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## Clear Compare BSD

Intel Core i9-10980XE testing on NetBSD 9.2/amd64 via the Phoronix Test Suite.

### Automated Executive Summary

*Clear Linux 35320 had the most wins, coming in first place for 82% of the tests.*

*Based on the geometric mean of all complete results, the fastest (Clear Linux 35320) was 1.869x the speed of the slowest (NetBSD 9.2). DragonFlyBSD 6.0.1 was 0.702x the speed of Clear Linux 35320, FreeBSD 13.0 was 0.99x the speed of DragonFlyBSD 6.0.1, OpenBSD 7.0 was 0.848x the speed of FreeBSD 13.0, NetBSD 9.2 was 0.908x the speed of OpenBSD 7.0.*

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

*Stress-NG (Test: Semaphores) at 4110.733x*

*LuaJIT (Test: Dense LU Matrix Factorization) at 1809.104x*

*PyPerformance (Benchmark: raytrace) at 730.702x*

*Stress-NG (Test: Socket Activity) at 693.844x*

*LuaJIT (Test: Sparse Matrix Multiply) at 522.445x*

*LuaJIT (Test: Composite) at 477.941x*

*LuaJIT (Test: Jacobi Successive Over-Relaxation) at 335.05x*

*LuaJIT (Test: Monte Carlo) at 324.812x*

PyPerformance (Benchmark: 2to3) at 298.429x

PyPerformance (Benchmark: go) at 295.58x.

## Test Systems:

### Clear Linux 35320

Processor: Intel Core i9-10980XE @ 4.80GHz (18 Cores / 36 Threads), Motherboard: ASRock X299 Steel Legend (P1.30 BIOS), Chipset: Intel Sky Lake-E DMI3 Registers, Memory: 32GB, Disk: Samsung SSD 970 PRO 512GB, Graphics: NVIDIA NV132 11GB, Audio: Realtek ALC1220, Monitor: ASUS VP28U, Network: Intel I219-V + Intel I211

OS: Clear Linux OS 35320, Kernel: 5.15.4-1100.native (x86\_64), Desktop: GNOME Shell 41.1, Display Server: X Server 1.20.11, Display Driver: nouveau, OpenGL: 4.3 Mesa 21.3.0, Compiler: GCC 11.2.1 20211122 releases/gcc-11.2.0-460-gf3c9581964 + Clang 11.1.0 + LLVM 11.1.0, File-System: ext4, Screen Resolution: 2560x1600

Kernel Notes: Transparent Huge Pages: always  
Environment Notes: FFLAGS="-g -O3 -feliminate-unused-debug-types -pipe -Wall -Wp,-D\_FORTIFY\_SOURCE=2 -fexceptions -m64 -fasynchronous-unwind-tables -Wp,-D\_REENTRANT -ffree-loop-distribute-patterns -WI,-z -WI,now -WI,-z -WI,relro -malign-data=abi -fno-semantic-interposition -ffree-vectorize -ffree-loop-vectorize -WI,-enable-new-dtags" CXXFLAGS="-g -O3 -feliminate-unused-debug-types -pipe -Wall -Wp,-D\_FORTIFY\_SOURCE=2 -fexceptions -Wformat -Wformat-security -m64 -fasynchronous-unwind-tables -Wp,-D\_REENTRANT -ffree-loop-distribute-patterns -WI,-z -WI,now -WI,-z -WI,relro -fno-semantic-interposition -ffat-lto-objects -fno-trapping-math -WI,-sort-common -WI,-enable-new-dtags -mtune=skylake -visibility-inlines-hidden -WI,-enable-new-dtags" MESA\_GLSL\_CACHE\_DISABLE=0 FCFLAGS="-g -O3 -feliminate-unused-debug-types -pipe -Wall -Wp,-D\_FORTIFY\_SOURCE=2 -fexceptions -m64 -fasynchronous-unwind-tables -Wp,-D\_REENTRANT -ffree-loop-distribute-patterns -WI,-z -WI,now -WI,-z -WI,relro -malign-data=abi -fno-semantic-interposition -ffree-vectorize -ffree-loop-vectorize -WI,-sort-common -WI,-enable-new-dtags" CFLAGS="-g -O3 -feliminate-unused-debug-types -pipe -Wall -Wp,-D\_FORTIFY\_SOURCE=2 -fexceptions -Wformat -Wformat-security -m64 -fasynchronous-unwind-tables -Wp,-D\_REENTRANT -ffree-loop-distribute-patterns -WI,-z -WI,now -WI,-z -WI,relro -fno-semantic-interposition -ffat-lto-objects -fno-trapping-math -WI,-sort-common -WI,-enable-new-dtags -mtune=skylake" THEANO\_FLAGS="floatX=float32,openmp=true,gcc.cxxflags=-ffree-vectorize -mavx"  
Compiler Notes: --build=x86\_64-generic-linux --disable-libmpx --disable-libunwind-exceptions --disable-multiarch --disable-vtable-verify --disable-werror --enable\_cxa\_atexit --enable-bootstrap --enable-cet --enable-clocale-gnu --enable-default-pie --enable-gnu-indirect-function --enable-languages=c,c++,fortran,go --enable-ld=default --enable-libstdcxx-pch --enable-lto --enable-multilib --enable-plugin --enable-shared --enable-threads=posix --exec-prefix=/usr --includedir=/usr/include --target=x86\_64-generic-linux --with-arch=x86-64-v3 --with-gcc-major-version-only --with-glibc-version=2.19 --with-gnu-ld --with-isl --with-ppl=yes --with-tune=skylake-avx512

Processor Notes: Scaling Governor: intel\_cpufreq performance - CPU Microcode: 0x5003102

Java Notes: OpenJDK Runtime Environment (build 1.8.0\_252-ga-b00)

Python Notes: Python 3.10.0

Security Notes: itlb\_multihit: KVM: Mitigation of VMX disabled + I1tf: Not affected + mds: Not affected + meltdown: Not affected + spec\_store\_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre\_v1: Mitigation of usercopy/swaps barriers and \_\_user pointer sanitization + spectre\_v2: Mitigation of Enhanced IBRS IPB: conditional RSB filling + srbs: Not affected + tsx\_async\_abort: Mitigation of TSX disabled

### FreeBSD 13.0

Processor: Intel Core i9-10980XE @ 3.00GHz (36 Cores), Chipset: Intel Sky Lake-E DMI3 Registers, Memory: 32GB, Disk: Samsung SSD 970 PRO 512GB, Graphics: NVIDIA GeForce GTX 1080 Ti, Audio: Intel Kaby Lake-H HDA, Network: Intel PRO/1000 Connection

OS: FreeBSD, Kernel: 13.0-RELEASE (x86\_64), Compiler: Clang 11.0.1, File-System: zfs, Screen Resolution: 1280x1024

Java Notes: OpenJDK Runtime Environment (build 11.0.12+7-1)

Python Notes: Python 3.8.12

### DragonFlyBSD 6.0.1

Processor: Intel Core i9-10980XE @ 3.00GHz (18 Cores / 36 Threads), Chipset: Intel Sky Lake-E DMI3 Registers, Memory: 32GB, Disk: NVME-PCIe, Graphics: NVIDIA GeForce GTX 1080 Ti, Network: Intel PRO/1000 Connection PCH\_SPT\_I219\_V2 7.6.2

OS: DragonFly, Kernel: 6.0-RELEASE (x86\_64), Compiler: GCC 8.3, File-System: hammer2

Java Notes: OpenJDK Runtime Environment (build 11.0.11+9-1)  
 Python Notes: Python 3.8.12

## OpenBSD 7.0

Processor: Intel Core i9-10980XE @ 2.99GHz (36 Cores), Motherboard: ASRock X299 Steel Legend, Memory: 32GB, Disk: 296GB

OS: OpenBSD, Kernel: 7.0 (x86\_64), Display Server: X Server, Compiler: Clang 11.1.0 + LLVM 11.1.0, File-System: ffs

Python Notes: Python 3.8.12

## NetBSD 9.2

Processor: Intel Core i9-10980XE @ 3.00GHz (36 Cores), Memory: 32GB, Disk: 439GB

OS: NetBSD 9.2/amd64, Kernel: 9.2 (x86\_64), Display Server: X Server, Compiler: GCC 7.5.0, File-System: ffs

```
Compiler Notes: --build=x86_64--netbsd --disable-libstdcxx-pch --disable-multilib --enable-__cxa_atexit --enable-libstdcxx-threads --enable-libstdcxx-time=rt
--enable-long-long --enable-threads --enable-tls --host=x86_64--netbsd --target=x86_64--netbsd --with-default-libstdcxx-abi=new --with-diagnostics-color=auto-if-env
--with-gmp-include=/usr/src/external/lgpl3/gmp/lib/libgmp/arch/x86_64 --with-gmp-lib=/var/obj/mknative/amd64-x86_64/usr/src/external/lgpl3/gmp/lib/libgmp
--with-mpc-include=/usr/src/external/lgpl3/mpc/dist/src --with-mpc-lib=/var/obj/mknative/amd64-x86_64/usr/src/external/lgpl3/mpc/lib/libmpc
--with-mpfr-include=/usr/src/external/lgpl3/mpfr/dist/src --with-mpfr-lib=/var/obj/mknative/amd64-x86_64/usr/src/external/lgpl3/mpfr/lib/libmpfr --with-tune=nocona
--without-isl
```

	Clear Linux 35320	FreeBSD 13.0	DragonFlyBSD 6.0.1	OpenBSD 7.0	NetBSD 9.2
<b>Sockperf - Throughput</b>	625839				
(Messages/sec)					
Standard Deviation	1%				
<b>Sockperf - Latency Ping Pong</b>	2.974				
(usec)					
Standard Deviation	0.5%				
<b>Sockperf - Latency Under Load</b>	31.186				
(usec)					
Standard Deviation	7.7%				
<b>OSBench - Create Files</b>	<b>13.286212</b>	38.179912	85.825566	182.098085	<b>1390</b>
Normalized	100%	34.8%	15.48%	7.3%	0.96%
Standard Deviation	0.1%	0.2%	5.2%	0.3%	0.1%
<b>OSBench - Create Threads</b>	11.929671	<b>4.506906</b>	29.982726	<b>51.612854</b>	9.393692
(us/Event)					
Normalized	37.78%	100%	15.03%	8.73%	47.98%
Standard Deviation	0.4%	0.5%	1.4%	0.2%	0.4%
<b>OSBench - Launch Programs</b>	32.990774	68.976084	<b>30.316512</b>	<b>1102</b>	426.740647
(us/Event)					
Normalized	91.89%	43.95%	100%	2.75%	7.1%
Standard Deviation	1.4%	0.6%	2.5%	0.6%	0.5%

<b>OSBench - Create Processes</b>	26.066303 <b>(us/Event)</b>	45.115948	<b>24.083455</b>	<b>351.149241</b>	148.197015
Normalized	92.39%	53.38%	100%	6.86%	16.25%
Standard Deviation	1.2%	0.8%	0.1%	1.1%	1.2%
<b>OSBench - Memory Allocations</b>	68.017721 <b>(Ns/Event)</b>	<b>31.785440</b>	37.156979	<b>348.133008</b>	38.009246
Normalized	46.73%	100%	85.54%	9.13%	83.63%
Standard Deviation	0.2%	5.8%	0.6%	0.1%	0.7%
<b>C-Blosc - blosclz (MB/s)</b>	<b>25229</b>	<b>20116</b>			
Normalized	100%	79.73%			
Standard Deviation	1.4%	0.4%			
<b>QuantLib (MFLOPS)</b>	2859				
Standard Deviation	3.1%				
<b>NAS Parallel Benchmarks - BT.C</b>	40795 <b>(Mop/s)</b>				
Standard Deviation	0.3%				
<b>NAS Parallel Benchmarks - CG.C</b>	10227 <b>(Mop/s)</b>				
Standard Deviation	0.9%				
<b>NAS Parallel Benchmarks - EP.C</b>	2325 <b>(Mop/s)</b>				
Standard Deviation	3%				
<b>NAS Parallel Benchmarks - EP.D</b>	2351 <b>(Mop/s)</b>				
Standard Deviation	2.2%				
<b>NAS Parallel Benchmarks - FT.C</b>	21075 <b>(Mop/s)</b>				
Standard Deviation	0.6%				
<b>NAS Parallel Benchmarks - IS.D</b>	1097 <b>(Mop/s)</b>				
Standard Deviation	0.5%				
<b>NAS Parallel Benchmarks - LU.C</b>	42641 <b>(Mop/s)</b>				
Standard Deviation	0.3%				
<b>NAS Parallel Benchmarks - MG.C</b>	16920 <b>(Mop/s)</b>				
Standard Deviation	1.1%				
<b>NAS Parallel Benchmarks - SP.B</b>	12160 <b>(Mop/s)</b>				
Standard Deviation	0.4%				
<b>NAS Parallel Benchmarks - SP.C</b>	9447 <b>(Mop/s)</b>				
Standard Deviation	0.3%				
<b>Rodinia - OpenMP LavaMD (sec)</b>	119.621 <b>(sec)</b>				
Standard Deviation	0.2%				
<b>Rodinia - OpenMP HotSpot3D</b>	96.457 <b>(sec)</b>				
Standard Deviation	0.8%				
<b>Rodinia - OpenMP Leukocyte</b>	48.186 <b>Standard Deviation</b>	0.2%			

<b>Rodinia - OpenMP CFD Solver</b>	<b>10.666</b>	<b>14.458</b>
(sec)		
Normalized	100%	73.77%
Standard Deviation	0.8%	0.1%
<b>Rodinia - O.S (sec)</b>	<b>14.813</b>	
Standard Deviation	3.4%	
<b>Dolfyn - C.F.D (sec)</b>	<b>16.770</b>	
Standard Deviation	0.6%	
<b>Izbench - Zstd 8 - Compression</b>	<b>95</b>	
(MB/s)		
Standard Deviation	0.6%	
<b>Izbench - Zstd 8 - Decompression (MB/s)</b>	<b>1686</b>	
Standard Deviation	0.1%	
<b>Izbench - Crush 0 - Compression</b>	<b>125</b>	
(MB/s)		
Standard Deviation	0%	
<b>Izbench - Crush 0 - Decompression (MB/s)</b>	<b>547</b>	
Standard Deviation	0.1%	
<b>Izbench - Brotli 2 - Compression</b>	<b>212</b>	
(MB/s)		
Standard Deviation	1%	
<b>Izbench - Brotli 2 - Decompression (MB/s)</b>	<b>766</b>	
Standard Deviation	0.1%	
<b>Izbench - Libdeflate 1 - Compression</b>	<b>241</b>	
(MB/s)		
Standard Deviation	0.2%	
<b>Izbench - Libdeflate 1 - Decompression (MB/s)</b>	<b>1287</b>	
Standard Deviation	0%	
<b>Timed MrBayes Analysis - P.P.A</b>	<b>165.253</b>	<b>297.566</b>
(sec)		
Normalized	100%	55.53%
Standard Deviation	0.1%	1%
<b>Timed HMMer Search - P.D.S</b>	<b>124.720</b>	
(sec)		
Standard Deviation	0.1%	
<b>Monte Carlo Simulations of Ionised Nebulae - Dust 2D</b>	<b>106</b>	
Standard Deviation	0%	
<b>LAMMPS Molecular Dynamics Simulator - 20k Atoms (ns/day)</b>	<b>12.972</b>	<b>0.868</b>
Normalized	100%	6.69%
Standard Deviation	0.4%	0.1%
<b>LAMMPS Molecular Dynamics Simulator - Rhodopsin Protein (ns/day)</b>	<b>12.409</b>	<b>0.814</b>
Normalized	100%	6.56%
Standard Deviation	0.5%	0%
<b>BLAKE2 (Cycles/Byte)</b>	<b>3.74</b>	<b>4.57</b>
		<b>5.14</b>
		<b>5.23</b>

	Normalized	100%	78.9%	81.84%	72.76%	71.51%
	Standard Deviation	0.2%	0.2%	0.2%	0%	0%
<b>DaCapo Benchmark - H2 (msec)</b>	3406	3606	<b>3336</b>	<b>5007</b>		
	Normalized	97.94%	92.51%	100%	66.63%	
	Standard Deviation	0.8%	2.2%	2.3%	1.6%	
<b>DaCapo Benchmark - Jython (msec)</b>	<b>3321</b>	5361	5169	<b>9807</b>		
	Normalized	100%	61.95%	64.25%	33.86%	
	Standard Deviation	0.8%	0.3%	2.4%	0.8%	
<b>DaCapo Benchmark - Eclipse (msec)</b>	16380					
	Standard Deviation	0.7%				
<b>DaCapo Benchmark - Tradesoap (msec)</b>	2999					
	Standard Deviation	3.4%				
<b>DaCapo Benchmark - Tradebeans (msec)</b>	2762					
	Standard Deviation	0.6%				
<b>Renaissance - Scala Dotty (ms)</b>	<b>693.0</b>	1083	966.7	<b>1428</b>		
	Normalized	100%	64%	71.69%	48.55%	
	Standard Deviation	0.4%	0.3%	1.5%	5%	
<b>Renaissance - Rand Forest (ms)</b>	627.6					
	Standard Deviation	0.3%				
<b>Renaissance - ALS Movie Lens (ms)</b>	5574					
	Standard Deviation	0.8%				
<b>Renaissance - Apache Spark ALS (ms)</b>	1261					
	Standard Deviation	0.8%				
<b>Renaissance - Apache Spark Bayes (ms)</b>	1095					
	Standard Deviation	0.3%				
<b>Renaissance - Savina Reactors.IO (ms)</b>	<b>9577</b>	<b>17957</b>	11050	15787		
	Normalized	100%	53.33%	86.67%	60.66%	
	Standard Deviation	0.7%	0.8%	6%	0.3%	
<b>Renaissance - A.S.P (ms)</b>	3185					
	Standard Deviation	1.8%				
<b>Renaissance - F.H.R (ms)</b>	<b>2109</b>	3262		<b>46939</b>		
	Normalized	100%	64.66%		4.49%	
	Standard Deviation	0.6%	0.4%		0.1%	
<b>Renaissance - I.M.D.S (ms)</b>	3064					
	Standard Deviation	0.9%				
<b>Renaissance - A.U.C.T (ms)</b>	<b>10961</b>	16008		<b>45304</b>		
	Normalized	100%	68.48%		24.19%	
	Standard Deviation	2.4%	0.9%		1.5%	
<b>Renaissance - G.A.U.J.F (ms)</b>	<b>1706</b>	2199		<b>2332</b>		
	Normalized	100%	77.58%		73.16%	
	Standard Deviation	4.8%	1.1%		0.3%	
<b>BYTE Unix Benchmark - Dhystone 2 (LPS)</b>	<b>59141583</b>		35002987	<b>31443265</b>		
	Normalized	100%	59.19%		53.17%	
	Standard Deviation	0.8%	0%		0.1%	

**LZ4 Compression - 1 -** 7067

**Compression Speed (MB/s)**

Standard Deviation 0.4%

**LZ4 Compression - 1 - D.S** 7598

Standard Deviation 3.7%

**LZ4 Compression - 3 -** 57.24

**Compression Speed (MB/s)**

Standard Deviation 0.1%

**LZ4 Compression - 3 - D.S** 7344

Standard Deviation 1.1%

**LZ4 Compression - 9 -** 55.66

**Compression Speed (MB/s)**

Standard Deviation 0.4%

**LZ4 Compression - 9 - D.S** 7397

Standard Deviation 1.1%

**Zstd Compression - 3 -** 4362

**Compression Speed (MB/s)**

Standard Deviation 0.8%

**Zstd Compression - 8 -** 441.3

**Compression Speed (MB/s)**

Standard Deviation 2.4%

**Zstd Compression - 8 - D.S** 3441

Standard Deviation 0.1%

**Zstd Compression - 19 -** 64.0

**Compression Speed (MB/s)**

Standard Deviation 0.5%

**Zstd Compression - 19 - D.S** 2854

**(MB/s)**

Standard Deviation 0.6%

**Zstd Compression - 19, Long** 47.4

**Mode - Compression Speed**

Standard Deviation 0.2%

**Zstd Compression - 19, Long** 2963

**Mode - D.S (MB/s)**

Standard Deviation 0.3%

**Zstd Compression - 3 -** 4412

**355.4**

376.2

1686

2019

**Compression Speed (MB/s)**

Normalized 100%

8.06%

8.53%

38.22%

45.77%

Standard Deviation 1.4%

0.1%

1.4%

1%

0.5%

**Zstd Compression - 8 -** 449.7

**20.3**

22.6

**637.5**

437.9

**Compression Speed (MB/s)**

Normalized 70.54%

3.18%

3.55%

100%

68.69%

Standard Deviation 2.5%

2.4%

1.4%

1.4%

4.2%

**Zstd Compression - 8 - D.S** 3429

**2403**

2709

**2034**

2880

Normalized 100%

70.08%

79.01%

59.31%

83.99%

Standard Deviation 0.1%

0.3%

0.4%

0.3%

0.8%

**Zstd Compression - 19 -** 63.2

**2.35**

2.63

42.3

54.1

**Compression Speed (MB/s)**

Normalized 100%

3.72%

4.16%

66.93%

85.6%

Standard Deviation 2.4%

0.4%

0.2%

5.7%

2.3%

Zstd Compression - 19 - D.S (MB/s)	2853	2119	2331	1678	2350
Normalized	100%	74.29%	81.69%	58.8%	82.35%
Standard Deviation	0.2%	0.3%	0.6%	1%	0.4%
Zstd Compression - 19, Long Mode - Compression Speed	48.6	2.91	3.28	34.3	31.7
Normalized	100%	5.99%	6.75%	70.58%	65.23%
Standard Deviation	0.5%	0.2%	0.3%	0.2%	3.7%
Zstd Compression - 19, Long Mode - D.S (MB/s)	2948	2157	2414	1758	2512
Normalized	100%	73.16%	81.86%	59.61%	85.18%
Standard Deviation	0.1%	0.5%	0%	2.5%	0.6%
LuaJIT - Composite (Mflops)	1615	1107	3.38		
Normalized	100%	68.55%	0.21%		
Standard Deviation	0.3%	0.1%	0.3%		
LuaJIT - Monte Carlo (Mflops)	552.18	360.10	1.70		
Normalized	100%	65.21%	0.31%		
Standard Deviation	0%	0.2%	0.3%		
LuaJIT - F.F.T (Mflops)	514.22	393.07	5.14		
Normalized	100%	76.44%	1%		
Standard Deviation	0%	1.4%	0.3%		
LuaJIT - S.M.M (Mflops)	1468	962.60	2.81		
Normalized	100%	65.57%	0.19%		
Standard Deviation	0.3%	0.6%	0%		
LuaJIT - D.L.M.F (Mflops)	3817	2695	2.11		
Normalized	100%	70.59%	0.06%		
Standard Deviation	0.8%	0.2%	0.5%		
LuaJIT - J.S.O.R (Mflops)	1726	1127	5.15		
Normalized	100%	65.29%	0.3%		
Standard Deviation	0.1%	0.2%	0.3%		
LibRaw - P.P.B (Mpix/sec)	57.08	26.94	29.88	4.36	19.93
Normalized	100%	47.2%	52.35%	7.64%	34.92%
Standard Deviation	0.5%	0.7%	2.2%	0.1%	0.8%
Crafty - Elapsed Time (Nodes/s)	9064595				7672058
Normalized	100%				84.64%
Standard Deviation	0.1%				0.4%
Node.js Express HTTP Load Test (Req/sec)	9061		4560		
Normalized	100%		50.33%		
Standard Deviation	0.2%		8.3%		
GraphicsMagick - Rotate (Iterations/min)	1159	1060	515		
Normalized	100%	91.46%	44.43%		
Standard Deviation	1.9%	0.7%	0.2%		
GraphicsMagick - Sharpen (Iterations/min)	324	192	231		
Normalized	100%	59.26%	71.3%		
Standard Deviation	0.2%	0%	0%		
GraphicsMagick - Resizing (Iterations/min)	1925	1304	497		
Normalized	100%	67.74%	25.82%		
Standard Deviation	2.4%	0.4%	0.6%		

<b>GraphicsMagick - HWB Color Space (Iterations/min)</b>	<b>1836</b>	1502	<b>671</b>	
Normalized	100%	81.81%	36.55%	
Standard Deviation	0.2%	0.1%	0.1%	
<b>dav1d - Chimera 1080p (FPS)</b>	<b>840.94</b>			
Standard Deviation	0.6%			
<b>dav1d - Summer Nature 4K (FPS)</b>	<b>254.84</b>			
Standard Deviation	0.4%			
<b>dav1d - S.N.1 (FPS)</b>	<b>737.85</b>			
Standard Deviation	0.5%			
<b>dav1d - C.1.1.b (FPS)</b>	<b>584.67</b>			
Standard Deviation	0.2%			
<b>TTSIOD 3D Renderer - P.R.W.S.S.M (FPS)</b>	<b>804.170</b>	<b>34.9447</b>	258.058	103.825
Normalized	100%	4.35%	32.09%	12.91%
Standard Deviation	0.4%	0.2%	0.4%	0.3%
<b>Kvazaar - Bosphorus 4K - Medium (FPS)</b>	<b>11.12</b>	9.85	<b>8.11</b>	
Normalized	100%	88.58%	72.93%	
Standard Deviation	0.1%	0.4%	0.3%	
<b>Kvazaar - Bosphorus 1080p - Medium (FPS)</b>	<b>43.27</b>	41.78	<b>30.21</b>	
Normalized	100%	96.56%	69.82%	
Standard Deviation	0.4%	0.6%	0.4%	
<b>Kvazaar - Bosphorus 4K - Very Fast (FPS)</b>	<b>26.19</b>	22.42	<b>14.54</b>	
Normalized	100%	85.61%	55.52%	
Standard Deviation	0.4%	0.2%	0.2%	
<b>Kvazaar - Bosphorus 4K - Ultra Fast (FPS)</b>	<b>45.42</b>	38.47	<b>21.03</b>	
Normalized	100%	84.7%	46.3%	
Standard Deviation	0.1%	1.6%	0.3%	
<b>Kvazaar - Bosphorus 1080p - Very Fast (FPS)</b>	<b>97.34</b>	89.41	<b>49.58</b>	
Normalized	100%	91.85%	50.93%	
Standard Deviation	0.1%	1.9%	0.6%	
<b>Kvazaar - Bosphorus 1080p - Ultra Fast (FPS)</b>	<b>164.68</b>	156.08	<b>71.16</b>	
Normalized	100%	94.78%	43.21%	
Standard Deviation	0.3%	0.3%	0.5%	
<b>VP9 libvpx Encoding - Speed 0 - Bosphorus 4K (FPS)</b>	5.54			
Standard Deviation	1.9%			
<b>VP9 libvpx Encoding - Speed 5 - Bosphorus 4K (FPS)</b>	15.10			
Standard Deviation	0.6%			
<b>VP9 libvpx Encoding - Speed 0 - Bosphorus 1080p (FPS)</b>	11.71			
Standard Deviation	0.3%			
<b>VP9 libvpx Encoding - Speed 5 - Bosphorus 1080p (FPS)</b>	27.10			
Standard Deviation	0.2%			

x264 - H.2.V.E (FPS)	<b>138.17</b>	114.83	<b>60.63</b>	
Normalized	100%	83.11%	43.88%	
Standard Deviation	2.5%	4.5%	25.3%	
x265 - Bosphorus 4K (FPS)	<b>23.51</b>	21.62	<b>21.68</b>	<b>9.20</b> 19.17
Normalized	100%	91.96%	92.22%	39.13% 81.54%
Standard Deviation	0.3%	2.4%	1.6%	2% 1.1%
x265 - Bosphorus 1080p (FPS)	<b>67.71</b>	65.06	<b>59.19</b>	<b>34.60</b> 48.00
Normalized	100%	96.09%	87.42%	51.1% 70.89%
Standard Deviation	0.5%	0.1%	0.7%	1.2% 0.1%
ACES DGEMM - S.F.P.R	<b>5.701978</b>	<b>3.171527</b>		5.200317
(GFLOP/s)				
Normalized	100%	55.62%		91.2%
Standard Deviation	6.9%	1.1%		2.7%
Coremark - CoreMark Size 666 - I.P.S (Iterations/Sec)	<b>664229</b>	<b>449988</b>		510461
Normalized	100%	67.75%		76.85%
Standard Deviation	1.9%	0%		0%
7-Zip Compression - 7-Zip Compression	122571			
Compression Rating (MIPS)				
Standard Deviation	2.4%			
7-Zip Compression - D.R (MIPS)	101871			
Standard Deviation	0.5%			
Stockfish - Total Time (Nodes/s)	<b>50623798</b>	<b>40501083</b>		
Normalized	100%	80%		
Standard Deviation	1.8%	0.6%		
ebizzy (Records/s)	603272			
Standard Deviation	7.2%			
libavif avifenc - 2 (sec)	39.827			
Standard Deviation	1.2%			
libavif avifenc - 6 (sec)	10.564			
Standard Deviation	0.4%			
libavif avifenc - 10 (sec)	2.423			
Standard Deviation	1.1%			
libavif avifenc - 6, Lossless (sec)	34.238			
Standard Deviation	0.5%			
Timed Apache Compilation - Time To Compile (sec)	<b>21.729</b>		<b>61.633</b>	22.450
Normalized	100%		35.26%	96.79%
Standard Deviation	0.1%		0.1%	0.8%
Timed FFmpeg Compilation - Time To Compile (sec)	<b>34.741</b>	37.628	<b>46.540</b>	
Normalized	100%	92.33%	74.65%	
Standard Deviation	0.2%	0.4%	1.1%	
Timed LLVM Compilation - Ninja (sec)		407.908	<b>376.846</b>	<b>1046</b> 467.564
Normalized	92.39%	100%	36.01%	80.6%
Standard Deviation	0.4%	0.2%	0.8%	0.3%
Timed LLVM Compilation - Unix Makefiles (sec)		470.755	<b>428.505</b>	<b>2676</b> 512.243
Normalized	91.03%	100%	16.01%	83.65%
Standard Deviation	0.4%	2.3%	0.3%	1.2%

Timed PHP Compilation - Time To Compile (sec)	<b>51.839</b>	<b>35.084</b>	48.191		
Normalized	67.68%	100%	72.8%		
Standard Deviation	0%	3.3%	0.6%		
C-Ray - Total Time - 4.1.R.P.P (sec)	<b>30.038</b>	60.321	39.642	<b>97.227</b>	44.974
Normalized	100%	49.8%	75.77%	30.89%	66.79%
Standard Deviation	0%	0.1%	0.3%	0.2%	0.2%
Primesieve - 1.P.N.G (sec)	<b>11.549</b>	18.066	13.864	<b>24.501</b>	14.667
Normalized	100%	63.93%	83.3%	47.14%	78.74%
Standard Deviation	0.2%	0.2%	0.4%	0.4%	0.1%
Numpy Benchmark (Score)	415.13				
Standard Deviation	0.3%				
Gzip Compression - L.S.T.A.T.t.g (sec)	2.365				
Standard Deviation	0.8%				
XZ Compression - C.u.1.0.3.s.i.i.C.L.9 (sec)	<b>17.730</b>	22.675	20.648	28.865	<b>29.554</b>
Normalized	100%	78.19%	85.87%	61.42%	59.99%
Standard Deviation	0.3%	5.3%	0.7%	1.2%	0.3%
FLAC Audio Encoding - WAV To FLAC (sec)	<b>15.476</b>	24.247	20.168	<b>42.725</b>	32.154
Normalized	100%	63.83%	76.74%	36.22%	48.13%
Standard Deviation	0.2%	0.1%	0.5%	0%	0.3%
LAME MP3 Encoding - WAV To MP3 (sec)	<b>8.759</b>	14.388	<b>30.519</b>	18.476	10.247
Normalized	100%	60.88%	28.7%	47.41%	85.48%
Standard Deviation	0.3%	0.5%	0%	0.3%	0%
Opus Codec Encoding - WAV To Opus Encode (sec)	<b>8.645</b>		<b>9.933</b>		
Normalized	100%		87.03%		
Standard Deviation	0.9%		1.7%		
Helsing - 12 digit (sec)	<b>2.904</b>	4.852	3.114	<b>5.998</b>	3.167
Normalized	100%	59.85%	93.26%	48.42%	91.7%
Standard Deviation	0.3%	0.2%	0.1%	0.3%	0.1%
Helsing - 14 digit (sec)	<b>282.245</b>	474.410	324.738	<b>568.883</b>	304.826
Normalized	100%	59.49%	86.91%	49.61%	92.59%
Standard Deviation	0%	0%	0%	0.1%	0%
Perl Benchmarks - Pod2html	<b>0.09965131</b>	<b>0.18632822</b>	0.12863042		0.13567428
Normalized	100%	53.48%	77.47%		73.45%
Standard Deviation	0.2%	0.2%	0.3%		0.3%
Perl Benchmarks - Interpreter	<b>0.00094395</b>	0.00189465	0.00187436		<b>0.00245352</b>
Normalized	100%	49.82%	50.36%		38.47%
Standard Deviation	0.1%	0.1%	0.4%		0.5%
VOSK Speech Recognition Toolkit (sec)	20.136				
Standard Deviation	0.3%				
OpenSSL - SHA256 (byte/s)	<b>6041739093</b>	<b>4742085283</b>	5886392800		5789648853
Normalized	100%	78.49%	97.43%		95.83%
Standard Deviation	0%	0%	0%		0%
OpenSSL - RSA4096 (sign/s)	5230	<b>4092</b>	<b>5463</b>		5222
Normalized	95.74%	74.9%	100%		95.6%
Standard Deviation	0.1%	0%	0%		0.6%

<b>OpenSSL - RSA4096 (verify/s)</b>	344489	<b>272715</b>	<b>358050</b>	343736
Normalized	96.21%	76.17%	100%	96%
Standard Deviation	0.1%	0%	0%	0.1%
<b>Node.js V8 Web Tooling</b>	13.88			
Benchmark (runs/s)				
Standard Deviation	0.4%			
<b>libjpeg-turbo tbench - D.T</b>	<b>221.630203</b>	137.718634	180.181478	<b>97.575300</b>
(Megapixels/sec)				170.863265
Normalized	100%	62.14%	81.3%	44.03%
Standard Deviation	0.2%	0%	0%	0.4%
<b>GROMACS - MPI CPU -</b>	1.606			
<b>water_GMX50_bare (Ns/Day)</b>				
Standard Deviation	0.2%			
<b>SQLite Speedtest - Timed Time -</b>	<b>55.353</b>	131.297	84.333	243.095
Size 1,000 (sec)				<b>488.364</b>
Normalized	100%	42.16%	65.64%	22.77%
Standard Deviation	0.1%	0.9%	1%	0.1%
<b>GIMP - resize (sec)</b>	<b>6.643</b>	<b>12.712</b>		
Normalized	100%	52.26%		
Standard Deviation	1.1%	4.9%		
<b>GIMP - rotate (sec)</b>	<b>10.079</b>	<b>18.852</b>		
Normalized	100%	53.46%		
Standard Deviation	0.1%	0%		
<b>GIMP - auto-levels (sec)</b>	<b>11.413</b>	<b>20.783</b>		
Normalized	100%	54.92%		
Standard Deviation	0.7%	0.4%		
<b>GIMP - unsharp-mask (sec)</b>	<b>14.343</b>	<b>24.693</b>		
Normalized	100%	58.09%		
Standard Deviation	0.8%	0.9%		
<b>GNU Octave Benchmark (sec)</b>	5.691			
Standard Deviation	0.6%			
<b>RawTherapee - T.B.T (sec)</b>	52.261			
Standard Deviation	0.1%			
<b>Stress-NG - MMAP (Bogo Ops/s)</b>	469.00	732.72	<b>1043</b>	<b>22.17</b>
Normalized	44.96%	70.24%	100%	2.13%
Standard Deviation	2.5%	0.5%	0%	0.2%
<b>Stress-NG - NUMA (Bogo Ops/s)</b>	89.41			
Standard Deviation	31.5%			
<b>Stress-NG - MEMFD (Bogo</b>	1021			
Standard Deviation	0%			
<b>Stress-NG - Atomic (Bogo Ops/s)</b>	225751			
Standard Deviation	1.4%			
<b>Stress-NG - Crypto (Bogo Ops/s)</b>	5015			
Standard Deviation	0.1%			
<b>Stress-NG - Malloc (Bogo Ops/s)</b>	191861013	447652324	373026240	<b>77762157</b>
Normalized	40.49%	94.46%	78.72%	16.41%
Standard Deviation	0.1%	0.7%	0.1%	0.1%
<b>Stress-NG - RdRand (Bogo</b>	183671		<b>191007</b>	<b>183300</b>
Normalized	96.16%		100%	95.96%
Standard Deviation	0%		0%	0%
<b>Stress-NG - Forking (Bogo</b>	<b>78137</b>	37604	10338	<b>1972</b>
Normalized	100%	48.13%	13.23%	2.52%
Standard Deviation	0.6%	0.1%	0%	1.3%
<b>Stress-NG - IO_uring (Bogo</b>	52341			
Ops/s)				5447

