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## epyc-march

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 58% of the tests.*

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

*Rodinia (Test: OpenMP CFD Solver) at 20.643x*

*oneDNN (Harness: Convolution Batch Shapes Auto - Data Type: f32 - Engine: CPU) at 2.698x*

*Rodinia (Test: OpenMP HotSpot3D) at 1.338x*

*LeelaChessZero (Backend: Eigen) at 1.195x*

*LeelaChessZero (Backend: BLAS) at 1.181x*

*NAS Parallel Benchmarks (Test / Class: LU.C) at 1.101x*

*Rodinia (Test: OpenMP Leukocyte) at 1.099x*

*C-Blosc (Compressor: blosclz) at 1.085x*

*Rodinia (Test: OpenMP LavaMD) at 1.076x*

*Parboil (Test: OpenMP MRI Gridding) at 1.072x.*

## Test Systems:

### EPYC 7742 2P

2P

### 2 x AMD EPYC 7742 64-Core

### 7742 2P Repeat

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: VGA HDMI, Network: 2 x Intel 10G X550T

OS: Ubuntu 20.04, Kernel: 5.8.0-44-generic (x86\_64), 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  
 Disk Notes: NONE / errors=remount-ro,relatime,rw / Block Size: 4096  
 Processor Notes: Scaling Governor: acpi-cpufreq performance (Boost: Enabled) - CPU Microcode: 0x8301034  
 Java Notes: OpenJDK Runtime Environment (build 11.0.10+9-Ubuntu-0ubuntu1.20.04)  
 Python Notes: Python 2.7.18 + Python 3.8.5  
 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/swaps barriers and \_\_user pointer sanitization + spectre\_v2: Mitigation of Full AMD retpoline IBPB: conditional IBRS\_FW STIBP: conditional RSB filling + srbd: Not affected + tsx\_async\_abort: Not affected

	EPYC 7742 2P	2P	2 x AMD EPYC 7742 64-Core	7742 2P Repeat
<b>7-Zip Compression - C.S.T (MIPS)</b>	338315			
Standard Deviation	4.6%			
<b>ACES DGEMM - S.F.P.R (GFLOP/s)</b>	28.494121			
Standard Deviation	0.8%			
<b>Algebraic Multi-Grid Benchmark</b>	<b>1247427667</b>			<b>1246138667</b>
(Figure Of Merit)				
Normalized	100%			99.9%
Standard Deviation	0.2%			0.1%
<b>AOBench - 2048 x 2048 - Total Time</b>	39.902			
(sec)				
Standard Deviation	0.1%			
<b>AOM AV1 - Speed 6 Realtime (FPS)</b>	18.47			
Standard Deviation	1.1%			
<b>AOM AV1 - Speed 6 Two-Pass (FPS)</b>	3.36			
Standard Deviation	0.5%			
<b>AOM AV1 - Speed 8 Realtime (FPS)</b>	31.89			
Standard Deviation	2%			

<b>Apache CouchDB - 100 - 1000 - 24</b>	112.558	
Standard Deviation	1.5%	
<b>ASKAP - tConvolve MT - Gridding</b>	5225	
(Million Grid Points/sec)		
Standard Deviation	2.8%	
<b>ASKAP - tConvolve MT - Degridding</b>	7117	
(Million Grid Points/sec)		
Standard Deviation	8.8%	
<b>ASKAP - tConvolve MPI - Degridding</b>	38292	
(Mpix/sec)		
Standard Deviation	1.9%	
<b>ASKAP - tConvolve MPI - Gridding</b>	37600	
(Mpix/sec)		
Standard Deviation	1%	
<b>ASKAP - tConvolve OpenMP - Gridding</b>	4827	
(Million Grid Points/sec)		
Standard Deviation	5.6%	
<b>ASKAP - tConvolve OpenMP - Degridding</b>	3992	
(Million Grid Points/sec)		
Standard Deviation	4.8%	
<b>ASKAP - H.C.O (Iterations/sec)</b>	217.823	
Standard Deviation	5.2%	
<b>asmFish - 1.H.M.2.D (Nodes/s)</b>	236093113	
Standard Deviation	1.4%	
<b>Blender - BMW27 - CPU-Only (sec)</b>	24.22	
Standard Deviation	1.6%	
<b>Blender - Classroom - CPU-Only (sec)</b>	49.06	
Standard Deviation	1%	
<b>Blender - Fishy Cat - CPU-Only (sec)</b>	36.02	
Standard Deviation	1.5%	
<b>Blender - Barbershop - CPU-Only</b>	81.79	
Standard Deviation	4.2%	
<b>Blender - Pabellon Barcelona - CPU-Only (sec)</b>	64.56	
Standard Deviation	0.5%	
<b>Build2 - Time To Compile (sec)</b>	64.213	
Standard Deviation	0.5%	
<b>C-Blosc - blosclz (MB/s)</b>	3492	<div style="width: 3492px; background-color: #e0e0e0;"></div>
Normalized	92.17%	
Standard Deviation	1.2%	
<b>C-Ray - Total Time - 4.1.R.P.P (sec)</b>	7.754	
Standard Deviation	7.4%	
<b>CloverLeaf - L.E.H (sec)</b>	23.36	<div style="width: 23.36px; background-color: #e0e0e0;"></div>
Normalized	100%	
Standard Deviation	6.3%	
<b>Crafty - Elapsed Time (Nodes/s)</b>	6757787	<div style="width: 6757787px; background-color: #e0e0e0;"></div>
Normalized	99.69%	
Standard Deviation	0.3%	
<b>DaCapo Benchmark - H2 (msec)</b>	5947	<div style="width: 5947px; background-color: #e0e0e0;"></div>
Normalized	100%	
Standard Deviation	8.2%	
<b>DaCapo Benchmark - Jython (msec)</b>	5027	<div style="width: 5027px; background-color: #e0e0e0;"></div>
Normalized	100%	

<b>DaCapo Benchmark - Tradebeans</b>	<b>4866</b>	2.4%	<b>4991</b>	2.1%
	(msec)			
<b>dav1d - Summer Nature 4K (FPS)</b>	<b>387.05</b>	Normalized 100%	97.5%	10.5%
		Standard Deviation 8.3%		
<b>dav1d - S.N.1 (FPS)</b>	<b>1246</b>	Standard Deviation 1%		
		Normalized 100%		
<b>ddraw - R.T.P.I.C (sec)</b>	<b>50.516</b>	Standard Deviation 3.6%		
		Normalized 100%		
<b>DeepSpeech - CPU (sec)</b>	<b>78.03710</b>	Standard Deviation 0.1%		
		Normalized 100%		
<b>Dolfyn - C.F.D (sec)</b>	<b>20.206</b>	Standard Deviation 13.3%	<b>20.201</b>	100%
		Normalized 99.98%		0.4%
		Standard Deviation 0.4%		
<b>Embree - Pathtracer - Crown (FPS)</b>	<b>67.5868</b>	Standard Deviation 0.7%		
		Normalized 100%		
<b>Embree - Pathtracer ISPC - Crown</b>	<b>59.3323</b>	Standard Deviation 1.5%		
	(FPS)	Normalized 100%		
<b>Embree - Pathtracer - Asian Dragon</b>	<b>44.9727</b>	Standard Deviation 1.2%		
	(FPS)	Normalized 100%		
<b>Embree - Pathtracer - Asian Dragon</b>	<b>39.0474</b>	Standard Deviation 0.5%		
	Obj (FPS)	Normalized 100%		
<b>Embree - Pathtracer ISPC - Asian</b>	<b>42.1185</b>	Standard Deviation 0.6%	<b>1037</b>	99.77%
	Dragon (FPS)	Normalized 100%		0.6%
<b>Embree - Pathtracer ISPC - Asian</b>	<b>36.3283</b>	Standard Deviation 0.1%	<b>237.245</b>	100%
	Dragon Obj (FPS)	Normalized 100%		0.1%
<b>eSpeak-NG Speech Engine - T.T.S.S</b>	<b>35.079</b>	Standard Deviation 1.5%	<b>139.561</b>	100%
	(sec)	Normalized 100%		0.1%
<b>EtcPak - DXT1 (Mpx/s)</b>	<b>1040</b>	Standard Deviation 0.6%	<b>224.164</b>	100%
		Normalized 100%		0%
<b>EtcPak - ETC1 (Mpx/s)</b>	<b>236.722</b>	Standard Deviation 0.6%	<b>148614</b>	98.61%
		Normalized 99.78%		10.2%
<b>EtcPak - ETC2 (Mpx/s)</b>	<b>139.501</b>	Standard Deviation 0.1%		
		Normalized 99.96%		
<b>EtcPak - ETC1 + Dithering (Mpx/s)</b>	<b>224.164</b>	Standard Deviation 0%		
		Normalized 99.81%		
<b>FFTE - N.2.3.C.F.R (MFLOPS)</b>	<b>150713</b>	Standard Deviation 0%		
		Normalized 100%		
		Standard Deviation 7.2%		

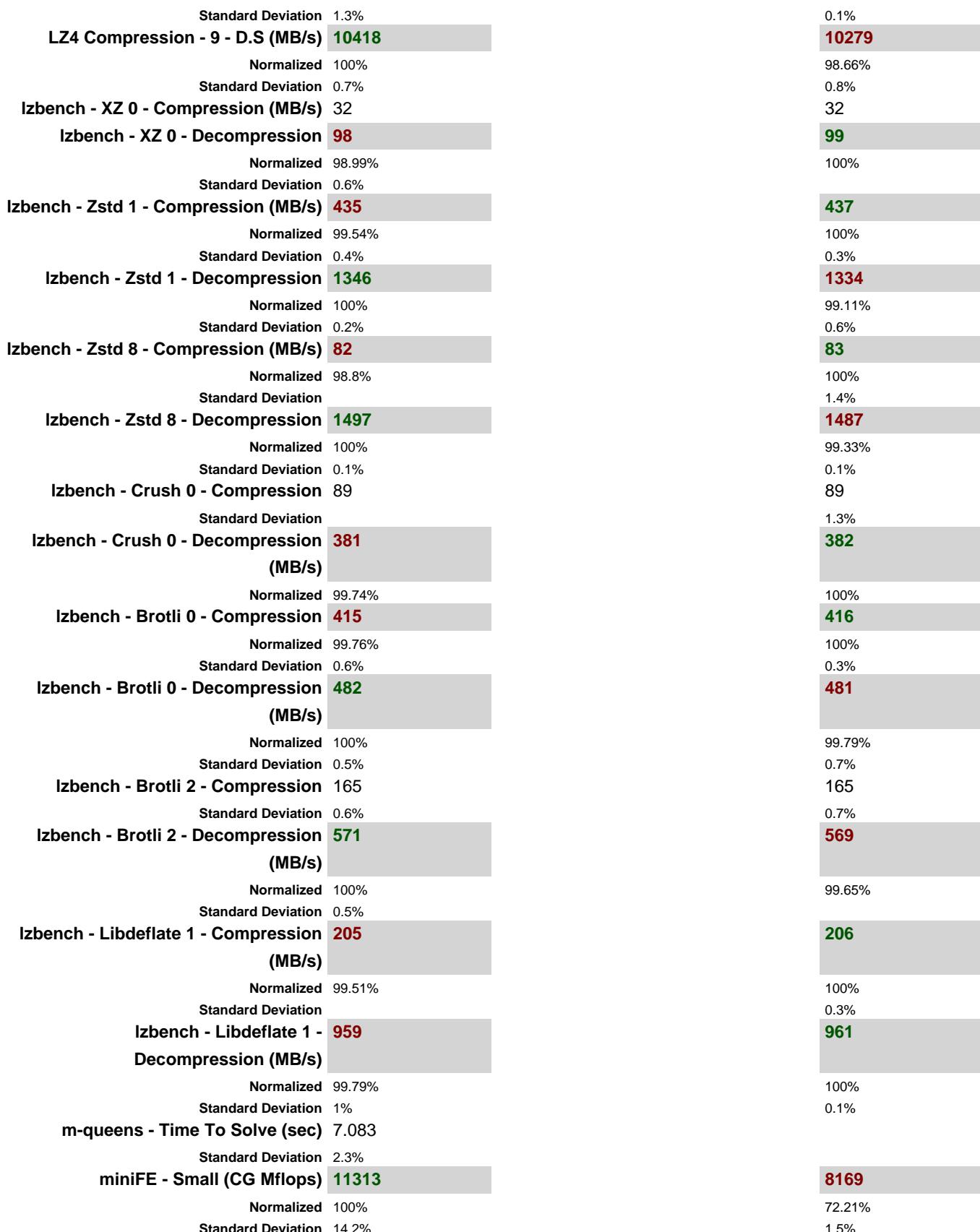
<b>FFTW - Stock - 1D FFT Size 4096</b>	<b>6874</b>		<b>6891</b>
(Mflops)			
Normalized	99.76%		100%
Standard Deviation	0.2%		0.2%
<b>FFTW - Stock - 2D FFT Size 2048</b>	<b>6161</b>		<b>6087</b>
(Mflops)			
Normalized	100%		98.8%
Standard Deviation	0.1%		1.3%
<b>FFTW - Stock - 2D FFT Size 4096</b>	<b>5388</b>		<b>5307</b>
(Mflops)			
Normalized	100%		98.5%
Standard Deviation	0.4%		1.8%
<b>FFTW - Float + SSE - 1D FFT Size 4096</b>	<b>44939</b>		<b>44294</b>
(Mflops)			
Normalized	100%		98.56%
Standard Deviation	1.3%		0.5%
<b>FFTW - Float + SSE - 2D FFT Size 2048</b>	<b>26509</b>		<b>26795</b>
(Mflops)			
Normalized	98.93%		100%
Standard Deviation	2.6%		0.9%
<b>FFTW - Float + SSE - 2D FFT Size 4096</b>	<b>18663</b>		<b>17541</b>
(Mflops)			
Normalized	100%		93.99%
Standard Deviation			2.3%
<b>FinanceBench - Repo OpenMP (ms)</b>	52055		
Standard Deviation	0.6%		
<b>FinanceBench - Bonds OpenMP (ms)</b>	89586		
Standard Deviation	1.2%		
<b>FLAC Audio Encoding - WAV To</b>	9.830		
<b>FLAC (sec)</b>			
Standard Deviation	0.2%		
<b>GNU Radio - F.B.t.B.F.F (MiB/s)</b>	<b>400.8</b>	<b>433.2</b>	423.3
Normalized	92.52%	100%	97.71%
Standard Deviation	8.5%	8.4%	2.3%
<b>GNU Radio - S.S.C (MiB/s)</b>	<b>3033</b>	3041	<b>3090</b>
Normalized	98.14%	98.39%	100%
Standard Deviation	2.3%	1.9%	2.1%
<b>GNU Radio - FIR Filter (MiB/s)</b>	<b>554.9</b>	555.8	<b>555.9</b>
Normalized	99.82%	99.98%	100%
Standard Deviation	0.5%	0.6%	0.2%
<b>GNU Radio - IIR Filter (MiB/s)</b>	<b>506.9</b>	<b>505.0</b>	<b>506.9</b>
Normalized	100%	99.63%	100%
Standard Deviation	0.6%	0.7%	0.1%
<b>GNU Radio - F.D.F (MiB/s)</b>	<b>744.6</b>	<b>751.2</b>	747.2
Normalized	99.12%	100%	99.47%
Standard Deviation	3.6%	3.4%	5.2%
<b>GNU Radio - Hilbert Transform (MiB/s)</b>	436.5	<b>436.2</b>	<b>437.6</b>
Normalized	99.75%	99.68%	100%
Standard Deviation	0.4%	0.4%	0.5%
<b>Google SynthMark - VoiceMark_100</b>	646.905		
<b>(Voices)</b>			
Standard Deviation	0.2%		
<b>GraphicsMagick - Swirl</b>	<b>1721</b>		<b>1730</b>
Normalized	99.48%		100%

<b>GraphicsMagick - Rotate</b>	543	1.4%
Normalized	100%	<b>523</b>
Standard Deviation	1.1%	96.32%
<b>GraphicsMagick - Sharpen</b>	833	2.4%
(Iterations/min)		<b>829</b>
Normalized	100%	99.52%
Standard Deviation	2.4%	1.1%
<b>GraphicsMagick - Enhanced</b>	1199	<b>1203</b>
(Iterations/min)		100%
Normalized	99.67%	0.1%
Standard Deviation	0.3%	<b>68</b>
<b>GraphicsMagick - Resizing</b>	69	98.55%
(Iterations/min)		2.2%
Normalized	100%	<b>654</b>
Standard Deviation	2.2%	100%
<b>GraphicsMagick - Noise-Gaussian</b>	650	1.1%
(Iterations/min)		<b>880</b>
Normalized	99.39%	0.8%
Standard Deviation	3.6%	94.73%
<b>GraphicsMagick - HWB Color Space</b>	929	0.4%
(Iterations/min)		0.4%
Normalized	100%	8.064
Standard Deviation	5.5%	
<b>GROMACS - water_GMX50_bare</b>		
(Ns/Day)		
Standard Deviation		
<b>Gzip Compression - L.S.T.A.T.t.g (sec)</b>	41.888	
Standard Deviation	0.3%	
<b>High Performance Conjugate Gradient</b>	<b>25.6364</b>	<b>25.9558</b>
(GFLOP/s)		
Normalized	98.77%	100%
Standard Deviation	2.5%	1.4%
<b>Himeno Benchmark - P.P.S (MFLOPS)</b>	3962	
Standard Deviation	0.9%	
<b>HPL Linpack (GFLOPS)</b>	153.59	
Standard Deviation	0.5%	
<b>Incompact3D - Cylinder (sec)</b>	<b>345.786885</b>	<b>348.516388</b>
Normalized	100%	99.22%
Standard Deviation	0.4%	0.7%
<b>Intel Open Image Denoise - Memorial</b>	28.72	
(Images / Sec)		
Standard Deviation	1.2%	
<b>IOR - 2MB (MB/s)</b>	<b>445.10</b>	<b>452.03</b>
Normalized	98.47%	100%
Standard Deviation	0.5%	2.5%
<b>IOR - 4MB (MB/s)</b>	<b>485.74</b>	<b>480.55</b>
Normalized	100%	98.93%
Standard Deviation	2.2%	1.1%
<b>IOR - 8MB (MB/s)</b>	<b>489.40</b>	<b>485.13</b>
Normalized	100%	99.13%
Standard Deviation	0.4%	1.3%
<b>IOR - 16MB (MB/s)</b>	<b>480.63</b>	<b>468.11</b>
Normalized	100%	97.4%

<b>IOR - 32MB (MB/s)</b>	Standard Deviation 0.4%	2%
<b>JPEG XL - PNG - 5 (MP/s)</b>	Normalized 98.96%	461.38
	Standard Deviation 3.5%	0.8%
<b>JPEG XL - PNG - 7 (MP/s)</b>	9.77	<b>64.40</b>
	Standard Deviation 0.4%	100%
<b>JPEG XL - PNG - 8 (MP/s)</b>	0.70	3.1%
	Standard Deviation 0.8%	9.77
<b>JPEG XL - JPEG - 5 (MP/s)</b>	Normalized 97.36%	0.5%
	Standard Deviation 2.5%	0.70
<b>JPEG XL - JPEG - 7 (MP/s)</b>	51.17	0.8%
	Normalized 100%	<b>53.11</b>
	Standard Deviation 0.6%	100%
<b>JPEG XL - JPEG - 8 (MP/s)</b>	22.91	1.9%
	Normalized 100%	<b>51.17</b>
	Standard Deviation 2.9%	99.63%
<b>JPEG XL Decoding - All (MP/s)</b>	99.54	2.5%
	Normalized 100%	<b>22.72</b>
	Standard Deviation 1.3%	99.17%
<b>JPEG XL Decoding - 1 (MP/s)</b>	32.97	4.5%
	Standard Deviation 0.6%	<b>99.32</b>
<b>Kvazaar - Bosphorus 4K - Medium</b>	22.70	99.78%
	Standard Deviation 3.3%	0.4%
<b>Kvazaar - Bosphorus 1080p - Medium</b>	64.43	32.97
	(FPS)	0.6%
<b>Kvazaar - Bosphorus 4K - Very Fast</b>	40.15	
	Standard Deviation 1.2%	
<b>Kvazaar - Bosphorus 4K - Ultra Fast</b>	44.45	
	Standard Deviation 8.9%	
<b>Kvazaar - Bosphorus 1080p - Very</b>	136.84	
	Standard Deviation 13.8%	
<b>Kvazaar - Bosphorus 1080p - Ultra</b>	181.14	
	Standard Deviation 0.5%	
<b>LAME MP3 Encoding - WAV To MP3</b>	9.103	
	Standard Deviation 5.8%	
<b>LAMMPS Molecular Dynamics Simulator - 20k Atoms (ns/day)</b>	31.977	31.833
	Normalized 100%	99.55%
	Standard Deviation 0.3%	0.3%
<b>LAMMPS Molecular Dynamics Simulator - Rhodopsin Protein</b>	29.000	<b>28.183</b>
	Normalized 100%	97.18%
	Standard Deviation 2.4%	2.7%
<b>LeelaChessZero - BLAS (Nodes/s)</b>	3936	<b>3333</b>

	Normalized	100%		84.68%
	Standard Deviation	3.8%		2.3%
<b>LeelaChessZero - Eigen (Nodes/s)</b>	<b>4198</b>		<b>3512</b>	
	Normalized	100%		83.66%
	Standard Deviation	1.7%		4.2%
<b>libavif avifenc - 0 (sec)</b>	<b>60.112</b>		<b>60.626</b>	
	Normalized	100%		99.15%
	Standard Deviation	0.6%		2.2%
<b>libavif avifenc - 2 (sec)</b>	<b>32.717</b>		<b>32.697</b>	
	Normalized	99.94%		100%
	Standard Deviation	2.5%		2.6%
<b>libavif avifenc - 6 (sec)</b>	<b>12.103</b>		<b>12.958</b>	
	Normalized	100%		93.4%
	Standard Deviation	2.2%		7.9%
<b>libavif avifenc - 10 (sec)</b>	<b>4.228</b>		<b>4.189</b>	
	Normalized	99.08%		100%
	Standard Deviation	1.1%		2%
<b>libavif avifenc - 6, Lossless (sec)</b>	<b>34.934</b>		<b>35.432</b>	
	Normalized	100%		98.59%
	Standard Deviation	0.4%		2%
<b>libavif avifenc - 10, Lossless (sec)</b>	<b>7.587</b>		<b>7.400</b>	
	Normalized	97.54%		100%
	Standard Deviation	3.7%		0.9%
<b>libgav1 - Summer Nature 4K (FPS)</b>	18.97			
	Standard Deviation	0.4%		
<b>libgav1 - S.N.1 (FPS)</b>	72.74			
	Standard Deviation	5.1%		
<b>libgav1 - Chimera 1080p (FPS)</b>				51.20
	Standard Deviation			2.4%
<b>libjpeg-turbo tjbench - D.T</b>	172.304423			
	(Megapixels/sec)			
	Standard Deviation	0%		
<b>LibRaw - P.P.B (Mpix/sec)</b>	<b>30.99</b>		<b>29.78</b>	
	Normalized	100%		96.1%
	Standard Deviation	2.4%		0.6%
<b>Liquid-DSP - 1 - 256 - 57 (samples/s)</b>	<b>53594667</b>	<b>53579667</b>		
	Normalized	100%	99.97%	
	Standard Deviation	0.1%	0%	
<b>Liquid-DSP - 2 - 256 - 57 (samples/s)</b>	<b>107143333</b>	<b>107166667</b>		
	Normalized	99.98%	100%	
	Standard Deviation	0.1%	0%	
<b>Liquid-DSP - 4 - 256 - 57 (samples/s)</b>	<b>213280000</b>	<b>213286667</b>		
	Normalized	100%	100%	
	Standard Deviation	0.1%	0.1%	
<b>Liquid-DSP - 8 - 256 - 57 (samples/s)</b>	<b>427203333</b>	<b>427276667</b>		
	Normalized	99.98%	100%	
	Standard Deviation	0%	0.1%	
<b>Liquid-DSP - 16 - 256 - 57 (samples/s)</b>	<b>832276667</b>	<b>831613333</b>		
	Normalized	100%	99.92%	
	Standard Deviation	0.2%	0.1%	
<b>Liquid-DSP - 32 - 256 - 57 (samples/s)</b>	<b>1616566667</b>	<b>1618000000</b>		
	Normalized	99.91%	100%	
	Standard Deviation	0.2%	0.1%	
<b>Liquid-DSP - 64 - 256 - 57 (samples/s)</b>	<b>2703933333</b>	<b>2693766667</b>		
	Normalized	100%	99.62%	

Standard Deviation	0.5%	1.1%	
Liquid-DSP - 128 - 256 - 57	<b>3135600000</b>	<b>3218138462</b>	
Normalized	97.44%	100%	
Standard Deviation	0.7%	8.9%	
Liquid-DSP - 256 - 256 - 57	<b>5525100000</b>	<b>5550733333</b>	
Normalized	99.54%	100%	
Standard Deviation	0.9%	0.5%	
<b>LuaJIT - Composite (Mflops)</b>	<b>1179</b>		<b>1200</b>
Normalized	98.21%		100%
Standard Deviation	2.5%		3.1%
<b>LuaJIT - Monte Carlo (Mflops)</b>			412.34
Standard Deviation			0.1%
<b>LuaJIT - F.F.T (Mflops)</b>			210.57
Standard Deviation			0.6%
<b>LuaJIT - S.M.M (Mflops)</b>			1009
Standard Deviation			1.1%
<b>LuaJIT - D.L.M.F (Mflops)</b>			2812
Standard Deviation			10.7%
<b>LuaJIT - J.S.O.R (Mflops)</b>			1644
Standard Deviation			0%
<b>LuaRadio - F.B.t.B.F.F (MiB/s)</b>	<b>643.9</b>	<b>653.0</b>	<b>643.8</b>
Normalized	98.61%	100%	98.59%
Standard Deviation	1.2%	2.3%	1%
<b>LuaRadio - F.D.F (MiB/s)</b>	<b>346.8</b>	<b>343.0</b>	<b>347.1</b>
Normalized	99.91%	98.82%	100%
Standard Deviation	0.1%	1.7%	0.1%
<b>LuaRadio - Hilbert Transform (MiB/s)</b>	<b>84.4</b>	<b>84.4</b>	<b>84.6</b>
Normalized	99.76%	99.76%	100%
Standard Deviation	0%	0.3%	0.1%
<b>LuaRadio - Complex Phase (MiB/s)</b>	<b>532.7</b>	<b>532.5</b>	<b>534.5</b>
Normalized	99.66%	99.63%	100%
Standard Deviation	0.2%	0.3%	0.2%
<b>LuxCoreRender - DLSC (M</b>	<b>15.03</b>		
Standard Deviation	0.4%		
<b>LuxCoreRender - R.C.a.P (M</b>	<b>16.89</b>		
samples/sec)			
Standard Deviation	0.5%		
<b>LZ4 Compression - 1 - Compression</b>	<b>9528</b>		<b>9289</b>
Speed (MB/s)			
Normalized	100%		97.5%
Standard Deviation	1.2%		0.6%
<b>LZ4 Compression - 1 - D.S (MB/s)</b>	<b>11002</b>		<b>10869</b>
Normalized	100%		98.79%
Standard Deviation	1.4%		0.3%
<b>LZ4 Compression - 3 - Compression</b>	<b>45.36</b>		<b>45.16</b>
Speed (MB/s)			
Normalized	100%		99.56%
Standard Deviation	1.5%		1%
<b>LZ4 Compression - 3 - D.S (MB/s)</b>	<b>10188</b>		<b>10373</b>
Normalized	98.22%		100%
Standard Deviation	1.4%		0.5%
<b>LZ4 Compression - 9 - Compression</b>	<b>44.86</b>		<b>43.49</b>
Speed (MB/s)			
Normalized	100%		96.95%



<b>Monkey Audio Encoding - WAV To APE (sec)</b>	14.369	
Standard Deviation	0.3%	
<b>Montage Astronomical Image Mosaic Engine - M.o.M.K.b.1.5.d.x.1.5.d (sec)</b>	93.077	
Standard Deviation	0.1%	
<b>Monte Carlo Simulations of Ionised Nebulae - Dust 2D tau100.0 (sec)</b>	239	239
Standard Deviation	0.2%	
<b>N-Queens - Elapsed Time (sec)</b>	1.770	
Standard Deviation	14.9%	
<b>NAMD - ATPase Simulation - 327,506 Atoms (days/ns)</b>	0.27952	0.28306
Normalized	100%	98.75%
Standard Deviation	1.2%	1.5%
<b>NAS Parallel Benchmarks - CG.C (Mop/s)</b>	41060	39811
Normalized	100%	96.96%
Standard Deviation	1.6%	2.4%
<b>NAS Parallel Benchmarks - EP.C (Mop/s)</b>	8223	8108
Normalized	100%	98.6%
Standard Deviation	0.4%	0.2%
<b>NAS Parallel Benchmarks - EP.D (Mop/s)</b>	8426	7886
Normalized	100%	93.59%
Standard Deviation	0.3%	0.2%
<b>NAS Parallel Benchmarks - FT.C (Mop/s)</b>	76051	71133
Normalized	100%	93.53%
Standard Deviation	2.2%	0.6%
<b>NAS Parallel Benchmarks - IS.D (Mop/s)</b>	3269	3313
Normalized	98.66%	100%
Standard Deviation	1.6%	0.5%
<b>NAS Parallel Benchmarks - LU.C (Mop/s)</b>	194295	176466
Normalized	100%	90.82%
Standard Deviation	0.7%	1.6%
<b>NAS Parallel Benchmarks - MG.C (Mop/s)</b>	72807	73255
Normalized	99.39%	100%
Standard Deviation	1.1%	0.4%
<b>Nebular Empirical Analysis Tool (sec)</b>	62.752	85.373
Normalized	100%	73.5%
Standard Deviation	52.3%	30.6%
<b>Ngspice - C2670 (sec)</b>	169.462	
Standard Deviation	0.8%	
<b>Ngspice - C7552 (sec)</b>	130.441	
Standard Deviation	0%	
<b>Numpy Benchmark (Score)</b>	305.72	
Standard Deviation	0.5%	
<b>NWChem - C240 Buckyball (sec)</b>	1963	1934
Normalized	98.5%	100%

Ogg Audio Encoding - WAV To Ogg	23.699 (sec)		
oneDNN - IP Shapes 1D - f32 - CPU	2.07347 (ms)	2.06564 100% 0.6%	2.06564 100% 0.6%
oneDNN - IP Shapes 3D - f32 - CPU	1.54650 (ms)	2.49866 61.89% 18.5%	2.49866 61.89% 18.5%
oneDNN - IP Shapes 1D - u8s8f32 - CPU (ms)	2.13329	2.13758 99.8% 0.5%	2.13758 99.8% 0.5%
oneDNN - IP Shapes 3D - u8s8f32 - CPU (ms)	3.08917	2.88822 100% 0.6%	2.88822 100% 0.6%
oneDNN - C.B.S.A - f32 - CPU (ms)	0.724395	1.95461 37.06% 2.4%	1.95461 37.06% 2.4%
oneDNN - D.B.s - f32 - CPU (ms)	2.86937	2.86260 100% 0.6%	2.86260 100% 0.6%
oneDNN - D.B.s - f32 - CPU (ms)	2.88437	2.70898 100% 0.6%	2.70898 100% 0.6%
oneDNN - C.B.S.A - u8s8f32 - CPU	4.68078	5.59055 83.73% 8.9%	5.59055 83.73% 8.9%
oneDNN - D.B.s - u8s8f32 - CPU (ms)	2.20539	2.19937 100% 0.3%	2.19937 100% 0.3%
oneDNN - D.B.s - u8s8f32 - CPU (ms)	1.21032	1.20163 100% 2.4%	1.20163 100% 2.4%
oneDNN - R.N.N.T - f32 - CPU (ms)	2948	3126 94.31% 7.5%	3126 94.31% 7.5%
oneDNN - R.N.N.I - f32 - CPU (ms)	1267	1355 93.49% 10%	1355 93.49% 10%
oneDNN - R.N.N.T - u8s8f32 - CPU	2911	3152 92.35% 10.2%	3152 92.35% 10.2%
oneDNN - R.N.N.I - u8s8f32 - CPU (ms)	1282	1285 99.74% 2%	1285 99.74% 2%
oneDNN - M.M.B.S.T - f32 - CPU (ms)	0.712936	0.714842 99.73% 2%	0.714842 99.73% 2%

oneDNN - R.N.N.T - bf16bf16bf16 - <b>2923</b>	<b>3210</b>
CPU (ms)	
Normalized 100%	91.08%
Standard Deviation 1.3%	11.1%
oneDNN - R.N.N.I - bf16bf16bf16 - CPU 1246	
(ms)	
Standard Deviation 5.3%	
oneDNN - M.M.B.S.T - u8s8f32 - CPU 0.812990	
(ms)	
Standard Deviation 0.5%	
OpenFOAM - Motorbike 30M (sec) <b>14.12</b>	<b>14.15</b>
Normalized 100%	99.79%
Standard Deviation 0.9%	1%
OpenFOAM - Motorbike 60M (sec) <b>112.80</b>	<b>112.70</b>
Normalized 99.91%	100%
Standard Deviation 0.1%	0.2%
OpenVKL - vklBenchmark (Items / 473	
Opus Codec Encoding - WAV To 9.150	
Opus Encode (sec)	
Standard Deviation 0.5%	
OSPray - San Miguel - SciVis (FPS) 83.33	
Standard Deviation 0%	
OSPray - XFrog Forest - SciVis (FPS) 19.74	
Standard Deviation 1.1%	
OSPray - San Miguel - Path Tracer 6.76	
(FPS)	
Standard Deviation 2.4%	
OSPray - NASA Streamlines - SciVis 125	
(FPS)	
OSPray - XFrog Forest - Path Tracer 10.10	
(FPS)	
Standard Deviation 1%	
OSPray - M.R - SciVis (FPS) 45.45	
Standard Deviation 0%	
OSPray - NASA Streamlines - Path 30.30	
Tracer (FPS)	
Standard Deviation 0%	
OSPray - M.R - Path Tracer (FPS) 333.33	
Standard Deviation 0%	
Parboil - OpenMP LBM (sec) <b>51.018187</b>	<b>74.068677</b>
Normalized 100%	68.88%
Standard Deviation 9.9%	1.8%
Parboil - OpenMP CUTCP (sec) <b>0.831875</b>	<b>0.852529</b>
Normalized 100%	97.58%
Standard Deviation 2.1%	4%
Parboil - OpenMP Stencil (sec) <b>5.389561</b>	<b>5.544628</b>
Normalized 100%	97.2%
Standard Deviation 0.6%	1.3%
Parboil - O.M.G (sec) <b>194.080744</b>	<b>208.037842</b>
Normalized 100%	93.29%
Standard Deviation 1%	1.5%

Pennant - sedovbig (Hydro Cycle)	<b>5.872848</b>	Normalized 100%	99.95%	<b>5.875714</b>
Time - sec)		Standard Deviation 0.3%	0.8%	
		Normalized 100%	100%	
Pennant - leblancbig (Hydro Cycle)	<b>3.949192</b>	Standard Deviation 1.2%	2.1%	<b>3.926446</b>
Time - sec)		Normalized 99.42%	100%	
		Standard Deviation 1.2%	2.1%	
POV-Ray - Trace Time (sec)	8.028	Standard Deviation 0.6%	0.6%	
QMCPACK - simple-H2O (Execution)	<b>44.322</b>	Normalized 100%	95.76%	<b>46.283</b>
Time - sec)		Standard Deviation 1.1%	13.5%	
		Normalized 100%	99.67%	
QuantLib (MFLOPS)	<b>2016</b>	Standard Deviation 1.3%	1.1%	<b>2009</b>
		Normalized 100%	99.52%	
Quantum ESPRESSO - AUSURF112	<b>1219</b>	Standard Deviation 0.6%	0.5%	<b>1225</b>
(sec)		Normalized 100%	99.52%	
Radiance Benchmark - SMP Parallel	213.866	Standard Deviation 0.6%	0.5%	
(sec)		Normalized 100%	99.52%	
rav1e - 6 (FPS)	1.460	Standard Deviation 2.2%	2.3%	
rav1e - 10 (FPS)	3.102	Standard Deviation 1.1%	1.1%	
rays1bench - Large Scene (mrays/s)	492.78	Standard Deviation 0.8%	0.8%	
RELION - Basic - CPU (sec)	<b>542.048</b>	Normalized 99.89%	100%	<b>541.471</b>
		Standard Deviation 1.4%	2.3%	
RNNoise (sec)	23.142	Standard Deviation 0.3%	0.3%	
Rodinia - OpenMP LavaMD (sec)	<b>30.21</b>	Normalized 100%	92.92%	<b>32.511</b>
		Standard Deviation 1.5%	0.6%	
Rodinia - OpenMP HotSpot3D (sec)	<b>112.829</b>	Normalized 100%	74.74%	<b>150.965</b>
		Standard Deviation 4%	0.8%	
Rodinia - OpenMP Leukocyte (sec)	<b>50.850</b>	Normalized 100%	91.03%	<b>55.861</b>
		Standard Deviation 1.7%	3%	
Rodinia - OpenMP CFD Solver (sec)	<b>10.627</b>	Normalized 100%	4.84%	<b>219.378</b>
		Standard Deviation 2%	0.1%	
Rodinia - O.S (sec)	<b>9.970</b>	Normalized 100%	10.37%	<b>96.160</b>
		Standard Deviation 5.3%	15.2%	
srsLTE - OFDM _Test (Samples / Second)	98333333	Normalized 97.26%	96.89%	<b>101100000</b>
		Standard Deviation 0.9%	2.5%	

