memory: 64512MB, Disk: 4001GB Western Digital WD40EFRX-68W + PM951 NVMe SAMSUNG 256GB + 1000GB Samsung SSD 960 EVO 1TB + Samsung SSD 960 EVO 500GB, Graphics: ASUS NVIDIA GeForce GTX 1080 Ti 11264MB (1480/5508MHz), Audio: Realtek ALC1220, Monitor: DELL P2715Q, Network: Aquantia AQC107 NBase-T/IEEE + Intel Device 24fb

OS: Ubuntu 18.04, Kernel: 4.15.0-20-generic (x86_64), Desktop: GNOME Shell 3.28.1, Display Driver: NVIDIA 390.48, OpenGL: 4.6.0, Compiler: GCC 7.3.0, File-System: ext4, Screen Resolution: 7680x2160

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-as=/usr/bin/x86_64-linux-gnu-as --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-ld=/usr/bin/x86_64-linux-gnu-ld --with-multilib-list=m32,m64,mx32 --with-target-system-zlib --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq ondemand
OpenCL Notes: GPU Compute Cores: 3584
Python Notes: Python 2.7.15rc1 + Python 3.6.5
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	Athlon II 630	Intel Core i5-2320	OptiPlex-390-i5-2320-ARCH	Johns Ryzen 5 2400G	Pentium G3220T	Pentium G3220T /w Performance Scaling	Xeon E3-1275L v3 /w Performance Scaling	Threadripper 1920
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	49.70				41.80	41.82	17.06	5.03
Normalized	14.08%	15.92%	29.76%	28.97%	33.47%	32.16%	44.36%	77.5%	90.14%	16.49%	21.99%	33.65%	28.23%	31.84%	31.03%	36.4%	37.37%	53.12%	38.72%	49.65%	71.05%	10.12%				12.03%	12.03%	29.48%	100%
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%	0.7%				0.2%	0.1%	3.3%	1.5%
Hackbench - 8 - Process	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	115.61		96.49	48.47	173.69	173.66	51.06	30.26
Normalized	18.36%	21.31%	35.4%		28.23%	35.75%	53.95%	89.49%	100%	14.97%	24.77%	28.88%	22.13%	27.55%	26.64%	30.86%	31.16%	45.28%	47.61%	58.98%	79.82%	15.53%		18.61%	37.05%	10.34%	10.34%	35.17%	59.35%
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%	1%		3.4%	14.8%	0.5%	0.5%	2.6%	2.9%

asmFish - 1.H.M.2.D (Nodes/s)	5433893	6214006	11705326	7323749	8286134	8579597	12356782	20101605	22678479	4907458	6783028	9841586	7366182	9572744	8967523	10051165	10269351	15913582	12321019	15895869	23437731	4868593		7227979	12420413	3291552	**3261490**	9775629	**30041814**
Normalized	18.09%	20.68%	38.96%	24.38%	27.58%	28.56%	41.13%	66.91%	75.49%	16.34%	22.58%	32.76%	24.52%	31.86%	29.85%	33.46%	34.18%	52.97%	41.01%	52.91%	78.02%	16.21%		24.06%	41.34%	10.96%	10.86%	32.54%	100%
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%	1.2%		0.9%	0.8%	1.4%	0.1%	2.1%	1.7%
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			17.64	39.50	**12.18**	12.24	30.23	**106.57**
Normalized	14.65%	16.5%	28.69%	22.02%	25.65%	25.9%	32.61%	57.15%	67.05%	14.52%	22.42%	28.54%	18.61%	26.42%	26.71%	31.07%	31.43%	52.65%	35.32%	46.87%	68.46%			16.55%	37.06%	11.43%	11.49%	28.37%	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%			0.9%	2%	1.6%	0.2%	1.2%	0.3%
7-Zip Compression - C.S.T (MIPS)	9983	11431	22097	12601	15880	15744	17729	30627	33022	8992	12896	17221	14100	16595	15116	18079	17727	27028	21667	28952	39039	8157		11874	18918	6110	**6108**	18386	**51428**
Normalized	19.41%	22.23%	42.97%	24.5%	30.88%	30.61%	34.47%	59.55%	64.21%	17.48%	25.08%	33.49%	27.42%	32.27%	29.39%	35.15%	34.47%	52.56%	42.13%	56.3%	75.91%	15.86%		23.09%	36.79%	11.88%	11.88%	35.75%	100%
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%	0.5%		0.1%	1%	0.9%	2.2%	1.8%	0.8%

Timed Linux Kernel Compilation - Time To Compile	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	401.51		286.83	163.41	**500.66**	500.01	184.59	**59.55**
Normalized	17.37%	19.79%	35.48%	12.29%	13%	29.56%	38.8%	62.57%	69.88%	13.96%	24.16%	35.49%	22.47%	32.9%	32.78%	37.59%	37.79%	55.13%	39.67%	55.67%	75.28%	14.83%		20.76%	36.44%	11.89%	11.91%	32.26%	100%
Standard Deviation	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%	3.2%		1.1%	2.9%	0.5%	0.4%	0.9%	2.6%
Java JMH - Throughput (Ops/s)	3487059908	3894123975	8056296946	6174078043	7169110974	7385107172	7405453445	12783688167	14780854841	6739708281	7790129336	14382333765	12391166252	14337275795	13187679150	15582092811	15983591764	22775463201	15499195579	17920802344	**25756200608**			11941642502	7540791806	**3290435518**	3308623091	7616483110	22091449041
Normalized	13.54%	15.12%	31.28%	23.97%	27.83%	28.67%	28.75%	49.63%	57.39%	26.17%	30.25%	55.84%	48.11%	55.67%	51.2%	60.5%	62.06%	88.43%	60.18%	69.58%	100%			46.36%	29.28%	12.78%	12.85%	29.57%	85.77%
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			153.93	87.41	274.45	276.71	127.92	**35.85**
Normalized	12.78%	14.26%	29.9%	32.71%	37.98%	38.93%	39.59%	62.37%	71.49%	17.11%	21.63%	38.71%	25.4%	34.86%	35.55%	41.83%	42.69%	58.73%	36.5%	46.95%	65.21%			23.29%	41.01%	13.06%	12.96%	28.03%	100%
Standard Deviation	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%			1%	0.1%	0.8%	2.9%	0.7%	0.2%

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**	**52.15**		117.85	238.68	56.51	56.55	162.89	328.34
Normalized	17.21%	21.17%	36.45%	31.39%	34.46%	45.49%	54.03%	70.12%	79.72%	18.78%	31.07%	42.96%	33.17%	39.77%	40.4%	47.16%	47.97%	67.31%	52.16%	70.83%	100%	13.31%		30.09%	60.94%	14.43%	14.44%	41.59%	83.83%
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%	4.3%		0.2%	0.4%	0.9%	0.9%	1.4%	0.2%
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		13.84		9.11	4.39	14.76	**14.78**	5.64	**3.10**
Normalized	25.92%	29.81%	52.36%	42.76%	51.75%	49.44%	54.1%	72.77%	84.93%	29.67%	39.49%	54.29%	44.73%	52.99%	49.05%	57.84%	57.2%	84.24%	63.52%	78.09%		22.4%		34.03%	70.62%	21%	20.97%	54.96%	100%
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%		5.8%		2.2%	1.7%	0.4%	0.3%	5.3%	7.4%
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**	**4538**				2052	2050	1358	1380
Normalized	45.54%	50.84%	50.34%	62.3%	68.83%	66.65%	70.71%	67.92%	73.91%	65.88%	83.35%	76.94%	59.84%	74.17%	76.83%	83.21%	89.73%	85.28%	76.03%	95.91%	100%	22.72%				50.24%	50.29%	75.92%	74.71%
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%	1.6%					0.2%	0.4%	1%

PHPBench - Performance / Cost - P.B.S (Score/Dollar)	3480	3243	3024	2190	1369	**1235**	**4467**	3115	1890
Normalized	77.91%	72.61%	67.7%	49.02%	30.64%	27.65%	100%	69.73%	42.31%
NGINX Benchmark - Performance / Cost - S.W.P.S (Reqs/sec/Dollar)	277.57	261.07	260.63	176.98	103.18	**94.45**	**305.13**	214.46	125.11
Normalized	90.97%	85.56%	85.42%	58%	33.82%	30.95%	100%	70.28%	41%

Java JMH - Performance / Cost - Throughput (Ops/s/Dollar)				58800743	57352888	57248893	**39182293**	44234215	42352020			**120859948**						120505096			71744291								
Normalized				48.65%	47.45%	47.37%	32.42%	36.6%	35.04%			100%						99.71%			59.36%								
LAME MP3 Encoding - WAV To MP3 (sec)	54.17	48.37	47.03	39.68	35.78	37.13	35.19	36.59	33.50	38.94	31.08	33.30	37.36	33.25	33.51	30.95	28.77	30.01	32.54	27.50	**26.07**	**80.20**		47.24	35.97	48.17	48.15	33.48	34.64
Normalized	48.13%	53.9%	55.43%	65.7%	72.86%	70.21%	74.08%	71.25%	77.82%	66.95%	83.88%	78.29%	69.78%	78.41%	77.8%	84.23%	90.62%	86.87%	80.12%	94.8%	100%	32.51%		55.19%	72.48%	54.12%	54.14%	77.87%	75.26%
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%		0.1%	0.3%	0.1%	0.1%	2.5%	0.6%
PHPBench - P.B.S (Score)	303743	336831	345560	365419	405418	390105	413882	395609	431108	429258	561562	531584	362807	512718	526913	571880	616281	588730	506177	644293	**678465**	**239668**		343898	474711	388482	387823	572092	500963
Normalized	44.77%	49.65%	50.93%	53.86%	59.76%	57.5%	61%	58.31%	63.54%	63.27%	82.77%	78.35%	53.47%	75.57%	77.66%	84.29%	90.83%	86.77%	74.61%	94.96%	100%	35.33%		50.69%	69.97%	57.26%	57.16%	84.32%	73.84%
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%	0.5%		0.6%	0.3%	0.5%	0.2%	0.7%	1.3%

NGINX Benchmark - S.W.P.S (Reqs/sec)	19113	21359	19628	29145	32633	33621	33450	29820	32964	20655	36757	36311	20762	35672	34800	39234	40483	40533	36374	45476	44916					22344	22447	33019	20709
Normalized	42.03%	46.97%	43.16%	64.09%	71.76%	73.93%	73.55%	65.57%	72.49%	45.42%	80.83%	79.85%	45.65%	78.44%	76.52%	86.27%	89.02%	89.13%	79.98%	100%	98.77%					49.13%	49.36%	72.61%	45.54%
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%					0.8%	0.7%	1.6%	0.6%
OpenSSL - Performance / Cost - R.4.b.P (Signs/sec/Dollar)					5.68	5.69	4.20	4.78	4.56			8.76						8.84			5.51								
Normalized					64.25%	64.37%	47.51%	54.07%	51.58%			99.1%						100%			62.33%								
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	633.77		442.10	162.36	892.29	890.38	245.35	59.67
Normalized	13.37%	15.01%	28.21%	23.07%	26.72%	27.48%	37.23%	62.71%	72.42%	13.55%	16.83%	26.38%	14.91%	18.5%	24.24%	28.57%	29.34%	41.68%	29.93%	38.64%	55.67%	9.42%		13.5%	36.75%	6.69%	6.7%	24.32%	100%
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%	1.5%		0%	0.6%	0.3%	0.1%	0.1%	0.3%

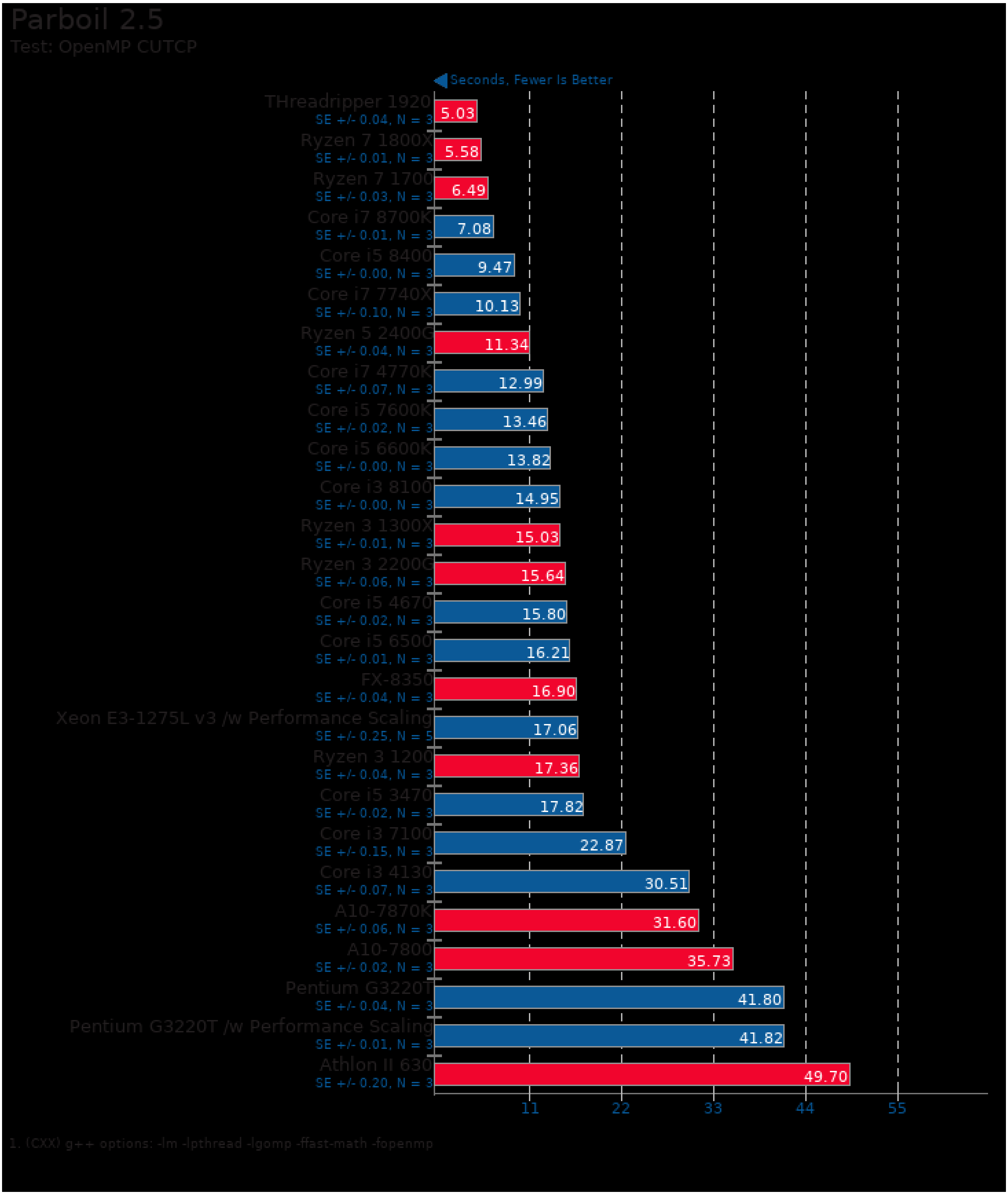
NAS Parallel Benchmarks - EP.C (Mop/s)	83.11	92.05	221.13	122.00	141.62	144.02	293.90	489.65	571.10	143.51	175.07	202.48	180.13	198.48	185.67	219.61	225.62	321.50	331.54	394.63	577.05			106.00		72.26	**72.13**	275.85	**901.52**
Normalized	9.22%	10.21%	24.53%	13.53%	15.71%	15.98%	32.6%	54.31%	63.35%	15.92%	19.42%	22.46%	19.98%	22.02%	20.6%	24.36%	25.03%	35.66%	36.78%	43.77%	64.01%			11.76%		8.02%	8%	30.6%	100%
Standard Deviation	1.8%	0.3%	1.6%	0.5%	0.1%	0.3%	1%	2.5%	0.4%	1.1%	0.8%	0.3%	0.4%	0.2%	0.1%	0.1%	0.2%	0.1%	1%	1.1%	0.6%			0.4%		0.4%	0.3%	1.3%	0.4%
John The Ripper - Blowfish (Real C/S)	3373	3775	6826	3711	4393	4540	6022	10431	12445	3008	3859	4411	2992	4080	4046	4785	4910	6998	6800	8880	12758	2185		2764	6357	1471	**1469**	5043	**17863**
Normalized	18.88%	21.13%	38.21%	20.77%	24.59%	25.42%	33.71%	58.39%	69.67%	16.84%	21.6%	24.69%	16.75%	22.84%	22.65%	26.79%	27.49%	39.18%	38.07%	49.71%	71.42%	12.23%		15.47%	35.59%	8.23%	8.22%	28.23%	100%
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%			1.3%			0.5%		0.1%	2.6%	1.2%
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			228.08	108.18	**439.57**	439.09	166.12	**36.15**
Normalized	13.35%	14.93%	26.98%	19.95%	23.13%	23.53%	33.66%	56.13%	64.31%	13.5%	18.01%	26%	15.8%	24.57%	24.13%	28.5%	28.71%	41.11%	27.58%	41.11%	59.3%			15.85%	33.42%	8.22%	8.23%	21.76%	100%
Standard Deviation	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%			0.9%	1.6%	0%	0.1%	0.1%	0.1%
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	58.80		44.69	19.18	**76.02**	76.01	31.46	**6.54**
Normalized	10.59%	11.87%	23.35%	26.21%	30.42%	31.04%	33.57%	58.24%	67.42%	12.05%	15.58%	26.53%	16.77%	23.87%	24.25%	28.65%	29.39%	42%	26.68%	34.99%	51.17%	11.12%		14.63%	34.1%	8.6%	8.6%	20.79%	100%

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%	0.1%		0.1%	1.9%	0%	0%	1.6%	0.2%
OpenSSL - R.4.b.P (Signs/sec)	299.73	339.70	705.20		710.53	734.20	793.80	1380	1593	308.97	597.13	1043	499.23	645.10	942.73	1143	1148	1671	689.30	1313	1980	317.37		413.27	826.33	**232.93**	232.97	534.63	**2388**
Normalized	12.55%	14.22%	29.53%		29.75%	30.74%	33.24%	57.78%	66.69%	12.94%	25%	43.66%	20.9%	27.01%	39.47%	47.87%	48.05%	69.97%	28.86%	54.97%	82.88%	13.29%		17.3%	34.6%	9.75%	9.75%	22.38%	100%
Standard Deviation	1%	0.5%	0.1%		6.4%	1.1%	2.1%	0.1%	0.1%	0%	0.3%	2.2%	4%	0.2%	2.3%	0%	2.8%	0%	0.1%	2.7%	0.1%	0.3%		0%	0.4%	0.2%	0%	2.6%	0%
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%								

