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Large Intel AMD Linux CPU Benchmark Comparison

Large CPU comparison. Tests being worked on by Michael Larabel.

Automated Executive Summary

2 x Xeon Gold 6138 had the most wins, coming in first place for 66% of the tests.

Based on the geometric mean of all complete results, the fastest (2 x Xeon Gold 6138) was 9.673x the speed of the slowest (A10-7800).

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

Java JMH (Throughput) at 30.177x
OpenSSL (RSA 4096-bit Performance) at 26.217x
NAS Parallel Benchmarks (Test / Class: EP.C) at 24.051x
C-Ray (Total Time) at 19.666x
John The Ripper (Test: Blowfish) at 16.794x
asmFish (1024 Hash Memory, 26 Depth) at 16.713x
Timed Linux Kernel Compilation (Time To Compile) at 15.935x
Rodinia (Test: OpenMP LavaMD) at 15.653x
7-Zip Compression (Compress Speed Test) at 15.537x
Parboil (Test: OpenMP CUTCP) at 15.204x.

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

Threadripper 1950X

Processor: AMD Ryzen Threadripper 1950X 16-Core @ 3.40GHz (16 Cores / 32 Threads), Motherboard: Gigabyte X399 AORUS Gaming 7 (F3g BIOS), Chipset: AMD Device 1450, Memory: 16384MB, Disk: 525GB SABRENT + 120GB Force MP500, Graphics: MSI AMD Radeon R7 370 / R9 270/370 OEM 4096MB, Audio: Realtek ALC1220, Monitor: VE228, Network: Qualcomm Atheros Device e0b1 + Intel Wireless 8265 / 8275

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

EPYC 7601

Processor: AMD EPYC 7601 32-Core @ 2.20GHz (32 Cores / 64 Threads), Motherboard: TYAN B8026T70AE24HR (V0.05.B10 BIOS), Chipset: AMD Device 1450, Memory: 129024MB, Disk: 525GB SABRENT + 280GB INTEL SSDPE21D280GA, Graphics: ASPEED ASPEED Family, Monitor: VE228, Network: Broadcom Limited NetXtreme BCM5720 Gigabit PCIe

OS: Ubuntu 17.10, Kernel: 4.15.2-041502-generic (x86_64), Desktop: GNOME Shell 3.26.2, Display Driver: modesetting 1.19.5, 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

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

Large Intel AMD Linux CPU Benchmark Comparison

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 5960X

Processor: Intel Core i7-5960X @ 3.50GHz (8 Cores / 16 Threads), Motherboard: ASRock X99 Extreme3 (P3.50 BIOS), Chipset: Intel Xeon E7 v3/Xeon, Memory: 16384MB, Disk: 120GB INTEL SSDSC2BW12 + 525GB SABRENT, Graphics: AMD FirePro V7900 2048MB, Audio: Realtek ALC1150, 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: 4.1 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: intel_pstate powersave
Python Notes: Python 2.7.14 + Python 3.6.3
Security Notes: KPTI + __user pointer sanitization + Full generic retpoline Protection

Core i7 7740X

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

OS: Ubuntu 17.10, Kernel: 4.15.2-041502-generic (x86_64), Desktop: GNOME Shell 3.26.2, Display Server: Wayland, Display Driver: modesetting 1.19.5, OpenGL: 3.3 Mesa 17.2.4 (LLVM 5.0 256 bits), Compiler: GCC 7.2.0, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: intel_pstate powersave
Python Notes: Python 2.7.14 + Python 3.6.3
Security Notes: KPTI + __user pointer sanitization + Full generic retpoline Protection

Core i7 8700K

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

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

Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: intel_pstate powersave
Python Notes: Python 2.7.14 + Python 3.6.3
Security Notes: KPTI + __user pointer sanitization + Full generic retpoline Protection

Core i9 7980XE

Processor: Intel Core i9-7980XE @ 4.40GHz (18 Cores / 36 Threads), Motherboard: ASUS PRIME X299-A (1004 BIOS), Chipset: Intel Device 2020, Memory: 16384MB, Disk: 525GB SABRENT + 256GB INTEL SSDPEKKW256G8,

Graphics: NV117 1024MB, Audio: Realtek ALC1220, 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 Server: Wayland, 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: intel_pstate powersave
Python Notes: Python 2.7.14 + Python 3.6.3
Security Notes: KPTI + __user pointer sanitization + Full generic retpoline Protection

Xeon Silver 4108

Processor: Intel Xeon Silver 4108 @ 3.00GHz (8 Cores / 16 Threads), Motherboard: TYAN S7100AG2NR (V3.00 BIOS), Chipset: Intel Device 2020, Memory: 23552MB, Disk: 525GB SABRENT + 240GB Force MP500, Graphics: ASPEED ASPEED Family, Audio: Realtek ALC892, Monitor: VE228, Network: Intel I350 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, 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

2 x Xeon Gold 6138

Processor: 2 x Intel Xeon Gold 6138 @ 3.70GHz (40 Cores / 80 Threads), Motherboard: TYAN S7106 (V1.00 BIOS), Chipset: Intel Device 2020, Memory: 96256MB, Disk: 525GB SABRENT + 256GB Samsung SSD 850 + 2000GB Seagate ST2000DM006-2DM1 + 2 x 120GB TOSHIBA-TR150, Graphics: ASPEED ASPEED Family, Monitor: VE228, Network: Intel I210 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, 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

Large Intel AMD Linux CPU Benchmark Comparison

Phoronix Test Suite

	A10-7800	A10-7870K	FX-8350	Ryzen 3 1200	Ryzen 3 1300X	Ryzen 3 2200G	Ryzen 5 2400G	Ryzen 7 1700	Ryzen 7 1800X	Threadripper 1950X	EPYC 7601	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 5960X	Core i7 7740X	Core i7 8700K	Core i9 7980XE	Xeon Silver 4108	2 Xeon Gold 6138
NGINX Benchmark - S.W.P.S (Reqs/sec)	1911353	2135962	1962855	2914505	3263373	3362211	3345082	2982700	3296484	3119818	2402065	2075375	3675731	3631276	2076722	3567230	3480800	3923423	4048533	4037374	3645457	2847	4491666	4284184	4267161	3110046	3095
Normalized	42.0	46.9	43.1	64.0	71.7	73.9	73.5	65.5	72.4	68.6	52.8	45.4	80.8	79.8	45.6	78.4	76.5	86.2	89.0	89.1	79.9	62.5	100	98.7	94.2	69.6	68
Standard Deviation	3%	7%	6%	9%	6%	3%	5%	7%	9%	%	2%	2%	3%	5%	5%	4%	2%	7%	2%	3%	8%	8%	%	7%	1%	4%	8%
PyBench - T.F.A.T.T (Milliseconds)	2264	2028	2048	1655	1498	1547	1458	1518	1395	1420	1781	1565	1237	1340	1723	1390	1342	1239	1149	1209	1356	1514	1075	1031	1150	1615	13
Normalized	45.5	50.8	50.3	62.3	68.8	66.6	70.7	67.9	73.9	72.6	57.8	65.8	83.3	76.9	59.8	74.1	76.8	83.2	89.7	85.2	76.0	68.1	95.9	100	89.6	63.8	78
Standard Deviation	4%	4%	4%	%	3%	5%	1%	2%	1%	1%	9%	8%	5%	4%	4%	7%	3%	1%	3%	8%	3%	%	1%	%	5%	4%	8%
Java JMH - Throughput (Ops/s)	3487059908	3894127539	8056296980	6174075743	7111094534	7385104572	7405788436	1216784162	1478084593	2759813906	4167067081	6739077036	7790123633	1438337276	1225252791	1475033815	1376152	1598201	1598771	2249154	1577491	2623	1792392	2575	6104	1655	10
Normalized	3.31	3.7	7.66	5.87	6.81	7.02	7.04	12.1	14.0	26.4	39.7	6.4	7.4	13.6	11.7	13.6	12.5	14.8	15.1	21.6	14.7	24.9	17.0	24.4	58.0	15.9	10
Standard Deviation	%	%	%	%	%	%	%	5%	5%	4%	5%	%	%	7%	8%	2%	3%	1%	9%	4%	3%	3%	3%	8%	1%	1%	%
OpenSSL - R.4.b.P (Signs/sec)	29397.3	33709.7	70525.2		71705.3	73424.0	79383.8	13380	15693	30021	45067	30898.9	59107.1	10443	49209.2	64505.1	94302.7	11143	11148	16071	68309.3	12003	13313	19780	46295	12185	78
Normalized	3.81	4.32	8.97		9.04	9.34	10.1	17.5	20.2	38.4	58.1	3.93	7.6	13.2	6.35	8.21	12%	14.5	14.6	21.2	8.77	15.3	16.7	25.1	59.7	16.3	10
Standard Deviation	1%	0.5%	0.1%		6.4%	1.1%	2.1%	0.1%	0.1%	0.2%	0.9%	0%	0.3%	2.2%	4%	0.2%	2.3%	0%	2.8%	0%	0.1%	0%	2.7%	0.1%	0.2%	0.3%	0.6

Large Intel AMD Linux CPU Benchmark Comparison

Phoronix Test Suite

LAME MP3 Encoding - WAV To MP3	**54.17**	48.37	47.03	39.68	35.78	37.13	35.19	36.59	33.50	33.75	42.77	38.94	31.08	33.30	37.36	33.25	33.51	30.95	28.77	30.01	32.54	36.18	27.50	**26.07**	28.50	39.90	32
Normalized	48.1	53.9	55.4	65.7	72.8	70.2	74.0	71.2	77.8	77.2	60.9	66.9	83.8	78.2	69.7	78.4	77.8	84.2	90.6	86.8	80.1	72.0	94.8	100	91.4	65.3	80
Standard Deviation	3%	%	3%	%	6%	1%	8%	5%	2%	4%	5%	5%	8%	9%	8%	1%	%	3%	2%	7%	2%	6%	%	%	7%	4%	4%
	0.2	0.1	0.2	0.1	0.3	0.2	0.1	0%	0.8	0.9	0%	3%	0.1	0%	0.2	0%	0%	0%	0.1	0%	0.4	0.2	0.8	1.3	0.1	0.1	0.1
	%	%	%	%	%	%	%		%	%			%		%				%		%	%	%	%	%	%	%
POV-Ray - Trace Time (sec)	**27.6**	24.7	13.4	18.1	15.9	15.3	10.9	64.40	56.21	30.30	**21.97**	26.0	20.7	13.2	22.3	14.3	14.4	12.4	12.0	87.94	13.9	70.27	87.4	60.96	32.75	19.8	25
Normalize	8.11	9.08	16.3	12.1	14.0	14.3	20.4	34.1	39.0	72.5	100	8.21	10.9	15.8	9.6	14.9	14.6	17.3	17.4	24.9	16.7	31.2	24.9	36.0	67.0	11.2	85
Standard Deviation	%	%	9%	3%	6%	%	6%	1%	9%	1%	%	%	5%	%	%	3%	6%	2%	5%	8%	6%	7%	8%	4%	8%	2%	9%
	0.2	0.1	0.3	0.1	0.2	0.4	0.3	0%	0.1	0.3	0.6	0.2	0.1	0.1	2.5	0.1	0.1	0.1	0.9	0.1	0.2	0.2	0.1	0.2	0.6	0.4	17
	%	%	%	%	%	%	%		%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
C-Ray - Total Time (sec)	**61.75**	55.09	28.01	24.95	21.50	21.07	19.48	11.23	9.70	5.16	3.47	54.28	41.97	24.65	39.00	27.40	26.97	22.83	22.25	15.57	24.51	13.97	18.69	12.78	5.46	19.69	**3.4**
Normalize	5.09	5.7	11.2	12.5	14.6	14.9	16.1	27.9	32.3	60.8	90.4	5.78	7.48	12.7	8.05	11.4	11.6	13.7	14.1	20.1	12.8	22.4	16.8	24.5	57.5	15.9	10
Standard Deviation	%	%	1%	9%	%	%	2%	6%	7%	5%	9%	%	%	4%	%	6%	4%	5%	1%	7%	1%	8%	%	7%	1%	5%	%
	0%	0.1	0%	0.1	0%	0.7	1.4	0%	0.1	0.1	0.7	0.2	0.1	0.1	1.4	0.1	0.1	0.2	0.1	0.1	0.1	0.2	1.5	0.1	0.3	0.1	0.2
		%		%		%	%		%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Timed Linux Kernel Compilation - Time To Compile	34	30	16	**48**	45	20	15	95.	85.	48.	38.	42	24	16	26	18	18	15	15	10	15	89.	10	79.	39.	12	**30**
	2.81	0.92	7.85	**4.57**	8.00	1.48	3.49	17	22	48	39	6.59	6.44	7.81	4.97	0.98	1.66	8.43	7.58	8.02	0.12	15	6.97	10	70	7.47	**41**
Normalize	8.87	10.1	18.1	6.28	6.64	15.0	19.8	31.9	35.6	62.7	79.2	7.13	12.3	18.1	11.4	16.8	16.7	19.1	19.3	28.1	20.2	34.1	28.4	38.4	76.6	23.8	10
Standard Deviation	%	1%	2%	%	%	9%	1%	5%	8%	3%	1%	%	4%	2%	8%	%	4%	9%	%	5%	6%	1%	3%	5%	%	6%	%
	0.8	1.1	1.5	0.2	0.3	1%	1.2	2.2	2%	3.2	4.5	0.5	0.8	1%	1.1	1.2	1.1	1%	1%	1.7	1%	2.3	1%	7%	6.9	2.3	6.2
	%	%	%	%	%		%	%		%	%	%	%		%	%	%			%		%			%	%	%	
asmFish - 1.H.M.2.D (Nodes/s)	54	62	11	73	82	85	12	20	22	43	65	**49**	67	98	73	95	89	10	10	15	12	22	15	23	53	15	**82**
	33	14	70	23	86	79	35	10	67	64	97	**07**	83	41	66	72	67	05	26	91	32	00	89	43	87	15	**01**
	89	00	53	74	13	59	67	16	84	94	45	**45**	02	58	18	74	52	11	93	35	10	95	58	77	10	45	**95**
	3	6	26	9	4	7	82	05	79	43	45	**8**	8	6	2	4	3	65	51	82	19	27	69	31	95	08	**04**
Normalize	6.63	7.58	14.2	8.93	10.1	10.4	15.0	24.5	27.6	53.2	80.4	5.98	8.27	12%	8.98	11.6	10.9	12.2	12.5	19.4	15.0	26.8	19.3	28.5	65.6	18.4	10
Standard Deviation	%	%	7%	%	%	6%	7%	1%	5%	2%	4%	%	%		%	7%	3%	5%	2%	%	2%	3%	8%	8%	8%	8%	%
	0.9	2.2	0.6	0.8	1.5	1.2	1.2	1.2	1.4	2.3	1.1	0.1	1.1	1.6	3.3	2.2	0.9	0.3	0.7	1.6	2%	2.2	1.2	0.7	2.4	0.6	3.2
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%		%	%	%	%	%	%

