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Intel / AMD Large Ubuntu Linux CPU Benchmark Comparison

AMD Ryzen 3 5300U testing with a LENOVO LNVNB161216 (GQCN19WWV1.05 BIOS) and AMD RENOIR 2GB 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 i7 8700K) was 8.62x 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

Core i3 7100U

Processor: Intel Core i3-7100U @ 2.40GHz (2 Cores / 4 Threads), Motherboard: LENOVO 20J2S07700 (R0JET44W 1.29 BIOS), Chipset: Intel Xeon E3-1200 v6/7th, Memory: 12GB, Disk: 256GB Western Digital WDS256G1X0C-00ENX0, Graphics: Intel HD 620 3GB (1000MHz), Audio: Realtek ALC298, Monitor: ASUS VN247, Network: Intel I219-V + Intel 8265 / 8275

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: 3286x1080

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 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

MacMini2011-2415M

Processor: Intel Core i5-2415M @ 2.30GHz (2 Cores / 4 Threads), Motherboard: Apple Mac mini, Chipset: Intel 6, Memory: 2 x 8 GB DDR3-1333MHz, Disk: 240 06GB OCZ-AGILITY3, Graphics: Intel HD 3000 512MB, Monitor: HP 27er

OS: macOS 10.13.6, Kernel: 17.7.0 (x86_64), Compiler: Apple LLVM 10.0.0 (clang-1000.10.44.4) + GCC 4.2.1, File-System: APFS, Screen Resolution: 1920x1080

Environment Notes: XPC_FLAGS=0x0
Processor Notes: CPU Microcode: 47

Core i5 8250U

Processor: Intel Core i5-8250U @ 1.60GHz (4 Cores / 8 Threads), Motherboard: KBL Charmander_KL (V1.10 BIOS), Chipset: Intel Xeon E3-1200 v6/7th, Memory: 12GB, Disk: 500GB KINGSTON SA2000M8500G, Graphics: NVIDIA GeForce MX150 2GB (1480/3003MHz), Audio: Realtek ALC255, Monitor: LM156LF1L03, Network: Realtek RTL8111/8168/8411 + Qualcomm Atheros QCA9377 802.11ac

OS: Ubuntu 20.04, Kernel: 5.10.0-1044-oem (x86_64), Display Server: X Server 1.20.11, Display Driver: NVIDIA 470.57.02, OpenGL: 4.6.0, OpenCL: OpenCL 3.0 CUDA 11.4.94, Vulkan: 1.2.175, 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 powersave - CPU Microcode: 0xea - Thermald 1.9.1
OpenCL Notes: GPU Compute Cores: 384
Security Notes: itlb_multihit: KVM: Mitigation of VMX disabled + 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 i3 8130U

Processor: Intel Core i3-8130U @ 3.40GHz (2 Cores / 4 Threads), Motherboard: LENOVO 20LTS28S00 (R0QET41W 1.18 BIOS), Chipset: Intel Xeon E3-1200 v6/7th, Memory: 12GB, Disk: 120GB KINGSTON SV300S3, Graphics: Intel UHD 620 3GB (1000MHz), Audio: Realtek ALC257, Monitor: HP 27er, Network: Intel I219-V + Intel 8265 / 8275

OS: Ubuntu 20.04, Kernel: 5.11.0-27-generic (x86_64), Display Server: X Server 1.20.11, OpenGL: 4.6 Mesa 21.0.3, Vulkan: 1.2.145, Compiler: GCC 9.3.0, File-System: ext4, Screen Resolution: 3286x1080

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: 0xea
Security Notes: itlb_multihit: KVM: Mitigation of VMX disabled + 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 8265U

Processor: Intel Core i5-8265U @ 3.90GHz (4 Cores / 8 Threads), Motherboard: LENOVO 20N9S19A00 (R0YET28W 1.11 BIOS), Chipset: Intel Cannon Point-LP, Memory: 16GB, Disk: 256GB Western Digital WDS256G1X0C-00ENX0, Graphics: Intel UHD 620 3GB (1100MHz), Audio: Conexant CX8070, Monitor: HP 27er, Network: Realtek

RTL8111/8168/8411 + Intel-AC 9260

OS: Ubuntu 20.04, Kernel: 5.10.0-1044-oem (x86_64), Display Server: X Server 1.20.11, OpenGL: 4.6 Mesa 21.0.3, 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 powersave - CPU Microcode: 0xea
Security Notes: itlb_multihit: KVM: Mitigation of VMX disabled + l1tf: Not affected + mds: Mitigation of Clear buffers; SMT vulnerable + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Full generic retpoline IBPB: conditional IBRS_FW STIBP: conditional RSB filling + srbds: Mitigation of Microcode + tsx_async_abort: Not affected

Ryzen 3 5300U

Processor: AMD Ryzen 3 5300U @ 2.60GHz (4 Cores / 8 Threads), Motherboard: LENOVO LNVNB161216 (GQCN19WWV1.05 BIOS), Chipset: AMD Renoir Root Complex, Memory: 6GB, Disk: 256GB Western Digital WDS256G1X0C-00ENX0, Graphics: AMD RENOIR 2GB (1500/400MHz), Audio: AMD Device 1637, Monitor: HP 27er, Network: Realtek RTL8111/8168/8411 + Intel Wi-Fi 6 AX200

OS: Ubuntu 20.04, Kernel: 5.10.0-1045-oem (x86_64), Display Server: X Server 1.20.11, OpenGL: 4.6 Mesa 21.0.3 (LLVM 12.0.0), Vulkan: 1.2.145, Compiler: GCC 9.3.0, File-System: ext4, Screen Resolution: 3840x1080

Kernel Notes: Transparent Huge Pages: madvise
Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-9-HskZEa/gcc-9-9.3.0/debian/tmp-nvptx/usr,hsa --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq powersave (Boost: Enabled) - CPU Microcode: 0x8608103
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Full AMD retpoline IBPB: conditional IBRS_FW STIBP: conditional RSB filling + srbds: Not affected + tsx_async_abort: Not affected

Ryzen 3 5300U 16GB

Processor: AMD Ryzen 3 5300U @ 2.60GHz (4 Cores / 8 Threads), Motherboard: LENOVO LNVNB161216 (GQCN19WWV1.05 BIOS), Chipset: AMD Renoir Root Complex, Memory: 14GB, Disk: 256GB Western Digital WDS256G1X0C-00ENX0, Graphics: AMD RENOIR 2GB (1500/400MHz), Audio: AMD Device 1637, Monitor: HP 27er, Network: Realtek RTL8111/8168/8411 + Intel Wi-Fi 6 AX200

OS: Ubuntu 20.04, Kernel: 5.10.0-1045-oem (x86_64), Display Server: X Server 1.20.11, OpenGL: 4.6 Mesa 21.0.3 (LLVM 12.0.0), Vulkan: 1.2.145, Compiler: GCC 9.3.0, File-System: ext4, Screen Resolution: 3840x1080

Kernel Notes: Transparent Huge Pages: madvise
Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-9-HskZEa/gcc-9-9.3.0/debian/tmp-nvptx/usr,hsa --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq ondemand (Boost: Enabled) - CPU Microcode: 0x8608103
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Full AMD retpoline IBPB: conditional IBRS_FW STIBP: conditional RSB filling + srbds: Not affected + tsx_async_abort: Not affected

| | AMD EPYC 3501 | AMD EPYC 7402 | AMD EPYC 7452 | AMD EPYC 7742 | AMD EPYC 7763 | AMD EPYC 7H12 | AMD EPYC 7H12 | Ryzen Threadripper 1950X | Ryzen Threadripper 1950X | Ryzen Threadripper 1950X | Ryzen Threadripper 1950X | Ryzen Threadripper 1950X | Ryzen Threadripper 1950X | Ryzen Threadripper 1950X | Intel Core i9-9980XE | Pentium G3258 | Core i5-3570K | Core i5-4460 | Core i5-4670K | Core i5-7600K | Core i7-3770K | Core i7-4790K | Core i7-5820K | Core i7-6800K | Core i7-7820X | Core i7-7900X | Core i9-7980XE | Core i9-9980XE | Core i9-9980XE | Core i9-9

Intel / AMD Large Ubuntu Linux CPU Benchmark Comparison

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Intel / AMD Large Ubuntu Linux CPU Benchmark Comparison

Timed Linux Kernel Compilation - Time To Compile (sec)	2	6	4	3	2	5	1	1	1	9	9	8	8	7	4	6	4	4	3	1	1	8	1	2	8	1	5	3
	3	8	8	3	9	1	6	5	0	4	4	4	7	7	7	2	2	3	0	5	1	8	0	3	0	5	5	5
	8	3	1	8	9	2	7	9	4	.	.	.	.	.	.	5	0	9	4	7	2	.	6	5	.	5	.	.
	4	.	.	.	.	.	.	.	.	8	7	3	4	0	1	.	.	.	.	.	.	7	.	.	9	.	8	8
		5	4	9	1	5	3	9	6	5	1	2	5	0	4	4	6	5	6	3	2	7	2	7	9	6	9	3
		1	5	1	2	0	6	8	6							0	7	9	5	9	5		7	6		8		
Normalized	1	5	7	1	1	6	2	2	3	3	3	4	4	4	7	5	8	8	1	2	3	4	3	1	4	2	6	1
	.	.	.	0	1	.	1	2	4	7	7	2	0	6	6	.	.	.	1	2	1	0	3	5	4	3	4	0
	5	2	4	.	.	9	.	.	.	.	.	.	.	.	.	7	5	1	.	.	.	.	.	.	.	.	.	0
	%	4	4	5	9	9	4	4	2	7	8	4	9	5	0	3	2	5	7	7	9	3	7	2	2	0	1	%
		%	%	7	8	%	1	%	3	8	3	9	7	3	1	%	%	%	6	7	2	6	2	%	4	2	1	
				%	%		%		%	%	%	%	%	%	%				%	%	%	%	%		%	%	%	
Standard Deviation	0	0	0	0	0	0	1	1	1	1	1	1	1	1	2	0	0	0	0	0	1	2	1	0	1	2	2	3
	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	%	.	.	.	.	.
	4	4	7	7	9	6	4	1	3	3	6	4	7	5	9	4	5	6	6	8	1	2		7	3	3	3	3
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%		%	%	%	%	%

Intel / AMD Large Ubuntu Linux CPU Benchmark Comparison

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Intel / AMD Large Ubuntu Linux CPU Benchmark Comparison

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Intel / AMD Large Ubuntu Linux CPU Benchmark Comparison

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Intel / AMD Large Ubuntu Linux CPU Benchmark Comparison

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Intel / AMD Large Ubuntu Linux CPU Benchmark Comparison

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Intel / AMD Large Ubuntu Linux CPU Benchmark Comparison

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Intel / AMD Large Ubuntu Linux CPU Benchmark Comparison

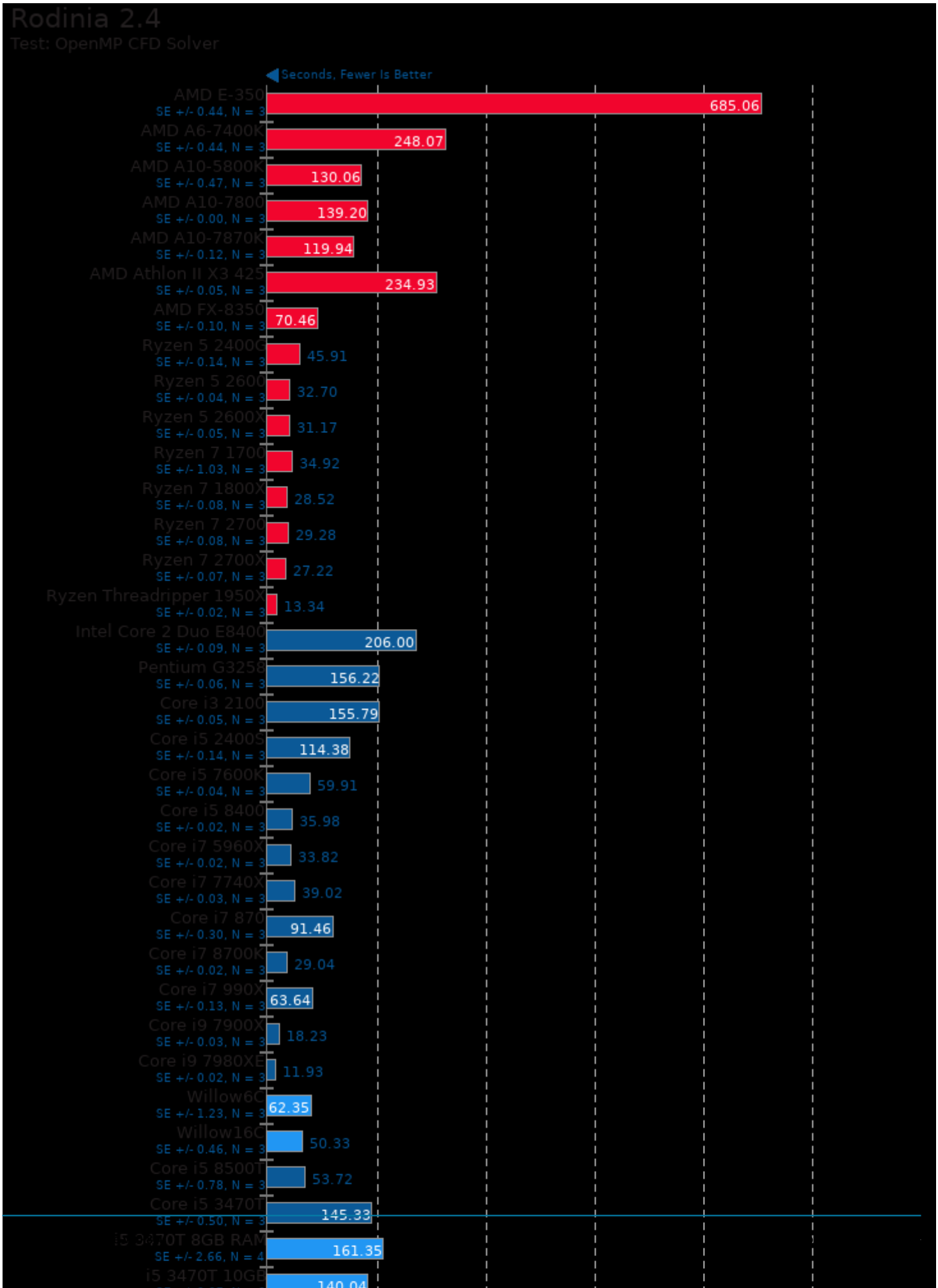
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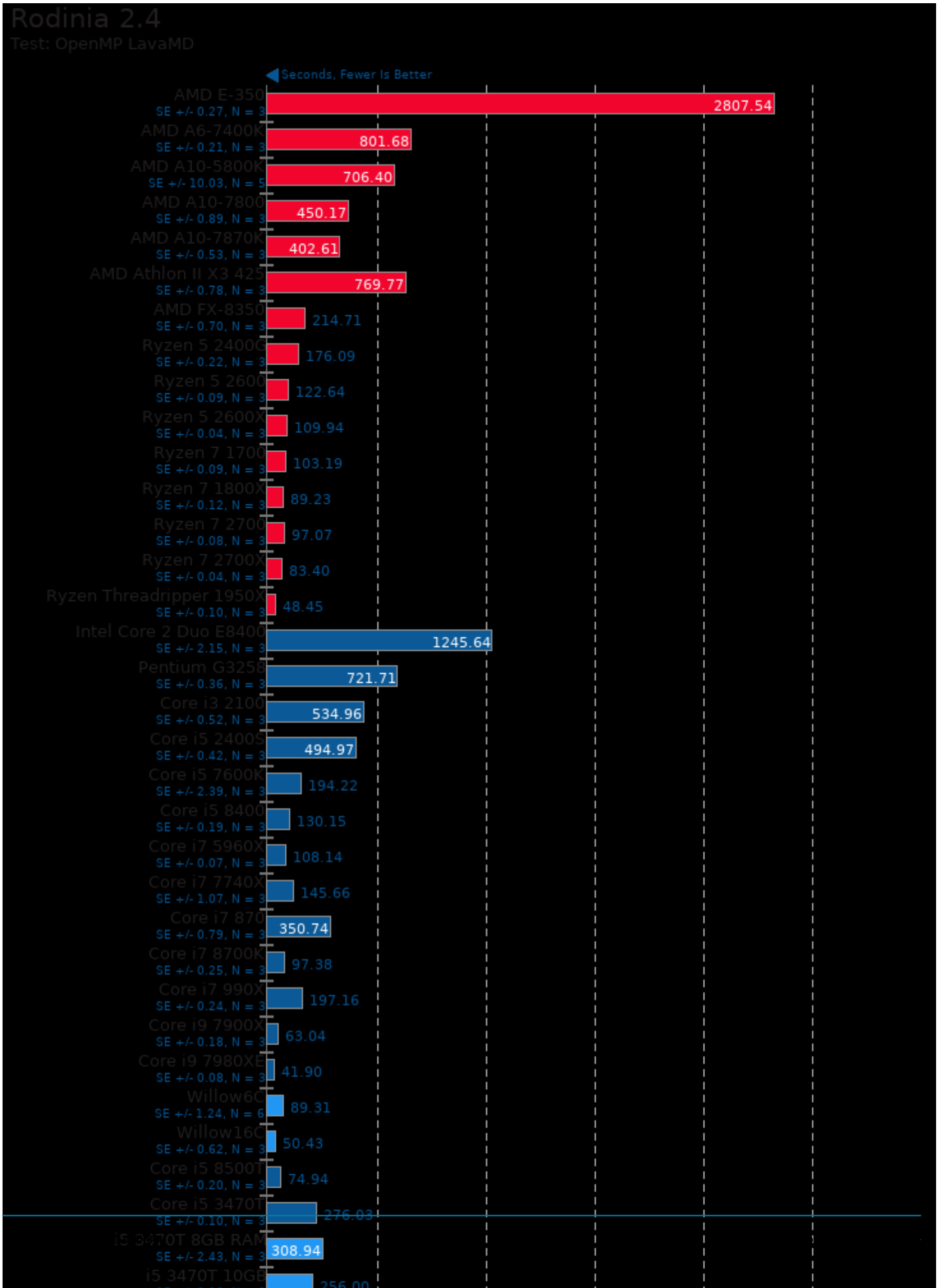
Intel / AMD Large Ubuntu Linux CPU Benchmark Comparison