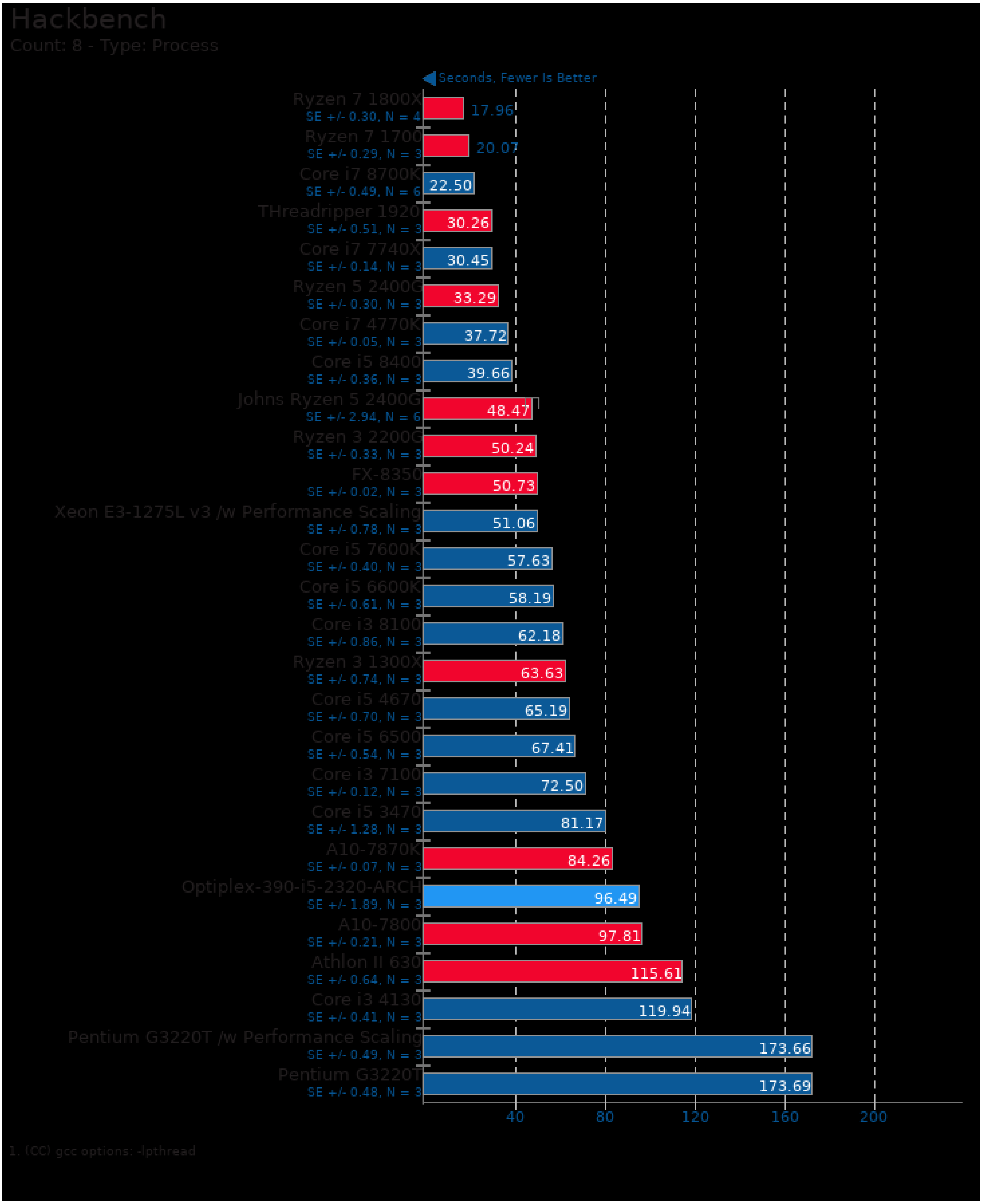
TTSIOD 3D Renderer - Performance / Cost - P.R.W.S.S.M (FPS/Dollar	1.17	1.08	1.38	1.12	0.95	**0.89**			**1.41**						1.39			1.09
Normalized	82.98%	76.6%	97.87%	79.43%	67.38%	63.12%			100%						98.58%			77.3%
7-Zip Compression - Performance / Cost - C.S.T (MIPS/Dollar	120.01	127.04	122.05	**93.80**	105.98	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%

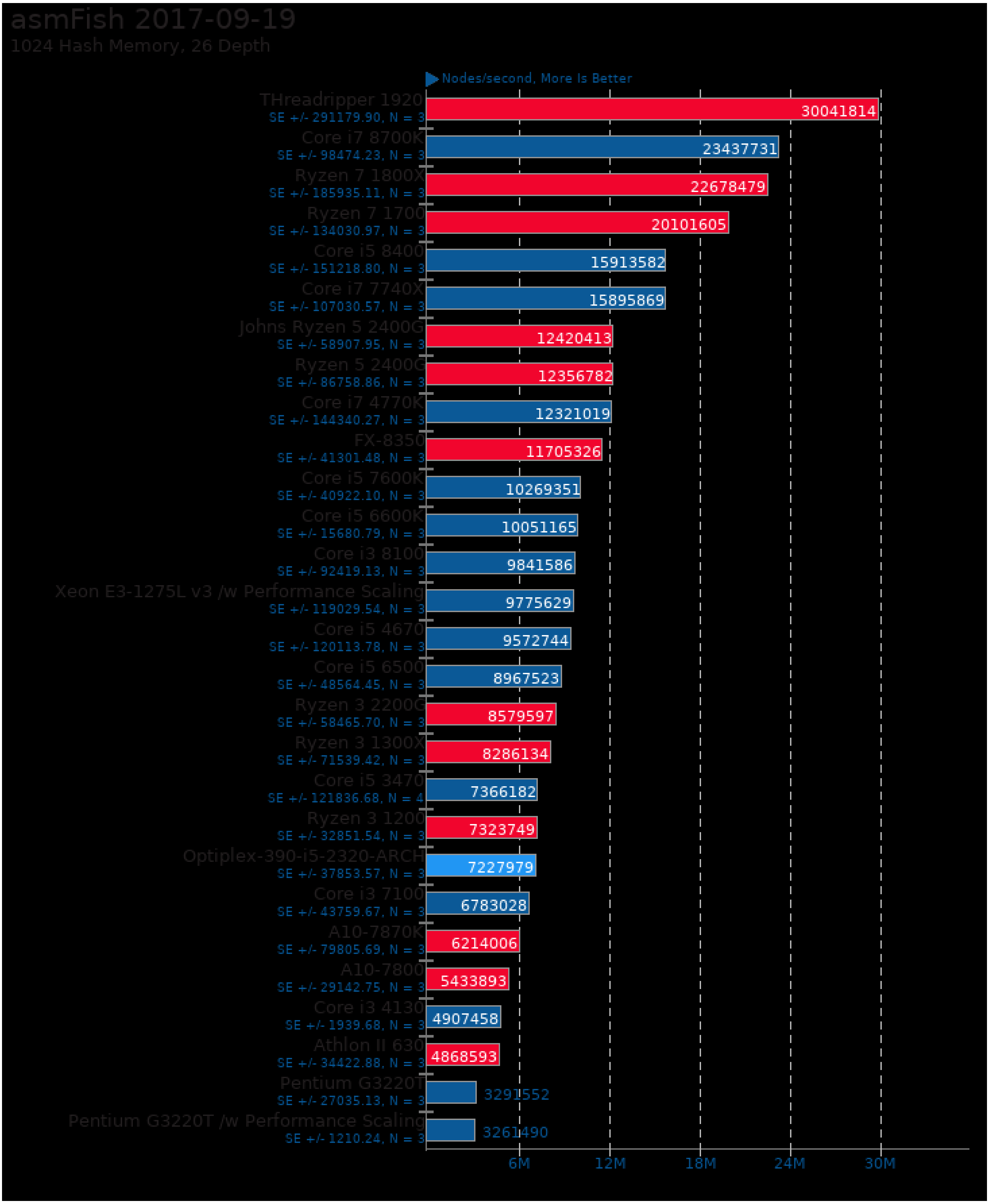
NAS Parallel Benchmarks - Performance / Cost - EP.C (Mop/s/Doll	1.16	1.13	**1.12**	1.56	1.69	1.64	**1.70**	**1.70**	1.61
Normalized	68.24%	66.47%	65.88%	91.76%	99.41%	96.47%	100%	100%	94.71%
asmFish - Performance / Cost - 1.H.M.2.D (Nodes/s/Dollar)	69750	66289	66509	65380	69556	**64981**	82702	**84199**	65286
Normalized	82.84%	78.73%	78.99%	77.65%	82.61%	77.18%	98.22%	100%	77.54%

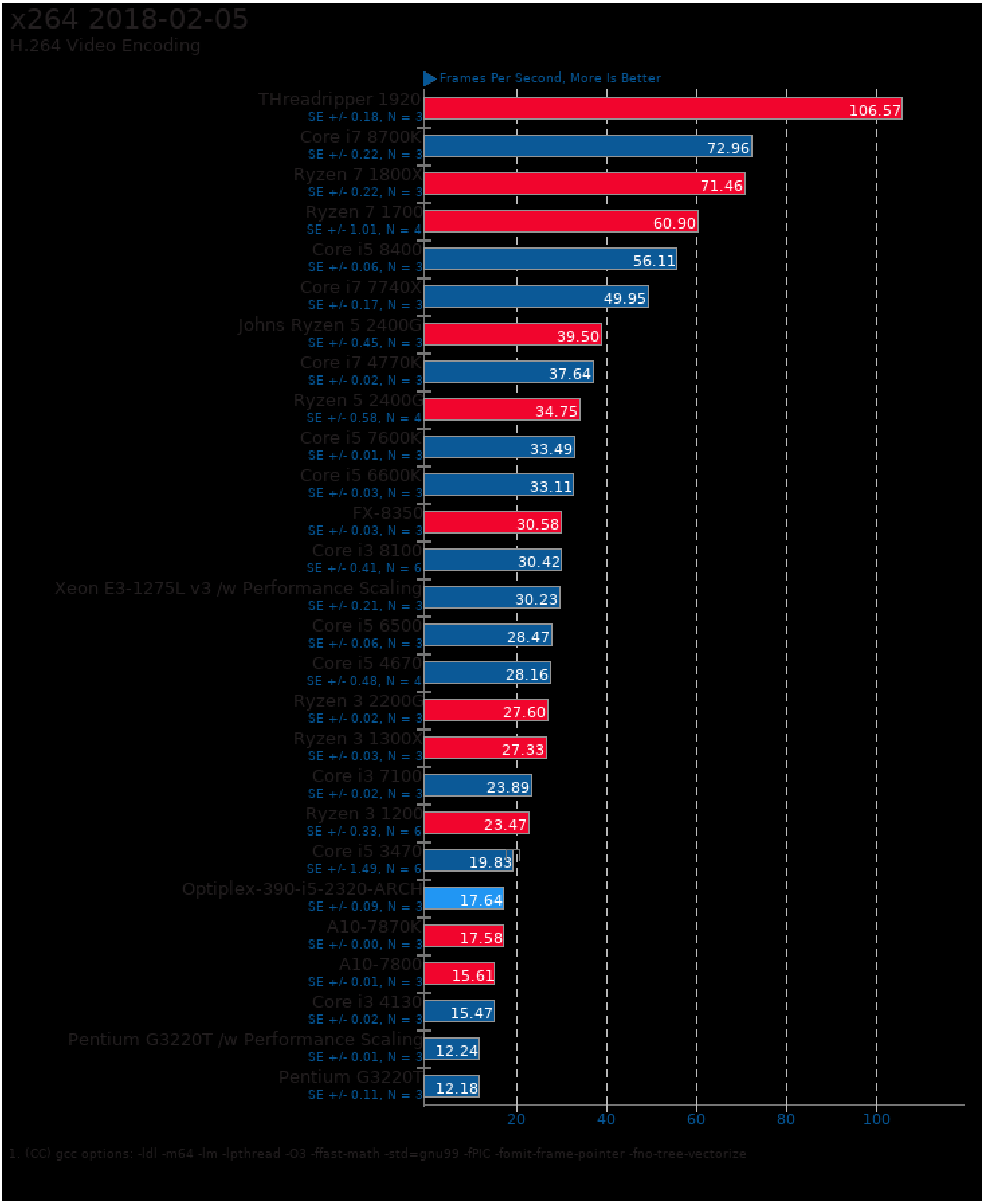
John The Ripper - Performance / Cost - Blowfish (Real C/S/Dollar)	35.34	35.14	35.19	**31.86**	36.09	35.66	**37.07**	37.03	35.54
Normalized	95.33%	94.79%	94.93%	85.95%	97.36%	96.2%	100%	99.89%	95.87%

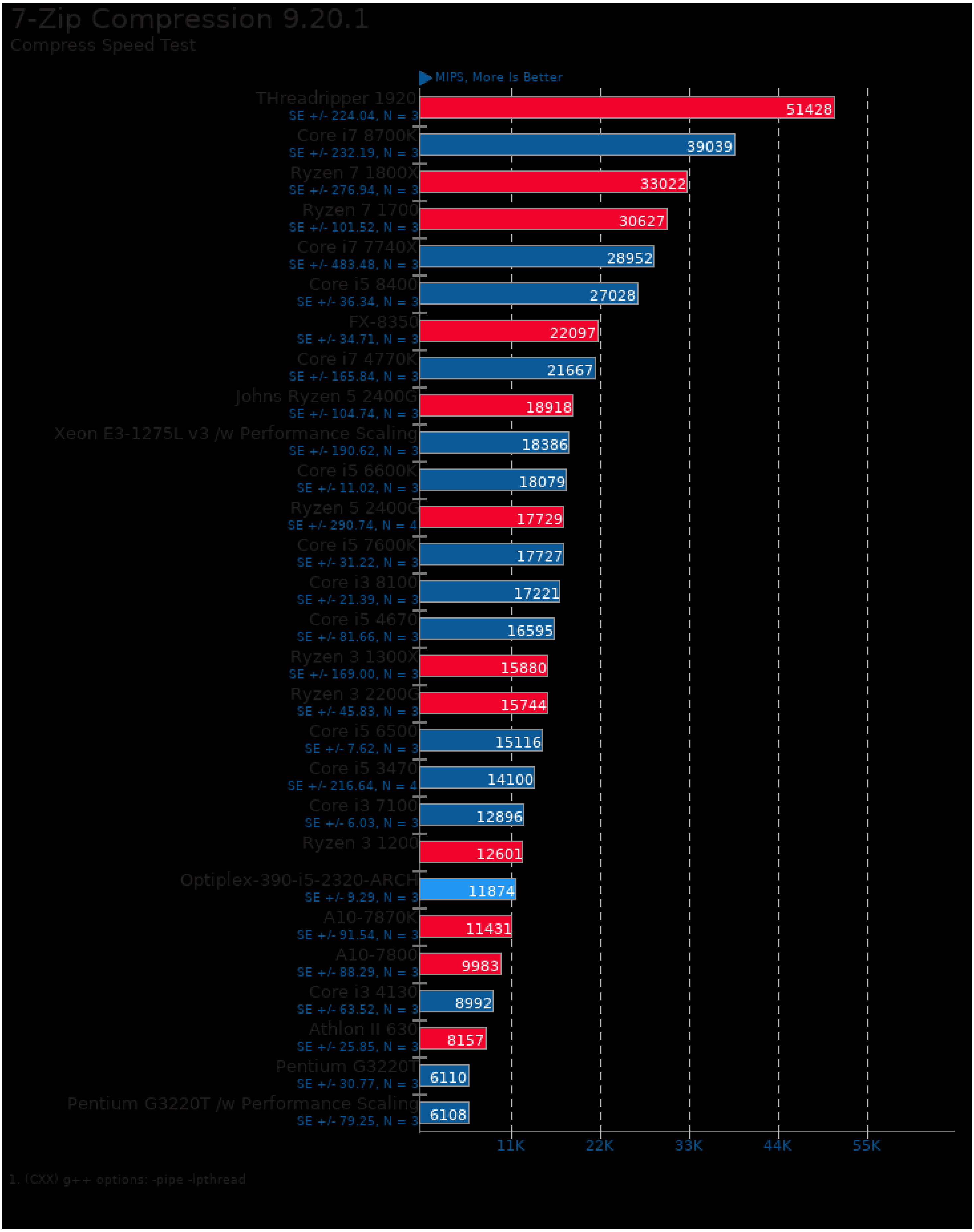

Parboil 2.5
Test: OpenMP CUTCP
Seconds, Fewer Is Better
THreadripper 1920
SE +/- 0.04, N = 3
5.03
Ryzen 7 1800X
SE +/- 0.01, N = 3
5.58
Ryzen 7 1700
SE +/- 0.03, N = 3
6.49
Core i7 8700K
SE +/- 0.01, N = 3
7.08
Core i5 8400
SE +/- 0.00, N = 3
9.47
Core i7 7740X
SE +/- 0.10, N = 3
10.13
Ryzen 5 2400G
SE +/- 0.04, N = 3
11.34
Core i7 4770K
SE +/- 0.07, N = 3
12.99
Core i5 7600K
SE +/- 0.02, N = 3
13.46
Core i5 6600K
SE +/- 0.00, N = 3
13.82
Core i3 8100
SE +/- 0.00, N = 3
14.95
Ryzen 3 1300X
SE +/- 0.01, N = 3
15.03
Ryzen 3 2200G
SE +/- 0.06, N = 3
15.64
Core i5 4670
SE +/- 0.02, N = 3
15.80
Core i5 6500
SE +/- 0.01, N = 3
16.21
FX-8350
SE +/- 0.04, N = 3
16.90
Xeon E3-1275L v3 /w Performance Scaling
SE +/- 0.25, N = 5
17.06
Ryzen 3 1200
SE +/- 0.04, N = 3
17.36
Core i5 3470
SE +/- 0.02, N = 3
17.82
Core i3 7100
SE +/- 0.15, N = 3
22.87
Core i3 4130
SE +/- 0.07, N = 3
30.51
A10-7870K
SE +/- 0.06, N = 3
31.60
A10-7800
SE +/- 0.02, N = 3
35.73
Pentium G3220T
SE +/- 0.04, N = 3
41.80
Pentium G3220T /w Performance Scaling
SE +/- 0.01, N = 3
41.82
Athlon II 630
SE +/- 0.20, N = 3
49.70
11
22
33
44
55
1. (CXX) g++ options: -lm -lpthread -lgomp -ffast-math -fopenmp

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

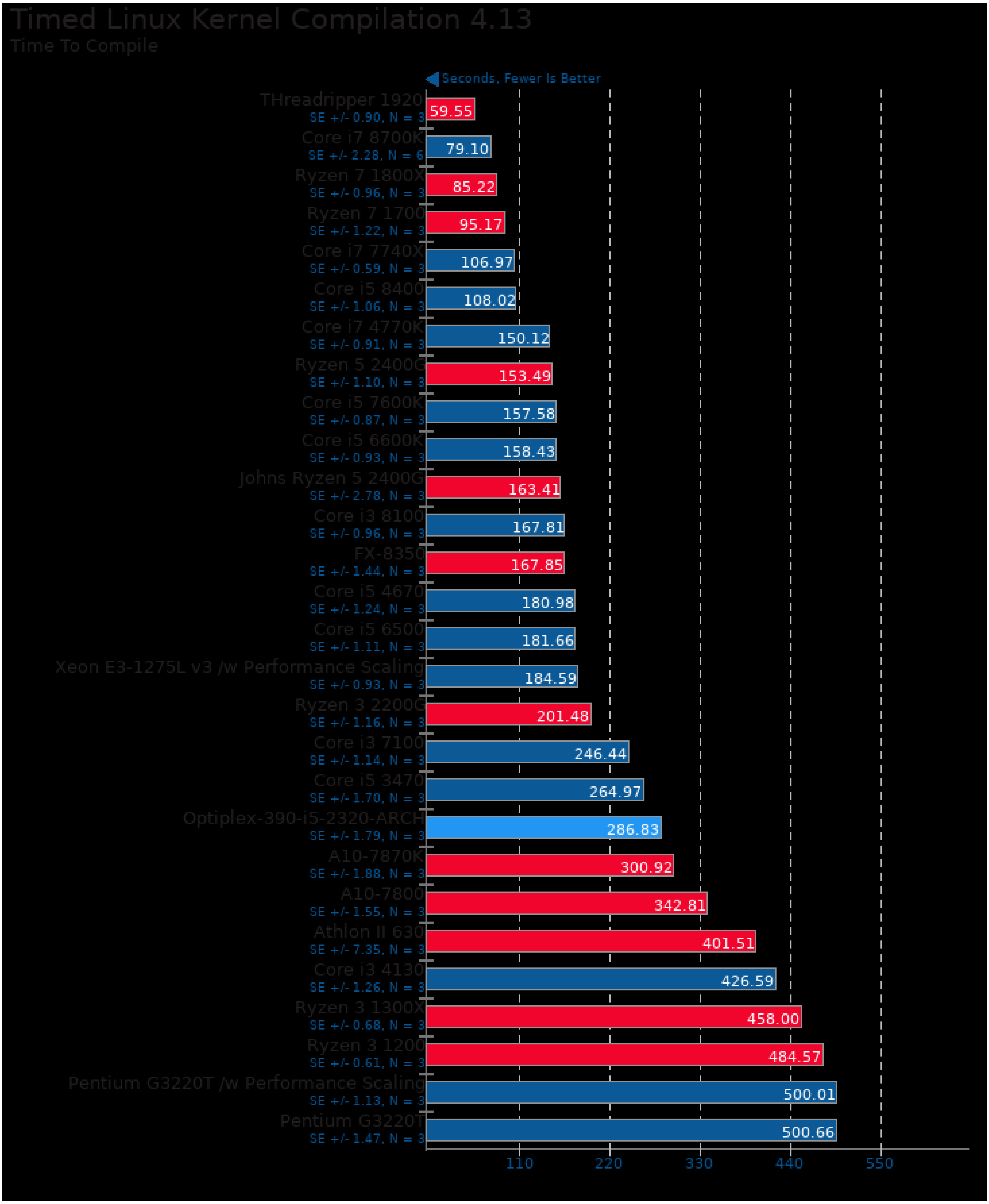



asmFish 2017-09-19
1024 Hash Memory, 26 Depth
Nodes/second, More Is Better
THreadripper 1920
SE +/- 291179.90, N = 3
30041814
Core i7 8700K
SE +/- 98474.23, N = 3
23437731
Ryzen 7 1800X
SE +/- 185935.11, N = 3
22678479
Ryzen 7 1700
SE +/- 134030.97, N = 3
20101605
Core i5 8400
SE +/- 151218.80, N = 3
15913582
Core i7 7740X
SE +/- 107030.57, N = 3
15895869
Johns Ryzen 5 2400G
SE +/- 58907.95, N = 3
12420413
Ryzen 5 2400G
SE +/- 86758.86, N = 3
12356782
Core i7 4770K
SE +/- 144340.27, N = 3
12321019
FX-8350
SE +/- 41301.48, N = 3
11705326
Core i5 7600K
SE +/- 40922.10, N = 3
10269351
Core i5 6600K
SE +/- 15680.79, N = 3
10051165
Core i3 8100
SE +/- 92419.13, N = 3
9841586
Xeon E3-1275L v3 /w Performance Scaling
SE +/- 119029.54, N = 3
9775629
Core i5 4670
SE +/- 120113.78, N = 3
9572744
Core i5 6500
SE +/- 48564.45, N = 3
8967523
Ryzen 3 2200G
SE +/- 58465.70, N = 3
8579597
Ryzen 3 1300X
SE +/- 71539.42, N = 3
8286134
Core i5 3470
SE +/- 121836.68, N = 4
7366182
Ryzen 3 1200
SE +/- 32851.54, N = 3
7323749
Optiplex-390-i5-2320-ARCH
SE +/- 37853.57, N = 3
7227979
Core i3 7100
SE +/- 43759.67, N = 3
6783028
A10-7870K
SE +/- 79805.69, N = 3
6214006
A10-7800
SE +/- 29142.75, N = 3
5433893
Core i3 4130
SE +/- 1939.68, N = 3
4907458
Athlon II 630
SE +/- 34422.88, N = 3
4868593
Pentium G3220T
SE +/- 27035.13, N = 3
3291552
Pentium G3220T /w Performance Scaling
SE +/- 1210.24, N = 3
3261490
6M
12M
18M
24M
30M

