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Xeon & EPYC Tests

Various Server CPU benchmarks

Automated Executive Summary

2 x Xeon Platinum 8375C NUMA off had the most wins, coming in first place for 35% of the tests.

Based on the geometric mean of all complete results, the fastest (2 x Xeon Platinum 8375C NUMA off) was 1.742x the speed of the slowest (Xeon Platinum 8259CL).

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

MKL-DNN DNNL (Harness: Deconvolution Batch deconv_1d - Data Type: u8s8f32) at 3777.068x
MKL-DNN DNNL (Harness: Convolution Batch conv_googlenet_v3 - Data Type: u8s8f32) at 154.866x
MKL-DNN DNNL (Harness: Convolution Batch conv_alexnet - Data Type: u8s8f32) at 118.651x
MKL-DNN DNNL (Harness: IP Batch All - Data Type: u8s8f32) at 103.268x
MKL-DNN DNNL (Harness: Convolution Batch conv_all - Data Type: u8s8f32) at 10.592x
ArrayFire (Test: BLAS CPU) at 6.39x
NAS Parallel Benchmarks (Test / Class: SP.B) at 4.626x
MKL-DNN DNNL (Harness: IP Batch 1D - Data Type: f32) at 3.918x
NAS Parallel Benchmarks (Test / Class: BT.C) at 3.624x
NAS Parallel Benchmarks (Test / Class: EP.D) at 3.488x.

Test Systems:

EPYC 2 7R32

Processor: AMD EPYC 7R32 48-Core @ 2.80GHz (48 Cores / 96 Threads), Motherboard: Supermicro H11SSL-i v2.00 (2.1 BIOS), Chipset: AMD Starship/Matisse, Memory: 8 x 16384 MB DDR4-3200MT/s HMA82GR7CJR8N-XN, Disk: 32GB Mass Storage + 256GB TOSHIBA THNSNJ25 + 600GB INTEL SSDSC2BB60 + 6001GB HGST HUS726060AL, Graphics: llvmpipe 126GB, Monitor: Crystal View, Network: 2 x Intel I210

OS: Ubuntu 19.10, Kernel: 5.3.0-64-generic (x86_64), Desktop: GNOME Shell 3.34.1, Display Server: X Server, OpenGL: 3.3 Mesa 19.2.8 (LLVM 9.0 128 bits), Compiler: GCC 9.2.1 20191008, File-System: ext4, Screen Resolution: 800x600

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++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-offload-targets=nvptx-none,hsa --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq ondemand - CPU Microcode: 0x8301034
Java Notes: OpenJDK Runtime Environment (build 11.0.7+10-post-Ubuntu-2ubuntu219.10)
Python Notes: Python 2.7.17 + Python 3.7.5
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Full AMD retpoline IBPB: conditional IBRS_FW STIBP: conditional RSB filling + srbds: Not affected + tsx_async_abort: Not affected

Xeon W-3275M

Processor: Intel Xeon W-3275M @ 4.60GHz (28 Cores / 56 Threads), Motherboard: Supermicro X11SPA-T v1.01 (3.1 BIOS), Chipset: Intel Sky Lake-E DMI3 Registers, Memory: 188GB, Disk: 2 x 1024GB Samsung SSD 970 PRO 1TB, Graphics: eVGA NVIDIA GeForce RTX 2080 Ti 11GB (1350/7000MHz), Audio: Realtek ALC888-VD, Monitor: BenQ SW271, Network: Intel I210 + Aquantia AQC107 NBase-T/IEEE

OS: Ubuntu 19.10, Kernel: 5.3.0-46-generic (x86_64), Desktop: GNOME Shell 3.34.3, Display Server: X Server 1.20.5, Display Driver: NVIDIA 430.50, OpenGL: 4.6.0, Compiler: GCC 9.2.1 20191008 + CUDA 10.1, File-System: ext4, Screen Resolution: 3840x2160

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++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-offload-targets=nvptx-none,hsa --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: intel_pstate powersave - CPU Microcode: 0x500002c
OpenCL Notes: GPU Compute Cores: 4352
Java Notes: OpenJDK Runtime Environment (build 11.0.6+10-post-Ubuntu-1ubuntu119.10.1)
Python Notes: Python 2.7.17 + Python 3.7.5
Security Notes: itlb_multihit: KVM: Mitigation of Split huge pages + 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 + tsx_async_abort: Mitigation of TSX disabled

Xeon Platinum 8259CL

Processor: Intel Xeon Platinum 8259L @ 3.50GHz (24 Cores / 48 Threads), Motherboard: ASRockRack EP2C621D16-4LP (P2.20 BIOS), Chipset: Intel Sky Lake-E DMI3 Registers, Memory: 6 x 16384 MB DDR4-3200MT/s Hynix HMA82GR7CJR8N-XN, Disk: 256GB TOSHIBA THNSNJ25, Graphics: llvmpipe 93GB, Audio: NVIDIA Device 10f8, Monitor: DELL UP2516D, Network: 4 x Intel X722 for 1GbE

OS: Ubuntu 19.10, Kernel: 5.3.0-64-generic (x86_64), Desktop: GNOME Shell 3.34.1, Display Server: X Server, OpenGL: 3.3 Mesa 19.2.8 (LLVM 9.0 256 bits), Compiler: GCC 9.2.1 20191008, File-System: ext4, Screen Resolution: 2560x1440

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++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-offload-targets=nvptx-none,hsa --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: intel_pstate powersave - CPU Microcode: 0x4002f01
Java Notes: OpenJDK Runtime Environment (build 11.0.7+10-post-Ubuntu-2ubuntu219.10)
Python Notes: Python 2.7.17 + Python 3.7.5
Security Notes: itlb_multihit: KVM: Mitigation of Split huge pages + 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 + srbds: Not affected + tsx_async_abort: Mitigation of TSX disabled

2 x Xeon Platinum 8259CL NUMA off

2 x Xeon Platinum 8259CL

Processor: 2 x Intel Xeon Platinum 8259L @ 3.50GHz (48 Cores / 96 Threads), Motherboard: ASRockRack EP2C621D16-4LP (P2.20 BIOS), Chipset: Intel Sky Lake-E DMI3 Registers, Memory: 12 x 16384 MB DDR4-3200MT/s Hynix HMA82GR7CJR8N-XN, Disk: 256GB TOSHIBA THNSNJ25, Graphics: llvmpipe 188GB, Audio: NVIDIA Device 10f8, Monitor: DELL UP2516D, Network: 4 x Intel X722 for 1GbE

OS: Ubuntu 19.10, Kernel: 5.3.0-64-generic (x86_64), Desktop: GNOME Shell 3.34.1, Display Server: X Server, OpenGL: 3.3 Mesa 19.2.8 (LLVM 9.0 256 bits), Compiler: GCC 9.2.1 20191008, File-System: ext4, Screen Resolution: 2560x1440

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++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-offload-targets=nvptx-none,hsa --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: intel_pstate powersave - CPU Microcode: 0x4002f01
Java Notes: OpenJDK Runtime Environment (build 11.0.7+10-post-Ubuntu-2ubuntu219.10)
Python Notes: Python 2.7.17 + Python 3.7.5
Security Notes: itlb_multihit: KVM: Mitigation of Split huge pages + 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 + srbds: Not affected + tsx_async_abort: Mitigation of TSX disabled

Xeon Platinum 8272CL

Processor: Intel Xeon Platinum 8272CL @ 3.70GHz (26 Cores / 52 Threads), Motherboard: ASRockRack EP2C621D16-4LP (P2.20 BIOS), Chipset: Intel Sky Lake-E DMI3 Registers, Memory: 6 x 16384 MB DDR4-3200MT/s Hynix HMA82GR7CJR8N-XN, Disk: 256GB TOSHIBA THNSNJ25, Graphics: llvmpipe 93GB, Audio: NVIDIA Device 10f8, Monitor: DELL UP2516D, Network: 4 x Intel X722 for 1GbE

OS: Ubuntu 19.10, Kernel: 5.3.0-64-generic (x86_64), Desktop: GNOME Shell 3.34.1, Display Server: X Server, OpenGL: 3.3 Mesa 19.2.8 (LLVM 9.0 256 bits), Compiler: GCC 9.2.1 20191008, File-System: ext4, Screen Resolution: 2560x1440

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++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-offload-targets=nvptx-none,hsa --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: intel_pstate powersave - CPU Microcode: 0x5002f01
Java Notes: OpenJDK Runtime Environment (build 11.0.7+10-post-Ubuntu-2ubuntu219.10)
Python Notes: Python 2.7.17 + Python 3.7.5
Security Notes: itlb_multihit: KVM: Mitigation of Split huge pages + 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 + srbds: Not affected + tsx_async_abort: Mitigation of TSX disabled

2 x Xeon Platinum 8272CL NUMA off

Processor: 2 x Intel Xeon Platinum 8272CL @ 3.70GHz (52 Cores / 104 Threads), Motherboard: ASRockRack

EP2C621D16-4LP (P2.20 BIOS), Chipset: Intel Sky Lake-E DMI3 Registers, Memory: 12 x 16384 MB DDR4-3200MT/s Hynix HMA82GR7CJR8N-XN, Disk: 600GB INTEL SSDSC2BB60 + 10001GB Seagate ST10000NM0016-1T + 256GB TOSHIBA THNSNJ25, Graphics: llvmpipe 188GB, Audio: NVIDIA Device 10f8, Monitor: DELL UP2516D, Network: 4 x Intel X722 for 1GbE

OS: Ubuntu 19.10, Kernel: 5.3.0-64-generic (x86_64), Desktop: GNOME Shell 3.34.1, Display Server: X Server, OpenGL: 3.3 Mesa 19.2.8 (LLVM 9.0 256 bits), Compiler: GCC 9.2.1 20191008, File-System: ext4, Screen Resolution: 2560x1440

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++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-offload-targets=nvptx-none,hsa --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: intel_pstate powersave - CPU Microcode: 0x5002f01
Java Notes: OpenJDK Runtime Environment (build 11.0.7+10-post-Ubuntu-2ubuntu219.10)
Python Notes: Python 2.7.17 + Python 3.7.5
Security Notes: itlb_multihit: KVM: Mitigation of Split huge pages + 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 + srbds: Not affected + tsx_async_abort: Mitigation of TSX disabled

2 x Xeon Platinum 8272CL

Processor: 2 x Intel Xeon Platinum 8272CL @ 3.70GHz (52 Cores / 104 Threads), Motherboard: ASRockRack EP2C621D16-4LP (P2.20 BIOS), Chipset: Intel Sky Lake-E DMI3 Registers, Memory: 12 x 16384 MB DDR4-3200MT/s Hynix HMA82GR7CJR8N-XN, Disk: 256GB TOSHIBA THNSNJ25, Graphics: llvmpipe 188GB, Audio: NVIDIA Device 10f8, Monitor: DELL UP2516D, Network: 4 x Intel X722 for 1GbE

OS: Ubuntu 19.10, Kernel: 5.3.0-64-generic (x86_64), Desktop: GNOME Shell 3.34.1, Display Server: X Server, OpenGL: 3.3 Mesa 19.2.8 (LLVM 9.0 256 bits), Compiler: GCC 9.2.1 20191008, File-System: ext4, Screen Resolution: 2560x1440

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++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-offload-targets=nvptx-none,hsa --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: intel_pstate powersave - CPU Microcode: 0x5002f01
Java Notes: OpenJDK Runtime Environment (build 11.0.7+10-post-Ubuntu-2ubuntu219.10)
Python Notes: Python 2.7.17 + Python 3.7.5
Security Notes: itlb_multihit: KVM: Mitigation of Split huge pages + 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 + srbds: Not affected + tsx_async_abort: Mitigation of TSX disabled

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: 6 x 32 GB DDR4-2933MT/s HMA84GR7CJR4N-WM, Disk: 280GB INTEL SSDPED1D280GA, Graphics: ASPEED, Monitor: VE228, Network: 2 x Intel X722 for 1GbE + 2 x QLogic FastLinQ QL41000 10/25/40/50GbE

OS: Ubuntu 20.04, Kernel: 5.4.0-18-generic (x86_64), Desktop: GNOME Shell 3.36.0, Display Server: X Server 1.20.7, Display Driver: modesetting 1.20.7, Compiler: GCC 9.3.0, File-System: ext4, Screen Resolution: 1024x768

Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none,hsa --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: intel_pstate powersave - CPU Microcode: 0x500002c
Java Notes: OpenJDK Runtime Environment (build 11.0.6+10-post-Ubuntu-2ubuntu2)

Python Notes: + Python 3.8.2
Security Notes: itlb_multihit: KVM: Mitigation of Split huge pages + 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 + tsx_async_abort: Mitigation of TSX disabled

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: 12 x 32 GB DDR4-2933MT/s HMA84GR7CJR4N-WM, Disk: 280GB INTEL SSDPED1D280GA, Graphics: ASPEED, Monitor: VE228, Network: 2 x Intel X722 for 1GbE + 2 x QLogic FastLinQ QL41000 10/25/40/50GbE

OS: Ubuntu 20.04, Kernel: 5.4.0-18-generic (x86_64), Desktop: GNOME Shell 3.36.0, Display Server: X Server 1.20.7, Display Driver: modesetting 1.20.7, Compiler: GCC 9.3.0, File-System: ext4, Screen Resolution: 1024x768

Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none,hsa --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: intel_pstate powersave - CPU Microcode: 0x500002c
Java Notes: OpenJDK Runtime Environment (build 11.0.6+10-post-Ubuntu-2ubuntu2)
Python Notes: + Python 3.8.2
Security Notes: itlb_multihit: KVM: Mitigation of Split huge pages + 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 + tsx_async_abort: Mitigation of TSX disabled

Xeon Platinum 8375C

Processor: Intel Xeon Platinum 8375C @ 3.50GHz (32 Cores / 64 Threads), Motherboard: Supermicro X12DPi-N6 v1.00 (1.0a BIOS), Chipset: Intel Device 0998, Memory: 8 x 16384 MB DDR4-3200MT/s Samsung M393A2K43CB2-CWE, Disk: 600GB INTEL SSDSC2BB60 + 10001GB Seagate ST10000NM0016-1T + 256GB TOSHIBA THNSNJ25, Graphics: llvmpipe 126GB, Monitor: Crystal View, Network: 2 x Intel I350

OS: Ubuntu 19.10, Kernel: 5.3.0-64-generic (x86_64), Desktop: GNOME Shell 3.34.1, Display Server: X Server, OpenGL: 3.3 Mesa 19.2.8 (LLVM 9.0 256 bits), Compiler: GCC 9.2.1 20191008, File-System: ext4, Screen Resolution: 800x600

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++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-offload-targets=nvptx-none,hsa --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq ondemand - CPU Microcode: 0xd0001b2
Java Notes: OpenJDK Runtime Environment (build 11.0.7+10-post-Ubuntu-2ubuntu219.10)
Python Notes: Python 2.7.17 + Python 3.7.5
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Enhanced IBRS IBPB: conditional RSB filling + srbds: Not affected + tsx_async_abort: Not affected

2 x Xeon Platinum 8375C NUMA off

Processor: 2 x Intel Xeon Platinum 8375C @ 3.50GHz (64 Cores / 128 Threads), Motherboard: Supermicro X12DPi-N6 v1.00 (1.0a BIOS), Chipset: Intel Device 0998, Memory: 16 x 16384 MB DDR4-3200MT/s Samsung M393A2K43CB2-CWE, Disk: 600GB INTEL SSDSC2BB60 + 10001GB Seagate ST10000NM0016-1T + 256GB TOSHIBA THNSNJ25, Graphics: llvmpipe 251GB, Monitor: Crystal View, Network: 2 x Intel I350

OS: Ubuntu 19.10, Kernel: 5.3.0-64-generic (x86_64), Desktop: GNOME Shell 3.34.1, Display Server: X Server, OpenGL: 3.3 Mesa 19.2.8 (LLVM 9.0 256 bits), Compiler: GCC 9.2.1 20191008, File-System: ext4, Screen Resolution: 800x600

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++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-offload-targets=nvptx-none,hsa --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq ondemand - CPU Microcode: 0xd0001b2
Java Notes: OpenJDK Runtime Environment (build 11.0.7+10-post-Ubuntu-2ubuntu219.10)
Python Notes: Python 2.7.17 + Python 3.7.5
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Enhanced IBRS IBPB: conditional RSB filling + srbds: Not affected + tsx_async_abort: Not affected

2 x Xeon Platinum 8375C

Processor: 2 x Intel Xeon Platinum 8375C @ 3.50GHz (64 Cores / 128 Threads), Motherboard: Supermicro X12DPi-N6 v1.00 (1.0a BIOS), Chipset: Intel Device 0998, Memory: 16 x 16384 MB DDR4-3200MT/s Samsung M393A2K43CB2-CWE, Disk: 600GB INTEL SSDSC2BB60 + 10001GB Seagate ST10000NM0016-1T + 256GB TOSHIBA THNSNJ25, Graphics: llvmpipe 252GB, Monitor: Crystal View, Network: 2 x Intel I350

OS: Ubuntu 19.10, Kernel: 5.3.0-64-generic (x86_64), Desktop: GNOME Shell 3.34.1, Display Server: X Server, OpenGL: 3.3 Mesa 19.2.8 (LLVM 9.0 256 bits), Compiler: GCC 9.2.1 20191008, File-System: ext4, Screen Resolution: 800x600

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++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-offload-targets=nvptx-none,hsa --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq ondemand - CPU Microcode: 0xd0001b2
Java Notes: OpenJDK Runtime Environment (build 11.0.7+10-post-Ubuntu-2ubuntu219.10)
Python Notes: Python 2.7.17 + Python 3.7.5
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Enhanced IBRS IBPB: conditional RSB filling + srbds: Not affected + tsx_async_abort: Not affected

	EPYC 2 7R32	Xeon W-3275M	Xeon Platinum 8259CL	2 x Xeon Platinum 8259CL NUMA off	2 x Xeon Platinum 8259CL	Xeon Platinum 8272CL	2 x Xeon Platinum 8272CL NUMA off	2 x Xeon Platinum 8272CL	Xeon Platinum 8280	2 x Xeon Platinum 8280	Xeon Platinum 8375C	2 x Xeon Platinum 8375C NUMA off	2 x Xeon Platinum 8375C
High Performance Conjugate Gradient (GFLOP/s)	17.0608	14.1623	**13.6425**	16.5171	27.1060		16.5282	26.7025	14.9097	28.8542	20.1687	27.2072	**39.1562**
Normalized	43.57%	36.17%	34.84%	42.18%	69.23%		42.21%	68.19%	38.08%	73.69%	51.51%	69.48%	100%
Standard Deviation	0%	1.9%	0.4%	0%	0.8%		0%	0.6%	0.5%	1.5%	0.1%	0.1%	0.8%

Xeon & EPYC Tests

NAS Parallel Benchmarks - BT.C (Mop/s)	106416	69348	**51975**	84766	104108	69011	102113	131794	71842	136047	96192	164569	**188359**
Normalized	56.5%	36.82%	27.59%	45%	55.27%	36.64%	54.21%	69.97%	38.14%	72.23%	51.07%	87.37%	100%
Standard Deviation	0.8%	0.3%	0.1%	0.1%	0.2%	0.4%	0.3%	0.2%	0.1%	0.1%	0.2%	0.1%	5.2%
NAS Parallel Benchmarks - EP.C (Mop/s)	3486	3025	**2641**	5059	5053	2974	5668	5763	3194	6105	4004	**6745**	6352
Normalized	51.69%	44.85%	39.16%	75.01%	74.91%	44.1%	84.03%	85.45%	47.36%	90.52%	59.36%	100%	94.19%
Standard Deviation	1.5%	2.3%	0.9%	1.2%	2.7%	1%	1.2%	0.8%	2.4%	2.5%	10.4%	7.9%	12.3%
NAS Parallel Benchmarks - EP.D (Mop/s)	3570	3211	**2678**	5284	5310	3033	5973	6088	3283	6285	4730	9334	**9339**
Normalized	38.23%	34.38%	28.67%	56.58%	56.86%	32.48%	63.96%	65.19%	35.16%	67.29%	50.65%	99.95%	100%
Standard Deviation	0.3%	0.2%	2.9%	2.8%	2.9%	2.9%	2.7%	2.5%	2.8%	8.2%	0.2%	2.7%	1.9%
NAS Parallel Benchmarks - LU.C (Mop/s)	99822	69607	**65522**	94643	120962				74256	140090	97414	152799	**177387**
Normalized	56.27%	39.24%	36.94%	53.35%	68.19%				41.86%	78.97%	54.92%	86.14%	100%
Standard Deviation	0.2%	0.1%	0%	0.1%	0.1%				0.2%	0.2%	1.1%	1.2%	5.7%
NAS Parallel Benchmarks - MG.C (Mop/s)	49330	35376	**33490**	43490	63393	34709	45188	66471	37089	69175	50841	82390	**111940**
Normalized	44.07%	31.6%	29.92%	38.85%	56.63%	31.01%	40.37%	59.38%	33.13%	61.8%	45.42%	73.6%	100%
Standard Deviation	2.8%	0.2%	0.6%	1.7%	0.8%	0.1%	0.1%	0.6%	0.6%	2.8%	7.1%	0.3%	1.6%
NAS Parallel Benchmarks - SP.B (Mop/s)	51225	31427	**24288**	38494	53979	29919	46296	66865	32682	70893	46439	86029	**112350**
Normalized	45.59%	27.97%	21.62%	34.26%	48.05%	26.63%	41.21%	59.52%	29.09%	63.1%	41.33%	76.57%	100%
Standard Deviation	3.9%	0.8%	0.2%	0.2%	0.2%	0.7%	0.1%	0.2%	0.8%	0.3%	5.4%	4.7%	0.4%
CloverLeaf - L.E.H (sec)	0.36	**1.14**	1.11	0.63	0.78	1.05	0.61	0.71	0.96	0.69	0.51	**0.33**	0.35
Normalized	91.67%	28.95%	29.73%	52.38%	42.31%	31.43%	54.1%	46.48%	34.38%	47.83%	64.71%	100%	94.29%
Standard Deviation	0.2%	6.1%	0.4%	0.3%	14.8%	0.2%	1%	13.3%	0.1%	9.2%	0.3%	2.8%	11.6%
NAMD - ATPase Simulation - 327,506 Atoms (days/ns)	0.4861 4	0.8143 4	**0.8692 5**	0.4542 2	0.4455 1	0.7772 4	0.4017 3	0.3884 0	0.7070 9	0.3622 6	0.4694 8	0.2563 2	**0.2494 1**
Normalized	51.3%	30.63%	28.69%	54.91%	55.98%	32.09%	62.08%	64.21%	35.27%	68.85%	53.12%	97.3%	100%
Standard Deviation	0.3%	3.7%	0.1%	0%	0.1%	2.9%	0.3%	0.1%	0.1%	0.6%	0%	0.7%	0.2%
lzbench - Zstd 1 - Compression (MB/s)	418	**508**	410	407	**399**	430	430	423	457	449	464	461	453
Normalized	82.28%	100%	80.71%	80.12%	78.54%	84.65%	84.65%	83.27%	89.96%	88.39%	91.34%	90.75%	89.17%
Standard Deviation		0.3%	0.1%	1%	1%	0.9%		0.4%	0.2%			0.1%	0.1%
lzbench - Zstd 1 - Decompression	1148	1299	1061	1032	**1027**	1122	1078	1088	1212	1168	**1321**	1271	1258
Normalized	86.9%	98.33%	80.32%	78.12%	77.74%	84.94%	81.6%	82.36%	91.75%	88.42%	100%	96.21%	95.23%
Standard Deviation		0.4%		0.1%	0.1%		1%	0.8%		0.3%	0.1%	0.1%	0.2%

Xeon & EPYC Tests

lzbench - Zstd 8 - Compression (MB/s)	83	84	71	71	69	75	74	73	77	75	89	88	86
Normalized	93.26%	94.38%	79.78%	79.78%	77.53%	84.27%	83.15%	82.02%	86.52%	84.27%	100%	98.88%	96.63%
lzbench - Zstd 8 - Decompression	1266	1298	1089	966	1011	1145	1022	1058	1224	1124	1412	1291	1320
Normalized	89.66%	91.93%	77.12%	68.41%	71.6%	81.09%	72.38%	74.93%	86.69%	79.6%	100%	91.43%	93.48%
Standard Deviation		0.2%	0.1%	2.1%	0.3%	0.1%	0.2%		0.1%	0.2%	0.1%		
lzbench - Crush 0 - Compression	81	109	91	86	88	97	93	93	101	96	111	109	106
Normalized	72.97%	98.2%	81.98%	77.48%	79.28%	87.39%	83.78%	83.78%	90.99%	86.49%	100%	98.2%	95.5%
Standard Deviation	1.2%	1.6%			0.7%			0.6%	0.6%			1.6%	0.5%
lzbench - Crush 0 - Decompression (MB/s)	380	509	404	396	394	427	412	415	440	428	422	416	413
Normalized	74.66%	100%	79.37%	77.8%	77.41%	83.89%	80.94%	81.53%	86.44%	84.09%	82.91%	81.73%	81.14%
Standard Deviation						0.2%	0.3%	0.1%		0.1%	0.1%		
lzbench - Brotli 2 - Compression	165	196	160	159	157	168	168	166	181	176	184	183	178
Normalized	84.18%	100%	81.63%	81.12%	80.1%	85.71%	85.71%	84.69%	92.35%	89.8%	93.88%	93.37%	90.82%
Standard Deviation	0.7%	0.3%	0.4%		1.5%	1.2%							
lzbench - Brotli 2 - Decompression	564	721	587	543	551	619	571	580	673	623	624	617	600
Normalized	78.22%	100%	81.41%	75.31%	76.42%	85.85%	79.2%	80.44%	93.34%	86.41%	86.55%	85.58%	83.22%
Standard Deviation	0.3%	0.3%		0.1%	0.1%	0.2%			0.2%	0.4%	0.9%	1.6%	0.3%
SMHasher - wyhash (cycles/hash)		18.508	24.187	24.154	24.151	23.676	23.671	23.645	22.678	22.677			
Normalized		100%	76.52%	76.62%	76.63%	78.17%	78.19%	78.27%	81.61%	81.62%			
Standard Deviation		0.3%	0.1%	0%	0%	0.1%	0%	0%	0%	0%			
Timed MrBayes Analysis - P.P.A (sec)	92.361	143.348	138.846	141.898	139.750	133.483	134.883	134.997	128.848	129.986	99.688	103.112	101.872
Normalized	100%	64.43%	66.52%	65.09%	66.09%	69.19%	68.47%	68.42%	71.68%	71.05%	92.65%	89.57%	90.66%
Standard Deviation	1.3%	0.2%	0.2%	2.3%	0.4%	0.1%	0.6%	1.3%	0%	0.5%	0.7%	3.2%	1.1%
LAMMPS Molecular Dynamics Simulator - Rhodopsin Protein (ns/day)	20.821	14.562	13.040	21.887	22.535	14.014	22.666	23.434	15.314	24.788	15.901	27.345	25.982
Normalized	76.14%	53.25%	47.69%	80.04%	82.41%	51.25%	82.89%	85.7%	56%	90.65%	58.15%	100%	95.02%
Standard Deviation	6.9%	3.4%	1.1%	2.6%	2.6%	0.3%	0.9%	2.7%	2.2%	3.8%	10.8%	13%	12.1%

Xeon & EPYC Tests

DaCapo Benchmark - Jython (msec)	5246	4321	5012	5161	5172	4786	5037	5013	4547	4711	5112	5400	5338
Normalized	82.37%	100%	86.21%	83.72%	83.55%	90.28%	85.79%	86.2%	95.03%	91.72%	84.53%	80.02%	80.95%
Standard Deviation	0.4%	0.5%	0.9%	0.4%	2.2%	0.6%	1%	1.5%	0.7%	0.8%	0.3%	1.6%	0.9%
Renaissance - Scala Dotty	6577	6971	7201	7566	7257	6900	7347	6957	6664	6891	9000	9170	9329
Normalized	100%	94.35%	91.34%	86.93%	90.64%	95.32%	89.52%	94.54%	98.7%	95.45%	73.08%	71.73%	70.5%
Standard Deviation	1%	1%	1.1%	1.6%	0.6%	0.8%	2.9%	0.9%	0.6%	3%	2.2%	6.4%	6.2%
Renaissance - Apache Spark Bayes (ms)	3057	2744	3017	3814	3496	2739	3859	3402	2674	3229	3493	5550	4403
Normalized	87.48%	97.47%	88.63%	70.12%	76.5%	97.63%	69.29%	78.6%	100%	82.83%	76.56%	48.18%	60.74%
Standard Deviation	4.3%	2.9%	4.3%	7.3%	6.8%	3%	8.9%	6%	1.6%	5.6%	3%	15.5%	10.3%
Renaissance - Savina Reactors.IO (ms)	19304	25187	26711	28252	28107	23867	28366	27891	21975	26765	21743	29524	31369
Normalized	100%	76.64%	72.27%	68.33%	68.68%	80.88%	68.05%	69.21%	87.84%	72.12%	88.78%	65.38%	61.54%
Standard Deviation	8.5%	11.9%	8%	8.9%	8.6%	13.5%	10.9%	8.7%	13.5%	8.9%	9.5%	8%	9.9%
Renaissance - A.S.P (ms)	21642	21016	22227	25637	25275	21896	24910	23916	20621	23588	19555	22023	22457
Normalized	90.36%	93.05%	87.98%	76.28%	77.37%	89.31%	78.5%	81.76%	94.83%	82.9%	100%	88.79%	87.08%
Standard Deviation	2.1%	1.8%	1.6%	2%	2.5%	1.7%	1.8%	1.6%	1.8%	3%	2%	2.7%	3.8%
Nettle - aes256 (Mbyte/s)	4665	7071	5517	5523	5513	5830	5853	5852	6313	6320	8053	8007	8044
Normalized	57.93%	87.8%	68.51%	68.59%	68.46%	72.4%	72.68%	72.67%	78.4%	78.48%	100%	99.43%	99.89%
Standard Deviation	0%	1%	0.6%	0.2%	0.8%	0.3%	0.1%	0.2%	0.2%	0.1%	0.2%	0.7%	0.3%
Nettle - chacha (Mbyte/s)	750.357	1172	920.513	917.505	917.750	970.383	975.081	974.458	1051	1052	822.108	815.179	821.177
Normalized	64.02%	100%	78.53%	78.28%	78.3%	82.79%	83.19%	83.13%	89.67%	89.74%	70.14%	69.55%	70.06%
Standard Deviation	0%	0.9%	0.3%	0.8%	0.8%	0.4%	0%	0.1%	0.1%	0.1%	2.1%	1.5%	1.8%
Nettle - sha512 (Mbyte/s)	478.09	550.93	436.73	438.23	437.62	462.78	465.40	465.18	501.98	500.98	396.69	396.53	456.39
Normalized	86.78%	100%	79.27%	79.54%	79.43%	84%	84.48%	84.44%	91.12%	90.93%	72%	71.97%	82.84%
Standard Deviation	0.1%	0.9%	0.8%	0.7%	1%	0.6%	0.1%	0.1%	0.1%	0.3%	0%	0.1%	8.4%
Nettle - poly1305-aes (Mbyte/s)	2046	3208	2492	2517	2498	2662	2658	2654	2867	2869	1910	1909	1963
Normalized	63.79%	100%	77.7%	78.46%	77.86%	82.97%	82.85%	82.74%	89.39%	89.42%	59.53%	59.52%	61.19%
Standard Deviation	0.1%	1.3%	0.9%	0%	1.1%	0.8%	0.2%	0.2%	0.1%	0.1%	0.2%	0.2%	7.1%
ArrayFire - BLAS CPU	990.798	3128	2950	5651	5320	3282	6331	3972	3432	3430	4875	4631	4520
Normalized	15.65%	49.41%	46.6%	89.26%	84.03%	51.83%	100%	62.74%	54.21%	54.18%	77.01%	73.15%	71.4%
Standard Deviation	1.1%	1.7%	0.1%	0.4%	8%	0.4%	0.6%	21%	1.3%	1%	0.6%	1.1%	0.3%
ArrayFire - C.G.C (ms)	35.13	4.423	4.677	7.604	8.430	4.196	8.947	7.467	4.115	7.481	2.814	4.036	7.355
Normalized	8.01%	63.62%	60.17%	37.01%	33.38%	67.06%	31.45%	37.69%	68.38%	37.62%	100%	69.72%	38.26%
Standard Deviation	1.1%	6.6%	0.8%	12.4%	4.2%	0.2%	8.1%	3%	2.8%	2.8%	0.5%	7%	0.8%

Xeon & EPYC Tests

John The Ripper - Blowfish (Real	66475	40326	35599	70955	70888	39604	78420	78301	42864	84084	56326	111847	109978
Normalized	59.43%	36.05%	31.83%	63.44%	63.38%	35.41%	70.11%	70.01%	38.32%	75.18%	50.36%	100%	98.33%
Standard Deviation	0.5%	0.6%	0%	0.1%	0.3%	1%	0.6%	0.8%	0.4%	1.4%	0.2%	0.1%	2.4%
John The Ripper - MD5 (Real C/S)	397200	365400	338400	660833	655466	372766	710266	715000	409000	788000	571433	107143	104973
Normalized	37.07%	34.1%	31.58%	61.68%	61.18%	34.79%	66.29%	66.73%	38.17%	73.55%	53.33%	100%	97.97%
Standard Deviation	1.3%	0.7%	0.5%	0.3%	1.1%	1.6%	0.7%	0.8%	0.6%	1.5%	0.1%	0.5%	1.7%
MKL-DNN DNNL - IP Batch 1D - f32	1.6756	2.8671	2.6997	1.5372	1.5768	2.3860	1.6310	1.6064	2.3945	1.6398	1.0855	0.7652	0.7317
Normalized	43.67%	25.52%	27.1%	47.6%	46.41%	30.67%	44.86%	45.55%	30.56%	44.62%	67.41%	95.62%	100%
Standard Deviation	0.7%	0.3%	0.6%	2.2%	3.6%	0.4%	1%	3.6%	0.8%	3.4%	0.7%	1.8%	0.9%
MKL-DNN DNNL - IP Batch All - f32	8.8839	7.5443	7.8907	6.6584	9.9766	7.4070	6.3865	9.7135	6.7950	9.5246	4.5955	3.7303	6.0026
Normalized	41.99%	49.44%	47.27%	56.02%	37.39%	50.36%	58.41%	38.4%	54.9%	39.16%	81.17%	100%	62.14%
Standard Deviation	0.2%	2.3%	0.7%	0.2%	0.6%	0.2%	0.2%	0.3%	0.2%	0.3%	0.1%	0.3%	0.2%
MKL-DNN DNNL - IP Batch All -	149.33	3.5921	3.4323	2.7819	3.0486	3.3442	3.1053	3.2961	3.2312	3.1100	1.8451	1.4986	1.4461
Normalized	0.97%	40.26%	42.13%	51.98%	47.43%	43.24%	46.57%	43.87%	44.76%	46.5%	78.37%	96.5%	100%
Standard Deviation	0.3%	1.6%	0.1%	0.6%	0.8%	0.3%	0.6%	1.7%	0.2%	2.7%	0.7%	1%	0.6%
MKL-DNN DNNL - IP Batch 1D - bf16bf16bf16		5.5630	5.6990	4.4644	4.4891	5.5968	2.8531	2.8908	4.8317	3.6596	2.4190	1.7421	1.7395
Normalized		31.27%	30.52%	38.96%	38.75%	31.08%	60.97%	60.17%	36%	47.53%	71.91%	99.85%	100%
Standard Deviation		0.8%	0.1%	0.4%	0.2%	0.4%	0.4%	0.2%	0.1%	0.6%	0.2%	0.4%	1.3%
MKL-DNN DNNL - C.B.c - f32 (ms)	710.14	878.39	874.20	461.93	559.46	821.96	436.86	534.32	765.74	496.81	598.18	327.27	399.24
Normalized	46.09%	37.26%	37.44%	70.85%	58.5%	39.82%	74.92%	61.25%	42.74%	65.87%	54.71%	100%	81.97%
Standard Deviation	0.5%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.1%	0.3%	0.1%	0.1%	2.2%
MKL-DNN DNNL - C.B.c - u8s8f32 (ms)	3077	6183	7096	3549	3551	6438	3243	3271	5920	3005	4454	2382	2541
Normalized	77.42%	38.53%	33.57%	67.13%	67.08%	37%	73.45%	72.82%	40.24%	79.26%	53.48%	100%	93.76%
Standard Deviation	1.5%	1.1%	0.1%	0.6%	0.4%	0.4%	0.9%	0.8%	0.3%	0.5%	0%	0.8%	0.5%
MKL-DNN DNNL - D.B.d - f32 (ms)	2.2254	1.7451	1.6392	1.2258	1.2579	1.4708	1.3039	1.3441	1.4623	1.2402	1.2400	1.0311	1.0189
Normalized	45.79%	58.38%	62.16%	83.12%	81%	69.27%	78.14%	75.8%	69.68%	82.15%	82.17%	98.81%	100%
Standard Deviation	1.5%	1.3%	0.1%	0.1%	1%	0.1%	0.4%	0.2%	0.2%	0.4%	0.1%	0.8%	0.9%
MKL-DNN DNNL - D.B.d - f32 (ms)	2.2047	2.2752	2.2005	1.2639	1.2664	2.1658	1.2529	1.2512	1.9627	1.1360	1.3409	0.8510	0.8525
Normalized	38.6%	37.4%	38.67%	67.33%	67.19%	39.29%	67.92%	68.01%	43.36%	74.91%	63.46%	100%	99.82%
Standard Deviation	0.5%	1.4%	0.4%	0.5%	0.2%	0.2%	0.3%	0.4%	0%	0.6%	0.7%	0.2%	0.1%

MKL-DNN DNNL - C.B.c - f32 (ms)	96.6881	108.568	107.804	55.3565	56.6465	98.6664	51.4429	52.9979	94.1937	49.8437	83.3609	42.9103	43.8561
Normalized	44.38%	39.52%	39.8%	77.52%	75.75%	43.49%	83.41%	80.97%	45.56%	86.09%	51.48%	100%	97.84%
Standard Deviation	2%	0.2%	0.2%	0.6%	0.7%	0.2%	0.4%	1.6%	0.1%	0.3%	0.1%	0.1%	0.1%
MKL-DNN DNNL - C.B.c - u8s8f32 (ms)	11729	2968	3402	1734	1794	3089	1579	1640	2846	1517	2126	1107	1166
Normalized	9.44%	37.31%	32.55%	63.85%	61.73%	35.84%	70.12%	67.5%	38.91%	72.97%	52.09%	100%	94.94%
Standard Deviation	0.3%	0.9%	0.2%	0.1%	0.1%	0.6%	0.2%	0%	0.1%	0.4%	0.1%	0%	1.8%
MKL-DNN DNNL - D.B.d - f32 (ms)	1485	1293	1029	743.695	739.163	1124	877.207	881.087	1114	881.783	724.602	458.494	469.428
Normalized	30.87%	35.47%	44.55%	61.65%	62.03%	40.8%	52.27%	52.04%	41.17%	52%	63.28%	100%	97.67%
Standard Deviation	0.2%	2.8%	0.2%	0.2%	0.2%	0.1%	0.2%	2%	0.1%	0.1%	0%	0.1%	0.4%
MKL-DNN DNNL - D.B.d - u8s8f32 (ms)	1131	0.458422	0.415614	0.361414	0.376222	0.378229	0.336426	0.351719	0.371036	0.394455	0.301007	0.306309	0.299473
Normalized	0.03%	65.33%	72.06%	82.86%	79.6%	79.18%	89.02%	85.15%	80.71%	75.92%	99.49%	97.77%	100%
Standard Deviation	0.6%	0.5%	0.4%	0.5%	0.4%	0.1%	1.2%	0.6%	0.2%	3%	0.1%	0.8%	1.7%
MKL-DNN DNNL - D.B.d - u8s8f32 (ms)	1899	3852	4426	2253	2238	3985	2063	2064	3717	1894	2531	1295	1321
Normalized	68.21%	33.63%	29.27%	57.51%	57.88%	32.51%	62.79%	62.76%	34.85%	68.41%	51.19%	100%	98.1%
Standard Deviation	0.3%	2.2%	0%	1.7%	0.2%	0.4%	0%	0.1%	0.1%	0.5%	0.1%	0.1%	1.3%
MKL-DNN DNNL - C.B.c - bf16bf16bf16 (ms)		16.5906	17.3217	9.18751	9.20665	14.0747	7.65561	7.67517	14.0780	7.92912	10.7508	5.71963	5.81243
Normalized		34.48%	33.02%	62.25%	62.12%	40.64%	74.71%	74.52%	40.63%	72.13%	53.2%	100%	98.4%
Standard Deviation		2.9%	0%	0.2%	0%	0.1%	0.1%	0.3%	0%	0.1%	0.1%	0.1%	1.7%
MKL-DNN DNNL - C.B.c - u8s8f32 (ms)	1301	31.9893	30.8800	19.3723	22.3830	27.9779	18.3929	20.0909	26.8391	19.8143	17.7241	10.9680	12.3317
Normalized	0.84%	34.29%	35.52%	56.62%	49%	39.2%	59.63%	54.59%	40.87%	55.35%	61.88%	100%	88.94%
Standard Deviation	0.4%	0.2%	0.2%	0.1%	1.8%	0.4%	0.5%	1.3%	0.1%	0.2%	0.1%	0.2%	1.6%
MKL-DNN DNNL - C.B.c - bf16bf16bf16 (ms)		3880	4364	2198	2198	3639	1843	1845	3497	1766	2712	1381	1422
Normalized		35.59%	31.65%	62.83%	62.84%	37.95%	74.94%	74.87%	39.49%	78.19%	50.93%	100%	97.14%
Standard Deviation		0%	0%	0%	0%	0%	0.1%	0.5%	0%	0.1%	0%	0.1%	0.5%
MKL-DNN DNNL - C.B.c - f32 (ms)	42.5413	49.8744	48.0640	25.0672	25.7722	45.1271	23.6729	24.1147	42.0758	23.1772	30.8279	17.3496	21.0065
Normalized	40.78%	34.79%	36.1%	69.21%	67.32%	38.45%	73.29%	71.95%	41.23%	74.86%	56.28%	100%	82.59%
Standard Deviation	0.8%	0.2%	0.1%	0.1%	0.7%	0.3%	0.6%	0.2%	0.1%	0.7%	0.1%	0.8%	3%

MKL-DNN DNNL - D.B.d - bf16bf16bf16 (ms)		7.61595	**7.98292**	4.46523	4.49039	6.59778	3.95067	3.98393	6.55374	4.06847	4.97888	**2.91495**	3.07797
Normalized		38.27%	36.51%	65.28%	64.92%	44.18%	73.78%	73.17%	44.48%	71.65%	58.55%	100%	94.7%
Standard Deviation		0.9%	0.5%	0.1%	0.2%	0%	0.1%	0.2%	0%	0.3%	0%	0.2%	0.2%
MKL-DNN DNNL - D.B.d - bf16bf16bf16 (ms)		8.46273	**9.37107**	4.85689	4.87194	8.31677	4.49464	4.49405	7.69605	4.35817	6.07117	**3.77769**	3.78319
Normalized		44.64%	40.31%	77.78%	77.54%	45.42%	84.05%	84.06%	49.09%	86.68%	62.22%	100%	99.85%
Standard Deviation		0.8%	0%	0.2%	0.3%	0%	0.1%	0.1%	0.1%	0.1%	3%	2.9%	2.8%
MKL-DNN DNNL - C.B.c - bf16bf16bf16 (ms)		702.065	**796.753**	399.308	399.298	662.755	332.319	337.883	637.374	320.060	500.120	**251.826**	252.406
Normalized		35.87%	31.61%	63.07%	63.07%	38%	75.78%	74.53%	39.51%	78.68%	50.35%	100%	99.77%
Standard Deviation		0.3%	0.1%	0%	0.1%	0%	0.1%	3%	0%	0%	1.9%	1.7%	1.8%
MKL-DNN DNNL - C.B.c - u8s8f32 (ms)	**730.306**	13.4504	12.7059	7.63651	8.74794	12.0288	6.82540	7.79708	11.2900	7.46050	7.35038	**4.71574**	5.35426
Normalized	0.65%	35.06%	37.11%	61.75%	53.91%	39.2%	69.09%	60.48%	41.77%	63.21%	64.16%	100%	88.07%
Standard Deviation	1.7%	0.2%	0.1%	0.4%	0.5%	0.4%	0.1%	0.9%	0.2%	0.8%	0.2%	0.8%	3.1%
MKL-DNN DNNL - D.B.d - bf16bf16bf16 (ms)		3294	**3368**	1904	1904	2751	1833	1839	2936	1779	2063	**1167**	1211
Normalized		35.42%	34.64%	61.26%	61.27%	42.41%	63.64%	63.46%	39.74%	65.58%	56.54%	100%	96.32%
Standard Deviation		0.2%	0%	0%	0%	0.1%	0.3%	0.2%	0.3%	0.1%	0.6%	0.4%	0.2%
MKL-DNN DNNL - C.B.c - bf16bf16bf16 (ms)		188.611	**207.911**	106.714	106.893	173.381	90.2636	90.3982	166.984	86.5391	129.595	**67.9688**	71.0060
Normalized		36.04%	32.69%	63.69%	63.59%	39.2%	75.3%	75.19%	40.7%	78.54%	52.45%	100%	95.72%
Standard Deviation		0.2%	0%	0%	0%	0.1%	0.2%	0.2%	0%	0%	0.1%	0.7%	0.6%
dav1d - Summer Nature	**321.17**	256.60	205.63	212.99	215.64	208.50	211.05	216.00	**199.08**	221.31	247.86	246.96	251.63
Normalized	100%	79.9%	64.03%	66.32%	67.14%	64.92%	65.71%	67.25%	61.99%	68.91%	77.17%	76.89%	78.35%
Standard Deviation	0.5%	0.8%	1.1%	1.4%	1.4%	0.6%	2.2%	1.9%	1%	2.9%	1.3%	2.8%	0.9%
dav1d - S.N.1 (FPS)	**676.16**	537.84	353.78	400.24	431.76	**315.51**	371.48	391.25	323.20	409.88	444.30	478.05	500.83
Normalized	100%	79.54%	52.32%	59.19%	63.85%	46.66%	54.94%	57.86%	47.8%	60.62%	65.71%	70.7%	74.07%
Standard Deviation	0.6%	0.7%	0.8%	3.6%	1.5%	1.2%	0.3%	2.8%	0.3%	3.5%	2.2%	0.4%	3.5%
dav1d - C.1.1.b (FPS)	**140.14**	81.60	67.33	88.66	89.55	**63.01**	82.65	82.87	65.40	85.14	96.93	118.88	118.37
Normalized	100%	58.23%	48.04%	63.27%	63.9%	44.96%	58.98%	59.13%	46.67%	60.75%	69.17%	84.83%	84.47%
Standard Deviation	0.7%	0.1%	0.3%	1.1%	0.1%	0.5%	0.6%	0.9%	0.3%	0.1%	1.1%	0.8%	0.3%

Xeon & EPYC Tests

OSPray - San Miguel - SciVis (FPS)	58.82	34.48	**32.97**	61.58	62.5	37.04	66.67	66.67	38.46	69.52	54.39	99.24	**100**
Normalized	58.82%	34.48%	32.97%	61.58%	62.5%	37.04%	66.67%	66.67%	38.46%	69.52%	54.39%	99.24%	100%
Standard Deviation	0%	0%	1.9%	3%	0%	0%	0%	0%	0%	3.5%	2.9%	2.6%	
OSPray - XFrog Forest - SciVis (FPS)	11.03	5.72	**5.38**	10.32	10.42	6.02	11.63	11.63	6.25	12.05	9.38	**17.86**	**17.86**
Normalized	61.76%	32.03%	30.12%	57.78%	58.34%	33.71%	65.12%	65.12%	34.99%	67.47%	52.52%	100%	100%
Standard Deviation	0.6%	0.2%	0%	0.4%	0%	0%	0%	0%	0%	0%	0.5%	0%	0%
OSPray - San Miguel - Path Tracer (FPS)	4.73	3.25	**3.00**	5.54	5.58	3.36	6.21	6.25	3.52	6.53	5.16	**9.52**	**9.52**
Normalized	49.68%	34.14%	31.51%	58.19%	58.61%	35.29%	65.23%	65.65%	36.97%	68.59%	54.2%	100%	100%
Standard Deviation	0.3%	0.1%	0.2%	0.3%	0.3%	0.2%	0%	0%	0.2%	0.3%	0.2%	0%	0%
OSPray - NASA Streamlines - SciVis (FPS)	76.92	45.45	**43.48**	76.92	76.92	47.62	90.91	90.91	50	90.91	71.43	136.90	**140.48**
Normalized	54.76%	32.35%	30.95%	54.76%	54.76%	33.9%	64.71%	64.71%	35.59%	64.71%	50.85%	97.45%	100%
Standard Deviation	0%	0%	0%	0%	0%	0%	0%	0%		0%	0%	6.4%	4.5%
OSPray - XFrog Forest - Path Tracer (FPS)	5.85	3.17	**2.96**	5.71	5.71	3.33	6.41	6.44	3.46	6.67	5.18	**9.88**	**9.88**
Normalized	59.21%	32.09%	29.96%	57.79%	57.79%	33.7%	64.88%	65.18%	35.02%	67.51%	52.43%	100%	100%
Standard Deviation	0.6%	0.1%	0.1%	0.2%	0%	0.1%	0%	0.4%	0.2%	0%	0%	0.5%	0.4%
OSPray - M.R - SciVis (FPS)	40	40	**37.04**	62.5	62.5	40	71.43	71.43	42.87	71.43	62.5	**111.11**	108.33
Normalized	36%	36%	33.34%	56.25%	56.25%	36%	64.29%	64.29%	38.58%	64.29%	56.25%	100%	97.5%
Standard Deviation			0%	0%	0%		0%	0%	2.4%	0%	0%	0%	4.6%
OSPray - NASA Streamlines - Path Tracer (FPS)	16.60	8.69	**8.09**	15.54	15.625	9.09	17.44	17.54	9.49	18.18	14.22	**27.03**	**27.03**
Normalized	61.41%	32.15%	29.93%	57.49%	57.81%	33.63%	64.52%	64.89%	35.11%	67.26%	52.61%	100%	100%
Standard Deviation	0.8%	0.2%	0.5%	0.9%	0%	0%	1%	0%	0.5%	0%	0.8%	0%	0%
Embree - Pathtracer - Crown (FPS)	47.646	24.550	**21.382**	38.103	38.122	25.121	43.989	43.823	26.280	45.612	37.633	69.139	**69.264**
	4	3	**9**	3	2	8	4	8	0	1	9	2	**8**
Normalized	68.79%	35.44%	30.87%	55.01%	55.04%	36.27%	63.51%	63.27%	37.94%	65.85%	54.33%	99.82%	100%
Standard Deviation	0.3%	0.2%	0.2%	0.7%	0.8%	0.3%	0.7%	1.2%	0.3%	0.3%	1.4%	0.2%	0.4%
Embree - Pathtracer ISPC - Crown (FPS)	45.186	26.401	**24.726**	46.418	46.175	27.784	50.946	51.198	28.773	53.230	42.597	78.553	**78.634**
	9	0	**7**	4	7	4	0	2	0	4	5	5	**2**
Normalized	57.46%	33.57%	31.45%	59.03%	58.72%	35.33%	64.79%	65.11%	36.59%	67.69%	54.17%	99.9%	100%
Standard Deviation	0.3%	0.2%	0.1%	0.2%	1.4%	0.1%	2.8%	1.6%	0.1%	0.2%	0.1%	0.1%	0.1%

Xeon & EPYC Tests

Embree - Pathtracer - Asian Dragon (FPS)	52.953	30.105	26.063	46.908	46.792	30.565	54.196	54.204	32.247	57.487	44.305	78.537	78.767
	2	7	8	4	0	3	4	1	4	0	5	9	2
Normalized	67.23%	38.22%	33.09%	59.55%	59.41%	38.8%	68.81%	68.82%	40.94%	72.98%	56.25%	99.71%	100%
Standard Deviation	0.2%	0.3%	0.3%	0.3%	1.4%	0.3%	0.4%	0.9%	0.2%	0.5%	0.3%	0.9%	0.3%
Embree - Pathtracer - Asian Dragon Obj (FPS)	47.580	27.195	23.719	42.494	42.761	27.668	49.106	49.281	29.206	51.785	40.184	70.054	70.388
	6	2	2	6	3	5	1	5	1	3	6	3	3
Normalized	67.6%	38.64%	33.7%	60.37%	60.75%	39.31%	69.76%	70.01%	41.49%	73.57%	57.09%	99.53%	100%
Standard Deviation	0.1%	0.1%	0.1%	0.2%	0.2%	0.1%	0.2%	1%	0.3%	0.4%	0.1%	0.5%	0.1%
Embree - Pathtracer ISPC - Asian Dragon (FPS)	52.354	35.149	32.908	59.050	59.056	36.752	65.545	65.367	38.310	68.424	53.572	95.985	95.270
	1	5	8	2	3	4	2	9	0	1	0	7	6
Normalized	54.54%	36.62%	34.29%	61.52%	61.53%	38.29%	68.29%	68.1%	39.91%	71.29%	55.81%	100%	99.25%
Standard Deviation	0.1%	0.4%	0.1%	0.3%	0.2%	0.2%	0.1%	0.3%	0.3%	0.1%	0.1%	0.1%	0.9%
Embree - Pathtracer ISPC - Asian Dragon Obj (FPS)	45.433	30.345	28.292	50.864	50.976	31.567	56.459	56.506	33.049	58.694	46.143	82.316	81.900
	0	8	8	8	9	5	5	7	0	5	7	4	9
Normalized	55.19%	36.86%	34.37%	61.79%	61.93%	38.35%	68.59%	68.65%	40.15%	71.3%	56.06%	100%	99.5%
Standard Deviation	0.1%	0.1%	0.1%	0%	0%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.1%	0.1%
SVT-AV1 - Enc Mode 4 - 1080p (FPS)	5.714	6.389	5.112	5.996	5.955	5.653	6.455	6.399	6.030	7.033	4.098	5.204	4.837
Normalized	81.25%	90.84%	72.69%	85.26%	84.67%	80.38%	91.78%	90.99%	85.74%	100%	58.27%	73.99%	68.78%
Standard Deviation	2.8%	0.6%	1.8%	2.5%	0.1%	1.6%	2.2%	1.7%	0.9%	1.6%	4%	8.2%	3%
SVT-AV1 - Enc Mode 8 - 1080p (FPS)	54.472	53.819	46.873	52.314	53.040	51.591	53.961	54.135	51.917	56.982	41.842	67.084	65.295
Normalized	81.2%	80.23%	69.87%	77.98%	79.07%	76.91%	80.44%	80.7%	77.39%	84.94%	62.37%	100%	97.33%
Standard Deviation	2.4%	1.5%	1.3%	0.9%	0.4%	1.2%	1.4%	1.1%	0.2%	2%	2.8%	2.8%	3.5%
SVT-VP9 - V.Q.O - Bosphorus 1080p (FPS)	291.17	282.18	256.24	229.53	229.91	256.02	227.90	227.89	265.40	233.17	266.29	243.24	249.76
Normalized	100%	96.91%	88%	78.83%	78.96%	87.93%	78.27%	78.27%	91.15%	80.08%	91.46%	83.54%	85.78%
Standard Deviation	1.5%	0.6%	0.9%	12.3%	12.1%	13.3%	12.6%	12.1%	2.7%	2.5%	1.1%	5.9%	2.9%
Intel Open Image Denoise - Memorial (Images / Sec)	28.71	27.35	27.99	33.10	33.89	30.22	33.57	35.52	31.10	34.49	36.56	32.29	32.96
Normalized	78.53%	74.81%	76.56%	90.54%	92.7%	82.66%	91.82%	97.16%	85.07%	94.34%	100%	88.32%	90.15%
Standard Deviation	0.2%	1.9%	0.4%	1.1%	0.6%	0.6%	0.9%	0.7%	0.1%	0.8%	2.8%	2.9%	2.9%
LuxCoreRender - DLSC (M samples/sec)	7.28	3.53	3.04	5.86	5.88	3.63	6.95	6.99	3.79	7.19	5.58	10.09	10.15
Normalized	71.72%	34.78%	29.95%	57.73%	57.93%	35.76%	68.47%	68.87%	37.34%	70.84%	54.98%	99.41%	100%
Standard Deviation	2.3%	0.2%	0.3%	0.8%	1%	0.8%	0.2%	1%	0.1%	2.3%	1.4%	1.6%	1.4%

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LuxCoreRender - R.C.a.P (M samples/sec)	8.12	3.79	**3.30**	5.52	6.40	3.92	6.79	7.44	4.11	7.15	6.02	**10.91**	10.90
Normalized	74.43%	34.74%	30.25%	50.6%	58.66%	35.93%	62.24%	68.19%	37.67%	65.54%	55.18%	100%	99.91%
Standard Deviation	1.2%	3%	0.2%	25.6%	1%	0.6%	17.1%	0.8%	1.7%	21.6%	0.3%	1.1%	1.4%
Himeno Benchmark - P.P.S (MFLOPS)	3770	3866	3153	**3131**	3148	3319	3315	3331	3510	3515	**4215**	4199	4211
Normalized	89.44%	91.72%	74.79%	74.28%	74.68%	78.74%	78.66%	79.04%	83.28%	83.38%	100%	99.61%	99.91%
Standard Deviation	1%	0.2%	0.1%	0.2%	0.1%	0.3%	0.5%	0.1%	0.2%	0.3%	0.1%	0.3%	0%
Stockfish - Total Time	116765028	61170651	**54437117**	104106676	103513853	58172107	109753377	112362723	62891312	119715795	85313242	**153113492**	152906860
Normalized	76.26%	39.95%	35.55%	67.99%	67.61%	37.99%	71.68%	73.39%	41.07%	78.19%	55.72%	100%	99.87%
Standard Deviation	1.8%	2%	0.4%	0.2%	0.6%	0.2%	2.5%	3%	2.3%	1.3%	1.7%	2.3%	1.4%
asmFish - 1.H.M.2.D (Nodes/s)	113278977	66225641	**59350794**	105070606	119912357	64230868	107388344	122933930	68762075	133839896	93896899	148521449	**164553317**
Normalized	68.84%	40.25%	36.07%	63.85%	72.87%	39.03%	65.26%	74.71%	41.79%	81.34%	57.06%	90.26%	100%
Standard Deviation	0.9%	2.6%	0.3%	2.5%	2.5%	2.6%	0.8%	0.7%	1.1%	0.6%	1.1%	0.5%	0.8%
Timed GCC Compilation - Time To Compile (sec)	**849.192**	994.583	1068	1074	1012	1107	**1110**	1068	1064	1006	1007	1024	970.916
Normalized	100%	85.38%	79.54%	79.09%	83.91%	76.69%	76.49%	79.48%	79.83%	84.45%	84.36%	82.92%	87.46%
Standard Deviation	0.1%	0.1%	0.1%	0.2%	0.1%	0.1%	0.1%	0.4%	0%	0%	0.2%	0%	0%
Timed GDB GNU Debugger Compilation - Time To Compile (sec)	**108.675**	134.824	132.228	146.435	129.689	142.501	**159.498**	143.645	144.643	142.695	139.362	149.863	140.610
Normalized	100%	80.61%	82.19%	74.21%	83.8%	76.26%	68.14%	75.66%	75.13%	76.16%	77.98%	72.52%	77.29%
Standard Deviation	0.1%	0.1%	0.1%	0.3%	0.6%	0.1%	0.2%	0.6%	0.2%	0.2%	0.3%	0.1%	0.3%
Timed Linux Kernel Compilation - Time To Compile (sec)	24.005	36.367	**41.137**	29.276	27.581	38.734	28.129	26.583	40.898	27.309	29.357	22.410	**21.399**
Normalized	89.14%	58.84%	52.02%	73.09%	77.59%	55.25%	76.07%	80.5%	52.32%	78.36%	72.89%	95.49%	100%
Standard Deviation	2.8%	2.9%	2.8%	4.7%	3.2%	3.7%	3.7%	3.9%	2.9%	3.4%	4.3%	5.1%	5%
Timed LLVM Compilation - Time To Compile (sec)	200.039	281.678	**317.610**	244.940	232.053	301.531	230.854	216.886	308.741	221.515	215.837	178.751	**167.672**
Normalized	83.82%	59.53%	52.79%	68.45%	72.26%	55.61%	72.63%	77.31%	54.31%	75.69%	77.68%	93.8%	100%
Standard Deviation	0.6%	1.6%	2.8%	1%	0.8%	0.6%	0.7%	0.7%	2.7%	0.8%	2.2%	0.6%	1.2%
Build2 - Time To Compile	59.956	66.415	**76.147**	69.195	66.667	74.265	65.772	68.558	74.118	62.776	60.326	**56.014**	56.155
Normalized	93.43%	84.34%	73.56%	80.95%	84.02%	75.42%	85.16%	81.7%	75.57%	89.23%	92.85%	100%	99.75%
Standard Deviation	1.2%	0.4%	0.1%	0.5%	1.3%	1%	1.6%	1.2%	0.3%	0.2%	0.5%	0.4%	1.8%

Xeon & EPYC Tests

Tungsten Renderer - Hair (sec)	7.67455	12.7104	**14.8046**	9.09073	9.26217	13.8818	8.34744	8.66791	12.6863	7.82706	9.21365	6.11790	**6.05668**
Normalized	78.92%	47.65%	40.91%	66.62%	65.39%	43.63%	72.56%	69.87%	47.74%	77.38%	65.74%	99%	100%
Standard Deviation	1.2%	0.7%	0.4%	1%	1.1%	0.6%	0.1%	2.1%	0.5%	2.5%	0.3%	1.9%	0.7%
Tungsten Renderer - Water Caustic (sec)	22.3247	**21.5517**	**25.3555**	24.7792	24.5437	24.2127	23.8207	23.9077	22.0167	21.5896	23.4206	23.6432	23.4941
Normalized	96.54%	100%	85%	86.97%	87.81%	89.01%	90.47%	90.15%	97.89%	99.82%	92.02%	91.15%	91.73%
Standard Deviation	0.2%	0.8%	0.4%	1.2%	0.6%	0.5%	0.3%	1.1%	0.6%	0.5%	1.8%	1%	2%
Numpy Benchmark (Score)	323.58	367.56	321.13	**293.53**	310.40	340.72	313.35	324.39	330.33	321.82	**374.90**	316.75	370.96
Normalized	86.31%	98.04%	85.66%	78.3%	82.8%	90.88%	83.58%	86.53%	88.11%	85.84%	100%	84.49%	98.95%
Standard Deviation	0.6%	1.3%	0.4%	2%	0.4%	0.2%	2.4%	0.6%	1.3%	1.6%	0.7%	2.3%	0.4%
Zstd Compression - C.u.1.0.3.s.i.i.C. L.1 (sec)	9.230	8.380	9.672	**10.294**	9.949	8.307	10.088	9.653	8.203	9.137	**7.283**	8.422	8.179
Normalized	78.91%	86.91%	75.3%	70.75%	73.2%	87.67%	72.19%	75.45%	88.78%	79.71%	100%	86.48%	89.05%
Standard Deviation	2.6%	0.5%	2.3%	2.8%	3.7%	2.8%	2.9%	3.7%	0.3%	2.8%	3.5%	2.6%	4.7%
DeepSpeech - CPU (sec)	**72.81599**	123.85252	117.35692	135.05100	117.72613	117.86644	**140.43949**	123.81472	118.09377	122.22468	103.08017	113.28772	108.16158
Normalized	100%	58.79%	62.05%	53.92%	61.85%	61.78%	51.85%	58.81%	61.66%	59.58%	70.64%	64.28%	67.32%
Standard Deviation	0.2%	0.2%	2.8%	1.3%	1%	2.7%	2.3%	0.8%	2.3%	1.6%	0.5%	0.5%	1.5%
Radiance Benchmark - Serial (sec)	730.7	665.7	**842.099**	841.323	841.647	796.578	797.156	796.433	728.361	728.246	**654.183**	654.575	654.978
Normalized	89.53%	98.27%	77.68%	77.76%	77.73%	82.12%	82.06%	82.14%	89.82%	89.83%	100%	99.94%	99.88%
Radiance Benchmark - SMP Parallel (sec)	219.652	219.836	**273.125**	255.588	258.343	257.232	241.063	246.159	235	226.076	201.224	**198.501**	200.8
Normalized	90.37%	90.3%	72.68%	77.66%	76.84%	77.17%	82.34%	80.64%	84.47%	87.8%	98.65%	100%	98.86%
Intel MPI Benchmarks - IMB-P2P PingPong (Msg/sec)	20348261	20246605	16759832	32444647	31988149	19096343	36872935	36807806	**16653865**	31821691	24658156	49151696	**50148418**
Normalized	40.58%	40.37%	33.42%	64.7%	63.79%	38.08%	73.53%	73.4%	33.21%	63.46%	49.17%	98.01%	100%
Standard Deviation	0.3%	0.5%	0.3%	0.6%	0.4%	0.5%	0.9%	0.4%	0.4%	0.4%	1.5%	2%	1%

Xeon & EPYC Tests

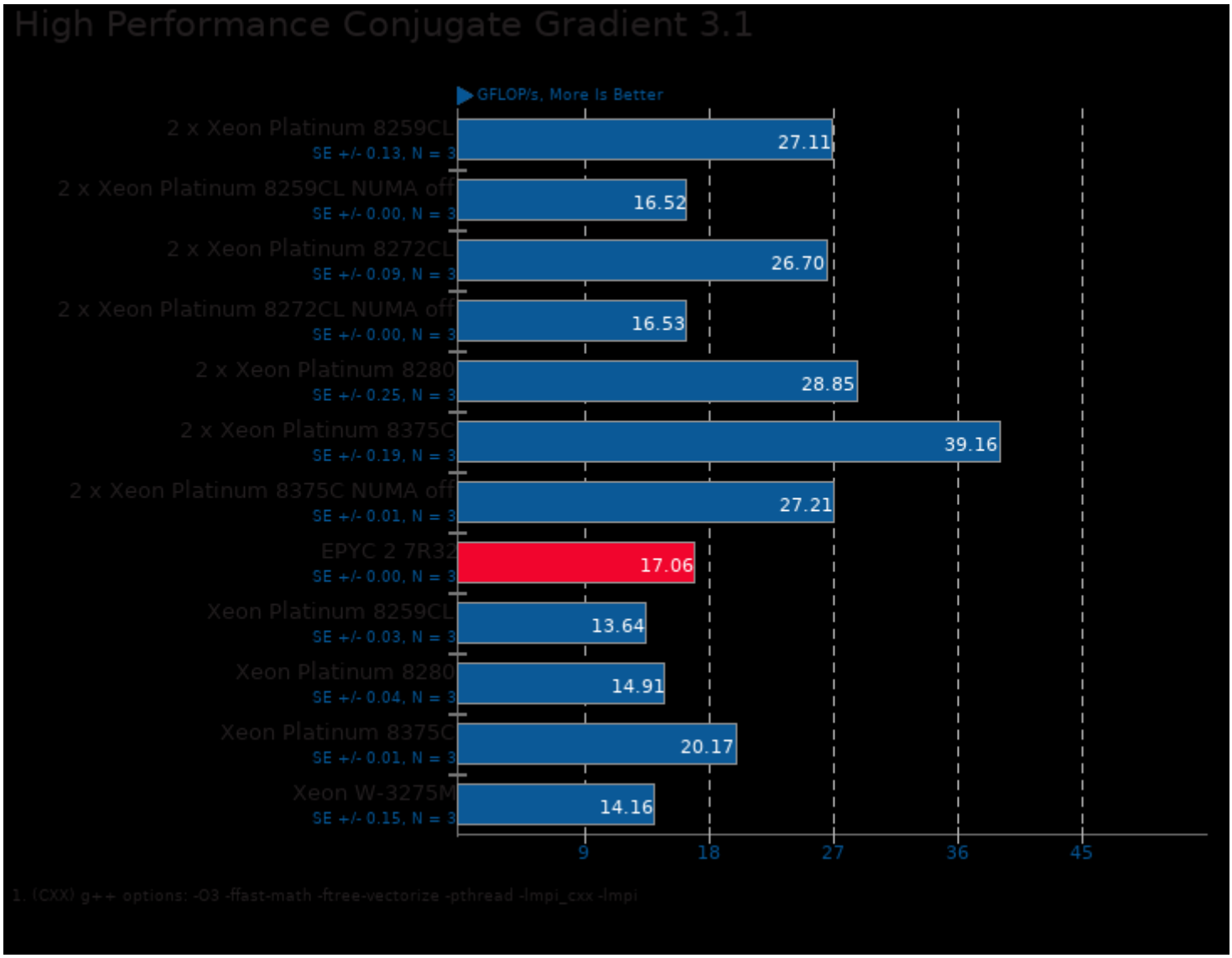
PostgreSQL pgbench - Buffer Test - Normal Load - Read Only	891303	567697	**512031**	790828	795715	546028	873067	857061	560888	909916	751909	735556	**1063448**
Normalized	83.81%	53.38%	48.15%	74.36%	74.82%	51.35%	82.1%	80.59%	52.74%	85.56%	70.7%	69.17%	100%
Standard Deviation	0.2%	1.1%	0.1%	0.3%	0.5%	0.7%	3%	0.6%	0.5%	2%	0.9%	0.8%	23.6%
PostgreSQL pgbench - Buffer Test - Normal Load - Read Write	6106	11704	5941	3169	4009	4087	4921	**2151**	**53139**	24467	3870	4149	3302
Normalized	11.49%	22.03%	11.18%	5.96%	7.55%	7.69%	9.26%	4.05%	100%	46.04%	7.28%	7.81%	6.21%
Standard Deviation	18.1%	1.3%	14.3%	31.6%	2.4%	11.1%	14.4%	8.3%	1.2%	0.1%	12.1%	22.6%	5.6%
Basis Universal - ETC1S (sec)	54.310	**47.653**	57.399	**58.280**	57.826	54.194	55.456	55.278	51.446	52.694	48.227	48.921	49.403
Normalized	87.74%	100%	83.02%	81.77%	82.41%	87.93%	85.93%	86.21%	92.63%	90.43%	98.81%	97.41%	96.46%
Standard Deviation	0.1%	1.7%	0.1%	0.2%	0.3%	0.4%	0.2%	0.3%	0.4%	0.4%	0.3%	0.1%	0.4%
Basis Universal - UASTC Level 3 (sec)	19.193	30.634	**35.983**	23.147	23.088	32.199	21.120	21.404	30.689	19.885	26.597	17.341	**16.915**
Normalized	88.13%	55.22%	47.01%	73.08%	73.26%	52.53%	80.09%	79.03%	55.12%	85.06%	63.6%	97.54%	100%
Standard Deviation	0.5%	0.1%	0.1%	0.1%	0.6%	0.5%	0.2%	2.8%	0.1%	0.2%	0.4%	2.6%	0.5%
Chaos Group V-RAY - CPU (Ksamples)	62897	33014	**29061**	53051	51803	33947	62175	61378	34710	64331	44760	**87937**	87388
Normalized	71.53%	37.54%	33.05%	60.33%	58.91%	38.6%	70.7%	69.8%	39.47%	73.16%	50.9%	100%	99.38%
Standard Deviation	0.5%	2.1%	0.5%	0.2%	1.1%	0.1%	0.6%	1.6%	1.5%	1.3%	2.8%	1.5%	1.5%
Blender - BMW27 - CPU-Only (sec)	41.76	74.96	**86.89**	48.00	47.63	75.86	41.22	41.33	69.80	38.79	52.28	**31.09**	31.10
Normalized	74.45%	41.48%	35.78%	64.77%	65.27%	40.98%	75.42%	75.22%	44.54%	80.15%	59.47%	100%	99.97%
Standard Deviation	0.4%	0.3%	0.3%	0.2%	0.4%	0.6%	0.3%	0.9%	0.2%	0.4%	0.3%	0.5%	0.8%
Blender - Classroom - CPU-Only (sec)	101.34	213.36	**246.81**	124.67	124.59	215.91	109.34	109.91	198.25	100.47	136.55	**74.20**	75.73
Normalized	73.22%	34.78%	30.06%	59.52%	59.56%	34.37%	67.86%	67.51%	37.43%	73.85%	54.34%	100%	97.98%
Standard Deviation	0.7%	0.3%	0.1%	0.2%	0.1%	0.3%	0.5%	0.1%	0.3%	0.4%	0.1%	2.1%	0.8%
Blender - Fishy Cat - CPU-Only (sec)	65.67	118.09	**134.22**	79.22	79.00	119.36	70.22	70.12	110.67	66.39	81.64	**53.69**	53.96
Normalized	81.76%	45.47%	40%	67.77%	67.96%	44.98%	76.46%	76.57%	48.51%	80.87%	65.76%	100%	99.5%
Standard Deviation	0.1%	0.1%	0.1%	0.3%	0.2%	0.2%	0.5%	0.6%	0.3%	0.1%	0.2%	0.3%	0.4%
Blender - Barbershop - CPU-Only (sec)	177.79	304.79	**350.47**	211.37	211.33	310.51	195.61	195.96	287.80	187.33	218.42	**158.72**	161.71
Normalized	89.27%	52.08%	45.29%	75.09%	75.11%	51.12%	81.14%	81%	55.15%	84.73%	72.67%	100%	98.15%
Standard Deviation	0.5%	0.1%	0%	0.1%	0.1%	0.1%	0.1%	0.5%	0.1%	0.4%	0.3%	0.4%	0.9%

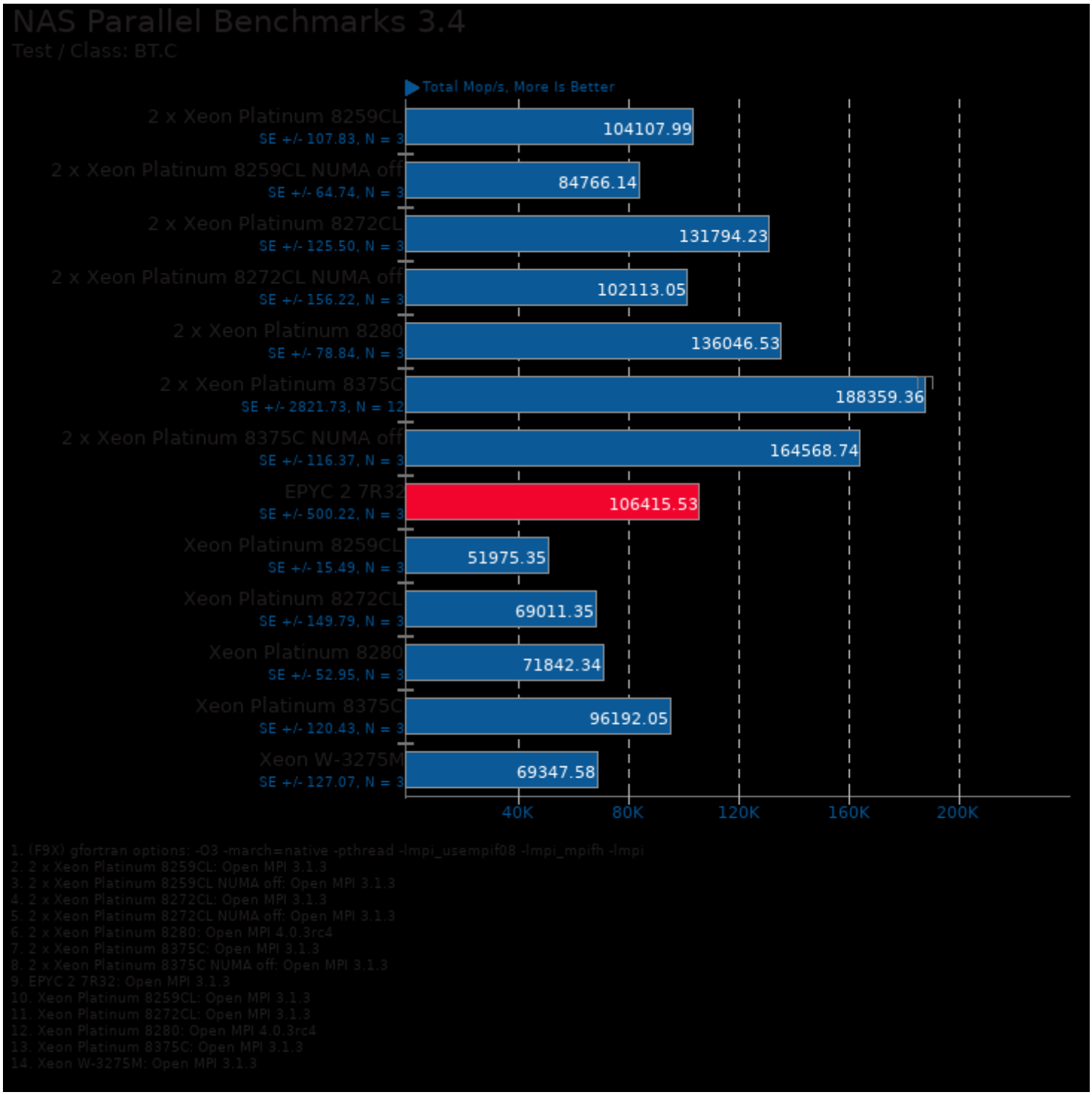
Xeon & EPYC Tests

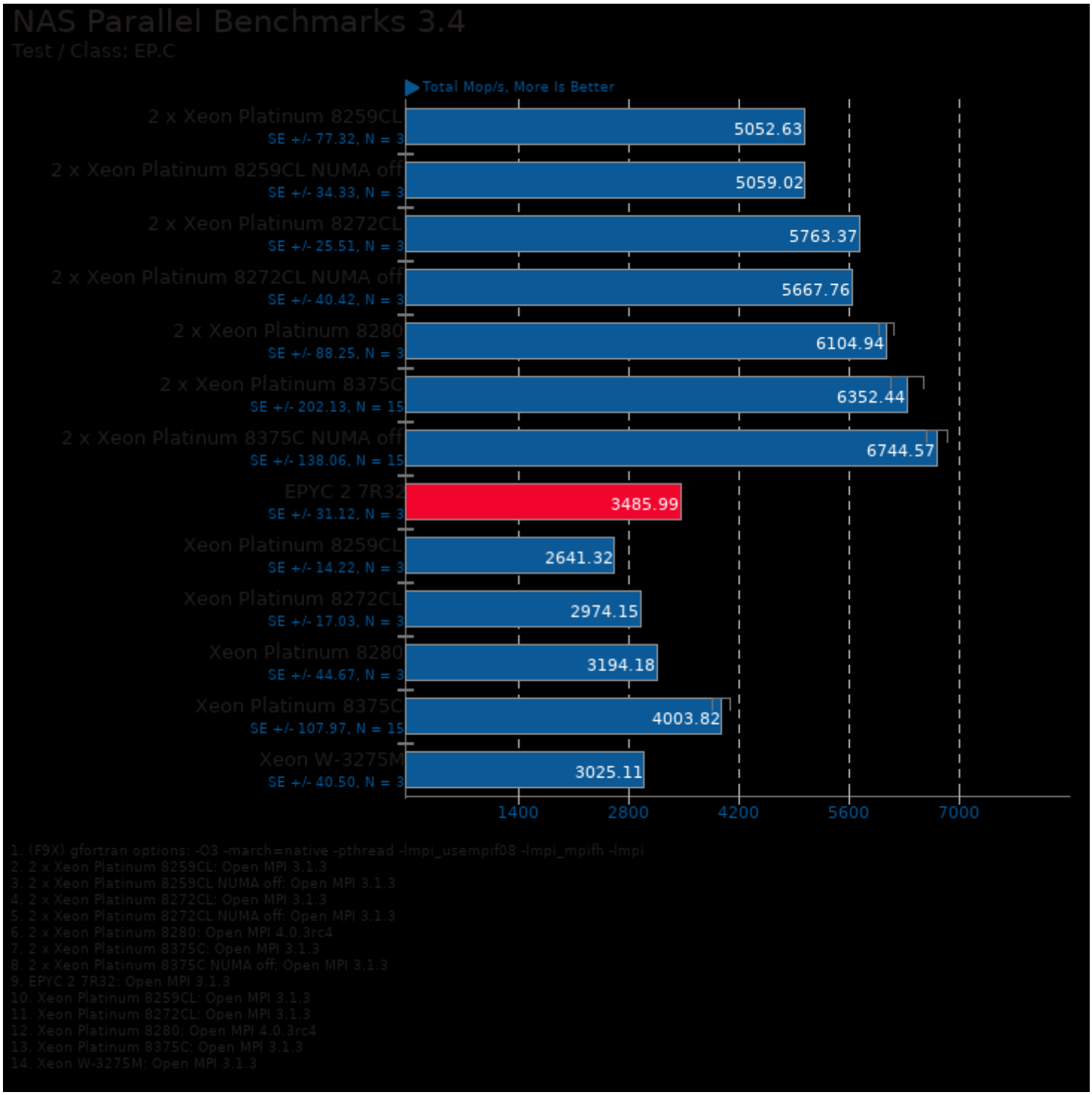
Blender - Pabellon Barcelona - CPU-Only (sec)	132.04	265.41	305.20	157.99	158.13	271.68	142.81	143.31	246.31	129.01	177.57	99.21	100.51
Normalized	75.14%	37.38%	32.51%	62.8%	62.74%	36.52%	69.47%	69.23%	40.28%	76.9%	55.87%	100%	98.71%
Standard Deviation	0.7%	0.5%	0%	0.1%	0.1%	0.2%	0.3%	0.6%	0%	0.3%	0.1%	1.4%	1.2%
PyBench - T.F.A.T.T (Milliseconds)	1226	951	1250	1253	1252	1184	1182	1182	1076	1073	978	979	980
Normalized	77.57%	100%	76.08%	75.9%	75.96%	80.32%	80.46%	80.46%	88.38%	88.63%	97.24%	97.14%	97.04%
Standard Deviation	0.4%	0.3%	0.1%	0.2%	0.1%	0.3%	0.1%	0.1%	0.2%	0.2%	0.6%	0.3%	0.3%
PyPerformance - float (Milliseconds)		94.5	122	123	123		117	117	109	109	134	134	133
Normalized		100%	77.46%	76.83%	76.83%		80.77%	80.77%	86.7%	86.7%	70.52%	70.52%	71.05%
Standard Deviation		0.2%	0.5%	0.5%									0.9%
PyPerformance - regex_compile	213	157	200	200	200		190	189	164	164	186	191	183
Normalized	73.71%	100%	78.5%	78.5%	78.5%		82.63%	83.07%	95.73%	95.73%	84.41%	82.2%	85.79%
Standard Deviation	0.3%	1.3%	0.3%								1.4%	1.9%	2%
PyPerformance - python_startup	16.3	17.7	11.4	22.6	11.3	11.6	25.2	11.8	11.2	11.2	19.8	20.4	19.8
Normalized	68.71%	63.28%	98.25%	49.56%	99.12%	96.55%	44.44%	94.92%	100%	100%	56.57%	54.9%	56.57%
Standard Deviation	0%	0.9%	0.5%	0.3%	0.5%	0%	0.2%	1%	1%	0.5%	0%	0%	0%
PyPerformance - django_templat	66.4	49.9	64.1	64.1	64.2	60.6	60.8	60.6	46.2	45.9	65.4	65.3	63.2
Normalized	69.13%	91.98%	71.61%	71.61%	71.5%	75.74%	75.49%	75.74%	99.35%	100%	70.18%	70.29%	72.63%
Standard Deviation	0.2%	2.3%	0.2%	0.2%	0.2%	0.3%	0.2%	0%	0.2%	0.3%	0.9%	1.3%	4.6%
Appleseed - Emily (sec)	147.685856	196.929786	219.3197	163.707232	161.846314	211.941251	161.376814	162.495615	197.649505	154.980752	156.215935	213.505962	214.954687
Normalized	100%	74.99%	67.34%	90.21%	91.25%	69.68%	91.52%	90.89%	74.72%	95.29%	94.54%	69.17%	68.71%
Appleseed - Disney Material (sec)	62.431047	106.643392	120.169346	73.216224	73.581913	117.151798	72.848426	73.503828	103.833099	68.618272	78.57949	64.970654	64.750754
Normalized	100%	58.54%	51.95%	85.27%	84.85%	53.29%	85.7%	84.94%	60.13%	90.98%	79.45%	96.09%	96.42%
Appleseed - Material Tester (sec)	175.193708	124.147301	127.996296	197.293774	185.229734	129.0306	195.111486	186.306033	123.979103	193.44241	90.819752	179.240906	185.454977
Normalized	51.84%	73.15%	70.95%	46.03%	49.03%	70.39%	46.55%	48.75%	73.25%	46.95%	100%	50.67%	48.97%
PHPBench - P.B.S (Score)	500524	734339	569793	574348	573483	604857	606436	606548	649164	649693	712140	704453	708571
Normalized	68.16%	100%	77.59%	78.21%	78.1%	82.37%	82.58%	82.6%	88.4%	88.47%	96.98%	95.93%	96.49%
Standard Deviation	0.4%	0.2%	0.2%	0.1%	0.3%	0.4%	0.3%	0.1%	0.1%	0.2%	0.1%	0.4%	0.7%
Mlpack Benchmark - scikit_ica (sec)	49.47	54.91	61.20	57.69	58.48	58.57	55.90	54.84	67.36	63.35	45.50	44.03	44.68
Normalized	89%	80.19%	71.94%	76.32%	75.29%	75.18%	78.77%	80.29%	65.37%	69.5%	96.77%	100%	98.55%
Standard Deviation	3.8%	0.3%	1%	1.1%	2.4%	0.2%	1.6%	1.3%	0.5%	1.6%	0.5%	1.3%	0.7%

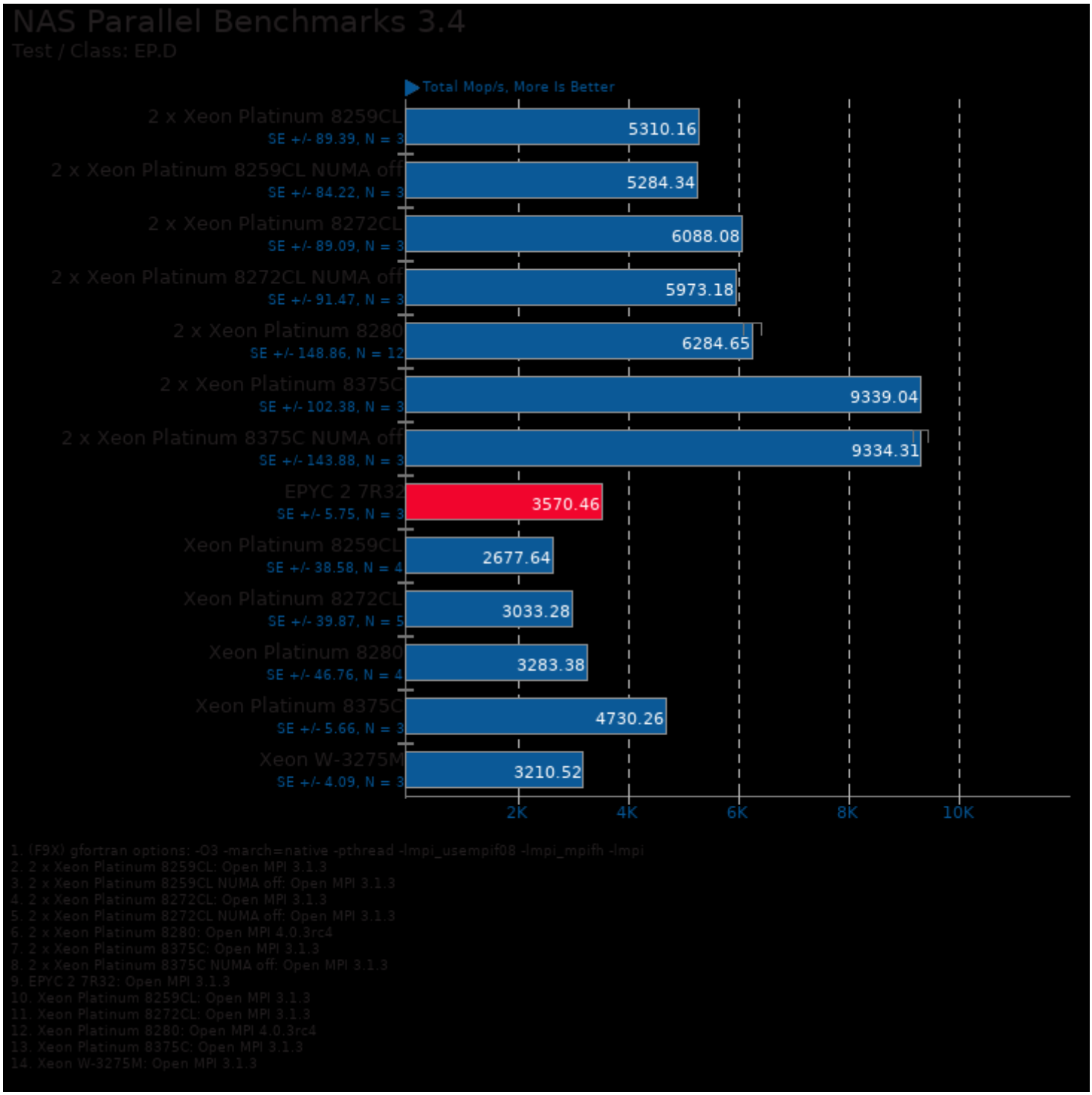
Xeon & EPYC Tests

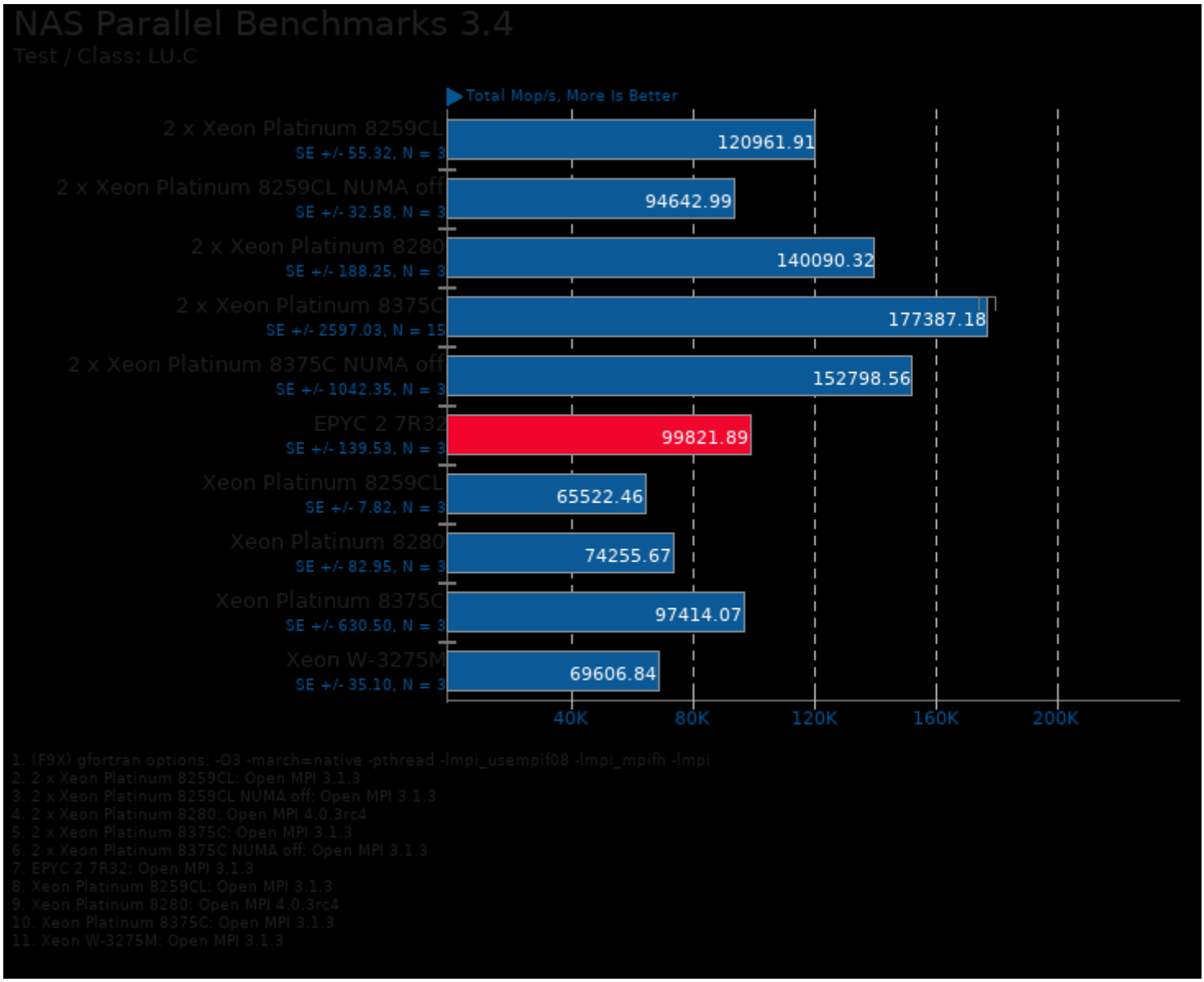
Mlpack Benchmark - scikit_qda (sec)	39.54	32.65	31.98	41.29	**42.88**	31.51	40.35	40.64	30.45	38.35	**26.51**	29.53	29.92
Normalized	67.05%	81.19%	82.9%	64.2%	61.82%	84.13%	65.7%	65.23%	87.06%	69.13%	100%	89.77%	88.6%
Standard Deviation	1.2%	1%	0.6%	0.8%	4.4%	1.1%	2.6%	2.7%	1.6%	1.5%	0.5%	2.3%	3%
Mlpack Benchmark - scikit_svm	**15.16**	15.78	18.67	**19.62**	18.76	17.83	19.05	17.94	17.19	17.19	17.05	17.54	17.08
Normalized	100%	96.07%	81.2%	77.27%	80.81%	85.03%	79.58%	84.5%	88.19%	88.19%	88.91%	86.43%	88.76%
Standard Deviation	1%	2.1%	0.2%	0.2%	0.3%	0.4%	0.5%	1.1%	0.7%	0.9%	0.2%	0.7%	0.4%
Mlpack Benchmark - scikit_linearridgeregression	1.79	1.99	2.00	2.42	2.30	1.91	2.13	2.16	**1.67**	1.82	2.54	**2.75**	2.60
Normalized	93.3%	83.92%	83.5%	69.01%	72.61%	87.43%	78.4%	77.31%	100%	91.76%	65.75%	60.73%	64.23%
Standard Deviation	2.1%	1.6%	4.1%	2.9%	4%	2.3%	3%	2.5%	2%	2.6%	0.4%	0.8%	2.8%
Scikit-Learn (sec)	10.419	9.661	12.088	**12.954**	12.459	11.212	12.055	11.763	**9.127**	9.392	9.566	9.472	9.332
Normalized	87.6%	94.47%	75.5%	70.46%	73.26%	81.4%	75.71%	77.59%	100%	97.18%	95.41%	96.36%	97.8%
Standard Deviation	0.6%	0.6%	0.8%	0.6%	0.5%	0.4%	0.7%	0.4%	0.8%	2.2%	1%	1.1%	0.6%
SMHasher - wyhash (MiB/sec)		**26299**	**20221**	20232	20225	20557	20555	20553					
Normalized		100%	76.89%	76.93%	76.91%	78.17%	78.16%	78.15%					
Standard Deviation		0.7%	0.1%	0%	0.1%	0%	0%	0%					