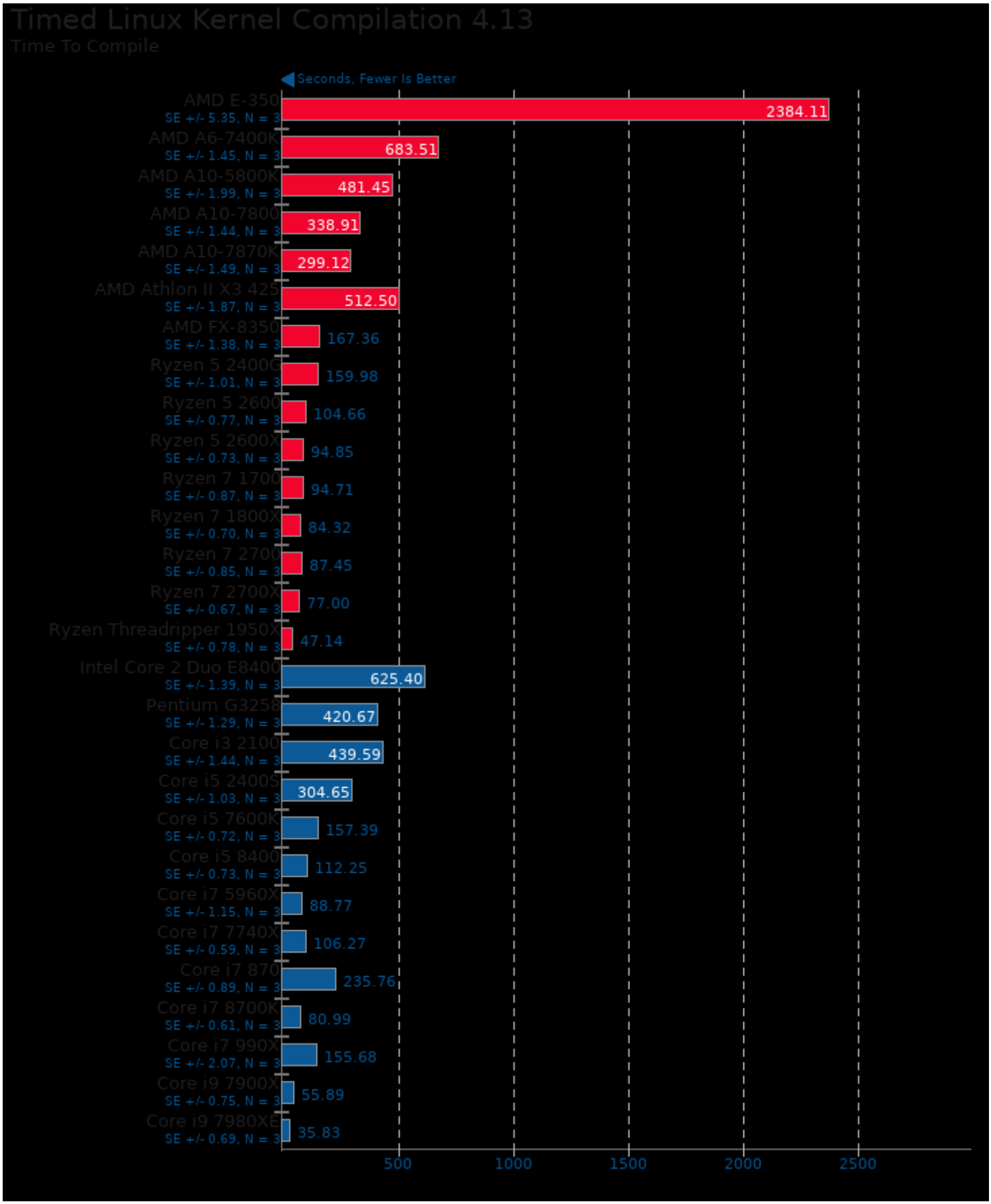
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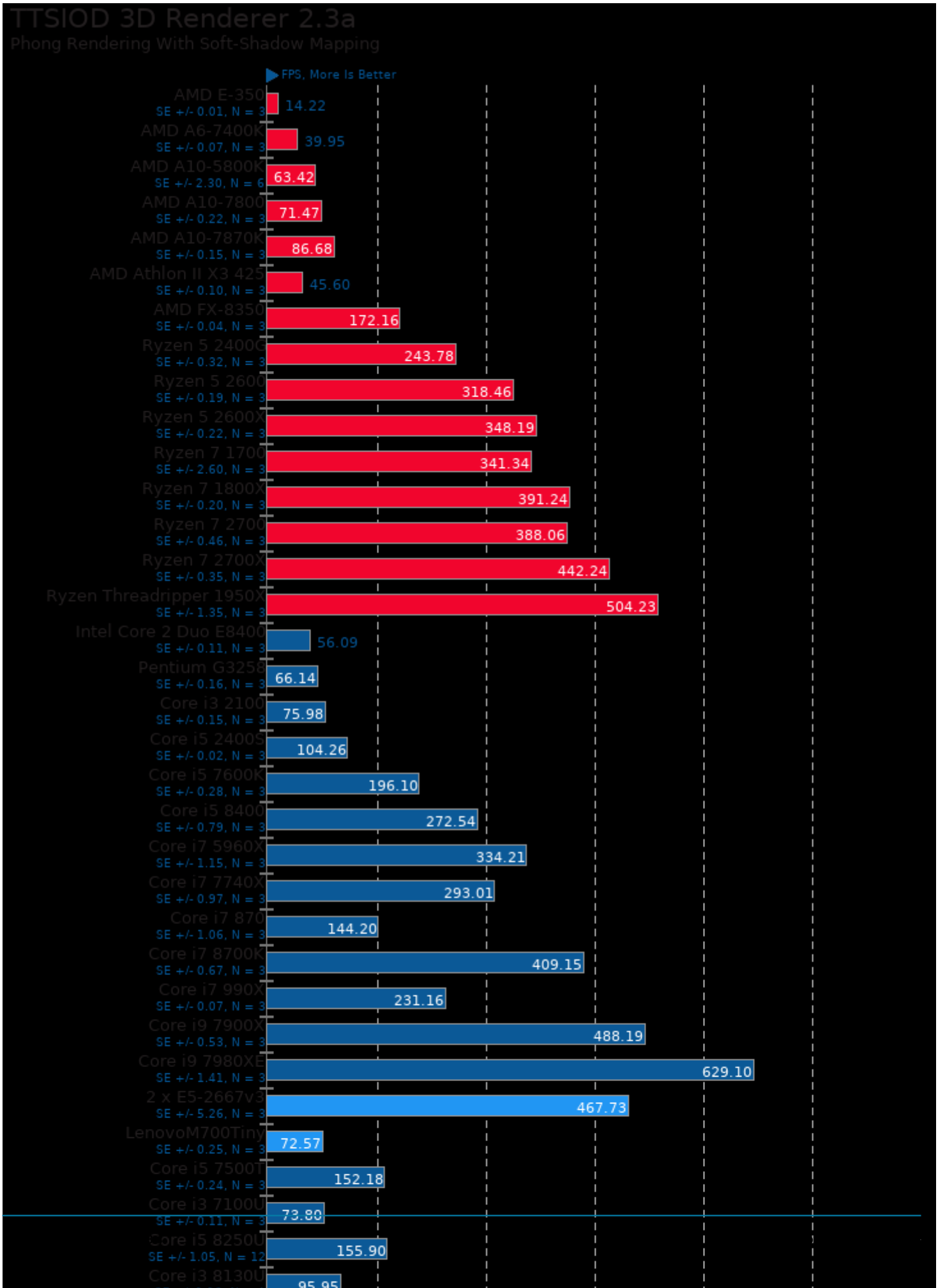
Tinymembench - Standard Memcpy - Standard Memset	2	5	5	5	6	4	6		1	2	1	7	9	1		1	3	7		8	2			
	0	5	3	4	6	4	6		2	7	8	4	3	7		6	8	6		0	5			
	4	7	7	9	1	5	1		4	8	9	1	0	7		0	9	1		0	6			
	1	9	4	1	6	1	2		6	1	7	8	9	3		1	8	1		6	6			
									7		2			6		3	8				0			
Normalized	5	1	1	1	1	1	1		3	7	4	1	2	4		4	1	1		2	6			
	.	4	3	4	6	1	6		1	.	8	9	3	5		1	0	9		0	5			
	2	.	.	.	.	.	.		.	1	.	.	.	.		.	0	.		.	.			
	4	3	7	0	9	4	9		9	3	6	0	8	4		0	%	5		5	8			
	%	1	8	8	7	2	6		8	%	6	3	8	9		7		2		3	2			
		%	%	%	%	%	%		%		%	%	%	%		%		%		%	%			

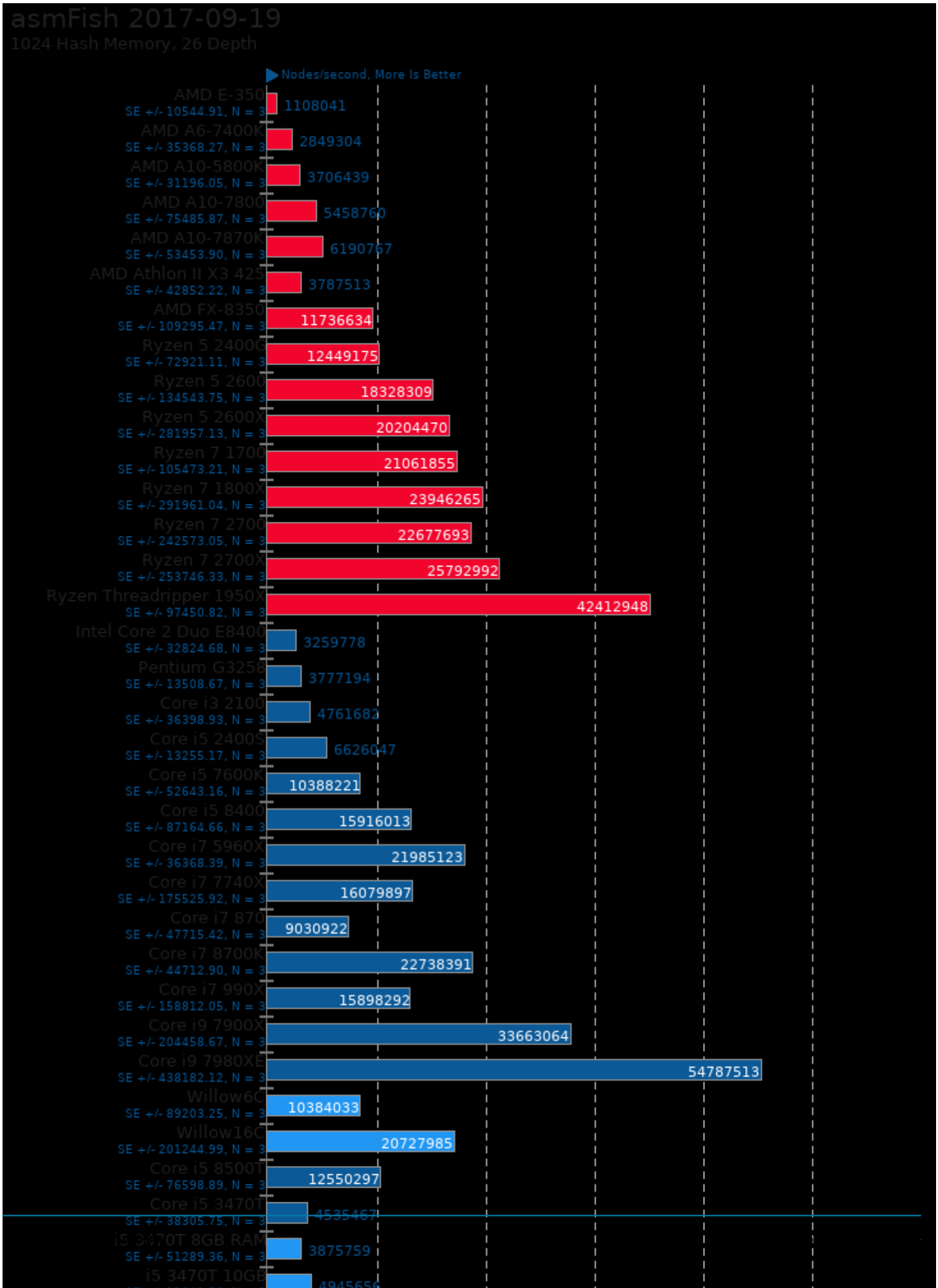
Tinymembench - Standard Memset (MB	7	7	1	2	1	1	5	1	1	1	2	1	2	2	3	5	9		
	3	3	9	4	2	2	8	5	5	4	7	6	2	1	2	4	2		
	8	3	2	8	2	3	6	7	8	4	7	2	6	3	0	4	5		
	7	2	1	6	4	7	5	9	4	8	9	6	7	1	6	0	6		
			6	6	3	6		6	6	2	5	1	4	5	3				
Normalized	2	2	5	7	3	3	1	4	4	4	8	5	7	6	1	1	2		
	3	2	9	7	8	8	8	9	9	5	6	0	0	6	0	6	8		
	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	.	.		
	0	8	9	5	1	6	2	2	4	1	6	7	7	4	%	9	8		
	4	7	3	5	8	%	9	7	2	7	9	2	2	8		7	7		
	%	%	%	%	%		%	%	%	%	%	%	%	%		%	%		

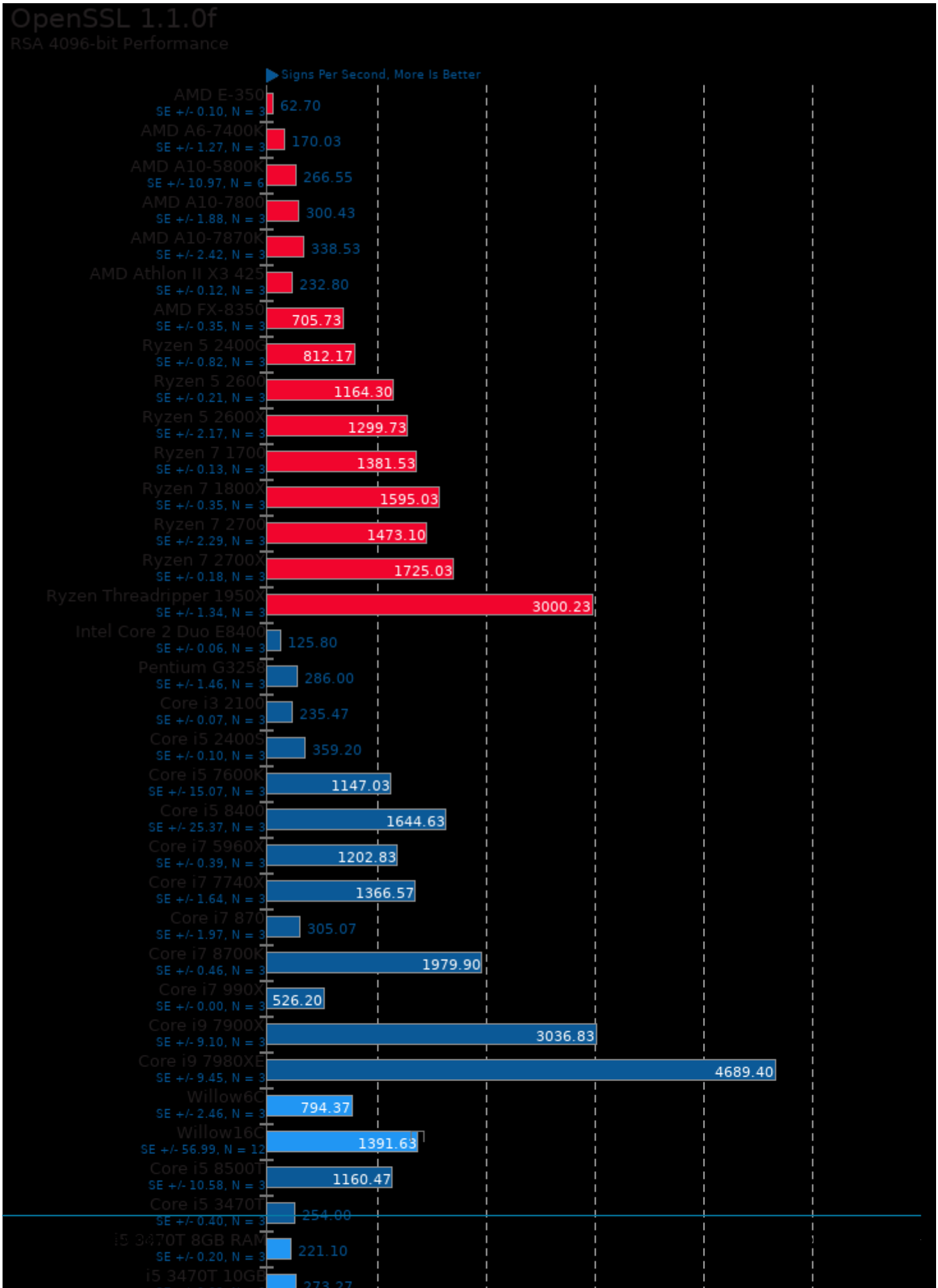

Rodinia 2.4
Test: OpenMP CFD Solver
Seconds, Fewer Is Better
AMD E-350
SE +/- 0.44, N = 3
685.06
AMD A6-7400K
SE +/- 0.44, N = 3
248.07
AMD A10-5800K
SE +/- 0.47, N = 3
130.06
AMD A10-7800
SE +/- 0.00, N = 3
139.20
AMD A10-7870K
SE +/- 0.12, N = 3
119.94
AMD Athlon II X3 425
SE +/- 0.05, N = 3
234.93
AMD FX-8350
SE +/- 0.10, N = 3
70.46
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
Intel Core 2 Duo E8400
SE +/- 0.09, N = 3
206.00
Pentium G3258
SE +/- 0.06, N = 3
156.22
Core i3 2100
SE +/- 0.05, N = 3
155.79
Core i5 2400S
SE +/- 0.14, N = 3
114.38
Core i5 7600K
SE +/- 0.04, N = 3
59.91
Core i5 8400
SE +/- 0.02, N = 3
35.98
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
Willow6C
SE +/- 1.23, N = 3
62.35
Willow16C
SE +/- 0.46, N = 3
50.33
Core i5 8500T
SE +/- 0.78, N = 3
53.72
Core i5 3470T
SE +/- 0.50, N = 3
145.33
i5 3470T 8GB RAM
SE +/- 2.66, N = 4
161.35
i5 3470T 10GB
140.04

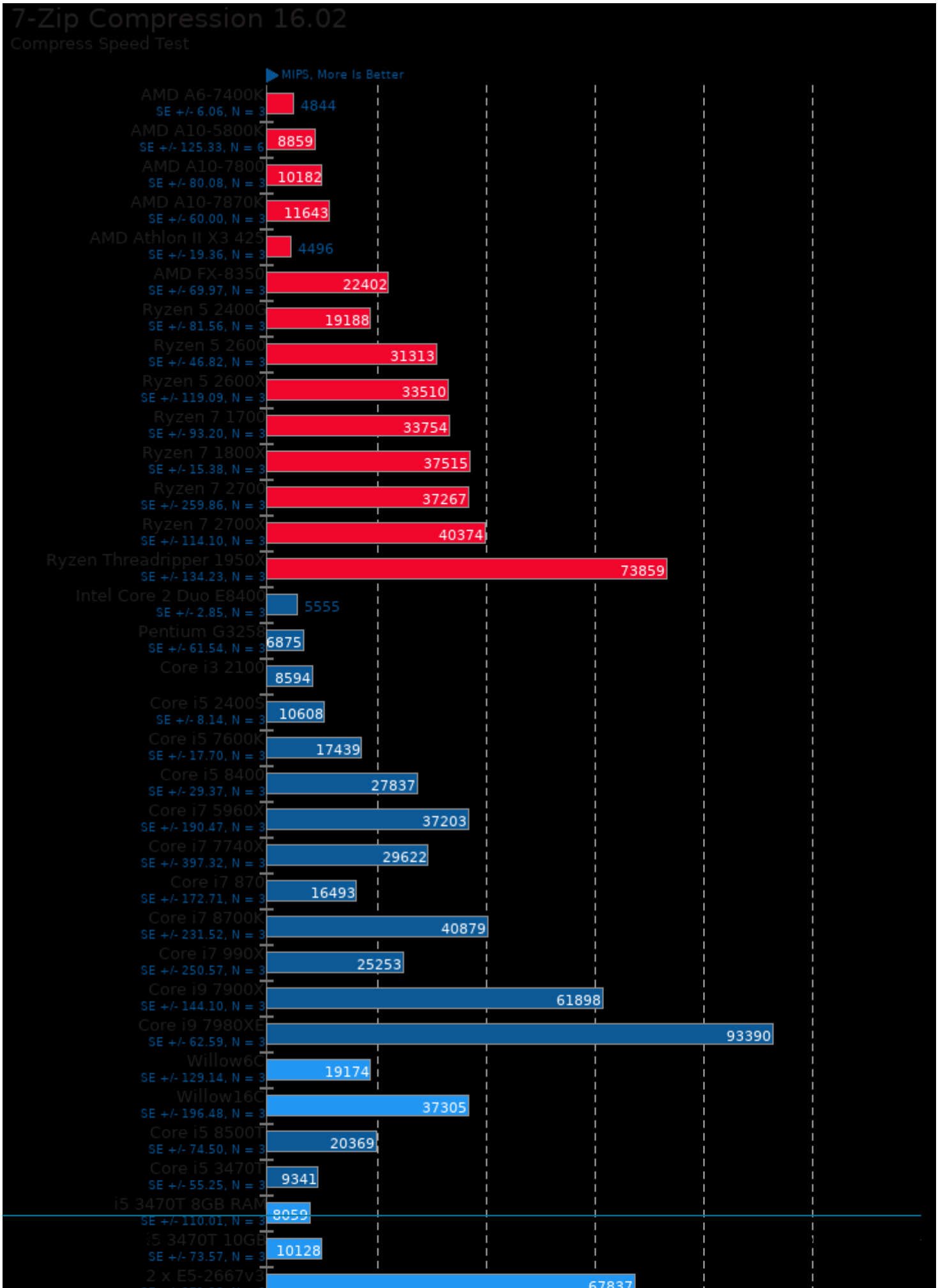

Rodinia 2.4
Test: OpenMP LavaMD
Seconds, Fewer Is Better
AMD E-350
SE +/- 0.27, N = 3
2807.54
AMD A6-7400K
SE +/- 0.21, N = 3
801.68
AMD A10-5800K
SE +/- 10.03, N = 5
706.40
AMD A10-7800
SE +/- 0.89, N = 3
450.17
AMD A10-7870K
SE +/- 0.53, N = 3
402.61
AMD Athlon II X3 425
SE +/- 0.78, N = 3
769.77
AMD FX-8350
SE +/- 0.70, N = 3
214.71
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
Intel Core 2 Duo E8400
SE +/- 2.15, N = 3
1245.64
Pentium G3258
SE +/- 0.36, N = 3
721.71
Core i3 2100
SE +/- 0.52, N = 3
534.96
Core i5 2400S
SE +/- 0.42, N = 3
494.97
Core i5 7600K
SE +/- 2.39, N = 3
194.22
Core i5 8400
SE +/- 0.19, N = 3
130.15
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
Willow6C
SE +/- 1.24, N = 6
89.31
Willow16C
SE +/- 0.62, N = 3
50.43
Core i5 8500T
SE +/- 0.20, N = 3
74.94
Core i5 3470T
SE +/- 0.10, N = 3
276.03
i5 3470T 8GB RAM
SE +/- 2.43, N = 3
308.94
i5 3470T 10GB
256.00