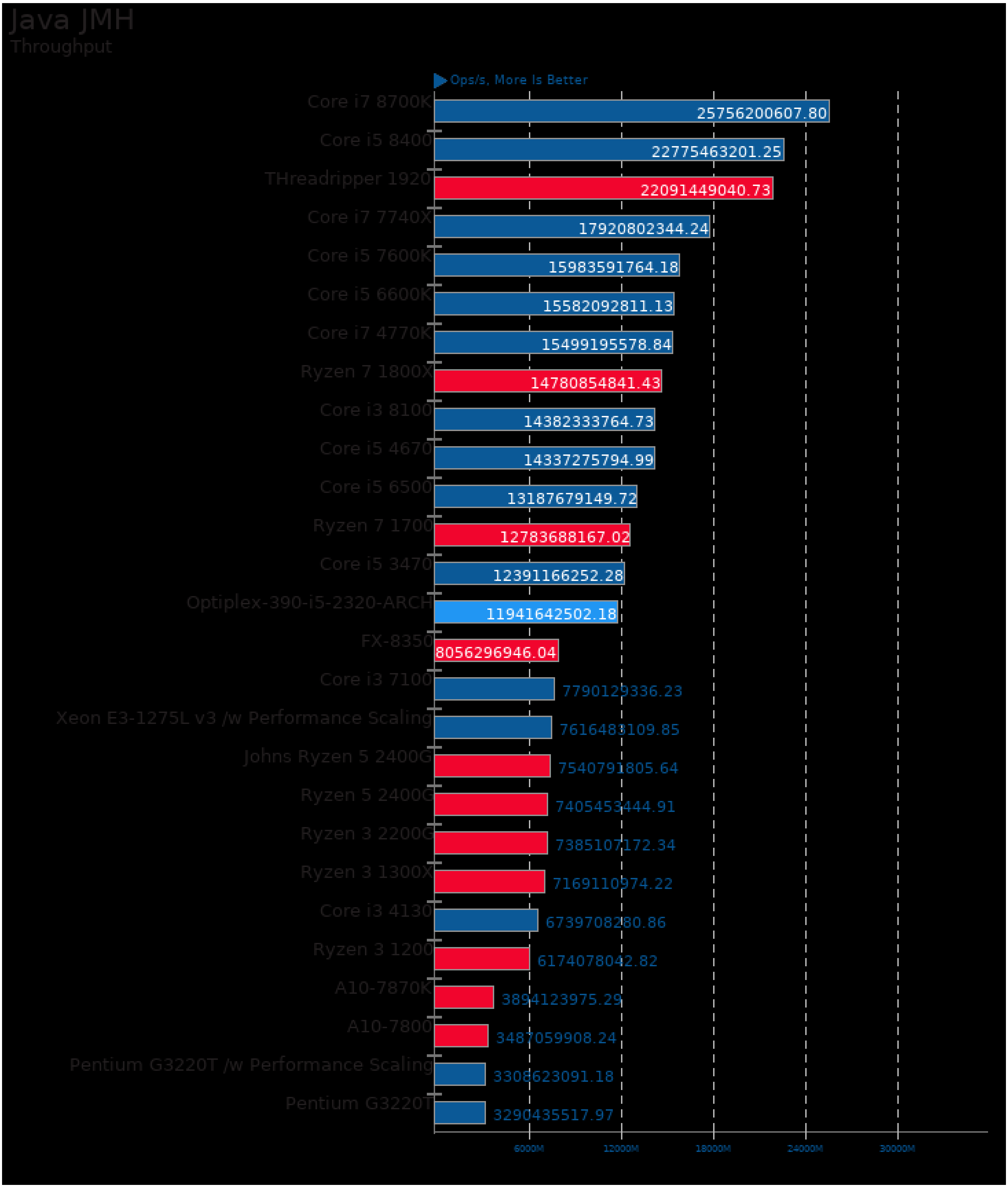

x264 2018-02-05
H.264 Video Encoding
Frames Per Second, More Is Better
THreadripper 1920
SE +/- 0.18, N = 3
106.57
Core i7 8700K
SE +/- 0.22, N = 3
72.96
Ryzen 7 1800X
SE +/- 0.22, N = 3
71.46
Ryzen 7 1700
SE +/- 1.01, N = 4
60.90
Core i5 8400
SE +/- 0.06, N = 3
56.11
Core i7 7740X
SE +/- 0.17, N = 3
49.95
Johns Ryzen 5 2400G
SE +/- 0.45, N = 3
39.50
Core i7 4770K
SE +/- 0.02, N = 3
37.64
Ryzen 5 2400G
SE +/- 0.58, N = 4
34.75
Core i5 7600K
SE +/- 0.01, N = 3
33.49
Core i5 6600K
SE +/- 0.03, N = 3
33.11
FX-8350
SE +/- 0.03, N = 3
30.58
Core i3 8100
SE +/- 0.41, N = 6
30.42
Xeon E3-1275L v3 /w Performance Scaling
SE +/- 0.21, N = 3
30.23
Core i5 6500
SE +/- 0.06, N = 3
28.47
Core i5 4670
SE +/- 0.48, N = 4
28.16
Ryzen 3 2200G
SE +/- 0.02, N = 3
27.60
Ryzen 3 1300X
SE +/- 0.03, N = 3
27.33
Core i3 7100
SE +/- 0.02, N = 3
23.89
Ryzen 3 1200
SE +/- 0.33, N = 6
23.47
Core i5 3470
SE +/- 1.49, N = 6
19.83
Optiplex-390-i5-2320-ARCH
SE +/- 0.09, N = 3
17.64
A10-7870K
SE +/- 0.00, N = 3
17.58
A10-7800
SE +/- 0.01, N = 3
15.61
Core i3 4130
SE +/- 0.02, N = 3
15.47
Pentium G3220T /w Performance Scaling
SE +/- 0.01, N = 3
12.24
Pentium G3220T
SE +/- 0.11, N = 3
12.18
20
40
60
80
100
1. (CC) gcc options: -ldl -m64 -lm -lpthread -O3 -ffast-math -std=gnu99 -fPIC -fomit-frame-pointer -fno-tree-vectorize


7-Zip Compression 9.20.1
Compress Speed Test
MIPS, More Is Better
THreadripper 1920
SE +/- 224.04, N = 3
51428
Core i7 8700K
SE +/- 232.19, N = 3
39039
Ryzen 7 1800X
SE +/- 276.94, N = 3
33022
Ryzen 7 1700
SE +/- 101.52, N = 3
30627
Core i7 7740X
SE +/- 483.48, N = 3
28952
Core i5 8400
SE +/- 36.34, N = 3
27028
FX-8350
SE +/- 34.71, N = 3
22097
Core i7 4770K
SE +/- 165.84, N = 3
21667
Johns Ryzen 5 2400G
SE +/- 104.74, N = 3
18918
Xeon E3-1275L v3 /w Performance Scaling
SE +/- 190.62, N = 3
18386
Core i5 6600K
SE +/- 11.02, N = 3
18079
Ryzen 5 2400G
SE +/- 290.74, N = 4
17729
Core i5 7600K
SE +/- 31.22, N = 3
17727
Core i3 8100
SE +/- 21.39, N = 3
17221
Core i5 4670
SE +/- 81.66, N = 3
16595
Ryzen 3 1300X
SE +/- 169.00, N = 3
15880
Ryzen 3 2200G
SE +/- 45.83, N = 3
15744
Core i5 6500
SE +/- 7.62, N = 3
15116
Core i5 3470
SE +/- 216.64, N = 4
14100
Core i3 7100
SE +/- 6.03, N = 3
12896
Ryzen 3 1200
12601
Optiplex-390-i5-2320-ARCH
SE +/- 9.29, N = 3
11874
A10-7870K
SE +/- 91.54, N = 3
11431
A10-7800
SE +/- 88.29, N = 3
9983
Core i3 4130
SE +/- 63.52, N = 3
8992
Athlon II 630
SE +/- 25.85, N = 3
8157
Pentium G3220T
SE +/- 30.77, N = 3
6110
Pentium G3220T /w Performance Scaling
SE +/- 79.25, N = 3
6108
11K
22K
33K
44K
55K
1. (CXX) g++ options: -pipe -lpthread

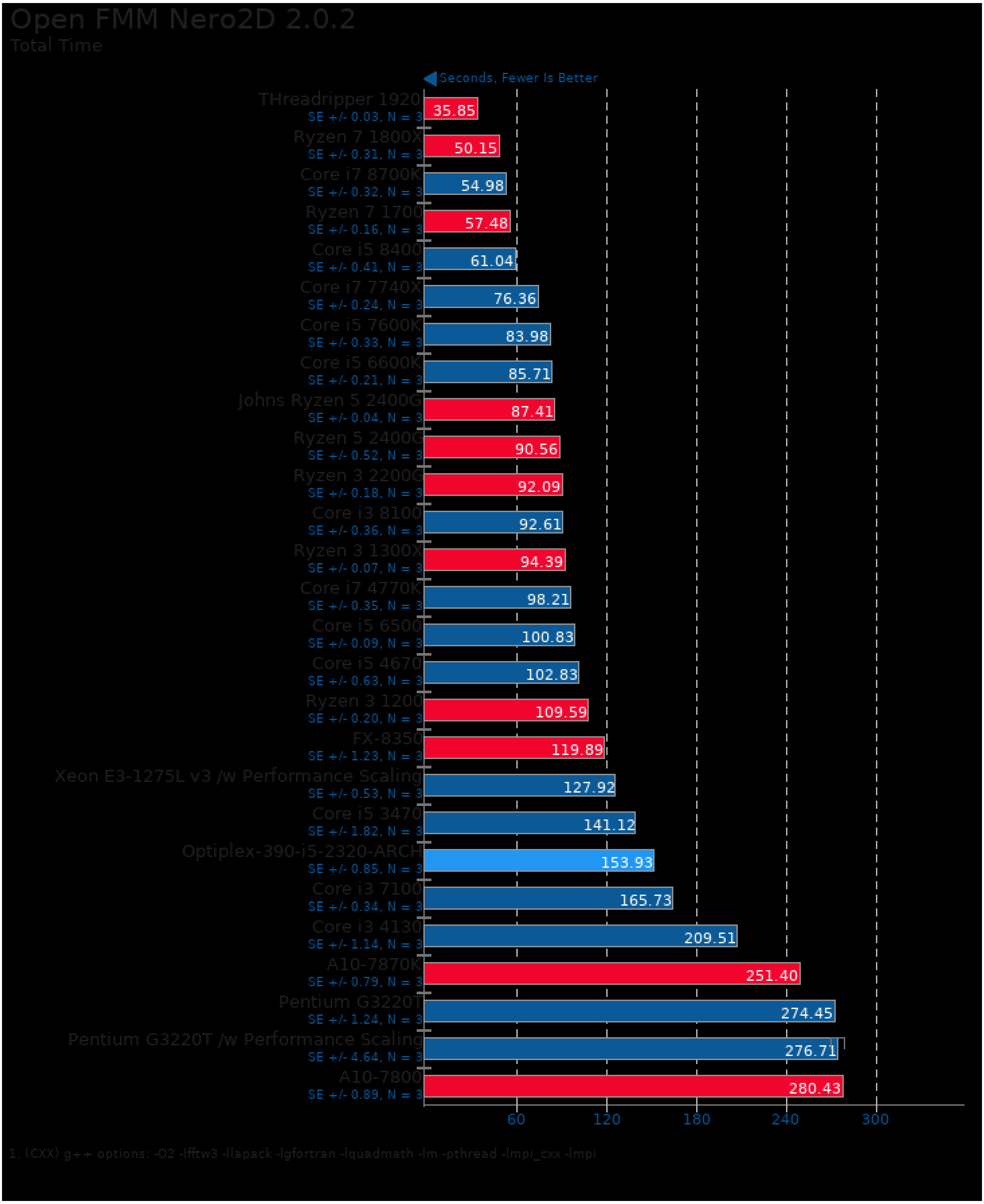
AMD Ryzen 3 2200G Linux CPU Benchmarks With Ryzen 5 2400G

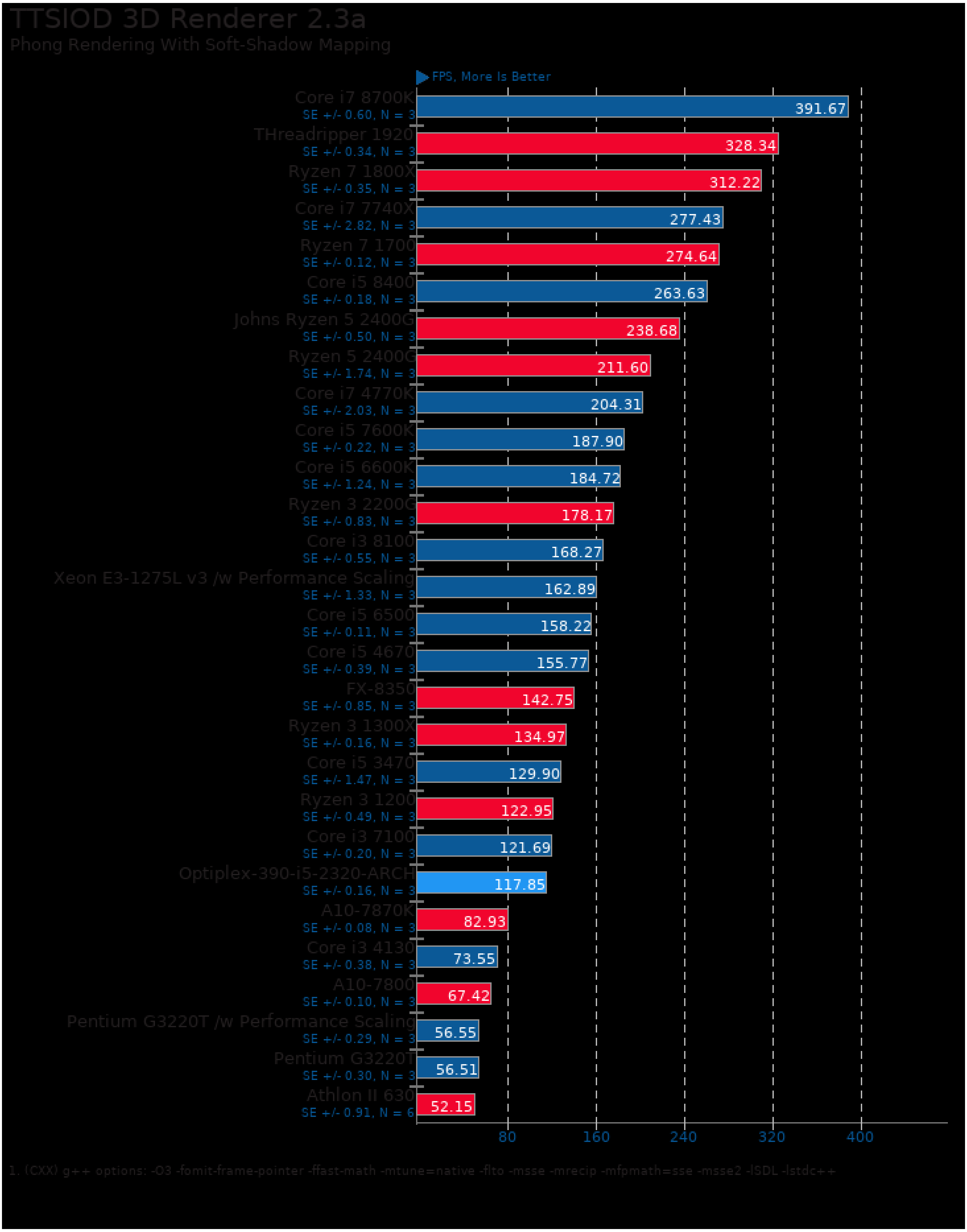


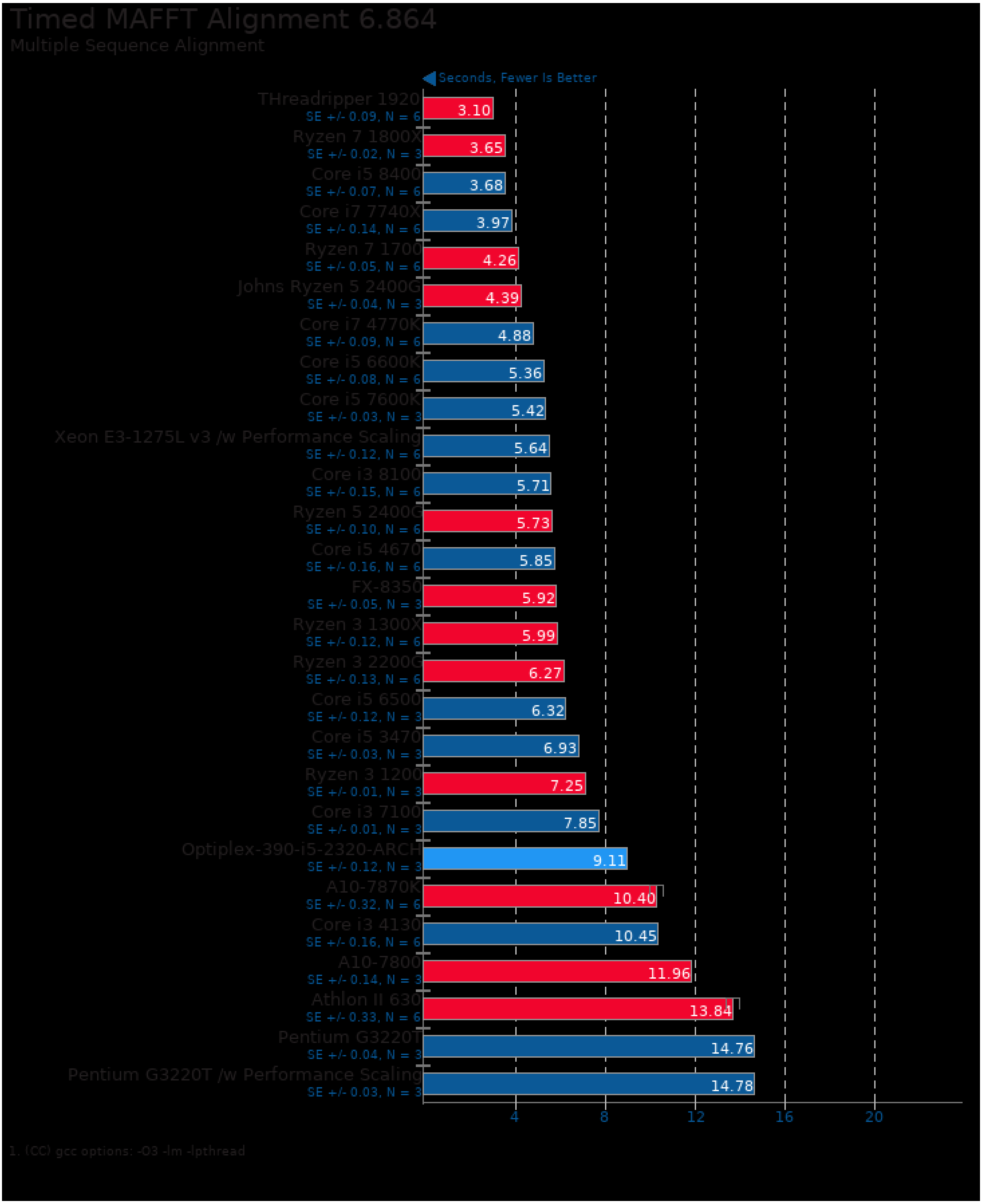
AMD Ryzen 3 2200G Linux CPU Benchmarks With Ryzen 5 2400G