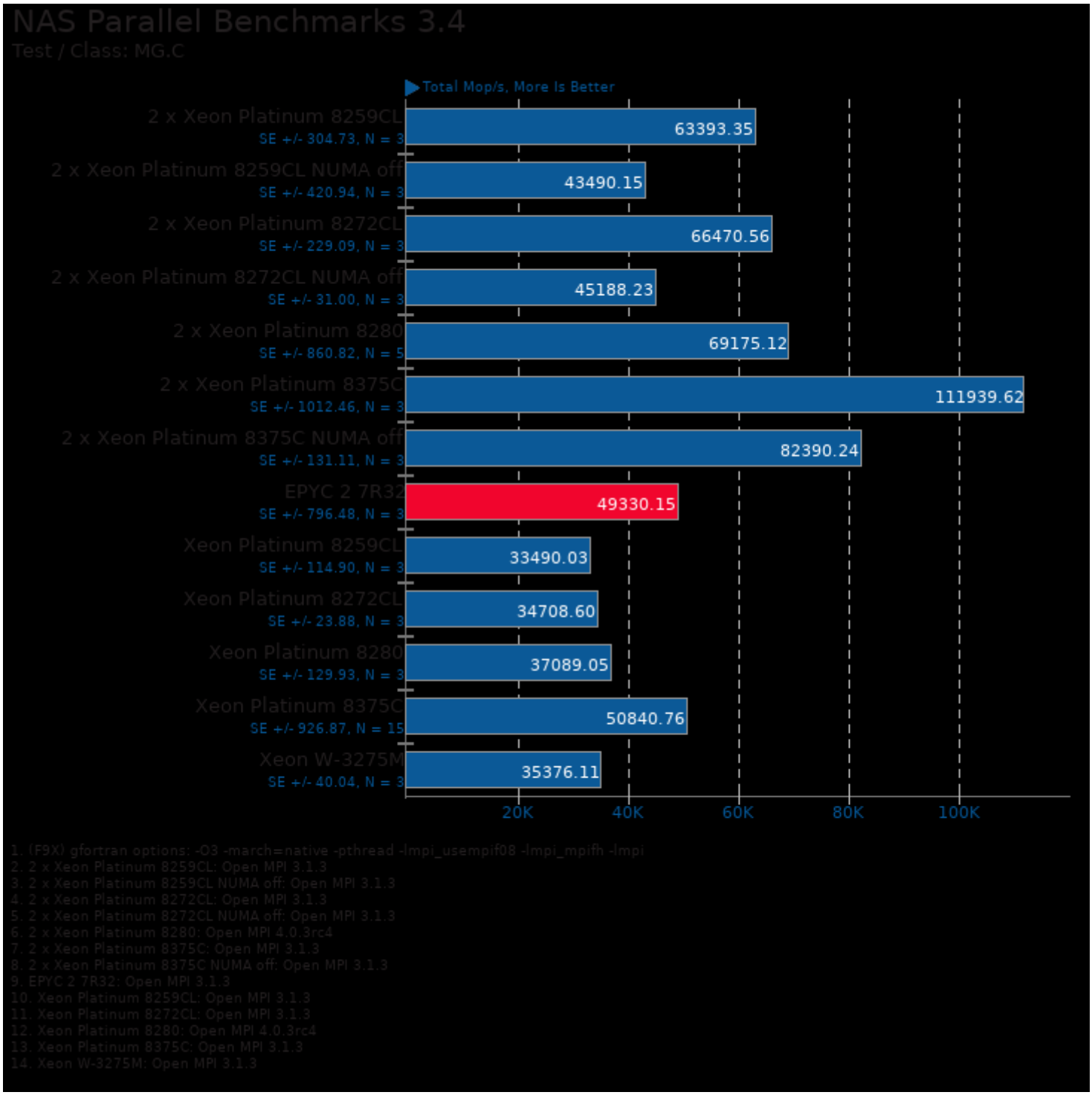

High Performance Conjugate Gradient 3.1
GFLOP/s, More Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.13, N = 3
27.11
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.00, N = 3
16.52
2 x Xeon Platinum 8272CL
SE +/- 0.09, N = 3
26.70
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.00, N = 3
16.53
2 x Xeon Platinum 8280
SE +/- 0.25, N = 3
28.85
2 x Xeon Platinum 8375C
SE +/- 0.19, N = 3
39.16
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.01, N = 3
27.21
EPYC 2 7R32
SE +/- 0.00, N = 3
17.06
Xeon Platinum 8259CL
SE +/- 0.03, N = 3
13.64
Xeon Platinum 8280
SE +/- 0.04, N = 3
14.91
Xeon Platinum 8375C
SE +/- 0.01, N = 3
20.17
Xeon W-3275M
SE +/- 0.15, N = 3
14.16
9
18
27
36
45
1. (CXX) g++ options: -O3 -ffast-math -ftree-vectorize -pthread -lmpi_cxx -lmpi

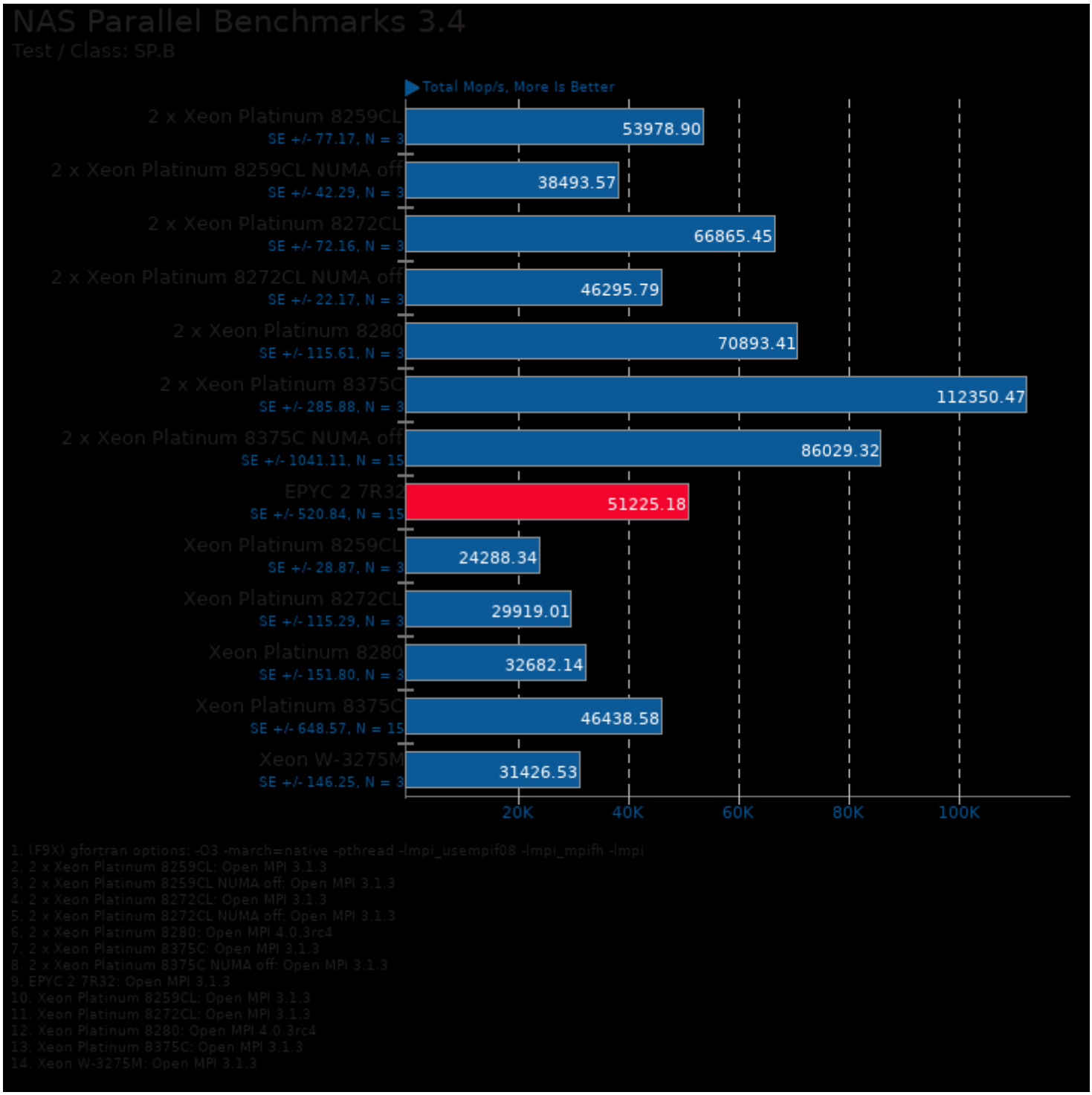

NAS Parallel Benchmarks 3.4
Test / Class: BT.C
Total Mop/s, More Is Better
2 x Xeon Platinum 8259CL
SE +/- 107.83, N = 3
104107.99
2 x Xeon Platinum 8259CL NUMA off
SE +/- 64.74, N = 3
84766.14
2 x Xeon Platinum 8272CL
SE +/- 125.50, N = 3
131794.23
2 x Xeon Platinum 8272CL NUMA off
SE +/- 156.22, N = 3
102113.05
2 x Xeon Platinum 8280
SE +/- 78.84, N = 3
136046.53
2 x Xeon Platinum 8375C
SE +/- 2821.73, N = 12
188359.36
2 x Xeon Platinum 8375C NUMA off
SE +/- 116.37, N = 3
164568.74
EPYC 2 7R32
SE +/- 500.22, N = 3
106415.53
Xeon Platinum 8259CL
SE +/- 15.49, N = 3
51975.35
Xeon Platinum 8272CL
SE +/- 149.79, N = 3
69011.35
Xeon Platinum 8280
SE +/- 52.95, N = 3
71842.34
Xeon Platinum 8375C
SE +/- 120.43, N = 3
96192.05
Xeon W-3275M
SE +/- 127.07, N = 3
69347.58
40K
80K
120K
160K
200K
1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi_usempif08 -lmpi_mpifh -lmpi
2. 2 x Xeon Platinum 8259CL: Open MPI 3.1.3
3. 2 x Xeon Platinum 8259CL NUMA off: Open MPI 3.1.3
4. 2 x Xeon Platinum 8272CL: Open MPI 3.1.3
5. 2 x Xeon Platinum 8272CL NUMA off: Open MPI 3.1.3
6. 2 x Xeon Platinum 8280: Open MPI 4.0.3rc4
7. 2 x Xeon Platinum 8375C: Open MPI 3.1.3
8. 2 x Xeon Platinum 8375C NUMA off: Open MPI 3.1.3
9. EPYC 2 7R32: Open MPI 3.1.3
10. Xeon Platinum 8259CL: Open MPI 3.1.3
11. Xeon Platinum 8272CL: Open MPI 3.1.3
12. Xeon Platinum 8280: Open MPI 4.0.3rc4
13. Xeon Platinum 8375C: Open MPI 3.1.3
14. Xeon W-3275M: Open MPI 3.1.3

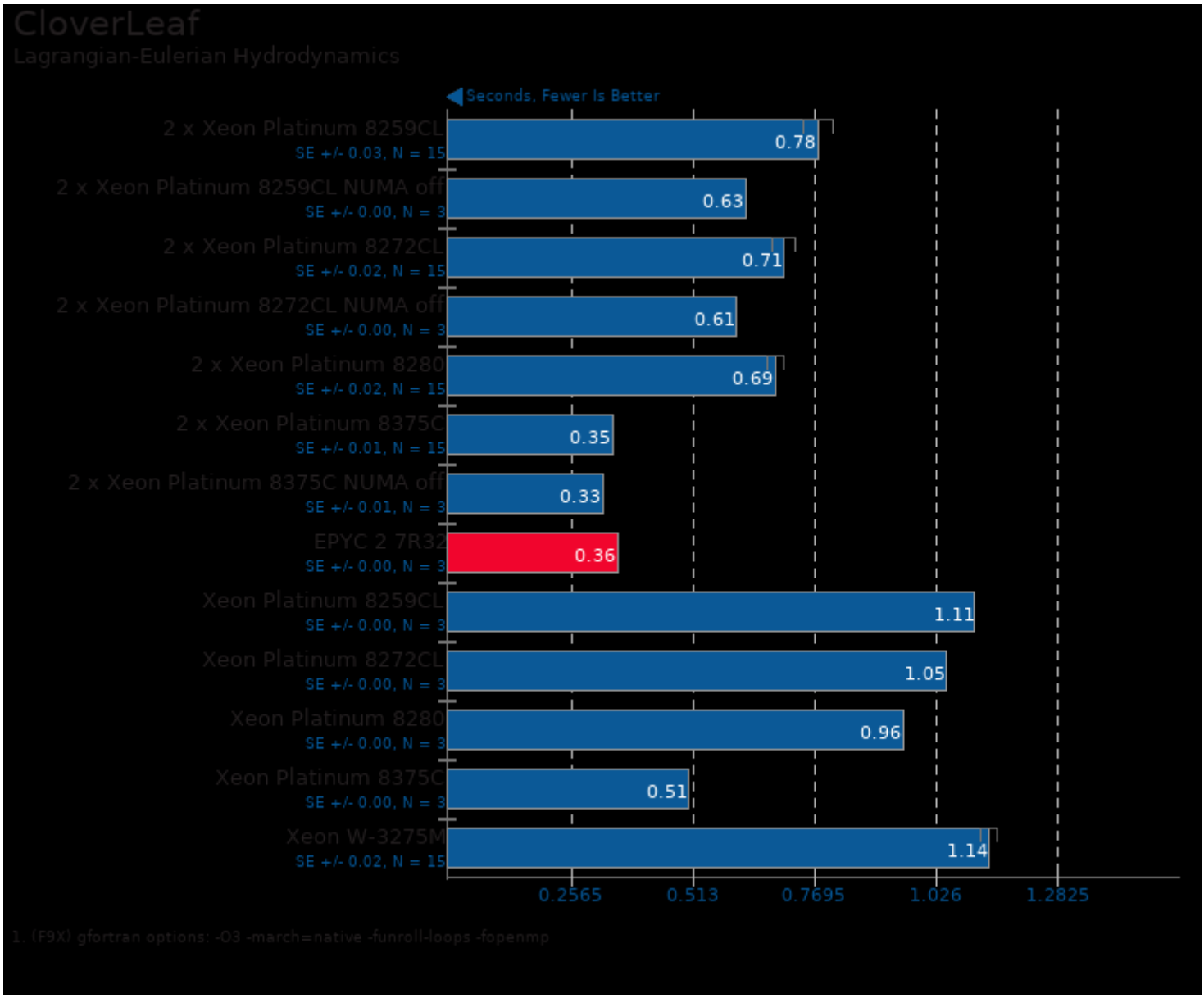

NAS Parallel Benchmarks 3.4
Test / Class: EP.C
Total Mop/s, More Is Better
2 x Xeon Platinum 8259CL
SE +/- 77.32, N = 3
5052.63
2 x Xeon Platinum 8259CL NUMA off
SE +/- 34.33, N = 3
5059.02
2 x Xeon Platinum 8272CL
SE +/- 25.51, N = 3
5763.37
2 x Xeon Platinum 8272CL NUMA off
SE +/- 40.42, N = 3
5667.76
2 x Xeon Platinum 8280
SE +/- 88.25, N = 3
6104.94
2 x Xeon Platinum 8375C
SE +/- 202.13, N = 15
6352.44
2 x Xeon Platinum 8375C NUMA off
SE +/- 138.06, N = 15
6744.57
EPYC 2 7R32
SE +/- 31.12, N = 3
3485.99
Xeon Platinum 8259CL
SE +/- 14.22, N = 3
2641.32
Xeon Platinum 8272CL
SE +/- 17.03, N = 3
2974.15
Xeon Platinum 8280
SE +/- 44.67, N = 3
3194.18
Xeon Platinum 8375C
SE +/- 107.97, N = 15
4003.82
Xeon W-3275M
SE +/- 40.50, N = 3
3025.11
1400
2800
4200
5600
7000
1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi_usempif08 -lmpi_mpifh -lmpi
2. 2 x Xeon Platinum 8259CL: Open MPI 3.1.3
3. 2 x Xeon Platinum 8259CL NUMA off: Open MPI 3.1.3
4. 2 x Xeon Platinum 8272CL: Open MPI 3.1.3
5. 2 x Xeon Platinum 8272CL NUMA off: Open MPI 3.1.3
6. 2 x Xeon Platinum 8280: Open MPI 4.0.3rc4
7. 2 x Xeon Platinum 8375C: Open MPI 3.1.3
8. 2 x Xeon Platinum 8375C NUMA off: Open MPI 3.1.3
9. EPYC 2 7R32: Open MPI 3.1.3
10. Xeon Platinum 8259CL: Open MPI 3.1.3
11. Xeon Platinum 8272CL: Open MPI 3.1.3
12. Xeon Platinum 8280: Open MPI 4.0.3rc4
13. Xeon Platinum 8375C: Open MPI 3.1.3
14. Xeon W-3275M: Open MPI 3.1.3

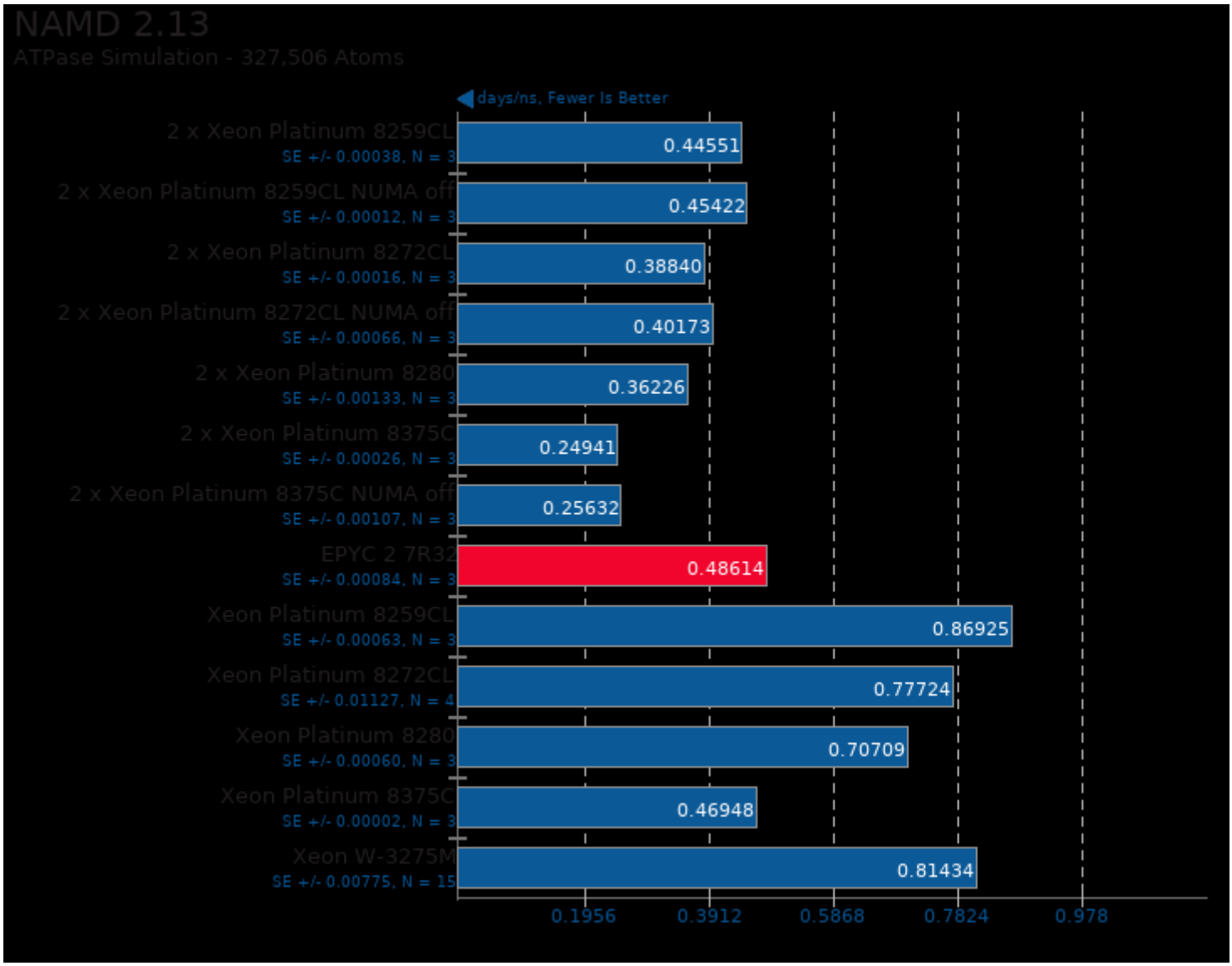

NAS Parallel Benchmarks 3.4
Test / Class: EP.D
Total Mop/s, More Is Better
2 x Xeon Platinum 8259CL
SE +/- 89.39, N = 3
5310.16
2 x Xeon Platinum 8259CL NUMA off
SE +/- 84.22, N = 3
5284.34
2 x Xeon Platinum 8272CL
SE +/- 89.09, N = 3
6088.08
2 x Xeon Platinum 8272CL NUMA off
SE +/- 91.47, N = 3
5973.18
2 x Xeon Platinum 8280
SE +/- 148.86, N = 12
6284.65
2 x Xeon Platinum 8375C
SE +/- 102.38, N = 3
9339.04
2 x Xeon Platinum 8375C NUMA off
SE +/- 143.88, N = 3
9334.31
EPYC 2 7R32
SE +/- 5.75, N = 3
3570.46
Xeon Platinum 8259CL
SE +/- 38.58, N = 4
2677.64
Xeon Platinum 8272CL
SE +/- 39.87, N = 5
3033.28
Xeon Platinum 8280
SE +/- 46.76, N = 4
3283.38
Xeon Platinum 8375C
SE +/- 5.66, N = 3
4730.26
Xeon W-3275M
SE +/- 4.09, N = 3
3210.52
2K
4K
6K
8K
10K
1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi_usempif08 -lmpi_mpifh -lmpi
2. 2 x Xeon Platinum 8259CL: Open MPI 3.1.3
3. 2 x Xeon Platinum 8259CL NUMA off: Open MPI 3.1.3
4. 2 x Xeon Platinum 8272CL: Open MPI 3.1.3
5. 2 x Xeon Platinum 8272CL NUMA off: Open MPI 3.1.3
6. 2 x Xeon Platinum 8280: Open MPI 4.0.3rc4
7. 2 x Xeon Platinum 8375C: Open MPI 3.1.3
8. 2 x Xeon Platinum 8375C NUMA off: Open MPI 3.1.3
9. EPYC 2 7R32: Open MPI 3.1.3
10. Xeon Platinum 8259CL: Open MPI 3.1.3
11. Xeon Platinum 8272CL: Open MPI 3.1.3
12. Xeon Platinum 8280: Open MPI 4.0.3rc4
13. Xeon Platinum 8375C: Open MPI 3.1.3
14. Xeon W-3275M: Open MPI 3.1.3

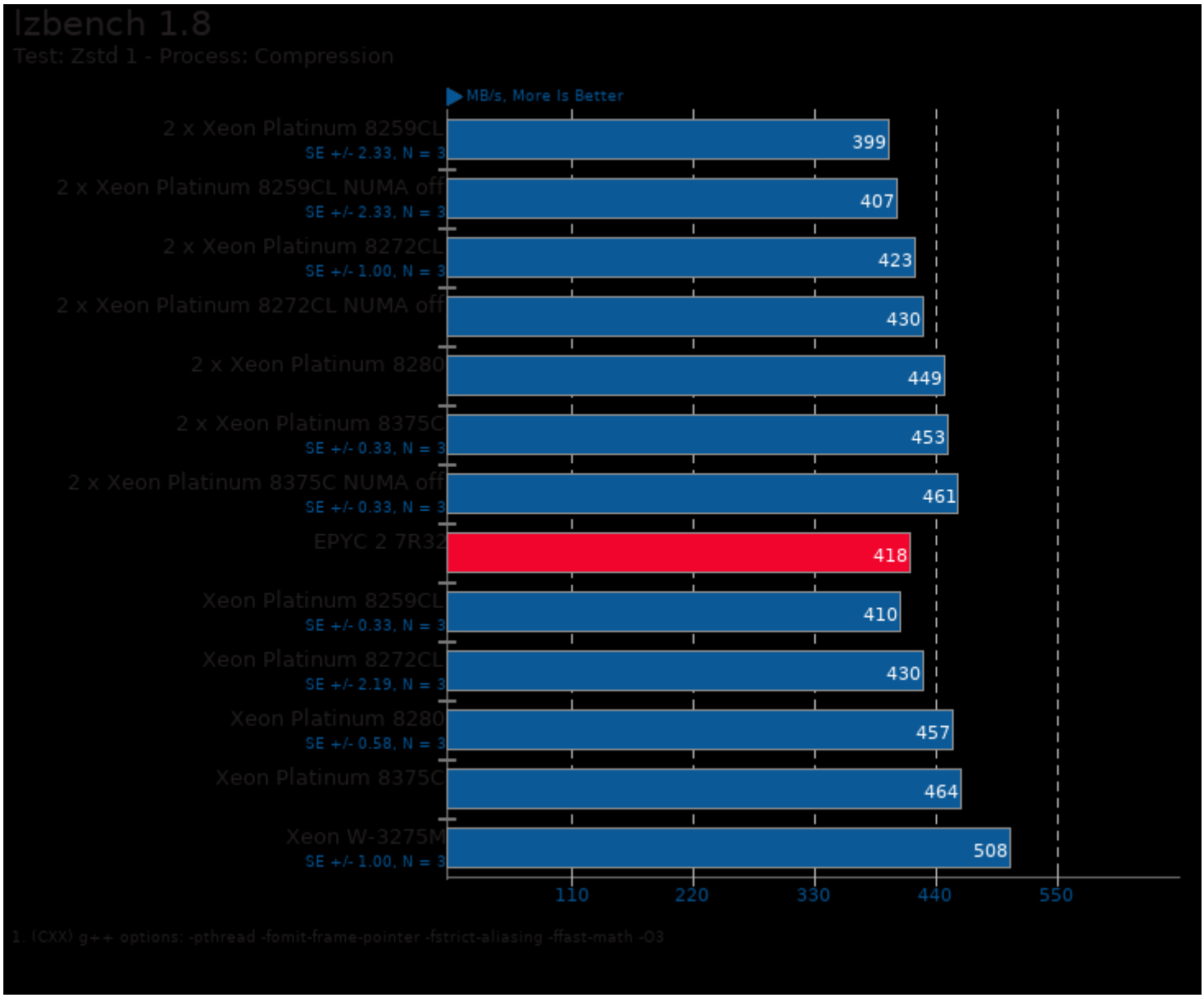

NAS Parallel Benchmarks 3.4
Test / Class: LU.C
Total Mop/s, More Is Better
2 x Xeon Platinum 8259CL
SE +/- 55.32, N = 3
120961.91
2 x Xeon Platinum 8259CL NUMA off
SE +/- 32.58, N = 3
94642.99
2 x Xeon Platinum 8280
SE +/- 188.25, N = 3
140090.32
2 x Xeon Platinum 8375C
SE +/- 2597.03, N = 15
177387.18
2 x Xeon Platinum 8375C NUMA off
SE +/- 1042.35, N = 3
152798.56
EPYC 2 7R32
SE +/- 139.53, N = 3
99821.89
Xeon Platinum 8259CL
SE +/- 7.82, N = 3
65522.46
Xeon Platinum 8280
SE +/- 82.95, N = 3
74255.67
Xeon Platinum 8375C
SE +/- 630.50, N = 3
97414.07
Xeon W-3275M
SE +/- 35.10, N = 3
69606.84
40K
80K
120K
160K
200K
1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi_usempif08 -lmpi_mpifh -lmpi
2. 2 x Xeon Platinum 8259CL: Open MPI 3.1.3
3. 2 x Xeon Platinum 8259CL NUMA off: Open MPI 3.1.3
4. 2 x Xeon Platinum 8280: Open MPI 4.0.3rc4
5. 2 x Xeon Platinum 8375C: Open MPI 3.1.3
6. 2 x Xeon Platinum 8375C NUMA off: Open MPI 3.1.3
7. EPYC 2 7R32: Open MPI 3.1.3
8. Xeon Platinum 8259CL: Open MPI 3.1.3
9. Xeon Platinum 8280: Open MPI 4.0.3rc4
10. Xeon Platinum 8375C: Open MPI 3.1.3
11. Xeon W-3275M: Open MPI 3.1.3

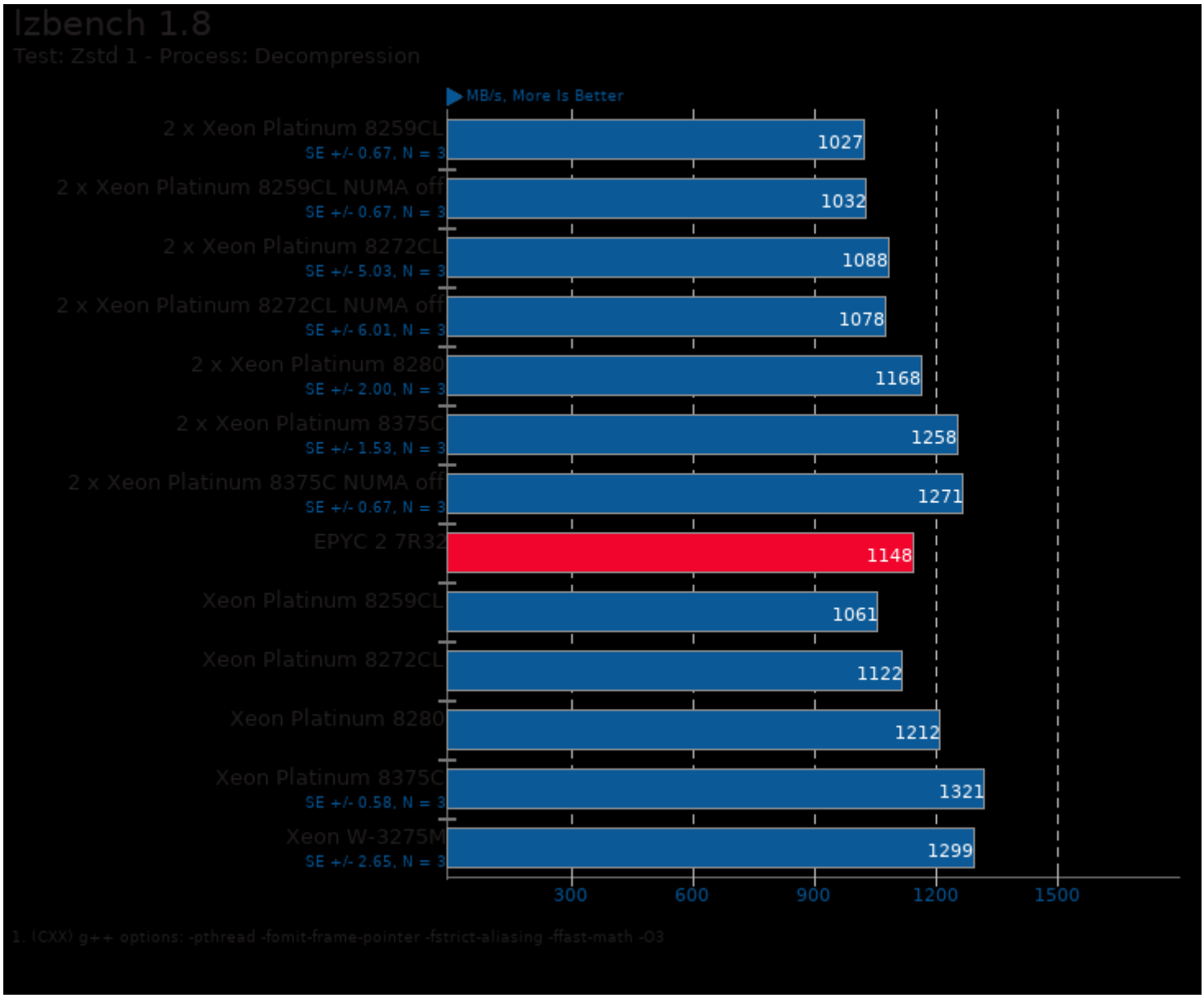

NAS Parallel Benchmarks 3.4
Test / Class: MG.C
Total Mop/s, More Is Better
2 x Xeon Platinum 8259CL
SE +/- 304.73, N = 3
63393.35
2 x Xeon Platinum 8259CL NUMA off
SE +/- 420.94, N = 3
43490.15
2 x Xeon Platinum 8272CL
SE +/- 229.09, N = 3
66470.56
2 x Xeon Platinum 8272CL NUMA off
SE +/- 31.00, N = 3
45188.23
2 x Xeon Platinum 8280
SE +/- 860.82, N = 5
69175.12
2 x Xeon Platinum 8375C
SE +/- 1012.46, N = 3
111939.62
2 x Xeon Platinum 8375C NUMA off
SE +/- 131.11, N = 3
82390.24
EPYC 2 7R32
SE +/- 796.48, N = 3
49330.15
Xeon Platinum 8259CL
SE +/- 114.90, N = 3
33490.03
Xeon Platinum 8272CL
SE +/- 23.88, N = 3
34708.60
Xeon Platinum 8280
SE +/- 129.93, N = 3
37089.05
Xeon Platinum 8375C
SE +/- 926.87, N = 15
50840.76
Xeon W-3275M
SE +/- 40.04, N = 3
35376.11
20K
40K
60K
80K
100K
1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi_usempif08 -lmpi_mpifh -lmpi
2. 2 x Xeon Platinum 8259CL: Open MPI 3.1.3
3. 2 x Xeon Platinum 8259CL NUMA off: Open MPI 3.1.3
4. 2 x Xeon Platinum 8272CL: Open MPI 3.1.3
5. 2 x Xeon Platinum 8272CL NUMA off: Open MPI 3.1.3
6. 2 x Xeon Platinum 8280: Open MPI 4.0.3rc4
7. 2 x Xeon Platinum 8375C: Open MPI 3.1.3
8. 2 x Xeon Platinum 8375C NUMA off: Open MPI 3.1.3
9. EPYC 2 7R32: Open MPI 3.1.3
10. Xeon Platinum 8259CL: Open MPI 3.1.3
11. Xeon Platinum 8272CL: Open MPI 3.1.3
12. Xeon Platinum 8280: Open MPI 4.0.3rc4
13. Xeon Platinum 8375C: Open MPI 3.1.3
14. Xeon W-3275M: Open MPI 3.1.3

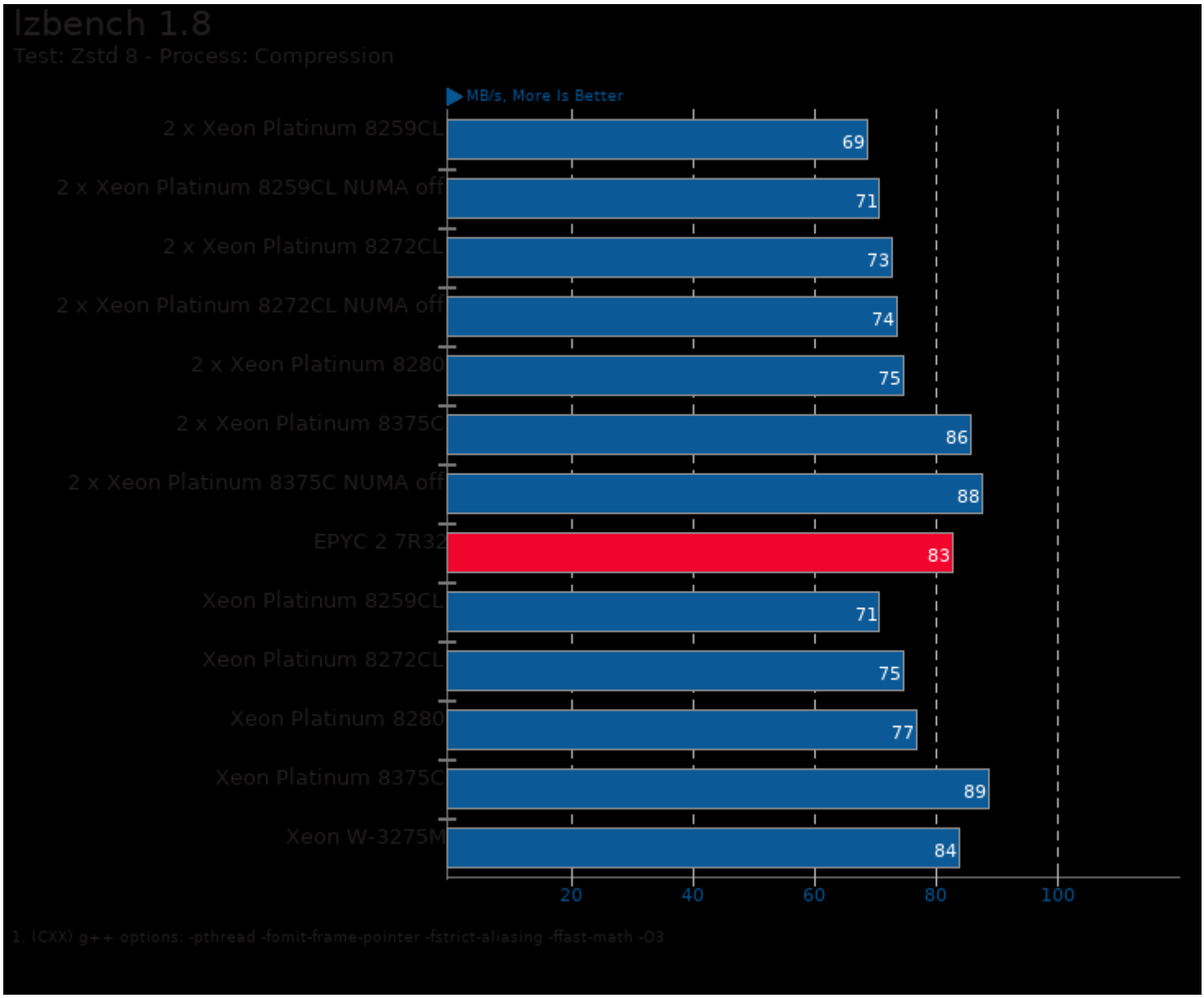

NAS Parallel Benchmarks 3.4
Test / Class: SP.B
Total Mop/s, More Is Better
2 x Xeon Platinum 8259CL
SE +/- 77.17, N = 3
53978.90
2 x Xeon Platinum 8259CL NUMA off
SE +/- 42.29, N = 3
38493.57
2 x Xeon Platinum 8272CL
SE +/- 72.16, N = 3
66865.45
2 x Xeon Platinum 8272CL NUMA off
SE +/- 22.17, N = 3
46295.79
2 x Xeon Platinum 8280
SE +/- 115.61, N = 3
70893.41
2 x Xeon Platinum 8375C
SE +/- 285.88, N = 3
112350.47
2 x Xeon Platinum 8375C NUMA off
SE +/- 1041.11, N = 15
86029.32
EPYC 2 7R32
SE +/- 520.84, N = 15
51225.18
Xeon Platinum 8259CL
SE +/- 28.87, N = 3
24288.34
Xeon Platinum 8272CL
SE +/- 115.29, N = 3
29919.01
Xeon Platinum 8280
SE +/- 151.80, N = 3
32682.14
Xeon Platinum 8375C
SE +/- 648.57, N = 15
46438.58
Xeon W-3275M
SE +/- 146.25, N = 3
31426.53
20K
40K
60K
80K
100K
1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi_usempif08 -lmpi_mpifh -lmpi
2. 2 x Xeon Platinum 8259CL: Open MPI 3.1.3
3. 2 x Xeon Platinum 8259CL NUMA off: Open MPI 3.1.3
4. 2 x Xeon Platinum 8272CL: Open MPI 3.1.3
5. 2 x Xeon Platinum 8272CL NUMA off: Open MPI 3.1.3
6. 2 x Xeon Platinum 8280: Open MPI 4.0.3rc4
7. 2 x Xeon Platinum 8375C: Open MPI 3.1.3
8. 2 x Xeon Platinum 8375C NUMA off: Open MPI 3.1.3
9. EPYC 2 7R32: Open MPI 3.1.3
10. Xeon Platinum 8259CL: Open MPI 3.1.3
11. Xeon Platinum 8272CL: Open MPI 3.1.3
12. Xeon Platinum 8280: Open MPI 4.0.3rc4
13. Xeon Platinum 8375C: Open MPI 3.1.3
14. Xeon W-3275M: Open MPI 3.1.3

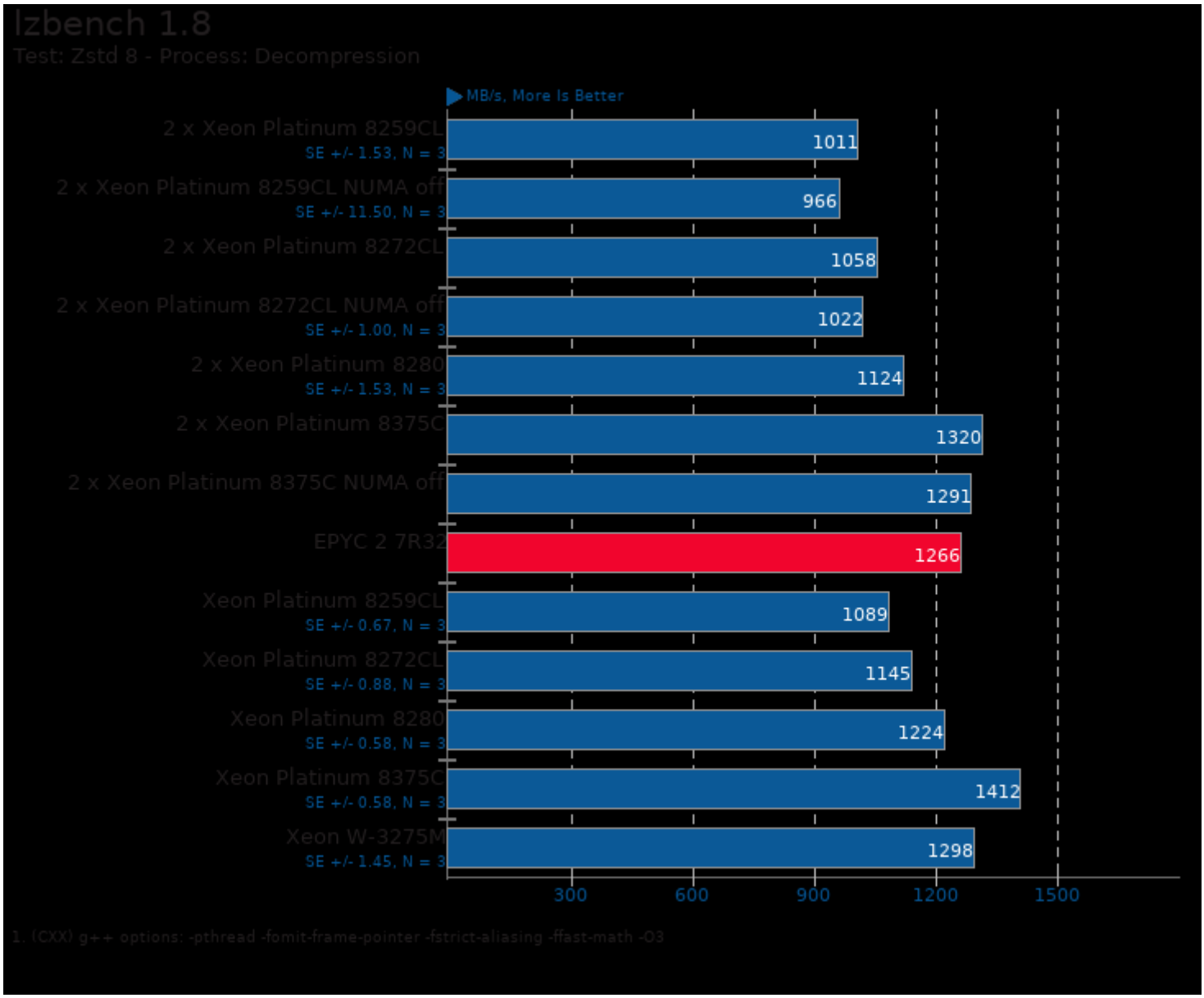

CloverLeaf
Lagrangian-Eulerian Hydrodynamics
Seconds, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.03, N = 15
0.78
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.00, N = 3
0.63
2 x Xeon Platinum 8272CL
SE +/- 0.02, N = 15
0.71
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.00, N = 3
0.61
2 x Xeon Platinum 8280
SE +/- 0.02, N = 15
0.69
2 x Xeon Platinum 8375C
SE +/- 0.01, N = 15
0.35
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.01, N = 3
0.33
EPYC 2 7R32
SE +/- 0.00, N = 3
0.36
Xeon Platinum 8259CL
SE +/- 0.00, N = 3
1.11
Xeon Platinum 8272CL
SE +/- 0.00, N = 3
1.05
Xeon Platinum 8280
SE +/- 0.00, N = 3
0.96
Xeon Platinum 8375C
SE +/- 0.00, N = 3
0.51
Xeon W-3275M
SE +/- 0.02, N = 15
1.14
0.2565
0.513
0.7695
1.026
1.2825
1. (F9X) gfortran options: -O3 -march=native -funroll-loops -fopenmp

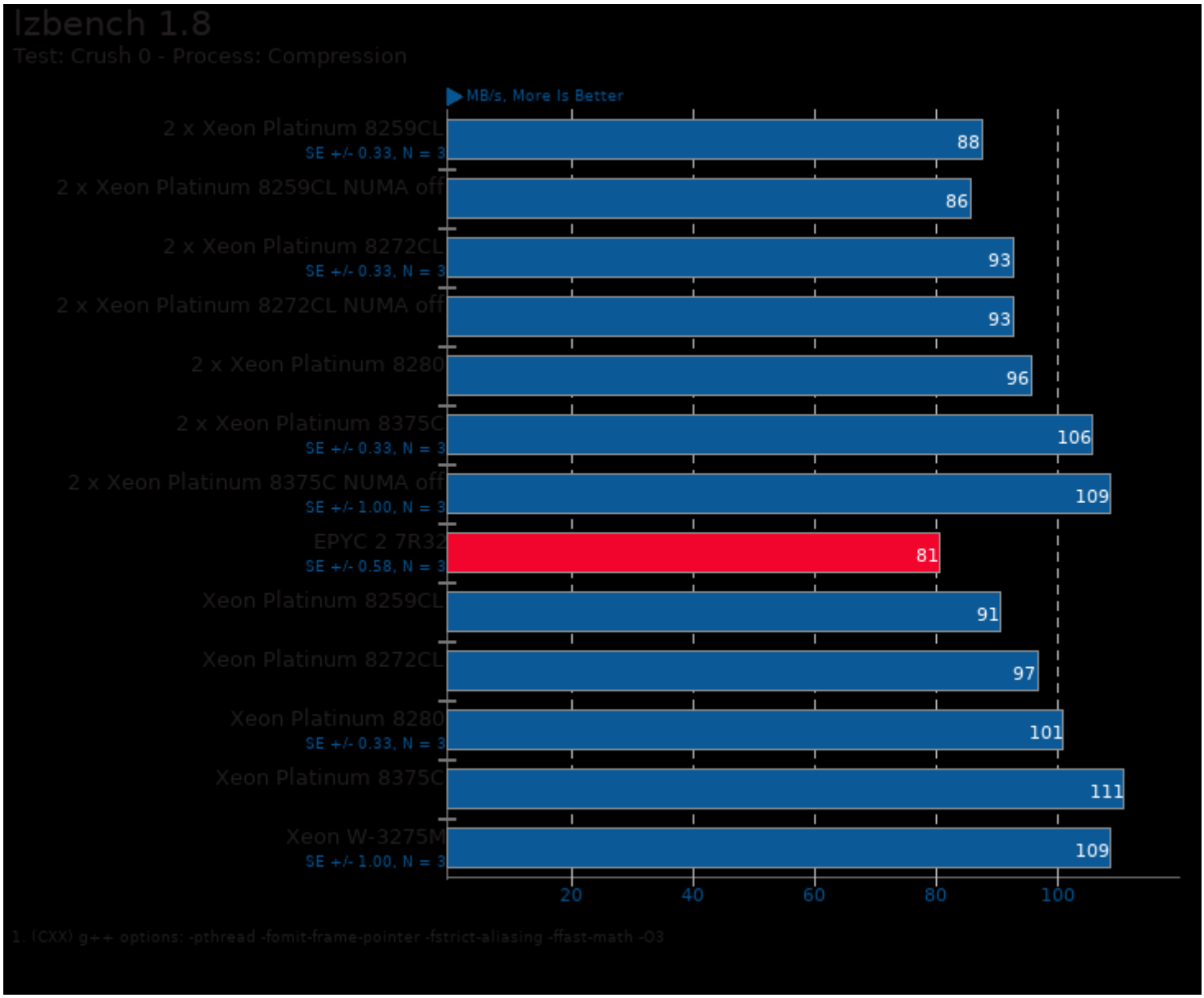

NAMD 2.13
ATPase Simulation - 327,506 Atoms
days/ns, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.00038, N = 3
0.44551
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.00012, N = 3
0.45422
2 x Xeon Platinum 8272CL
SE +/- 0.00016, N = 3
0.38840
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.00066, N = 3
0.40173
2 x Xeon Platinum 8280
SE +/- 0.00133, N = 3
0.36226
2 x Xeon Platinum 8375C
SE +/- 0.00026, N = 3
0.24941
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.00107, N = 3
0.25632
EPYC 2 7R32
SE +/- 0.00084, N = 3
0.48614
Xeon Platinum 8259CL
SE +/- 0.00063, N = 3
0.86925
Xeon Platinum 8272CL
SE +/- 0.01127, N = 4
0.77724
Xeon Platinum 8280
SE +/- 0.00060, N = 3
0.70709
Xeon Platinum 8375C
SE +/- 0.00002, N = 3
0.46948
Xeon W-3275M
SE +/- 0.00775, N = 15
0.81434
0.1956
0.3912
0.5868
0.7824
0.978

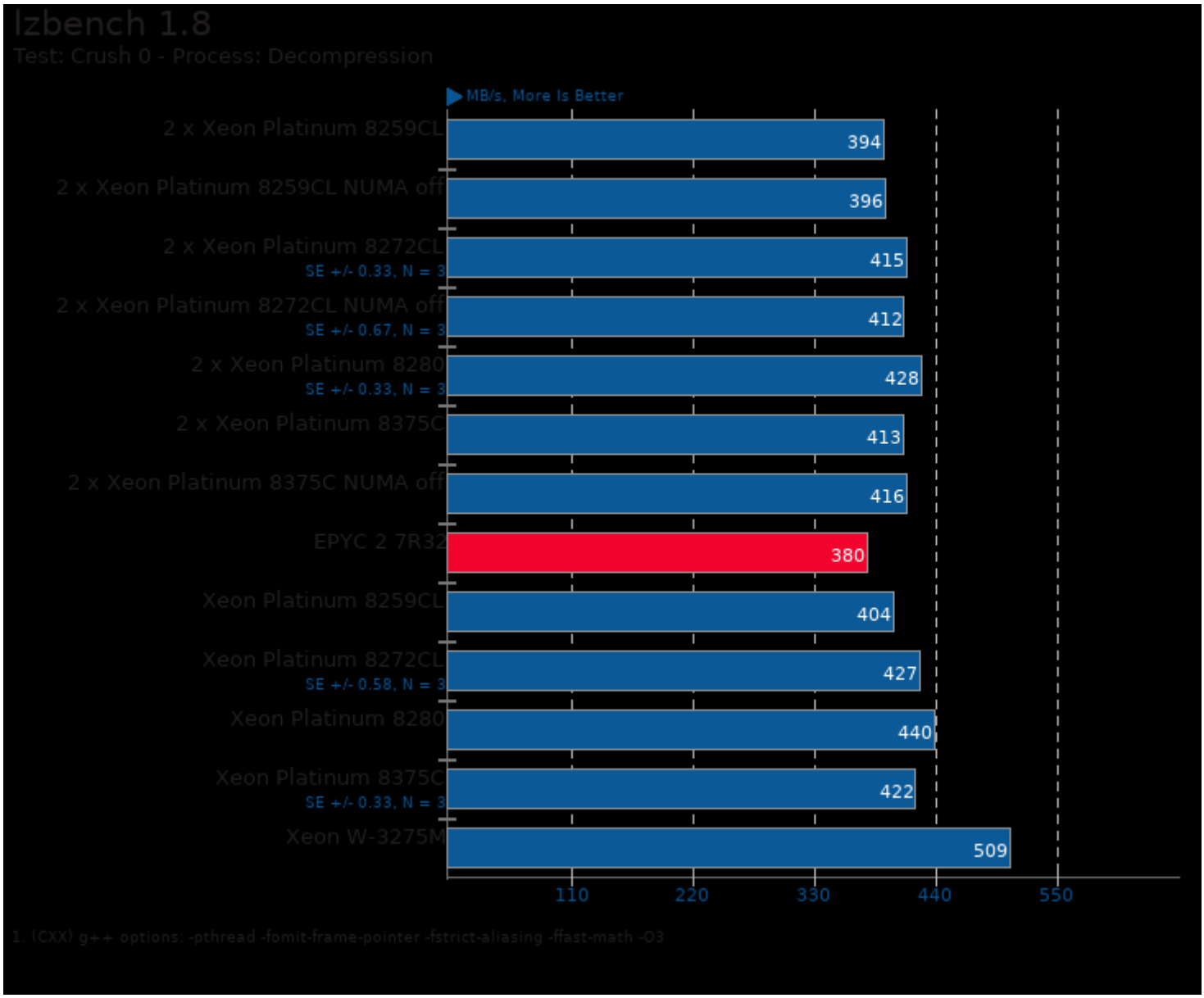

lzbench 1.8
Test: Zstd 1 - Process: Compression
MB/s, More Is Better
2 x Xeon Platinum 8259CL
SE +/- 2.33, N = 3
399
2 x Xeon Platinum 8259CL NUMA off
SE +/- 2.33, N = 3
407
2 x Xeon Platinum 8272CL
SE +/- 1.00, N = 3
423
2 x Xeon Platinum 8272CL NUMA off
430
2 x Xeon Platinum 8280
449
2 x Xeon Platinum 8375C
SE +/- 0.33, N = 3
453
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.33, N = 3
461
EPYC 2 7R32
418
Xeon Platinum 8259CL
SE +/- 0.33, N = 3
410
Xeon Platinum 8272CL
SE +/- 2.19, N = 3
430
Xeon Platinum 8280
SE +/- 0.58, N = 3
457
Xeon Platinum 8375C
464
Xeon W-3275M
SE +/- 1.00, N = 3
508
110
220
330
440
550
1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3

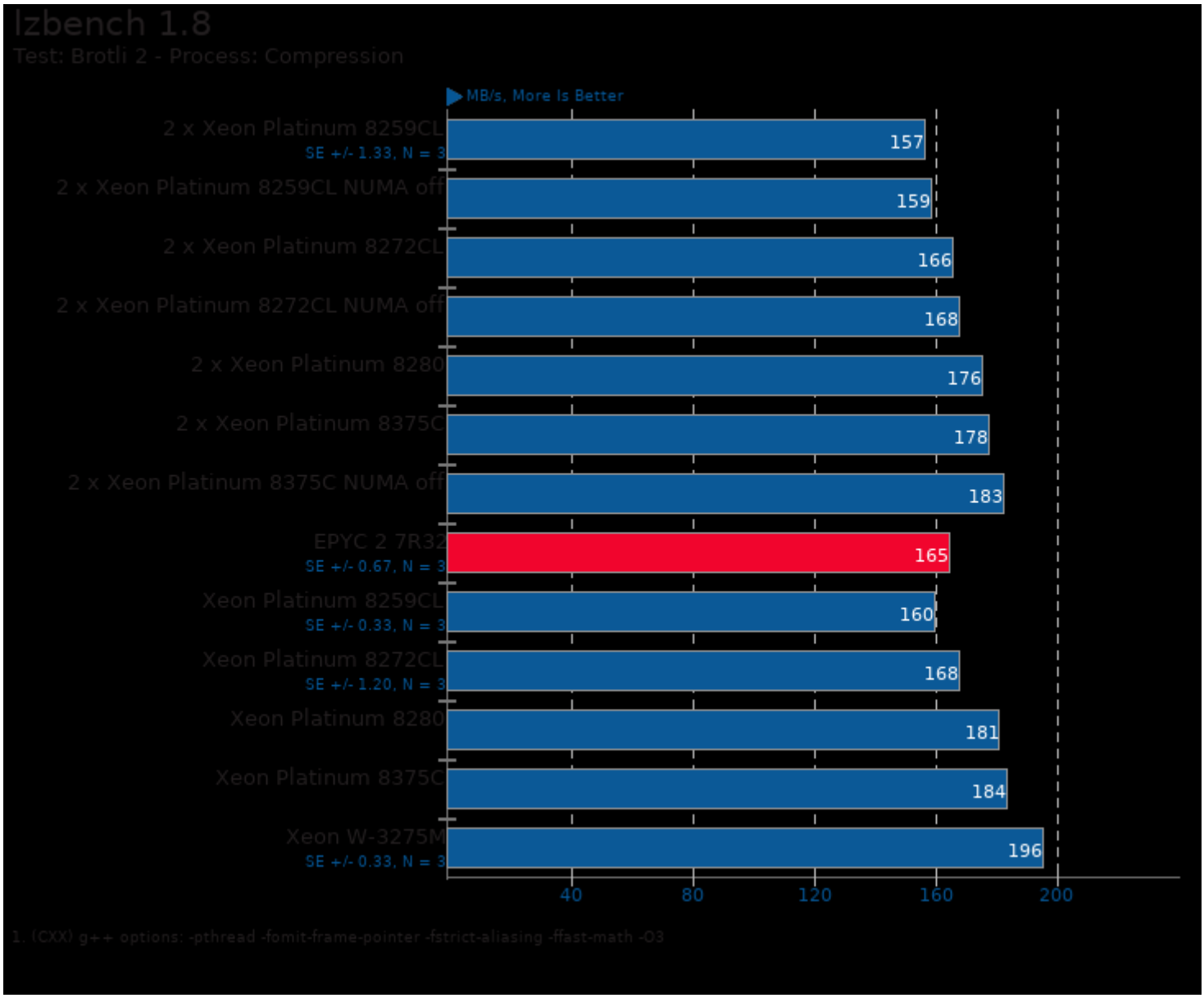

lzbench 1.8
Test: Zstd 1 - Process: Decompression
MB/s, More Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.67, N = 3
1027
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.67, N = 3
1032
2 x Xeon Platinum 8272CL
SE +/- 5.03, N = 3
1088
2 x Xeon Platinum 8272CL NUMA off
SE +/- 6.01, N = 3
1078
2 x Xeon Platinum 8280
SE +/- 2.00, N = 3
1168
2 x Xeon Platinum 8375C
SE +/- 1.53, N = 3
1258
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.67, N = 3
1271
EPYC 2 7R32
1148
Xeon Platinum 8259CL
1061
Xeon Platinum 8272CL
1122
Xeon Platinum 8280
1212
Xeon Platinum 8375C
SE +/- 0.58, N = 3
1321
Xeon W-3275M
SE +/- 2.65, N = 3
1299
300
600
900
1200
1500
1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3

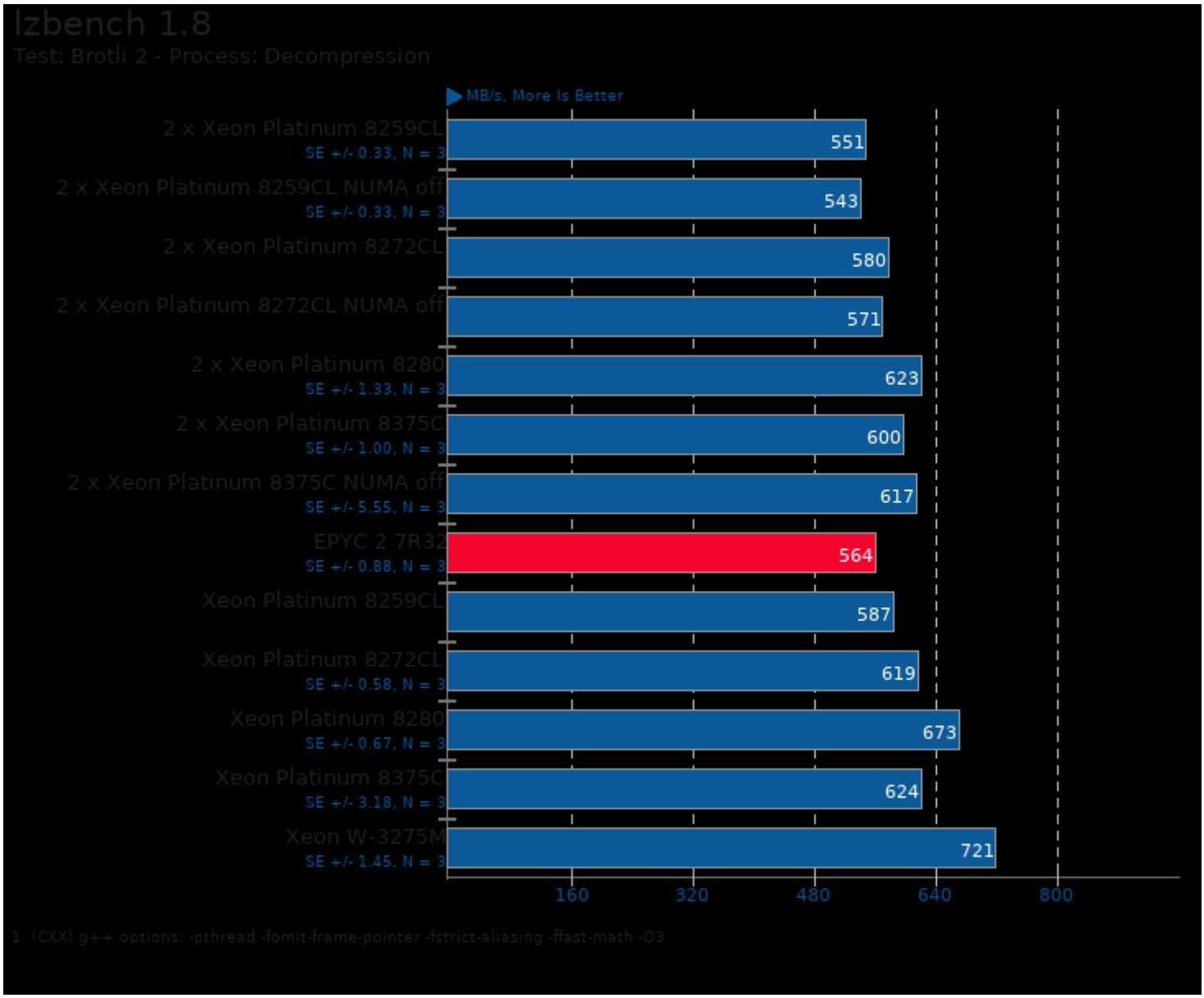

lzbench 1.8
Test: Zstd 8 - Process: Compression
MB/s, More Is Better
2 x Xeon Platinum 8259CL
69
2 x Xeon Platinum 8259CL NUMA off
71
2 x Xeon Platinum 8272CL
73
2 x Xeon Platinum 8272CL NUMA off
74
2 x Xeon Platinum 8280
75
2 x Xeon Platinum 8375C
86
2 x Xeon Platinum 8375C NUMA off
88
EPYC 2 7R32
83
Xeon Platinum 8259CL
71
Xeon Platinum 8272CL
75
Xeon Platinum 8280
77
Xeon Platinum 8375C
89
Xeon W-3275M
84
20
40
60
80
100
1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3

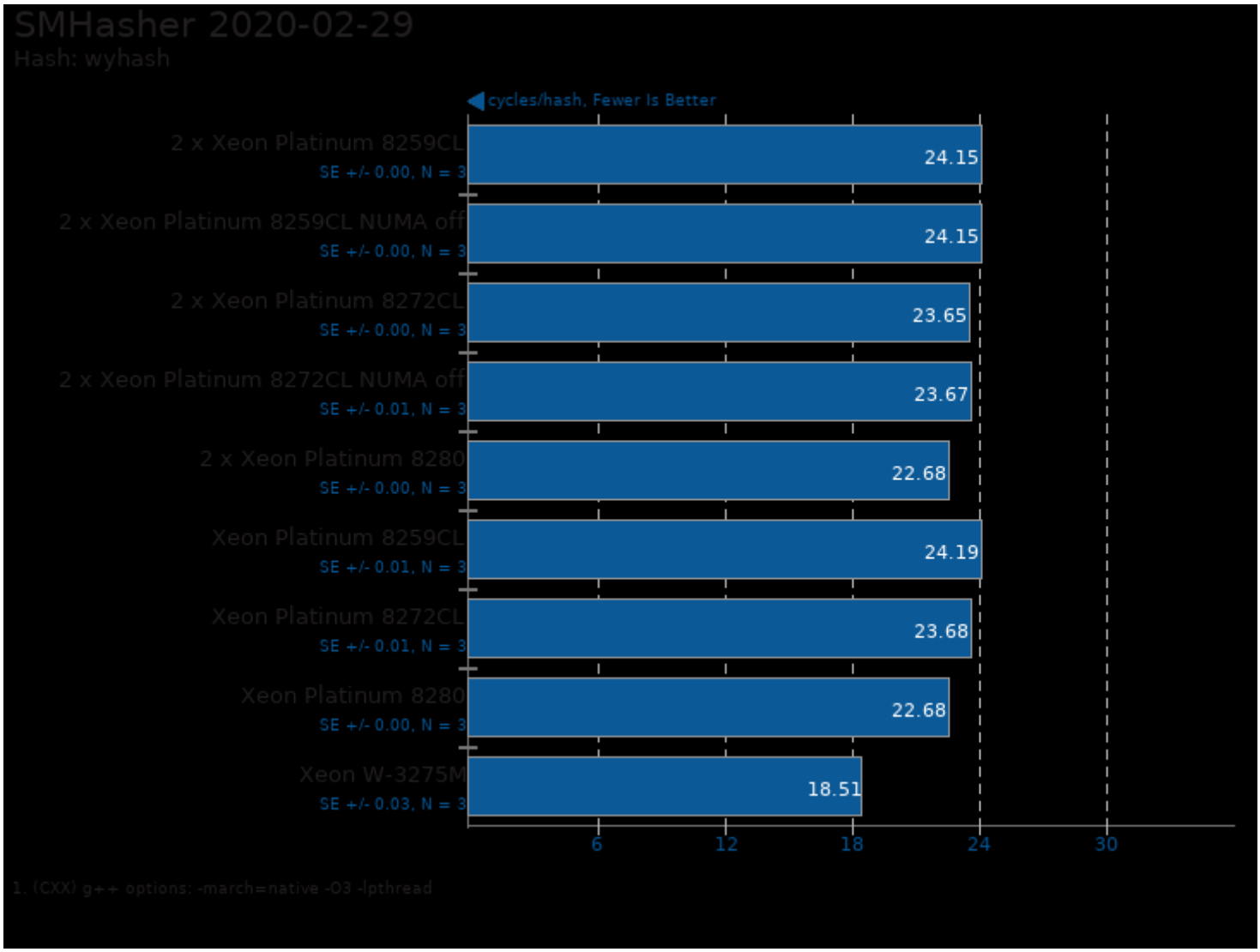

lzbench 1.8
Test: Zstd 8 - Process: Decompression
MB/s, More Is Better
2 x Xeon Platinum 8259CL
SE +/- 1.53, N = 3
1011
2 x Xeon Platinum 8259CL NUMA off
SE +/- 11.50, N = 3
966
2 x Xeon Platinum 8272CL
1058
2 x Xeon Platinum 8272CL NUMA off
SE +/- 1.00, N = 3
1022
2 x Xeon Platinum 8280
SE +/- 1.53, N = 3
1124
2 x Xeon Platinum 8375C
1320
2 x Xeon Platinum 8375C NUMA off
1291
EPYC 2 7R32
1266
Xeon Platinum 8259CL
SE +/- 0.67, N = 3
1089
Xeon Platinum 8272CL
SE +/- 0.88, N = 3
1145
Xeon Platinum 8280
SE +/- 0.58, N = 3
1224
Xeon Platinum 8375C
SE +/- 0.58, N = 3
1412
Xeon W-3275M
SE +/- 1.45, N = 3
1298
300
600
900
1200
1500
1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3

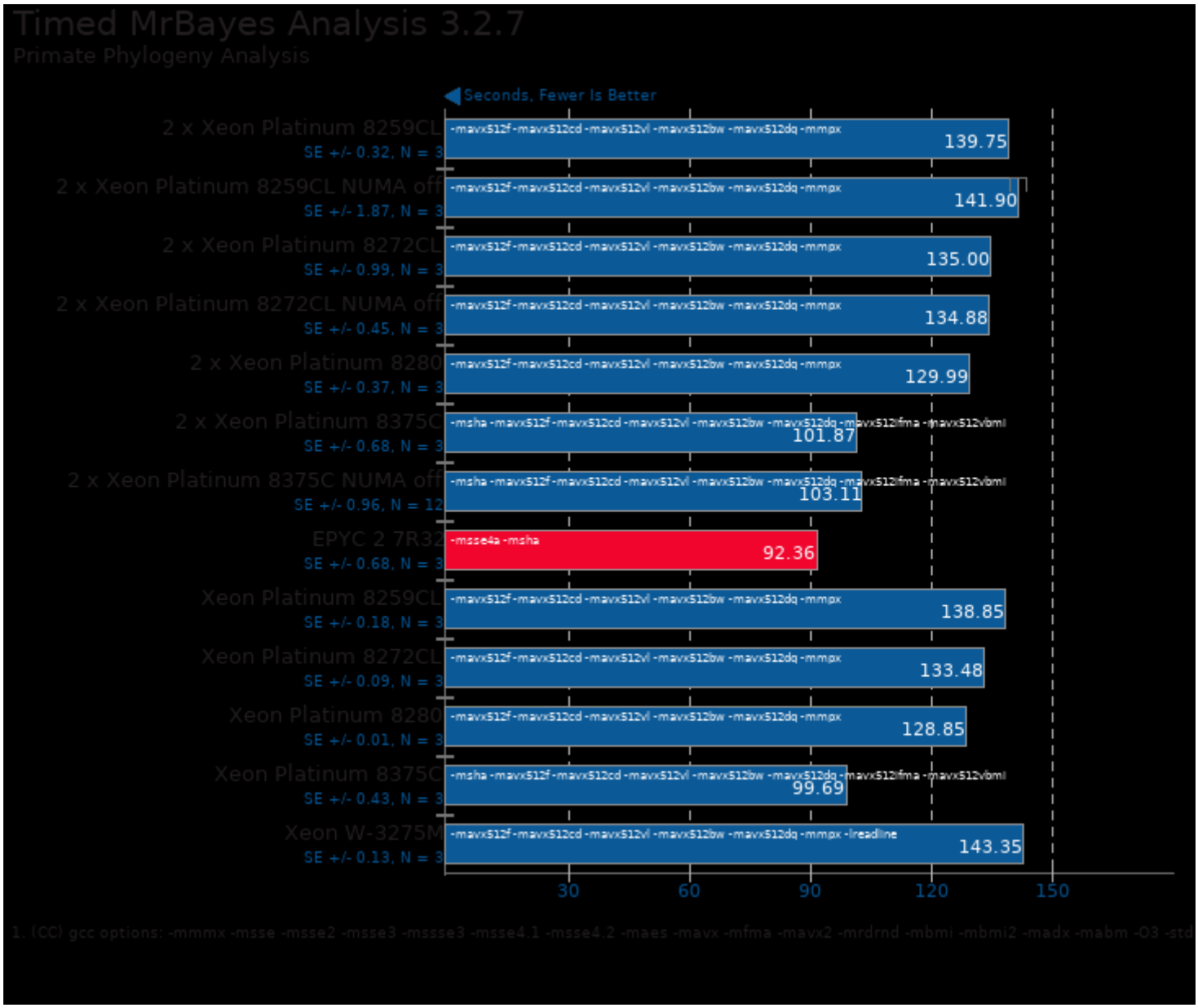

lzbench 1.8
Test: Crush 0 - Process: Compression
MB/s, More Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.33, N = 3
88
2 x Xeon Platinum 8259CL NUMA off
86
2 x Xeon Platinum 8272CL
SE +/- 0.33, N = 3
93
2 x Xeon Platinum 8272CL NUMA off
93
2 x Xeon Platinum 8280
96
2 x Xeon Platinum 8375C
SE +/- 0.33, N = 3
106
2 x Xeon Platinum 8375C NUMA off
SE +/- 1.00, N = 3
109
EPYC 2 7R32
SE +/- 0.58, N = 3
81
Xeon Platinum 8259CL
91
Xeon Platinum 8272CL
97
Xeon Platinum 8280
SE +/- 0.33, N = 3
101
Xeon Platinum 8375C
111
Xeon W-3275M
SE +/- 1.00, N = 3
109
20
40
60
80
100
1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3

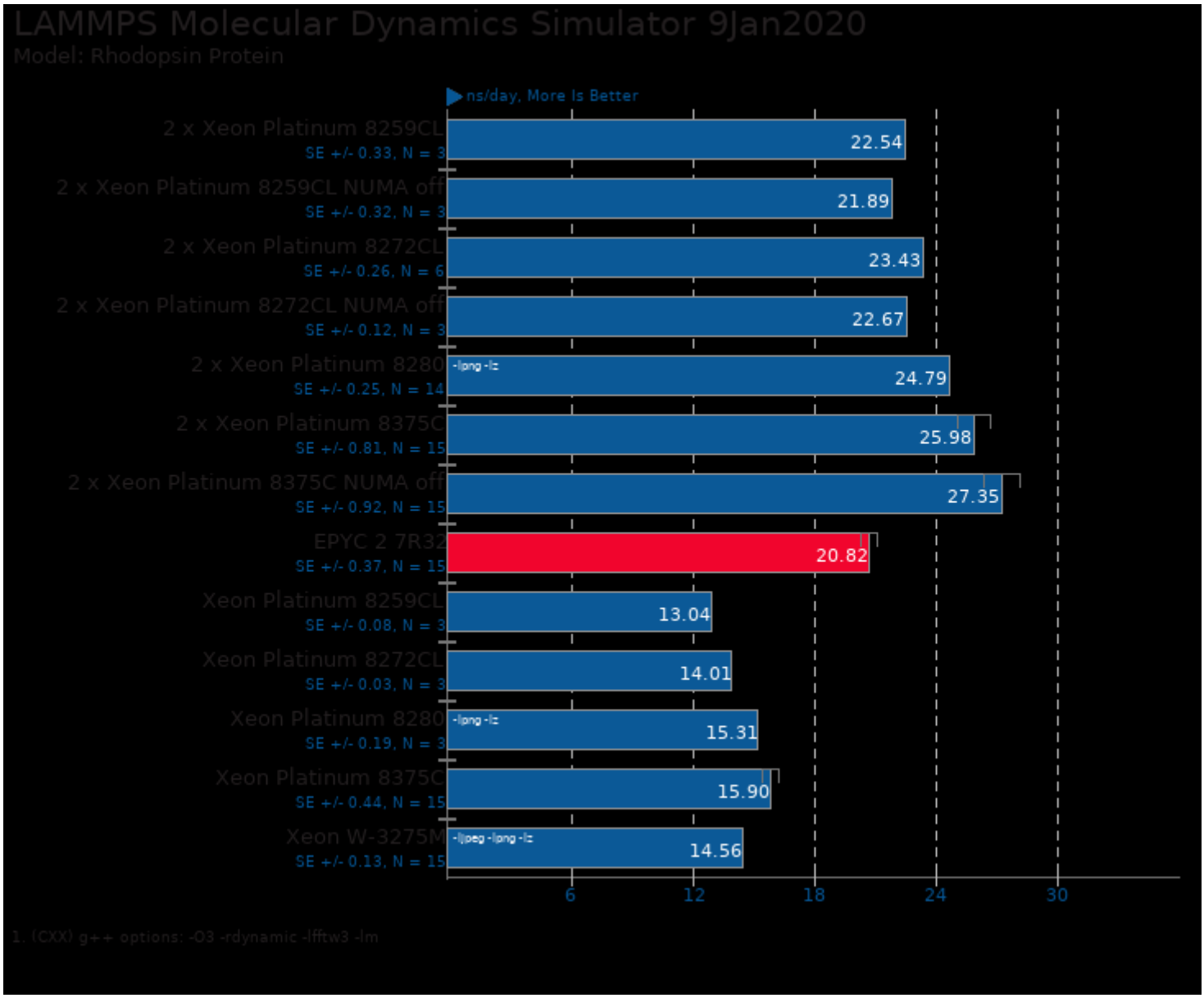

lzbench 1.8
Test: Crush 0 - Process: Decompression
MB/s, More Is Better
2 x Xeon Platinum 8259CL
394
2 x Xeon Platinum 8259CL NUMA off
396
2 x Xeon Platinum 8272CL
415
SE +/- 0.33, N = 3
2 x Xeon Platinum 8272CL NUMA off
412
SE +/- 0.67, N = 3
2 x Xeon Platinum 8280
428
SE +/- 0.33, N = 3
2 x Xeon Platinum 8375C
413
2 x Xeon Platinum 8375C NUMA off
416
EPYC 2 7R32
380
Xeon Platinum 8259CL
404
Xeon Platinum 8272CL
427
SE +/- 0.58, N = 3
Xeon Platinum 8280
440
Xeon Platinum 8375C
422
SE +/- 0.33, N = 3
Xeon W-3275M
509
110
220
330
440
550
1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3

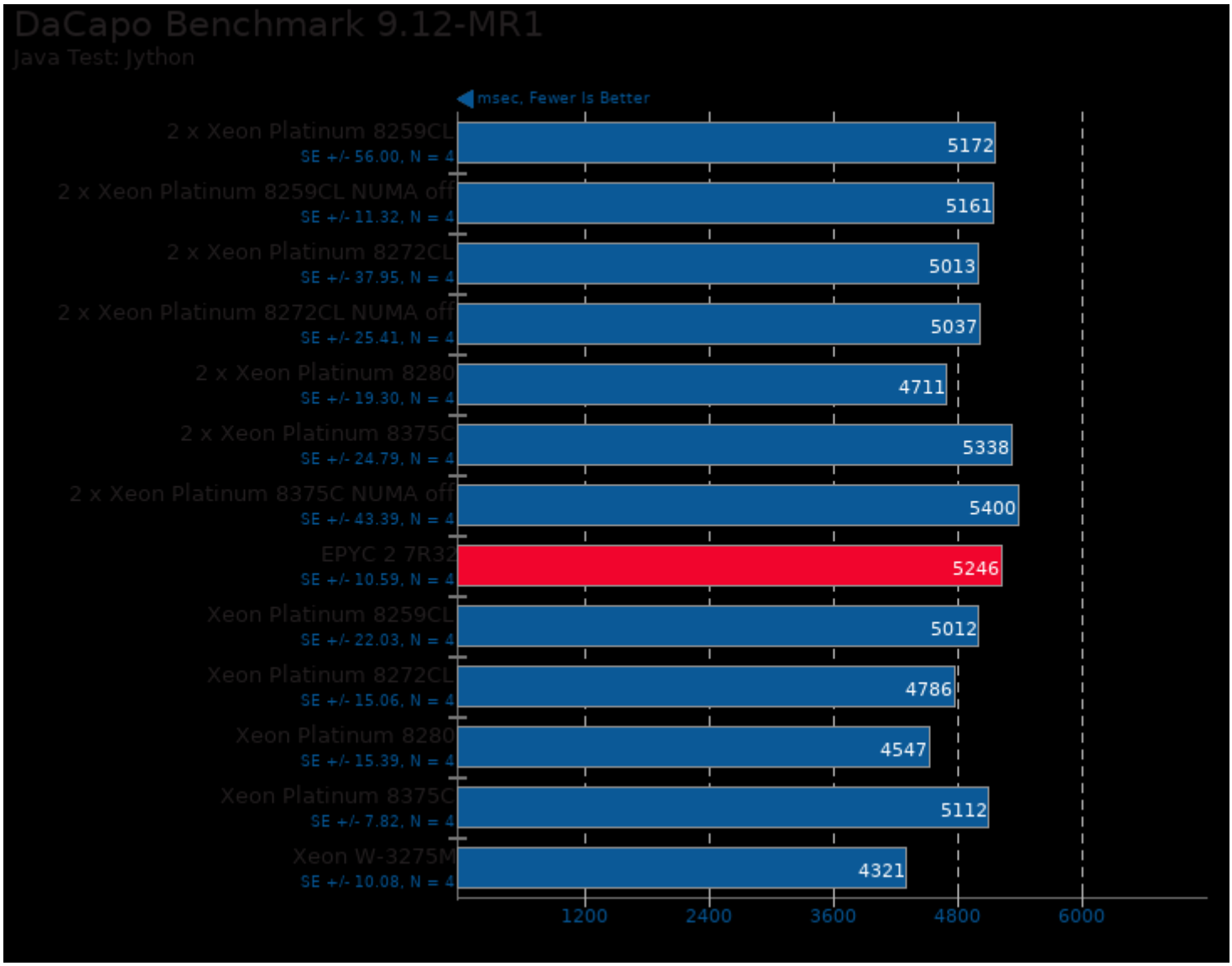

lzbench 1.8
Test: Brotli 2 - Process: Compression
MB/s, More Is Better
2 x Xeon Platinum 8259CL
SE +/- 1.33, N = 3
157
2 x Xeon Platinum 8259CL NUMA off
159
2 x Xeon Platinum 8272CL
166
2 x Xeon Platinum 8272CL NUMA off
168
2 x Xeon Platinum 8280
176
2 x Xeon Platinum 8375C
178
2 x Xeon Platinum 8375C NUMA off
183
EPYC 2 7R32
SE +/- 0.67, N = 3
165
Xeon Platinum 8259CL
SE +/- 0.33, N = 3
160
Xeon Platinum 8272CL
SE +/- 1.20, N = 3
168
Xeon Platinum 8280
181
Xeon Platinum 8375C
184
Xeon W-3275M
SE +/- 0.33, N = 3
196
40
80
120
160
200
1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3

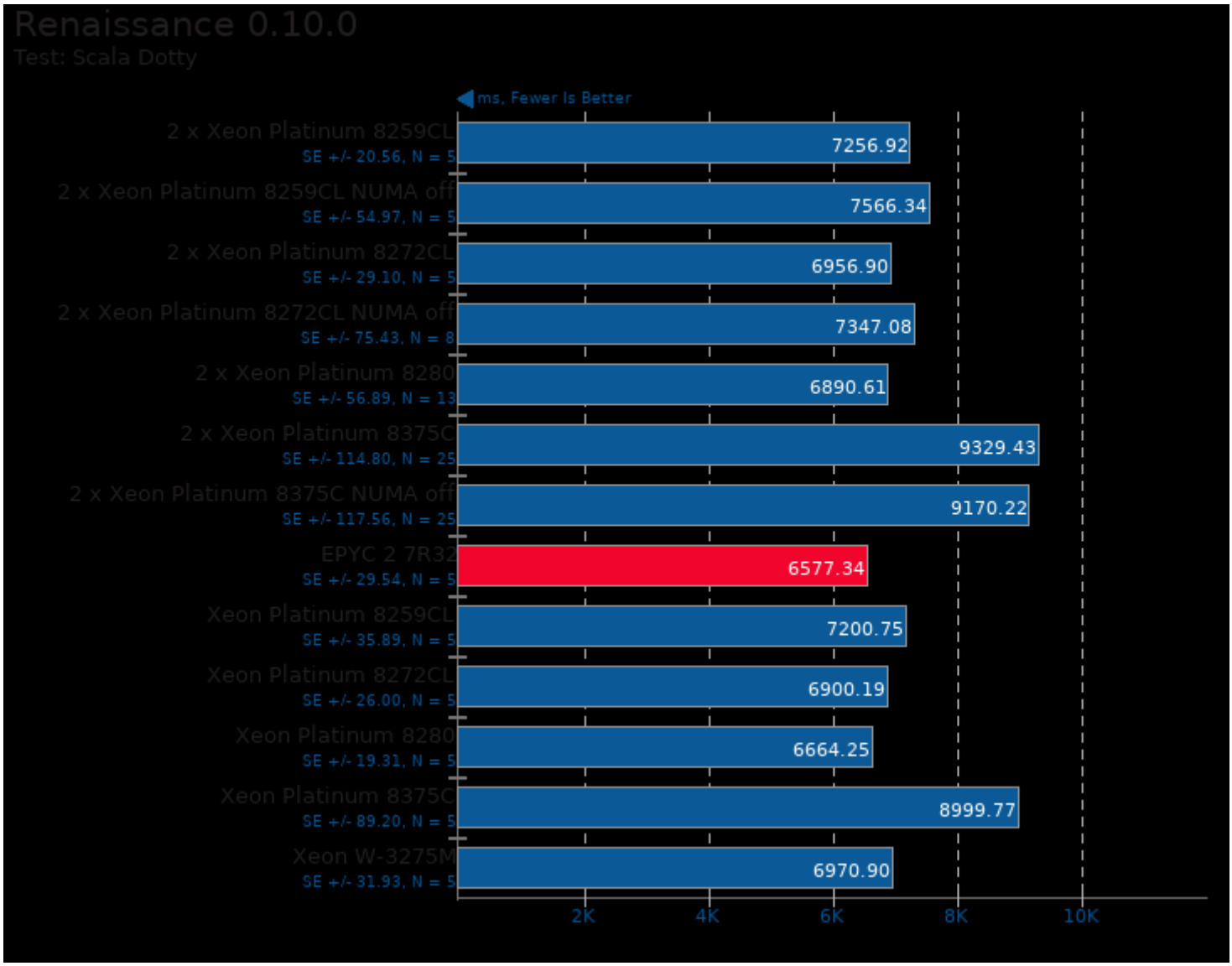

lzbench 1.8
Test: Brotli 2 - Process: Decompression
MB/s, More Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.33, N = 3
551
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.33, N = 3
543
2 x Xeon Platinum 8272CL
580
2 x Xeon Platinum 8272CL NUMA off
571
2 x Xeon Platinum 8280
SE +/- 1.33, N = 3
623
2 x Xeon Platinum 8375C
SE +/- 1.00, N = 3
600
2 x Xeon Platinum 8375C NUMA off
SE +/- 5.55, N = 3
617
EPYC 2 7R32
SE +/- 0.88, N = 3
564
Xeon Platinum 8259CL
587
Xeon Platinum 8272CL
SE +/- 0.58, N = 3
619
Xeon Platinum 8280
SE +/- 0.67, N = 3
673
Xeon Platinum 8375C
SE +/- 3.18, N = 3
624
Xeon W-3275M
SE +/- 1.45, N = 3
721
160
320
480
640
800
1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3

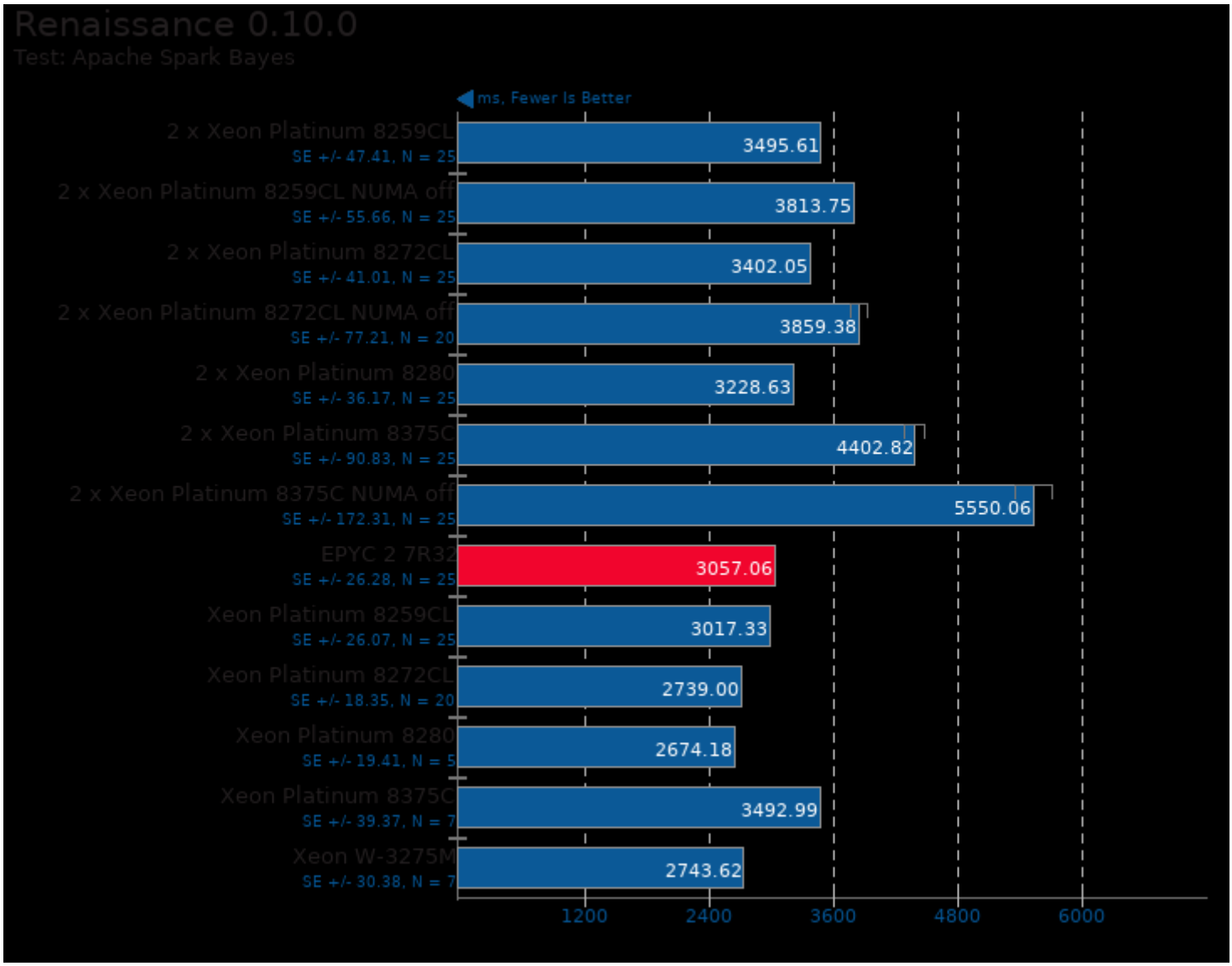

SMHasher 2020-02-29
Hash: wyhash
cycles/hash, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.00, N = 3
24.15
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.00, N = 3
24.15
2 x Xeon Platinum 8272CL
SE +/- 0.00, N = 3
23.65
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.01, N = 3
23.67
2 x Xeon Platinum 8280
SE +/- 0.00, N = 3
22.68
Xeon Platinum 8259CL
SE +/- 0.01, N = 3
24.19
Xeon Platinum 8272CL
SE +/- 0.01, N = 3
23.68
Xeon Platinum 8280
SE +/- 0.00, N = 3
22.68
Xeon W-3275M
SE +/- 0.03, N = 3
18.51
6
12
18
24
30
1. (CXX) g++ options: -march=native -O3 -lpthread