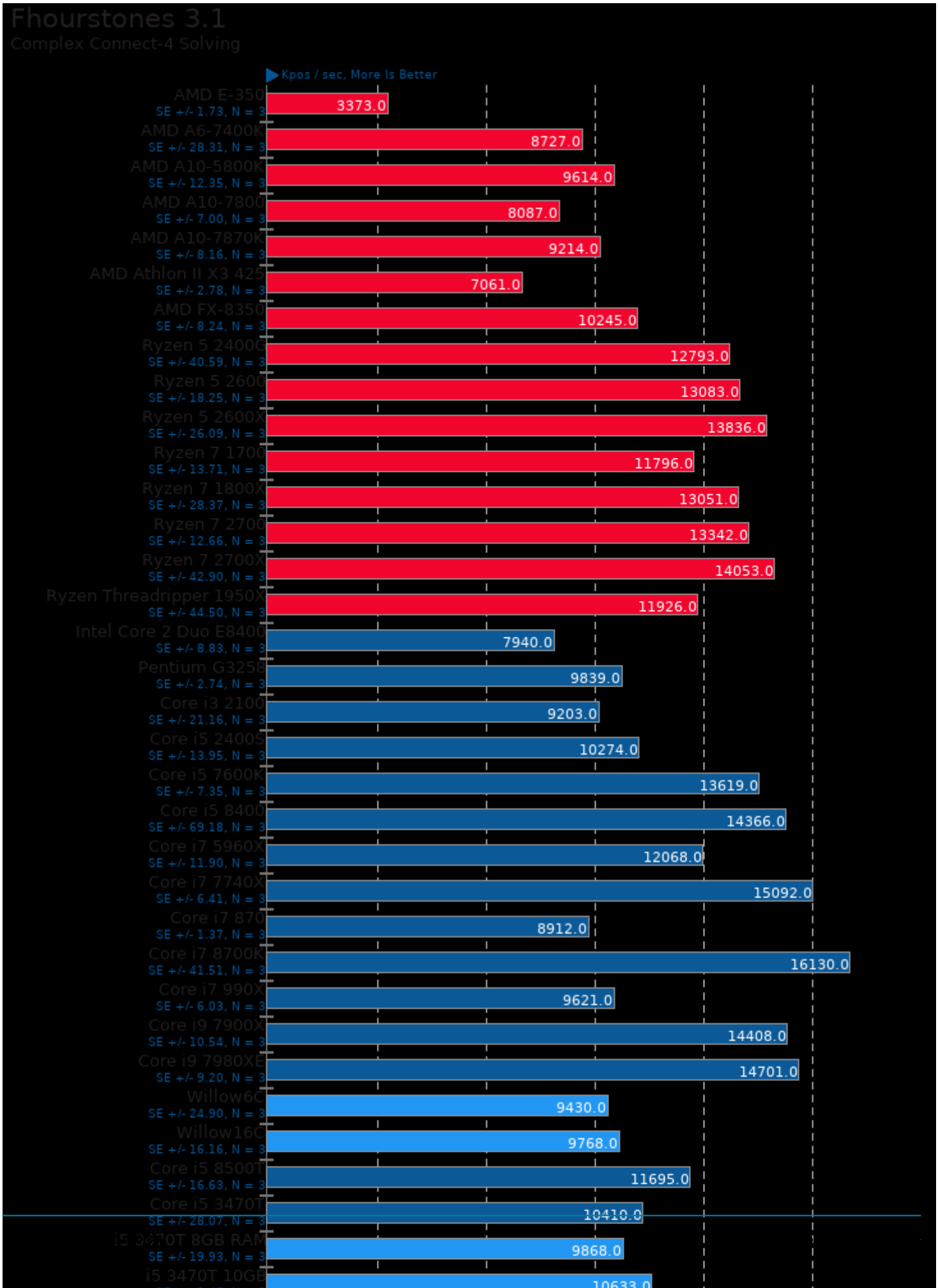

Timed Linux Kernel Compilation 4.13
Time To Compile
Seconds, Fewer Is Better
AMD E-350
SE +/- 5.35, N = 3
2384.11
AMD A6-7400K
SE +/- 1.45, N = 3
683.51
AMD A10-5800K
SE +/- 1.99, N = 3
481.45
AMD A10-7800
SE +/- 1.44, N = 3
338.91
AMD A10-7870K
SE +/- 1.49, N = 3
299.12
AMD Athlon II X3 425
SE +/- 1.87, N = 3
512.50
AMD FX-8350
SE +/- 1.38, N = 3
167.36
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
Intel Core 2 Duo E8400
SE +/- 1.39, N = 3
625.40
Pentium G3258
SE +/- 1.29, N = 3
420.67
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
500
1000
1500
2000
2500

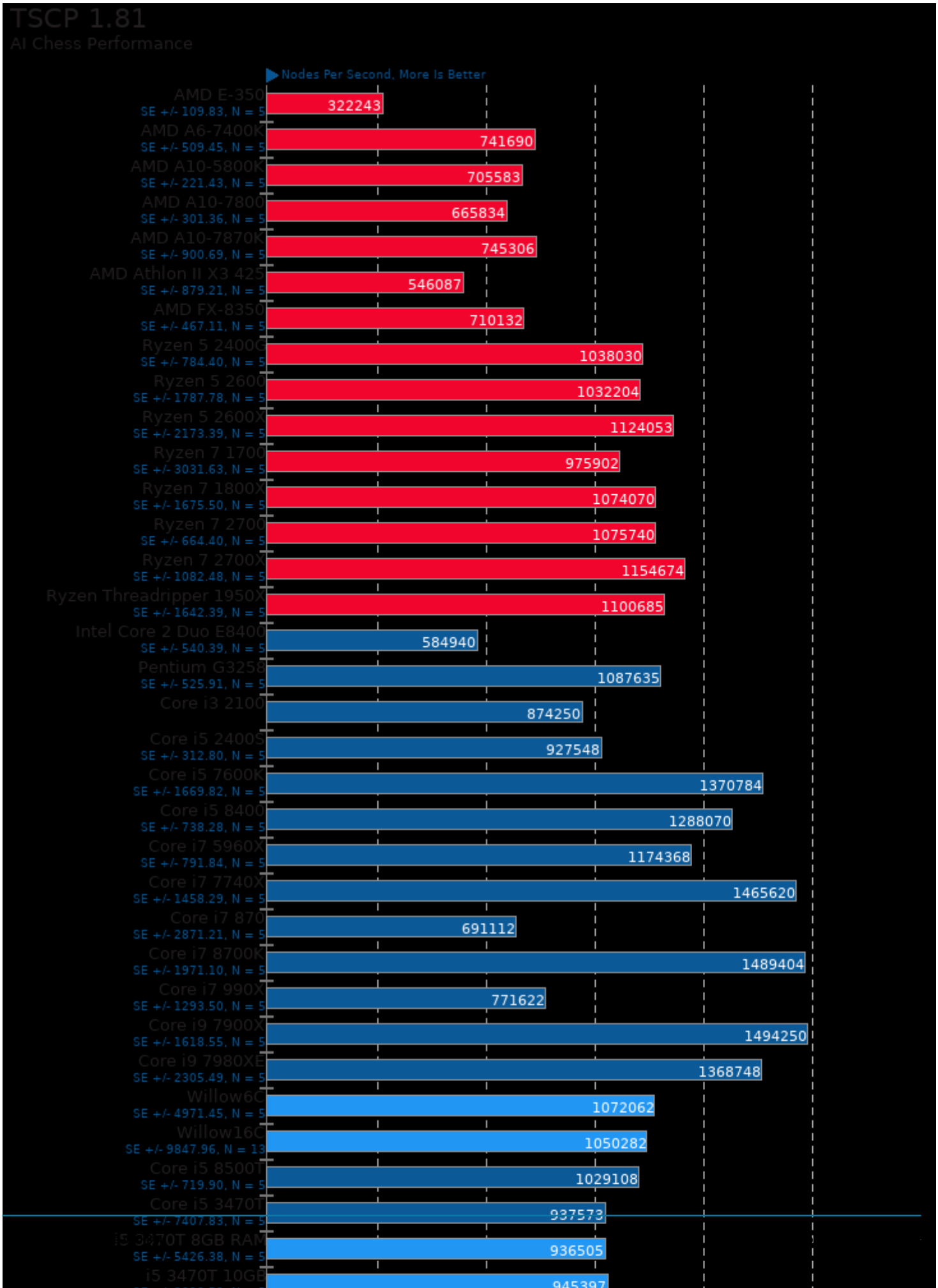

TTSIOD 3D Renderer 2.3a
Phong Rendering With Soft-Shadow Mapping
FPS, More Is Better
AMD E-350
SE +/- 0.01, N = 3
14.22
AMD A6-7400K
SE +/- 0.07, N = 3
39.95
AMD A10-5800K
SE +/- 2.30, N = 6
63.42
AMD A10-7800
SE +/- 0.22, N = 3
71.47
AMD A10-7870K
SE +/- 0.15, N = 3
86.68
AMD Athlon II X3 425
SE +/- 0.10, N = 3
45.60
AMD FX-8350
SE +/- 0.04, N = 3
172.16
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
Intel Core 2 Duo E8400
SE +/- 0.11, N = 3
56.09
Pentium G3258
SE +/- 0.16, N = 3
66.14
Core i3 2100
SE +/- 0.15, N = 3
75.98
Core i5 2400S
SE +/- 0.02, N = 3
104.26
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
2 x E5-2667v3
SE +/- 5.26, N = 3
467.73
LenovoM700Tiny
SE +/- 0.25, N = 3
72.57
Core i5 7500T
SE +/- 0.24, N = 3
152.18
Core i3 7100U
SE +/- 0.11, N = 3
73.80
Core i5 8250U
SE +/- 1.05, N = 12
155.90
Core i3 8130U
95.95

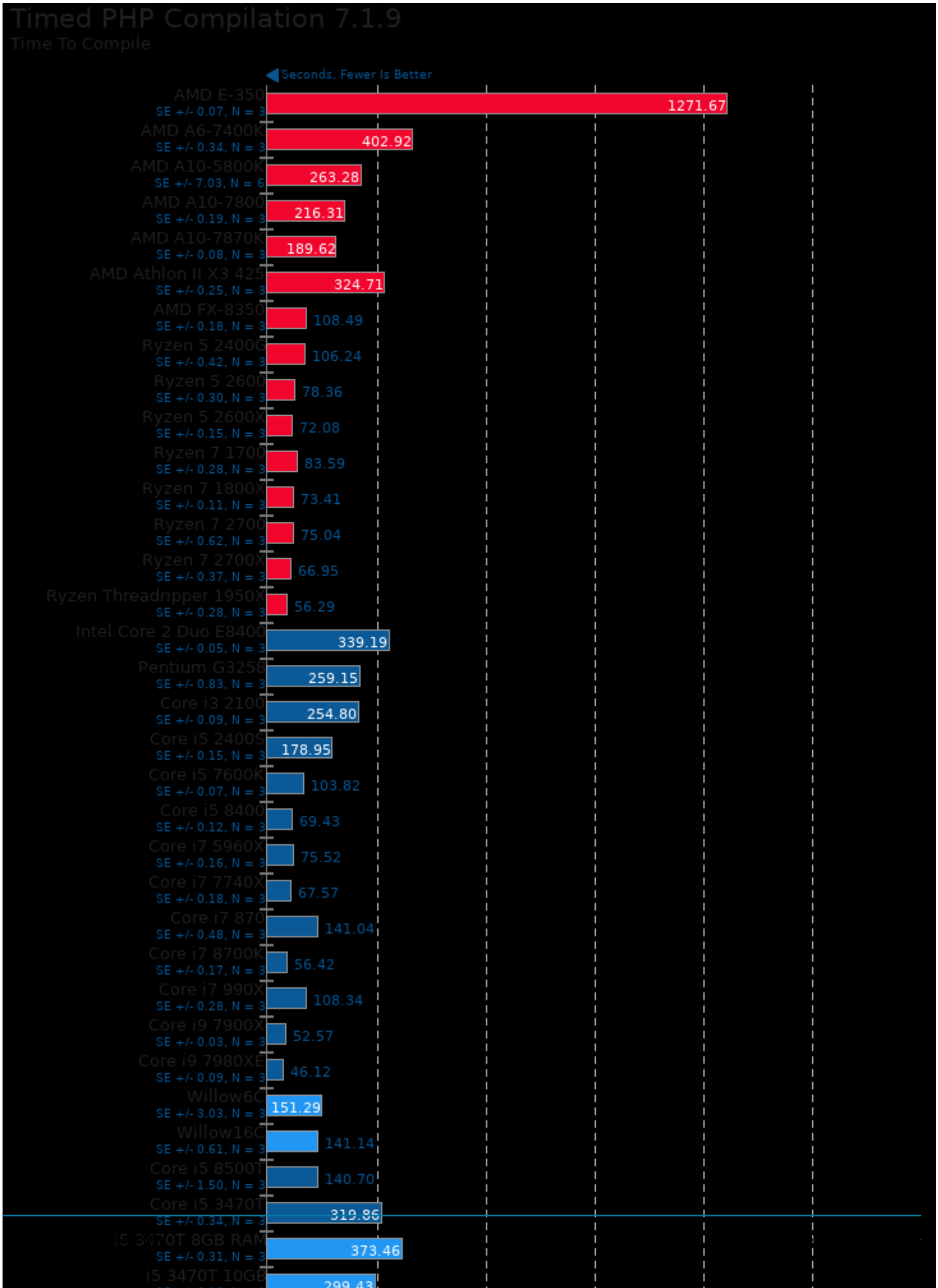

asmFish 2017-09-19
1024 Hash Memory, 26 Depth
Nodes/second, More Is Better
AMD E-350
SE +/- 10544.91, N = 3
1108041
AMD A6-7400K
SE +/- 35368.27, N = 3
2849304
AMD A10-5800K
SE +/- 31196.05, N = 3
3706439
AMD A10-7800
SE +/- 75485.87, N = 3
5458760
AMD A10-7870K
SE +/- 53453.90, N = 3
6190767
AMD Athlon II X3 425
SE +/- 42852.22, N = 3
3787513
AMD FX-8350
SE +/- 109295.47, N = 3
11736634
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
Intel Core 2 Duo E8400
SE +/- 32824.68, N = 3
3259778
Pentium G3258
SE +/- 13508.67, N = 3
3777194
Core i3 2100
SE +/- 36398.93, N = 3
4761682
Core i5 2400S
SE +/- 13255.17, N = 3
6626047
Core i5 7600K
SE +/- 52643.16, N = 3
10388221
Core i5 8400
SE +/- 87164.66, N = 3
15916013
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
Willow6C
SE +/- 89203.25, N = 3
10384033
Willow16C
SE +/- 201244.99, N = 3
20727985
Core i5 8500T
SE +/- 76598.89, N = 3
12550297
Core i5 3470T
SE +/- 38305.75, N = 3
4535467
i5 3470T 8GB RAM
SE +/- 51289.36, N = 3
3875759
i5 3470T 10GB
4945656

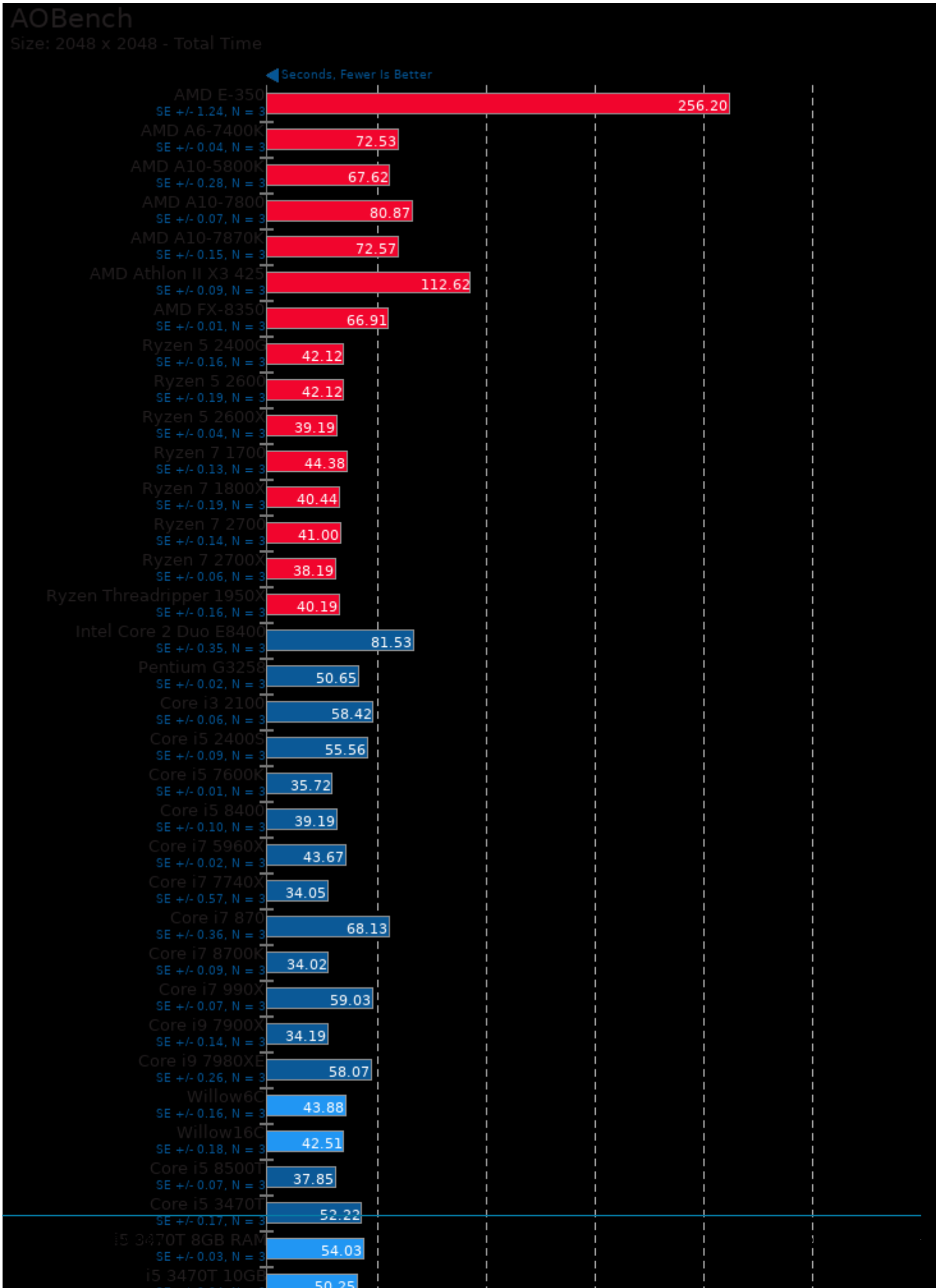

OpenSSL 1.1.0f
RSA 4096-bit Performance
Signs Per Second, More Is Better
AMD E-350
SE +/- 0.10, N = 3
62.70
AMD A6-7400K
SE +/- 1.27, N = 3
170.03
AMD A10-5800K
SE +/- 10.97, N = 6
266.55
AMD A10-7800
SE +/- 1.88, N = 3
300.43
AMD A10-7870K
SE +/- 2.42, N = 3
338.53
AMD Athlon II X3 425
SE +/- 0.12, N = 3
232.80
AMD FX-8350
SE +/- 0.35, N = 3
705.73
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
Intel Core 2 Duo E8400
SE +/- 0.06, N = 3
125.80
Pentium G3258
SE +/- 1.46, N = 3
286.00
Core i3 2100
SE +/- 0.07, N = 3
235.47
Core i5 2400S
SE +/- 0.10, N = 3
359.20
Core i5 7600K
SE +/- 15.07, N = 3
1147.03
Core i5 8400
SE +/- 25.37, N = 3
1644.63
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
Willow6C
SE +/- 2.46, N = 3
794.37
Willow16C
SE +/- 56.99, N = 12
1391.63
Core i5 8500T
SE +/- 10.58, N = 3
1160.47
Core i5 3470T
SE +/- 0.40, N = 3
254.00
i5 3470T 8GB RAM
SE +/- 0.20, N = 3
221.10
i5 3470T 10GB
273.27