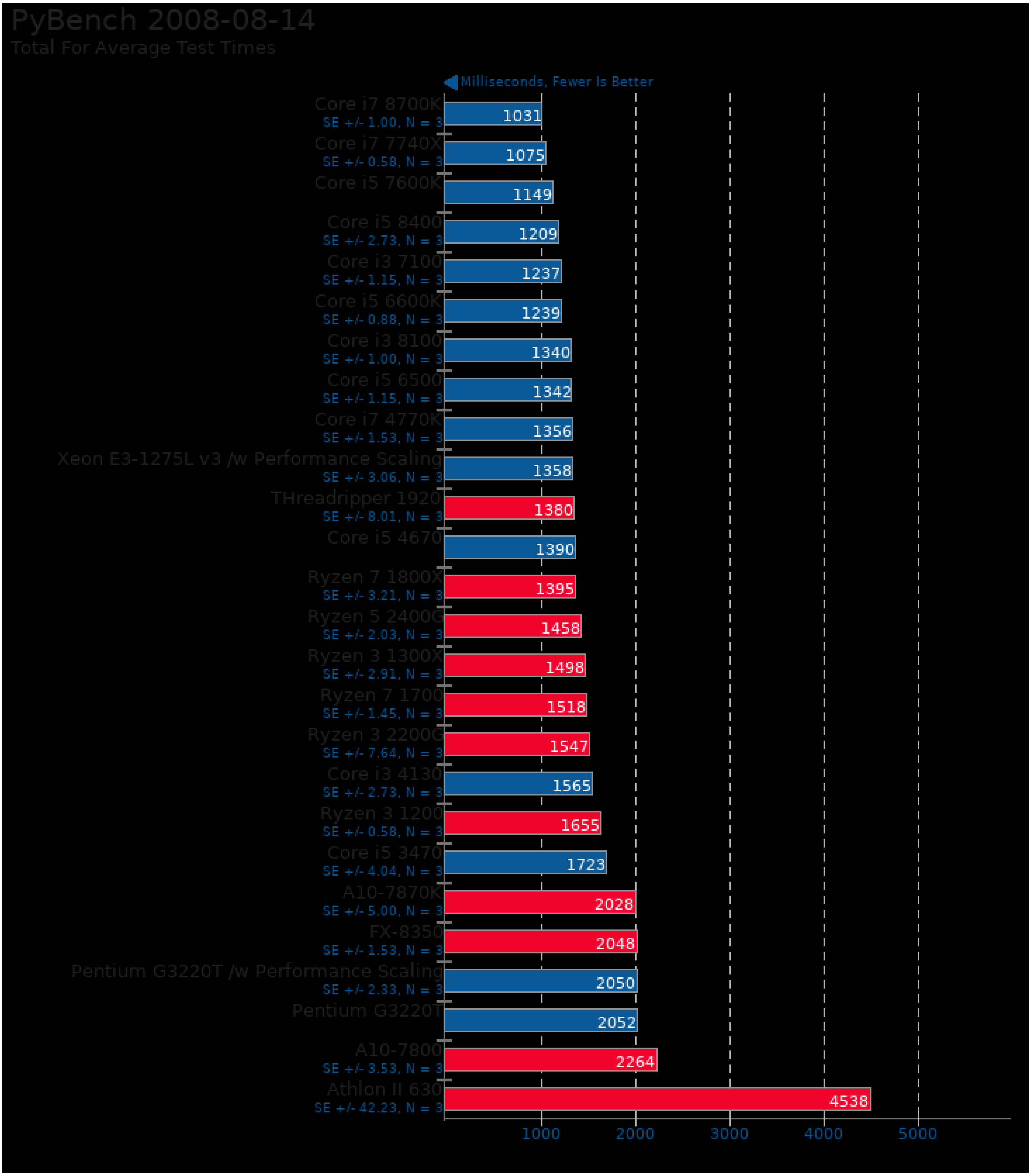


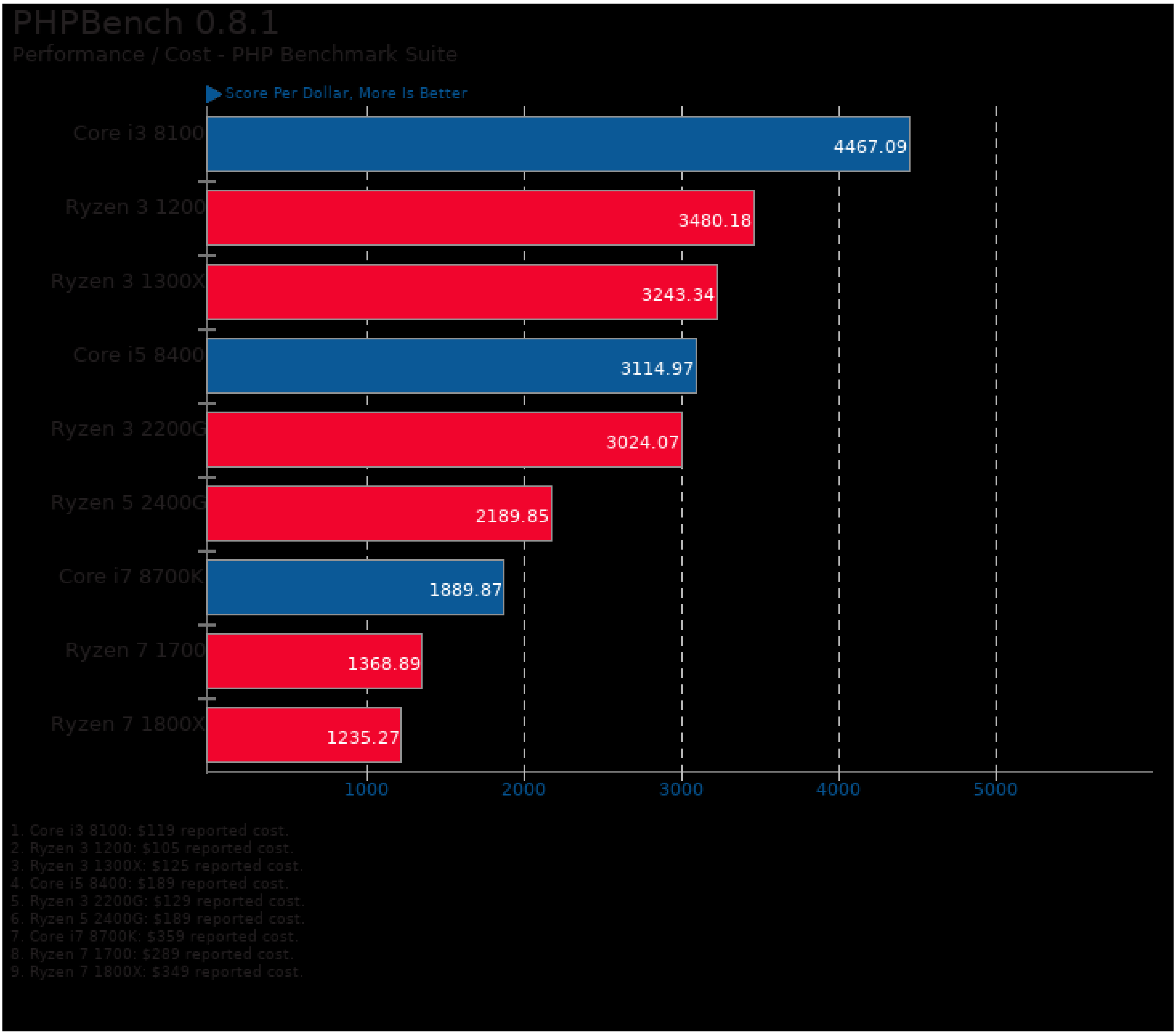
AMD Ryzen 3 2200G Linux CPU Benchmarks With Ryzen 5 2400G

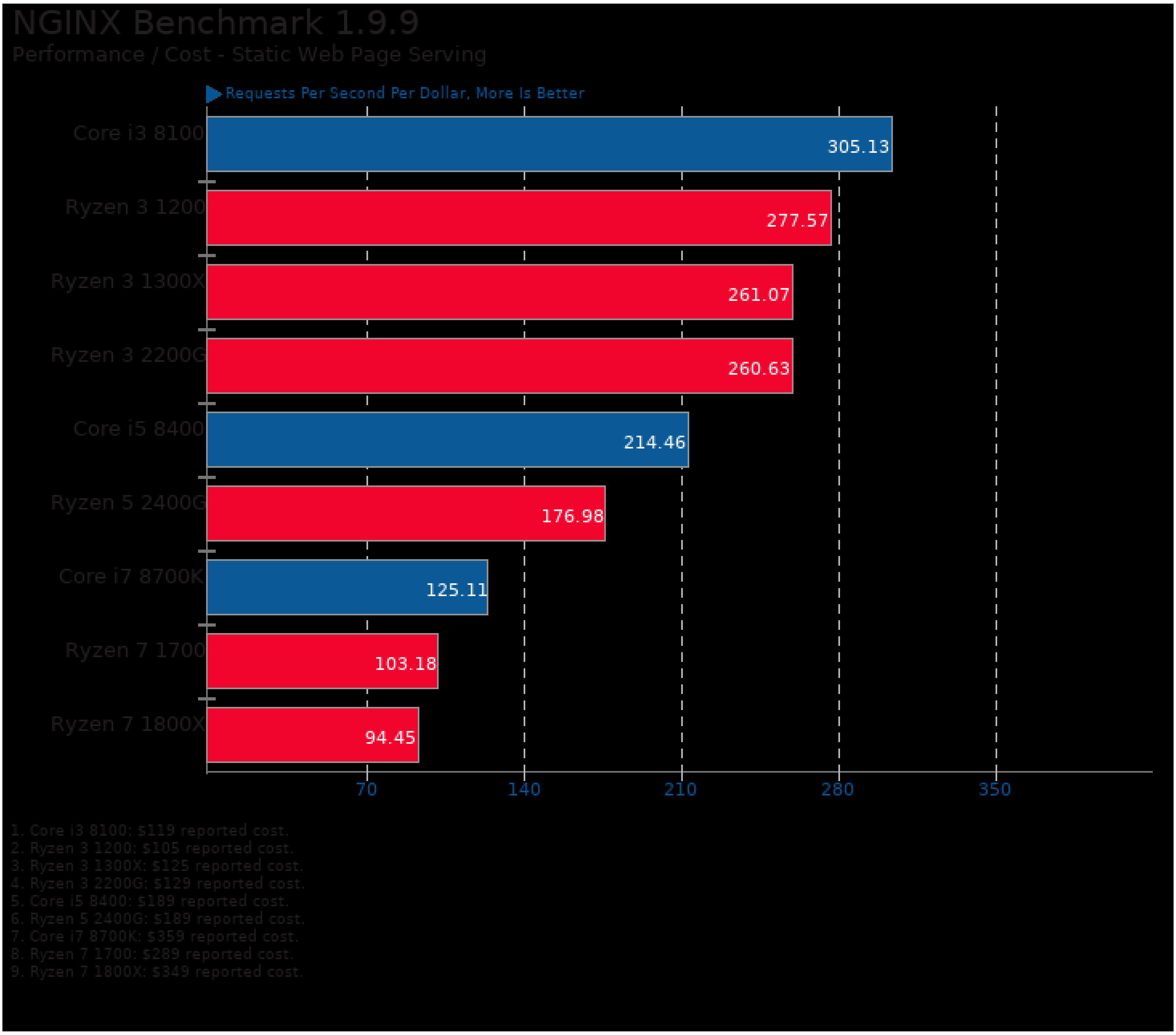


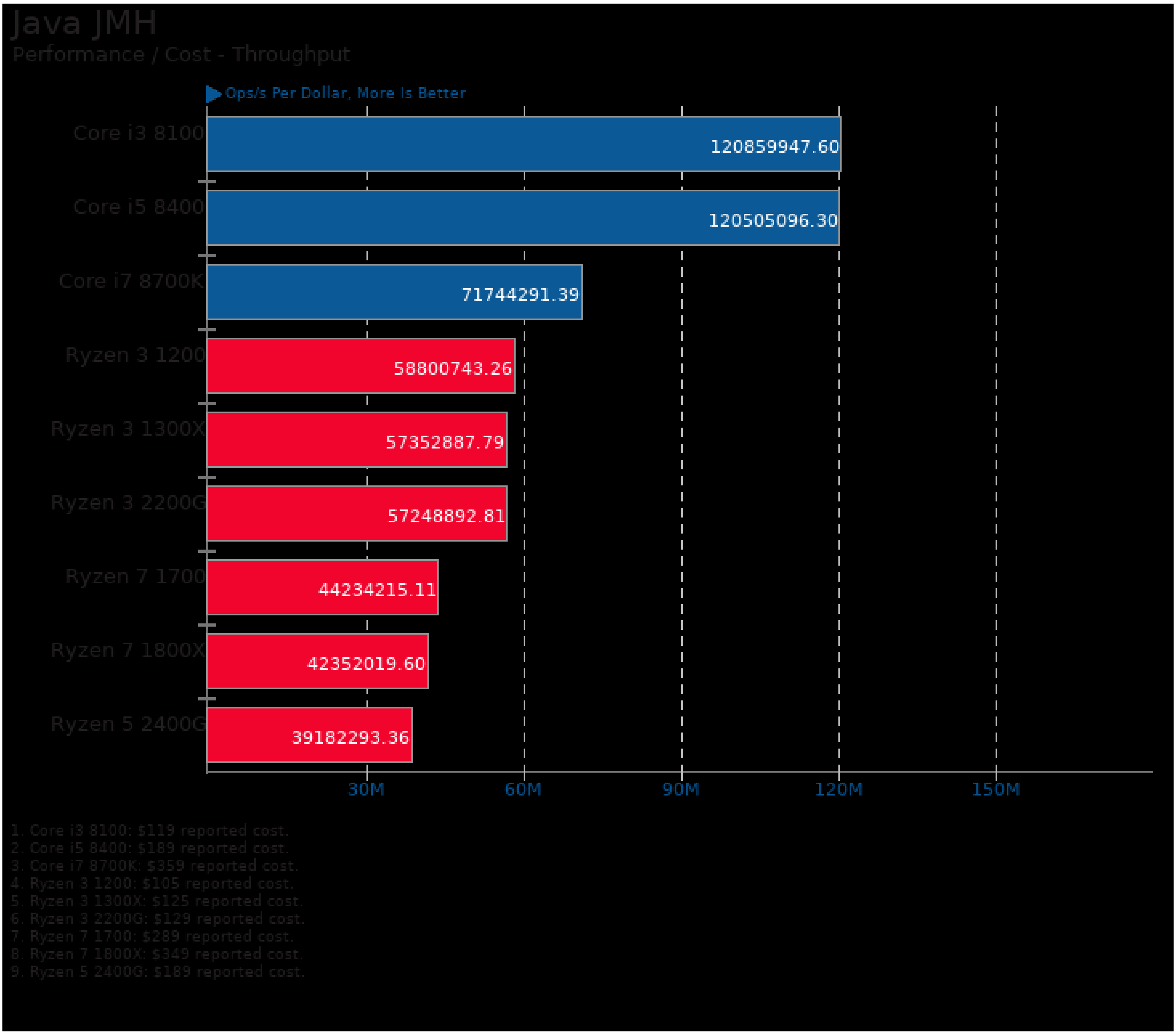

TTSIOD 3D Renderer 2.3a
Phong Rendering With Soft-Shadow Mapping
FPS, More Is Better
Core i7 8700K
SE +/- 0.60, N = 3
391.67
THreadripper 1920
SE +/- 0.34, N = 3
328.34
Ryzen 7 1800X
SE +/- 0.35, N = 3
312.22
Core i7 7740X
SE +/- 2.82, N = 3
277.43
Ryzen 7 1700
SE +/- 0.12, N = 3
274.64
Core i5 8400
SE +/- 0.18, N = 3
263.63
Johns Ryzen 5 2400G
SE +/- 0.50, N = 3
238.68
Ryzen 5 2400G
SE +/- 1.74, N = 3
211.60
Core i7 4770K
SE +/- 2.03, N = 3
204.31
Core i5 7600K
SE +/- 0.22, N = 3
187.90
Core i5 6600K
SE +/- 1.24, N = 3
184.72
Ryzen 3 2200G
SE +/- 0.83, N = 3
178.17
Core i3 8100
SE +/- 0.55, N = 3
168.27
Xeon E3-1275L v3 /w Performance Scaling
SE +/- 1.33, N = 3
162.89
Core i5 6500
SE +/- 0.11, N = 3
158.22
Core i5 4670
SE +/- 0.39, N = 3
155.77
FX-8350
SE +/- 0.85, N = 3
142.75
Ryzen 3 1300X
SE +/- 0.16, N = 3
134.97
Core i5 3470
SE +/- 1.47, N = 3
129.90
Ryzen 3 1200
SE +/- 0.49, N = 3
122.95
Core i3 7100
SE +/- 0.20, N = 3
121.69
Optiplex-390-i5-2320-ARCH
SE +/- 0.16, N = 3
117.85
A10-7870K
SE +/- 0.08, N = 3
82.93
Core i3 4130
SE +/- 0.38, N = 3
73.55
A10-7800
SE +/- 0.10, N = 3
67.42
Pentium G3220T /w Performance Scaling
SE +/- 0.29, N = 3
56.55
Pentium G3220T
SE +/- 0.30, N = 3
56.51
Athlon II 630
SE +/- 0.91, N = 6
52.15
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++

