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Intel / AMD Large Ubuntu Linux CPU Benchmark Comparison

Intel Core i5-7500T testing with a HP 82A5 (P23 Ver. 02.04 BIOS) and Intel HD 630 3GB on Ubuntu 20.04 via the Phoronix Test Suite.

Automated Executive Summary

Core i9 7980XE had the most wins, coming in first place for 38% of the tests.

Based on the geometric mean of all complete results, the fastest (Core i9 7980XE) was 13.681x the speed of the slowest (AMD E-350).

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

Rodinia (Test: OpenMP LavaMD) at 115.366x
OpenSSL (RSA 4096-bit Performance) at 74.791x
Timed Linux Kernel Compilation (Time To Compile) at 66.539x
Stockfish (Total Time) at 61.311x
Rodinia (Test: OpenMP CFD Solver) at 57.423x
asmFish (1024 Hash Memory, 26 Depth) at 49.445x
TTSIOD 3D Renderer (Phong Rendering With Soft-Shadow Mapping) at 44.241x
PolyBench-C (Test: Covariance Computation) at 38.408x
m-queens (Time To Solve) at 37.831x

PolyBench-C (Test: Correlation Computation) at 37.417x.

Test Systems:

AMD E-350

Processor: AMD E-350 @ 1.60GHz (2 Cores), Motherboard: ASUS E35M1-M PRO (1602 BIOS), Chipset: AMD Family 14h Root Complex, Memory: 2048MB, Disk: 120GB ADATA SU700, Graphics: HIS AMD Radeon HD 6450/7450/8450 / R5 230 OEM 1024MB, Audio: Realtek ALC887-VD, Network: Realtek RTL8111/8168/8411

OS: Ubuntu 18.04, Kernel: 4.17.0-999-generic (x86_64), Compiler: GCC 8.1.0, File-System: ext4

AMD A6-7400K

Processor: AMD A6-7400K Radeon R5 6 Compute Cores 2C+4G @ 3.90GHz (1 Core / 2 Threads), Motherboard: ASRock FM2A58M-VG3+ R2.0 (P2.70 BIOS), Chipset: AMD Family 15h, Memory: 16384MB, Disk: 120GB ADATA SU700, Graphics: HIS AMD Radeon HD 6450/7450/8450 / R5 230 OEM 1024MB, Audio: Realtek ALC662 rev1, Network: Realtek RTL8111/8168/8411

OS: Ubuntu 18.04, Kernel: 4.17.0-999-generic (x86_64), Compiler: GCC 8.1.0, File-System: ext4

AMD A10-5800K

Processor: AMD A10-5800K APU @ 3.80GHz (2 Cores / 4 Threads), Motherboard: Gigabyte F2A68HM-H (FA BIOS), Chipset: AMD Family 15h, Memory: 4096MB, Disk: 120GB ADATA SU700, Graphics: HIS AMD Radeon HD 6450/7450/8450 / R5 230 OEM 1024MB, Audio: Realtek ALC887-VD, Network: Realtek RTL8111/8168/8411

OS: Ubuntu 18.04, Kernel: 4.17.0-999-generic (x86_64), Compiler: GCC 8.1.0, File-System: ext4

AMD 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: 120GB ADATA SU700, Graphics: MSI AMD Radeon R7 1024MB, Audio: AMD Kaveri HDMI/DP, Network: Realtek RTL8111/8168/8411

OS: Ubuntu 18.04, Kernel: 4.17.0-999-generic (x86_64), Compiler: GCC 8.1.0, File-System: ext4

AMD 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,

Graphics: ASUS AMD Radeon R7 1024MB, Audio: AMD Kaveri HDMI/DP, Network: Realtek RTL8111/8168/8411

OS: Ubuntu 18.04, Kernel: 4.17.0-999-generic (x86_64), Compiler: GCC 8.1.0, File-System: ext4

AMD Athlon II X3 425

Processor: AMD Athlon II X3 425 @ 2.70GHz (3 Cores), Motherboard: ASRock 890FX Deluxe3 (P1.40 BIOS), Chipset: AMD RD890 PCI-e GFX Hydra part, Memory: 4096MB, Disk: 120GB ADATA SU700, Graphics: HIS AMD Radeon HD 6450/7450/8450 / R5 230 OEM 1024MB, Audio: VIA VT2020, Network: Realtek RTL8111/8168/8411

OS: Ubuntu 18.04, Kernel: 4.17.0-999-generic (x86_64), Compiler: GCC 8.1.0, File-System: ext4

AMD FX-8350

Processor: AMD FX-8350 Eight-Core @ 4.00GHz (4 Cores / 8 Threads), Motherboard: ASUS Crosshair V Formula (1703 BIOS), Chipset: AMD RD9x0/RX980, Memory: 8192MB, Disk: 120GB ADATA SU700, Graphics: HIS AMD Radeon HD 6450/7450/8450 / R5 230 OEM 1024MB, Audio: Realtek ALC889, Network: Intel 82583V Gigabit Connection

OS: Ubuntu 18.04, Kernel: 4.17.0-999-generic (x86_64), Compiler: GCC 8.1.0, File-System: ext4

Ryzen 5 2400G

Processor: AMD Ryzen 5 2400G @ 3.60GHz (4 Cores / 8 Threads), Motherboard: ASUS PRIME B350M-E (4011 BIOS), Chipset: AMD Device 15d0, Memory: 16384MB, Disk: Samsung SSD 950 PRO 256GB, Graphics: ASUS AMD Radeon Vega 8 Mobile 1024MB, Audio: AMD Device 15de, Network: Realtek RTL8111/8168/8411

OS: Ubuntu 18.04, Kernel: 4.17.0-999-generic (x86_64), Compiler: GCC 8.1.0, File-System: ext4

Ryzen 5 2600

Processor: AMD Ryzen 5 2600 Six-Core @ 3.40GHz (6 Cores / 12 Threads), Motherboard: ASUS ROG CROSSHAIR VII HERO (WI-FI) (0509 BIOS), Chipset: AMD Family 17h, Memory: 16384MB, Disk: 525GB Crucial_CT525MX3 + Samsung SSD 950 PRO 256GB, Graphics: AMD Radeon RX Vega 8192MB, Audio: AMD Device aaf8, Network: Intel I211 Gigabit Connection + Realtek Device b822

OS: Ubuntu 18.04, Kernel: 4.17.0-999-generic (x86_64), Compiler: GCC 8.1.0, File-System: ext4

Ryzen 5 2600X

Processor: AMD Ryzen 5 2600X Six-Core @ 3.60GHz (6 Cores / 12 Threads), Motherboard: ASUS ROG CROSSHAIR VII HERO (WI-FI) (0509 BIOS), Chipset: AMD Family 17h, Memory: 16384MB, Disk: 525GB Crucial_CT525MX3 + Samsung SSD 950 PRO 256GB, Graphics: AMD Radeon RX Vega 8192MB, Audio: AMD Device aaf8, Network: Intel I211 Gigabit Connection + Realtek Device b822

OS: Ubuntu 18.04, Kernel: 4.17.0-999-generic (x86_64), Compiler: GCC 8.1.0, File-System: ext4

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.H0 BIOS), Chipset: AMD Family 17h, Memory: 16384MB, Disk: 525GB Crucial_CT525MX3 + Samsung SSD 950 PRO 256GB, Graphics: AMD Radeon RX Vega 8192MB, Audio: AMD Device aaf8, Network: Realtek RTL8111/8168/8411

OS: Ubuntu 18.04, Kernel: 4.17.0-999-generic (x86_64), Compiler: GCC 8.1.0, File-System: ext4

Ryzen 7 1800X

Processor: AMD Ryzen 7 1800X Eight-Core @ 3.60GHz (8 Cores / 16 Threads), Motherboard: ASUS ROG CROSSHAIR VII HERO (WI-FI) (0509 BIOS), Chipset: AMD Family 17h, Memory: 16384MB, Disk: 525GB Crucial_CT525MX3 + Samsung SSD 950 PRO 256GB, Graphics: AMD Radeon RX Vega 8192MB, Audio: AMD Device aaf8, Network: Intel I211 Gigabit Connection + Realtek Device b822

OS: Ubuntu 18.04, Kernel: 4.17.0-999-generic (x86_64), Compiler: GCC 8.1.0, File-System: ext4

Ryzen 7 2700

Processor: AMD Ryzen 7 2700 Eight-Core @ 3.20GHz (8 Cores / 16 Threads), Motherboard: ASUS ROG CROSSHAIR VII HERO (WI-FI) (0509 BIOS), Chipset: AMD Family 17h, Memory: 16384MB, Disk: 525GB Crucial_CT525MX3 + Samsung SSD 950 PRO 256GB, Graphics: AMD Radeon RX Vega 8192MB, Audio: AMD Device aaf8, Network: Intel I211 Gigabit Connection + Realtek Device b822

OS: Ubuntu 18.04, Kernel: 4.17.0-999-generic (x86_64), Compiler: GCC 8.1.0, File-System: ext4

Ryzen 7 2700X

Processor: AMD Ryzen 7 2700X Eight-Core @ 3.70GHz (8 Cores / 16 Threads), Motherboard: ASUS ROG CROSSHAIR VII HERO (WI-FI) (0509 BIOS), Chipset: AMD Family 17h, Memory: 16384MB, Disk: 525GB Crucial_CT525MX3 + Samsung SSD 950 PRO 256GB, Graphics: AMD Radeon RX Vega 8192MB, Audio: AMD Device aaf8, Network: Intel I211 Gigabit Connection + Realtek Device b822

OS: Ubuntu 18.04, Kernel: 4.17.0-999-generic (x86_64), Compiler: GCC 8.1.0, File-System: ext4

Ryzen 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 Family 17h, Memory: 16384MB, Disk: 120GB Force MP500, Graphics: MSI AMD Radeon R7 370 / R9 270/370 OEM 4096MB, Audio: Realtek ALC1220, Network: Qualcomm Atheros Killer E2500 Gigabit + Intel Wireless 8265 / 8275

OS: Ubuntu 18.04, Kernel: 4.17.0-999-generic (x86_64), Compiler: GCC 8.1.0, File-System: ext4

Intel Core 2 Duo E8400

Processor: Intel Core 2 Duo E8400 @ 2.99GHz (2 Cores), Motherboard: Gigabyte EP45T-DS3R (F1 BIOS), Chipset: Intel 4 DRAM + ICH10R, Memory: 4096MB, Disk: 120GB ADATA SU700, Graphics: HIS AMD Radeon HD 6450/7450/8450 / R5 230 OEM 1024MB, Audio: Realtek ALC889A, Network: Realtek RTL8111/8168/8411

OS: Ubuntu 18.04, Kernel: 4.17.0-999-generic (x86_64), Compiler: GCC 8.1.0, File-System: ext4

Pentium G3258

Processor: Intel Pentium G3258 @ 3.20GHz (2 Cores), Motherboard: Gigabyte H97M-D3H (F2 BIOS), Chipset: Intel 4th Gen Core DRAM, Memory: 8192MB, Disk: 250GB SAMSUNG HD253GJ, Graphics: Intel Haswell Desktop 1536MB (1100MHz), Audio: Intel Xeon E3-1200 v3/4th, Network: Realtek RTL8111/8168/8411

OS: Ubuntu 18.04, Kernel: 4.17.0-999-generic (x86_64), Compiler: GCC 8.1.0, File-System: ext4

Core i3 2100

Processor: Intel Core i3-2100 @ 3.10GHz (2 Cores / 4 Threads), Motherboard: MSI H61M-P31/W8 (MS-7788) v1.0 (V3.6 BIOS), Chipset: Intel 2nd Generation Core Family DRAM, Memory: 4096MB, Disk: 120GB ADATA SU700, Graphics: HIS AMD Radeon HD 6450/7450/8450 / R5 230 OEM 1024MB, Audio: Realtek ALC887-VD, Network: Realtek RTL8111/8168/8411

OS: Ubuntu 18.04, Kernel: 4.17.0-999-generic (x86_64), Compiler: GCC 8.1.0, File-System: ext4

Core i5 2400S

Processor: Intel Core i5-2400S @ 3.30GHz (4 Cores), Motherboard: ASRock Z68 Pro3 (P2.10 BIOS), Chipset: Intel 2nd Generation Core Family DRAM, Memory: 4096MB, Disk: 120GB ADATA SU700, Graphics: HIS AMD Radeon HD 6450/7450/8450 / R5 230 OEM 1024MB, Audio: Realtek ALC892, Network: Realtek RTL8111/8168/8411

OS: Ubuntu 18.04, Kernel: 4.17.0-999-generic (x86_64), Compiler: GCC 8.1.0, File-System: ext4

Core i5 7600K

Processor: Intel Core i5-7600K @ 4.20GHz (4 Cores), Motherboard: Gigabyte Z270M-D3H-CF (F8d BIOS), Chipset: Intel Intel Kaby Lake + Z270, Memory: 8192MB, Disk: 250GB Samsung SSD 850, Graphics: Intel HD 630 (1150MHz), Audio: Realtek ALC892, Network: Intel Connection

OS: Ubuntu 18.04, Kernel: 4.17.0-999-generic (x86_64), Compiler: GCC 8.1.0, File-System: ext4

Core i5 8400

Processor: Intel Core i5-8400 @ 4.00GHz (6 Cores), Motherboard: MSI Z370M MORTAR (MS-7B54) v1.0 (1.20 BIOS), Chipset: Intel Device 3ec2, Memory: 16384MB, Disk: Samsung SSD 950 PRO 256GB, Graphics: Intel UHD 630 3072MB (1050MHz), Audio: Realtek ALC892, Network: Intel Connection

OS: Ubuntu 18.04, Kernel: 4.17.0-999-generic (x86_64), Compiler: GCC 8.1.0, File-System: ext4

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, Graphics: AMD FirePro V7900 2048MB, Audio: Realtek ALC1150, Network: Intel Connection

OS: Ubuntu 18.04, Kernel: 4.17.0-999-generic (x86_64), Compiler: GCC 8.1.0, File-System: ext4

Core i7 7740X

Processor: Intel Core i7-7740K @ 4.50GHz (4 Cores / 8 Threads), Motherboard: Gigabyte X299 AORUS Gaming-CF (F2d BIOS), Chipset: Intel Intel Kaby Lake, Memory: 8192MB, Disk: 120GB Force MP500, Graphics: MSI NVIDIA GP108 2048MB, Audio: Realtek ALC1220, Network: Intel Connection

OS: Ubuntu 18.04, Kernel: 4.17.0-999-generic (x86_64), Compiler: GCC 8.1.0, File-System: ext4

Core i7 870

Processor: Intel Core 870 @ 2.93GHz (4 Cores / 8 Threads), Motherboard: ECS P55H-A v1.0 (080016 BIOS), Chipset: Intel Core DMI, Memory: 8192MB, Disk: 120GB ADATA SU700, Graphics: HIS AMD Radeon HD 6450/7450/8450 / R5 230 OEM 1024MB, Audio: Realtek ALC1200, Network: Realtek RTL8111/8168/8411

OS: Ubuntu 18.04, Kernel: 4.17.0-999-generic (x86_64), Compiler: GCC 8.1.0, File-System: ext4

Core i7 8700K

Processor: Intel Core i7-8700K @ 4.70GHz (6 Cores / 12 Threads), Motherboard: ASUS PRIME Z370-A (0607 BIOS), Chipset: Intel Device 3ec2, Memory: 16384MB, Disk: 525GB Crucial_CT525MX3 + Samsung SSD 950 PRO 256GB, Graphics: AMD Radeon RX Vega 8192MB, Audio: Realtek ALC1220, Network: Intel Connection

OS: Ubuntu 18.04, Kernel: 4.17.0-999-generic (x86_64), Compiler: GCC 8.1.0, File-System: ext4

Core i7 990X

Processor: Intel Core i7 990X @ 3.47GHz (6 Cores / 12 Threads), Motherboard: MSI X58M (MS-7593) v1.0 (V3.8 BIOS), Chipset: Intel 5520/5500/X58 + ICH10R, Memory: 12288MB, Disk: PNY CS1211 120GB, Graphics: Sapphire AMD Radeon HD 5000/6000/7350/8350 512MB, Audio: Realtek ALC889, Network: Realtek RTL8111/8168/8411

OS: Ubuntu 18.04, Kernel: 4.17.0-999-generic (x86_64), Compiler: GCC 8.1.0, File-System: ext4

Core i9 7900X

Processor: Intel Core i7-7900X @ 4.50GHz (10 Cores / 20 Threads), Motherboard: ASRock X299 Extreme4 (P1.20 BIOS), Chipset: Intel Sky Lake-E DMI3 Registers, Memory: 32768MB, Disk: 120GB Force MP500, Graphics: Zotac NVIDIA GeForce GT 610 1024MB, Audio: Realtek ALC1220, Network: Intel Connection

OS: Ubuntu 18.04, Kernel: 4.17.0-999-generic (x86_64), Compiler: GCC 8.1.0, File-System: ext4

Core i9 7980XE

Processor: Intel Core i9-7980XE @ 4.40GHz (18 Cores / 36 Threads), Motherboard: ASUS PRIME X299-A (1004 BIOS), Chipset: Intel Sky Lake-E DMI3 Registers, Memory: 16384MB, Disk: 256GB INTEL SSDPEKKW256G8, Graphics: NV134 8192MB, Audio: Realtek ALC1220, Network: Intel Connection

OS: Ubuntu 18.04, Kernel: 4.17.0-999-generic (x86_64), Compiler: GCC 8.1.0, File-System: ext4

Willow6C

Willow16C

Processor: 16 x Intel Core (Haswell IBRS) (16 Cores), Motherboard: Red Hat KVM (0.5.1 BIOS), Memory: 32768MB, Disk: 3938GB, Graphics: qxldrmfb, Audio: QEMU Generic

OS: Clear Linux OS 29390, Kernel: 3.10.0-957.12.2.el7.x86_64 (x86_64), Compiler: GCC 9.1.1 20190512 gcc-9-branch@271104 + Clang 8.0.0 + LLVM 8.0.0, File-System: overlayfs, Screen Resolution: 1024x768, System Layer: container-other

Environment Notes:
CFFLAGS=-g-O3-feliminate-unused-debug-types-pipe-Wall-Wp-D_FORTIFY_SOURCE=2-fexceptions-fstack-protector--param=ssp-buffer-size=32-m64-fasynchronous-unwind-tables-Wp-D_REENTRANT-ftree-loop-distribute-patterns-Wl-z-Wl now-Wl-z-Wl relro-malign-data=abi-fno-semantic-interposition-ftree-vectorize-ftree-loop-vectorize-Wl-sort-common-Wl--enable-new-dtags
FFLAGS=-g-O3-feliminate-unused-debug-types-pipe-Wall-Wp-D_FORTIFY_SOURCE=2-fexceptions-fstack-protector--param=ssp-buffer-size=32-m64-fasynchronous-unwind-tables-Wp-D_REENTRANT-ftree-loop-distribute-patterns-Wl-z-Wl
relro-malign-data=abi-fno-semantic-interposition-ftree-vectorize-ftree-loop-vectorize-Wl--enable-new-dtags
CXXFLAGS=-g-O3-feliminate-unused-debug-types-pipe-Wall-Wp-D_FORTIFY_SOURCE=2-fexceptions-fstack-protector--param=ssp-buffer-size=32-Wformat-Wformat-security-m64-fasynchronous-unwind-tables-Wp-D_REENTRANT-ftree-loop-distribute-patterns-Wl-z-Wl
relro-fno-semantic-interposition-ffat-lto-objects-fno-signed-zeros-fno-trapping-math-fassociative-math-Wl-sort-common-Wl--enable-new-dtags-mtune=skylake-fvisibility-inlines-hidden-Wl--enable-new-dtags
CFLAGS=-g-O3-feliminate-unused-debug-types-pipe-Wall-Wp-D_FORTIFY_SOURCE=2-fexceptions-fstack-protector--param=ssp-buffer-size=32-Wformat-Wformat-security-m64-fasynchronous-unwind-tables-Wp-D_REENTRANT-ftree-loop-distribute-patterns-Wl-z-Wl
relro-fno-semantic-interposition-ffat-lto-objects-fno-signed-zeros-fno-trapping-math-fassociative-math-Wl-sort-common-Wl--enable-new-dtags-mtune=skylake
THEANO_FLAGS=floatX=float32 openmp=true gcc.cxxflags="-ftree-vectorize-mavx"
Compiler Notes: --build=x86_64-generic-linux --disable-libmpx --disable-libunwind-exceptions --disable-multiarch --disable-vtable-verify --disable-werror --enable-__cxa_atexit --enable-bootstrap --enable-cet --enable-clocale=gnu --enable-default-pie --enable-gnu-indirect-function --enable-languages=c,c++,fortran,go --enable-ld=default --enable-libstdcxx-pch --enable-lto --enable-multilib --enable-plugin --enable-shared --enable-threads=posix --exec-prefix=/usr --includedir=/usr/include --target=x86_64-generic-linux --with-arch=westmere --with-gcc-major-version-only --with-glibc-version=2.19 --with-gnu-ld --with-isl --with-ppl=yes --with-tune=haswell
Security Notes: KPTI + Load fences __user pointer sanitization + Full retpoline IBPB + SSB disabled via prctl and seccomp + PTE Inversion

Core i5 8500T

Processor: Intel Core i5-8500T @ 3.50GHz (6 Cores), Motherboard: Dell 03KWTV (1.2.22 BIOS), Memory: 8192MB, Disk: 240GB Western Digital WDS240G2G0A + 3001GB EZRZ-00Z5HB0, Graphics: inteldrmfb (1100MHz), Audio:

Realtek ALC3234, Monitor: SAMSUNG

OS: Clear Linux OS 29390, Kernel: 5.0.0-37-generic (x86_64), Compiler: GCC 9.1.1 20190512 gcc-9-branch@271104 + Clang 8.0.0 + LLVM 8.0.0, File-System: overlayfs, Screen Resolution: 1920x1080, System Layer: Docker

Environment Notes:
CFFLAGS=-g-O3-feliminate-unused-debug-types-pipe-Wall-Wp-D_FORTIFY_SOURCE=2-fexceptions-fstack-protector--param=ssp-buffer-size=32-m64-fasynchronous-unwind-tables-Wp-D_REENTRANT-ftree-loop-distribute-patterns-Wl-z-Wl now-Wl-z-Wl relro-malign-data=abi-fno-semantic-interposition-ftree-vectorize-ftree-loop-vectorize-Wl-sort-common-Wl--enable-new-dtags
FFLAGS=-g-O3-feliminate-unused-debug-types-pipe-Wall-Wp-D_FORTIFY_SOURCE=2-fexceptions-fstack-protector--param=ssp-buffer-size=32-m64-fasynchronous-unwind-tables-Wp-D_REENTRANT-ftree-loop-distribute-patterns-Wl-z-Wl
relro-malign-data=abi-fno-semantic-interposition-ftree-vectorize-ftree-loop-vectorize-Wl--enable-new-dtags
CXXFLAGS=-g-O3-feliminate-unused-debug-types-pipe-Wall-Wp-D_FORTIFY_SOURCE=2-fexceptions-fstack-protector--param=ssp-buffer-size=32-Wformat-Wformat-security-m64-fasynchronous-unwind-tables-Wp-D_REENTRANT-ftree-loop-distribute-patterns-Wl-z-Wl
relro-fno-semantic-interposition-ffat-lto-objects-fno-signed-zeros-fno-trapping-math-fassociative-math-Wl-sort-common-Wl--enable-new-dtags-mtune=skylake-fvisibility-inlines-hidden-Wl--enable-new-dtags
CFLAGS=-g-O3-feliminate-unused-debug-types-pipe-Wall-Wp-D_FORTIFY_SOURCE=2-fexceptions-fstack-protector--param=ssp-buffer-size=32-Wformat-Wformat-security-m64-fasynchronous-unwind-tables-Wp-D_REENTRANT-ftree-loop-distribute-patterns-Wl-z-Wl
relro-fno-semantic-interposition-ffat-lto-objects-fno-signed-zeros-fno-trapping-math-fassociative-math-Wl-sort-common-Wl--enable-new-dtags-mtune=skylake
THEANO_FLAGS=floatX=float32 openmp=true gcc.cxxflags="-ftree-vectorize-mavx"
Compiler Notes: --build=x86_64-generic-linux --disable-libmpx --disable-libunwind-exceptions --disable-multiarch --disable-vtable-verify --disable-werror --enable-__cxa_atexit --enable-bootstrap --enable-cet --enable-clocale=gnu --enable-default-pie --enable-gnu-indirect-function --enable-languages=c,c++,fortran,go --enable-ld=default --enable-libstdcxx-pch --enable-lto --enable-multilib --enable-plugin --enable-shared --enable-threads=posix --exec-prefix=/usr --includedir=/usr/include --target=x86_64-generic-linux --with-arch=westmere --with-gcc-major-version-only --with-glibc-version=2.19 --with-gnu-ld --with-isl --with-ppl=yes --with-tune=haswell
Processor Notes: Scaling Governor: intel_pstate powersave
Security Notes: KPTI + usercopy/swapgs barriers and __user pointer sanitization + Full generic retpoline IBPB: conditional IBRS_FW STIBP: disabled RSB filling + SSB disabled via prctl and seccomp + PTE Inversion; VMX: conditional cache flushes SMT disabled

Core i5 3470T

Processor: Intel Core i5-3470T @ 3.60GHz (2 Cores / 4 Threads), Motherboard: LENOVO MAHOBAY (9SKT63AUS BIOS), Memory: 4096MB, Disk: 120GB KINGSTON SV300S3 + 31GB Ultra Fit, Graphics: i915drmfb (1100MHz), Audio: Realtek ALC662 rev3, Monitor: SAMSUNG

OS: Clear Linux OS 29390, Kernel: 5.3.0-40-generic (x86_64), Compiler: GCC 9.1.1 20190512 gcc-9-branch@271104 + Clang 8.0.0 + LLVM 8.0.0, File-System: overlayfs, Screen Resolution: 1920x1080, System Layer: Docker

Environment Notes:
CFFLAGS=-g-O3-feliminate-unused-debug-types-pipe-Wall-Wp-D_FORTIFY_SOURCE=2-fexceptions-fstack-protector--param=ssp-buffer-size=32-m64-fasynchronous-unwind-tables-Wp-D_REENTRANT-ftree-loop-distribute-patterns-Wl-z-Wl now-Wl-z-Wl
relro-malign-data=abi-fno-semantic-interposition-ftree-vectorize-ftree-loop-vectorize-Wl-sort-common-Wl--enable-new-dtags
FFLAGS=-g-O3-feliminate-unused-debug-types-pipe-Wall-Wp-D_FORTIFY_SOURCE=2-fexceptions-fstack-protector--param=ssp-buffer-size=32-m64-fasynchronous-unwind-tables-Wp-D_REENTRANT-ftree-loop-distribute-patterns-Wl-z-Wl
relro-malign-data=abi-fno-semantic-interposition-ftree-vectorize-ftree-loop-vectorize-Wl--enable-new-dtags
CXXFLAGS=-g-O3-feliminate-unused-debug-types-pipe-Wall-Wp-D_FORTIFY_SOURCE=2-fexceptions-fstack-protector--param=ssp-buffer-size=32-Wformat-Wformat-security-m64-fasynchronous-unwind-tables-Wp-D_REENTRANT-ftree-loop-distribute-patterns-Wl-z-Wl
relro-fno-semantic-interposition-ffat-lto-objects-fno-signed-zeros-fno-trapping-math-fassociative-math-Wl-sort-common-Wl--enable-new-dtags-mtune=skylake-fvisibility-inlines-hidden-Wl--enable-new-dtags
CFLAGS=-g-O3-feliminate-unused-debug-types-pipe-Wall-Wp-D_FORTIFY_SOURCE=2-fexceptions-fstack-protector--param=ssp-buffer-size=32-Wformat-Wformat-security-m64-fasynchronous-unwind-tables-Wp-D_REENTRANT-ftree-loop-distribute-patterns-Wl-z-Wl
relro-fno-semantic-interposition-ffat-lto-objects-fno-signed-zeros-fno-trapping-math-fassociative-math-Wl-sort-common-Wl--enable-new-dtags-mtune=skylake
THEANO_FLAGS=floatX=float32 openmp=true gcc.cxxflags="-ftree-vectorize-mavx"
Compiler Notes: --build=x86_64-generic-linux --disable-libmpx --disable-libunwind-exceptions --disable-multiarch --disable-vtable-verify --disable-werror --enable-__cxa_atexit --enable-bootstrap --enable-cet --enable-clocale=gnu --enable-default-pie --enable-gnu-indirect-function --enable-languages=c,c++,fortran,go --enable-ld=default --enable-libstdcxx-pch --enable-lto --enable-multilib --enable-plugin --enable-shared --enable-threads=posix --exec-prefix=/usr --includedir=/usr/include --target=x86_64-generic-linux --with-arch=westmere --with-gcc-major-version-only --with-glibc-version=2.19 --with-gnu-ld --with-isl --with-ppl=yes --with-tune=haswell
Processor Notes: Scaling Governor: intel_pstate powersave
Security Notes: KPTI + usercopy/swapgs barriers and __user pointer sanitization + Full generic retpoline IBPB: conditional IBRS_FW STIBP: conditional RSB filling + SSB disabled via prctl and seccomp + PTE Inversion

i5 3470T 8GB RAM

Processor: Intel Core i5-3470T @ 3.60GHz (2 Cores / 4 Threads), Motherboard: LENOVO MAHOBAY (9SKT63AUS BIOS), Memory: 8192MB, Disk: 120GB KINGSTON SV300S3, Graphics: i915drmfb (1100MHz), Audio: Realtek ALC662 rev3, Monitor: SAMSUNG

OS: Clear Linux OS 29390, Kernel: 5.3.0-40-generic (x86_64), Compiler: GCC 9.1.1 20190512 gcc-9-branch@271104 +

Clang 8.0.0 + LLVM 8.0.0, File-System: overlayfs, Screen Resolution: 1920x1080, System Layer: Docker

