



## Aventinus

2 x AMD EPYC 7742 64-Core testing with a Supermicro H11DSi-NT v2.00 (2.1 BIOS) and ASPEED on Ubuntu 20.04 via the Phoronix Test Suite.

### Automated Executive Summary

*EPYC 7742 2P had the most wins, coming in first place for 69% of the tests.*

*Based on the geometric mean of all complete results, the fastest (EPYC 7742 2P) was 1.25x the speed of the slowest (Xeon Platinum 8280 2P).*

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

*Stream-Dynamic ( - Triad) at 3.287x*

*Stream-Dynamic ( - Add) at 3.251x*

*Stream-Dynamic ( - Copy) at 3.191x*

*Stream-Dynamic ( - Scale) at 3.175x*

*Hackbench (Count: 32 - Type: Process) at 2.705x*

*Timed HMMer Search (Pfam Database Search) at 2.389x*

*Coremark (CoreMark Size 666 - Iterations Per Second) at 2.319x*

*toyBrot Fractal Generator (Implementation: TBB) at 2.257x*

*toyBrot Fractal Generator (Implementation: C++ Threads) at 2.25x*

*toyBrot Fractal Generator (Implementation: C++ Tasks) at 2.218x.*

## Test Systems:

### Xeon Platinum 8280 2P

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: 3841GB Micron\_9300\_MTFDHAL3T8TDP, Graphics: llvmpipe, Monitor: VE228, Network: 2 x Intel X722 for 1GbE + 2 x QLogic FastLinQ QL41000 10/25/40/50GbE

OS: Ubuntu 20.04, Kernel: 5.8.0-44-generic (x86\_64), Desktop: GNOME Shell 3.36.4, Display Server: X Server 1.20.8, OpenGL: 4.5 Mesa 20.2.6 (LLVM 11.0.0 256 bits), Compiler: GCC 9.3.0, File-System: ext4, Screen Resolution: 1920x1080

Kernel Notes: Transparent Huge Pages: madvise

Compiler Notes: --build=x86\_64-linux-gnu --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-9-HskZEa/gcc-9-9.3.0/debian/tmp-nvptx/usr,hsa --enable-plugin --enable-shared --enable-threads=posix --host=x86\_64-linux-gnu --program-prefix=x86\_64-linux-gnu- --target=x86\_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v

Processor Notes: Scaling Governor: intel\_pstate performance - CPU Microcode: 0x5003003

Python Notes: Python 2.7.18 + Python 3.8.5

Security Notes: itlb\_multihit: KVM: Mitigation of VMX disabled + 11tf: Not affected + mds: Not affected + meltdown: Not affected + spec\_store\_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre\_v1: Mitigation of usercopy/swaps 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

### EPYC 7742 2P

Processor: 2 x AMD EPYC 7742 64-Core @ 2.25GHz (128 Cores / 256 Threads), Motherboard: Supermicro H11DSi-NT v2.00 (2.1 BIOS), Chipset: AMD Starship/Matisse, Memory: 16 x 8192 MB DDR4-3200MT/s HMA81GR7CJR8N-XN, Disk: 3841GB Micron\_9300\_MTFDHAL3T8TDP, Graphics: ASPEED, Monitor: VE228, Network: 2 x Intel 10G X550T

OS: Ubuntu 20.04, Kernel: 5.8.0-44-generic (x86\_64), Desktop: GNOME Shell 3.36.4, Display Server: X Server 1.20.8, Compiler: GCC 9.3.0, File-System: ext4, Screen Resolution: 1920x1080

Kernel Notes: Transparent Huge Pages: madvise

Compiler Notes: --build=x86\_64-linux-gnu --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-9-HskZEa/gcc-9-9.3.0/debian/tmp-nvptx/usr,hsa --enable-plugin --enable-shared --enable-threads=posix --host=x86\_64-linux-gnu --program-prefix=x86\_64-linux-gnu- --target=x86\_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v

Processor Notes: Scaling Governor: acpi-cpufreq performance (Boost: Enabled) - CPU Microcode: 0x8301034

Python Notes: Python 2.7.18 + Python 3.8.5

Security Notes: itlb\_multihit: Not affected + 11tf: Not affected + mds: Not affected + meltdown: Not affected + spec\_store\_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre\_v1: Mitigation of usercopy/swaps 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 Platinum 8280 2P**

**EPYC 7742 2P**

<b>Stream-Dynamic - - Copy (MB/s)</b>	<b>51085</b>	<b>163022</b>
Normalized	31.34%	100%
Standard Deviation	1.1%	0.1%
<b>Stream-Dynamic - - Scale (MB/s)</b>	<b>50592</b>	<b>160640</b>
Normalized	31.49%	100%
Standard Deviation	1%	0.1%
<b>Stream-Dynamic - - Add (MB/s)</b>	<b>54993</b>	<b>178769</b>
Normalized	30.76%	100%
Standard Deviation	0.9%	0%
<b>Stream-Dynamic - - Triad (MB/s)</b>	<b>54827</b>	<b>180208</b>
Normalized	30.42%	100%
Standard Deviation	0.9%	0.1%
<b>High Performance Conjugate Gradient (GFLOP/s)</b>	<b>28.9314</b>	<b>26.8348</b>
Normalized	100%	92.75%
Standard Deviation	0.6%	0.1%
<b>NAS Parallel Benchmarks - EP.C (Mop/s)</b>	<b>5508</b>	<b>8313</b>
Normalized	66.26%	100%
Standard Deviation	2.2%	1.4%
<b>NAS Parallel Benchmarks - EP.D (Mop/s)</b>	<b>6368</b>	<b>8404</b>
Normalized	75.77%	100%
Standard Deviation	2.2%	0.5%
<b>NAS Parallel Benchmarks - LU.C (Mop/s)</b>	<b>139131</b>	<b>194906</b>
Normalized	71.38%	100%
Standard Deviation	0.4%	0.7%
<b>CloverLeaf - L.E.H (sec)</b>	<b>17.06</b>	<b>23.35</b>
Normalized	100%	73.06%
Standard Deviation	0.7%	7.2%
<b>NAMD - ATPase Simulation - 327,506 Atoms (days/ns)</b>	<b>0.36761</b>	<b>0.27135</b>
Normalized	73.81%	100%
Standard Deviation	0.6%	2.3%
<b>Dolfyn - C.F.D (sec)</b>	<b>20.985</b>	<b>20.273</b>
Normalized	96.61%	100%
Standard Deviation	1%	0.2%
<b>toyBrot Fractal Generator - TBB (ms)</b>	<b>8850</b>	<b>3921</b>
Normalized	44.31%	100%
Standard Deviation	1.1%	2.2%
<b>toyBrot Fractal Generator - OpenMP (ms)</b>	<b>9225</b>	<b>5142</b>
Normalized	55.74%	100%
Standard Deviation	0%	6.1%
<b>toyBrot Fractal Generator - C++ Tasks (ms)</b>	<b>9410</b>	<b>4243</b>
Normalized	45.09%	100%
Standard Deviation	1.1%	0.6%
<b>toyBrot Fractal Generator - C++ Threads (ms)</b>	<b>9059</b>	<b>4027</b>
Normalized	44.45%	100%
Standard Deviation	0.5%	0.3%
<b>Algebraic Multi-Grid Benchmark (Figure Of Merit)</b>	<b>1483686333</b>	<b>1251105333</b>
Normalized	100%	84.32%
Standard Deviation	0.4%	0.1%
<b>Timed HMMer Search - P.D.S (sec)</b>	<b>164.838</b>	<b>393.760</b>
Normalized	100%	41.86%
Standard Deviation	0.1%	3.1%
<b>OpenFOAM - Motorbike 30M (sec)</b>	<b>21.33</b>	<b>14.14</b>
Normalized	66.29%	100%
Standard Deviation	0.4%	0.7%

<b>LAMMPS Molecular Dynamics Simulator - 20k Atoms (ns/day)</b>	<b>25.101</b>	<b>32.016</b>
Normalized	78.4%	100%
Standard Deviation	0.1%	0%
<b>LAMMPS Molecular Dynamics Simulator - Rhodopsin Protein (ns/day)</b>	<b>20.880</b>	<b>29.504</b>
Normalized	70.77%	100%
Standard Deviation	6.9%	0.5%
<b>Zstd Compression - 3 - Compression Speed (MB/s)</b>	<b>3217</b>	<b>4468</b>
Normalized	72%	100%
Standard Deviation	0.7%	8.8%
<b>Zstd Compression - 8 - Compression Speed (MB/s)</b>	<b>1254</b>	<b>2090</b>
Normalized	59.99%	100%
Standard Deviation	4.7%	18.8%
<b>Zstd Compression - 8 - D.S (MB/s)</b>	<b>2677</b>	<b>2972</b>
Normalized	90.09%	100%
Standard Deviation	0.4%	1.1%
<b>Zstd Compression - 19 - Compression Speed (MB/s)</b>	<b>77.2</b>	<b>69.7</b>
Normalized	100%	90.28%
Standard Deviation	0.5%	7.2%
<b>Zstd Compression - 19 - D.S (MB/s)</b>	<b>2347</b>	<b>2789</b>
Normalized	84.18%	100%
Standard Deviation	0.7%	0.3%
<b>Zstd Compression - 3, Long Mode - Compression Speed (MB/s)</b>	<b>786.7</b>	<b>635.7</b>
Normalized	100%	80.81%
Standard Deviation	1%	9.4%
<b>Zstd Compression - 3, Long Mode - D.S (MB/s)</b>	<b>2855</b>	<b>3081</b>
Normalized	92.66%	100%
Standard Deviation	1%	0.6%
<b>Zstd Compression - 8, Long Mode - Compression Speed (MB/s)</b>	<b>729.0</b>	<b>565.2</b>
Normalized	100%	77.53%
Standard Deviation	2.5%	1.8%
<b>Zstd Compression - 8, Long Mode - D.S (MB/s)</b>	<b>2798</b>	<b>3198</b>
Normalized	87.5%	100%
Standard Deviation	0.3%	0.2%
<b>Zstd Compression - 19, Long Mode - Compression Speed (MB/s)</b>	<b>41.2</b>	<b>34.3</b>
Normalized	100%	83.25%
Standard Deviation	1.5%	8%
<b>Zstd Compression - 19, Long Mode - D.S (MB/s)</b>	<b>2354</b>	<b>2824</b>
Normalized	83.37%	100%
Standard Deviation	1%	0.4%
<b>JPEG XL - PNG - 7 (MP/s)</b>	<b>8.52</b>	<b>9.85</b>
Normalized	86.5%	100%
Standard Deviation	0.2%	0.4%
<b>JPEG XL - JPEG - 7 (MP/s)</b>	<b>49.03</b>	<b>52.12</b>
Normalized	94.07%	100%
Standard Deviation	0.1%	1.8%
<b>Crafty - Elapsed Time (Nodes/s)</b>	<b>7701218</b>	<b>6907690</b>
Normalized	100%	89.7%
Standard Deviation	0.3%	0.1%
<b>John The Ripper - Blowfish (Real C/S)</b>	<b>84619</b>	<b>147909</b>

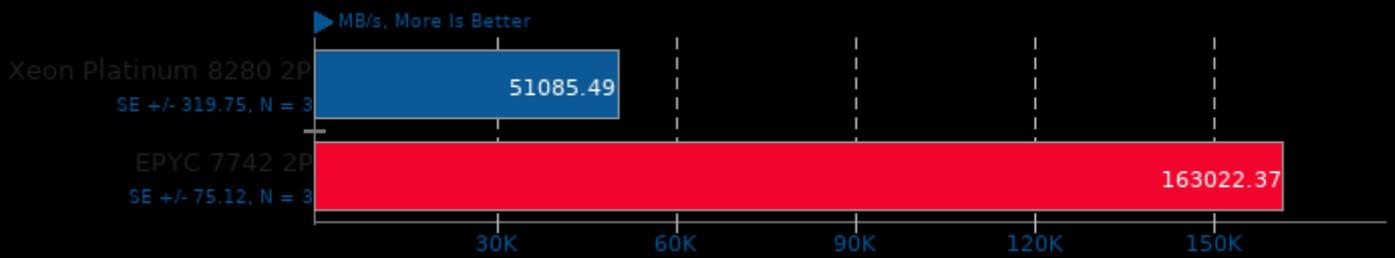
	Normalized	57.21%	100%
	Standard Deviation	0.1%	0.9%
<b>John The Ripper - MD5 (Real C/S)</b>		<b>8083333</b>	<b>8613333</b>
	Normalized	93.85%	100%
	Standard Deviation	0.5%	0.5%
<b>dav1d - Summer Nature 4K (FPS)</b>		<b>391.21</b>	<b>392.83</b>
	Normalized	99.59%	100%
	Standard Deviation	1.4%	2.3%
<b>dav1d - S.N.1 (FPS)</b>		<b>1005</b>	<b>1179</b>
	Normalized	85.17%	100%
	Standard Deviation	0.8%	7%
<b>Embree - Pathtracer - Crown (FPS)</b>		<b>51.1024</b>	<b>68.2899</b>
	Normalized	74.83%	100%
	Standard Deviation	2.5%	1.2%
<b>Embree - Pathtracer ISPC - Crown (FPS)</b>		<b>54.3067</b>	<b>60.1255</b>
	Normalized	90.32%	100%
	Standard Deviation	2.1%	0.2%
<b>Embree - Pathtracer - Asian Dragon (FPS)</b>		<b>59.4582</b>	<b>45.1599</b>
	Normalized	100%	75.95%
	Standard Deviation	2.5%	1%
<b>Embree - Pathtracer ISPC - Asian Dragon (FPS)</b>		<b>70.1554</b>	<b>42.7696</b>
	Normalized	100%	60.96%
	Standard Deviation	1.9%	0.9%
<b>SVT-VP9 - VMAF Optimized - Bosphorus 1080p (FPS)</b>		<b>352.90</b>	<b>340.88</b>
	Normalized	100%	96.59%
	Standard Deviation	12.7%	13.1%
<b>SVT-VP9 - P.S.O - Bosphorus 1080p (FPS)</b>		<b>371.64</b>	<b>360.35</b>
	Normalized	100%	96.96%
	Standard Deviation	1.4%	1.6%
<b>SVT-VP9 - V.Q.O - Bosphorus 1080p (FPS)</b>		<b>310.89</b>	<b>284.44</b>
	Normalized	100%	91.49%
	Standard Deviation	0.6%	2%
<b>Coremark - CoreMark Size 666 - I.P.S (Iterations/Sec)</b>		<b>1705556</b>	<b>3954674</b>
	Normalized	43.13%	100%
	Standard Deviation	0.8%	0.6%
<b>LuxCoreRender - DLSC (M samples/sec)</b>		<b>7.34</b>	<b>14.94</b>
	Normalized	49.13%	100%
	Standard Deviation	0.4%	1%
<b>LuxCoreRender - R.C.a.P (M samples/sec)</b>		<b>7.80</b>	<b>16.88</b>
	Normalized	46.21%	100%
	Standard Deviation	2.3%	0.6%
<b>7-Zip Compression - C.S.T (MIPS)</b>		<b>232054</b>	<b>338882</b>
	Normalized	68.48%	100%
	Standard Deviation	2.5%	2.4%
<b>Stockfish - Total Time (Nodes/s)</b>		<b>94937653</b>	<b>192504728</b>
	Normalized	49.32%	100%
	Standard Deviation	2.4%	3.6%
<b>libavif avifenc - 2 (sec)</b>		<b>33.628</b>	<b>32.105</b>
	Normalized	95.47%	100%
	Standard Deviation	1.2%	0.8%
<b>libavif avifenc - 6, Lossless (sec)</b>		<b>35.035</b>	<b>34.997</b>
	Normalized	99.89%	100%
	Standard Deviation	2%	0.8%

<b>Timed Godot Game Engine Compilation - Time To Compile (sec)</b>	<b>58.449</b>	<b>60.935</b>
Normalized	100%	95.92%
Standard Deviation	0.9%	0.9%
<b>Timed Linux Kernel Compilation - Time To Compile</b>	<b>28.281</b>	<b>21.507</b>
Normalized	76.05%	100%
Standard Deviation	2.3%	2.9%
<b>Timed LLVM Compilation - Time To Compile (sec)</b>	<b>222.184</b>	<b>199.197</b>
Normalized	89.65%	100%
Standard Deviation	0.5%	1%
<b>Build2 - Time To Compile (sec)</b>	<b>62.855</b>	<b>64.260</b>
Normalized	100%	97.81%
Standard Deviation	0.4%	1.2%
<b>C-Ray - Total Time - 4.1.R.P.P (sec)</b>	<b>15.453</b>	<b>7.208</b>
Normalized	46.64%	100%
Standard Deviation	10.9%	11%
<b>Smallpt - G.I.R.1.S (sec)</b>	2.529	
Standard Deviation	1.8%	
<b>Timed Erlang/OTP Compilation - Time To Compile</b>	<b>110.244</b>	<b>195.346</b>
Normalized	100%	56.44%
Standard Deviation	0.4%	3.7%
<b>Timed Wasmer Compilation - Time To Compile (sec)</b>	<b>66.873</b>	<b>68.885</b>
Normalized	100%	97.08%
Standard Deviation	2.3%	0.3%
<b>Hackbench - 32 - Process (sec)</b>	<b>39.109</b>	<b>14.457</b>
Normalized	36.97%	100%
Standard Deviation	0.5%	4.9%
<b>Tachyon - Total Time (sec)</b>	<b>22.1106</b>	<b>10.0425</b>
Normalized	45.42%	100%
Standard Deviation	12.7%	1.7%
<b>WebP2 Image Encode - Q.1.L.C (sec)</b>	<b>465.771</b>	<b>441.664</b>
Normalized	94.82%	100%
Standard Deviation	0.1%	0.3%
<b>GROMACS - water_GMX50_bare (Ns/Day)</b>	<b>5.733</b>	<b>8.089</b>
Normalized	70.87%	100%
Standard Deviation	0.6%	0%
<b>TensorFlow Lite - SqueezeNet (us)</b>	<b>66951</b>	<b>69170</b>
Normalized	100%	96.79%
Standard Deviation	4.6%	2.5%
<b>TensorFlow Lite - Inception V4 (us)</b>	<b>970006</b>	<b>677117</b>
Normalized	69.81%	100%
Standard Deviation	1.3%	1.6%
<b>TensorFlow Lite - NASNet Mobile (us)</b>	<b>97303</b>	<b>138834</b>
Normalized	100%	70.09%
Standard Deviation	1.7%	1.1%
<b>TensorFlow Lite - Mobilenet Float (us)</b>	<b>52675</b>	<b>43582</b>
Normalized	82.74%	100%
Standard Deviation	1.7%	0.6%
<b>TensorFlow Lite - Mobilenet Quant (us)</b>	<b>56244</b>	<b>46587</b>
Normalized	82.83%	100%
Standard Deviation	0.6%	0.4%
<b>TensorFlow Lite - I.R.V (us)</b>	<b>860699</b>	<b>570923</b>
Normalized	66.33%	100%
Standard Deviation	2.4%	2.3%
<b>TNN - CPU - MobileNet v2 (ms)</b>	<b>356.885</b>	<b>349.403</b>

	Normalized	97.9%	100%
	Standard Deviation	0.2%	0.5%
<b>TNN - CPU - SqueezeNet v1.1 (ms)</b>		<b>341.114</b>	<b>310.212</b>
	Normalized	90.94%	100%
	Standard Deviation	0%	0.3%
<b>Blender - BMW27 - CPU-Only (sec)</b>		<b>37.97</b>	<b>24.10</b>
	Normalized	63.47%	100%
	Standard Deviation	0.8%	1.5%
<b>Blender - Classroom - CPU-Only (sec)</b>		<b>105.74</b>	<b>48.59</b>
	Normalized	45.95%	100%
	Standard Deviation	0.2%	0.9%
<b>Blender - Barbershop - CPU-Only (sec)</b>		<b>391.75</b>	<b>79.35</b>
	Normalized	20.26%	100%
	Standard Deviation	83.7%	0.2%
<b>AI Benchmark Alpha - D.I.S (Score)</b>		<b>2205</b>	<b>1454</b>
	Normalized	100%	65.94%
<b>AI Benchmark Alpha - D.T.S (Score)</b>		<b>1497</b>	<b>784</b>
	Normalized	100%	52.37%
<b>AI Benchmark Alpha - Device AI Score (Score)</b>		<b>3702</b>	<b>2238</b>
	Normalized	100%	60.45%
<b>Kripke (Throughput FoM)</b>		<b>109038733</b>	<b>60636191</b>
	Normalized	100%	55.61%
	Standard Deviation	2.3%	12.7%
<b>Chaos Group V-RAY - CPU (vsamples)</b>		47068	
	Standard Deviation	0.6%	
<b>Zstd Compression - 3 - D.S (MB/s)</b>			2840
	Standard Deviation		3.7%