<b>srsLTE - PHY_DL_Test (eNb Mb/s)</b>	<b>197.7</b>	<b>207.6</b>	204.5
Normalized	95.23%	100%	98.51%
Standard Deviation	0.3%	0.2%	0.8%
<b>srsLTE - PHY_DL_Test (UE Mb/s)</b>	<b>83.0</b>	<b>87.5</b>	86.8
Normalized	94.86%	100%	99.2%
Standard Deviation	0.7%	0.1%	0.4%
<b>Stockfish - Total Time (Nodes/s)</b>	190042987		
Standard Deviation	2.1%		
<b>SVT-AV1 - Enc Mode 4 - 1080p (FPS)</b>	7.456		
Standard Deviation	1.5%		
<b>SVT-AV1 - Enc Mode 8 - 1080p (FPS)</b>	85.786		
Standard Deviation	0.7%		
<b>SVT-VP9 - VMAF Optimized - Bosphorus 1080p (FPS)</b>	340.02		
Standard Deviation	14.3%		
<b>SVT-VP9 - P.S.O - Bosphorus 1080p (FPS)</b>	363.96		
Standard Deviation	2.4%		
<b>SVT-VP9 - V.Q.O - Bosphorus 1080p (FPS)</b>	274.56		
Standard Deviation	0.1%		
<b>System GZIP Decompression (sec)</b>	3.600		
Standard Deviation	2.3%		
<b>System XZ Decompression (sec)</b>	4.311		
Standard Deviation	0.2%		
<b>System ZLIB Decompression (ms)</b>	2026		
Standard Deviation	1.1%		
<b>Tachyon - Total Time (sec)</b>	9.8909		
Standard Deviation	3.9%		
<b>Timed Apache Compilation - Time To Compile (sec)</b>	24.677		
Standard Deviation	0.1%		
<b>Timed Eigen Compilation - Time To Compile (sec)</b>	94.909		
Standard Deviation	0%		
<b>Timed Erlang/OTP Compilation - Time To Compile (sec)</b>	<b>190.789</b>	<b>185.824</b>	
Normalized	97.4%		
Standard Deviation	2.4%		
<b>Timed FFmpeg Compilation - Time To Compile (sec)</b>	19.748		
Standard Deviation	0.8%		
<b>Timed GCC Compilation - Time To Compile (sec)</b>	715.113		
Standard Deviation	0.1%		
<b>Timed GDB GNU Debugger</b>	91.309		
<b>Compilation - Time To Compile (sec)</b>			
Standard Deviation	0.4%		
<b>Timed Godot Game Engine</b>	61.407		
<b>Compilation - Time To Compile (sec)</b>			
Standard Deviation	1.2%		
<b>Timed HMMer Search - P.D.S (sec)</b>	<b>398.635</b>	<b>408.898</b>	

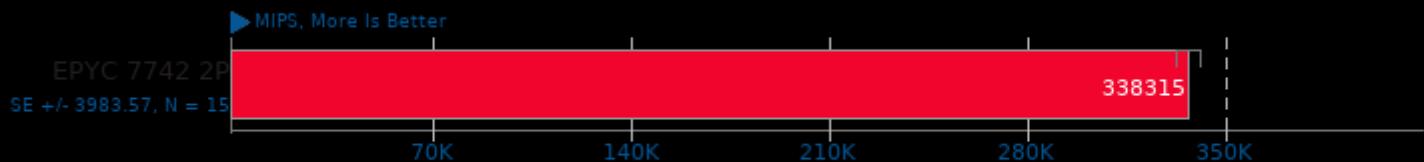
Normalized	100%	97.49%
Standard Deviation	1.7%	2.4%
<b>Timed ImageMagick Compilation -</b>	<b>15.667</b>	
<b>Time To Compile (sec)</b>		
Standard Deviation	1.4%	
<b>Timed Linux Kernel Compilation -</b>	<b>21.500</b>	
<b>Time To Compile (sec)</b>		<b>21.552</b>
Normalized	100%	99.76%
Standard Deviation	2.6%	2.3%
<b>Timed LLVM Compilation - Time To</b>	<b>200.816</b>	
<b>Compile (sec)</b>		
Standard Deviation	0.9%	
<b>Timed MAFFT Alignment - M.S.A -</b>	<b>10.266</b>	
<b>LSU RNA (sec)</b>		<b>10.468</b>
Normalized	100%	98.07%
Standard Deviation	2.3%	3.9%
<b>Timed MPlayer Compilation - Time To</b>	<b>10.269</b>	
<b>Compile (sec)</b>		
Standard Deviation	0.4%	
<b>Timed MrBayes Analysis - P.P.A (sec)</b>	<b>108.673</b>	
Normalized	100%	99.56%
Standard Deviation	0.3%	0.3%
<b>Timed PHP Compilation - Time To</b>	<b>41.668</b>	
<b>Compile (sec)</b>		
Standard Deviation	0.8%	
<b>Timed Wasmer Compilation - Time To</b>	<b>68.219</b>	
<b>Compile (sec)</b>		<b>68.433</b>
Normalized	100%	99.69%
Standard Deviation	1%	0.5%
<b>toyBrot Fractal Generator - TBB (ms)</b>	<b>3910</b>	
Normalized	99.39%	
Standard Deviation	2.4%	
<b>toyBrot Fractal Generator - OpenMP</b>	<b>5179</b>	
(ms)		<b>5141</b>
Normalized	99.27%	
Standard Deviation	7.8%	
<b>toyBrot Fractal Generator - C++ Tasks</b>	<b>4295</b>	
(ms)		<b>4307</b>
Normalized	100%	
Standard Deviation	1%	
<b>toyBrot Fractal Generator - C++</b>	<b>4039</b>	
<b>Threads (ms)</b>		<b>4050</b>
Normalized	100%	
Standard Deviation	1.1%	
<b>TSCP - A.C.P (Nodes/s)</b>	<b>1031813</b>	
Normalized	100%	
Standard Deviation	0.3%	
<b>TTSIOD 3D Renderer - P.R.W.S.S.M</b>	<b>581.879</b>	
<b>(FPS)</b>		<b>1030655</b>
Standard Deviation	6.4%	
<b>Tungsten Renderer - Hair (sec)</b>	<b>5.61696</b>	
Standard Deviation	3.5%	

<b>Tungsten Renderer - Water Caustic</b>	23.6008	
	(sec)	
Standard Deviation	5.3%	
<b>Tungsten Renderer - Non-Exponential</b>	1.72256	
	(sec)	
Standard Deviation	6.8%	
<b>Tungsten Renderer - Volumetric</b>	4.46136	
	Caustic (sec)	
Standard Deviation	0.2%	
<b>VP9 libvpx Encoding - Speed 5 (FPS)</b>	20.85	
	Standard Deviation	4.3%
<b>WebP Image Encode - Default</b>	<b>1.855</b>	<b>1.854</b>
	(Encode Time - sec)	
Normalized	99.95%	100%
Standard Deviation	0.3%	0.2%
<b>WebP Image Encode - Quality 100</b>	<b>2.863</b>	<b>2.864</b>
	(Encode Time - sec)	
Normalized	100%	99.97%
Standard Deviation	0.1%	0.2%
<b>WebP Image Encode - Q.1.L (Encode</b>	<b>20.360</b>	<b>20.432</b>
	Time - sec)	
Normalized	100%	99.65%
Standard Deviation	0.2%	0.3%
<b>WebP Image Encode - Q.1.H.C</b>	<b>8.904</b>	<b>8.864</b>
	(Encode Time - sec)	
Normalized	99.55%	100%
Standard Deviation	0%	0%
<b>WebP Image Encode - Q.1.L.H.C</b>	<b>41.976</b>	<b>41.936</b>
	(Encode Time - sec)	
Normalized	99.9%	100%
Standard Deviation	0.2%	0.1%
<b>WebP2 Image Encode - Default (sec)</b>	3.272	
	Standard Deviation	4.1%
<b>WebP2 Image Encode - Q.7.C.E.7</b>	136.405	
	Standard Deviation	0.2%
<b>WebP2 Image Encode - Q.9.C.E.7</b>	251.434	
	Standard Deviation	0%
<b>WebP2 Image Encode - Q.1.C.E.5</b>	7.721	
	Standard Deviation	0.6%
<b>WebP2 Image Encode - Q.1.L.C (sec)</b>	440.928	
	Standard Deviation	0.2%
<b>x264 - H.2.V.E (FPS)</b>	204.01	
	Standard Deviation	5.1%
<b>x265 - Bosphorus 4K (FPS)</b>	18.77	
	Standard Deviation	0.8%
<b>x265 - Bosphorus 1080p (FPS)</b>	61.36	
	Standard Deviation	3.9%
<b>XZ Compression - C.u.1.0.3.s.i.i.C.L.9</b>	26.581	
	(sec)	
Standard Deviation	4.7%	
<b>YafaRay - T.T.F.S.S (sec)</b>	65.660	
	Standard Deviation	3.6%

Zstd Compression - 8 - Compression	<b>1990</b>		<b>2244</b>	1993
Speed (MB/s)				
Normalized	88.7%		100%	88.81%
Standard Deviation	13.7%		11%	14.2%
Zstd Compression - 8 - D.S (MB/s)	<b>2976</b>		<b>2983</b>	2978
Normalized	99.77%		100%	99.84%
Standard Deviation	0.4%		0.4%	0.4%
Zstd Compression - 19 - Compression	70.7		<b>69.2</b>	<b>70.9</b>
Speed (MB/s)				
Normalized	99.72%		97.6%	100%
Standard Deviation	1.7%		6.5%	6%
Zstd Compression - 19 - D.S (MB/s)	<b>2793</b>		<b>2782</b>	2792
Normalized	100%		99.61%	99.98%
Standard Deviation	0.4%		0.4%	0.4%
Zstd Compression - 3, Long Mode -	<b>629.2</b>			<b>620.5</b>
Compression Speed (MB/s)				
Normalized	100%		98.62%	
Standard Deviation	8.5%		8.4%	
Zstd Compression - 3, Long Mode -	<b>3092</b>			<b>3090</b>
D.S (MB/s)				
Normalized	100%		99.94%	
Standard Deviation	0.4%		0.3%	
Zstd Compression - 8, Long Mode -	<b>587.6</b>		<b>561.6</b>	566.1
Compression Speed (MB/s)				
Normalized	100%		95.58%	96.34%
Standard Deviation	6.9%		1.2%	1.8%
Zstd Compression - 8, Long Mode -	3206		<b>3200</b>	<b>3206</b>
D.S (MB/s)				
Normalized	99.99%		99.81%	100%
Standard Deviation	0.4%		0.5%	0.6%
Zstd Compression - 19, Long Mode -	<b>32.8</b>		33.0	<b>33.9</b>
Compression Speed (MB/s)				
Normalized	96.76%		97.35%	100%
Standard Deviation	6.9%		5.4%	6.8%
Zstd Compression - 19, Long Mode -	<b>2829</b>		<b>2825</b>	2826
D.S (MB/s)				
Normalized	100%		99.87%	99.9%
Standard Deviation	0.4%		0.3%	0.6%
Zstd Compression - 3 - Compression				5054
Speed (MB/s)				
Standard Deviation				2.2%
Zstd Compression - 3 - D.S (MB/s)				2909
Standard Deviation				0.2%

## 7-Zip Compression 16.02

Compress Speed Test



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

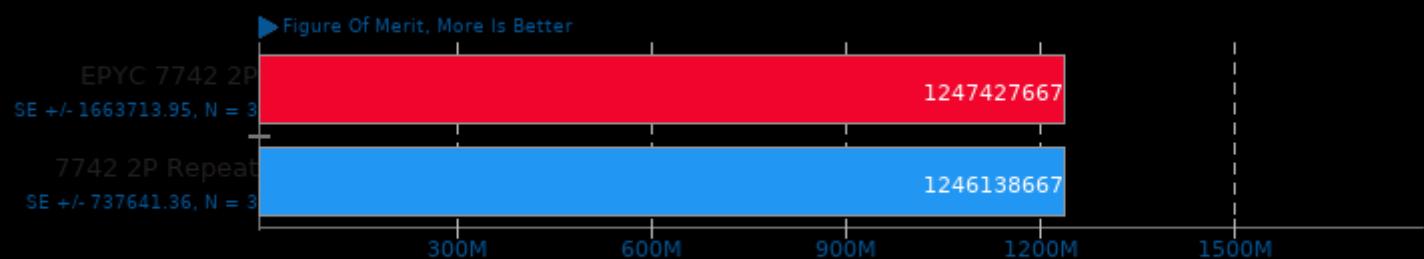
## ACES DGEMM 1.0

Sustained Floating-Point Rate



1. (CC) gcc options: -O3 -march=native -fopenmp

## Algebraic Multi-Grid Benchmark 1.2



1. (CC) gcc options: -fparcsr\_ls -fparcsr\_mv -fseq\_mv -fij\_mv -fkrylov -fHYPRE\_utilities -fml -fopenmp -fthread -fmpi

## AOBench

Size: 2048 x 2048 - Total Time



1. (CC) gcc options: -fml -O3

## AOM AV1 2.0

Encoder Mode: Speed 6 Realtime



1. (CXX) g++ options: -O3 -std=c++11 -U\_FORTIFY\_SOURCE -lm -lpthread

## AOM AV1 2.0

Encoder Mode: Speed 6 Two-Pass



1. (CXX) g++ options: -O3 -std=c++11 -U\_FORTIFY\_SOURCE -lm -lpthread

## AOM AV1 2.0

Encoder Mode: Speed 8 Realtime



1. (CXX) g++ options: -O3 -std=c++11 -U\_FORTIFY\_SOURCE -lm -lpthread

## Apache CouchDB 3.1.1

Bulk Size: 100 - Inserts: 1000 - Rounds: 24



1. (CXX) g++ options: -std=c++14 -lmozjs-68 -lm -lerl\_interface -lei -fPIC -MMD

## ASKAP 1.0

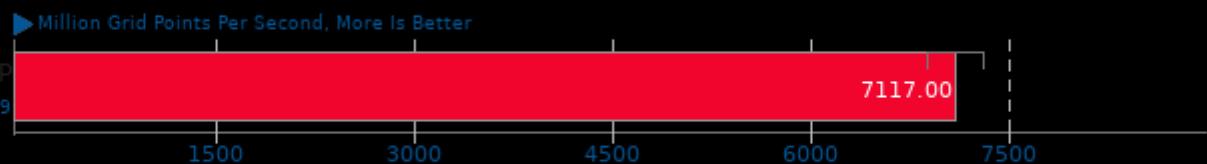
Test: tConvolve MT - Gridding



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

## ASKAP 1.0

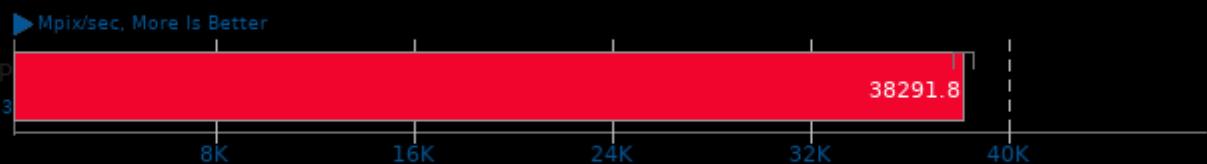
Test: tConvolve MT - Degridding



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

## ASKAP 1.0

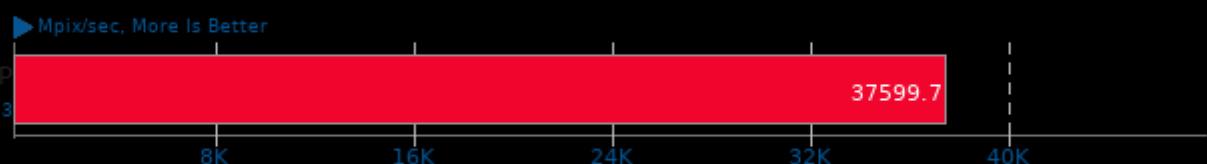
Test: tConvolve MPI - Degridding



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

## ASKAP 1.0

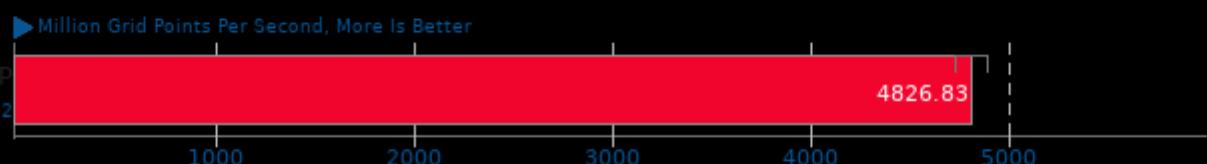
Test: tConvolve MPI - Gridding



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

## ASKAP 1.0

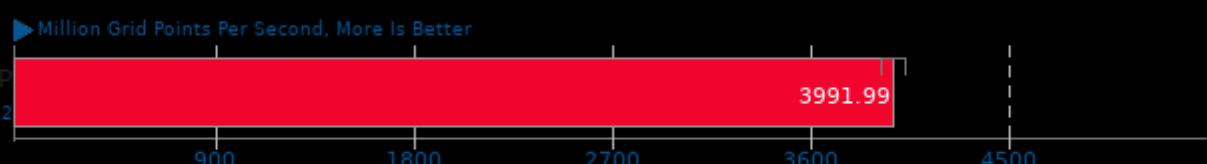
Test: tConvolve OpenMP - Gridding



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

## ASKAP 1.0

Test: tConvolve OpenMP - Degridding



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

## ASKAP 1.0

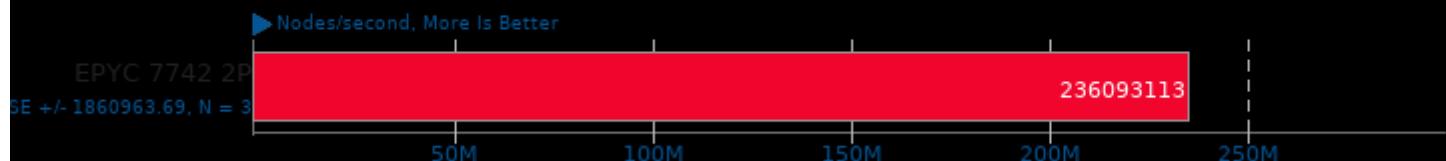
Test: Hogbom Clean OpenMP



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

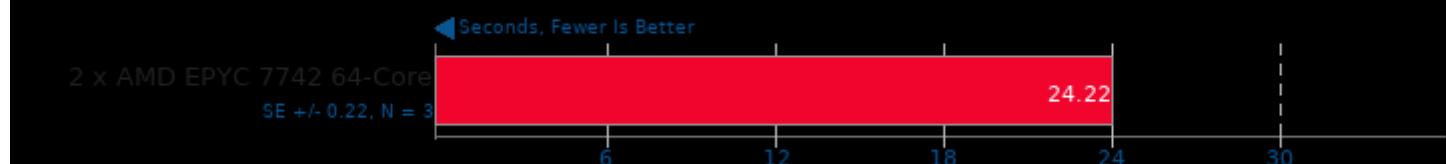
## asmFish 2018-07-23

1024 Hash Memory, 26 Depth



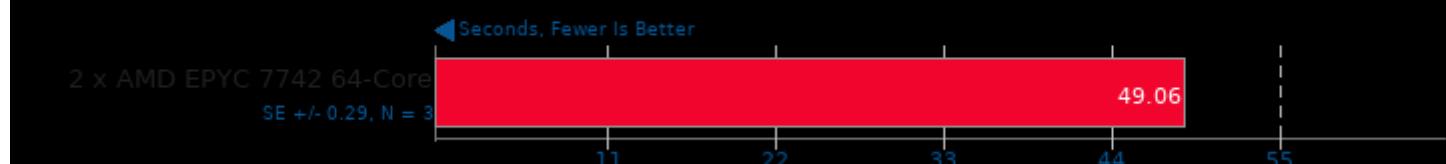
## Blender 2.92

Blend File: BMW27 - Compute: CPU-Only



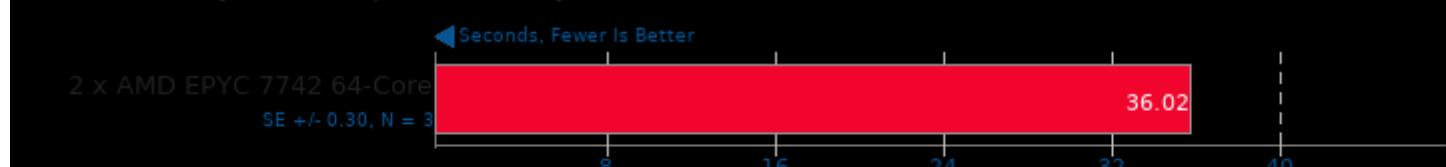
## Blender 2.92

Blend File: Classroom - Compute: CPU-Only



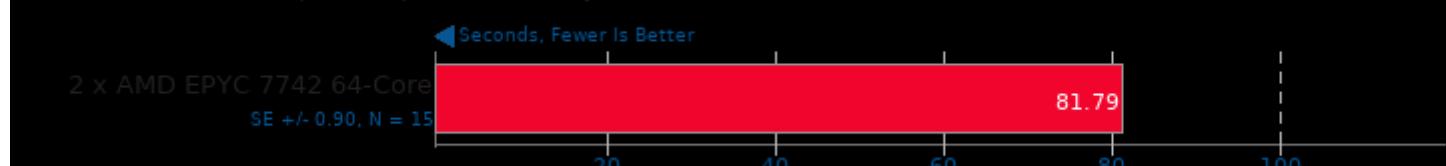
## Blender 2.92

Blend File: Fishy Cat - Compute: CPU-Only



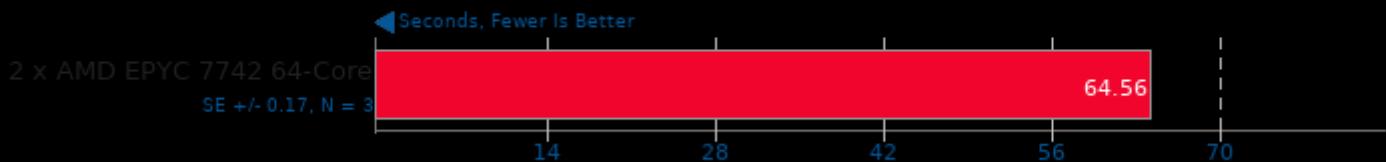
## Blender 2.92

Blend File: Barbershop - Compute: CPU-Only



## Blender 2.92

Blend File: Pabellon Barcelona - Compute: CPU-Only



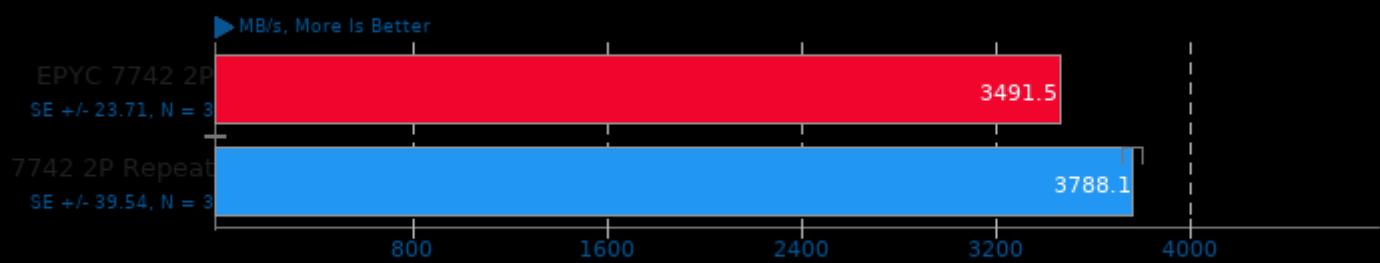
## Build2 0.13

Time To Compile



## C-Blosc 2.0 Beta 5

Compressor: blosclz



1. (CXX) g++ options: -rdynamic

## C-Ray 1.1

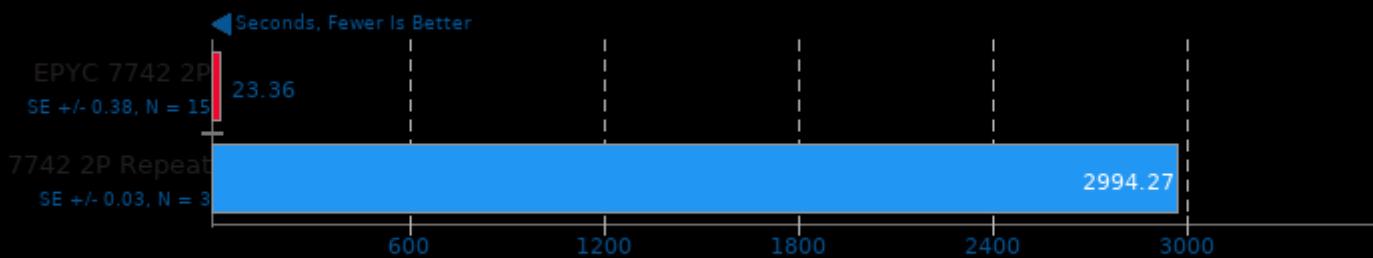
Total Time - 4K, 16 Rays Per Pixel



1. (CC) gcc options: -lm -fthread -O3

## CloverLeaf

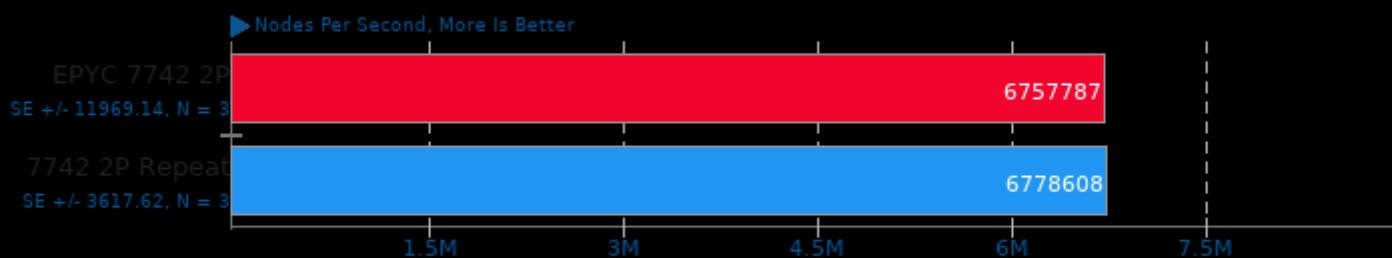
Lagrangian-Eulerian Hydrodynamics



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

## Crafty 25.2

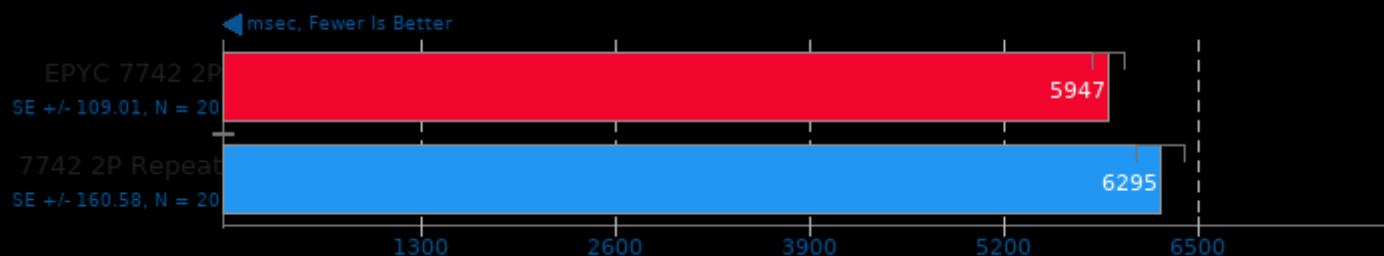
Elapsed Time



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

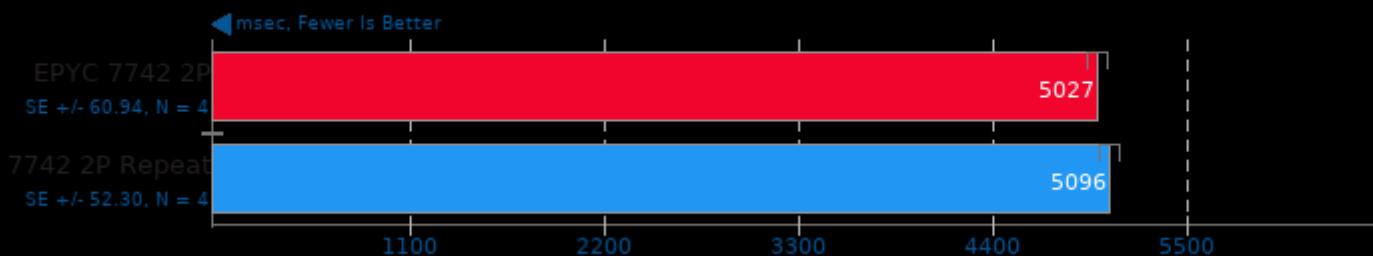
## DaCapo Benchmark 9.12-MR1

Java Test: H2



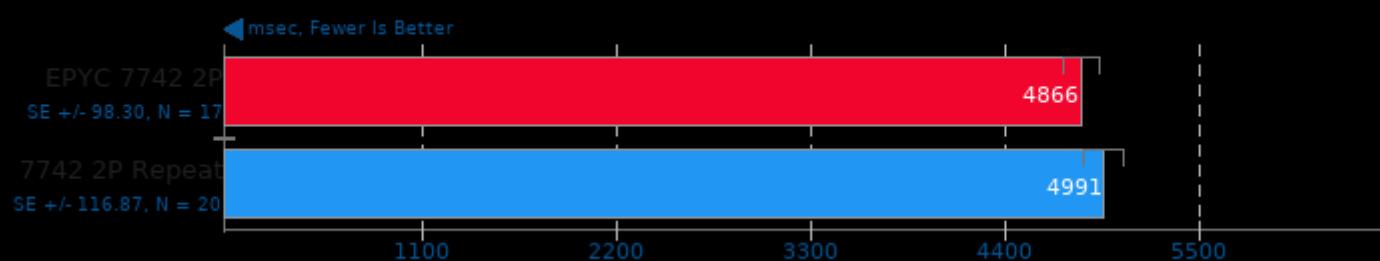
## DaCapo Benchmark 9.12-MR1

Java Test: Jython



**DaCapo Benchmark 9.12-MR1**

Java Test: Tradebeans

**dav1d 0.8.2**

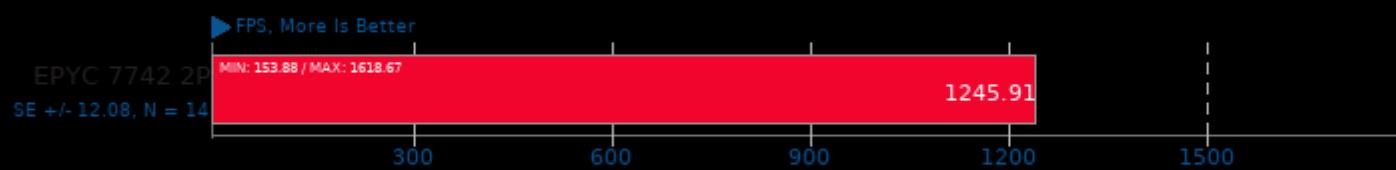
Video Input: Summer Nature 4K



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

**dav1d 0.8.2**

Video Input: Summer Nature 1080p



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

**dcraw**

RAW To PPM Image Conversion



1. (CC) gcc options: -lm

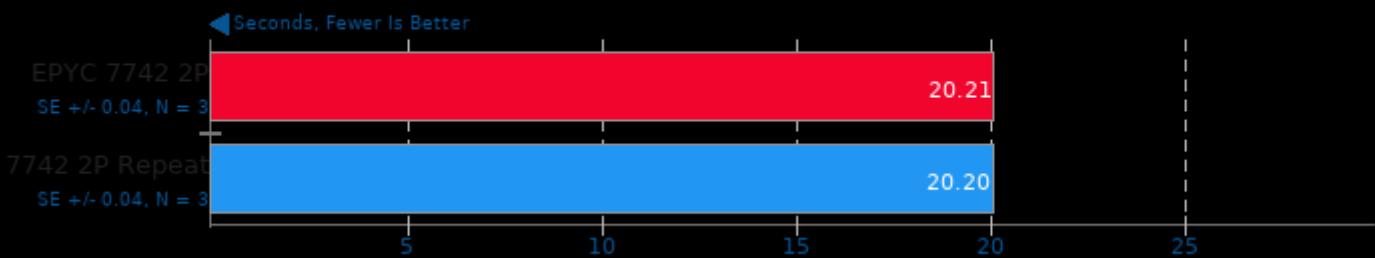
**DeepSpeech 0.6**

Acceleration: CPU



## Dolfyn 0.527

Computational Fluid Dynamics



## 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 - Model: Asian Dragon Obj



## Embree 3.9.0

Binary: Pathtracer ISPC - Model: Asian Dragon



## Embree 3.9.0

Binary: Pathtracer ISPC - Model: Asian Dragon Obj



## eSpeak-NG Speech Engine 20200907

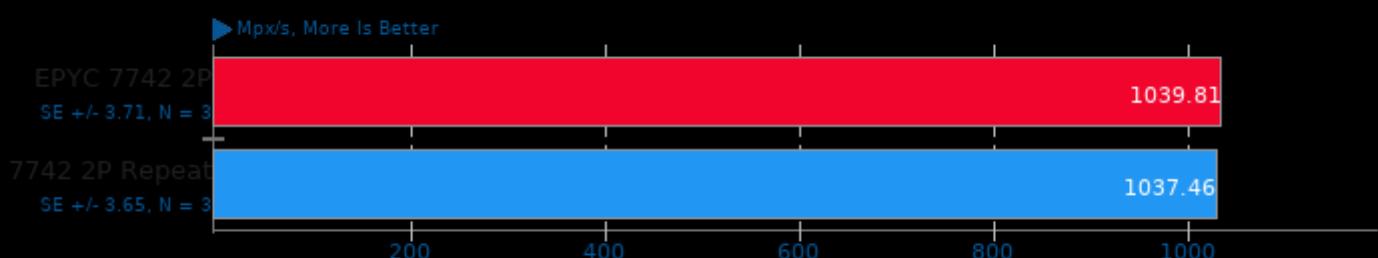
Text-To-Speech Synthesis



1. (CC) gcc options: -O2 -std=c99

## EtcPak 0.7

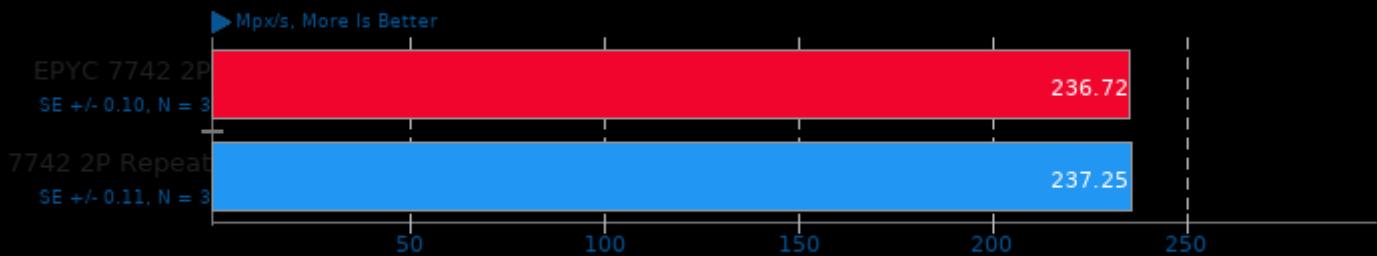
Configuration: DXT1



1. (CXX) g++ options: -O3 -march=native -std=c++11 -pthread

## EtcPak 0.7

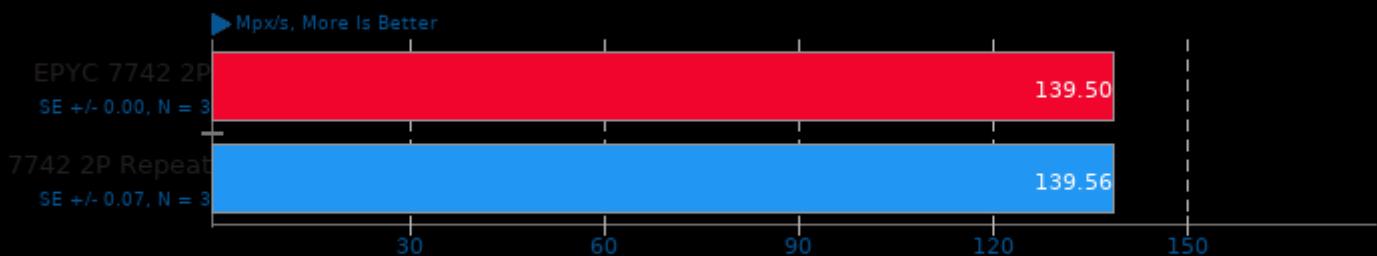
Configuration: ETC1



1. (CXX) g++ options: -O3 -march=native -std=c++11 -lpthread

## EtcPak 0.7

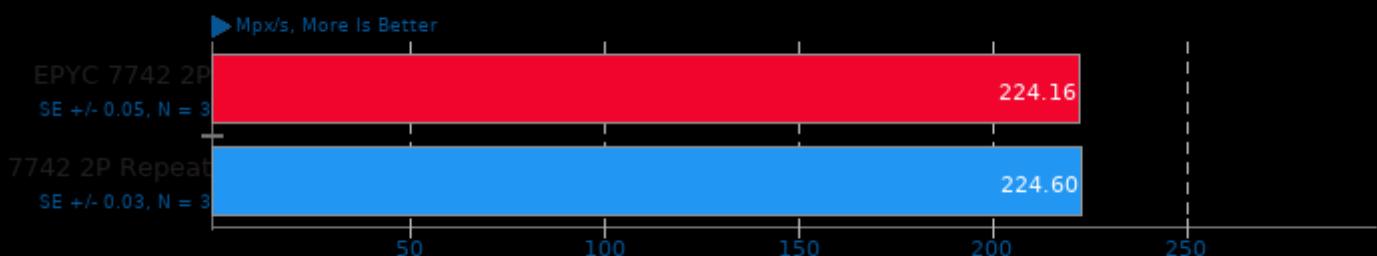
Configuration: ETC2



1. (CXX) g++ options: -O3 -march=native -std=c++11 -lpthread

## EtcPak 0.7

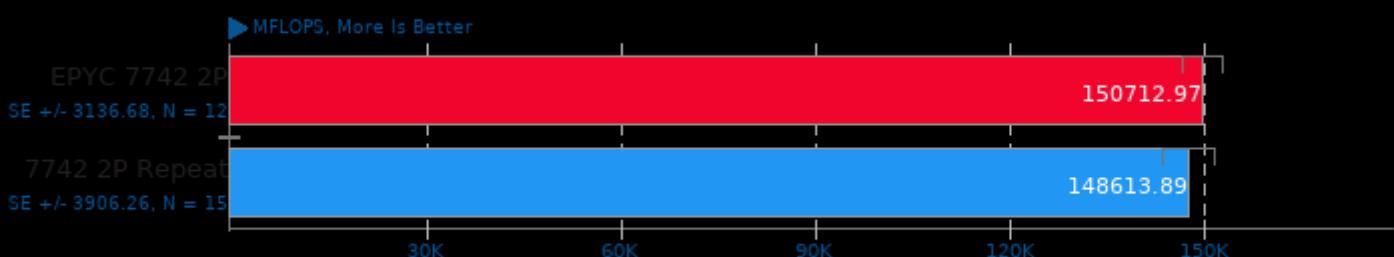
Configuration: ETC1 + Dithering



1. (CXX) g++ options: -O3 -march=native -std=c++11 -lpthread

## FFTE 7.0

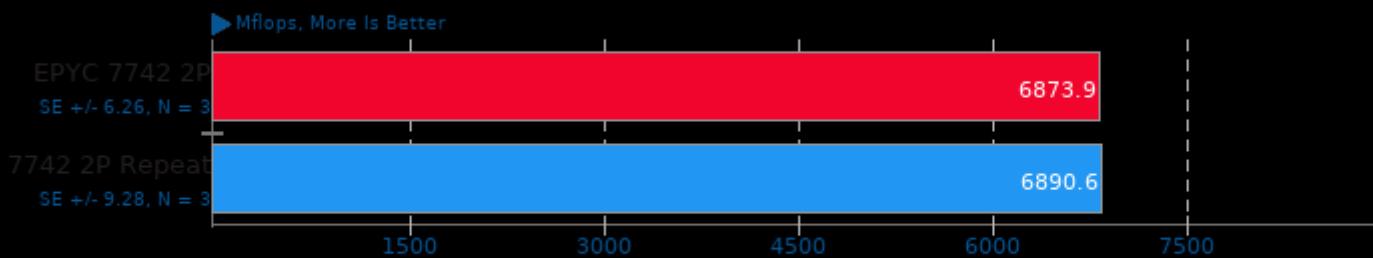
N=256, 3D Complex FFT Routine



1. (F9X) gfortran options: -O3 -fomit-frame-pointer -fopenmp

## FFTW 3.3.6

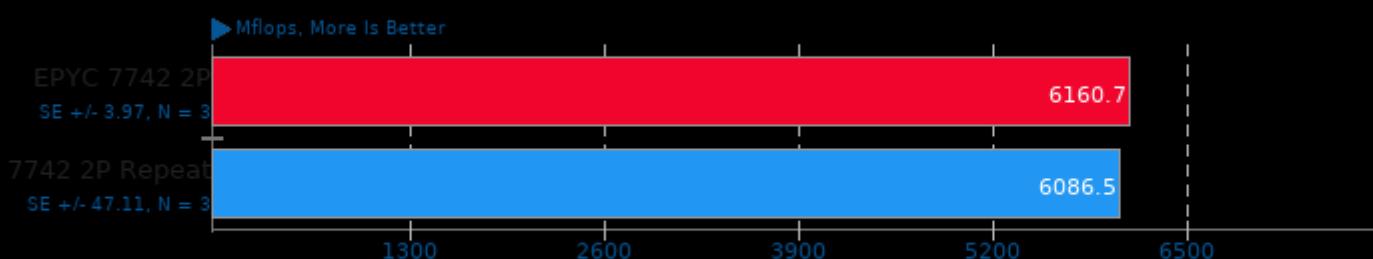
Build: Stock - Size: 1D FFT Size 4096



1. (CC) gcc options: -pthread -O3 -fomit-frame-pointer -mtune=native -malign-double -fstrict-aliasing -fno-schedule-insns -ffast-math -lm