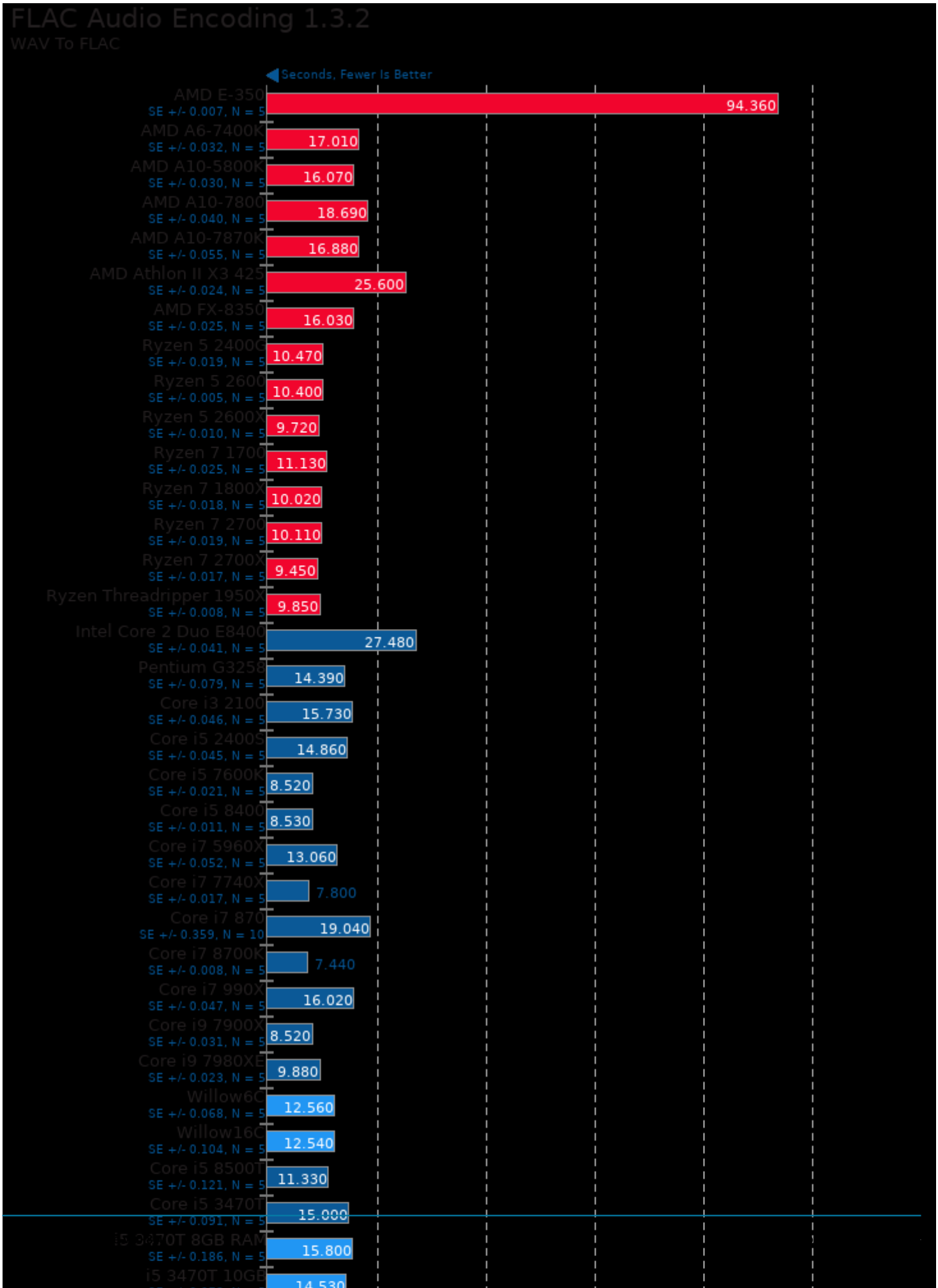

7-Zip Compression 16.02
Compress Speed Test
MIPS, More Is Better
AMD A6-7400K
SE +/- 6.06, N = 3
4844
AMD A10-5800K
SE +/- 125.33, N = 6
8859
AMD A10-7800
SE +/- 80.08, N = 3
10182
AMD A10-7870K
SE +/- 60.00, N = 3
11643
AMD Athlon II X3 425
SE +/- 19.36, N = 3
4496
AMD FX-8350
SE +/- 69.97, N = 3
22402
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
Intel Core 2 Duo E8400
SE +/- 2.85, N = 3
5555
Pentium G3258
SE +/- 61.54, N = 3
6875
Core i3 2100
8594
Core i5 2400S
SE +/- 8.14, N = 3
10608
Core i5 7600K
SE +/- 17.70, N = 3
17439
Core i5 8400
SE +/- 29.37, N = 3
27837
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
Willow6C
SE +/- 129.14, N = 3
19174
Willow16C
SE +/- 196.48, N = 3
37305
Core i5 8500T
SE +/- 74.50, N = 3
20369
Core i5 3470T
SE +/- 55.25, N = 3
9341
i5 3470T 8GB RAM
SE +/- 110.01, N = 3
8059
i5 3470T 10GB
SE +/- 73.57, N = 3
10128
2 x E5-2667v3
67837

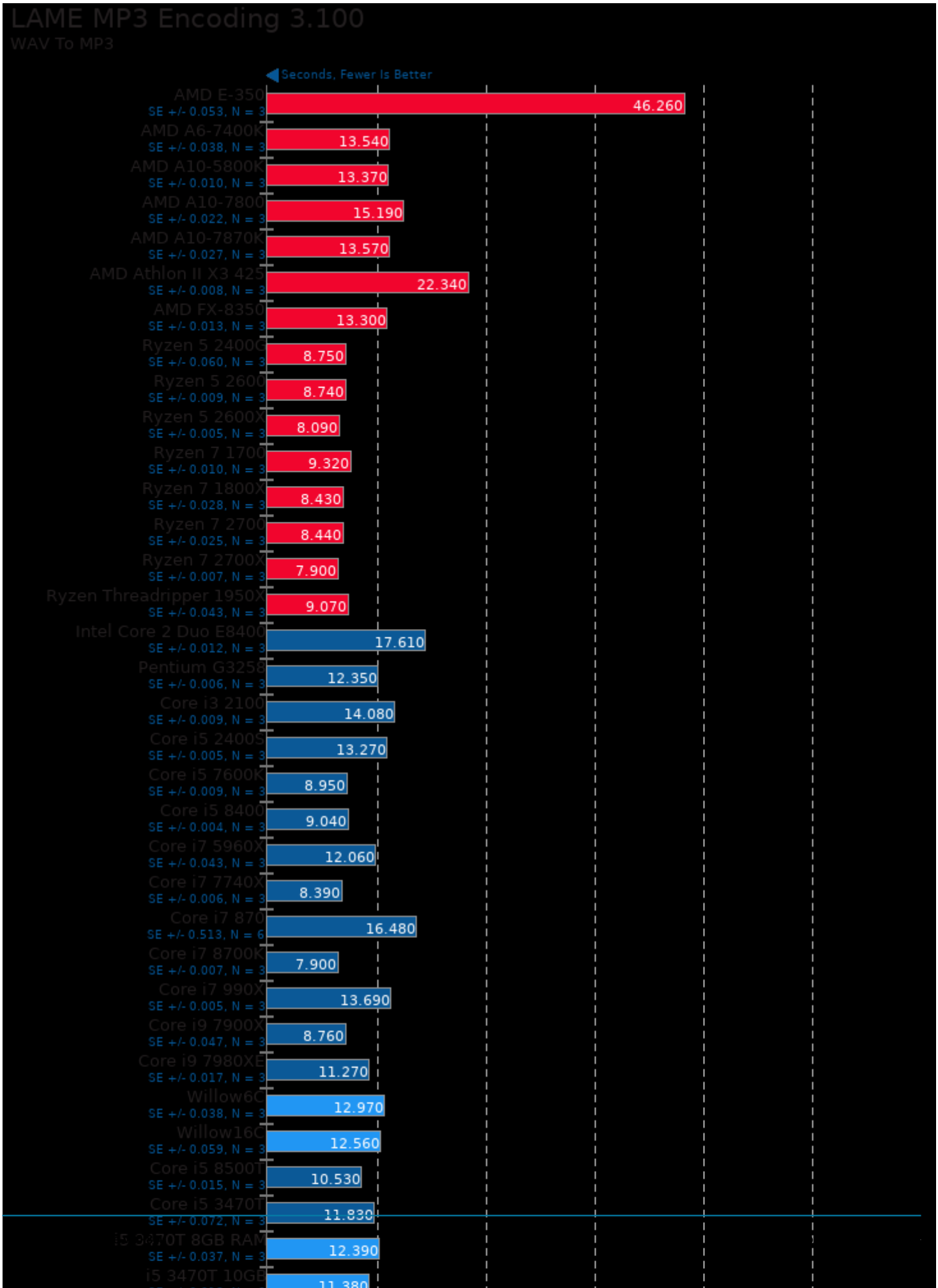

Fhourstones 3.1
Complex Connect-4 Solving
Kpos / sec, More Is Better
AMD E-350
SE +/- 1.73, N = 3
3373.0
AMD A6-7400K
SE +/- 28.31, N = 3
8727.0
AMD A10-5800K
SE +/- 12.35, N = 3
9614.0
AMD A10-7800
SE +/- 7.00, N = 3
8087.0
AMD A10-7870K
SE +/- 8.16, N = 3
9214.0
AMD Athlon II X3 425
SE +/- 2.78, N = 3
7061.0
AMD FX-8350
SE +/- 8.24, N = 3
10245.0
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
Intel Core 2 Duo E8400
SE +/- 8.83, N = 3
7940.0
Pentium G3258
SE +/- 2.74, N = 3
9839.0
Core i3 2100
SE +/- 21.16, N = 3
9203.0
Core i5 2400S
SE +/- 13.95, N = 3
10274.0
Core i5 7600K
SE +/- 7.35, N = 3
13619.0
Core i5 8400
SE +/- 69.18, N = 3
14366.0
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
Willow6C
SE +/- 24.90, N = 3
9430.0
Willow16C
SE +/- 16.16, N = 3
9768.0
Core i5 8500T
SE +/- 16.63, N = 3
11695.0
Core i5 3470T
SE +/- 28.07, N = 3
10410.0
i5 3470T 8GB RAM
SE +/- 19.93, N = 3
9868.0
i5 3470T 10GB
10633.0

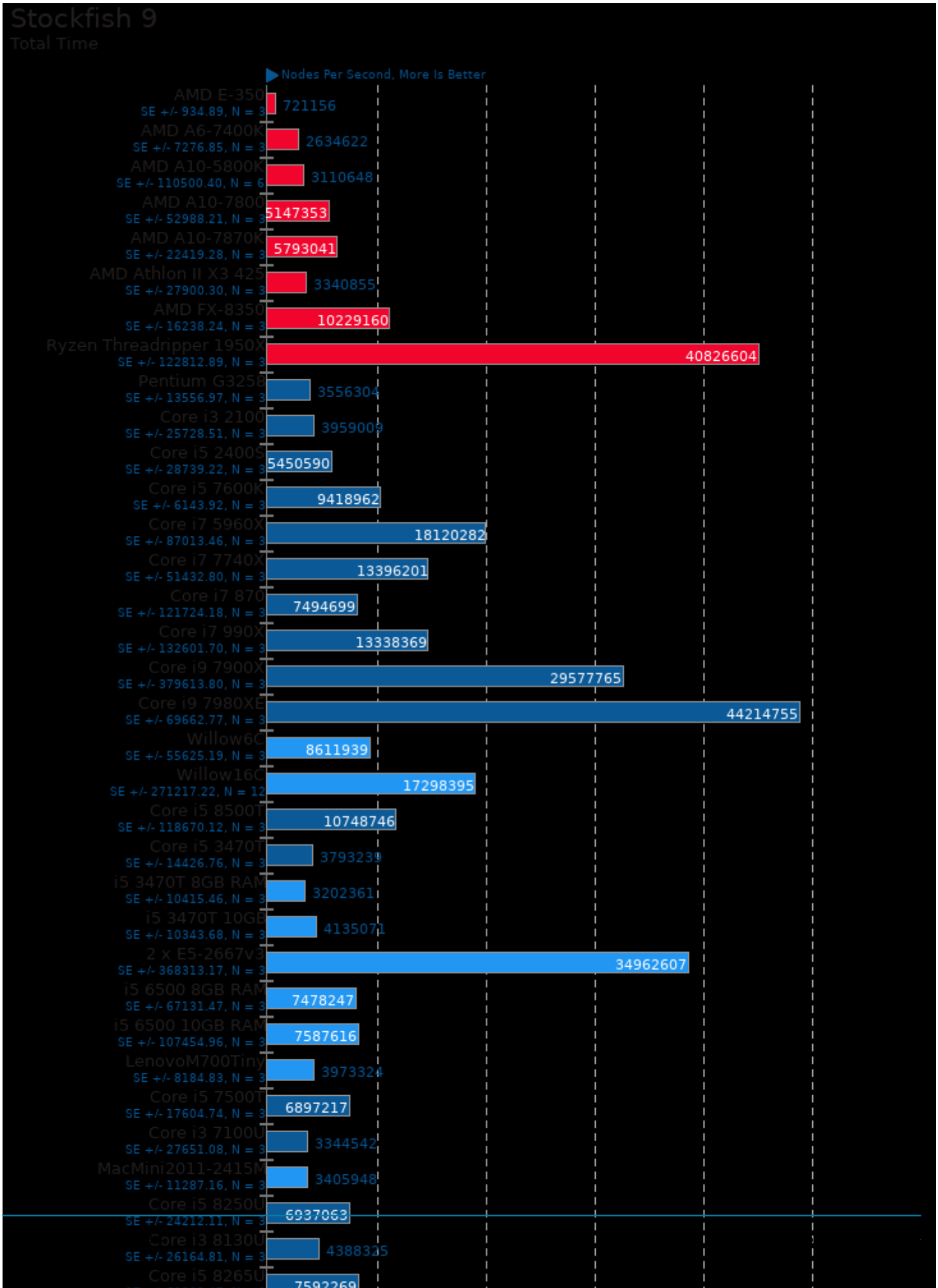

TSCP 1.81
AI Chess Performance
Nodes Per Second, More Is Better
AMD E-350
SE +/- 109.83, N = 5
322243
AMD A6-7400K
SE +/- 509.45, N = 5
741690
AMD A10-5800K
SE +/- 221.43, N = 5
705583
AMD A10-7800
SE +/- 301.36, N = 5
665834
AMD A10-7870K
SE +/- 900.69, N = 5
745306
AMD Athlon II X3 425
SE +/- 879.21, N = 5
546087
AMD FX-8350
SE +/- 467.11, N = 5
710132
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
Intel Core 2 Duo E8400
SE +/- 540.39, N = 5
584940
Pentium G3258
SE +/- 525.91, N = 5
1087635
Core i3 2100
874250
Core i5 2400S
SE +/- 312.80, N = 5
927548
Core i5 7600K
SE +/- 1669.82, N = 5
1370784
Core i5 8400
SE +/- 738.28, N = 5
1288070
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
Willow6C
SE +/- 4971.45, N = 5
1072062
Willow16C
SE +/- 9847.96, N = 13
1050282
Core i5 8500T
SE +/- 719.90, N = 5
1029108
Core i5 3470T
SE +/- 7407.83, N = 5
937573
i5 3470T 8GB RAM
SE +/- 5426.38, N = 5
936505
i5 3470T 10GB
945397