### Stream-Dynamic 1.0

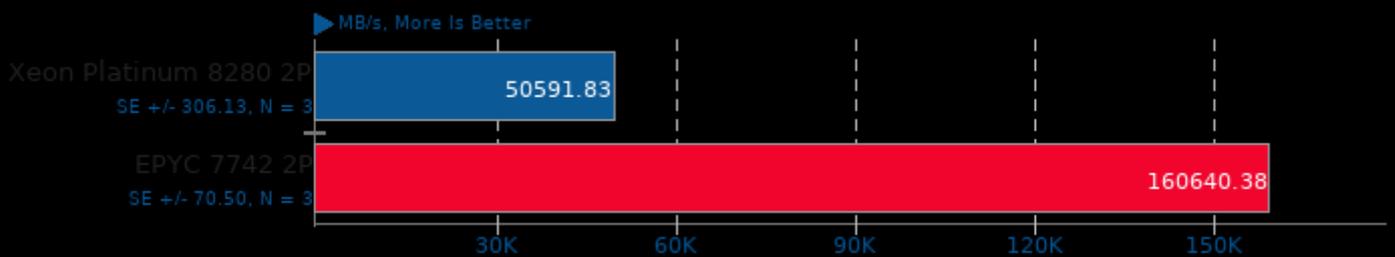
- Copy



1. (CXX) g++ options: -Ofast -mmodel=large -mavx2 -ffp-contract=fast -march=native -fopenmp

### Stream-Dynamic 1.0

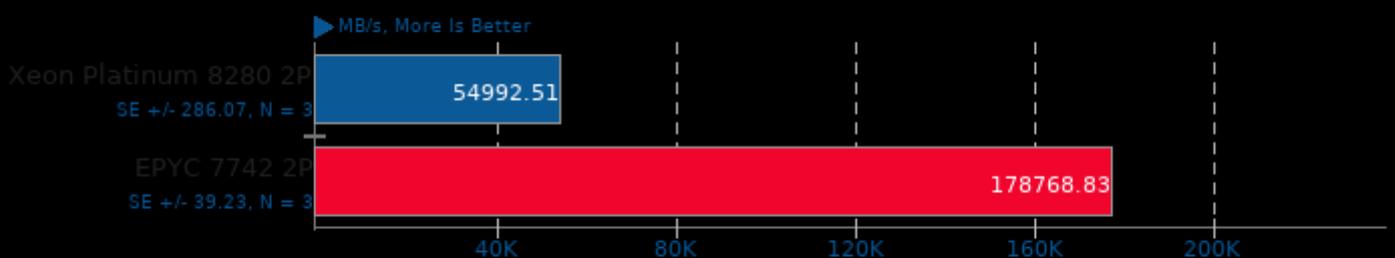
- Scale



1. (CXX) g++ options: -Ofast -mmodel=large -mavx2 -ffp-contract=fast -march=native -fopenmp

### Stream-Dynamic 1.0

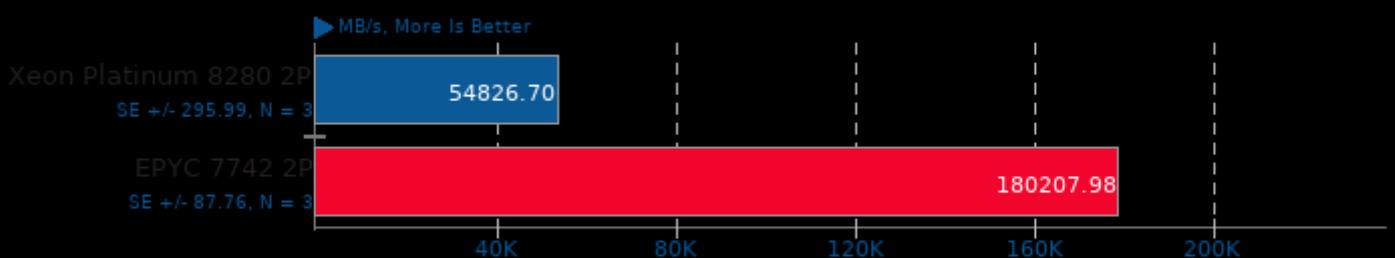
- Add



1. (CXX) g++ options: -Ofast -mmodel=large -mavx2 -ffp-contract=fast -march=native -fopenmp

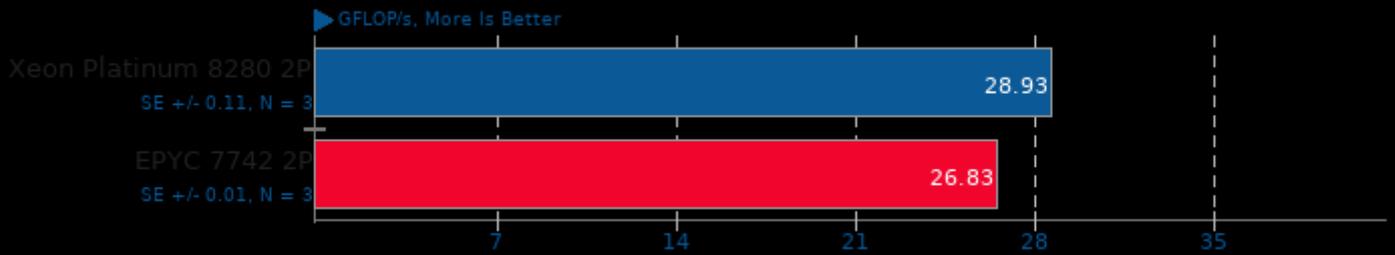
### Stream-Dynamic 1.0

- Triad



1. (CXX) g++ options: -Ofast -mmodel=large -mavx2 -ffp-contract=fast -march=native -fopenmp

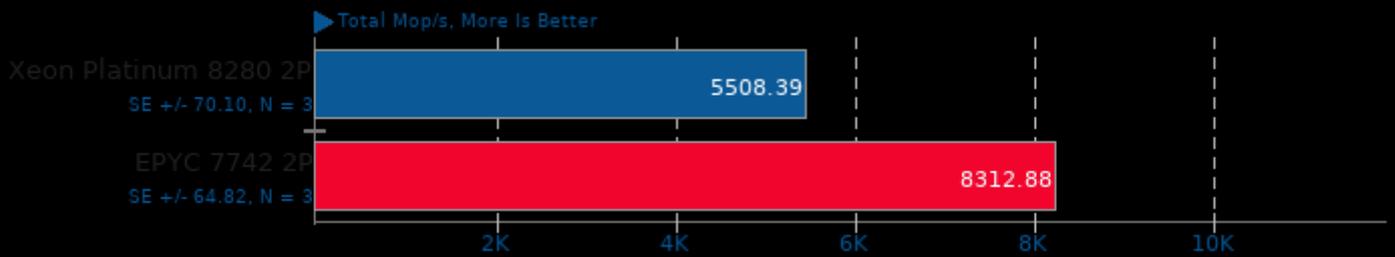
### High Performance Conjugate Gradient 3.1



1. (CXX) g++ options: -O3 -ffast-math -ftree-vectorize -pthread -lmpi\_cxx -lmpi

### NAS Parallel Benchmarks 3.4

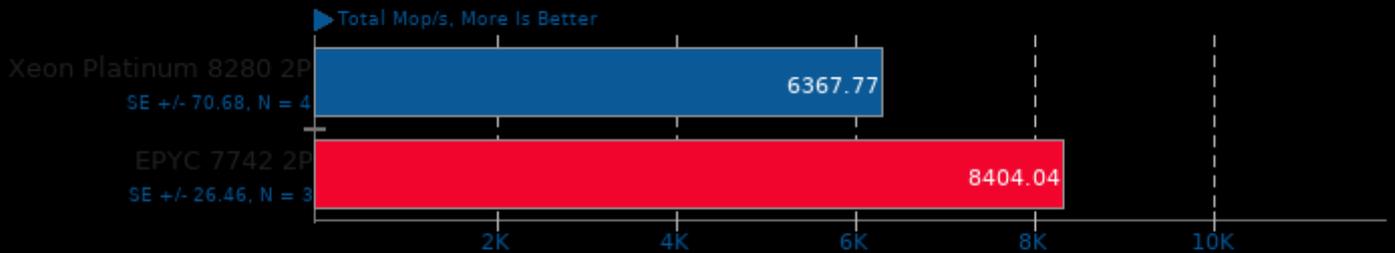
Test / Class: EP.C



1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi\_usempif08 -lmpi\_mpi fh -lmpi  
2. Open MPI 4.0.3

### NAS Parallel Benchmarks 3.4

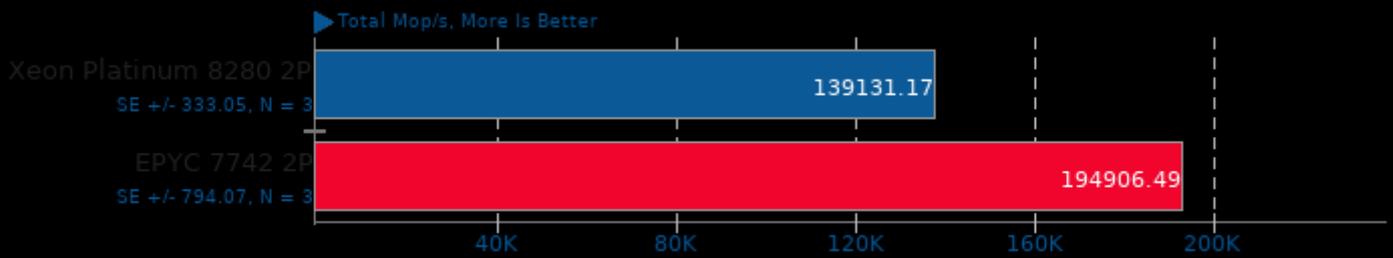
Test / Class: EP.D



1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi\_usempif08 -lmpi\_mpi fh -lmpi  
2. Open MPI 4.0.3

## NAS Parallel Benchmarks 3.4

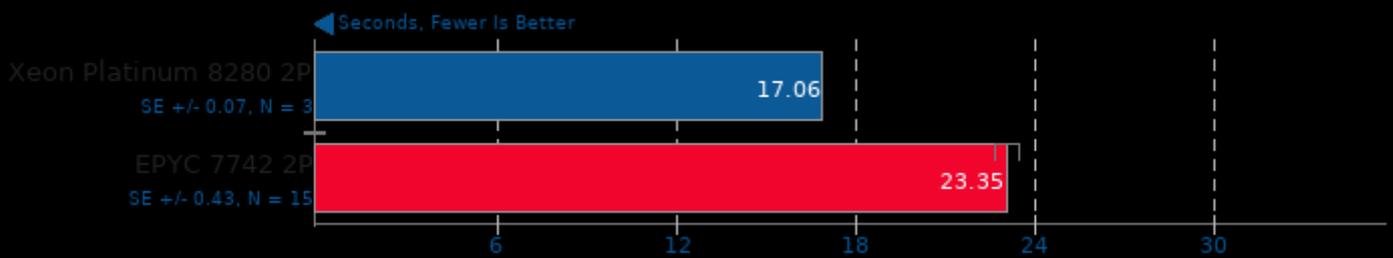
Test / Class: LU.C



1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi\_usempif08 -lmpi\_mpifh -lmpi  
2. Open MPI 4.0.3

## CloverLeaf

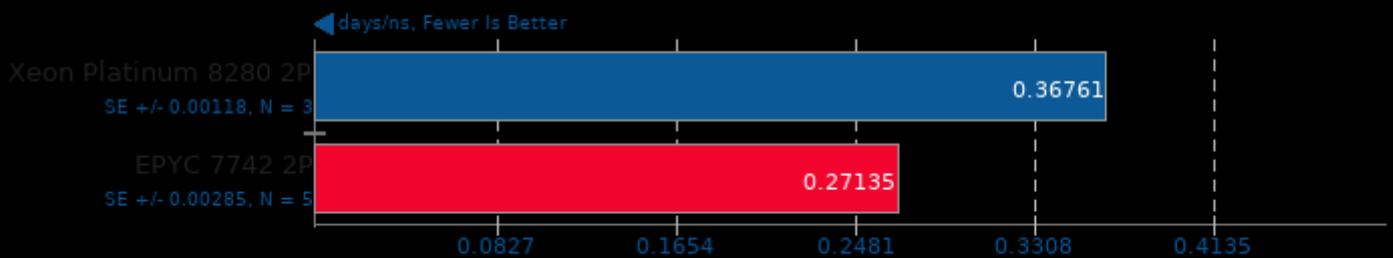
Lagrangian-Eulerian Hydrodynamics



1. (F9X) gfortran options: -O3 -march=native -funroll-loops -fopenmp

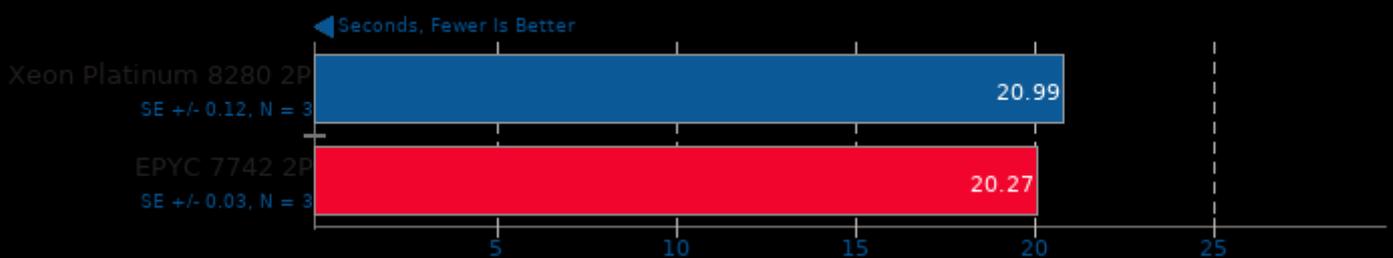
## NAMD 2.14

ATPase Simulation - 327,506 Atoms



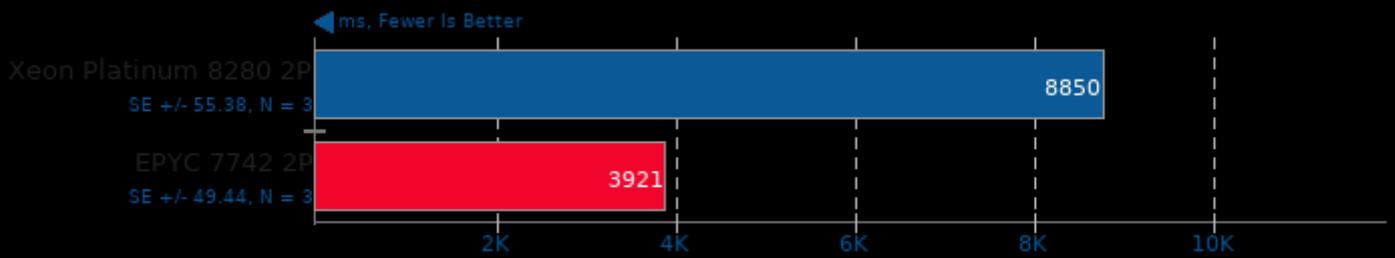
## Dolfyn 0.527

Computational Fluid Dynamics



### toyBrot Fractal Generator 2020-11-18

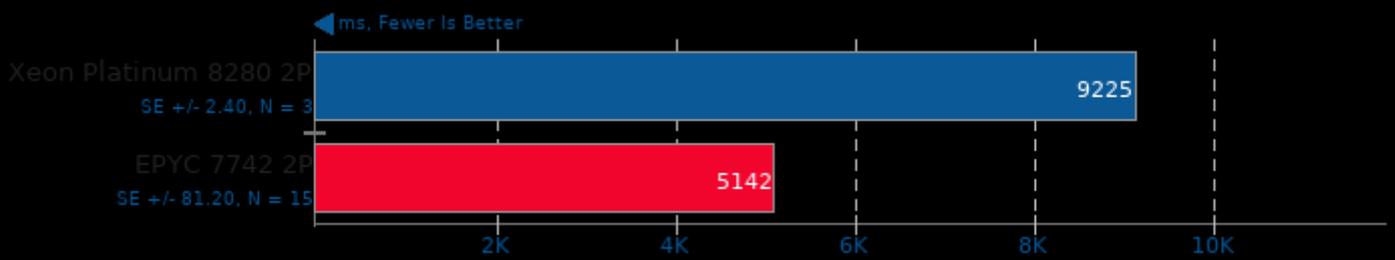
Implementation: TBB



1. (CXX) g++ options: -O3 -lpthread -lm -lgcc -lgcc\_s -lc

### toyBrot Fractal Generator 2020-11-18

Implementation: OpenMP



1. (CXX) g++ options: -O3 -lpthread -lm -lgcc -lgcc\_s -lc

### toyBrot Fractal Generator 2020-11-18

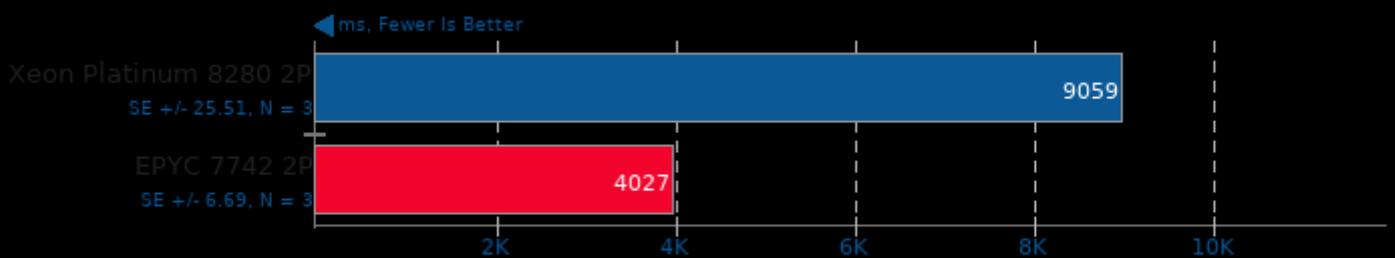
Implementation: C++ Tasks



1. (CXX) g++ options: -O3 -lpthread -lm -lgcc -lgcc\_s -lc

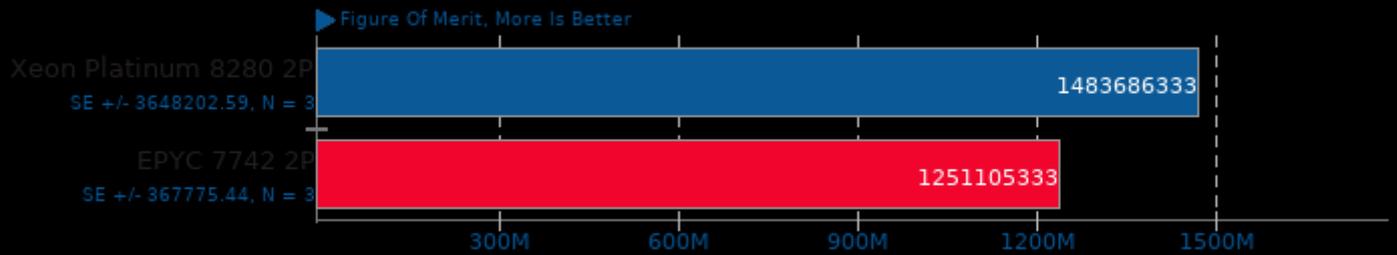
### toyBrot Fractal Generator 2020-11-18

