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AMD EPYC 7302 / 7402 / 7502 / 7742 2P vs. Xeon Benchmarks

AMD EPYC 7302, 7402, 7502, 7742 1P and 2P Linux performance benchmarks by Michael Larabel for a future article compared to Intel Xeon Scalable.

Automated Executive Summary

EPYC 7742 2P had the most wins, coming in first place for 57% of the tests.

Based on the geometric mean of all complete results, the fastest (EPYC 7742 2P) was 6.267x the speed of the slowest (EPYC 7251).

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

MKL-DNN (Performance / Cost - Harness: IP Batch All - Data Type: f32) at 53.725x
SVT-VP9 (Performance / Cost - 1080p 8-bit YUV To VP9 Video Encode) at 26x
SVT-HEVC (Performance / Cost - 1080p 8-bit YUV To HEVC Video Encode) at 24x
PyBench (Performance / Cost - Total For Average Test Times) at 22.453x
MKL-DNN (Harness: Convolution Batch conv_alexnet - Data Type: f32) at 20.638x
MKL-DNN (Harness: Convolution Batch conv_all - Data Type: f32) at 20.272x
MKL-DNN (Harness: Convolution Batch conv_googlenet_v3 - Data Type: f32) at 20.252x
PHPBench (Performance / Cost - PHP Benchmark Suite) at 19.845x
Coremark (CoreMark Size 666 - Iterations Per Second) at 15.851x

dav1d (Performance / Cost - Video Input: Summer Nature 4K) at 15.563x.

Test Systems:

EPYC 7251

Processor: AMD EPYC 7251 8-Core @ 2.10GHz (8 Cores / 16 Threads), Motherboard: TYAN B8026T70AE24HR (V1.02.B10 BIOS), Chipset: AMD 17h, Memory: 129024MB, Disk: 280GB INTEL SSDPE21D280GA, Graphics: llvmpipe 126GB, Monitor: VE228, Network: 2 x Broadcom NetXtreme BCM5720 PCIe

OS: Ubuntu 19.04, Kernel: 5.3.0-999-generic (x86_64) 20190907, Desktop: GNOME Shell 3.32.2, Display Server: X Server 1.20.4, Display Driver: modesetting 1.20.4, OpenGL: 3.3 Mesa 19.0.8 (LLVM 8.0 128 bits), Compiler: GCC 8.3.0, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq ondemand
Java Notes: OpenJDK Runtime Environment (build 11.0.4+11-post-Ubuntu-1ubuntu219.04)
Python Notes: Python 2.7.16 + Python 3.7.3
Security Notes: 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 STIBP: disabled RSB filling

EPYC 7401P

Processor: AMD EPYC 7401P 24-Core @ 2.00GHz (24 Cores / 48 Threads), Motherboard: TYAN B8026T70AE24HR (V1.02.B10 BIOS), Chipset: AMD 17h, Memory: 129024MB, Disk: 280GB INTEL SSDPE21D280GA, Graphics: llvmpipe 126GB, Monitor: VE228, Network: 2 x Broadcom NetXtreme BCM5720 PCIe

OS: Ubuntu 19.04, Kernel: 5.3.0-999-generic (x86_64) 20190907, Desktop: GNOME Shell 3.32.2, Display Server: X Server 1.20.4, Display Driver: modesetting 1.20.4, OpenGL: 3.3 Mesa 19.0.8 (LLVM 8.0 128 bits), Compiler: GCC 8.3.0, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq ondemand
Java Notes: OpenJDK Runtime Environment (build 11.0.4+11-post-Ubuntu-1ubuntu219.04)
Python Notes: Python 2.7.16 + Python 3.7.3
Security Notes: 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 STIBP: disabled RSB filling

EPYC 7601

Processor: AMD EPYC 7601 32-Core @ 2.20GHz (32 Cores / 64 Threads), Motherboard: TYAN B8026T70AE24HR (V1.02.B10 BIOS), Chipset: AMD 17h, Memory: 129024MB, Disk: 280GB INTEL SSDPE21D280GA, Graphics: llvmpipe 126GB, Monitor: VE228, Network: 2 x Broadcom NetXtreme BCM5720 PCIe

OS: Ubuntu 19.04, Kernel: 5.3.0-999-generic (x86_64) 20190907, Desktop: GNOME Shell 3.32.2, Display Server: X

Server 1.20.4, Display Driver: modesetting 1.20.4, OpenGL: 3.3 Mesa 19.0.8 (LLVM 8.0 128 bits), Compiler: GCC 8.3.0, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq ondemand
Java Notes: OpenJDK Runtime Environment (build 11.0.4+11-post-Ubuntu-1ubuntu219.04)
Python Notes: Python 2.7.16 + Python 3.7.3
Security Notes: 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 STIBP: disabled RSB filling

2 x EPYC 7601

Processor: 2 x AMD EPYC 7601 32-Core (64 Cores / 128 Threads), Motherboard: Dell 02MJ3T (1.2.5 BIOS), Chipset: AMD 17h, Memory: 516096MB, Disk: 280GB INTEL SSDPED1D280GA + 17 x 500GB Samsung SSD 860 + 120GB SSDSCKJB120G7R, Graphics: llvmpipe 504GB, Monitor: VE228, Network: 2 x Broadcom BCM57416 NetXtreme-E Dual-Media 10G RDMA + 2 x Broadcom NetXtreme BCM5720 PCIe

OS: Ubuntu 19.04, Kernel: 5.3.0-999-generic (x86_64) 20190907, Desktop: GNOME Shell 3.32.1, Display Server: X Server 1.20.4, Display Driver: modesetting 1.20.4, OpenGL: 3.3 Mesa 19.0.2 (LLVM 8.0 128 bits), Compiler: GCC 8.3.0, File-System: ext4, Screen Resolution: 1600x1200

Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib --with-tune=generic --without-cuda-driver -v
Java Notes: OpenJDK Runtime Environment (build 11.0.4+11-post-Ubuntu-1ubuntu219.04)
Python Notes: Python 2.7.16 + Python 3.7.3
Security Notes: 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 STIBP: disabled RSB filling

EPYC 7302

Processor: AMD EPYC 7302 16-Core @ 3.00GHz (16 Cores / 32 Threads), Motherboard: AMD DAYTONA_X (RDY1001C BIOS), Chipset: AMD Device 1480, Memory: 258048MB, Disk: 280GB INTEL SSDPE21D280GA + 256GB Micron_1100_MTFD, Graphics: llvmpipe 252GB, Monitor: VE228, Network: 2 x Mellanox MT27710

OS: Ubuntu 19.04, Kernel: 5.3.0-999-generic (x86_64) 20190907, Desktop: GNOME Shell 3.32.2, Display Server: X Server 1.20.4, Display Driver: modesetting 1.20.4, OpenGL: 3.3 Mesa 19.0.8 (LLVM 8.0 128 bits), Compiler: GCC 8.3.0, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq ondemand
Java Notes: OpenJDK Runtime Environment (build 11.0.4+11-post-Ubuntu-1ubuntu219.04)
Python Notes: Python 2.7.16 + Python 3.7.3
Security Notes: 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

EPYC 7302 2P

Processor: 2 x AMD EPYC 7302 16-Core @ 3.00GHz (32 Cores / 64 Threads), Motherboard: AMD DAYTONA_X (RDY1001C BIOS), Chipset: AMD Device 1480, Memory: 516096MB, Disk: 280GB INTEL SSDPED1D280GA + 280GB INTEL SSDPE21D280GA + 256GB Micron_1100_MTFD, Graphics: llvmpipe 504GB, Monitor: VE228, Network: 2 x

Mellanox MT27710

OS: Ubuntu 19.04, Kernel: 5.3.0-999-generic (x86_64) 20190907, Desktop: GNOME Shell 3.32.2, Display Server: X Server 1.20.4, Display Driver: modesetting 1.20.4, OpenGL: 3.3 Mesa 19.0.8 (LLVM 8.0 128 bits), Compiler: GCC 8.3.0, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq ondemand
Java Notes: OpenJDK Runtime Environment (build 11.0.4+11-post-Ubuntu-1ubuntu219.04)
Python Notes: Python 2.7.16 + Python 3.7.3
Security Notes: 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

EPYC 7402

Processor: AMD EPYC 7402 24-Core @ 2.80GHz (24 Cores / 48 Threads), Motherboard: AMD DAYTONA_X (RDY1001C BIOS), Chipset: AMD Device 1480, Memory: 258048MB, Disk: 280GB INTEL SSDPE21D280GA + 256GB Micron_1100_MTFD, Graphics: llvmpipe 252GB, Monitor: VE228, Network: 2 x Mellanox MT27710

OS: Ubuntu 19.04, Kernel: 5.3.0-999-generic (x86_64) 20190907, Desktop: GNOME Shell 3.32.2, Display Server: X Server 1.20.4, Display Driver: modesetting 1.20.4, OpenGL: 3.3 Mesa 19.0.8 (LLVM 8.0 128 bits), Compiler: GCC 8.3.0, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq ondemand
Java Notes: OpenJDK Runtime Environment (build 11.0.4+11-post-Ubuntu-1ubuntu219.04)
Python Notes: Python 2.7.16 + Python 3.7.3
Security Notes: 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

EPYC 7402 2P

Processor: 2 x AMD EPYC 7402 24-Core @ 2.80GHz (48 Cores / 96 Threads), Motherboard: AMD DAYTONA_X (RDY1001C BIOS), Chipset: AMD Device 1480, Memory: 516096MB, Disk: 280GB INTEL SSDPED1D280GA + 280GB INTEL SSDPE21D280GA + 256GB Micron_1100_MTFD, Graphics: llvmpipe 504GB, Monitor: VE228, Network: 2 x Mellanox MT27710

OS: Ubuntu 19.04, Kernel: 5.3.0-999-generic (x86_64) 20190907, Desktop: GNOME Shell 3.32.2, Display Server: X Server 1.20.4, Display Driver: modesetting 1.20.4, OpenGL: 3.3 Mesa 19.0.8 (LLVM 8.0 128 bits), Compiler: GCC 8.3.0, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq ondemand
Java Notes: OpenJDK Runtime Environment (build 11.0.4+11-post-Ubuntu-1ubuntu219.04)
Python Notes: Python 2.7.16 + Python 3.7.3
Security Notes: 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

EPYC 7502

Processor: AMD EPYC 7502 32-Core @ 2.50GHz (32 Cores / 64 Threads), Motherboard: AMD DAYTONA_X (RDY1001C BIOS), Chipset: AMD Device 1480, Memory: 258048MB, Disk: 280GB INTEL SSDPE21D280GA + 256GB Micron_1100_MTFD, Graphics: llvmpipe 252GB, Monitor: VE228, Network: 2 x Mellanox MT27710

OS: Ubuntu 19.04, Kernel: 5.3.0-999-generic (x86_64) 20190907, Desktop: GNOME Shell 3.32.2, Display Server: X Server 1.20.4, Display Driver: modesetting 1.20.4, OpenGL: 3.3 Mesa 19.0.8 (LLVM 8.0 128 bits), Compiler: GCC 8.3.0, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq ondemand
Java Notes: OpenJDK Runtime Environment (build 11.0.4+11-post-Ubuntu-1ubuntu219.04)
Python Notes: Python 2.7.16 + Python 3.7.3
Security Notes: 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

EPYC 7502 2P

Processor: 2 x AMD EPYC 7502 32-Core @ 2.50GHz (64 Cores / 128 Threads), Motherboard: AMD DAYTONA_X (RDY1001C BIOS), Chipset: AMD Device 1480, Memory: 516096MB, Disk: 280GB INTEL SSDPE21D280GA + 280GB INTEL SSDPED1D280GA + 256GB Micron_1100_MTFD, Graphics: llvmpipe 504GB, Monitor: VE228, Network: 2 x Mellanox MT27710

OS: Ubuntu 19.04, Kernel: 5.3.0-999-generic (x86_64) 20190907, Desktop: GNOME Shell 3.32.2, Display Server: X Server 1.20.4, Display Driver: modesetting 1.20.4, OpenGL: 3.3 Mesa 19.0.8 (LLVM 8.0 128 bits), Compiler: GCC 8.3.0, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq ondemand
Java Notes: OpenJDK Runtime Environment (build 11.0.4+11-post-Ubuntu-1ubuntu219.04)
Python Notes: Python 2.7.16 + Python 3.7.3
Security Notes: 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

EPYC 7742

Processor: AMD EPYC 7742 64-Core @ 2.25GHz (64 Cores / 128 Threads), Motherboard: AMD DAYTONA_X (RDY1001C BIOS), Chipset: AMD Device 1480, Memory: 258048MB, Disk: 280GB INTEL SSDPE21D280GA + 256GB Micron_1100_MTFD, Graphics: llvmpipe 252GB, Monitor: VE228, Network: 2 x Mellanox MT27710

OS: Ubuntu 19.04, Kernel: 5.3.0-999-generic (x86_64) 20190907, Desktop: GNOME Shell 3.32.2, Display Server: X Server 1.20.4, Display Driver: modesetting 1.20.4, OpenGL: 3.3 Mesa 19.0.8 (LLVM 8.0 128 bits), Compiler: GCC 8.3.0, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq ondemand
Java Notes: OpenJDK Runtime Environment (build 11.0.4+11-post-Ubuntu-1ubuntu219.04)

Python Notes: Python 2.7.16 + Python 3.7.3
Security Notes: 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

EPYC 7742 2P

Processor: 2 x AMD EPYC 7742 64-Core @ 2.25GHz (128 Cores / 256 Threads), Motherboard: AMD DAYTONA_X (RDY1001C BIOS), Chipset: AMD Device 1480, Memory: 516096MB, Disk: 280GB INTEL SSDPE21D280GA, Graphics: llvmpipe 504GB, Monitor: VE228, Network: 2 x Mellanox MT27710

OS: Ubuntu 19.04, Kernel: 5.3.0-999-generic (x86_64) 20190907, Desktop: GNOME Shell 3.32.2, Display Server: X Server 1.20.4, Display Driver: modesetting 1.20.4, OpenGL: 3.3 Mesa 19.0.8 (LLVM 8.0 128 bits), Compiler: GCC 8.3.0, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq ondemand
Java Notes: OpenJDK Runtime Environment (build 11.0.4+11-post-Ubuntu-1ubuntu219.04)
Python Notes: Python 2.7.16 + Python 3.7.3
Security Notes: 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

Xeon Gold 6138

Processor: Intel Xeon Gold 6138 @ 3.70GHz (20 Cores / 40 Threads), Motherboard: TYAN S7106 (V2.00.B20 BIOS), Chipset: Intel Sky Lake-E DMI3 Registers, Memory: 47104MB, Disk: 280GB INTEL SSDPE21D280GA, Graphics: llvmpipe 46GB, Monitor: VE228, Network: 2 x Intel I210 + 2 x QLogic cLOM8214 1/10GbE

OS: Ubuntu 19.04, Kernel: 5.3.0-999-generic (x86_64) 20190907, Desktop: GNOME Shell 3.32.2, Display Server: X Server 1.20.4, Display Driver: modesetting 1.20.4, OpenGL: 3.3 Mesa 19.0.8 (LLVM 8.0 256 bits), Compiler: GCC 8.3.0, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: intel_pstate powersave
Python Notes: Python 2.7.16 + Python 3.7.3
Security Notes: 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

2 x Xeon Gold 6138

Processor: 2 x Intel Xeon Gold 6138 @ 3.70GHz (40 Cores / 80 Threads), Motherboard: TYAN S7106 (V2.00.B20 BIOS), Chipset: Intel Sky Lake-E DMI3 Registers, Memory: 96256MB, Disk: 280GB INTEL SSDPE21D280GA, Graphics: llvmpipe 93GB, Monitor: VE228, Network: 2 x Intel I210 + 2 x QLogic cLOM8214 1/10GbE

OS: Ubuntu 19.04, Kernel: 5.3.0-999-generic (x86_64) 20190907, Desktop: GNOME Shell 3.32.2, Display Server: X Server 1.20.4, Display Driver: modesetting 1.20.4, OpenGL: 3.3 Mesa 19.0.8 (LLVM 8.0 256 bits), Compiler: GCC 8.3.0, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --enable-plugin --enable-shared --enable-threads=posix

--host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: intel_pstate powersave
Python Notes: Python 2.7.16 + Python 3.7.3
Security Notes: 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

Xeon Platinum 8280

Processor: Intel Xeon Platinum 8280 @ 4.00GHz (28 Cores / 56 Threads), Motherboard: GIGABYTE MD61-SC2-00 v01000100 (T15 BIOS), Chipset: Intel Sky Lake-E DMI3 Registers, Memory: 192512MB, Disk: 280GB INTEL SSDPED1D280GA, Graphics: llvmpipe 188GB, Monitor: VE228, Network: 2 x Intel X722 for 1GbE + 2 x QLogic FastLinQ QL41000 10/25/40/50GbE

OS: Ubuntu 19.04, Kernel: 5.3.0-999-generic (x86_64) 20190907, Desktop: GNOME Shell 3.32.2, Display Server: X Server 1.20.4, Display Driver: modesetting 1.20.4, OpenGL: 3.3 Mesa 19.0.8 (LLVM 8.0 256 bits), Compiler: GCC 8.3.0, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: intel_pstate powersave
Java Notes: OpenJDK Runtime Environment (build 11.0.4+11-post-Ubuntu-1ubuntu219.04)
Python Notes: Python 2.7.16 + Python 3.7.3
Security Notes: 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 Enhanced IBRS IBPB: conditional RSB filling

2 x Xeon Platinum 8280

Processor: 2 x Intel Xeon Platinum 8280 @ 4.00GHz (56 Cores / 112 Threads), Motherboard: GIGABYTE MD61-SC2-00 v01000100 (T15 BIOS), Chipset: Intel Sky Lake-E DMI3 Registers, Memory: 386048MB, Disk: 280GB INTEL SSDPED1D280GA, Graphics: llvmpipe 377GB, Monitor: VE228, Network: 2 x Intel X722 for 1GbE + 2 x QLogic FastLinQ QL41000 10/25/40/50GbE

OS: Ubuntu 19.04, Kernel: 5.3.0-999-generic (x86_64) 20190907, Desktop: GNOME Shell 3.32.0, Display Server: X Server 1.20.4, Display Driver: modesetting 1.20.4, OpenGL: 3.3 Mesa 19.0.8 (LLVM 8.0 256 bits), Compiler: GCC 8.3.0, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: intel_pstate powersave
Java Notes: OpenJDK Runtime Environment (build 11.0.4+11-post-Ubuntu-1ubuntu219.04)
Python Notes: Python 2.7.16 + Python 3.7.3
Security Notes: 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 Enhanced IBRS IBPB: conditional RSB filling

AMD EPYC 7302 / 7402 / 7502 / 7742 2P vs. Xeon Benchmarks

	EPYC 7251	EPYC 7401P	EPYC 7601	2 x EPYC 7601	EPYC 7302	EPYC 7302 2P	EPYC 7402	EPYC 7402 2P	EPYC 7502	EPYC 7502 2P	EPYC 7742	EPYC 7742 2P	Xeon Gold 6138	2 x Xeon Gold 6138	Xeon Platinum 8280	2 x Xeon Platinum 8280
NAMD - ATPase Simulation - 327,506 Atoms (days/ns)	3.07536	1.20635	0.91048	0.44693	1.26580	0.66156	0.89148	0.47061	0.73872	0.39054	0.42879	0.26393	1.23836	0.66562	0.70069	0.35906
Normalized	8.58%	21.88%	28.99%	59.05%	20.85%	39.9%	29.61%	56.08%	35.73%	67.58%	61.55%	100%	21.31%	39.65%	37.67%	73.51%
Standard Deviation	0.2%	0.6%	0.3%	0.3%	0.3%	0.2%	0.1%	0.2%	0.2%	0.2%	0.4%	0.7%	0.9%	1.5%	0.2%	0.2%
John The Ripper - Blowfish (Real C/S)	12939	27746	33399	81920	31305	62398	46756	92216	57523	110992	97345	183465	24968	48933	42924	84968
Normalized	7.05%	15.12%	18.2%	44.65%	17.06%	34.01%	25.48%	50.26%	31.35%	60.5%	53.06%	100%	13.61%	26.67%	23.4%	46.31%
Standard Deviation	0.6%	7%	0.7%	7.4%	0%	0%	0.1%	0.2%	0.1%	3.9%	0.1%	2.2%	0.3%	0.8%	0.4%	0.7%
MKL-DNN - IP Batch All - f32 (ms)	523.85	152.73	112.65	783.83	200.24	123.29	148.29	99.98	124.81	81.21	89.75	89.65	115.62	122.60	94.88	97.37
Normalized	15.5%	53.17%	72.09%	10.36%	40.56%	65.87%	54.76%	81.23%	65.07%	100%	90.48%	90.59%	70.24%	66.24%	85.59%	83.4%
Standard Deviation	0.6%	0.2%	0.9%	2.4%	0.4%	1.8%	0.3%	2.4%	0.2%	1.4%	1.6%	1.5%	0.7%	2.4%	1%	1.1%
MKL-DNN - C.B.c - f32 (ms)	39.47	16.54	12.88	6.48	9.62	5.48	6.91	3.86	5.80	3.42	3.62	2.72	12.62	4.82	8.14	3.30
Normalized	6.89%	16.44%	21.12%	41.98%	28.27%	49.64%	39.36%	70.47%	46.9%	79.53%	75.14%	100%	21.55%	56.43%	33.42%	82.42%
Standard Deviation	2%	0.6%	1.2%	2.7%	1.8%	5.8%	2.9%	8.9%	0.5%	10.6%	2.7%	6.6%	0.1%	0.3%	0.1%	0.4%
MKL-DNN - C.B.c - f32 (ms)	7772	3096	2278	1205	1805	973.93	1285	687.40	1087	582.66	687.92	412.04	1324	674.44	766.42	383.37
Normalized	4.93%	12.38%	16.83%	31.81%	21.24%	39.36%	29.84%	55.77%	35.27%	65.8%	55.73%	93.04%	28.95%	56.84%	50.02%	100%
Standard Deviation	1.4%	0.5%	0.8%	2.6%	0.2%	1.9%	0.8%	1.8%	0.8%	2.2%	1.8%	3.2%	0%	0.3%	2.1%	1.6%
MKL-DNN - C.B.c - f32 (ms)	1002	404.57	300.45	157.10	243.03	131.15	173.43	97.71	141.76	76.91	88.95	50.66	165.95	85.32	94.33	48.56
Normalized	4.85%	12%	16.16%	30.91%	19.98%	37.03%	28%	49.7%	34.26%	63.14%	54.59%	95.85%	29.26%	56.92%	51.48%	100%
Standard Deviation	1%	0.9%	0.9%	2.7%	1.6%	1.8%	2.2%	2.9%	1.1%	1.8%	1.8%	2.7%	0%	0.3%	0%	0.1%
MKL-DNN - C.B.c - f32 (ms)	428.94	175.29	130.93	70.10	101.56	60.16	70.94	41.01	59.54	34.31	37.98	23.75	73.17	36.89	41.74	21.18
Normalized	4.94%	12.08%	16.18%	30.21%	20.85%	35.21%	29.86%	51.65%	35.57%	61.73%	55.77%	89.18%	28.95%	57.41%	50.74%	100%
Standard Deviation	0.6%	1.4%	1.4%	1.5%	0.8%	2.9%	2%	5.4%	0.2%	5.3%	1.4%	2.9%	0.1%	0.6%	0.1%	0.4%

SVT-AV1 - 1.8.b.Y.T.A.V.E (FPS)	16.65	35.05	37.11	38.65	44.76	60.68	62.78	71.72	67.00	96.82	98.77	101.52	36.13	49.35	55.38	63.05
Normalized	16.4%	34.53%	36.55%	38.07%	44.09%	59.77%	61.84%	70.65%	66%	95.37%	97.29%	100%	35.59%	48.61%	54.55%	62.11%
Standard Deviation	0.8%	1.3%	1.2%	3.7%	0.7%	2.9%	0.4%	1.7%	0.8%	2.8%	1%	0.5%	0.8%	2.8%	1.4%	2.2%
SVT-HEVC - 1.8.b.Y.T.H.V.E (FPS)	89.22	179.31	186.05	164.10	258.45	328.76	343.93	338.31	360.14	335.96	367.52	329.82	243.27	235.59	319.41	269.00
Normalized	24.28%	48.79%	50.62%	44.65%	70.32%	89.45%	93.58%	92.05%	97.99%	91.41%	100%	89.74%	66.19%	64.1%	86.91%	73.19%
Standard Deviation	0.6%	4.3%	7.7%	6.8%	1%	2.3%	1.1%	1.2%	2.4%	2.5%	0.9%	2.9%	11.7%	11.8%	3.7%	0.9%
SVT-VP9 - 1.8.b.Y.T.V.V.E (FPS)	66.76	160.83	158.54	133.45	272.54	319.09	358.66	347.87	374.60	345.47	393.10	344.13	262.13	249.49	370.05	279.16
Normalized	16.98%	40.91%	40.33%	33.95%	69.33%	81.17%	91.24%	88.49%	95.29%	87.88%	100%	87.54%	66.68%	63.47%	94.14%	71.02%
Standard Deviation	1.7%	0.8%	4.2%	2.7%	0.9%	2.7%	2.6%	3%	1.7%	1.5%	2.9%	4.9%	13.3%	13.8%	2.3%	2.9%
x264 - H.2.V.E (FPS)	55.81	107.88	108.16	143.65	131.26	156.10	154.33	153.23	151.86	148.10	155.81	151.15	94.83	108.88	114.96	122.23
Normalized	35.75%	69.11%	69.29%	92.02%	84.09%	100%	98.87%	98.16%	97.28%	94.88%	99.81%	96.83%	60.75%	69.75%	73.65%	78.3%
Standard Deviation	0.4%	0.7%	0.5%	0.7%	0.2%	1.1%	1.5%	1.1%	0.5%	0.7%	0.2%	2.1%	2.9%	5.9%	1.1%	3%
x265 - H.2.1.V.E (FPS)	20.38	28.43	28.80	35.59	44.96	45.04	45.39	45.47	43.48	43.79	44.15	45.03	33.12	32.01	33.33	32.76
Normalized	44.82%	62.52%	63.34%	78.27%	98.88%	99.05%	99.82%	100%	95.62%	96.31%	97.1%	99.03%	72.84%	70.4%	73.3%	72.05%
Standard Deviation	0%	0.4%	0.7%	1.5%	0.5%	0.5%	0.2%	0.6%	0.5%	0.4%	1%	1%	0.7%	0.4%	1.1%	0.8%
x265 - H.2.1.V.E (FPS)	25.01	32.90	33.44	39.34	50.55	49.20	50.81	49.41	48.93	47.86	48.95	48.45	36.02	34.68	35.44	34.88
Normalized	49.22%	64.75%	65.81%	77.43%	99.49%	96.83%	100%	97.24%	96.3%	94.19%	96.34%	95.36%	70.89%	68.25%	69.75%	68.65%
Standard Deviation	0.9%	0.4%	0.5%	0.7%	0.4%	0.2%	0.4%	1.7%	0.4%	0.1%	0.8%	2.4%	0.2%	1%	0.3%	0.7%
dav1d - Summer Nature 4K (sec)	51.83	26.44	24.97	18.67	21.89	17.47	16.78	14.47	15.98	13.04	12.01	11.41	26.92	28.15	21.65	18.09
Normalized	22.01%	43.15%	45.69%	61.11%	52.12%	65.31%	68%	78.85%	71.4%	87.5%	95%	100%	42.38%	40.53%	52.7%	63.07%
Standard Deviation	0.4%	0.4%	0.5%	0.6%	0.3%	0.4%	0.2%	0.5%	0.1%	1%	0.2%	2.8%	0.4%	41.4%	0.6%	1.9%

Coremark - CoreMark Size 666 - I.P.S (Iterations/Sec)	234690	618299	820414	165574	588635	113497	880327	165594	110975	211764	196611	371997	589752	114312	967330	188389
Normalized	6.31%	16.62%	22.05%	44.5%	15.82%	30.49%	23.66%	44.51%	29.82%	56.96%	52.86%	100%	15.85%	30.73%	26%	50.64%
Standard Deviation	0.1%	1%	1.1%	1.6%	0.2%	0.6%	0.8%	1.2%	0.1%	0.9%	0.2%	0.2%	2.8%	1.5%	0.6%	2%
Stockfish - Total Time (Nodes/s)	16318808	42945065	58216860	10333 0585	42554164	76602512	62020868	11390 1411	75903528	13907 0880	13312 0860	24118 5105	37423561	67928161	65150665	12404 4462
Normalized	6.77%	17.81%	24.14%	42.84%	17.64%	31.76%	25.72%	47.23%	31.47%	57.66%	55.19%	100%	15.52%	28.16%	27.01%	51.43%
Standard Deviation	2%	1.4%	1.6%	1.8%	0.3%	1.3%	0.2%	0.5%	2.3%	1.3%	1%	0.5%	1.1%	0.8%	0.7%	2.7%
asmFish - 1.H.M.2.D (Nodes/s)	16219903	46018875	62241924	11498 1990	42909829	75783369	62962855	11267 2179	78467488	13547 4285	13171 0538	23960 6281	40796460	74681445	70136822	13420 5427
Normalized	6.77%	19.21%	25.98%	47.99%	17.91%	31.63%	26.28%	47.02%	32.75%	56.54%	54.97%	100%	17.03%	31.17%	29.27%	56.01%
Standard Deviation	2.7%	0.9%	0.6%	1.5%	1%	1.7%	0.3%	3%	1%	0.3%	0.8%	0.7%	2.9%	1%	0.9%	2.1%
Timed Linux Kernel Compilation - Time To Compile	102.34	47.49	39.30	23.45	41.67	27.40	32.73	22.62	29.01	20.83	22.36	16.07	48.69	31.89	31.22	21.31
Normalized	15.7%	33.84%	40.89%	68.53%	38.56%	58.65%	49.1%	71.04%	55.39%	77.15%	71.87%	100%	33%	50.39%	51.47%	75.41%
Standard Deviation	2.2%	2.9%	2.7%	3.7%	3%	3.5%	2.7%	3.8%	3.3%	4.4%	4.1%	6.2%	2.7%	3.3%	3.9%	5.7%
Timed LLVM Compilation - Time To Compile	538.02	233.69	203.14	133.00	203.24	134.26	158.54	105.84	143.43	99.96	102.14	78.81	242.85	156.28	158.80	104.91
Normalized	14.65%	33.72%	38.8%	59.26%	38.78%	58.7%	49.71%	74.46%	54.95%	78.84%	77.16%	100%	32.45%	50.43%	49.63%	75.12%
C-Ray - Total Time - 4.1.R.P.P (sec)	88.08	32.36	24.45	12.28	38.23	19.35	25.62	13.02	20.80	10.86	11.85	6.29	49.00	27.42	27.88	14.31
Normalized	7.14%	19.44%	25.73%	51.22%	16.45%	32.51%	24.55%	48.31%	30.24%	57.92%	53.08%	100%	12.84%	22.94%	22.56%	43.96%
Standard Deviation	0.1%	0.8%	1%	0.3%	0.1%	0.3%	0.2%	0%	0.1%	0.8%	0.2%	2.6%	0.1%	2.9%	0.1%	0.2%
POV-Ray - Trace Time (sec)	71.32	29.15	22.35	12.57	28.88	16.36	20.65	12.15	17.34	10.32	10.86	8.41	35.53	19.74	20.70	11.82
Normalized	11.79%	28.85%	37.63%	66.91%	29.12%	51.41%	40.73%	69.22%	48.5%	81.49%	77.44%	100%	23.67%	42.6%	40.63%	71.15%
Standard Deviation	0.2%	0.3%	0.4%	0.1%	0.3%	1%	0.3%	0.9%	0.4%	1.1%	0.5%	3.4%	0.5%	0.1%	0.2%	2.7%

7-Zip Compression - C.S.T (MIPS)	**30676**	78308	90342	134090	96539	150914	140234	218425	171119	255034	280575	**350308**	83345	139242	139773	241149
Normalized	8.76%	22.35%	25.79%	38.28%	27.56%	43.08%	40.03%	62.35%	48.85%	72.8%	80.09%	100%	23.79%	39.75%	39.9%	68.84%
Standard Deviation	1.7%	0.5%	2.4%	4.4%	0.1%	2.4%	0.4%	0.3%	0.3%	1.2%	0.2%	1.7%	0.3%	1.8%	0.9%	2.7%
Blender - BMW27 - CPU-Only (sec)	**277.45**	109.37	83.46	47.93	101.34	54.63	70.54	40.52	60.95	35.41	37.39	**26.84**	117.74	63.61	68.31	37.84
Normalized	9.67%	24.54%	32.16%	56%	26.49%	49.13%	38.05%	66.24%	44.04%	75.8%	71.78%	100%	22.8%	42.19%	39.29%	70.93%
Standard Deviation	0.4%	0.9%	0.7%	0.4%	0.5%	0.2%	0.2%	0.5%	0%	1.1%	0.6%	0.9%	0%	0.4%	0.2%	0.7%
Blender - Classroom - CPU-Only (sec)	**704.46**	275.15	204.36	98.92	264.66	136.31	181.58	94.41	152.52	78.17	86.25	**46.33**	321.10	163.61	188.04	95.00
Normalized	6.58%	16.84%	22.67%	46.84%	17.51%	33.99%	25.51%	49.07%	30.38%	59.27%	53.72%	100%	14.43%	28.32%	24.64%	48.77%
Standard Deviation	0.3%	0.3%	0.2%	0.4%	0.1%	0.9%	0%	0.5%	0.4%	0.4%	0.4%	0.7%	0.1%	0.5%	0.3%	0.1%
Blender - Fishy Cat - CPU-Only (sec)	**410.78**	160.03	125.29	76.73	143.59	82.88	101.69	64.75	88.34	57.60	59.38	**43.71**	177.35	100.07	104.70	62.53
Normalized	10.64%	27.31%	34.89%	56.97%	30.44%	52.74%	42.98%	67.51%	49.48%	75.89%	73.61%	100%	24.65%	43.68%	41.75%	69.9%
Standard Deviation	0.3%	0.2%	0.4%	0.7%	0.1%	0.4%	0.3%	0.6%	0.1%	0.2%	0.3%	0.2%	0%	0.4%	0.1%	0.1%
Blender - Barbershop - CPU-Only (sec)	**1190**	453.42	346.99	219.95	400.29	238.10	284.20	179.77	242.81	164.45	168.95	**141.73**	454.74	265.90	279.39	181.43
Normalized	11.91%	31.26%	40.85%	64.44%	35.41%	59.53%	49.87%	78.84%	58.37%	86.18%	83.89%	100%	31.17%	53.3%	50.73%	78.12%
Standard Deviation	0.1%	0.3%	0.3%	0.6%	0.1%	0.2%	0.1%	0.3%	0.3%	0.4%	0.2%	0.3%	0.1%	0.1%	0.1%	0.3%
Blender - Pabellon Barcelona - CPU-Only (sec)	**1067**	390.84	294.28	159.74	341.22	180.38	234.19	128.52	199.29	109.24	116.92	**74.19**	414.35	214.82	237.50	124.87
Normalized	6.95%	18.98%	25.21%	46.44%	21.74%	41.13%	31.68%	57.73%	37.23%	67.91%	63.45%	100%	17.91%	34.54%	31.24%	59.41%
Standard Deviation	0.1%	0.1%	0.3%	0.1%	0.2%	0.9%	0.6%	0.9%	0.7%	0.6%	0.8%	0.5%	0.1%	0.1%	0.1%	0.2%
Appleseed - Disney Material	**336.89**	144.50	108.53	69.44	148.04	81.28	109.30	63.45	86.34	59.83	63.50	**57.99**	162.72	96.10	97.09	65.95
Normalized	17.21%	40.13%	53.43%	83.51%	39.17%	71.35%	53.06%	91.39%	67.16%	96.92%	91.32%	100%	35.64%	60.34%	59.73%	87.93%

Tungsten Renderer - Hair (sec)	**39.49**	16.26	13.07	8.10	16.26	9.67	12.00	7.55	10.34	6.57	6.97	**5.32**	19.19	11.17	11.86	7.07
Normalized	13.47%	32.72%	40.7%	65.68%	32.72%	55.02%	44.33%	70.46%	51.45%	80.97%	76.33%	100%	27.72%	47.63%	44.86%	75.25%
Standard Deviation	0.4%	0%	0.4%	0.8%	0.9%	0.4%	0.3%	1.3%	0.4%	0.6%	0.2%	1.2%	0.3%	1.3%	0.4%	1.4%
PyBench - T.F.A.T.T (Millisecond	**1607**	1551	1457	1462	1221	1225	1207	1211	1212	1211	1202	1206	1084	1075	1017	**1013**
Normalized	63.04%	65.31%	69.53%	69.29%	82.96%	82.69%	83.93%	83.65%	83.58%	83.65%	84.28%	84%	93.45%	94.23%	99.61%	100%
Standard Deviation		0.6%	0.3%	1.2%	0.6%	0.2%	0.4%	0.3%	0.9%	0.3%	0.2%	0.3%	0.3%	0.2%	0.2%	0.1%
NeatBench - CPU (FPS)	**10.37**	13.05	11.57	10.38	28.97	27.40	32.93	31.63	33.70	31.57	**34.43**	32.53	24.80	22.97	34.30	31.71
Normalized	30.12%	37.9%	33.6%	30.15%	84.14%	79.58%	95.64%	91.87%	97.88%	91.69%	100%	94.48%	72.03%	66.72%	99.62%	92.1%
Standard Deviation	0.6%	2.7%	5.7%	2.9%	0.9%	1.3%	2.2%	1.9%	2.2%	1%	3%	0.2%	2%	1.8%	2.9%	3.5%
PHPBench - P.B.S	**359687**	373155	397124	395581	489637	489367	495293	496430	495466	495916	502052	501770	595163	598887	637497	**645629**
Normalized	55.71%	57.8%	61.51%	61.27%	75.84%	75.8%	76.71%	76.89%	76.74%	76.81%	77.76%	77.72%	92.18%	92.76%	98.74%	100%
Standard Deviation	0.3%	0.3%	0.2%	0.5%	0.5%	0.7%	0.8%	0.3%	0.5%	0.3%	0.6%	0.3%	0.9%	0.3%	1.4%	0.3%
Geekbench - CPU Multi Core (Score)	**6571**	14576	17829	28438	17312	28823	23514	37477	27437	43436	42067	**59066**	14386	19626	23734	36165
Normalized	11.12%	24.68%	30.18%	48.15%	29.31%	48.8%	39.81%	63.45%	46.45%	73.54%	71.22%	100%	24.36%	33.23%	40.18%	61.23%
Standard Deviation	2%	1.7%	2.8%	2.6%	0.5%	0.7%	0.2%	1.4%	0%	1.4%	0.9%	1.7%	0.6%	0.8%	0.6%	1.3%
Geekbench - CPU Multi Core - Face Detection (images/sec)	**56.47**	155.13	195.67	363.70	148.30	290.47	219.67	415.53	266.73	501.20	465.80	**792.37**	130.90	194.57	225.17	396.27
Normalized	7.13%	19.58%	24.69%	45.9%	18.72%	36.66%	27.72%	52.44%	33.66%	63.25%	58.79%	100%	16.52%	24.56%	28.42%	50.01%
Standard Deviation	1.5%	1.3%	6.2%	3.9%	0.8%	1.8%	0.8%	1.6%	1.2%	6.4%	3%	4.5%	1.1%	3.7%	2.6%	8.5%
Geekbench - CPU Single Core (Score)	**770**	820	869	873	1005	991	1026	1006	1026	999	1041	1033	1073	1046	**1143**	1135
Normalized	67.37%	71.74%	76.03%	76.38%	87.93%	86.7%	89.76%	88.01%	89.76%	87.4%	91.08%	90.38%	93.88%	91.51%	100%	99.3%
Standard Deviation	0.4%	0.4%	0.3%	0.1%	0.7%	0.6%	0.4%	0.7%	0.1%	0.5%	0.5%		0.1%			0.1%
Geekbench - CPU Single Core - Gaussian Blur	55.27	56.63	60.53	60.97	63.17	62.60	64.33	63.47	64.40	63.73	**65.67**	64.43	40.80	**40.03**	42.53	42.13
Normalized	84.16%	86.23%	92.17%	92.84%	96.19%	95.33%	97.96%	96.65%	98.07%	97.05%	100%	98.11%	62.13%	60.96%	64.76%	64.15%
Standard Deviation	0.3%	0.2%	0.2%	0.4%	0.2%	0.5%	0.5%	0.6%	0.7%	0.2%	0.6%	0.2%	0%	0.1%	1%	0.1%

Geekbench - CPU Single Core - Face Detection (images/sec)	**6.04**	6.25	6.68	6.68	8.18	8.19	8.31	8.28	8.31	8.31	**8.45**	8.28	7.70	7.70	8.33	8.31
Normalized	71.48%	73.96%	79.05%	79.05%	96.8%	96.92%	98.34%	97.99%	98.34%	98.34%	100%	97.99%	91.12%	91.12%	98.58%	98.34%
Standard Deviation	0.3%	0.2%	0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.3%	0.1%	0.1%	0.5%	0.4%
Geekbench - CPU Single Core - Horizon Detection (Gpixels/sec)	**17.70**	18.03	18.77	18.40	23.50	22.83	23.80	23.10	23.83	23.30	24.10	24	23.53	23.10	**25.40**	25.10
Normalized	69.69%	70.98%	73.9%	72.44%	92.52%	89.88%	93.7%	90.94%	93.82%	91.73%	94.88%	94.49%	92.64%	90.94%	100%	98.82%
Standard Deviation	10.9%	7.6%	4%	2.2%	0%	0.3%	1.1%	1.1%	0.5%	0.7%	0%		0.2%	0%	0%	0.4%
AOM AV1 - AV1 Video Encoding (FPS)													0.10			
Standard Deviation													0%			
SVT-AV1 - Enc Mode 0 - 1080p (FPS)													0.05	0.05		
Standard Deviation													0%	0%		
SVT-AV1 - Enc Mode 4 - 1080p (FPS)													**4.75**	**6.59**		
Normalized													72.08%	100%		
Standard Deviation													0.5%	0.2%		
SVT-AV1 - Enc Mode 8 - 1080p (FPS)													**34.91**	**50.14**		
Normalized													69.63%	100%		
Standard Deviation													0.1%	1.7%		
SVT-HEVC - 1.8.b.Y.T.H.V.E (FPS)													**71.29**	**109.36**		
Normalized													65.19%	100%		
Standard Deviation													0%	2.8%		

VP9 libvpx Encoding - v.V.1.V.E (FPS)													82.57	79.27		
Normalized													100%	96%		
Standard Deviation													1.7%	0.8%		
NAMD - Performance / Cost - ATPase Simulation - 327,506 Atoms (days/ns x Dollar)	1728	1237	4885	4796	1346	1406	1723	1819	2081	2200	3289	4051	3318	3566	7013	7188
Normalized	71.54%	100%	25.31%	25.78%	91.9%	87.92%	71.76%	67.96%	59.42%	56.2%	37.6%	30.52%	37.27%	34.67%	17.63%	17.2%
John The Ripper - Performance / Cost - Blowfish (Real C/S/Dollar)	23.02	27.07	6.23	7.63	29.45	29.35	24.19	23.85	20.42	19.70	12.69	11.95	9.32	9.13	4.29	4.24
Normalized	78.17%	91.92%	21.15%	25.91%	100%	99.66%	82.14%	80.98%	69.34%	66.89%	43.09%	40.58%	31.65%	31%	14.57%	14.4%
MKL-DNN - Performance / Cost - IP Batch All - f32 (ms x	294404	156548	604367	841096	212855	262115	286645	386523	351590	457537	688383	137603	309746	656891	949654	194915
Normalized	53.17%	100%	25.9%	1.86%	73.55%	59.73%	54.61%	40.5%	44.53%	34.22%	22.74%	11.38%	50.54%	23.83%	16.48%	8.03%
MKL-DNN - Performance / Cost - C.B.c - f32 (ms x Dollar)	22182	16954	69101	69530	10226	11650	13357	14923	16339	19268	27765	41749	33809	25826	81473	66059
Normalized	46.1%	60.32%	14.8%	14.71%	100%	87.77%	76.56%	68.53%	62.59%	53.07%	36.83%	24.49%	30.25%	39.6%	12.55%	15.48%
MKL-DNN - Performance / Cost - C.B.c - f32 (ms x Dollar)	4367594	3173031	12219861	12932547	1918672	2070575	2483344	2657488	3061797	3282706	5276346	6324402	3547773	3613650	7671098	7674301
Normalized	43.93%	60.47%	15.7%	14.84%	100%	92.66%	77.26%	72.2%	62.66%	58.45%	36.36%	30.34%	54.08%	53.1%	25.01%	25%

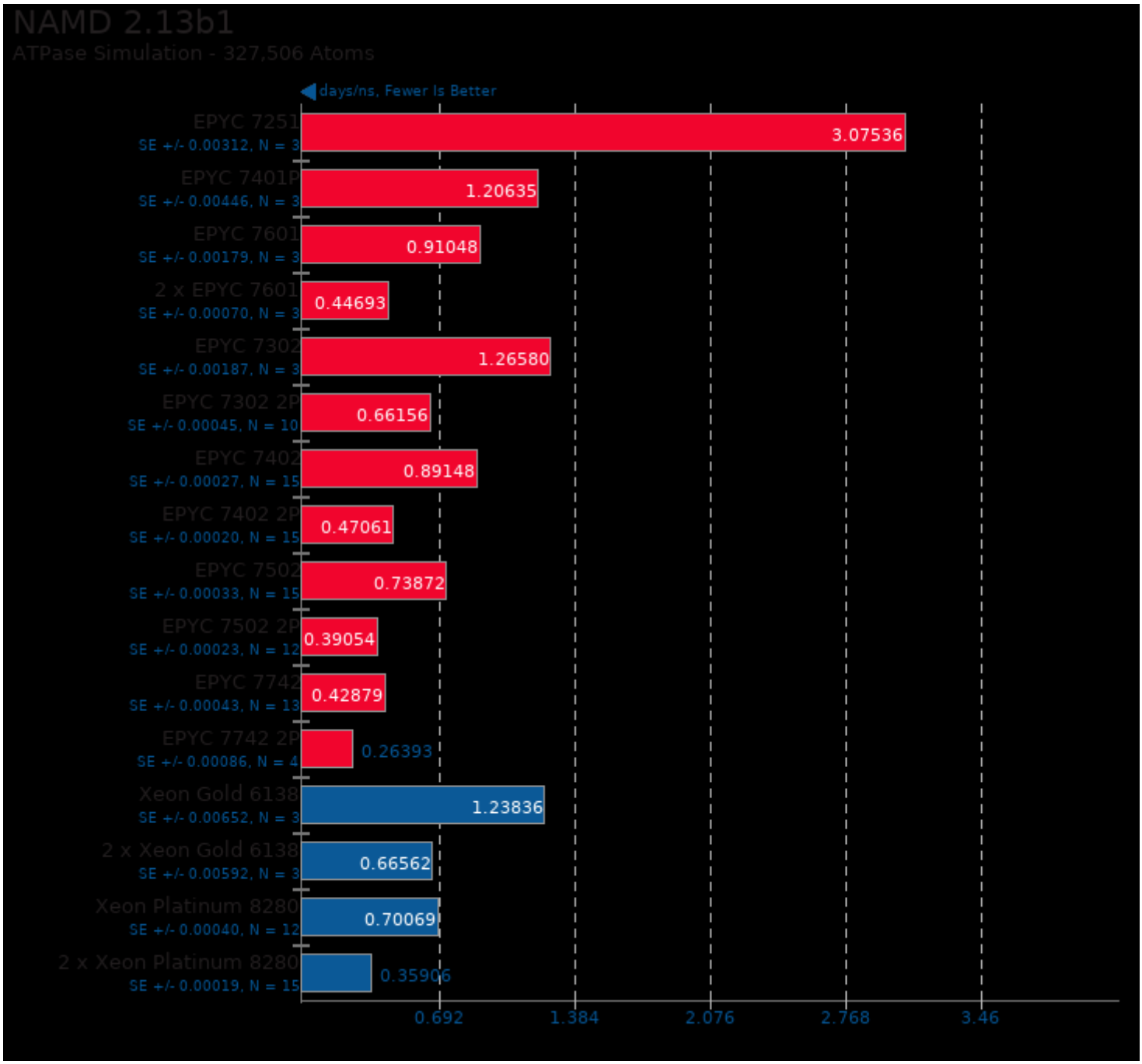
MKL-DNN - Performance / Cost - C.B.c - f32 (ms x Dollar)	563231	414684	161914	1685683	258341	278825	335240	377747	399338	433311	682247	777580	444580	457145	944149	972074
Normalized	45.87%	62.3%	16.03%	15.33%	100%	92.65%	77.06%	68.39%	64.69%	59.62%	37.87%	33.22%	58.11%	56.51%	27.36%	26.58%
MKL-DNN - Performance / Cost - C.B.c - f32 (ms x Dollar)	241064	179672	702439	752173	107958	127900	137127	158545	167724	193303	291307	364539	196022	197657	417776	423981
Normalized	44.78%	60.09%	15.37%	14.35%	100%	84.41%	78.73%	68.09%	64.37%	55.85%	37.06%	29.62%	55.07%	54.62%	25.84%	25.46%
SVT-HEVC - Performance / Cost - 1.8.b.Y.T.H.V.E (FPS/Dollar)	0.16	0.17	0.03	0.02	0.24	0.15	0.18	0.09	0.13	0.06	0.05	0.02	0.09	0.04	0.03	0.01
Normalized	66.67%	70.83%	12.5%	8.33%	100%	62.5%	75%	37.5%	54.17%	25%	20.83%	8.33%	37.5%	16.67%	12.5%	4.17%
SVT-VP9 - Performance / Cost - 1.8.b.Y.T.V.V.E (FPS/Dollar)	0.12	0.16	0.03	0.01	0.26	0.15	0.19	0.09	0.13	0.06	0.05	0.02	0.10	0.05	0.04	0.01
Normalized	46.15%	61.54%	11.54%	3.85%	100%	57.69%	73.08%	34.62%	50%	23.08%	19.23%	7.69%	38.46%	19.23%	15.38%	3.85%
x264 - Performance / Cost - H.2.V.E (FPS/Dollar)	0.10	0.11	0.02	0.01	0.12	0.07	0.08	0.04	0.05	0.03	0.02	0.01	0.04	0.02	0.01	0.01
Normalized	83.33%	91.67%	16.67%	8.33%	100%	58.33%	66.67%	33.33%	41.67%	25%	16.67%	8.33%	33.33%	16.67%	8.33%	8.33%
x265 - Performance / Cost - H.2.1.V.E (FPS/Dollar)	0.04	0.03	0.01		0.04	0.02	0.02	0.01	0.02	0.01	0.01		0.01	0.01		
Normalized	100%	75%	25%		100%	50%	50%	25%	50%	25%	25%		25%	25%		
dav1d - Performance / Cost - Summer Nature 4K (sec x Dollar)	29128	27101	133964	20032	23269	37141	32436	55941	45016	73467	92117	175132	72119	150828	21669	362126
Normalized	79.88%	85.86%	17.37%	11.62%	100%	62.65%	71.74%	41.6%	51.69%	31.67%	25.26%	13.29%	32.26%	15.43%	10.74%	6.43%

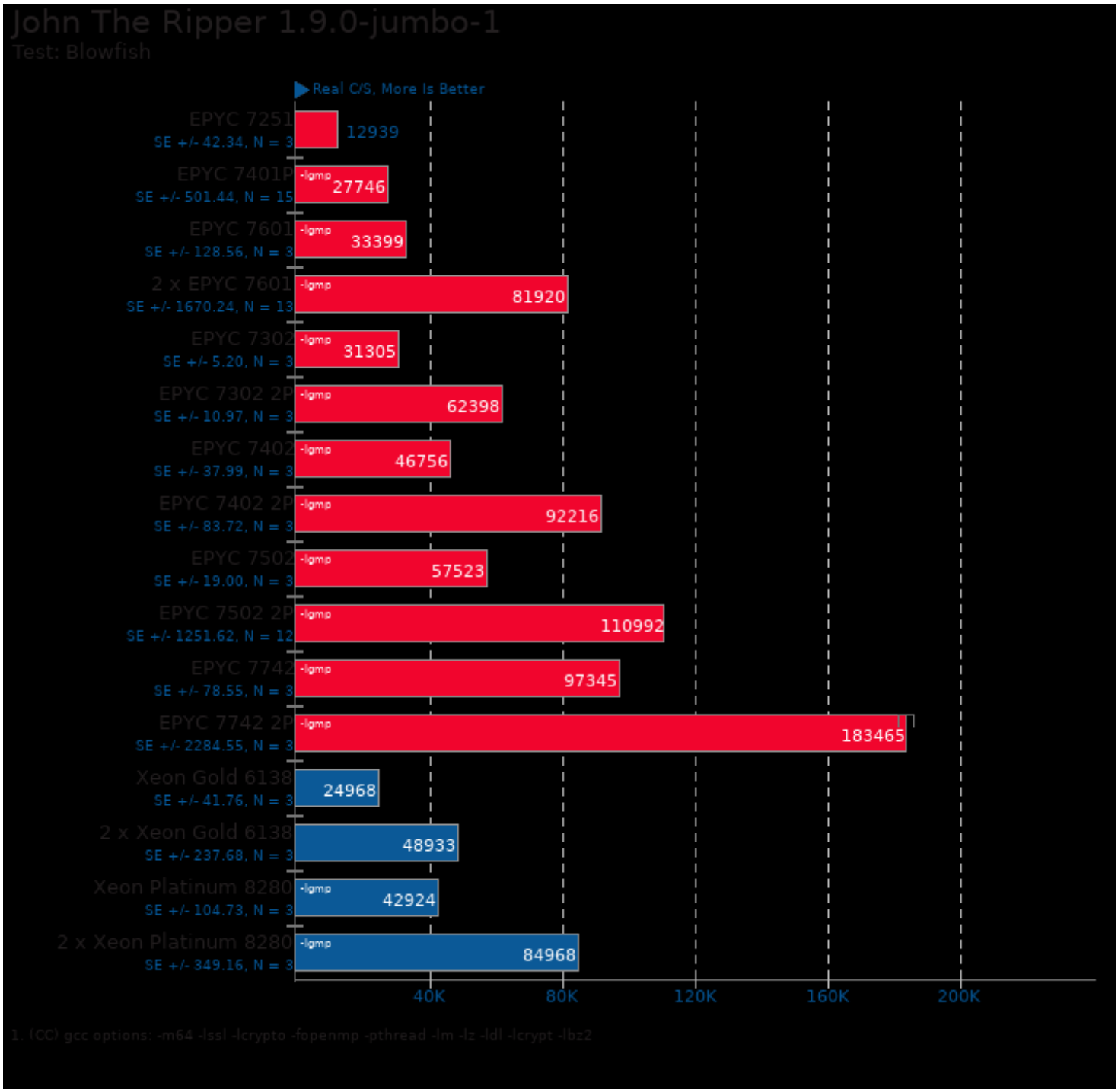
Coremark - Performance / Cost - CoreMark Size 666 - I.P.S (Iterations/Sec/Dollar)	417.60	603.22	152.92	154.29	553.75	533.44	455.42	428.32	393.85	376.07	256.35	242.36	220.14	213.35	96.65	94.10
Normalized	69.23%	100%	25.35%	25.58%	91.8%	88.43%	75.5%	71.01%	65.29%	62.34%	42.5%	40.18%	36.49%	35.37%	16.02%	15.6%
Stockfish - Performance / Cost - Total Time (Nodes/s/Dollar)	29037	41898	10851	9630	40032	36031	32085	29462	26945	24684	17356	15713	13969	12678	6509	6197
Normalized	69.3%	100%	25.9%	22.98%	95.55%	86%	76.58%	70.32%	64.31%	58.92%	41.42%	37.5%	33.34%	30.26%	15.54%	14.79%
asmFish - Performance / Cost - 1.H.M.2.D (Nodes/s/Dollar)	28861	44896	11601	10716	40367	35646	32573	29144	27855	24046	17172	15611	15228	13938	7007	6704
Normalized	64.28%	100%	25.84%	23.87%	89.91%	79.4%	72.55%	64.91%	62.04%	53.56%	38.25%	34.77%	33.92%	31.05%	15.61%	14.93%
Timed Linux Kernel Compilation - Performance / Cost - Time To Compile	57515	48677	210845	251619	44295	58252	63267	87449	81721	117356	171501	246658	130441	170867	312481	426584
Normalized	77.01%	91%	21.01%	17.6%	100%	76.04%	70.01%	50.65%	54.2%	37.74%	25.83%	17.96%	33.96%	25.92%	14.18%	10.38%
Timed LLVM Compilation - Performance / Cost - Time To Compile	302367	239532	108984	142709	216044	285437	306458	409177	404042	563175	783414	120965	650595	837348	158942	210008
Normalized	71.45%	90.19%	19.82%	15.14%	100%	75.69%	70.5%	52.8%	53.47%	38.36%	27.58%	17.86%	33.21%	25.8%	13.59%	10.29%
C-Ray - Performance / Cost - Total Time - 4.1.R.P.P (sec x Dollar)	49501	33169	131174	131764	40638	41138	49523	50335	58594	61185	90890	96545	131271	146916	279051	286458
Normalized	67.01%	100%	25.29%	25.17%	81.62%	80.63%	66.98%	65.9%	56.61%	54.21%	36.49%	34.36%	25.27%	22.58%	11.89%	11.58%