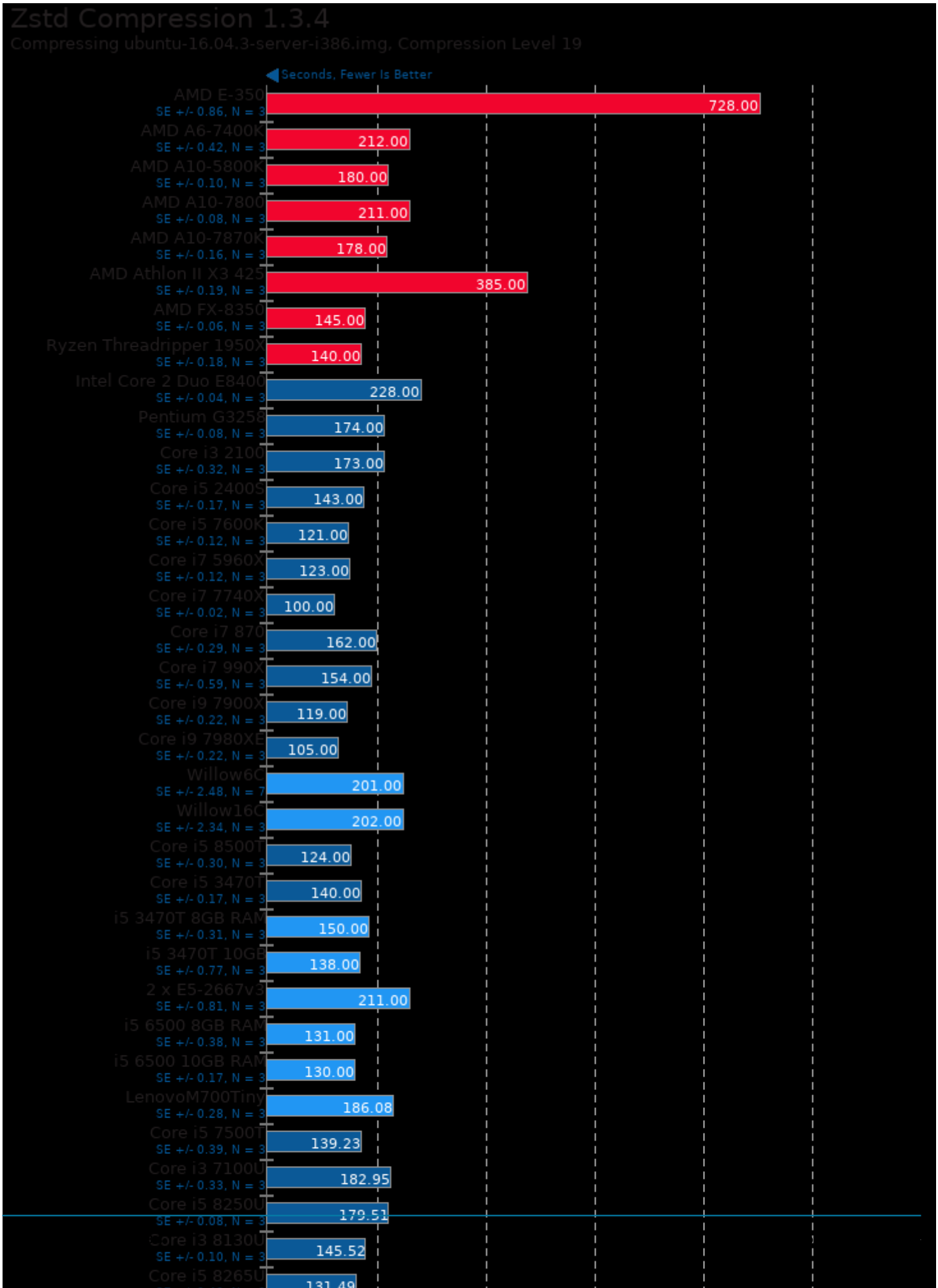

Timed PHP Compilation 7.1.9
Time To Compile
Seconds, Fewer Is Better
AMD E-350
SE +/- 0.07, N = 3
1271.67
AMD A6-7400K
SE +/- 0.34, N = 3
402.92
AMD A10-5800K
SE +/- 7.03, N = 6
263.28
AMD A10-7800
SE +/- 0.19, N = 3
216.31
AMD A10-7870K
SE +/- 0.08, N = 3
189.62
AMD Athlon II X3 425
SE +/- 0.25, N = 3
324.71
AMD FX-8350
SE +/- 0.18, N = 3
108.49
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
Intel Core 2 Duo E8400
SE +/- 0.05, N = 3
339.19
Pentium G3258
SE +/- 0.83, N = 3
259.15
Core i3 2100
SE +/- 0.09, N = 3
254.80
Core i5 2400S
SE +/- 0.15, N = 3
178.95
Core i5 7600K
SE +/- 0.07, N = 3
103.82
Core i5 8400
SE +/- 0.12, N = 3
69.43
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
Willow6C
SE +/- 3.03, N = 3
151.29
Willow16C
SE +/- 0.61, N = 3
141.14
Core i5 8500T
SE +/- 1.50, N = 3
140.70
Core i5 3470T
SE +/- 0.34, N = 3
319.86
i5 3470T 8GB RAM
SE +/- 0.31, N = 3
373.46
i5 3470T 10GB
299.43

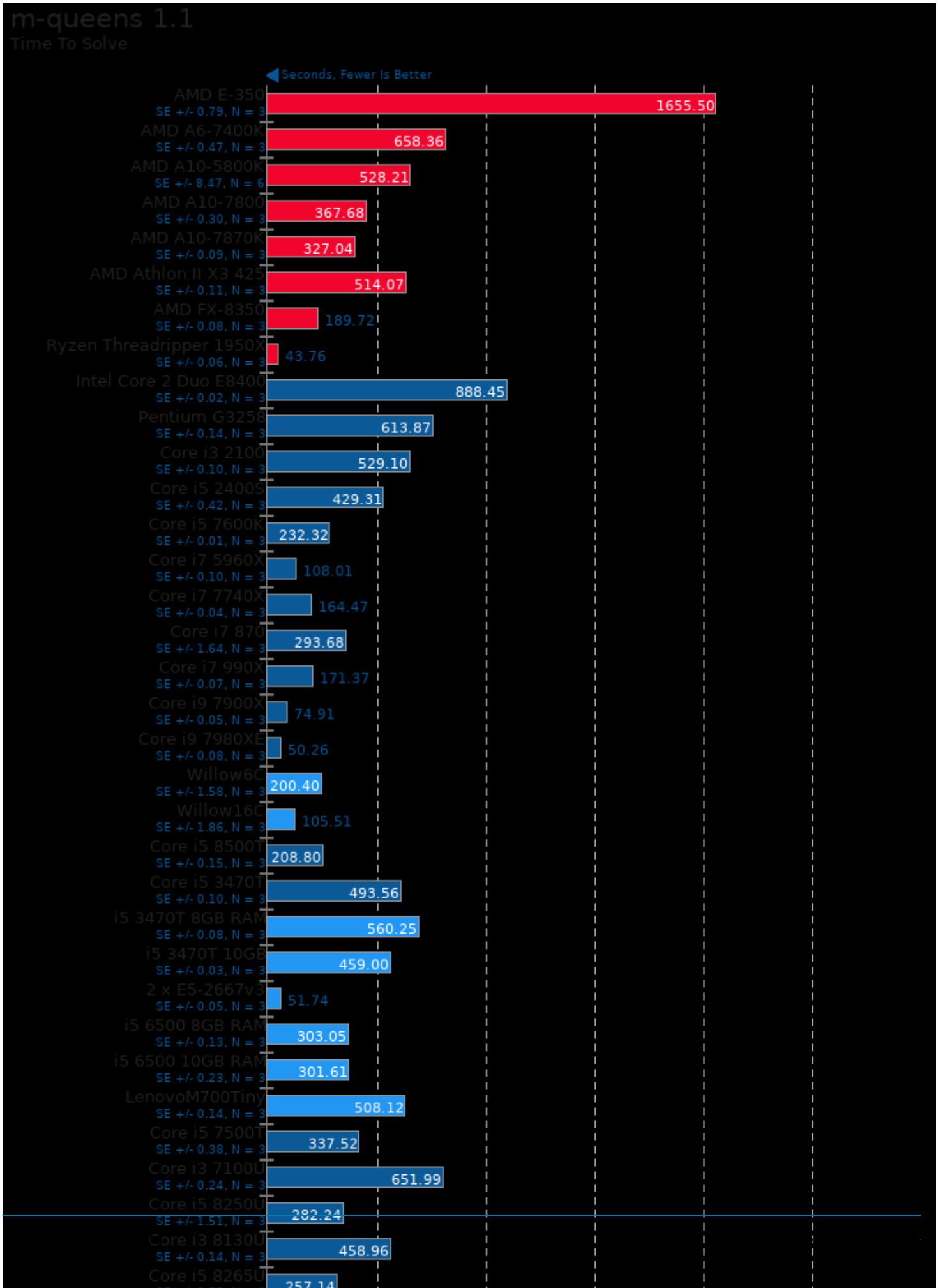

AOBench
Size: 2048 x 2048 - Total Time
Seconds, Fewer Is Better
AMD E-350
SE +/- 1.24, N = 3
256.20
AMD A6-7400K
SE +/- 0.04, N = 3
72.53
AMD A10-5800K
SE +/- 0.28, N = 3
67.62
AMD A10-7800
SE +/- 0.07, N = 3
80.87
AMD A10-7870K
SE +/- 0.15, N = 3
72.57
AMD Athlon II X3 425
SE +/- 0.09, N = 3
112.62
AMD FX-8350
SE +/- 0.01, N = 3
66.91
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
Intel Core 2 Duo E8400
SE +/- 0.35, N = 3
81.53
Pentium G3258
SE +/- 0.02, N = 3
50.65
Core i3 2100
SE +/- 0.06, N = 3
58.42
Core i5 2400S
SE +/- 0.09, N = 3
55.56
Core i5 7600K
SE +/- 0.01, N = 3
35.72
Core i5 8400
SE +/- 0.10, N = 3
39.19
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
Willow6C
SE +/- 0.16, N = 3
43.88
Willow16C
SE +/- 0.18, N = 3
42.51
Core i5 8500T
SE +/- 0.07, N = 3
37.85
Core i5 3470T
SE +/- 0.17, N = 3
52.22
i5 3470T 8GB RAM
SE +/- 0.03, N = 3
54.03
i5 3470T 10GB
50.25

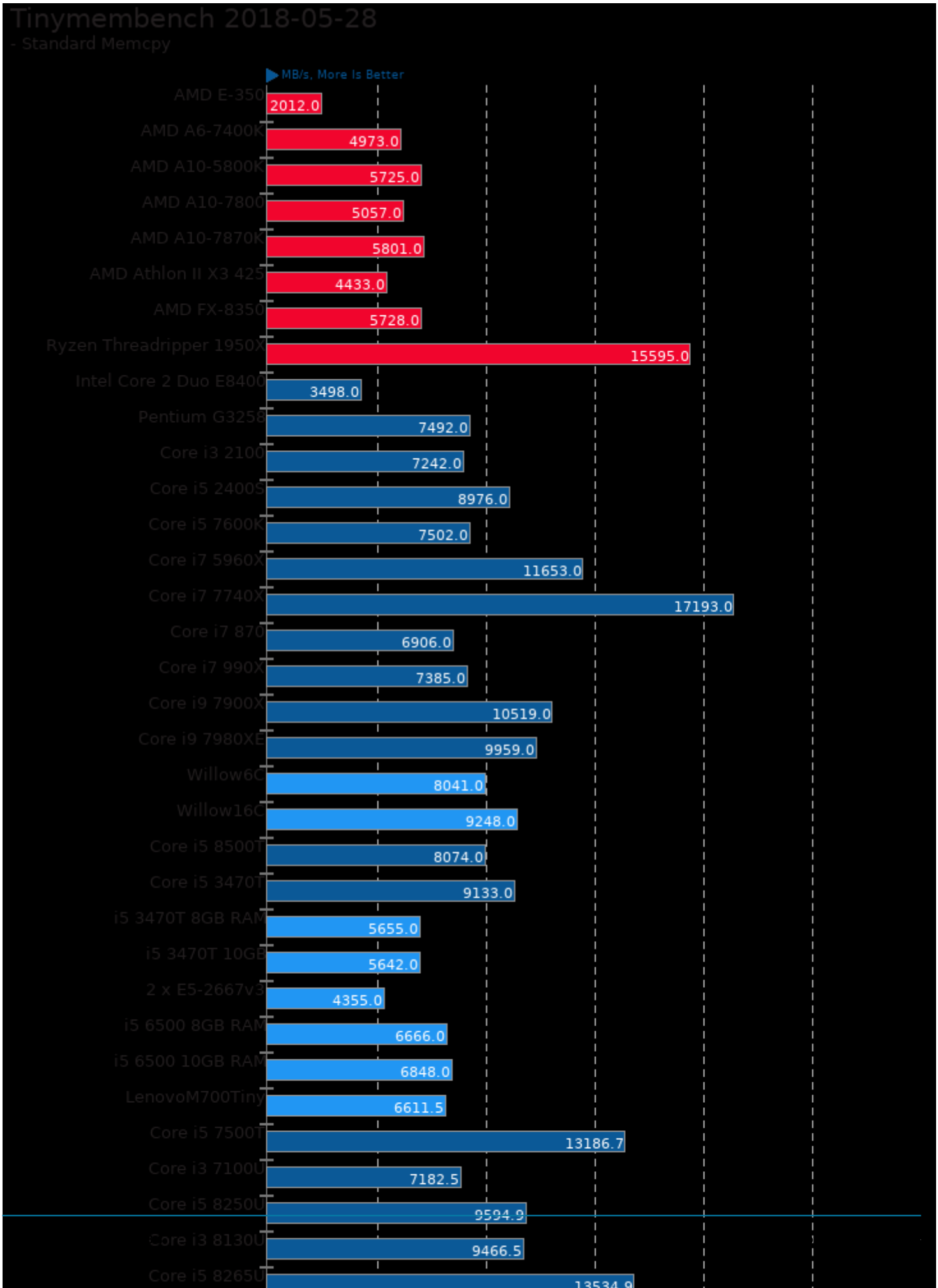

FLAC Audio Encoding 1.3.2
WAV To FLAC
Seconds, Fewer Is Better
AMD E-350
SE +/- 0.007, N = 5
94.360
AMD A6-7400K
SE +/- 0.032, N = 5
17.010
AMD A10-5800K
SE +/- 0.030, N = 5
16.070
AMD A10-7800
SE +/- 0.040, N = 5
18.690
AMD A10-7870K
SE +/- 0.055, N = 5
16.880
AMD Athlon II X3 425
SE +/- 0.024, N = 5
25.600
AMD FX-8350
SE +/- 0.025, N = 5
16.030
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
Intel Core 2 Duo E8400
SE +/- 0.041, N = 5
27.480
Pentium G3258
SE +/- 0.079, N = 5
14.390
Core i3 2100
SE +/- 0.046, N = 5
15.730
Core i5 2400S
SE +/- 0.045, N = 5
14.860
Core i5 7600K
SE +/- 0.021, N = 5
8.520
Core i5 8400
SE +/- 0.011, N = 5
8.530
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
Willow6C
SE +/- 0.068, N = 5
12.560
Willow16C
SE +/- 0.104, N = 5
12.540
Core i5 8500T
SE +/- 0.121, N = 5
11.330
Core i5 3470T
SE +/- 0.091, N = 5
15.000
i5 3470T 8GB RAM
SE +/- 0.186, N = 5
15.800
i5 3470T 10GB
14.530

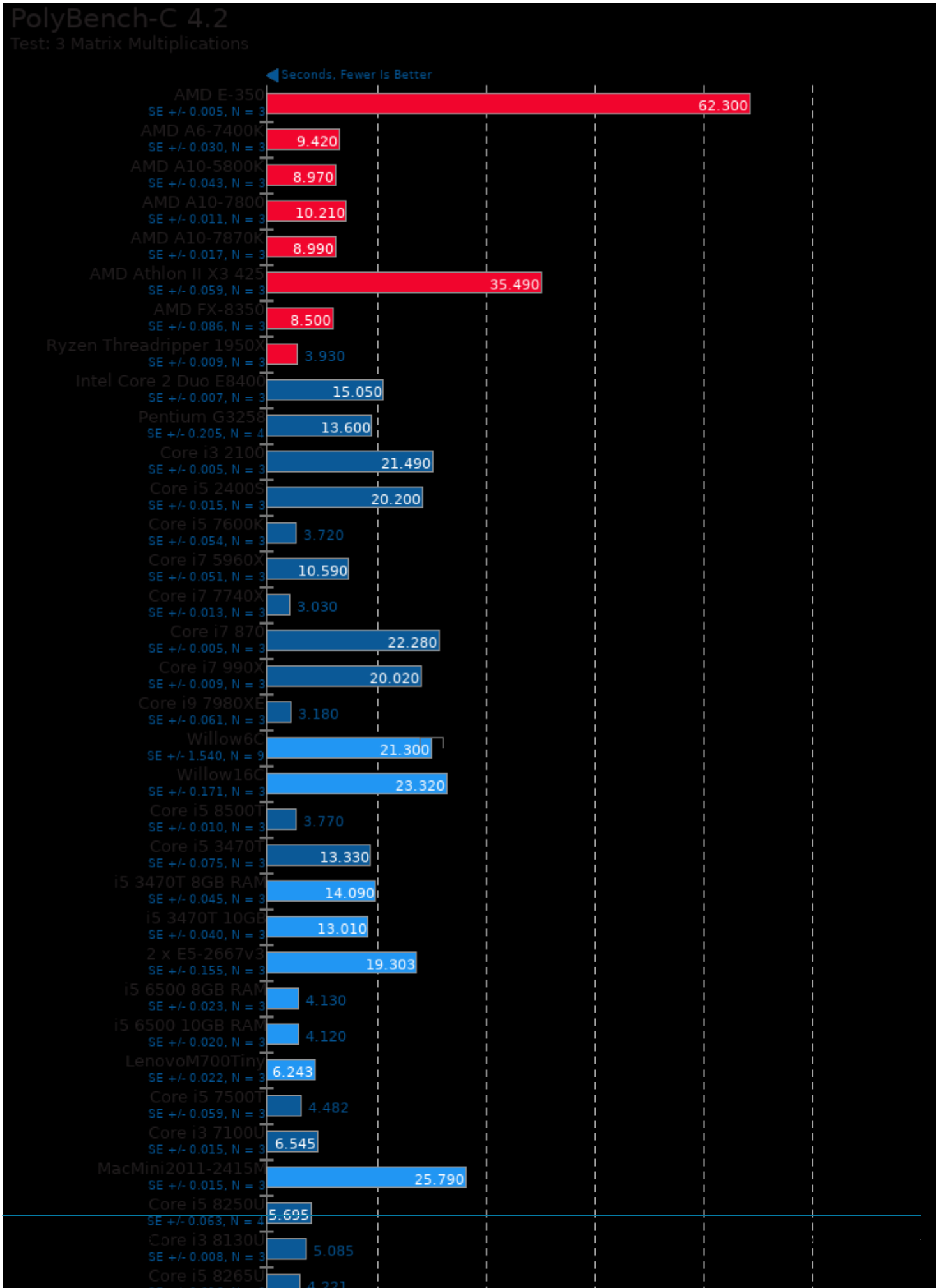

LAME MP3 Encoding 3.100
WAV To MP3
Seconds, Fewer Is Better
AMD E-350
SE +/- 0.053, N = 3
46.260
AMD A6-7400K
SE +/- 0.038, N = 3
13.540
AMD A10-5800K
SE +/- 0.010, N = 3
13.370
AMD A10-7800
SE +/- 0.022, N = 3
15.190
AMD A10-7870K
SE +/- 0.027, N = 3
13.570
AMD Athlon II X3 425
SE +/- 0.008, N = 3
22.340
AMD FX-8350
SE +/- 0.013, N = 3
13.300
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
Intel Core 2 Duo E8400
SE +/- 0.012, N = 3
17.610
Pentium G3258
SE +/- 0.006, N = 3
12.350
Core i3 2100
SE +/- 0.009, N = 3
14.080
Core i5 2400S
SE +/- 0.005, N = 3
13.270
Core i5 7600K
SE +/- 0.009, N = 3
8.950
Core i5 8400
SE +/- 0.004, N = 3
9.040
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
Willow6C
SE +/- 0.038, N = 3
12.970
Willow16C
SE +/- 0.059, N = 3
12.560
Core i5 8500T
SE +/- 0.015, N = 3
10.530
Core i5 3470T
SE +/- 0.072, N = 3
11.830
i5 3470T 8GB RAM
SE +/- 0.037, N = 3
12.390
i5 3470T 10GB
11.380