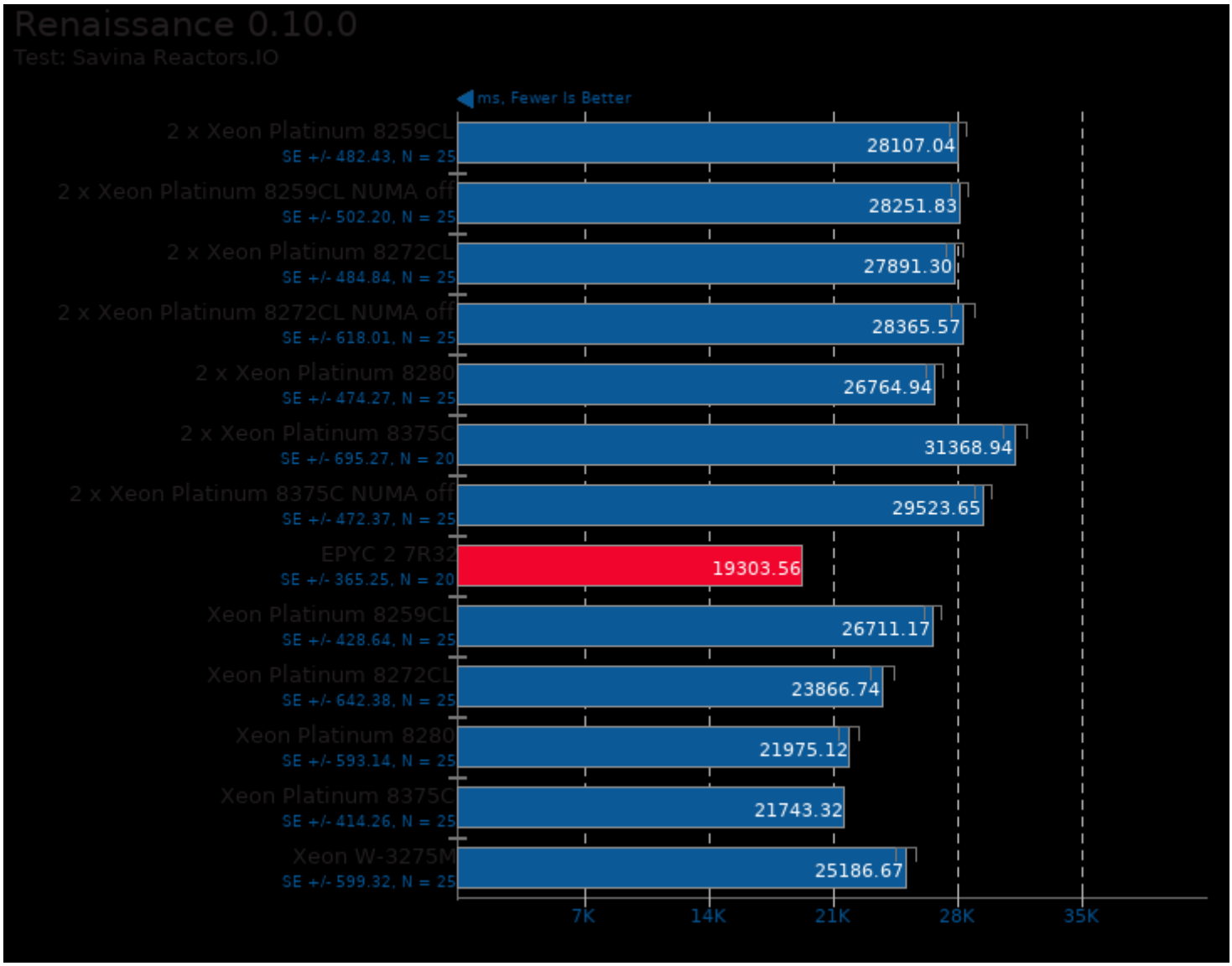

Timed MrBayes Analysis 3.2.7
Primate Phylogeny Analysis
Seconds, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.32, N = 3
-mavx512f -mavx512cd -mavx512vl -mavx512bw -mavx512dq -mmpx
139.75
2 x Xeon Platinum 8259CL NUMA off
SE +/- 1.87, N = 3
-mavx512f -mavx512cd -mavx512vl -mavx512bw -mavx512dq -mmpx
141.90
2 x Xeon Platinum 8272CL
SE +/- 0.99, N = 3
-mavx512f -mavx512cd -mavx512vl -mavx512bw -mavx512dq -mmpx
135.00
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.45, N = 3
-mavx512f -mavx512cd -mavx512vl -mavx512bw -mavx512dq -mmpx
134.88
2 x Xeon Platinum 8280
SE +/- 0.37, N = 3
-mavx512f -mavx512cd -mavx512vl -mavx512bw -mavx512dq -mmpx
129.99
2 x Xeon Platinum 8375C
SE +/- 0.68, N = 3
-msha -mavx512f -mavx512cd -mavx512vl -mavx512bw -mavx512dq -mavx512ifma -mavx512vbmi
101.87
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.96, N = 12
-msha -mavx512f -mavx512cd -mavx512vl -mavx512bw -mavx512dq -mavx512ifma -mavx512vbmi
103.11
EPYC 2 7R32
SE +/- 0.68, N = 3
-msse4a -msha
92.36
Xeon Platinum 8259CL
SE +/- 0.18, N = 3
-mavx512f -mavx512cd -mavx512vl -mavx512bw -mavx512dq -mmpx
138.85
Xeon Platinum 8272CL
SE +/- 0.09, N = 3
-mavx512f -mavx512cd -mavx512vl -mavx512bw -mavx512dq -mmpx
133.48
Xeon Platinum 8280
SE +/- 0.01, N = 3
-mavx512f -mavx512cd -mavx512vl -mavx512bw -mavx512dq -mmpx
128.85
Xeon Platinum 8375C
SE +/- 0.43, N = 3
-msha -mavx512f -mavx512cd -mavx512vl -mavx512bw -mavx512dq -mavx512ifma -mavx512vbmi
99.69
Xeon W-3275M
SE +/- 0.13, N = 3
-mavx512f -mavx512cd -mavx512vl -mavx512bw -mavx512dq -mmpx -lreadline
143.35
30
60
90
120
150
1. (CC) gcc options: -mmmx -msse -msse2 -msse3 -mssse3 -msse4.1 -msse4.2 -maes -mavx -mfma -mavx2 -mrdrnd -mbmi -mbmi2 -madx -mabm -O3 -std

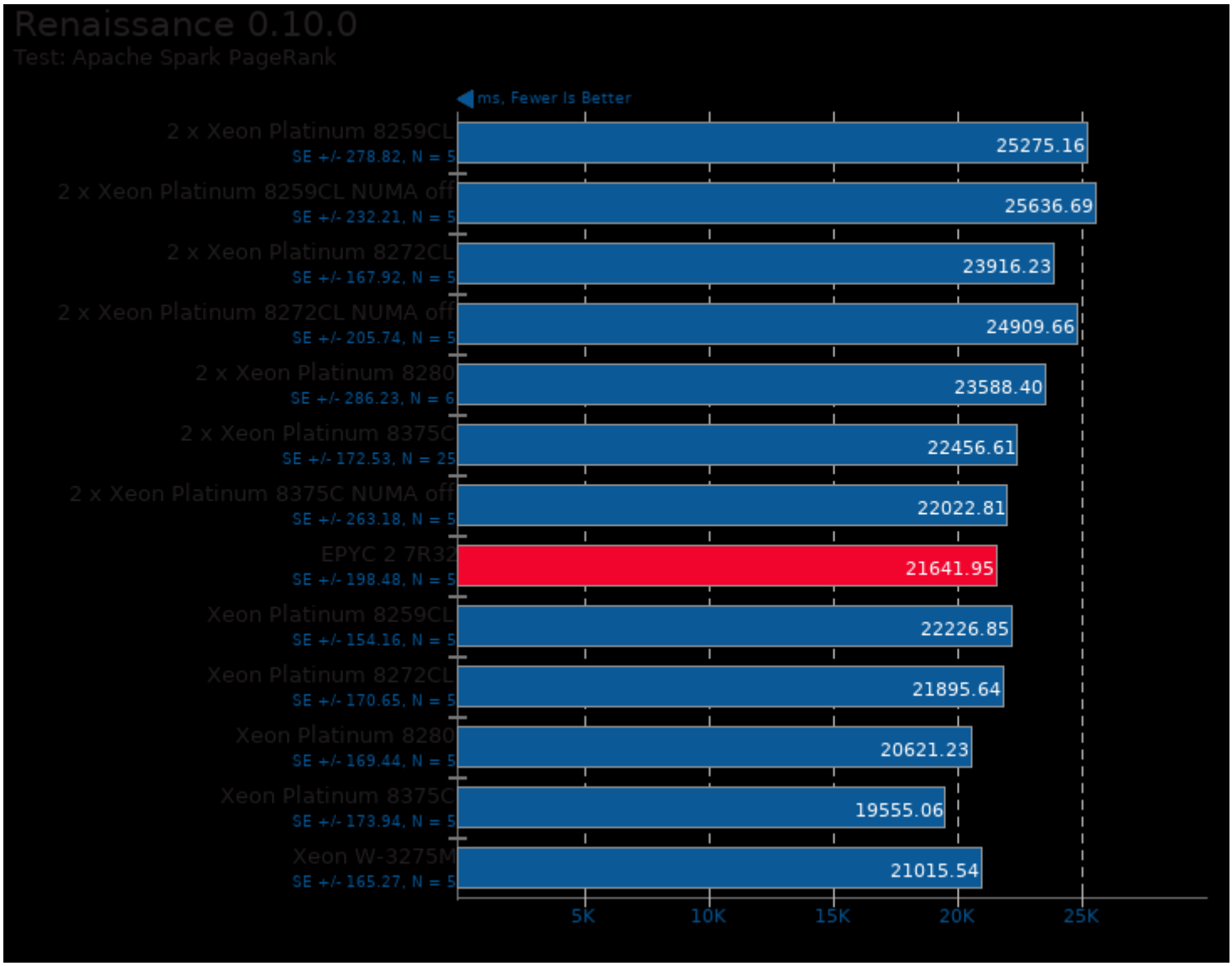

LAMMPS Molecular Dynamics Simulator 9Jan2020
Model: Rhodopsin Protein
ns/day, More Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.33, N = 3
22.54
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.32, N = 3
21.89
2 x Xeon Platinum 8272CL
SE +/- 0.26, N = 6
23.43
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.12, N = 3
22.67
2 x Xeon Platinum 8280
SE +/- 0.25, N = 14
-lpng -lz
24.79
2 x Xeon Platinum 8375C
SE +/- 0.81, N = 15
25.98
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.92, N = 15
27.35
EPYC 2 7R32
SE +/- 0.37, N = 15
20.82
Xeon Platinum 8259CL
SE +/- 0.08, N = 3
13.04
Xeon Platinum 8272CL
SE +/- 0.03, N = 3
14.01
Xeon Platinum 8280
SE +/- 0.19, N = 3
-lpng -lz
15.31
Xeon Platinum 8375C
SE +/- 0.44, N = 15
15.90
Xeon W-3275M
SE +/- 0.13, N = 15
-ljpeg -lpng -lz
14.56
6
12
18
24
30
1. (CXX) g++ options: -O3 -rdynamic -lfftw3 -lm

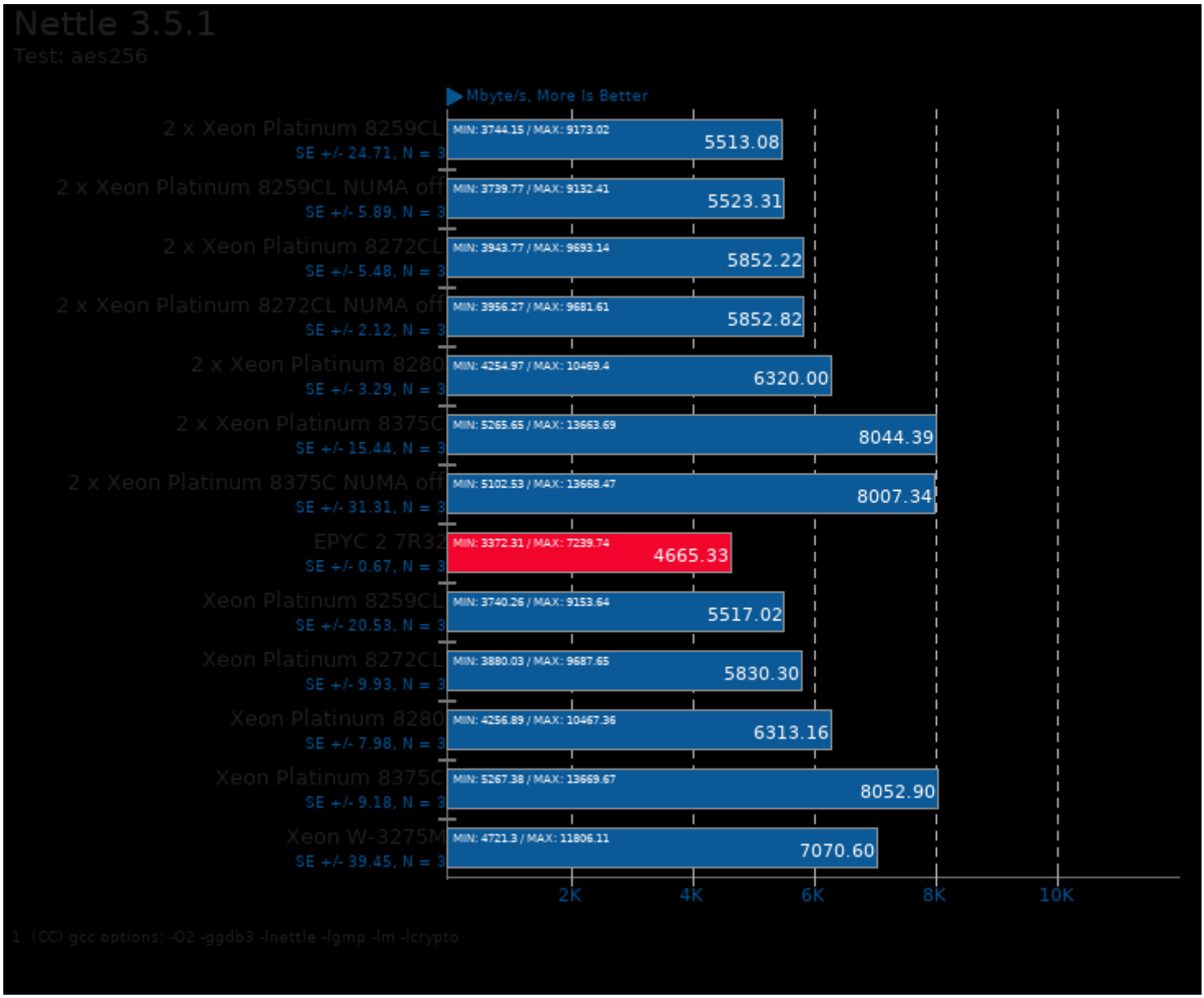

DaCapo Benchmark 9.12-MR1
Java Test: Jython
msec, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 56.00, N = 4
5172
2 x Xeon Platinum 8259CL NUMA off
SE +/- 11.32, N = 4
5161
2 x Xeon Platinum 8272CL
SE +/- 37.95, N = 4
5013
2 x Xeon Platinum 8272CL NUMA off
SE +/- 25.41, N = 4
5037
2 x Xeon Platinum 8280
SE +/- 19.30, N = 4
4711
2 x Xeon Platinum 8375C
SE +/- 24.79, N = 4
5338
2 x Xeon Platinum 8375C NUMA off
SE +/- 43.39, N = 4
5400
EPYC 2 7R32
SE +/- 10.59, N = 4
5246
Xeon Platinum 8259CL
SE +/- 22.03, N = 4
5012
Xeon Platinum 8272CL
SE +/- 15.06, N = 4
4786
Xeon Platinum 8280
SE +/- 15.39, N = 4
4547
Xeon Platinum 8375C
SE +/- 7.82, N = 4
5112
Xeon W-3275M
SE +/- 10.08, N = 4
4321
1200
2400
3600
4800
6000

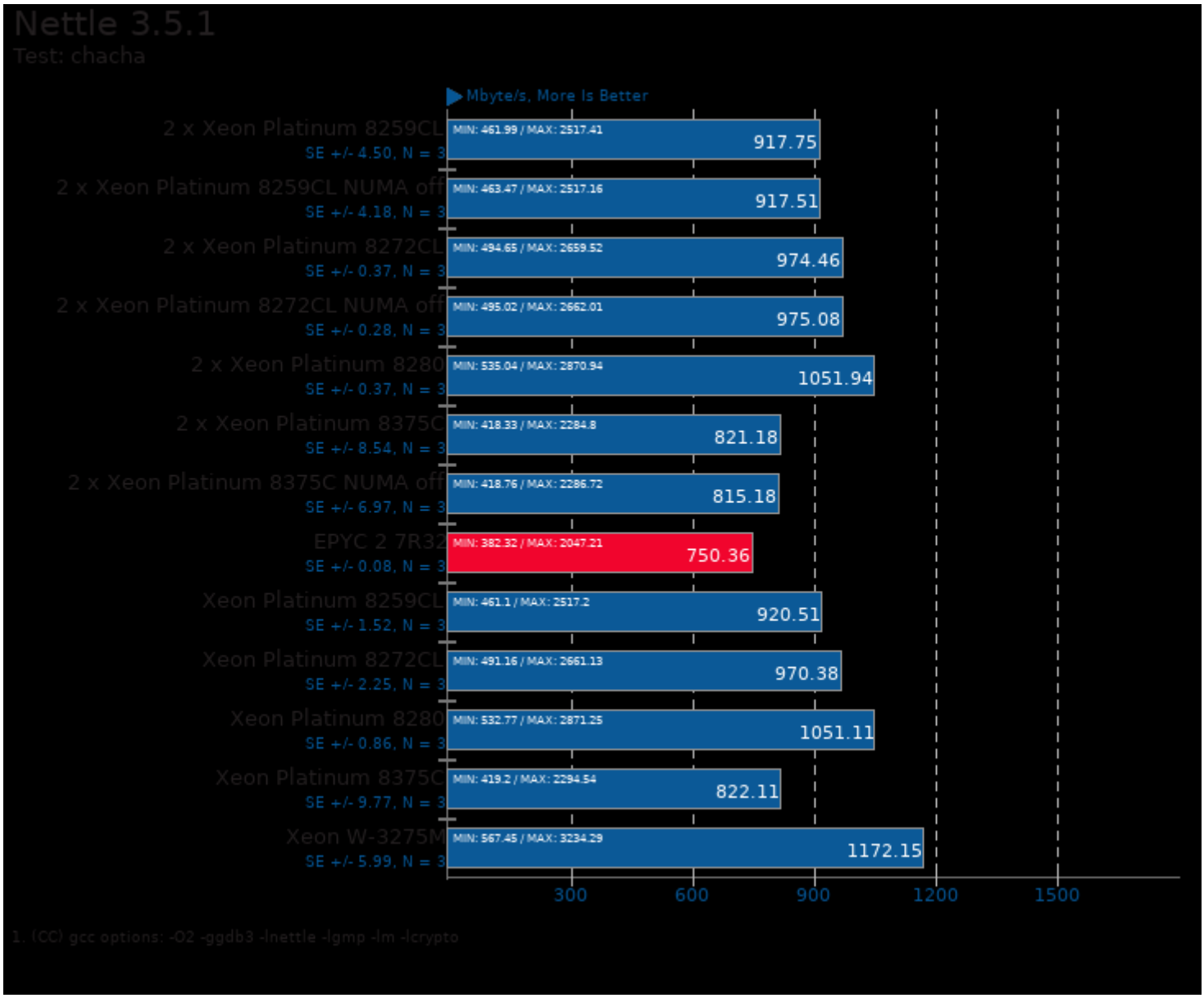

Renaissance 0.10.0
Test: Scala Dotty
ms, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 20.56, N = 5
7256.92
2 x Xeon Platinum 8259CL NUMA off
SE +/- 54.97, N = 5
7566.34
2 x Xeon Platinum 8272CL
SE +/- 29.10, N = 5
6956.90
2 x Xeon Platinum 8272CL NUMA off
SE +/- 75.43, N = 8
7347.08
2 x Xeon Platinum 8280
SE +/- 56.89, N = 13
6890.61
2 x Xeon Platinum 8375C
SE +/- 114.80, N = 25
9329.43
2 x Xeon Platinum 8375C NUMA off
SE +/- 117.56, N = 25
9170.22
EPYC 2 7R32
SE +/- 29.54, N = 5
6577.34
Xeon Platinum 8259CL
SE +/- 35.89, N = 5
7200.75
Xeon Platinum 8272CL
SE +/- 26.00, N = 5
6900.19
Xeon Platinum 8280
SE +/- 19.31, N = 5
6664.25
Xeon Platinum 8375C
SE +/- 89.20, N = 5
8999.77
Xeon W-3275M
SE +/- 31.93, N = 5
6970.90
2K
4K
6K
8K
10K

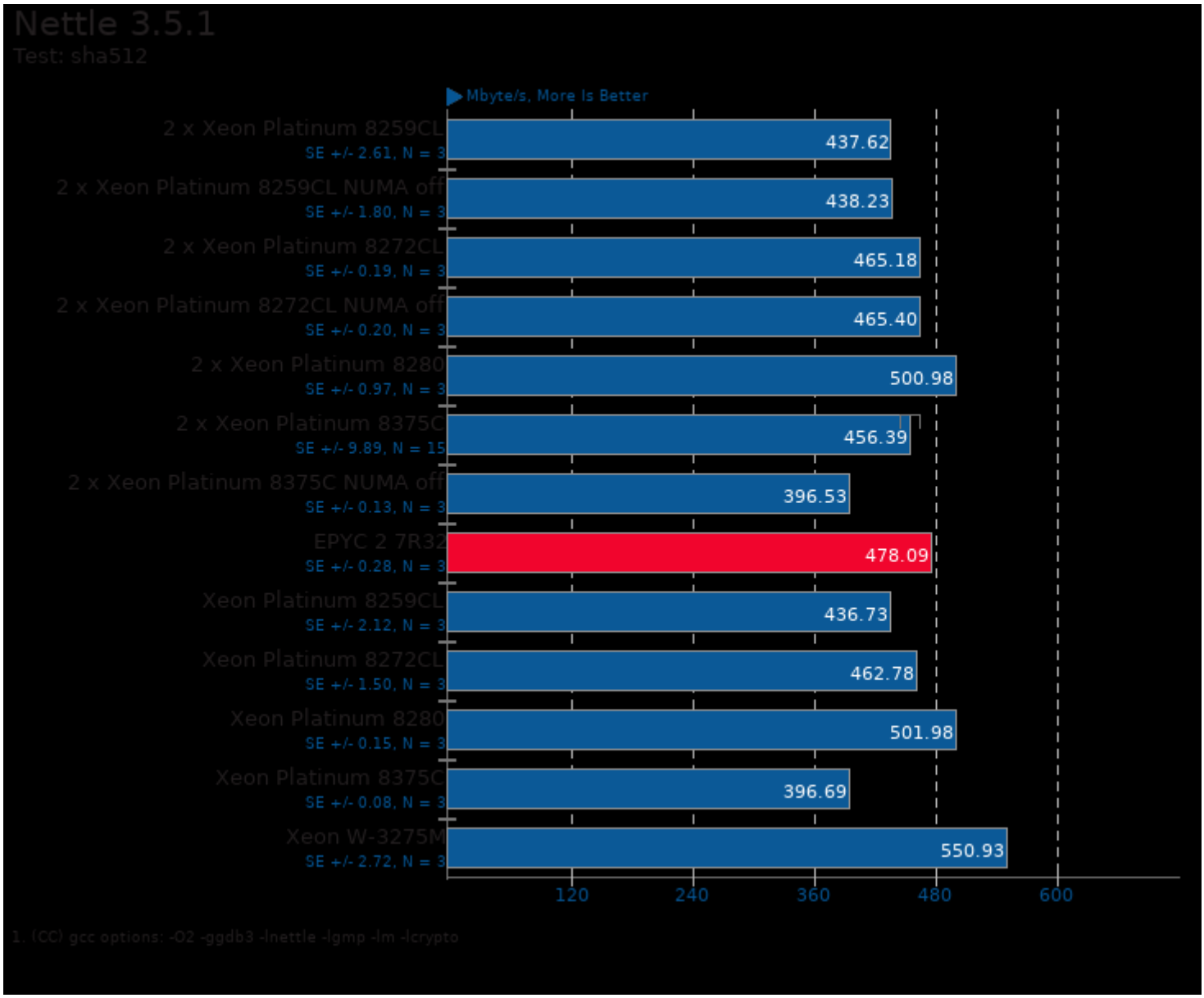

Renaissance 0.10.0
Test: Apache Spark Bayes
ms, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 47.41, N = 25
3495.61
2 x Xeon Platinum 8259CL NUMA off
SE +/- 55.66, N = 25
3813.75
2 x Xeon Platinum 8272CL
SE +/- 41.01, N = 25
3402.05
2 x Xeon Platinum 8272CL NUMA off
SE +/- 77.21, N = 20
3859.38
2 x Xeon Platinum 8280
SE +/- 36.17, N = 25
3228.63
2 x Xeon Platinum 8375C
SE +/- 90.83, N = 25
4402.82
2 x Xeon Platinum 8375C NUMA off
SE +/- 172.31, N = 25
5550.06
EPYC 2 7R32
SE +/- 26.28, N = 25
3057.06
Xeon Platinum 8259CL
SE +/- 26.07, N = 25
3017.33
Xeon Platinum 8272CL
SE +/- 18.35, N = 20
2739.00
Xeon Platinum 8280
SE +/- 19.41, N = 5
2674.18
Xeon Platinum 8375C
SE +/- 39.37, N = 7
3492.99
Xeon W-3275M
SE +/- 30.38, N = 7
2743.62
1200
2400
3600
4800
6000

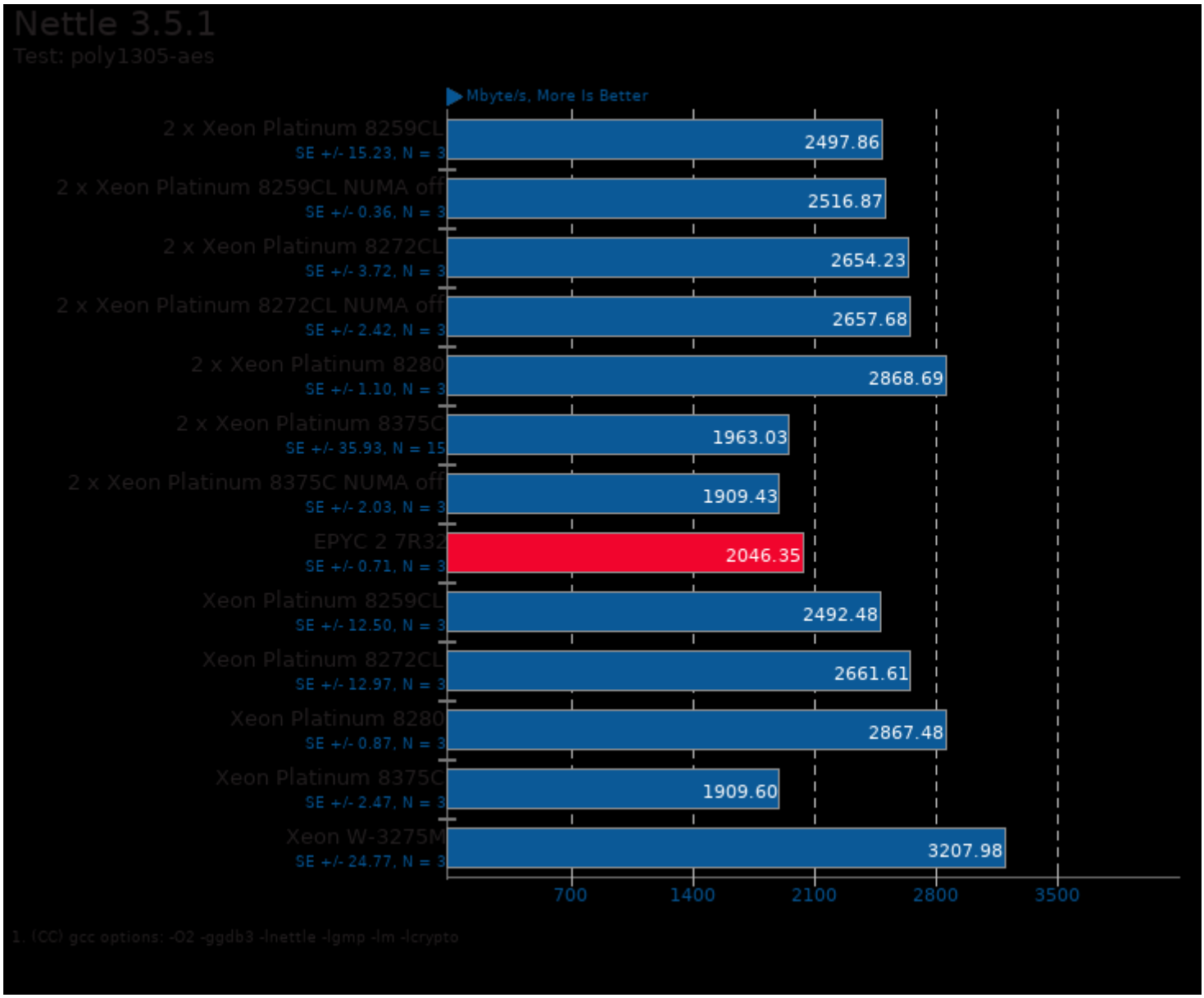

Renaissance 0.10.0
Test: Savina Reactors.IO
ms, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 482.43, N = 25
28107.04
2 x Xeon Platinum 8259CL NUMA off
SE +/- 502.20, N = 25
28251.83
2 x Xeon Platinum 8272CL
SE +/- 484.84, N = 25
27891.30
2 x Xeon Platinum 8272CL NUMA off
SE +/- 618.01, N = 25
28365.57
2 x Xeon Platinum 8280
SE +/- 474.27, N = 25
26764.94
2 x Xeon Platinum 8375C
SE +/- 695.27, N = 20
31368.94
2 x Xeon Platinum 8375C NUMA off
SE +/- 472.37, N = 25
29523.65
EPYC 2 7R32
SE +/- 365.25, N = 20
19303.56
Xeon Platinum 8259CL
SE +/- 428.64, N = 25
26711.17
Xeon Platinum 8272CL
SE +/- 642.38, N = 25
23866.74
Xeon Platinum 8280
SE +/- 593.14, N = 25
21975.12
Xeon Platinum 8375C
SE +/- 414.26, N = 25
21743.32
Xeon W-3275M
SE +/- 599.32, N = 25
25186.67
7K
14K
21K
28K
35K

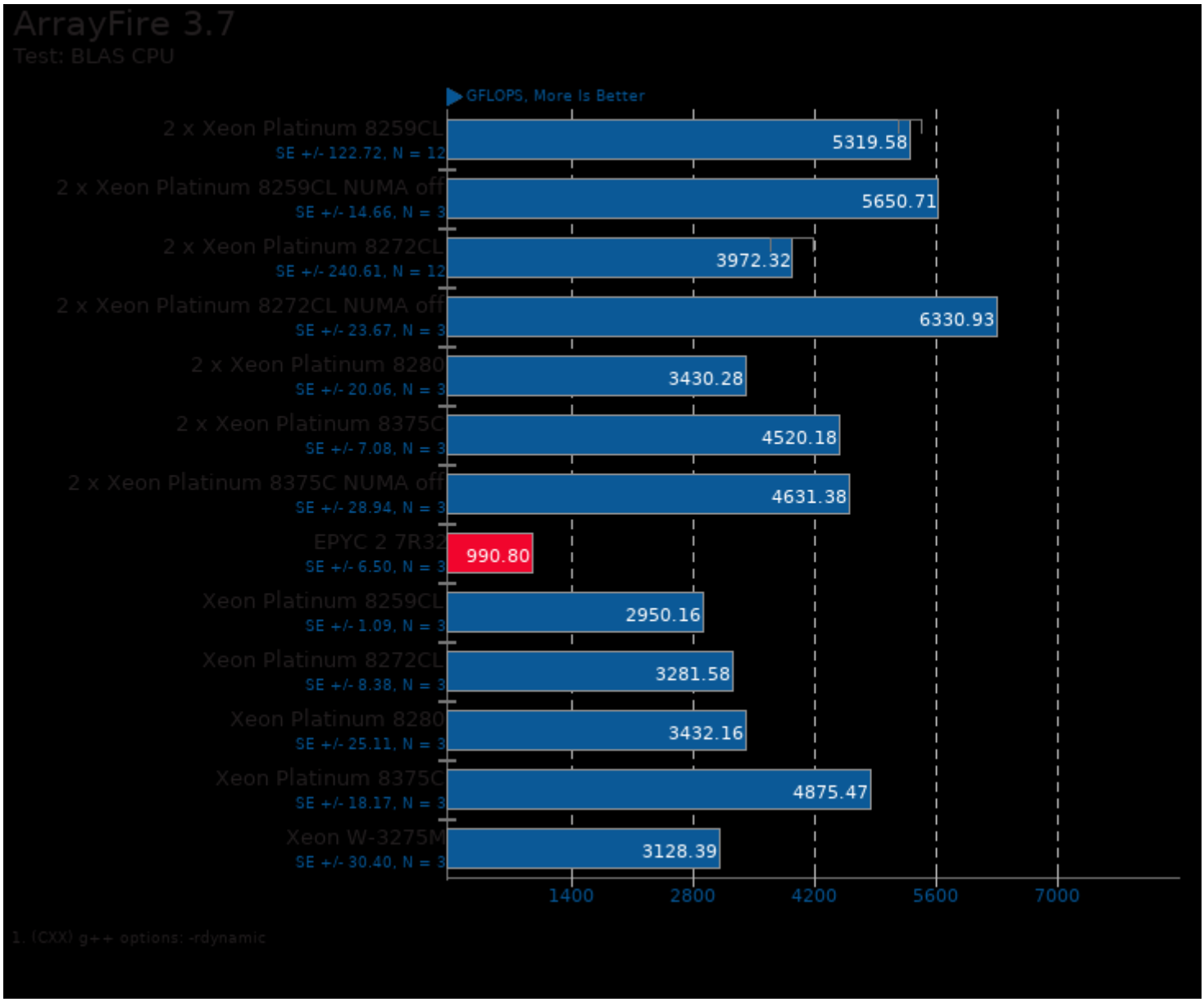

Renaissance 0.10.0
Test: Apache Spark PageRank
ms, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 278.82, N = 5
25275.16
2 x Xeon Platinum 8259CL NUMA off
SE +/- 232.21, N = 5
25636.69
2 x Xeon Platinum 8272CL
SE +/- 167.92, N = 5
23916.23
2 x Xeon Platinum 8272CL NUMA off
SE +/- 205.74, N = 5
24909.66
2 x Xeon Platinum 8280
SE +/- 286.23, N = 6
23588.40
2 x Xeon Platinum 8375C
SE +/- 172.53, N = 25
22456.61
2 x Xeon Platinum 8375C NUMA off
SE +/- 263.18, N = 5
22022.81
EPYC 2 7R32
SE +/- 198.48, N = 5
21641.95
Xeon Platinum 8259CL
SE +/- 154.16, N = 5
22226.85
Xeon Platinum 8272CL
SE +/- 170.65, N = 5
21895.64
Xeon Platinum 8280
SE +/- 169.44, N = 5
20621.23
Xeon Platinum 8375C
SE +/- 173.94, N = 5
19555.06
Xeon W-3275M
SE +/- 165.27, N = 5
21015.54
5K
10K
15K
20K
25K

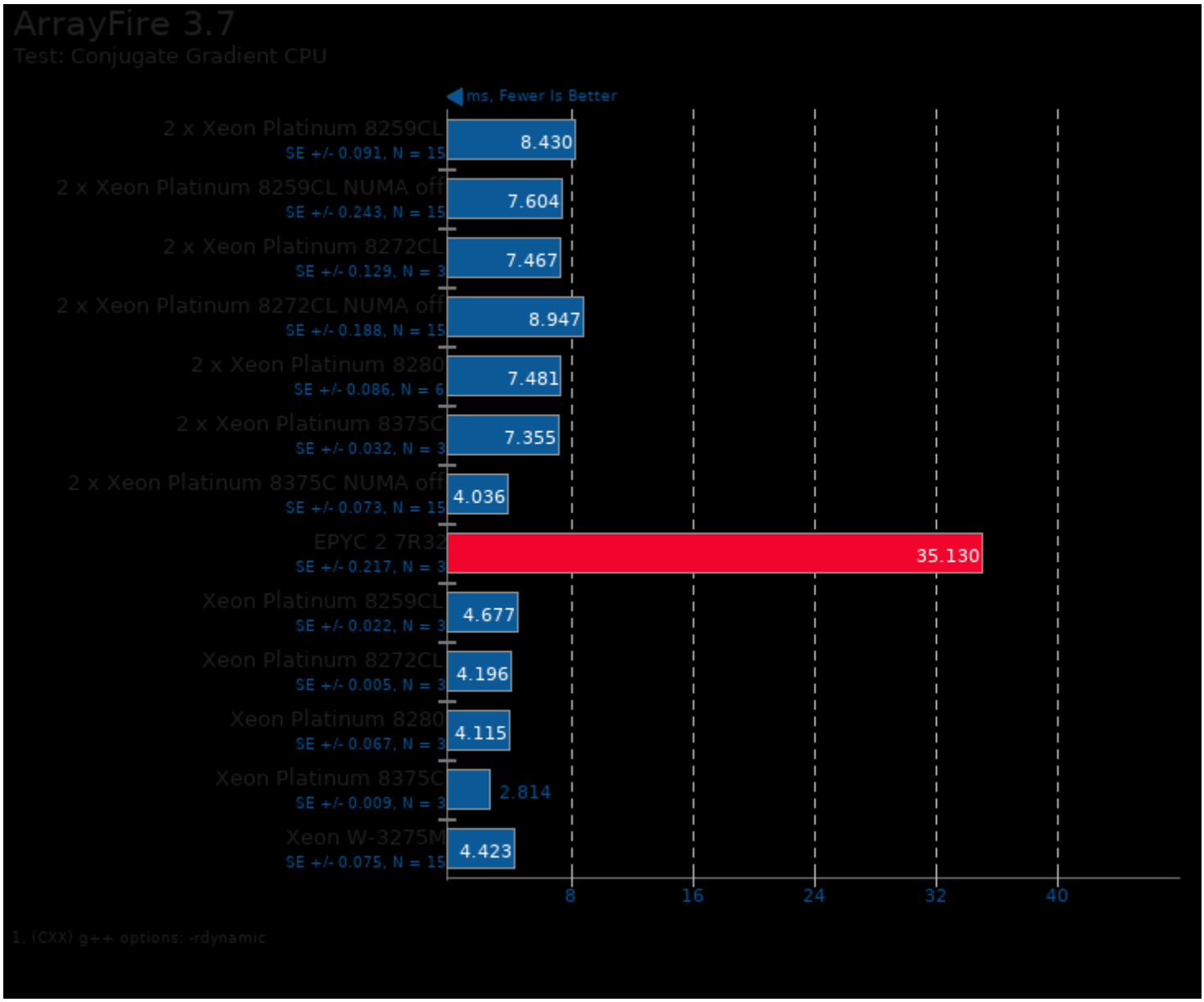

Nettle 3.5.1
Test: aes256
Mbyte/s, More Is Better
2 x Xeon Platinum 8259CL
SE +/- 24.71, N = 3
MIN: 3744.15 / MAX: 9173.02
5513.08
2 x Xeon Platinum 8259CL NUMA off
SE +/- 5.89, N = 3
MIN: 3739.77 / MAX: 9132.41
5523.31
2 x Xeon Platinum 8272CL
SE +/- 5.48, N = 3
MIN: 3943.77 / MAX: 9693.14
5852.22
2 x Xeon Platinum 8272CL NUMA off
SE +/- 2.12, N = 3
MIN: 3956.27 / MAX: 9681.61
5852.82
2 x Xeon Platinum 8280
SE +/- 3.29, N = 3
MIN: 4254.97 / MAX: 10469.4
6320.00
2 x Xeon Platinum 8375C
SE +/- 15.44, N = 3
MIN: 5265.65 / MAX: 13663.69
8044.39
2 x Xeon Platinum 8375C NUMA off
SE +/- 31.31, N = 3
MIN: 5102.53 / MAX: 13668.47
8007.34
EPYC 2 7R32
SE +/- 0.67, N = 3
MIN: 3372.31 / MAX: 7239.74
4665.33
Xeon Platinum 8259CL
SE +/- 20.53, N = 3
MIN: 3740.26 / MAX: 9153.64
5517.02
Xeon Platinum 8272CL
SE +/- 9.93, N = 3
MIN: 3880.03 / MAX: 9687.65
5830.30
Xeon Platinum 8280
SE +/- 7.98, N = 3
MIN: 4256.89 / MAX: 10467.36
6313.16
Xeon Platinum 8375C
SE +/- 9.18, N = 3
MIN: 5267.38 / MAX: 13669.67
8052.90
Xeon W-3275M
SE +/- 39.45, N = 3
MIN: 4721.3 / MAX: 11806.11
7070.60
2K
4K
6K
8K
10K
1. (CC) gcc options: -O2 -ggdb3 -lnettle -lgmp -lm -lcrypto

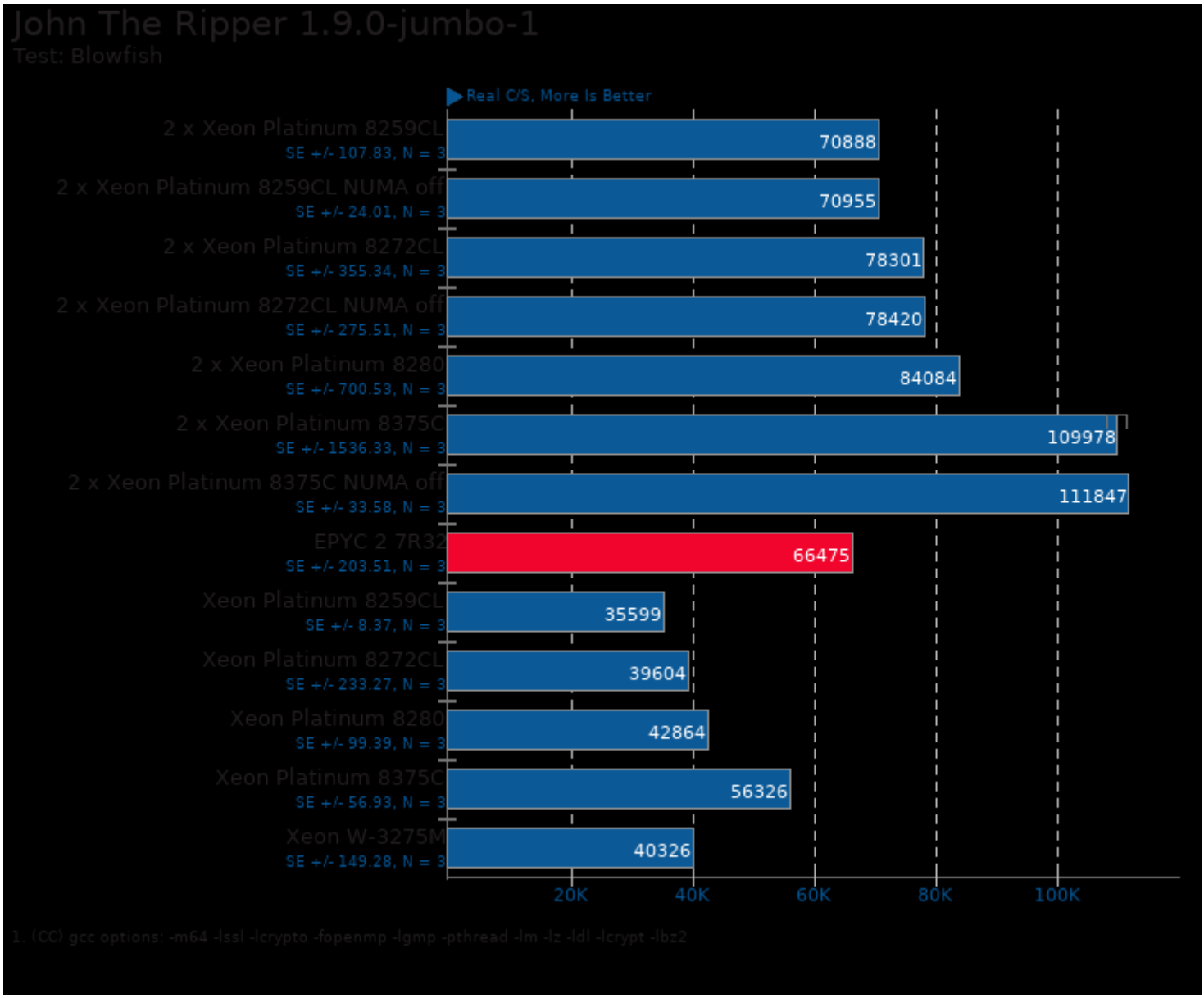

Nettle 3.5.1
Test: chacha
Mbyte/s, More Is Better
2 x Xeon Platinum 8259CL
SE +/- 4.50, N = 3
MIN: 461.99 / MAX: 2517.41
917.75
2 x Xeon Platinum 8259CL NUMA off
SE +/- 4.18, N = 3
MIN: 463.47 / MAX: 2517.16
917.51
2 x Xeon Platinum 8272CL
SE +/- 0.37, N = 3
MIN: 494.65 / MAX: 2659.52
974.46
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.28, N = 3
MIN: 495.02 / MAX: 2662.01
975.08
2 x Xeon Platinum 8280
SE +/- 0.37, N = 3
MIN: 535.04 / MAX: 2870.94
1051.94
2 x Xeon Platinum 8375C
SE +/- 8.54, N = 3
MIN: 418.33 / MAX: 2284.8
821.18
2 x Xeon Platinum 8375C NUMA off
SE +/- 6.97, N = 3
MIN: 418.76 / MAX: 2286.72
815.18
EPYC 2 7R32
SE +/- 0.08, N = 3
MIN: 382.32 / MAX: 2047.21
750.36
Xeon Platinum 8259CL
SE +/- 1.52, N = 3
MIN: 461.1 / MAX: 2517.2
920.51
Xeon Platinum 8272CL
SE +/- 2.25, N = 3
MIN: 491.16 / MAX: 2661.13
970.38
Xeon Platinum 8280
SE +/- 0.86, N = 3
MIN: 532.77 / MAX: 2871.25
1051.11
Xeon Platinum 8375C
SE +/- 9.77, N = 3
MIN: 419.2 / MAX: 2294.54
822.11
Xeon W-3275M
SE +/- 5.99, N = 3
MIN: 567.45 / MAX: 3234.29
1172.15
300
600
900
1200
1500
1. (CC) gcc options: -O2 -ggdb3 -lnettle -lgmp -lm -lcrypto

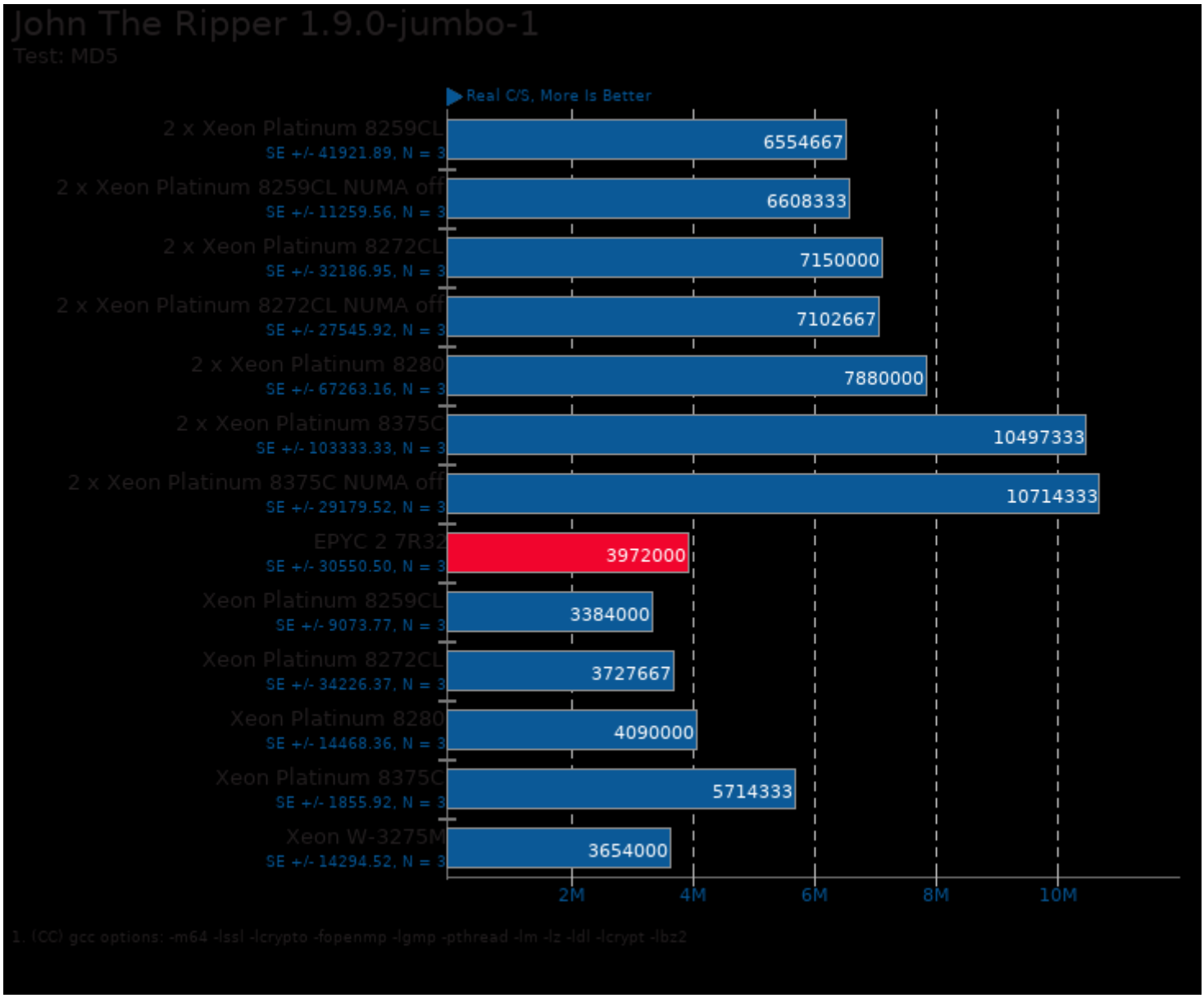

Nettle 3.5.1
Test: sha512
Mbyte/s, More Is Better
2 x Xeon Platinum 8259CL
SE +/- 2.61, N = 3
437.62
2 x Xeon Platinum 8259CL NUMA off
SE +/- 1.80, N = 3
438.23
2 x Xeon Platinum 8272CL
SE +/- 0.19, N = 3
465.18
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.20, N = 3
465.40
2 x Xeon Platinum 8280
SE +/- 0.97, N = 3
500.98
2 x Xeon Platinum 8375C
SE +/- 9.89, N = 15
456.39
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.13, N = 3
396.53
EPYC 2 7R32
SE +/- 0.28, N = 3
478.09
Xeon Platinum 8259CL
SE +/- 2.12, N = 3
436.73
Xeon Platinum 8272CL
SE +/- 1.50, N = 3
462.78
Xeon Platinum 8280
SE +/- 0.15, N = 3
501.98
Xeon Platinum 8375C
SE +/- 0.08, N = 3
396.69
Xeon W-3275M
SE +/- 2.72, N = 3
550.93
120
240
360
480
600
1. (CC) gcc options: -O2 -ggdb3 -lnettle -lgmp -lm -lcrypto

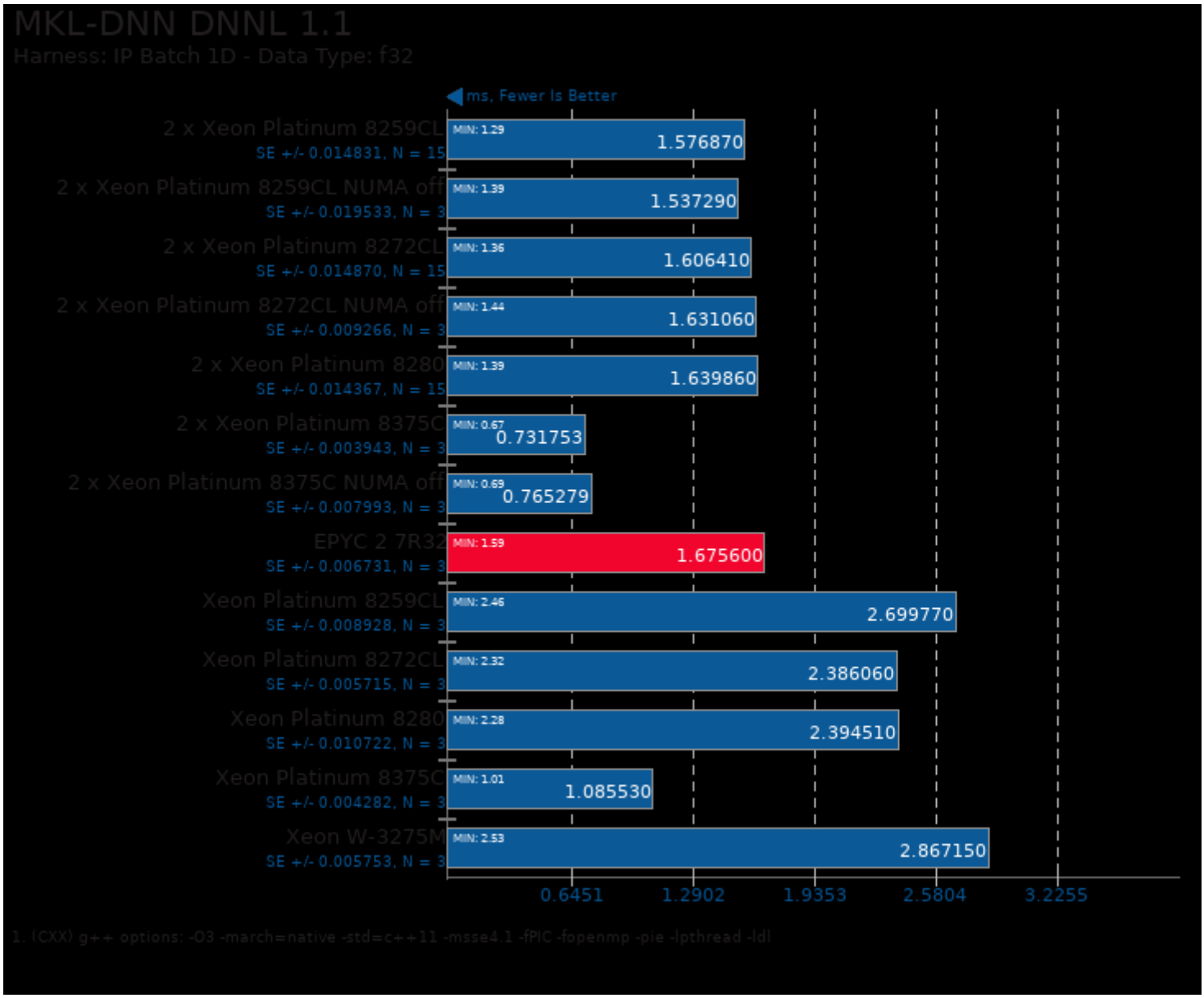

Nettle 3.5.1
Test: poly1305-aes
Mbyte/s, More Is Better
2 x Xeon Platinum 8259CL
SE +/- 15.23, N = 3
2497.86
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.36, N = 3
2516.87
2 x Xeon Platinum 8272CL
SE +/- 3.72, N = 3
2654.23
2 x Xeon Platinum 8272CL NUMA off
SE +/- 2.42, N = 3
2657.68
2 x Xeon Platinum 8280
SE +/- 1.10, N = 3
2868.69
2 x Xeon Platinum 8375C
SE +/- 35.93, N = 15
1963.03
2 x Xeon Platinum 8375C NUMA off
SE +/- 2.03, N = 3
1909.43
EPYC 2 7R32
SE +/- 0.71, N = 3
2046.35
Xeon Platinum 8259CL
SE +/- 12.50, N = 3
2492.48
Xeon Platinum 8272CL
SE +/- 12.97, N = 3
2661.61
Xeon Platinum 8280
SE +/- 0.87, N = 3
2867.48
Xeon Platinum 8375C
SE +/- 2.47, N = 3
1909.60
Xeon W-3275M
SE +/- 24.77, N = 3
3207.98
700
1400
2100
2800
3500
1. (CC) gcc options: -O2 -ggdb3 -lnettle -lgmp -lm -lcrypto

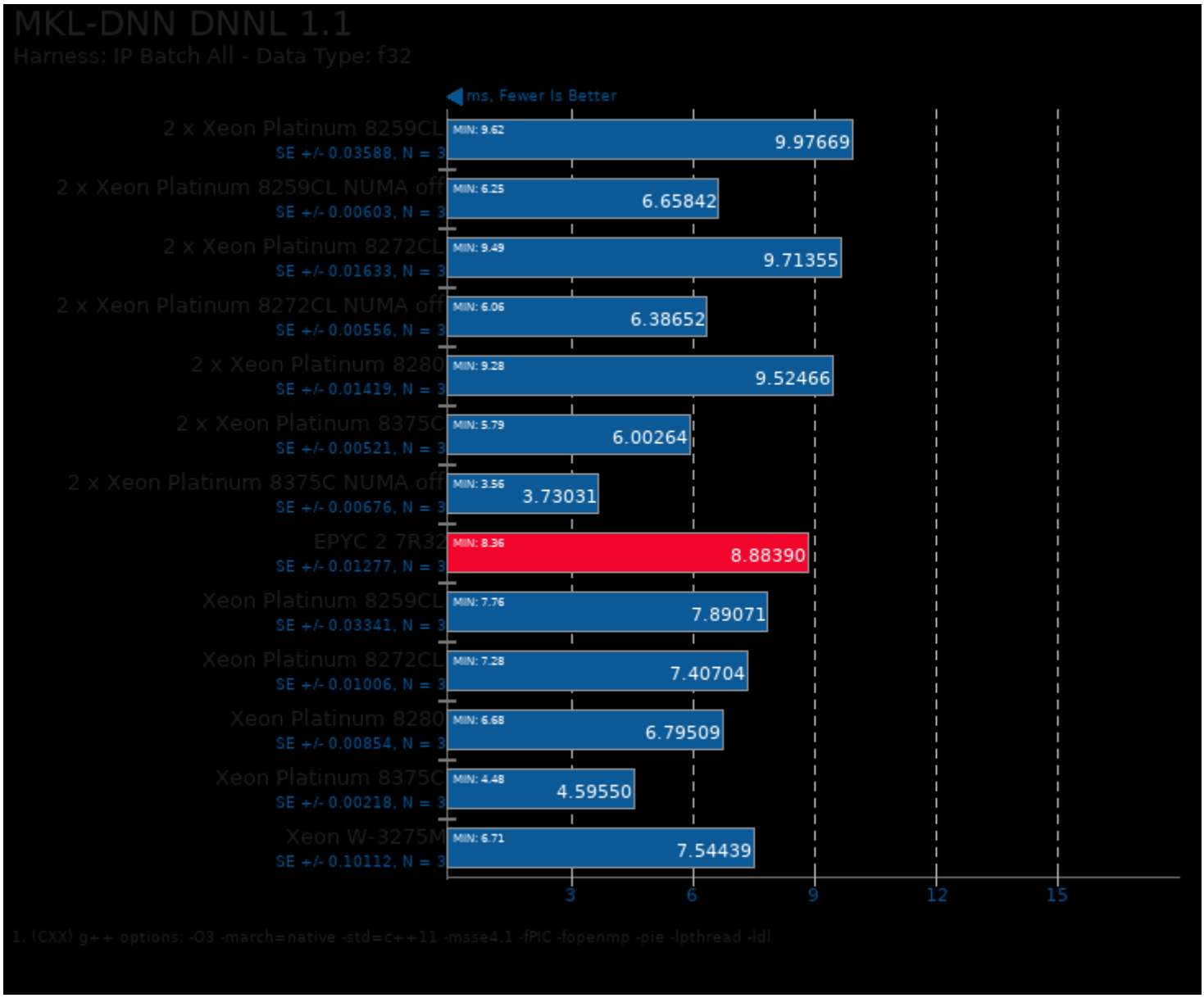

ArrayFire 3.7
Test: BLAS CPU
GFLOPS, More Is Better
2 x Xeon Platinum 8259CL
SE +/- 122.72, N = 12
5319.58
2 x Xeon Platinum 8259CL NUMA off
SE +/- 14.66, N = 3
5650.71
2 x Xeon Platinum 8272CL
SE +/- 240.61, N = 12
3972.32
2 x Xeon Platinum 8272CL NUMA off
SE +/- 23.67, N = 3
6330.93
2 x Xeon Platinum 8280
SE +/- 20.06, N = 3
3430.28
2 x Xeon Platinum 8375C
SE +/- 7.08, N = 3
4520.18
2 x Xeon Platinum 8375C NUMA off
SE +/- 28.94, N = 3
4631.38
EPYC 2 7R32
SE +/- 6.50, N = 3
990.80
Xeon Platinum 8259CL
SE +/- 1.09, N = 3
2950.16
Xeon Platinum 8272CL
SE +/- 8.38, N = 3
3281.58
Xeon Platinum 8280
SE +/- 25.11, N = 3
3432.16
Xeon Platinum 8375C
SE +/- 18.17, N = 3
4875.47
Xeon W-3275M
SE +/- 30.40, N = 3
3128.39
1400
2800
4200
5600
7000
1. (CXX) g++ options: -rdynamic

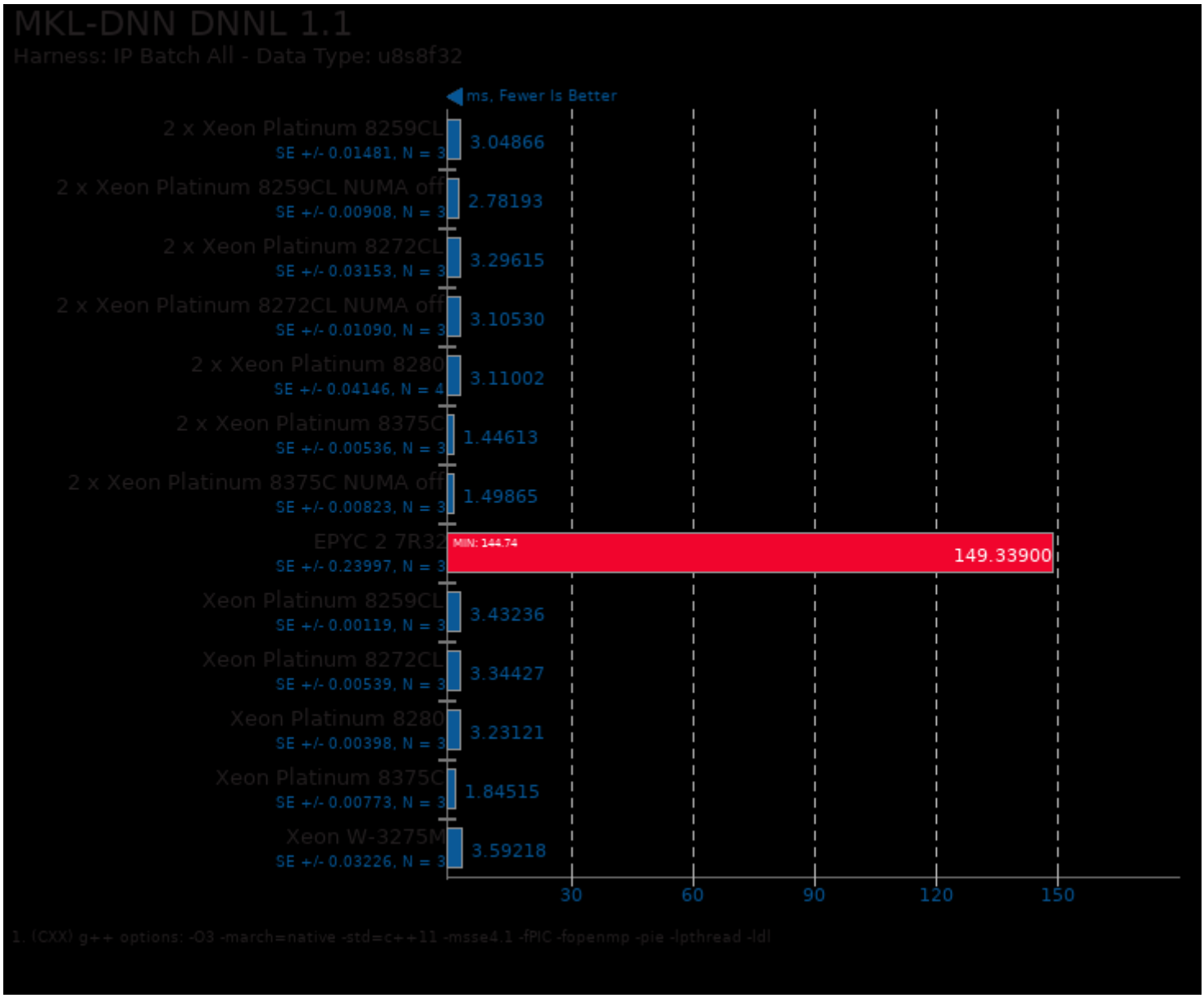

ArrayFire 3.7
Test: Conjugate Gradient CPU
ms, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.091, N = 15
8.430
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.243, N = 15
7.604
2 x Xeon Platinum 8272CL
SE +/- 0.129, N = 3
7.467
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.188, N = 15
8.947
2 x Xeon Platinum 8280
SE +/- 0.086, N = 6
7.481
2 x Xeon Platinum 8375C
SE +/- 0.032, N = 3
7.355
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.073, N = 15
4.036
EPYC 2 7R32
SE +/- 0.217, N = 3
35.130
Xeon Platinum 8259CL
SE +/- 0.022, N = 3
4.677
Xeon Platinum 8272CL
SE +/- 0.005, N = 3
4.196
Xeon Platinum 8280
SE +/- 0.067, N = 3
4.115
Xeon Platinum 8375C
SE +/- 0.009, N = 3
2.814
Xeon W-3275M
SE +/- 0.075, N = 15
4.423
8
16
24
32
40
1. (CXX) g++ options: -rdynamic

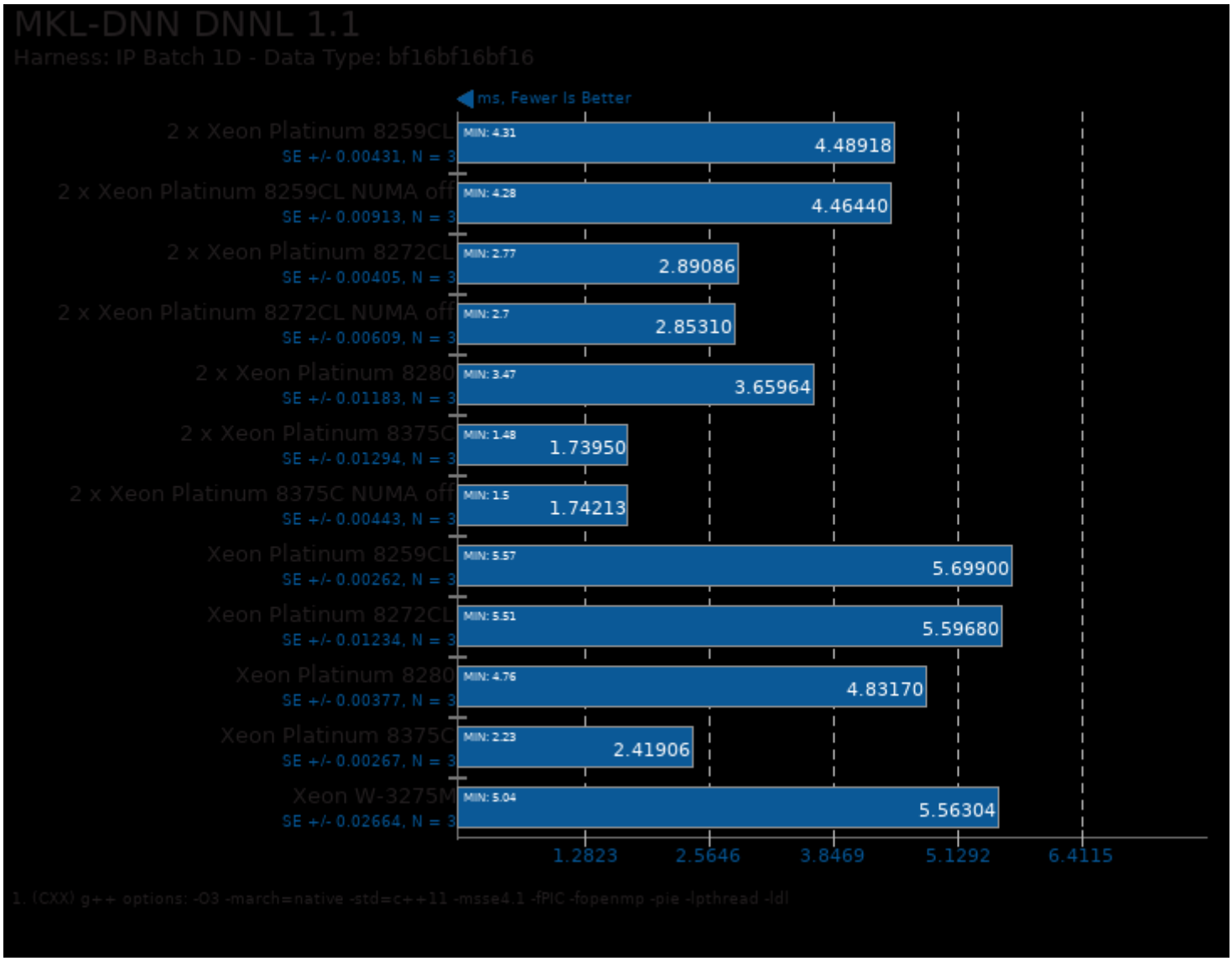

John The Ripper 1.9.0-jumbo-1
Test: Blowfish
Real C/S, More Is Better
2 x Xeon Platinum 8259CL
SE +/- 107.83, N = 3
70888
2 x Xeon Platinum 8259CL NUMA off
SE +/- 24.01, N = 3
70955
2 x Xeon Platinum 8272CL
SE +/- 355.34, N = 3
78301
2 x Xeon Platinum 8272CL NUMA off
SE +/- 275.51, N = 3
78420
2 x Xeon Platinum 8280
SE +/- 700.53, N = 3
84084
2 x Xeon Platinum 8375C
SE +/- 1536.33, N = 3
109978
2 x Xeon Platinum 8375C NUMA off
SE +/- 33.58, N = 3
111847
EPYC 2 7R32
SE +/- 203.51, N = 3
66475
Xeon Platinum 8259CL
SE +/- 8.37, N = 3
35599
Xeon Platinum 8272CL
SE +/- 233.27, N = 3
39604
Xeon Platinum 8280
SE +/- 99.39, N = 3
42864
Xeon Platinum 8375C
SE +/- 56.93, N = 3
56326
Xeon W-3275M
SE +/- 149.28, N = 3
40326
20K
40K
60K
80K
100K
1. (CC) gcc options: -m64 -lssl -lcrypto -fopenmp -lgmp -pthread -lm -lz -ldl -lcrypt -lbz2

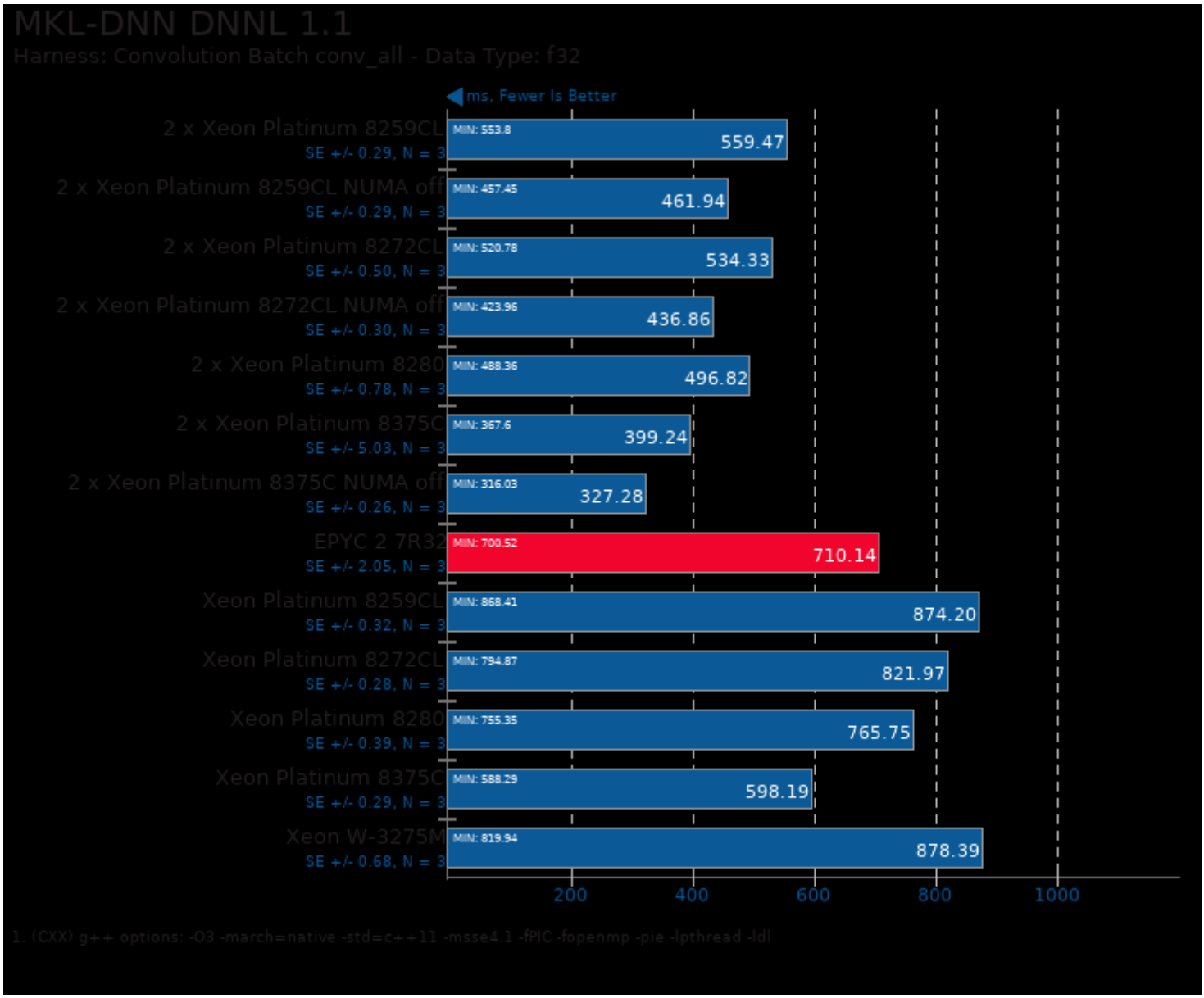

John The Ripper 1.9.0-jumbo-1
Test: MD5
Real C/S, More Is Better
2 x Xeon Platinum 8259CL
SE +/- 41921.89, N = 3
6554667
2 x Xeon Platinum 8259CL NUMA off
SE +/- 11259.56, N = 3
6608333
2 x Xeon Platinum 8272CL
SE +/- 32186.95, N = 3
7150000
2 x Xeon Platinum 8272CL NUMA off
SE +/- 27545.92, N = 3
7102667
2 x Xeon Platinum 8280
SE +/- 67263.16, N = 3
7880000
2 x Xeon Platinum 8375C
SE +/- 103333.33, N = 3
10497333
2 x Xeon Platinum 8375C NUMA off
SE +/- 29179.52, N = 3
10714333
EPYC 2 7R32
SE +/- 30550.50, N = 3
3972000
Xeon Platinum 8259CL
SE +/- 9073.77, N = 3
3384000
Xeon Platinum 8272CL
SE +/- 34226.37, N = 3
3727667
Xeon Platinum 8280
SE +/- 14468.36, N = 3
4090000
Xeon Platinum 8375C
SE +/- 1855.92, N = 3
5714333
Xeon W-3275M
SE +/- 14294.52, N = 3
3654000
2M
4M
6M
8M
10M
1. (CC) gcc options: -m64 -lssl -lcrypto -fopenmp -lgmp -pthread -lm -lz -ldl -lcrypt -lbz2

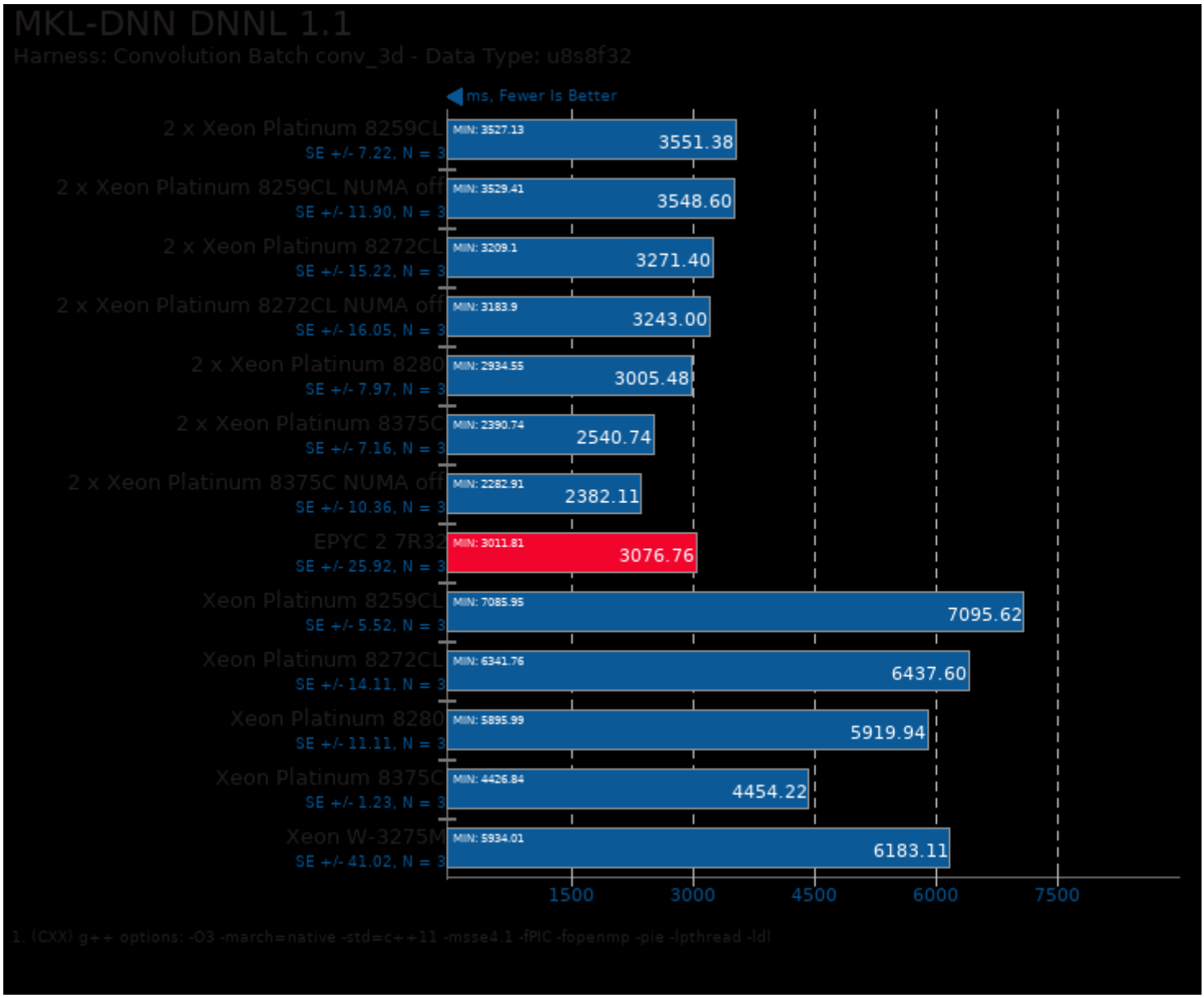

MKL-DNN DNNL 1.1
Harness: IP Batch 1D - Data Type: f32
ms, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.014831, N = 15
MIN: 1.29
1.576870
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.019533, N = 3
MIN: 1.39
1.537290
2 x Xeon Platinum 8272CL
SE +/- 0.014870, N = 15
MIN: 1.36
1.606410
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.009266, N = 3
MIN: 1.44
1.631060
2 x Xeon Platinum 8280
SE +/- 0.014367, N = 15
MIN: 1.39
1.639860
2 x Xeon Platinum 8375C
SE +/- 0.003943, N = 3
MIN: 0.67
0.731753
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.007993, N = 3
MIN: 0.69
0.765279
EPYC 2 7R32
SE +/- 0.006731, N = 3
MIN: 1.59
1.675600
Xeon Platinum 8259CL
SE +/- 0.008928, N = 3
MIN: 2.46
2.699770
Xeon Platinum 8272CL
SE +/- 0.005715, N = 3
MIN: 2.32
2.386060
Xeon Platinum 8280
SE +/- 0.010722, N = 3
MIN: 2.28
2.394510
Xeon Platinum 8375C
SE +/- 0.004282, N = 3
MIN: 1.01
1.085530
Xeon W-3275M
SE +/- 0.005753, N = 3
MIN: 2.53
2.867150
0.6451
1.2902
1.9353
2.5804
3.2255
1. (CXX) g++ options: -O3 -march=native -std=c++11 -msse4.1 -fPIC -fopenmp -pie -lpthread -ldl

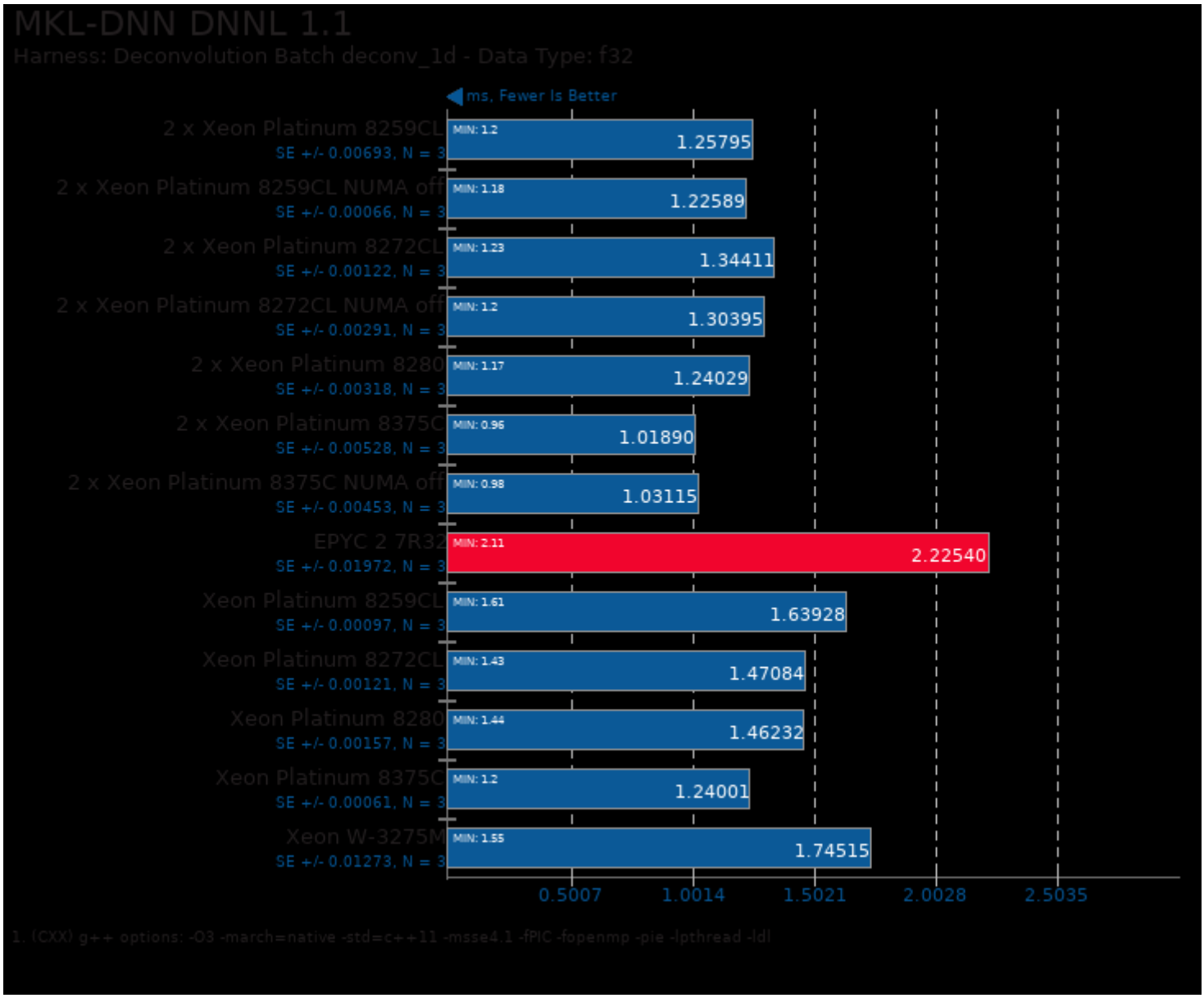

MKL-DNN DNNL 1.1
Harness: IP Batch All - Data Type: f32
ms, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.03588, N = 3
MIN: 9.62
9.97669
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.00603, N = 3
MIN: 6.25
6.65842
2 x Xeon Platinum 8272CL
SE +/- 0.01633, N = 3
MIN: 9.49
9.71355
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.00556, N = 3
MIN: 6.06
6.38652
2 x Xeon Platinum 8280
SE +/- 0.01419, N = 3
MIN: 9.28
9.52466
2 x Xeon Platinum 8375C
SE +/- 0.00521, N = 3
MIN: 5.79
6.00264
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.00676, N = 3
MIN: 3.56
3.73031
EPYC 2 7R32
SE +/- 0.01277, N = 3
MIN: 8.36
8.88390
Xeon Platinum 8259CL
SE +/- 0.03341, N = 3
MIN: 7.76
7.89071
Xeon Platinum 8272CL
SE +/- 0.01006, N = 3
MIN: 7.28
7.40704
Xeon Platinum 8280
SE +/- 0.00854, N = 3
MIN: 6.68
6.79509
Xeon Platinum 8375C
SE +/- 0.00218, N = 3
MIN: 4.48
4.59550
Xeon W-3275M
SE +/- 0.10112, N = 3
MIN: 6.71
7.54439
3
6
9
12
15
1. (CXX) g++ options: -O3 -march=native -std=c++11 -msse4.1 -fPIC -fopenmp -pie -lpthread -ldl

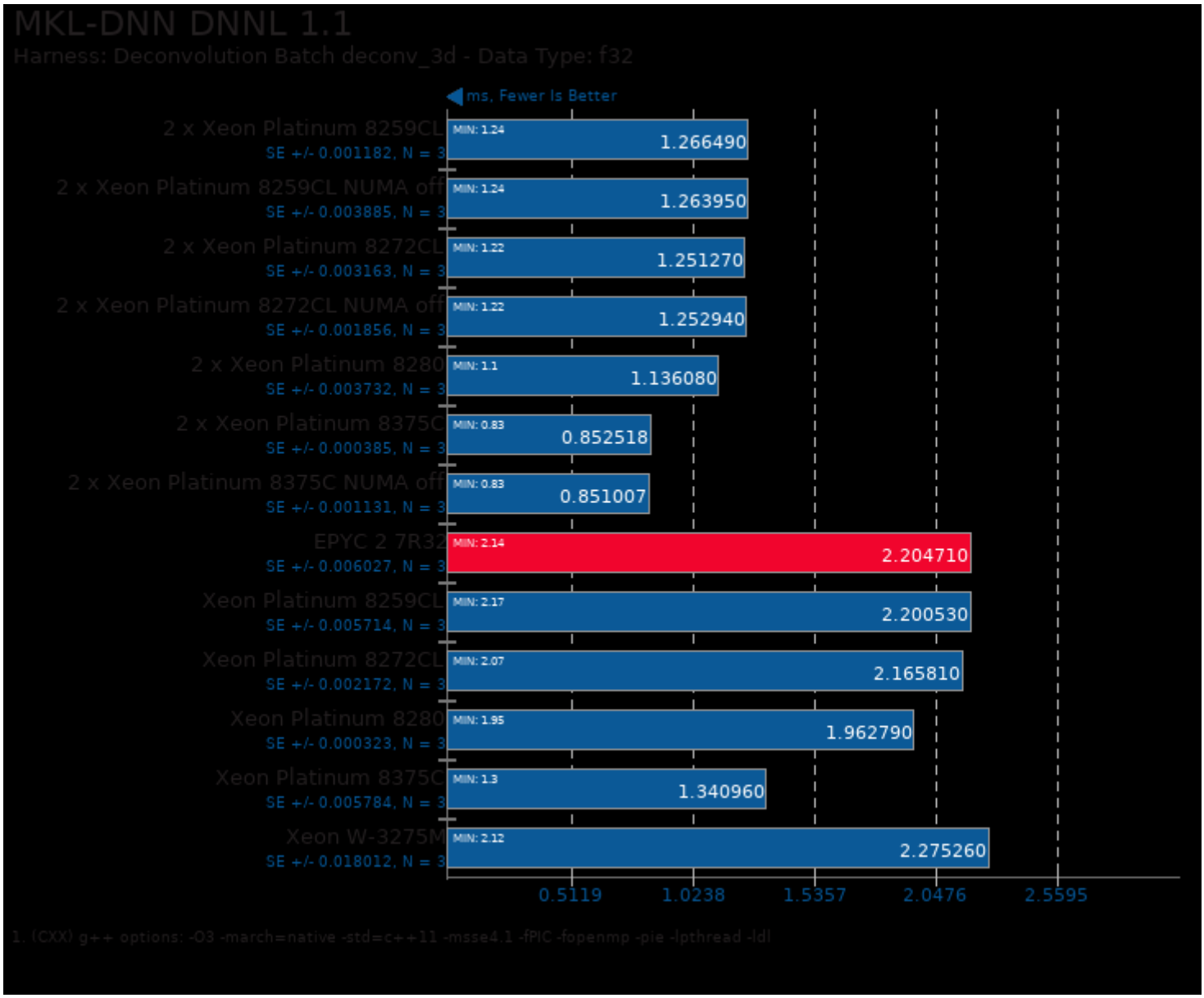

MKL-DNN DNNL 1.1
Harness: IP Batch All - Data Type: u8s8f32
ms, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.01481, N = 3
3.04866
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.00908, N = 3
2.78193
2 x Xeon Platinum 8272CL
SE +/- 0.03153, N = 3
3.29615
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.01090, N = 3
3.10530
2 x Xeon Platinum 8280
SE +/- 0.04146, N = 4
3.11002
2 x Xeon Platinum 8375C
SE +/- 0.00536, N = 3
1.44613
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.00823, N = 3
1.49865
EPYC 2 7R32
SE +/- 0.23997, N = 3
MIN: 144.74
149.33900
Xeon Platinum 8259CL
SE +/- 0.00119, N = 3
3.43236
Xeon Platinum 8272CL
SE +/- 0.00539, N = 3
3.34427
Xeon Platinum 8280
SE +/- 0.00398, N = 3
3.23121
Xeon Platinum 8375C
SE +/- 0.00773, N = 3
1.84515
Xeon W-3275M
SE +/- 0.03226, N = 3
3.59218
30
60
90
120
150
1. (CXX) g++ options: -O3 -march=native -std=c++11 -msse4.1 -fPIC -fopenmp -pie -lpthread -ldl

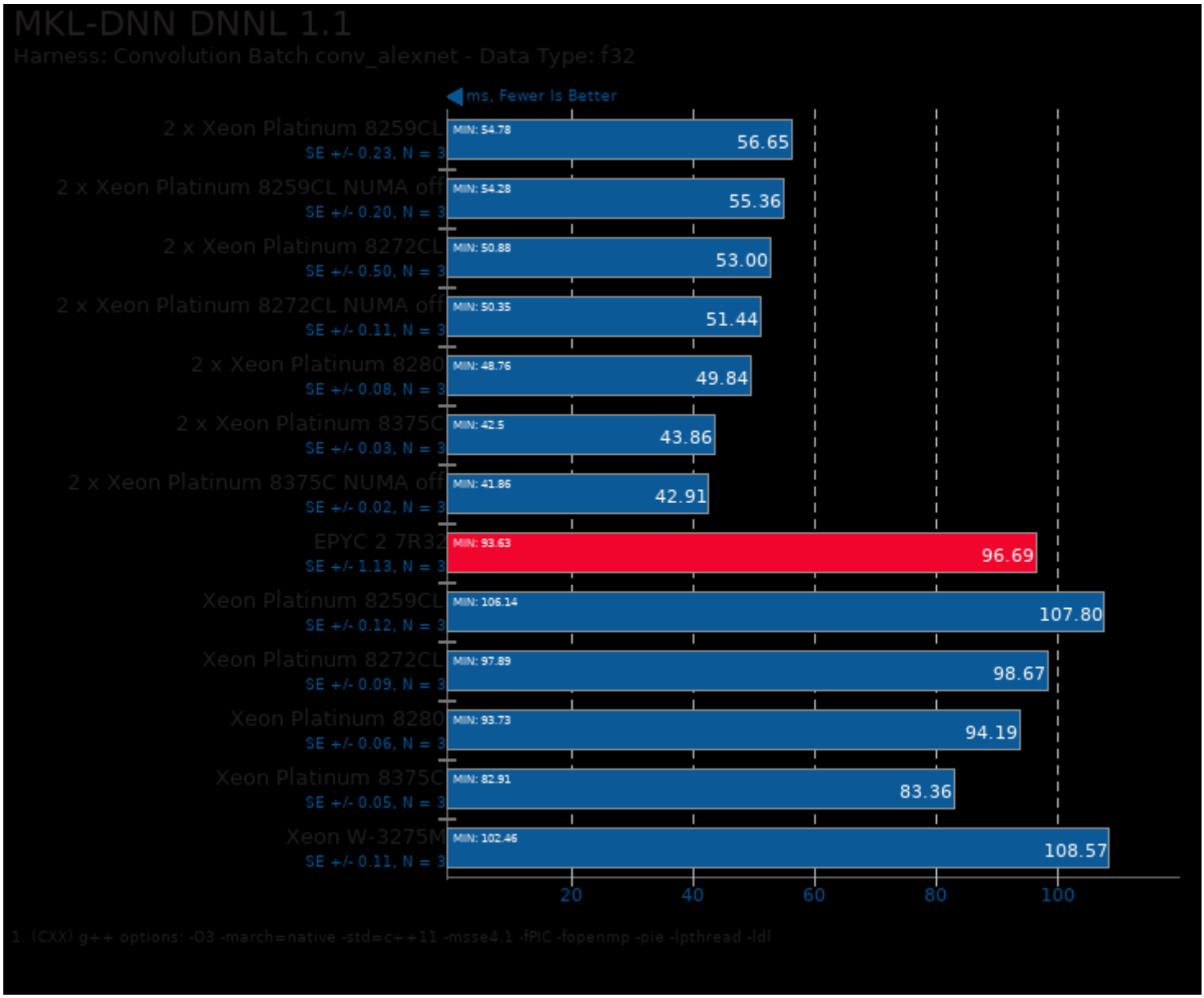

MKL-DNN DNNL 1.1
Harness: IP Batch 1D - Data Type: bf16bf16bf16
ms, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.00431, N = 3
MIN: 4.31
4.48918
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.00913, N = 3
MIN: 4.28
4.46440
2 x Xeon Platinum 8272CL
SE +/- 0.00405, N = 3
MIN: 2.77
2.89086
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.00609, N = 3
MIN: 2.7
2.85310
2 x Xeon Platinum 8280
SE +/- 0.01183, N = 3
MIN: 3.47
3.65964
2 x Xeon Platinum 8375C
SE +/- 0.01294, N = 3
MIN: 1.48
1.73950
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.00443, N = 3
MIN: 1.5
1.74213
Xeon Platinum 8259CL
SE +/- 0.00262, N = 3
MIN: 5.57
5.69900
Xeon Platinum 8272CL
SE +/- 0.01234, N = 3
MIN: 5.51
5.59680
Xeon Platinum 8280
SE +/- 0.00377, N = 3
MIN: 4.76
4.83170
Xeon Platinum 8375C
SE +/- 0.00267, N = 3
MIN: 2.23
2.41906
Xeon W-3275M
SE +/- 0.02664, N = 3
MIN: 5.04
5.56304
1.2823
2.5646
3.8469
5.1292
6.4115
1. (CXX) g++ options: -O3 -march=native -std=c++11 -msse4.1 -fPIC -fopenmp -pie -lpthread -ldl