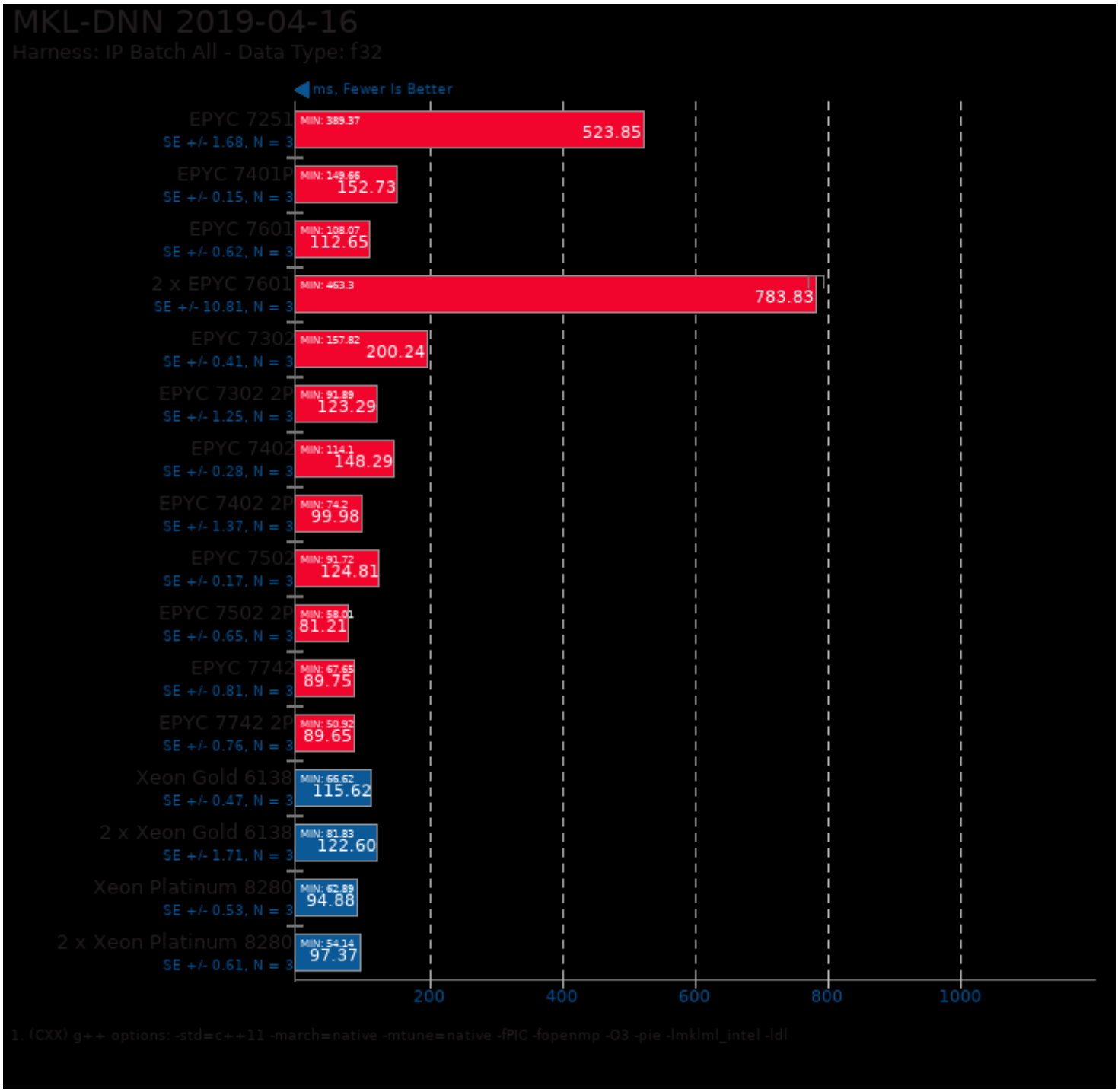
AMD EPYC 7302 / 7402 / 7502 / 7742 2P vs. Xeon Benchmarks

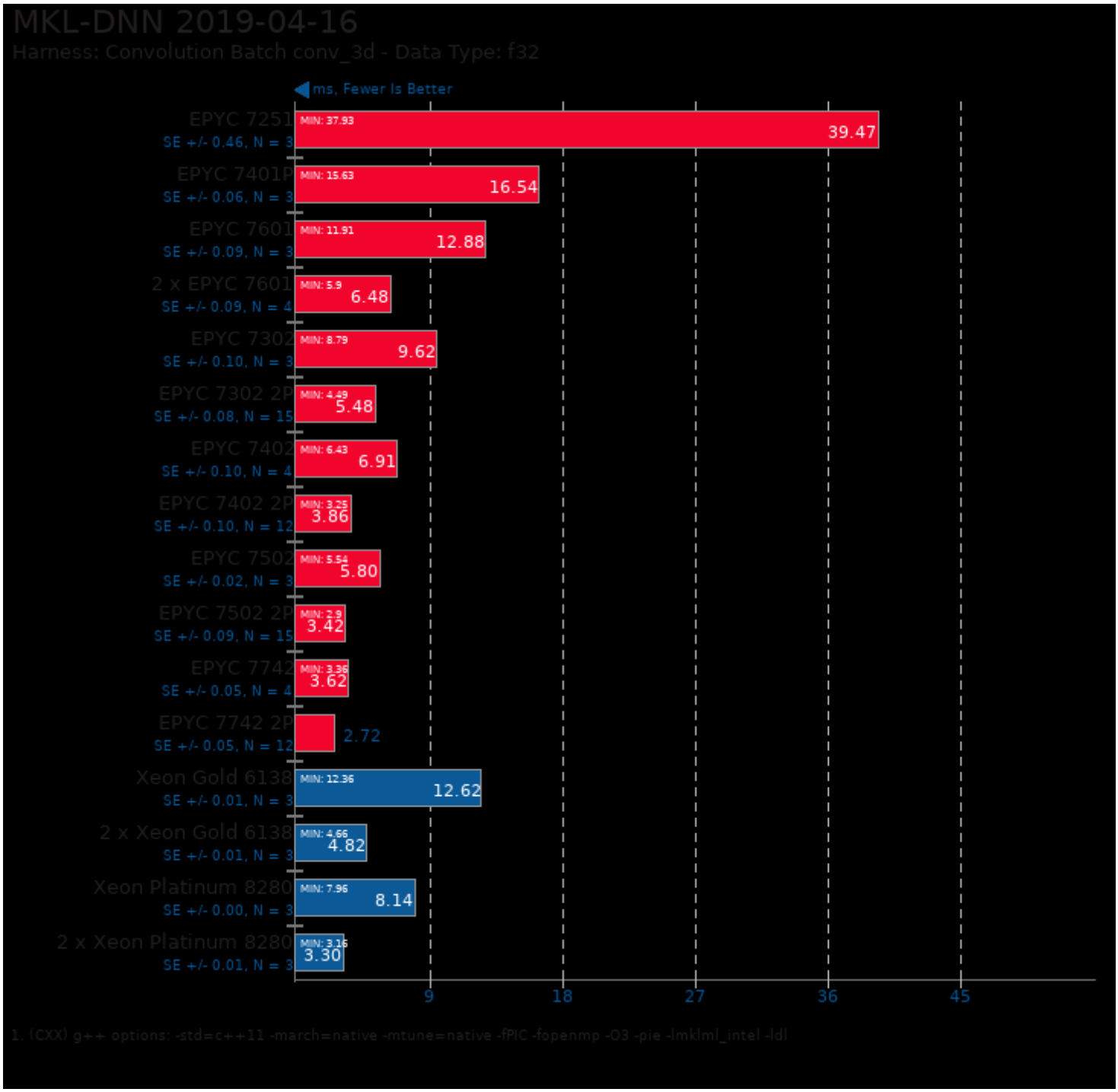
POV-Ray - Performance / Cost - Trace Time (sec x Dollar)	40082	**29879**	119908	13487 6	30699	34781	39916	46972	48847	58143	83296	129085	95185	105767	207186	**236613**
Normalized	74.54%	100%	24.92%	22.15%	97.33%	85.9%	74.85%	63.61%	61.17%	51.39%	35.87%	23.15%	31.39%	28.25%	14.42%	12.63%
7-Zip Compression - Performance / Cost - C.S.T (MIPS/Dollar)	54.58	76.40	16.84	12.50	**90.82**	70.98	72.55	56.50	60.75	45.27	36.58	22.82	31.11	25.99	13.96	**12.05**
Normalized	60.1%	84.12%	18.54%	13.76%	100%	78.15%	79.88%	62.21%	66.89%	49.85%	40.28%	25.13%	34.25%	28.62%	15.37%	13.27%
Blender - Performance / Cost - BMW27 - CPU-Only (sec x Dollar)	155927	112104	44776 3	51428 9	**107724**	116143	136354	156650	171696	199500	286781	411967	315425	340822	683715	**757481**
Normalized	69.09%	96.09%	24.06%	20.95%	100%	92.75%	79%	68.77%	62.74%	54%	37.56%	26.15%	34.15%	31.61%	15.76%	14.22%
Blender - Performance / Cost - Classroom - CPU-Only (sec x Dollar)	395907	282029	10963 91	10614 12	**281334**	289795	350994	364989	429649	440410	661538	711119	860227	876622	188209 2	**190171 0**
Normalized	71.06%	99.75%	25.66%	26.51%	100%	97.08%	80.15%	77.08%	65.48%	63.88%	42.53%	39.56%	32.7%	32.09%	14.95%	14.79%
Blender - Performance / Cost - Fishy Cat - CPU-Only (sec x Dollar)	230858	164031	67218 1	82331 3	**152636**	176203	196567	250324	248854	324518	455445	670905	475121	536175	104794 2	**125172 6**
Normalized	66.12%	93.05%	22.71%	18.54%	100%	86.63%	77.65%	60.98%	61.34%	47.03%	33.51%	22.75%	32.13%	28.47%	14.57%	12.19%
Blender - Performance / Cost - Barbershop - CPU-Only (sec x Dollar)	668842	464756	18616 01	23600 64	**425508**	506201	549359	694991	683996	926511	129584 7	217541 4	121824 8	142469 2	279641 5	**363186 6**
Normalized	63.62%	91.56%	22.86%	18.03%	100%	84.06%	77.46%	61.23%	62.21%	45.93%	32.84%	19.56%	34.93%	29.87%	15.22%	11.72%

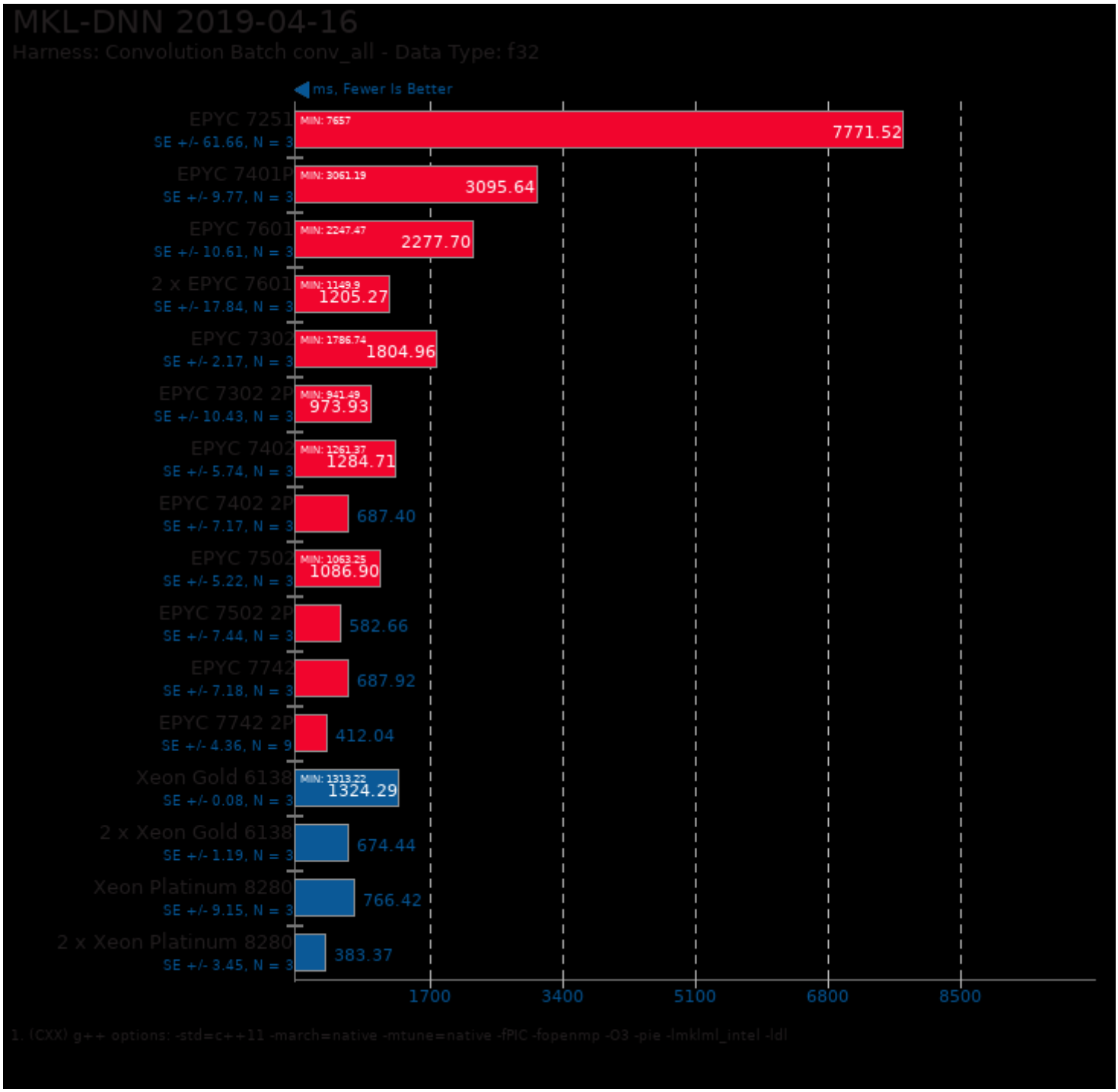
Blender - Performance / Cost - Pabellon Barcelona - CPU-Only (sec x Dollar)	599783	400611	157881	171410	362717	383488	452689	496858	561400	615458	896776	113874	111004	115106	237713	249964
Normalized	60.47%	90.54%	22.97%	21.16%	100%	94.58%	80.12%	73%	64.61%	58.93%	40.45%	31.85%	32.68%	31.51%	15.26%	14.51%
Appleseed - Performance / Cost - Disney Material (sec	189332	148113	582263	745091	157367	172801	211277	245298	243220	337082	487045	890089	435927	514904	971774	1320187
Normalized	78.23%	100%	25.44%	19.88%	94.12%	85.71%	70.1%	60.38%	60.9%	43.94%	30.41%	16.64%	33.98%	28.77%	15.24%	11.22%
Tungsten Renderer - Performance / Cost - Hair (sec x Dollar)	22193	16667	70121	86913	17284	20558	23196	29188	29128	37015	53460	81657	51410	59849	118707	141527
Normalized	75.1%	100%	23.77%	19.18%	96.43%	81.07%	71.85%	57.1%	57.22%	45.03%	31.18%	20.41%	32.42%	27.85%	14.04%	11.78%
PyBench - Performance / Cost - T.F.A.T.T (Milliseconds x Dollar)	903134	158975	781685	156872	129792	260435	233331	468172	341420	682277	921934	185108	290403	575985	101791	202782
Normalized	100%	56.81%	11.55%	5.76%	69.58%	34.68%	38.71%	19.29%	26.45%	13.24%	9.8%	4.88%	31.1%	15.68%	8.87%	4.45%
PHPBench - Performance / Cost - P.B.S (Score/Dollar	640.01	364.05	74.02	36.87	460.62	230.18	256.23	128.41	175.88	88.02	65.46	32.69	222.16	111.77	63.69	32.25
Normalized	100%	56.88%	11.57%	5.76%	71.97%	35.97%	40.04%	20.06%	27.48%	13.75%	10.23%	5.11%	34.71%	17.46%	9.95%	5.04%
Geekbench - Performance / Cost - CPU Multi Core (Score/Dollar	11.69	14.22	3.32	2.65	16.29	13.56	12.16	9.69	9.74	7.71	5.48	3.85	5.37	3.66	2.37	1.81
Normalized	71.76%	87.29%	20.38%	16.27%	100%	83.24%	74.65%	59.48%	59.79%	47.33%	33.64%	23.63%	32.97%	22.47%	14.55%	11.11%

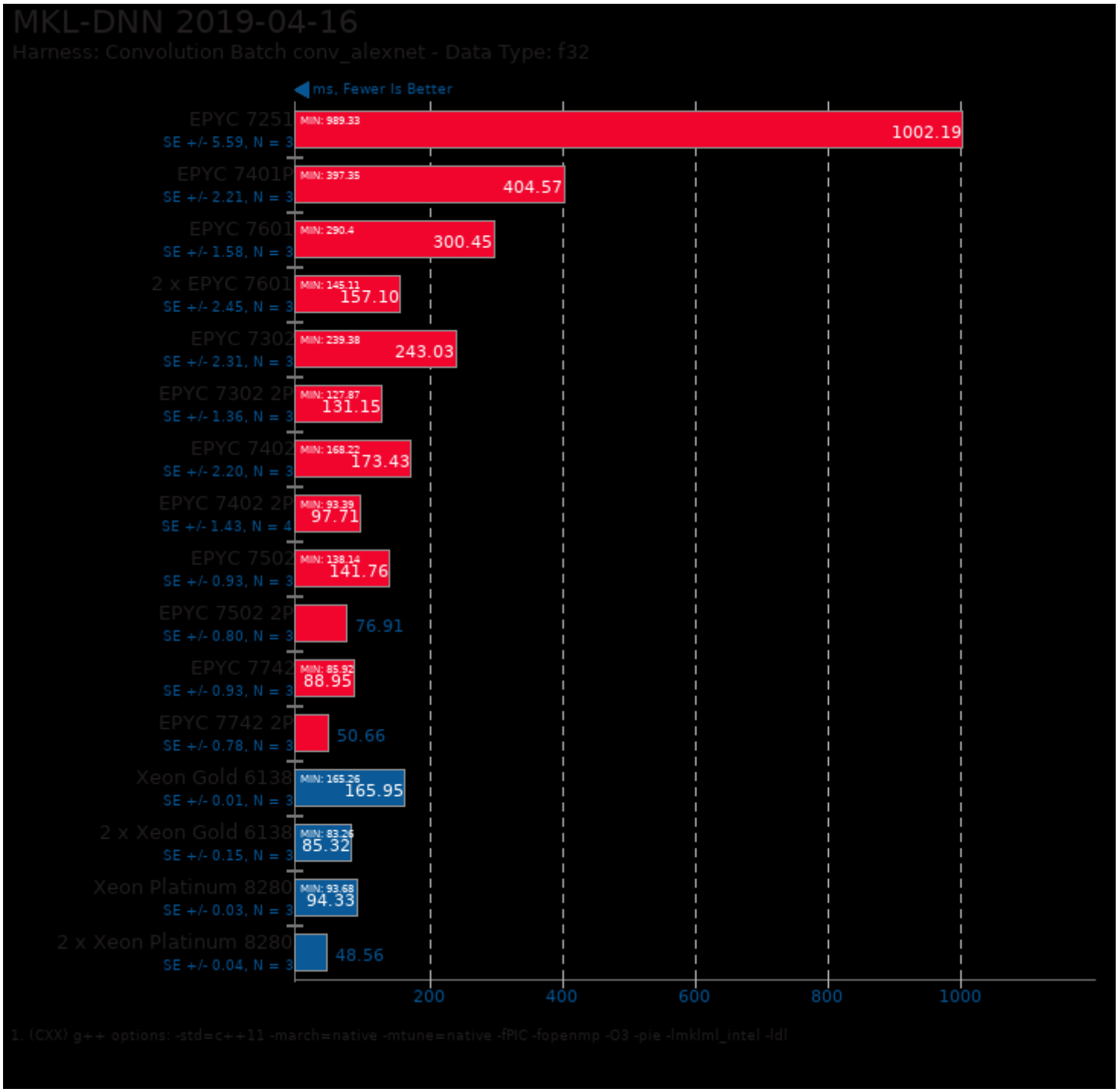

NAMD 2.13b1
ATPase Simulation - 327,506 Atoms
days/ns, Fewer Is Better
EPYC 7251
SE +/- 0.00312, N = 3
3.07536
EPYC 7401P
SE +/- 0.00446, N = 3
1.20635
EPYC 7601
SE +/- 0.00179, N = 3
0.91048
2 x EPYC 7601
SE +/- 0.00070, N = 3
0.44693
EPYC 7302
SE +/- 0.00187, N = 3
1.26580
EPYC 7302 2P
SE +/- 0.00045, N = 10
0.66156
EPYC 7402
SE +/- 0.00027, N = 15
0.89148
EPYC 7402 2P
SE +/- 0.00020, N = 15
0.47061
EPYC 7502
SE +/- 0.00033, N = 15
0.73872
EPYC 7502 2P
SE +/- 0.00023, N = 12
0.39054
EPYC 7742
SE +/- 0.00043, N = 13
0.42879
EPYC 7742 2P
SE +/- 0.00086, N = 4
0.26393
Xeon Gold 6138
SE +/- 0.00652, N = 3
1.23836
2 x Xeon Gold 6138
SE +/- 0.00592, N = 3
0.66562
Xeon Platinum 8280
SE +/- 0.00040, N = 12
0.70069
2 x Xeon Platinum 8280
SE +/- 0.00019, N = 15
0.35906
0.692
1.384
2.076
2.768
3.46

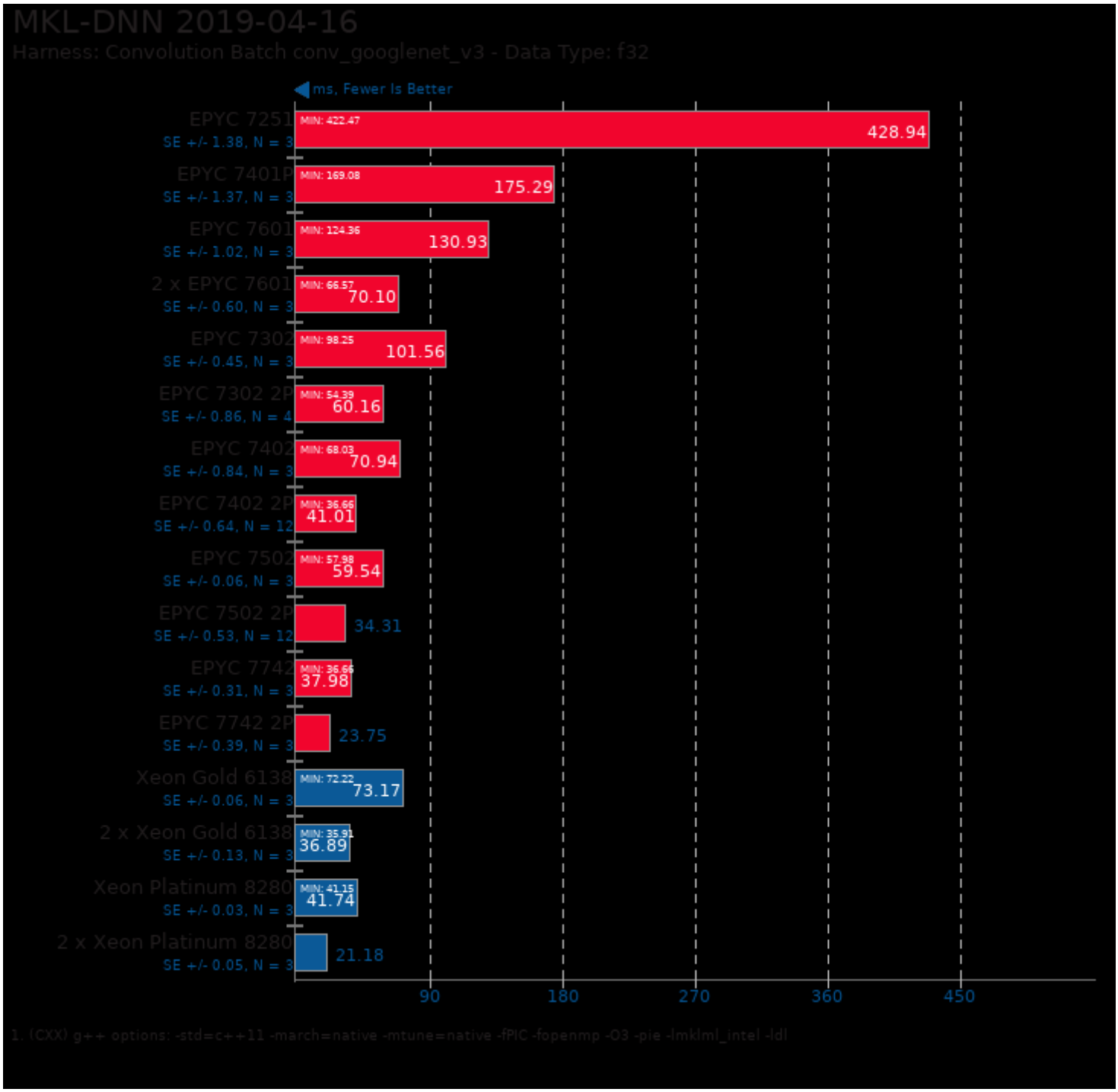

John The Ripper 1.9.0-jumbo-1
Test: Blowfish
Real C/S, More Is Better
EPYC 7251
SE +/- 42.34, N = 3
12939
EPYC 7401P
SE +/- 501.44, N = 15
-lgmp
27746
EPYC 7601
SE +/- 128.56, N = 3
-lgmp
33399
2 x EPYC 7601
SE +/- 1670.24, N = 13
-lgmp
81920
EPYC 7302
SE +/- 5.20, N = 3
-lgmp
31305
EPYC 7302 2P
SE +/- 10.97, N = 3
-lgmp
62398
EPYC 7402
SE +/- 37.99, N = 3
-lgmp
46756
EPYC 7402 2P
SE +/- 83.72, N = 3
-lgmp
92216
EPYC 7502
SE +/- 19.00, N = 3
-lgmp
57523
EPYC 7502 2P
SE +/- 1251.62, N = 12
-lgmp
110992
EPYC 7742
SE +/- 78.55, N = 3
-lgmp
97345
EPYC 7742 2P
SE +/- 2284.55, N = 3
-lgmp
183465
Xeon Gold 6138
SE +/- 41.76, N = 3
24968
2 x Xeon Gold 6138
SE +/- 237.68, N = 3
48933
Xeon Platinum 8280
SE +/- 104.73, N = 3
-lgmp
42924
2 x Xeon Platinum 8280
SE +/- 349.16, N = 3
-lgmp
84968
40K
80K
120K
160K
200K
1. (CC) gcc options: -m64 -lssl -lcrypto -fopenmp -pthread -lm -lz -ldl -lcrypt -lbz2

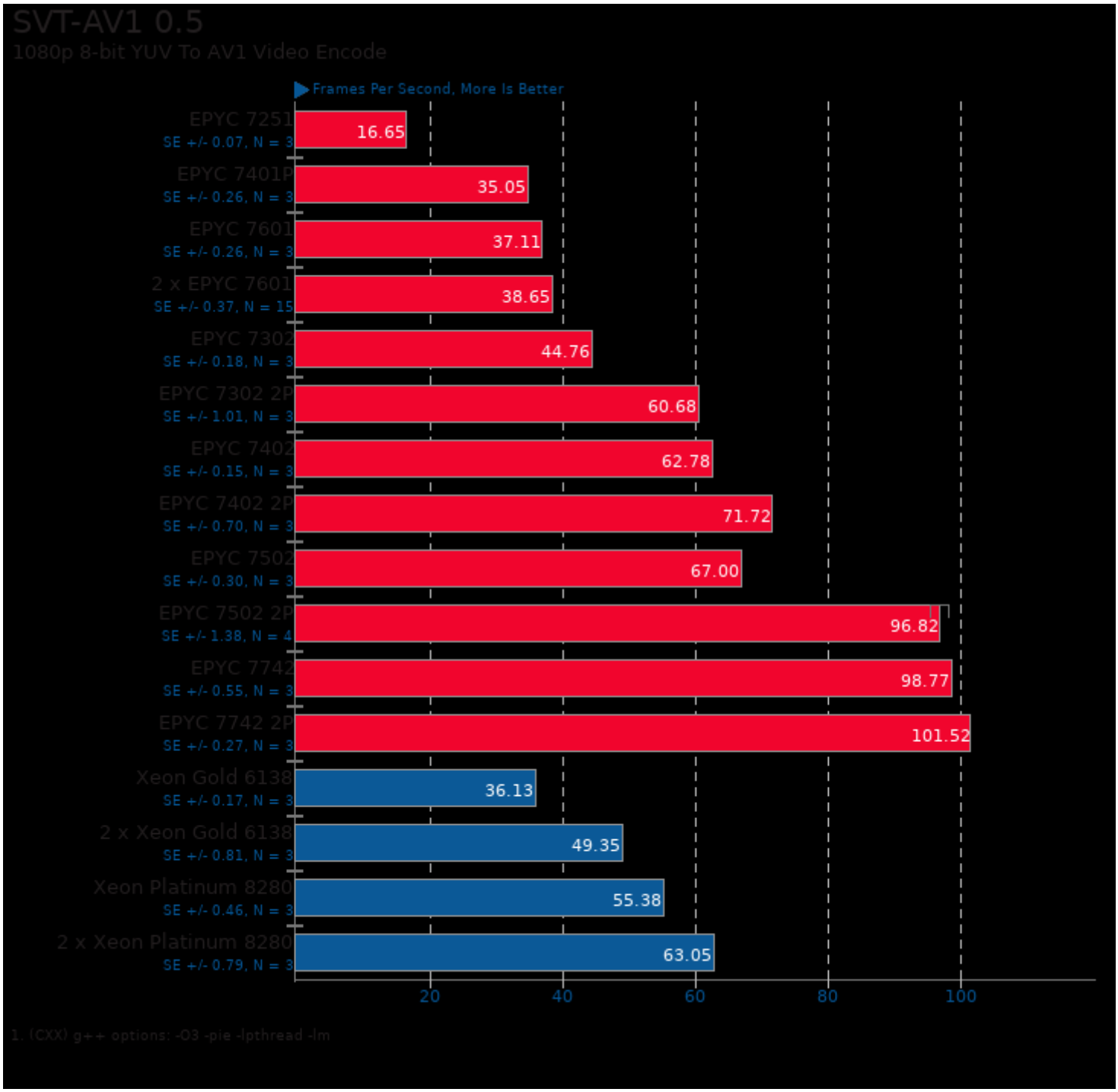

MKL-DNN 2019-04-16
Harness: IP Batch All - Data Type: f32
ms, Fewer Is Better
EPYC 7251
SE +/- 1.68, N = 3
MIN: 389.37
523.85
EPYC 7401P
SE +/- 0.15, N = 3
MIN: 149.66
152.73
EPYC 7601
SE +/- 0.62, N = 3
MIN: 108.07
112.65
2 x EPYC 7601
SE +/- 10.81, N = 3
MIN: 463.3
783.83
EPYC 7302
SE +/- 0.41, N = 3
MIN: 157.82
200.24
EPYC 7302 2P
SE +/- 1.25, N = 3
MIN: 91.89
123.29
EPYC 7402
SE +/- 0.28, N = 3
MIN: 114.1
148.29
EPYC 7402 2P
SE +/- 1.37, N = 3
MIN: 74.2
99.98
EPYC 7502
SE +/- 0.17, N = 3
MIN: 91.72
124.81
EPYC 7502 2P
SE +/- 0.65, N = 3
MIN: 58.01
81.21
EPYC 7742
SE +/- 0.81, N = 3
MIN: 67.65
89.75
EPYC 7742 2P
SE +/- 0.76, N = 3
MIN: 50.92
89.65
Xeon Gold 6138
SE +/- 0.47, N = 3
MIN: 66.62
115.62
2 x Xeon Gold 6138
SE +/- 1.71, N = 3
MIN: 81.83
122.60
Xeon Platinum 8280
SE +/- 0.53, N = 3
MIN: 62.89
94.88
2 x Xeon Platinum 8280
SE +/- 0.61, N = 3
MIN: 54.14
97.37
200
400
600
800
1000
1. (CXX) g++ options: -std=c++11 -march=native -mtune=native -fPIC -fopenmp -O3 -pie -lmklml_intel -ldl

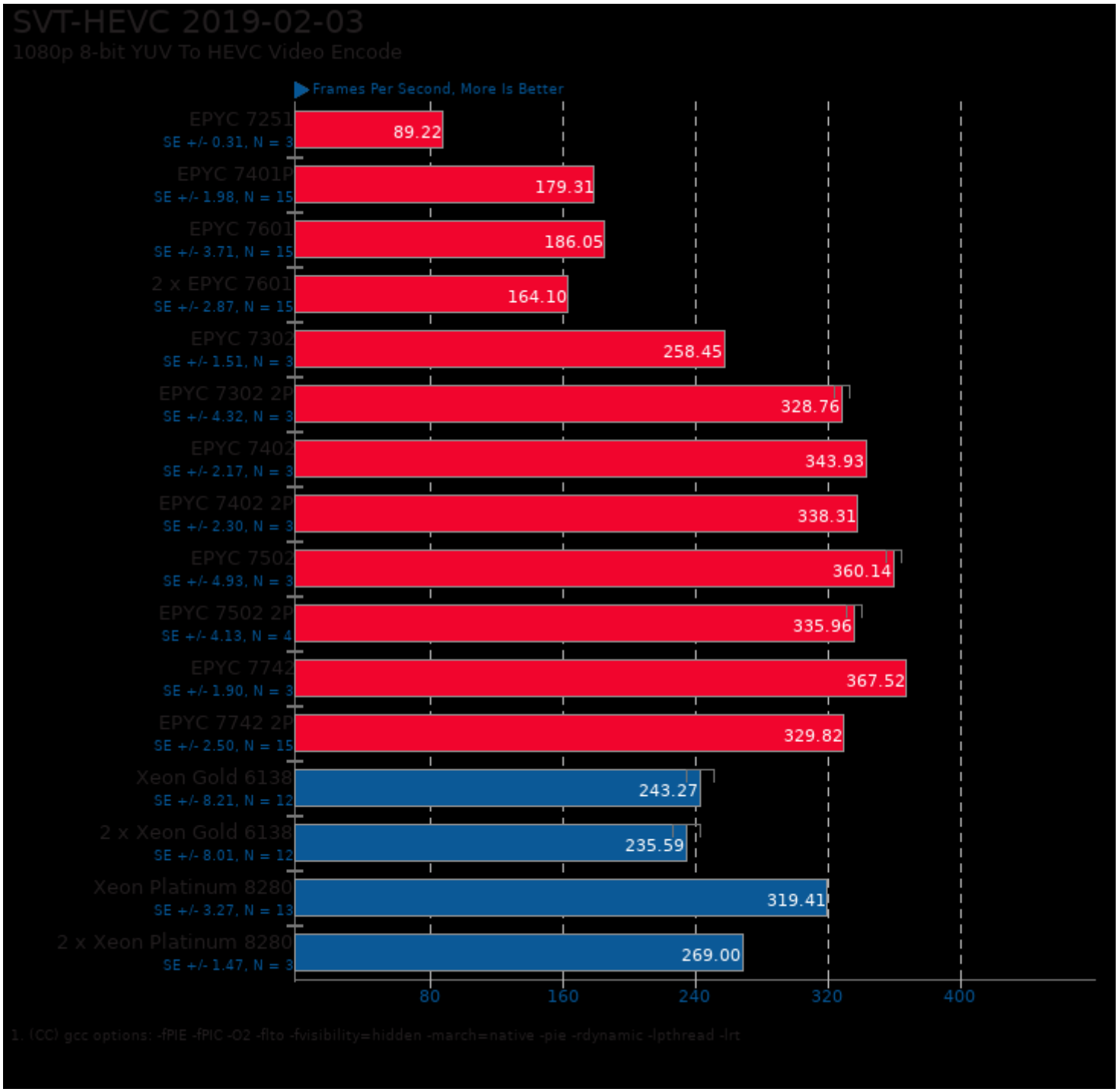

MKL-DNN 2019-04-16
Harness: Convolution Batch conv_3d - Data Type: f32
ms, Fewer Is Better
EPYC 7251
SE +/- 0.46, N = 3
MIN: 37.93
39.47
EPYC 7401P
SE +/- 0.06, N = 3
MIN: 15.63
16.54
EPYC 7601
SE +/- 0.09, N = 3
MIN: 11.91
12.88
2 x EPYC 7601
SE +/- 0.09, N = 4
MIN: 5.9
6.48
EPYC 7302
SE +/- 0.10, N = 3
MIN: 8.79
9.62
EPYC 7302 2P
SE +/- 0.08, N = 15
MIN: 4.49
5.48
EPYC 7402
SE +/- 0.10, N = 4
MIN: 6.43
6.91
EPYC 7402 2P
SE +/- 0.10, N = 12
MIN: 3.25
3.86
EPYC 7502
SE +/- 0.02, N = 3
MIN: 5.54
5.80
EPYC 7502 2P
SE +/- 0.09, N = 15
MIN: 2.9
3.42
EPYC 7742
SE +/- 0.05, N = 4
MIN: 3.36
3.62
EPYC 7742 2P
SE +/- 0.05, N = 12
2.72
Xeon Gold 6138
SE +/- 0.01, N = 3
MIN: 12.36
12.62
2 x Xeon Gold 6138
SE +/- 0.01, N = 3
MIN: 4.66
4.82
Xeon Platinum 8280
SE +/- 0.00, N = 3
MIN: 7.96
8.14
2 x Xeon Platinum 8280
SE +/- 0.01, N = 3
MIN: 3.16
3.30
9
18
27
36
45
1. (CXX) g++ options: -std=c++11 -march=native -mtune=native -fPIC -fopenmp -O3 -pie -lmklml_intel -ldl

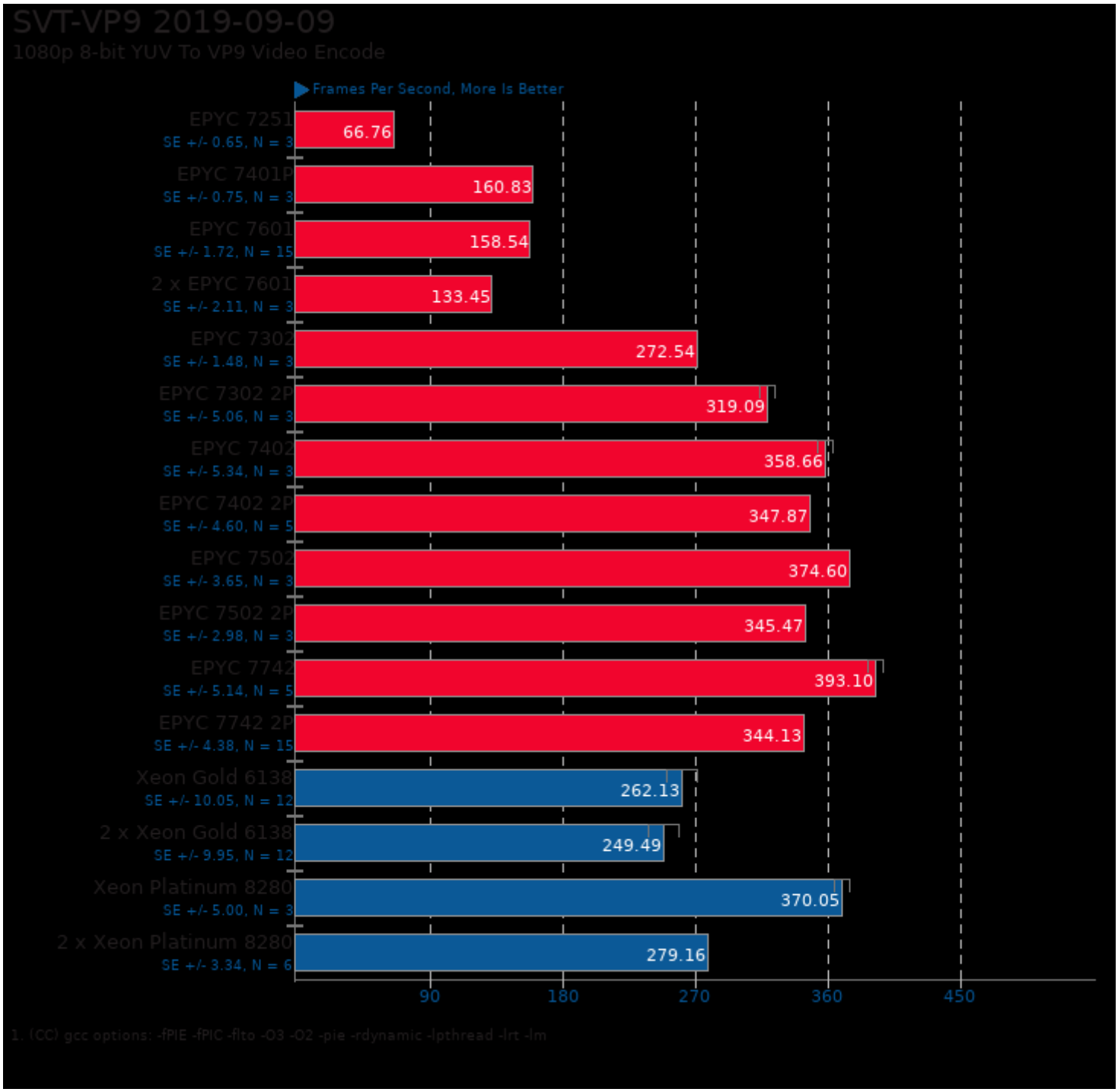

MKL-DNN 2019-04-16
Harness: Convolution Batch conv_all - Data Type: f32
ms, Fewer Is Better
EPYC 7251
SE +/- 61.66, N = 3
MIN: 7657
7771.52
EPYC 7401P
SE +/- 9.77, N = 3
MIN: 3061.19
3095.64
EPYC 7601
SE +/- 10.61, N = 3
MIN: 2247.47
2277.70
2 x EPYC 7601
SE +/- 17.84, N = 3
MIN: 1149.9
1205.27
EPYC 7302
SE +/- 2.17, N = 3
MIN: 1786.74
1804.96
EPYC 7302 2P
SE +/- 10.43, N = 3
MIN: 941.49
973.93
EPYC 7402
SE +/- 5.74, N = 3
MIN: 1261.37
1284.71
EPYC 7402 2P
SE +/- 7.17, N = 3
687.40
EPYC 7502
SE +/- 5.22, N = 3
MIN: 1063.25
1086.90
EPYC 7502 2P
SE +/- 7.44, N = 3
582.66
EPYC 7742
SE +/- 7.18, N = 3
687.92
EPYC 7742 2P
SE +/- 4.36, N = 9
412.04
Xeon Gold 6138
SE +/- 0.08, N = 3
MIN: 1313.22
1324.29
2 x Xeon Gold 6138
SE +/- 1.19, N = 3
674.44
Xeon Platinum 8280
SE +/- 9.15, N = 3
766.42
2 x Xeon Platinum 8280
SE +/- 3.45, N = 3
383.37
1700
3400
5100
6800
8500
1. (CXX) g++ options: -std=c++11 -march=native -mtune=native -fPIC -fopenmp -O3 -pie -lmklml_intel -ldl

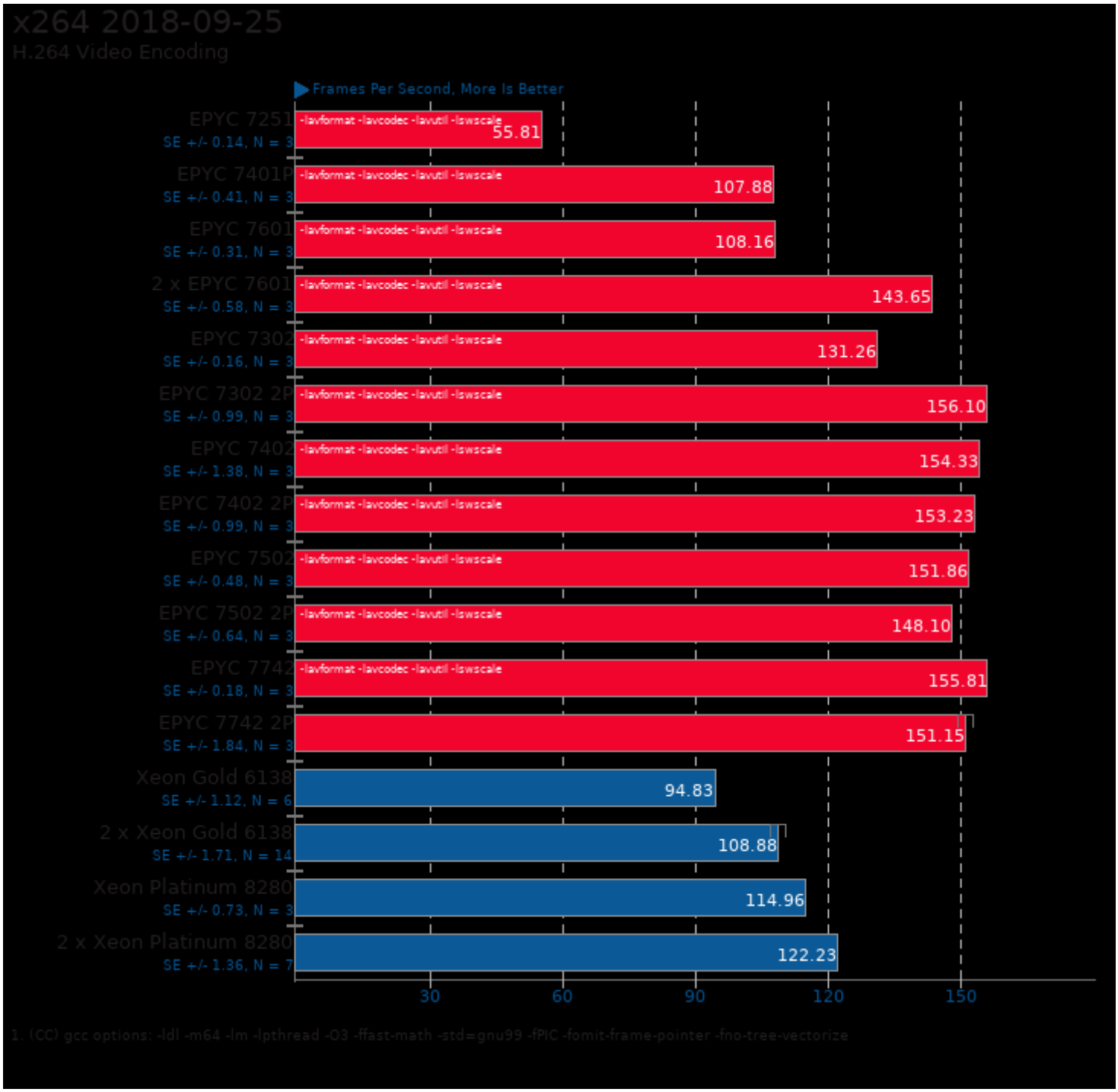

MKL-DNN 2019-04-16
Harness: Convolution Batch conv_alexnet - Data Type: f32
ms, Fewer Is Better
EPYC 7251
SE +/- 5.59, N = 3
MIN: 989.33
1002.19
EPYC 7401P
SE +/- 2.21, N = 3
MIN: 397.35
404.57
EPYC 7601
SE +/- 1.58, N = 3
MIN: 290.4
300.45
2 x EPYC 7601
SE +/- 2.45, N = 3
MIN: 145.11
157.10
EPYC 7302
SE +/- 2.31, N = 3
MIN: 239.38
243.03
EPYC 7302 2P
SE +/- 1.36, N = 3
MIN: 127.87
131.15
EPYC 7402
SE +/- 2.20, N = 3
MIN: 168.22
173.43
EPYC 7402 2P
SE +/- 1.43, N = 4
MIN: 93.39
97.71
EPYC 7502
SE +/- 0.93, N = 3
MIN: 138.14
141.76
EPYC 7502 2P
SE +/- 0.80, N = 3
76.91
EPYC 7742
SE +/- 0.93, N = 3
MIN: 85.92
88.95
EPYC 7742 2P
SE +/- 0.78, N = 3
50.66
Xeon Gold 6138
SE +/- 0.01, N = 3
MIN: 165.26
165.95
2 x Xeon Gold 6138
SE +/- 0.15, N = 3
MIN: 83.26
85.32
Xeon Platinum 8280
SE +/- 0.03, N = 3
MIN: 93.68
94.33
2 x Xeon Platinum 8280
SE +/- 0.04, N = 3
48.56
200
400
600
800
1000
1. (CXX) g++ options: -std=c++11 -march=native -mtune=native -fPIC -fopenmp -O3 -pie -lmklml_intel -ldl

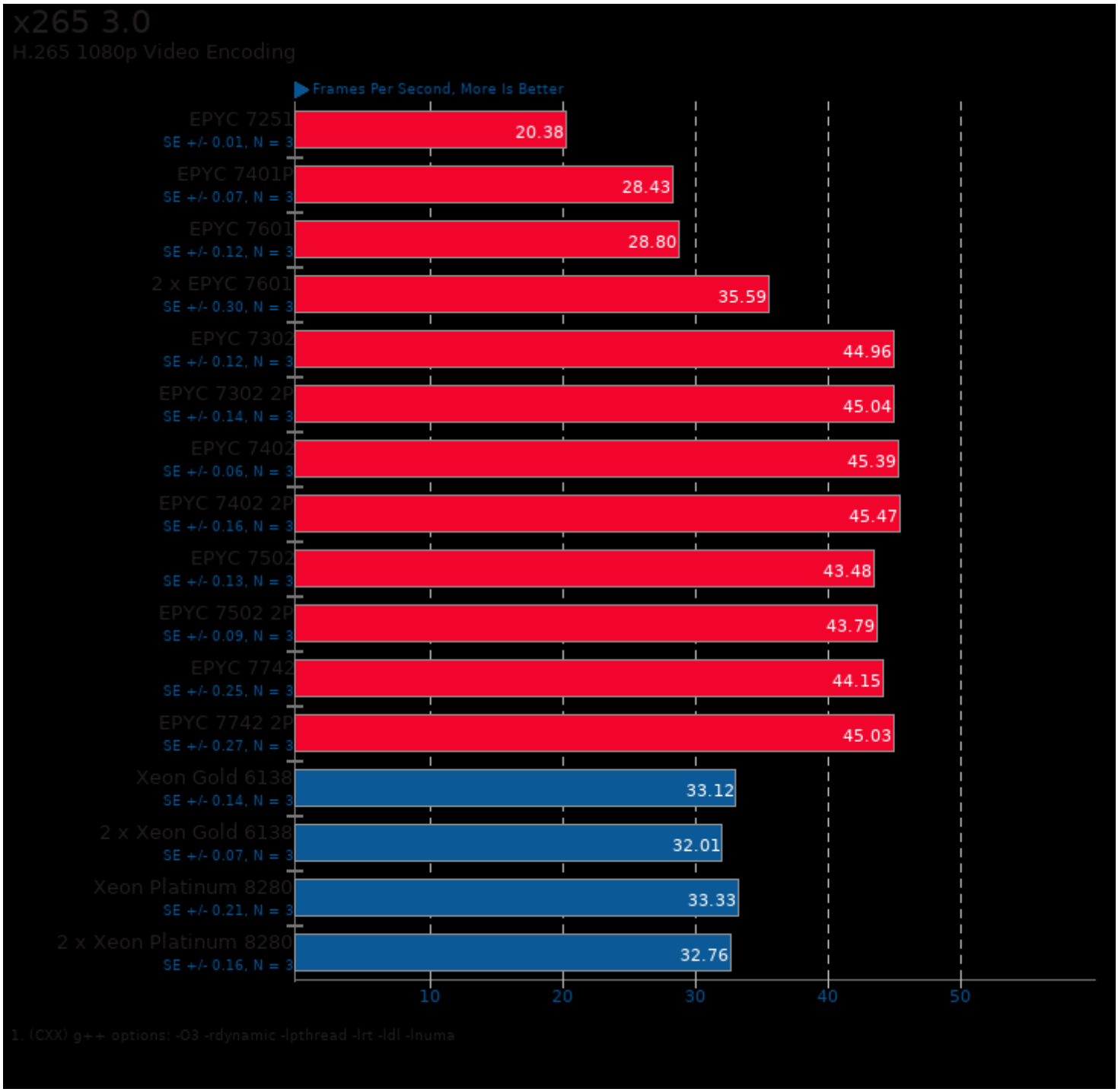

MKL-DNN 2019-04-16
Harness: Convolution Batch conv_googlenet_v3 - Data Type: f32
ms, Fewer Is Better
EPYC 7251
SE +/- 1.38, N = 3
MIN: 422.47
428.94
EPYC 7401P
SE +/- 1.37, N = 3
MIN: 169.08
175.29
EPYC 7601
SE +/- 1.02, N = 3
MIN: 124.36
130.93
2 x EPYC 7601
SE +/- 0.60, N = 3
MIN: 66.57
70.10
EPYC 7302
SE +/- 0.45, N = 3
MIN: 98.25
101.56
EPYC 7302 2P
SE +/- 0.86, N = 4
MIN: 54.39
60.16
EPYC 7402
SE +/- 0.84, N = 3
MIN: 68.03
70.94
EPYC 7402 2P
SE +/- 0.64, N = 12
MIN: 36.66
41.01
EPYC 7502
SE +/- 0.06, N = 3
MIN: 57.98
59.54
EPYC 7502 2P
SE +/- 0.53, N = 12
34.31
EPYC 7742
SE +/- 0.31, N = 3
MIN: 36.66
37.98
EPYC 7742 2P
SE +/- 0.39, N = 3
23.75
Xeon Gold 6138
SE +/- 0.06, N = 3
MIN: 72.22
73.17
2 x Xeon Gold 6138
SE +/- 0.13, N = 3
MIN: 35.91
36.89
Xeon Platinum 8280
SE +/- 0.03, N = 3
MIN: 41.15
41.74
2 x Xeon Platinum 8280
SE +/- 0.05, N = 3
21.18
90
180
270
360
450
1. (CXX) g++ options: -std=c++11 -march=native -mtune=native -fPIC -fopenmp -O3 -pie -lmklml_intel -ldl

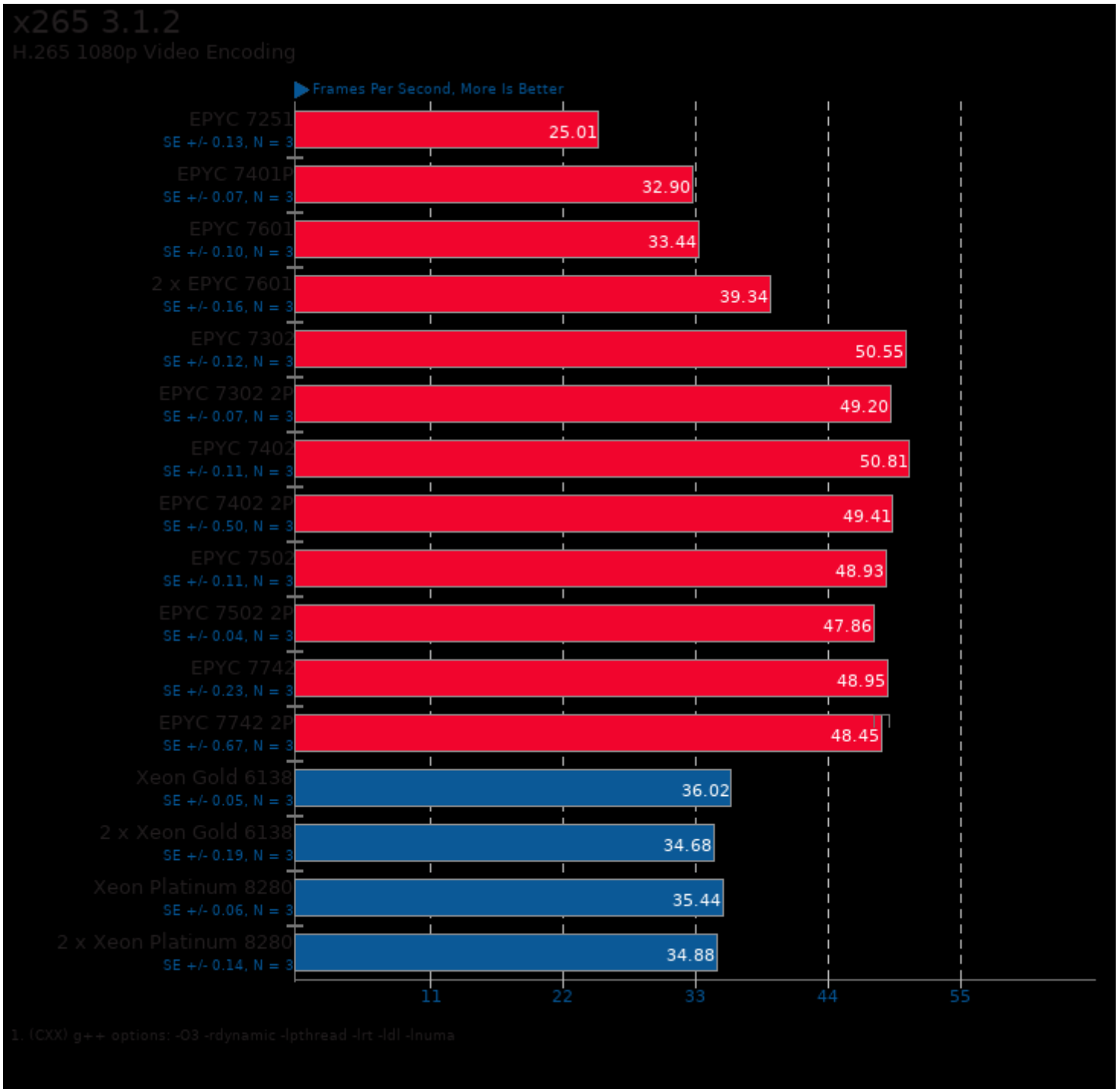

SVT-AV1 0.5
1080p 8-bit YUV To AV1 Video Encode
Frames Per Second, More Is Better
EPYC 7251
SE +/- 0.07, N = 3
16.65
EPYC 7401P
SE +/- 0.26, N = 3
35.05
EPYC 7601
SE +/- 0.26, N = 3
37.11
2 x EPYC 7601
SE +/- 0.37, N = 15
38.65
EPYC 7302
SE +/- 0.18, N = 3
44.76
EPYC 7302 2P
SE +/- 1.01, N = 3
60.68
EPYC 7402
SE +/- 0.15, N = 3
62.78
EPYC 7402 2P
SE +/- 0.70, N = 3
71.72
EPYC 7502
SE +/- 0.30, N = 3
67.00
EPYC 7502 2P
SE +/- 1.38, N = 4
96.82
EPYC 7742
SE +/- 0.55, N = 3
98.77
EPYC 7742 2P
SE +/- 0.27, N = 3
101.52
Xeon Gold 6138
SE +/- 0.17, N = 3
36.13
2 x Xeon Gold 6138
SE +/- 0.81, N = 3
49.35
Xeon Platinum 8280
SE +/- 0.46, N = 3
55.38
2 x Xeon Platinum 8280
SE +/- 0.79, N = 3
63.05
20
40
60
80
100
1. (CXX) g++ options: -O3 -pie -lpthread -lm