Implementation: C++ Threads



1. (CXX) g++ options: -O3 -lpthread -lm -lgcc -lgcc\_s -lc

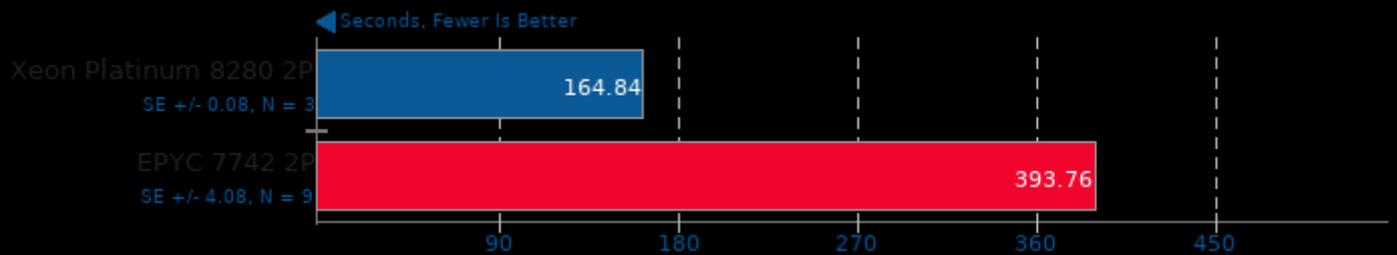
## Algebraic Multi-Grid Benchmark 1.2



1. (CC) gcc options: -lparcsr\_ls -lparcsr\_mv -lseq\_mv -llj\_mv -lkrylov -lhypre\_utilities -lm -fopenmp -pthread -lmpi

## Timed HMMer Search 3.3.1

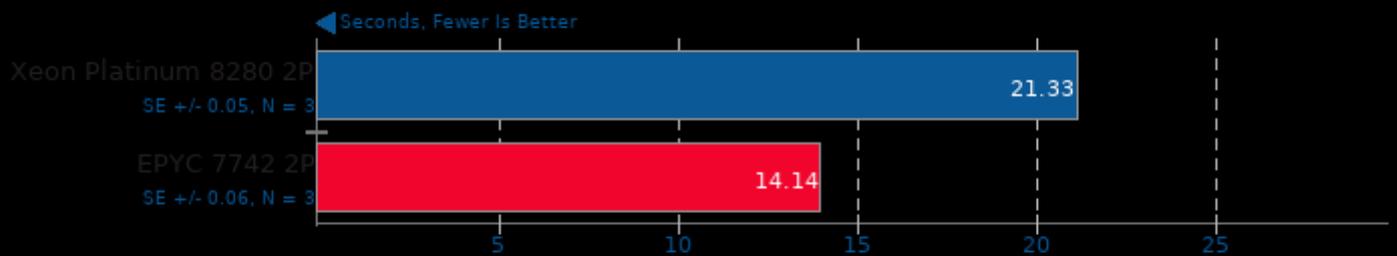
Pfam Database Search



1. (CC) gcc options: -O3 -pthread -lhmmmer -leasel -lm

## OpenFOAM 8

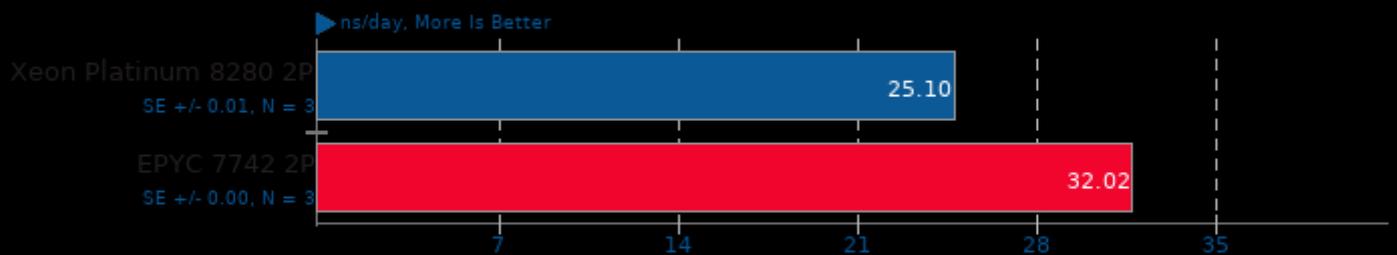
Input: Motorbike 30M



1. (CXX) g++ options: -std=c++11 -m64 -O3 -ftemplate-depth-100 -fPIC -fuse-id=bfd -Xlinker --add-needed --no-as-needed -ldynamicMesh -ldecompose

## LAMMPS Molecular Dynamics Simulator 29Oct2020

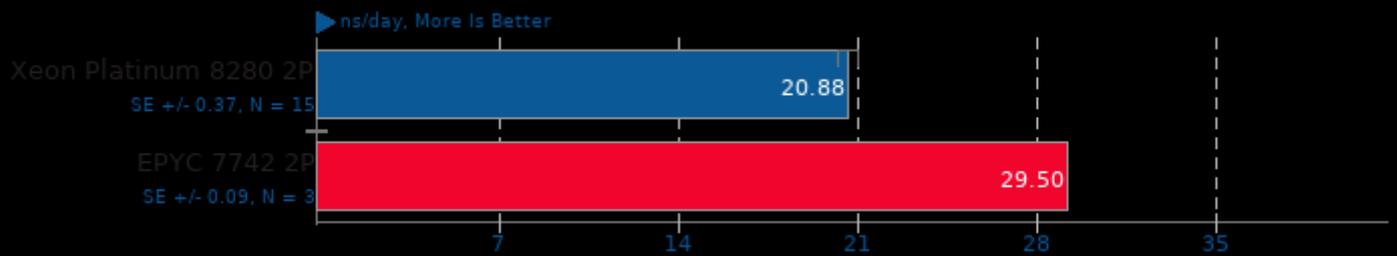
Model: 20k Atoms



1. (CXX) g++ options: -O3 -pthread -lm

## LAMMPS Molecular Dynamics Simulator 29Oct2020

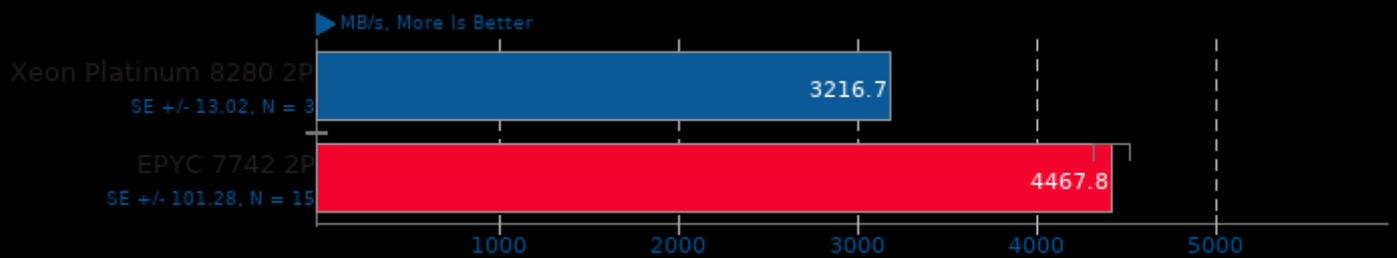
Model: Rhodopsin Protein



1. (CXX) g++ options: -O3 -pthread -lm

## Zstd Compression 1.4.9

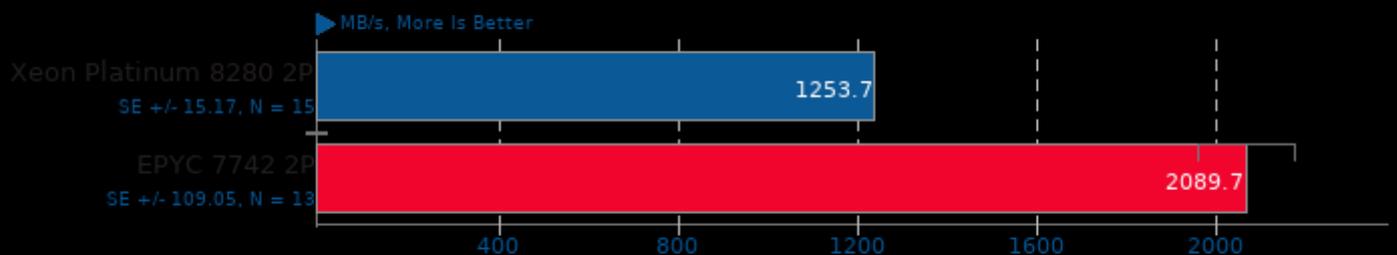
Compression Level: 3 - Compression Speed



1. (C) gcc options: -O3 -pthread -lz -lzma

## Zstd Compression 1.4.9

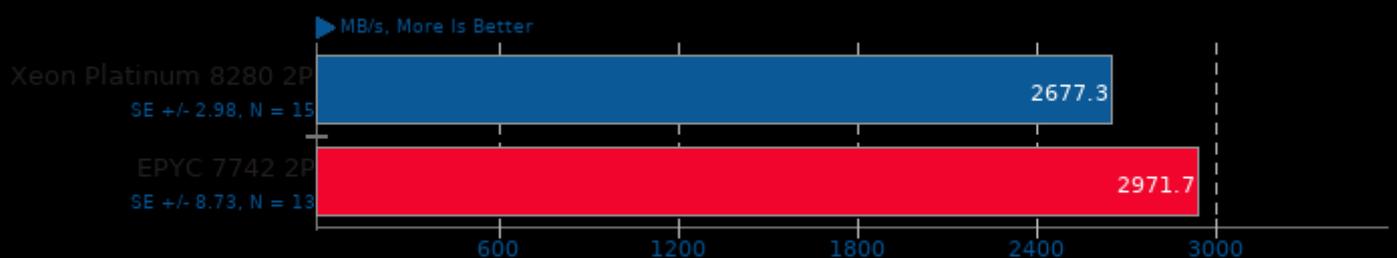
Compression Level: 8 - Compression Speed



1. (C) gcc options: -O3 -pthread -lz -lzma

## Zstd Compression 1.4.9

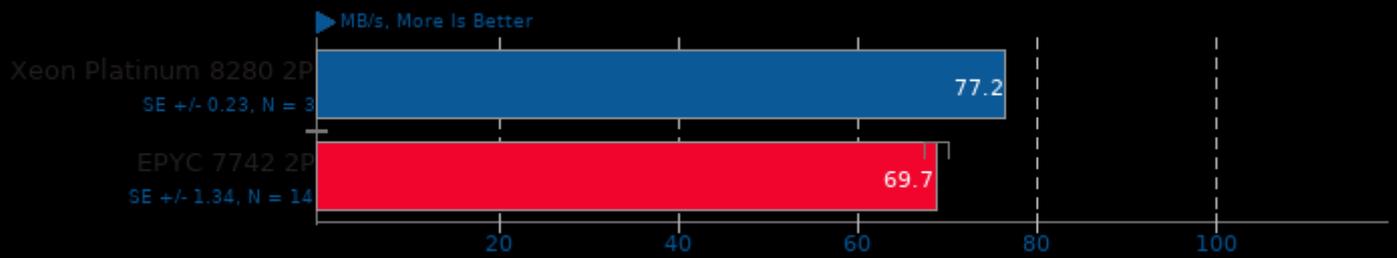
Compression Level: 8 - Decompression Speed



1. (C) gcc options: -O3 -pthread -lz -lzma

### Zstd Compression 1.4.9

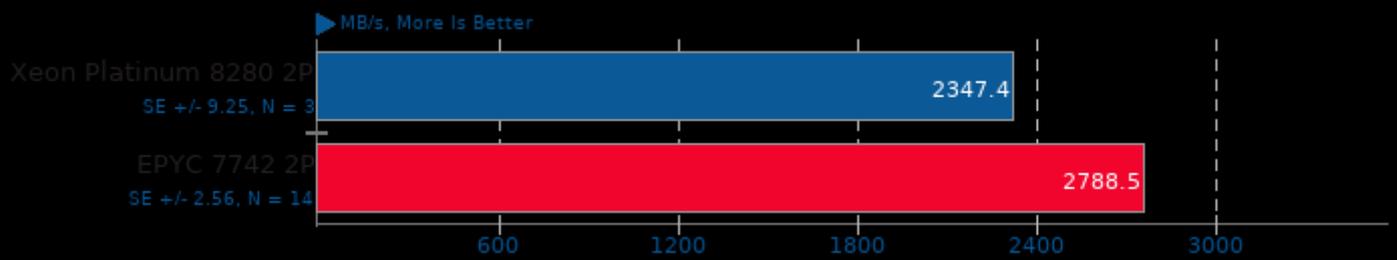
Compression Level: 19 - Compression Speed



1. (CC) gcc options: -O3 -pthread -lz -lzma

### Zstd Compression 1.4.9

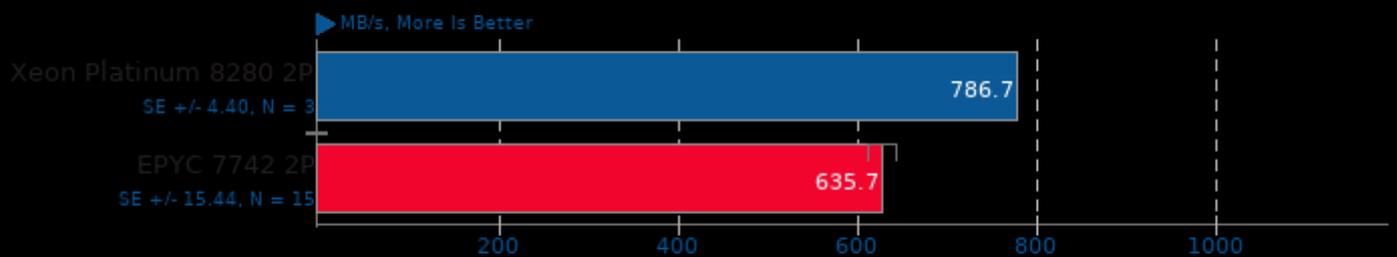
Compression Level: 19 - Decompression Speed



1. (CC) gcc options: -O3 -pthread -lz -lzma

### Zstd Compression 1.4.9

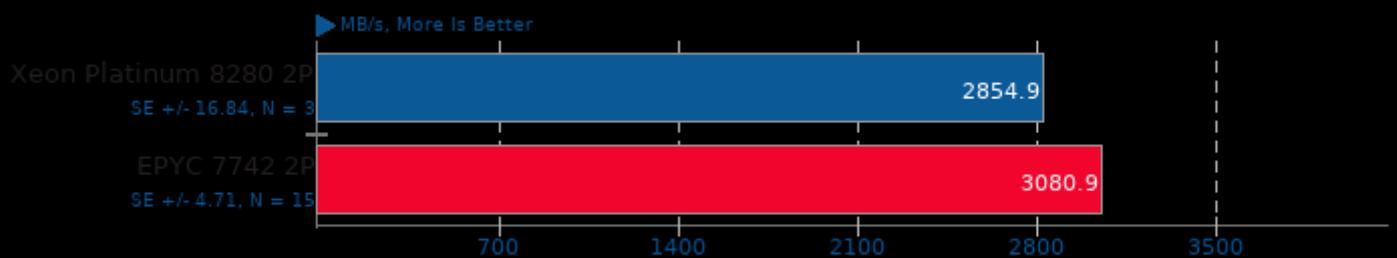
Compression Level: 3, Long Mode - Compression Speed



1. (CC) gcc options: -O3 -pthread -lz -lzma

### Zstd Compression 1.4.9

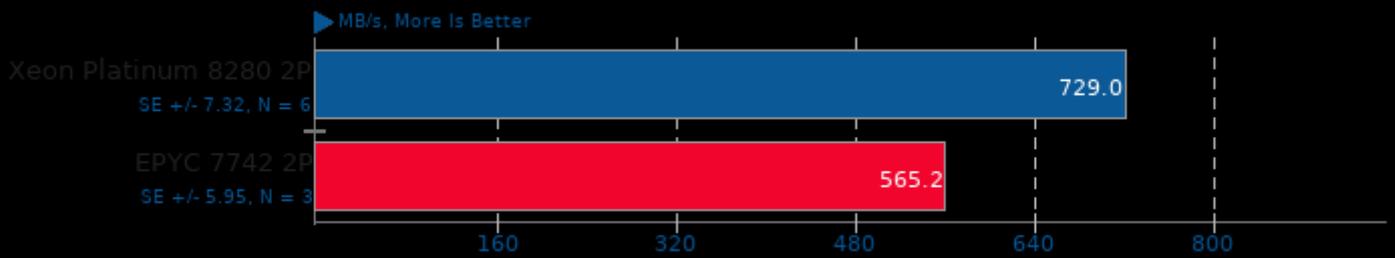
Compression Level: 3, Long Mode - Decompression Speed



1. (CC) gcc options: -O3 -pthread -lz -lzma

### Zstd Compression 1.4.9

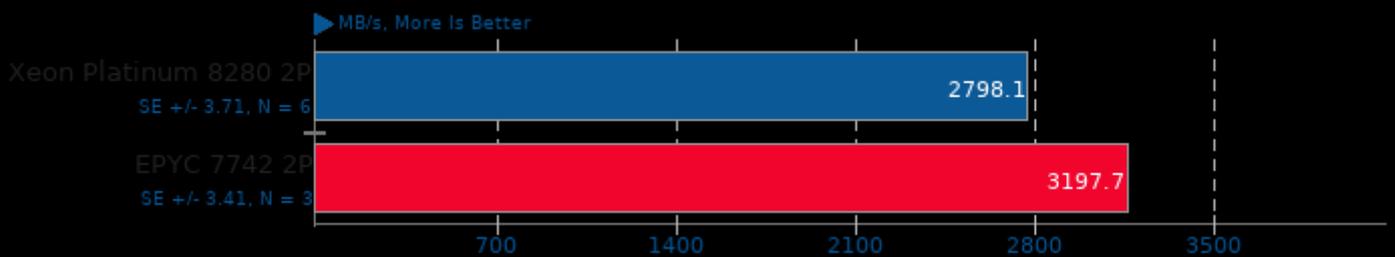
Compression Level: 8, Long Mode - Compression Speed



1. (CC) gcc options: -O3 -pthread -lz -lzma

### Zstd Compression 1.4.9

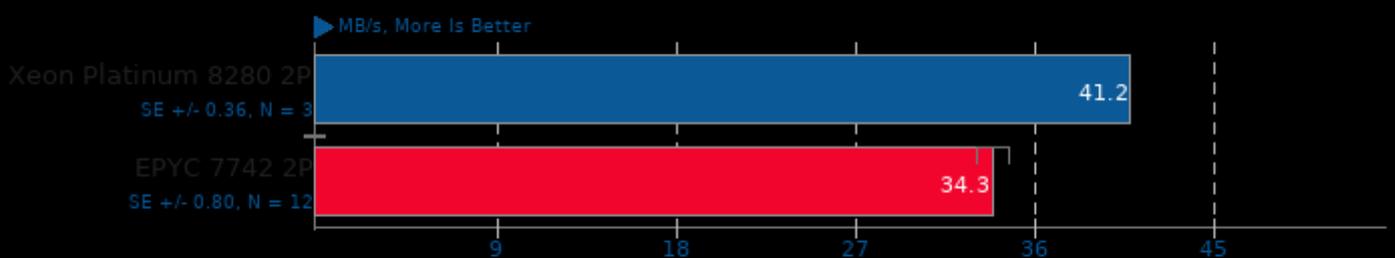
Compression Level: 8, Long Mode - Decompression Speed



1. (CC) gcc options: -O3 -pthread -lz -lzma

### Zstd Compression 1.4.9

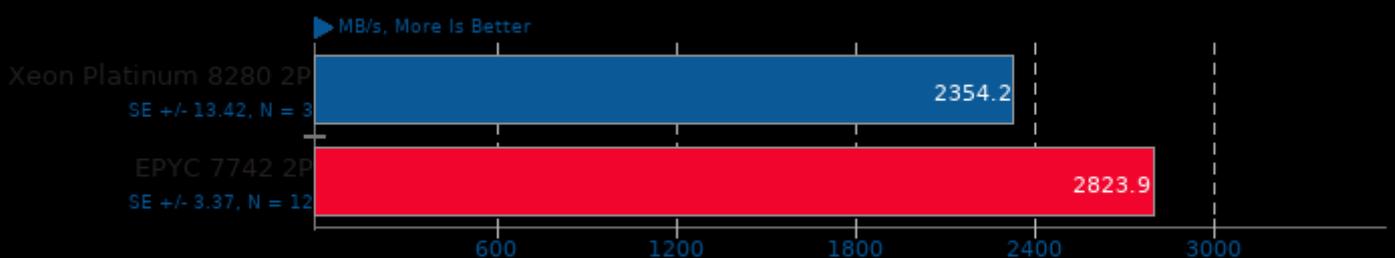
Compression Level: 19, Long Mode - Compression Speed