Environment Notes:
CFFLAGS=-g-O3-feliminate-unused-debug-types-pipe-Wall-Wp-D_FORTIFY_SOURCE=2-fexceptions-fstack-protector--param=ssp-buffer-size=32-m64-fasynchronous-unwind-tables-Wp-D_REENTRANT-ftree-loop-distribute-patterns-Wl-z-Wl now-Wl-z-Wl relro-malign-data=abi-fno-semantic-interposition-ftree-vectorize-ftree-loop-vectorize-Wl-sort-common-Wl--enable-new-dtags
FFLAGS=-g-O3-feliminate-unused-debug-types-pipe-Wall-Wp-D_FORTIFY_SOURCE=2-fexceptions-fstack-protector--param=ssp-buffer-size=32-m64-fasynchronous-unwind-tables-Wp-D_REENTRANT-ftree-loop-distribute-patterns-Wl-z-Wl relro-malign-data=abi-fno-semantic-interposition-ftree-vectorize-ftree-loop-vectorize-Wl--enable-new-dtags
CXXFLAGS=-g-O3-feliminate-unused-debug-types-pipe-Wall-Wp-D_FORTIFY_SOURCE=2-fexceptions-fstack-protector--param=ssp-buffer-size=32-Wformat-Wformat-security-m64-fasynchronous-unwind-tables-Wp-D_REENTRANT-ftree-loop-distribute-patterns-Wl-z-Wl relro-fno-semantic-interposition-ffat-lto-objects-fno-signed-zeros-fno-trapping-math-fassociative-math-Wl-sort-common-Wl--enable-new-dtags-mtune=skylake-fvisibility-inlines-hidden-Wl--enable-new-dtags
CFLAGS=-g-O3-feliminate-unused-debug-types-pipe-Wall-Wp-D_FORTIFY_SOURCE=2-fexceptions-fstack-protector--param=ssp-buffer-size=32-Wformat-Wformat-security-m64-fasynchronous-unwind-tables-Wp-D_REENTRANT-ftree-loop-distribute-patterns-Wl-z-Wl relro-fno-semantic-interposition-ffat-lto-objects-fno-signed-zeros-fno-trapping-math-fassociative-math-Wl-sort-common-Wl--enable-new-dtags-mtune=skylake THEANO_FLAGS=floatX=float32 openmp=true gcc.cxxflags="-ftree-vectorize-mavx"
Compiler Notes: --build=x86_64-generic-linux --disable-libmpx --disable-libunwind-exceptions --disable-multiarch --disable-vtable-verify --disable-werror --enable-__cxa_atexit --enable-bootstrap --enable-cet --enable-clocale=gnu --enable-default-pie --enable-gnu-indirect-function --enable-languages=c,c++,fortran,go --enable-ld=default --enable-libstdcxx-pch --enable-lto --enable-multilib --enable-plugin --enable-shared --enable-threads=posix --exec-prefix=/usr --includedir=/usr/include --target=x86_64-generic-linux --with-arch=westmere --with-gcc-major-version-only --with-glibc-version=2.19 --with-gnu-ld --with-isl --with-ppl=yes --with-tune=haswell
Processor Notes: Scaling Governor: intel_pstate powersave
Security Notes: KPTI + usercopy/swapgs barriers and __user pointer sanitization + Full generic retpoline IBPB: conditional IBRS_FW STIBP: conditional RSB filling + SSB disabled via prctl and seccomp + PTE Inversion

i5 3470T 10GB

Processor: Intel Core i5-3470T @ 3.60GHz (2 Cores / 4 Threads), Motherboard: LENOVO MAHOBAY (9SKT63AUS BIOS), Memory: 10240MB, Disk: 120GB KINGSTON SV300S3, Graphics: i915drmfb (1100MHz), Audio: Realtek ALC662 rev3, Monitor: SAMSUNG

OS: Clear Linux OS 29390, Kernel: 5.3.0-42-generic (x86_64), Compiler: GCC 9.1.1 20190512 gcc-9-branch@271104 + Clang 8.0.0 + LLVM 8.0.0, File-System: overlayfs, Screen Resolution: 1920x1080, System Layer: Docker

Environment Notes:
CFFLAGS=-g-O3-feliminate-unused-debug-types-pipe-Wall-Wp-D_FORTIFY_SOURCE=2-fexceptions-fstack-protector--param=ssp-buffer-size=32-m64-fasynchronous-unwind-tables-Wp-D_REENTRANT-ftree-loop-distribute-patterns-Wl-z-Wl now-Wl-z-Wl relro-malign-data=abi-fno-semantic-interposition-ftree-vectorize-ftree-loop-vectorize-Wl-sort-common-Wl--enable-new-dtags
FFLAGS=-g-O3-feliminate-unused-debug-types-pipe-Wall-Wp-D_FORTIFY_SOURCE=2-fexceptions-fstack-protector--param=ssp-buffer-size=32-m64-fasynchronous-unwind-tables-Wp-D_REENTRANT-ftree-loop-distribute-patterns-Wl-z-Wl relro-malign-data=abi-fno-semantic-interposition-ftree-vectorize-ftree-loop-vectorize-Wl--enable-new-dtags
CXXFLAGS=-g-O3-feliminate-unused-debug-types-pipe-Wall-Wp-D_FORTIFY_SOURCE=2-fexceptions-fstack-protector--param=ssp-buffer-size=32-Wformat-Wformat-security-m64-fasynchronous-unwind-tables-Wp-D_REENTRANT-ftree-loop-distribute-patterns-Wl-z-Wl relro-fno-semantic-interposition-ffat-lto-objects-fno-signed-zeros-fno-trapping-math-fassociative-math-Wl-sort-common-Wl--enable-new-dtags-mtune=skylake-fvisibility-inlines-hidden-Wl--enable-new-dtags
CFLAGS=-g-O3-feliminate-unused-debug-types-pipe-Wall-Wp-D_FORTIFY_SOURCE=2-fexceptions-fstack-protector--param=ssp-buffer-size=32-Wformat-Wformat-security-m64-fasynchronous-unwind-tables-Wp-D_REENTRANT-ftree-loop-distribute-patterns-Wl-z-Wl relro-fno-semantic-interposition-ffat-lto-objects-fno-signed-zeros-fno-trapping-math-fassociative-math-Wl-sort-common-Wl--enable-new-dtags-mtune=skylake THEANO_FLAGS=floatX=float32 openmp=true gcc.cxxflags="-ftree-vectorize-mavx"
Compiler Notes: --build=x86_64-generic-linux --disable-libmpx --disable-libunwind-exceptions --disable-multiarch --disable-vtable-verify --disable-werror --enable-__cxa_atexit --enable-bootstrap --enable-cet --enable-clocale=gnu --enable-default-pie --enable-gnu-indirect-function --enable-languages=c,c++,fortran,go --enable-ld=default --enable-libstdcxx-pch --enable-lto --enable-multilib --enable-plugin --enable-shared --enable-threads=posix --exec-prefix=/usr --includedir=/usr/include --target=x86_64-generic-linux --with-arch=westmere --with-gcc-major-version-only --with-glibc-version=2.19 --with-gnu-ld --with-isl --with-ppl=yes --with-tune=haswell
Processor Notes: Scaling Governor: intel_pstate performance
Security Notes: KPTI + usercopy/swapgs barriers and __user pointer sanitization + Full generic retpoline IBPB: conditional IBRS_FW STIBP: conditional RSB filling + SSB disabled via prctl and seccomp + PTE Inversion

2 x E5-2667v3

Processor: Intel Core (4 Cores / 32 Threads), Motherboard: QEMU Standard PC (Q35 + ICH9 2009) (rel-1.12.0-0-ga698c89-rebuilt.opensuse.org BIOS), Chipset: Intel 82G33/G31/P35/P31 + ICH9, Memory: 18GB, Disk: 59GB, Graphics: llvmpipe 16GB, Audio: QEMU Generic, Network: Red Hat Virtio device

OS: Ubuntu 20.04, Kernel: 5.4.0-18-generic (x86_64), Desktop: GNOME Shell 3.36.0, Display Server: X Server 1.20.7, Display Driver: modesetting 1.20.7, OpenGL: 3.3 Mesa 20.0.2 (LLVM 9.0.1 256 bits), Compiler: GCC 9.3.0, File-System: ext4, Screen Resolution: 1920x1080, System Layer: KVM

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,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: CPU Microcode: 0x1
Security Notes: itlb_multihit: KVM: Vulnerable + l1tf: Mitigation of PTE Inversion + mds: Mitigation of Clear buffers; SMT Host state unknown + meltdown: Mitigation of PTI + 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 generic retpoline IBPB: conditional IBRS_FW STIBP: conditional RSB filling + tsx_async_abort: Not affected

i5 6500 8GB RAM

Processor: Intel Core i5-6500 @ 3.60GHz (4 Cores), Motherboard: HP 8056 (N21 Ver. 02.21 BIOS), Memory: 8192MB, Disk: 120GB KINGSTON SV300S3, Graphics: i915drmfb (1050MHz), Audio: Realtek ALC221, Monitor: SAMSUNG

OS: Clear Linux OS 29390, Kernel: 5.3.0-45-generic (x86_64), Compiler: GCC 9.1.1 20190512 gcc-9-branch@271104 + Clang 8.0.0 + LLVM 8.0.0, File-System: overlayfs, Screen Resolution: 1920x1080, System Layer: Docker

Environment Notes:
CFFLAGS=-g-O3-feliminate-unused-debug-types-pipe-Wall-Wp-D_FORTIFY_SOURCE=2-fexceptions-fstack-protector--param=ssp-buffer-size=32-m64-fasynchronous-unwind-tables-Wp-D_REENTRANT-ftree-loop-distribute-patterns-Wl-z-Wl now-Wl-z-Wl relro-malign-data=abi-fno-semantic-interposition-ftree-vectorize-ftree-loop-vectorize-Wl-sort-common-Wl--enable-new-dtags
FFLAGS=-g-O3-feliminate-unused-debug-types-pipe-Wall-Wp-D_FORTIFY_SOURCE=2-fexceptions-fstack-protector--param=ssp-buffer-size=32-m64-fasynchronous-unwind-tables-Wp-D_REENTRANT-ftree-loop-distribute-patterns-Wl-z-Wl
relro-malign-data=abi-fno-semantic-interposition-ftree-vectorize-ftree-loop-vectorize-Wl--enable-new-dtags
CXXFLAGS=-g-O3-feliminate-unused-debug-types-pipe-Wall-Wp-D_FORTIFY_SOURCE=2-fexceptions-fstack-protector--param=ssp-buffer-size=32-Wformat-Wformat-security-m64-fasynchronous-unwind-tables-Wp-D_REENTRANT-ftree-loop-distribute-patterns-Wl-z-Wl
relro-fno-semantic-interposition-ffat-lto-objects-fno-signed-zeros-fno-trapping-math-fassociative-math-Wl-sort-common-Wl--enable-new-dtags-mtune=skylake-fvisibility-inlines-hidden-Wl--enable-new-dtags
CFLAGS=-g-O3-feliminate-unused-debug-types-pipe-Wall-Wp-D_FORTIFY_SOURCE=2-fexceptions-fstack-protector--param=ssp-buffer-size=32-Wformat-Wformat-security-m64-fasynchronous-unwind-tables-Wp-D_REENTRANT-ftree-loop-distribute-patterns-Wl-z-Wl
relro-fno-semantic-interposition-ffat-lto-objects-fno-signed-zeros-fno-trapping-math-fassociative-math-Wl-sort-common-Wl--enable-new-dtags-mtune=skylake
THEANO_FLAGS=floatX=float32 openmp=true gcc.cxxflags="-ftree-vectorize-mavx"
Compiler Notes: --build=x86_64-generic-linux --disable-libmpx --disable-libunwind-exceptions --disable-multiarch --disable-vtable-verify --disable-werror --enable-__cxa_atexit --enable-bootstrap --enable-cet --enable-clocale=gnu --enable-default-pie --enable-gnu-indirect-function --enable-languages=c,c++,fortran,go --enable-ld=default --enable-libstdcxx-pch --enable-lto --enable-multilib --enable-plugin --enable-shared --enable-threads=posix --exec-prefix=/usr --includedir=/usr/include --target=x86_64-generic-linux --with-arch=westmere --with-gcc-major-version-only --with-glibc-version=2.19 --with-gnu-ld --with-isl --with-ppl=yes --with-tune=haswell
Processor Notes: Scaling Governor: intel_pstate performance
Security Notes: KPTI + usercopy/swapgs barriers and __user pointer sanitization + Full generic retpoline IBPB: conditional IBRS_FW STIBP: disabled RSB filling + SSB disabled via prctl and seccomp + PTE Inversion

i5 6500 10GB RAM

Processor: Intel Core i5-6500 @ 3.60GHz (4 Cores), Motherboard: HP 8056 (N21 Ver. 02.21 BIOS), Memory: 10240MB, Disk: 120GB KINGSTON SV300S3, Graphics: i915drmfb (1050MHz), Audio: Realtek ALC221, Monitor: SAMSUNG

OS: Clear Linux OS 29390, Kernel: 5.3.0-45-generic (x86_64), Compiler: GCC 9.1.1 20190512 gcc-9-branch@271104 + Clang 8.0.0 + LLVM 8.0.0, File-System: overlayfs, Screen Resolution: 1920x1080, System Layer: Docker

Environment Notes:
CFFLAGS=-g-O3-feliminate-unused-debug-types-pipe-Wall-Wp-D_FORTIFY_SOURCE=2-fexceptions-fstack-protector--param=ssp-buffer-size=32-m64-fasynchronous-unwind-tables-Wp-D_REENTRANT-ftree-loop-distribute-patterns-Wl-z-Wl now-Wl-z-Wl
relro-malign-data=abi-fno-semantic-interposition-ftree-vectorize-ftree-loop-vectorize-Wl-sort-common-Wl--enable-new-dtags
FFLAGS=-g-O3-feliminate-unused-debug-types-pipe-Wall-Wp-D_FORTIFY_SOURCE=2-fexceptions-fstack-protector--param=ssp-buffer-size=32-m64-fasynchronous-unwind-tables-Wp-D_REENTRANT-ftree-loop-distribute-patterns-Wl-z-Wl
relro-malign-data=abi-fno-semantic-interposition-ftree-vectorize-ftree-loop-vectorize-Wl--enable-new-dtags
CXXFLAGS=-g-O3-feliminate-unused-debug-types-pipe-Wall-Wp-D_FORTIFY_SOURCE=2-fexceptions-fstack-protector--param=ssp-buffer-size=32-Wformat-Wformat-security-m64-fasynchronous-unwind-tables-Wp-D_REENTRANT-ftree-loop-distribute-patterns-Wl-z-Wl
relro-fno-semantic-interposition-ffat-lto-objects-fno-signed-zeros-fno-trapping-math-fassociative-math-Wl-sort-common-Wl--enable-new-dtags-mtune=skylake-fvisibility-inlines-hidden-Wl--enable-new-dtags
CFLAGS=-g-O3-feliminate-unused-debug-types-pipe-Wall-Wp-D_FORTIFY_SOURCE=2-fexceptions-fstack-protector--param=ssp-buffer-size=32-Wformat-Wformat-security-m64-fasynchronous-unwind-tables-Wp-D_REENTRANT-ftree-loop-distribute-patterns-Wl-z-Wl
relro-fno-semantic-interposition-ffat-lto-objects-fno-signed-zeros-fno-trapping-math-fassociative-math-Wl-sort-common-Wl--enable-new-dtags-mtune=skylake
THEANO_FLAGS=floatX=float32 openmp=true gcc.cxxflags="-ftree-vectorize-mavx"
Compiler Notes: --build=x86_64-generic-linux --disable-libmpx --disable-libunwind-exceptions --disable-multiarch --disable-vtable-verify --disable-werror --enable-__cxa_atexit --enable-bootstrap --enable-cet --enable-clocale=gnu --enable-default-pie --enable-gnu-indirect-function --enable-languages=c,c++,fortran,go --enable-ld=default --enable-libstdcxx-pch --enable-lto --enable-multilib --enable-plugin --enable-shared --enable-threads=posix --exec-prefix=/usr --includedir=/usr/include --target=x86_64-generic-linux --with-arch=westmere --with-gcc-major-version-only --with-glibc-version=2.19 --with-gnu-ld --with-isl --with-ppl=yes --with-tune=haswell
Processor Notes: Scaling Governor: intel_pstate powersave
Security Notes: KPTI + usercopy/swapgs barriers and __user pointer sanitization + Full generic retpoline IBPB: conditional IBRS_FW STIBP: disabled RSB filling + SSB disabled via prctl and seccomp + PTE Inversion

LenovoM700Tiny

Processor: Intel Core i3-6100T @ 3.20GHz (2 Cores / 4 Threads), Motherboard: LENOVO SKYBAY (FWKT53A BIOS), Memory: 4096MB, Disk: 240GB Western Digital WDS240G2G0A + 3001GB EZRZ-00Z5HB0, Graphics: i915drmfb (950MHz), Audio: Realtek ALC233, Monitor: SAMSUNG

OS: Ubuntu 20.04.1 LTS, Kernel: 5.8.1-050801-generic (x86_64), Display Driver: i915drmfb, Compiler: GCC 9.3.0, File-System: overlayfs, Screen Resolution: 1920x1080, System Layer: Docker

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: intel_pstate powersave - CPU Microcode: 0xe2
Security Notes: itlb_multihit: KVM: Mitigation of Split huge pages + l1tf: Mitigation of PTE Inversion; VMX: conditional cache flushes SMT vulnerable + mds: Mitigation of Clear buffers; SMT vulnerable + meltdown: Mitigation of PTI + 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 generic retpoline IBPB: conditional IBRS_FW STIBP: conditional RSB filling + srbds: Mitigation of Microcode + tsx_async_abort: Not affected

Core i5 7500T

Processor: Intel Core i5-7500T @ 3.30GHz (4 Cores), Motherboard: HP 82A5 (P23 Ver. 02.04 BIOS), Chipset: Intel Xeon E3-1200 v6/7th + H270, Memory: 16GB, Disk: 256GB Western Digital WDS256G1X0C-00ENX0, Graphics: Intel HD 630 3GB (1100MHz), Audio: Conexant CX20632, Monitor: S243HL, Network: Realtek RTL8111/8168/8411

OS: Ubuntu 20.04, Kernel: 5.10.0-1033-oem (x86_64), Display Server: X Server 1.20.9, OpenGL: 4.6 Mesa 20.2.6, Vulkan: 1.2.145, Compiler: GCC 9.3.0, File-System: ext4, Screen Resolution: 1920x1080

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: intel_pstate performance - CPU Microcode: 0xea - Thermald 1.9.1
Security Notes: itlb_multihit: KVM: Mitigation of VMX unsupported + l1tf: Mitigation of PTE Inversion + mds: Mitigation of Clear buffers; SMT disabled + meltdown: Mitigation of PTI + 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 generic retpoline IBPB: conditional IBRS_FW STIBP: disabled RSB filling + srbds: Mitigation of Microcode + tsx_async_abort: Mitigation of Clear buffers; SMT disabled

	AMD E-350	AMD A6-7400K	AMD A10-5800K	AMD A10-7800	AMD A10-7870K	AMD Athlon II X3 425	AMD FX-8350	Ryzen 5 2400G	Ryzen 5 2600	Ryzen 5 2600X	Ryzen 7 1700	Ryzen 7 1800X	Ryzen 7 2700	Ryzen 7 2700X	Ryzen Threadripper 1900X	Intel Core 2 Duo E8400	Pentium G3258	Core i3 2100	Core i5 2400S	Core i5 7600K	Core i5 8400	Core i7 5960X	Core i7 7740X	Core i7 7700	Core i7 8700K	Core i7 9900X	Core i9 7900X	Core i9 7980XE	Willow 6C	Willow 16C	Core i5 8500T	Core i5 3470T	i5 3470T 8GB RAM	i5 3470T 16GB	i5 6500 8GB RAM	i5 6500 16GB RAM	Lenovo M700 Tiny
Rodinia - OpenMP CFD Solver (sec)	685.06	248.07	130.06	139.20	119.43	234.93	70.46	45.91	32.70	31.17	34.92	28.52	29.28	27.22	13.34	20.06	166.022	155.79	114.38	59.91	35.59	38.82	30.26	91.04	29.40	63.64	18.62	11.93	62.35	50.33	53.72	145.33	16.42	9.64	8.64	141.361
Normalized Standard Deviation	1.74%	4.81%	9.17%	8.57%	9.95%	5.08%	16.3%	25.9%	36.4%	38.2%	34.1%	41.8%	40.7%	43.8%	89.4%	5.79%	7.64%	7.66%	10.4%	19.9%	33.1%	35.2%	30.5%	13.0%	41.0%	18.7%	65.4%	10.0%	19.1%	23.7%	22.2	8.21%	7.39%	8.52%	50.4%	16.8%	17.0%	8.44%
Rodinia - OpenMP LavaMD (sec)	280.8	801.68	700.64	450.17	402.61	769.77	214.71	172.64	120.94	104.69	113.58	89.45	76.46	83.40	48.45	124.6	172.71	153.49	49.97	94.20	130.71	108.54	163.76	39.78	191.90	71.69	63.04	41.90	89.31	50.43	74.90	24.03	74.06	89.40	33.66	126.505
Normalized Standard Deviation	0.87%	3.04%	3.45%	5.41%	6.04%	3.16%	11.3%	13.8%	19.8%	22.4	23.5%	27.2%	25.0%	29.1%	50.2%	1.95%	3.37%	4.55%	4.92%	12.5%	18.7%	22.5%	16.1%	6.94%	24.9%	12.3%	38.6%	58.0%	27.2%	48.2%	32.4	8.82%	7.88%	9.51%	10.0%	23.1%	23.1%	10.7%
Standard Deviation	0%	0%	3.2%	0.3%	0.2%	0.2%	0.6%	0.2%	0.1%	0.1%	0.2%	0.2%	0.1%	0.1%	0.3%	0.3%	0.1%	0.2%	0.1%	0.1%	0.3%	0.1%	0.3%	0.4%	0.5%	0.2%	0.5%	0.3%	0.4%	0.1%	0.5%	0.1%	0.4%	0.1%	0.3%	0.2%	1%	0.1%

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Intel / AMD Large Ubuntu Linux CPU Benchmark Comparison

Fhouston - C.C. 4.S (Kpos / sec)	3	8	9	8	9	7	1	1	1	1	1	1	1	1	1	7	9	9	1	1	1	1	1	8	1	9	1	1	9	9	1	1	9	1	1	1	1	8
	3	7	6	0	2	0	0	2	3	3	1	3	3	4	1	9	8	2	0	3	4	2	5	9	6	6	4	4	4	7	1	0	8	0	0	1	1	3
	7	2	1	8	1	6	2	7	0	8	7	0	3	0	9	4	3	0	2	6	3	0	0	1	1	2	4	7	3	6	6	4	6	6	2	7	8	9
	3	7	4	7	4	1	4	9	8	3	9	5	4	5	2	0	9	3	7	1	6	6	9	2	3	1	0	0	0	8	9	1	8	3	6	2	6	2
							5	3	3	6	6	1	2	3	6				4	9	6	8	2		0		8	1			5	0		3	1	8	2	
Normalized Standard Deviation	20.1	54.6%	59.1%	50.4%	57.2%	43.8%	63.2%	79.1%	81.1%	85.8%	73.3%	80.1%	82.2%	87.2%	73.4%	49.3	61.%	57.6%	63.9%	84.3%	89.6%	74.2%	93.6%	55.5%	10.%	59.5%	89.2%	91.4%	58.6%	60.6%	72.5%	64.5%	61.1%	65.2%	63.8%	72.1%	73.4%	52.0%
TSCP - A.C.P (Nodes/s)	3	7	7	6	7	5	7	1	1	1	9	1	1	1	1	5	1	8	9	1	1	1	1	6	1	7	1	1	1	1	9	9	9	1	1	1	8
	2	4	0	6	4	4	1	0	0	1	7	0	0	1	1	8	0	7	2	3	2	1	4	9	4	7	4	3	0	0	0	3	3	4	1	0	0	0
	2	1	5	5	5	6	0	3	3	2	5	7	7	5	0	4	8	4	7	7	8	7	6	1	8	1	9	6	7	5	2	7	6	5	6	5	6	4
	2	6	5	8	3	0	1	8	2	4	9	4	5	4	0	9	7	2	5	0	8	4	5	1	9	6	4	8	2	0	9	5	5	3	5	3	2	0
	4	9	8	3	0	8	3	0	2	0	0	0	7	6	6	4	6	5	4	7	0	3	6	1	4	2	2	7	0	2	1	7	0	9	9	9	0	8
	3	0	3	4	6	7	2	3	0	5	2	7	4	7	8	0	3	0	8	8	7	6	2	2	0	2	5	4	6	8	0	3	5	7	2	3	5	7
								0	4	3		0	0	4	5		5			4	0	8	0		4		0	8	2	2	8				2	8	0	
Normalized Standard Deviation	21.5	49.6%	47.2%	44.5%	49.8%	36.5%	47.5%	69.4%	69.0%	75.2%	65.3%	71.8%	71.9%	77.2%	73.6%	39.1%	72.7%	58.5%	62.0%	91.7%	86.2%	78.5%	98.0%	46.2%	99.6%	51.6%	10.0%	91.6%	71.7%	70.2%	68.8%	62.7%	62.6%	63.2%	78.0%	70.5%	71.0%	53.8%
	0.1	0.2	0.1	0.1	0.3	0.4	0.1	0.2	0.4	0.4	0.7	0.3	0.1	0.2	0.3	0.2	0.1		0.1	0.3	0.1	0.2	0.2	0.9	0.3	0.4	0.2	0.4	0.%	0.4	0.2	0.8	0.3	0.5	0.3	0.5	0.2	0.7
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%		%	%	%	%	%	%	%	%	%	%	%		%	%	%	%	%	%	%	%	%

Intel / AMD Large Ubuntu Linux CPU Benchmark Comparison

Timed PHP 7 2 Compilation - Time To Compile (sec)	**12**	4	2	2	1	3	1	1	7	7	8	7	7	6	5	3	2	2	1	1	6	7	6	1	5	1	5	**46**	1	1	1	3	3	2	7	1	1	2
		0	6	1	8	2	0	0	8.	2.	3.	3.	5.	6.	6.	3	5	5	7	0	9.	5.	7.	4	6.	0	2.	**6.**	5	4	4	1	7	9	1.	6	6	9
		2.	3.	6.	9.	4.	8.	6.	3	0	5	4	0	9	2	9.	9.	4.	8.	3.	4	5	5	1.	4	8.	5	**12**	1.	1.	0.	9.	3.	9.	8	4.	3.	4.
		9	2	3	6	7	4	2	6	8	9	1	4	5	9	1	1	8	9	8	3	2	7	0	2	3	7		2	1	7	8	4	4	2	6	3	1
		2	8	1	2	1	9	4								9	5	0	5	2				4		4			9	4	0	6	6	3	7	4	3	8
																																						1
Normalized	3.63%	11.45%	17.52%	21.32%	24.32%	14.2%	42.51%	43.41%	58.86%	63.98%	55.17%	62.83%	61.46%	68.89%	81.93%	13.6%	17.8%	18.1%	25.7%	44.4%	66.4%	61.0%	68.2%	32.7%	81.7%	42.5%	87.7%	10.0%	30.4%	32.6%	32.7%	14.4%	12.3%	15.4%	64.2%	28.0%	28.2%	15.6%
Standard Deviation	0.0%	0.1%	6.5%	0.2%	0.1%	0.1%	0.3%	0.7%	0.7%	0.4%	0.6%	0.3%	1.4%	1%	0.9%	0%	0.6%	0.1%	0.1%	0.1%	0.3%	0.4%	0.5%	0.6%	0.5%	0.4%	0.1%	0.3%	3.5%	0.7%	1.8%	0.2%	0.1%	0.1%	0.6%	0.3%	0.2%	0.2%
AOBench - 2048x2048 - Total Time (sec)	**25.20**	7	6	8	7	1	6	4	4	3	4	4	4	3	4	8	5	5	5	3	3	4	3	6	**34.02**	5	3	5	4	4	3	5	5	5	3	3	3	5
		2.5	7.6	0.8	2.5	1	6.9	2.1	2.1	9.1	4.3	0.4	1.0	8.1	0.1	1.5	0.6	8.4	5.5	5.7	9.1	3.6	4.0	8.1		9.0	4.1	8.0	3.8	2.5	7.8	2.2	4.0	0.2	9.6	7.0	6.6	7.1
		6.2	3	2	7	7	6	1	2	2	9	8	4	0	9	9	3	5	2	6	2	9	7	5	3		3	9	7	8	1	5	2	3	5	6	0	7	0
		0					2																															6
Normalized	13.2%	46.9%	50.3%	42.0%	46.8%	30.2%	50.8%	80.7%	80.7%	86.1%	76.6%	84.2%	82.8%	89.0%	84.6%	41.5%	67.1%	58.2%	61.3%	95.2%	86.1%	77.9%	99.1%	49.9%	10.0%	57.6%	99.5%	58.5%	77.5%	80.0%	89.8%	65.1%	62.7%	67.7%	85.7%	91.9%	92.7%	59.5%
Standard Deviation	0.8%	0.1%	0.7%	0.1%	0.4%	0.1%	0%	0.7%	0.8%	0.2%	0.5%	0.8%	0.6%	0.3%	0.7%	0.7%	0.1%	0.2%	0.3%	0.4%	0.1%	0.4%	0.1%	0.9%	2.9%	0.5%	0.2%	0.7%	0.8%	0.6%	0.7%	0.3%	0.6%	0.1%	0.1%	0.3%	0.3%	0.4%	0.3%

Intel / AMD Large Ubuntu Linux CPU Benchmark Comparison

FLAC Audio Encoding - WAV To FLAC	94.36	17.01	16.07	18.69	16.88	25.60	16.03	10.47	10.40	9.72	11.13	10.02	10.11	9.45	9.85	9.53	27.48	14.39	15.73	14.86	8.52	8.53	13.06	7.80	19.04	7.44	16.02	8.52	9.88	12.56	12.54	11.53	15.50	15.54	14.35	13.05	12.23	12.23	13.07
Normalized	7.88%	43.4%	46.3%	39.8%	44.0%	29.0%	46.4%	71.0%	71.5%	76.5%	66.8%	74.2%	73.5%	78.7%	75.5%	27.0%	51.7%	47.3%	50.0%	87.3%	87.2%	56.9%	95.3%	39.0%	10.0%	46.4%	87.3%	75.3%	59.2%	59.3%	65.6%	49.6%	47.0%	51.2%	56.9%	61.3%	61.3%	57.2%
Standard Deviation	0%	0.4%	0.4%	0.5%	0.7%	0.2%	0.3%	0.4%	0.1%	0.2%	0.5%	0.4%	0.4%	0.4%	0.2%	0.3%	1.2%	0.6%	0.7%	0.3%	0.2%	0.7%	0.5%	6%	0.3%	0.7%	0.8%	0.5%	1.2%	1.8%	0.4%	1.6%	2.2%	1.4%	1.4%	2.5%	1.6%	0.6%
LAME MP3 Encoding - WAV To MP3	4	1	1	1	1	2	1	8.7	8.7	8.0	9.3	8.4	8.4	7.90	9.0	1	1	1	1	8.9	9.0	1	8.3	1	7.90	1	8.7	1	1	1	1	1	1	3	1	1	4	9.6
Normalized	17.0%	58.3%	59.0%	52.0%	58.2%	35.3%	59.4%	90.2%	90.3%	97.6%	84.7%	93.1%	93.6%	10.0%	87.1%	44.8%	63.9%	56.1%	59.5%	88.2%	87.3%	65.5%	94.1%	47.9%	10.0%	57.7%	90.1%	70.1%	60.9%	62.9%	75.0%	66.7%	63.7%	69.4%	21.9%	77.0%	77.5%	15.8
Standard Deviation	0.2%	0.5%	0.1%	0.3%	0.3%	0.1%	0.2%	1.2%	0.2%	0.1%	0.2%	0.6%	0.5%	0.2%	0.8%	0.1%	0.1%	0.1%	0.1%	0.2%	0.1%	0.6%	0.1%	6.7%	0.2%	0.1%	0.9%	0.3%	0.5%	0.8%	0.3%	0.1%	0.5%	0.3%	0%	0.1%	0.1%	0.7%
Stockfish - Total Time (Nodes/s)	72165	23469	34073	54530	54189	30242	19026							40826		33596	35904	59081		11829	11949	35404		12947	40621	48711	18127	34793	71210	37736	36740	76713	34623	63677	42759	41276	12240	26836
Normalized	1.63%	5.96%	7.04%	11.64%	13.1%	7.56%	23.14%							92.34%		8.04%	8.95%	12.3%	21.3%	40.9%	30.3%	16.95%		30.1%	66.0%	10.0%	19.4%	39.1%	24.3%	8.58%	7.24%	9.35%	79.0%	16.9%	17.1%	8.99%			
Standard Deviation				4%			4%							4%				3%		8%		5%		7%			8%	2%	1%				7%	1%	6%			