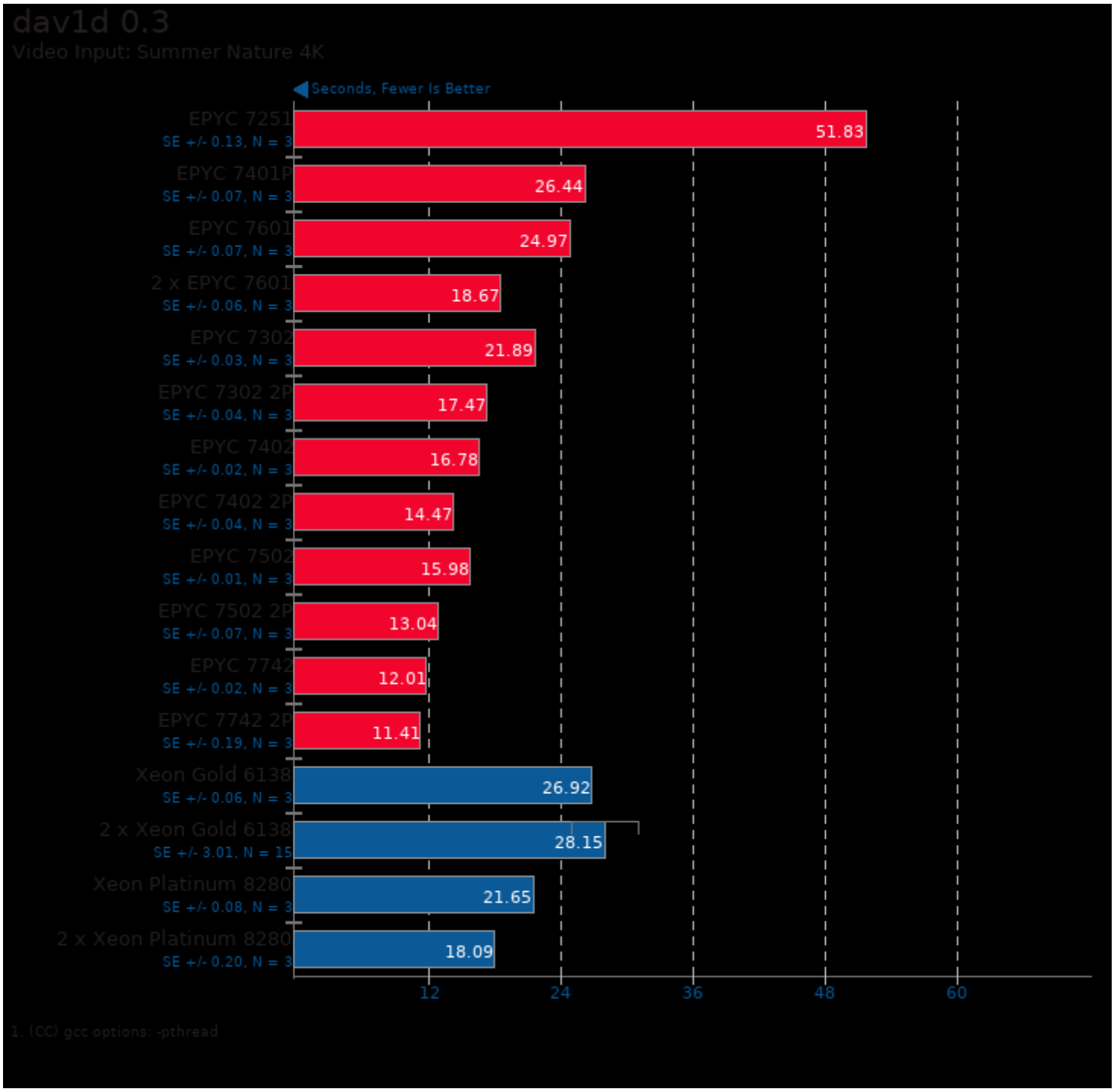

SVT-HEVC 2019-02-03
1080p 8-bit YUV To HEVC Video Encode
Frames Per Second, More Is Better
EPYC 7251
SE +/- 0.31, N = 3
89.22
EPYC 7401P
SE +/- 1.98, N = 15
179.31
EPYC 7601
SE +/- 3.71, N = 15
186.05
2 x EPYC 7601
SE +/- 2.87, N = 15
164.10
EPYC 7302
SE +/- 1.51, N = 3
258.45
EPYC 7302 2P
SE +/- 4.32, N = 3
328.76
EPYC 7402
SE +/- 2.17, N = 3
343.93
EPYC 7402 2P
SE +/- 2.30, N = 3
338.31
EPYC 7502
SE +/- 4.93, N = 3
360.14
EPYC 7502 2P
SE +/- 4.13, N = 4
335.96
EPYC 7742
SE +/- 1.90, N = 3
367.52
EPYC 7742 2P
SE +/- 2.50, N = 15
329.82
Xeon Gold 6138
SE +/- 8.21, N = 12
243.27
2 x Xeon Gold 6138
SE +/- 8.01, N = 12
235.59
Xeon Platinum 8280
SE +/- 3.27, N = 13
319.41
2 x Xeon Platinum 8280
SE +/- 1.47, N = 3
269.00
80
160
240
320
400
1. (CC) gcc options: -fPIE -fPIC -O2 -flto -fvisibility=hidden -march=native -pie -rdynamic -lpthread -lrt

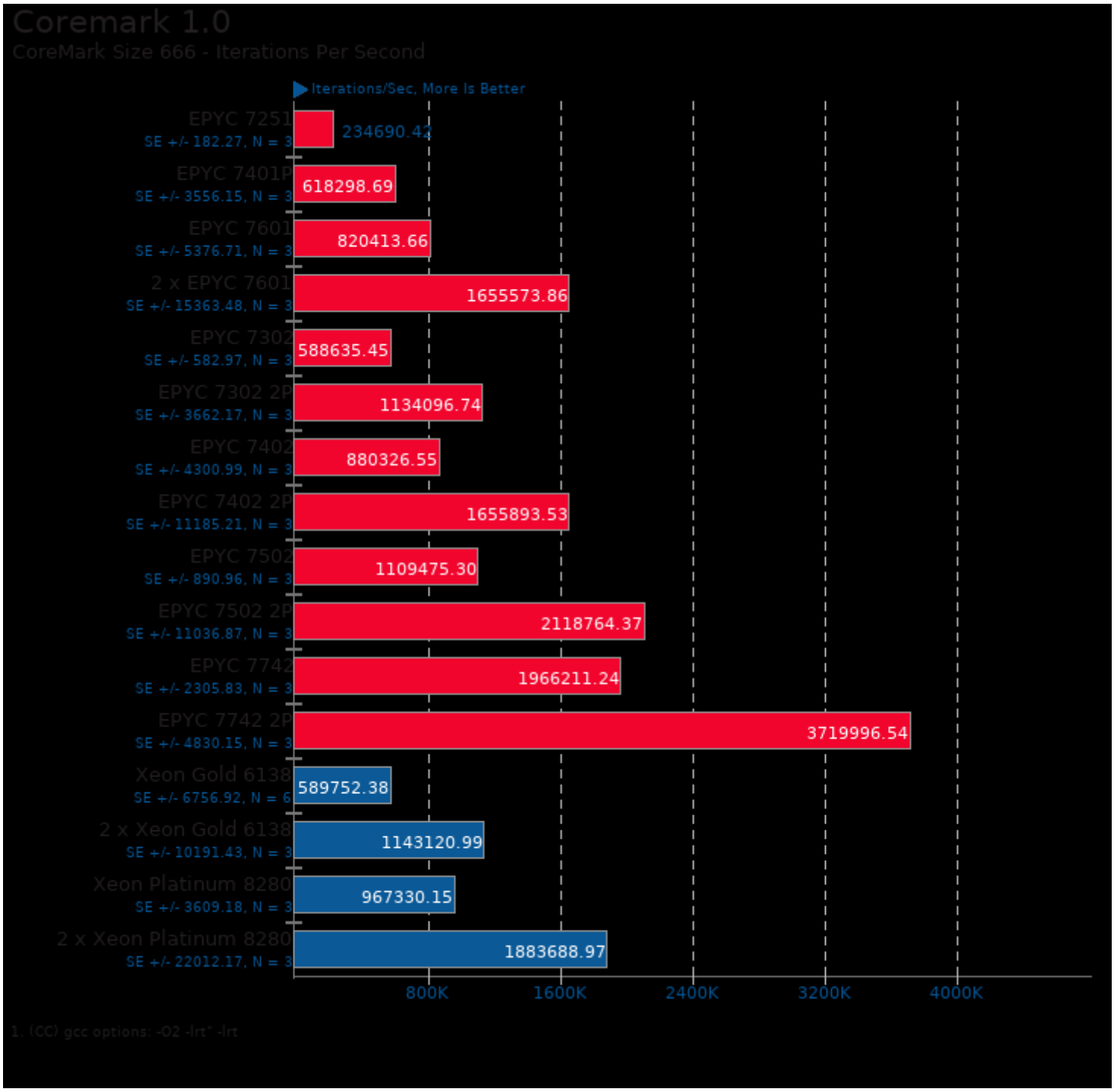

SVT-VP9 2019-09-09
1080p 8-bit YUV To VP9 Video Encode
Frames Per Second, More Is Better
EPYC 7251
SE +/- 0.65, N = 3
66.76
EPYC 7401P
SE +/- 0.75, N = 3
160.83
EPYC 7601
SE +/- 1.72, N = 15
158.54
2 x EPYC 7601
SE +/- 2.11, N = 3
133.45
EPYC 7302
SE +/- 1.48, N = 3
272.54
EPYC 7302 2P
SE +/- 5.06, N = 3
319.09
EPYC 7402
SE +/- 5.34, N = 3
358.66
EPYC 7402 2P
SE +/- 4.60, N = 5
347.87
EPYC 7502
SE +/- 3.65, N = 3
374.60
EPYC 7502 2P
SE +/- 2.98, N = 3
345.47
EPYC 7742
SE +/- 5.14, N = 5
393.10
EPYC 7742 2P
SE +/- 4.38, N = 15
344.13
Xeon Gold 6138
SE +/- 10.05, N = 12
262.13
2 x Xeon Gold 6138
SE +/- 9.95, N = 12
249.49
Xeon Platinum 8280
SE +/- 5.00, N = 3
370.05
2 x Xeon Platinum 8280
SE +/- 3.34, N = 6
279.16
90
180
270
360
450
1. (CC) gcc options: -fPIE -fPIC -flto -O3 -O2 -pie -rdynamic -lpthread -lrt -lm

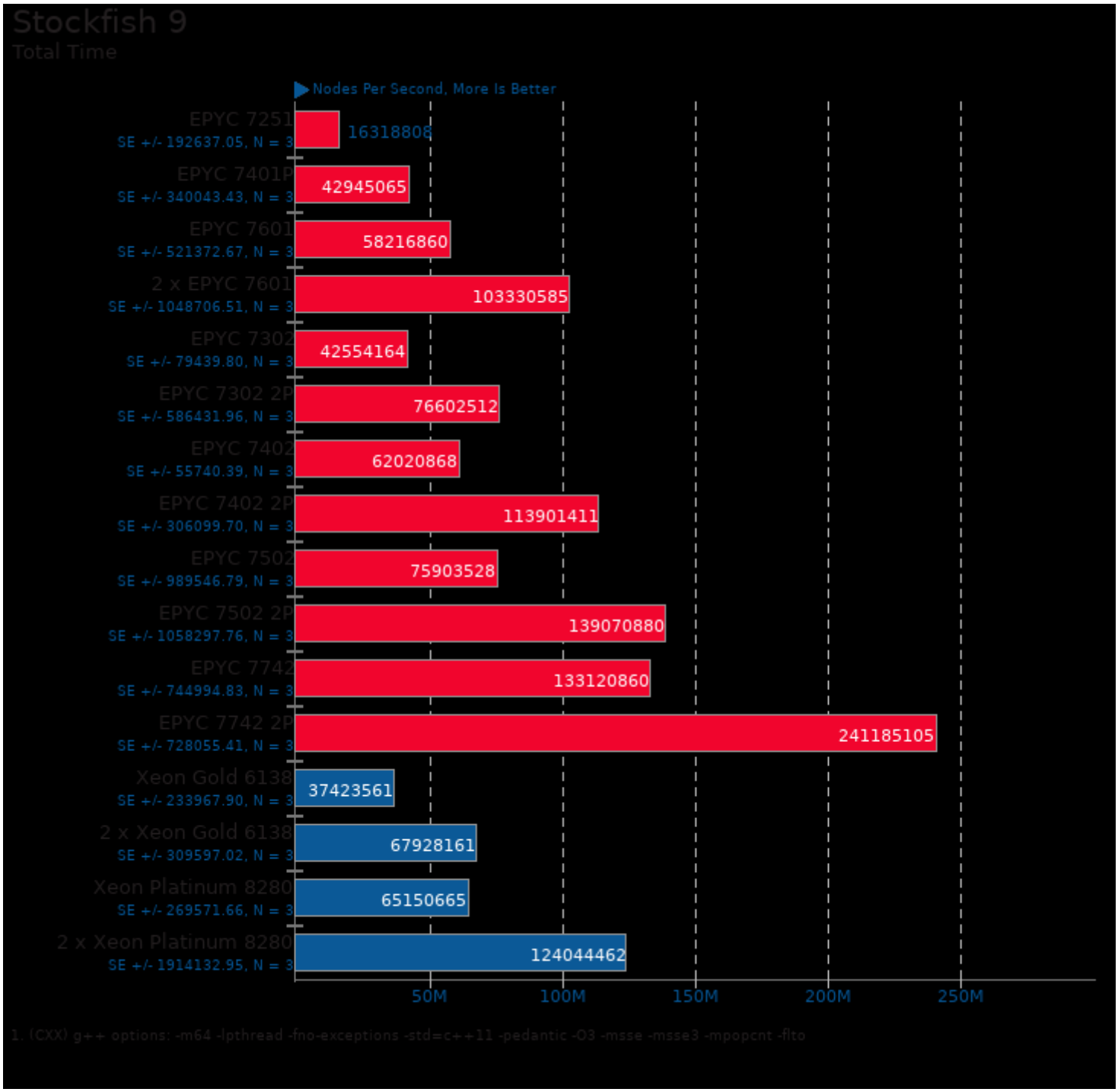

x264 2018-09-25
H.264 Video Encoding
Frames Per Second, More Is Better
EPYC 7251
SE +/- 0.14, N = 3
55.81
EPYC 7401P
SE +/- 0.41, N = 3
107.88
EPYC 7601
SE +/- 0.31, N = 3
108.16
2 x EPYC 7601
SE +/- 0.58, N = 3
143.65
EPYC 7302
SE +/- 0.16, N = 3
131.26
EPYC 7302 2P
SE +/- 0.99, N = 3
156.10
EPYC 7402
SE +/- 1.38, N = 3
154.33
EPYC 7402 2P
SE +/- 0.99, N = 3
153.23
EPYC 7502
SE +/- 0.48, N = 3
151.86
EPYC 7502 2P
SE +/- 0.64, N = 3
148.10
EPYC 7742
SE +/- 0.18, N = 3
155.81
EPYC 7742 2P
SE +/- 1.84, N = 3
151.15
Xeon Gold 6138
SE +/- 1.12, N = 6
94.83
2 x Xeon Gold 6138
SE +/- 1.71, N = 14
108.88
Xeon Platinum 8280
SE +/- 0.73, N = 3
114.96
2 x Xeon Platinum 8280
SE +/- 1.36, N = 7
122.23
-lavformat -lavcodec -lavutil -lswscale
30
60
90
120
150
1. (CC) gcc options: -ldl -m64 -lm -lpthread -O3 -ffast-math -std=gnu99 -fPIC -fomit-frame-pointer -fno-tree-vectorize

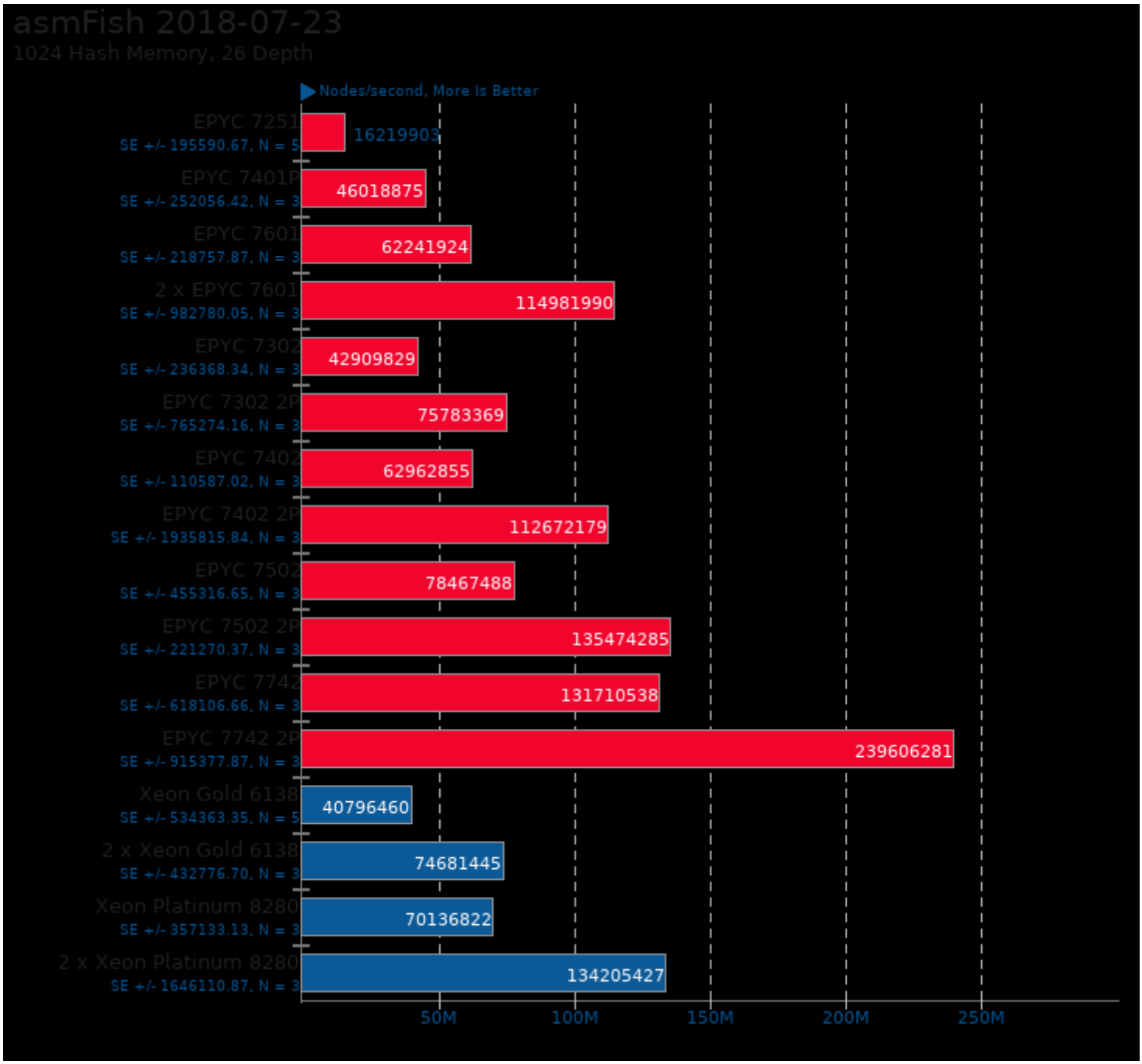

x265 3.0
H.265 1080p Video Encoding
Frames Per Second, More Is Better
EPYC 7251
SE +/- 0.01, N = 3
20.38
EPYC 7401P
SE +/- 0.07, N = 3
28.43
EPYC 7601
SE +/- 0.12, N = 3
28.80
2 x EPYC 7601
SE +/- 0.30, N = 3
35.59
EPYC 7302
SE +/- 0.12, N = 3
44.96
EPYC 7302 2P
SE +/- 0.14, N = 3
45.04
EPYC 7402
SE +/- 0.06, N = 3
45.39
EPYC 7402 2P
SE +/- 0.16, N = 3
45.47
EPYC 7502
SE +/- 0.13, N = 3
43.48
EPYC 7502 2P
SE +/- 0.09, N = 3
43.79
EPYC 7742
SE +/- 0.25, N = 3
44.15
EPYC 7742 2P
SE +/- 0.27, N = 3
45.03
Xeon Gold 6138
SE +/- 0.14, N = 3
33.12
2 x Xeon Gold 6138
SE +/- 0.07, N = 3
32.01
Xeon Platinum 8280
SE +/- 0.21, N = 3
33.33
2 x Xeon Platinum 8280
SE +/- 0.16, N = 3
32.76
10
20
30
40
50
1. (CXX) g++ options: -O3 -rdynamic -lpthread -lrt -ldl -lnuma

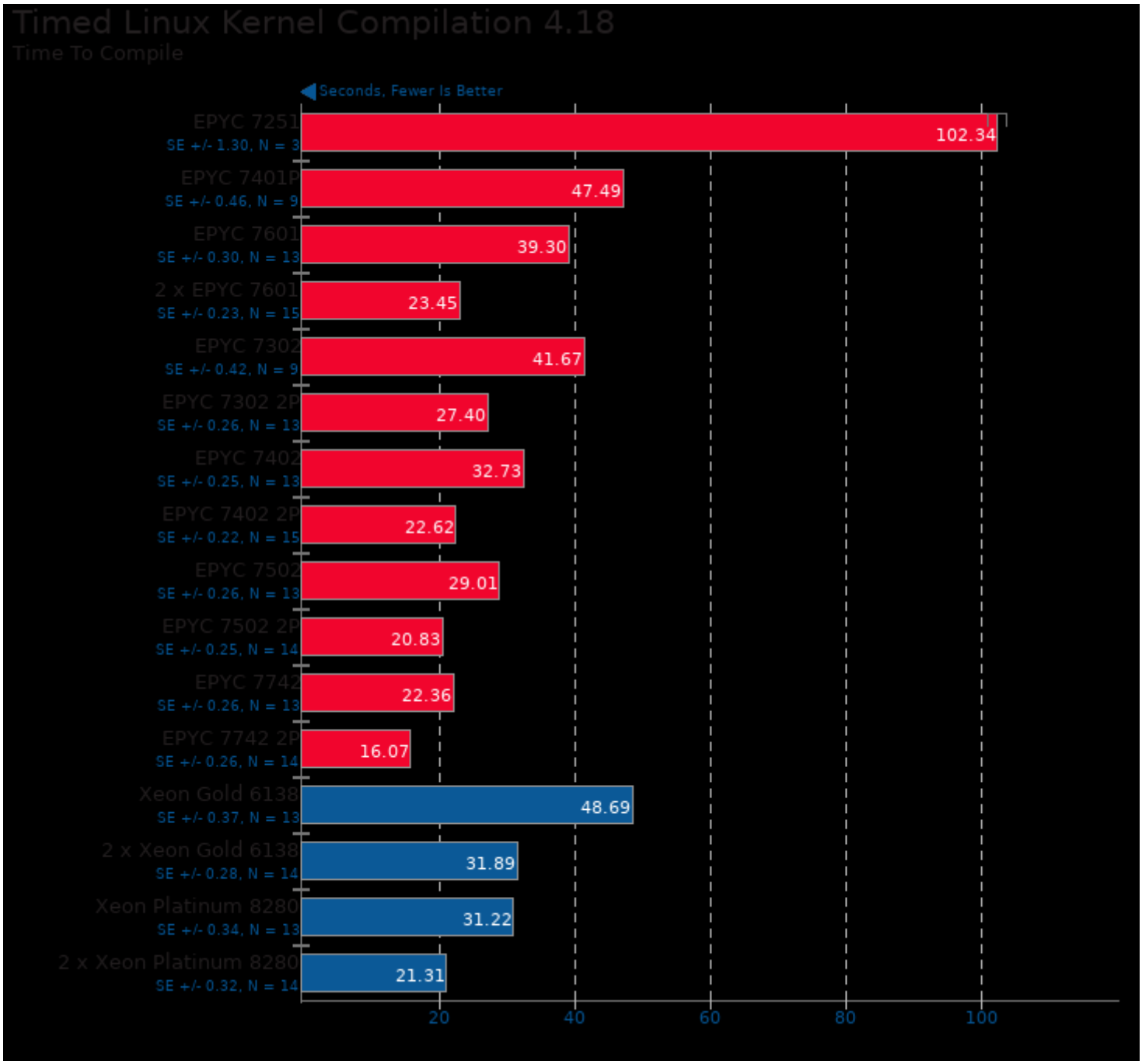

x265 3.1.2
H.265 1080p Video Encoding
Frames Per Second, More Is Better
EPYC 7251
SE +/- 0.13, N = 3
25.01
EPYC 7401P
SE +/- 0.07, N = 3
32.90
EPYC 7601
SE +/- 0.10, N = 3
33.44
2 x EPYC 7601
SE +/- 0.16, N = 3
39.34
EPYC 7302
SE +/- 0.12, N = 3
50.55
EPYC 7302 2P
SE +/- 0.07, N = 3
49.20
EPYC 7402
SE +/- 0.11, N = 3
50.81
EPYC 7402 2P
SE +/- 0.50, N = 3
49.41
EPYC 7502
SE +/- 0.11, N = 3
48.93
EPYC 7502 2P
SE +/- 0.04, N = 3
47.86
EPYC 7742
SE +/- 0.23, N = 3
48.95
EPYC 7742 2P
SE +/- 0.67, N = 3
48.45
Xeon Gold 6138
SE +/- 0.05, N = 3
36.02
2 x Xeon Gold 6138
SE +/- 0.19, N = 3
34.68
Xeon Platinum 8280
SE +/- 0.06, N = 3
35.44
2 x Xeon Platinum 8280
SE +/- 0.14, N = 3
34.88
11
22
33
44
55
1. (CXX) g++ options: -O3 -rdynamic -lpthread -lrt -ldl -lnuma

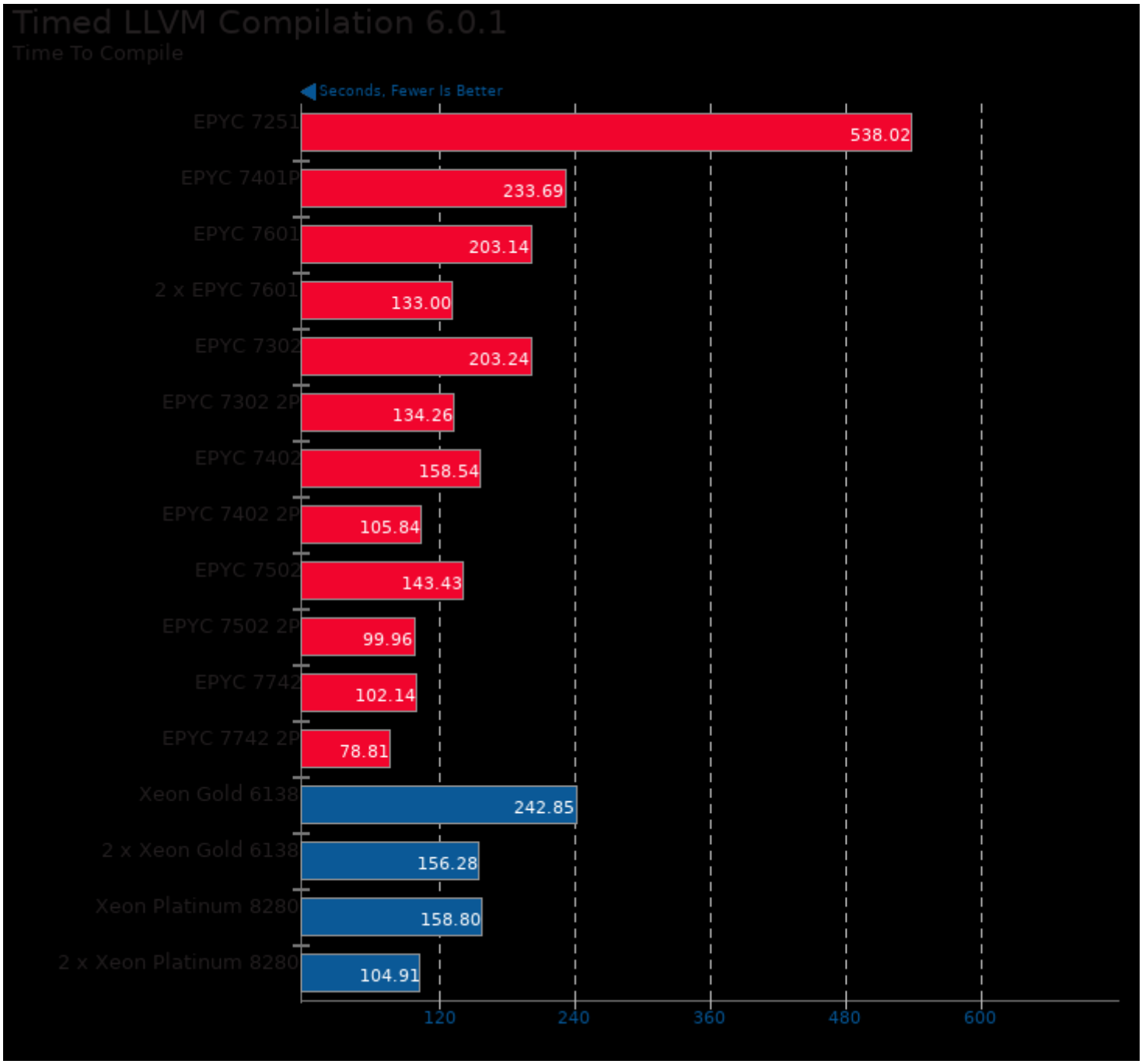

dav1d 0.3
Video Input: Summer Nature 4K
Seconds, Fewer Is Better
EPYC 7251
SE +/- 0.13, N = 3
51.83
EPYC 7401P
SE +/- 0.07, N = 3
26.44
EPYC 7601
SE +/- 0.07, N = 3
24.97
2 x EPYC 7601
SE +/- 0.06, N = 3
18.67
EPYC 7302
SE +/- 0.03, N = 3
21.89
EPYC 7302 2P
SE +/- 0.04, N = 3
17.47
EPYC 7402
SE +/- 0.02, N = 3
16.78
EPYC 7402 2P
SE +/- 0.04, N = 3
14.47
EPYC 7502
SE +/- 0.01, N = 3
15.98
EPYC 7502 2P
SE +/- 0.07, N = 3
13.04
EPYC 7742
SE +/- 0.02, N = 3
12.01
EPYC 7742 2P
SE +/- 0.19, N = 3
11.41
Xeon Gold 6138
SE +/- 0.06, N = 3
26.92
2 x Xeon Gold 6138
SE +/- 3.01, N = 15
28.15
Xeon Platinum 8280
SE +/- 0.08, N = 3
21.65
2 x Xeon Platinum 8280
SE +/- 0.20, N = 3
18.09
12
24
36
48
60
1. (CC) gcc options: -pthread

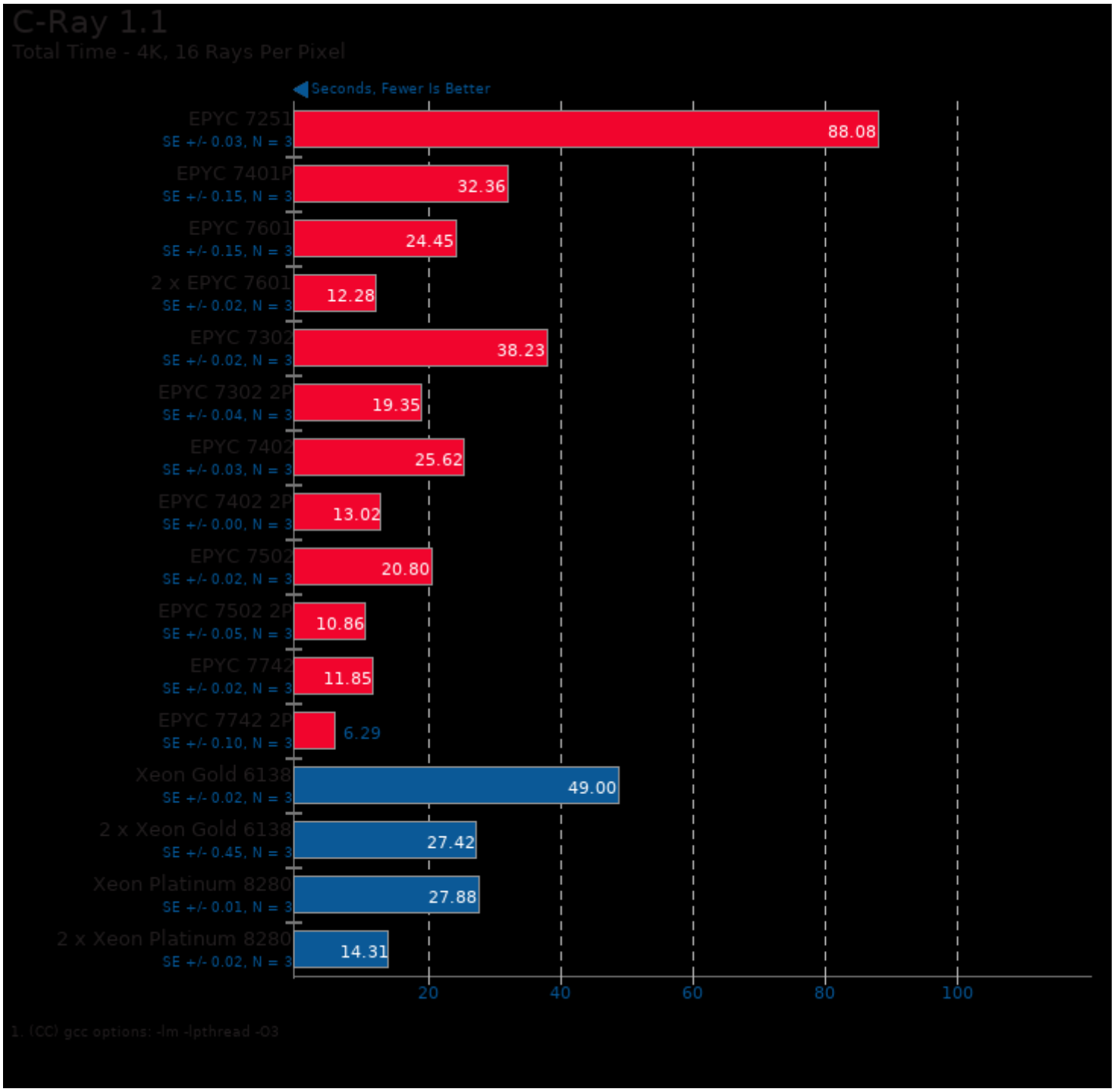

Coremark 1.0
CoreMark Size 666 - Iterations Per Second
Iterations/Sec, More Is Better
EPYC 7251
SE +/- 182.27, N = 3
234690.42
EPYC 7401P
SE +/- 3556.15, N = 3
618298.69
EPYC 7601
SE +/- 5376.71, N = 3
820413.66
2 x EPYC 7601
SE +/- 15363.48, N = 3
1655573.86
EPYC 7302
SE +/- 582.97, N = 3
588635.45
EPYC 7302 2P
SE +/- 3662.17, N = 3
1134096.74
EPYC 7402
SE +/- 4300.99, N = 3
880326.55
EPYC 7402 2P
SE +/- 11185.21, N = 3
1655893.53
EPYC 7502
SE +/- 890.96, N = 3
1109475.30
EPYC 7502 2P
SE +/- 11036.87, N = 3
2118764.37
EPYC 7742
SE +/- 2305.83, N = 3
1966211.24
EPYC 7742 2P
SE +/- 4830.15, N = 3
3719996.54
Xeon Gold 6138
SE +/- 6756.92, N = 6
589752.38
2 x Xeon Gold 6138
SE +/- 10191.43, N = 3
1143120.99
Xeon Platinum 8280
SE +/- 3609.18, N = 3
967330.15
2 x Xeon Platinum 8280
SE +/- 22012.17, N = 3
1883688.97
800K
1600K
2400K
3200K
4000K
1. (CC) gcc options: -O2 -lrt" -lrt

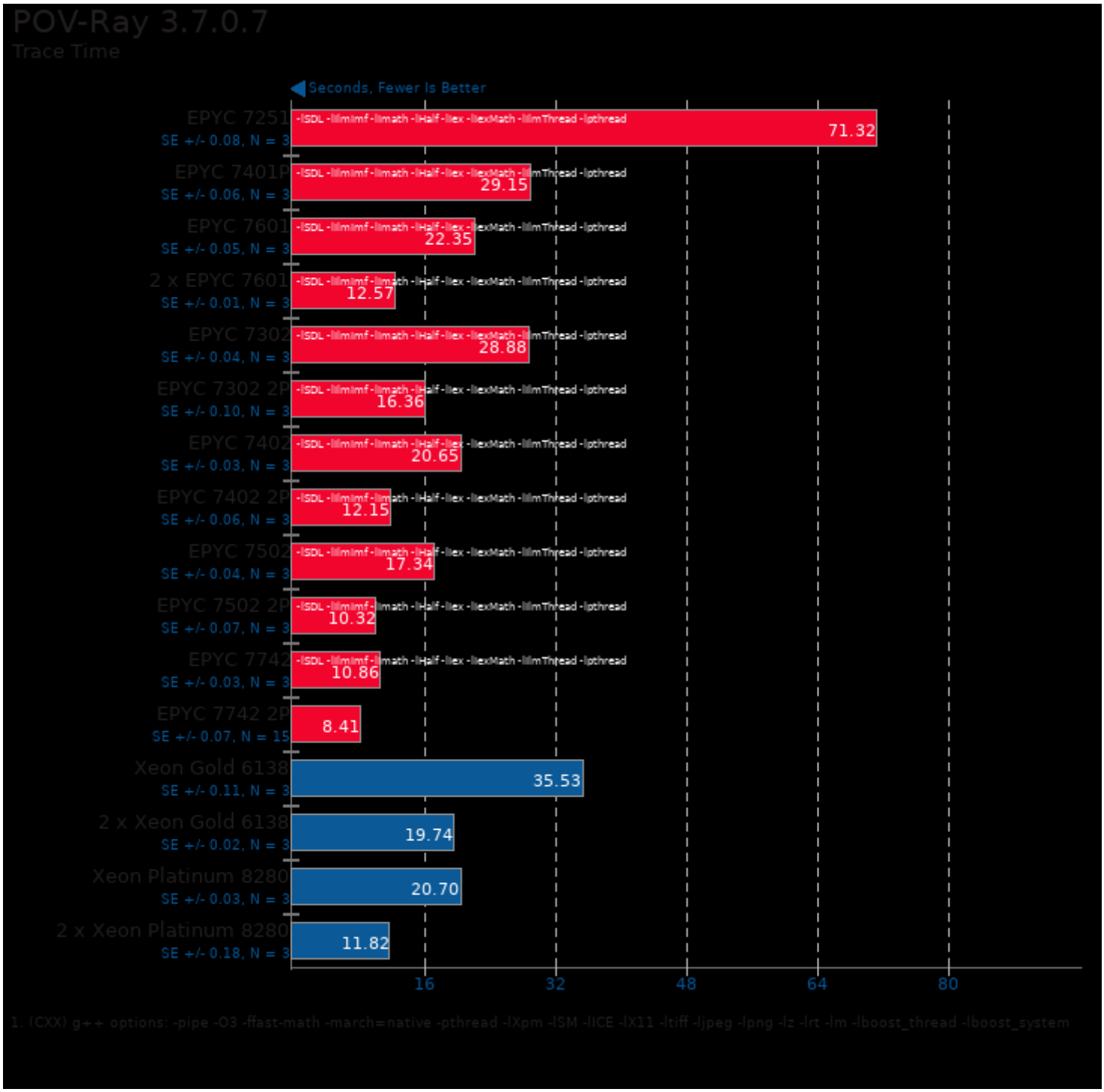

Stockfish 9
Total Time
Nodes Per Second, More Is Better
EPYC 7251
SE +/- 192637.05, N = 3
16318808
EPYC 7401P
SE +/- 340043.43, N = 3
42945065
EPYC 7601
SE +/- 521372.67, N = 3
58216860
2 x EPYC 7601
SE +/- 1048706.51, N = 3
103330585
EPYC 7302
SE +/- 79439.80, N = 3
42554164
EPYC 7302 2P
SE +/- 586431.96, N = 3
76602512
EPYC 7402
SE +/- 55740.39, N = 3
62020868
EPYC 7402 2P
SE +/- 306099.70, N = 3
113901411
EPYC 7502
SE +/- 989546.79, N = 3
75903528
EPYC 7502 2P
SE +/- 1058297.76, N = 3
139070880
EPYC 7742
SE +/- 744994.83, N = 3
133120860
EPYC 7742 2P
SE +/- 728055.41, N = 3
241185105
Xeon Gold 6138
SE +/- 233967.90, N = 3
37423561
2 x Xeon Gold 6138
SE +/- 309597.02, N = 3
67928161
Xeon Platinum 8280
SE +/- 269571.66, N = 3
65150665
2 x Xeon Platinum 8280
SE +/- 1914132.95, N = 3
124044462
50M
100M
150M
200M
250M
1. (CXX) g++ options: -m64 -lpthread -fno-exceptions -std=c++11 -pedantic -O3 -msse -msse3 -mpopcnt -flto

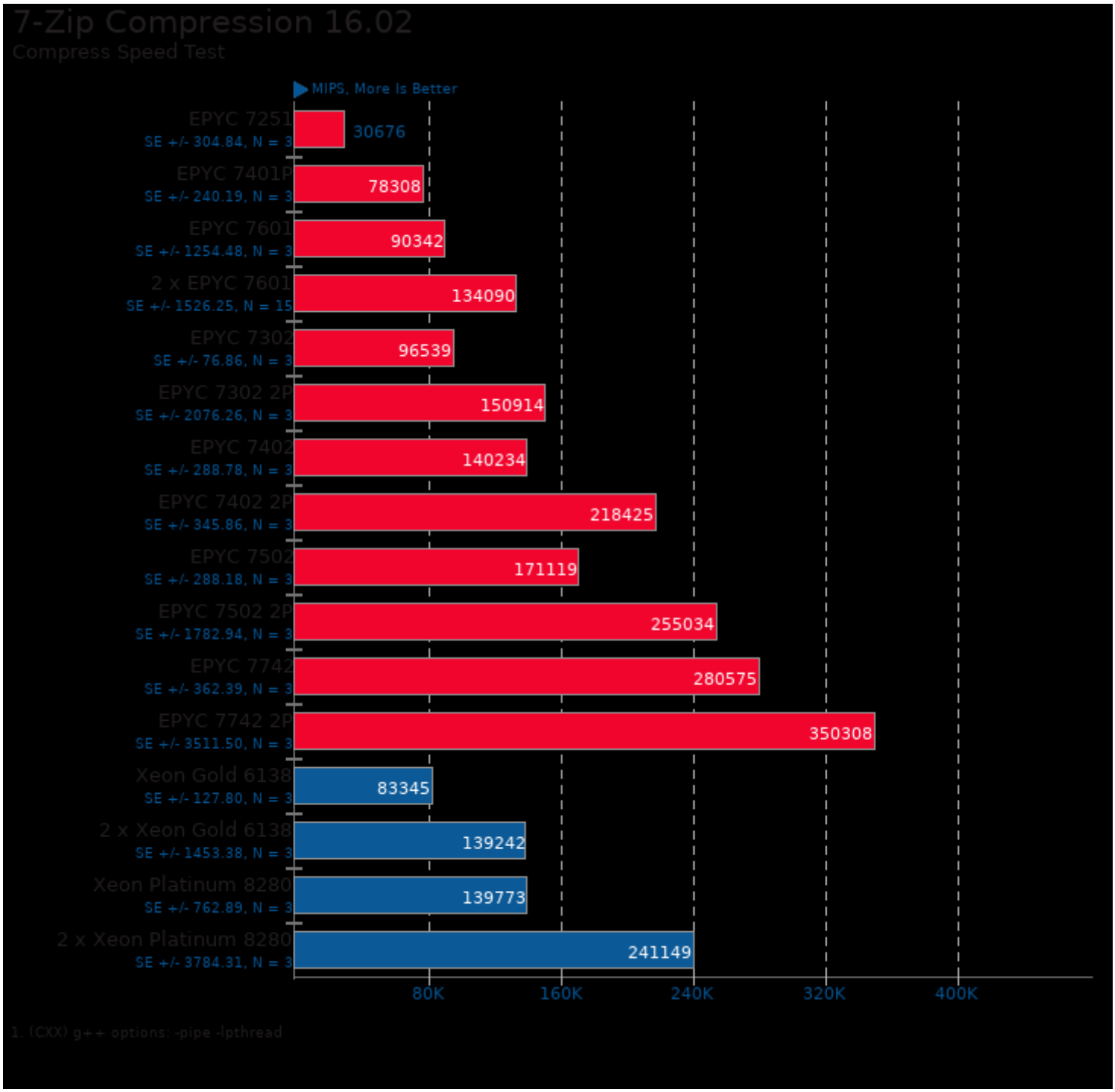

asmFish 2018-07-23
1024 Hash Memory, 26 Depth
Nodes/second, More Is Better
EPYC 7251
SE +/- 195590.67, N = 5
16219903
EPYC 7401P
SE +/- 252056.42, N = 3
46018875
EPYC 7601
SE +/- 218757.87, N = 3
62241924
2 x EPYC 7601
SE +/- 982780.05, N = 3
114981990
EPYC 7302
SE +/- 236368.34, N = 3
42909829
EPYC 7302 2P
SE +/- 765274.16, N = 3
75783369
EPYC 7402
SE +/- 110587.02, N = 3
62962855
EPYC 7402 2P
SE +/- 1935815.84, N = 3
112672179
EPYC 7502
SE +/- 455316.65, N = 3
78467488
EPYC 7502 2P
SE +/- 221270.37, N = 3
135474285
EPYC 7742
SE +/- 618106.66, N = 3
131710538
EPYC 7742 2P
SE +/- 915377.87, N = 3
239606281
Xeon Gold 6138
SE +/- 534363.35, N = 5
40796460
2 x Xeon Gold 6138
SE +/- 432776.70, N = 3
74681445
Xeon Platinum 8280
SE +/- 357133.13, N = 3
70136822
2 x Xeon Platinum 8280
SE +/- 1646110.87, N = 3
134205427
50M
100M
150M
200M
250M

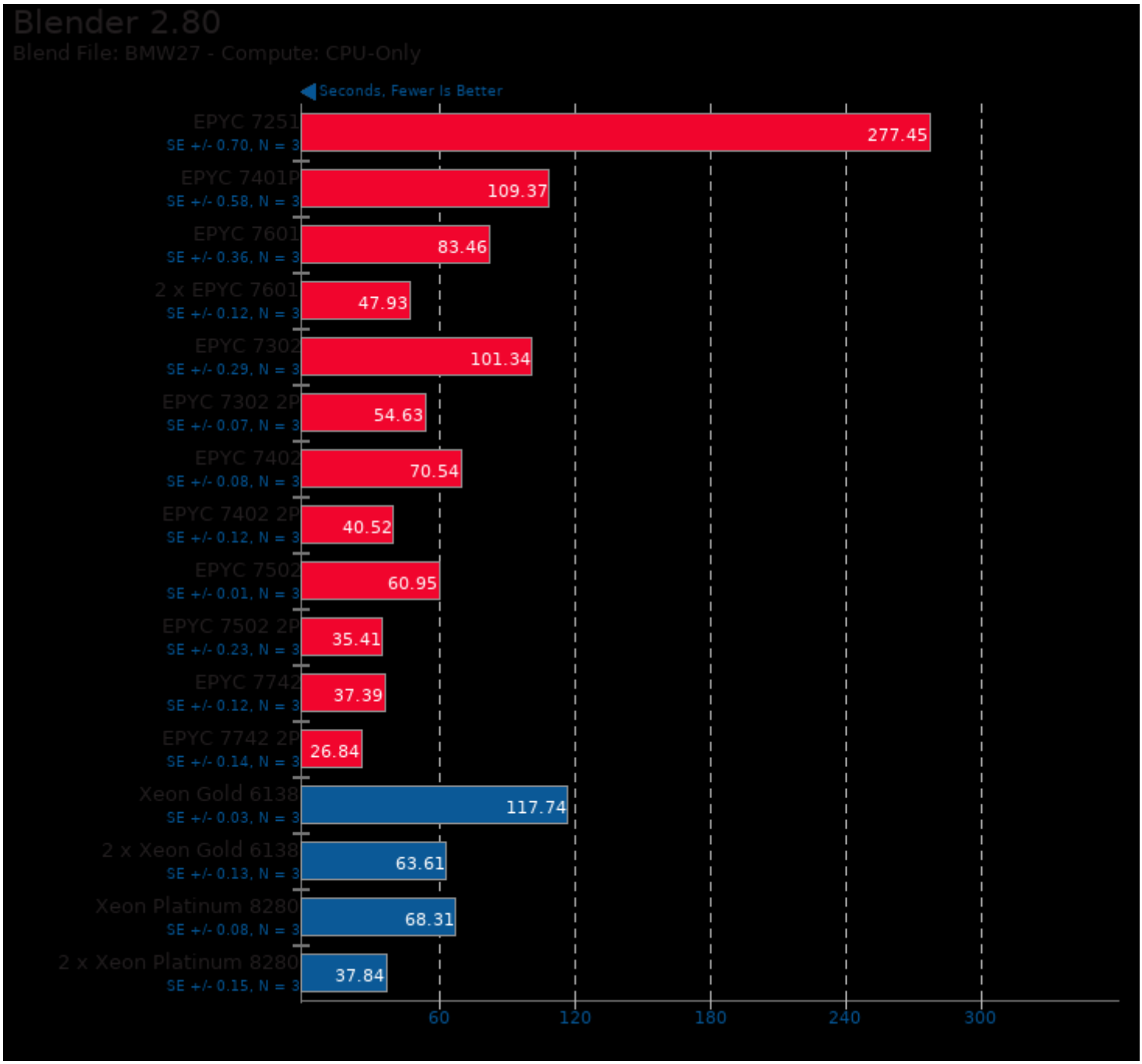

Timed Linux Kernel Compilation 4.18
Time To Compile
Seconds, Fewer Is Better
EPYC 7251
SE +/- 1.30, N = 3
102.34
EPYC 7401P
SE +/- 0.46, N = 9
47.49
EPYC 7601
SE +/- 0.30, N = 13
39.30
2 x EPYC 7601
SE +/- 0.23, N = 15
23.45
EPYC 7302
SE +/- 0.42, N = 9
41.67
EPYC 7302 2P
SE +/- 0.26, N = 13
27.40
EPYC 7402
SE +/- 0.25, N = 13
32.73
EPYC 7402 2P
SE +/- 0.22, N = 15
22.62
EPYC 7502
SE +/- 0.26, N = 13
29.01
EPYC 7502 2P
SE +/- 0.25, N = 14
20.83
EPYC 7742
SE +/- 0.26, N = 13
22.36
EPYC 7742 2P
SE +/- 0.26, N = 14
16.07
Xeon Gold 6138
SE +/- 0.37, N = 13
48.69
2 x Xeon Gold 6138
SE +/- 0.28, N = 14
31.89
Xeon Platinum 8280
SE +/- 0.34, N = 13
31.22
2 x Xeon Platinum 8280
SE +/- 0.32, N = 14
21.31
20
40
60
80
100

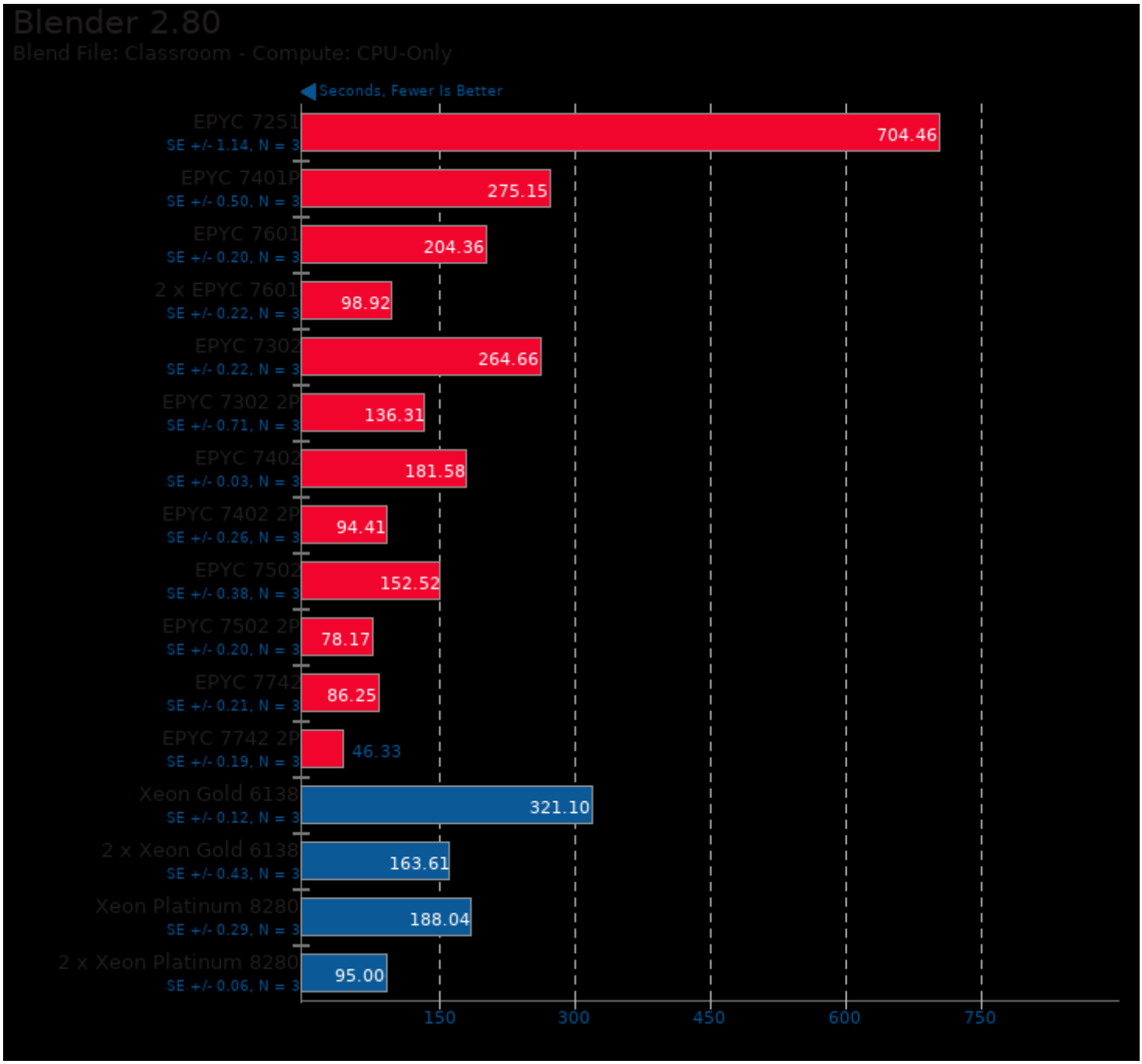

Timed LLVM Compilation 6.0.1
Time To Compile
Seconds, Fewer Is Better
EPYC 7251
538.02
EPYC 7401P
233.69
EPYC 7601
203.14
2 x EPYC 7601
133.00
EPYC 7302
203.24
EPYC 7302 2P
134.26
EPYC 7402
158.54
EPYC 7402 2P
105.84
EPYC 7502
143.43
EPYC 7502 2P
99.96
EPYC 7742
102.14
EPYC 7742 2P
78.81
Xeon Gold 6138
242.85
2 x Xeon Gold 6138
156.28
Xeon Platinum 8280
158.80
2 x Xeon Platinum 8280
104.91
120
240
360
480
600

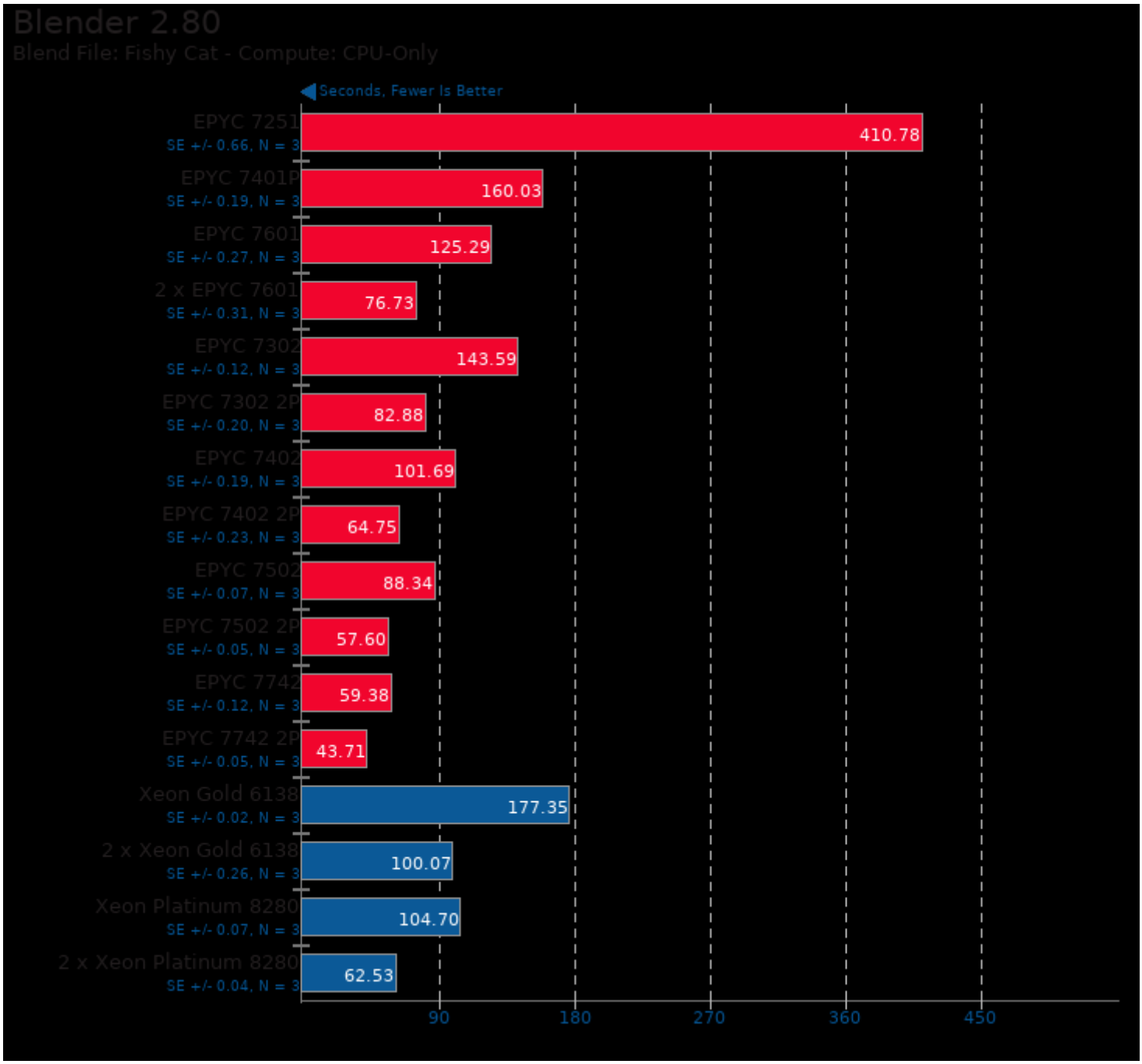

C-Ray 1.1
Total Time - 4K, 16 Rays Per Pixel
Seconds, Fewer Is Better
EPYC 7251
SE +/- 0.03, N = 3
88.08
EPYC 7401P
SE +/- 0.15, N = 3
32.36
EPYC 7601
SE +/- 0.15, N = 3
24.45
2 x EPYC 7601
SE +/- 0.02, N = 3
12.28
EPYC 7302
SE +/- 0.02, N = 3
38.23
EPYC 7302 2P
SE +/- 0.04, N = 3
19.35
EPYC 7402
SE +/- 0.03, N = 3
25.62
EPYC 7402 2P
SE +/- 0.00, N = 3
13.02
EPYC 7502
SE +/- 0.02, N = 3
20.80
EPYC 7502 2P
SE +/- 0.05, N = 3
10.86
EPYC 7742
SE +/- 0.02, N = 3
11.85
EPYC 7742 2P
SE +/- 0.10, N = 3
6.29
Xeon Gold 6138
SE +/- 0.02, N = 3
49.00
2 x Xeon Gold 6138
SE +/- 0.45, N = 3
27.42
Xeon Platinum 8280
SE +/- 0.01, N = 3
27.88
2 x Xeon Platinum 8280
SE +/- 0.02, N = 3
14.31
20
40
60
80
100
1. (CC) gcc options: -lm -lpthread -O3