1. (CC) gcc options: -O3 -pthread -lz -lzma

### Zstd Compression 1.4.9

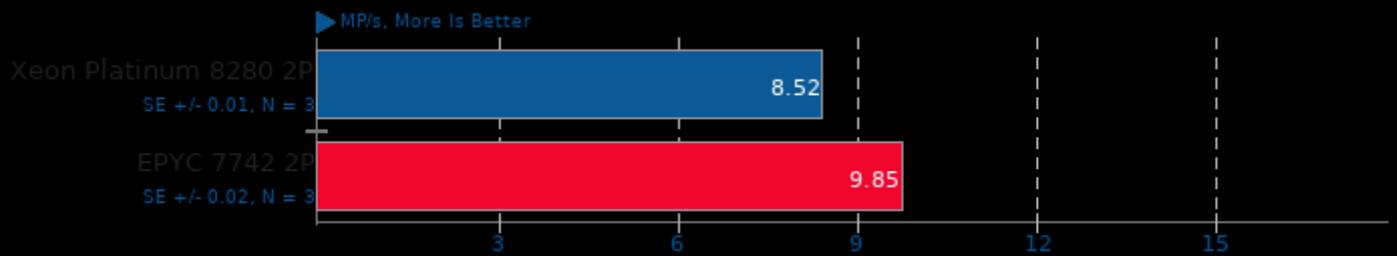
Compression Level: 19, Long Mode - Decompression Speed



1. (CC) gcc options: -O3 -pthread -lz -lzma

### JPEG XL 0.3.1

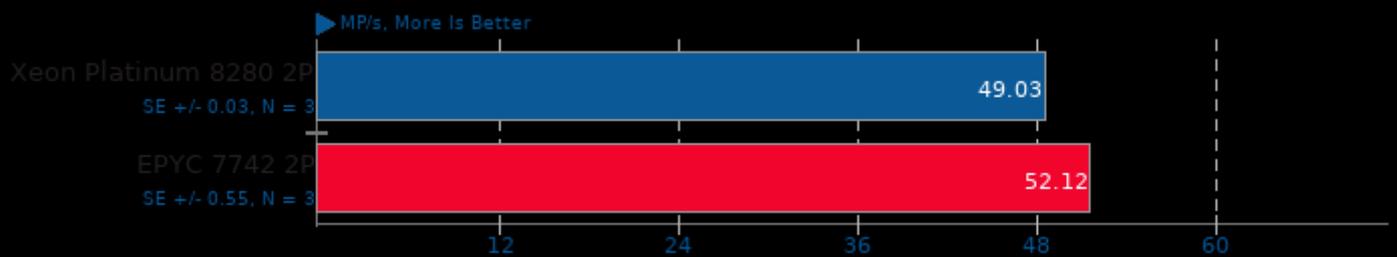
Input: PNG - Encode Speed: 7



1. (CXX) g++ options: -funwind-tables -O3 -O2 -fPIE -pie -pthread -ldl

### JPEG XL 0.3.1

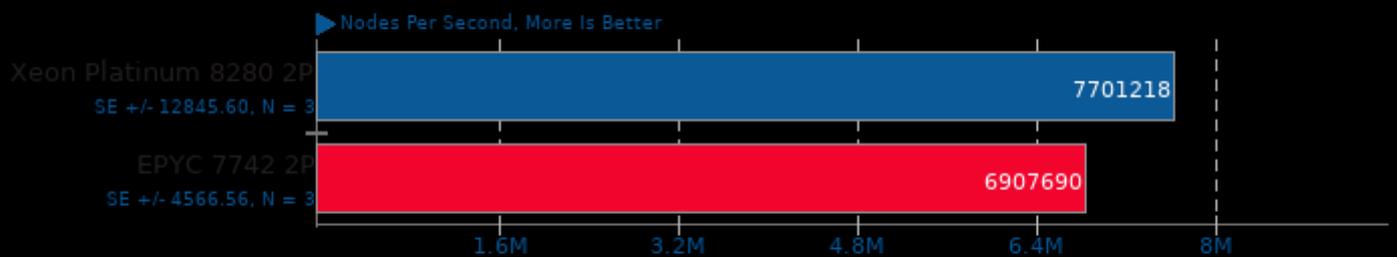
Input: JPEG - Encode Speed: 7



1. (CXX) g++ options: -funwind-tables -O3 -O2 -fPIE -pie -pthread -ldl

### Crafty 25.2

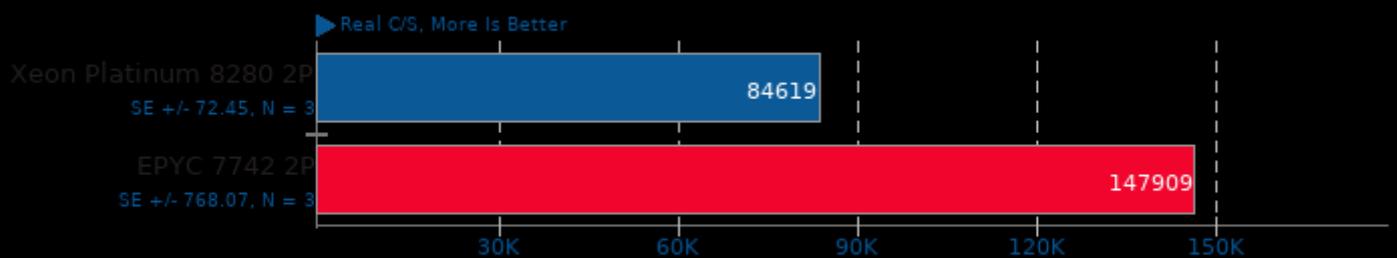
Elapsed Time



1. (CC) gcc options: -pthread -lstdc++ -fprofile-use -lm

### John The Ripper 1.9.0-jumbo-1

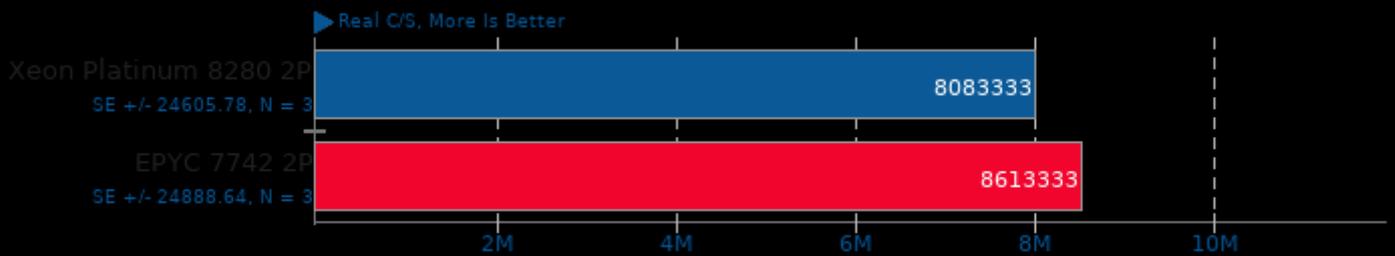
Test: Blowfish



1. (CC) gcc options: -m64 -lssl -lcrypto -fopenmp -lgmp -pthread -lm -lz -ldl -lcrypt -lbz2

### John The Ripper 1.9.0-jumbo-1

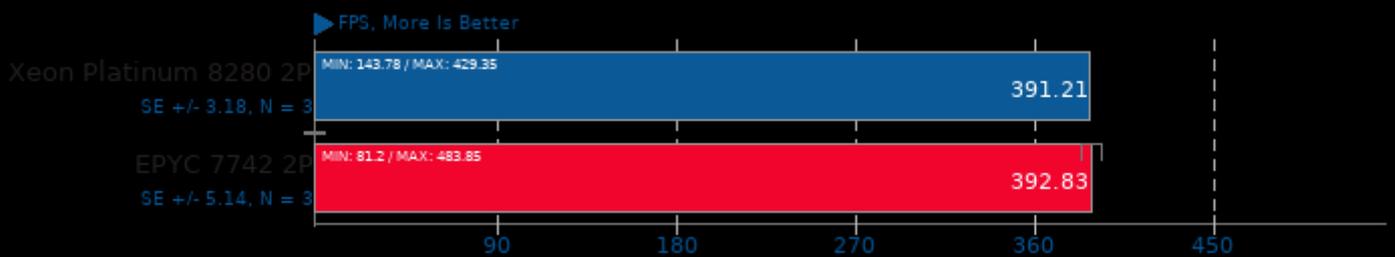
Test: MD5



1. (CC) gcc options: -m64 -lssl -lcrypto -fopenmp -lgmp -pthread -lm -lz -ldl -lcrypt -lbz2

### dav1d 0.8.2

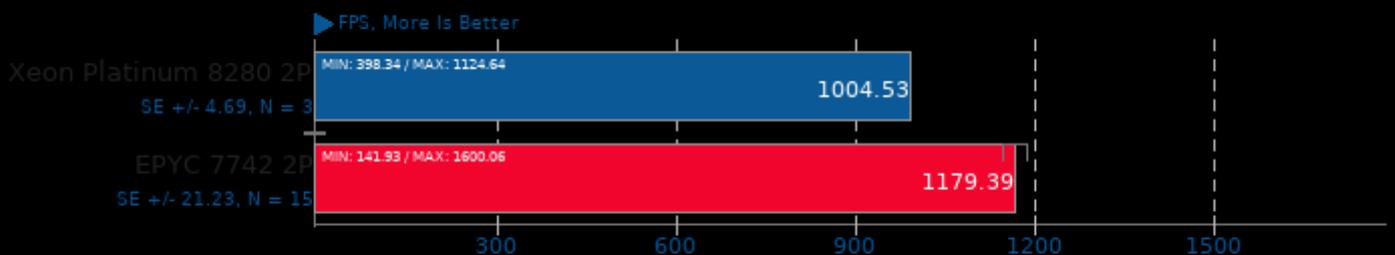
Video Input: Summer Nature 4K



1. (CC) gcc options: -pthread -lm

### dav1d 0.8.2

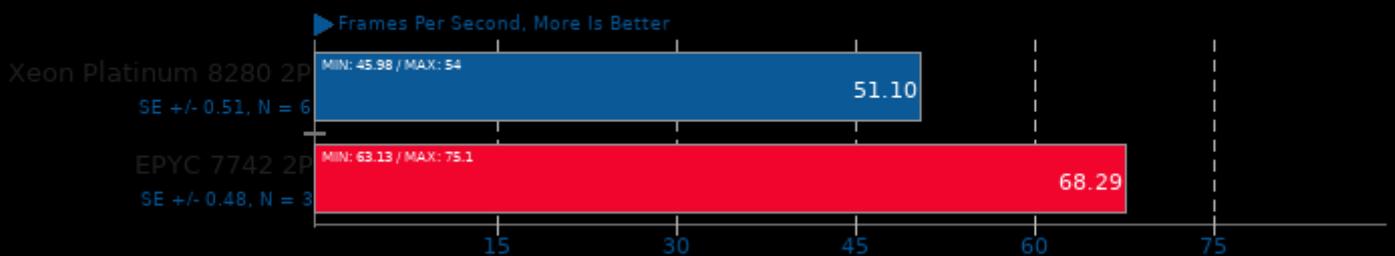
Video Input: Summer Nature 1080p



1. (CC) gcc options: -pthread -lm

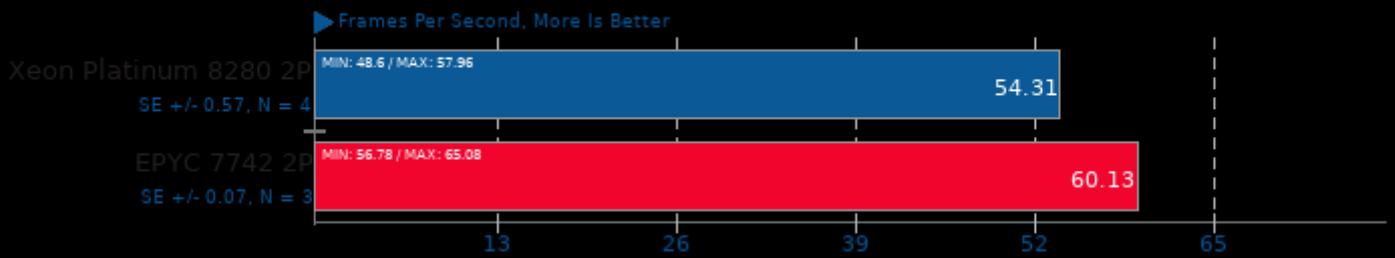
### Embree 3.9.0

Binary: Pathtracer - Model: Crown



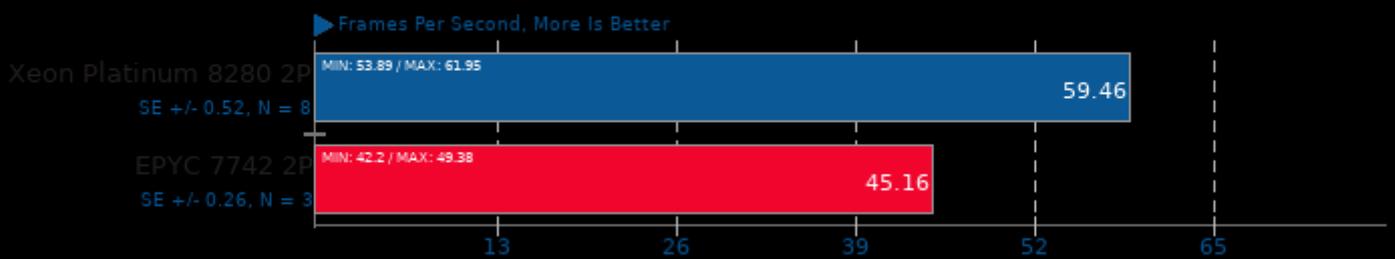
### Embree 3.9.0

Binary: Pathtracer ISPC - Model: Crown



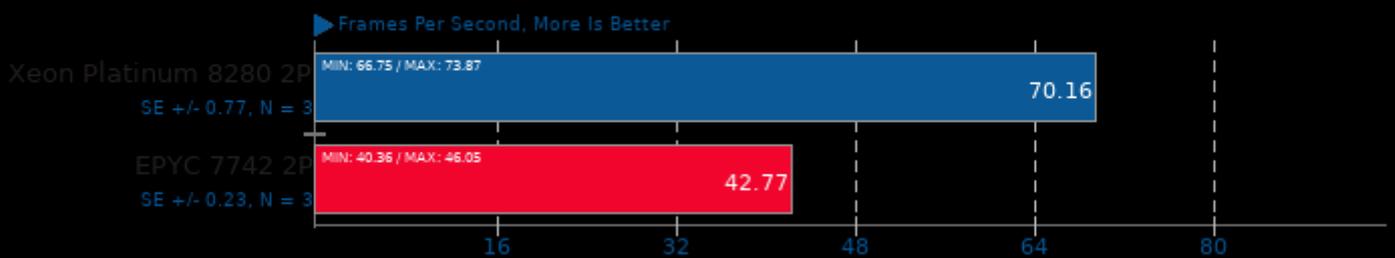
### Embree 3.9.0

Binary: Pathtracer - Model: Asian Dragon



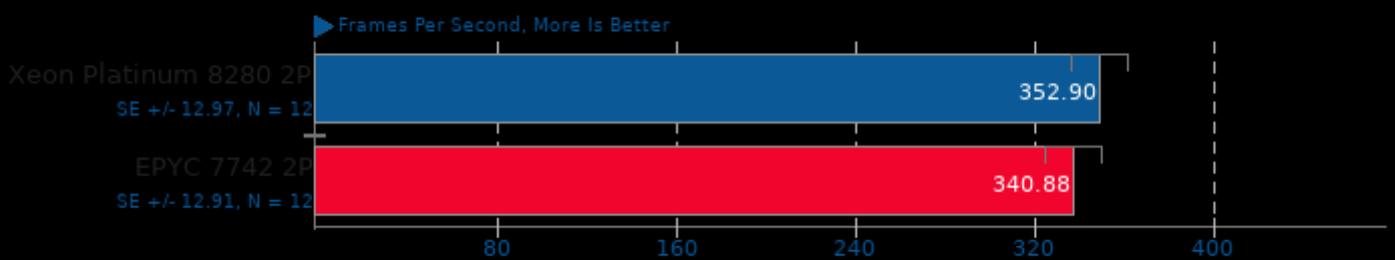
### Embree 3.9.0

Binary: Pathtracer ISPC - Model: Asian Dragon



### SVT-VP9 0.1

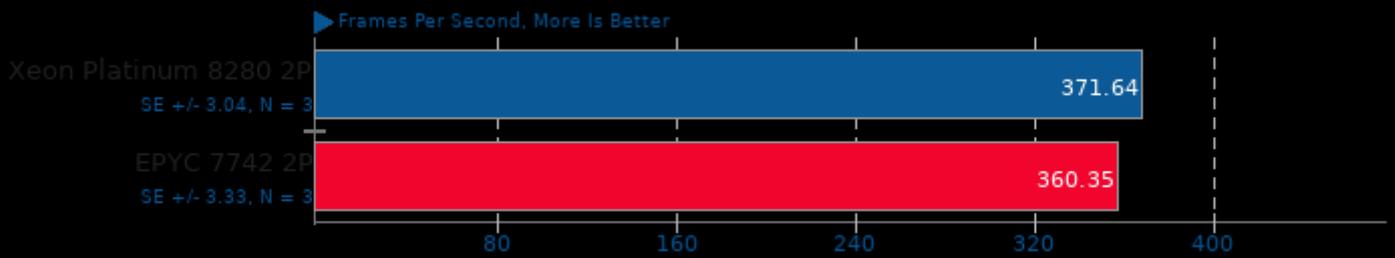
Tuning: VMAF Optimized - Input: Bosphorus 1080p



1. (CC) gcc options: -O3 -fcommon -fPIE -fPIC -fvisibility=hidden -pie -rdynamic -pthread -lrt -lm

### SVT-VP9 0.1

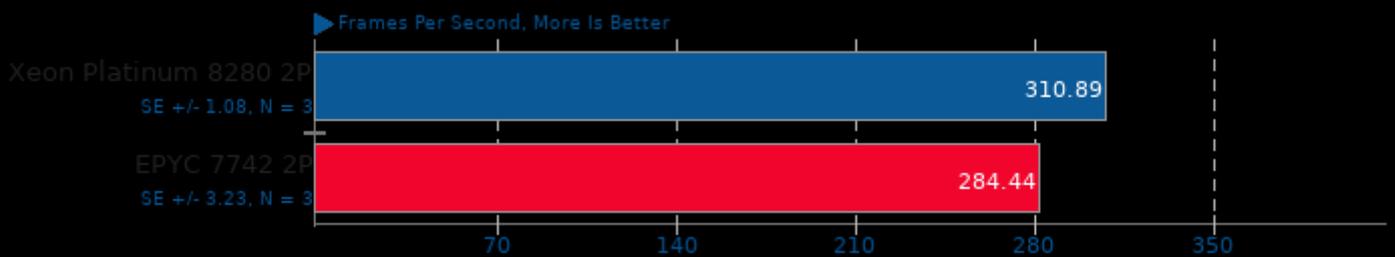
Tuning: PSNR/SSIM Optimized - Input: Bosphorus 1080p



1. (CC) gcc options: -O3 -fcommon -fPIE -fPIC -fvisibility=hidden -pie -rdynamic -lpthread -lrt -lm