	Standard Deviation	0.5%				
<b>Stress-NG - SENDFILE (Bogo)</b>	338409					
	<b>Ops/s)</b>					
	Standard Deviation	0.3%				
<b>Stress-NG - CPU Cache (Bogo)</b>	<b>109.26</b>	2513	2603	<b>2656</b>	2627	
	<b>Ops/s)</b>					
	Normalized	4.11%	94.64%	98.02%	100%	98.91%
	Standard Deviation	6.9%	4.4%	3.9%	0.6%	3.7%
<b>Stress-NG - CPU Stress (Bogo)</b>	37475	<b>49560</b>	38551	<b>21529</b>	34943	
	<b>Ops/s)</b>					
	Normalized	75.62%	100%	77.79%	43.44%	70.51%
	Standard Deviation	0.8%	0.4%	0.2%	0.1%	0.1%
<b>Stress-NG - Semaphores (Bogo)</b>	3204110	42140118	<b>57856144</b>	<b>14074</b>	141098	
	<b>Ops/s)</b>					
	Normalized	5.54%	72.84%	100%	0.02%	0.24%
	Standard Deviation	0.1%	4.1%	1.1%	0.4%	0.4%
<b>Stress-NG - Matrix Math (Bogo)</b>	84140	84607	<b>111148</b>	<b>51348</b>	87331	
	<b>Ops/s)</b>					
	Normalized	75.7%	76.12%	100%	46.2%	78.57%
	Standard Deviation	1.1%	0%	0.1%	0%	0.4%
<b>Stress-NG - Vector Math (Bogo)</b>	<b>69484</b>	64333	59649	<b>39653</b>	55920	
	<b>Ops/s)</b>					
	Normalized	100%	92.59%	85.84%	57.07%	80.48%
	Standard Deviation	0%	0.1%	0%	0%	0.2%
<b>Stress-NG - Memory Copying (Bogo Ops/s)</b>	<b>2184</b>	2589	2631	<b>6705</b>	2542	
	Normalized	32.58%	38.62%	39.24%	100%	37.92%
	Standard Deviation	1.1%	0.4%	0.2%	1.8%	1.4%
<b>Stress-NG - Socket Activity (Bogo Ops/s)</b>	<b>12191</b>	2671	4839	<b>17.57</b>	238.72	
	Normalized	100%	21.91%	39.69%	0.14%	1.96%
	Standard Deviation	0.8%	2.2%	0.3%	0.2%	0.5%
<b>Stress-NG - Context Switching (Bogo Ops/s)</b>	4478230	39637619	<b>43974729</b>	<b>224249</b>	8715365	
	Normalized	10.18%	90.14%	100%	0.51%	19.82%
	Standard Deviation	4%	2.8%	0.4%	1.1%	11.7%
<b>Stress-NG - G.C.S.F (Bogo)</b>	<b>2637459</b>	141553	156765	<b>141336</b>	447200	
	Normalized	100%	5.37%	5.94%	5.36%	16.96%
	Standard Deviation	2.5%	0%	0%	0.1%	0.5%
<b>Stress-NG - G.Q.D.S (Bogo)</b>	308.40	381.46	<b>812.33</b>	<b>51.44</b>	613.48	
	Normalized	37.96%	46.96%	100%	6.33%	75.52%
	Standard Deviation	0.1%	0.1%	0%	0%	0.1%
<b>Stress-NG - S.V.M.P (Bogo)</b>	7370290	16493783	<b>23736854</b>	<b>5632207</b>	8957612	
	Normalized	31.05%	69.49%	100%	23.73%	37.74%
	Standard Deviation	0.1%	0.9%	1.1%	39.9%	22.6%
<b>Blender - BMW27 - CPU-Only</b>	80.03					
	<b>(sec)</b>					
	Standard Deviation	0.4%				
<b>Blender - Fishy Cat - CPU-Only</b>	113.02					
	<b>(sec)</b>					
	Standard Deviation	0.4%				

## Blender - Barbershop - 369.04

### CPU-Only (sec)

Standard Deviation 0.5%

**PyBench - T.F.A.T.T** **932**

2158

1456

**8523**

Normalized 100%

43.19%

64.01%

10.94%

Standard Deviation 0.1%

0.2%

0.2%

0.1%

**PyPerformance - go** **186**

**535**

334

**1.81**

365

Normalized 0.97%

0.34%

0.54%

100%

0.5%

Standard Deviation 0.3%

0.1%

0.2%

0%

0%

**PyPerformance - 2to3** **268**

**570**

402

**1.91**

447

(Milliseconds)

Normalized 0.71%

0.34%

0.48%

100%

0.43%

Standard Deviation 0%

0%

0.1%

0%

0%

**PyPerformance - chaos** **88.6**

246

164

**929**

178

(Milliseconds)

Normalized 100%

36.02%

54.02%

9.54%

49.78%

Standard Deviation 0.1%

0.2%

0.4%

0.1%

0.3%

**PyPerformance - float** **88.9**

**221**

156

**1.02**

170

(Milliseconds)

Normalized 1.15%

0.46%

0.65%

100%

0.6%

Standard Deviation 0.1%

0%

0%

0.6%

0.3%

**PyPerformance - nbody** **128**

**289**

199

**1.16**

207

(Milliseconds)

Normalized 0.91%

0.4%

0.58%

100%

0.56%

Standard Deviation 0%

0%

0.3%

0%

0%

**PyPerformance - pathlib** **13.6**

38

29.8

**148**

34.1

(Milliseconds)

Normalized 100%

35.79%

45.64%

9.19%

39.88%

Standard Deviation 0%

0%

0.2%

0%

0.2%

**PyPerformance - raytrace** **396**

**1.14**

727

4.27

**833**

(Milliseconds)

Normalized 0.29%

100%

0.16%

26.7%

0.14%

Standard Deviation 0.3%

0%

0.1%

0%

0.2%

**PyPerformance - json.loads** **24.5**

51.9

36.4

**163**

43.2

(Milliseconds)

Normalized 100%

47.21%

67.31%

15.03%

56.71%

Standard Deviation 0.2%

0.1%

0%

0%

0%

**PyPerformance - crypto\_pyaes** **98.0**

**229**

149

**1**

171

(Milliseconds)

Normalized 1.02%

0.44%

0.67%

100%

0.58%

Standard Deviation 0.2%

0%

0%

0%

0.3%

**PyPerformance - regex\_compile** **138**

**324**

222

**1.16**

247

(Milliseconds)

Normalized 0.84%

0.36%

0.52%

100%

0.47%

Standard Deviation 0%

0%

0%

0%

0%

**PyPerformance - python\_startup** **8.13**

14

12.9

**52.8**

13.3

(Milliseconds)

Normalized 100%

58.07%

63.02%

15.4%

61.13%

Standard Deviation 0.1%

0%

0.8%

0%

0%

**PyPerformance - django\_template** **37.2**

105

69.0

**381**

77.1

(Milliseconds)

Normalized 100%

35.43%

53.91%

9.76%

48.25%

Standard Deviation 0.3%

0%

0.1%

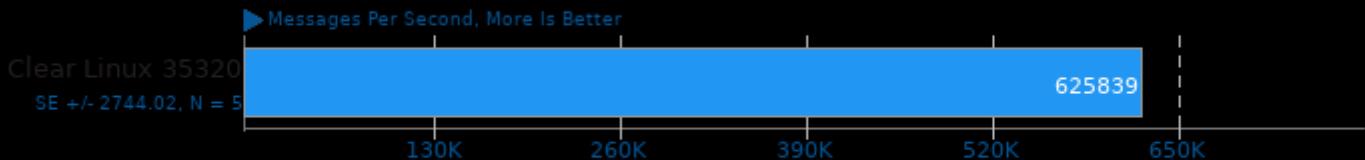
0%

0.1%

<b>PyPerformance - 369</b>	<b>972</b>	631	<b>3.66</b>	712
<b>pickle_pure_python</b>				
Normalized	0.99%	0.38%	0.58%	100%
Standard Deviation	0.3%	0.2%	0%	0.2%
<b>nginx - 100 (Req/sec)</b>	<b>339631</b>	199.91	218.31	<b>18.15</b>
Normalized	100%	0.06%	0.06%	0.01%
Standard Deviation	0.2%	0.5%	17.3%	14.6%
<b>nginx - 200 (Req/sec)</b>	<b>341724</b>	<b>202.36</b>	236.82	84557
Normalized	100%	0.06%	0.07%	24.74%
Standard Deviation	0.2%	0.8%	12.6%	4.8%
<b>nginx - 500 (Req/sec)</b>	<b>339441</b>	<b>204.62</b>	262.00	71562
Normalized	100%	0.06%	0.08%	21.08%
Standard Deviation	0.3%	1%	14.3%	8.1%
<b>nginx - 1000 (Req/sec)</b>	<b>333537</b>	<b>211.35</b>	257.86	75677
Normalized	100%	0.06%	0.08%	22.69%
Standard Deviation	0.1%	1.3%	13.5%	8.7%
<b>Apache HTTP Server - 100 (Req/sec)</b>	<b>110732</b>			<b>2721</b>
Normalized	100%			2.46%
Standard Deviation	0.8%			0.6%
<b>Apache HTTP Server - 200 (Req/sec)</b>	<b>125362</b>		<b>8732</b>	
Normalized	100%			6.97%
Standard Deviation	1.2%			3.2%
<b>Apache HTTP Server - 500 (Req/sec)</b>	<b>121891</b>		<b>8816</b>	
Normalized	100%			7.23%
Standard Deviation	0.6%			7.2%
<b>Apache HTTP Server - 1000 (Req/sec)</b>	<b>120095</b>		<b>9011</b>	
Normalized	100%			7.5%
Standard Deviation	0.6%			9.6%
<b>PHPBench - P.B.S (Score)</b>	<b>1055611</b>	440359	716898	<b>92336</b>
Normalized	100%	41.72%	67.91%	8.75%
Standard Deviation	0.1%	0%	0.1%	0.1%
<b>Git - T.T.C.C.G.C (sec)</b>	<b>53.266</b>	83.330	79.462	<b>223.183</b>
Normalized	100%	63.92%	67.03%	23.87%
Standard Deviation	0.1%	0.3%	0.4%	0.2%
<b>Zstd Compression - 3 - D.S</b>		2381	2734	<b>1988</b>
Normalized		83.72%	96.14%	69.92%
Standard Deviation		0.3%	0.4%	1.8%
<b>GIMP - resize (sec)</b>			11.319	
Standard Deviation			1.7%	
<b>GIMP - rotate (sec)</b>			15.847	
Standard Deviation			0.1%	
<b>GIMP - auto-levels (sec)</b>			22.003	
Standard Deviation			2.6%	
<b>GIMP - unsharp-mask (sec)</b>			31.893	
Standard Deviation			1.6%	
<b>Build2 - Time To Compile (sec)</b>				99.635
Standard Deviation				0.4%

## Sockperf 3.7

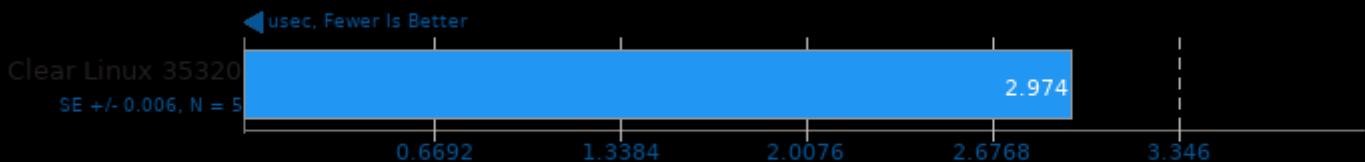
Test: Throughput



1. (CXX) g++ options: --param -O3 -pipe -fexceptions -m64 -ffat-lto-objects -fno-trapping-math -mtune=skylake -rdynamic

## Sockperf 3.7

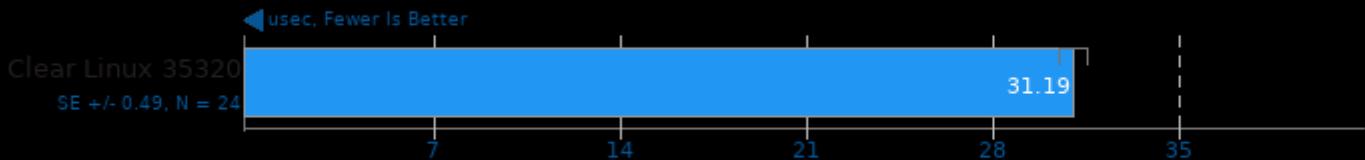
Test: Latency Ping Pong



1. (CXX) g++ options: --param -O3 -pipe -fexceptions -m64 -ffat-lto-objects -fno-trapping-math -mtune=skylake -rdynamic

## Sockperf 3.7

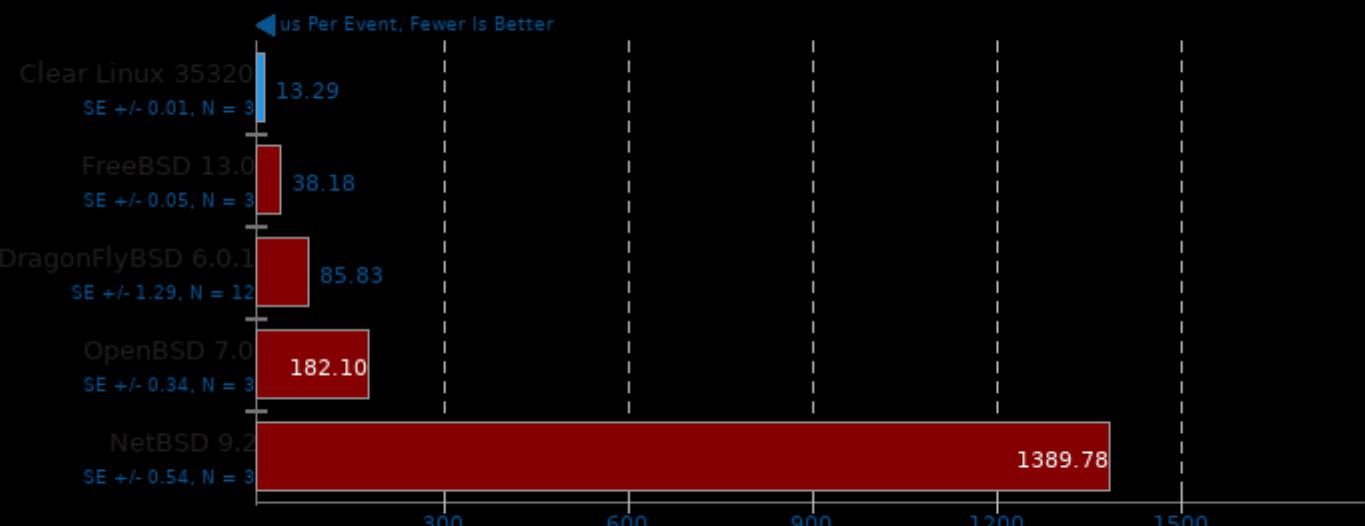
Test: Latency Under Load



1. (CXX) g++ options: --param -O3 -pipe -fexceptions -m64 -ffat-lto-objects -fno-trapping-math -mtune=skylake -rdynamic

## OSBench

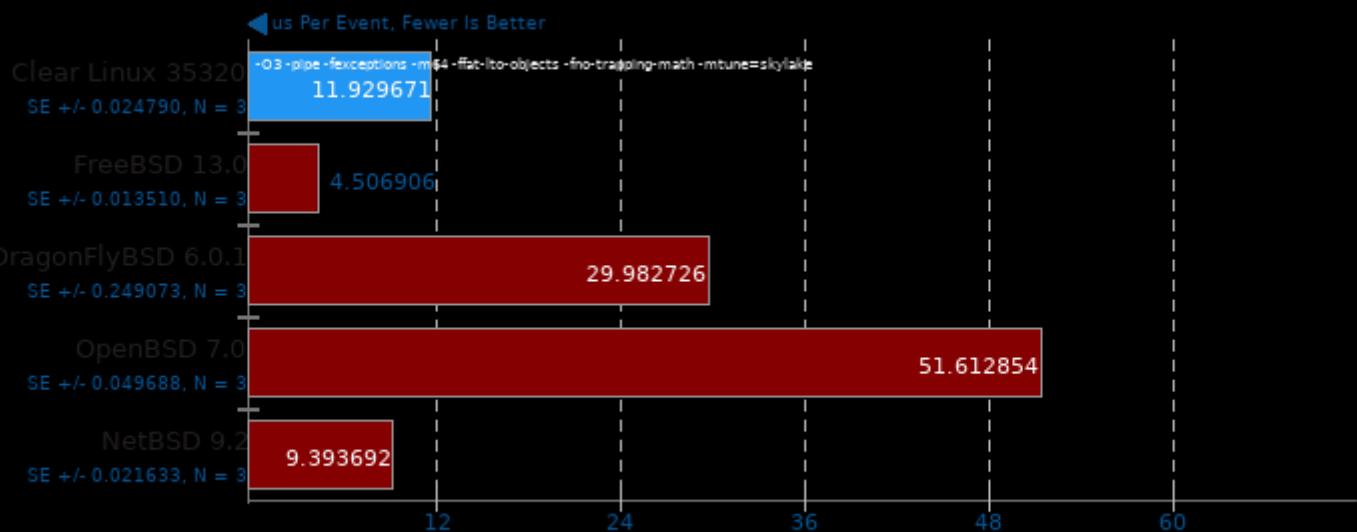
Test: Create Files



1. (CC) gcc options: -lm

## OSBench

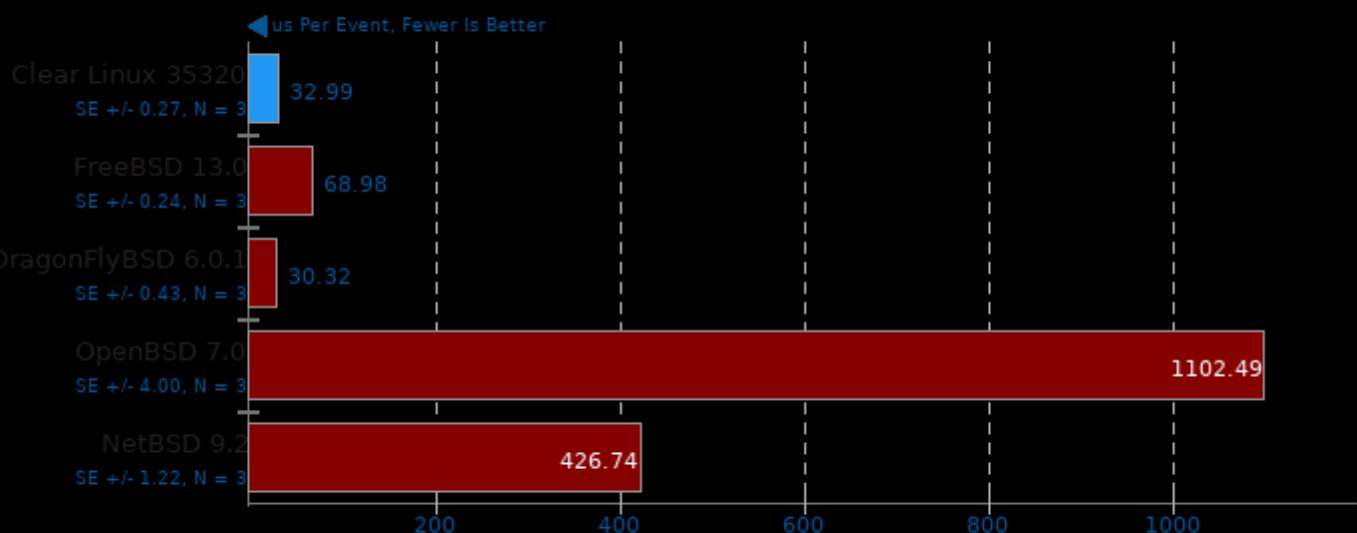
Test: Create Threads



1. (CC) gcc options: -lm

## OSBench

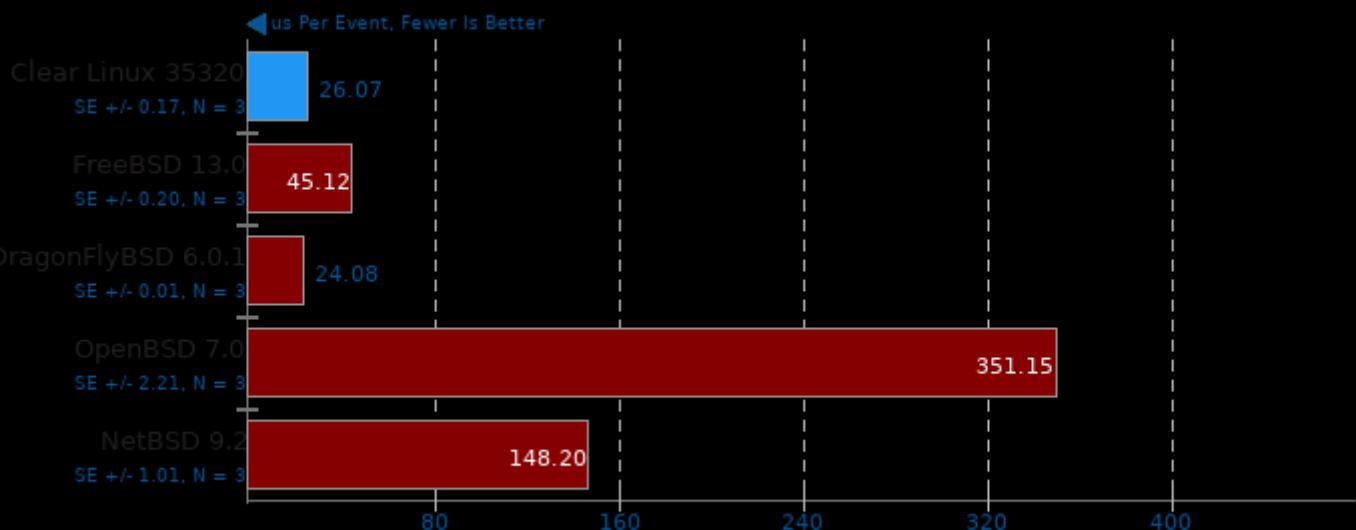
Test: Launch Programs



1. (CC) gcc options: -lm

## OSBench

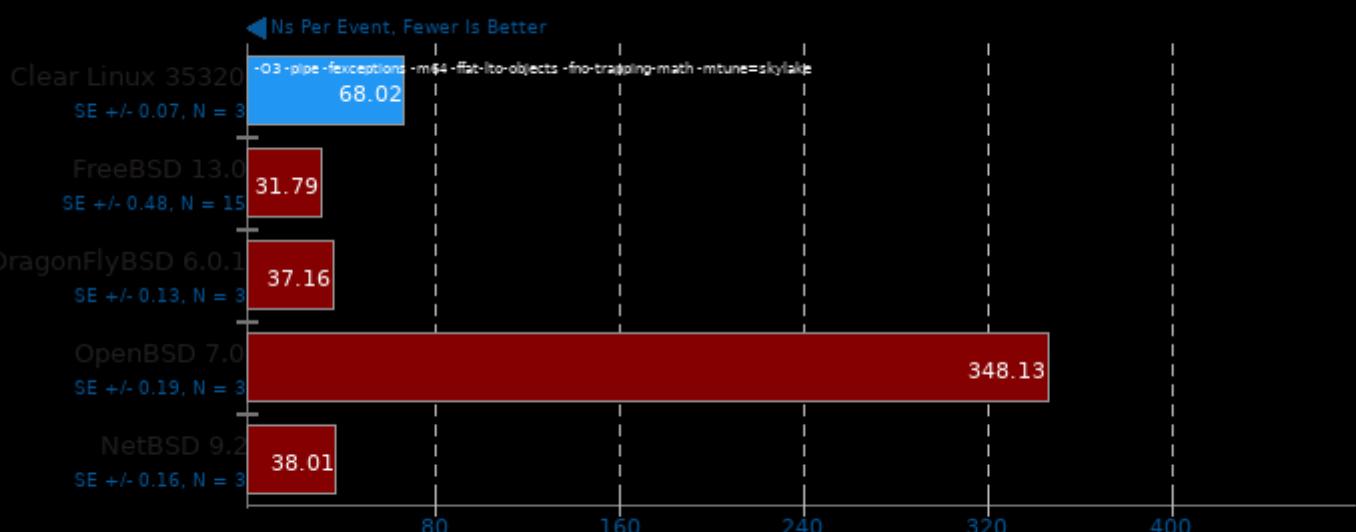
Test: Create Processes



1. (CC) gcc options: -lm

## OSBench

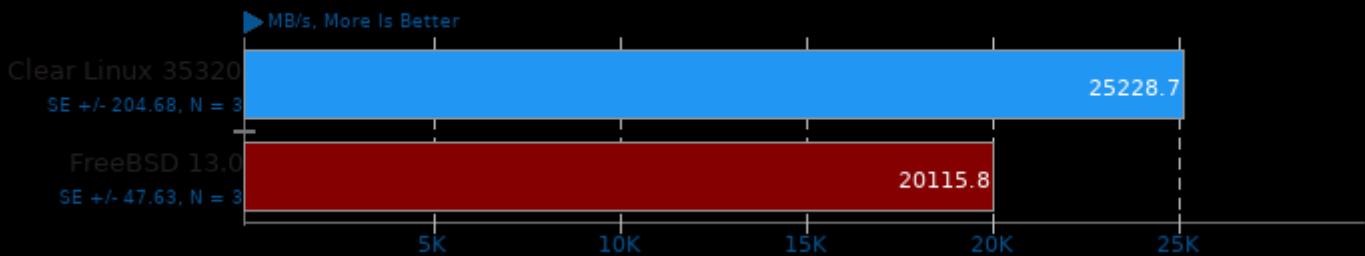
Test: Memory Allocations



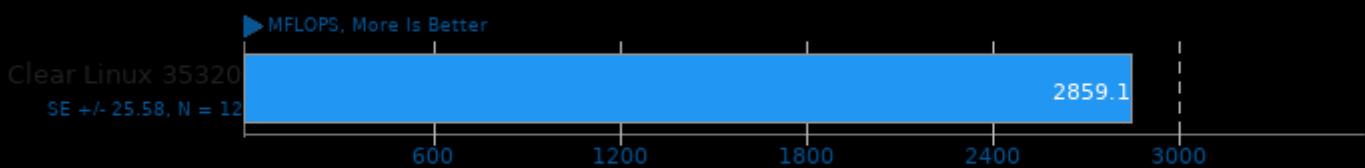
1. (CC) gcc options: -lm

## C-Blosc 2.0

Compressor: blosclz



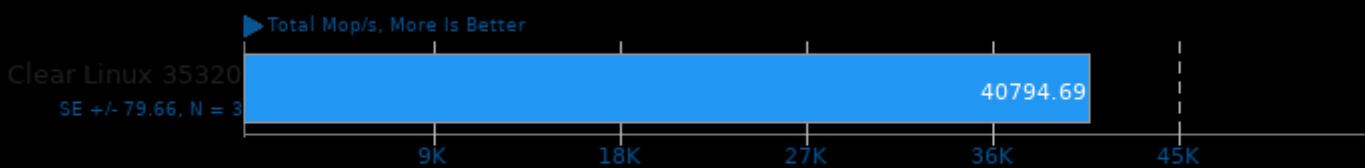
## QuantLib 1.21



1. (CXX) g++ options: -O3 -march=native -rdynamic -lboost\_timer -lboost\_system -lboost\_chrono

## NAS Parallel Benchmarks 3.4

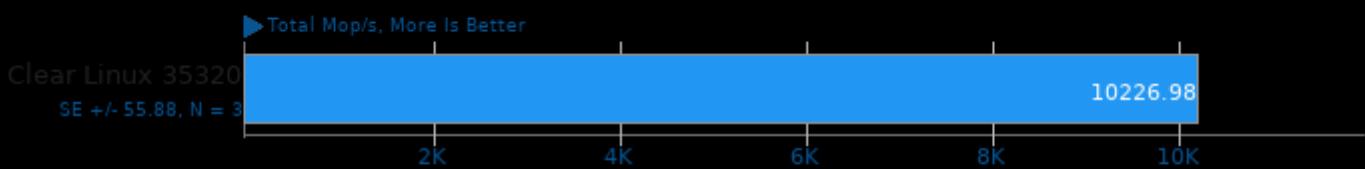
Test / Class: BT.C



1. (F9X) gfortran options: -O3 -pipe -fexceptions -m64 -ffat-lto-objects -fno-trapping-math -mtune=skylake -march=native -lmpi\_usempif08 -lmpi\_mpifh  
2. 3.2

## NAS Parallel Benchmarks 3.4

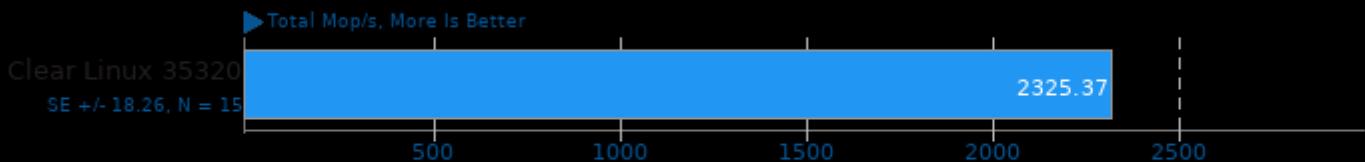
Test / Class: CG.C



1. (F9X) gfortran options: -O3 -pipe -fexceptions -m64 -ffat-lto-objects -fno-trapping-math -mtune=skylake -march=native -lmpi\_usempif08 -lmpi\_mpifh  
2. 3.2

## NAS Parallel Benchmarks 3.4

Test / Class: EP.C



1. (F9X) gfortran options: -O3 -pipe -fexceptions -m64 -ffat-lto-objects -fno-trapping-math -mtune=skylake -march=native -lmpi\_usempif08 -lmpi\_mpifh  
2. 3.2

## NAS Parallel Benchmarks 3.4

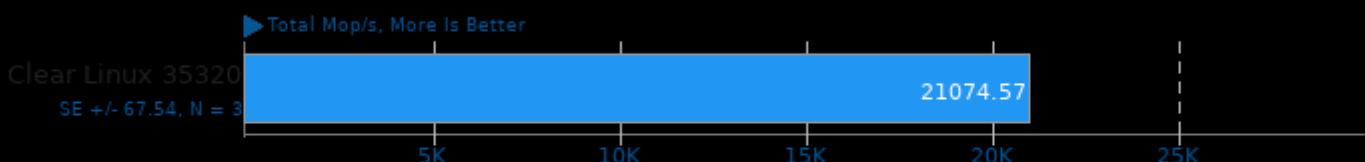
Test / Class: EP.D



1. (F9X) gfortran options: -O3 -pipe -fexceptions -m64 -ffat-lto-objects -fno-trapping-math -mtune=skylake -march=native -lmpi\_usempif08 -lmpi\_mpifh  
2. 3.2

## NAS Parallel Benchmarks 3.4

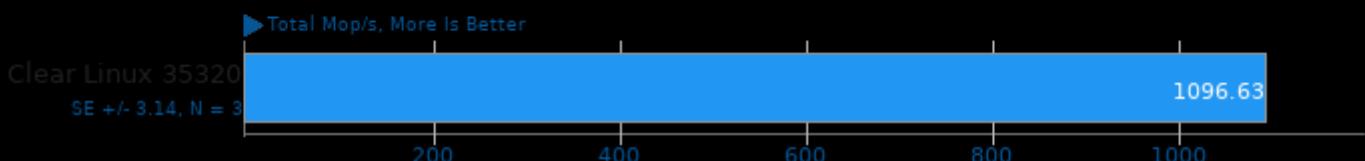
Test / Class: FT.C



1. (F9X) gfortran options: -O3 -pipe -fexceptions -m64 -ffat-lto-objects -fno-trapping-math -mtune=skylake -march=native -lmpi\_usempif08 -lmpi\_mpifh  
2. 3.2

## NAS Parallel Benchmarks 3.4

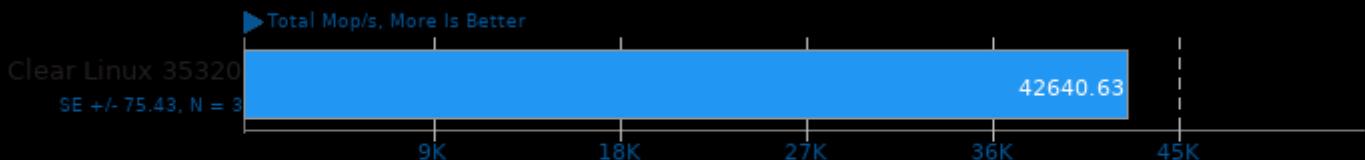
Test / Class: IS.D



1. (F9X) gfortran options: -O3 -pipe -fexceptions -m64 -ffat-lto-objects -fno-trapping-math -mtune=skylake -march=native -lmpi\_usempif08 -lmpi\_mpifh  
2. 3.2

## NAS Parallel Benchmarks 3.4

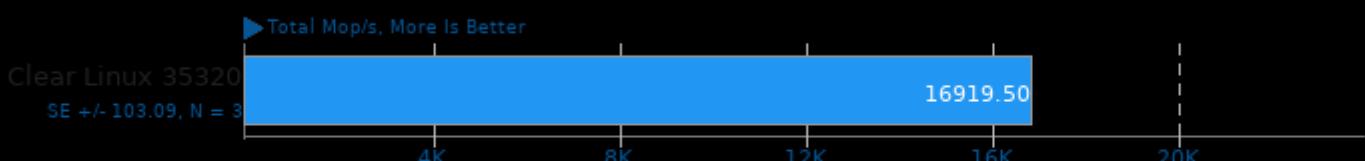
Test / Class: LU.C



1. (F9X) gfortran options: -O3 -pipe -fexceptions -m64 -ffat-lto-objects -fno-trapping-math -mtune=skylake -march=native -lmpi\_usempif08 -lmpi\_mpifh  
2. 3.2

## NAS Parallel Benchmarks 3.4

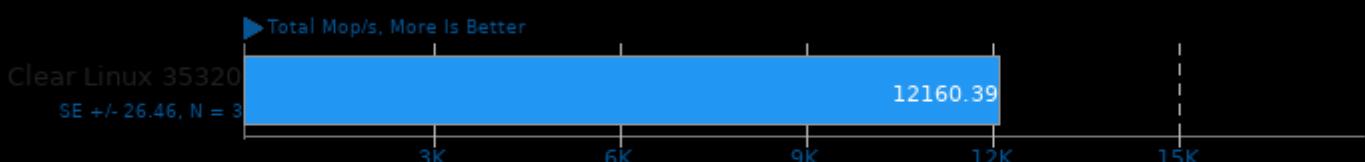
Test / Class: MG.C



1. (F9X) gfortran options: -O3 -pipe -fexceptions -m64 -ffat-lto-objects -fno-trapping-math -mtune=skylake -march=native -lmpi\_usempif08 -lmpi\_mpifh  
2. 3.2

## NAS Parallel Benchmarks 3.4

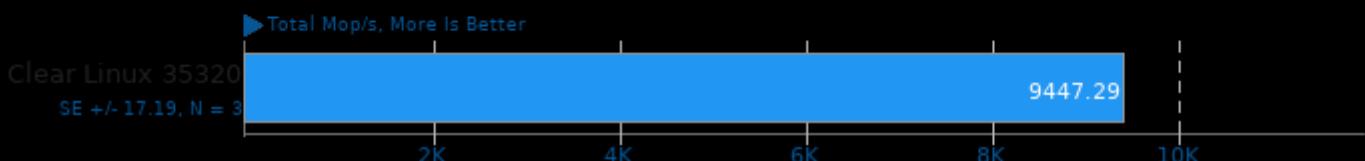
Test / Class: SP.B



1. (F9X) gfortran options: -O3 -pipe -fexceptions -m64 -ffat-lto-objects -fno-trapping-math -mtune=skylake -march=native -lmpi\_usempif08 -lmpi\_mpifh  
2. 3.2

## NAS Parallel Benchmarks 3.4

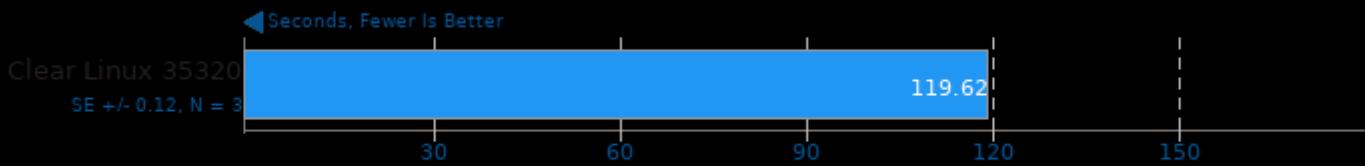
Test / Class: SP.C



1. (F9X) gfortran options: -O3 -pipe -fexceptions -m64 -ffat-lto-objects -fno-trapping-math -mtune=skylake -march=native -lmpi\_usempif08 -lmpi\_mpifh  
2. 3.2