## FFTW 3.3.6

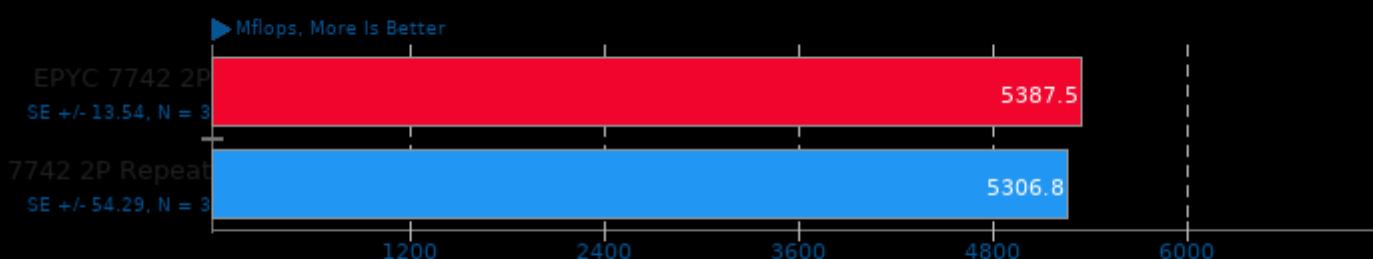
Build: Stock - Size: 2D FFT Size 2048



1. (CC) gcc options: -pthread -O3 -fomit-frame-pointer -mtune=native -malign-double -fstrict-aliasing -fno-schedule-insns -ffast-math -lm

## FFTW 3.3.6

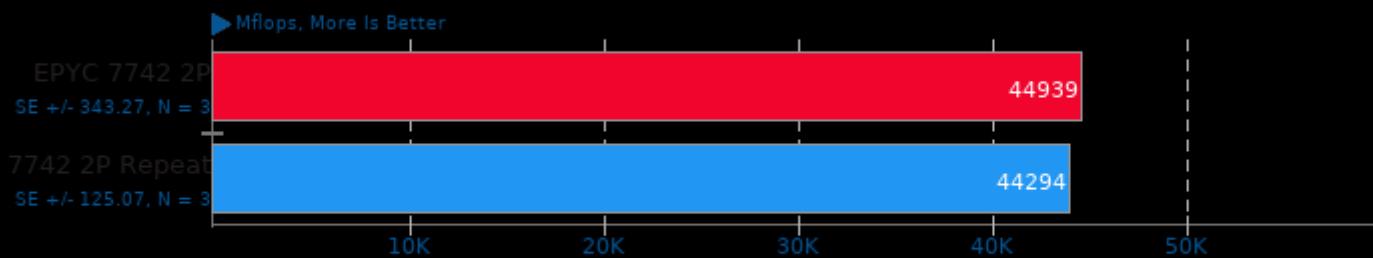
Build: Stock - Size: 2D FFT Size 4096



1. (CC) gcc options: -pthread -O3 -fomit-frame-pointer -mtune=native -malign-double -fstrict-aliasing -fno-schedule-insns -ffast-math -lm

## FFTW 3.3.6

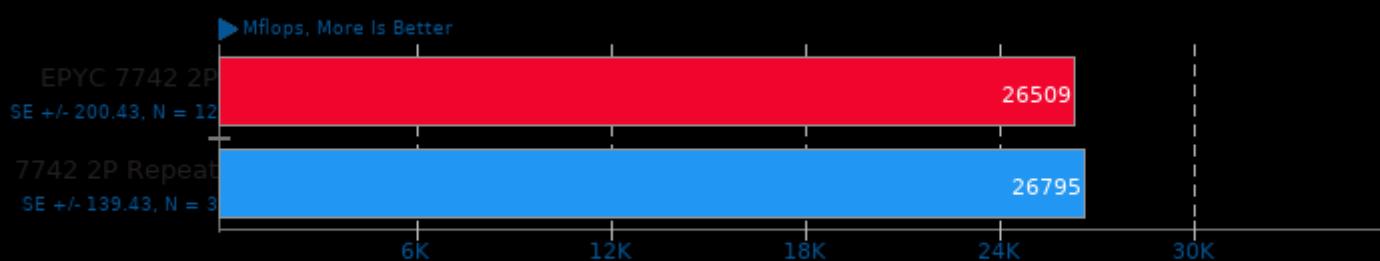
Build: Float + SSE - Size: 1D FFT Size 4096



1. (CC) gcc options: -pthread -O3 -fomit-frame-pointer -mtune=native -malign-double -fstrict-aliasing -fno-schedule-insns -ffast-math -lm

## FFTW 3.3.6

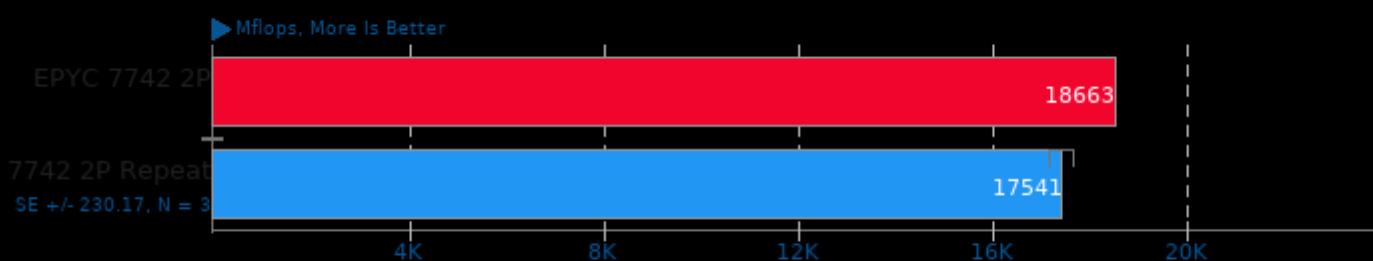
Build: Float + SSE - Size: 2D FFT Size 2048



1. (CC) gcc options: -pthread -O3 -fomit-frame-pointer -mtune=native -malign-double -fstrict-aliasing -fno-schedule-insns -ffast-math -lm

## FFTW 3.3.6

Build: Float + SSE - Size: 2D FFT Size 4096



1. (CC) gcc options: -pthread -O3 -fomit-frame-pointer -mtune=native -malign-double -fstrict-aliasing -fno-schedule-insns -ffast-math -lm

## FinanceBench 2016-07-25

Benchmark: Repo OpenMP



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

## FinanceBench 2016-07-25

Benchmark: Bonds OpenMP



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

## FLAC Audio Encoding 1.3.2

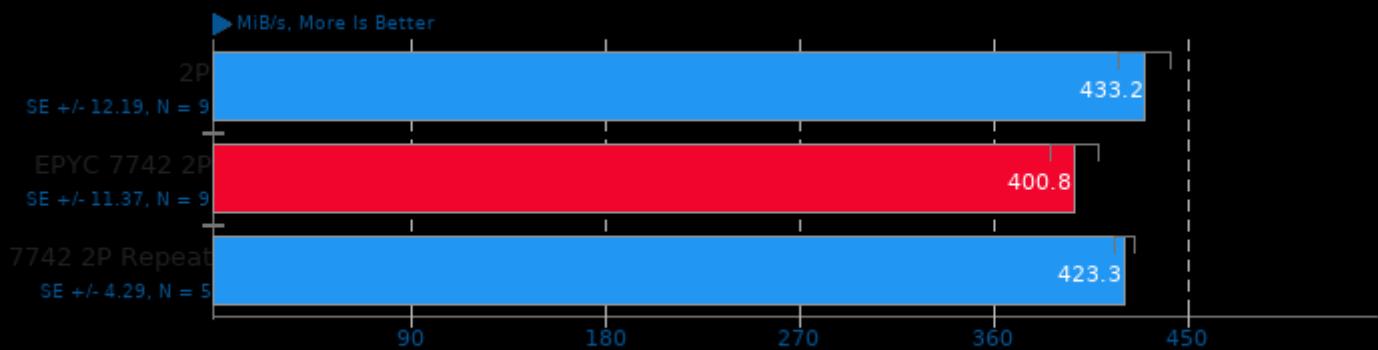
WAV To FLAC



1. (CXX) g++ options: -O2 -fvisibility=hidden -logg -lm

## GNU Radio

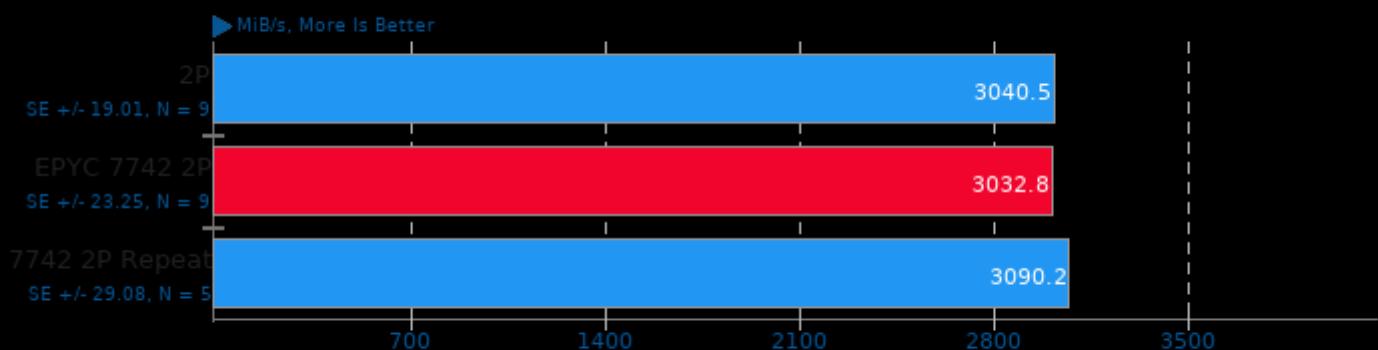
Test: Five Back to Back FIR Filters



1. 3.8.1.0

## GNU Radio

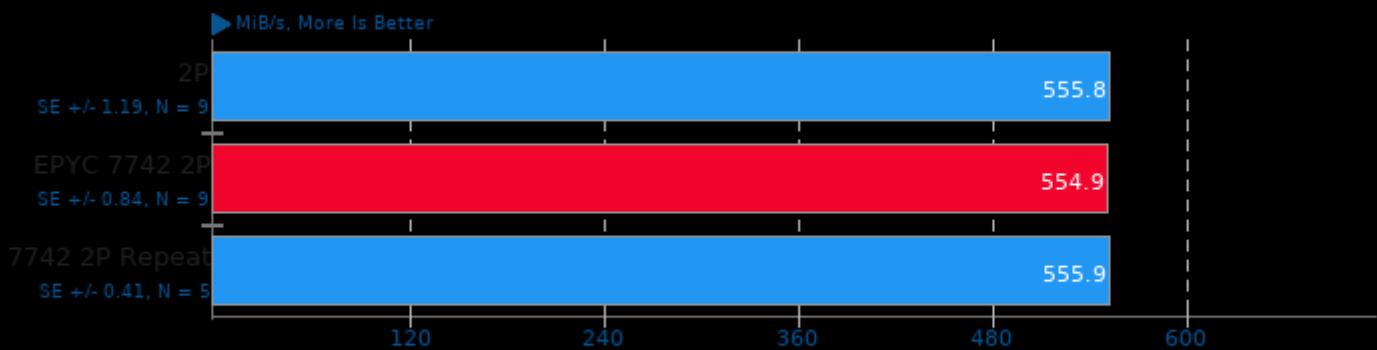
Test: Signal Source (Cosine)



1. 3.8.1.0

## GNU Radio

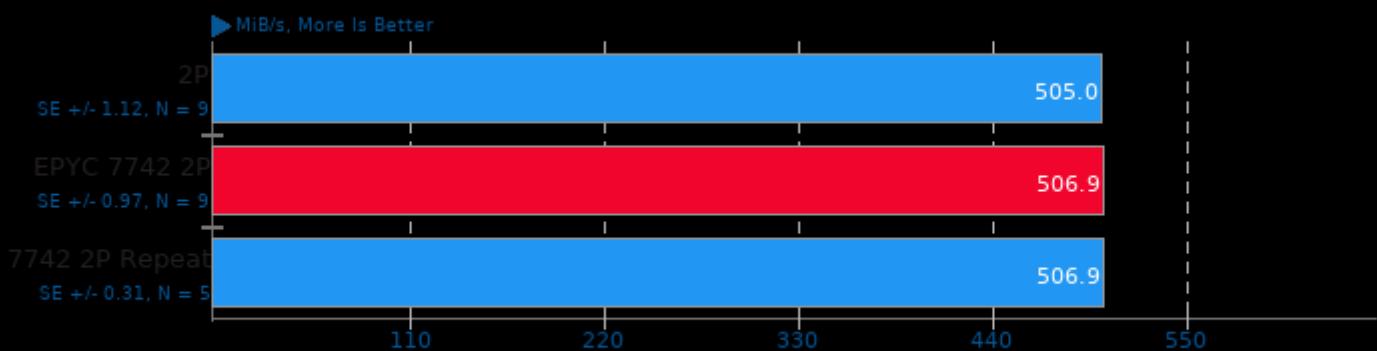
Test: FIR Filter



1.3.8.1.0

## GNU Radio

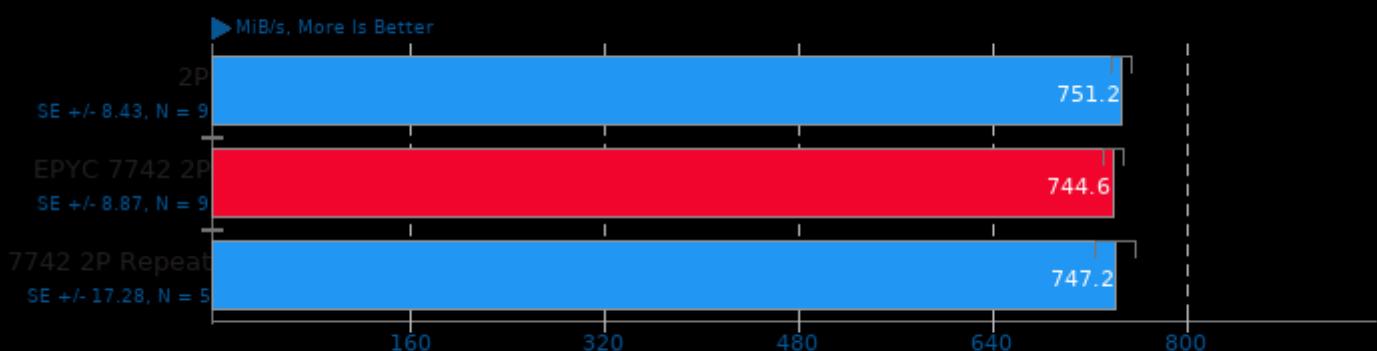
Test: IIR Filter



1.3.8.1.0

## GNU Radio

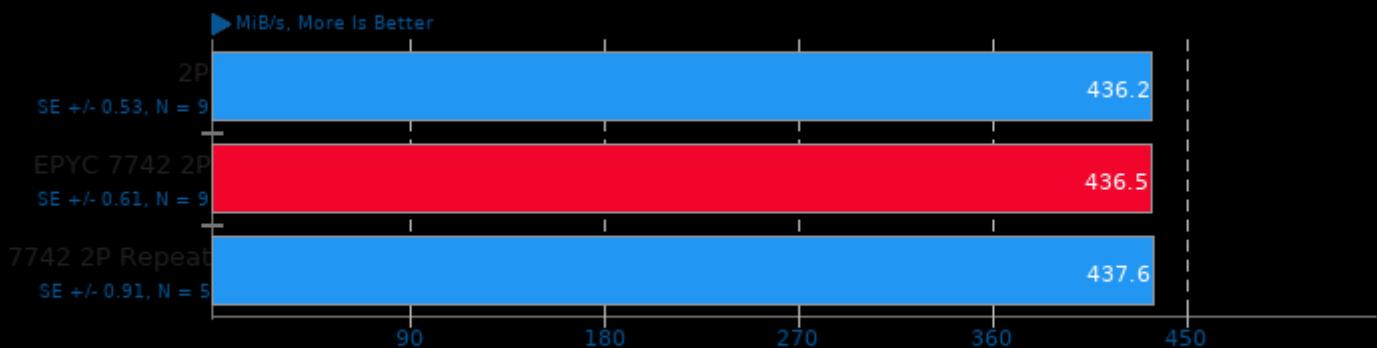
Test: FM Deemphasis Filter



1.3.8.1.0

## GNU Radio

Test: Hilbert Transform



1. 3.8.1.0

## Google SynthMark 20201109

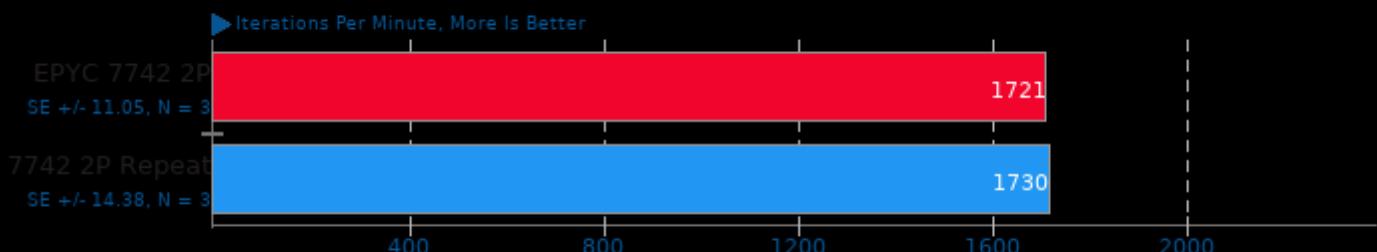
Test: VoiceMark\_100



1. (CXX) g++ options: -lm -lpthread -std=c++11 -Ofast

## GraphicsMagick 1.3.33

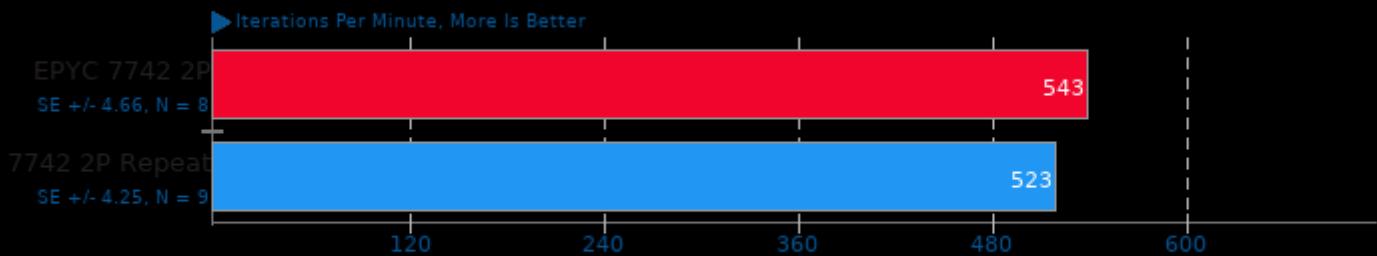
Operation: Swirl



1. (CC) gcc options: -fopenmp -O2 -pthread -ljbig -lwebp -lwebpmux -ltiff -lfreetype -ljpeg -lXext -lSM -lICE -lX11 -llzma -lbz2 -lxml2 -lz -lm -lpthread

## GraphicsMagick 1.3.33

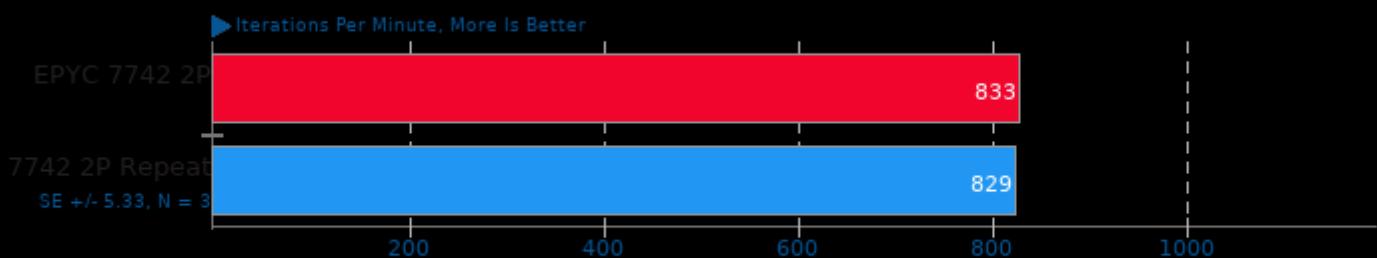
Operation: Rotate



1. (CC) gcc options: -fopenmp -O2 -pthread -ljbig -lwebp -lwebpmux -ltiff -freetype -jpeg -Xext -IS -ICE -X11 -lzma -bz2 -xml2 -lz -lm -pthread

## GraphicsMagick 1.3.33

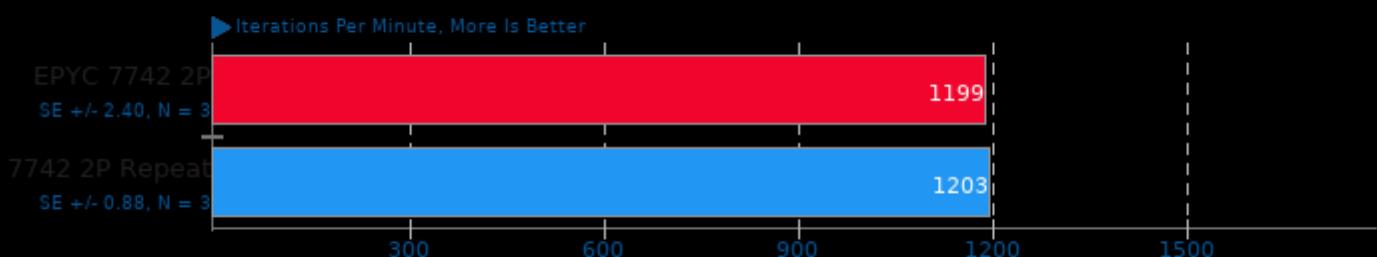
Operation: Sharpen



1. (CC) gcc options: -fopenmp -O2 -pthread -ljbig -lwebp -lwebpmux -ltiff -freetype -jpeg -Xext -IS -ICE -X11 -lzma -bz2 -xml2 -lz -lm -pthread

## GraphicsMagick 1.3.33

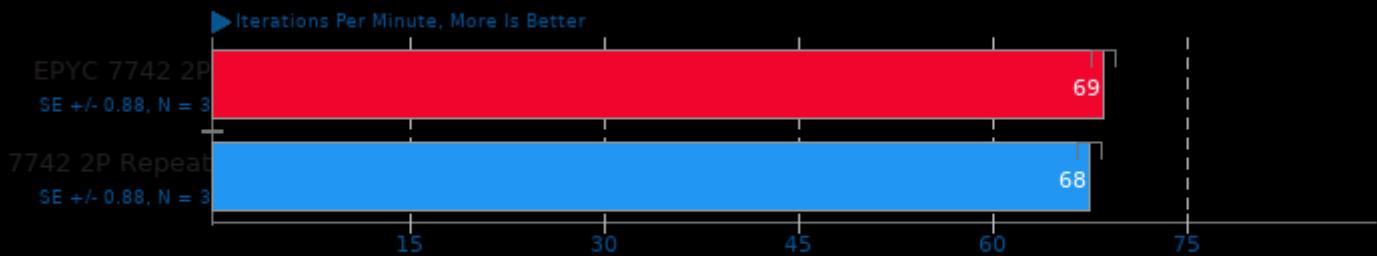
Operation: Enhanced



1. (CC) gcc options: -fopenmp -O2 -pthread -ljbig -lwebp -lwebpmux -ltiff -freetype -jpeg -Xext -IS -ICE -X11 -lzma -bz2 -xml2 -lz -lm -pthread

## GraphicsMagick 1.3.33

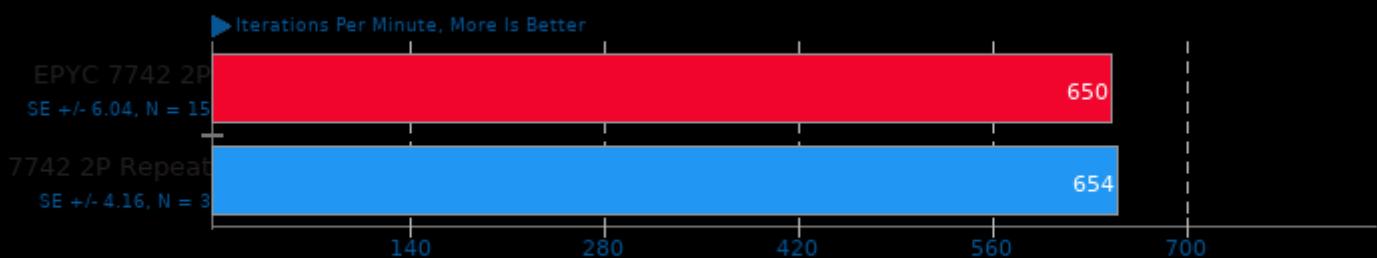
Operation: Resizing



1. (CC) gcc options: -fopenmp -O2 -pthread -ljpeg -lwebp -lwebpmux -ltiff -freetype -lxml2 -lm -lpthread

## GraphicsMagick 1.3.33

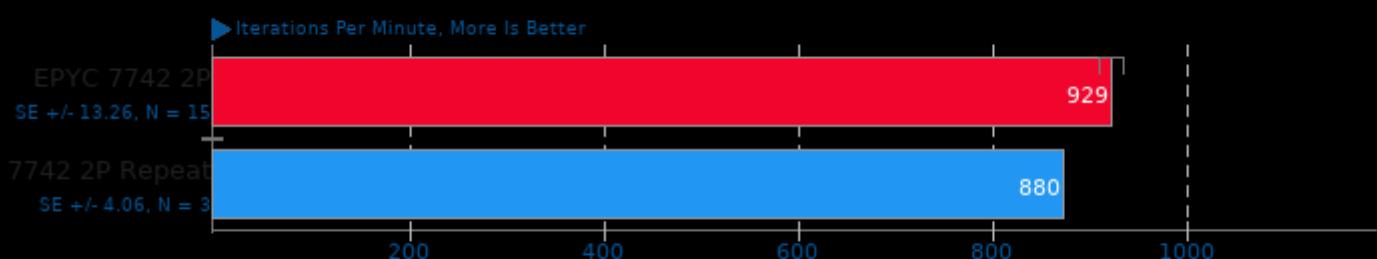
Operation: Noise-Gaussian



1. (CC) gcc options: -fopenmp -O2 -pthread -ljpeg -lwebp -lwebpmux -ltiff -freetype -lxml2 -lm -lpthread

## GraphicsMagick 1.3.33

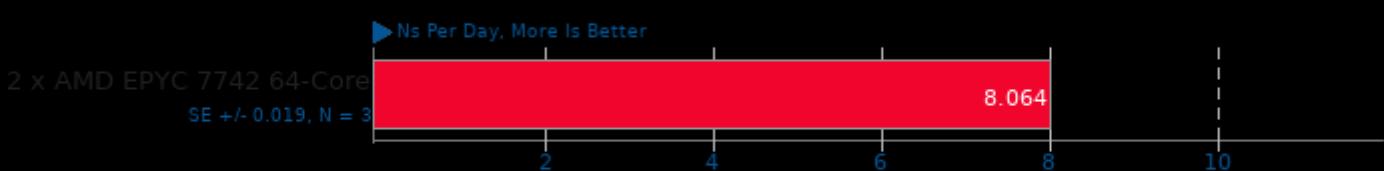
Operation: HWB Color Space



1. (CC) gcc options: -fopenmp -O2 -pthread -ljpeg -lwebp -lwebpmux -ltiff -freetype -lxml2 -lm -lpthread

## GROMACS 2021

Input: water\_GMX50\_bare



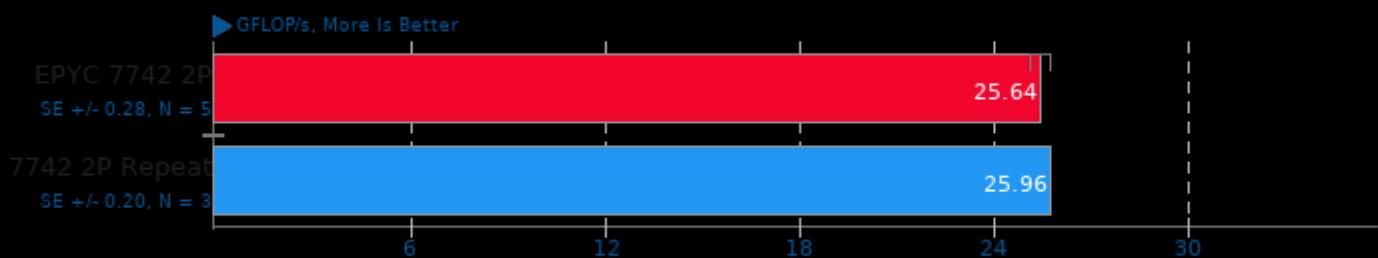
1. (CXX) g++ options: -O3 -pthread

## Gzip Compression

Linux Source Tree Archiving To .tar.gz



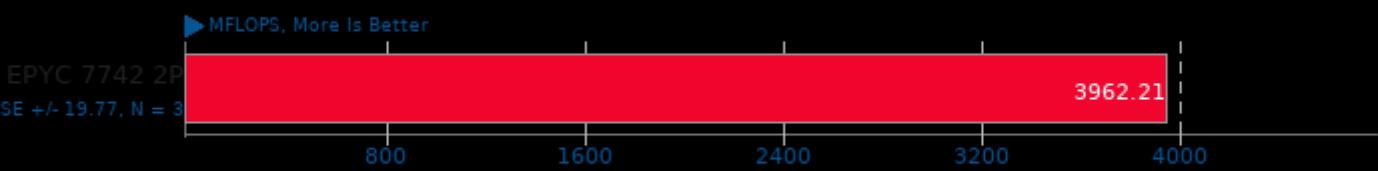
## High Performance Conjugate Gradient 3.1



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

## Himeno Benchmark 3.0

Poisson Pressure Solver



1. (CC) gcc options: -O3 -mavx2

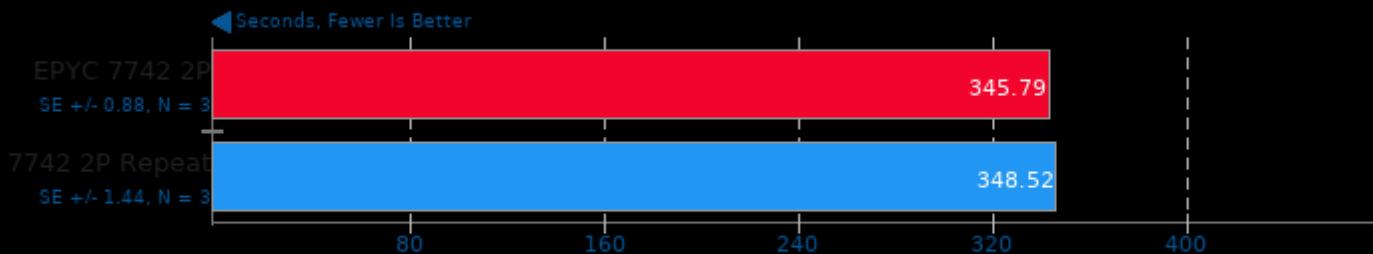
## HPL Linpack 2.3



1. (CC) gcc options: -O2 -lopenblas -lm -pthread -lmpi

## Incompact3D 2020-09-17

Input: Cylinder



1. (F9X) gfortran options: -cpp -funroll-loops -floop-optimize -fcray-pointer -fbacktrace -pthread -lmpi\_usempif08 -lmpi\_mpifh -lmpi

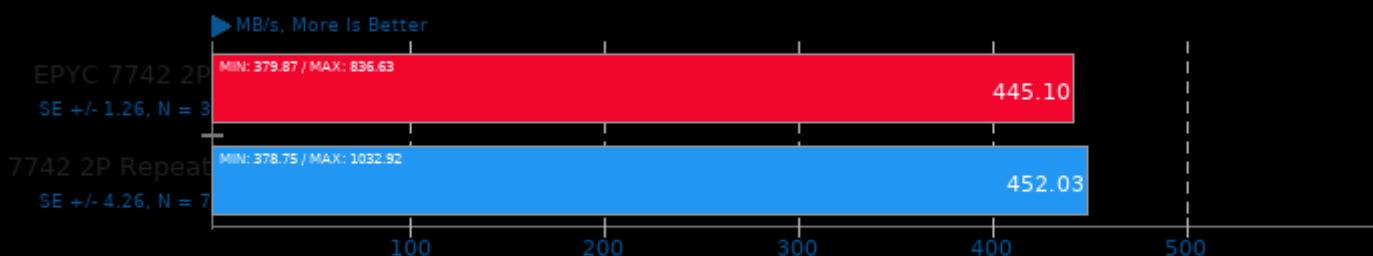
## Intel Open Image Denoise 1.2.0

Scene: Memorial



## IOR 3.3.0

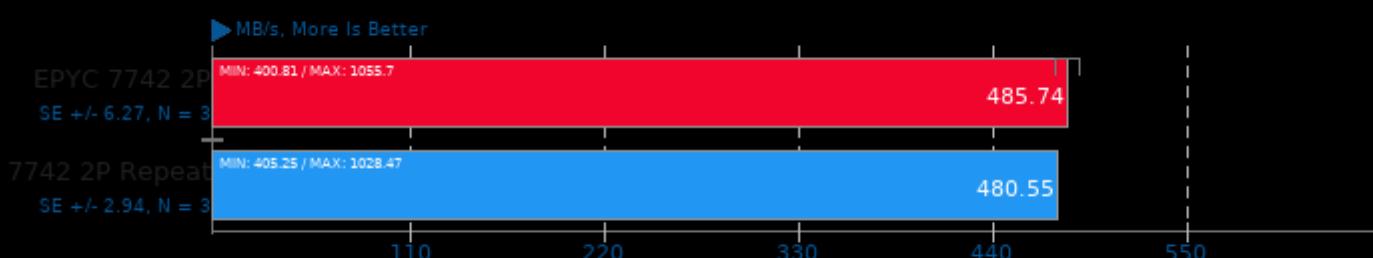
Block Size: 2MB - Disk Target: Default Test Directory



1. (CC) gcc options: -O2 -lm -pthread -lmpi

## IOR 3.3.0

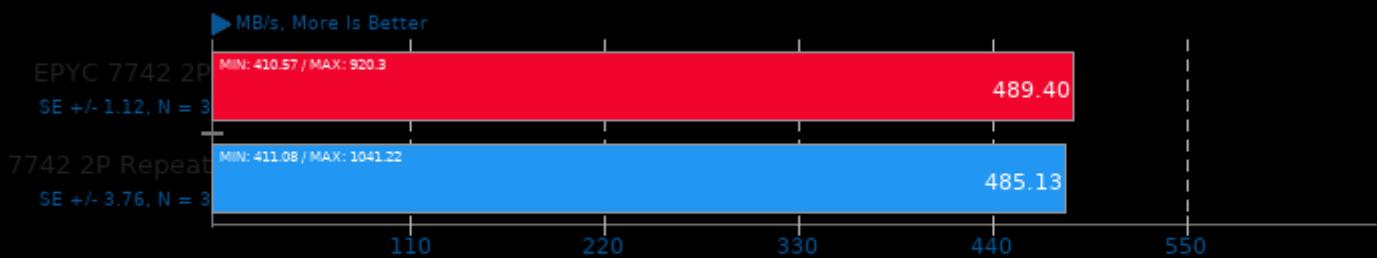
Block Size: 4MB - Disk Target: Default Test Directory



1. (CC) gcc options: -O2 -lm -pthread -lmpi

## IOR 3.3.0

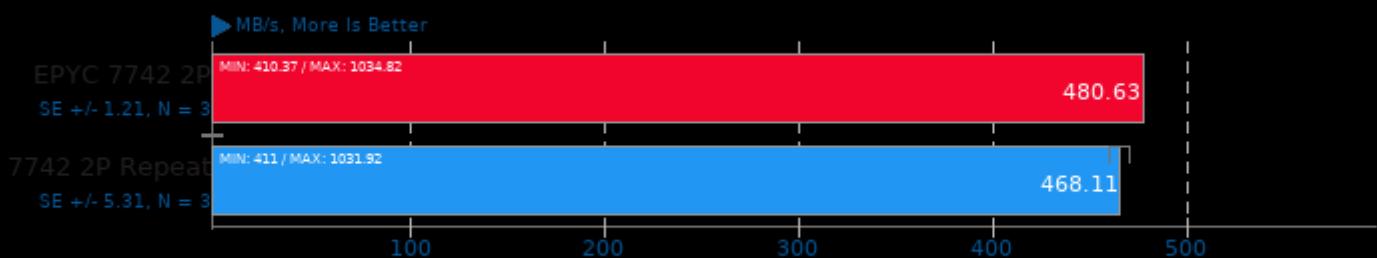
Block Size: 8MB - Disk Target: Default Test Directory



