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

EL7 running kernel-lt (4.4)

Automated Executive Summary

EPYC 7742 2P had the most wins, coming in first place for 74% of the tests.

Based on the geometric mean of all complete results, the fastest (EPYC 7742 2P) was 16.802x the speed of the slowest (6272 ES 2P - 20200209).

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

MKL-DNN (Harness: Convolution Batch conv_googlenet_v3 - Data Type: f32) at 326.769x
MKL-DNN (Harness: Convolution Batch conv_all - Data Type: f32) at 311.708x
MKL-DNN (Harness: Convolution Batch conv_alexnet - Data Type: f32) at 299.053x
MKL-DNN (Harness: Convolution Batch conv_3d - Data Type: f32) at 289.809x
MKL-DNN (Performance / Cost - Harness: IP Batch All - Data Type: f32) at 53.725x
SVT-HEVC (1080p 8-bit YUV To HEVC Video Encode) at 42.976x
MKL-DNN (Harness: IP Batch All - Data Type: f32) at 37.137x
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.

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

EPYC 7601 2P

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

W3175X 3.4ghz lock

Processor: Intel Xeon W-3175X @ 3.40GHz (28 Cores / 56 Threads), Motherboard: ASUS ROG DOMINUS EXTREME (0509 BIOS), Chipset: Intel Sky Lake-E DMI3 Registers, Memory: 97280MB, Disk: 4 x 400GB KXG50ZNV512G TOSHIBA, Graphics: AMD Radeon RX 470/480/570/570X/580/580X/590 8GB (1380/2000MHz), Audio: Realtek ALC1220, Monitor: 289K, Network: Intel I219-LM

OS: Fedora 30, Kernel: 5.2.6-200.fc30.x86_64 (x86_64), Desktop: GNOME Shell 3.32.2, Display Server: X Server + Wayland, OpenGL: 4.5 Mesa 19.1.3 (LLVM 8.0.0), Compiler: GCC 9.2.1 20190827, File-System: ext4, Screen Resolution: 3840x2160

Compiler Notes: --build=x86_64-redhat-linux --disable-libunwind-exceptions --enable-__cxa_atexit --enable-bootstrap --enable-cet --enable-checking=release --enable-gnu-indirect-function --enable-gnu-unique-object --enable-initfini-array --enable-languages=c,c++,fortran,objc,obj-c++,ada,go,d,lto --enable-multilib --enable-offload-targets=nvptx-none --enable-plugin --enable-shared --enable-threads=posix --mandir=/usr/share/man --with-arch_32=i686 --with-gcc-major-version-only --with-isl --with-linker-hash-style=gnu --with-tune=generic --without-cuda-driver
Processor Notes: Scaling Governor: intel_pstate performance
Python Notes: Python 2.7.16 + Python 3.7.4
Security Notes: SELinux + KPTI + __user pointer sanitization + Full generic retpoline IBPB: conditional IBRS_FW STIBP: conditional RSB filling + SSB disabled via prctl and seccomp + PTE Inversion

6272 ES 2P - 20200209

Processor: 2 x AMD Eng Sample ZS222445TGG44_32/22/2_2/16 (16 Cores / 32 Threads), Motherboard: Supermicro H8DG6/H8DGi v1.0 (3.5c BIOS), Chipset: AMD RD890 + SB7x0/SB8x0/SB9x0, Memory: 120GB, Disk: 40008GB Seagate ST8000NM-VOL#001 + 256GB SSD RAID 1, Graphics: NVIDIA GeForce GTX 1080 8GB (1708/5005MHz), Audio: NVIDIA GP104 HD Audio, Network: 2 x Intel 82576

OS: Gentoo/Linux, Kernel: 4.19.66-gentoo (x86_64), Desktop: KDE Plasma 5.17.4, Display Server: X Server 1.20.6, Display Driver: NVIDIA 440.44, OpenGL: 4.6.0, Compiler: GCC 9.2.0, File-System: ext4, Screen Resolution: 1920x1200

Compiler Notes: --bindir=/usr/x86_64-pc-linux-gnu/gcc-bin/9.2.0 --build=x86_64-pc-linux-gnu --datadir=/usr/share/gcc-data/x86_64-pc-linux-gnu/9.2.0 --disable-altivec --disable-esp --disable-fixed-point --disable-libmudflap --disable-libssp --disable-systemtap --disable-werror --enable-__cxa_atexit --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-default-ssp --enable-languages=c,c++,fortran --enable-libgomp --enable-libstdcxx-time --enable-lto --enable-multilib --enable-nls --enable-obsolete --enable-secureplt --enable-shared --enable-targets=all --enable-threads=posix --enable-vtable-verify --host=x86_64-pc-linux-gnu --includedir=/usr/lib/gcc/x86_64-pc-linux-gnu/9.2.0/include --mandir=/usr/share/gcc-data/x86_64-pc-linux-gnu/9.2.0/man --with-multilib-list=m32,m64 --with-python-dir=/share/gcc-data/x86_64-pc-linux-gnu/9.2.0/python --without-isl
Processor Notes: CPU Microcode: 0x6000425
OpenCL Notes: GPU Compute Cores: 2560
Python Notes: Python 3.6.9
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 STIBP: disabled RSB filling

Threadripper 3960x

Processor: AMD Ryzen Threadripper 3960X 24-Core @ 3.80GHz (24 Cores / 48 Threads), Motherboard: Gigabyte TRX40 AORUS XTREME (F2 BIOS), Chipset: AMD Device 1480, Memory: 129024MB, Disk: 1000GB Sabrent Rocket 4.0 1TB + 380GB INTEL SSDPEL1D380GA, Graphics: AMD Radeon Frontier Edition 16GB (1600/945MHz), Audio: AMD Device aaf8, Monitor: U32J59x, Network: 2 x Intel 10G X550T + Intel Device 2723

OS: Ubuntu 18.04, Kernel: 5.3.0-28-generic (x86_64), Desktop: GNOME Shell 3.28.4, Display Server: X Server 1.20.5, Display Driver: amdgpu 19.0.1, OpenGL: 4.5 Mesa 19.2.8 (LLVM 9.0.0), Compiler: GCC 7.4.0, File-System: ext4, Screen Resolution: 3840x2160

Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq ondemand - CPU Microcode: 0x8301025
Python Notes: Python 2.7.17 + Python 3.6.9
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Full AMD retpoline IBPB: conditional STIBP: conditional RSB filling + tsx_async_abort: Not affected

g36 5.6 EPYC 7302 2P

Processor: 2 x AMD EPYC 7302 16-Core @ 3.00GHz (32 Cores / 64 Threads), Motherboard: Supermicro H11DSi-NT v2.00 (2.1 BIOS), Chipset: AMD Starship/Matisse, Memory: 8 x 32 GB DDR4-3200MT/s Samsung M393A4K40DB3-CWE, Disk: 1920GB SAMSUNG MZ1LB1T9HALS-00007, Graphics: ASPEED, Network: 2 x Intel 10G X550T

OS: CentOS 7.9.2009, Kernel: 5.6.14-1.el7.elrepo.x86_64 (x86_64), Compiler: GCC 4.8.5 20150623, File-System: ext4

Compiler Notes: --build=x86_64-redhat-linux --disable-libgcj --disable-libunwind-exceptions --enable-__cxa_atexit --enable-bootstrap --enable-checking=release --enable-gnu-indirect-function --enable-gnu-unique-object --enable-initfini-array --enable-languages=c,c++,objc,obj-c++,java,fortran,ada,go,lto --enable-plugin --enable-shared --enable-threads=posix --mandir=/usr/share/man --with-arch_32=x86-64 --with-linker-hash-style=gnu --with-tune=generic
Processor Notes: Scaling Governor: acpi-cpufreq conservative - CPU Microcode: 0x8301034
Python Notes: Python 2.7.5 + Python 3.6.8
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Full AMD retpoline IBPB: conditional IBRS_FW STIBP: conditional RSB filling + tsx_async_abort: Not affected

EPYC 7302 2P balanced

Processor: 2 x AMD EPYC 7302 16-Core @ 3.00GHz (32 Cores / 64 Threads), Motherboard: Supermicro H11DSi-NT v2.00 (2.1 BIOS), Chipset: AMD Starship/Matisse, Memory: 16 x 32 GB DDR4-3200MT/s Samsung M393A4K40DB3-CWE, Disk: 1389GB, Graphics: ASPEED, Network: 2 x Intel 10G X550T

OS: CentOS 7.9.2009, Kernel: 4.4.224-1.el7.elrepo.x86_64 (x86_64), Compiler: GCC 4.8.5 20150623, File-System: ext4

Compiler Notes: --build=x86_64-redhat-linux --disable-libgcj --disable-libunwind-exceptions --enable-__cxa_atexit --enable-bootstrap --enable-checking=release --enable-gnu-indirect-function --enable-gnu-unique-object --enable-initfini-array --enable-languages=c,c++,objc,obj-c++,java,fortran,ada,go,lto --enable-plugin --enable-shared --enable-threads=posix --mandir=/usr/share/man --with-arch_32=x86-64 --with-linker-hash-style=gnu --with-tune=generic
Processor Notes: Scaling Governor: acpi-cpufreq conservative - CPU Microcode: 0x8301034
Python Notes: Python 2.7.5 + Python 3.6.8
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Full AMD retpoline IBPB: conditional IBRS_FW STIBP: conditional RSB filling + tsx_async_abort: Not affected

	EPYC 7251	EPYC 7401P	EPYC 7601	EPYC 7601 2P	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	W3175X 3.4ghz lock	6272 ES 2P - 20200209	Threadripper 3960x	g365.6 EPYC 7302 2P	EPYC 7302 2P balanced
NAMD - ATPase Simulation - 327,506 Atoms (days/ns)	3.0753	1.2063	0.9104	0.4693	1.2658	0.6156	0.8148	0.4706	0.7387	0.3905	0.4287	0.2639	1.2383	0.6562	0.7006	0.3590	0.6106	2.0837	0.7501	0.7595	0.6582
Normalized	8.58%	21.8%	28.9%	59.0%	20.8%	39.9%	29.6%	56.0%	35.7%	67.5%	61.5%	100%	21.3%	39.6%	37.6%	73.5%	43.2%	12.6%	35.1%	34.7%	40.1%
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%	1.8%	0.6%	6.9%	1.1%	0.2%
John The Ripper - Blowfish (Real	12939	27746	33399	81920	31305	62398	46756	92216	57523	110992	97345	183465	24968	48933	42924	84968	44330	101000	45824	56301	57548
Normalized	7.05%	15.1%	18.2%	44.6%	17.0%	34.0%	25.4%	50.2%	31.3%	60.5%	53.0%	100%	13.6%	26.6%	23.4%	46.3%	24.1%	5.51%	24.9%	30.6%	31.3%
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%	0.1%	0.4%	2.8%	5.8%	0.3%

MKL-DNN - IP Batch All - f32	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	261.42	289.3	121.392	265.8	**301.6**
Normalized	15.5%	53.1%	72.0%	10.3%	40.5%	65.8%	54.7%	81.2%	65.0%	100%	90.4%	90.5%	70.2%	66.2%	85.5%	83.4%	31.0%	2.81%	66.9%	3.05%	2.69%
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%	0.1%	3.5%	0.3%	8.7%	2.3%
MKL-DNN - C.B.c - f32	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	89.26	**788.281**	7.7727	181.138	171.480
Normalized	6.89%	16.4%	21.1%	41.9%	28.2%	49.6%	39.3%	70.4%	46.9%	79.5%	75.1%	100%	21.5%	56.4%	33.4%	82.4%	3.05%	0.35%	34.9%	1.5%	1.59%
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%	0.3%	1.4%	2.9%	1.5%	1.5%
MKL-DNN - C.B.c - f32	7772	3096	2278	1205	1805	974	1285	687	1087	583	688	412	1324	674	766	**383**	14051	**119384**	1039	27276	27182
Normalized	4.93%	12.3%	16.8%	31.7%	21.2%	39.3%	29.8%	55.7%	35.2%	65.6%	55.6%	92.9%	28.9%	56.8%	50%	100%	2.73%	0.32%	36.8%	1.4%	1.41%
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%	0%	0.3%	1.2%	0.2%	0.5%
MKL-DNN - C.B.c - f32	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**	1886	**14522**	157.245	341.33	340.38
Normalized	4.85%	12%	16.1%	30.9%	19.9%	37.0%	28%	49.7%	34.2%	63.1%	54.5%	95.8%	29.2%	56.9%	51.4%	100%	2.57%	0.33%	30.8%	1.42%	1.43%
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%	0.1%	0.2%	3.6%	0.9%	2.6%
MKL-DNN - C.B.c - f32	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**	780.42	**6921**	63.1845	167.3	166.9
Normalized	4.94%	12.0%	16.1%	30.2%	20.8%	35.2%	29.8%	51.6%	35.5%	61.7%	55.7%	89.1%	28.9%	57.4%	50.7%	100%	2.71%	0.31%	33.5%	1.27%	1.27%
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%	0.1%	0.6%	2.7%	0.5%	1.3%
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		**5.790**	76.559		
Normalized	16.4%	34.5%	36.5%	38.0%	44.0%	59.7%	61.8%	70.6%	66%	95.3%	97.2%	100%	35.5%	48.6%	54.5%	62.1%		5.7%	75.4%		
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%		2.1%	1.9%		

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		9.74	418.59		
Normalized	21.3%	42.8%	44.4%	39.2%	61.7%	78.5%	82.1%	80.8%	86.0%	80.2%	87.8%	78.7%	58.1%	56.2%	76.3%	64.2%		2.33%	100%		
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%		0.3%	1.7%		
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	16.9%	40.9%	40.3%	33.9%	69.3%	81.1%	91.2%	88.4%	95.2%	87.8%	100%	87.5%	66.6%	63.4%	94.1%	71.0%					
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%					
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	49.2%	64.7%	65.8%	77.4%	99.4%	96.8%	100%	97.2%	96.3%	94.1%	96.3%	95.3%	70.8%	68.2%	69.7%	68.6%					
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	13.99	70.666			
Normalized	22.0%	43.1%	45.6%	61.1%	52.1%	65.3%	68%	78.8%	71.4%	87.5%	95%	100%	42.3%	40.5%	52.7%	63.0%	81.5%	16.1%			
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%	0.2%	0.8%			
Coremark - CoreMark Size 666 - I.P.S (Iteration	234690	618299	820414	165557	588635	113409	880327	165589	110947	211876	196621	371999	589752	114312	967330	188368	972452	250422	106177	831234	836232
Normalized	6.31%	16.6%	22.0%	44.5%	15.8%	30.4%	23.6%	44.5%	29.8%	56.9%	52.8%	100%	15.8%	30.7%	26%	50.6%	26.1%	6.73%	28.5%	22.3%	22.4%
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%	0.5%	3.5%	1.8%	0.7%	0.4%
Stockfish - Total Time (Nodes/s	163188	429450	582168	103330	425541	766025	620208	113901	759035	139070	133120	241185	374235	679281	651506	124044	716284	286446	775853	776606	782126
Normalized	6.77%	17.8%	24.1%	42.8%	17.6%	31.7%	25.7%	47.2%	31.4%	57.6%	55.1%	100%	15.5%	28.1%	27.0%	51.4%	29.7%	11.8%	32.1%	32.2%	32.4%
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%	1.1%	2.1%	0.8%	1.1%	2.1%

asmFish - 1.H.M.2. D	**162199030**	460188419751	622419024	114981990	429098029	757833069	629628055	112672179	784674088	135474285	131710538	**239606281**	407964060	746814045	701368022	134205427	747711059	292032059	748195061	736510018	757209040
Normalized	6.77%	19.2%	25.9%	47.9%	17.9%	31.6%	26.2%	47.0%	32.7%	56.5%	54.9%	100%	17.0%	31.1%	29.2%	56.0%	31.2%	12.1%	31.2%	30.7%	31.6%
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%	1.8%	0.7%	0.6%	0.9%	2.1%
Timed Linux Kernel Compilation - Time To Compile (sec)	**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	30.41	99.080	27.028	28.992	25.641
Normalized	15.7%	33.8%	40.8%	68.5%	38.5%	58.6%	49.1%	71.0%	55.3%	77.1%	71.8%	100%	33%	50.3%	51.4%	75.4%	52.8%	16.2%	59.4%	55.4%	62.6%
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%	3.4%	4%	2.7%	3.2%	3%
Timed LLVM Compilation - Time To Compile (sec)	**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	167.01	484.421	154.138		
Normalized	14.6%	33.7%	38.8%	59.2%	38.7%	58.7%	49.7%	74.4%	54.9%	78.8%	77.1%	100%	32.4%	50.4%	49.6%	75.1%	47.1%	16.2%	51.1%		
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	27.16	75.941	25.692	20.106	20.205
Normalized	7.14%	19.4%	25.7%	51.2%	16.4%	32.5%	24.5%	48.3%	30.2%	57.9%	53.0%	100%	12.8%	22.9%	22.5%	43.9%	23.1%	8.28%	24.4%	31.2%	31.1%
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%	0.1%	0.6%	0.2%	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	23.71	51.327	15.710	16.405	16.335
Normalized	11.7%	28.8%	37.6%	66.9%	29.1%	51.4%	40.7%	69.2%	48.5%	81.4%	77.4%	100%	23.6%	42.6%	40.6%	71.1%	35.4%	16.3%	53.5%	51.2%	51.4%
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%	3.1%	1.4%	0.6%	0.7%	0.5%

7-Zip Compression - C.S.T (MIPS)	**30676**	78308	90342	13490	96539	15091	14023	21842	17111	25503	28057	**35030**	83345	13924	13977	24114	14295	42586	15719	80777	16466
Normalized	8.76%	22.5%	25.9%	38.8%	27.6%	43.0%	40.0%	62.3%	48.8%	72.8%	80.0%	100%	23.7%	39.7%	39.9%	68.8%	40.8%	12.1%	44.8%	23.0%	47.0%
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%	0.2%	1.9%	1.4%	1.9%	1.4%
Blender - BMW27 - CPU-Only (sec)	**27.45**	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	59.14	239.25	56.13	54.15	53.79
Normalized	9.67%	24.5%	32.1%	56%	26.4%	49.1%	38.0%	66.2%	44.0%	75.8%	71.7%	100%	22.8%	42.1%	39.2%	70.9%	45.3%	11.2%	47.8%	49.5%	49.9%
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%	0.5%	3%	0.6%	0.7%	0%
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	156.48	653.78	140.34	138.28	137.19
Normalized	6.58%	16.8%	22.6%	46.8%	17.5%	33.9%	25.5%	49.0%	30.3%	59.2%	53.7%	100%	14.4%	28.3%	24.6%	48.7%	29.6%	7.09%	33.0%	33.5%	33.7%
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%	0.1%	0.2%	0.1%	1.1%	0.7%
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	92.38	350.85	80.30	81.14	81.28
Normalized	10.6%	27.3%	34.8%	56.9%	30.4%	52.7%	42.9%	67.5%	49.4%	75.8%	73.6%	100%	24.6%	43.6%	41.7%	69.9%	47.3%	12.4%	54.4%	53.8%	53.7%
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%	0.1%	0.2%	0.2%	0.6%	0.1%
Blender - Barbershop - CPU-Only (sec)	**1190**	453	347	220	400	238	284	180	243	164	169	**142**	455	266	279	181	236	866.38	230.28	245.41	234.78
Normalized	11.9%	31.3%	40.9%	64.5%	35.5%	59.6%	50%	78.8%	58.4%	86.5%	84.0%	100%	31.2%	53.3%	50.9%	78.4%	60.1%	16.3%	61.6%	57.8%	60.4%
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%	0.2%	0.5%	0.1%	2.4%	0.1%

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	203.60	828.53	183.36	176.73	177.01
Normalized	6.95	18.9	25.2	46.4	21.7	41.1	31.6	57.7	37.2	67.9	63.4	100	17.9	34.5	31.2	59.4	36.4	8.95	40.4	41.9	41.9
Standard Deviation	0.1%	8% 0.1%	1% 0.3%	4% 0.1%	4% 0.2%	3% 0.9%	8% 0.6%	3% 0.9%	3% 0.7%	1% 0.6%	5% 0.8%	% 0.5%	1% 0.1%	4% 0.1%	4% 0.1%	1% 0.2%	4% 0.1%	% 0.3%	6% 0.1%	8% 0.2%	1% 0.7%
Appleseed - Disney Material (sec)	**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	86.33	325.13	83.615		
Normalized	17.2	40.1	53.4	83.5	39.1	71.3	53.0	91.3	67.1	96.9	91.3	100	35.6	60.3	59.7	87.9	67.1	17.8	69.3		
Standard Deviation	1%	3%	3%	1%	7%	5%	6%	9%	6%	2%	2%	%	4%	4%	3%	3%	7%	4%	5%		
Tungsten Renderer - Hair	**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	13.81	30.4598	9.9282		
Normalized	13.4	32.7	40.7	65.6	32.7	55.0	44.3	70.4	51.4	80.9	76.3	100	27.7	47.6	44.8	75.2	38.5	17.4	53.5		
Standard Deviation	7% 0.4%	2% 0%	% 0.4%	8% 0.8%	2% 0.9%	2% 0.4%	3% 0.3%	6% 1.3%	5% 0.4%	7% 0.6%	3% 0.2%	% 1.2%	2% 0.3%	3% 1.3%	6% 0.4%	5% 1.4%	2% 0.3%	7% 3.8%	8% 0.8%		
PyBench - T.F.A.T.T (Milliseconds)	1607	1551	1457	1462	1221	1225	1207	1211	1212	1211	1202	1206	1084	1075	1017	1013	1516	**3402**	**975**	1796	1797
Normalized	60.6	62.8	66.9	66.6	79.8	79.5	80.7	80.5	80.4	80.5	81.1	80.8	89.9	90.7	95.8	96.2	64.3	28.6	100	54.2	54.2
Standard Deviation	7%	6% 0.6%	2% 0.3%	9% 1.2%	5% 0.6%	9% 0.2%	8% 0.4%	1% 0.3%	5% 0.9%	1% 0.3%	1% 0.2%	5% 0.3%	4% 0.3%	% 0.2%	7% 0.2%	5% 0.1%	1%	6% 0.5%	% 1.3%	9% 0.8%	6% 0.6%
PHPBench - P.B.S	359687	373155	397124	395581	489637	489367	495293	496430	495466	495916	502052	501770	595163	598887	637497	**645629**	574890	224645	619602	160532	**160465**
Normalized	55.7	57.8	61.5	61.2	75.8	75.8	76.7	76.8	76.7	76.8	77.7	77.7	92.1	92.7	98.7	100	89.0	34.7	95.9	24.8	24.8
Standard Deviation	1% 0.3%	% 0.3%	1% 0.2%	7% 0.5%	4% 0.5%	% 0.7%	1% 0.8%	9% 0.3%	4% 0.5%	1% 0.3%	6% 0.6%	2% 0.3%	8% 0.9%	6% 0.3%	4% 1.4%	% 0.3%	4% 0.1%	9% 1.1%	7% 0.6%	6% 0.4%	5% 0.2%
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	30.1	37.9	33.6	30.1	84.1	79.5	95.6	91.8	97.8	91.6	100	94.4	72.0	66.7	99.6	92.1					
Standard Deviation	2% 0.6%	% 2.7%	% 5.7%	5% 2.9%	4% 0.9%	8% 1.3%	4% 2.2%	7% 1.9%	8% 2.2%	9% 1%	% 3%	8% 0.2%	3% 2%	2% 1.8%	2% 2.9%	% 3.5%					

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%	48.81%	39.82%	63.45%	46.45%	73.51%	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/	**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%	45.92%	18.73%	36.68%	27.76%	52.47%	33.68%	63.29%	58.80%	100%	16.54%	24.57%	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%	87.97%	86.78%	89.76%	88.01%	89.76%	87.41%	91.08%	90.38%	93.88%	91.51%	100%	99.39%
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 (Mpixels/sec)	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%	92.83%	96.19%	95.33%	97.96%	96.66%	98.07%	97.05%	100%	98.13%	62.13%	60.95%	64.75%	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/	**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%	96.82%	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/	**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%	73.94%	72.49%	92.52%	89.88%	93.76%	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%	91.92%	87.96%	71.76%	67.96%	59.42%	56.22%	37.62%	30.52%	37.27%	34.67%	17.63%	17.21%

John The Ripper - Performance / Cost - Blowfish (Real C/S/Dolla	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%	69.44%	66.99%	43.99%	40.58%	31.65%	31%	14.57%	14.4%
MKL-DNN - Performance / Cost - IP Batch All - f32 (ms x Dollar)	294404	**156548**	604367	**841049 6**	212855	262115	286645	386523	351590	457537	688383	137603 8	309746	656891	949654	194915 3
Normalized	53.17%	100%	25.9%	1.86%	73.55%	59.73%	54.61%	40.58%	44.53%	34.22%	22.74%	11.38%	50.54%	23.8%	16.48%	8.03%
MKL-DN N - 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%	87.76%	76.56%	68.53%	62.59%	53.07%	36.83%	24.49%	30.25%	39.6%	12.55%	15.48%
MKL-DN N - Performance / Cost - C.B.c - f32 (ms x Dollar)	436759 4	317303 1	12219861	**129325 47**	**191867 2**	207057 5	248334 4	265748 8	306179 7	328270 6	527634 6	632440 2	354777 3	361365 0	767109 8	767430 1
Normalized	43.93%	60.47%	15.7%	14.84%	100%	92.66%	77.26%	72.26%	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)	563	414	161	168	258	278	335	377	399	433	682	777	444	457	944	972
	231	684	191	568	341	825	240	747	338	311	247	580	580	145	149	074
			4	3												
Normalized	45.8	62.3	16.0	15.3	100	92.6	77.0	68.3	64.6	59.6	37.8	33.2	58.1	56.5	27.3	26.5
	7%	%	3%	3%	%	5%	6%	9%	9%	2%	7%	2%	1%	1%	6%	8%
MKL-DNN - Performance / Cost - C.B.c - f32 (ms x Dollar)	241	179	702	752	107	127	137	158	167	193	291	364	196	197	417	423
	064	672	439	173	958	900	127	545	724	303	307	539	022	657	776	981
Normalized	44.7	60.0	15.3	14.3	100	84.4	78.7	68.0	64.3	55.8	37.0	29.6	55.0	54.6	25.8	25.4
	8%	9%	7%	5%	%	1%	3%	9%	7%	5%	6%	2%	7%	2%	4%	6%
SVT-HEVC - Performance / Cost - 1.8.b.Y.T. H.V.E (FPS/Dollar)	0.1	0.1	0.0	0.0	0.2	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	6	7	3	2	4	5	8	9	3	6	5	2	9	4	3	1
Normalized	66.6	70.8	12.5	8.33	100	62.5	75%	37.5	54.1	25%	20.8	8.33	37.5	16.6	12.5	4.17
	7%	3%	%	%	%	%		%	7%		3%	%	%	7%	%	%
SVT-VP9 - Performance / Cost - 1.8.b.Y.T. V.V.E (FPS/Dollar)	0.1	0.1	0.0	0.0	0.2	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0
	2	6	3	1	6	5	9	9	3	6	5	2	0	5	4	1
Normalized	46.1	61.5	11.5	3.85	100	57.6	73.0	34.6	50%	23.0	19.2	7.69	38.4	19.2	15.3	3.85
	5%	4%	4%	%	%	9%	8%	2%		8%	3%	%	6%	3%	8%	%

dav1d - Performance / Cost - Summer Nature 4K (sec x Dollar)	291	271	133	200	**232**	371	324	559	450	734	921	175	721	150	216	**362**
	28	01	964	329	**69**	41	36	41	16	67	17	132	19	828	695	**126**
Normalized	79.8	85.8	17.3	11.6	100	62.6	71.7	41.6	51.6	31.6	25.2	13.2	32.2	15.4	10.7	6.43
	8%	6%	7%	2%	%	5%	4%	%	9%	7%	6%	9%	6%	3%	4%	%
Coremark - Performance / Cost - CoreMark Size 666 - I.P.S (Iterations/Sec/Do	417	**603**	152	154	553	533	455	428	393	376	256	242	220	213	96.	**94.**
	.60	**.22**	.92	.29	.75	.44	.42	.32	.85	.07	.35	.36	.14	.35	65	**10**
Normalized	69.2	100	25.3	25.5	91.8	88.4	75.5	71.0	65.2	62.3	42.5	40.1	36.4	35.3	16.0	15.6
	3%	%	5%	8%	%	3%	%	1%	9%	4%	%	8%	9%	7%	2%	%
Stockfish - Performance / Cost - Total Time (Nodes/s/Dollar)	290	**418**	108	963	400	360	320	294	269	246	173	157	139	126	650	**619**
	37	**98**	51	0	32	31	85	62	45	84	56	13	69	78	9	**7**
Normalized	69.3	100	25.9	22.9	95.5	86%	76.5	70.3	64.3	58.9	41.4	37.5	33.3	30.2	15.5	14.7
	%	%	%	8%	5%		8%	2%	1%	2%	2%	%	4%	6%	4%	9%
asmFish - Performance / Cost - 1.H.M.2.D (Nodes/s	288	**448**	116	107	403	356	325	291	278	240	171	156	152	139	700	**670**
	61	**96**	01	16	67	46	73	44	55	46	72	11	28	38	7	**4**
Normalized	64.2	100	25.8	23.8	89.9	79.4	72.5	64.9	62.0	53.5	38.2	34.7	33.9	31.0	15.6	14.9
	8%	%	4%	7%	1%	%	5%	1%	4%	6%	5%	7%	2%	5%	1%	3%

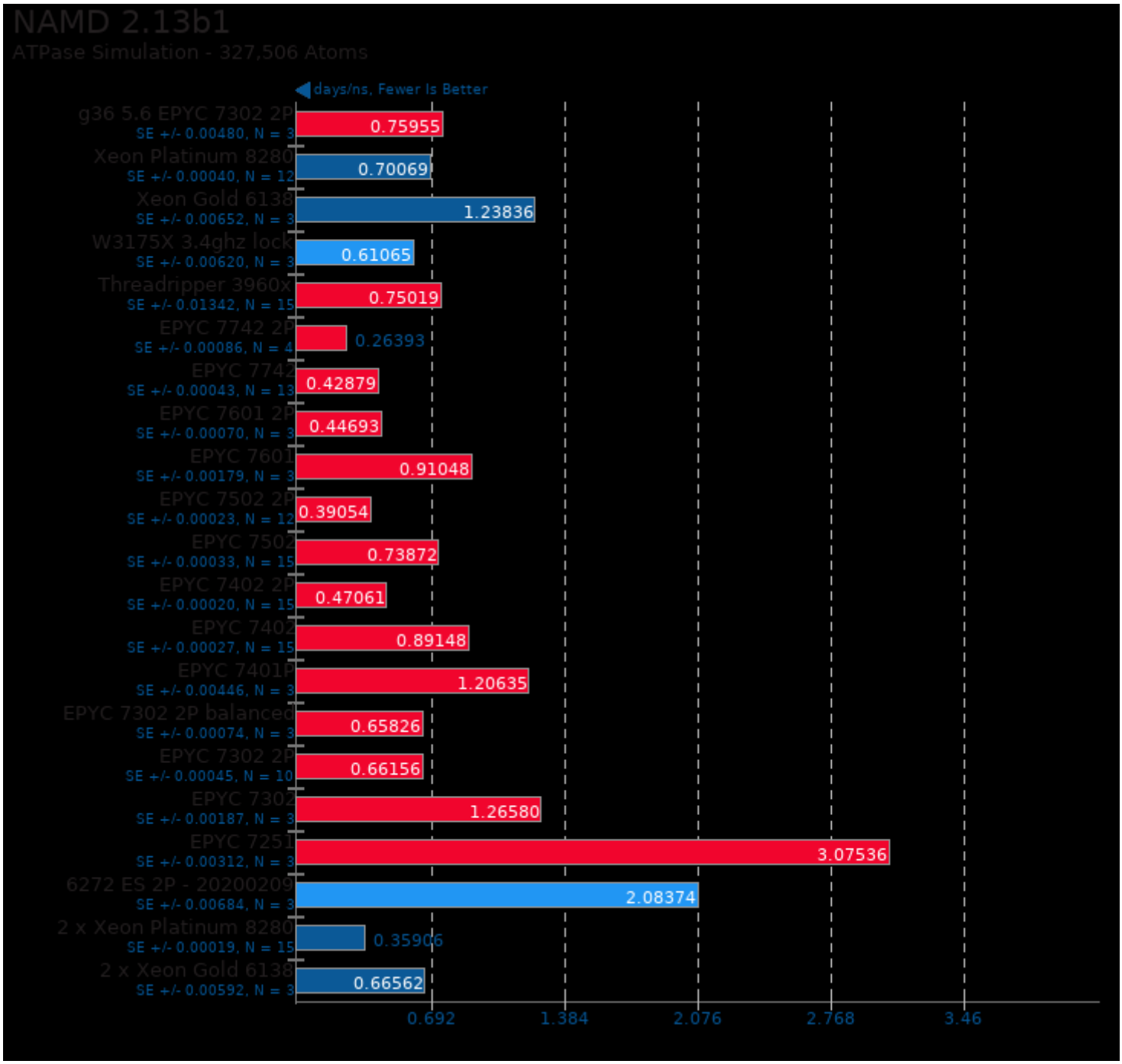
Timed Linux Kernel Compilation - Performance / Cost - Time To Compile (sec x Dollar)	575	486	210	251	**442**	582	632	874	817	117	171	246	130	170	312	**426**
	15	77	845	619	**95**	52	67	49	21	356	501	658	441	867	481	**584**
Normalized	77.0	91%	21.0	17.6	100	76.0	70.0	50.6	54.2	37.7	25.8	17.9	33.9	25.9	14.1	10.3
	1%		1%	%	%	4%	1%	5%	%	4%	3%	6%	6%	2%	8%	8%
Timed LLVM Compilation - Performance / Cost - Time To Compile (sec x Dollar)	302	239	108	142	**216**	285	306	409	404	563	783	120	650	837	158	**210**
	367	532	984	709	**044**	437	458	177	042	175	414	965	595	348	942	**008**
			6	0								5			9	**8**
Normalized	71.4	90.1	19.8	15.1	100	75.6	70.5	52.8	53.4	38.3	27.5	17.8	33.2	25.8	13.5	10.2
	5%	9%	2%	4%	%	9%	%	%	7%	6%	8%	6%	1%	%	9%	9%
C-Ray - Performance / Cost - Total Time - 4.1.R.P.P (sec x Dollar)	495	**331**	131	131	406	411	495	503	585	611	908	965	131	146	279	**286**
	01	**69**	174	764	38	38	23	35	94	85	90	45	271	916	051	**458**
Normalized	67.0	100	25.2	25.1	81.6	80.6	66.9	65.9	56.6	54.2	36.4	34.3	25.2	22.5	11.8	11.5
	1%	%	9%	7%	2%	3%	8%	%	1%	1%	9%	6%	7%	8%	9%	8%

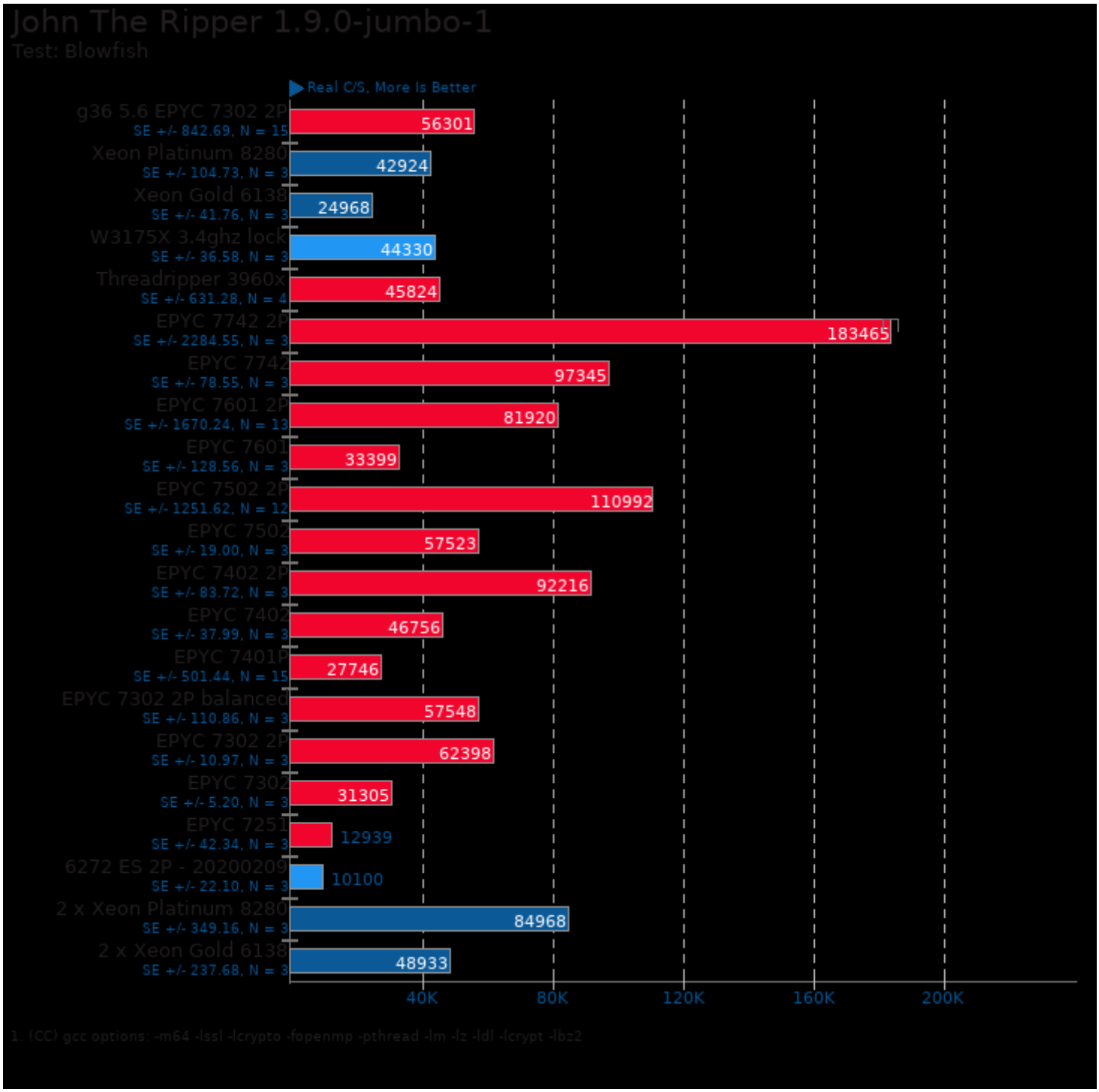
POV-Ray - Performance / Cost - Trace Time (sec x	400 82	**298 79**	119 908	134 876	306 99	347 81	399 16	469 72	488 47	581 43	832 96	129 085	951 85	105 767	207 186	**236 613**
Normalized	74.5 4%	100 %	24.9 2%	22.1 5%	97.3 3%	85.9 %	74.8 5%	63.6 1%	61.1 7%	51.3 9%	35.8 7%	23.1 5%	31.3 9%	28.2 5%	14.4 2%	12.6 3%
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 %	84.1 2%	18.5 4%	13.7 6%	100 %	78.1 5%	79.8 8%	62.2 1%	66.8 9%	49.8 5%	40.2 8%	25.1 3%	34.2 5%	28.6 2%	15.3 7%	13.2 7%
Blender - Performance / Cost - BMW27 - CPU-Only (sec x Dollar)	155 927	112 104	447 763	514 289	**107 724**	116 143	136 354	156 650	171 696	199 500	286 781	411 967	315 425	340 822	683 715	**757 481**
Normalized	69.0 9%	96.0 9%	24.0 6%	20.9 5%	100 %	92.7 5%	79%	68.7 7%	62.7 4%	54%	37.5 6%	26.1 5%	34.1 5%	31.6 1%	15.7 6%	14.2 2%
Blender - Performance / Cost - Classroom - CPU-Only (sec x Dollar)	395 907	282 029	109 639 1	106 141 2	**281 334**	289 795	350 994	364 989	429 649	440 410	661 538	711 119	860 227	876 622	188 209 2	**190 171 0**
Normalized	71.0 6%	99.7 5%	25.6 6%	26.5 1%	100 %	97.0 8%	80.1 5%	77.0 8%	65.4 8%	63.8 8%	42.5 3%	39.5 6%	32.7 %	32.0 9%	14.9 5%	14.7 9%

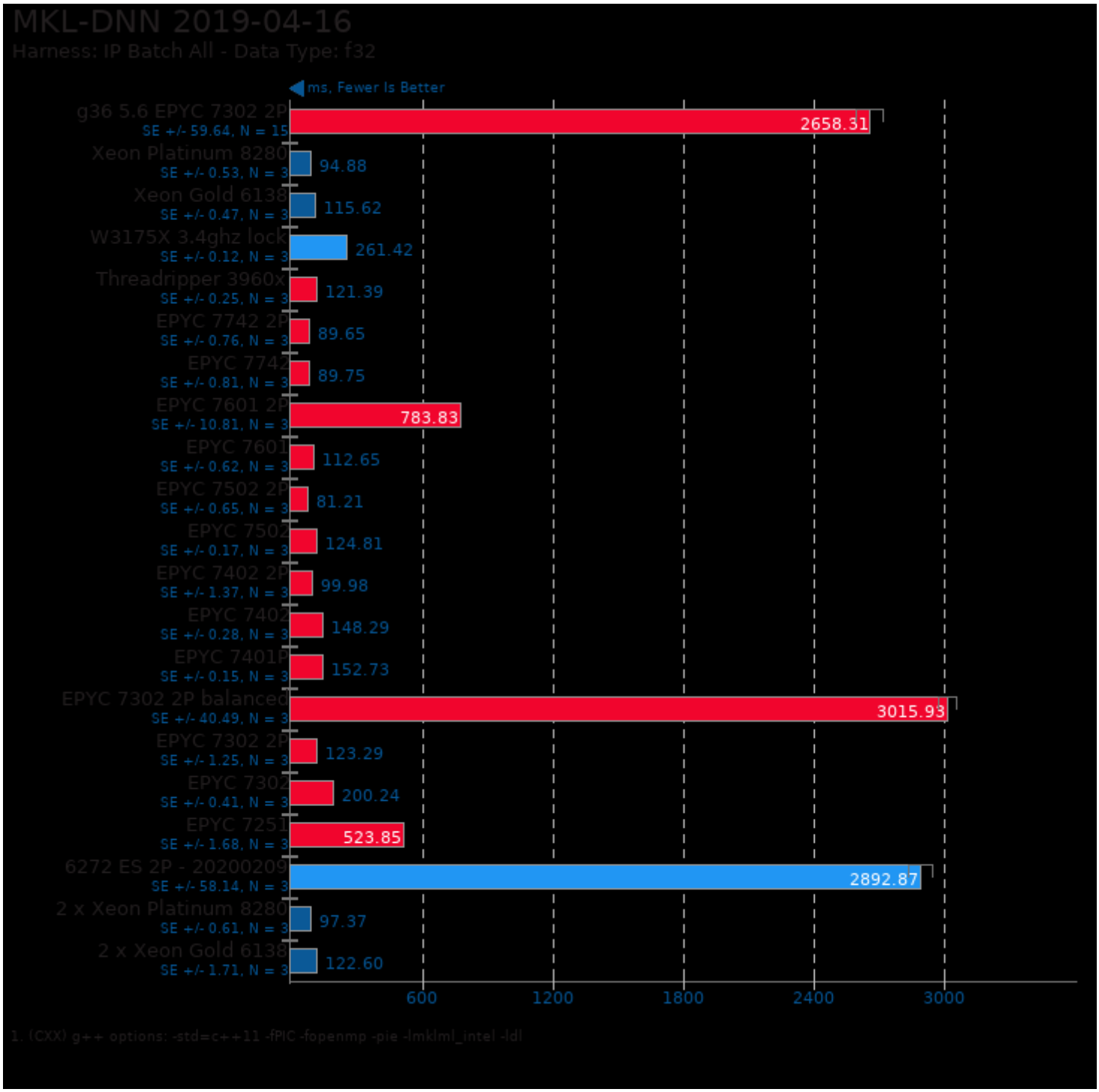
Blender - Performance / Cost - Fishy Cat - CPU-Only (sec x Dollar)	230858	164031	672181	823313	**152636**	176203	196567	250324	248854	324518	455445	670905	475121	536175	1047942	**125172**
Normalized	66.1%	93.0%	22.7%	18.5%	100%	86.6%	77.6%	60.9%	61.3%	47.0%	33.5%	22.7%	32.1%	28.4%	14.5%	12.1%
Blender - Performance / Cost - Barbershop - CPU-Only (sec x Dollar)	668842	464756	1861601	2360064	**425508**	506201	549359	694991	683996	926511	1295847	217414	121824	142469	279641	**363186**
Normalized	63.6%	91.5%	22.8%	18.0%	100%	84.0%	77.4%	61.2%	62.2%	45.9%	32.8%	19.5%	34.9%	29.8%	15.2%	11.7%
Blender - Performance / Cost - Pabellon Barcelona - CPU-Only (sec x Dollar)	599783	400611	1578812	1714010	**362717**	383488	452689	496858	561400	615458	896776	113874	111004	115100	237713	**249964**
Normalized	60.4%	90.5%	22.9%	21.1%	100%	94.5%	80.1%	73%	64.6%	58.9%	40.4%	31.8%	32.6%	31.5%	15.2%	14.5%

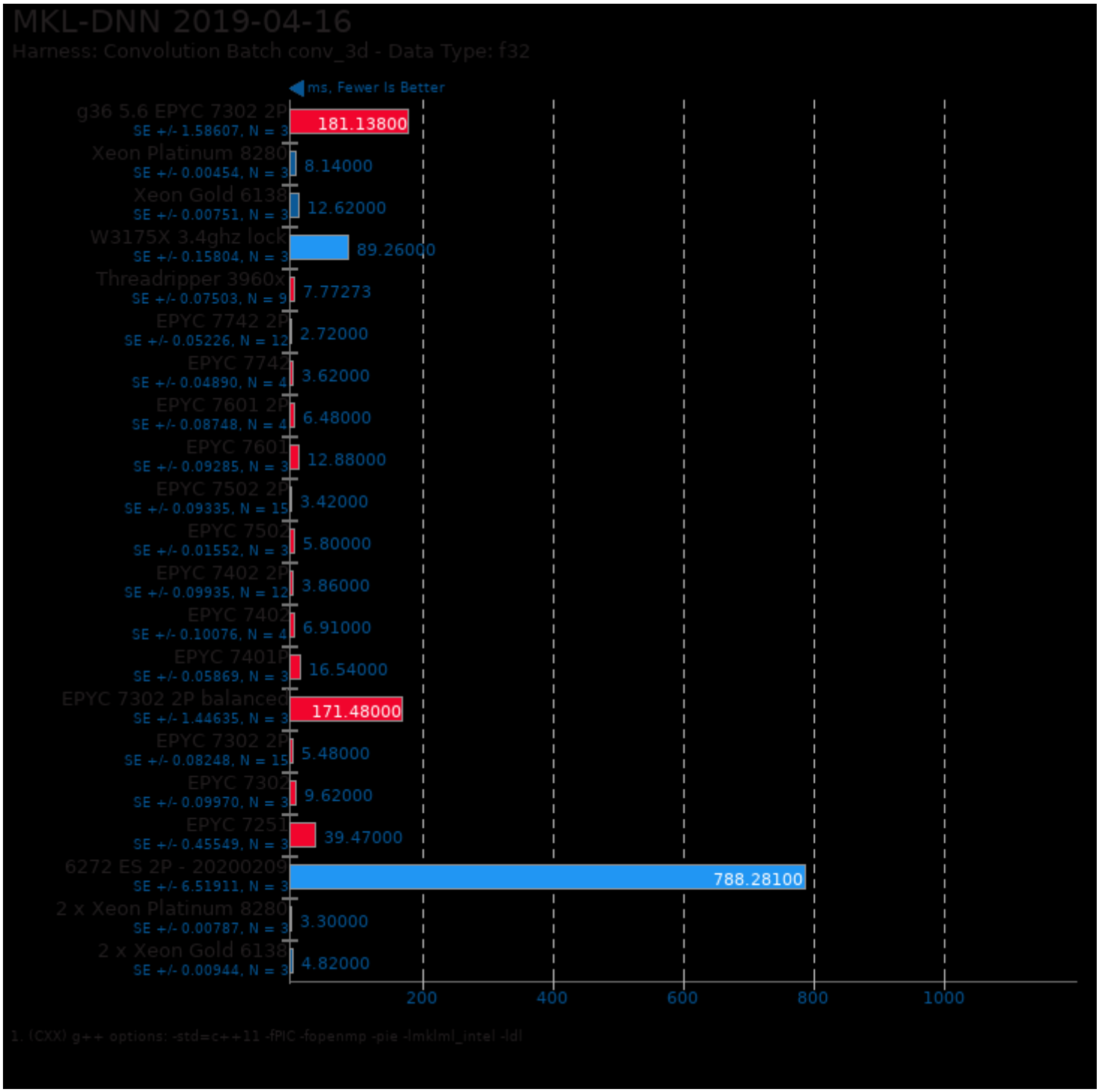
Appleseed - Performance / Cost - Disney Material (sec x Dollar)	189	**148**	582	745	157	172	211	245	243	337	487	890	435	514	971	**132**
	332	**113**	263	091	367	801	277	298	220	082	045	089	927	904	774	**018**
																7
Normalized	78.2	100	25.4	19.8	94.1	85.7	70.1	60.3	60.9	43.9	30.4	16.6	33.9	28.7	15.2	11.2
	3%	%	4%	8%	2%	1%	%	8%	%	4%	1%	4%	8%	7%	4%	2%
Tungsten Renderer - Performance / Cost - Hair (sec	221	**166**	701	869	172	205	231	291	291	370	534	816	514	598	118	**141**
	93	**67**	21	13	84	58	96	88	28	15	60	57	10	49	707	**527**
Normalized	75.1	100	23.7	19.1	96.4	81.0	71.8	57.1	57.2	45.0	31.1	20.4	32.4	27.8	14.0	11.7
	%	%	7%	8%	3%	7%	5%	%	2%	3%	8%	1%	2%	5%	4%	8%
PyBench - Performance / Cost - T.F.A.T.T (Milliseconds x Dollar)	**903**	158	781	156	129	260	233	468	341	682	921	185	290	575	101	**202**
	134	977	680	872	792	435	313	172	420	277	934	108	403	985	791	**782**
		5	5	60	3	0	1	6	4	4	0	94	6	0	53	**34**
Normalized	100	56.8	11.5	5.76	69.5	34.6	38.7	19.2	26.4	13.2	9.8%	4.88	31.1	15.6	8.87	4.45
	%	1%	5%	%	8%	8%	1%	9%	5%	4%		%	%	8%	%	%
PHPBench - Performance / Cost - P.B.S (Score/Dollar)	**640**	364	74.	36.	460	230	256	128	175	88.	65.	32.	222	111	63.	**32.**
	.01	.05	02	87	.62	.18	.23	.41	.88	02	46	69	.16	.77	69	**25**
Normalized	100	56.8	11.5	5.76	71.9	35.9	40.0	20.0	27.4	13.7	10.2	5.11	34.7	17.4	9.95	5.04
	%	8%	7%	%	7%	7%	4%	6%	8%	5%	3%	%	1%	6%	%	%

