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Linux 4.15 New CPU Comparison

test1 on ryzen 7 4800u

Automated Executive Summary

2 x Xeon Gold 6138 had the most wins, coming in first place for 45% of the tests.

Based on the geometric mean of all complete results, the fastest (2 x Xeon Gold 6138) was 7.476x the speed of the slowest (A10-7870K).

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

Schbench (Message Threads: 8 - Workers Per Message Thread: 2) at 863.766x
Java JMH (Throughput) at 27.023x
OpenSSL (RSA 4096-bit Performance) at 23.132x
NAS Parallel Benchmarks (Test / Class: EP.C) at 21.715x
C-Ray (Total Time) at 17.545x
Timed Linux Kernel Compilation (Time To Compile) at 15.935x
Rodinia (Test: OpenMP LavaMD) at 13.938x
John The Ripper (Test: Blowfish) at 13.54x
Parboil (Test: OpenMP CUTCP) at 13.447x
asmFish (1024 Hash Memory, 26 Depth) at 13.199x.

Test Systems:

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 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 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 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 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

Linux 4.15 New CPU Comparison

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

test1

Processor: AMD Ryzen 7 4800U @ 1.80GHz (8 Cores / 16 Threads), Motherboard: GIGABYTE GB-BRR7H-4800 (F2 BIOS), Chipset: AMD Renoir Root Complex, Memory: 2 x 32 GB DDR4-3200MT/s Samsung M471A4G43AB1-CWE, Disk: 1000GB Samsung SSD 970 EVO Plus 1TB, Graphics: Gigabyte AMD Renoir 256MB (1750/400MHz), Audio: AMD Device 1637, Monitor: U28E590, Network: Realtek RTL8125 2.5GbE + Intel Wi-Fi 6 AX200

OS: Ubuntu 20.04, Kernel: 5.8.0-48-generic (x86_64), Desktop: GNOME Shell 3.36.7, Display Server: X Server 1.20.9, Vulkan: 1.2.131, Compiler: GCC 9.3.0, File-System: ext4, Screen Resolution: 3840x2160

Kernel Notes: Transparent Huge Pages: madvise
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++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-9-HskZEa/gcc-9-9.3.0/debian/tmp-nvptx/usr,hsa --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=auto --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq ondemand (Boost: Enabled) - CPU Microcode: 0x8600103
Java Notes: OpenJDK Runtime Environment (build 11.0.10+9-Ubuntu-0ubuntu1.20.04)
Python Notes: Python 3.8.5
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Full AMD retpoline IBPB: conditional IBRS_FW STIBP: conditional RSB filling + srbds: Not affected + tsx_async_abort: Not affected

	A10-7870K	FX-8350	Ryzen 3 1200	Ryzen 3 1300X	Ryzen 7 1700	Ryzen 7 1800X	Threadripper 1950X	EPYC 7601	Core i3 7100	Core i3 8100	Core i5 4670	Core i5 8400	Core i7 4770K	Core i7 5960X	Core i7 7740X	Core i7 8700K	Core i9 7980XE	Xeon Silver 4108	2 x Xeon Gold 6138	test1
John The Ripper - Blowfish (Real C/S)	3775	6826	**3711**	4393	10431	12445	23001	23552	3859	4411	4080	6998	6800	11710	8880	12758	30104	8275	**50248**	9509
Normalized	7.51%	13.58%	7.39%	8.74%	20.76%	24.77%	45.77%	46.87%	7.68%	8.78%	8.12%	13.93%	13.53%	23.3%	17.67%	25.39%	59.91%	16.47%	100%	18.92%
Standard Deviation	0.1%	0.6%	0.8%	0.3%	0.8%	0.1%	2%	0.5%		0.2%	0.2%		3.2%	0%			0%		1.9%	7.1%

Linux 4.15 New CPU Comparison

asmFish - 1.H.M.2.D (Nodes/s)	**6214006**	11705326	7323749	8286134	20101605	22678479	43649443	65974545	6783028	9841586	9572744	15913582	12321019	22009527	15895869	23437731	53871095	15154508	**82019504**	17166738
Normalized	7.58%	14.27%	8.93%	10.1%	24.51%	27.65%	53.22%	80.44%	8.27%	12%	11.67%	19.4%	15.02%	26.83%	19.38%	28.58%	65.68%	18.48%	100%	20.93%
Standard Deviation	2.2%	0.6%	0.8%	1.5%	1.2%	1.4%	2.3%	1.1%	1.1%	1.6%	2.2%	1.6%	2%	2.2%	1.2%	0.7%	2.4%	0.6%	3.2%	1.1%
7-Zip Compression - C.S.T (MIPS)	**11431**	22097	12601	15880	30627	33022	71592	95062	12896	17221	16595	27028	21667	37236	28952	39039	91138	27888	**139707**	30498
Normalized	8.18%	15.82%	9.02%	11.37%	21.92%	23.64%	51.24%	68.04%	9.23%	12.33%	11.88%	19.35%	15.51%	26.65%	20.72%	27.94%	65.24%	19.96%	100%	21.83%
Standard Deviation	1.4%	0.3%		1.8%	0.6%	1.5%	0.2%	0.6%	0.1%	0.2%	0.9%	0.2%	1.3%	1.4%	2.9%	1%	0.5%	1.5%	2.6%	3.8%
Hackbench - 8 - Process (sec)	**84.26**	50.73		63.63	20.07	17.96	16.35	13.55	72.50	62.18	65.19	39.66	37.72	22.21	30.45	22.50	11.38	36.44	**8.03**	26.337
Normalized	9.53%	15.83%		12.62%	40.01%	44.71%	49.11%	59.26%	11.08%	12.91%	12.32%	20.25%	21.29%	36.15%	26.37%	35.69%	70.56%	22.04%	100%	30.49%
Standard Deviation	0.1%	0.1%		2%	2.5%	3.3%	3.1%	2.5%	0.3%	2.4%	1.9%	1.6%	0.2%	3.8%	0.8%	5.3%	0.2%	6.9%	2.6%	2.9%
Schbench - 8 - 2 (usec, 99.9th Latency Percentile	37269	19616	40171	37483	781	281	283	373	**40597**	39701	39595	31205	23616	**47**	26379	11109	109	90	98	1055
Normalized	0.13%	0.24%	0.12%	0.13%	6.02%	16.73%	16.61%	12.6%	0.12%	0.12%	0.12%	0.15%	0.2%	100%	0.18%	0.42%	43.12%	52.22%	47.96%	4.45%
Standard Deviation	1.4%	3.4%	3.1%	3.1%	86.6%	4.5%	1.1%	0.7%	3.2%	1.6%	4.5%	5.8%	5.3%	2.4%	2.5%	11.6%	3.5%	8.6%		93.3%
TTSIOD 3D Renderer - P.R.W.S.S.M (FPS)	**82.93**	142.75	122.95	134.97	274.64	312.22	466.13	447.71	121.69	168.27	155.77	263.63	204.31	325.51	277.43	391.67	690.00	210.84	**733.58**	362.886
Normalized	11.3%	19.46%	16.76%	18.4%	37.44%	42.56%	63.54%	61.03%	16.59%	22.94%	21.23%	35.94%	27.85%	44.37%	37.82%	53.39%	94.06%	28.74%	100%	49.47%
Standard Deviation	0.2%	1%	0.7%	0.2%	0.1%	0.2%	0.2%	0.2%	0.3%	0.6%	0.4%	0.1%	1.7%	0.2%	1.8%	0.3%	0.8%	0.4%	3.2%	3.7%
Apache Benchmark - S.W.P.S (Reqs/sec	19925	18794	31001	34767		27183	26461	**18636**	29721	41714	36680	**42581**	29505	23330	39833	37487	32213	19837	23944	28530
Normalized	46.79%	44.14%	72.81%	81.65%		63.84%	62.14%	43.77%	69.8%	97.97%	86.14%	100%	69.29%	54.79%	93.55%	88.04%	75.65%	46.59%	56.23%	67%
Standard Deviation	2.2%	0.2%	0.5%	0.2%		2.1%	0.5%	0.7%	0.2%	0.3%	1.9%	0.8%	0.4%	1%	0.4%	4.2%	0.1%	2.3%	0.2%	2.4%

Linux 4.15 New CPU Comparison

POV-Ray - Trace Time (sec)	**242.07**	134.01	181.19	156.29	64.40	56.21	30.30	**21.97**	200.73	139.02	147.13	87.94	131.09	70.27	87.94	60.96	32.75	195.83	25.70	77.270
Normalized	9.08%	16.39%	12.13%	14.06%	34.11%	39.09%	72.51%	100%	10.95%	15.8%	14.93%	24.98%	16.76%	31.27%	24.98%	36.04%	67.08%	11.22%	85.49%	28.43%
Standard Deviation	0.1%	0.3%	0.1%	0.2%	0%	0.1%	0.3%	0.6%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.1%	0.2%	0.6%	0.4%	17.3%	2.4%
Himeno Benchmark - P.P.S (MFLOPS)	925.05	745.54	**284.02**	1111	1068	1192	1301	1022	2375	1986	1912	2538	1980	1924	2801	**3179**	2985	2083	2591	1274
Normalized	29.1%	23.45%	8.93%	34.94%	33.58%	37.48%	40.92%	32.14%	74.7%	62.47%	60.13%	79.84%	62.28%	60.53%	88.09%	100%	93.9%	65.52%	81.49%	40.07%
Standard Deviation	0.3%	0.2%	3.1%	0.6%	1.5%	0.4%	0.3%	0.5%	1.1%	1.2%	0.4%	0.3%	0.1%	0%	1.2%	0.7%	0.7%	0.2%	0.5%	0%
NGINX Benchmark - S.W.P.S (Reqs/sec	21359	**19628**	29145	32633	29820	32964	31198	24020	36757	36311	35672	40533	36374	28457	**45476**	44916	42841	31670	30959	39115
Normalized	46.97%	43.16%	64.09%	71.76%	65.57%	72.49%	68.6%	52.82%	80.83%	79.85%	78.44%	89.13%	79.98%	62.58%	100%	98.77%	94.21%	69.64%	68.08%	86.01%
Standard Deviation	1.1%	0.5%	1.7%	0.2%	1.2%	0.1%	0.5%	0.8%	0.4%	0.6%	0.2%	0.5%	0.4%	2.4%	1.1%	3.3%	2%	0.3%	0.9%	1.4%
C-Ray - Total Time (sec)	**55.09**	28.01	24.95	21.50	11.23	9.70	5.16	3.47	41.97	24.65	27.40	15.57	24.51	13.97	18.69	12.78	5.46	19.69	**3.14**	10.220
Normalized	5.7%	11.21%	12.59%	14.6%	27.96%	32.37%	60.85%	90.49%	7.48%	12.74%	11.46%	20.17%	12.81%	22.48%	16.8%	24.57%	57.51%	15.95%	100%	30.72%
Standard Deviation	0.1%	0%	0.1%	0%	0%	0.1%	0.1%	0.7%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	1.5%	0.1%	0.3%	0.1%	0.2%	5.5%
Rodinia - OpenMP LavaMD (sec)	**397.52**	211.52	258.67	223.34	95.15	82.39	45.95	31.58	354.52	226.21	322.61	143.15	199.36	114.38	154.42	107.19	46.64	170.83	**28.52**	39.553
Normalized	7.17%	13.48%	11.03%	12.77%	29.97%	34.62%	62.07%	90.31%	8.04%	12.61%	8.84%	19.92%	14.31%	24.93%	18.47%	26.61%	61.15%	16.69%	100%	72.11%
Standard Deviation	0.4%	0.1%	0.2%	0.2%	0.1%	0.1%	2.1%	1.5%	0.3%	0%	0.1%	0.1%	0%	0.4%	0.9%	0.1%	0.3%	0.6%	1.9%	1.2%
AOBench - 2048 x 2048 - Total Time (sec)	**75.71**	71.15	48.92	44.37	45.16	41.39	42.34	52.78	42.05	44.25	42.25	39.85	41.86	46.94	36.35	34.62	39.12	55.06	44.39	**32.228**
Normalized	42.57%	45.3%	65.88%	72.63%	71.36%	77.86%	76.12%	61.06%	76.64%	72.83%	76.28%	80.87%	76.99%	68.66%	88.66%	93.09%	82.38%	58.53%	72.6%	100%
Standard Deviation	0.1%	2.1%	0%	0.6%	0.4%	0.5%	0.9%	0.1%	1.2%	0.1%	0.1%	0%	1.4%	0.2%	0.7%	1.3%	0.3%	2.1%	2.4%	0.2%

LAME MP3 Encoding - WAV To MP3 (sec)	48.37	47.03	39.68	35.78	36.59	33.50	33.75	42.77	31.08	33.30	33.25	30.01	32.54	36.18	27.50	26.07	28.50	39.90	32.33	26.220
Normalized	53.9%	55.43%	65.7%	72.86%	71.25%	77.82%	77.24%	60.95%	83.88%	78.29%	78.41%	86.87%	80.12%	72.06%	94.8%	100%	91.47%	65.34%	80.64%	99.43%
Standard Deviation	0.1%	0.2%	0.1%	0.3%	0%	0.8%	0.9%	0%	0.1%	0%	0%	0%	0.4%	0.2%	0.8%	1.3%	0.1%	0.1%	0.1%	0.1%
Timed MAFFT Alignment - M.S.A (sec)	10.40	5.92	7.25	5.99	4.26	3.65	3.13	4.69	7.85	5.71	5.85	3.68	4.88	3.54	3.97		3.04	5.46	10.15	3.309
Normalized	29.23%	51.35%	41.93%	50.75%	71.36%	83.29%	97.12%	64.82%	38.73%	53.24%	51.97%	82.61%	62.3%	85.88%	76.57%		100%	55.68%	29.95%	91.87%
Standard Deviation	7.5%	1.3%	0.4%	4.8%	3.1%	0.9%	4%	4.1%	0.2%	6.4%	6.8%	4.7%	4.4%	3.1%	8.7%			3.8%	3.3%	5%
PHPBench - P.B.S (Score)	336831	345560	365419	405418	395609	431108	431051	336892	561562	531584	512718	588730	506177	468515	644293	678465	616892	439606	542222	650305
Normalized	49.65%	50.93%	53.86%	59.76%	58.31%	63.54%	63.53%	49.66%	82.77%	78.35%	75.57%	86.77%	74.61%	69.06%	94.96%	100%	90.92%	64.79%	79.92%	95.85%
Standard Deviation	1.6%	0.9%	0.7%	1%	1%	3.2%	1.5%	1.8%	1.3%	0.1%	0.2%	0.1%	3.1%	0.4%	1.7%	1.2%	0.5%	0.2%	0.2%	0.5%
x264 - H.2.V.E (FPS)	17.58	30.58	23.47	27.33	60.90	71.46	127.00	108.07	23.89	30.42	28.16	56.11	37.64	58.01	49.95	72.96	125.28	32.75	107.89	59.16
Normalized	13.84%	24.08%	18.48%	21.52%	47.95%	56.27%	100%	85.09%	18.81%	23.95%	22.17%	44.18%	29.64%	45.68%	39.33%	57.45%	98.65%	25.79%	84.95%	46.58%
Standard Deviation	0%	0.2%	3.4%	0.2%	3.3%	0.5%	0.6%	0.7%	0.2%	3.3%	3.4%	0.2%	0.1%	0.6%	0.6%	0.5%	0.4%	0.7%	2.5%	1%
FFmpeg - H.2.H.T.N.D (sec)	11.08	7.99		8.22	9.65	8.00	7.86	10.50	9.47	7.18	8.08	4.89	6.76	11.47	5.23	4.86	13.67	18.42		9.745
Normalized	43.86%	60.83%		59.12%	50.36%	60.75%	61.83%	46.29%	51.32%	67.69%	60.15%	99.39%	71.89%	42.37%	92.93%	100%	35.55%	26.38%		49.87%
Standard Deviation	6.3%	1.8%		1.4%	1.6%	0.8%	0.7%	9.8%	0.8%	1.4%	1.4%	1.2%	1.3%	0.9%	2.2%	25.3%	0.2%	0.4%		1.6%
Botan - Twofish - Encrypt - Decrypt (MiB/s)	214.82	236.51	300.39	328.93	325.62	356.91	353.48	278.00	337.37	315.88	311.58	350.60	319.88	286.54	390.03	406.29		261.22	322.61	
Normalized	52.87%	58.21%	73.93%	80.96%	80.14%	87.85%	87%	68.42%	83.04%	77.75%	76.69%	86.29%	78.73%	70.53%	96%	100%		64.29%	79.4%	
Standard Deviation	1.7%	0.1%	0%	1.3%	0.4%	0%	0.6%	0.2%	1.8%	0.1%	0%	0.3%	0%	0.3%	0.2%	1.5%		0.1%	0.1%	

Linux 4.15 New CPU Comparison

Botan - AES-256 - Encrypt - Decrypt (MiB/s)	**2225**	2424	4782	5270	5200	**5667**	5555	4435	3715	3430	3347	3808	3431	3078	4255	4441		2848	3473
Normalized	39.26%	42.77%	84.38%	93%	91.76%	100%	98.01%	78.25%	65.56%	60.52%	59.06%	67.2%	60.55%	54.31%	75.09%	78.37%		50.26%	61.28%
Standard Deviation	0.1%	0.1%	0.2%	0.7%	0%	0.8%	1%	0%	0%	0%	0.2%	0.1%	0%	0%	0.9%	0.6%		0%	3%
Botan - KASUMI - Encrypt - Decrypt (MiB/s)	71.98	73.84	76.22	84.32	82.74	90.60	89.02	70.63	83.73	78.67	78.16	87.05	80.16	71.96	96.77	**101.34**		**64.55**	79.64
Normalized	71.03%	72.86%	75.21%	83.21%	81.65%	89.4%	87.84%	69.7%	82.62%	77.63%	77.13%	85.9%	79.1%	71.01%	95.49%	100%		63.7%	78.59%
Standard Deviation	0.7%	0.1%	0%	0.5%	0.1%	0%	0.7%	0%	0.9%	0%	0%	0.6%	0.2%	0.1%	0.2%	0%		0%	0.1%
PyBench - T.F.A.T.T (Milliseconds)	2028	**2048**	1655	1498	1518	1395	1420	1781	1237	1340	1390	1209	1356	1514	1075	**1031**	1150	1615	1307
Normalized	50.84%	50.34%	62.3%	68.83%	67.92%	73.91%	72.61%	57.89%	83.35%	76.94%	74.17%	85.28%	76.03%	68.1%	95.91%	100%	89.65%	63.84%	78.88%
Standard Deviation	0.4%	0.1%	0.1%	0.3%	0.2%	0.4%	1.3%		0.2%	0.1%		0.4%	0.2%	0.2%	0.1%	0.2%	0.1%		0.3%
Java JMH - Throughput (Ops/s)	**3894123975**	8056296946	6174078043	7169110974	12783688167	14780854841	27825981931	41830658064	7790129336	14382333765	14337275795	22775463201	15499195579	26230888035	17920802344	25756200608	61042410556	16741624531	**105230027922**
Normalized	3.7%	7.66%	5.87%	6.81%	12.15%	14.05%	26.44%	39.75%	7.4%	13.67%	13.62%	21.64%	14.73%	24.93%	17.03%	24.48%	58.01%	15.91%	100%
OpenSSL - R.4.b.P (Signs/sec	**339.70**	705.20		710.53	1380	1593	3021	4567	597.13	1043	645.10	1671	689.30	1203	1313	1980	4695	1285	**7858**
Normalized	4.32%	8.97%		9.04%	17.56%	20.27%	38.45%	58.12%	7.6%	13.27%	8.21%	21.27%	8.77%	15.3%	16.71%	25.19%	59.75%	16.36%	100%
Standard Deviation	0.5%	0.1%		6.4%	0.1%	0.1%	0.2%	0.9%	0.3%	2.2%	0.2%	0%	0.1%	0%	2.7%	0.1%	0.2%	0.3%	0.6%

Timed Linux Kernel Compilation - Time To Compile (sec)	300.92	167.85	484.57	458.00	95.17	85.22	48.48	38.39	246.44	167.81	180.98	108.02	150.12	89.15	106.97	79.10	39.70	127.47	30.41
Normalized	10.11%	18.12%	6.28%	6.64%	31.95%	35.68%	62.73%	79.21%	12.34%	18.12%	16.8%	28.15%	20.26%	34.11%	28.43%	38.45%	76.6%	23.86%	100%
Standard Deviation	1.1%	1.5%	0.2%	0.3%	2.2%	2%	3.2%	4.5%	0.8%	1%	1.2%	1.7%	1%	2.3%	1%	7%	6.9%	2.3%	6.2%
Open FMM Nero2D - Total Time	251.40	119.89	109.59	94.39	57.48	50.15	30.16	26.15	165.73	92.61	102.83	61.04	98.21	60.13	76.36	54.98	27.99	86.84	21.44
Normalized	8.53%	17.88%	19.56%	22.71%	37.3%	42.75%	71.09%	81.99%	12.94%	23.15%	20.85%	35.12%	21.83%	35.66%	28.08%	39%	76.6%	24.69%	100%
Standard Deviation	0.5%	1.8%	0.3%	0.1%	0.5%	1.1%	3.3%	3%	0.4%	0.7%	1.1%	1.2%	0.6%	0.7%	0.5%	1%	0.6%	0.4%	4.1%
Botan - Twofish - Decrypt (MiB/s)																	361.22		
Standard Deviation																	2.7%		
Botan - Twofish - Encrypt (MiB/s)	233.72	240.97	305.38	338.35	331.43	362.88	358.81	283.17	341.35	316.99	316.14	352.20	324.24	288.83	378.01	404.18	365.95	262.53	323.83
Normalized	57.83%	59.62%	75.56%	83.71%	82%	89.78%	88.77%	70.06%	84.45%	78.43%	78.22%	87.14%	80.22%	71.46%	93.53%	100%	90.54%	64.95%	80.12%
Standard Deviation	1%	0.3%	0%	0.8%	0.3%	0.1%	0.8%	0%	0.2%	0.1%	0%	0%	0.1%	0.8%	2%	0.6%	1.1%	0.1%	0.1%
Botan - AES-256 - Decrypt (MiB/s)																	3954		
Standard Deviation																	1.4%		
Botan - AES-256 - Encrypt (MiB/s)	2204	2426	4766	5255	5191	5661	5530	4401	3706	3425	3345	3802	3433	3075	4143	4336	3960	2839	3426
Normalized	38.94%	42.85%	84.19%	92.83%	91.7%	100%	97.68%	77.75%	65.46%	60.51%	59.1%	67.17%	60.64%	54.31%	73.18%	76.6%	69.95%	50.16%	60.52%
Standard Deviation	0.1%	0.1%	0.6%	0.7%	0.1%	0.2%	1.3%	1%	0.2%	0%	0.1%	0%	0.1%	0.1%	1.2%	0.9%	0.5%	0%	5.7%

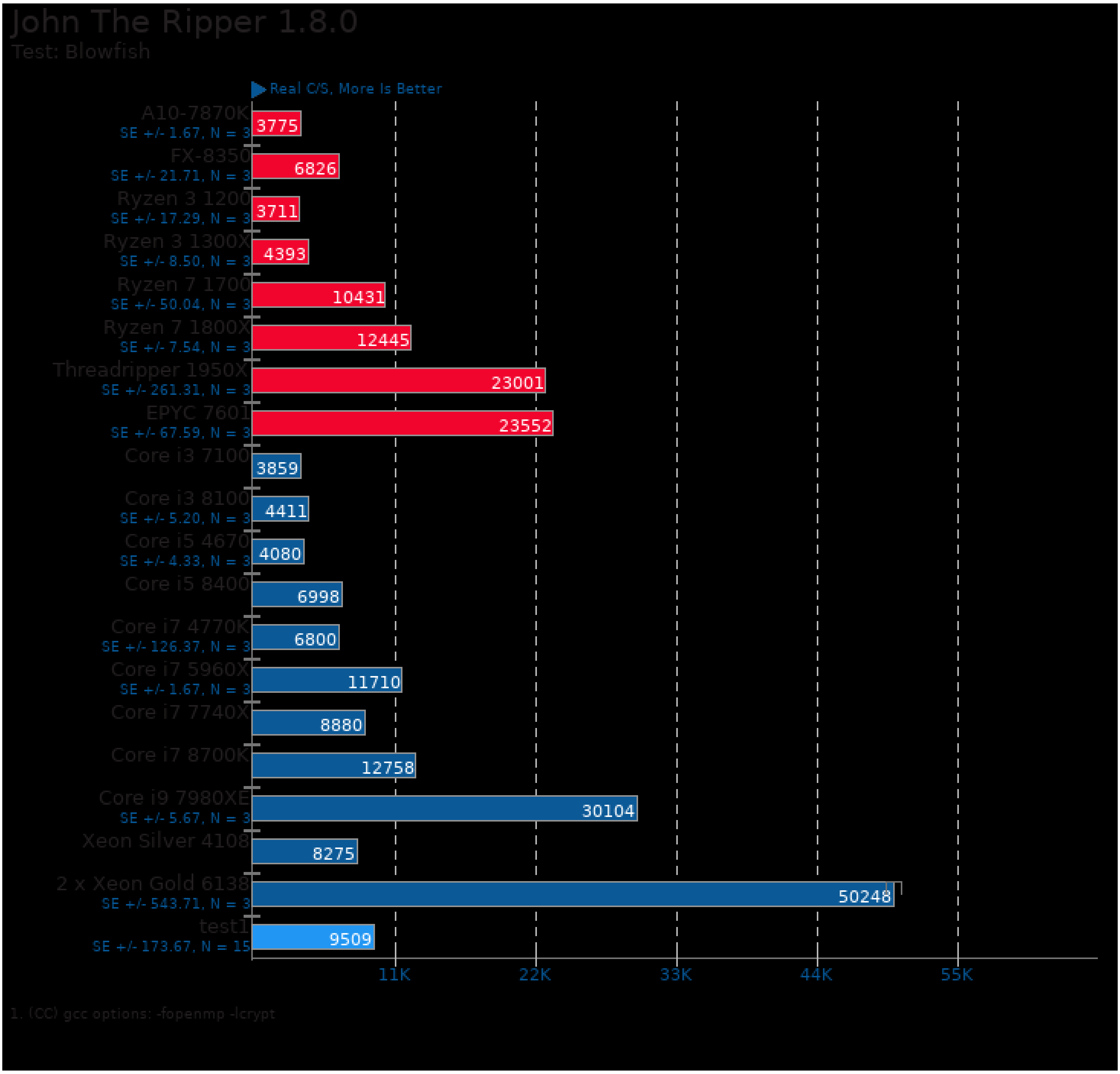
Botan - KASUMI - Decrypt (MiB/s)																	90.47		
Standard Deviation																	0.3%		
Botan - KASUMI - Encrypt (MiB/s)	75.58	78.28	78.96	87.32	85.48	93.76	92.14	73.18	86.68	80.47	81.41	89.30	83.18	74.35	96.52	**101.08**	93.36	**66.63**	82.16
Normalized	74.77%	77.44%	78.12%	86.39%	84.57%	92.76%	91.16%	72.4%	85.75%	79.61%	80.54%	88.35%	82.29%	73.56%	95.49%	100%	92.36%	65.92%	81.28%
Standard Deviation	0.3%	0.1%	0.1%	0.7%	0.3%	0.1%	0.7%	0.1%	0.6%	0%	0.1%	0.1%	0.5%	0.7%	1.3%	0.9%	0.2%	0.1%	0.1%
Timed MrBayes Analysis - P.P.A (sec)	**523.17**	286.08	329.94	289.44	152.87	142.81	**74.43**	82.47	411.28	286.65	303.12	183.39	346.88	146.17	185.49	138.87	80.92	261.30	85.80
Normalized	14.23%	26.02%	22.56%	25.72%	48.69%	52.12%	100%	90.25%	18.1%	25.97%	24.55%	40.59%	21.46%	50.92%	40.13%	53.6%	91.98%	28.48%	86.75%
Standard Deviation	0.1%	1.1%	0.7%	2%	0.2%	0.1%	0.8%	3.5%	0.3%	1.6%	0.3%	0.1%	2.1%	0%	0.1%	0.2%	0.1%	0.4%	2.8%
High Performance Conjugate Gradient (GFLOP/s)	**0.51**	0.58	1.03	1.03	0.87	0.89	1.00	0.83	1.42	1.45	1.23	1.65	0.89	1.30	**1.69**	1.68	1.33	1.03	0.84
Normalized	30.18%	34.32%	60.95%	60.95%	51.48%	52.66%	59.17%	49.11%	84.02%	85.8%	72.78%	97.63%	52.66%	76.92%	100%	99.41%	78.7%	60.95%	49.7%
Standard Deviation	1.3%	1.3%	1.1%	1.9%	1.7%	1.4%	1.3%	11.6%	1.4%	1.1%	0.1%	1.1%	0.2%	1.2%	0.1%	1.7%	1.9%	0.9%	9.3%
Parboil - OpenMP Stencil (sec)	56.29	36.30	46.38	36.48	35.59	28.30	11.86	14.28	47.17	35.55	**60.02**	22.80	39.48	14.22	24.84	22.54	8.13	16.05	**5.72**
Normalized	10.16%	15.76%	12.33%	15.68%	16.07%	20.21%	48.23%	40.06%	12.13%	16.09%	9.53%	25.09%	14.49%	40.23%	23.03%	25.38%	70.36%	35.64%	100%
Standard Deviation	0.2%	0.5%	4%	0.6%	0.5%	1%	2.1%	11%	2.9%	2.7%	2.2%	0.2%	2.2%	1.4%	0.6%	0.3%	1.7%	0.5%	1.5%
Parboil - OpenMP CUTCP (sec)	**31.60**	16.90	17.36	15.03	6.49	5.58	3.24	2.63	22.87	14.95	15.80	9.47	12.99	7.83	10.13	7.08	3.28	10.99	**2.35**
Normalized	7.44%	13.91%	13.54%	15.64%	36.21%	42.11%	72.53%	89.35%	10.28%	15.72%	14.87%	24.82%	18.09%	30.01%	23.2%	33.19%	71.65%	21.38%	100%
Standard Deviation	0.3%	0.4%	0.4%	0.1%	0.7%	0.4%	0.4%	1%	1.1%	0%	0.2%	0.1%	1%	0.3%	1.7%	0.3%	0.4%	0.3%	1.1%