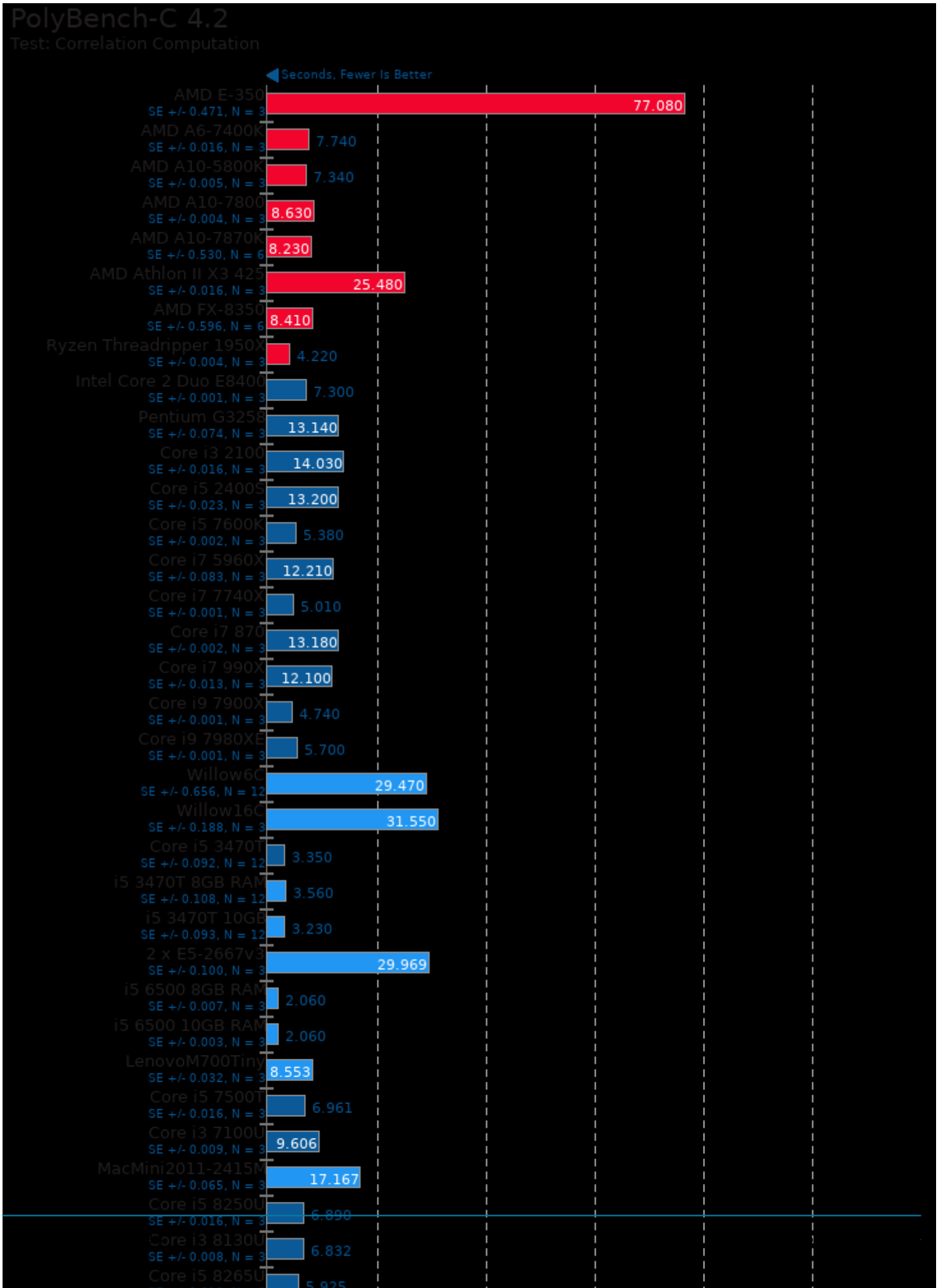

Stockfish 9
Total Time
Nodes Per Second, More Is Better
AMD E-350
SE +/- 934.89, N = 3
721156
AMD A6-7400K
SE +/- 7276.85, N = 3
2634622
AMD A10-5800K
SE +/- 110500.40, N = 6
3110648
AMD A10-7800
SE +/- 52988.21, N = 3
5147353
AMD A10-7870K
SE +/- 22419.28, N = 3
5793041
AMD Athlon II X3 425
SE +/- 27900.30, N = 3
3340855
AMD FX-8350
SE +/- 16238.24, N = 3
10229160
Ryzen Threadripper 1950X
SE +/- 122812.89, N = 3
40826604
Pentium G3258
SE +/- 13556.97, N = 3
3556304
Core i3 2100
SE +/- 25728.51, N = 3
3959009
Core i5 2400S
SE +/- 28739.22, N = 3
5450590
Core i5 7600K
SE +/- 6143.92, N = 3
9418962
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
Willow6C
SE +/- 55625.19, N = 3
8611939
Willow16C
SE +/- 271217.22, N = 12
17298395
Core i5 8500T
SE +/- 118670.12, N = 3
10748746
Core i5 3470T
SE +/- 14426.76, N = 3
3793239
i5 3470T 8GB RAM
SE +/- 10415.46, N = 3
3202361
i5 3470T 10GB
SE +/- 10343.68, N = 3
4135071
2 x E5-2667v3
SE +/- 368313.17, N = 3
34962607
i5 6500 8GB RAM
SE +/- 67131.47, N = 3
7478247
i5 6500 10GB RAM
SE +/- 107454.96, N = 3
7587616
LenovoM700Tiny
SE +/- 8184.83, N = 3
3973324
Core i5 7500T
SE +/- 17604.74, N = 3
6897217
Core i3 7100U
SE +/- 27651.08, N = 3
3344542
MacMini2011-2415M
SE +/- 11287.16, N = 3
3405948
Core i5 8250U
SE +/- 24212.11, N = 3
6937063
Core i3 8130U
SE +/- 26164.81, N = 3
4388325
Core i5 8265U
7592269

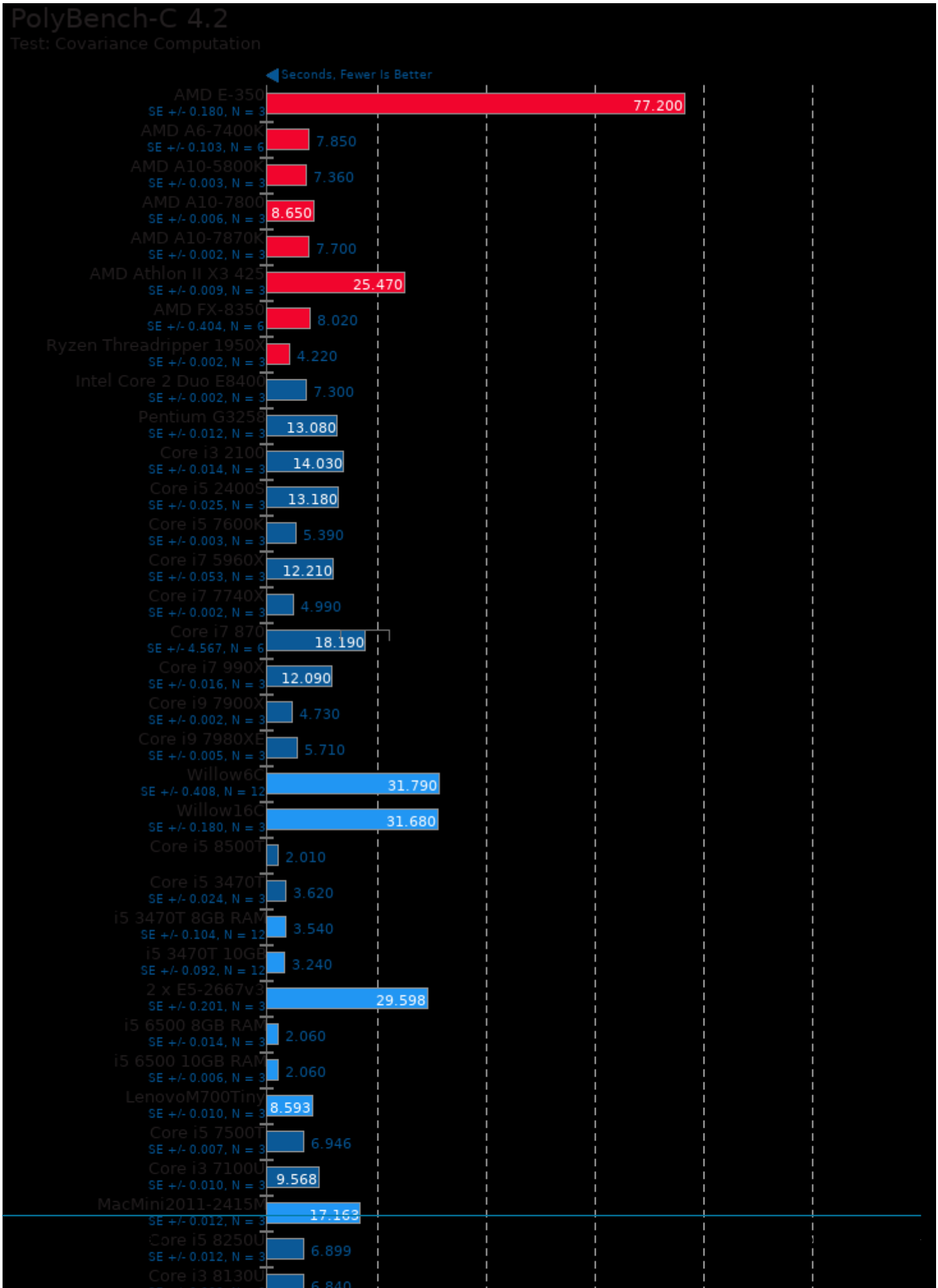

Zstd Compression 1.3.4
Compressing ubuntu-16.04.3-server-i386.img, Compression Level 19
Seconds, Fewer Is Better
AMD E-350
SE +/- 0.86, N = 3
728.00
AMD A6-7400K
SE +/- 0.42, N = 3
212.00
AMD A10-5800K
SE +/- 0.10, N = 3
180.00
AMD A10-7800
SE +/- 0.08, N = 3
211.00
AMD A10-7870K
SE +/- 0.16, N = 3
178.00
AMD Athlon II X3 425
SE +/- 0.19, N = 3
385.00
AMD FX-8350
SE +/- 0.06, N = 3
145.00
Ryzen Threadripper 1950X
SE +/- 0.18, N = 3
140.00
Intel Core 2 Duo E8400
SE +/- 0.04, N = 3
228.00
Pentium G3258
SE +/- 0.08, N = 3
174.00
Core i3 2100
SE +/- 0.32, N = 3
173.00
Core i5 2400S
SE +/- 0.17, N = 3
143.00
Core i5 7600K
SE +/- 0.12, N = 3
121.00
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
Willow6C
SE +/- 2.48, N = 7
201.00
Willow16C
SE +/- 2.34, N = 3
202.00
Core i5 8500T
SE +/- 0.30, N = 3
124.00
Core i5 3470T
SE +/- 0.17, N = 3
140.00
i5 3470T 8GB RAM
SE +/- 0.31, N = 3
150.00
i5 3470T 10GB
SE +/- 0.77, N = 3
138.00
2 x E5-2667v3
SE +/- 0.81, N = 3
211.00
i5 6500 8GB RAM
SE +/- 0.38, N = 3
131.00
i5 6500 10GB RAM
SE +/- 0.17, N = 3
130.00
LenovoM700Tiny
SE +/- 0.28, N = 3
186.08
Core i5 7500T
SE +/- 0.39, N = 3
139.23
Core i3 7100U
SE +/- 0.33, N = 3
182.95
Core i5 8250U
SE +/- 0.08, N = 3
179.51
Core i3 8130U
SE +/- 0.10, N = 3
145.52
Core i5 8265U
131.49

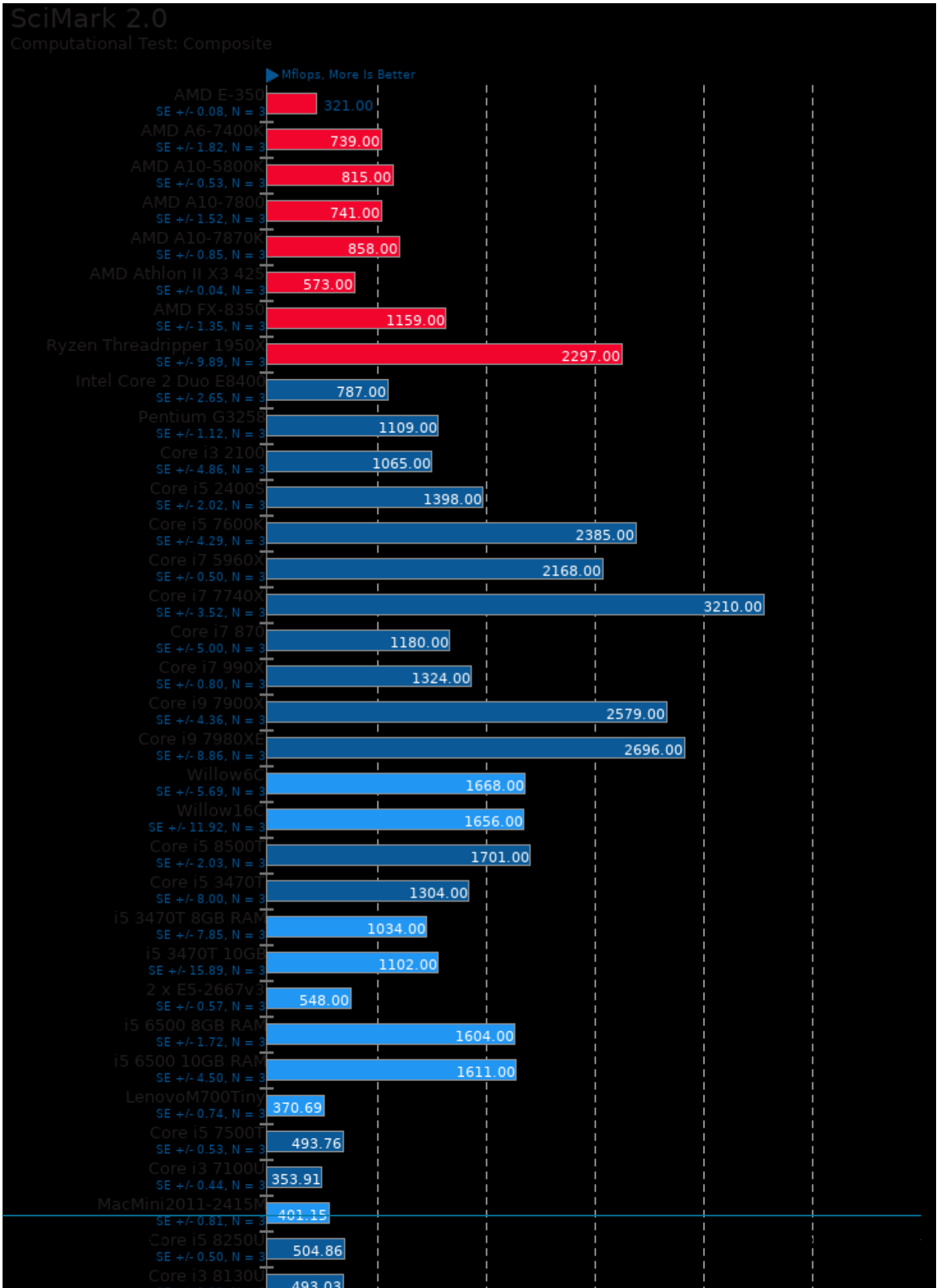

m-queens 1.1
Time To Solve
Seconds, Fewer Is Better
AMD E-350
SE +/- 0.79, N = 3
1655.50
AMD A6-7400K
SE +/- 0.47, N = 3
658.36
AMD A10-5800K
SE +/- 8.47, N = 6
528.21
AMD A10-7800
SE +/- 0.30, N = 3
367.68
AMD A10-7870K
SE +/- 0.09, N = 3
327.04
AMD Athlon II X3 425
SE +/- 0.11, N = 3
514.07
AMD FX-8350
SE +/- 0.08, N = 3
189.72
Ryzen Threadripper 1950X
SE +/- 0.06, N = 3
43.76
Intel Core 2 Duo E8400
SE +/- 0.02, N = 3
888.45
Pentium G3258
SE +/- 0.14, N = 3
613.87
Core i3 2100
SE +/- 0.10, N = 3
529.10
Core i5 2400S
SE +/- 0.42, N = 3
429.31
Core i5 7600K
SE +/- 0.01, N = 3
232.32
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
Willow6C
SE +/- 1.58, N = 3
200.40
Willow16C
SE +/- 1.86, N = 3
105.51
Core i5 8500T
SE +/- 0.15, N = 3
208.80
Core i5 3470T
SE +/- 0.10, N = 3
493.56
i5 3470T 8GB RAM
SE +/- 0.08, N = 3
560.25
i5 3470T 10GB
SE +/- 0.03, N = 3
459.00
2 x E5-2667v3
SE +/- 0.05, N = 3
51.74
i5 6500 8GB RAM
SE +/- 0.13, N = 3
303.05
i5 6500 10GB RAM
SE +/- 0.23, N = 3
301.61
LenovoM700Tiny
SE +/- 0.14, N = 3
508.12
Core i5 7500T
SE +/- 0.38, N = 3
337.52
Core i3 7100U
SE +/- 0.24, N = 3
651.99
Core i5 8250U
SE +/- 1.51, N = 3
282.24
Core i3 8130U
SE +/- 0.14, N = 3
458.96
Core i5 8265U
257.14

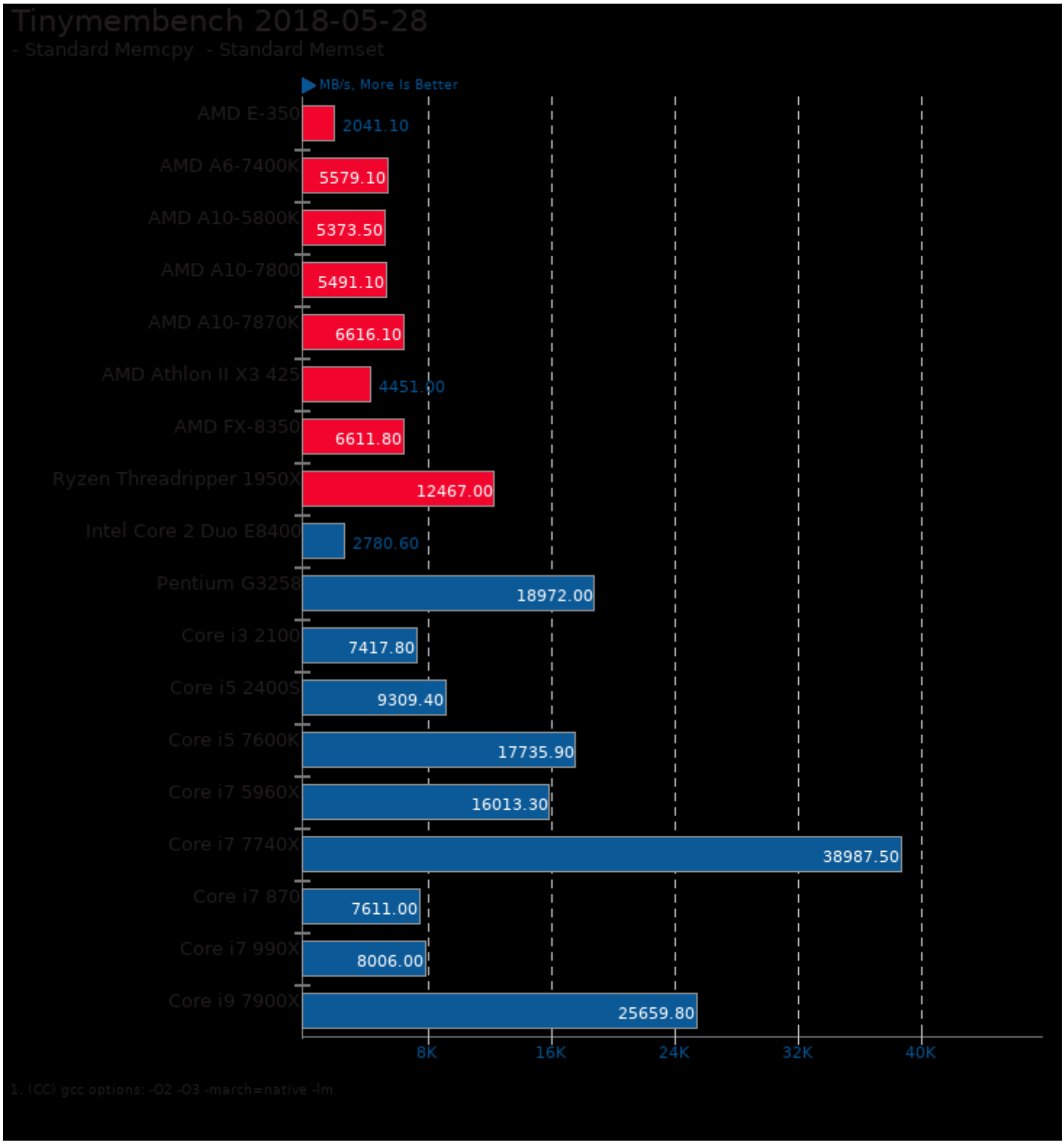

Tinymembench 2018-05-28
- Standard Memcpy
MB/s, More Is Better
AMD E-350 2012.0
AMD A6-7400K 4973.0
AMD A10-5800K 5725.0
AMD A10-7800 5057.0
AMD A10-7870K 5801.0
AMD Athlon II X3 425 4433.0
AMD FX-8350 5728.0
Ryzen Threadripper 1950X 15595.0
Intel Core 2 Duo E8400 3498.0
Pentium G3258 7492.0
Core i3 2100 7242.0
Core i5 2400S 8976.0
Core i5 7600K 7502.0
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
Willow6C 8041.0
Willow16C 9248.0
Core i5 8500T 8074.0
Core i5 3470T 9133.0
i5 3470T 8GB RAM 5655.0
i5 3470T 10GB 5642.0
2 x E5-2667v3 4355.0
i5 6500 8GB RAM 6666.0
i5 6500 10GB RAM 6848.0
LenovoM700Tiny 6611.5
Core i5 7500T 13186.7
Core i3 7100U 7182.5
Core i5 8250U 9594.9
Core i3 8130U 9466.5
Core i5 8265U 13534.9