## Rodinia 3.1

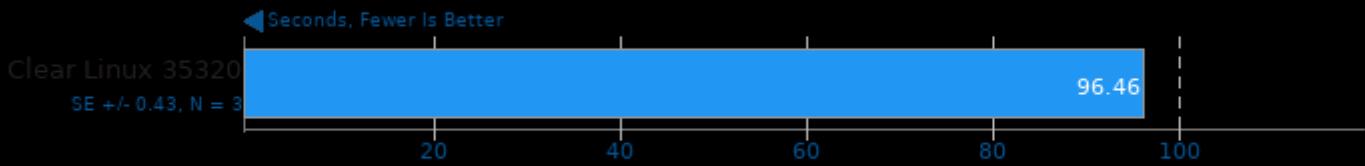
Test: OpenMP LavaMD



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

## Rodinia 3.1

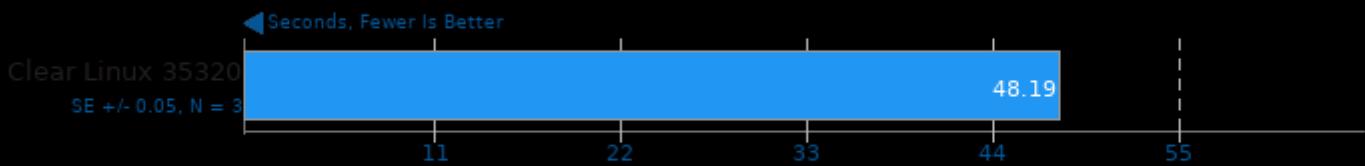
Test: OpenMP HotSpot3D



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

## Rodinia 3.1

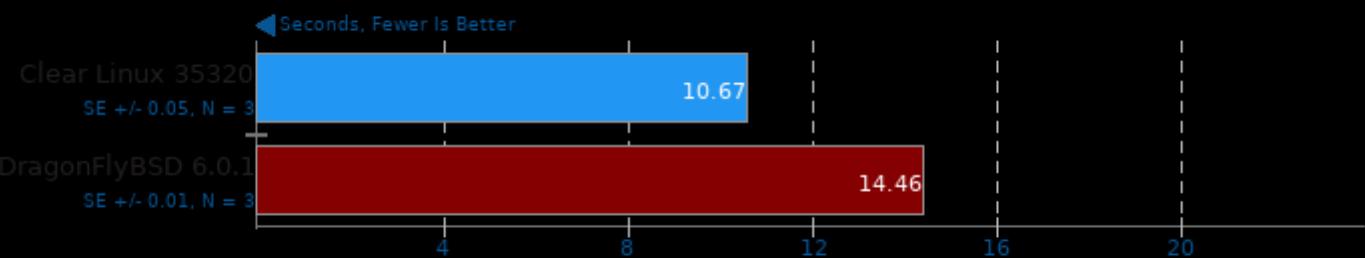
Test: OpenMP Leukocyte



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

## Rodinia 3.1

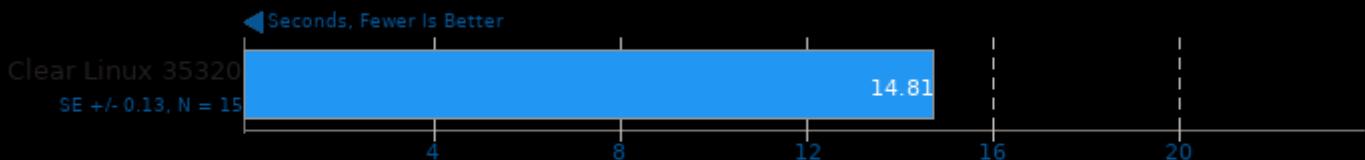
Test: OpenMP CFD Solver



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

## Rodinia 3.1

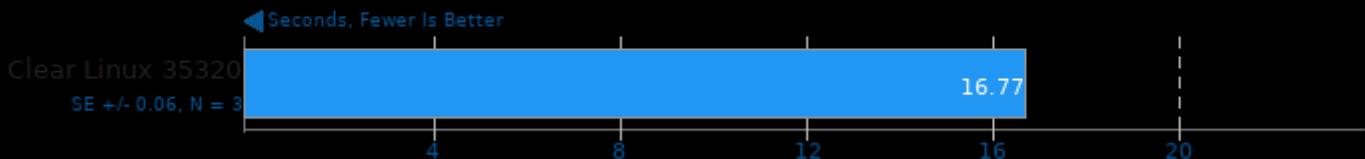
Test: OpenMP Streamcluster



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

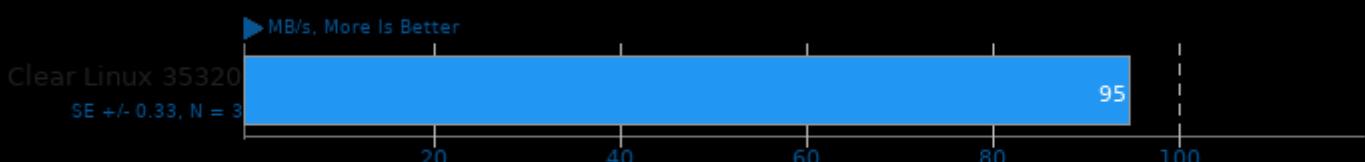
## Dolfyn 0.527

Computational Fluid Dynamics



## Izbench 1.8

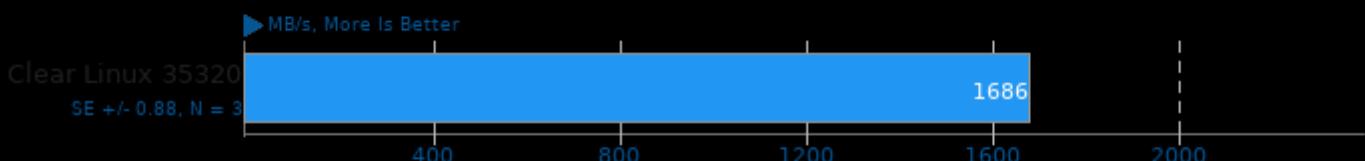
Test: Zstd 8 - Process: Compression



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

## Izbench 1.8

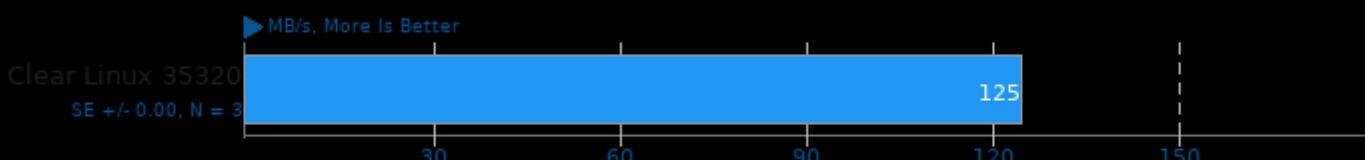
Test: Zstd 8 - Process: Decompression



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

## Izbench 1.8

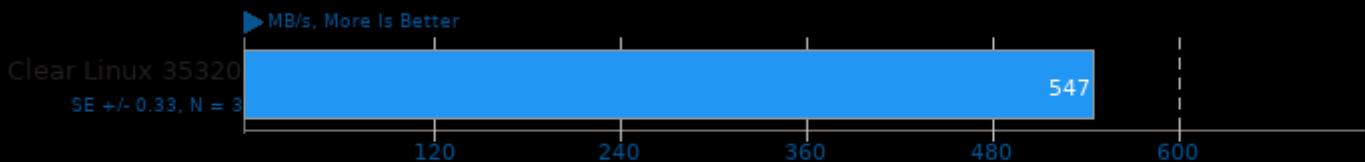
Test: Crush 0 - Process: Compression



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

## Izbench 1.8

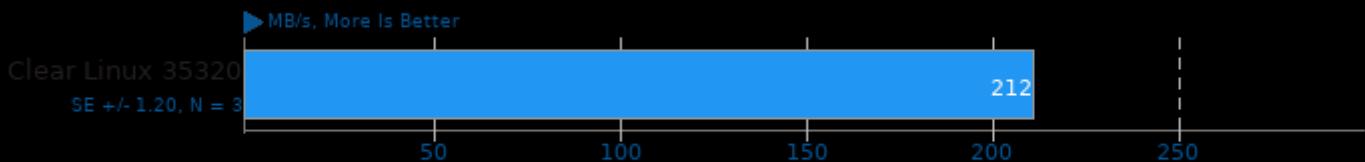
Test: Crush 0 - Process: Decompression



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

## Izbench 1.8

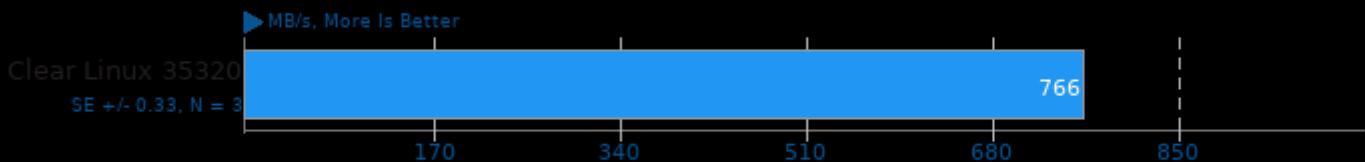
Test: Brotli 2 - Process: Compression



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

## Izbench 1.8

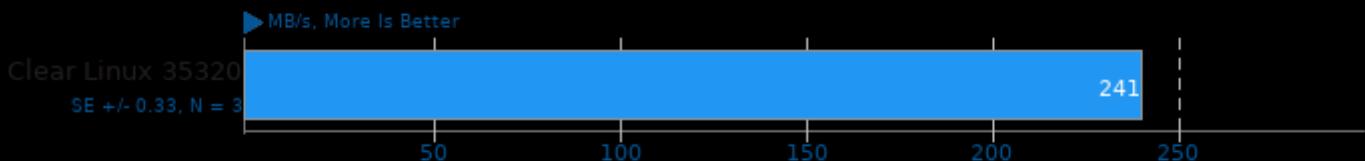
Test: Brotli 2 - Process: Decompression



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

## Izbench 1.8

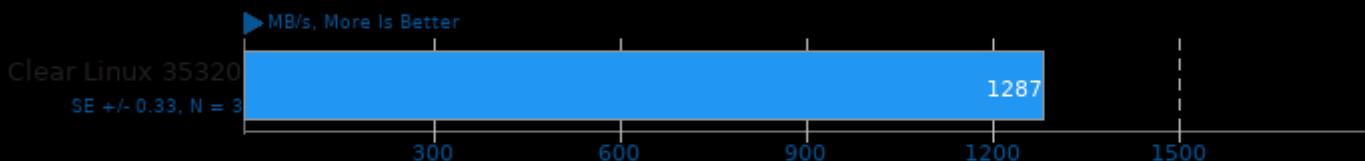
Test: Libdeflate 1 - Process: Compression



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

## Izbench 1.8

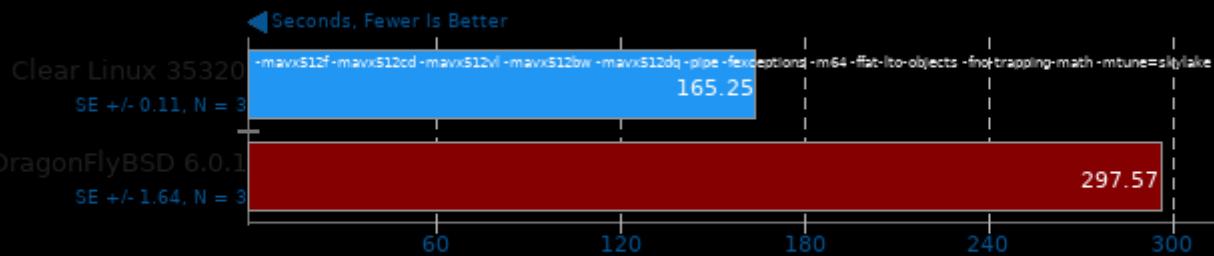
Test: Libdeflate 1 - Process: Decompression



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

## Timed MrBayes Analysis 3.2.7

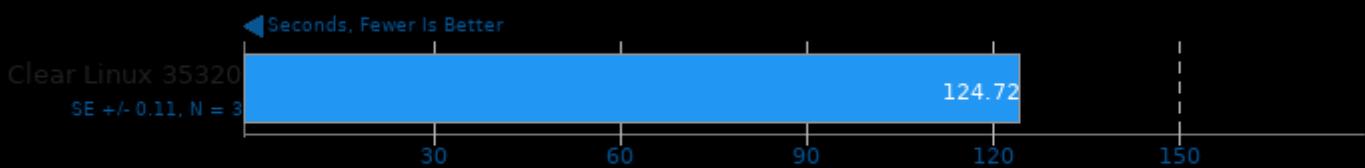
Primate Phylogeny Analysis



1. (CC) gcc options: -mavx512f -mavx512cd -mavx512vl -mavx512bw -mavx512dq -pipe -fexptlond -m64 -ffat-lto-objects -fno-trapping-math -mtune=skylake

## Timed HMMer Search 3.3.2

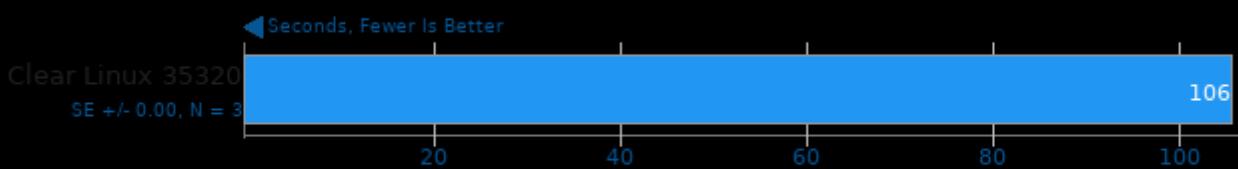
Pfam Database Search



1. (CC) gcc options: -O3 -pipe -fexceptions -m64 -ffat-lto-objects -fno-trapping-math -mtune=skylake -pthread -lhmmer -leasel -lmpi -lm

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

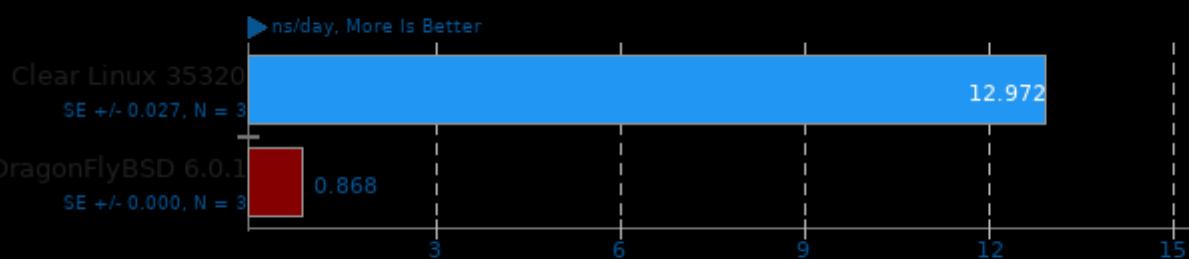
Input: Dust 2D tau100.0



1. (F9X) gfortran options: -O3 -pipe -fexceptions -m64 -malign-data=abi -ftree-vectorize -cpp -jsource/-ffree-line-length-0 -lm -std=legacy -O2 -lmpi\_use

## LAMMPS Molecular Dynamics Simulator 29Oct2020

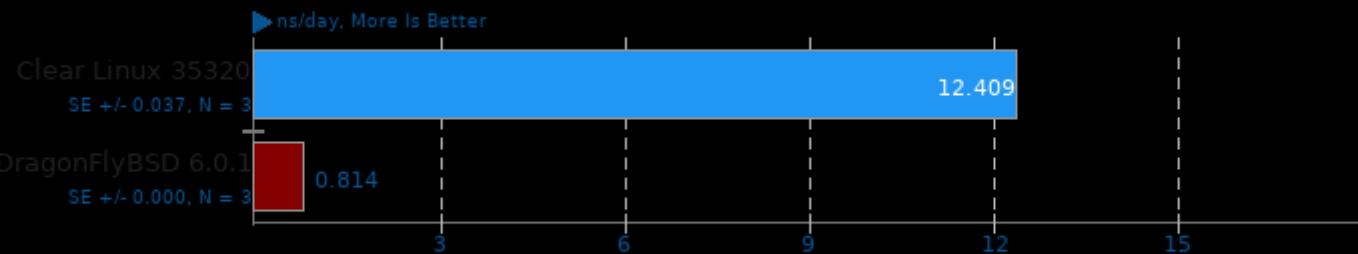
Model: 20k Atoms



1. (CXX) g++ options: -O3 -pipe -fexceptions -m64 -ffat-lto-objects -fno-trapping-math -mtune=skylake -lm

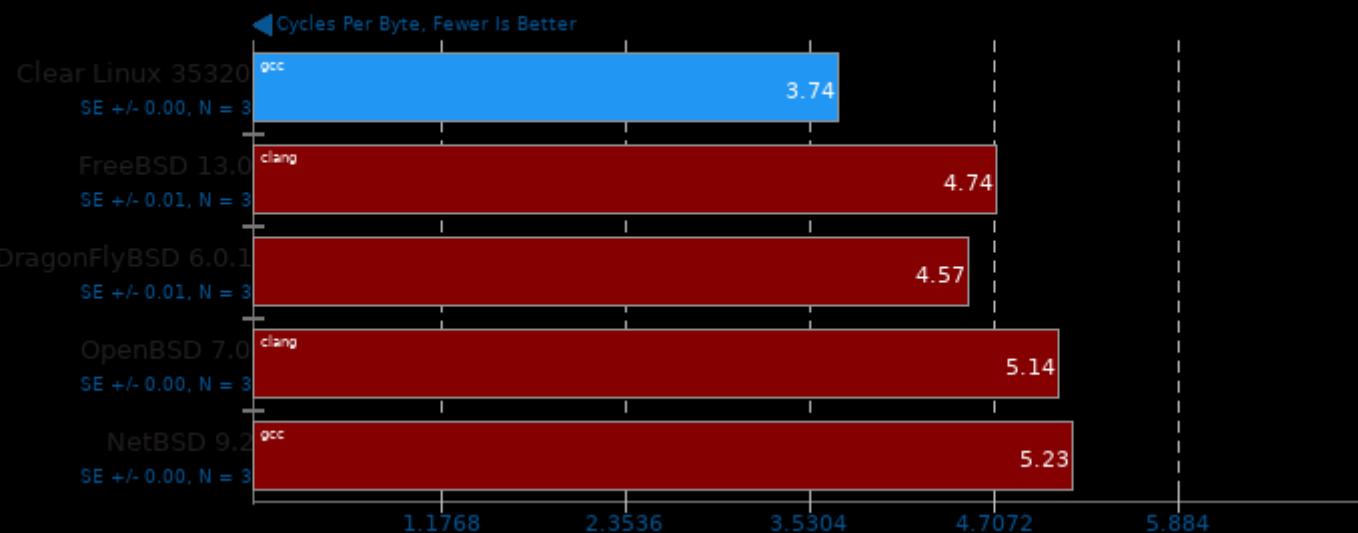
## LAMMPS Molecular Dynamics Simulator 29Oct2020

Model: Rhodopsin Protein



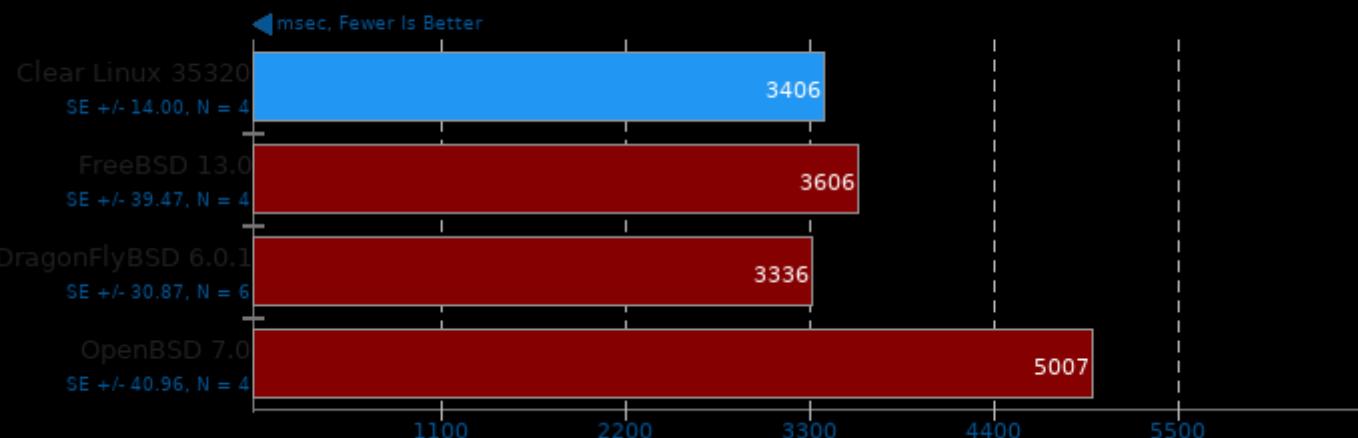
1. (CXX) g++ options: -O3 -pipe -fexceptions -m64 -ffat-lto-objects -fno-trapping-math -mtune=skylake -lm

## BLAKE2 20170307



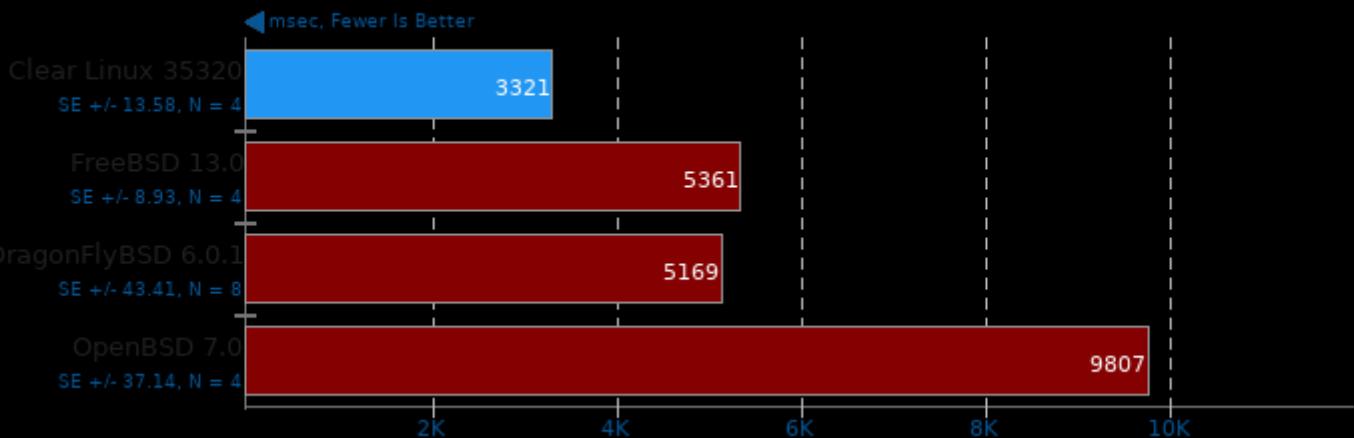
## DaCapo Benchmark 9.12-MR1

Java Test: H2



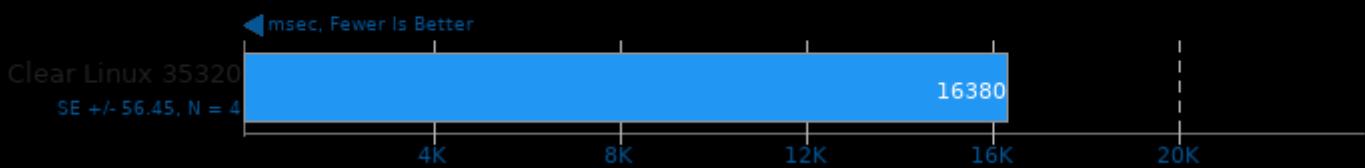
## DaCapo Benchmark 9.12-MR1

Java Test: Jython



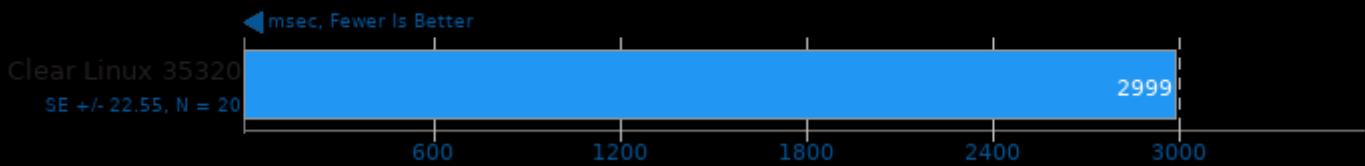
## DaCapo Benchmark 9.12-MR1

Java Test: Eclipse



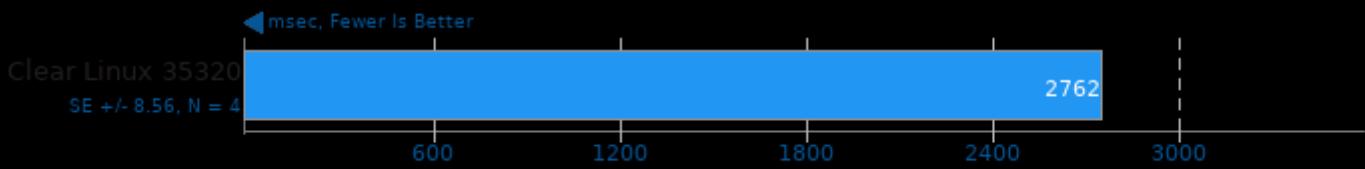
## DaCapo Benchmark 9.12-MR1

Java Test: Tradesoap



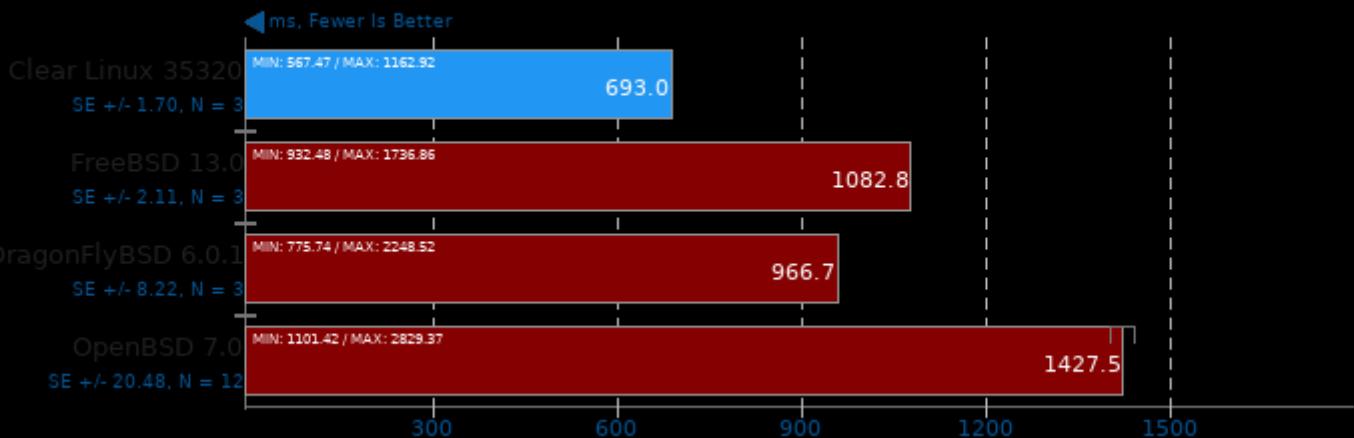
## DaCapo Benchmark 9.12-MR1

Java Test: Tradebeans



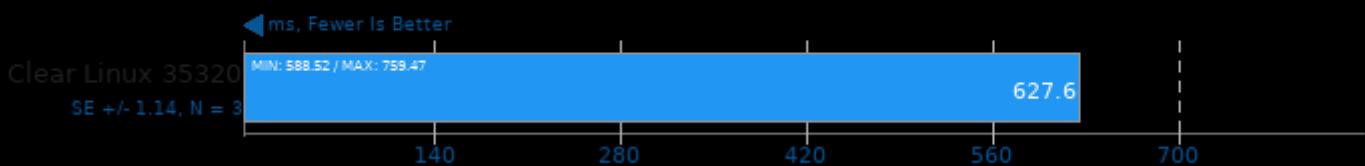
## Renaissance 0.12

Test: Scala Dotty



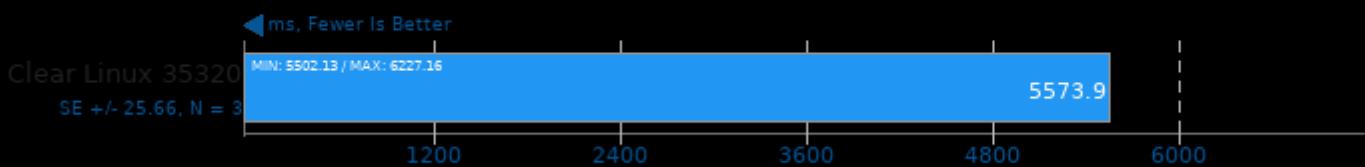
## Renaissance 0.12

Test: Random Forest



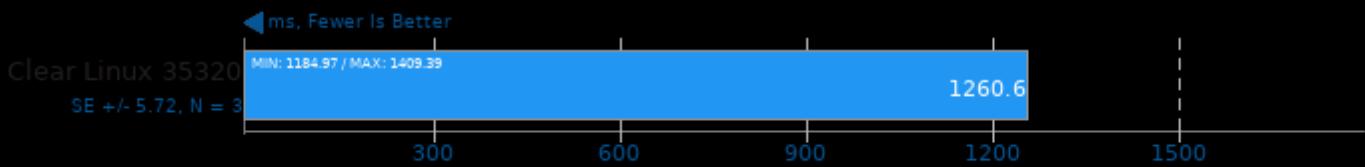
## Renaissance 0.12

Test: ALS Movie Lens



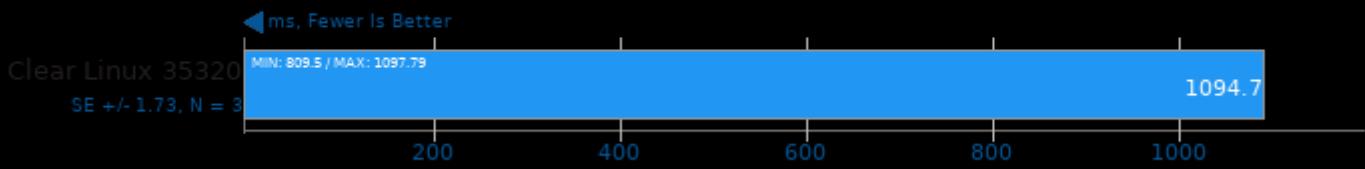
## Renaissance 0.12

Test: Apache Spark ALS



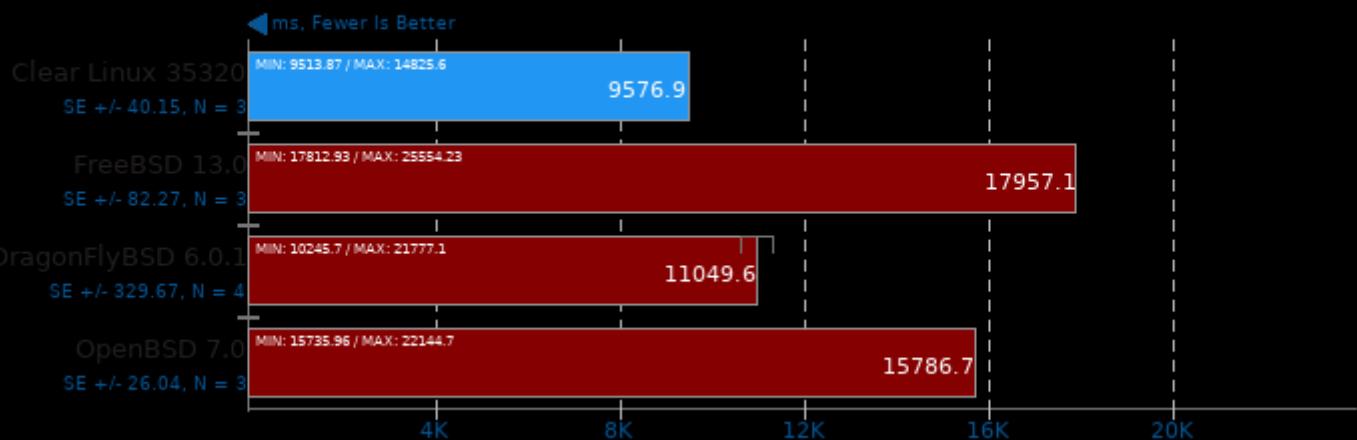
## Renaissance 0.12

Test: Apache Spark Bayes



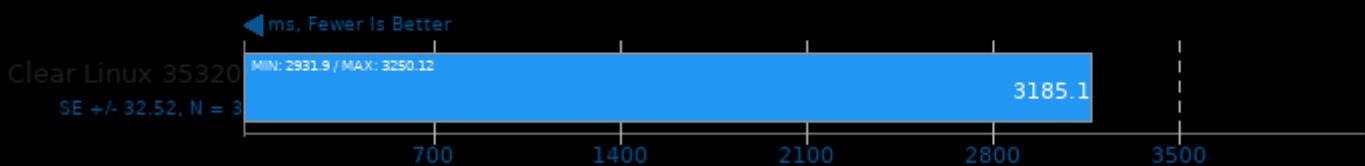
## Renaissance 0.12

Test: Savina Reactors.IO



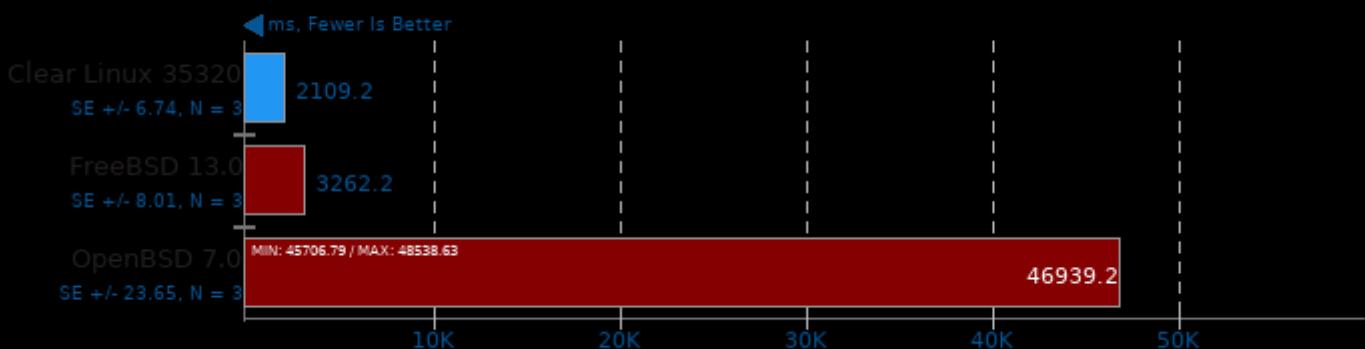
## Renaissance 0.12

Test: Apache Spark PageRank



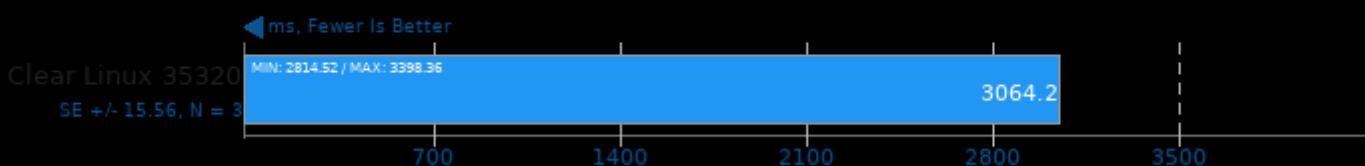
## Renaissance 0.12

Test: Finagle HTTP Requests



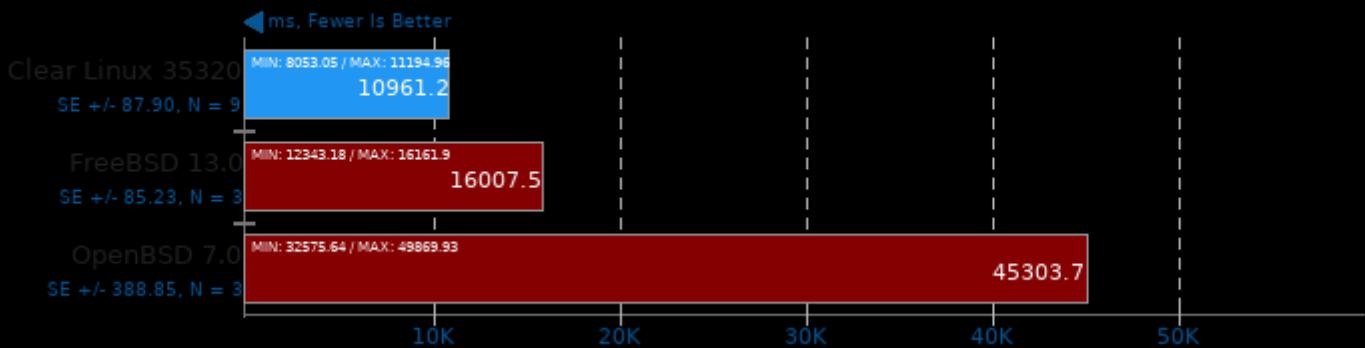
## Renaissance 0.12

Test: In-Memory Database Shootout



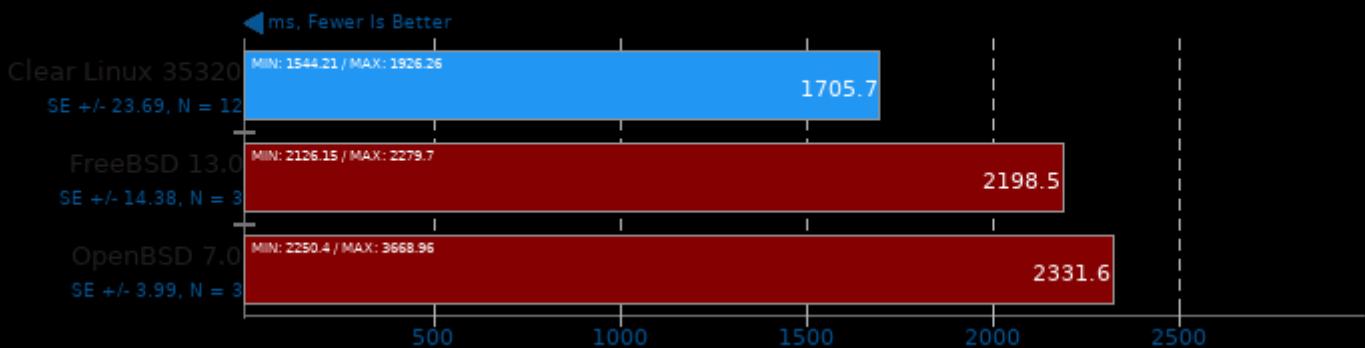
## Renaissance 0.12

Test: Akka Unbalanced Cobwebbed Tree



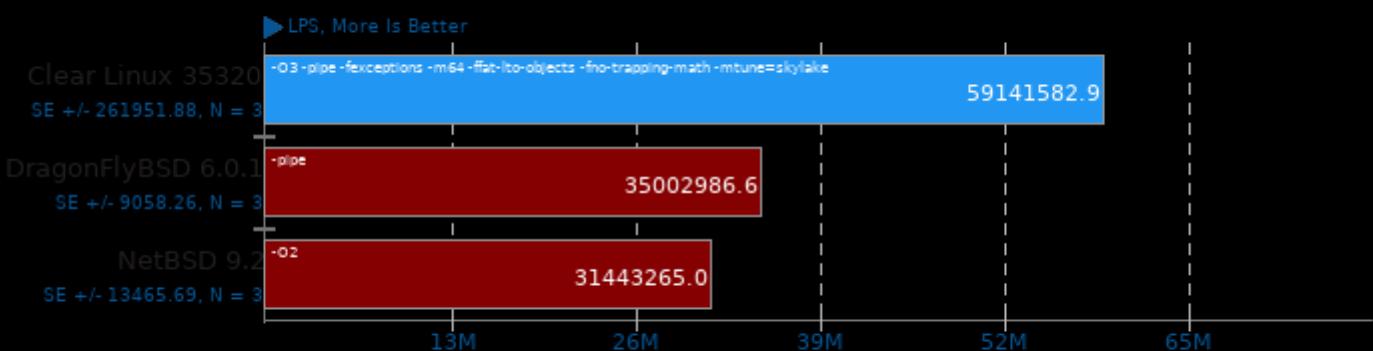
## Renaissance 0.12

Test: Genetic Algorithm Using Jenetics + Futures



## BYTE Unix Benchmark 3.6

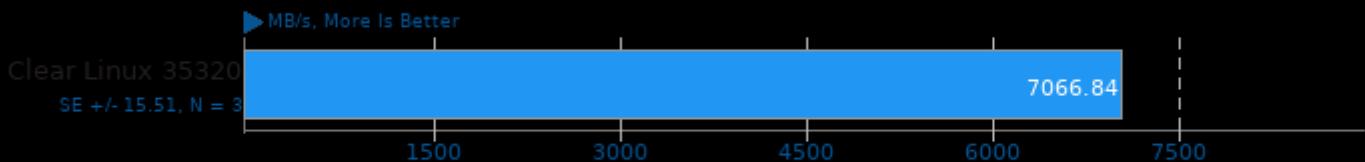
Computational Test: Dhrystone 2



1. (CC) gcc options:

## LZ4 Compression 1.9.3

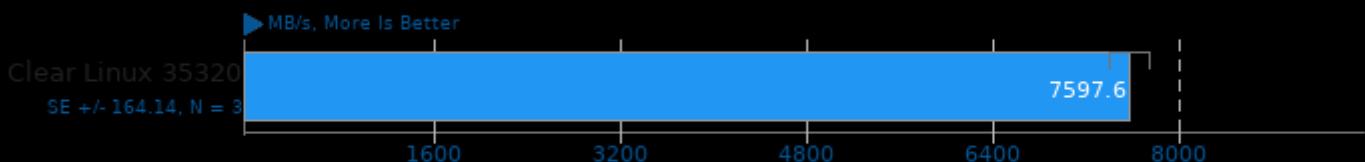
Compression Level: 1 - Compression Speed



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

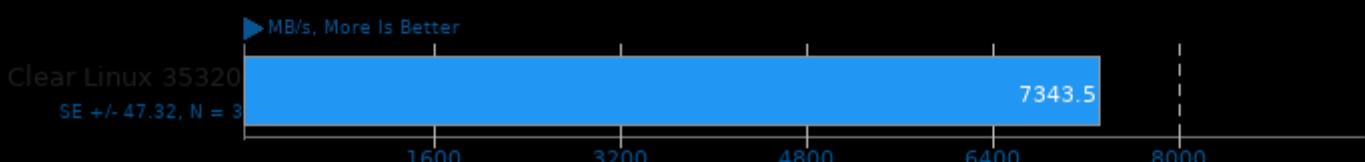
Compression Level: 3 - Compression Speed



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

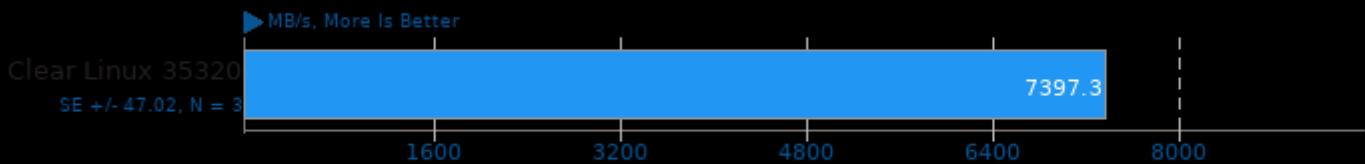
Compression Level: 9 - Compression Speed



1. (CC) gcc options: -O3

## LZ4 Compression 1.9.3

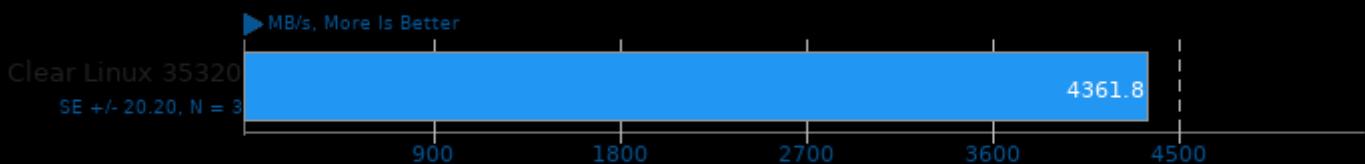
Compression Level: 9 - Decompression Speed



1. (CC) gcc options: -O3

## Zstd Compression 1.5.0

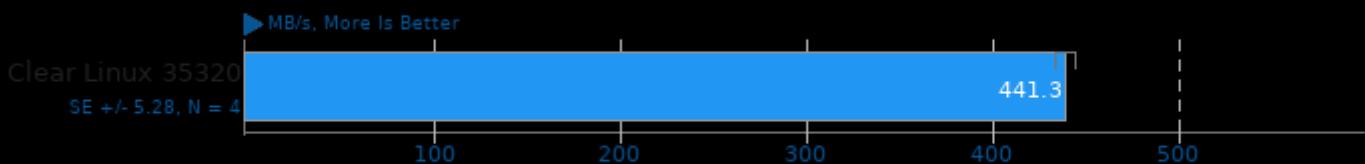
Compression Level: 3 - Compression Speed



1. (CC) gcc options: -O3 -pipe -fexceptions -m64 -ffat-lto-objects -fno-trapping-math -mtune=skylake -pthread -lz

## Zstd Compression 1.5.0

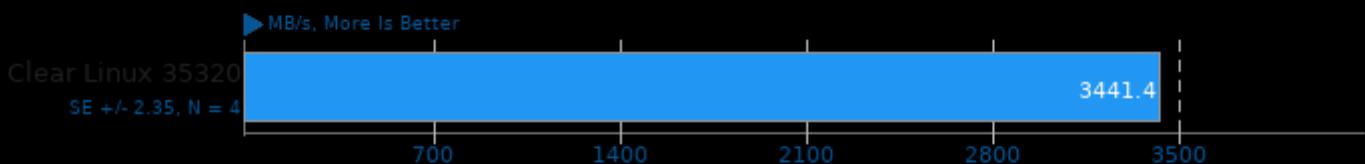
Compression Level: 8 - Compression Speed



1. (CC) gcc options: -O3 -pipe -fexceptions -m64 -ffat-lto-objects -fno-trapping-math -mtune=skylake -pthread -lz

## Zstd Compression 1.5.0

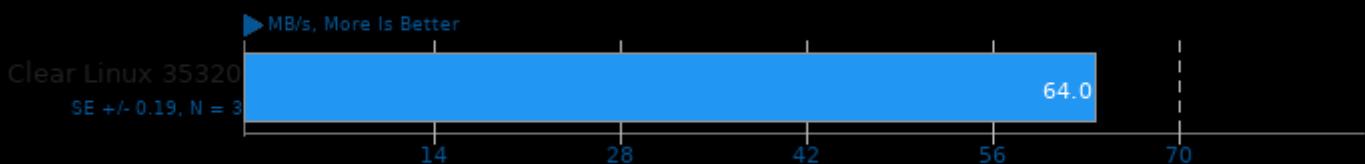
Compression Level: 8 - Decompression Speed



1. (CC) gcc options: -O3 -pipe -fexceptions -m64 -ffat-lto-objects -fno-trapping-math -mtune=skylake -pthread -lz

## Zstd Compression 1.5.0

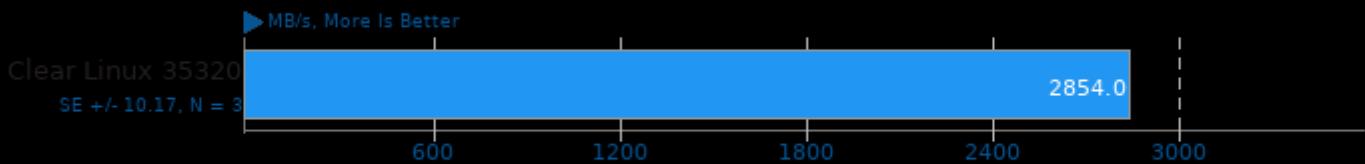
Compression Level: 19 - Compression Speed



1. (CC) gcc options: -O3 -pipe -fexceptions -m64 -ffat-lto-objects -fno-trapping-math -mtune=skylake -pthread -lz

## Zstd Compression 1.5.0

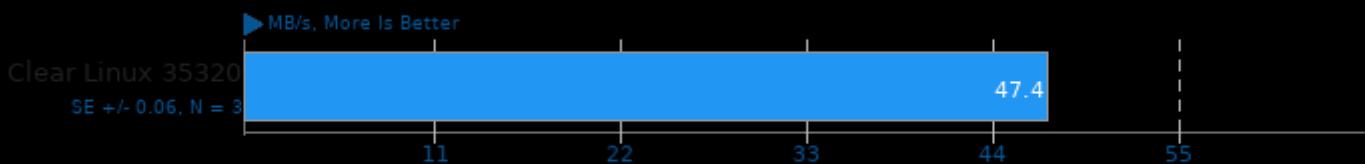
Compression Level: 19 - Decompression Speed



1. (CC) gcc options: -O3 -pipe -fexceptions -m64 -ffat-lto-objects -fno-trapping-math -mtune=skylake -pthread -lz

## Zstd Compression 1.5.0

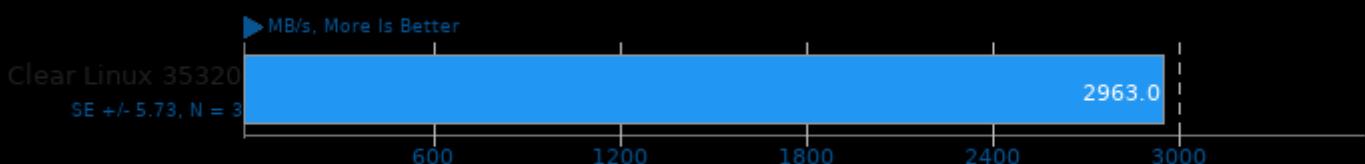
Compression Level: 19, Long Mode - Compression Speed



1. (CC) gcc options: -O3 -pipe -fexceptions -m64 -ffat-lto-objects -fno-trapping-math -mtune=skylake -pthread -lz

## Zstd Compression 1.5.0

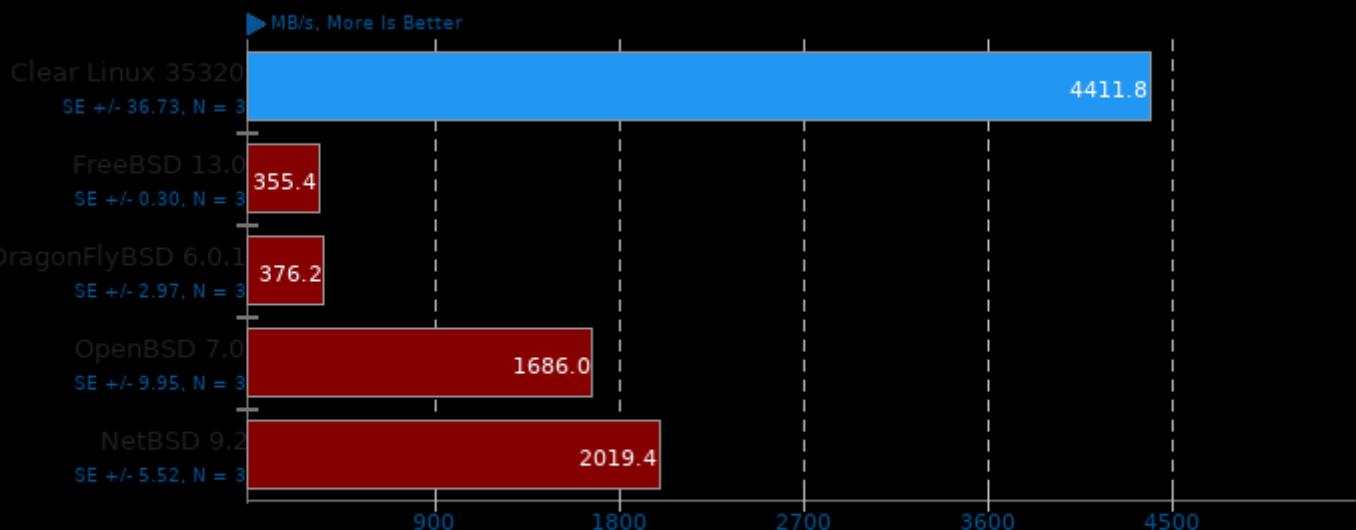
Compression Level: 19, Long Mode - Decompression Speed



1. (CC) gcc options: -O3 -pipe -fexceptions -m64 -ffat-lto-objects -fno-trapping-math -mtune=skylake -pthread -lz

## Zstd Compression

Compression Level: 3 - Compression Speed



1. Clear Linux 35320: \*\*\* zstd command line interface 64-bits v1.5.0, by Yann Collet \*\*\*

2. FreeBSD 13.0: \*\*\* zstd command line interface 64-bits v1.4.8, by Yann Collet \*\*\*

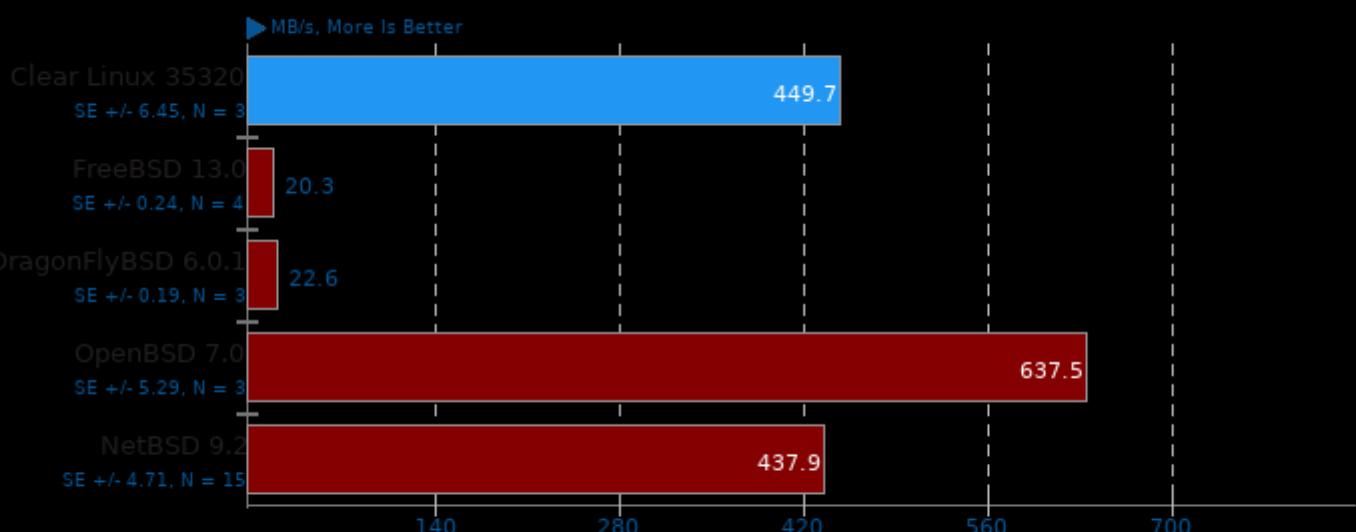
3. DragonFlyBSD 6.0.1: \*\*\* zstd command line interface 64-bits v1.4.8, by Yann Collet \*\*\*

4. OpenBSD 7.0: \*\*\* zstd command line interface 64-bits v1.5.0, by Yann Collet \*\*\*

5. NetBSD 9.2: \*\*\* zstd command line interface 64-bits v1.5.0, by Yann Collet \*\*\*

## Zstd Compression

Compression Level: 8 - Compression Speed



1. Clear Linux 35320: \*\*\* zstd command line interface 64-bits v1.5.0, by Yann Collet \*\*\*

2. FreeBSD 13.0: \*\*\* zstd command line interface 64-bits v1.4.8, by Yann Collet \*\*\*

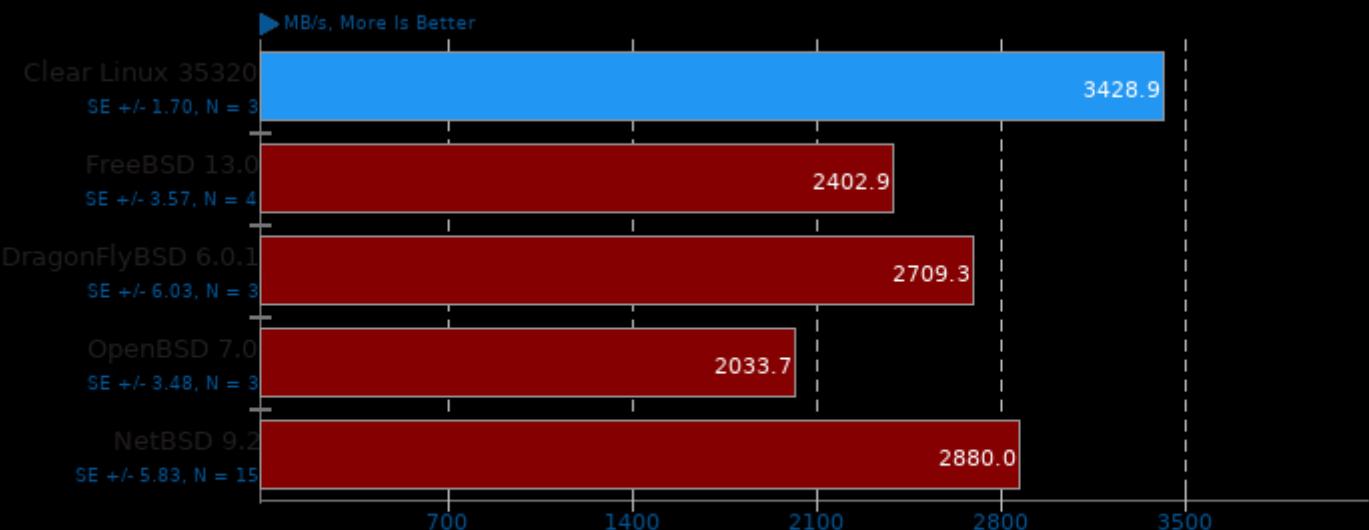
3. DragonFlyBSD 6.0.1: \*\*\* zstd command line interface 64-bits v1.4.8, by Yann Collet \*\*\*

4. OpenBSD 7.0: \*\*\* zstd command line interface 64-bits v1.5.0, by Yann Collet \*\*\*

5. NetBSD 9.2: \*\*\* zstd command line interface 64-bits v1.5.0, by Yann Collet \*\*\*

## Zstd Compression

Compression Level: 8 - Decompression Speed



1. Clear Linux 35320: \*\*\* zstd command line interface 64-bits v1.5.0, by Yann Collet \*\*\*

2. FreeBSD 13.0: \*\*\* zstd command line interface 64-bits v1.4.8, by Yann Collet \*\*\*

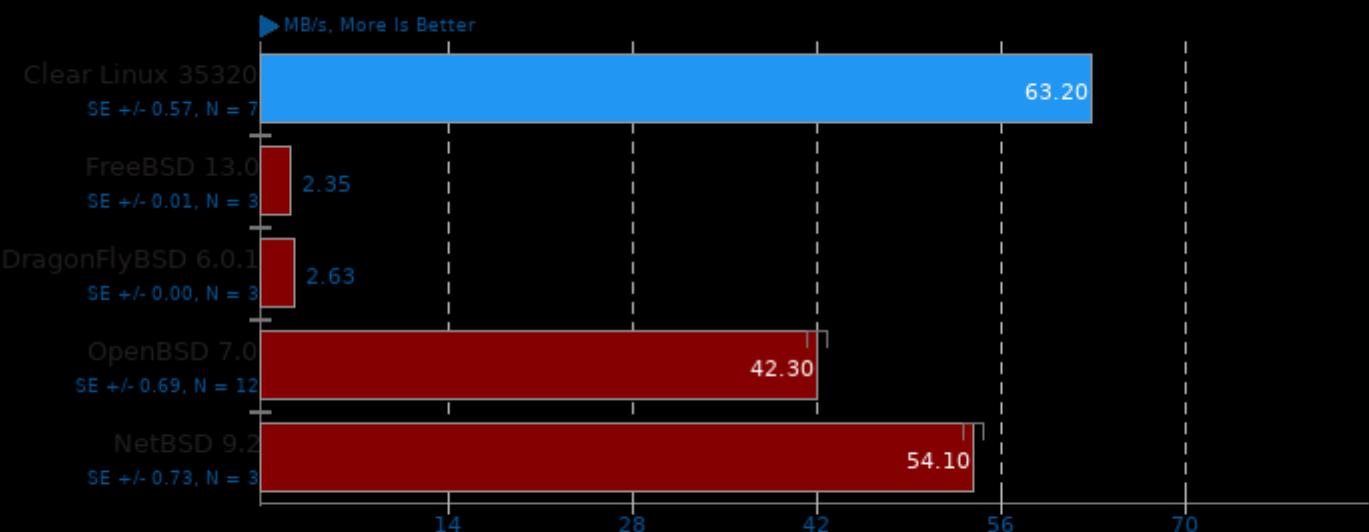
3. DragonFlyBSD 6.0.1: \*\*\* zstd command line interface 64-bits v1.4.8, by Yann Collet \*\*\*

4. OpenBSD 7.0: \*\*\* zstd command line interface 64-bits v1.5.0, by Yann Collet \*\*\*

5. NetBSD 9.2: \*\*\* zstd command line interface 64-bits v1.5.0, by Yann Collet \*\*\*

## Zstd Compression

Compression Level: 19 - Compression Speed



1. Clear Linux 35320: \*\*\* zstd command line interface 64-bits v1.5.0, by Yann Collet \*\*\*

2. FreeBSD 13.0: \*\*\* zstd command line interface 64-bits v1.4.8, by Yann Collet \*\*\*

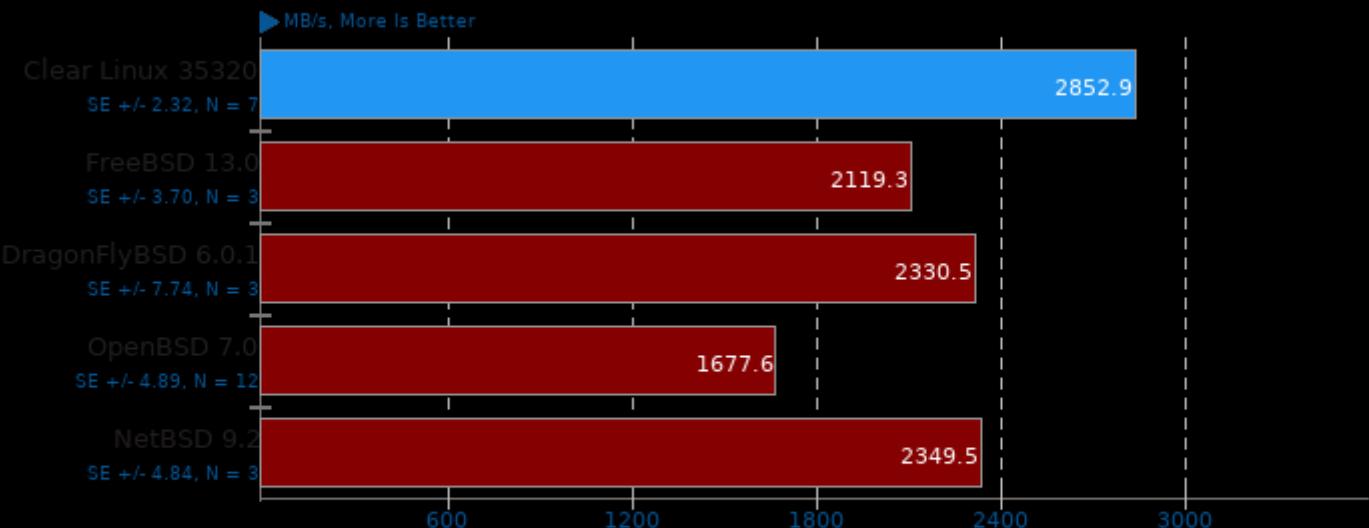
3. DragonFlyBSD 6.0.1: \*\*\* zstd command line interface 64-bits v1.4.8, by Yann Collet \*\*\*

4. OpenBSD 7.0: \*\*\* zstd command line interface 64-bits v1.5.0, by Yann Collet \*\*\*

5. NetBSD 9.2: \*\*\* zstd command line interface 64-bits v1.5.0, by Yann Collet \*\*\*

## Zstd Compression

Compression Level: 19 - Decompression Speed



1. Clear Linux 35320: \*\*\* zstd command line interface 64-bits v1.5.0, by Yann Collet \*\*\*

2. FreeBSD 13.0: \*\*\* zstd command line interface 64-bits v1.4.8, by Yann Collet \*\*\*

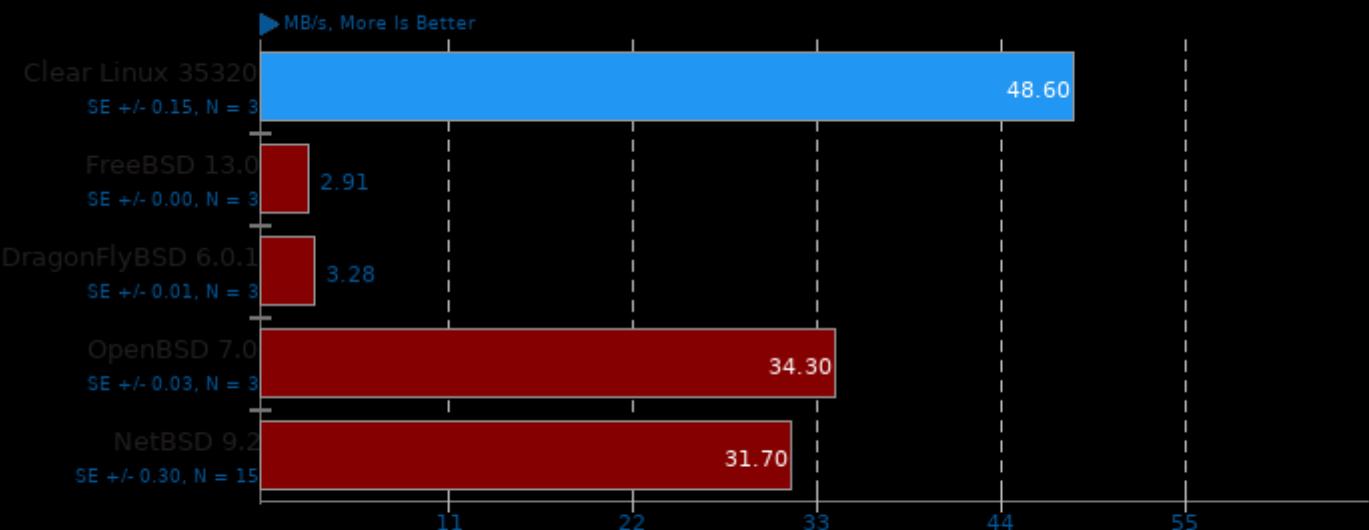
3. DragonFlyBSD 6.0.1: \*\*\* zstd command line interface 64-bits v1.4.8, by Yann Collet \*\*\*

4. OpenBSD 7.0: \*\*\* zstd command line interface 64-bits v1.5.0, by Yann Collet \*\*\*

5. NetBSD 9.2: \*\*\* zstd command line interface 64-bits v1.5.0, by Yann Collet \*\*\*

## Zstd Compression

Compression Level: 19, Long Mode - Compression Speed



1. Clear Linux 35320: \*\*\* zstd command line interface 64-bits v1.5.0, by Yann Collet \*\*\*

2. FreeBSD 13.0: \*\*\* zstd command line interface 64-bits v1.4.8, by Yann Collet \*\*\*

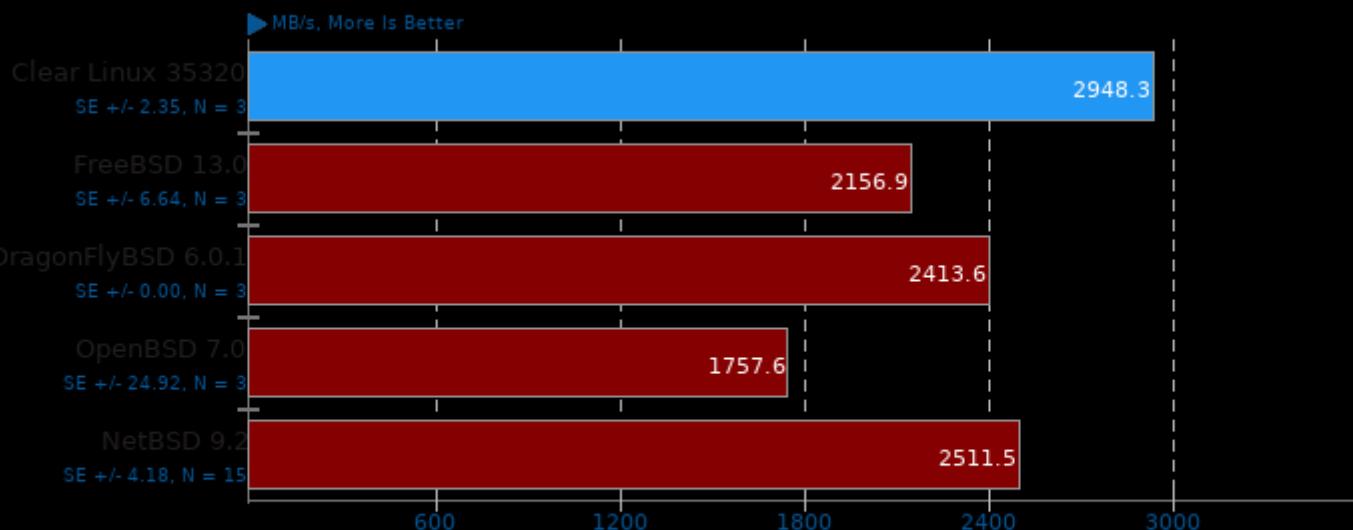
3. DragonFlyBSD 6.0.1: \*\*\* zstd command line interface 64-bits v1.4.8, by Yann Collet \*\*\*

4. OpenBSD 7.0: \*\*\* zstd command line interface 64-bits v1.5.0, by Yann Collet \*\*\*

5. NetBSD 9.2: \*\*\* zstd command line interface 64-bits v1.5.0, by Yann Collet \*\*\*

## Zstd Compression

Compression Level: 19, Long Mode - Decompression Speed



1. Clear Linux 35320: \*\*\* zstd command line interface 64-bits v1.5.0, by Yann Collet \*\*\*

2. FreeBSD 13.0: \*\*\* zstd command line interface 64-bits v1.4.8, by Yann Collet \*\*\*

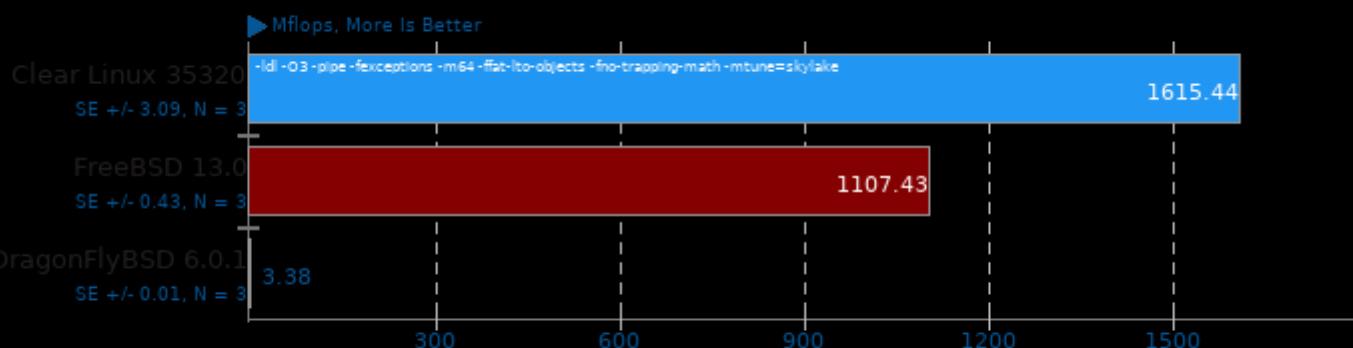
3. DragonFlyBSD 6.0.1: \*\*\* zstd command line interface 64-bits v1.4.8, by Yann Collet \*\*\*