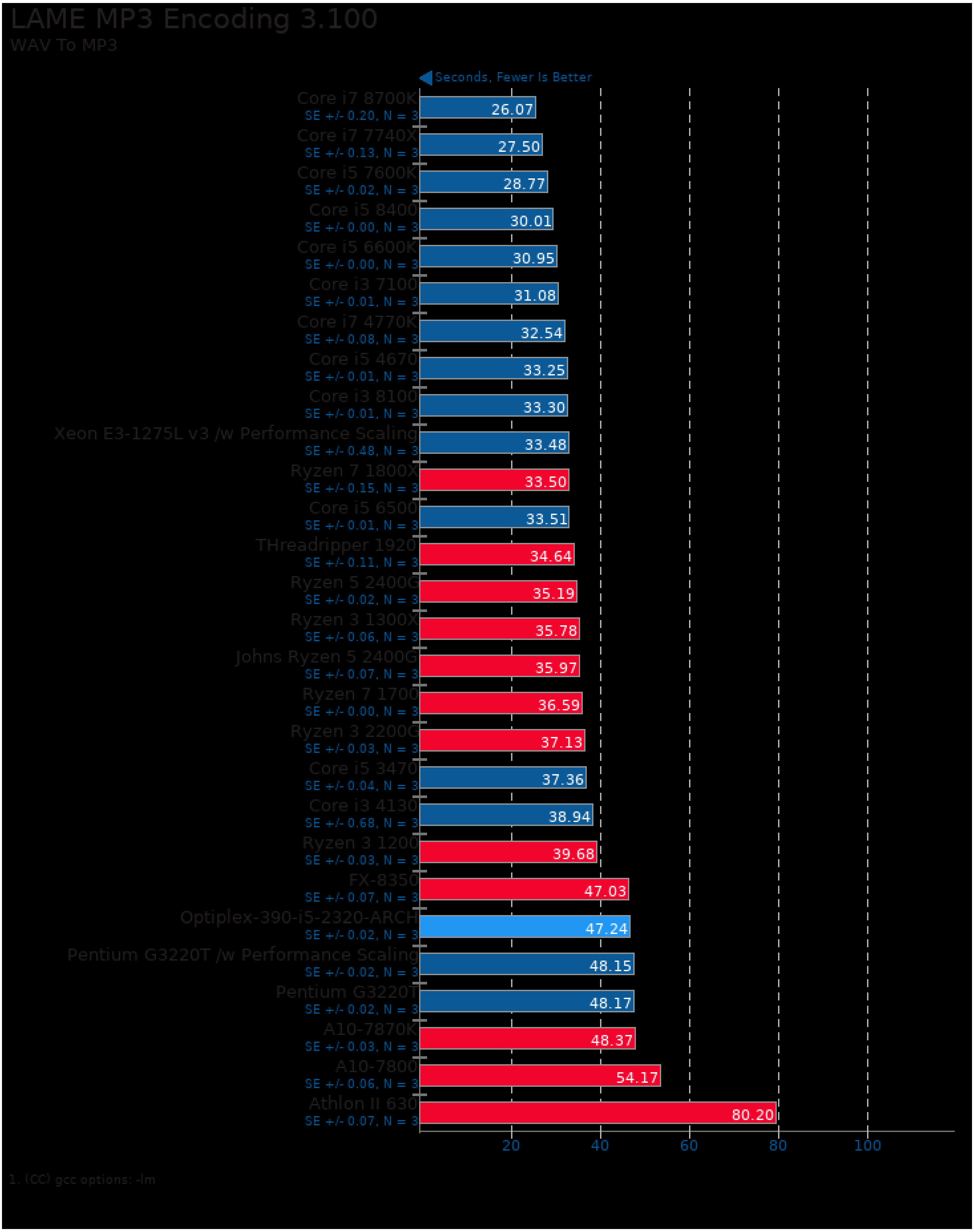

Timed MAFFT Alignment 6.864
Multiple Sequence Alignment
Seconds, Fewer Is Better
THreadripper 1920 — 3.10 — SE +/- 0.09, N = 6
Ryzen 7 1800X — 3.65 — SE +/- 0.02, N = 3
Core i5 8400 — 3.68 — SE +/- 0.07, N = 6
Core i7 7740X — 3.97 — SE +/- 0.14, N = 6
Ryzen 7 1700 — 4.26 — SE +/- 0.05, N = 6
Johns Ryzen 5 2400G — 4.39 — SE +/- 0.04, N = 3
Core i7 4770K — 4.88 — SE +/- 0.09, N = 6
Core i5 6600K — 5.36 — SE +/- 0.08, N = 6
Core i5 7600K — 5.42 — SE +/- 0.03, N = 3
Xeon E3-1275L v3 /w Performance Scaling — 5.64 — SE +/- 0.12, N = 6
Core i3 8100 — 5.71 — SE +/- 0.15, N = 6
Ryzen 5 2400G — 5.73 — SE +/- 0.10, N = 6
Core i5 4670 — 5.85 — SE +/- 0.16, N = 6
FX-8350 — 5.92 — SE +/- 0.05, N = 3
Ryzen 3 1300X — 5.99 — SE +/- 0.12, N = 6
Ryzen 3 2200G — 6.27 — SE +/- 0.13, N = 6
Core i5 6500 — 6.32 — SE +/- 0.12, N = 3
Core i5 3470 — 6.93 — SE +/- 0.03, N = 3
Ryzen 3 1200 — 7.25 — SE +/- 0.01, N = 3
Core i3 7100 — 7.85 — SE +/- 0.01, N = 3
Optiplex-390-i5-2320-ARCH — 9.11 — SE +/- 0.12, N = 3
A10-7870K — 10.40 — SE +/- 0.32, N = 6
Core i3 4130 — 10.45 — SE +/- 0.16, N = 6
A10-7800 — 11.96 — SE +/- 0.14, N = 3
Athlon II 630 — 13.84 — SE +/- 0.33, N = 6
Pentium G3220T — 14.76 — SE +/- 0.04, N = 3
Pentium G3220T /w Performance Scaling — 14.78 — SE +/- 0.03, N = 3
4
8
12
16
20
1. (CC) gcc options: -O3 -lm -lpthread

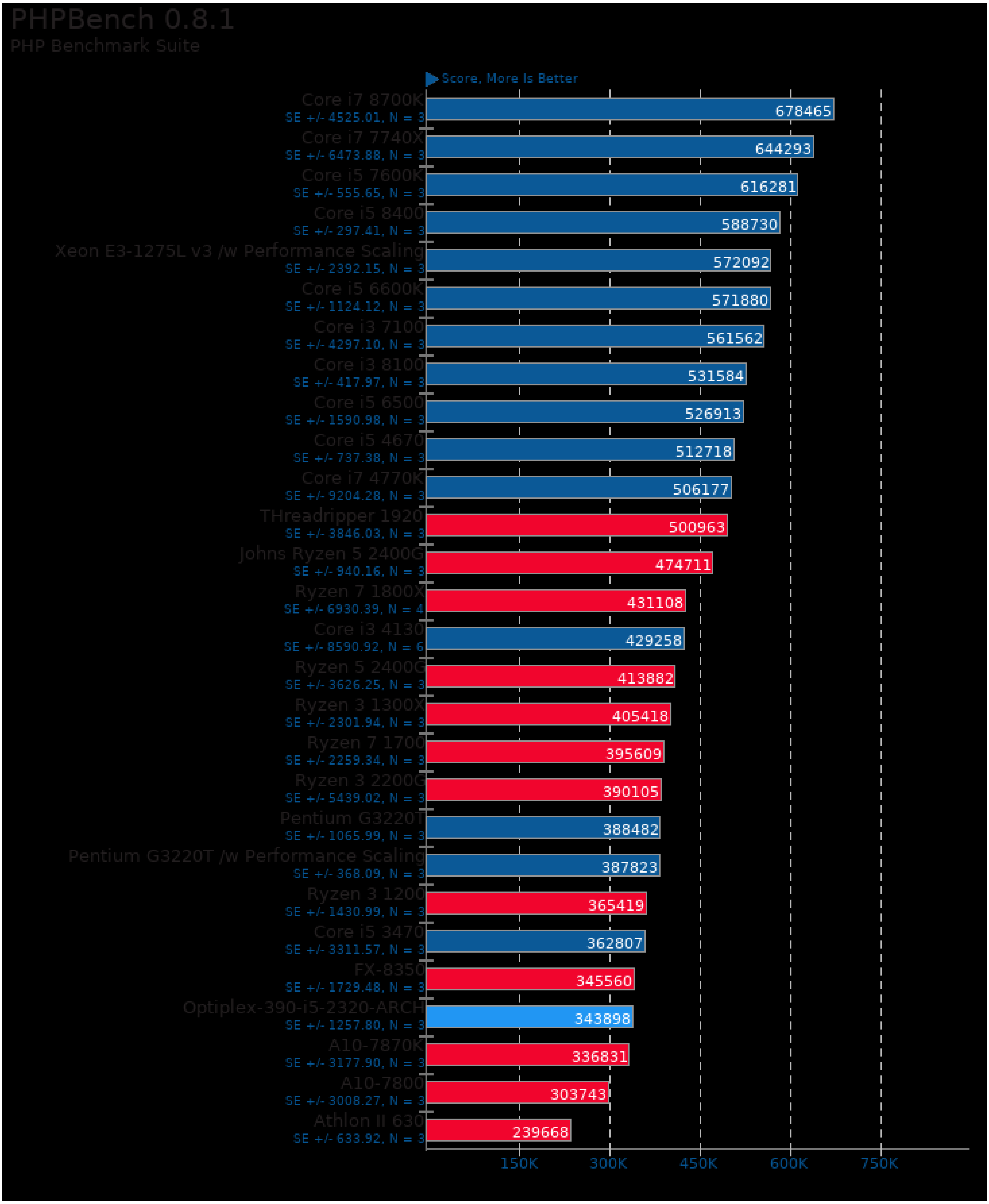

PyBench 2008-08-14
Total For Average Test Times
Milliseconds, Fewer Is Better
Core i7 8700K
SE +/- 1.00, N = 3
1031
Core i7 7740X
SE +/- 0.58, N = 3
1075
Core i5 7600K
1149
Core i5 8400
SE +/- 2.73, N = 3
1209
Core i3 7100
SE +/- 1.15, N = 3
1237
Core i5 6600K
SE +/- 0.88, N = 3
1239
Core i3 8100
SE +/- 1.00, N = 3
1340
Core i5 6500
SE +/- 1.15, N = 3
1342
Core i7 4770K
SE +/- 1.53, N = 3
1356
Xeon E3-1275L v3 /w Performance Scaling
SE +/- 3.06, N = 3
1358
THreadripper 1920
SE +/- 8.01, N = 3
1380
Core i5 4670
1390
Ryzen 7 1800X
SE +/- 3.21, N = 3
1395
Ryzen 5 2400G
SE +/- 2.03, N = 3
1458
Ryzen 3 1300X
SE +/- 2.91, N = 3
1498
Ryzen 7 1700
SE +/- 1.45, N = 3
1518
Ryzen 3 2200G
SE +/- 7.64, N = 3
1547
Core i3 4130
SE +/- 2.73, N = 3
1565
Ryzen 3 1200
SE +/- 0.58, N = 3
1655
Core i5 3470
SE +/- 4.04, N = 3
1723
A10-7870K
SE +/- 5.00, N = 3
2028
FX-8350
SE +/- 1.53, N = 3
2048
Pentium G3220T /w Performance Scaling
SE +/- 2.33, N = 3
2050
Pentium G3220T
2052
A10-7800
SE +/- 3.53, N = 3
2264
Athlon II 630
SE +/- 42.23, N = 3
4538
1000
2000
3000
4000
5000

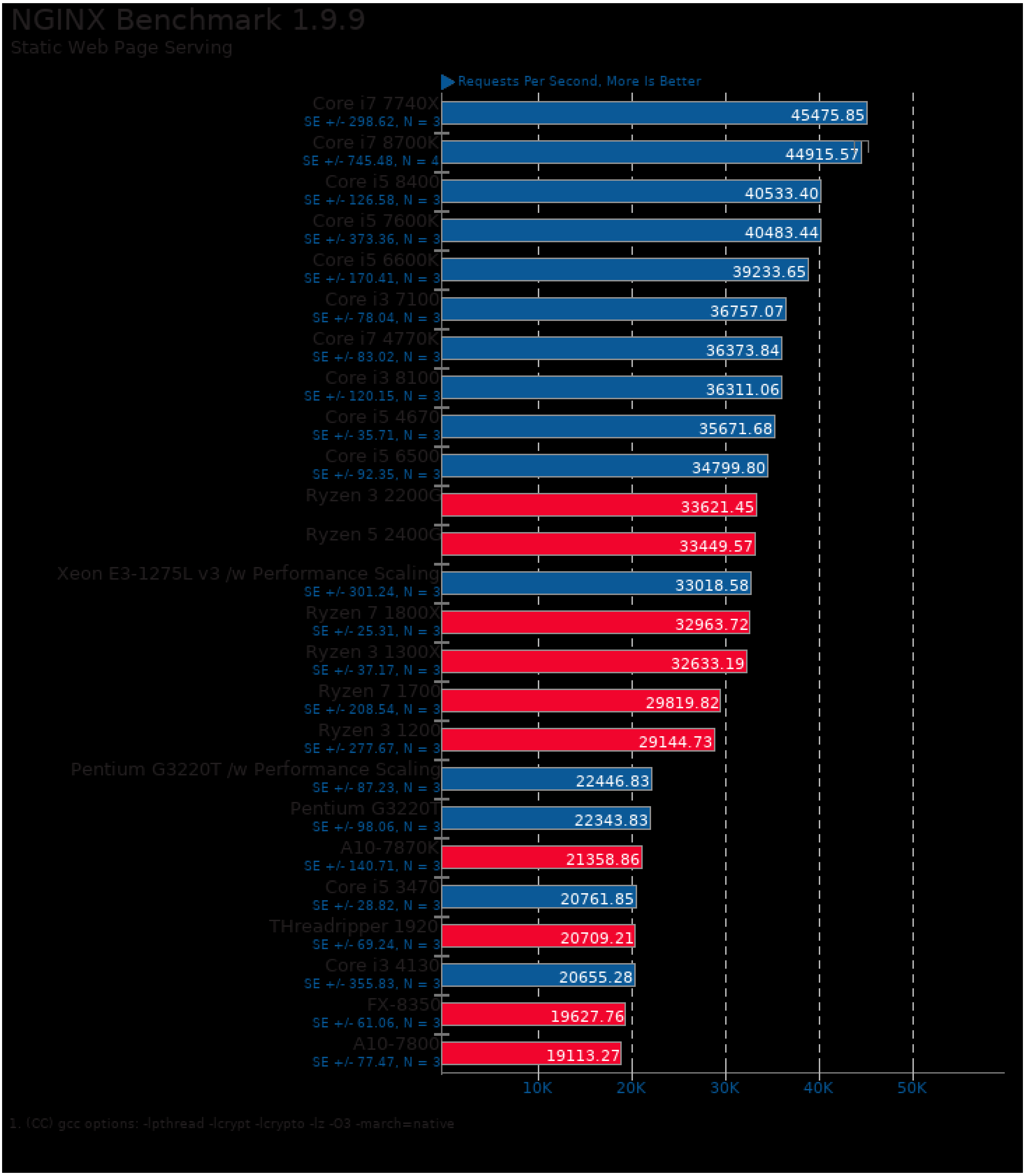

PHPBench 0.8.1
Performance / Cost - PHP Benchmark Suite
Score Per Dollar, More Is Better
Core i3 8100
4467.09
Ryzen 3 1200
3480.18
Ryzen 3 1300X
3243.34
Core i5 8400
3114.97
Ryzen 3 2200G
3024.07
Ryzen 5 2400G
2189.85
Core i7 8700K
1889.87
Ryzen 7 1700
1368.89
Ryzen 7 1800X
1235.27
1000
2000
3000
4000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

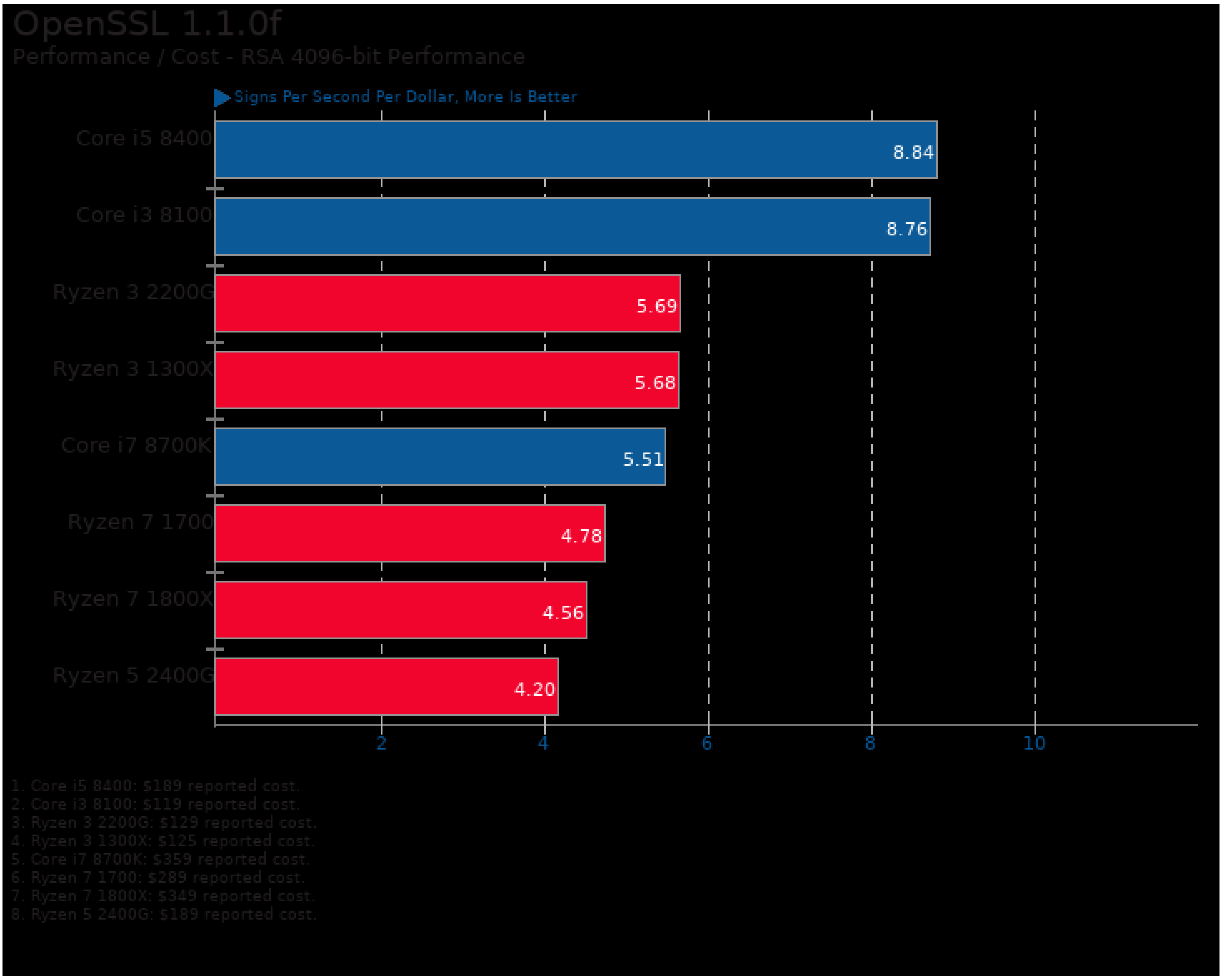

NGINX Benchmark 1.9.9
Performance / Cost - Static Web Page Serving
Requests Per Second Per Dollar, More Is Better
Core i3 8100
305.13
Ryzen 3 1200
277.57
Ryzen 3 1300X
261.07
Ryzen 3 2200G
260.63
Core i5 8400
214.46
Ryzen 5 2400G
176.98
Core i7 8700K
125.11
Ryzen 7 1700
103.18
Ryzen 7 1800X
94.45
70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