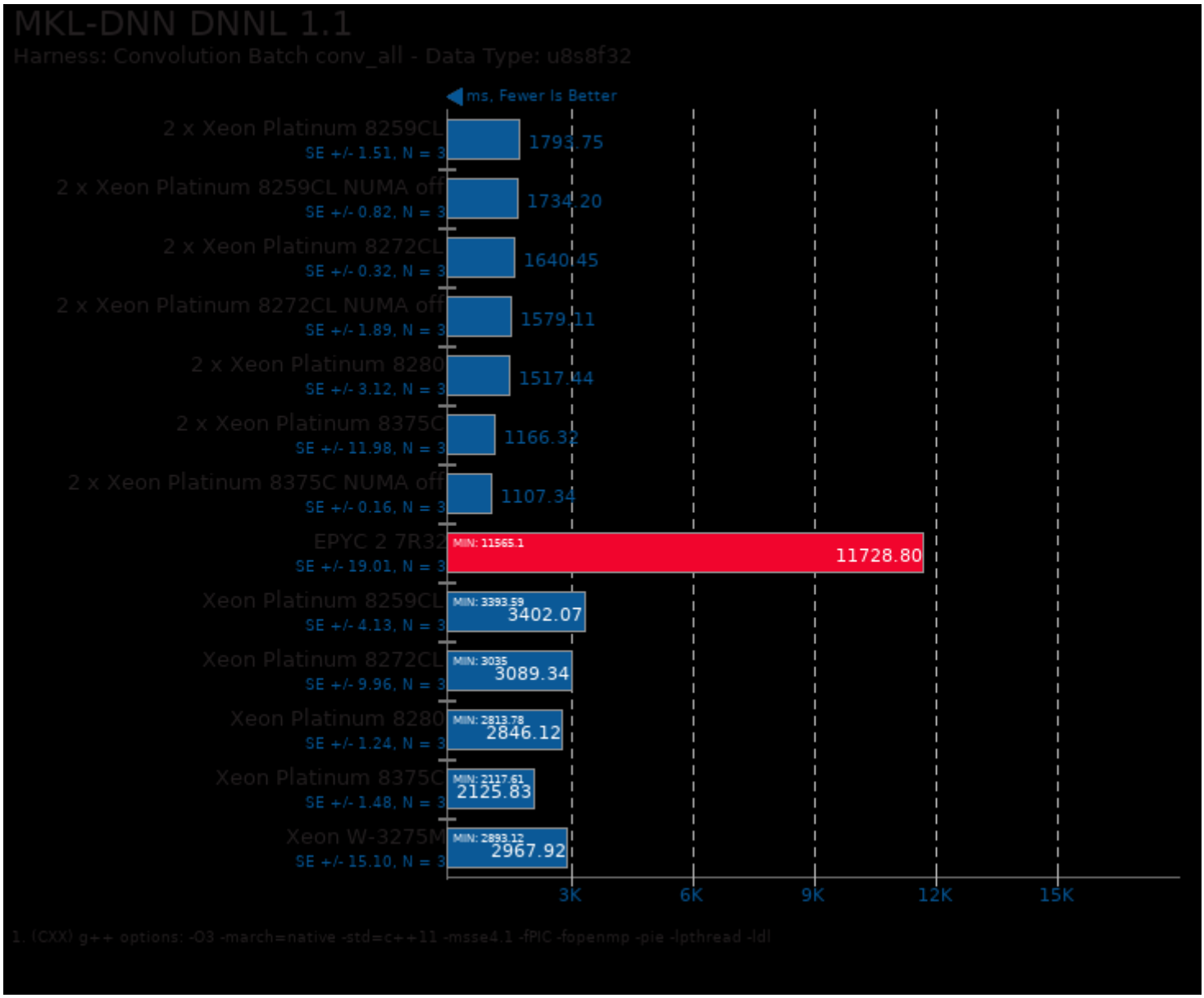

MKL-DNN DNNL 1.1
Harness: Convolution Batch conv_all - Data Type: f32
ms, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.29, N = 3
MIN: 553.8
559.47
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.29, N = 3
MIN: 457.45
461.94
2 x Xeon Platinum 8272CL
SE +/- 0.50, N = 3
MIN: 520.78
534.33
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.30, N = 3
MIN: 423.96
436.86
2 x Xeon Platinum 8280
SE +/- 0.78, N = 3
MIN: 488.36
496.82
2 x Xeon Platinum 8375C
SE +/- 5.03, N = 3
MIN: 367.6
399.24
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.26, N = 3
MIN: 316.03
327.28
EPYC 2 7R32
SE +/- 2.05, N = 3
MIN: 700.52
710.14
Xeon Platinum 8259CL
SE +/- 0.32, N = 3
MIN: 868.41
874.20
Xeon Platinum 8272CL
SE +/- 0.28, N = 3
MIN: 794.87
821.97
Xeon Platinum 8280
SE +/- 0.39, N = 3
MIN: 755.35
765.75
Xeon Platinum 8375C
SE +/- 0.29, N = 3
MIN: 588.29
598.19
Xeon W-3275M
SE +/- 0.68, N = 3
MIN: 819.94
878.39
200
400
600
800
1000
1. (CXX) g++ options: -O3 -march=native -std=c++11 -msse4.1 -fPIC -fopenmp -pie -lpthread -ldl

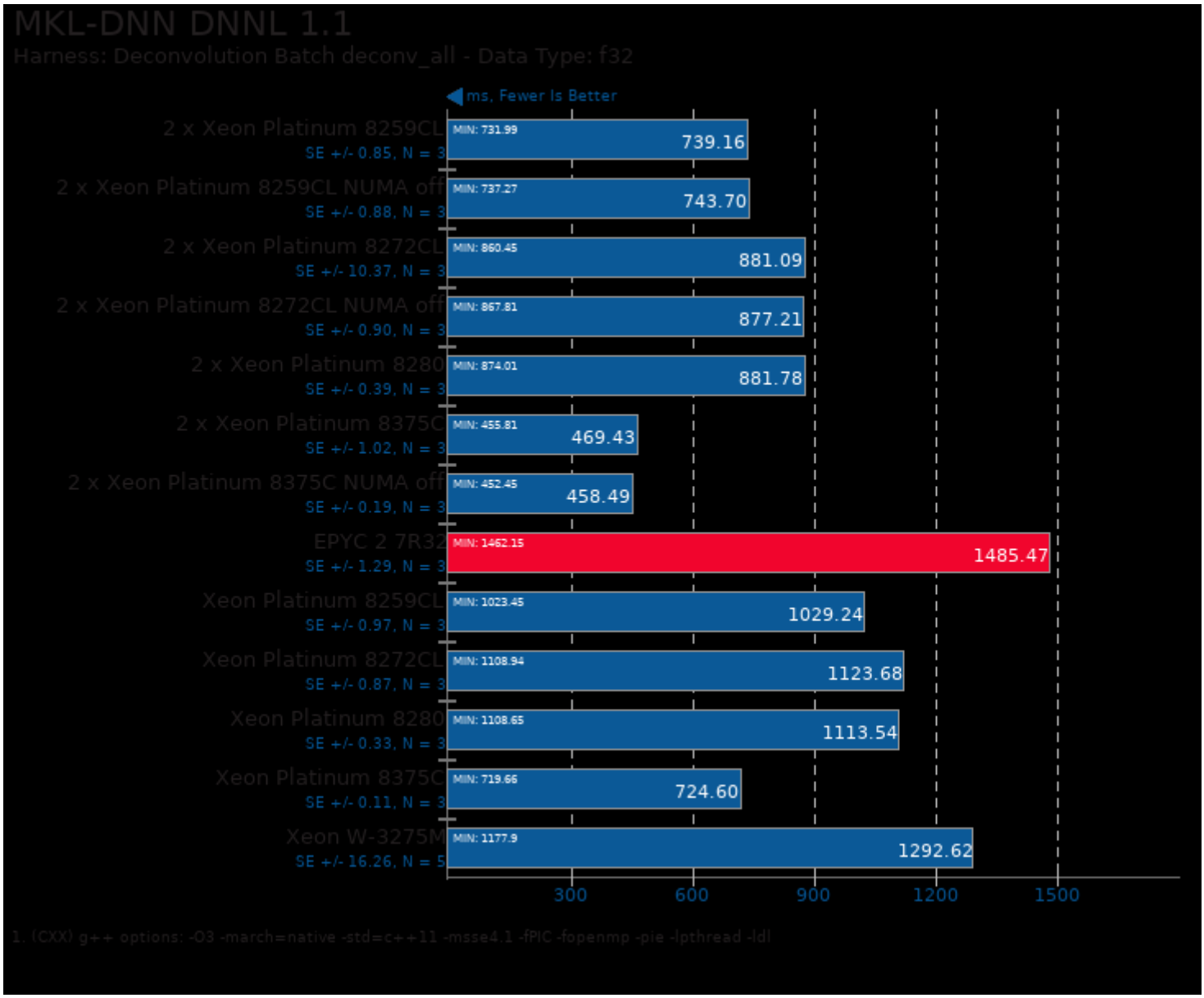

MKL-DNN DNNL 1.1
Harness: Convolution Batch conv_3d - Data Type: u8s8f32
ms, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 7.22, N = 3
MIN: 3527.13
3551.38
2 x Xeon Platinum 8259CL NUMA off
SE +/- 11.90, N = 3
MIN: 3529.41
3548.60
2 x Xeon Platinum 8272CL
SE +/- 15.22, N = 3
MIN: 3209.1
3271.40
2 x Xeon Platinum 8272CL NUMA off
SE +/- 16.05, N = 3
MIN: 3183.9
3243.00
2 x Xeon Platinum 8280
SE +/- 7.97, N = 3
MIN: 2934.55
3005.48
2 x Xeon Platinum 8375C
SE +/- 7.16, N = 3
MIN: 2390.74
2540.74
2 x Xeon Platinum 8375C NUMA off
SE +/- 10.36, N = 3
MIN: 2282.91
2382.11
EPYC 2 7R32
SE +/- 25.92, N = 3
MIN: 3011.81
3076.76
Xeon Platinum 8259CL
SE +/- 5.52, N = 3
MIN: 7085.95
7095.62
Xeon Platinum 8272CL
SE +/- 14.11, N = 3
MIN: 6341.76
6437.60
Xeon Platinum 8280
SE +/- 11.11, N = 3
MIN: 5895.99
5919.94
Xeon Platinum 8375C
SE +/- 1.23, N = 3
MIN: 4426.84
4454.22
Xeon W-3275M
SE +/- 41.02, N = 3
MIN: 5934.01
6183.11
1500
3000
4500
6000
7500
1. (CXX) g++ options: -O3 -march=native -std=c++11 -msse4.1 -fPIC -fopenmp -pie -lpthread -ldl

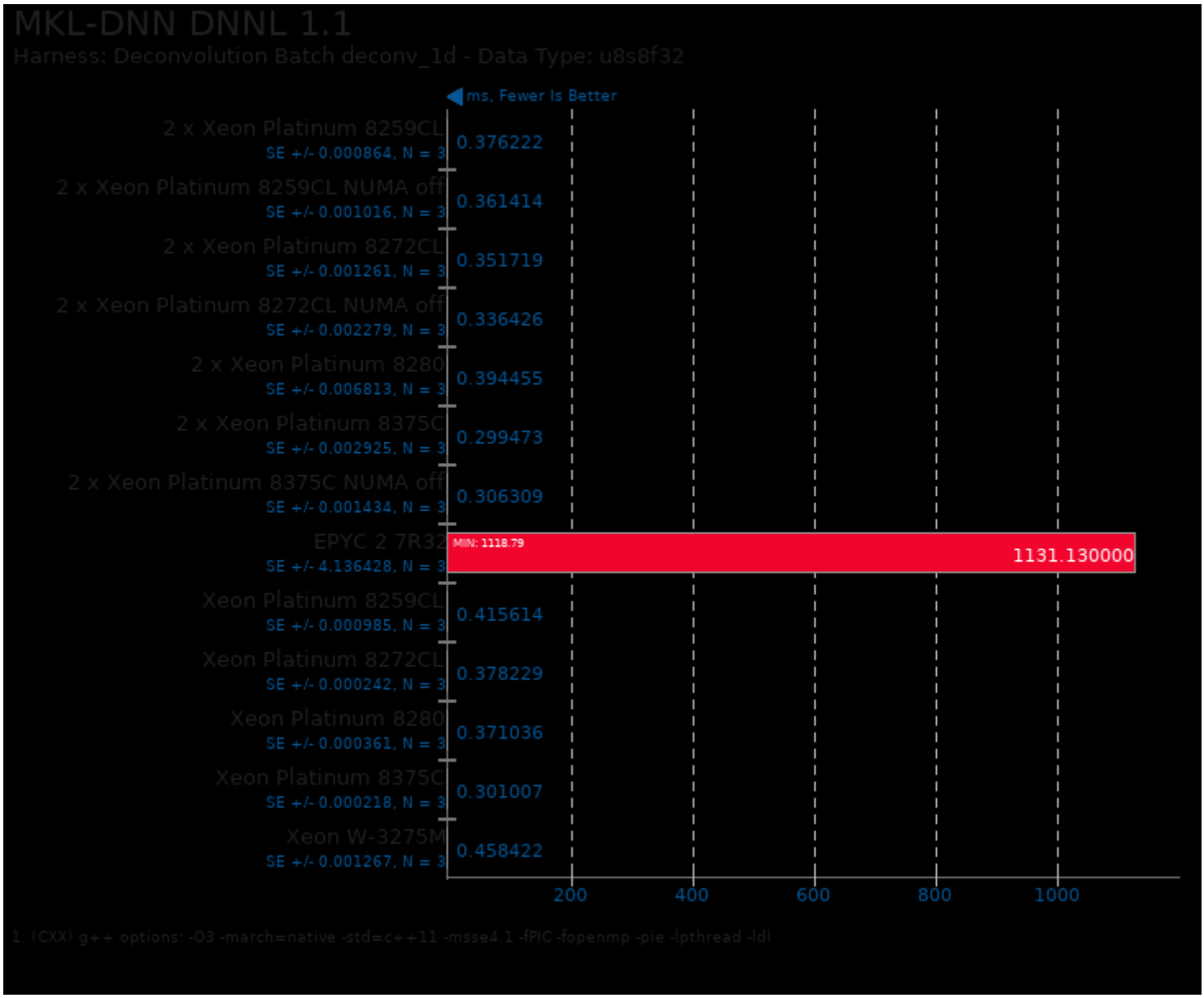

MKL-DNN DNNL 1.1
Harness: Deconvolution Batch deconv_1d - Data Type: f32
ms, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.00693, N = 3
MIN: 1.2
1.25795
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.00066, N = 3
MIN: 1.18
1.22589
2 x Xeon Platinum 8272CL
SE +/- 0.00122, N = 3
MIN: 1.23
1.34411
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.00291, N = 3
MIN: 1.2
1.30395
2 x Xeon Platinum 8280
SE +/- 0.00318, N = 3
MIN: 1.17
1.24029
2 x Xeon Platinum 8375C
SE +/- 0.00528, N = 3
MIN: 0.96
1.01890
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.00453, N = 3
MIN: 0.98
1.03115
EPYC 2 7R32
SE +/- 0.01972, N = 3
MIN: 2.11
2.22540
Xeon Platinum 8259CL
SE +/- 0.00097, N = 3
MIN: 1.61
1.63928
Xeon Platinum 8272CL
SE +/- 0.00121, N = 3
MIN: 1.43
1.47084
Xeon Platinum 8280
SE +/- 0.00157, N = 3
MIN: 1.44
1.46232
Xeon Platinum 8375C
SE +/- 0.00061, N = 3
MIN: 1.2
1.24001
Xeon W-3275M
SE +/- 0.01273, N = 3
MIN: 1.55
1.74515
0.5007
1.0014
1.5021
2.0028
2.5035
1. (CXX) g++ options: -O3 -march=native -std=c++11 -msse4.1 -fPIC -fopenmp -pie -lpthread -ldl

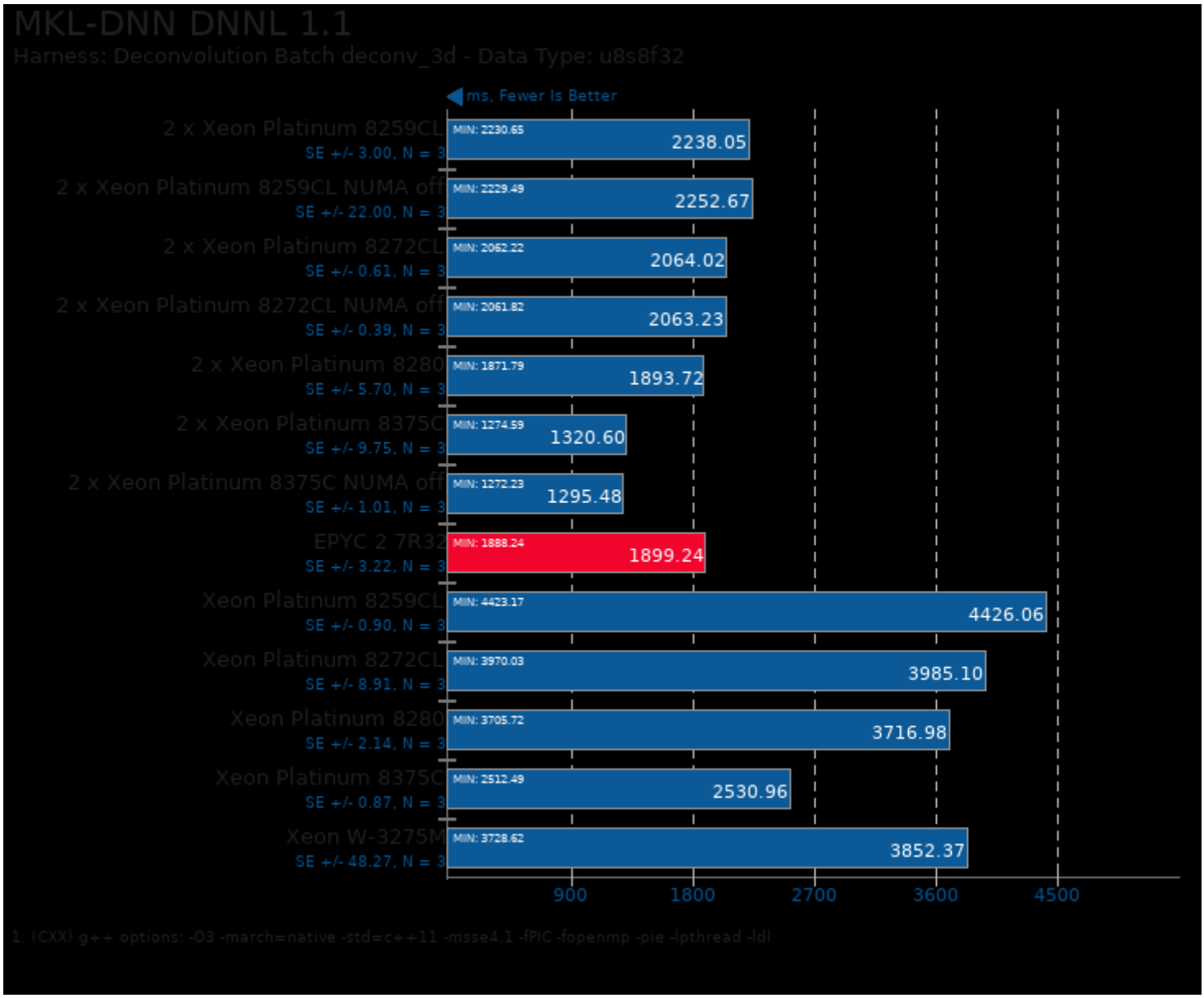

MKL-DNN DNNL 1.1
Harness: Deconvolution Batch deconv_3d - Data Type: f32
ms, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.001182, N = 3
MIN: 1.24
1.266490
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.003885, N = 3
MIN: 1.24
1.263950
2 x Xeon Platinum 8272CL
SE +/- 0.003163, N = 3
MIN: 1.22
1.251270
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.001856, N = 3
MIN: 1.22
1.252940
2 x Xeon Platinum 8280
SE +/- 0.003732, N = 3
MIN: 1.1
1.136080
2 x Xeon Platinum 8375C
SE +/- 0.000385, N = 3
MIN: 0.83
0.852518
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.001131, N = 3
MIN: 0.83
0.851007
EPYC 2 7R32
SE +/- 0.006027, N = 3
MIN: 2.14
2.204710
Xeon Platinum 8259CL
SE +/- 0.005714, N = 3
MIN: 2.17
2.200530
Xeon Platinum 8272CL
SE +/- 0.002172, N = 3
MIN: 2.07
2.165810
Xeon Platinum 8280
SE +/- 0.000323, N = 3
MIN: 1.95
1.962790
Xeon Platinum 8375C
SE +/- 0.005784, N = 3
MIN: 1.3
1.340960
Xeon W-3275M
SE +/- 0.018012, N = 3
MIN: 2.12
2.275260
0.5119
1.0238
1.5357
2.0476
2.5595
1. (CXX) g++ options: -O3 -march=native -std=c++11 -msse4.1 -fPIC -fopenmp -pie -lpthread -ldl

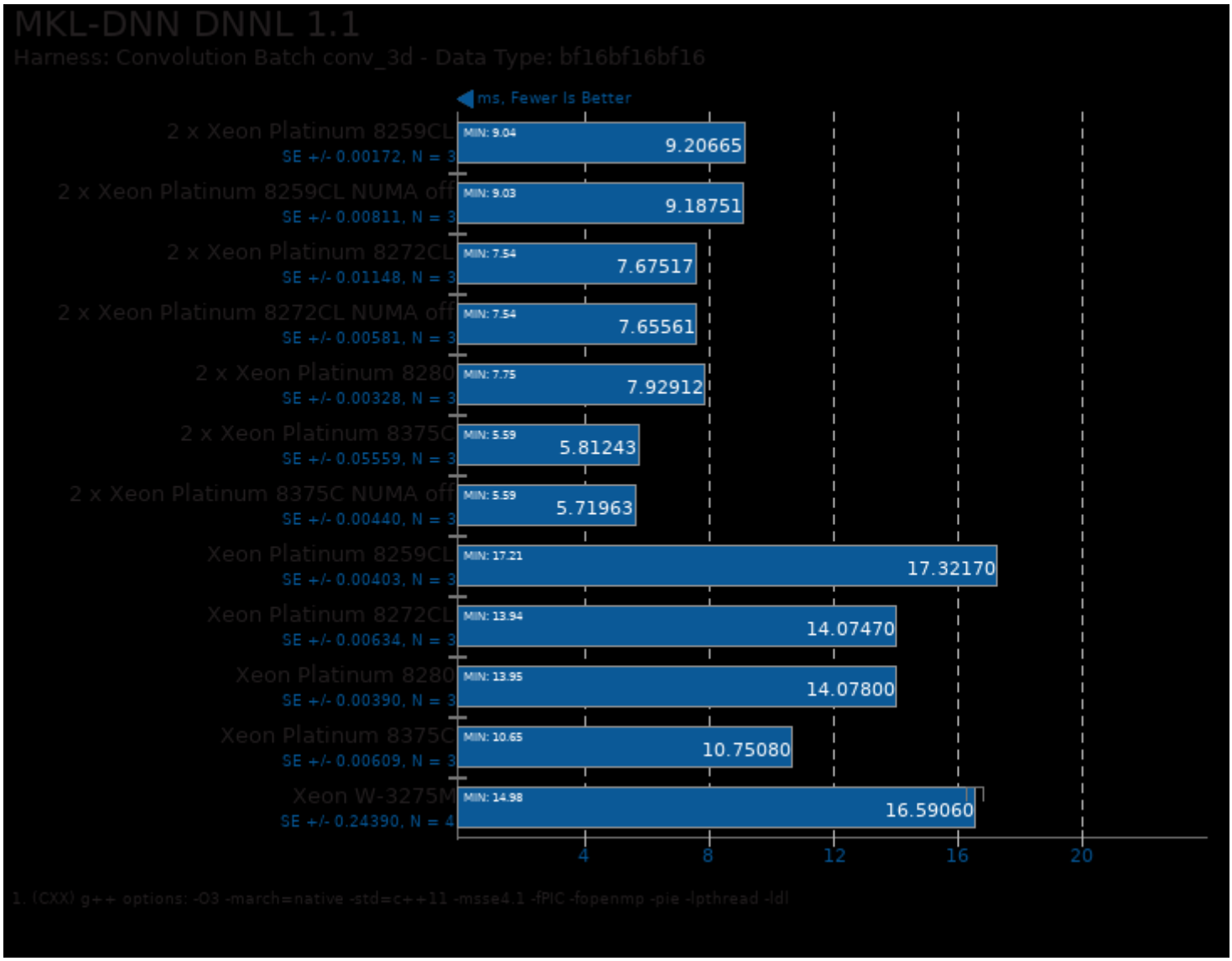

MKL-DNN DNNL 1.1
Harness: Convolution Batch conv_alexnet - Data Type: f32
ms, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.23, N = 3
MIN: 54.78
56.65
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.20, N = 3
MIN: 54.28
55.36
2 x Xeon Platinum 8272CL
SE +/- 0.50, N = 3
MIN: 50.88
53.00
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.11, N = 3
MIN: 50.35
51.44
2 x Xeon Platinum 8280
SE +/- 0.08, N = 3
MIN: 48.76
49.84
2 x Xeon Platinum 8375C
SE +/- 0.03, N = 3
MIN: 42.5
43.86
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.02, N = 3
MIN: 41.86
42.91
EPYC 2 7R32
SE +/- 1.13, N = 3
MIN: 93.63
96.69
Xeon Platinum 8259CL
SE +/- 0.12, N = 3
MIN: 106.14
107.80
Xeon Platinum 8272CL
SE +/- 0.09, N = 3
MIN: 97.89
98.67
Xeon Platinum 8280
SE +/- 0.06, N = 3
MIN: 93.73
94.19
Xeon Platinum 8375C
SE +/- 0.05, N = 3
MIN: 82.91
83.36
Xeon W-3275M
SE +/- 0.11, N = 3
MIN: 102.46
108.57
20
40
60
80
100
1. (CXX) g++ options: -O3 -march=native -std=c++11 -msse4.1 -fPIC -fopenmp -pie -lpthread -ldl

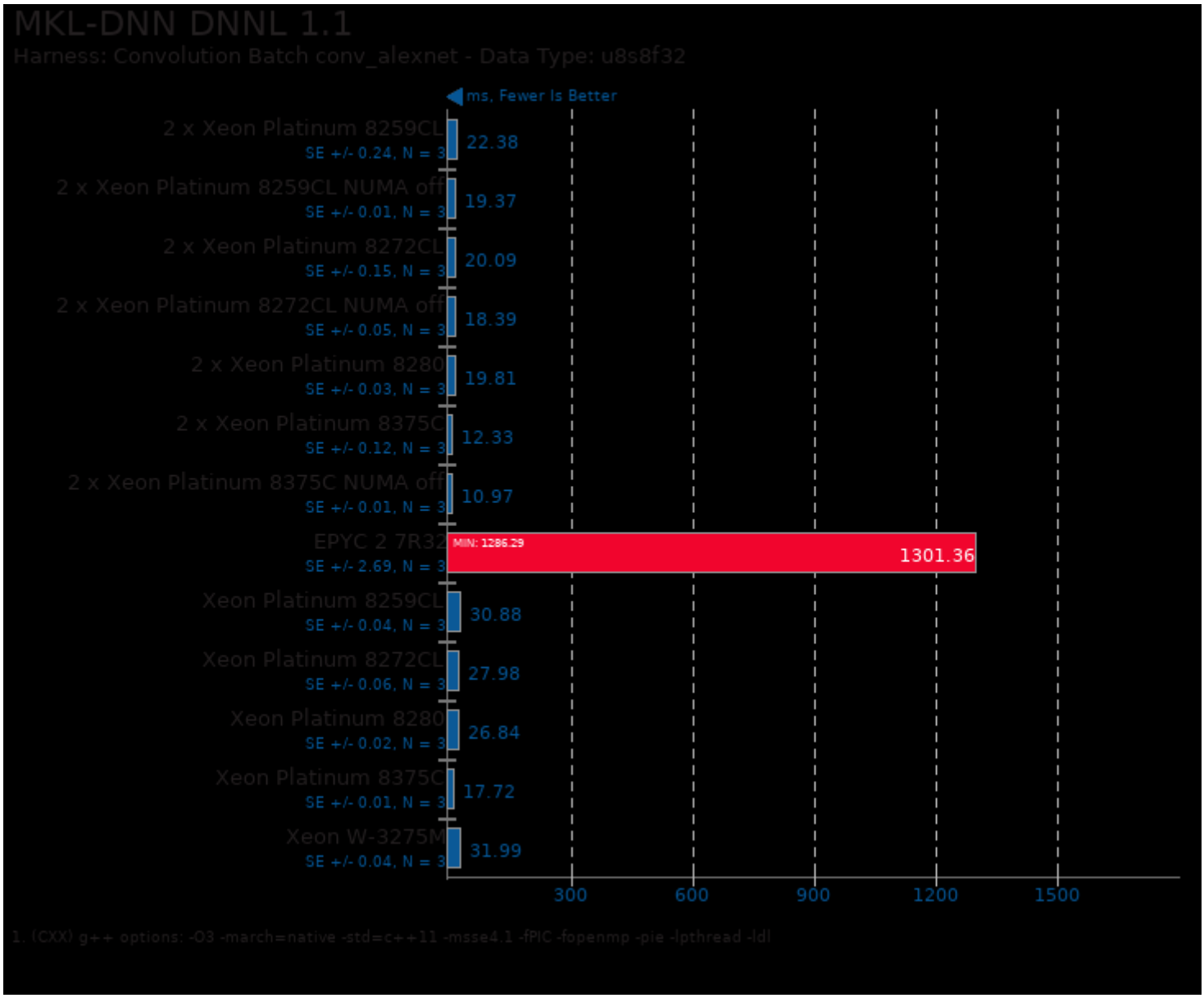

MKL-DNN DNNL 1.1
Harness: Convolution Batch conv_all - Data Type: u8s8f32
ms, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 1.51, N = 3
1793.75
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.82, N = 3
1734.20
2 x Xeon Platinum 8272CL
SE +/- 0.32, N = 3
1640.45
2 x Xeon Platinum 8272CL NUMA off
SE +/- 1.89, N = 3
1579.11
2 x Xeon Platinum 8280
SE +/- 3.12, N = 3
1517.44
2 x Xeon Platinum 8375C
SE +/- 11.98, N = 3
1166.32
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.16, N = 3
1107.34
EPYC 2 7R32
SE +/- 19.01, N = 3
MIN: 11565.1
11728.80
Xeon Platinum 8259CL
SE +/- 4.13, N = 3
MIN: 3393.59
3402.07
Xeon Platinum 8272CL
SE +/- 9.96, N = 3
MIN: 3035
3089.34
Xeon Platinum 8280
SE +/- 1.24, N = 3
MIN: 2813.78
2846.12
Xeon Platinum 8375C
SE +/- 1.48, N = 3
MIN: 2117.61
2125.83
Xeon W-3275M
SE +/- 15.10, N = 3
MIN: 2893.12
2967.92
3K
6K
9K
12K
15K
1. (CXX) g++ options: -O3 -march=native -std=c++11 -msse4.1 -fPIC -fopenmp -pie -lpthread -ldl

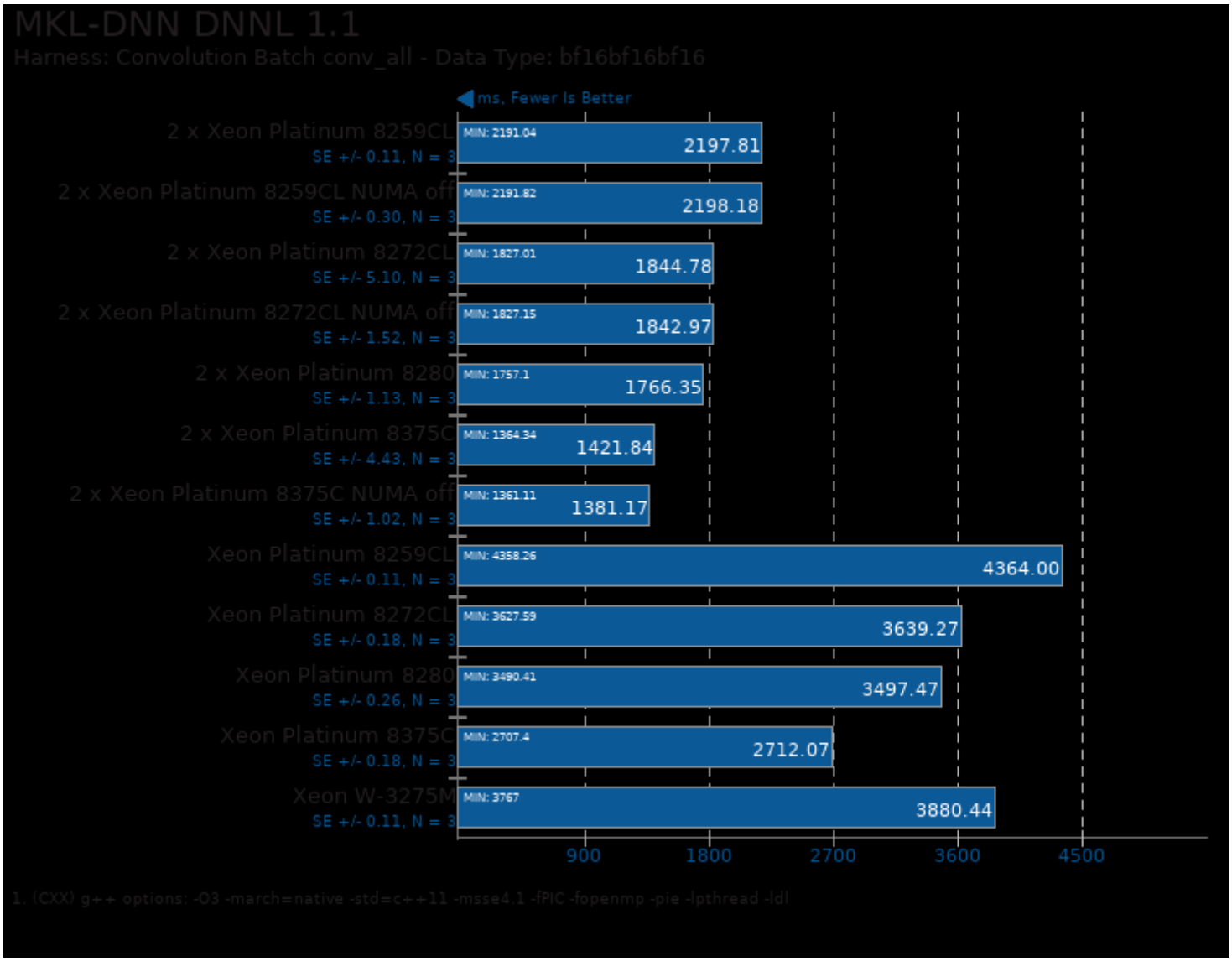

MKL-DNN DNNL 1.1
Harness: Deconvolution Batch deconv_all - Data Type: f32
ms, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.85, N = 3
MIN: 731.99
739.16
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.88, N = 3
MIN: 737.27
743.70
2 x Xeon Platinum 8272CL
SE +/- 10.37, N = 3
MIN: 860.45
881.09
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.90, N = 3
MIN: 867.81
877.21
2 x Xeon Platinum 8280
SE +/- 0.39, N = 3
MIN: 874.01
881.78
2 x Xeon Platinum 8375C
SE +/- 1.02, N = 3
MIN: 455.81
469.43
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.19, N = 3
MIN: 452.45
458.49
EPYC 2 7R32
SE +/- 1.29, N = 3
MIN: 1462.15
1485.47
Xeon Platinum 8259CL
SE +/- 0.97, N = 3
MIN: 1023.45
1029.24
Xeon Platinum 8272CL
SE +/- 0.87, N = 3
MIN: 1108.94
1123.68
Xeon Platinum 8280
SE +/- 0.33, N = 3
MIN: 1108.65
1113.54
Xeon Platinum 8375C
SE +/- 0.11, N = 3
MIN: 719.66
724.60
Xeon W-3275M
SE +/- 16.26, N = 5
MIN: 1177.9
1292.62
300
600
900
1200
1500
1. (CXX) g++ options: -O3 -march=native -std=c++11 -msse4.1 -fPIC -fopenmp -pie -lpthread -ldl

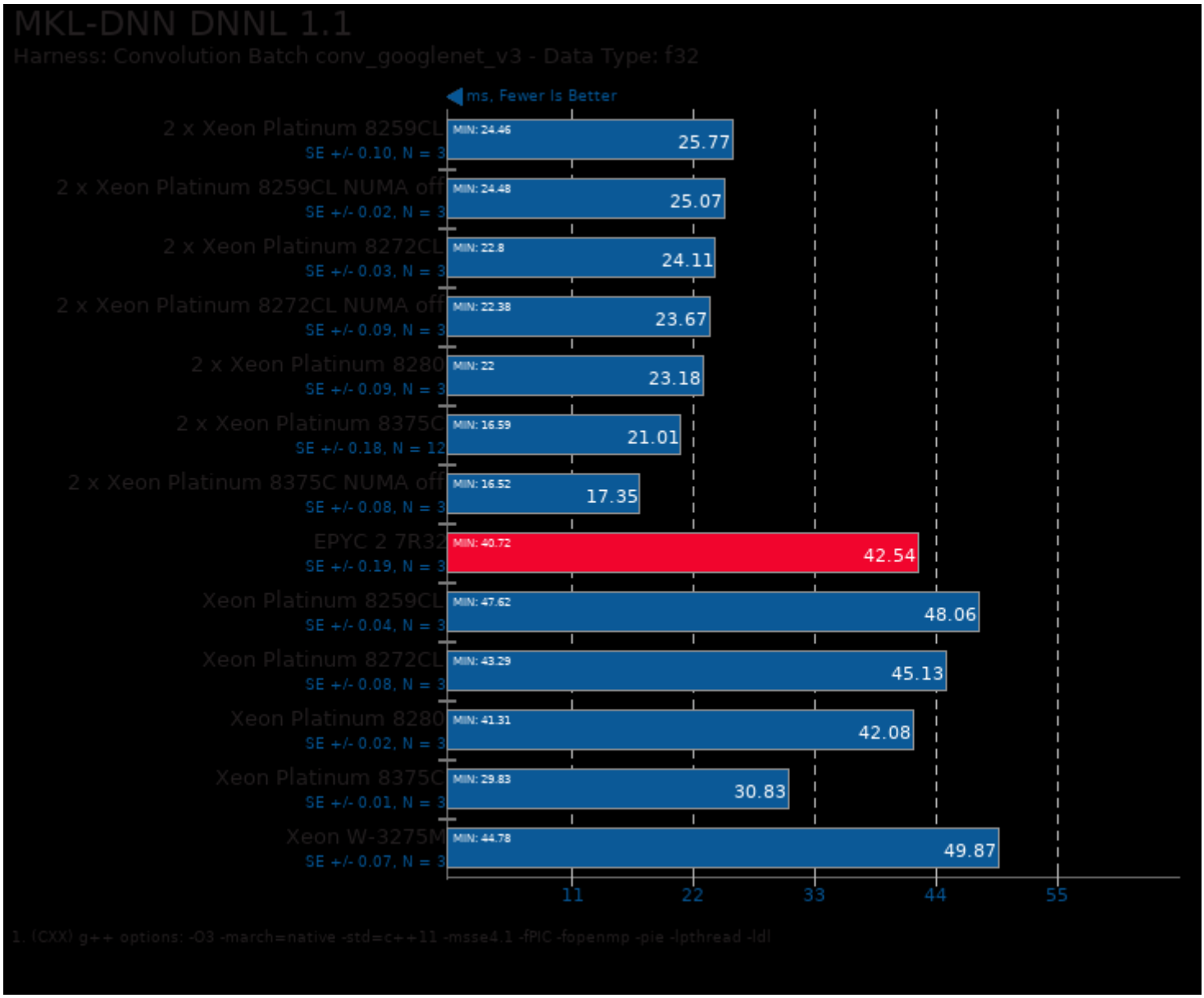

MKL-DNN DNNL 1.1
Harness: Deconvolution Batch deconv_1d - Data Type: u8s8f32
ms, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.000864, N = 3
0.376222
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.001016, N = 3
0.361414
2 x Xeon Platinum 8272CL
SE +/- 0.001261, N = 3
0.351719
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.002279, N = 3
0.336426
2 x Xeon Platinum 8280
SE +/- 0.006813, N = 3
0.394455
2 x Xeon Platinum 8375C
SE +/- 0.002925, N = 3
0.299473
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.001434, N = 3
0.306309
EPYC 2 7R32
SE +/- 4.136428, N = 3
MIN: 1118.79
1131.130000
Xeon Platinum 8259CL
SE +/- 0.000985, N = 3
0.415614
Xeon Platinum 8272CL
SE +/- 0.000242, N = 3
0.378229
Xeon Platinum 8280
SE +/- 0.000361, N = 3
0.371036
Xeon Platinum 8375C
SE +/- 0.000218, N = 3
0.301007
Xeon W-3275M
SE +/- 0.001267, N = 3
0.458422
200
400
600
800
1000
1. (CXX) g++ options: -O3 -march=native -std=c++11 -msse4.1 -fPIC -fopenmp -pie -lpthread -ldl

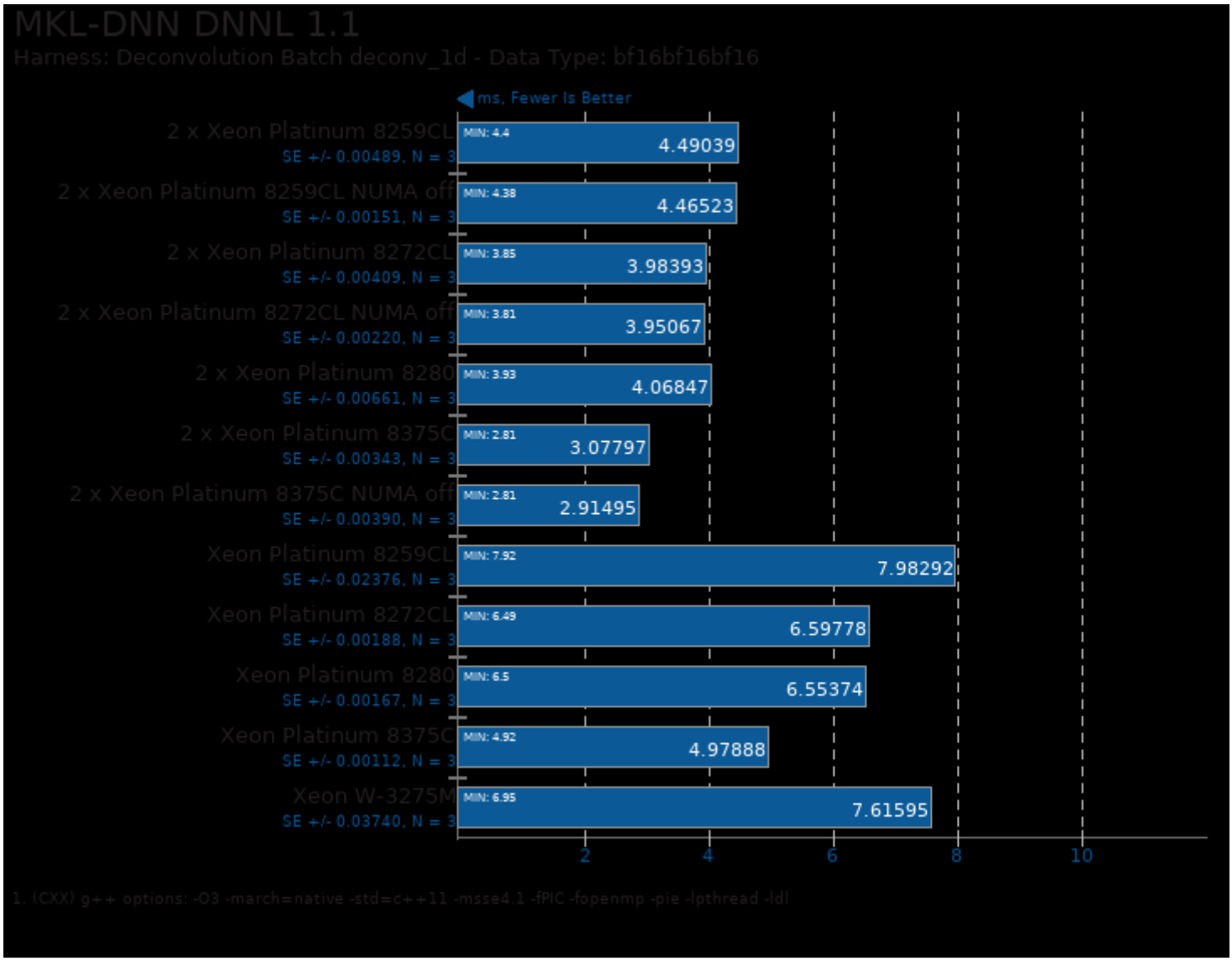

MKL-DNN DNNL 1.1
Harness: Deconvolution Batch deconv_3d - Data Type: u8s8f32
ms, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 3.00, N = 3
MIN: 2230.65
2238.05
2 x Xeon Platinum 8259CL NUMA off
SE +/- 22.00, N = 3
MIN: 2229.49
2252.67
2 x Xeon Platinum 8272CL
SE +/- 0.61, N = 3
MIN: 2062.22
2064.02
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.39, N = 3
MIN: 2061.82
2063.23
2 x Xeon Platinum 8280
SE +/- 5.70, N = 3
MIN: 1871.79
1893.72
2 x Xeon Platinum 8375C
SE +/- 9.75, N = 3
MIN: 1274.59
1320.60
2 x Xeon Platinum 8375C NUMA off
SE +/- 1.01, N = 3
MIN: 1272.23
1295.48
EPYC 2 7R32
SE +/- 3.22, N = 3
MIN: 1888.24
1899.24
Xeon Platinum 8259CL
SE +/- 0.90, N = 3
MIN: 4423.17
4426.06
Xeon Platinum 8272CL
SE +/- 8.91, N = 3
MIN: 3970.03
3985.10
Xeon Platinum 8280
SE +/- 2.14, N = 3
MIN: 3705.72
3716.98
Xeon Platinum 8375C
SE +/- 0.87, N = 3
MIN: 2512.49
2530.96
Xeon W-3275M
SE +/- 48.27, N = 3
MIN: 3728.62
3852.37
900
1800
2700
3600
4500
1. (CXX) g++ options: -O3 -march=native -std=c++11 -msse4.1 -fPIC -fopenmp -pie -lpthread -ldl

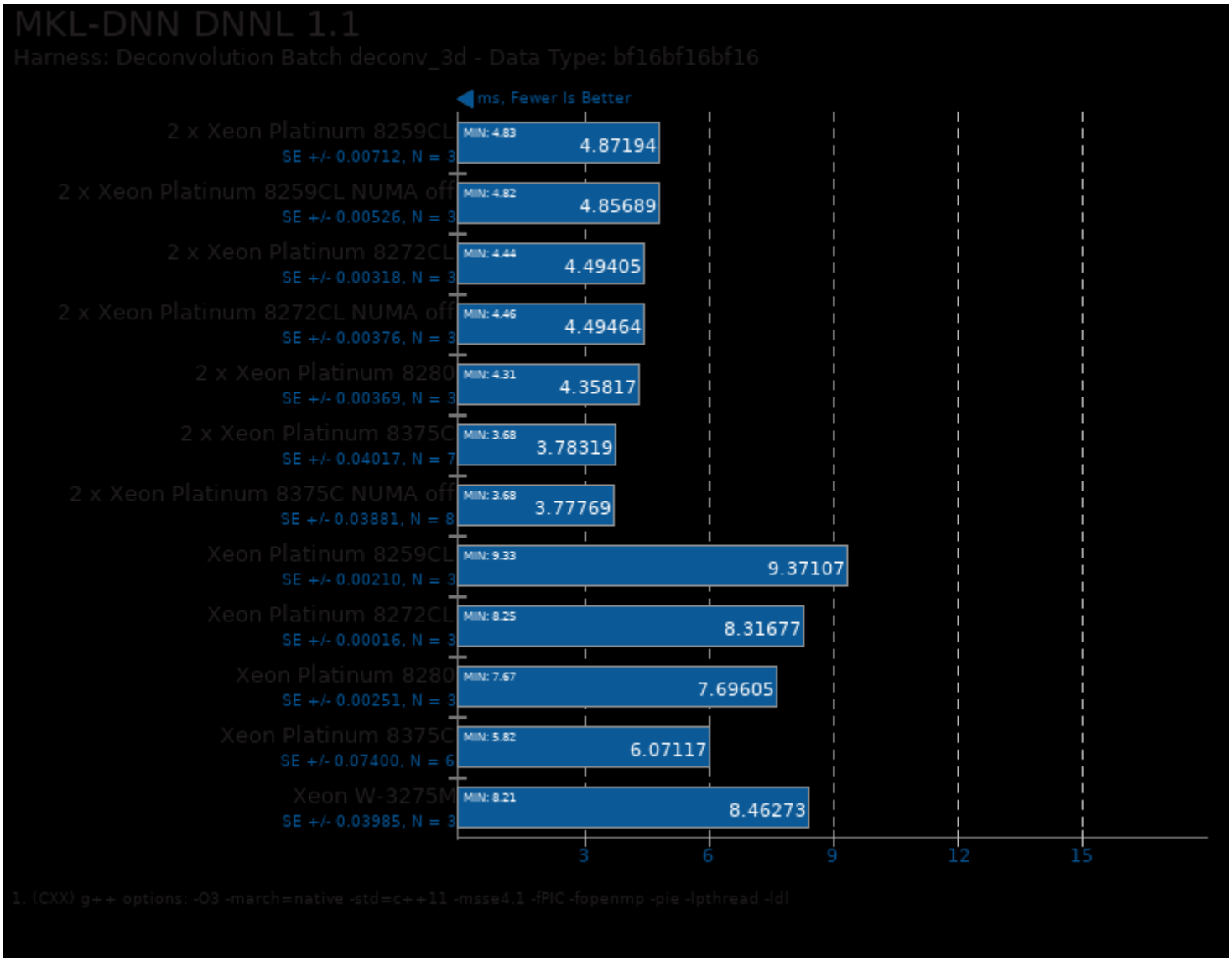

MKL-DNN DNNL 1.1
Harness: Convolution Batch conv_3d - Data Type: bf16bf16bf16
ms, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.00172, N = 3
MIN: 9.04
9.20665
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.00811, N = 3
MIN: 9.03
9.18751
2 x Xeon Platinum 8272CL
SE +/- 0.01148, N = 3
MIN: 7.54
7.67517
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.00581, N = 3
MIN: 7.54
7.65561
2 x Xeon Platinum 8280
SE +/- 0.00328, N = 3
MIN: 7.75
7.92912
2 x Xeon Platinum 8375C
SE +/- 0.05559, N = 3
MIN: 5.59
5.81243
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.00440, N = 3
MIN: 5.59
5.71963
Xeon Platinum 8259CL
SE +/- 0.00403, N = 3
MIN: 17.21
17.32170
Xeon Platinum 8272CL
SE +/- 0.00634, N = 3
MIN: 13.94
14.07470
Xeon Platinum 8280
SE +/- 0.00390, N = 3
MIN: 13.95
14.07800
Xeon Platinum 8375C
SE +/- 0.00609, N = 3
MIN: 10.65
10.75080
Xeon W-3275M
SE +/- 0.24390, N = 4
MIN: 14.98
16.59060
4
8
12
16
20
1. (CXX) g++ options: -O3 -march=native -std=c++11 -msse4.1 -fPIC -fopenmp -pie -lpthread -ldl

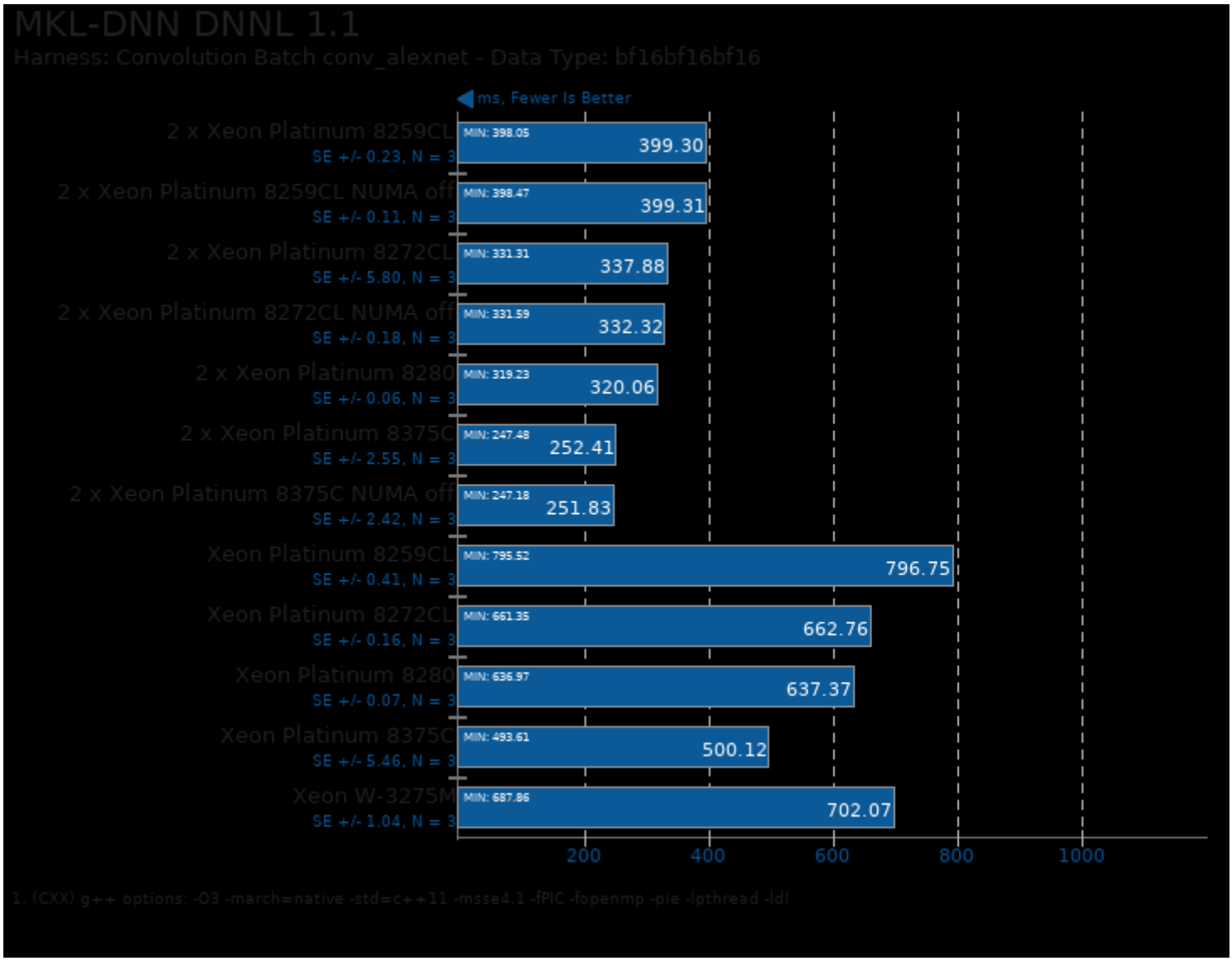

MKL-DNN DNNL 1.1
Harness: Convolution Batch conv_alexnet - Data Type: u8s8f32
ms, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.24, N = 3
22.38
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.01, N = 3
19.37
2 x Xeon Platinum 8272CL
SE +/- 0.15, N = 3
20.09
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.05, N = 3
18.39
2 x Xeon Platinum 8280
SE +/- 0.03, N = 3
19.81
2 x Xeon Platinum 8375C
SE +/- 0.12, N = 3
12.33
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.01, N = 3
10.97
EPYC 2 7R32
SE +/- 2.69, N = 3
MIN: 1286.29
1301.36
Xeon Platinum 8259CL
SE +/- 0.04, N = 3
30.88
Xeon Platinum 8272CL
SE +/- 0.06, N = 3
27.98
Xeon Platinum 8280
SE +/- 0.02, N = 3
26.84
Xeon Platinum 8375C
SE +/- 0.01, N = 3
17.72
Xeon W-3275M
SE +/- 0.04, N = 3
31.99
300
600
900
1200
1500
1. (CXX) g++ options: -O3 -march=native -std=c++11 -msse4.1 -fPIC -fopenmp -pie -lpthread -ldl

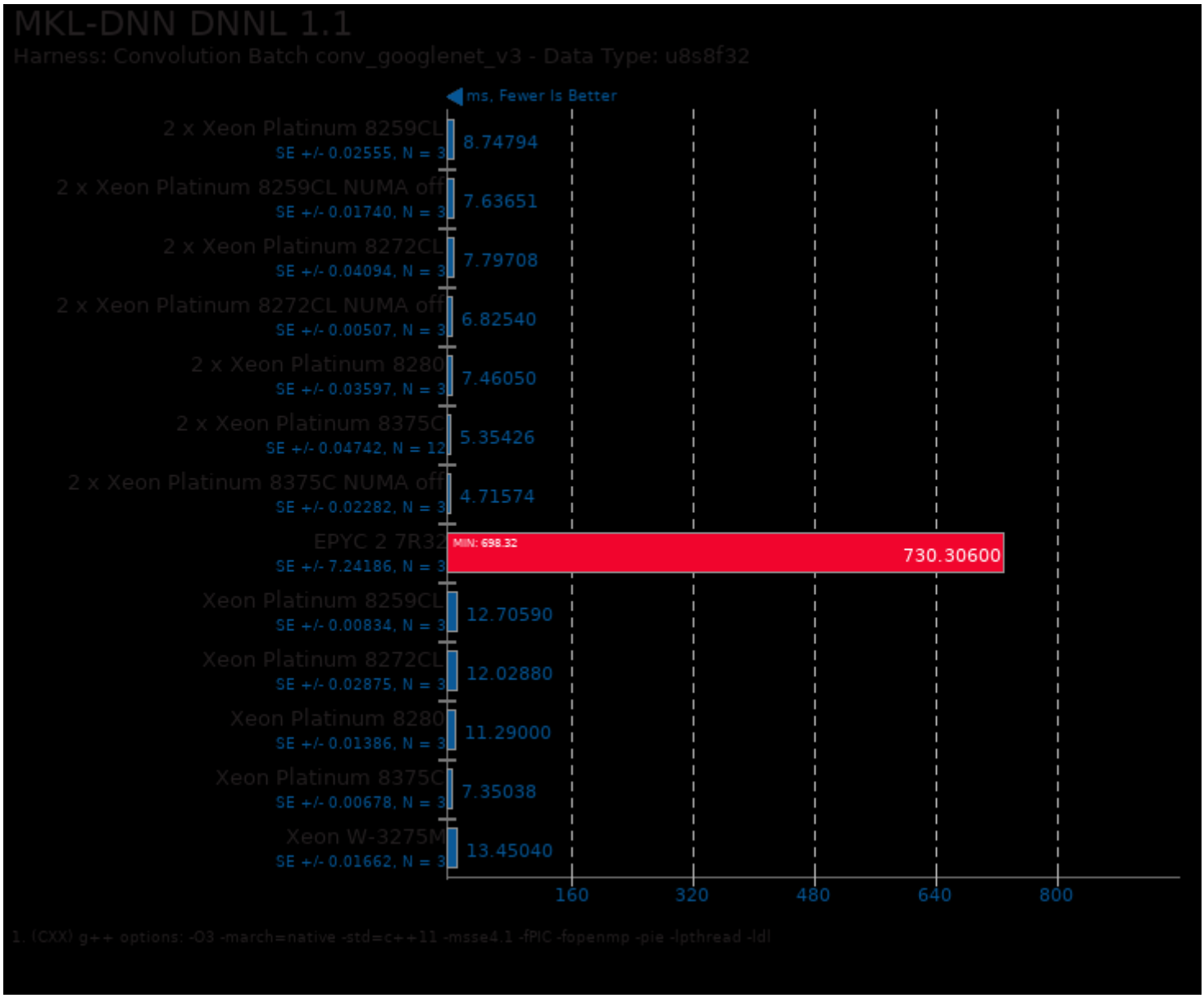

MKL-DNN DNNL 1.1
Harness: Convolution Batch conv_all - Data Type: bf16bf16bf16
ms, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.11, N = 3
MIN: 2191.04
2197.81
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.30, N = 3
MIN: 2191.82
2198.18
2 x Xeon Platinum 8272CL
SE +/- 5.10, N = 3
MIN: 1827.01
1844.78
2 x Xeon Platinum 8272CL NUMA off
SE +/- 1.52, N = 3
MIN: 1827.15
1842.97
2 x Xeon Platinum 8280
SE +/- 1.13, N = 3
MIN: 1757.1
1766.35
2 x Xeon Platinum 8375C
SE +/- 4.43, N = 3
MIN: 1364.34
1421.84
2 x Xeon Platinum 8375C NUMA off
SE +/- 1.02, N = 3
MIN: 1361.11
1381.17
Xeon Platinum 8259CL
SE +/- 0.11, N = 3
MIN: 4358.26
4364.00
Xeon Platinum 8272CL
SE +/- 0.18, N = 3
MIN: 3627.59
3639.27
Xeon Platinum 8280
SE +/- 0.26, N = 3
MIN: 3490.41
3497.47
Xeon Platinum 8375C
SE +/- 0.18, N = 3
MIN: 2707.4
2712.07
Xeon W-3275M
SE +/- 0.11, N = 3
MIN: 3767
3880.44
900
1800
2700
3600
4500
1. (CXX) g++ options: -O3 -march=native -std=c++11 -msse4.1 -fPIC -fopenmp -pie -lpthread -ldl

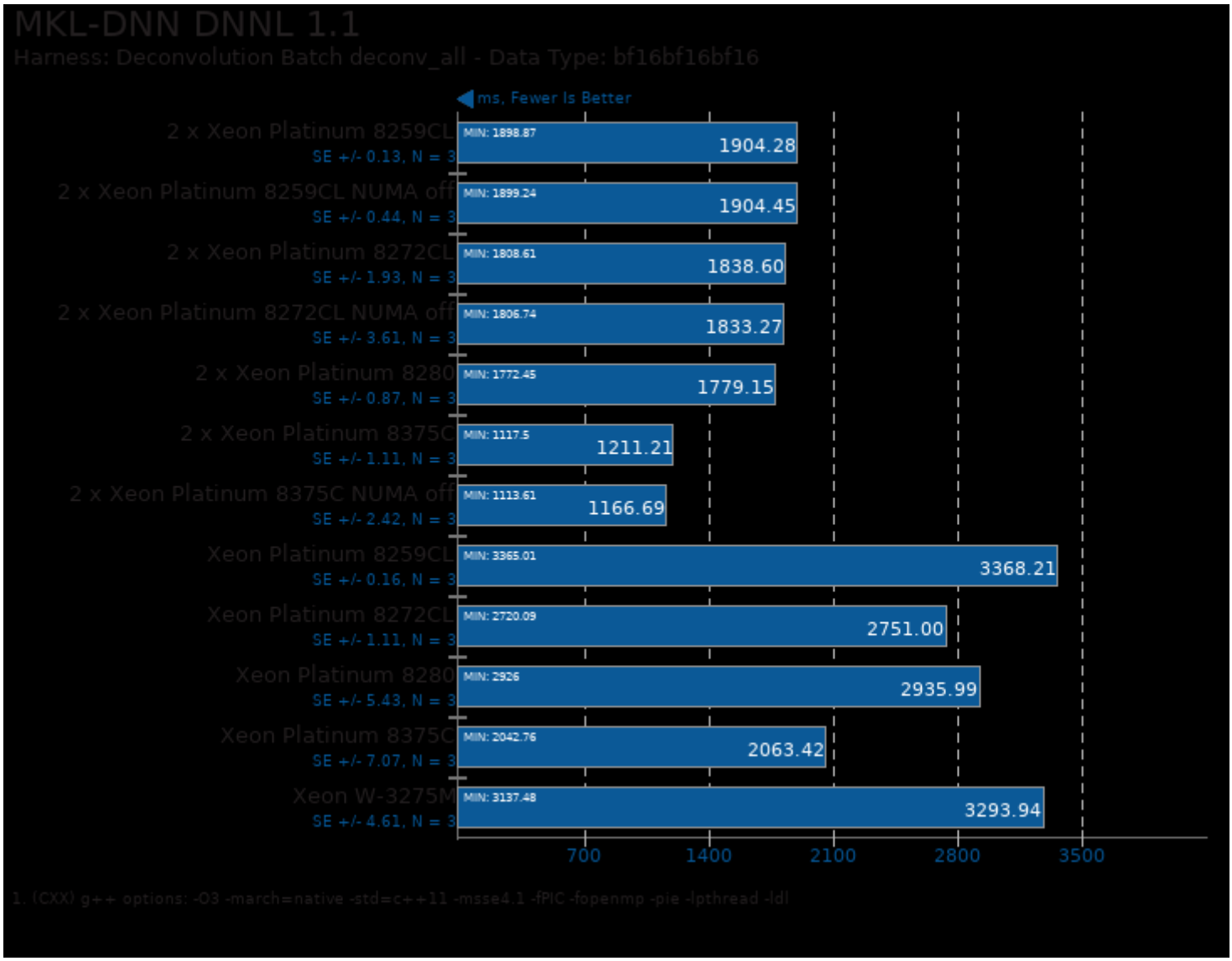

MKL-DNN DNNL 1.1
Harness: Convolution Batch conv_googlenet_v3 - Data Type: f32
ms, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.10, N = 3
MIN: 24.46
25.77
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.02, N = 3
MIN: 24.48
25.07
2 x Xeon Platinum 8272CL
SE +/- 0.03, N = 3
MIN: 22.8
24.11
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.09, N = 3
MIN: 22.38
23.67
2 x Xeon Platinum 8280
SE +/- 0.09, N = 3
MIN: 22
23.18
2 x Xeon Platinum 8375C
SE +/- 0.18, N = 12
MIN: 16.59
21.01
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.08, N = 3
MIN: 16.52
17.35
EPYC 2 7R32
SE +/- 0.19, N = 3
MIN: 40.72
42.54
Xeon Platinum 8259CL
SE +/- 0.04, N = 3
MIN: 47.62
48.06
Xeon Platinum 8272CL
SE +/- 0.08, N = 3
MIN: 43.29
45.13
Xeon Platinum 8280
SE +/- 0.02, N = 3
MIN: 41.31
42.08
Xeon Platinum 8375C
SE +/- 0.01, N = 3
MIN: 29.83
30.83
Xeon W-3275M
SE +/- 0.07, N = 3
MIN: 44.78
49.87
11
22
33
44
55
1. (CXX) g++ options: -O3 -march=native -std=c++11 -msse4.1 -fPIC -fopenmp -pie -lpthread -ldl

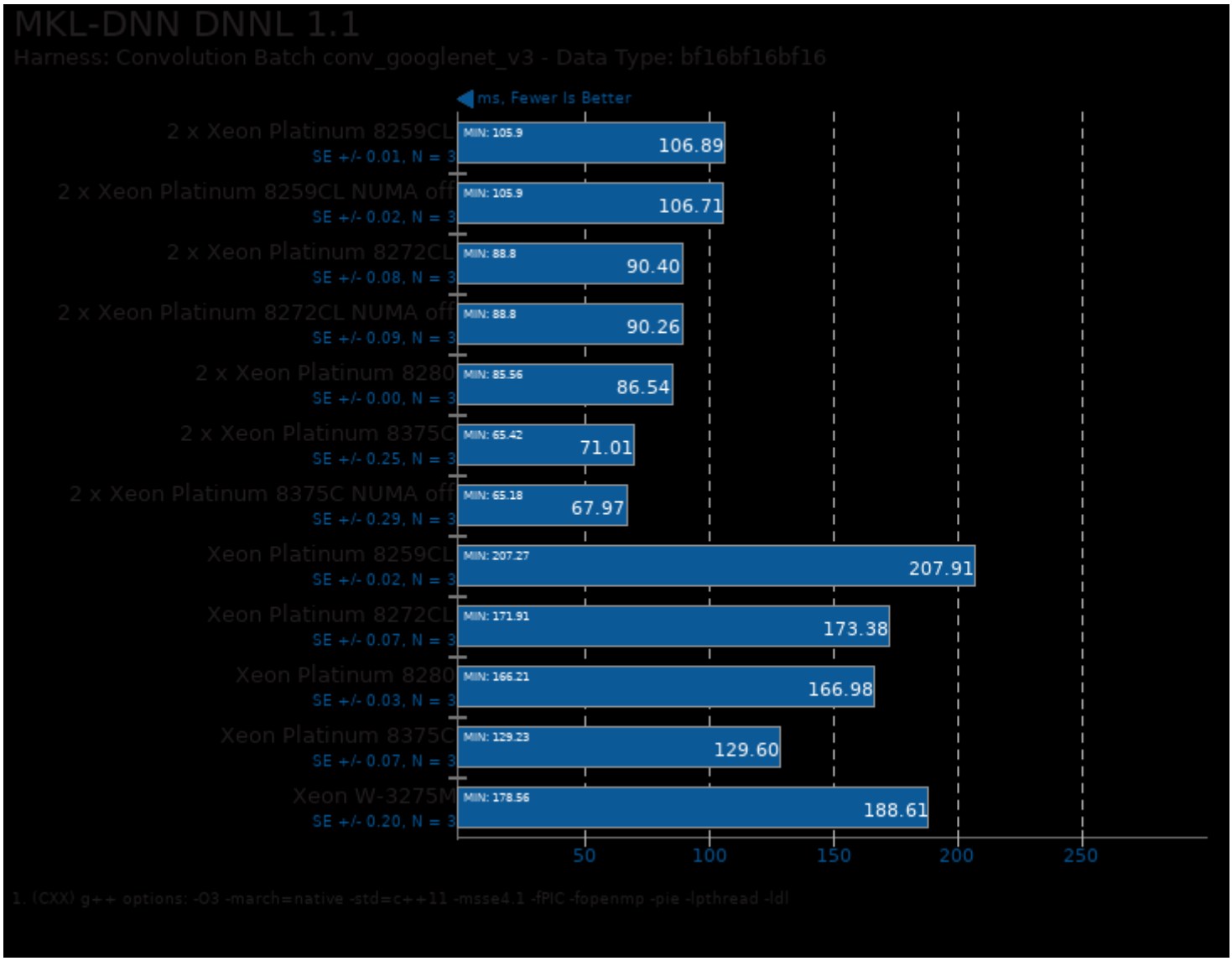

MKL-DNN DNNL 1.1
Harness: Deconvolution Batch deconv_1d - Data Type: bf16bf16bf16
ms, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.00489, N = 3
MIN: 4.4
4.49039
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.00151, N = 3
MIN: 4.38
4.46523
2 x Xeon Platinum 8272CL
SE +/- 0.00409, N = 3
MIN: 3.85
3.98393
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.00220, N = 3
MIN: 3.81
3.95067
2 x Xeon Platinum 8280
SE +/- 0.00661, N = 3
MIN: 3.93
4.06847
2 x Xeon Platinum 8375C
SE +/- 0.00343, N = 3
MIN: 2.81
3.07797
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.00390, N = 3
MIN: 2.81
2.91495
Xeon Platinum 8259CL
SE +/- 0.02376, N = 3
MIN: 7.92
7.98292
Xeon Platinum 8272CL
SE +/- 0.00188, N = 3
MIN: 6.49
6.59778
Xeon Platinum 8280
SE +/- 0.00167, N = 3
MIN: 6.5
6.55374
Xeon Platinum 8375C
SE +/- 0.00112, N = 3
MIN: 4.92
4.97888
Xeon W-3275M
SE +/- 0.03740, N = 3
MIN: 6.95
7.61595
2
4
6
8
10
1. (CXX) g++ options: -O3 -march=native -std=c++11 -msse4.1 -fPIC -fopenmp -pie -lpthread -ldl

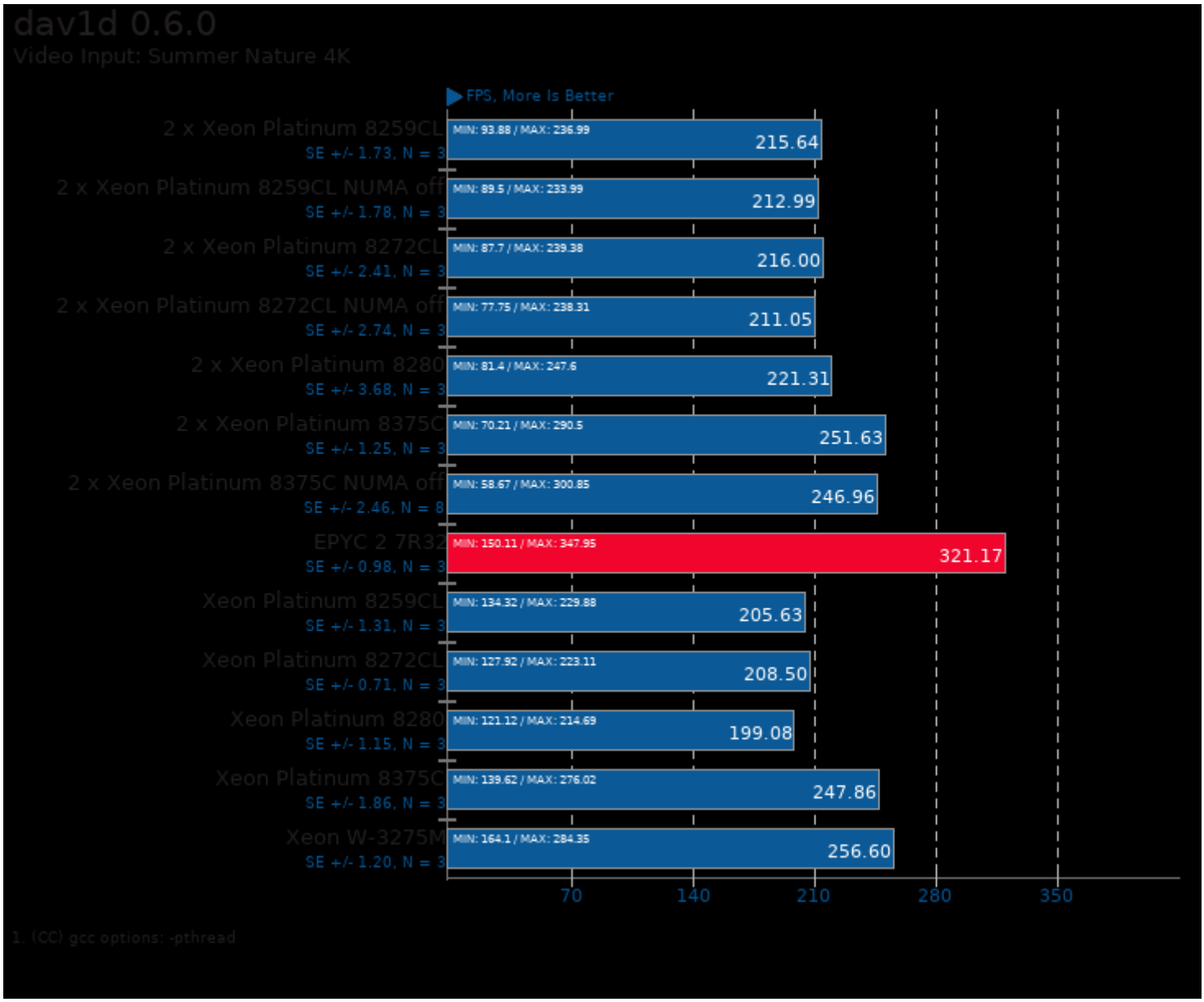

MKL-DNN DNNL 1.1
Harness: Deconvolution Batch deconv_3d - Data Type: bf16bf16bf16
ms, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.00712, N = 3
MIN: 4.83
4.87194
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.00526, N = 3
MIN: 4.82
4.85689
2 x Xeon Platinum 8272CL
SE +/- 0.00318, N = 3
MIN: 4.44
4.49405
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.00376, N = 3
MIN: 4.46
4.49464
2 x Xeon Platinum 8280
SE +/- 0.00369, N = 3
MIN: 4.31
4.35817
2 x Xeon Platinum 8375C
SE +/- 0.04017, N = 7
MIN: 3.68
3.78319
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.03881, N = 8
MIN: 3.68
3.77769
Xeon Platinum 8259CL
SE +/- 0.00210, N = 3
MIN: 9.33
9.37107
Xeon Platinum 8272CL
SE +/- 0.00016, N = 3
MIN: 8.25
8.31677
Xeon Platinum 8280
SE +/- 0.00251, N = 3
MIN: 7.67
7.69605
Xeon Platinum 8375C
SE +/- 0.07400, N = 6
MIN: 5.82
6.07117
Xeon W-3275M
SE +/- 0.03985, N = 3
MIN: 8.21
8.46273
3
6
9
12
15
1. (CXX) g++ options: -O3 -march=native -std=c++11 -msse4.1 -fPIC -fopenmp -pie -lpthread -ldl

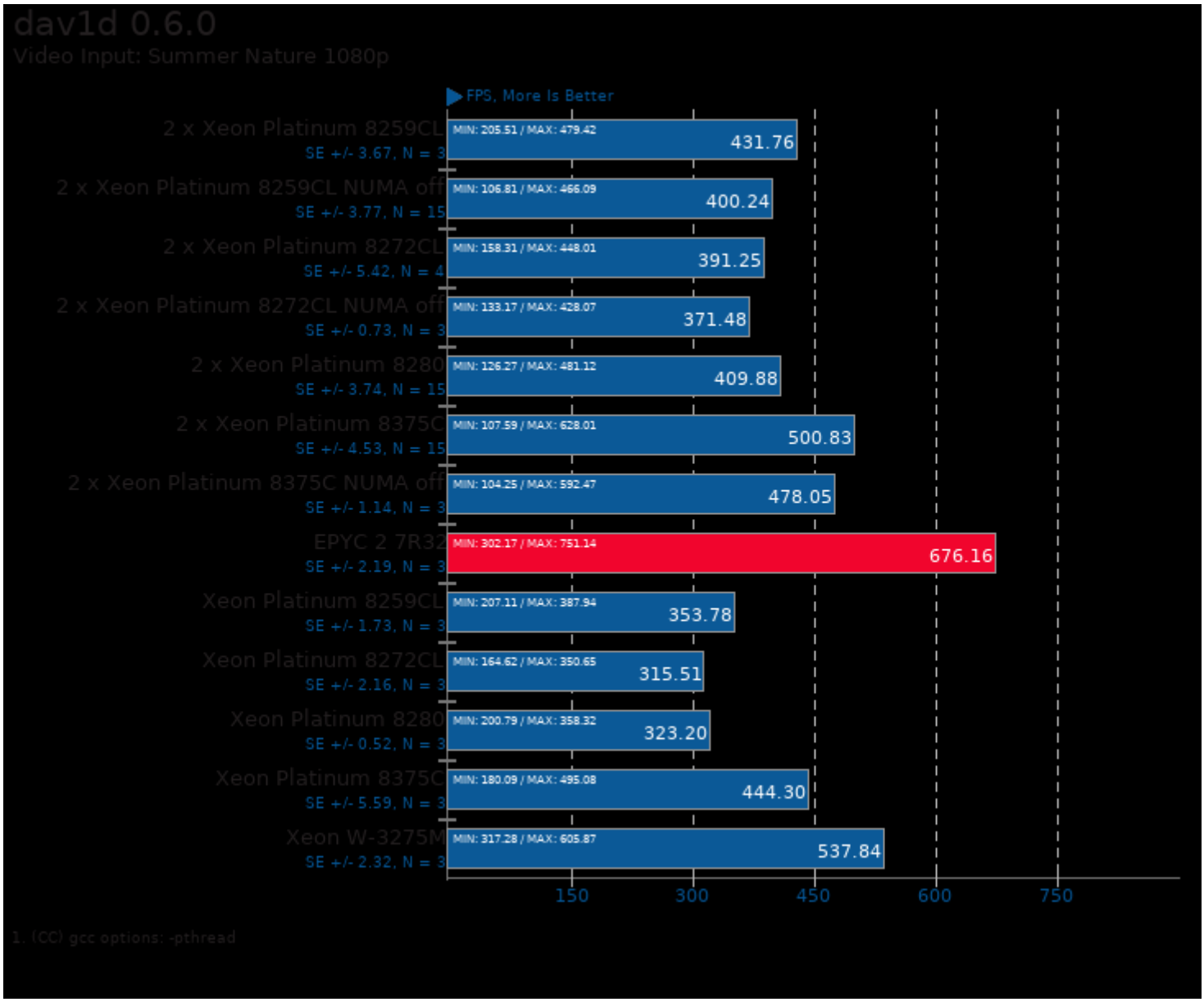

MKL-DNN DNNL 1.1
Harness: Convolution Batch conv_alexnet - Data Type: bf16bf16bf16
ms, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.23, N = 3
MIN: 398.05
399.30
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.11, N = 3
MIN: 398.47
399.31
2 x Xeon Platinum 8272CL
SE +/- 5.80, N = 3
MIN: 331.31
337.88
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.18, N = 3
MIN: 331.59
332.32
2 x Xeon Platinum 8280
SE +/- 0.06, N = 3
MIN: 319.23
320.06
2 x Xeon Platinum 8375C
SE +/- 2.55, N = 3
MIN: 247.48
252.41
2 x Xeon Platinum 8375C NUMA off
SE +/- 2.42, N = 3
MIN: 247.18
251.83
Xeon Platinum 8259CL
SE +/- 0.41, N = 3
MIN: 795.52
796.75
Xeon Platinum 8272CL
SE +/- 0.16, N = 3
MIN: 661.35
662.76
Xeon Platinum 8280
SE +/- 0.07, N = 3
MIN: 636.97
637.37
Xeon Platinum 8375C
SE +/- 5.46, N = 3
MIN: 493.61
500.12
Xeon W-3275M
SE +/- 1.04, N = 3
MIN: 687.86
702.07
200
400
600
800
1000
1. (CXX) g++ options: -O3 -march=native -std=c++11 -msse4.1 -fPIC -fopenmp -pie -lpthread -ldl

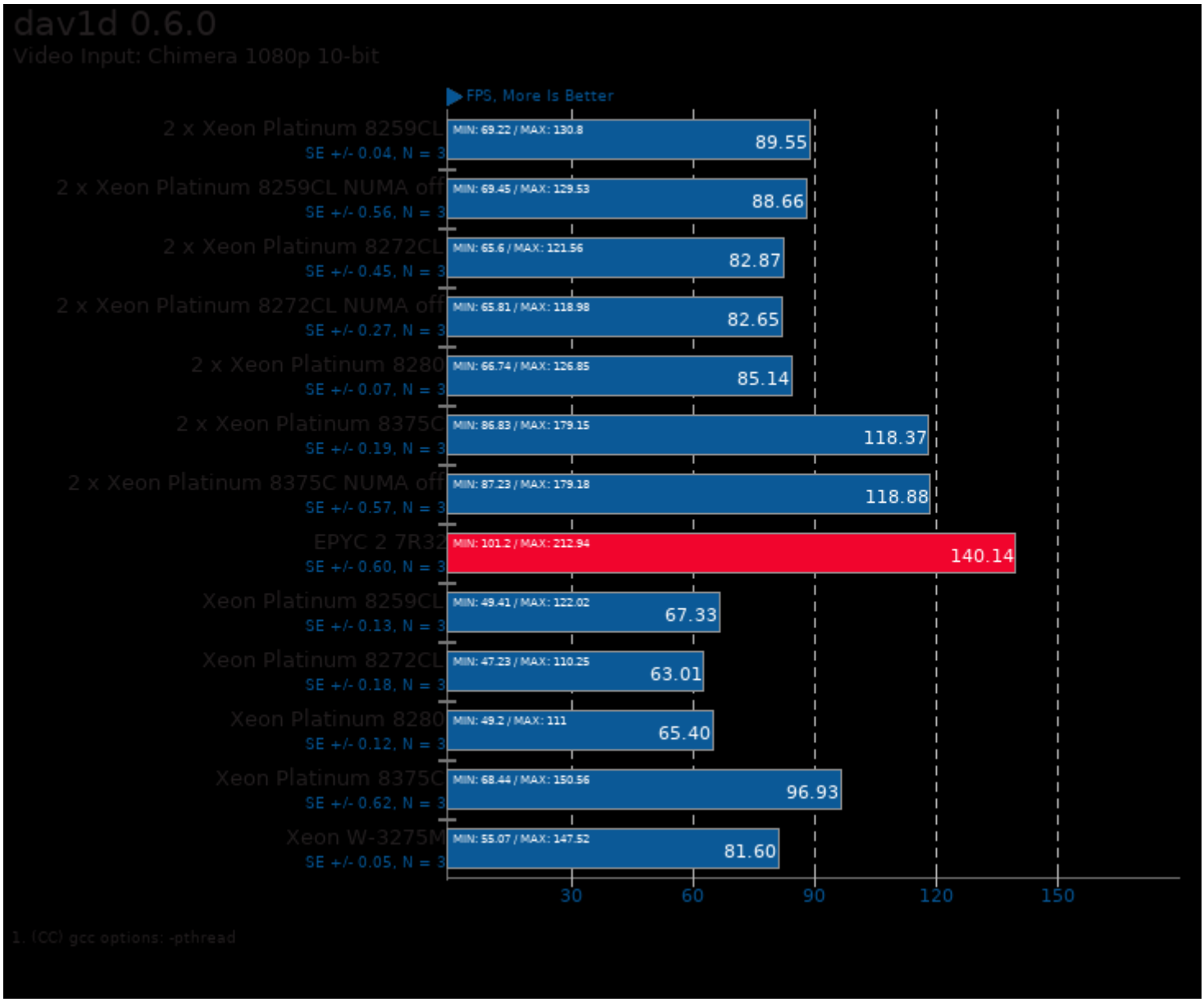

MKL-DNN DNNL 1.1
Harness: Convolution Batch conv_googlenet_v3 - Data Type: u8s8f32
ms, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.02555, N = 3
8.74794
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.01740, N = 3
7.63651
2 x Xeon Platinum 8272CL
SE +/- 0.04094, N = 3
7.79708
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.00507, N = 3
6.82540
2 x Xeon Platinum 8280
SE +/- 0.03597, N = 3
7.46050
2 x Xeon Platinum 8375C
SE +/- 0.04742, N = 12
5.35426
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.02282, N = 3
4.71574
EPYC 2 7R32
SE +/- 7.24186, N = 3
MIN: 698.32
730.30600
Xeon Platinum 8259CL
SE +/- 0.00834, N = 3
12.70590
Xeon Platinum 8272CL
SE +/- 0.02875, N = 3
12.02880
Xeon Platinum 8280
SE +/- 0.01386, N = 3
11.29000
Xeon Platinum 8375C
SE +/- 0.00678, N = 3
7.35038
Xeon W-3275M
SE +/- 0.01662, N = 3
13.45040
160
320
480
640
800
1. (CXX) g++ options: -O3 -march=native -std=c++11 -msse4.1 -fPIC -fopenmp -pie -lpthread -ldl

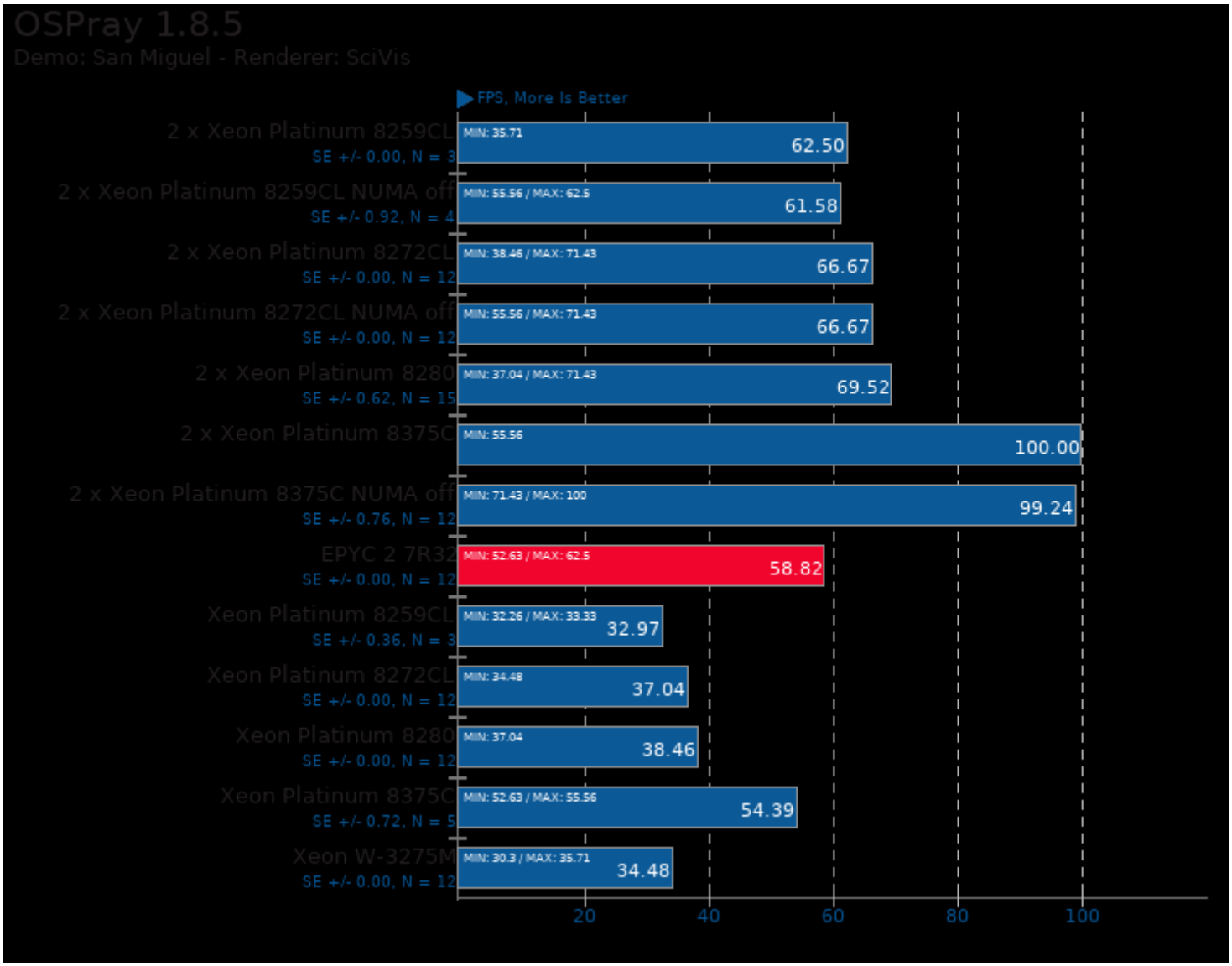

MKL-DNN DNNL 1.1
Harness: Deconvolution Batch deconv_all - Data Type: bf16bf16bf16
ms, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.13, N = 3
MIN: 1898.87
1904.28
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.44, N = 3
MIN: 1899.24
1904.45
2 x Xeon Platinum 8272CL
SE +/- 1.93, N = 3
MIN: 1808.61
1838.60
2 x Xeon Platinum 8272CL NUMA off
SE +/- 3.61, N = 3
MIN: 1806.74
1833.27
2 x Xeon Platinum 8280
SE +/- 0.87, N = 3
MIN: 1772.45
1779.15
2 x Xeon Platinum 8375C
SE +/- 1.11, N = 3
MIN: 1117.5
1211.21
2 x Xeon Platinum 8375C NUMA off
SE +/- 2.42, N = 3
MIN: 1113.61
1166.69
Xeon Platinum 8259CL
SE +/- 0.16, N = 3
MIN: 3365.01
3368.21
Xeon Platinum 8272CL
SE +/- 1.11, N = 3
MIN: 2720.09
2751.00
Xeon Platinum 8280
SE +/- 5.43, N = 3
MIN: 2926
2935.99
Xeon Platinum 8375C
SE +/- 7.07, N = 3
MIN: 2042.76
2063.42
Xeon W-3275M
SE +/- 4.61, N = 3
MIN: 3137.48
3293.94
700
1400
2100
2800
3500
1. (CXX) g++ options: -O3 -march=native -std=c++11 -msse4.1 -fPIC -fopenmp -pie -lpthread -ldl