Large Intel AMD Linux CPU Benchmark Comparison

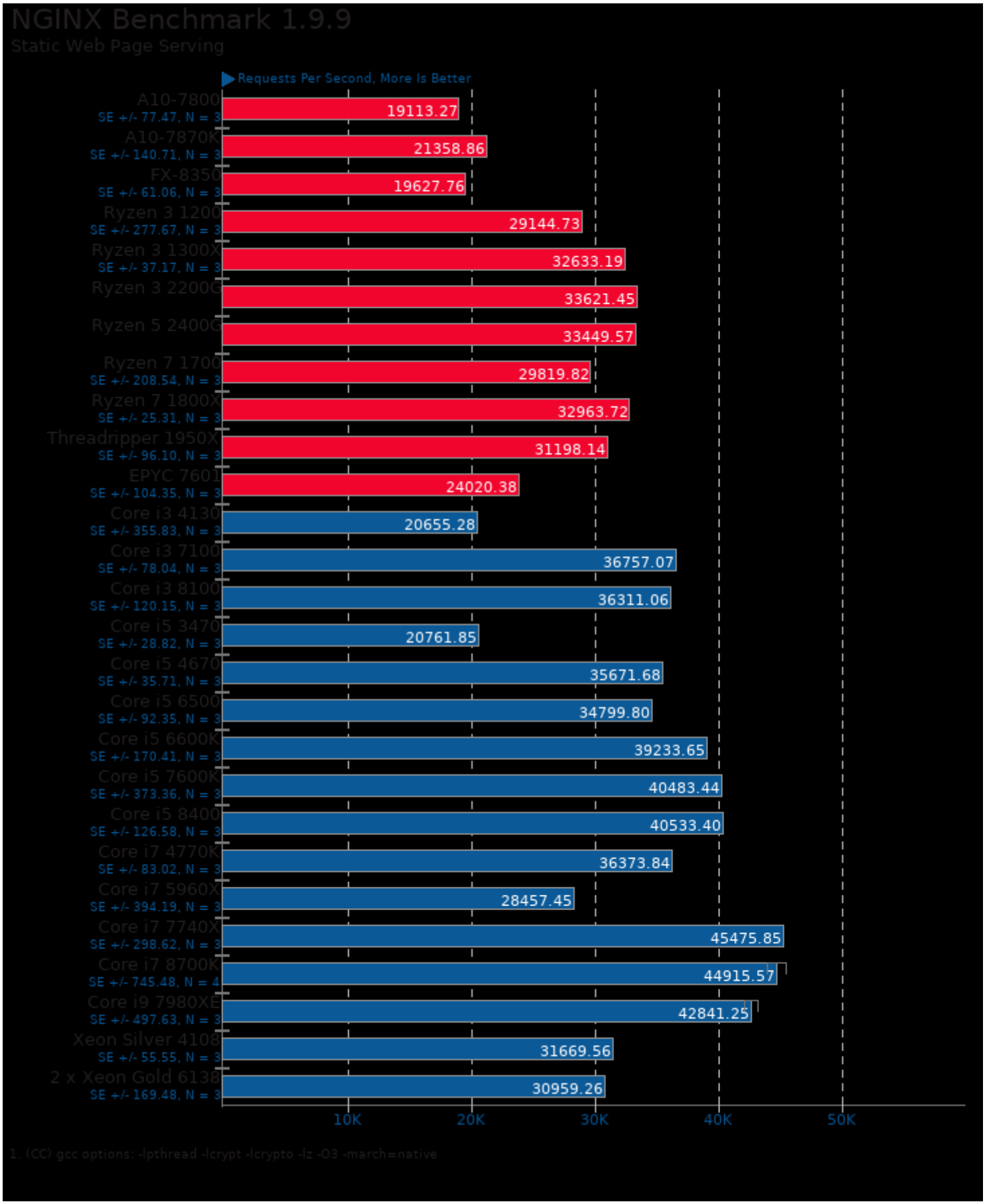
Phoronix Test Suite

7-Zip Compression - C.S.T (MIPS)	99	11	22	12	15	15	17	30	33	71	95	89	12	17	14	16	15	18	17	27	21	37	28	39	91	27	13
	83	43	09	60	88	74	72	62	02	59	06	92	89	22	10	59	11	07	72	02	66	23	95	03	13	88	97
		1	7	1	0	4	9	7	2	2	2		6	1	0	5	6	9	7	8	7	6	2	9	8	8	07
Normalize	7.15	8.18	15.8	9.02	11.3	11.2	12.6	21.9	23.6	51.2	68.0	6.44	9.23	12.3	10.0	11.8	10.8	12.9	12.6	19.3	15.5	26.6	20.7	27.9	65.2	19.9	100
d	%	%	2%	%	7%	7%	9%	2%	4%	4%	4%	%	%	3%	9%	8%	2%	4%	9%	5%	1%	5%	2%	4%	4%	6%	%
Standard	1.5	1.4	0.3		1.8	0.5	3.3	0.6	1.5	0.2	0.6	1.2	0.1	0.2	3.1	0.9	0.1	0.1	0.3	0.2	1.3	1.4	2.9	1%	0.5	1.5	2.6
Deviation	%	%	%		%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%		%	%	%
x264 - H.2.V.E (FPS)	15.	17.	30.	23.	27.	27.	34.	60.	71.	12	10	15.	23.	30.	19.	28.	28.	33.	33.	56.	37.	58.	49.	72.	12	32.	10
	61	58	58	47	33	60	75	90	46	7.0	8.0	47	89	42	83	16	47	11	49	11	64	01	95	96	5.2	75	7.8
										0	7														8		9
Normalize	12.2	13.8	24.0	18.4	21.5	21.7	27.3	47.9	56.2	100	85.0	12.1	18.8	23.9	15.6	22.1	22.4	26.0	26.3	44.1	29.6	45.6	39.3	57.4	98.6	25.7	84.
d	9%	4%	8%	8%	2%	3%	6%	5%	7%	%	9%	8%	1%	5%	1%	7%	2%	7%	7%	8%	4%	8%	3%	5%	5%	9%	5%
Standard	0.1	0%	0.2	3.4	0.2	0.1	3.3	3.3	0.5	0.6	0.7	0.3	0.2	3.3	18.4	3.4	0.4	0.2	0.1	0.2	0.1	0.6	0.6	0.5	0.4	0.7	2.5
Deviation	%		%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
TTSIOD 3D Renderer - P.R.W. S.S.M (FPS)	67.	82.	14	12	13	17	21	27	31	46	44	73.	12	16	12	15	15	18	18	26	20	32	27	39	69	21	73
	42	93	2.7	2.9	4.9	8.1	1.6	4.6	2.2	6.1	7.7	55	1.6	8.2	9.9	5.7	8.2	4.7	7.9	3.6	4.3	5.5	7.4	1.6	0.0	0.8	3.5
			5	5	7	7	0	4	2	3	1		9	7	0	7	2	2	0	3	1	1	3	7	0	4	8
Normalize	9.19	11.3	19.4	16.7	18.4	24.2	28.8	37.4	42.5	63.5	61.0	10.0	16.5	22.9	17.7	21.2	21.5	25.1	25.6	35.9	27.8	44.3	37.8	53.3	94.0	28.7	100
d	%	%	6%	6%	%	9%	4%	4%	6%	4%	3%	3%	9%	4%	1%	3%	7%	8%	1%	4%	5%	7%	2%	9%	6%	4%	%
Standard	0.3	0.2	1%	0.7	0.2	0.8	1.4	0.1	0.2	0.2	0.2	0.9	0.3	0.6	2%	0.4	0.1	1.2	0.2	0.1	1.7	0.2	1.8	0.3	0.8	0.4	3.2
Deviation	%	%		%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Open FMM Nero2D - Total Time (sec)	28	25	11	10	94.	92.	90.	57.	50.	30.	26.	20	16	92.	14	10	10	85.	83.	61.	98.	60.	76.	54.	27.	86.	21
	0.4	1.4	9.8	9.5	39	09	56	48	15	16	15	9.5	5.7	61	1.1	2.8	0.8	71	98	04	21	13	36	98	99	84	44
	3	0	9	9								1	3		2	3	3										
Normalize	7.65	8.53	17.8	19.5	22.7	23.2	23.6	37.3	42.7	71.0	81.9	10.2	12.9	23.1	15.1	20.8	21.2	25.0	25.5	35.1	21.8	35.6	28.0	39%	76.6	24.6	100
d	%	%	8%	6%	1%	8%	7%	%	5%	9%	9%	3%	4%	5%	9%	5%	6%	1%	3%	2%	3%	6%	8%		%	9%	%
Standard	0.5	0.5	1.8	0.3	0.1	0.3	1%	0.5	1.1	3.3	3%	0.9	0.4	0.7	2.2	1.1	0.2	0.4	0.7	1.2	0.6	0.7	0.5	1%	0.6	0.4	4.1
Deviation	%	%	%	%	%	%		%	%	%		%	%	%	%	%	%	%	%	%	%	%	%		%	%	%
John The Ripper - Blowfish (Real C/S)	33	37	68	37	43	45	60	10	12	23	23	30	38	44	29	40	40	47	49	69	68	11	88	12	30	82	50
	73	75	26	11	93	40	22	43	44	00	55	08	59	11	92	80	46	85	10	98	00	71	80	75	10	75	24
								1	5	1	2											0		8	4		8
Normalize	6.71	7.51	13.5	7.39	8.74	9.04	11.9	20.7	24.7	45.7	46.8	5.99	7.68	8.78	5.95	8.12	8.05	9.52	9.77	13.9	13.5	23.3	17.6	25.3	59.9	16.4	100
d	%	%	8%	%	%	%	8%	6%	7%	7%	7%	%	%	%	%	%	%	%	%	3%	3%	%	7%	9%	1%	7%	%
Standard	0.3	0.1	0.6	0.8	0.3	0.2	3.9	0.8	0.1	2%	0.5			0.2	2.7	0.2	0.1	0.1			3.2	0%			0%		1.9
Deviation	%	%	%	%	%	%	%	%	%		%			%	%	%	%	%			%						%

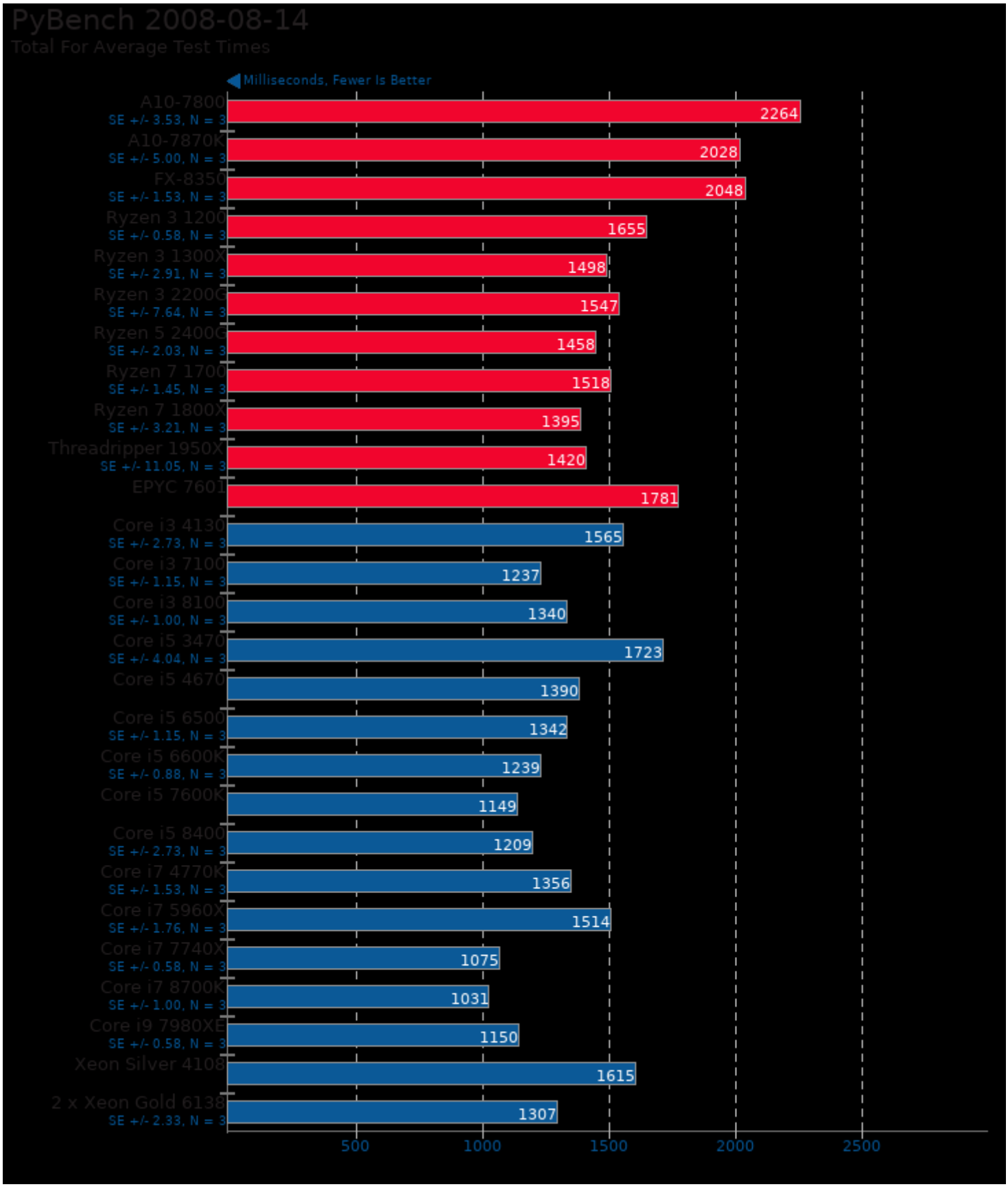
Large Intel AMD Linux CPU Benchmark Comparison

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	3.13	4.69	10.45	7.85	5.71	6.93	5.85	6.32	5.36	5.42	3.68	4.88	3.54	3.97		3.04	5.46	10.15
Normalized	25.4	29.2	51.3	41.9	50.7	48.4	53.0	71.3	83.2	97.1	64.8	29.0	38.7	53.2	43.8	51.9	48.1	56.7	56.0	82.6	62.3	85.8	76.5		100	55.6	29.9
Standard Deviation	2%	3%	5%	3%	5%	8%	5%	6%	9%	2%	2%	9%	3%	4%	7%	7%	%	2%	9%	1%	%	8%	7%		%	8%	5%
Rodinia - OpenMP LavaMD (sec)	44.2	39.75	21.52	25.87	22.33	21.13	16.28	95.39	82.45	45.95	31.58	44.27	35.22	22.16	40.13	32.21	24.60	20.88	20.35	14.19	19.11	15.24	10.46	17.28			
Normalized	6.39	7.17	13.4	11.0	12.7	13.1	17.7	29.9	34.6	62.0	90.3	6.48	8.04	12.6	7.13	8.84	11.5	13.6	14.0	19.9	14.3	24.9	18.4	26.6	61.1	16.6	10
Standard Deviation	%	%	8%	3%	7%	3%	9%	7%	2%	7%	1%	%	%	1%	%	%	8%	6%	3%	2%	1%	3%	7%	1%	5%	9%	%
Parboil - OpenMP CUTCP	35.73	31.60	16.90	17.36	15.03	15.64	11.34	6.49	5.58	3.24	2.63	30.51	22.87	14.95	17.82	15.80	16.21	13.82	13.46	9.47	12.99	7.83	10.13	7.08	3.28	10.99	2.5
Normalized	6.58	7.44	13.9	13.5	15.6	15.0	20.7	36.2	42.1	72.5	89.3	7.7	10.2	15.7	13.1	14.8	14.5	17%	17.4	24.8	18.0	30.0	23.2	33.1	71.6	21.3	10
Standard Deviation	%	%	1%	4%	4%	3%	2%	1%	1%	3%	5%	%	8%	2%	9%	7%	%		6%	2%	9%	1%	%	9%	5%	8%	%
NAS Parallel Benchmarks - EP.C (Mop/s)	83.11	92.05	22.13	12.20	14.16	14.02	29.39	48.56	57.01	10.90	16.23	14.35	17.50	20.24	18.03	19.85	18.71	21.96	22.56	32.15	33.15	56.48	39.57	57.12	12.68	31.99	19.7
Normalized	4.16	4.61	11.0	6.1	7.09	7.21	14.7	24.5	28.5	54.5	81.1	7.18	8.76	10.1	9.01	9.93	9.29	10.9	11.2	16.0	16.5	28.2	19.7	28.8	63.4	16.0	10
Standard Deviation	%	%	6%	%	%	%	%	%	7%	5%	8%	%	%	3%	%	%	%	9%	9%	8%	9%	6%	4%	7%	2%	1%	%

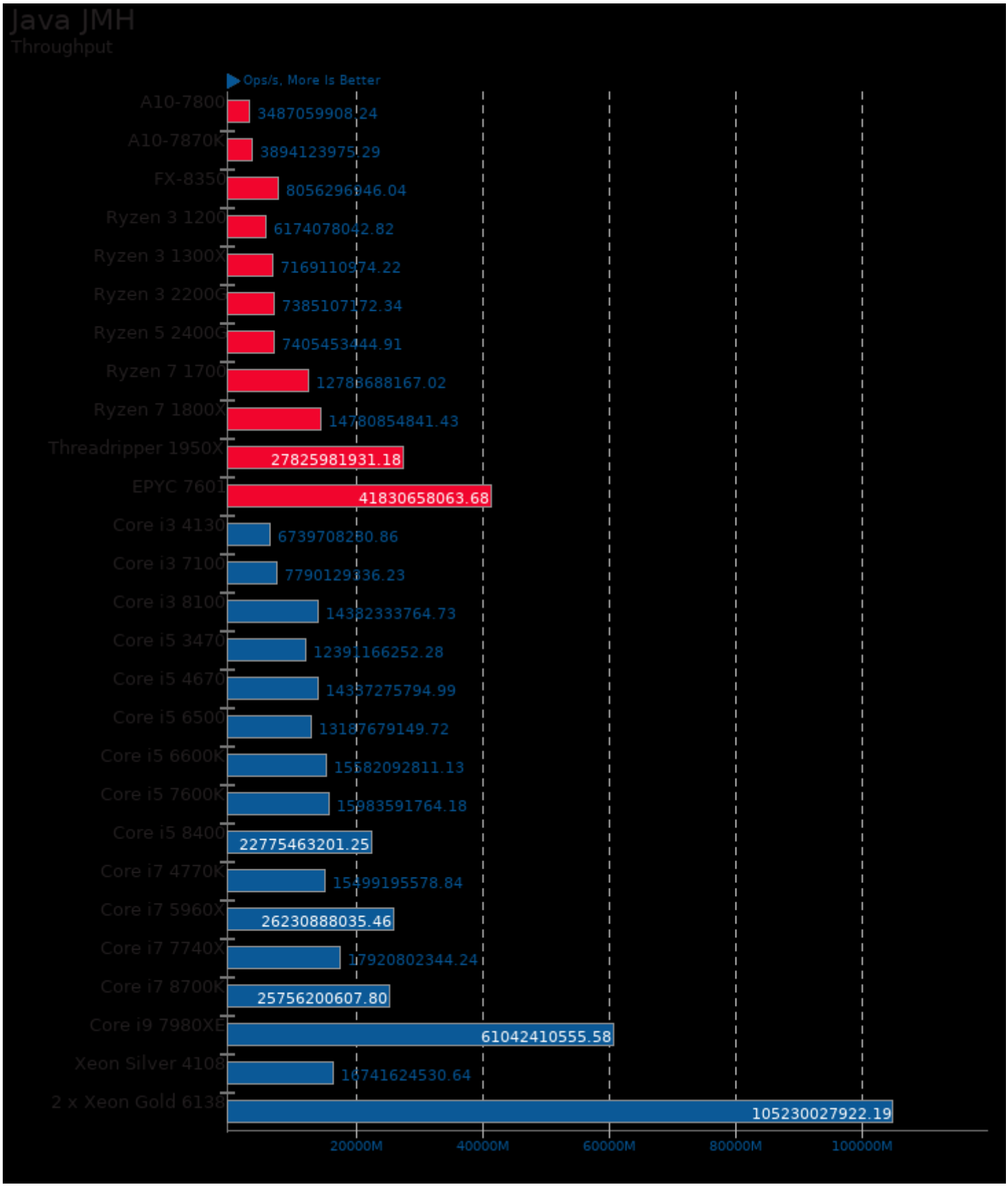
Large Intel AMD Linux CPU Benchmark Comparison



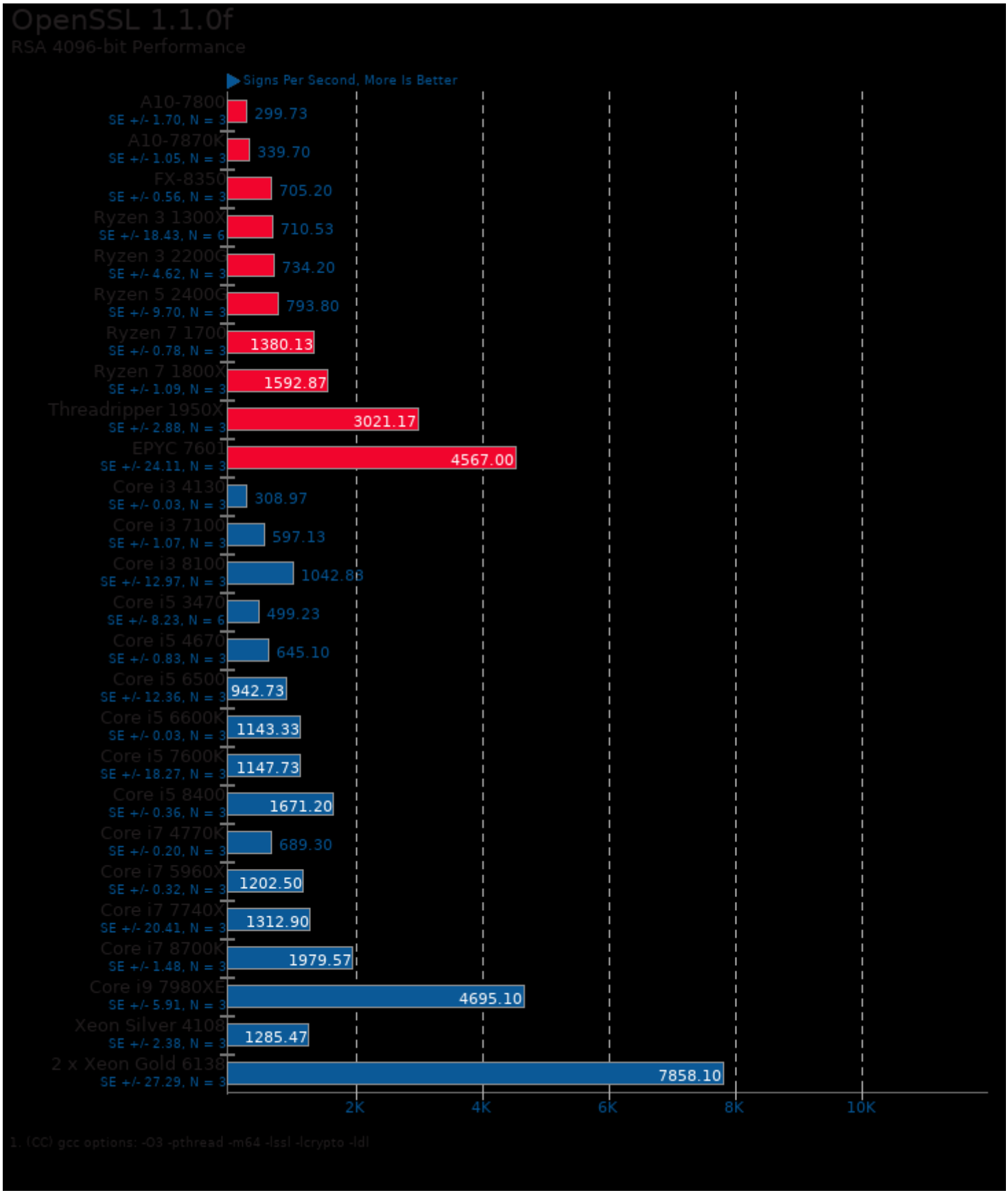
Large Intel AMD Linux CPU Benchmark Comparison



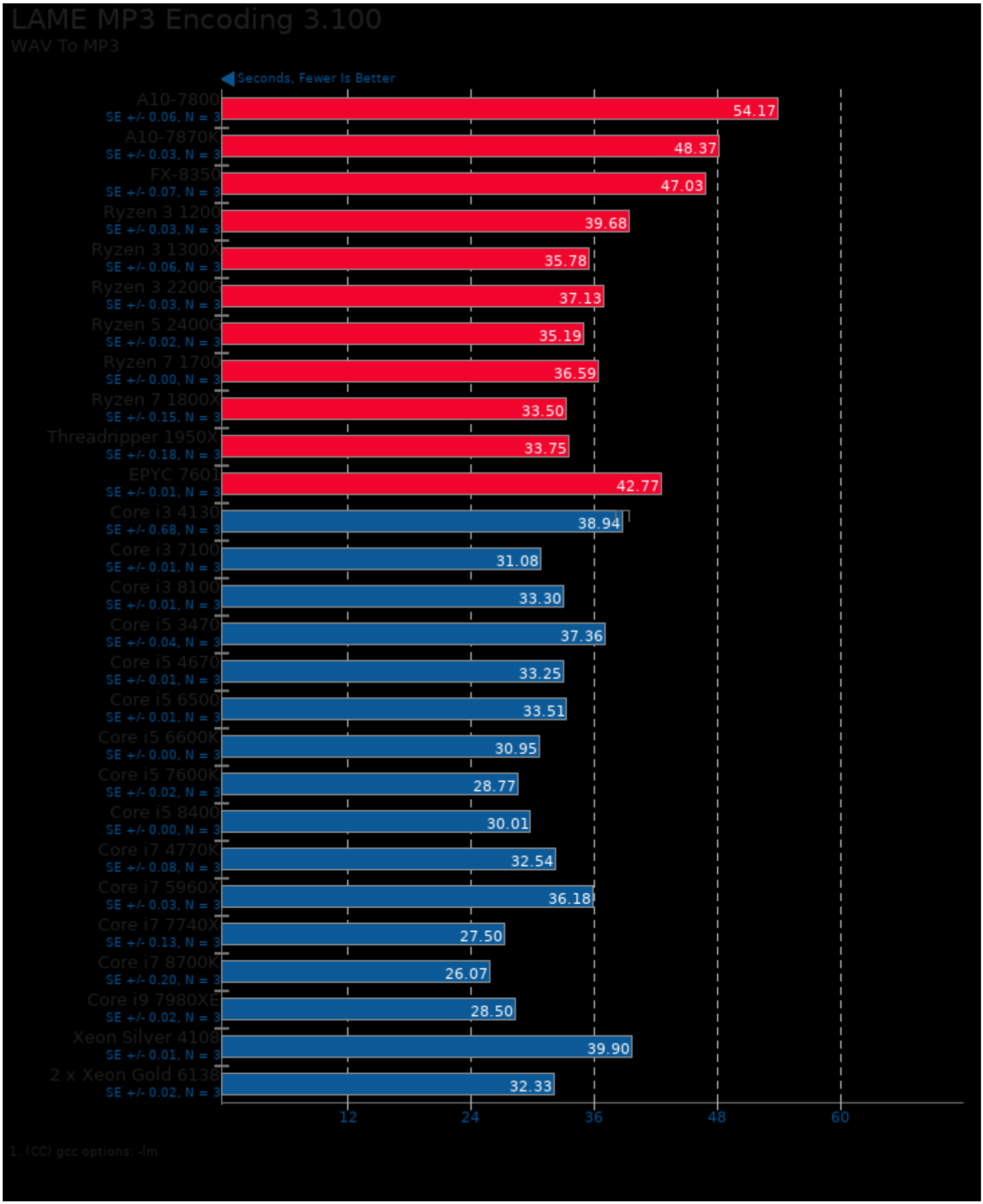
Large Intel AMD Linux CPU Benchmark Comparison