### SVT-VP9 0.1

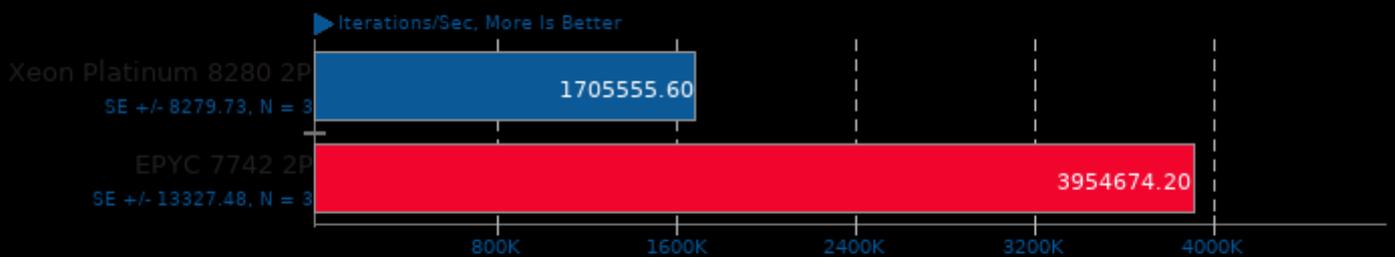
Tuning: Visual Quality Optimized - Input: Bosphorus 1080p



1. (CC) gcc options: -O3 -fcommon -fPIE -fPIC -fvisibility=hidden -pie -rdynamic -lpthread -lrt -lm

### Coremark 1.0

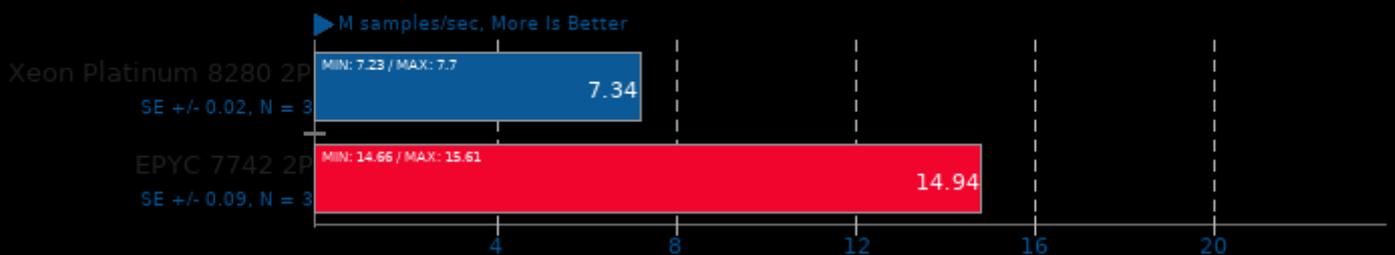
CoreMark Size 666 - Iterations Per Second



1. (CC) gcc options: -O2 -lrt -lrt

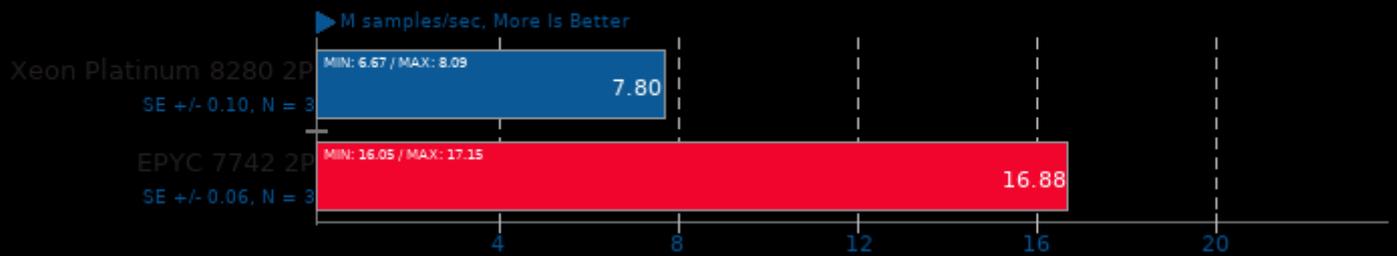
### LuxCoreRender 2.3

Scene: DLSC



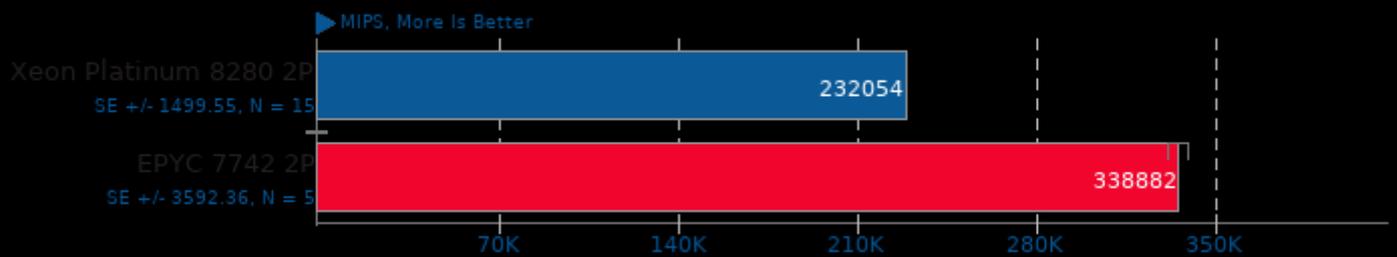
### LuxCoreRender 2.3

Scene: Rainbow Colors and Prism



### 7-Zip Compression 16.02

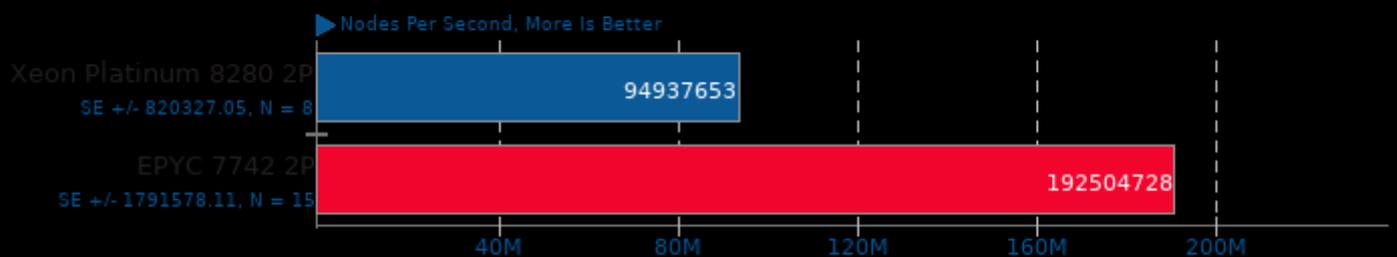
Compress Speed Test



1. (CXX) g++ options: -pipe -pthread

### Stockfish 12

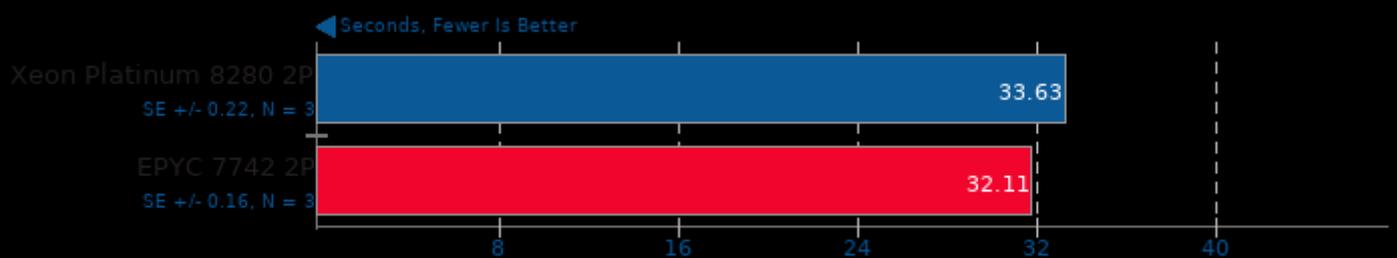
Total Time



1. (CXX) g++ options: -m64 -pthread -fno-exceptions -std=c++17 -pedantic -O3 -msse -msse3 -mpopcnt -msse4.1 -mssse3 -msse2 -fno-float-exceptions -fno-float-exceptions

### libavif avifenc 0.9.0

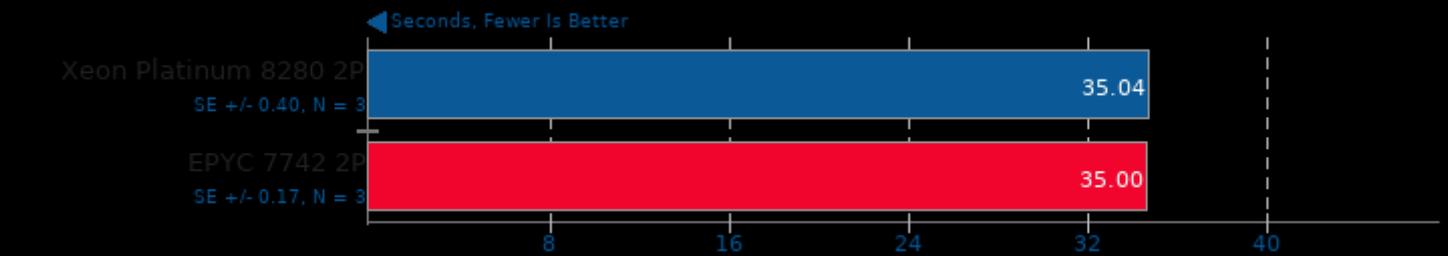
Encoder Speed: 2



1. (CXX) g++ options: -O3 -fPIC -lm

### libavif avifenc 0.9.0

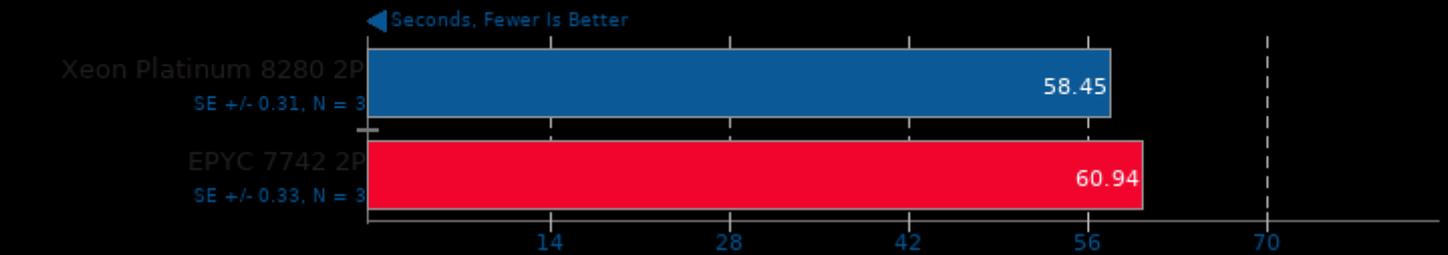
Encoder Speed: 6, Lossless



1. (CXX) g++ options: -O3 -fPIC -lm

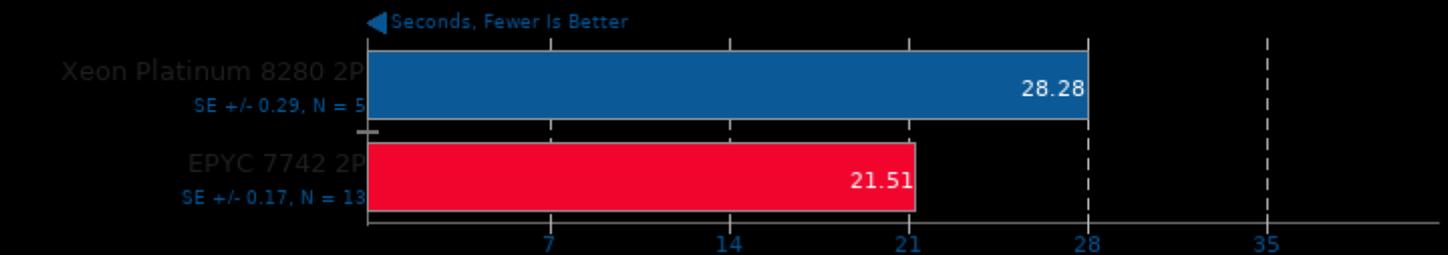
### Timed Godot Game Engine Compilation 3.2.3

Time To Compile



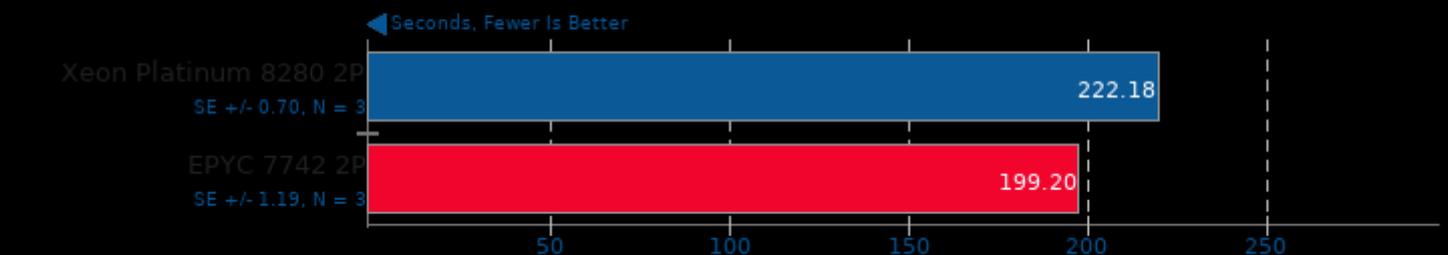
### Timed Linux Kernel Compilation 5.10.20

Time To Compile



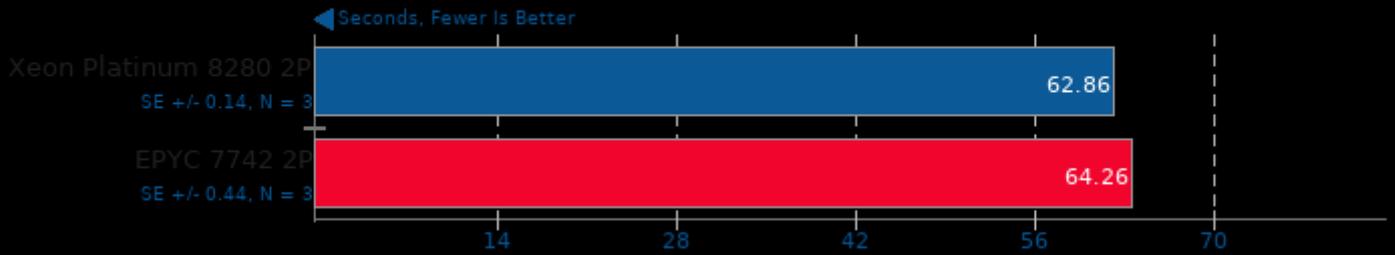
### Timed LLVM Compilation 10.0

Time To Compile



### Build2 0.13

Time To Compile



### C-Ray 1.1

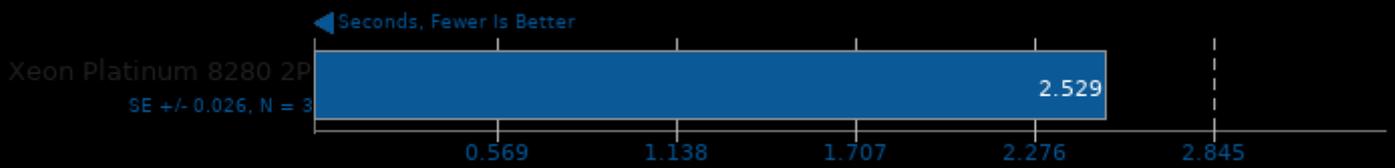
Total Time - 4K, 16 Rays Per Pixel



1. (GCC) gcc options: -lm -pthread -O3

### Smallpt 1.0

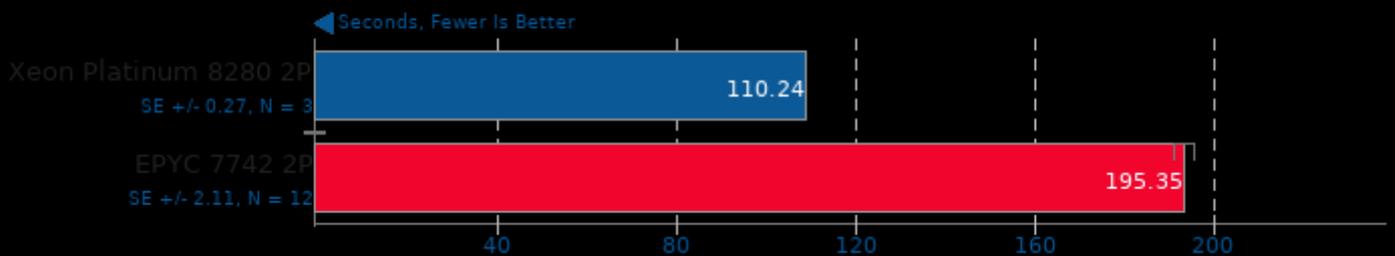
Global Illumination Renderer; 128 Samples



1. (CXX) g++ options: -fopenmp -O3

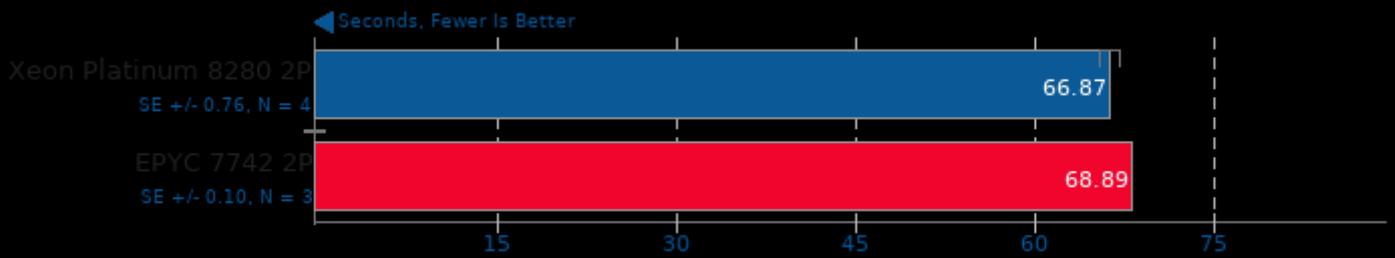
### Timed Erlang/OTP Compilation 23.2

Time To Compile



## Timed Wasmer Compilation 1.0.2

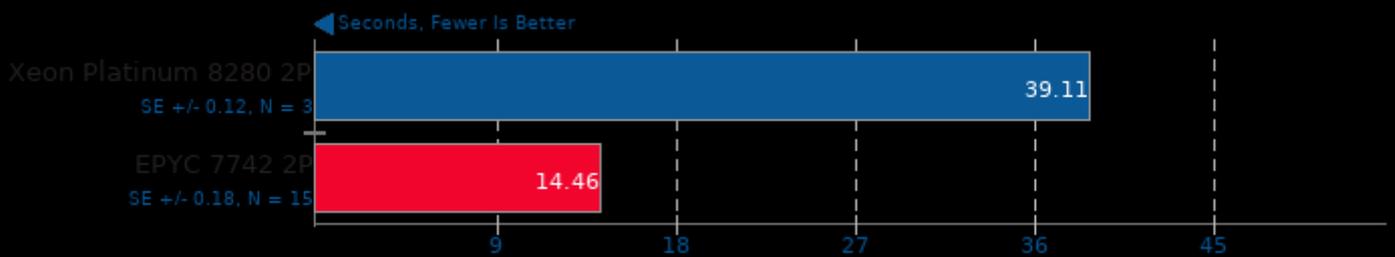
Time To Compile



1. (CC) gcc options: -m64 -pie -nodefaultlibs -ldl -lrt -lpthread -lgcc\_s -lc -lm -lutil