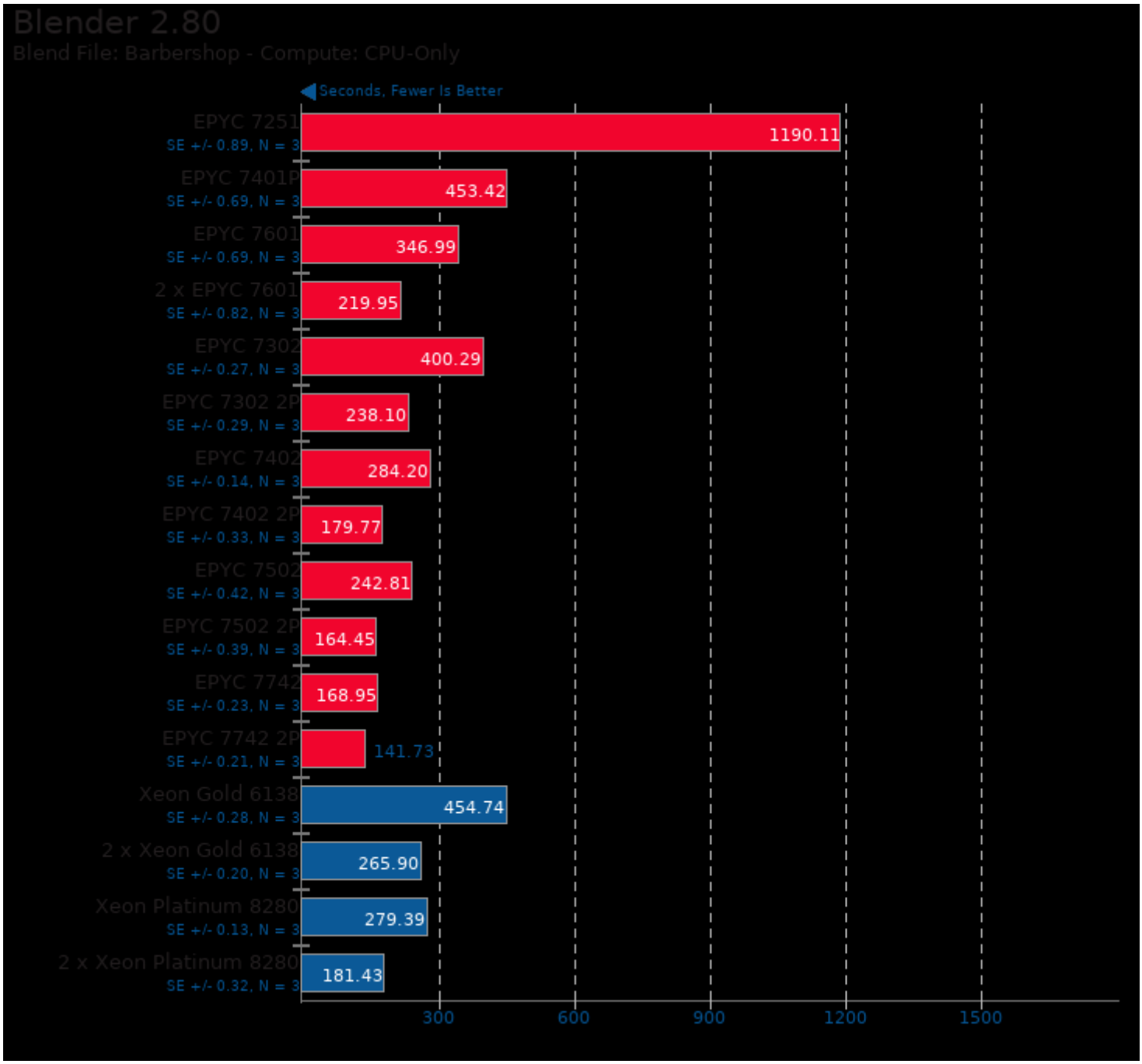

POV-Ray 3.7.0.7
Trace Time
Seconds, Fewer Is Better
EPYC 7251
SE +/- 0.08, N = 3
71.32
EPYC 7401P
SE +/- 0.06, N = 3
29.15
EPYC 7601
SE +/- 0.05, N = 3
22.35
2 x EPYC 7601
SE +/- 0.01, N = 3
12.57
EPYC 7302
SE +/- 0.04, N = 3
28.88
EPYC 7302 2P
SE +/- 0.10, N = 3
16.36
EPYC 7402
SE +/- 0.03, N = 3
20.65
EPYC 7402 2P
SE +/- 0.06, N = 3
12.15
EPYC 7502
SE +/- 0.04, N = 3
17.34
EPYC 7502 2P
SE +/- 0.07, N = 3
10.32
EPYC 7742
SE +/- 0.03, N = 3
10.86
EPYC 7742 2P
SE +/- 0.07, N = 15
8.41
Xeon Gold 6138
SE +/- 0.11, N = 3
35.53
2 x Xeon Gold 6138
SE +/- 0.02, N = 3
19.74
Xeon Platinum 8280
SE +/- 0.03, N = 3
20.70
2 x Xeon Platinum 8280
SE +/- 0.18, N = 3
11.82
16
32
48
64
80
1. (CXX) g++ options: -pipe -O3 -ffast-math -march=native -pthread -lXpm -lSM -lICE -lX11 -ltiff -ljpeg -lpng -lz -lrt -lm -lboost_thread -lboost_system

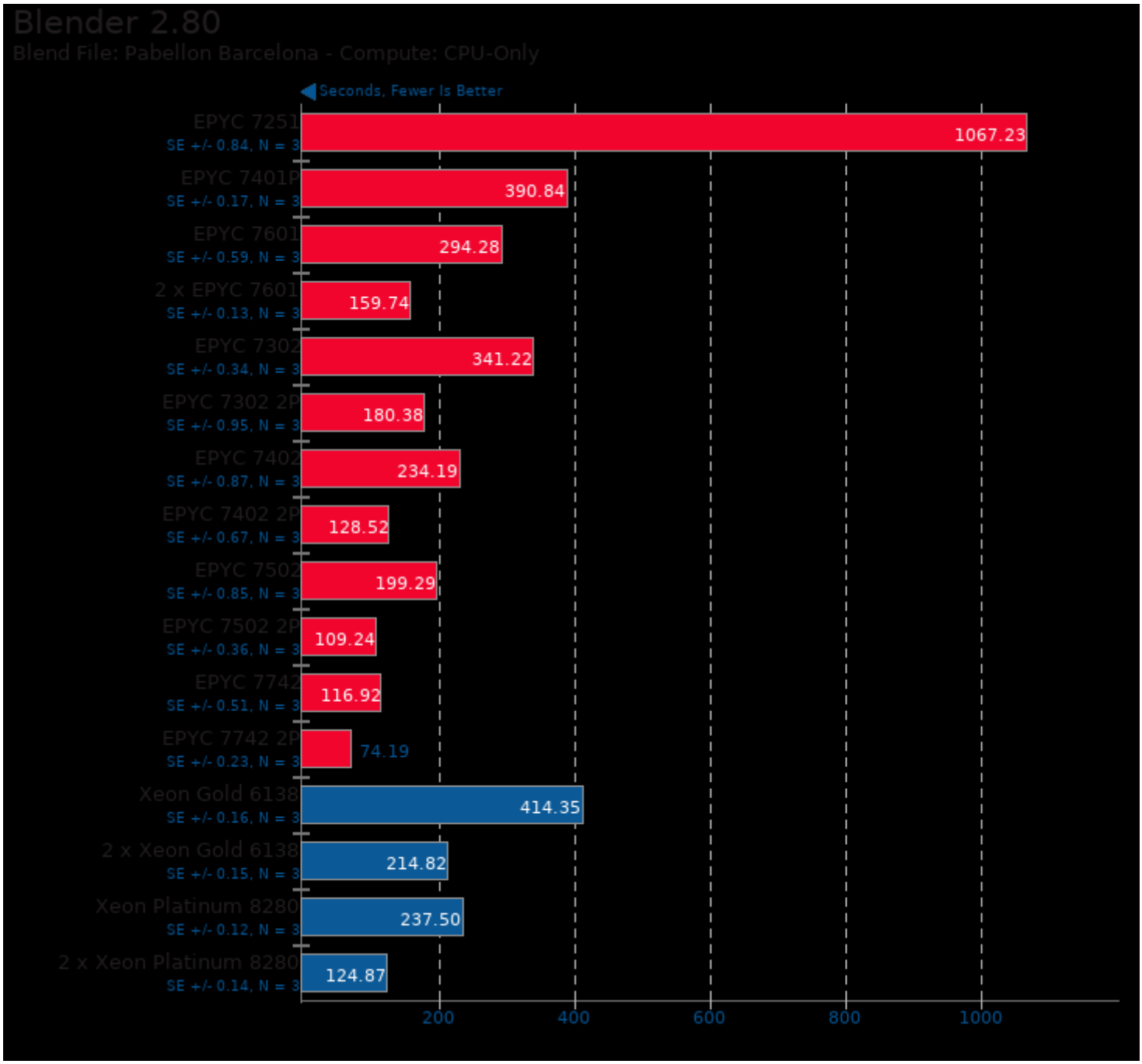

7-Zip Compression 16.02
Compress Speed Test
MIPS, More Is Better
EPYC 7251
SE +/- 304.84, N = 3
30676
EPYC 7401P
SE +/- 240.19, N = 3
78308
EPYC 7601
SE +/- 1254.48, N = 3
90342
2 x EPYC 7601
SE +/- 1526.25, N = 15
134090
EPYC 7302
SE +/- 76.86, N = 3
96539
EPYC 7302 2P
SE +/- 2076.26, N = 3
150914
EPYC 7402
SE +/- 288.78, N = 3
140234
EPYC 7402 2P
SE +/- 345.86, N = 3
218425
EPYC 7502
SE +/- 288.18, N = 3
171119
EPYC 7502 2P
SE +/- 1782.94, N = 3
255034
EPYC 7742
SE +/- 362.39, N = 3
280575
EPYC 7742 2P
SE +/- 3511.50, N = 3
350308
Xeon Gold 6138
SE +/- 127.80, N = 3
83345
2 x Xeon Gold 6138
SE +/- 1453.38, N = 3
139242
Xeon Platinum 8280
SE +/- 762.89, N = 3
139773
2 x Xeon Platinum 8280
SE +/- 3784.31, N = 3
241149
80K
160K
240K
320K
400K
1. (CXX) g++ options: -pipe -lpthread

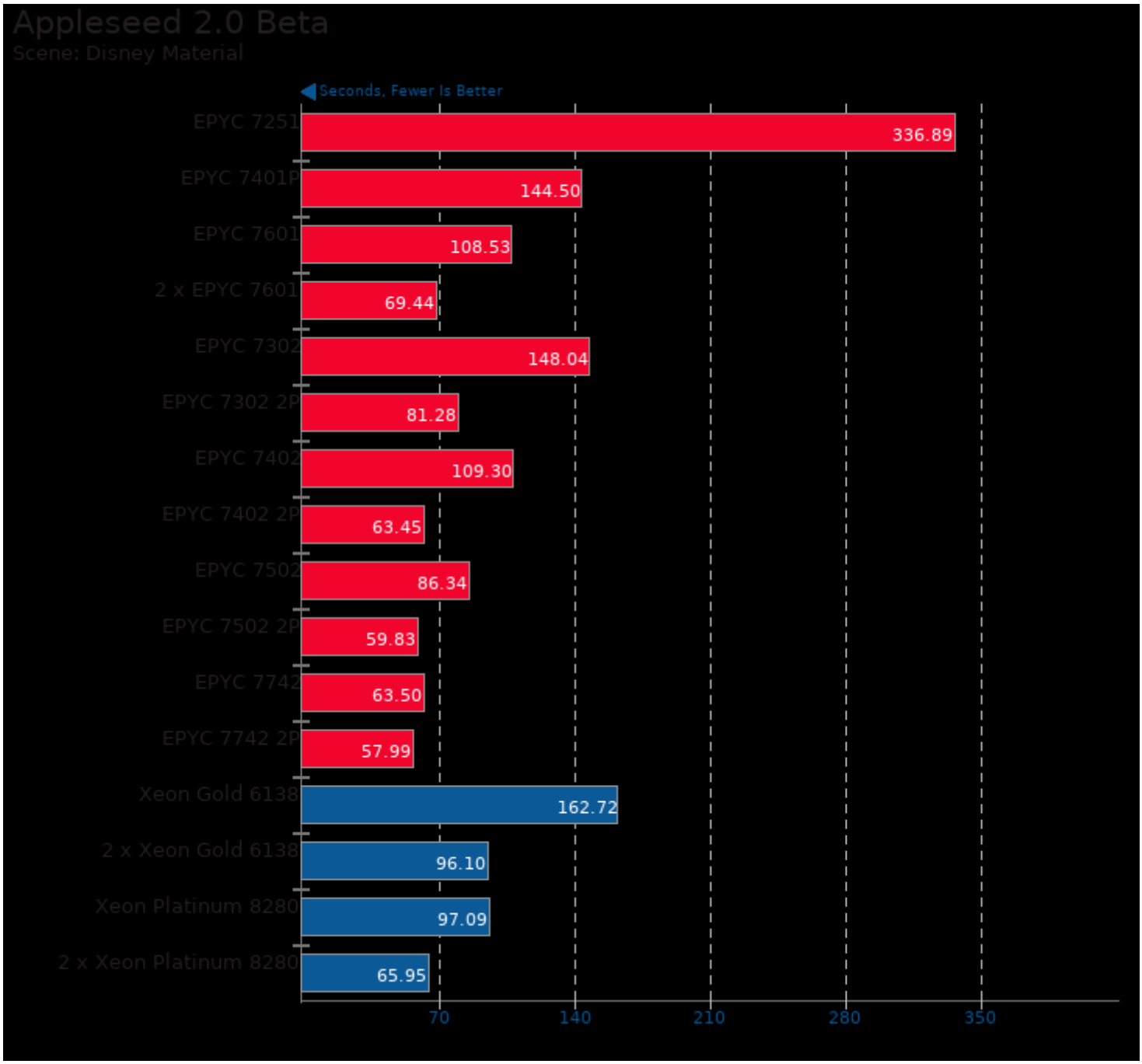

Blender 2.80
Blend File: BMW27 - Compute: CPU-Only
Seconds, Fewer Is Better
EPYC 7251
SE +/- 0.70, N = 3
277.45
EPYC 7401P
SE +/- 0.58, N = 3
109.37
EPYC 7601
SE +/- 0.36, N = 3
83.46
2 x EPYC 7601
SE +/- 0.12, N = 3
47.93
EPYC 7302
SE +/- 0.29, N = 3
101.34
EPYC 7302 2P
SE +/- 0.07, N = 3
54.63
EPYC 7402
SE +/- 0.08, N = 3
70.54
EPYC 7402 2P
SE +/- 0.12, N = 3
40.52
EPYC 7502
SE +/- 0.01, N = 3
60.95
EPYC 7502 2P
SE +/- 0.23, N = 3
35.41
EPYC 7742
SE +/- 0.12, N = 3
37.39
EPYC 7742 2P
SE +/- 0.14, N = 3
26.84
Xeon Gold 6138
SE +/- 0.03, N = 3
117.74
2 x Xeon Gold 6138
SE +/- 0.13, N = 3
63.61
Xeon Platinum 8280
SE +/- 0.08, N = 3
68.31
2 x Xeon Platinum 8280
SE +/- 0.15, N = 3
37.84
60
120
180
240
300

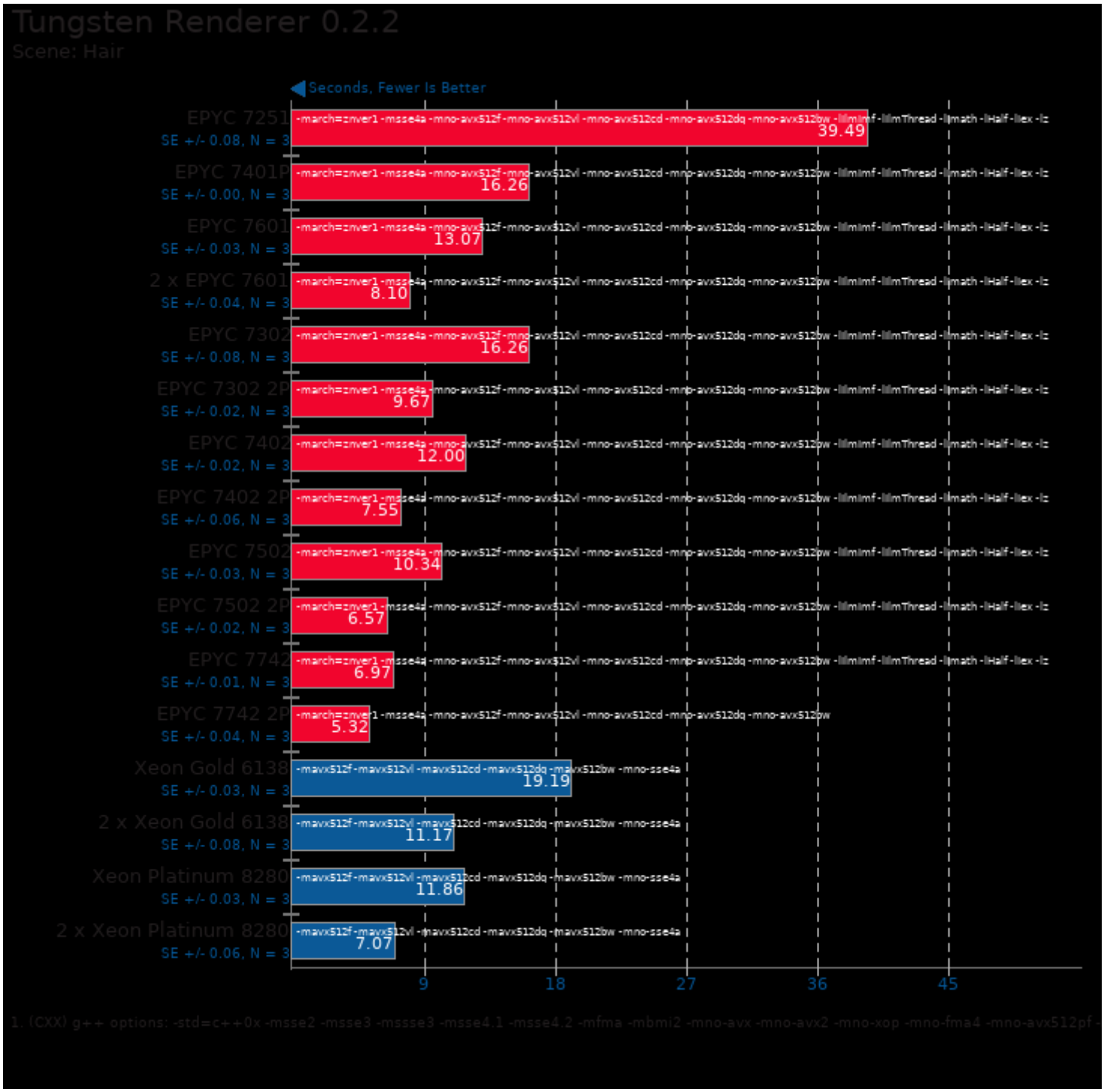

Blender 2.80
Blend File: Classroom - Compute: CPU-Only
Seconds, Fewer Is Better
EPYC 7251
SE +/- 1.14, N = 3
704.46
EPYC 7401P
SE +/- 0.50, N = 3
275.15
EPYC 7601
SE +/- 0.20, N = 3
204.36
2 x EPYC 7601
SE +/- 0.22, N = 3
98.92
EPYC 7302
SE +/- 0.22, N = 3
264.66
EPYC 7302 2P
SE +/- 0.71, N = 3
136.31
EPYC 7402
SE +/- 0.03, N = 3
181.58
EPYC 7402 2P
SE +/- 0.26, N = 3
94.41
EPYC 7502
SE +/- 0.38, N = 3
152.52
EPYC 7502 2P
SE +/- 0.20, N = 3
78.17
EPYC 7742
SE +/- 0.21, N = 3
86.25
EPYC 7742 2P
SE +/- 0.19, N = 3
46.33
Xeon Gold 6138
SE +/- 0.12, N = 3
321.10
2 x Xeon Gold 6138
SE +/- 0.43, N = 3
163.61
Xeon Platinum 8280
SE +/- 0.29, N = 3
188.04
2 x Xeon Platinum 8280
SE +/- 0.06, N = 3
95.00
150
300
450
600
750

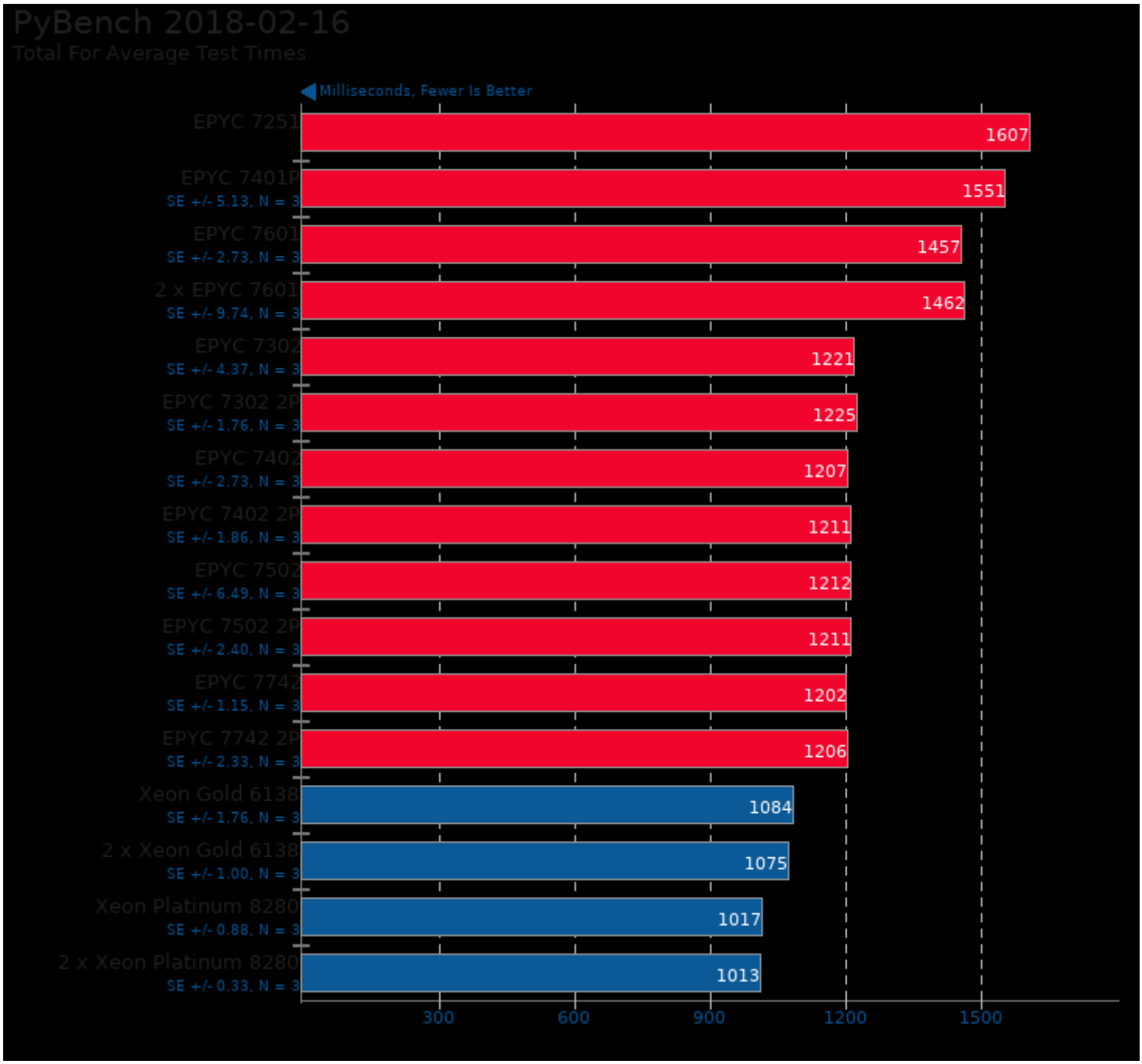

Blender 2.80
Blend File: Fishy Cat - Compute: CPU-Only
Seconds, Fewer Is Better
EPYC 7251
SE +/- 0.66, N = 3
410.78
EPYC 7401P
SE +/- 0.19, N = 3
160.03
EPYC 7601
SE +/- 0.27, N = 3
125.29
2 x EPYC 7601
SE +/- 0.31, N = 3
76.73
EPYC 7302
SE +/- 0.12, N = 3
143.59
EPYC 7302 2P
SE +/- 0.20, N = 3
82.88
EPYC 7402
SE +/- 0.19, N = 3
101.69
EPYC 7402 2P
SE +/- 0.23, N = 3
64.75
EPYC 7502
SE +/- 0.07, N = 3
88.34
EPYC 7502 2P
SE +/- 0.05, N = 3
57.60
EPYC 7742
SE +/- 0.12, N = 3
59.38
EPYC 7742 2P
SE +/- 0.05, N = 3
43.71
Xeon Gold 6138
SE +/- 0.02, N = 3
177.35
2 x Xeon Gold 6138
SE +/- 0.26, N = 3
100.07
Xeon Platinum 8280
SE +/- 0.07, N = 3
104.70
2 x Xeon Platinum 8280
SE +/- 0.04, N = 3
62.53
90
180
270
360
450

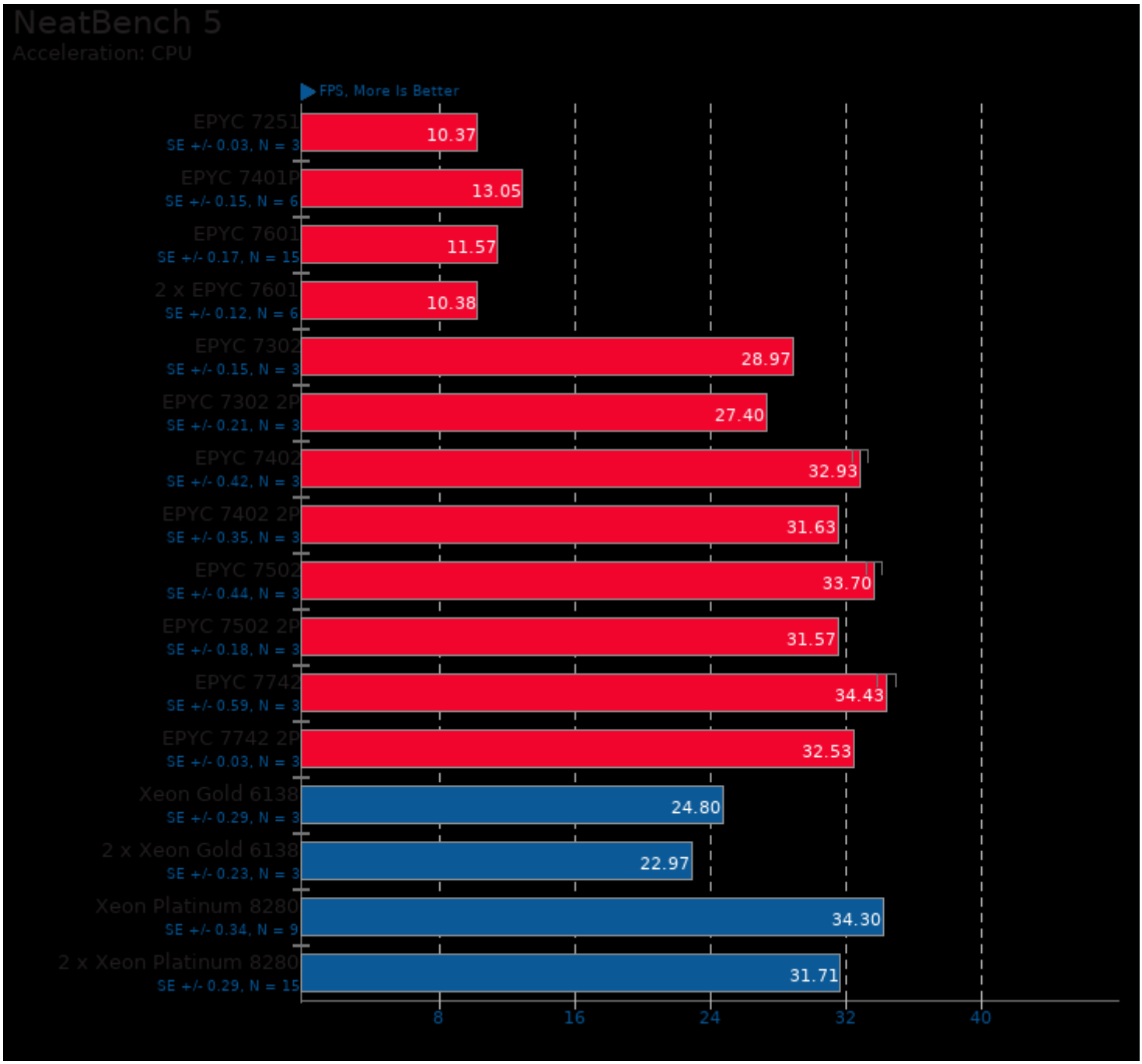

Blender 2.80
Blend File: Barbershop - Compute: CPU-Only
Seconds, Fewer Is Better
EPYC 7251
SE +/- 0.89, N = 3
1190.11
EPYC 7401P
SE +/- 0.69, N = 3
453.42
EPYC 7601
SE +/- 0.69, N = 3
346.99
2 x EPYC 7601
SE +/- 0.82, N = 3
219.95
EPYC 7302
SE +/- 0.27, N = 3
400.29
EPYC 7302 2P
SE +/- 0.29, N = 3
238.10
EPYC 7402
SE +/- 0.14, N = 3
284.20
EPYC 7402 2P
SE +/- 0.33, N = 3
179.77
EPYC 7502
SE +/- 0.42, N = 3
242.81
EPYC 7502 2P
SE +/- 0.39, N = 3
164.45
EPYC 7742
SE +/- 0.23, N = 3
168.95
EPYC 7742 2P
SE +/- 0.21, N = 3
141.73
Xeon Gold 6138
SE +/- 0.28, N = 3
454.74
2 x Xeon Gold 6138
SE +/- 0.20, N = 3
265.90
Xeon Platinum 8280
SE +/- 0.13, N = 3
279.39
2 x Xeon Platinum 8280
SE +/- 0.32, N = 3
181.43
300
600
900
1200
1500

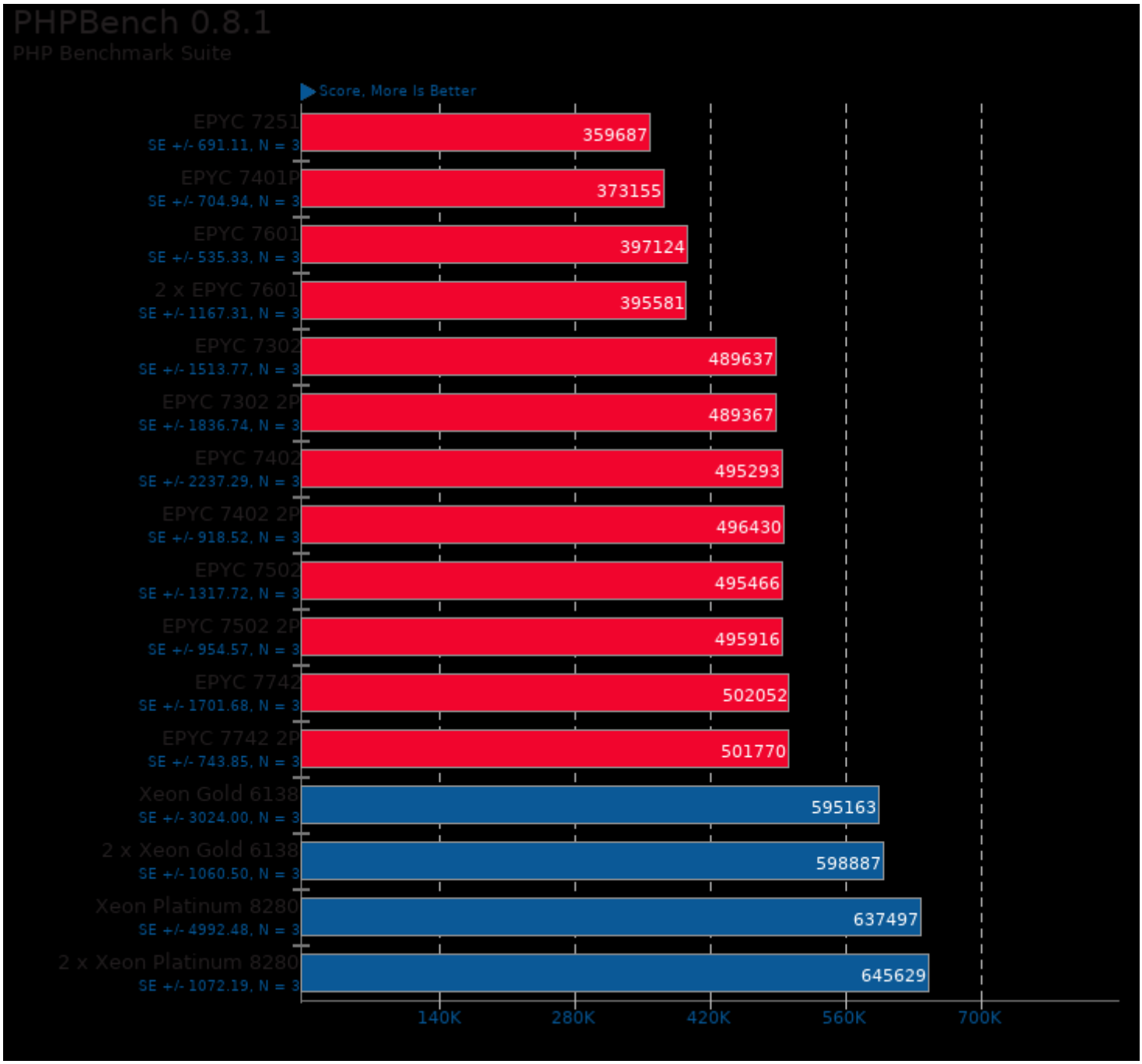

Blender 2.80
Blend File: Pabellon Barcelona - Compute: CPU-Only
Seconds, Fewer Is Better
EPYC 7251
SE +/- 0.84, N = 3
1067.23
EPYC 7401P
SE +/- 0.17, N = 3
390.84
EPYC 7601
SE +/- 0.59, N = 3
294.28
2 x EPYC 7601
SE +/- 0.13, N = 3
159.74
EPYC 7302
SE +/- 0.34, N = 3
341.22
EPYC 7302 2P
SE +/- 0.95, N = 3
180.38
EPYC 7402
SE +/- 0.87, N = 3
234.19
EPYC 7402 2P
SE +/- 0.67, N = 3
128.52
EPYC 7502
SE +/- 0.85, N = 3
199.29
EPYC 7502 2P
SE +/- 0.36, N = 3
109.24
EPYC 7742
SE +/- 0.51, N = 3
116.92
EPYC 7742 2P
SE +/- 0.23, N = 3
74.19
Xeon Gold 6138
SE +/- 0.16, N = 3
414.35
2 x Xeon Gold 6138
SE +/- 0.15, N = 3
214.82
Xeon Platinum 8280
SE +/- 0.12, N = 3
237.50
2 x Xeon Platinum 8280
SE +/- 0.14, N = 3
124.87
200
400
600
800
1000

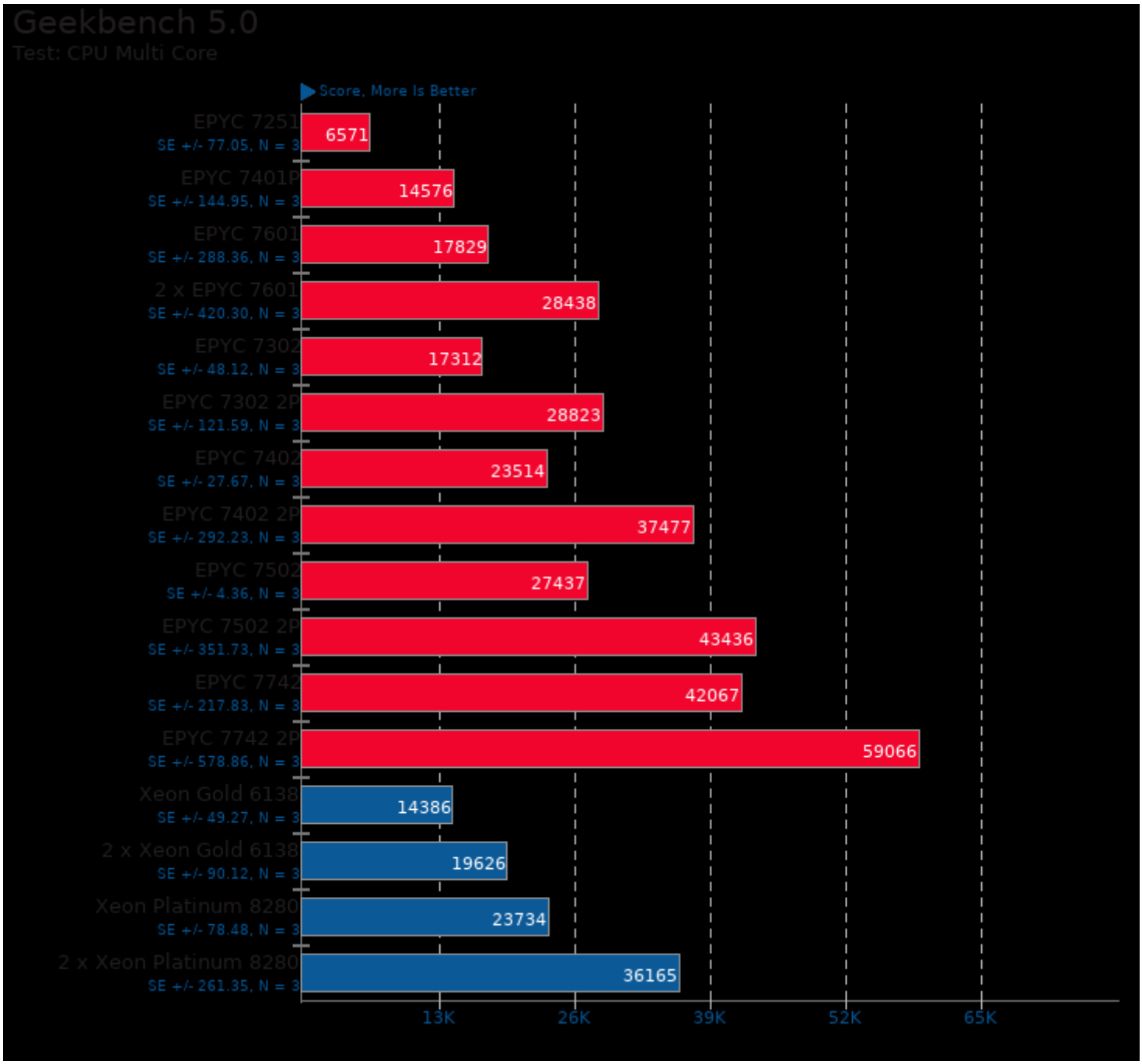

Appleseed 2.0 Beta
Scene: Disney Material
Seconds, Fewer Is Better
EPYC 7251
336.89
EPYC 7401P
144.50
EPYC 7601
108.53
2 x EPYC 7601
69.44
EPYC 7302
148.04
EPYC 7302 2P
81.28
EPYC 7402
109.30
EPYC 7402 2P
63.45
EPYC 7502
86.34
EPYC 7502 2P
59.83
EPYC 7742
63.50
EPYC 7742 2P
57.99
Xeon Gold 6138
162.72
2 x Xeon Gold 6138
96.10
Xeon Platinum 8280
97.09
2 x Xeon Platinum 8280
65.95
70
140
210
280
350

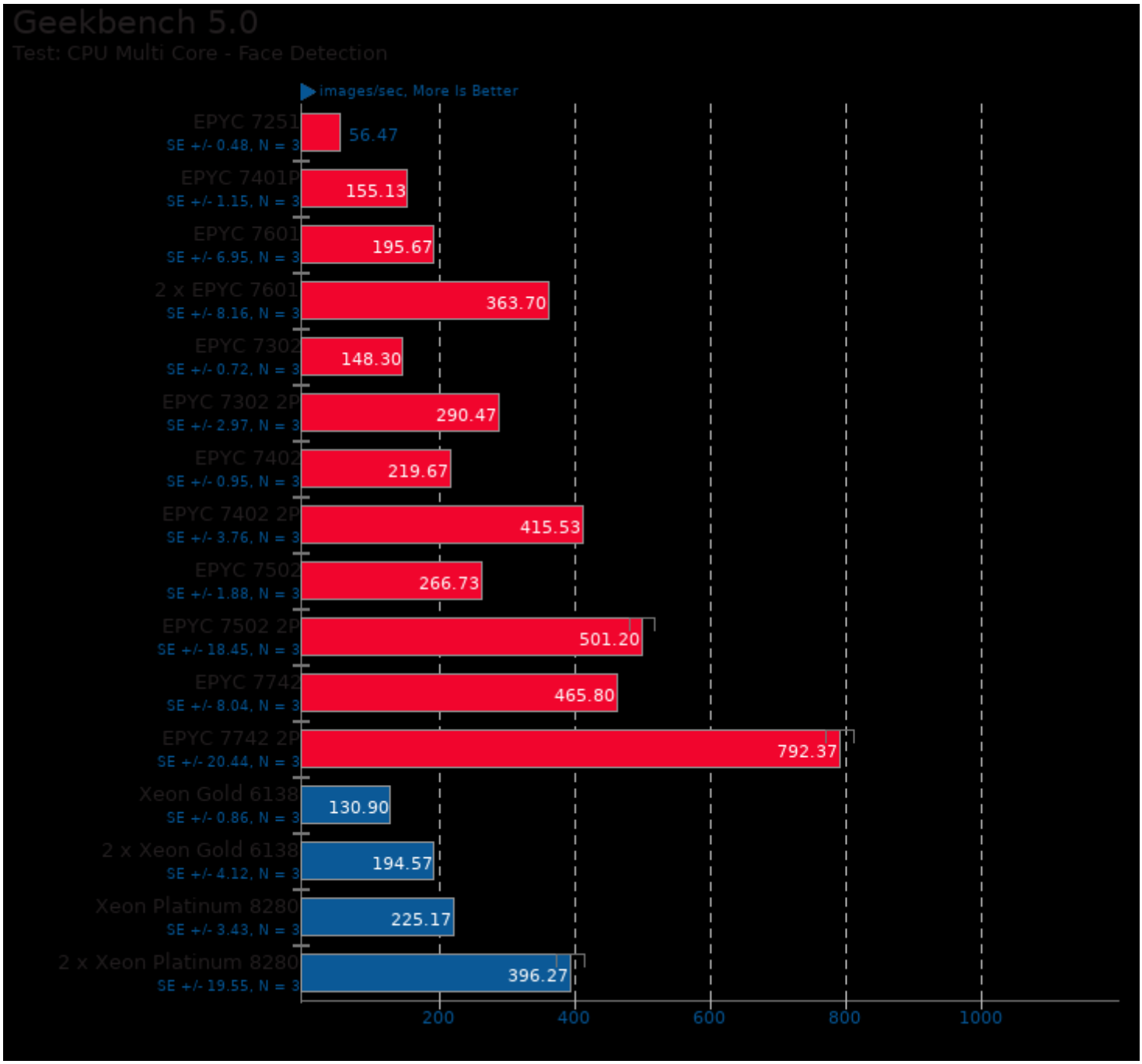

Tungsten Renderer 0.2.2
Scene: Hair
Seconds, Fewer Is Better
EPYC 7251
SE +/- 0.08, N = 3
39.49
EPYC 7401P
SE +/- 0.00, N = 3
16.26
EPYC 7601
SE +/- 0.03, N = 3
13.07
2 x EPYC 7601
SE +/- 0.04, N = 3
8.10
EPYC 7302
SE +/- 0.08, N = 3
16.26
EPYC 7302 2P
SE +/- 0.02, N = 3
9.67
EPYC 7402
SE +/- 0.02, N = 3
12.00
EPYC 7402 2P
SE +/- 0.06, N = 3
7.55
EPYC 7502
SE +/- 0.03, N = 3
10.34
EPYC 7502 2P
SE +/- 0.02, N = 3
6.57
EPYC 7742
SE +/- 0.01, N = 3
6.97
EPYC 7742 2P
SE +/- 0.04, N = 3
5.32
Xeon Gold 6138
SE +/- 0.03, N = 3
19.19
2 x Xeon Gold 6138
SE +/- 0.08, N = 3
11.17
Xeon Platinum 8280
SE +/- 0.03, N = 3
11.86
2 x Xeon Platinum 8280
SE +/- 0.06, N = 3
7.07
9
18
27
36
45
1. (CXX) g++ options: -std=c++0x -msse2 -msse3 -mssse3 -msse4.1 -msse4.2 -mfma -mbmi2 -mno-avx -mno-avx2 -mno-xop -mno-fma4 -mno-avx512pf

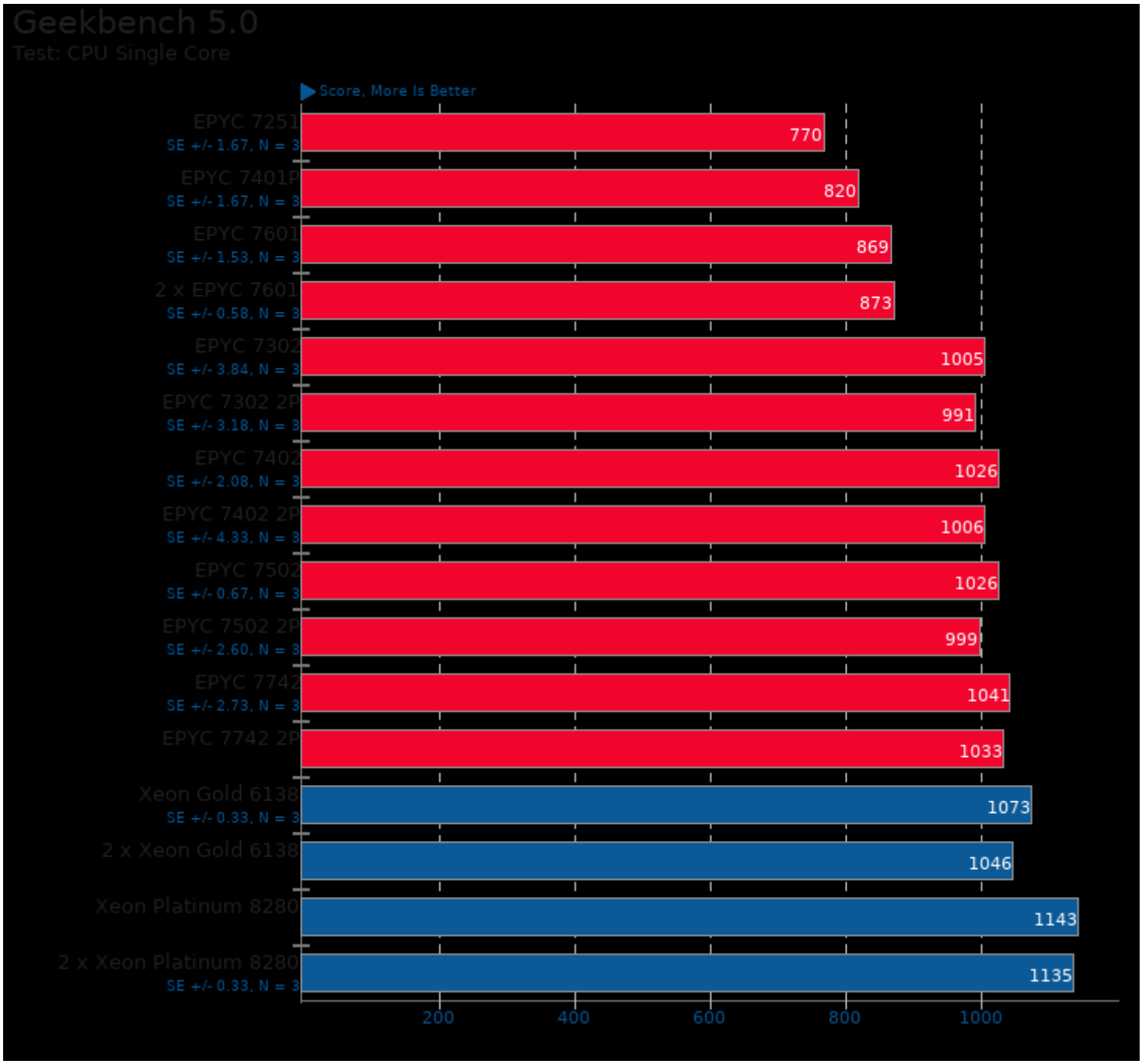

PyBench 2018-02-16
Total For Average Test Times
Milliseconds, Fewer Is Better
EPYC 7251
1607
EPYC 7401P
SE +/- 5.13, N = 3
1551
EPYC 7601
SE +/- 2.73, N = 3
1457
2 x EPYC 7601
SE +/- 9.74, N = 3
1462
EPYC 7302
SE +/- 4.37, N = 3
1221
EPYC 7302 2P
SE +/- 1.76, N = 3
1225
EPYC 7402
SE +/- 2.73, N = 3
1207
EPYC 7402 2P
SE +/- 1.86, N = 3
1211
EPYC 7502
SE +/- 6.49, N = 3
1212
EPYC 7502 2P
SE +/- 2.40, N = 3
1211
EPYC 7742
SE +/- 1.15, N = 3
1202
EPYC 7742 2P
SE +/- 2.33, N = 3
1206
Xeon Gold 6138
SE +/- 1.76, N = 3
1084
2 x Xeon Gold 6138
SE +/- 1.00, N = 3
1075
Xeon Platinum 8280
SE +/- 0.88, N = 3
1017
2 x Xeon Platinum 8280
SE +/- 0.33, N = 3
1013
300
600
900
1200
1500

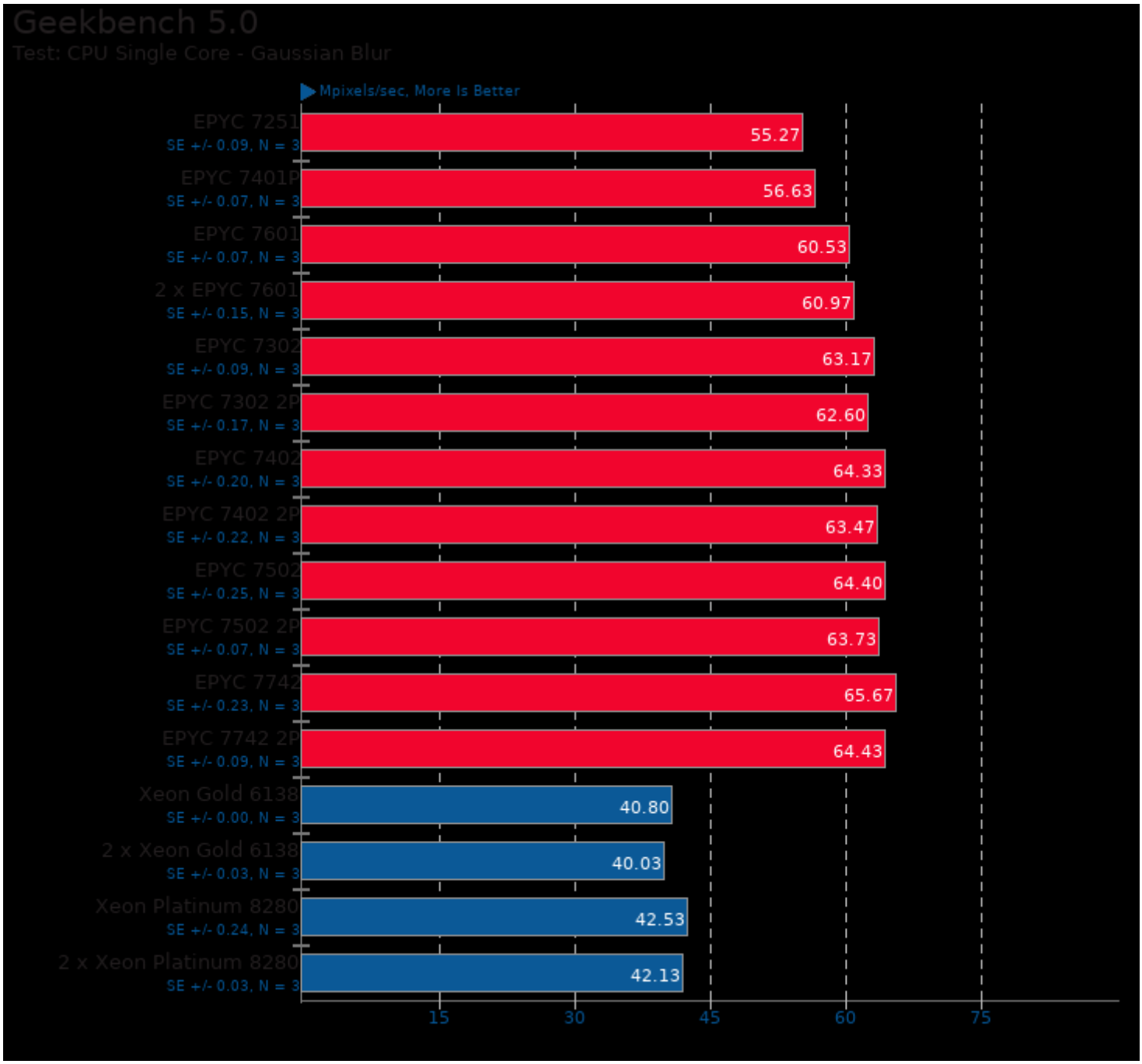

NeatBench 5
Acceleration: CPU
FPS, More Is Better
EPYC 7251
SE +/- 0.03, N = 3
10.37
EPYC 7401P
SE +/- 0.15, N = 6
13.05
EPYC 7601
SE +/- 0.17, N = 15
11.57
2 x EPYC 7601
SE +/- 0.12, N = 6
10.38
EPYC 7302
SE +/- 0.15, N = 3
28.97
EPYC 7302 2P
SE +/- 0.21, N = 3
27.40
EPYC 7402
SE +/- 0.42, N = 3
32.93
EPYC 7402 2P
SE +/- 0.35, N = 3
31.63
EPYC 7502
SE +/- 0.44, N = 3
33.70
EPYC 7502 2P
SE +/- 0.18, N = 3
31.57
EPYC 7742
SE +/- 0.59, N = 3
34.43
EPYC 7742 2P
SE +/- 0.03, N = 3
32.53
Xeon Gold 6138
SE +/- 0.29, N = 3
24.80
2 x Xeon Gold 6138
SE +/- 0.23, N = 3
22.97
Xeon Platinum 8280
SE +/- 0.34, N = 9
34.30
2 x Xeon Platinum 8280
SE +/- 0.29, N = 15
31.71
8
16
24
32
40

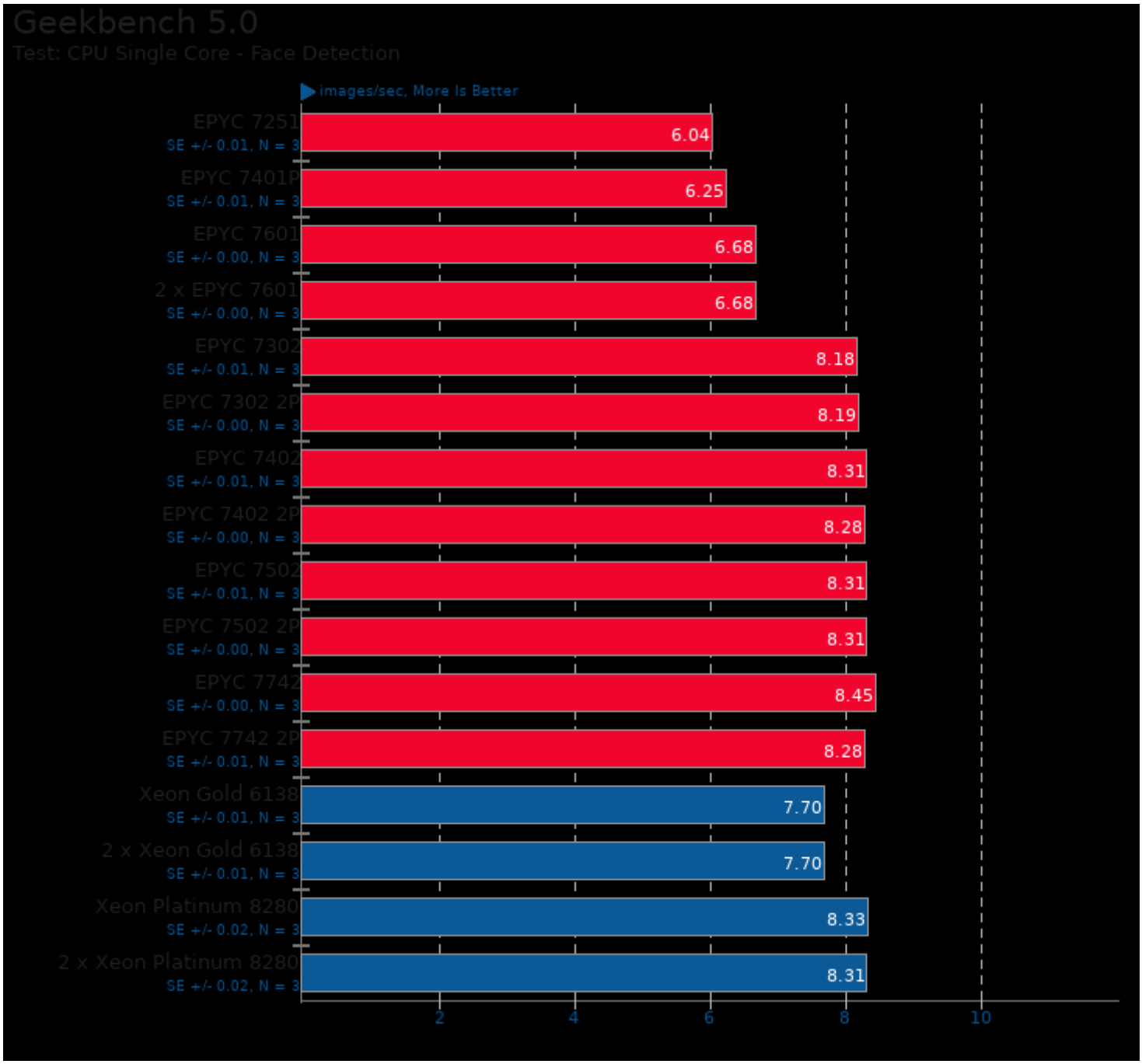

PHPBench 0.8.1
PHP Benchmark Suite
Score, More Is Better
EPYC 7251
SE +/- 691.11, N = 3
359687
EPYC 7401P
SE +/- 704.94, N = 3
373155
EPYC 7601
SE +/- 535.33, N = 3
397124
2 x EPYC 7601
SE +/- 1167.31, N = 3
395581
EPYC 7302
SE +/- 1513.77, N = 3
489637
EPYC 7302 2P
SE +/- 1836.74, N = 3
489367
EPYC 7402
SE +/- 2237.29, N = 3
495293
EPYC 7402 2P
SE +/- 918.52, N = 3
496430
EPYC 7502
SE +/- 1317.72, N = 3
495466
EPYC 7502 2P
SE +/- 954.57, N = 3
495916
EPYC 7742
SE +/- 1701.68, N = 3
502052
EPYC 7742 2P
SE +/- 743.85, N = 3
501770
Xeon Gold 6138
SE +/- 3024.00, N = 3
595163
2 x Xeon Gold 6138
SE +/- 1060.50, N = 3
598887
Xeon Platinum 8280
SE +/- 4992.48, N = 3
637497
2 x Xeon Platinum 8280
SE +/- 1072.19, N = 3
645629
140K
280K
420K
560K
700K