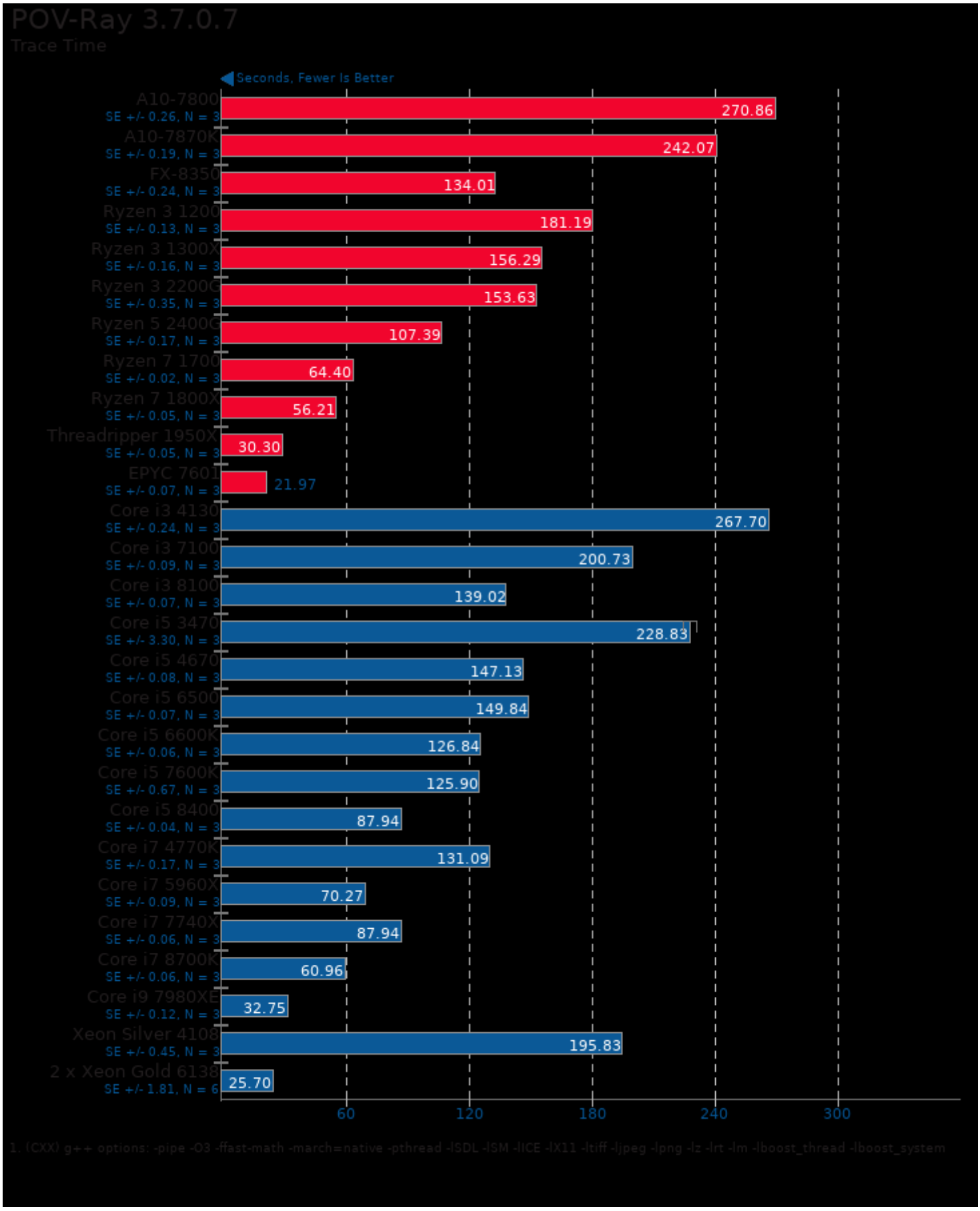
Large Intel AMD Linux CPU Benchmark Comparison



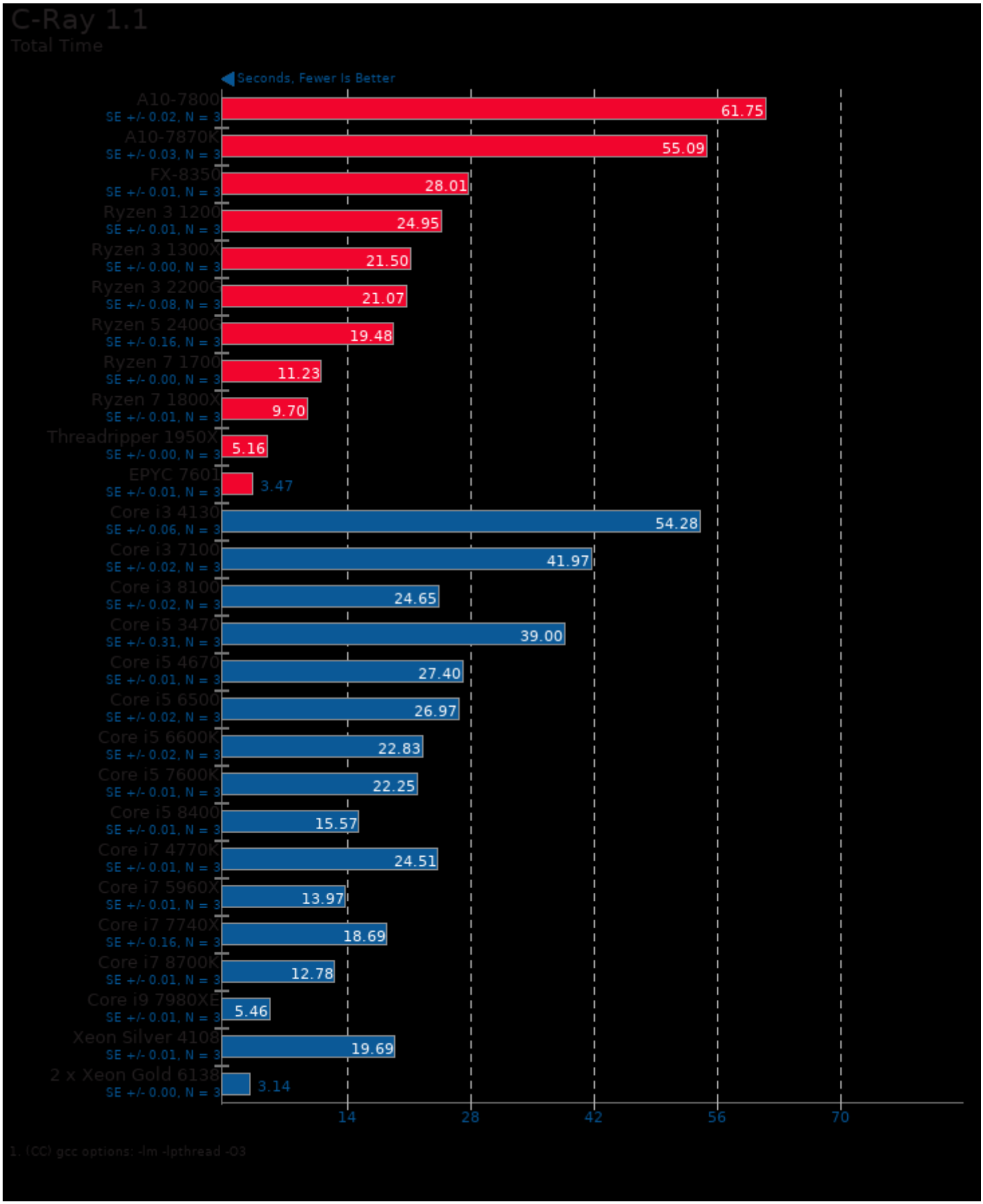
Large Intel AMD Linux CPU Benchmark Comparison



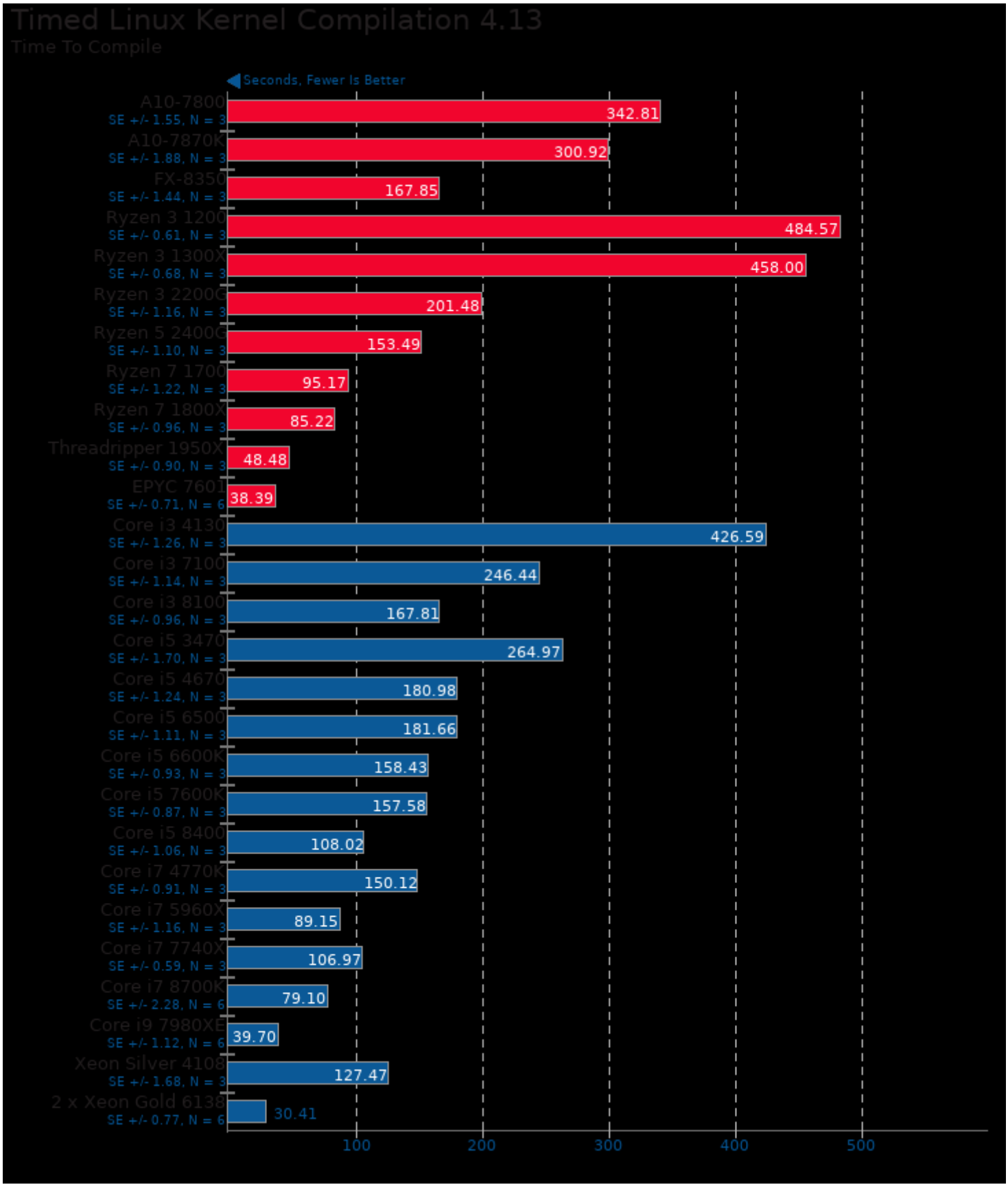
Large Intel AMD Linux CPU Benchmark Comparison



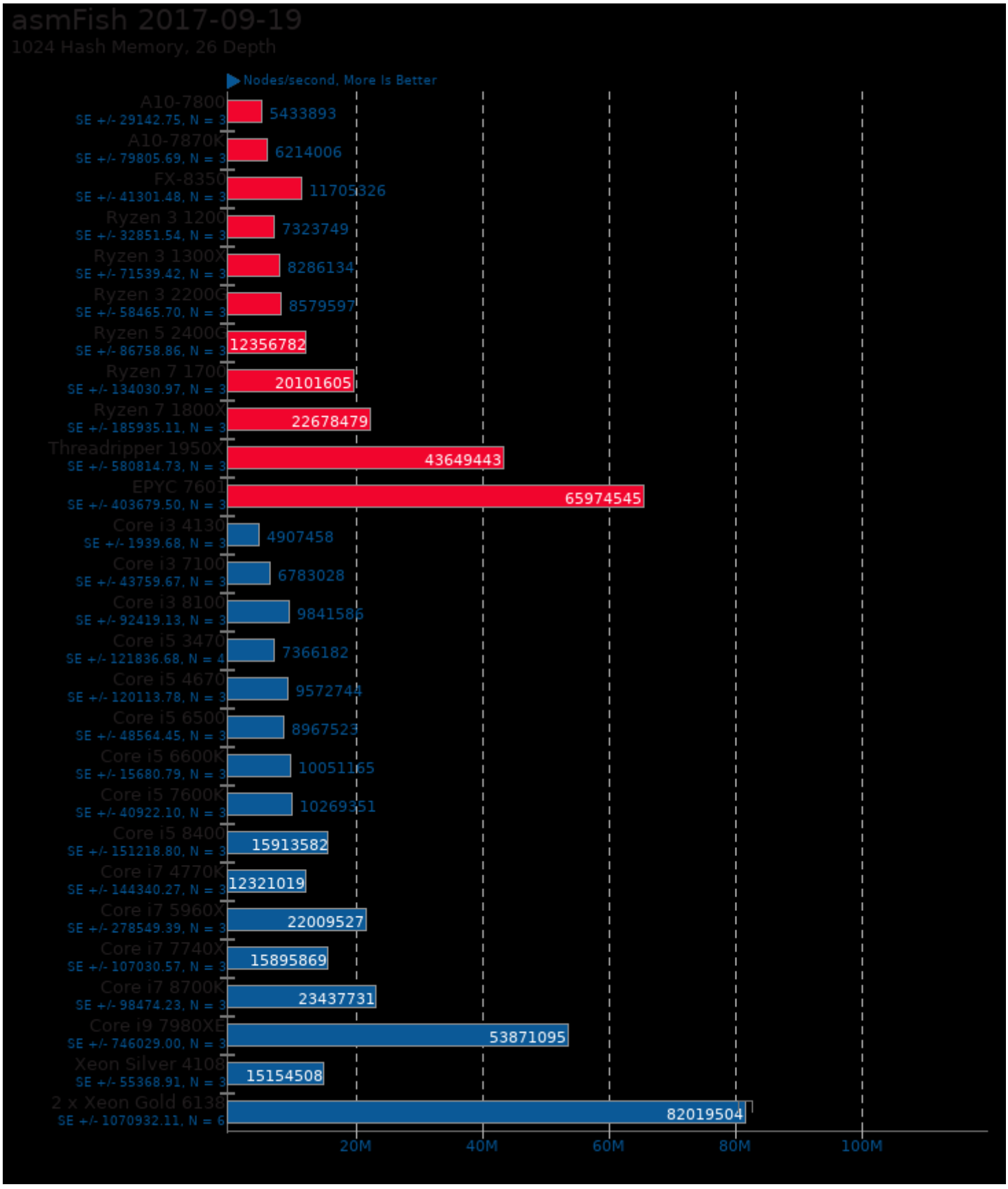
Large Intel AMD Linux CPU Benchmark Comparison