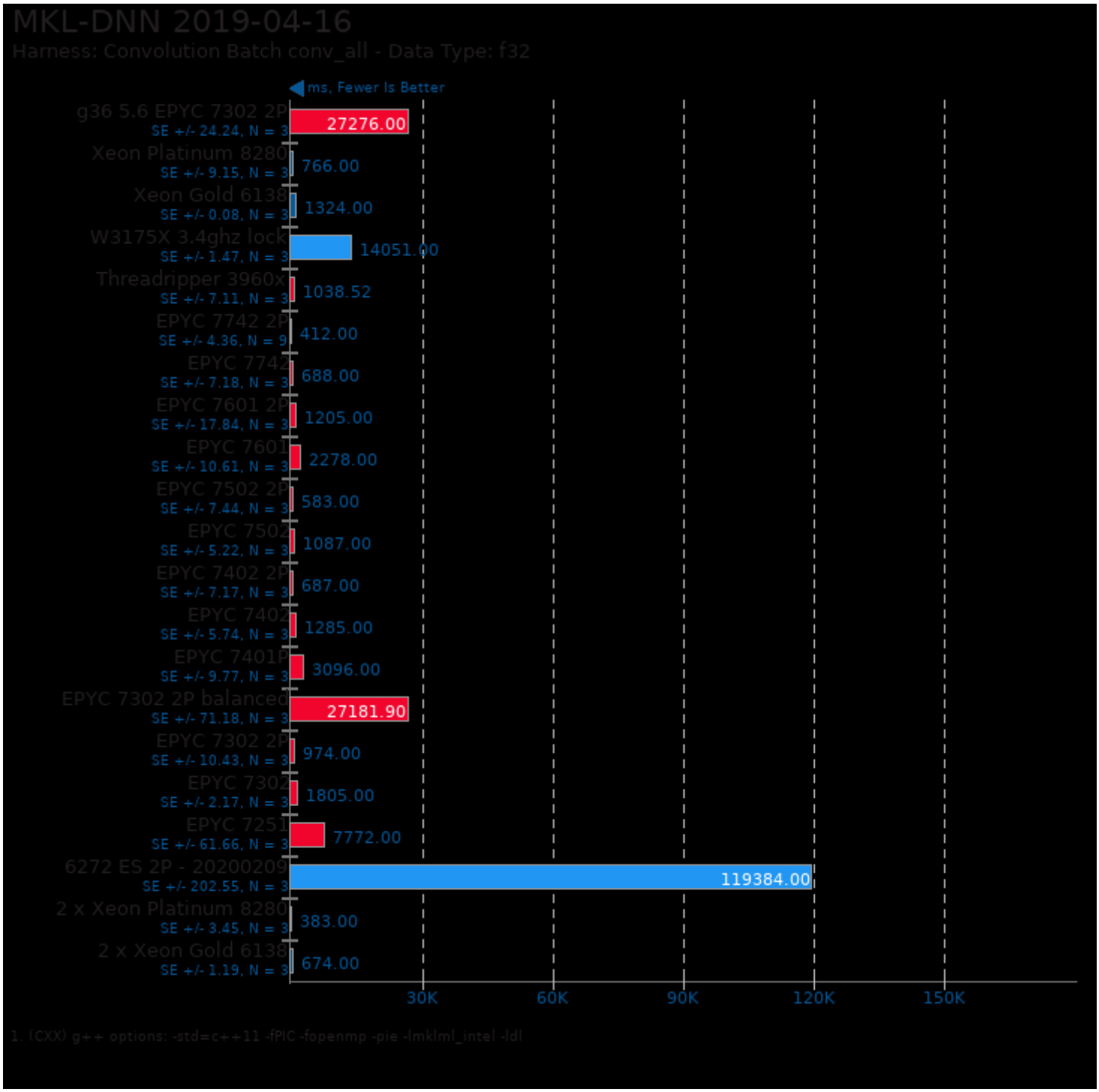
Geekbench - Performance / Cost - CPU Multi Core (Score/Dollar)	11.69	14.22	3.32	2.65	**16.29**	13.56	12.16	9.69	9.74	7.71	5.48	3.85	5.37	3.66	2.37	**1.81**
Normalized	71.76%	87.29%	20.38%	16.27%	100%	83.24%	74.65%	59.48%	59.74%	47.33%	33.64%	23.63%	32.97%	22.47%	14.55%	11.11%

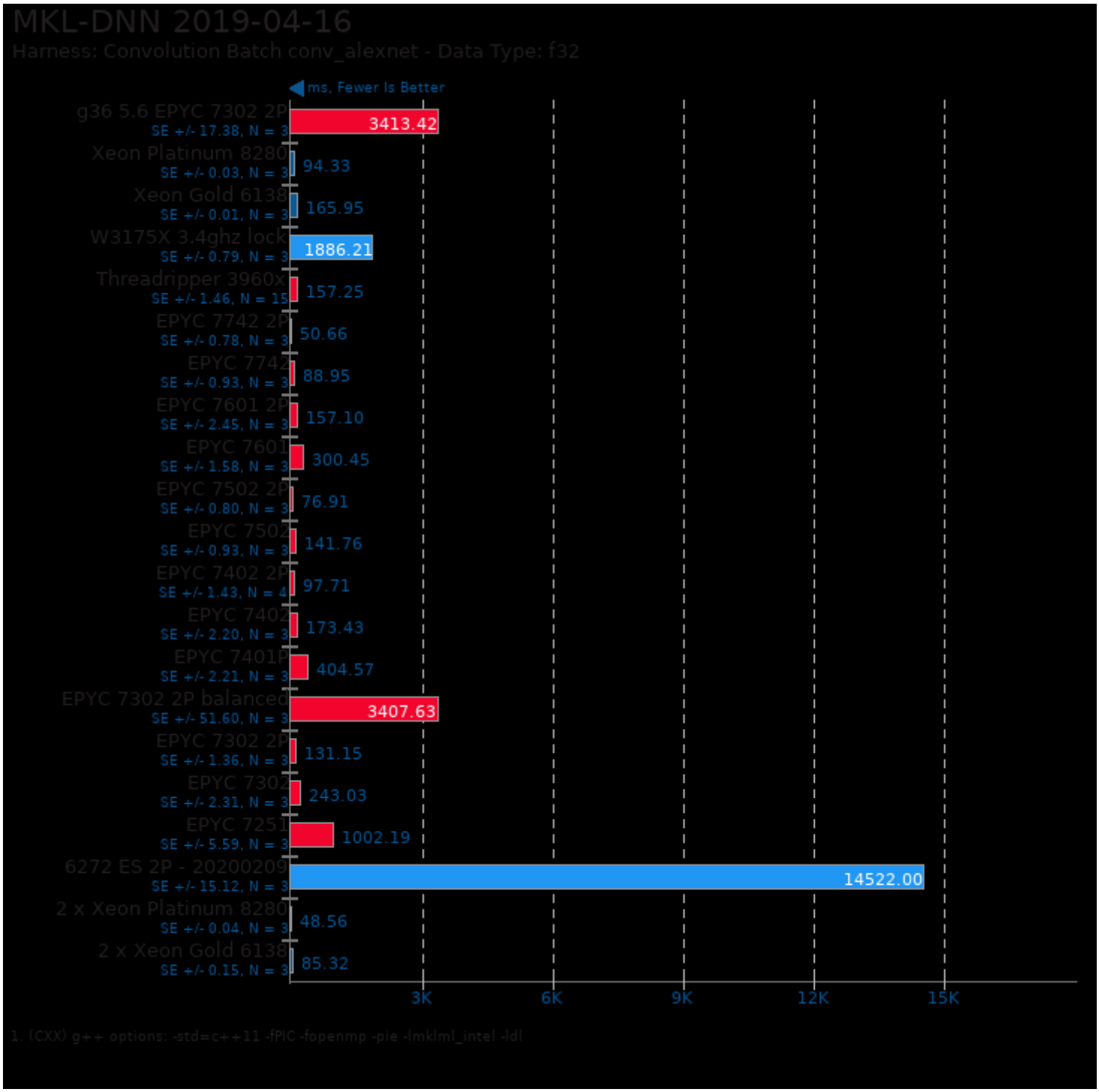

NAMD 2.13b1
ATPase Simulation - 327,506 Atoms
days/ns, Fewer Is Better
g36 5.6 EPYC 7302 2P
SE +/- 0.00480, N = 3
0.75955
Xeon Platinum 8280
SE +/- 0.00040, N = 12
0.70069
Xeon Gold 6138
SE +/- 0.00652, N = 3
1.23836
W3175X 3.4ghz lock
SE +/- 0.00620, N = 3
0.61065
Threadripper 3960x
SE +/- 0.01342, N = 15
0.75019
EPYC 7742 2P
SE +/- 0.00086, N = 4
0.26393
EPYC 7742
SE +/- 0.00043, N = 13
0.42879
EPYC 7601 2P
SE +/- 0.00070, N = 3
0.44693
EPYC 7601
SE +/- 0.00179, N = 3
0.91048
EPYC 7502 2P
SE +/- 0.00023, N = 12
0.39054
EPYC 7502
SE +/- 0.00033, N = 15
0.73872
EPYC 7402 2P
SE +/- 0.00020, N = 15
0.47061
EPYC 7402
SE +/- 0.00027, N = 15
0.89148
EPYC 7401P
SE +/- 0.00446, N = 3
1.20635
EPYC 7302 2P balanced
SE +/- 0.00074, N = 3
0.65826
EPYC 7302 2P
SE +/- 0.00045, N = 10
0.66156
EPYC 7302
SE +/- 0.00187, N = 3
1.26580
EPYC 7251
SE +/- 0.00312, N = 3
3.07536
6272 ES 2P - 20200209
SE +/- 0.00684, N = 3
2.08374
2 x Xeon Platinum 8280
SE +/- 0.00019, N = 15
0.35906
2 x Xeon Gold 6138
SE +/- 0.00592, N = 3
0.66562
0.692
1.384
2.076
2.768
3.46

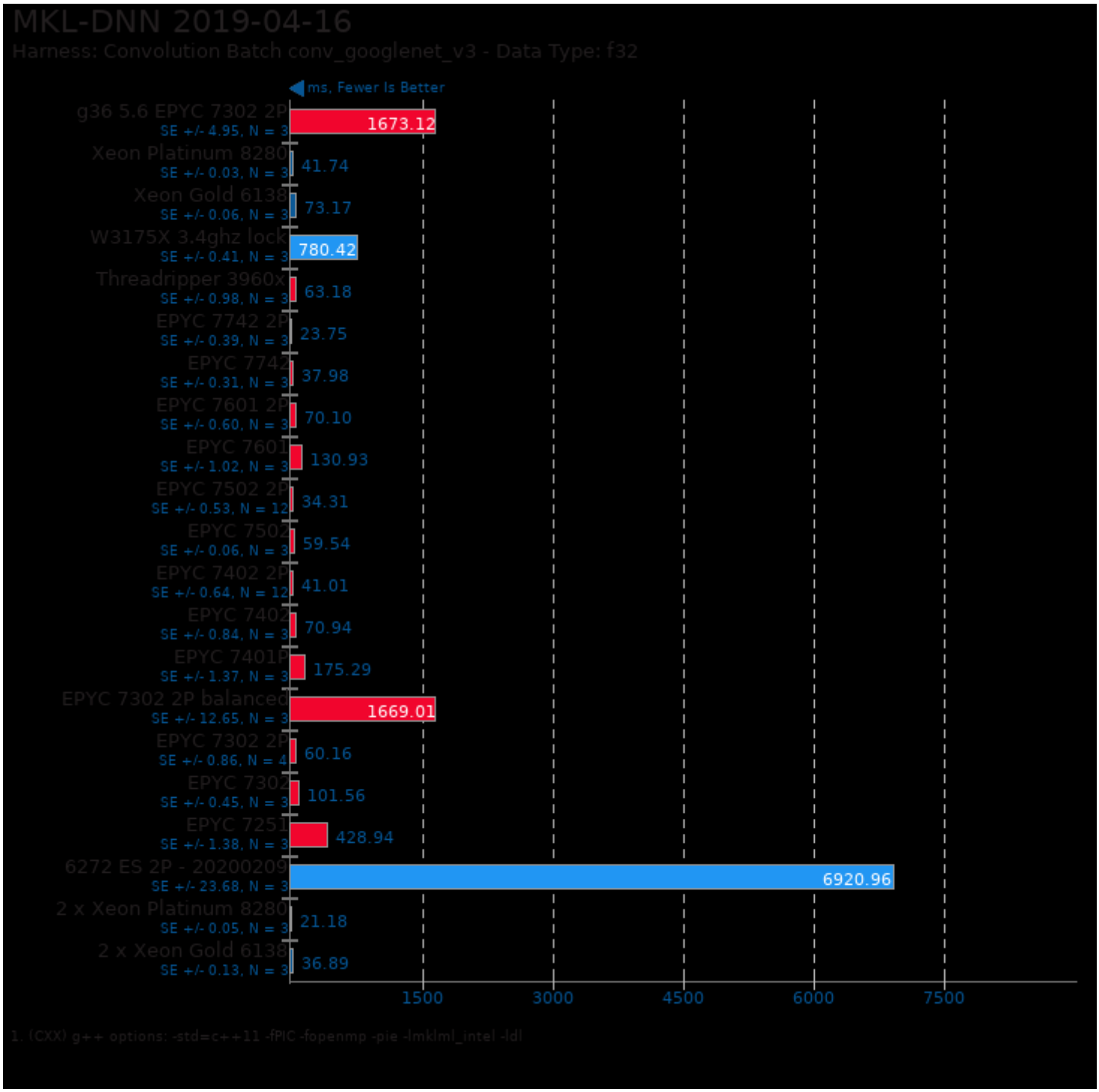

John The Ripper 1.9.0-jumbo-1
Test: Blowfish
Real C/S, More Is Better
g36 5.6 EPYC 7302 2P
SE +/- 842.69, N = 15
56301
Xeon Platinum 8280
SE +/- 104.73, N = 3
42924
Xeon Gold 6138
SE +/- 41.76, N = 3
24968
W3175X 3.4ghz lock
SE +/- 36.58, N = 3
44330
Threadripper 3960x
SE +/- 631.28, N = 4
45824
EPYC 7742 2P
SE +/- 2284.55, N = 3
183465
EPYC 7742
SE +/- 78.55, N = 3
97345
EPYC 7601 2P
SE +/- 1670.24, N = 13
81920
EPYC 7601
SE +/- 128.56, N = 3
33399
EPYC 7502 2P
SE +/- 1251.62, N = 12
110992
EPYC 7502
SE +/- 19.00, N = 3
57523
EPYC 7402 2P
SE +/- 83.72, N = 3
92216
EPYC 7402
SE +/- 37.99, N = 3
46756
EPYC 7401P
SE +/- 501.44, N = 15
27746
EPYC 7302 2P balanced
SE +/- 110.86, N = 3
57548
EPYC 7302 2P
SE +/- 10.97, N = 3
62398
EPYC 7302
SE +/- 5.20, N = 3
31305
EPYC 7251
SE +/- 42.34, N = 3
12939
6272 ES 2P - 20200209
SE +/- 22.10, N = 3
10100
2 x Xeon Platinum 8280
SE +/- 349.16, N = 3
84968
2 x Xeon Gold 6138
SE +/- 237.68, N = 3
48933
40K
80K
120K
160K
200K
1. (CC) gcc options: -m64 -lssl -lcrypto -fopenmp -pthread -lm -lz -ldl -lcrypt -lbz2

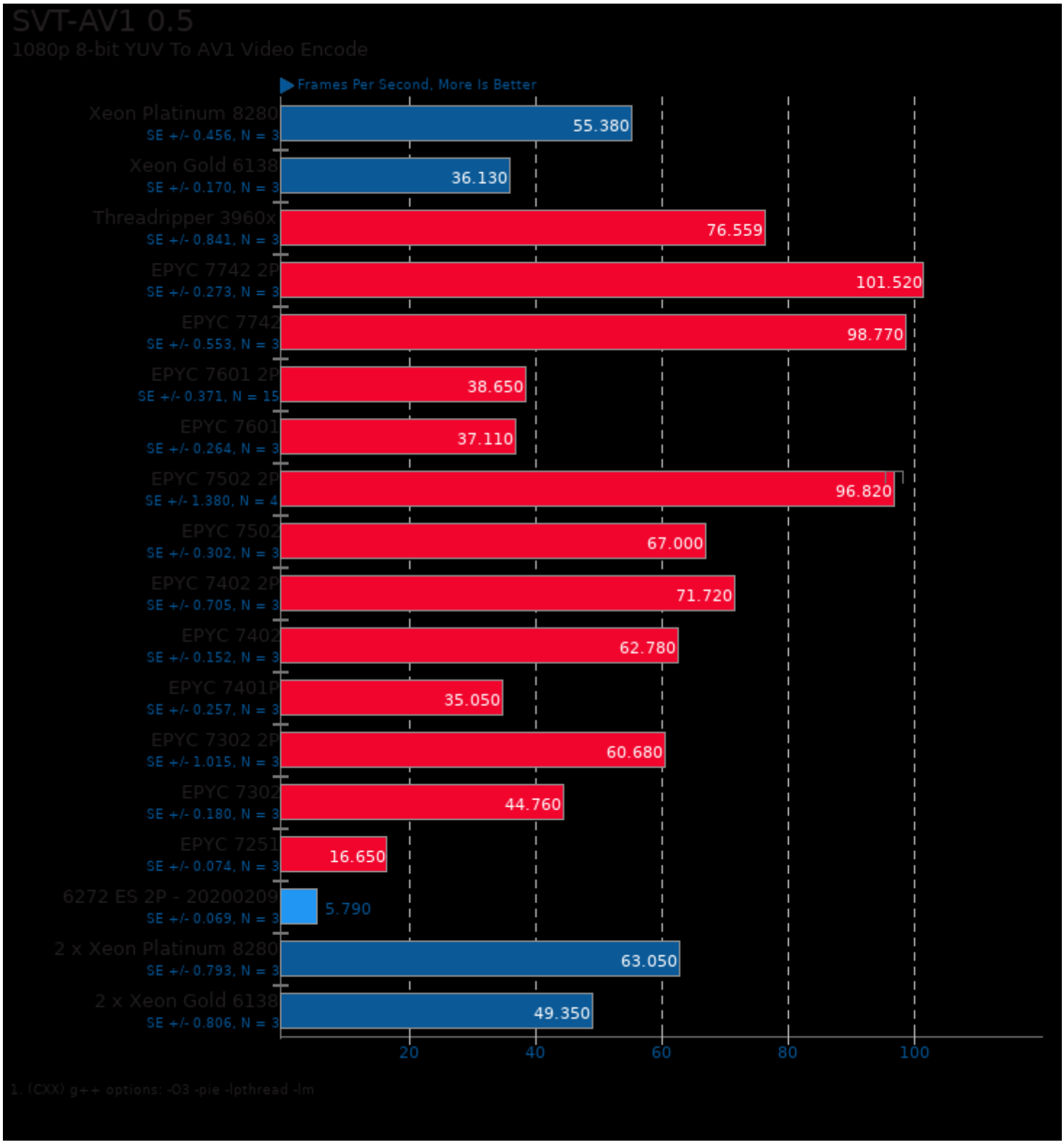

MKL-DNN 2019-04-16
Harness: IP Batch All - Data Type: f32
ms, Fewer Is Better
g36 5.6 EPYC 7302 2P
SE +/- 59.64, N = 15
2658.31
Xeon Platinum 8280
SE +/- 0.53, N = 3
94.88
Xeon Gold 6138
SE +/- 0.47, N = 3
115.62
W3175X 3.4ghz lock
SE +/- 0.12, N = 3
261.42
Threadripper 3960x
SE +/- 0.25, N = 3
121.39
EPYC 7742 2P
SE +/- 0.76, N = 3
89.65
EPYC 7742
SE +/- 0.81, N = 3
89.75
EPYC 7601 2P
SE +/- 10.81, N = 3
783.83
EPYC 7601
SE +/- 0.62, N = 3
112.65
EPYC 7502 2P
SE +/- 0.65, N = 3
81.21
EPYC 7502
SE +/- 0.17, N = 3
124.81
EPYC 7402 2P
SE +/- 1.37, N = 3
99.98
EPYC 7402
SE +/- 0.28, N = 3
148.29
EPYC 7401P
SE +/- 0.15, N = 3
152.73
EPYC 7302 2P balanced
SE +/- 40.49, N = 3
3015.93
EPYC 7302 2P
SE +/- 1.25, N = 3
123.29
EPYC 7302
SE +/- 0.41, N = 3
200.24
EPYC 7251
SE +/- 1.68, N = 3
523.85
6272 ES 2P - 20200209
SE +/- 58.14, N = 3
2892.87
2 x Xeon Platinum 8280
SE +/- 0.61, N = 3
97.37
2 x Xeon Gold 6138
SE +/- 1.71, N = 3
122.60
600
1200
1800
2400
3000
1. (CXX) g++ options: -std=c++11 -fPIC -fopenmp -pie -lmklml_intel -ldl

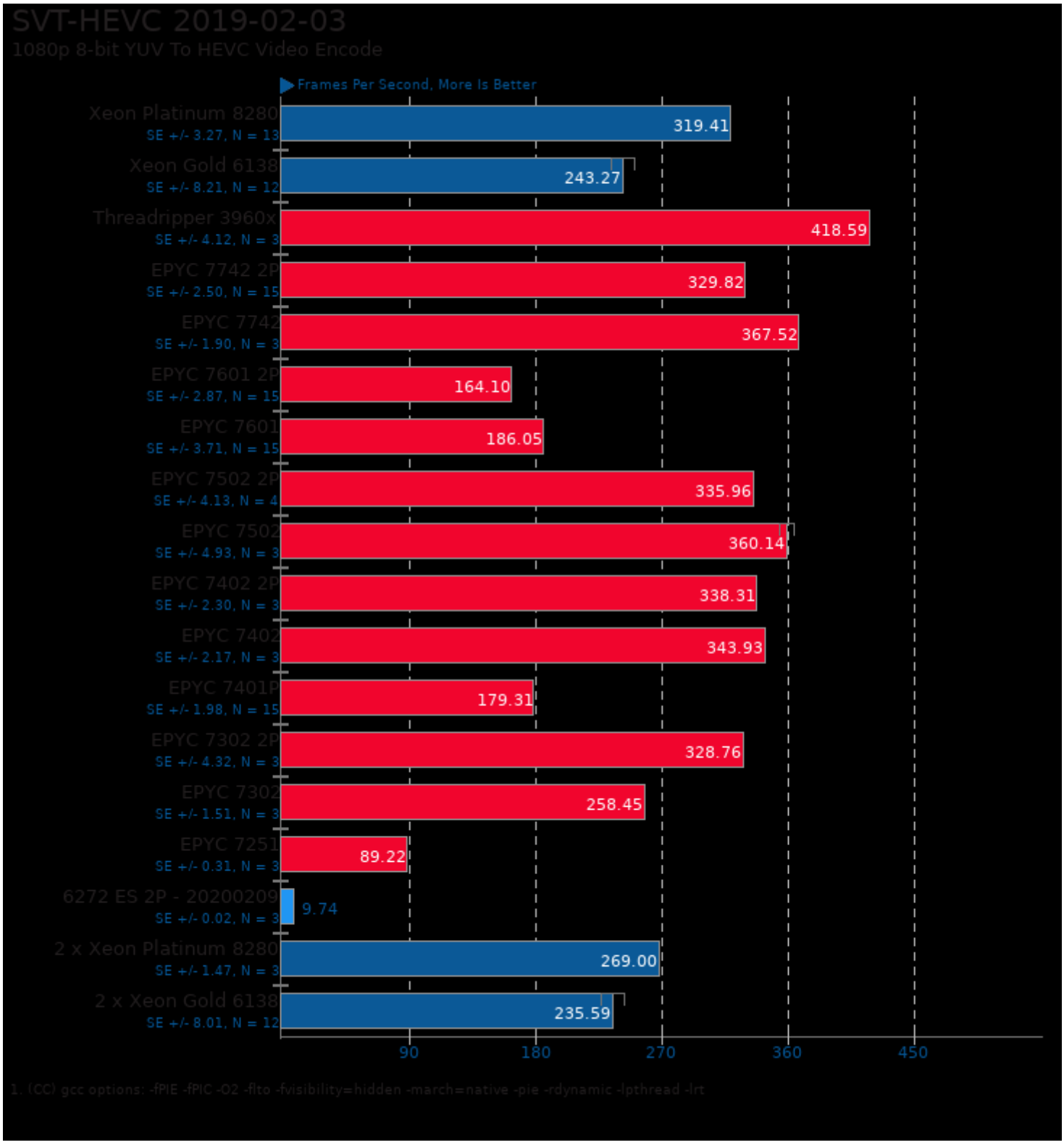

MKL-DNN 2019-04-16
Harness: Convolution Batch conv_3d - Data Type: f32
ms, Fewer Is Better
g36 5.6 EPYC 7302 2P
SE +/- 1.58607, N = 3
181.13800
Xeon Platinum 8280
SE +/- 0.00454, N = 3
8.14000
Xeon Gold 6138
SE +/- 0.00751, N = 3
12.62000
W3175X 3.4ghz lock
SE +/- 0.15804, N = 3
89.26000
Threadripper 3960x
SE +/- 0.07503, N = 9
7.77273
EPYC 7742 2P
SE +/- 0.05226, N = 12
2.72000
EPYC 7742
SE +/- 0.04890, N = 4
3.62000
EPYC 7601 2P
SE +/- 0.08748, N = 4
6.48000
EPYC 7601
SE +/- 0.09285, N = 3
12.88000
EPYC 7502 2P
SE +/- 0.09335, N = 15
3.42000
EPYC 7502
SE +/- 0.01552, N = 3
5.80000
EPYC 7402 2P
SE +/- 0.09935, N = 12
3.86000
EPYC 7402
SE +/- 0.10076, N = 4
6.91000
EPYC 7401P
SE +/- 0.05869, N = 3
16.54000
EPYC 7302 2P balanced
SE +/- 1.44635, N = 3
171.48000
EPYC 7302 2P
SE +/- 0.08248, N = 15
5.48000
EPYC 7302
SE +/- 0.09970, N = 3
9.62000
EPYC 7251
SE +/- 0.45549, N = 3
39.47000
6272 ES 2P - 20200209
SE +/- 6.51911, N = 3
788.28100
2 x Xeon Platinum 8280
SE +/- 0.00787, N = 3
3.30000
2 x Xeon Gold 6138
SE +/- 0.00944, N = 3
4.82000
200
400
600
800
1000
1. (CXX) g++ options: -std=c++11 -fPIC -fopenmp -pie -lmklml_intel -ldl

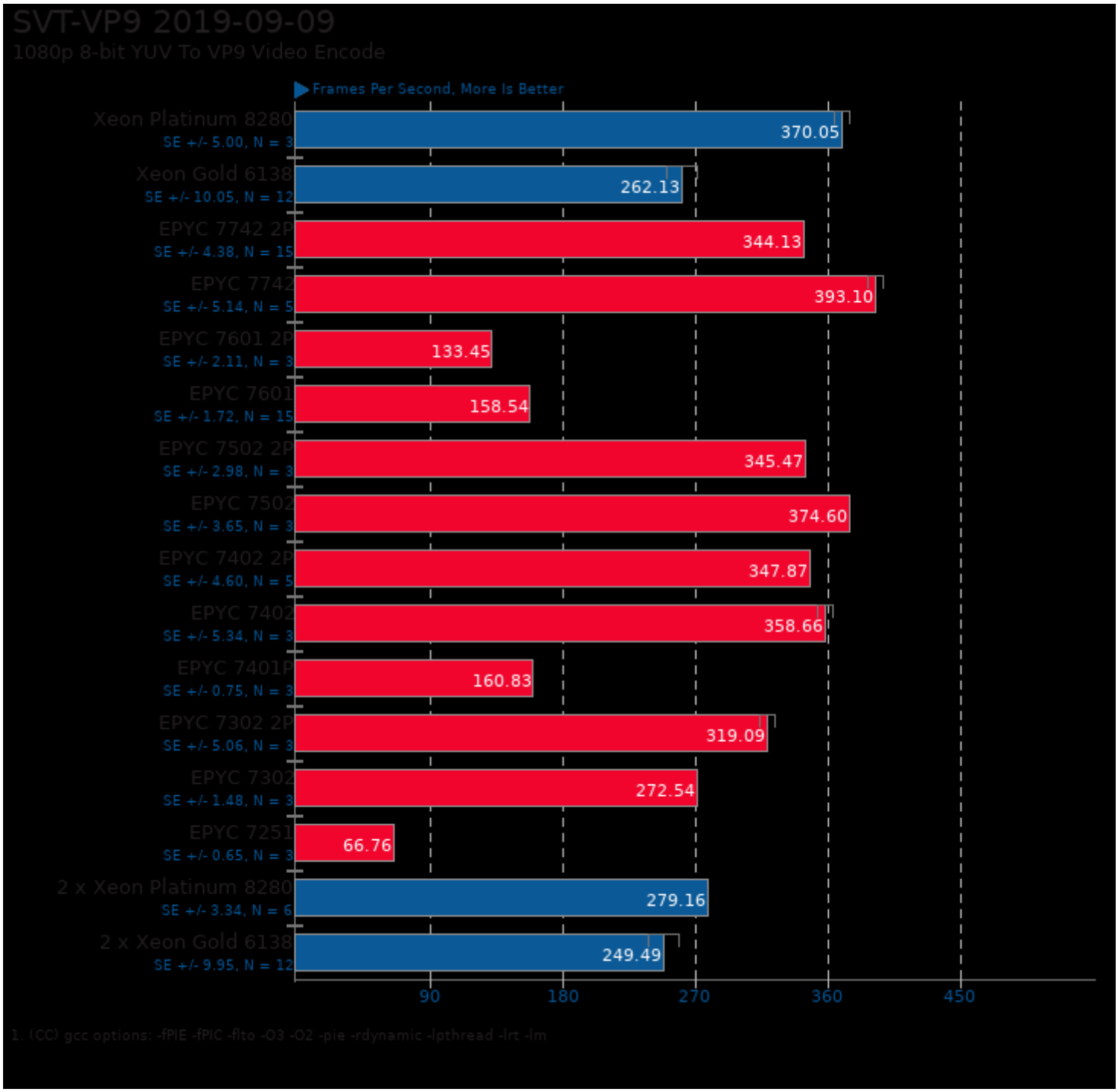

MKL-DNN 2019-04-16
Harness: Convolution Batch conv_all - Data Type: f32
ms, Fewer Is Better
g36 5.6 EPYC 7302 2P
SE +/- 24.24, N = 3
27276.00
Xeon Platinum 8280
SE +/- 9.15, N = 3
766.00
Xeon Gold 6138
SE +/- 0.08, N = 3
1324.00
W3175X 3.4ghz lock
SE +/- 1.47, N = 3
14051.00
Threadripper 3960x
SE +/- 7.11, N = 3
1038.52
EPYC 7742 2P
SE +/- 4.36, N = 9
412.00
EPYC 7742
SE +/- 7.18, N = 3
688.00
EPYC 7601 2P
SE +/- 17.84, N = 3
1205.00
EPYC 7601
SE +/- 10.61, N = 3
2278.00
EPYC 7502 2P
SE +/- 7.44, N = 3
583.00
EPYC 7502
SE +/- 5.22, N = 3
1087.00
EPYC 7402 2P
SE +/- 7.17, N = 3
687.00
EPYC 7402
SE +/- 5.74, N = 3
1285.00
EPYC 7401P
SE +/- 9.77, N = 3
3096.00
EPYC 7302 2P balanced
SE +/- 71.18, N = 3
27181.90
EPYC 7302 2P
SE +/- 10.43, N = 3
974.00
EPYC 7302
SE +/- 2.17, N = 3
1805.00
EPYC 7251
SE +/- 61.66, N = 3
7772.00
6272 ES 2P - 20200209
SE +/- 202.55, N = 3
119384.00
2 x Xeon Platinum 8280
SE +/- 3.45, N = 3
383.00
2 x Xeon Gold 6138
SE +/- 1.19, N = 3
674.00
30K
60K
90K
120K
150K
1. (CXX) g++ options: -std=c++11 -fPIC -fopenmp -pie -lmklml_intel -ldl

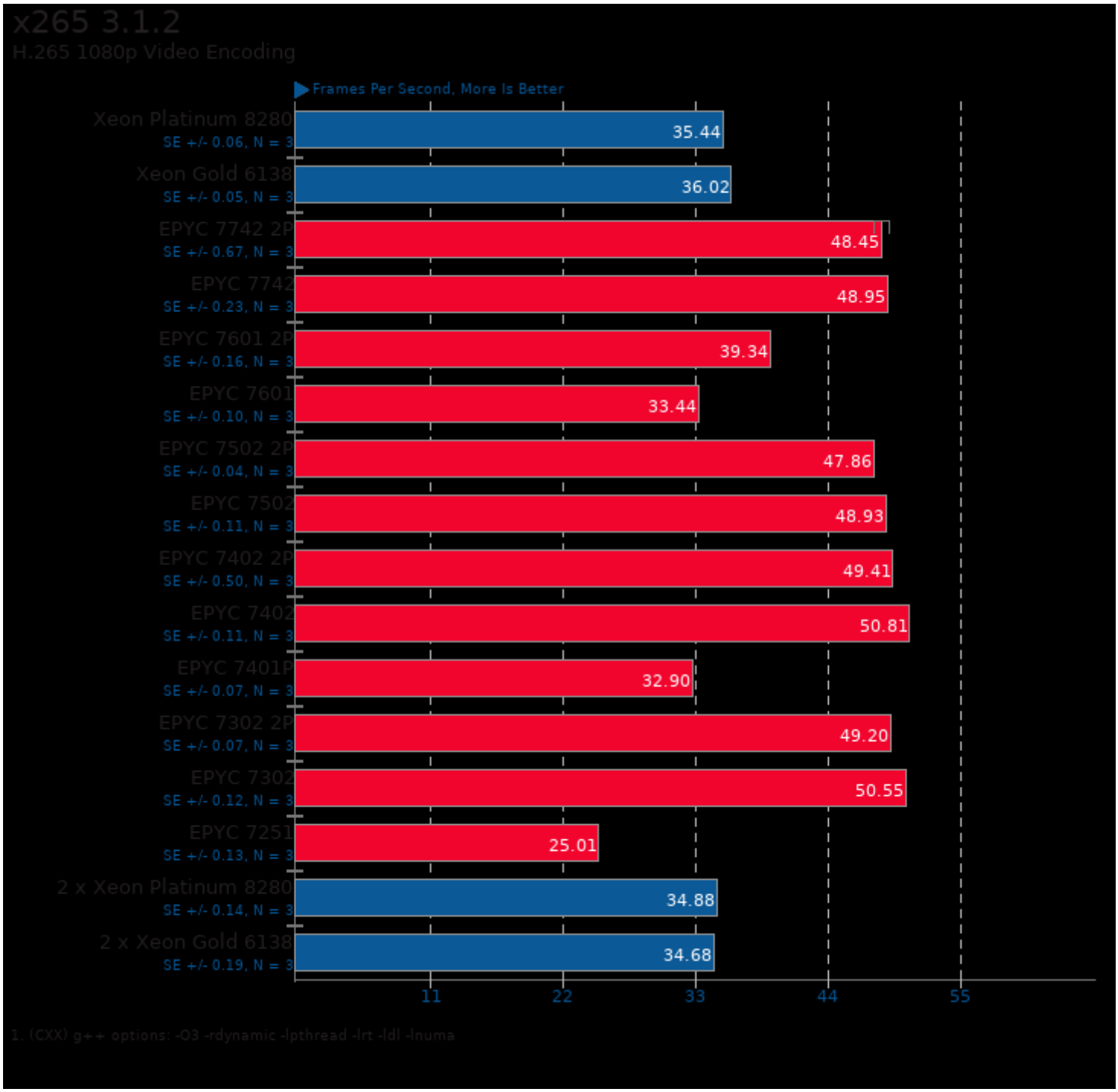

MKL-DNN 2019-04-16
Harness: Convolution Batch conv_alexnet - Data Type: f32
ms, Fewer Is Better
g36 5.6 EPYC 7302 2P
SE +/- 17.38, N = 3
3413.42
Xeon Platinum 8280
SE +/- 0.03, N = 3
94.33
Xeon Gold 6138
SE +/- 0.01, N = 3
165.95
W3175X 3.4ghz lock
SE +/- 0.79, N = 3
1886.21
Threadripper 3960x
SE +/- 1.46, N = 15
157.25
EPYC 7742 2P
SE +/- 0.78, N = 3
50.66
EPYC 7742
SE +/- 0.93, N = 3
88.95
EPYC 7601 2P
SE +/- 2.45, N = 3
157.10
EPYC 7601
SE +/- 1.58, N = 3
300.45
EPYC 7502 2P
SE +/- 0.80, N = 3
76.91
EPYC 7502
SE +/- 0.93, N = 3
141.76
EPYC 7402 2P
SE +/- 1.43, N = 4
97.71
EPYC 7402
SE +/- 2.20, N = 3
173.43
EPYC 7401P
SE +/- 2.21, N = 3
404.57
EPYC 7302 2P balanced
SE +/- 51.60, N = 3
3407.63
EPYC 7302 2P
SE +/- 1.36, N = 3
131.15
EPYC 7302
SE +/- 2.31, N = 3
243.03
EPYC 7251
SE +/- 5.59, N = 3
1002.19
6272 ES 2P - 20200209
SE +/- 15.12, N = 3
14522.00
2 x Xeon Platinum 8280
SE +/- 0.04, N = 3
48.56
2 x Xeon Gold 6138
SE +/- 0.15, N = 3
85.32
3K
6K
9K
12K
15K
1. (CXX) g++ options: -std=c++11 -fPIC -fopenmp -pie -lmklml_intel -ldl

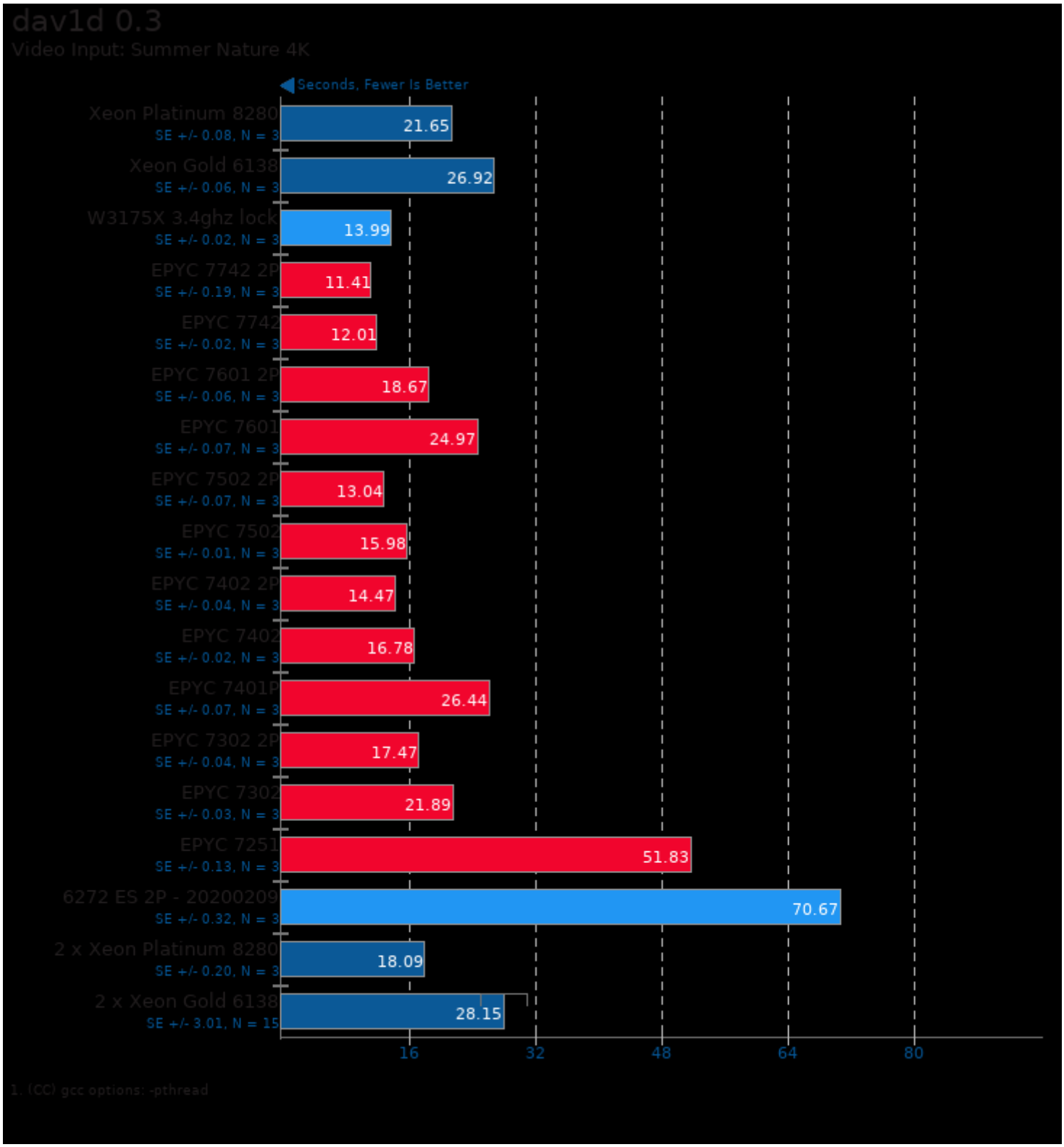

MKL-DNN 2019-04-16
Harness: Convolution Batch conv_googlenet_v3 - Data Type: f32
ms, Fewer Is Better
g36 5.6 EPYC 7302 2P
SE +/- 4.95, N = 3
1673.12
Xeon Platinum 8280
SE +/- 0.03, N = 3
41.74
Xeon Gold 6138
SE +/- 0.06, N = 3
73.17
W3175X 3.4ghz lock
SE +/- 0.41, N = 3
780.42
Threadripper 3960x
SE +/- 0.98, N = 3
63.18
EPYC 7742 2P
SE +/- 0.39, N = 3
23.75
EPYC 7742
SE +/- 0.31, N = 3
37.98
EPYC 7601 2P
SE +/- 0.60, N = 3
70.10
EPYC 7601
SE +/- 1.02, N = 3
130.93
EPYC 7502 2P
SE +/- 0.53, N = 12
34.31
EPYC 7502
SE +/- 0.06, N = 3
59.54
EPYC 7402 2P
SE +/- 0.64, N = 12
41.01
EPYC 7402
SE +/- 0.84, N = 3
70.94
EPYC 7401P
SE +/- 1.37, N = 3
175.29
EPYC 7302 2P balanced
SE +/- 12.65, N = 3
1669.01
EPYC 7302 2P
SE +/- 0.86, N = 4
60.16
EPYC 7302
SE +/- 0.45, N = 3
101.56
EPYC 7251
SE +/- 1.38, N = 3
428.94
6272 ES 2P - 20200209
SE +/- 23.68, N = 3
6920.96
2 x Xeon Platinum 8280
SE +/- 0.05, N = 3
21.18
2 x Xeon Gold 6138
SE +/- 0.13, N = 3
36.89
1500
3000
4500
6000
7500
1. (CXX) g++ options: -std=c++11 -fPIC -fopenmp -pie -lmklml_intel -ldl

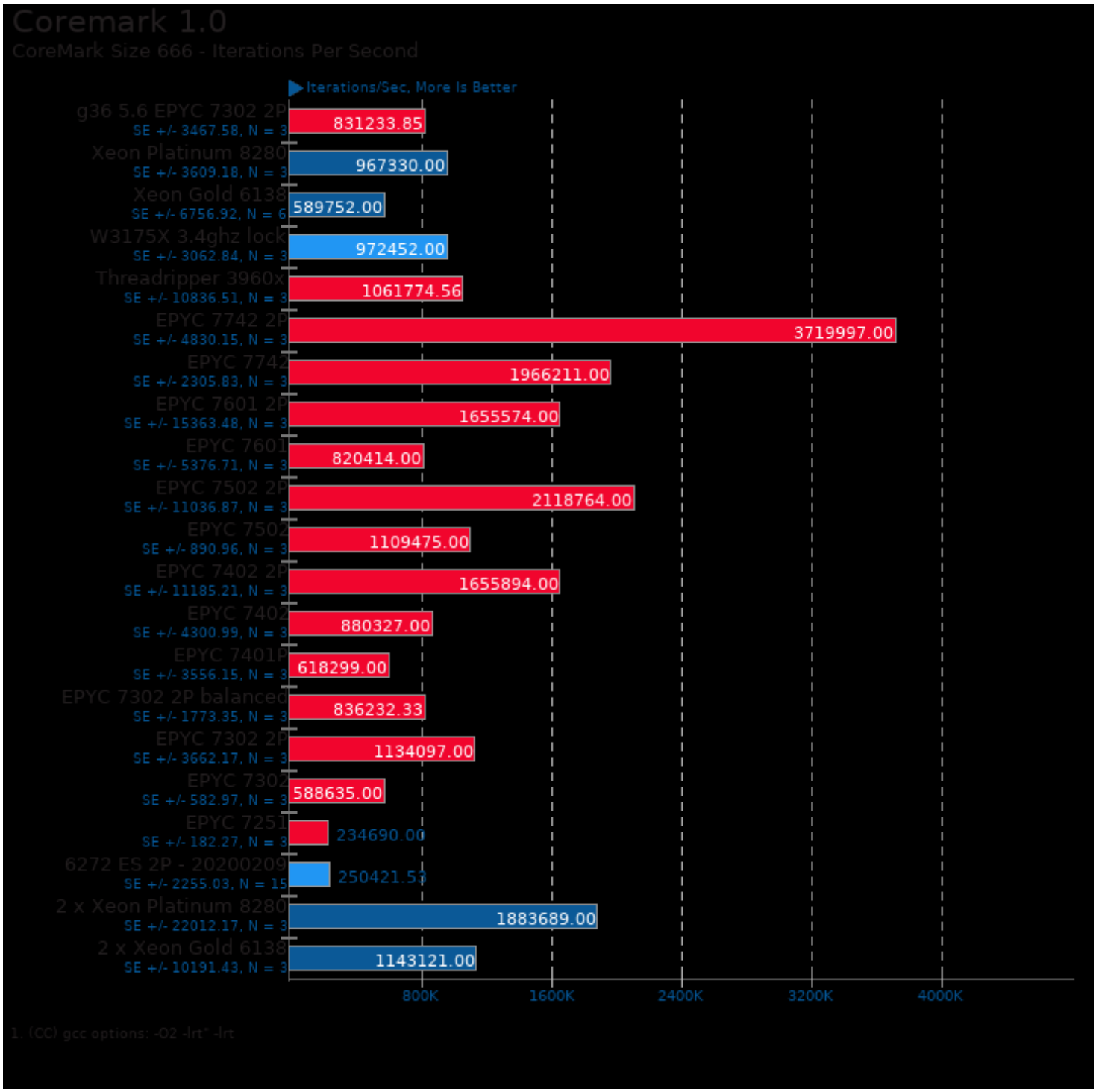

SVT-AV1 0.5
1080p 8-bit YUV To AV1 Video Encode
Frames Per Second, More Is Better
Xeon Platinum 8280
SE +/- 0.456, N = 3
55.380
Xeon Gold 6138
SE +/- 0.170, N = 3
36.130
Threadripper 3960x
SE +/- 0.841, N = 3
76.559
EPYC 7742 2P
SE +/- 0.273, N = 3
101.520
EPYC 7742
SE +/- 0.553, N = 3
98.770
EPYC 7601 2P
SE +/- 0.371, N = 15
38.650
EPYC 7601
SE +/- 0.264, N = 3
37.110
EPYC 7502 2P
SE +/- 1.380, N = 4
96.820
EPYC 7502
SE +/- 0.302, N = 3
67.000
EPYC 7402 2P
SE +/- 0.705, N = 3
71.720
EPYC 7402
SE +/- 0.152, N = 3
62.780
EPYC 7401P
SE +/- 0.257, N = 3
35.050
EPYC 7302 2P
SE +/- 1.015, N = 3
60.680
EPYC 7302
SE +/- 0.180, N = 3
44.760
EPYC 7251
SE +/- 0.074, N = 3
16.650
6272 ES 2P - 20200209
SE +/- 0.069, N = 3
5.790
2 x Xeon Platinum 8280
SE +/- 0.793, N = 3
63.050
2 x Xeon Gold 6138
SE +/- 0.806, N = 3
49.350
20
40
60
80
100
1. (CXX) g++ options: -O3 -pie -lpthread -lm