Intel / AMD Large Ubuntu Linux CPU Benchmark Comparison

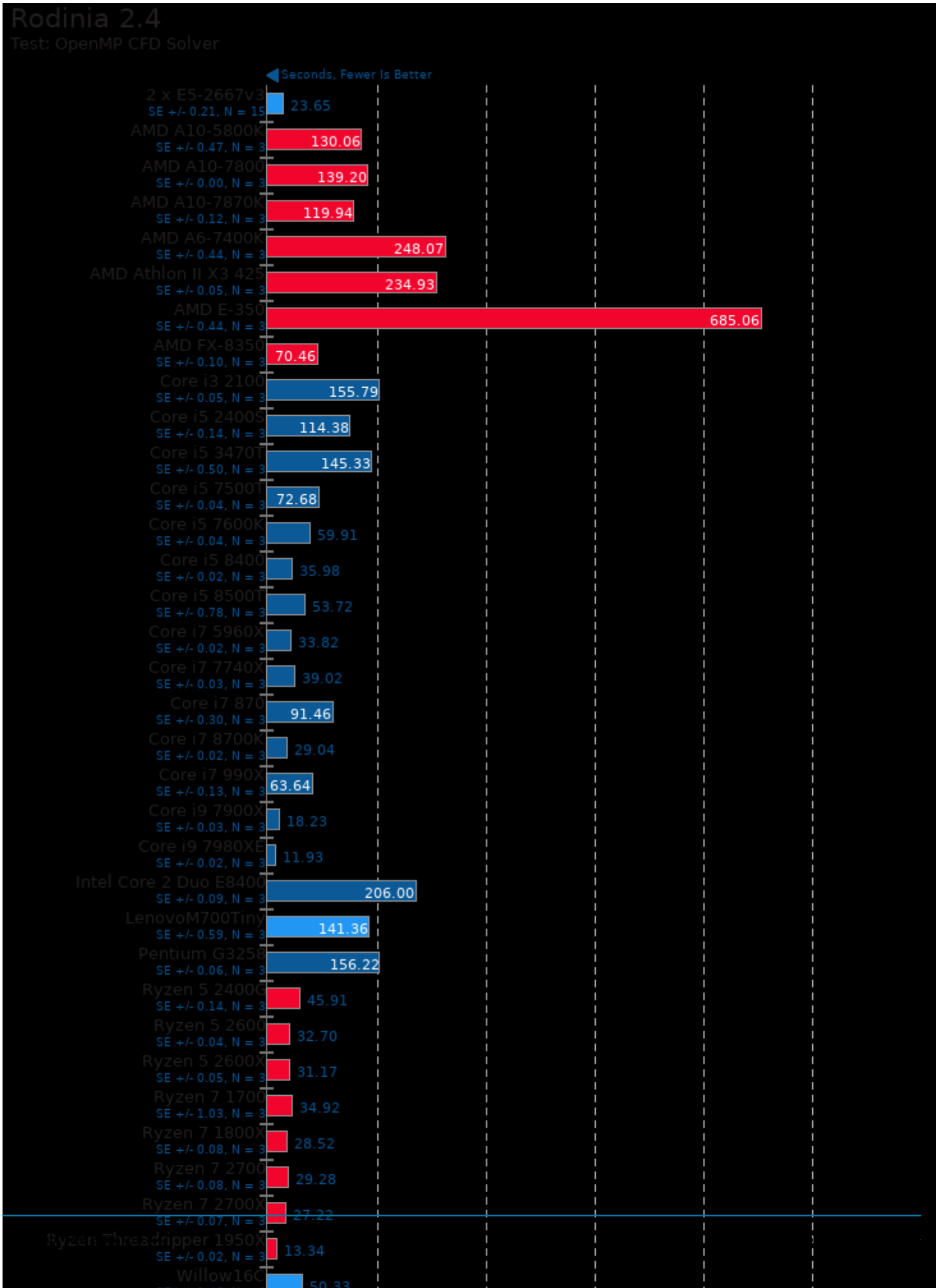
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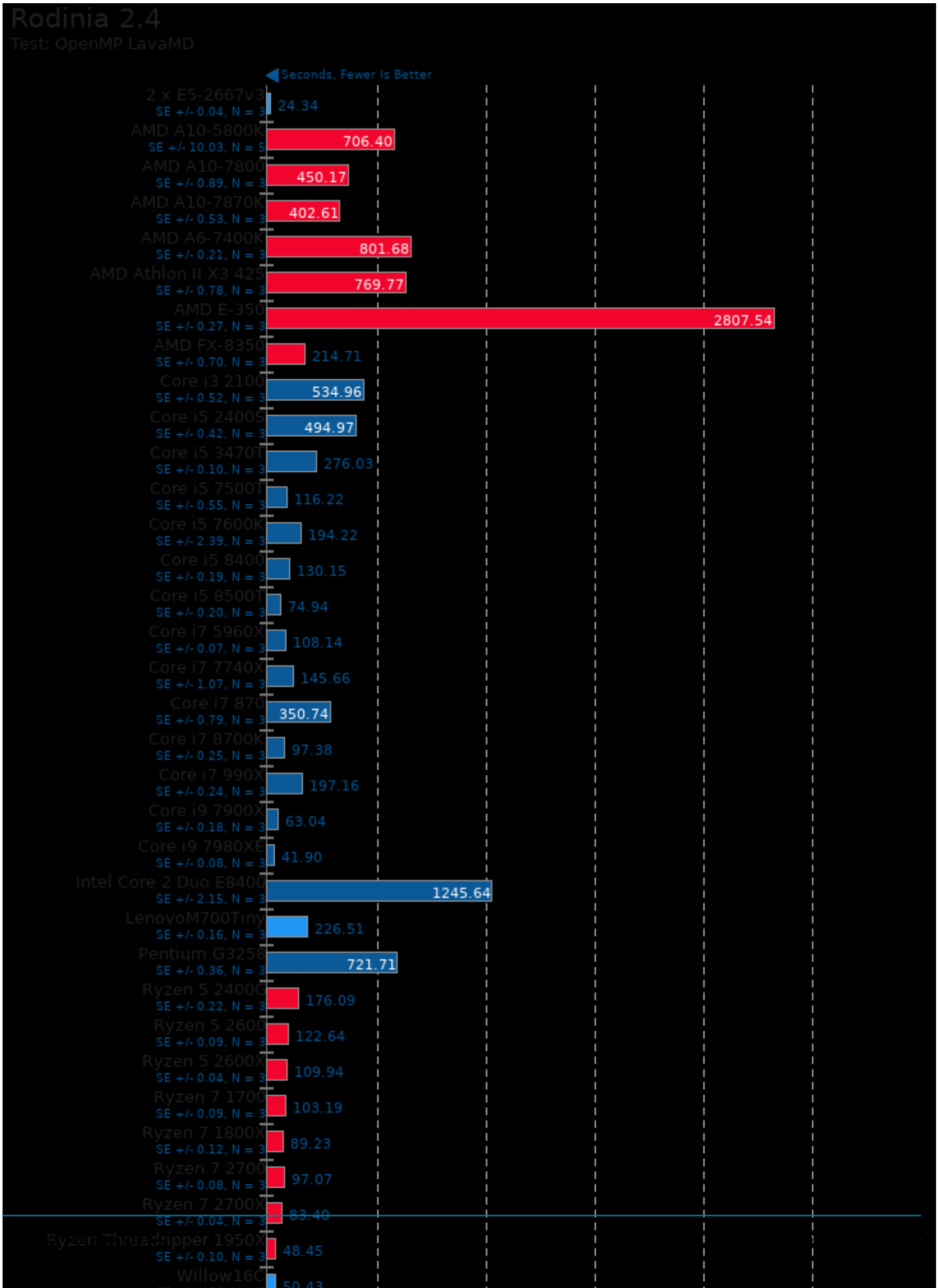
Intel / AMD Large Ubuntu Linux CPU Benchmark Comparison

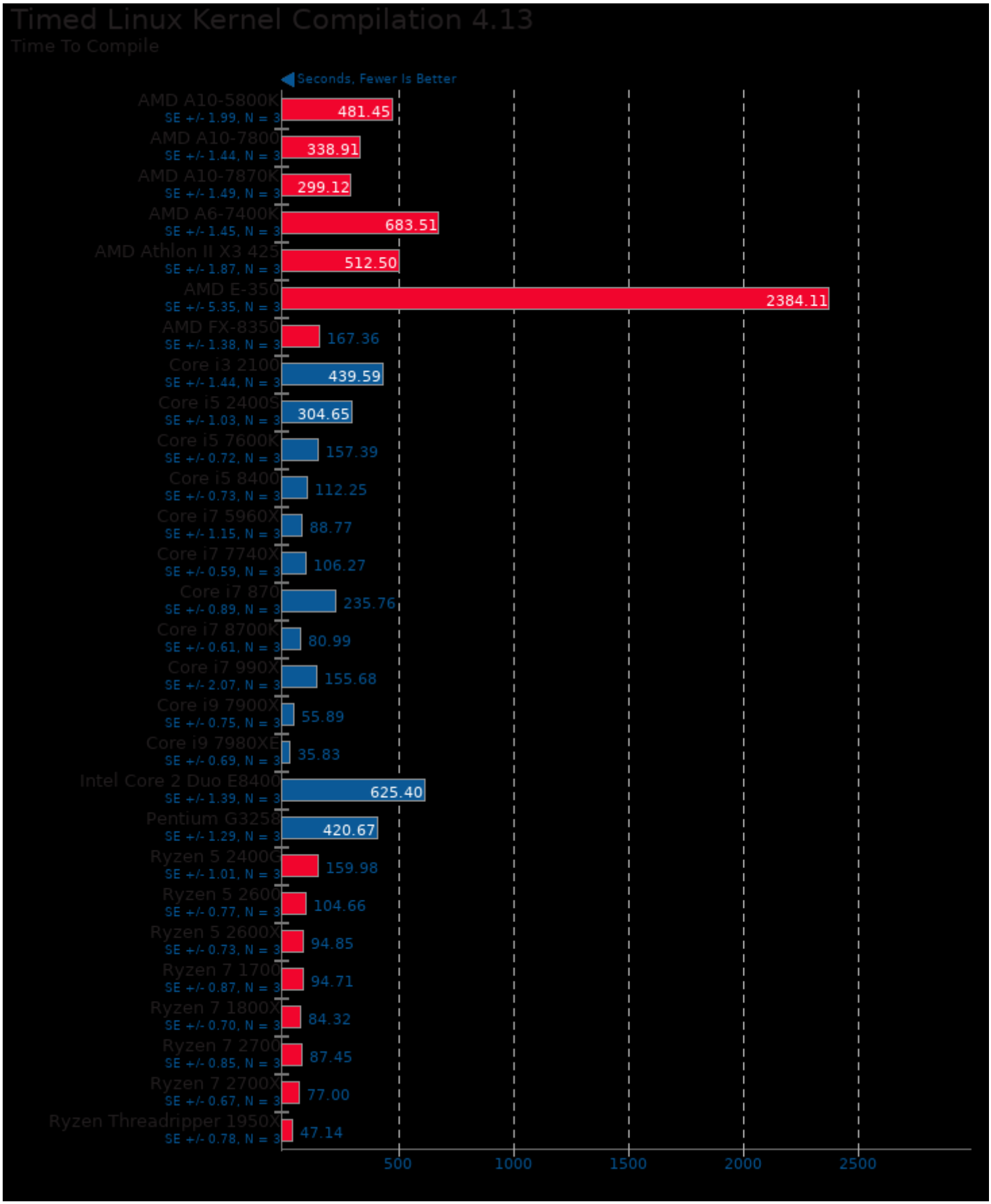
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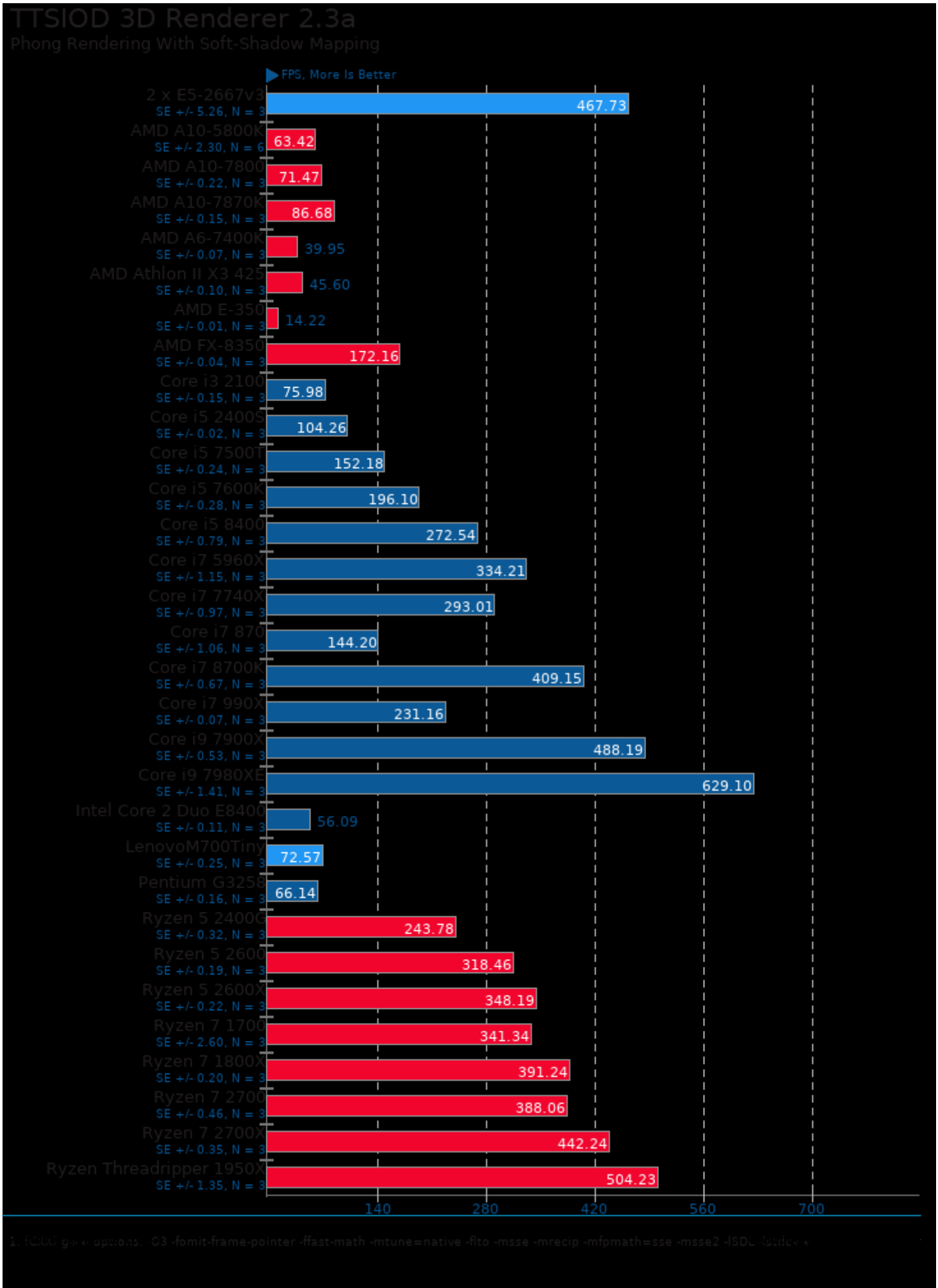
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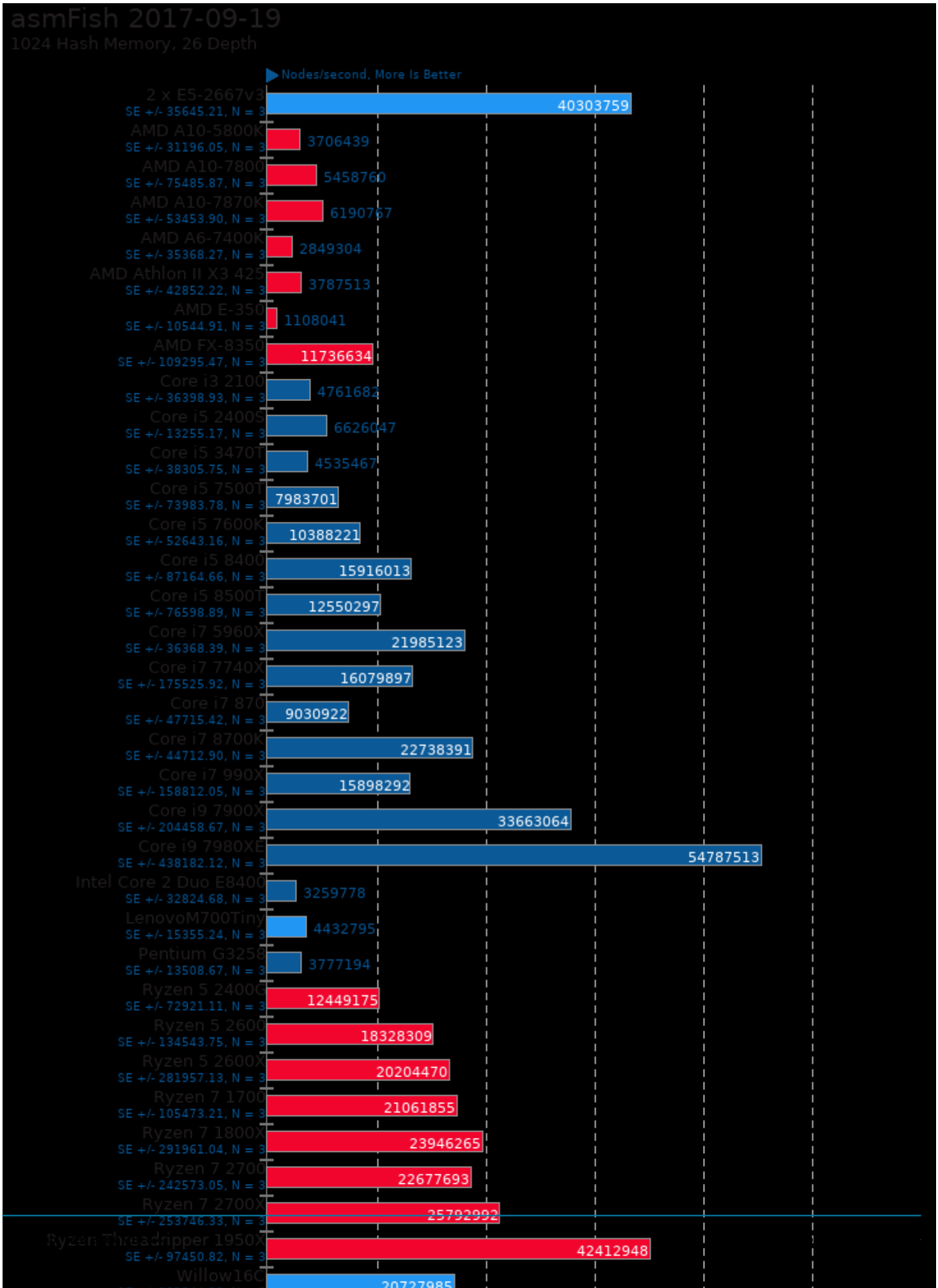
Tiny memb ench - - Stan dard Mem set (MB/ s)	7733.8%	7733.2%	1926.6%	2489.4%	1244.0%	1244.5%	**5821.1%**	1556.8%	1557.0%	1452.1%
Norma lized	26.58%	26.38%	69.14%	89.46%	44.05%	44.53%	21.1%	56.83%	57.01%	52.1%

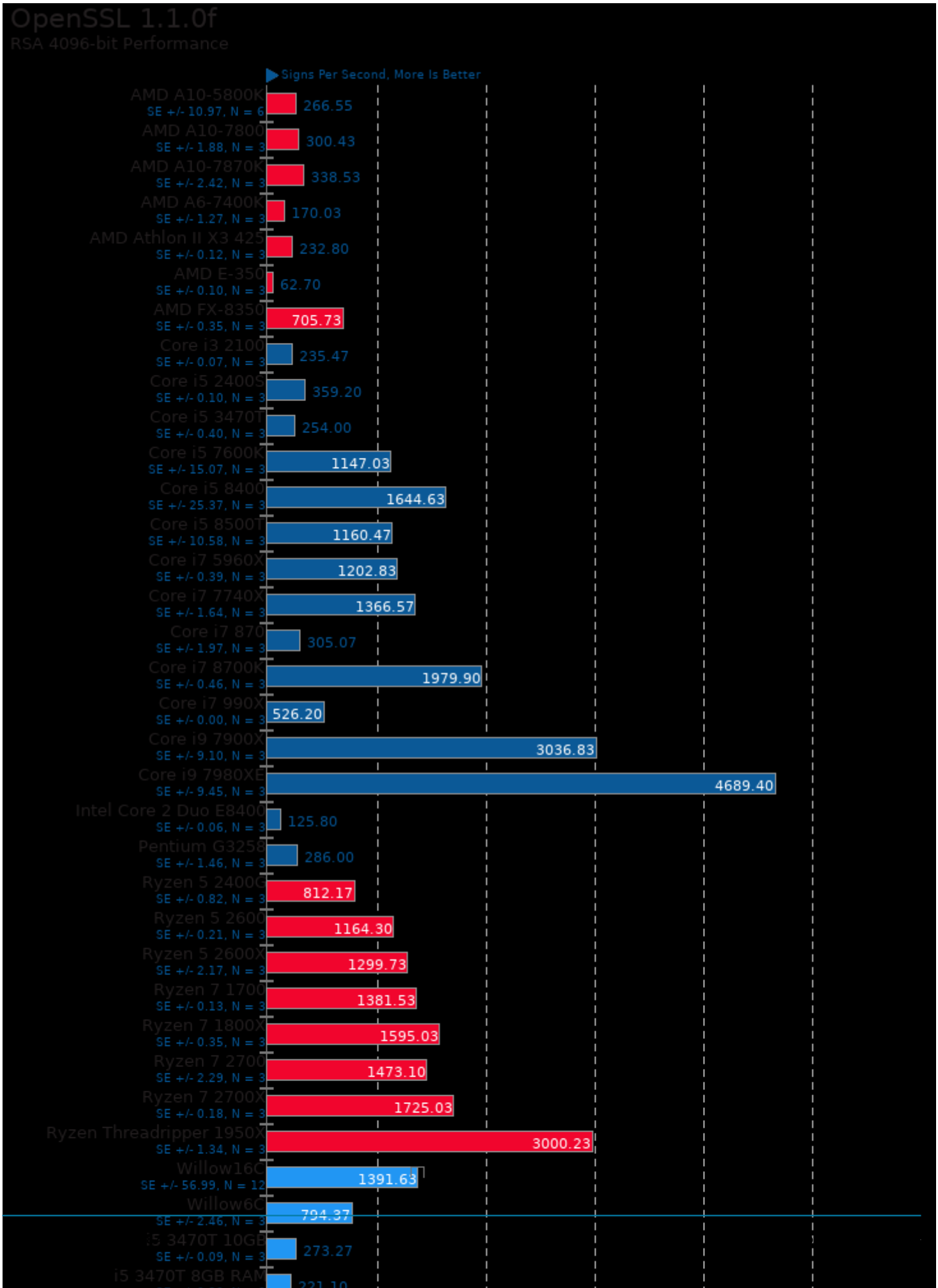

Rodinia 2.4
Test: OpenMP CFD Solver
Seconds, Fewer Is Better
2 x E5-2667v3
SE +/- 0.21, N = 15
23.65
AMD A10-5800K
SE +/- 0.47, N = 3
130.06
AMD A10-7800
SE +/- 0.00, N = 3
139.20
AMD A10-7870K
SE +/- 0.12, N = 3
119.94
AMD A6-7400K
SE +/- 0.44, N = 3
248.07
AMD Athlon II X3 425
SE +/- 0.05, N = 3
234.93
AMD E-350
SE +/- 0.44, N = 3
685.06
AMD FX-8350
SE +/- 0.10, N = 3
70.46
Core i3 2100
SE +/- 0.05, N = 3
155.79
Core i5 2400S
SE +/- 0.14, N = 3
114.38
Core i5 3470T
SE +/- 0.50, N = 3
145.33
Core i5 7500T
SE +/- 0.04, N = 3
72.68
Core i5 7600K
SE +/- 0.04, N = 3
59.91
Core i5 8400
SE +/- 0.02, N = 3
35.98
Core i5 8500T
SE +/- 0.78, N = 3
53.72
Core i7 5960X
SE +/- 0.02, N = 3
33.82
Core i7 7740X
SE +/- 0.03, N = 3
39.02
Core i7 870
SE +/- 0.30, N = 3
91.46
Core i7 8700K
SE +/- 0.02, N = 3
29.04
Core i7 990X
SE +/- 0.13, N = 3
63.64
Core i9 7900X
SE +/- 0.03, N = 3
18.23
Core i9 7980XE
SE +/- 0.02, N = 3
11.93
Intel Core 2 Duo E8400
SE +/- 0.09, N = 3
206.00
LenovoM700Tiny
SE +/- 0.59, N = 3
141.36
Pentium G3258
SE +/- 0.06, N = 3
156.22
Ryzen 5 2400G
SE +/- 0.14, N = 3
45.91
Ryzen 5 2600
SE +/- 0.04, N = 3
32.70
Ryzen 5 2600X
SE +/- 0.05, N = 3
31.17
Ryzen 7 1700
SE +/- 1.03, N = 3
34.92
Ryzen 7 1800X
SE +/- 0.08, N = 3
28.52
Ryzen 7 2700
SE +/- 0.08, N = 3
29.28
Ryzen 7 2700X
SE +/- 0.07, N = 3
27.22
Ryzen Threadripper 1950X
SE +/- 0.02, N = 3
13.34
Willow16C
50.33

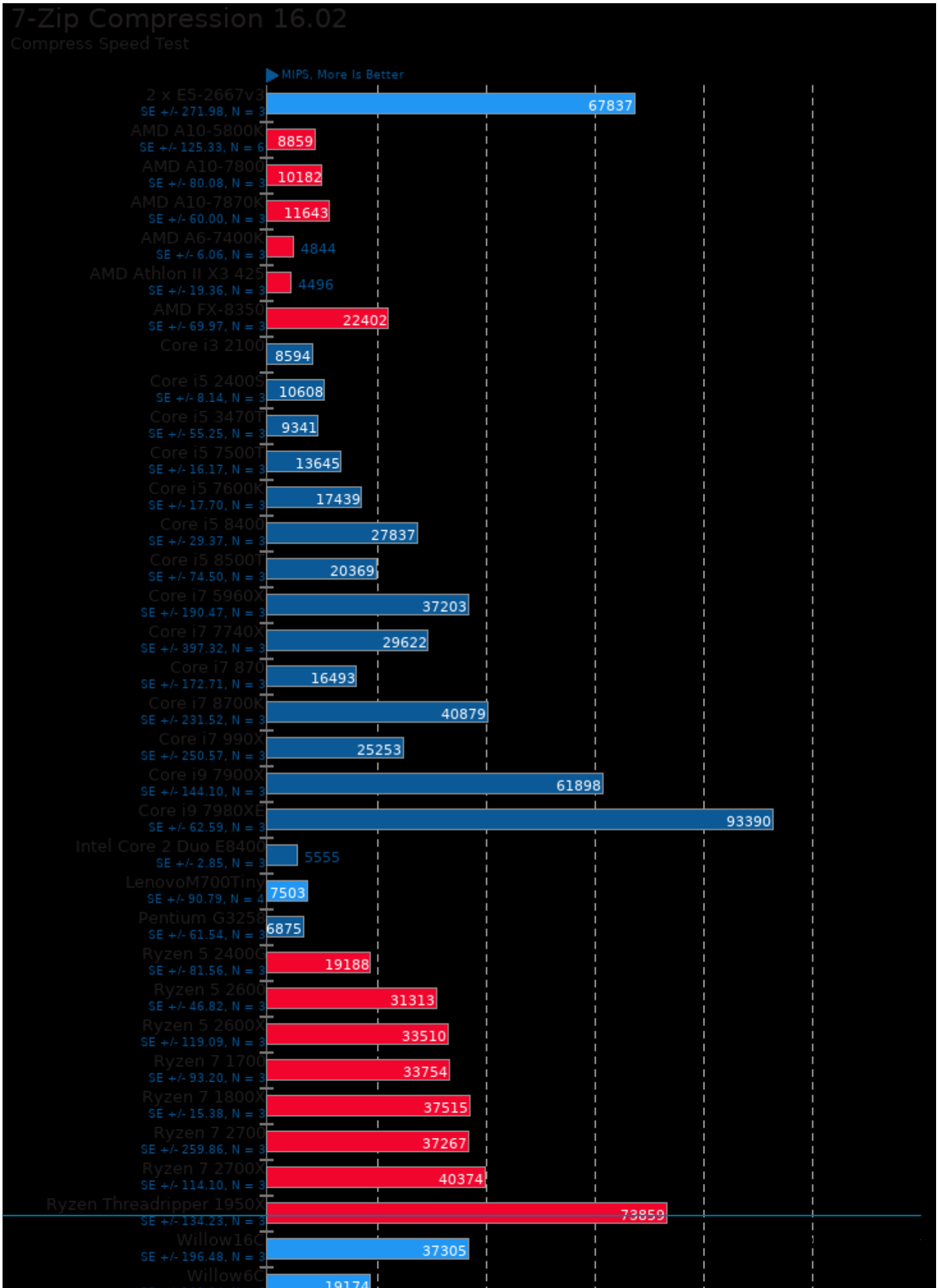

Rodinia 2.4
Test: OpenMP LavaMD
Seconds, Fewer Is Better
2 x E5-2667v3
SE +/- 0.04, N = 3
24.34
AMD A10-5800K
SE +/- 10.03, N = 5
706.40
AMD A10-7800
SE +/- 0.89, N = 3
450.17
AMD A10-7870K
SE +/- 0.53, N = 3
402.61
AMD A6-7400K
SE +/- 0.21, N = 3
801.68
AMD Athlon II X3 425
SE +/- 0.78, N = 3
769.77
AMD E-350
SE +/- 0.27, N = 3
2807.54
AMD FX-8350
SE +/- 0.70, N = 3
214.71
Core i3 2100
SE +/- 0.52, N = 3
534.96
Core i5 2400S
SE +/- 0.42, N = 3
494.97
Core i5 3470T
SE +/- 0.10, N = 3
276.03
Core i5 7500T
SE +/- 0.55, N = 3
116.22
Core i5 7600K
SE +/- 2.39, N = 3
194.22
Core i5 8400
SE +/- 0.19, N = 3
130.15
Core i5 8500T
SE +/- 0.20, N = 3
74.94
Core i7 5960X
SE +/- 0.07, N = 3
108.14
Core i7 7740X
SE +/- 1.07, N = 3
145.66
Core i7 870
SE +/- 0.79, N = 3
350.74
Core i7 8700K
SE +/- 0.25, N = 3
97.38
Core i7 990X
SE +/- 0.24, N = 3
197.16
Core i9 7900X
SE +/- 0.18, N = 3
63.04
Core i9 7980XE
SE +/- 0.08, N = 3
41.90
Intel Core 2 Duo E8400
SE +/- 2.15, N = 3
1245.64
LenovoM700Tiny
SE +/- 0.16, N = 3
226.51
Pentium G3258
SE +/- 0.36, N = 3
721.71
Ryzen 5 2400G
SE +/- 0.22, N = 3
176.09
Ryzen 5 2600
SE +/- 0.09, N = 3
122.64
Ryzen 5 2600X
SE +/- 0.04, N = 3
109.94
Ryzen 7 1700
SE +/- 0.09, N = 3
103.19
Ryzen 7 1800X
SE +/- 0.12, N = 3
89.23
Ryzen 7 2700
SE +/- 0.08, N = 3
97.07
Ryzen 7 2700X
SE +/- 0.04, N = 3
83.40
Ryzen Threadripper 1950X
SE +/- 0.10, N = 3
48.45
Willow16C
50.43