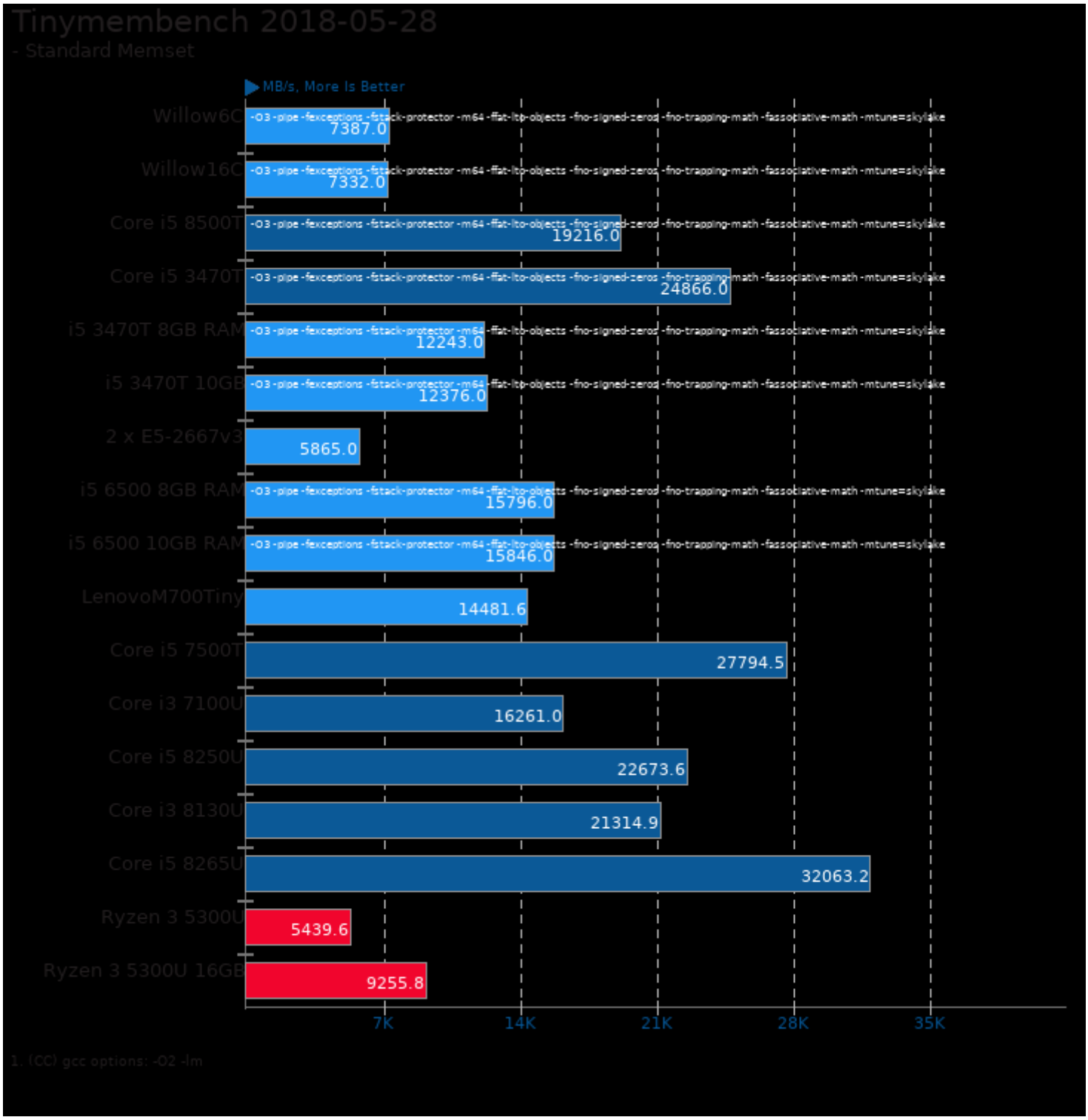

PolyBench-C 4.2
Test: 3 Matrix Multiplications
Seconds, Fewer Is Better
AMD E-350
SE +/- 0.005, N = 3
62.300
AMD A6-7400K
SE +/- 0.030, N = 3
9.420
AMD A10-5800K
SE +/- 0.043, N = 3
8.970
AMD A10-7800
SE +/- 0.011, N = 3
10.210
AMD A10-7870K
SE +/- 0.017, N = 3
8.990
AMD Athlon II X3 425
SE +/- 0.059, N = 3
35.490
AMD FX-8350
SE +/- 0.086, N = 3
8.500
Ryzen Threadripper 1950X
SE +/- 0.009, N = 3
3.930
Intel Core 2 Duo E8400
SE +/- 0.007, N = 3
15.050
Pentium G3258
SE +/- 0.205, N = 4
13.600
Core i3 2100
SE +/- 0.005, N = 3
21.490
Core i5 2400S
SE +/- 0.015, N = 3
20.200
Core i5 7600K
SE +/- 0.054, N = 3
3.720
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
Willow6C
SE +/- 1.540, N = 9
21.300
Willow16C
SE +/- 0.171, N = 3
23.320
Core i5 8500T
SE +/- 0.010, N = 3
3.770
Core i5 3470T
SE +/- 0.075, N = 3
13.330
i5 3470T 8GB RAM
SE +/- 0.045, N = 3
14.090
i5 3470T 10GB
SE +/- 0.040, N = 3
13.010
2 x E5-2667v3
SE +/- 0.155, N = 3
19.303
i5 6500 8GB RAM
SE +/- 0.023, N = 3
4.130
i5 6500 10GB RAM
SE +/- 0.020, N = 3
4.120
LenovoM700Tiny
SE +/- 0.022, N = 3
6.243
Core i5 7500T
SE +/- 0.059, N = 3
4.482
Core i3 7100U
SE +/- 0.015, N = 3
6.545
MacMini2011-2415M
SE +/- 0.015, N = 3
25.790
Core i5 8250U
SE +/- 0.063, N = 4
5.695
Core i3 8130U
SE +/- 0.008, N = 3
5.085
Core i5 8265U


PolyBench-C 4.2
Test: Correlation Computation
Seconds, Fewer Is Better
AMD E-350
SE +/- 0.471, N = 3
77.080
AMD A6-7400K
SE +/- 0.016, N = 3
7.740
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 Athlon II X3 425
SE +/- 0.016, N = 3
25.480
AMD FX-8350
SE +/- 0.596, N = 6
8.410
Ryzen Threadripper 1950X
SE +/- 0.004, N = 3
4.220
Intel Core 2 Duo E8400
SE +/- 0.001, N = 3
7.300
Pentium G3258
SE +/- 0.074, N = 3
13.140
Core i3 2100
SE +/- 0.016, N = 3
14.030
Core i5 2400S
SE +/- 0.023, N = 3
13.200
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
Willow6C
SE +/- 0.656, N = 12
29.470
Willow16C
SE +/- 0.188, N = 3
31.550
Core i5 3470T
SE +/- 0.092, N = 12
3.350
i5 3470T 8GB RAM
SE +/- 0.108, N = 12
3.560
i5 3470T 10GB
SE +/- 0.093, N = 12
3.230
2 x E5-2667v3
SE +/- 0.100, N = 3
29.969
i5 6500 8GB RAM
SE +/- 0.007, N = 3
2.060
i5 6500 10GB RAM
SE +/- 0.003, N = 3
2.060
LenovoM700Tiny
SE +/- 0.032, N = 3
8.553
Core i5 7500T
SE +/- 0.016, N = 3
6.961
Core i3 7100U
SE +/- 0.009, N = 3
9.606
MacMini2011-2415M
SE +/- 0.065, N = 3
17.167
Core i5 8250U
SE +/- 0.016, N = 3
6.890
Core i3 8130U
SE +/- 0.008, N = 3
6.832
Core i5 8265U
5.925

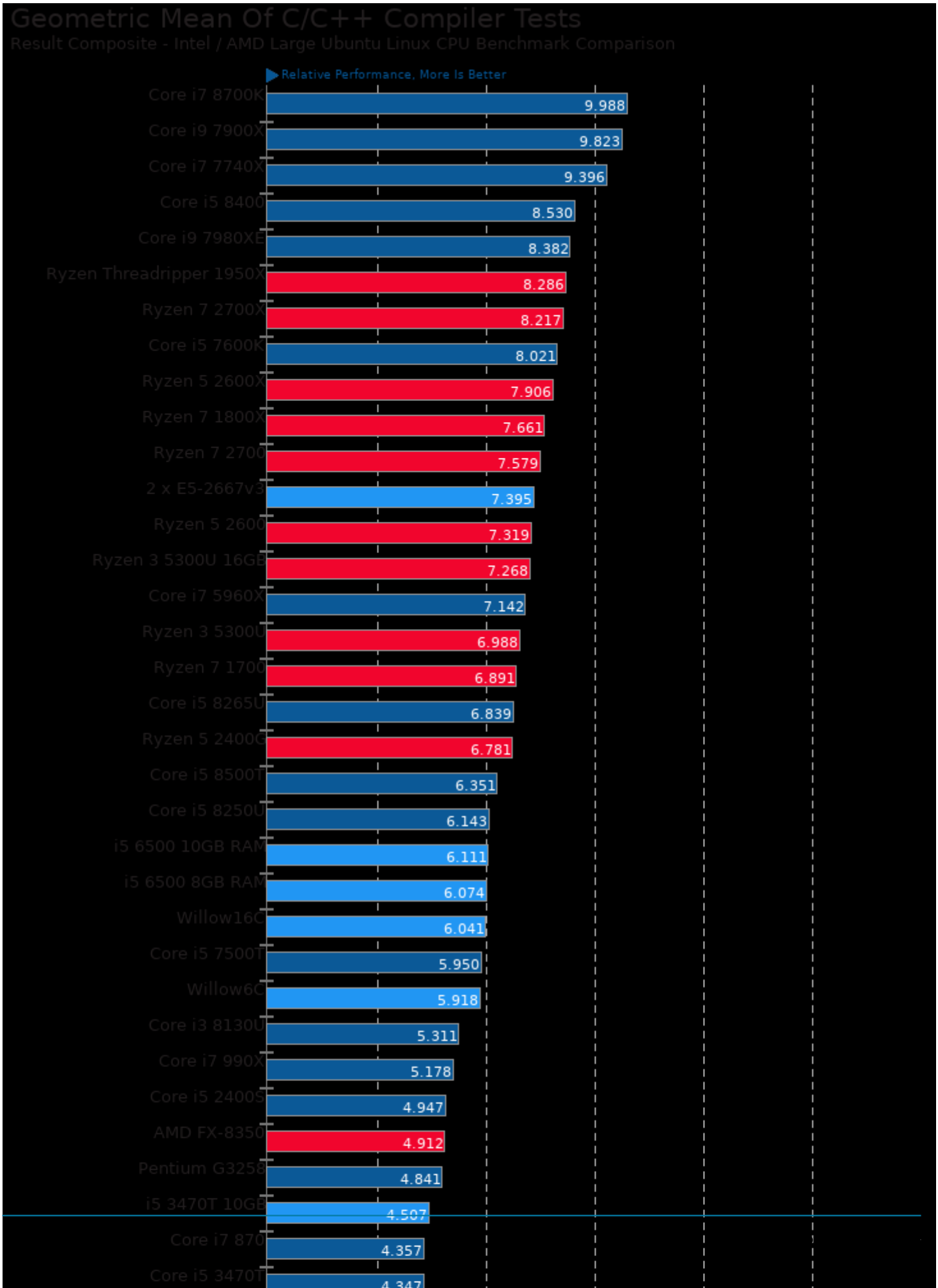

PolyBench-C 4.2
Test: Covariance Computation
Seconds, Fewer Is Better
AMD E-350
SE +/- 0.180, N = 3
77.200
AMD A6-7400K
SE +/- 0.103, N = 6
7.850
AMD A10-5800K
SE +/- 0.003, N = 3
7.360
AMD A10-7800
SE +/- 0.006, N = 3
8.650
AMD A10-7870K
SE +/- 0.002, N = 3
7.700
AMD Athlon II X3 425
SE +/- 0.009, N = 3
25.470
AMD FX-8350
SE +/- 0.404, N = 6
8.020
Ryzen Threadripper 1950X
SE +/- 0.002, N = 3
4.220
Intel Core 2 Duo E8400
SE +/- 0.002, N = 3
7.300
Pentium G3258
SE +/- 0.012, N = 3
13.080
Core i3 2100
SE +/- 0.014, N = 3
14.030
Core i5 2400S
SE +/- 0.025, N = 3
13.180
Core i5 7600K
SE +/- 0.003, N = 3
5.390
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
Willow6C
SE +/- 0.408, N = 12
31.790
Willow16C
SE +/- 0.180, N = 3
31.680
Core i5 8500T
2.010
Core i5 3470T
SE +/- 0.024, N = 3
3.620
i5 3470T 8GB RAM
SE +/- 0.104, N = 12
3.540
i5 3470T 10GB
SE +/- 0.092, N = 12
3.240
2 x E5-2667v3
SE +/- 0.201, N = 3
29.598
i5 6500 8GB RAM
SE +/- 0.014, N = 3
2.060
i5 6500 10GB RAM
SE +/- 0.006, N = 3
2.060
LenovoM700Tiny
SE +/- 0.010, N = 3
8.593
Core i5 7500T
SE +/- 0.007, N = 3
6.946
Core i3 7100U
SE +/- 0.010, N = 3
9.568
MacMini2011-2415M
SE +/- 0.012, N = 3
17.163
Core i5 8250U
SE +/- 0.012, N = 3
6.899
Core i3 8130U
6.840


SciMark 2.0
Computational Test: Composite
Mflops, More Is Better
AMD E-350
SE +/- 0.08, N = 3
321.00
AMD A6-7400K
SE +/- 1.82, N = 3
739.00
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 Athlon II X3 425
SE +/- 0.04, N = 3
573.00
AMD FX-8350
SE +/- 1.35, N = 3
1159.00
Ryzen Threadripper 1950X
SE +/- 9.89, N = 3
2297.00
Intel Core 2 Duo E8400
SE +/- 2.65, N = 3
787.00
Pentium G3258
SE +/- 1.12, N = 3
1109.00
Core i3 2100
SE +/- 4.86, N = 3
1065.00
Core i5 2400S
SE +/- 2.02, N = 3
1398.00
Core i5 7600K
SE +/- 4.29, N = 3
2385.00
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
Willow6C
SE +/- 5.69, N = 3
1668.00
Willow16C
SE +/- 11.92, N = 3
1656.00
Core i5 8500T
SE +/- 2.03, N = 3
1701.00
Core i5 3470T
SE +/- 8.00, N = 3
1304.00
i5 3470T 8GB RAM
SE +/- 7.85, N = 3
1034.00
i5 3470T 10GB
SE +/- 15.89, N = 3
1102.00
2 x E5-2667v3
SE +/- 0.57, N = 3
548.00
i5 6500 8GB RAM
SE +/- 1.72, N = 3
1604.00
i5 6500 10GB RAM
SE +/- 4.50, N = 3
1611.00
LenovoM700Tiny
SE +/- 0.74, N = 3
370.69
Core i5 7500T
SE +/- 0.53, N = 3
493.76
Core i3 7100U
SE +/- 0.44, N = 3
353.91
MacMini2011-2415M
SE +/- 0.81, N = 3
401.15
Core i5 8250U
SE +/- 0.50, N = 3
504.86
Core i3 8130U
493.03

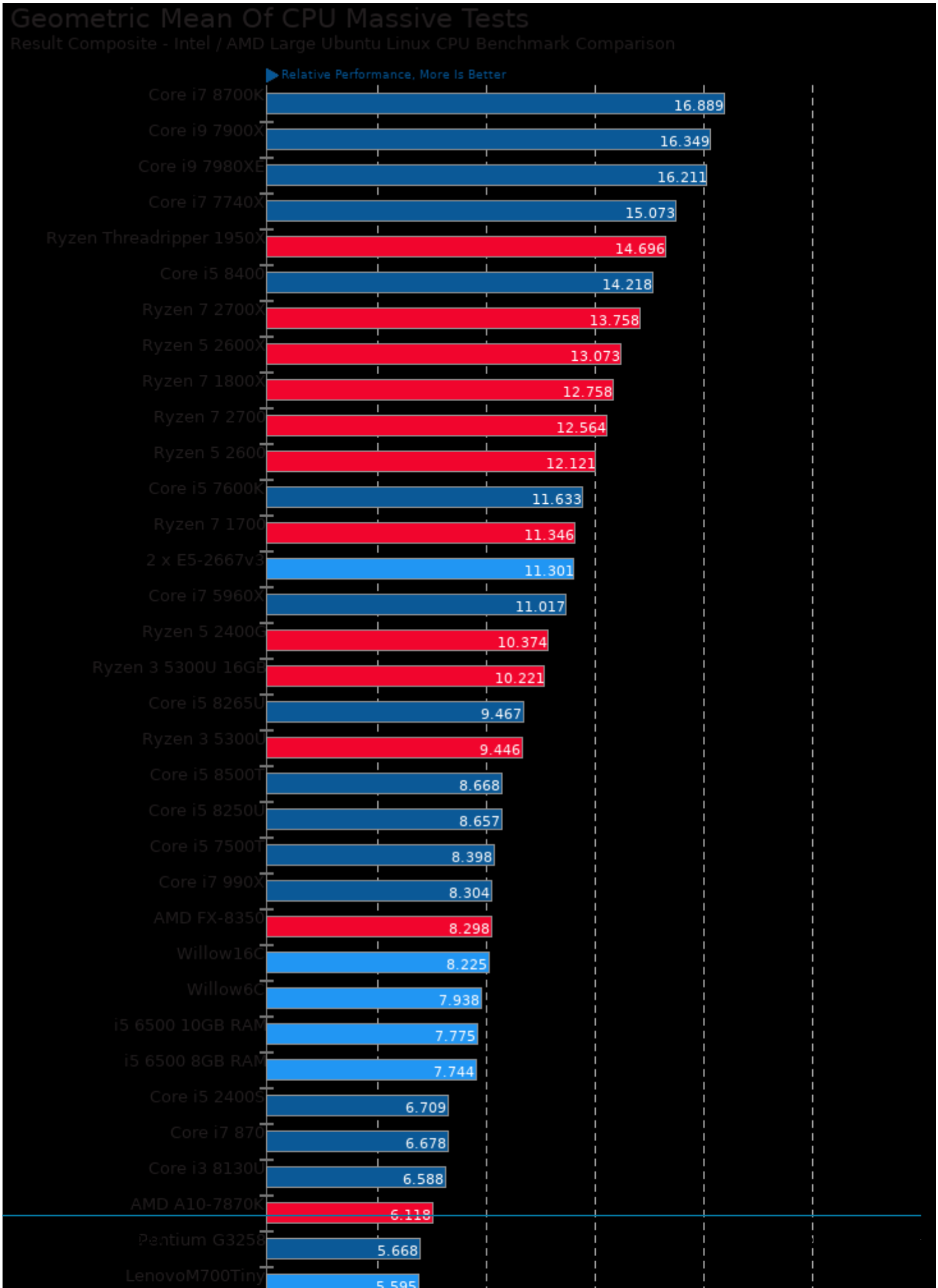

Tinymembench 2018-05-28
- Standard Memcpy - Standard Memset
MB/s, More Is Better
AMD E-350
2041.10
AMD A6-7400K
5579.10
AMD A10-5800K
5373.50
AMD A10-7800
5491.10
AMD A10-7870K
6616.10
AMD Athlon II X3 425
4451.00
AMD FX-8350
6611.80
Ryzen Threadripper 1950X
12467.00
Intel Core 2 Duo E8400
2780.60
Pentium G3258
18972.00
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
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
Willow6C
Willow16C
Core i5 8500T
Core i5 3470T
i5 3470T 8GB RAM
i5 3470T 10GB
2 x E5-2667v3
i5 6500 8GB RAM
i5 6500 10GB RAM
LenovoM700Tiny
Core i5 7500T
Core i3 7100U
Core i5 8250U
Core i3 8130U
Core i5 8265U
Ryzen 3 5300U
Ryzen 3 5300U 16GB
-O3 -pipe -fexceptions -fstack-protector -m64 -flat-lto-objects -fno-signed-zeros -fno-trapping-math -fassociative-math -mtune=skylake
7387.0
7332.0
19216.0
24866.0
12243.0
12376.0
5865.0
15796.0
15846.0
14481.6
27794.5
16261.0
22673.6
21314.9
32063.2
5439.6
9255.8
7K
14K
21K
28K
35K
1. (CC) gcc options: -O2 -lm