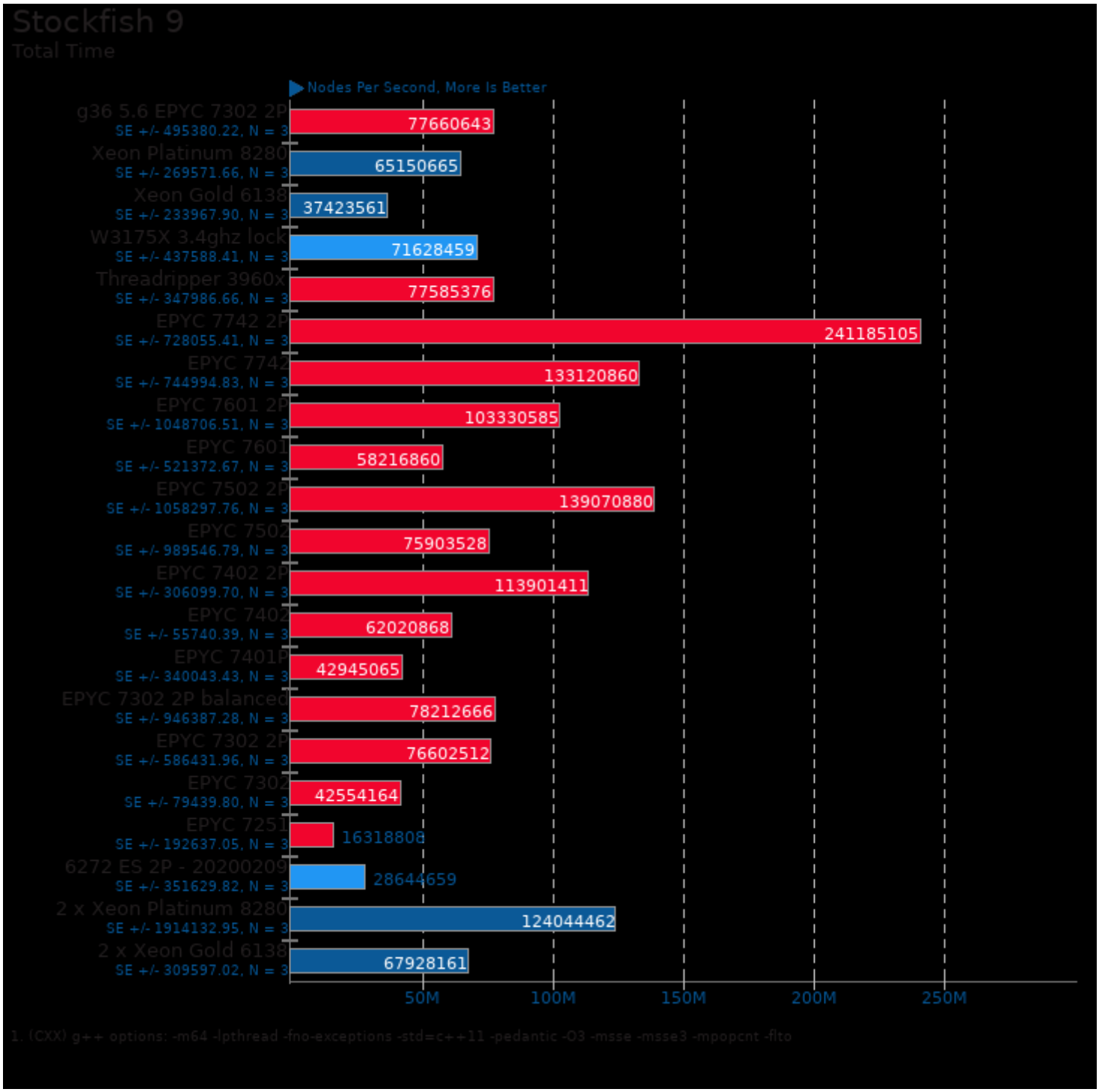

SVT-HEVC 2019-02-03
1080p 8-bit YUV To HEVC Video Encode
Frames Per Second, More Is Better
Xeon Platinum 8280
SE +/- 3.27, N = 13
319.41
Xeon Gold 6138
SE +/- 8.21, N = 12
243.27
Threadripper 3960x
SE +/- 4.12, N = 3
418.59
EPYC 7742 2P
SE +/- 2.50, N = 15
329.82
EPYC 7742
SE +/- 1.90, N = 3
367.52
EPYC 7601 2P
SE +/- 2.87, N = 15
164.10
EPYC 7601
SE +/- 3.71, N = 15
186.05
EPYC 7502 2P
SE +/- 4.13, N = 4
335.96
EPYC 7502
SE +/- 4.93, N = 3
360.14
EPYC 7402 2P
SE +/- 2.30, N = 3
338.31
EPYC 7402
SE +/- 2.17, N = 3
343.93
EPYC 7401P
SE +/- 1.98, N = 15
179.31
EPYC 7302 2P
SE +/- 4.32, N = 3
328.76
EPYC 7302
SE +/- 1.51, N = 3
258.45
EPYC 7251
SE +/- 0.31, N = 3
89.22
6272 ES 2P - 20200209
SE +/- 0.02, N = 3
9.74
2 x Xeon Platinum 8280
SE +/- 1.47, N = 3
269.00
2 x Xeon Gold 6138
SE +/- 8.01, N = 12
235.59
90
180
270
360
450
1. (CC) gcc options: -fPIE -fPIC -O2 -flto -fvisibility=hidden -march=native -pie -rdynamic -lpthread -lrt

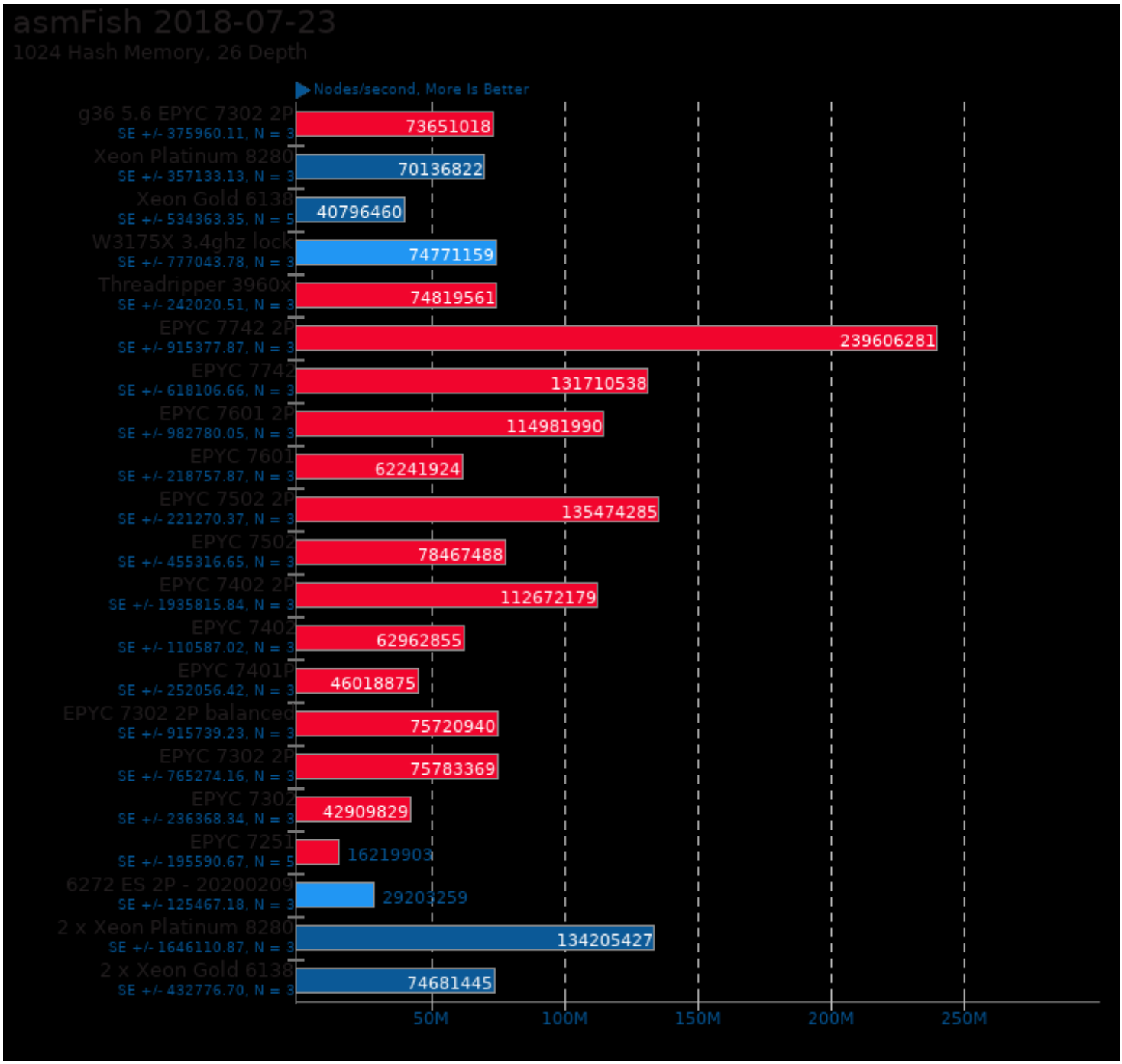

SVT-VP9 2019-09-09
1080p 8-bit YUV To VP9 Video Encode
Frames Per Second, More Is Better
Xeon Platinum 8280
SE +/- 5.00, N = 3
370.05
Xeon Gold 6138
SE +/- 10.05, N = 12
262.13
EPYC 7742 2P
SE +/- 4.38, N = 15
344.13
EPYC 7742
SE +/- 5.14, N = 5
393.10
EPYC 7601 2P
SE +/- 2.11, N = 3
133.45
EPYC 7601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

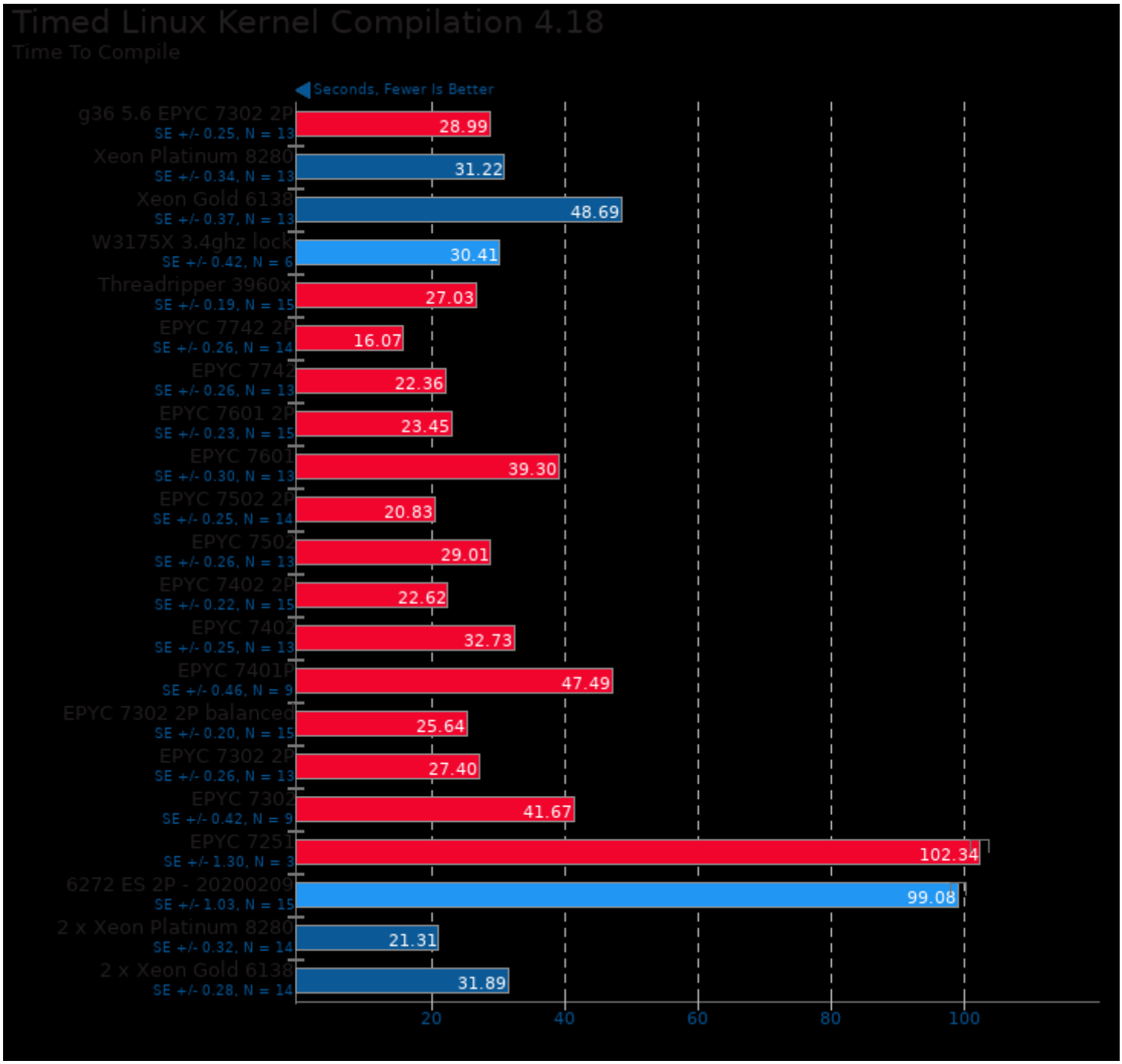

x265 3.1.2
H.265 1080p Video Encoding
Frames Per Second, More Is Better
Xeon Platinum 8280
SE +/- 0.06, N = 3
35.44
Xeon Gold 6138
SE +/- 0.05, N = 3
36.02
EPYC 7742 2P
SE +/- 0.67, N = 3
48.45
EPYC 7742
SE +/- 0.23, N = 3
48.95
EPYC 7601 2P
SE +/- 0.16, N = 3
39.34
EPYC 7601
SE +/- 0.10, N = 3
33.44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

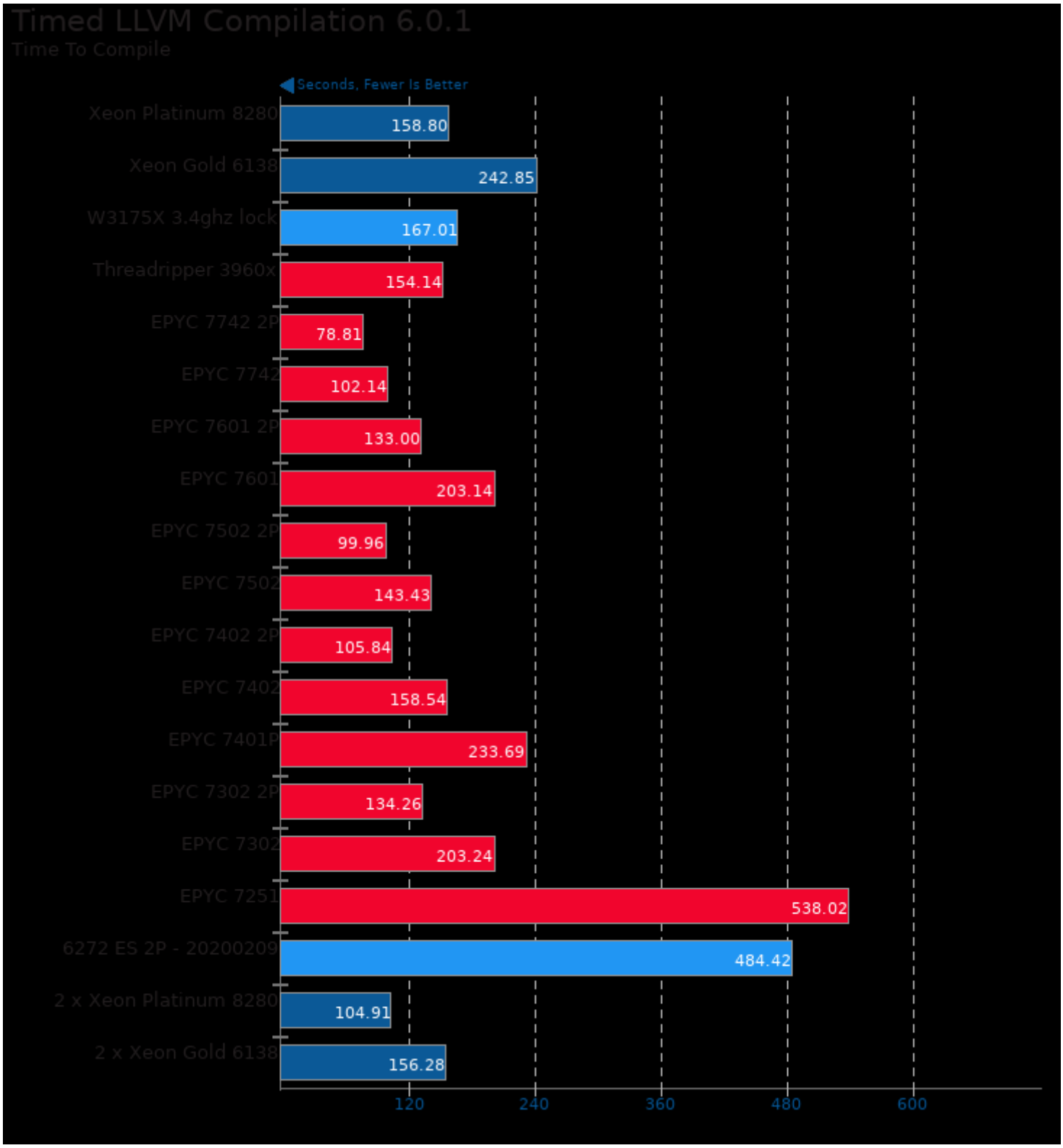

dav1d 0.3
Video Input: Summer Nature 4K
Seconds, Fewer Is Better
Xeon Platinum 8280
SE +/- 0.08, N = 3
21.65
Xeon Gold 6138
SE +/- 0.06, N = 3
26.92
W3175X 3.4ghz lock
SE +/- 0.02, N = 3
13.99
EPYC 7742 2P
SE +/- 0.19, N = 3
11.41
EPYC 7742
SE +/- 0.02, N = 3
12.01
EPYC 7601 2P
SE +/- 0.06, N = 3
18.67
EPYC 7601
SE +/- 0.07, N = 3
24.97
EPYC 7502 2P
SE +/- 0.07, N = 3
13.04
EPYC 7502
SE +/- 0.01, N = 3
15.98
EPYC 7402 2P
SE +/- 0.04, N = 3
14.47
EPYC 7402
SE +/- 0.02, N = 3
16.78
EPYC 7401P
SE +/- 0.07, N = 3
26.44
EPYC 7302 2P
SE +/- 0.04, N = 3
17.47
EPYC 7302
SE +/- 0.03, N = 3
21.89
EPYC 7251
SE +/- 0.13, N = 3
51.83
6272 ES 2P - 20200209
SE +/- 0.32, N = 3
70.67
2 x Xeon Platinum 8280
SE +/- 0.20, N = 3
18.09
2 x Xeon Gold 6138
SE +/- 3.01, N = 15
28.15
16
32
48
64
80
1. (CC) gcc options: -pthread

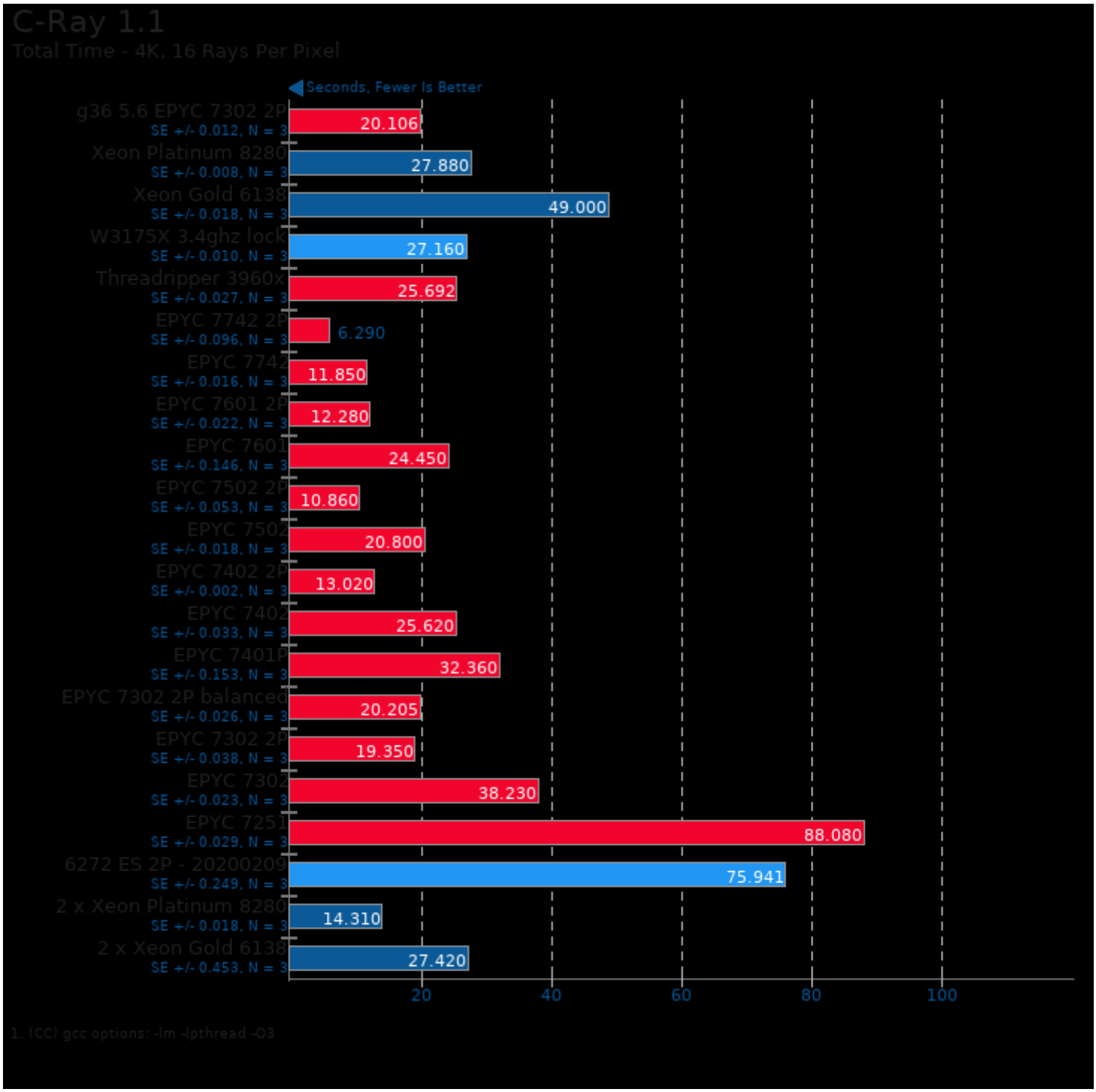

Coremark 1.0
CoreMark Size 666 - Iterations Per Second
Iterations/Sec, More Is Better
g36 5.6 EPYC 7302 2P
SE +/- 3467.58, N = 3
831233.85
Xeon Platinum 8280
SE +/- 3609.18, N = 3
967330.00
Xeon Gold 6138
SE +/- 6756.92, N = 6
589752.00
W3175X 3.4ghz lock
SE +/- 3062.84, N = 3
972452.00
Threadripper 3960x
SE +/- 10836.51, N = 3
1061774.56
EPYC 7742 2P
SE +/- 4830.15, N = 3
3719997.00
EPYC 7742
SE +/- 2305.83, N = 3
1966211.00
EPYC 7601 2P
SE +/- 15363.48, N = 3
1655574.00
EPYC 7601
SE +/- 5376.71, N = 3
820414.00
EPYC 7502 2P
SE +/- 11036.87, N = 3
2118764.00
EPYC 7502
SE +/- 890.96, N = 3
1109475.00
EPYC 7402 2P
SE +/- 11185.21, N = 3
1655894.00
EPYC 7402
SE +/- 4300.99, N = 3
880327.00
EPYC 7401P
SE +/- 3556.15, N = 3
618299.00
EPYC 7302 2P balanced
SE +/- 1773.35, N = 3
836232.33
EPYC 7302 2P
SE +/- 3662.17, N = 3
1134097.00
EPYC 7302
SE +/- 582.97, N = 3
588635.00
EPYC 7251
SE +/- 182.27, N = 3
234690.00
6272 ES 2P - 20200209
SE +/- 2255.03, N = 15
250421.59
2 x Xeon Platinum 8280
SE +/- 22012.17, N = 3
1883689.00
2 x Xeon Gold 6138
SE +/- 10191.43, N = 3
1143121.00
800K
1600K
2400K
3200K
4000K
1. (CC) gcc options: -O2 -lrt" -lrt

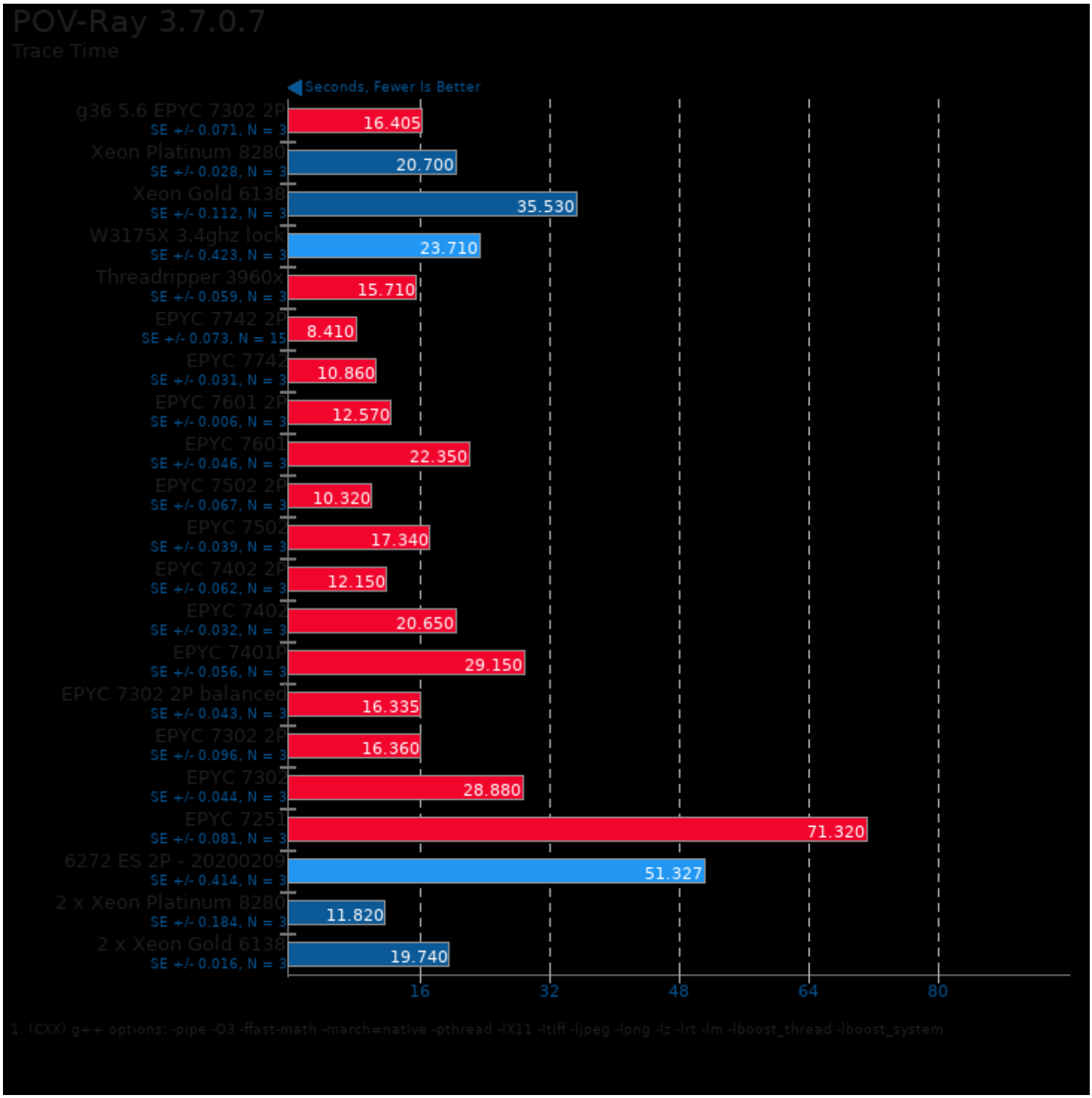

Stockfish 9
Total Time
Nodes Per Second, More Is Better
g36 5.6 EPYC 7302 2P
SE +/- 495380.22, N = 3
77660643
Xeon Platinum 8280
SE +/- 269571.66, N = 3
65150665
Xeon Gold 6138
SE +/- 233967.90, N = 3
37423561
W3175X 3.4ghz lock
SE +/- 437588.41, N = 3
71628459
Threadripper 3960x
SE +/- 347986.66, N = 3
77585376
EPYC 7742 2P
SE +/- 728055.41, N = 3
241185105
EPYC 7742
SE +/- 744994.83, N = 3
133120860
EPYC 7601 2P
SE +/- 1048706.51, N = 3
103330585
EPYC 7601
SE +/- 521372.67, N = 3
58216860
EPYC 7502 2P
SE +/- 1058297.76, N = 3
139070880
EPYC 7502
SE +/- 989546.79, N = 3
75903528
EPYC 7402 2P
SE +/- 306099.70, N = 3
113901411
EPYC 7402
SE +/- 55740.39, N = 3
62020868
EPYC 7401P
SE +/- 340043.43, N = 3
42945065
EPYC 7302 2P balanced
SE +/- 946387.28, N = 3
78212666
EPYC 7302 2P
SE +/- 586431.96, N = 3
76602512
EPYC 7302
SE +/- 79439.80, N = 3
42554164
EPYC 7251
SE +/- 192637.05, N = 3
16318808
6272 ES 2P - 20200209
SE +/- 351629.82, N = 3
28644659
2 x Xeon Platinum 8280
SE +/- 1914132.95, N = 3
124044462
2 x Xeon Gold 6138
SE +/- 309597.02, N = 3
67928161
50M
100M
150M
200M
250M
1. (CXX) g++ options: -m64 -lpthread -fno-exceptions -std=c++11 -pedantic -O3 -msse -msse3 -mpopcnt -flto

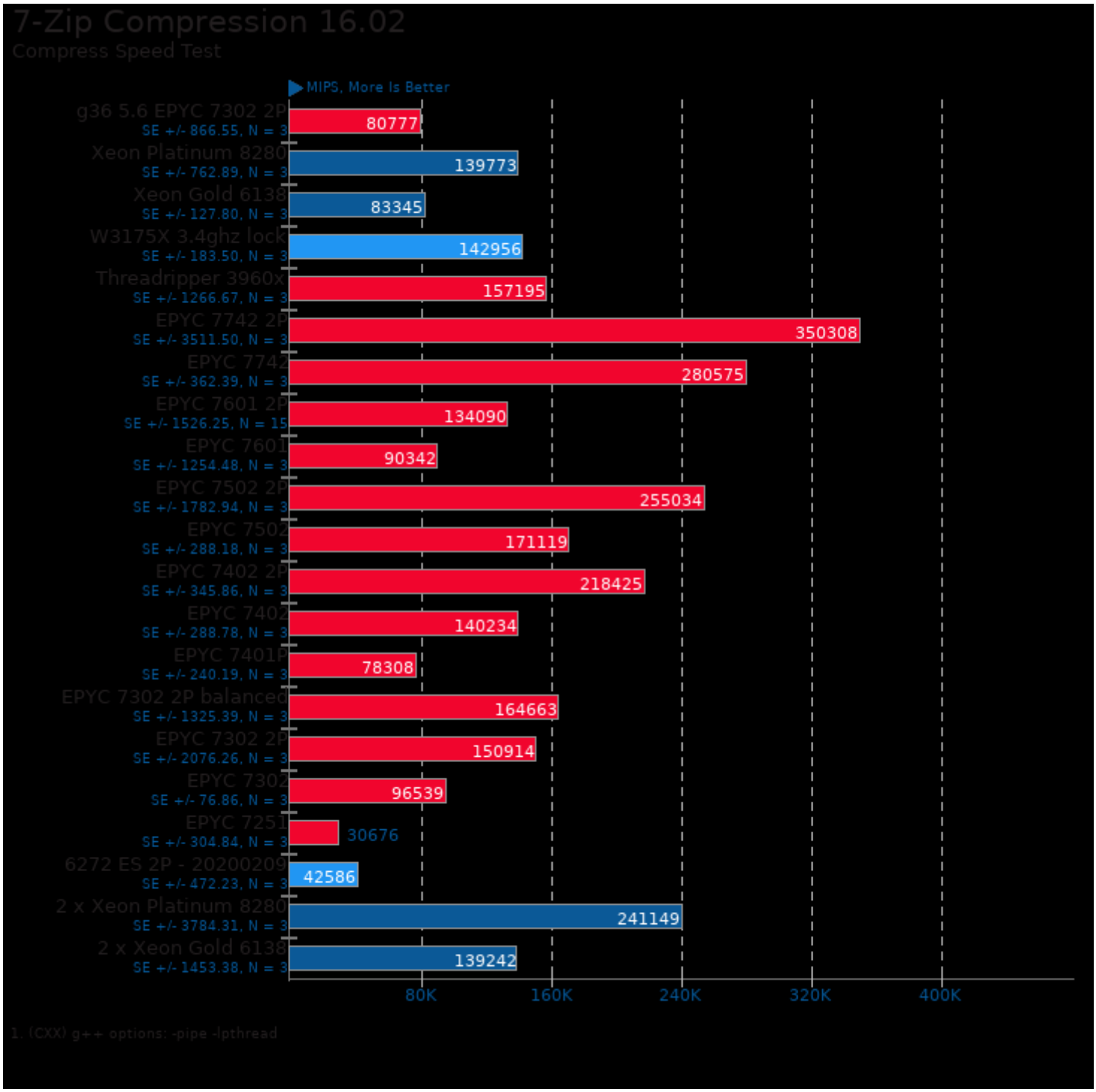

asmFish 2018-07-23
1024 Hash Memory, 26 Depth
Nodes/second, More Is Better
g36 5.6 EPYC 7302 2P
SE +/- 375960.11, N = 3
73651018
Xeon Platinum 8280
SE +/- 357133.13, N = 3
70136822
Xeon Gold 6138
SE +/- 534363.35, N = 5
40796460
W3175X 3.4ghz lock
SE +/- 777043.78, N = 3
74771159
Threadripper 3960x
SE +/- 242020.51, N = 3
74819561
EPYC 7742 2P
SE +/- 915377.87, N = 3
239606281
EPYC 7742
SE +/- 618106.66, N = 3
131710538
EPYC 7601 2P
SE +/- 982780.05, N = 3
114981990
EPYC 7601
SE +/- 218757.87, N = 3
62241924
EPYC 7502 2P
SE +/- 221270.37, N = 3
135474285
EPYC 7502
SE +/- 455316.65, N = 3
78467488
EPYC 7402 2P
SE +/- 1935815.84, N = 3
112672179
EPYC 7402
SE +/- 110587.02, N = 3
62962855
EPYC 7401P
SE +/- 252056.42, N = 3
46018875
EPYC 7302 2P balanced
SE +/- 915739.23, N = 3
75720940
EPYC 7302 2P
SE +/- 765274.16, N = 3
75783369
EPYC 7302
SE +/- 236368.34, N = 3
42909829
EPYC 7251
SE +/- 195590.67, N = 5
16219903
6272 ES 2P - 20200209
SE +/- 125467.18, N = 3
29203259
2 x Xeon Platinum 8280
SE +/- 1646110.87, N = 3
134205427
2 x Xeon Gold 6138
SE +/- 432776.70, N = 3
74681445
50M
100M
150M
200M
250M

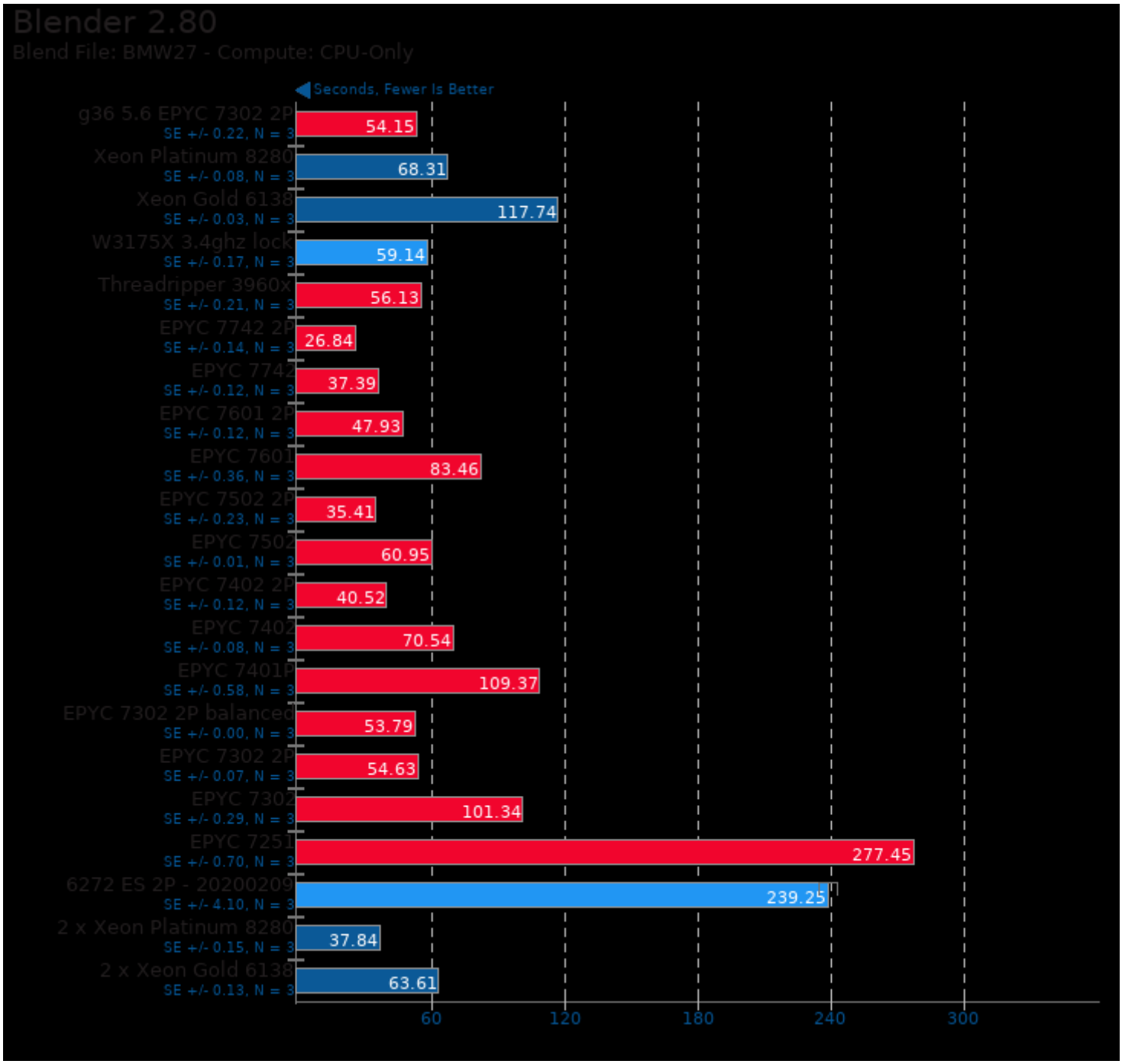

Timed Linux Kernel Compilation 4.18
Time To Compile
Seconds, Fewer Is Better
g36 5.6 EPYC 7302 2P
SE +/- 0.25, N = 13
28.99
Xeon Platinum 8280
SE +/- 0.34, N = 13
31.22
Xeon Gold 6138
SE +/- 0.37, N = 13
48.69
W3175X 3.4ghz lock
SE +/- 0.42, N = 6
30.41
Threadripper 3960x
SE +/- 0.19, N = 15
27.03
EPYC 7742 2P
SE +/- 0.26, N = 14
16.07
EPYC 7742
SE +/- 0.26, N = 13
22.36
EPYC 7601 2P
SE +/- 0.23, N = 15
23.45
EPYC 7601
SE +/- 0.30, N = 13
39.30
EPYC 7502 2P
SE +/- 0.25, N = 14
20.83
EPYC 7502
SE +/- 0.26, N = 13
29.01
EPYC 7402 2P
SE +/- 0.22, N = 15
22.62
EPYC 7402
SE +/- 0.25, N = 13
32.73
EPYC 7401P
SE +/- 0.46, N = 9
47.49
EPYC 7302 2P balanced
SE +/- 0.20, N = 15
25.64
EPYC 7302 2P
SE +/- 0.26, N = 13
27.40
EPYC 7302
SE +/- 0.42, N = 9
41.67
EPYC 7251
SE +/- 1.30, N = 3
102.34
6272 ES 2P - 20200209
SE +/- 1.03, N = 15
99.08
2 x Xeon Platinum 8280
SE +/- 0.32, N = 14
21.31
2 x Xeon Gold 6138
SE +/- 0.28, N = 14
31.89
20
40
60
80
100

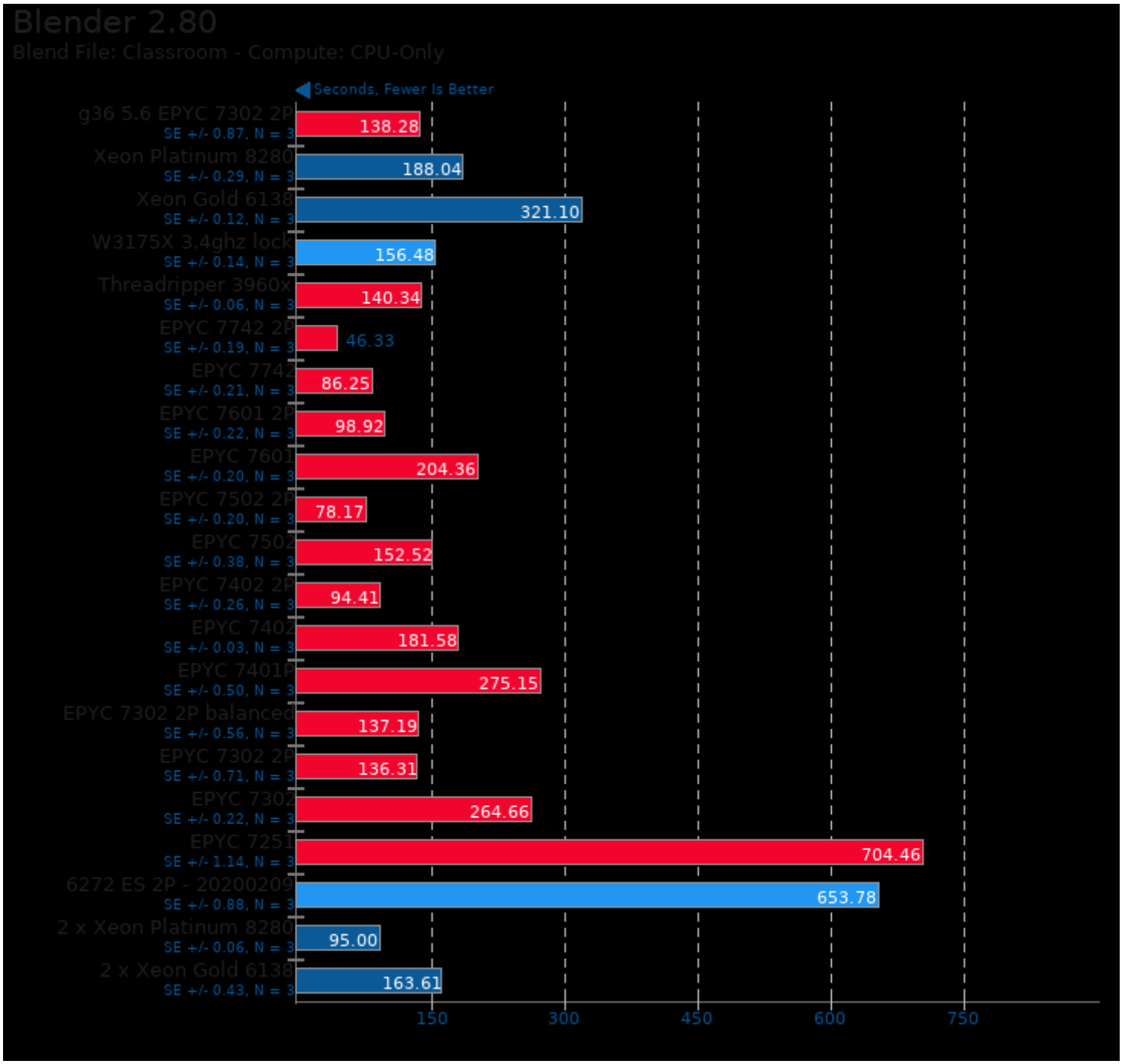

Timed LLVM Compilation 6.0.1
Time To Compile
Seconds, Fewer Is Better
Xeon Platinum 8280
158.80
Xeon Gold 6138
242.85
W3175X 3.4ghz lock
167.01
Threadripper 3960x
154.14
EPYC 7742 2P
78.81
EPYC 7742
102.14
EPYC 7601 2P
133.00
EPYC 7601
203.14
EPYC 7502 2P
99.96
EPYC 7502
143.43
EPYC 7402 2P
105.84
EPYC 7402
158.54
EPYC 7401P
233.69
EPYC 7302 2P
134.26
EPYC 7302
203.24
EPYC 7251
538.02
6272 ES 2P - 20200209
484.42
2 x Xeon Platinum 8280
104.91
2 x Xeon Gold 6138
156.28
120
240
360
480
600