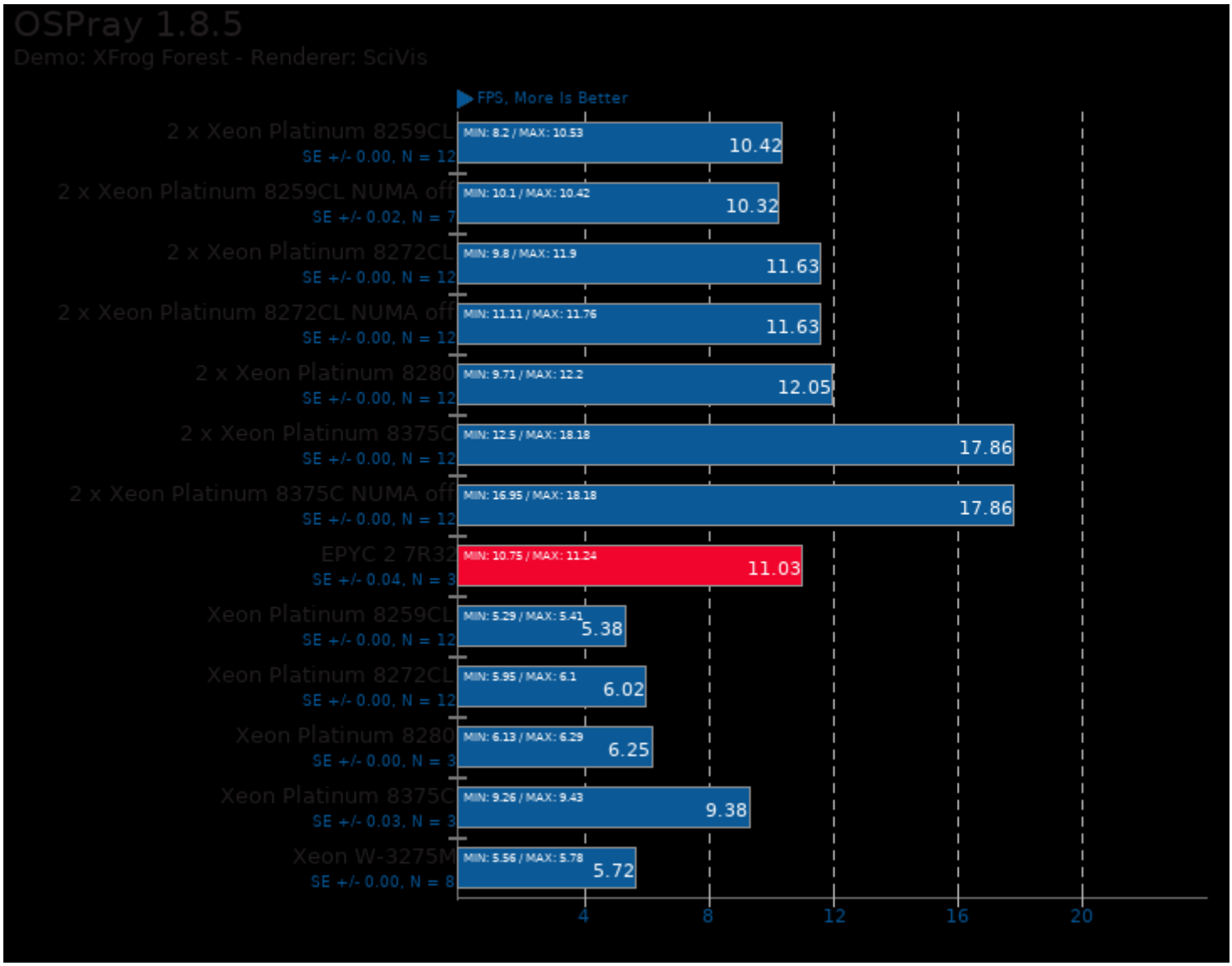

MKL-DNN DNNL 1.1
Harness: Convolution Batch conv_googlenet_v3 - Data Type: bf16bf16bf16
ms, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.01, N = 3
MIN: 105.9
106.89
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.02, N = 3
MIN: 105.9
106.71
2 x Xeon Platinum 8272CL
SE +/- 0.08, N = 3
MIN: 88.8
90.40
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.09, N = 3
MIN: 88.8
90.26
2 x Xeon Platinum 8280
SE +/- 0.00, N = 3
MIN: 85.56
86.54
2 x Xeon Platinum 8375C
SE +/- 0.25, N = 3
MIN: 65.42
71.01
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.29, N = 3
MIN: 65.18
67.97
Xeon Platinum 8259CL
SE +/- 0.02, N = 3
MIN: 207.27
207.91
Xeon Platinum 8272CL
SE +/- 0.07, N = 3
MIN: 171.91
173.38
Xeon Platinum 8280
SE +/- 0.03, N = 3
MIN: 166.21
166.98
Xeon Platinum 8375C
SE +/- 0.07, N = 3
MIN: 129.23
129.60
Xeon W-3275M
SE +/- 0.20, N = 3
MIN: 178.56
188.61
50
100
150
200
250
1. (CXX) g++ options: -O3 -march=native -std=c++11 -msse4.1 -fPIC -fopenmp -pie -lpthread -ldl

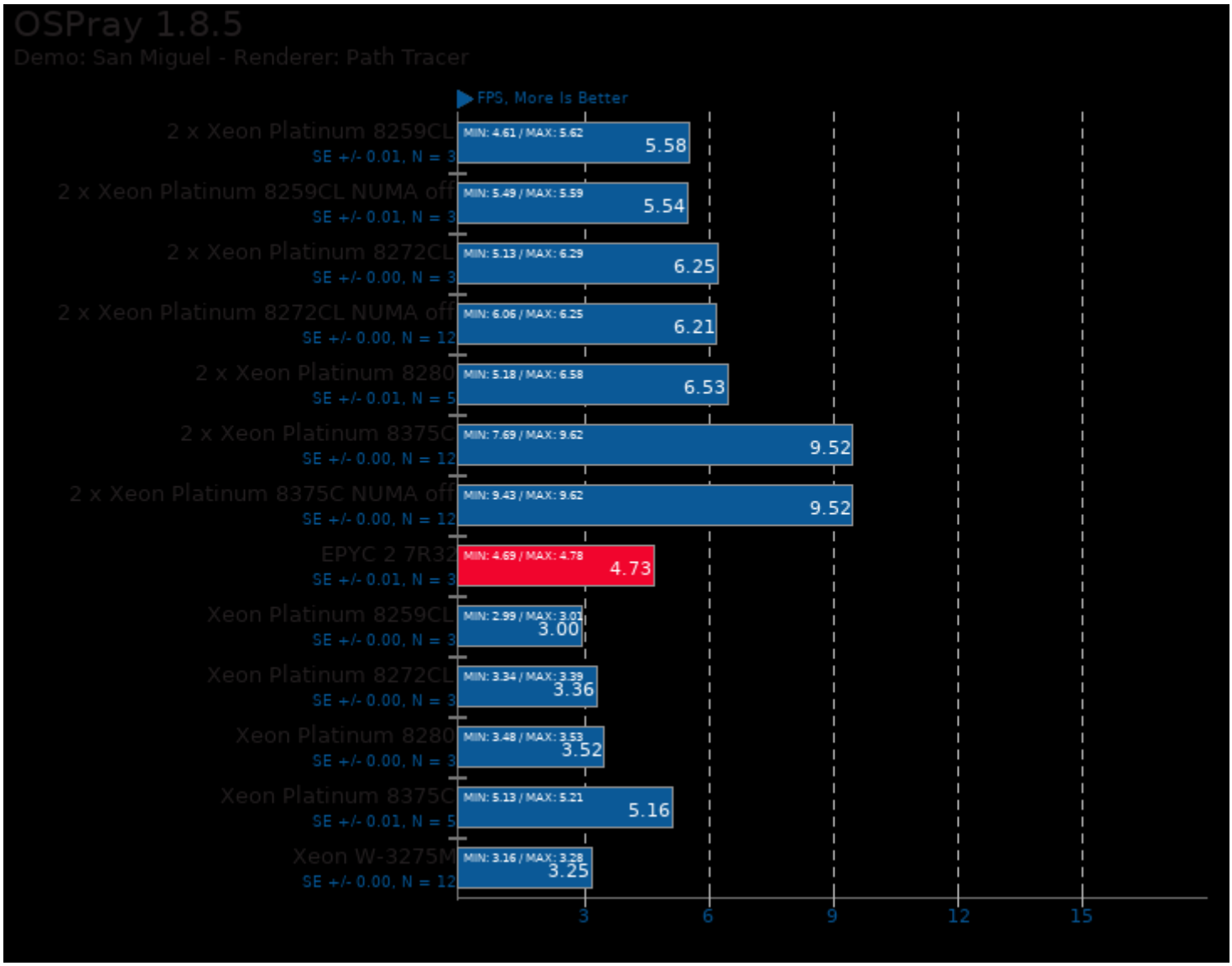

dav1d 0.6.0
Video Input: Summer Nature 4K
FPS, More Is Better
2 x Xeon Platinum 8259CL
SE +/- 1.73, N = 3
MIN: 93.88 / MAX: 236.99
215.64
2 x Xeon Platinum 8259CL NUMA off
SE +/- 1.78, N = 3
MIN: 89.5 / MAX: 233.99
212.99
2 x Xeon Platinum 8272CL
SE +/- 2.41, N = 3
MIN: 87.7 / MAX: 239.38
216.00
2 x Xeon Platinum 8272CL NUMA off
SE +/- 2.74, N = 3
MIN: 77.75 / MAX: 238.31
211.05
2 x Xeon Platinum 8280
SE +/- 3.68, N = 3
MIN: 81.4 / MAX: 247.6
221.31
2 x Xeon Platinum 8375C
SE +/- 1.25, N = 3
MIN: 70.21 / MAX: 290.5
251.63
2 x Xeon Platinum 8375C NUMA off
SE +/- 2.46, N = 8
MIN: 58.67 / MAX: 300.85
246.96
EPYC 2 7R32
SE +/- 0.98, N = 3
MIN: 150.11 / MAX: 347.95
321.17
Xeon Platinum 8259CL
SE +/- 1.31, N = 3
MIN: 134.32 / MAX: 229.88
205.63
Xeon Platinum 8272CL
SE +/- 0.71, N = 3
MIN: 127.92 / MAX: 223.11
208.50
Xeon Platinum 8280
SE +/- 1.15, N = 3
MIN: 121.12 / MAX: 214.69
199.08
Xeon Platinum 8375C
SE +/- 1.86, N = 3
MIN: 139.62 / MAX: 276.02
247.86
Xeon W-3275M
SE +/- 1.20, N = 3
MIN: 164.1 / MAX: 284.35
256.60
70
140
210
280
350
1. (CC) gcc options: -pthread

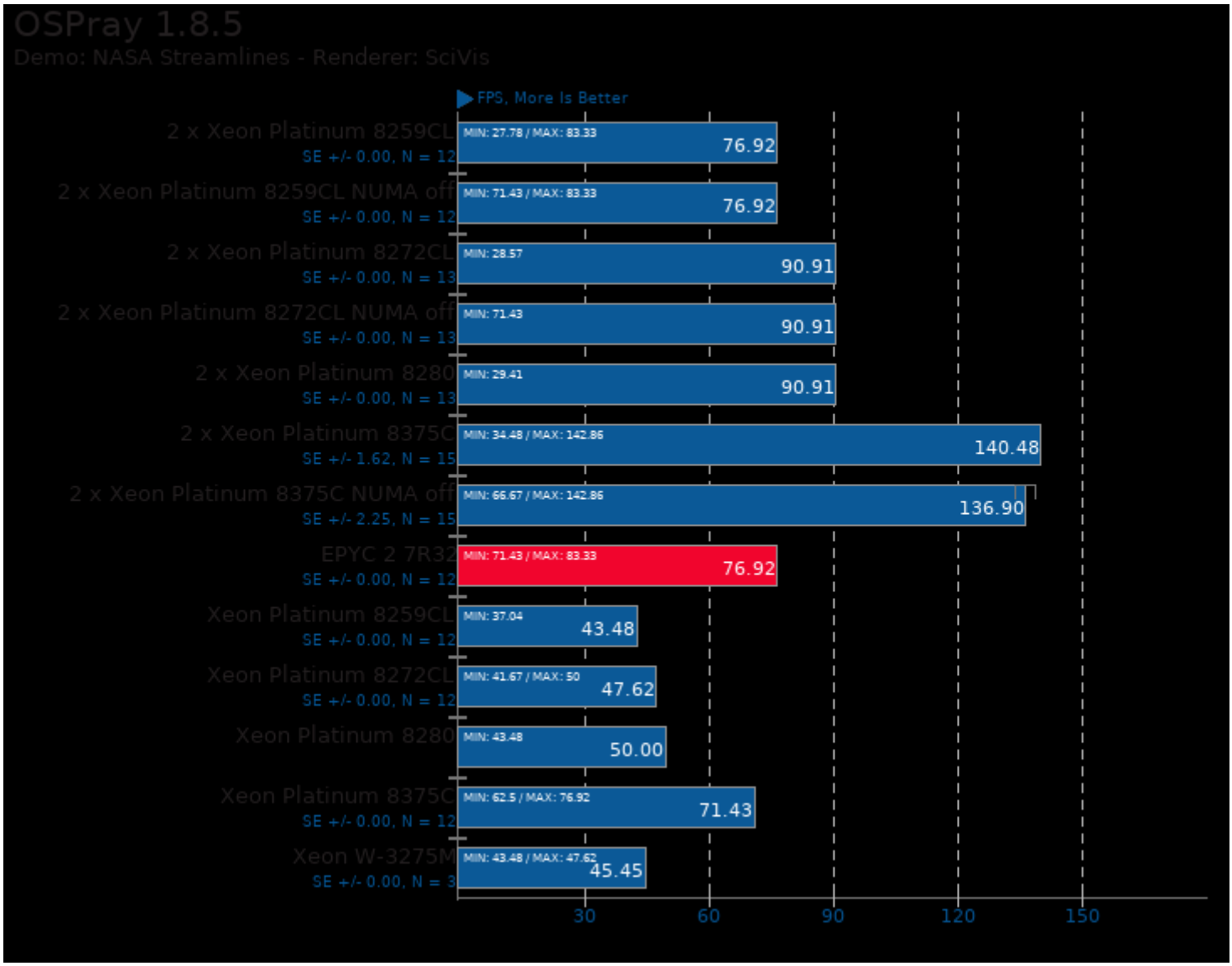

dav1d 0.6.0
Video Input: Summer Nature 1080p
FPS, More Is Better
2 x Xeon Platinum 8259CL
SE +/- 3.67, N = 3
MIN: 205.51 / MAX: 479.42
431.76
2 x Xeon Platinum 8259CL NUMA off
SE +/- 3.77, N = 15
MIN: 106.81 / MAX: 466.09
400.24
2 x Xeon Platinum 8272CL
SE +/- 5.42, N = 4
MIN: 158.31 / MAX: 448.01
391.25
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.73, N = 3
MIN: 133.17 / MAX: 428.07
371.48
2 x Xeon Platinum 8280
SE +/- 3.74, N = 15
MIN: 126.27 / MAX: 481.12
409.88
2 x Xeon Platinum 8375C
SE +/- 4.53, N = 15
MIN: 107.59 / MAX: 628.01
500.83
2 x Xeon Platinum 8375C NUMA off
SE +/- 1.14, N = 3
MIN: 104.25 / MAX: 592.47
478.05
EPYC 2 7R32
SE +/- 2.19, N = 3
MIN: 302.17 / MAX: 751.14
676.16
Xeon Platinum 8259CL
SE +/- 1.73, N = 3
MIN: 207.11 / MAX: 387.94
353.78
Xeon Platinum 8272CL
SE +/- 2.16, N = 3
MIN: 164.62 / MAX: 350.65
315.51
Xeon Platinum 8280
SE +/- 0.52, N = 3
MIN: 200.79 / MAX: 358.32
323.20
Xeon Platinum 8375C
SE +/- 5.59, N = 3
MIN: 180.09 / MAX: 495.08
444.30
Xeon W-3275M
SE +/- 2.32, N = 3
MIN: 317.28 / MAX: 605.87
537.84
150
300
450
600
750
1. (CC) gcc options: -pthread

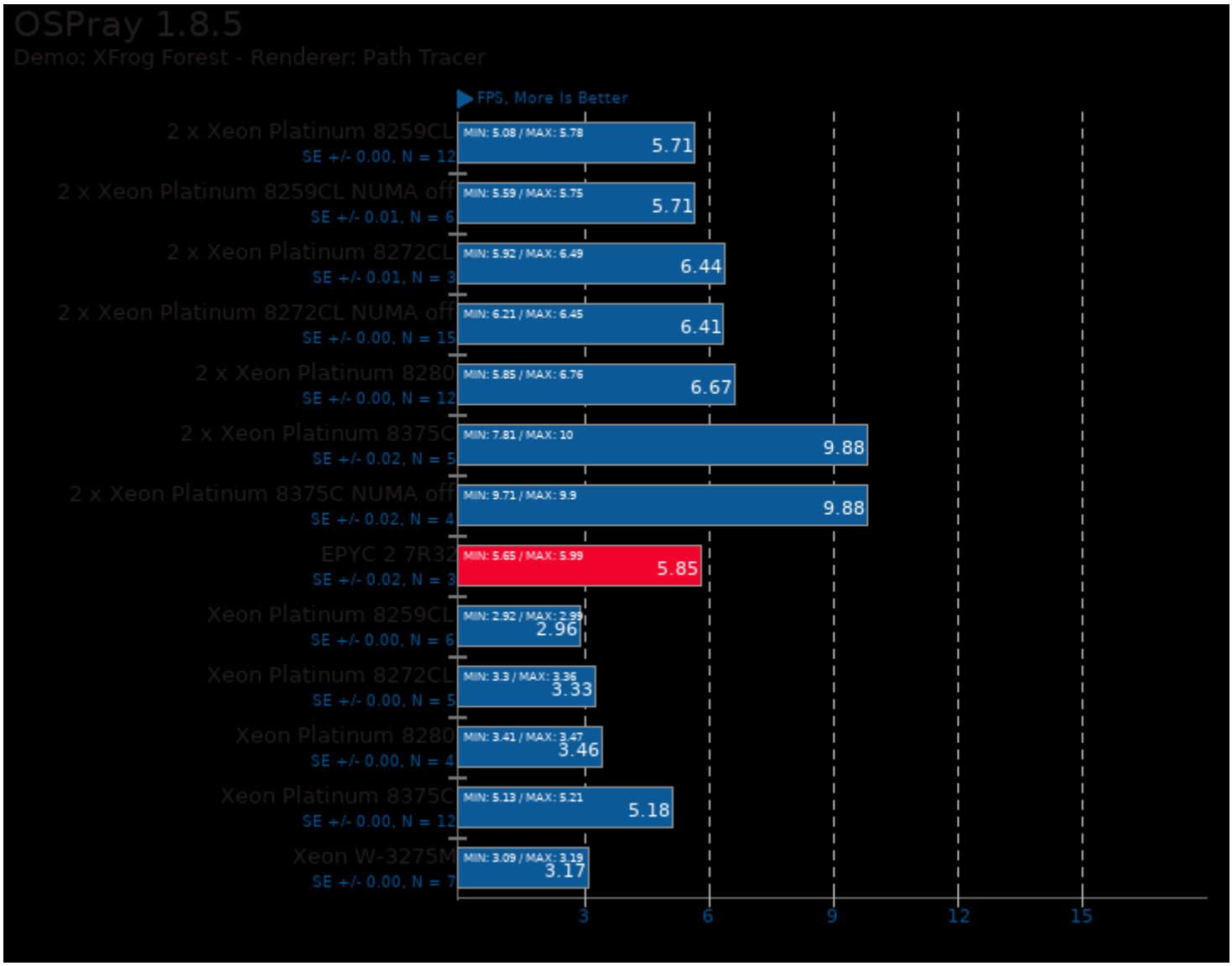

dav1d 0.6.0
Video Input: Chimera 1080p 10-bit
FPS, More Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.04, N = 3
MIN: 69.22 / MAX: 130.8
89.55
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.56, N = 3
MIN: 69.45 / MAX: 129.53
88.66
2 x Xeon Platinum 8272CL
SE +/- 0.45, N = 3
MIN: 65.6 / MAX: 121.56
82.87
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.27, N = 3
MIN: 65.81 / MAX: 118.98
82.65
2 x Xeon Platinum 8280
SE +/- 0.07, N = 3
MIN: 66.74 / MAX: 126.85
85.14
2 x Xeon Platinum 8375C
SE +/- 0.19, N = 3
MIN: 86.83 / MAX: 179.15
118.37
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.57, N = 3
MIN: 87.23 / MAX: 179.18
118.88
EPYC 2 7R32
SE +/- 0.60, N = 3
MIN: 101.2 / MAX: 212.94
140.14
Xeon Platinum 8259CL
SE +/- 0.13, N = 3
MIN: 49.41 / MAX: 122.02
67.33
Xeon Platinum 8272CL
SE +/- 0.18, N = 3
MIN: 47.23 / MAX: 110.25
63.01
Xeon Platinum 8280
SE +/- 0.12, N = 3
MIN: 49.2 / MAX: 111
65.40
Xeon Platinum 8375C
SE +/- 0.62, N = 3
MIN: 68.44 / MAX: 150.56
96.93
Xeon W-3275M
SE +/- 0.05, N = 3
MIN: 55.07 / MAX: 147.52
81.60
30
60
90
120
150
1. (CC) gcc options: -pthread

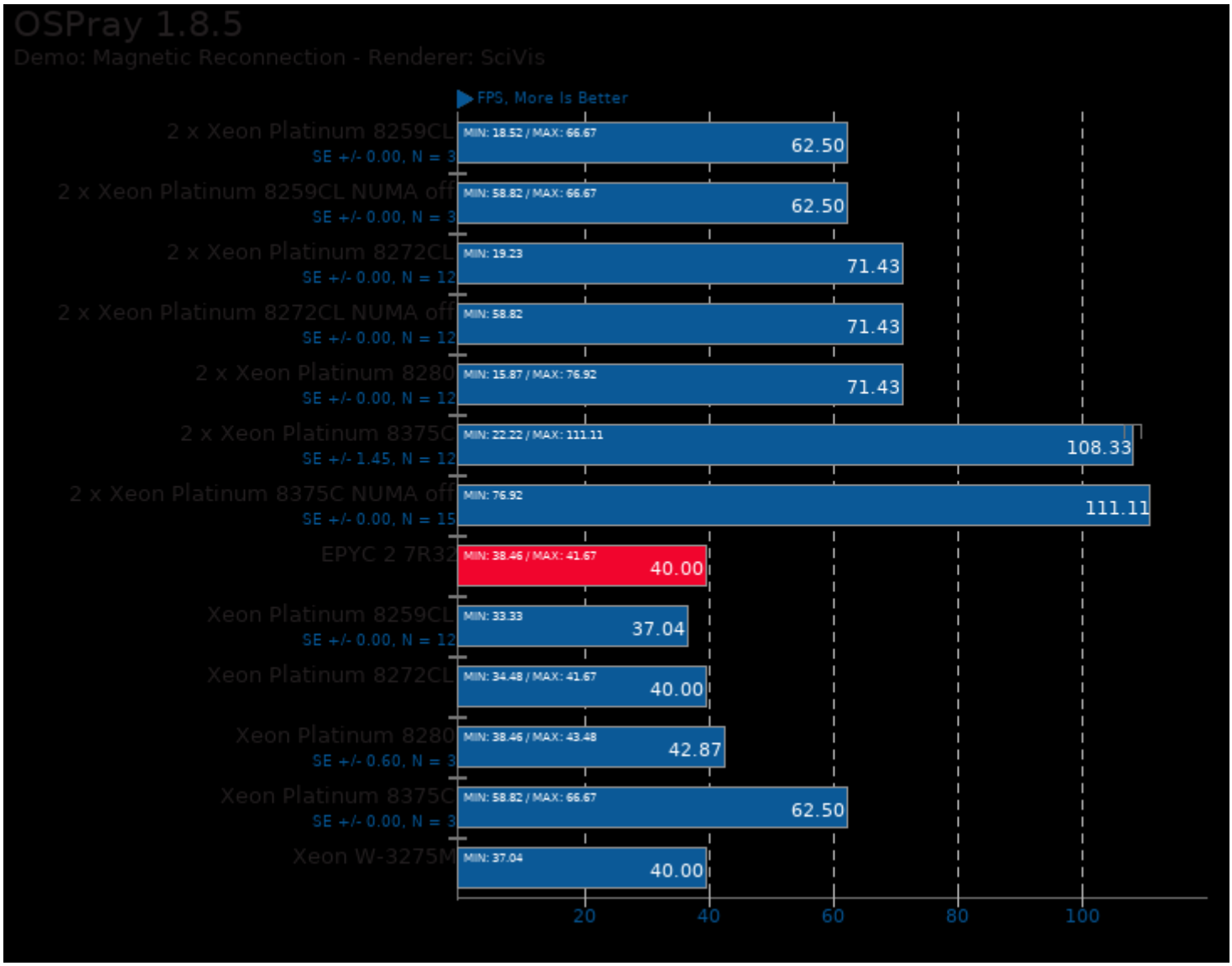

OSPray 1.8.5
Demo: San Miguel - Renderer: SciVis
FPS, More Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.00, N = 3
MIN: 35.71
62.50
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.92, N = 4
MIN: 55.56 / MAX: 62.5
61.58
2 x Xeon Platinum 8272CL
SE +/- 0.00, N = 12
MIN: 38.46 / MAX: 71.43
66.67
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.00, N = 12
MIN: 55.56 / MAX: 71.43
66.67
2 x Xeon Platinum 8280
SE +/- 0.62, N = 15
MIN: 37.04 / MAX: 71.43
69.52
2 x Xeon Platinum 8375C
MIN: 55.56
100.00
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.76, N = 12
MIN: 71.43 / MAX: 100
99.24
EPYC 2 7R32
SE +/- 0.00, N = 12
MIN: 52.63 / MAX: 62.5
58.82
Xeon Platinum 8259CL
SE +/- 0.36, N = 3
MIN: 32.26 / MAX: 33.33
32.97
Xeon Platinum 8272CL
SE +/- 0.00, N = 12
MIN: 34.48
37.04
Xeon Platinum 8280
SE +/- 0.00, N = 12
MIN: 37.04
38.46
Xeon Platinum 8375C
SE +/- 0.72, N = 5
MIN: 52.63 / MAX: 55.56
54.39
Xeon W-3275M
SE +/- 0.00, N = 12
MIN: 30.3 / MAX: 35.71
34.48
20
40
60
80
100

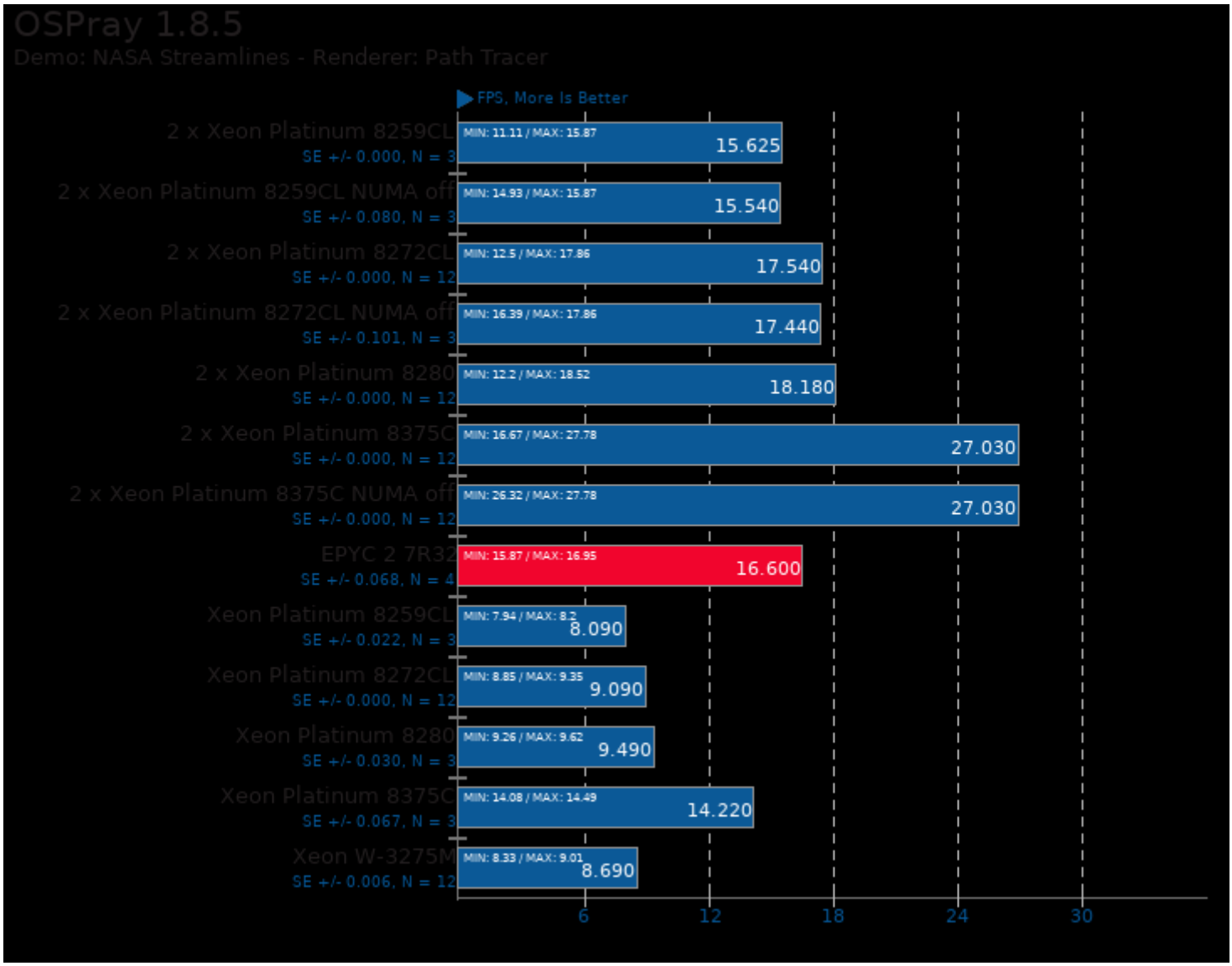

OSPray 1.8.5
Demo: XFrog Forest - Renderer: SciVis
FPS, More Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.00, N = 12
MIN: 8.2 / MAX: 10.53
10.42
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.02, N = 7
MIN: 10.1 / MAX: 10.42
10.32
2 x Xeon Platinum 8272CL
SE +/- 0.00, N = 12
MIN: 9.8 / MAX: 11.9
11.63
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.00, N = 12
MIN: 11.11 / MAX: 11.76
11.63
2 x Xeon Platinum 8280
SE +/- 0.00, N = 12
MIN: 9.71 / MAX: 12.2
12.05
2 x Xeon Platinum 8375C
SE +/- 0.00, N = 12
MIN: 12.5 / MAX: 18.18
17.86
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.00, N = 12
MIN: 16.95 / MAX: 18.18
17.86
EPYC 2 7R32
SE +/- 0.04, N = 3
MIN: 10.75 / MAX: 11.24
11.03
Xeon Platinum 8259CL
SE +/- 0.00, N = 12
MIN: 5.29 / MAX: 5.41
5.38
Xeon Platinum 8272CL
SE +/- 0.00, N = 12
MIN: 5.95 / MAX: 6.1
6.02
Xeon Platinum 8280
SE +/- 0.00, N = 3
MIN: 6.13 / MAX: 6.29
6.25
Xeon Platinum 8375C
SE +/- 0.03, N = 3
MIN: 9.26 / MAX: 9.43
9.38
Xeon W-3275M
SE +/- 0.00, N = 8
MIN: 5.56 / MAX: 5.78
5.72
4
8
12
16
20

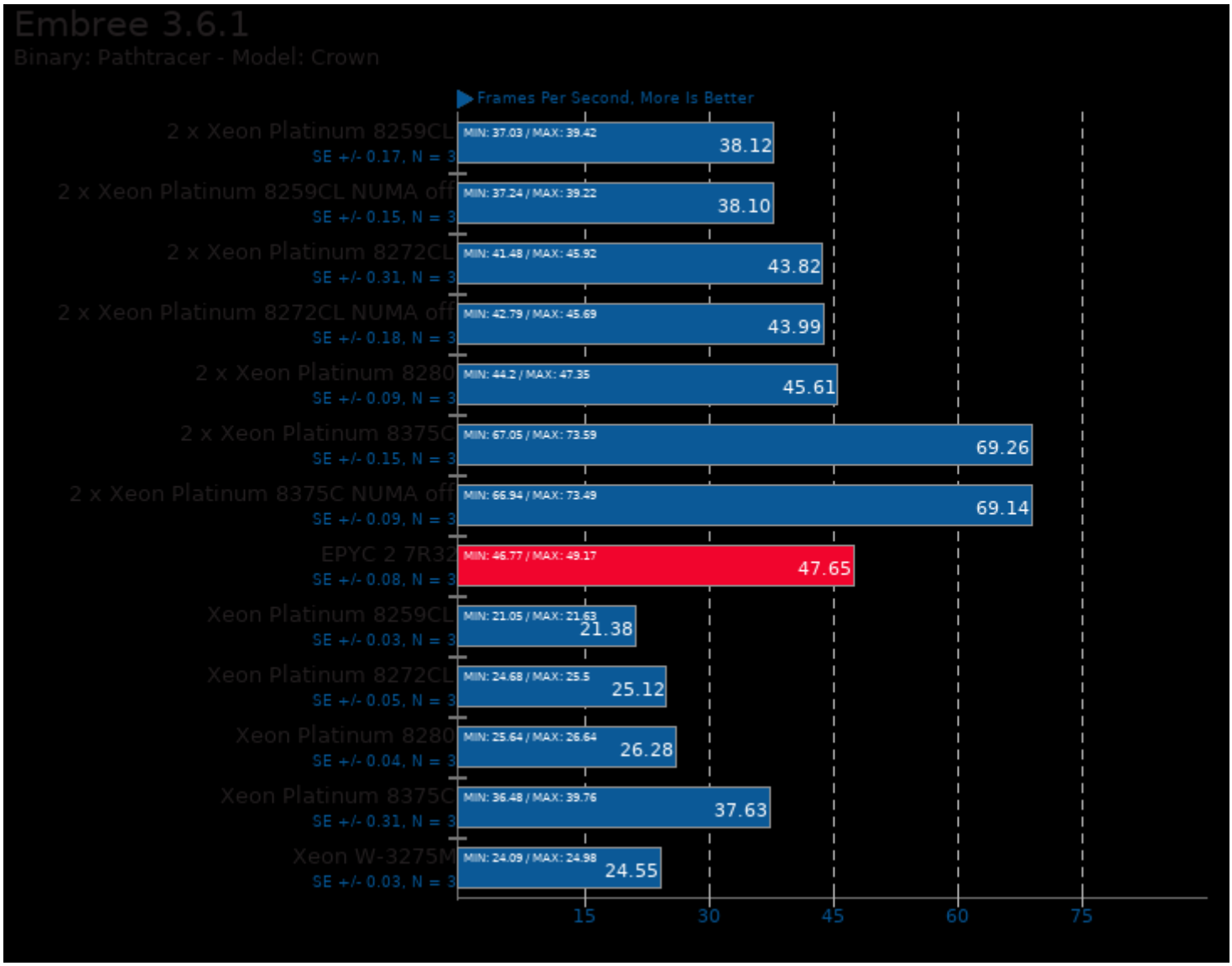

OSPray 1.8.5
Demo: San Miguel - Renderer: Path Tracer
FPS, More Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.01, N = 3
MIN: 4.61 / MAX: 5.62
5.58
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.01, N = 3
MIN: 5.49 / MAX: 5.59
5.54
2 x Xeon Platinum 8272CL
SE +/- 0.00, N = 3
MIN: 5.13 / MAX: 6.29
6.25
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.00, N = 12
MIN: 6.06 / MAX: 6.25
6.21
2 x Xeon Platinum 8280
SE +/- 0.01, N = 5
MIN: 5.18 / MAX: 6.58
6.53
2 x Xeon Platinum 8375C
SE +/- 0.00, N = 12
MIN: 7.69 / MAX: 9.62
9.52
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.00, N = 12
MIN: 9.43 / MAX: 9.62
9.52
EPYC 2 7R32
SE +/- 0.01, N = 3
MIN: 4.69 / MAX: 4.78
4.73
Xeon Platinum 8259CL
SE +/- 0.00, N = 3
MIN: 2.99 / MAX: 3.01
3.00
Xeon Platinum 8272CL
SE +/- 0.00, N = 3
MIN: 3.34 / MAX: 3.39
3.36
Xeon Platinum 8280
SE +/- 0.00, N = 3
MIN: 3.48 / MAX: 3.53
3.52
Xeon Platinum 8375C
SE +/- 0.01, N = 5
MIN: 5.13 / MAX: 5.21
5.16
Xeon W-3275M
SE +/- 0.00, N = 12
MIN: 3.16 / MAX: 3.28
3.25
3
6
9
12
15

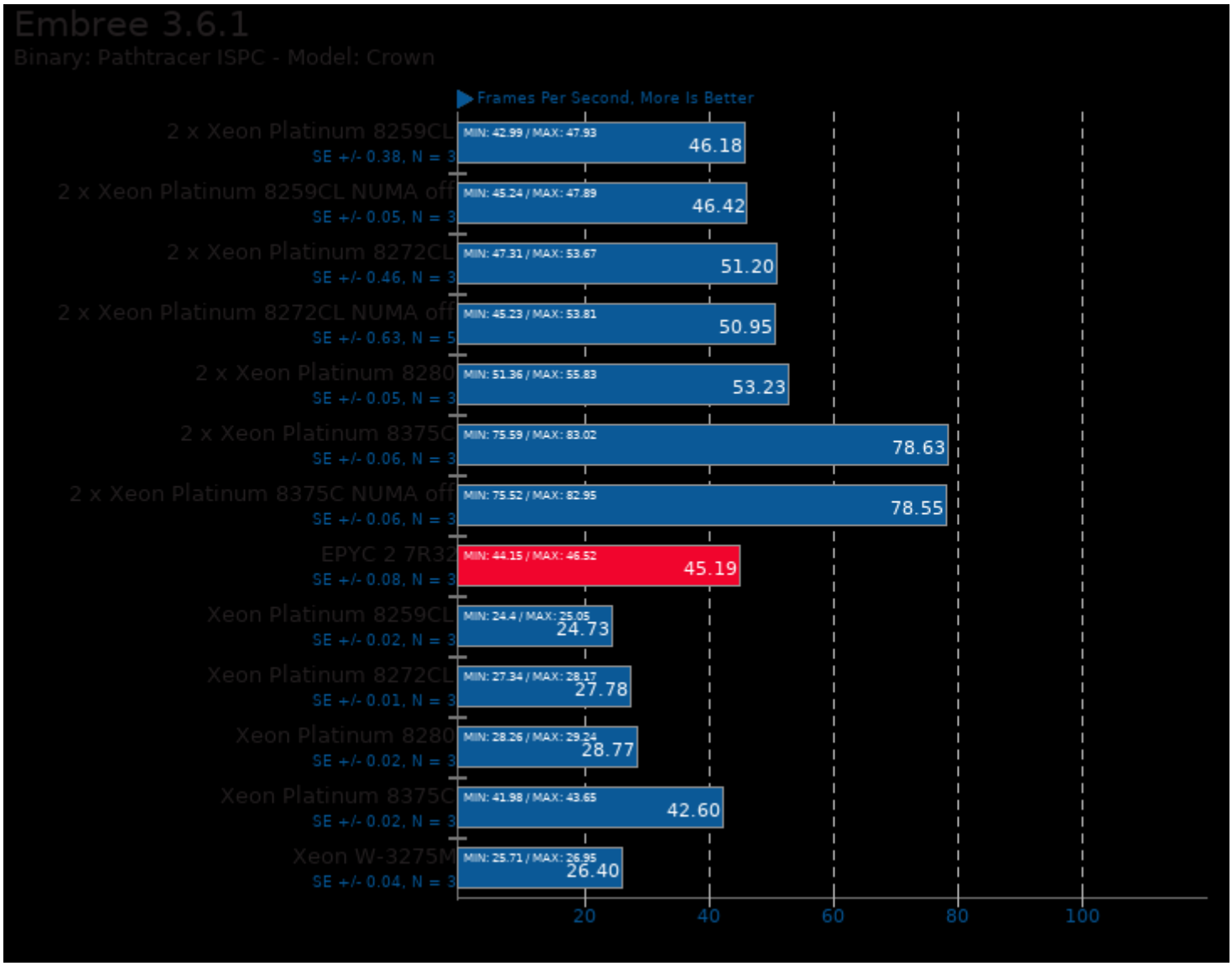

OSPray 1.8.5
Demo: NASA Streamlines - Renderer: SciVis
FPS, More Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.00, N = 12
MIN: 27.78 / MAX: 83.33
76.92
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.00, N = 12
MIN: 71.43 / MAX: 83.33
76.92
2 x Xeon Platinum 8272CL
SE +/- 0.00, N = 13
MIN: 28.57
90.91
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.00, N = 13
MIN: 71.43
90.91
2 x Xeon Platinum 8280
SE +/- 0.00, N = 13
MIN: 29.41
90.91
2 x Xeon Platinum 8375C
SE +/- 1.62, N = 15
MIN: 34.48 / MAX: 142.86
140.48
2 x Xeon Platinum 8375C NUMA off
SE +/- 2.25, N = 15
MIN: 66.67 / MAX: 142.86
136.90
EPYC 2 7R32
SE +/- 0.00, N = 12
MIN: 71.43 / MAX: 83.33
76.92
Xeon Platinum 8259CL
SE +/- 0.00, N = 12
MIN: 37.04
43.48
Xeon Platinum 8272CL
SE +/- 0.00, N = 12
MIN: 41.67 / MAX: 50
47.62
Xeon Platinum 8280
SE +/- 0.00, N = 12
MIN: 43.48
50.00
Xeon Platinum 8375C
SE +/- 0.00, N = 12
MIN: 62.5 / MAX: 76.92
71.43
Xeon W-3275M
SE +/- 0.00, N = 3
MIN: 43.48 / MAX: 47.62
45.45
30
60
90
120
150

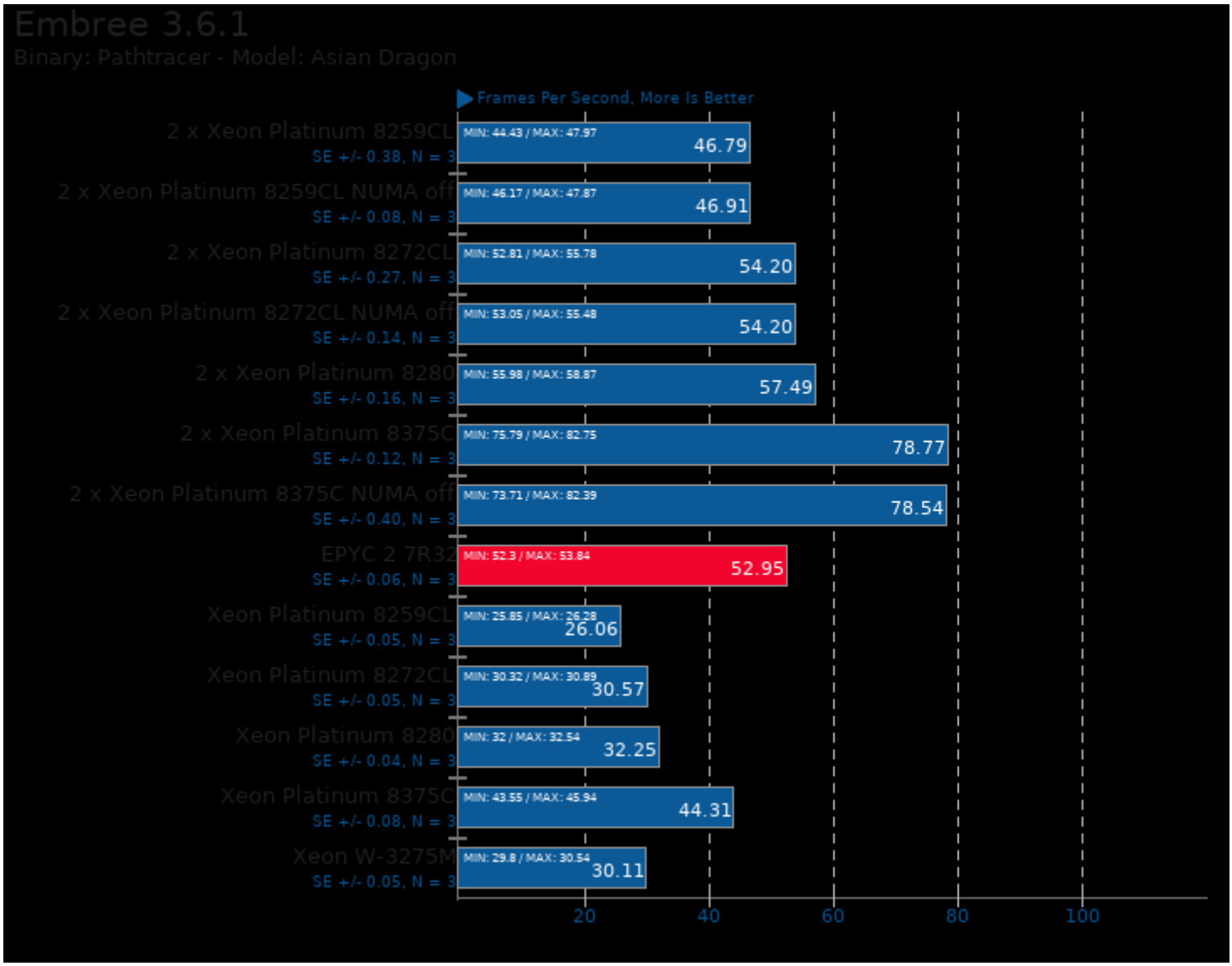

OSPray 1.8.5
Demo: XFrog Forest - Renderer: Path Tracer
FPS, More Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.00, N = 12
MIN: 5.08 / MAX: 5.78
5.71
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.01, N = 6
MIN: 5.59 / MAX: 5.75
5.71
2 x Xeon Platinum 8272CL
SE +/- 0.01, N = 3
MIN: 5.92 / MAX: 6.49
6.44
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.00, N = 15
MIN: 6.21 / MAX: 6.45
6.41
2 x Xeon Platinum 8280
SE +/- 0.00, N = 12
MIN: 5.85 / MAX: 6.76
6.67
2 x Xeon Platinum 8375C
SE +/- 0.02, N = 5
MIN: 7.81 / MAX: 10
9.88
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.02, N = 4
MIN: 9.71 / MAX: 9.9
9.88
EPYC 2 7R32
SE +/- 0.02, N = 3
MIN: 5.65 / MAX: 5.99
5.85
Xeon Platinum 8259CL
SE +/- 0.00, N = 6
MIN: 2.92 / MAX: 2.99
2.96
Xeon Platinum 8272CL
SE +/- 0.00, N = 5
MIN: 3.3 / MAX: 3.36
3.33
Xeon Platinum 8280
SE +/- 0.00, N = 4
MIN: 3.41 / MAX: 3.47
3.46
Xeon Platinum 8375C
SE +/- 0.00, N = 12
MIN: 5.13 / MAX: 5.21
5.18
Xeon W-3275M
SE +/- 0.00, N = 7
MIN: 3.09 / MAX: 3.19
3.17
3
6
9
12
15

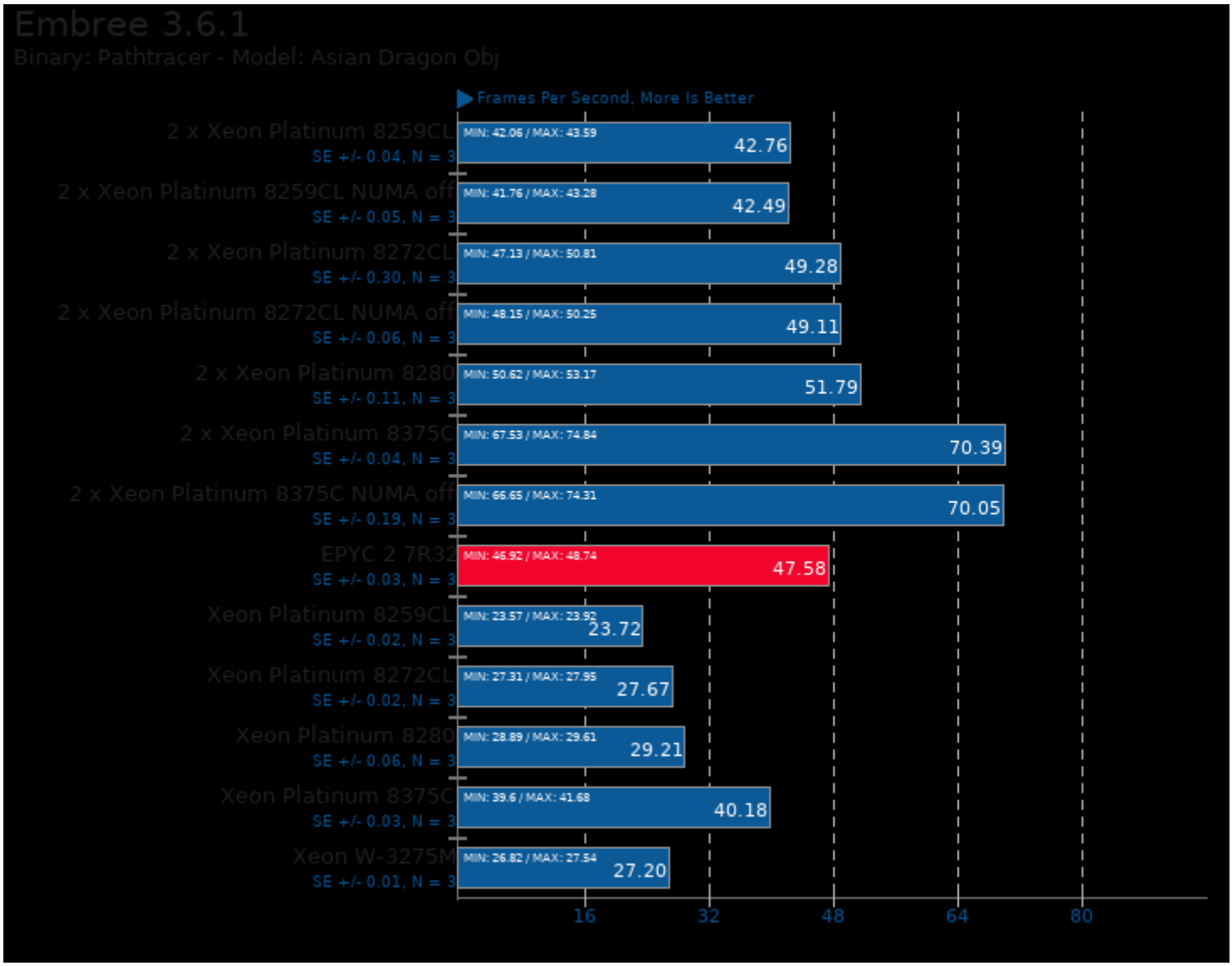

OSPray 1.8.5
Demo: Magnetic Reconnection - Renderer: SciVis
FPS, More Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.00, N = 3
MIN: 18.52 / MAX: 66.67
62.50
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.00, N = 3
MIN: 58.82 / MAX: 66.67
62.50
2 x Xeon Platinum 8272CL
SE +/- 0.00, N = 12
MIN: 19.23
71.43
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.00, N = 12
MIN: 58.82
71.43
2 x Xeon Platinum 8280
SE +/- 0.00, N = 12
MIN: 15.87 / MAX: 76.92
71.43
2 x Xeon Platinum 8375C
SE +/- 1.45, N = 12
MIN: 22.22 / MAX: 111.11
108.33
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.00, N = 15
MIN: 76.92
111.11
EPYC 2 7R32
MIN: 38.46 / MAX: 41.67
40.00
Xeon Platinum 8259CL
SE +/- 0.00, N = 12
MIN: 33.33
37.04
Xeon Platinum 8272CL
MIN: 34.48 / MAX: 41.67
40.00
Xeon Platinum 8280
SE +/- 0.60, N = 3
MIN: 38.46 / MAX: 43.48
42.87
Xeon Platinum 8375C
SE +/- 0.00, N = 3
MIN: 58.82 / MAX: 66.67
62.50
Xeon W-3275M
MIN: 37.04
40.00
20
40
60
80
100

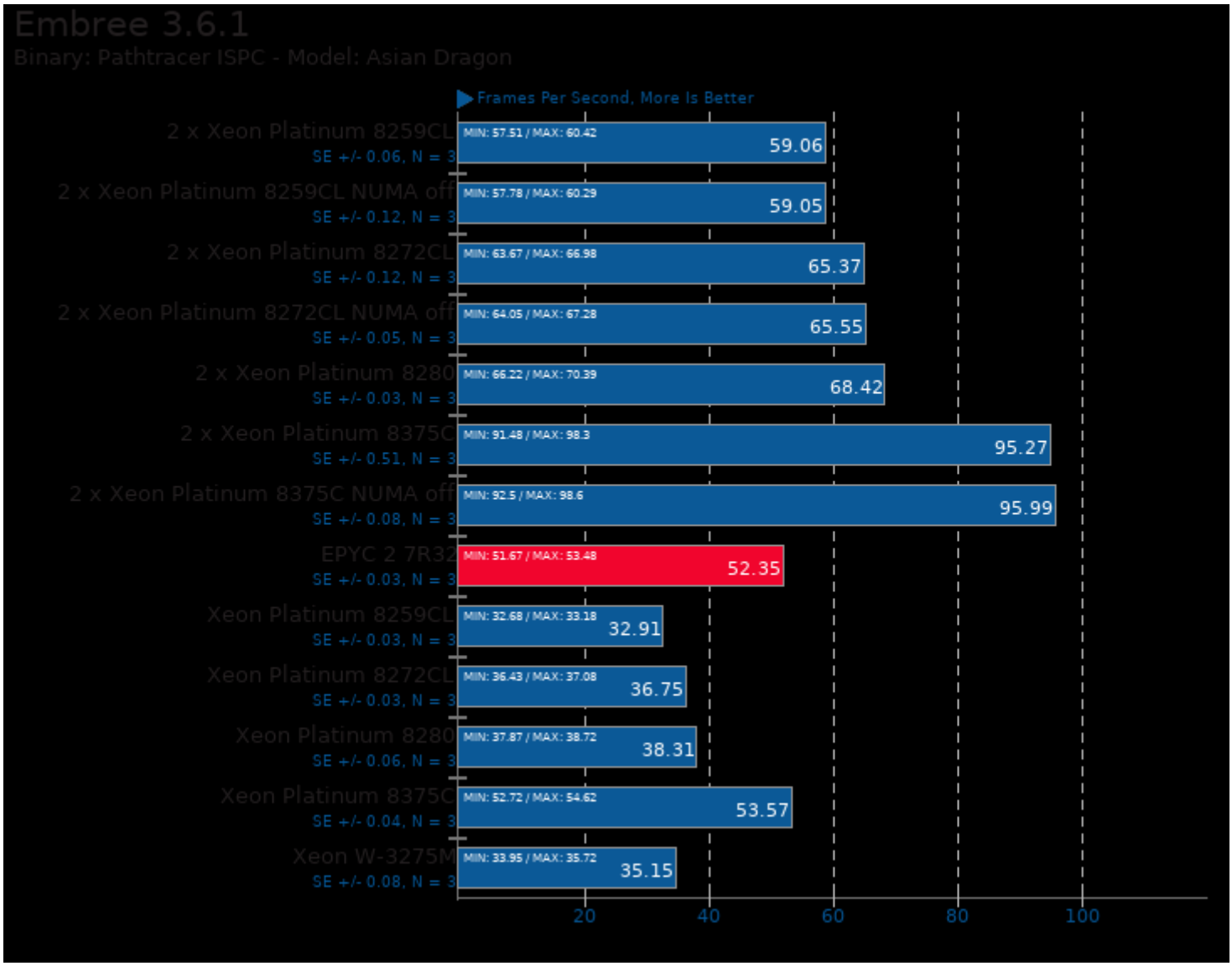

OSPray 1.8.5
Demo: NASA Streamlines - Renderer: Path Tracer
FPS, More Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.000, N = 3
MIN: 11.11 / MAX: 15.87
15.625
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.080, N = 3
MIN: 14.93 / MAX: 15.87
15.540
2 x Xeon Platinum 8272CL
SE +/- 0.000, N = 12
MIN: 12.5 / MAX: 17.86
17.540
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.101, N = 3
MIN: 16.39 / MAX: 17.86
17.440
2 x Xeon Platinum 8280
SE +/- 0.000, N = 12
MIN: 12.2 / MAX: 18.52
18.180
2 x Xeon Platinum 8375C
SE +/- 0.000, N = 12
MIN: 16.67 / MAX: 27.78
27.030
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.000, N = 12
MIN: 26.32 / MAX: 27.78
27.030
EPYC 2 7R32
SE +/- 0.068, N = 4
MIN: 15.87 / MAX: 16.95
16.600
Xeon Platinum 8259CL
SE +/- 0.022, N = 3
MIN: 7.94 / MAX: 8.2
8.090
Xeon Platinum 8272CL
SE +/- 0.000, N = 12
MIN: 8.85 / MAX: 9.35
9.090
Xeon Platinum 8280
SE +/- 0.030, N = 3
MIN: 9.26 / MAX: 9.62
9.490
Xeon Platinum 8375C
SE +/- 0.067, N = 3
MIN: 14.08 / MAX: 14.49
14.220
Xeon W-3275M
SE +/- 0.006, N = 12
MIN: 8.33 / MAX: 9.01
8.690
6
12
18
24
30

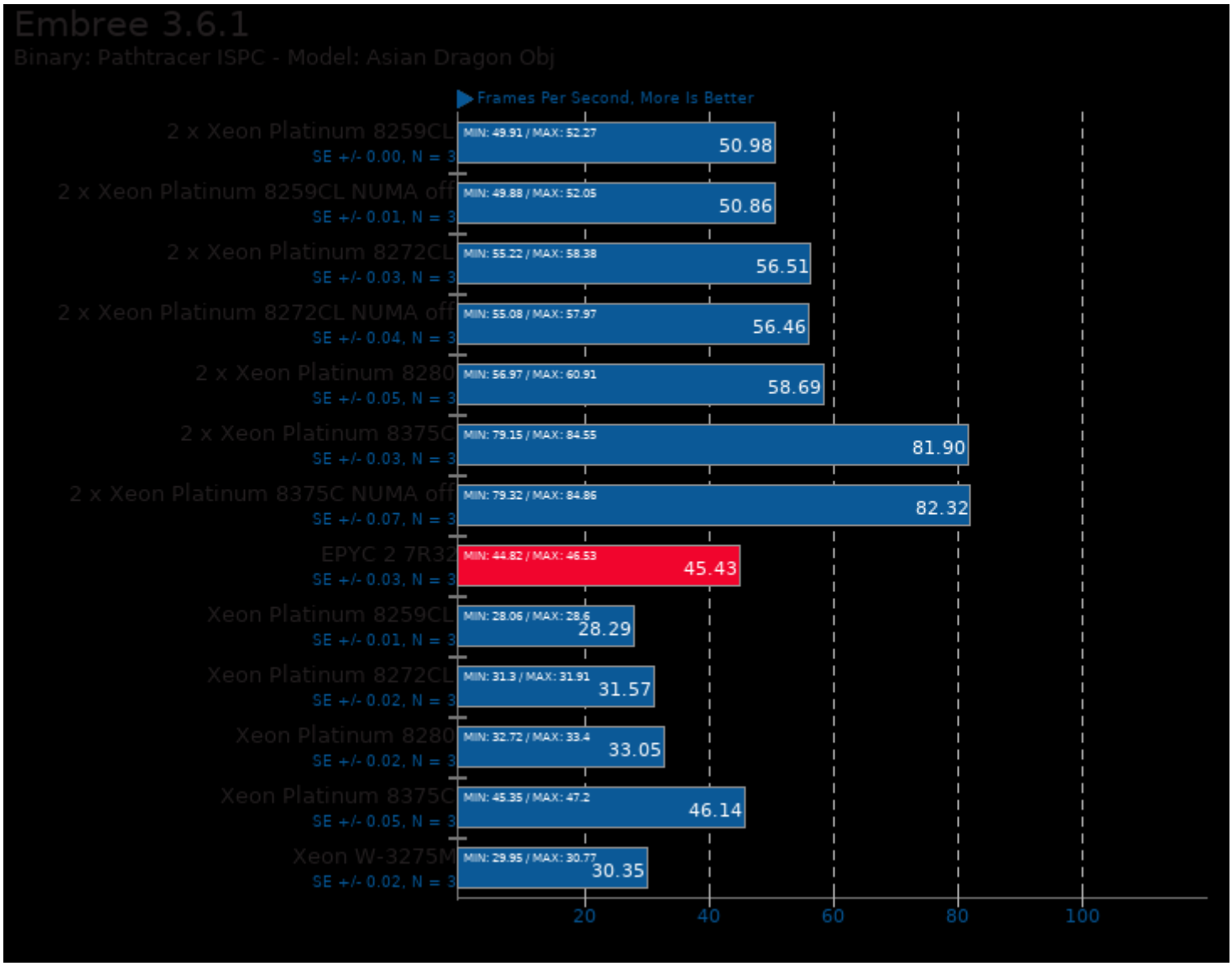

Embree 3.6.1
Binary: Pathtracer - Model: Crown
Frames Per Second, More Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.17, N = 3
MIN: 37.03 / MAX: 39.42
38.12
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.15, N = 3
MIN: 37.24 / MAX: 39.22
38.10
2 x Xeon Platinum 8272CL
SE +/- 0.31, N = 3
MIN: 41.48 / MAX: 45.92
43.82
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.18, N = 3
MIN: 42.79 / MAX: 45.69
43.99
2 x Xeon Platinum 8280
SE +/- 0.09, N = 3
MIN: 44.2 / MAX: 47.35
45.61
2 x Xeon Platinum 8375C
SE +/- 0.15, N = 3
MIN: 67.05 / MAX: 73.59
69.26
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.09, N = 3
MIN: 66.94 / MAX: 73.49
69.14
EPYC 2 7R32
SE +/- 0.08, N = 3
MIN: 46.77 / MAX: 49.17
47.65
Xeon Platinum 8259CL
SE +/- 0.03, N = 3
MIN: 21.05 / MAX: 21.63
21.38
Xeon Platinum 8272CL
SE +/- 0.05, N = 3
MIN: 24.68 / MAX: 25.5
25.12
Xeon Platinum 8280
SE +/- 0.04, N = 3
MIN: 25.64 / MAX: 26.64
26.28
Xeon Platinum 8375C
SE +/- 0.31, N = 3
MIN: 36.48 / MAX: 39.76
37.63
Xeon W-3275M
SE +/- 0.03, N = 3
MIN: 24.09 / MAX: 24.98
24.55
15
30
45
60
75

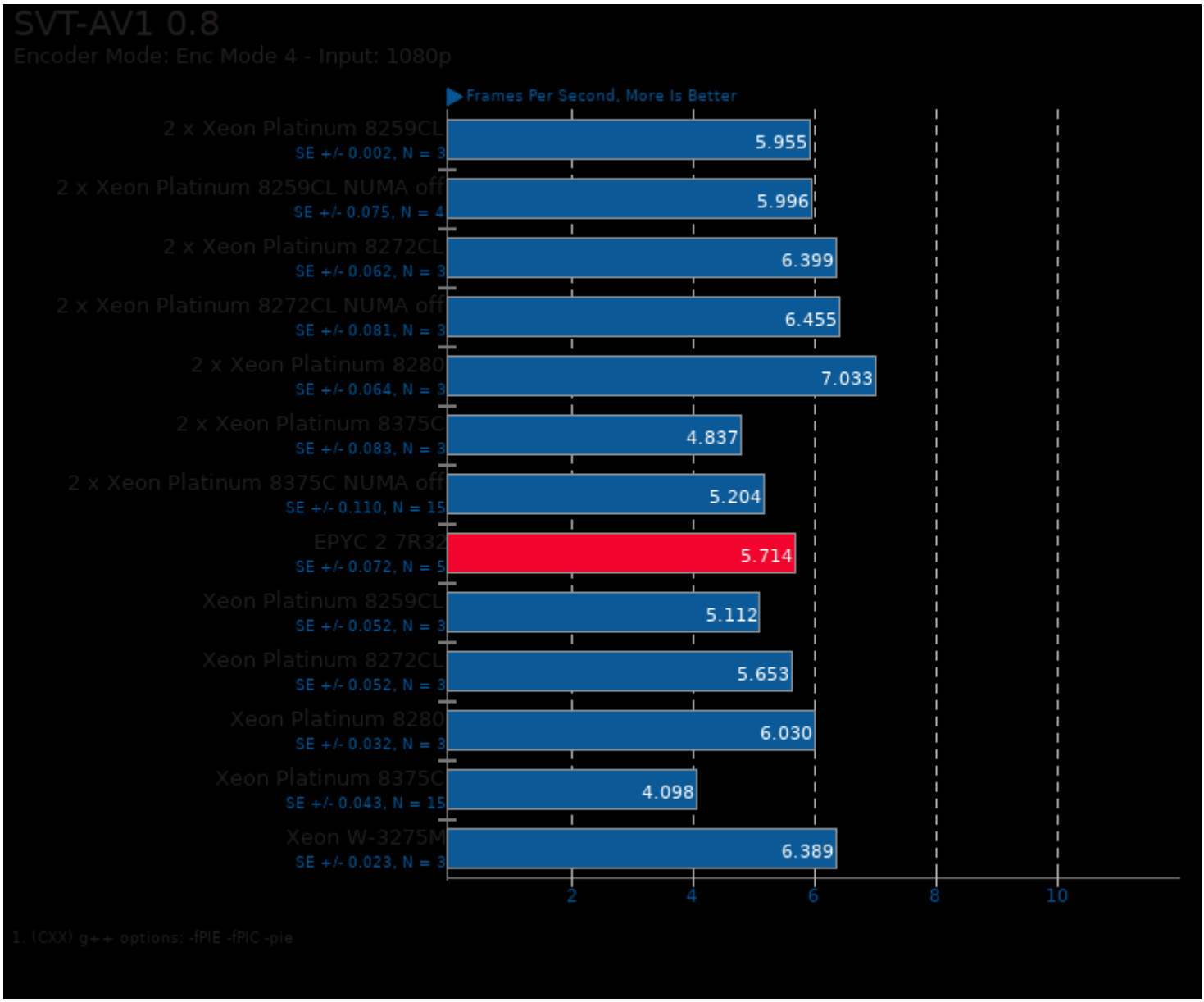

Embree 3.6.1
Binary: Pathtracer ISPC - Model: Crown
Frames Per Second, More Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.38, N = 3
MIN: 42.99 / MAX: 47.93
46.18
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.05, N = 3
MIN: 45.24 / MAX: 47.89
46.42
2 x Xeon Platinum 8272CL
SE +/- 0.46, N = 3
MIN: 47.31 / MAX: 53.67
51.20
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.63, N = 5
MIN: 45.23 / MAX: 53.81
50.95
2 x Xeon Platinum 8280
SE +/- 0.05, N = 3
MIN: 51.36 / MAX: 55.83
53.23
2 x Xeon Platinum 8375C
SE +/- 0.06, N = 3
MIN: 75.59 / MAX: 83.02
78.63
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.06, N = 3
MIN: 75.52 / MAX: 82.95
78.55
EPYC 2 7R32
SE +/- 0.08, N = 3
MIN: 44.15 / MAX: 46.52
45.19
Xeon Platinum 8259CL
SE +/- 0.02, N = 3
MIN: 24.4 / MAX: 25.05
24.73
Xeon Platinum 8272CL
SE +/- 0.01, N = 3
MIN: 27.34 / MAX: 28.17
27.78
Xeon Platinum 8280
SE +/- 0.02, N = 3
MIN: 28.26 / MAX: 29.24
28.77
Xeon Platinum 8375C
SE +/- 0.02, N = 3
MIN: 41.98 / MAX: 43.65
42.60
Xeon W-3275M
SE +/- 0.04, N = 3
MIN: 25.71 / MAX: 26.95
26.40
20
40
60
80
100

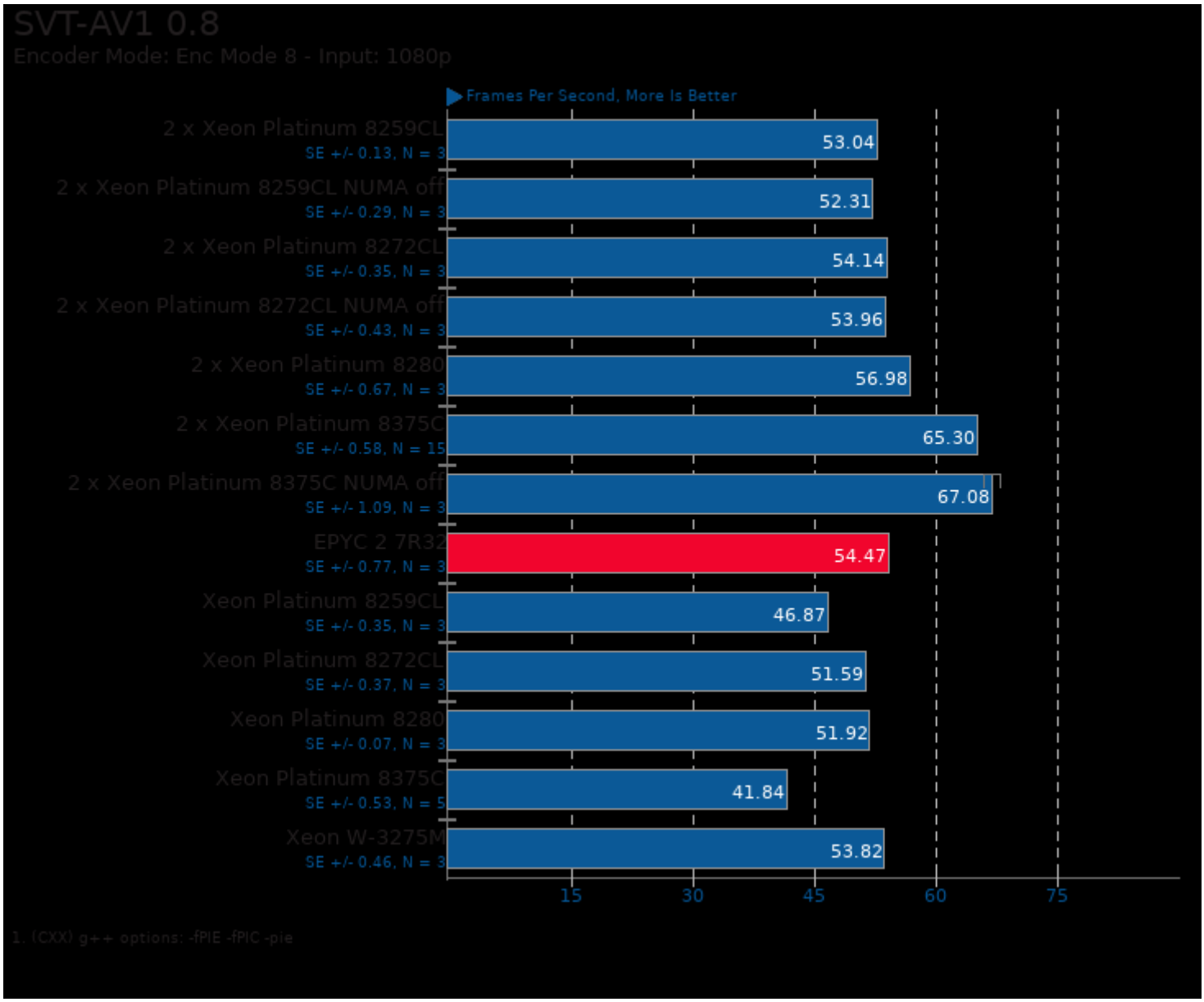

Embree 3.6.1
Binary: Pathtracer - Model: Asian Dragon
Frames Per Second, More Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.38, N = 3
MIN: 44.43 / MAX: 47.97
46.79
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.08, N = 3
MIN: 46.17 / MAX: 47.87
46.91
2 x Xeon Platinum 8272CL
SE +/- 0.27, N = 3
MIN: 52.81 / MAX: 55.78
54.20
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.14, N = 3
MIN: 53.05 / MAX: 55.48
54.20
2 x Xeon Platinum 8280
SE +/- 0.16, N = 3
MIN: 55.98 / MAX: 58.87
57.49
2 x Xeon Platinum 8375C
SE +/- 0.12, N = 3
MIN: 75.79 / MAX: 82.75
78.77
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.40, N = 3
MIN: 73.71 / MAX: 82.39
78.54
EPYC 2 7R32
SE +/- 0.06, N = 3
MIN: 52.3 / MAX: 53.84
52.95
Xeon Platinum 8259CL
SE +/- 0.05, N = 3
MIN: 25.85 / MAX: 26.28
26.06
Xeon Platinum 8272CL
SE +/- 0.05, N = 3
MIN: 30.32 / MAX: 30.89
30.57
Xeon Platinum 8280
SE +/- 0.04, N = 3
MIN: 32 / MAX: 32.54
32.25
Xeon Platinum 8375C
SE +/- 0.08, N = 3
MIN: 43.55 / MAX: 45.94
44.31
Xeon W-3275M
SE +/- 0.05, N = 3
MIN: 29.8 / MAX: 30.54
30.11
20
40
60
80
100

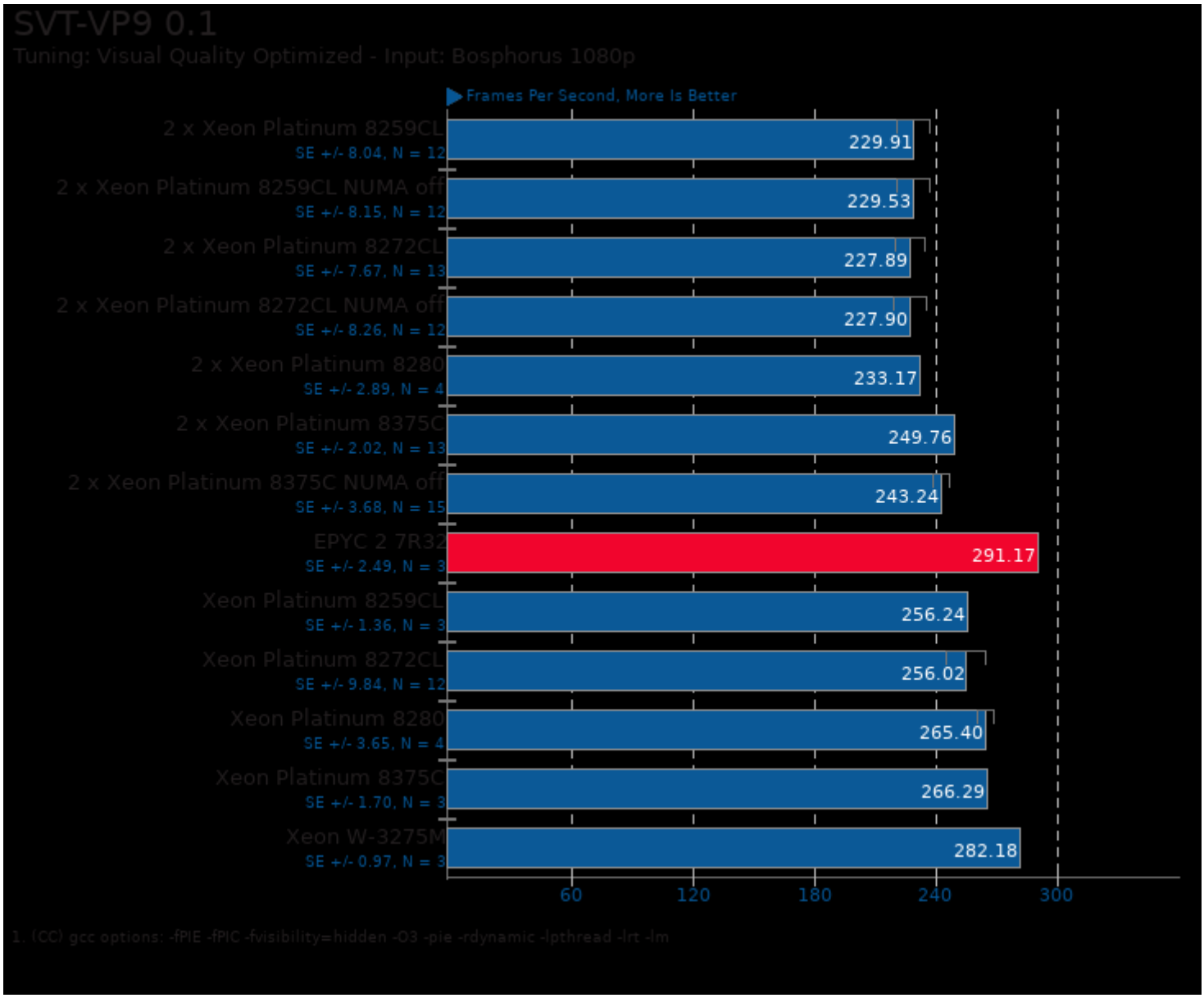

Embree 3.6.1
Binary: Pathtracer - Model: Asian Dragon Obj
Frames Per Second, More Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.04, N = 3
MIN: 42.06 / MAX: 43.59
42.76
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.05, N = 3
MIN: 41.76 / MAX: 43.28
42.49
2 x Xeon Platinum 8272CL
SE +/- 0.30, N = 3
MIN: 47.13 / MAX: 50.81
49.28
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.06, N = 3
MIN: 48.15 / MAX: 50.25
49.11
2 x Xeon Platinum 8280
SE +/- 0.11, N = 3
MIN: 50.62 / MAX: 53.17
51.79
2 x Xeon Platinum 8375C
SE +/- 0.04, N = 3
MIN: 67.53 / MAX: 74.84
70.39
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.19, N = 3
MIN: 66.65 / MAX: 74.31
70.05
EPYC 2 7R32
SE +/- 0.03, N = 3
MIN: 46.92 / MAX: 48.74
47.58
Xeon Platinum 8259CL
SE +/- 0.02, N = 3
MIN: 23.57 / MAX: 23.92
23.72
Xeon Platinum 8272CL
SE +/- 0.02, N = 3
MIN: 27.31 / MAX: 27.95
27.67
Xeon Platinum 8280
SE +/- 0.06, N = 3
MIN: 28.89 / MAX: 29.61
29.21
Xeon Platinum 8375C
SE +/- 0.03, N = 3
MIN: 39.6 / MAX: 41.68
40.18
Xeon W-3275M
SE +/- 0.01, N = 3
MIN: 26.82 / MAX: 27.54
27.20
16
32
48
64
80

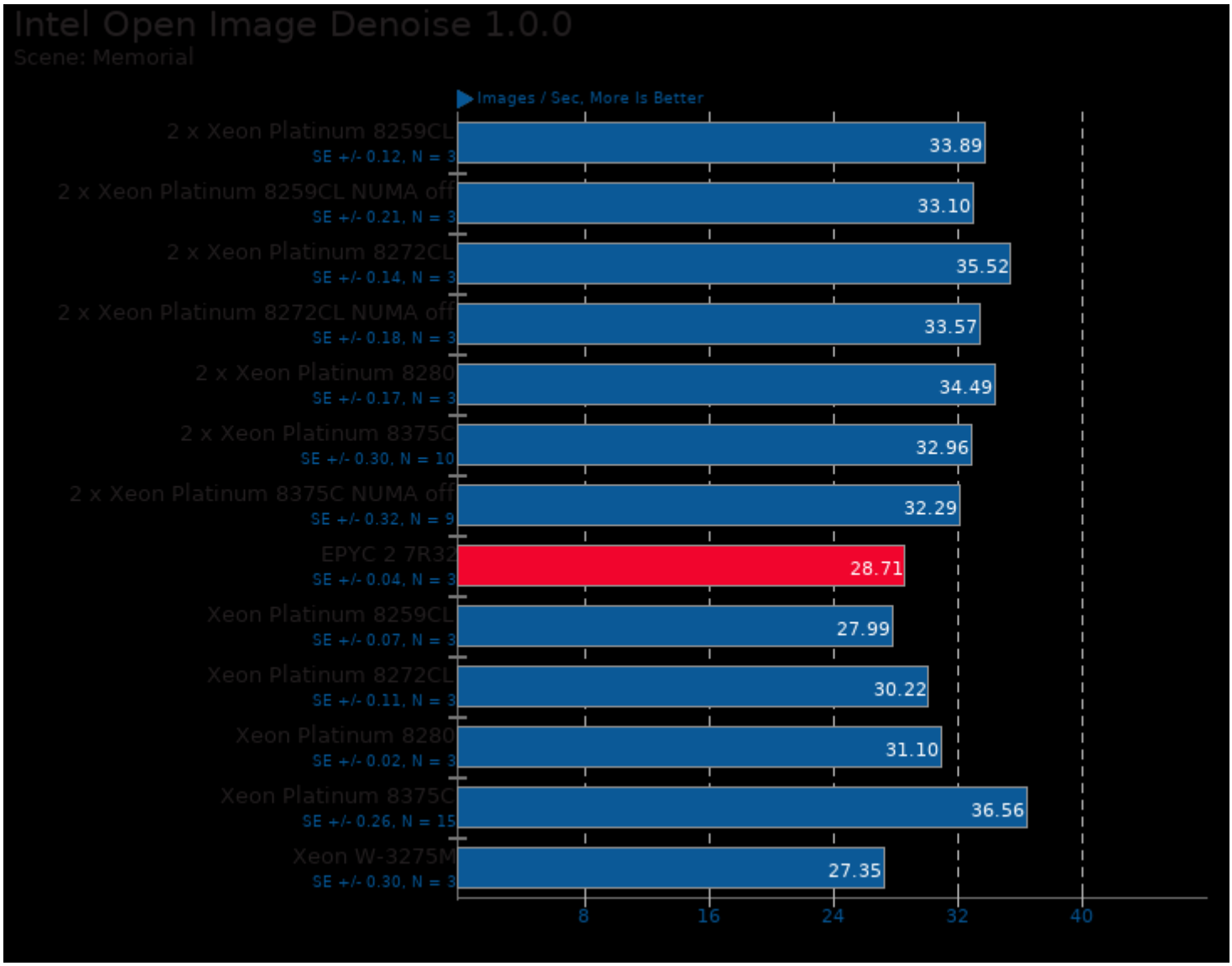

Embree 3.6.1
Binary: Pathtracer ISPC - Model: Asian Dragon
Frames Per Second, More Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.06, N = 3
MIN: 57.51 / MAX: 60.42
59.06
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.12, N = 3
MIN: 57.78 / MAX: 60.29
59.05
2 x Xeon Platinum 8272CL
SE +/- 0.12, N = 3
MIN: 63.67 / MAX: 66.98
65.37
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.05, N = 3
MIN: 64.05 / MAX: 67.28
65.55
2 x Xeon Platinum 8280
SE +/- 0.03, N = 3
MIN: 66.22 / MAX: 70.39
68.42
2 x Xeon Platinum 8375C
SE +/- 0.51, N = 3
MIN: 91.48 / MAX: 98.3
95.27
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.08, N = 3
MIN: 92.5 / MAX: 98.6
95.99
EPYC 2 7R32
SE +/- 0.03, N = 3
MIN: 51.67 / MAX: 53.48
52.35
Xeon Platinum 8259CL
SE +/- 0.03, N = 3
MIN: 32.68 / MAX: 33.18
32.91
Xeon Platinum 8272CL
SE +/- 0.03, N = 3
MIN: 36.43 / MAX: 37.08
36.75
Xeon Platinum 8280
SE +/- 0.06, N = 3
MIN: 37.87 / MAX: 38.72
38.31
Xeon Platinum 8375C
SE +/- 0.04, N = 3
MIN: 52.72 / MAX: 54.62
53.57
Xeon W-3275M
SE +/- 0.08, N = 3
MIN: 33.95 / MAX: 35.72
35.15
20
40
60
80
100

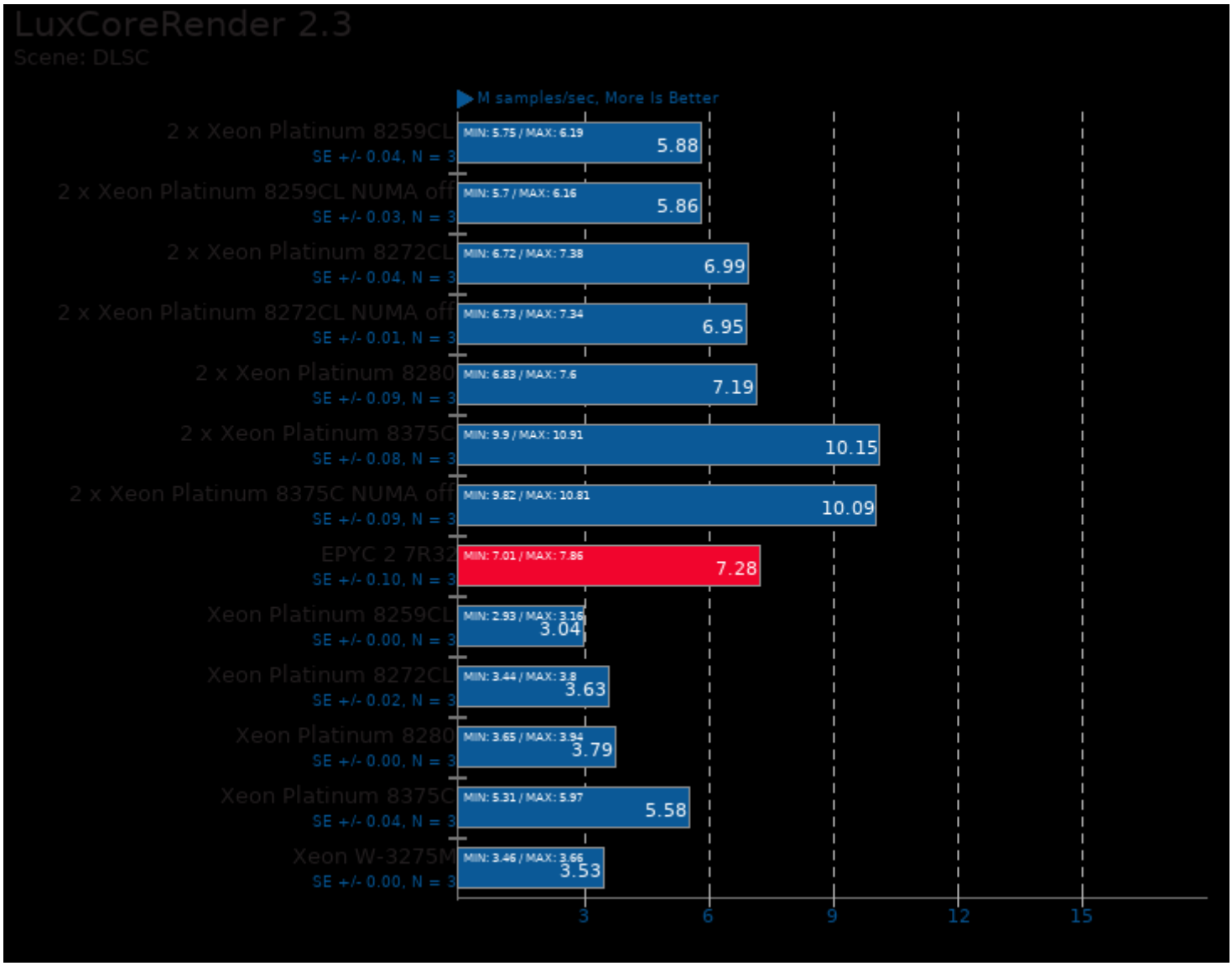

Embree 3.6.1
Binary: Pathtracer ISPC - Model: Asian Dragon Obj
Frames Per Second, More Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.00, N = 3
MIN: 49.91 / MAX: 52.27
50.98
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.01, N = 3
MIN: 49.88 / MAX: 52.05
50.86
2 x Xeon Platinum 8272CL
SE +/- 0.03, N = 3
MIN: 55.22 / MAX: 58.38
56.51
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.04, N = 3
MIN: 55.08 / MAX: 57.97
56.46
2 x Xeon Platinum 8280
SE +/- 0.05, N = 3
MIN: 56.97 / MAX: 60.91
58.69
2 x Xeon Platinum 8375C
SE +/- 0.03, N = 3
MIN: 79.15 / MAX: 84.55
81.90
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.07, N = 3
MIN: 79.32 / MAX: 84.86
82.32
EPYC 2 7R32
SE +/- 0.03, N = 3
MIN: 44.82 / MAX: 46.53
45.43
Xeon Platinum 8259CL
SE +/- 0.01, N = 3
MIN: 28.06 / MAX: 28.6
28.29
Xeon Platinum 8272CL
SE +/- 0.02, N = 3
MIN: 31.3 / MAX: 31.91
31.57
Xeon Platinum 8280
SE +/- 0.02, N = 3
MIN: 32.72 / MAX: 33.4
33.05
Xeon Platinum 8375C
SE +/- 0.05, N = 3
MIN: 45.35 / MAX: 47.2
46.14
Xeon W-3275M
SE +/- 0.02, N = 3
MIN: 29.95 / MAX: 30.77
30.35
20
40
60
80
100

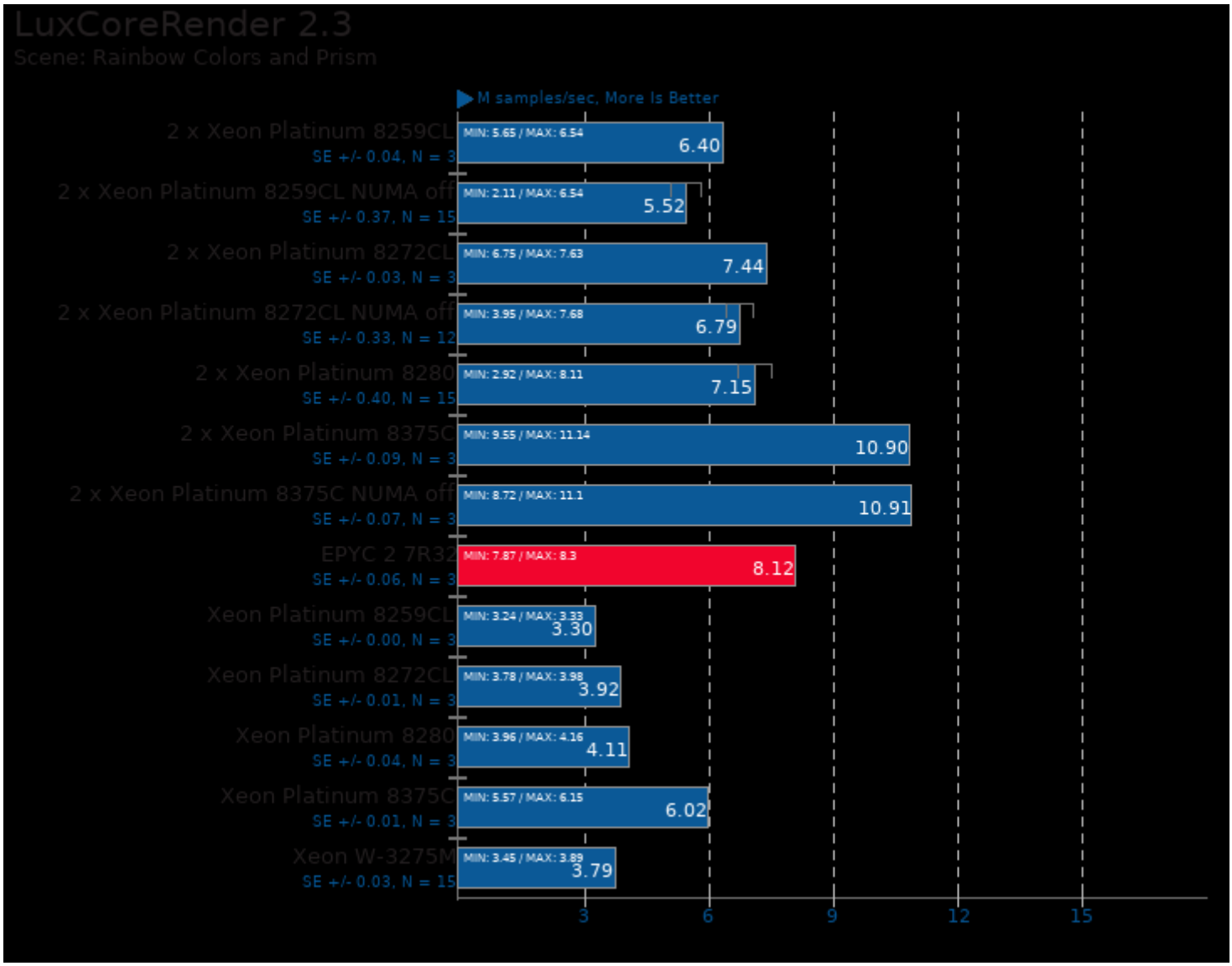

SVT-AV1 0.8
Encoder Mode: Enc Mode 4 - Input: 1080p
Frames Per Second, More Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.002, N = 3
5.955
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.075, N = 4
5.996
2 x Xeon Platinum 8272CL
SE +/- 0.062, N = 3
6.399
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.081, N = 3
6.455
2 x Xeon Platinum 8280
SE +/- 0.064, N = 3
7.033
2 x Xeon Platinum 8375C
SE +/- 0.083, N = 3
4.837
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.110, N = 15
5.204
EPYC 2 7R32
SE +/- 0.072, N = 5
5.714
Xeon Platinum 8259CL
SE +/- 0.052, N = 3
5.112
Xeon Platinum 8272CL
SE +/- 0.052, N = 3
5.653
Xeon Platinum 8280
SE +/- 0.032, N = 3
6.030
Xeon Platinum 8375C
SE +/- 0.043, N = 15
4.098
Xeon W-3275M
SE +/- 0.023, N = 3
6.389
2
4
6
8
10
1. (CXX) g++ options: -fPIE -fPIC -pie