4. OpenBSD 7.0: \*\*\* zstd command line interface 64-bits v1.5.0, by Yann Collet \*\*\*

5. NetBSD 9.2: \*\*\* zstd command line interface 64-bits v1.5.0, by Yann Collet \*\*\*

## LuajIT 2.1-git

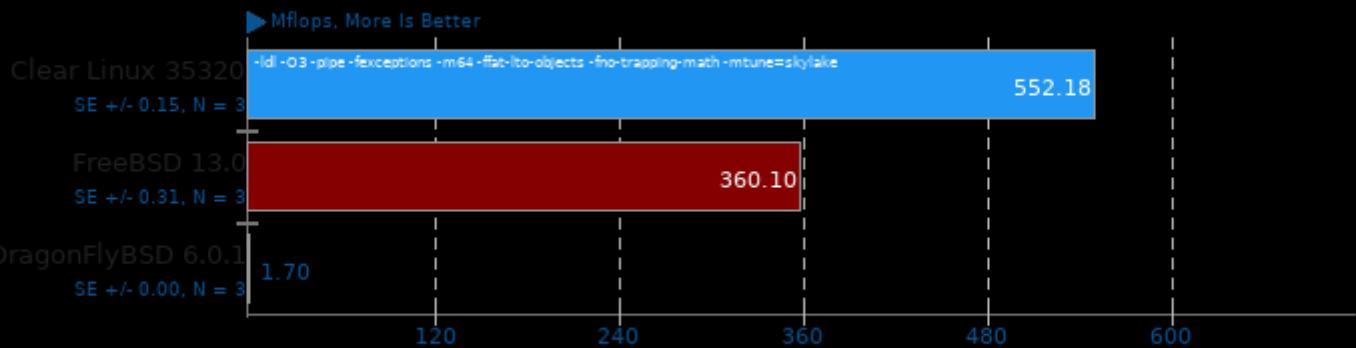
Test: Composite



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

## LuaJIT 2.1-git

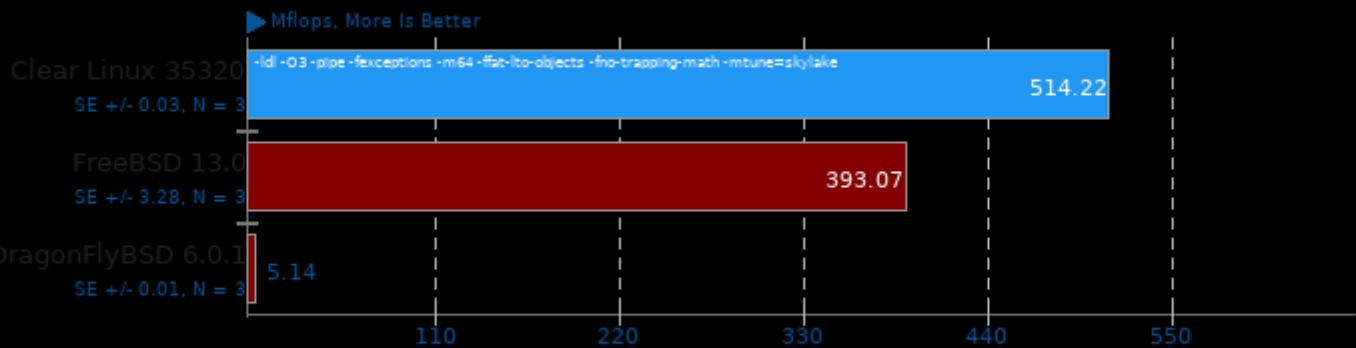
Test: Monte Carlo



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

## LuaJIT 2.1-git

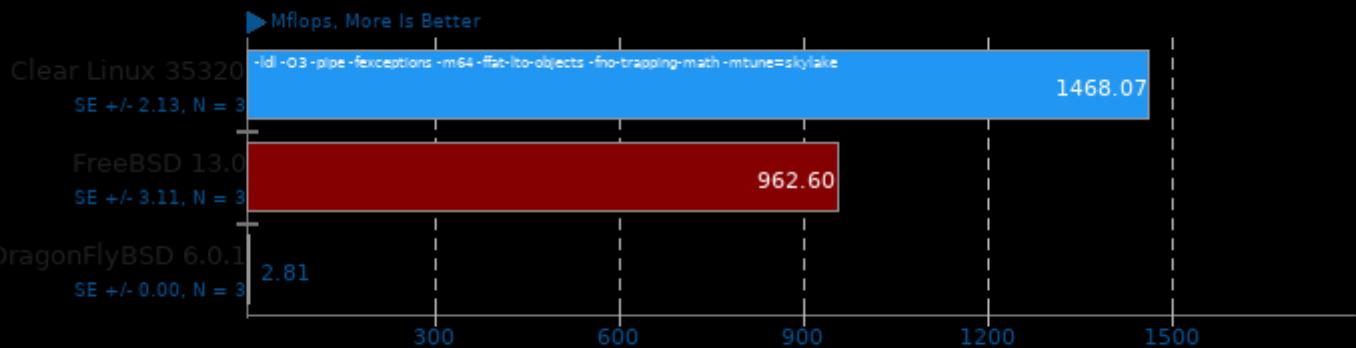
Test: Fast Fourier Transform



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

## LuaJIT 2.1-git

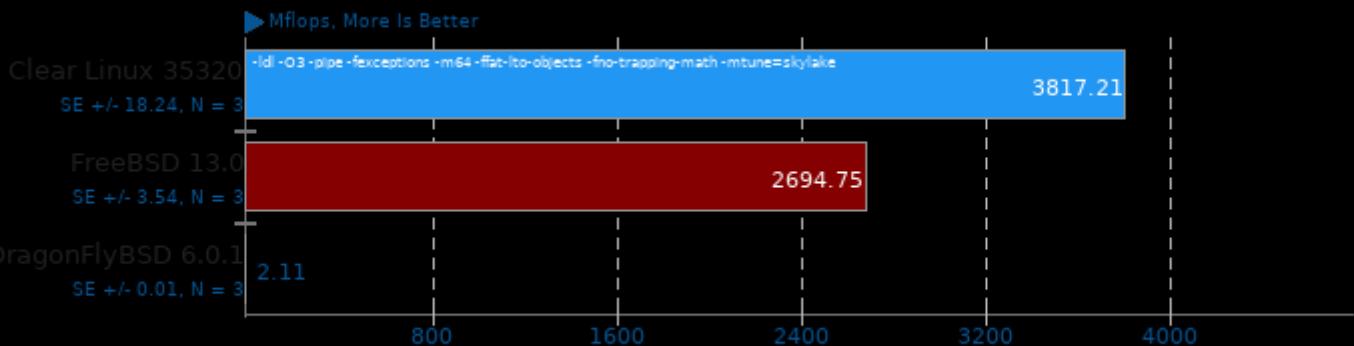
Test: Sparse Matrix Multiply



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

## LuaJIT 2.1-git

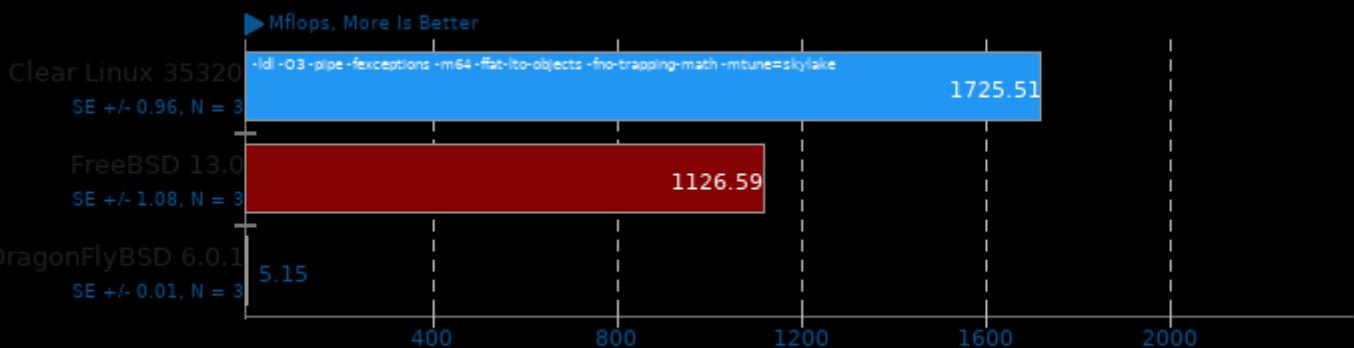
Test: Dense LU Matrix Factorization



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

## LuaJIT 2.1-git

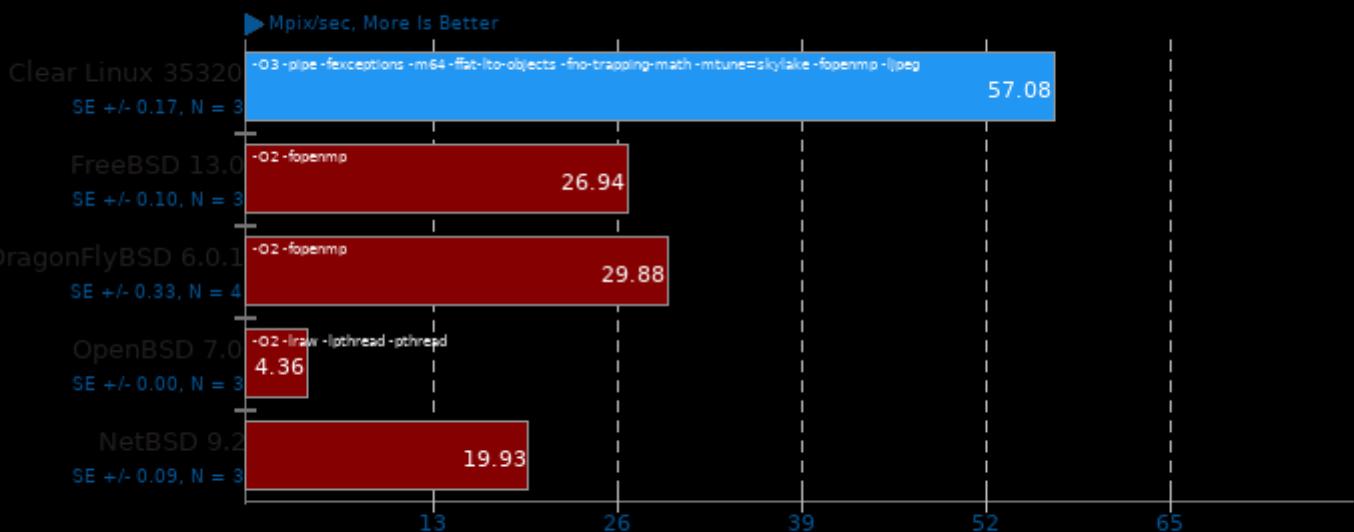
Test: Jacobi Successive Over-Relaxation



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

## LibRaw 0.20

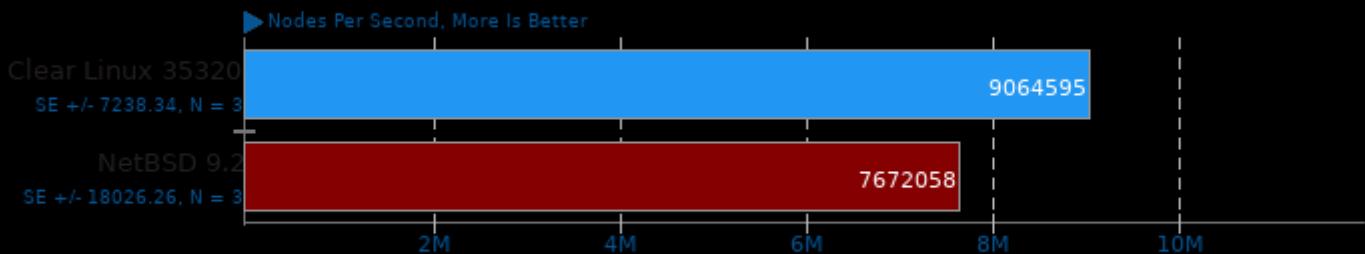
Post-Processing Benchmark



1. (CXX) g++ options: -lz -ljpeg -lcms2 -lm

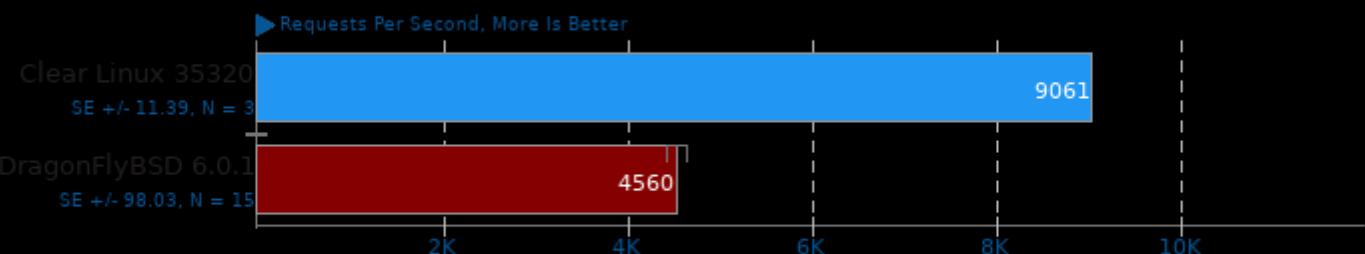
## Crafty 25.2

Elapsed Time



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

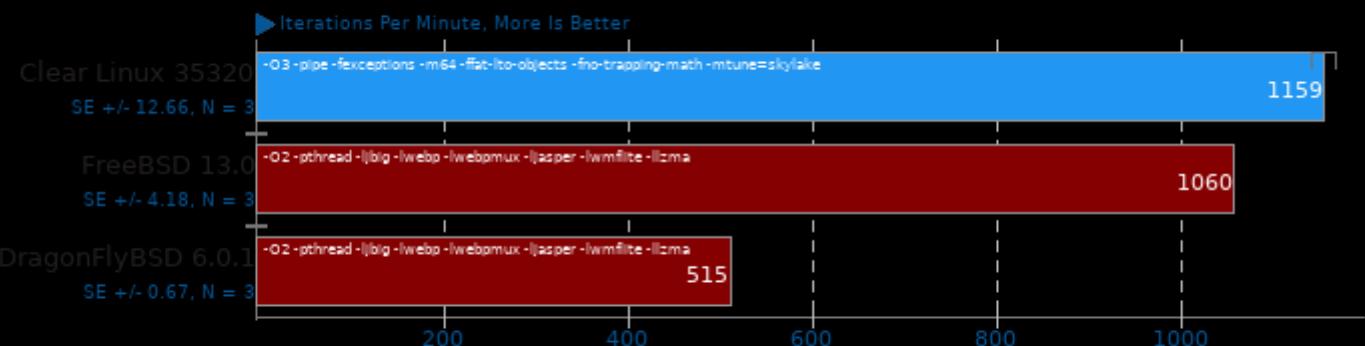
## Node.js Express HTTP Load Test



1. Nodejs

## GraphicsMagick 1.3.33

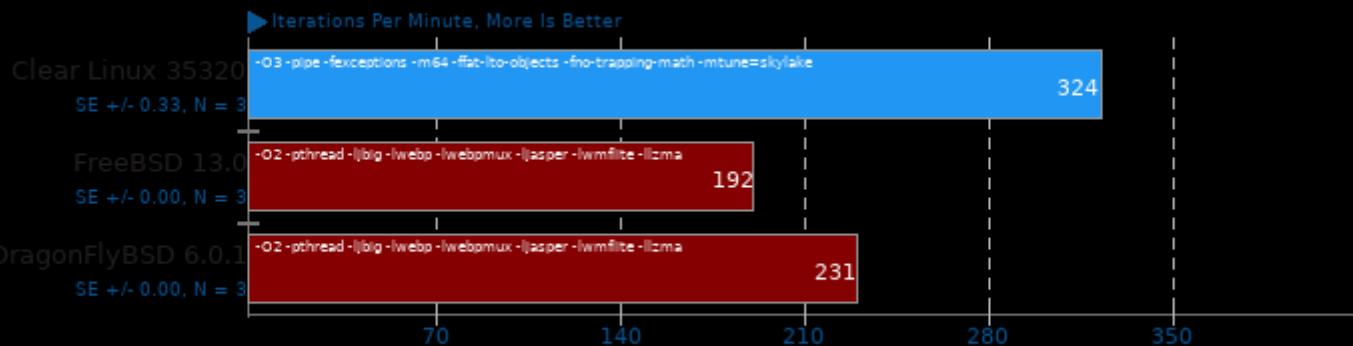
Operation: Rotate



1. (CC) gcc options: -fopenmp -lcms2 -ltiff -lfreetype -ljpeg -lXext -lSM -lICE -lX11 -bz2 -lxml2 -lz -lm -pthread

## GraphicsMagick 1.3.33

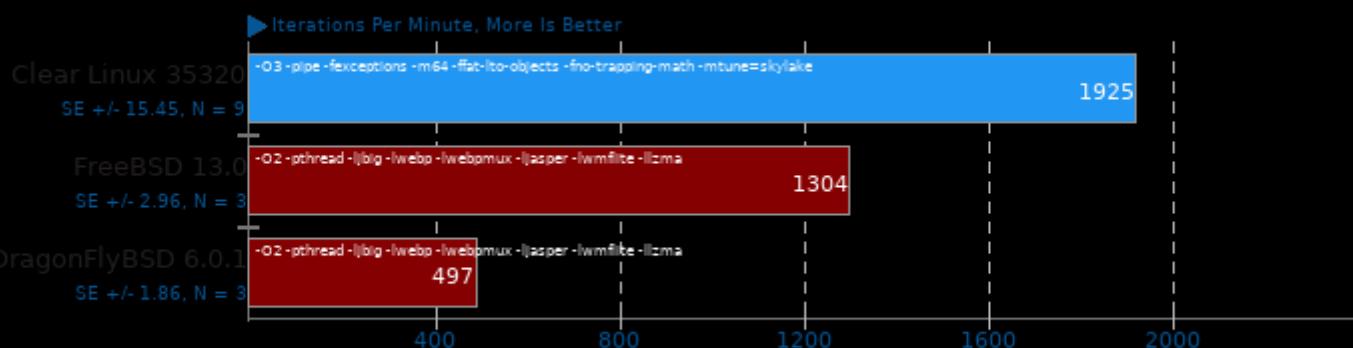
Operation: Sharpen



1. (CC) gcc options: -fopenmp -lcms2 -ltiff -lfreetype -jpeg -Xext -ISM -ICE -X11 -bz2 -xml2 -lz -lm -pthread

## GraphicsMagick 1.3.33

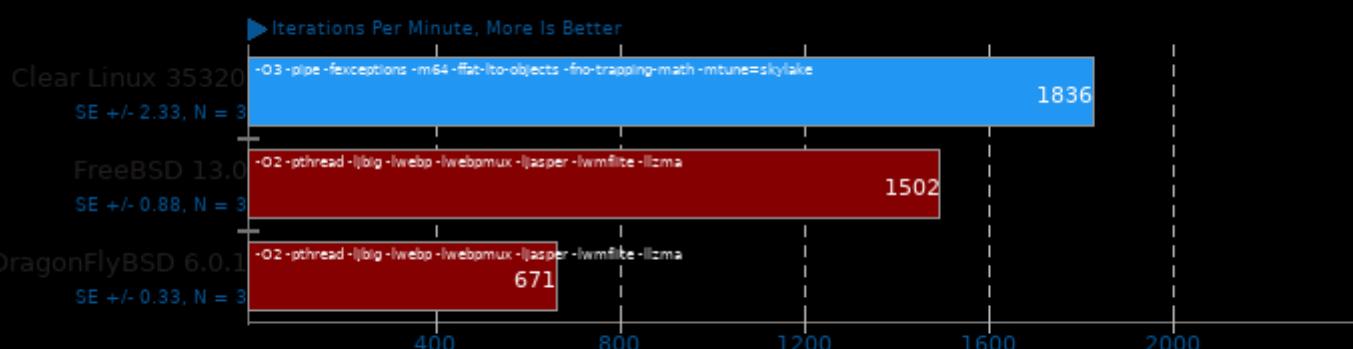
Operation: Resizing



1. (CC) gcc options: -fopenmp -lcms2 -ltiff -lfreetype -jpeg -Xext -ISM -ICE -X11 -bz2 -xml2 -lz -lm -pthread

## GraphicsMagick 1.3.33

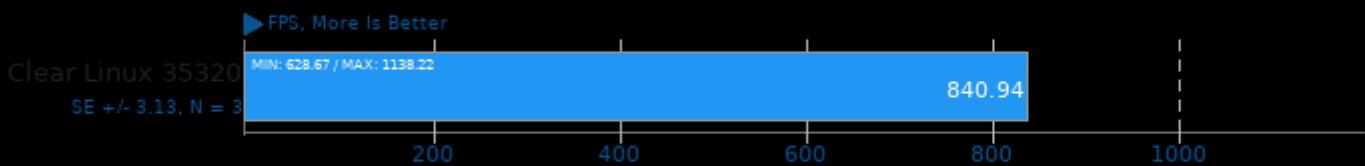
Operation: HWB Color Space



1. (CC) gcc options: -fopenmp -lcms2 -ltiff -lfreetype -jpeg -Xext -ISM -ICE -X11 -bz2 -xml2 -lz -lm -pthread

## dav1d 0.9.2

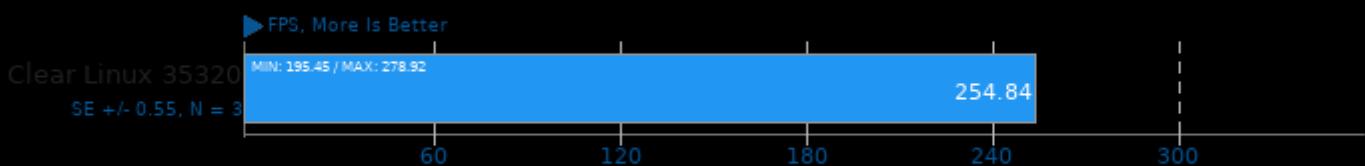
Video Input: Chimera 1080p



1. (CC) gcc options: -O3 -pipe -fexceptions -m64 -ffat-lto-objects -fno-trapping-math -mtune=skylake -pthread -lm

## dav1d 0.9.2

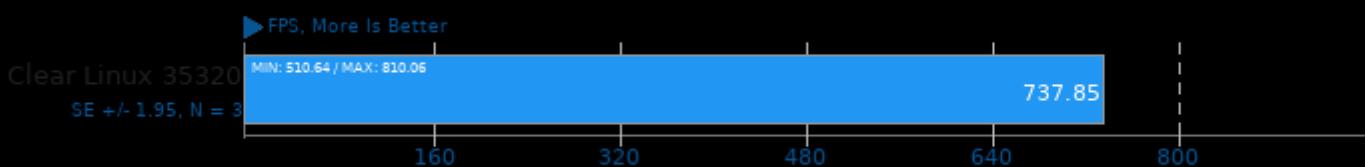
Video Input: Summer Nature 4K



1. (CC) gcc options: -O3 -pipe -fexceptions -m64 -ffat-lto-objects -fno-trapping-math -mtune=skylake -pthread -lm

## dav1d 0.9.2

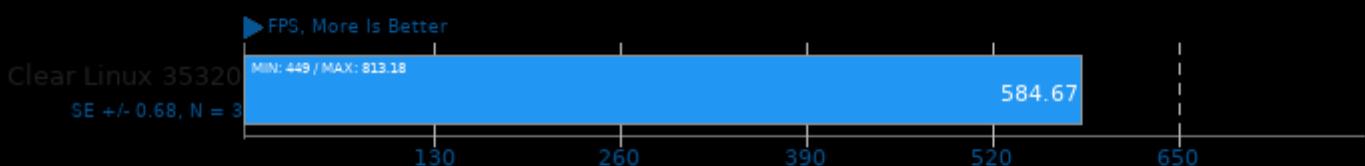
Video Input: Summer Nature 1080p



1. (CC) gcc options: -O3 -pipe -fexceptions -m64 -ffat-lto-objects -fno-trapping-math -mtune=skylake -pthread -lm

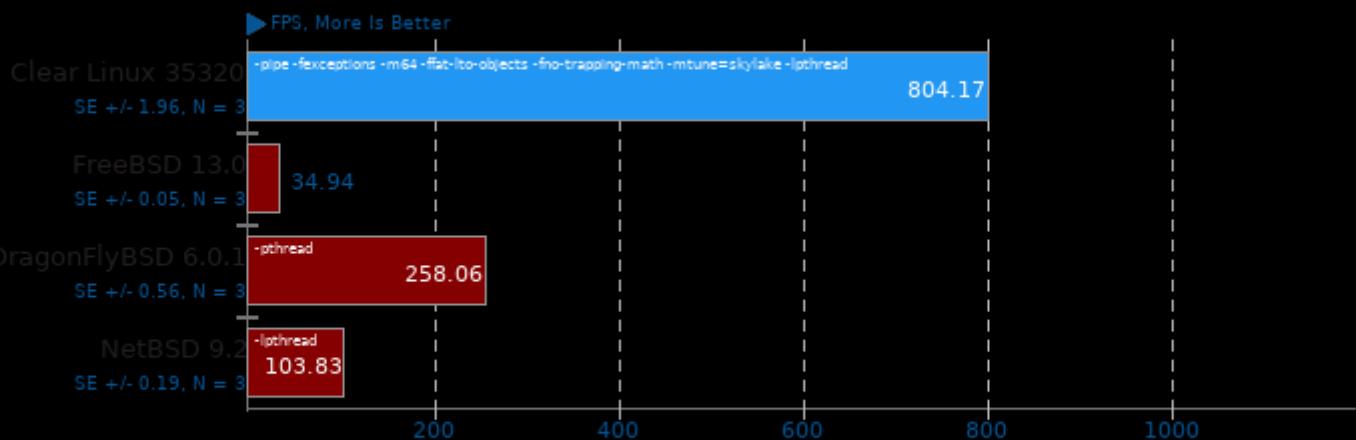
## dav1d 0.9.2

Video Input: Chimera 1080p 10-bit



1. (CC) gcc options: -O3 -pipe -fexceptions -m64 -ffat-lto-objects -fno-trapping-math -mtune=skylake -pthread -lm

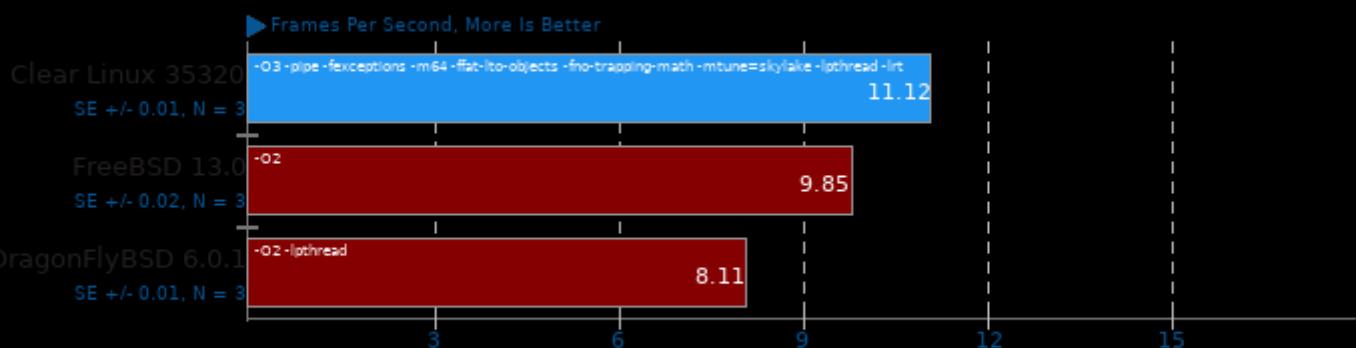
## TTSIOD 3D Renderer 2.3b Phong Rendering With Soft-Shadow Mapping



1. (CXX) g++ options: -O3 -fomit-frame-pointer -ffast-math -mtune=native -flto -msse -mrecip -mfpmath=sse -msse2 -mssse3 -ISDL -fopenmp -fwhole-pr

## Kvazaar 2.1

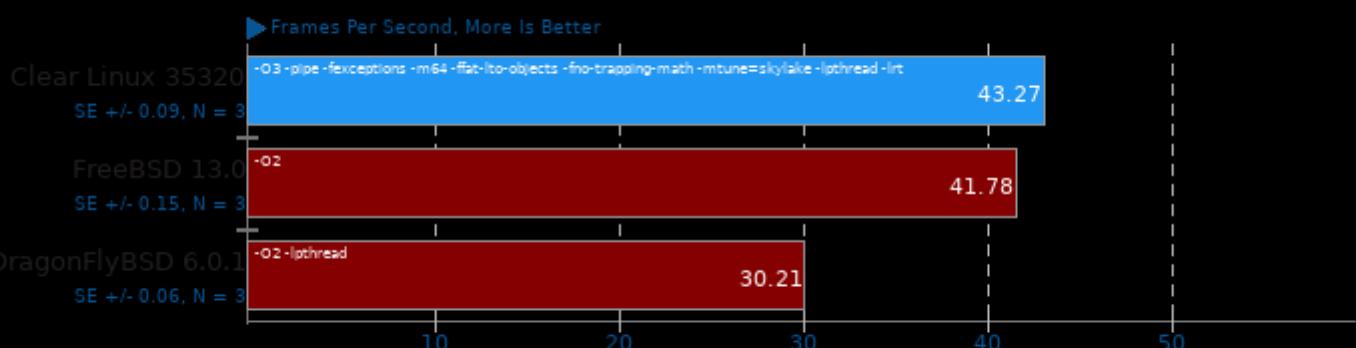
Video Input: Bosphorus 4K - Video Preset: Medium



1. (CC) gcc options: -pthread -ftree-vectorize -visibility=hidden -lm

## Kvazaar 2.1

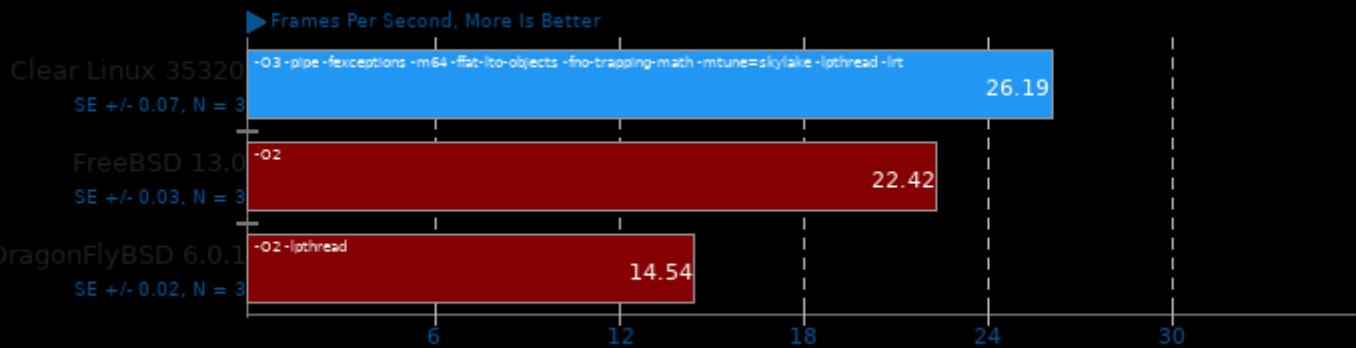
Video Input: Bosphorus 1080p - Video Preset: Medium



1. (CC) gcc options: -pthread -ftree-vectorize -visibility=hidden -lm

## Kvazaar 2.1

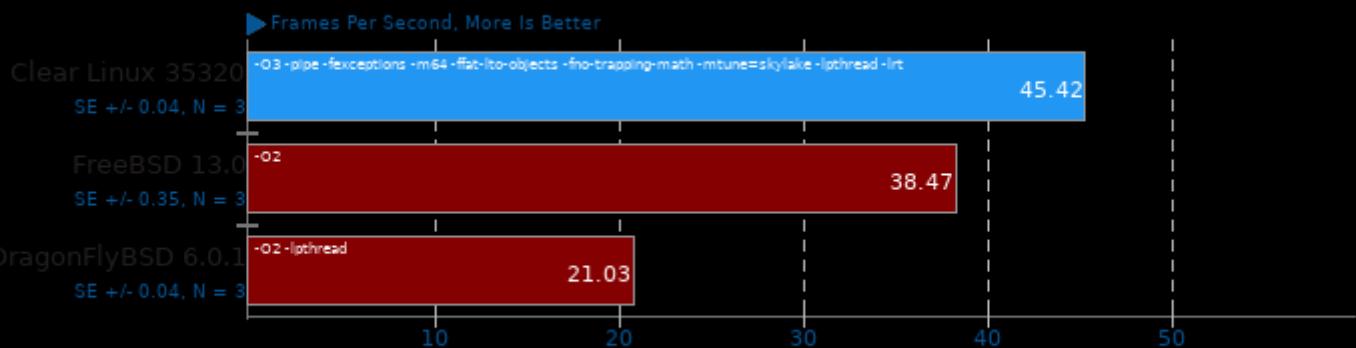
Video Input: Bosphorus 4K - Video Preset: Very Fast



1. (CC) gcc options: -pthread -fno-tree-vectorize -fvisibility=hidden -lm

## Kvazaar 2.1

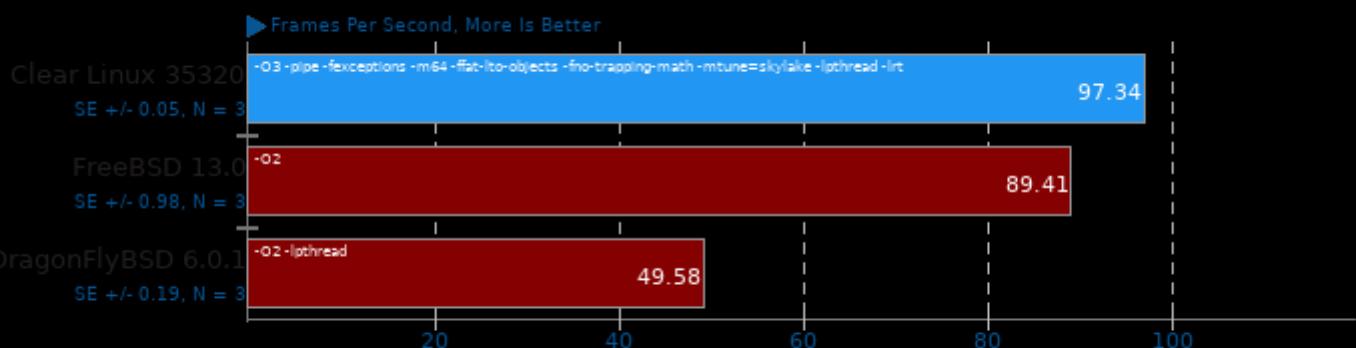
Video Input: Bosphorus 4K - Video Preset: Ultra Fast



1. (CC) gcc options: -pthread -fno-tree-vectorize -fvisibility=hidden -lm

## Kvazaar 2.1

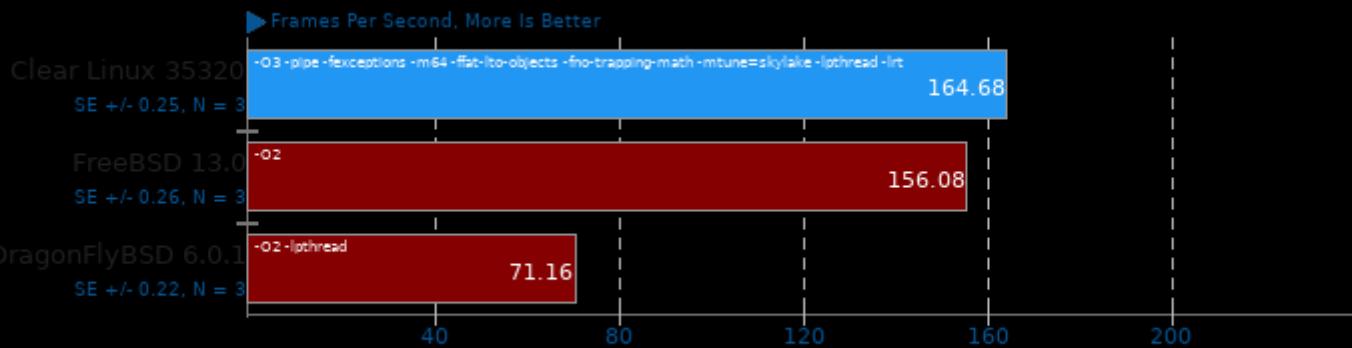
Video Input: Bosphorus 1080p - Video Preset: Very Fast



1. (CC) gcc options: -pthread -fno-tree-vectorize -fvisibility=hidden -lm

## Kvazaar 2.1

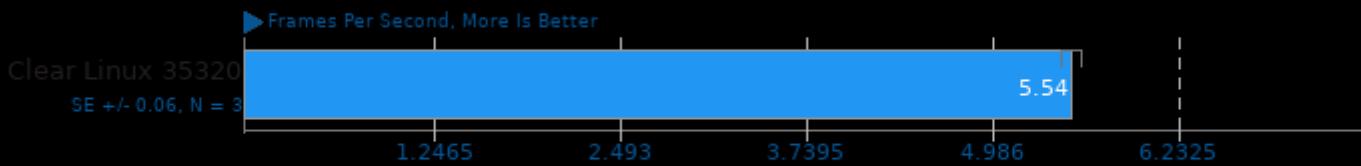
Video Input: Bosphorus 1080p - Video Preset: Ultra Fast



1. (CC) gcc options: -pthread -fno-vectorize -visibility=hidden -lm

## VP9 libvpx Encoding 1.10.0

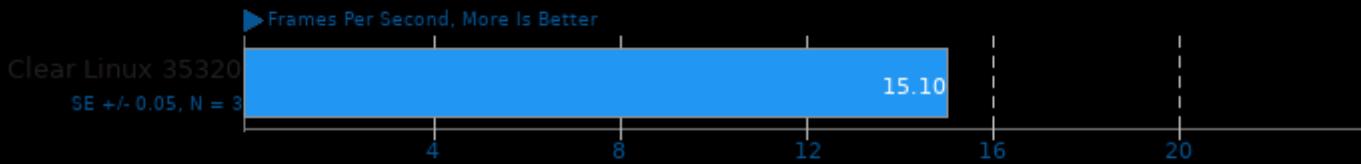
Speed: Speed 0 - Input: Bosphorus 4K



1. (CXX) g++ options: -m64 -lm -lpthread -O3 -pipe -fexceptions -ffat-lto-objects -fno-trapping-math -mtune=skylake -fPIC -std=gnu++11

## VP9 libvpx Encoding 1.10.0

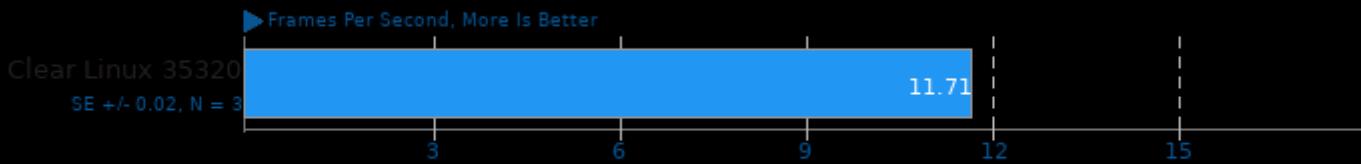
Speed: Speed 5 - Input: Bosphorus 4K



1. (CXX) g++ options: -m64 -lm -lpthread -O3 -pipe -fexceptions -ffat-lto-objects -fno-trapping-math -mtune=skylake -fPIC -std=gnu++11

## VP9 libvpx Encoding 1.10.0

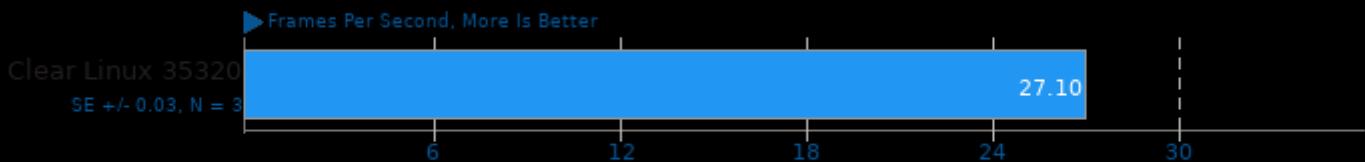
Speed: Speed 0 - Input: Bosphorus 1080p



1. (CXX) g++ options: -m64 -lm -lpthread -O3 -pipe -fexceptions -ffat-lto-objects -fno-trapping-math -mtune=skylake -fPIC -std=gnu++11

## VP9 libvpx Encoding 1.10.0

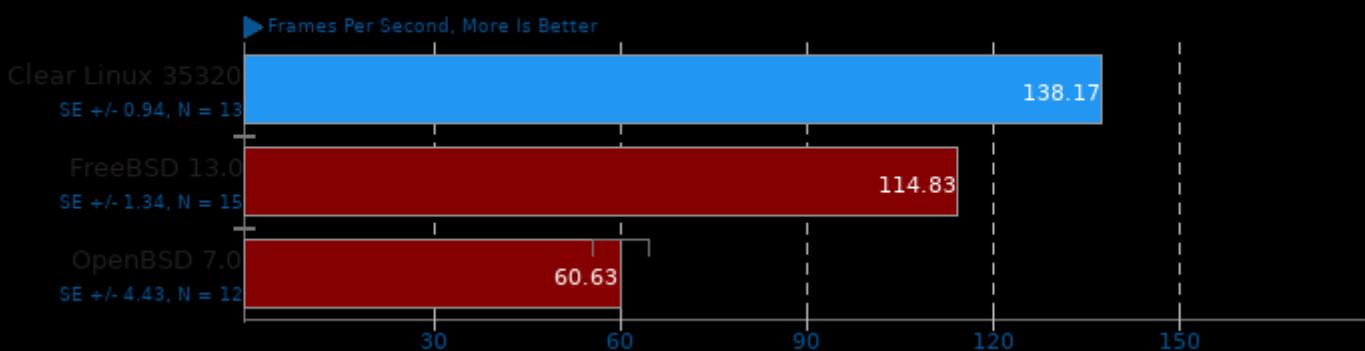
Speed: Speed 5 - Input: Bosphorus 1080p



1. (CXX) g++ options: -m64 -lm -lpthread -O3 -pipe -fexceptions -ffat-lto-objects -fno-trapping-math -mtune=skylake -fPIC -std=gnu++11