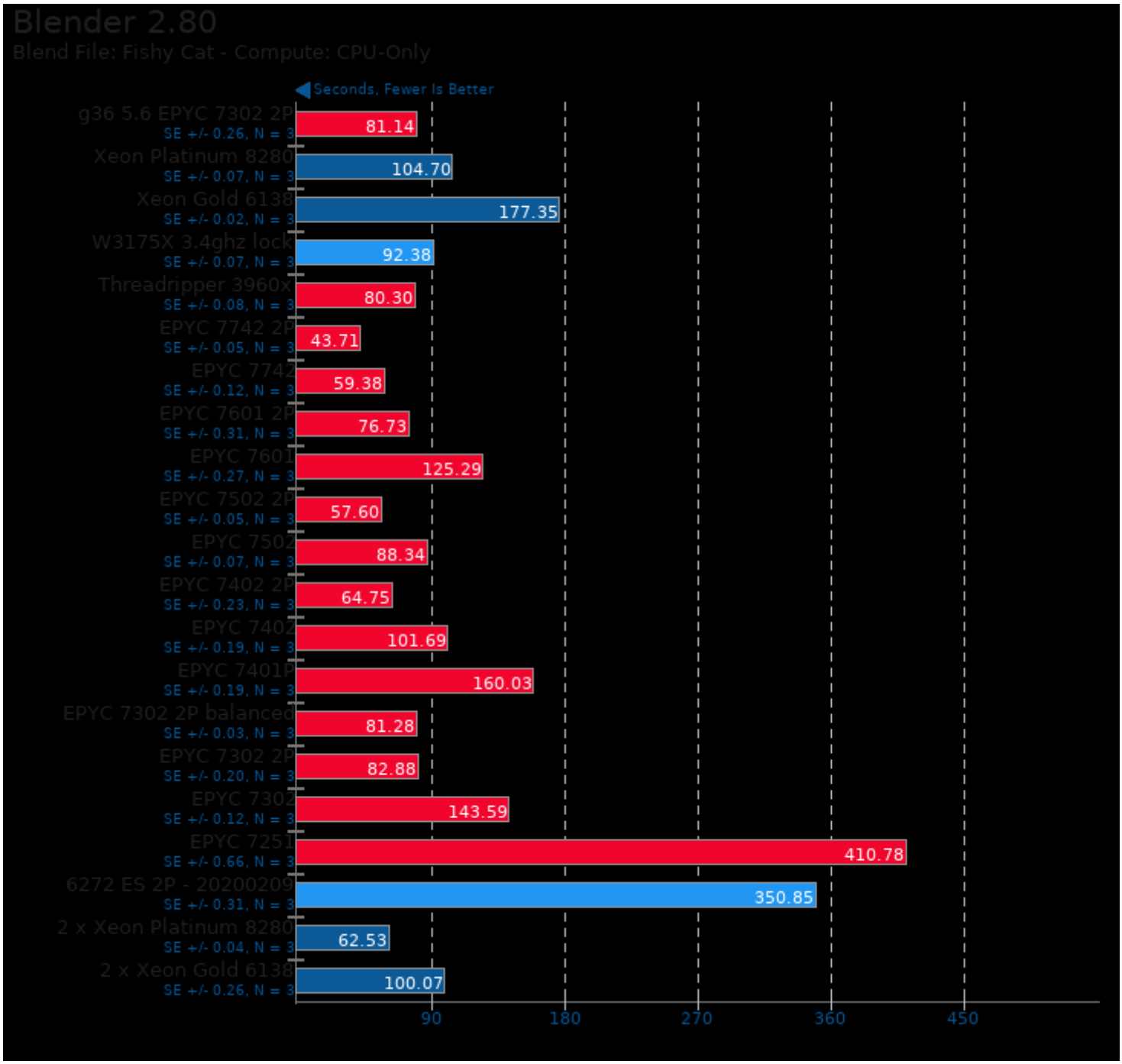

C-Ray 1.1
Total Time - 4K, 16 Rays Per Pixel
Seconds, Fewer Is Better
g36 5.6 EPYC 7302 2P
SE +/- 0.012, N = 3
20.106
Xeon Platinum 8280
SE +/- 0.008, N = 3
27.880
Xeon Gold 6138
SE +/- 0.018, N = 3
49.000
W3175X 3.4ghz lock
SE +/- 0.010, N = 3
27.160
Threadripper 3960x
SE +/- 0.027, N = 3
25.692
EPYC 7742 2P
SE +/- 0.096, N = 3
6.290
EPYC 7742
SE +/- 0.016, N = 3
11.850
EPYC 7601 2P
SE +/- 0.022, N = 3
12.280
EPYC 7601
SE +/- 0.146, N = 3
24.450
EPYC 7502 2P
SE +/- 0.053, N = 3
10.860
EPYC 7502
SE +/- 0.018, N = 3
20.800
EPYC 7402 2P
SE +/- 0.002, N = 3
13.020
EPYC 7402
SE +/- 0.033, N = 3
25.620
EPYC 7401P
SE +/- 0.153, N = 3
32.360
EPYC 7302 2P balanced
SE +/- 0.026, N = 3
20.205
EPYC 7302 2P
SE +/- 0.038, N = 3
19.350
EPYC 7302
SE +/- 0.023, N = 3
38.230
EPYC 7251
SE +/- 0.029, N = 3
88.080
6272 ES 2P - 20200209
SE +/- 0.249, N = 3
75.941
2 x Xeon Platinum 8280
SE +/- 0.018, N = 3
14.310
2 x Xeon Gold 6138
SE +/- 0.453, N = 3
27.420
20
40
60
80
100
1. (CC) gcc options: -lm -lpthread -O3

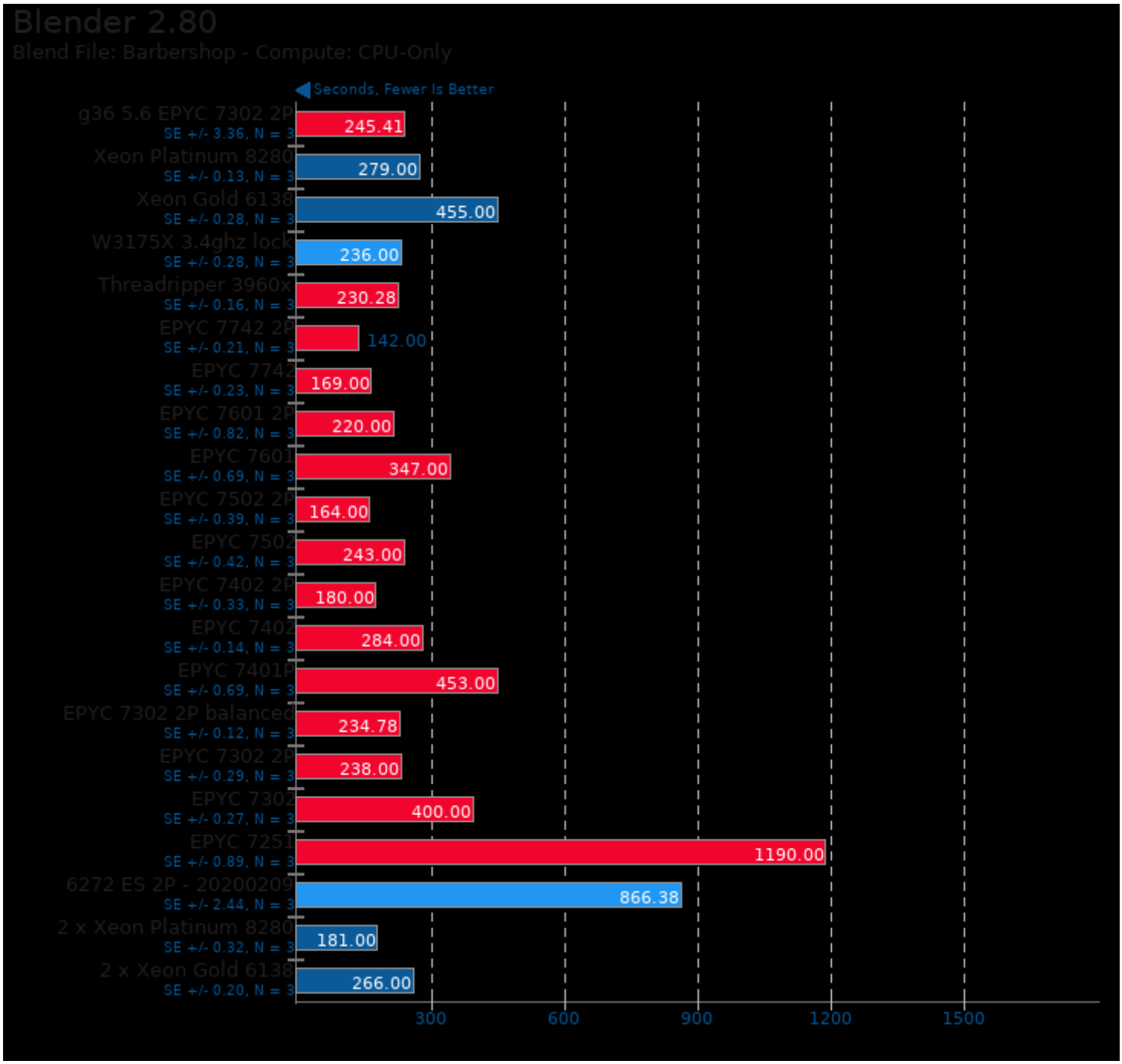

POV-Ray 3.7.0.7
Trace Time
Seconds, Fewer Is Better
g36 5.6 EPYC 7302 2P
SE +/- 0.071, N = 3
16.405
Xeon Platinum 8280
SE +/- 0.028, N = 3
20.700
Xeon Gold 6138
SE +/- 0.112, N = 3
35.530
W3175X 3.4ghz lock
SE +/- 0.423, N = 3
23.710
Threadripper 3960x
SE +/- 0.059, N = 3
15.710
EPYC 7742 2P
SE +/- 0.073, N = 15
8.410
EPYC 7742
SE +/- 0.031, N = 3
10.860
EPYC 7601 2P
SE +/- 0.006, N = 3
12.570
EPYC 7601
SE +/- 0.046, N = 3
22.350
EPYC 7502 2P
SE +/- 0.067, N = 3
10.320
EPYC 7502
SE +/- 0.039, N = 3
17.340
EPYC 7402 2P
SE +/- 0.062, N = 3
12.150
EPYC 7402
SE +/- 0.032, N = 3
20.650
EPYC 7401P
SE +/- 0.056, N = 3
29.150
EPYC 7302 2P balanced
SE +/- 0.043, N = 3
16.335
EPYC 7302 2P
SE +/- 0.096, N = 3
16.360
EPYC 7302
SE +/- 0.044, N = 3
28.880
EPYC 7251
SE +/- 0.081, N = 3
71.320
6272 ES 2P - 20200209
SE +/- 0.414, N = 3
51.327
2 x Xeon Platinum 8280
SE +/- 0.184, N = 3
11.820
2 x Xeon Gold 6138
SE +/- 0.016, N = 3
19.740
16
32
48
64
80
1. (CXX) g++ options: -pipe -O3 -ffast-math -march=native -pthread -lX11 -ltiff -ljpeg -lpng -lz -lrt -lm -lboost_thread -lboost_system

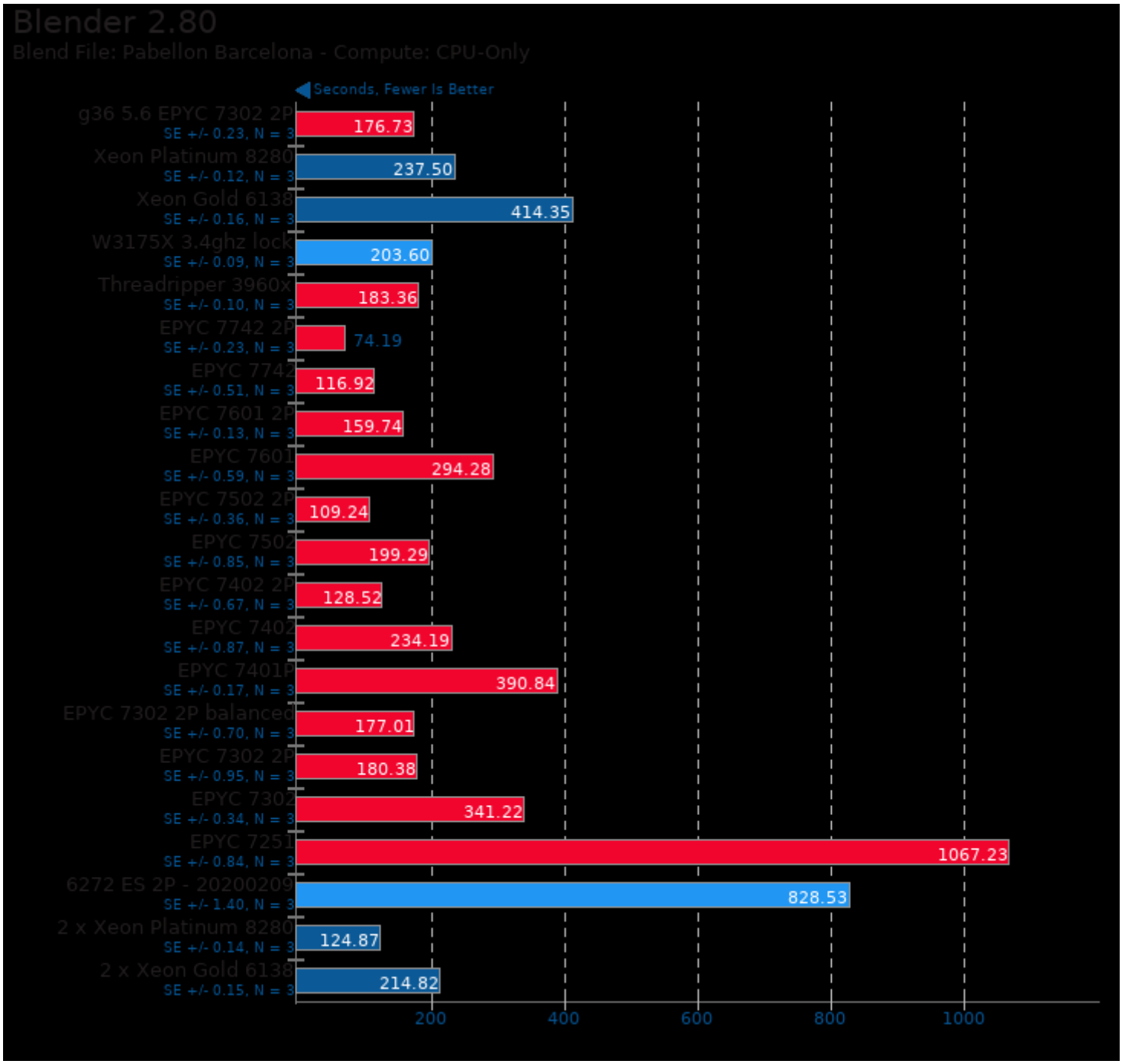

7-Zip Compression 16.02
Compress Speed Test
MIPS, More Is Better
g36 5.6 EPYC 7302 2P
SE +/- 866.55, N = 3
80777
Xeon Platinum 8280
SE +/- 762.89, N = 3
139773
Xeon Gold 6138
SE +/- 127.80, N = 3
83345
W3175X 3.4ghz lock
SE +/- 183.50, N = 3
142956
Threadripper 3960x
SE +/- 1266.67, N = 3
157195
EPYC 7742 2P
SE +/- 3511.50, N = 3
350308
EPYC 7742
SE +/- 362.39, N = 3
280575
EPYC 7601 2P
SE +/- 1526.25, N = 15
134090
EPYC 7601
SE +/- 1254.48, N = 3
90342
EPYC 7502 2P
SE +/- 1782.94, N = 3
255034
EPYC 7502
SE +/- 288.18, N = 3
171119
EPYC 7402 2P
SE +/- 345.86, N = 3
218425
EPYC 7402
SE +/- 288.78, N = 3
140234
EPYC 7401P
SE +/- 240.19, N = 3
78308
EPYC 7302 2P balanced
SE +/- 1325.39, N = 3
164663
EPYC 7302 2P
SE +/- 2076.26, N = 3
150914
EPYC 7302
SE +/- 76.86, N = 3
96539
EPYC 7251
SE +/- 304.84, N = 3
30676
6272 ES 2P - 20200209
SE +/- 472.23, N = 3
42586
2 x Xeon Platinum 8280
SE +/- 3784.31, N = 3
241149
2 x Xeon Gold 6138
SE +/- 1453.38, N = 3
139242
80K
160K
240K
320K
400K
1. (CXX) g++ options: -pipe -lpthread

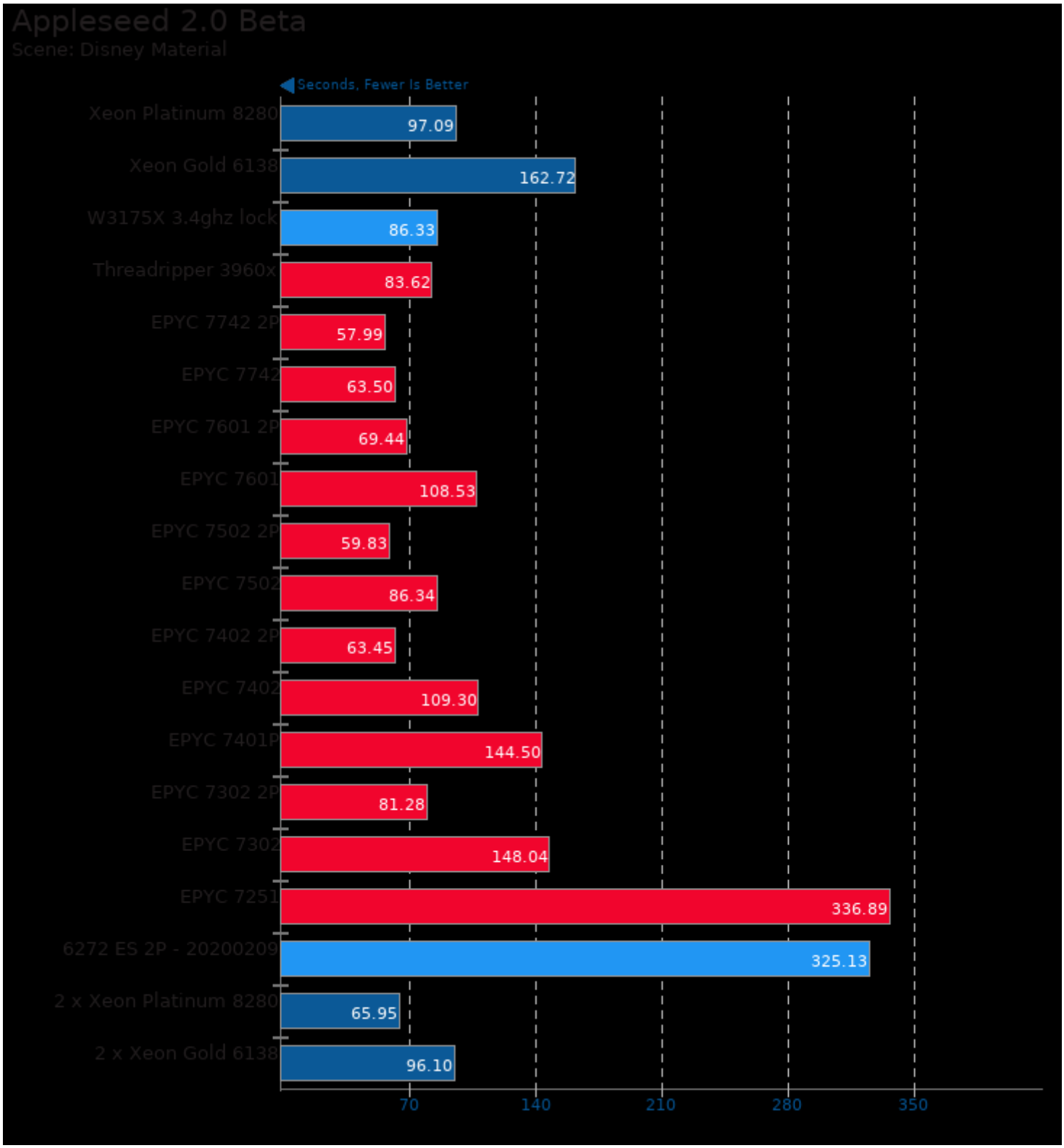

Blender 2.80
Blend File: BMW27 - Compute: CPU-Only
Seconds, Fewer Is Better
g36 5.6 EPYC 7302 2P
SE +/- 0.22, N = 3
54.15
Xeon Platinum 8280
SE +/- 0.08, N = 3
68.31
Xeon Gold 6138
SE +/- 0.03, N = 3
117.74
W3175X 3.4ghz lock
SE +/- 0.17, N = 3
59.14
Threadripper 3960x
SE +/- 0.21, N = 3
56.13
EPYC 7742 2P
SE +/- 0.14, N = 3
26.84
EPYC 7742
SE +/- 0.12, N = 3
37.39
EPYC 7601 2P
SE +/- 0.12, N = 3
47.93
EPYC 7601
SE +/- 0.36, N = 3
83.46
EPYC 7502 2P
SE +/- 0.23, N = 3
35.41
EPYC 7502
SE +/- 0.01, N = 3
60.95
EPYC 7402 2P
SE +/- 0.12, N = 3
40.52
EPYC 7402
SE +/- 0.08, N = 3
70.54
EPYC 7401P
SE +/- 0.58, N = 3
109.37
EPYC 7302 2P balanced
SE +/- 0.00, N = 3
53.79
EPYC 7302 2P
SE +/- 0.07, N = 3
54.63
EPYC 7302
SE +/- 0.29, N = 3
101.34
EPYC 7251
SE +/- 0.70, N = 3
277.45
6272 ES 2P - 20200209
SE +/- 4.10, N = 3
239.25
2 x Xeon Platinum 8280
SE +/- 0.15, N = 3
37.84
2 x Xeon Gold 6138
SE +/- 0.13, N = 3
63.61
60
120
180
240
300

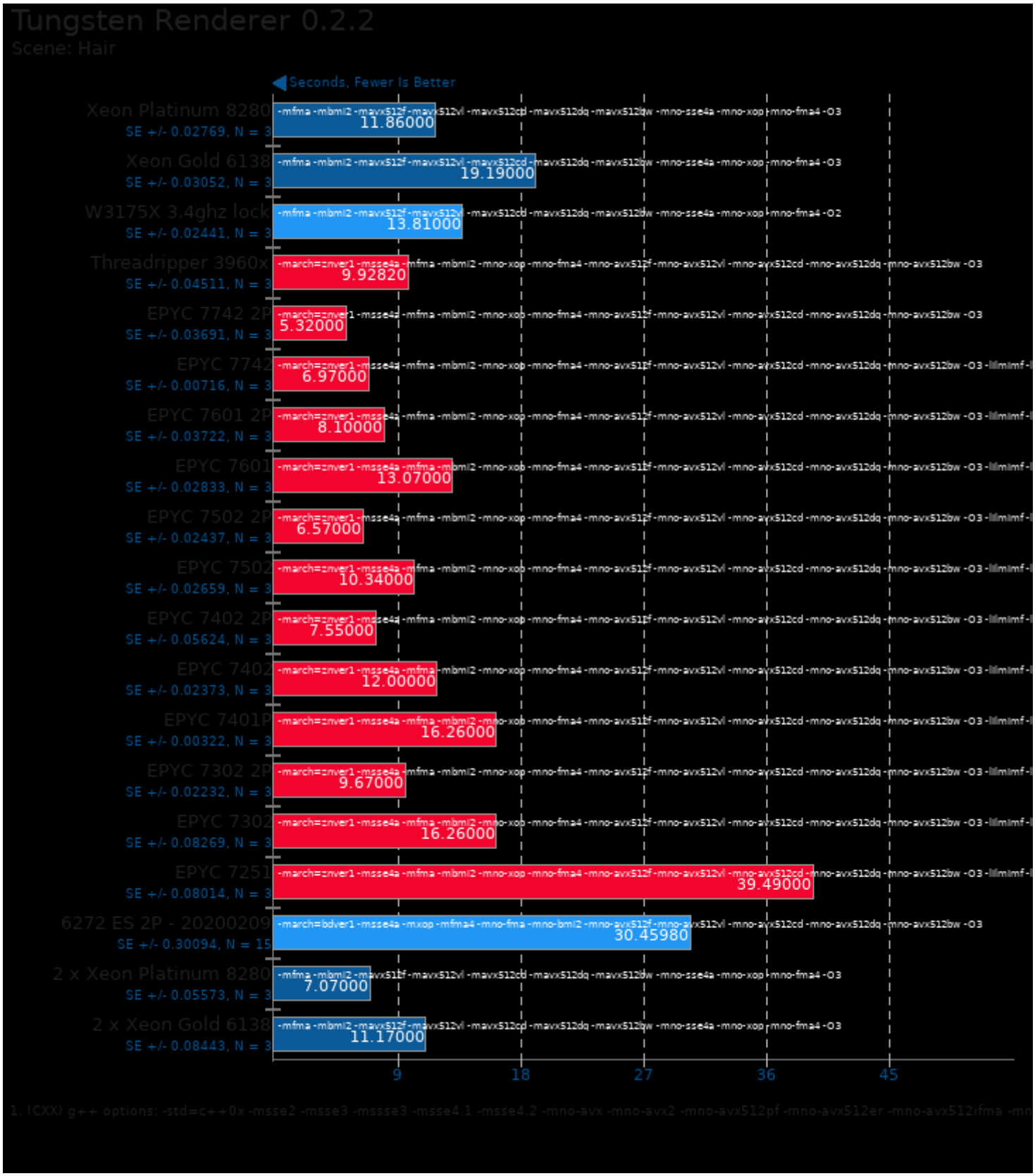

Blender 2.80
Blend File: Classroom - Compute: CPU-Only
Seconds, Fewer Is Better
g36 5.6 EPYC 7302 2P
SE +/- 0.87, N = 3
138.28
Xeon Platinum 8280
SE +/- 0.29, N = 3
188.04
Xeon Gold 6138
SE +/- 0.12, N = 3
321.10
W3175X 3.4ghz lock
SE +/- 0.14, N = 3
156.48
Threadripper 3960x
SE +/- 0.06, N = 3
140.34
EPYC 7742 2P
SE +/- 0.19, N = 3
46.33
EPYC 7742
SE +/- 0.21, N = 3
86.25
EPYC 7601 2P
SE +/- 0.22, N = 3
98.92
EPYC 7601
SE +/- 0.20, N = 3
204.36
EPYC 7502 2P
SE +/- 0.20, N = 3
78.17
EPYC 7502
SE +/- 0.38, N = 3
152.52
EPYC 7402 2P
SE +/- 0.26, N = 3
94.41
EPYC 7402
SE +/- 0.03, N = 3
181.58
EPYC 7401P
SE +/- 0.50, N = 3
275.15
EPYC 7302 2P balanced
SE +/- 0.56, N = 3
137.19
EPYC 7302 2P
SE +/- 0.71, N = 3
136.31
EPYC 7302
SE +/- 0.22, N = 3
264.66
EPYC 7251
SE +/- 1.14, N = 3
704.46
6272 ES 2P - 20200209
SE +/- 0.88, N = 3
653.78
2 x Xeon Platinum 8280
SE +/- 0.06, N = 3
95.00
2 x Xeon Gold 6138
SE +/- 0.43, N = 3
163.61
150
300
450
600
750

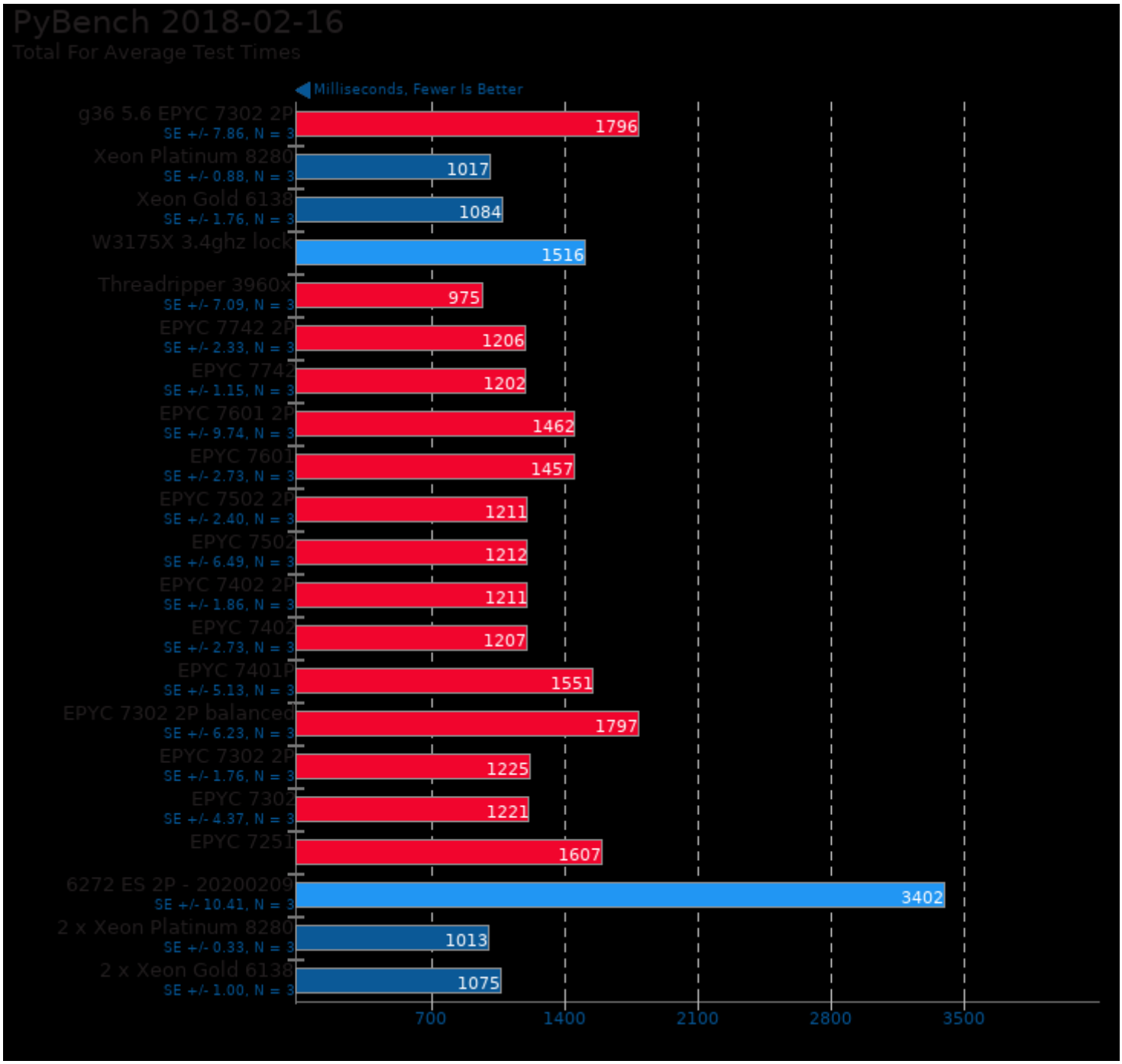

Blender 2.80
Blend File: Fishy Cat - Compute: CPU-Only
Seconds, Fewer Is Better
g36 5.6 EPYC 7302 2P
SE +/- 0.26, N = 3
81.14
Xeon Platinum 8280
SE +/- 0.07, N = 3
104.70
Xeon Gold 6138
SE +/- 0.02, N = 3
177.35
W3175X 3.4ghz lock
SE +/- 0.07, N = 3
92.38
Threadripper 3960x
SE +/- 0.08, N = 3
80.30
EPYC 7742 2P
SE +/- 0.05, N = 3
43.71
EPYC 7742
SE +/- 0.12, N = 3
59.38
EPYC 7601 2P
SE +/- 0.31, N = 3
76.73
EPYC 7601
SE +/- 0.27, N = 3
125.29
EPYC 7502 2P
SE +/- 0.05, N = 3
57.60
EPYC 7502
SE +/- 0.07, N = 3
88.34
EPYC 7402 2P
SE +/- 0.23, N = 3
64.75
EPYC 7402
SE +/- 0.19, N = 3
101.69
EPYC 7401P
SE +/- 0.19, N = 3
160.03
EPYC 7302 2P balanced
SE +/- 0.03, N = 3
81.28
EPYC 7302 2P
SE +/- 0.20, N = 3
82.88
EPYC 7302
SE +/- 0.12, N = 3
143.59
EPYC 7251
SE +/- 0.66, N = 3
410.78
6272 ES 2P - 20200209
SE +/- 0.31, N = 3
350.85
2 x Xeon Platinum 8280
SE +/- 0.04, N = 3
62.53
2 x Xeon Gold 6138
SE +/- 0.26, N = 3
100.07
90
180
270
360
450

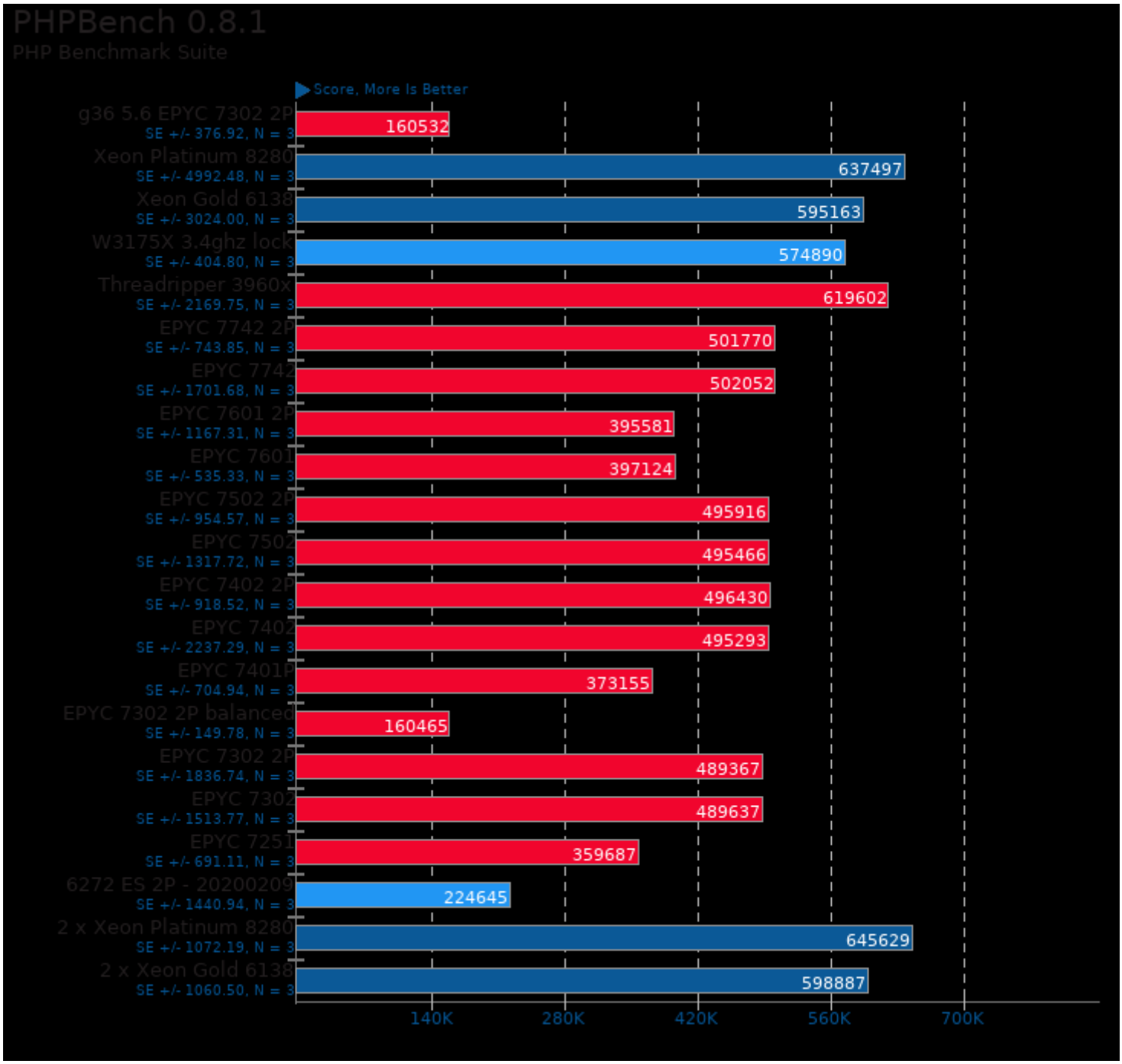

Blender 2.80
Blend File: Barbershop - Compute: CPU-Only
Seconds, Fewer Is Better
g36 5.6 EPYC 7302 2P
SE +/- 3.36, N = 3
245.41
Xeon Platinum 8280
SE +/- 0.13, N = 3
279.00
Xeon Gold 6138
SE +/- 0.28, N = 3
455.00
W3175X 3.4ghz lock
SE +/- 0.28, N = 3
236.00
Threadripper 3960x
SE +/- 0.16, N = 3
230.28
EPYC 7742 2P
SE +/- 0.21, N = 3
142.00
EPYC 7742
SE +/- 0.23, N = 3
169.00
EPYC 7601 2P
SE +/- 0.82, N = 3
220.00
EPYC 7601
SE +/- 0.69, N = 3
347.00
EPYC 7502 2P
SE +/- 0.39, N = 3
164.00
EPYC 7502
SE +/- 0.42, N = 3
243.00
EPYC 7402 2P
SE +/- 0.33, N = 3
180.00
EPYC 7402
SE +/- 0.14, N = 3
284.00
EPYC 7401P
SE +/- 0.69, N = 3
453.00
EPYC 7302 2P balanced
SE +/- 0.12, N = 3
234.78
EPYC 7302 2P
SE +/- 0.29, N = 3
238.00
EPYC 7302
SE +/- 0.27, N = 3
400.00
EPYC 7251
SE +/- 0.89, N = 3
1190.00
6272 ES 2P - 20200209
SE +/- 2.44, N = 3
866.38
2 x Xeon Platinum 8280
SE +/- 0.32, N = 3
181.00
2 x Xeon Gold 6138
SE +/- 0.20, N = 3
266.00
300
600
900
1200
1500

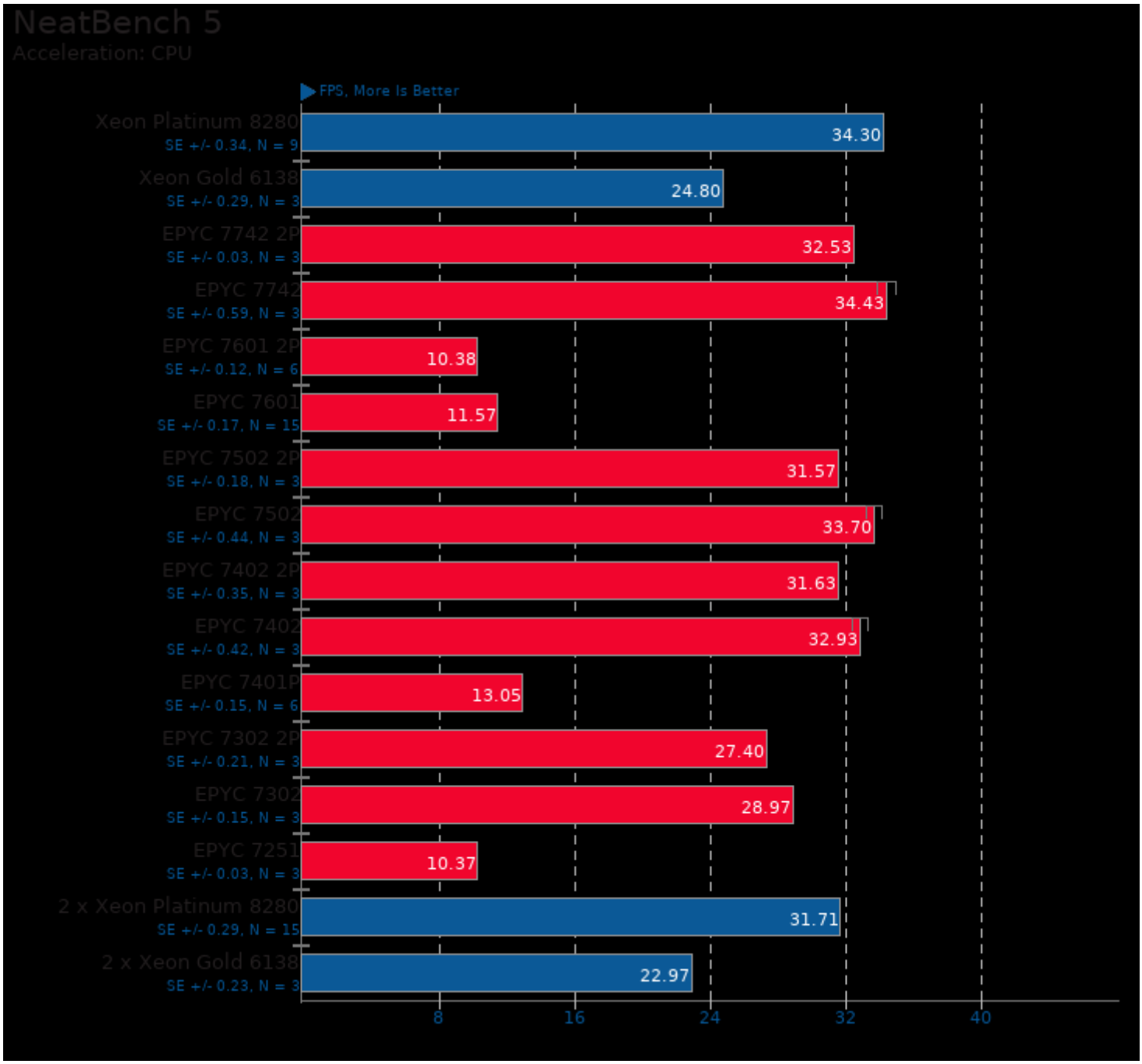

Blender 2.80
Blend File: Pabellon Barcelona - Compute: CPU-Only
Seconds, Fewer Is Better
g36 5.6 EPYC 7302 2P
SE +/- 0.23, N = 3
176.73
Xeon Platinum 8280
SE +/- 0.12, N = 3
237.50
Xeon Gold 6138
SE +/- 0.16, N = 3
414.35
W3175X 3.4ghz lock
SE +/- 0.09, N = 3
203.60
Threadripper 3960x
SE +/- 0.10, N = 3
183.36
EPYC 7742 2P
SE +/- 0.23, N = 3
74.19
EPYC 7742
SE +/- 0.51, N = 3
116.92
EPYC 7601 2P
SE +/- 0.13, N = 3
159.74
EPYC 7601
SE +/- 0.59, N = 3
294.28
EPYC 7502 2P
SE +/- 0.36, N = 3
109.24
EPYC 7502
SE +/- 0.85, N = 3
199.29
EPYC 7402 2P
SE +/- 0.67, N = 3
128.52
EPYC 7402
SE +/- 0.87, N = 3
234.19
EPYC 7401P
SE +/- 0.17, N = 3
390.84
EPYC 7302 2P balanced
SE +/- 0.70, N = 3
177.01
EPYC 7302 2P
SE +/- 0.95, N = 3
180.38
EPYC 7302
SE +/- 0.34, N = 3
341.22
EPYC 7251
SE +/- 0.84, N = 3
1067.23
6272 ES 2P - 20200209
SE +/- 1.40, N = 3
828.53
2 x Xeon Platinum 8280
SE +/- 0.14, N = 3
124.87
2 x Xeon Gold 6138
SE +/- 0.15, N = 3
214.82
200
400
600
800
1000

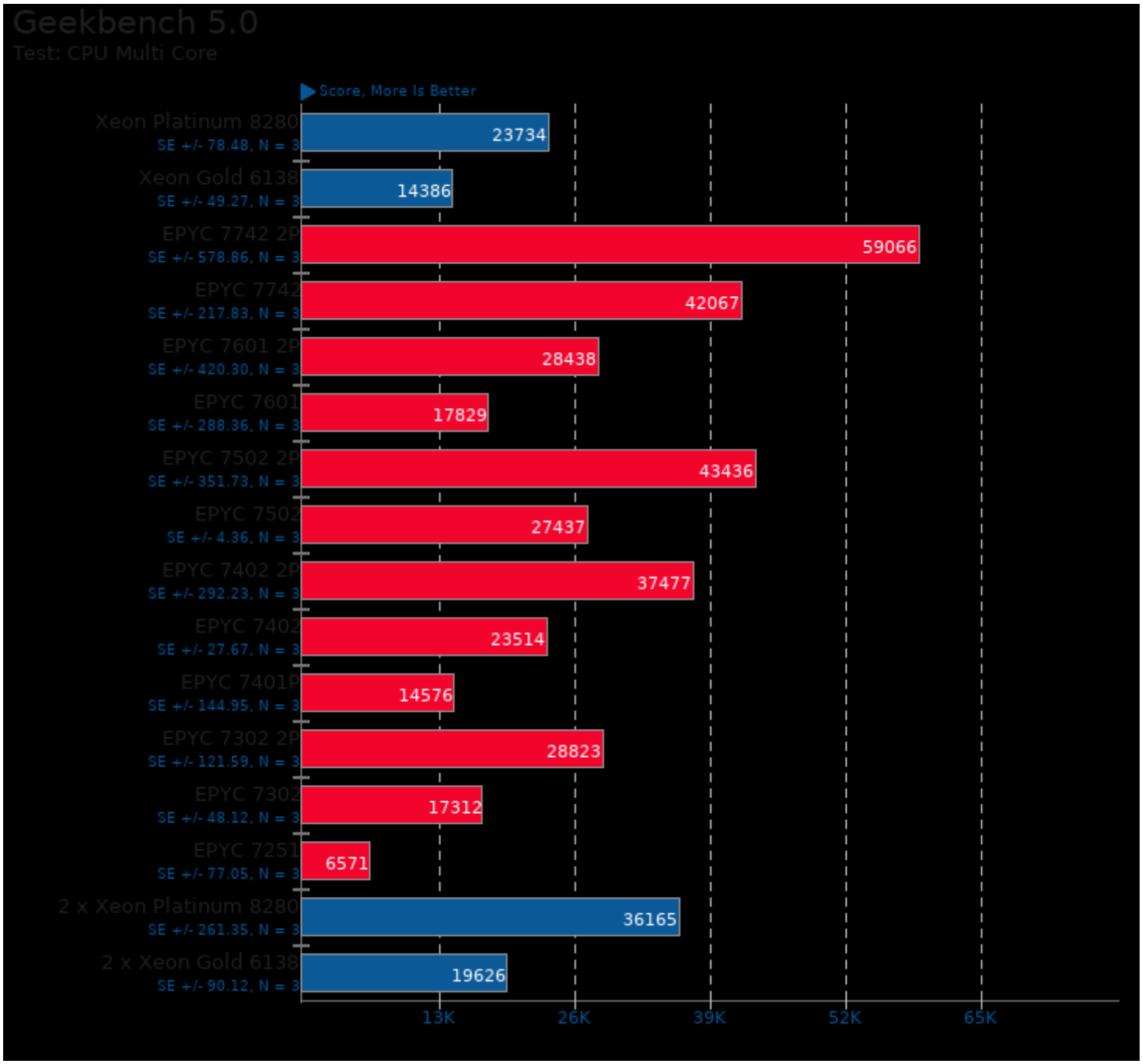

Appleseed 2.0 Beta
Scene: Disney Material
Seconds, Fewer Is Better
Xeon Platinum 8280
97.09
Xeon Gold 6138
162.72
W3175X 3.4ghz lock
86.33
Threadripper 3960x
83.62
EPYC 7742 2P
57.99
EPYC 7742
63.50
EPYC 7601 2P
69.44
EPYC 7601
108.53
EPYC 7502 2P
59.83
EPYC 7502
86.34
EPYC 7402 2P
63.45
EPYC 7402
109.30
EPYC 7401P
144.50
EPYC 7302 2P
81.28
EPYC 7302
148.04
EPYC 7251
336.89
6272 ES 2P - 20200209
325.13
2 x Xeon Platinum 8280
65.95
2 x Xeon Gold 6138
96.10
70
140
210
280
350