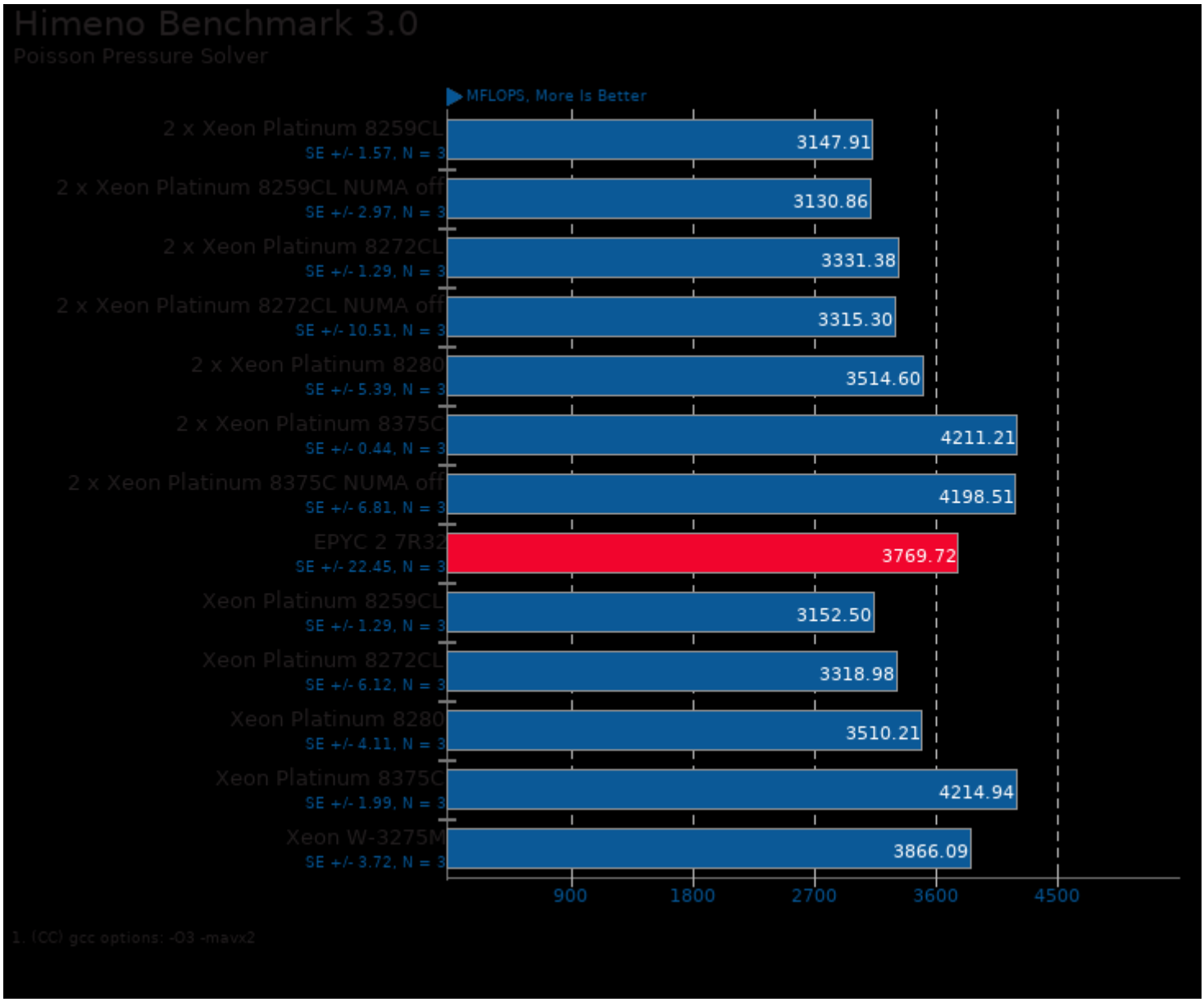

SVT-AV1 0.8
Encoder Mode: Enc Mode 8 - Input: 1080p
Frames Per Second, More Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.13, N = 3
53.04
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.29, N = 3
52.31
2 x Xeon Platinum 8272CL
SE +/- 0.35, N = 3
54.14
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.43, N = 3
53.96
2 x Xeon Platinum 8280
SE +/- 0.67, N = 3
56.98
2 x Xeon Platinum 8375C
SE +/- 0.58, N = 15
65.30
2 x Xeon Platinum 8375C NUMA off
SE +/- 1.09, N = 3
67.08
EPYC 2 7R32
SE +/- 0.77, N = 3
54.47
Xeon Platinum 8259CL
SE +/- 0.35, N = 3
46.87
Xeon Platinum 8272CL
SE +/- 0.37, N = 3
51.59
Xeon Platinum 8280
SE +/- 0.07, N = 3
51.92
Xeon Platinum 8375C
SE +/- 0.53, N = 5
41.84
Xeon W-3275M
SE +/- 0.46, N = 3
53.82
15
30
45
60
75
1. (CXX) g++ options: -fPIE -fPIC -pie

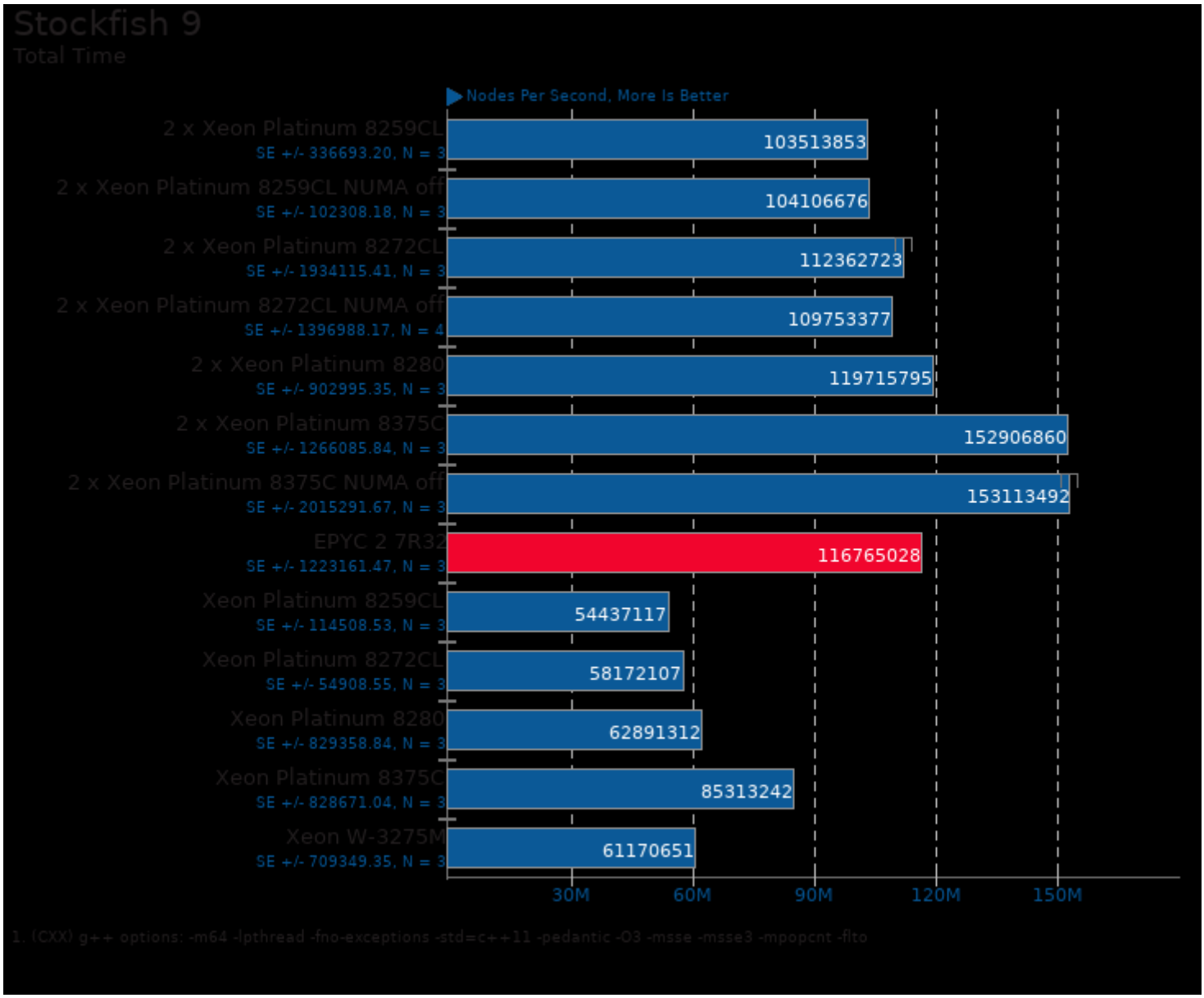

SVT-VP9 0.1
Tuning: Visual Quality Optimized - Input: Bosphorus 1080p
Frames Per Second, More Is Better
2 x Xeon Platinum 8259CL
SE +/- 8.04, N = 12
229.91
2 x Xeon Platinum 8259CL NUMA off
SE +/- 8.15, N = 12
229.53
2 x Xeon Platinum 8272CL
SE +/- 7.67, N = 13
227.89
2 x Xeon Platinum 8272CL NUMA off
SE +/- 8.26, N = 12
227.90
2 x Xeon Platinum 8280
SE +/- 2.89, N = 4
233.17
2 x Xeon Platinum 8375C
SE +/- 2.02, N = 13
249.76
2 x Xeon Platinum 8375C NUMA off
SE +/- 3.68, N = 15
243.24
EPYC 2 7R32
SE +/- 2.49, N = 3
291.17
Xeon Platinum 8259CL
SE +/- 1.36, N = 3
256.24
Xeon Platinum 8272CL
SE +/- 9.84, N = 12
256.02
Xeon Platinum 8280
SE +/- 3.65, N = 4
265.40
Xeon Platinum 8375C
SE +/- 1.70, N = 3
266.29
Xeon W-3275M
SE +/- 0.97, N = 3
282.18
60
120
180
240
300
1. (CC) gcc options: -fPIE -fPIC -fvisibility=hidden -O3 -pie -rdynamic -lpthread -lrt -lm

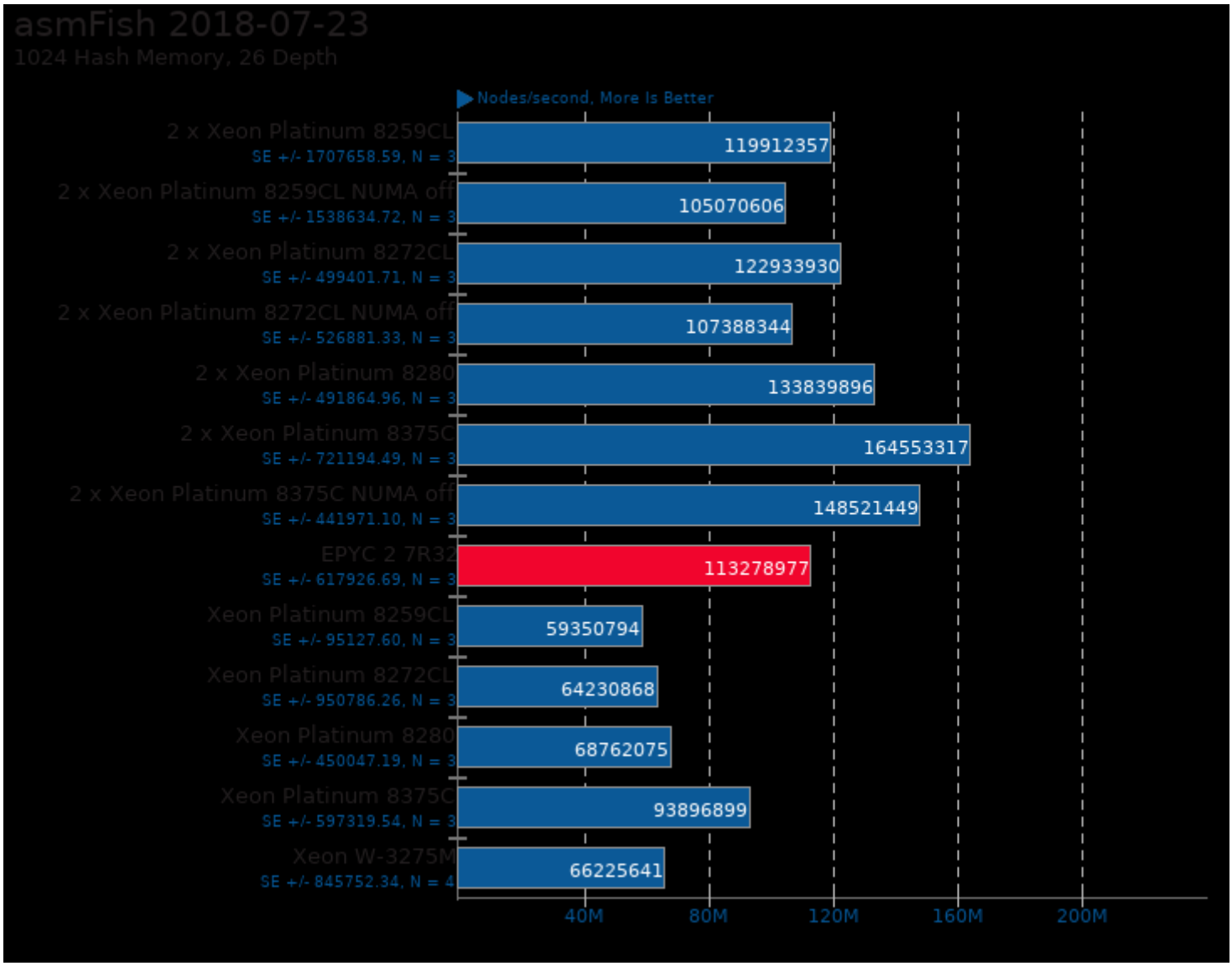

Intel Open Image Denoise 1.0.0
Scene: Memorial
Images / Sec, More Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.12, N = 3
33.89
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.21, N = 3
33.10
2 x Xeon Platinum 8272CL
SE +/- 0.14, N = 3
35.52
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.18, N = 3
33.57
2 x Xeon Platinum 8280
SE +/- 0.17, N = 3
34.49
2 x Xeon Platinum 8375C
SE +/- 0.30, N = 10
32.96
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.32, N = 9
32.29
EPYC 2 7R32
SE +/- 0.04, N = 3
28.71
Xeon Platinum 8259CL
SE +/- 0.07, N = 3
27.99
Xeon Platinum 8272CL
SE +/- 0.11, N = 3
30.22
Xeon Platinum 8280
SE +/- 0.02, N = 3
31.10
Xeon Platinum 8375C
SE +/- 0.26, N = 15
36.56
Xeon W-3275M
SE +/- 0.30, N = 3
27.35
8
16
24
32
40

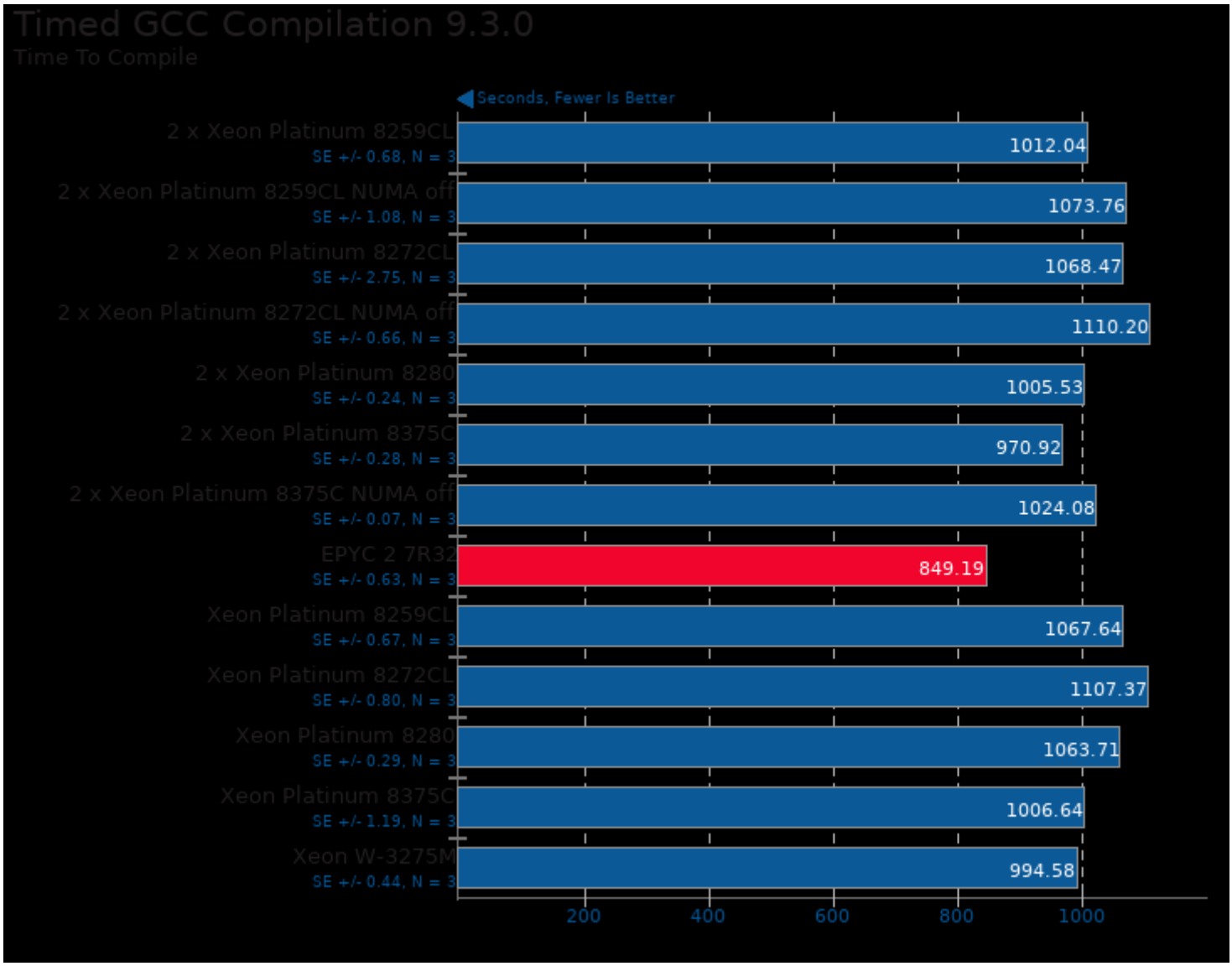

LuxCoreRender 2.3
Scene: DLSC
M samples/sec, More Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.04, N = 3
MIN: 5.75 / MAX: 6.19
5.88
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.03, N = 3
MIN: 5.7 / MAX: 6.16
5.86
2 x Xeon Platinum 8272CL
SE +/- 0.04, N = 3
MIN: 6.72 / MAX: 7.38
6.99
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.01, N = 3
MIN: 6.73 / MAX: 7.34
6.95
2 x Xeon Platinum 8280
SE +/- 0.09, N = 3
MIN: 6.83 / MAX: 7.6
7.19
2 x Xeon Platinum 8375C
SE +/- 0.08, N = 3
MIN: 9.9 / MAX: 10.91
10.15
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.09, N = 3
MIN: 9.82 / MAX: 10.81
10.09
EPYC 2 7R32
SE +/- 0.10, N = 3
MIN: 7.01 / MAX: 7.86
7.28
Xeon Platinum 8259CL
SE +/- 0.00, N = 3
MIN: 2.93 / MAX: 3.16
3.04
Xeon Platinum 8272CL
SE +/- 0.02, N = 3
MIN: 3.44 / MAX: 3.8
3.63
Xeon Platinum 8280
SE +/- 0.00, N = 3
MIN: 3.65 / MAX: 3.94
3.79
Xeon Platinum 8375C
SE +/- 0.04, N = 3
MIN: 5.31 / MAX: 5.97
5.58
Xeon W-3275M
SE +/- 0.00, N = 3
MIN: 3.46 / MAX: 3.66
3.53
3
6
9
12
15

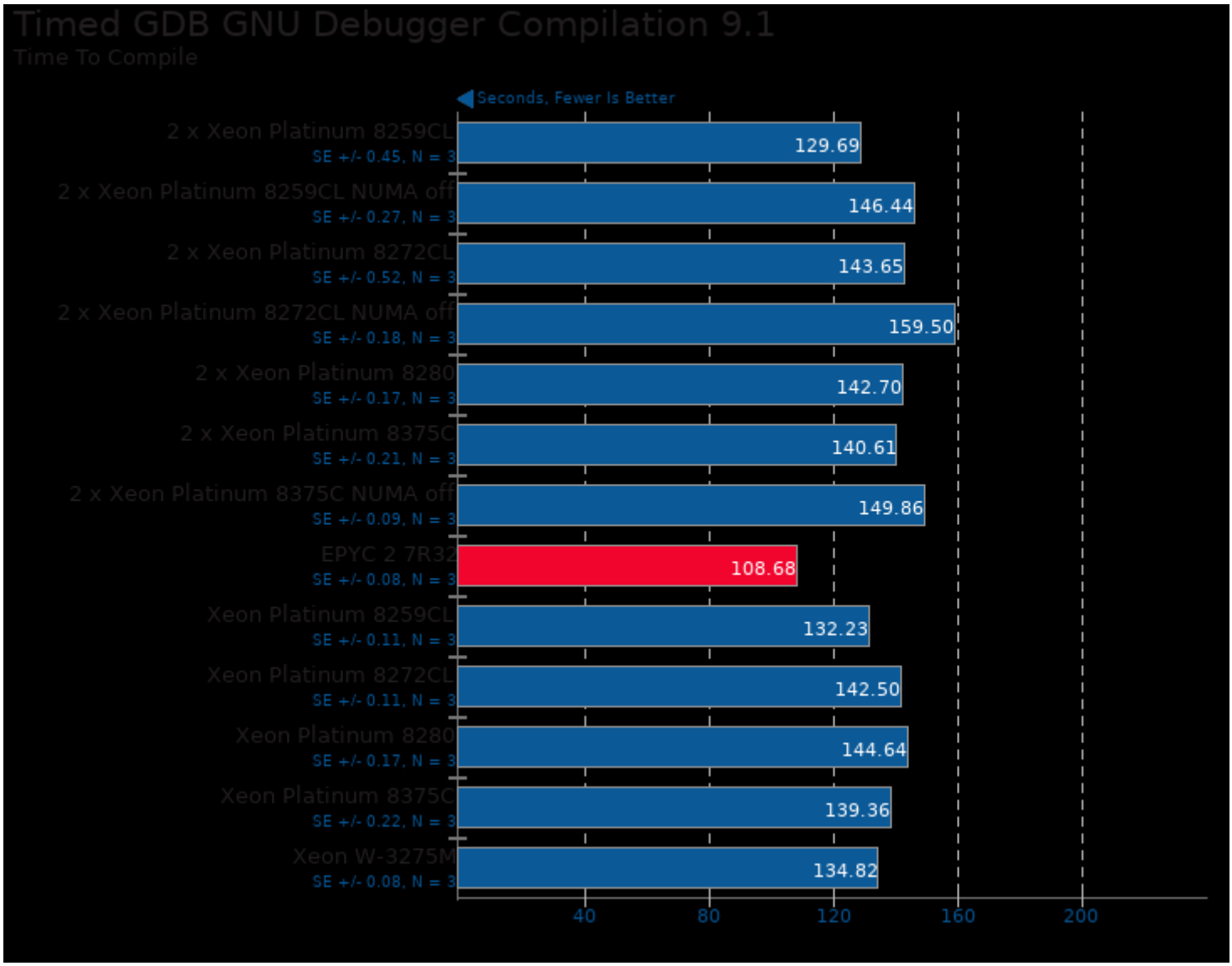

LuxCoreRender 2.3
Scene: Rainbow Colors and Prism
M samples/sec, More Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.04, N = 3
MIN: 5.65 / MAX: 6.54
6.40
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.37, N = 15
MIN: 2.11 / MAX: 6.54
5.52
2 x Xeon Platinum 8272CL
SE +/- 0.03, N = 3
MIN: 6.75 / MAX: 7.63
7.44
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.33, N = 12
MIN: 3.95 / MAX: 7.68
6.79
2 x Xeon Platinum 8280
SE +/- 0.40, N = 15
MIN: 2.92 / MAX: 8.11
7.15
2 x Xeon Platinum 8375C
SE +/- 0.09, N = 3
MIN: 9.55 / MAX: 11.14
10.90
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.07, N = 3
MIN: 8.72 / MAX: 11.1
10.91
EPYC 2 7R32
SE +/- 0.06, N = 3
MIN: 7.87 / MAX: 8.3
8.12
Xeon Platinum 8259CL
SE +/- 0.00, N = 3
MIN: 3.24 / MAX: 3.33
3.30
Xeon Platinum 8272CL
SE +/- 0.01, N = 3
MIN: 3.78 / MAX: 3.98
3.92
Xeon Platinum 8280
SE +/- 0.04, N = 3
MIN: 3.96 / MAX: 4.16
4.11
Xeon Platinum 8375C
SE +/- 0.01, N = 3
MIN: 5.57 / MAX: 6.15
6.02
Xeon W-3275M
SE +/- 0.03, N = 15
MIN: 3.45 / MAX: 3.89
3.79
3
6
9
12
15

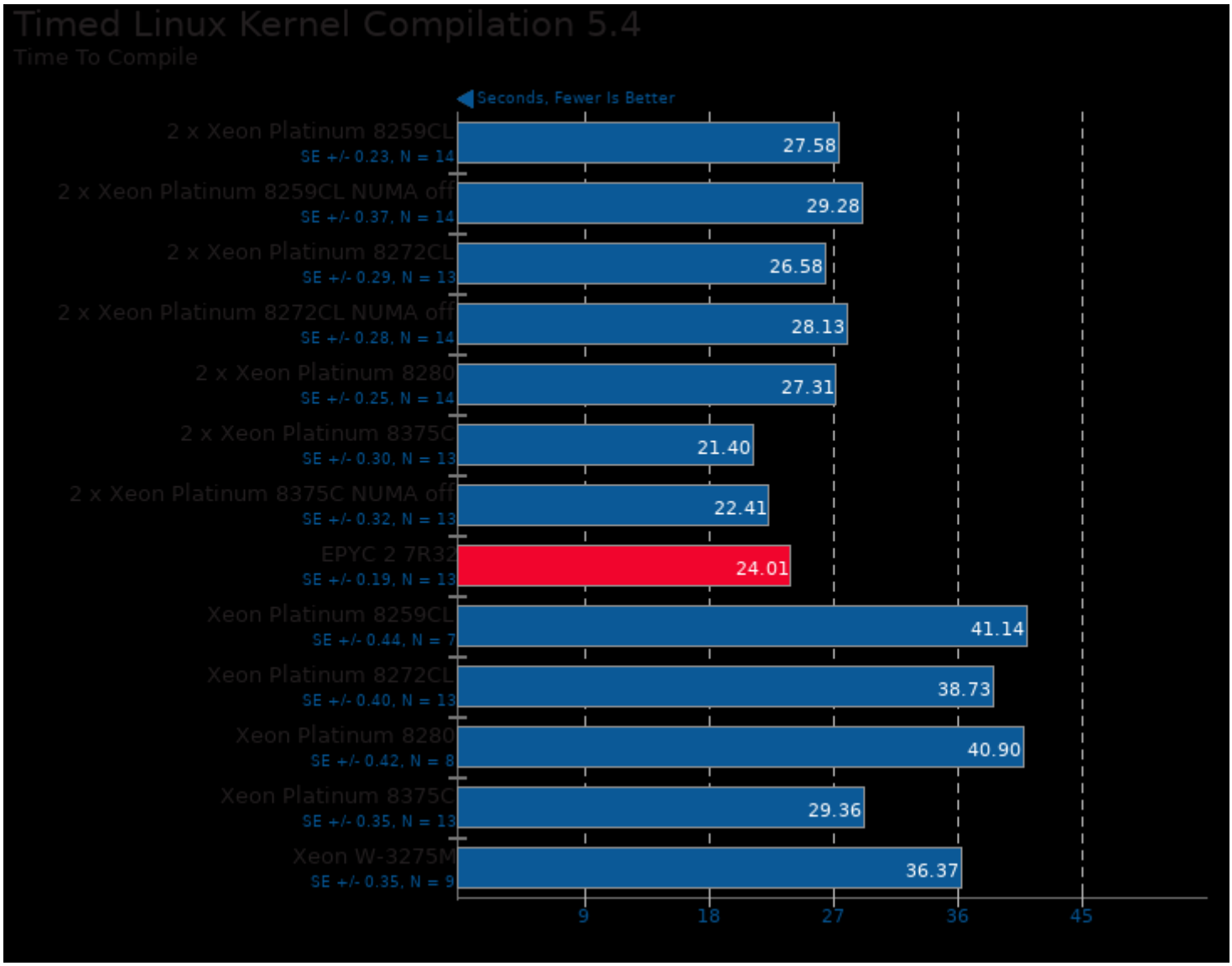

Himeno Benchmark 3.0
Poisson Pressure Solver
MFLOPS, More Is Better
2 x Xeon Platinum 8259CL
SE +/- 1.57, N = 3
3147.91
2 x Xeon Platinum 8259CL NUMA off
SE +/- 2.97, N = 3
3130.86
2 x Xeon Platinum 8272CL
SE +/- 1.29, N = 3
3331.38
2 x Xeon Platinum 8272CL NUMA off
SE +/- 10.51, N = 3
3315.30
2 x Xeon Platinum 8280
SE +/- 5.39, N = 3
3514.60
2 x Xeon Platinum 8375C
SE +/- 0.44, N = 3
4211.21
2 x Xeon Platinum 8375C NUMA off
SE +/- 6.81, N = 3
4198.51
EPYC 2 7R32
SE +/- 22.45, N = 3
3769.72
Xeon Platinum 8259CL
SE +/- 1.29, N = 3
3152.50
Xeon Platinum 8272CL
SE +/- 6.12, N = 3
3318.98
Xeon Platinum 8280
SE +/- 4.11, N = 3
3510.21
Xeon Platinum 8375C
SE +/- 1.99, N = 3
4214.94
Xeon W-3275M
SE +/- 3.72, N = 3
3866.09
900
1800
2700
3600
4500
1. (CC) gcc options: -O3 -mavx2

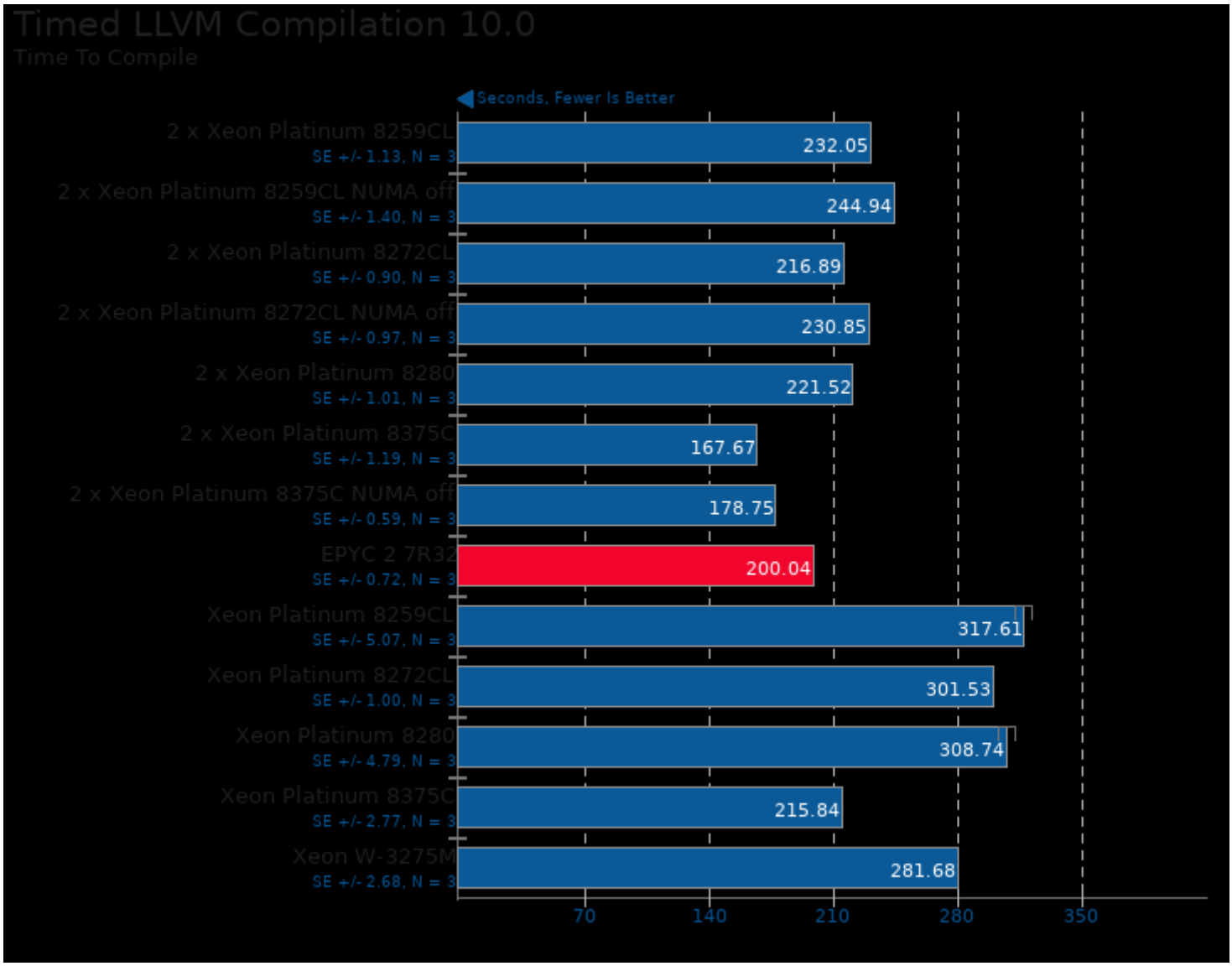

Stockfish 9
Total Time
Nodes Per Second, More Is Better
2 x Xeon Platinum 8259CL
SE +/- 336693.20, N = 3
103513853
2 x Xeon Platinum 8259CL NUMA off
SE +/- 102308.18, N = 3
104106676
2 x Xeon Platinum 8272CL
SE +/- 1934115.41, N = 3
112362723
2 x Xeon Platinum 8272CL NUMA off
SE +/- 1396988.17, N = 4
109753377
2 x Xeon Platinum 8280
SE +/- 902995.35, N = 3
119715795
2 x Xeon Platinum 8375C
SE +/- 1266085.84, N = 3
152906860
2 x Xeon Platinum 8375C NUMA off
SE +/- 2015291.67, N = 3
153113492
EPYC 2 7R32
SE +/- 1223161.47, N = 3
116765028
Xeon Platinum 8259CL
SE +/- 114508.53, N = 3
54437117
Xeon Platinum 8272CL
SE +/- 54908.55, N = 3
58172107
Xeon Platinum 8280
SE +/- 829358.84, N = 3
62891312
Xeon Platinum 8375C
SE +/- 828671.04, N = 3
85313242
Xeon W-3275M
SE +/- 709349.35, N = 3
61170651
30M
60M
90M
120M
150M
1. (CXX) g++ options: -m64 -lpthread -fno-exceptions -std=c++11 -pedantic -O3 -msse -msse3 -mpopcnt -flto

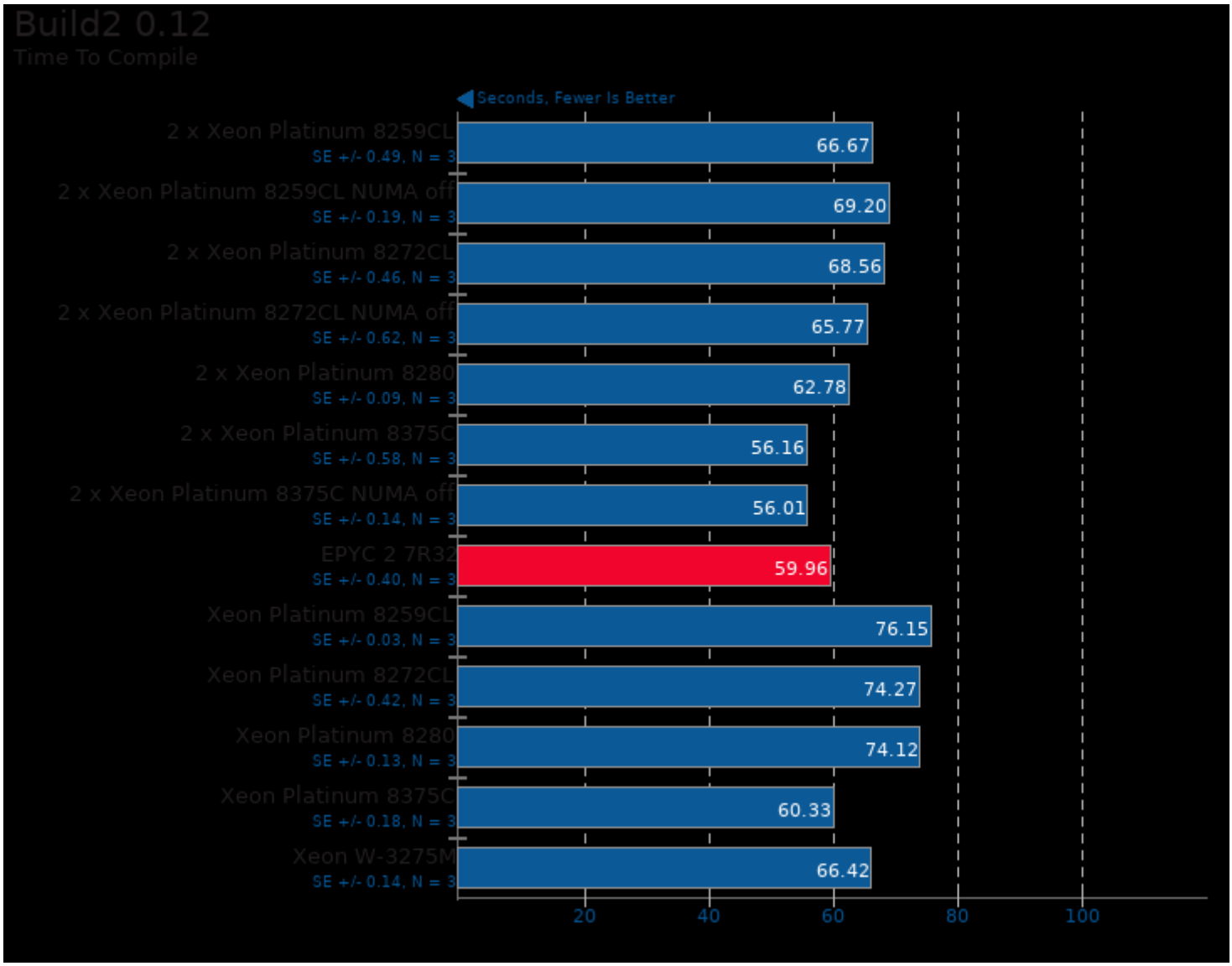

asmFish 2018-07-23
1024 Hash Memory, 26 Depth
Nodes/second, More Is Better
2 x Xeon Platinum 8259CL
SE +/- 1707658.59, N = 3
119912357
2 x Xeon Platinum 8259CL NUMA off
SE +/- 1538634.72, N = 3
105070606
2 x Xeon Platinum 8272CL
SE +/- 499401.71, N = 3
122933930
2 x Xeon Platinum 8272CL NUMA off
SE +/- 526881.33, N = 3
107388344
2 x Xeon Platinum 8280
SE +/- 491864.96, N = 3
133839896
2 x Xeon Platinum 8375C
SE +/- 721194.49, N = 3
164553317
2 x Xeon Platinum 8375C NUMA off
SE +/- 441971.10, N = 3
148521449
EPYC 2 7R32
SE +/- 617926.69, N = 3
113278977
Xeon Platinum 8259CL
SE +/- 95127.60, N = 3
59350794
Xeon Platinum 8272CL
SE +/- 950786.26, N = 3
64230868
Xeon Platinum 8280
SE +/- 450047.19, N = 3
68762075
Xeon Platinum 8375C
SE +/- 597319.54, N = 3
93896899
Xeon W-3275M
SE +/- 845752.34, N = 4
66225641
40M
80M
120M
160M
200M

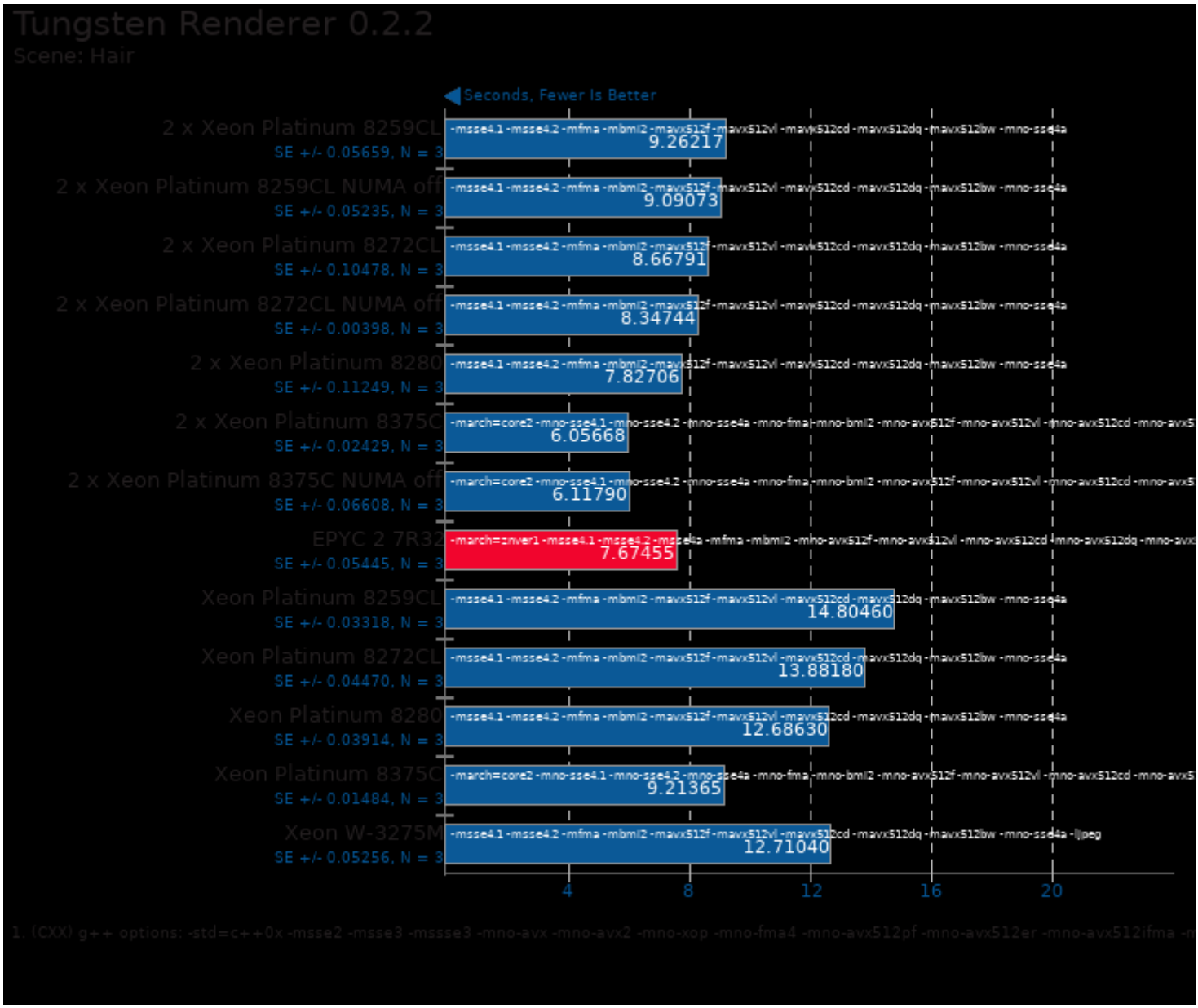

Timed GCC Compilation 9.3.0
Time To Compile
Seconds, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.68, N = 3
1012.04
2 x Xeon Platinum 8259CL NUMA off
SE +/- 1.08, N = 3
1073.76
2 x Xeon Platinum 8272CL
SE +/- 2.75, N = 3
1068.47
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.66, N = 3
1110.20
2 x Xeon Platinum 8280
SE +/- 0.24, N = 3
1005.53
2 x Xeon Platinum 8375C
SE +/- 0.28, N = 3
970.92
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.07, N = 3
1024.08
EPYC 2 7R32
SE +/- 0.63, N = 3
849.19
Xeon Platinum 8259CL
SE +/- 0.67, N = 3
1067.64
Xeon Platinum 8272CL
SE +/- 0.80, N = 3
1107.37
Xeon Platinum 8280
SE +/- 0.29, N = 3
1063.71
Xeon Platinum 8375C
SE +/- 1.19, N = 3
1006.64
Xeon W-3275M
SE +/- 0.44, N = 3
994.58
200
400
600
800
1000

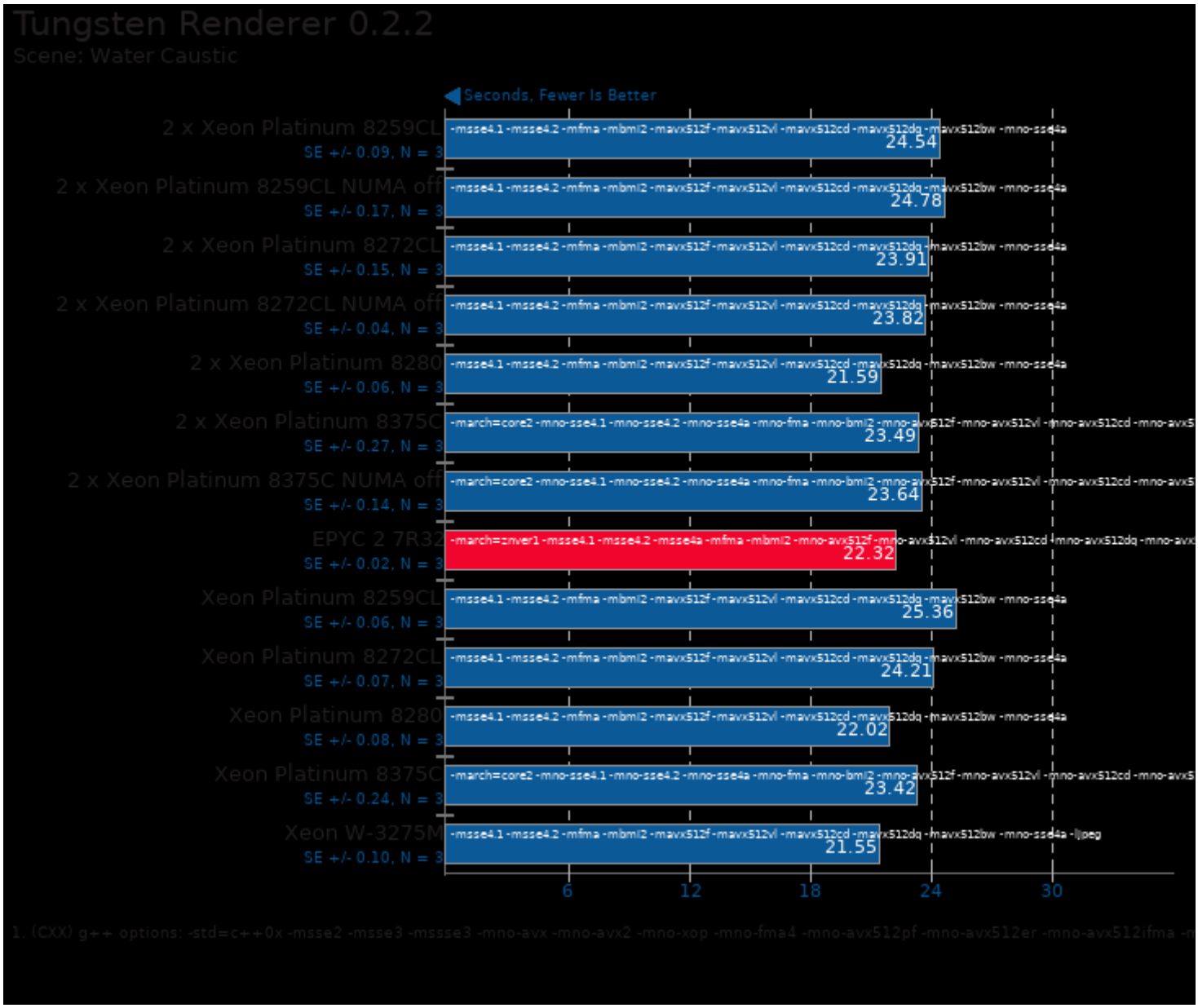

Timed GDB GNU Debugger Compilation 9.1
Time To Compile
Seconds, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.45, N = 3
129.69
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.27, N = 3
146.44
2 x Xeon Platinum 8272CL
SE +/- 0.52, N = 3
143.65
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.18, N = 3
159.50
2 x Xeon Platinum 8280
SE +/- 0.17, N = 3
142.70
2 x Xeon Platinum 8375C
SE +/- 0.21, N = 3
140.61
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.09, N = 3
149.86
EPYC 2 7R32
SE +/- 0.08, N = 3
108.68
Xeon Platinum 8259CL
SE +/- 0.11, N = 3
132.23
Xeon Platinum 8272CL
SE +/- 0.11, N = 3
142.50
Xeon Platinum 8280
SE +/- 0.17, N = 3
144.64
Xeon Platinum 8375C
SE +/- 0.22, N = 3
139.36
Xeon W-3275M
SE +/- 0.08, N = 3
134.82
40
80
120
160
200

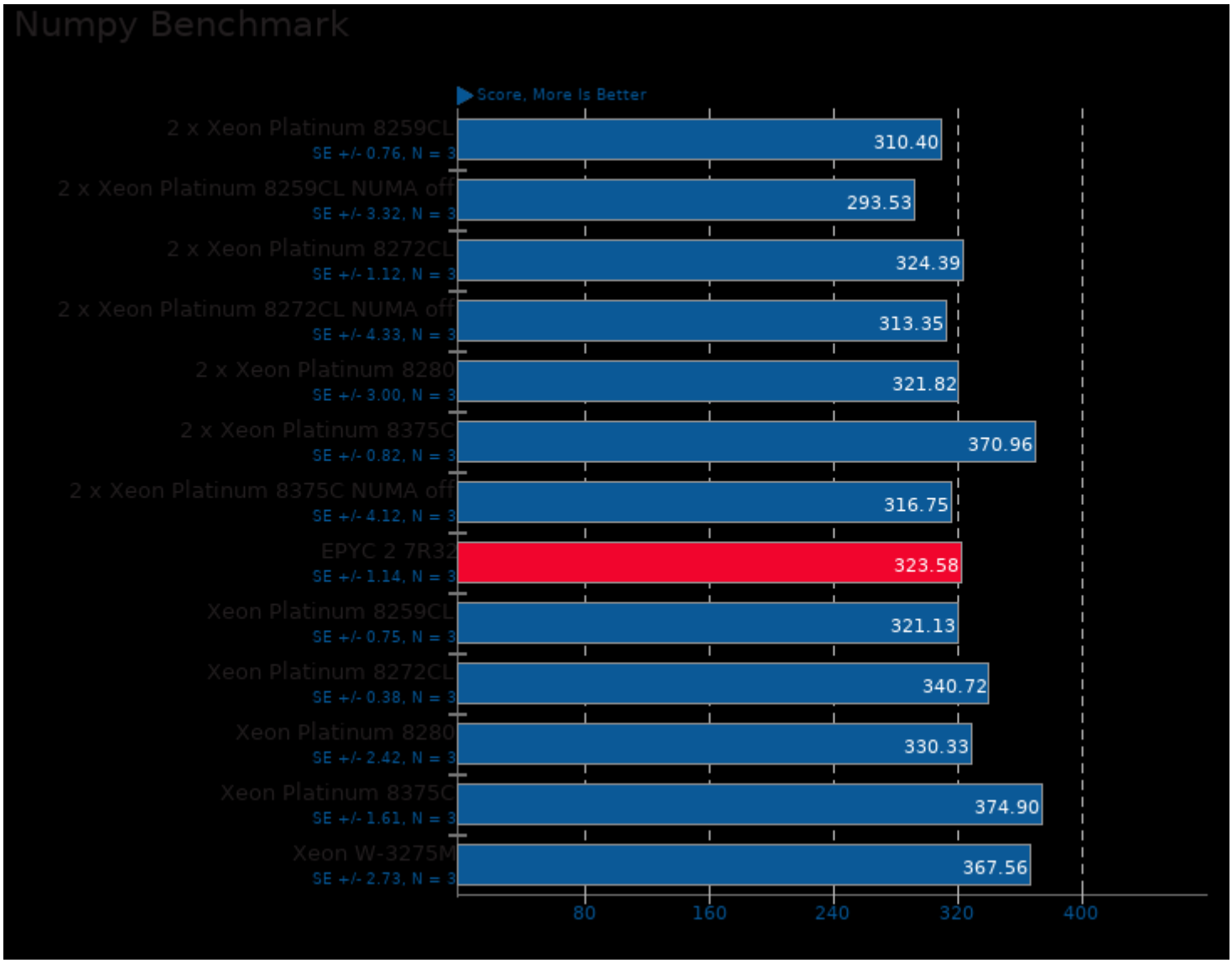

Timed Linux Kernel Compilation 5.4
Time To Compile
Seconds, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.23, N = 14
27.58
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.37, N = 14
29.28
2 x Xeon Platinum 8272CL
SE +/- 0.29, N = 13
26.58
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.28, N = 14
28.13
2 x Xeon Platinum 8280
SE +/- 0.25, N = 14
27.31
2 x Xeon Platinum 8375C
SE +/- 0.30, N = 13
21.40
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.32, N = 13
22.41
EPYC 2 7R32
SE +/- 0.19, N = 13
24.01
Xeon Platinum 8259CL
SE +/- 0.44, N = 7
41.14
Xeon Platinum 8272CL
SE +/- 0.40, N = 13
38.73
Xeon Platinum 8280
SE +/- 0.42, N = 8
40.90
Xeon Platinum 8375C
SE +/- 0.35, N = 13
29.36
Xeon W-3275M
SE +/- 0.35, N = 9
36.37
9
18
27
36
45

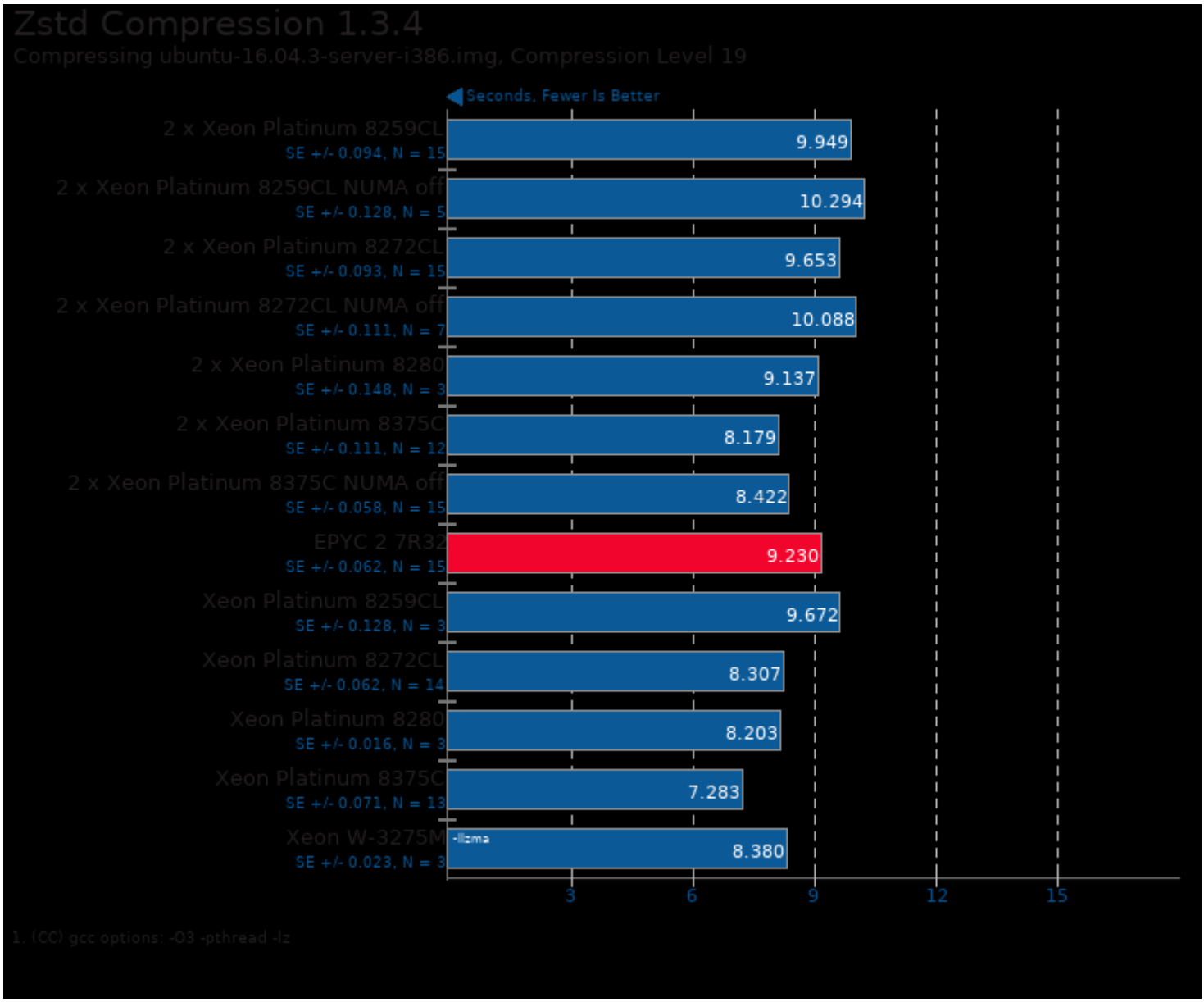

Timed LLVM Compilation 10.0
Time To Compile
Seconds, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 1.13, N = 3
232.05
2 x Xeon Platinum 8259CL NUMA off
SE +/- 1.40, N = 3
244.94
2 x Xeon Platinum 8272CL
SE +/- 0.90, N = 3
216.89
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.97, N = 3
230.85
2 x Xeon Platinum 8280
SE +/- 1.01, N = 3
221.52
2 x Xeon Platinum 8375C
SE +/- 1.19, N = 3
167.67
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.59, N = 3
178.75
EPYC 2 7R32
SE +/- 0.72, N = 3
200.04
Xeon Platinum 8259CL
SE +/- 5.07, N = 3
317.61
Xeon Platinum 8272CL
SE +/- 1.00, N = 3
301.53
Xeon Platinum 8280
SE +/- 4.79, N = 3
308.74
Xeon Platinum 8375C
SE +/- 2.77, N = 3
215.84
Xeon W-3275M
SE +/- 2.68, N = 3
281.68
70
140
210
280
350

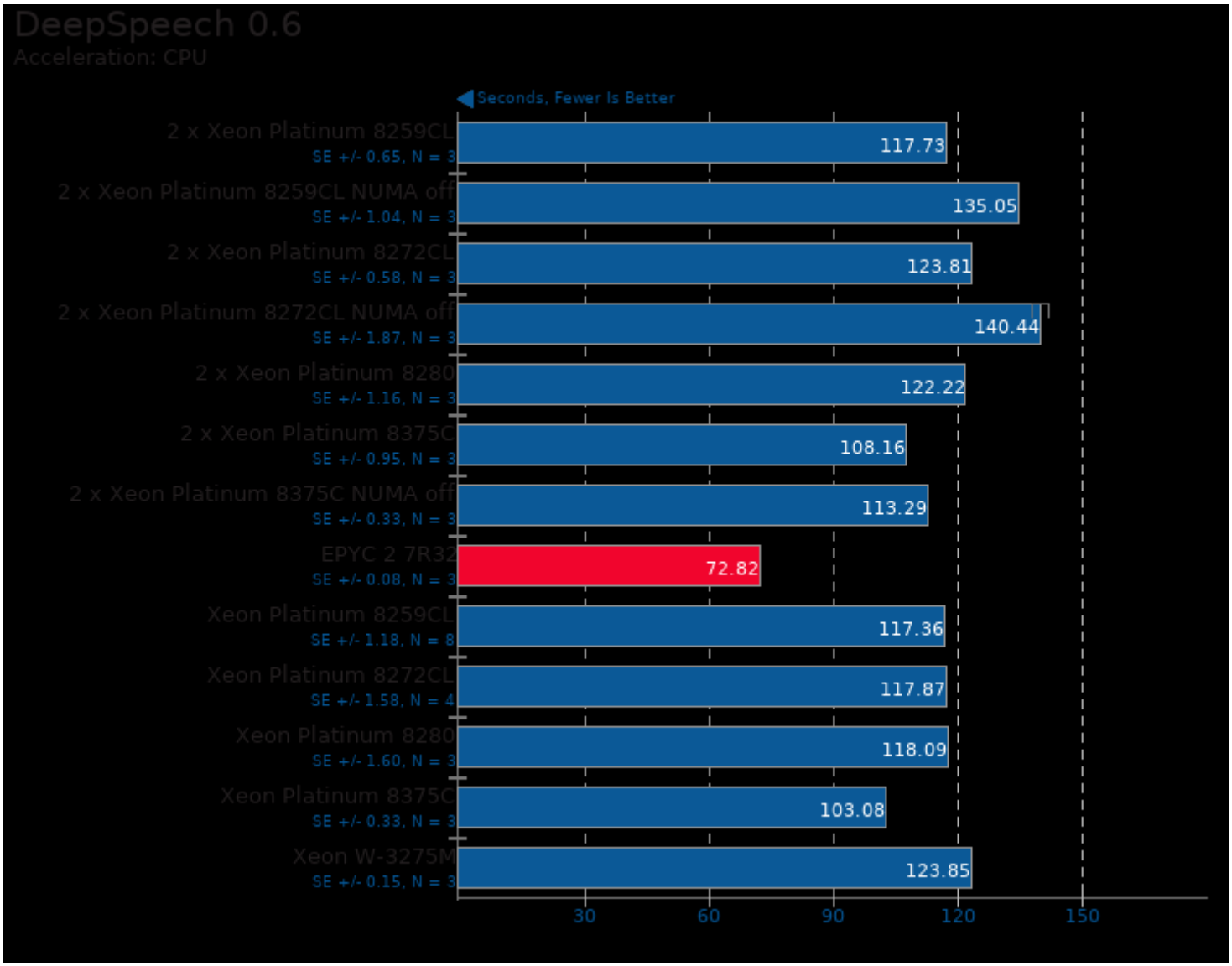

Build2 0.12
Time To Compile
Seconds, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.49, N = 3
66.67
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.19, N = 3
69.20
2 x Xeon Platinum 8272CL
SE +/- 0.46, N = 3
68.56
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.62, N = 3
65.77
2 x Xeon Platinum 8280
SE +/- 0.09, N = 3
62.78
2 x Xeon Platinum 8375C
SE +/- 0.58, N = 3
56.16
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.14, N = 3
56.01
EPYC 2 7R32
SE +/- 0.40, N = 3
59.96
Xeon Platinum 8259CL
SE +/- 0.03, N = 3
76.15
Xeon Platinum 8272CL
SE +/- 0.42, N = 3
74.27
Xeon Platinum 8280
SE +/- 0.13, N = 3
74.12
Xeon Platinum 8375C
SE +/- 0.18, N = 3
60.33
Xeon W-3275M
SE +/- 0.14, N = 3
66.42
20
40
60
80
100

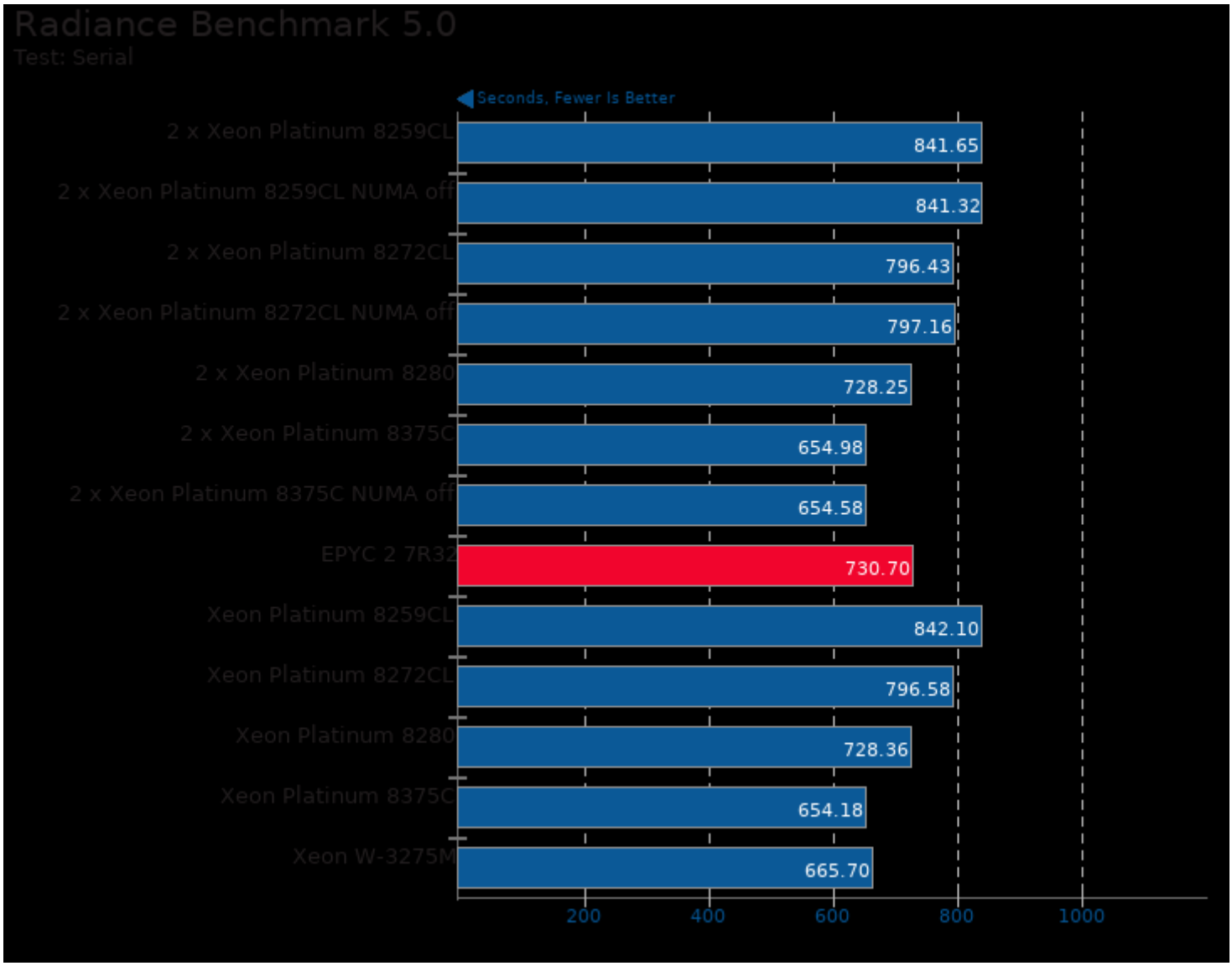

Tungsten Renderer 0.2.2
Scene: Hair
Seconds, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.05659, N = 3
9.26217
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.05235, N = 3
9.09073
2 x Xeon Platinum 8272CL
SE +/- 0.10478, N = 3
8.66791
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.00398, N = 3
8.34744
2 x Xeon Platinum 8280
SE +/- 0.11249, N = 3
7.82706
2 x Xeon Platinum 8375C
SE +/- 0.02429, N = 3
6.05668
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.06608, N = 3
6.11790
EPYC 2 7R32
SE +/- 0.05445, N = 3
7.67455
Xeon Platinum 8259CL
SE +/- 0.03318, N = 3
14.80460
Xeon Platinum 8272CL
SE +/- 0.04470, N = 3
13.88180
Xeon Platinum 8280
SE +/- 0.03914, N = 3
12.68630
Xeon Platinum 8375C
SE +/- 0.01484, N = 3
9.21365
Xeon W-3275M
SE +/- 0.05256, N = 3
12.71040
4
8
12
16
20
1. (CXX) g++ options: -std=c++0x -msse2 -msse3 -mssse3 -mno-avx -mno-avx2 -mno-xop -mno-fma4 -mno-avx512pf -mno-avx512er -mno-avx512ifma

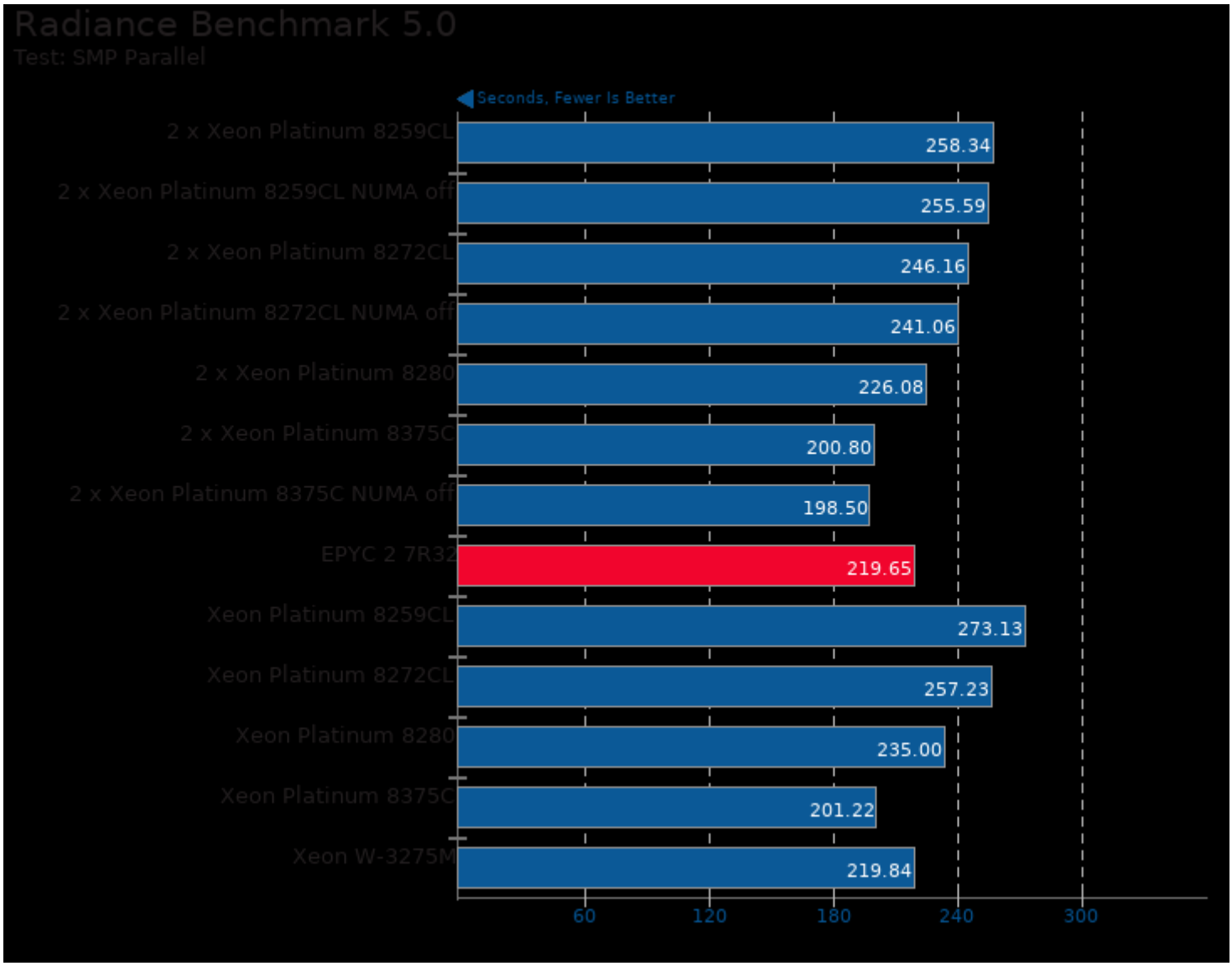

Tungsten Renderer 0.2.2
Scene: Water Caustic
Seconds, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.09, N = 3
24.54
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.17, N = 3
24.78
2 x Xeon Platinum 8272CL
SE +/- 0.15, N = 3
23.91
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.04, N = 3
23.82
2 x Xeon Platinum 8280
SE +/- 0.06, N = 3
21.59
2 x Xeon Platinum 8375C
SE +/- 0.27, N = 3
23.49
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.14, N = 3
23.64
EPYC 2 7R32
SE +/- 0.02, N = 3
22.32
Xeon Platinum 8259CL
SE +/- 0.06, N = 3
25.36
Xeon Platinum 8272CL
SE +/- 0.07, N = 3
24.21
Xeon Platinum 8280
SE +/- 0.08, N = 3
22.02
Xeon Platinum 8375C
SE +/- 0.24, N = 3
23.42
Xeon W-3275M
SE +/- 0.10, N = 3
21.55
6
12
18
24
30
1. (CXX) g++ options: -std=c++0x -msse2 -msse3 -mssse3 -mno-avx -mno-avx2 -mno-xop -mno-fma4 -mno-avx512pf -mno-avx512er -mno-avx512ifma

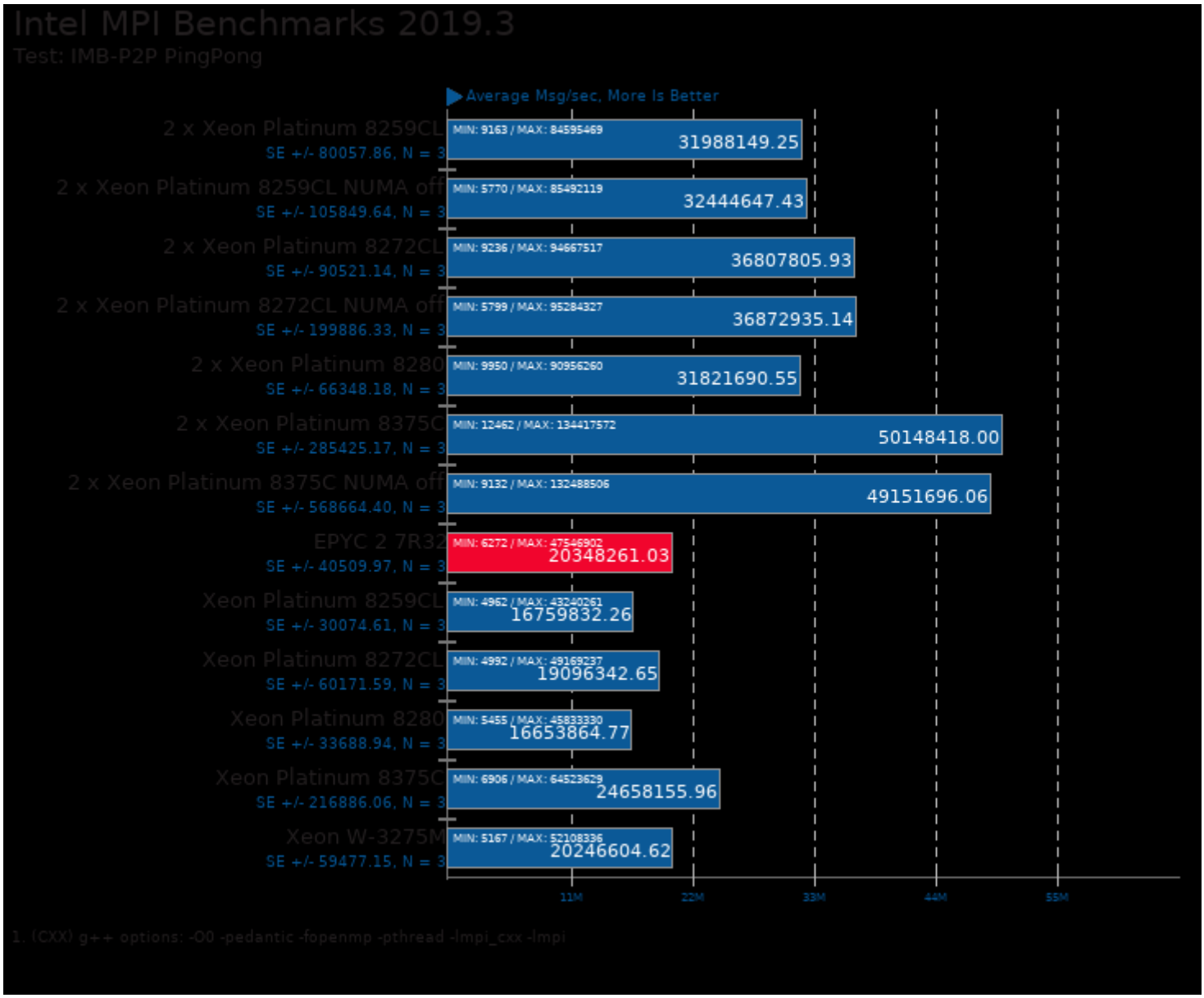

Numpy Benchmark
Score, More Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.76, N = 3
310.40
2 x Xeon Platinum 8259CL NUMA off
SE +/- 3.32, N = 3
293.53
2 x Xeon Platinum 8272CL
SE +/- 1.12, N = 3
324.39
2 x Xeon Platinum 8272CL NUMA off
SE +/- 4.33, N = 3
313.35
2 x Xeon Platinum 8280
SE +/- 3.00, N = 3
321.82
2 x Xeon Platinum 8375C
SE +/- 0.82, N = 3
370.96
2 x Xeon Platinum 8375C NUMA off
SE +/- 4.12, N = 3
316.75
EPYC 2 7R32
SE +/- 1.14, N = 3
323.58
Xeon Platinum 8259CL
SE +/- 0.75, N = 3
321.13
Xeon Platinum 8272CL
SE +/- 0.38, N = 3
340.72
Xeon Platinum 8280
SE +/- 2.42, N = 3
330.33
Xeon Platinum 8375C
SE +/- 1.61, N = 3
374.90
Xeon W-3275M
SE +/- 2.73, N = 3
367.56
80
160
240
320
400

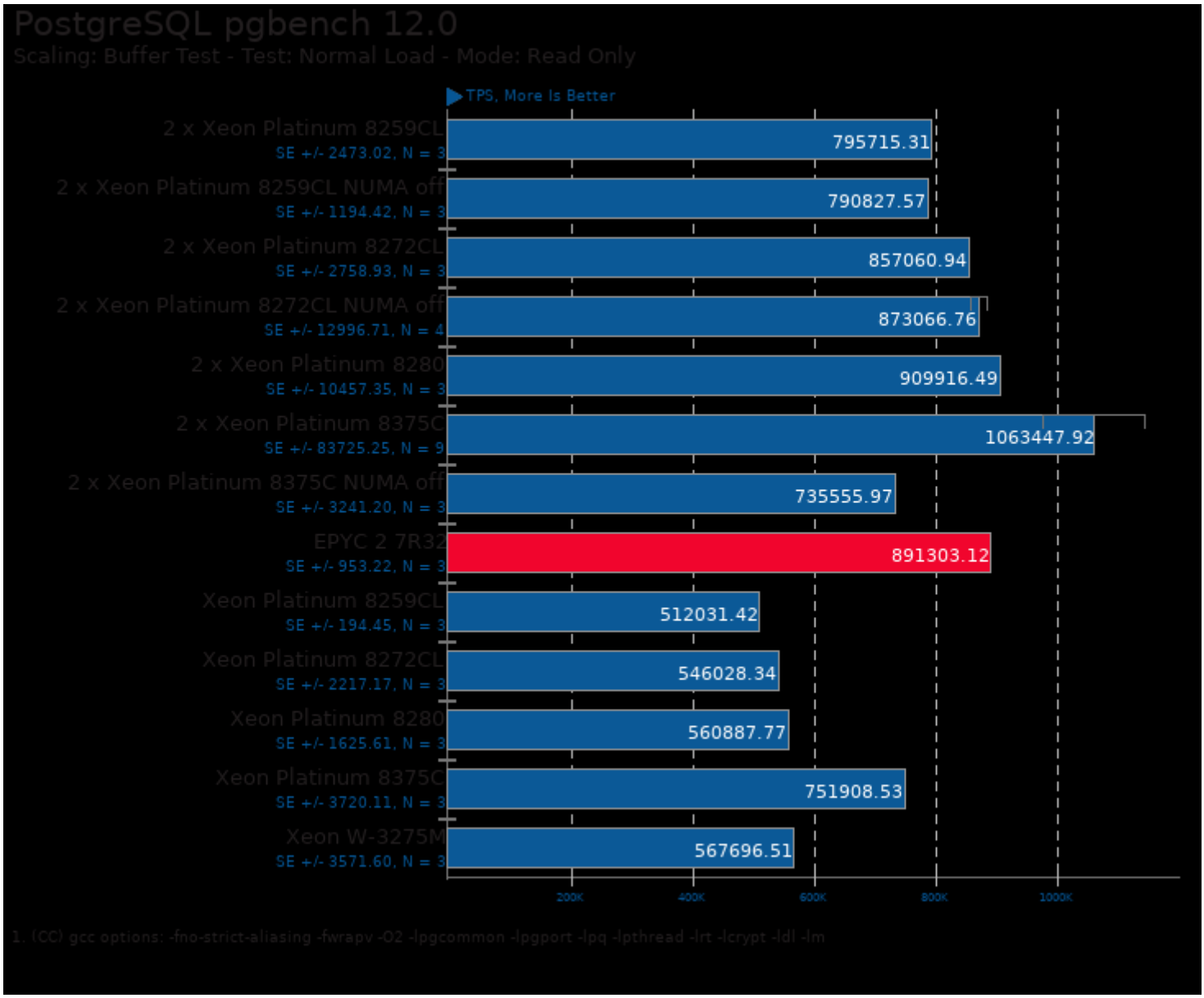

Zstd Compression 1.3.4
Compressing ubuntu-16.04.3-server-i386.img, Compression Level 19
Seconds, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.094, N = 15
9.949
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.128, N = 5
10.294
2 x Xeon Platinum 8272CL
SE +/- 0.093, N = 15
9.653
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.111, N = 7
10.088
2 x Xeon Platinum 8280
SE +/- 0.148, N = 3
9.137
2 x Xeon Platinum 8375C
SE +/- 0.111, N = 12
8.179
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.058, N = 15
8.422
EPYC 2 7R32
SE +/- 0.062, N = 15
9.230
Xeon Platinum 8259CL
SE +/- 0.128, N = 3
9.672
Xeon Platinum 8272CL
SE +/- 0.062, N = 14
8.307
Xeon Platinum 8280
SE +/- 0.016, N = 3
8.203
Xeon Platinum 8375C
SE +/- 0.071, N = 13
7.283
Xeon W-3275M
SE +/- 0.023, N = 3
8.380
3
6
9
12
15
1. (CC) gcc options: -O3 -pthread -lz

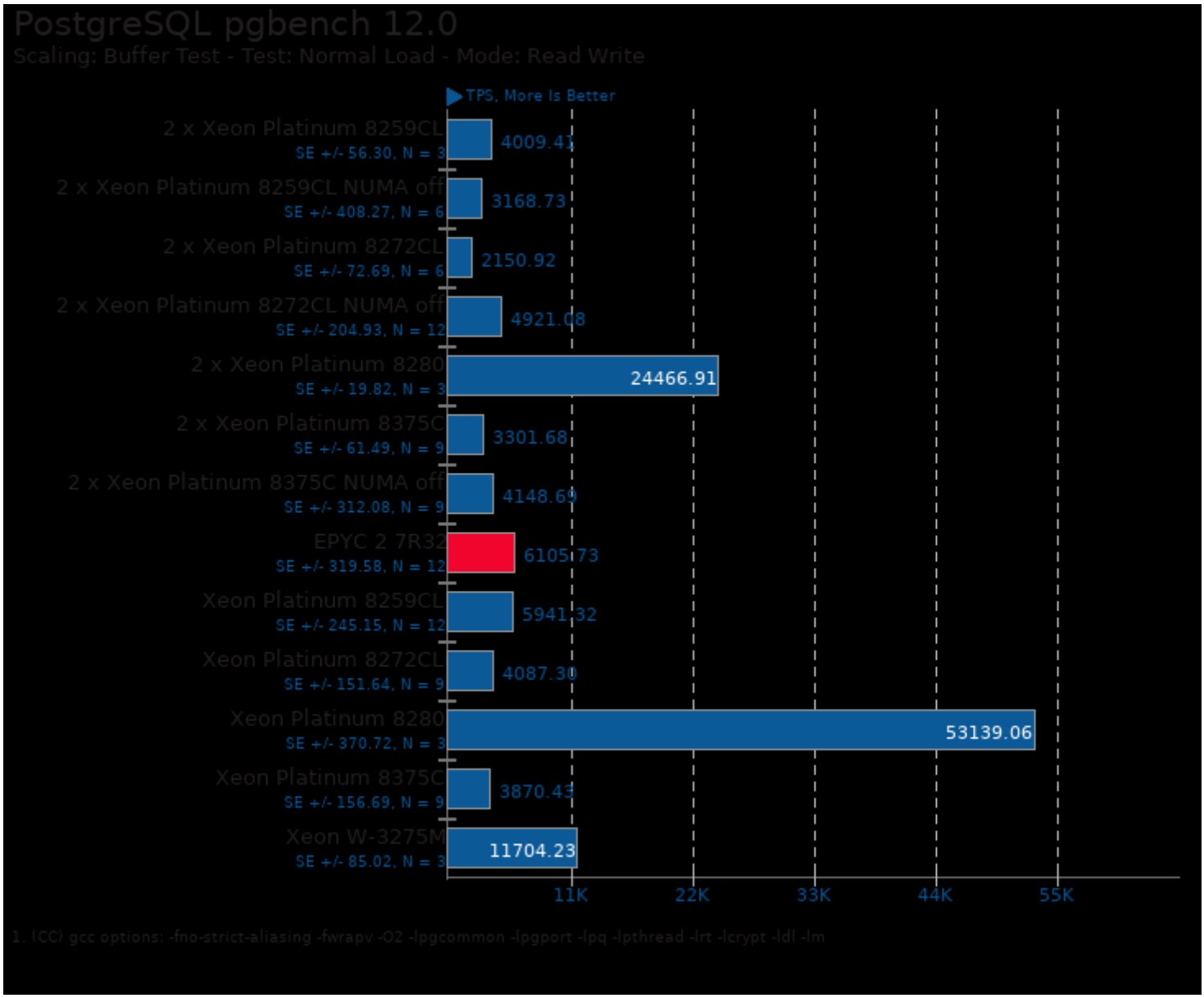

DeepSpeech 0.6
Acceleration: CPU
Seconds, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.65, N = 3
117.73
2 x Xeon Platinum 8259CL NUMA off
SE +/- 1.04, N = 3
135.05
2 x Xeon Platinum 8272CL
SE +/- 0.58, N = 3
123.81
2 x Xeon Platinum 8272CL NUMA off
SE +/- 1.87, N = 3
140.44
2 x Xeon Platinum 8280
SE +/- 1.16, N = 3
122.22
2 x Xeon Platinum 8375C
SE +/- 0.95, N = 3
108.16
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.33, N = 3
113.29
EPYC 2 7R32
SE +/- 0.08, N = 3
72.82
Xeon Platinum 8259CL
SE +/- 1.18, N = 8
117.36
Xeon Platinum 8272CL
SE +/- 1.58, N = 4
117.87
Xeon Platinum 8280
SE +/- 1.60, N = 3
118.09
Xeon Platinum 8375C
SE +/- 0.33, N = 3
103.08
Xeon W-3275M
SE +/- 0.15, N = 3
123.85
30
60
90
120
150

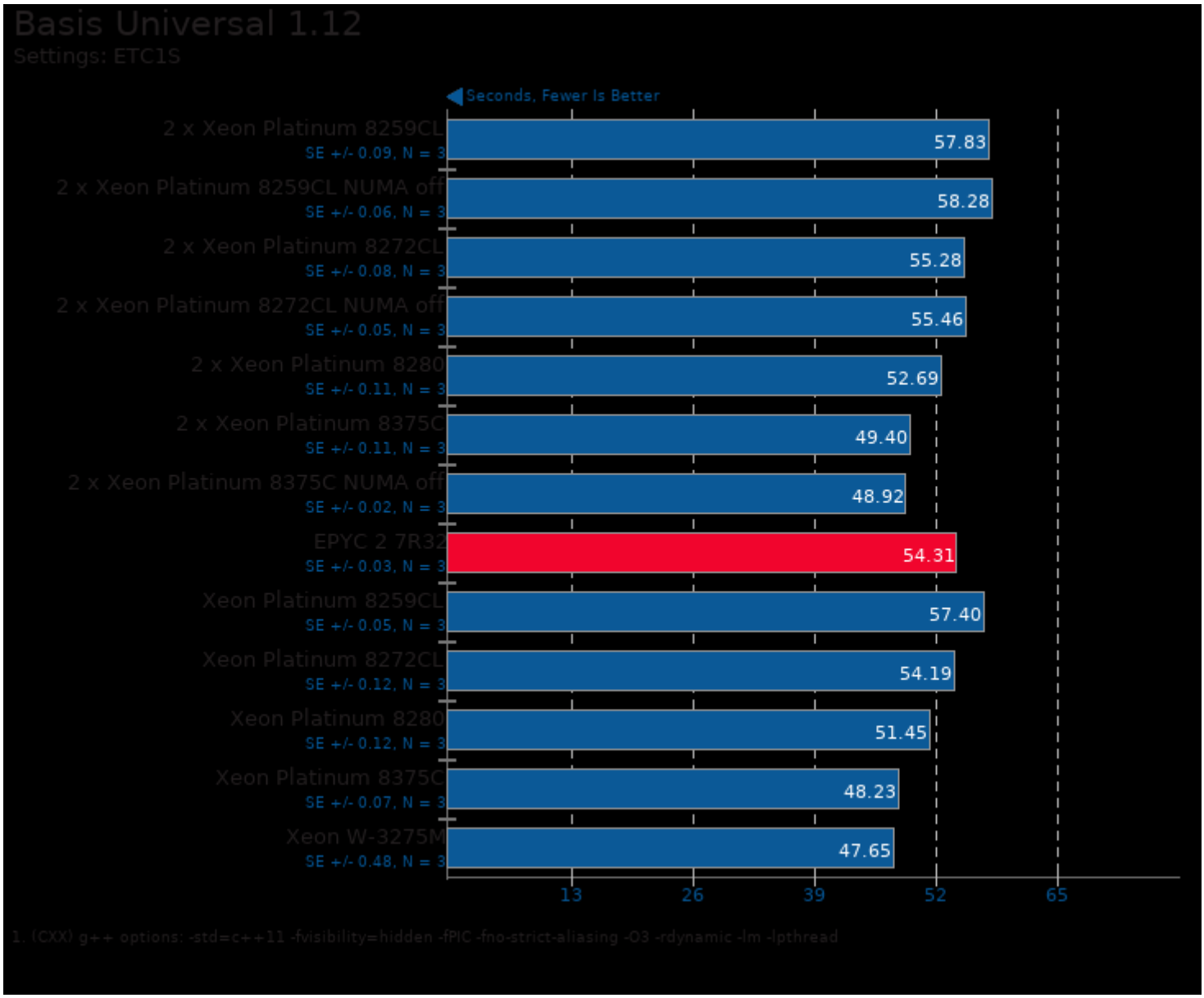

Radiance Benchmark 5.0
Test: Serial
Seconds, Fewer Is Better
2 x Xeon Platinum 8259CL
841.65
2 x Xeon Platinum 8259CL NUMA off
841.32
2 x Xeon Platinum 8272CL
796.43
2 x Xeon Platinum 8272CL NUMA off
797.16
2 x Xeon Platinum 8280
728.25
2 x Xeon Platinum 8375C
654.98
2 x Xeon Platinum 8375C NUMA off
654.58
EPYC 2 7R32
730.70
Xeon Platinum 8259CL
842.10
Xeon Platinum 8272CL
796.58
Xeon Platinum 8280
728.36
Xeon Platinum 8375C
654.18
Xeon W-3275M
665.70
200
400
600
800
1000

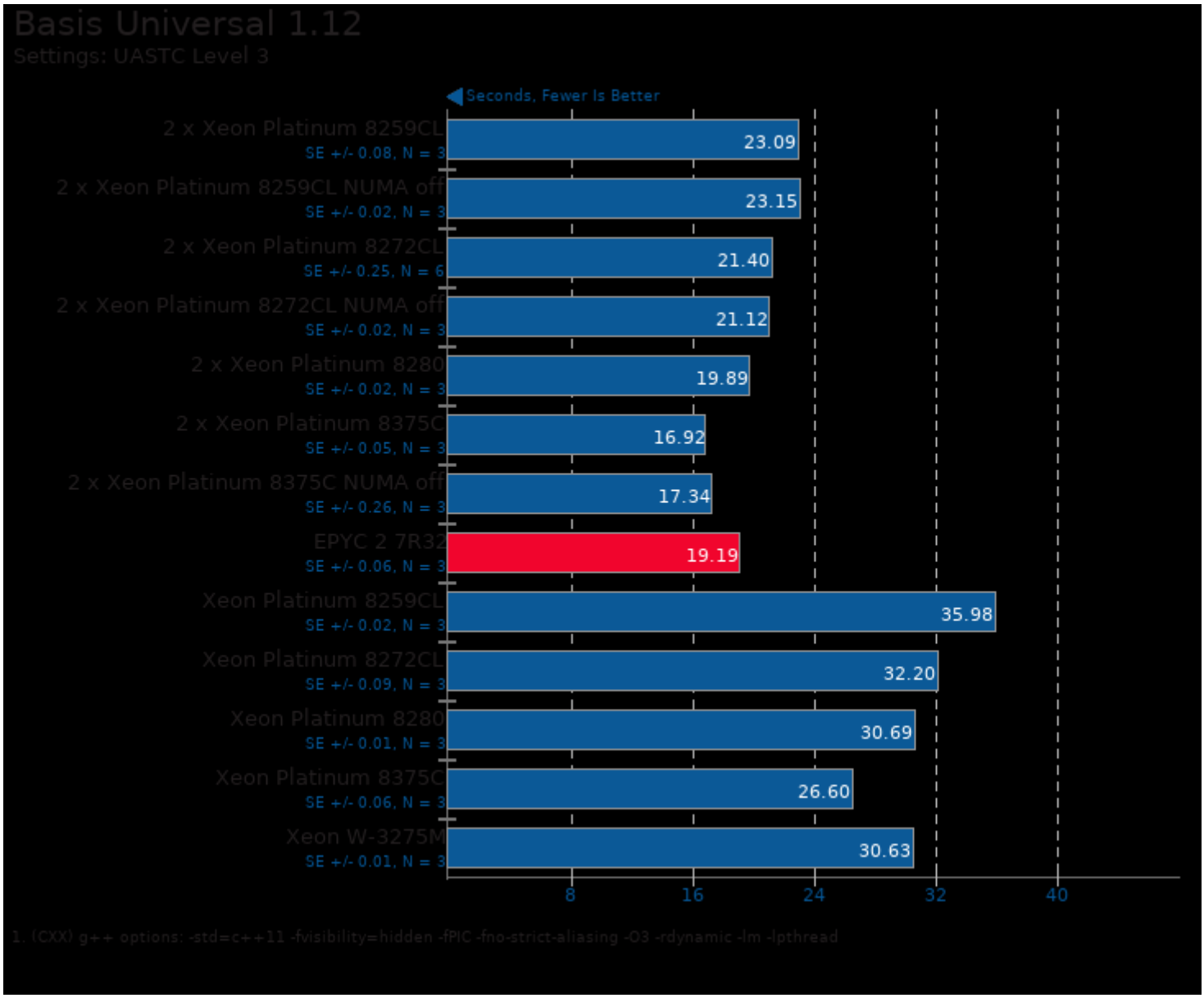

Radiance Benchmark 5.0
Test: SMP Parallel
Seconds, Fewer Is Better
2 x Xeon Platinum 8259CL
258.34
2 x Xeon Platinum 8259CL NUMA off
255.59
2 x Xeon Platinum 8272CL
246.16
2 x Xeon Platinum 8272CL NUMA off
241.06
2 x Xeon Platinum 8280
226.08
2 x Xeon Platinum 8375C
200.80
2 x Xeon Platinum 8375C NUMA off
198.50
EPYC 2 7R32
219.65
Xeon Platinum 8259CL
273.13
Xeon Platinum 8272CL
257.23
Xeon Platinum 8280
235.00
Xeon Platinum 8375C
201.22
Xeon W-3275M
219.84
60
120
180
240
300