1. (CC) gcc options: -O2 -lm -pthread -lmpi

## IOR 3.3.0

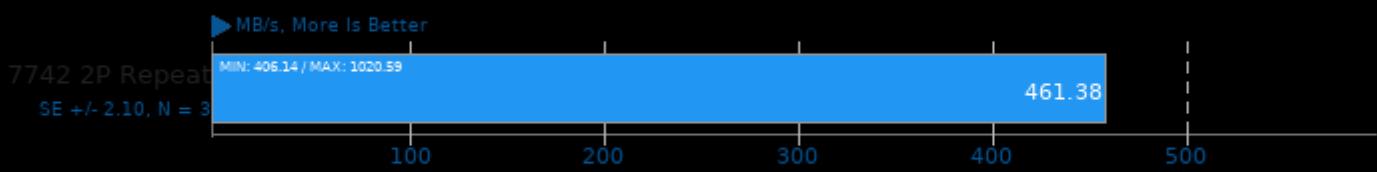
Block Size: 16MB - Disk Target: Default Test Directory



1. (CC) gcc options: -O2 -lm -pthread -lmpi

## IOR 3.3.0

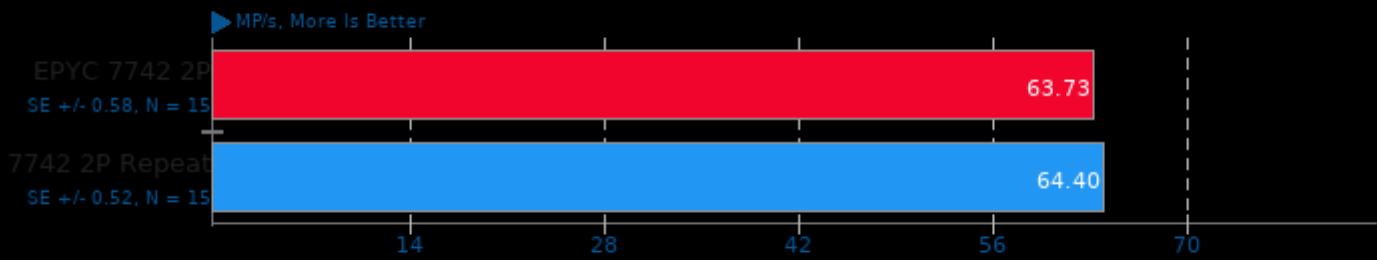
Block Size: 32MB - Disk Target: Default Test Directory



1. (CC) gcc options: -O2 -lm -pthread -lmpi

## JPEG XL 0.3.1

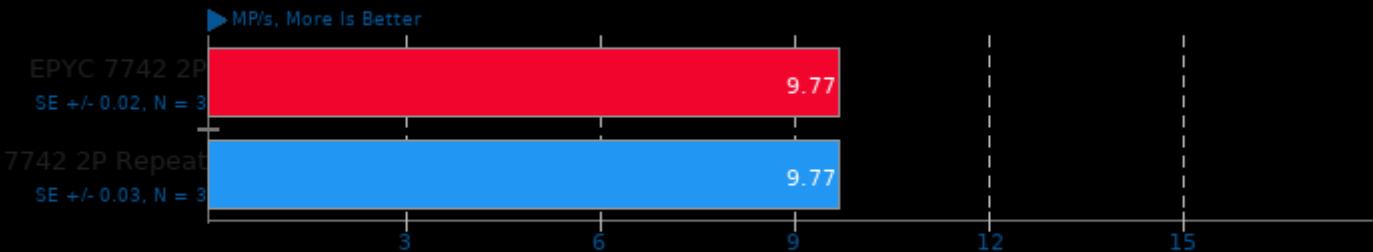
Input: PNG - Encode Speed: 5



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

## JPEG XL 0.3.1

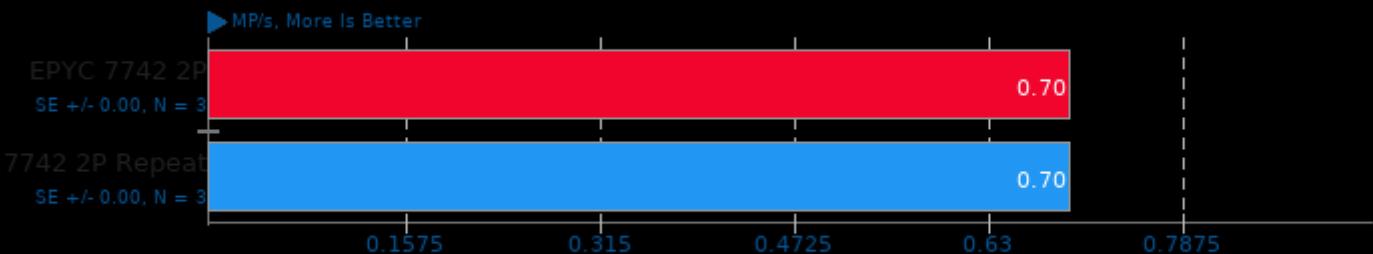
Input: PNG - Encode Speed: 7



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

## JPEG XL 0.3.1

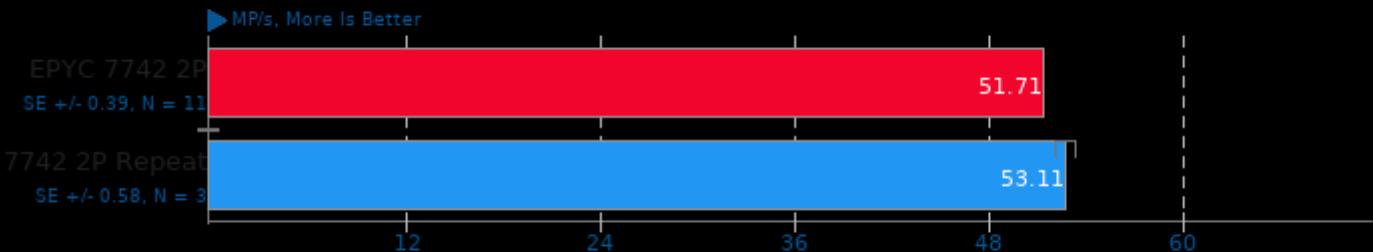
Input: PNG - Encode Speed: 8



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

## JPEG XL 0.3.1

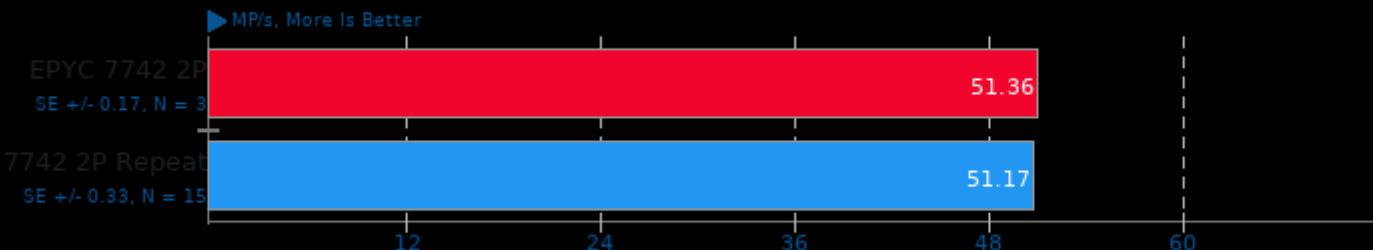
Input: JPEG - Encode Speed: 5



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

## JPEG XL 0.3.1

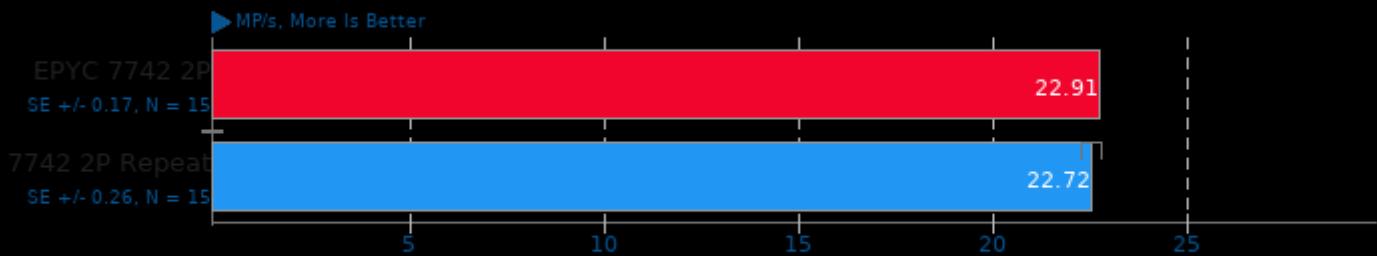
Input: JPEG - Encode Speed: 7



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

## JPEG XL 0.3.1

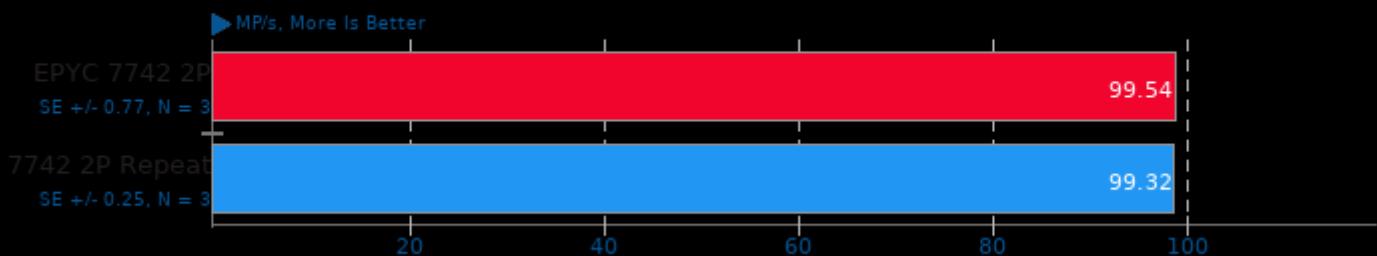
Input: JPEG - Encode Speed: 8



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

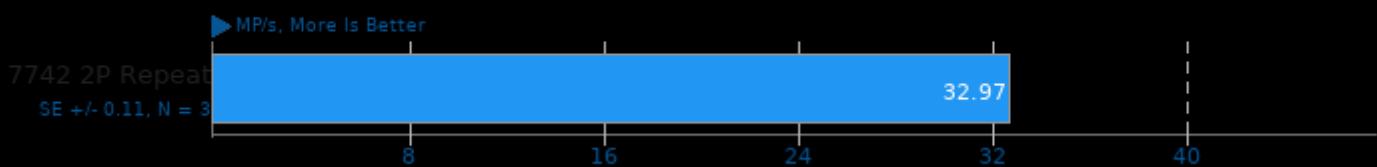
## JPEG XL Decoding 0.3.1

CPU Threads: All



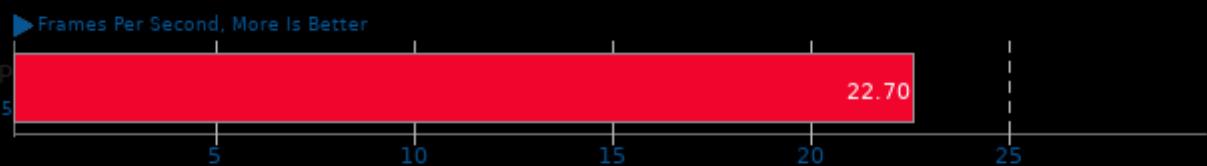
## JPEG XL Decoding 0.3.1

CPU Threads: 1



## Kvazaar 2.0

Video Input: Bosphorus 4K - Video Preset: Medium



1. (CC) gcc options: -pthread -ftree-vectorize -fvisibility=hidden -O2 -lpthread -lm -lrt

## Kvazaar 2.0

Video Input: Bosphorus 1080p - Video Preset: Medium



## Kvazaar 2.0

Video Input: Bosphorus 4K - Video Preset: Very Fast



## Kvazaar 2.0

Video Input: Bosphorus 4K - Video Preset: Ultra Fast



## Kvazaar 2.0

Video Input: Bosphorus 1080p - Video Preset: Very Fast



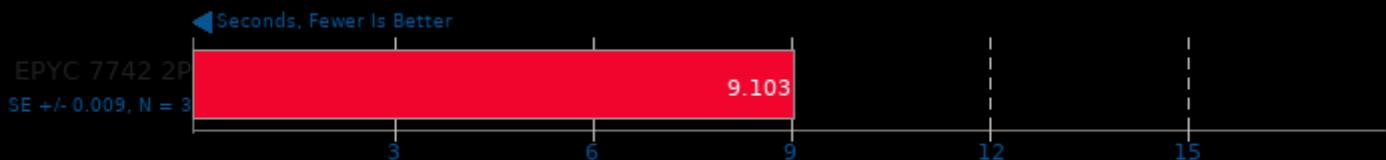
## Kvazaar 2.0

Video Input: Bosphorus 1080p - Video Preset: Ultra Fast



## LAME MP3 Encoding 3.100

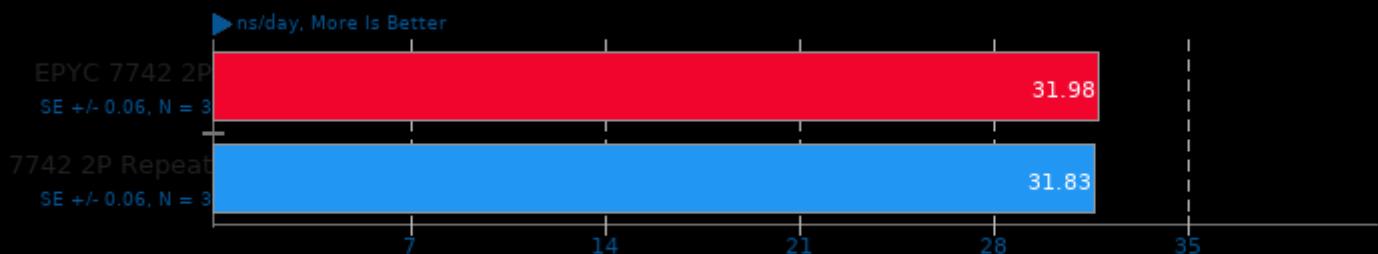
WAV To MP3



1. (CC) gcc options: -O3 -ffast-math -funroll-loops -fschedule-insns2 -fbranch-count-reg -fforce-addr -pipe -fincrusts -lm

## LAMMPS Molecular Dynamics Simulator 29Oct2020

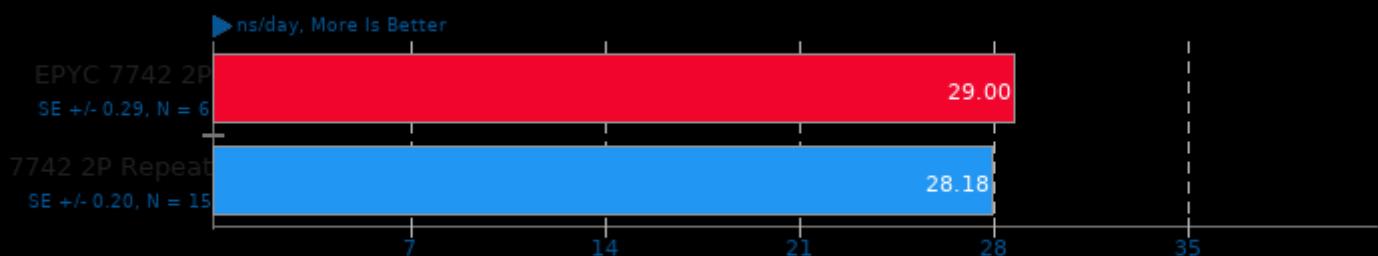
Model: 20k Atoms



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

## LAMMPS Molecular Dynamics Simulator 29Oct2020

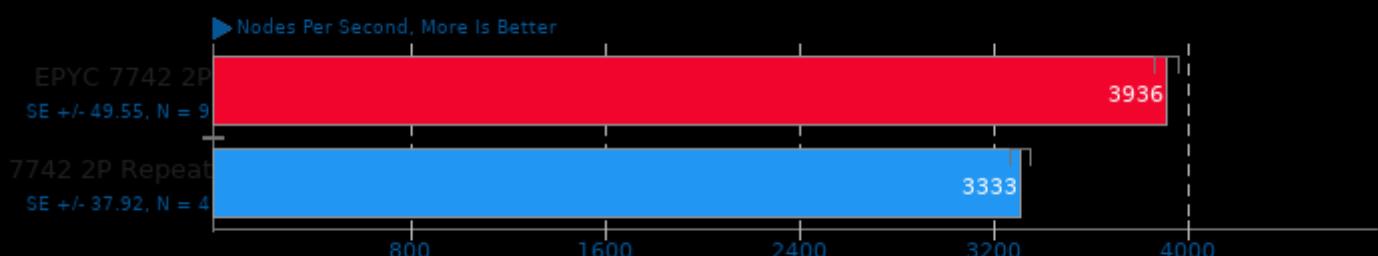
Model: Rhodopsin Protein



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

## LeelaChessZero 0.26

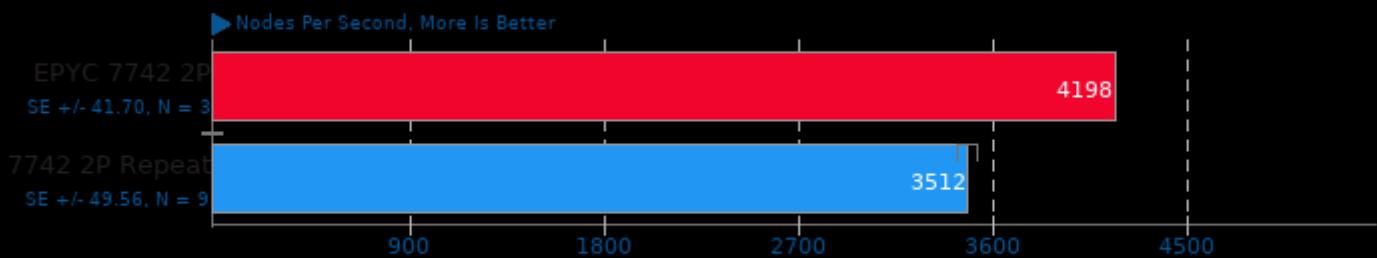
Backend: BLAS



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

## LeelaChessZero 0.26

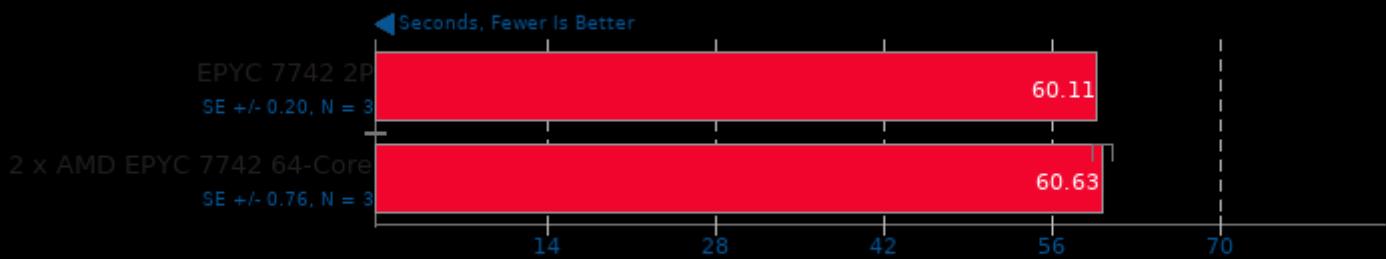
Backend: Eigen



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

## libavif avifenc 0.9.0

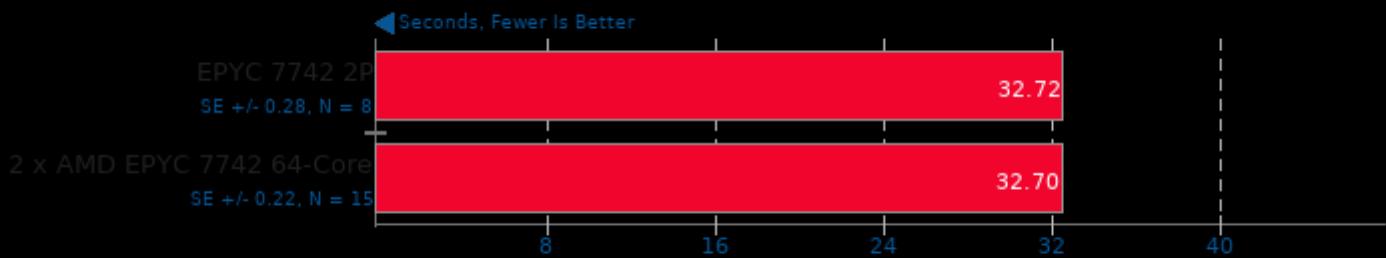
Encoder Speed: 0



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

## libavif avifenc 0.9.0

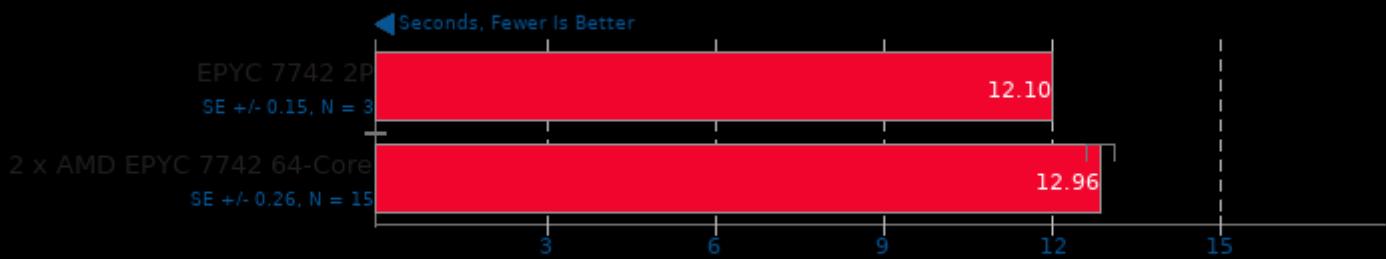
Encoder Speed: 2



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

## libavif avifenc 0.9.0

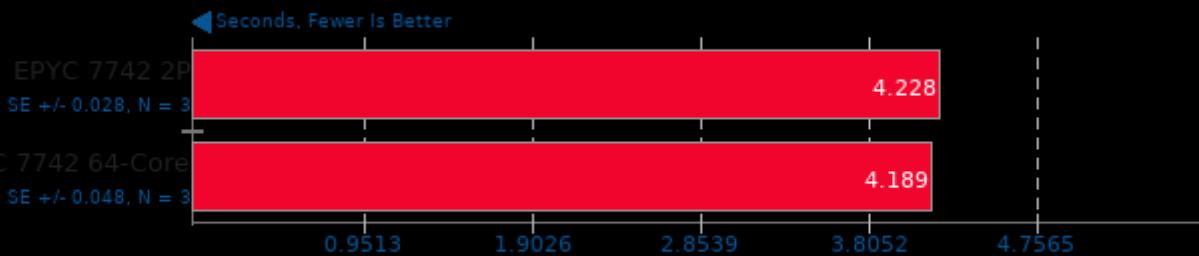
Encoder Speed: 6



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

## libavif avifenc 0.9.0

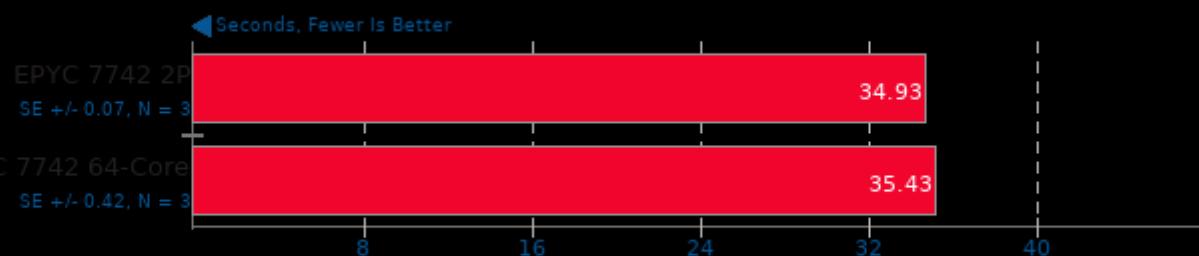
Encoder Speed: 10



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

## libavif avifenc 0.9.0

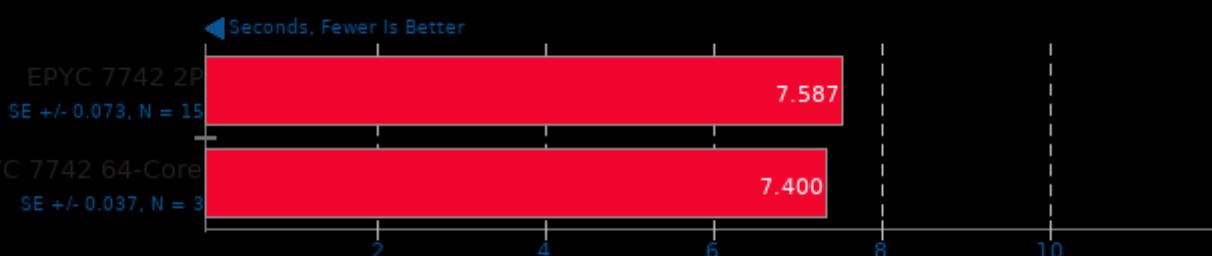
Encoder Speed: 6, Lossless



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

## libavif avifenc 0.9.0

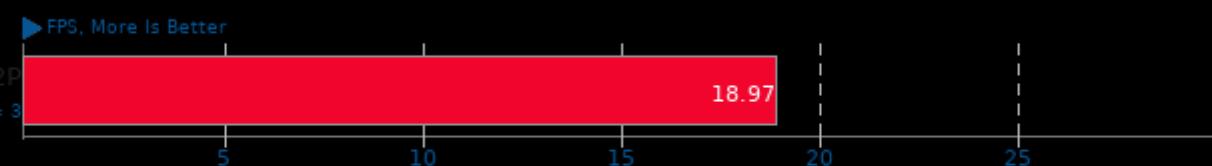
Encoder Speed: 10, Lossless



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

## libgav1 2019-10-05

Video Input: Summer Nature 4K



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

**libgavl 2019-10-05**

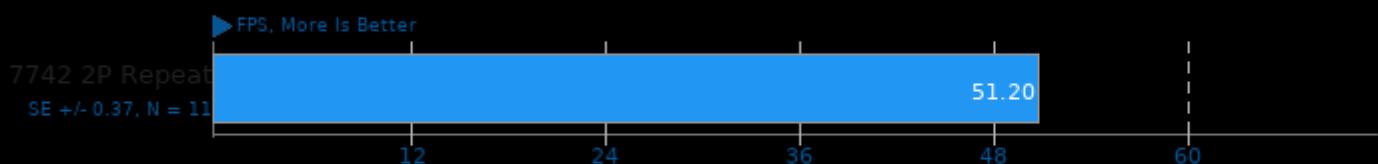
Video Input: Summer Nature 1080p



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

**libgavl 2019-10-05**

Video Input: Chimera 1080p



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

**libjpeg-turbo tjbench 2.0.2**

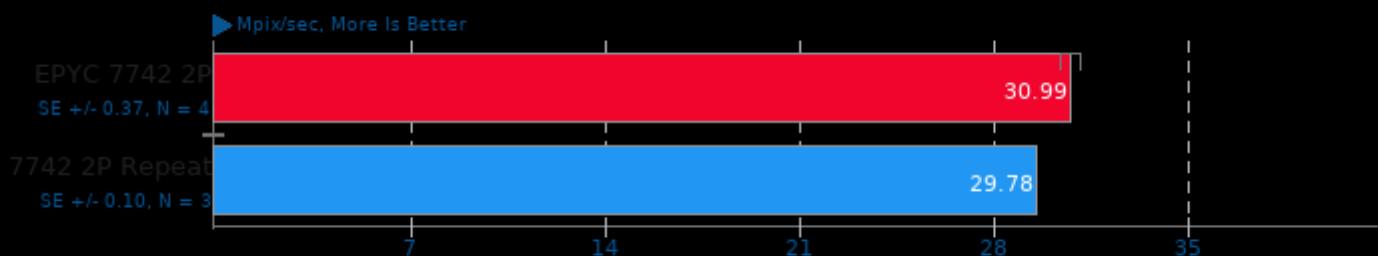
Test: Decompression Throughput



1. (CC) gcc options: -O3 -rdynamic

**LibRaw 0.20**

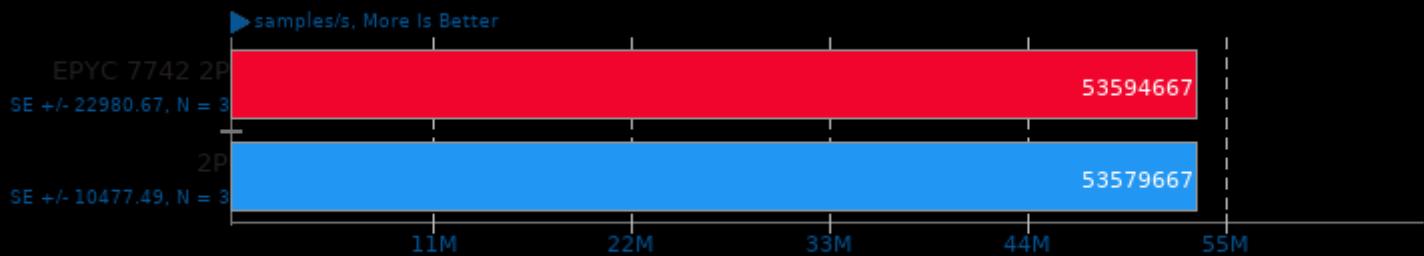
Post-Processing Benchmark



1. (CXX) g++ options: -O2 -fopenmp -ljpeg -lz -lm

## Liquid-DSP 2021.01.31

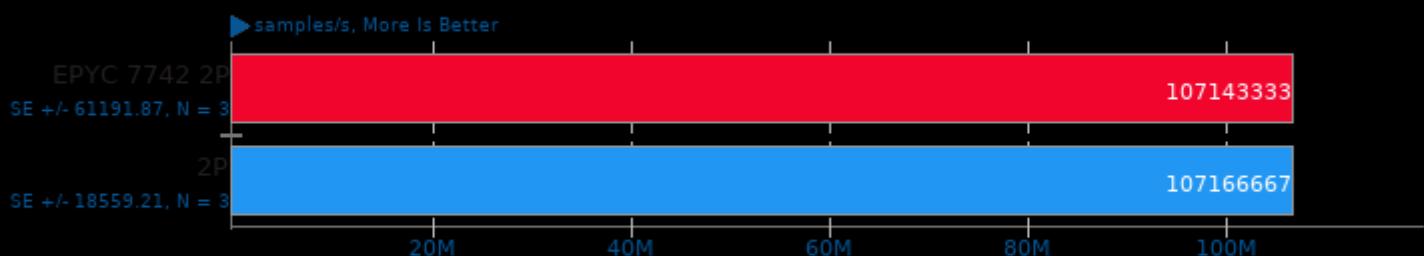
Threads: 1 - Buffer Length: 256 - Filter Length: 57



1. (CC) gcc options: -O3 -pthread -lm -lc -lliquid

## Liquid-DSP 2021.01.31

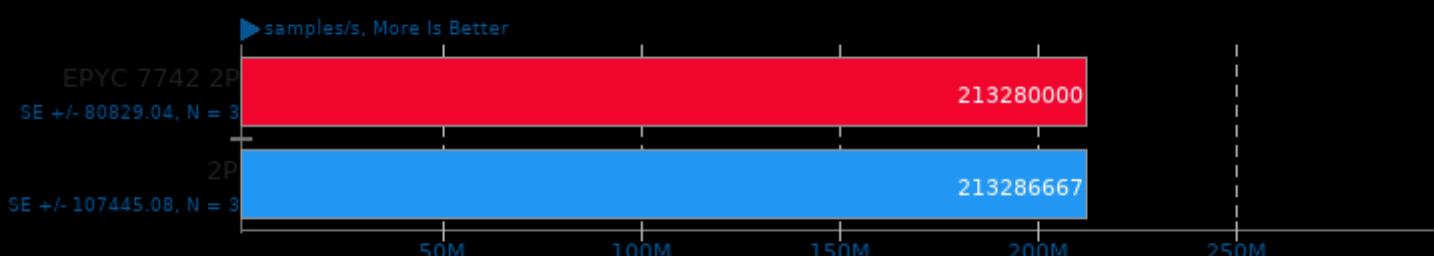
Threads: 2 - Buffer Length: 256 - Filter Length: 57



1. (CC) gcc options: -O3 -pthread -lm -lc -lliquid

## Liquid-DSP 2021.01.31

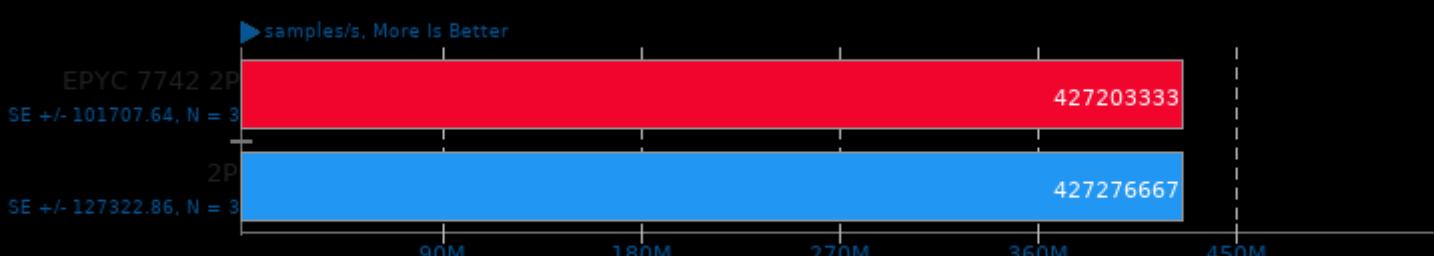
Threads: 4 - Buffer Length: 256 - Filter Length: 57



1. (CC) gcc options: -O3 -pthread -lm -lc -lliquid

## Liquid-DSP 2021.01.31

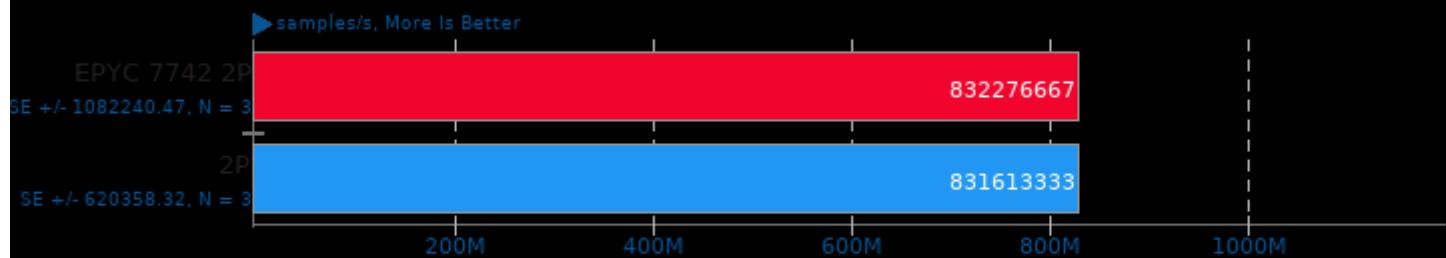
Threads: 8 - Buffer Length: 256 - Filter Length: 57



1. (CC) gcc options: -O3 -pthread -lm -lc -lliquid

## Liquid-DSP 2021.01.31

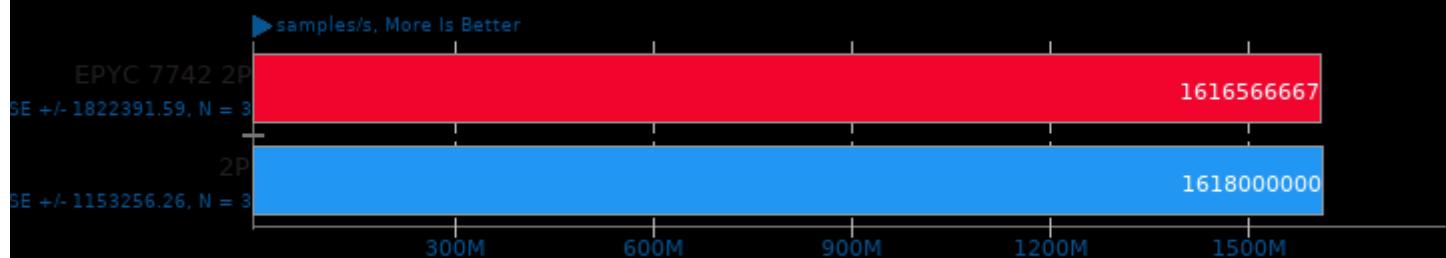
Threads: 16 - Buffer Length: 256 - Filter Length: 57



1. (CC) gcc options: -O3 -pthread -lm -lc -lliquid

## Liquid-DSP 2021.01.31

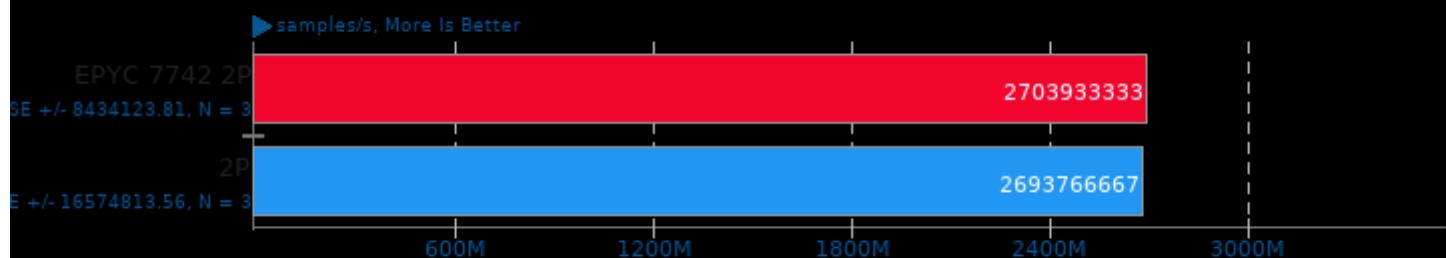
Threads: 32 - Buffer Length: 256 - Filter Length: 57