Phoronix Test Suite

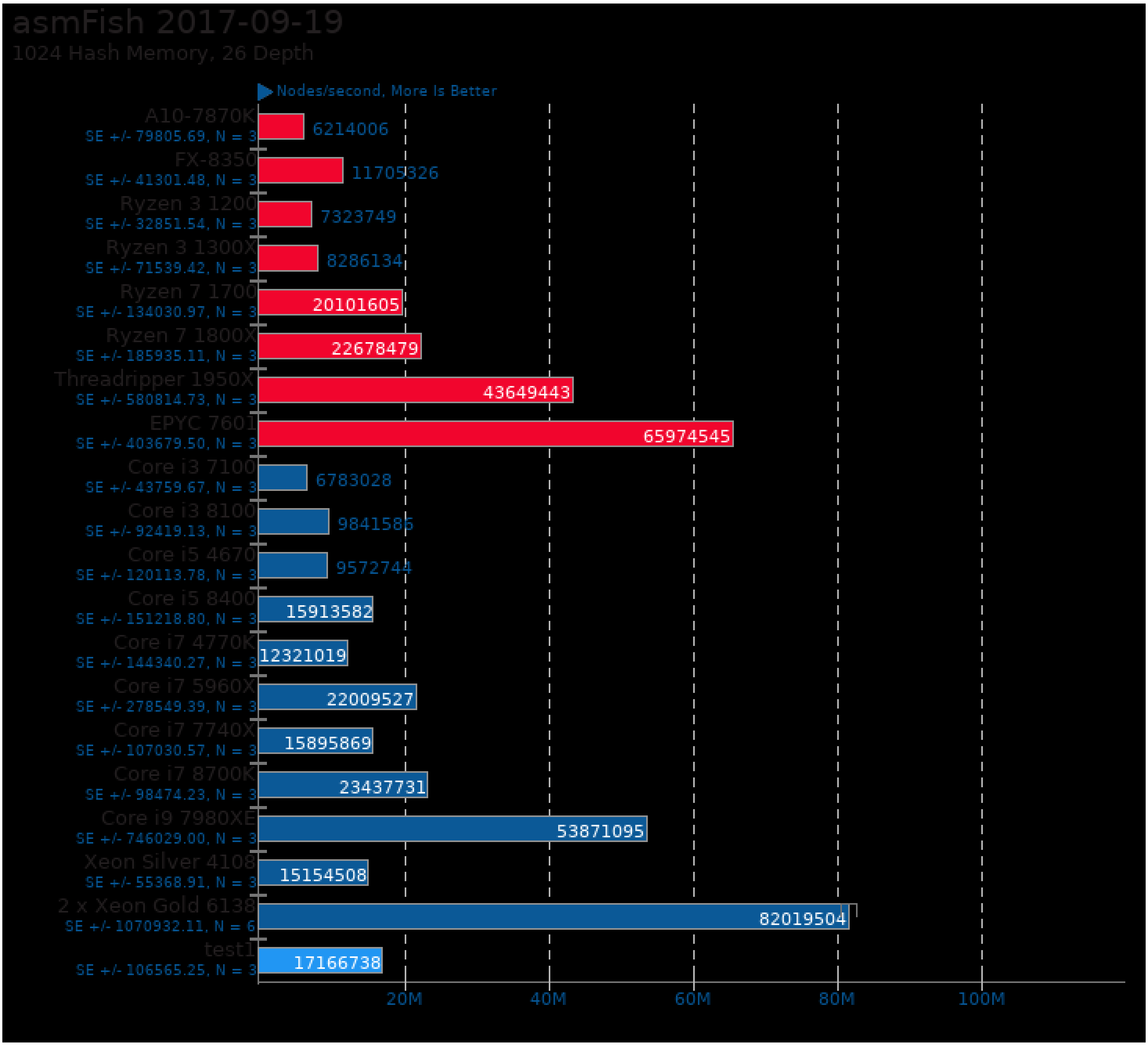
Linux 4.15 New CPU Comparison

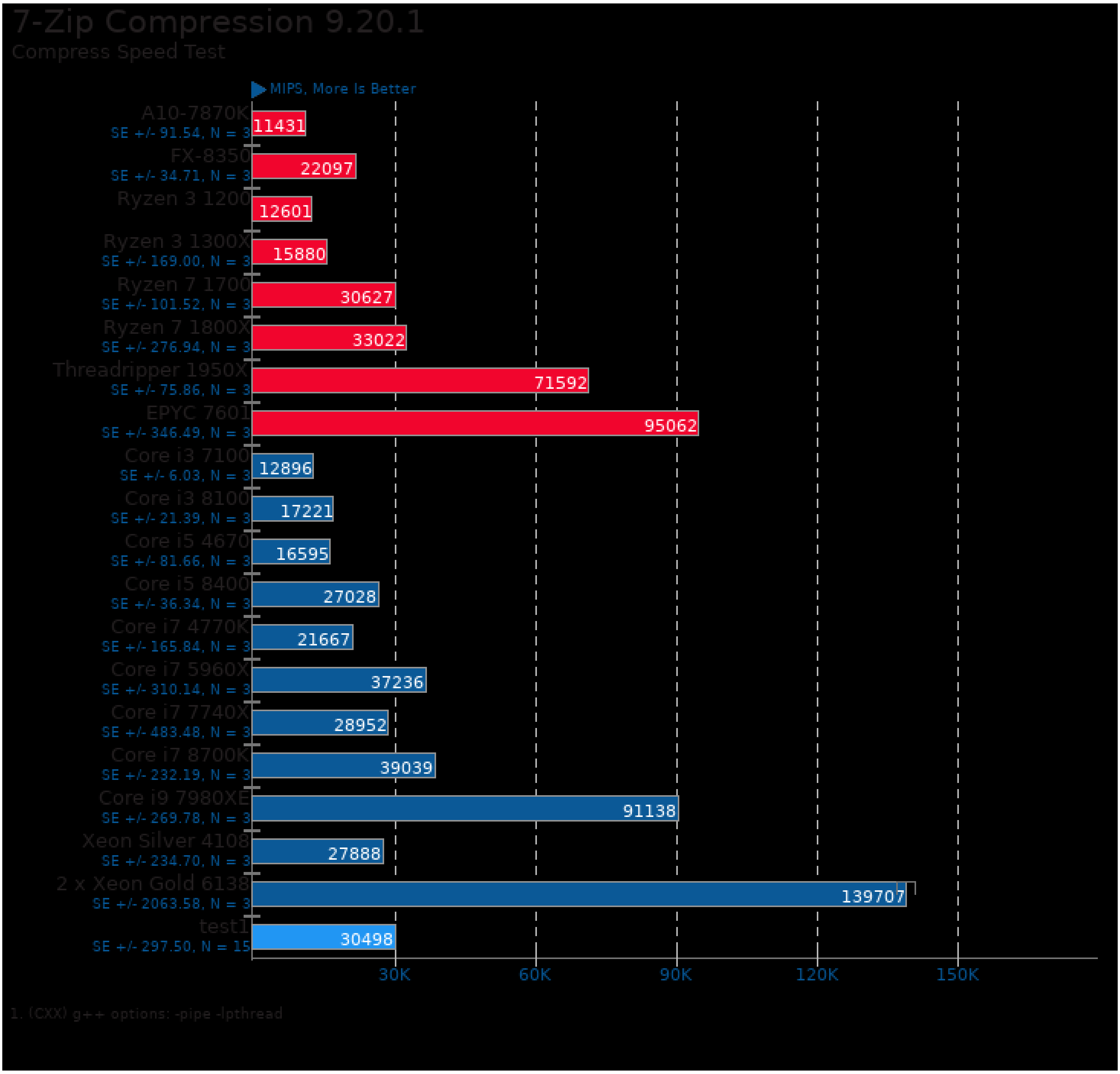
NAS Parallel Benchmarks - EP.C (Mop/s)	**92.05**	221.13	122.00	141.62	489.65	571.10	1090	1623	175.07	202.48	198.48	321.50	331.54	564.87	394.63	577.05	1268	319.97	**1999**
Normalized	4.61%	11.06%	6.1%	7.09%	24.5%	28.57%	54.55%	81.18%	8.76%	10.13%	9.93%	16.08%	16.59%	28.26%	19.74%	28.87%	63.42%	16.01%	100%
Standard Deviation	0.3%	1.6%	0.5%	0.1%	2.5%	0.4%	0.5%	0.6%	0.8%	0.3%	0.2%	0.1%	1%	0.2%	1.1%	0.6%	0.9%	0.4%	1.1%

Linux 4.15 New CPU Comparison

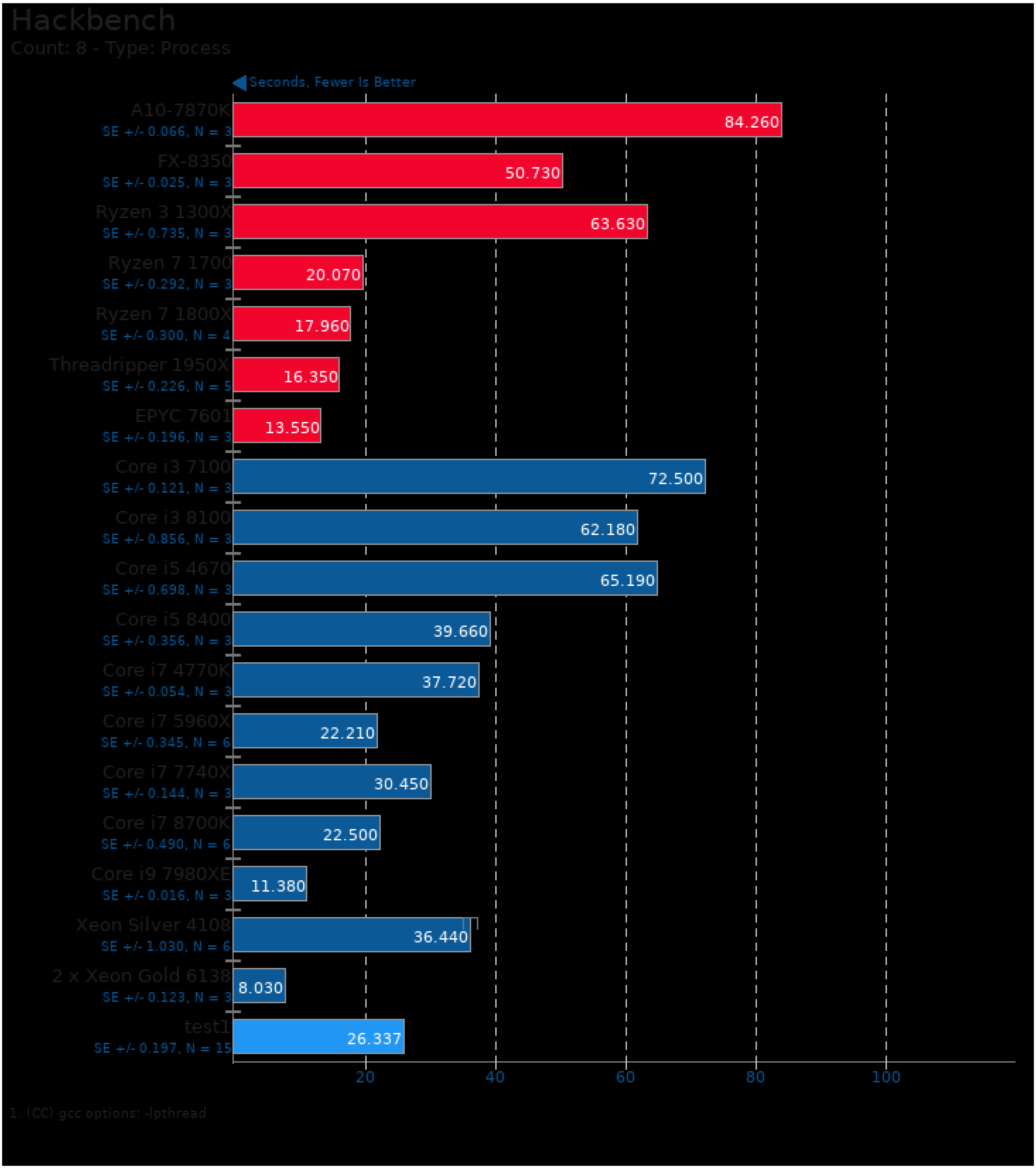


Linux 4.15 New CPU Comparison

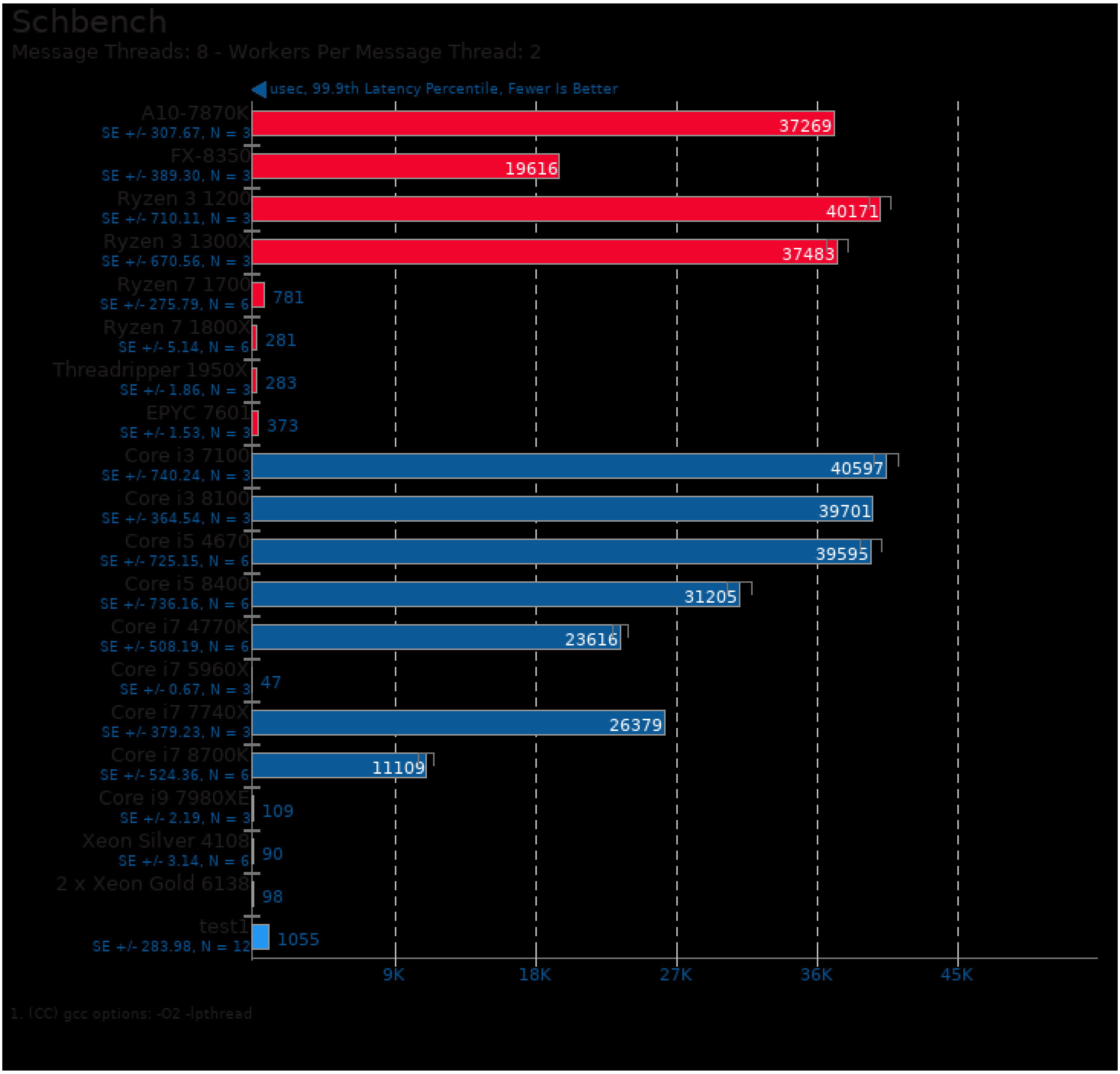



7-Zip Compression 9.20.1
Compress Speed Test
MIPS, More Is Better
A10-7870K
SE +/- 91.54, N = 3
11431
FX-8350
SE +/- 34.71, N = 3
22097
Ryzen 3 1200
12601
Ryzen 3 1300X
SE +/- 169.00, N = 3
15880
Ryzen 7 1700
SE +/- 101.52, N = 3
30627
Ryzen 7 1800X
SE +/- 276.94, N = 3
33022
Threadripper 1950X
SE +/- 75.86, N = 3
71592
EPYC 7601
SE +/- 346.49, N = 3
95062
Core i3 7100
SE +/- 6.03, N = 3
12896
Core i3 8100
SE +/- 21.39, N = 3
17221
Core i5 4670
SE +/- 81.66, N = 3
16595
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
test1
SE +/- 297.50, N = 15
30498
30K
60K
90K
120K
150K
1. (CXX) g++ options: -pipe -lpthread