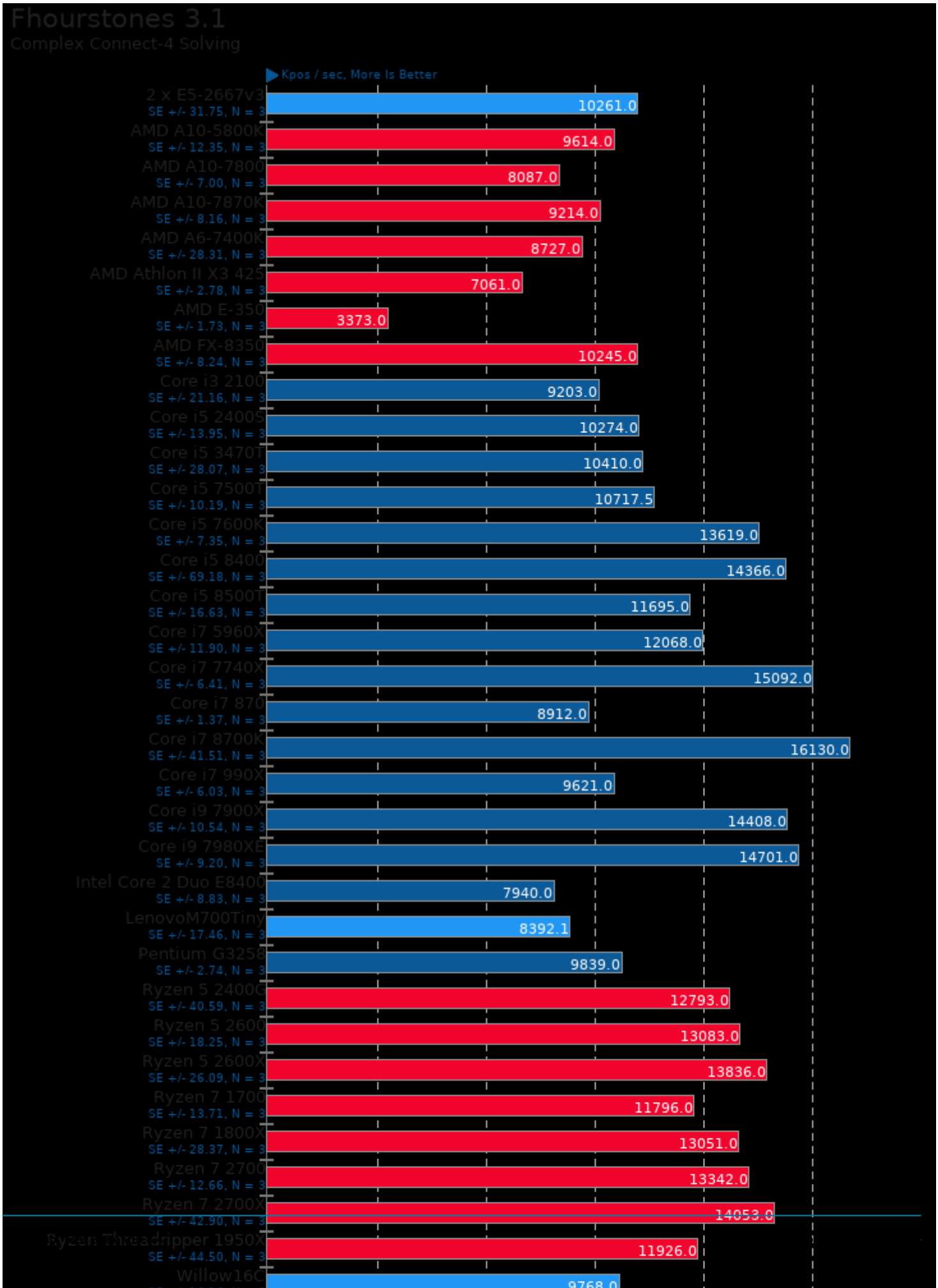

Timed Linux Kernel Compilation 4.13
Time To Compile
Seconds, Fewer Is Better
AMD A10-5800K
SE +/- 1.99, N = 3
481.45
AMD A10-7800
SE +/- 1.44, N = 3
338.91
AMD A10-7870K
SE +/- 1.49, N = 3
299.12
AMD A6-7400K
SE +/- 1.45, N = 3
683.51
AMD Athlon II X3 425
SE +/- 1.87, N = 3
512.50
AMD E-350
SE +/- 5.35, N = 3
2384.11
AMD FX-8350
SE +/- 1.38, N = 3
167.36
Core i3 2100
SE +/- 1.44, N = 3
439.59
Core i5 2400S
SE +/- 1.03, N = 3
304.65
Core i5 7600K
SE +/- 0.72, N = 3
157.39
Core i5 8400
SE +/- 0.73, N = 3
112.25
Core i7 5960X
SE +/- 1.15, N = 3
88.77
Core i7 7740X
SE +/- 0.59, N = 3
106.27
Core i7 870
SE +/- 0.89, N = 3
235.76
Core i7 8700K
SE +/- 0.61, N = 3
80.99
Core i7 990X
SE +/- 2.07, N = 3
155.68
Core i9 7900X
SE +/- 0.75, N = 3
55.89
Core i9 7980XE
SE +/- 0.69, N = 3
35.83
Intel Core 2 Duo E8400
SE +/- 1.39, N = 3
625.40
Pentium G3258
SE +/- 1.29, N = 3
420.67
Ryzen 5 2400G
SE +/- 1.01, N = 3
159.98
Ryzen 5 2600
SE +/- 0.77, N = 3
104.66
Ryzen 5 2600X
SE +/- 0.73, N = 3
94.85
Ryzen 7 1700
SE +/- 0.87, N = 3
94.71
Ryzen 7 1800X
SE +/- 0.70, N = 3
84.32
Ryzen 7 2700
SE +/- 0.85, N = 3
87.45
Ryzen 7 2700X
SE +/- 0.67, N = 3
77.00
Ryzen Threadripper 1950X
SE +/- 0.78, N = 3
47.14
500
1000
1500
2000
2500

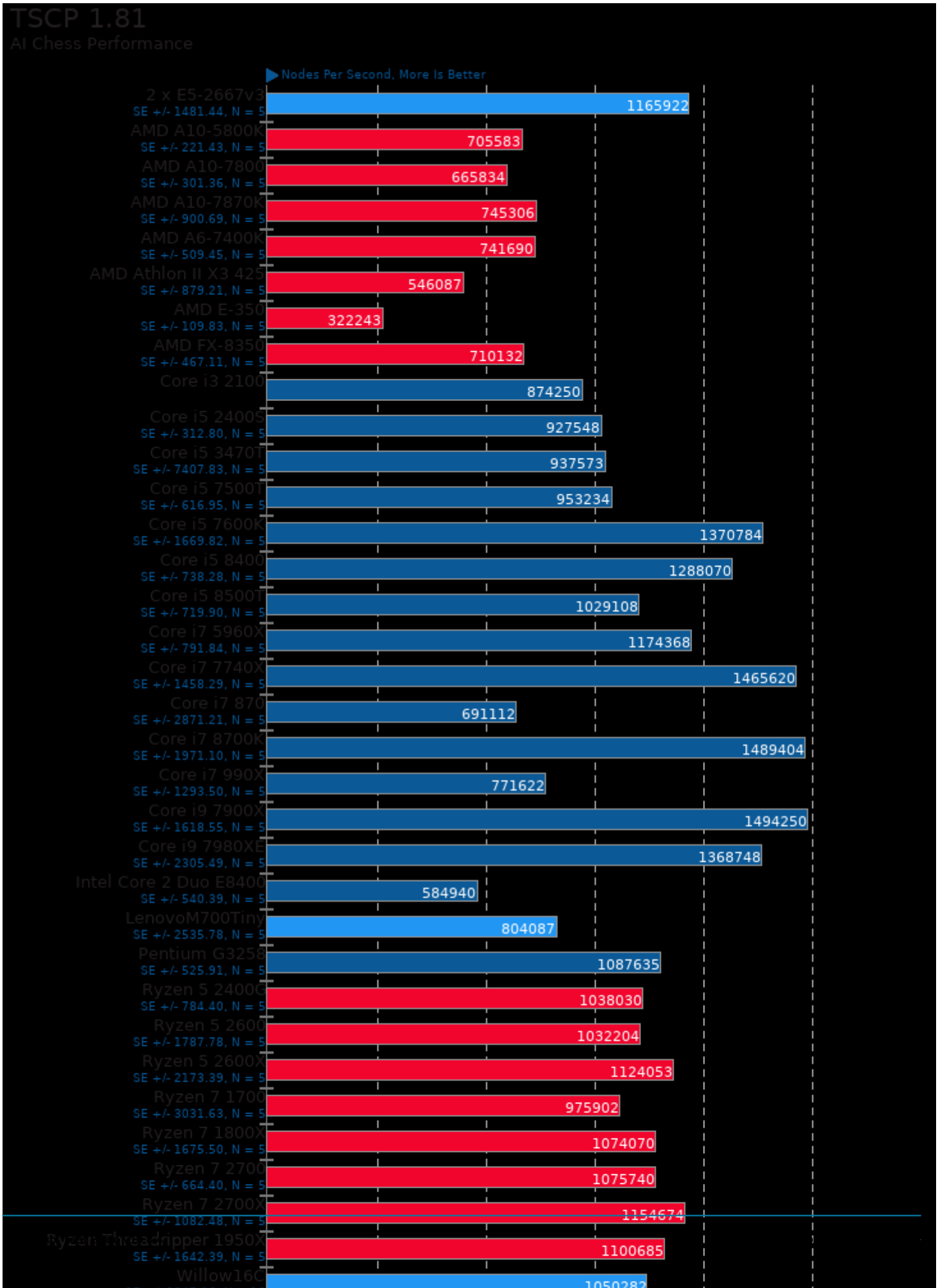

TTSIOD 3D Renderer 2.3a
Phong Rendering With Soft-Shadow Mapping
FPS, More Is Better
2 x E5-2667v3
SE +/- 5.26, N = 3
467.73
AMD A10-5800K
SE +/- 2.30, N = 6
63.42
AMD A10-7800
SE +/- 0.22, N = 3
71.47
AMD A10-7870K
SE +/- 0.15, N = 3
86.68
AMD A6-7400K
SE +/- 0.07, N = 3
39.95
AMD Athlon II X3 425
SE +/- 0.10, N = 3
45.60
AMD E-350
SE +/- 0.01, N = 3
14.22
AMD FX-8350
SE +/- 0.04, N = 3
172.16
Core i3 2100
SE +/- 0.15, N = 3
75.98
Core i5 2400S
SE +/- 0.02, N = 3
104.26
Core i5 7500T
SE +/- 0.24, N = 3
152.18
Core i5 7600K
SE +/- 0.28, N = 3
196.10
Core i5 8400
SE +/- 0.79, N = 3
272.54
Core i7 5960X
SE +/- 1.15, N = 3
334.21
Core i7 7740X
SE +/- 0.97, N = 3
293.01
Core i7 870
SE +/- 1.06, N = 3
144.20
Core i7 8700K
SE +/- 0.67, N = 3
409.15
Core i7 990X
SE +/- 0.07, N = 3
231.16
Core i9 7900X
SE +/- 0.53, N = 3
488.19
Core i9 7980XE
SE +/- 1.41, N = 3
629.10
Intel Core 2 Duo E8400
SE +/- 0.11, N = 3
56.09
LenovoM700Tiny
SE +/- 0.25, N = 3
72.57
Pentium G3258
SE +/- 0.16, N = 3
66.14
Ryzen 5 2400G
SE +/- 0.32, N = 3
243.78
Ryzen 5 2600
SE +/- 0.19, N = 3
318.46
Ryzen 5 2600X
SE +/- 0.22, N = 3
348.19
Ryzen 7 1700
SE +/- 2.60, N = 3
341.34
Ryzen 7 1800X
SE +/- 0.20, N = 3
391.24
Ryzen 7 2700
SE +/- 0.46, N = 3
388.06
Ryzen 7 2700X
SE +/- 0.35, N = 3
442.24
Ryzen Threadripper 1950X
SE +/- 1.35, N = 3
504.23
140
280
420
560
700
1. (CXX) g++ options: -O3 -fomit-frame-pointer -ffast-math -mtune=native -flto -msse -mrecip -mfpmath=sse -msse2 -ISDL -lstdc++

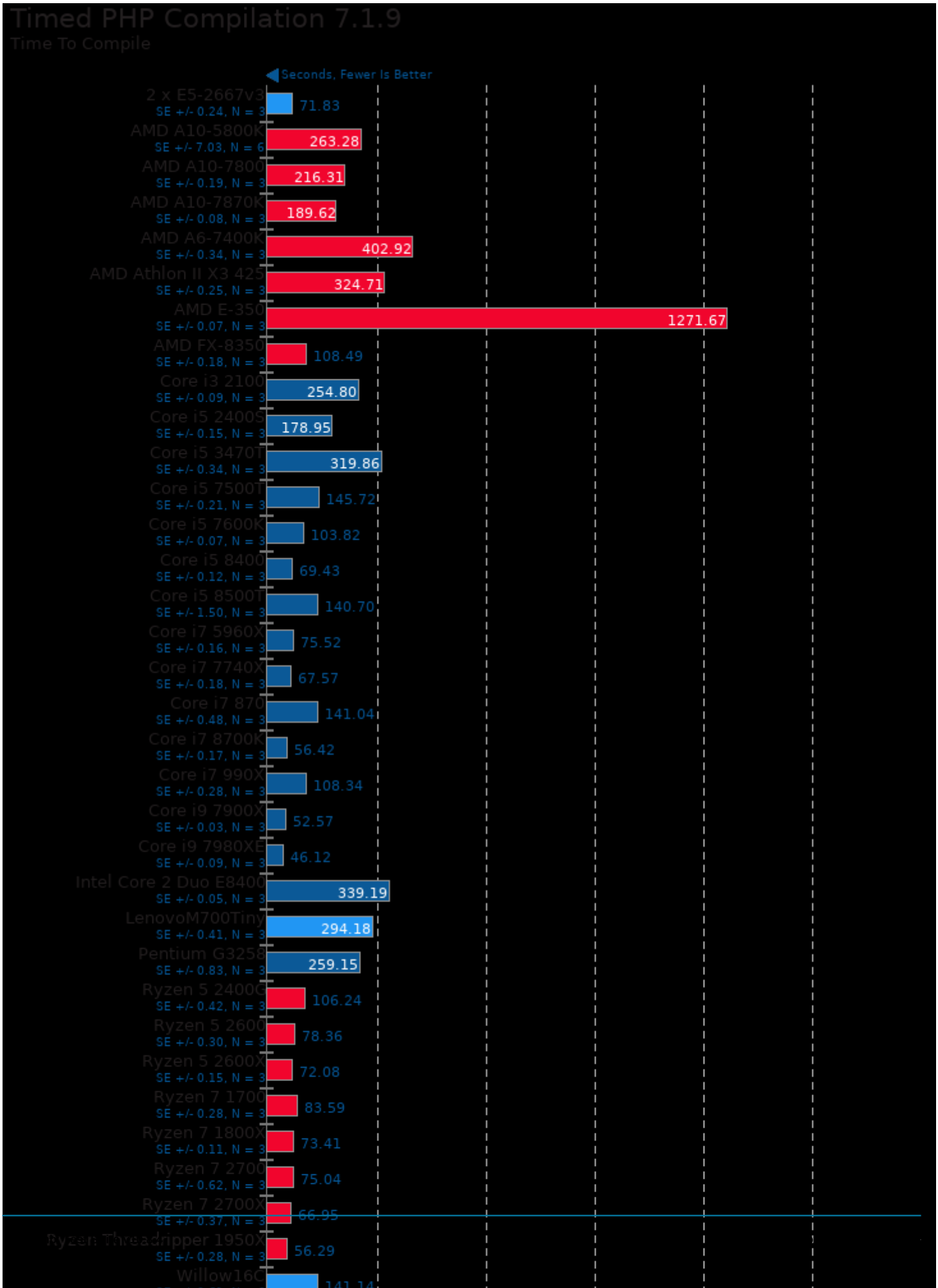

asmFish 2017-09-19
1024 Hash Memory, 26 Depth
Nodes/second, More Is Better
2 x E5-2667v3
SE +/- 35645.21, N = 3
40303759
AMD A10-5800K
SE +/- 31196.05, N = 3
3706439
AMD A10-7800
SE +/- 75485.87, N = 3
5458760
AMD A10-7870K
SE +/- 53453.90, N = 3
6190767
AMD A6-7400K
SE +/- 35368.27, N = 3
2849304
AMD Athlon II X3 425
SE +/- 42852.22, N = 3
3787513
AMD E-350
SE +/- 10544.91, N = 3
1108041
AMD FX-8350
SE +/- 109295.47, N = 3
11736634
Core i3 2100
SE +/- 36398.93, N = 3
4761682
Core i5 2400S
SE +/- 13255.17, N = 3
6626047
Core i5 3470T
SE +/- 38305.75, N = 3
4535467
Core i5 7500T
SE +/- 73983.78, N = 3
7983701
Core i5 7600K
SE +/- 52643.16, N = 3
10388221
Core i5 8400
SE +/- 87164.66, N = 3
15916013
Core i5 8500T
SE +/- 76598.89, N = 3
12550297
Core i7 5960X
SE +/- 36368.39, N = 3
21985123
Core i7 7740X
SE +/- 175525.92, N = 3
16079897
Core i7 870
SE +/- 47715.42, N = 3
9030922
Core i7 8700K
SE +/- 44712.90, N = 3
22738391
Core i7 990X
SE +/- 158812.05, N = 3
15898292
Core i9 7900X
SE +/- 204458.67, N = 3
33663064
Core i9 7980XE
SE +/- 438182.12, N = 3
54787513
Intel Core 2 Duo E8400
SE +/- 32824.68, N = 3
3259778
LenovoM700Tiny
SE +/- 15355.24, N = 3
4432795
Pentium G3258
SE +/- 13508.67, N = 3
3777194
Ryzen 5 2400G
SE +/- 72921.11, N = 3
12449175
Ryzen 5 2600
SE +/- 134543.75, N = 3
18328309
Ryzen 5 2600X
SE +/- 281957.13, N = 3
20204470
Ryzen 7 1700
SE +/- 105473.21, N = 3
21061855
Ryzen 7 1800X
SE +/- 291961.04, N = 3
23946265
Ryzen 7 2700
SE +/- 242573.05, N = 3
22677693
Ryzen 7 2700X
SE +/- 253746.33, N = 3
25792992
Ryzen Threadripper 1950X
SE +/- 97450.82, N = 3
42412948
Willow16C
20727985

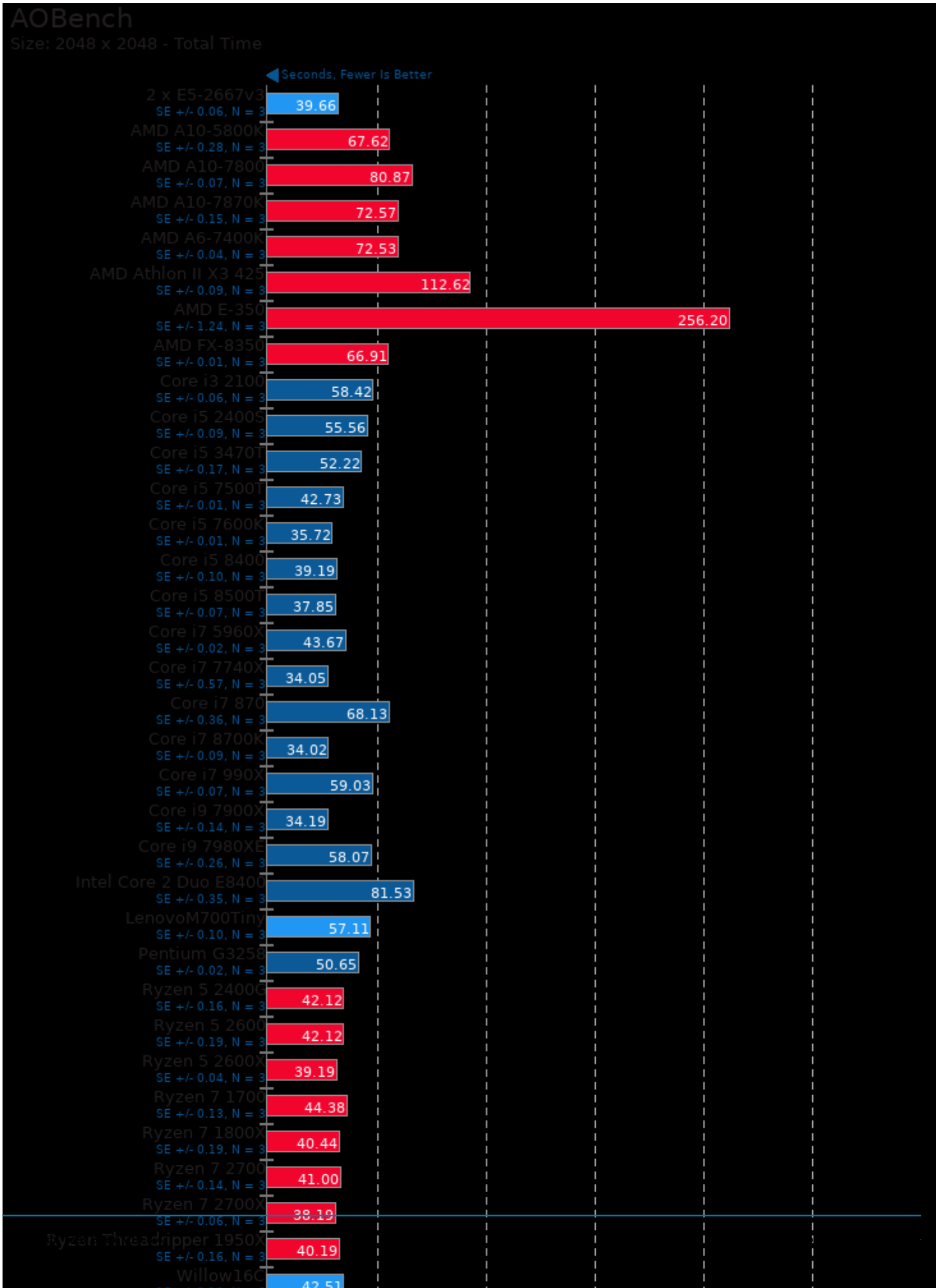

OpenSSL 1.1.0f
RSA 4096-bit Performance
Signs Per Second, More Is Better
AMD A10-5800K
SE +/- 10.97, N = 6
266.55
AMD A10-7800
SE +/- 1.88, N = 3
300.43
AMD A10-7870K
SE +/- 2.42, N = 3
338.53
AMD A6-7400K
SE +/- 1.27, N = 3
170.03
AMD Athlon II X3 425
SE +/- 0.12, N = 3
232.80
AMD E-350
SE +/- 0.10, N = 3
62.70
AMD FX-8350
SE +/- 0.35, N = 3
705.73
Core i3 2100
SE +/- 0.07, N = 3
235.47
Core i5 2400S
SE +/- 0.10, N = 3
359.20
Core i5 3470T
SE +/- 0.40, N = 3
254.00
Core i5 7600K
SE +/- 15.07, N = 3
1147.03
Core i5 8400
SE +/- 25.37, N = 3
1644.63
Core i5 8500T
SE +/- 10.58, N = 3
1160.47
Core i7 5960X
SE +/- 0.39, N = 3
1202.83
Core i7 7740X
SE +/- 1.64, N = 3
1366.57
Core i7 870
SE +/- 1.97, N = 3
305.07
Core i7 8700K
SE +/- 0.46, N = 3
1979.90
Core i7 990X
SE +/- 0.00, N = 3
526.20
Core i9 7900X
SE +/- 9.10, N = 3
3036.83
Core i9 7980XE
SE +/- 9.45, N = 3
4689.40
Intel Core 2 Duo E8400
SE +/- 0.06, N = 3
125.80
Pentium G3258
SE +/- 1.46, N = 3
286.00
Ryzen 5 2400G
SE +/- 0.82, N = 3
812.17
Ryzen 5 2600
SE +/- 0.21, N = 3
1164.30
Ryzen 5 2600X
SE +/- 2.17, N = 3
1299.73
Ryzen 7 1700
SE +/- 0.13, N = 3
1381.53
Ryzen 7 1800X
SE +/- 0.35, N = 3
1595.03
Ryzen 7 2700
SE +/- 2.29, N = 3
1473.10
Ryzen 7 2700X
SE +/- 0.18, N = 3
1725.03
Ryzen Threadripper 1950X
SE +/- 1.34, N = 3
3000.23
Willow16C
SE +/- 56.99, N = 12
1391.63
Willow6C
SE +/- 2.46, N = 3
794.37
i5 3470T 10GB
SE +/- 0.09, N = 3
273.27
i5 3470T 8GB RAM
221.10

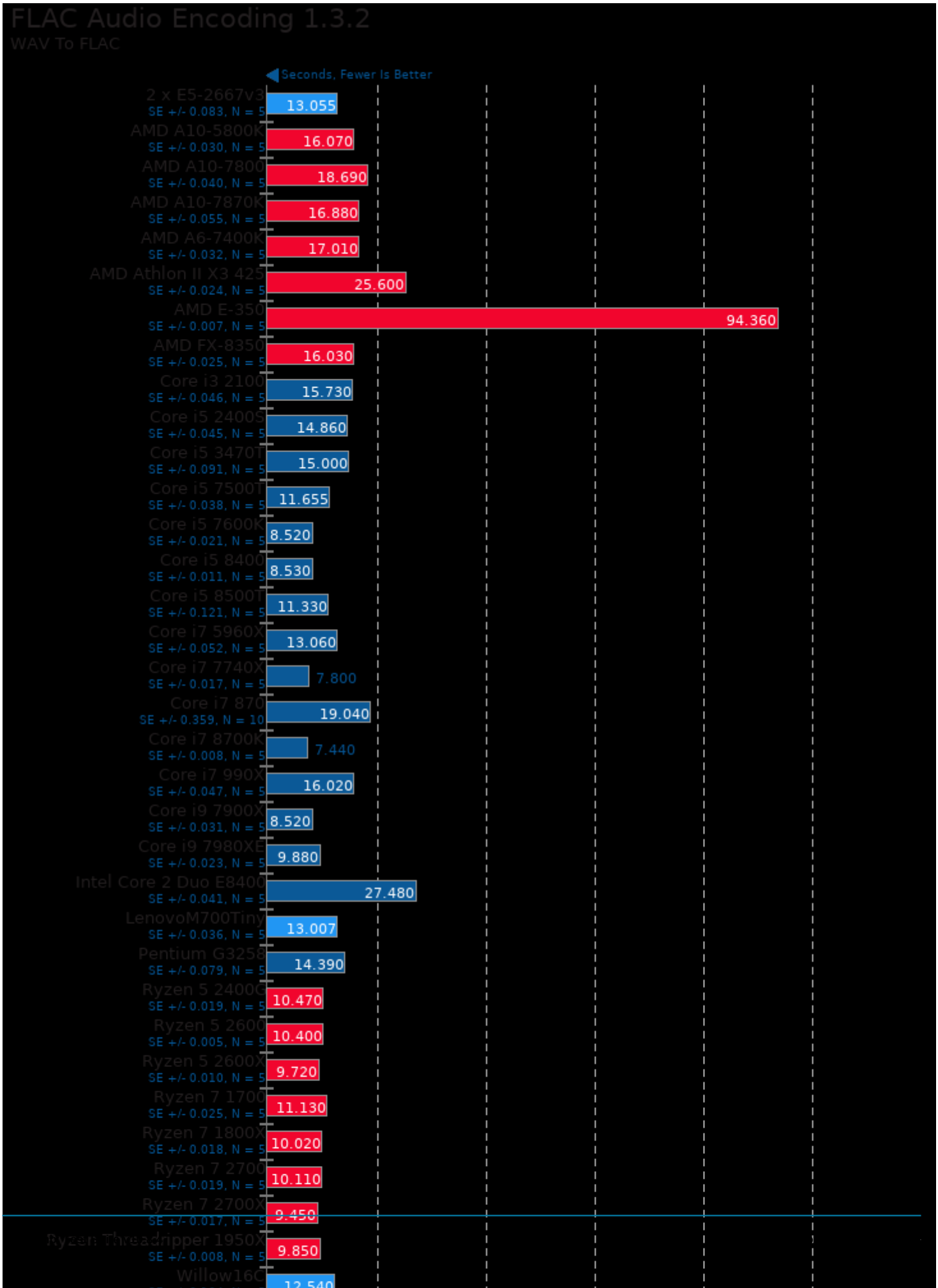

7-Zip Compression 16.02
Compress Speed Test
MIPS, More Is Better
2 x E5-2667v3
SE +/- 271.98, N = 3
67837
AMD A10-5800K
SE +/- 125.33, N = 6
8859
AMD A10-7800
SE +/- 80.08, N = 3
10182
AMD A10-7870K
SE +/- 60.00, N = 3
11643
AMD A6-7400K
SE +/- 6.06, N = 3
4844
AMD Athlon II X3 425
SE +/- 19.36, N = 3
4496
AMD FX-8350
SE +/- 69.97, N = 3
22402
Core i3 2100
8594
Core i5 2400S
SE +/- 8.14, N = 3
10608
Core i5 3470T
SE +/- 55.25, N = 3
9341
Core i5 7500T
SE +/- 16.17, N = 3
13645
Core i5 7600K
SE +/- 17.70, N = 3
17439
Core i5 8400
SE +/- 29.37, N = 3
27837
Core i5 8500T
SE +/- 74.50, N = 3
20369
Core i7 5960X
SE +/- 190.47, N = 3
37203
Core i7 7740X
SE +/- 397.32, N = 3
29622
Core i7 870
SE +/- 172.71, N = 3
16493
Core i7 8700K
SE +/- 231.52, N = 3
40879
Core i7 990X
SE +/- 250.57, N = 3
25253
Core i9 7900X
SE +/- 144.10, N = 3
61898
Core i9 7980XE
SE +/- 62.59, N = 3
93390
Intel Core 2 Duo E8400
SE +/- 2.85, N = 3
5555
LenovoM700Tiny
SE +/- 90.79, N = 4
7503
Pentium G3258
SE +/- 61.54, N = 3
6875
Ryzen 5 2400G
SE +/- 81.56, N = 3
19188
Ryzen 5 2600
SE +/- 46.82, N = 3
31313
Ryzen 5 2600X
SE +/- 119.09, N = 3
33510
Ryzen 7 1700
SE +/- 93.20, N = 3
33754
Ryzen 7 1800X
SE +/- 15.38, N = 3
37515
Ryzen 7 2700
SE +/- 259.86, N = 3
37267
Ryzen 7 2700X
SE +/- 114.10, N = 3
40374
Ryzen Threadripper 1950X
SE +/- 134.23, N = 3
73859
Willow16C
SE +/- 196.48, N = 3
37305
Willow6C
19174