1. (CC) gcc options: -O3 -pthread -lm -lc -lliquid

## Liquid-DSP 2021.01.31

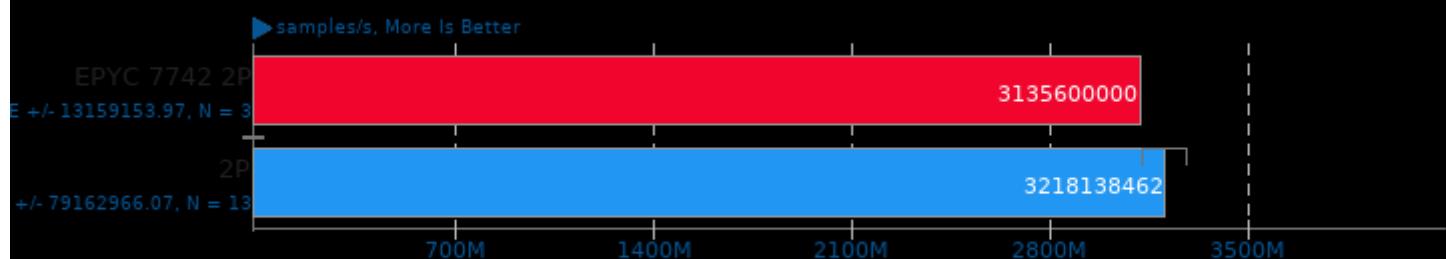
Threads: 64 - Buffer Length: 256 - Filter Length: 57



1. (CC) gcc options: -O3 -pthread -lm -lc -lliquid

## Liquid-DSP 2021.01.31

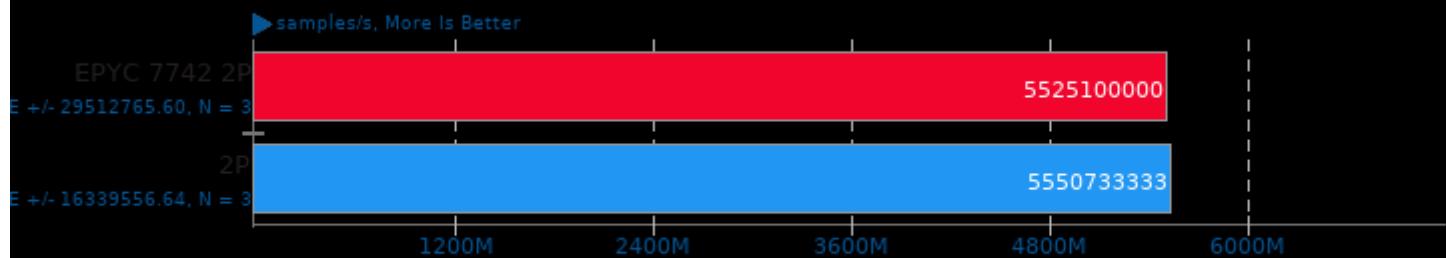
Threads: 128 - Buffer Length: 256 - Filter Length: 57



1. (CC) gcc options: -O3 -pthread -lm -lc -lliquid

## Liquid-DSP 2021.01.31

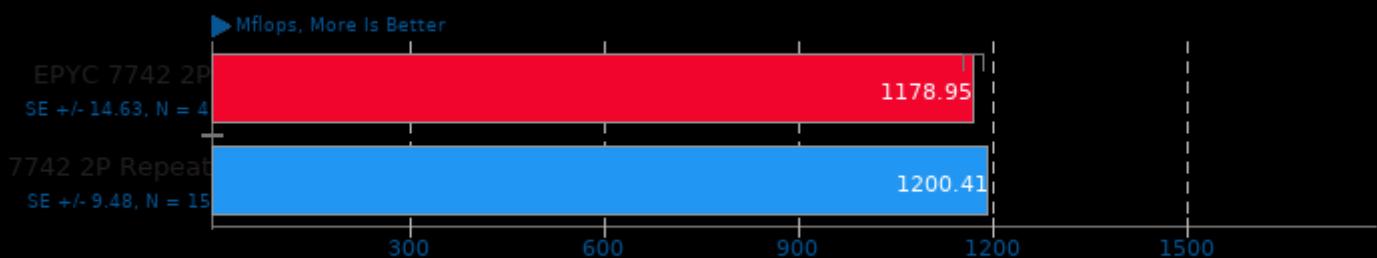
Threads: 256 - Buffer Length: 256 - Filter Length: 57



1. (CC) gcc options: -O3 -pthread -lm -lc -lliquid

## LuaJIT 2.1-git

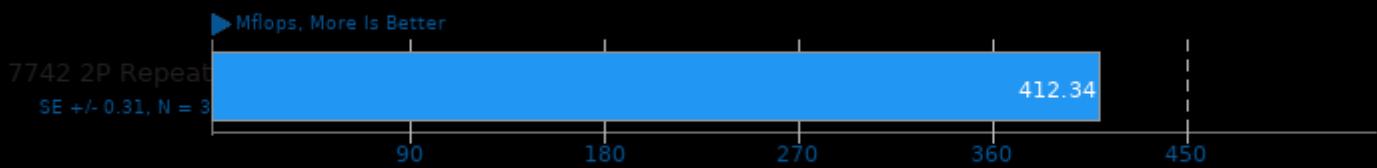
Test: Composite



1. (CC) gcc options: -lm -ldl -O2 -fomit-frame-pointer -U\_FORTIFY\_SOURCE -fno-stack-protector

## LuaJIT 2.1-git

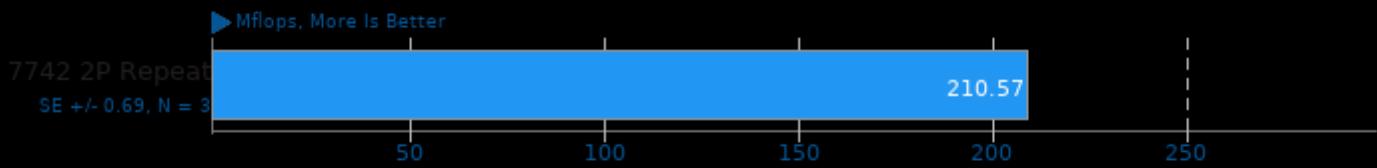
Test: Monte Carlo



1. (CC) gcc options: -lm -ldl -O2 -fomit-frame-pointer -U\_FORTIFY\_SOURCE -fno-stack-protector

## LuaJIT 2.1-git

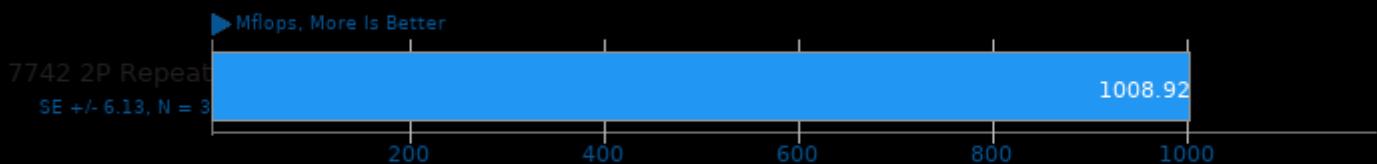
Test: Fast Fourier Transform



1. (CC) gcc options: -lm -ldl -O2 -fomit-frame-pointer -U\_FORTIFY\_SOURCE -fno-stack-protector

## LuaJIT 2.1-git

Test: Sparse Matrix Multiply



1. (CC) gcc options: -lm -ldl -O2 -fomit-frame-pointer -U\_FORTIFY\_SOURCE -fno-stack-protector

## LuaJIT 2.1-git

Test: Dense LU Matrix Factorization



1. (CC) gcc options: -lm -ldl -O2 -fomit-frame-pointer -U\_FORTIFY\_SOURCE -fno-stack-protector

## LuaJIT 2.1-git

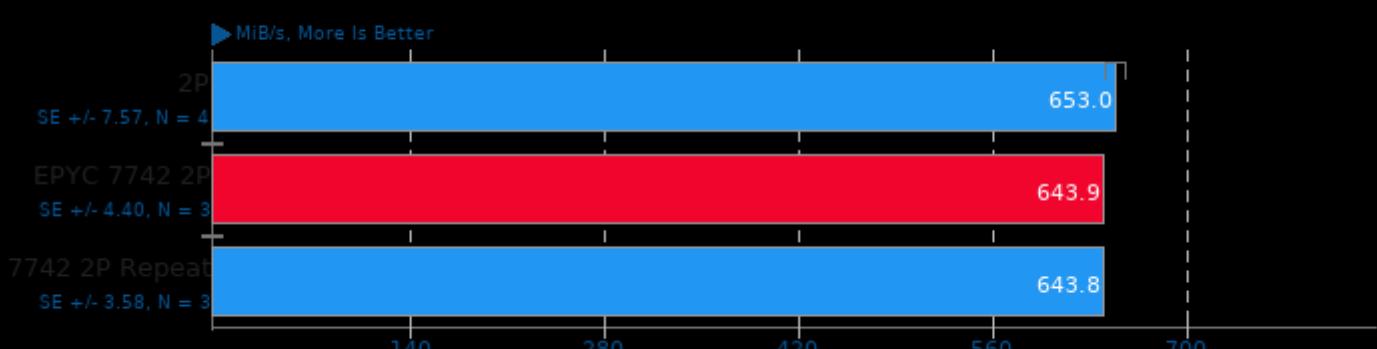
Test: Jacobi Successive Over-Relaxation



1. (CC) gcc options: -lm -ldl -O2 -fomit-frame-pointer -U\_FORTIFY\_SOURCE -fno-stack-protector

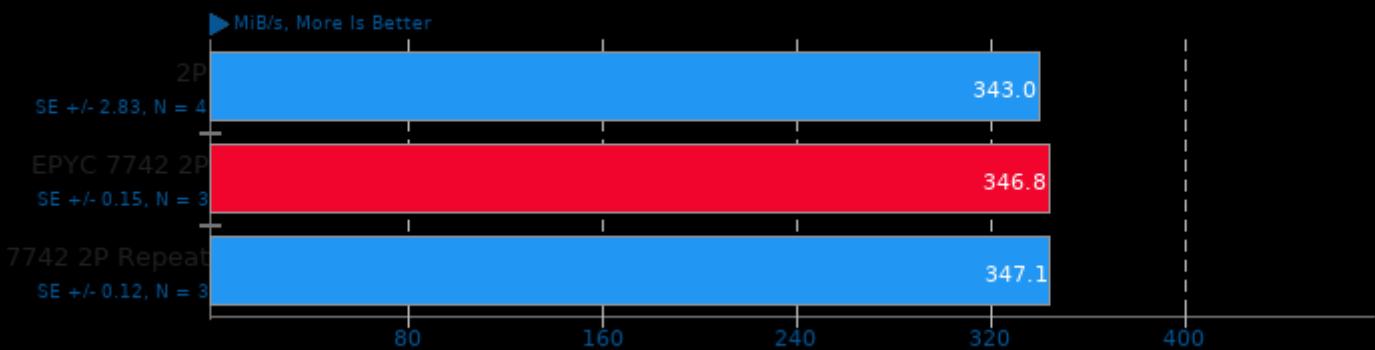
## LuaRadio 0.9.1

Test: Five Back to Back FIR Filters



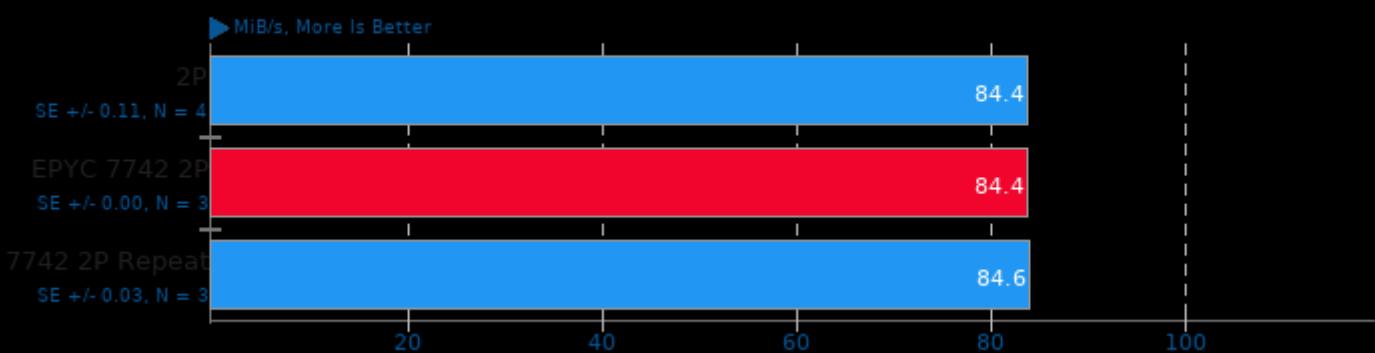
## LuaRadio 0.9.1

Test: FM Deemphasis Filter



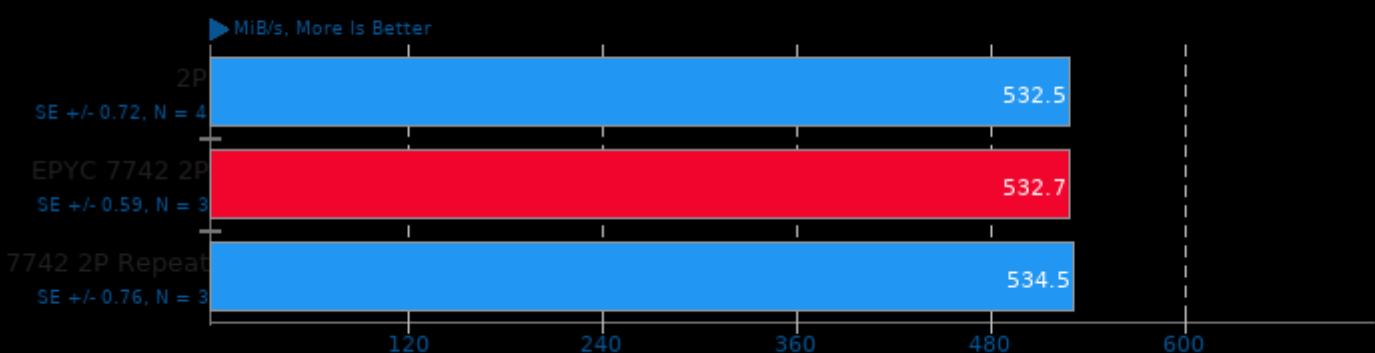
## LuaRadio 0.9.1

Test: Hilbert Transform



## LuaRadio 0.9.1

Test: Complex Phase



## LuxCoreRender 2.3

Scene: DLSC



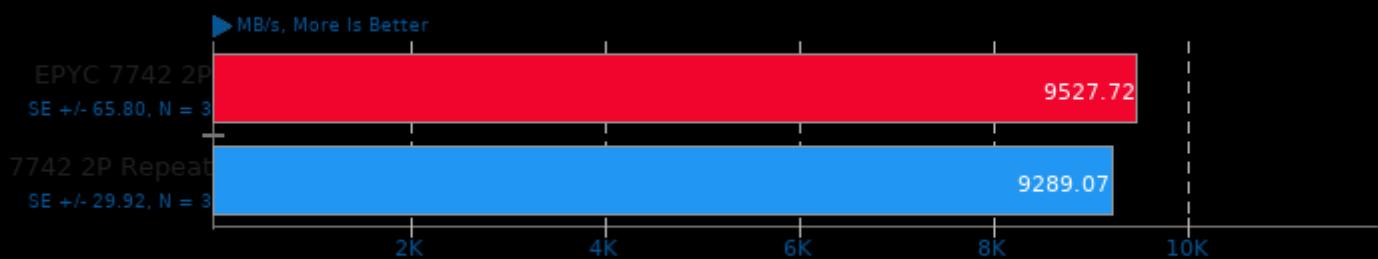
## LuxCoreRender 2.3

Scene: Rainbow Colors and Prism



## LZ4 Compression 1.9.3

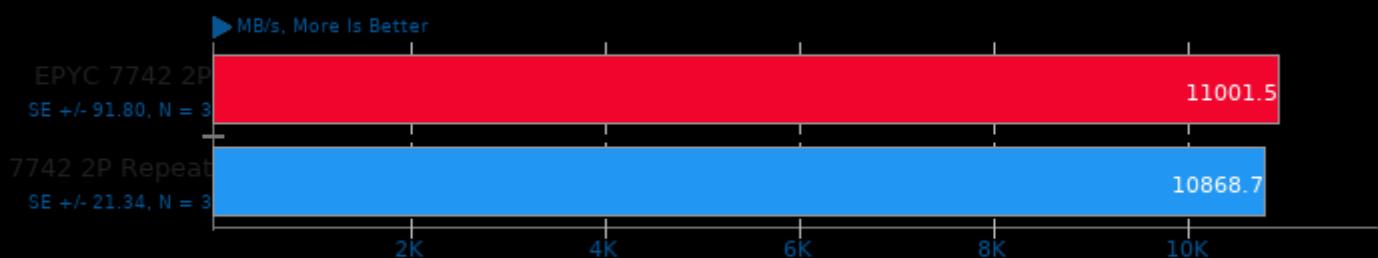
Compression Level: 1 - Compression Speed



1. (CC) gcc options: -O3

## LZ4 Compression 1.9.3

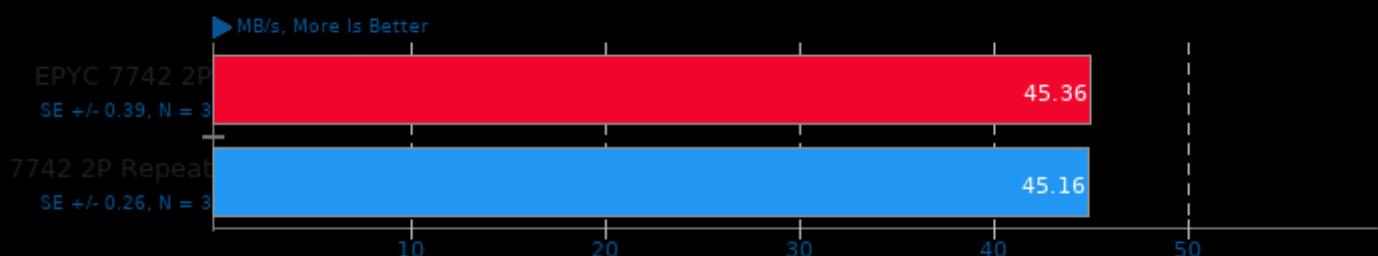
Compression Level: 1 - Decompression Speed



1. (CC) gcc options: -O3

## LZ4 Compression 1.9.3

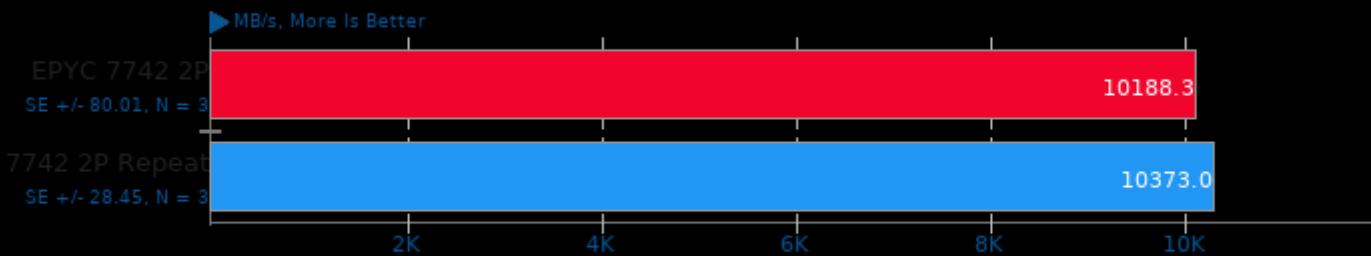
Compression Level: 3 - Compression Speed



1. (CC) gcc options: -O3

## LZ4 Compression 1.9.3

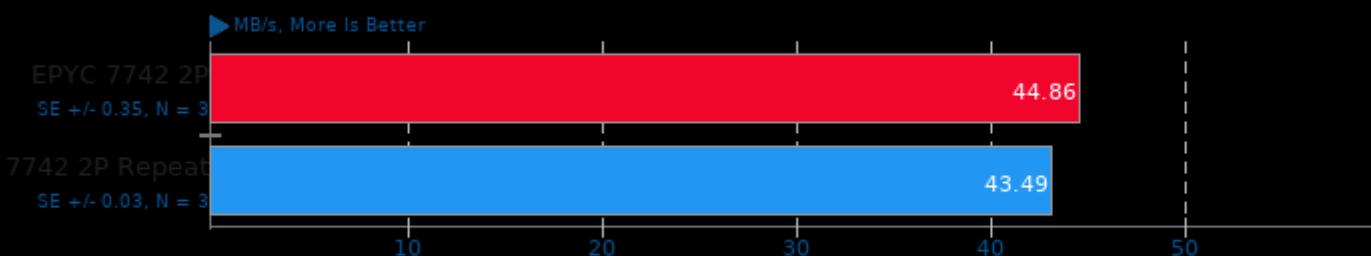
Compression Level: 3 - Decompression Speed



1. (CC) gcc options: -O3

## LZ4 Compression 1.9.3

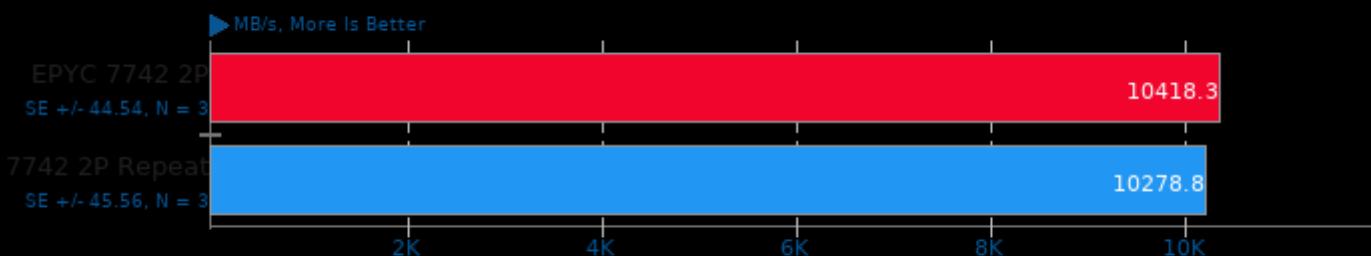
Compression Level: 9 - Compression Speed



1. (CC) gcc options: -O3

## LZ4 Compression 1.9.3

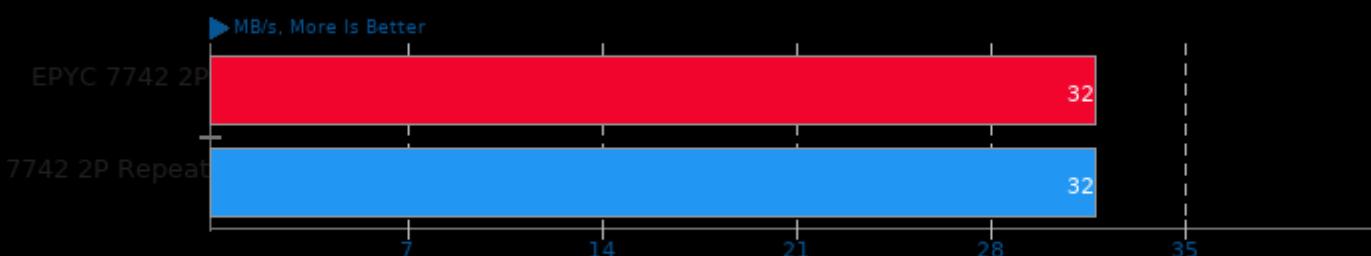
Compression Level: 9 - Decompression Speed



1. (CC) gcc options: -O3

## Izbench 1.8

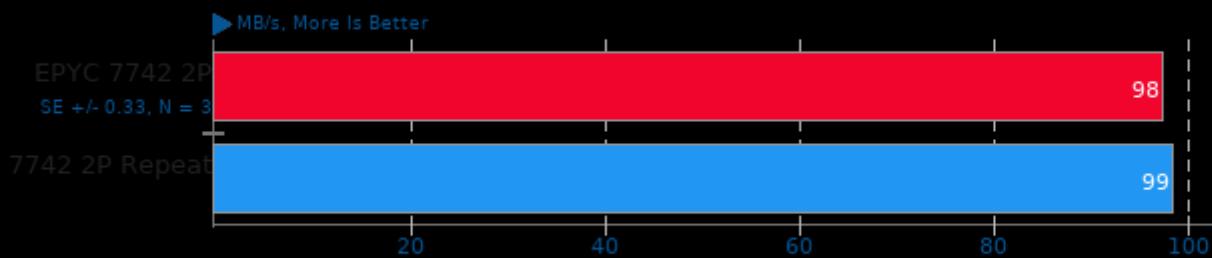
Test: XZ 0 - Process: Compression



1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3

## Izbench 1.8

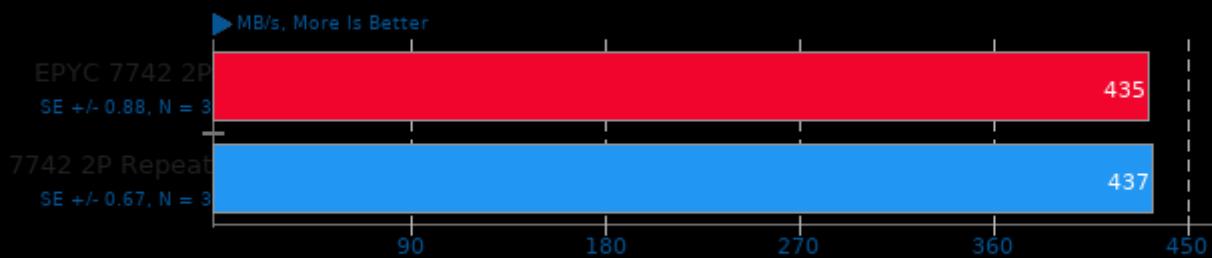
Test: XZ 0 - Process: Decompression



1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3

## Izbench 1.8

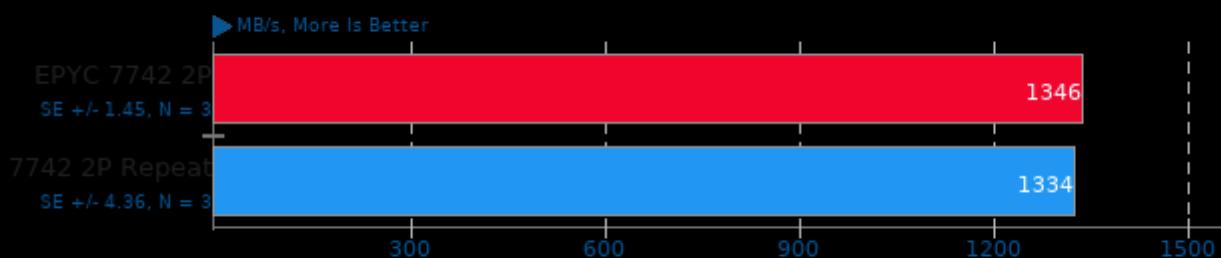
Test: Zstd 1 - Process: Compression



1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3

## Izbench 1.8

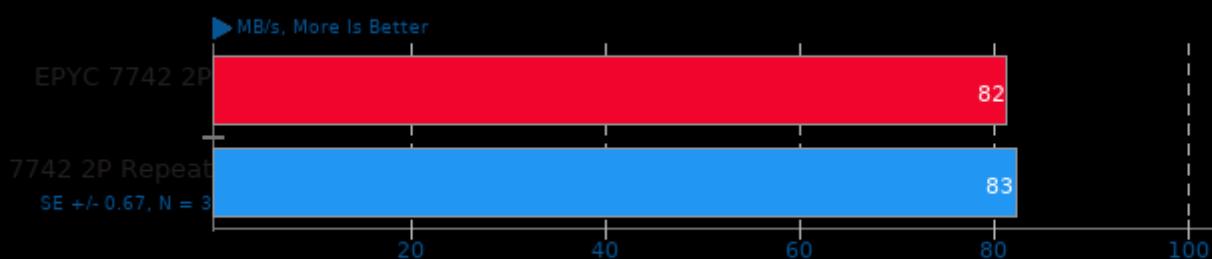
Test: Zstd 1 - Process: Decompression



1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3

## Izbench 1.8

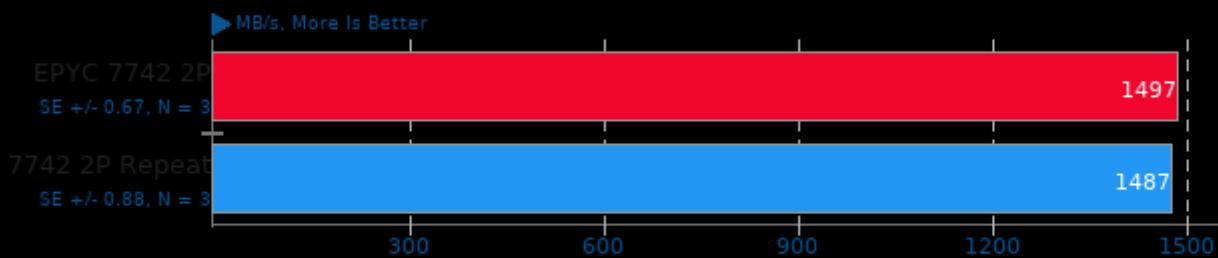
Test: Zstd 8 - Process: Compression



1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3

## Izbench 1.8

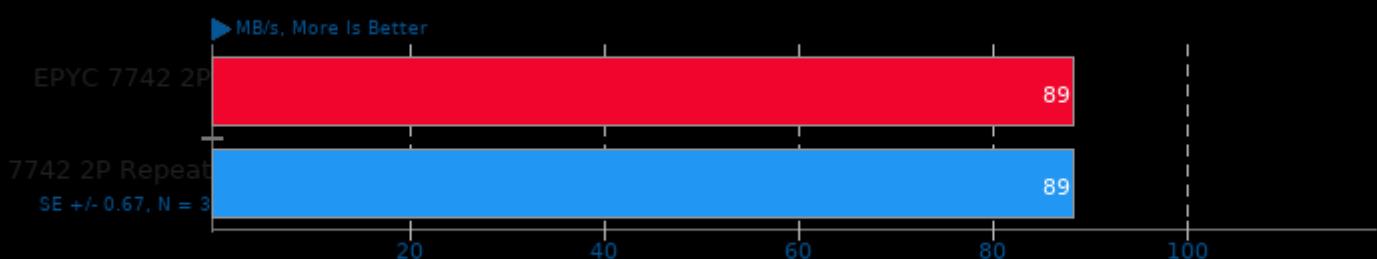
Test: Zstd 8 - Process: Decompression



1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3

## Izbench 1.8

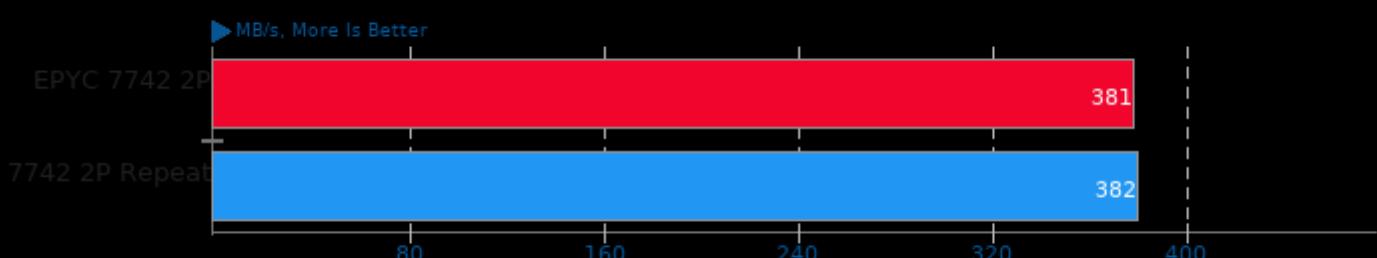
Test: Crush 0 - Process: Compression



1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3

## Izbench 1.8

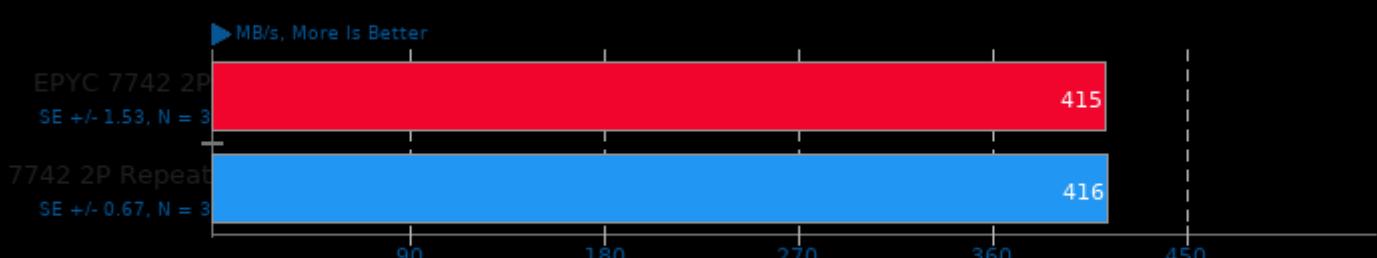
Test: Crush 0 - Process: Decompression



1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3

## Izbench 1.8

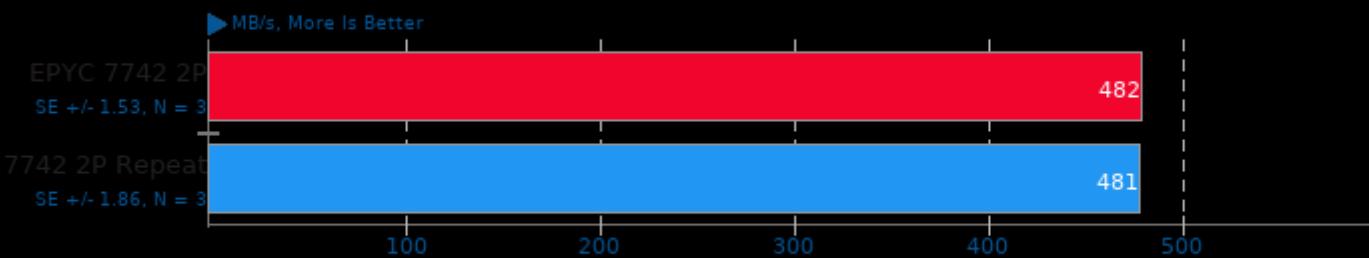
Test: Brotli 0 - Process: Compression



1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3

## Izbench 1.8

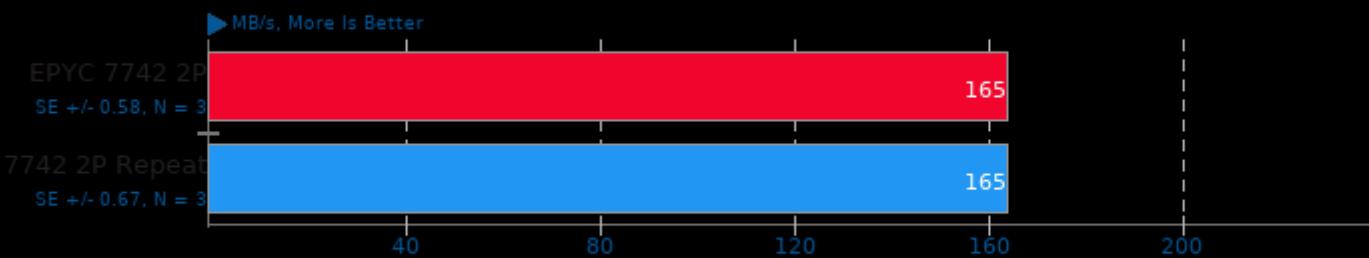
Test: Brotli 0 - Process: Decompression



1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3

## Izbench 1.8

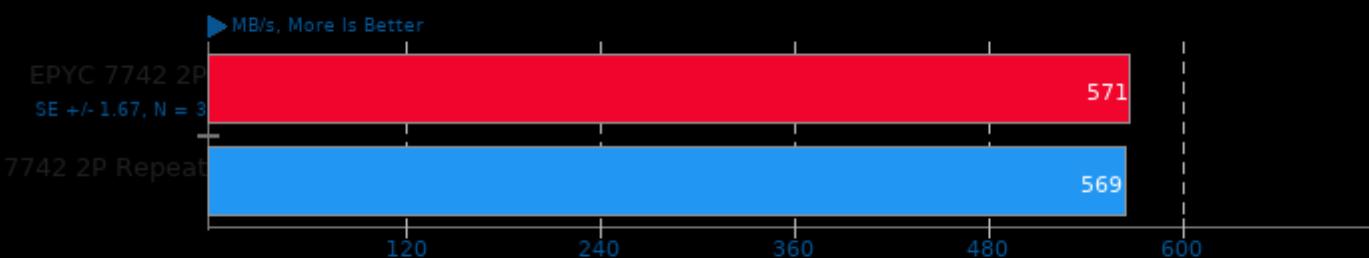
Test: Brotli 2 - Process: Compression



1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3

## Izbench 1.8

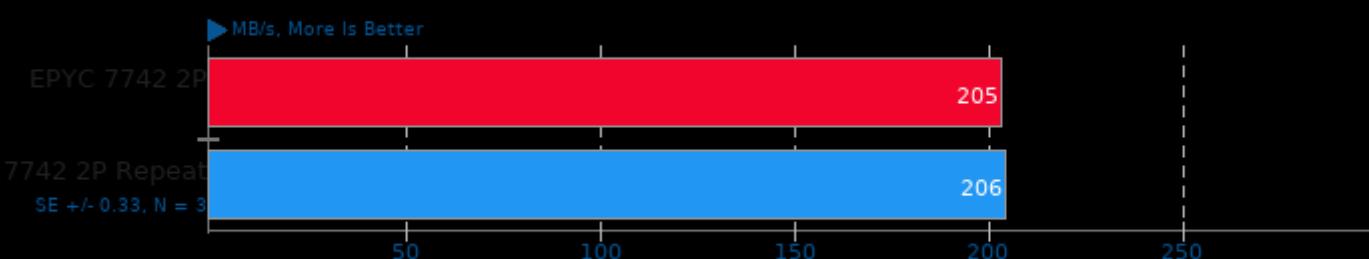
Test: Brotli 2 - Process: Decompression



1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3

## Izbench 1.8

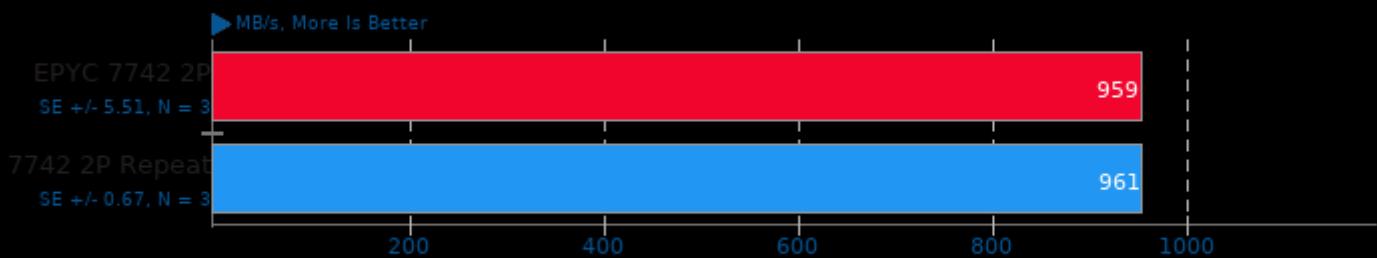
Test: Libdeflate 1 - Process: Compression