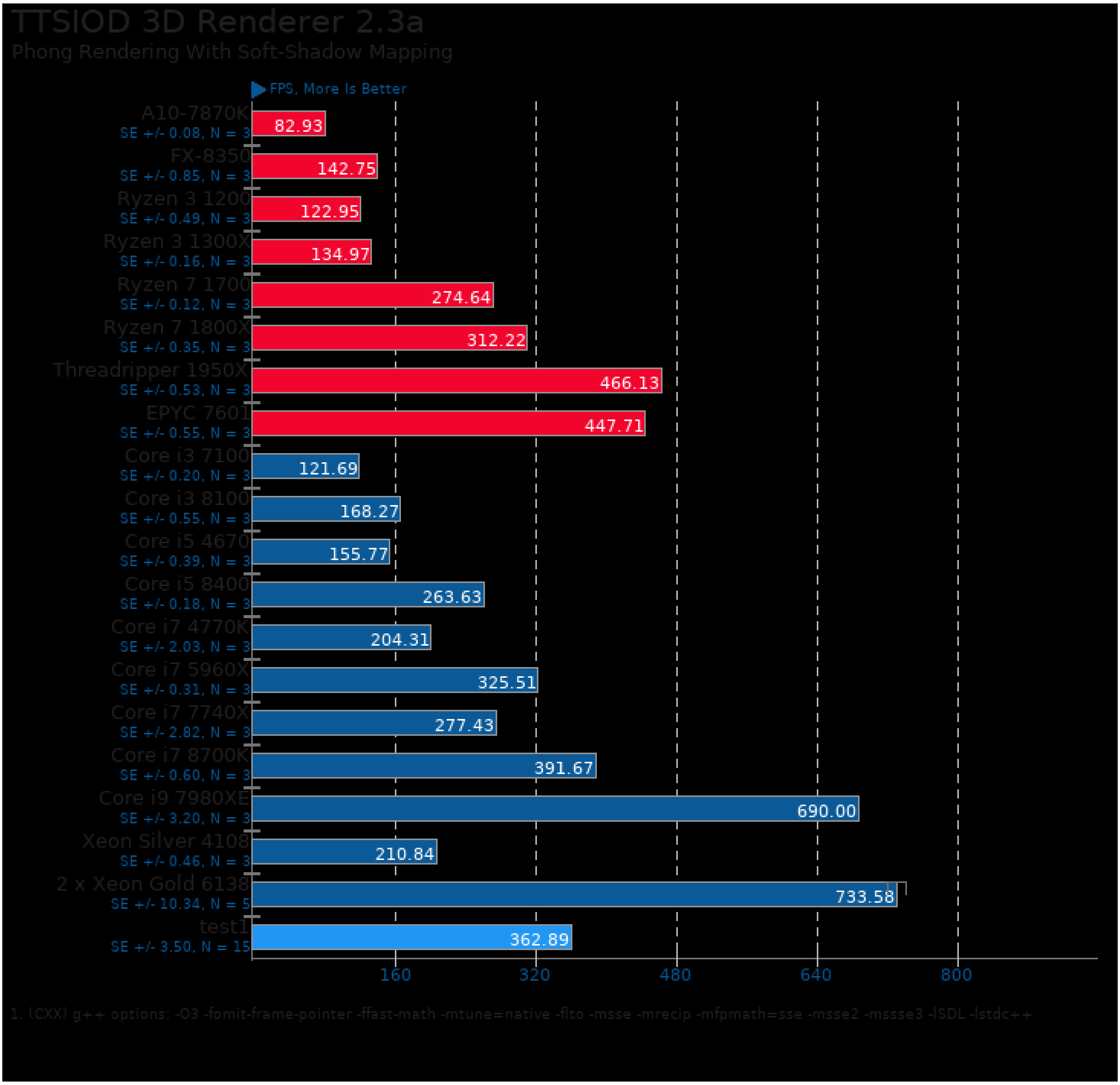
Linux 4.15 New CPU Comparison



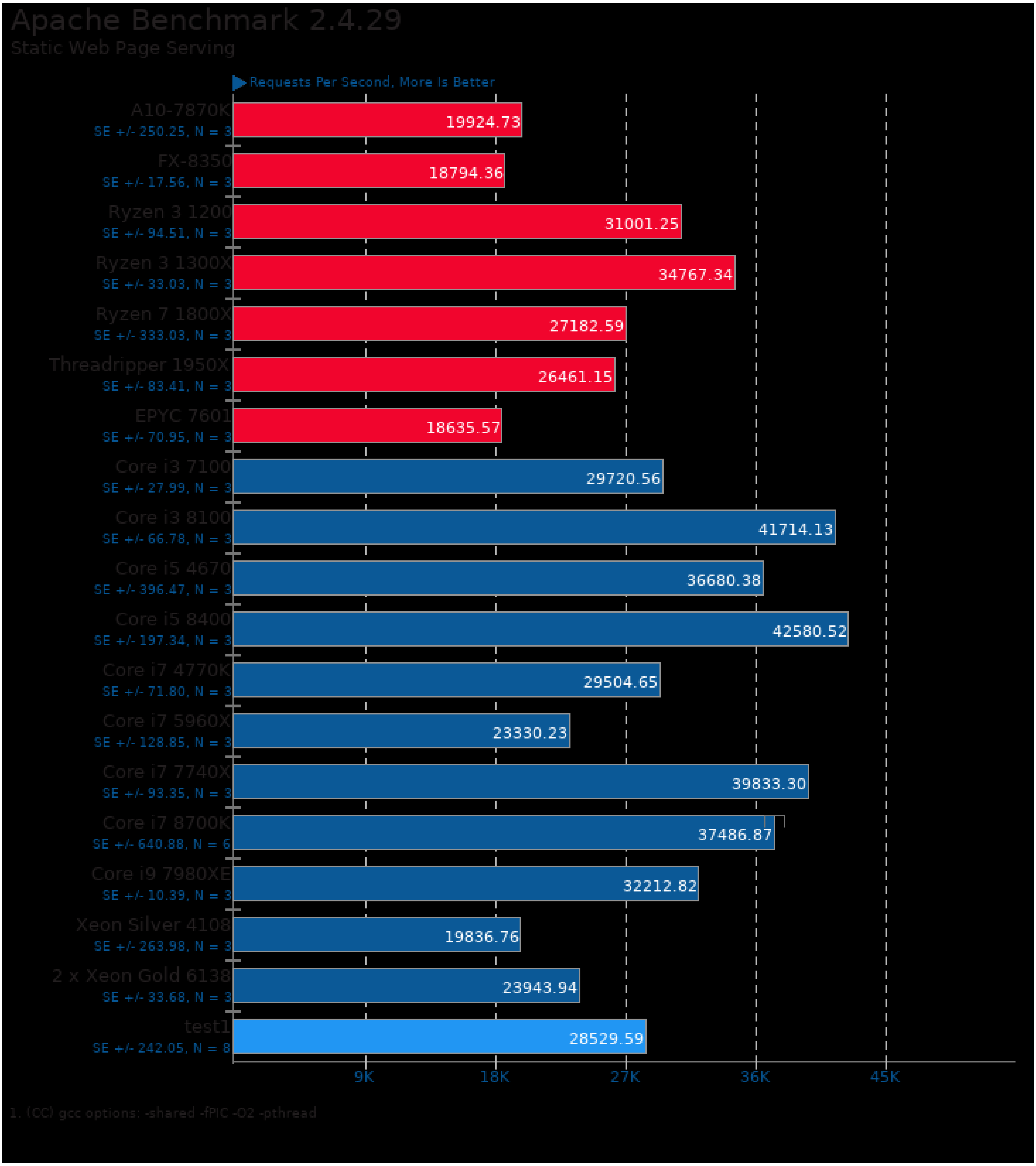
Linux 4.15 New CPU Comparison



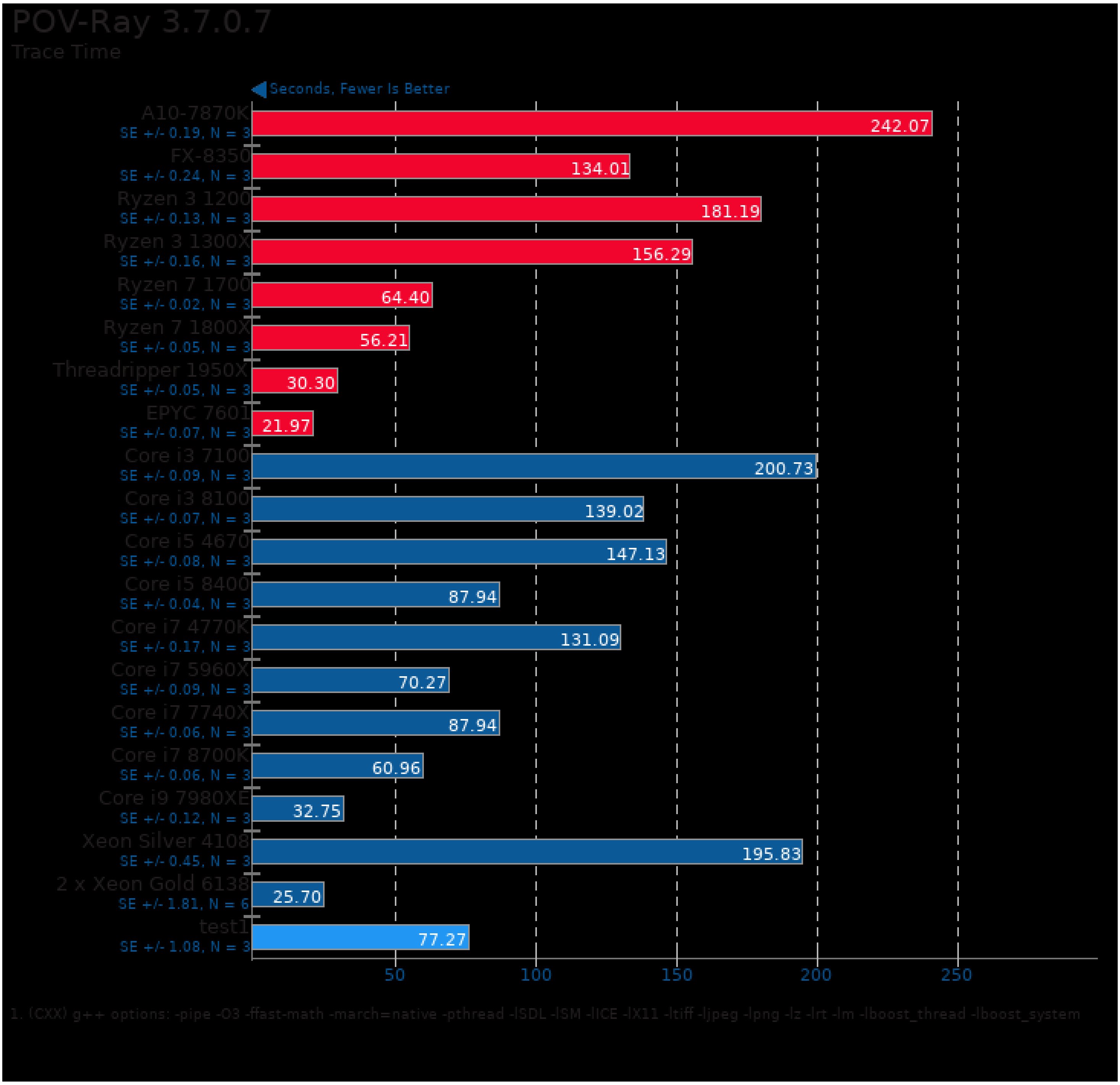
Linux 4.15 New CPU Comparison



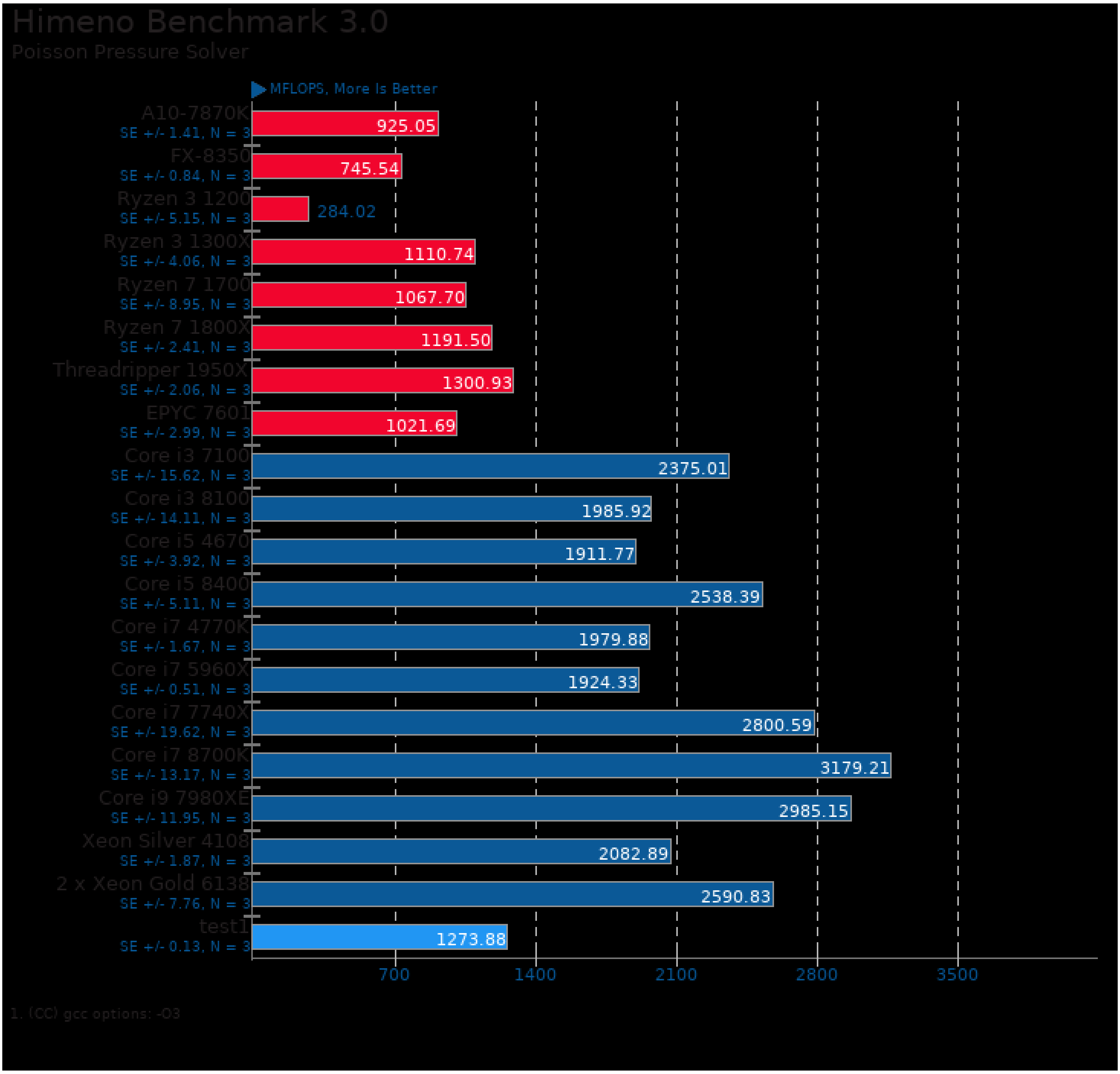
Linux 4.15 New CPU Comparison



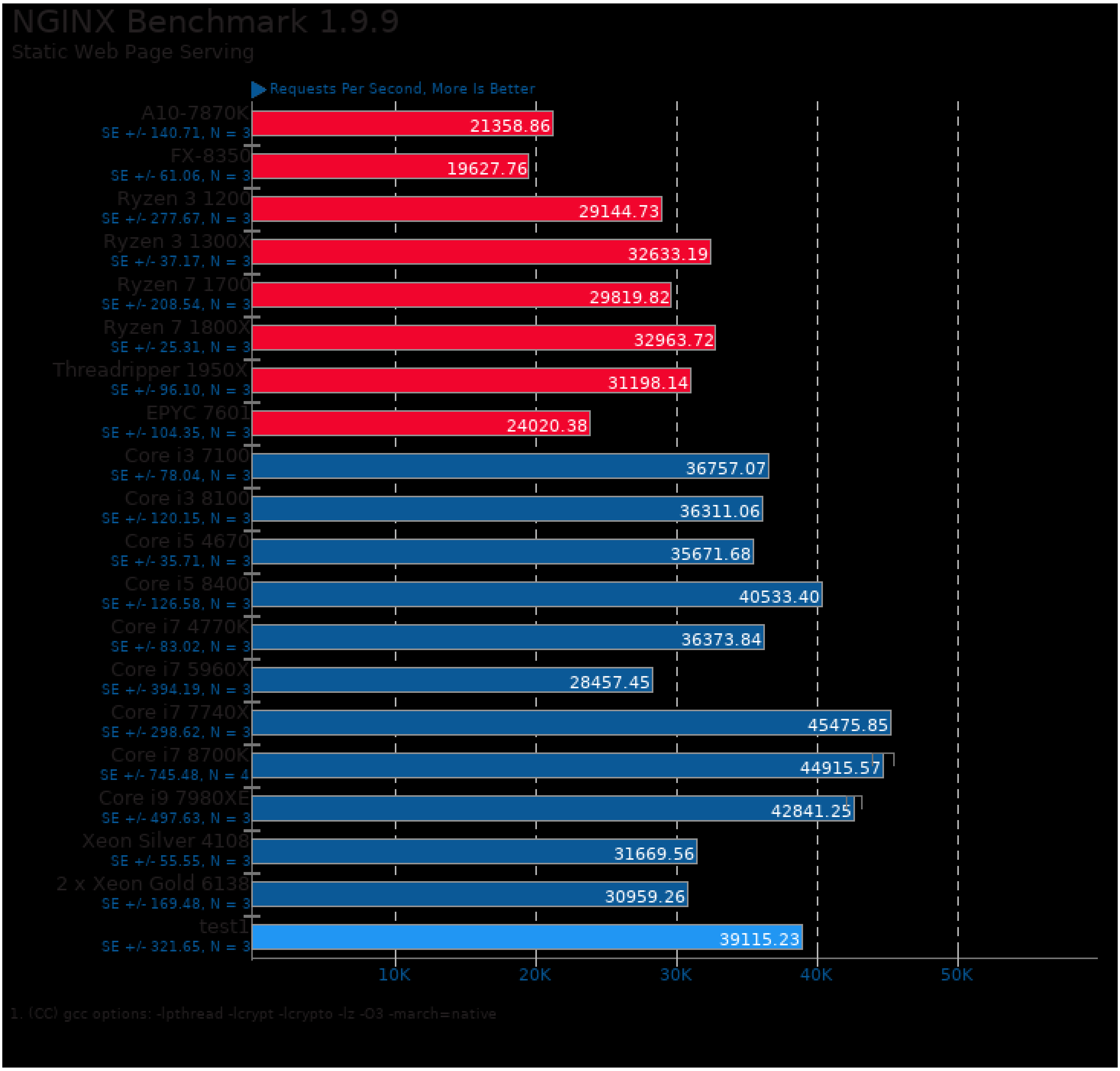
Linux 4.15 New CPU Comparison



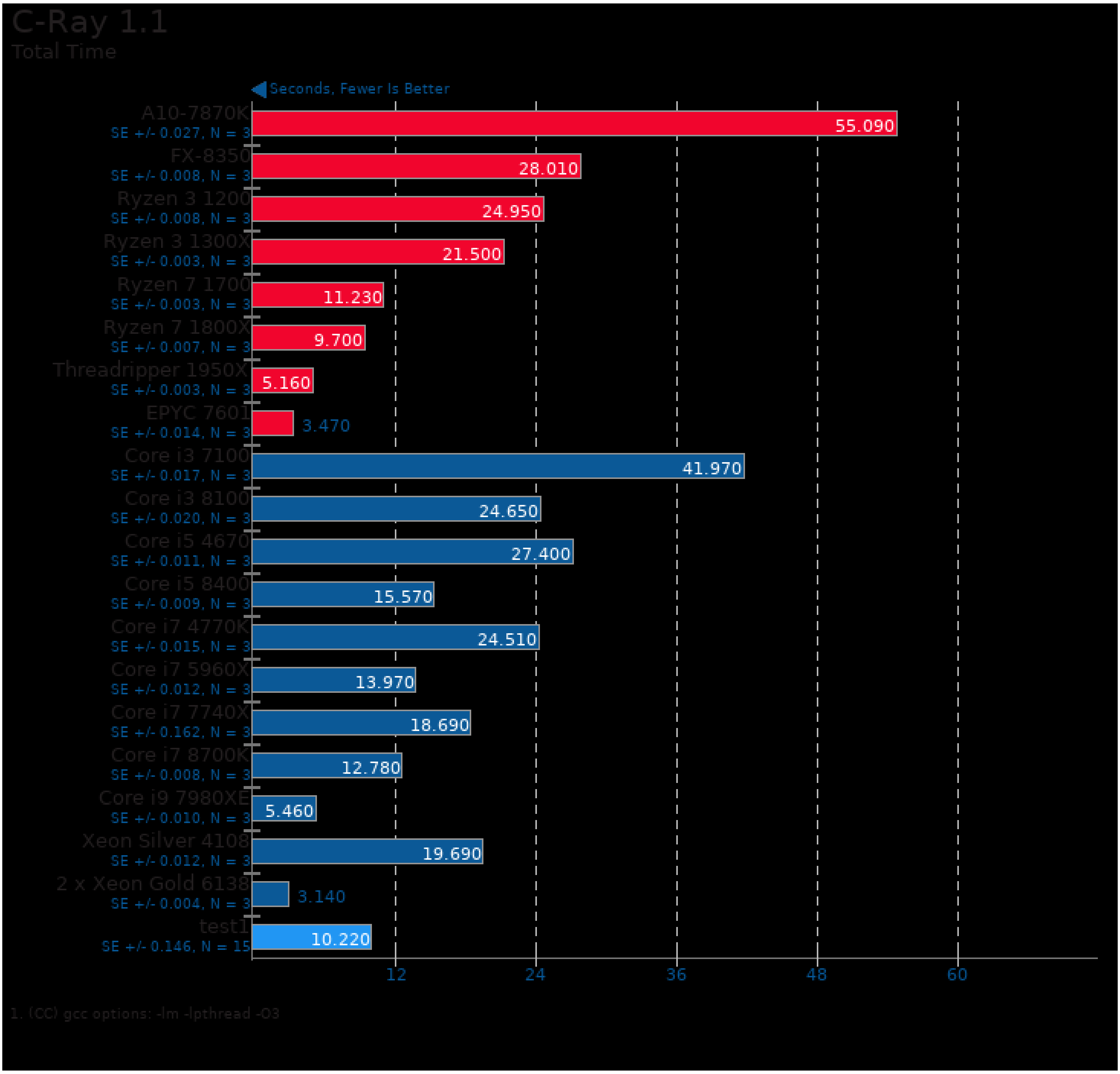
Linux 4.15 New CPU Comparison



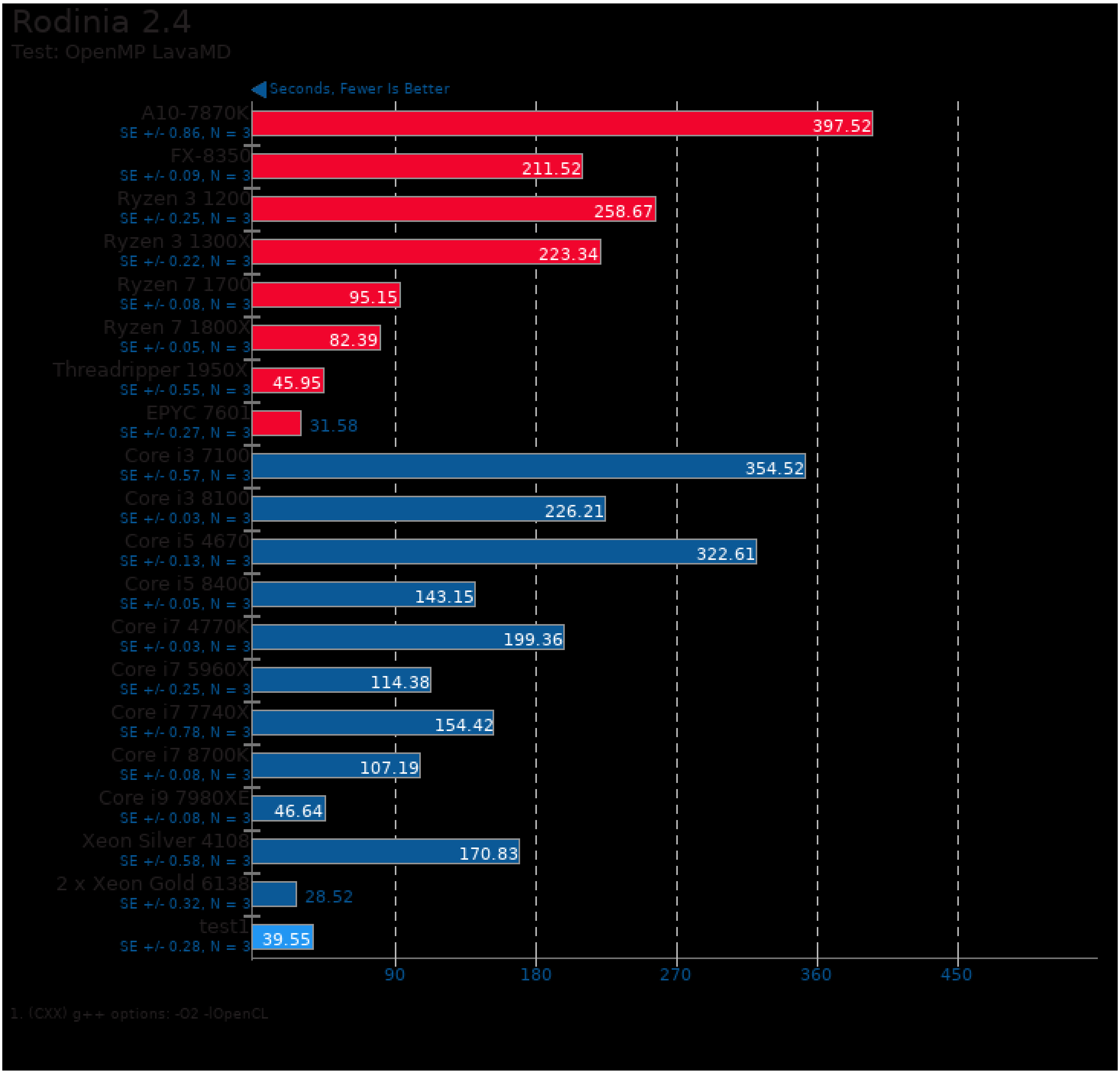
Linux 4.15 New CPU Comparison

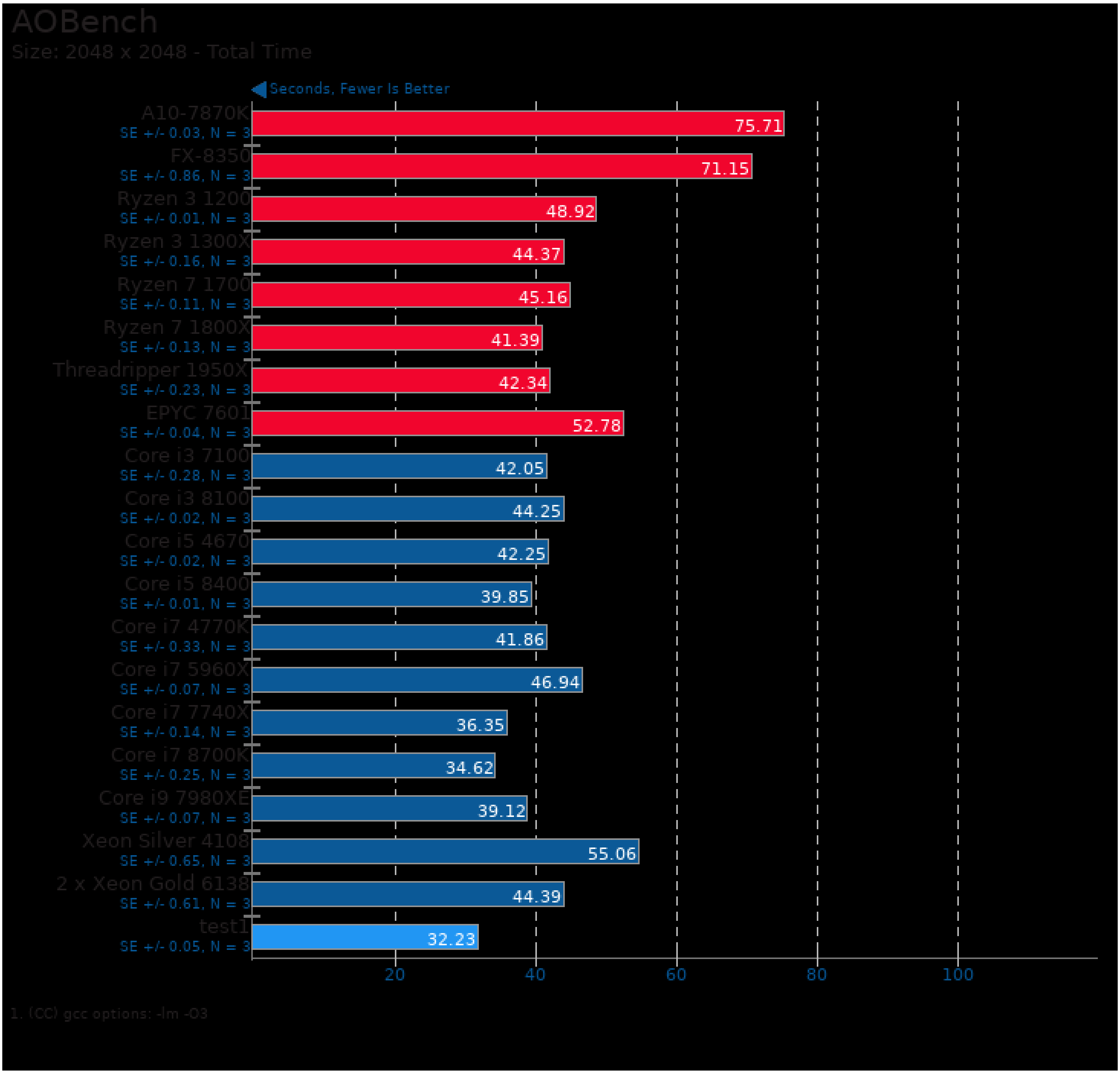


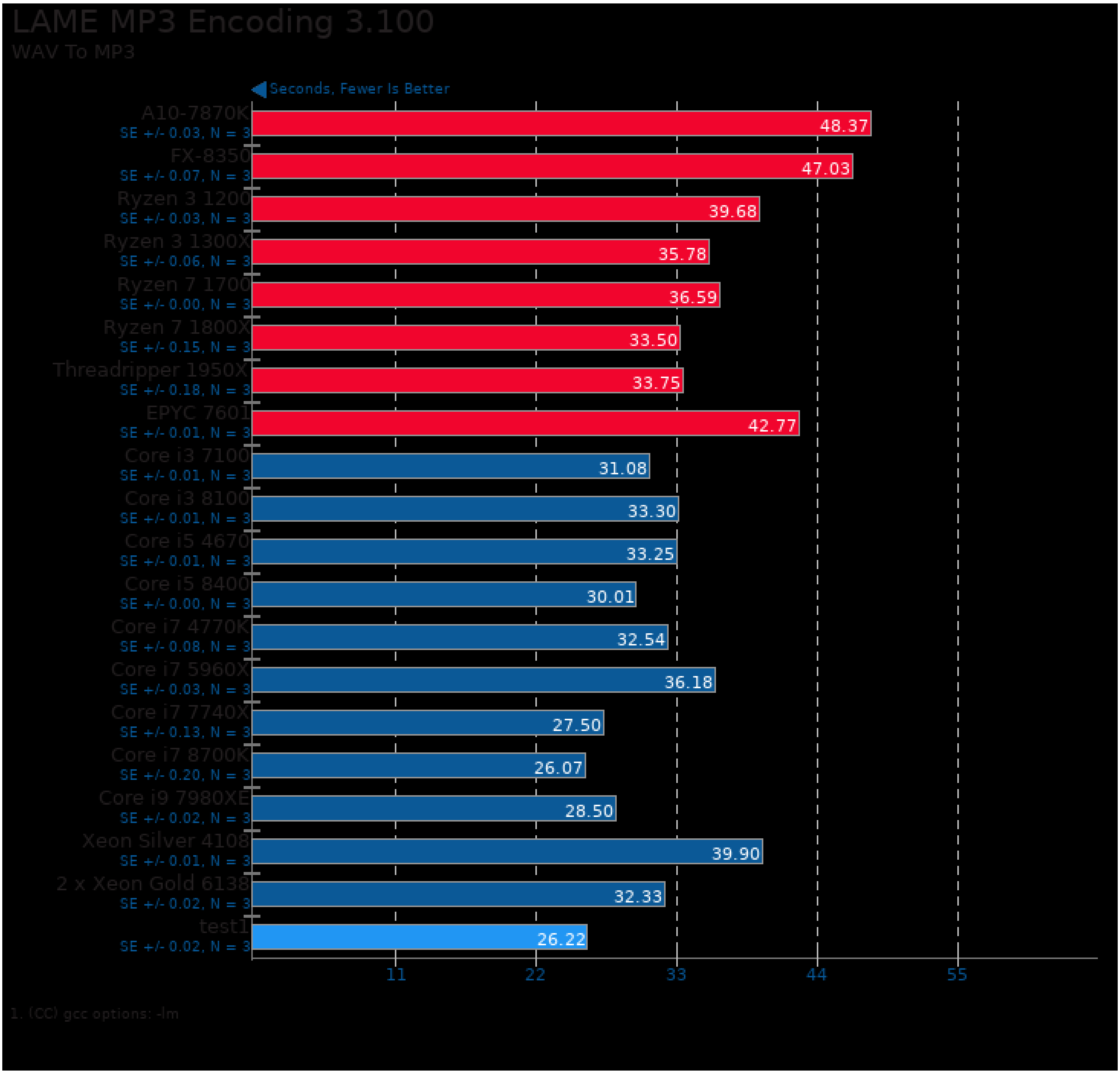
Linux 4.15 New CPU Comparison

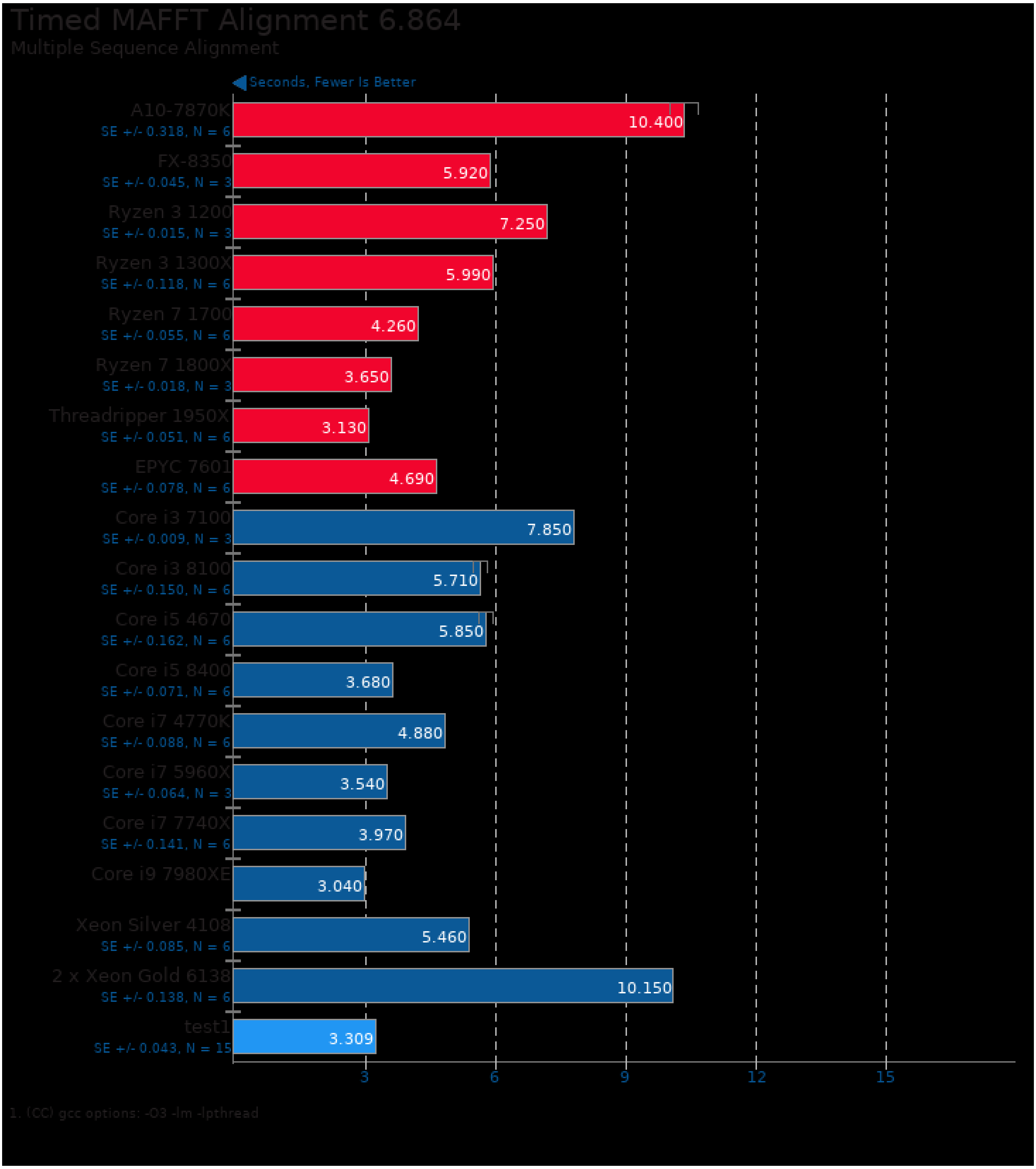


Linux 4.15 New CPU Comparison

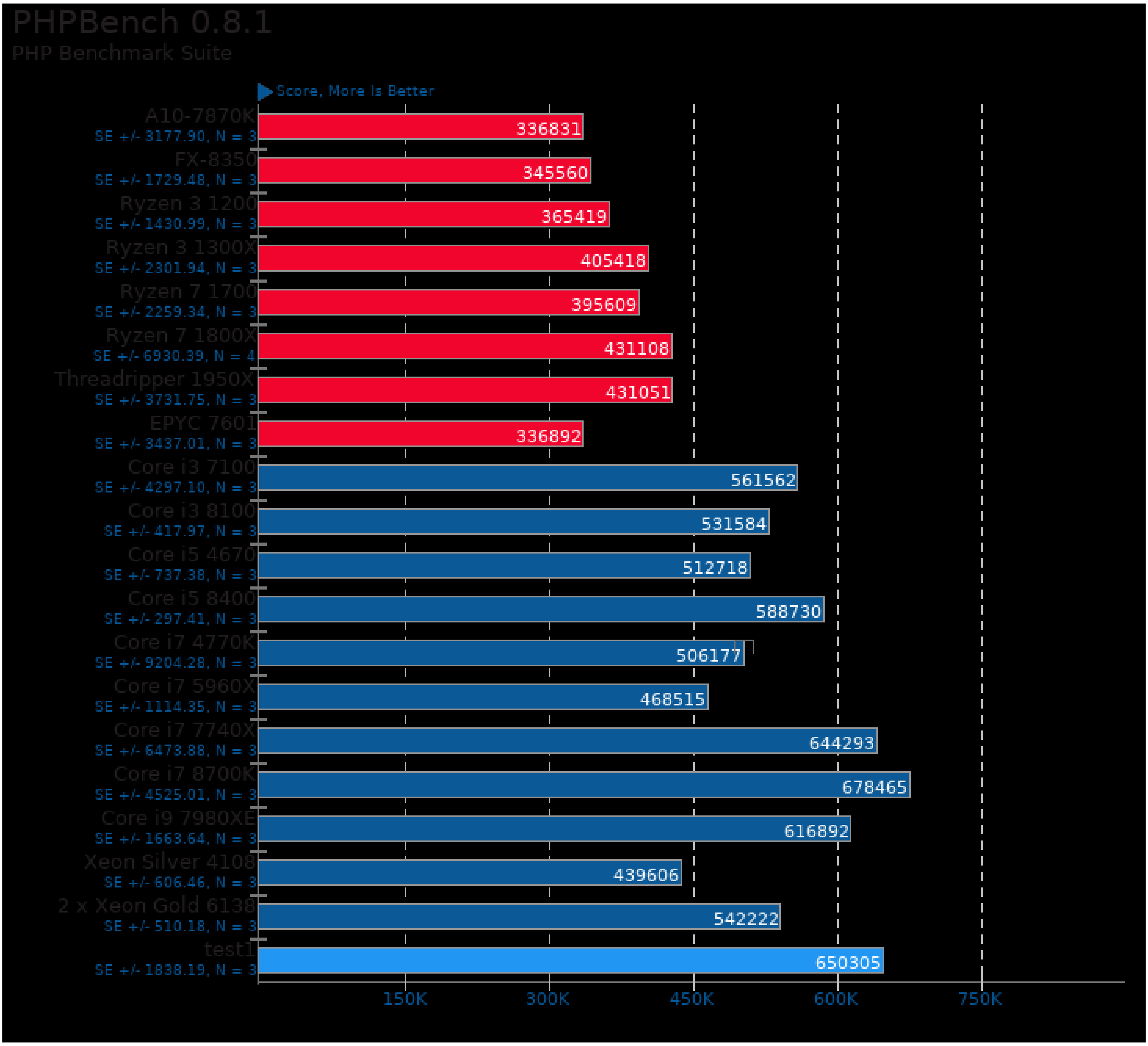



AOBench
Size: 2048 x 2048 - Total Time
Seconds, Fewer Is Better
A10-7870K
SE +/- 0.03, N = 3
75.71
FX-8350
SE +/- 0.86, N = 3
71.15
Ryzen 3 1200
SE +/- 0.01, N = 3
48.92
Ryzen 3 1300X
SE +/- 0.16, N = 3
44.37
Ryzen 7 1700
SE +/- 0.11, N = 3
45.16
Ryzen 7 1800X
SE +/- 0.13, N = 3
41.39
Threadripper 1950X
SE +/- 0.23, N = 3
42.34
EPYC 7601
SE +/- 0.04, N = 3
52.78
Core i3 7100
SE +/- 0.28, N = 3
42.05
Core i3 8100
SE +/- 0.02, N = 3
44.25
Core i5 4670
SE +/- 0.02, N = 3
42.25
Core i5 8400
SE +/- 0.01, N = 3
39.85
Core i7 4770K
SE +/- 0.33, N = 3
41.86
Core i7 5960X
SE +/- 0.07, N = 3
46.94
Core i7 7740X
SE +/- 0.14, N = 3
36.35
Core i7 8700K
SE +/- 0.25, N = 3
34.62
Core i9 7980XE
SE +/- 0.07, N = 3
39.12
Xeon Silver 4108
SE +/- 0.65, N = 3
55.06
2 x Xeon Gold 6138
SE +/- 0.61, N = 3
44.39
test1
SE +/- 0.05, N = 3
32.23
20
40
60
80
100
1. (CC) gcc options: -lm -O3

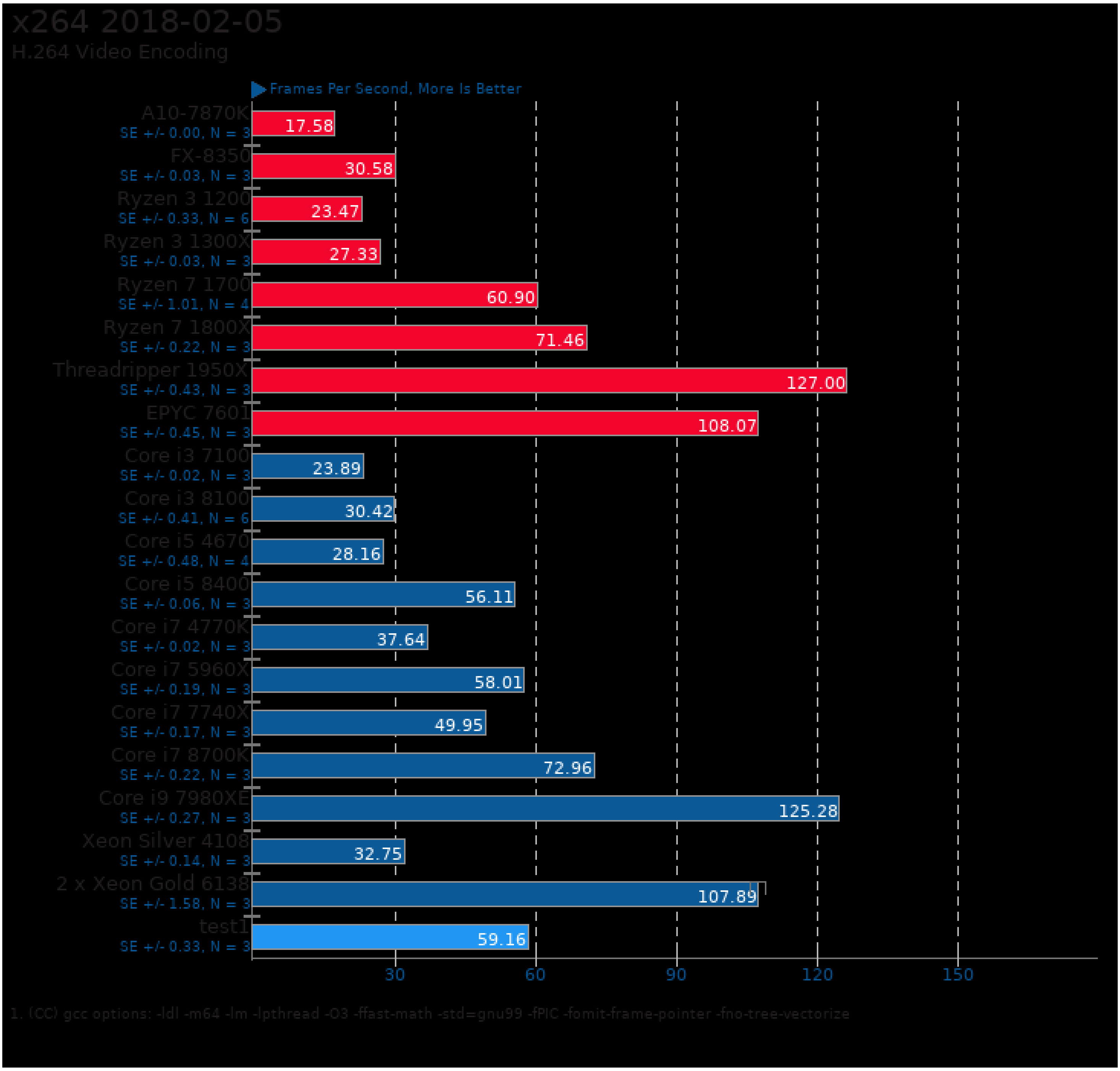

LAME MP3 Encoding 3.100
WAV To MP3