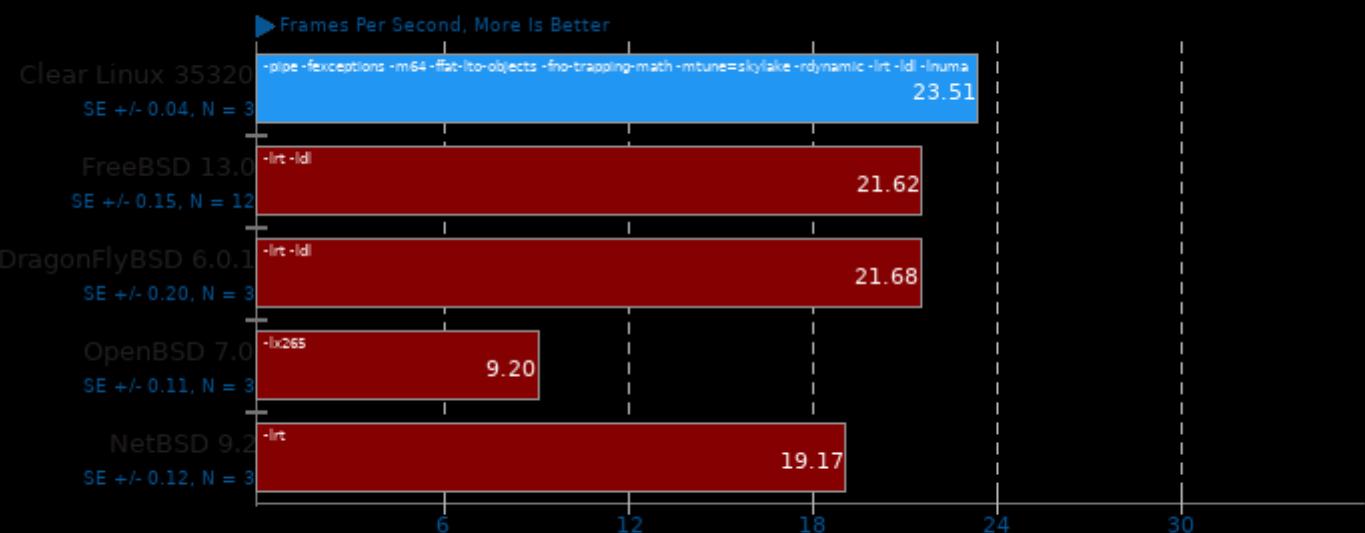
## x264 2019-12-17

H.264 Video Encoding



## x265 3.4

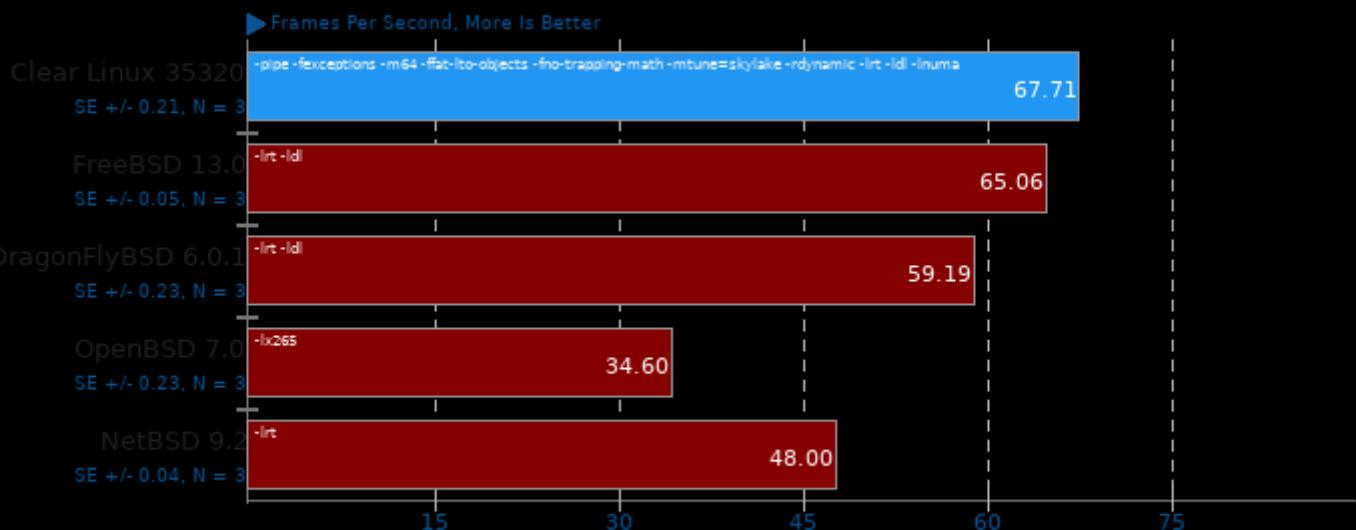
Video Input: Bosphorus 4K



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

### x265 3.4

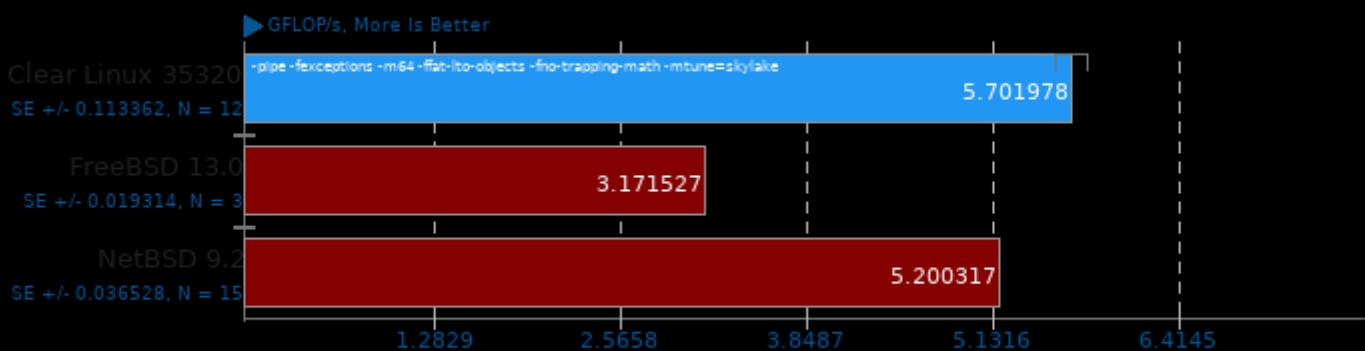
Video Input: Bosphorus 1080p



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

### ACES DGEMM 1.0

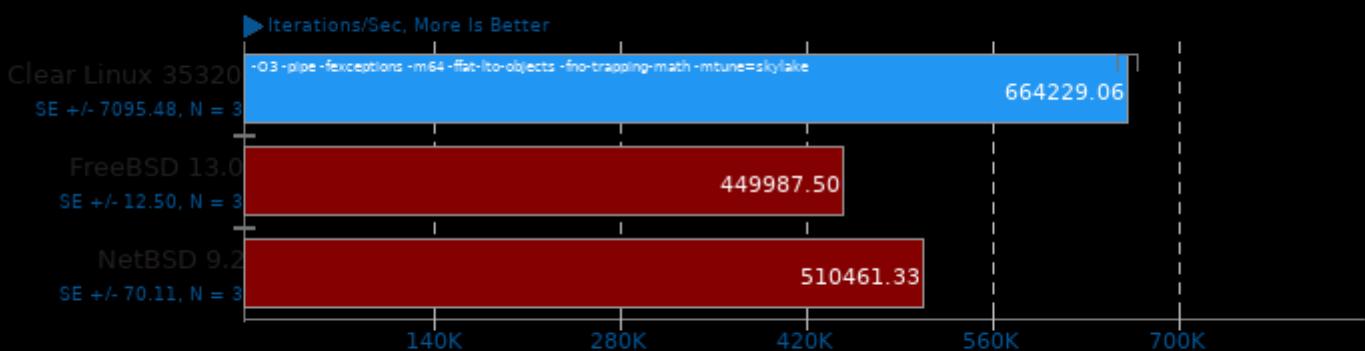
Sustained Floating-Point Rate



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

### Coremark 1.0

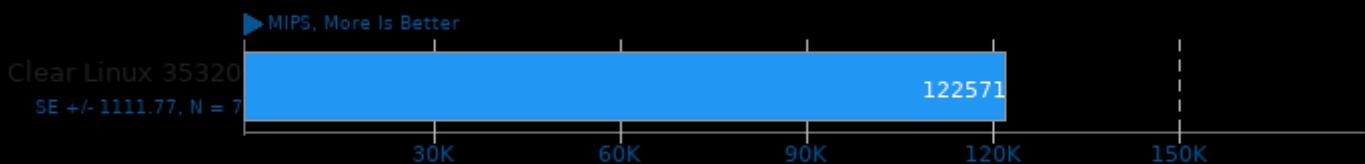
CoreMark Size 666 - Iterations Per Second



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

## 7-Zip Compression 21.06

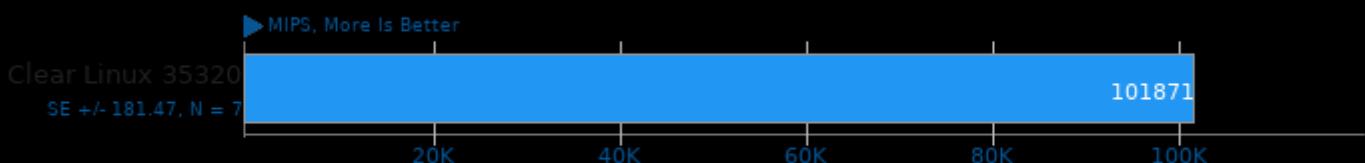
Test: Compression Rating



1. (CXX) g++ options: -fthread -O2 -fPIC

## 7-Zip Compression 21.06

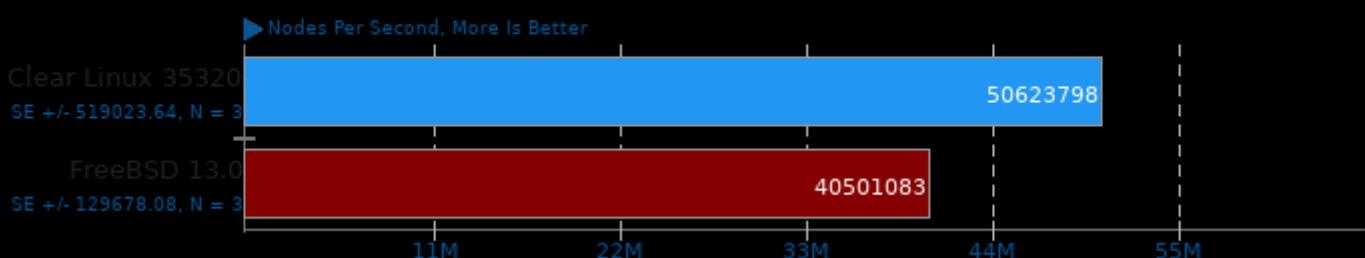
Test: Decompression Rating



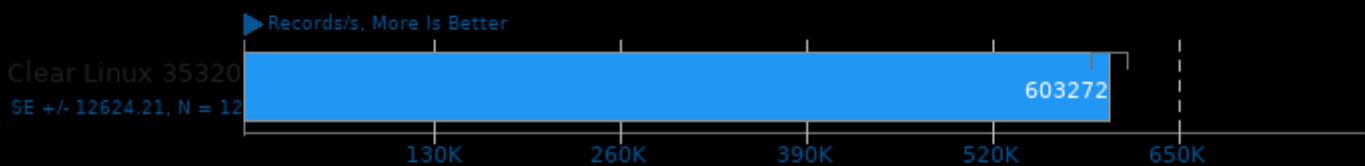
1. (CXX) g++ options: -fthread -O2 -fPIC

## Stockfish 13

Total Time



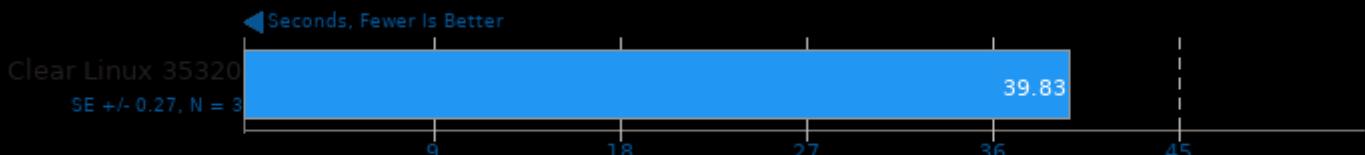
## ebizzy 0.3



1. (CC) gcc options: -fthread -O3 -pipe -fexceptions -m64 -ffat-lto-objects -fno-trapping-math -mtune=skylake -march=native

**libavif avifenc 0.9.0**

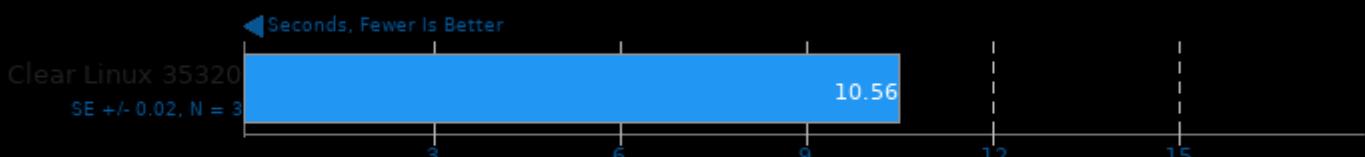
Encoder Speed: 2



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**

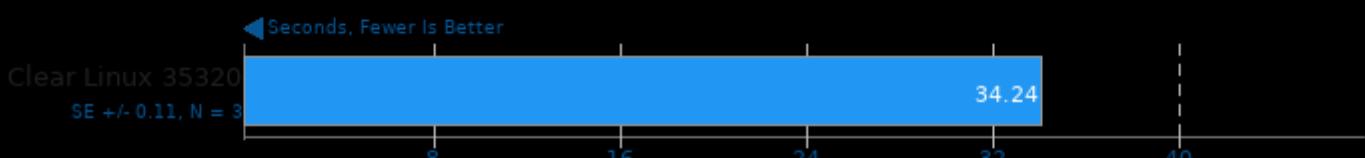
Encoder Speed: 10



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

**libavif avifenc 0.9.0**

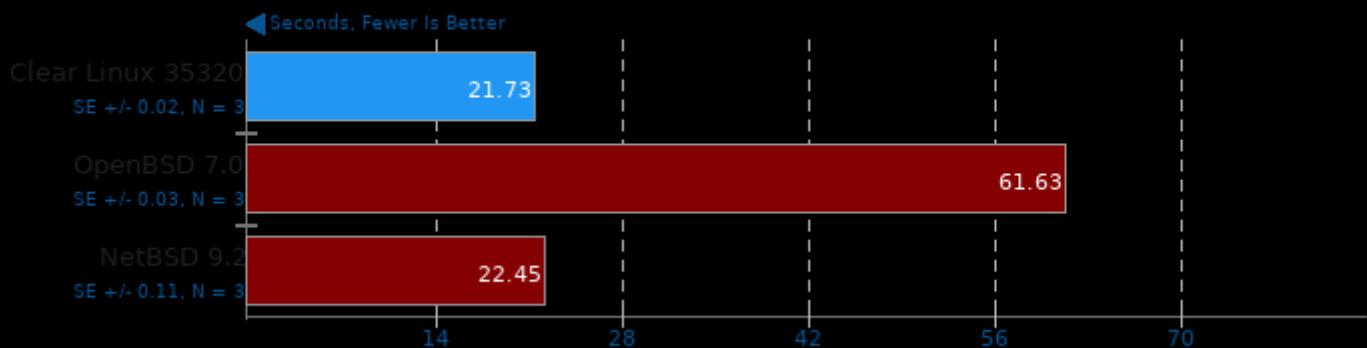
Encoder Speed: 6, Lossless



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

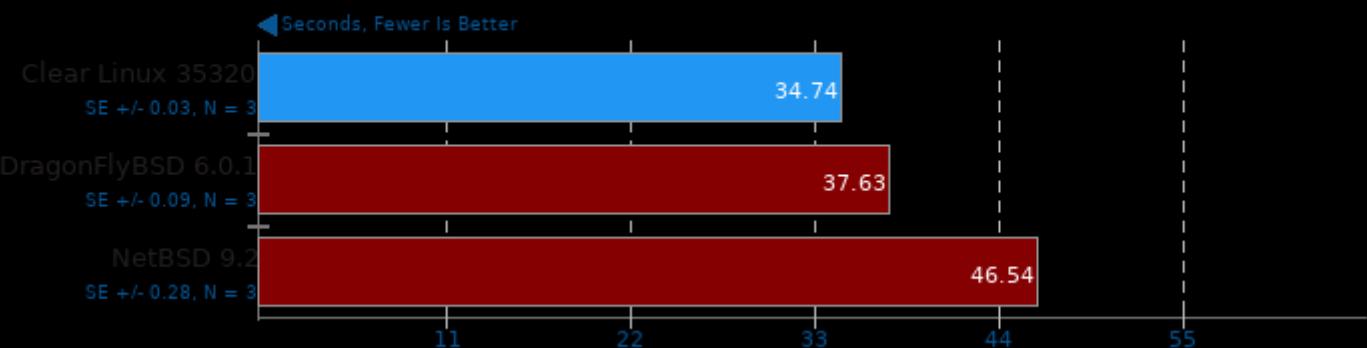
## Timed Apache Compilation 2.4.41

Time To Compile



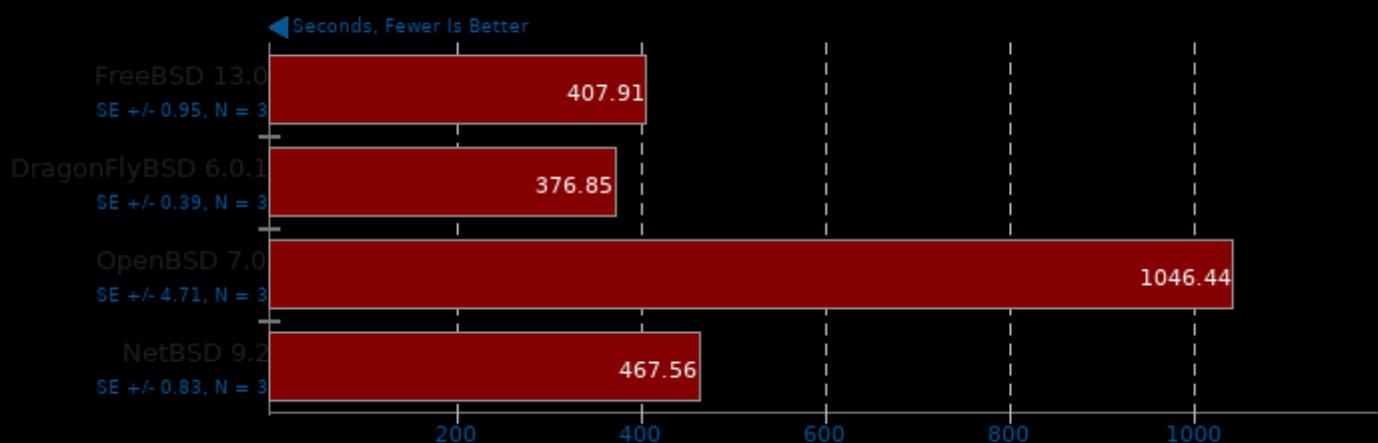
## Timed FFmpeg Compilation 4.4

Time To Compile



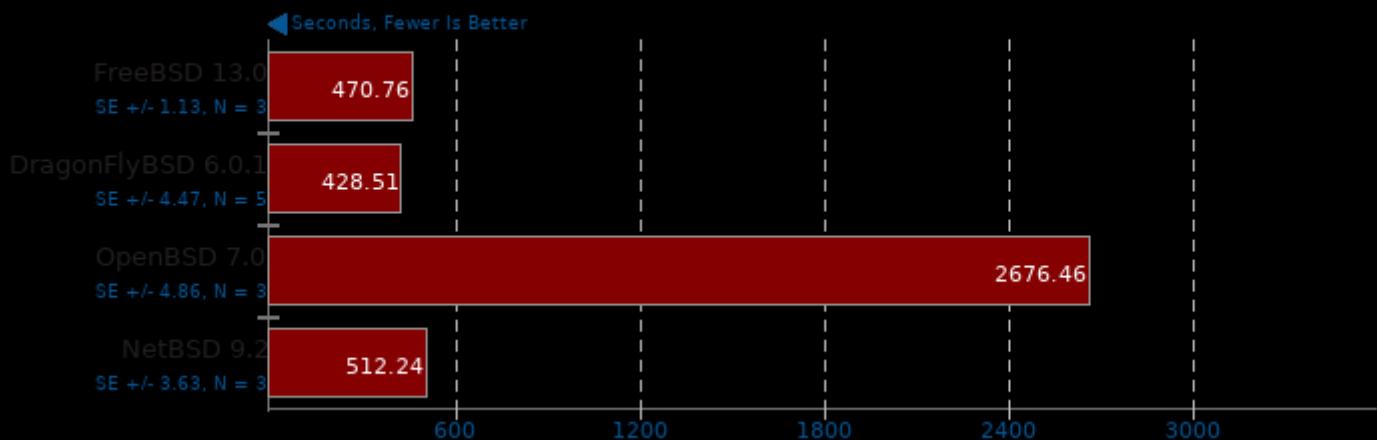
## Timed LLVM Compilation 13.0

Build System: Ninja



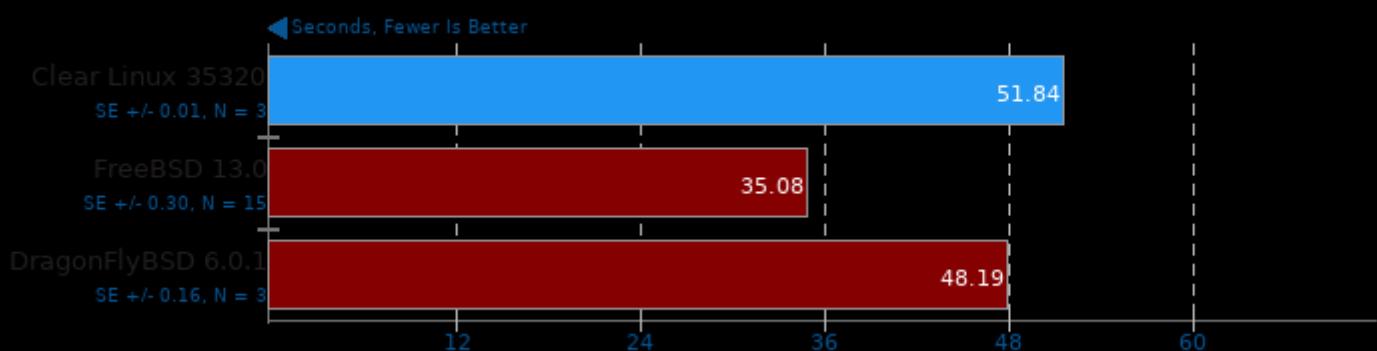
## Timed LLVM Compilation 13.0

Build System: Unix Makefiles



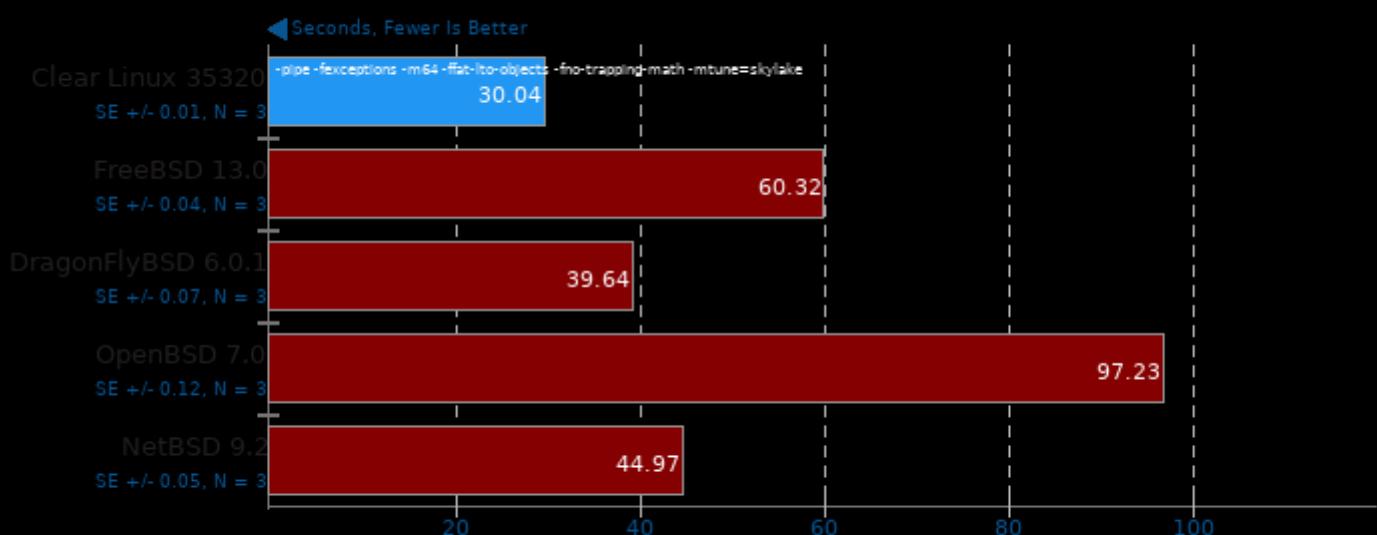
## Timed PHP Compilation 7.4.2

Time To Compile



## C-Ray 1.1

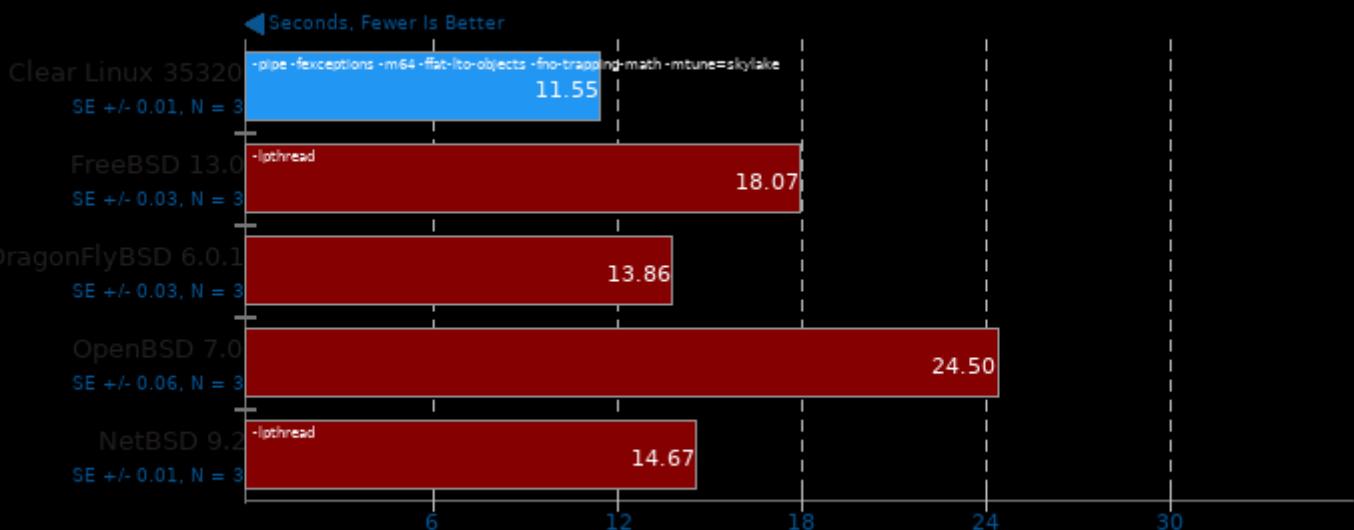
Total Time - 4K, 16 Rays Per Pixel



1. (CC) gcc options: -fno-exceptions -m64 -fno-tiling-objects -fno-trapping-math -mtune=skylake

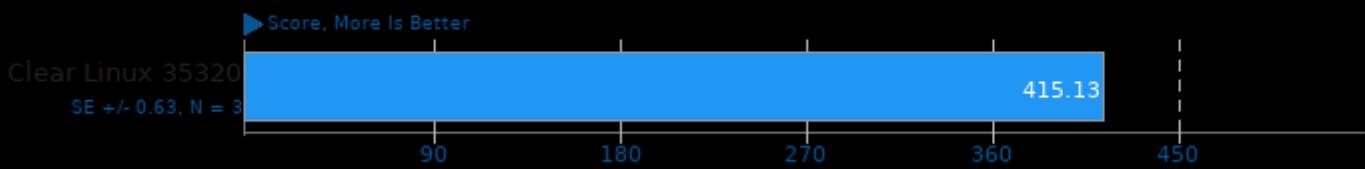
## Primesieve 7.4

1e12 Prime Number Generation



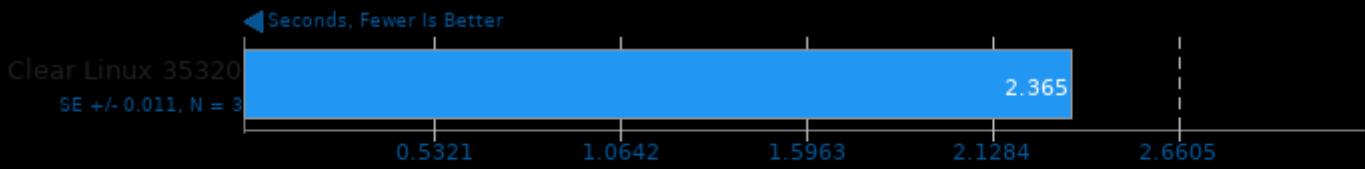
1. (CXX) g++ options: -O3

## Numpy Benchmark



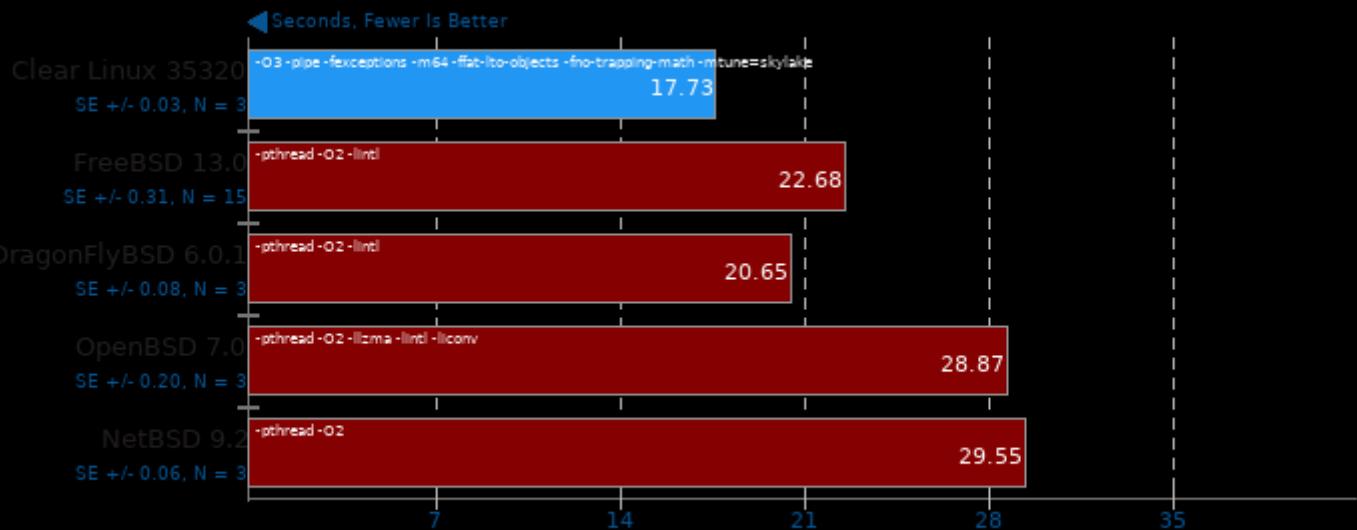
## Gzip Compression

Linux Source Tree Archiving To .tar.gz



## XZ Compression 5.2.4

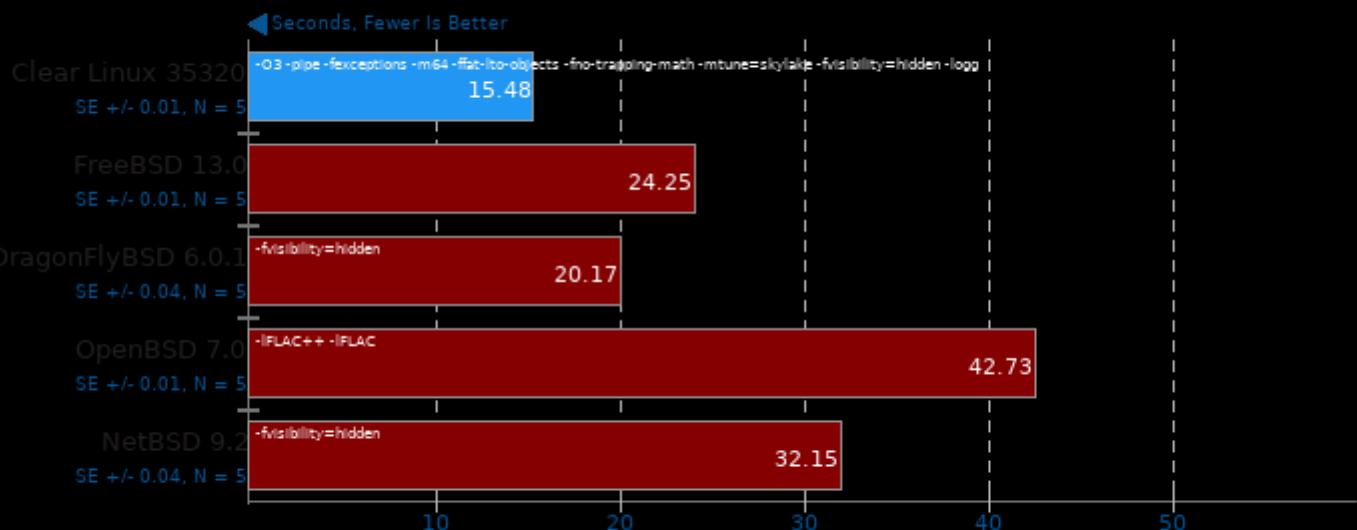
Compressing ubuntu-16.04.3-server-i386.img, Compression Level 9