1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3

## Izbench 1.8

Test: Libdeflate 1 - Process: Decompression



1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3

## m-queens 1.2

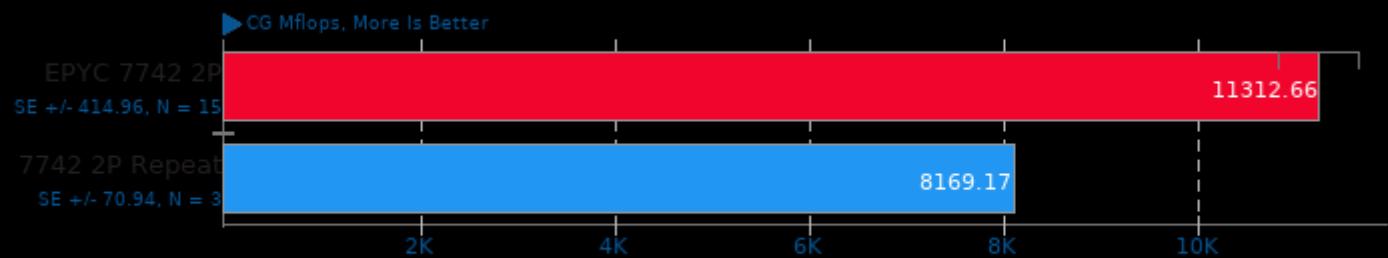
Time To Solve



1. (CXX) g++ options: -fopenmp -O2 -march=native

## miniFE 2.2

Problem Size: Small



1. (CXX) g++ options: -O3 -fopenmp -pthread -lmpi\_cxx -lmpi

## Monkey Audio Encoding 3.99.6

WAV To APE



1. (CXX) g++ options: -O3 -pedantic -rdynamic -lrt

## Montage Astronomical Image Mosaic Engine 6.0

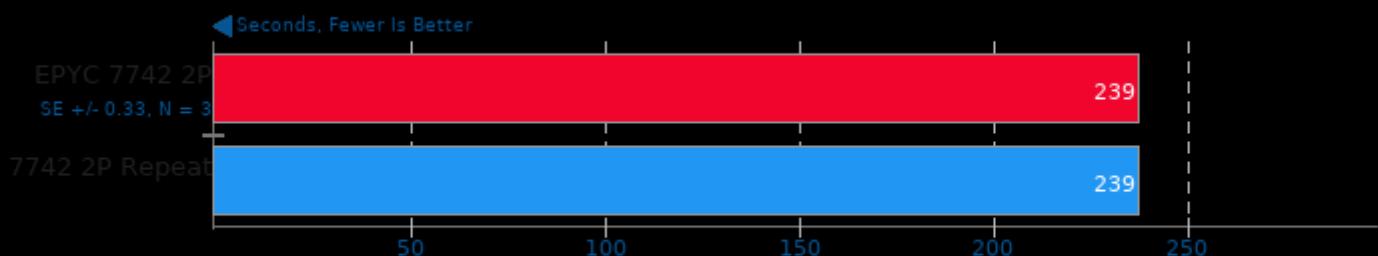
Mosaic of M17, K band, 1.5 deg x 1.5 deg



1. (CC) gcc options: -std=gnu99 -lcfitsio -lm -O2

## Monte Carlo Simulations of Ionised Nebulae 2019-03-24

Input: Dust 2D tau100.0



1. (F9X) gfortran options: -cpp -fsource/ -ffree-line-length-0 -lm -std=legacy -O3 -O2 -pthread -lmpi\_usempif08 -lmpi\_mpifh -lmpi

## N-Queens 1.0

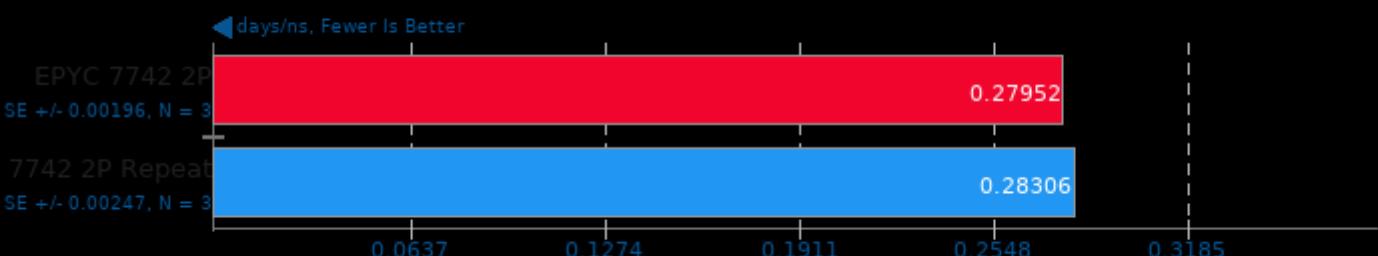
Elapsed Time



1. (CC) gcc options: -static -fopenmp -O3 -march=native

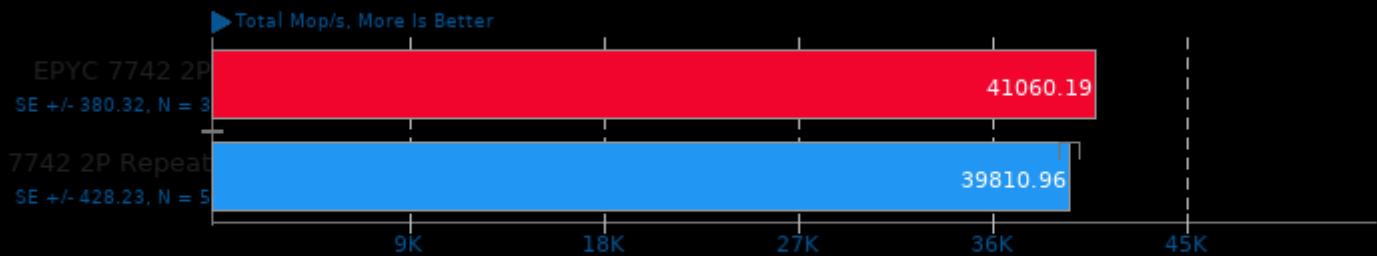
## NAMD 2.14

ATPase Simulation - 327,506 Atoms



## NAS Parallel Benchmarks 3.4

Test / Class: CG.C

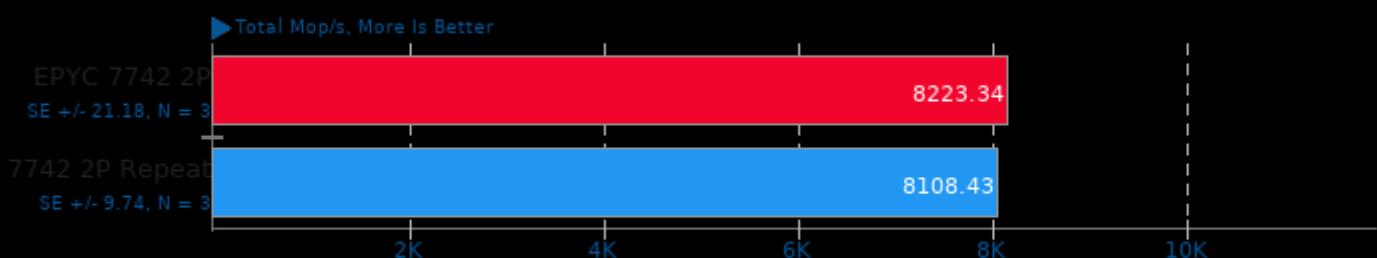


1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi\_usempif08 -lmpi\_mpifh -lmpi

2. Open MPI 4.0.3

## NAS Parallel Benchmarks 3.4

Test / Class: EP.C

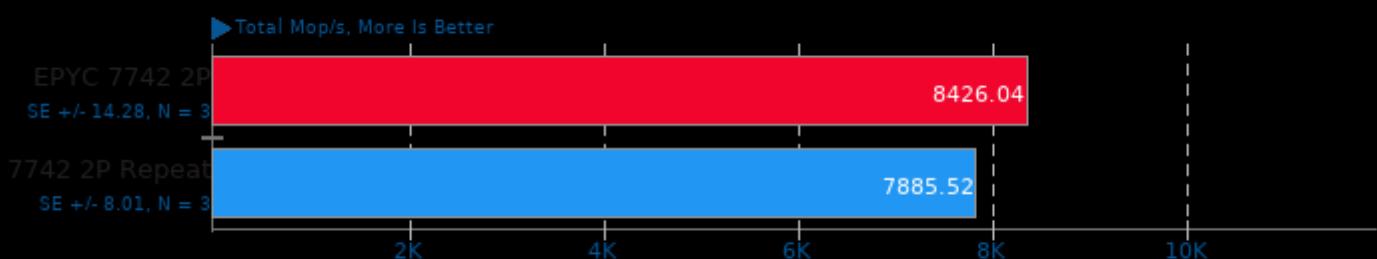


1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi\_usempif08 -lmpi\_mpifh -lmpi

2. Open MPI 4.0.3

## NAS Parallel Benchmarks 3.4

Test / Class: EP.D

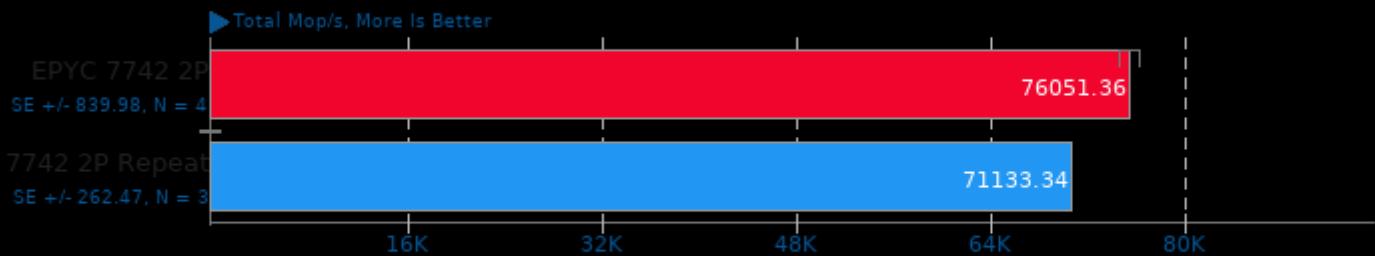


1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi\_usempif08 -lmpi\_mpifh -lmpi

2. Open MPI 4.0.3

## NAS Parallel Benchmarks 3.4

Test / Class: FT.C

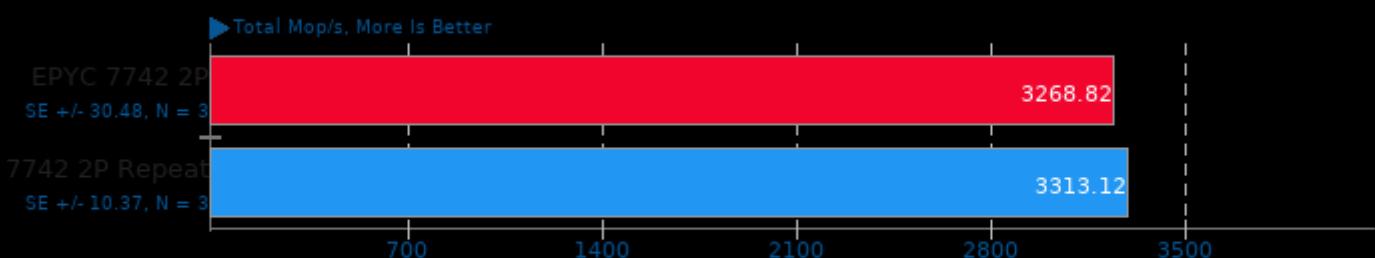


1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi\_usempif08 -lmpi\_mpifh -lmpi

2. Open MPI 4.0.3

## NAS Parallel Benchmarks 3.4

Test / Class: IS.D

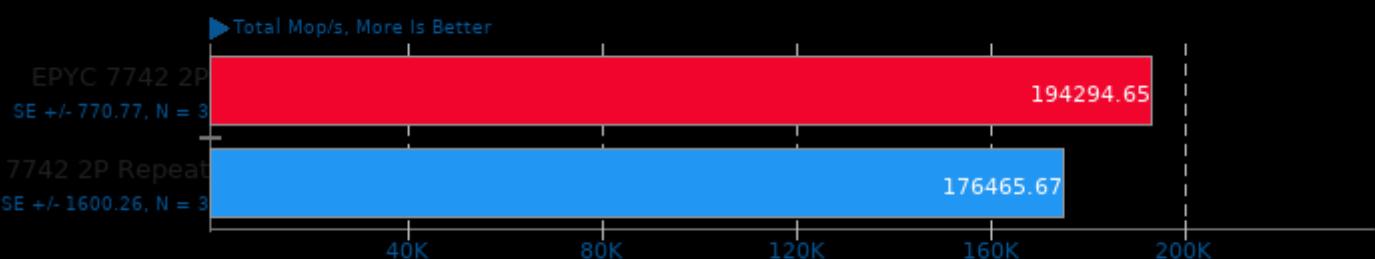


1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi\_usempif08 -lmpi\_mpifh -lmpi

2. Open MPI 4.0.3

## NAS Parallel Benchmarks 3.4

Test / Class: LU.C

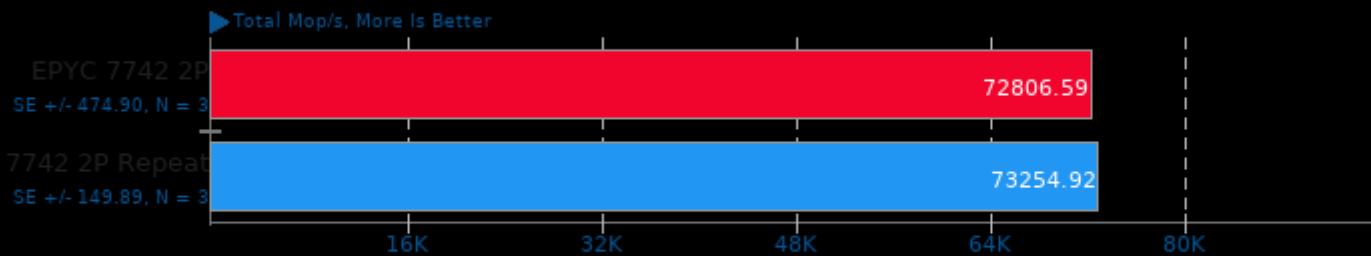


1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi\_usempif08 -lmpi\_mpifh -lmpi

2. Open MPI 4.0.3

## NAS Parallel Benchmarks 3.4

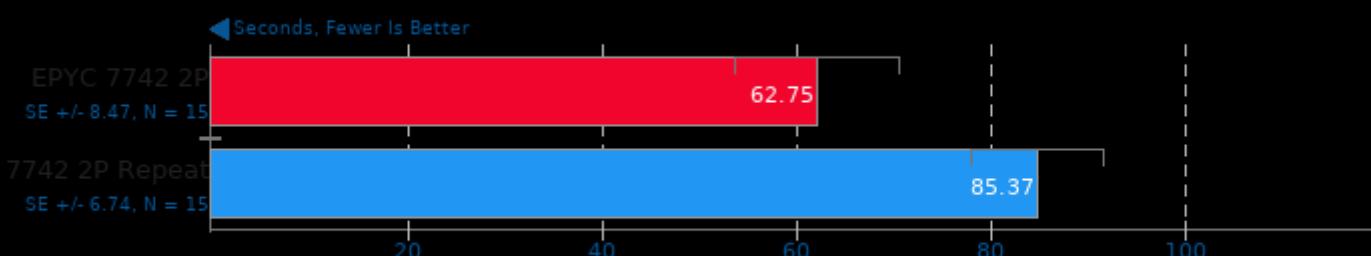
Test / Class: MG.C



1. (F9X) gfortran options: -O3 -march=native -fthread -lmpi\_usempif08 -lmpi\_mpifh -lmpi

2. Open MPI 4.0.3

## Nebular Empirical Analysis Tool 2020-02-29



1. (F9X) gfortran options: -cpp -ffree-line-length-0 -fsource/ -fopenmp -O3 -fno-backtrace

## Ngspice 34

Circuit: C2670



1. (CC) gcc options: -O0 -fopenmp -lm -stdc++ -fftw3 -Ixaw -Xmu -Xt -Xext -X11 -fSM -fICE

## Ngspice 34

Circuit: C7552



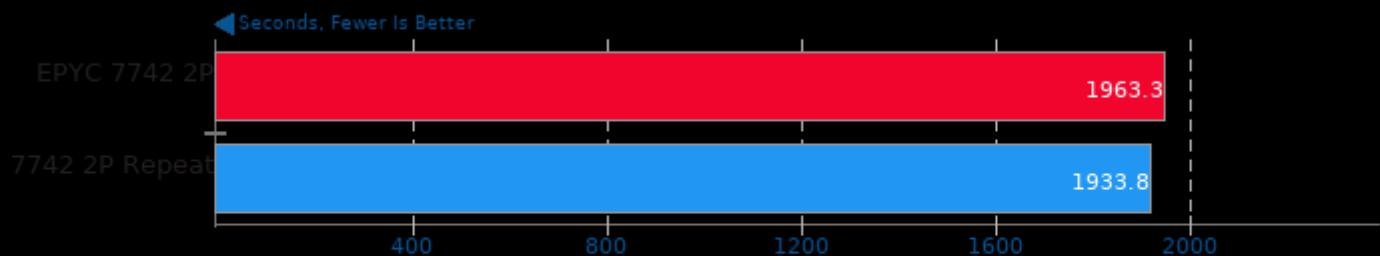
1. (CC) gcc options: -O0 -fopenmp -lm -stdc++ -fftw3 -Ixaw -Xmu -Xt -Xext -X11 -fSM -fICE

## Numpy Benchmark



## NWChem 7.0.2

Input: C240 Buckyball



1. (F9X) gfortran options: -Iwctask -Iccsd -Imcscf -Ielci -Imp2 -Imoints -Istepper -Idriver -loptim -Inwdft -Igradients -Icpfh -Iesp -Iddscf -Idangchang -Igue

## Ogg Audio Encoding 1.3.4

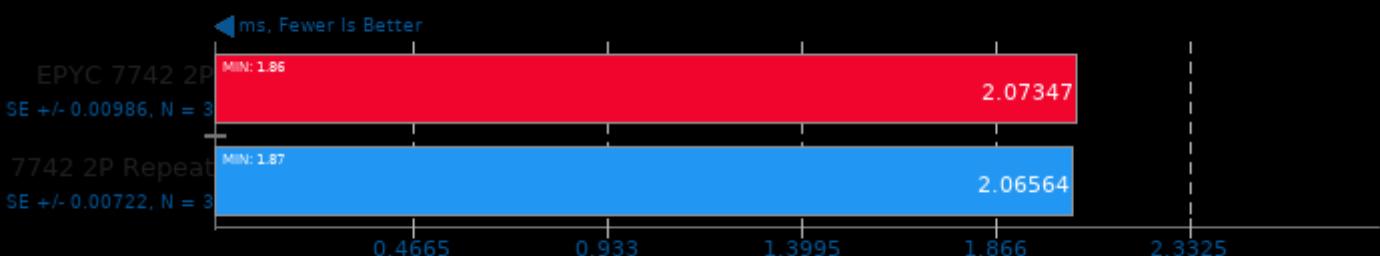
WAV To Ogg



1. (CC) gcc options: -O2 -ffast-math -fsigned-char

## oneDNN 2.0

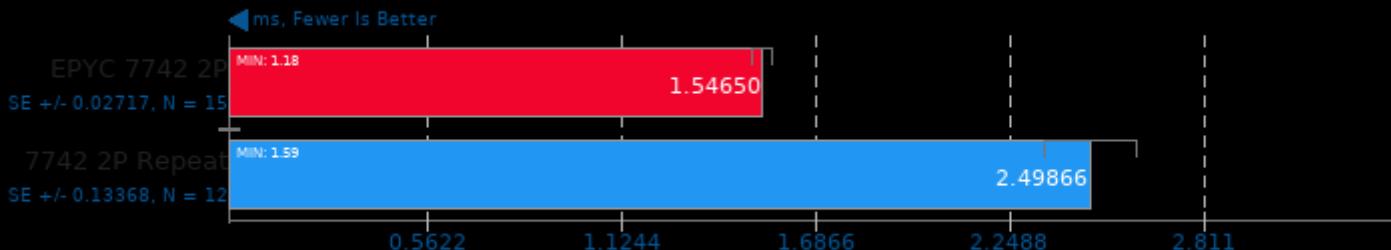
Harness: IP Shapes 1D - Data Type: f32 - Engine: CPU



1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread

## oneDNN 2.0

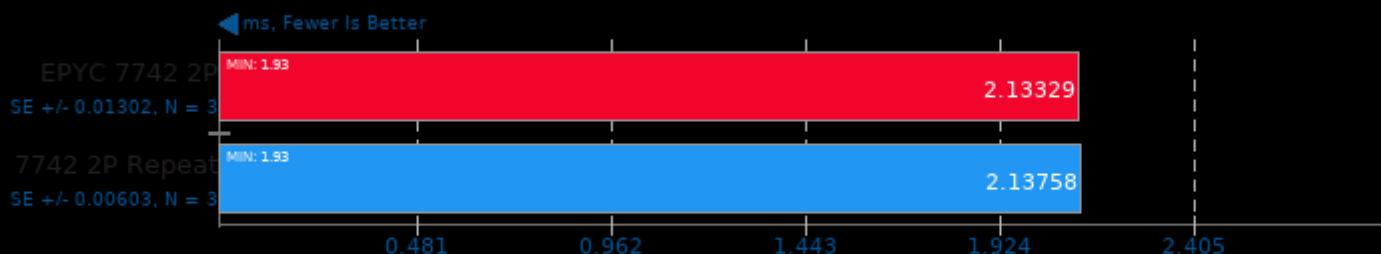
Harness: IP Shapes 3D - Data Type: f32 - Engine: CPU



1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread

## oneDNN 2.0

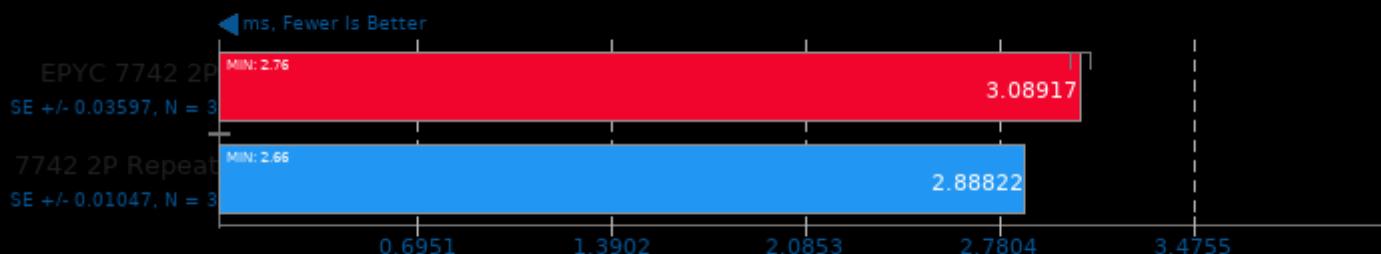
Harness: IP Shapes 1D - Data Type: u8s8f32 - Engine: CPU



1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread

## oneDNN 2.0

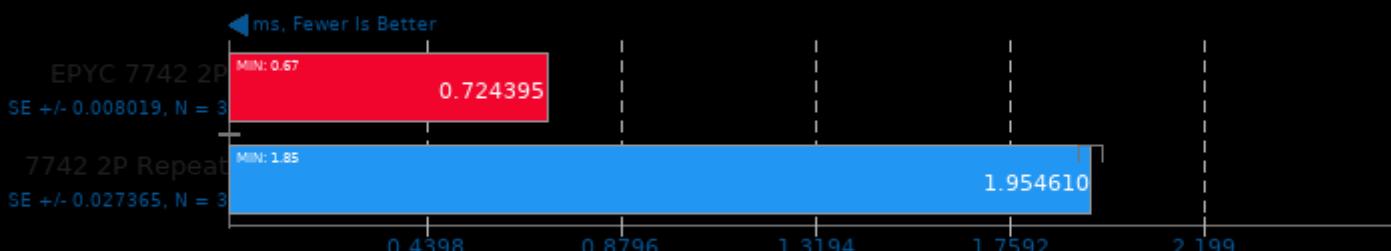
Harness: IP Shapes 3D - Data Type: u8s8f32 - Engine: CPU



1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread

## oneDNN 2.0

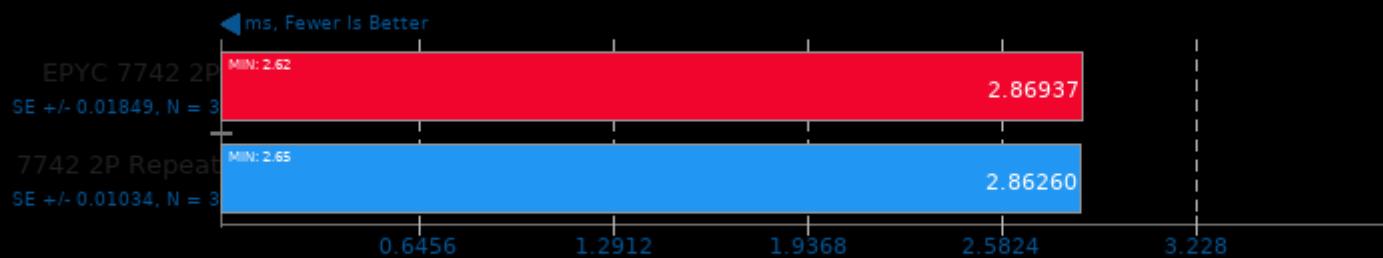
Harness: Convolution Batch Shapes Auto - Data Type: f32 - Engine: CPU



1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread

## oneDNN 2.0

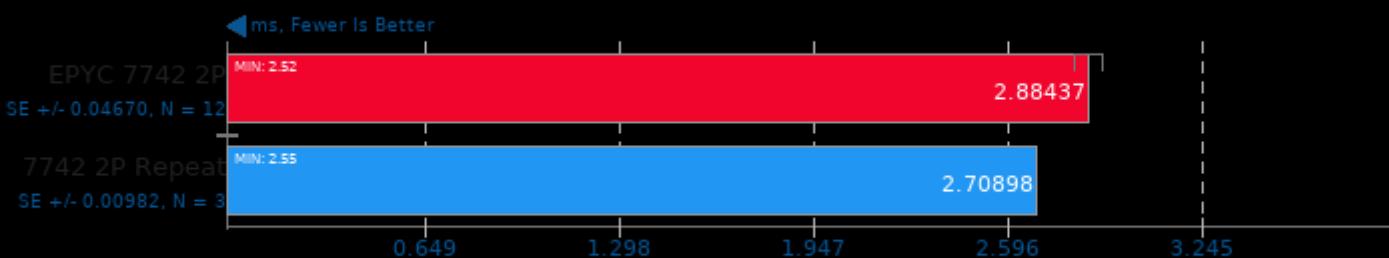
Harness: Deconvolution Batch shapes\_1d - Data Type: f32 - Engine: CPU



1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread

## oneDNN 2.0

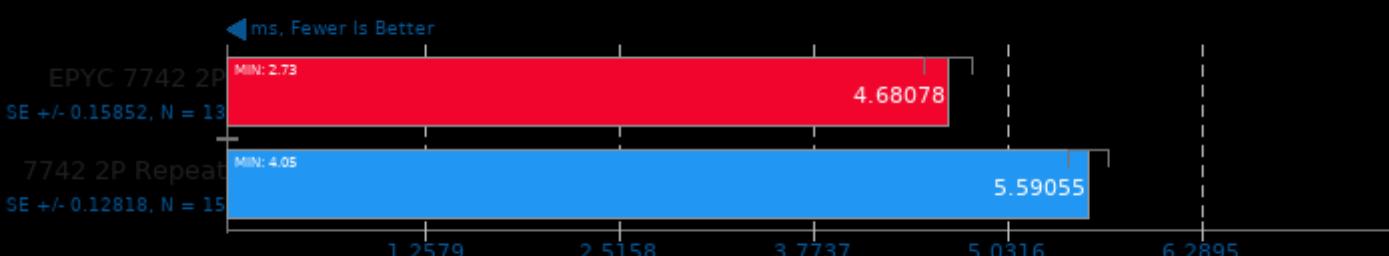
Harness: Deconvolution Batch shapes\_3d - Data Type: f32 - Engine: CPU



1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread

## oneDNN 2.0

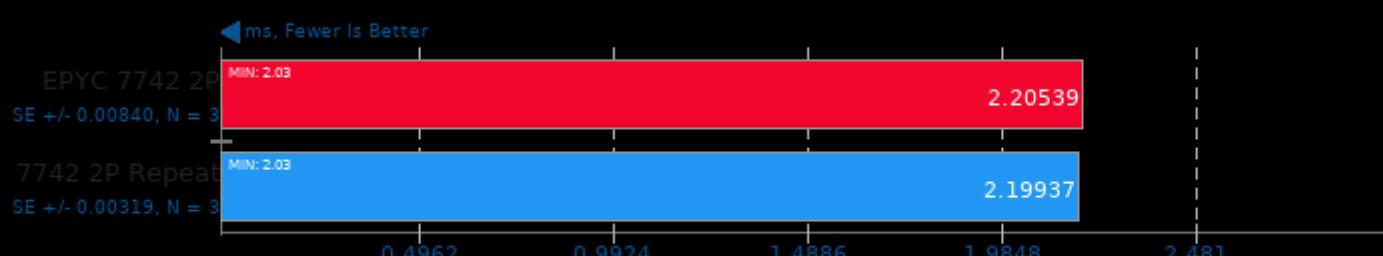
Harness: Convolution Batch Shapes Auto - Data Type: u8s8f32 - Engine: CPU



1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread

## oneDNN 2.0

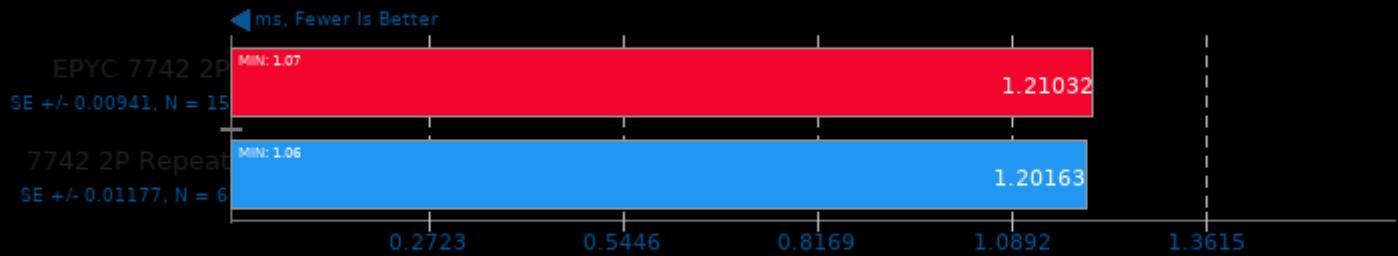
Harness: Deconvolution Batch shapes\_1d - Data Type: u8s8f32 - Engine: CPU



1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread

## oneDNN 2.0

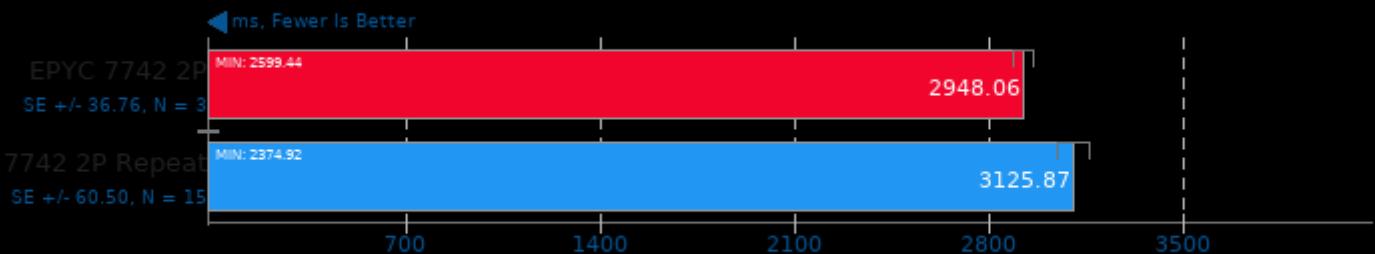
Harness: Deconvolution Batch shapes\_3d - Data Type: u8s8f32 - Engine: CPU



1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread

## oneDNN 2.0

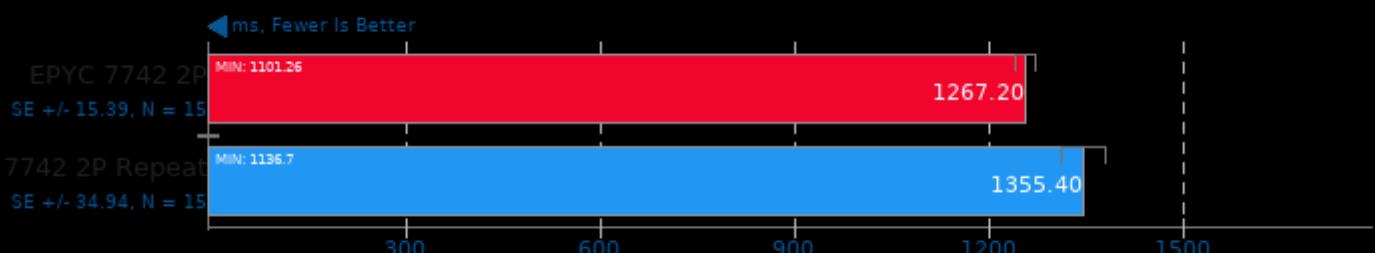
Harness: Recurrent Neural Network Training - Data Type: f32 - Engine: CPU



1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread

## oneDNN 2.0

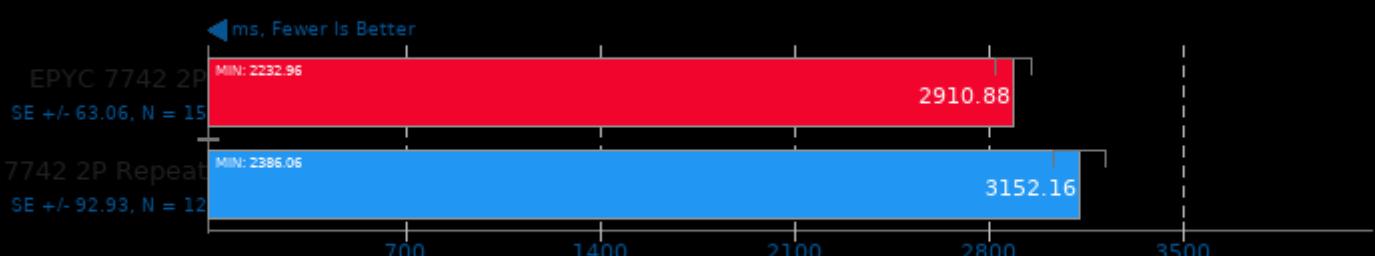
Harness: Recurrent Neural Network Inference - Data Type: f32 - Engine: CPU



1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread

## oneDNN 2.0

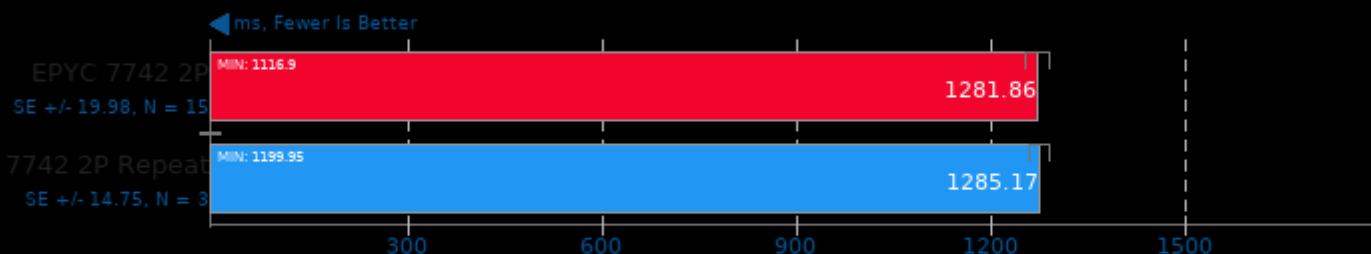
Harness: Recurrent Neural Network Training - Data Type: u8s8f32 - Engine: CPU



1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread

## oneDNN 2.0

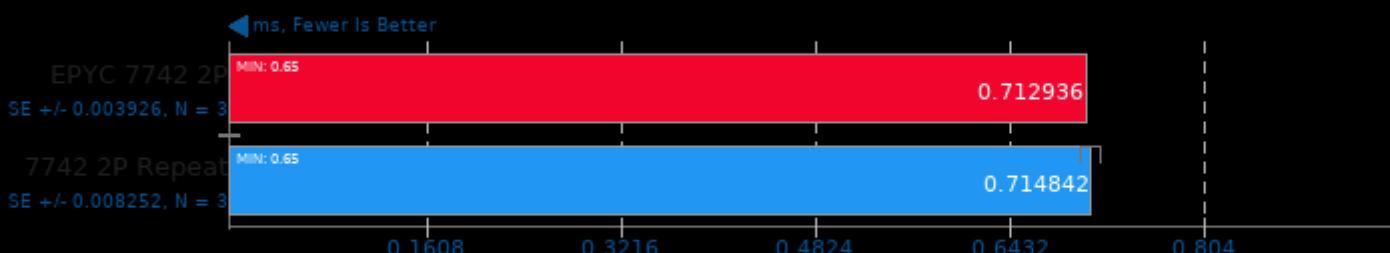
Harness: Recurrent Neural Network Inference - Data Type: u8s8f32 - Engine: CPU



1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread

## oneDNN 2.0

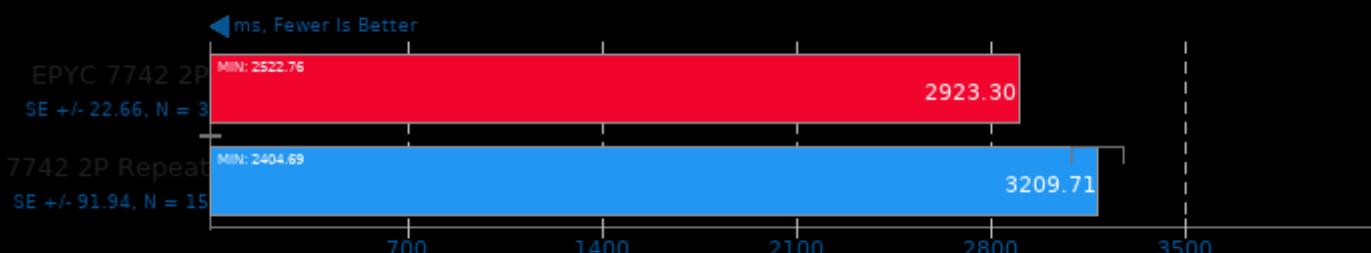
Harness: Matrix Multiply Batch Shapes Transformer - Data Type: f32 - Engine: CPU