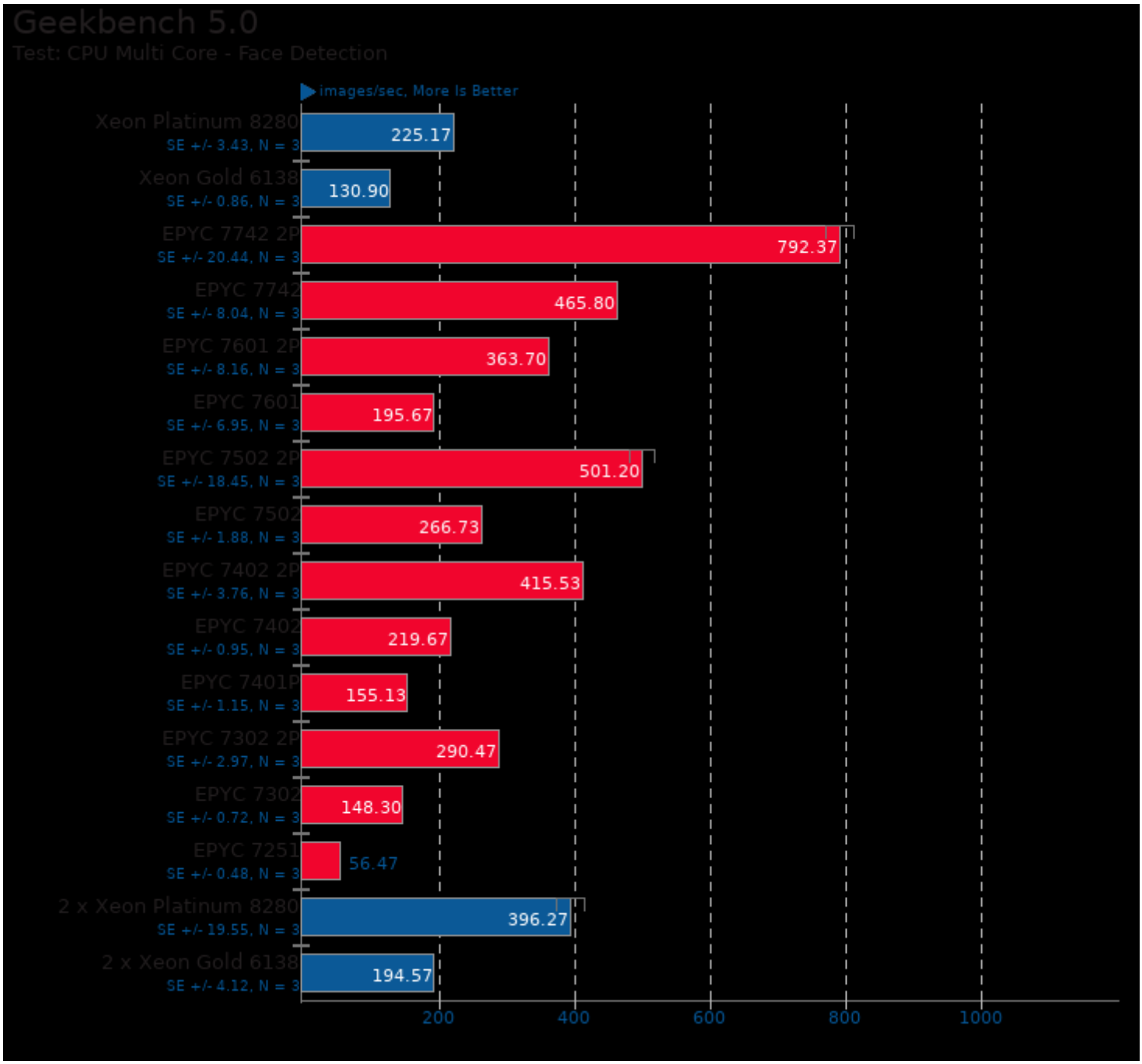

Tungsten Renderer 0.2.2
Scene: Hair
Seconds, Fewer Is Better
Xeon Platinum 8280
SE +/- 0.02769, N = 3
-mfma -mbmi2 -mavx512f -mavx512vl -mavx512cd -mavx512dq -mavx512bw -mno-sse4a -mno-xop -mno-fma4 -O3
11.86000
Xeon Gold 6138
SE +/- 0.03052, N = 3
-mfma -mbmi2 -mavx512f -mavx512vl -mavx512cd -mavx512dq -mavx512bw -mno-sse4a -mno-xop -mno-fma4 -O3
19.19000
W3175X 3.4ghz lock
SE +/- 0.02441, N = 3
-mfma -mbmi2 -mavx512f -mavx512vl -mavx512cd -mavx512dq -mavx512bw -mno-sse4a -mno-xop -mno-fma4 -O2
13.81000
Threadripper 3960x
SE +/- 0.04511, N = 3
-march=znver1 -msse4a -mfma -mbmi2 -mno-xop -mno-fma4 -mno-avx512f -mno-avx512vl -mno-avx512cd -mno-avx512dq -mno-avx512bw -O3
9.92820
EPYC 7742 2P
SE +/- 0.03691, N = 3
5.32000
EPYC 7742
SE +/- 0.00716, N = 3
6.97000
EPYC 7601 2P
SE +/- 0.03722, N = 3
8.10000
EPYC 7601
SE +/- 0.02833, N = 3
13.07000
EPYC 7502 2P
SE +/- 0.02437, N = 3
6.57000
EPYC 7502
SE +/- 0.02659, N = 3
10.34000
EPYC 7402 2P
SE +/- 0.05624, N = 3
7.55000
EPYC 7402
SE +/- 0.02373, N = 3
12.00000
EPYC 7401P
SE +/- 0.00322, N = 3
16.26000
EPYC 7302 2P
SE +/- 0.02232, N = 3
9.67000
EPYC 7302
SE +/- 0.08269, N = 3
16.26000
EPYC 7251
SE +/- 0.08014, N = 3
39.49000
6272 ES 2P - 20200209
SE +/- 0.30094, N = 15
-march=bdver1 -msse4a -mxop -mfma4 -mno-fma -mno-bmi2 -mno-avx512f -mno-avx512vl -mno-avx512cd -mno-avx512dq -mno-avx512bw -O3
30.45980
2 x Xeon Platinum 8280
SE +/- 0.05573, N = 3
7.07000
2 x Xeon Gold 6138
SE +/- 0.08443, N = 3
11.17000
9
18
27
36
45
1. (CXX) g++ options: -std=c++0x -msse2 -msse3 -mssse3 -msse4.1 -msse4.2 -mno-avx -mno-avx2 -mno-avx512pf -mno-avx512er -mno-avx512ifma

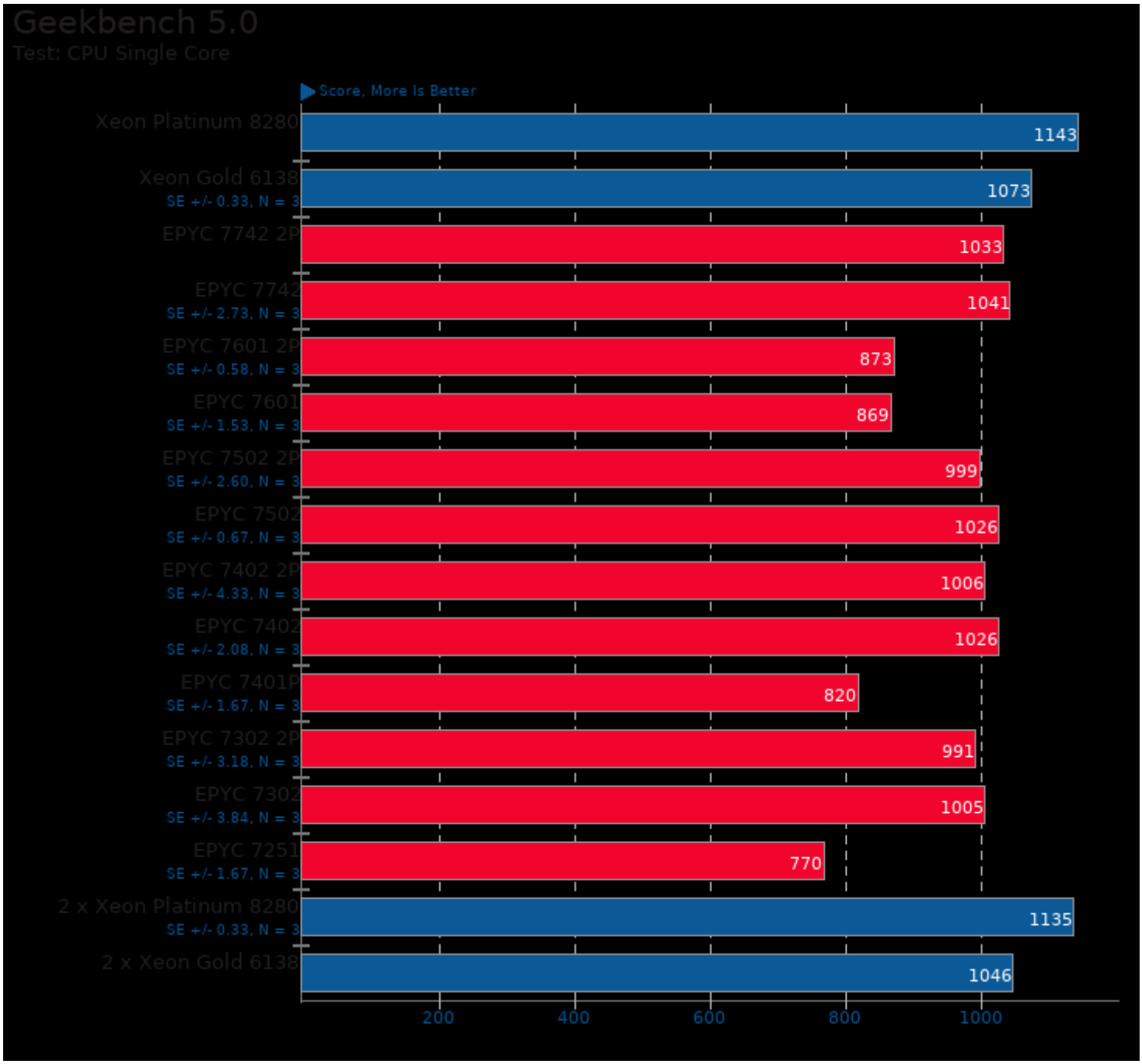

PyBench 2018-02-16
Total For Average Test Times
Milliseconds, Fewer Is Better
g36 5.6 EPYC 7302 2P
SE +/- 7.86, N = 3
1796
Xeon Platinum 8280
SE +/- 0.88, N = 3
1017
Xeon Gold 6138
SE +/- 1.76, N = 3
1084
W3175X 3.4ghz lock
1516
Threadripper 3960x
SE +/- 7.09, N = 3
975
EPYC 7742 2P
SE +/- 2.33, N = 3
1206
EPYC 7742
SE +/- 1.15, N = 3
1202
EPYC 7601 2P
SE +/- 9.74, N = 3
1462
EPYC 7601
SE +/- 2.73, N = 3
1457
EPYC 7502 2P
SE +/- 2.40, N = 3
1211
EPYC 7502
SE +/- 6.49, N = 3
1212
EPYC 7402 2P
SE +/- 1.86, N = 3
1211
EPYC 7402
SE +/- 2.73, N = 3
1207
EPYC 7401P
SE +/- 5.13, N = 3
1551
EPYC 7302 2P balanced
SE +/- 6.23, N = 3
1797
EPYC 7302 2P
SE +/- 1.76, N = 3
1225
EPYC 7302
SE +/- 4.37, N = 3
1221
EPYC 7251
1607
6272 ES 2P - 20200209
SE +/- 10.41, N = 3
3402
2 x Xeon Platinum 8280
SE +/- 0.33, N = 3
1013
2 x Xeon Gold 6138
SE +/- 1.00, N = 3
1075
700
1400
2100
2800
3500

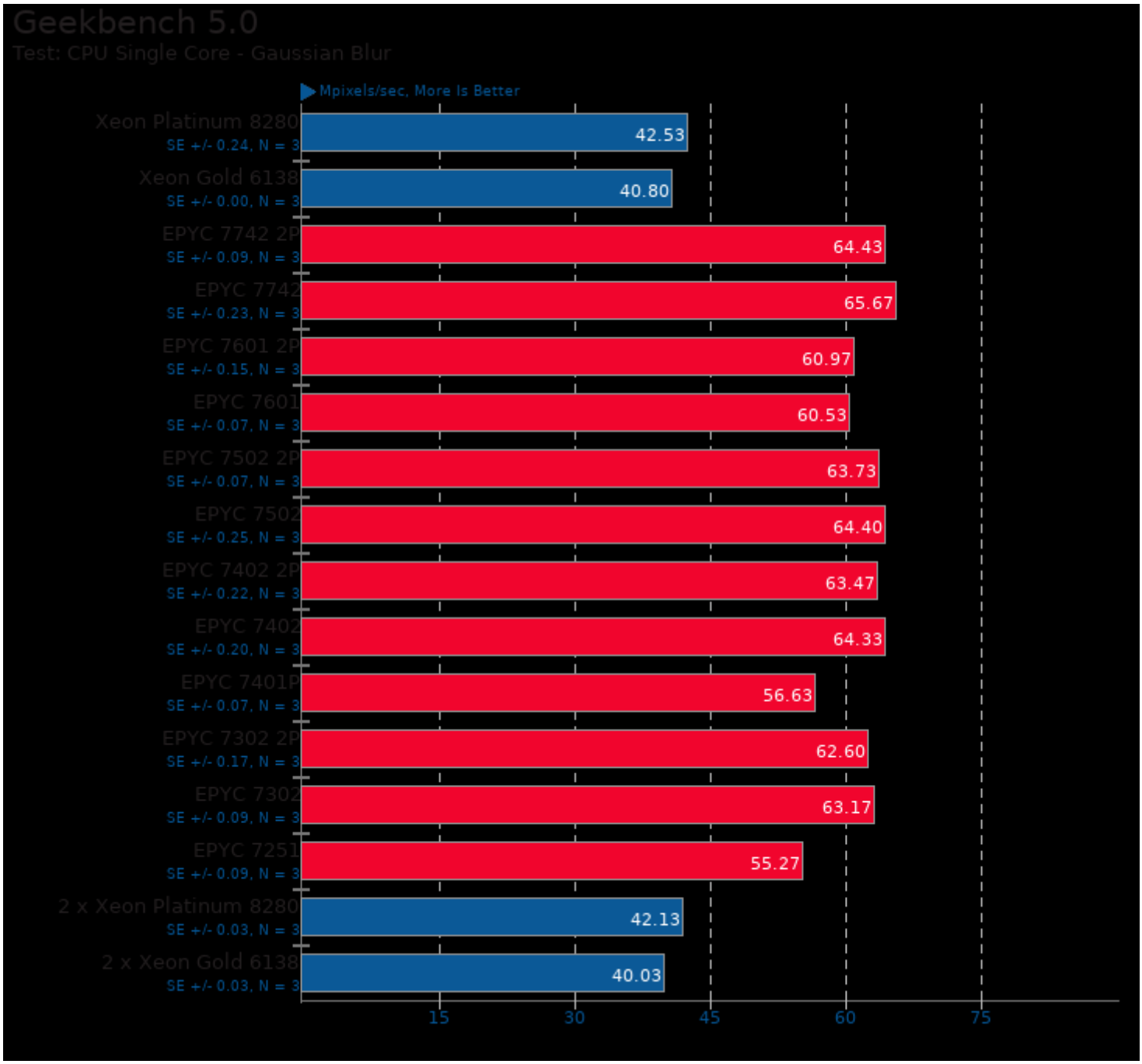

PHPBench 0.8.1
PHP Benchmark Suite
Score, More Is Better
g36 5.6 EPYC 7302 2P
SE +/- 376.92, N = 3
160532
Xeon Platinum 8280
SE +/- 4992.48, N = 3
637497
Xeon Gold 6138
SE +/- 3024.00, N = 3
595163
W3175X 3.4ghz lock
SE +/- 404.80, N = 3
574890
Threadripper 3960x
SE +/- 2169.75, N = 3
619602
EPYC 7742 2P
SE +/- 743.85, N = 3
501770
EPYC 7742
SE +/- 1701.68, N = 3
502052
EPYC 7601 2P
SE +/- 1167.31, N = 3
395581
EPYC 7601
SE +/- 535.33, N = 3
397124
EPYC 7502 2P
SE +/- 954.57, N = 3
495916
EPYC 7502
SE +/- 1317.72, N = 3
495466
EPYC 7402 2P
SE +/- 918.52, N = 3
496430
EPYC 7402
SE +/- 2237.29, N = 3
495293
EPYC 7401P
SE +/- 704.94, N = 3
373155
EPYC 7302 2P balanced
SE +/- 149.78, N = 3
160465
EPYC 7302 2P
SE +/- 1836.74, N = 3
489367
EPYC 7302
SE +/- 1513.77, N = 3
489637
EPYC 7251
SE +/- 691.11, N = 3
359687
6272 ES 2P - 20200209
SE +/- 1440.94, N = 3
224645
2 x Xeon Platinum 8280
SE +/- 1072.19, N = 3
645629
2 x Xeon Gold 6138
SE +/- 1060.50, N = 3
598887
140K
280K
420K
560K
700K

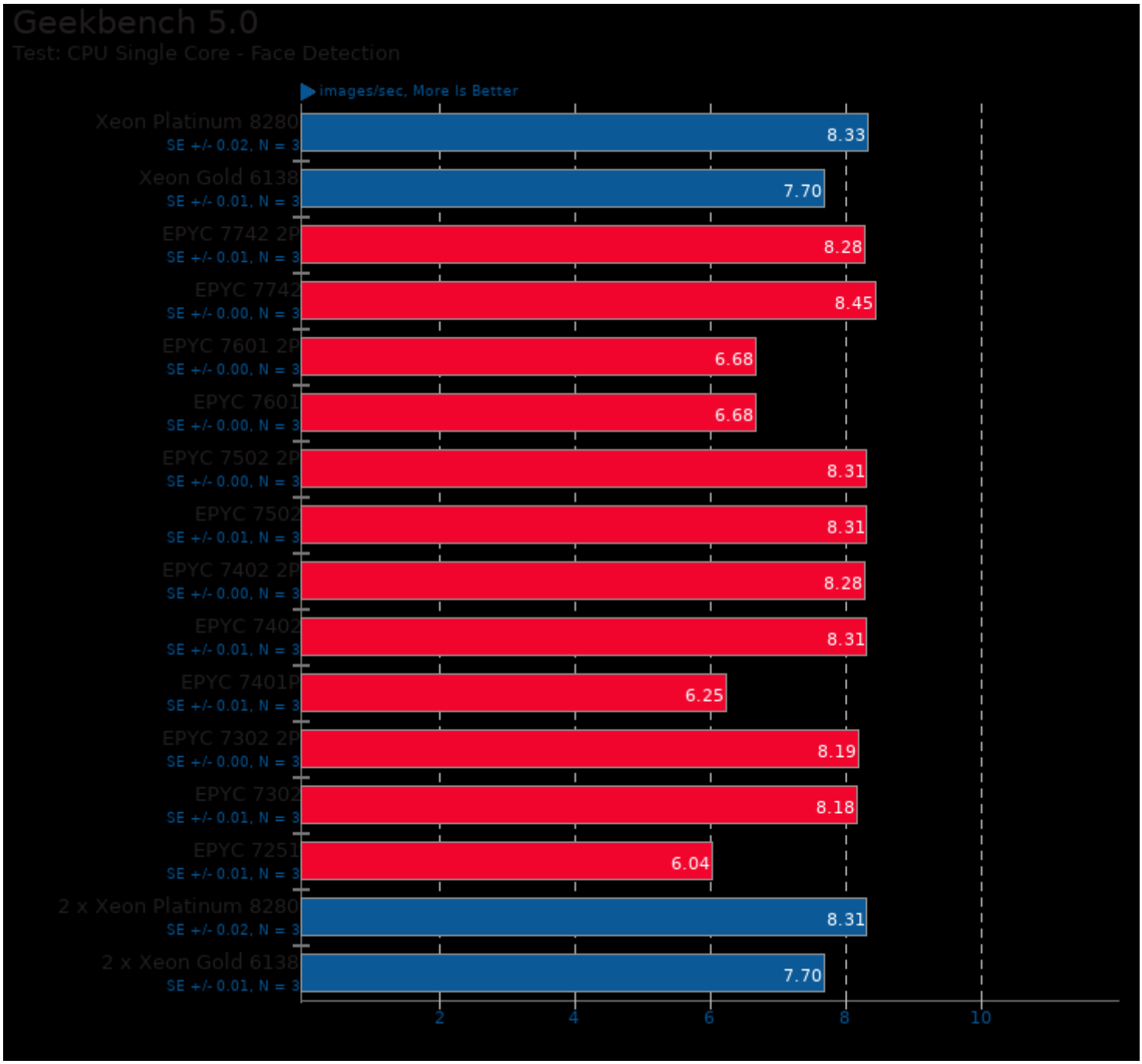

NeatBench 5
Acceleration: CPU
FPS, More Is Better
Xeon Platinum 8280
SE +/- 0.34, N = 9
34.30
Xeon Gold 6138
SE +/- 0.29, N = 3
24.80
EPYC 7742 2P
SE +/- 0.03, N = 3
32.53
EPYC 7742
SE +/- 0.59, N = 3
34.43
EPYC 7601 2P
SE +/- 0.12, N = 6
10.38
EPYC 7601
SE +/- 0.17, N = 15
11.57
EPYC 7502 2P
SE +/-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

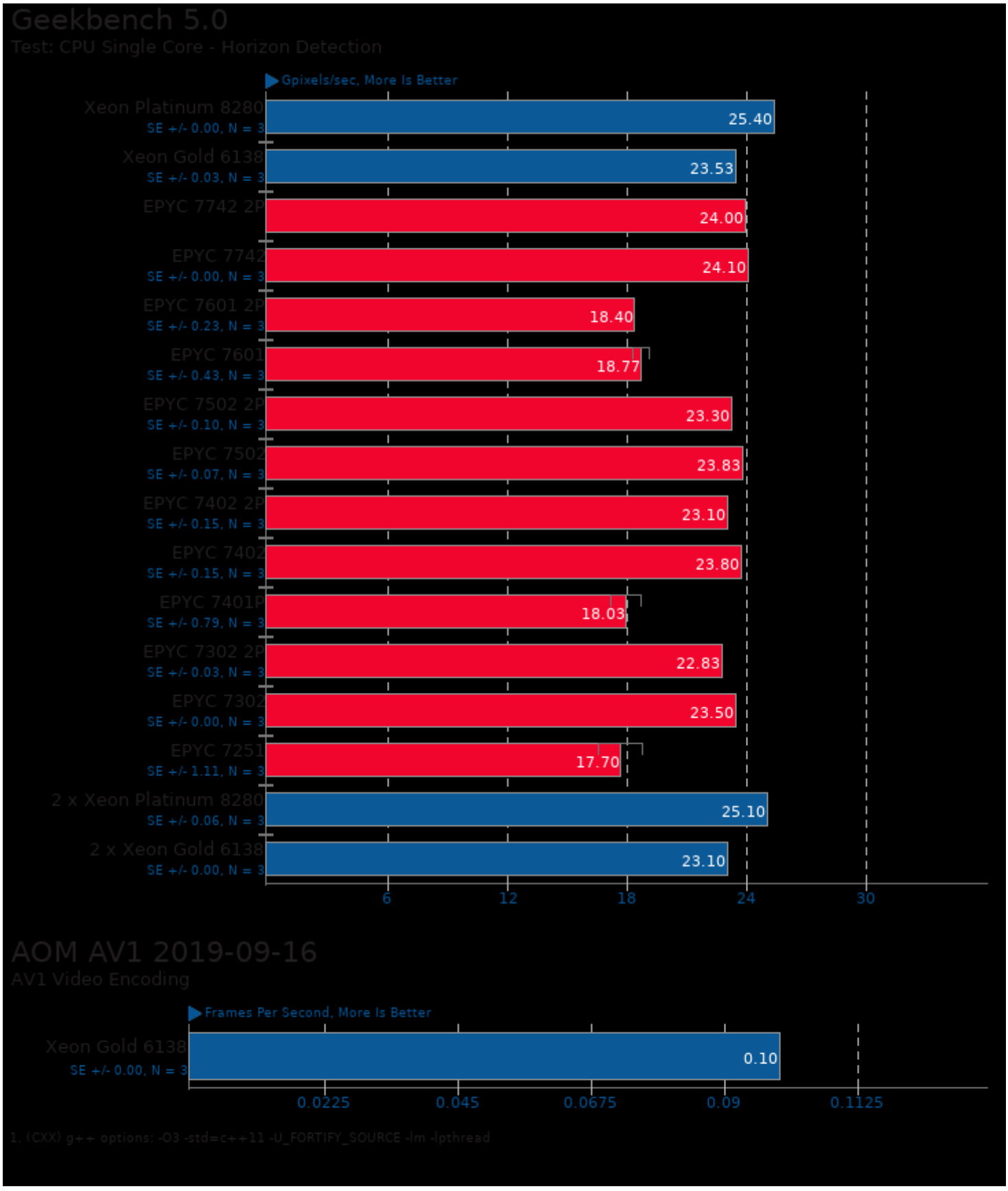

Geekbench 5.0
Test: CPU Multi Core
Score, More Is Better
Xeon Platinum 8280
SE +/- 78.48, N = 3
23734
Xeon Gold 6138
SE +/- 49.27, N = 3
14386
EPYC 7742 2P
SE +/- 578.86, N = 3
59066
EPYC 7742
SE +/- 217.83, N = 3
42067
EPYC 7601 2P
SE +/- 420.30, N = 3
28438
EPYC 7601
SE +/- 288.36, N = 3
17829
EPYC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


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


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

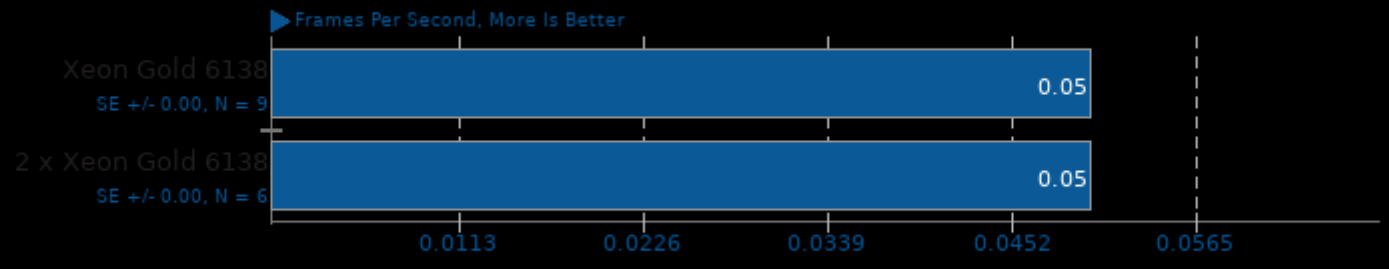

Geekbench 5.0
Test: CPU Single Core - Gaussian Blur
Mpixels/sec, More Is Better
Xeon Platinum 8280
SE +/- 0.24, N = 3
42.53
Xeon Gold 6138
SE +/- 0.00, N = 3
40.80
EPYC 7742 2P
SE +/- 0.09, N = 3
64.43
EPYC 7742
SE +/- 0.23, N = 3
65.67
EPYC 7601 2P
SE +/- 0.15, N = 3
60.97
EPYC 7601
SE +/- 0.07, N =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


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


Geekbench 5.0
Test: CPU Single Core - Horizon Detection
Gpixels/sec, More Is Better
Xeon Platinum 8280
SE +/- 0.00, N = 3
25.40
Xeon Gold 6138
SE +/- 0.03, N = 3
23.53
EPYC 7742 2P
24.00
EPYC 7742
SE +/- 0.00, N = 3
24.10
EPYC 7601 2P
SE +/- 0.23, N = 3
18.40
EPYC 7601
SE +/- 0.43, N = 3
18.77
EPYC 7502 2P
SE +/- 0.10, N = 3
23.30
EPYC 7502
SE +/- 0.07, N = 3
23.83
EPYC 7402 2P
SE +/- 0.15, N = 3
23.10
EPYC 7402
SE +/- 0.15, N = 3
23.80
EPYC 7401P
SE +/- 0.79, N = 3
18.03
EPYC 7302 2P
SE +/- 0.03, N = 3
22.83
EPYC 7302
SE +/- 0.00, N = 3
23.50
EPYC 7251
SE +/- 1.11, N = 3
17.70
2 x Xeon Platinum 8280
SE +/- 0.06, N = 3
25.10
2 x Xeon Gold 6138
SE +/- 0.00, N = 3
23.10
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

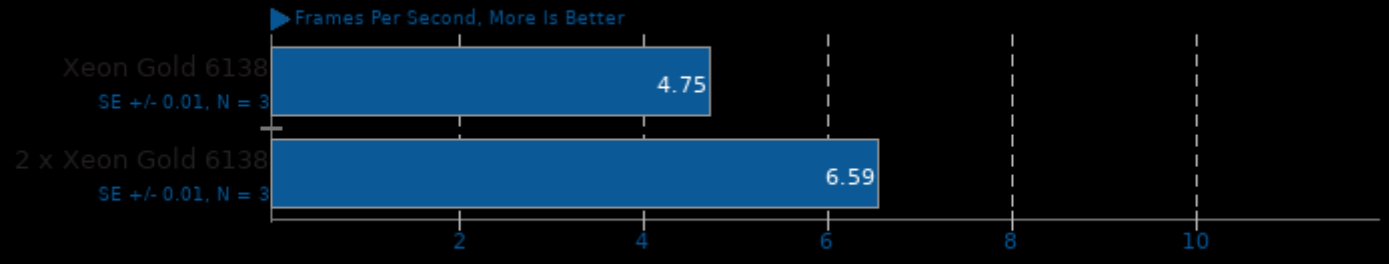
Encoder Mode: Enc Mode 0 - Input: 1080p



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

SVT-AV1 0.6

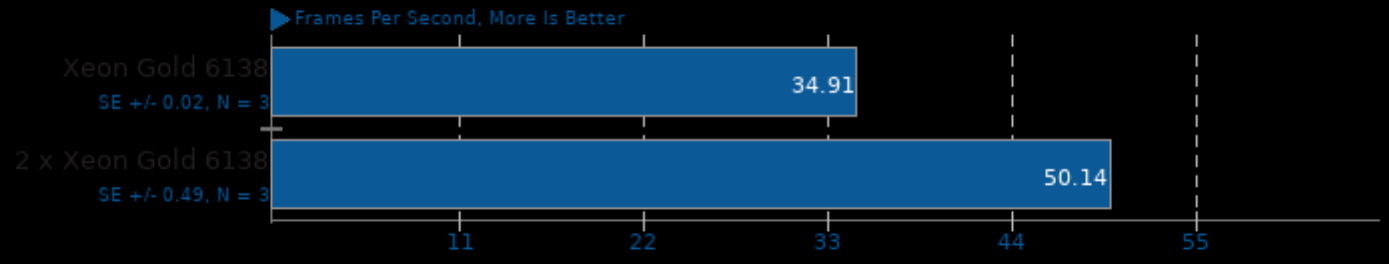
Encoder Mode: Enc Mode 4 - Input: 1080p



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

SVT-AV1 0.6

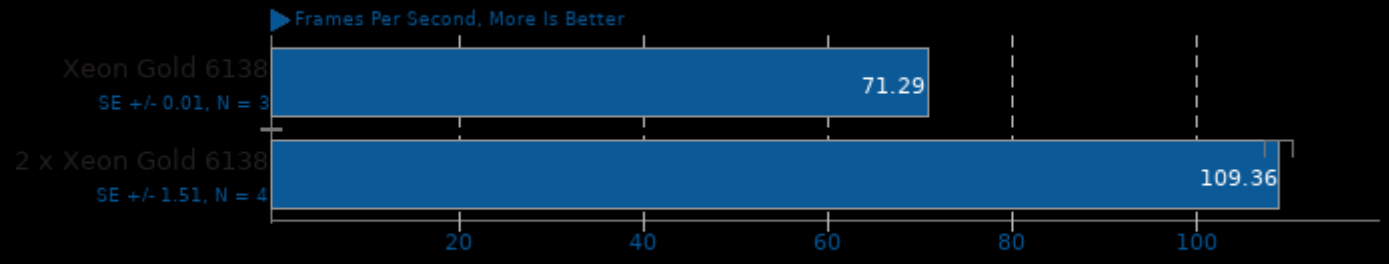
Encoder Mode: Enc Mode 8 - Input: 1080p



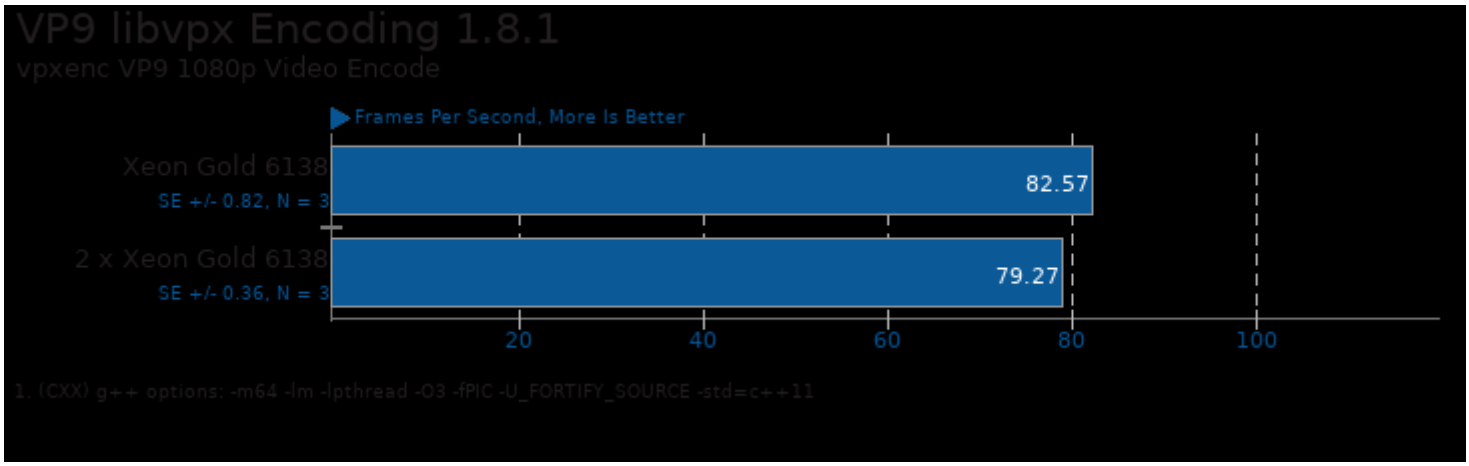
1. (CXX) g++ options: -fPIE -fPIC -march=native -pie

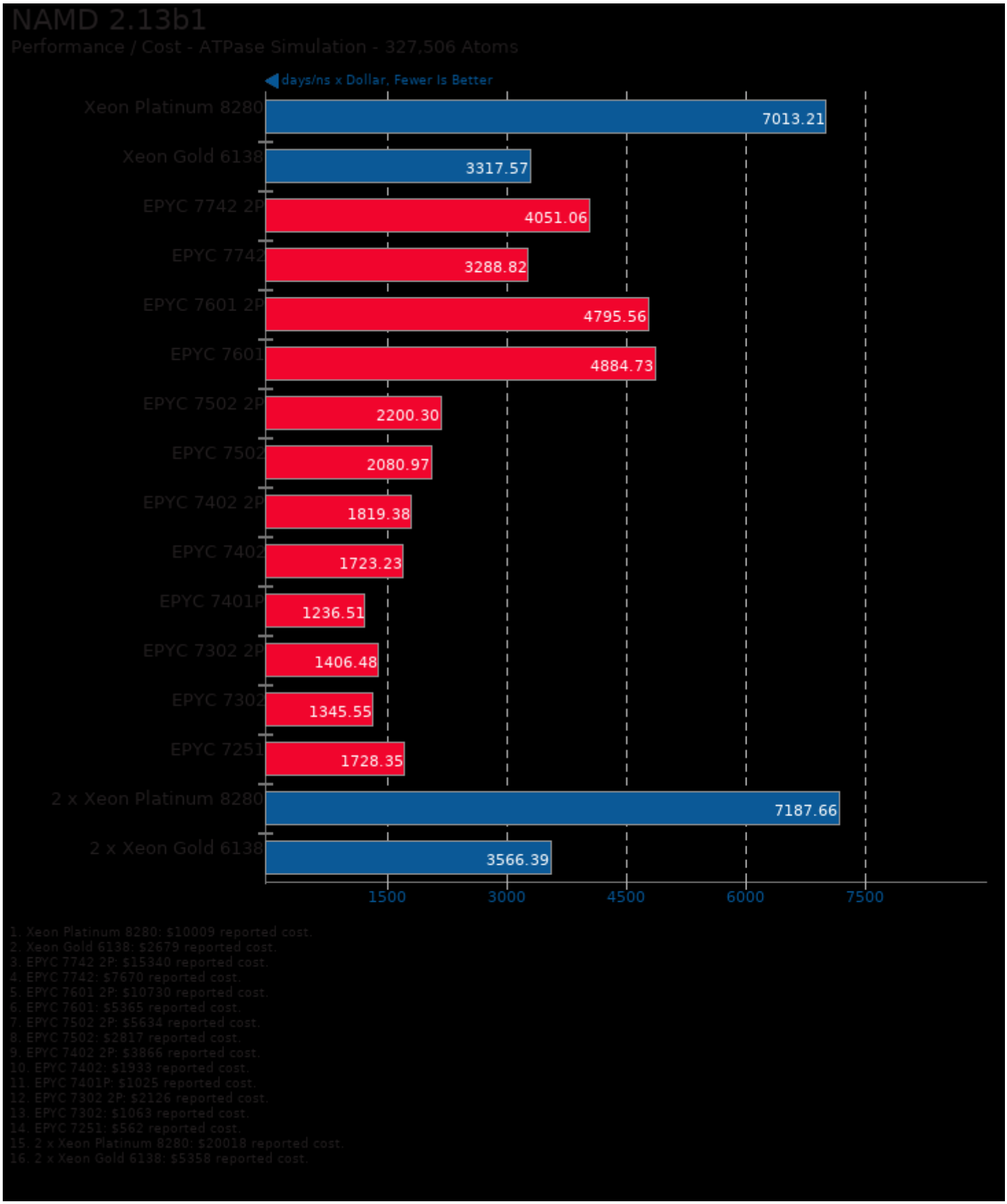
SVT-HEVC 1.4.1

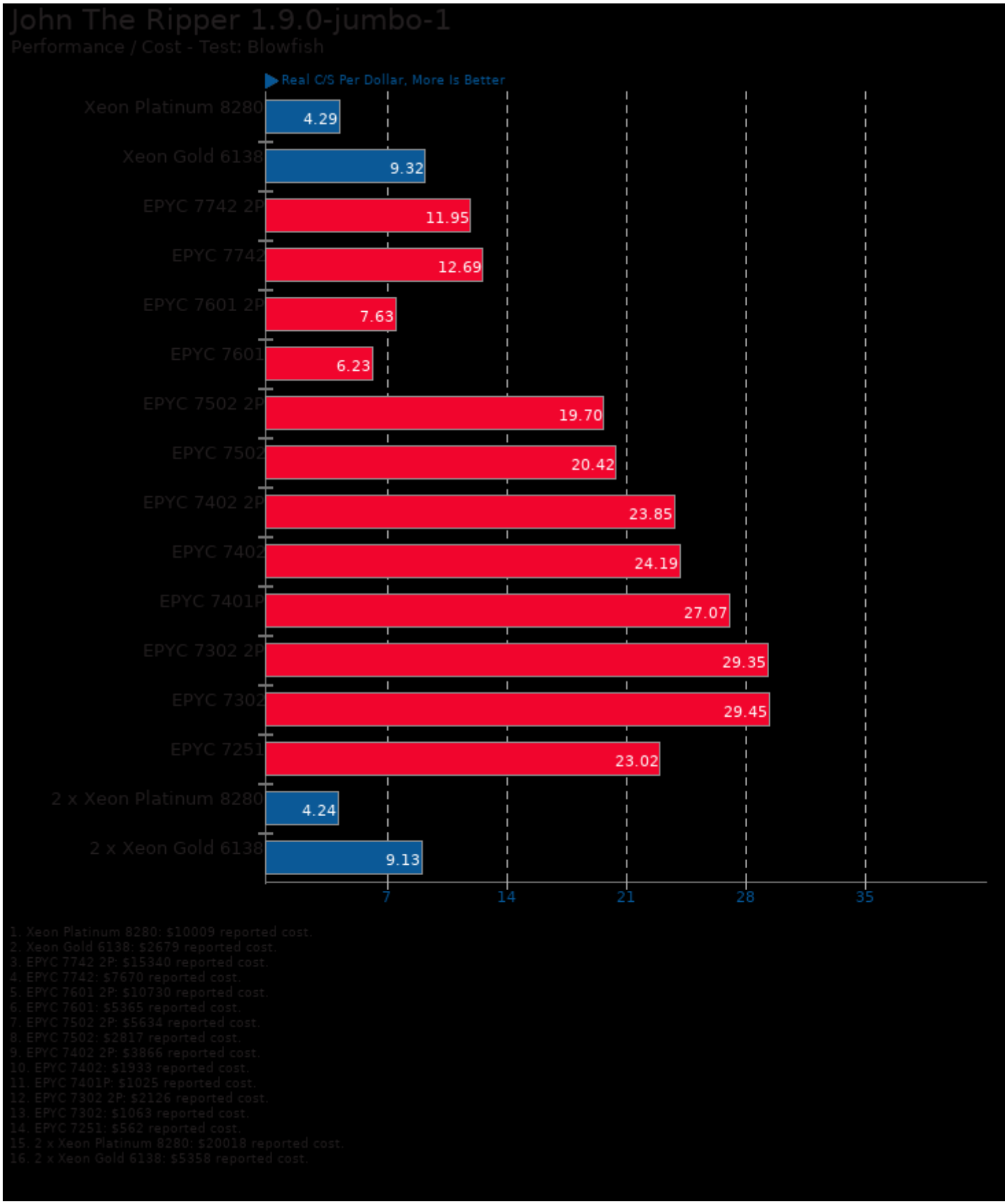
1080p 8-bit YUV To HEVC Video Encode

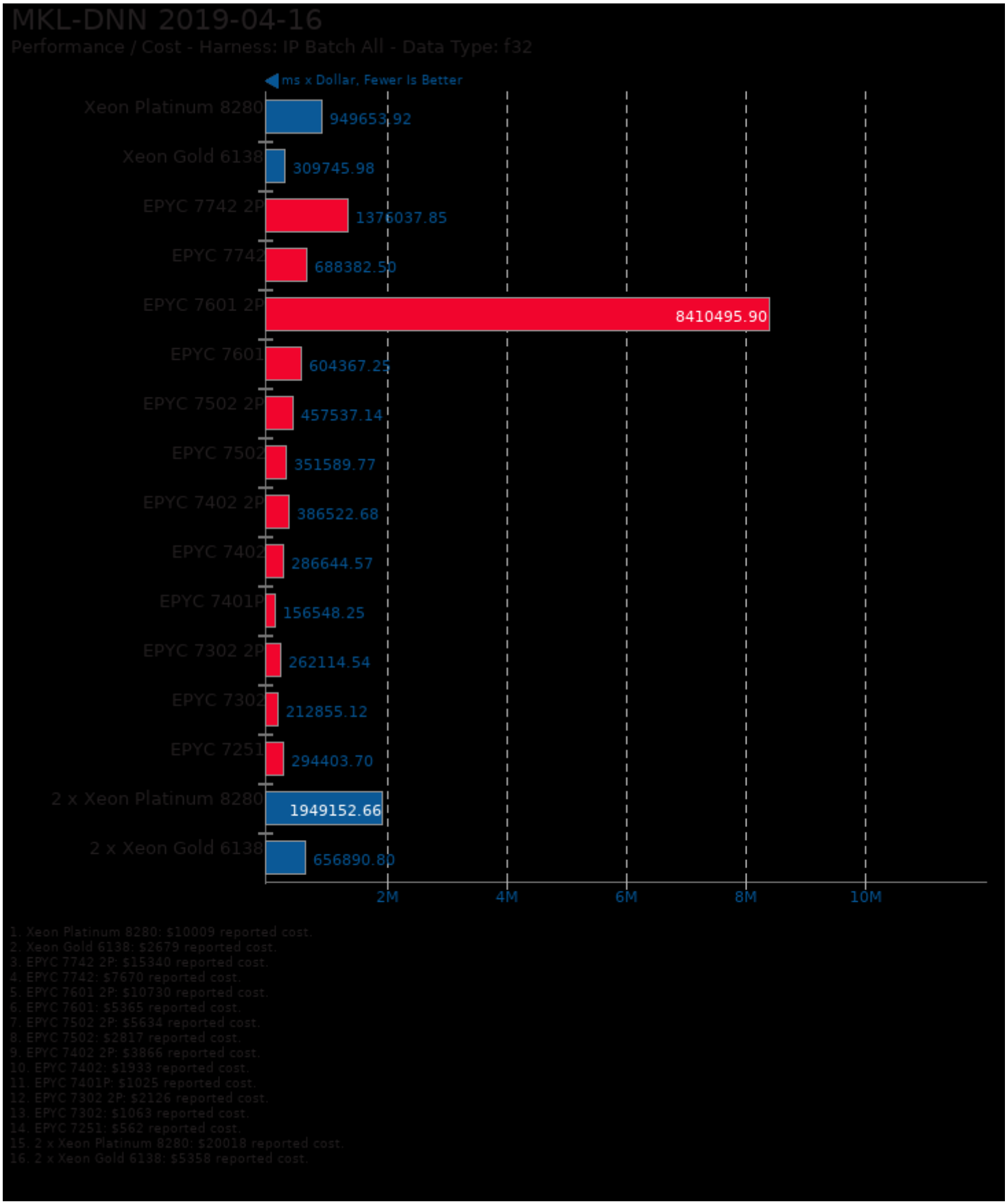


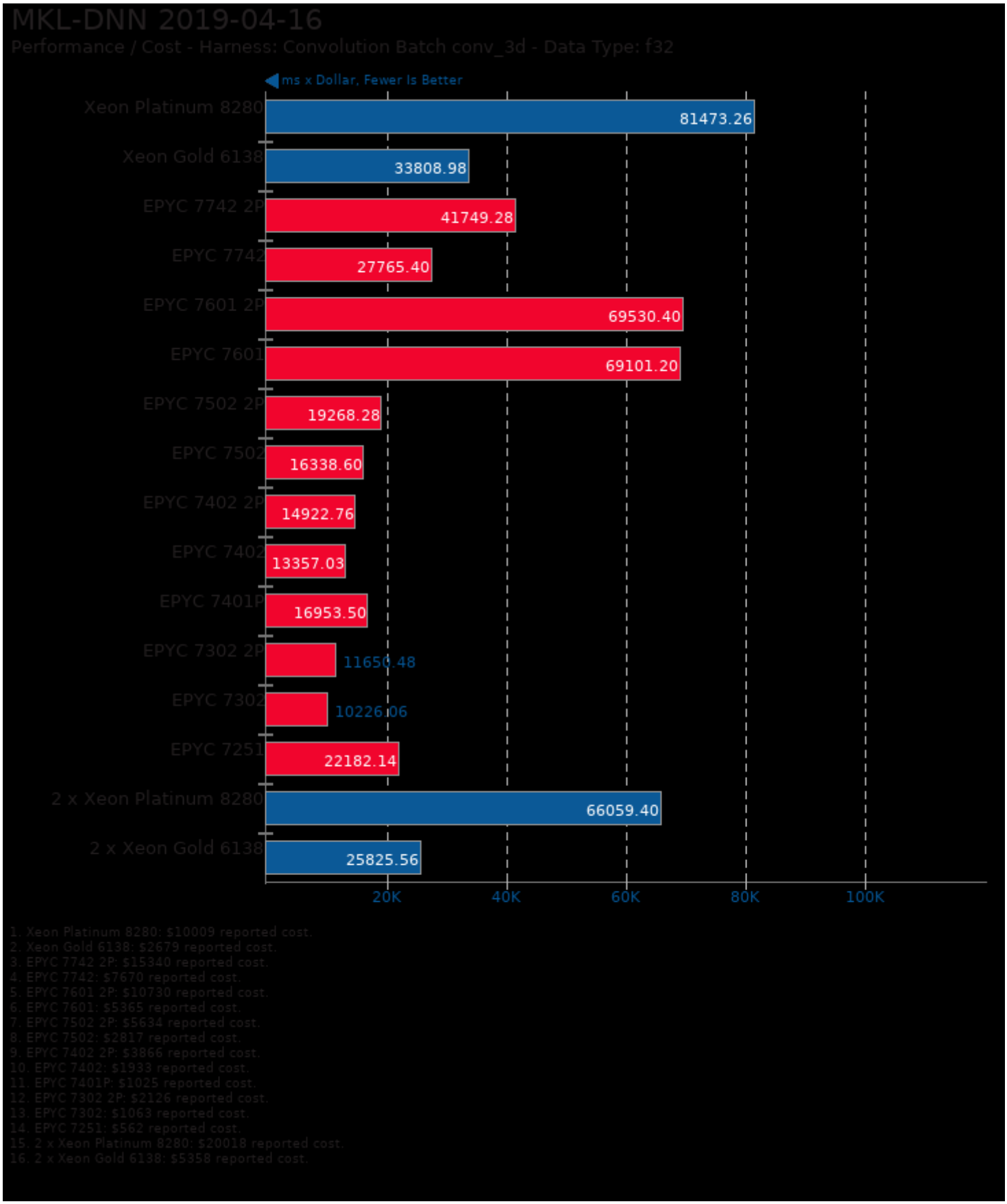
1. (CC) gcc options: -fPIE -fPIC -O3 -O2 -pie -rdynamic -lpthread -lrt