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

## FLAC Audio Encoding 1.3.3

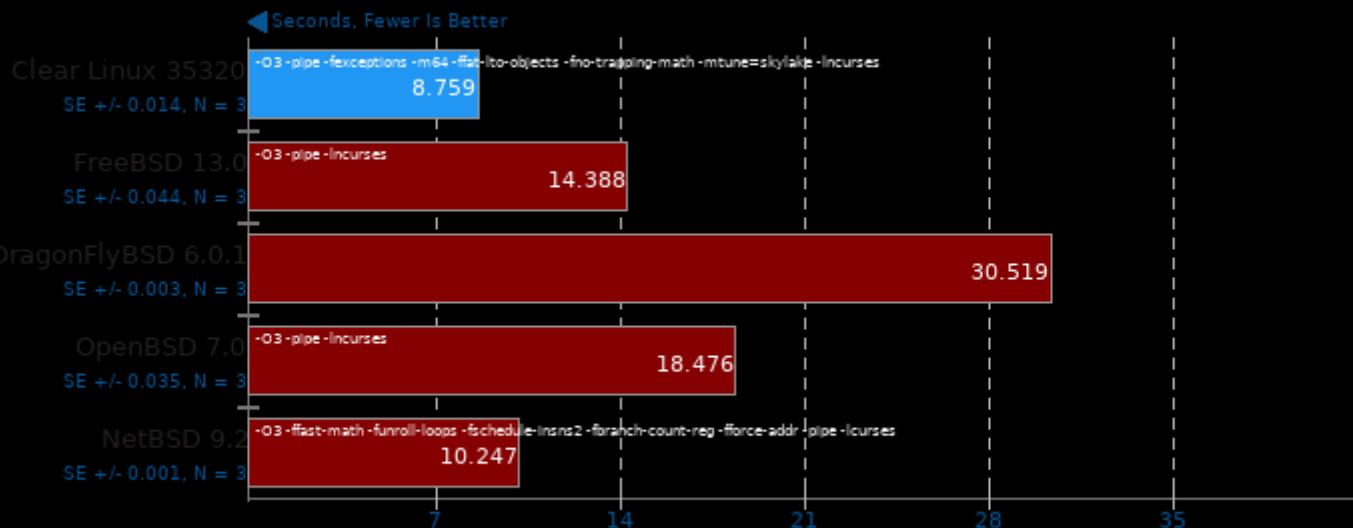
WAV To FLAC



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

## LAME MP3 Encoding 3.100

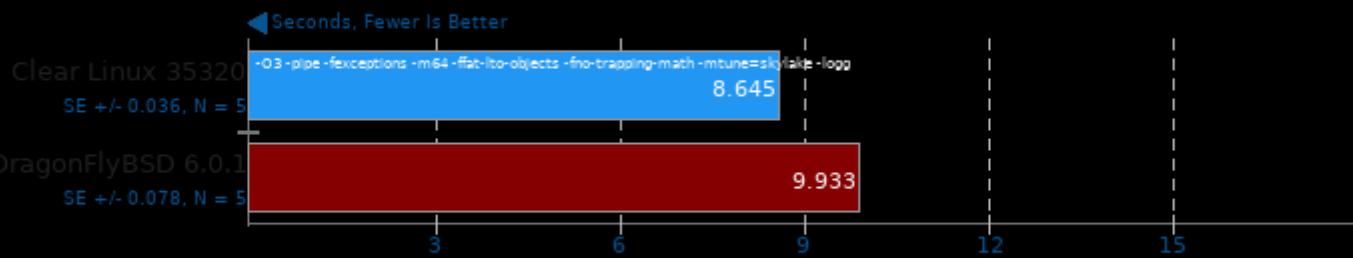
WAV To MP3



1. (CC) gcc options: -lm

## Opus Codec Encoding 1.3.1

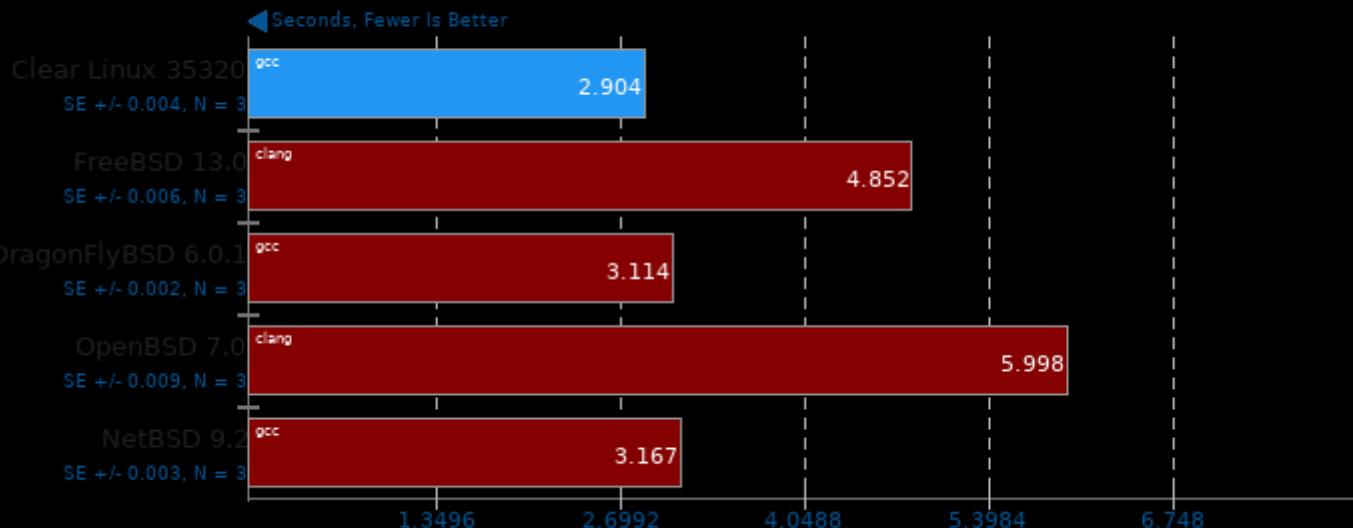
WAV To Opus Encode



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

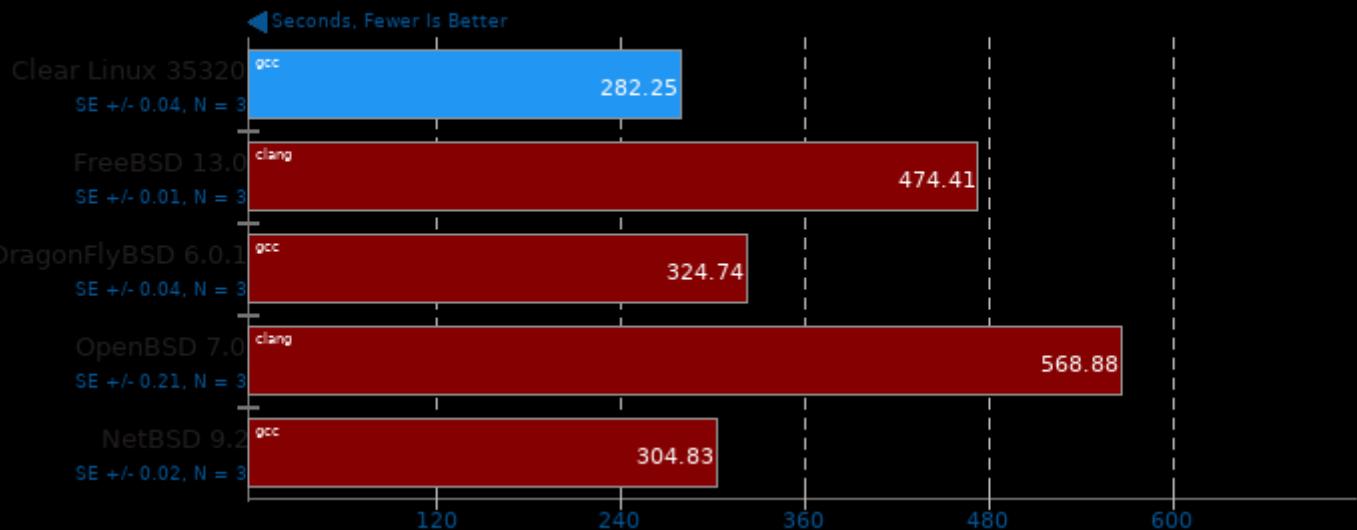
## Helsing 1.0-beta

Digit Range: 12 digit



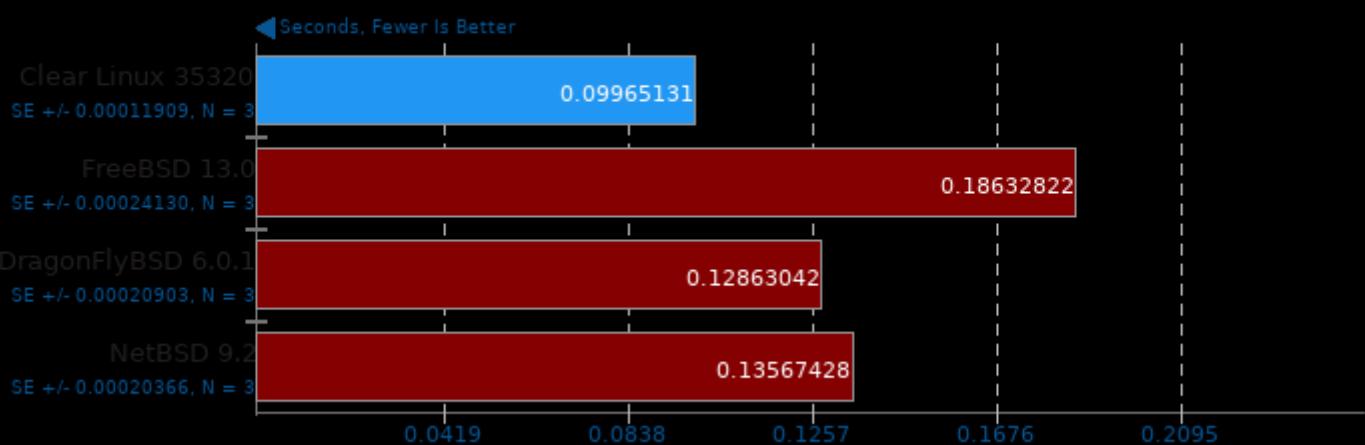
## Helsing 1.0-beta

Digit Range: 14 digit



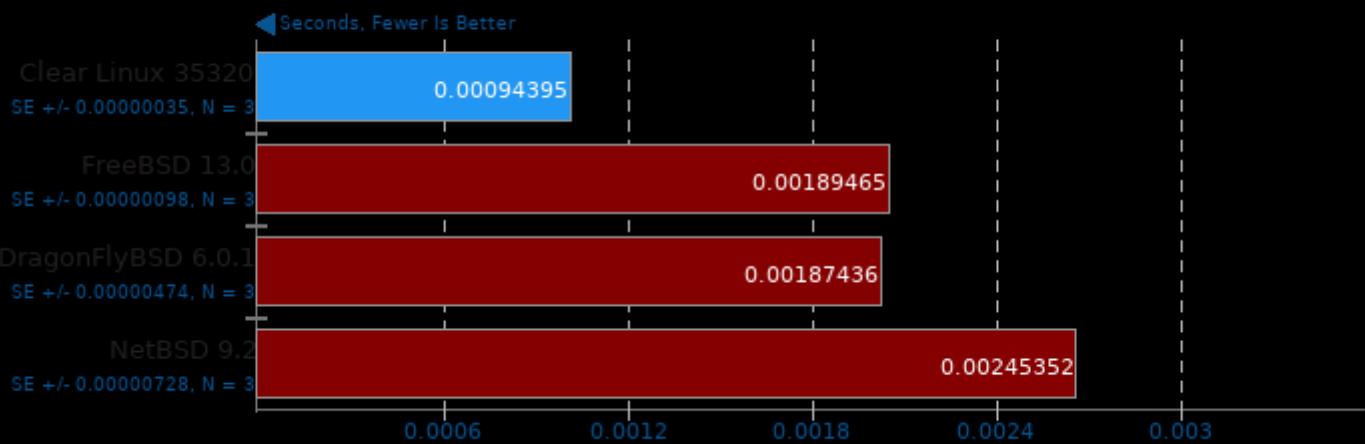
## Perl Benchmarks

Test: Pod2html

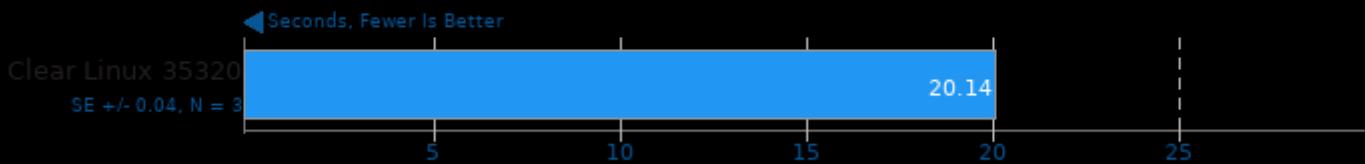


## Perl Benchmarks

Test: Interpreter

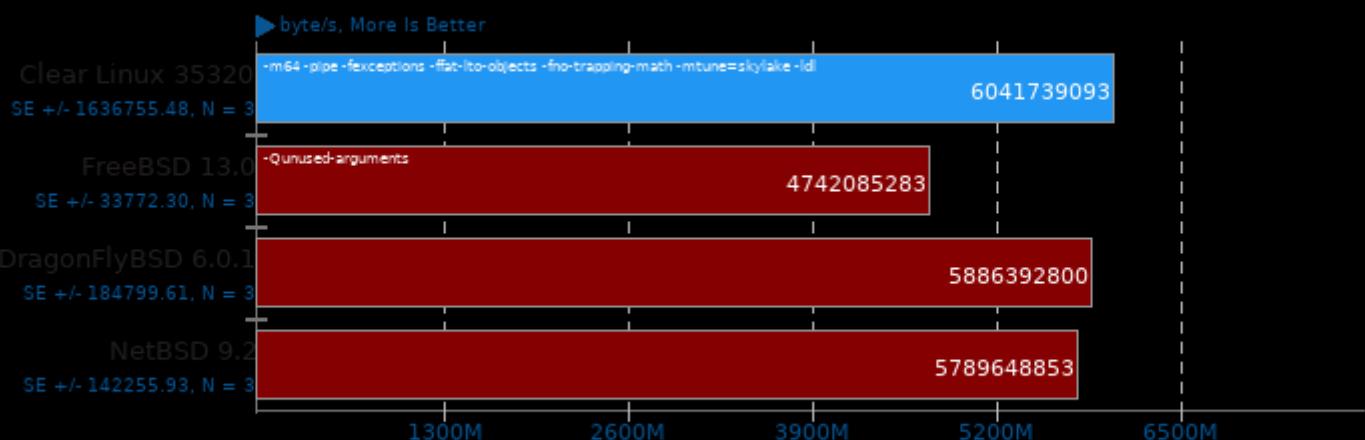


## VOSK Speech Recognition Toolkit 0.3.21



## OpenSSL 3.0

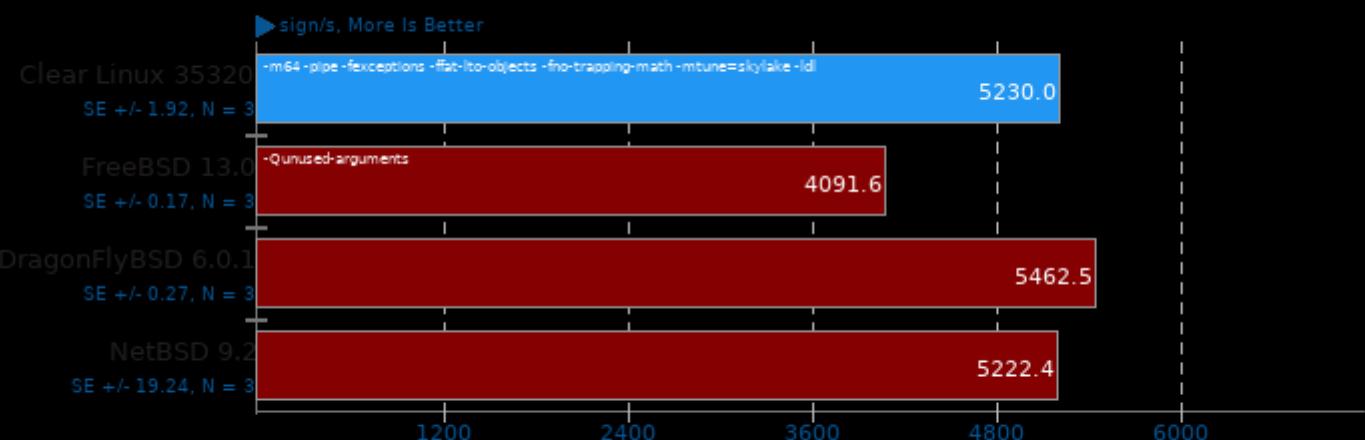
Algorithm: SHA256



1. (CC) gcc options: -pthread -O3 -lssl -lcrypto

## OpenSSL 3.0

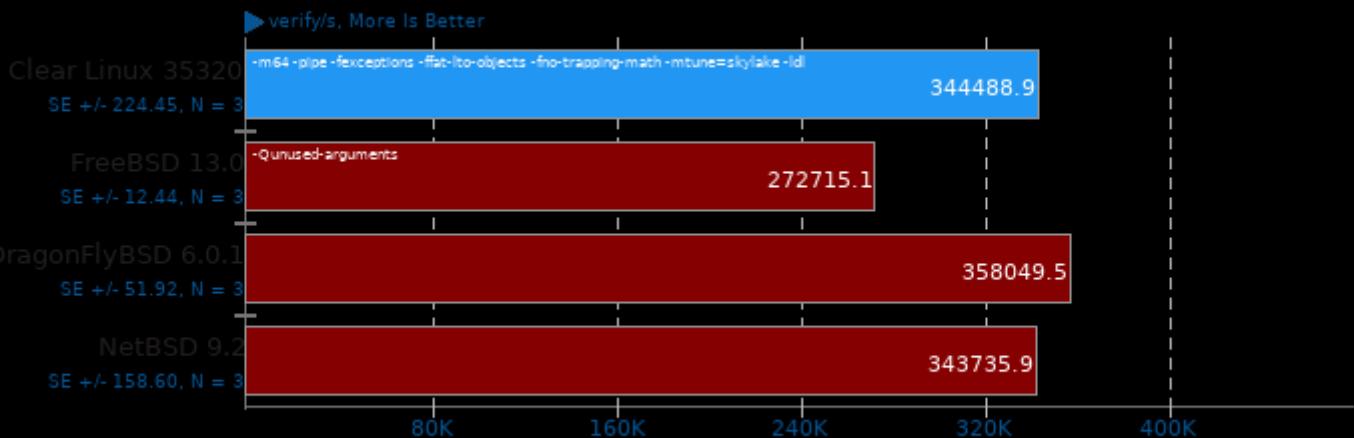
Algorithm: RSA4096



1. (CC) gcc options: -pthread -O3 -lssl -lcrypto

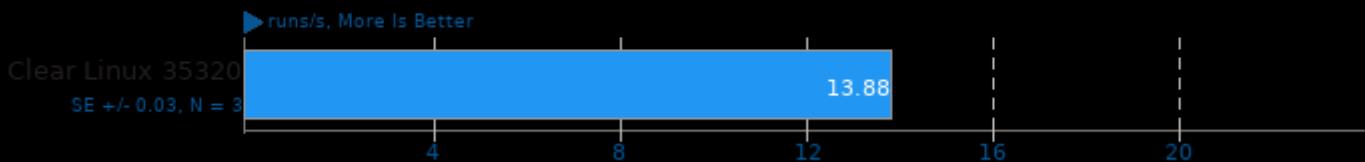
## OpenSSL 3.0

Algorithm: RSA4096



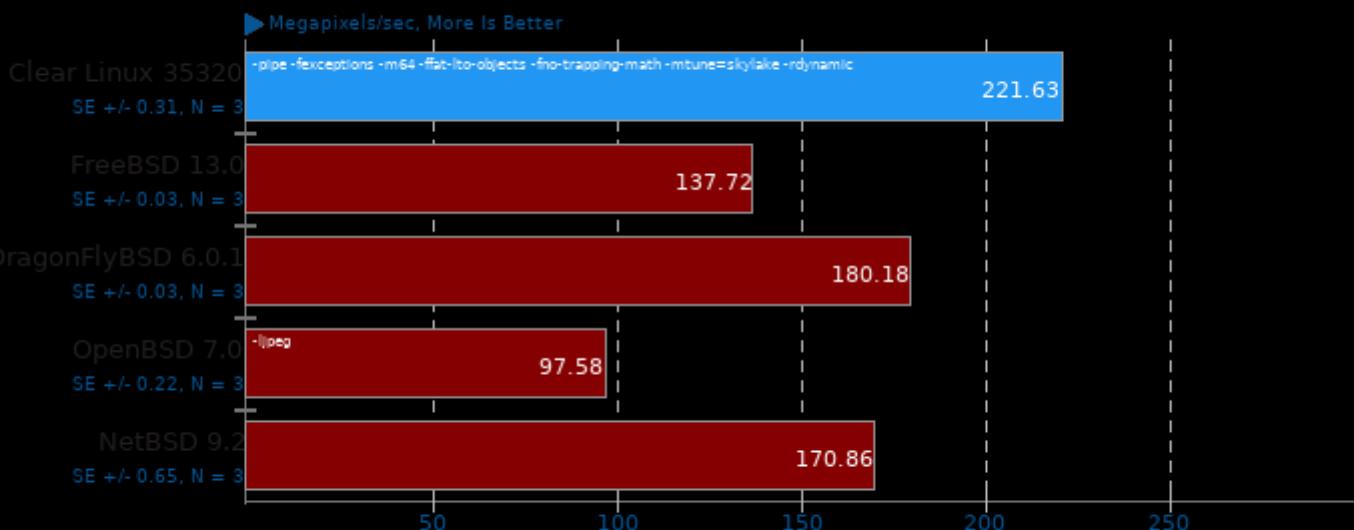
1. (CC) gcc options: -pthread -O3 -lssl -lcrypto

## Node.js V8 Web Tooling Benchmark



## libjpeg-turbo tjbench 2.1.0

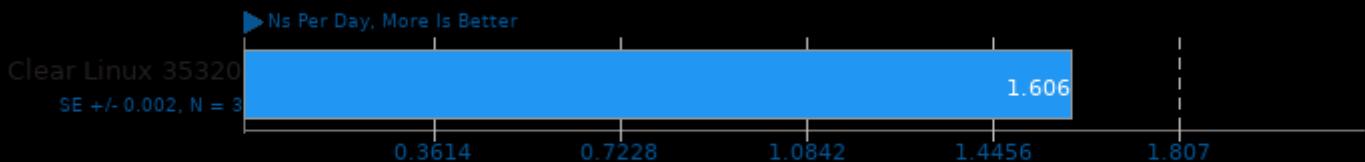
Test: Decompression Throughput



1. (CC) gcc options: -O3

## GROMACS 2021.2

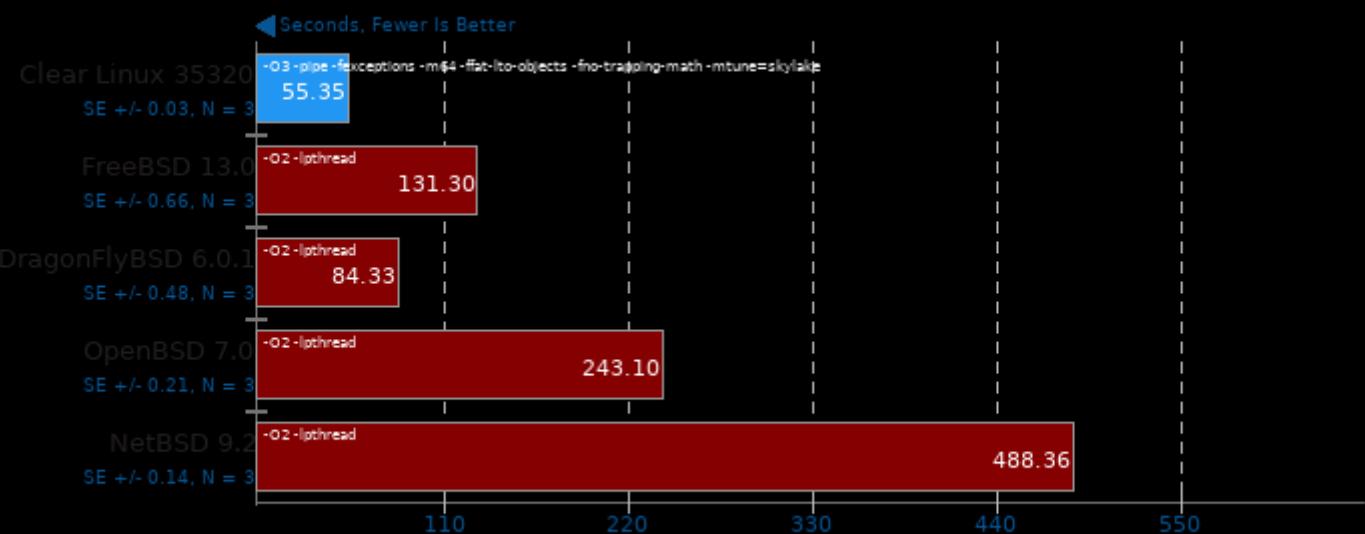
Implementation: MPI CPU - Input: water\_GMX50\_bare



1. (CXX) g++ options: -O3 -pipe -fexceptions -m64 -ffat-lto-objects -fno-trapping-math -mtune=skylake

## SQLite Speedtest 3.30

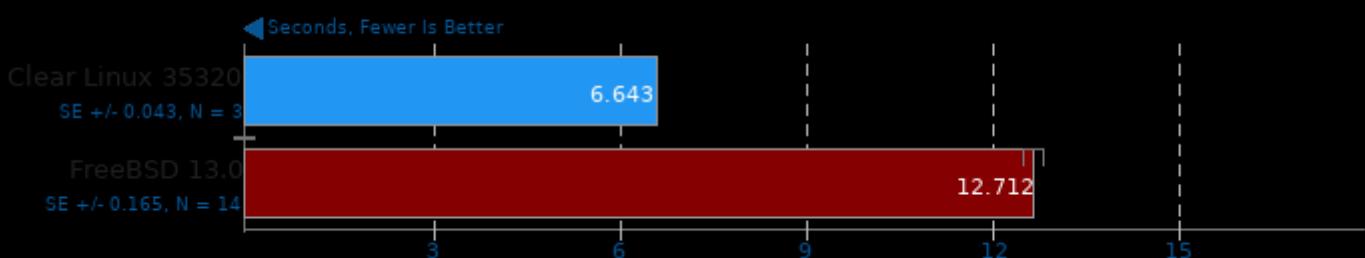
Timed Time - Size 1,000



1. (CC) gcc options: -lz

## GIMP 2.10.28

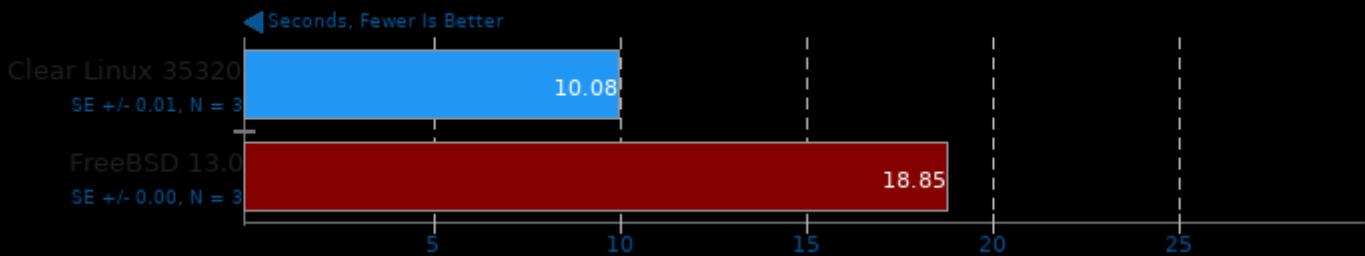
Test: resize



## Clear Compare BSD

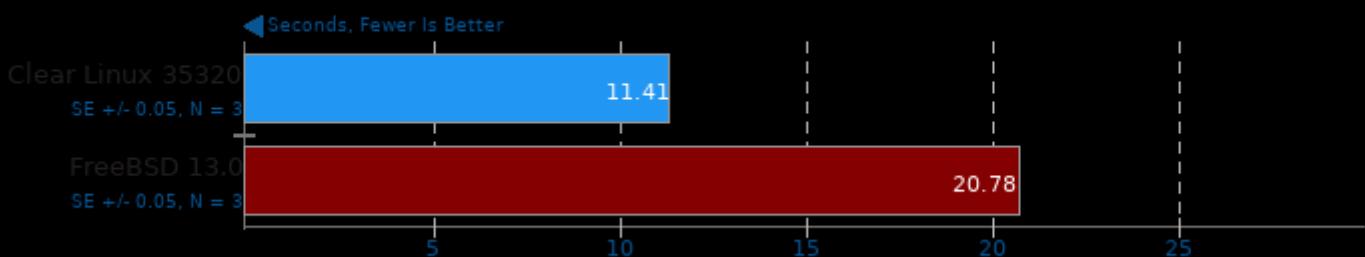
### GIMP 2.10.28

Test: rotate



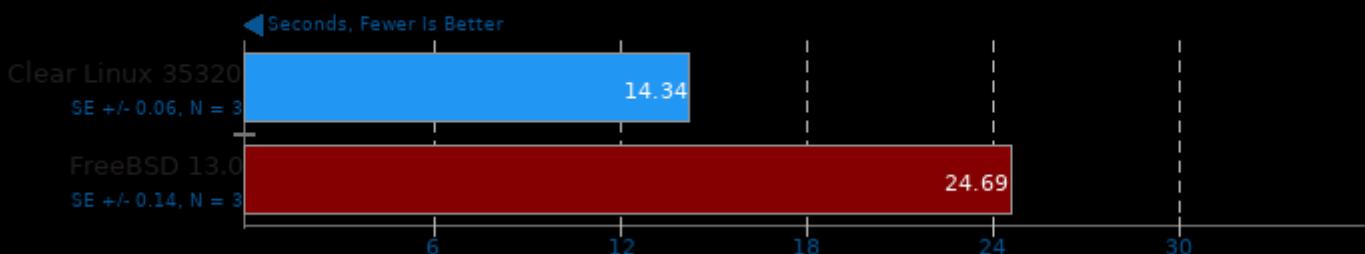
### GIMP 2.10.28

Test: auto-levels

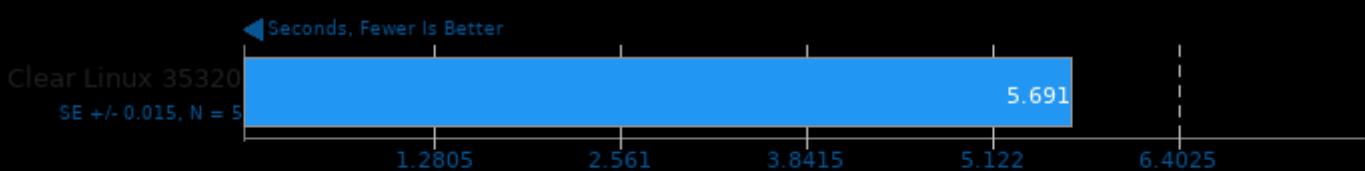


### GIMP 2.10.28

Test: unsharp-mask

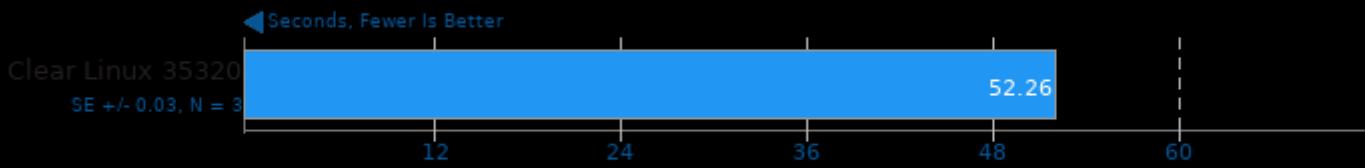


### GNU Octave Benchmark 6.4.0



### RawTherapee

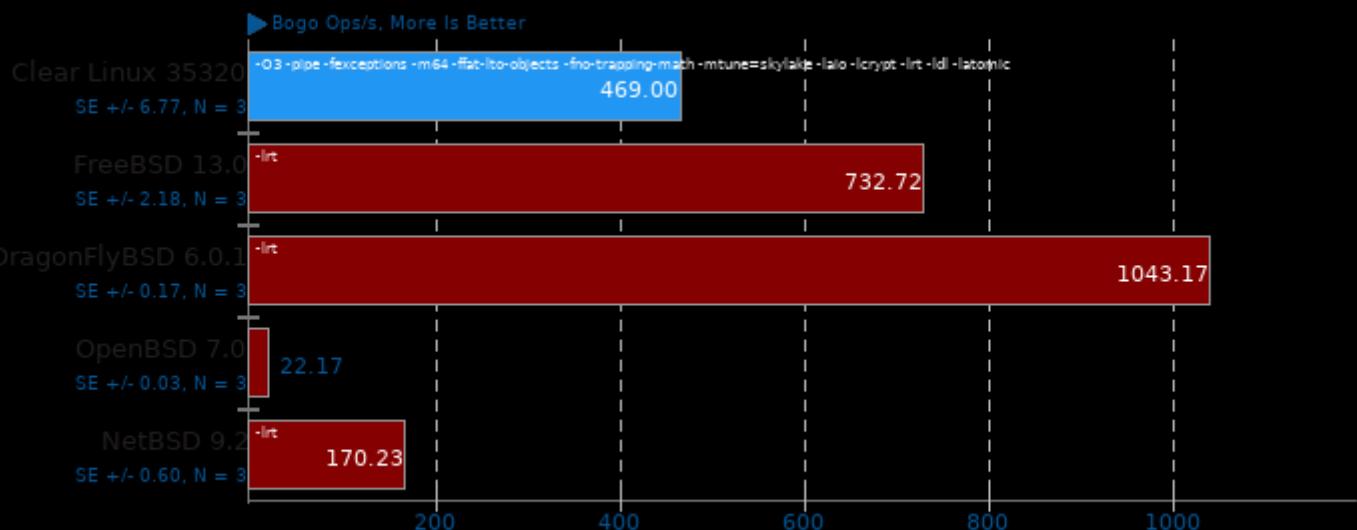
Total Benchmark Time



1. RawTherapee, version ., command line.

## Stress-NG 0.13.02

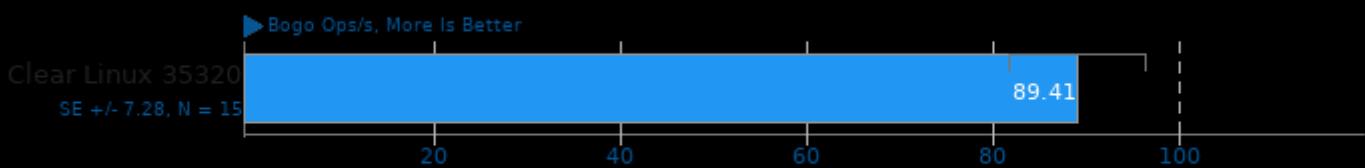
Test: MMAP



1. (CC) gcc options: -O2 -std=gnu99 -lm -lz -pthread -lc

## Stress-NG 0.13.02

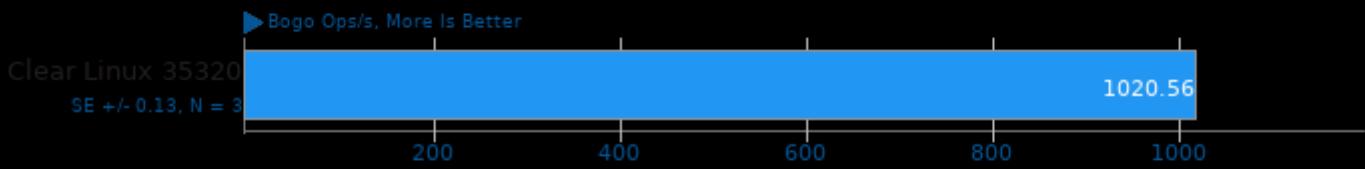
Test: NUMA



1. (CC) gcc options: -O3 -pipe -fexceptions -m64 -ffat-lto-objects -fno-trapping-math -mtune=skylake -O2 -std=gnu99 -lm -lao -lcrypt -lrt -ldl -pthread

## Stress-NG 0.13.02

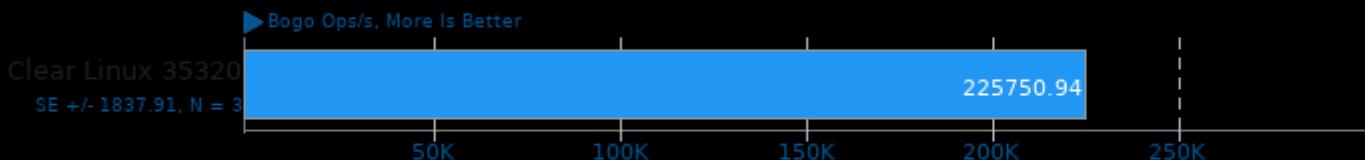
Test: MEMFD



1. (CC) gcc options: -O3 -pipe -fexceptions -m64 -ffat-lto-objects -fno-trapping-math -mtune=skylake -O2 -std=gnu99 -lm -lao -lcrypt -lrt -ldl -pthread

## Stress-NG 0.13.02

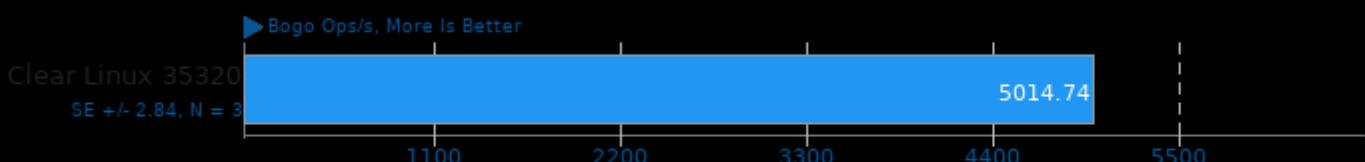
Test: Atomic



1. (CC) gcc options: -O3 -pipe -fexceptions -m64 -ffat-lto-objects -fno-trapping-math -mtune=skylake -O2 -std=gnu99 -lm -lao -lcrypt -lrt -lz -ldl -pthread

## Stress-NG 0.13.02

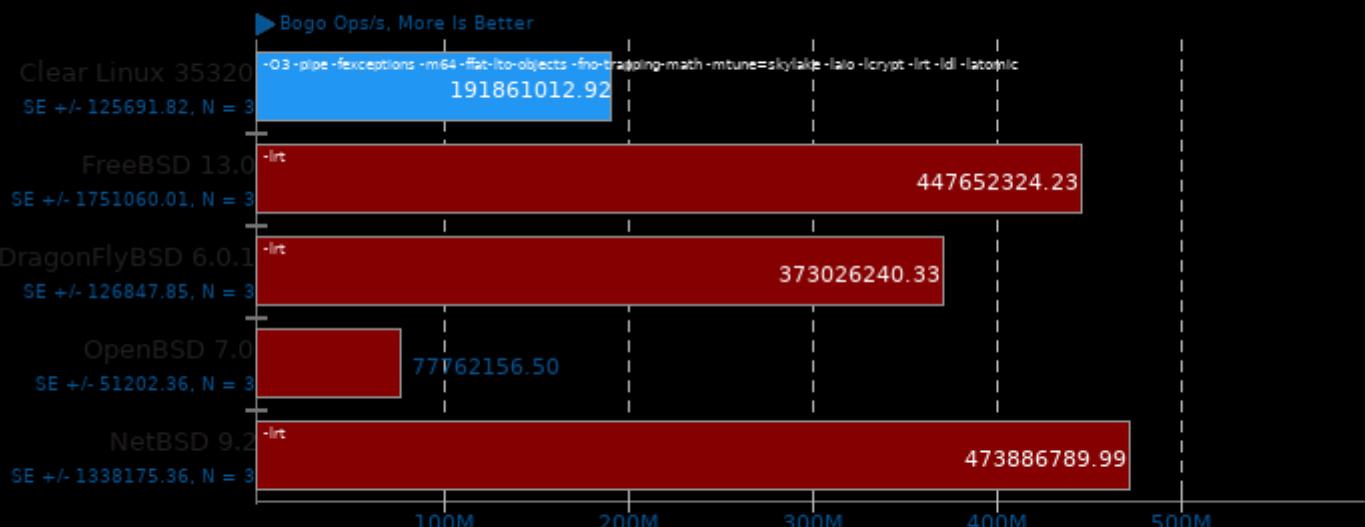
Test: Crypto



1. (CC) gcc options: -O3 -pipe -fexceptions -m64 -ffat-lto-objects -fno-trapping-math -mtune=skylake -O2 -std=gnu99 -lm -lao -lcrypt -lrt -lz -ldl -pthread