1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread

## oneDNN 2.0

Harness: Recurrent Neural Network Training - Data Type: bf16bf16bf16 - Engine: CPU



1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread

## oneDNN 2.0

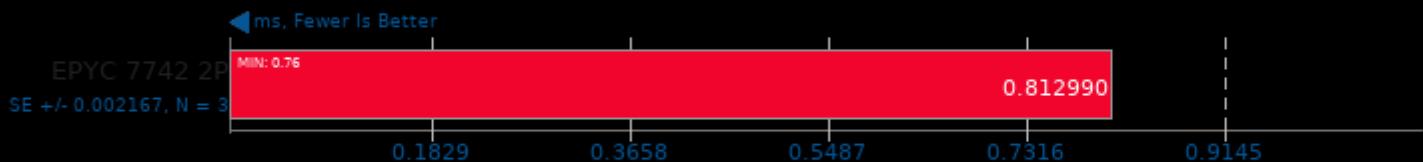
Harness: Recurrent Neural Network Inference - Data Type: bf16bf16bf16 - Engine: CPU



1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread

## oneDNN 2.0

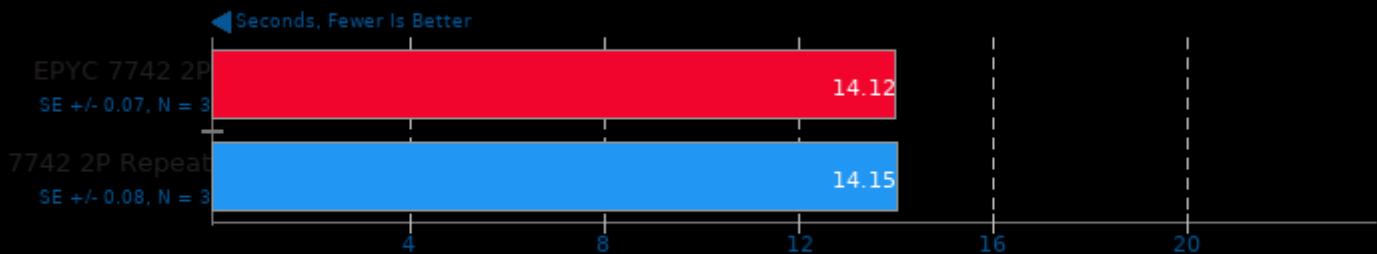
Harness: Matrix Multiply Batch Shapes Transformer - Data Type: u8s8f32 - Engine: CPU



1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -mssse4.1 -fPIC -pie -lpthread

## OpenFOAM 8

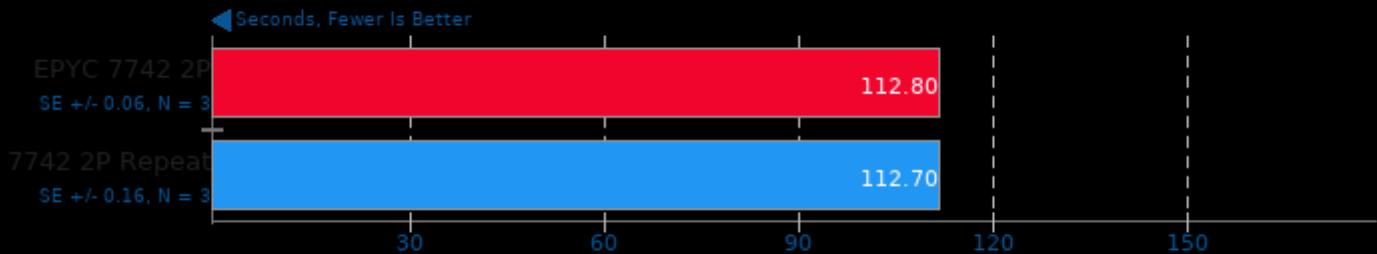
Input: Motorbike 30M



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

## OpenFOAM 8

Input: Motorbike 60M



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

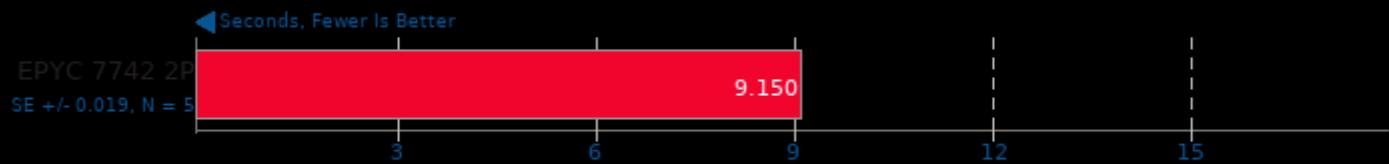
## OpenVKL 0.9

Benchmark: vklBenchmark



## Opus Codec Encoding 1.3.1

WAV To Opus Encode



1. (CXX) g++ options: -fvisibility=hidden -logg -lm

## OSPray 1.8.5

Demo: San Miguel - Renderer: SciVis



## OSPray 1.8.5

Demo: Xfrog Forest - Renderer: SciVis



## OSPray 1.8.5

Demo: San Miguel - Renderer: Path Tracer



## OSPray 1.8.5

Demo: NASA Streamlines - Renderer: SciVis



## OSPray 1.8.5

Demo: Xfrog Forest - Renderer: Path Tracer



## OSPray 1.8.5

Demo: Magnetic Reconnection - Renderer: SciVis



## OSPray 1.8.5

Demo: NASA Streamlines - Renderer: Path Tracer



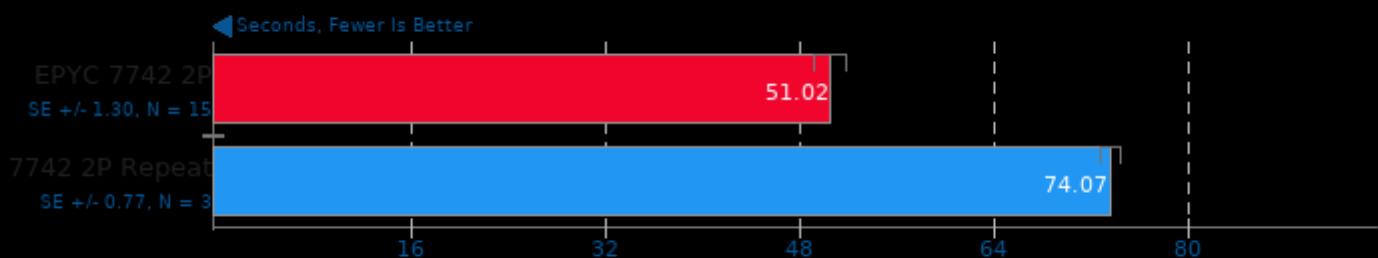
## OSPray 1.8.5

Demo: Magnetic Reconnection - Renderer: Path Tracer



## Parboil 2.5

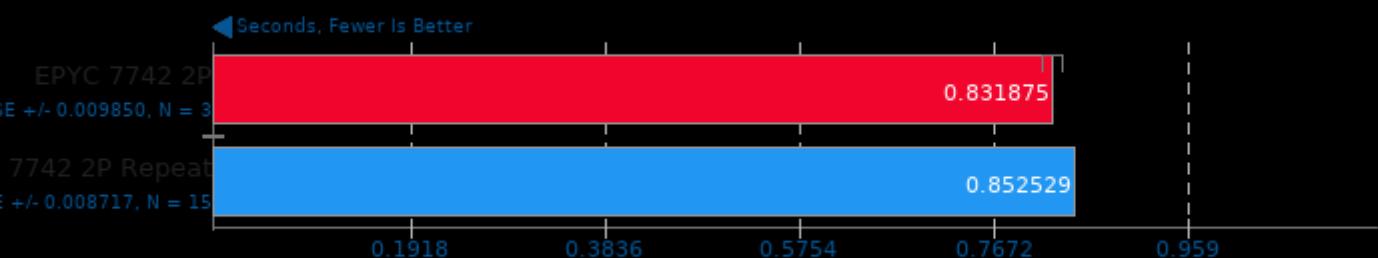
Test: OpenMP LBM



1. (CXX) g++ options: -lm -lpthread -lgomp -O3 -ffast-math -fopenmp

## Parboil 2.5

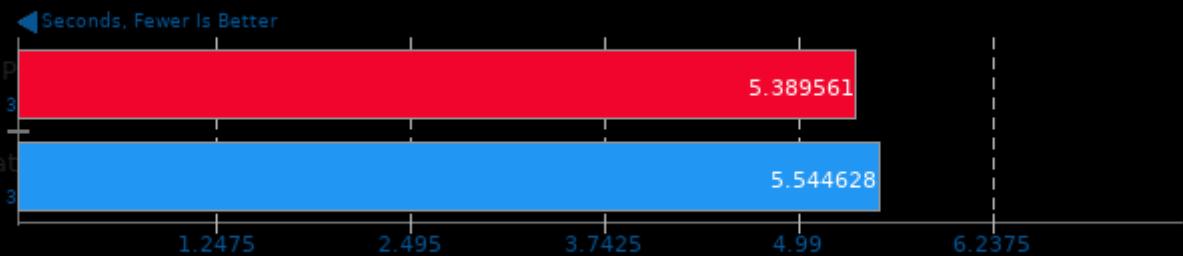
Test: OpenMP CUTCP



1. (CXX) g++ options: -lm -lpthread -lgomp -O3 -ffast-math -fopenmp

## Parboil 2.5

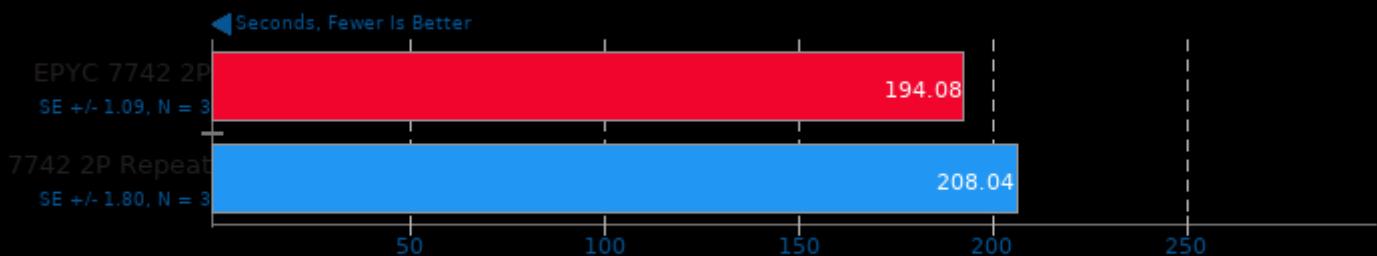
Test: OpenMP Stencil



1. (CXX) g++ options: -lm -lpthread -lgomp -O3 -ffast-math -fopenmp

## Parboil 2.5

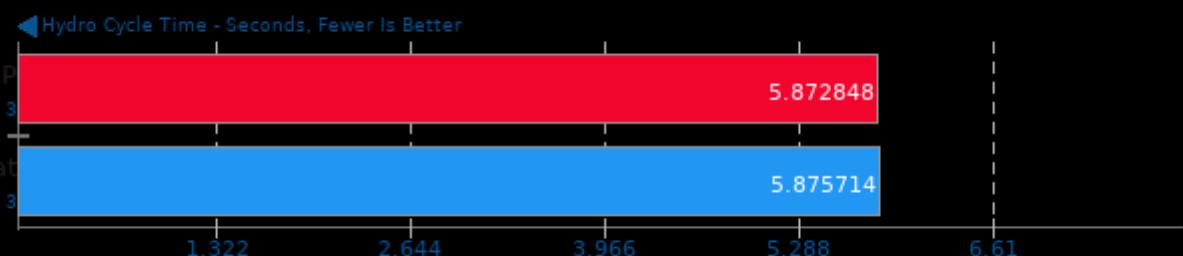
Test: OpenMP MRI Gridding



1. (CXX) g++ options: -lm -lpthread -lgomp -O3 -ffast-math -fopenmp

## Pennant 1.0.1

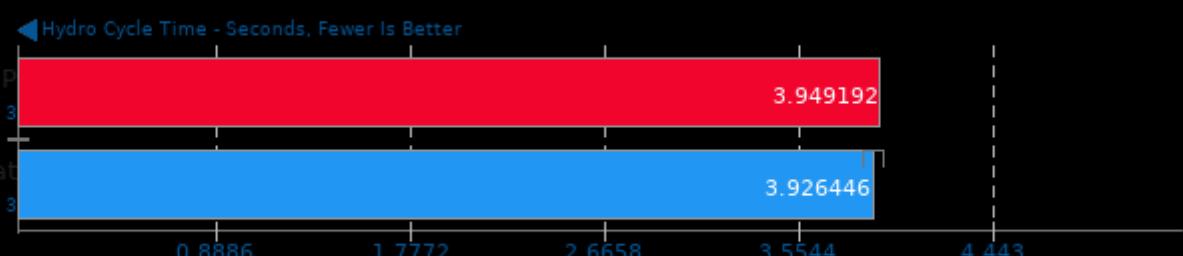
Test: sedovbig



1. (CXX) g++ options: -fopenmp -pthread -lmpi\_cxx -lmpi

## Pennant 1.0.1

Test: leblancbig



1. (CXX) g++ options: -fopenmp -pthread -lmpi\_cxx -lmpi

## POV-Ray 3.7.0.7

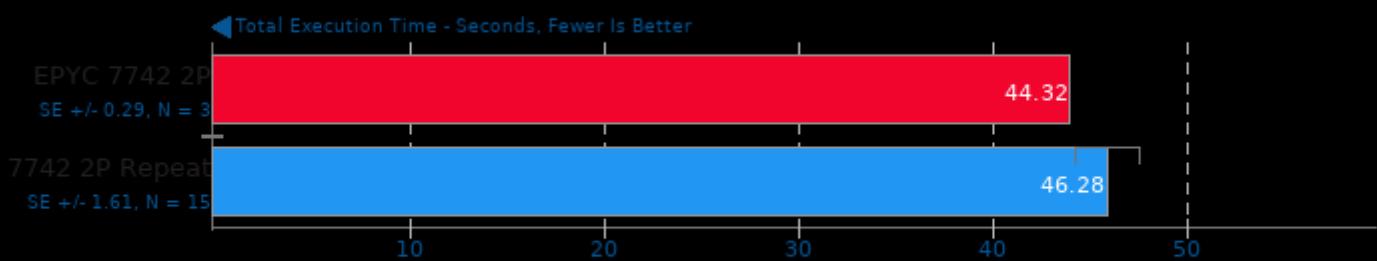
Trace Time



1. (CXX) g++ options: -pipe -O3 -ffast-math -march=native -pthread -fSDL -fXpm -fSM -fICE -fX11 -fImlmf -fimath -fHalf -flex -fexMath -fImThread -fptre

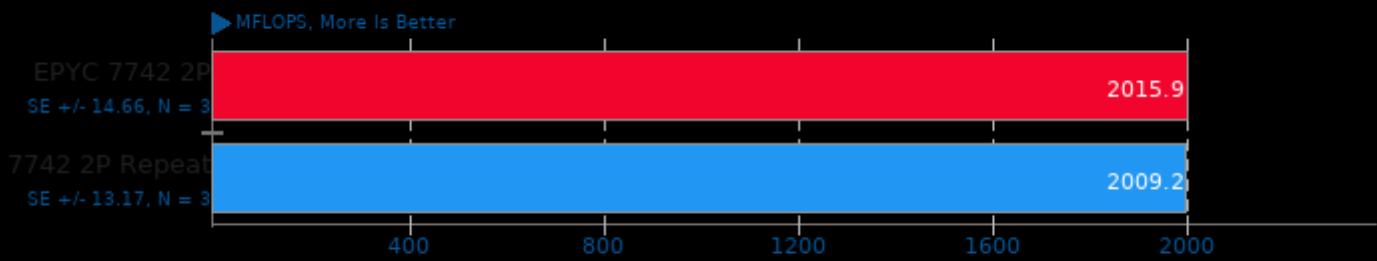
## QMCPACK 3.10

Input: simple-H2O



1. (CXX) g++ options: -fopenmp -finline-limit=1000 -fstrict-aliasing -funroll-all-loops -march=native -O3 -fomit-frame-pointer -ffast-math -pthread -fIm

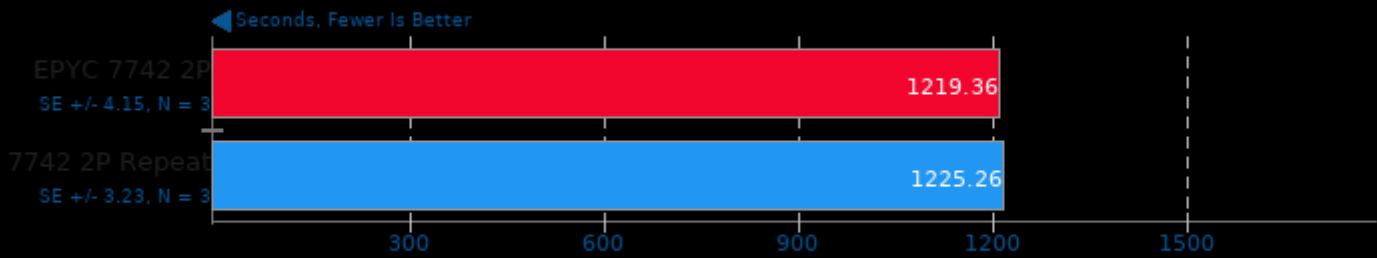
## QuantLib 1.21



1. (CXX) g++ options: -O3 -march=native -rdynamic

## Quantum ESPRESSO 6.7

Input: AUSURF112



1. (F9X) gfortran options: -lopenblas -fO3 -fdom -fO3\_sax -fO3\_wxml -fO3\_common -fO3\_utils -fO3\_fsys -fiftw3 -pthread -fmpi\_usempif08 -fmpi\_mpifh -

## Radiance Benchmark 5.0

Test: SMP Parallel



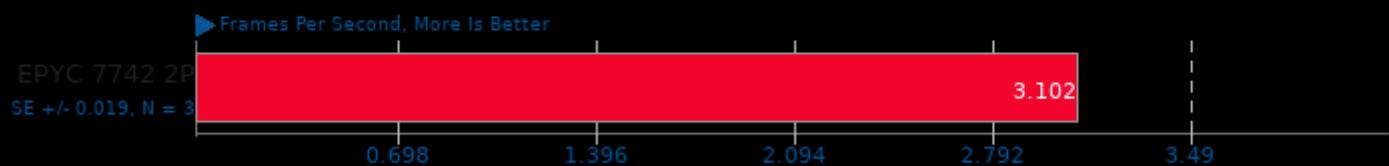
## ravle 0.4

Speed: 6



## ravle 0.4

Speed: 10



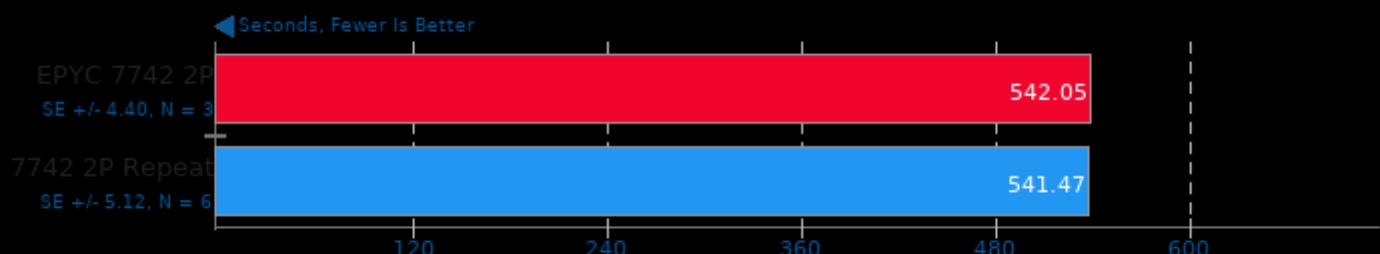
## rays1bench 2020-01-09

Large Scene



## RELION 3.1.1

Test: Basic - Device: CPU



1. (CXX) g++ options: -fopenmp -std=c++0x -O3 -rdynamic -ldl -ltiff -lfftw3f -lfftw3 -lpng -pthread -lmpi\_cxx -lmpi

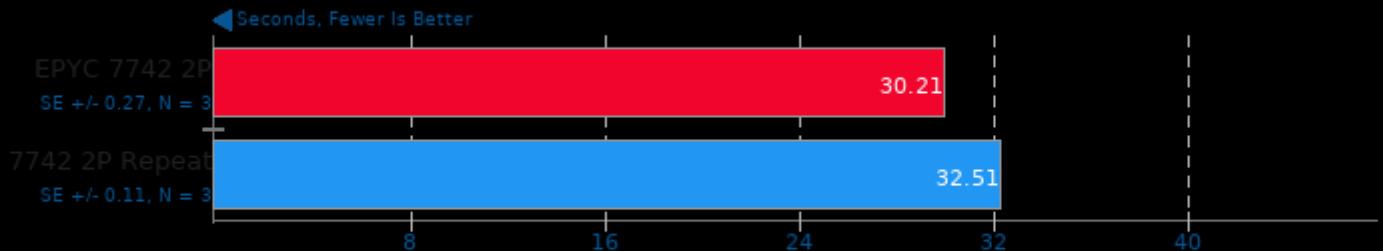
## RNNoise 2020-06-28



1. (CC) gcc options: -O2 -pedantic -fvisibility=hidden

## Rodinia 3.1

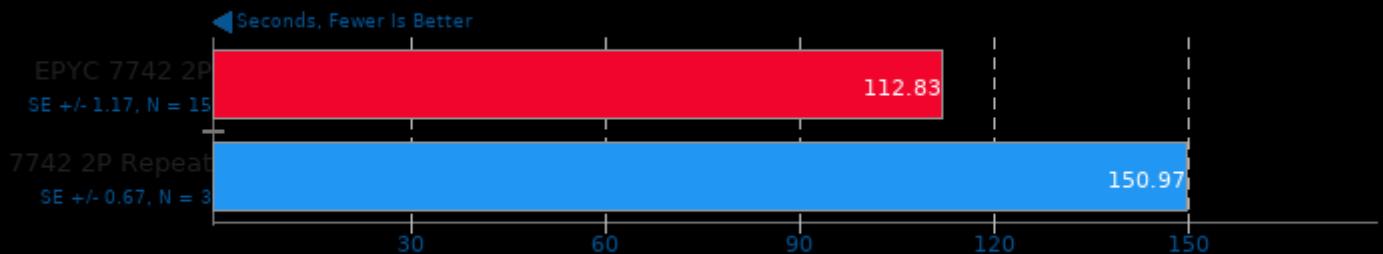
Test: OpenMP LavaMD



1. (CXX) g++ options: -O2 -fOpenCL

## Rodinia 3.1

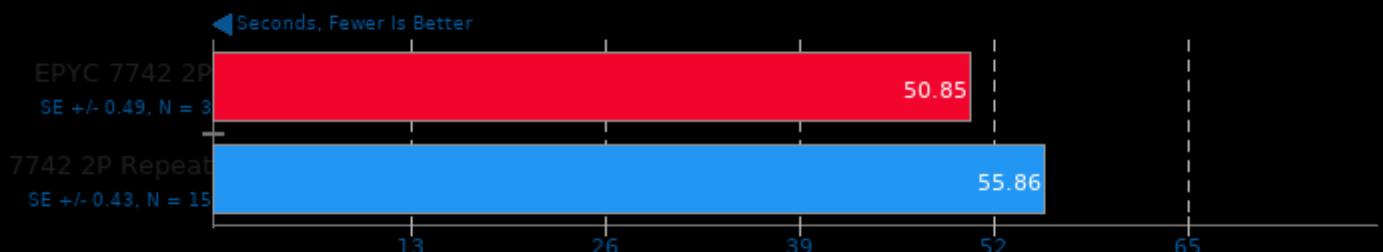
Test: OpenMP HotSpot3D



1. (CXX) g++ options: -O2 -fOpenCL

## Rodinia 3.1

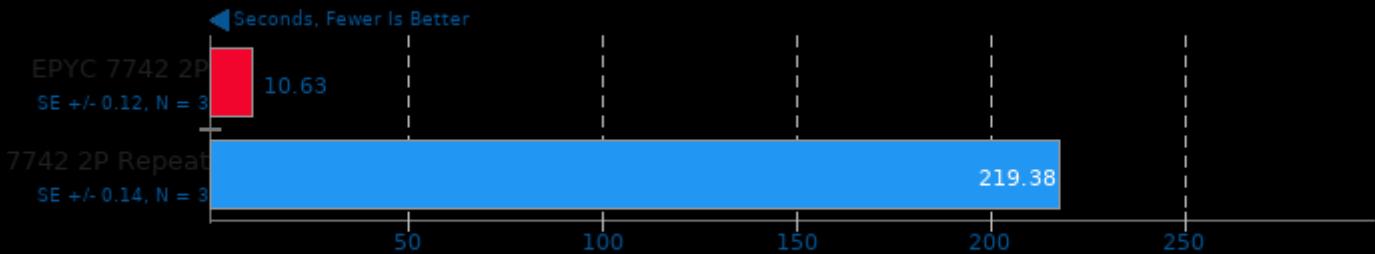
Test: OpenMP Leukocyte



1. (CXX) g++ options: -O2 -fOpenCL

## Rodinia 3.1

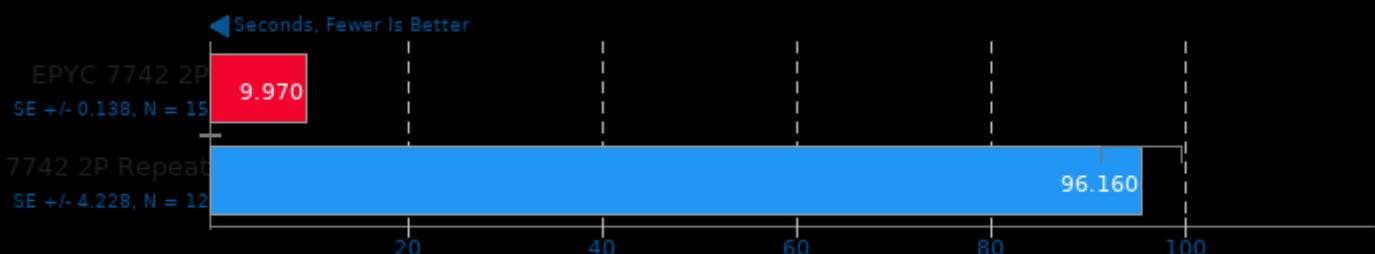
Test: OpenMP CFD Solver



1. (CXX) g++ options: -O2 -fOpenCL

## Rodinia 3.1

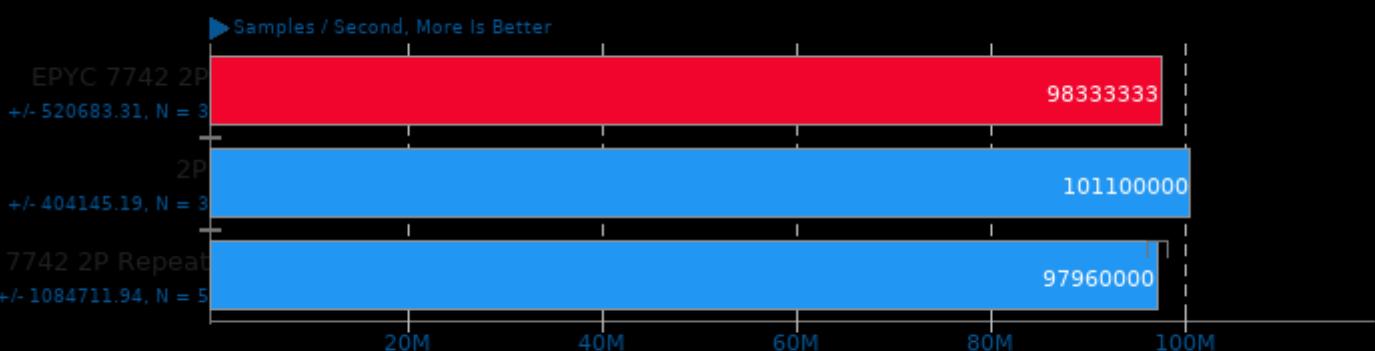
Test: OpenMP Streamcluster



1. (CXX) g++ options: -O2 -fOpenCL

## srsLTE 20.10.1

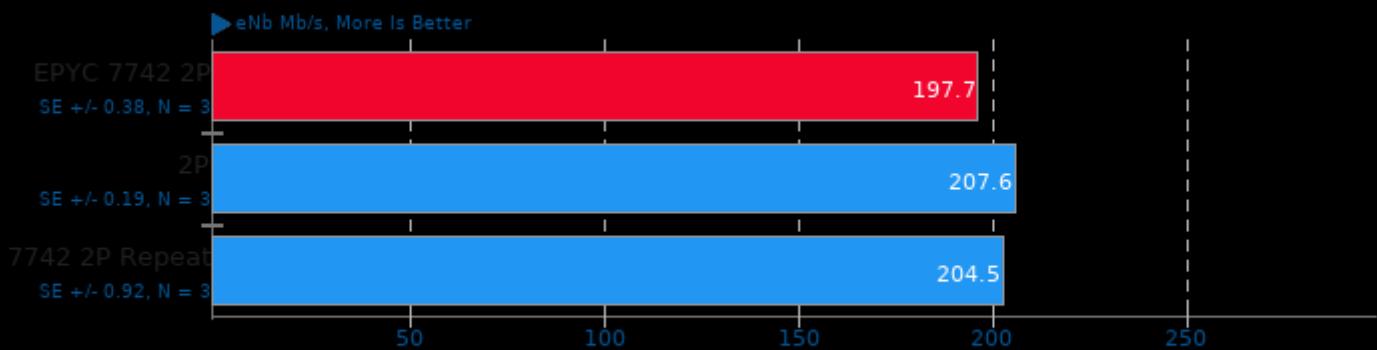
Test: OFDM\_Test



1. (CXX) g++ options: -std=c++11 -fno-strict-aliasing -march=native -mfpmath=sse -mavx2 -fvisibility=hidden -O3 -fno-trapping-math -fno-math-errno

## srsLTE 20.10.1

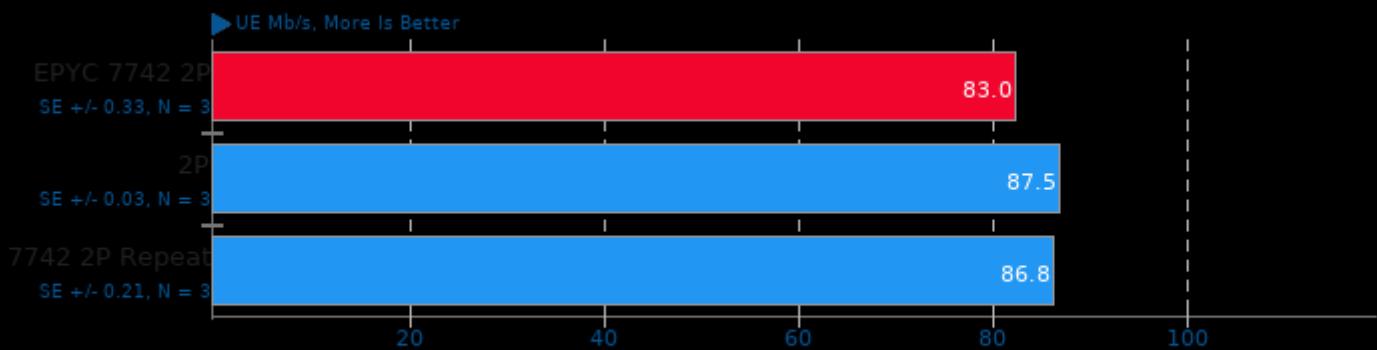
Test: PHY\_DL\_Test



1. (CXX) g++ options: -std=c++11 -fno-strict-aliasing -march=native -mfpmath=sse -mavx2 -fvisibility=hidden -O3 -fno-trapping-math -fno-math-errno

## srsLTE 20.10.1

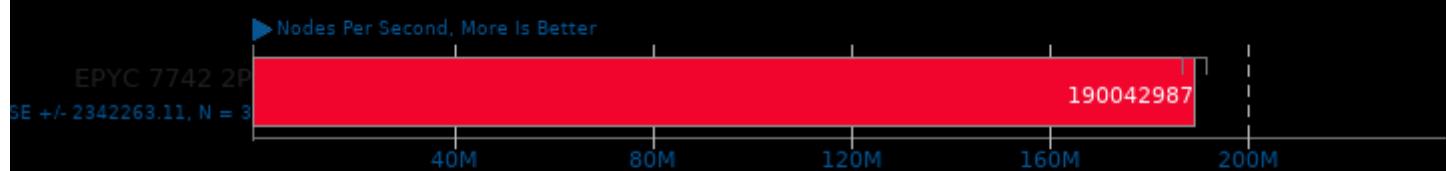
Test: PHY\_DL\_Test



1. (CXX) g++ options: -std=c++11 -fno-strict-aliasing -march=native -mfpmath=sse -mavx2 -fvisibility=hidden -O3 -fno-trapping-math -fno-math-errno

## Stockfish 12

Total Time



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

## SVT-AV1 0.8

Encoder Mode: Enc Mode 4 - Input: 1080p



1. (CXX) g++ options: -O3 -fcommon -fPIE -fPIC -pie

## SVT-AV1 0.8

Encoder Mode: Enc Mode 8 - Input: 1080p



1. (CXX) g++ options: -O3 -fcommon -fPIE -fPIC -pie

## SVT-VP9 0.1

Tuning: VMAF Optimized - Input: Bosphorus 1080p



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

## System GZIP Decompression



## System XZ Decompression



## System ZLIB Decompression 1.2.7



## Tachyon 0.99b6

### Total Time



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

## Timed Apache Compilation 2.4.41

### Time To Compile



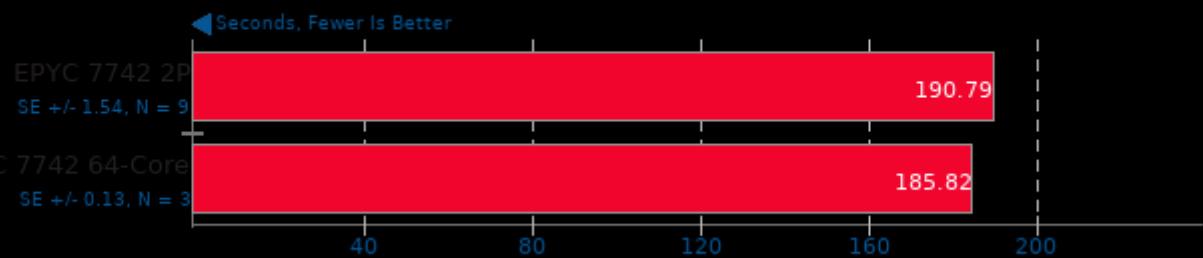
## Timed Eigen Compilation 3.3.9

### Time To Compile



## Timed Erlang/OTP Compilation 23.2

Time To Compile



## Timed FFmpeg Compilation 4.2.2

Time To Compile



## Timed GCC Compilation 9.3.0

Time To Compile



## Timed GDB GNU Debugger Compilation 9.1

Time To Compile



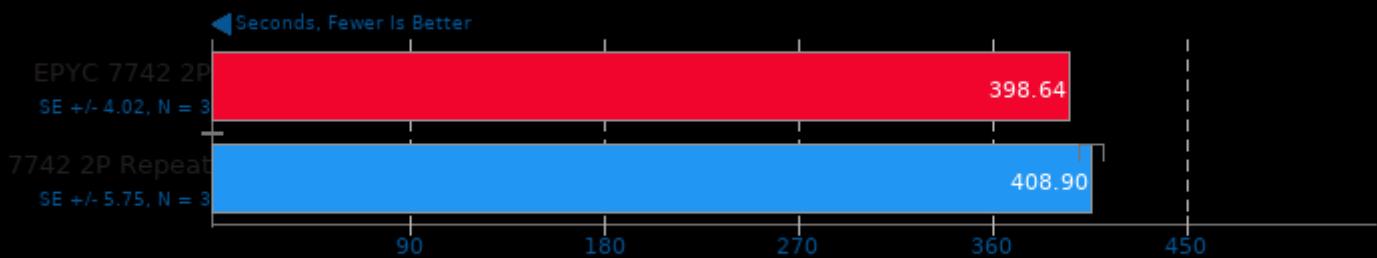
## Timed Godot Game Engine Compilation 3.2.3