Seconds, Fewer Is Better
A10-7870K
SE +/- 0.03, N = 3
48.37
FX-8350
SE +/- 0.07, N = 3
47.03
Ryzen 3 1200
SE +/- 0.03, N = 3
39.68
Ryzen 3 1300X
SE +/- 0.06, N = 3
35.78
Ryzen 7 1700
SE +/- 0.00, N = 3
36.59
Ryzen 7 1800X
SE +/- 0.15, N = 3
33.50
Threadripper 1950X
SE +/- 0.18, N = 3
33.75
EPYC 7601
SE +/- 0.01, N = 3
42.77
Core i3 7100
SE +/- 0.01, N = 3
31.08
Core i3 8100
SE +/- 0.01, N = 3
33.30
Core i5 4670
SE +/- 0.01, N = 3
33.25
Core i5 8400
SE +/- 0.00, N = 3
30.01
Core i7 4770K
SE +/- 0.08, N = 3
32.54
Core i7 5960X
SE +/- 0.03, N = 3
36.18
Core i7 7740X
SE +/- 0.13, N = 3
27.50
Core i7 8700K
SE +/- 0.20, N = 3
26.07
Core i9 7980XE
SE +/- 0.02, N = 3
28.50
Xeon Silver 4108
SE +/- 0.01, N = 3
39.90
2 x Xeon Gold 6138
SE +/- 0.02, N = 3
32.33
test1
SE +/- 0.02, N = 3
26.22
11
22
33
44
55
1. (CC) gcc options: -lm


Timed MAFFT Alignment 6.864
Multiple Sequence Alignment
Seconds, Fewer Is Better
A10-7870K
SE +/- 0.318, N = 6
10.400
FX-8350
SE +/- 0.045, N = 3
5.920
Ryzen 3 1200
SE +/- 0.015, N = 3
7.250
Ryzen 3 1300X
SE +/- 0.118, N = 6
5.990
Ryzen 7 1700
SE +/- 0.055, N = 6
4.260
Ryzen 7 1800X
SE +/- 0.018, N = 3
3.650
Threadripper 1950X
SE +/- 0.051, N = 6
3.130
EPYC 7601
SE +/- 0.078, N = 6
4.690
Core i3 7100
SE +/- 0.009, N = 3
7.850
Core i3 8100
SE +/- 0.150, N = 6
5.710
Core i5 4670
SE +/- 0.162, N = 6
5.850
Core i5 8400
SE +/- 0.071, N = 6
3.680
Core i7 4770K
SE +/- 0.088, N = 6
4.880
Core i7 5960X
SE +/- 0.064, N = 3
3.540
Core i7 7740X
SE +/- 0.141, N = 6
3.970
Core i9 7980XE
3.040
Xeon Silver 4108
SE +/- 0.085, N = 6
5.460
2 x Xeon Gold 6138
SE +/- 0.138, N = 6
10.150
test1
SE +/- 0.043, N = 15
3.309
3
6
9
12
15
1. (CC) gcc options: -O3 -lm -lpthread