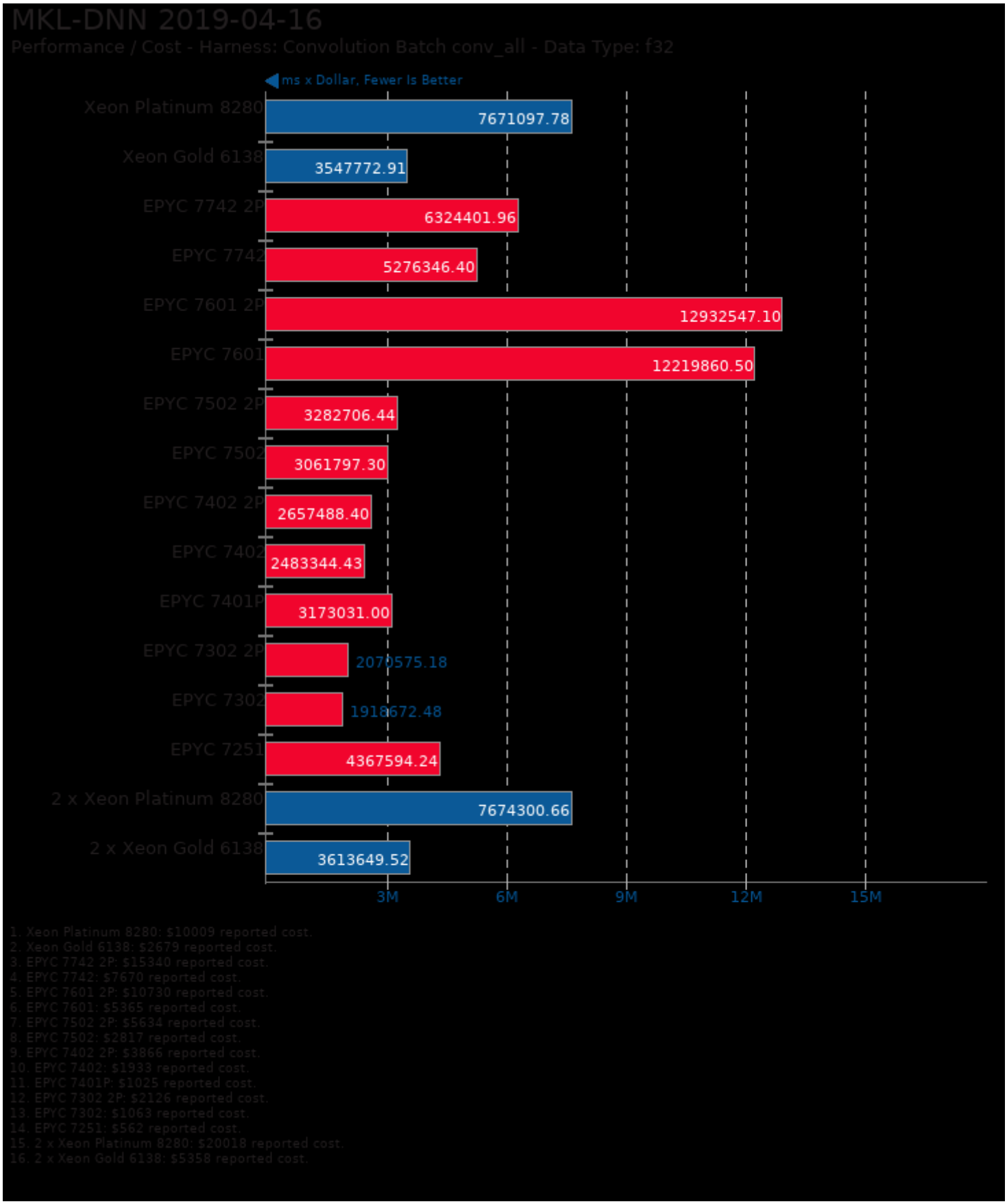

VP9 libvpx Encoding 1.8.1
vpxenc VP9 1080p Video Encode
Frames Per Second, More Is Better
Xeon Gold 6138
SE +/- 0.82, N = 3
82.57
2 x Xeon Gold 6138
SE +/- 0.36, N = 3
79.27
20
40
60
80
100
1. (CXX) g++ options: -m64 -lm -lpthread -O3 -fPIC -U_FORTIFY_SOURCE -std=c++11

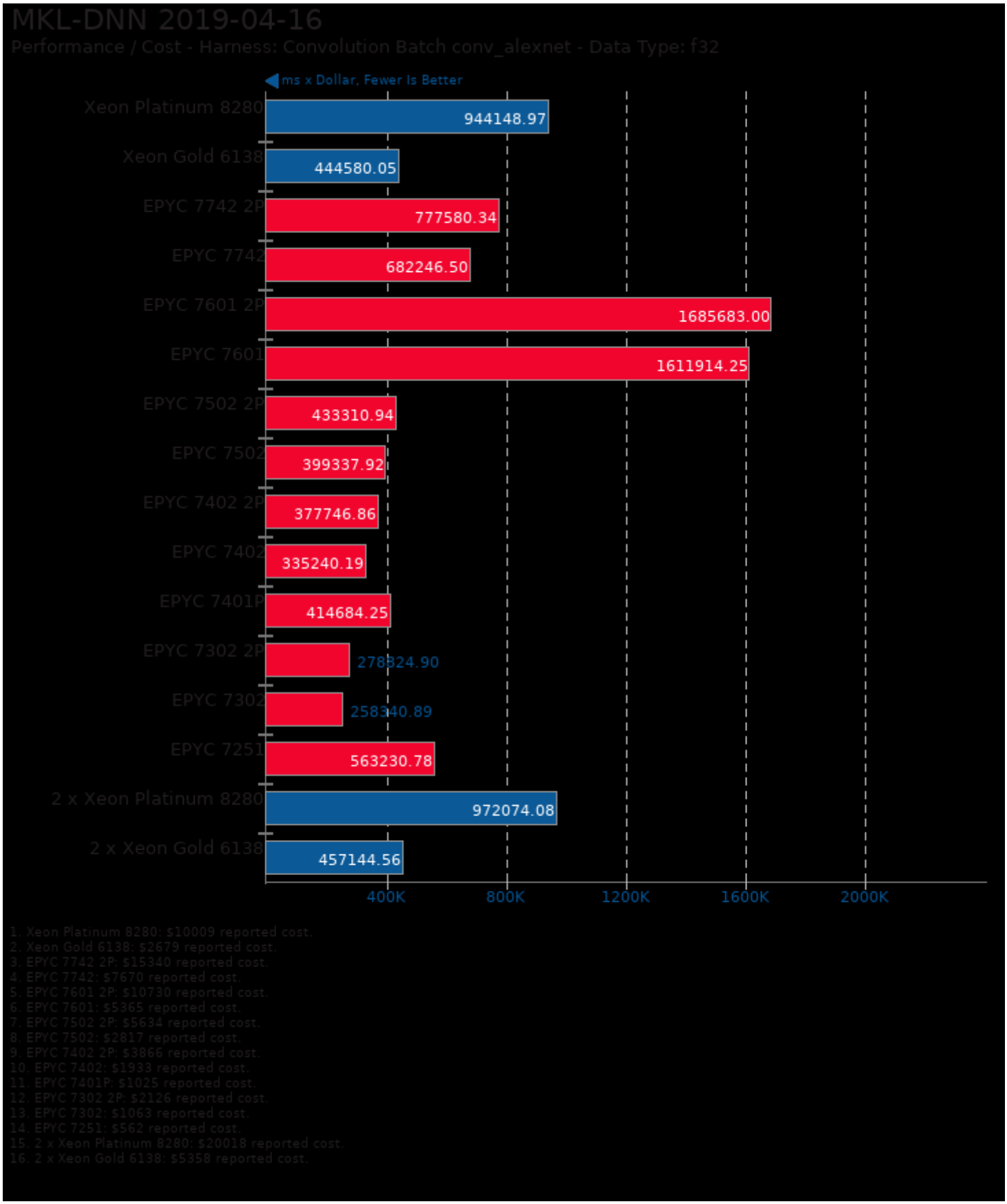

NAMD 2.13b1
Performance / Cost - ATPase Simulation - 327,506 Atoms
days/ns x Dollar, Fewer Is Better
Xeon Platinum 8280
7013.21
Xeon Gold 6138
3317.57
EPYC 7742 2P
4051.06
EPYC 7742
3288.82
EPYC 7601 2P
4795.56
EPYC 7601
4884.73
EPYC 7502 2P
2200.30
EPYC 7502
2080.97
EPYC 7402 2P
1819.38
EPYC 7402
1723.23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

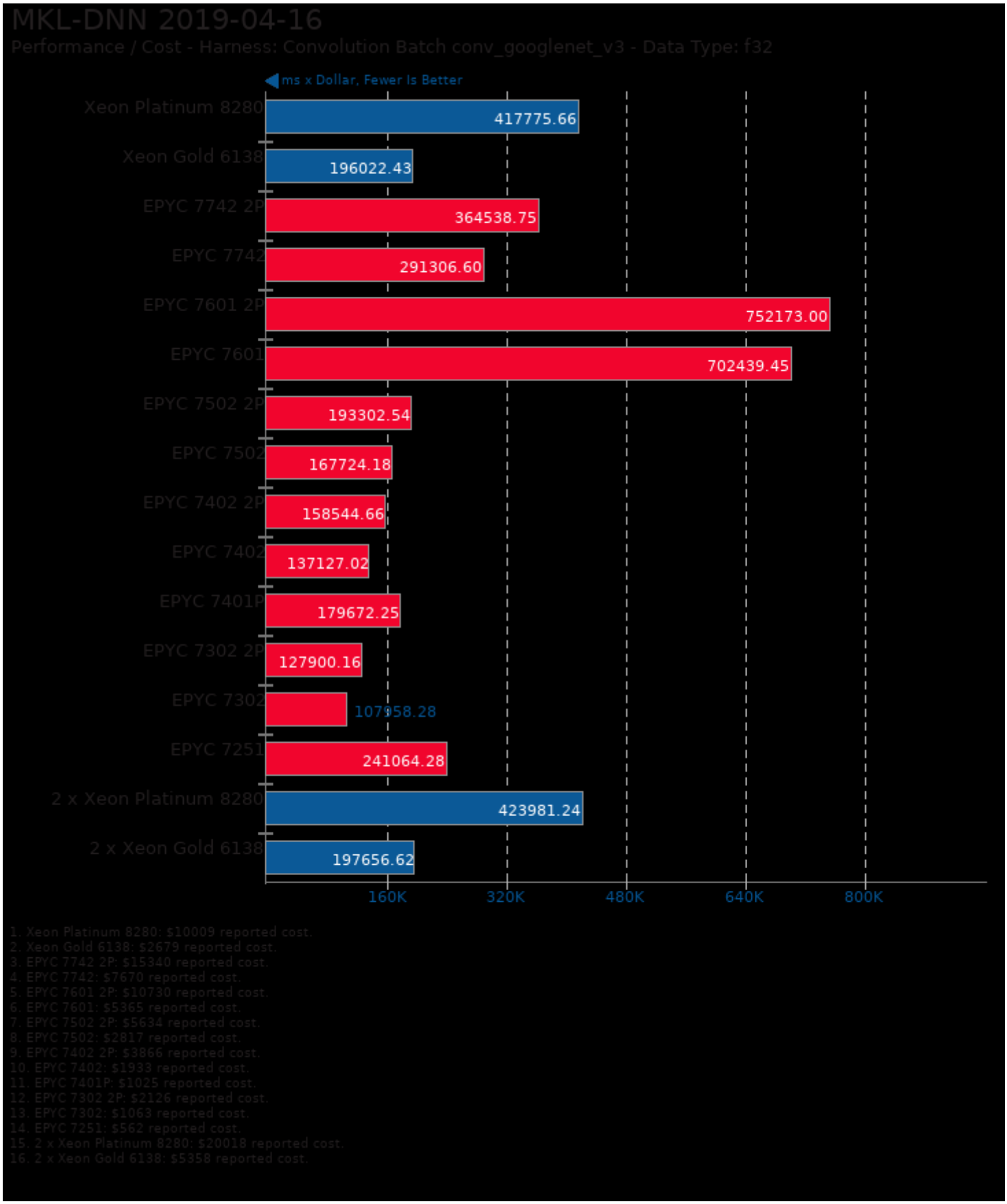

John The Ripper 1.9.0-jumbo-1
Performance / Cost - Test: Blowfish
Real C/S Per Dollar, More Is Better
Xeon Platinum 8280
4.29
Xeon Gold 6138
9.32
EPYC 7742 2P
11.95
EPYC 7742
12.69
EPYC 7601 2P
7.63
EPYC 7601
6.23
EPYC 7502 2P
19.70
EPYC 7502
20.42
EPYC 7402 2P
23.85
EPYC 7402
24.19
EPYC 7401P
27.07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

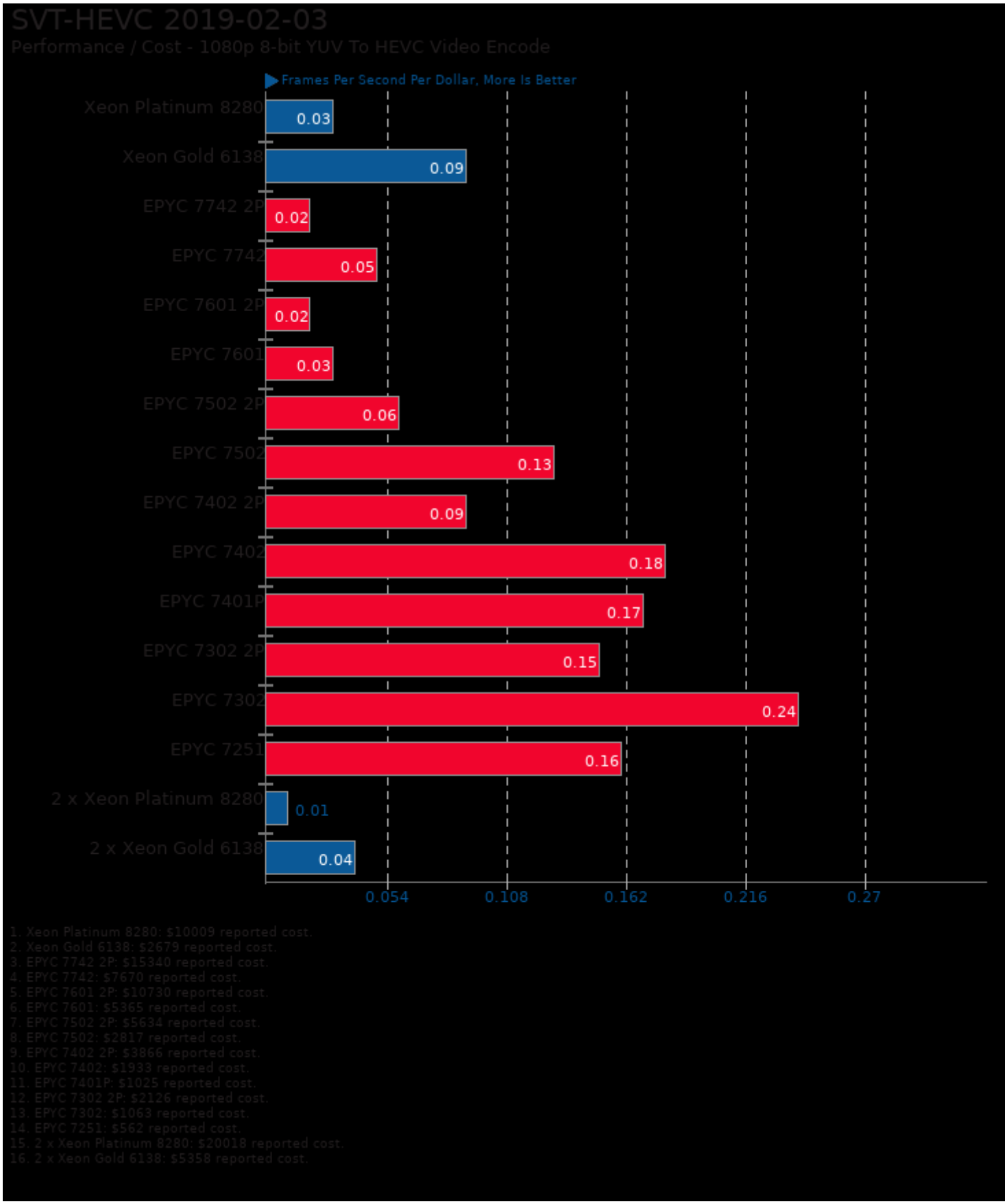

MKL-DNN 2019-04-16
Performance / Cost - Harness: IP Batch All - Data Type: f32
ms x Dollar, Fewer Is Better
Xeon Platinum 8280
949653.92
Xeon Gold 6138
309745.98
EPYC 7742 2P
1376037.85
EPYC 7742
688382.50
EPYC 7601 2P
8410495.90
EPYC 7601
604367.25
EPYC 7502 2P
457537.14
EPYC 7502
351589.77
EPYC 7402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

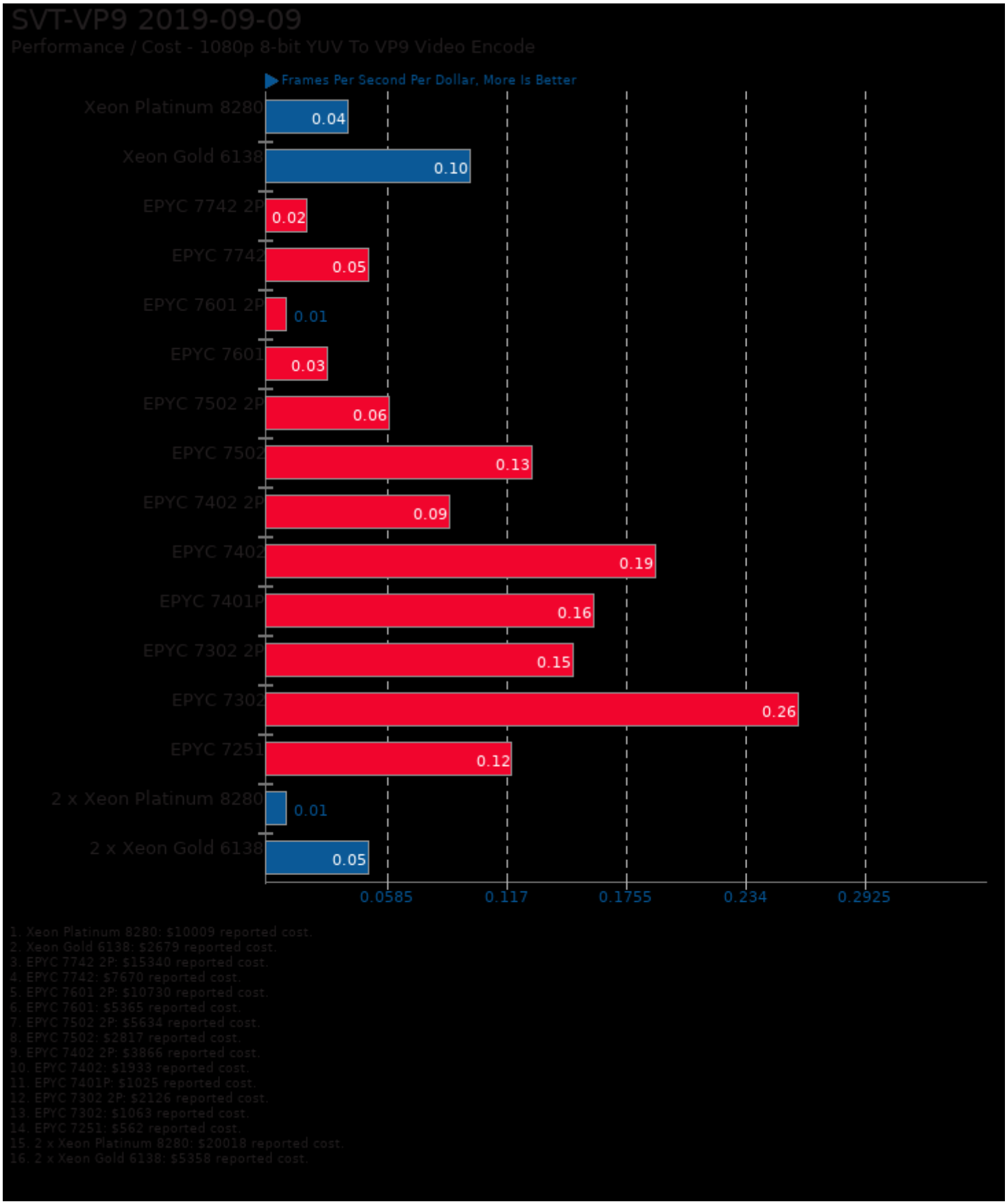

MKL-DNN 2019-04-16
Performance / Cost - Harness: Convolution Batch conv_3d - Data Type: f32
ms x Dollar, Fewer Is Better
Xeon Platinum 8280
81473.26
Xeon Gold 6138
33808.98
EPYC 7742 2P
41749.28
EPYC 7742
27765.40
EPYC 7601 2P
69530.40
EPYC 7601
69101.20
EPYC 7502 2P
19268.28
EPYC 7502
16338.60
EPYC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

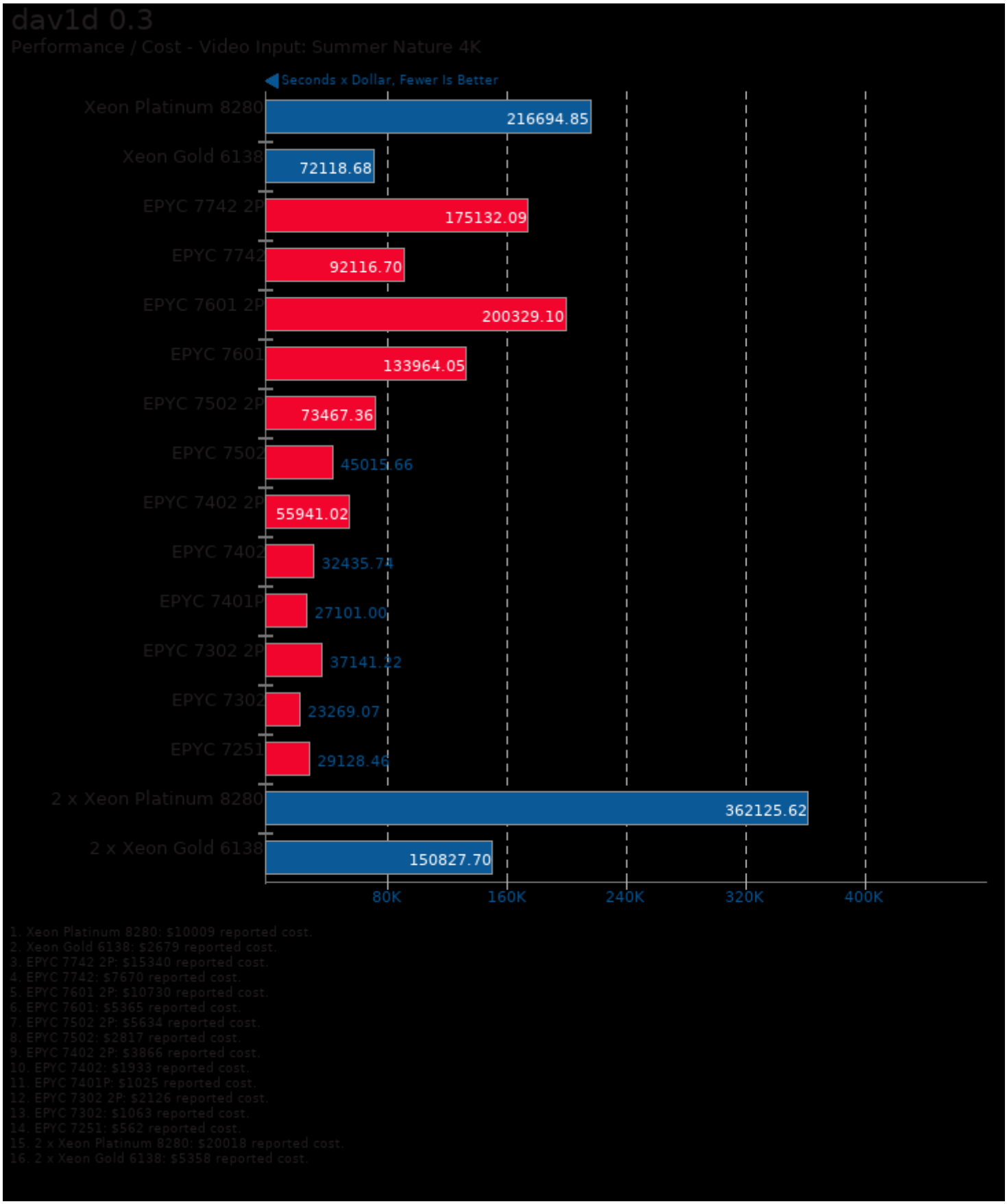

MKL-DNN 2019-04-16
Performance / Cost - Harness: Convolution Batch conv_all - Data Type: f32
ms x Dollar, Fewer Is Better
Xeon Platinum 8280
7671097.78
Xeon Gold 6138
3547772.91
EPYC 7742 2P
6324401.96
EPYC 7742
5276346.40
EPYC 7601 2P
12932547.10
EPYC 7601
12219860.50
EPYC 7502 2P
3282706.44
EPYC 7502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

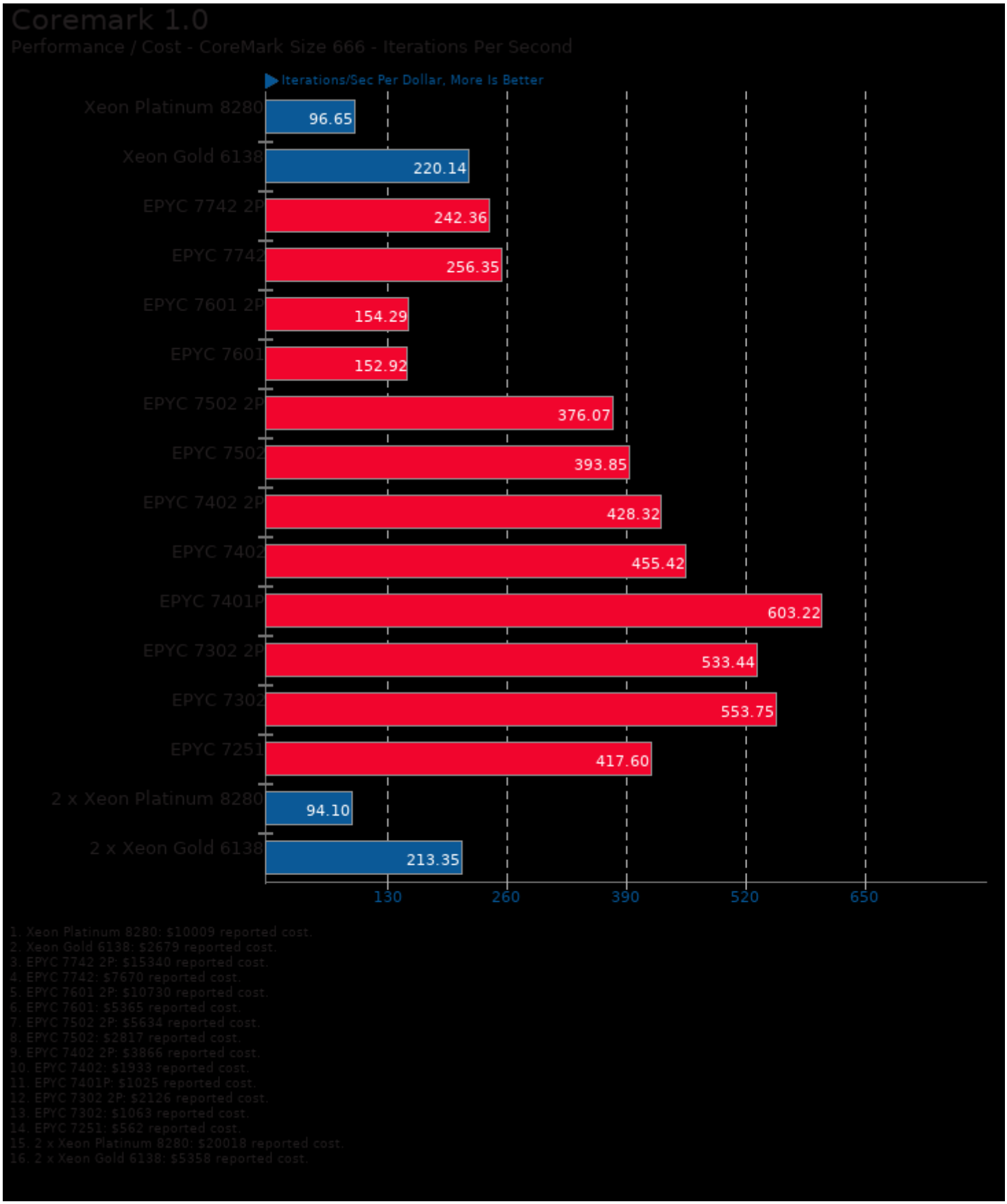

MKL-DNN 2019-04-16
Performance / Cost - Harness: Convolution Batch conv_alexnet - Data Type: f32
ms x Dollar, Fewer Is Better
Xeon Platinum 8280
944148.97
Xeon Gold 6138
444580.05
EPYC 7742 2P
777580.34
EPYC 7742
682246.50
EPYC 7601 2P
1685683.00
EPYC 7601
1611914.25
EPYC 7502 2P
433310.94
EPYC 7502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

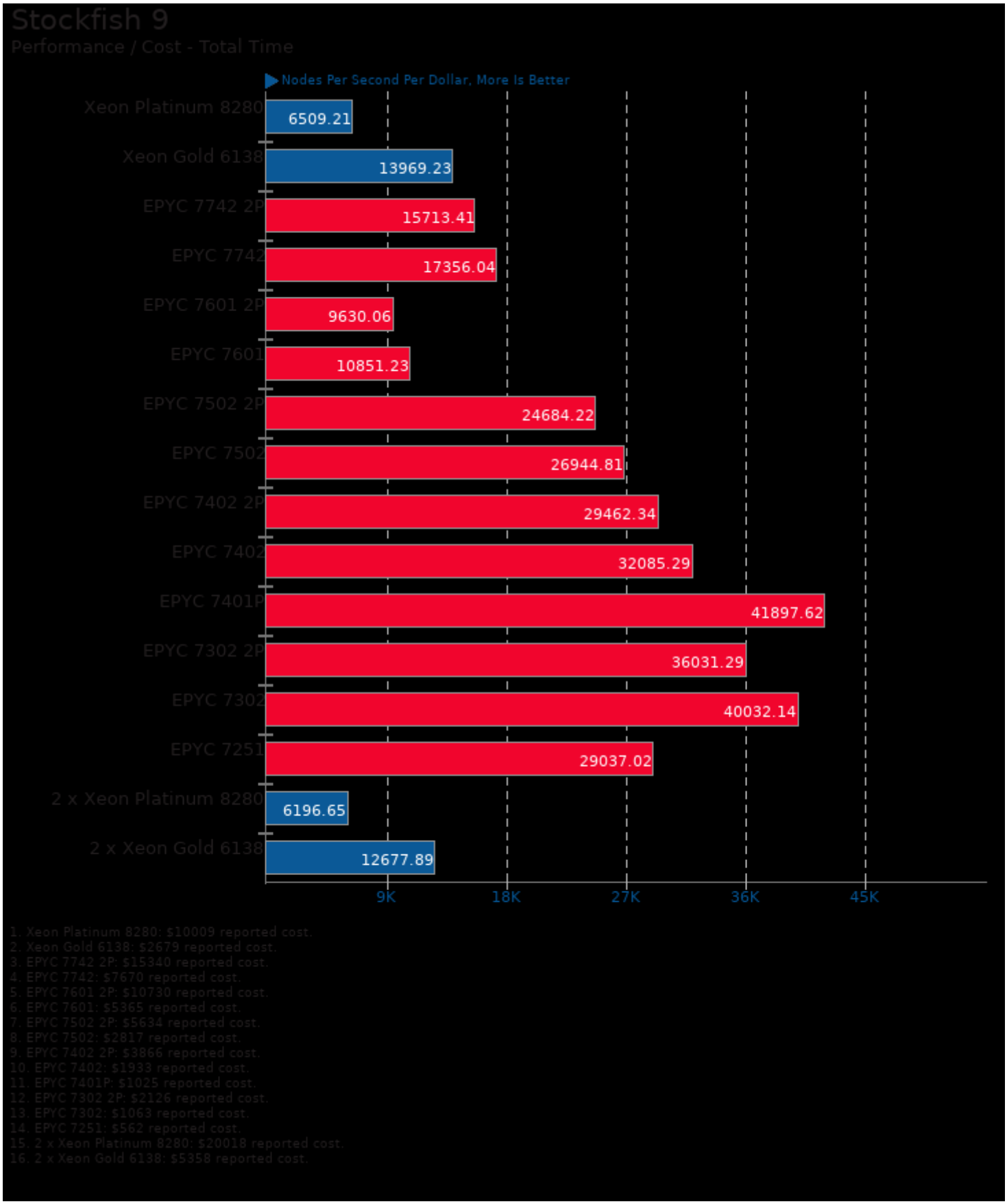

MKL-DNN 2019-04-16
Performance / Cost - Harness: Convolution Batch conv_googlenet_v3 - Data Type: f32
ms x Dollar, Fewer Is Better
Xeon Platinum 8280
417775.66
Xeon Gold 6138
196022.43
EPYC 7742 2P
364538.75
EPYC 7742
291306.60
EPYC 7601 2P
752173.00
EPYC 7601
702439.45
EPYC 7502 2P
193302.54
EPYC 7502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

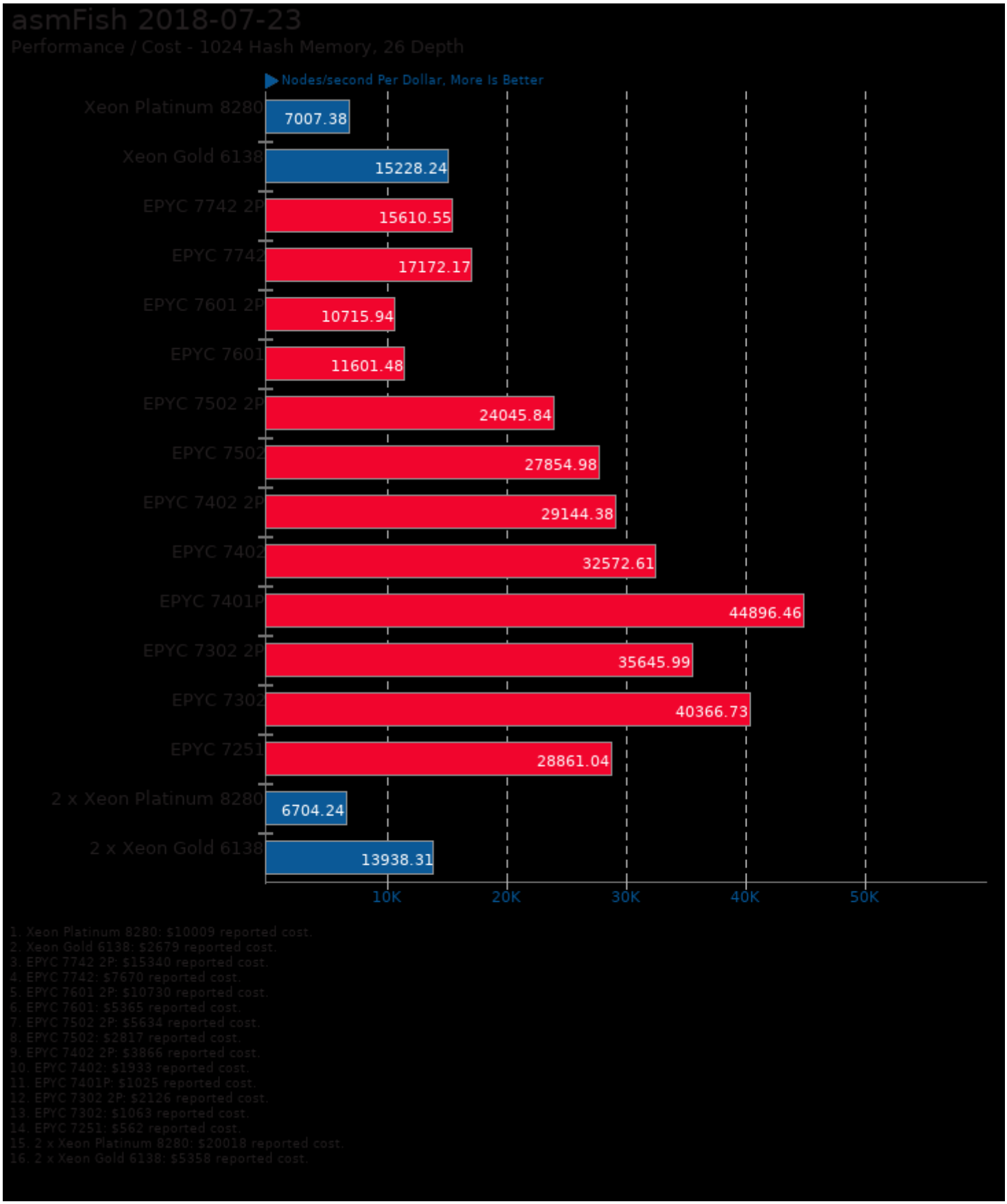

SVT-HEVC 2019-02-03
Performance / Cost - 1080p 8-bit YUV To HEVC Video Encode
Frames Per Second Per Dollar, More Is Better
Xeon Platinum 8280
0.03
Xeon Gold 6138
0.09
EPYC 7742 2P
0.02
EPYC 7742
0.05
EPYC 7601 2P
0.02
EPYC 7601
0.03
EPYC 7502 2P
0.06
EPYC 7502
0.13
EPYC 7402 2P
0.09
EPYC 7402
0.18
EPYC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

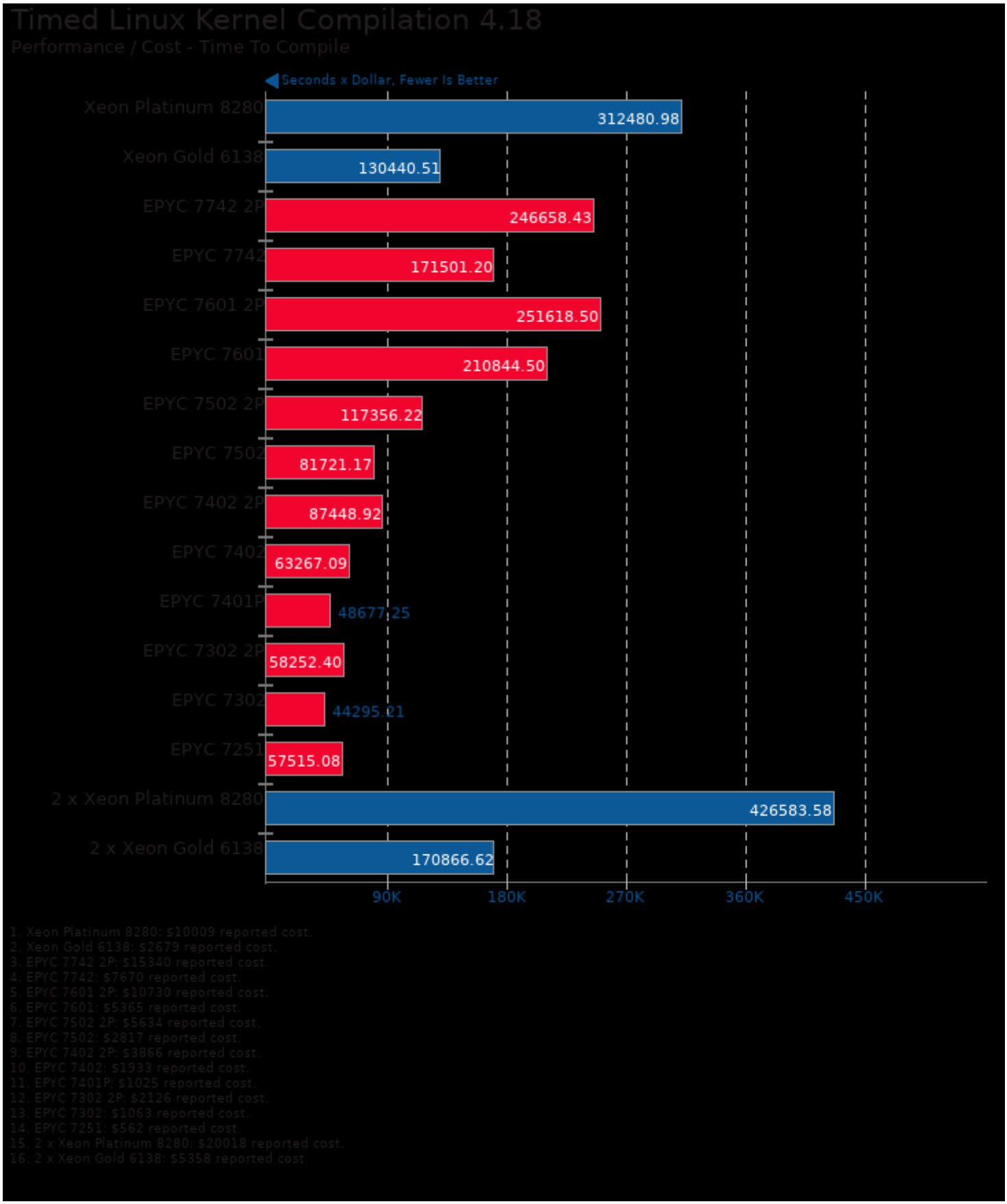

SVT-VP9 2019-09-09
Performance / Cost - 1080p 8-bit YUV To VP9 Video Encode
Frames Per Second Per Dollar, More Is Better
Xeon Platinum 8280
0.04
Xeon Gold 6138
0.10
EPYC 7742 2P
0.02
EPYC 7742
0.05
EPYC 7601 2P
0.01
EPYC 7601
0.03
EPYC 7502 2P
0.06
EPYC 7502
0.13
EPYC 7402 2P
0.09
EPYC 7402
0.19
EPYC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

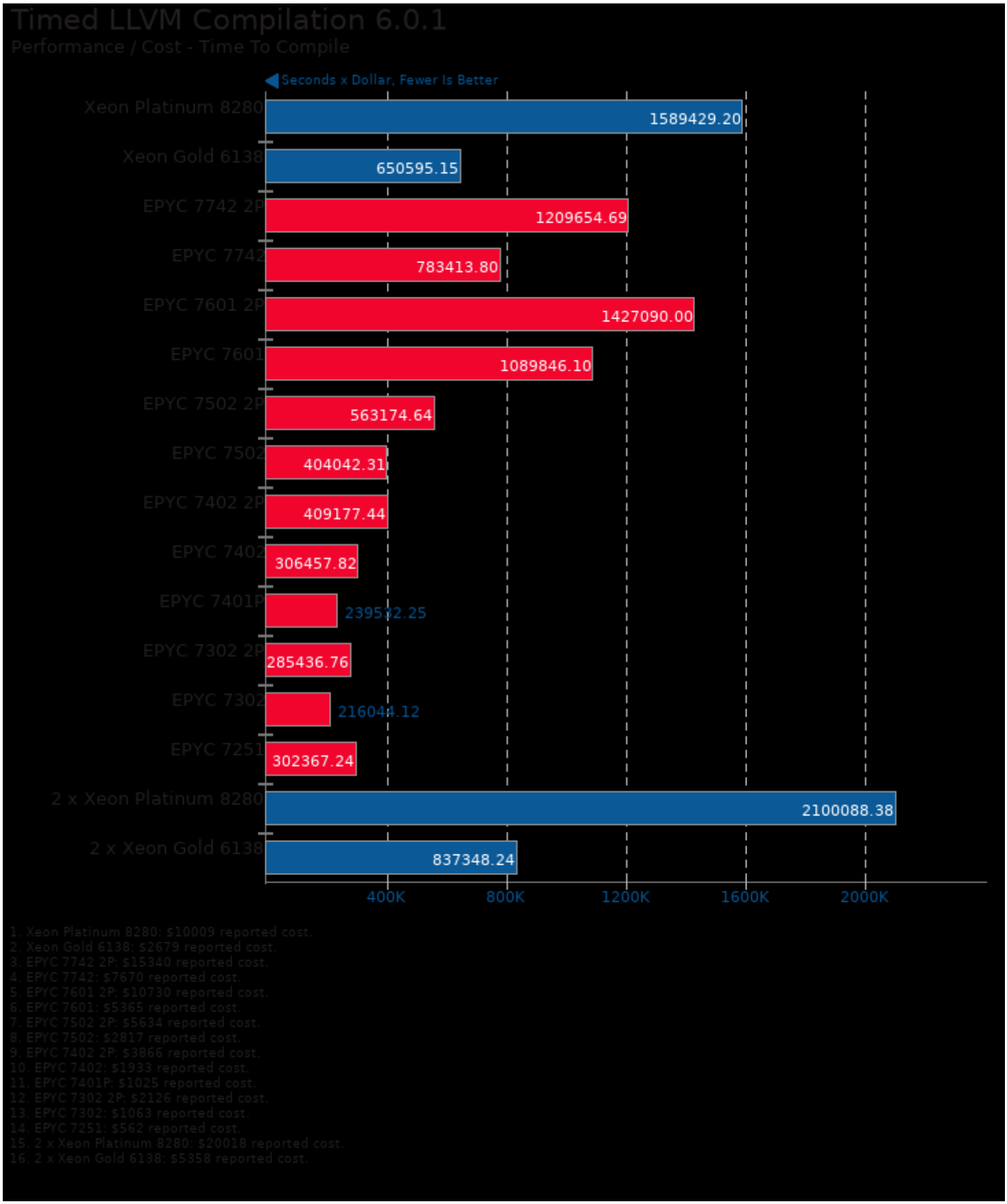

dav1d 0.3
Performance / Cost - Video Input: Summer Nature 4K
Seconds x Dollar, Fewer Is Better
Xeon Platinum 8280
216694.85
Xeon Gold 6138
72118.68
EPYC 7742 2P
175132.09
EPYC 7742
92116.70
EPYC 7601 2P
200329.10
EPYC 7601
133964.05
EPYC 7502 2P
73467.36
EPYC 7502
45015.66
EPYC 7402 2P
55941.02
EPYC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

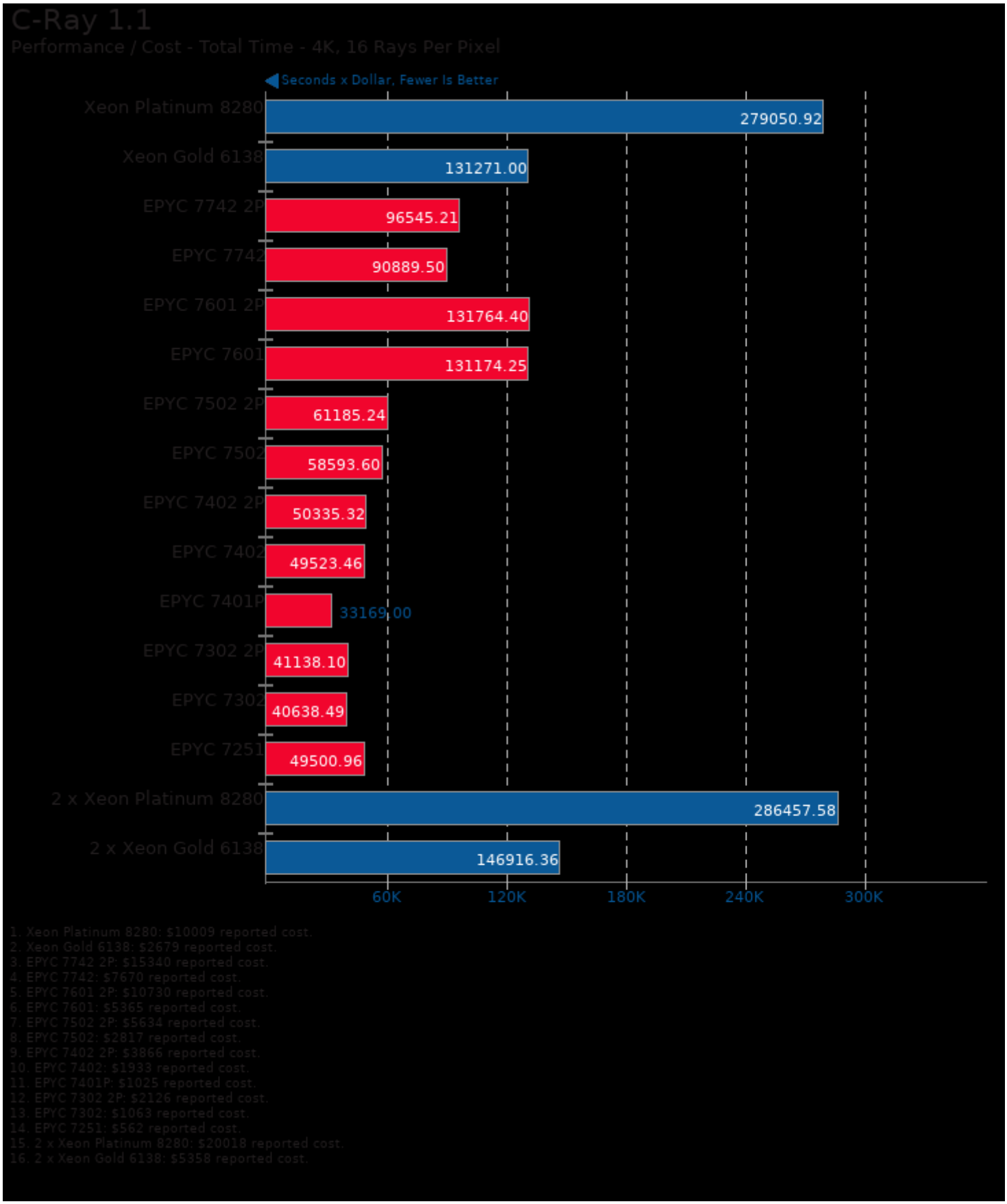

Coremark 1.0
Performance / Cost - CoreMark Size 666 - Iterations Per Second
Iterations/Sec Per Dollar, More Is Better
Xeon Platinum 8280
96.65
Xeon Gold 6138
220.14
EPYC 7742 2P
242.36
EPYC 7742
256.35
EPYC 7601 2P
154.29
EPYC 7601
152.92
EPYC 7502 2P
376.07
EPYC 7502
393.85
EPYC 7402 2P
428.32
EPYC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