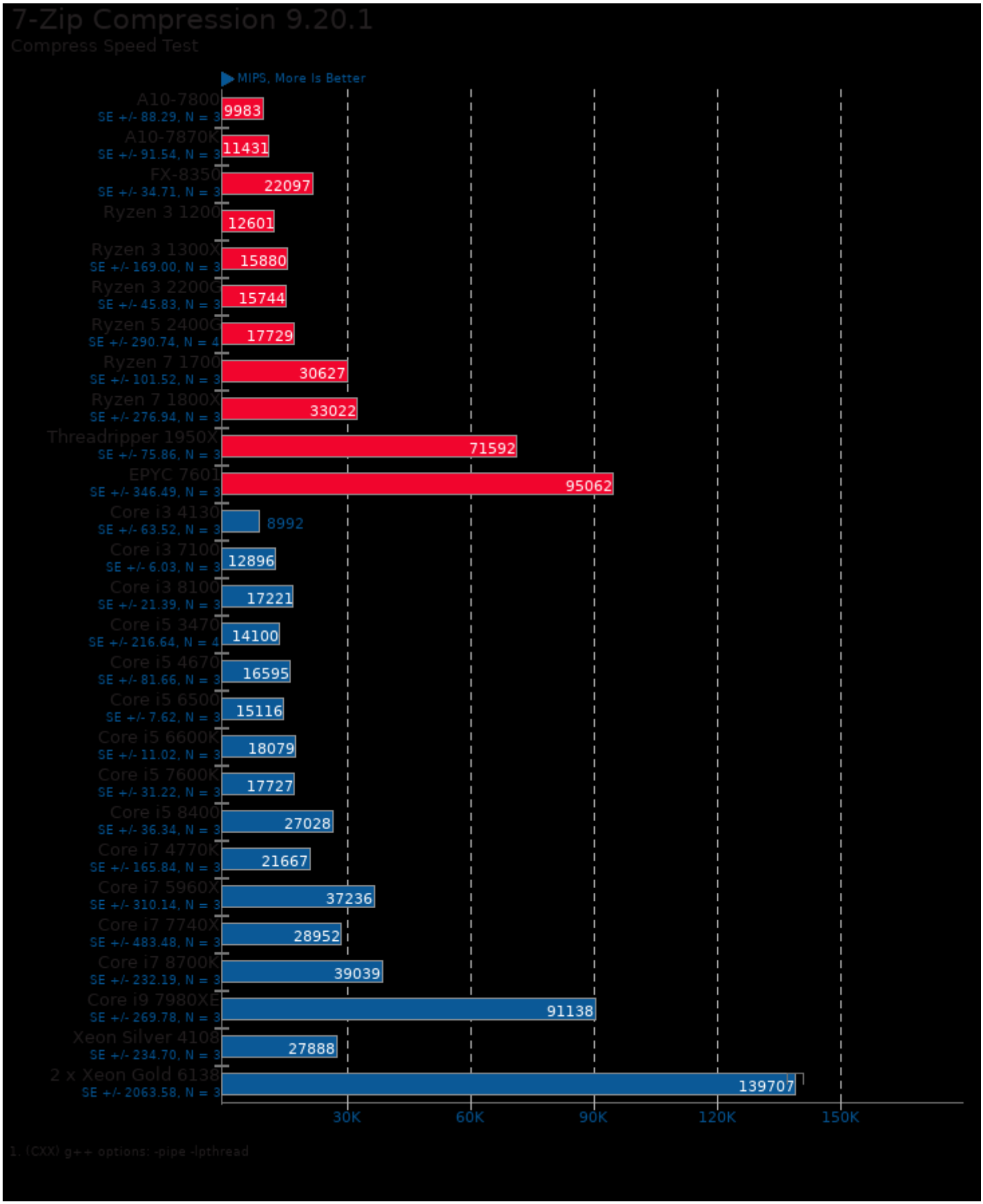


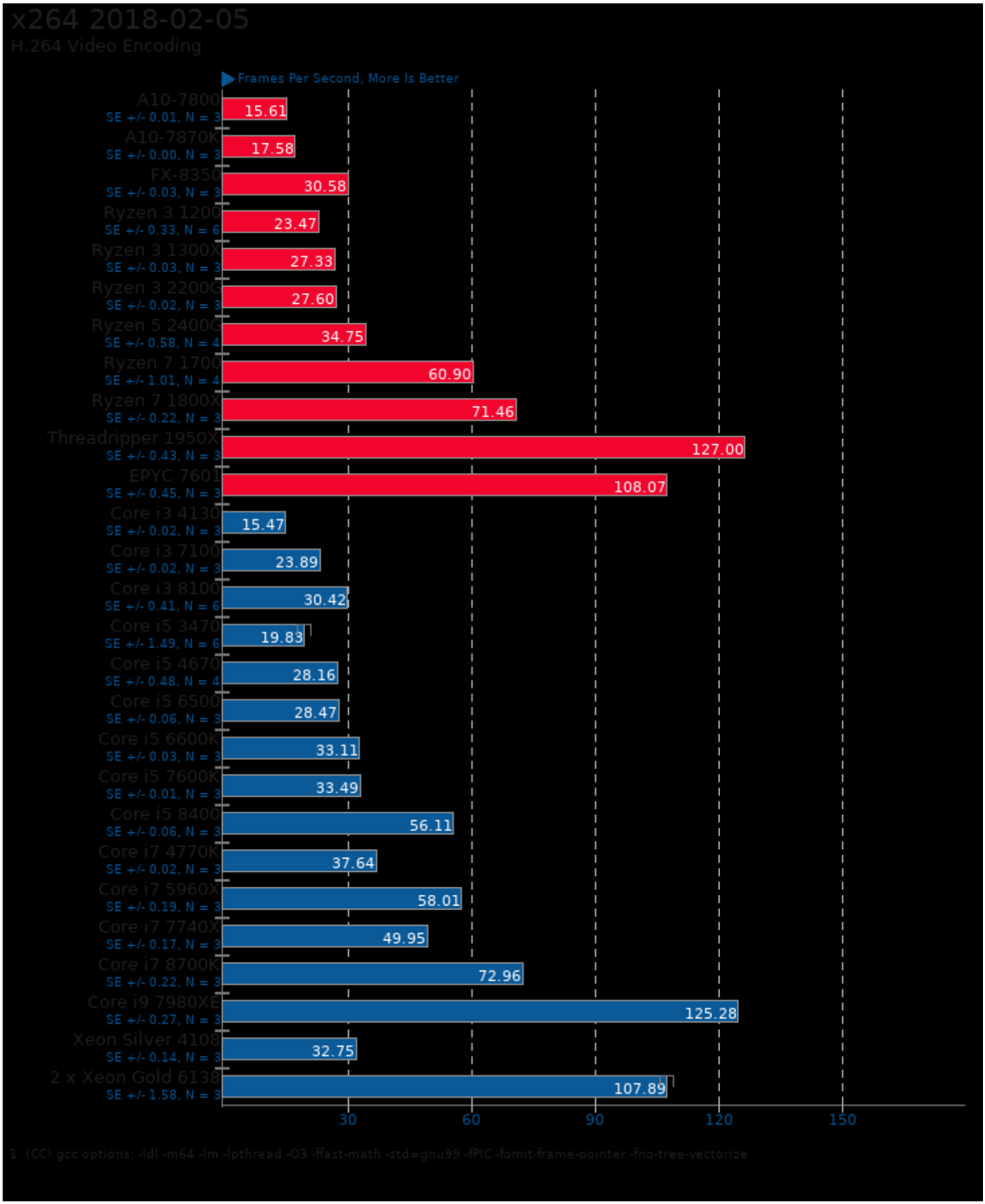
Large Intel AMD Linux CPU Benchmark Comparison



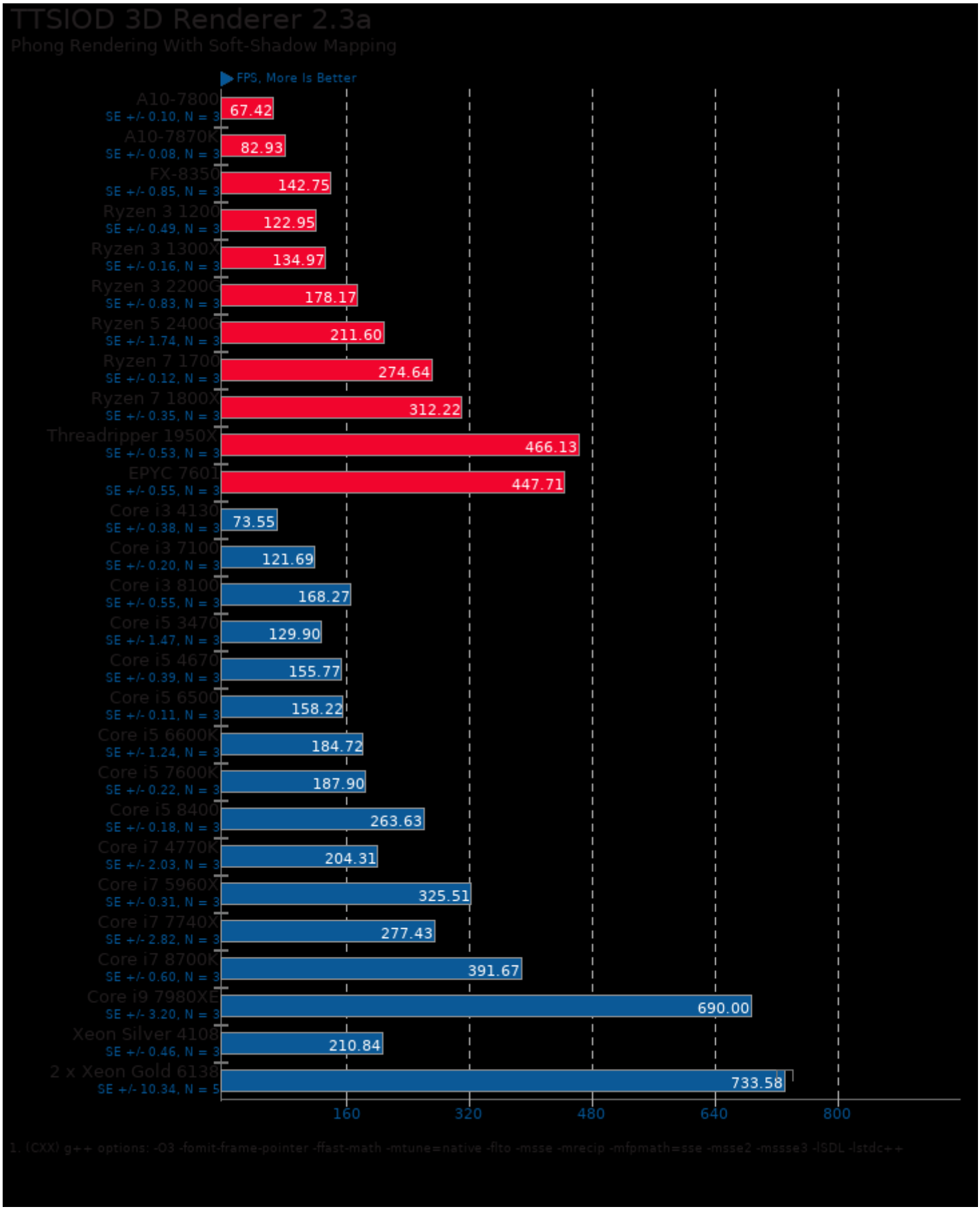
Large Intel AMD Linux CPU Benchmark Comparison

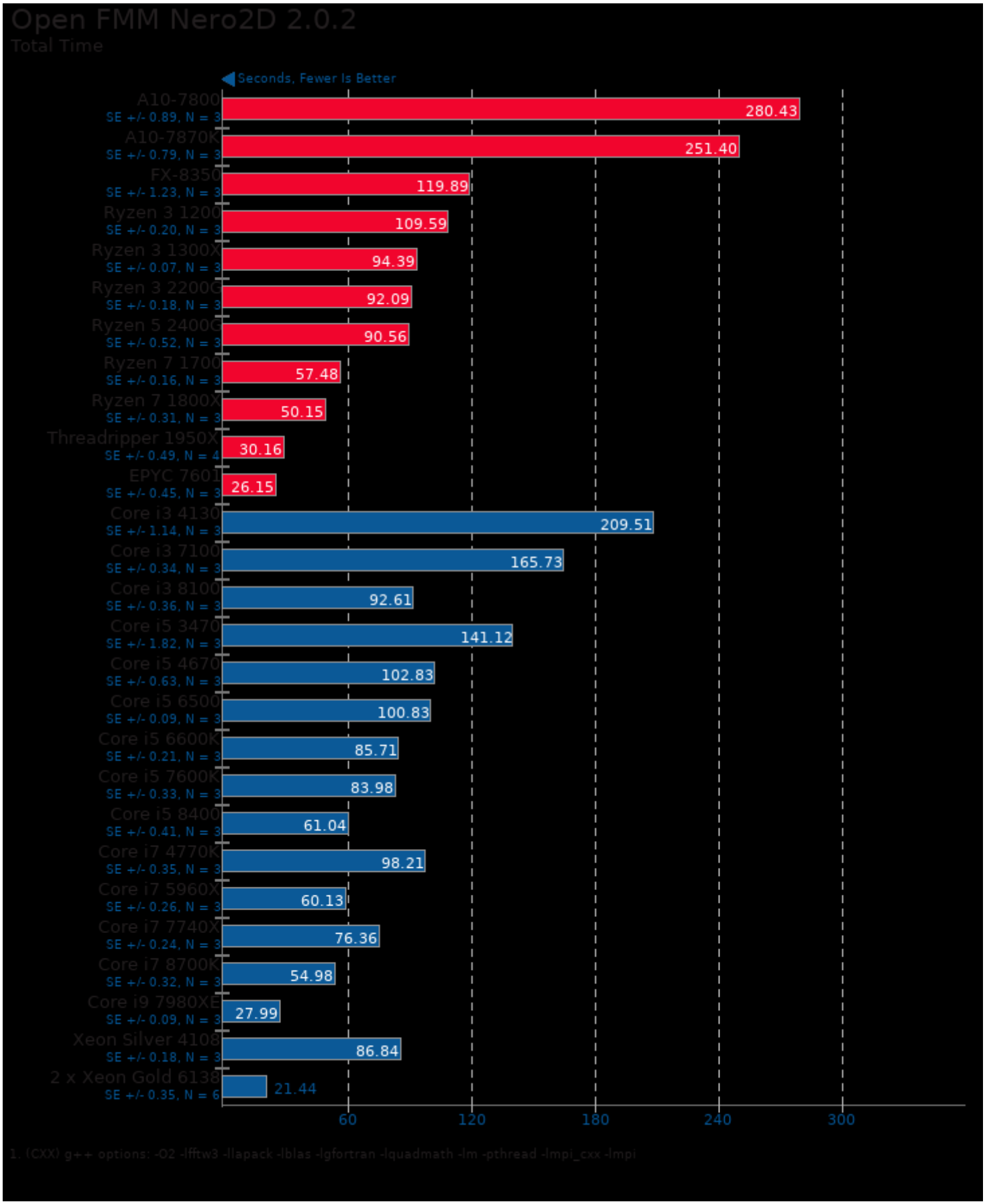


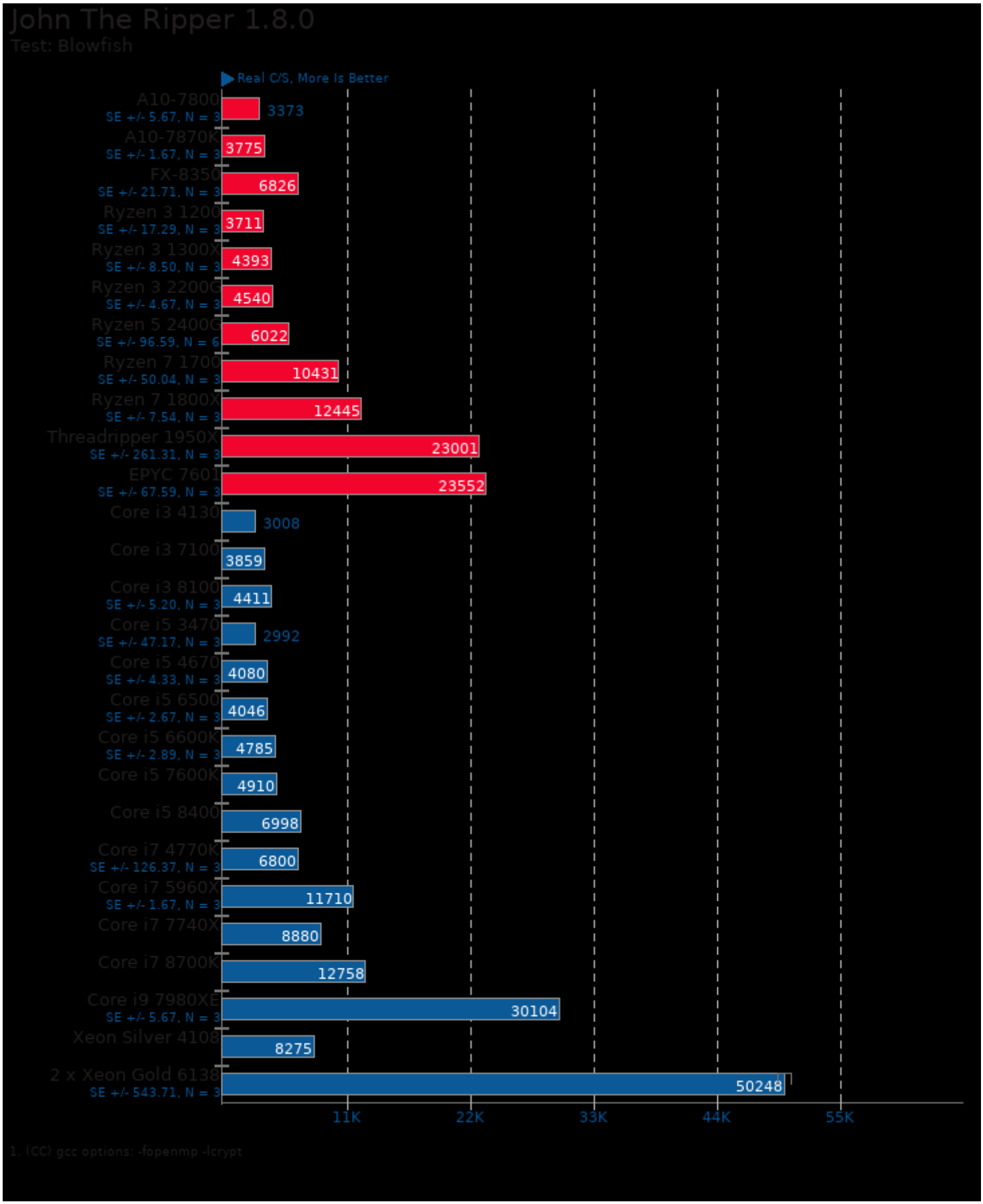

7-Zip Compression 9.20.1
Compress Speed Test
MIPS, More Is Better
A10-7800
SE +/- 88.29, N = 3
9983
A10-7870K
SE +/- 91.54, N = 3
11431
FX-8350
SE +/- 34.71, N = 3
22097
Ryzen 3 1200
12601
Ryzen 3 1300X
SE +/- 169.00, N = 3
15880
Ryzen 3 2200G
SE +/- 45.83, N = 3
15744
Ryzen 5 2400G
SE +/- 290.74, N = 4
17729
Ryzen 7 1700
SE +/- 101.52, N = 3
30627
Ryzen 7 1800X
SE +/- 276.94, N = 3
33022
Threadripper 1950X
SE +/- 75.86, N = 3
71592
EPYC 7601
SE +/- 346.49, N = 3
95062
Core i3 4130
SE +/- 63.52, N = 3
8992
Core i3 7100
SE +/- 6.03, N = 3
12896
Core i3 8100
SE +/- 21.39, N = 3
17221
Core i5 3470
SE +/- 216.64, N = 4
14100
Core i5 4670
SE +/- 81.66, N = 3
16595
Core i5 6500
SE +/- 7.62, N = 3
15116
Core i5 6600K
SE +/- 11.02, N = 3
18079
Core i5 7600K
SE +/- 31.22, N = 3
17727
Core i5 8400
SE +/- 36.34, N = 3
27028
Core i7 4770K
SE +/- 165.84, N = 3
21667
Core i7 5960X
SE +/- 310.14, N = 3
37236
Core i7 7740X
SE +/- 483.48, N = 3
28952
Core i7 8700K
SE +/- 232.19, N = 3
39039
Core i9 7980XE
SE +/- 269.78, N = 3
91138
Xeon Silver 4108
SE +/- 234.70, N = 3
27888
2 x Xeon Gold 6138
SE +/- 2063.58, N = 3
139707
30K
60K
90K
120K
150K
1. (CXX) g++ options: -pipe -lpthread

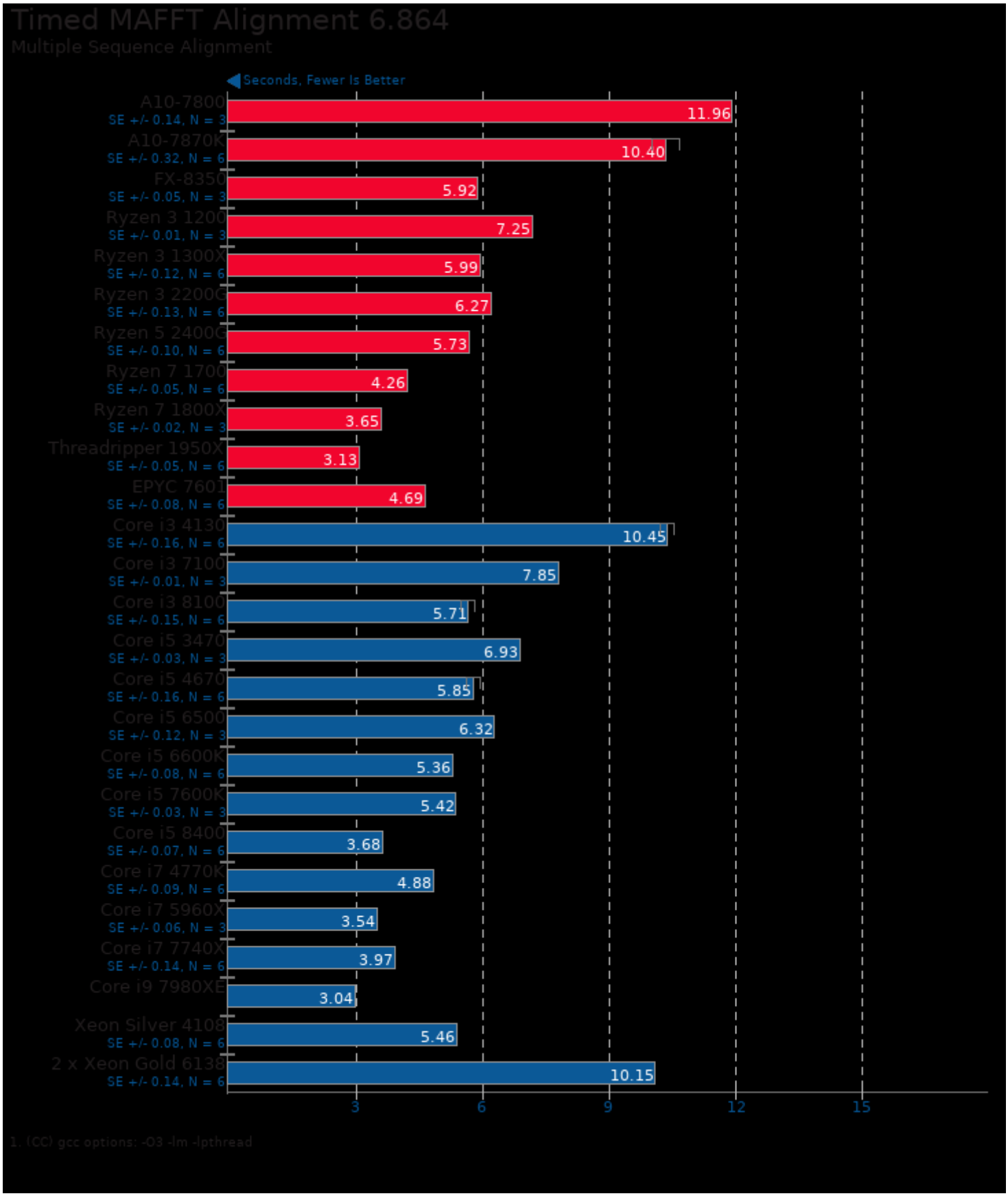

x264 2018-02-05
H.264 Video Encoding
Frames Per Second, More Is Better
A10-7800
SE +/- 0.01, N = 3
15.61
A10-7870K
SE +/- 0.00, N = 3
17.58
FX-8350
SE +/- 0.03, N = 3
30.58
Ryzen 3 1200
SE +/- 0.33, N = 6
23.47
Ryzen 3 1300X
SE +/- 0.03, N = 3
27.33
Ryzen 3 2200G
SE +/- 0.02, N = 3
27.60
Ryzen 5 2400G
SE +/- 0.58, N = 4
34.75
Ryzen 7 1700
SE +/- 1.01, N = 4
60.90
Ryzen 7 1800X
SE +/- 0.22, N = 3
71.46
Threadripper 1950X
SE +/- 0.43, N = 3
127.00
EPYC 7601
SE +/- 0.45, N = 3
108.07
Core i3 4130
SE +/- 0.02, N = 3
15.47
Core i3 7100
SE +/- 0.02, N = 3
23.89
Core i3 8100
SE +/- 0.41, N = 6
30.42
Core i5 3470
SE +/- 1.49, N = 6
19.83
Core i5 4670
SE +/- 0.48, N = 4
28.16
Core i5 6500
SE +/- 0.06, N = 3
28.47
Core i5 6600K
SE +/- 0.03, N = 3
33.11
Core i5 7600K
SE +/- 0.01, N = 3
33.49
Core i5 8400
SE +/- 0.06, N = 3
56.11
Core i7 4770K
SE +/- 0.02, N = 3
37.64
Core i7 5960X
SE +/- 0.19, N = 3
58.01
Core i7 7740X
SE +/- 0.17, N = 3
49.95
Core i7 8700K
SE +/- 0.22, N = 3
72.96
Core i9 7980XE
SE +/- 0.27, N = 3
125.28
Xeon Silver 4108
SE +/- 0.14, N = 3
32.75
2 x Xeon Gold 6138
SE +/- 1.58, N = 3
107.89
30
60
90
120
150
1. (CC) gcc options: -ldl -m64 -lm -lpthread -O3 -ffast-math -std=gnu99 -fPIC -fomit-frame-pointer -fno-tree-vectorize