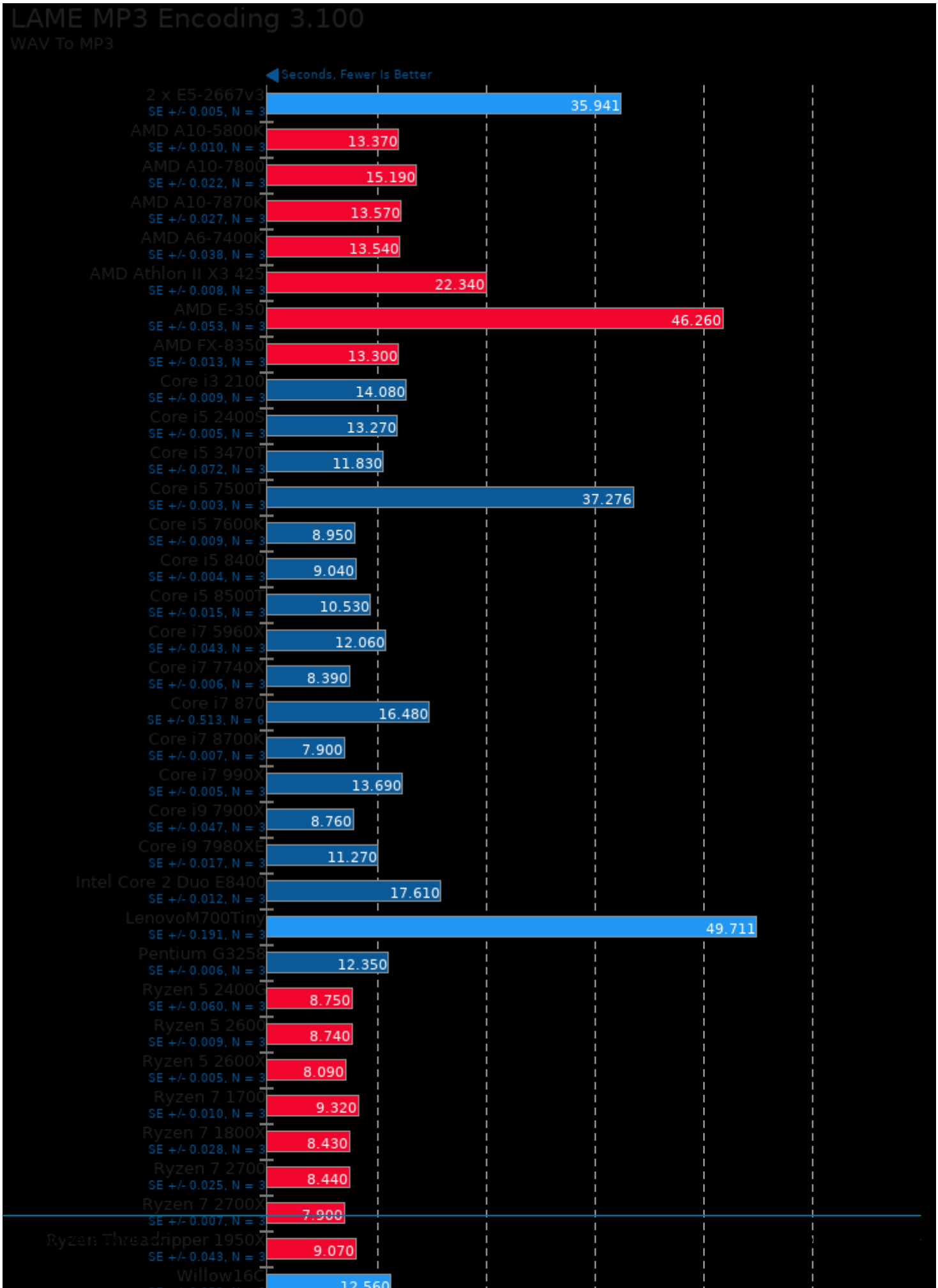

Fhourstones 3.1
Complex Connect-4 Solving
Kpos / sec, More Is Better
2 x E5-2667v3
SE +/- 31.75, N = 3
10261.0
AMD A10-5800K
SE +/- 12.35, N = 3
9614.0
AMD A10-7800
SE +/- 7.00, N = 3
8087.0
AMD A10-7870K
SE +/- 8.16, N = 3
9214.0
AMD A6-7400K
SE +/- 28.31, N = 3
8727.0
AMD Athlon II X3 425
SE +/- 2.78, N = 3
7061.0
AMD E-350
SE +/- 1.73, N = 3
3373.0
AMD FX-8350
SE +/- 8.24, N = 3
10245.0
Core i3 2100
SE +/- 21.16, N = 3
9203.0
Core i5 2400S
SE +/- 13.95, N = 3
10274.0
Core i5 3470T
SE +/- 28.07, N = 3
10410.0
Core i5 7500T
SE +/- 10.19, N = 3
10717.5
Core i5 7600K
SE +/- 7.35, N = 3
13619.0
Core i5 8400
SE +/- 69.18, N = 3
14366.0
Core i5 8500T
SE +/- 16.63, N = 3
11695.0
Core i7 5960X
SE +/- 11.90, N = 3
12068.0
Core i7 7740X
SE +/- 6.41, N = 3
15092.0
Core i7 870
SE +/- 1.37, N = 3
8912.0
Core i7 8700K
SE +/- 41.51, N = 3
16130.0
Core i7 990X
SE +/- 6.03, N = 3
9621.0
Core i9 7900X
SE +/- 10.54, N = 3
14408.0
Core i9 7980XE
SE +/- 9.20, N = 3
14701.0
Intel Core 2 Duo E8400
SE +/- 8.83, N = 3
7940.0
LenovoM700Tiny
SE +/- 17.46, N = 3
8392.1
Pentium G3258
SE +/- 2.74, N = 3
9839.0
Ryzen 5 2400G
SE +/- 40.59, N = 3
12793.0
Ryzen 5 2600
SE +/- 18.25, N = 3
13083.0
Ryzen 5 2600X
SE +/- 26.09, N = 3
13836.0
Ryzen 7 1700
SE +/- 13.71, N = 3
11796.0
Ryzen 7 1800X
SE +/- 28.37, N = 3
13051.0
Ryzen 7 2700
SE +/- 12.66, N = 3
13342.0
Ryzen 7 2700X
SE +/- 42.90, N = 3
14053.0
Ryzen Threadripper 1950X
SE +/- 44.50, N = 3
11926.0
Willow16C
9768.0

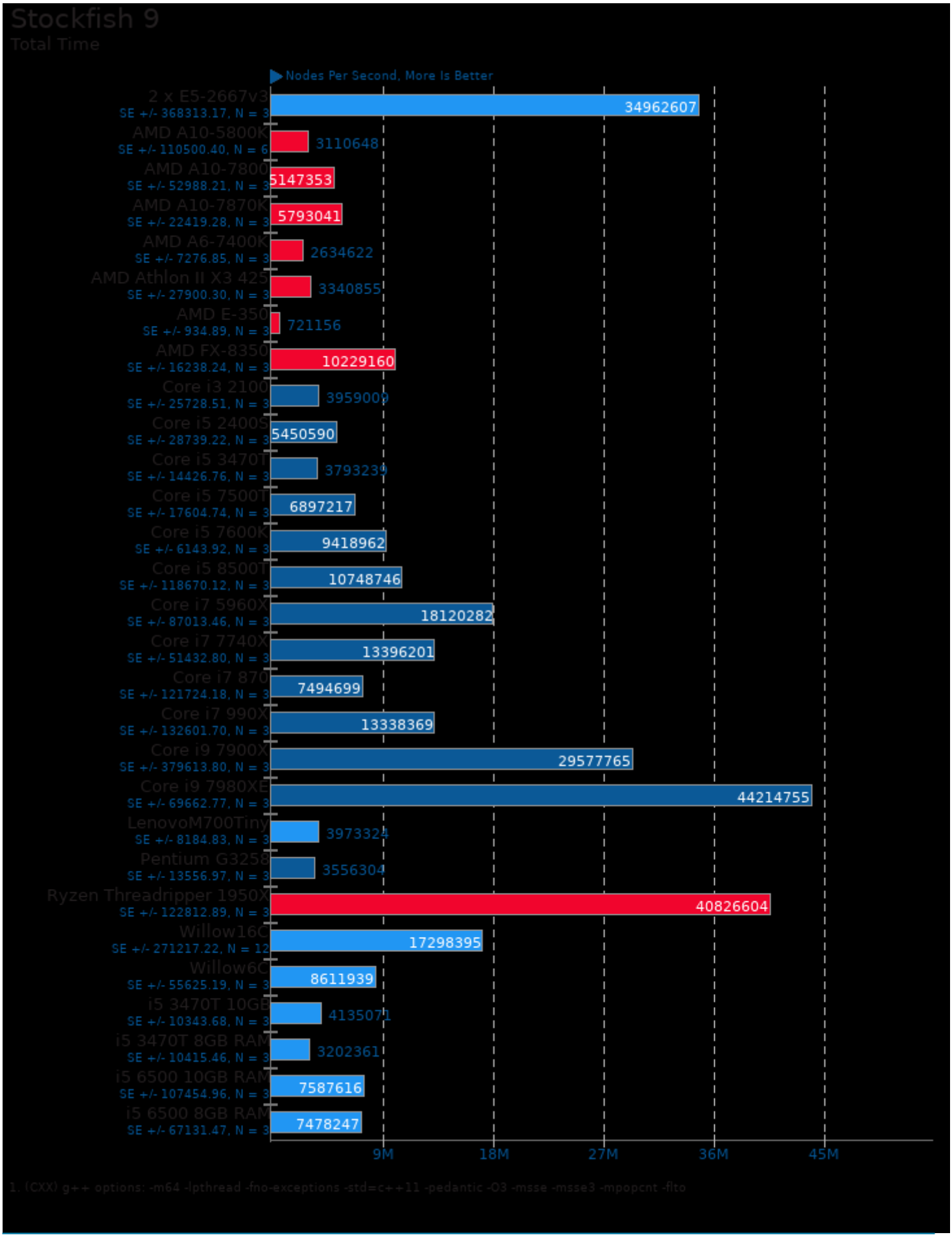

TSCP 1.81
AI Chess Performance
Nodes Per Second, More Is Better
2 x E5-2667v3
SE +/- 1481.44, N = 5
1165922
AMD A10-5800K
SE +/- 221.43, N = 5
705583
AMD A10-7800
SE +/- 301.36, N = 5
665834
AMD A10-7870K
SE +/- 900.69, N = 5
745306
AMD A6-7400K
SE +/- 509.45, N = 5
741690
AMD Athlon II X3 425
SE +/- 879.21, N = 5
546087
AMD E-350
SE +/- 109.83, N = 5
322243
AMD FX-8350
SE +/- 467.11, N = 5
710132
Core i3 2100
874250
Core i5 2400S
SE +/- 312.80, N = 5
927548
Core i5 3470T
SE +/- 7407.83, N = 5
937573
Core i5 7500T
SE +/- 616.95, N = 5
953234
Core i5 7600K
SE +/- 1669.82, N = 5
1370784
Core i5 8400
SE +/- 738.28, N = 5
1288070
Core i5 8500T
SE +/- 719.90, N = 5
1029108
Core i7 5960X
SE +/- 791.84, N = 5
1174368
Core i7 7740X
SE +/- 1458.29, N = 5
1465620
Core i7 870
SE +/- 2871.21, N = 5
691112
Core i7 8700K
SE +/- 1971.10, N = 5
1489404
Core i7 990X
SE +/- 1293.50, N = 5
771622
Core i9 7900X
SE +/- 1618.55, N = 5
1494250
Core i9 7980XE
SE +/- 2305.49, N = 5
1368748
Intel Core 2 Duo E8400
SE +/- 540.39, N = 5
584940
LenovoM700Tiny
SE +/- 2535.78, N = 5
804087
Pentium G3258
SE +/- 525.91, N = 5
1087635
Ryzen 5 2400G
SE +/- 784.40, N = 5
1038030
Ryzen 5 2600
SE +/- 1787.78, N = 5
1032204
Ryzen 5 2600X
SE +/- 2173.39, N = 5
1124053
Ryzen 7 1700
SE +/- 3031.63, N = 5
975902
Ryzen 7 1800X
SE +/- 1675.50, N = 5
1074070
Ryzen 7 2700
SE +/- 664.40, N = 5
1075740
Ryzen 7 2700X
SE +/- 1082.48, N = 5
1154674
Ryzen Threadripper 1950X
SE +/- 1642.39, N = 5
1100685
Willow16C
1050282

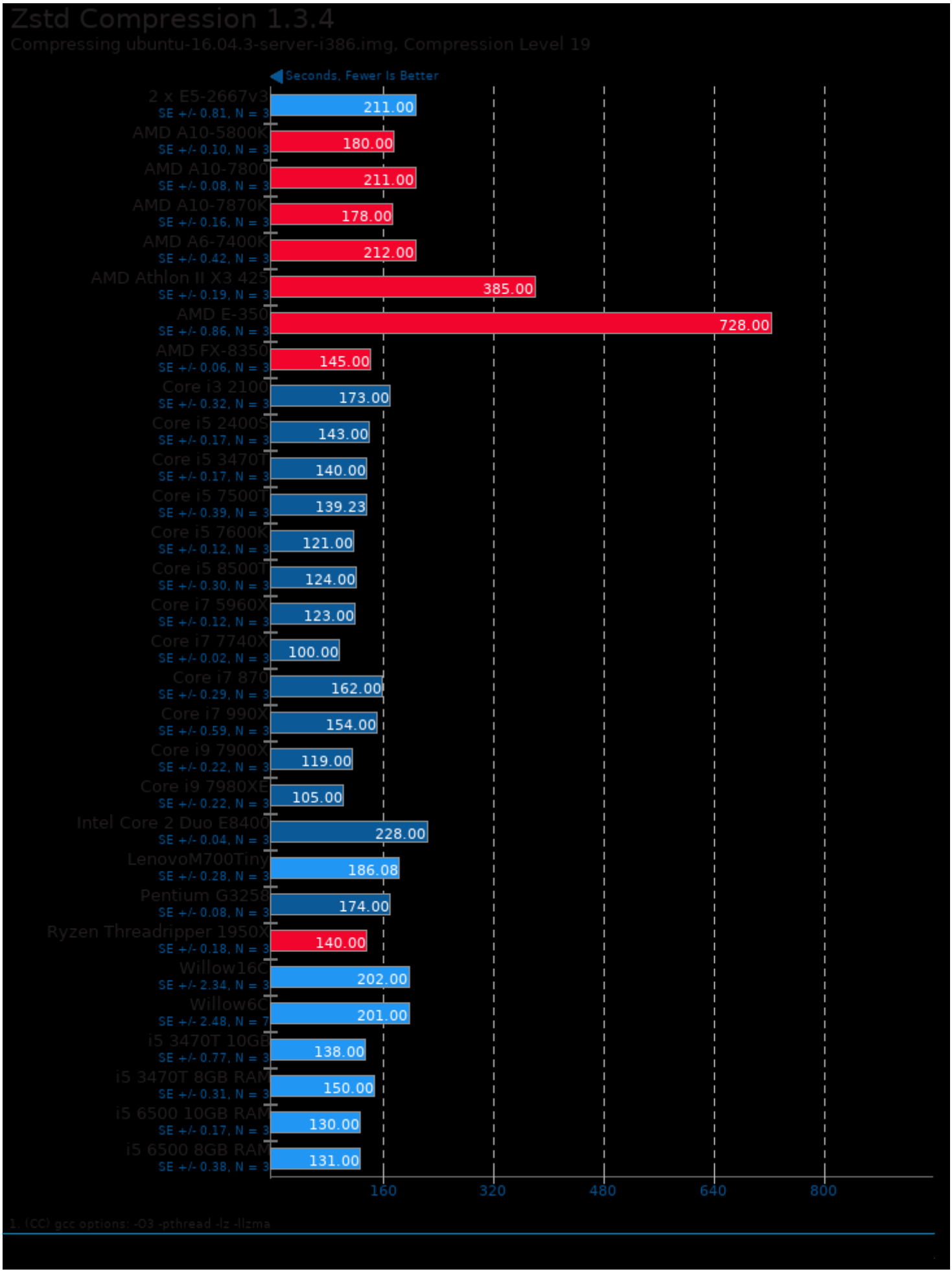

Timed PHP Compilation 7.1.9
Time To Compile
Seconds, Fewer Is Better
2 x E5-2667v3
SE +/- 0.24, N = 3
71.83
AMD A10-5800K
SE +/- 7.03, N = 6
263.28
AMD A10-7800
SE +/- 0.19, N = 3
216.31
AMD A10-7870K
SE +/- 0.08, N = 3
189.62
AMD A6-7400K
SE +/- 0.34, N = 3
402.92
AMD Athlon II X3 425
SE +/- 0.25, N = 3
324.71
AMD E-350
SE +/- 0.07, N = 3
1271.67
AMD FX-8350
SE +/- 0.18, N = 3
108.49
Core i3 2100
SE +/- 0.09, N = 3
254.80
Core i5 2400S
SE +/- 0.15, N = 3
178.95
Core i5 3470T
SE +/- 0.34, N = 3
319.86
Core i5 7500T
SE +/- 0.21, N = 3
145.72
Core i5 7600K
SE +/- 0.07, N = 3
103.82
Core i5 8400
SE +/- 0.12, N = 3
69.43
Core i5 8500T
SE +/- 1.50, N = 3
140.70
Core i7 5960X
SE +/- 0.16, N = 3
75.52
Core i7 7740X
SE +/- 0.18, N = 3
67.57
Core i7 870
SE +/- 0.48, N = 3
141.04
Core i7 8700K
SE +/- 0.17, N = 3
56.42
Core i7 990X
SE +/- 0.28, N = 3
108.34
Core i9 7900X
SE +/- 0.03, N = 3
52.57
Core i9 7980XE
SE +/- 0.09, N = 3
46.12
Intel Core 2 Duo E8400
SE +/- 0.05, N = 3
339.19
LenovoM700Tiny
SE +/- 0.41, N = 3
294.18
Pentium G3258
SE +/- 0.83, N = 3
259.15
Ryzen 5 2400G
SE +/- 0.42, N = 3
106.24
Ryzen 5 2600
SE +/- 0.30, N = 3
78.36
Ryzen 5 2600X
SE +/- 0.15, N = 3
72.08
Ryzen 7 1700
SE +/- 0.28, N = 3
83.59
Ryzen 7 1800X
SE +/- 0.11, N = 3
73.41
Ryzen 7 2700
SE +/- 0.62, N = 3
75.04
Ryzen 7 2700X
SE +/- 0.37, N = 3
66.95
Ryzen Threadripper 1950X
SE +/- 0.28, N = 3
56.29
Willow16C
141.14

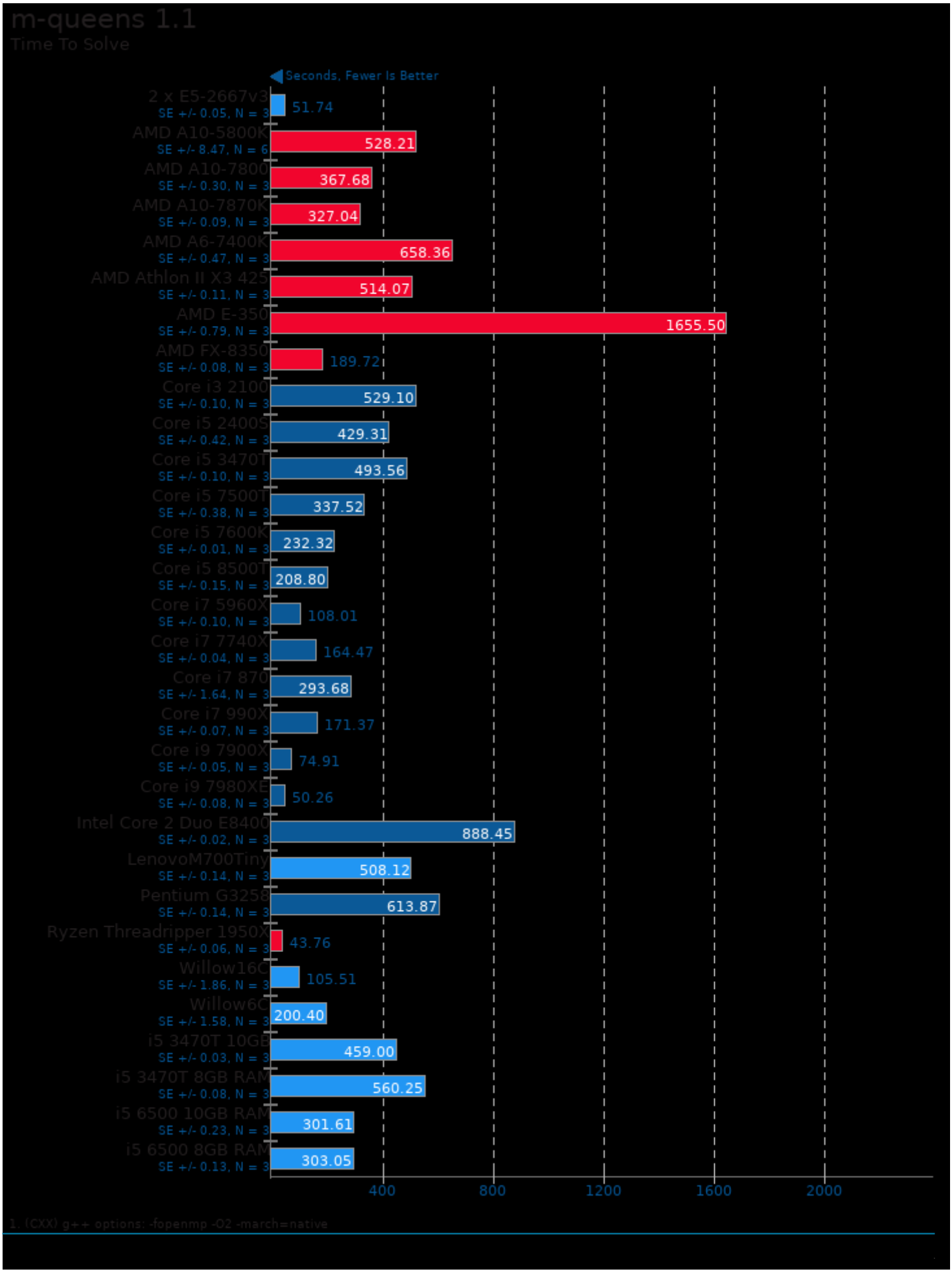

AOBench
Size: 2048 x 2048 - Total Time
Seconds, Fewer Is Better
2 x E5-2667v3
SE +/- 0.06, N = 3
39.66
AMD A10-5800K
SE +/- 0.28, N = 3
67.62
AMD A10-7800
SE +/- 0.07, N = 3
80.87
AMD A10-7870K
SE +/- 0.15, N = 3
72.57
AMD A6-7400K
SE +/- 0.04, N = 3
72.53
AMD Athlon II X3 425
SE +/- 0.09, N = 3
112.62
AMD E-350
SE +/- 1.24, N = 3
256.20
AMD FX-8350
SE +/- 0.01, N = 3
66.91
Core i3 2100
SE +/- 0.06, N = 3
58.42
Core i5 2400S
SE +/- 0.09, N = 3
55.56
Core i5 3470T
SE +/- 0.17, N = 3
52.22
Core i5 7500T
SE +/- 0.01, N = 3
42.73
Core i5 7600K
SE +/- 0.01, N = 3
35.72
Core i5 8400
SE +/- 0.10, N = 3
39.19
Core i5 8500T
SE +/- 0.07, N = 3
37.85
Core i7 5960X
SE +/- 0.02, N = 3
43.67
Core i7 7740X
SE +/- 0.57, N = 3
34.05
Core i7 870
SE +/- 0.36, N = 3
68.13
Core i7 8700K
SE +/- 0.09, N = 3
34.02
Core i7 990X
SE +/- 0.07, N = 3
59.03
Core i9 7900X
SE +/- 0.14, N = 3
34.19
Core i9 7980XE
SE +/- 0.26, N = 3
58.07
Intel Core 2 Duo E8400
SE +/- 0.35, N = 3
81.53
LenovoM700Tiny
SE +/- 0.10, N = 3
57.11
Pentium G3258
SE +/- 0.02, N = 3
50.65
Ryzen 5 2400G
SE +/- 0.16, N = 3
42.12
Ryzen 5 2600
SE +/- 0.19, N = 3
42.12
Ryzen 5 2600X
SE +/- 0.04, N = 3
39.19
Ryzen 7 1700
SE +/- 0.13, N = 3
44.38
Ryzen 7 1800X
SE +/- 0.19, N = 3
40.44
Ryzen 7 2700
SE +/- 0.14, N = 3
41.00
Ryzen 7 2700X
SE +/- 0.06, N = 3
38.19
Ryzen Threadripper 1950X
SE +/- 0.16, N = 3
40.19
Willow16C
42.51

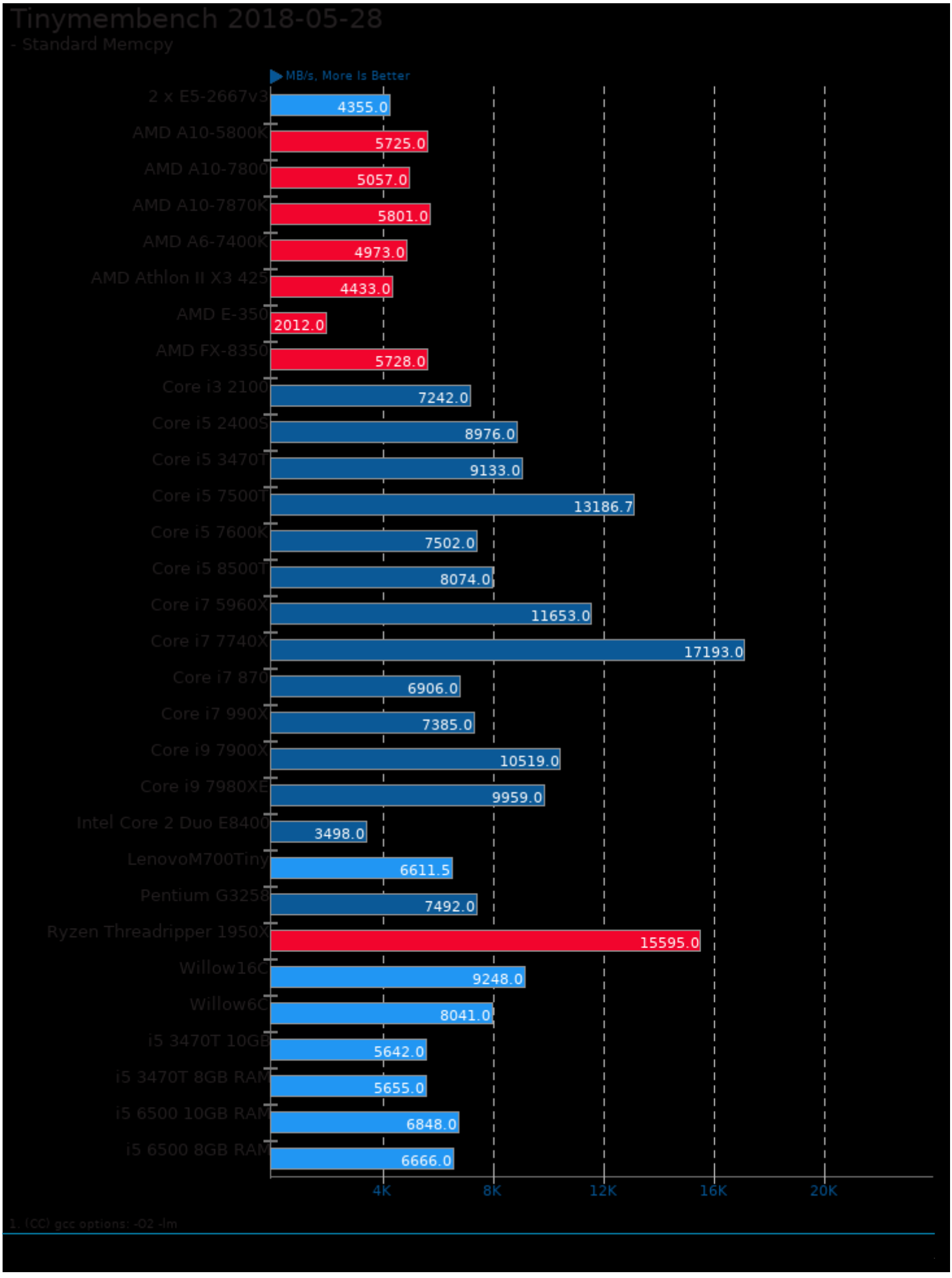

FLAC Audio Encoding 1.3.2
WAV To FLAC
Seconds, Fewer Is Better
2 x E5-2667v3
SE +/- 0.083, N = 5
13.055
AMD A10-5800K
SE +/- 0.030, N = 5
16.070
AMD A10-7800
SE +/- 0.040, N = 5
18.690
AMD A10-7870K
SE +/- 0.055, N = 5
16.880
AMD A6-7400K
SE +/- 0.032, N = 5
17.010
AMD Athlon II X3 425
SE +/- 0.024, N = 5
25.600
AMD E-350
SE +/- 0.007, N = 5
94.360
AMD FX-8350
SE +/- 0.025, N = 5
16.030
Core i3 2100
SE +/- 0.046, N = 5
15.730
Core i5 2400S
SE +/- 0.045, N = 5
14.860
Core i5 3470T
SE +/- 0.091, N = 5
15.000
Core i5 7500T
SE +/- 0.038, N = 5
11.655
Core i5 7600K
SE +/- 0.021, N = 5
8.520
Core i5 8400
SE +/- 0.011, N = 5
8.530
Core i5 8500T
SE +/- 0.121, N = 5
11.330
Core i7 5960X
SE +/- 0.052, N = 5
13.060
Core i7 7740X
SE +/- 0.017, N = 5
7.800
Core i7 870
SE +/- 0.359, N = 10
19.040
Core i7 8700K
SE +/- 0.008, N = 5
7.440
Core i7 990X
SE +/- 0.047, N = 5
16.020
Core i9 7900X
SE +/- 0.031, N = 5
8.520
Core i9 7980XE
SE +/- 0.023, N = 5
9.880
Intel Core 2 Duo E8400
SE +/- 0.041, N = 5
27.480
LenovoM700Tiny
SE +/- 0.036, N = 5
13.007
Pentium G3258
SE +/- 0.079, N = 5
14.390
Ryzen 5 2400G
SE +/- 0.019, N = 5
10.470
Ryzen 5 2600
SE +/- 0.005, N = 5
10.400
Ryzen 5 2600X
SE +/- 0.010, N = 5
9.720
Ryzen 7 1700
SE +/- 0.025, N = 5
11.130
Ryzen 7 1800X
SE +/- 0.018, N = 5
10.020
Ryzen 7 2700
SE +/- 0.019, N = 5
10.110
Ryzen 7 2700X
SE +/- 0.017, N = 5
9.450
Ryzen Threadripper 1950X
SE +/- 0.008, N = 5
9.850
Willow16C
12.540