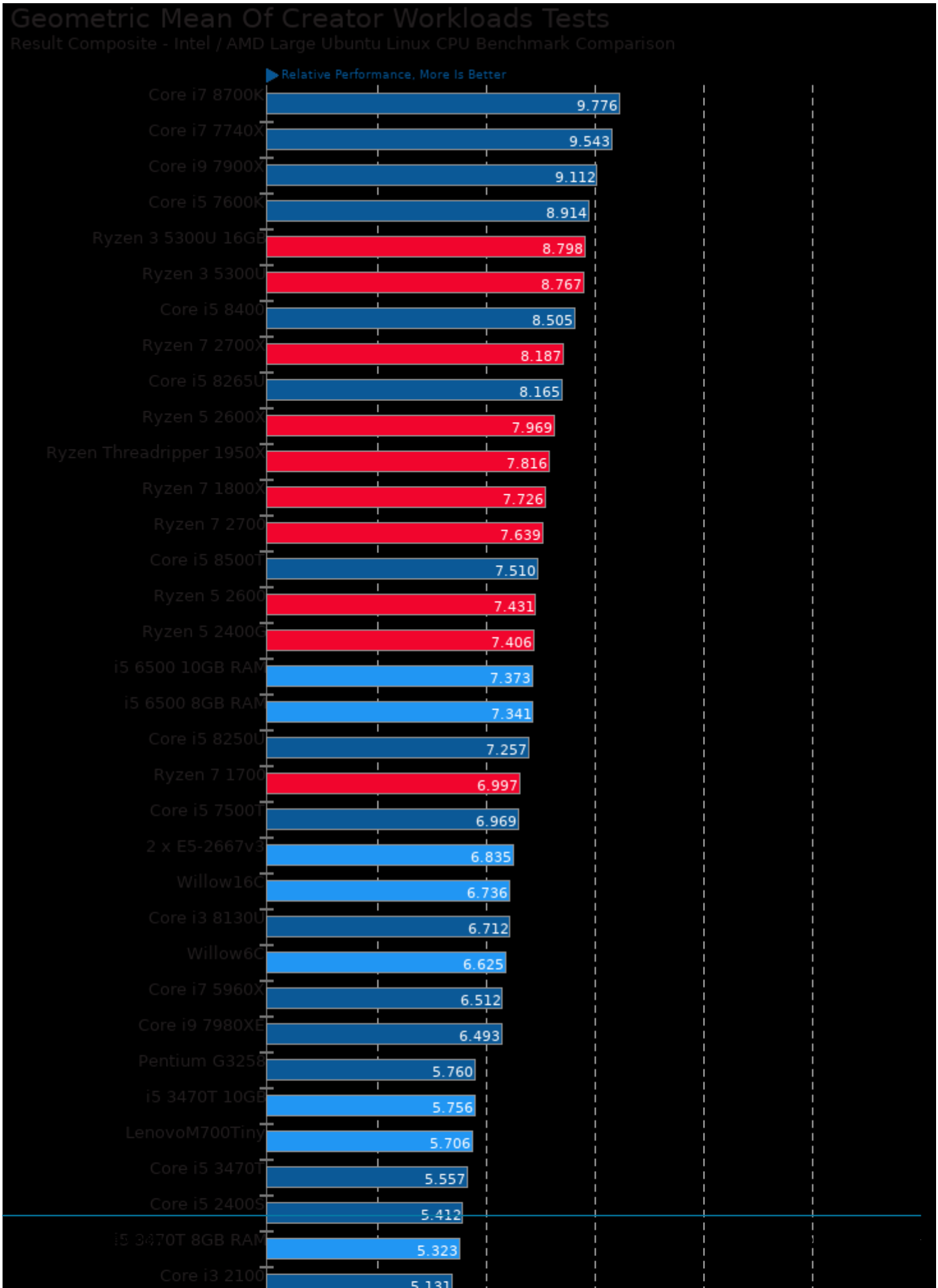
These geometric means are based upon test groupings / test suites for this result file.


Geometric Mean Of C/C++ Compiler Tests
Result Composite - Intel / AMD Large Ubuntu Linux CPU Benchmark Comparison
Relative Performance, More Is Better
Core i7 8700K 9.988
Core i9 7900X 9.823
Core i7 7740X 9.396
Core i5 8400 8.530
Core i9 7980XE 8.382
Ryzen Threadripper 1950X 8.286
Ryzen 7 2700X 8.217
Core i5 7600K 8.021
Ryzen 5 2600X 7.906
Ryzen 7 1800X 7.661
Ryzen 7 2700 7.579
2 x E5-2667v3 7.395
Ryzen 5 2600 7.319
Ryzen 3 5300U 16GB 7.268
Core i7 5960X 7.142
Ryzen 3 5300U 6.988
Ryzen 7 1700 6.891
Core i5 8265U 6.839
Ryzen 5 2400G 6.781
Core i5 8500T 6.351
Core i5 8250U 6.143
i5 6500 10GB RAM 6.111
i5 6500 8GB RAM 6.074
Willow16C 6.041
Core i5 7500T 5.950
Willow6C 5.918
Core i3 8130U 5.311
Core i7 990X 5.178
Core i5 2400S 4.947
AMD FX-8350 4.912
Pentium G3258 4.841
i5 3470T 10GB 4.507
Core i7 870 4.357
Core i5 3470T 4.347

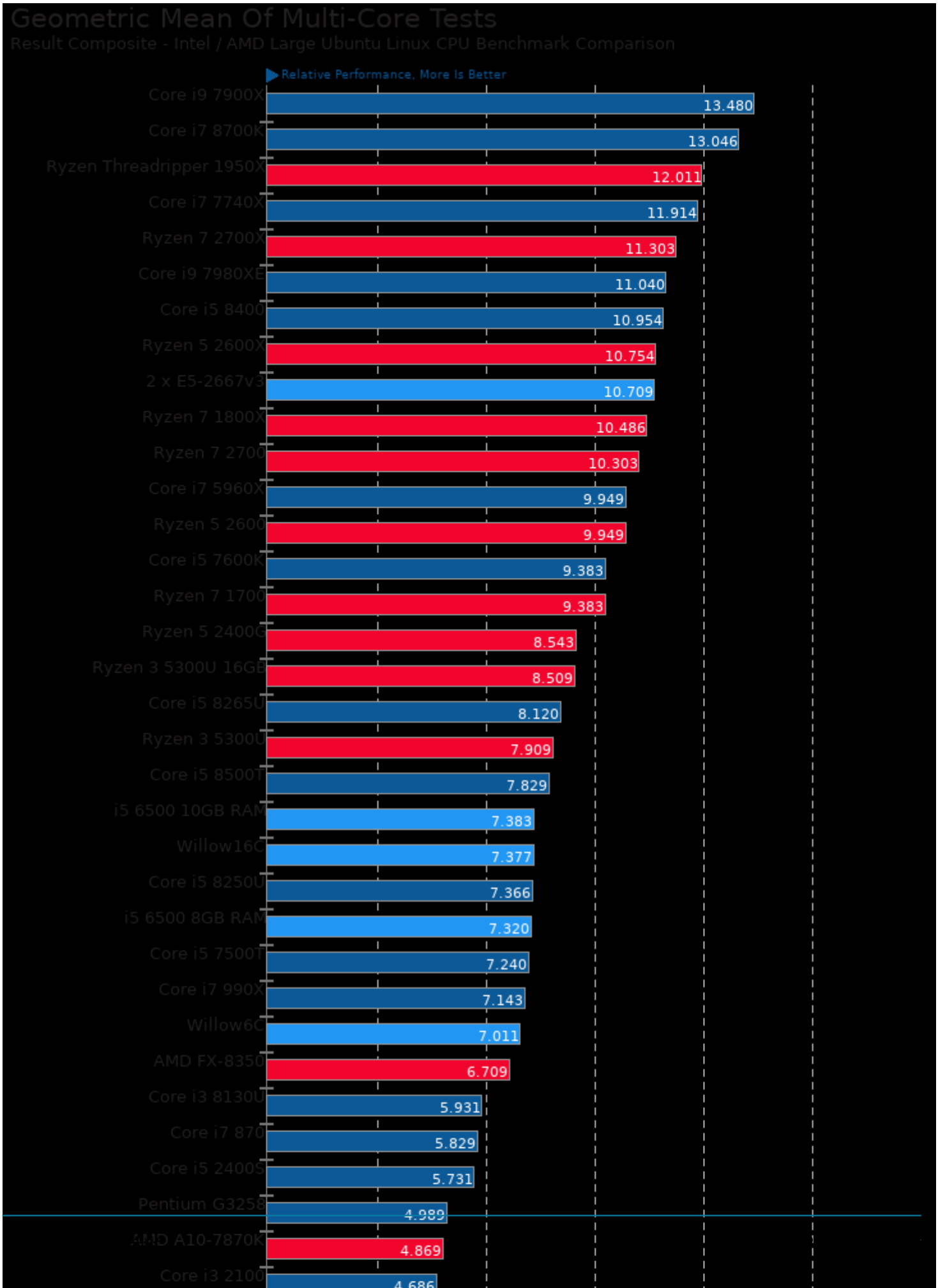
Geometric mean based upon tests: pts/scimark2, pts/aobench, pts/tscp, pts/stockfish, pts/build-php, pts/compress-7zip, pts/encode-mp3, pts/encode-flac, pts/compress-zstd and pts/openssl


Geometric Mean Of CPU Massive Tests
Result Composite - Intel / AMD Large Ubuntu Linux CPU Benchmark Comparison
Relative Performance, More Is Better
Core i7 8700K 16.889
Core i9 7900X 16.349
Core i9 7980XE 16.211
Core i7 7740X 15.073
Ryzen Threadripper 1950X 14.696
Core i5 8400 14.218
Ryzen 7 2700X 13.758
Ryzen 5 2600X 13.073
Ryzen 7 1800X 12.758
Ryzen 7 2700 12.564
Ryzen 5 2600 12.121
Core i5 7600K 11.633
Ryzen 7 1700 11.346
2 x E5-2667v3 11.301
Core i7 5960X 11.017
Ryzen 5 2400G 10.374
Ryzen 3 5300U 16GB 10.221
Core i5 8265U 9.467
Ryzen 3 5300U 9.446
Core i5 8500T 8.668
Core i5 8250U 8.657
Core i5 7500T 8.398
Core i7 990X 8.304
AMD FX-8350 8.298
Willow16C 8.225
Willow6C 7.938
i5 6500 10GB RAM 7.775
i5 6500 8GB RAM 7.744
Core i5 2400S 6.709
Core i7 870 6.678
Core i3 8130U 6.588
AMD A10-7870K 6.119
Pentium G3258 5.668
LenovoM700Tiny 5.595

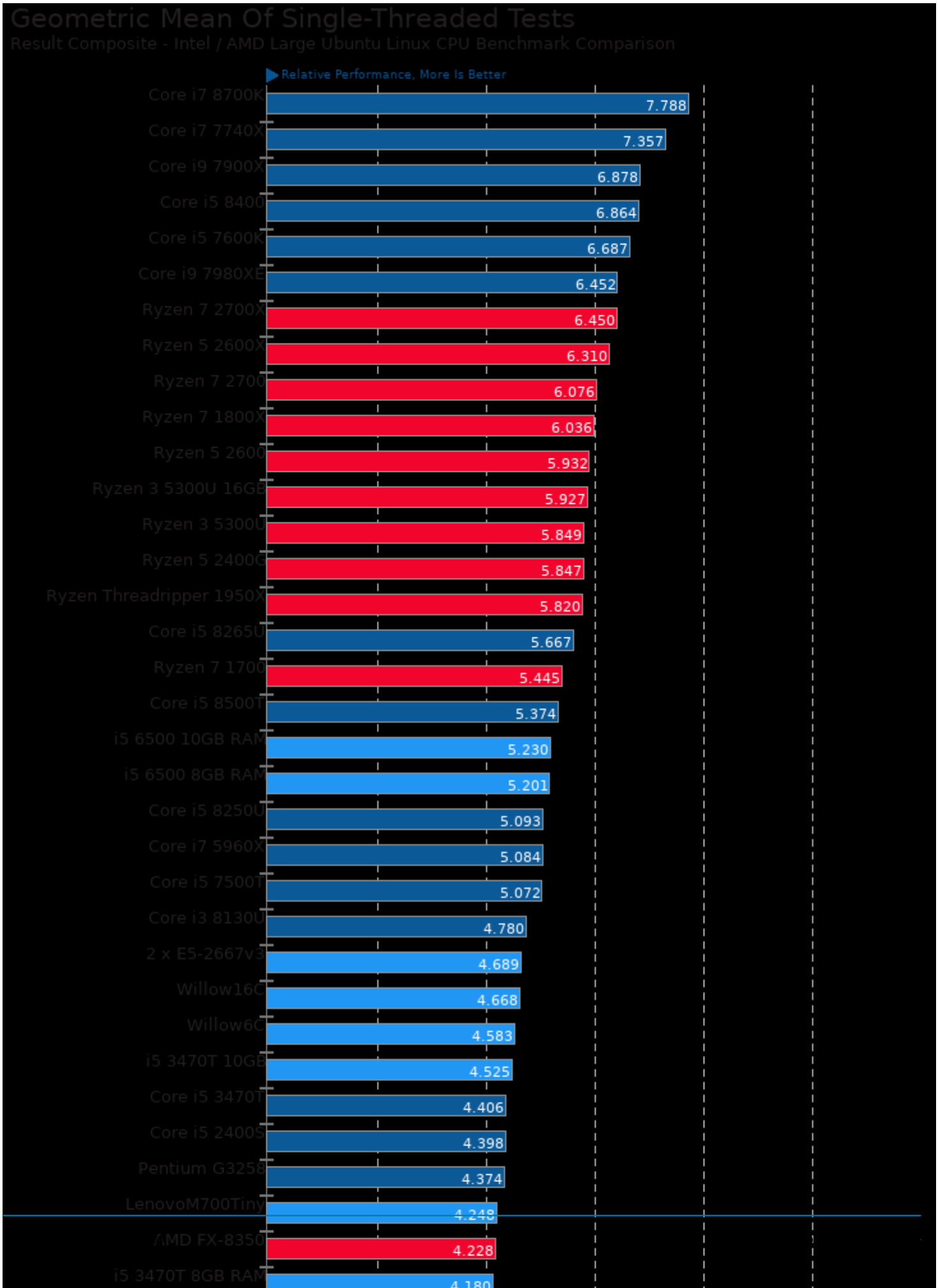
Geometric mean based upon tests: pts/asmfish, pts/build-linux-kernel, pts/build-php, pts/compress-7zip, pts/compress-zstd, pts/encode-flac, pts/encode-mp3, pts/openssl, pts/m-queens, pts/rodinia, pts/stockfish, pts/tinymembench and pts/ttsiod-renderer


Geometric Mean Of Creator Workloads Tests
Result Composite - Intel / AMD Large Ubuntu Linux CPU Benchmark Comparison
Relative Performance, More Is Better
Core i7 8700K 9.776
Core i7 7740X 9.543
Core i9 7900X 9.112
Core i5 7600K 8.914
Ryzen 3 5300U 16GB 8.798
Ryzen 3 5300U 8.767
Core i5 8400 8.505
Ryzen 7 2700X 8.187
Core i5 8265U 8.165
Ryzen 5 2600X 7.969
Ryzen Threadripper 1950X 7.816
Ryzen 7 1800X 7.726
Ryzen 7 2700 7.639
Core i5 8500T 7.510
Ryzen 5 2600 7.431
Ryzen 5 2400G 7.406
i5 6500 10GB RAM 7.373
i5 6500 8GB RAM 7.341
Core i5 8250U 7.257
Ryzen 7 1700 6.997
Core i5 7500T 6.969
2 x E5-2667v3 6.835
Willow16C 6.736
Core i3 8130U 6.712
Willow6C 6.625
Core i7 5960X 6.512
Core i9 7980XE 6.493
Pentium G3258 5.760
i5 3470T 10GB 5.756
LenovoM700Tiny 5.706
Core i5 3470T 5.557
Core i5 2400S 5.412
i5 3470T 8GB RAM 5.323
Core i3 2100 5.131

Geometric mean based upon tests: pts/aobench, pts/ttsiod-renderer, 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
Core i9 7900X 13.480
Core i7 8700K 13.046
Ryzen Threadripper 1950X 12.011
Core i7 7740X 11.914
Ryzen 7 2700X 11.303
Core i9 7980XE 11.040
Core i5 8400 10.954
Ryzen 5 2600X 10.754
2 x E5-2667v3 10.709
Ryzen 7 1800X 10.486
Ryzen 7 2700 10.303
Core i7 5960X 9.949
Ryzen 5 2600 9.949
Core i5 7600K 9.383
Ryzen 7 1700 9.383
Ryzen 5 2400G 8.543
Ryzen 3 5300U 16GB 8.509
Core i5 8265U 8.120
Ryzen 3 5300U 7.909
Core i5 8500T 7.829
i5 6500 10GB RAM 7.383
Willow16C 7.377
Core i5 8250U 7.366
i5 6500 8GB RAM 7.320
Core i5 7500T 7.240
Core i7 990X 7.143
Willow6C 7.011
AMD FX-8350 6.709
Core i3 8130U 5.931
Core i7 870 5.829
Core i5 2400S 5.731
Pentium G3258 4.989
AMD A10-7870K 4.869
Core i3 2100 4.686

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 Single-Threaded Tests
Result Composite - Intel / AMD Large Ubuntu Linux CPU Benchmark Comparison
Relative Performance, More Is Better
Core i7 8700K 7.788
Core i7 7740X 7.357
Core i9 7900X 6.878
Core i5 8400 6.864
Core i5 7600K 6.687
Core i9 7980XE 6.452
Ryzen 7 2700X 6.450
Ryzen 5 2600X 6.310
Ryzen 7 2700 6.076
Ryzen 7 1800X 6.036
Ryzen 5 2600 5.932
Ryzen 3 5300U 16GB 5.927
Ryzen 3 5300U 5.849
Ryzen 5 2400G 5.847
Ryzen Threadripper 1950X 5.820
Core i5 8265U 5.667
Ryzen 7 1700 5.445
Core i5 8500T 5.374
i5 6500 10GB RAM 5.230
i5 6500 8GB RAM 5.201
Core i5 8250U 5.093
Core i7 5960X 5.084
Core i5 7500T 5.072
Core i3 8130U 4.780
2 x E5-2667v3 4.689
Willow16C 4.668
Willow6C 4.583
i5 3470T 10GB 4.525
Core i5 3470T 4.406
Core i5 2400S 4.398
Pentium G3258 4.374
LenovoM700Tiny 4.248
AMD FX-8350 4.228
i5 3470T 8GB RAM 4.180

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

This file was automatically generated via the Phoronix Test Suite benchmarking software on Thursday, 28 March 2024 22:08.