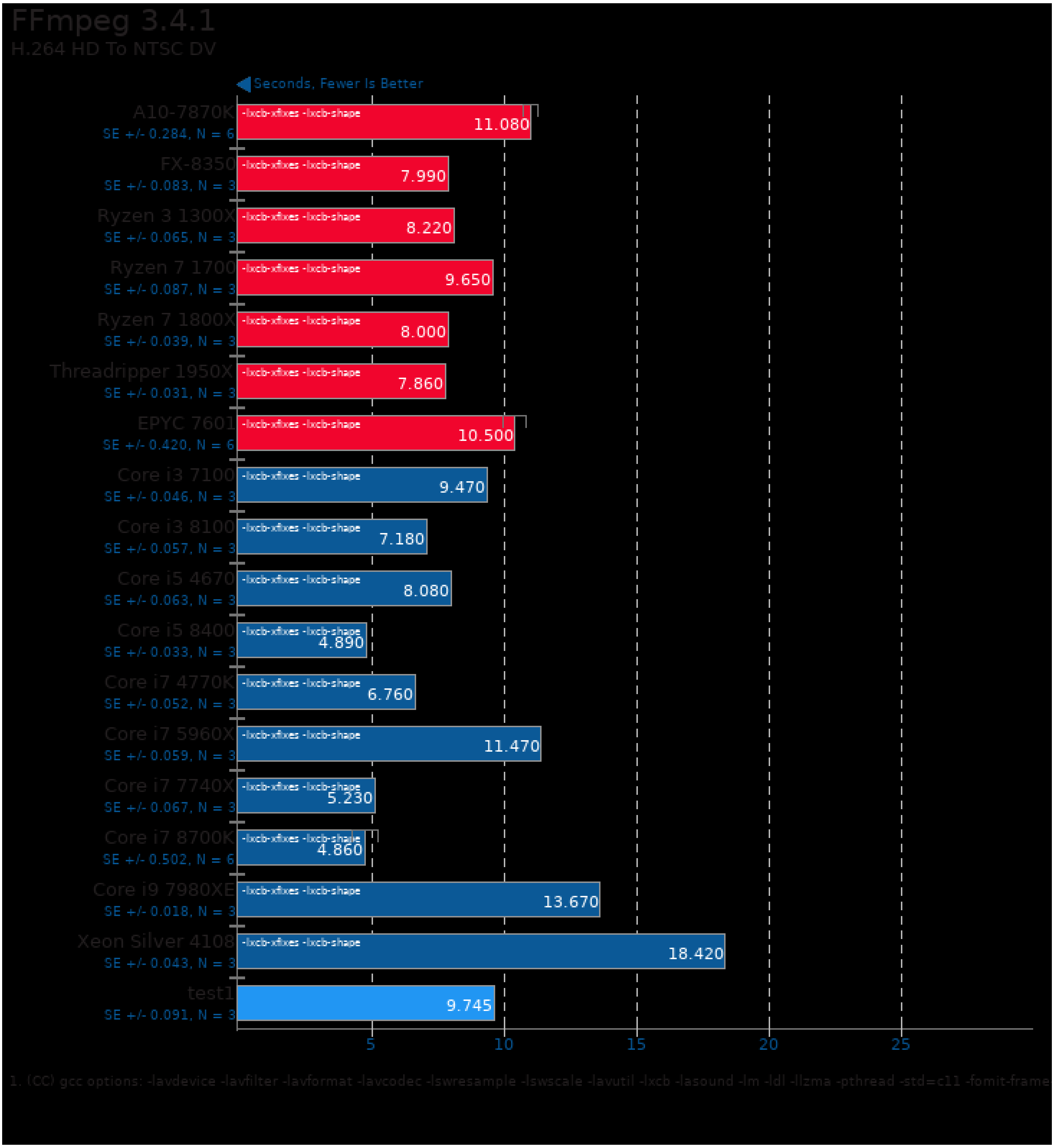
Linux 4.15 New CPU Comparison



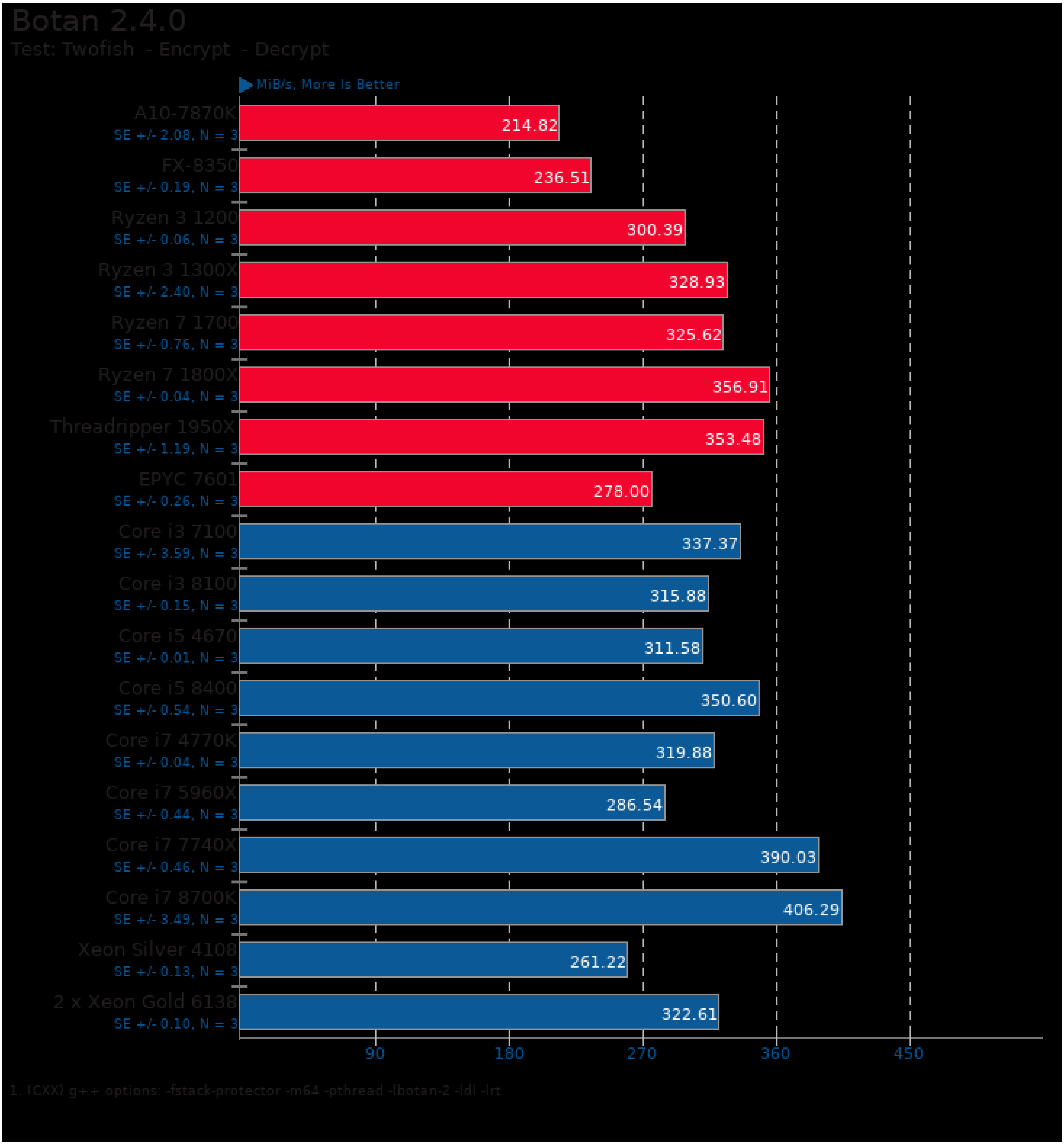
Linux 4.15 New CPU Comparison

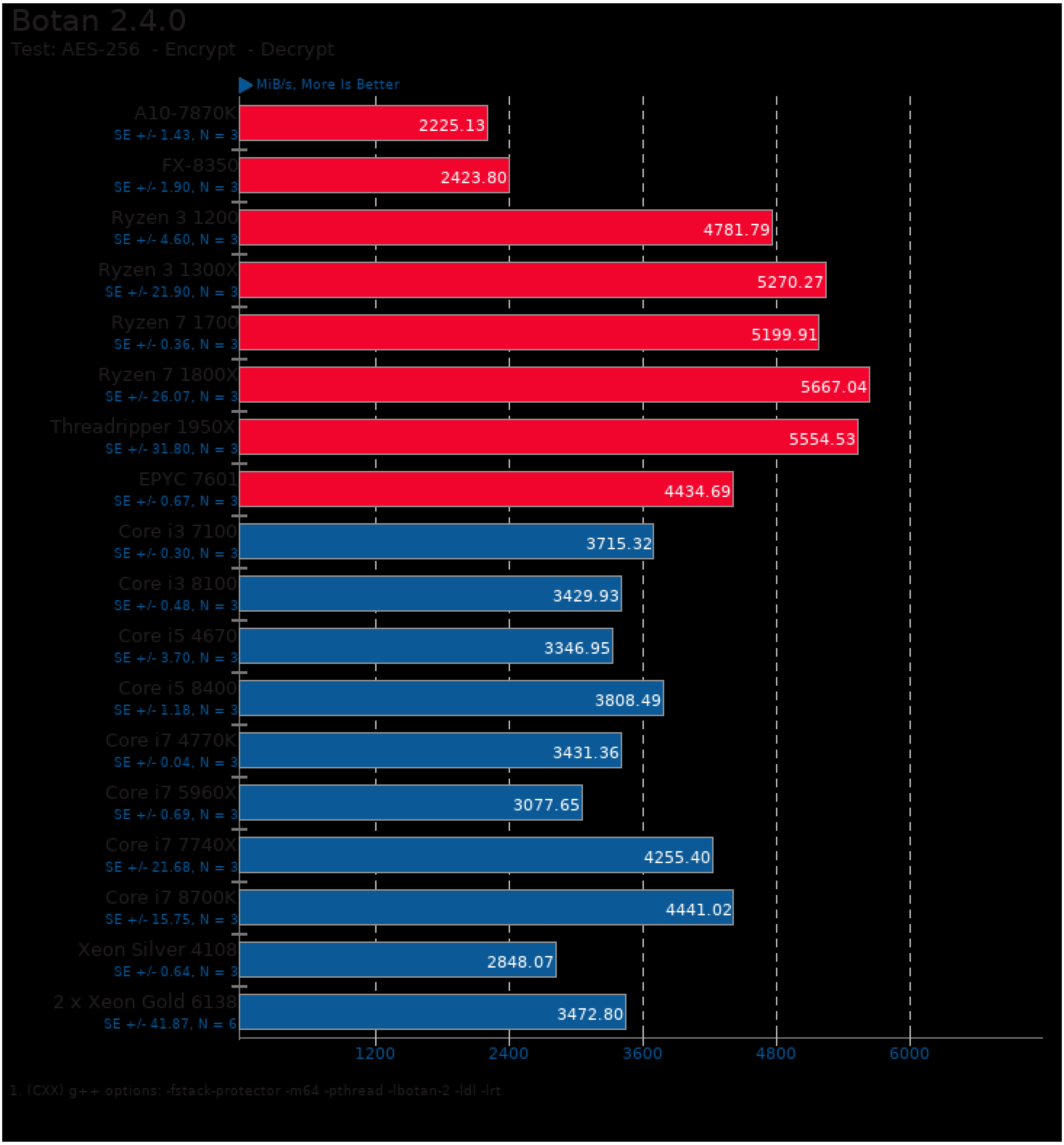


Linux 4.15 New CPU Comparison

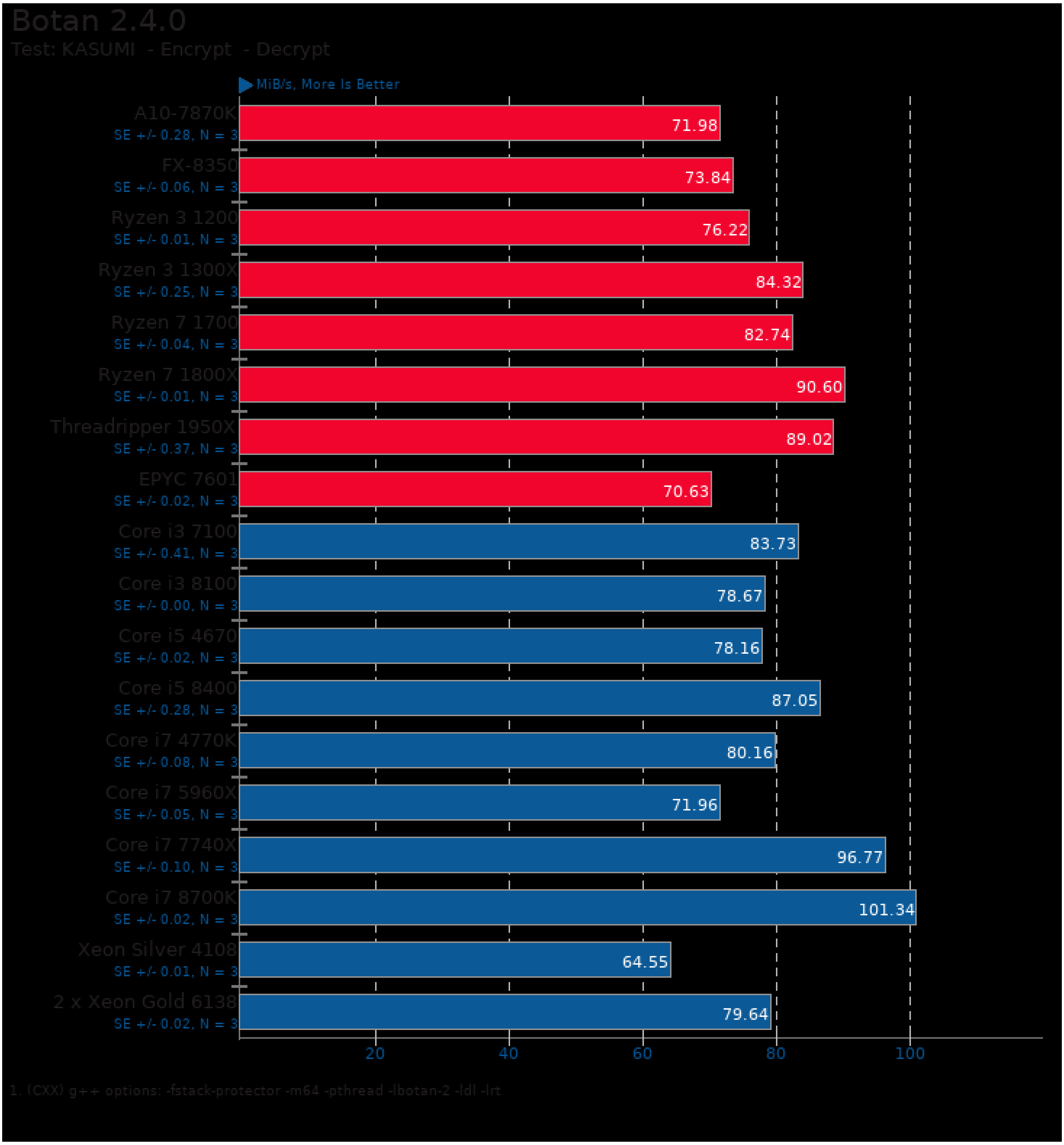


Linux 4.15 New CPU Comparison

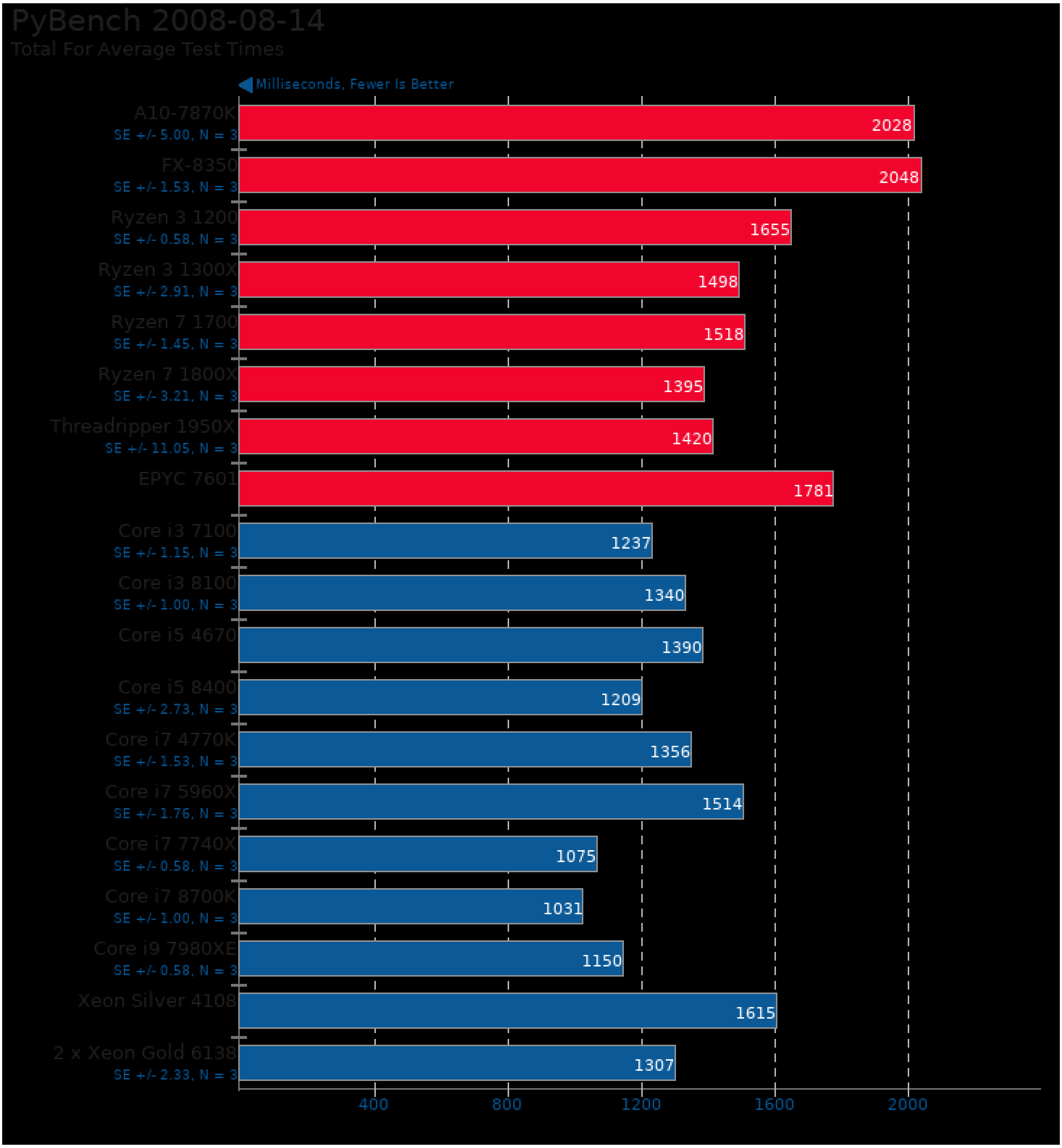



Botan 2.4.0
Test: AES-256 - Encrypt - Decrypt
MiB/s, More Is Better
A10-7870K
SE +/- 1.43, N = 3
2225.13
FX-8350
SE +/- 1.90, N = 3
2423.80
Ryzen 3 1200
SE +/- 4.60, N = 3
4781.79
Ryzen 3 1300X
SE +/- 21.90, N = 3
5270.27
Ryzen 7 1700
SE +/- 0.36, N = 3
5199.91
Ryzen 7 1800X
SE +/- 26.07, N = 3
5667.04
Threadripper 1950X
SE +/- 31.80, N = 3
5554.53
EPYC 7601
SE +/- 0.67, N = 3
4434.69
Core i3 7100
SE +/- 0.30, N = 3
3715.32
Core i3 8100
SE +/- 0.48, N = 3
3429.93
Core i5 4670
SE +/- 3.70, N = 3
3346.95
Core i5 8400
SE +/- 1.18, N = 3
3808.49
Core i7 4770K
SE +/- 0.04, N = 3
3431.36
Core i7 5960X
SE +/- 0.69, N = 3
3077.65
Core i7 7740X
SE +/- 21.68, N = 3
4255.40
Core i7 8700K
SE +/- 15.75, N = 3
4441.02
Xeon Silver 4108
SE +/- 0.64, N = 3
2848.07
2 x Xeon Gold 6138
SE +/- 41.87, N = 6
3472.80
1200
2400
3600
4800
6000
1. (CXX) g++ options: -fstack-protector -m64 -pthread -lbotan-2 -ldl -lrt