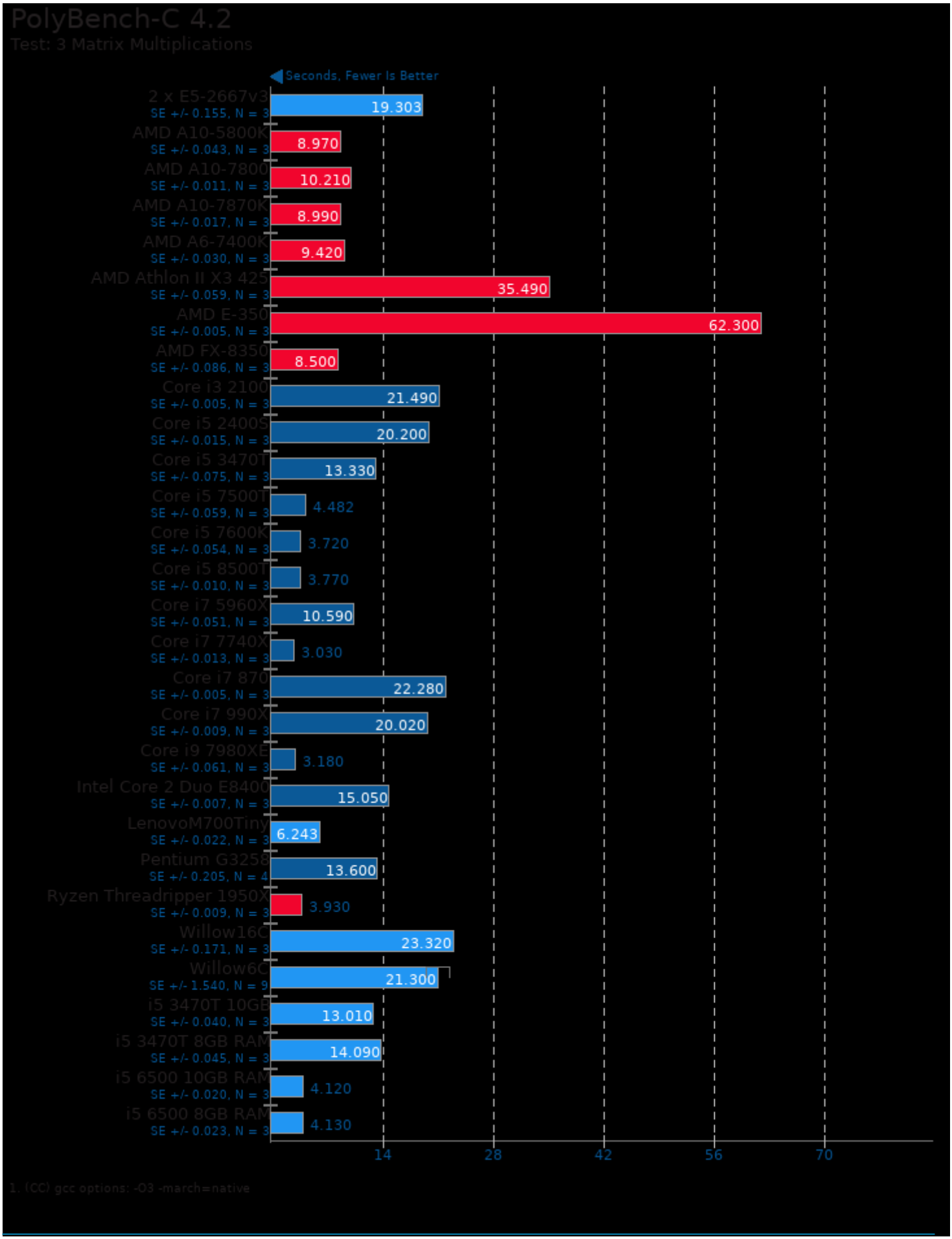

LAME MP3 Encoding 3.100
WAV To MP3
Seconds, Fewer Is Better
2 x E5-2667v3
SE +/- 0.005, N = 3
35.941
AMD A10-5800K
SE +/- 0.010, N = 3
13.370
AMD A10-7800
SE +/- 0.022, N = 3
15.190
AMD A10-7870K
SE +/- 0.027, N = 3
13.570
AMD A6-7400K
SE +/- 0.038, N = 3
13.540
AMD Athlon II X3 425
SE +/- 0.008, N = 3
22.340
AMD E-350
SE +/- 0.053, N = 3
46.260
AMD FX-8350
SE +/- 0.013, N = 3
13.300
Core i3 2100
SE +/- 0.009, N = 3
14.080
Core i5 2400S
SE +/- 0.005, N = 3
13.270
Core i5 3470T
SE +/- 0.072, N = 3
11.830
Core i5 7500T
SE +/- 0.003, N = 3
37.276
Core i5 7600K
SE +/- 0.009, N = 3
8.950
Core i5 8400
SE +/- 0.004, N = 3
9.040
Core i5 8500T
SE +/- 0.015, N = 3
10.530
Core i7 5960X
SE +/- 0.043, N = 3
12.060
Core i7 7740X
SE +/- 0.006, N = 3
8.390
Core i7 870
SE +/- 0.513, N = 6
16.480
Core i7 8700K
SE +/- 0.007, N = 3
7.900
Core i7 990X
SE +/- 0.005, N = 3
13.690
Core i9 7900X
SE +/- 0.047, N = 3
8.760
Core i9 7980XE
SE +/- 0.017, N = 3
11.270
Intel Core 2 Duo E8400
SE +/- 0.012, N = 3
17.610
LenovoM700Tiny
SE +/- 0.191, N = 3
49.711
Pentium G3258
SE +/- 0.006, N = 3
12.350
Ryzen 5 2400G
SE +/- 0.060, N = 3
8.750
Ryzen 5 2600
SE +/- 0.009, N = 3
8.740
Ryzen 5 2600X
SE +/- 0.005, N = 3
8.090
Ryzen 7 1700
SE +/- 0.010, N = 3
9.320
Ryzen 7 1800X
SE +/- 0.028, N = 3
8.430
Ryzen 7 2700
SE +/- 0.025, N = 3
8.440
Ryzen 7 2700X
SE +/- 0.007, N = 3
7.900
Ryzen Threadripper 1950X
SE +/- 0.043, N = 3
9.070
Willow16C
12.560

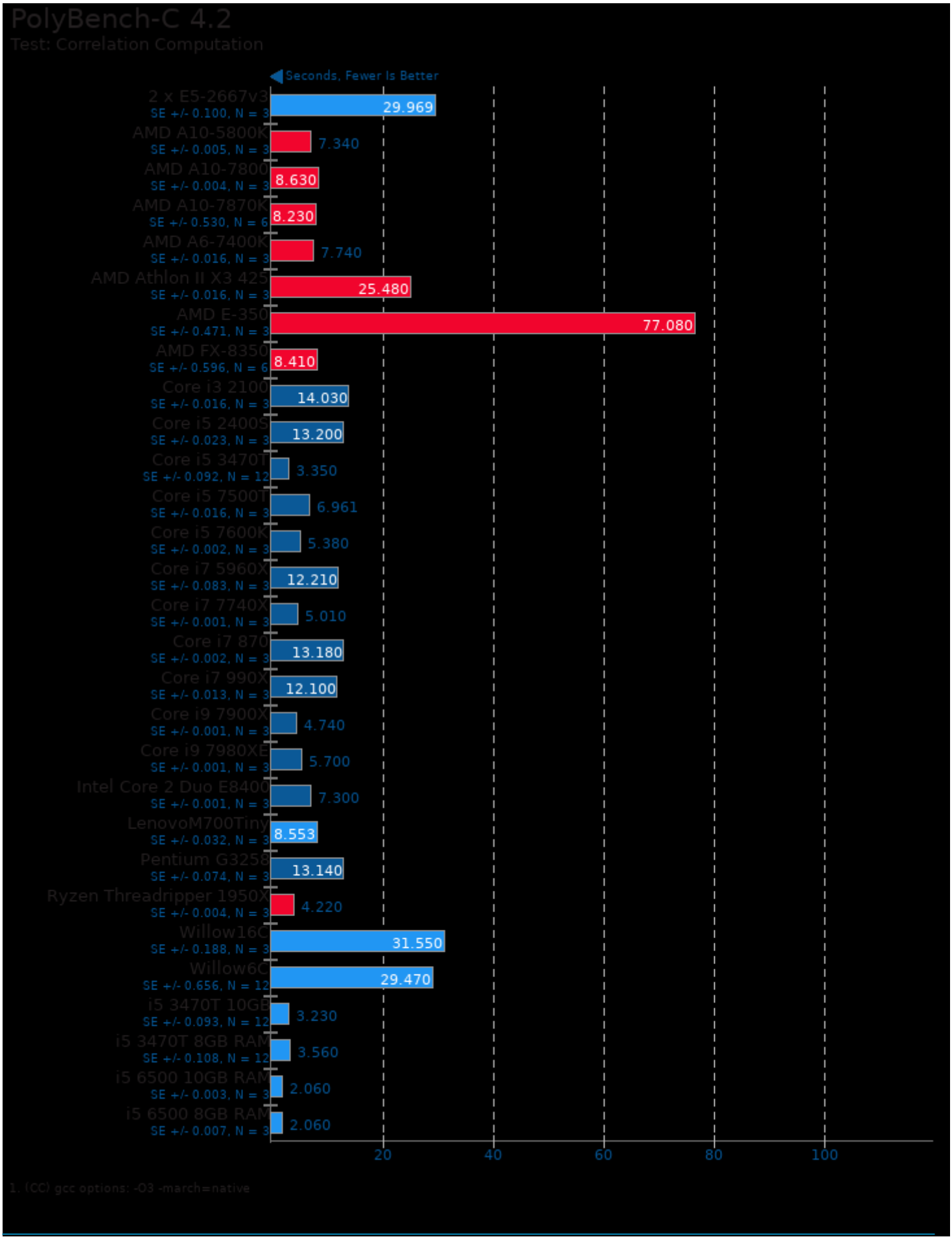

Stockfish 9
Total Time
Nodes Per Second, More Is Better
2 x E5-2667v3
SE +/- 368313.17, N = 3
34962607
AMD A10-5800K
SE +/- 110500.40, N = 6
3110648
AMD A10-7800
SE +/- 52988.21, N = 3
5147353
AMD A10-7870K
SE +/- 22419.28, N = 3
5793041
AMD A6-7400K
SE +/- 7276.85, N = 3
2634622
AMD Athlon II X3 425
SE +/- 27900.30, N = 3
3340855
AMD E-350
SE +/- 934.89, N = 3
721156
AMD FX-8350
SE +/- 16238.24, N = 3
10229160
Core i3 2100
SE +/- 25728.51, N = 3
3959009
Core i5 2400S
SE +/- 28739.22, N = 3
5450590
Core i5 3470T
SE +/- 14426.76, N = 3
3793239
Core i5 7500T
SE +/- 17604.74, N = 3
6897217
Core i5 7600K
SE +/- 6143.92, N = 3
9418962
Core i5 8500T
SE +/- 118670.12, N = 3
10748746
Core i7 5960X
SE +/- 87013.46, N = 3
18120282
Core i7 7740X
SE +/- 51432.80, N = 3
13396201
Core i7 870
SE +/- 121724.18, N = 3
7494699
Core i7 990X
SE +/- 132601.70, N = 3
13338369
Core i9 7900X
SE +/- 379613.80, N = 3
29577765
Core i9 7980XE
SE +/- 69662.77, N = 3
44214755
LenovoM700Tiny
SE +/- 8184.83, N = 3
3973324
Pentium G3258
SE +/- 13556.97, N = 3
3556304
Ryzen Threadripper 1950X
SE +/- 122812.89, N = 3
40826604
Willow16C
SE +/- 271217.22, N = 12
17298395
Willow6C
SE +/- 55625.19, N = 3
8611939
i5 3470T 10GB
SE +/- 10343.68, N = 3
4135071
i5 3470T 8GB RAM
SE +/- 10415.46, N = 3
3202361
i5 6500 10GB RAM
SE +/- 107454.96, N = 3
7587616
i5 6500 8GB RAM
SE +/- 67131.47, N = 3
7478247
9M
18M
27M
36M
45M
1. (CXX) g++ options: -m64 -lpthread -fno-exceptions -std=c++11 -pedantic -O3 -msse -msse3 -mpopcnt -flto

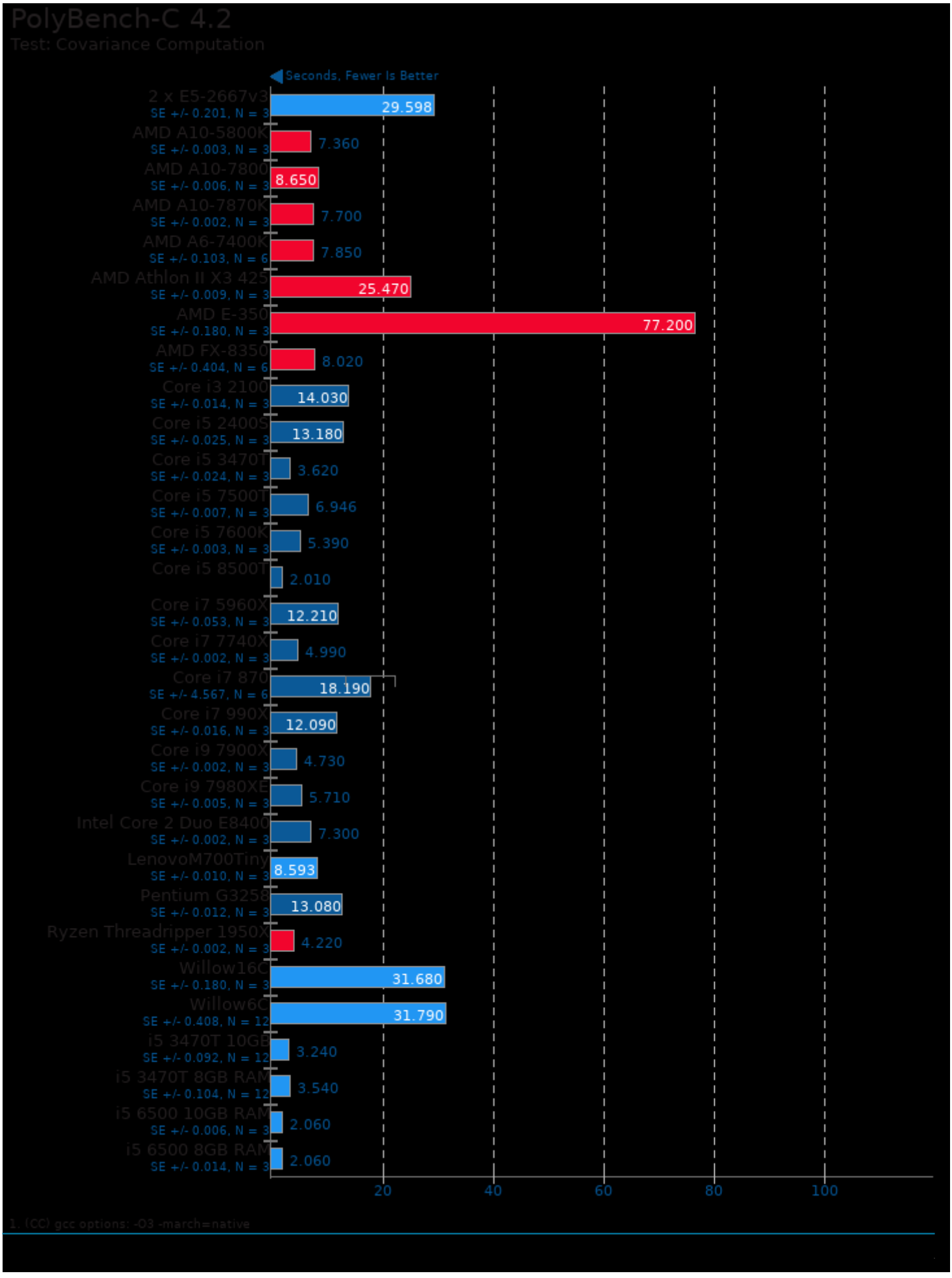

Zstd Compression 1.3.4
Compressing ubuntu-16.04.3-server-i386.img, Compression Level 19
Seconds, Fewer Is Better
2 x E5-2667v3
SE +/- 0.81, N = 3
211.00
AMD A10-5800K
SE +/- 0.10, N = 3
180.00
AMD A10-7800
SE +/- 0.08, N = 3
211.00
AMD A10-7870K
SE +/- 0.16, N = 3
178.00
AMD A6-7400K
SE +/- 0.42, N = 3
212.00
AMD Athlon II X3 425
SE +/- 0.19, N = 3
385.00
AMD E-350
SE +/- 0.86, N = 3
728.00
AMD FX-8350
SE +/- 0.06, N = 3
145.00
Core i3 2100
SE +/- 0.32, N = 3
173.00
Core i5 2400S
SE +/- 0.17, N = 3
143.00
Core i5 3470T
SE +/- 0.17, N = 3
140.00
Core i5 7500T
SE +/- 0.39, N = 3
139.23
Core i5 7600K
SE +/- 0.12, N = 3
121.00
Core i5 8500T
SE +/- 0.30, N = 3
124.00
Core i7 5960X
SE +/- 0.12, N = 3
123.00
Core i7 7740X
SE +/- 0.02, N = 3
100.00
Core i7 870
SE +/- 0.29, N = 3
162.00
Core i7 990X
SE +/- 0.59, N = 3
154.00
Core i9 7900X
SE +/- 0.22, N = 3
119.00
Core i9 7980XE
SE +/- 0.22, N = 3
105.00
Intel Core 2 Duo E8400
SE +/- 0.04, N = 3
228.00
LenovoM700Tiny
SE +/- 0.28, N = 3
186.08
Pentium G3258
SE +/- 0.08, N = 3
174.00
Ryzen Threadripper 1950X
SE +/- 0.18, N = 3
140.00
Willow16C
SE +/- 2.34, N = 3
202.00
Willow6C
SE +/- 2.48, N = 7
201.00
i5 3470T 10GB
SE +/- 0.77, N = 3
138.00
i5 3470T 8GB RAM
SE +/- 0.31, N = 3
150.00
i5 6500 10GB RAM
SE +/- 0.17, N = 3
130.00
i5 6500 8GB RAM
SE +/- 0.38, N = 3
131.00
160
320
480
640
800
1. (CC) gcc options: -O3 -pthread -lz -llzma

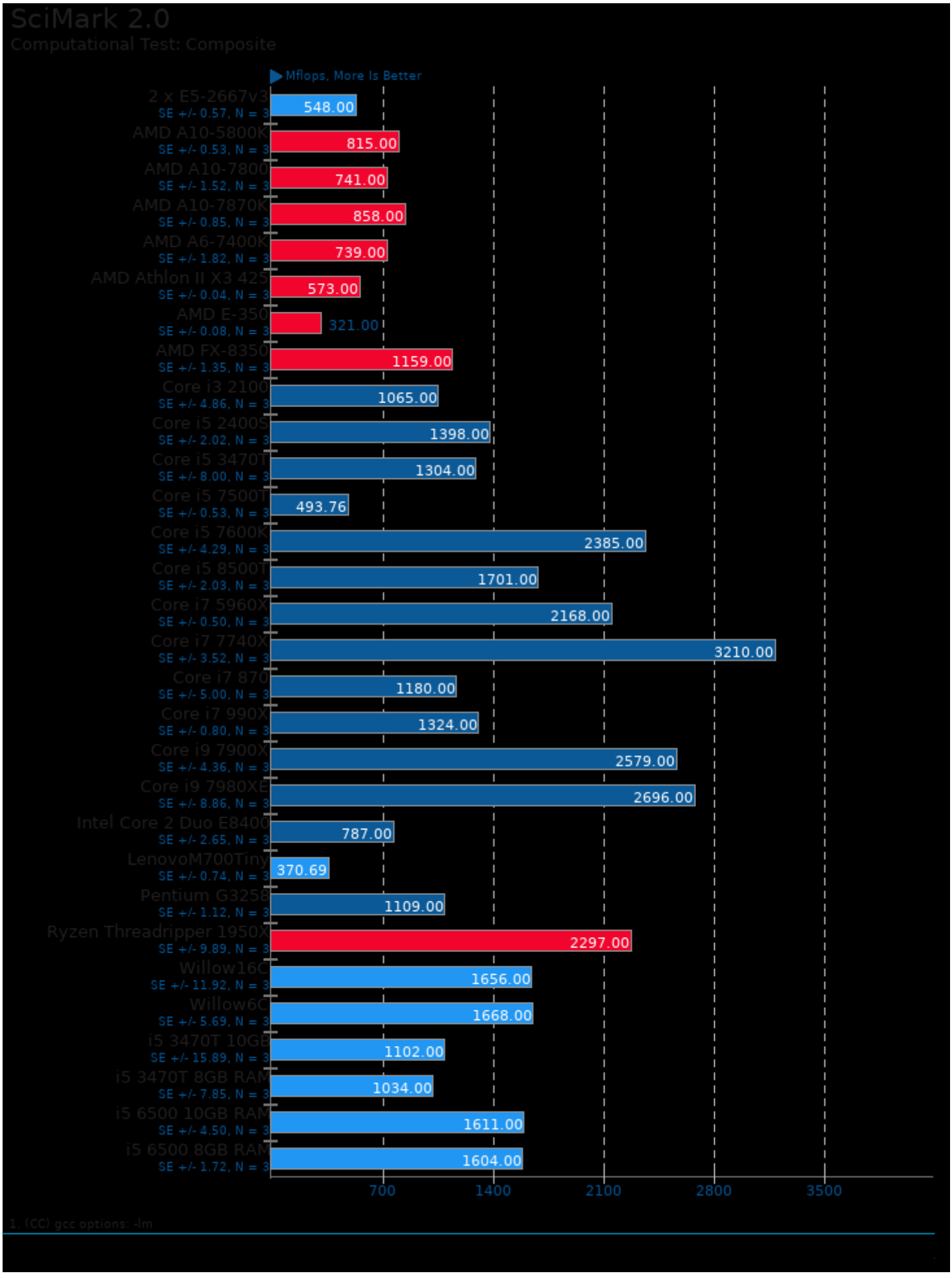

m-queens 1.1
Time To Solve
Seconds, Fewer Is Better
2 x E5-2667v3
SE +/- 0.05, N = 3
51.74
AMD A10-5800K
SE +/- 8.47, N = 6
528.21
AMD A10-7800
SE +/- 0.30, N = 3
367.68
AMD A10-7870K
SE +/- 0.09, N = 3
327.04
AMD A6-7400K
SE +/- 0.47, N = 3
658.36
AMD Athlon II X3 425
SE +/- 0.11, N = 3
514.07
AMD E-350
SE +/- 0.79, N = 3
1655.50
AMD FX-8350
SE +/- 0.08, N = 3
189.72
Core i3 2100
SE +/- 0.10, N = 3
529.10
Core i5 2400S
SE +/- 0.42, N = 3
429.31
Core i5 3470T
SE +/- 0.10, N = 3
493.56
Core i5 7500T
SE +/- 0.38, N = 3
337.52
Core i5 7600K
SE +/- 0.01, N = 3
232.32
Core i5 8500T
SE +/- 0.15, N = 3
208.80
Core i7 5960X
SE +/- 0.10, N = 3
108.01
Core i7 7740X
SE +/- 0.04, N = 3
164.47
Core i7 870
SE +/- 1.64, N = 3
293.68
Core i7 990X
SE +/- 0.07, N = 3
171.37
Core i9 7900X
SE +/- 0.05, N = 3
74.91
Core i9 7980XE
SE +/- 0.08, N = 3
50.26
Intel Core 2 Duo E8400
SE +/- 0.02, N = 3
888.45
LenovoM700Tiny
SE +/- 0.14, N = 3
508.12
Pentium G3258
SE +/- 0.14, N = 3
613.87
Ryzen Threadripper 1950X
SE +/- 0.06, N = 3
43.76
Willow16C
SE +/- 1.86, N = 3
105.51
Willow6C
SE +/- 1.58, N = 3
200.40
i5 3470T 10GB
SE +/- 0.03, N = 3
459.00
i5 3470T 8GB RAM
SE +/- 0.08, N = 3
560.25
i5 6500 10GB RAM
SE +/- 0.23, N = 3
301.61
i5 6500 8GB RAM
SE +/- 0.13, N = 3
303.05
400
800
1200
1600
2000
1. (CXX) g++ options: -fopenmp -O2 -march=native

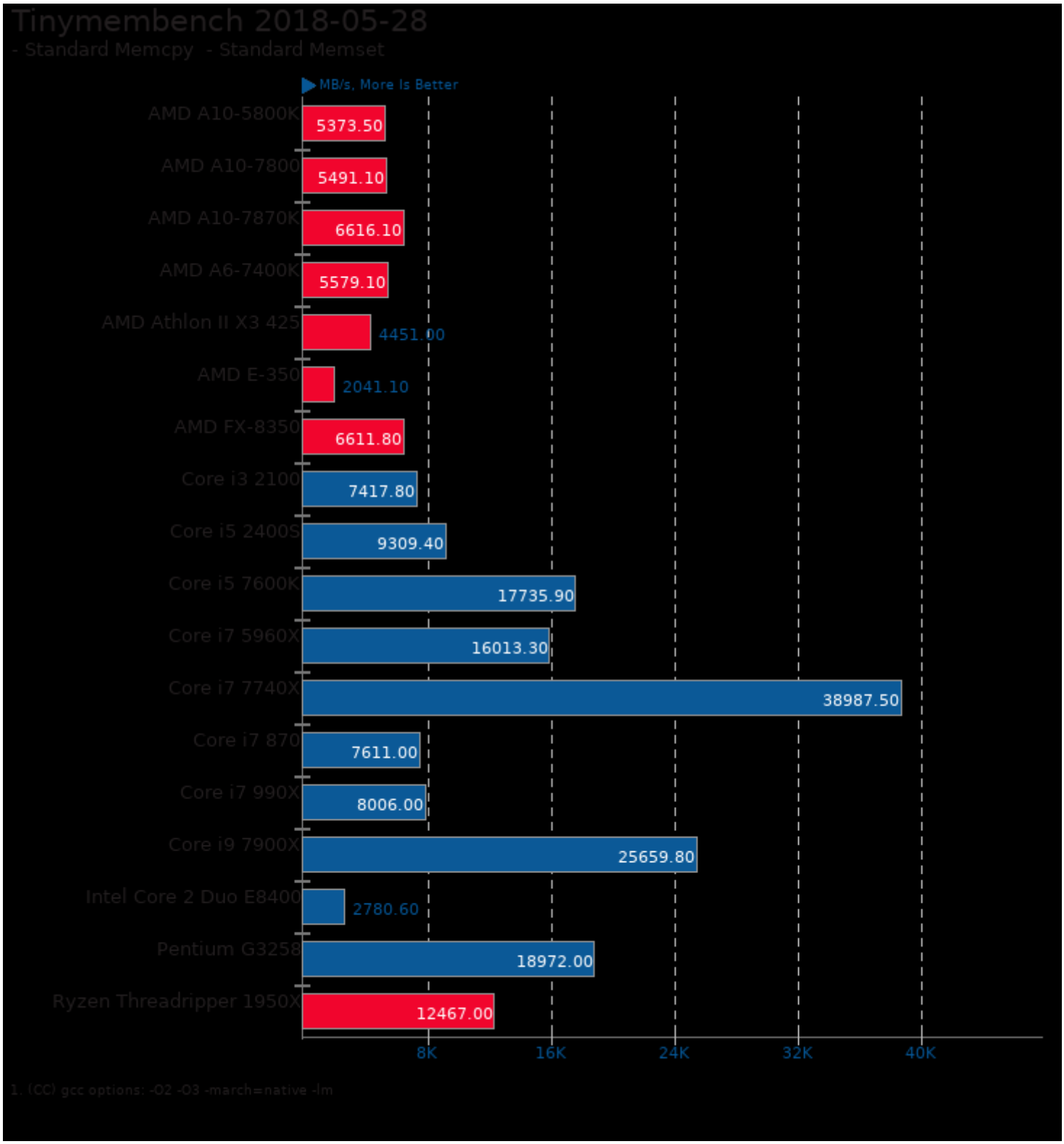

Tinymembench 2018-05-28
- Standard Memcpy
MB/s, More Is Better
2 x E5-2667v3
4355.0
AMD A10-5800K
5725.0
AMD A10-7800
5057.0
AMD A10-7870K
5801.0
AMD A6-7400K
4973.0
AMD Athlon II X3 425
4433.0
AMD E-350
2012.0
AMD FX-8350
5728.0
Core i3 2100
7242.0
Core i5 2400S
8976.0
Core i5 3470T
9133.0
Core i5 7500T
13186.7
Core i5 7600K
7502.0
Core i5 8500T
8074.0
Core i7 5960X
11653.0
Core i7 7740X
17193.0
Core i7 870
6906.0
Core i7 990X
7385.0
Core i9 7900X
10519.0
Core i9 7980XE
9959.0
Intel Core 2 Duo E8400
3498.0
LenovoM700Tiny
6611.5
Pentium G3258
7492.0
Ryzen Threadripper 1950X
15595.0
Willow16C
9248.0
Willow6C
8041.0
i5 3470T 10GB
5642.0
i5 3470T 8GB RAM
5655.0
i5 6500 10GB RAM
6848.0
i5 6500 8GB RAM
6666.0
4K
8K
12K
16K
20K
1. (CC) gcc options: -O2 -lm