## Hackbench

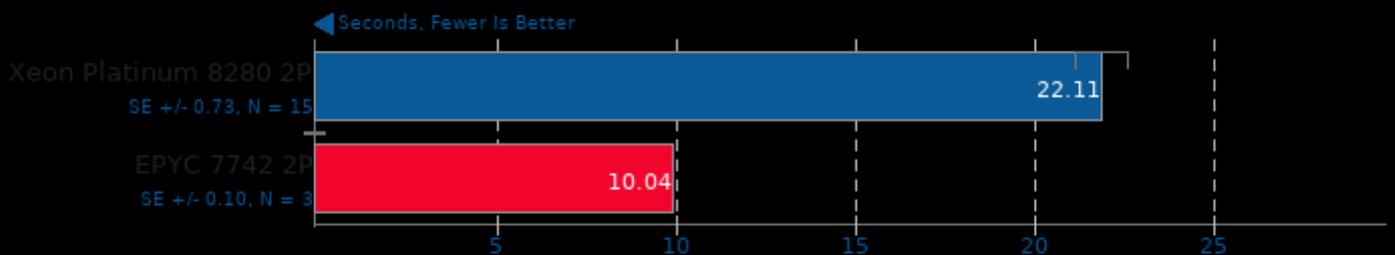
Count: 32 - Type: Process



1. (CC) gcc options: -lpthread

## Tachyon 0.99b6

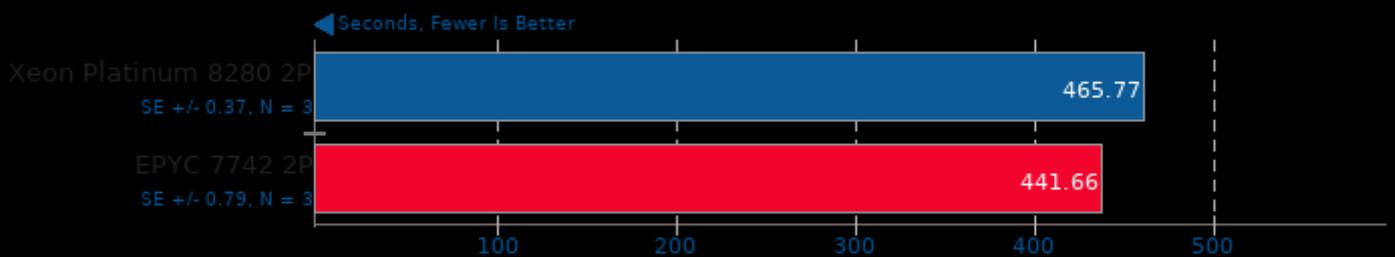
Total Time



1. (CC) gcc options: -m64 -O3 -fomit-frame-pointer -ffast-math -ltachyon -lm -lpthread