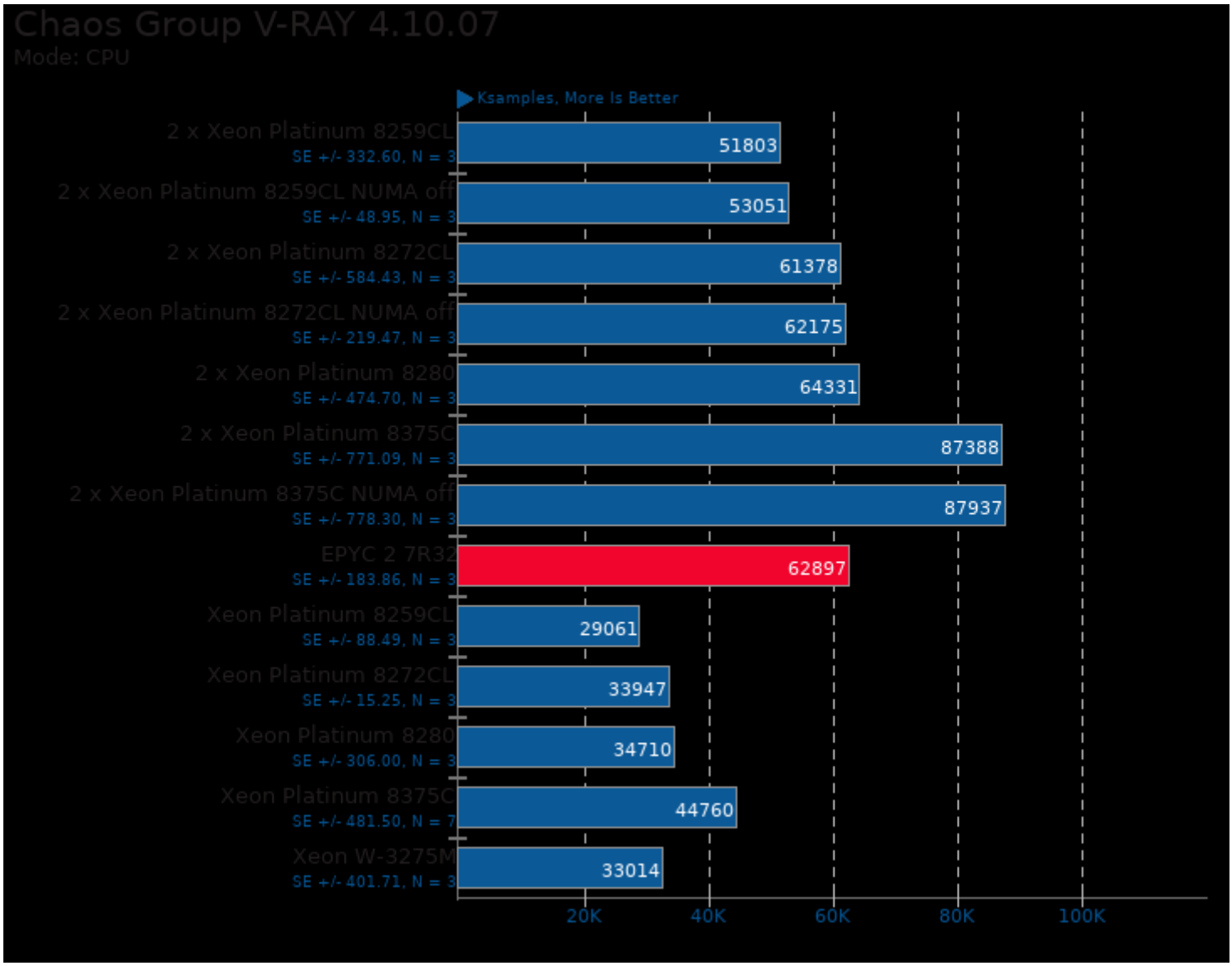

Intel MPI Benchmarks 2019.3
Test: IMB-P2P PingPong
Average Msg/sec, More Is Better
2 x Xeon Platinum 8259CL
SE +/- 80057.86, N = 3
MIN: 9163 / MAX: 84595469
31988149.25
2 x Xeon Platinum 8259CL NUMA off
SE +/- 105849.64, N = 3
MIN: 5770 / MAX: 85492119
32444647.43
2 x Xeon Platinum 8272CL
SE +/- 90521.14, N = 3
MIN: 9236 / MAX: 94667517
36807805.93
2 x Xeon Platinum 8272CL NUMA off
SE +/- 199886.33, N = 3
MIN: 5799 / MAX: 95284327
36872935.14
2 x Xeon Platinum 8280
SE +/- 66348.18, N = 3
MIN: 9950 / MAX: 90956260
31821690.55
2 x Xeon Platinum 8375C
SE +/- 285425.17, N = 3
MIN: 12462 / MAX: 134417572
50148418.00
2 x Xeon Platinum 8375C NUMA off
SE +/- 568664.40, N = 3
MIN: 9132 / MAX: 132488506
49151696.06
EPYC 2 7R32
SE +/- 40509.97, N = 3
MIN: 6272 / MAX: 47546902
20348261.03
Xeon Platinum 8259CL
SE +/- 30074.61, N = 3
MIN: 4962 / MAX: 43240261
16759832.26
Xeon Platinum 8272CL
SE +/- 60171.59, N = 3
MIN: 4992 / MAX: 49169237
19096342.65
Xeon Platinum 8280
SE +/- 33688.94, N = 3
MIN: 5455 / MAX: 45833330
16653864.77
Xeon Platinum 8375C
SE +/- 216886.06, N = 3
MIN: 6906 / MAX: 64523629
24658155.96
Xeon W-3275M
SE +/- 59477.15, N = 3
MIN: 5167 / MAX: 52108336
20246604.62
11M
22M
33M
44M
55M
1. (CXX) g++ options: -O0 -pedantic -fopenmp -pthread -lmpi_cxx -lmpi

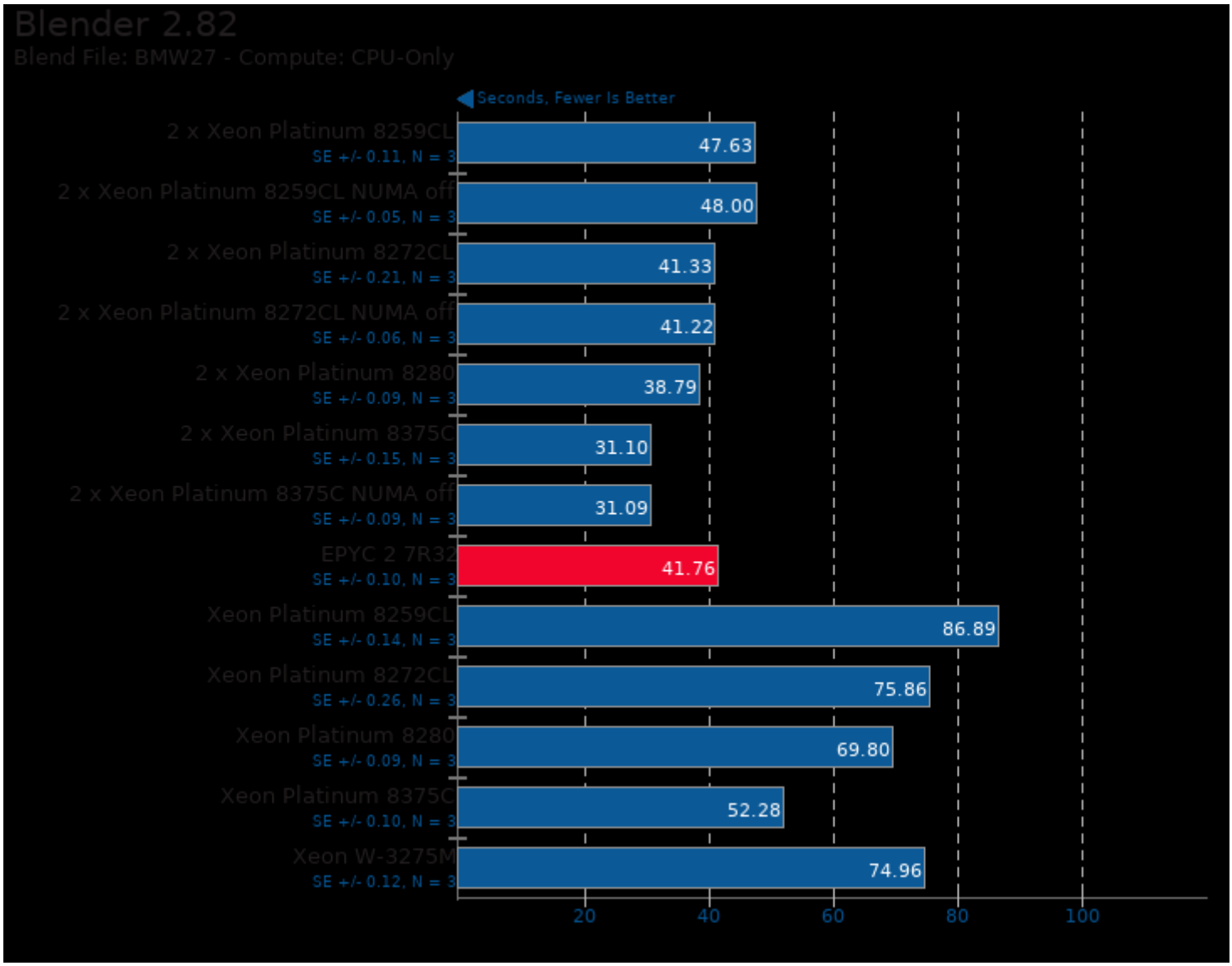

PostgreSQL pgbench 12.0
Scaling: Buffer Test - Test: Normal Load - Mode: Read Only
TPS, More Is Better
2 x Xeon Platinum 8259CL
SE +/- 2473.02, N = 3
795715.31
2 x Xeon Platinum 8259CL NUMA off
SE +/- 1194.42, N = 3
790827.57
2 x Xeon Platinum 8272CL
SE +/- 2758.93, N = 3
857060.94
2 x Xeon Platinum 8272CL NUMA off
SE +/- 12996.71, N = 4
873066.76
2 x Xeon Platinum 8280
SE +/- 10457.35, N = 3
909916.49
2 x Xeon Platinum 8375C
SE +/- 83725.25, N = 9
1063447.92
2 x Xeon Platinum 8375C NUMA off
SE +/- 3241.20, N = 3
735555.97
EPYC 2 7R32
SE +/- 953.22, N = 3
891303.12
Xeon Platinum 8259CL
SE +/- 194.45, N = 3
512031.42
Xeon Platinum 8272CL
SE +/- 2217.17, N = 3
546028.34
Xeon Platinum 8280
SE +/- 1625.61, N = 3
560887.77
Xeon Platinum 8375C
SE +/- 3720.11, N = 3
751908.53
Xeon W-3275M
SE +/- 3571.60, N = 3
567696.51
200K
400K
600K
800K
1000K
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -lcrypt -ldl -lm

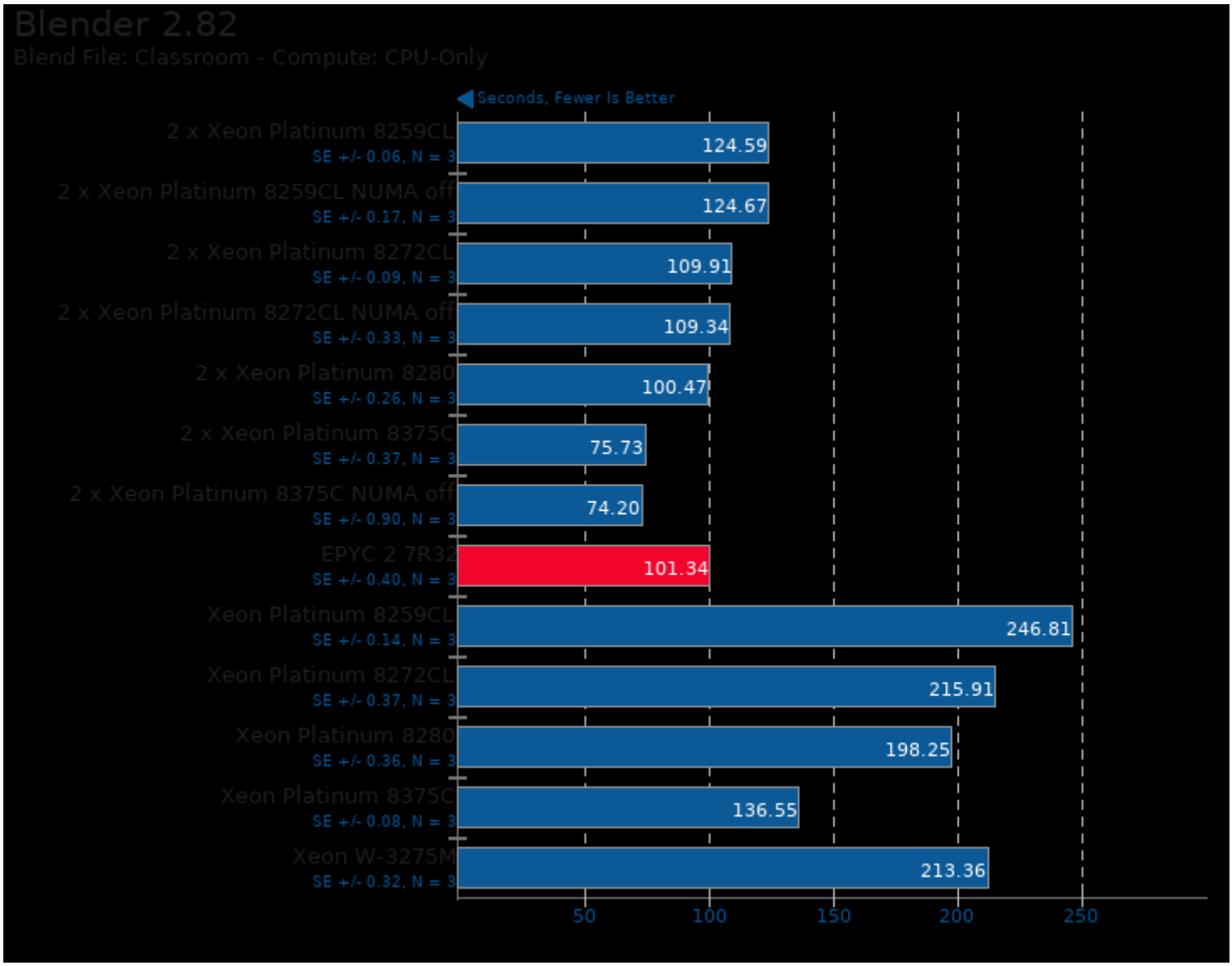

PostgreSQL pgbench 12.0
Scaling: Buffer Test - Test: Normal Load - Mode: Read Write
TPS, More Is Better
2 x Xeon Platinum 8259CL
SE +/- 56.30, N = 3
4009.41
2 x Xeon Platinum 8259CL NUMA off
SE +/- 408.27, N = 6
3168.73
2 x Xeon Platinum 8272CL
SE +/- 72.69, N = 6
2150.92
2 x Xeon Platinum 8272CL NUMA off
SE +/- 204.93, N = 12
4921.08
2 x Xeon Platinum 8280
SE +/- 19.82, N = 3
24466.91
2 x Xeon Platinum 8375C
SE +/- 61.49, N = 9
3301.68
2 x Xeon Platinum 8375C NUMA off
SE +/- 312.08, N = 9
4148.69
EPYC 2 7R32
SE +/- 319.58, N = 12
6105.73
Xeon Platinum 8259CL
SE +/- 245.15, N = 12
5941.32
Xeon Platinum 8272CL
SE +/- 151.64, N = 9
4087.30
Xeon Platinum 8280
SE +/- 370.72, N = 3
53139.06
Xeon Platinum 8375C
SE +/- 156.69, N = 9
3870.43
Xeon W-3275M
SE +/- 85.02, N = 3
11704.23
11K
22K
33K
44K
55K
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -lcrypt -ldl -lm

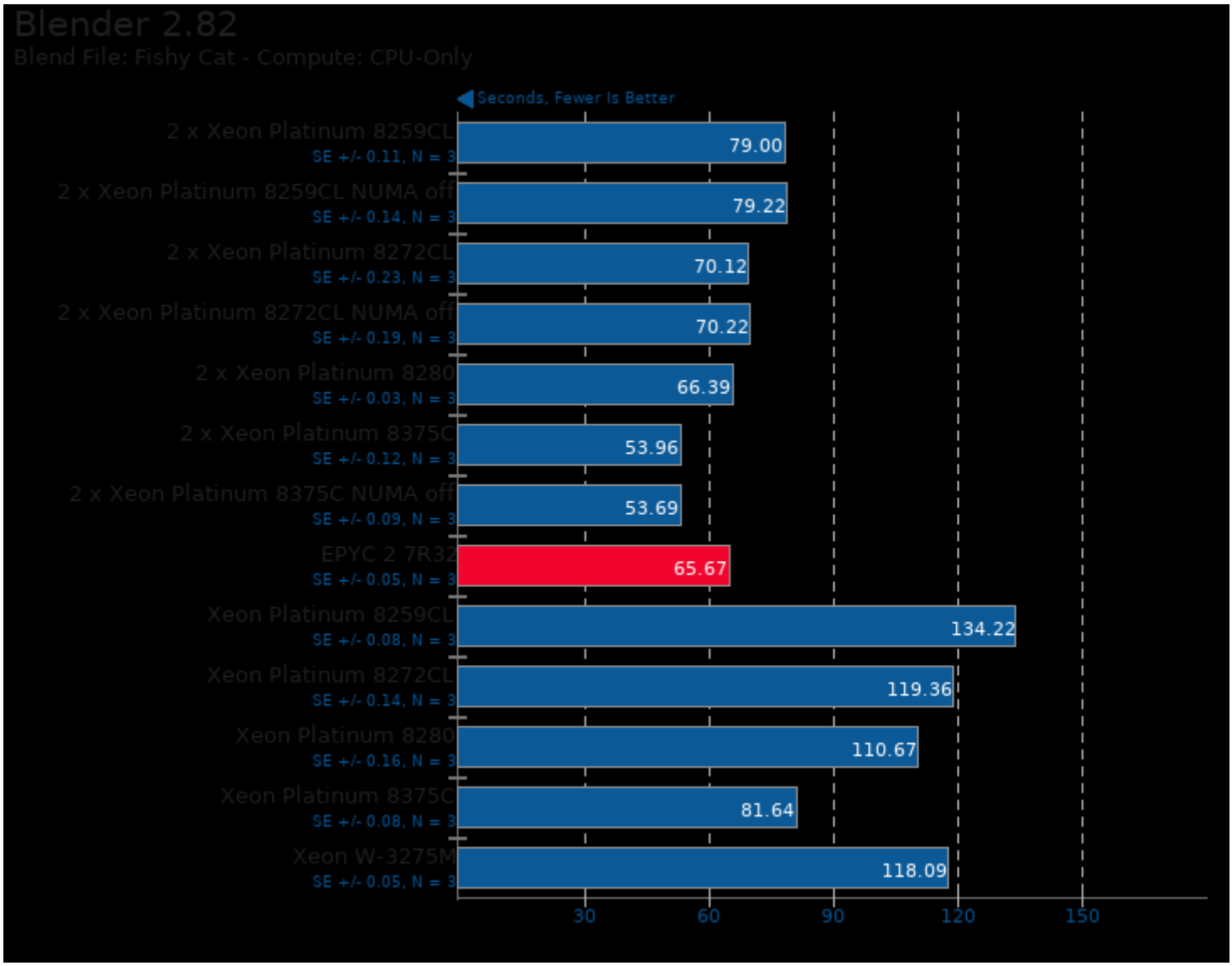

Basis Universal 1.12
Settings: ETC1S
Seconds, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.09, N = 3
57.83
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.06, N = 3
58.28
2 x Xeon Platinum 8272CL
SE +/- 0.08, N = 3
55.28
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.05, N = 3
55.46
2 x Xeon Platinum 8280
SE +/- 0.11, N = 3
52.69
2 x Xeon Platinum 8375C
SE +/- 0.11, N = 3
49.40
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.02, N = 3
48.92
EPYC 2 7R32
SE +/- 0.03, N = 3
54.31
Xeon Platinum 8259CL
SE +/- 0.05, N = 3
57.40
Xeon Platinum 8272CL
SE +/- 0.12, N = 3
54.19
Xeon Platinum 8280
SE +/- 0.12, N = 3
51.45
Xeon Platinum 8375C
SE +/- 0.07, N = 3
48.23
Xeon W-3275M
SE +/- 0.48, N = 3
47.65
13
26
39
52
65
1. (CXX) g++ options: -std=c++11 -fvisibility=hidden -fPIC -fno-strict-aliasing -O3 -rdynamic -lm -lpthread

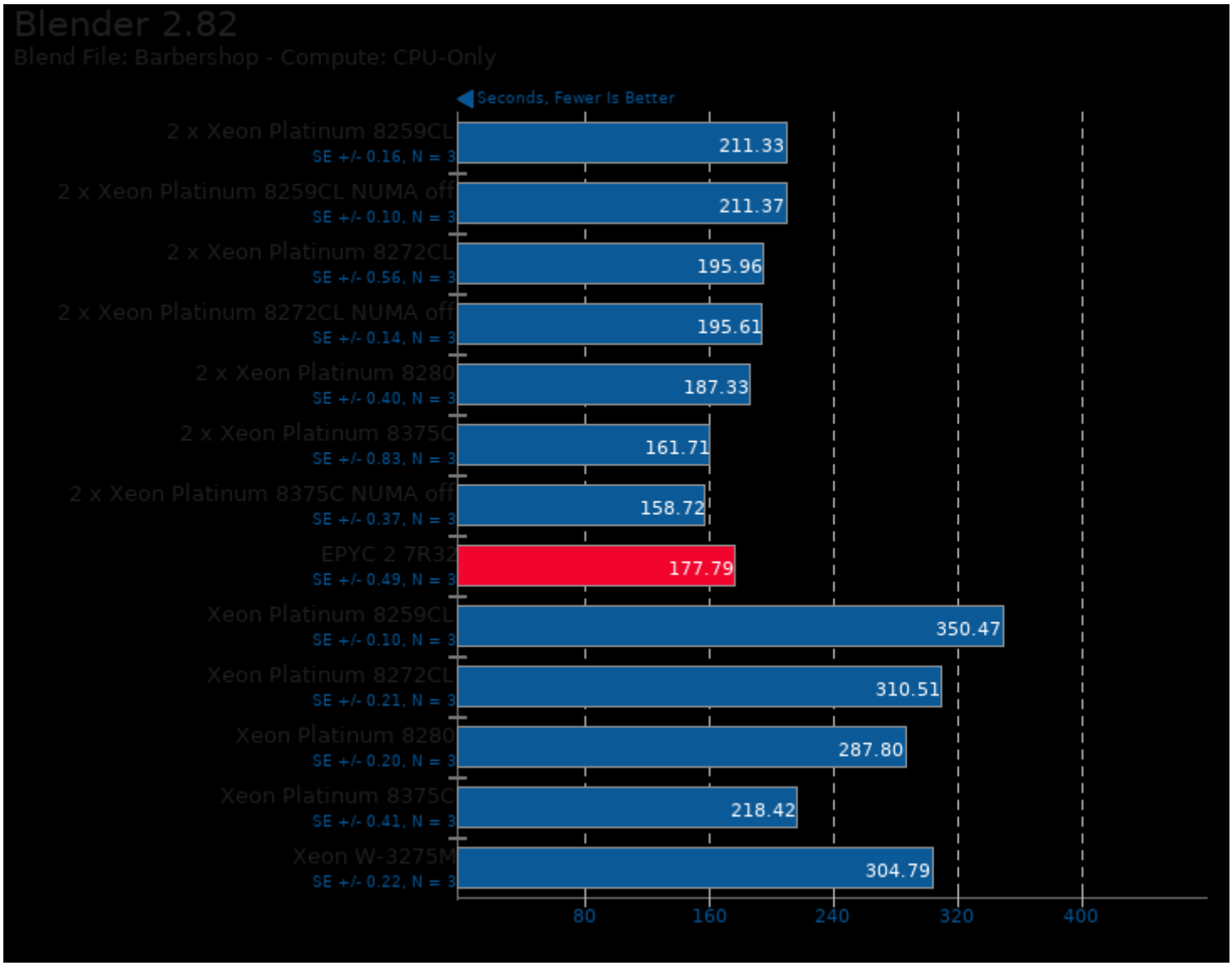

Basis Universal 1.12
Settings: UASTC Level 3
Seconds, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.08, N = 3
23.09
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.02, N = 3
23.15
2 x Xeon Platinum 8272CL
SE +/- 0.25, N = 6
21.40
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.02, N = 3
21.12
2 x Xeon Platinum 8280
SE +/- 0.02, N = 3
19.89
2 x Xeon Platinum 8375C
SE +/- 0.05, N = 3
16.92
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.26, N = 3
17.34
EPYC 2 7R32
SE +/- 0.06, N = 3
19.19
Xeon Platinum 8259CL
SE +/- 0.02, N = 3
35.98
Xeon Platinum 8272CL
SE +/- 0.09, N = 3
32.20
Xeon Platinum 8280
SE +/- 0.01, N = 3
30.69
Xeon Platinum 8375C
SE +/- 0.06, N = 3
26.60
Xeon W-3275M
SE +/- 0.01, N = 3
30.63
8
16
24
32
40
1. (CXX) g++ options: -std=c++11 -fvisibility=hidden -fPIC -fno-strict-aliasing -O3 -rdynamic -lm -lpthread

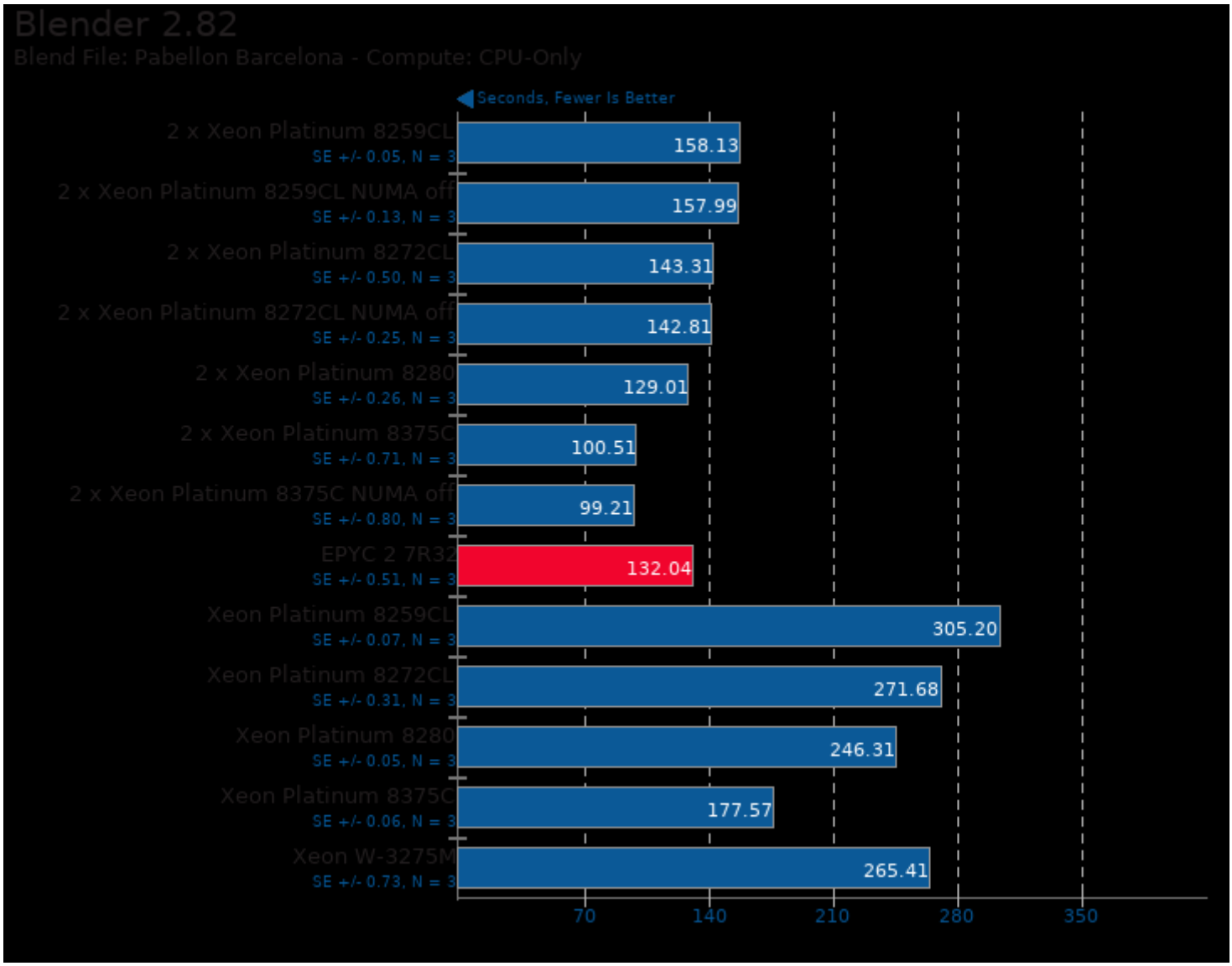

Chaos Group V-RAY 4.10.07
Mode: CPU
Ksamples, More Is Better
2 x Xeon Platinum 8259CL
SE +/- 332.60, N = 3
51803
2 x Xeon Platinum 8259CL NUMA off
SE +/- 48.95, N = 3
53051
2 x Xeon Platinum 8272CL
SE +/- 584.43, N = 3
61378
2 x Xeon Platinum 8272CL NUMA off
SE +/- 219.47, N = 3
62175
2 x Xeon Platinum 8280
SE +/- 474.70, N = 3
64331
2 x Xeon Platinum 8375C
SE +/- 771.09, N = 3
87388
2 x Xeon Platinum 8375C NUMA off
SE +/- 778.30, N = 3
87937
EPYC 2 7R32
SE +/- 183.86, N = 3
62897
Xeon Platinum 8259CL
SE +/- 88.49, N = 3
29061
Xeon Platinum 8272CL
SE +/- 15.25, N = 3
33947
Xeon Platinum 8280
SE +/- 306.00, N = 3
34710
Xeon Platinum 8375C
SE +/- 481.50, N = 7
44760
Xeon W-3275M
SE +/- 401.71, N = 3
33014
20K
40K
60K
80K
100K

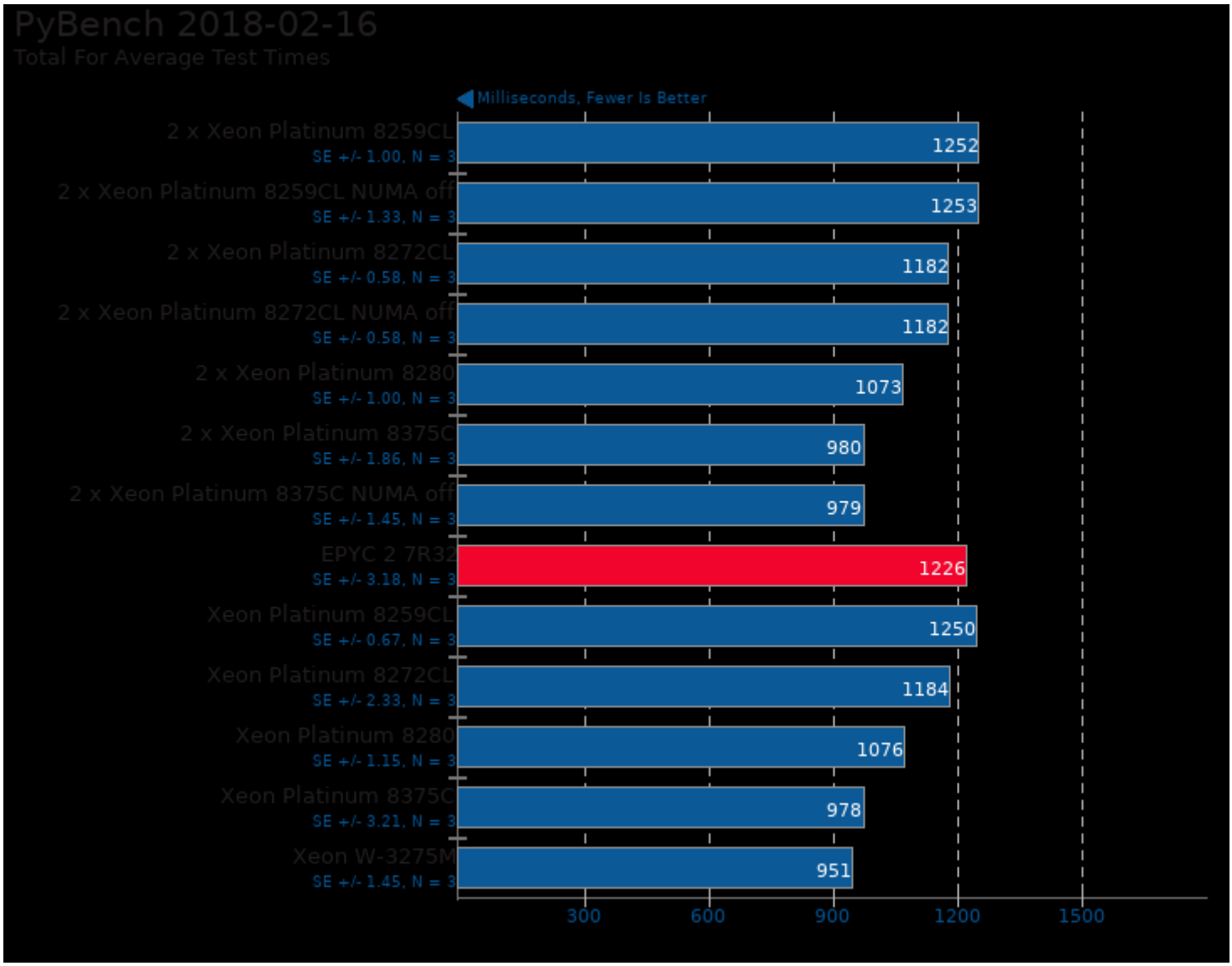

Blender 2.82
Blend File: BMW27 - Compute: CPU-Only
Seconds, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.11, N = 3
47.63
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.05, N = 3
48.00
2 x Xeon Platinum 8272CL
SE +/- 0.21, N = 3
41.33
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.06, N = 3
41.22
2 x Xeon Platinum 8280
SE +/- 0.09, N = 3
38.79
2 x Xeon Platinum 8375C
SE +/- 0.15, N = 3
31.10
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.09, N = 3
31.09
EPYC 2 7R32
SE +/- 0.10, N = 3
41.76
Xeon Platinum 8259CL
SE +/- 0.14, N = 3
86.89
Xeon Platinum 8272CL
SE +/- 0.26, N = 3
75.86
Xeon Platinum 8280
SE +/- 0.09, N = 3
69.80
Xeon Platinum 8375C
SE +/- 0.10, N = 3
52.28
Xeon W-3275M
SE +/- 0.12, N = 3
74.96
20
40
60
80
100

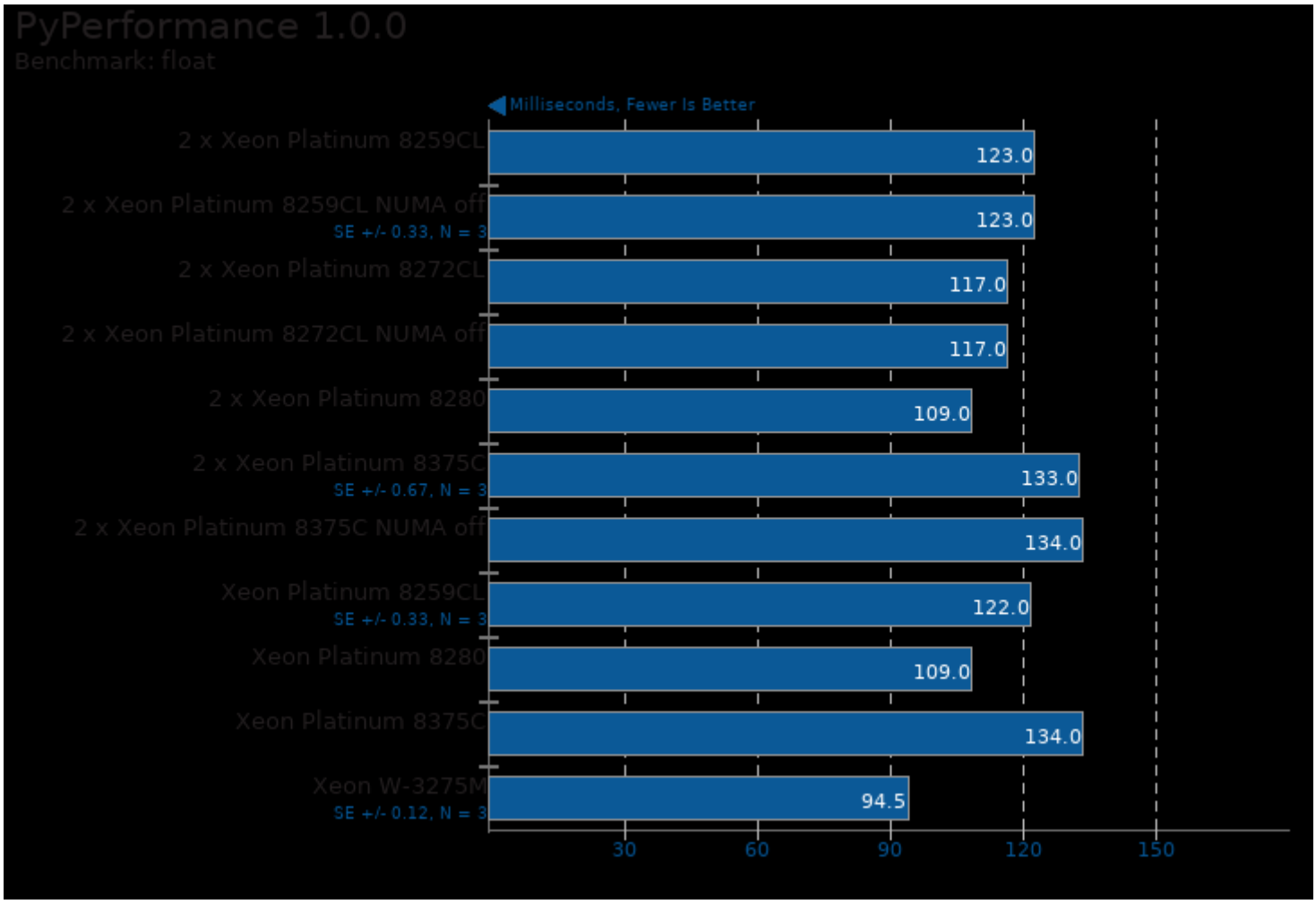

Blender 2.82
Blend File: Classroom - Compute: CPU-Only
Seconds, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.06, N = 3
124.59
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.17, N = 3
124.67
2 x Xeon Platinum 8272CL
SE +/- 0.09, N = 3
109.91
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.33, N = 3
109.34
2 x Xeon Platinum 8280
SE +/- 0.26, N = 3
100.47
2 x Xeon Platinum 8375C
SE +/- 0.37, N = 3
75.73
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.90, N = 3
74.20
EPYC 2 7R32
SE +/- 0.40, N = 3
101.34
Xeon Platinum 8259CL
SE +/- 0.14, N = 3
246.81
Xeon Platinum 8272CL
SE +/- 0.37, N = 3
215.91
Xeon Platinum 8280
SE +/- 0.36, N = 3
198.25
Xeon Platinum 8375C
SE +/- 0.08, N = 3
136.55
Xeon W-3275M
SE +/- 0.32, N = 3
213.36
50
100
150
200
250

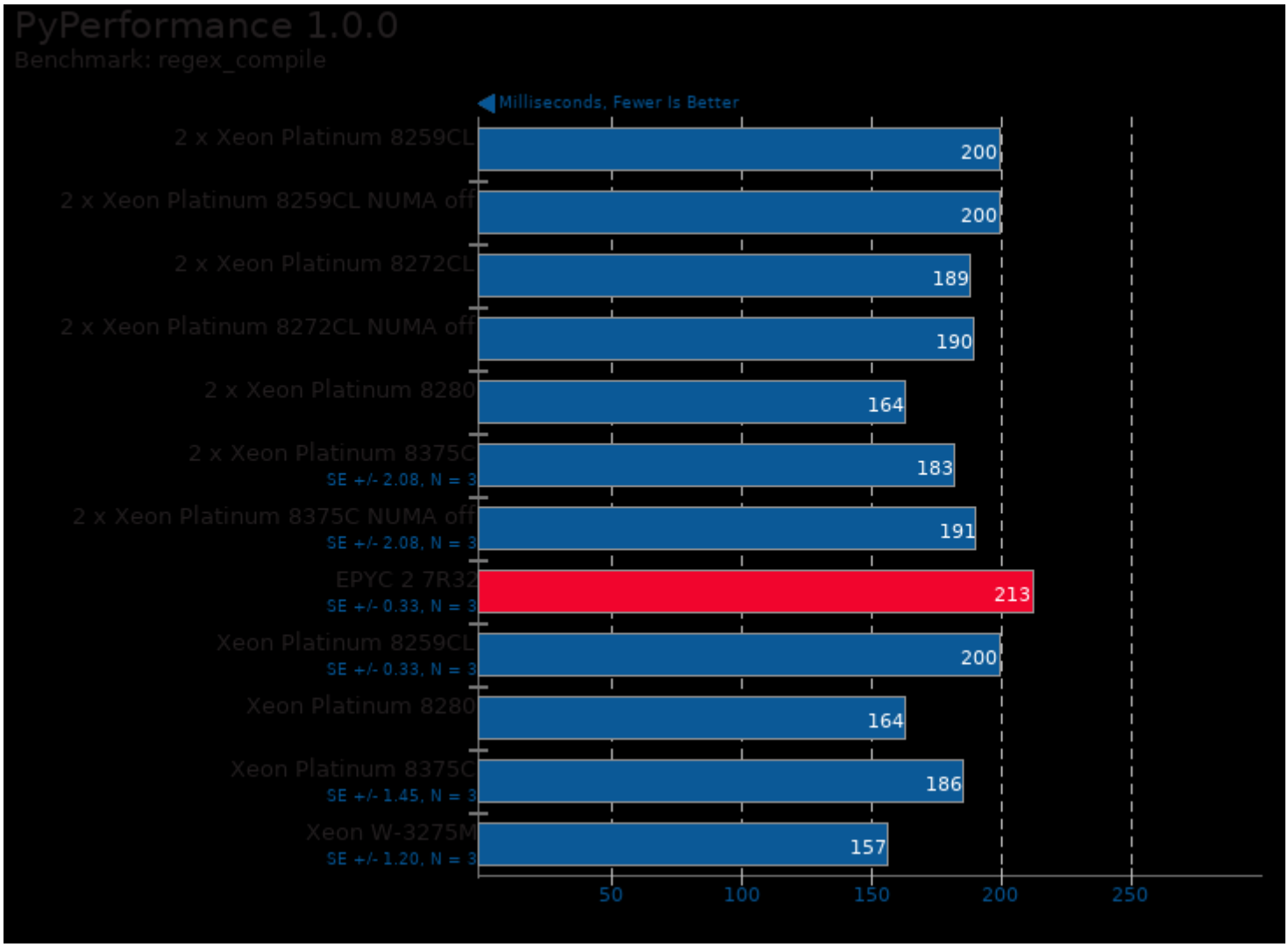

Blender 2.82
Blend File: Fishy Cat - Compute: CPU-Only
Seconds, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.11, N = 3
79.00
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.14, N = 3
79.22
2 x Xeon Platinum 8272CL
SE +/- 0.23, N = 3
70.12
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.19, N = 3
70.22
2 x Xeon Platinum 8280
SE +/- 0.03, N = 3
66.39
2 x Xeon Platinum 8375C
SE +/- 0.12, N = 3
53.96
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.09, N = 3
53.69
EPYC 2 7R32
SE +/- 0.05, N = 3
65.67
Xeon Platinum 8259CL
SE +/- 0.08, N = 3
134.22
Xeon Platinum 8272CL
SE +/- 0.14, N = 3
119.36
Xeon Platinum 8280
SE +/- 0.16, N = 3
110.67
Xeon Platinum 8375C
SE +/- 0.08, N = 3
81.64
Xeon W-3275M
SE +/- 0.05, N = 3
118.09
30
60
90
120
150

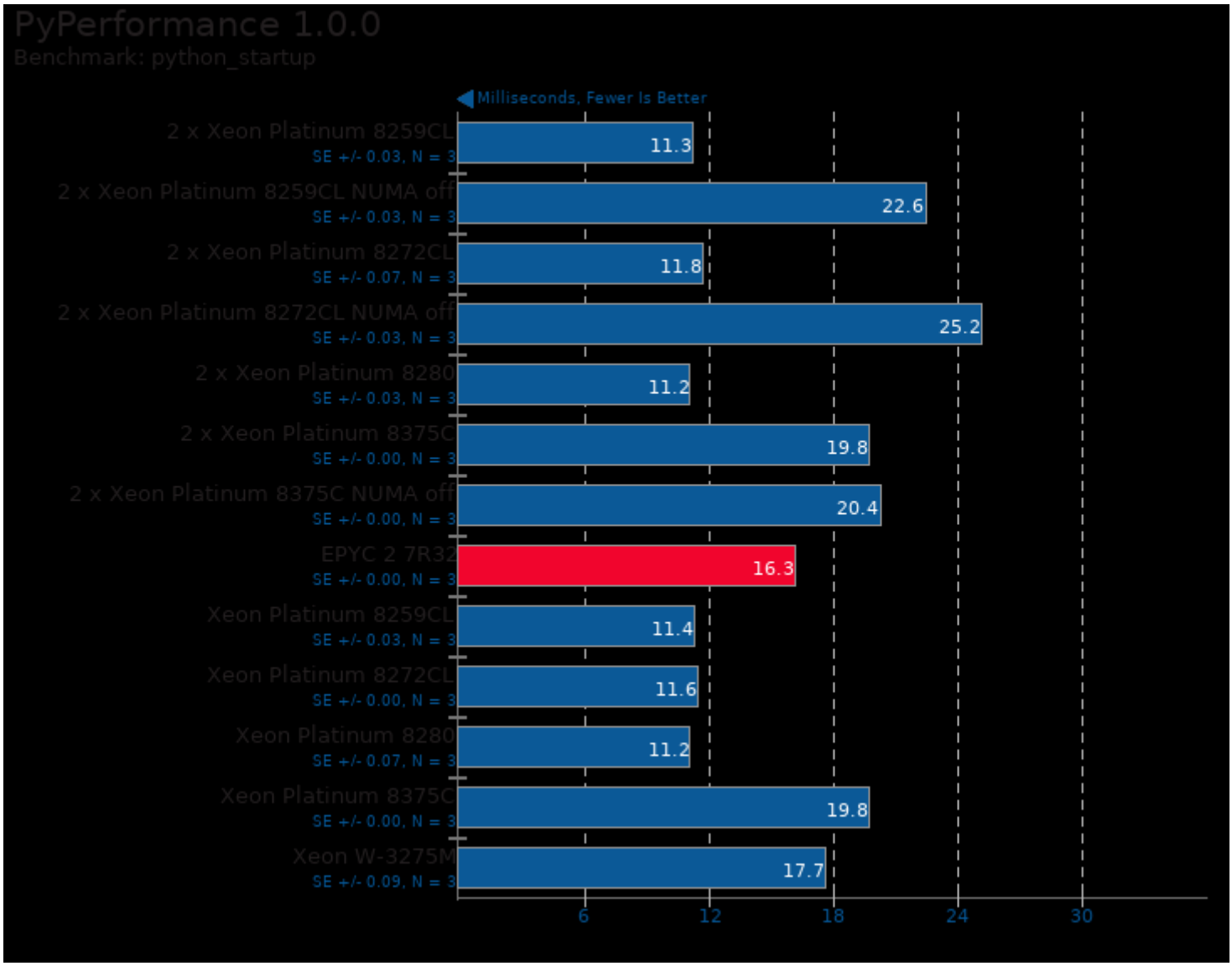

Blender 2.82
Blend File: Barbershop - Compute: CPU-Only
Seconds, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.16, N = 3
211.33
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.10, N = 3
211.37
2 x Xeon Platinum 8272CL
SE +/- 0.56, N = 3
195.96
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.14, N = 3
195.61
2 x Xeon Platinum 8280
SE +/- 0.40, N = 3
187.33
2 x Xeon Platinum 8375C
SE +/- 0.83, N = 3
161.71
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.37, N = 3
158.72
EPYC 2 7R32
SE +/- 0.49, N = 3
177.79
Xeon Platinum 8259CL
SE +/- 0.10, N = 3
350.47
Xeon Platinum 8272CL
SE +/- 0.21, N = 3
310.51
Xeon Platinum 8280
SE +/- 0.20, N = 3
287.80
Xeon Platinum 8375C
SE +/- 0.41, N = 3
218.42
Xeon W-3275M
SE +/- 0.22, N = 3
304.79
80
160
240
320
400

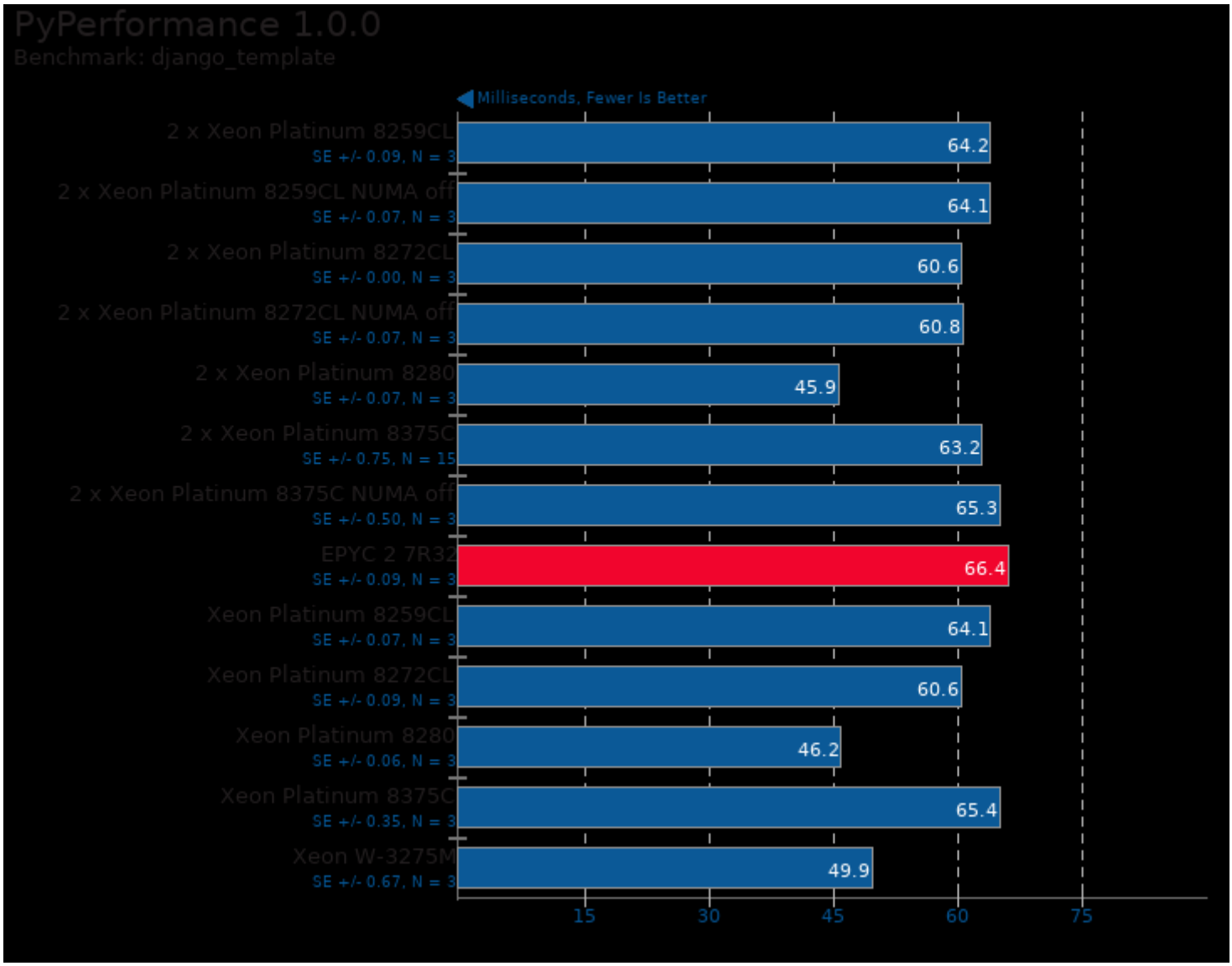

Blender 2.82
Blend File: Pabellon Barcelona - Compute: CPU-Only
Seconds, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.05, N = 3
158.13
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.13, N = 3
157.99
2 x Xeon Platinum 8272CL
SE +/- 0.50, N = 3
143.31
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.25, N = 3
142.81
2 x Xeon Platinum 8280
SE +/- 0.26, N = 3
129.01
2 x Xeon Platinum 8375C
SE +/- 0.71, N = 3
100.51
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.80, N = 3
99.21
EPYC 2 7R32
SE +/- 0.51, N = 3
132.04
Xeon Platinum 8259CL
SE +/- 0.07, N = 3
305.20
Xeon Platinum 8272CL
SE +/- 0.31, N = 3
271.68
Xeon Platinum 8280
SE +/- 0.05, N = 3
246.31
Xeon Platinum 8375C
SE +/- 0.06, N = 3
177.57
Xeon W-3275M
SE +/- 0.73, N = 3
265.41
70
140
210
280
350

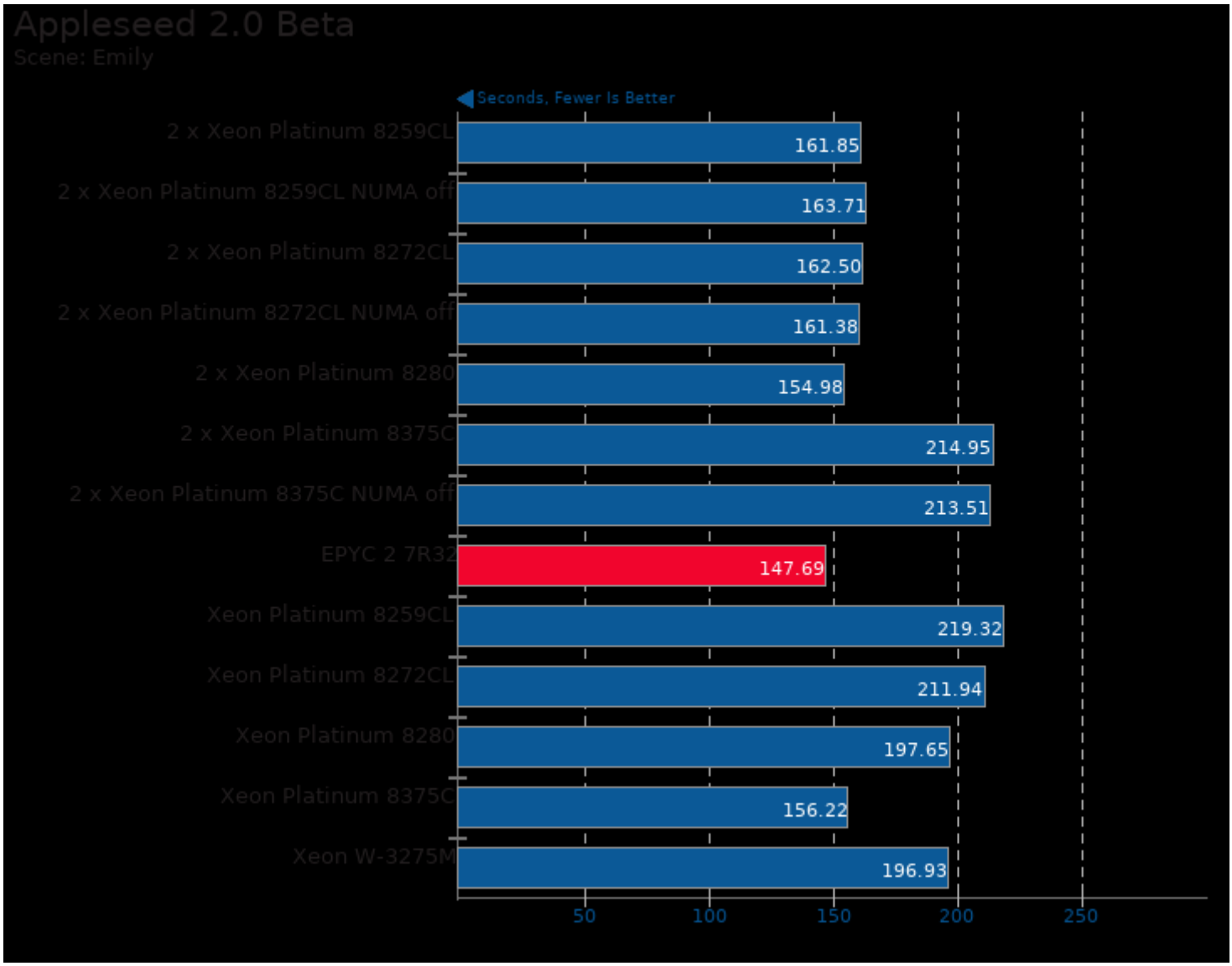

PyBench 2018-02-16
Total For Average Test Times
Milliseconds, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 1.00, N = 3
1252
2 x Xeon Platinum 8259CL NUMA off
SE +/- 1.33, N = 3
1253
2 x Xeon Platinum 8272CL
SE +/- 0.58, N = 3
1182
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.58, N = 3
1182
2 x Xeon Platinum 8280
SE +/- 1.00, N = 3
1073
2 x Xeon Platinum 8375C
SE +/- 1.86, N = 3
980
2 x Xeon Platinum 8375C NUMA off
SE +/- 1.45, N = 3
979
EPYC 2 7R32
SE +/- 3.18, N = 3
1226
Xeon Platinum 8259CL
SE +/- 0.67, N = 3
1250
Xeon Platinum 8272CL
SE +/- 2.33, N = 3
1184
Xeon Platinum 8280
SE +/- 1.15, N = 3
1076
Xeon Platinum 8375C
SE +/- 3.21, N = 3
978
Xeon W-3275M
SE +/- 1.45, N = 3
951
300
600
900
1200
1500

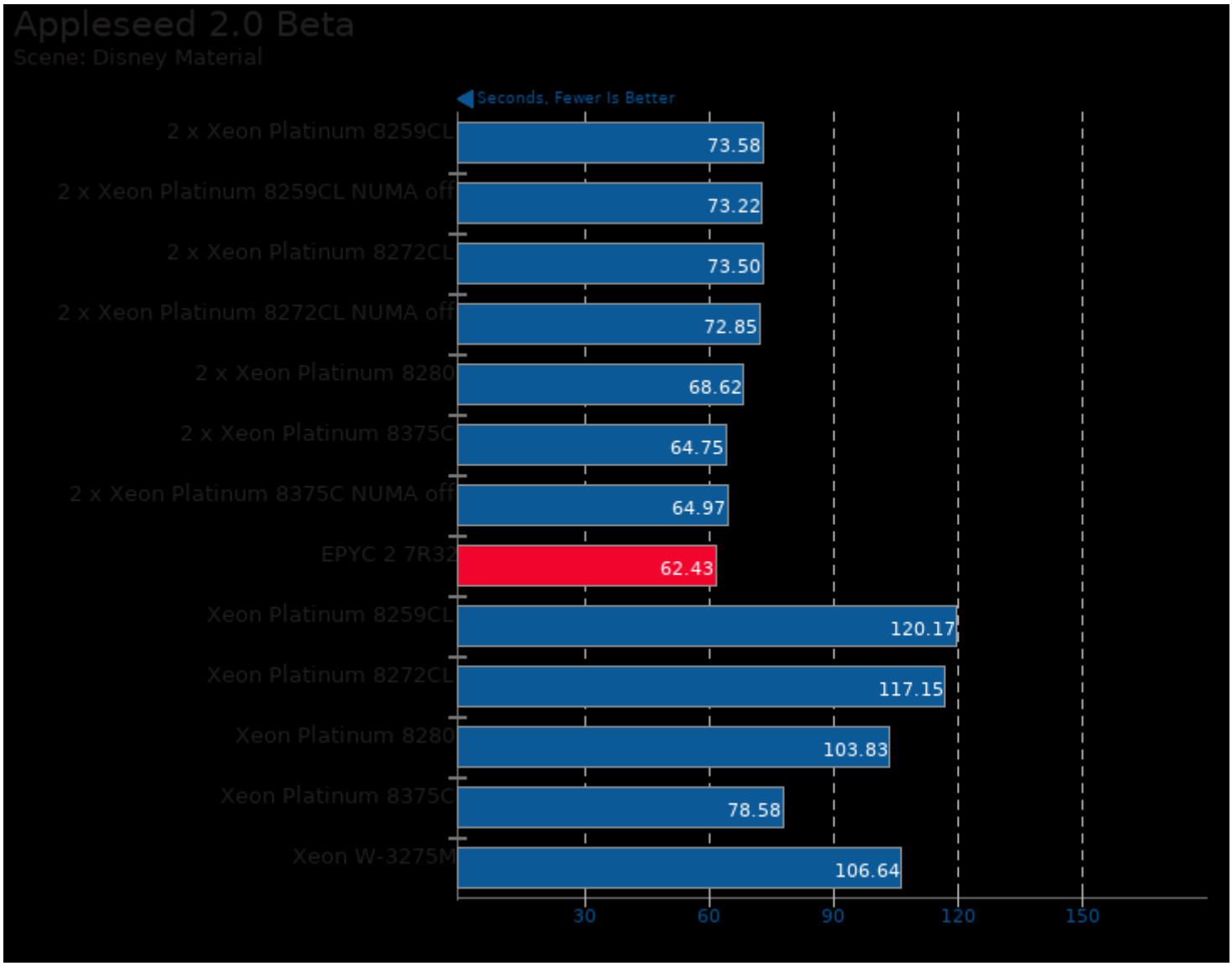

PyPerformance 1.0.0
Benchmark: float
Milliseconds, Fewer Is Better
2 x Xeon Platinum 8259CL
123.0
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.33, N = 3
123.0
2 x Xeon Platinum 8272CL
117.0
2 x Xeon Platinum 8272CL NUMA off
117.0
2 x Xeon Platinum 8280
109.0
2 x Xeon Platinum 8375C
SE +/- 0.67, N = 3
133.0
2 x Xeon Platinum 8375C NUMA off
134.0
Xeon Platinum 8259CL
SE +/- 0.33, N = 3
122.0
Xeon Platinum 8280
109.0
Xeon Platinum 8375C
134.0
Xeon W-3275M
SE +/- 0.12, N = 3
94.5
30
60
90
120
150

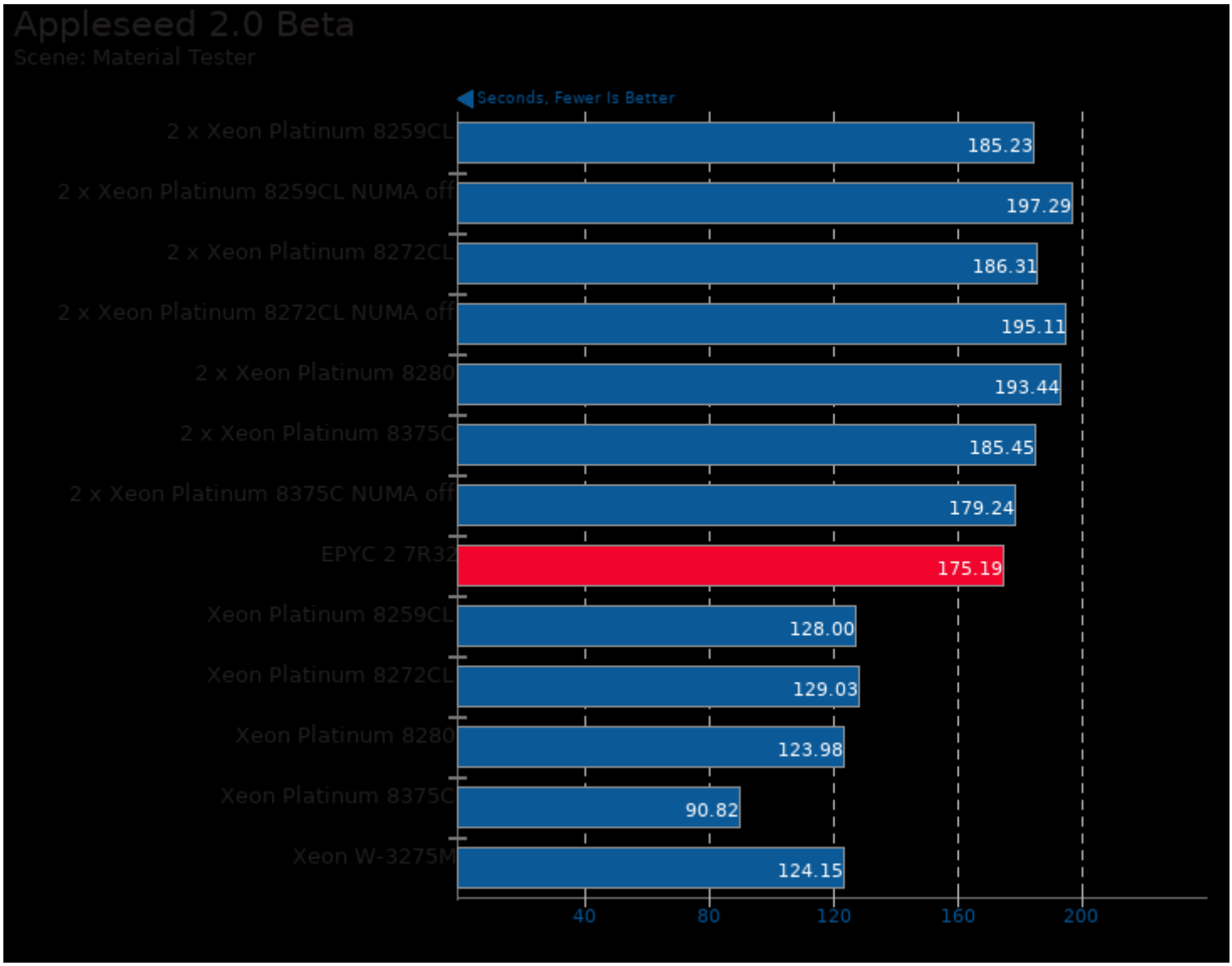

PyPerformance 1.0.0
Benchmark: regex_compile
Milliseconds, Fewer Is Better
2 x Xeon Platinum 8259CL
200
2 x Xeon Platinum 8259CL NUMA off
200
2 x Xeon Platinum 8272CL
189
2 x Xeon Platinum 8272CL NUMA off
190
2 x Xeon Platinum 8280
164
2 x Xeon Platinum 8375C
SE +/- 2.08, N = 3
183
2 x Xeon Platinum 8375C NUMA off
SE +/- 2.08, N = 3
191
EPYC 2 7R32
SE +/- 0.33, N = 3
213
Xeon Platinum 8259CL
SE +/- 0.33, N = 3
200
Xeon Platinum 8280
164
Xeon Platinum 8375C
SE +/- 1.45, N = 3
186
Xeon W-3275M
SE +/- 1.20, N = 3
157
50
100
150
200
250

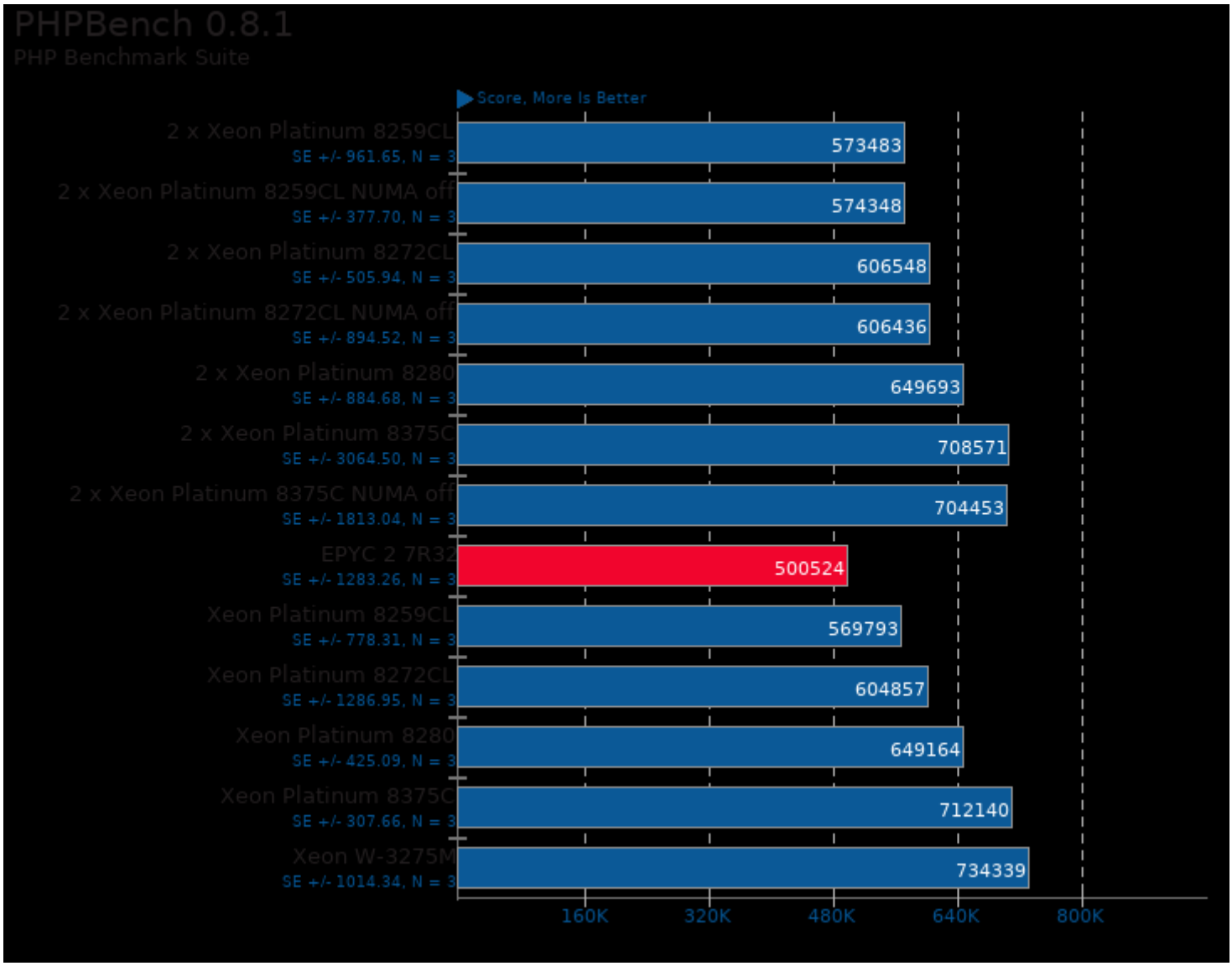

PyPerformance 1.0.0
Benchmark: python_startup
Milliseconds, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.03, N = 3
11.3
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.03, N = 3
22.6
2 x Xeon Platinum 8272CL
SE +/- 0.07, N = 3
11.8
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.03, N = 3
25.2
2 x Xeon Platinum 8280
SE +/- 0.03, N = 3
11.2
2 x Xeon Platinum 8375C
SE +/- 0.00, N = 3
19.8
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.00, N = 3
20.4
EPYC 2 7R32
SE +/- 0.00, N = 3
16.3
Xeon Platinum 8259CL
SE +/- 0.03, N = 3
11.4
Xeon Platinum 8272CL
SE +/- 0.00, N = 3
11.6
Xeon Platinum 8280
SE +/- 0.07, N = 3
11.2
Xeon Platinum 8375C
SE +/- 0.00, N = 3
19.8
Xeon W-3275M
SE +/- 0.09, N = 3
17.7
6
12
18
24
30

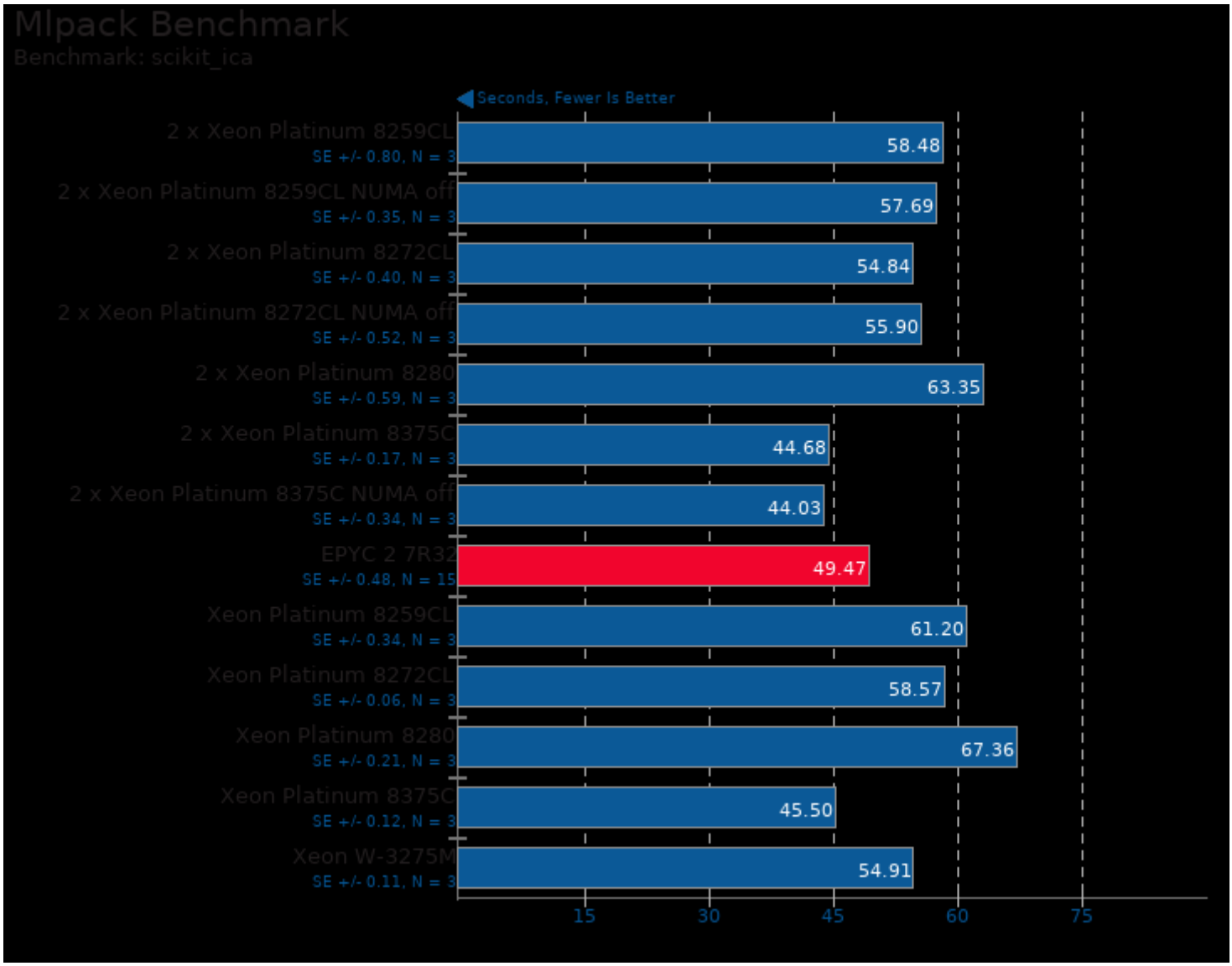

PyPerformance 1.0.0
Benchmark: django_template
Milliseconds, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.09, N = 3
64.2
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.07, N = 3
64.1
2 x Xeon Platinum 8272CL
SE +/- 0.00, N = 3
60.6
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.07, N = 3
60.8
2 x Xeon Platinum 8280
SE +/- 0.07, N = 3
45.9
2 x Xeon Platinum 8375C
SE +/- 0.75, N = 15
63.2
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.50, N = 3
65.3
EPYC 2 7R32
SE +/- 0.09, N = 3
66.4
Xeon Platinum 8259CL
SE +/- 0.07, N = 3
64.1
Xeon Platinum 8272CL
SE +/- 0.09, N = 3
60.6
Xeon Platinum 8280
SE +/- 0.06, N = 3
46.2
Xeon Platinum 8375C
SE +/- 0.35, N = 3
65.4
Xeon W-3275M
SE +/- 0.67, N = 3
49.9
15
30
45
60
75

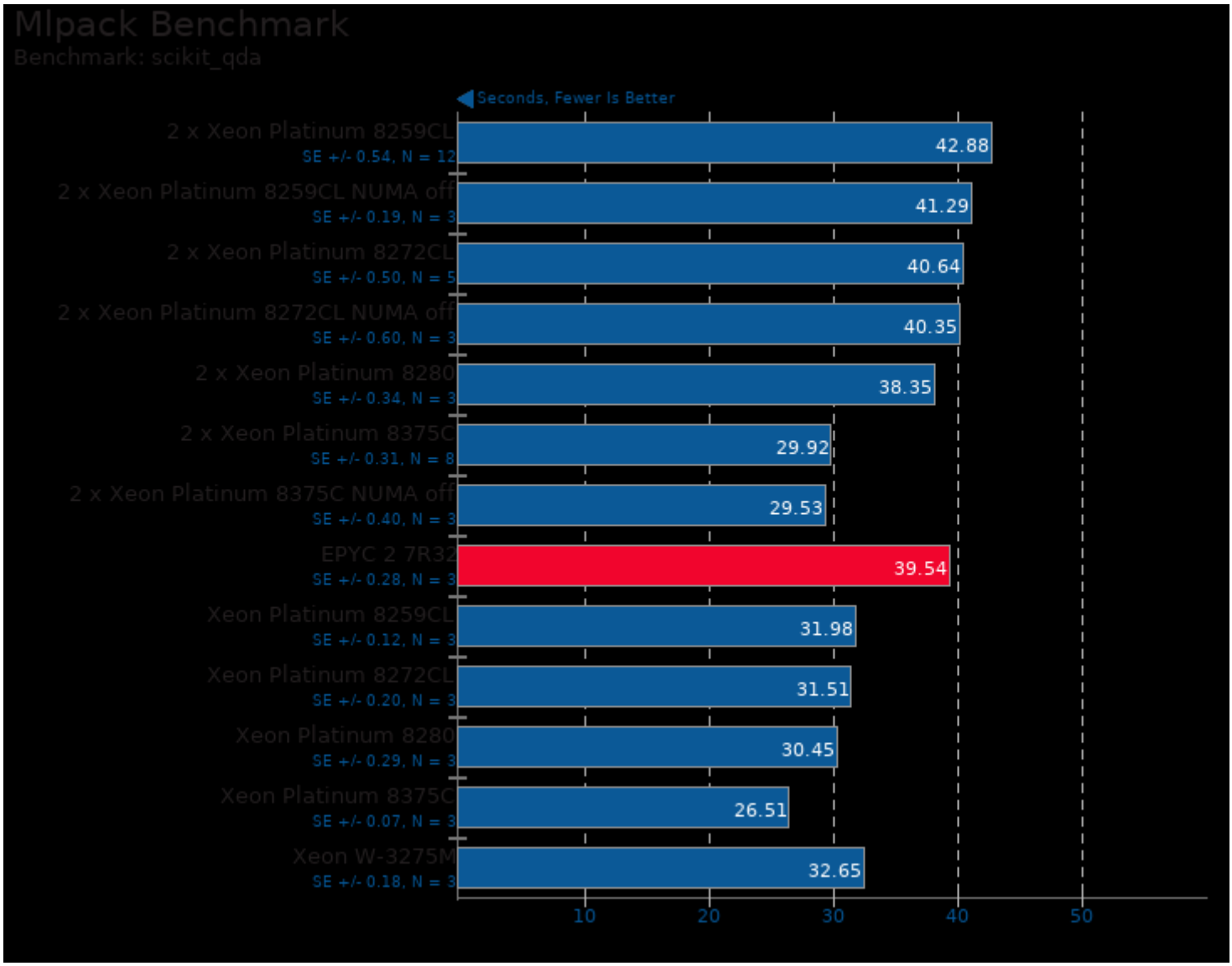

Appleseed 2.0 Beta
Scene: Emily
Seconds, Fewer Is Better
2 x Xeon Platinum 8259CL
161.85
2 x Xeon Platinum 8259CL NUMA off
163.71
2 x Xeon Platinum 8272CL
162.50
2 x Xeon Platinum 8272CL NUMA off
161.38
2 x Xeon Platinum 8280
154.98
2 x Xeon Platinum 8375C
214.95
2 x Xeon Platinum 8375C NUMA off
213.51
EPYC 2 7R32
147.69
Xeon Platinum 8259CL
219.32
Xeon Platinum 8272CL
211.94
Xeon Platinum 8280
197.65
Xeon Platinum 8375C
156.22
Xeon W-3275M
196.93
50
100
150
200
250

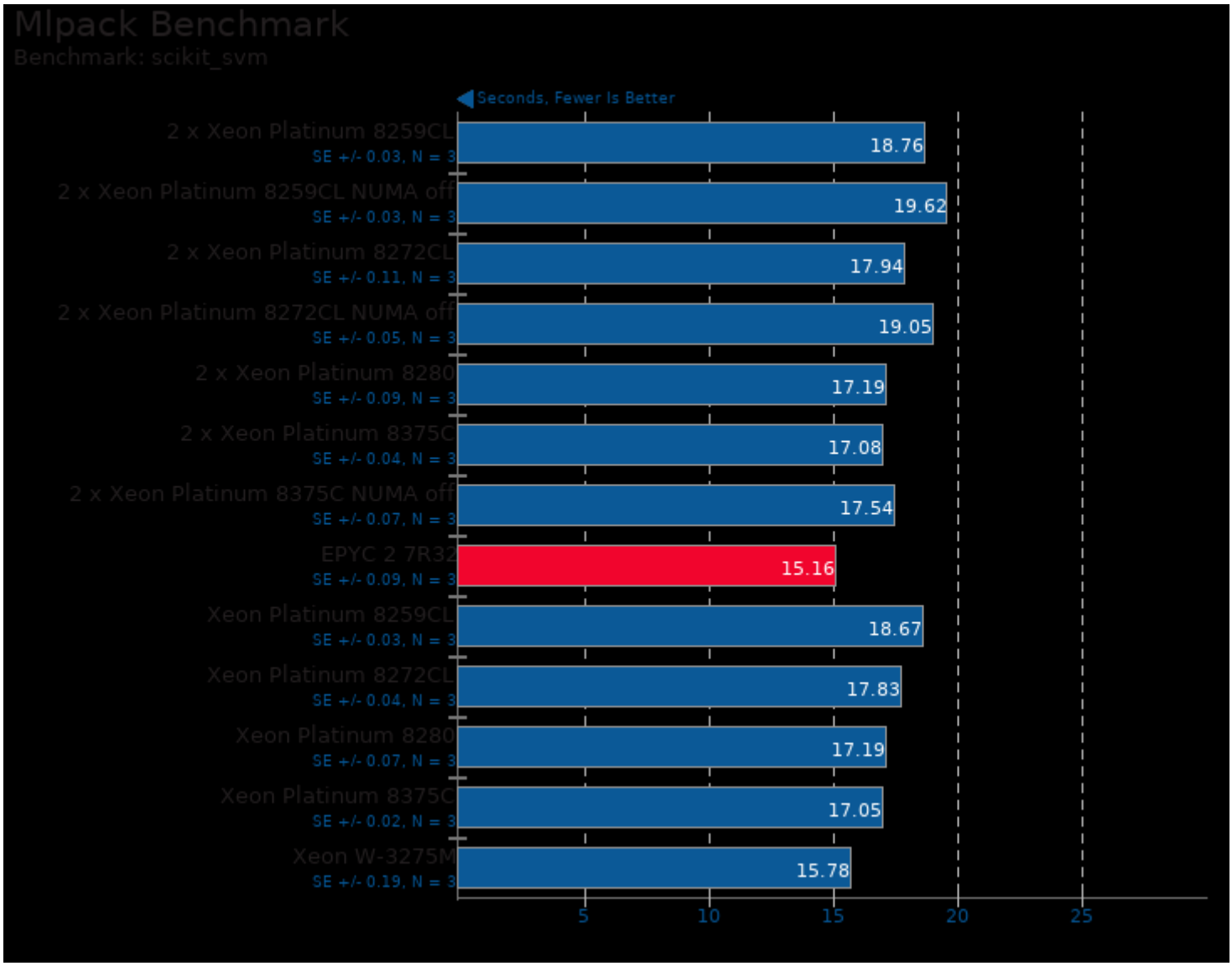

Appleseed 2.0 Beta
Scene: Disney Material
Seconds, Fewer Is Better
2 x Xeon Platinum 8259CL
73.58
2 x Xeon Platinum 8259CL NUMA off
73.22
2 x Xeon Platinum 8272CL
73.50
2 x Xeon Platinum 8272CL NUMA off
72.85
2 x Xeon Platinum 8280
68.62
2 x Xeon Platinum 8375C
64.75
2 x Xeon Platinum 8375C NUMA off
64.97
EPYC 2 7R32
62.43
Xeon Platinum 8259CL
120.17
Xeon Platinum 8272CL
117.15
Xeon Platinum 8280
103.83
Xeon Platinum 8375C
78.58
Xeon W-3275M
106.64
30
60
90
120
150

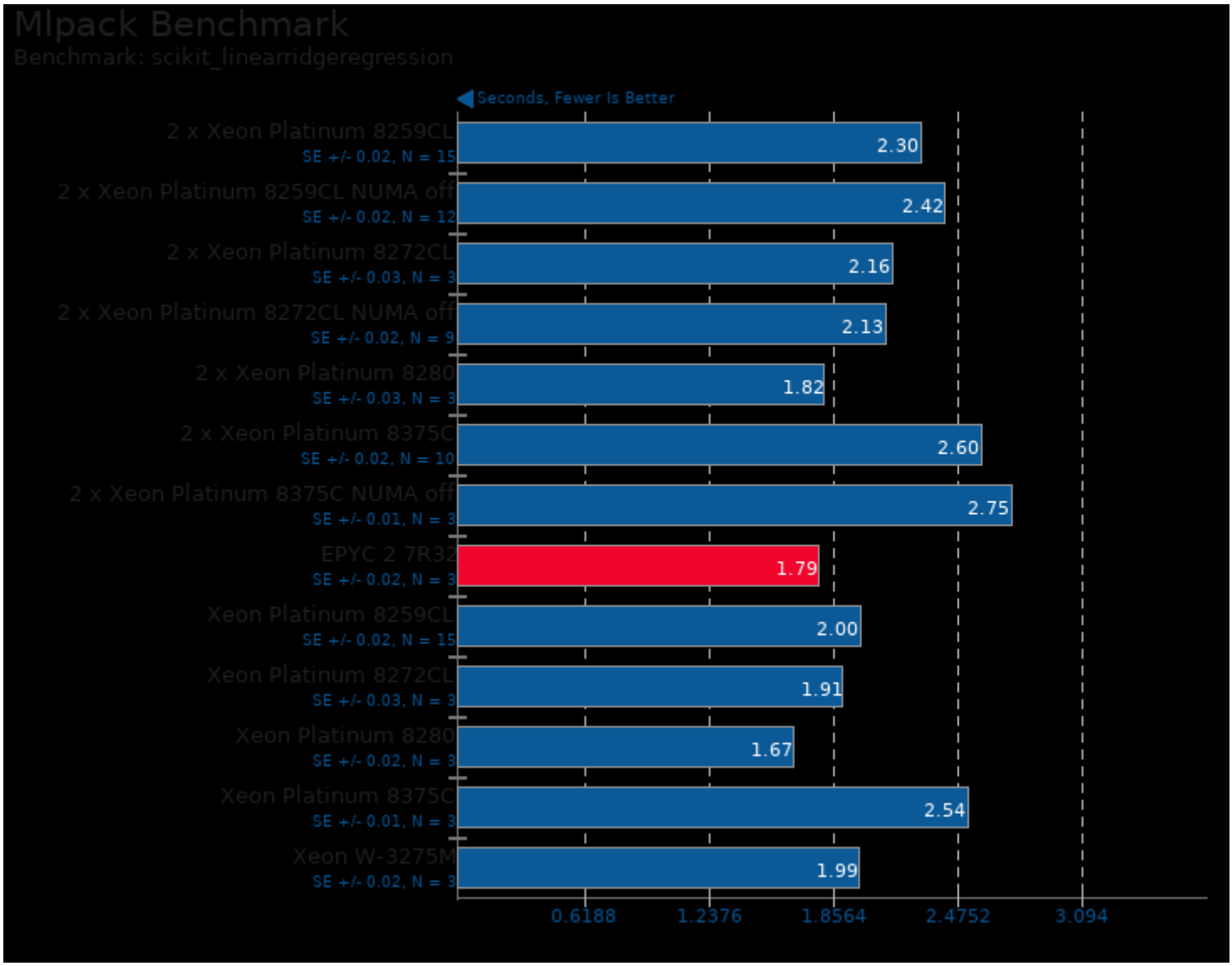

Appleseed 2.0 Beta
Scene: Material Tester
Seconds, Fewer Is Better
2 x Xeon Platinum 8259CL
185.23
2 x Xeon Platinum 8259CL NUMA off
197.29
2 x Xeon Platinum 8272CL
186.31
2 x Xeon Platinum 8272CL NUMA off
195.11
2 x Xeon Platinum 8280
193.44
2 x Xeon Platinum 8375C
185.45
2 x Xeon Platinum 8375C NUMA off
179.24
EPYC 2 7R32
175.19
Xeon Platinum 8259CL
128.00
Xeon Platinum 8272CL
129.03
Xeon Platinum 8280
123.98
Xeon Platinum 8375C
90.82
Xeon W-3275M
124.15
40
80
120
160
200