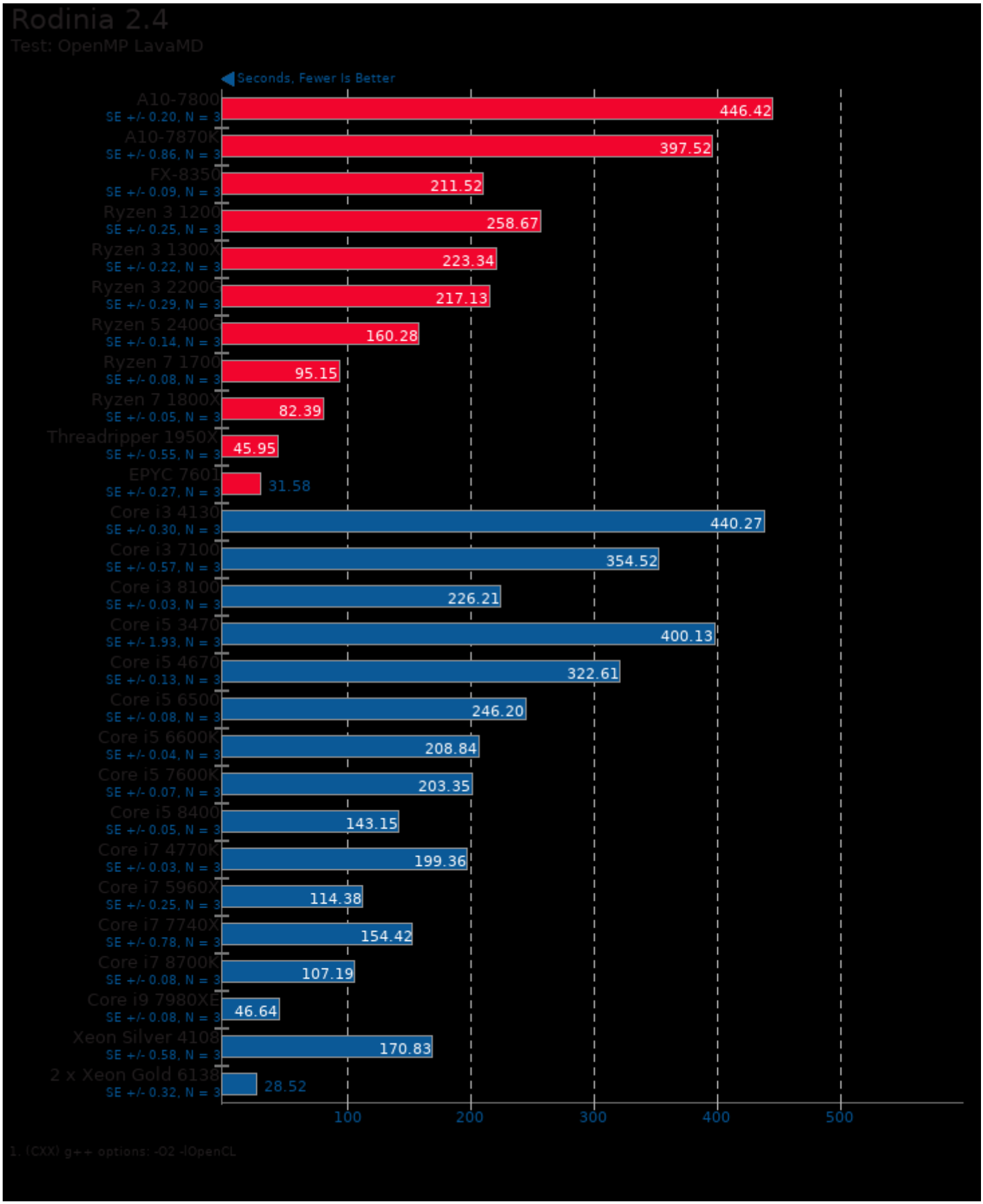
Large Intel AMD Linux CPU Benchmark Comparison



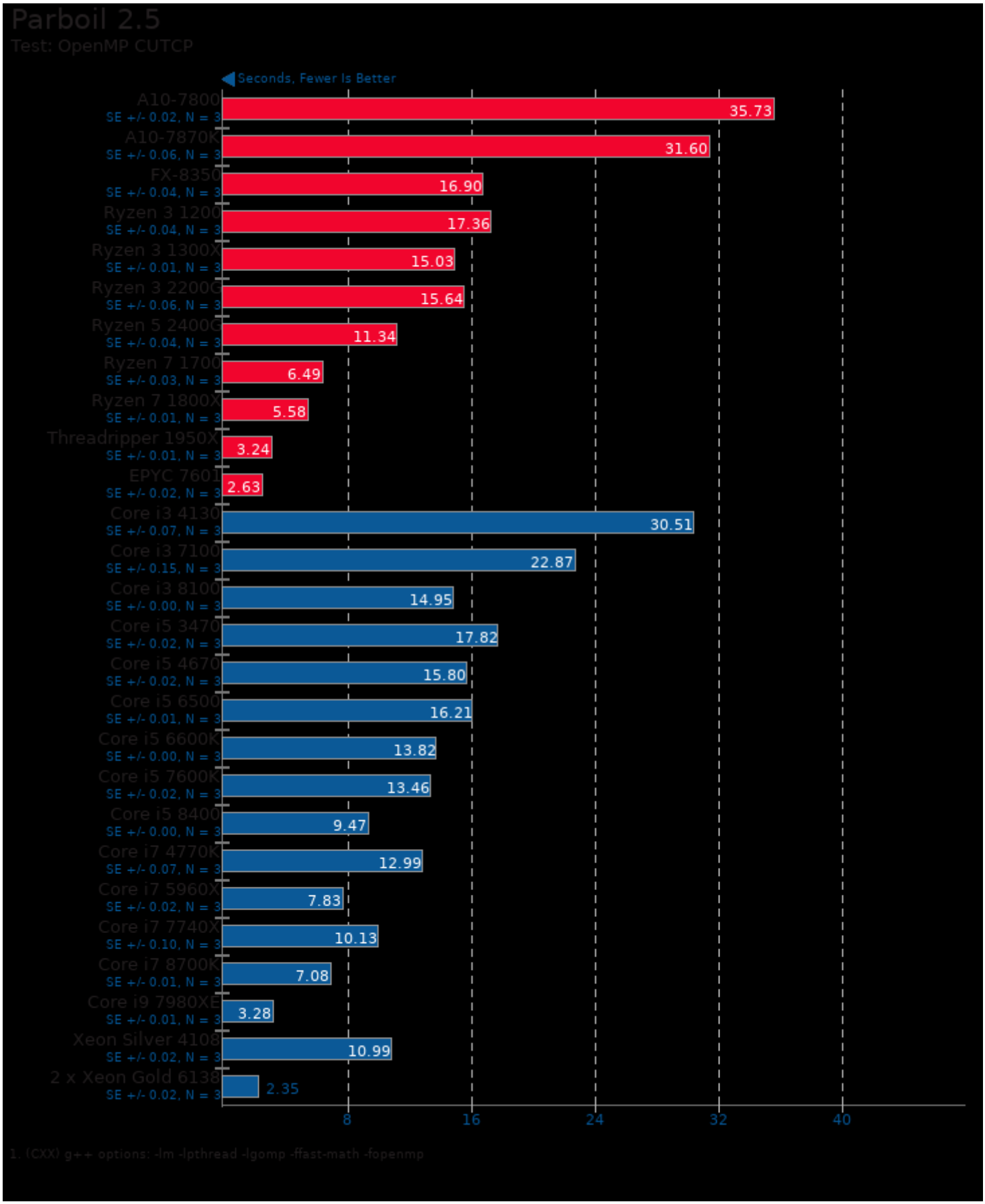

Open FMM Nero2D 2.0.2
Total Time
Seconds, Fewer Is Better
A10-7800
SE +/- 0.89, N = 3
280.43
A10-7870K
SE +/- 0.79, N = 3
251.40
FX-8350
SE +/- 1.23, N = 3
119.89
Ryzen 3 1200
SE +/- 0.20, N = 3
109.59
Ryzen 3 1300X
SE +/- 0.07, N = 3
94.39
Ryzen 3 2200G
SE +/- 0.18, N = 3
92.09
Ryzen 5 2400G
SE +/- 0.52, N = 3
90.56
Ryzen 7 1700
SE +/- 0.16, N = 3
57.48
Ryzen 7 1800X
SE +/- 0.31, N = 3
50.15
Threadripper 1950X
SE +/- 0.49, N = 4
30.16
EPYC 7601
SE +/- 0.45, N = 3
26.15
Core i3 4130
SE +/- 1.14, N = 3
209.51
Core i3 7100
SE +/- 0.34, N = 3
165.73
Core i3 8100
SE +/- 0.36, N = 3
92.61
Core i5 3470
SE +/- 1.82, N = 3
141.12
Core i5 4670
SE +/- 0.63, N = 3
102.83
Core i5 6500
SE +/- 0.09, N = 3
100.83
Core i5 6600K
SE +/- 0.21, N = 3
85.71
Core i5 7600K
SE +/- 0.33, N = 3
83.98
Core i5 8400
SE +/- 0.41, N = 3
61.04
Core i7 4770K
SE +/- 0.35, N = 3
98.21
Core i7 5960X
SE +/- 0.26, N = 3
60.13
Core i7 7740X
SE +/- 0.24, N = 3
76.36
Core i7 8700K
SE +/- 0.32, N = 3
54.98
Core i9 7980XE
SE +/- 0.09, N = 3
27.99
Xeon Silver 4108
SE +/- 0.18, N = 3
86.84
2 x Xeon Gold 6138
SE +/- 0.35, N = 6
21.44
60
120
180
240
300
1. (CXX) g++ options: -O2 -lfftw3 -llapack -lblas -lgfortran -lquadmath -lm -pthread -lmpi_cxx -lmpi


John The Ripper 1.8.0
Test: Blowfish
Real C/S, More Is Better
A10-7800
SE +/- 5.67, N = 3
3373
A10-7870K
SE +/- 1.67, N = 3
3775
FX-8350
SE +/- 21.71, N = 3
6826
Ryzen 3 1200
SE +/- 17.29, N = 3
3711
Ryzen 3 1300X
SE +/- 8.50, N = 3
4393
Ryzen 3 2200G
SE +/- 4.67, N = 3
4540
Ryzen 5 2400G
SE +/- 96.59, N = 6
6022
Ryzen 7 1700
SE +/- 50.04, N = 3
10431
Ryzen 7 1800X
SE +/- 7.54, N = 3
12445
Threadripper 1950X
SE +/- 261.31, N = 3
23001
EPYC 7601
SE +/- 67.59, N = 3
23552
Core i3 4130
3008
Core i3 7100
3859
Core i3 8100
SE +/- 5.20, N = 3
4411
Core i5 3470
SE +/- 47.17, N = 3
2992
Core i5 4670
SE +/- 4.33, N = 3
4080
Core i5 6500
SE +/- 2.67, N = 3
4046
Core i5 6600K
SE +/- 2.89, N = 3
4785
Core i5 7600K
4910
Core i5 8400
6998
Core i7 4770K
SE +/- 126.37, N = 3
6800
Core i7 5960X
SE +/- 1.67, N = 3
11710
Core i7 7740X
8880
Core i7 8700K
12758
Core i9 7980XE
SE +/- 5.67, N = 3
30104
Xeon Silver 4108
8275
2 x Xeon Gold 6138
SE +/- 543.71, N = 3
50248
11K
22K
33K
44K
55K
1. (CC) gcc options: -fopenmp -lcrypt

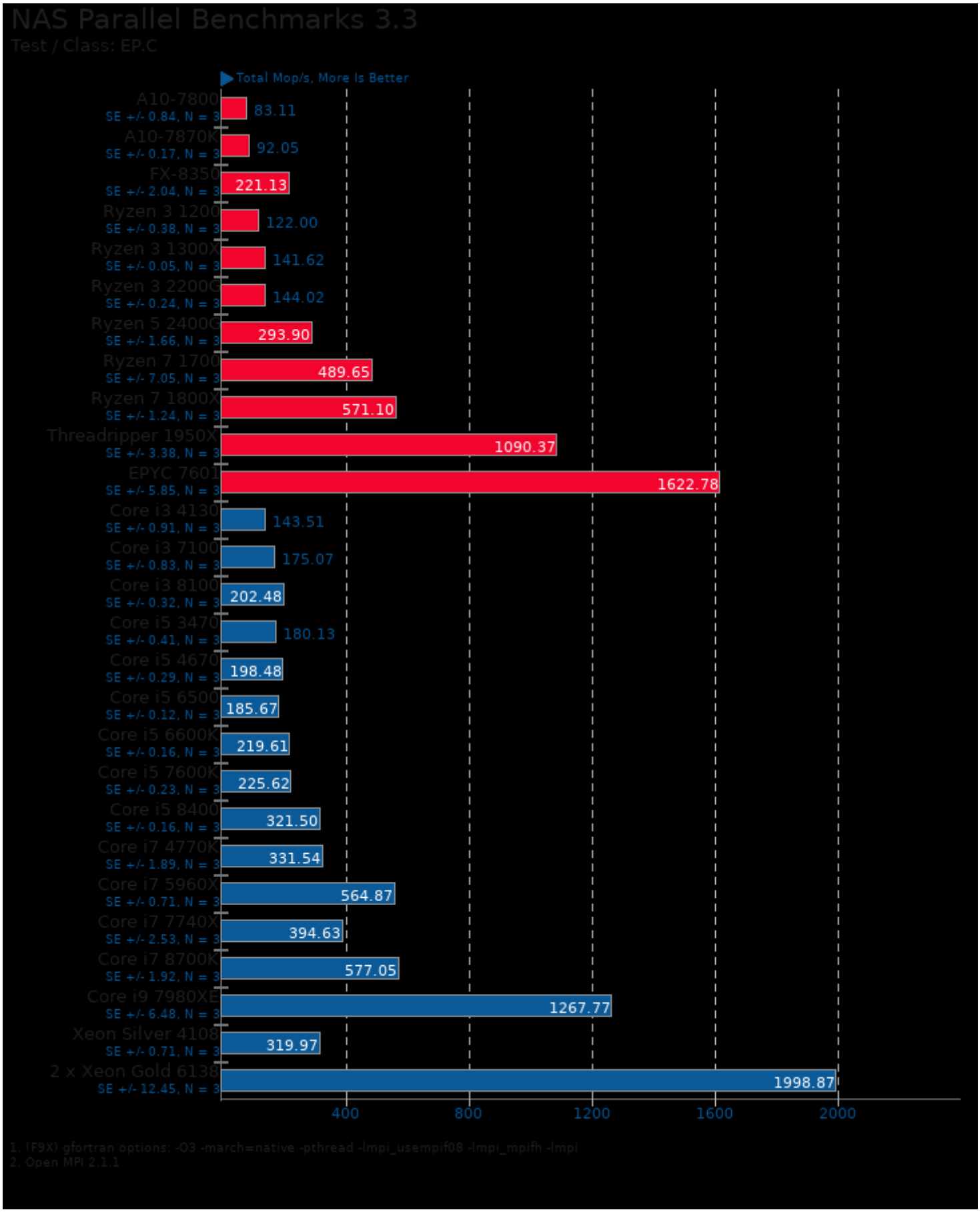

Timed MAFFT Alignment 6.864
Multiple Sequence Alignment
Seconds, Fewer Is Better
A10-7800
SE +/- 0.14, N = 3
11.96
A10-7870K
SE +/- 0.32, N = 6
10.40
FX-8350
SE +/- 0.05, N = 3
5.92
Ryzen 3 1200
SE +/- 0.01, N = 3
7.25
Ryzen 3 1300X
SE +/- 0.12, N = 6
5.99
Ryzen 3 2200G
SE +/- 0.13, N = 6
6.27
Ryzen 5 2400G
SE +/- 0.10, N = 6
5.73
Ryzen 7 1700
SE +/- 0.05, N = 6
4.26
Ryzen 7 1800X
SE +/- 0.02, N = 3
3.65
Threadripper 1950X
SE +/- 0.05, N = 6
3.13
EPYC 7601
SE +/- 0.08, N = 6
4.69
Core i3 4130
SE +/- 0.16, N = 6
10.45
Core i3 7100
SE +/- 0.01, N = 3
7.85
Core i3 8100
SE +/- 0.15, N = 6
5.71
Core i5 3470
SE +/- 0.03, N = 3
6.93
Core i5 4670
SE +/- 0.16, N = 6
5.85
Core i5 6500
SE +/- 0.12, N = 3
6.32
Core i5 6600K
SE +/- 0.08, N = 6
5.36
Core i5 7600K
SE +/- 0.03, N = 3
5.42
Core i5 8400
SE +/- 0.07, N = 6
3.68
Core i7 4770K
SE +/- 0.09, N = 6
4.88
Core i7 5960X
SE +/- 0.06, N = 3
3.54
Core i7 7740X
SE +/- 0.14, N = 6
3.97
Core i9 7980XE
3.04
Xeon Silver 4108
SE +/- 0.08, N = 6
5.46
2 x Xeon Gold 6138
SE +/- 0.14, N = 6
10.15
3
6
9
12
15
1. (CC) gcc options: -O3 -lm -lpthread


Rodinia 2.4
Test: OpenMP LavaMD
Seconds, Fewer Is Better
A10-7800
SE +/- 0.20, N = 3
446.42
A10-7870K
SE +/- 0.86, N = 3
397.52
FX-8350
SE +/- 0.09, N = 3
211.52
Ryzen 3 1200
SE +/- 0.25, N = 3
258.67
Ryzen 3 1300X
SE +/- 0.22, N = 3
223.34
Ryzen 3 2200G
SE +/- 0.29, N = 3
217.13
Ryzen 5 2400G
SE +/- 0.14, N = 3
160.28
Ryzen 7 1700
SE +/- 0.08, N = 3
95.15
Ryzen 7 1800X
SE +/- 0.05, N = 3
82.39
Threadripper 1950X
SE +/- 0.55, N = 3
45.95
EPYC 7601
SE +/- 0.27, N = 3
31.58
Core i3 4130
SE +/- 0.30, N = 3
440.27
Core i3 7100
SE +/- 0.57, N = 3
354.52
Core i3 8100
SE +/- 0.03, N = 3
226.21
Core i5 3470
SE +/- 1.93, N = 3
400.13
Core i5 4670
SE +/- 0.13, N = 3
322.61
Core i5 6500
SE +/- 0.08, N = 3
246.20
Core i5 6600K
SE +/- 0.04, N = 3
208.84
Core i5 7600K
SE +/- 0.07, N = 3
203.35
Core i5 8400
SE +/- 0.05, N = 3
143.15
Core i7 4770K
SE +/- 0.03, N = 3
199.36
Core i7 5960X
SE +/- 0.25, N = 3
114.38
Core i7 7740X
SE +/- 0.78, N = 3
154.42
Core i7 8700K
SE +/- 0.08, N = 3
107.19
Core i9 7980XE
SE +/- 0.08, N = 3
46.64
Xeon Silver 4108
SE +/- 0.58, N = 3
170.83
2 x Xeon Gold 6138
SE +/- 0.32, N = 3
28.52
100
200
300
400
500
1. (CXX) g++ options: -O2 -lOpenCL