Time To Compile



## Timed HMMer Search 3.3.1

Pfam Database Search



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

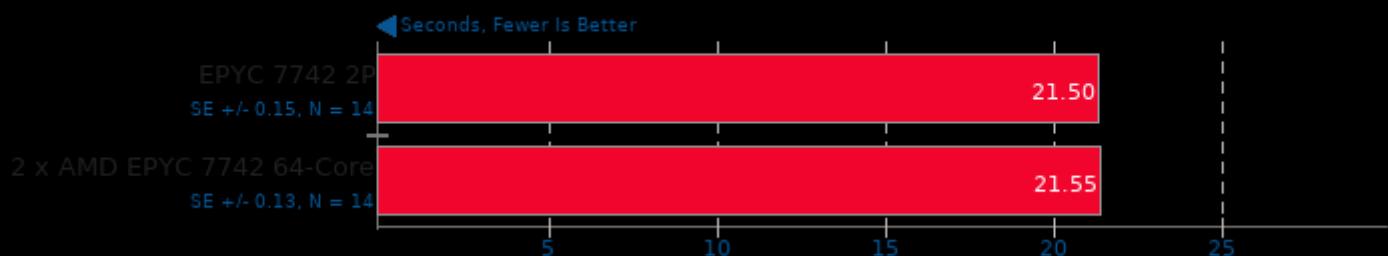
## Timed ImageMagick Compilation 6.9.0

Time To Compile



## Timed Linux Kernel Compilation 5.10.20

Time To Compile



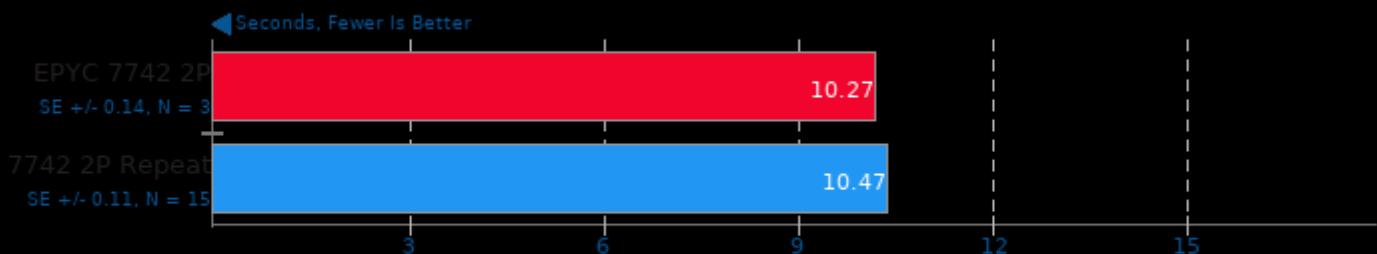
## Timed LLVM Compilation 10.0

Time To Compile



## Timed MAFFT Alignment 7.471

Multiple Sequence Alignment - LSU RNA



1. (CC) gcc options: -std=c99 -O3 -lm -lpthread

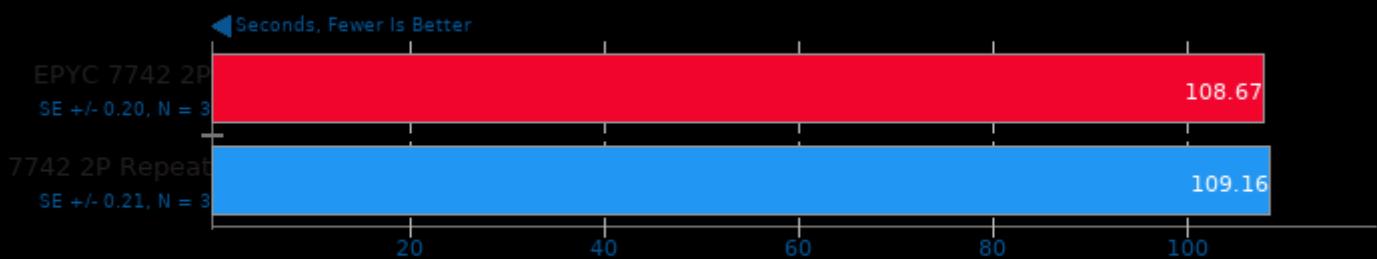
## Timed MPlayer Compilation 1.4

Time To Compile



## Timed MrBayes Analysis 3.2.7

Primate Phylogeny Analysis



1. (CC) gcc options: -mmmx -msse -msse2 -msse3 -msse3 -msse4.1 -msse4.2 -msse4a -msha -maes -mavx -mfma -mavx2 -mrdrnd -mbmi -mbmi2 -madx

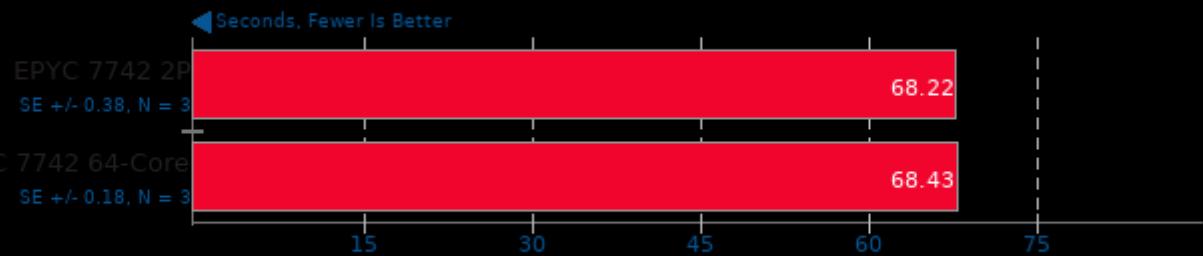
## Timed PHP Compilation 7.4.2

Time To Compile



## Timed Wasmer Compilation 1.0.2

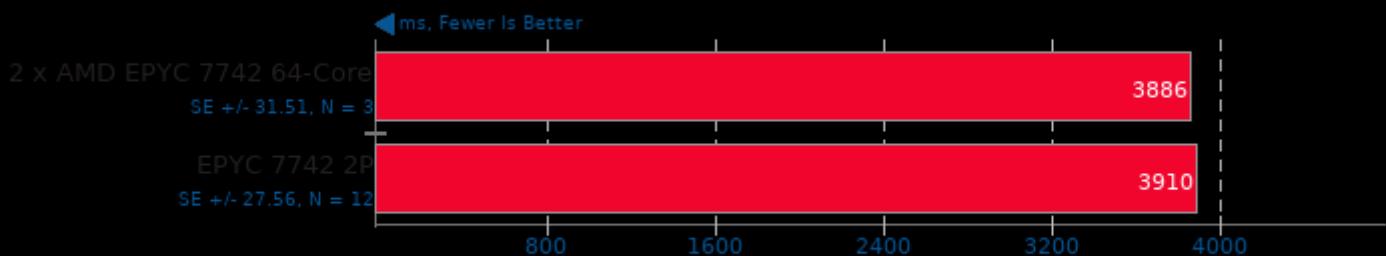
Time To Compile



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

## toyBrot Fractal Generator 2020-11-18

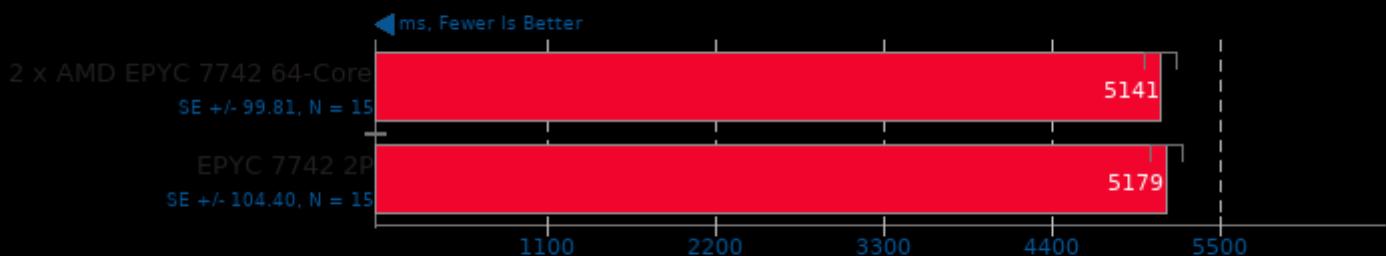
Implementation: TBB



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

## toyBrot Fractal Generator 2020-11-18

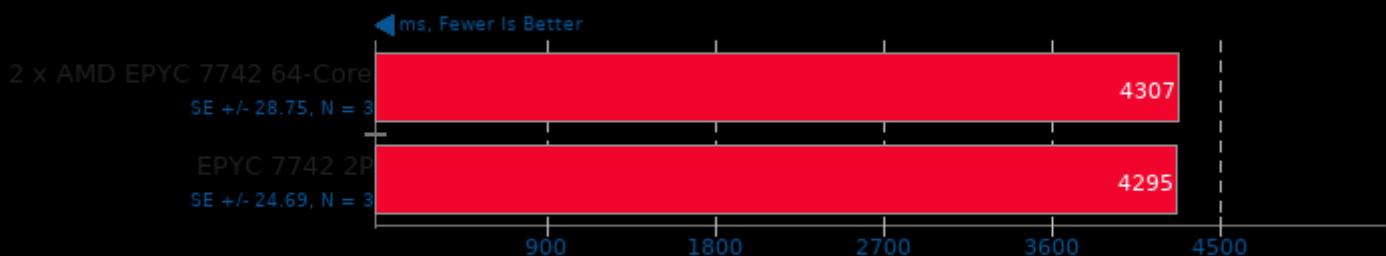
Implementation: OpenMP



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

## toyBrot Fractal Generator 2020-11-18

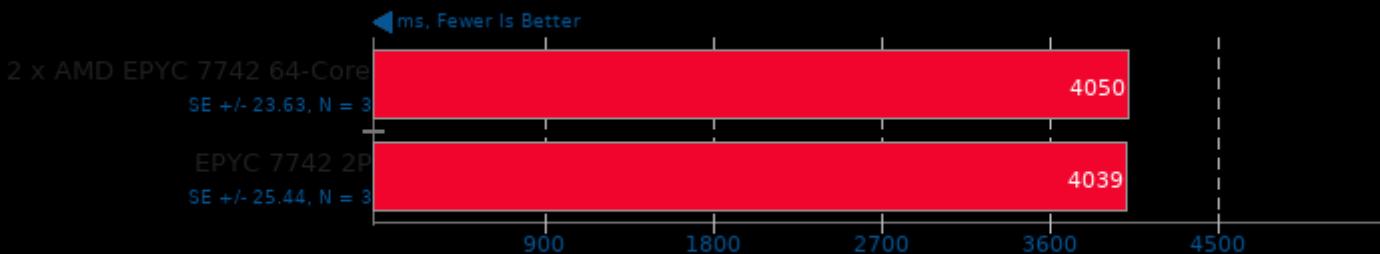
Implementation: C++ Tasks



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

## toyBrot Fractal Generator 2020-11-18

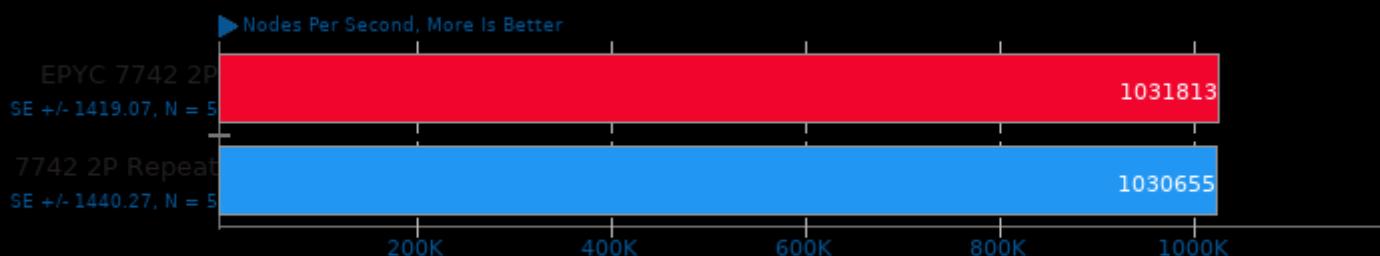
Implementation: C++ Threads



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

## TSCP 1.81

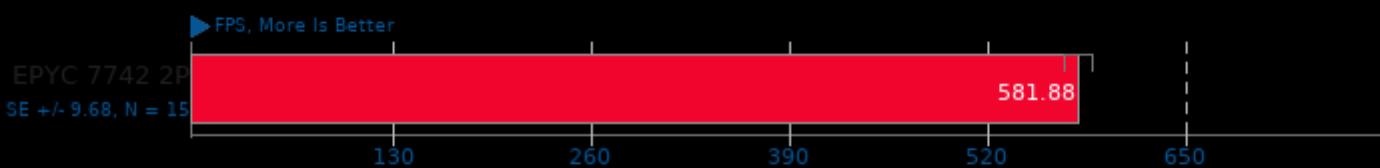
AI Chess Performance



1. (CC) gcc options: -O3 -march=native

## TTSIOD 3D Renderer 2.3b

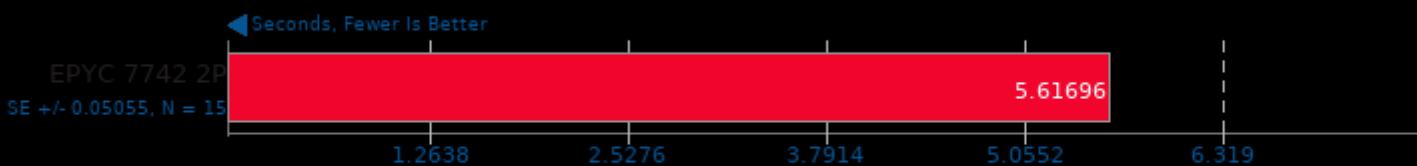
Phong Rendering With Soft-Shadow Mapping



1. (CXX) g++ options: -O3 -fomit-frame-pointer -ffast-math -mtune=native -fno -mssse2 -mrecip -mfpmath=sse -mssse2 -mssse3 -fopenmp -fwhole-pr

## Tungsten Renderer 0.2.2

Scene: Hair



1. (CXX) g++ options: -std=c++0x -march=znver1 -mssse2 -mssse3 -mssse3 -mssse4.1 -mssse4.2 -mssse4a -mfma -mbmi2 -mno-avx -mno-avx2 -mno-xop -m

## Tungsten Renderer 0.2.2

Scene: Water Caustic



```
1. (CXX) g++ options: -std=c++0x -march=znver1 -msse2 -msse3 -mssse3 -msse4.1 -msse4.2 -msse4a -mfma -mbmi2 -mno-avx -mno-avx2 -mno-xop -m
```

## Tungsten Renderer 0.2.2

Scene: Non-Exponential



```
1. (CXX) g++ options: -std=c++0x -march=znver1 -msse2 -msse3 -mssse3 -msse4.1 -msse4.2 -msse4a -mfma -mbmi2 -mno-avx -mno-avx2 -mno-xop -m
```

## Tungsten Renderer 0.2.2

Scene: Volumetric Caustic



```
1. (CXX) g++ options: -std=c++0x -march=znver1 -msse2 -msse3 -mssse3 -msse4.1 -msse4.2 -msse4a -mfma -mbmi2 -mno-avx -mno-avx2 -mno-xop -m
```

## VP9 libvpx Encoding 1.8.2

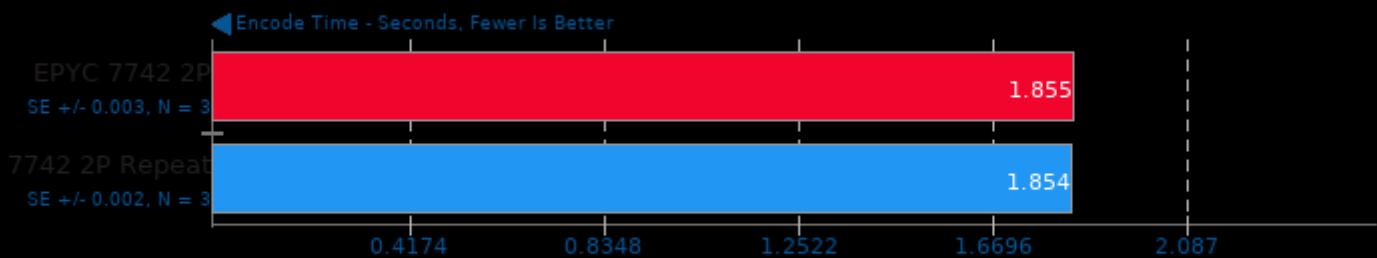
Speed: Speed 5



```
1. (CXX) g++ options: -m64 -lm -lpthread -O3 -fPIC -U_FORTIFY_SOURCE -std=c++11
```

## WebP Image Encode 1.1

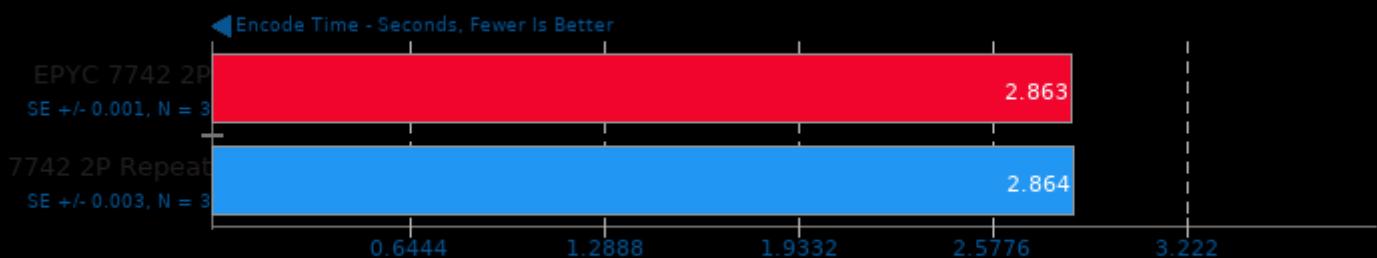
Encode Settings: Default



1. (CC) gcc options: -fvisibility=hidden -O2 -pthread -lm -ljpeg -lpng16 -ltiff

## WebP Image Encode 1.1

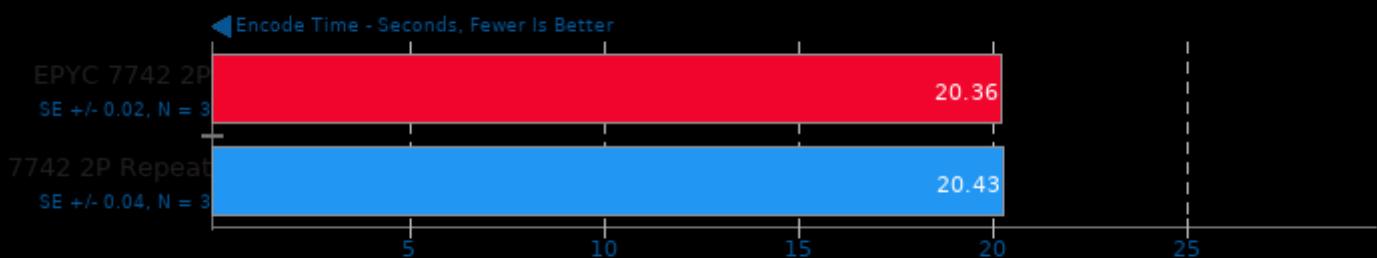
Encode Settings: Quality 100



1. (CC) gcc options: -fvisibility=hidden -O2 -pthread -lm -ljpeg -lpng16 -ltiff

## WebP Image Encode 1.1

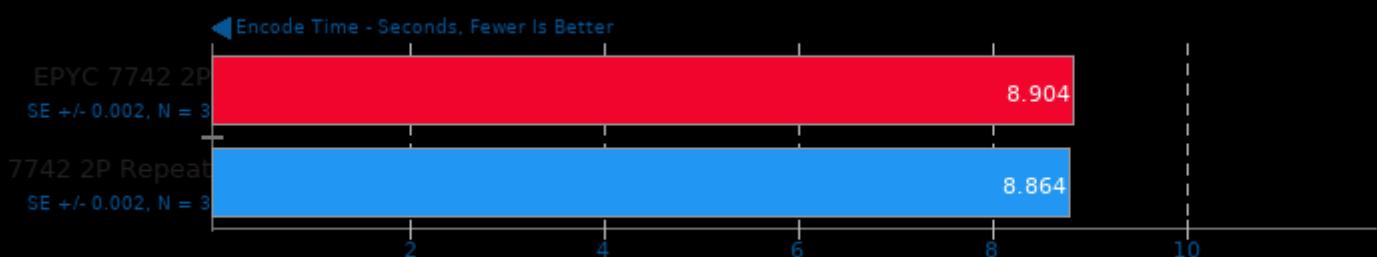
Encode Settings: Quality 100, Lossless



1. (CC) gcc options: -fvisibility=hidden -O2 -pthread -lm -ljpeg -lpng16 -ltiff

## WebP Image Encode 1.1

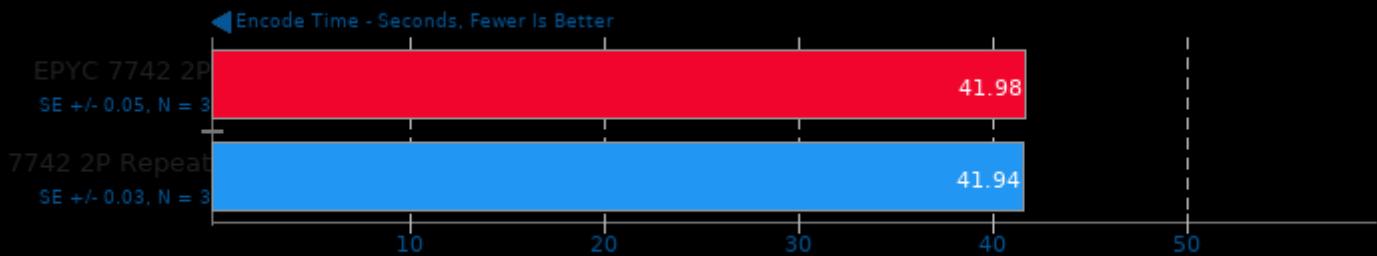
Encode Settings: Quality 100, Highest Compression



1. (CC) gcc options: -fvisibility=hidden -O2 -pthread -lm -ljpeg -lpng16 -ltiff

## WebP Image Encode 1.1

Encode Settings: Quality 100, Lossless, Highest Compression



1. (CC) gcc options: -fvisibility=hidden -O2 -pthread -lm -ljpeg -lpng16 -ltiff

## WebP2 Image Encode 20210126

Encode Settings: Default



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

## WebP2 Image Encode 20210126

Encode Settings: Quality 75, Compression Effort 7



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

## WebP2 Image Encode 20210126

Encode Settings: Quality 95, Compression Effort 7



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

## WebP2 Image Encode 20210126

Encode Settings: Quality 100, Compression Effort 5



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

## WebP2 Image Encode 20210126

Encode Settings: Quality 100, Lossless Compression



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

## x264 2019-12-17

H.264 Video Encoding



1. (CC) gcc options: -ldl -lavformat -lavcodec -lavutil -lswscale -m64 -lm -lpthread -O3 -ffast-math -std=gnu99 -fPIC -fomit-frame-pointer -fno-tree-vectorize

## x265 3.4

Video Input: Bosphorus 4K



1. (CXX) g++ options: -O3 -rdynamic -lpthread -lir -ldl -lnuma

## x265 3.4

Video Input: Bosphorus 1080p



1. (CXX) g++ options: -O3 -rdynamic -lpthread -lir -ldl -lnuma

## XZ Compression 5.2.4

Compressing ubuntu-16.04.3-server-i386.img, Compression Level 9



1. (CC) gcc options: -pthread -fvisibility=hidden -O2

## YafaRay 3.4.1

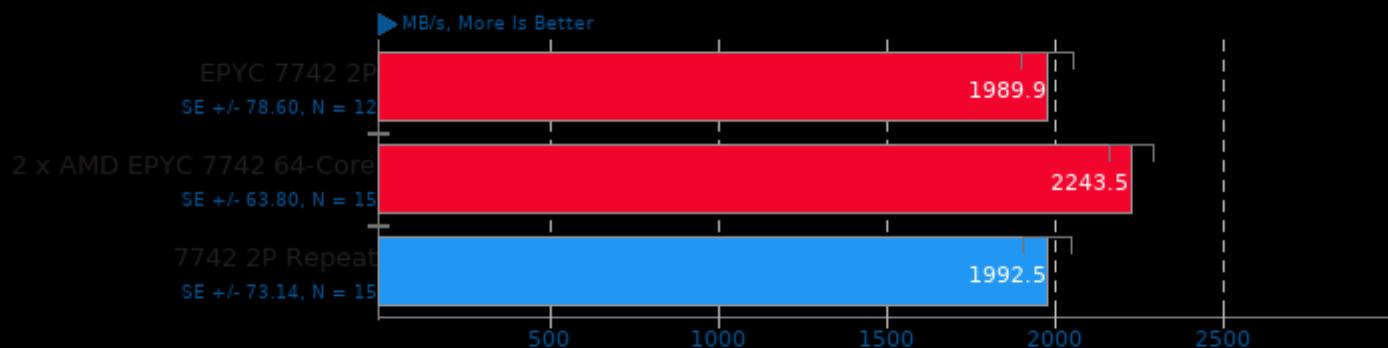
Total Time For Sample Scene



1. (CXX) g++ options: -std=c++11 -O3 -ffast-math -rdynamic -ldl -lmath -lmlmf -lex -lHalf -lz -lImThread -lxm12 -lfreetype -lpthread

## Zstd Compression 1.4.9

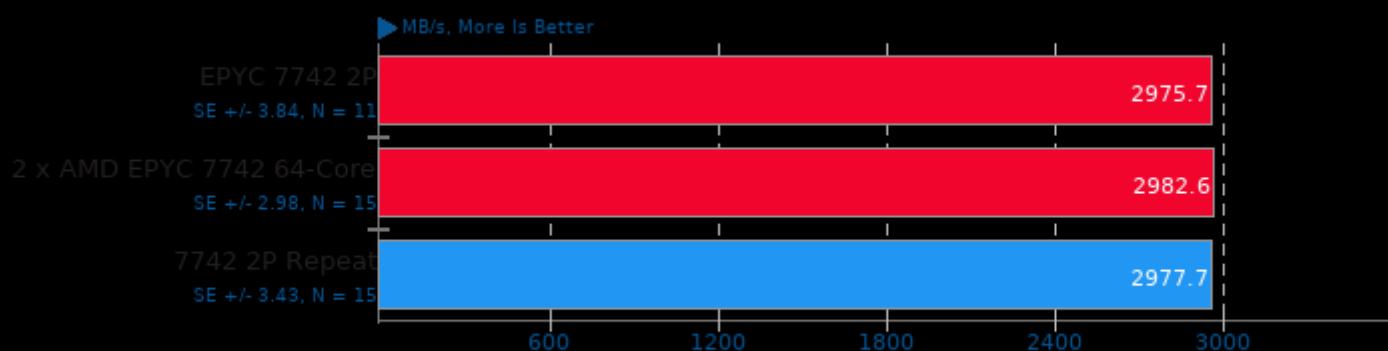
Compression Level: 8 - Compression Speed



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

## Zstd Compression 1.4.9

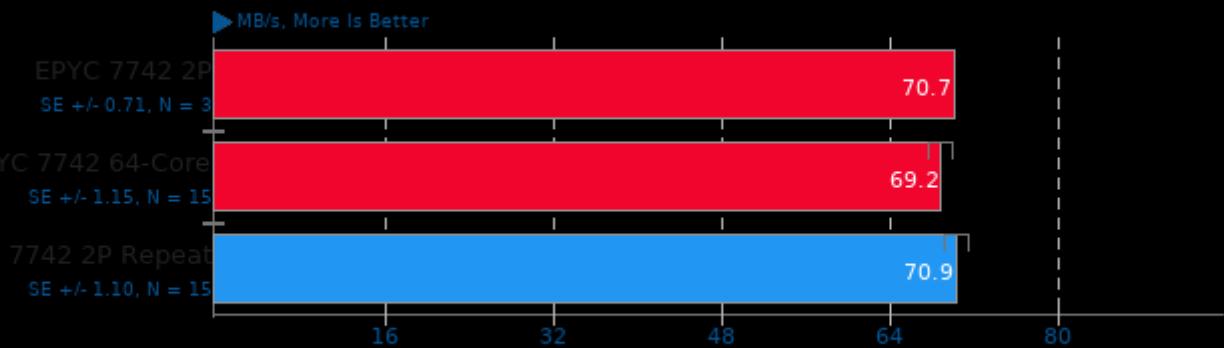
Compression Level: 8 - Decompression Speed



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

## Zstd Compression 1.4.9

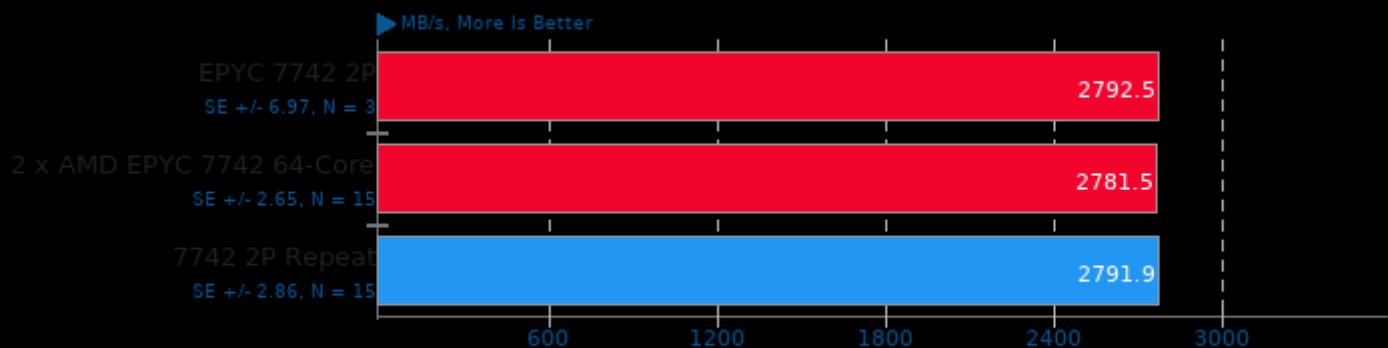
Compression Level: 19 - Compression Speed



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

## Zstd Compression 1.4.9

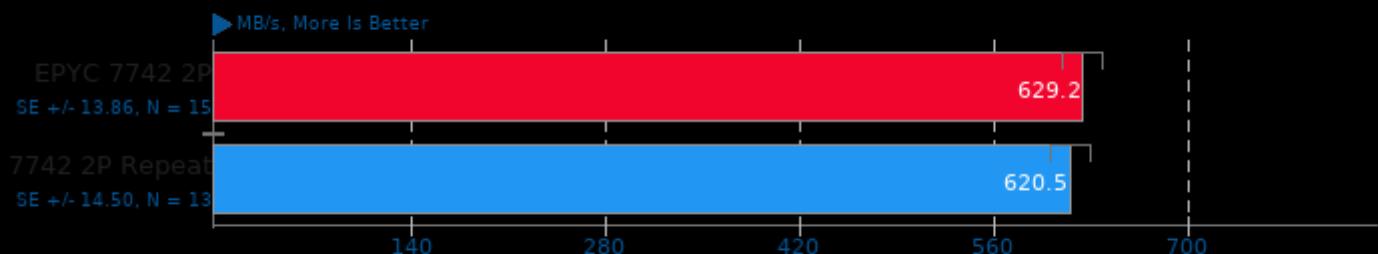
Compression Level: 19 - Decompression Speed



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

## Zstd Compression 1.4.9

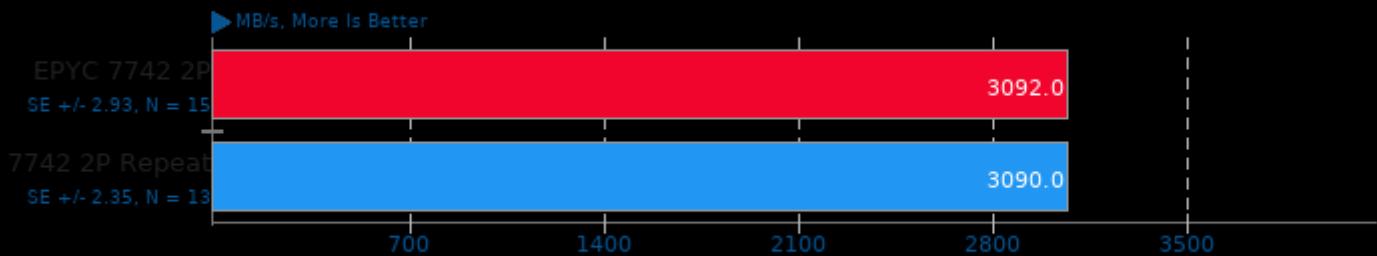
Compression Level: 3, Long Mode - Compression Speed



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

## Zstd Compression 1.4.9

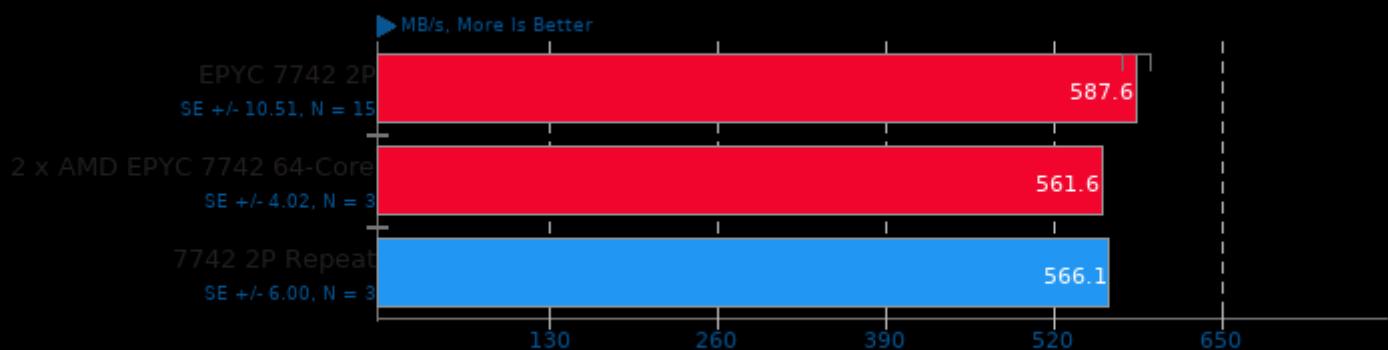
Compression Level: 3, Long Mode - Decompression Speed



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

## Zstd Compression 1.4.9

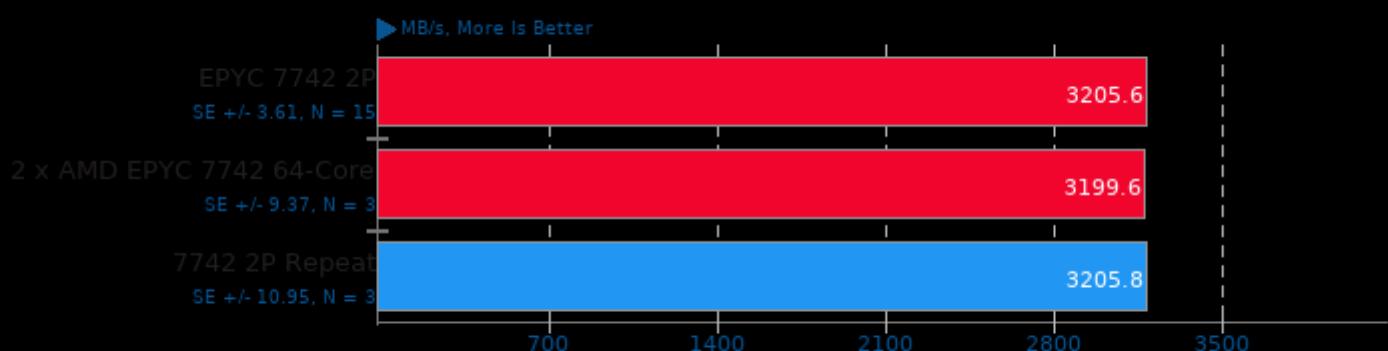
Compression Level: 8, Long Mode - Compression Speed



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

## Zstd Compression 1.4.9

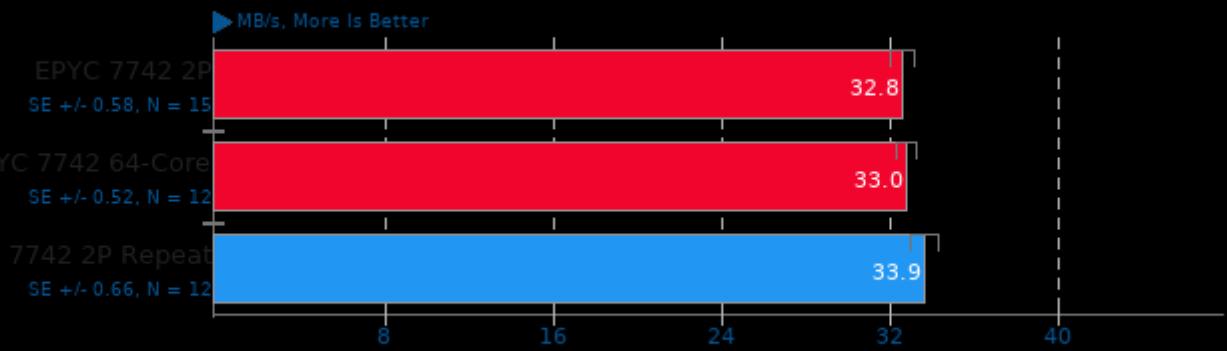
Compression Level: 8, Long Mode - Decompression Speed



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

## Zstd Compression 1.4.9

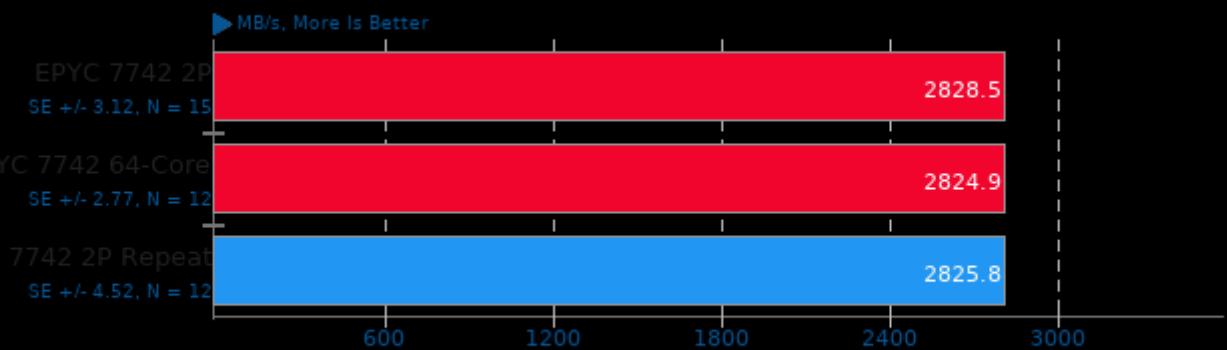
Compression Level: 19, Long Mode - Compression Speed



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

## Zstd Compression 1.4.9

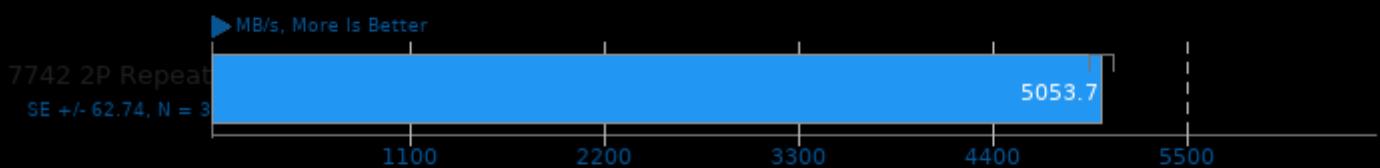
Compression Level: 19, Long Mode - Decompression Speed



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

## Zstd Compression 1.4.9

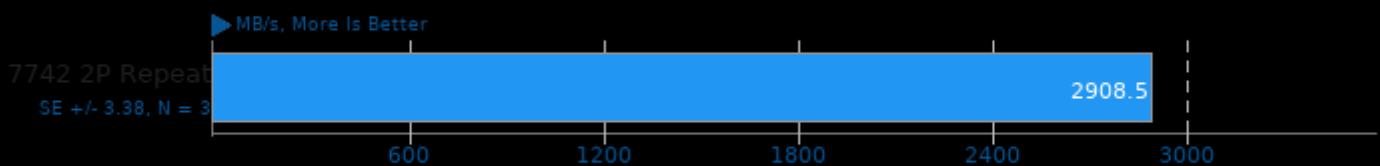
Compression Level: 3 - Compression Speed



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

## Zstd Compression 1.4.9

Compression Level: 3 - Decompression Speed



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

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