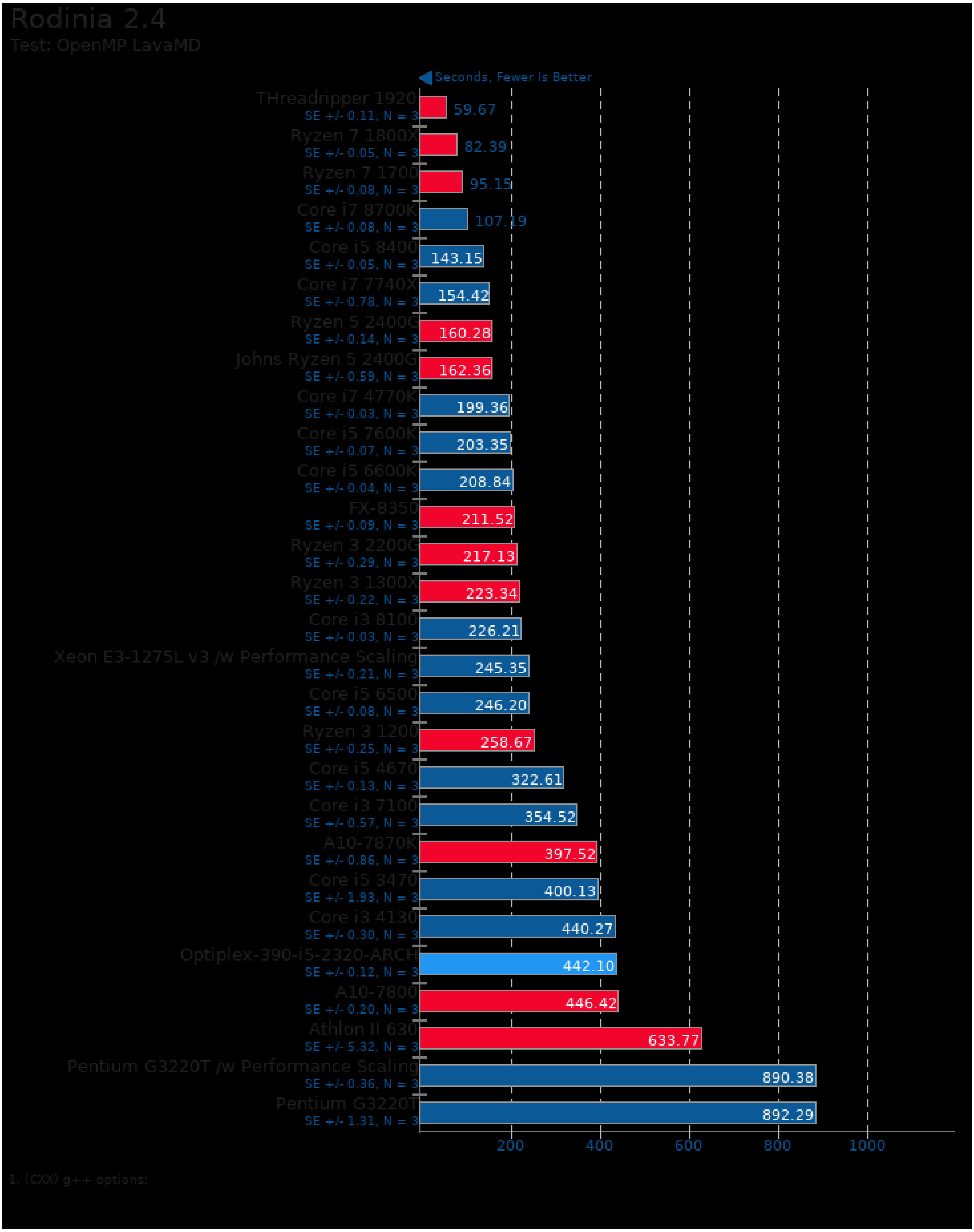

Java JMH
Performance / Cost - Throughput
Ops/s Per Dollar, More Is Better
Core i3 8100
120859947.60
Core i5 8400
120505096.30
Core i7 8700K
71744291.39
Ryzen 3 1200
58800743.26
Ryzen 3 1300X
57352887.79
Ryzen 3 2200G
57248892.81
Ryzen 7 1700
44234215.11
Ryzen 7 1800X
42352019.60
Ryzen 5 2400G
39182293.36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

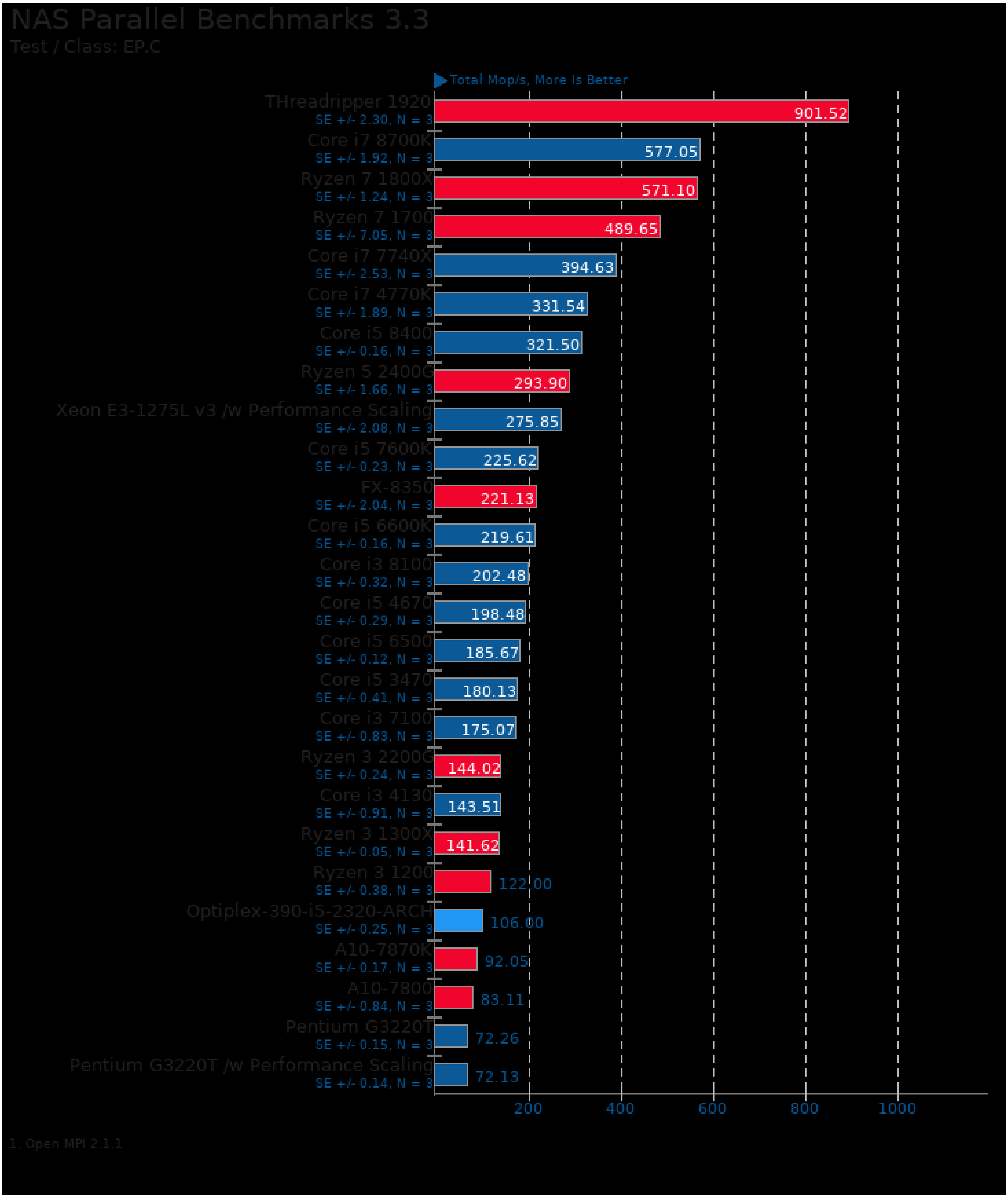

LAME MP3 Encoding 3.100
WAV To MP3
Seconds, Fewer Is Better
Core i7 8700K
SE +/- 0.20, N = 3
26.07
Core i7 7740X
SE +/- 0.13, N = 3
27.50
Core i5 7600K
SE +/- 0.02, N = 3
28.77
Core i5 8400
SE +/- 0.00, N = 3
30.01
Core i5 6600K
SE +/- 0.00, N = 3
30.95
Core i3 7100
SE +/- 0.01, N = 3
31.08
Core i7 4770K
SE +/- 0.08, N = 3
32.54
Core i5 4670
SE +/- 0.01, N = 3
33.25
Core i3 8100
SE +/- 0.01, N = 3
33.30
Xeon E3-1275L v3 /w Performance Scaling
SE +/- 0.48, N = 3
33.48
Ryzen 7 1800X
SE +/- 0.15, N = 3
33.50
Core i5 6500
SE +/- 0.01, N = 3
33.51
THreadripper 1920
SE +/- 0.11, N = 3
34.64
Ryzen 5 2400G
SE +/- 0.02, N = 3
35.19
Ryzen 3 1300X
SE +/- 0.06, N = 3
35.78
Johns Ryzen 5 2400G
SE +/- 0.07, N = 3
35.97
Ryzen 7 1700
SE +/- 0.00, N = 3
36.59
Ryzen 3 2200G
SE +/- 0.03, N = 3
37.13
Core i5 3470
SE +/- 0.04, N = 3
37.36
Core i3 4130
SE +/- 0.68, N = 3
38.94
Ryzen 3 1200
SE +/- 0.03, N = 3
39.68
FX-8350
SE +/- 0.07, N = 3
47.03
Optiplex-390-i5-2320-ARCH
SE +/- 0.02, N = 3
47.24
Pentium G3220T /w Performance Scaling
SE +/- 0.02, N = 3
48.15
Pentium G3220T
SE +/- 0.02, N = 3
48.17
A10-7870K
SE +/- 0.03, N = 3
48.37
A10-7800
SE +/- 0.06, N = 3
54.17
Athlon II 630
SE +/- 0.07, N = 3
80.20
20
40
60
80
100
1. (CC) gcc options: -lm

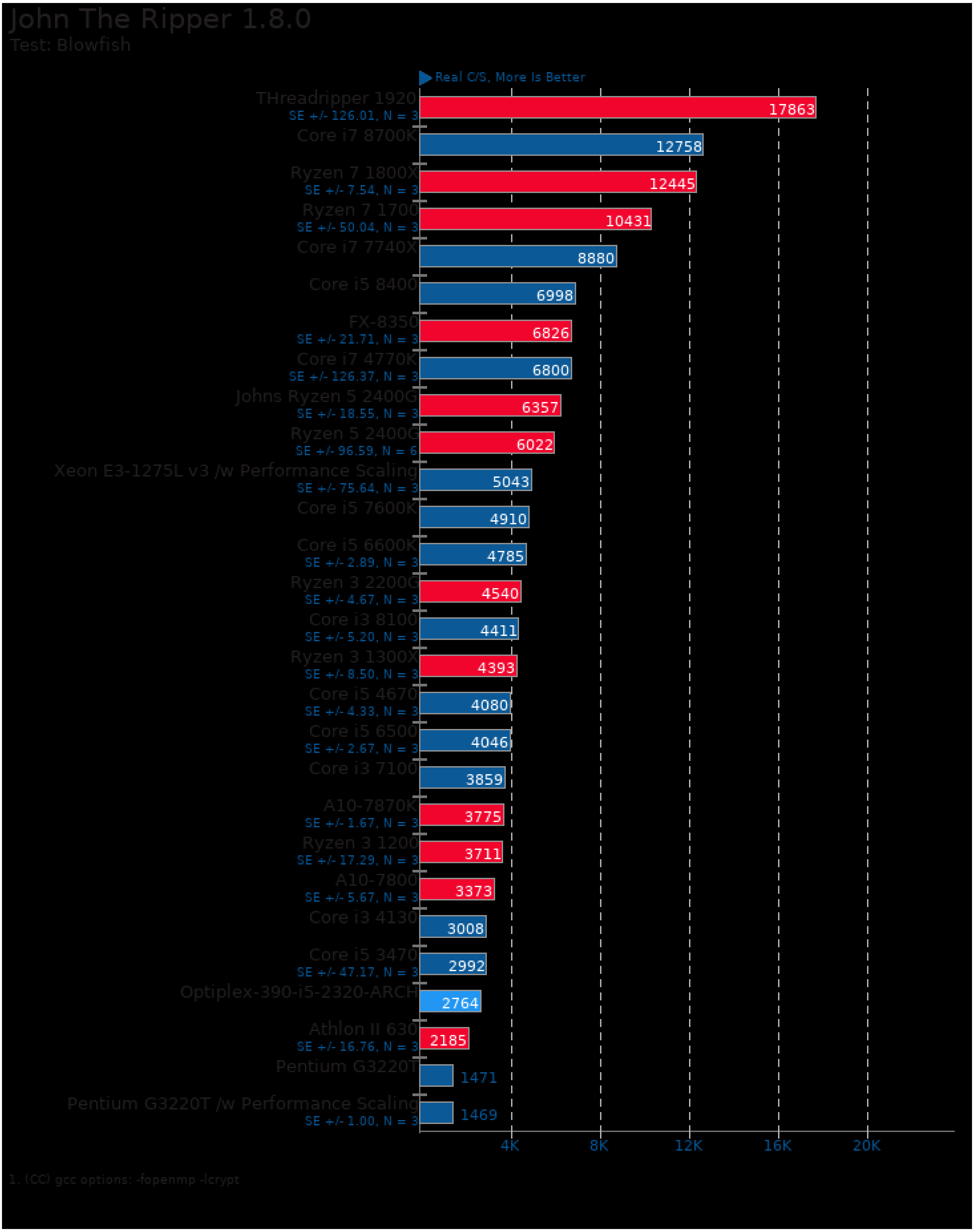

PHPBench 0.8.1
PHP Benchmark Suite
Score, More Is Better
Core i7 8700K
SE +/- 4525.01, N = 3
678465
Core i7 7740X
SE +/- 6473.88, N = 3
644293
Core i5 7600K
SE +/- 555.65, N = 3
616281
Core i5 8400
SE +/- 297.41, N = 3
588730
Xeon E3-1275L v3 /w Performance Scaling
SE +/- 2392.15, N = 3
572092
Core i5 6600K
SE +/- 1124.12, N = 3
571880
Core i3 7100
SE +/- 4297.10, N = 3
561562
Core i3 8100
SE +/- 417.97, N = 3
531584
Core i5 6500
SE +/- 1590.98, N = 3
526913
Core i5 4670
SE +/- 737.38, N = 3
512718
Core i7 4770K
SE +/- 9204.28, N = 3
506177
THreadripper 1920
SE +/- 3846.03, N = 3
500963
Johns Ryzen 5 2400G
SE +/- 940.16, N = 3
474711
Ryzen 7 1800X
SE +/- 6930.39, N = 4
431108
Core i3 4130
SE +/- 8590.92, N = 6
429258
Ryzen 5 2400G
SE +/- 3626.25, N = 3
413882
Ryzen 3 1300X
SE +/- 2301.94, N = 3
405418
Ryzen 7 1700
SE +/- 2259.34, N = 3
395609
Ryzen 3 2200G
SE +/- 5439.02, N = 3
390105
Pentium G3220T
SE +/- 1065.99, N = 3
388482
Pentium G3220T /w Performance Scaling
SE +/- 368.09, N = 3
387823
Ryzen 3 1200
SE +/- 1430.99, N = 3
365419
Core i5 3470
SE +/- 3311.57, N = 3
362807
FX-8350
SE +/- 1729.48, N = 3
345560
Optiplex-390-i5-2320-ARCH
SE +/- 1257.80, N = 3
343898
A10-7870K
SE +/- 3177.90, N = 3
336831
A10-7800
SE +/- 3008.27, N = 3
303743
Athlon II 630
SE +/- 633.92, N = 3
239668
150K
300K
450K
600K
750K

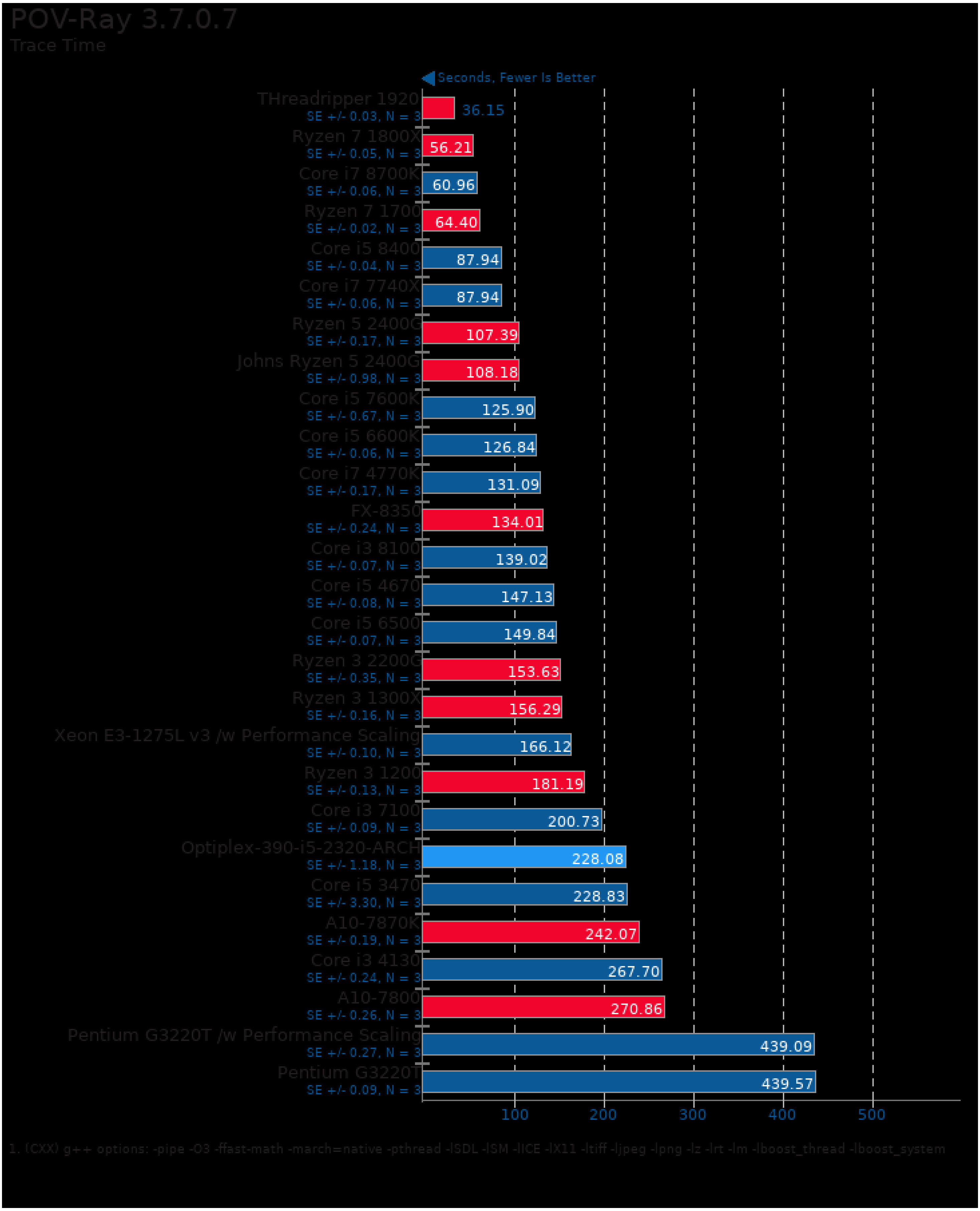

NGINX Benchmark 1.9.9
Static Web Page Serving
Requests Per Second, More Is Better
Core i7 7740X
SE +/- 298.62, N = 3
45475.85
Core i7 8700K
SE +/- 745.48, N = 4
44915.57
Core i5 8400
SE +/- 126.58, N = 3
40533.40
Core i5 7600K
SE +/- 373.36, N = 3
40483.44
Core i5 6600K
SE +/- 170.41, N = 3
39233.65
Core i3 7100
SE +/- 78.04, N = 3
36757.07
Core i7 4770K
SE +/- 83.02, N = 3
36373.84
Core i3 8100
SE +/- 120.15, N = 3
36311.06
Core i5 4670
SE +/- 35.71, N = 3
35671.68
Core i5 6500
SE +/- 92.35, N = 3
34799.80
Ryzen 3 2200G
33621.45
Ryzen 5 2400G
33449.57
Xeon E3-1275L v3 /w Performance Scaling
SE +/- 301.24, N = 3
33018.58
Ryzen 7 1800X
SE +/- 25.31, N = 3
32963.72
Ryzen 3 1300X
SE +/- 37.17, N = 3
32633.19
Ryzen 7 1700
SE +/- 208.54, N = 3
29819.82
Ryzen 3 1200
SE +/- 277.67, N = 3
29144.73
Pentium G3220T /w Performance Scaling
SE +/- 87.23, N = 3
22446.83
Pentium G3220T
SE +/- 98.06, N = 3
22343.83
A10-7870K
SE +/- 140.71, N = 3
21358.86
Core i5 3470
SE +/- 28.82, N = 3
20761.85
THreadripper 1920
SE +/- 69.24, N = 3
20709.21
Core i3 4130
SE +/- 355.83, N = 3
20655.28
FX-8350
SE +/- 61.06, N = 3
19627.76
A10-7800
SE +/- 77.47, N = 3
19113.27
10K
20K
30K
40K
50K
1. (CC) gcc options: -lpthread -lcrypt -lcrypto -lz -O3 -march=native