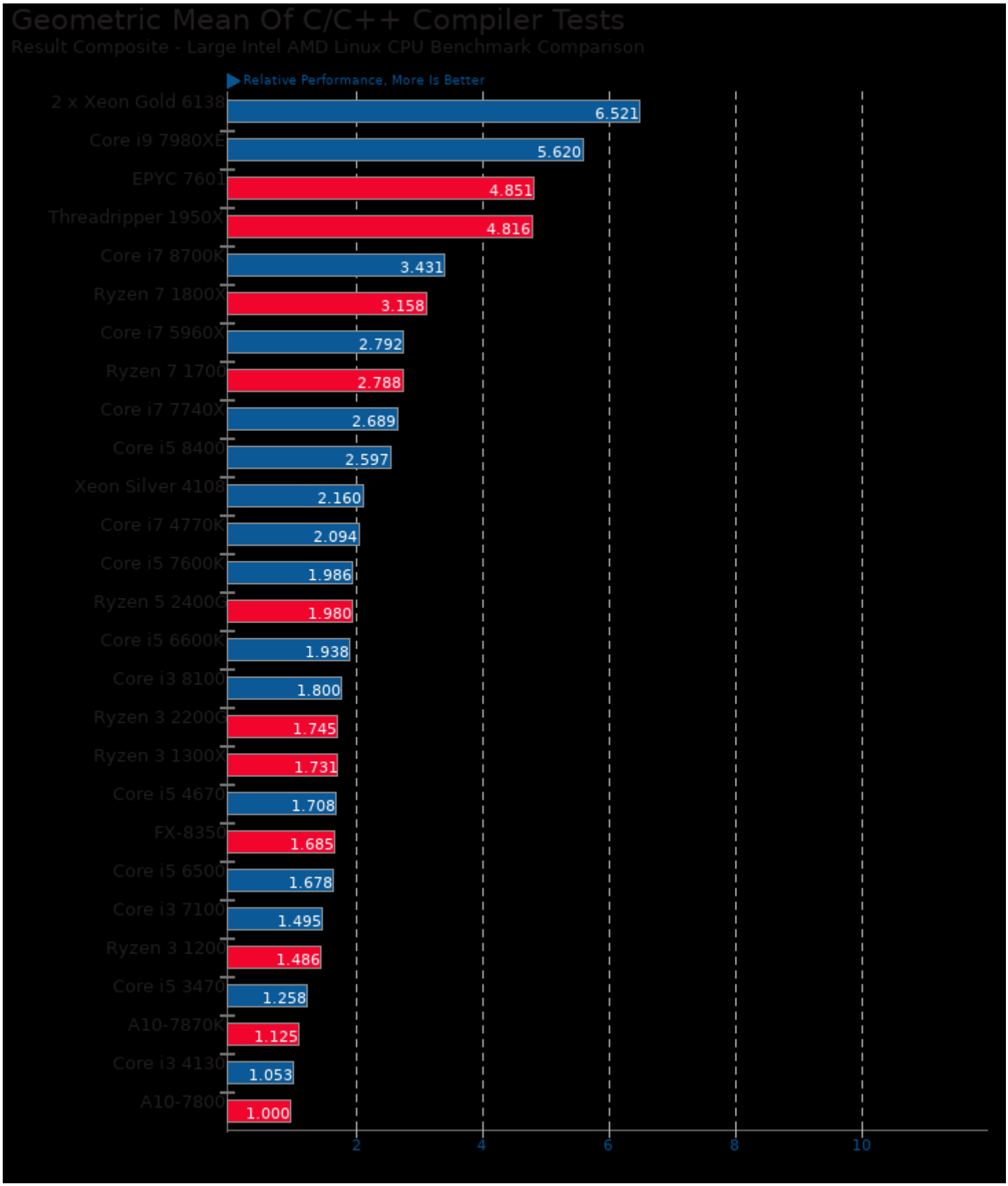
Large Intel AMD Linux CPU Benchmark Comparison



Large Intel AMD Linux CPU Benchmark Comparison



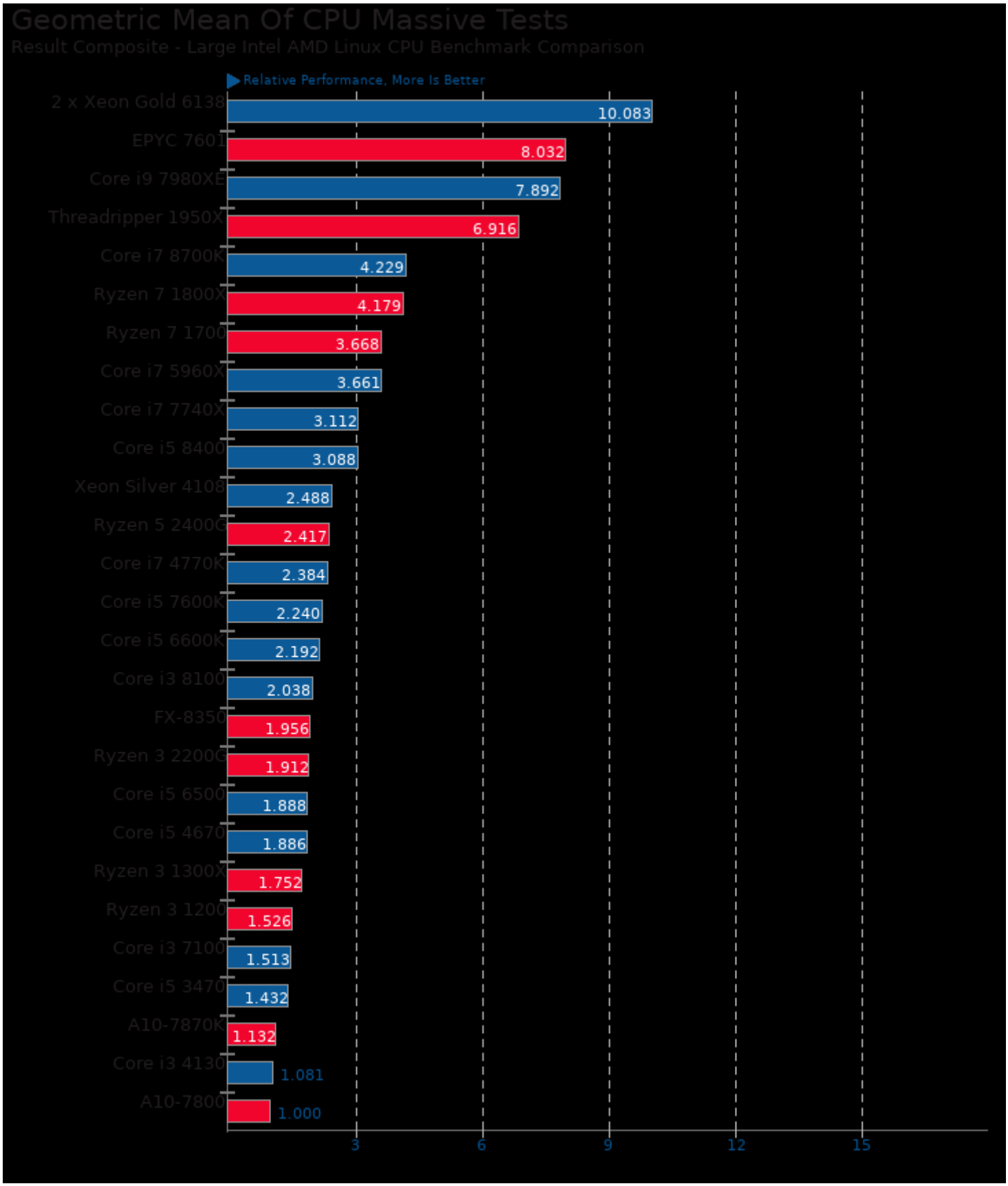
These geometric means are based upon test groupings / test suites for this result file.



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

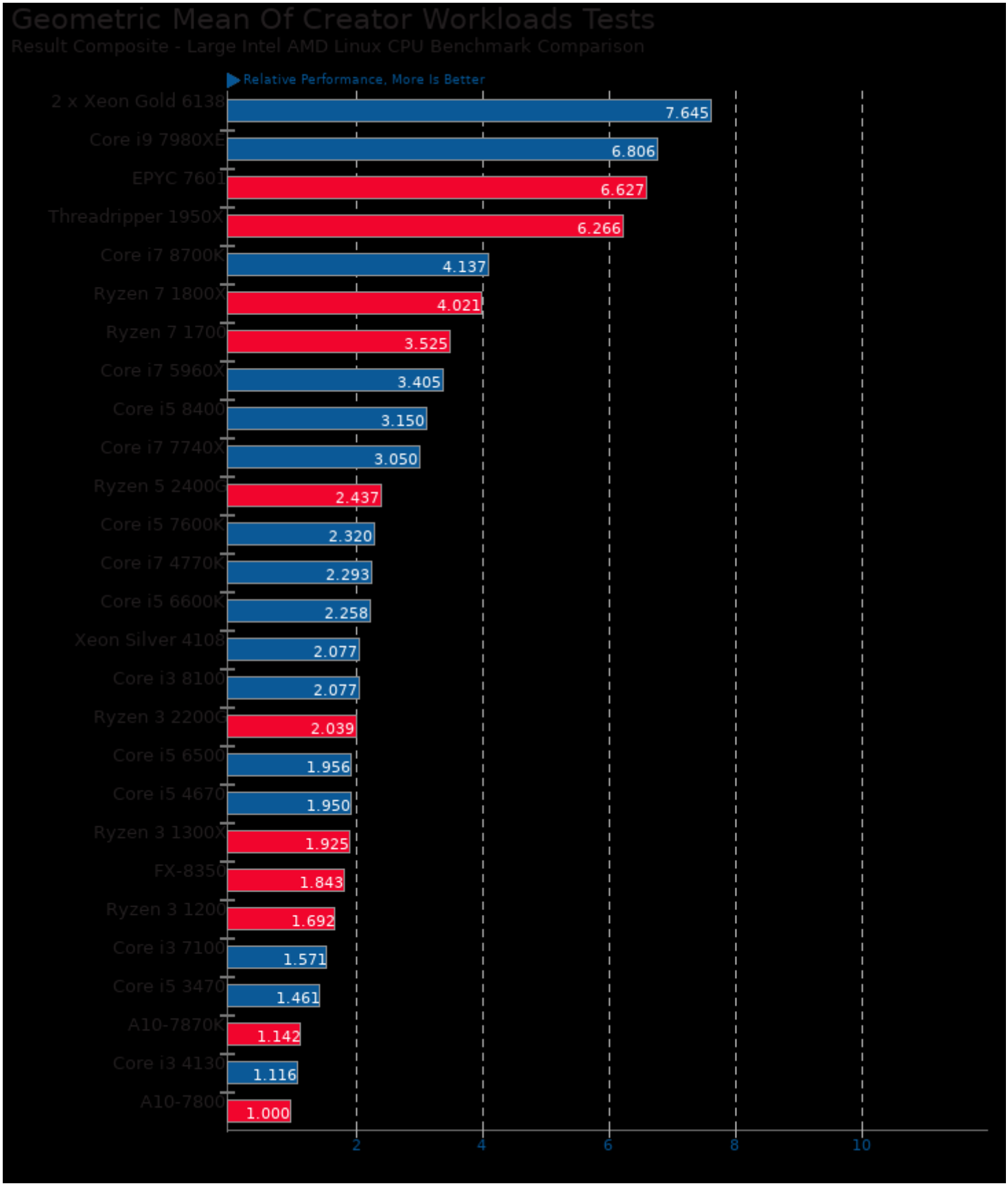
Large Intel AMD Linux CPU Benchmark Comparison

pts/x264, pts/openssl and pts/nginx



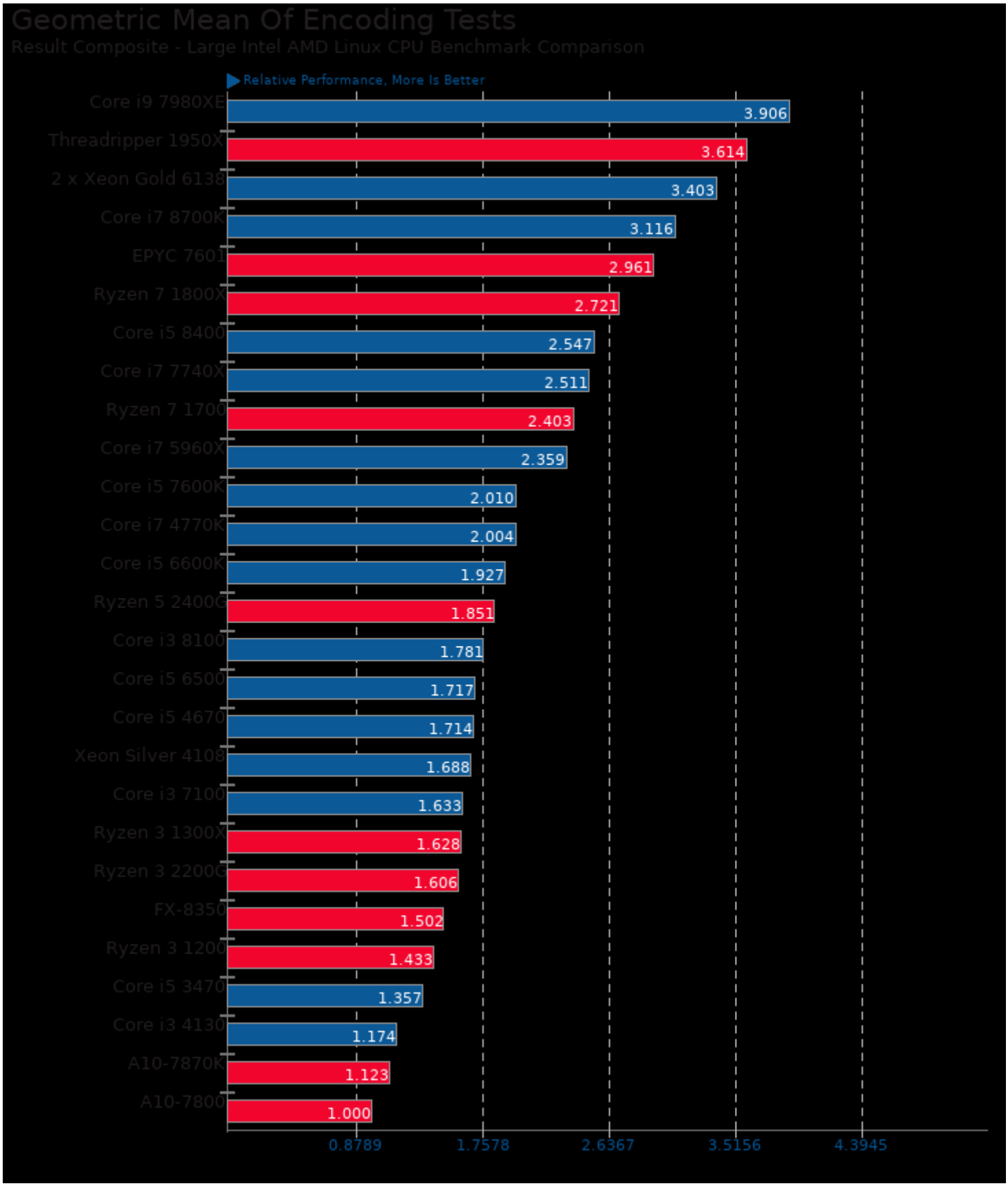
Geometric mean based upon tests: pts/asmfish, pts/build-linux-kernel, pts/c-ray, pts/compress-7zip, pts/x264,

pts/encode-mp3, pts/john-the-ripper, pts/openssl, pts/mafft, pts/nero2d, pts/nginx, pts/npb, pts/parboil, pts/povray, pts/rodinia and pts/ttsiod-renderer