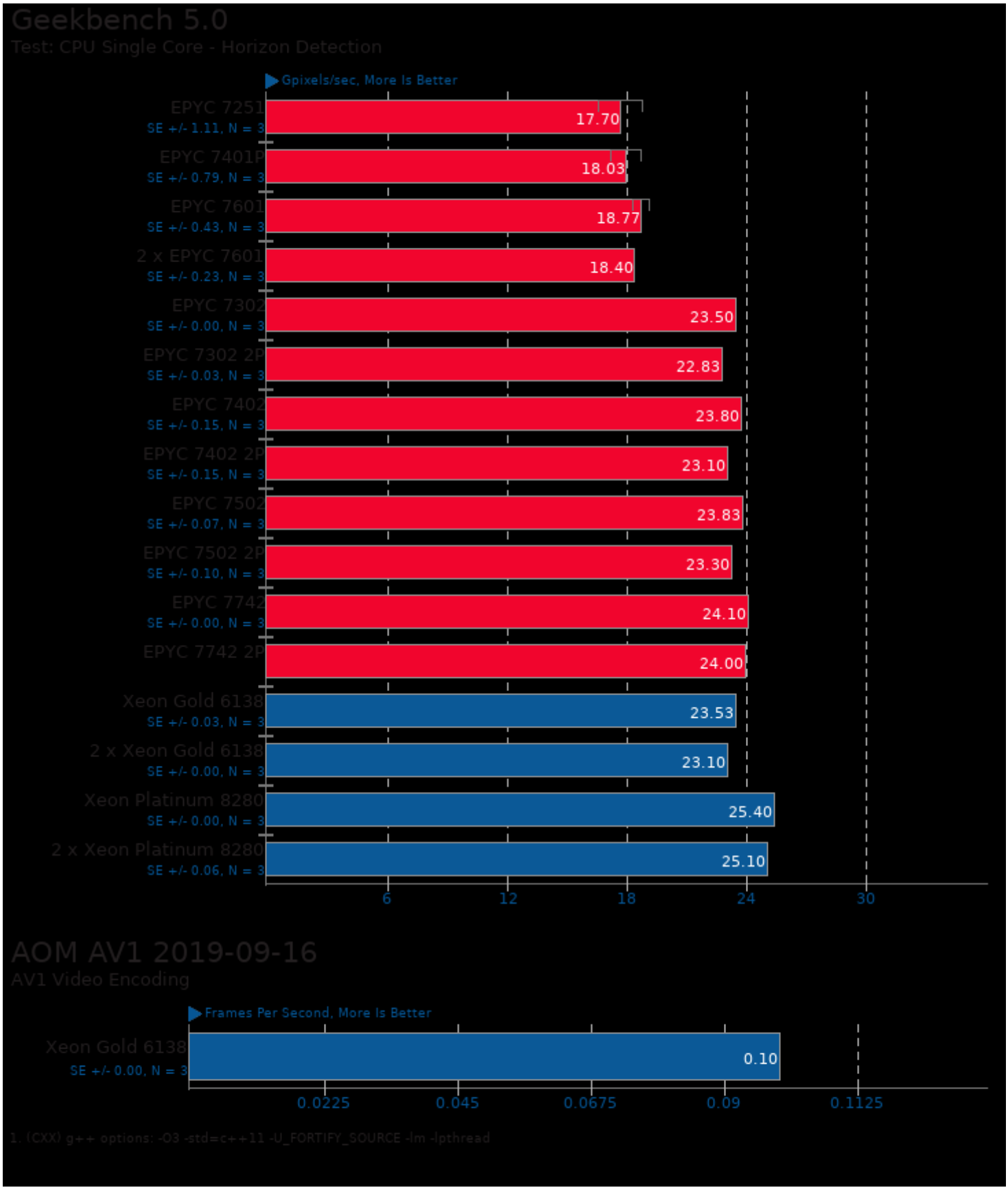

Geekbench 5.0
Test: CPU Multi Core
Score, More Is Better
EPYC 7251
SE +/- 77.05, N = 3
6571
EPYC 7401P
SE +/- 144.95, N = 3
14576
EPYC 7601
SE +/- 288.36, N = 3
17829
2 x EPYC 7601
SE +/- 420.30, N = 3
28438
EPYC 7302
SE +/- 48.12, N = 3
17312
EPYC 7302 2P
SE +/- 121.59, N = 3
28823
EPYC 7402
SE +/- 27.67, N = 3
23514
EPYC 7402 2P
SE +/- 292.23, N = 3
37477
EPYC 7502
SE +/- 4.36, N = 3
27437
EPYC 7502 2P
SE +/- 351.73, N = 3
43436
EPYC 7742
SE +/- 217.83, N = 3
42067
EPYC 7742 2P
SE +/- 578.86, N = 3
59066
Xeon Gold 6138
SE +/- 49.27, N = 3
14386
2 x Xeon Gold 6138
SE +/- 90.12, N = 3
19626
Xeon Platinum 8280
SE +/- 78.48, N = 3
23734
2 x Xeon Platinum 8280
SE +/- 261.35, N = 3
36165
13K
26K
39K
52K
65K


Geekbench 5.0
Test: CPU Multi Core - Face Detection
images/sec, More Is Better
EPYC 7251
SE +/- 0.48, N = 3
56.47
EPYC 7401P
SE +/- 1.15, N = 3
155.13
EPYC 7601
SE +/- 6.95, N = 3
195.67
2 x EPYC 7601
SE +/- 8.16, N = 3
363.70
EPYC 7302
SE +/- 0.72, N = 3
148.30
EPYC 7302 2P
SE +/- 2.97, N = 3
290.47
EPYC 7402
SE +/- 0.95, N = 3
219.67
EPYC 7402 2P
SE +/- 3.76, N = 3
415.53
EPYC 7502
SE +/- 1.88, N = 3
266.73
EPYC 7502 2P
SE +/- 18.45, N = 3
501.20
EPYC 7742
SE +/- 8.04, N = 3
465.80
EPYC 7742 2P
SE +/- 20.44, N = 3
792.37
Xeon Gold 6138
SE +/- 0.86, N = 3
130.90
2 x Xeon Gold 6138
SE +/- 4.12, N = 3
194.57
Xeon Platinum 8280
SE +/- 3.43, N = 3
225.17
2 x Xeon Platinum 8280
SE +/- 19.55, N = 3
396.27
200
400
600
800
1000


Geekbench 5.0
Test: CPU Single Core
Score, More Is Better
EPYC 7251
SE +/- 1.67, N = 3
770
EPYC 7401P
SE +/- 1.67, N = 3
820
EPYC 7601
SE +/- 1.53, N = 3
869
2 x EPYC 7601
SE +/- 0.58, N = 3
873
EPYC 7302
SE +/- 3.84, N = 3
1005
EPYC 7302 2P
SE +/- 3.18, N = 3
991
EPYC 7402
SE +/- 2.08, N = 3
1026
EPYC 7402 2P
SE +/- 4.33, N = 3
1006
EPYC 7502
SE +/- 0.67, N = 3
1026
EPYC 7502 2P
SE +/- 2.60, N = 3
999
EPYC 7742
SE +/- 2.73, N = 3
1041
EPYC 7742 2P
1033
Xeon Gold 6138
SE +/- 0.33, N = 3
1073
2 x Xeon Gold 6138
1046
Xeon Platinum 8280
1143
2 x Xeon Platinum 8280
SE +/- 0.33, N = 3
1135
200
400
600
800
1000

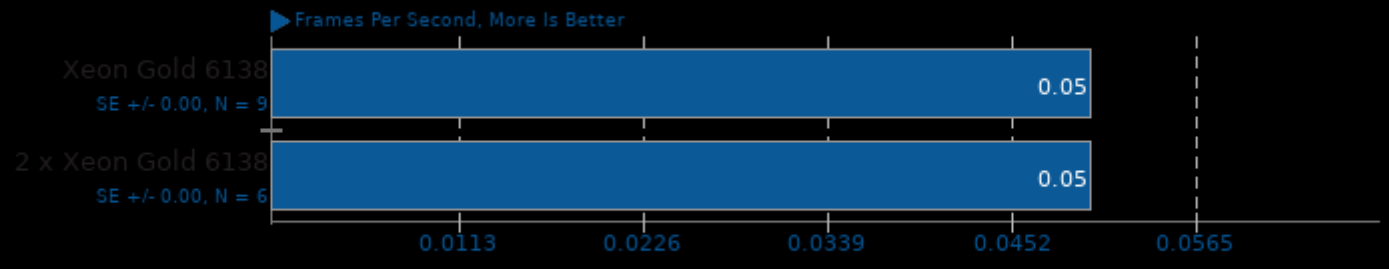

Geekbench 5.0
Test: CPU Single Core - Gaussian Blur
Mpixels/sec, More Is Better
EPYC 7251
SE +/- 0.09, N = 3
55.27
EPYC 7401P
SE +/- 0.07, N = 3
56.63
EPYC 7601
SE +/- 0.07, N = 3
60.53
2 x EPYC 7601
SE +/- 0.15, N = 3
60.97
EPYC 7302
SE +/- 0.09, N = 3
63.17
EPYC 7302 2P
SE +/- 0.17, N = 3
62.60
EPYC 7402
SE +/- 0.20, N = 3
64.33
EPYC 7402 2P
SE +/- 0.22, N = 3
63.47
EPYC 7502
SE +/- 0.25, N = 3
64.40
EPYC 7502 2P
SE +/- 0.07, N = 3
63.73
EPYC 7742
SE +/- 0.23, N = 3
65.67
EPYC 7742 2P
SE +/- 0.09, N = 3
64.43
Xeon Gold 6138
SE +/- 0.00, N = 3
40.80
2 x Xeon Gold 6138
SE +/- 0.03, N = 3
40.03
Xeon Platinum 8280
SE +/- 0.24, N = 3
42.53
2 x Xeon Platinum 8280
SE +/- 0.03, N = 3
42.13
15
30
45
60
75


Geekbench 5.0
Test: CPU Single Core - Face Detection
images/sec, More Is Better
EPYC 7251
SE +/- 0.01, N = 3
6.04
EPYC 7401P
SE +/- 0.01, N = 3
6.25
EPYC 7601
SE +/- 0.00, N = 3
6.68
2 x EPYC 7601
SE +/- 0.00, N = 3
6.68
EPYC 7302
SE +/- 0.01, N = 3
8.18
EPYC 7302 2P
SE +/- 0.00, N = 3
8.19
EPYC 7402
SE +/- 0.01, N = 3
8.31
EPYC 7402 2P
SE +/- 0.00, N = 3
8.28
EPYC 7502
SE +/- 0.01, N = 3
8.31
EPYC 7502 2P
SE +/- 0.00, N = 3
8.31
EPYC 7742
SE +/- 0.00, N = 3
8.45
EPYC 7742 2P
SE +/- 0.01, N = 3
8.28
Xeon Gold 6138
SE +/- 0.01, N = 3
7.70
2 x Xeon Gold 6138
SE +/- 0.01, N = 3
7.70
Xeon Platinum 8280
SE +/- 0.02, N = 3
8.33
2 x Xeon Platinum 8280
SE +/- 0.02, N = 3
8.31
2
4
6
8
10


Geekbench 5.0
Test: CPU Single Core - Horizon Detection
Gpixels/sec, More Is Better
EPYC 7251
SE +/- 1.11, N = 3
17.70
EPYC 7401P
SE +/- 0.79, N = 3
18.03
EPYC 7601
SE +/- 0.43, N = 3
18.77
2 x EPYC 7601
SE +/- 0.23, N = 3
18.40
EPYC 7302
SE +/- 0.00, N = 3
23.50
EPYC 7302 2P
SE +/- 0.03, N = 3
22.83
EPYC 7402
SE +/- 0.15, N = 3
23.80
EPYC 7402 2P
SE +/- 0.15, N = 3
23.10
EPYC 7502
SE +/- 0.07, N = 3
23.83
EPYC 7502 2P
SE +/- 0.10, N = 3
23.30
EPYC 7742
SE +/- 0.00, N = 3
24.10
EPYC 7742 2P
24.00
Xeon Gold 6138
SE +/- 0.03, N = 3
23.53
2 x Xeon Gold 6138
SE +/- 0.00, N = 3
23.10
Xeon Platinum 8280
SE +/- 0.00, N = 3
25.40
2 x Xeon Platinum 8280
SE +/- 0.06, N = 3
25.10
6
12
18
24
30
AOM AV1 2019-09-16
AV1 Video Encoding
Frames Per Second, More Is Better
Xeon Gold 6138
SE +/- 0.00, N = 3
0.10
0.0225
0.045
0.0675
0.09
0.1125
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm -lpthread

SVT-AV1 0.6

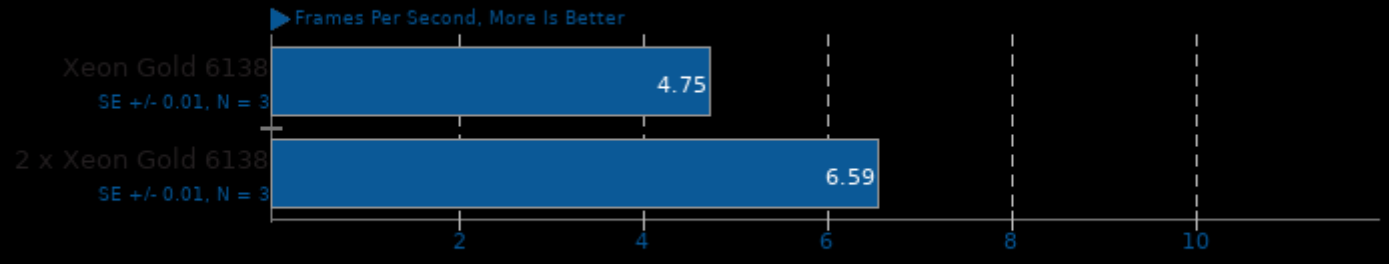
Encoder Mode: Enc Mode 0 - Input: 1080p



1. (CXX) g++ options: -fPIE -fPIC -march=native -pie

SVT-AV1 0.6

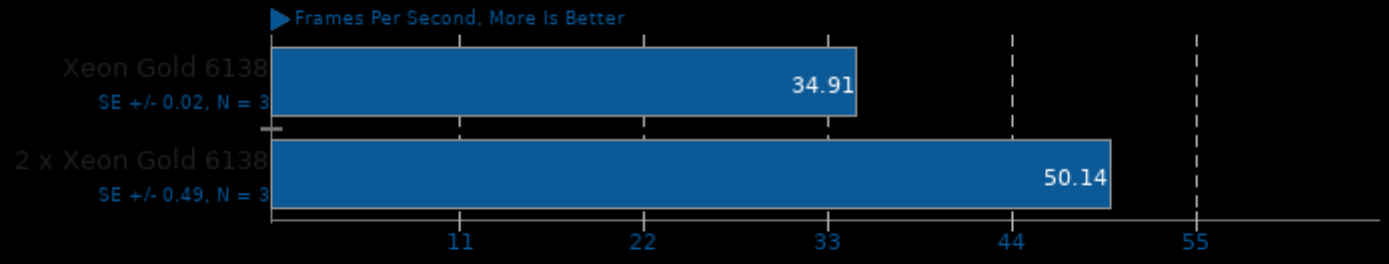
Encoder Mode: Enc Mode 4 - Input: 1080p



1. (CXX) g++ options: -fPIE -fPIC -march=native -pie

SVT-AV1 0.6

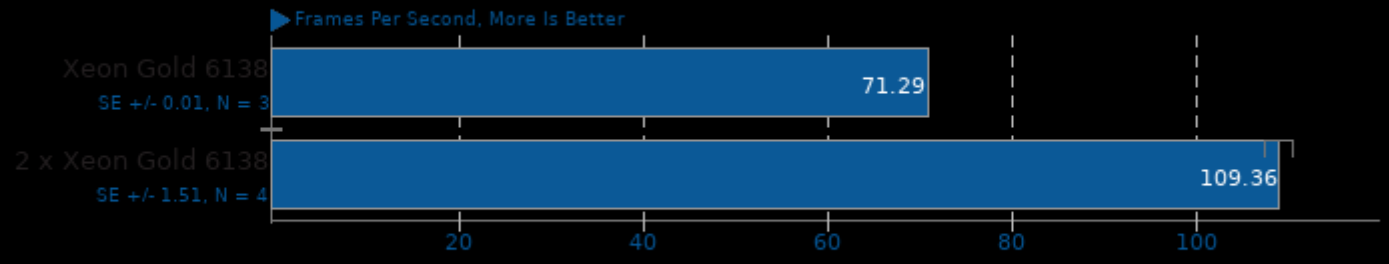
Encoder Mode: Enc Mode 8 - Input: 1080p



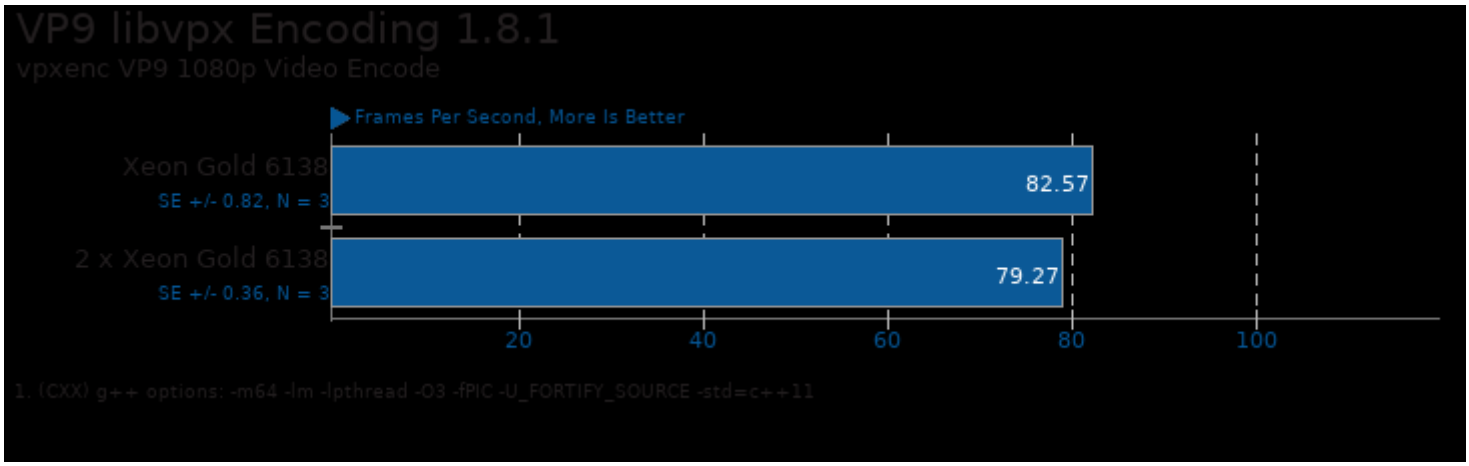
1. (CXX) g++ options: -fPIE -fPIC -march=native -pie

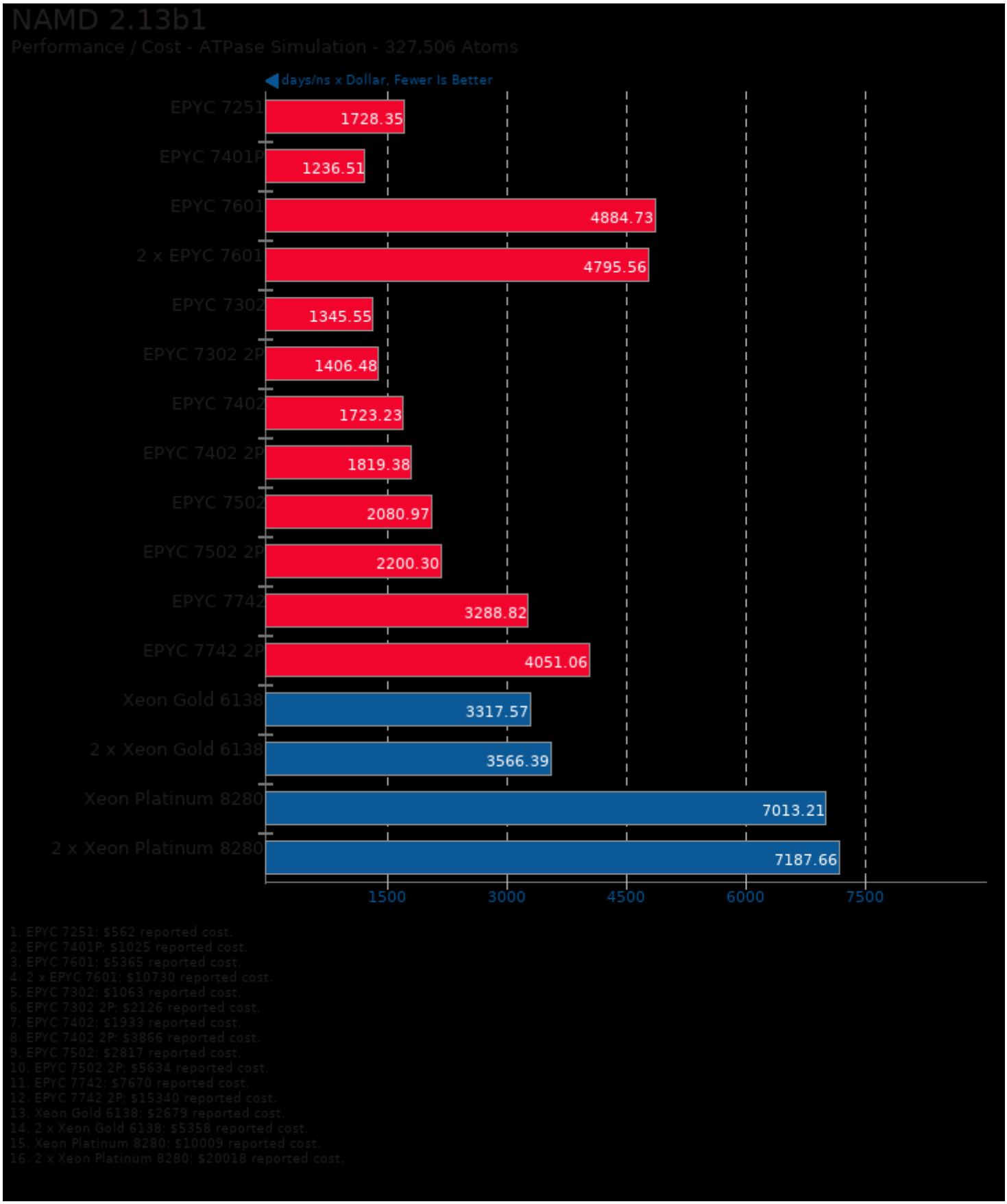
SVT-HEVC 1.4.1

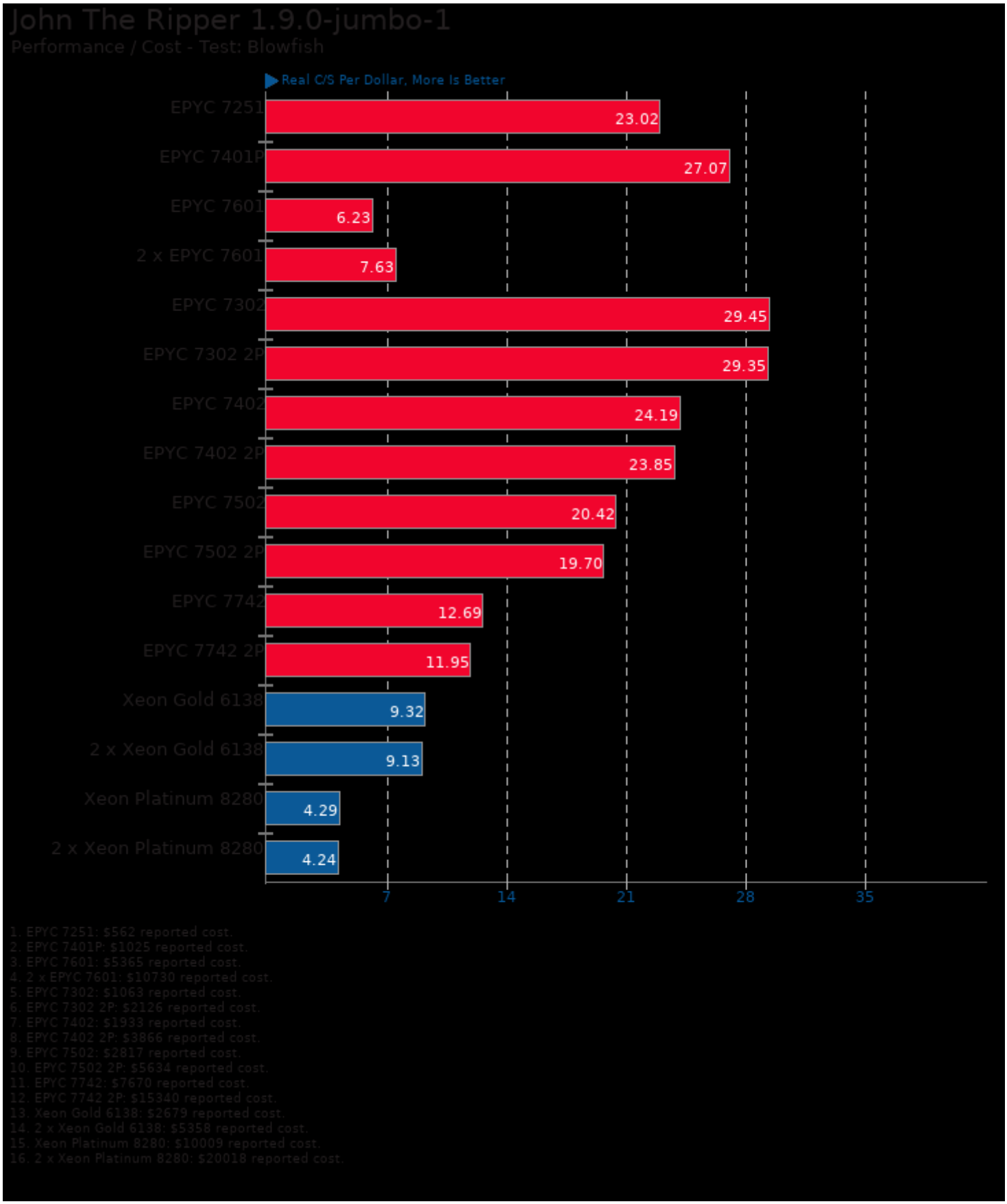
1080p 8-bit YUV To HEVC Video Encode

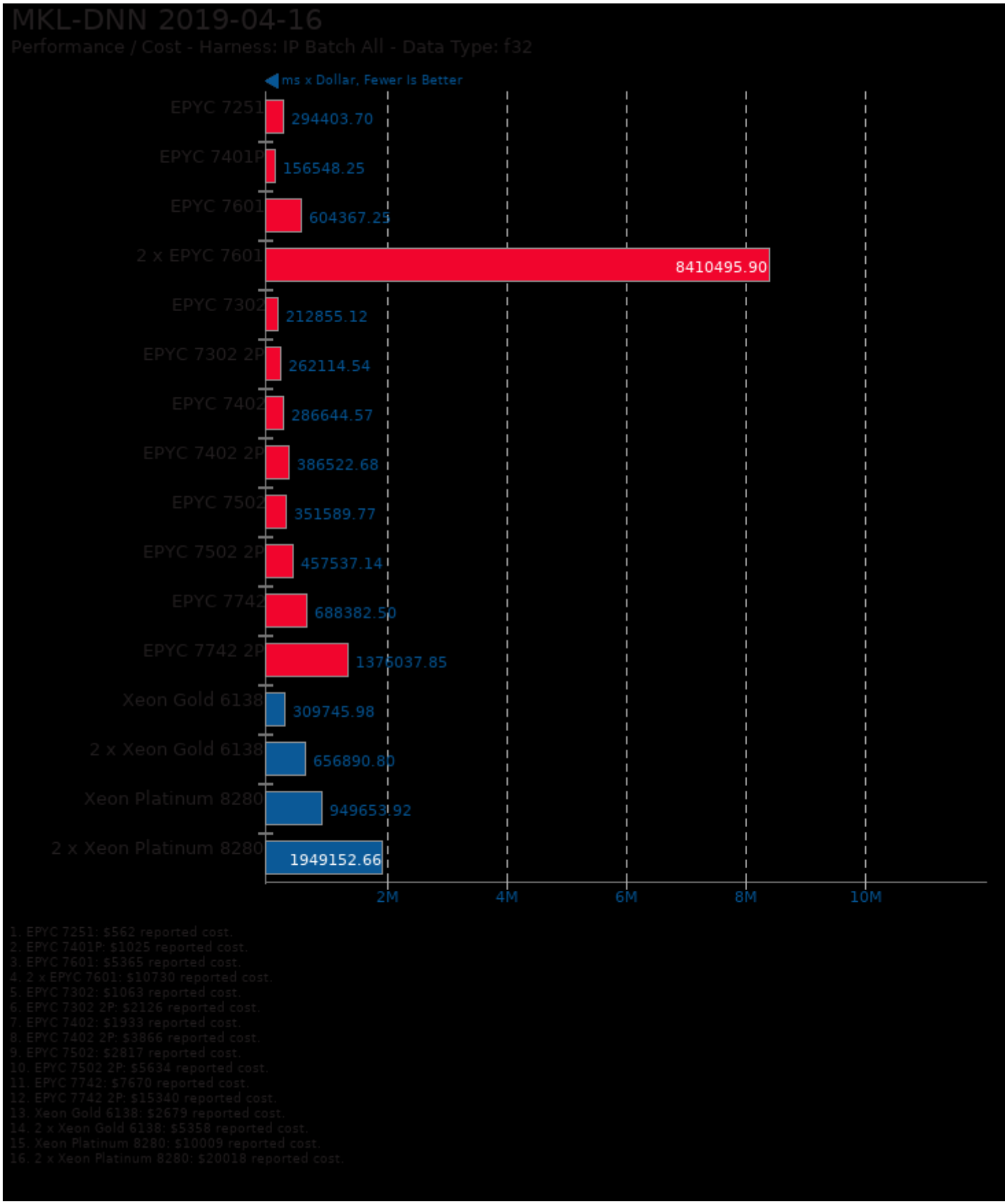


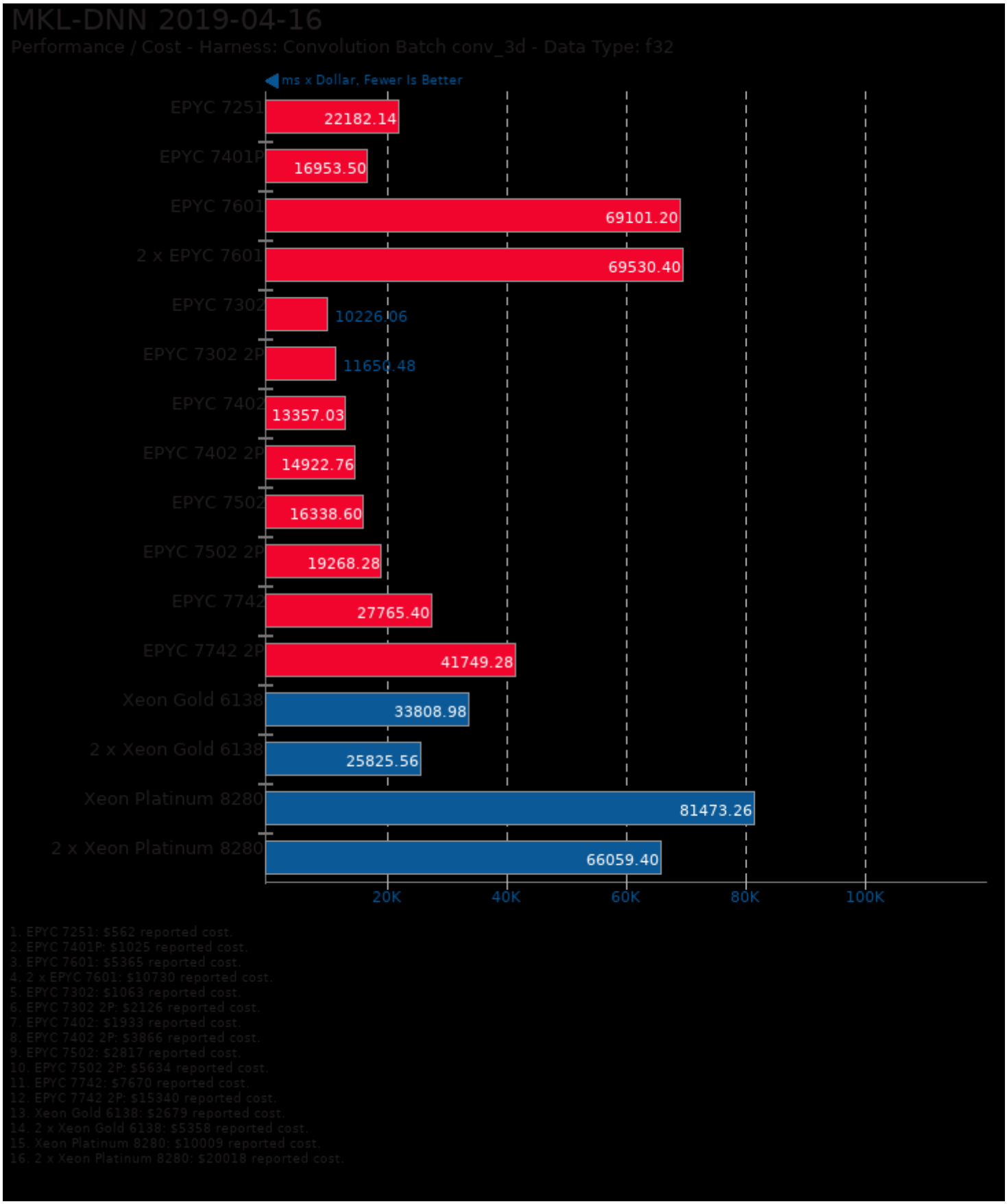
1. (CC) gcc options: -fPIE -fPIC -O3 -O2 -pie -rdynamic -lpthread -lrt

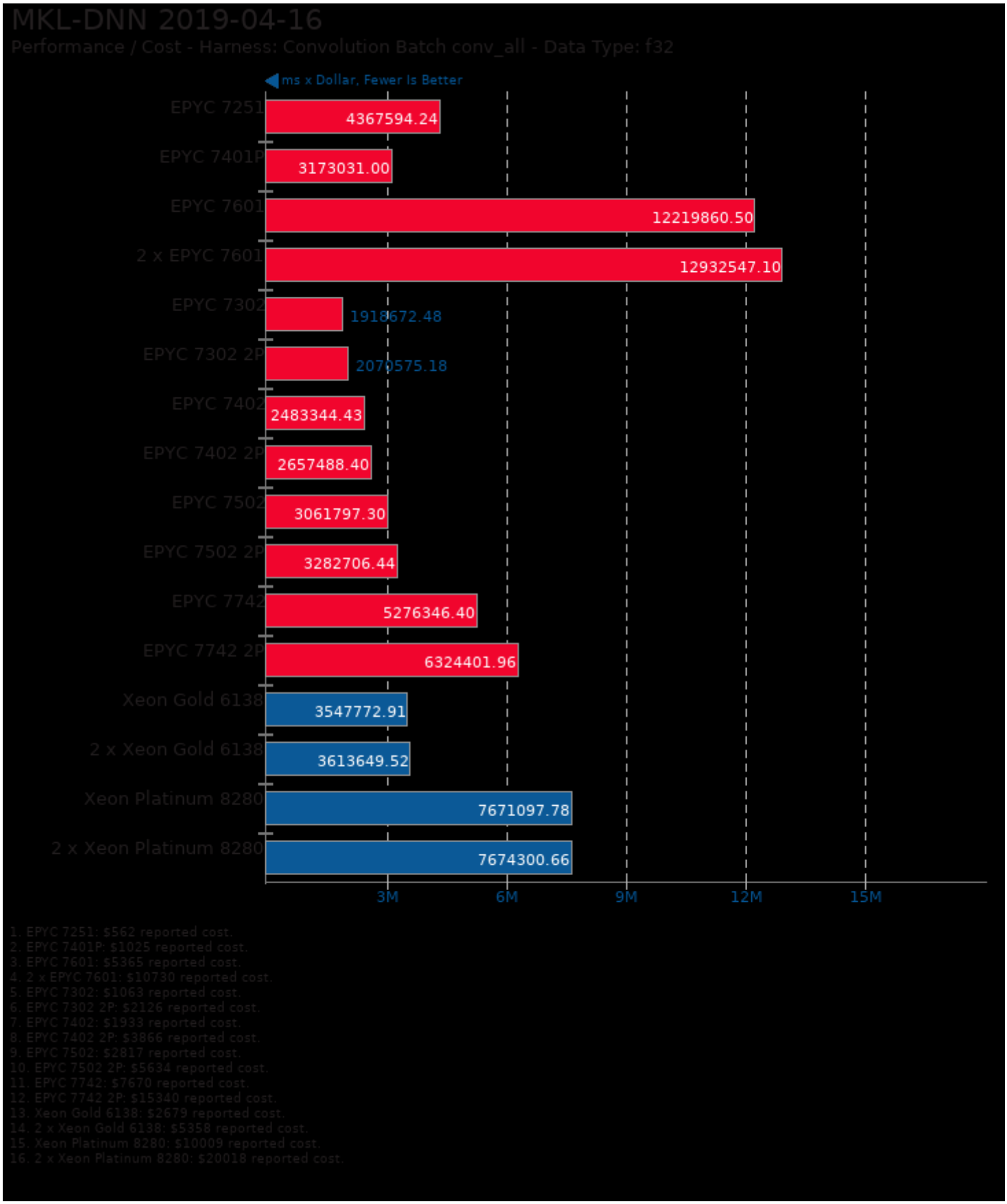

VP9 libvpx Encoding 1.8.1
vpxenc VP9 1080p Video Encode
Frames Per Second, More Is Better
Xeon Gold 6138
SE +/- 0.82, N = 3
82.57
2 x Xeon Gold 6138
SE +/- 0.36, N = 3
79.27
20
40
60
80
100
1. (CXX) g++ options: -m64 -lm -lpthread -O3 -fPIC -U_FORTIFY_SOURCE -std=c++11

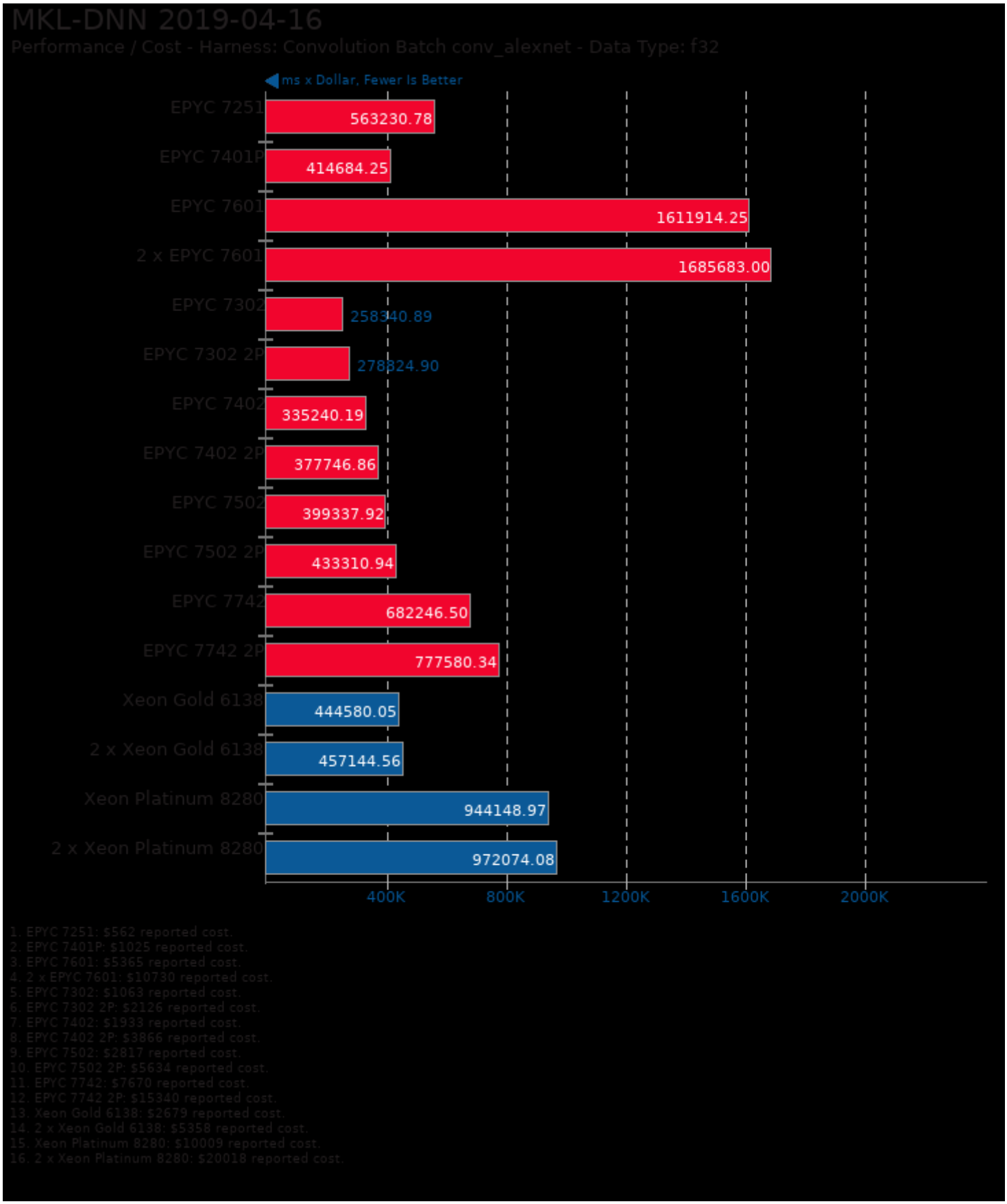

NAMD 2.13b1
Performance / Cost - ATPase Simulation - 327,506 Atoms
days/ns x Dollar, Fewer Is Better
EPYC 7251
1728.35
EPYC 7401P
1236.51
EPYC 7601
4884.73
2 x EPYC 7601
4795.56
EPYC 7302
1345.55
EPYC 7302 2P
1406.48
EPYC 7402
1723.23
EPYC 7402 2P
1819.38
EPYC 7502
2080.97
EPYC 7502 2P
2200.30
EPYC 7742
3288.82
EPYC 7742 2P
4051.06
Xeon Gold 6138
3317.57
2 x Xeon Gold 6138
3566.39
Xeon Platinum 8280
7013.21
2 x Xeon Platinum 8280
7187.66
1500
3000
4500
6000
7500
1. EPYC 7251: $562 reported cost.
2. EPYC 7401P: $1025 reported cost.
3. EPYC 7601: $5365 reported cost.
4. 2 x EPYC 7601: $10730 reported cost.
5. EPYC 7302: $1063 reported cost.
6. EPYC 7302 2P: $2126 reported cost.
7. EPYC 7402: $1933 reported cost.
8. EPYC 7402 2P: $3866 reported cost.
9. EPYC 7502: $2817 reported cost.
10. EPYC 7502 2P: $5634 reported cost.
11. EPYC 7742: $7670 reported cost.
12. EPYC 7742 2P: $15340 reported cost.
13. Xeon Gold 6138: $2679 reported cost.
14. 2 x Xeon Gold 6138: $5358 reported cost.
15. Xeon Platinum 8280: $10009 reported cost.
16. 2 x Xeon Platinum 8280: $20018 reported cost.

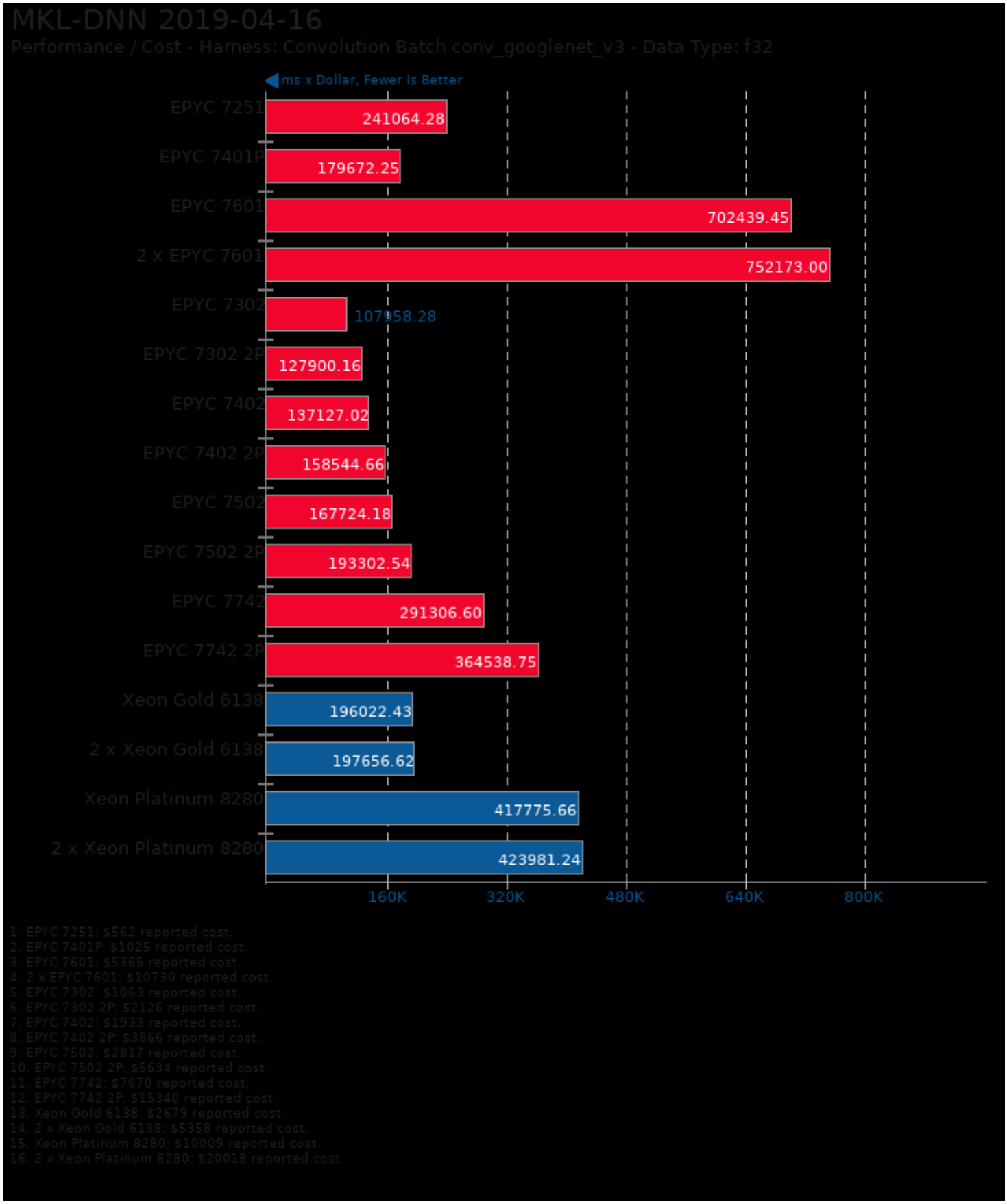

John The Ripper 1.9.0-jumbo-1
Performance / Cost - Test: Blowfish
Real C/S Per Dollar, More Is Better
EPYC 7251
23.02
EPYC 7401P
27.07
EPYC 7601
6.23
2 x EPYC 7601
7.63
EPYC 7302
29.45
EPYC 7302 2P
29.35
EPYC 7402
24.19
EPYC 7402 2P
23.85
EPYC 7502
20.42
EPYC 7502 2P
19.70
EPYC 7742
12.69
EPYC 7742 2P
11.95
Xeon Gold 6138
9.32
2 x Xeon Gold 6138
9.13
Xeon Platinum 8280
4.29
2 x Xeon Platinum 8280
4.24
7
14
21
28
35
1. EPYC 7251: $562 reported cost.
2. EPYC 7401P: $1025 reported cost.
3. EPYC 7601: $5365 reported cost.
4. 2 x EPYC 7601: $10730 reported cost.
5. EPYC 7302: $1063 reported cost.
6. EPYC 7302 2P: $2126 reported cost.
7. EPYC 7402: $1933 reported cost.
8. EPYC 7402 2P: $3866 reported cost.
9. EPYC 7502: $2817 reported cost.
10. EPYC 7502 2P: $5634 reported cost.
11. EPYC 7742: $7670 reported cost.
12. EPYC 7742 2P: $15340 reported cost.
13. Xeon Gold 6138: $2679 reported cost.
14. 2 x Xeon Gold 6138: $5358 reported cost.
15. Xeon Platinum 8280: $10009 reported cost.
16. 2 x Xeon Platinum 8280: $20018 reported cost.

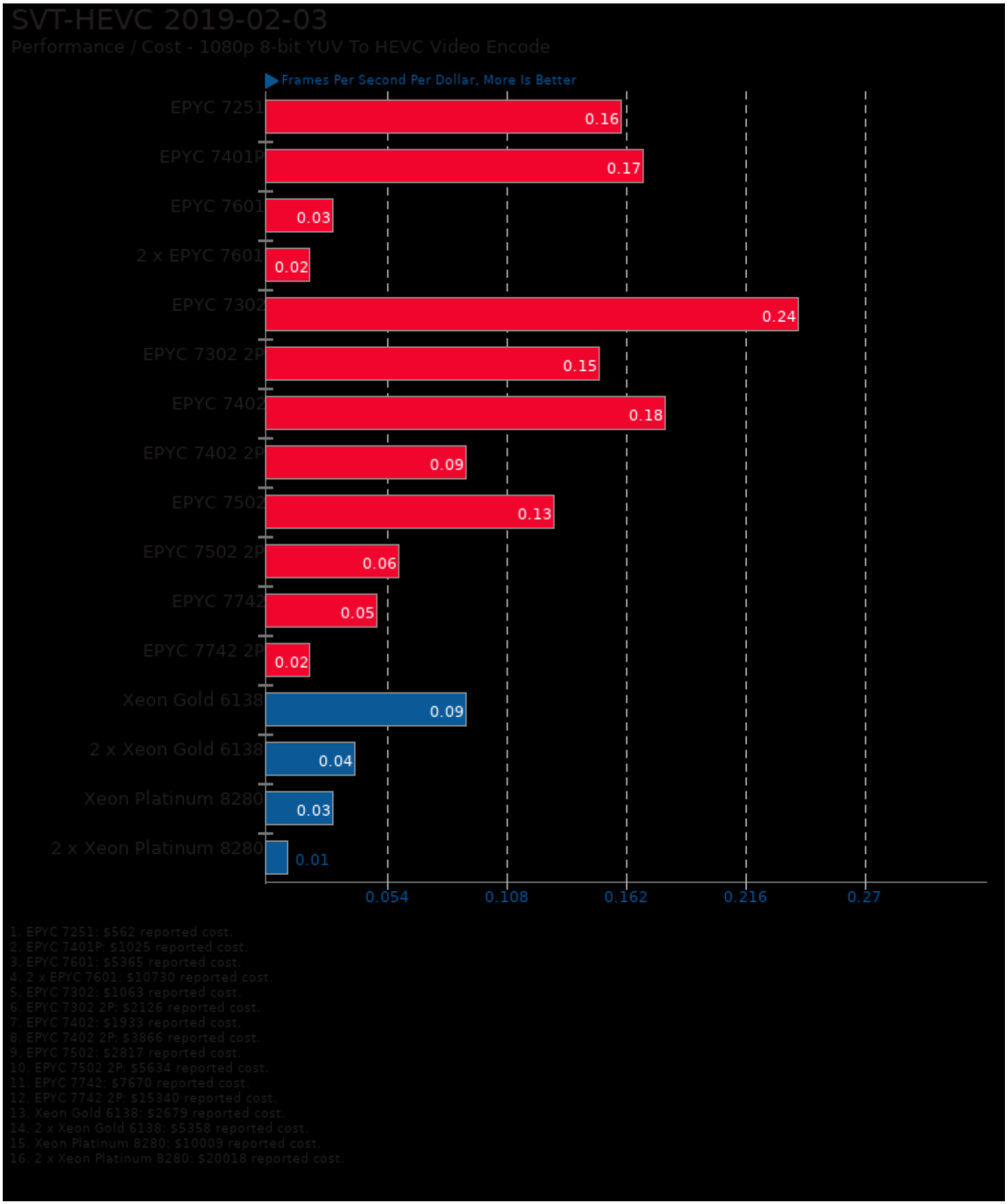

MKL-DNN 2019-04-16
Performance / Cost - Harness: IP Batch All - Data Type: f32
ms x Dollar, Fewer Is Better
EPYC 7251
294403.70
EPYC 7401P
156548.25
EPYC 7601
604367.25
2 x EPYC 7601
8410495.90
EPYC 7302
212855.12
EPYC 7302 2P
262114.54
EPYC 7402
286644.57
EPYC 7402 2P
386522.68
EPYC 7502
351589.77
EPYC 7502 2P
457537.14
EPYC 7742
688382.50
EPYC 7742 2P
1376037.85
Xeon Gold 6138
309745.98
2 x Xeon Gold 6138
656890.80
Xeon Platinum 8280
949653.92
2 x Xeon Platinum 8280
1949152.66
2M
4M
6M
8M
10M
1. EPYC 7251: $562 reported cost.
2. EPYC 7401P: $1025 reported cost.
3. EPYC 7601: $5365 reported cost.
4. 2 x EPYC 7601: $10730 reported cost.
5. EPYC 7302: $1063 reported cost.
6. EPYC 7302 2P: $2126 reported cost.
7. EPYC 7402: $1933 reported cost.
8. EPYC 7402 2P: $3866 reported cost.
9. EPYC 7502: $2817 reported cost.
10. EPYC 7502 2P: $5634 reported cost.
11. EPYC 7742: $7670 reported cost.
12. EPYC 7742 2P: $15340 reported cost.
13. Xeon Gold 6138: $2679 reported cost.
14. 2 x Xeon Gold 6138: $5358 reported cost.
15. Xeon Platinum 8280: $10009 reported cost.
16. 2 x Xeon Platinum 8280: $20018 reported cost.

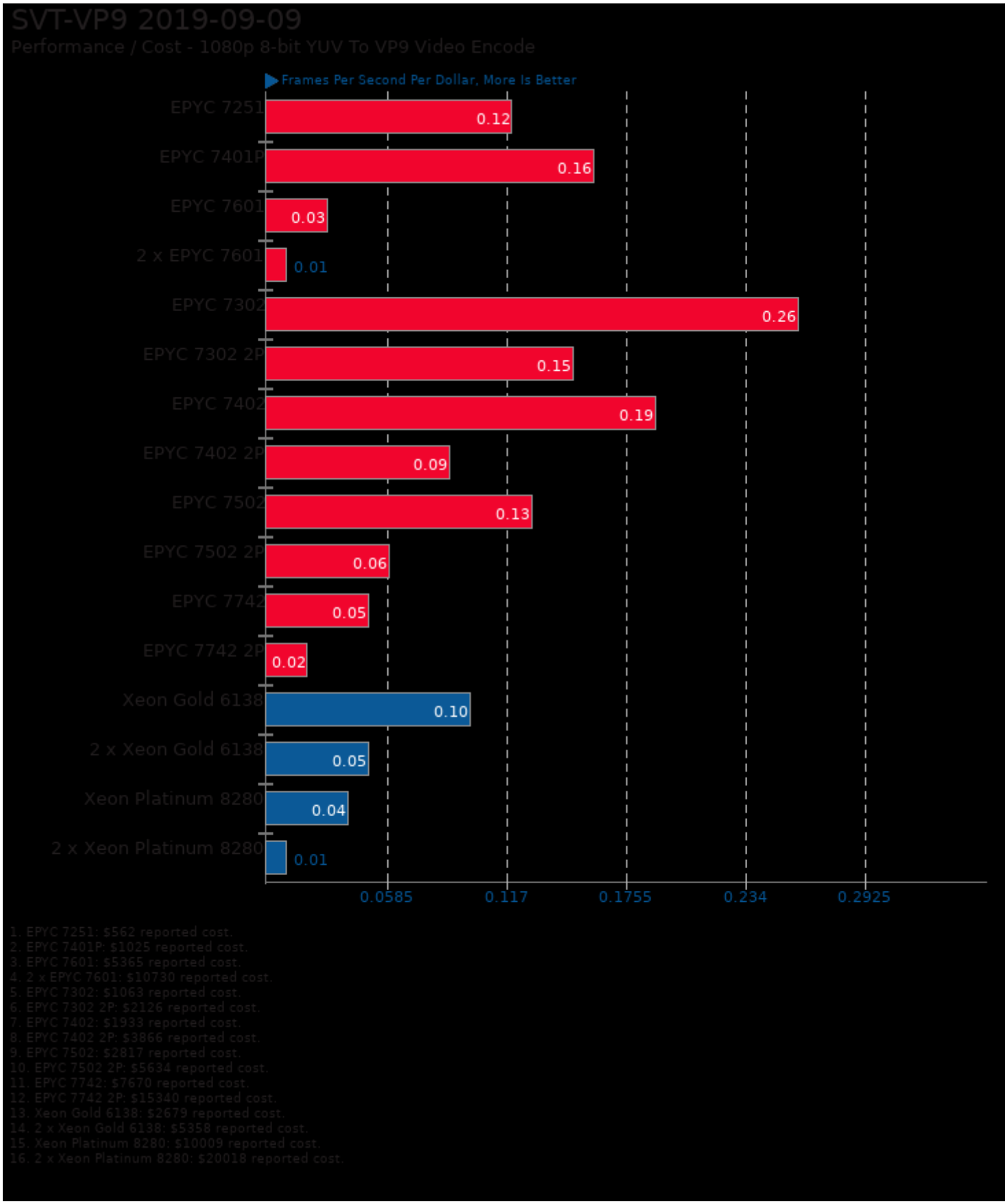

MKL-DNN 2019-04-16
Performance / Cost - Harness: Convolution Batch conv_3d - Data Type: f32
ms x Dollar, Fewer Is Better
EPYC 7251
22182.14
EPYC 7401P
16953.50
EPYC 7601
69101.20
2 x EPYC 7601
69530.40
EPYC 7302
10226.06
EPYC 7302 2P
11650.48
EPYC 7402
13357.03
EPYC 7402 2P
14922.76
EPYC 7502
16338.60
EPYC 7502 2P
19268.28
EPYC 7742
27765.40
EPYC 7742 2P
41749.28
Xeon Gold 6138
33808.98
2 x Xeon Gold 6138
25825.56
Xeon Platinum 8280
81473.26
2 x Xeon Platinum 8280
66059.40
20K
40K
60K
80K
100K
1. EPYC 7251: $562 reported cost.
2. EPYC 7401P: $1025 reported cost.
3. EPYC 7601: $5365 reported cost.
4. 2 x EPYC 7601: $10730 reported cost.
5. EPYC 7302: $1063 reported cost.
6. EPYC 7302 2P: $2126 reported cost.
7. EPYC 7402: $1933 reported cost.
8. EPYC 7402 2P: $3866 reported cost.
9. EPYC 7502: $2817 reported cost.
10. EPYC 7502 2P: $5634 reported cost.
11. EPYC 7742: $7670 reported cost.
12. EPYC 7742 2P: $15340 reported cost.
13. Xeon Gold 6138: $2679 reported cost.
14. 2 x Xeon Gold 6138: $5358 reported cost.
15. Xeon Platinum 8280: $10009 reported cost.
16. 2 x Xeon Platinum 8280: $20018 reported cost.