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

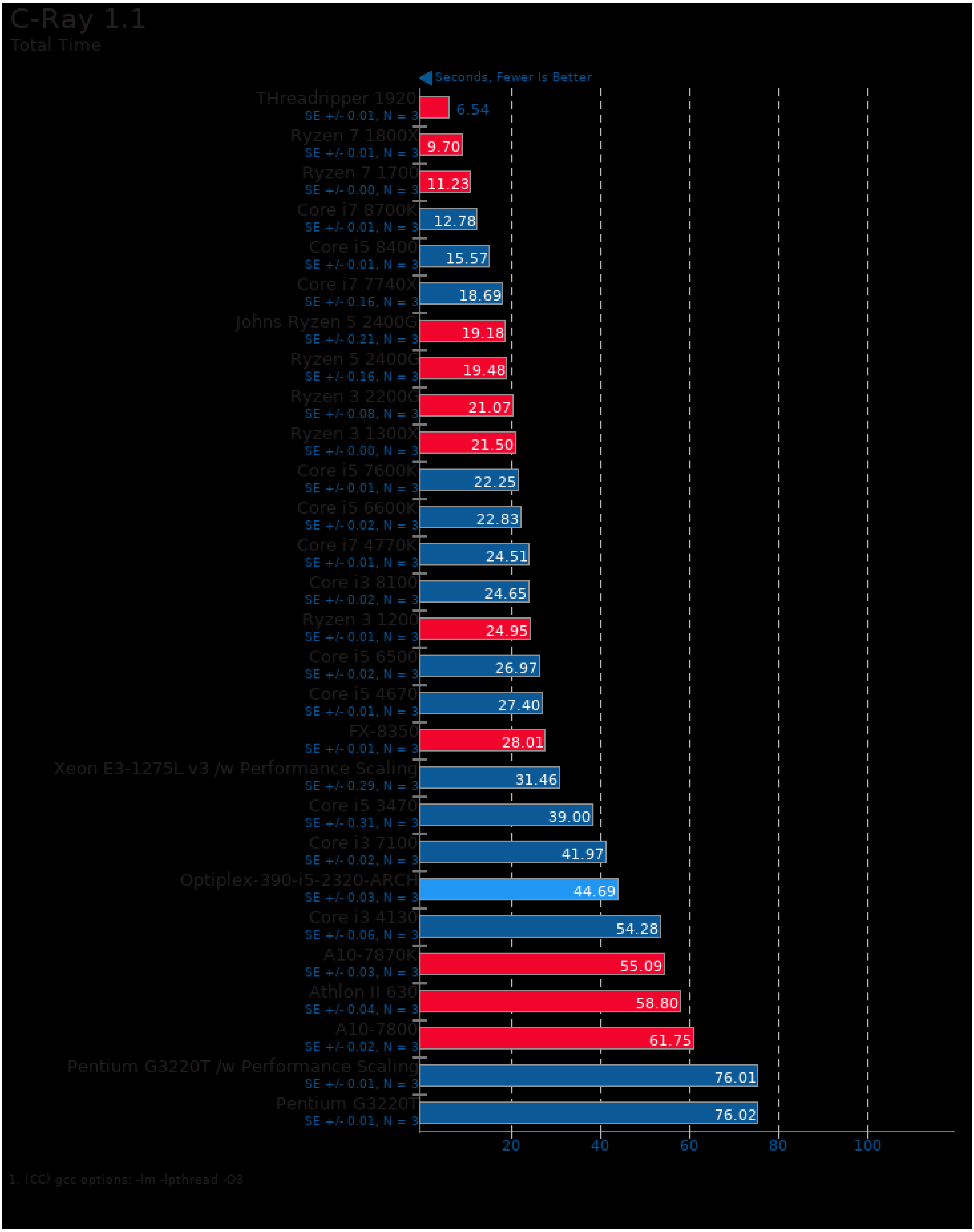

Rodinia 2.4
Test: OpenMP LavaMD
Seconds, Fewer Is Better
THreadripper 1920
SE +/- 0.11, N = 3
59.67
Ryzen 7 1800X
SE +/- 0.05, N = 3
82.39
Ryzen 7 1700
SE +/- 0.08, N = 3
95.15
Core i7 8700K
SE +/- 0.08, N = 3
107.19
Core i5 8400
SE +/- 0.05, N = 3
143.15
Core i7 7740X
SE +/- 0.78, N = 3
154.42
Ryzen 5 2400G
SE +/- 0.14, N = 3
160.28
Johns Ryzen 5 2400G
SE +/- 0.59, N = 3
162.36
Core i7 4770K
SE +/- 0.03, N = 3
199.36
Core i5 7600K
SE +/- 0.07, N = 3
203.35
Core i5 6600K
SE +/- 0.04, N = 3
208.84
FX-8350
SE +/- 0.09, N = 3
211.52
Ryzen 3 2200G
SE +/- 0.29, N = 3
217.13
Ryzen 3 1300X
SE +/- 0.22, N = 3
223.34
Core i3 8100
SE +/- 0.03, N = 3
226.21
Xeon E3-1275L v3 /w Performance Scaling
SE +/- 0.21, N = 3
245.35
Core i5 6500
SE +/- 0.08, N = 3
246.20
Ryzen 3 1200
SE +/- 0.25, N = 3
258.67
Core i5 4670
SE +/- 0.13, N = 3
322.61
Core i3 7100
SE +/- 0.57, N = 3
354.52
A10-7870K
SE +/- 0.86, N = 3
397.52
Core i5 3470
SE +/- 1.93, N = 3
400.13
Core i3 4130
SE +/- 0.30, N = 3
440.27
Optiplex-390-i5-2320-ARCH
SE +/- 0.12, N = 3
442.10
A10-7800
SE +/- 0.20, N = 3
446.42
Athlon II 630
SE +/- 5.32, N = 3
633.77
Pentium G3220T /w Performance Scaling
SE +/- 0.36, N = 3
890.38
Pentium G3220T
SE +/- 1.31, N = 3
892.29
200
400
600
800
1000
1. (CXX) g++ options:

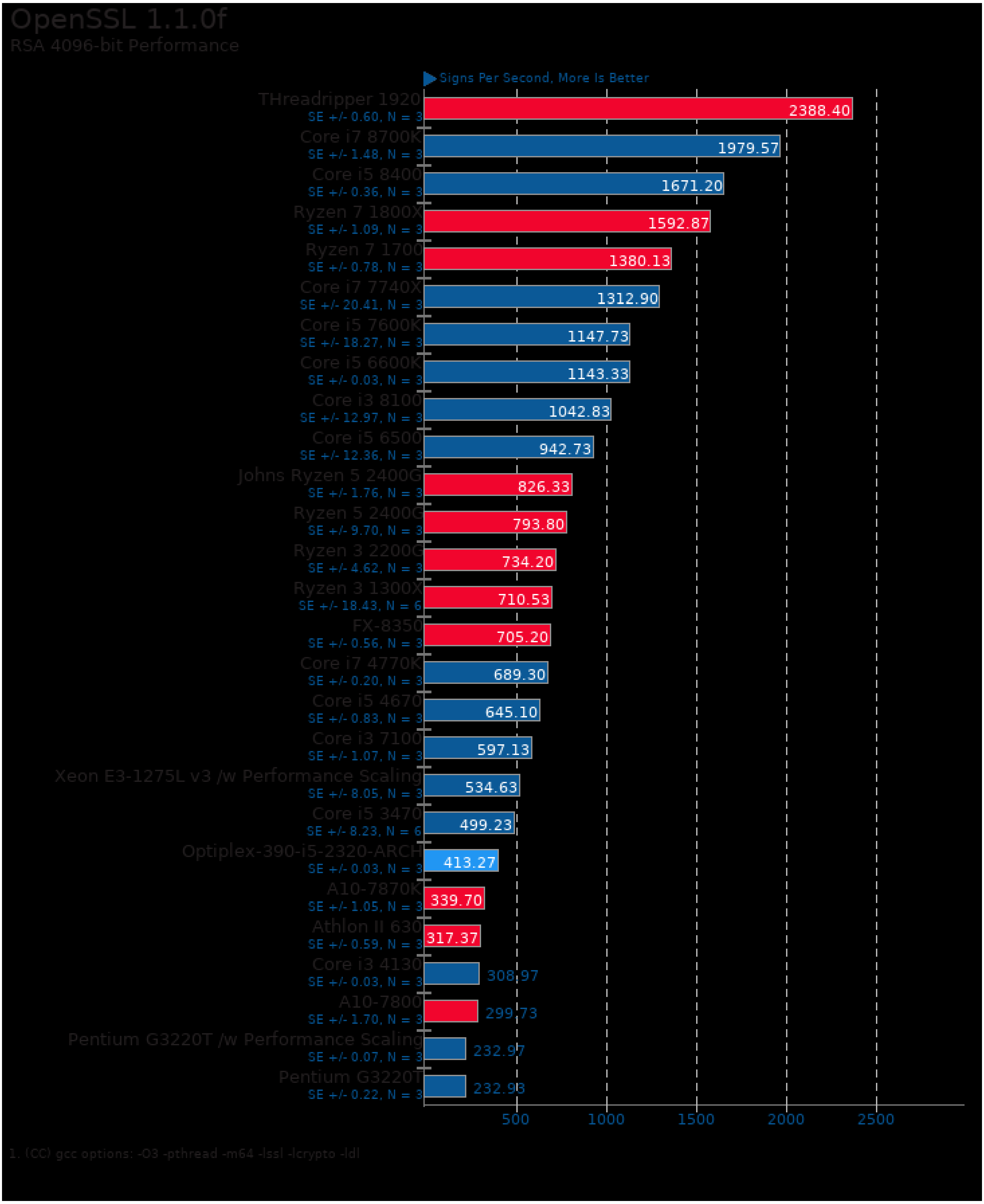

NAS Parallel Benchmarks 3.3
Test / Class: EP.C
Total Mop/s, More Is Better
THreadripper 1920
SE +/- 2.30, N = 3
901.52
Core i7 8700K
SE +/- 1.92, N = 3
577.05
Ryzen 7 1800X
SE +/- 1.24, N = 3
571.10
Ryzen 7 1700
SE +/- 7.05, N = 3
489.65
Core i7 7740X
SE +/- 2.53, N = 3
394.63
Core i7 4770K
SE +/- 1.89, N = 3
331.54
Core i5 8400
SE +/- 0.16, N = 3
321.50
Ryzen 5 2400G
SE +/- 1.66, N = 3
293.90
Xeon E3-1275L v3 /w Performance Scaling
SE +/- 2.08, N = 3
275.85
Core i5 7600K
SE +/- 0.23, N = 3
225.62
FX-8350
SE +/- 2.04, N = 3
221.13
Core i5 6600K
SE +/- 0.16, N = 3
219.61
Core i3 8100
SE +/- 0.32, N = 3
202.48
Core i5 4670
SE +/- 0.29, N = 3
198.48
Core i5 6500
SE +/- 0.12, N = 3
185.67
Core i5 3470
SE +/- 0.41, N = 3
180.13
Core i3 7100
SE +/- 0.83, N = 3
175.07
Ryzen 3 2200G
SE +/- 0.24, N = 3
144.02
Core i3 4130
SE +/- 0.91, N = 3
143.51
Ryzen 3 1300X
SE +/- 0.05, N = 3
141.62
Ryzen 3 1200
SE +/- 0.38, N = 3
122.00
Optiplex-390-i5-2320-ARCH
SE +/- 0.25, N = 3
106.00
A10-7870K
SE +/- 0.17, N = 3
92.05
A10-7800
SE +/- 0.84, N = 3
83.11
Pentium G3220T
SE +/- 0.15, N = 3
72.26
Pentium G3220T /w Performance Scaling
SE +/- 0.14, N = 3
72.13
200
400
600
800
1000
1. Open MPI 2.1.1

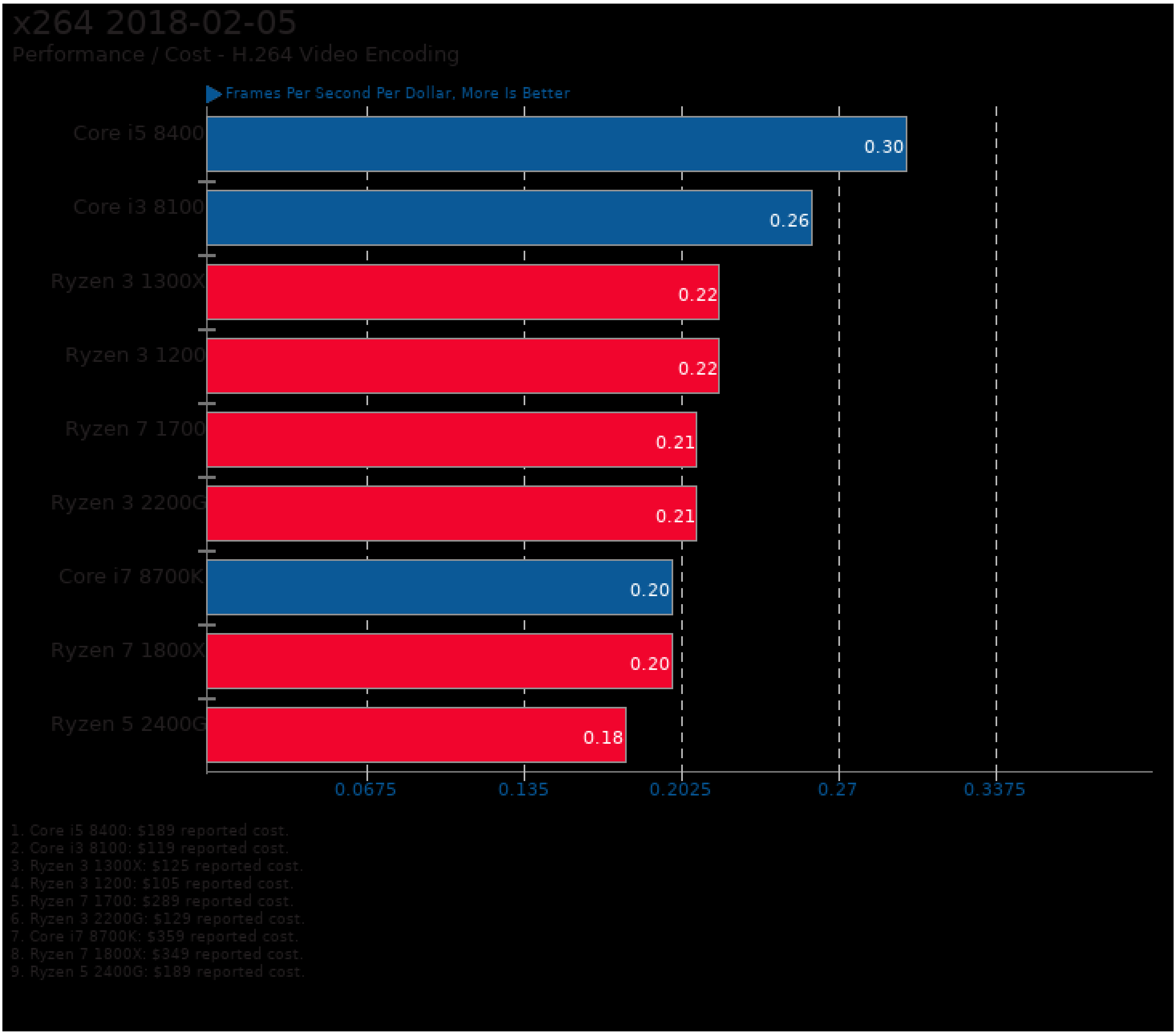

John The Ripper 1.8.0
Test: Blowfish
Real C/S, More Is Better
THreadripper 1920
SE +/- 126.01, N = 3
17863
Core i7 8700K
12758
Ryzen 7 1800X
SE +/- 7.54, N = 3
12445
Ryzen 7 1700
SE +/- 50.04, N = 3
10431
Core i7 7740X
8880
Core i5 8400
6998
FX-8350
SE +/- 21.71, N = 3
6826
Core i7 4770K
SE +/- 126.37, N = 3
6800
Johns Ryzen 5 2400G
SE +/- 18.55, N = 3
6357
Ryzen 5 2400G
SE +/- 96.59, N = 6
6022
Xeon E3-1275L v3 /w Performance Scaling
SE +/- 75.64, N = 3
5043
Core i5 7600K
4910
Core i5 6600K
SE +/- 2.89, N = 3
4785
Ryzen 3 2200G
SE +/- 4.67, N = 3
4540
Core i3 8100
SE +/- 5.20, N = 3
4411
Ryzen 3 1300X
SE +/- 8.50, N = 3
4393
Core i5 4670
SE +/- 4.33, N = 3
4080
Core i5 6500
SE +/- 2.67, N = 3
4046
Core i3 7100
3859
A10-7870K
SE +/- 1.67, N = 3
3775
Ryzen 3 1200
SE +/- 17.29, N = 3
3711
A10-7800
SE +/- 5.67, N = 3
3373
Core i3 4130
3008
Core i5 3470
SE +/- 47.17, N = 3
2992
Optiplex-390-i5-2320-ARCH
2764
Athlon II 630
SE +/- 16.76, N = 3
2185
Pentium G3220T
1471
Pentium G3220T /w Performance Scaling
SE +/- 1.00, N = 3
1469
4K
8K
12K
16K
20K
1. (CC) gcc options: -fopenmp -lcrypt

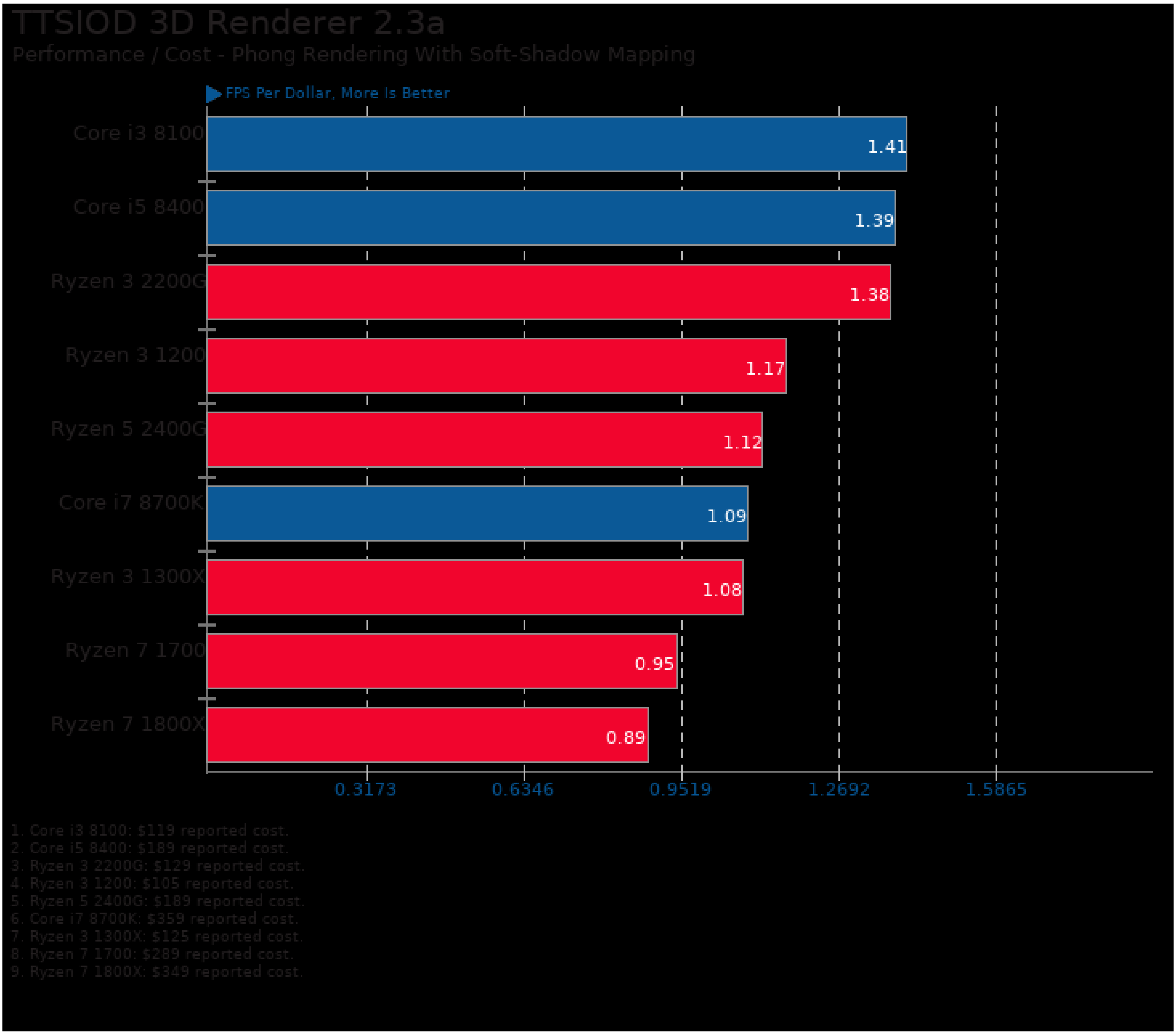

POV-Ray 3.7.0.7
Trace Time
Seconds, Fewer Is Better
THreadripper 1920
SE +/- 0.03, N = 3
36.15
Ryzen 7 1800X
SE +/- 0.05, N = 3
56.21
Core i7 8700K
SE +/- 0.06, N = 3
60.96
Ryzen 7 1700
SE +/- 0.02, N = 3
64.40
Core i5 8400
SE +/- 0.04, N = 3
87.94
Core i7 7740X
SE +/- 0.06, N = 3
87.94
Ryzen 5 2400G
SE +/- 0.17, N = 3
107.39
Johns Ryzen 5 2400G
SE +/- 0.98, N = 3
108.18
Core i5 7600K
SE +/- 0.67, N = 3
125.90
Core i5 6600K
SE +/- 0.06, N = 3
126.84
Core i7 4770K
SE +/- 0.17, N = 3
131.09
FX-8350
SE +/- 0.24, N = 3
134.01
Core i3 8100
SE +/- 0.07, N = 3
139.02
Core i5 4670
SE +/- 0.08, N = 3
147.13
Core i5 6500
SE +/- 0.07, N = 3
149.84
Ryzen 3 2200G
SE +/- 0.35, N = 3
153.63
Ryzen 3 1300X
SE +/- 0.16, N = 3
156.29
Xeon E3-1275L v3 /w Performance Scaling
SE +/- 0.10, N = 3
166.12
Ryzen 3 1200
SE +/- 0.13, N = 3
181.19
Core i3 7100
SE +/- 0.09, N = 3
200.73
Optiplex-390-i5-2320-ARCH
SE +/- 1.18, N = 3
228.08
Core i5 3470
SE +/- 3.30, N = 3
228.83
A10-7870K
SE +/- 0.19, N = 3
242.07
Core i3 4130
SE +/- 0.24, N = 3
267.70
A10-7800
SE +/- 0.26, N = 3
270.86
Pentium G3220T /w Performance Scaling
SE +/- 0.27, N = 3
439.09
Pentium G3220T
SE +/- 0.09, N = 3
439.57
100
200
300
400
500
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