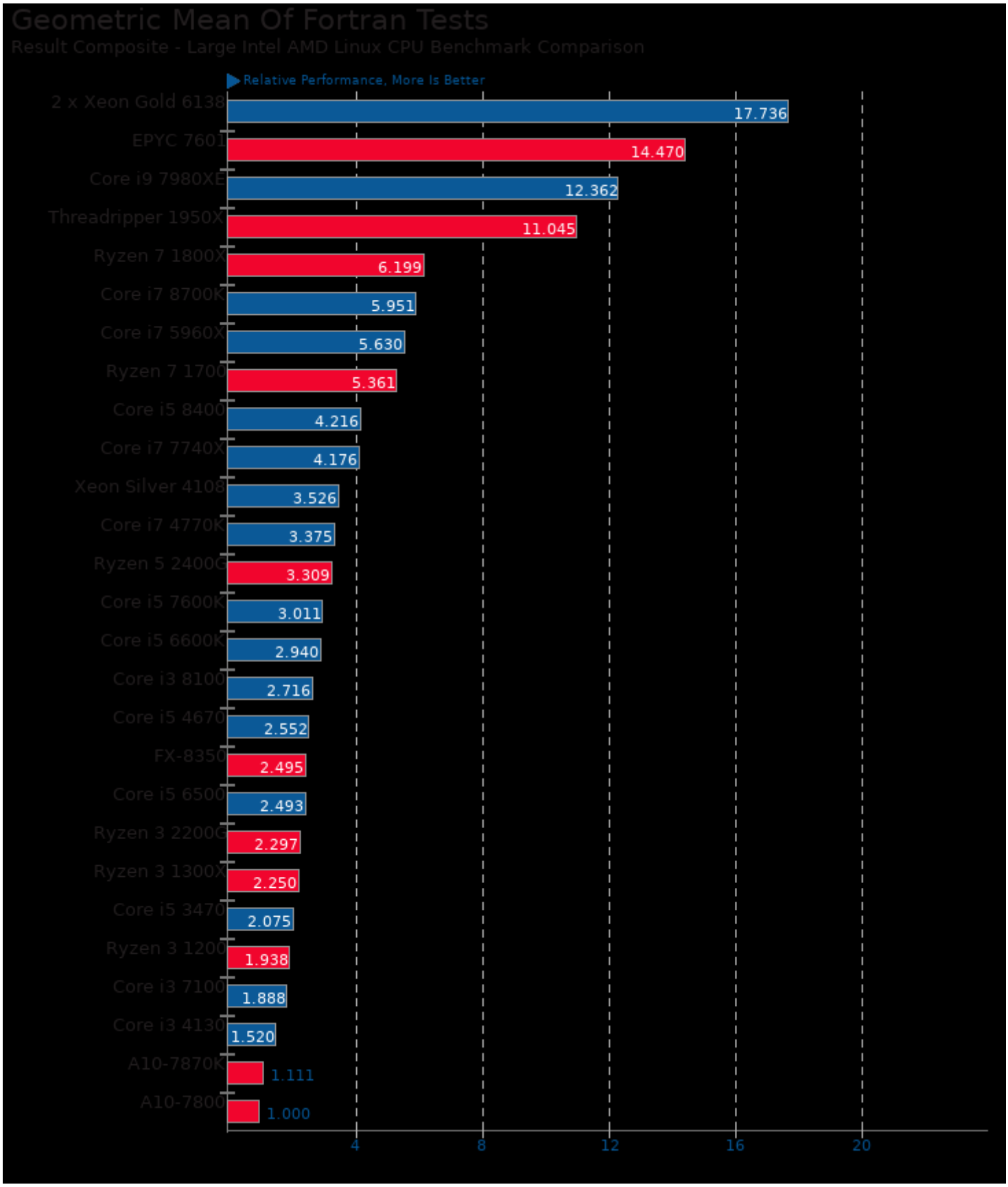


Large Intel AMD Linux CPU Benchmark Comparison

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

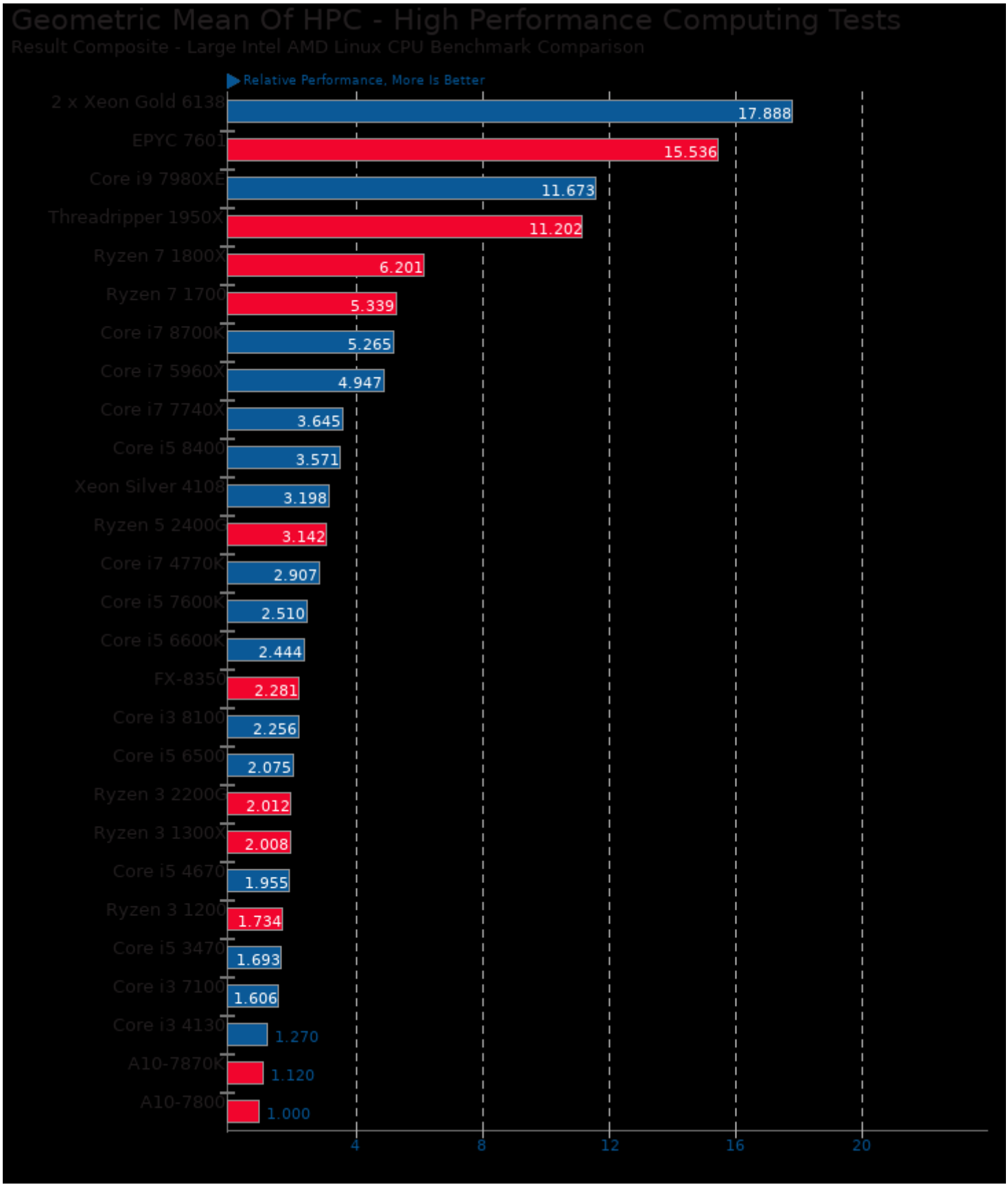


Geometric mean based upon tests: pts/encode-mp3 and pts/x264

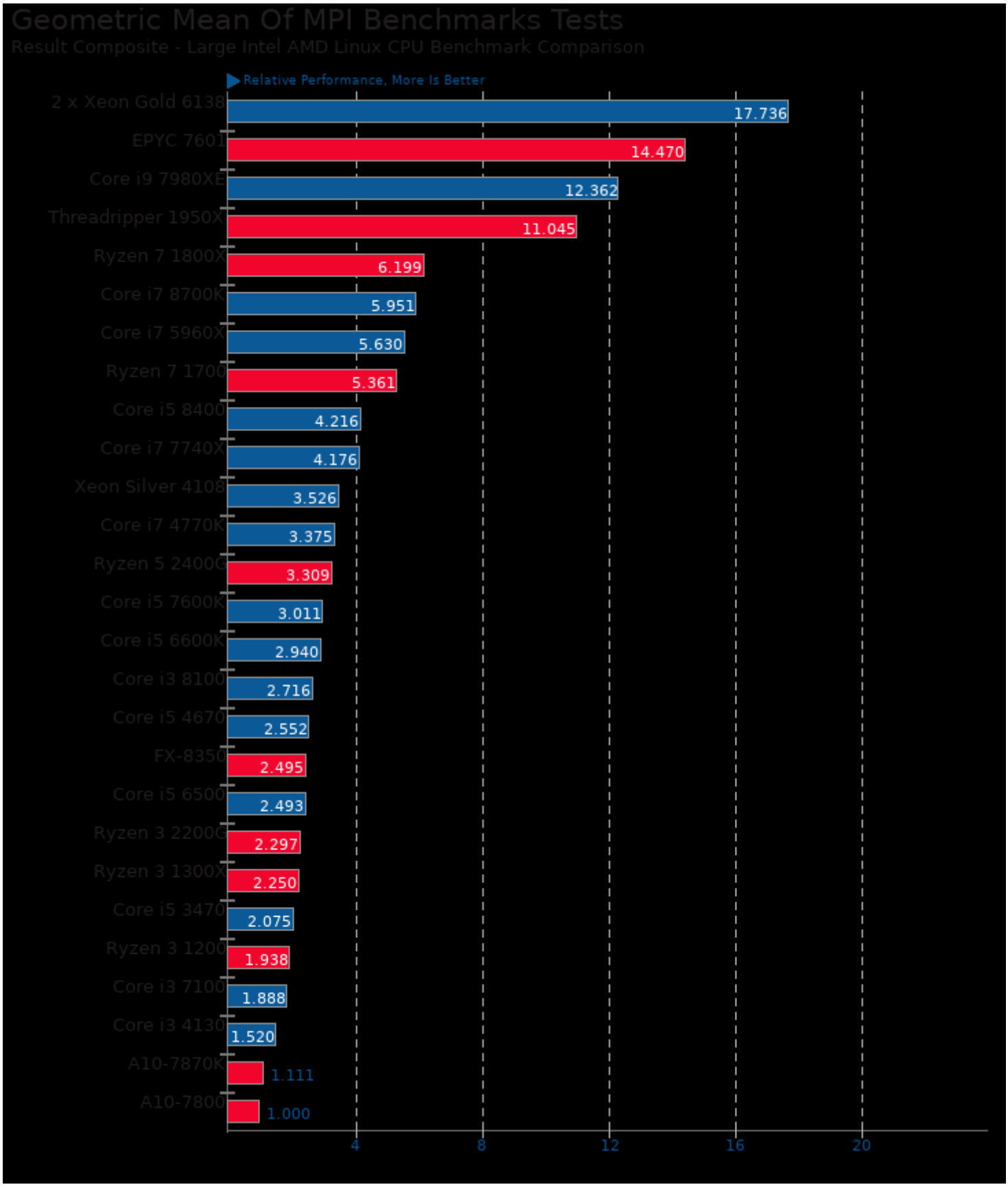


Geometric mean based upon tests: pts/nero2d and pts/npb

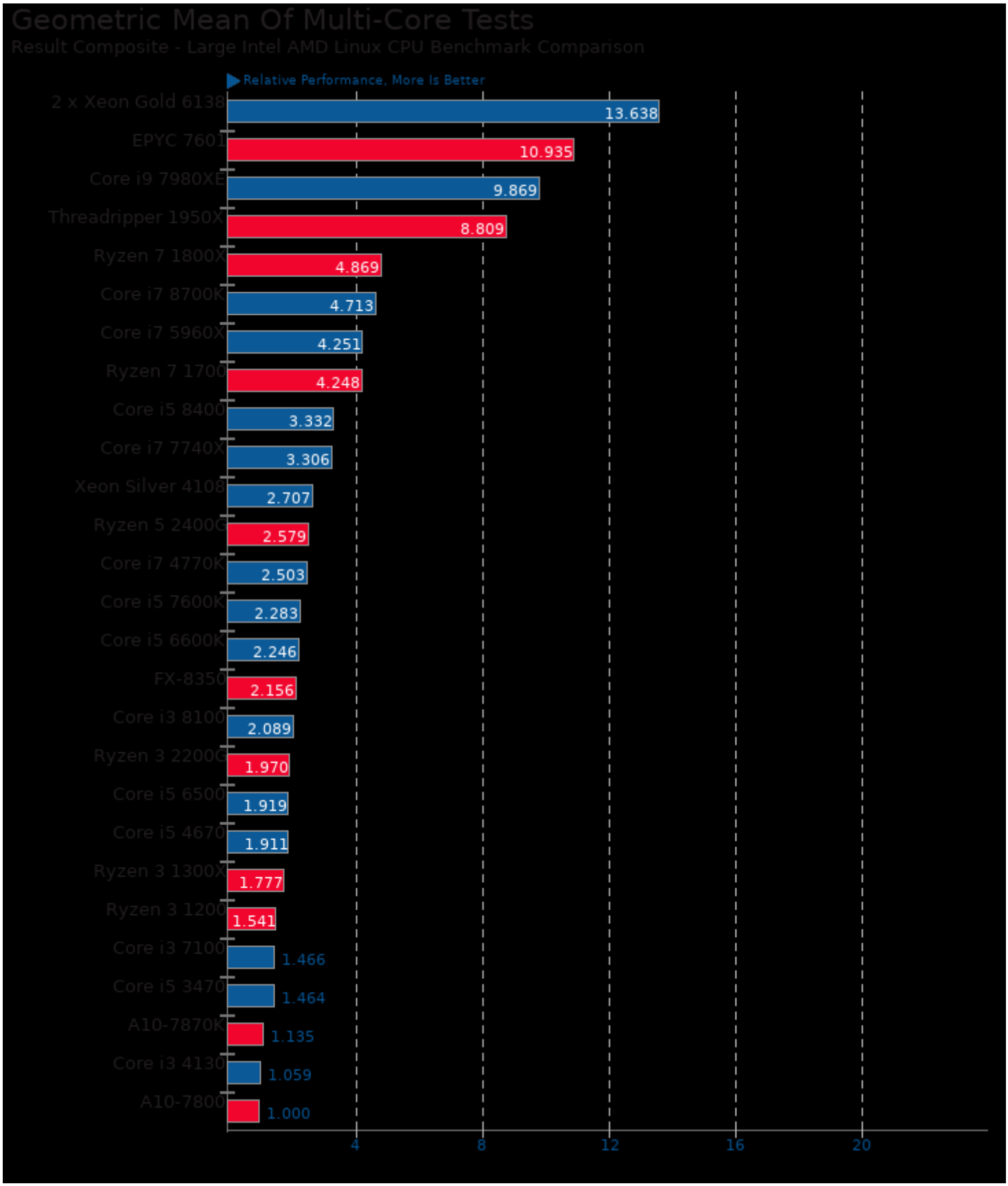
Large Intel AMD Linux CPU Benchmark Comparison



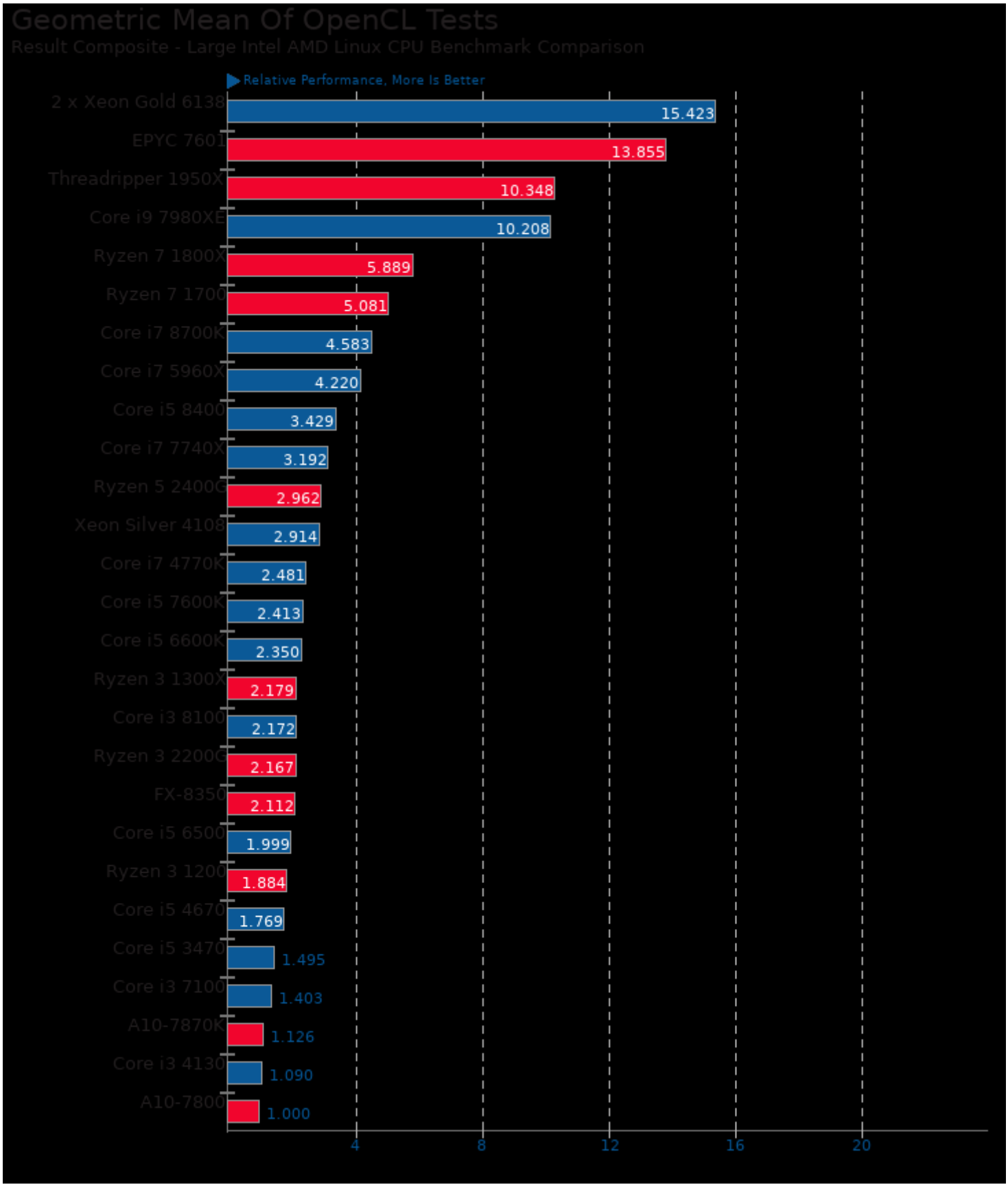
Geometric mean based upon tests: pts/npb, pts/rodinia, pts/parboil and pts/mafft



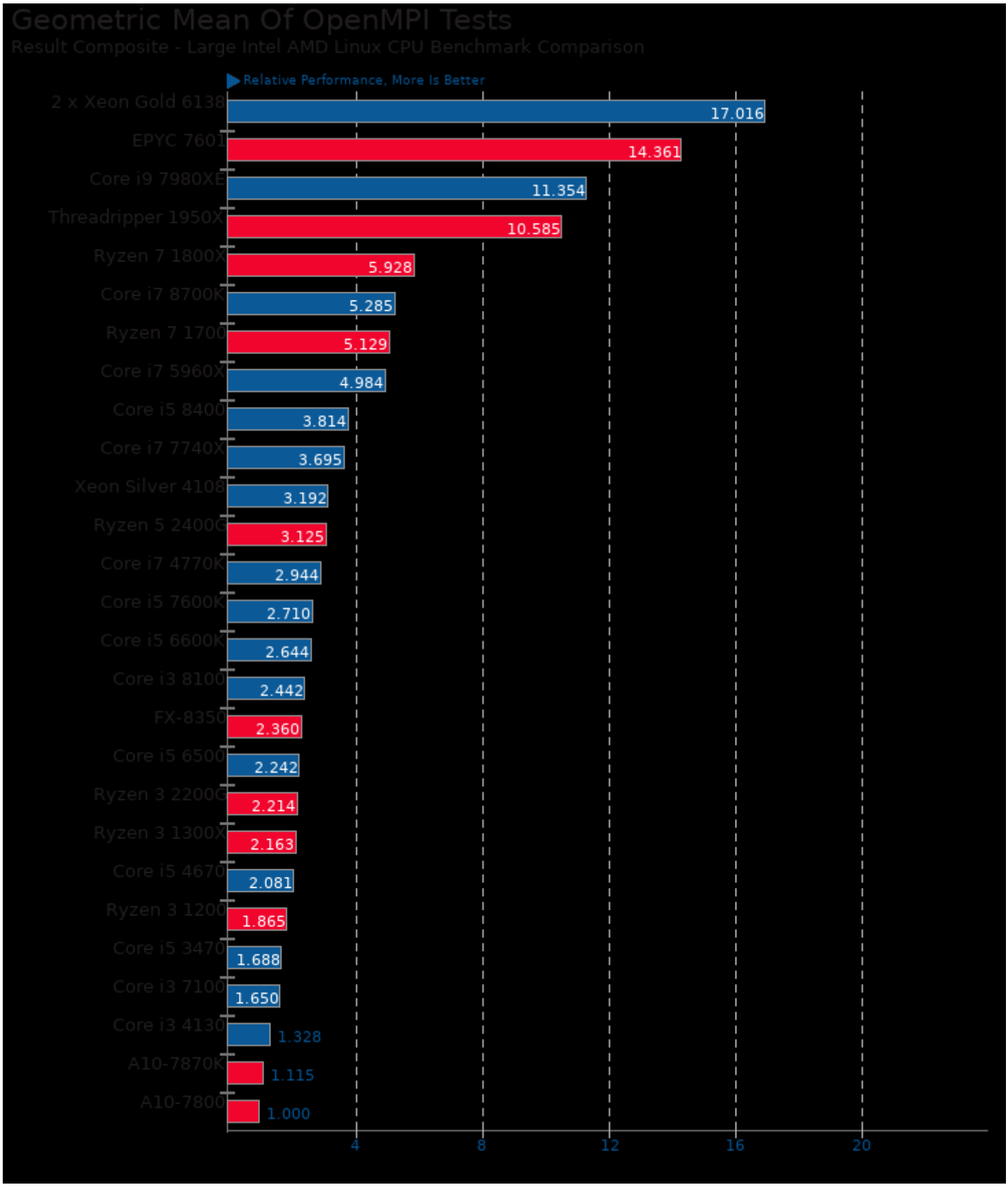
Geometric mean based upon tests: pts/nero2d and pts/npb