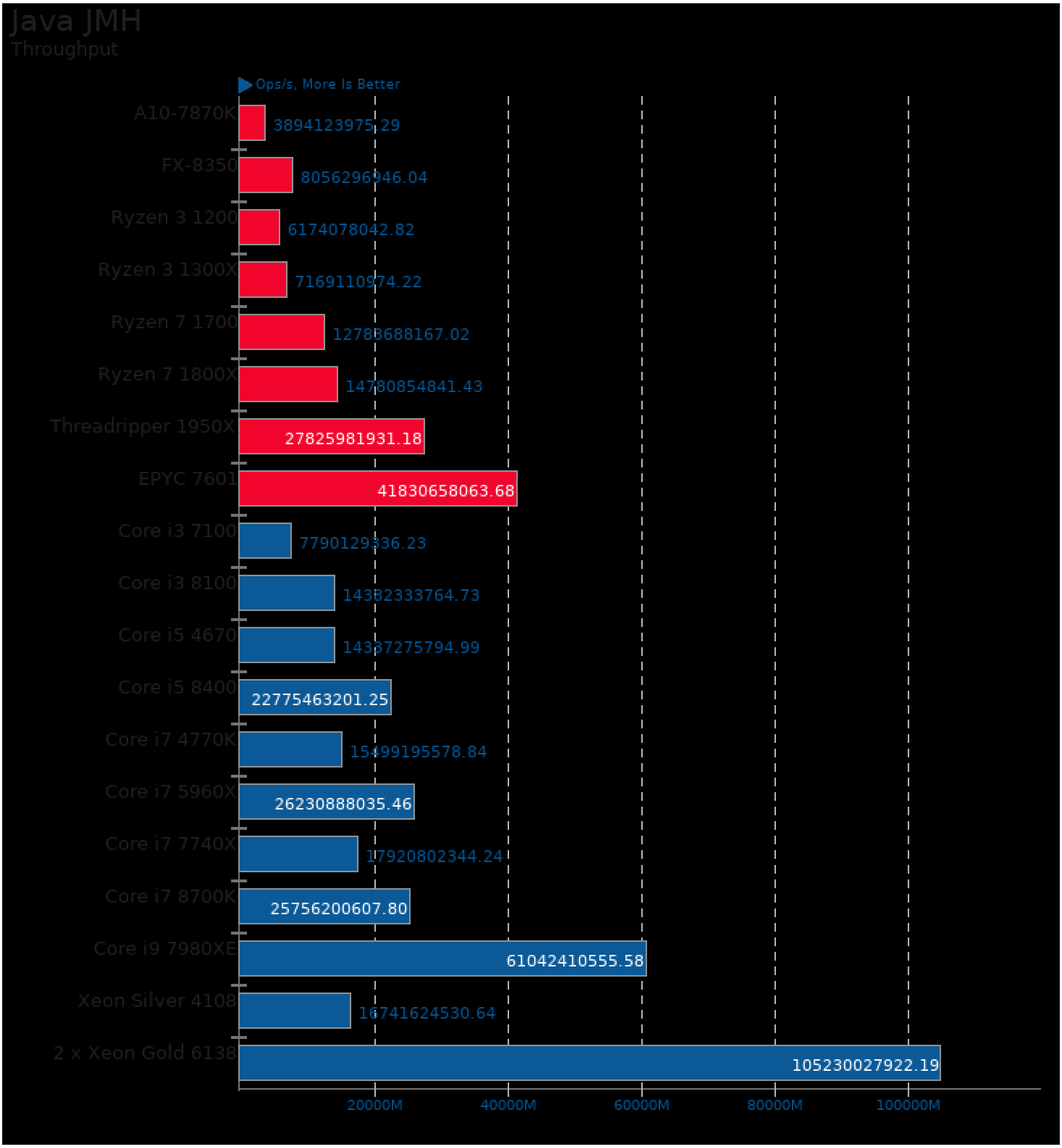
Linux 4.15 New CPU Comparison



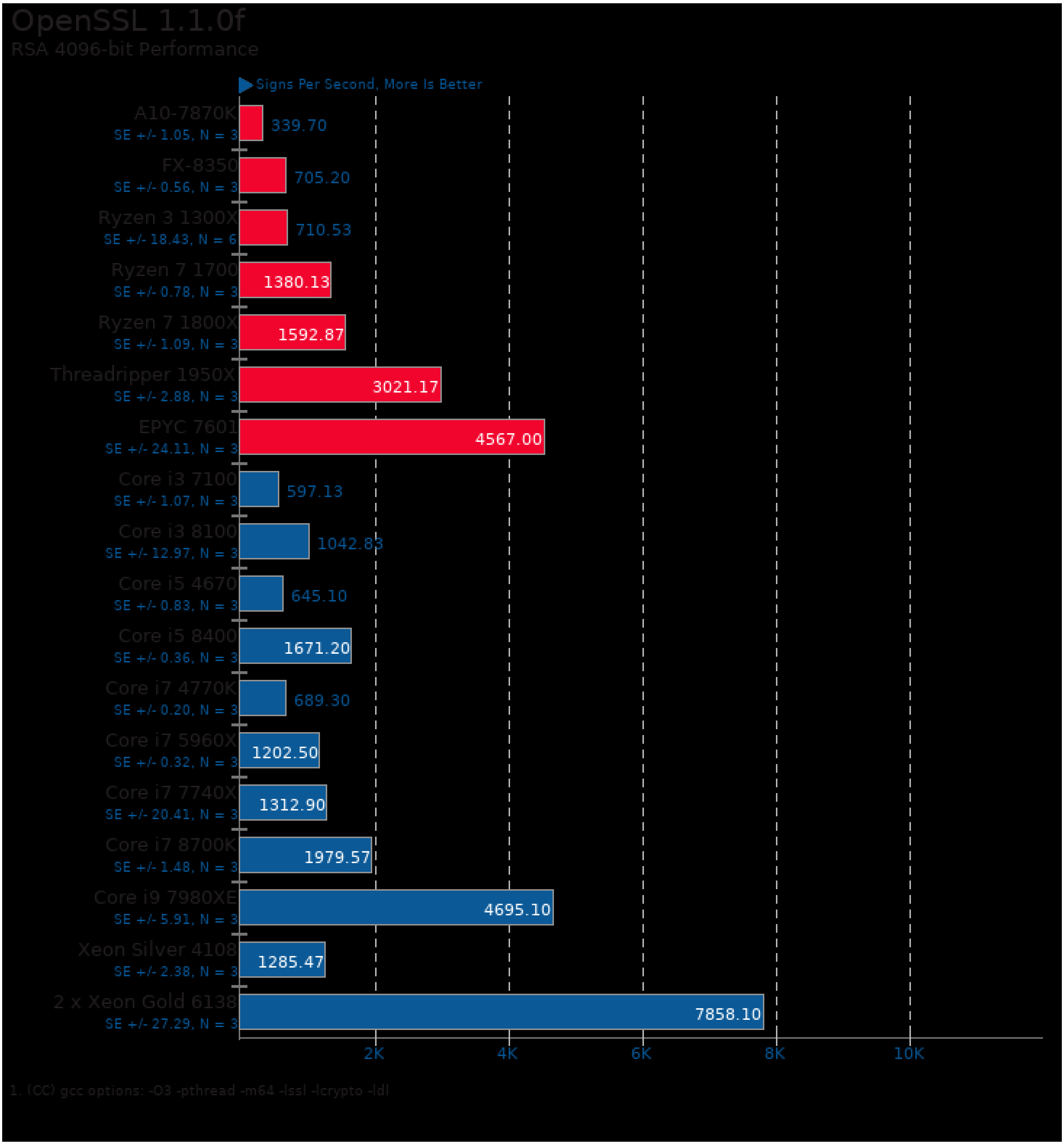
Linux 4.15 New CPU Comparison



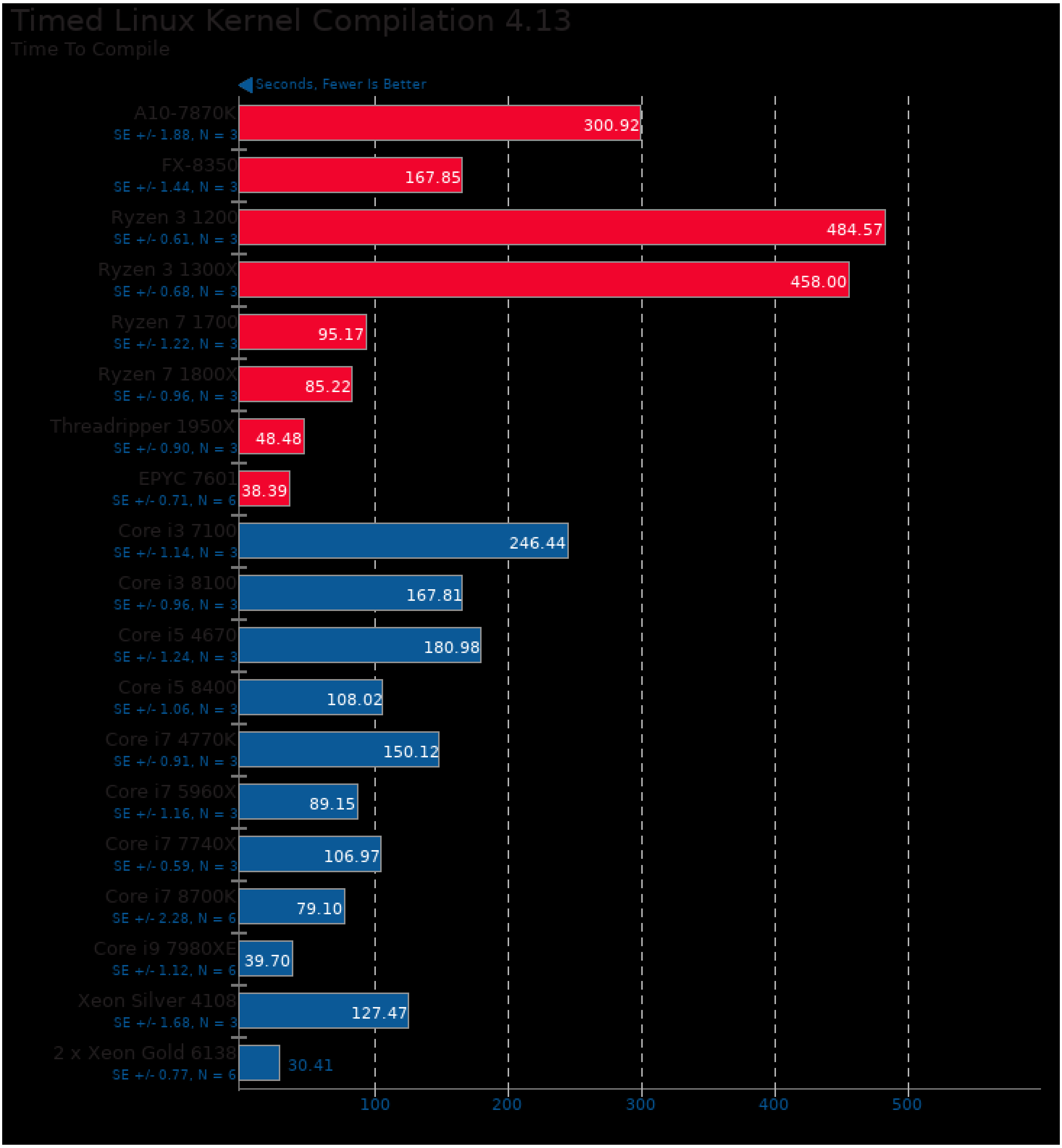
Linux 4.15 New CPU Comparison



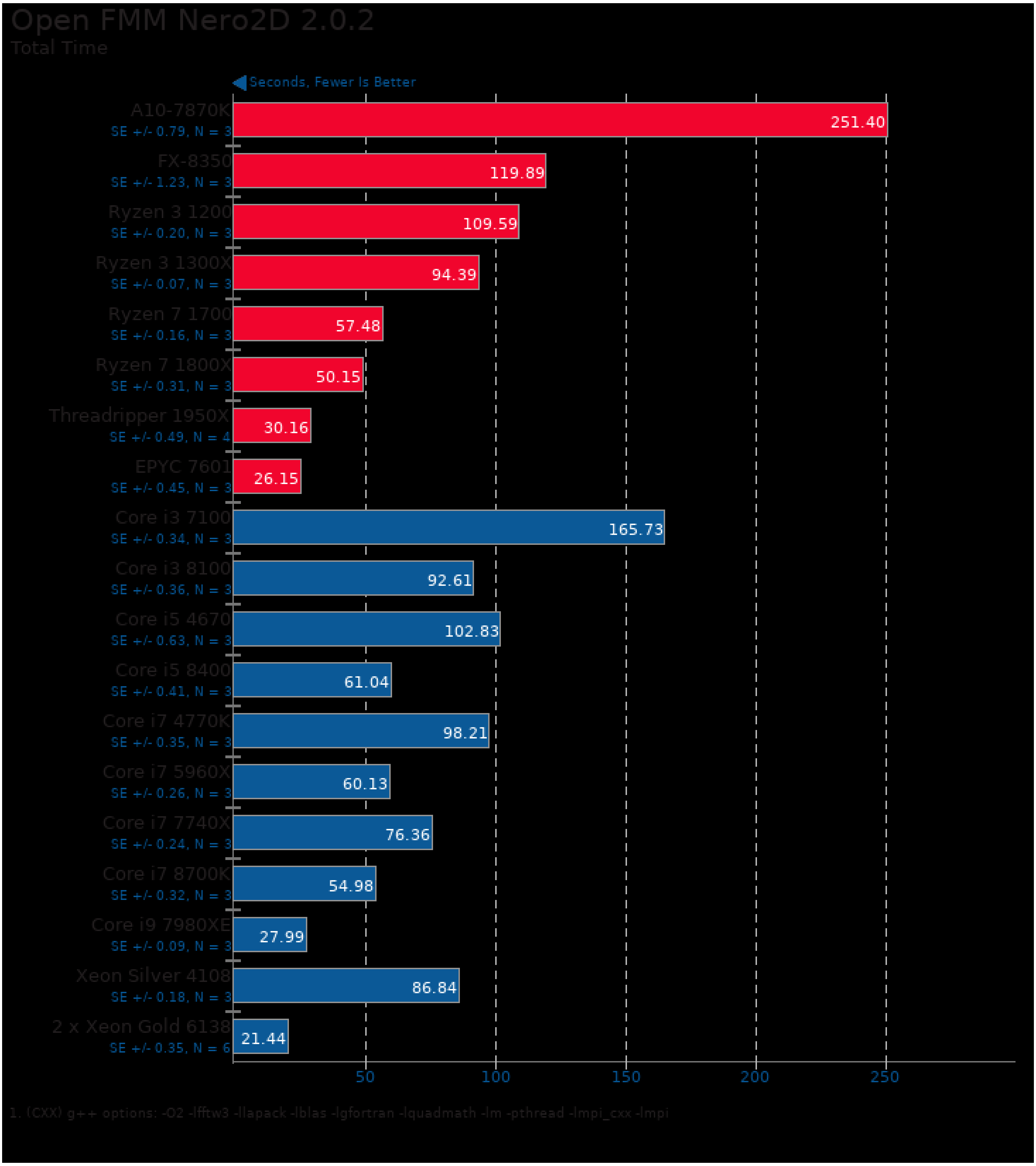
Linux 4.15 New CPU Comparison



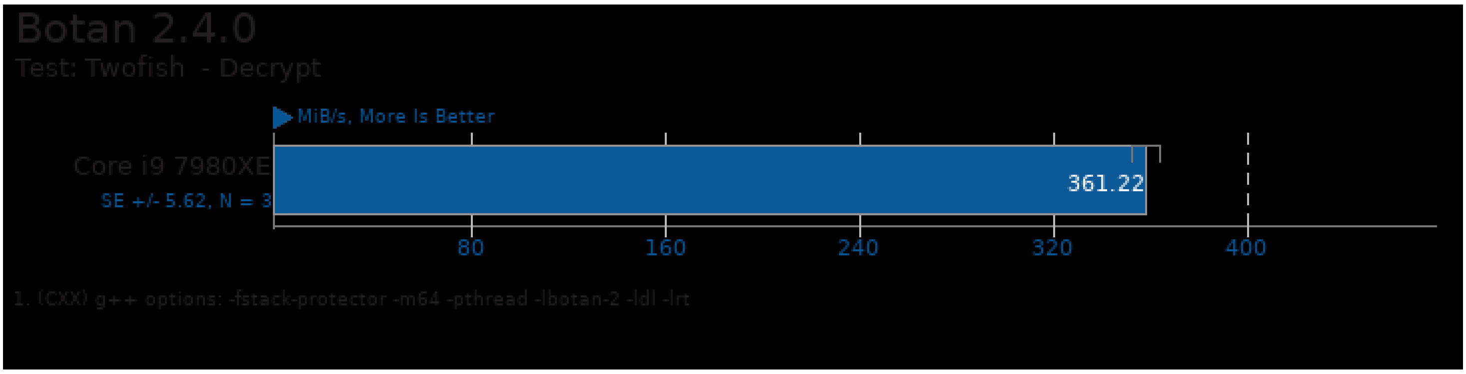
Linux 4.15 New CPU Comparison



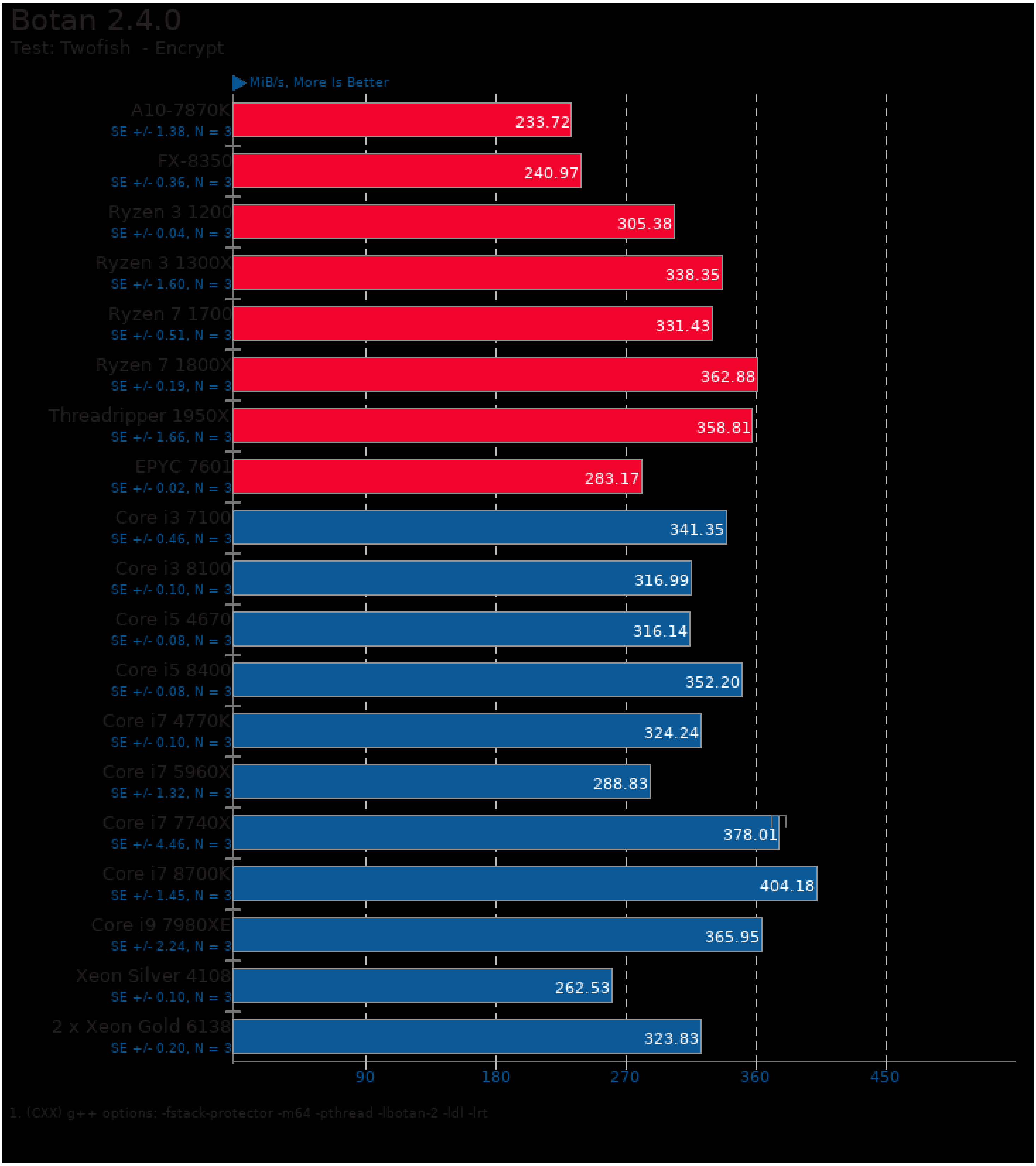
Linux 4.15 New CPU Comparison

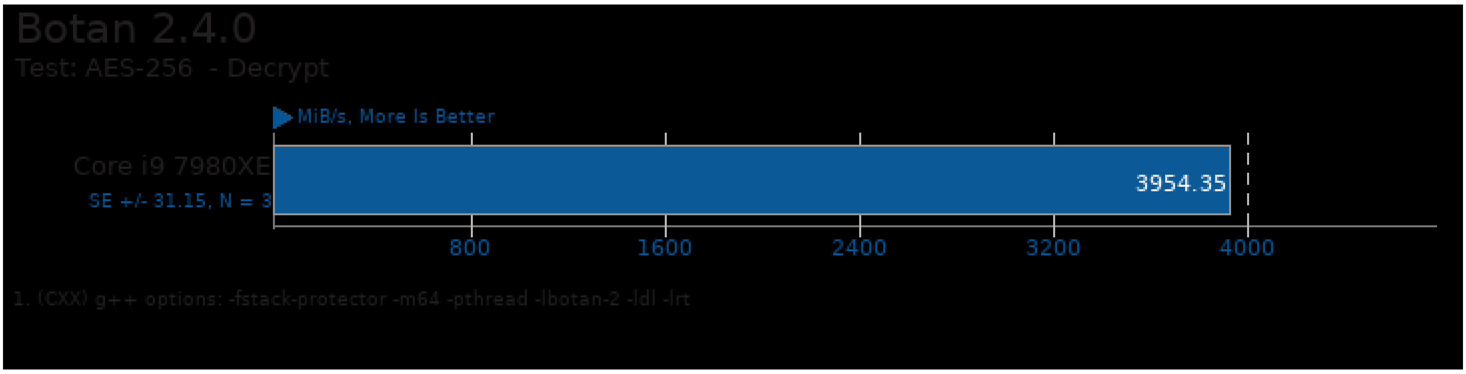


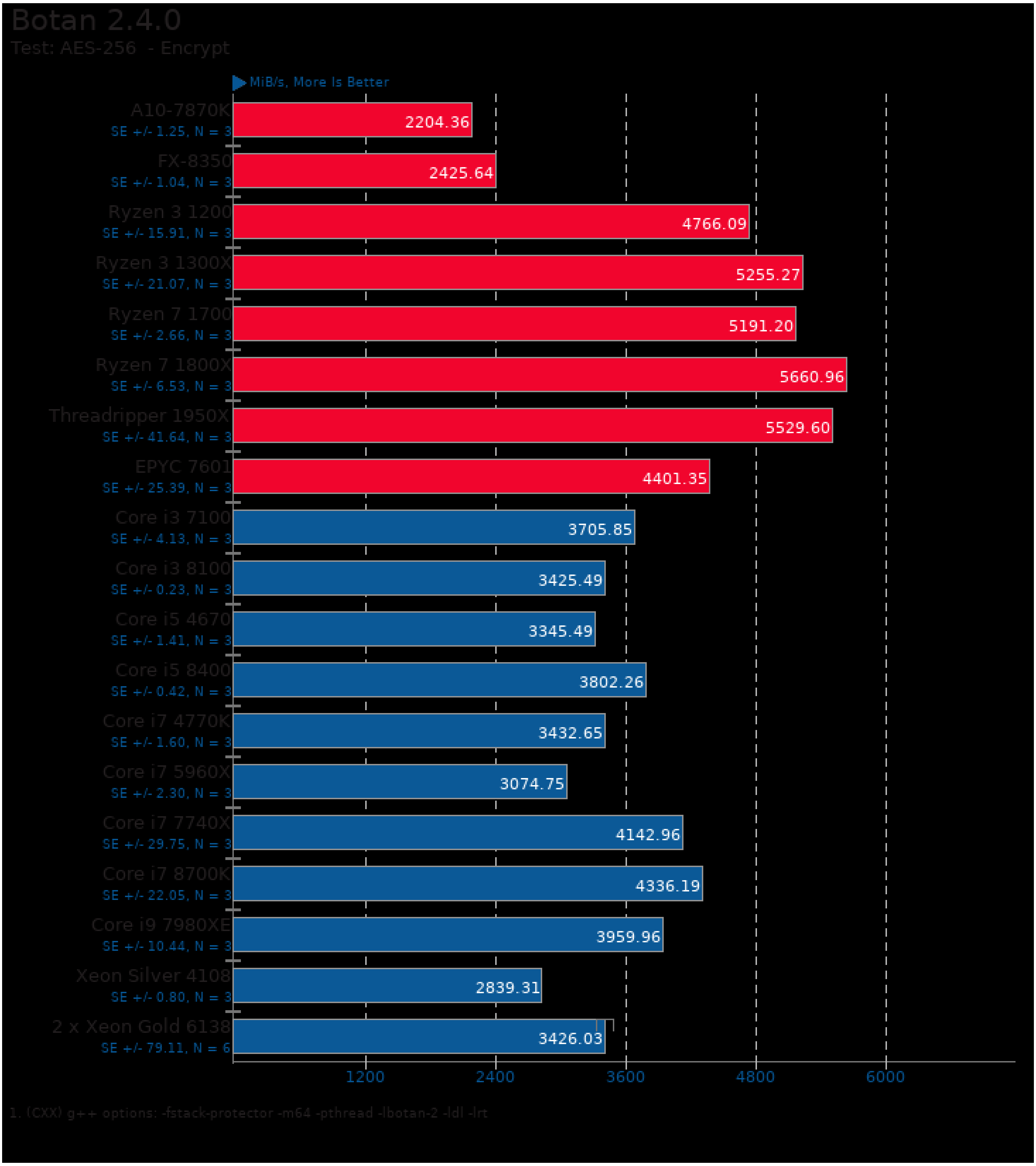
Linux 4.15 New CPU Comparison

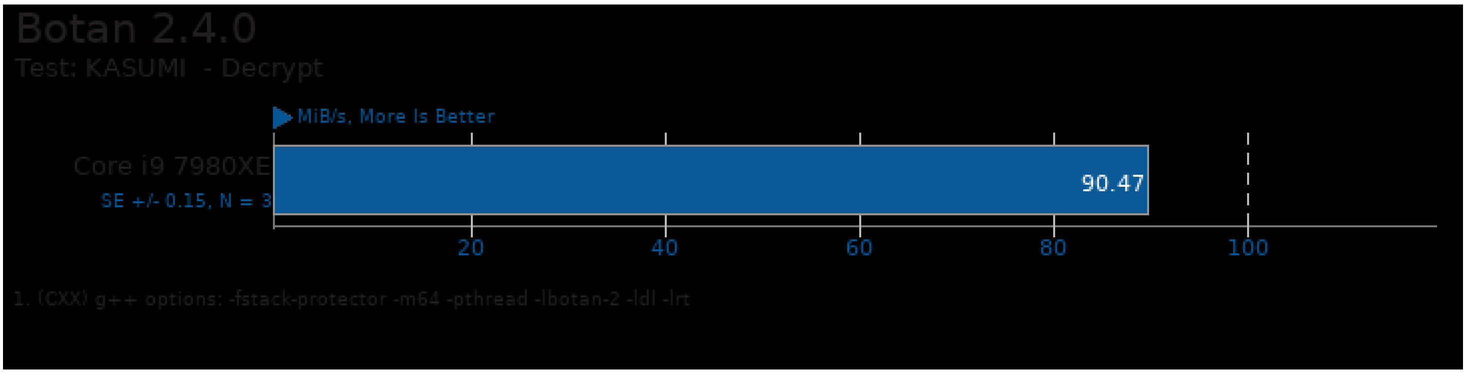


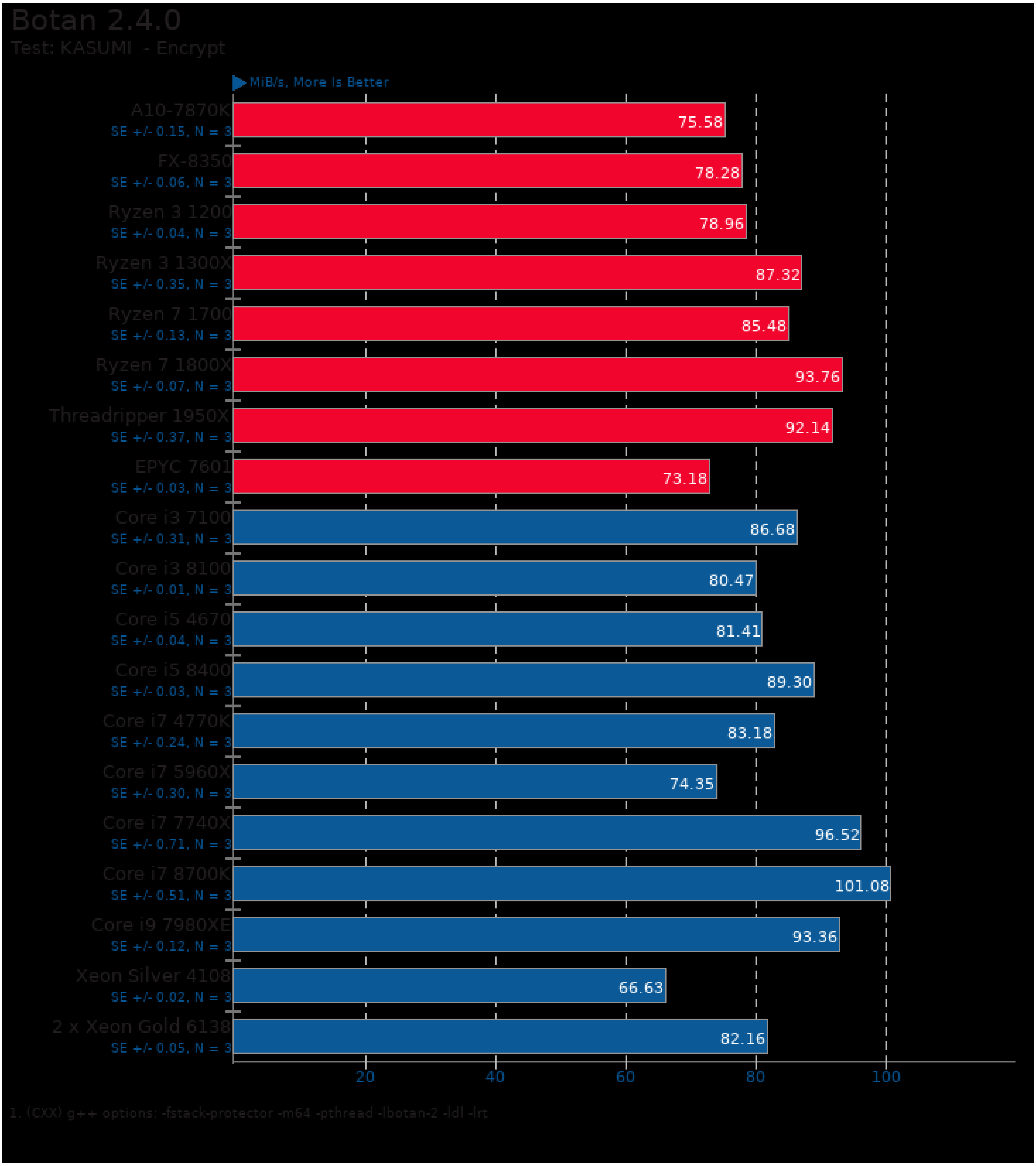
Linux 4.15 New CPU Comparison



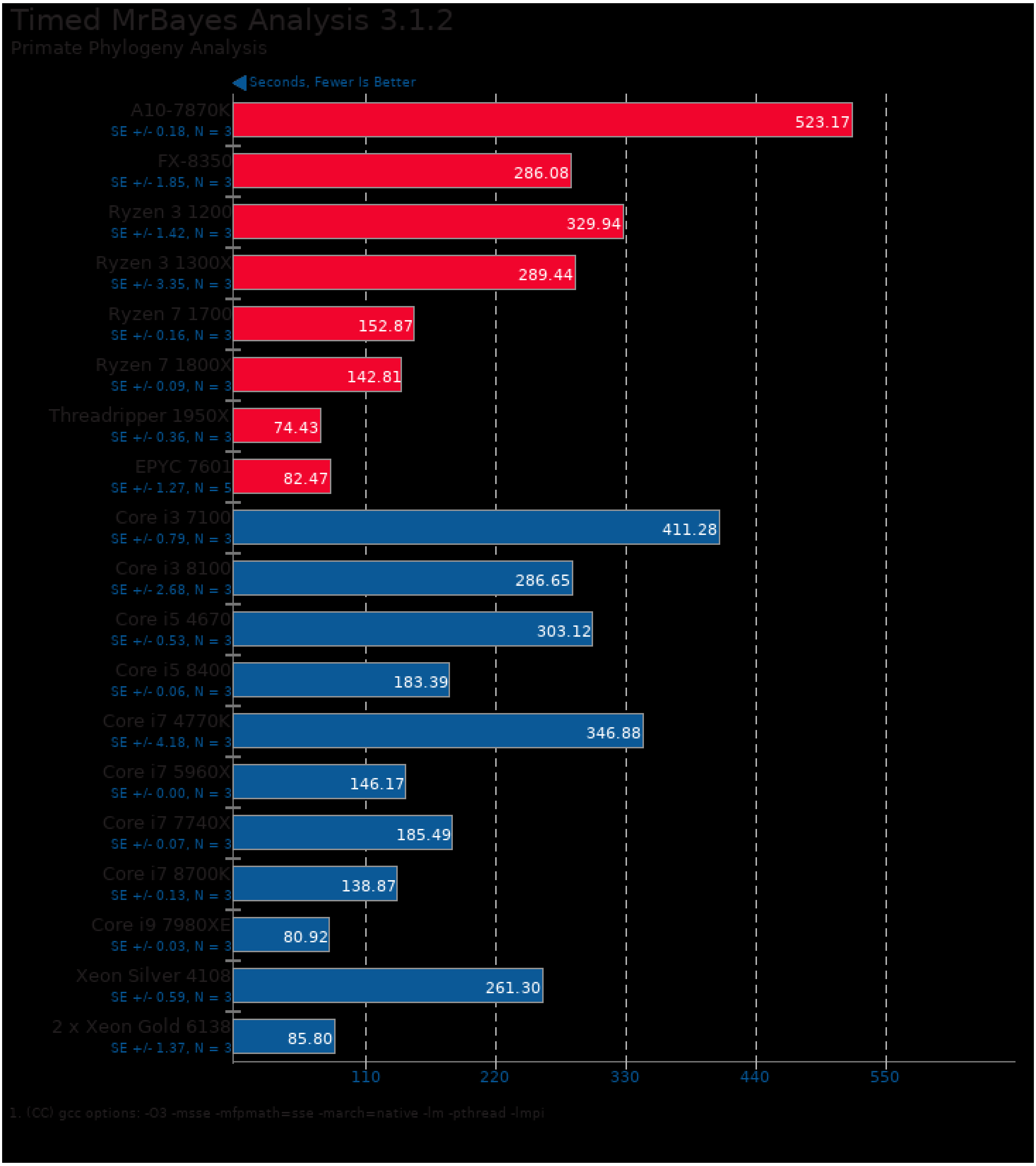

Botan 2.4.0
Test: AES-256 - Decrypt
MiB/s, More Is Better
Core i9 7980XE
SE +/- 31.15, N = 3
3954.35
800
1600
2400
3200
4000
1. (CXX) g++ options: -fstack-protector -m64 -pthread -lbotan-2 -ldl -lrt


Botan 2.4.0
Test: AES-256 - Encrypt
MiB/s, More Is Better
A10-7870K
SE +/- 1.25, N = 3
2204.36
FX-8350
SE +/- 1.04, N = 3
2425.64
Ryzen 3 1200
SE +/- 15.91, N = 3
4766.09
Ryzen 3 1300X
SE +/- 21.07, N = 3
5255.27
Ryzen 7 1700
SE +/- 2.66, N = 3
5191.20
Ryzen 7 1800X
SE +/- 6.53, N = 3
5660.96
Threadripper 1950X
SE +/- 41.64, N = 3
5529.60
EPYC 7601
SE +/- 25.39, N = 3
4401.35
Core i3 7100
SE +/- 4.13, N = 3
3705.85
Core i3 8100
SE +/- 0.23, N = 3
3425.49
Core i5 4670
SE +/- 1.41, N = 3
3345.49
Core i5 8400
SE +/- 0.42, N = 3
3802.26
Core i7 4770K
SE +/- 1.60, N = 3
3432.65
Core i7 5960X
SE +/- 2.30, N = 3
3074.75
Core i7 7740X
SE +/- 29.75, N = 3
4142.96
Core i7 8700K
SE +/- 22.05, N = 3
4336.19
Core i9 7980XE
SE +/- 10.44, N = 3
3959.96
Xeon Silver 4108
SE +/- 0.80, N = 3
2839.31
2 x Xeon Gold 6138
SE +/- 79.11, N = 6
3426.03
1200
2400
3600
4800
6000
1. (CXX) g++ options: -fstack-protector -m64 -pthread -lbotan-2 -ldl -lrt

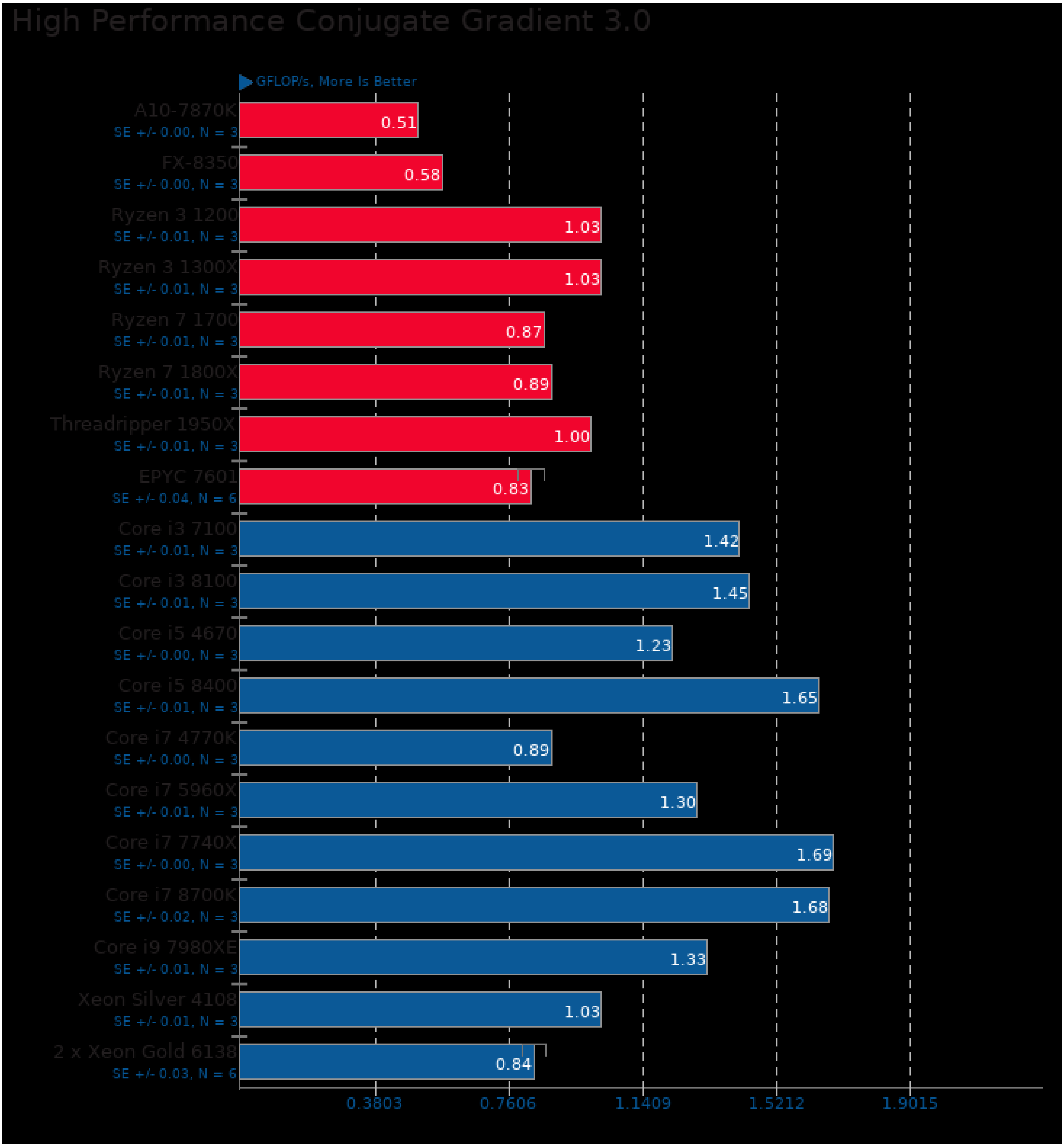

Botan 2.4.0
Test: KASUMI - Decrypt
MiB/s, More Is Better
Core i9 7980XE
SE +/- 0.15, N = 3
90.47
20
40
60
80
100
1. (CXX) g++ options: -fstack-protector -m64 -pthread -lbotan-2 -ldl -lrt


Botan 2.4.0
Test: KASUMI - Encrypt
MiB/s, More Is Better
A10-7870K
SE +/- 0.15, N = 3
75.58
FX-8350
SE +/- 0.06, N = 3
78.28
Ryzen 3 1200
SE +/- 0.04, N = 3
78.96
Ryzen 3 1300X
SE +/- 0.35, N = 3
87.32
Ryzen 7 1700
SE +/- 0.13, N = 3
85.48
Ryzen 7 1800X
SE +/- 0.07, N = 3
93.76
Threadripper 1950X
SE +/- 0.37, N = 3
92.14
EPYC 7601
SE +/- 0.03, N = 3
73.18
Core i3 7100
SE +/- 0.31, N = 3
86.68
Core i3 8100
SE +/- 0.01, N = 3
80.47
Core i5 4670
SE +/- 0.04, N = 3
81.41
Core i5 8400
SE +/- 0.03, N = 3
89.30
Core i7 4770K
SE +/- 0.24, N = 3
83.18
Core i7 5960X
SE +/- 0.30, N = 3
74.35
Core i7 7740X
SE +/- 0.71, N = 3
96.52
Core i7 8700K
SE +/- 0.51, N = 3
101.08
Core i9 7980XE
SE +/- 0.12, N = 3
93.36
Xeon Silver 4108
SE +/- 0.02, N = 3
66.63
2 x Xeon Gold 6138
SE +/- 0.05, N = 3
82.16
20
40
60
80
100
1. (CXX) g++ options: -fstack-protector -m64 -pthread -lbotan-2 -ldl -lrt