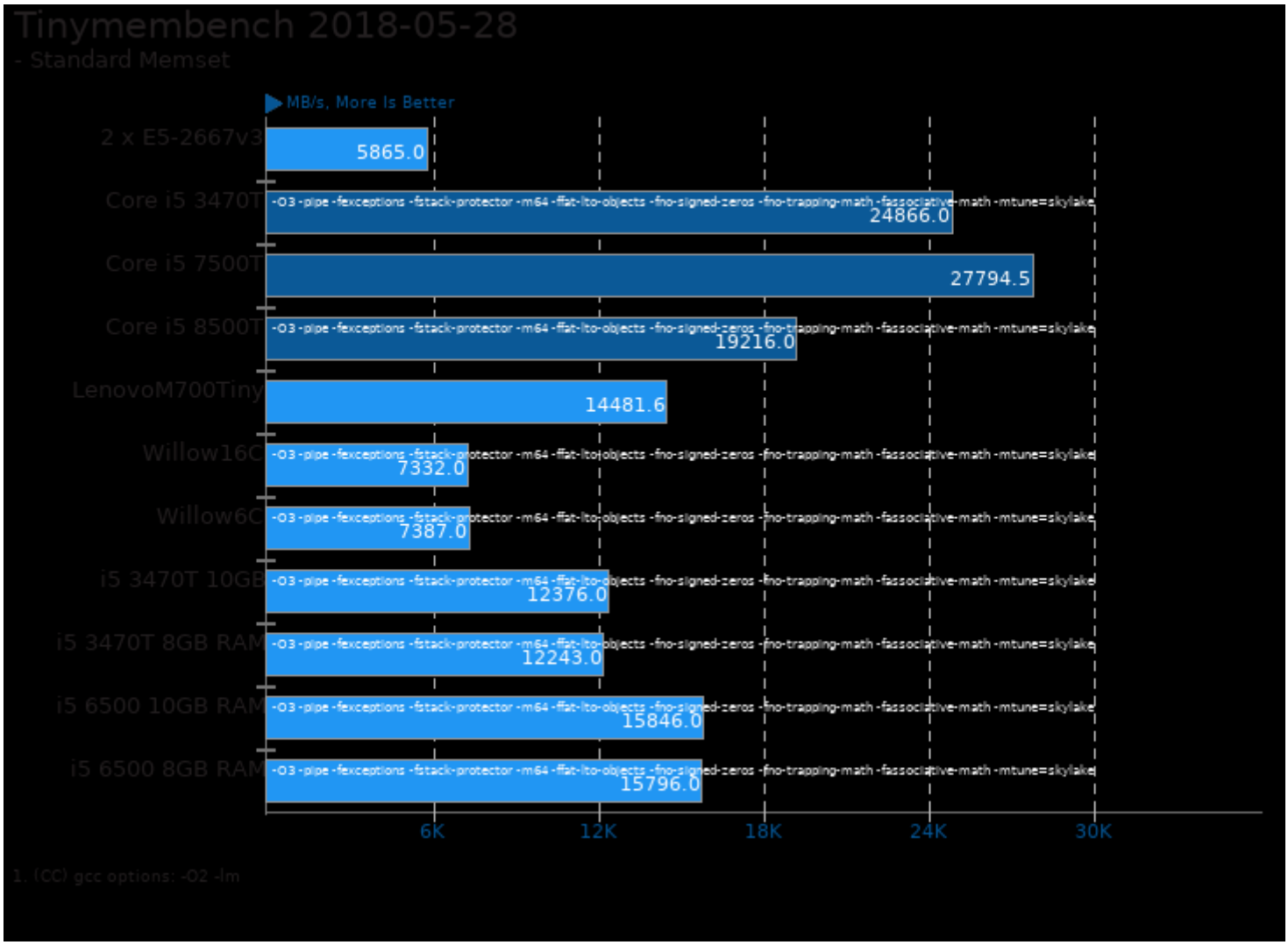

PolyBench-C 4.2
Test: 3 Matrix Multiplications
Seconds, Fewer Is Better
2 x E5-2667v3
SE +/- 0.155, N = 3
19.303
AMD A10-5800K
SE +/- 0.043, N = 3
8.970
AMD A10-7800
SE +/- 0.011, N = 3
10.210
AMD A10-7870K
SE +/- 0.017, N = 3
8.990
AMD A6-7400K
SE +/- 0.030, N = 3
9.420
AMD Athlon II X3 425
SE +/- 0.059, N = 3
35.490
AMD E-350
SE +/- 0.005, N = 3
62.300
AMD FX-8350
SE +/- 0.086, N = 3
8.500
Core i3 2100
SE +/- 0.005, N = 3
21.490
Core i5 2400S
SE +/- 0.015, N = 3
20.200
Core i5 3470T
SE +/- 0.075, N = 3
13.330
Core i5 7500T
SE +/- 0.059, N = 3
4.482
Core i5 7600K
SE +/- 0.054, N = 3
3.720
Core i5 8500T
SE +/- 0.010, N = 3
3.770
Core i7 5960X
SE +/- 0.051, N = 3
10.590
Core i7 7740X
SE +/- 0.013, N = 3
3.030
Core i7 870
SE +/- 0.005, N = 3
22.280
Core i7 990X
SE +/- 0.009, N = 3
20.020
Core i9 7980XE
SE +/- 0.061, N = 3
3.180
Intel Core 2 Duo E8400
SE +/- 0.007, N = 3
15.050
LenovoM700Tiny
SE +/- 0.022, N = 3
6.243
Pentium G3258
SE +/- 0.205, N = 4
13.600
Ryzen Threadripper 1950X
SE +/- 0.009, N = 3
3.930
Willow16C
SE +/- 0.171, N = 3
23.320
Willow6C
SE +/- 1.540, N = 9
21.300
i5 3470T 10GB
SE +/- 0.040, N = 3
13.010
i5 3470T 8GB RAM
SE +/- 0.045, N = 3
14.090
i5 6500 10GB RAM
SE +/- 0.020, N = 3
4.120
i5 6500 8GB RAM
SE +/- 0.023, N = 3
4.130
14
28
42
56
70
1. (CC) gcc options: -O3 -march=native


PolyBench-C 4.2
Test: Correlation Computation
Seconds, Fewer Is Better
2 x E5-2667v3
SE +/- 0.100, N = 3
29.969
AMD A10-5800K
SE +/- 0.005, N = 3
7.340
AMD A10-7800
SE +/- 0.004, N = 3
8.630
AMD A10-7870K
SE +/- 0.530, N = 6
8.230
AMD A6-7400K
SE +/- 0.016, N = 3
7.740
AMD Athlon II X3 425
SE +/- 0.016, N = 3
25.480
AMD E-350
SE +/- 0.471, N = 3
77.080
AMD FX-8350
SE +/- 0.596, N = 6
8.410
Core i3 2100
SE +/- 0.016, N = 3
14.030
Core i5 2400S
SE +/- 0.023, N = 3
13.200
Core i5 3470T
SE +/- 0.092, N = 12
3.350
Core i5 7500T
SE +/- 0.016, N = 3
6.961
Core i5 7600K
SE +/- 0.002, N = 3
5.380
Core i7 5960X
SE +/- 0.083, N = 3
12.210
Core i7 7740X
SE +/- 0.001, N = 3
5.010
Core i7 870
SE +/- 0.002, N = 3
13.180
Core i7 990X
SE +/- 0.013, N = 3
12.100
Core i9 7900X
SE +/- 0.001, N = 3
4.740
Core i9 7980XE
SE +/- 0.001, N = 3
5.700
Intel Core 2 Duo E8400
SE +/- 0.001, N = 3
7.300
LenovoM700Tiny
SE +/- 0.032, N = 3
8.553
Pentium G3258
SE +/- 0.074, N = 3
13.140
Ryzen Threadripper 1950X
SE +/- 0.004, N = 3
4.220
Willow16C
SE +/- 0.188, N = 3
31.550
Willow6C
SE +/- 0.656, N = 12
29.470
i5 3470T 10GB
SE +/- 0.093, N = 12
3.230
i5 3470T 8GB RAM
SE +/- 0.108, N = 12
3.560
i5 6500 10GB RAM
SE +/- 0.003, N = 3
2.060
i5 6500 8GB RAM
SE +/- 0.007, N = 3
2.060
20
40
60
80
100
1. (CC) gcc options: -O3 -march=native

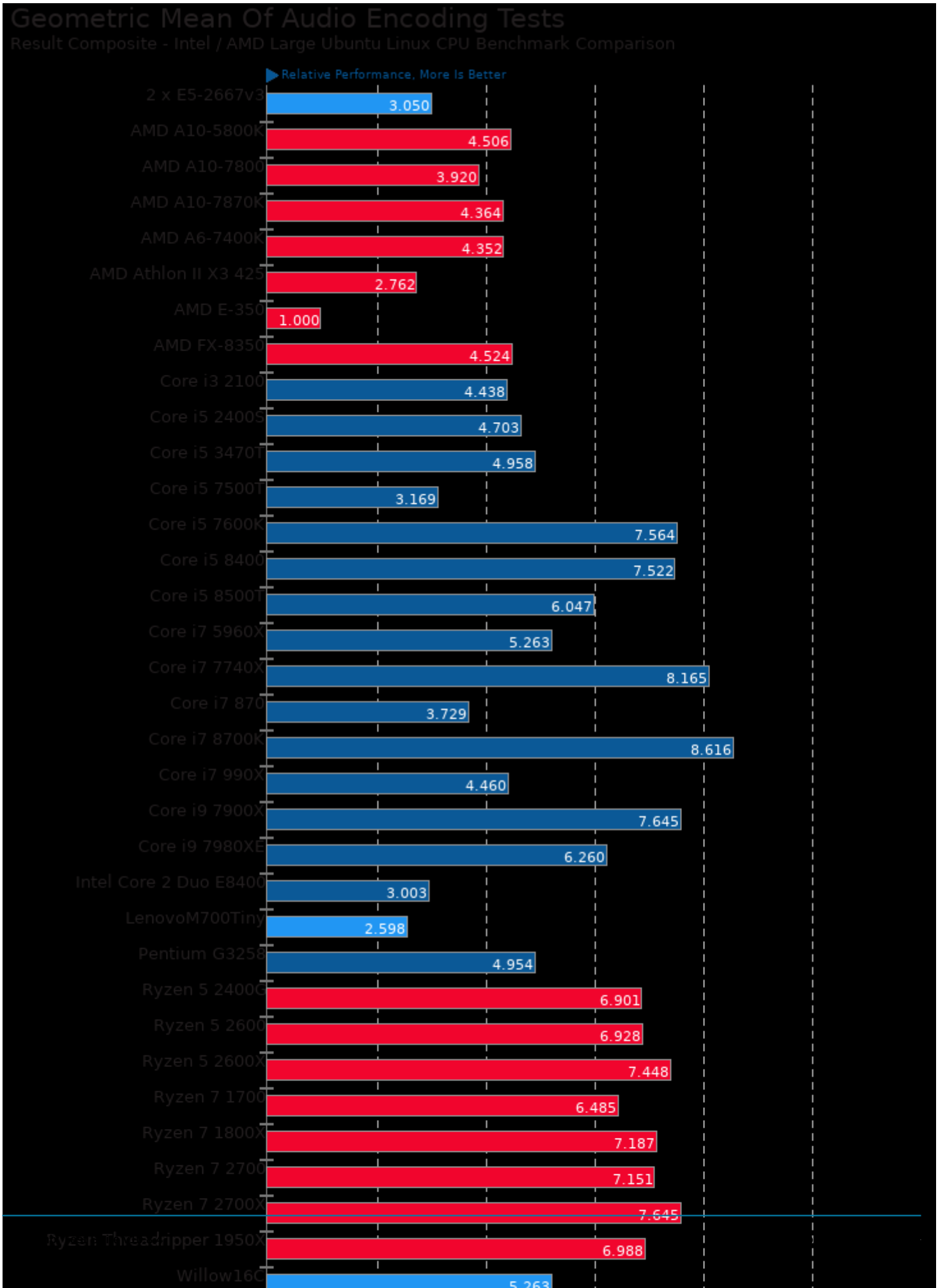

PolyBench-C 4.2
Test: Covariance Computation
Seconds, Fewer Is Better
2 x E5-2667v3
SE +/- 0.201, N = 3
29.598
AMD A10-5800K
SE +/- 0.003, N = 3
7.360
AMD A10-7800
SE +/- 0.006, N = 3
8.650
AMD A10-7870K
SE +/- 0.002, N = 3
7.700
AMD A6-7400K
SE +/- 0.103, N = 6
7.850
AMD Athlon II X3 425
SE +/- 0.009, N = 3
25.470
AMD E-350
SE +/- 0.180, N = 3
77.200
AMD FX-8350
SE +/- 0.404, N = 6
8.020
Core i3 2100
SE +/- 0.014, N = 3
14.030
Core i5 2400S
SE +/- 0.025, N = 3
13.180
Core i5 3470T
SE +/- 0.024, N = 3
3.620
Core i5 7500T
SE +/- 0.007, N = 3
6.946
Core i5 7600K
SE +/- 0.003, N = 3
5.390
Core i5 8500T
2.010
Core i7 5960X
SE +/- 0.053, N = 3
12.210
Core i7 7740X
SE +/- 0.002, N = 3
4.990
Core i7 870
SE +/- 4.567, N = 6
18.190
Core i7 990X
SE +/- 0.016, N = 3
12.090
Core i9 7900X
SE +/- 0.002, N = 3
4.730
Core i9 7980XE
SE +/- 0.005, N = 3
5.710
Intel Core 2 Duo E8400
SE +/- 0.002, N = 3
7.300
LenovoM700Tiny
SE +/- 0.010, N = 3
8.593
Pentium G3258
SE +/- 0.012, N = 3
13.080
Ryzen Threadripper 1950X
SE +/- 0.002, N = 3
4.220
Willow16C
SE +/- 0.180, N = 3
31.680
Willow6C
SE +/- 0.408, N = 12
31.790
i5 3470T 10GB
SE +/- 0.092, N = 12
3.240
i5 3470T 8GB RAM
SE +/- 0.104, N = 12
3.540
i5 6500 10GB RAM
SE +/- 0.006, N = 3
2.060
i5 6500 8GB RAM
SE +/- 0.014, N = 3
2.060
20
40
60
80
100
1. (CC) gcc options: -O3 -march=native


SciMark 2.0
Computational Test: Composite
Mflops, More Is Better
2 x E5-2667v3
SE +/- 0.57, N = 3
548.00
AMD A10-5800K
SE +/- 0.53, N = 3
815.00
AMD A10-7800
SE +/- 1.52, N = 3
741.00
AMD A10-7870K
SE +/- 0.85, N = 3
858.00
AMD A6-7400K
SE +/- 1.82, N = 3
739.00
AMD Athlon II X3 425
SE +/- 0.04, N = 3
573.00
AMD E-350
SE +/- 0.08, N = 3
321.00
AMD FX-8350
SE +/- 1.35, N = 3
1159.00
Core i3 2100
SE +/- 4.86, N = 3
1065.00
Core i5 2400S
SE +/- 2.02, N = 3
1398.00
Core i5 3470T
SE +/- 8.00, N = 3
1304.00
Core i5 7500T
SE +/- 0.53, N = 3
493.76
Core i5 7600K
SE +/- 4.29, N = 3
2385.00
Core i5 8500T
SE +/- 2.03, N = 3
1701.00
Core i7 5960X
SE +/- 0.50, N = 3
2168.00
Core i7 7740X
SE +/- 3.52, N = 3
3210.00
Core i7 870
SE +/- 5.00, N = 3
1180.00
Core i7 990X
SE +/- 0.80, N = 3
1324.00
Core i9 7900X
SE +/- 4.36, N = 3
2579.00
Core i9 7980XE
SE +/- 8.86, N = 3
2696.00
Intel Core 2 Duo E8400
SE +/- 2.65, N = 3
787.00
LenovoM700Tiny
SE +/- 0.74, N = 3
370.69
Pentium G3258
SE +/- 1.12, N = 3
1109.00
Ryzen Threadripper 1950X
SE +/- 9.89, N = 3
2297.00
Willow16C
SE +/- 11.92, N = 3
1656.00
Willow6C
SE +/- 5.69, N = 3
1668.00
i5 3470T 10GB
SE +/- 15.89, N = 3
1102.00
i5 3470T 8GB RAM
SE +/- 7.85, N = 3
1034.00
i5 6500 10GB RAM
SE +/- 4.50, N = 3
1611.00
i5 6500 8GB RAM
SE +/- 1.72, N = 3
1604.00
700
1400
2100
2800
3500
1. (CC) gcc options: -lm

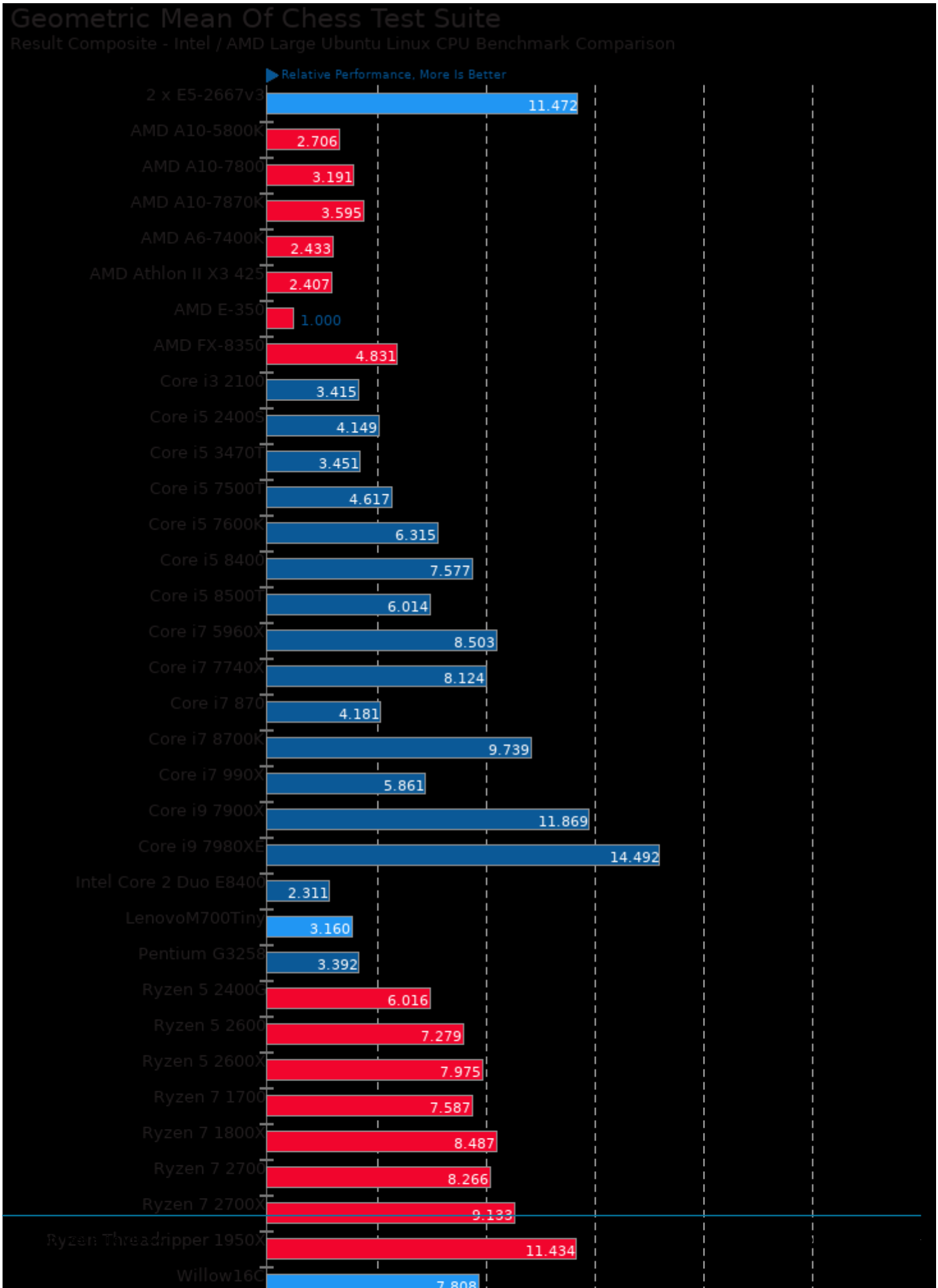

Tinymembench 2018-05-28
- Standard Memcpy - Standard Memset
MB/s, More Is Better
AMD A10-5800K
5373.50
AMD A10-7800
5491.10
AMD A10-7870K
6616.10
AMD A6-7400K
5579.10
AMD Athlon II X3 425
4451.00
AMD E-350
2041.10
AMD FX-8350
6611.80
Core i3 2100
7417.80
Core i5 2400S
9309.40
Core i5 7600K
17735.90
Core i7 5960X
16013.30
Core i7 7740X
38987.50
Core i7 870
7611.00
Core i7 990X
8006.00
Core i9 7900X
25659.80
Intel Core 2 Duo E8400
2780.60
Pentium G3258
18972.00
Ryzen Threadripper 1950X
12467.00
8K
16K
24K
32K
40K
1. (CC) gcc options: -O2 -O3 -march=native -lm


Tinymembench 2018-05-28
- Standard Memset
MB/s, More Is Better
2 x E5-2667v3
5865.0
Core i5 3470T
-O3 -pipe -fexceptions -fstack-protector -m64 -flat-lto-objects -fno-signed-zeros -fno-trapping-math -fassociative-math -mtune=skylake
24866.0
Core i5 7500T
27794.5
Core i5 8500T
-O3 -pipe -fexceptions -fstack-protector -m64 -flat-lto-objects -fno-signed-zeros -fno-trapping-math -fassociative-math -mtune=skylake
19216.0
LenovoM700Tiny
14481.6
Willow16G
-O3 -pipe -fexceptions -fstack-protector -m64 -flat-lto-objects -fno-signed-zeros -fno-trapping-math -fassociative-math -mtune=skylake
7332.0
Willow6G
-O3 -pipe -fexceptions -fstack-protector -m64 -flat-lto-objects -fno-signed-zeros -fno-trapping-math -fassociative-math -mtune=skylake
7387.0
i5 3470T 10GB
-O3 -pipe -fexceptions -fstack-protector -m64 -flat-lto-objects -fno-signed-zeros -fno-trapping-math -fassociative-math -mtune=skylake
12376.0
i5 3470T 8GB RAM
-O3 -pipe -fexceptions -fstack-protector -m64 -flat-lto-objects -fno-signed-zeros -fno-trapping-math -fassociative-math -mtune=skylake
12243.0
i5 6500 10GB RAM
-O3 -pipe -fexceptions -fstack-protector -m64 -flat-lto-objects -fno-signed-zeros -fno-trapping-math -fassociative-math -mtune=skylake
15846.0
i5 6500 8GB RAM
-O3 -pipe -fexceptions -fstack-protector -m64 -flat-lto-objects -fno-signed-zeros -fno-trapping-math -fassociative-math -mtune=skylake
15796.0
6K
12K
18K
24K
30K
1. (CC) gcc options: -O2 -lm

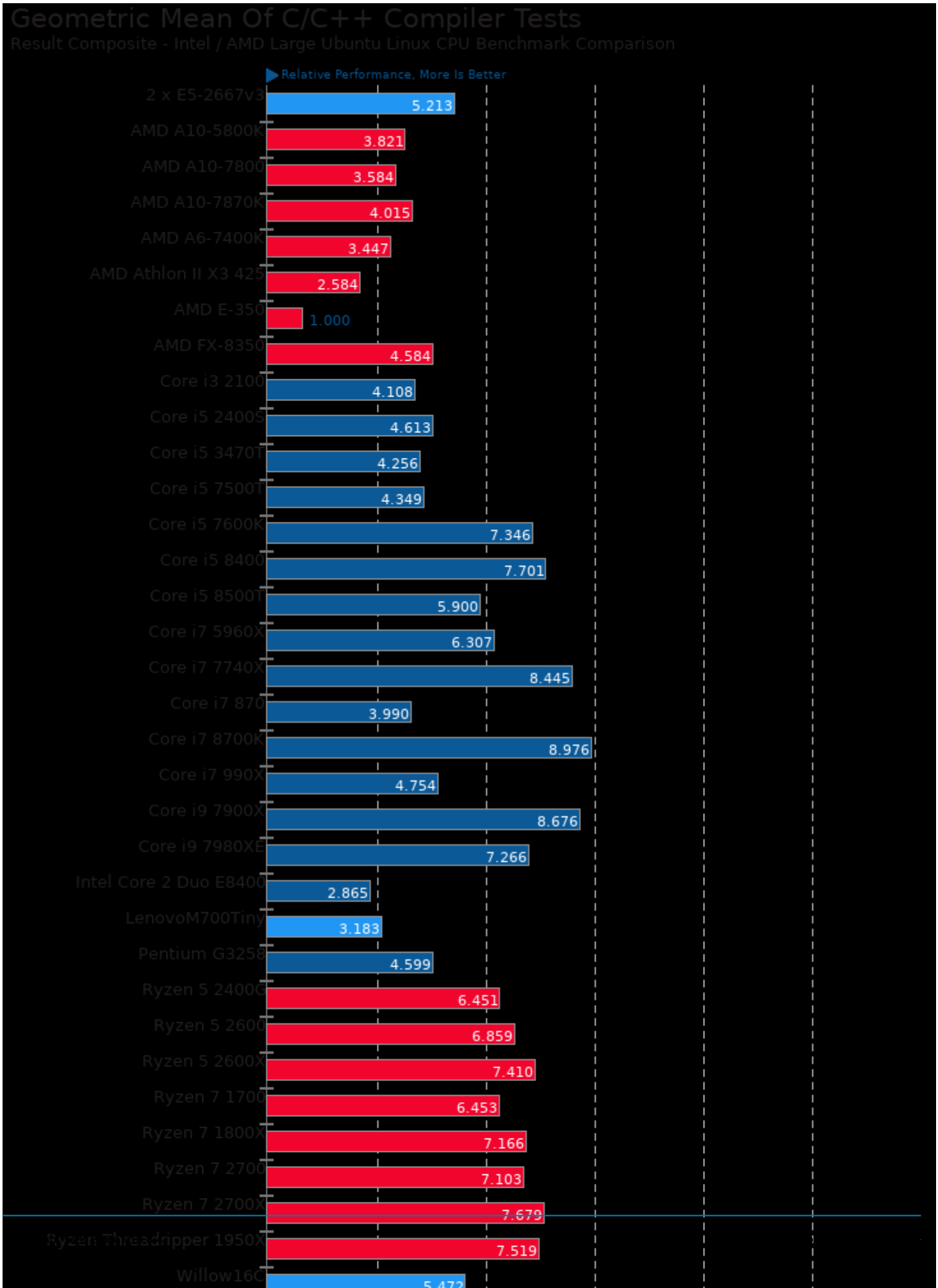
These geometric means are based upon test groupings / test suites for this result file.


Geometric Mean Of Audio Encoding Tests
Result Composite - Intel / AMD Large Ubuntu Linux CPU Benchmark Comparison
Relative Performance, More Is Better
2 x E5-2667v3 3.050
AMD A10-5800K 4.506
AMD A10-7800 3.920
AMD A10-7870K 4.364
AMD A6-7400K 4.352
AMD Athlon II X3 425 2.762
AMD E-350 1.000
AMD FX-8350 4.524
Core i3 2100 4.438
Core i5 2400S 4.703
Core i5 3470T 4.958
Core i5 7500T 3.169
Core i5 7600K 7.564
Core i5 8400 7.522
Core i5 8500T 6.047
Core i7 5960X 5.263
Core i7 7740X 8.165
Core i7 870 3.729
Core i7 8700K 8.616
Core i7 990X 4.460
Core i9 7900X 7.645
Core i9 7980XE 6.260
Intel Core 2 Duo E8400 3.003
LenovoM700Tiny 2.598
Pentium G3258 4.954
Ryzen 5 2400G 6.901
Ryzen 5 2600 6.928
Ryzen 5 2600X 7.448
Ryzen 7 1700 6.485
Ryzen 7 1800X 7.187
Ryzen 7 2700 7.151
Ryzen 7 2700X 7.645
Ryzen Threadripper 1950X 6.988
Willow16C 5.263

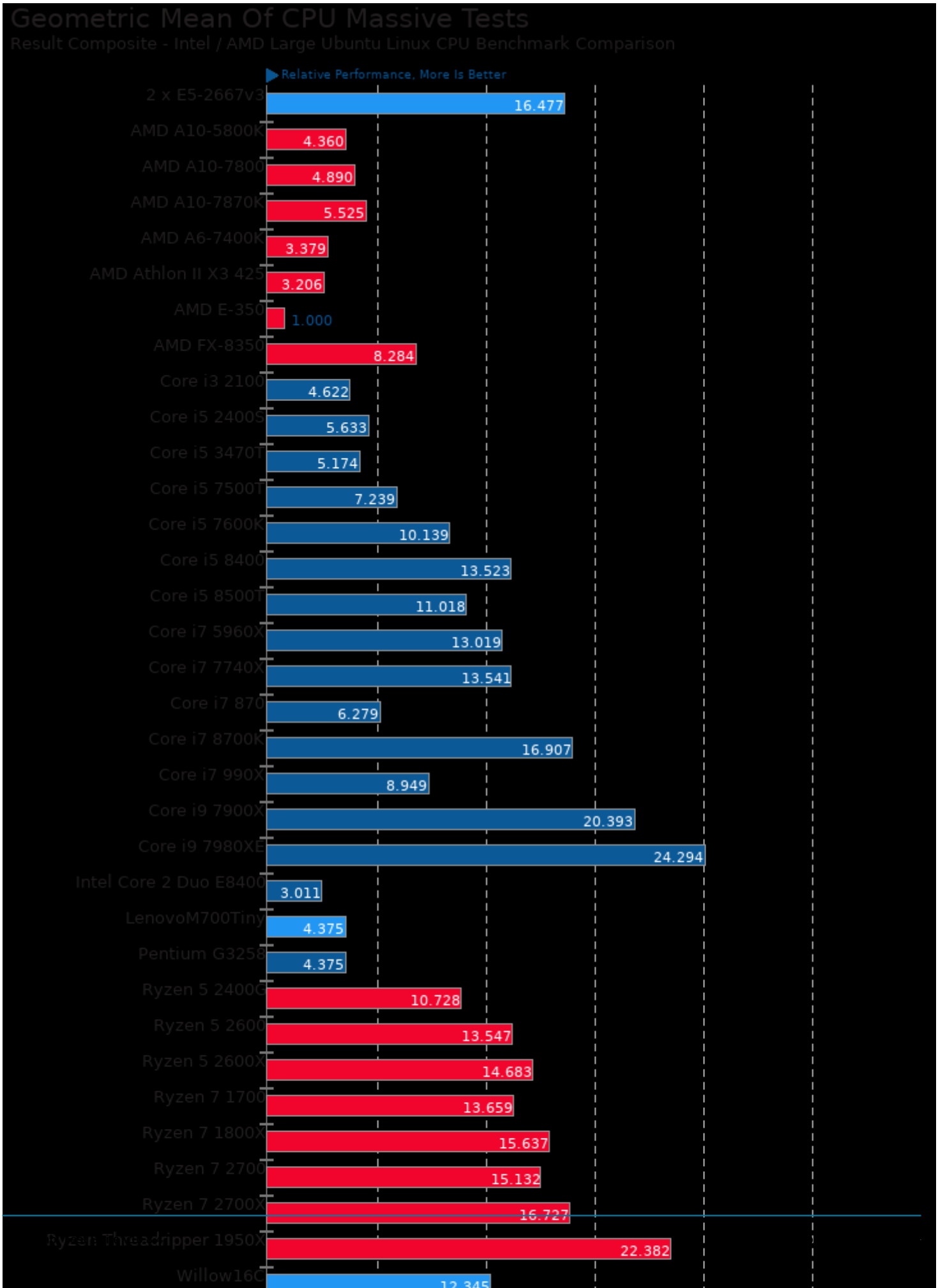
Geometric mean based upon tests: pts/encode-mp3 and pts/encode-flac