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

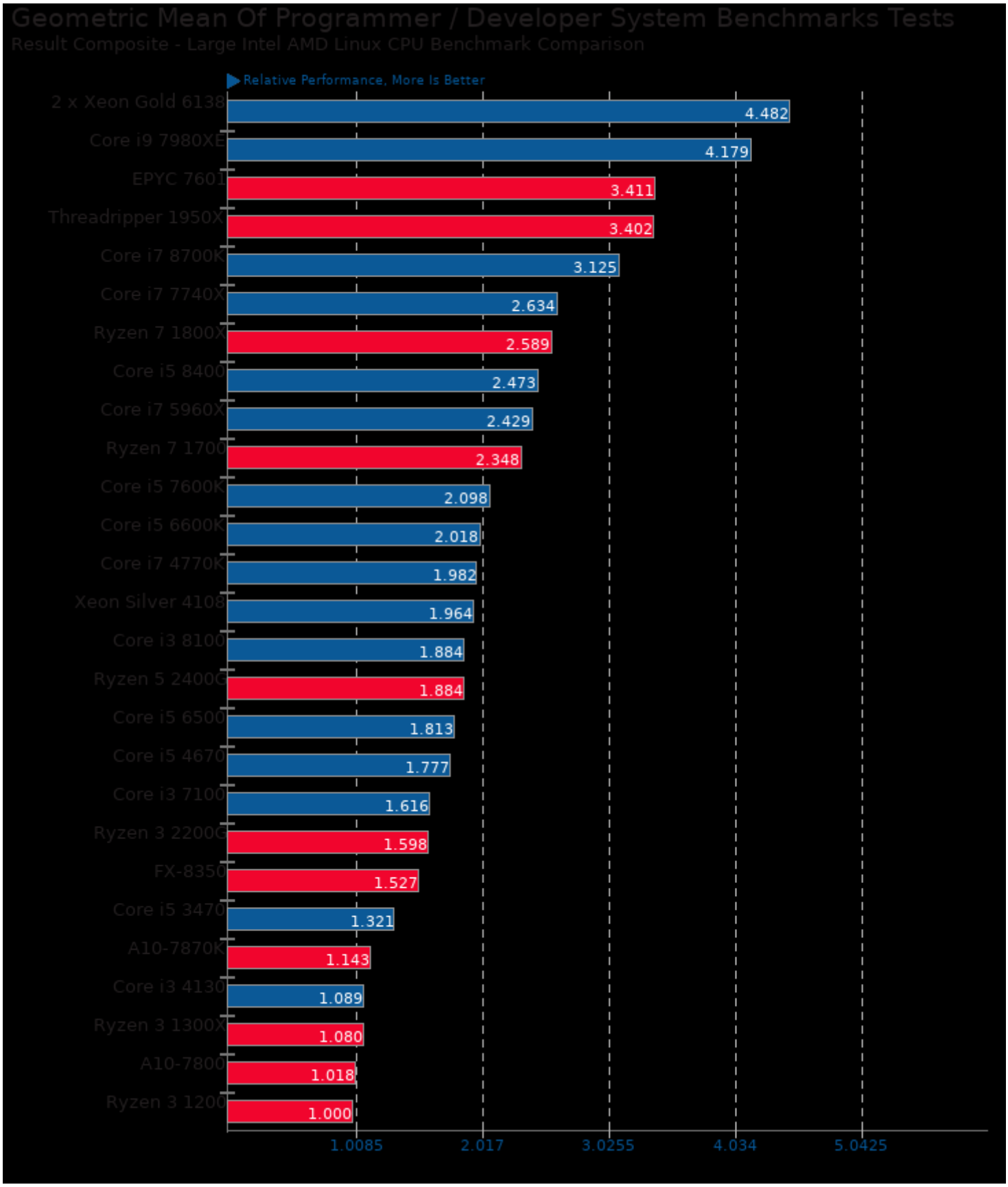


Geometric mean based upon tests: pts/rodinia and pts/parboil

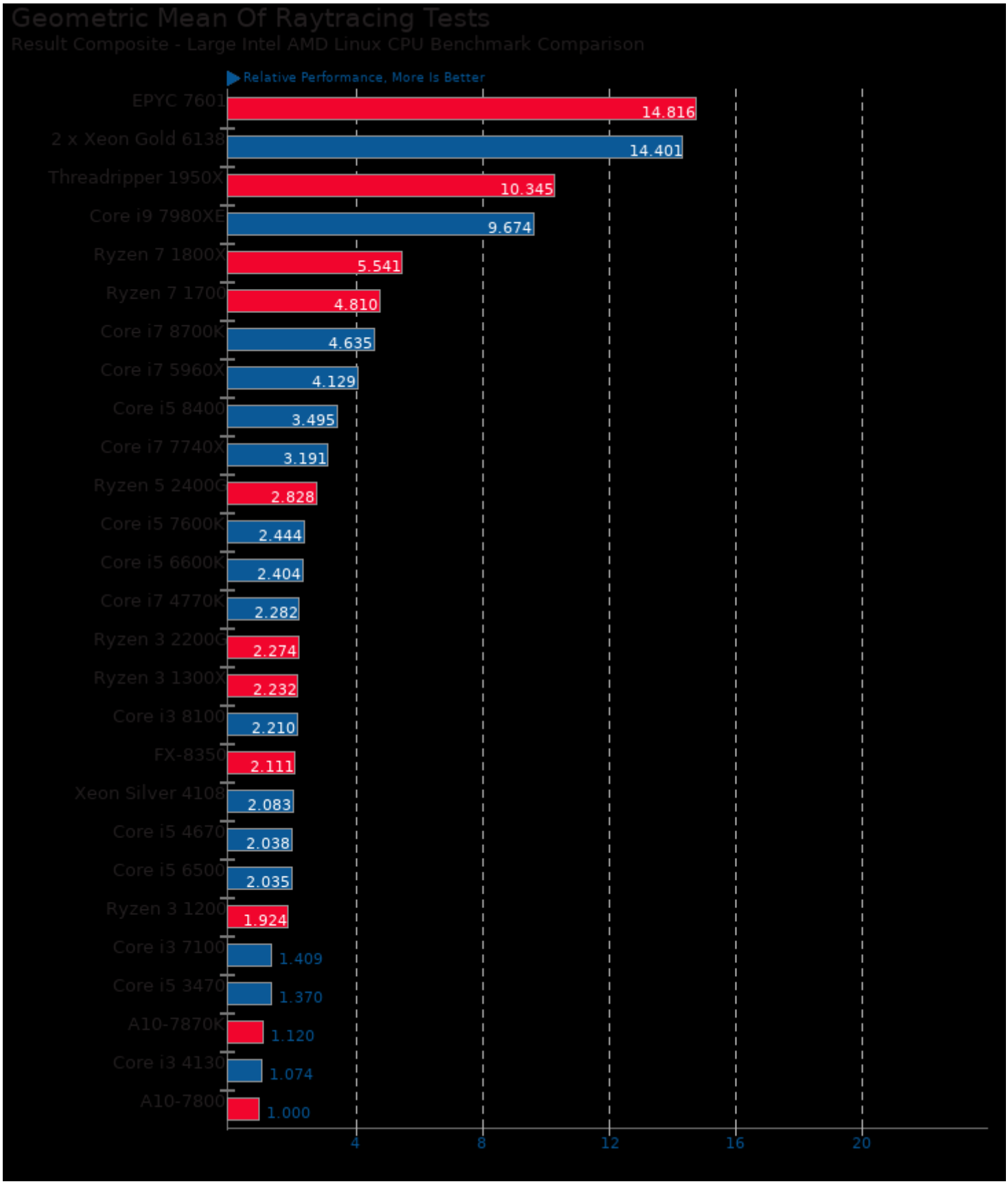


Geometric mean based upon tests: pts/nero2d, pts/rodinia and pts/npb

Large Intel AMD Linux CPU Benchmark Comparison

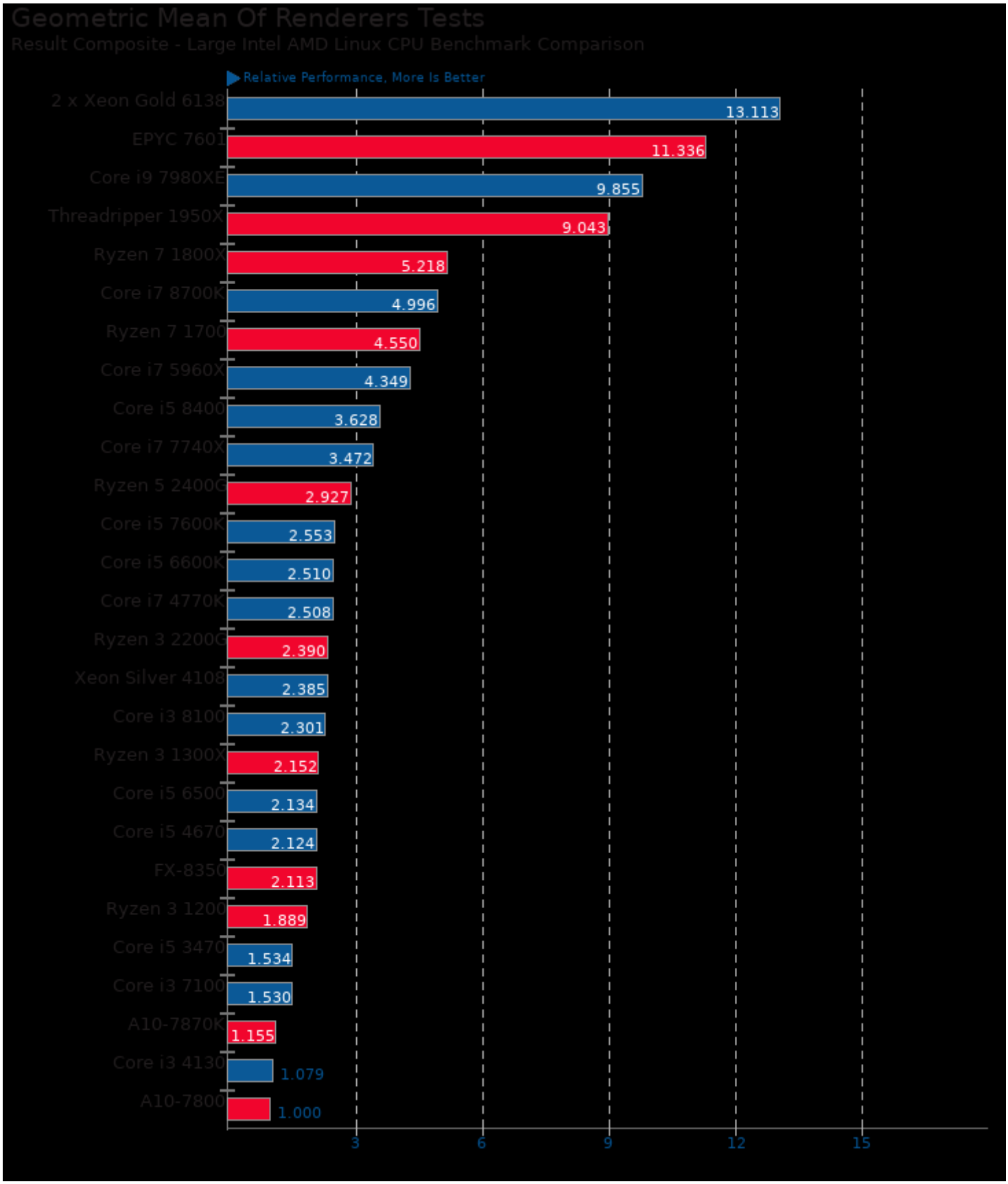


Geometric mean based upon tests: pts/pybench and pts/build-linux-kernel



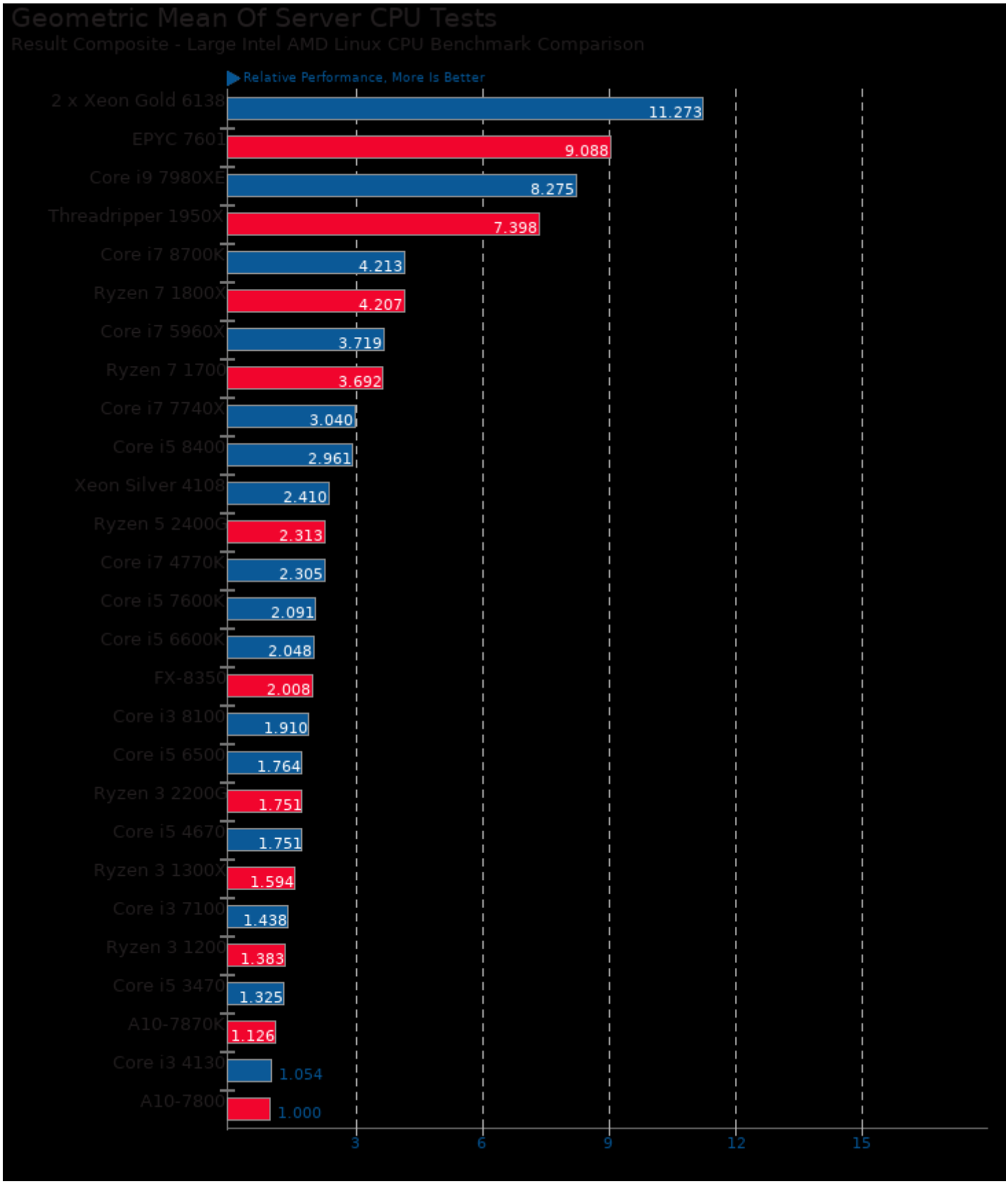
Geometric mean based upon tests: pts/c-ray and pts/povray

Large Intel AMD Linux CPU Benchmark Comparison



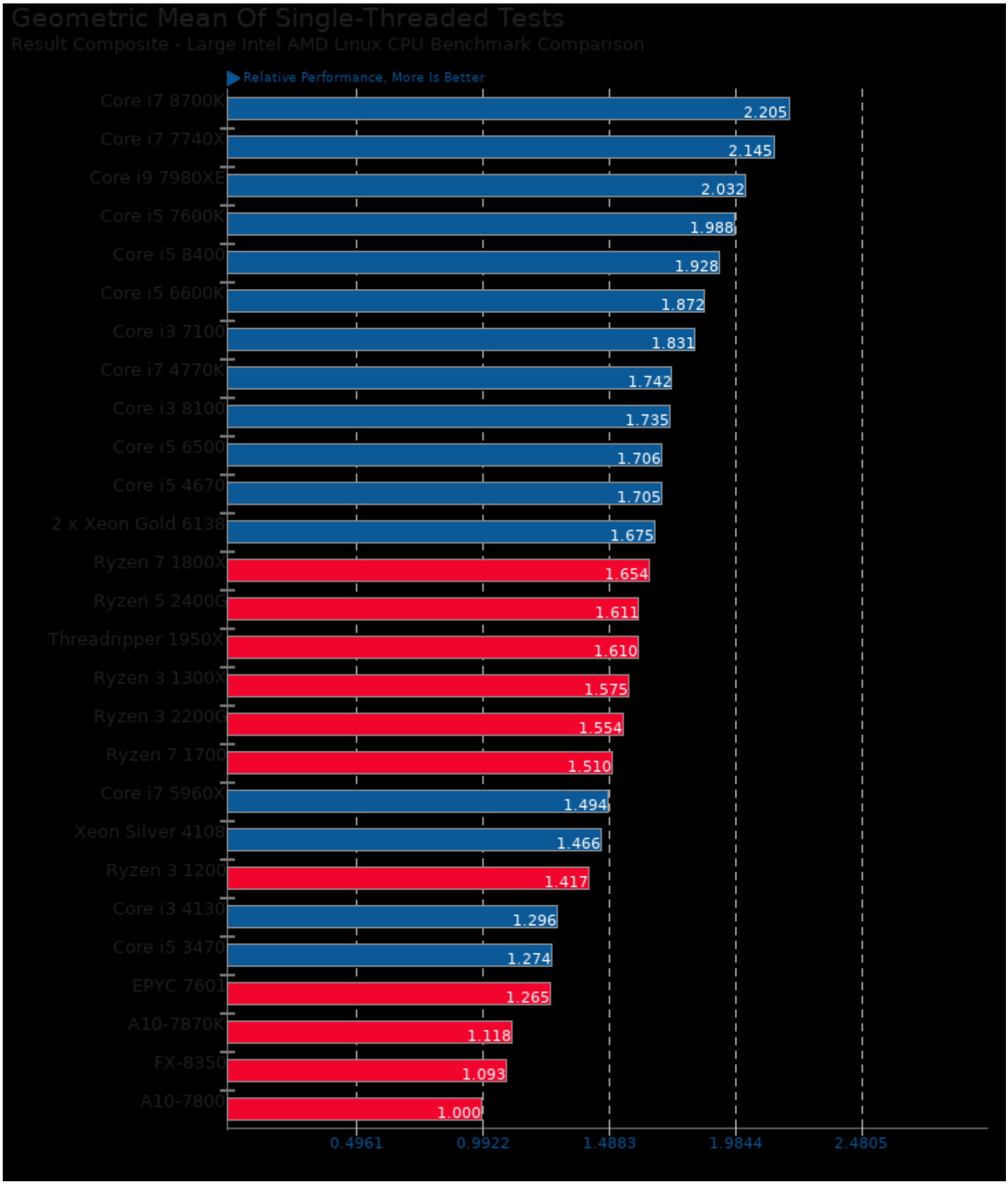
Geometric mean based upon tests: pts/c-ray, pts/povray and pts/ttsiod-renderer

Large Intel AMD Linux CPU Benchmark Comparison



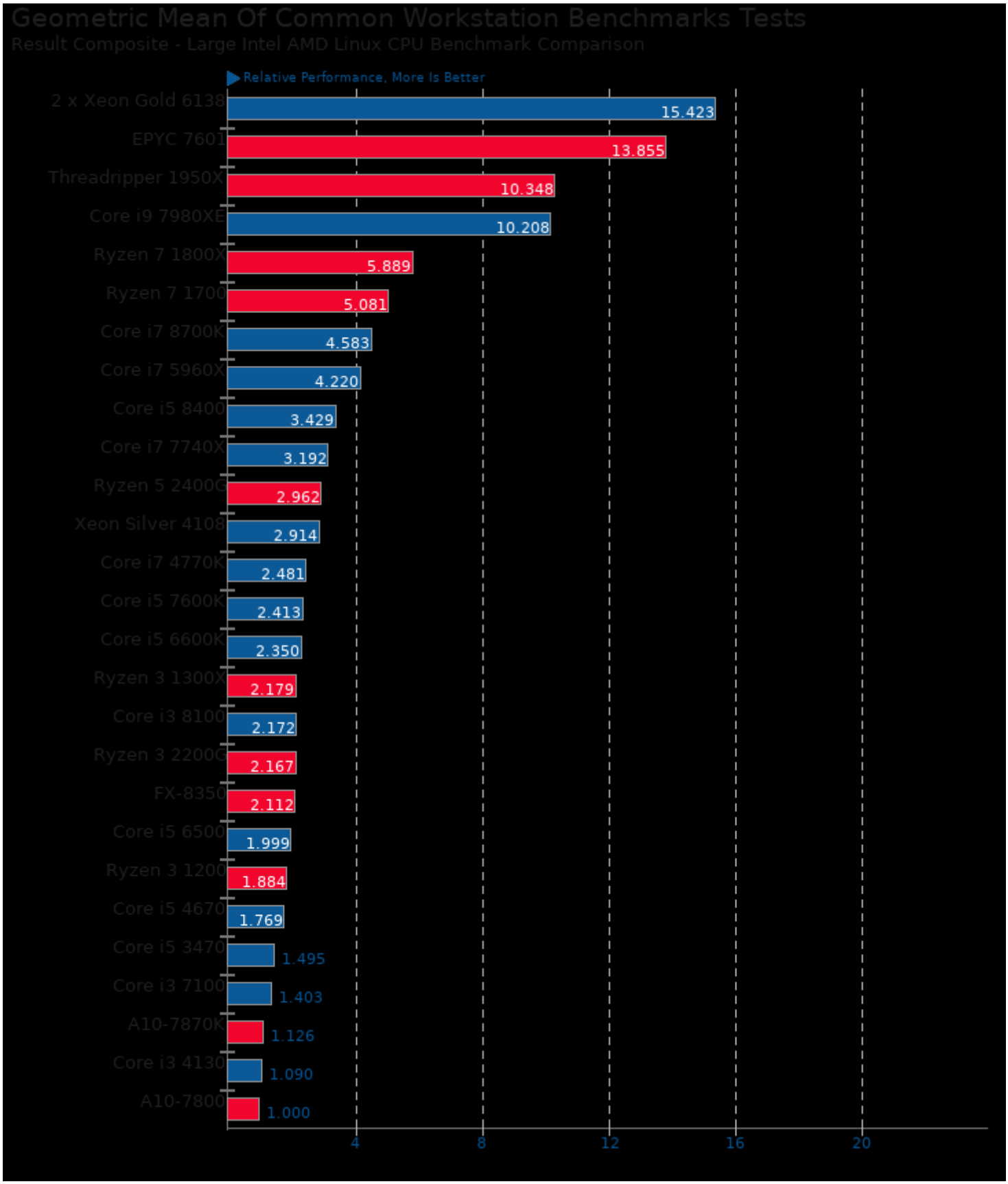
Geometric mean based upon tests: pts/npb, pts/rodinia, pts/john-the-ripper, pts/x264, pts/compress-7zip, pts/asmfish, pts/build-linux-kernel, pts/c-ray, pts/povray, pts/openssl and pts/pybench

Large Intel AMD Linux CPU Benchmark Comparison



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

Large Intel AMD Linux CPU Benchmark Comparison



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

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

14:24.