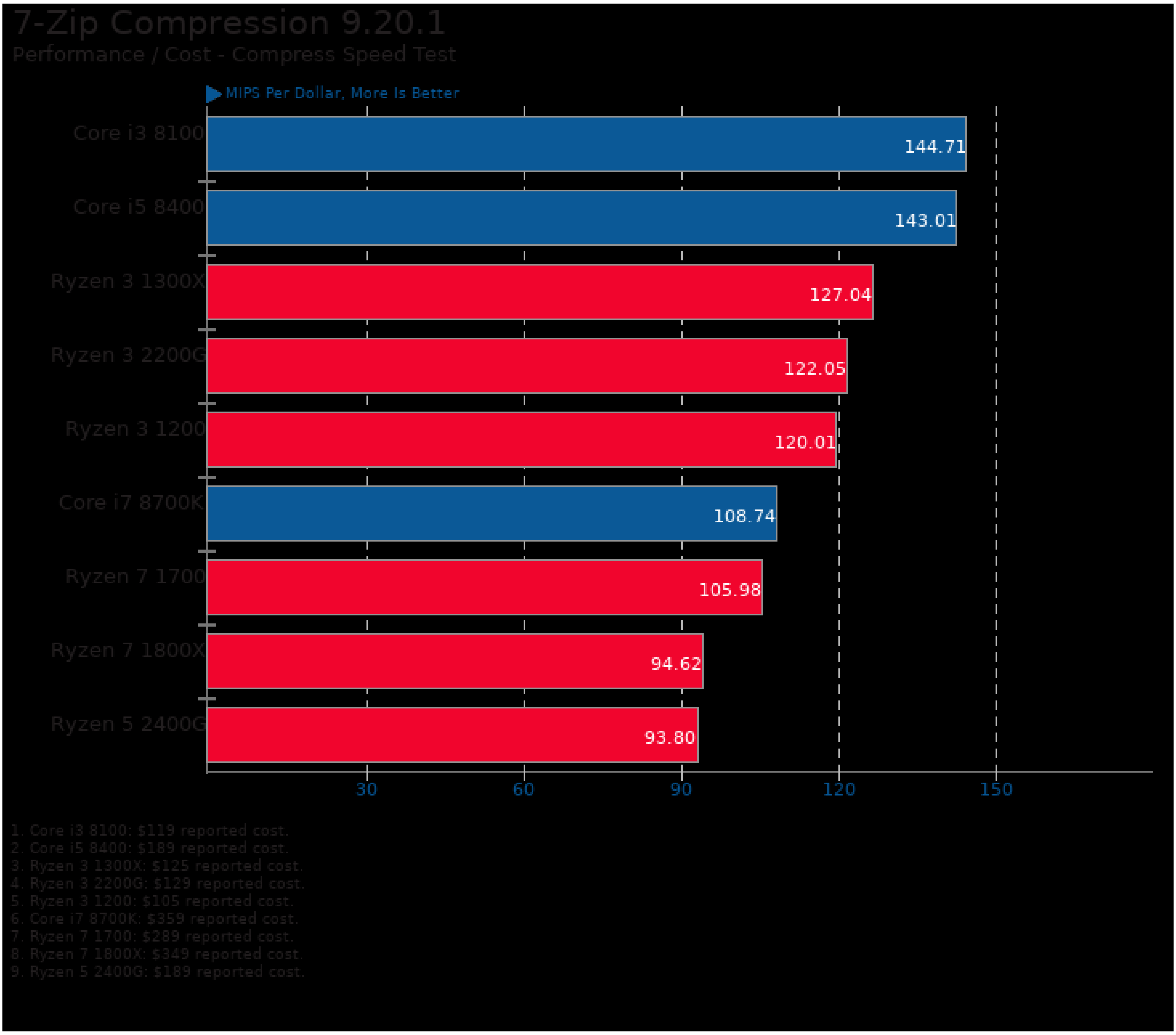
AMD Ryzen 3 2200G Linux CPU Benchmarks With Ryzen 5 2400G

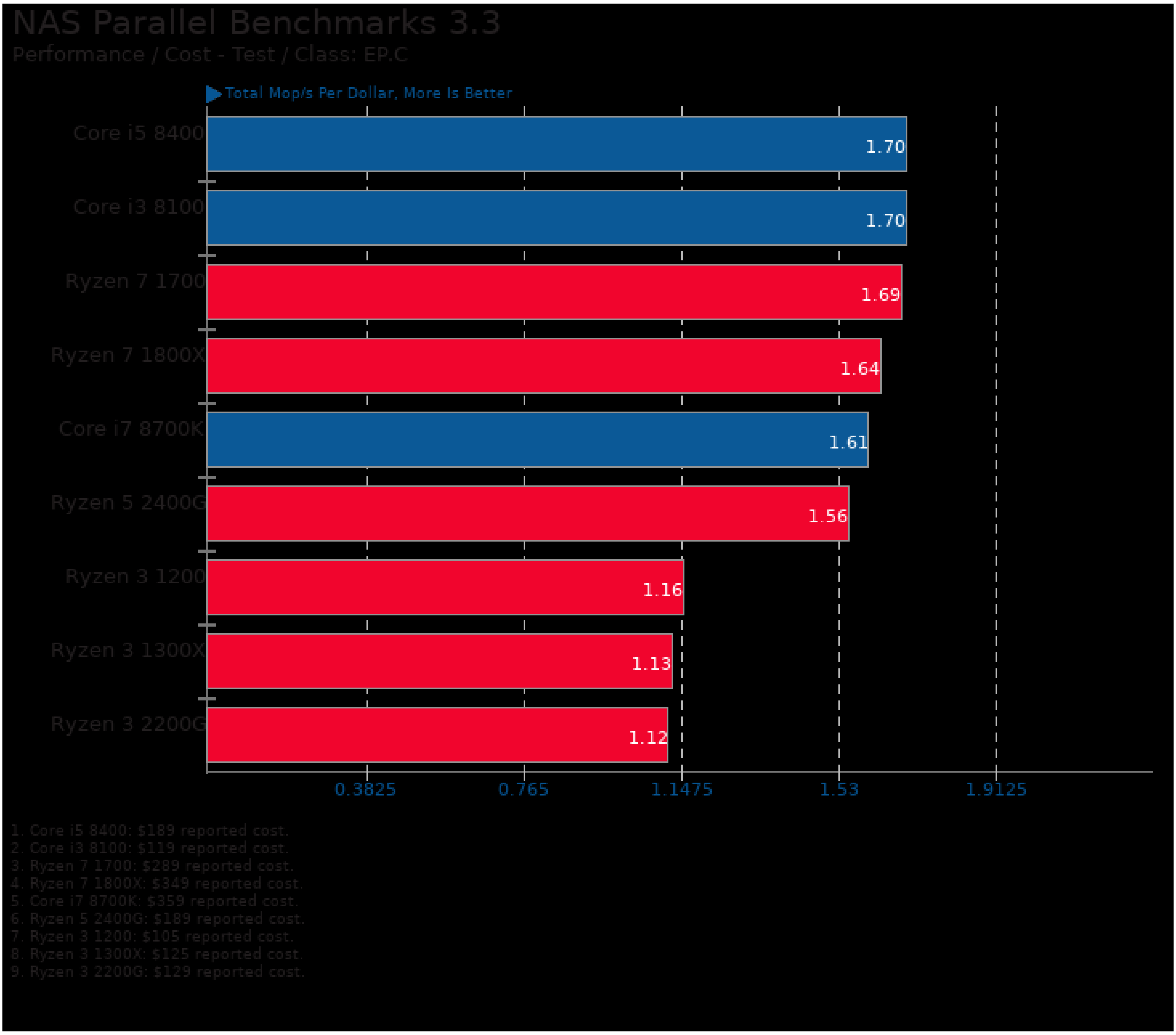


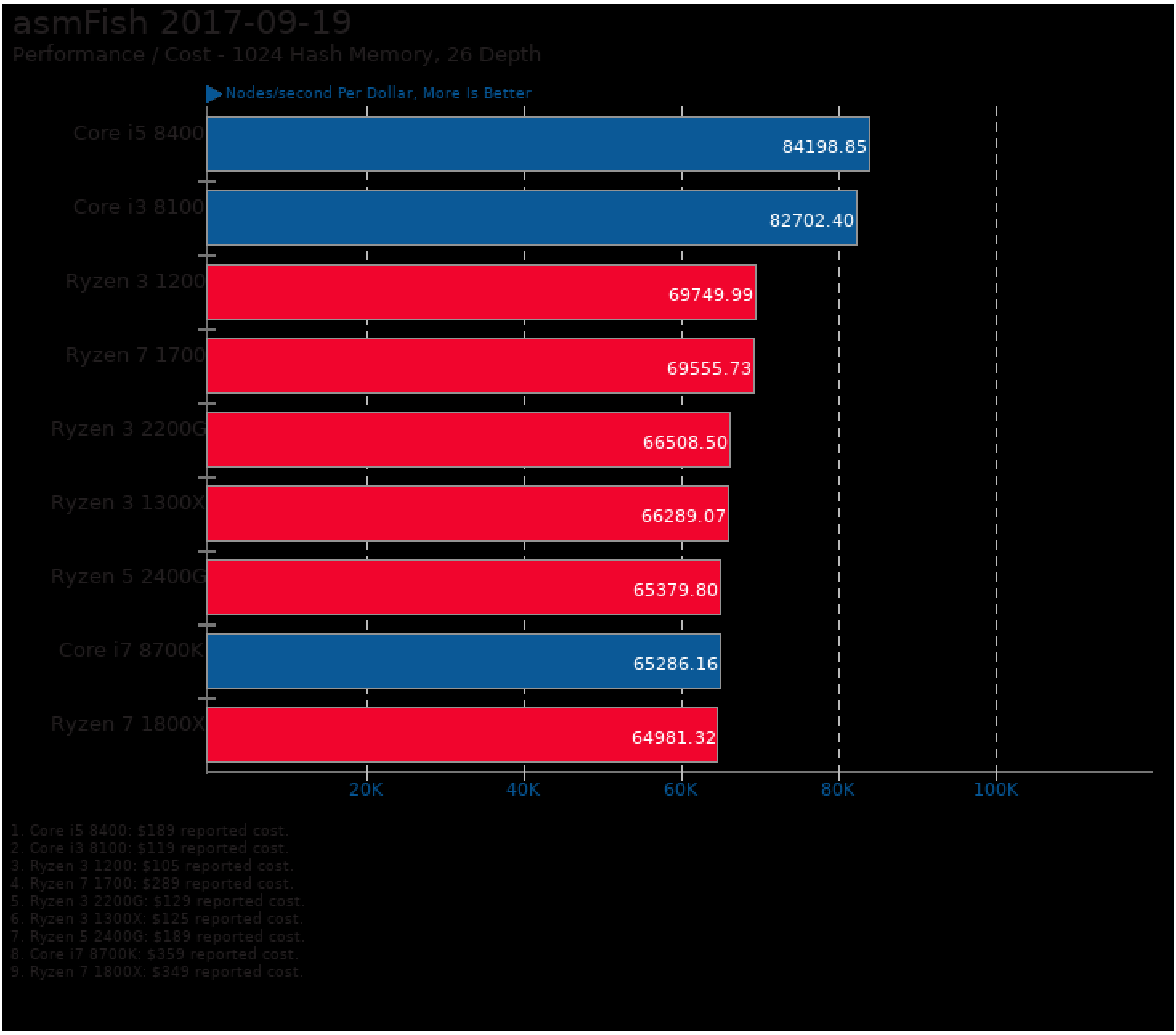

OpenSSL 1.1.0f
RSA 4096-bit Performance
Signs Per Second, More Is Better
THreadripper 1920
SE +/- 0.60, N = 3
2388.40
Core i7 8700K
SE +/- 1.48, N = 3
1979.57
Core i5 8400
SE +/- 0.36, N = 3
1671.20
Ryzen 7 1800X
SE +/- 1.09, N = 3
1592.87
Ryzen 7 1700
SE +/- 0.78, N = 3
1380.13
Core i7 7740X
SE +/- 20.41, N = 3
1312.90
Core i5 7600K
SE +/- 18.27, N = 3
1147.73
Core i5 6600K
SE +/- 0.03, N = 3
1143.33
Core i3 8100
SE +/- 12.97, N = 3
1042.83
Core i5 6500
SE +/- 12.36, N = 3
942.73
Johns Ryzen 5 2400G
SE +/- 1.76, N = 3
826.33
Ryzen 5 2400G
SE +/- 9.70, N = 3
793.80
Ryzen 3 2200G
SE +/- 4.62, N = 3
734.20
Ryzen 3 1300X
SE +/- 18.43, N = 6
710.53
FX-8350
SE +/- 0.56, N = 3
705.20
Core i7 4770K
SE +/- 0.20, N = 3
689.30
Core i5 4670
SE +/- 0.83, N = 3
645.10
Core i3 7100
SE +/- 1.07, N = 3
597.13
Xeon E3-1275L v3 /w Performance Scaling
SE +/- 8.05, N = 3
534.63
Core i5 3470
SE +/- 8.23, N = 6
499.23
Optiplex-390-i5-2320-ARCH
SE +/- 0.03, N = 3
413.27
A10-7870K
SE +/- 1.05, N = 3
339.70
Athlon II 630
SE +/- 0.59, N = 3
317.37
Core i3 4130
SE +/- 0.03, N = 3
308.97
A10-7800
SE +/- 1.70, N = 3
299.73
Pentium G3220T /w Performance Scaling
SE +/- 0.07, N = 3
232.97
Pentium G3220T
SE +/- 0.22, N = 3
232.93
500
1000
1500
2000
2500
1. (CC) gcc options: -O3 -pthread -m64 -lssl -lcrypto -ldl

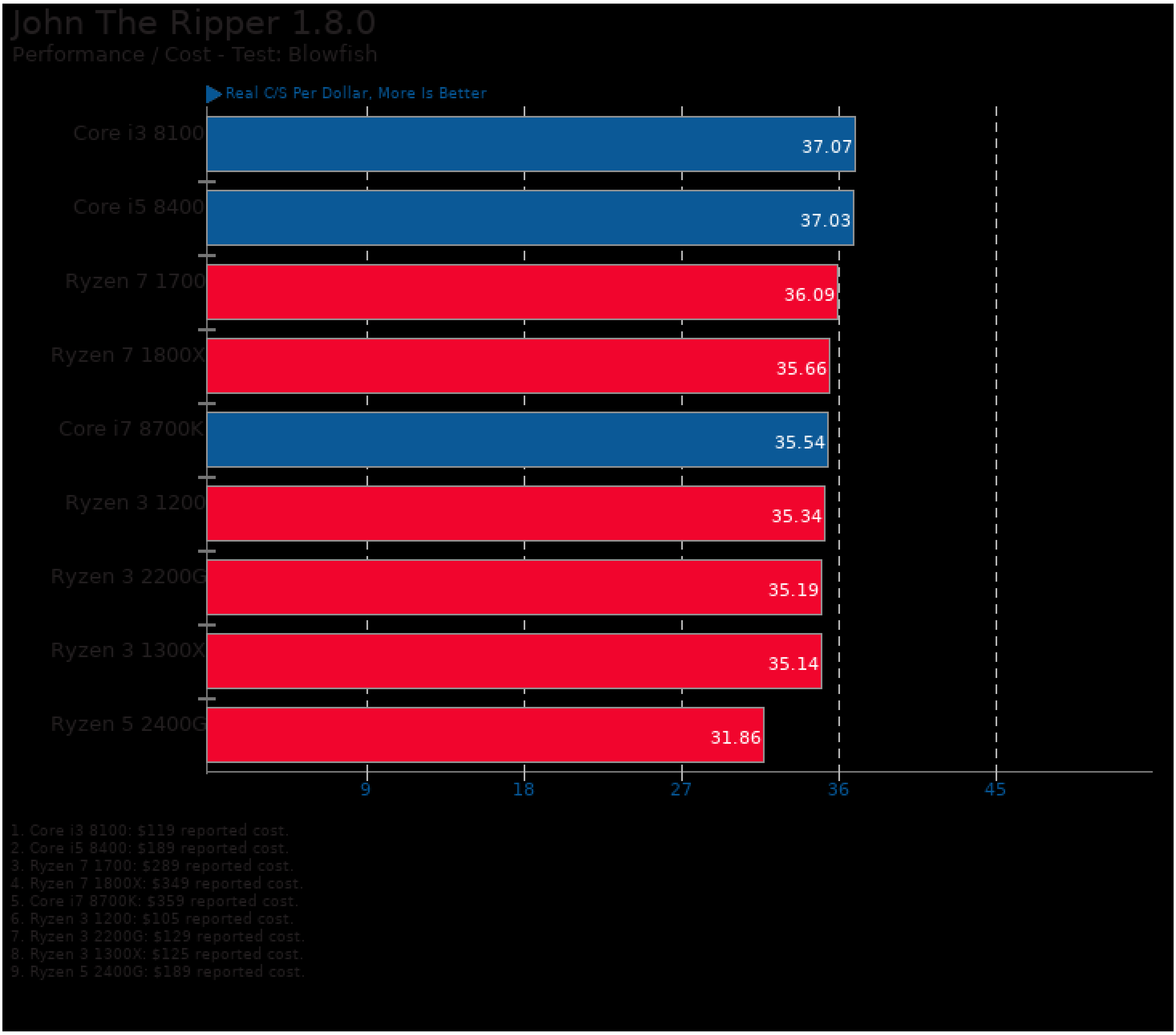

x264 2018-02-05
Performance / Cost - H.264 Video Encoding
Frames Per Second Per Dollar, More Is Better
Core i5 8400
0.30
Core i3 8100
0.26
Ryzen 3 1300X
0.22
Ryzen 3 1200
0.22
Ryzen 7 1700
0.21
Ryzen 3 2200G
0.21
Core i7 8700K
0.20
Ryzen 7 1800X
0.20
Ryzen 5 2400G
0.18
0.0675
0.135
0.2025
0.27
0.3375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


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


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


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


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



This file was automatically generated via the Phoronix Test Suite benchmarking software on Thursday, 28 March 2024 10:23.