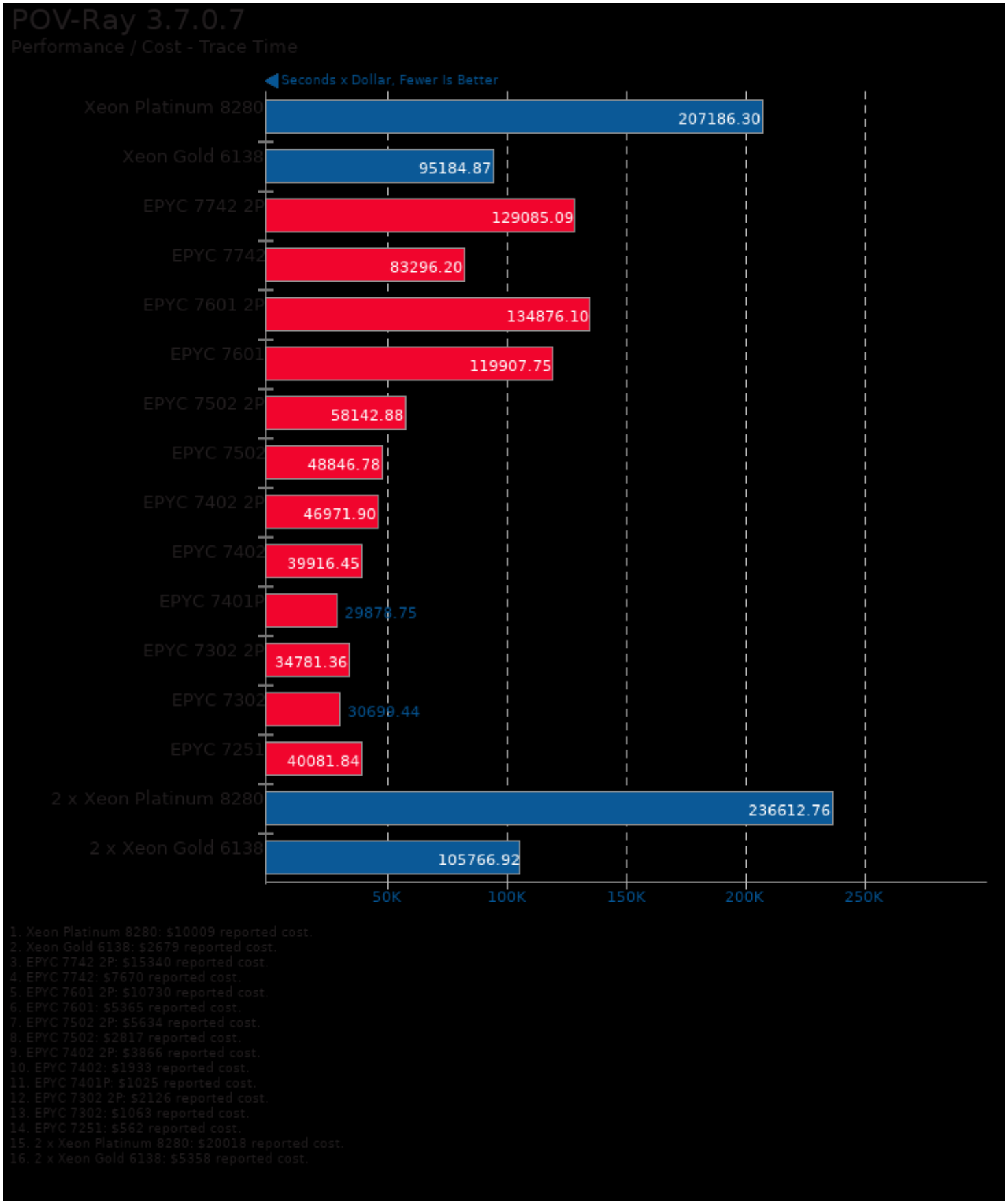

Stockfish 9
Performance / Cost - Total Time
Nodes Per Second Per Dollar, More Is Better
Xeon Platinum 8280
6509.21
Xeon Gold 6138
13969.23
EPYC 7742 2P
15713.41
EPYC 7742
17356.04
EPYC 7601 2P
9630.06
EPYC 7601
10851.23
EPYC 7502 2P
24684.22
EPYC 7502
26944.81
EPYC 7402 2P
29462.34
EPYC 7402
32085.29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

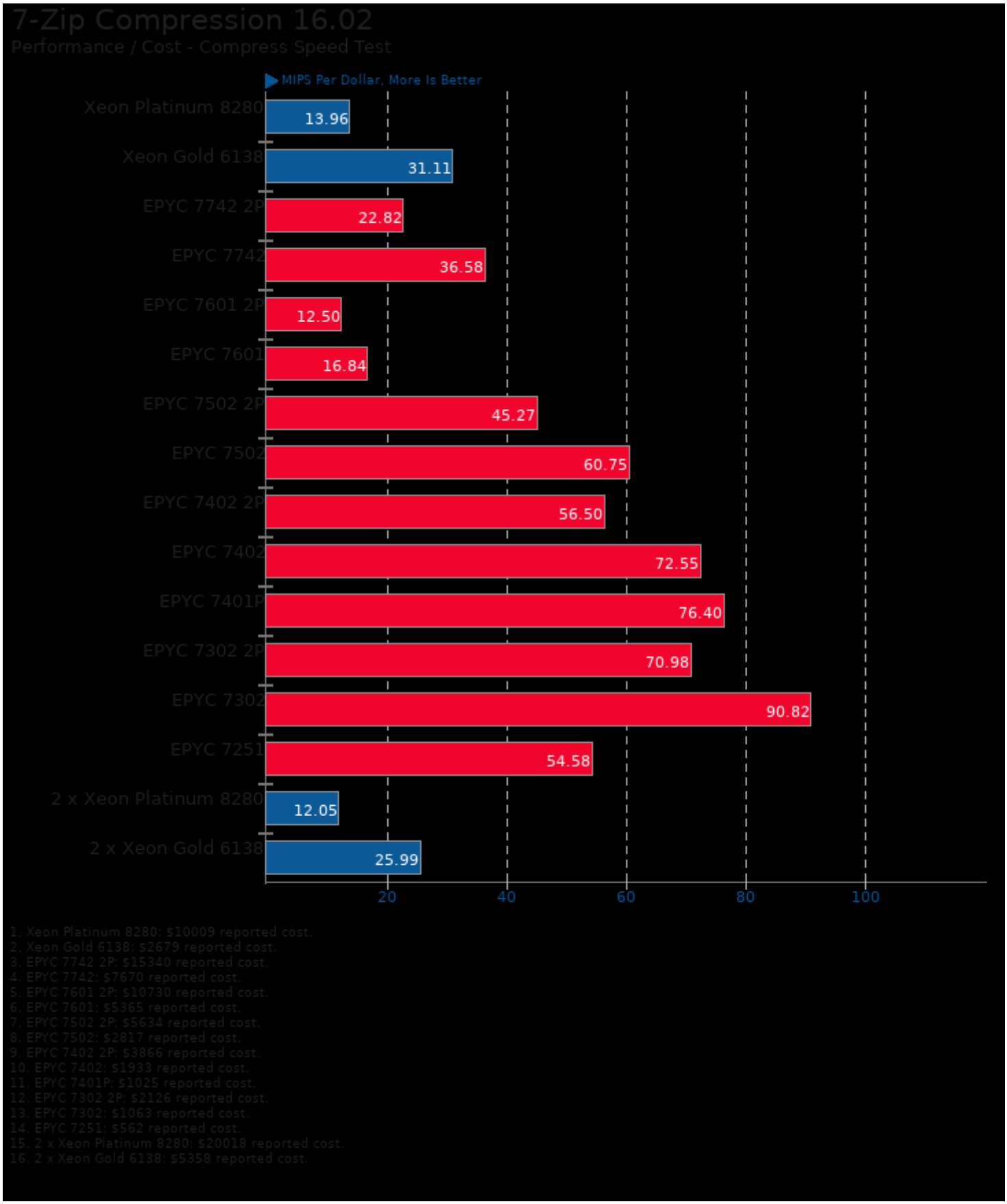

asmFish 2018-07-23
Performance / Cost - 1024 Hash Memory, 26 Depth
Nodes/second Per Dollar, More Is Better
Xeon Platinum 8280
7007.38
Xeon Gold 6138
15228.24
EPYC 7742 2P
15610.55
EPYC 7742
17172.17
EPYC 7601 2P
10715.94
EPYC 7601
11601.48
EPYC 7502 2P
24045.84
EPYC 7502
27854.98
EPYC 7402 2P
29144.38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

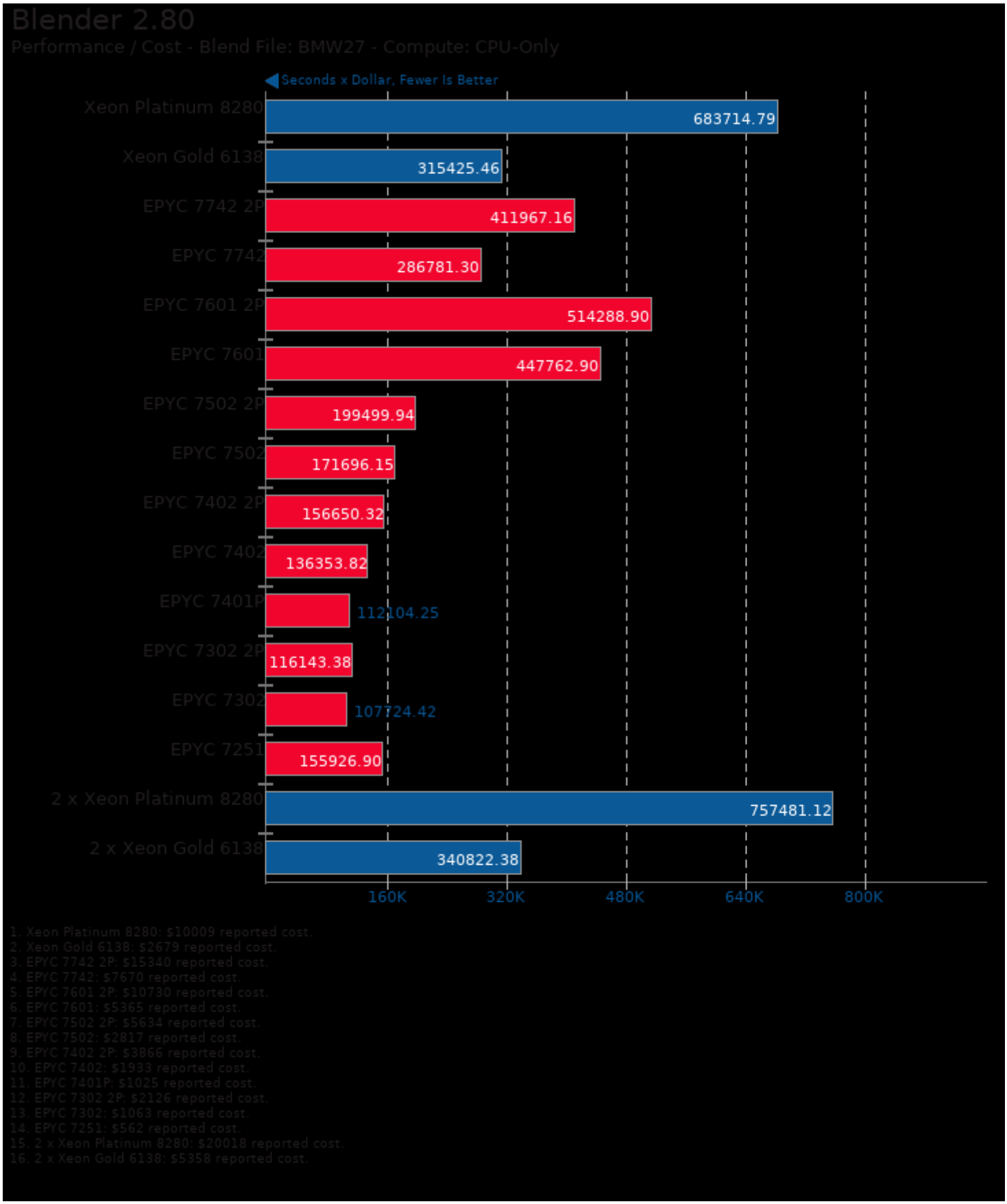

Timed Linux Kernel Compilation 4.18
Performance / Cost - Time To Compile
Seconds x Dollar, Fewer Is Better
Xeon Platinum 8280
312480.98
Xeon Gold 6138
130440.51
EPYC 7742 2P
246658.43
EPYC 7742
171501.20
EPYC 7601 2P
251618.50
EPYC 7601
210844.50
EPYC 7502 2P
117356.22
EPYC 7502
81721.17
EPYC 7402 2P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

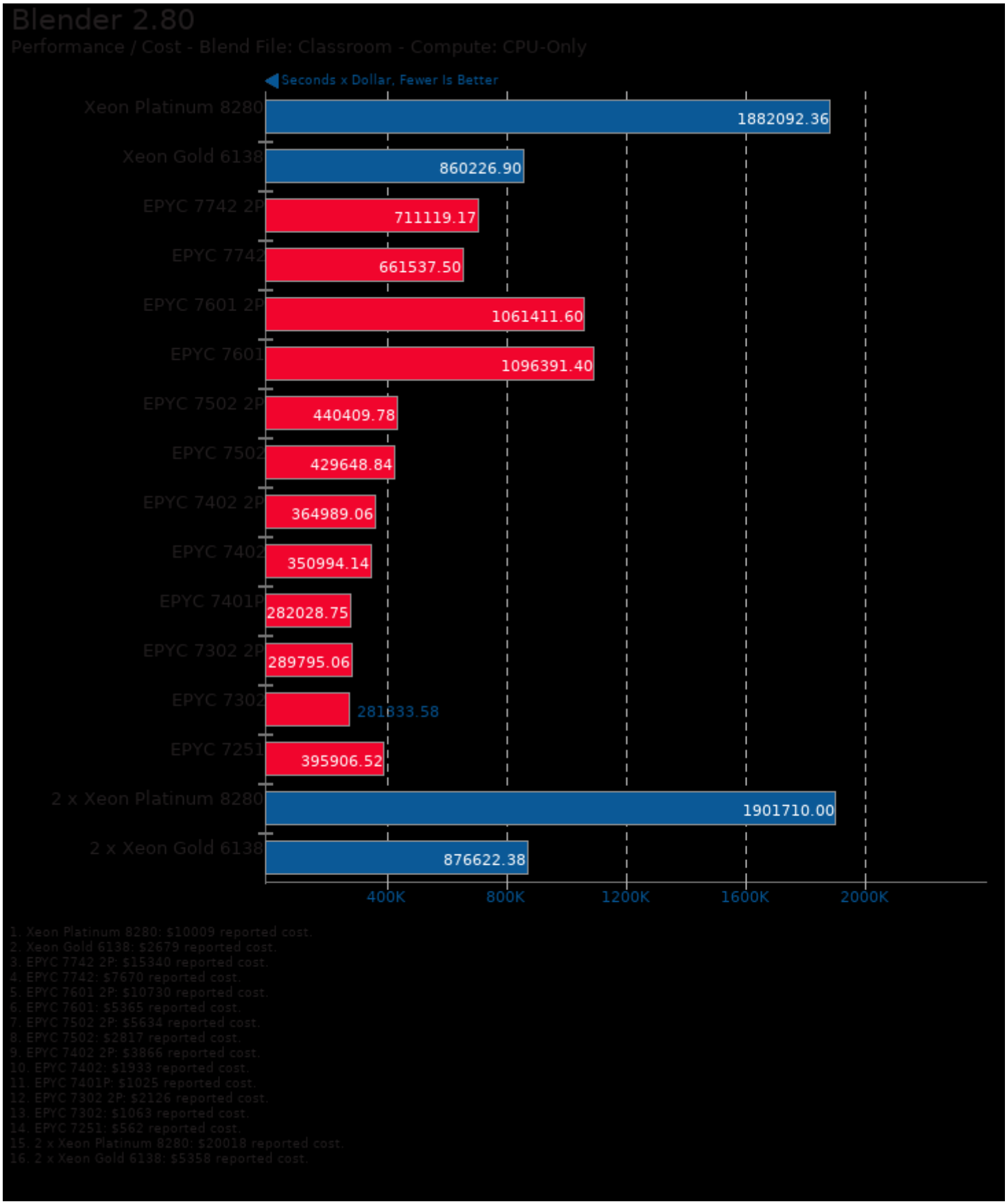

Timed LLVM Compilation 6.0.1
Performance / Cost - Time To Compile
Seconds x Dollar, Fewer Is Better
Xeon Platinum 8280
1589429.20
Xeon Gold 6138
650595.15
EPYC 7742 2P
1209654.69
EPYC 7742
783413.80
EPYC 7601 2P
1427090.00
EPYC 7601
1089846.10
EPYC 7502 2P
563174.64
EPYC 7502
404042.31
EPYC 7402 2P
409177.44
EPYC 7402
306457.82
EPYC 7401P
239592.25
EPYC 7302 2P
285436.76
EPYC 7302
216044.12
EPYC 7251
302367.24
2 x Xeon Platinum 8280
2100088.38
2 x Xeon Gold 6138
837348.24
400K
800K
1200K
1600K
2000K
1. Xeon Platinum 8280: $10009 reported cost.
2. Xeon Gold 6138: $2679 reported cost.
3. EPYC 7742 2P: $15340 reported cost.
4. EPYC 7742: $7670 reported cost.
5. EPYC 7601 2P: $10730 reported cost.
6. EPYC 7601: $5365 reported cost.
7. EPYC 7502 2P: $5634 reported cost.
8. EPYC 7502: $2817 reported cost.
9. EPYC 7402 2P: $3866 reported cost.
10. EPYC 7402: $1933 reported cost.
11. EPYC 7401P: $1025 reported cost.
12. EPYC 7302 2P: $2126 reported cost.
13. EPYC 7302: $1063 reported cost.
14. EPYC 7251: $562 reported cost.
15. 2 x Xeon Platinum 8280: $20018 reported cost.
16. 2 x Xeon Gold 6138: $5358 reported cost.

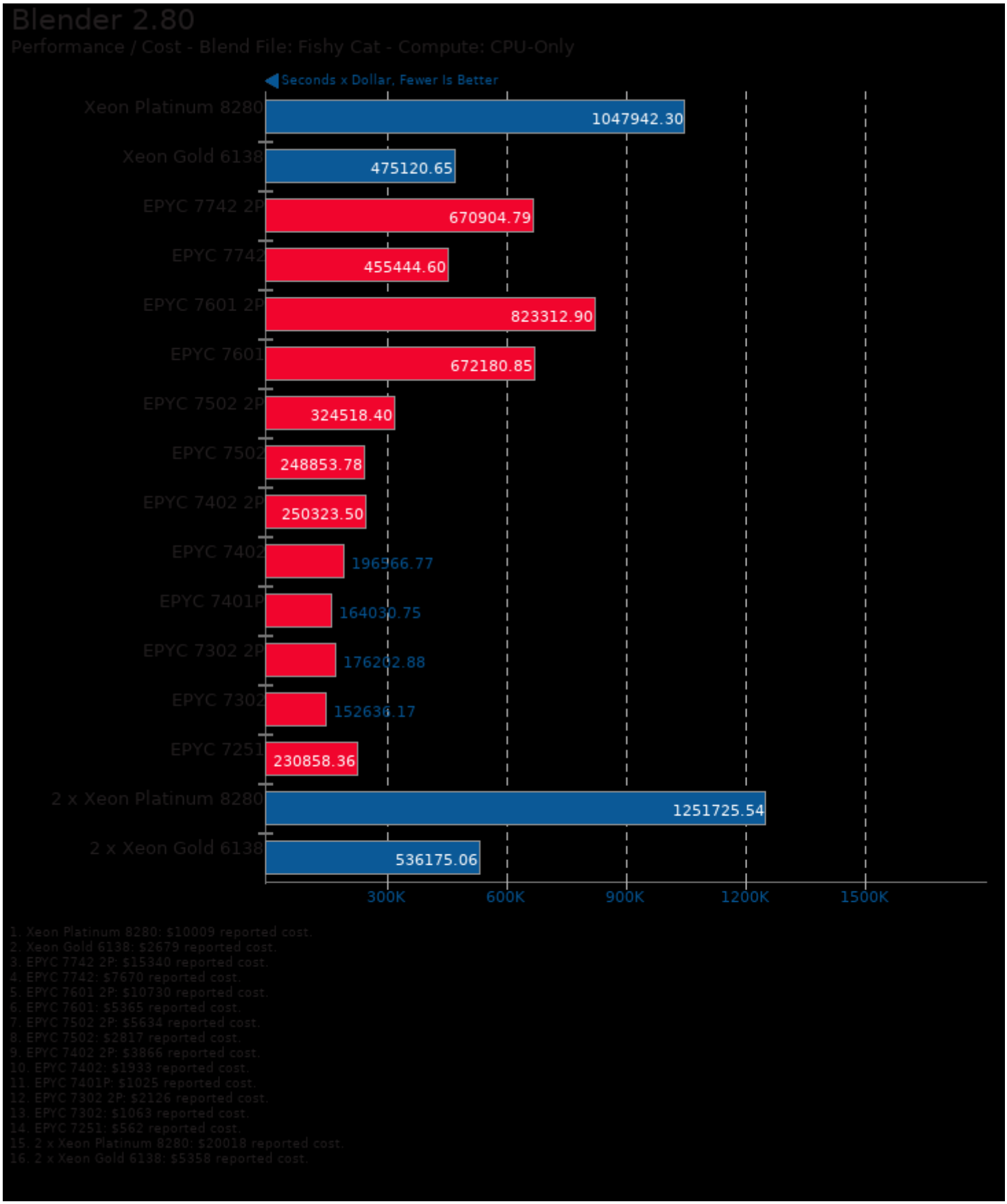

C-Ray 1.1
Performance / Cost - Total Time - 4K, 16 Rays Per Pixel
Seconds x Dollar, Fewer Is Better
Xeon Platinum 8280
279050.92
Xeon Gold 6138
131271.00
EPYC 7742 2P
96545.21
EPYC 7742
90889.50
EPYC 7601 2P
131764.40
EPYC 7601
131174.25
EPYC 7502 2P
61185.24
EPYC 7502
58593.60
EPYC 7402 2P
50335.32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

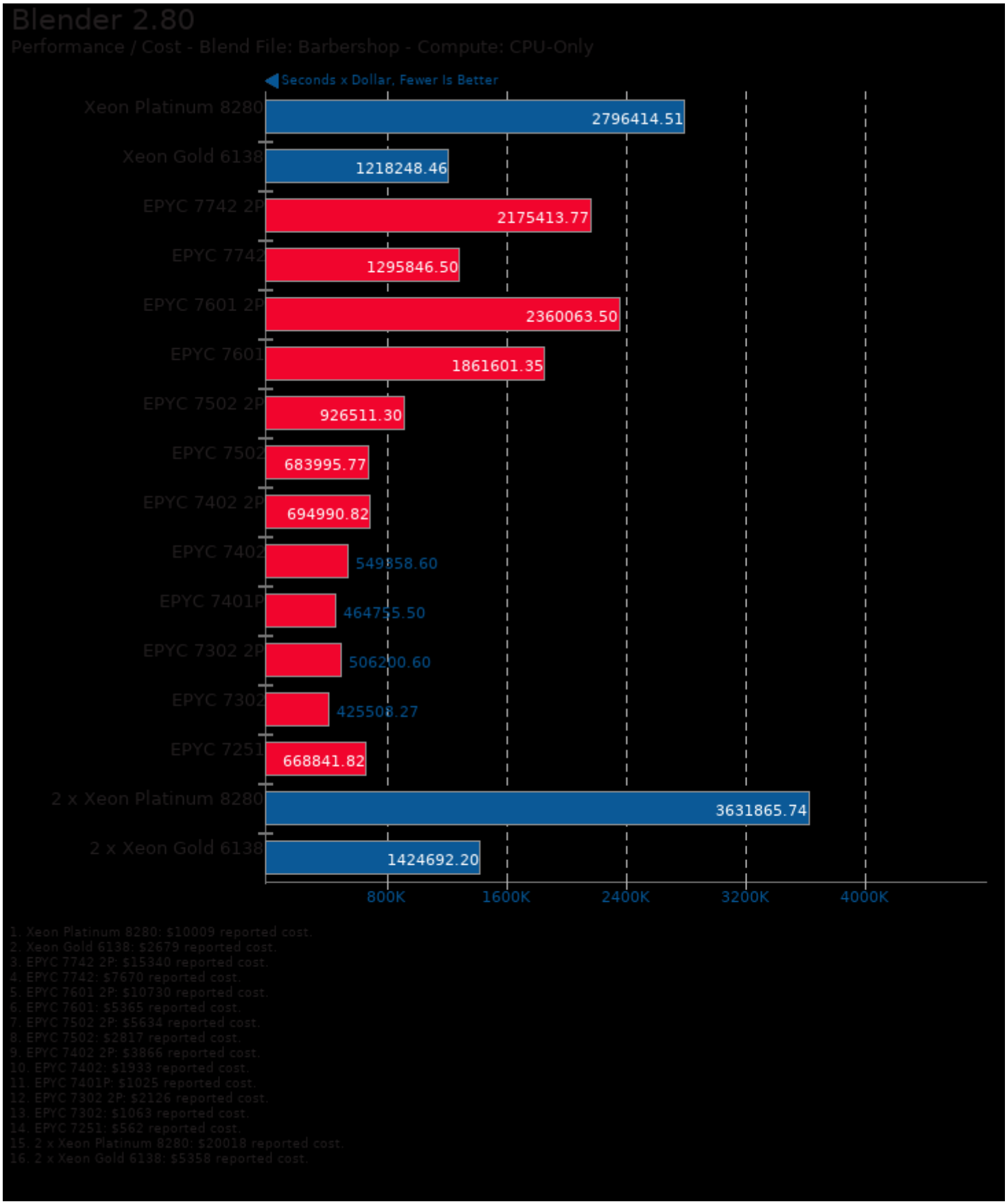

POV-Ray 3.7.0.7
Performance / Cost - Trace Time
Seconds x Dollar, Fewer Is Better
Xeon Platinum 8280
207186.30
Xeon Gold 6138
95184.87
EPYC 7742 2P
129085.09
EPYC 7742
83296.20
EPYC 7601 2P
134876.10
EPYC 7601
119907.75
EPYC 7502 2P
58142.88
EPYC 7502
48846.78
EPYC 7402 2P
46971.90
EPYC 7402
39916.45
EPYC 7401P
29870.75
EPYC 7302 2P
34781.36
EPYC 7302
30690.44
EPYC 7251
40081.84
2 x Xeon Platinum 8280
236612.76
2 x Xeon Gold 6138
105766.92
50K
100K
150K
200K
250K
1. Xeon Platinum 8280: $10009 reported cost.
2. Xeon Gold 6138: $2679 reported cost.
3. EPYC 7742 2P: $15340 reported cost.
4. EPYC 7742: $7670 reported cost.
5. EPYC 7601 2P: $10730 reported cost.
6. EPYC 7601: $5365 reported cost.
7. EPYC 7502 2P: $5634 reported cost.
8. EPYC 7502: $2817 reported cost.
9. EPYC 7402 2P: $3866 reported cost.
10. EPYC 7402: $1933 reported cost.
11. EPYC 7401P: $1025 reported cost.
12. EPYC 7302 2P: $2126 reported cost.
13. EPYC 7302: $1063 reported cost.
14. EPYC 7251: $562 reported cost.
15. 2 x Xeon Platinum 8280: $20018 reported cost.
16. 2 x Xeon Gold 6138: $5358 reported cost.

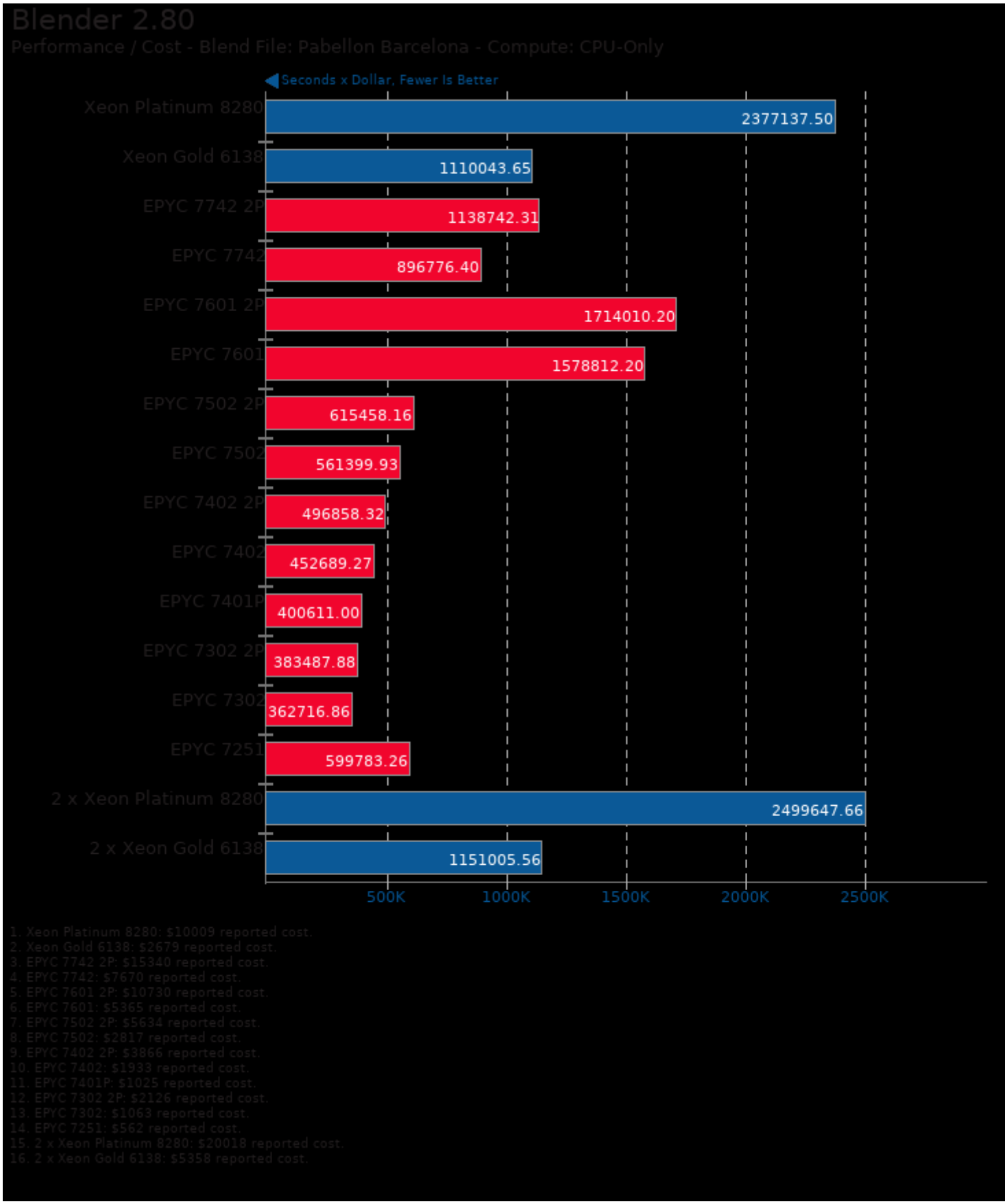

7-Zip Compression 16.02
Performance / Cost - Compress Speed Test
MIPS Per Dollar, More Is Better
Xeon Platinum 8280
13.96
Xeon Gold 6138
31.11
EPYC 7742 2P
22.82
EPYC 7742
36.58
EPYC 7601 2P
12.50
EPYC 7601
16.84
EPYC 7502 2P
45.27
EPYC 7502
60.75
EPYC 7402 2P
56.50
EPYC 7402
72.55
EPYC 7401P
76.40
EPYC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

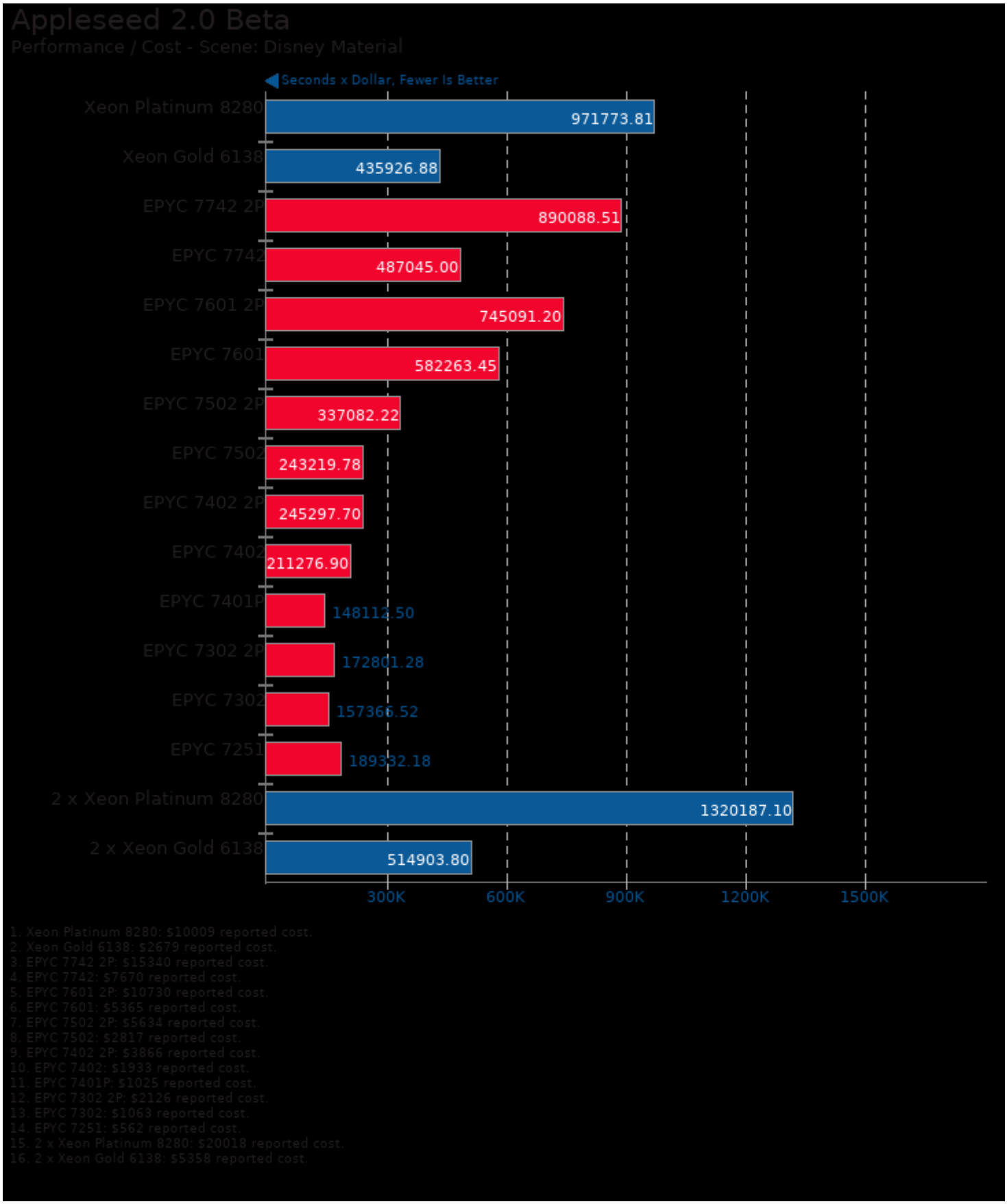

Blender 2.80
Performance / Cost - Blend File: BMW27 - Compute: CPU-Only
Seconds x Dollar, Fewer Is Better
Xeon Platinum 8280
683714.79
Xeon Gold 6138
315425.46
EPYC 7742 2P
411967.16
EPYC 7742
286781.30
EPYC 7601 2P
514288.90
EPYC 7601
447762.90
EPYC 7502 2P
199499.94
EPYC 7502
171696.15
EPYC 7402 2P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

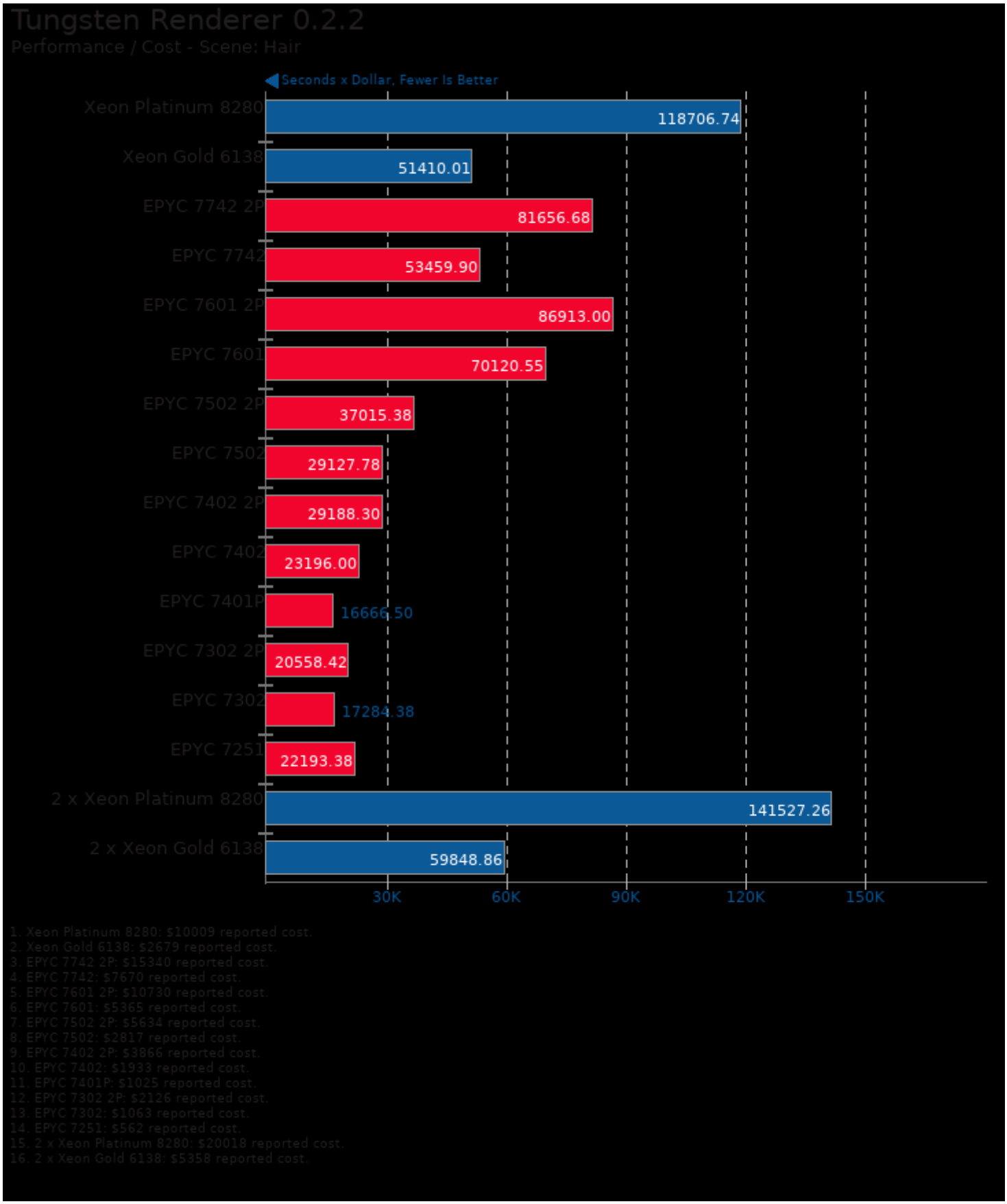

Blender 2.80
Performance / Cost - Blend File: Classroom - Compute: CPU-Only
Seconds x Dollar, Fewer Is Better
Xeon Platinum 8280
1882092.36
Xeon Gold 6138
860226.90
EPYC 7742 2P
711119.17
EPYC 7742
661537.50
EPYC 7601 2P
1061411.60
EPYC 7601
1096391.40
EPYC 7502 2P
440409.78
EPYC 7502
429648.84
EPYC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

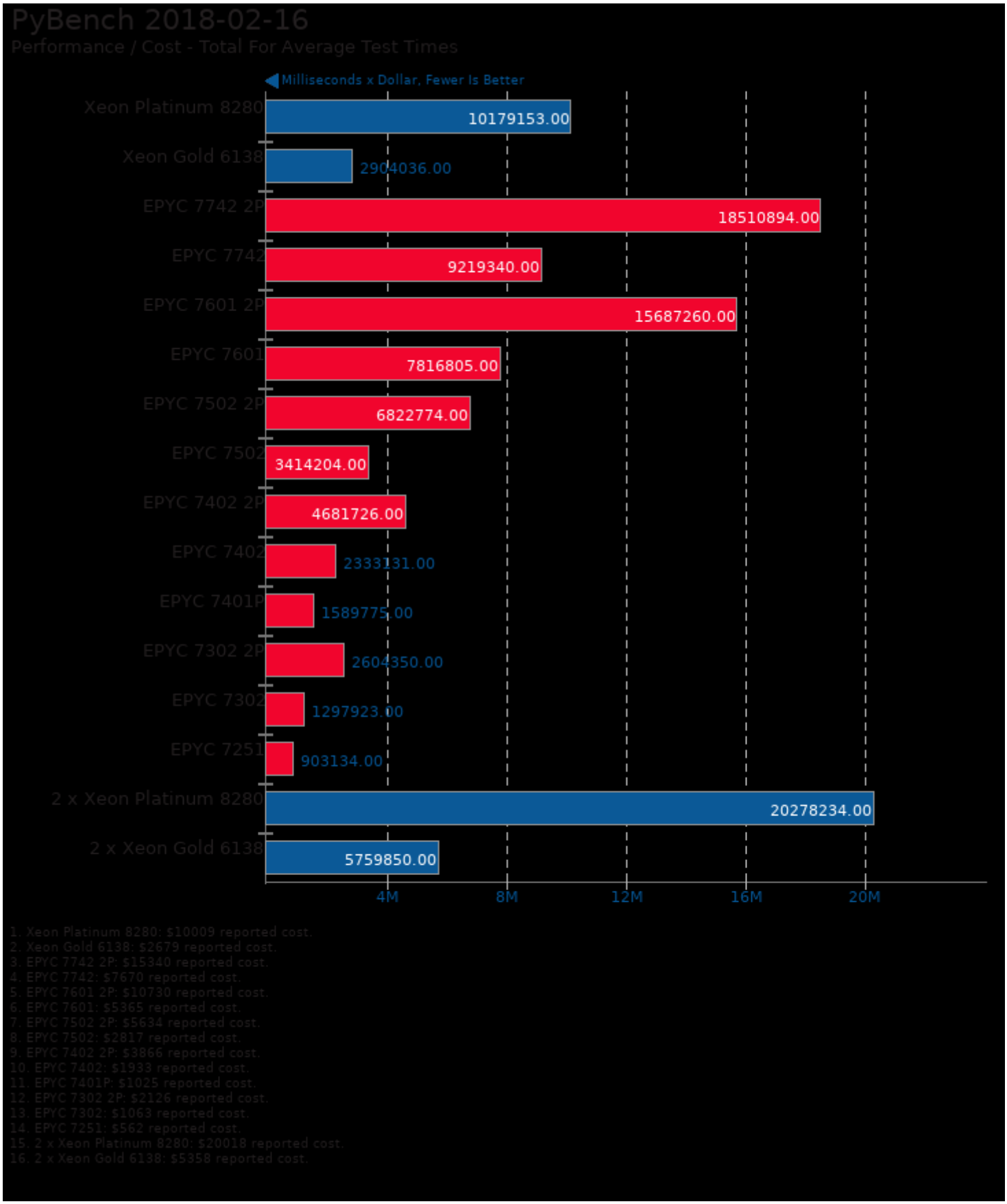

Blender 2.80
Performance / Cost - Blend File: Fishy Cat - Compute: CPU-Only
Seconds x Dollar, Fewer Is Better
Xeon Platinum 8280
1047942.30
Xeon Gold 6138
475120.65
EPYC 7742 2P
670904.79
EPYC 7742
455444.60
EPYC 7601 2P
823312.90
EPYC 7601
672180.85
EPYC 7502 2P
324518.40
EPYC 7502
248853.78
EPYC 7402 2P
250323.50
EPYC 7402
196966.77
EPYC 7401P
164030.75
EPYC 7302 2P
176202.88
EPYC 7302
152636.17
EPYC 7251
230858.36
2 x Xeon Platinum 8280
1251725.54
2 x Xeon Gold 6138
536175.06
300K
600K
900K
1200K
1500K
1. Xeon Platinum 8280: $10009 reported cost.
2. Xeon Gold 6138: $2679 reported cost.
3. EPYC 7742 2P: $15340 reported cost.
4. EPYC 7742: $7670 reported cost.
5. EPYC 7601 2P: $10730 reported cost.
6. EPYC 7601: $5365 reported cost.
7. EPYC 7502 2P: $5634 reported cost.
8. EPYC 7502: $2817 reported cost.
9. EPYC 7402 2P: $3866 reported cost.
10. EPYC 7402: $1933 reported cost.
11. EPYC 7401P: $1025 reported cost.
12. EPYC 7302 2P: $2126 reported cost.
13. EPYC 7302: $1063 reported cost.
14. EPYC 7251: $562 reported cost.
15. 2 x Xeon Platinum 8280: $20018 reported cost.
16. 2 x Xeon Gold 6138: $5358 reported cost.