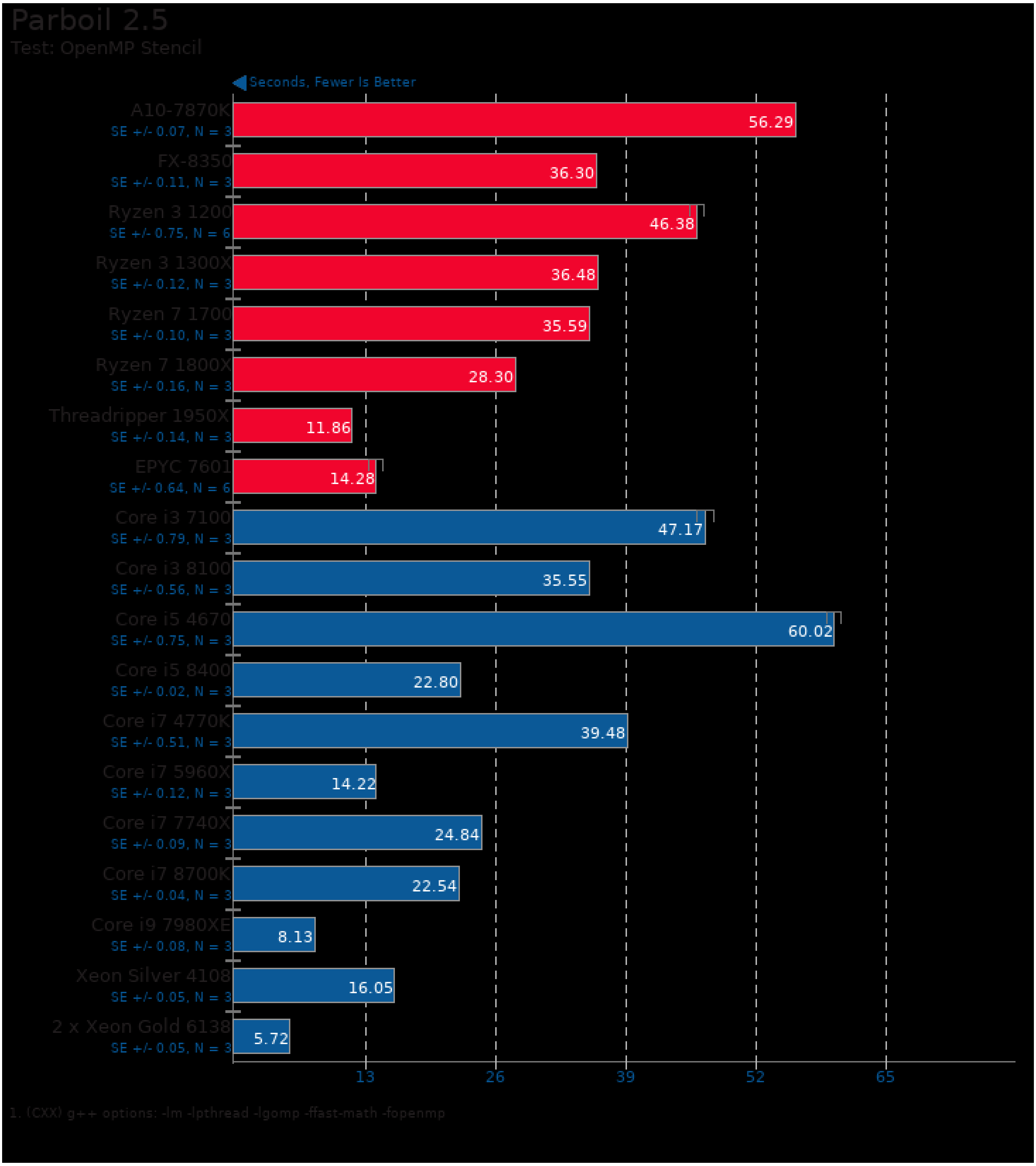
Linux 4.15 New CPU Comparison



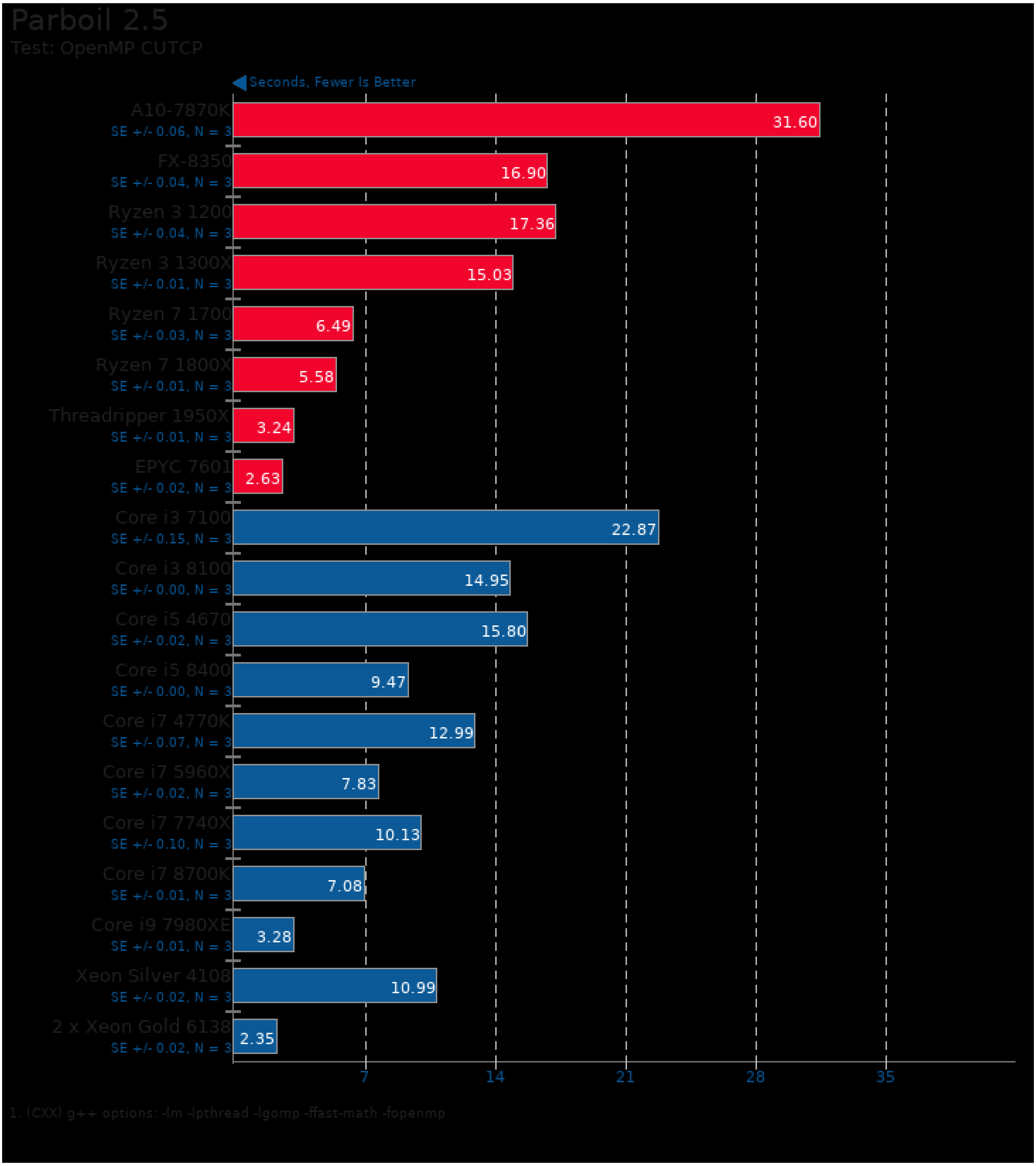
Linux 4.15 New CPU Comparison



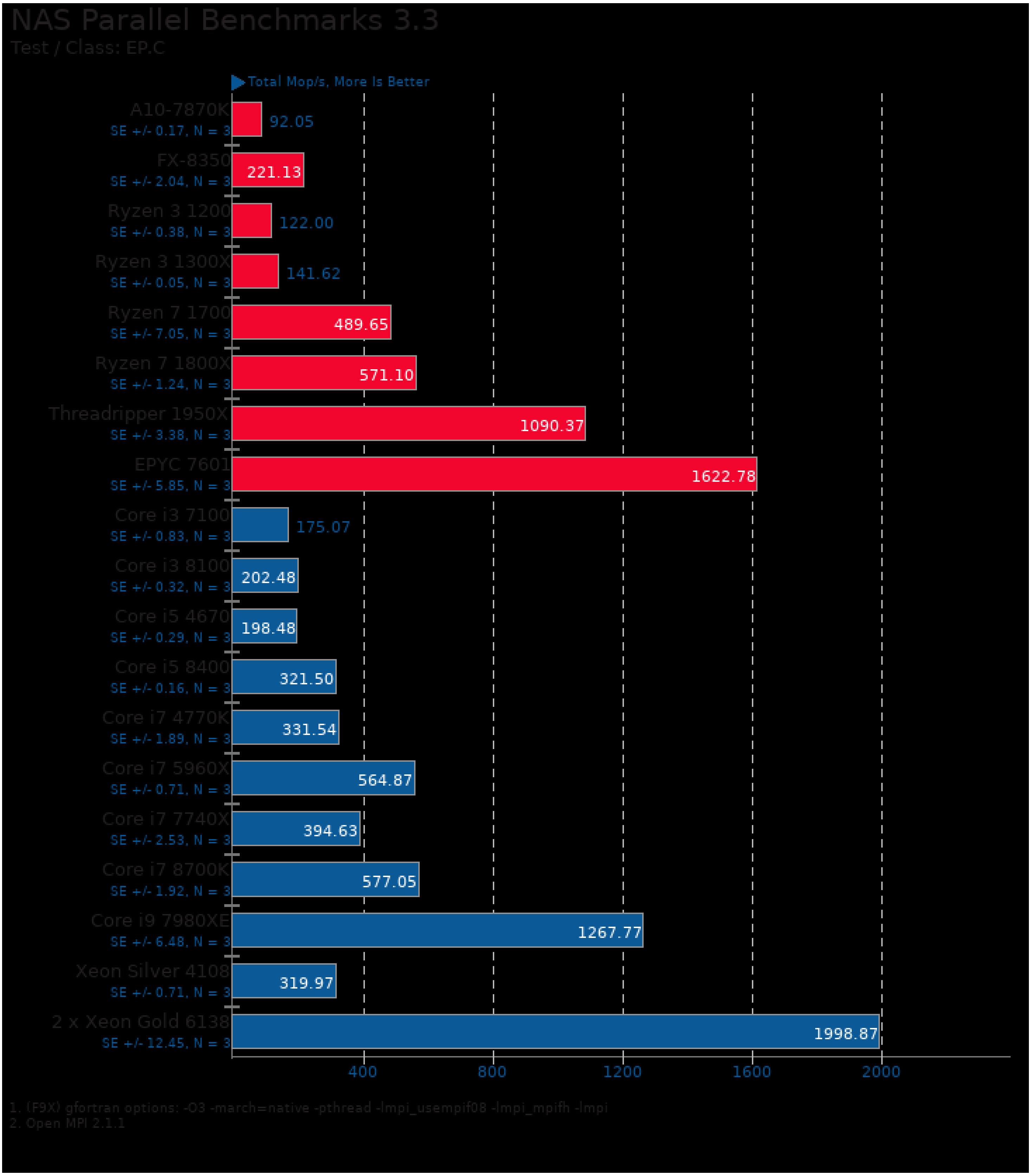
Linux 4.15 New CPU Comparison



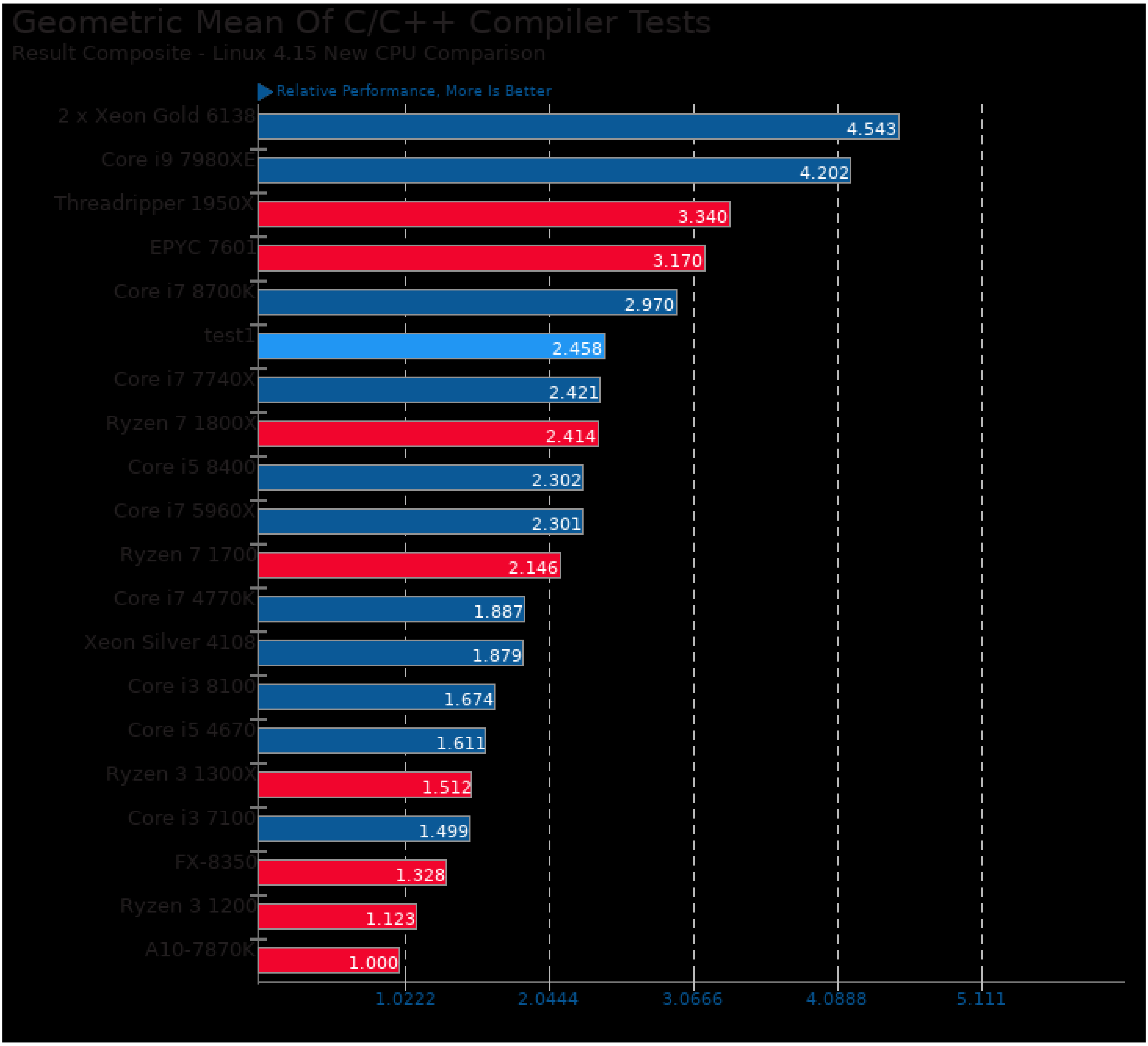
Linux 4.15 New CPU Comparison



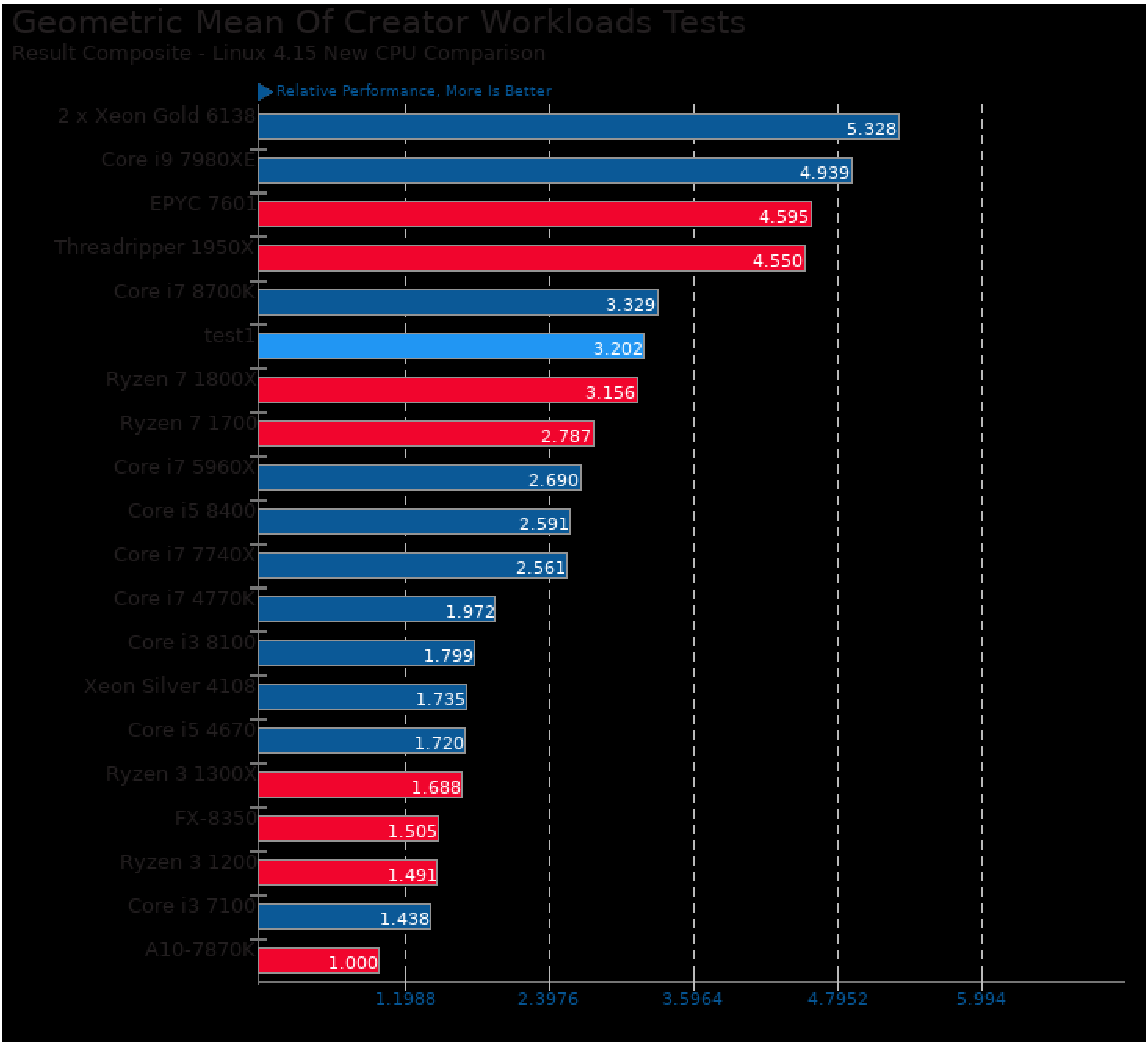
Linux 4.15 New CPU Comparison



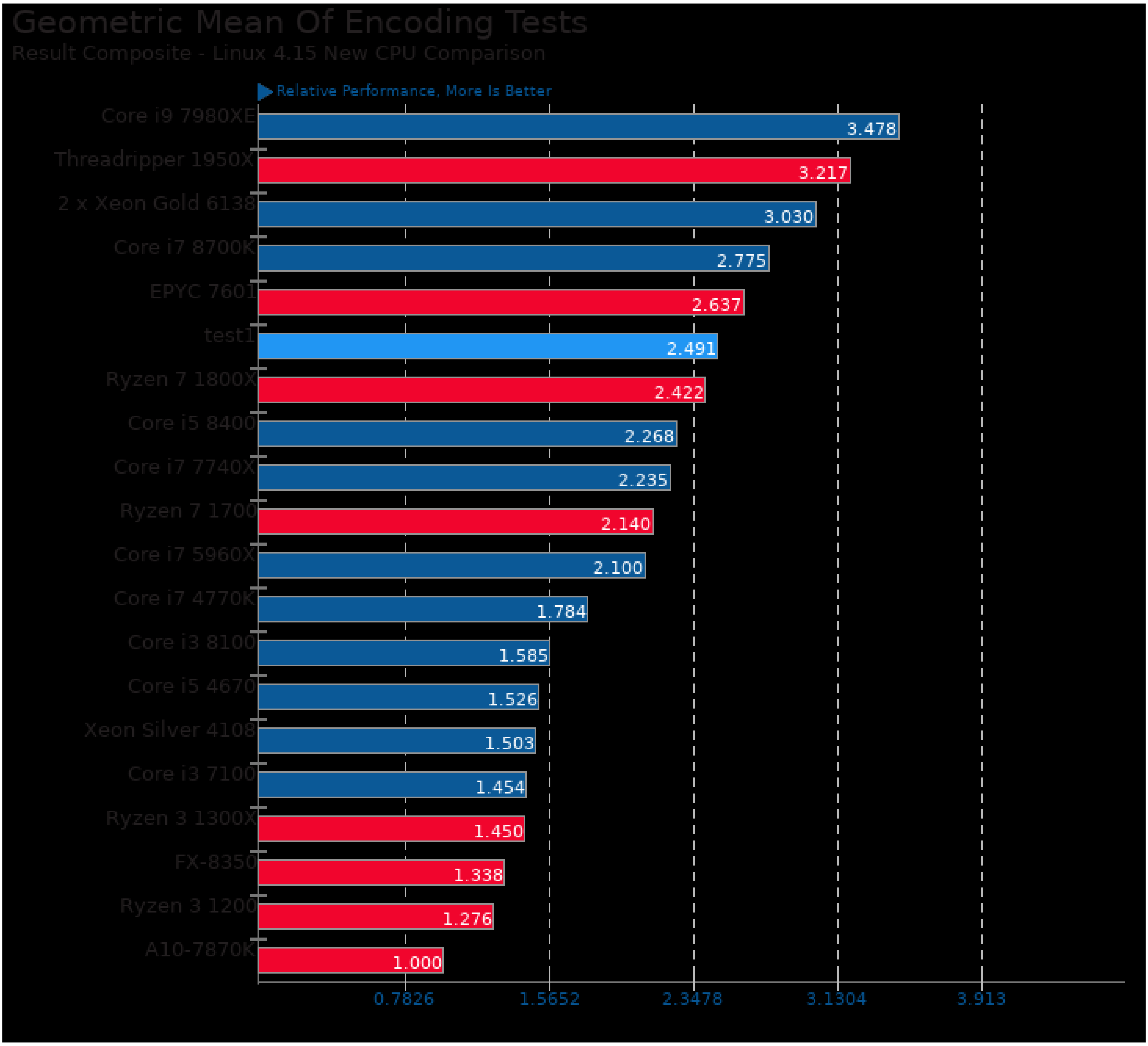
These geometric means are based upon test groupings / test suites for this result file.



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

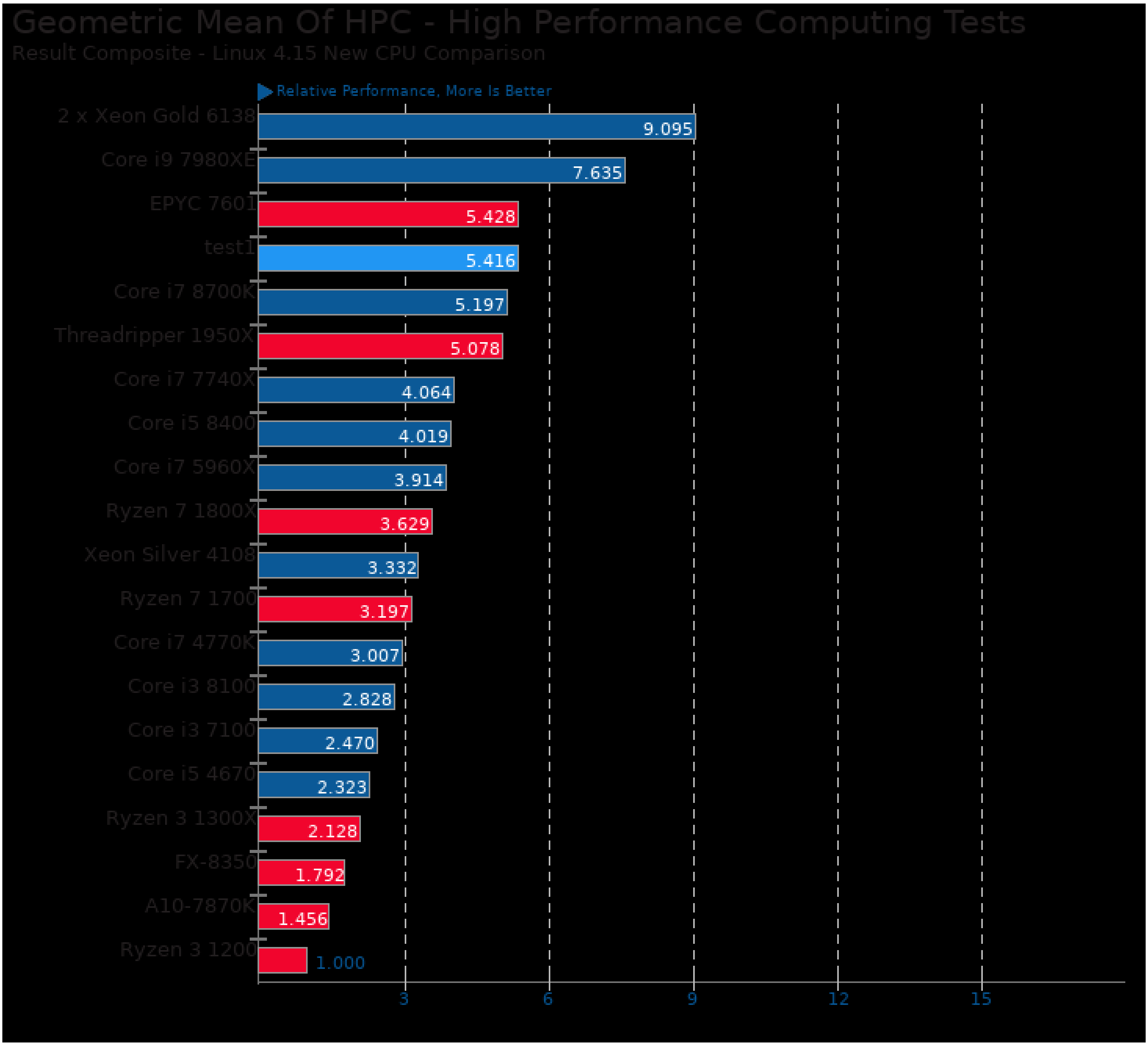


Geometric mean based upon tests: pts/c-ray, pts/povray, pts/aobench, pts/ttsiod-renderer, pts/x264, pts/ffmpeg and pts/encode-mp3