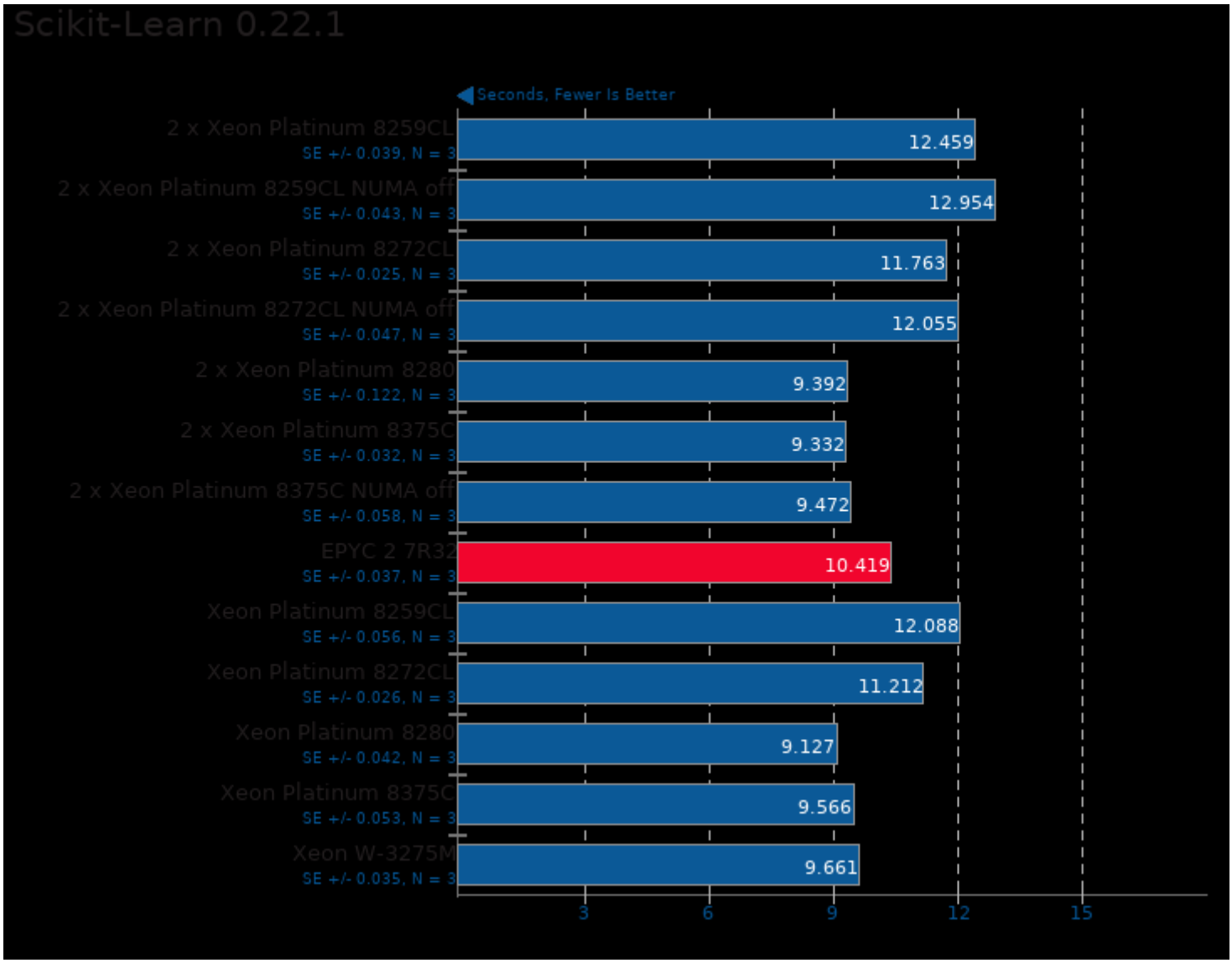

PHPBench 0.8.1
PHP Benchmark Suite
Score, More Is Better
2 x Xeon Platinum 8259CL
SE +/- 961.65, N = 3
573483
2 x Xeon Platinum 8259CL NUMA off
SE +/- 377.70, N = 3
574348
2 x Xeon Platinum 8272CL
SE +/- 505.94, N = 3
606548
2 x Xeon Platinum 8272CL NUMA off
SE +/- 894.52, N = 3
606436
2 x Xeon Platinum 8280
SE +/- 884.68, N = 3
649693
2 x Xeon Platinum 8375C
SE +/- 3064.50, N = 3
708571
2 x Xeon Platinum 8375C NUMA off
SE +/- 1813.04, N = 3
704453
EPYC 2 7R32
SE +/- 1283.26, N = 3
500524
Xeon Platinum 8259CL
SE +/- 778.31, N = 3
569793
Xeon Platinum 8272CL
SE +/- 1286.95, N = 3
604857
Xeon Platinum 8280
SE +/- 425.09, N = 3
649164
Xeon Platinum 8375C
SE +/- 307.66, N = 3
712140
Xeon W-3275M
SE +/- 1014.34, N = 3
734339
160K
320K
480K
640K
800K

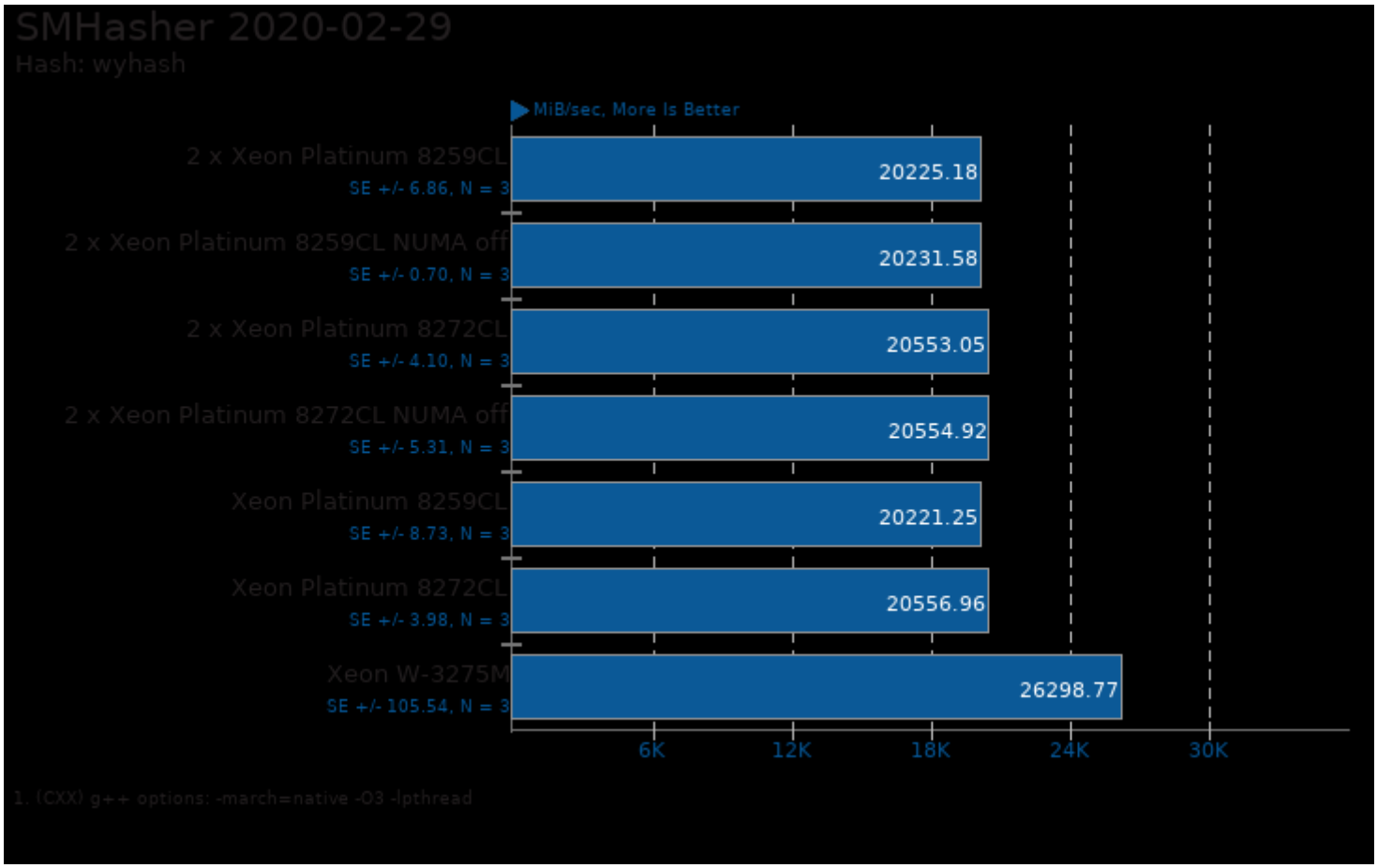

Mlpack Benchmark
Benchmark: scikit_ica
Seconds, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.80, N = 3
58.48
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.35, N = 3
57.69
2 x Xeon Platinum 8272CL
SE +/- 0.40, N = 3
54.84
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.52, N = 3
55.90
2 x Xeon Platinum 8280
SE +/- 0.59, N = 3
63.35
2 x Xeon Platinum 8375C
SE +/- 0.17, N = 3
44.68
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.34, N = 3
44.03
EPYC 2 7R32
SE +/- 0.48, N = 15
49.47
Xeon Platinum 8259CL
SE +/- 0.34, N = 3
61.20
Xeon Platinum 8272CL
SE +/- 0.06, N = 3
58.57
Xeon Platinum 8280
SE +/- 0.21, N = 3
67.36
Xeon Platinum 8375C
SE +/- 0.12, N = 3
45.50
Xeon W-3275M
SE +/- 0.11, N = 3
54.91
15
30
45
60
75


Mlpack Benchmark
Benchmark: scikit_qda
Seconds, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.54, N = 12
42.88
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.19, N = 3
41.29
2 x Xeon Platinum 8272CL
SE +/- 0.50, N = 5
40.64
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.60, N = 3
40.35
2 x Xeon Platinum 8280
SE +/- 0.34, N = 3
38.35
2 x Xeon Platinum 8375C
SE +/- 0.31, N = 8
29.92
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.40, N = 3
29.53
EPYC 2 7R32
SE +/- 0.28, N = 3
39.54
Xeon Platinum 8259CL
SE +/- 0.12, N = 3
31.98
Xeon Platinum 8272CL
SE +/- 0.20, N = 3
31.51
Xeon Platinum 8280
SE +/- 0.29, N = 3
30.45
Xeon Platinum 8375C
SE +/- 0.07, N = 3
26.51
Xeon W-3275M
SE +/- 0.18, N = 3
32.65
10
20
30
40
50


Mlpack Benchmark
Benchmark: scikit_svm
Seconds, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.03, N = 3
18.76
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.03, N = 3
19.62
2 x Xeon Platinum 8272CL
SE +/- 0.11, N = 3
17.94
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.05, N = 3
19.05
2 x Xeon Platinum 8280
SE +/- 0.09, N = 3
17.19
2 x Xeon Platinum 8375C
SE +/- 0.04, N = 3
17.08
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.07, N = 3
17.54
EPYC 2 7R32
SE +/- 0.09, N = 3
15.16
Xeon Platinum 8259CL
SE +/- 0.03, N = 3
18.67
Xeon Platinum 8272CL
SE +/- 0.04, N = 3
17.83
Xeon Platinum 8280
SE +/- 0.07, N = 3
17.19
Xeon Platinum 8375C
SE +/- 0.02, N = 3
17.05
Xeon W-3275M
SE +/- 0.19, N = 3
15.78
5
10
15
20
25


Mlpack Benchmark
Benchmark: scikit_linearridgeregression
Seconds, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.02, N = 15
2.30
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.02, N = 12
2.42
2 x Xeon Platinum 8272CL
SE +/- 0.03, N = 3
2.16
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.02, N = 9
2.13
2 x Xeon Platinum 8280
SE +/- 0.03, N = 3
1.82
2 x Xeon Platinum 8375C
SE +/- 0.02, N = 10
2.60
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.01, N = 3
2.75
EPYC 2 7R32
SE +/- 0.02, N = 3
1.79
Xeon Platinum 8259CL
SE +/- 0.02, N = 15
2.00
Xeon Platinum 8272CL
SE +/- 0.03, N = 3
1.91
Xeon Platinum 8280
SE +/- 0.02, N = 3
1.67
Xeon Platinum 8375C
SE +/- 0.01, N = 3
2.54
Xeon W-3275M
SE +/- 0.02, N = 3
1.99
0.6188
1.2376
1.8564
2.4752
3.094

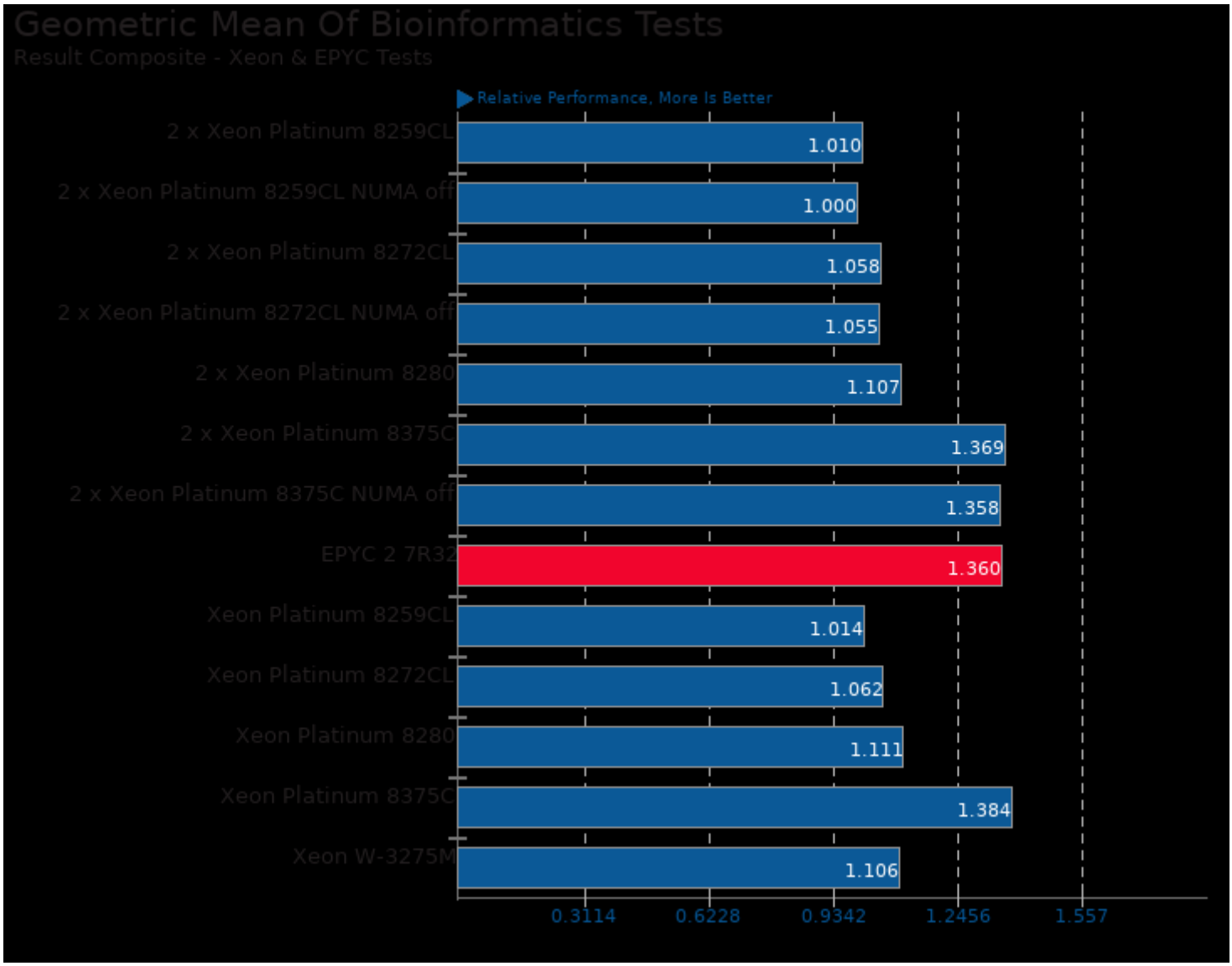

Scikit-Learn 0.22.1
Seconds, Fewer Is Better
2 x Xeon Platinum 8259CL
SE +/- 0.039, N = 3
12.459
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.043, N = 3
12.954
2 x Xeon Platinum 8272CL
SE +/- 0.025, N = 3
11.763
2 x Xeon Platinum 8272CL NUMA off
SE +/- 0.047, N = 3
12.055
2 x Xeon Platinum 8280
SE +/- 0.122, N = 3
9.392
2 x Xeon Platinum 8375C
SE +/- 0.032, N = 3
9.332
2 x Xeon Platinum 8375C NUMA off
SE +/- 0.058, N = 3
9.472
EPYC 2 7R32
SE +/- 0.037, N = 3
10.419
Xeon Platinum 8259CL
SE +/- 0.056, N = 3
12.088
Xeon Platinum 8272CL
SE +/- 0.026, N = 3
11.212
Xeon Platinum 8280
SE +/- 0.042, N = 3
9.127
Xeon Platinum 8375C
SE +/- 0.053, N = 3
9.566
Xeon W-3275M
SE +/- 0.035, N = 3
9.661
3
6
9
12
15


SMHasher 2020-02-29
Hash: wyhash
MiB/sec, More Is Better
2 x Xeon Platinum 8259CL
SE +/- 6.86, N = 3
20225.18
2 x Xeon Platinum 8259CL NUMA off
SE +/- 0.70, N = 3
20231.58
2 x Xeon Platinum 8272CL
SE +/- 4.10, N = 3
20553.05
2 x Xeon Platinum 8272CL NUMA off
SE +/- 5.31, N = 3
20554.92
Xeon Platinum 8259CL
SE +/- 8.73, N = 3
20221.25
Xeon Platinum 8272CL
SE +/- 3.98, N = 3
20556.96
Xeon W-3275M
SE +/- 105.54, N = 3
26298.77
6K
12K
18K
24K
30K
1. (CXX) g++ options: -march=native -O3 -lpthread

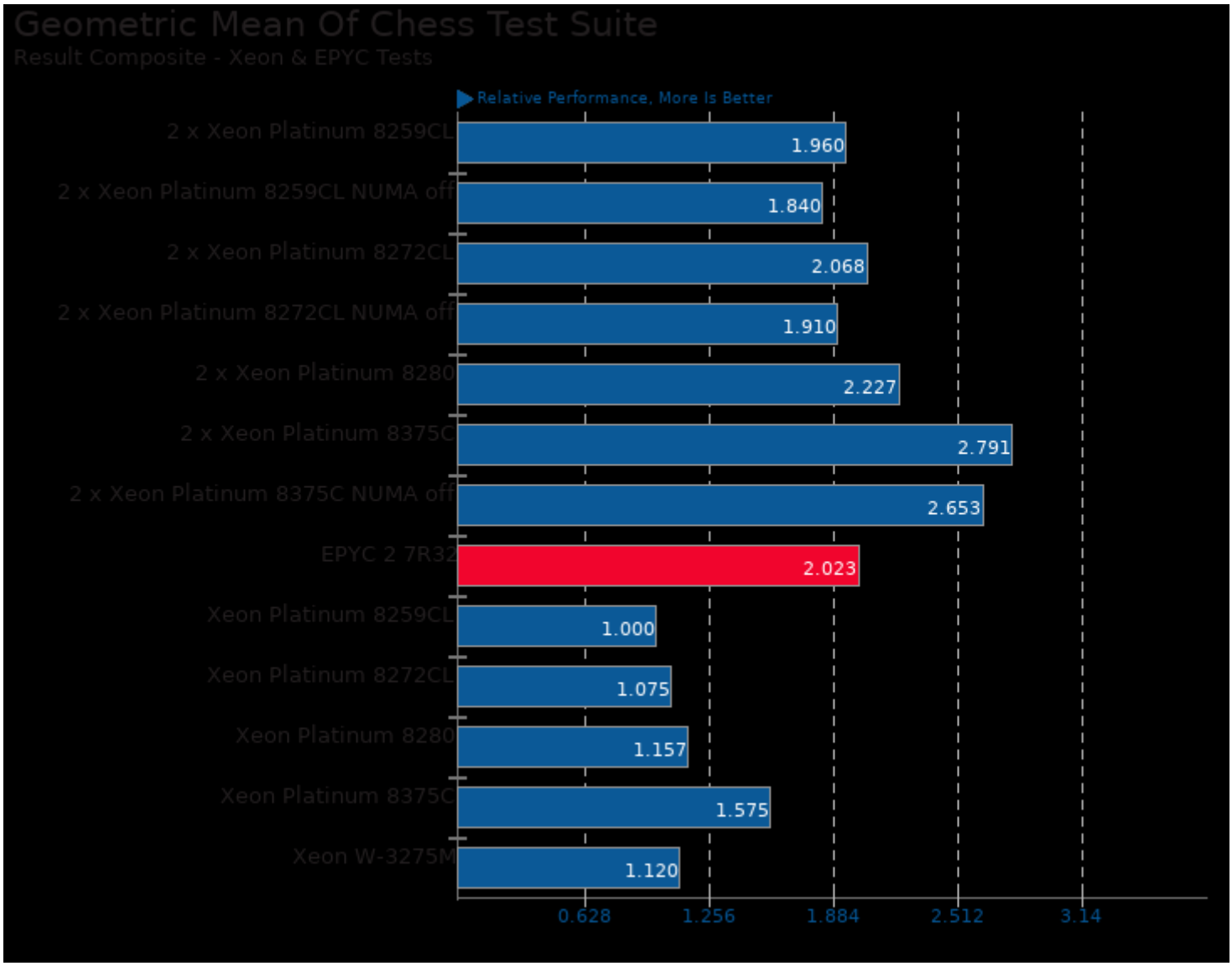
These geometric means are based upon test groupings / test suites for this result file.



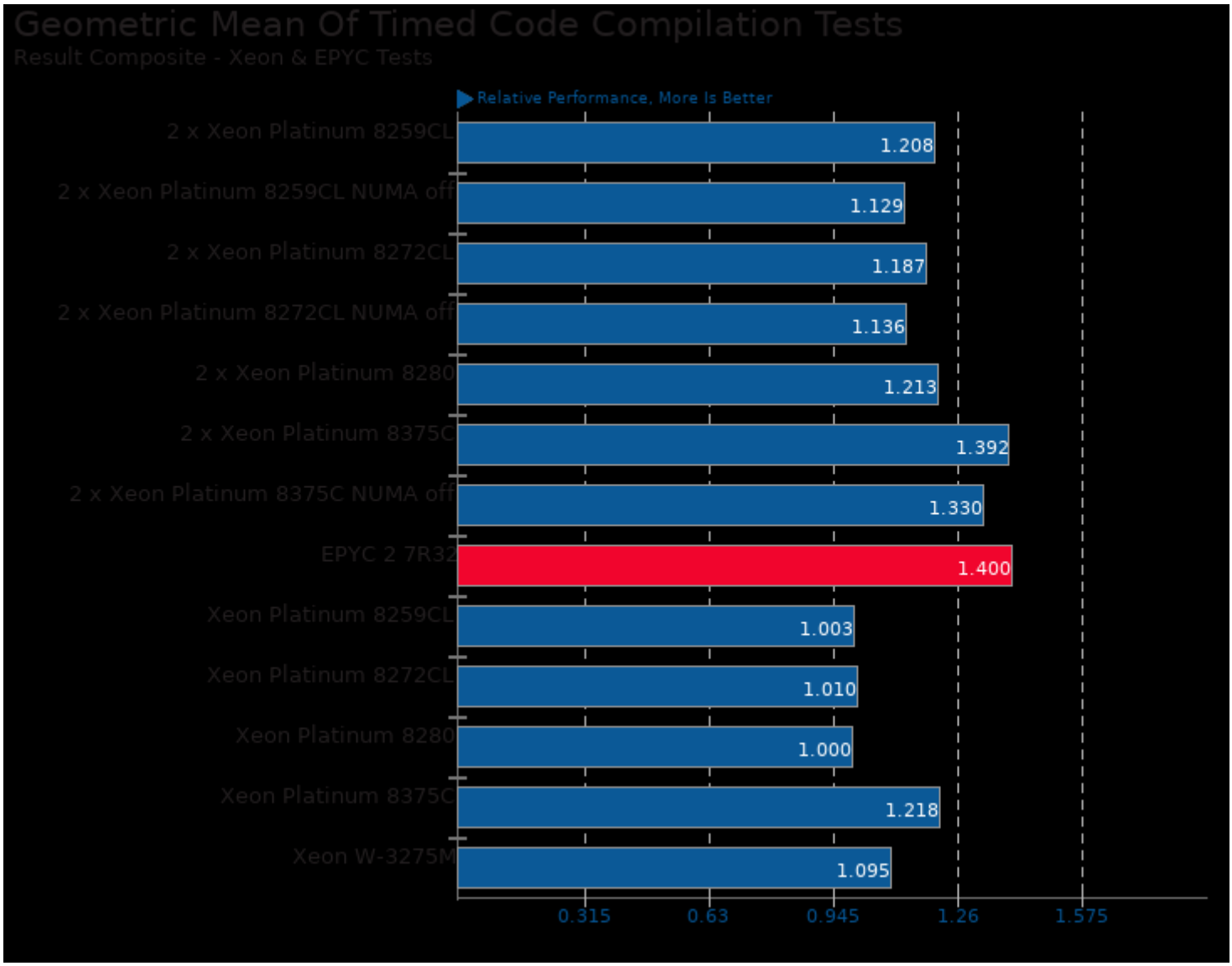
Geometric mean based upon tests: pts/dav1d and pts/svt-av1



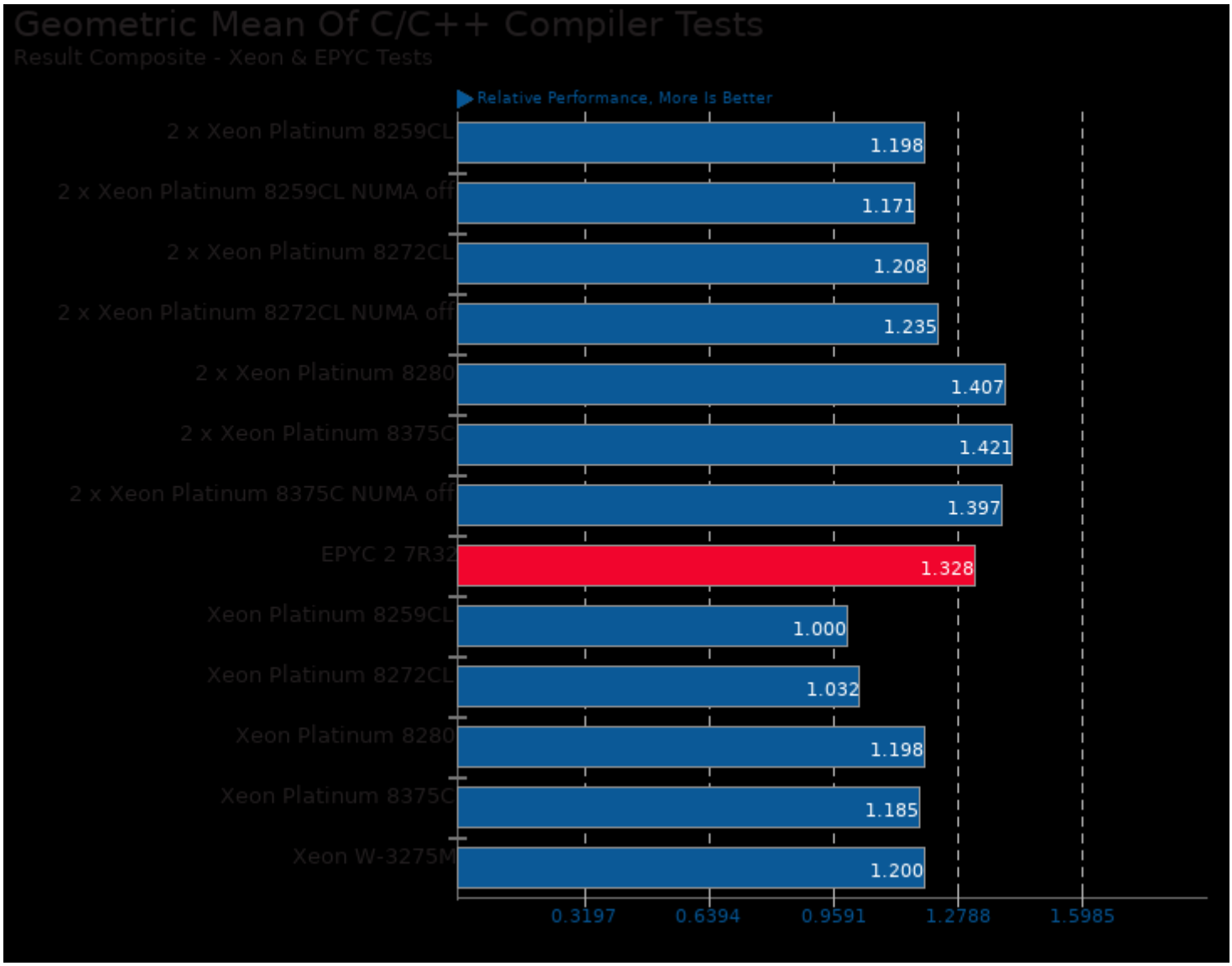
Geometric mean based upon tests: pts/himeno and pts/mrbayes



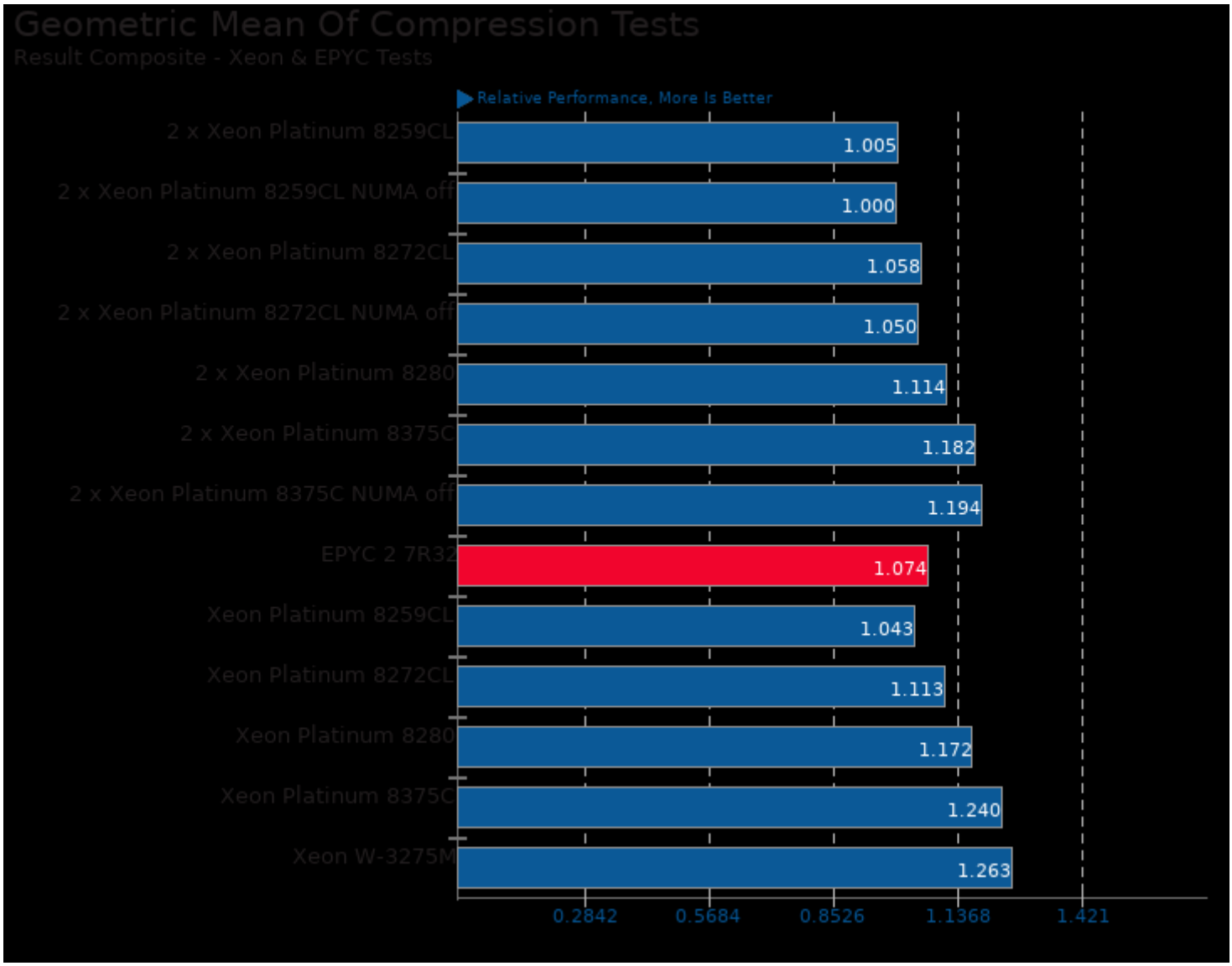
Geometric mean based upon tests: pts/stockfish and pts/asmfish



Geometric mean based upon tests: pts/build-linux-kernel, pts/build-gcc, pts/build-gdb, pts/build-llvm and pts/build2



Geometric mean based upon tests: pts/himeno, pts/stockfish, pts/build-llvm, pts/pgbench, pts/mrbayes, pts/john-the-ripper, pts/dav1d, pts/tungsten, pts/compress-zstd, pts/lammps, pts/svt-av1, pts/svt-vp9, pts/build-gdb, pts/smhasher, pts/basis and pts/nettle



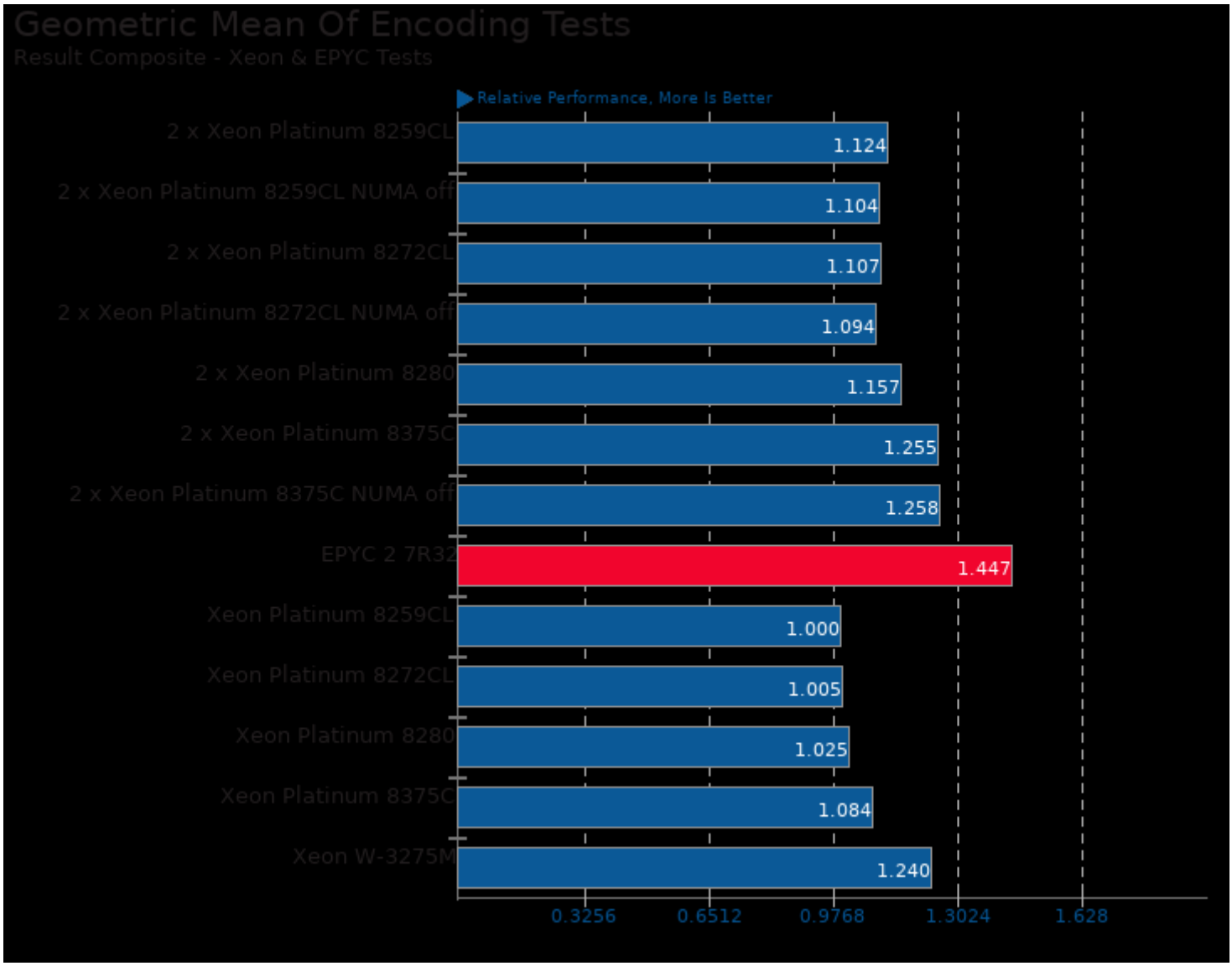
Geometric mean based upon tests: pts/compress-zstd and pts/lzbench



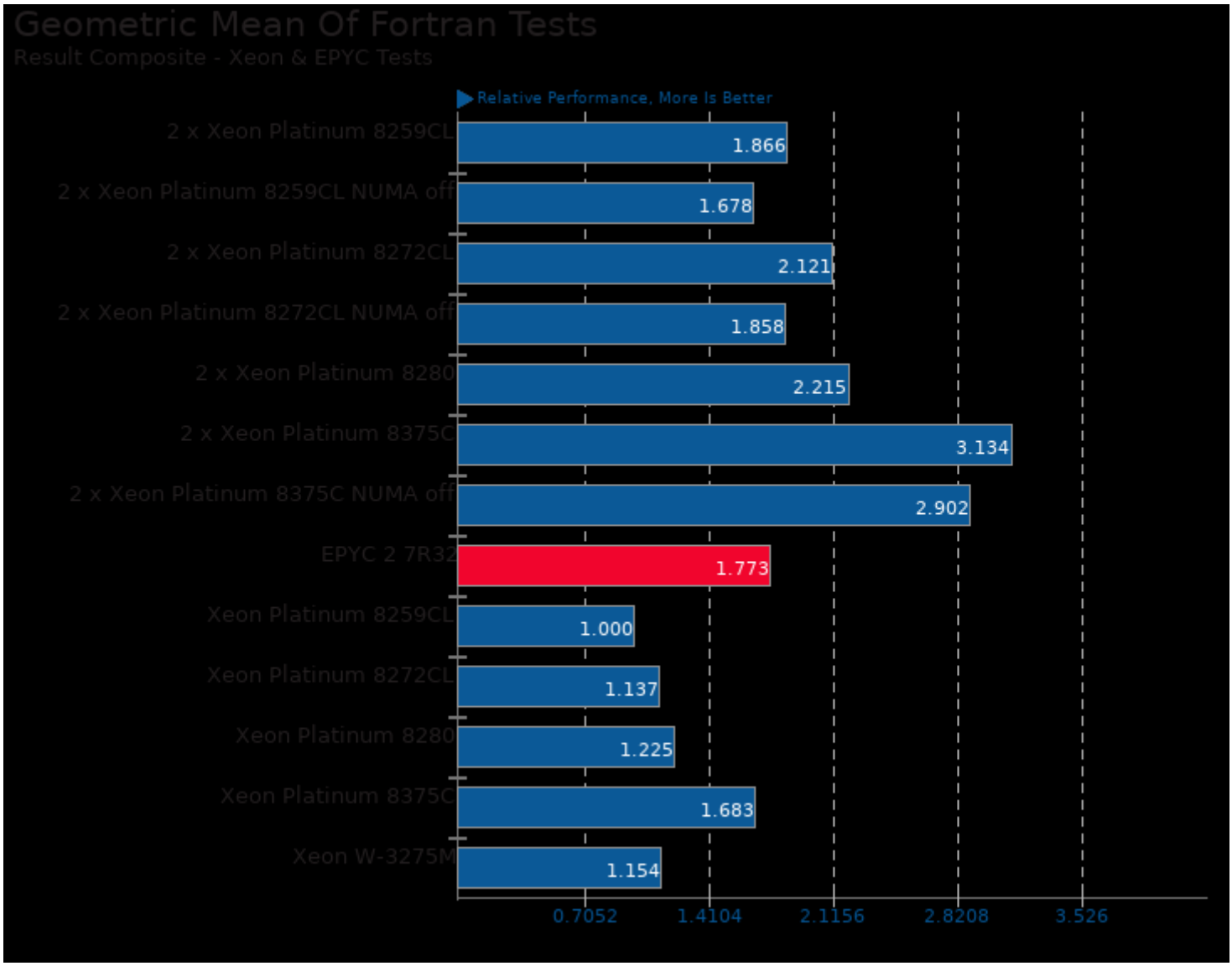
Geometric mean based upon tests: pts/ospray, pts/blender, pts/tungsten, pts/appleseed, pts/radiance, pts/luxcorerender, pts/v-ray, pts/svt-vp9, pts/dav1d, pts/svt-av1, pts/embree, pts/oidn, pts/basis and pts/deepspeech



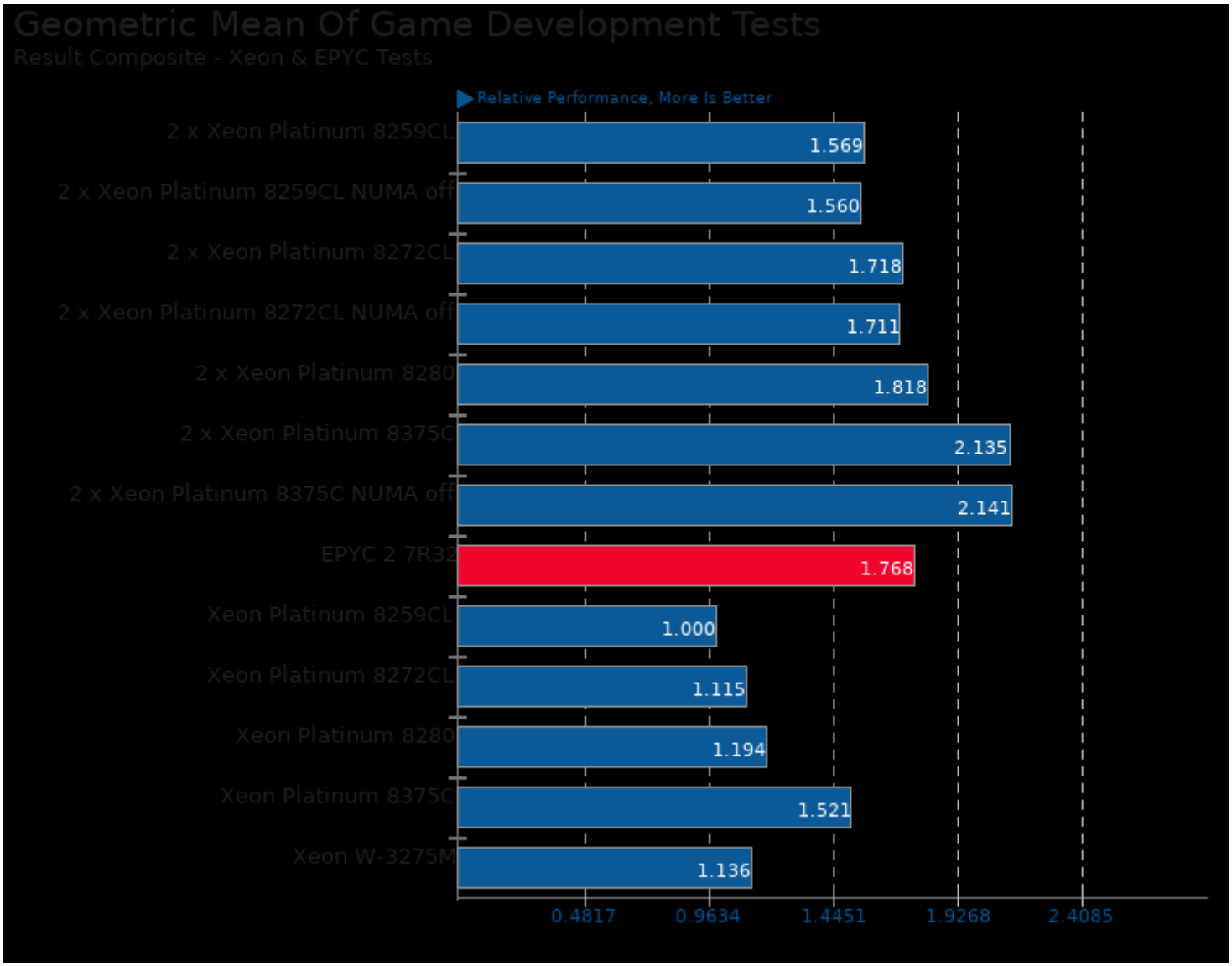
Geometric mean based upon tests: pts/john-the-ripper, pts/smhasher and pts/nettle



Geometric mean based upon tests: pts/svt-vp9, pts/dav1d and pts/svt-av1



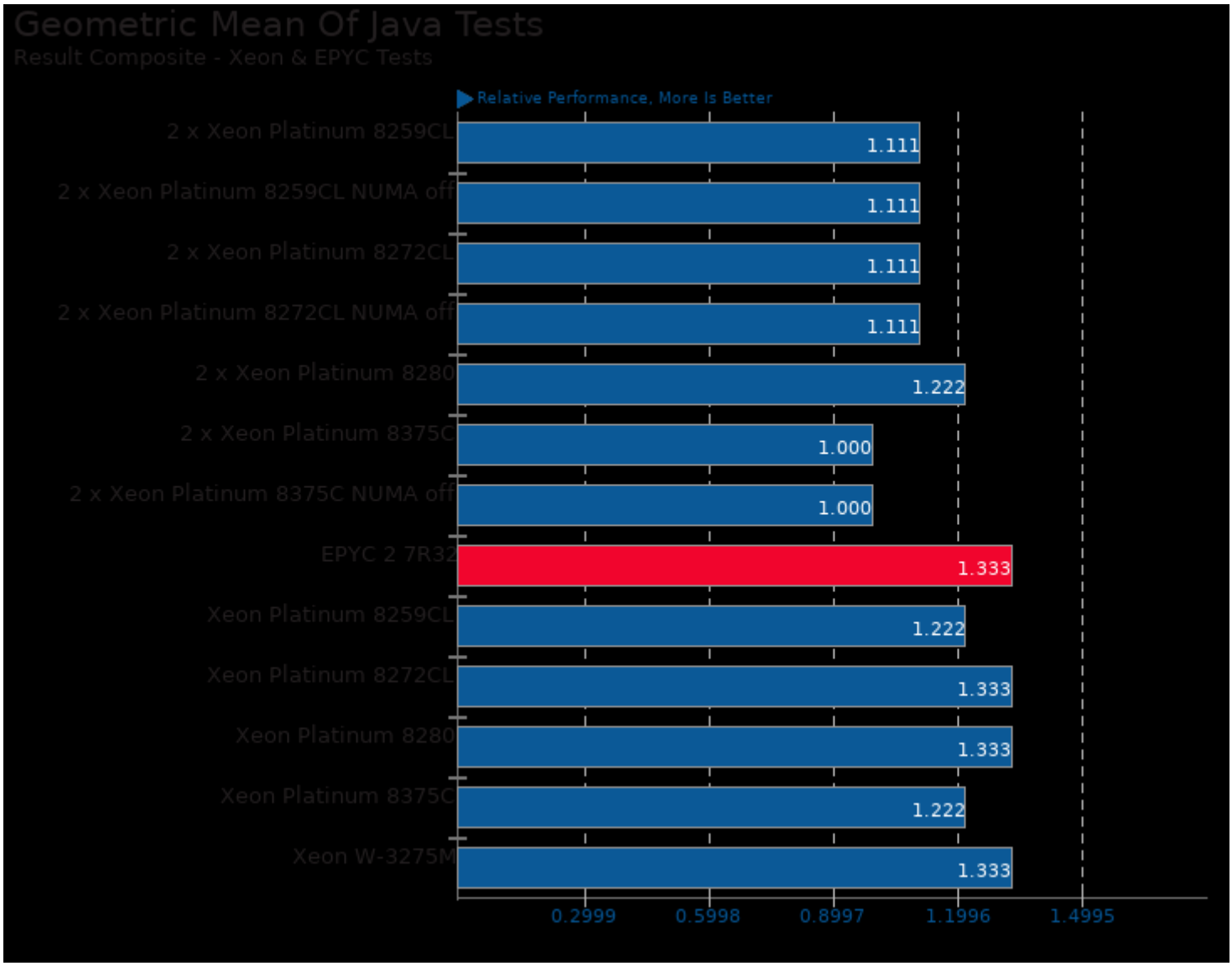
Geometric mean based upon tests: pts/hpcg, pts/npb, pts/cloverleaf and pts/lammps



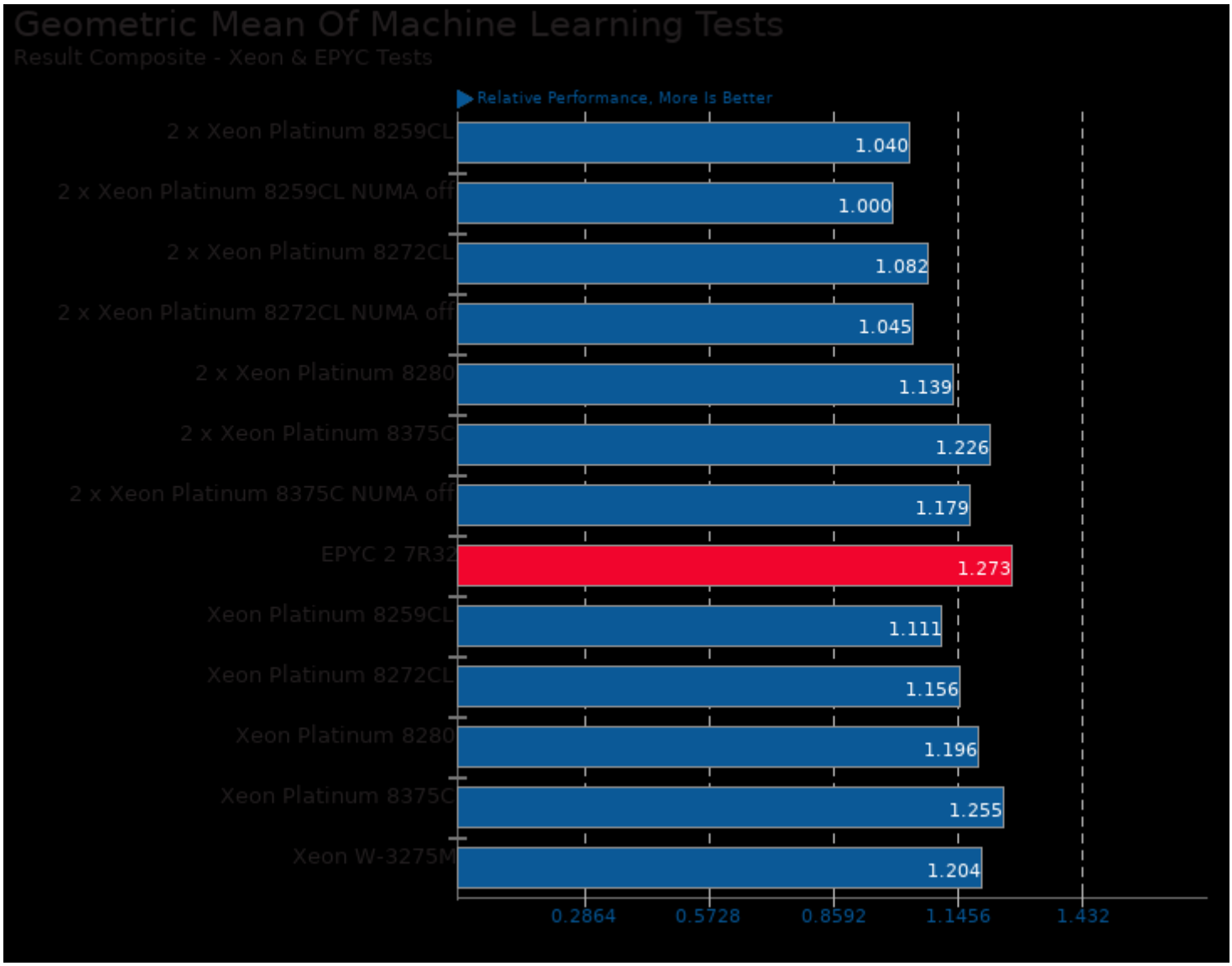
Geometric mean based upon tests: pts/basis, pts/blender and pts/oidn



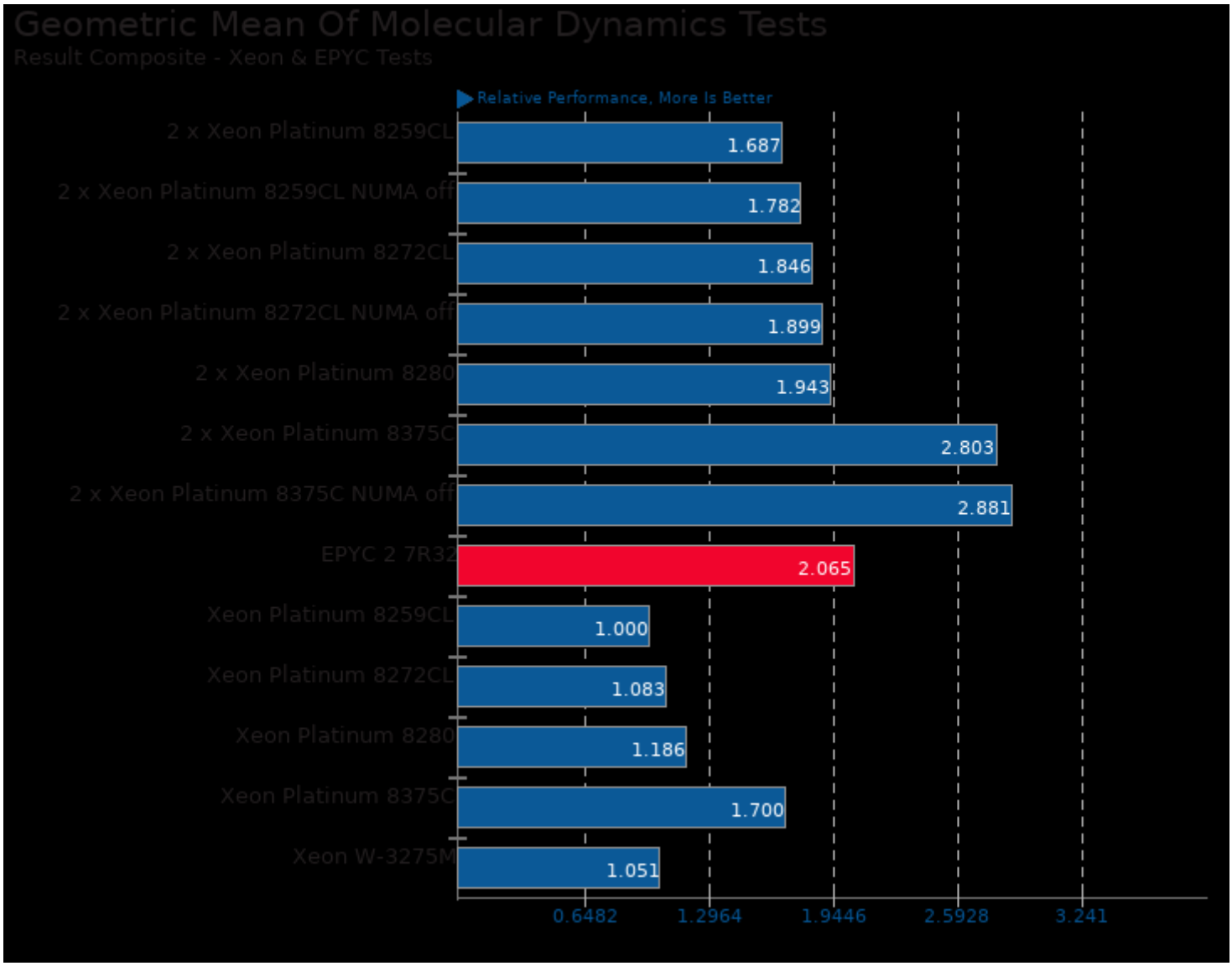
Geometric mean based upon tests: pts/npb, pts/hpcg, pts/intel-mpi, pts/arrayfire, pts/namd, pts/cloverleaf, pts/lammps, pts/himeno, pts/mrbayes, pts/numpy, pts/deepspeech, pts/scikit-learn and pts/mlpack



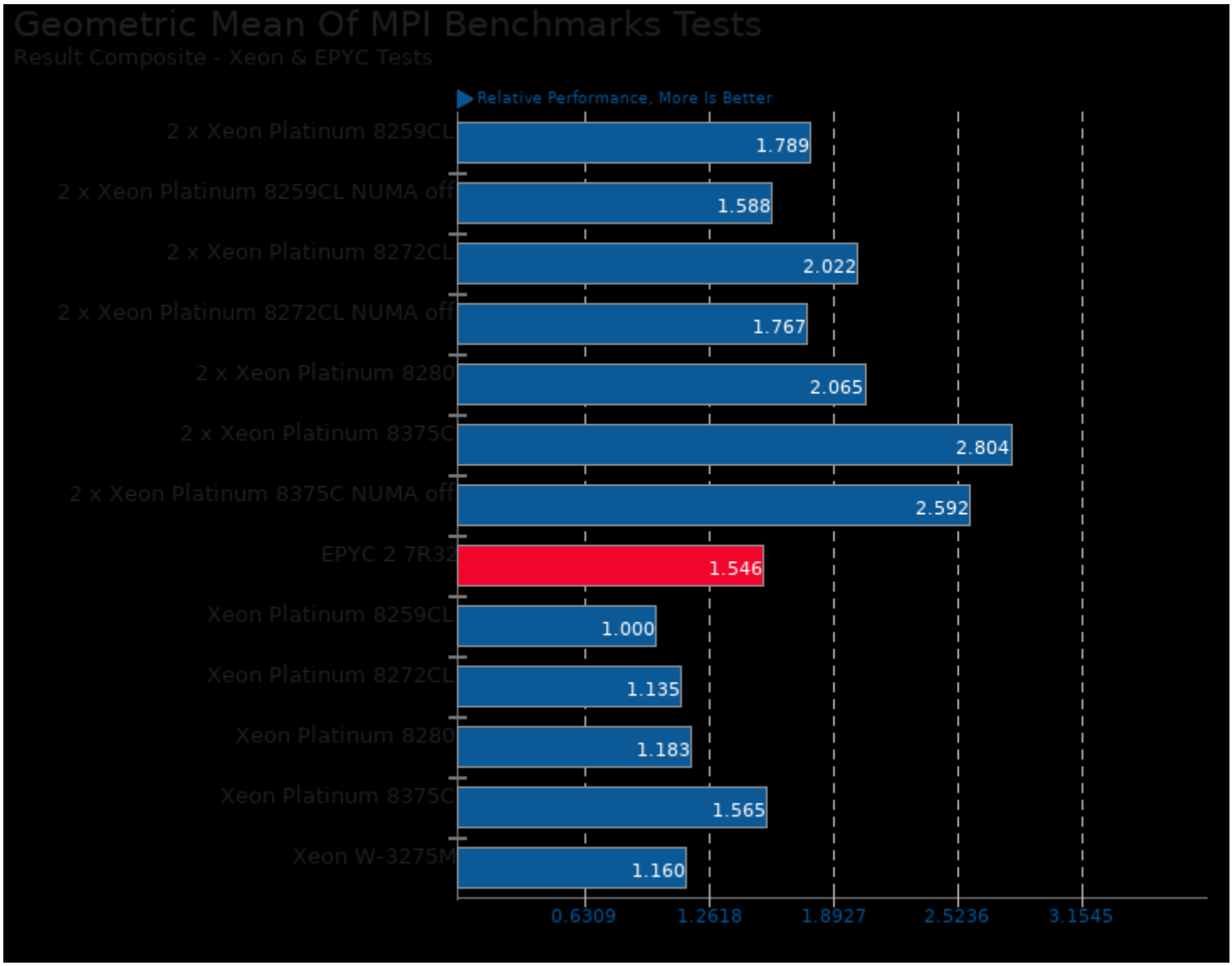
Geometric mean based upon tests: pts/dacapobench and pts/renaissance



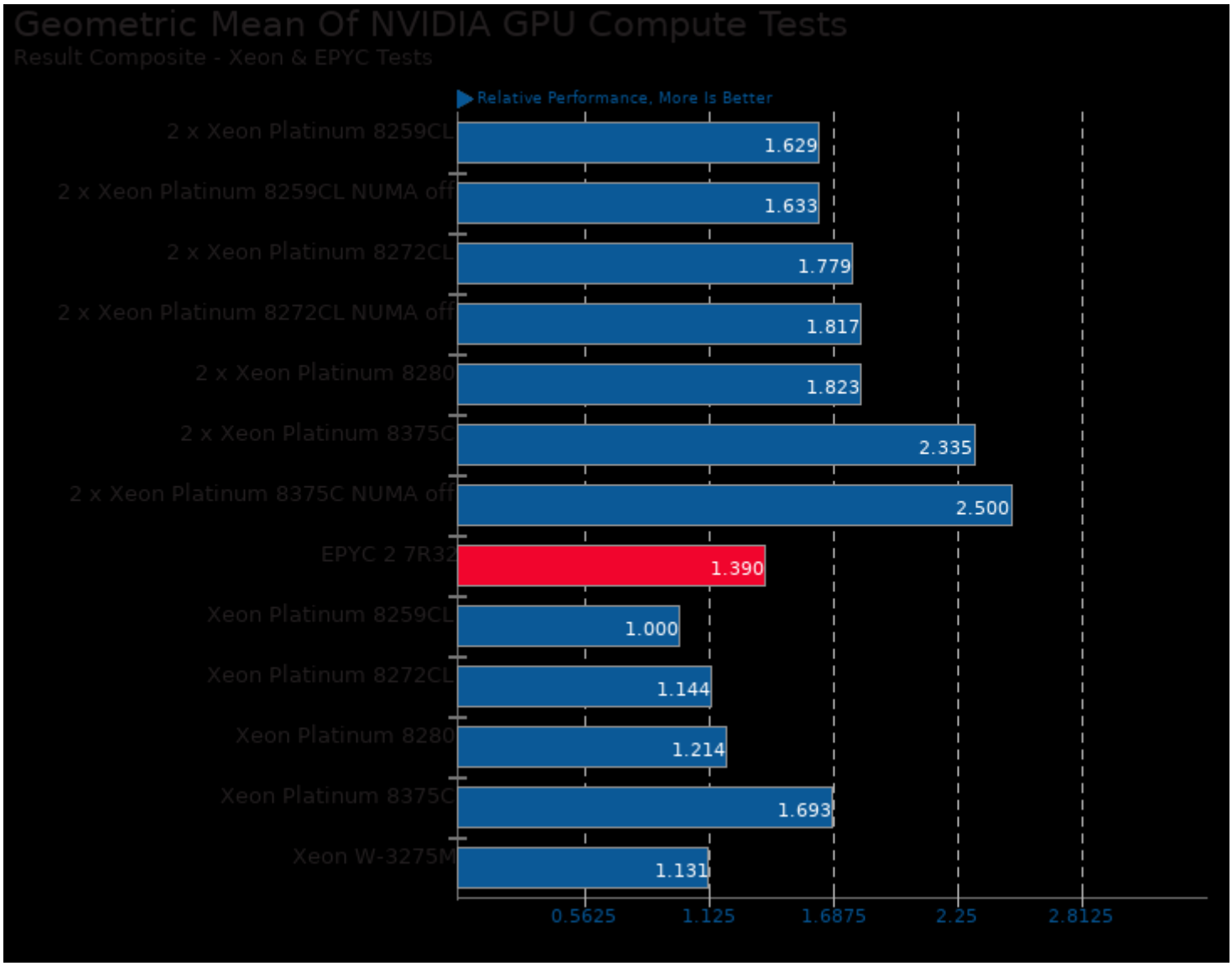
Geometric mean based upon tests: pts/numpy, pts/deepspeech, pts/scikit-learn and pts/mlpack



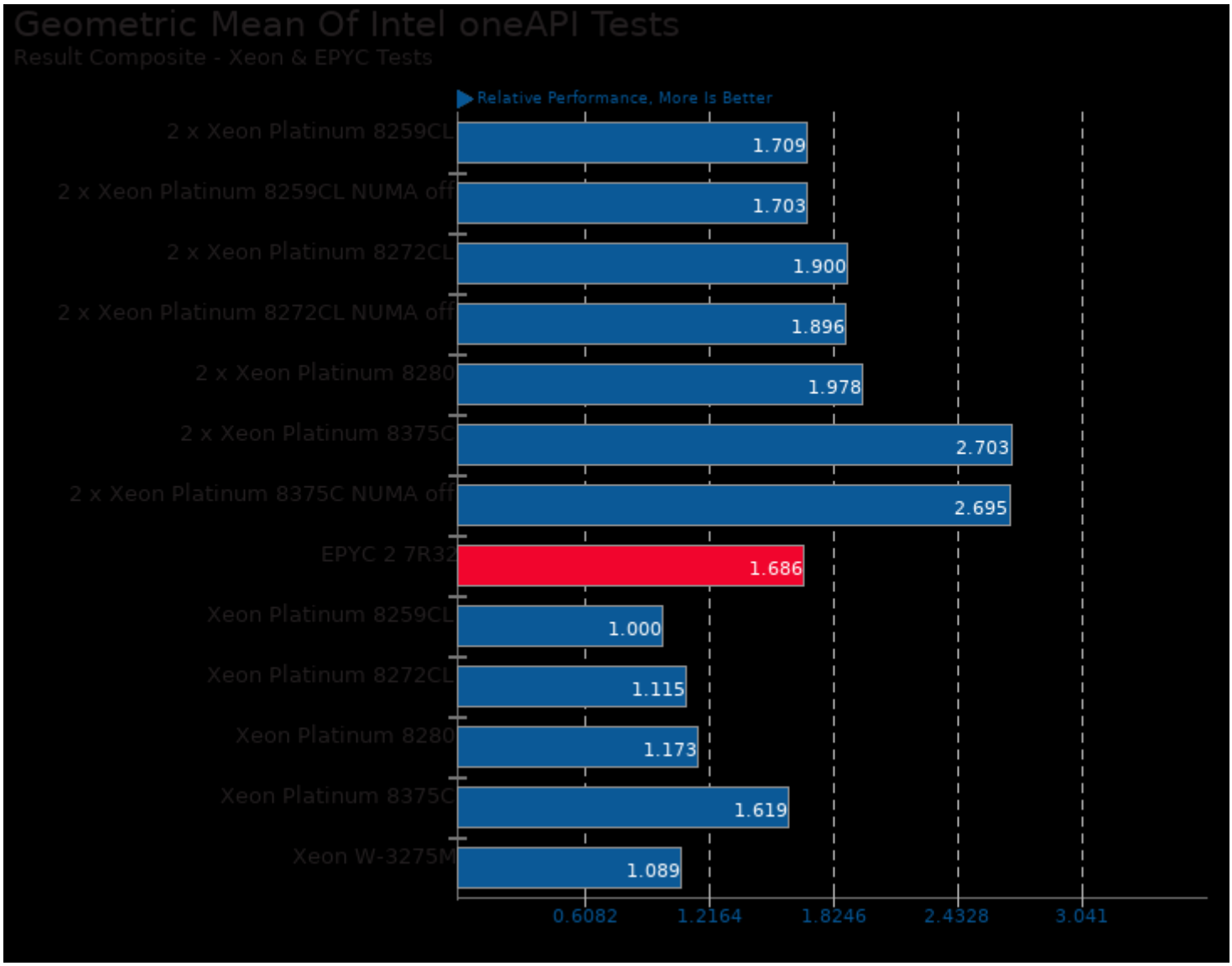
Geometric mean based upon tests: pts/namd, pts/cloverleaf and pts/lammps



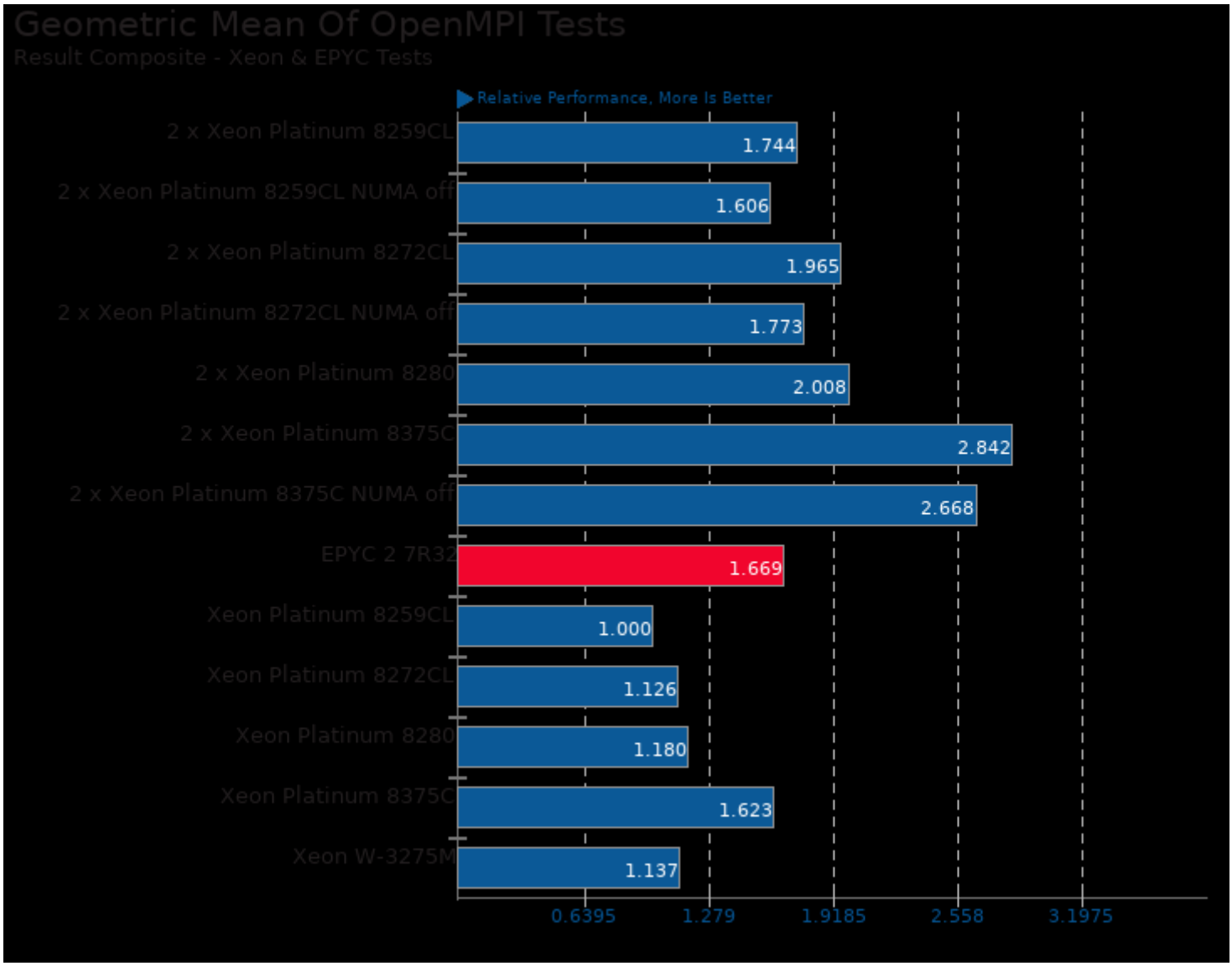
Geometric mean based upon tests: pts/lammps, pts/intel-mpi, pts/hpcg, pts/mrbayes and pts/npb



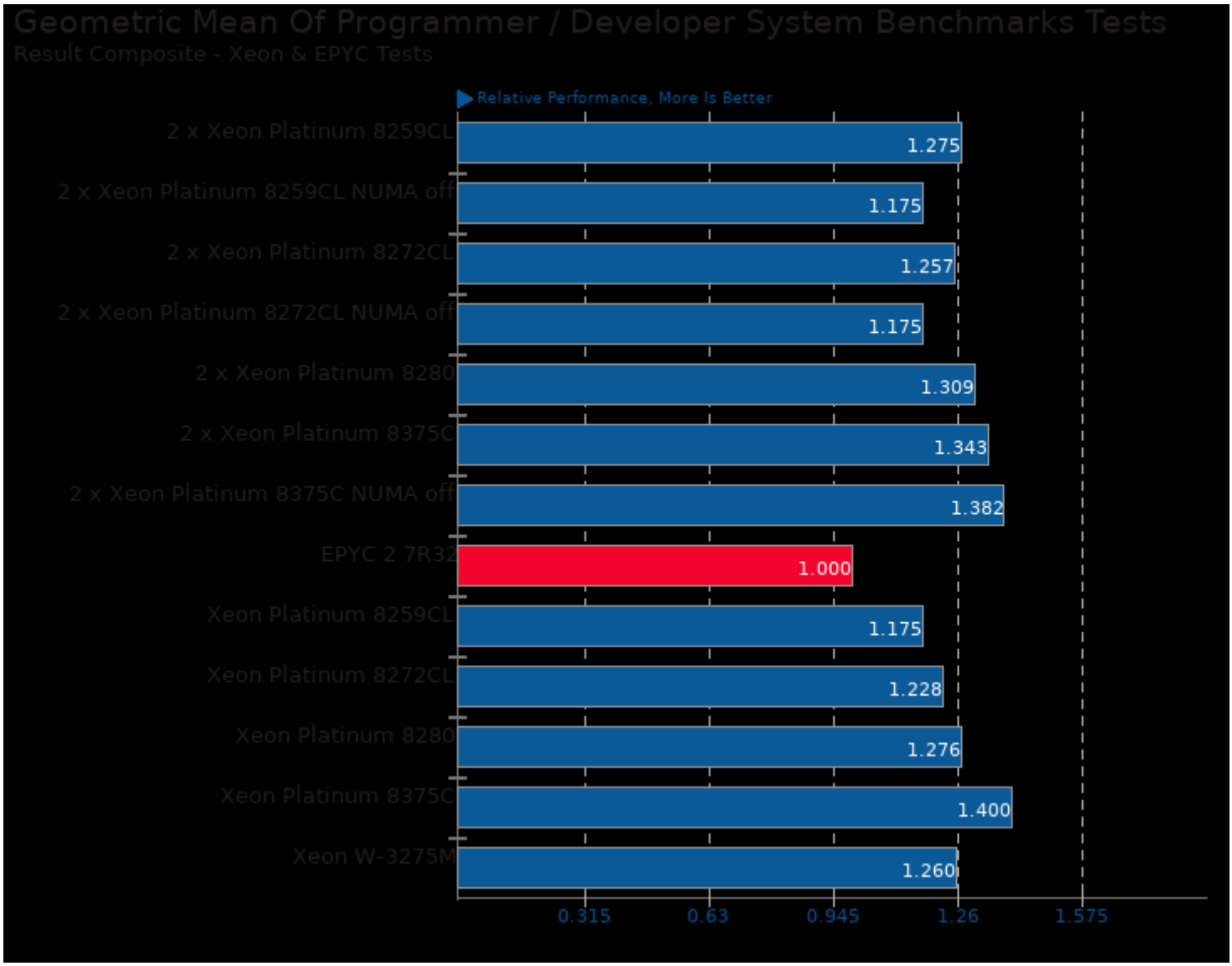
Geometric mean based upon tests: pts/luxcorerender, pts/arrayfire, pts/v-ray and pts/blender



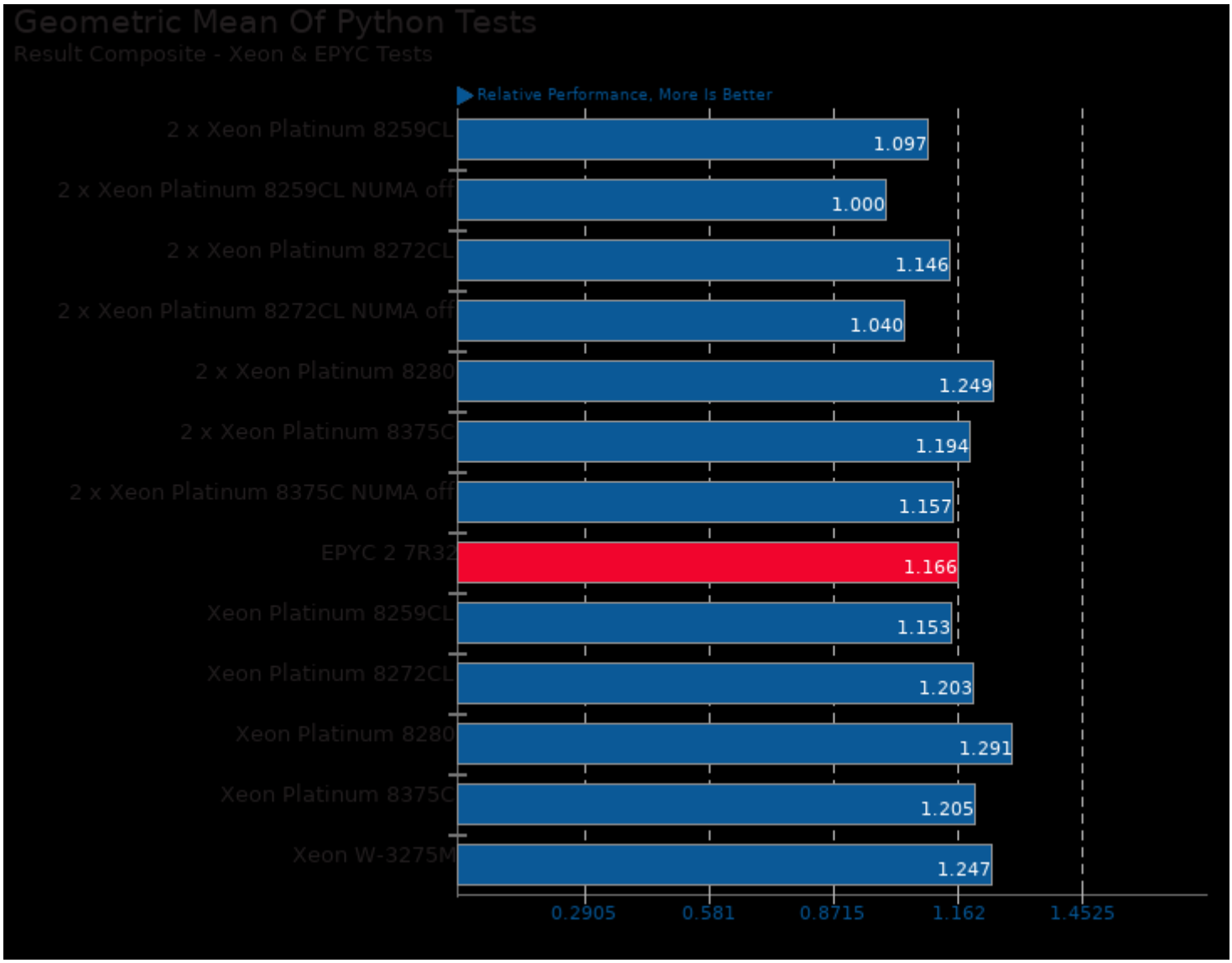
Geometric mean based upon tests: pts/embree, pts/oidn, pts/ospray and pts/tungsten



Geometric mean based upon tests: pts/hpcg, pts/npb, pts/cloverleaf, pts/mrbayes, pts/lammps and pts/intel-mpi



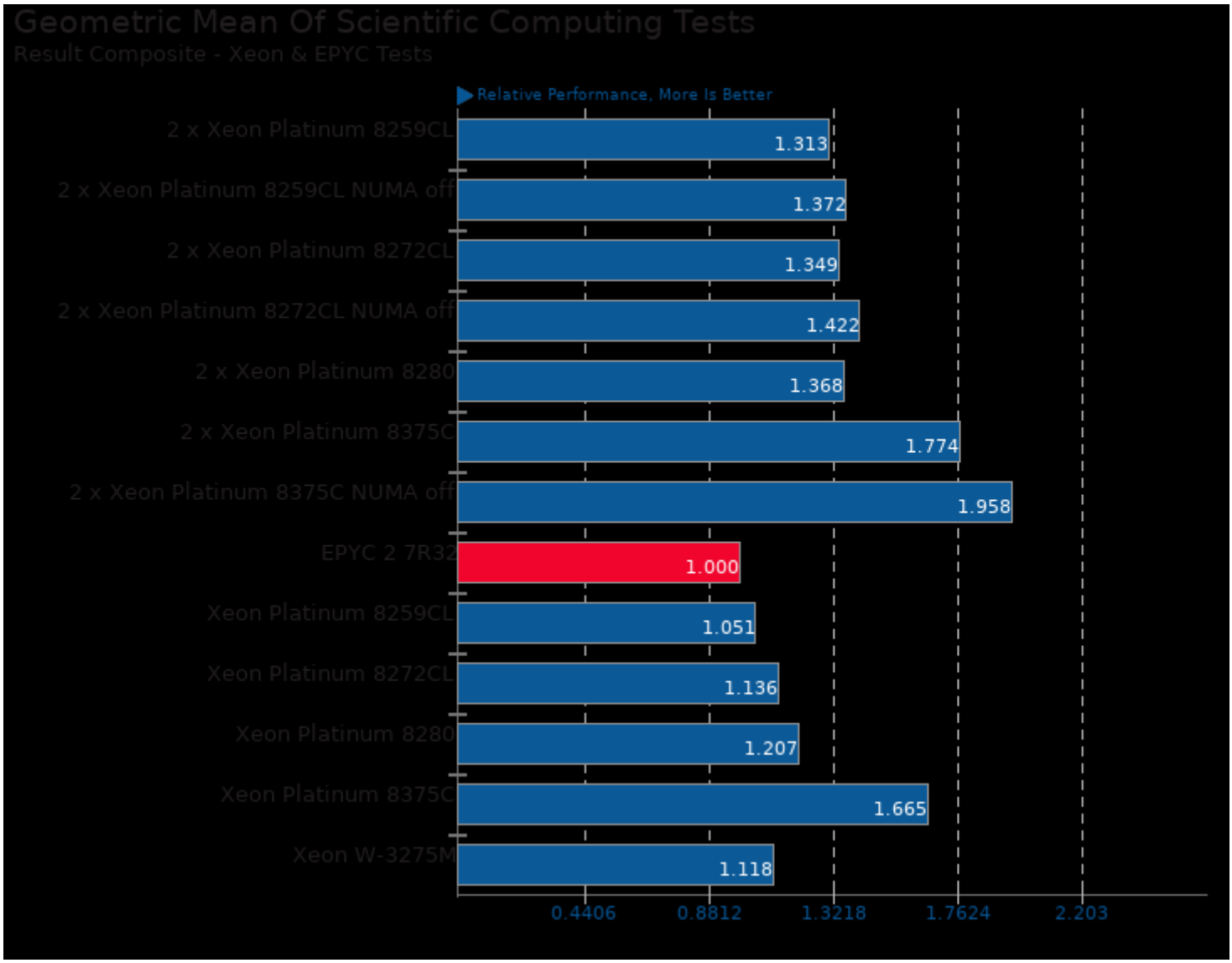
Geometric mean based upon tests: pts/compress-zstd, pts/pyperformance, pts/pybench, pts/build-linux-kernel, pts/build-gcc, pts/build-gdb, pts/build-llvm, pts/build2 and pts/arrayfire



Geometric mean based upon tests: pts/pybench, pts/numpy, pts/mlpack, pts/scikit-learn and pts/pyperformance



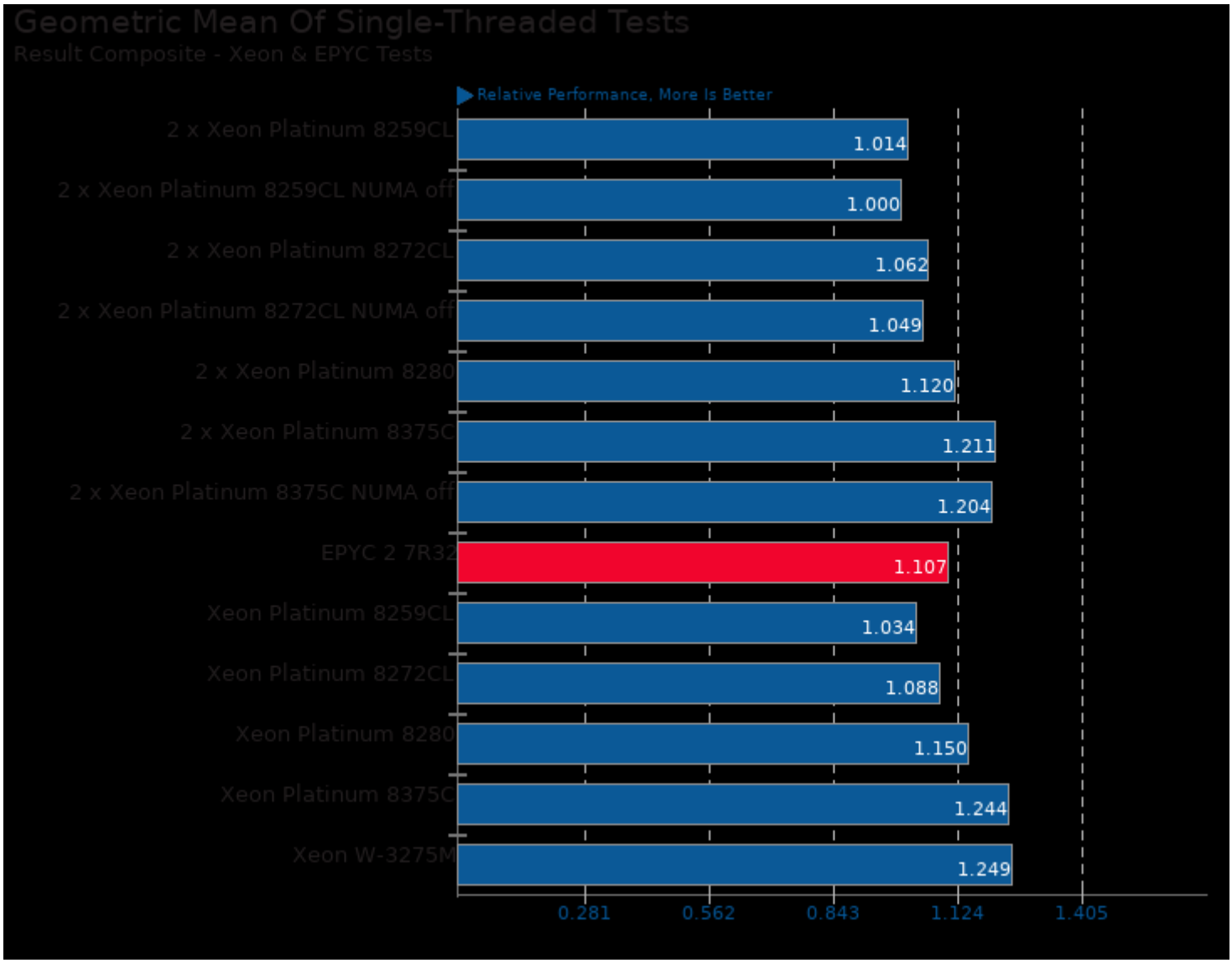
Geometric mean based upon tests: pts/ospray, pts/blender, pts/tungsten, pts/appleseed, pts/radiance, pts/luxcorerender and pts/v-ray



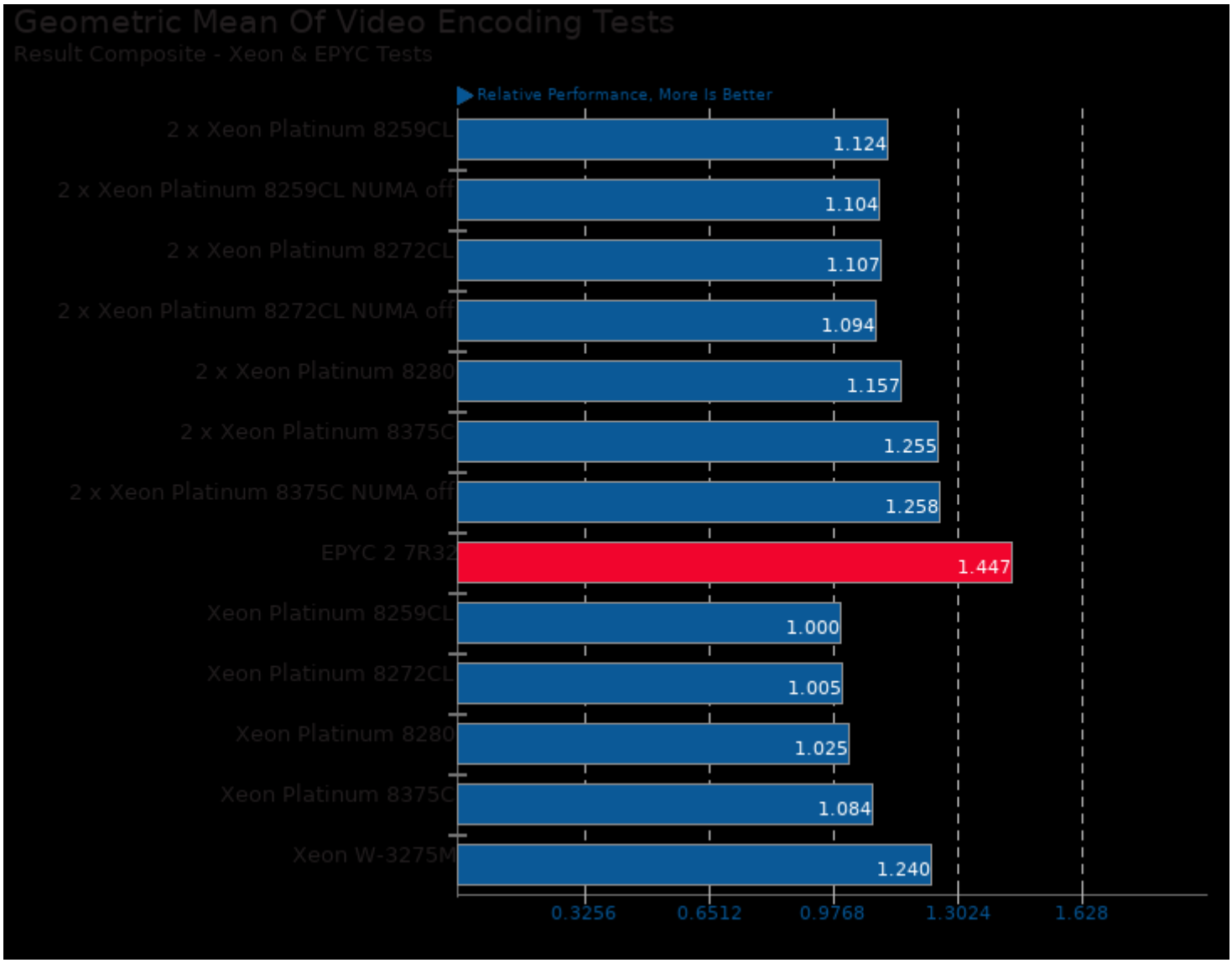
Geometric mean based upon tests: pts/arrayfire, pts/namd, pts/cloverleaf, pts/lammps, pts/himeno and pts/mrbayes



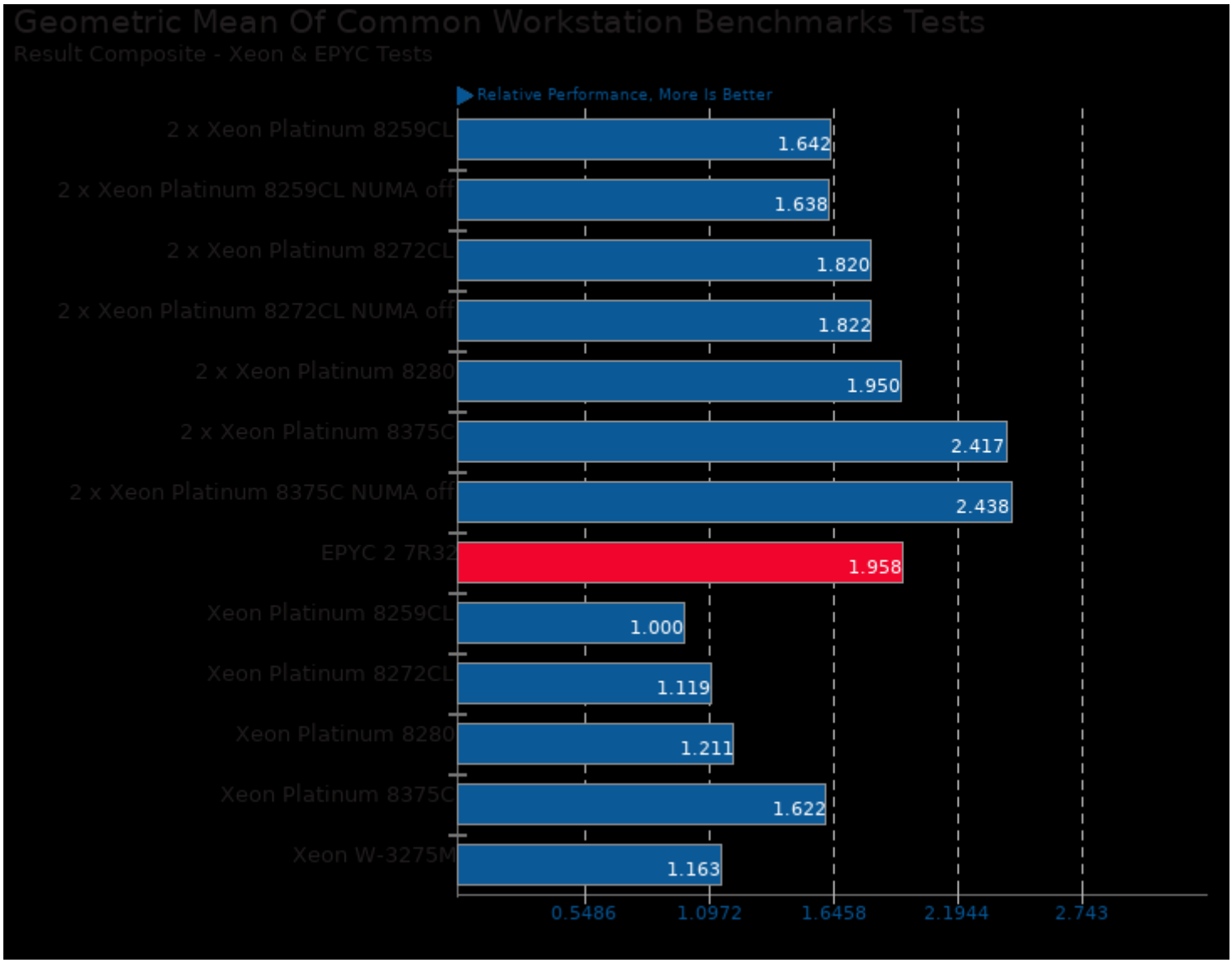
Geometric mean based upon tests: pts/pgbench and pts/phpbench



Geometric mean based upon tests: pts/lzbench, pts/numpy, pts/deepspeech, pts/radiance, pts/pybench and pts/phpbench



Geometric mean based upon tests: pts/svt-vp9, pts/dav1d and pts/svt-av1



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

This file was automatically generated via the Phoronix Test Suite benchmarking software on Thursday, 28 March 2024 22:16.