## WebP2 Image Encode 20210126

Encode Settings: Quality 100, Lossless Compression



1. (CXX) g++ options: -msse4.2 -fno-rtti -O3 -rdynamic -ljpeg -lgif -lpthread

### GROMACS 2021

Input: water\_GMX50\_bare

►Ns Per Day, More Is Better

Xeon Platinum 8280 2P

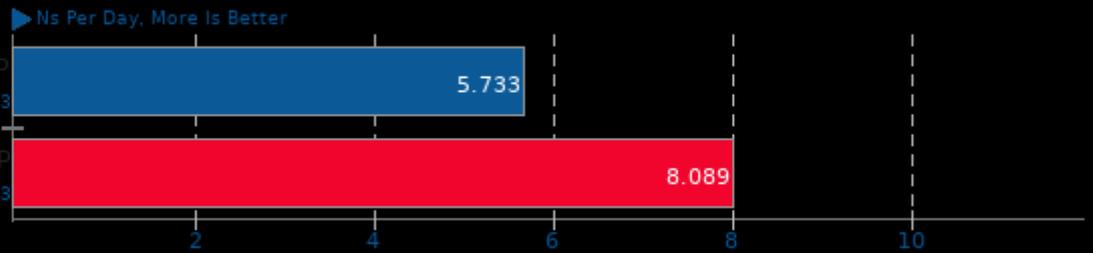
SE +/- 0.018, N = 3

5.733

EPYC 7742 2P

SE +/- 0.002, N = 3

8.089



1. (CXX) g++ options: -O3 -pthread

### TensorFlow Lite 2020-08-23

Model: SqueezeNet

◄Microseconds, Fewer Is Better

Xeon Platinum 8280 2P

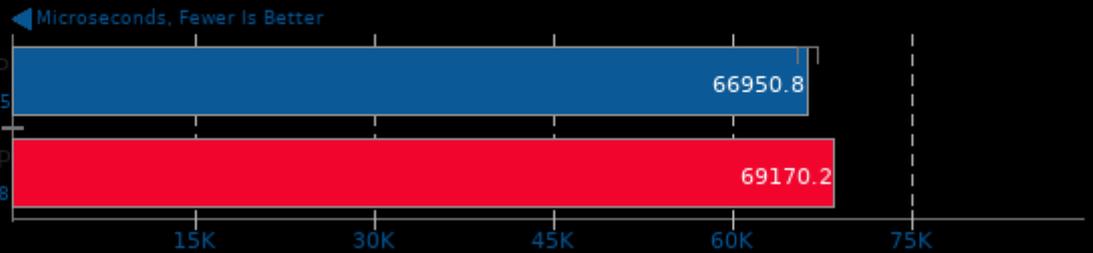
SE +/- 798.91, N = 15

66950.8

EPYC 7742 2P

SE +/- 604.29, N = 8

69170.2



### TensorFlow Lite 2020-08-23

Model: Inception V4

◄Microseconds, Fewer Is Better

Xeon Platinum 8280 2P

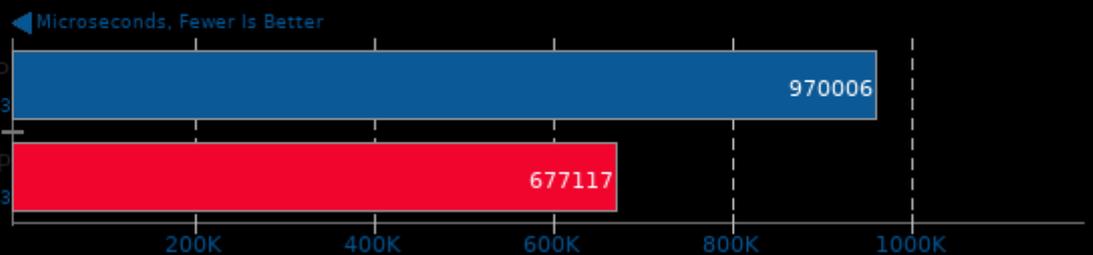
SE +/- 7221.85, N = 3

970006

EPYC 7742 2P

SE +/- 6324.28, N = 3

677117



### TensorFlow Lite 2020-08-23

Model: NASNet Mobile

◄Microseconds, Fewer Is Better

Xeon Platinum 8280 2P

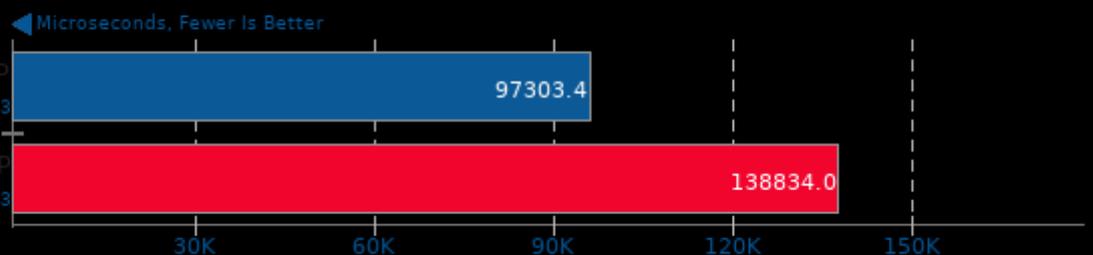
SE +/- 953.18, N = 3

97303.4

EPYC 7742 2P

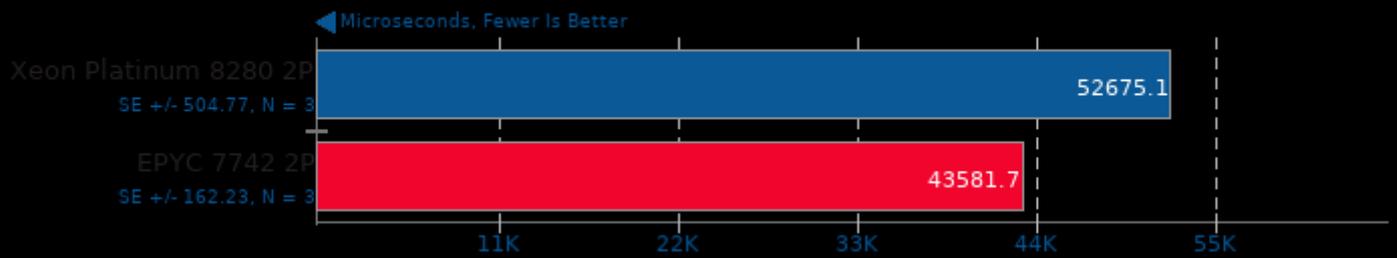
SE +/- 845.57, N = 3

138834.0



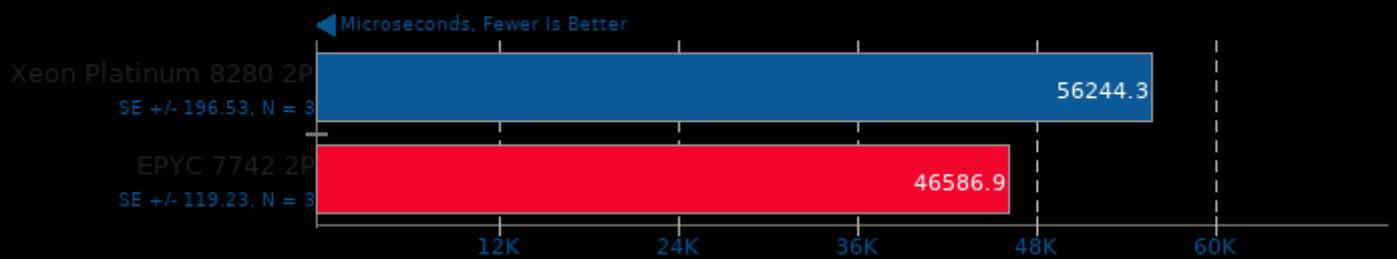
### TensorFlow Lite 2020-08-23

Model: Mobilenet Float



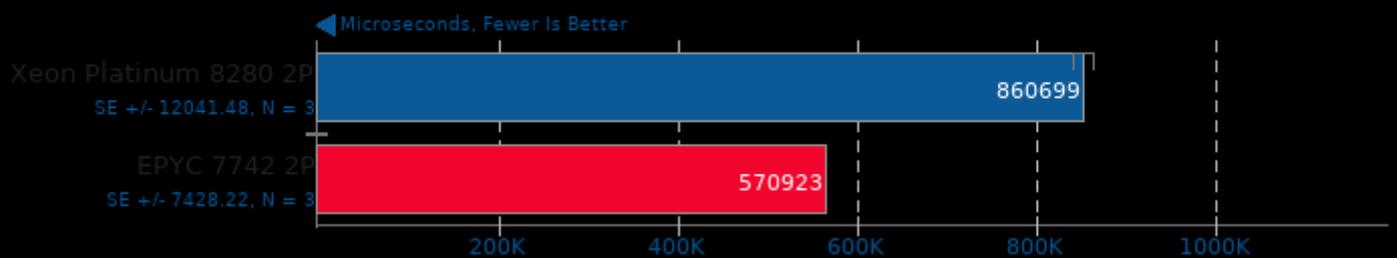
### TensorFlow Lite 2020-08-23

Model: Mobilenet Quant



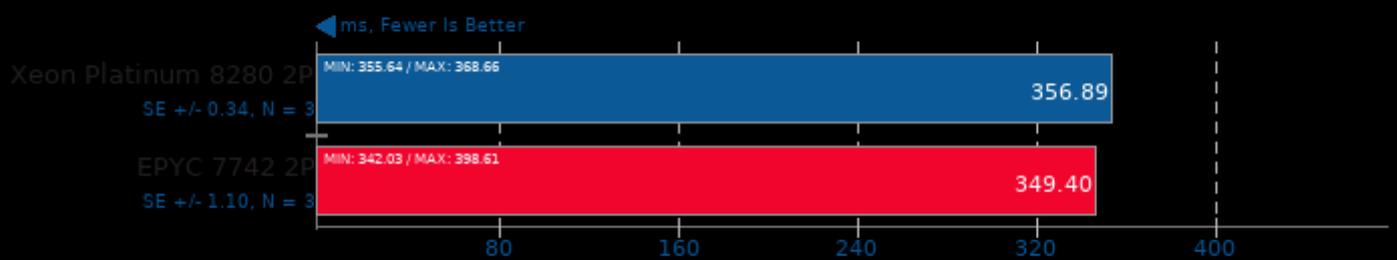
### TensorFlow Lite 2020-08-23

Model: Inception ResNet V2



### TNN 0.2.3

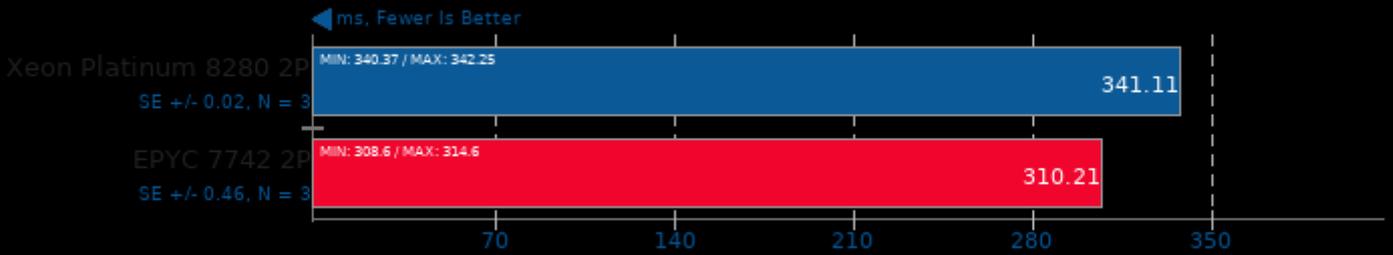
Target: CPU - Model: MobileNet v2



1. (CXX) g++ options: -fopenmp -pthread -fvisibility=hidden -O3 -rdynamic -ldl

### TNN 0.2.3

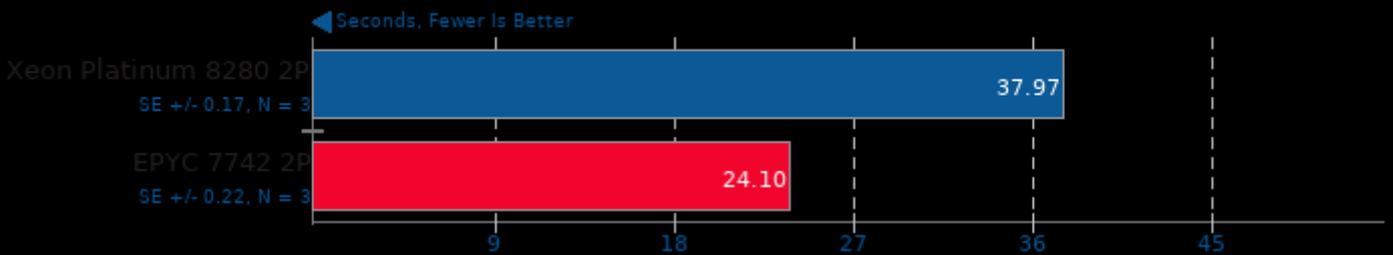
Target: CPU - Model: SqueezeNet v1.1



1. (CXX) g++ options: -fopenmp -pthread -fvisibility=hidden -O3 -rdynamic -ldl

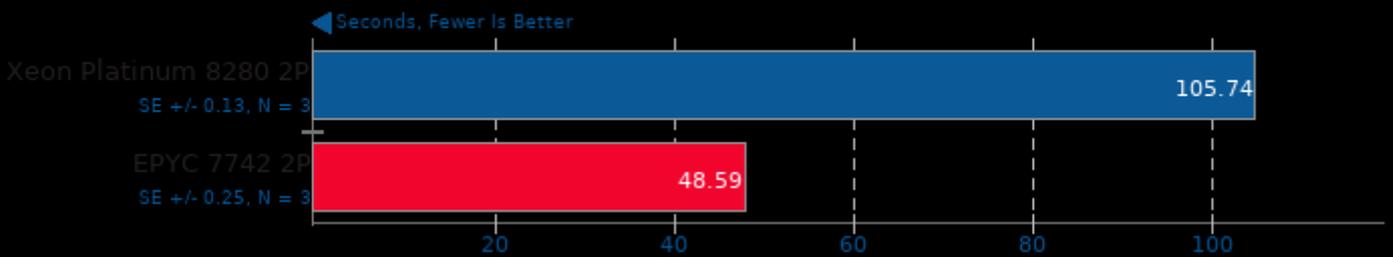
### Blender 2.92

Blend File: BMW27 - Compute: CPU-Only



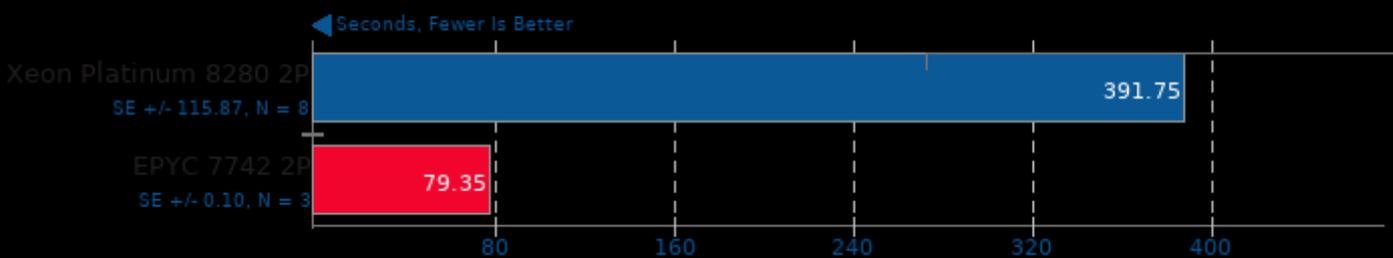
### Blender 2.92

Blend File: Classroom - Compute: CPU-Only



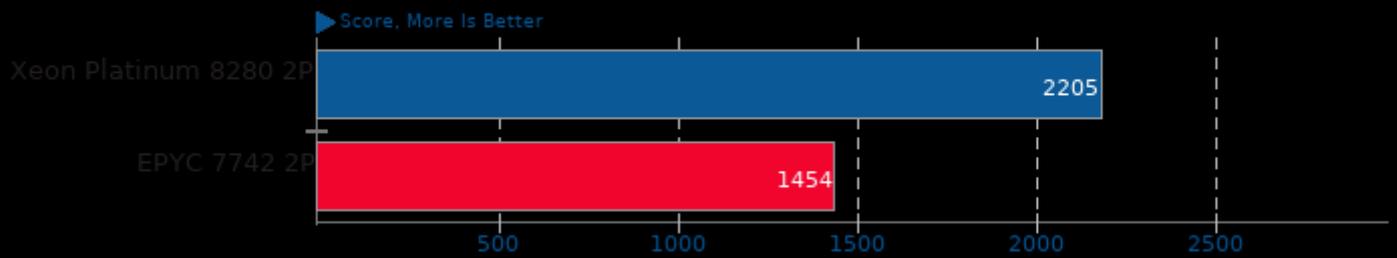
### Blender 2.92

Blend File: Barbershop - Compute: CPU-Only



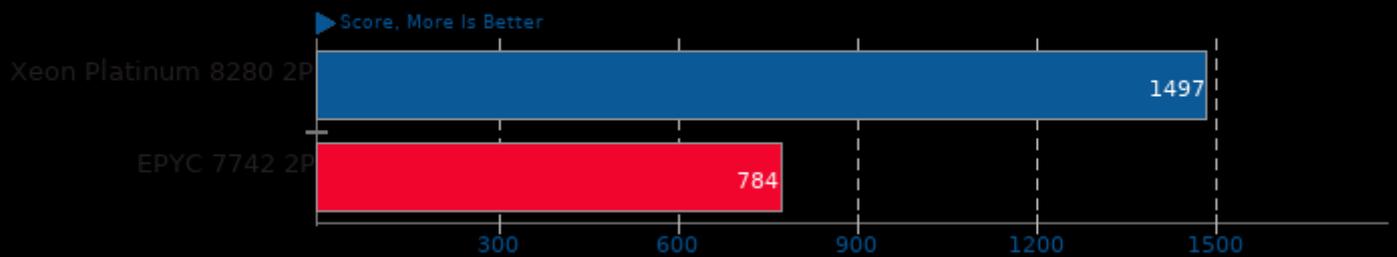
### AI Benchmark Alpha 0.1.2

Device Inference Score



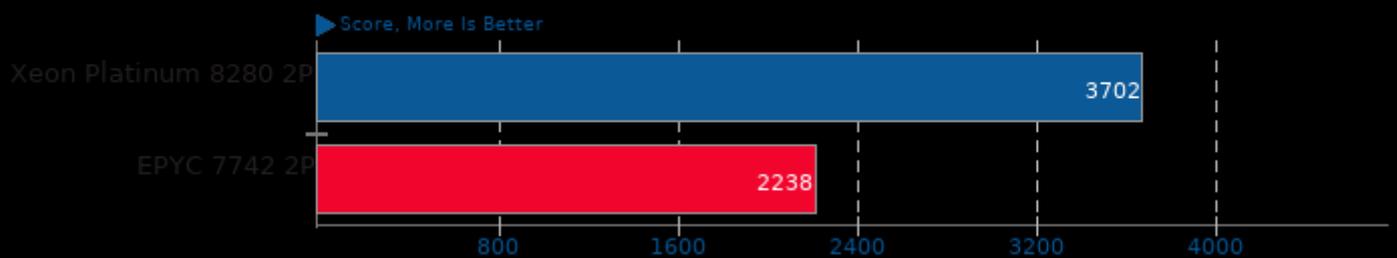
### AI Benchmark Alpha 0.1.2

Device Training Score

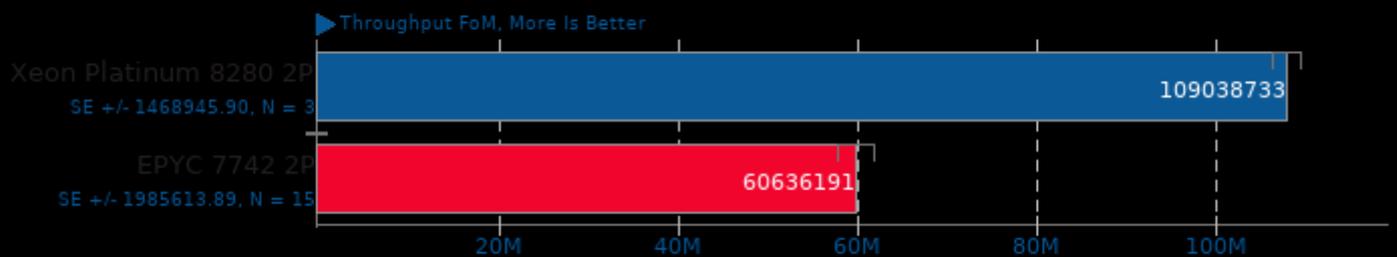


### AI Benchmark Alpha 0.1.2

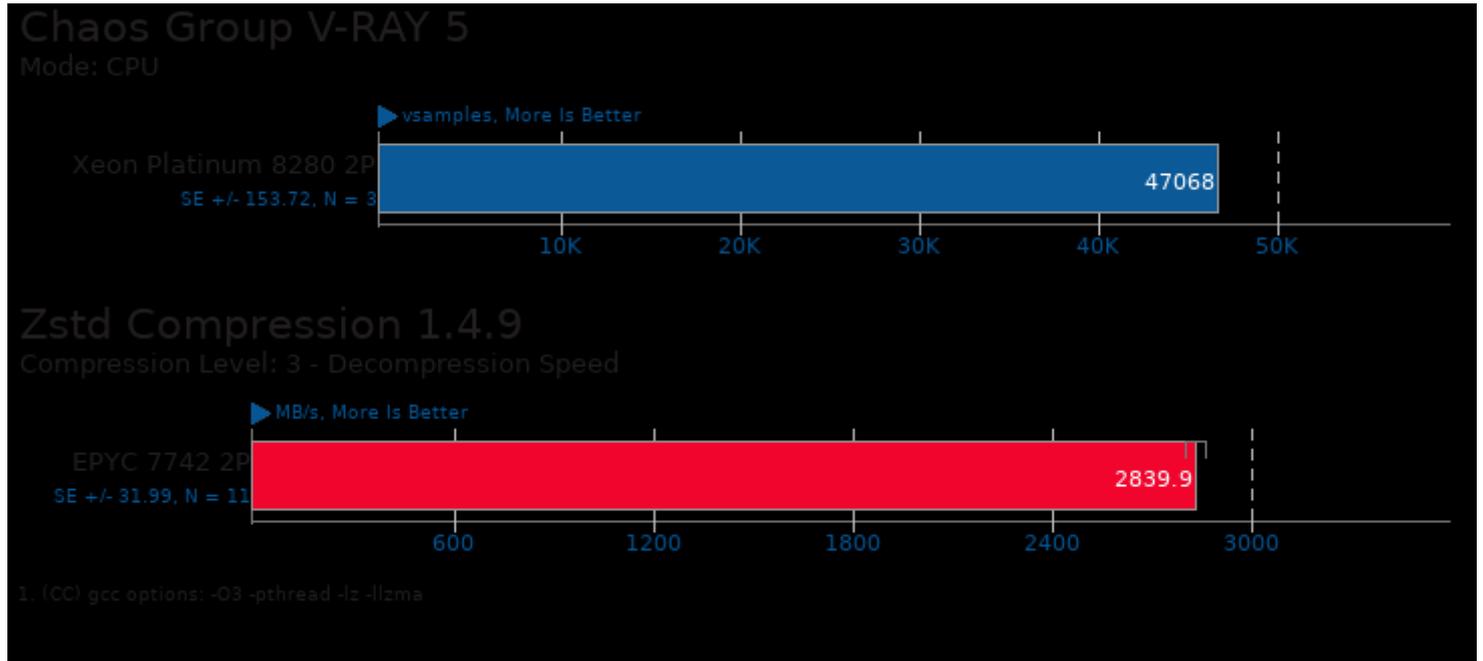
Device AI Score



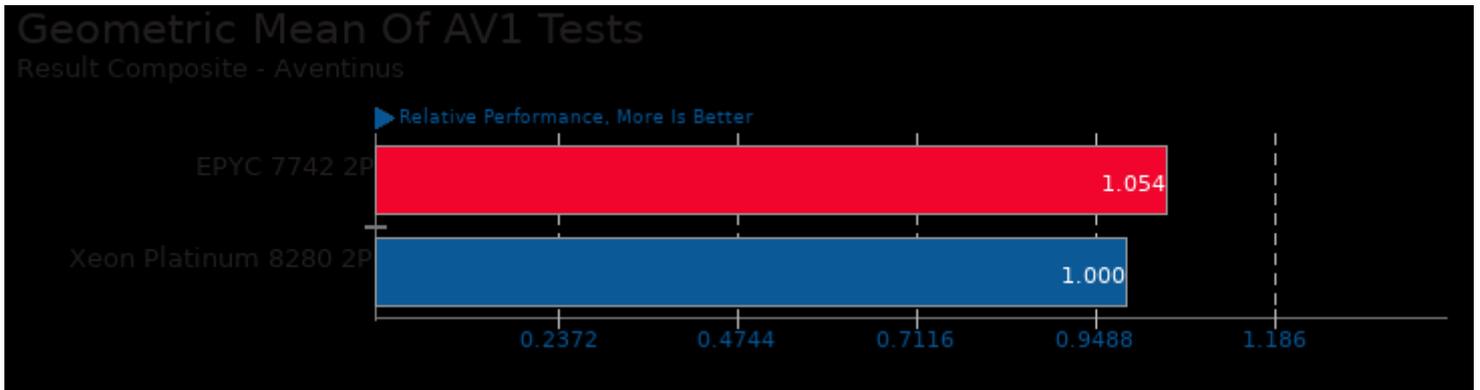
### Kripke 1.2.4



1. (CXX) g++ options: -O3 -fopenmp



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



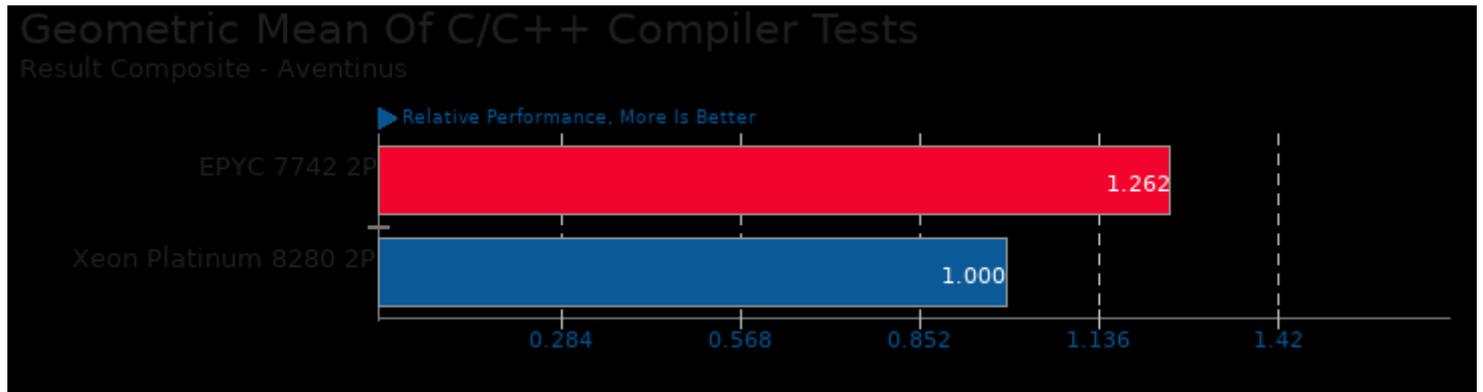
Geometric mean based upon tests: pts/dav1d and pts/avifenc



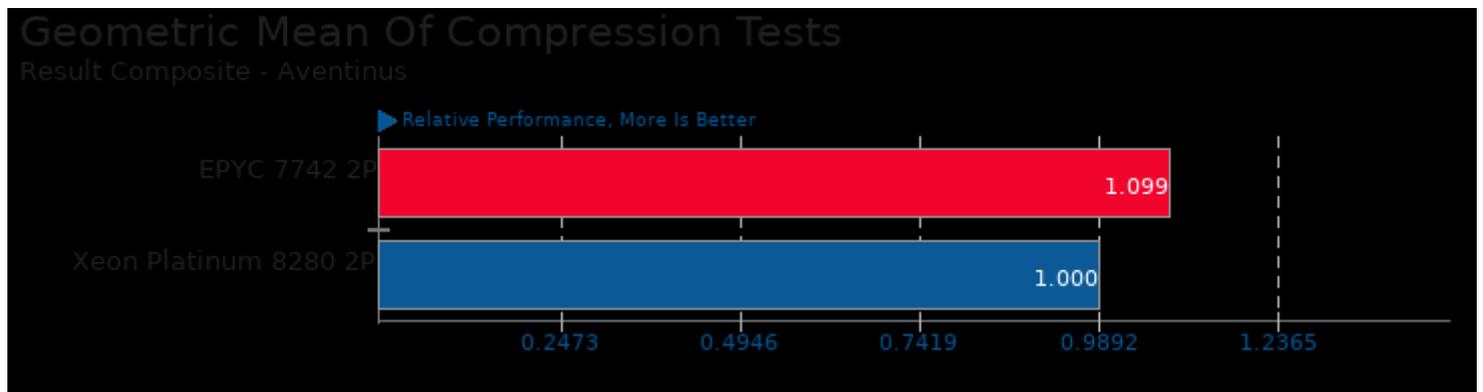
Geometric mean based upon tests: pts/crafty and pts/stockfish



Geometric mean based upon tests: pts/build-linux-kernel, pts/build-llvm, pts/build2, pts/build-godot, pts/build-erlang and pts/build-wasmer



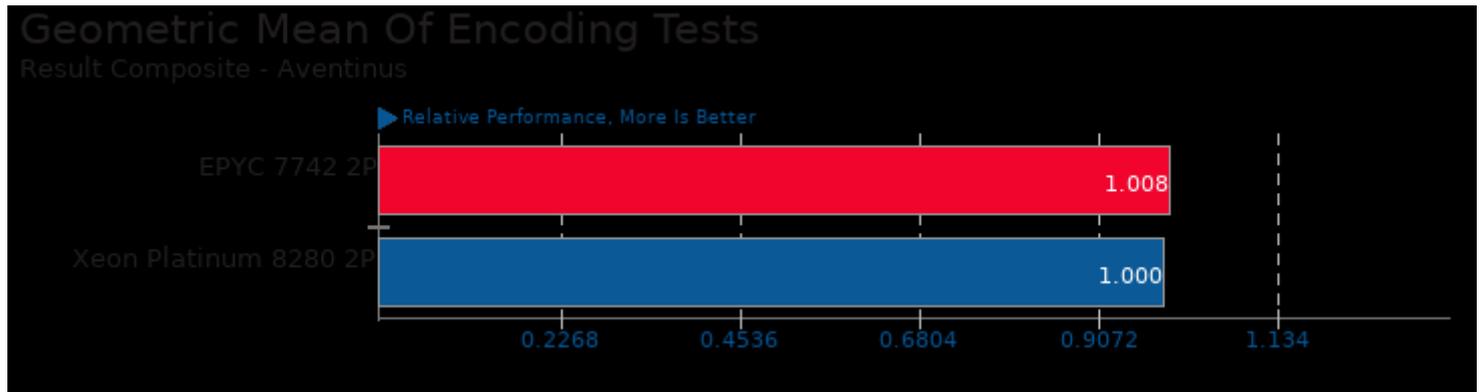
Geometric mean based upon tests: pts/stockfish, pts/hmmer, pts/build-llvm, pts/c-ray, pts/compress-7zip, pts/john-the-ripper, pts/dav1d, pts/compress-zstd, pts/lammps, pts/svt-vp9, pts/gromacs, pts/tachyon and pts/toybot



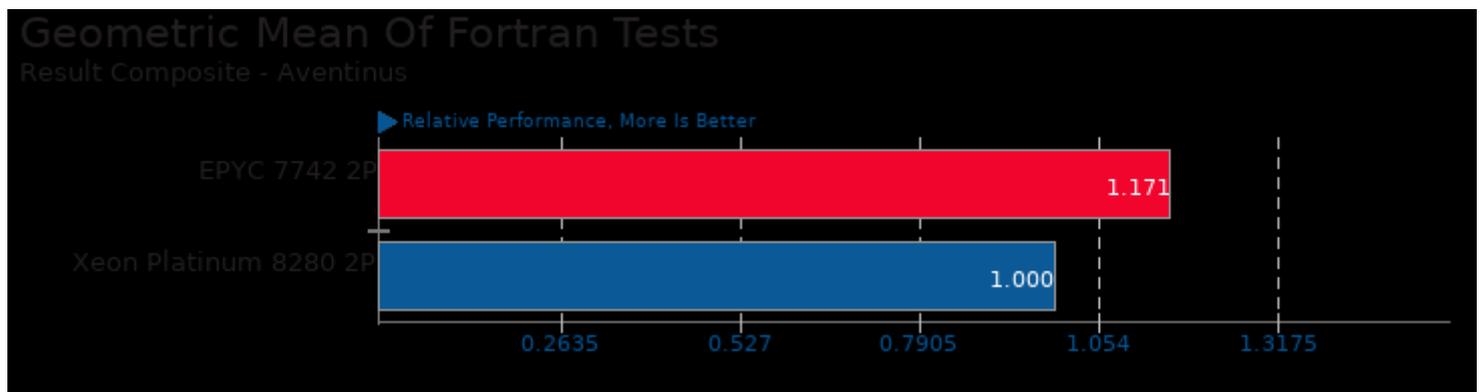
Geometric mean based upon tests: pts/compress-7zip and pts/compress-zstd



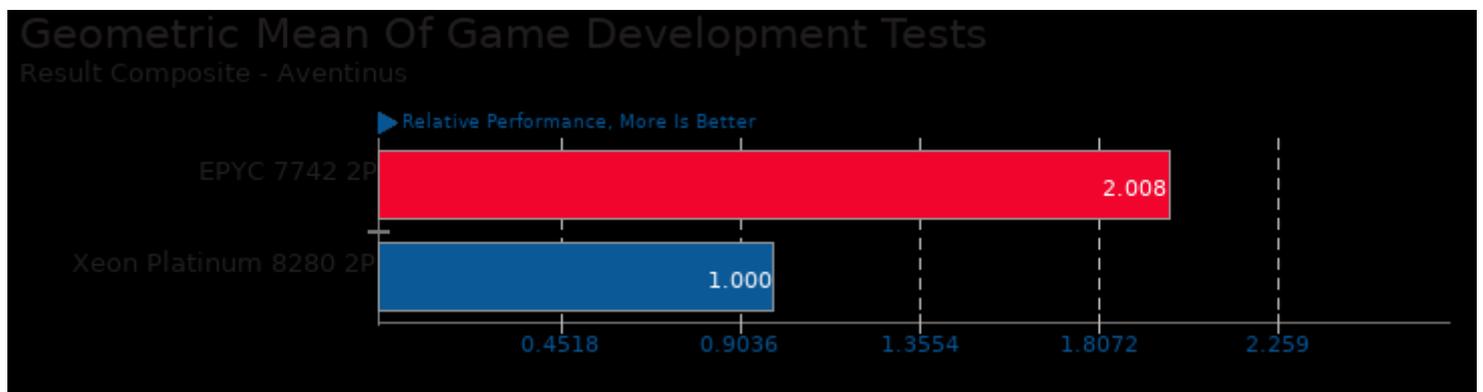
Geometric mean based upon tests: pts/c-ray, pts/tachyon, pts/blender, pts/luxcorerender, pts/smallpt, pts/v-ray, pts/svt-vp9, pts/dav1d, pts/avifenc, pts/webp2, pts/jpegxl, pts/embree and pts/build-godot



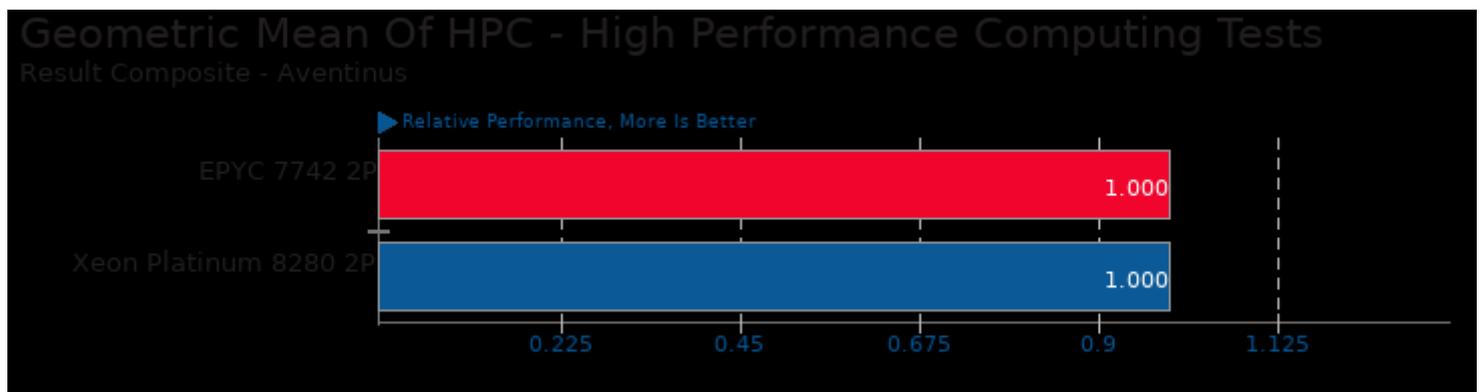
Geometric mean based upon tests: pts/svt-vp9, pts/dav1d and pts/avifenc