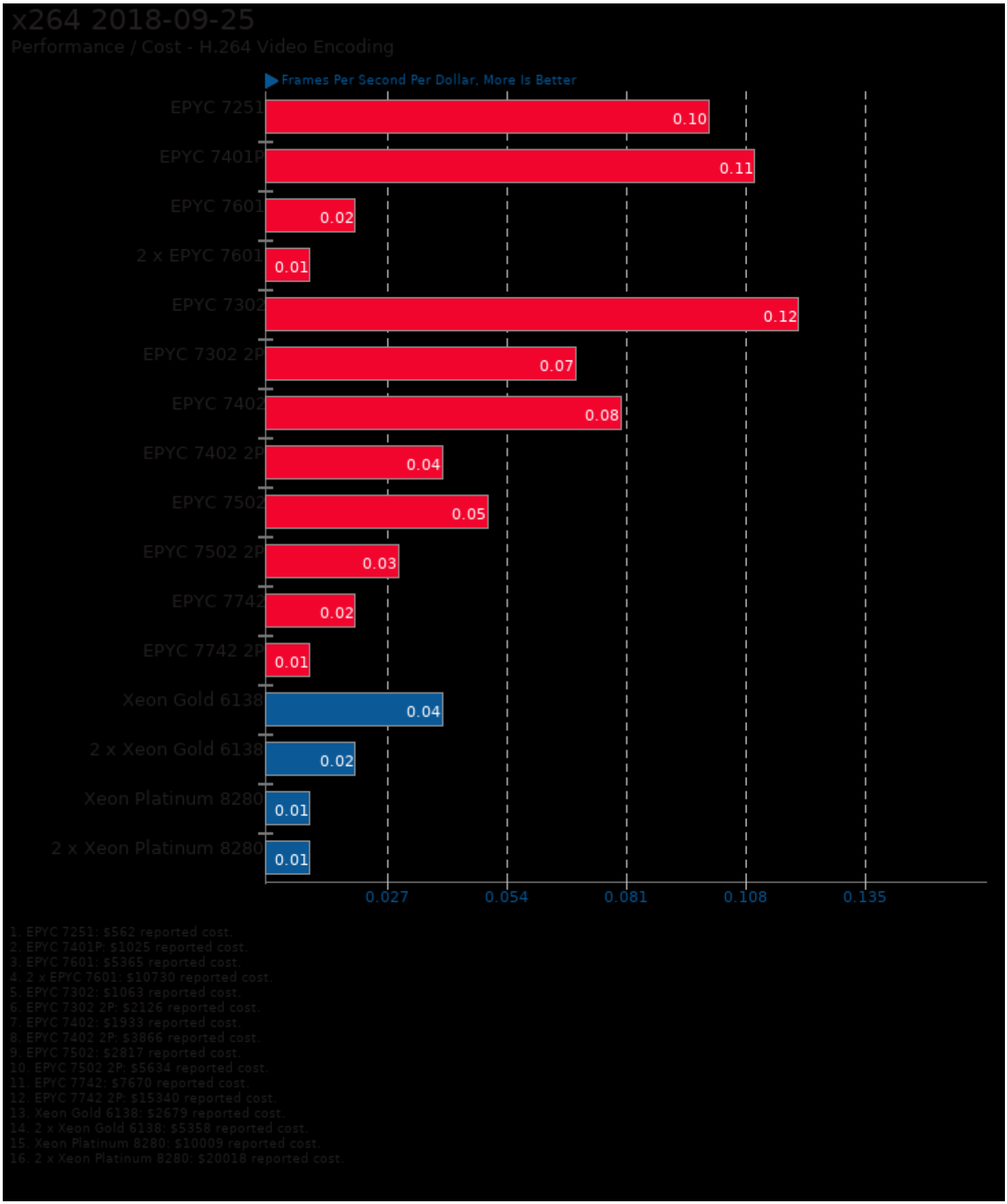

MKL-DNN 2019-04-16
Performance / Cost - Harness: Convolution Batch conv_all - Data Type: f32
ms x Dollar, Fewer Is Better
EPYC 7251
4367594.24
EPYC 7401P
3173031.00
EPYC 7601
12219860.50
2 x EPYC 7601
12932547.10
EPYC 7302
1918672.48
EPYC 7302 2P
2070575.18
EPYC 7402
2483344.43
EPYC 7402 2P
2657488.40
EPYC 7502
3061797.30
EPYC 7502 2P
3282706.44
EPYC 7742
5276346.40
EPYC 7742 2P
6324401.96
Xeon Gold 6138
3547772.91
2 x Xeon Gold 6138
3613649.52
Xeon Platinum 8280
7671097.78
2 x Xeon Platinum 8280
7674300.66
3M
6M
9M
12M
15M
1. EPYC 7251: $562 reported cost.
2. EPYC 7401P: $1025 reported cost.
3. EPYC 7601: $5365 reported cost.
4. 2 x EPYC 7601: $10730 reported cost.
5. EPYC 7302: $1063 reported cost.
6. EPYC 7302 2P: $2126 reported cost.
7. EPYC 7402: $1933 reported cost.
8. EPYC 7402 2P: $3866 reported cost.
9. EPYC 7502: $2817 reported cost.
10. EPYC 7502 2P: $5634 reported cost.
11. EPYC 7742: $7670 reported cost.
12. EPYC 7742 2P: $15340 reported cost.
13. Xeon Gold 6138: $2679 reported cost.
14. 2 x Xeon Gold 6138: $5358 reported cost.
15. Xeon Platinum 8280: $10009 reported cost.
16. 2 x Xeon Platinum 8280: $20018 reported cost.

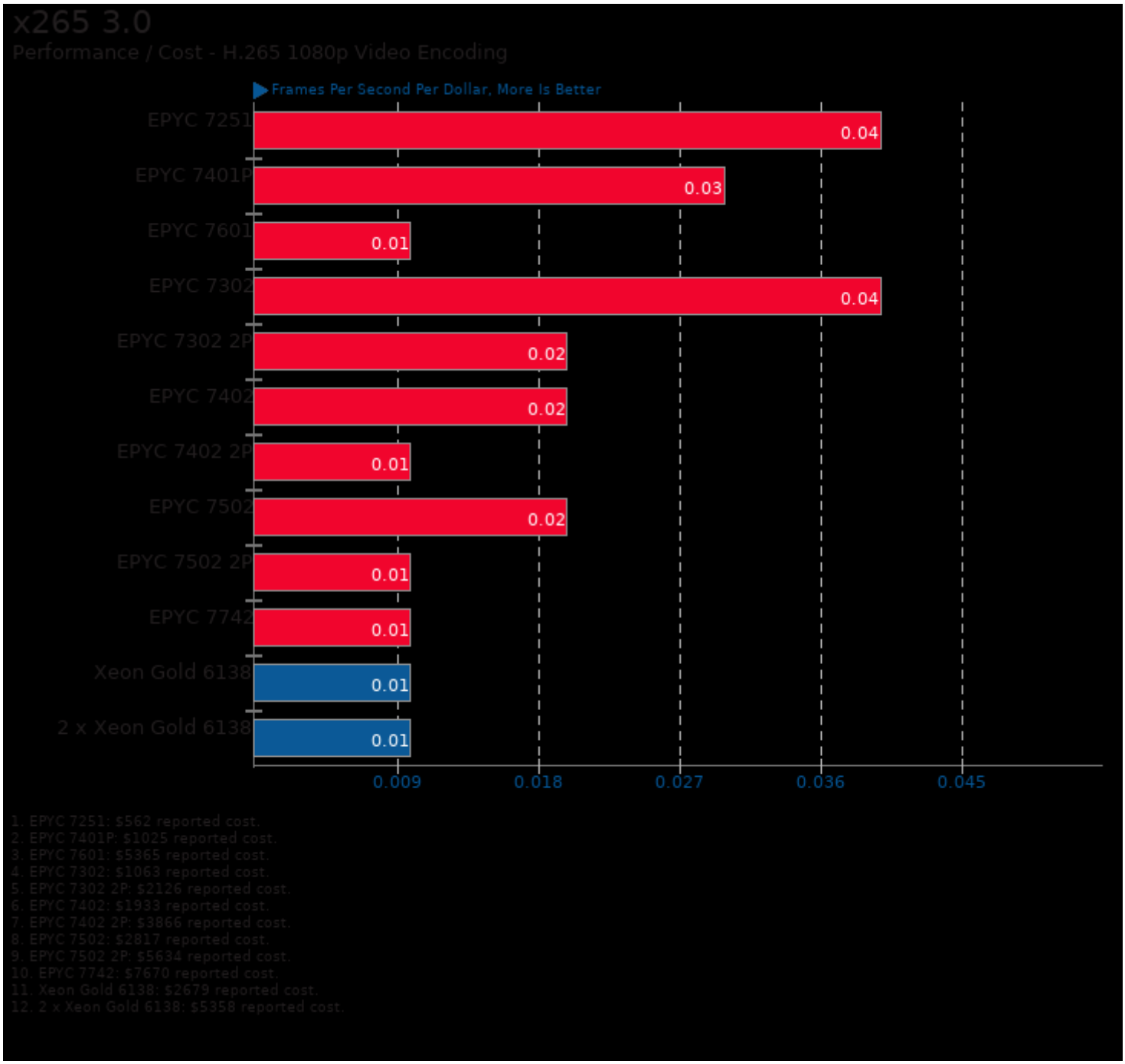

MKL-DNN 2019-04-16
Performance / Cost - Harness: Convolution Batch conv_alexnet - Data Type: f32
ms x Dollar, Fewer Is Better
EPYC 7251
563230.78
EPYC 7401P
414684.25
EPYC 7601
1611914.25
2 x EPYC 7601
1685683.00
EPYC 7302
258340.89
EPYC 7302 2P
278324.90
EPYC 7402
335240.19
EPYC 7402 2P
377746.86
EPYC 7502
399337.92
EPYC 7502 2P
433310.94
EPYC 7742
682246.50
EPYC 7742 2P
777580.34
Xeon Gold 6138
444580.05
2 x Xeon Gold 6138
457144.56
Xeon Platinum 8280
944148.97
2 x Xeon Platinum 8280
972074.08
400K
800K
1200K
1600K
2000K
1. EPYC 7251: $562 reported cost.
2. EPYC 7401P: $1025 reported cost.
3. EPYC 7601: $5365 reported cost.
4. 2 x EPYC 7601: $10730 reported cost.
5. EPYC 7302: $1063 reported cost.
6. EPYC 7302 2P: $2126 reported cost.
7. EPYC 7402: $1933 reported cost.
8. EPYC 7402 2P: $3866 reported cost.
9. EPYC 7502: $2817 reported cost.
10. EPYC 7502 2P: $5634 reported cost.
11. EPYC 7742: $7670 reported cost.
12. EPYC 7742 2P: $15340 reported cost.
13. Xeon Gold 6138: $2679 reported cost.
14. 2 x Xeon Gold 6138: $5358 reported cost.
15. Xeon Platinum 8280: $10009 reported cost.
16. 2 x Xeon Platinum 8280: $20018 reported cost.

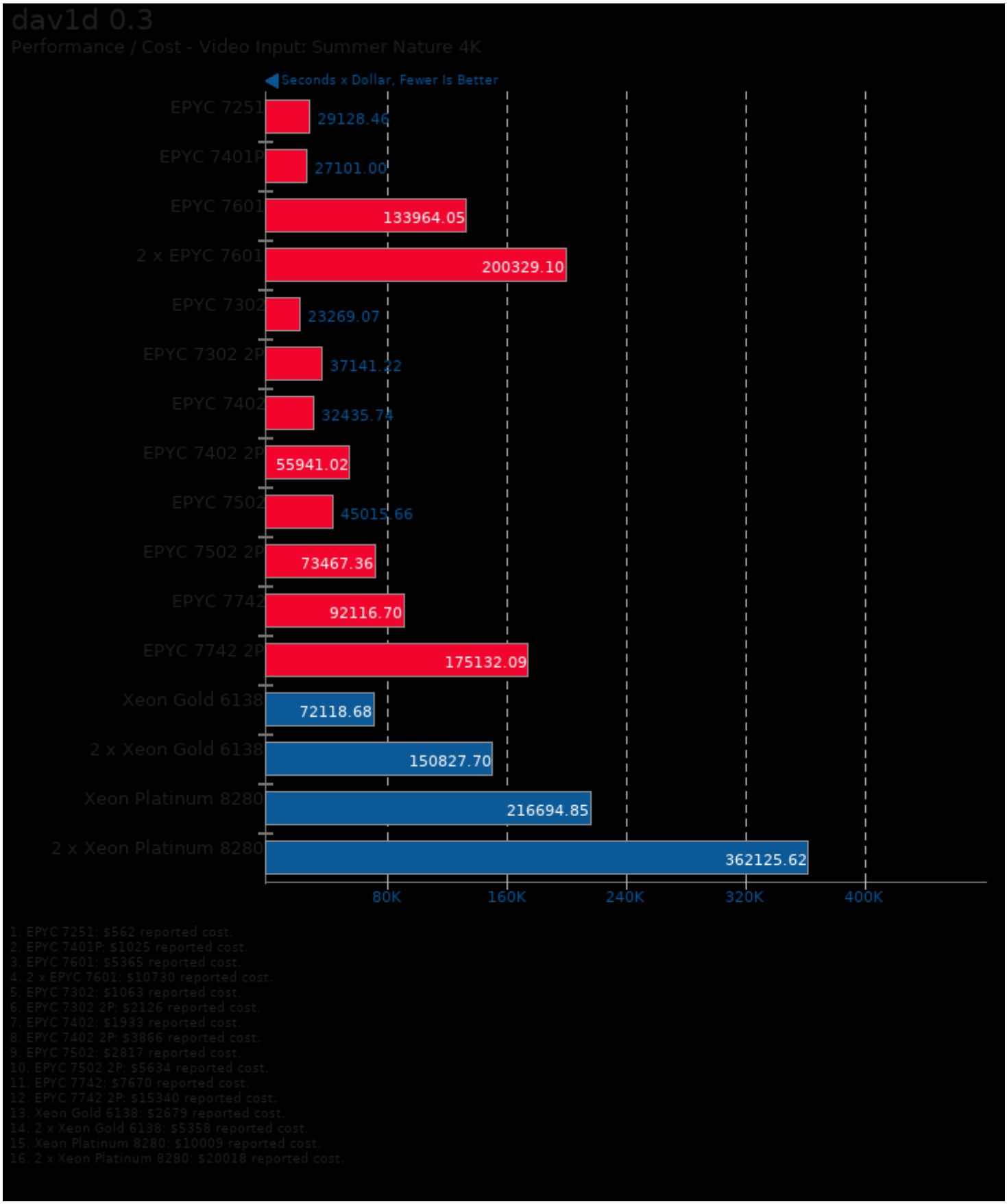

MKL-DNN 2019-04-16
Performance / Cost - Harness: Convolution Batch conv_googlenet_v3 - Data Type: f32
ms x Dollar, Fewer Is Better
EPYC 7251
241064.28
EPYC 7401P
179672.25
EPYC 7601
702439.45
2 x EPYC 7601
752173.00
EPYC 7302
107958.28
EPYC 7302 2P
127900.16
EPYC 7402
137127.02
EPYC 7402 2P
158544.66
EPYC 7502
167724.18
EPYC 7502 2P
193302.54
EPYC 7742
291306.60
EPYC 7742 2P
364538.75
Xeon Gold 6138
196022.43
2 x Xeon Gold 6138
197656.62
Xeon Platinum 8280
417775.66
2 x Xeon Platinum 8280
423981.24
160K
320K
480K
640K
800K
1. EPYC 7251: $562 reported cost.
2. EPYC 7401P: $1025 reported cost.
3. EPYC 7601: $5365 reported cost.
4. 2 x EPYC 7601: $10730 reported cost.
5. EPYC 7302: $1063 reported cost.
6. EPYC 7302 2P: $2126 reported cost.
7. EPYC 7402: $1933 reported cost.
8. EPYC 7402 2P: $3866 reported cost.
9. EPYC 7502: $2817 reported cost.
10. EPYC 7502 2P: $5634 reported cost.
11. EPYC 7742: $7670 reported cost.
12. EPYC 7742 2P: $15340 reported cost.
13. Xeon Gold 6138: $2679 reported cost.
14. 2 x Xeon Gold 6138: $5358 reported cost.
15. Xeon Platinum 8280: $10009 reported cost.
16. 2 x Xeon Platinum 8280: $20018 reported cost.

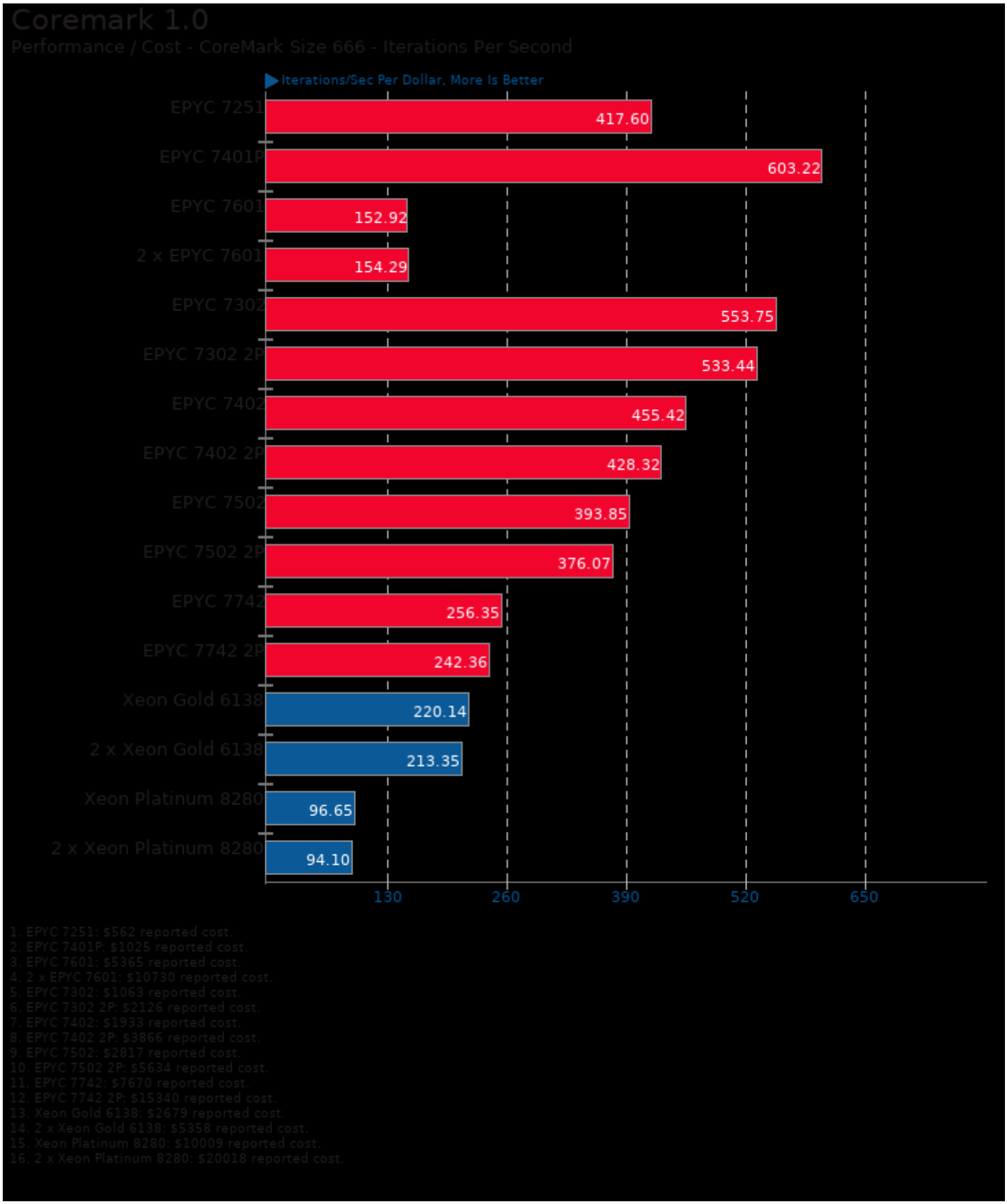

SVT-HEVC 2019-02-03
Performance / Cost - 1080p 8-bit YUV To HEVC Video Encode
Frames Per Second Per Dollar, More Is Better
EPYC 7251
0.16
EPYC 7401P
0.17
EPYC 7601
0.03
2 x EPYC 7601
0.02
EPYC 7302
0.24
EPYC 7302 2P
0.15
EPYC 7402
0.18
EPYC 7402 2P
0.09
EPYC 7502
0.13
EPYC 7502 2P
0.06
EPYC 7742
0.05
EPYC 7742 2P
0.02
Xeon Gold 6138
0.09
2 x Xeon Gold 6138
0.04
Xeon Platinum 8280
0.03
2 x Xeon Platinum 8280
0.01
0.054
0.108
0.162
0.216
0.27
1. EPYC 7251: $562 reported cost.
2. EPYC 7401P: $1025 reported cost.
3. EPYC 7601: $5365 reported cost.
4. 2 x EPYC 7601: $10730 reported cost.
5. EPYC 7302: $1063 reported cost.
6. EPYC 7302 2P: $2126 reported cost.
7. EPYC 7402: $1933 reported cost.
8. EPYC 7402 2P: $3866 reported cost.
9. EPYC 7502: $2817 reported cost.
10. EPYC 7502 2P: $5634 reported cost.
11. EPYC 7742: $7670 reported cost.
12. EPYC 7742 2P: $15340 reported cost.
13. Xeon Gold 6138: $2679 reported cost.
14. 2 x Xeon Gold 6138: $5358 reported cost.
15. Xeon Platinum 8280: $10009 reported cost.
16. 2 x Xeon Platinum 8280: $20018 reported cost.

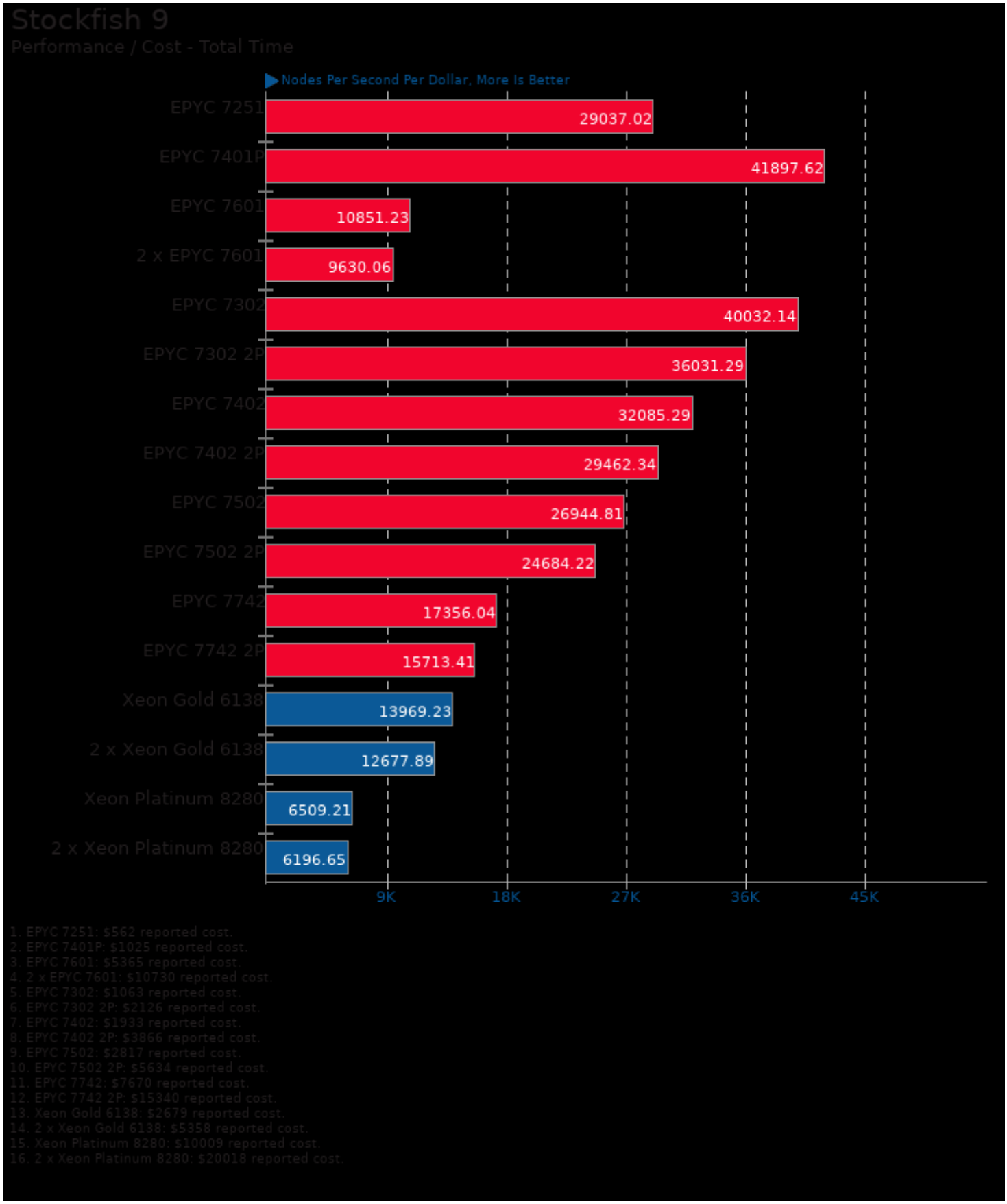

SVT-VP9 2019-09-09
Performance / Cost - 1080p 8-bit YUV To VP9 Video Encode
Frames Per Second Per Dollar, More Is Better
EPYC 7251
0.12
EPYC 7401P
0.16
EPYC 7601
0.03
2 x EPYC 7601
0.01
EPYC 7302
0.26
EPYC 7302 2P
0.15
EPYC 7402
0.19
EPYC 7402 2P
0.09
EPYC 7502
0.13
EPYC 7502 2P
0.06
EPYC 7742
0.05
EPYC 7742 2P
0.02
Xeon Gold 6138
0.10
2 x Xeon Gold 6138
0.05
Xeon Platinum 8280
0.04
2 x Xeon Platinum 8280
0.01
0.0585
0.117
0.1755
0.234
0.2925
1. EPYC 7251: $562 reported cost.
2. EPYC 7401P: $1025 reported cost.
3. EPYC 7601: $5365 reported cost.
4. 2 x EPYC 7601: $10730 reported cost.
5. EPYC 7302: $1063 reported cost.
6. EPYC 7302 2P: $2126 reported cost.
7. EPYC 7402: $1933 reported cost.
8. EPYC 7402 2P: $3866 reported cost.
9. EPYC 7502: $2817 reported cost.
10. EPYC 7502 2P: $5634 reported cost.
11. EPYC 7742: $7670 reported cost.
12. EPYC 7742 2P: $15340 reported cost.
13. Xeon Gold 6138: $2679 reported cost.
14. 2 x Xeon Gold 6138: $5358 reported cost.
15. Xeon Platinum 8280: $10009 reported cost.
16. 2 x Xeon Platinum 8280: $20018 reported cost.

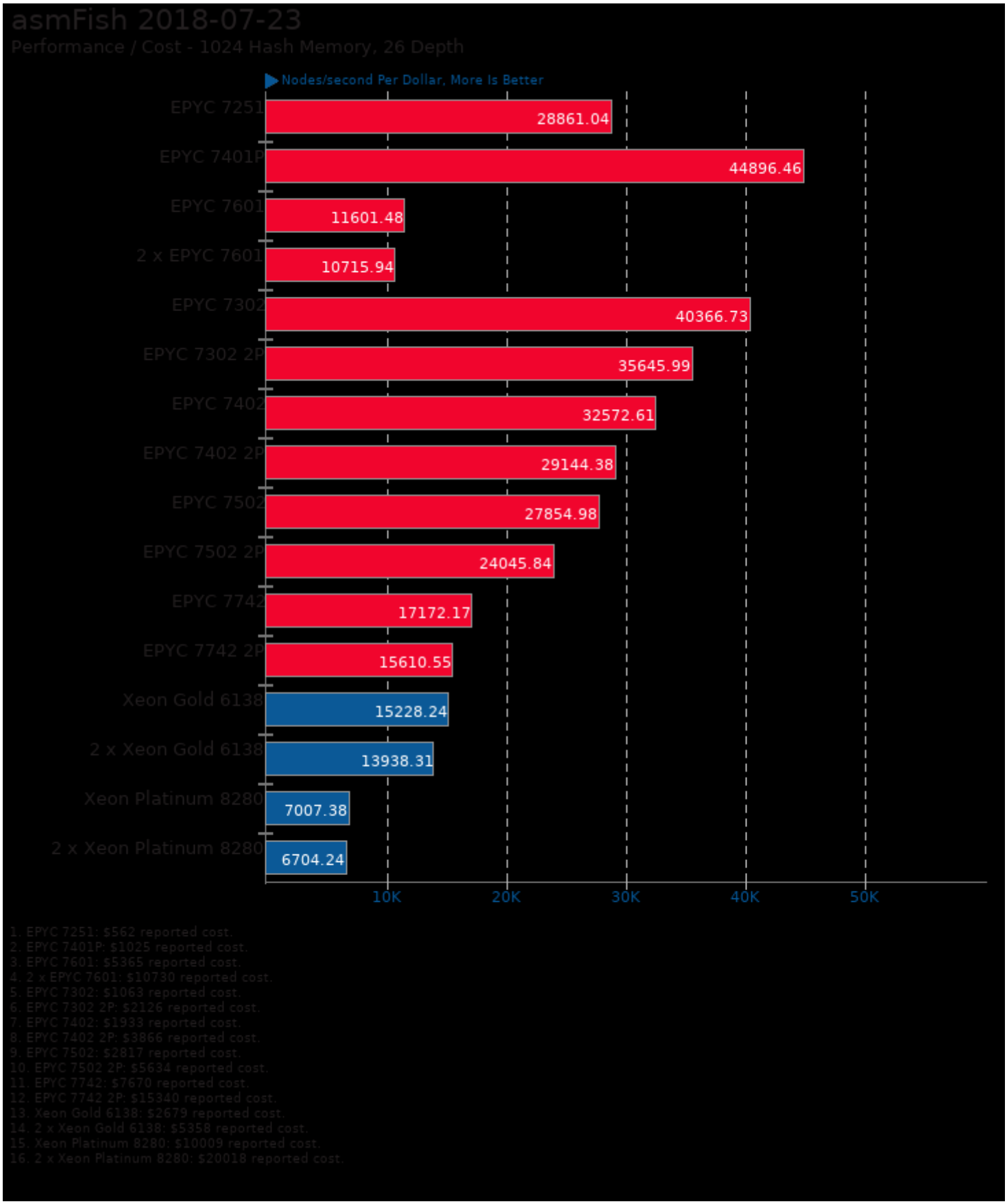

x264 2018-09-25
Performance / Cost - H.264 Video Encoding
Frames Per Second Per Dollar, More Is Better
EPYC 7251
0.10
EPYC 7401P
0.11
EPYC 7601
0.02
2 x EPYC 7601
0.01
EPYC 7302
0.12
EPYC 7302 2P
0.07
EPYC 7402
0.08
EPYC 7402 2P
0.04
EPYC 7502
0.05
EPYC 7502 2P
0.03
EPYC 7742
0.02
EPYC 7742 2P
0.01
Xeon Gold 6138
0.04
2 x Xeon Gold 6138
0.02
Xeon Platinum 8280
0.01
2 x Xeon Platinum 8280
0.01
0.027
0.054
0.081
0.108
0.135
1. EPYC 7251: $562 reported cost.
2. EPYC 7401P: $1025 reported cost.
3. EPYC 7601: $5365 reported cost.
4. 2 x EPYC 7601: $10730 reported cost.
5. EPYC 7302: $1063 reported cost.
6. EPYC 7302 2P: $2126 reported cost.
7. EPYC 7402: $1933 reported cost.
8. EPYC 7402 2P: $3866 reported cost.
9. EPYC 7502: $2817 reported cost.
10. EPYC 7502 2P: $5634 reported cost.
11. EPYC 7742: $7670 reported cost.
12. EPYC 7742 2P: $15340 reported cost.
13. Xeon Gold 6138: $2679 reported cost.
14. 2 x Xeon Gold 6138: $5358 reported cost.
15. Xeon Platinum 8280: $10009 reported cost.
16. 2 x Xeon Platinum 8280: $20018 reported cost.

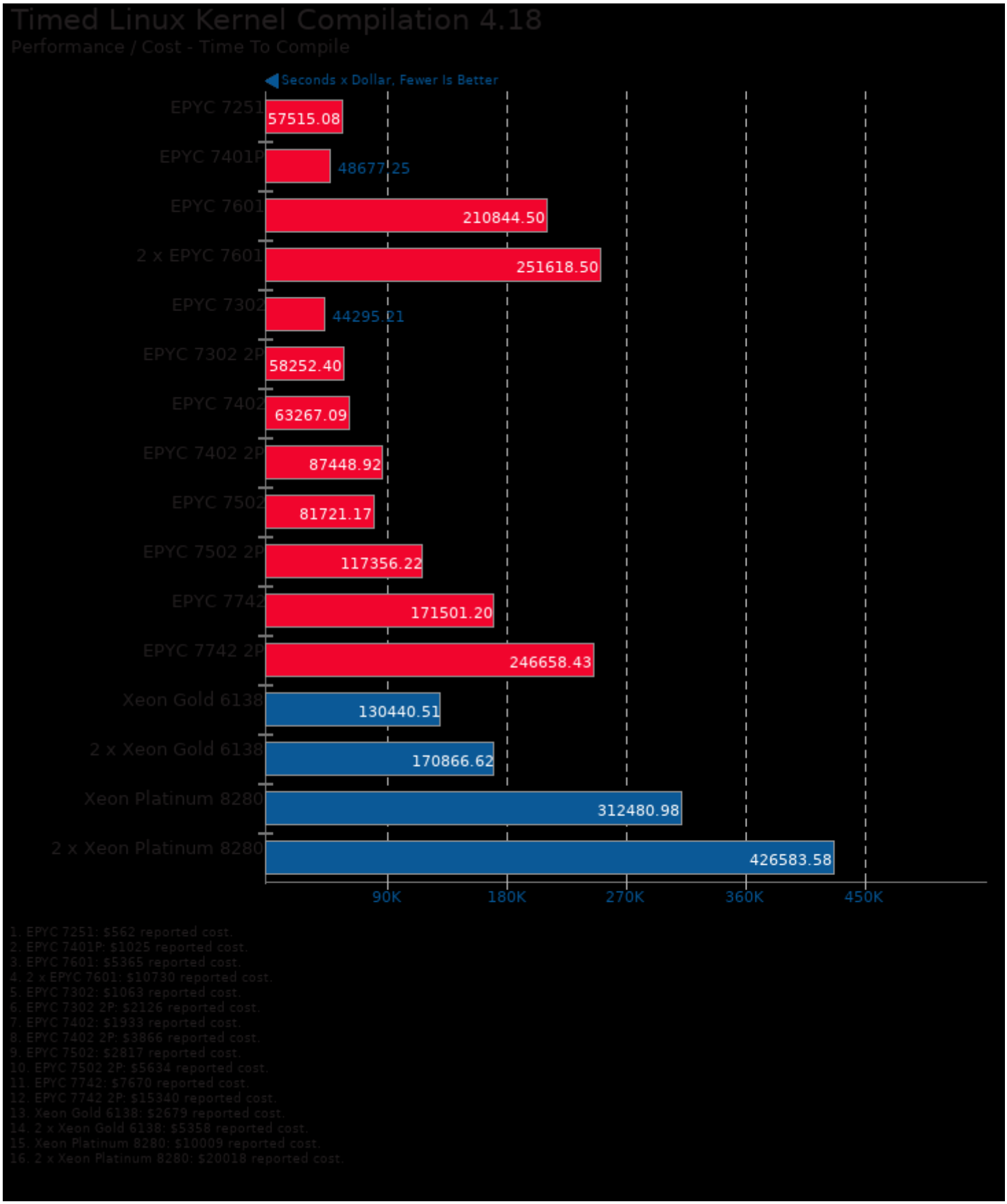

x265 3.0
Performance / Cost - H.265 1080p Video Encoding
Frames Per Second Per Dollar, More Is Better
EPYC 7251
0.04
EPYC 7401P
0.03
EPYC 7601
0.01
EPYC 7302
0.04
EPYC 7302 2P
0.02
EPYC 7402
0.02
EPYC 7402 2P
0.01
EPYC 7502
0.02
EPYC 7502 2P
0.01
EPYC 7742
0.01
Xeon Gold 6138
0.01
2 x Xeon Gold 6138
0.01
0.009
0.018
0.027
0.036
0.045
1. EPYC 7251: $562 reported cost.
2. EPYC 7401P: $1025 reported cost.
3. EPYC 7601: $5365 reported cost.
4. EPYC 7302: $1063 reported cost.
5. EPYC 7302 2P: $2126 reported cost.
6. EPYC 7402: $1933 reported cost.
7. EPYC 7402 2P: $3866 reported cost.
8. EPYC 7502: $2817 reported cost.
9. EPYC 7502 2P: $5634 reported cost.
10. EPYC 7742: $7670 reported cost.
11. Xeon Gold 6138: $2679 reported cost.
12. 2 x Xeon Gold 6138: $5358 reported cost.

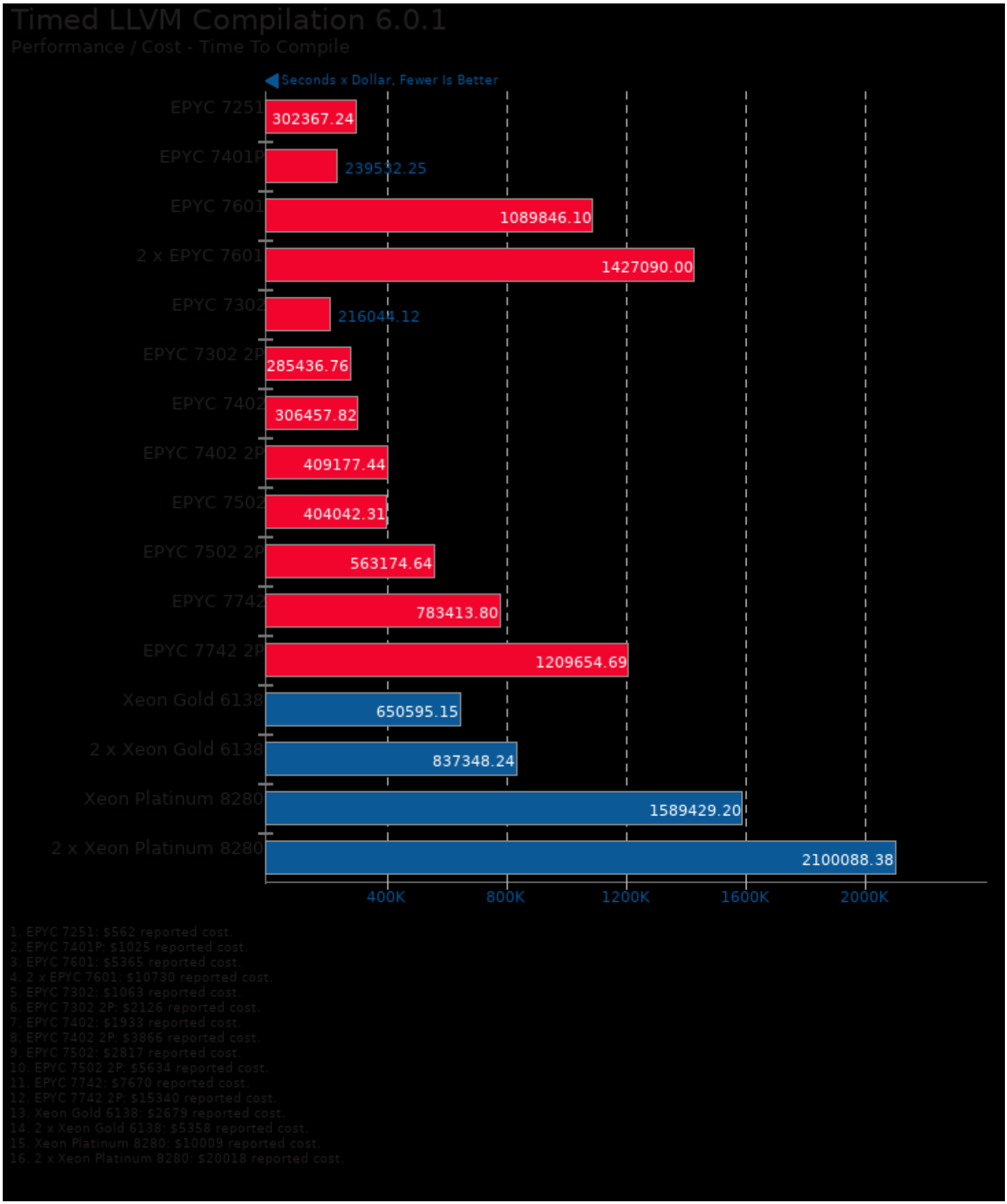

dav1d 0.3
Performance / Cost - Video Input: Summer Nature 4K
Seconds x Dollar, Fewer Is Better
EPYC 7251
29128.46
EPYC 7401P
27101.00
EPYC 7601
133964.05
2 x EPYC 7601
200329.10
EPYC 7302
23269.07
EPYC 7302 2P
37141.22
EPYC 7402
32435.74
EPYC 7402 2P
55941.02
EPYC 7502
45015.66
EPYC 7502 2P
73467.36
EPYC 7742
92116.70
EPYC 7742 2P
175132.09
Xeon Gold 6138
72118.68
2 x Xeon Gold 6138
150827.70
Xeon Platinum 8280
216694.85
2 x Xeon Platinum 8280
362125.62
80K
160K
240K
320K
400K
1. EPYC 7251: $562 reported cost.
2. EPYC 7401P: $1025 reported cost.
3. EPYC 7601: $5365 reported cost.
4. 2 x EPYC 7601: $10730 reported cost.
5. EPYC 7302: $1063 reported cost.
6. EPYC 7302 2P: $2126 reported cost.
7. EPYC 7402: $1933 reported cost.
8. EPYC 7402 2P: $3866 reported cost.
9. EPYC 7502: $2817 reported cost.
10. EPYC 7502 2P: $5634 reported cost.
11. EPYC 7742: $7670 reported cost.
12. EPYC 7742 2P: $15340 reported cost.
13. Xeon Gold 6138: $2679 reported cost.
14. 2 x Xeon Gold 6138: $5358 reported cost.
15. Xeon Platinum 8280: $10009 reported cost.
16. 2 x Xeon Platinum 8280: $20018 reported cost.

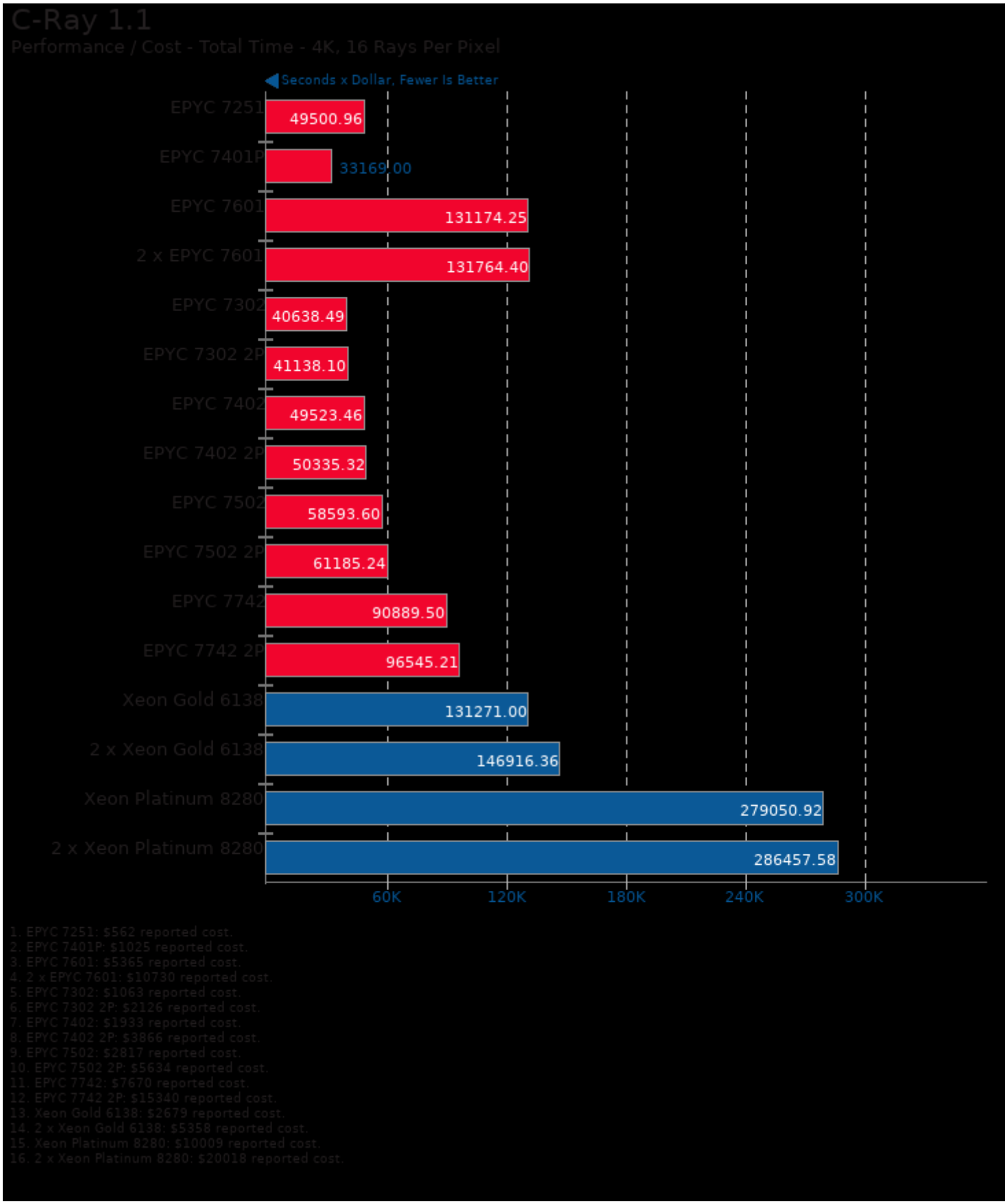

Coremark 1.0
Performance / Cost - CoreMark Size 666 - Iterations Per Second
Iterations/Sec Per Dollar, More Is Better
EPYC 7251
417.60
EPYC 7401P
603.22
EPYC 7601
152.92
2 x EPYC 7601
154.29
EPYC 7302
553.75
EPYC 7302 2P
533.44
EPYC 7402
455.42
EPYC 7402 2P
428.32
EPYC 7502
393.85
EPYC 7502 2P
376.07
EPYC 7742
256.35
EPYC 7742 2P
242.36
Xeon Gold 6138
220.14
2 x Xeon Gold 6138
213.35
Xeon Platinum 8280
96.65
2 x Xeon Platinum 8280
94.10
130
260
390
520
650
1. EPYC 7251: $562 reported cost.
2. EPYC 7401P: $1025 reported cost.
3. EPYC 7601: $5365 reported cost.
4. 2 x EPYC 7601: $10730 reported cost.
5. EPYC 7302: $1063 reported cost.
6. EPYC 7302 2P: $2126 reported cost.
7. EPYC 7402: $1933 reported cost.
8. EPYC 7402 2P: $3866 reported cost.
9. EPYC 7502: $2817 reported cost.
10. EPYC 7502 2P: $5634 reported cost.
11. EPYC 7742: $7670 reported cost.
12. EPYC 7742 2P: $15340 reported cost.
13. Xeon Gold 6138: $2679 reported cost.
14. 2 x Xeon Gold 6138: $5358 reported cost.
15. Xeon Platinum 8280: $10009 reported cost.
16. 2 x Xeon Platinum 8280: $20018 reported cost.

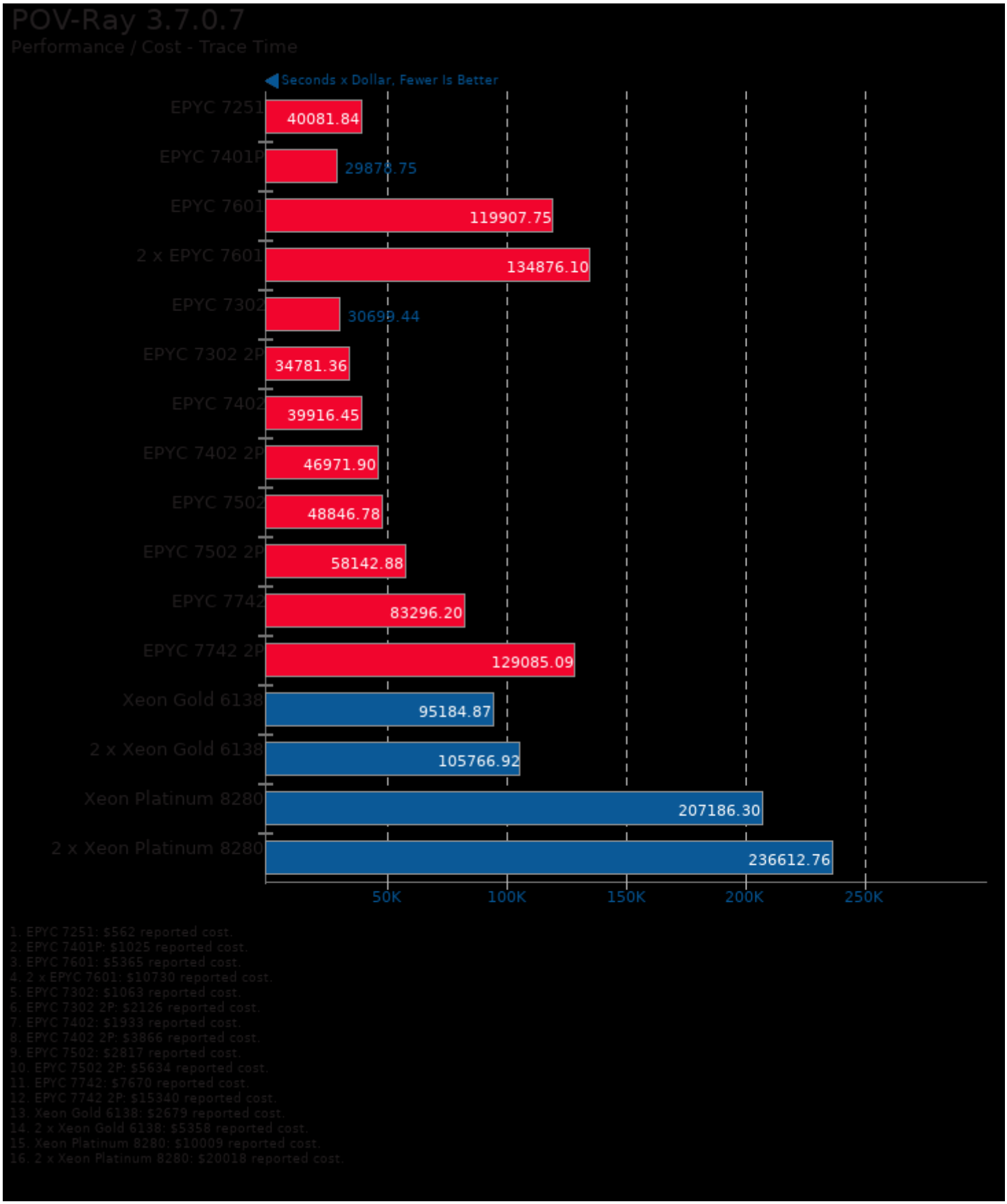

Stockfish 9
Performance / Cost - Total Time
Nodes Per Second Per Dollar, More Is Better
EPYC 7251
29037.02
EPYC 7401P
41897.62
EPYC 7601
10851.23
2 x EPYC 7601
9630.06
EPYC 7302
40032.14
EPYC 7302 2P
36031.29
EPYC 7402
32085.29
EPYC 7402 2P
29462.34
EPYC 7502
26944.81
EPYC 7502 2P
24684.22
EPYC 7742
17356.04
EPYC 7742 2P
15713.41
Xeon Gold 6138
13969.23
2 x Xeon Gold 6138
12677.89
Xeon Platinum 8280
6509.21
2 x Xeon Platinum 8280
6196.65
9K
18K
27K
36K
45K
1. EPYC 7251: $562 reported cost.
2. EPYC 7401P: $1025 reported cost.
3. EPYC 7601: $5365 reported cost.
4. 2 x EPYC 7601: $10730 reported cost.
5. EPYC 7302: $1063 reported cost.
6. EPYC 7302 2P: $2126 reported cost.
7. EPYC 7402: $1933 reported cost.
8. EPYC 7402 2P: $3866 reported cost.
9. EPYC 7502: $2817 reported cost.
10. EPYC 7502 2P: $5634 reported cost.
11. EPYC 7742: $7670 reported cost.
12. EPYC 7742 2P: $15340 reported cost.
13. Xeon Gold 6138: $2679 reported cost.
14. 2 x Xeon Gold 6138: $5358 reported cost.
15. Xeon Platinum 8280: $10009 reported cost.
16. 2 x Xeon Platinum 8280: $20018 reported cost.

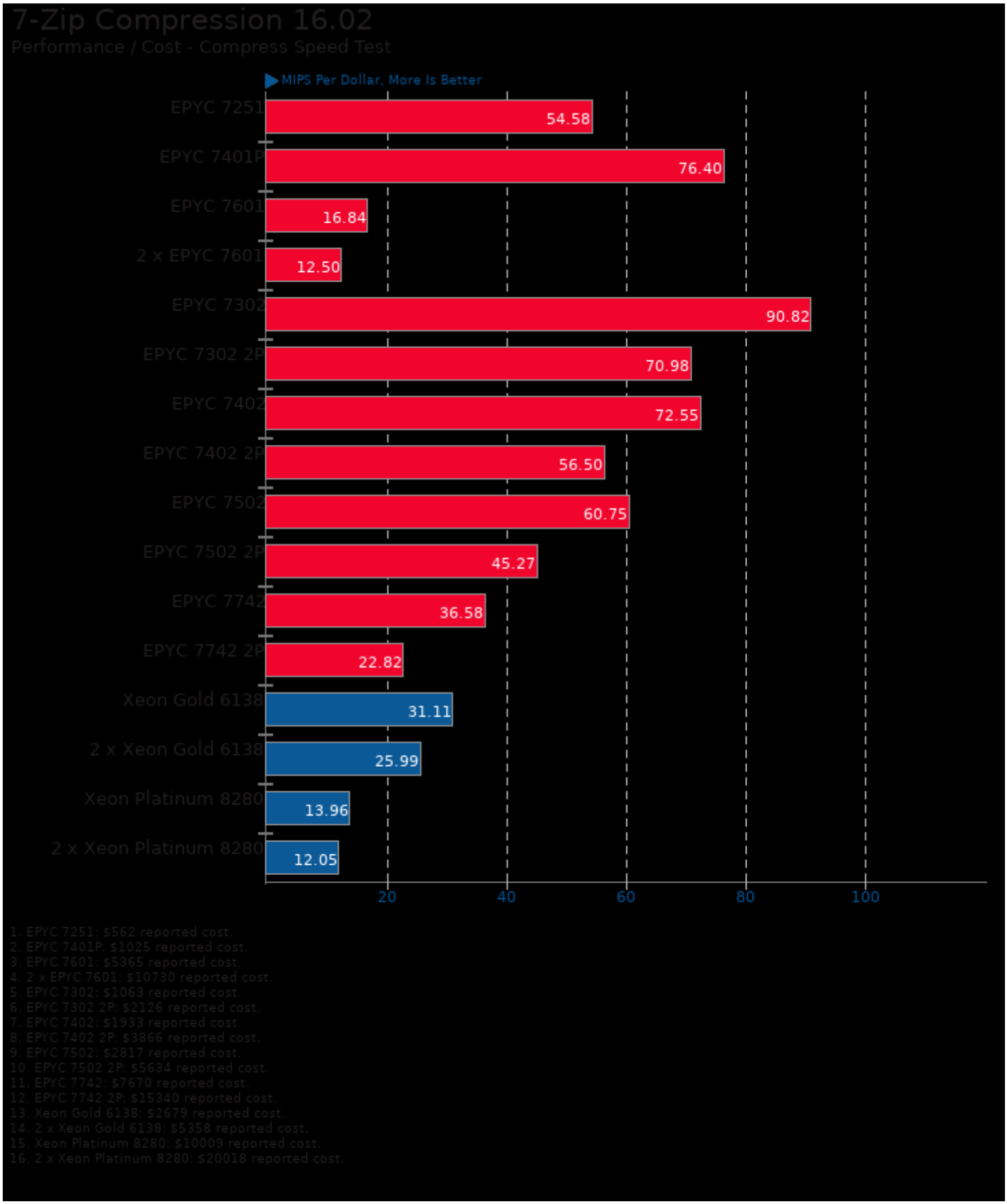

asmFish 2018-07-23
Performance / Cost - 1024 Hash Memory, 26 Depth
Nodes/second Per Dollar, More Is Better
EPYC 7251
28861.04
EPYC 7401P
44896.46
EPYC 7601
11601.48
2 x EPYC 7601
10715.94
EPYC 7302
40366.73
EPYC 7302 2P
35645.99
EPYC 7402
32572.61
EPYC 7402 2P
29144.38
EPYC 7502
27854.98
EPYC 7502 2P
24045.84
EPYC 7742
17172.17
EPYC 7742 2P
15610.55
Xeon Gold 6138
15228.24
2 x Xeon Gold 6138
13938.31
Xeon Platinum 8280
7007.38
2 x Xeon Platinum 8280
6704.24
10K
20K
30K
40K
50K
1. EPYC 7251: $562 reported cost.
2. EPYC 7401P: $1025 reported cost.
3. EPYC 7601: $5365 reported cost.
4. 2 x EPYC 7601: $10730 reported cost.
5. EPYC 7302: $1063 reported cost.
6. EPYC 7302 2P: $2126 reported cost.
7. EPYC 7402: $1933 reported cost.
8. EPYC 7402 2P: $3866 reported cost.
9. EPYC 7502: $2817 reported cost.
10. EPYC 7502 2P: $5634 reported cost.
11. EPYC 7742: $7670 reported cost.
12. EPYC 7742 2P: $15340 reported cost.
13. Xeon Gold 6138: $2679 reported cost.
14. 2 x Xeon Gold 6138: $5358 reported cost.
15. Xeon Platinum 8280: $10009 reported cost.
16. 2 x Xeon Platinum 8280: $20018 reported cost.