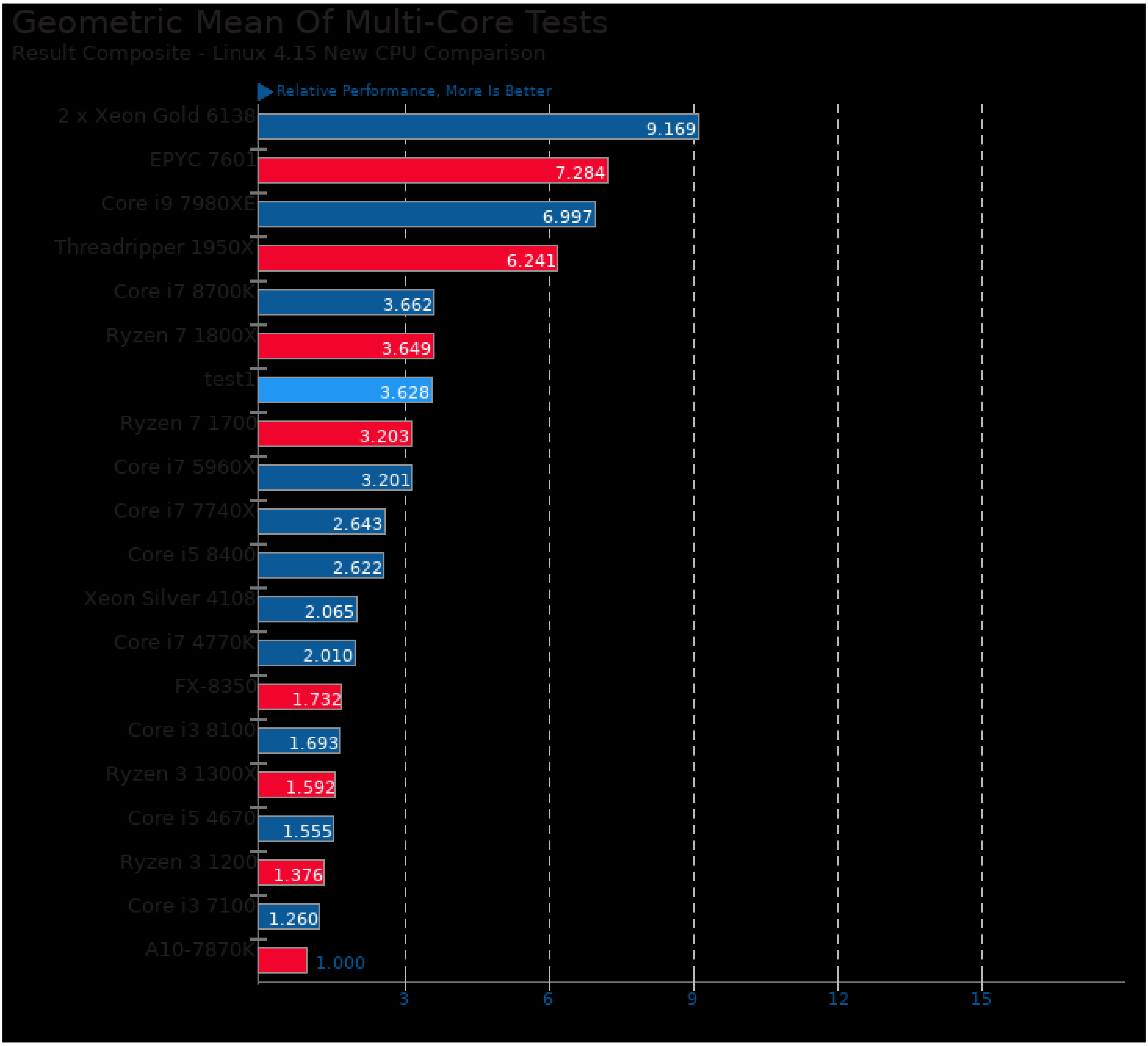


Geometric mean based upon tests: pts/encode-mp3, pts/x264 and pts/ffmpeg

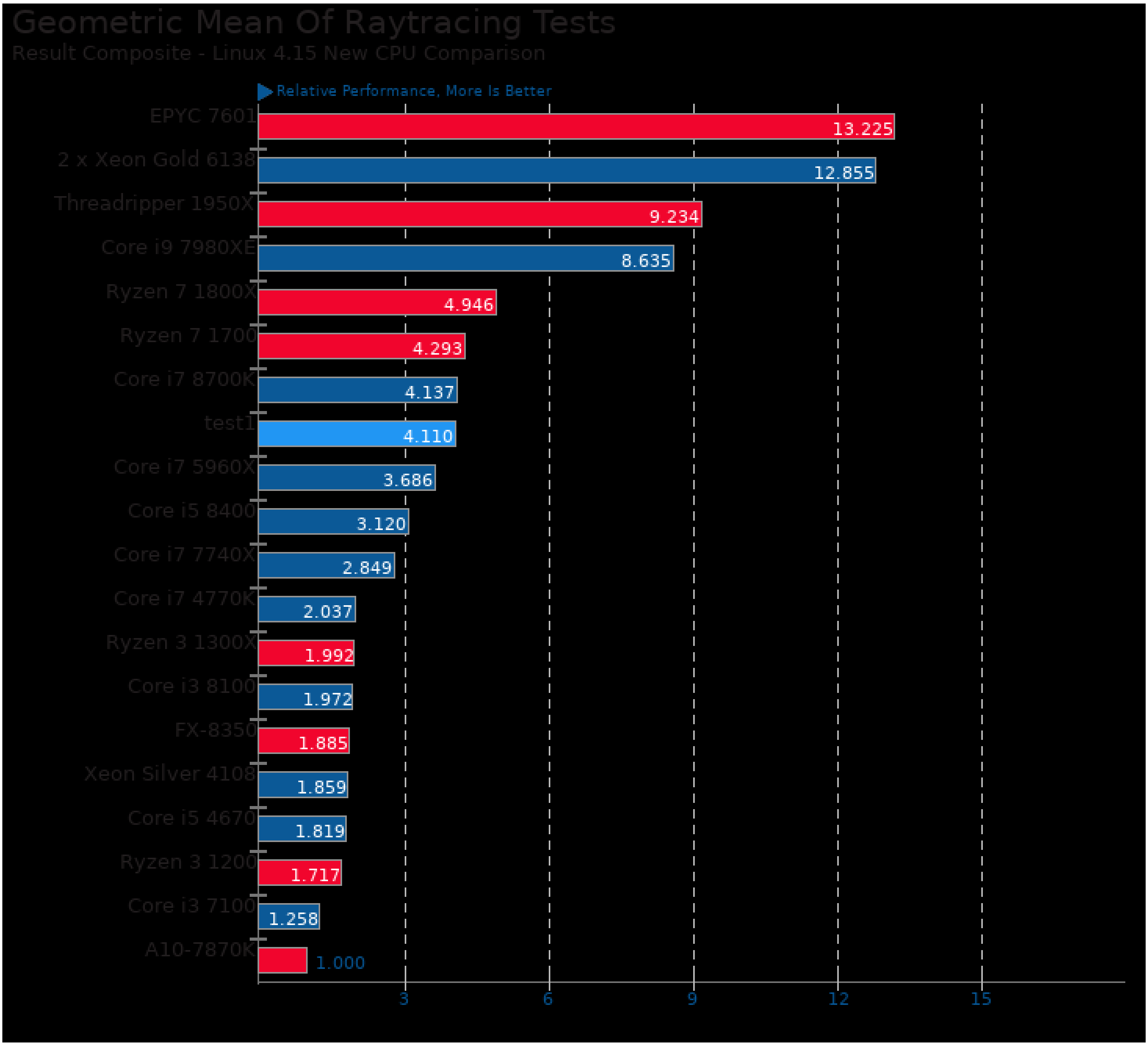
Linux 4.15 New CPU Comparison



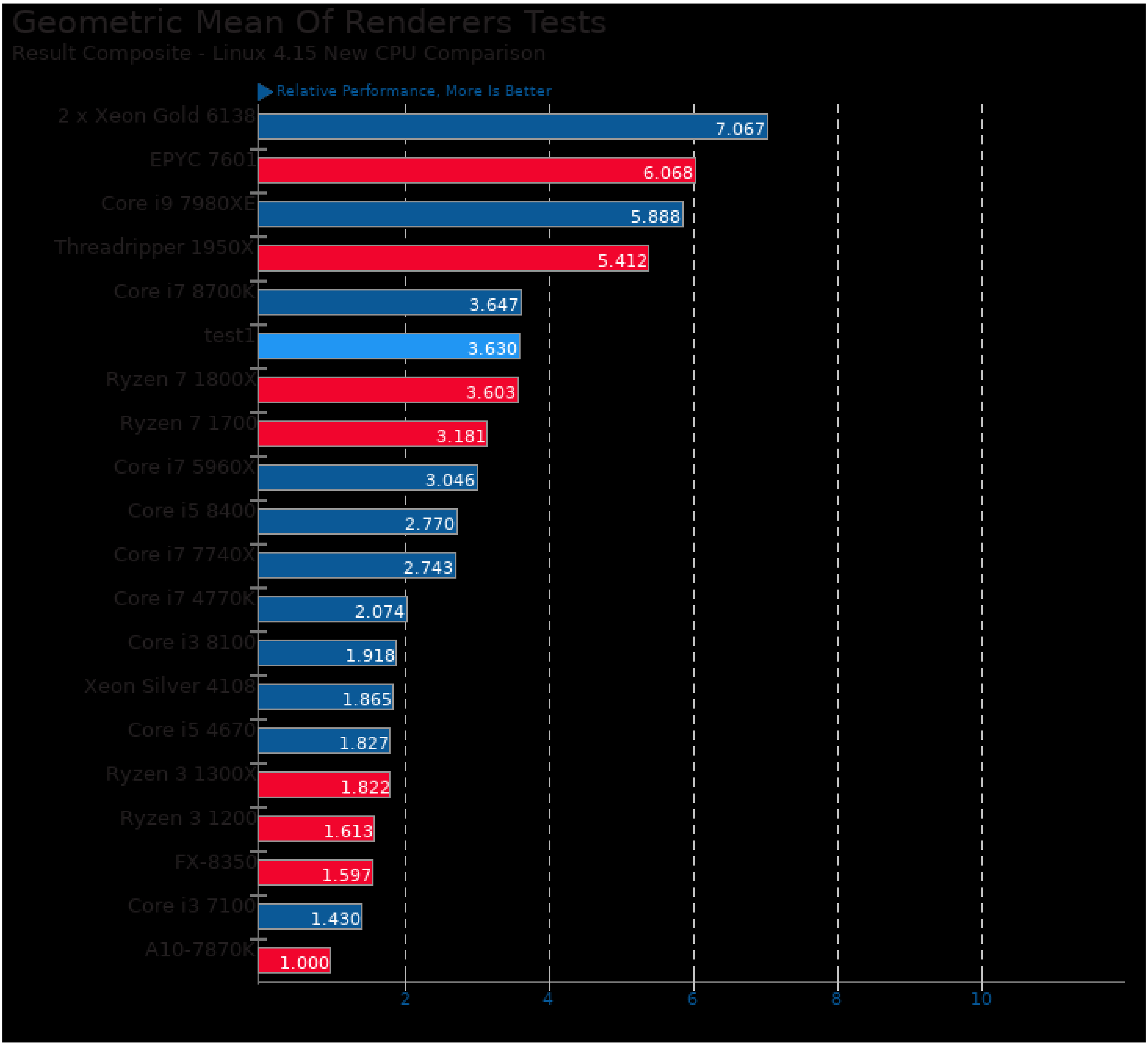
Geometric mean based upon tests: pts/npb, pts/rodinia, pts/parboil, pts/hpcg, pts/himeno, pts/mrbayes and pts/mafft



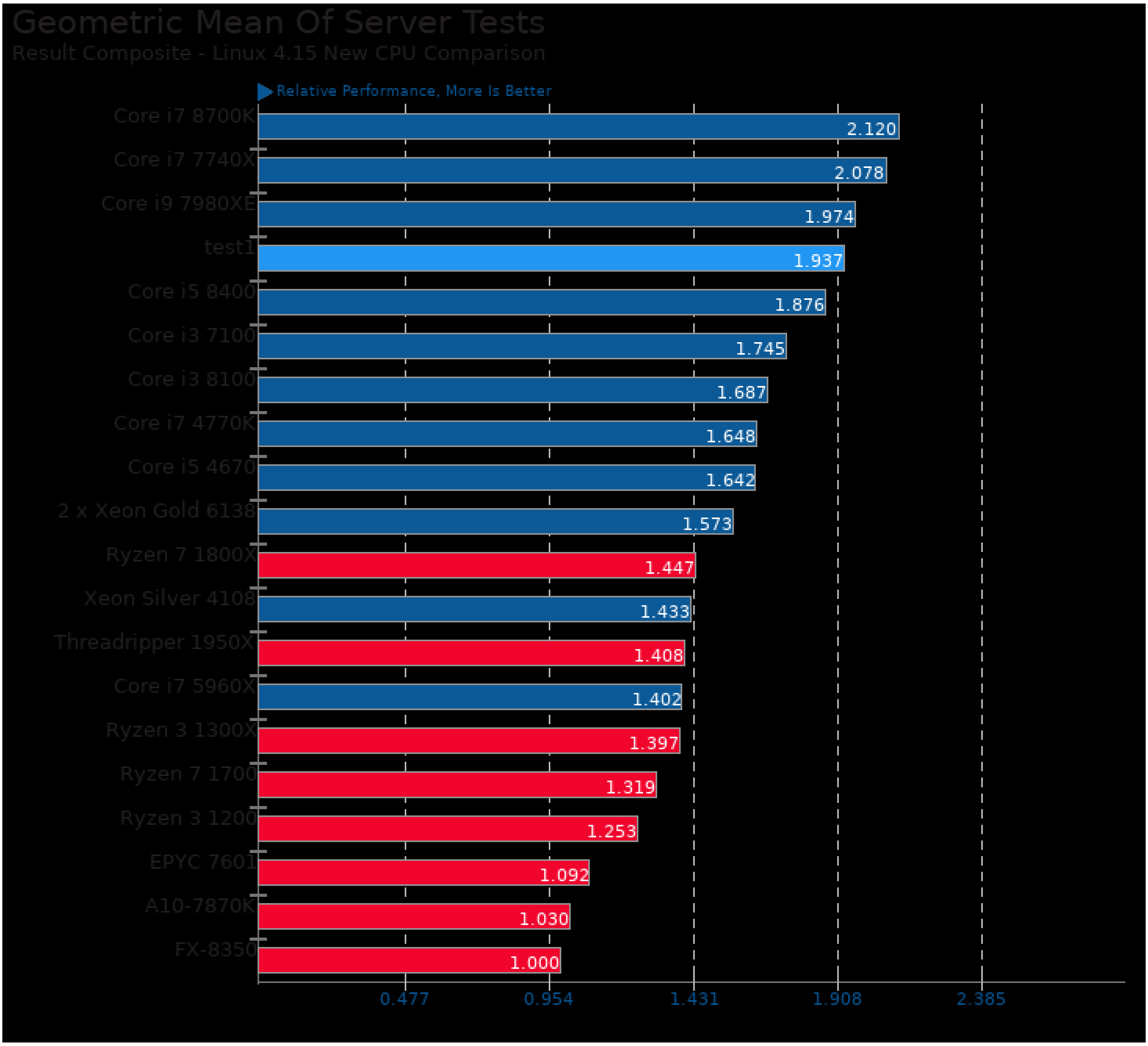
Geometric mean based upon tests: pts/c-ray, pts/povray, pts/x264, pts/ffmpeg, pts/rodinia, pts/parboil, pts/npb, pts/john-the-ripper, pts/asmfish, pts/nero2d, pts/compress-7zip, pts/build-linux-kernel, pts/aobench, pts/ttsiod-renderer and pts/hpcg



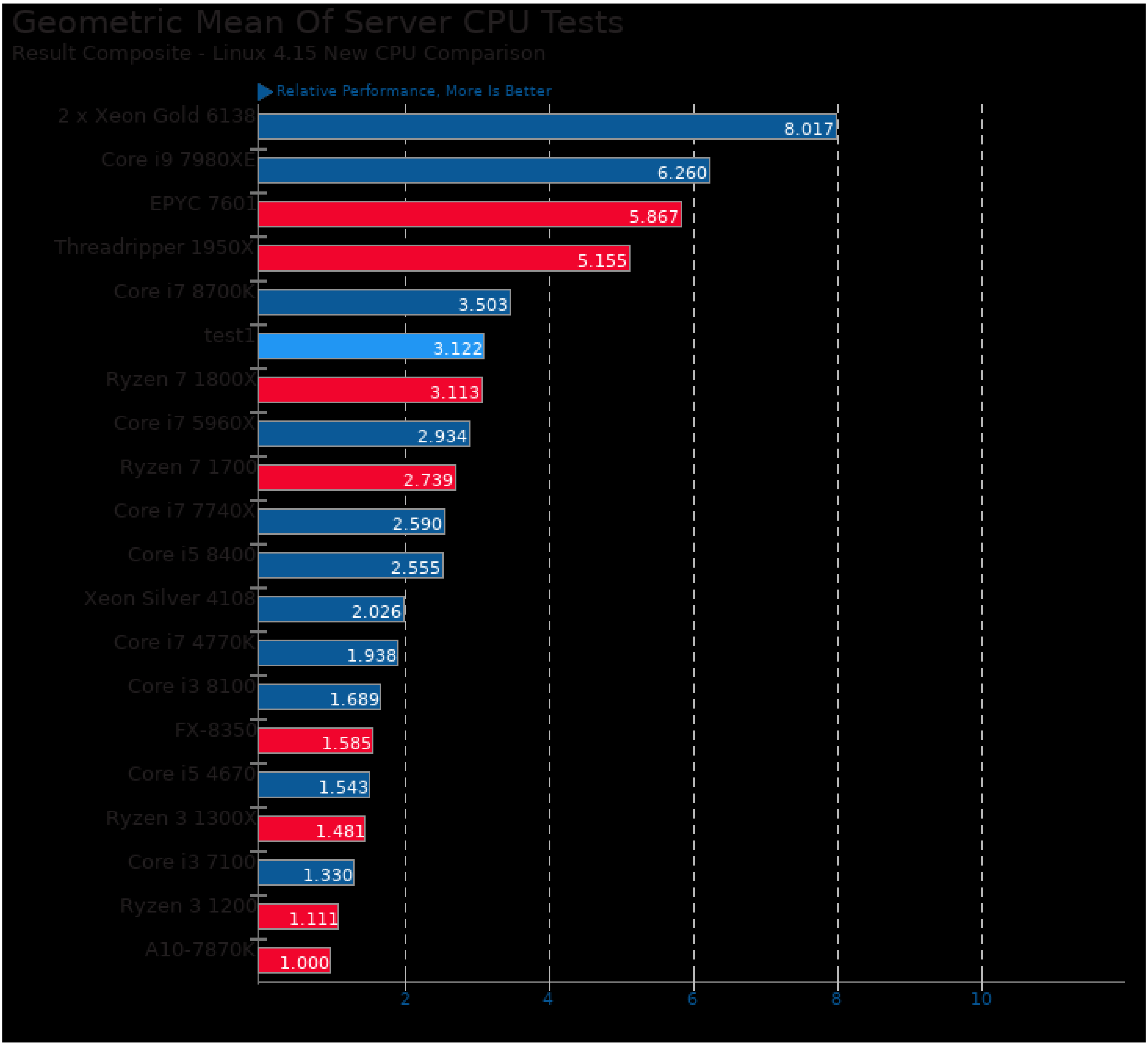
Geometric mean based upon tests: pts/c-ray and pts/povray



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

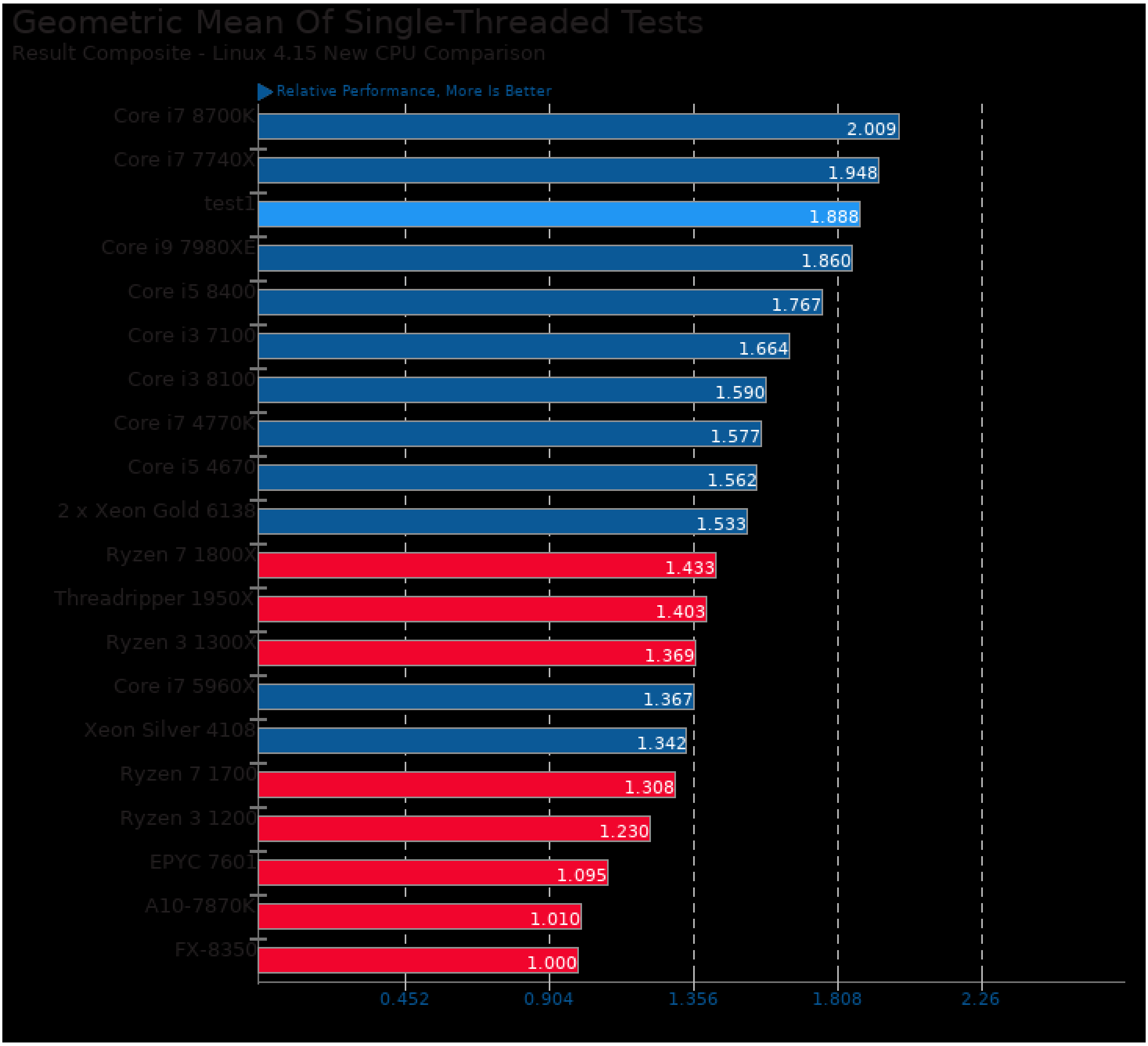


Geometric mean based upon tests: pts/apache, pts/nginx, pts/phpbench and pts/openssl



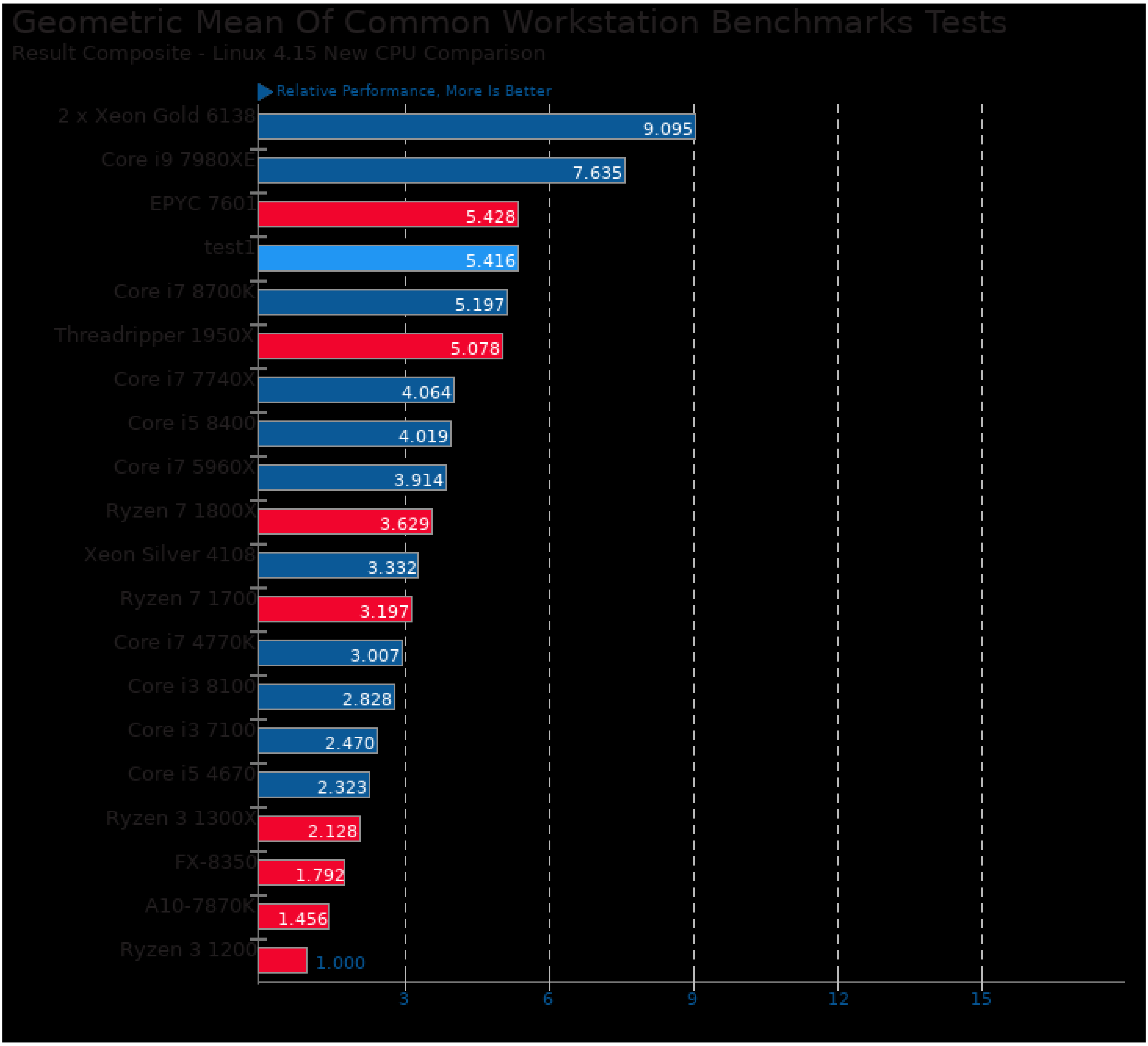
Geometric mean based upon tests: pts/npb, pts/rodinia, pts/john-the-ripper, pts/x264, pts/himeno, pts/compress-7zip, pts/asmfish, pts/build-linux-kernel, pts/c-ray, pts/povray, pts/hackbench, pts/openssl, pts/pybench and pts/phpbench

Linux 4.15 New CPU Comparison



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

Linux 4.15 New CPU Comparison



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

This file was automatically generated via the Phoronix Test Suite benchmarking software on Friday, 29 March 2024 02:38.