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



Geometric mean based upon tests: pts/build-godot and pts/blender

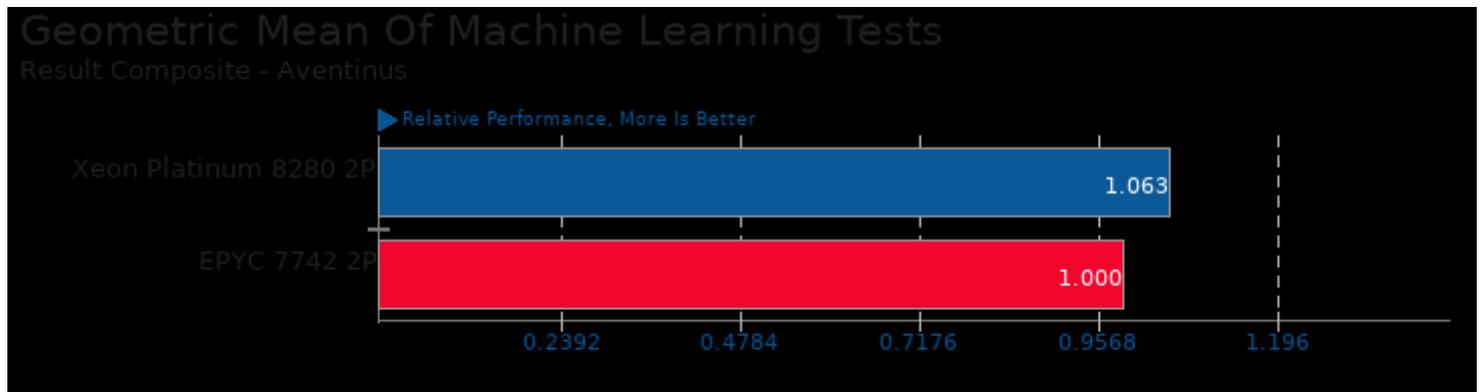


Geometric mean based upon tests: pts/npb, pts/hpcg, pts/amg, pts/namd, pts/gromacs, pts/dolfyn, pts/clusterleaf,

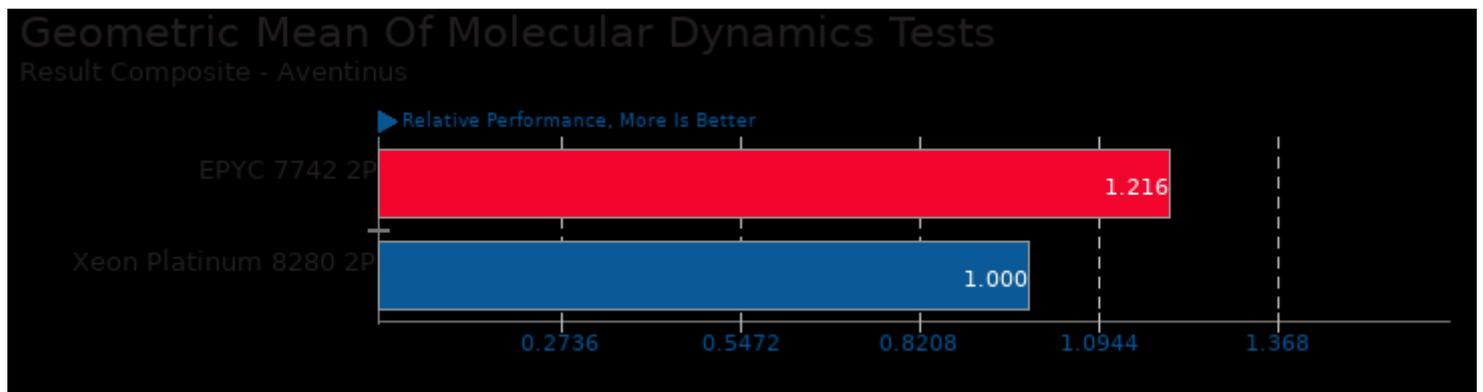
pts/lammps, pts/openfoam, pts/hmmer, pts/kripke, pts/tnn, pts/ai-benchmark and pts/tensorflow-lite



Geometric mean based upon tests: pts/webp2, pts/jpegxl and pts/avifenc



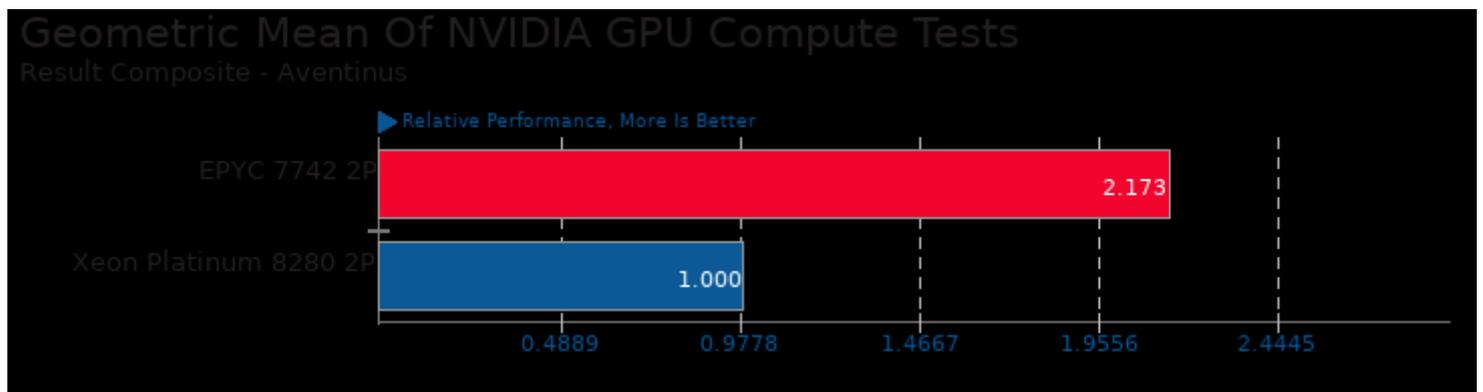
Geometric mean based upon tests: pts/tnn, pts/ai-benchmark and pts/tensorflow-lite



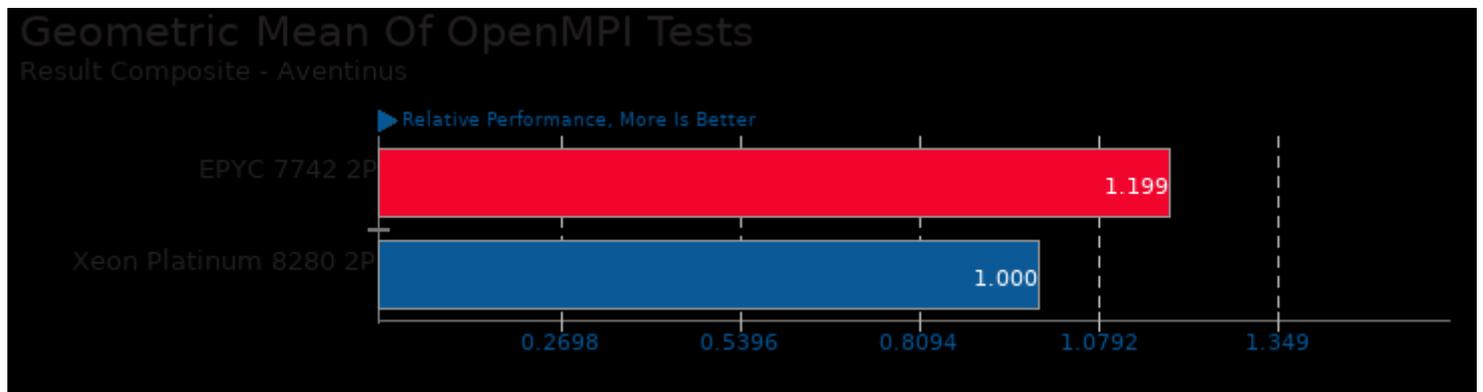
Geometric mean based upon tests: pts/namd, pts/gromacs, pts/dolfyn, pts/cloverleaf, pts/lammps and pts/openfoam



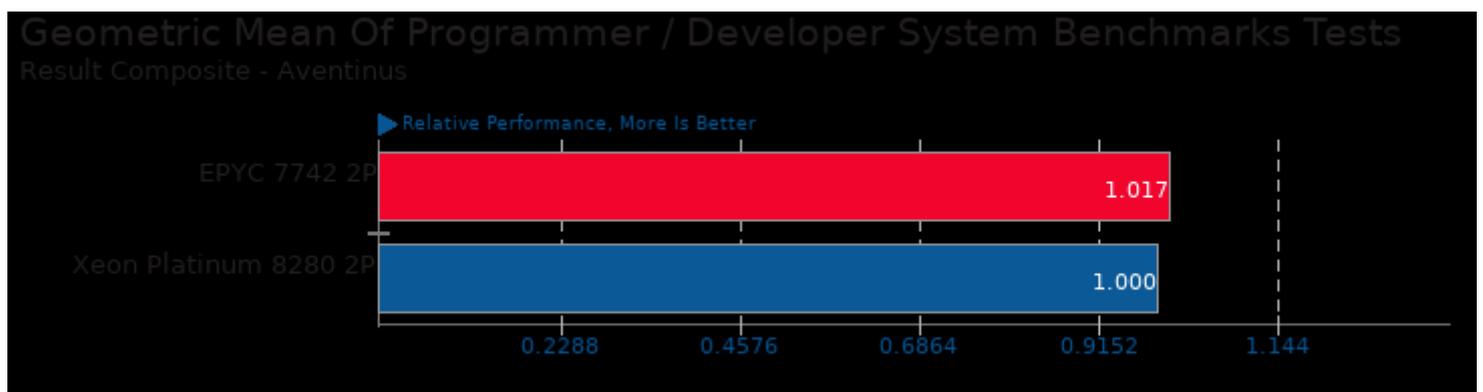
Geometric mean based upon tests: pts/lammps, pts/gromacs, pts/hpcg and pts/npb



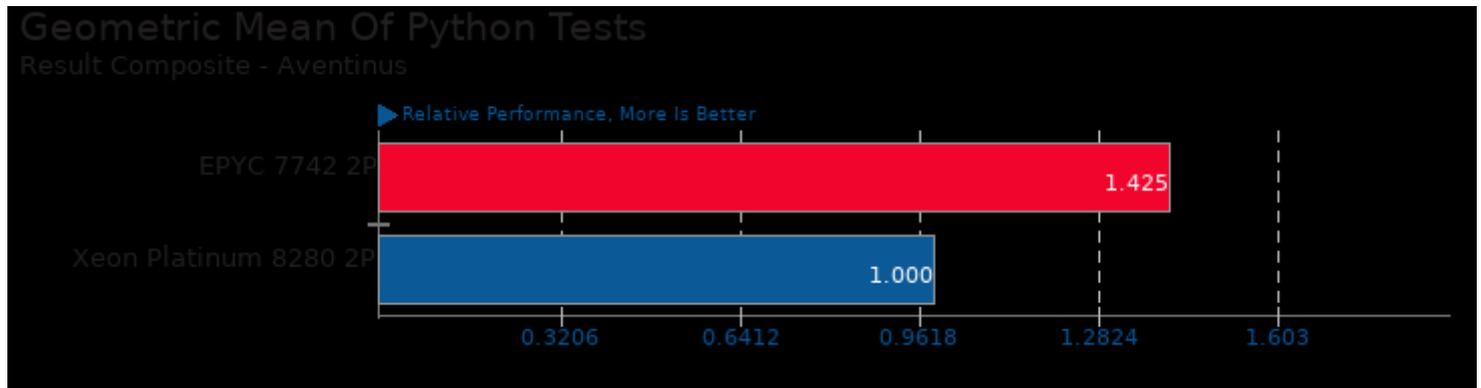
Geometric mean based upon tests: pts/gromacs, pts/luxcorerender, pts/v-ray and pts/blender



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



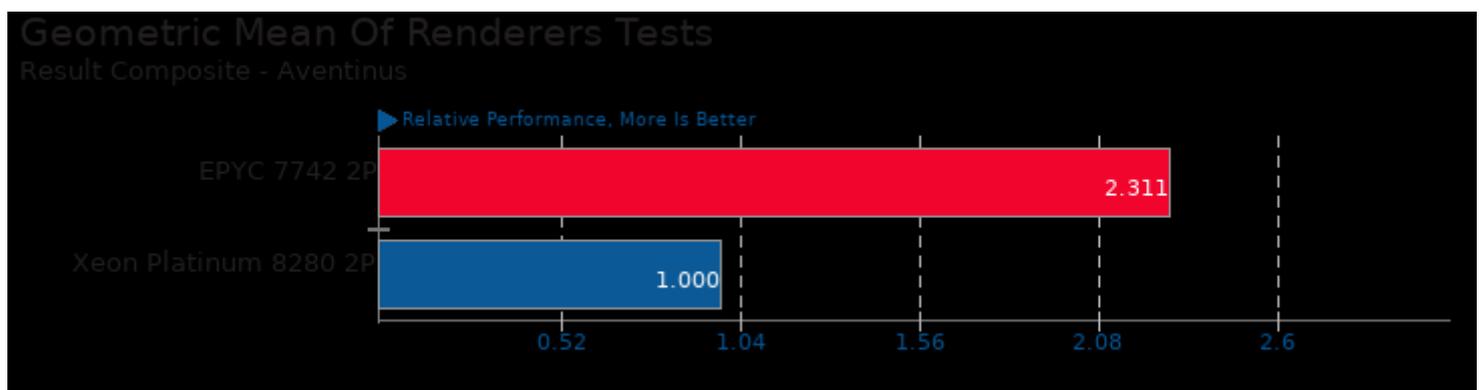
Geometric mean based upon tests: pts/compress-zstd, pts/build-linux-kernel, pts/build-llvm, pts/build2, pts/build-godot, pts/build-erlang, pts/build-wasmer and pts/amg



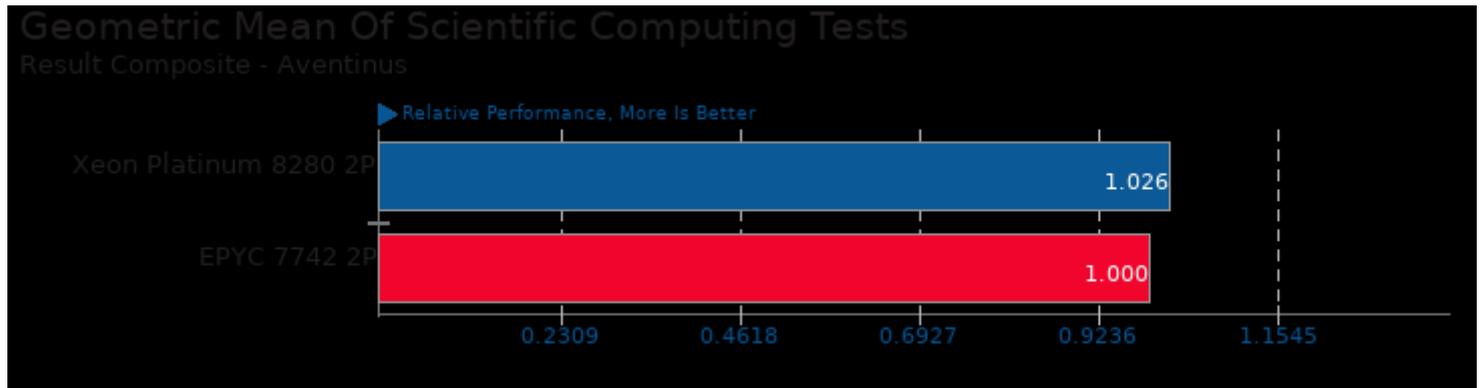
Geometric mean based upon tests: pts/stream-dynamic, pts/build-godot, pts/build-llvm and pts/ai-benchmark



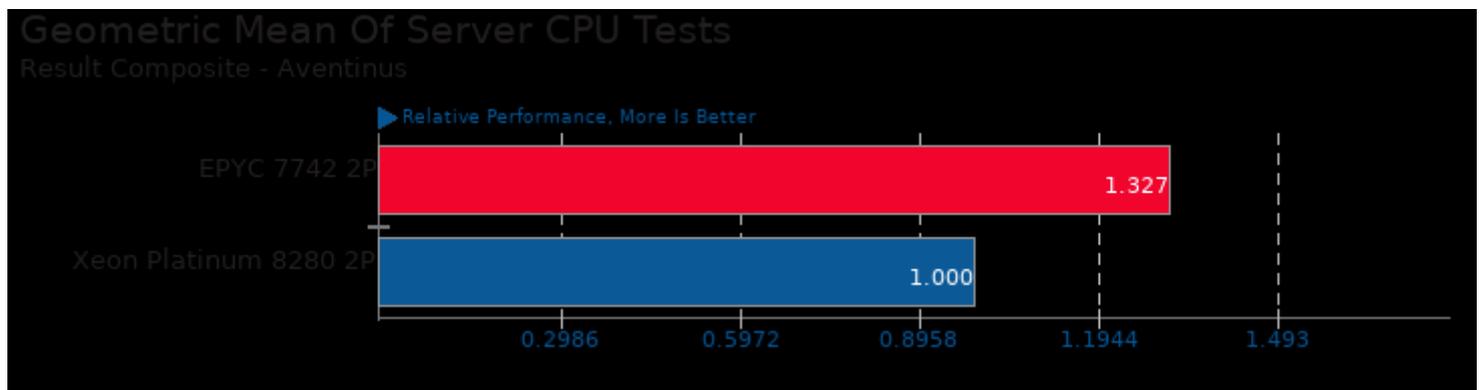
Geometric mean based upon tests: pts/c-ray and pts/tachyon



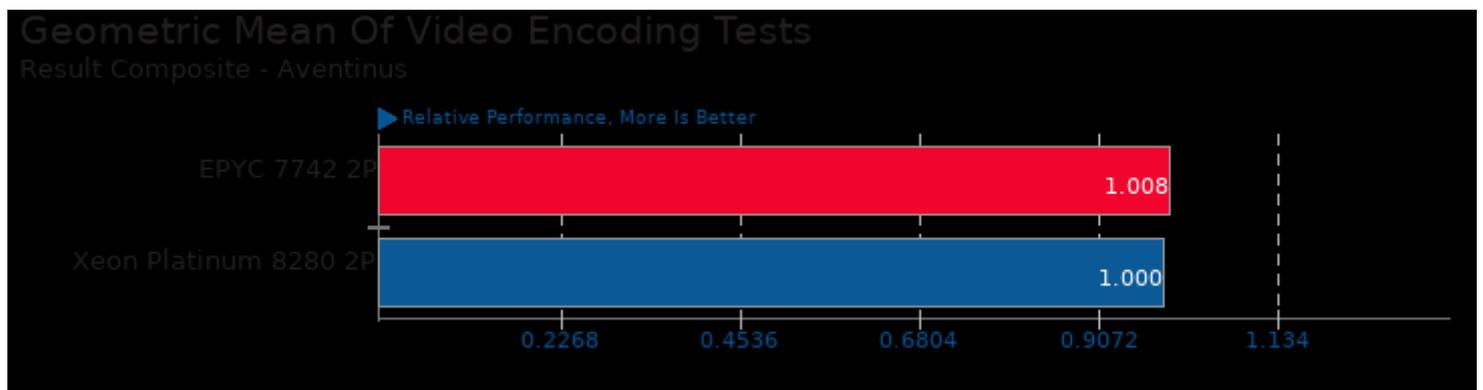
Geometric mean based upon tests: pts/c-ray, pts/tachyon, pts/blender, pts/luxcorerender, pts/smallpt and pts/v-ray



Geometric mean based upon tests: pts/amg, pts/namd, pts/gromacs, pts/dolfyn, pts/cloverleaf, pts/lammps, pts/openfoam, pts/hmmer and pts/kripke



Geometric mean based upon tests: pts/npb, pts/namd, pts/john-the-ripper, pts/svt-vp9, pts/dav1d, pts/compress-7zip, pts/stockfish, pts/build-linux-kernel, pts/build-llvm, pts/c-ray, pts/compress-zstd, pts/hackbench and pts/blender



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

This file was automatically generated via the Phoronix Test Suite benchmarking software on Friday, 29 March 2024 11:38.