Geometric Mean Of Chess Test Suite
Result Composite - Intel / AMD Large Ubuntu Linux CPU Benchmark Comparison
Relative Performance, More Is Better
2 x E5-2667v3
11.472
AMD A10-5800K
2.706
AMD A10-7800
3.191
AMD A10-7870K
3.595
AMD A6-7400K
2.433
AMD Athlon II X3 425
2.407
AMD E-350
1.000
AMD FX-8350
4.831
Core i3 2100
3.415
Core i5 2400S
4.149
Core i5 3470T
3.451
Core i5 7500T
4.617
Core i5 7600K
6.315
Core i5 8400
7.577
Core i5 8500T
6.014
Core i7 5960X
8.503
Core i7 7740X
8.124
Core i7 870
4.181
Core i7 8700K
9.739
Core i7 990X
5.861
Core i9 7900X
11.869
Core i9 7980XE
14.492
Intel Core 2 Duo E8400
2.311
LenovoM700Tiny
3.160
Pentium G3258
3.392
Ryzen 5 2400G
6.016
Ryzen 5 2600
7.279
Ryzen 5 2600X
7.975
Ryzen 7 1700
7.587
Ryzen 7 1800X
8.487
Ryzen 7 2700
8.266
Ryzen 7 2700X
9.133
Ryzen Threadripper 1950X
11.434
Willow16C
7.808

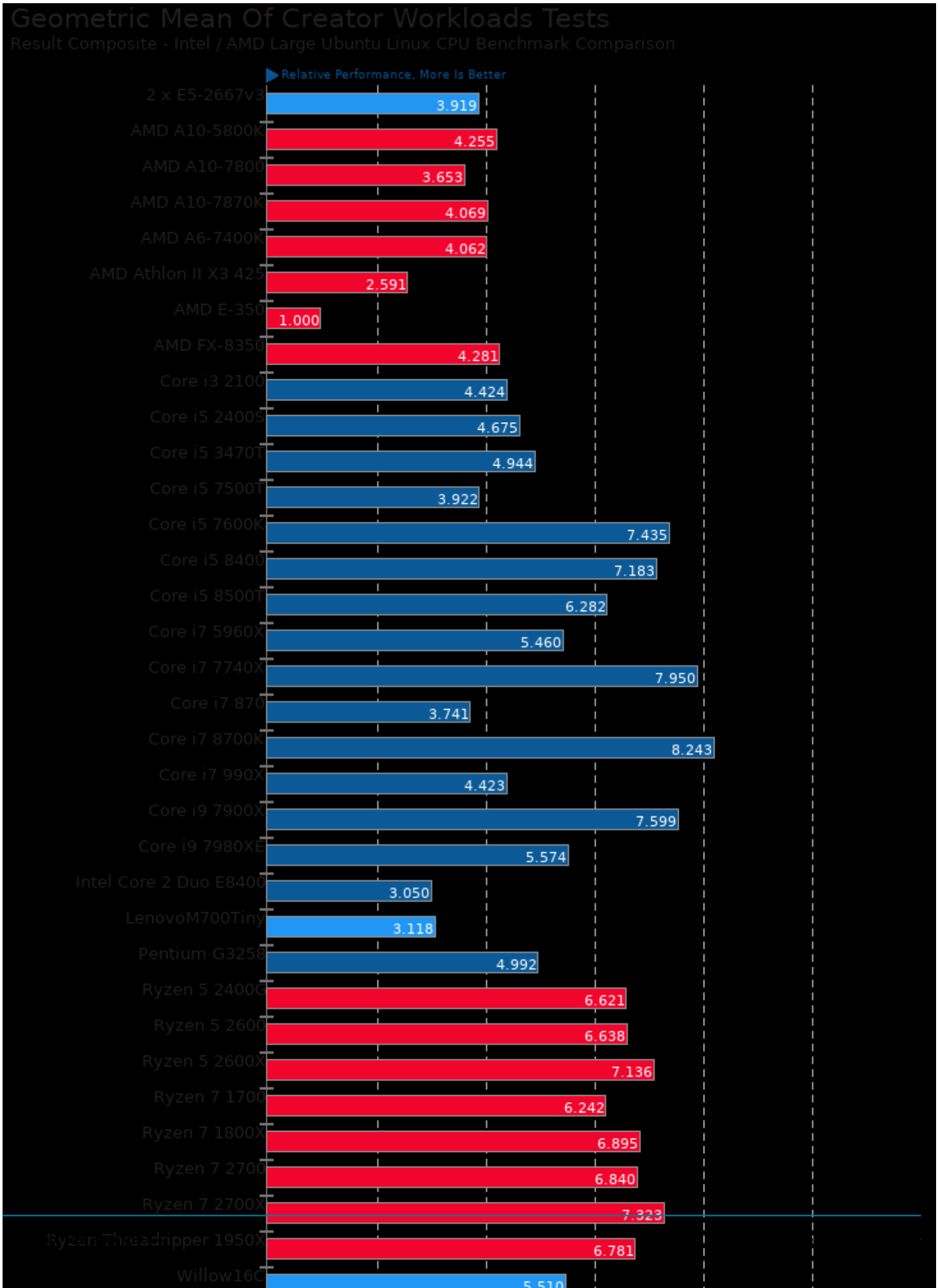
Geometric mean based upon tests: pts/tscp, pts/stockfish, pts/asmfish and pts/m-queens


Geometric Mean Of C/C++ Compiler Tests
Result Composite - Intel / AMD Large Ubuntu Linux CPU Benchmark Comparison
Relative Performance, More Is Better
2 x E5-2667v3
5.213
AMD A10-5800K
3.821
AMD A10-7800
3.584
AMD A10-7870K
4.015
AMD A6-7400K
3.447
AMD Athlon II X3 425
2.584
AMD E-350
1.000
AMD FX-8350
4.584
Core i3 2100
4.108
Core i5 2400S
4.613
Core i5 3470T
4.256
Core i5 7500T
4.349
Core i5 7600K
7.346
Core i5 8400
7.701
Core i5 8500T
5.900
Core i7 5960X
6.307
Core i7 7740X
8.445
Core i7 870
3.990
Core i7 8700K
8.976
Core i7 990X
4.754
Core i9 7900X
8.676
Core i9 7980XE
7.266
Intel Core 2 Duo E8400
2.865
LenovoM700Tiny
3.183
Pentium G3258
4.599
Ryzen 5 2400G
6.451
Ryzen 5 2600
6.859
Ryzen 5 2600X
7.410
Ryzen 7 1700
6.453
Ryzen 7 1800X
7.166
Ryzen 7 2700
7.103
Ryzen 7 2700X
7.679
Ryzen Threadripper 1950X
7.519
Willow16C
5.472

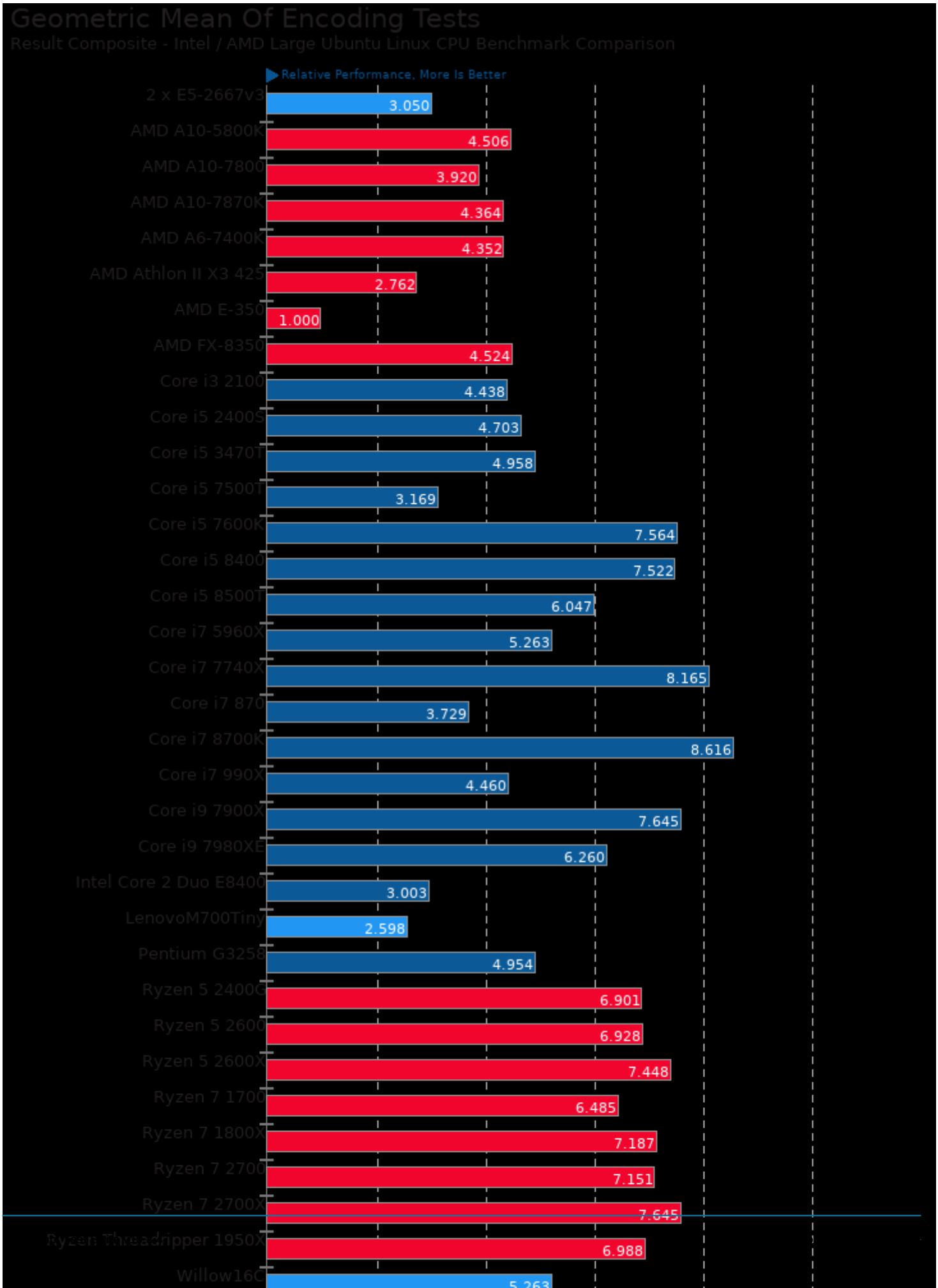
Geometric mean based upon tests: pts/scimark2, pts/aobench, pts/tscp, pts/stockfish, pts/build-php, pts/compress-7zip, pts/encode-mp3, pts/encode-flac, pts/compress-zstd and pts/openssl


Geometric Mean Of CPU Massive Tests
Result Composite - Intel / AMD Large Ubuntu Linux CPU Benchmark Comparison
Relative Performance, More Is Better
2 x E5-2667v3
16.477
AMD A10-5800K
4.360
AMD A10-7800
4.890
AMD A10-7870K
5.525
AMD A6-7400K
3.379
AMD Athlon II X3 425
3.206
AMD E-350
1.000
AMD FX-8350
8.284
Core i3 2100
4.622
Core i5 2400S
5.633
Core i5 3470T
5.174
Core i5 7500T
7.239
Core i5 7600K
10.139
Core i5 8400
13.523
Core i5 8500T
11.018
Core i7 5960X
13.019
Core i7 7740X
13.541
Core i7 870
6.279
Core i7 8700K
16.907
Core i7 990X
8.949
Core i9 7900X
20.393
Core i9 7980XE
24.294
Intel Core 2 Duo E8400
3.011
LenovoM700Tiny
4.375
Pentium G3258
4.375
Ryzen 5 2400G
10.728
Ryzen 5 2600
13.547
Ryzen 5 2600X
14.683
Ryzen 7 1700
13.659
Ryzen 7 1800X
15.637
Ryzen 7 2700
15.132
Ryzen 7 2700X
16.727
Ryzen Threadripper 1950X
22.382
Willow16C
12.345

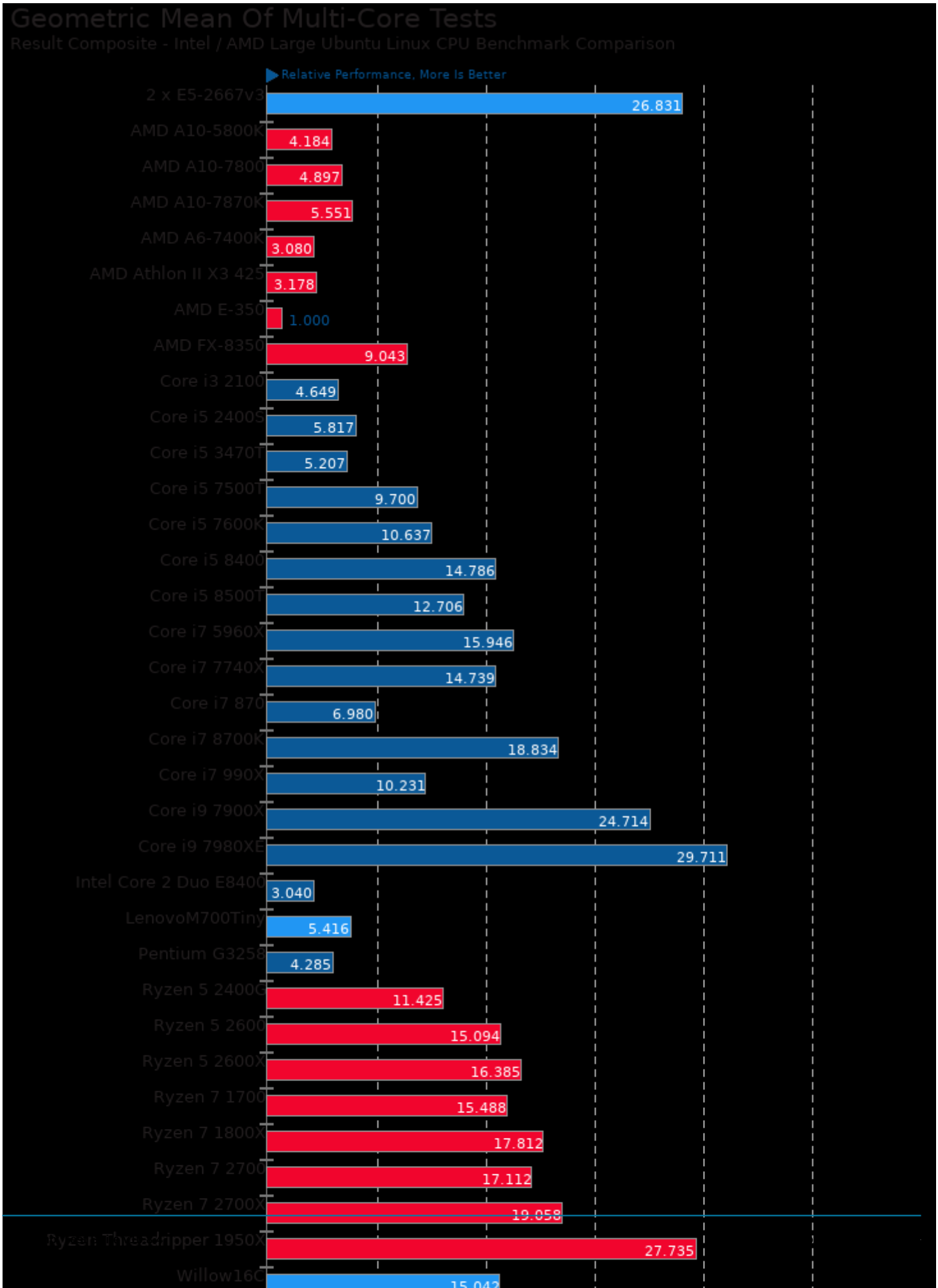
Geometric mean based upon tests: pts/asmfish, pts/build-linux-kernel, pts/build-php, pts/compress-7zip, pts/compress-zstd, pts/encode-flac, pts/encode-mp3, pts/openssl, pts/m-queens, pts/rodinia, pts/stockfish, pts/tinymembench and pts/ttsiod-renderer


Geometric Mean Of Creator Workloads Tests
Result Composite - Intel / AMD Large Ubuntu Linux CPU Benchmark Comparison
Relative Performance, More Is Better
2 x E5-2667v3
3.919
AMD A10-5800K
4.255
AMD A10-7800
3.653
AMD A10-7870K
4.069
AMD A6-7400K
4.062
AMD Athlon II X3 425
2.591
AMD E-350
1.000
AMD FX-8350
4.281
Core i3 2100
4.424
Core i5 2400S
4.675
Core i5 3470T
4.944
Core i5 7500T
3.922
Core i5 7600K
7.435
Core i5 8400
7.183
Core i5 8500T
6.282
Core i7 5960X
5.460
Core i7 7740X
7.950
Core i7 870
3.741
Core i7 8700K
8.243
Core i7 990X
4.423
Core i9 7900X
7.599
Core i9 7980XE
5.574
Intel Core 2 Duo E8400
3.050
LenovoM700Tiny
3.118
Pentium G3258
4.992
Ryzen 5 2400G
6.621
Ryzen 5 2600
6.638
Ryzen 5 2600X
7.136
Ryzen 7 1700
6.242
Ryzen 7 1800X
6.895
Ryzen 7 2700
6.840
Ryzen 7 2700X
7.323
Ryzen Threadripper 1950X
6.781
Willow16C
5.510

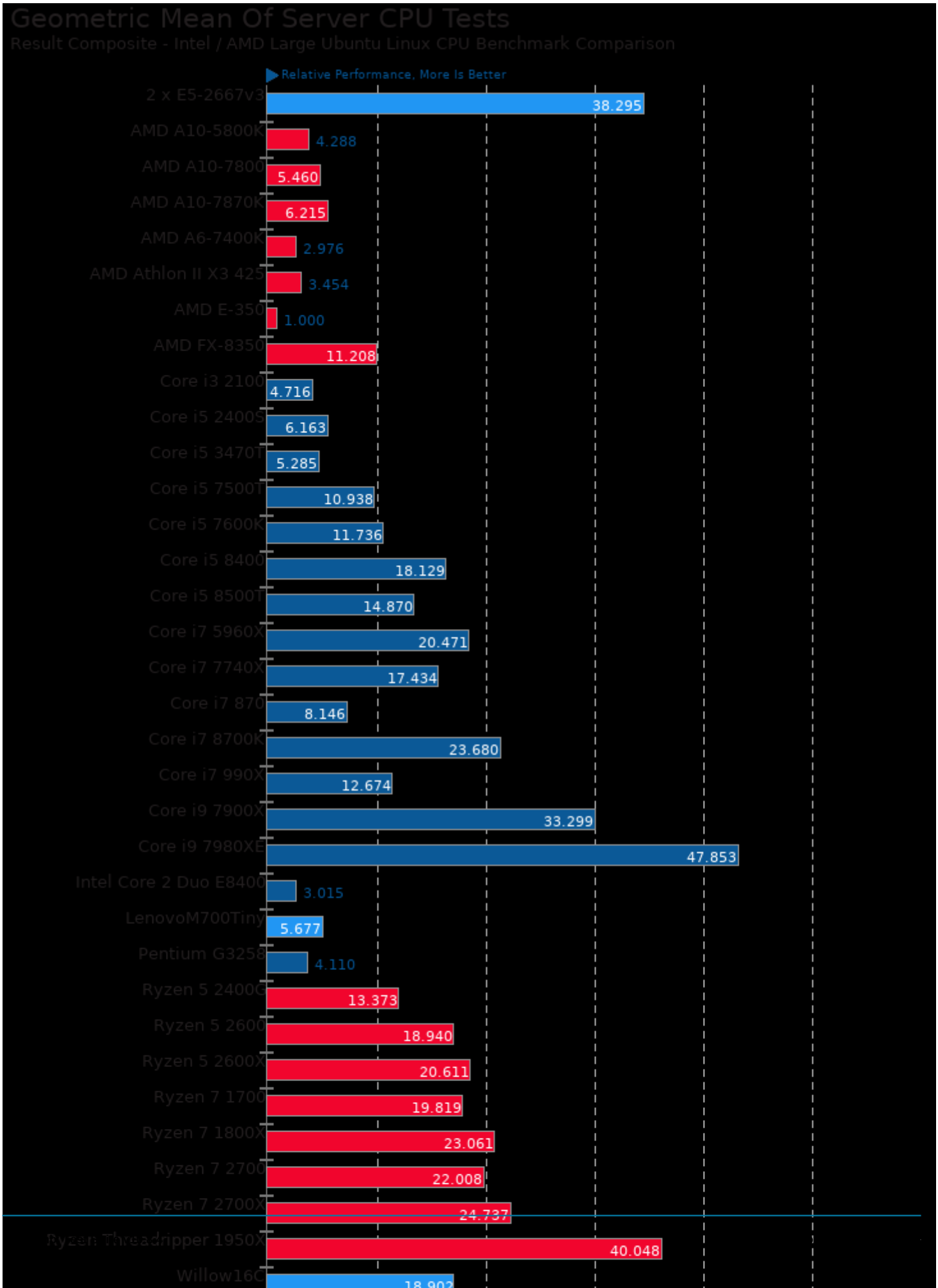
Geometric mean based upon tests: pts/aobench, pts/ttsiod-renderer, pts/encode-mp3 and pts/encode-flac


Geometric Mean Of Encoding Tests
Result Composite - Intel / AMD Large Ubuntu Linux CPU Benchmark Comparison
Relative Performance, More Is Better
2 x E5-2667v3
3.050
AMD A10-5800K
4.506
AMD A10-7800
3.920
AMD A10-7870K
4.364
AMD A6-7400K
4.352
AMD Athlon II X3 425
2.762
AMD E-350
1.000
AMD FX-8350
4.524
Core i3 2100
4.438
Core i5 2400S
4.703
Core i5 3470T
4.958
Core i5 7500T
3.169
Core i5 7600K
7.564
Core i5 8400
7.522
Core i5 8500T
6.047
Core i7 5960X
5.263
Core i7 7740X
8.165
Core i7 870
3.729
Core i7 8700K
8.616
Core i7 990X
4.460
Core i9 7900X
7.645
Core i9 7980XE
6.260
Intel Core 2 Duo E8400
3.003
LenovoM700Tiny
2.598
Pentium G3258
4.954
Ryzen 5 2400G
6.901
Ryzen 5 2600
6.928
Ryzen 5 2600X
7.448
Ryzen 7 1700
6.485
Ryzen 7 1800X
7.187
Ryzen 7 2700
7.151
Ryzen 7 2700X
7.645
Ryzen Threadripper 1950X
6.988
Willow16C
5.263

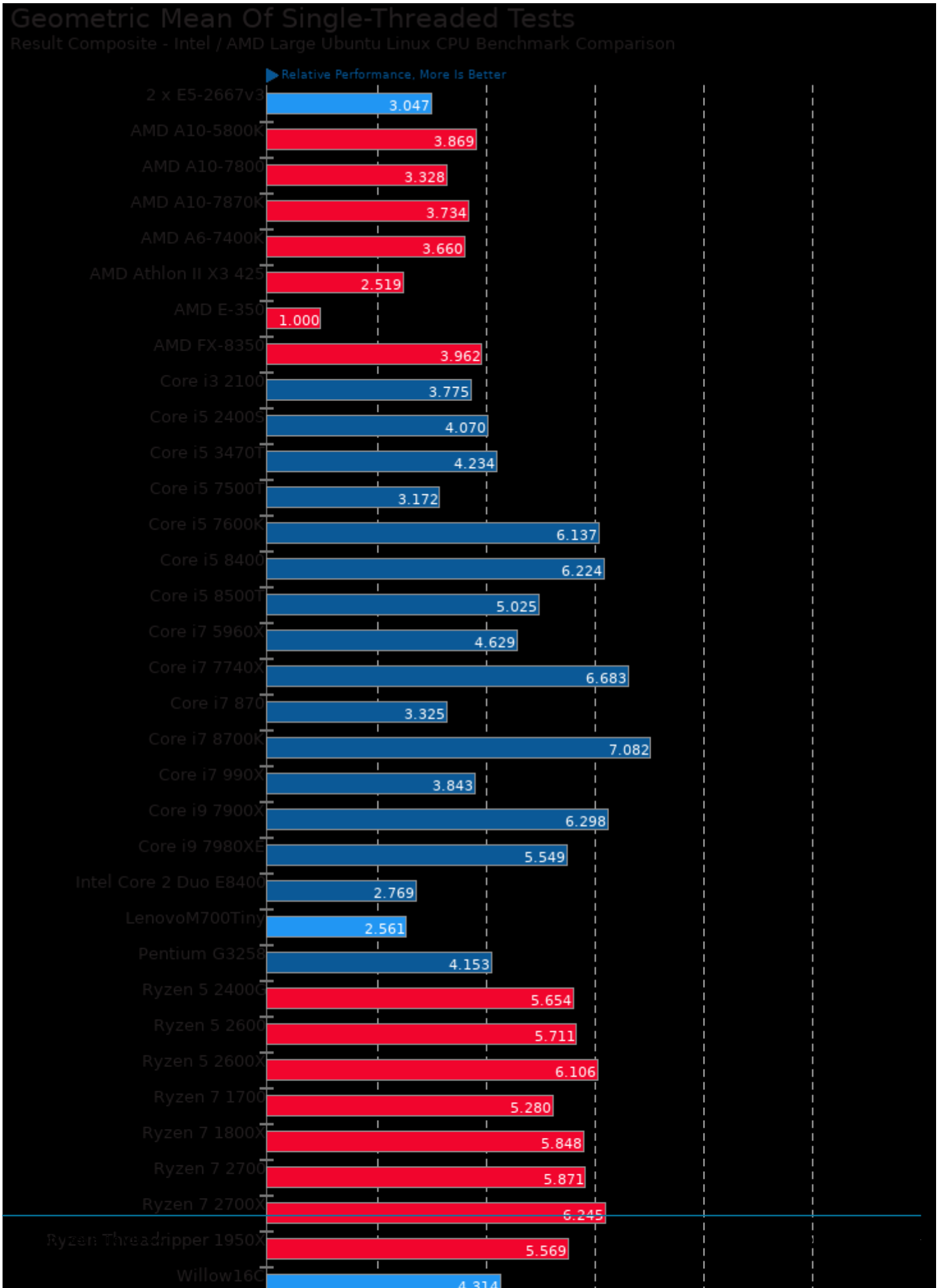
Geometric mean based upon tests: pts/encode-mp3 and pts/encode-flac


Geometric Mean Of Multi-Core Tests
Result Composite - Intel / AMD Large Ubuntu Linux CPU Benchmark Comparison
Relative Performance, More Is Better
2 x E5-2667v3
26.831
AMD A10-5800K
4.184
AMD A10-7800
4.897
AMD A10-7870K
5.551
AMD A6-7400K
3.080
AMD Athlon II X3 425
3.178
AMD E-350
1.000
AMD FX-8350
9.043
Core i3 2100
4.649
Core i5 2400S
5.817
Core i5 3470T
5.207
Core i5 7500T
9.700
Core i5 7600K
10.637
Core i5 8400
14.786
Core i5 8500T
12.706
Core i7 5960X
15.946
Core i7 7740X
14.739
Core i7 870
6.980
Core i7 8700K
18.834
Core i7 990X
10.231
Core i9 7900X
24.714
Core i9 7980XE
29.711
Intel Core 2 Duo E8400
3.040
LenovoM700Tiny
5.416
Pentium G3258
4.285
Ryzen 5 2400G
11.425
Ryzen 5 2600
15.094
Ryzen 5 2600X
16.385
Ryzen 7 1700
15.488
Ryzen 7 1800X
17.812
Ryzen 7 2700
17.112
Ryzen 7 2700X
19.058
Ryzen Threadripper 1950X
27.735
Willow16C
15.042

Geometric mean based upon tests: pts/stockfish, pts/m-queens, pts/rodinia, pts/asmfish, pts/compress-7zip, pts/compress-zstd, pts/build-php, pts/build-linux-kernel, pts/aobench and pts/ttsiod-renderer


Geometric Mean Of Server CPU Tests
Result Composite - Intel / AMD Large Ubuntu Linux CPU Benchmark Comparison
Relative Performance, More Is Better
2 x E5-2667v3
38.295
AMD A10-5800K
4.288
AMD A10-7800
5.460
AMD A10-7870K
6.215
AMD A6-7400K
2.976
AMD Athlon II X3 425
3.454
AMD E-350
1.000
AMD FX-8350
11.208
Core i3 2100
4.716
Core i5 2400S
6.163
Core i5 3470T
5.285
Core i5 7500T
10.938
Core i5 7600K
11.736
Core i5 8400
18.129
Core i5 8500T
14.870
Core i7 5960X
20.471
Core i7 7740X
17.434
Core i7 870
8.146
Core i7 8700K
23.680
Core i7 990X
12.674
Core i9 7900X
33.299
Core i9 7980XE
47.853
Intel Core 2 Duo E8400
3.015
LenovoM700Tiny
5.677
Pentium G3258
4.110
Ryzen 5 2400G
13.373
Ryzen 5 2600
18.940
Ryzen 5 2600X
20.611
Ryzen 7 1700
19.819
Ryzen 7 1800X
23.061
Ryzen 7 2700
22.008
Ryzen 7 2700X
24.737
Ryzen Threadripper 1950X
40.048
Willow16C
18.902

Geometric mean based upon tests: pts/rodinia, pts/compress-7zip, pts/stockfish, pts/asmfish, pts/build-linux-kernel, pts/build-php, pts/compress-zstd, pts/m-queens and pts/openssl


Geometric Mean Of Single-Threaded Tests
Result Composite - Intel / AMD Large Ubuntu Linux CPU Benchmark Comparison
Relative Performance, More Is Better
2 x E5-2667v3
3.047
AMD A10-5800K
3.869
AMD A10-7800
3.328
AMD A10-7870K
3.734
AMD A6-7400K
3.660
AMD Athlon II X3 425
2.519
AMD E-350
1.000
AMD FX-8350
3.962
Core i3 2100
3.775
Core i5 2400S
4.070
Core i5 3470T
4.234
Core i5 7500T
3.172
Core i5 7600K
6.137
Core i5 8400
6.224
Core i5 8500T
5.025
Core i7 5960X
4.629
Core i7 7740X
6.683
Core i7 870
3.325
Core i7 8700K
7.082
Core i7 990X
3.843
Core i9 7900X
6.298
Core i9 7980XE
5.549
Intel Core 2 Duo E8400
2.769
LenovoM700Tiny
2.561
Pentium G3258
4.153
Ryzen 5 2400G
5.654
Ryzen 5 2600
5.711
Ryzen 5 2600X
6.106
Ryzen 7 1700
5.280
Ryzen 7 1800X
5.848
Ryzen 7 2700
5.871
Ryzen 7 2700X
6.245
Ryzen Threadripper 1950X
5.569
Willow16C
4.314

Geometric mean based upon tests: pts/polybench-c, pts/fhourstones, pts/scimark2, pts/encode-flac and pts/encode-mp3

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