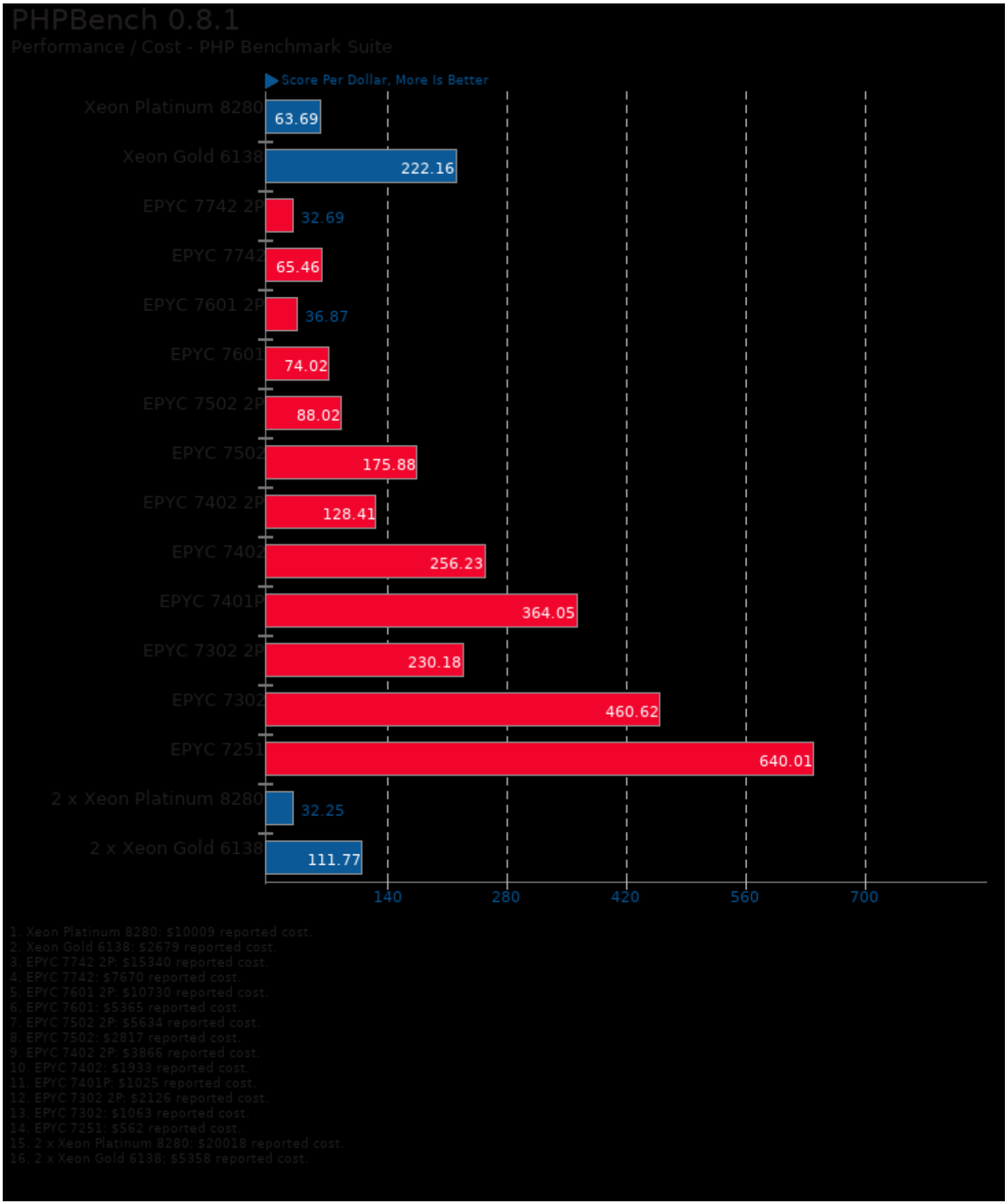

Blender 2.80
Performance / Cost - Blend File: Barbershop - Compute: CPU-Only
Seconds x Dollar, Fewer Is Better
Xeon Platinum 8280
2796414.51
Xeon Gold 6138
1218248.46
EPYC 7742 2P
2175413.77
EPYC 7742
1295846.50
EPYC 7601 2P
2360063.50
EPYC 7601
1861601.35
EPYC 7502 2P
926511.30
EPYC 7502
683995.77
EPYC 7402 2P
694990.82
EPYC 7402
549858.60
EPYC 7401P
464755.50
EPYC 7302 2P
506200.60
EPYC 7302
425508.27
EPYC 7251
668841.82
2 x Xeon Platinum 8280
3631865.74
2 x Xeon Gold 6138
1424692.20
800K
1600K
2400K
3200K
4000K
1. Xeon Platinum 8280: $10009 reported cost.
2. Xeon Gold 6138: $2679 reported cost.
3. EPYC 7742 2P: $15340 reported cost.
4. EPYC 7742: $7670 reported cost.
5. EPYC 7601 2P: $10730 reported cost.
6. EPYC 7601: $5365 reported cost.
7. EPYC 7502 2P: $5634 reported cost.
8. EPYC 7502: $2817 reported cost.
9. EPYC 7402 2P: $3866 reported cost.
10. EPYC 7402: $1933 reported cost.
11. EPYC 7401P: $1025 reported cost.
12. EPYC 7302 2P: $2126 reported cost.
13. EPYC 7302: $1063 reported cost.
14. EPYC 7251: $562 reported cost.
15. 2 x Xeon Platinum 8280: $20018 reported cost.
16. 2 x Xeon Gold 6138: $5358 reported cost.

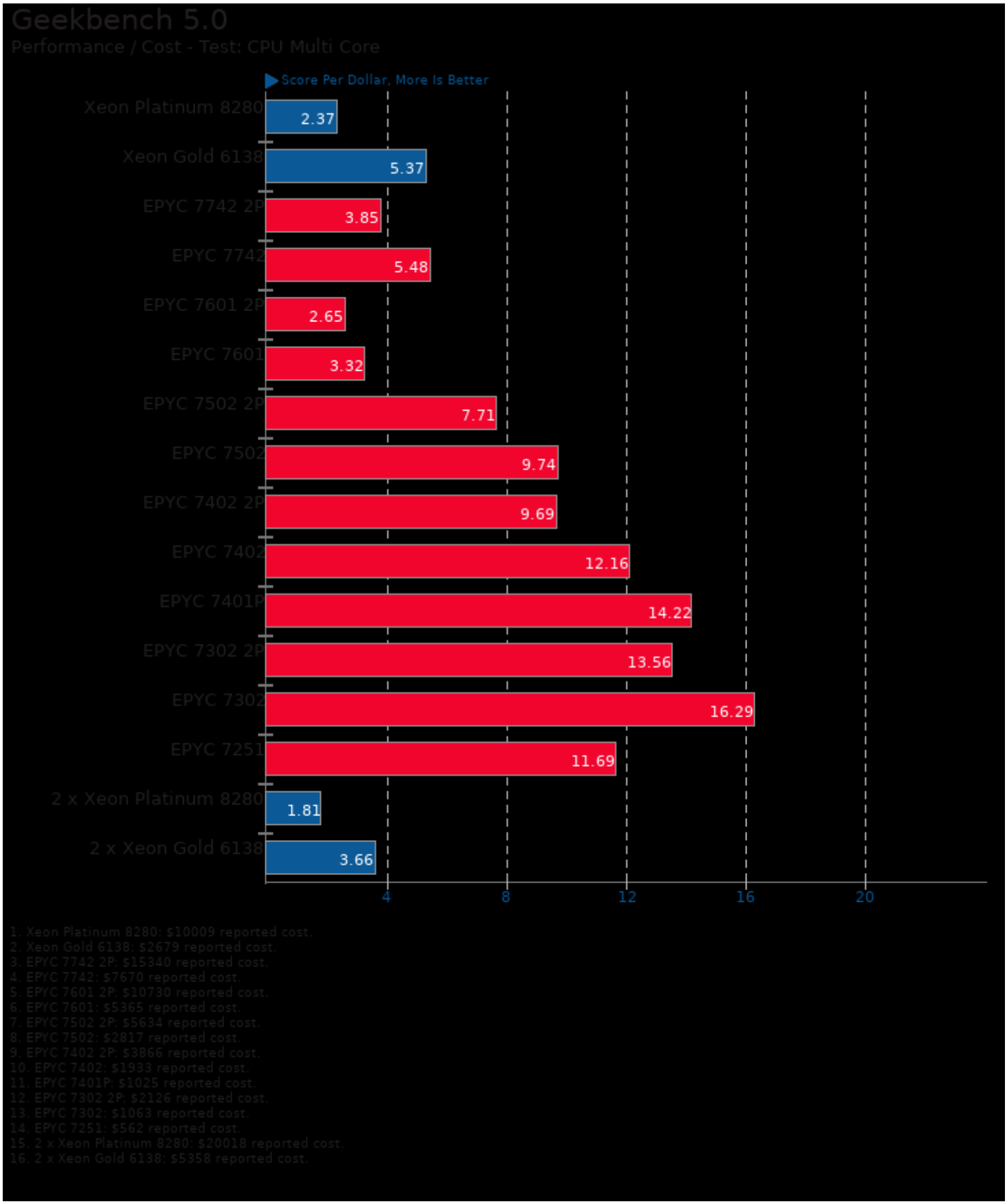

Blender 2.80
Performance / Cost - Blend File: Pabellon Barcelona - Compute: CPU-Only
Seconds x Dollar, Fewer Is Better
Xeon Platinum 8280
2377137.50
Xeon Gold 6138
1110043.65
EPYC 7742 2P
1138742.31
EPYC 7742
896776.40
EPYC 7601 2P
1714010.20
EPYC 7601
1578812.20
EPYC 7502 2P
615458.16
EPYC 7502
561399.93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


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

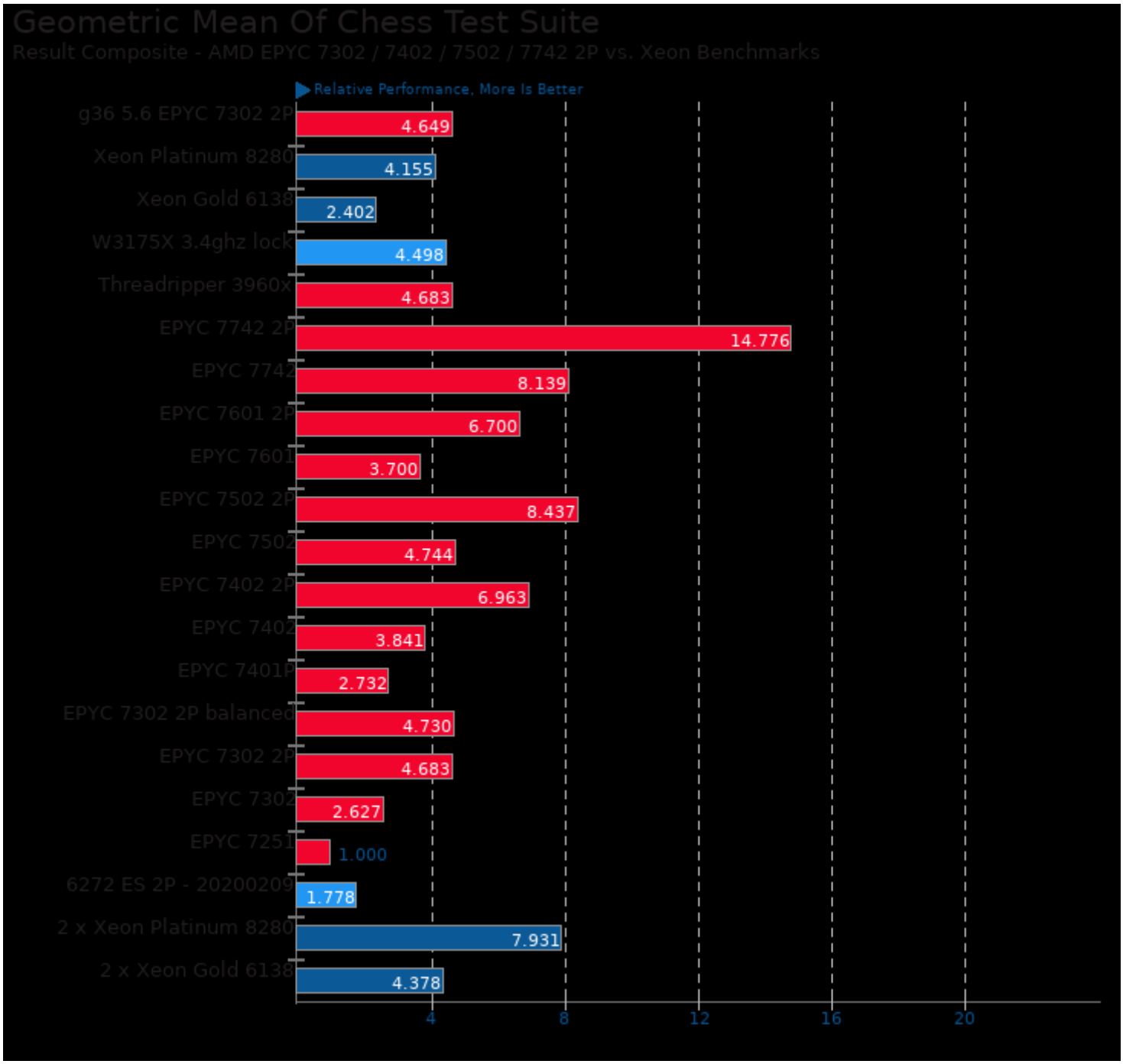

Tungsten Renderer 0.2.2
Performance / Cost - Scene: Hair
Seconds x Dollar, Fewer Is Better
Xeon Platinum 8280
118706.74
Xeon Gold 6138
51410.01
EPYC 7742 2P
81656.68
EPYC 7742
53459.90
EPYC 7601 2P
86913.00
EPYC 7601
70120.55
EPYC 7502 2P
37015.38
EPYC 7502
29127.78
EPYC 7402 2P
29188.30
EPYC 7402
23196.00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


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

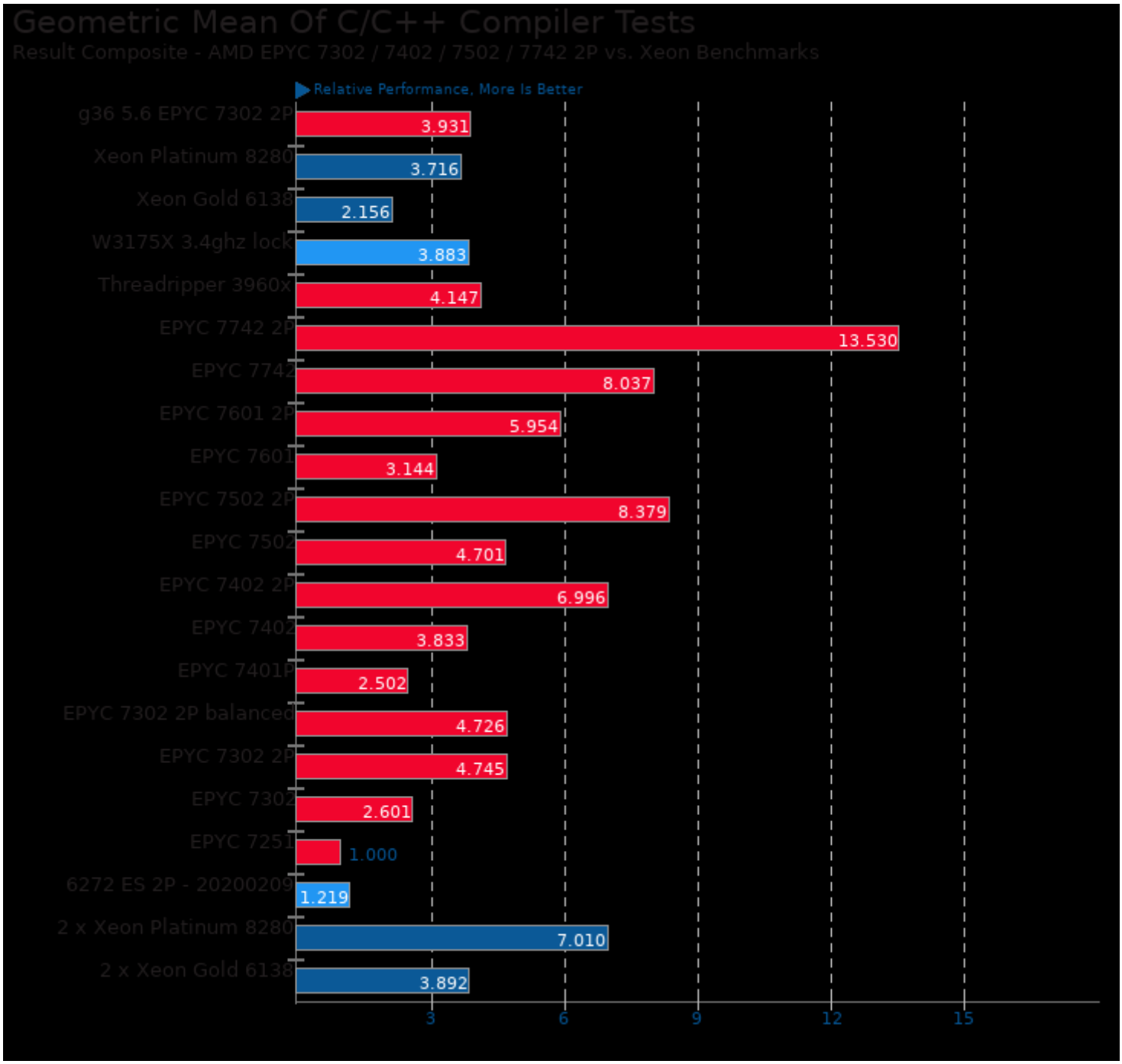

PHPBench 0.8.1
Performance / Cost - PHP Benchmark Suite
Score Per Dollar, More Is Better
Xeon Platinum 8280
63.69
Xeon Gold 6138
222.16
EPYC 7742 2P
32.69
EPYC 7742
65.46
EPYC 7601 2P
36.87
EPYC 7601
74.02
EPYC 7502 2P
88.02
EPYC 7502
175.88
EPYC 7402 2P
128.41
EPYC 7402
256.23
EPYC 7401P
364.05
EPYC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


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

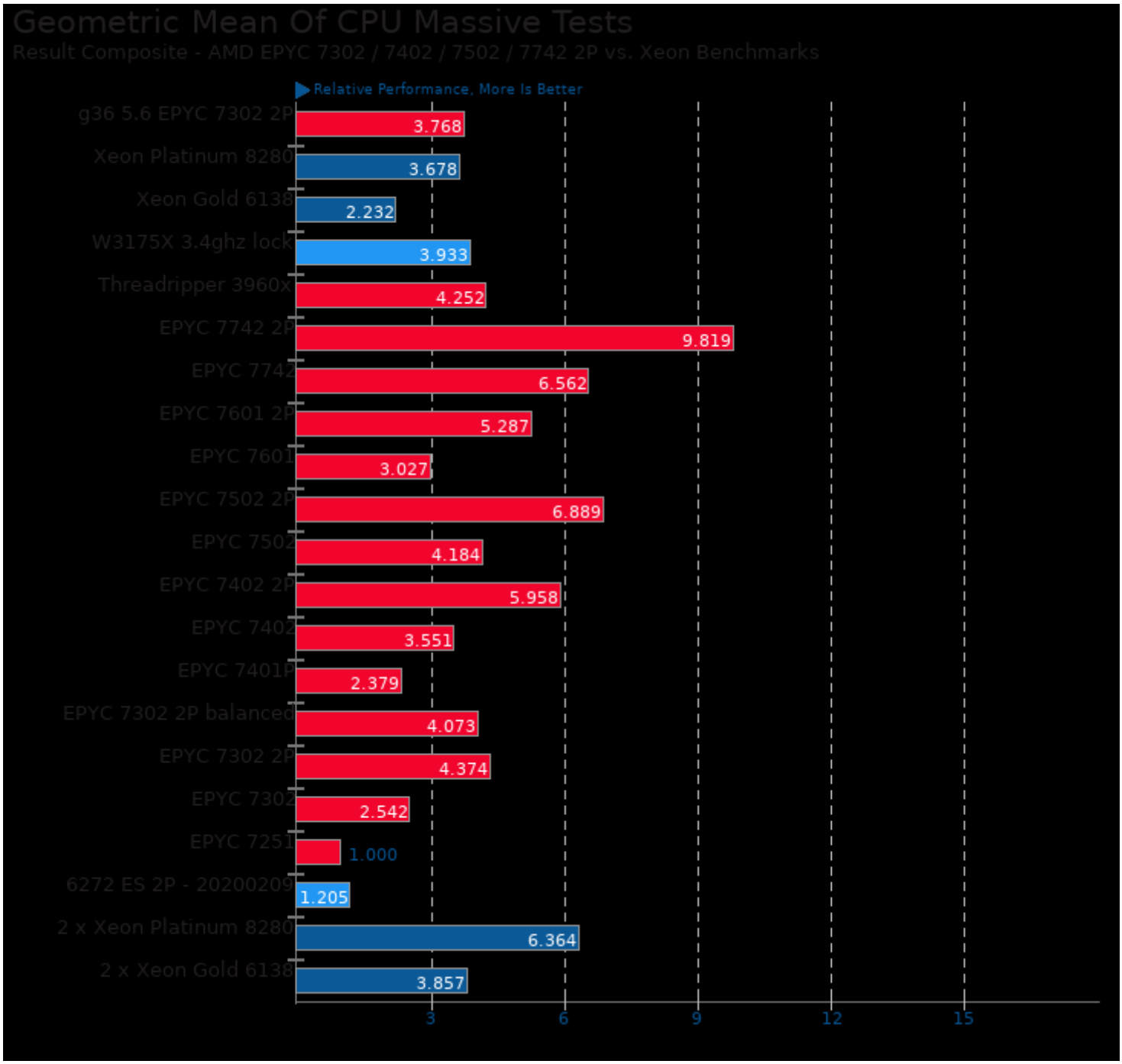
These geometric means are based upon test groupings / test suites for this result file.



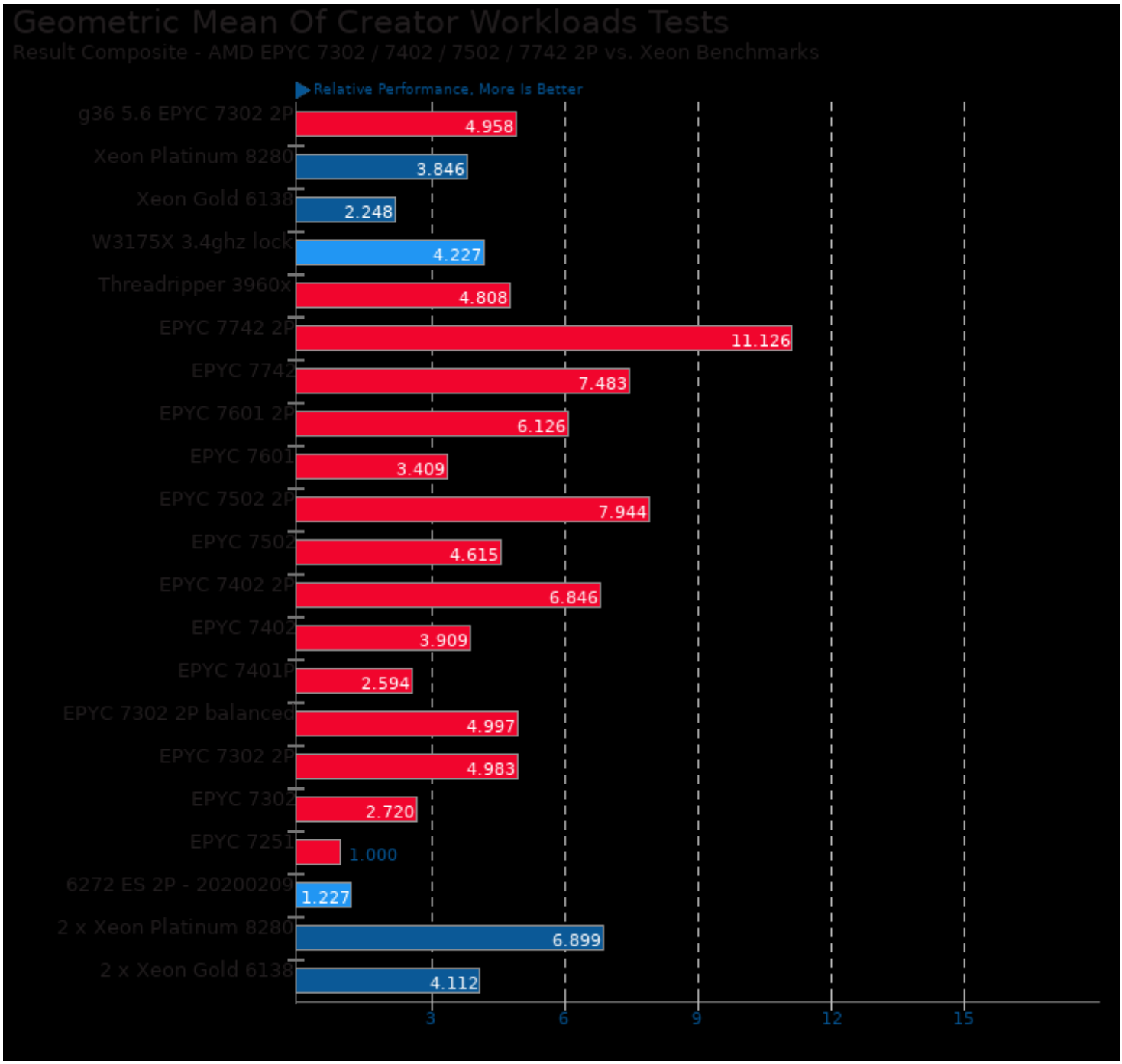
Geometric mean based upon tests: pts/stockfish and pts/asmfish



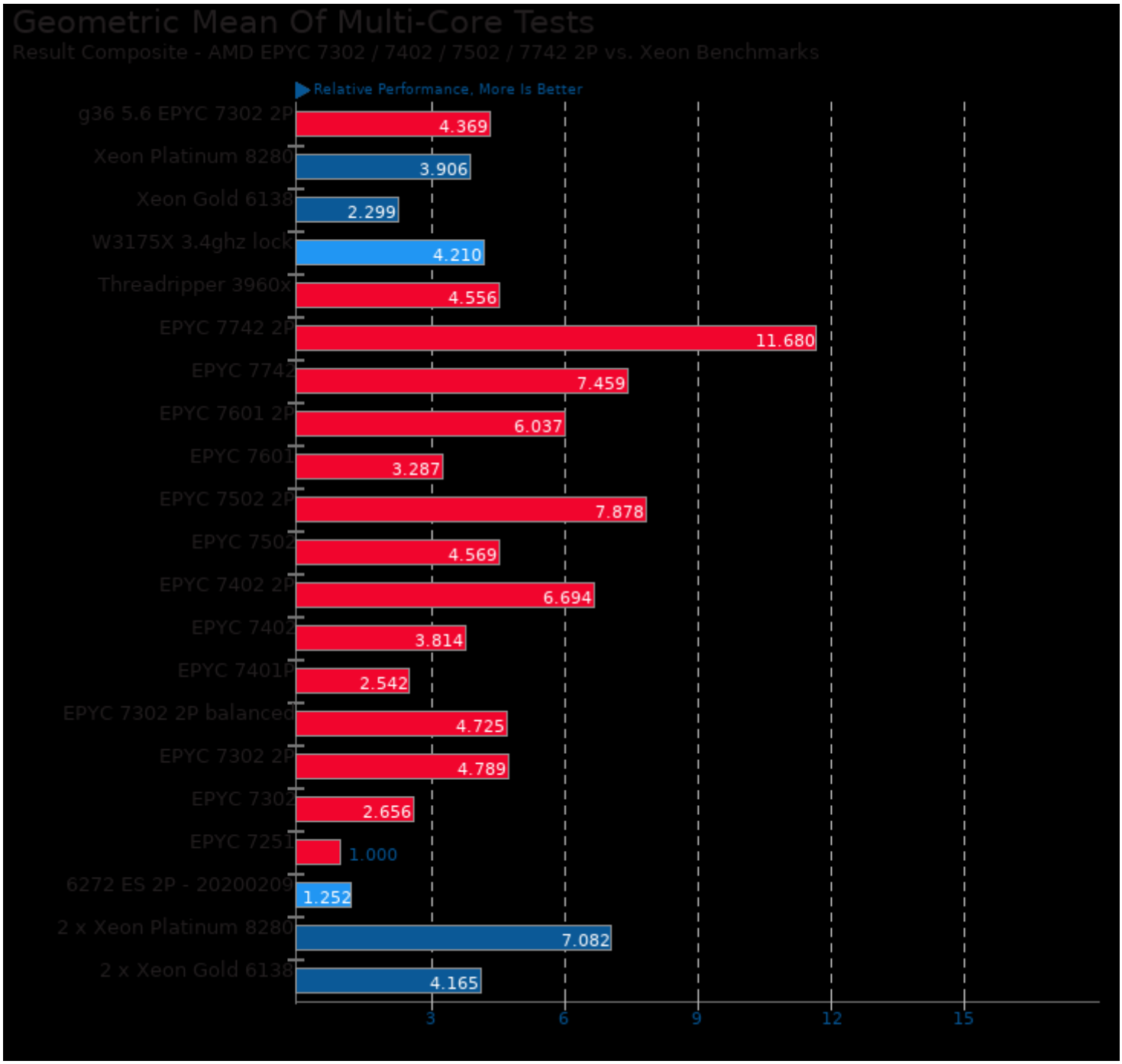
Geometric mean based upon tests: pts/stockfish, pts/build-llvm, pts/c-ray, pts/compress-7zip, pts/john-the-ripper, pts/dav1d, pts/tungsten and pts/svt-av1



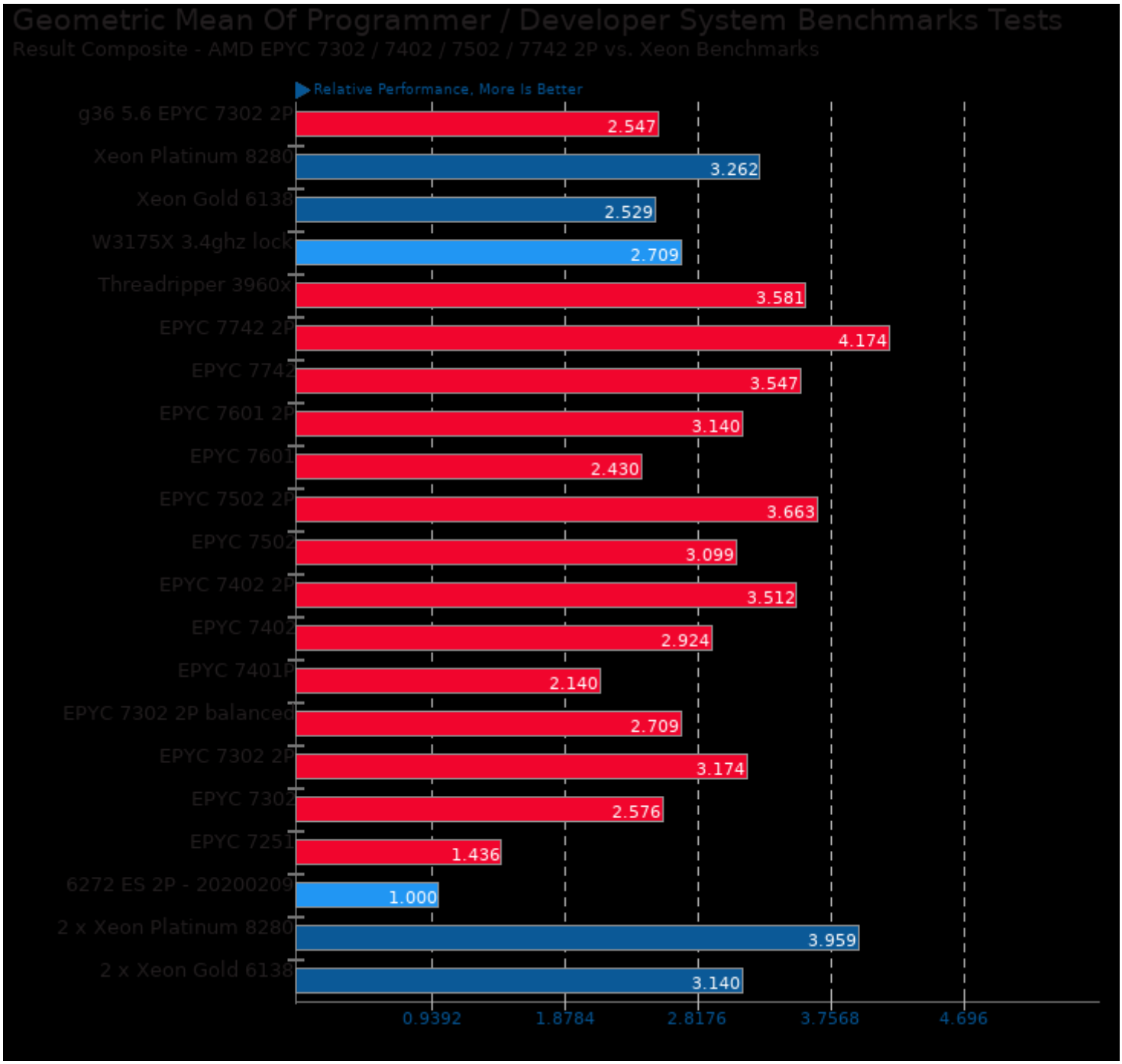
Geometric mean based upon tests: pts/asmfish, pts/build-llvm, pts/build-linux-kernel, pts/c-ray, pts/compress-7zip, pts/dav1d, pts/svt-av1, pts/svt-hevc, pts/john-the-ripper, pts/namd, pts/phpbench, pts/povray, pts/stockfish and pts/blender



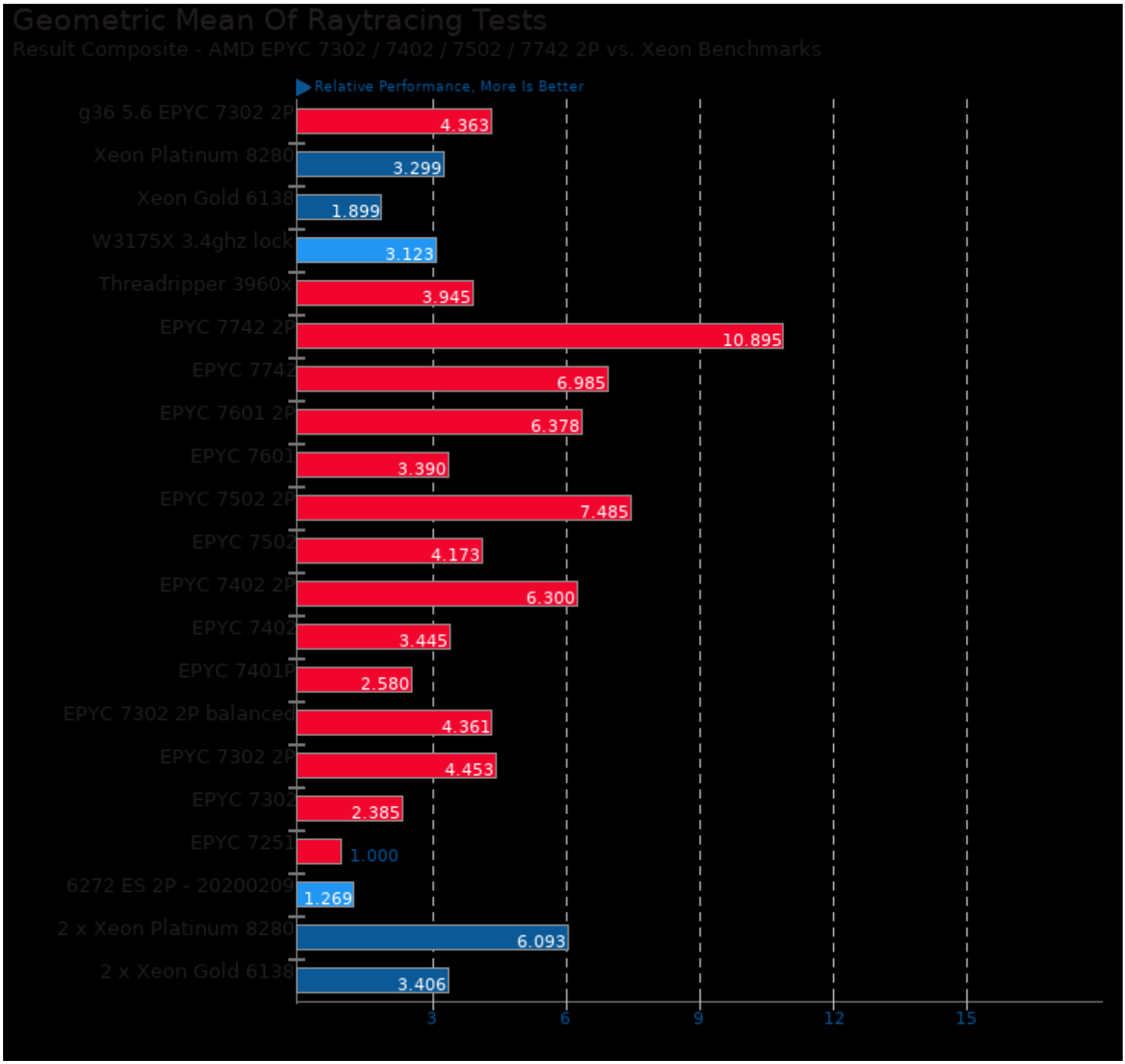
Geometric mean based upon tests: pts/c-ray, pts/povray, pts/blender, pts/tungsten, pts/appleseed, pts/svt-hevc, pts/dav1d and pts/svt-av1



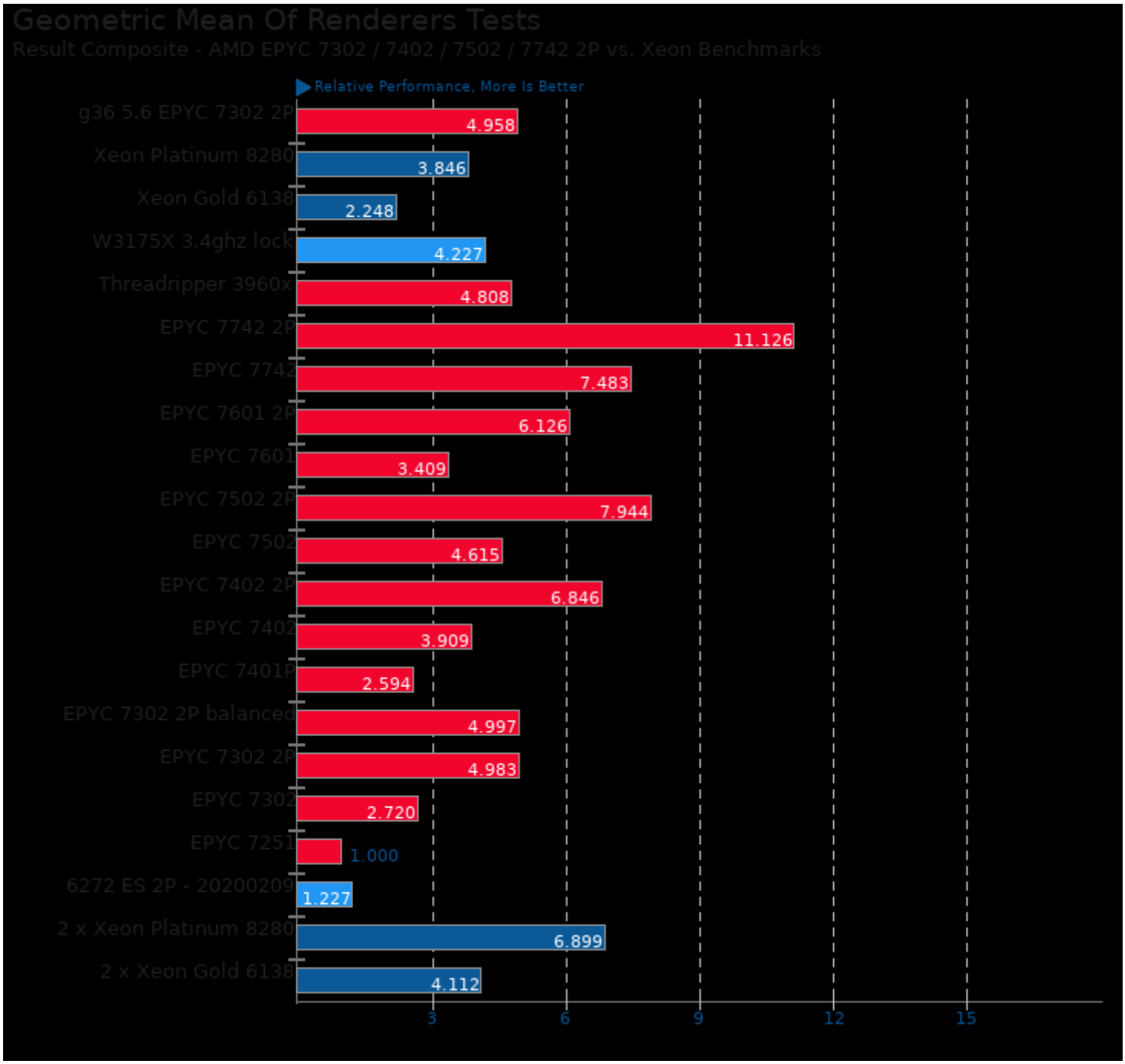
Geometric mean based upon tests: pts/blender, pts/c-ray, pts/povray, pts/stockfish, pts/coremark, pts/svt-hevc, pts/dav1d, pts/svt-av1, pts/john-the-ripper, pts/namd, pts/asmfish, pts/compress-7zip, pts/build-linux-kernel, pts/build-llvm, pts/tungsten and pts/appleseed



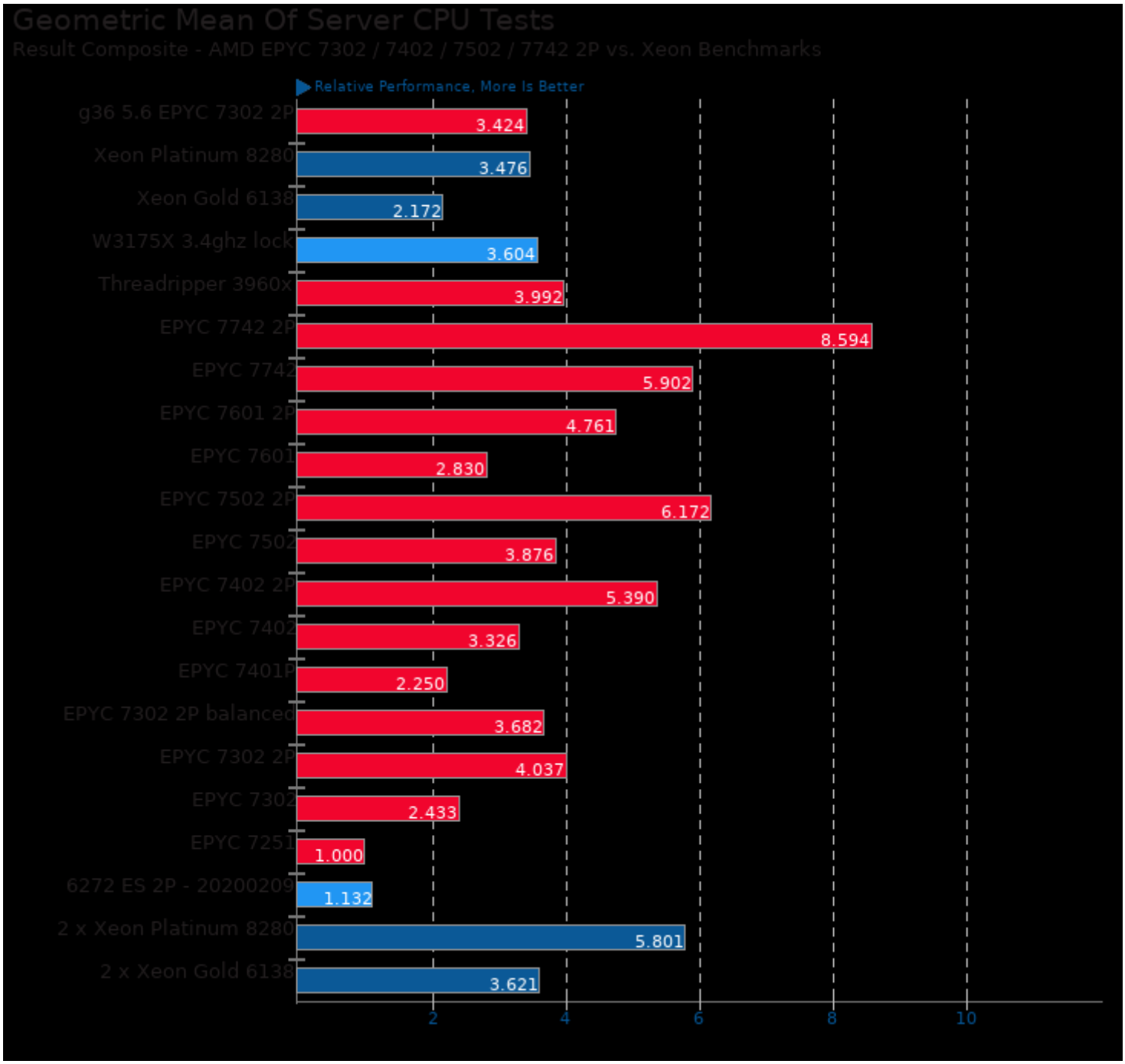
Geometric mean based upon tests: pts/pybench, pts/build-linux-kernel and pts/build-llvm



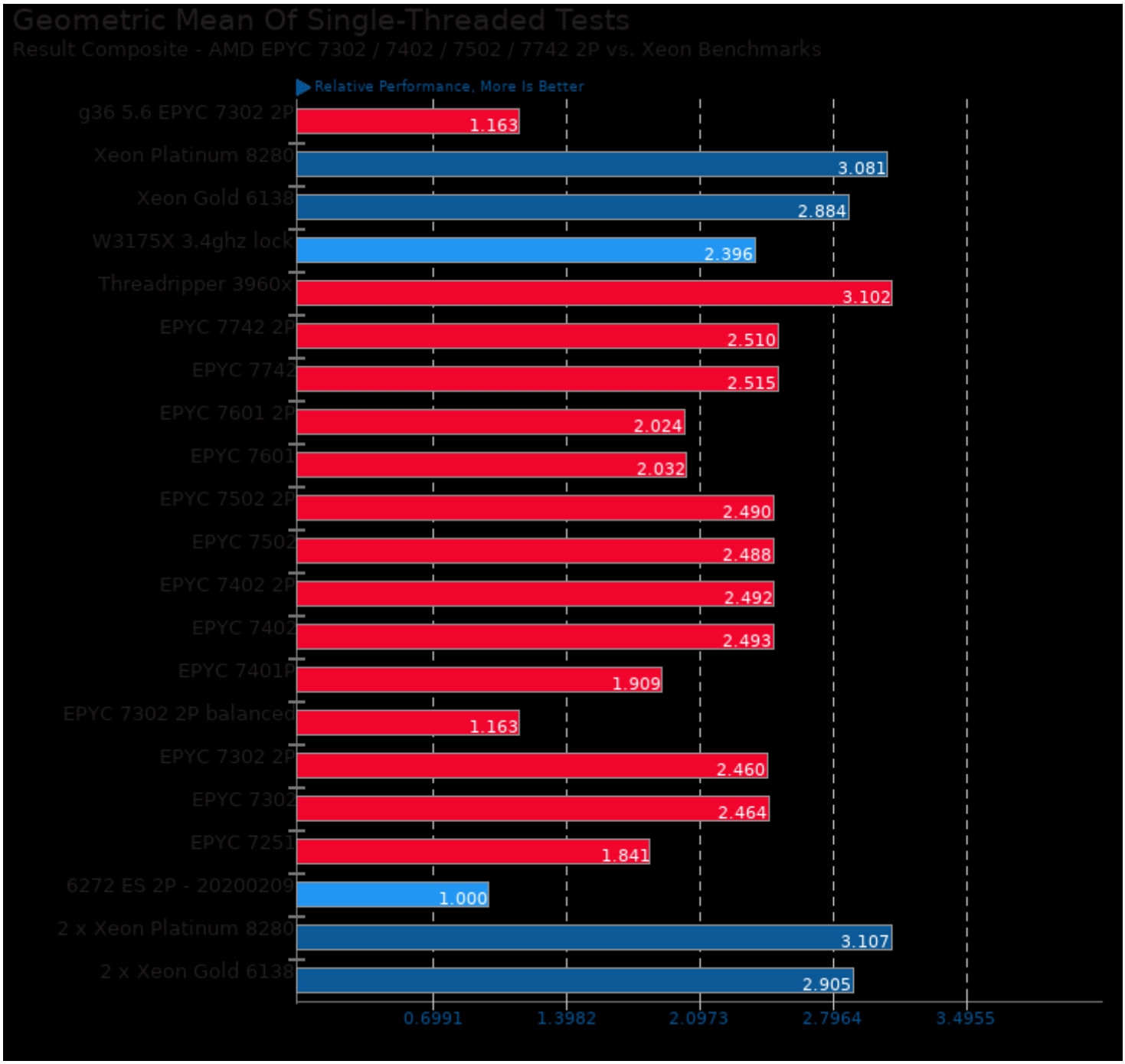
Geometric mean based upon tests: pts/c-ray and pts/povray



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



Geometric mean based upon tests: pts/namd, pts/john-the-ripper, pts/svt-av1, pts/svt-hevc, pts/dav1d, pts/compress-7zip, pts/stockfish, pts/asmfish, pts/build-linux-kernel, pts/build-llvm, pts/c-ray, pts/povray, pts/blender, pts/appleseed, pts/pybench and pts/phpbench



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

This file was automatically generated via the Phoronix Test Suite benchmarking software on Friday, 29 March 2024 03:18.