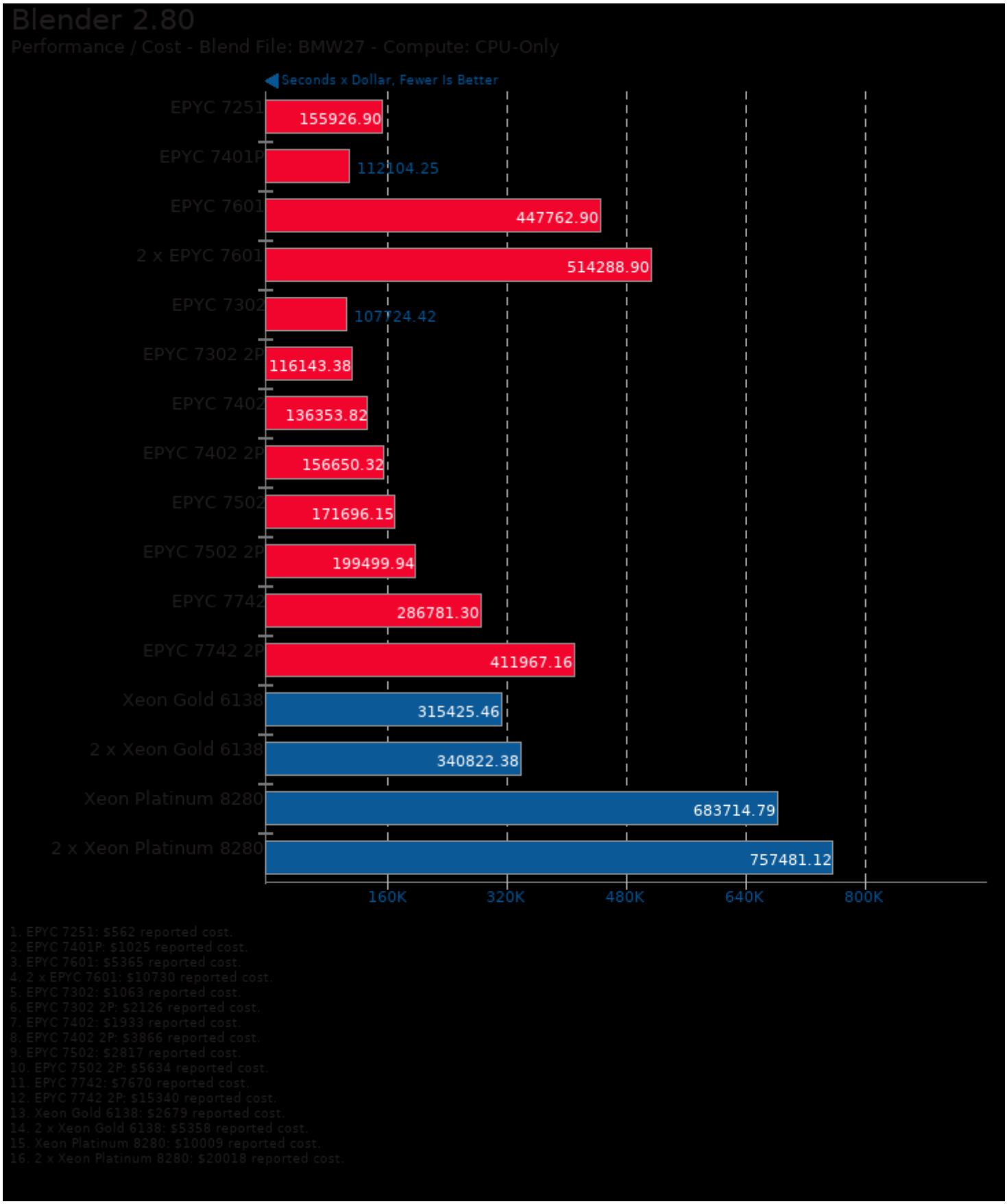

Timed Linux Kernel Compilation 4.18
Performance / Cost - Time To Compile
Seconds x Dollar, Fewer Is Better
EPYC 7251
57515.08
EPYC 7401P
48677.25
EPYC 7601
210844.50
2 x EPYC 7601
251618.50
EPYC 7302
44295.21
EPYC 7302 2P
58252.40
EPYC 7402
63267.09
EPYC 7402 2P
87448.92
EPYC 7502
81721.17
EPYC 7502 2P
117356.22
EPYC 7742
171501.20
EPYC 7742 2P
246658.43
Xeon Gold 6138
130440.51
2 x Xeon Gold 6138
170866.62
Xeon Platinum 8280
312480.98
2 x Xeon Platinum 8280
426583.58
90K
180K
270K
360K
450K
1. EPYC 7251: $562 reported cost.
2. EPYC 7401P: $1025 reported cost.
3. EPYC 7601: $5365 reported cost.
4. 2 x EPYC 7601: $10730 reported cost.
5. EPYC 7302: $1063 reported cost.
6. EPYC 7302 2P: $2126 reported cost.
7. EPYC 7402: $1933 reported cost.
8. EPYC 7402 2P: $3866 reported cost.
9. EPYC 7502: $2817 reported cost.
10. EPYC 7502 2P: $5634 reported cost.
11. EPYC 7742: $7670 reported cost.
12. EPYC 7742 2P: $15340 reported cost.
13. Xeon Gold 6138: $2679 reported cost.
14. 2 x Xeon Gold 6138: $5358 reported cost.
15. Xeon Platinum 8280: $10009 reported cost.
16. 2 x Xeon Platinum 8280: $20018 reported cost.

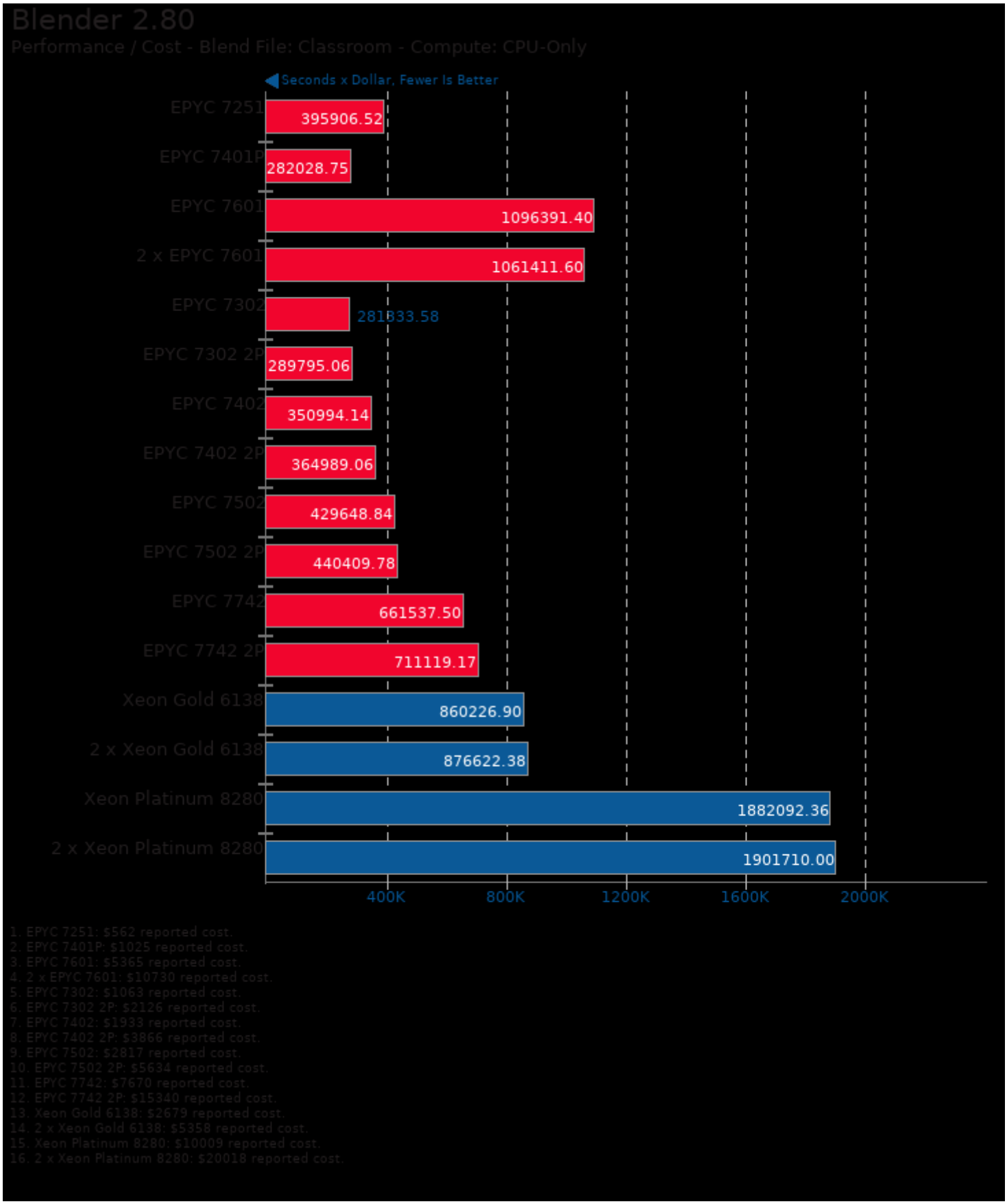

Timed LLVM Compilation 6.0.1
Performance / Cost - Time To Compile
Seconds x Dollar, Fewer Is Better
EPYC 7251
302367.24
EPYC 7401P
239532.25
EPYC 7601
1089846.10
2 x EPYC 7601
1427090.00
EPYC 7302
216044.12
EPYC 7302 2P
285436.76
EPYC 7402
306457.82
EPYC 7402 2P
409177.44
EPYC 7502
404042.31
EPYC 7502 2P
563174.64
EPYC 7742
783413.80
EPYC 7742 2P
1209654.69
Xeon Gold 6138
650595.15
2 x Xeon Gold 6138
837348.24
Xeon Platinum 8280
1589429.20
2 x Xeon Platinum 8280
2100088.38
400K
800K
1200K
1600K
2000K
1. EPYC 7251: $562 reported cost.
2. EPYC 7401P: $1025 reported cost.
3. EPYC 7601: $5365 reported cost.
4. 2 x EPYC 7601: $10730 reported cost.
5. EPYC 7302: $1063 reported cost.
6. EPYC 7302 2P: $2126 reported cost.
7. EPYC 7402: $1933 reported cost.
8. EPYC 7402 2P: $3866 reported cost.
9. EPYC 7502: $2817 reported cost.
10. EPYC 7502 2P: $5634 reported cost.
11. EPYC 7742: $7670 reported cost.
12. EPYC 7742 2P: $15340 reported cost.
13. Xeon Gold 6138: $2679 reported cost.
14. 2 x Xeon Gold 6138: $5358 reported cost.
15. Xeon Platinum 8280: $10009 reported cost.
16. 2 x Xeon Platinum 8280: $20018 reported cost.

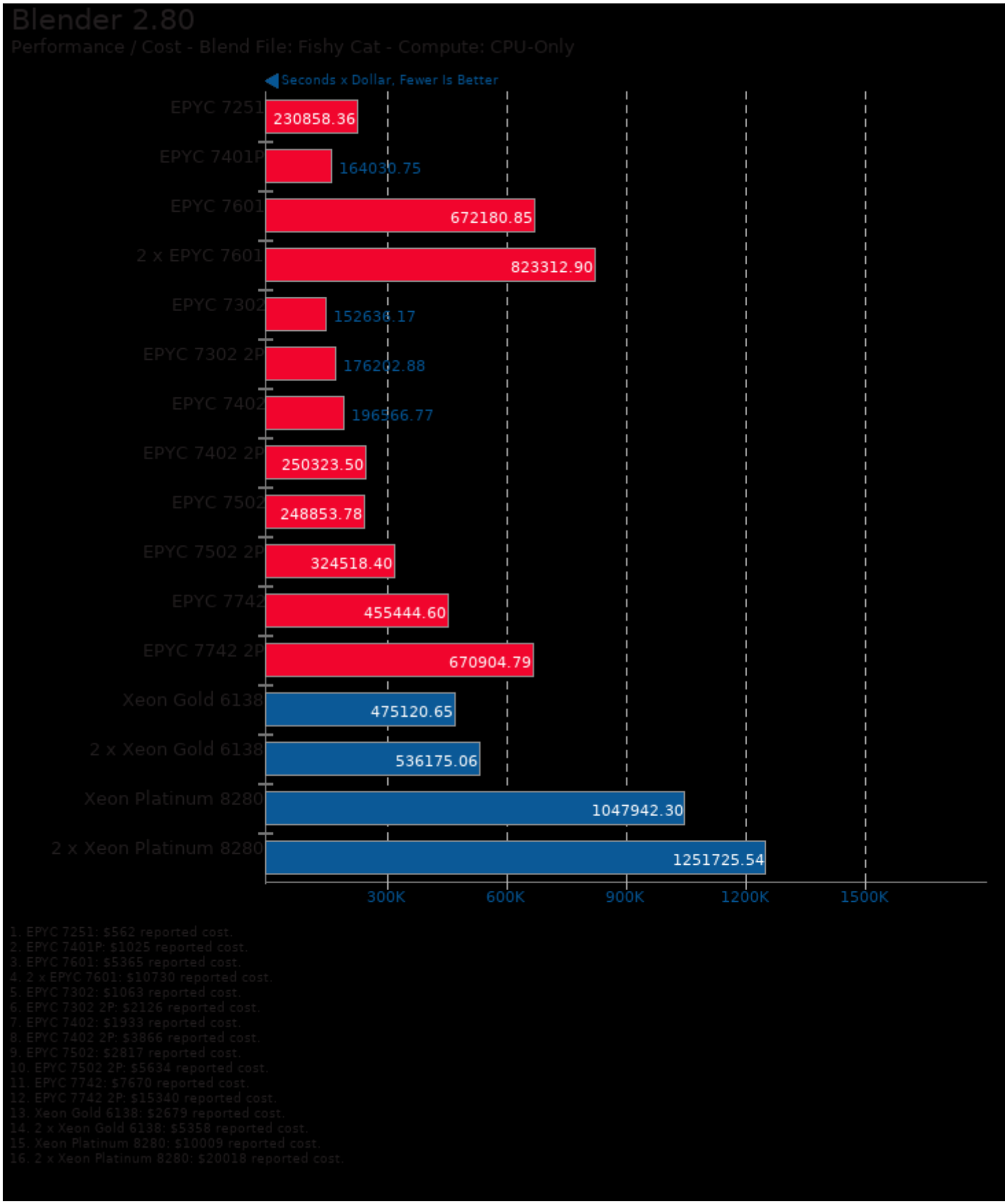

C-Ray 1.1
Performance / Cost - Total Time - 4K, 16 Rays Per Pixel
Seconds x Dollar, Fewer Is Better
EPYC 7251
49500.96
EPYC 7401P
33169.00
EPYC 7601
131174.25
2 x EPYC 7601
131764.40
EPYC 7302
40638.49
EPYC 7302 2P
41138.10
EPYC 7402
49523.46
EPYC 7402 2P
50335.32
EPYC 7502
58593.60
EPYC 7502 2P
61185.24
EPYC 7742
90889.50
EPYC 7742 2P
96545.21
Xeon Gold 6138
131271.00
2 x Xeon Gold 6138
146916.36
Xeon Platinum 8280
279050.92
2 x Xeon Platinum 8280
286457.58
60K
120K
180K
240K
300K
1. EPYC 7251: $562 reported cost.
2. EPYC 7401P: $1025 reported cost.
3. EPYC 7601: $5365 reported cost.
4. 2 x EPYC 7601: $10730 reported cost.
5. EPYC 7302: $1063 reported cost.
6. EPYC 7302 2P: $2126 reported cost.
7. EPYC 7402: $1933 reported cost.
8. EPYC 7402 2P: $3866 reported cost.
9. EPYC 7502: $2817 reported cost.
10. EPYC 7502 2P: $5634 reported cost.
11. EPYC 7742: $7670 reported cost.
12. EPYC 7742 2P: $15340 reported cost.
13. Xeon Gold 6138: $2679 reported cost.
14. 2 x Xeon Gold 6138: $5358 reported cost.
15. Xeon Platinum 8280: $10009 reported cost.
16. 2 x Xeon Platinum 8280: $20018 reported cost.

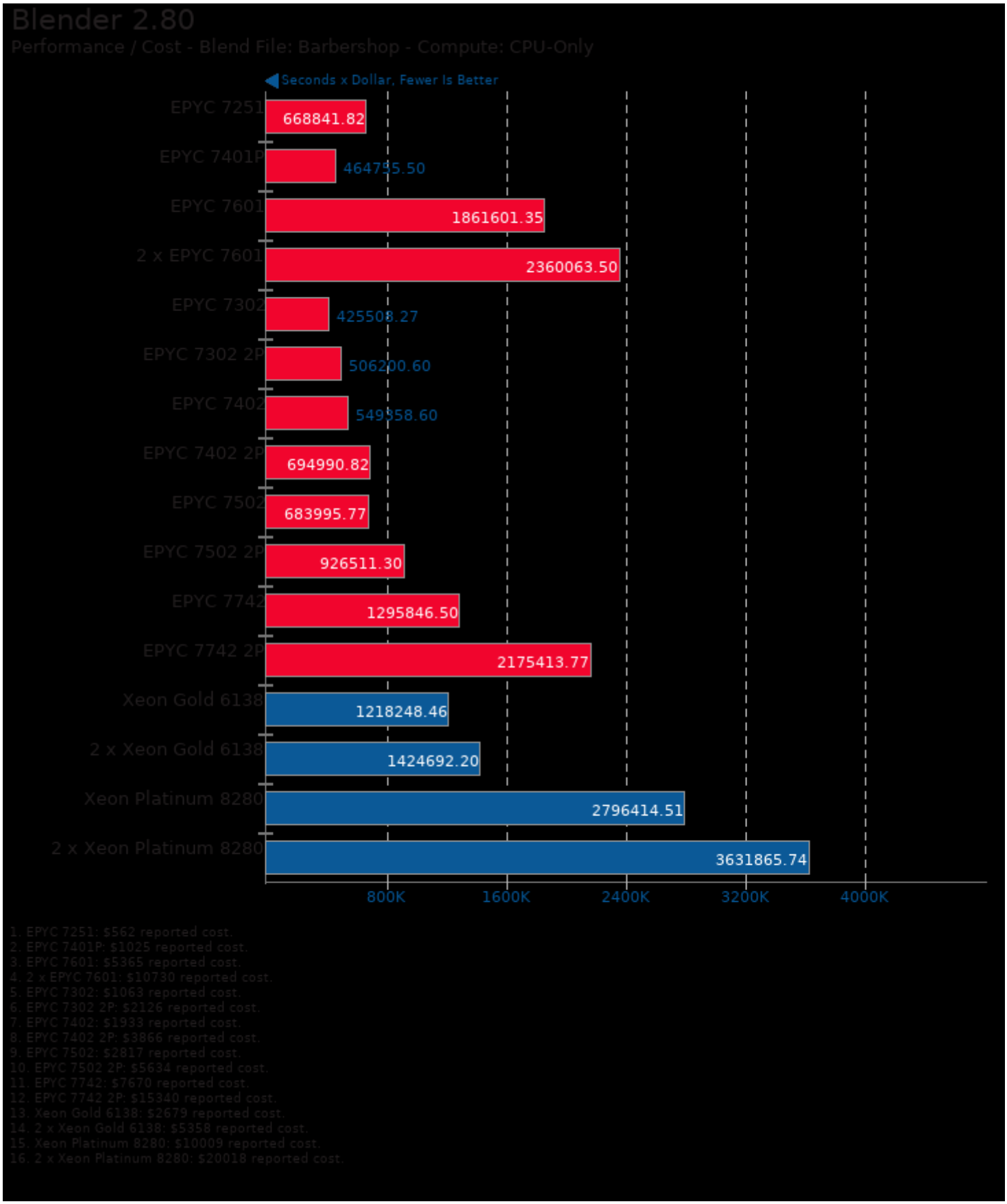

POV-Ray 3.7.0.7
Performance / Cost - Trace Time
Seconds x Dollar, Fewer Is Better
EPYC 7251
40081.84
EPYC 7401P
29878.75
EPYC 7601
119907.75
2 x EPYC 7601
134876.10
EPYC 7302
30699.44
EPYC 7302 2P
34781.36
EPYC 7402
39916.45
EPYC 7402 2P
46971.90
EPYC 7502
48846.78
EPYC 7502 2P
58142.88
EPYC 7742
83296.20
EPYC 7742 2P
129085.09
Xeon Gold 6138
95184.87
2 x Xeon Gold 6138
105766.92
Xeon Platinum 8280
207186.30
2 x Xeon Platinum 8280
236612.76
50K
100K
150K
200K
250K
1. EPYC 7251: $562 reported cost.
2. EPYC 7401P: $1025 reported cost.
3. EPYC 7601: $5365 reported cost.
4. 2 x EPYC 7601: $10730 reported cost.
5. EPYC 7302: $1063 reported cost.
6. EPYC 7302 2P: $2126 reported cost.
7. EPYC 7402: $1933 reported cost.
8. EPYC 7402 2P: $3866 reported cost.
9. EPYC 7502: $2817 reported cost.
10. EPYC 7502 2P: $5634 reported cost.
11. EPYC 7742: $7670 reported cost.
12. EPYC 7742 2P: $15340 reported cost.
13. Xeon Gold 6138: $2679 reported cost.
14. 2 x Xeon Gold 6138: $5358 reported cost.
15. Xeon Platinum 8280: $10009 reported cost.
16. 2 x Xeon Platinum 8280: $20018 reported cost.

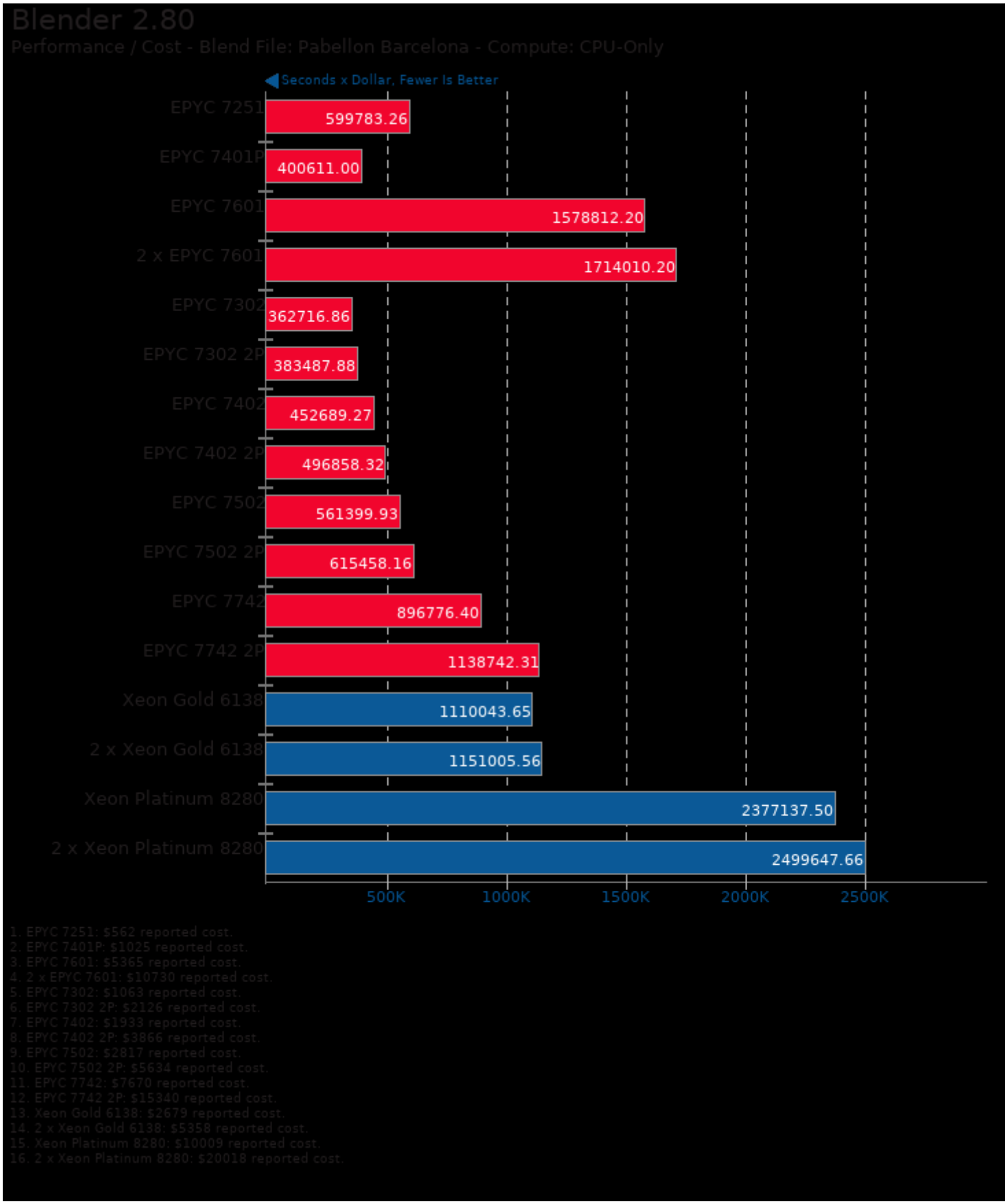

7-Zip Compression 16.02
Performance / Cost - Compress Speed Test
MIPS Per Dollar, More Is Better
EPYC 7251
54.58
EPYC 7401P
76.40
EPYC 7601
16.84
2 x EPYC 7601
12.50
EPYC 7302
90.82
EPYC 7302 2P
70.98
EPYC 7402
72.55
EPYC 7402 2P
56.50
EPYC 7502
60.75
EPYC 7502 2P
45.27
EPYC 7742
36.58
EPYC 7742 2P
22.82
Xeon Gold 6138
31.11
2 x Xeon Gold 6138
25.99
Xeon Platinum 8280
13.96
2 x Xeon Platinum 8280
12.05
20
40
60
80
100
1. EPYC 7251: $562 reported cost.
2. EPYC 7401P: $1025 reported cost.
3. EPYC 7601: $5365 reported cost.
4. 2 x EPYC 7601: $10730 reported cost.
5. EPYC 7302: $1063 reported cost.
6. EPYC 7302 2P: $2126 reported cost.
7. EPYC 7402: $1933 reported cost.
8. EPYC 7402 2P: $3866 reported cost.
9. EPYC 7502: $2817 reported cost.
10. EPYC 7502 2P: $5634 reported cost.
11. EPYC 7742: $7670 reported cost.
12. EPYC 7742 2P: $15340 reported cost.
13. Xeon Gold 6138: $2679 reported cost.
14. 2 x Xeon Gold 6138: $5358 reported cost.
15. Xeon Platinum 8280: $10009 reported cost.
16. 2 x Xeon Platinum 8280: $20018 reported cost.

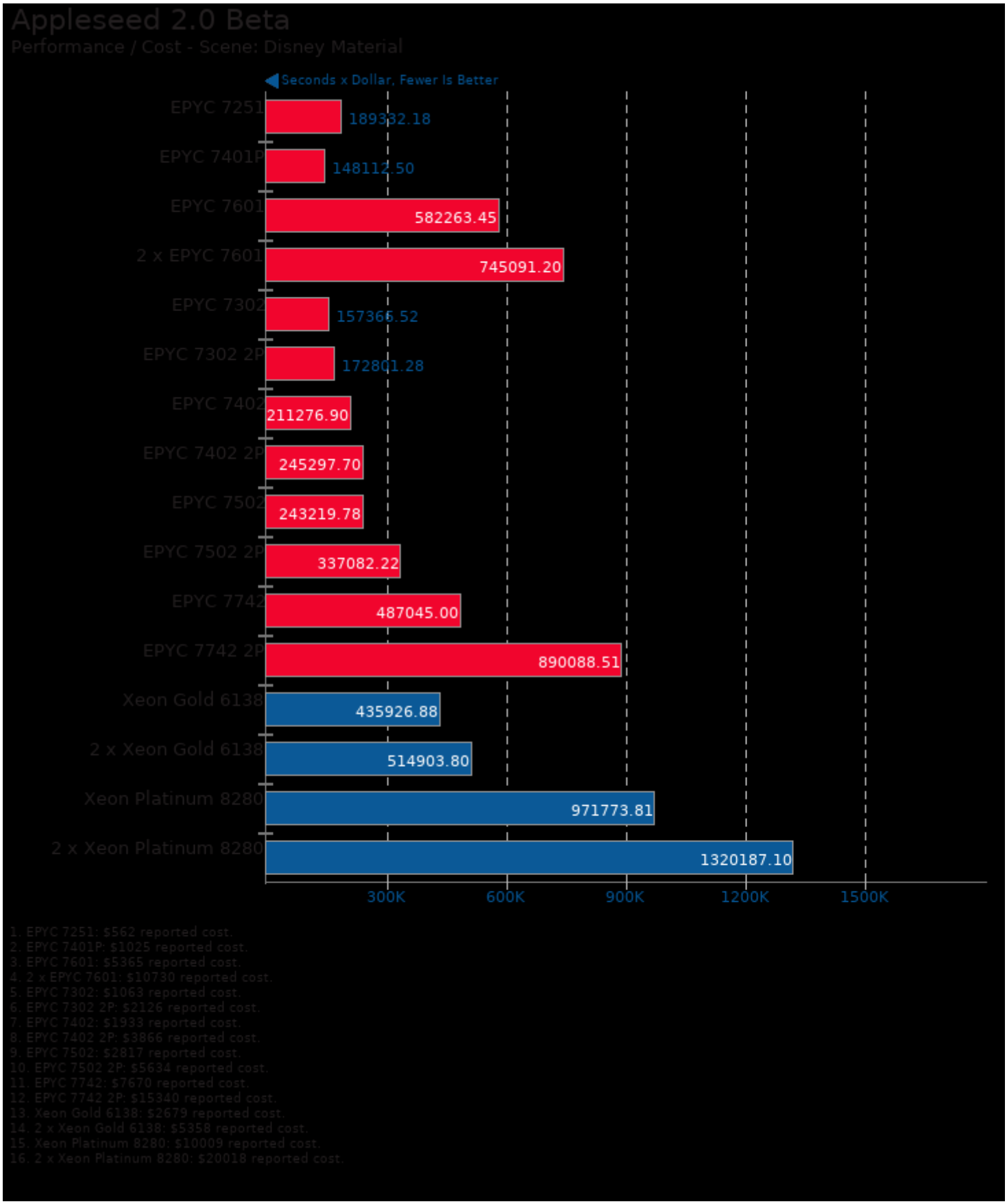

Blender 2.80
Performance / Cost - Blend File: BMW27 - Compute: CPU-Only
Seconds x Dollar, Fewer Is Better
EPYC 7251
155926.90
EPYC 7401P
112104.25
EPYC 7601
447762.90
2 x EPYC 7601
514288.90
EPYC 7302
107724.42
EPYC 7302 2P
116143.38
EPYC 7402
136353.82
EPYC 7402 2P
156650.32
EPYC 7502
171696.15
EPYC 7502 2P
199499.94
EPYC 7742
286781.30
EPYC 7742 2P
411967.16
Xeon Gold 6138
315425.46
2 x Xeon Gold 6138
340822.38
Xeon Platinum 8280
683714.79
2 x Xeon Platinum 8280
757481.12
160K
320K
480K
640K
800K
1. EPYC 7251: $562 reported cost.
2. EPYC 7401P: $1025 reported cost.
3. EPYC 7601: $5365 reported cost.
4. 2 x EPYC 7601: $10730 reported cost.
5. EPYC 7302: $1063 reported cost.
6. EPYC 7302 2P: $2126 reported cost.
7. EPYC 7402: $1933 reported cost.
8. EPYC 7402 2P: $3866 reported cost.
9. EPYC 7502: $2817 reported cost.
10. EPYC 7502 2P: $5634 reported cost.
11. EPYC 7742: $7670 reported cost.
12. EPYC 7742 2P: $15340 reported cost.
13. Xeon Gold 6138: $2679 reported cost.
14. 2 x Xeon Gold 6138: $5358 reported cost.
15. Xeon Platinum 8280: $10009 reported cost.
16. 2 x Xeon Platinum 8280: $20018 reported cost.

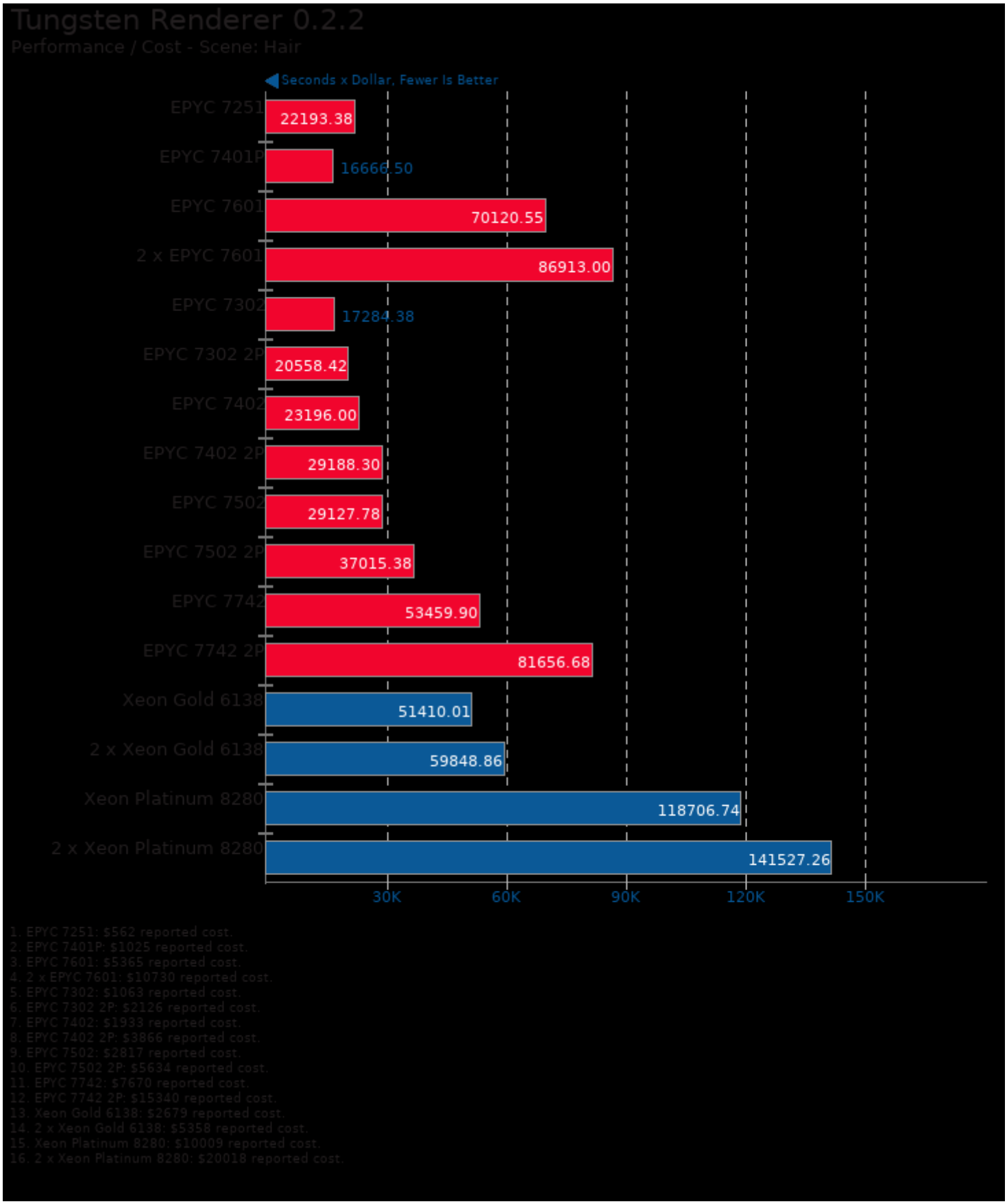

Blender 2.80
Performance / Cost - Blend File: Classroom - Compute: CPU-Only
Seconds x Dollar, Fewer Is Better
EPYC 7251
395906.52
EPYC 7401P
282028.75
EPYC 7601
1096391.40
2 x EPYC 7601
1061411.60
EPYC 7302
281833.58
EPYC 7302 2P
289795.06
EPYC 7402
350994.14
EPYC 7402 2P
364989.06
EPYC 7502
429648.84
EPYC 7502 2P
440409.78
EPYC 7742
661537.50
EPYC 7742 2P
711119.17
Xeon Gold 6138
860226.90
2 x Xeon Gold 6138
876622.38
Xeon Platinum 8280
1882092.36
2 x Xeon Platinum 8280
1901710.00
400K
800K
1200K
1600K
2000K
1. EPYC 7251: $562 reported cost.
2. EPYC 7401P: $1025 reported cost.
3. EPYC 7601: $5365 reported cost.
4. 2 x EPYC 7601: $10730 reported cost.
5. EPYC 7302: $1063 reported cost.
6. EPYC 7302 2P: $2126 reported cost.
7. EPYC 7402: $1933 reported cost.
8. EPYC 7402 2P: $3866 reported cost.
9. EPYC 7502: $2817 reported cost.
10. EPYC 7502 2P: $5634 reported cost.
11. EPYC 7742: $7670 reported cost.
12. EPYC 7742 2P: $15340 reported cost.
13. Xeon Gold 6138: $2679 reported cost.
14. 2 x Xeon Gold 6138: $5358 reported cost.
15. Xeon Platinum 8280: $10009 reported cost.
16. 2 x Xeon Platinum 8280: $20018 reported cost.

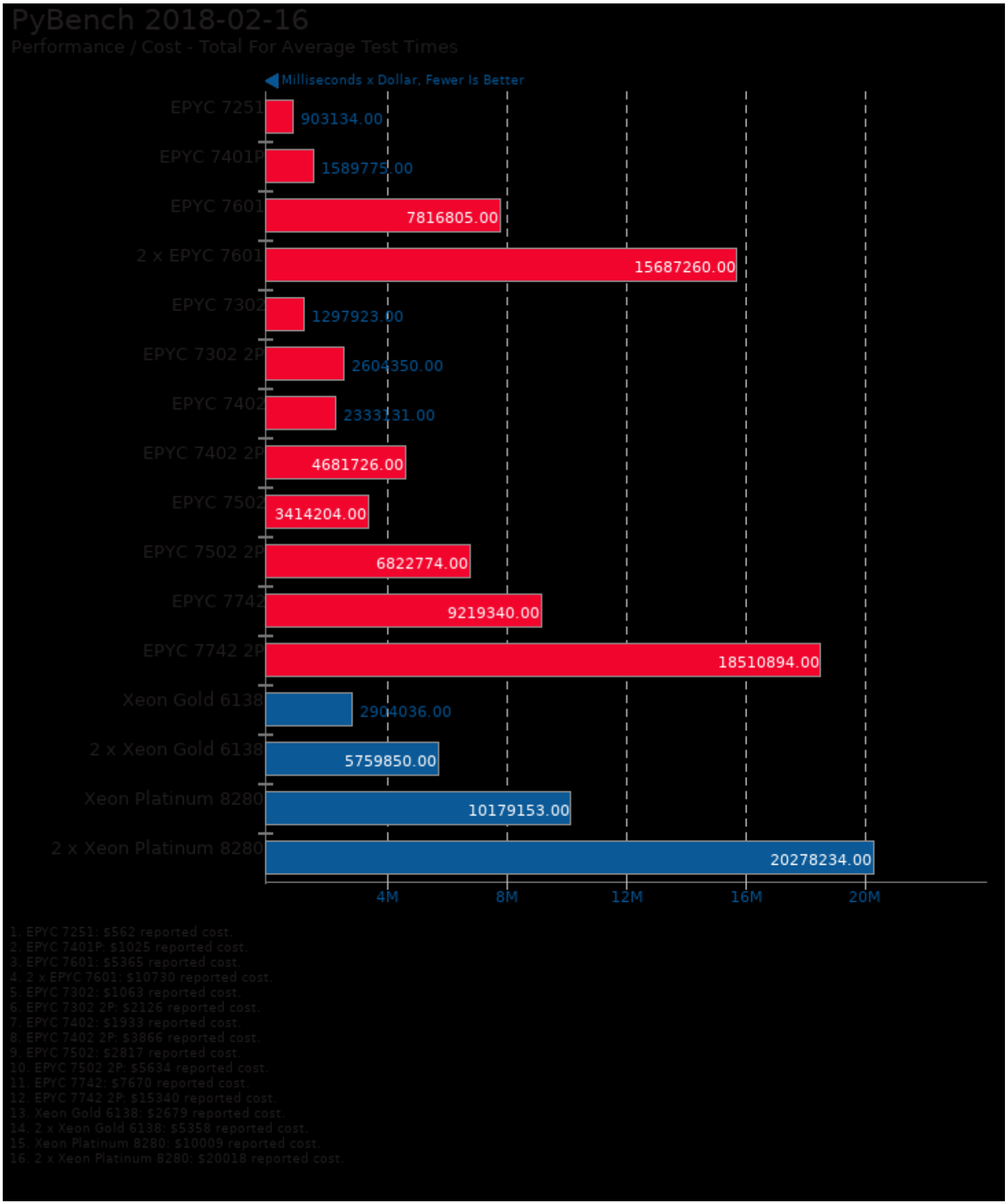

Blender 2.80
Performance / Cost - Blend File: Fishy Cat - Compute: CPU-Only
Seconds x Dollar, Fewer Is Better
EPYC 7251
230858.36
EPYC 7401P
164030.75
EPYC 7601
672180.85
2 x EPYC 7601
823312.90
EPYC 7302
152638.17
EPYC 7302 2P
176202.88
EPYC 7402
196566.77
EPYC 7402 2P
250323.50
EPYC 7502
248853.78
EPYC 7502 2P
324518.40
EPYC 7742
455444.60
EPYC 7742 2P
670904.79
Xeon Gold 6138
475120.65
2 x Xeon Gold 6138
536175.06
Xeon Platinum 8280
1047942.30
2 x Xeon Platinum 8280
1251725.54
300K
600K
900K
1200K
1500K
1. EPYC 7251: $562 reported cost.
2. EPYC 7401P: $1025 reported cost.
3. EPYC 7601: $5365 reported cost.
4. 2 x EPYC 7601: $10730 reported cost.
5. EPYC 7302: $1063 reported cost.
6. EPYC 7302 2P: $2126 reported cost.
7. EPYC 7402: $1933 reported cost.
8. EPYC 7402 2P: $3866 reported cost.
9. EPYC 7502: $2817 reported cost.
10. EPYC 7502 2P: $5634 reported cost.
11. EPYC 7742: $7670 reported cost.
12. EPYC 7742 2P: $15340 reported cost.
13. Xeon Gold 6138: $2679 reported cost.
14. 2 x Xeon Gold 6138: $5358 reported cost.
15. Xeon Platinum 8280: $10009 reported cost.
16. 2 x Xeon Platinum 8280: $20018 reported cost.

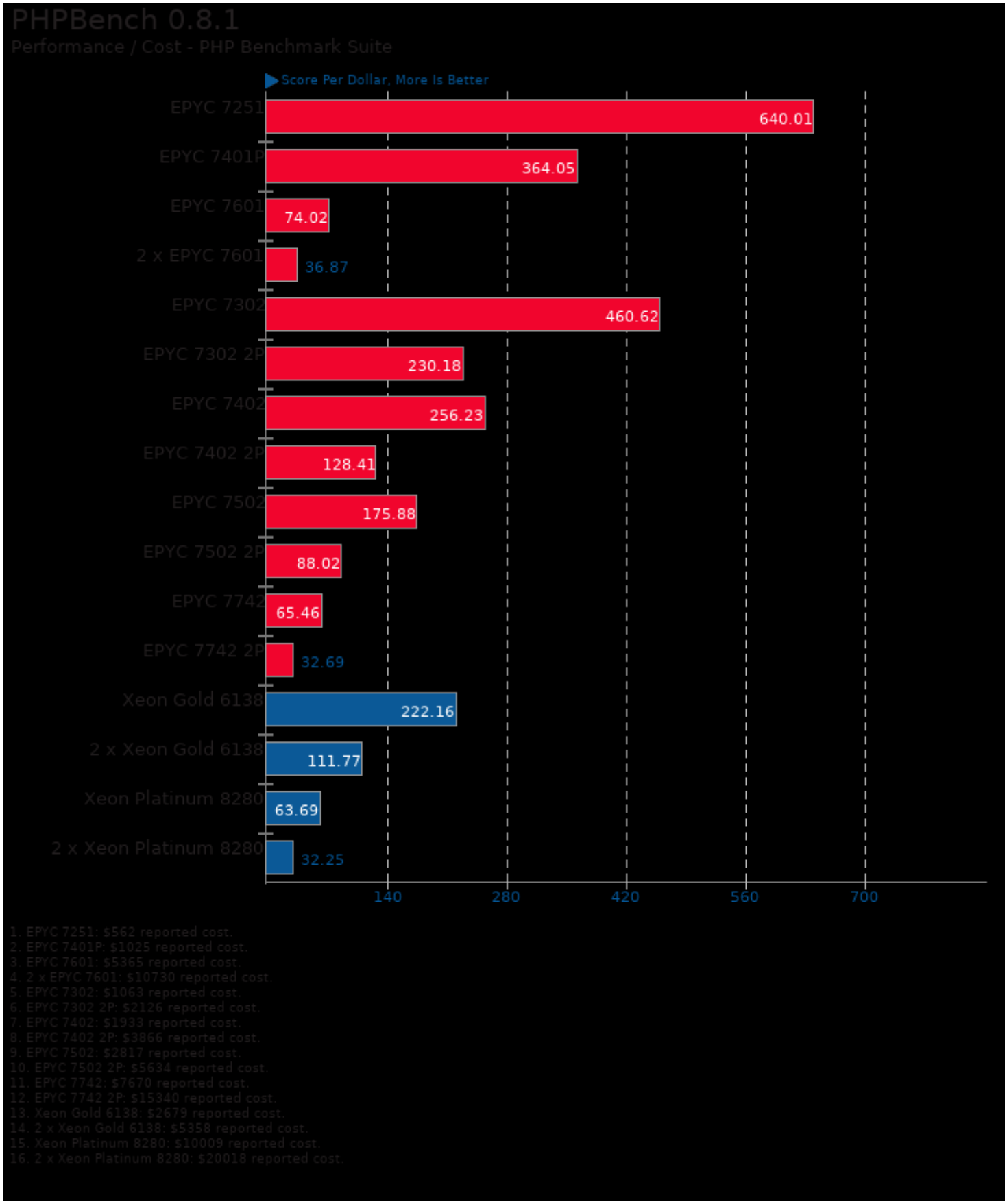

Blender 2.80
Performance / Cost - Blend File: Barbershop - Compute: CPU-Only
Seconds x Dollar, Fewer Is Better
EPYC 7251
668841.82
EPYC 7401P
464755.50
EPYC 7601
1861601.35
2 x EPYC 7601
2360063.50
EPYC 7302
425508.27
EPYC 7302 2P
506200.60
EPYC 7402
549358.60
EPYC 7402 2P
694990.82
EPYC 7502
683995.77
EPYC 7502 2P
926511.30
EPYC 7742
1295846.50
EPYC 7742 2P
2175413.77
Xeon Gold 6138
1218248.46
2 x Xeon Gold 6138
1424692.20
Xeon Platinum 8280
2796414.51
2 x Xeon Platinum 8280
3631865.74
800K
1600K
2400K
3200K
4000K
1. EPYC 7251: $562 reported cost.
2. EPYC 7401P: $1025 reported cost.
3. EPYC 7601: $5365 reported cost.
4. 2 x EPYC 7601: $10730 reported cost.
5. EPYC 7302: $1063 reported cost.
6. EPYC 7302 2P: $2126 reported cost.
7. EPYC 7402: $1933 reported cost.
8. EPYC 7402 2P: $3866 reported cost.
9. EPYC 7502: $2817 reported cost.
10. EPYC 7502 2P: $5634 reported cost.
11. EPYC 7742: $7670 reported cost.
12. EPYC 7742 2P: $15340 reported cost.
13. Xeon Gold 6138: $2679 reported cost.
14. 2 x Xeon Gold 6138: $5358 reported cost.
15. Xeon Platinum 8280: $10009 reported cost.
16. 2 x Xeon Platinum 8280: $20018 reported cost.

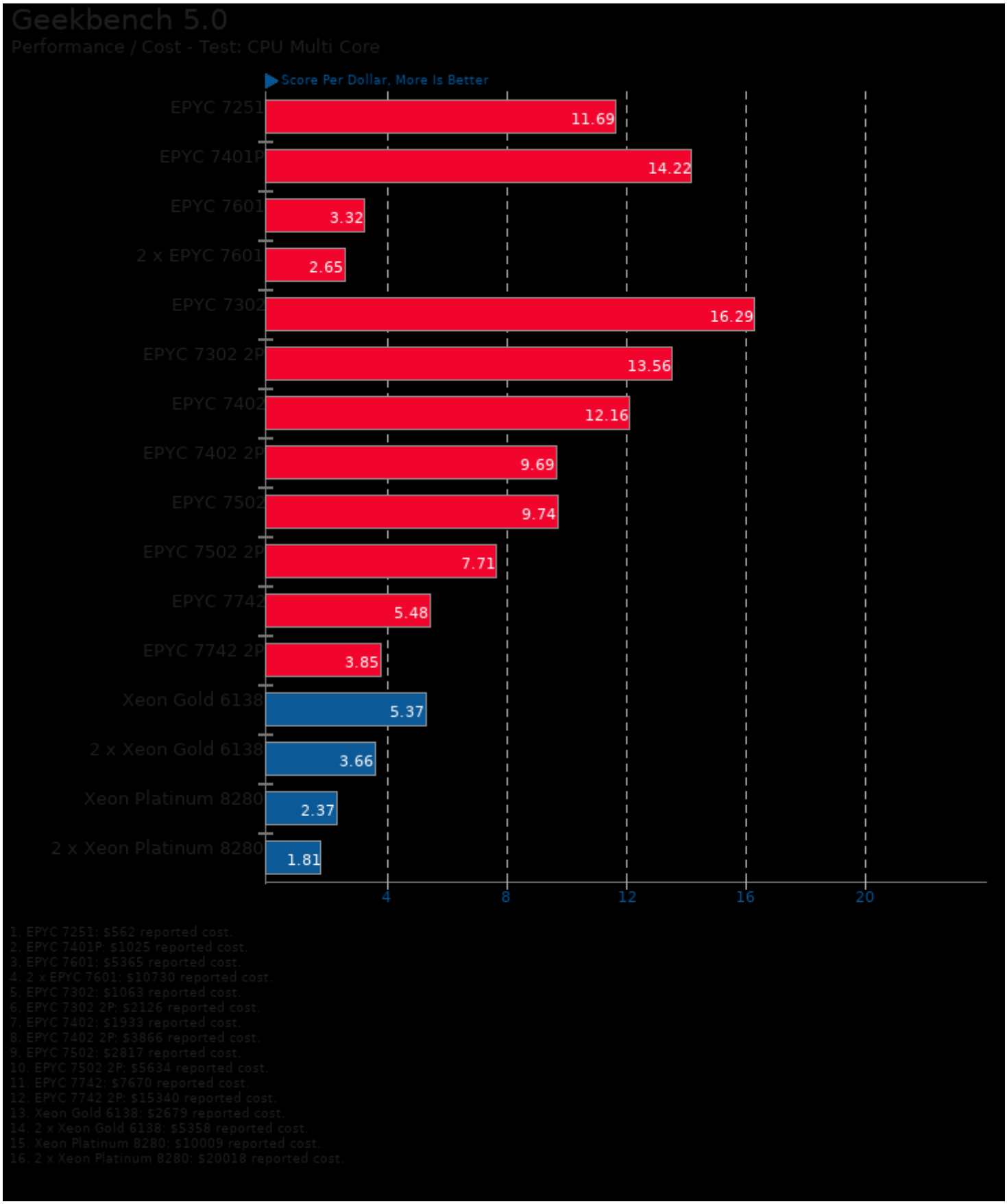

Blender 2.80
Performance / Cost - Blend File: Pabellon Barcelona - Compute: CPU-Only
Seconds x Dollar, Fewer Is Better
EPYC 7251
599783.26
EPYC 7401P
400611.00
EPYC 7601
1578812.20
2 x EPYC 7601
1714010.20
EPYC 7302
362716.86
EPYC 7302 2P
383487.88
EPYC 7402
452689.27
EPYC 7402 2P
496858.32
EPYC 7502
561399.93
EPYC 7502 2P
615458.16
EPYC 7742
896776.40
EPYC 7742 2P
1138742.31
Xeon Gold 6138
1110043.65
2 x Xeon Gold 6138
1151005.56
Xeon Platinum 8280
2377137.50
2 x Xeon Platinum 8280
2499647.66
500K
1000K
1500K
2000K
2500K
1. EPYC 7251: $562 reported cost.
2. EPYC 7401P: $1025 reported cost.
3. EPYC 7601: $5365 reported cost.
4. 2 x EPYC 7601: $10730 reported cost.
5. EPYC 7302: $1063 reported cost.
6. EPYC 7302 2P: $2126 reported cost.
7. EPYC 7402: $1933 reported cost.
8. EPYC 7402 2P: $3866 reported cost.
9. EPYC 7502: $2817 reported cost.
10. EPYC 7502 2P: $5634 reported cost.
11. EPYC 7742: $7670 reported cost.
12. EPYC 7742 2P: $15340 reported cost.
13. Xeon Gold 6138: $2679 reported cost.
14. 2 x Xeon Gold 6138: $5358 reported cost.
15. Xeon Platinum 8280: $10009 reported cost.
16. 2 x Xeon Platinum 8280: $20018 reported cost.


Appleseed 2.0 Beta
Performance / Cost - Scene: Disney Material
Seconds x Dollar, Fewer Is Better
EPYC 7251
189332.18
EPYC 7401P
148112.50
EPYC 7601
582263.45
2 x EPYC 7601
745091.20
EPYC 7302
157366.52
EPYC 7302 2P
172801.28
EPYC 7402
211276.90
EPYC 7402 2P
245297.70
EPYC 7502
243219.78
EPYC 7502 2P
337082.22
EPYC 7742
487045.00
EPYC 7742 2P
890088.51
Xeon Gold 6138
435926.88
2 x Xeon Gold 6138
514903.80
Xeon Platinum 8280
971773.81
2 x Xeon Platinum 8280
1320187.10
300K
600K
900K
1200K
1500K
1. EPYC 7251: $562 reported cost.
2. EPYC 7401P: $1025 reported cost.
3. EPYC 7601: $5365 reported cost.
4. 2 x EPYC 7601: $10730 reported cost.
5. EPYC 7302: $1063 reported cost.
6. EPYC 7302 2P: $2126 reported cost.
7. EPYC 7402: $1933 reported cost.
8. EPYC 7402 2P: $3866 reported cost.
9. EPYC 7502: $2817 reported cost.
10. EPYC 7502 2P: $5634 reported cost.
11. EPYC 7742: $7670 reported cost.
12. EPYC 7742 2P: $15340 reported cost.
13. Xeon Gold 6138: $2679 reported cost.
14. 2 x Xeon Gold 6138: $5358 reported cost.
15. Xeon Platinum 8280: $10009 reported cost.
16. 2 x Xeon Platinum 8280: $20018 reported cost.

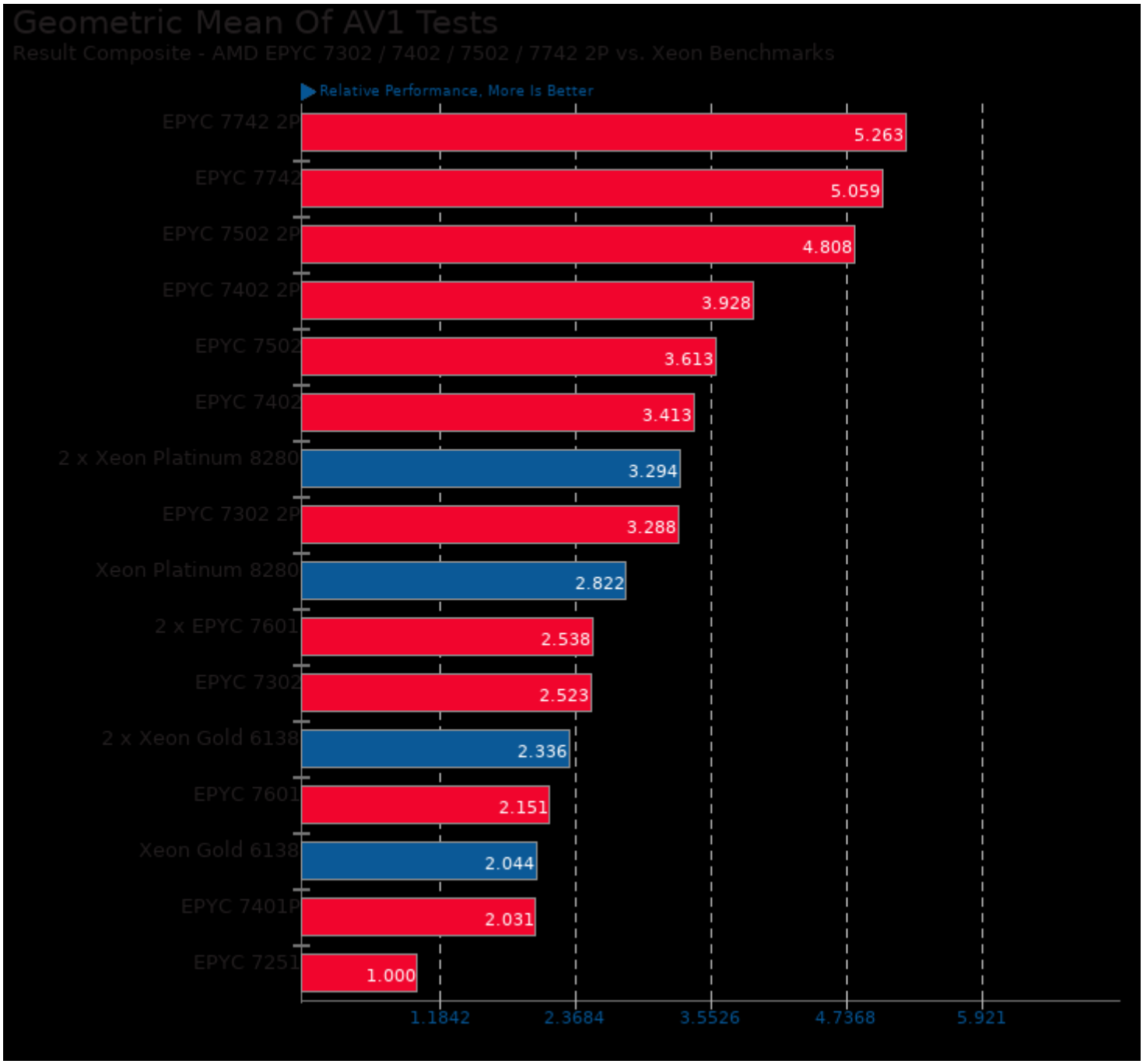

Tungsten Renderer 0.2.2
Performance / Cost - Scene: Hair
Seconds x Dollar, Fewer Is Better
EPYC 7251
22193.38
EPYC 7401P
16666.50
EPYC 7601
70120.55
2 x EPYC 7601
86913.00
EPYC 7302
17284.38
EPYC 7302 2P
20558.42
EPYC 7402
23196.00
EPYC 7402 2P
29188.30
EPYC 7502
29127.78
EPYC 7502 2P
37015.38
EPYC 7742
53459.90
EPYC 7742 2P
81656.68
Xeon Gold 6138
51410.01
2 x Xeon Gold 6138
59848.86
Xeon Platinum 8280
118706.74
2 x Xeon Platinum 8280
141527.26
30K
60K
90K
120K
150K
1. EPYC 7251: $562 reported cost.
2. EPYC 7401P: $1025 reported cost.
3. EPYC 7601: $5365 reported cost.
4. 2 x EPYC 7601: $10730 reported cost.
5. EPYC 7302: $1063 reported cost.
6. EPYC 7302 2P: $2126 reported cost.
7. EPYC 7402: $1933 reported cost.
8. EPYC 7402 2P: $3866 reported cost.
9. EPYC 7502: $2817 reported cost.
10. EPYC 7502 2P: $5634 reported cost.
11. EPYC 7742: $7670 reported cost.
12. EPYC 7742 2P: $15340 reported cost.
13. Xeon Gold 6138: $2679 reported cost.
14. 2 x Xeon Gold 6138: $5358 reported cost.
15. Xeon Platinum 8280: $10009 reported cost.
16. 2 x Xeon Platinum 8280: $20018 reported cost.


PyBench 2018-02-16
Performance / Cost - Total For Average Test Times
Milliseconds x Dollar, Fewer Is Better
EPYC 7251
903134.00
EPYC 7401P
1589775.00
EPYC 7601
7816805.00
2 x EPYC 7601
15687260.00
EPYC 7302
1297923.00
EPYC 7302 2P
2604350.00
EPYC 7402
2333131.00
EPYC 7402 2P
4681726.00
EPYC 7502
3414204.00
EPYC 7502 2P
6822774.00
EPYC 7742
9219340.00
EPYC 7742 2P
18510894.00
Xeon Gold 6138
2904036.00
2 x Xeon Gold 6138
5759850.00
Xeon Platinum 8280
10179153.00
2 x Xeon Platinum 8280
20278234.00
4M
8M
12M
16M
20M
1. EPYC 7251: $562 reported cost.
2. EPYC 7401P: $1025 reported cost.
3. EPYC 7601: $5365 reported cost.
4. 2 x EPYC 7601: $10730 reported cost.
5. EPYC 7302: $1063 reported cost.
6. EPYC 7302 2P: $2126 reported cost.
7. EPYC 7402: $1933 reported cost.
8. EPYC 7402 2P: $3866 reported cost.
9. EPYC 7502: $2817 reported cost.
10. EPYC 7502 2P: $5634 reported cost.
11. EPYC 7742: $7670 reported cost.
12. EPYC 7742 2P: $15340 reported cost.
13. Xeon Gold 6138: $2679 reported cost.
14. 2 x Xeon Gold 6138: $5358 reported cost.
15. Xeon Platinum 8280: $10009 reported cost.
16. 2 x Xeon Platinum 8280: $20018 reported cost.

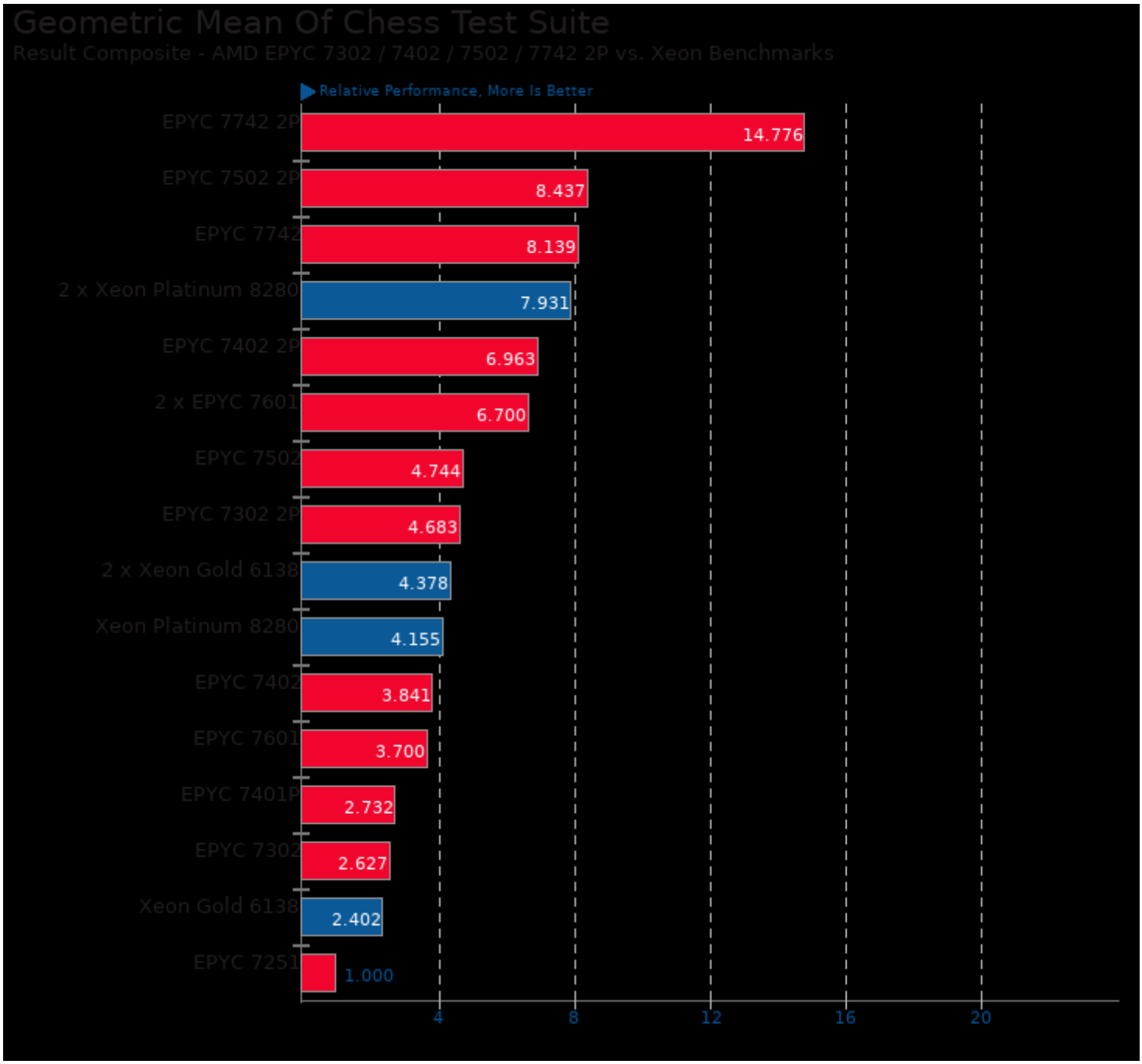

PHPBench 0.8.1
Performance / Cost - PHP Benchmark Suite
Score Per Dollar, More Is Better
EPYC 7251
640.01
EPYC 7401P
364.05
EPYC 7601
74.02
2 x EPYC 7601
36.87
EPYC 7302
460.62
EPYC 7302 2P
230.18
EPYC 7402
256.23
EPYC 7402 2P
128.41
EPYC 7502
175.88
EPYC 7502 2P
88.02
EPYC 7742
65.46
EPYC 7742 2P
32.69
Xeon Gold 6138
222.16
2 x Xeon Gold 6138
111.77
Xeon Platinum 8280
63.69
2 x Xeon Platinum 8280
32.25
140
280
420
560
700
1. EPYC 7251: $562 reported cost.
2. EPYC 7401P: $1025 reported cost.
3. EPYC 7601: $5365 reported cost.
4. 2 x EPYC 7601: $10730 reported cost.
5. EPYC 7302: $1063 reported cost.
6. EPYC 7302 2P: $2126 reported cost.
7. EPYC 7402: $1933 reported cost.
8. EPYC 7402 2P: $3866 reported cost.
9. EPYC 7502: $2817 reported cost.
10. EPYC 7502 2P: $5634 reported cost.
11. EPYC 7742: $7670 reported cost.
12. EPYC 7742 2P: $15340 reported cost.
13. Xeon Gold 6138: $2679 reported cost.
14. 2 x Xeon Gold 6138: $5358 reported cost.
15. Xeon Platinum 8280: $10009 reported cost.
16. 2 x Xeon Platinum 8280: $20018 reported cost.


Geekbench 5.0
Performance / Cost - Test: CPU Multi Core
Score Per Dollar, More Is Better
EPYC 7251
11.69
EPYC 7401P
14.22
EPYC 7601
3.32
2 x EPYC 7601
2.65
EPYC 7302
16.29
EPYC 7302 2P
13.56
EPYC 7402
12.16
EPYC 7402 2P
9.69
EPYC 7502
9.74
EPYC 7502 2P
7.71
EPYC 7742
5.48
EPYC 7742 2P
3.85
Xeon Gold 6138
5.37
2 x Xeon Gold 6138
3.66
Xeon Platinum 8280
2.37
2 x Xeon Platinum 8280
1.81
4
8
12
16
20
1. EPYC 7251: $562 reported cost.
2. EPYC 7401P: $1025 reported cost.
3. EPYC 7601: $5365 reported cost.
4. 2 x EPYC 7601: $10730 reported cost.
5. EPYC 7302: $1063 reported cost.
6. EPYC 7302 2P: $2126 reported cost.
7. EPYC 7402: $1933 reported cost.
8. EPYC 7402 2P: $3866 reported cost.
9. EPYC 7502: $2817 reported cost.
10. EPYC 7502 2P: $5634 reported cost.
11. EPYC 7742: $7670 reported cost.
12. EPYC 7742 2P: $15340 reported cost.
13. Xeon Gold 6138: $2679 reported cost.
14. 2 x Xeon Gold 6138: $5358 reported cost.
15. Xeon Platinum 8280: $10009 reported cost.
16. 2 x Xeon Platinum 8280: $20018 reported cost.

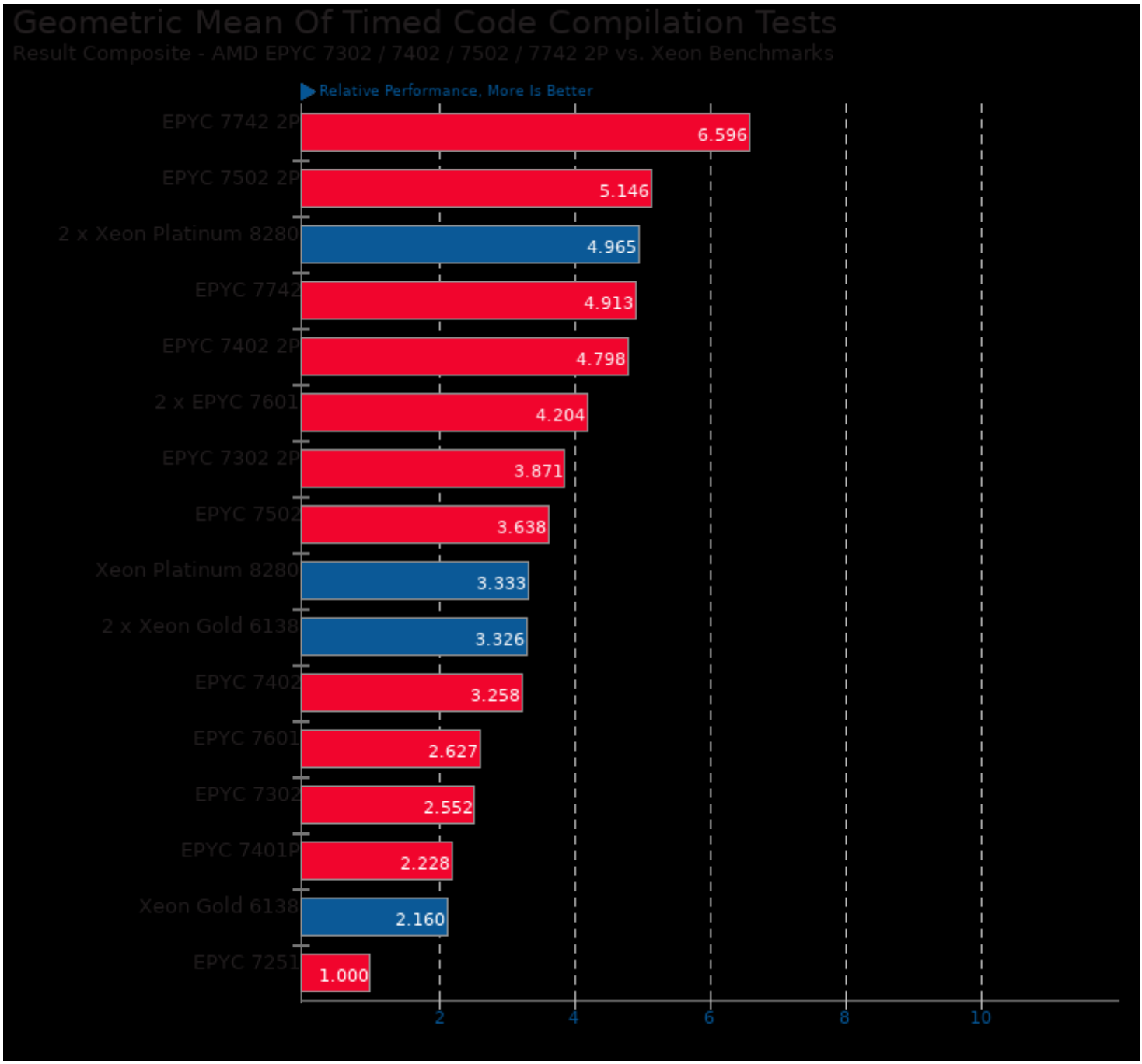
These geometric means are based upon test groupings / test suites for this result file.



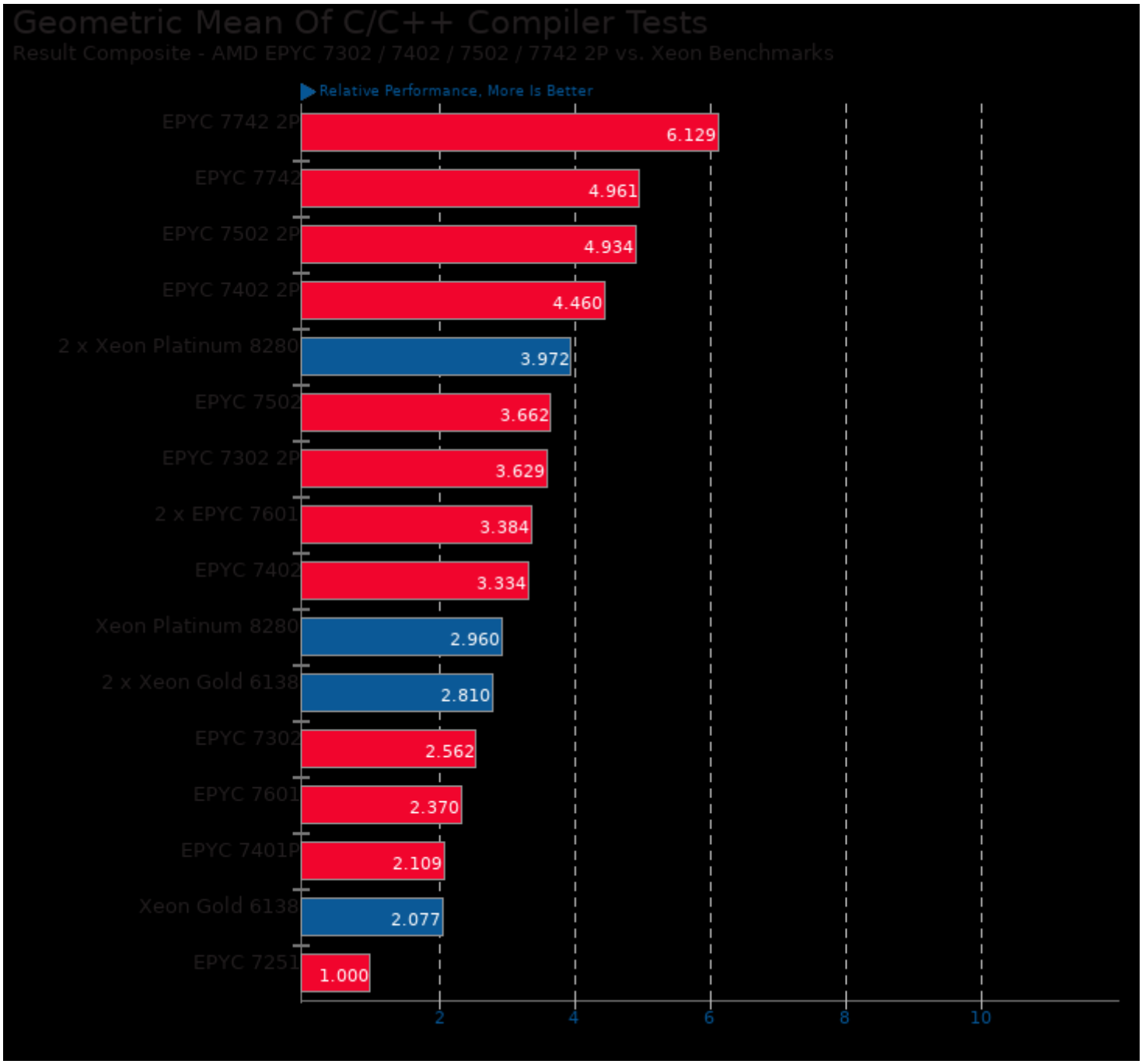
Geometric mean based upon tests: pts/dav1d, pts/aom-av1 and pts/svt-av1



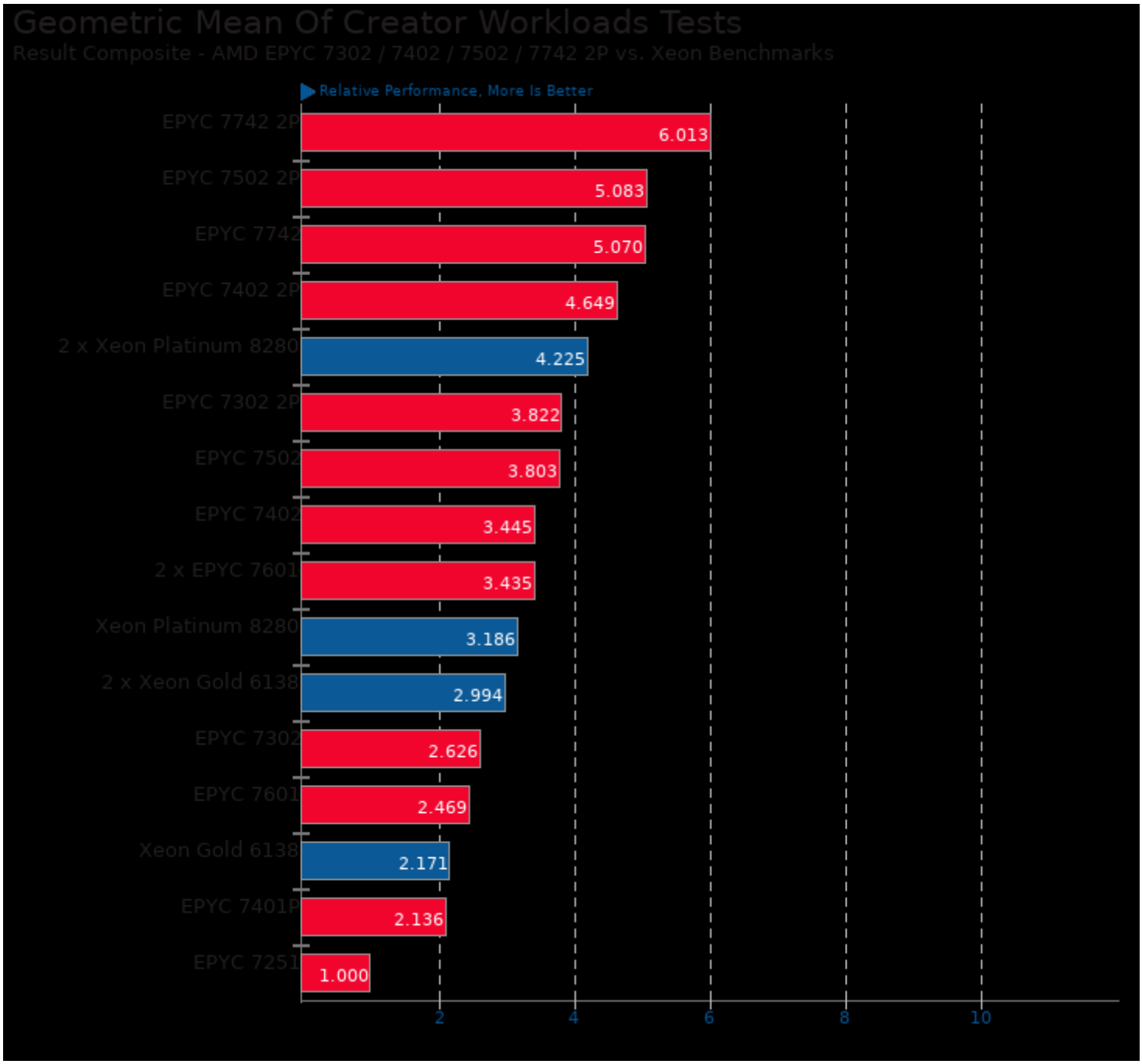
Geometric mean based upon tests: pts/stockfish and pts/asmfish



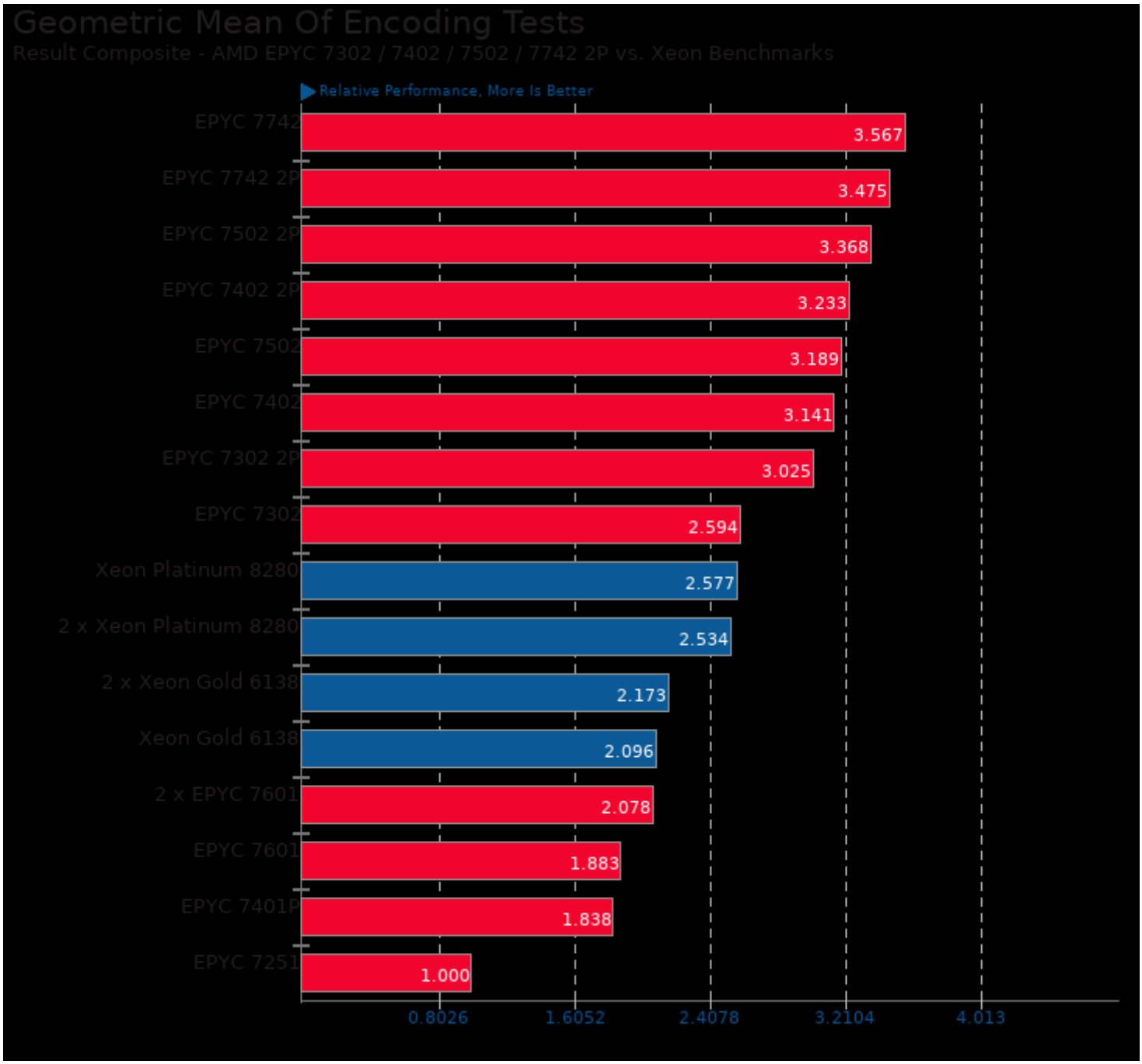
Geometric mean based upon tests: pts/build-linux-kernel and pts/build-llvm



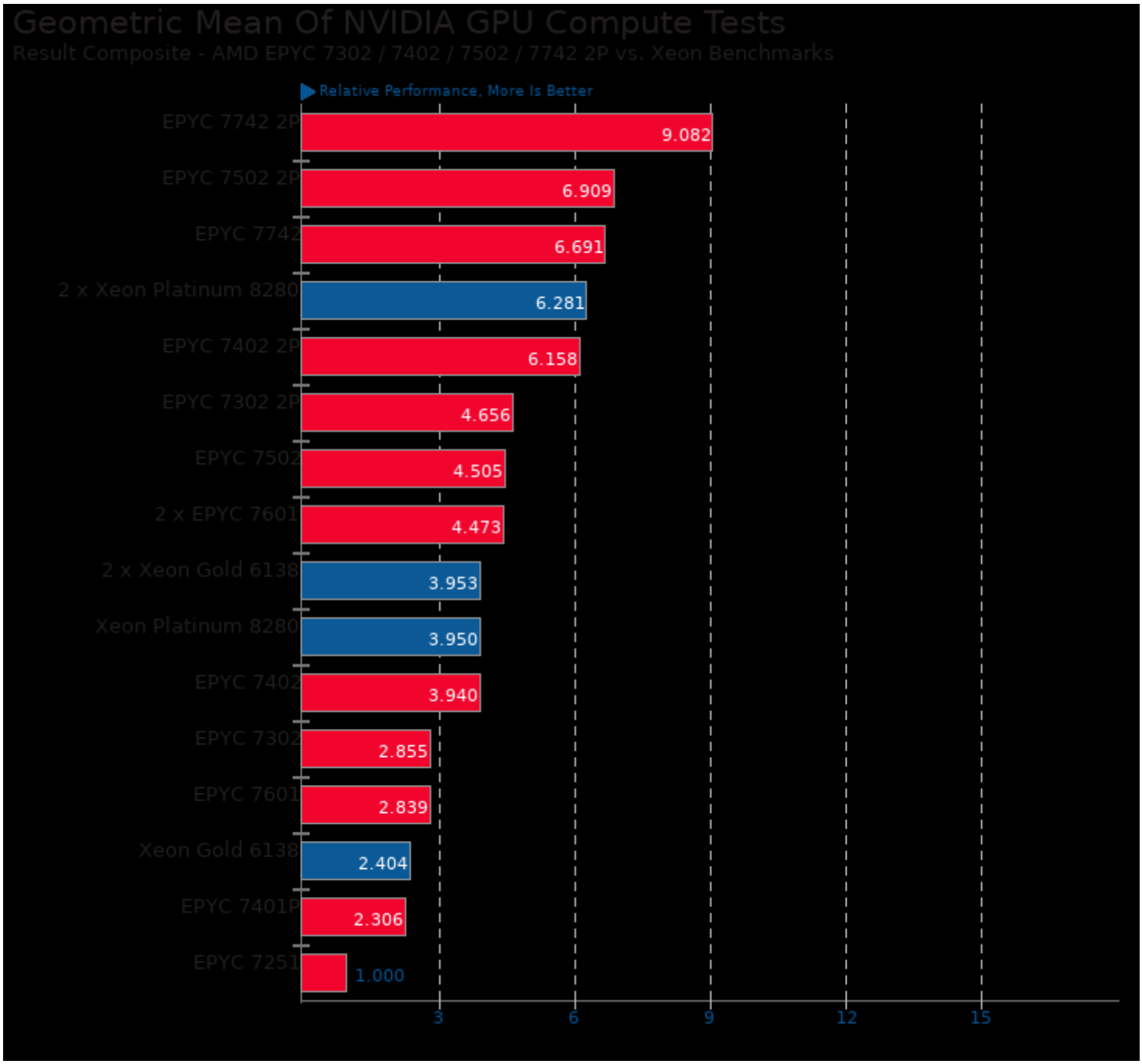
Geometric mean based upon tests: pts/vpxenc, pts/stockfish, pts/build-llvm, pts/c-ray, pts/compress-7zip, pts/john-the-ripper, pts/dav1d, pts/x264, pts/x265, pts/tungsten, pts/aom-av1, pts/svt-av1 and pts/svt-vp9



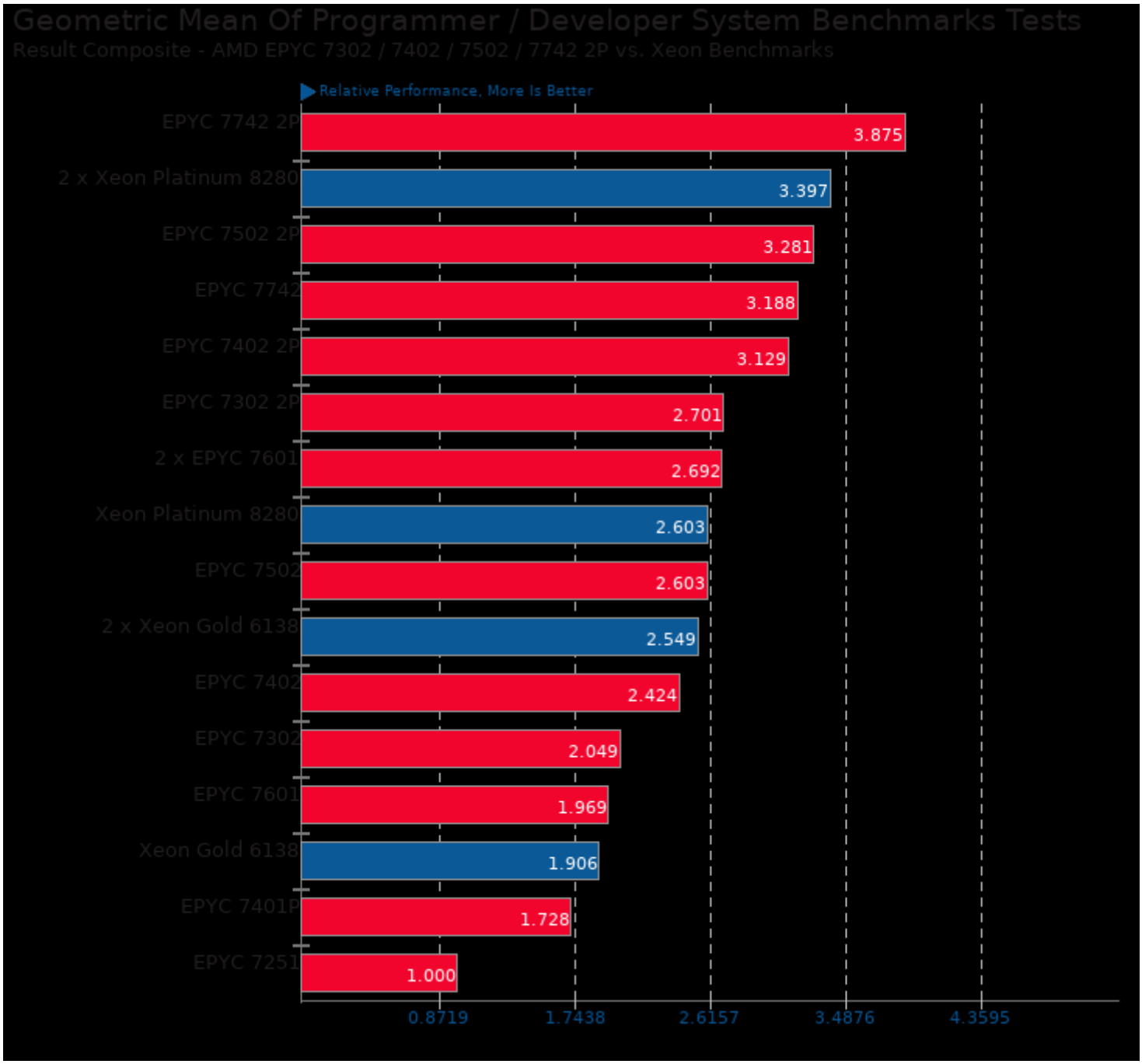
Geometric mean based upon tests: pts/c-ray, pts/povray, pts/blender, pts/tungsten, pts/appleseed, pts/svt-vp9, pts/svt-hevc, pts/x264, pts/x265, pts/vpxenc, pts/dav1d, pts/aom-av1, pts/svt-av1 and pts/neatbench



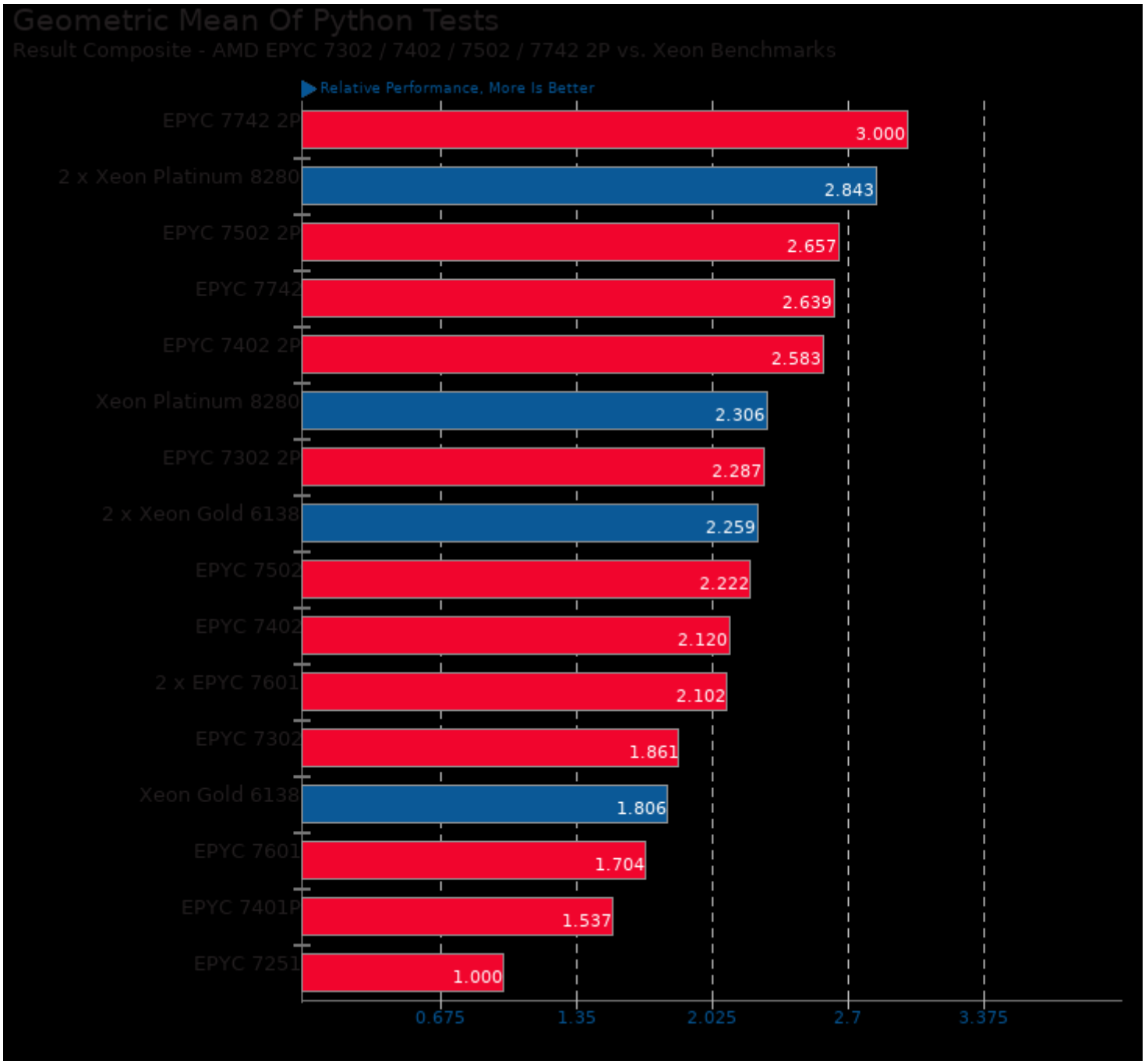
Geometric mean based upon tests: pts/svt-vp9, pts/svt-hevc, pts/x264, pts/x265, pts/vpxenc, pts/dav1d, pts/aom-av1 and pts/svt-av1



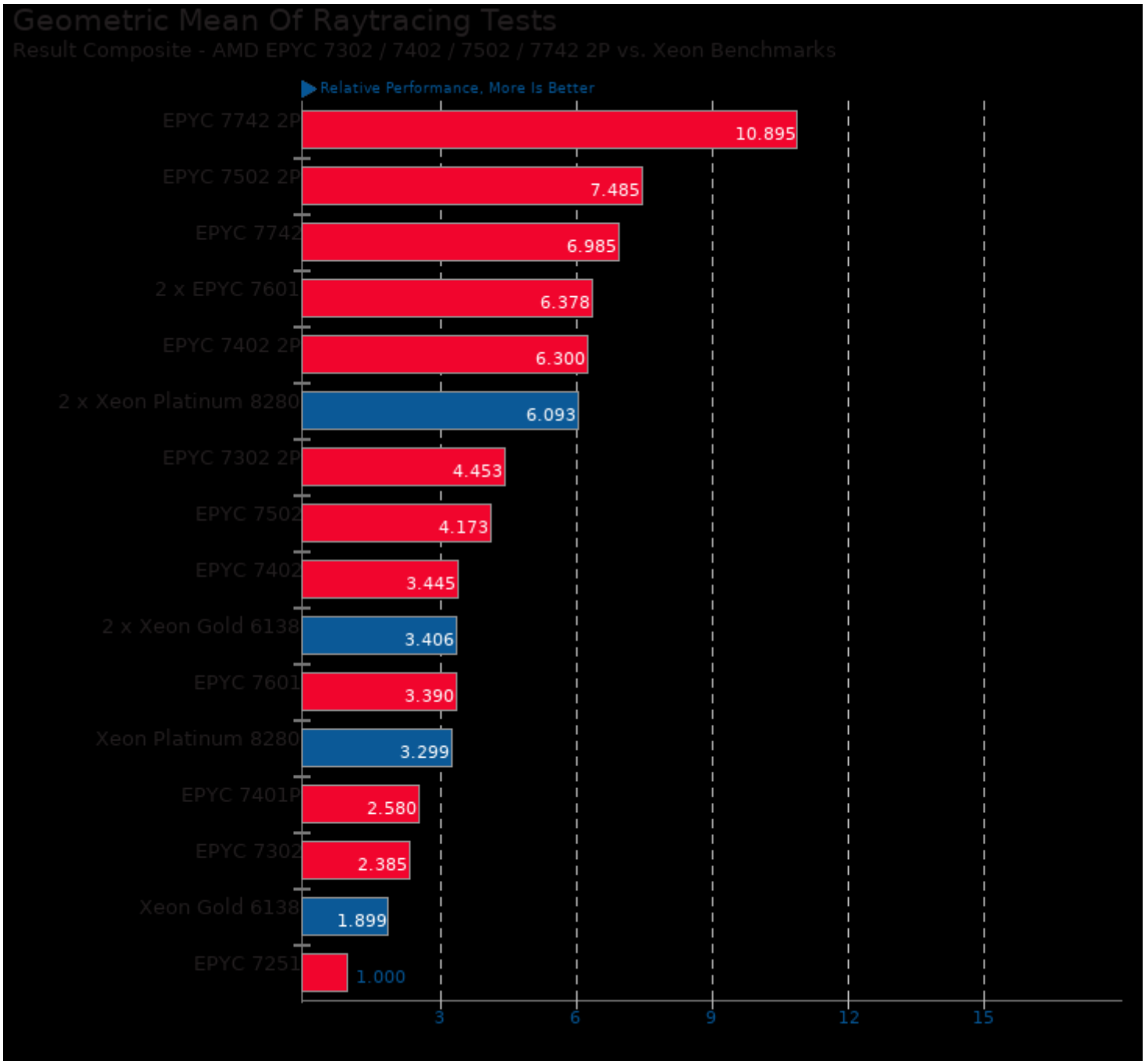
Geometric mean based upon tests: pts/neatbench and pts/blender



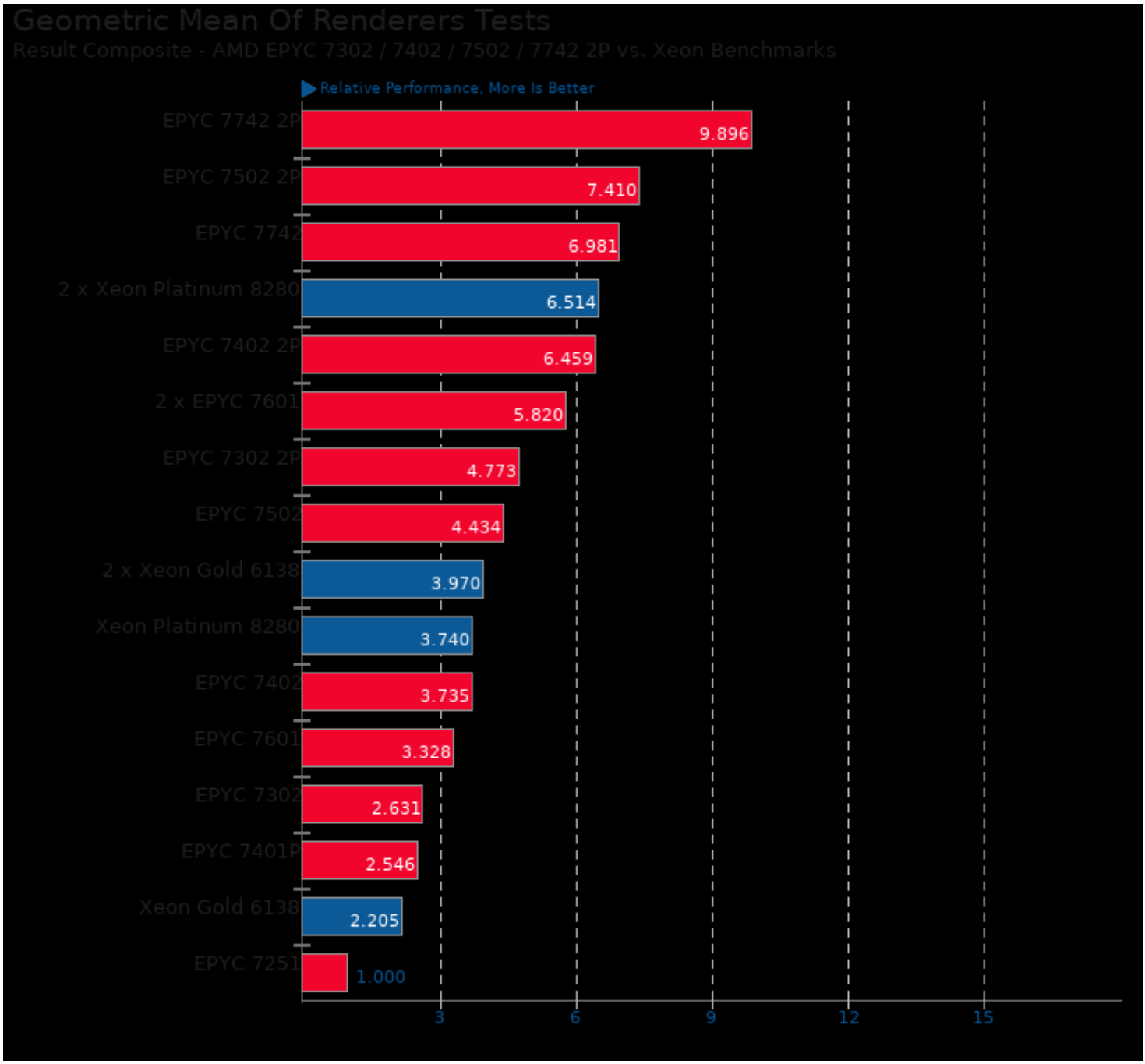
Geometric mean based upon tests: pts/pybench, pts/build-linux-kernel and pts/build-llvm



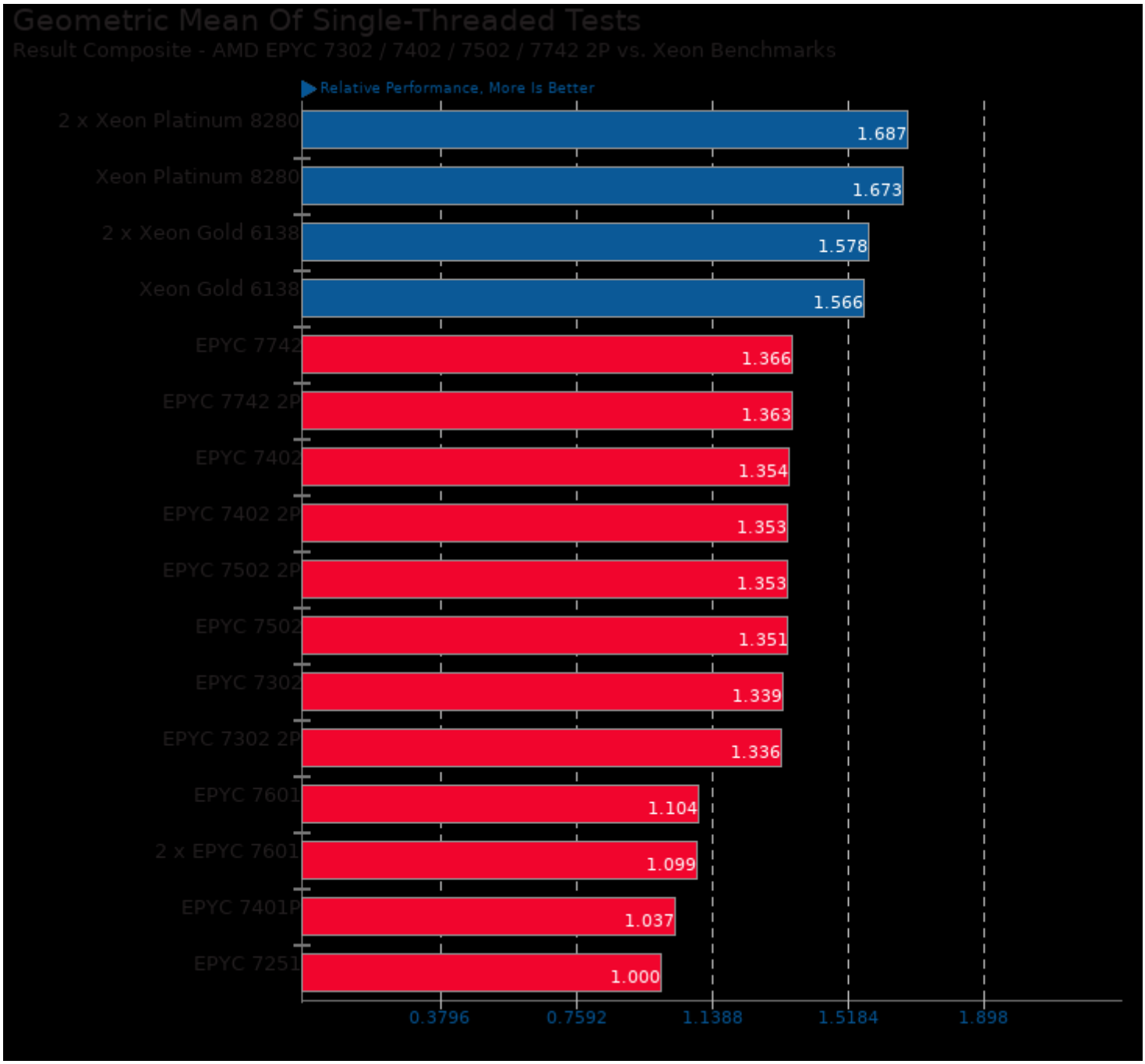
Geometric mean based upon tests: pts/build-llvm and pts/pybench



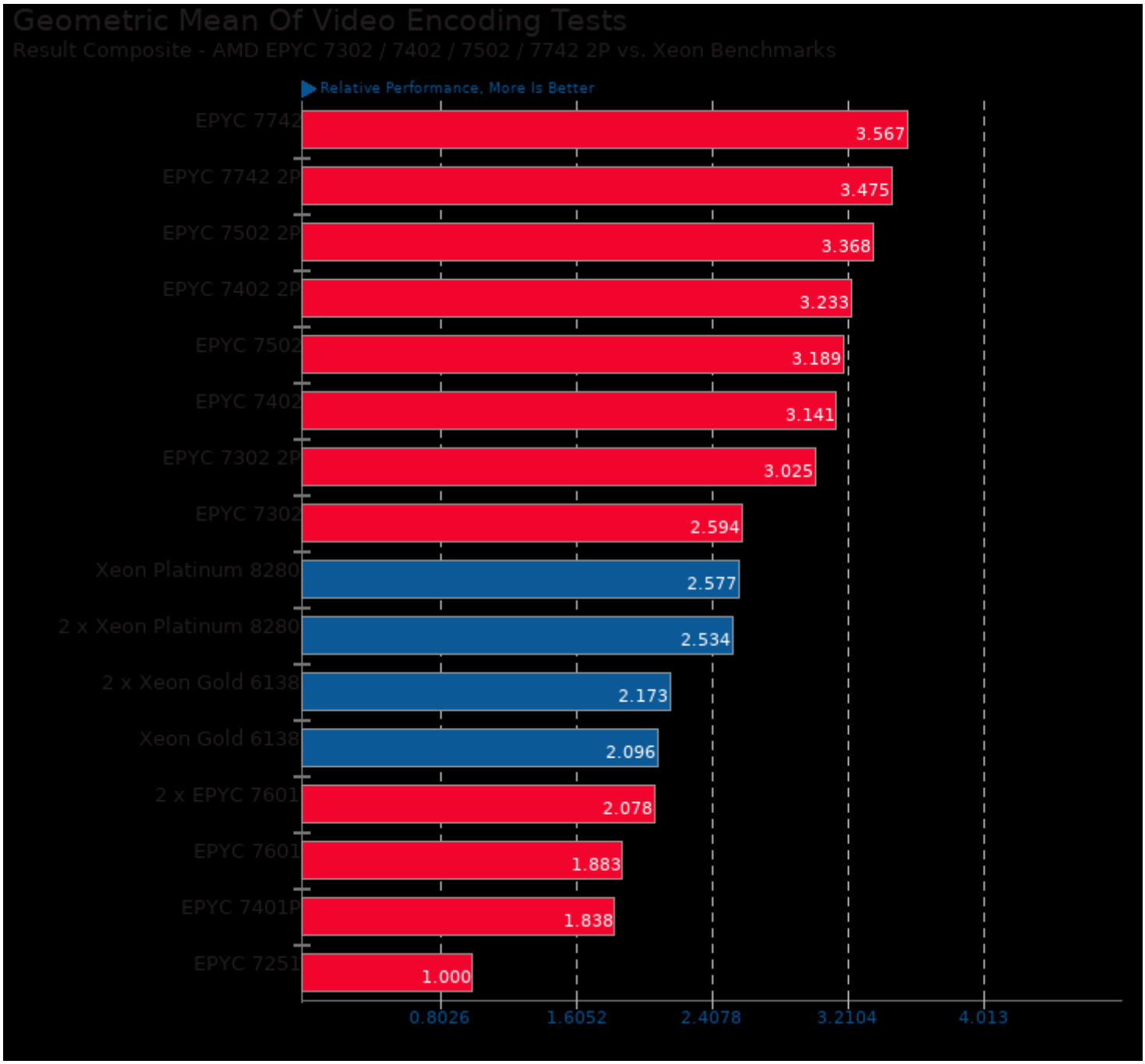
Geometric mean based upon tests: pts/c-ray and pts/povray



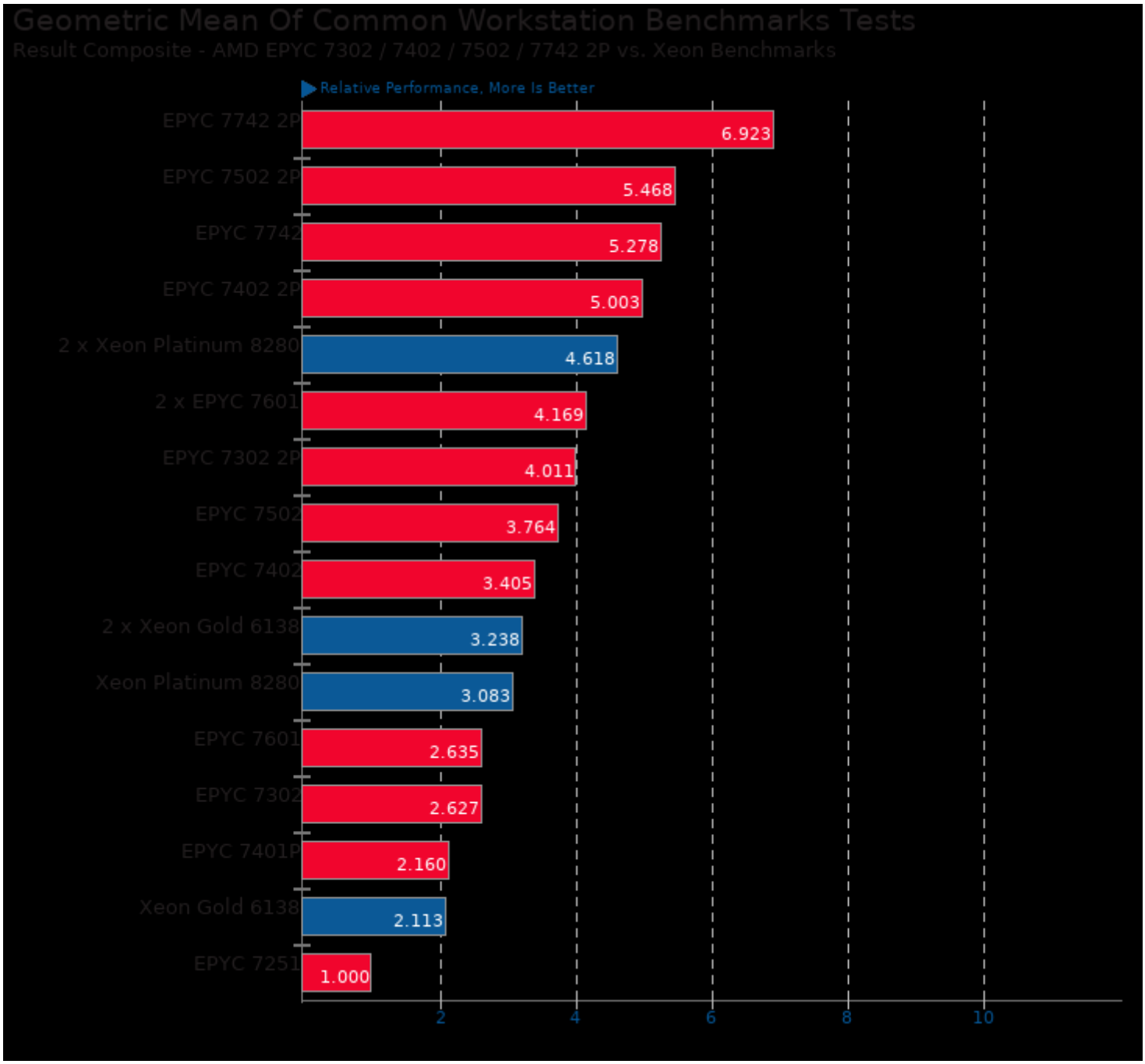
Geometric mean based upon tests: pts/c-ray, pts/povray, pts/blender, pts/tungsten and pts/appleseed



Geometric mean based upon tests: pts/pybench and pts/phpbench



Geometric mean based upon tests: pts/svt-vp9, pts/svt-hevc, pts/x264, pts/x265, pts/vpxenc, pts/dav1d, pts/aom-av1 and pts/svt-av1



Geometric mean based upon tests: pts/blender and pts/x265

This file was automatically generated via the Phoronix Test Suite benchmarking software on Friday, 29 March 2024 03:54.