## Stress-NG 0.13.02

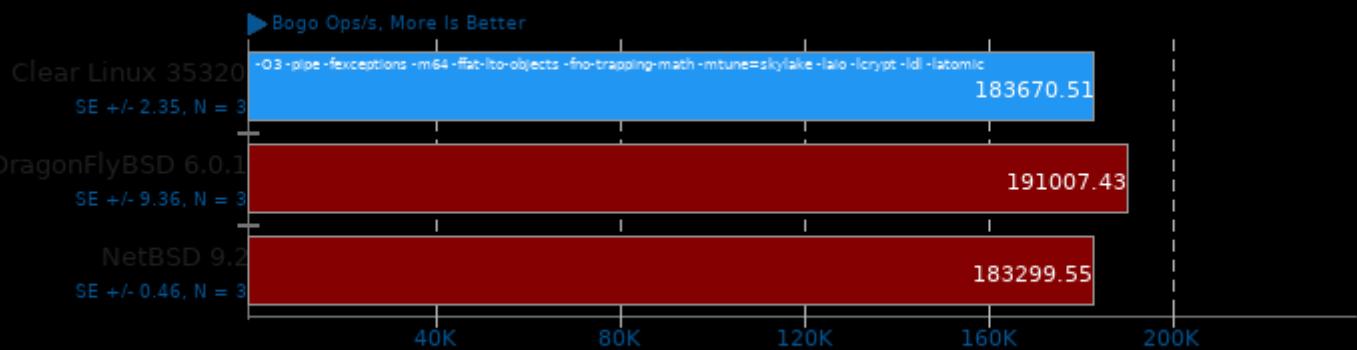
Test: Malloc



1. (CC) gcc options: -O2 -std=gnu99 -lm -lz -pthread -lc

## Stress-NG 0.13.02

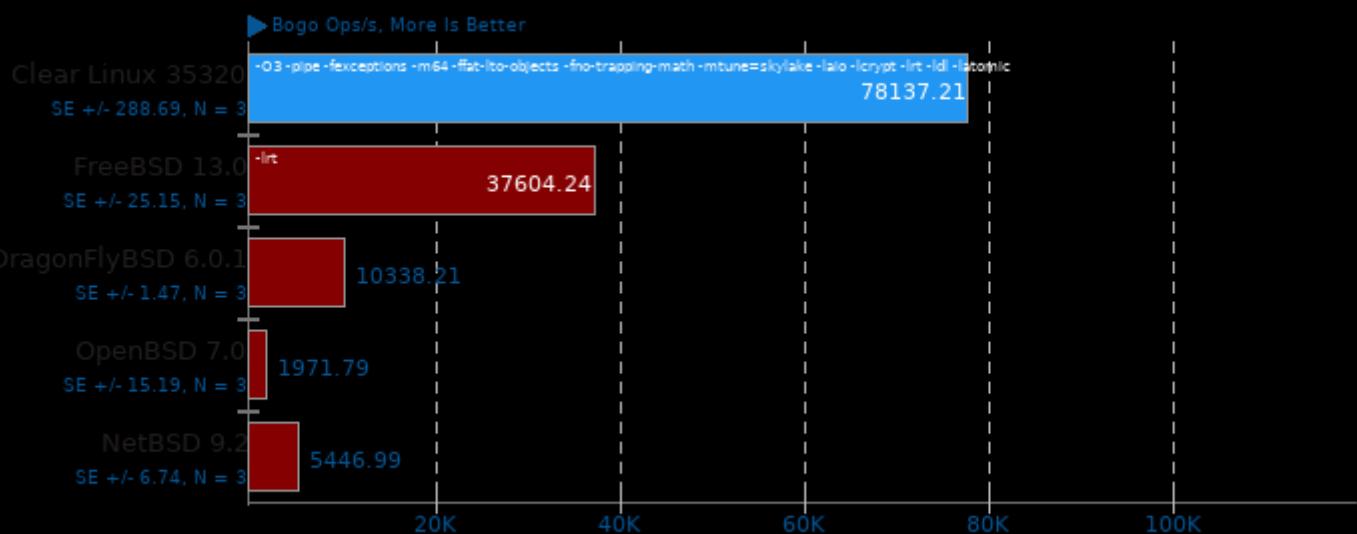
Test: RdRand



1. (CC) gcc options: -O2 -std=gnu99 -lm -lrt -lz -pthread -lc

## Stress-NG 0.13.02

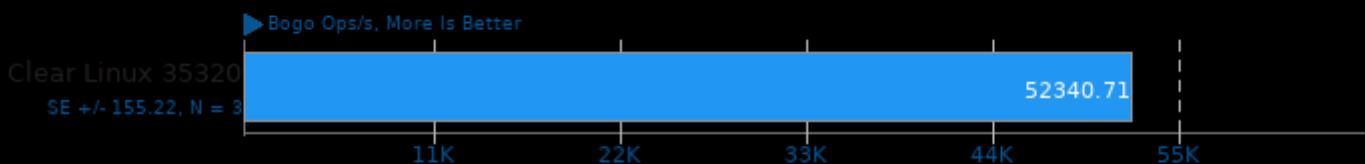
Test: Forking



1. (CC) gcc options: -O2 -std=gnu99 -lm -lrt -lz -pthread -lc

## Stress-NG 0.13.02

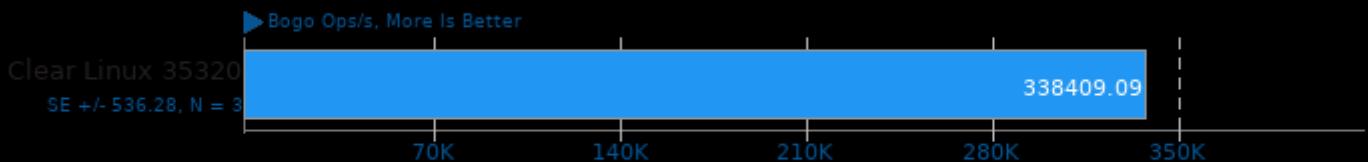
Test: IO\_uring



1. (CC) gcc options: -O3 -pipe -fexceptions -m64 -ffat-lto-objects -fno-trapping-math -mtune=skylake -O2 -std=gnu99 -lm -lao -lcrypt -lrt -lz -ldl -pthread

## Stress-NG 0.13.02

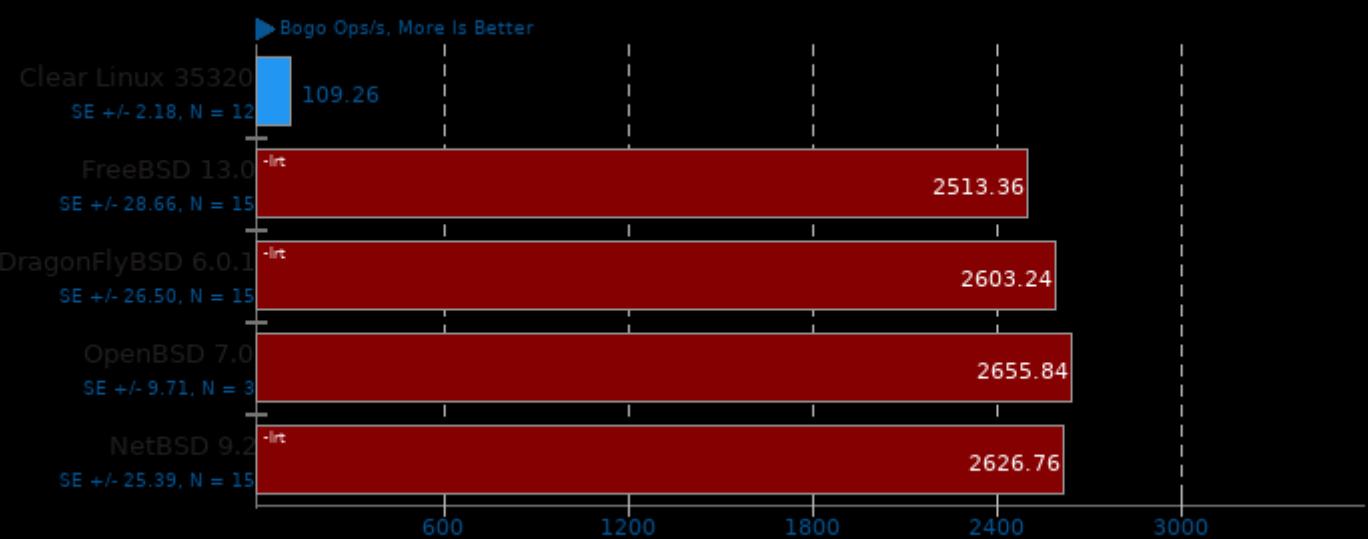
Test: SENDFILE



1. (CC) gcc options: -O3 -pipe -fexceptions -m64 -ffat-lto-objects -fno-trapping-math -mtune=skylake -O2 -std=gnu99 -lm -lao -lcrypt -lrt -lz -ldl -pthread

## Stress-NG 0.13.02

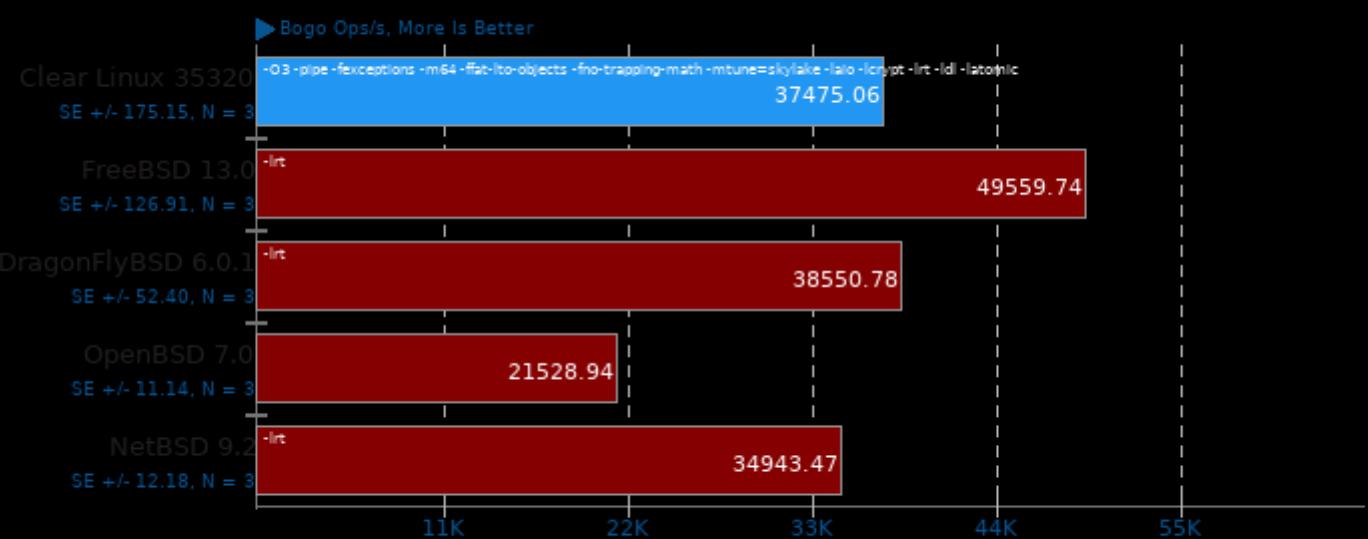
Test: CPU Cache



1. (CC) gcc options: -O2 -std=gnu99 -lm -lz -pthread -lc

## Stress-NG 0.13.02

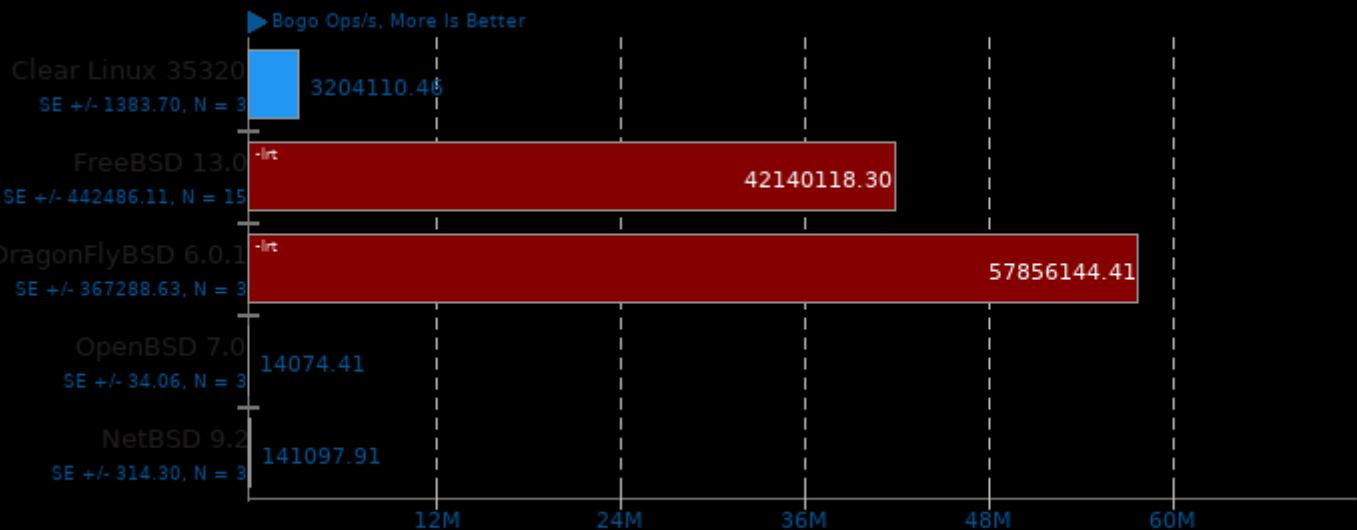
Test: CPU Stress



1. (CC) gcc options: -O2 -std=gnu99 -lm -lz -pthread -lc

## Stress-NG 0.13.02

Test: Semaphores



1. (CC) gcc options: -O2 -std=gnu99 -lm -lz -pthread -lc

## Stress-NG 0.13.02

Test: Matrix Math



1. (CC) gcc options: -O2 -std=gnu99 -lm -lz -pthread -lc

## Stress-NG 0.13.02

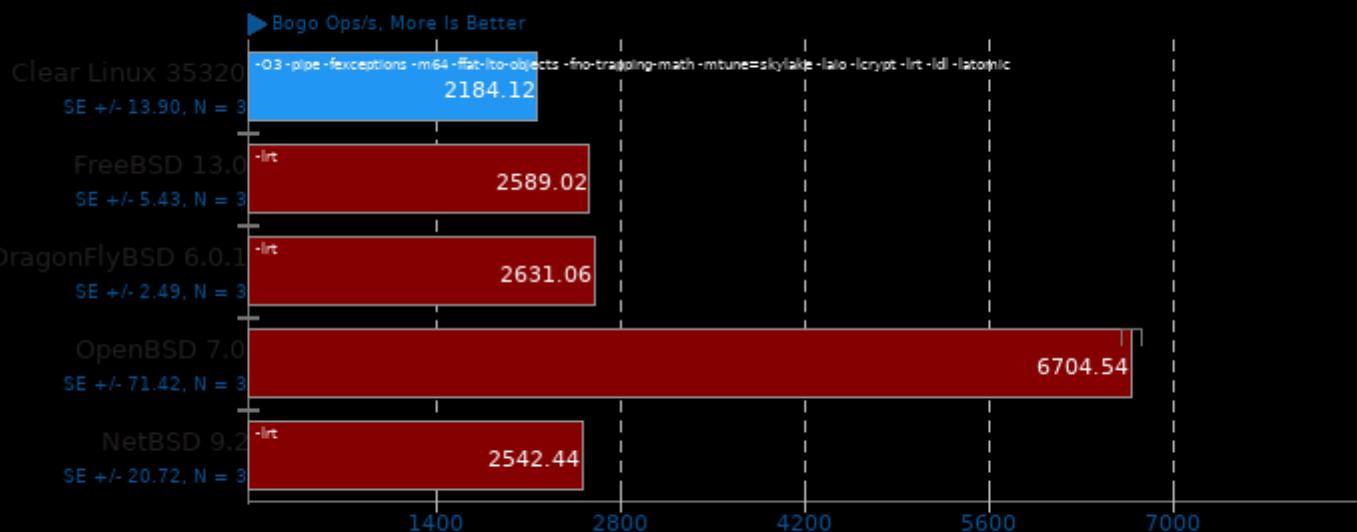
Test: Vector Math



1. (CC) gcc options: -O2 -std=gnu99 -lm -lz -pthread -lc

## Stress-NG 0.13.02

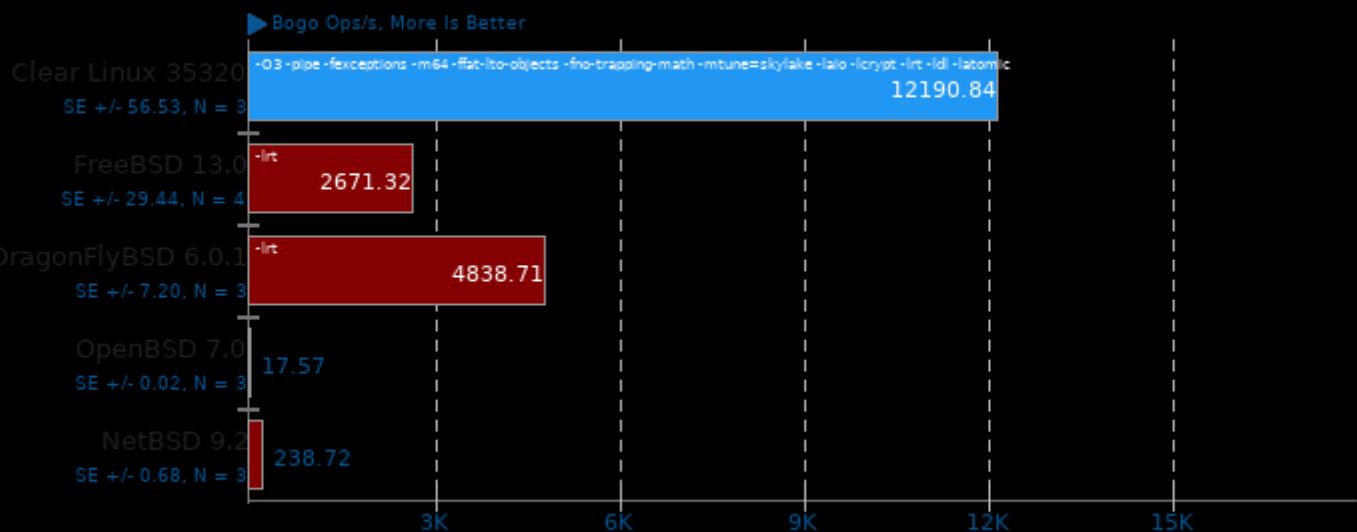
Test: Memory Copying



1. (CC) gcc options: -O2 -std=gnu99 -lm -lz -pthread -lc

## Stress-NG 0.13.02

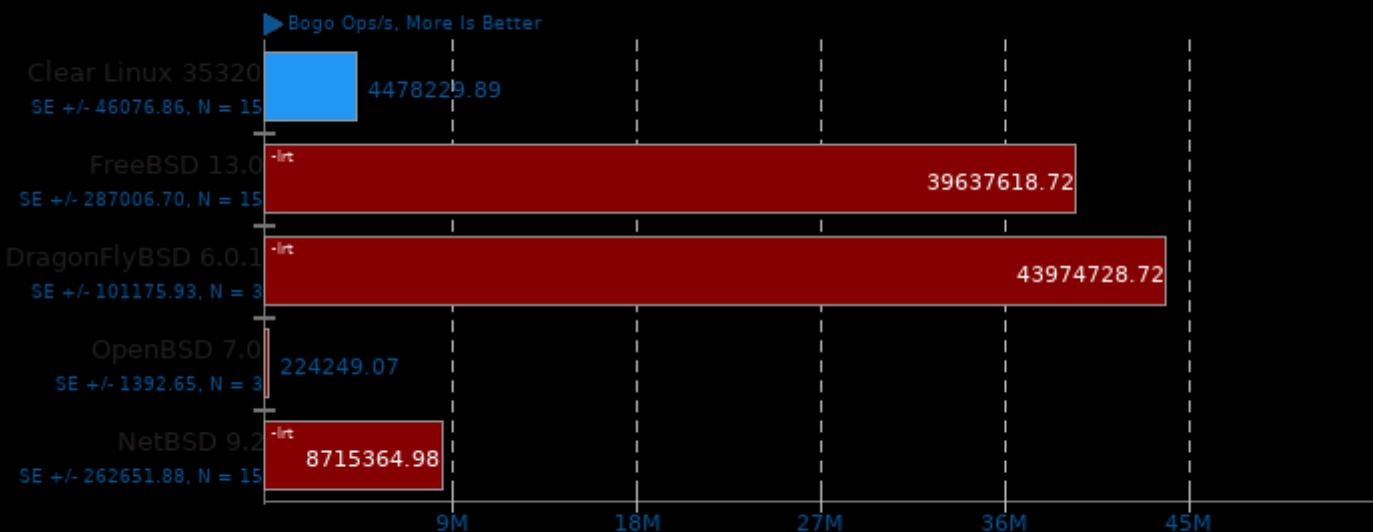
Test: Socket Activity



1. (CC) gcc options: -O2 -std=gnu99 -lm -lz -pthread -lc

## Stress-NG 0.13.02

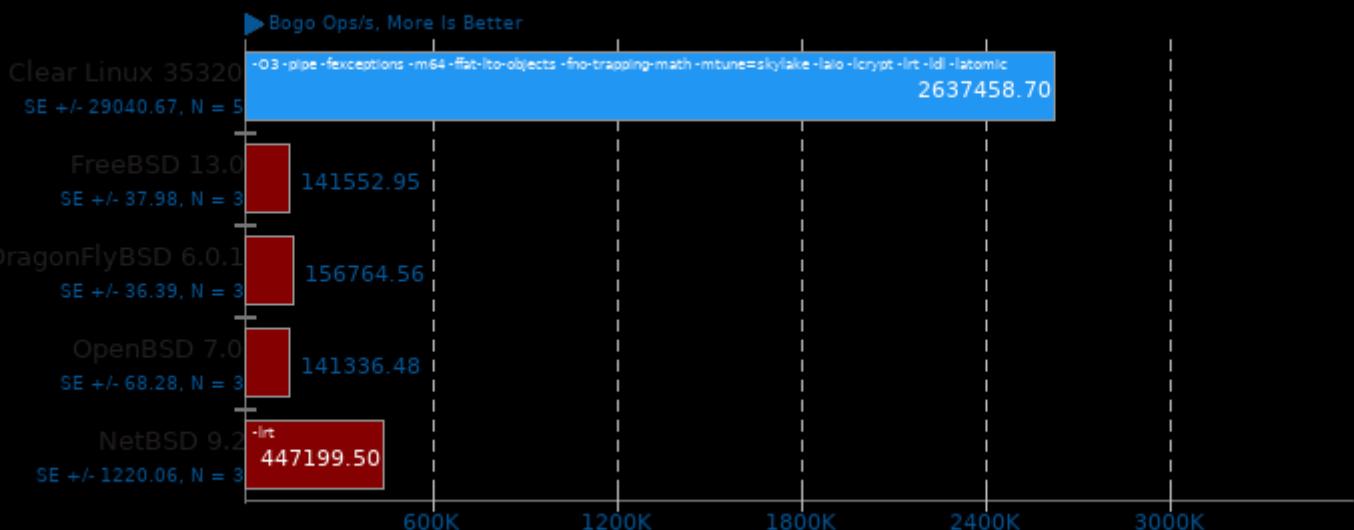
Test: Context Switching



1. (CC) gcc options: -O2 -std=gnu99 -lm -lz -pthread -lc

## Stress-NG 0.13.02

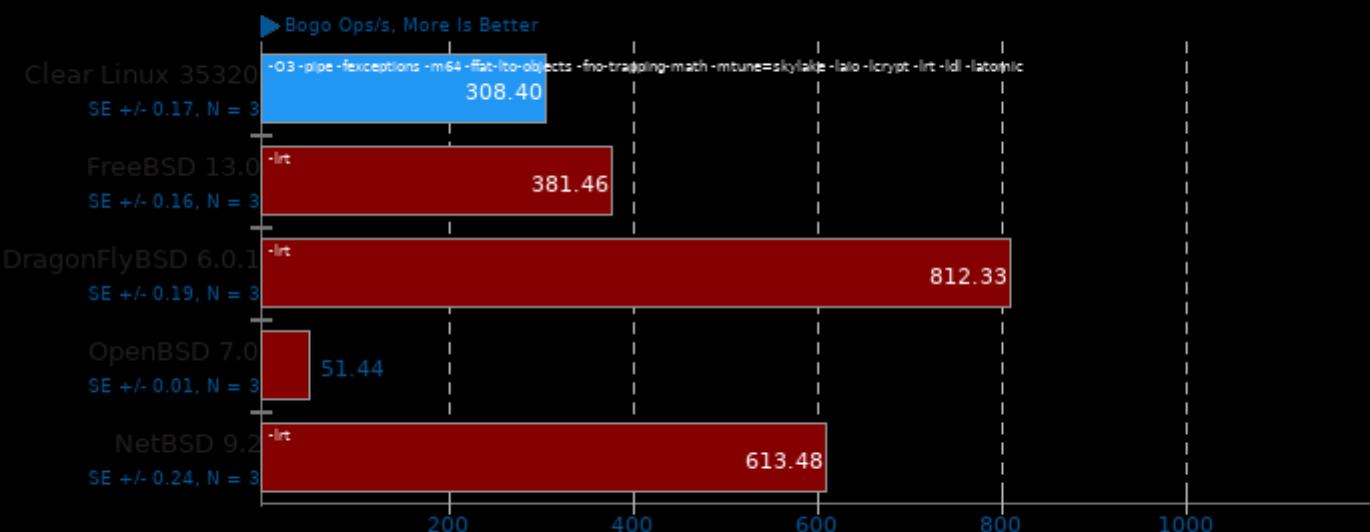
Test: Glibc C String Functions



1. (CC) gcc options: -O2 -std=gnu99 -lm -lz -pthread -lc

## Stress-NG 0.13.02

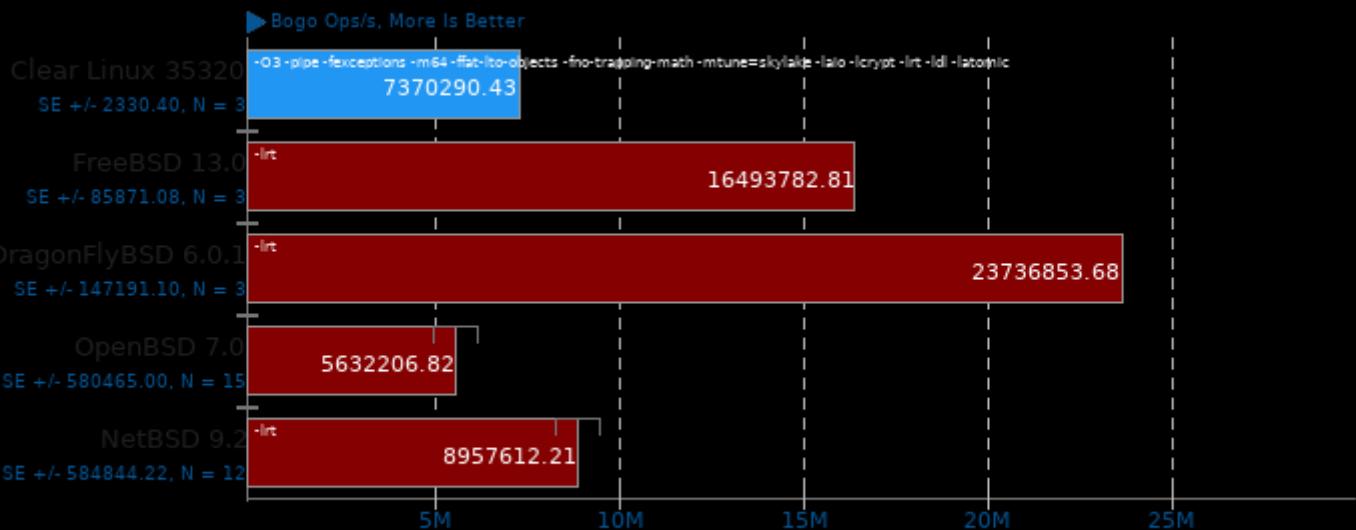
Test: Glibc Qsort Data Sorting



1. (CC) gcc options: -O2 -std=gnu99 -lm -lz -pthread -lc

## Stress-NG 0.13.02

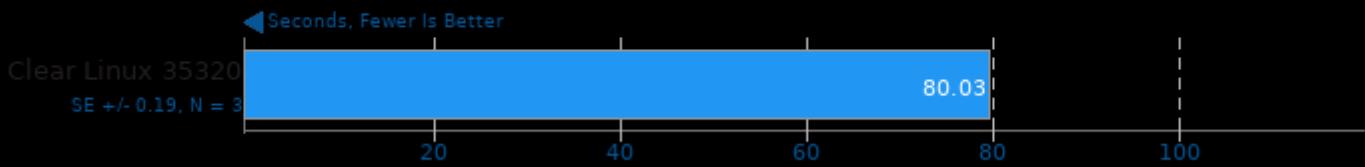
Test: System V Message Passing



1. (CC) gcc options: -O2 -std=gnu99 -lm -lz -pthread -lc

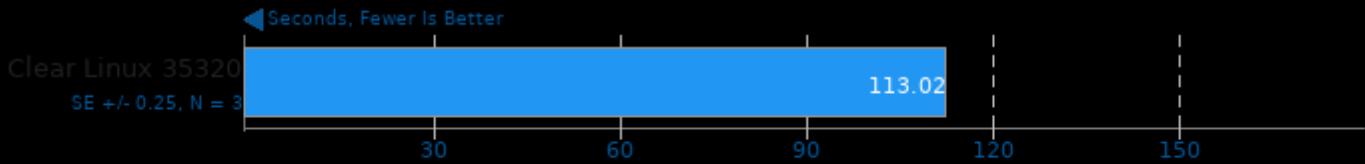
## Blender

Blend File: BMW27 - Compute: CPU-Only



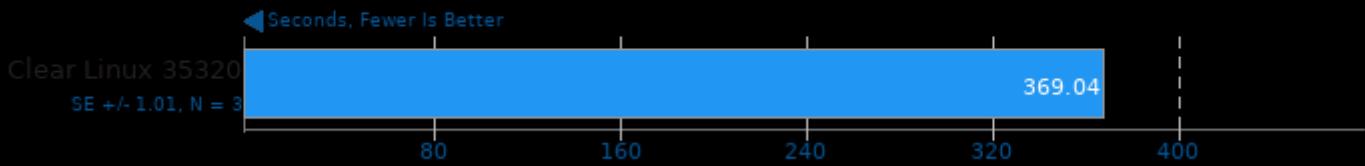
## Blender

Blend File: Fishy Cat - Compute: CPU-Only



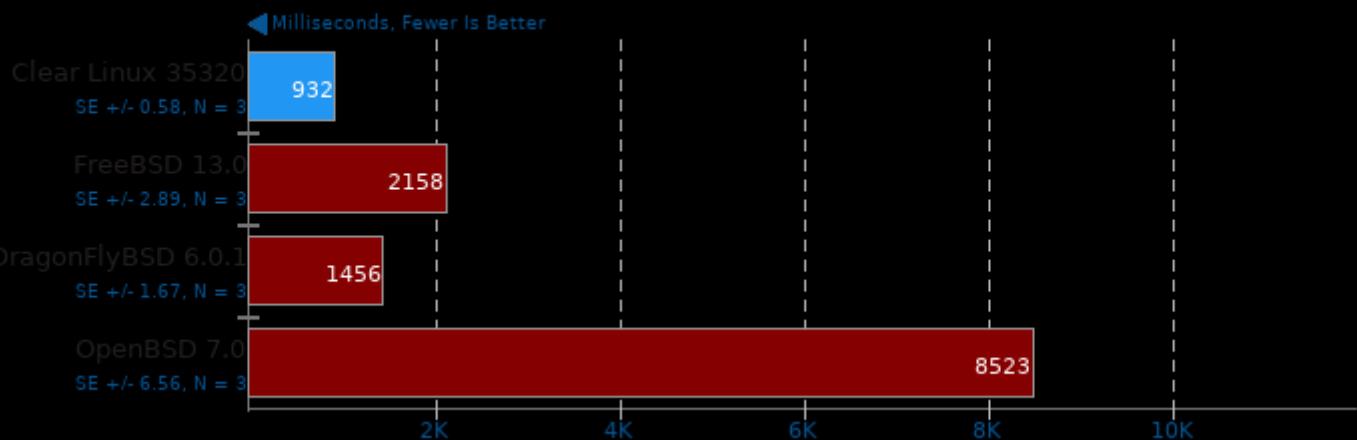
## Blender

Blend File: Barbershop - Compute: CPU-Only



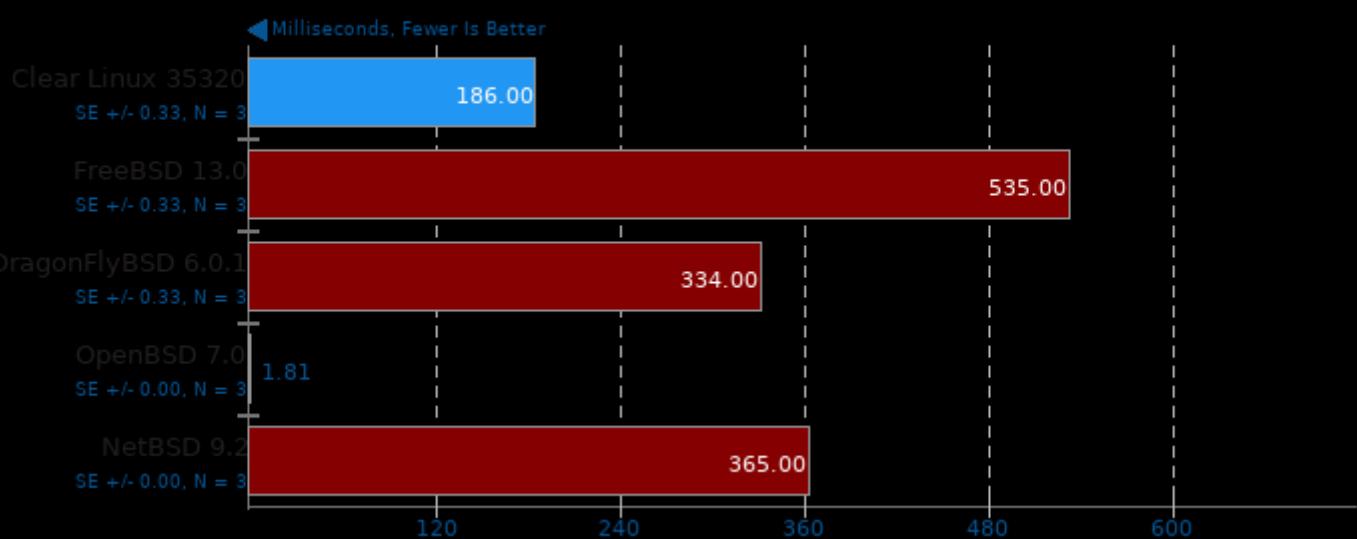
## PyBench 2018-02-16

Total For Average Test Times



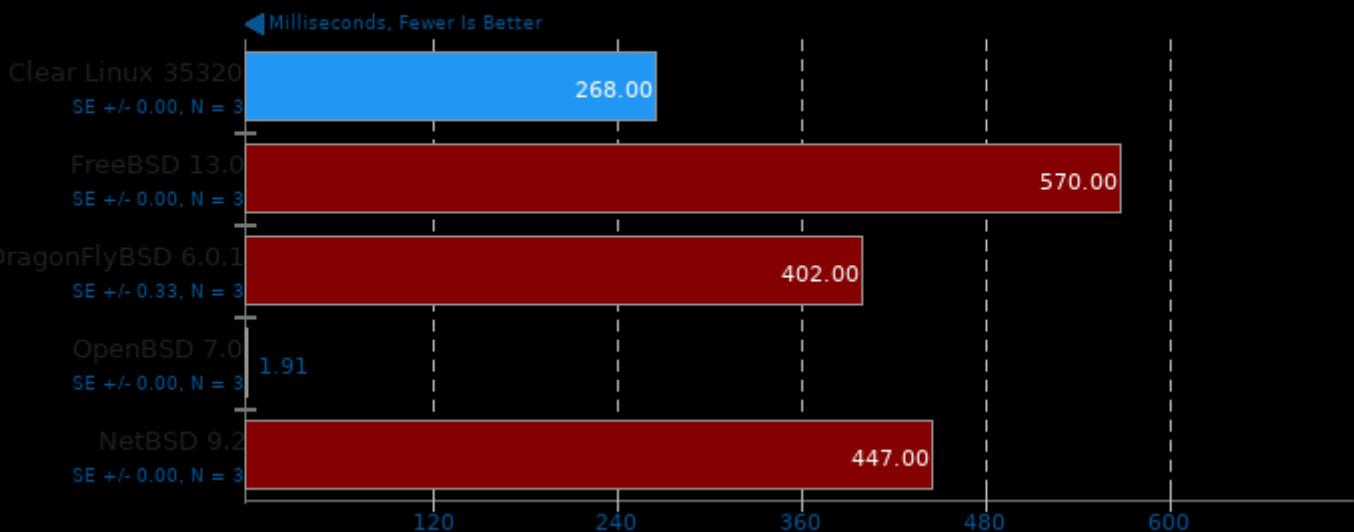
## PyPerformance 1.0.0

Benchmark: go



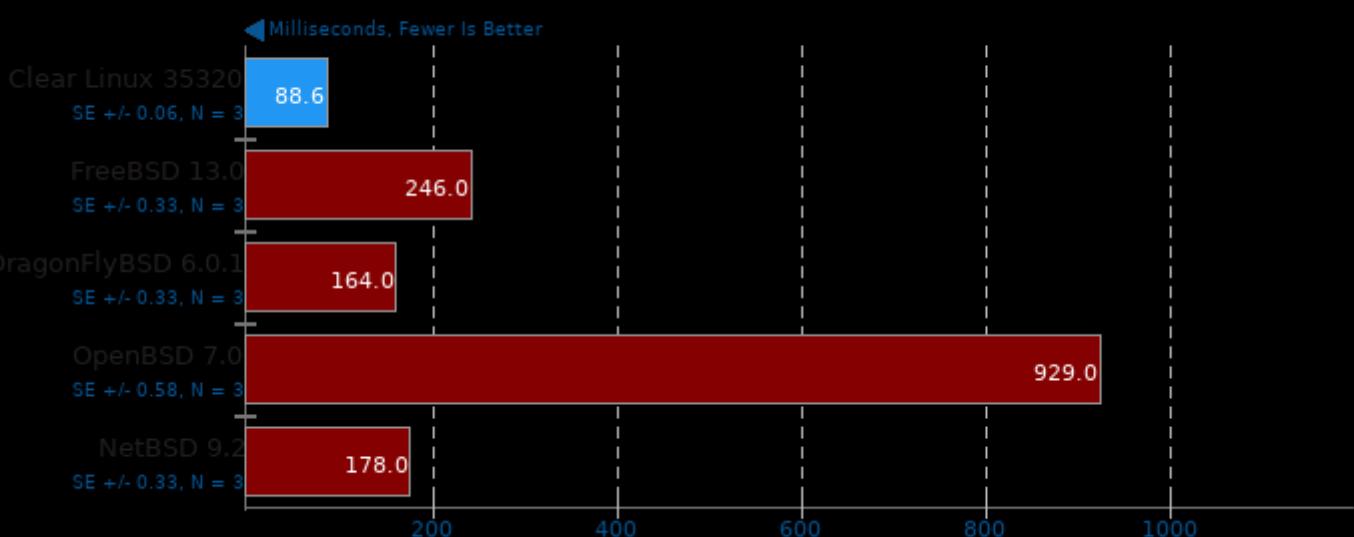
## PyPerformance 1.0.0

Benchmark: 2to3



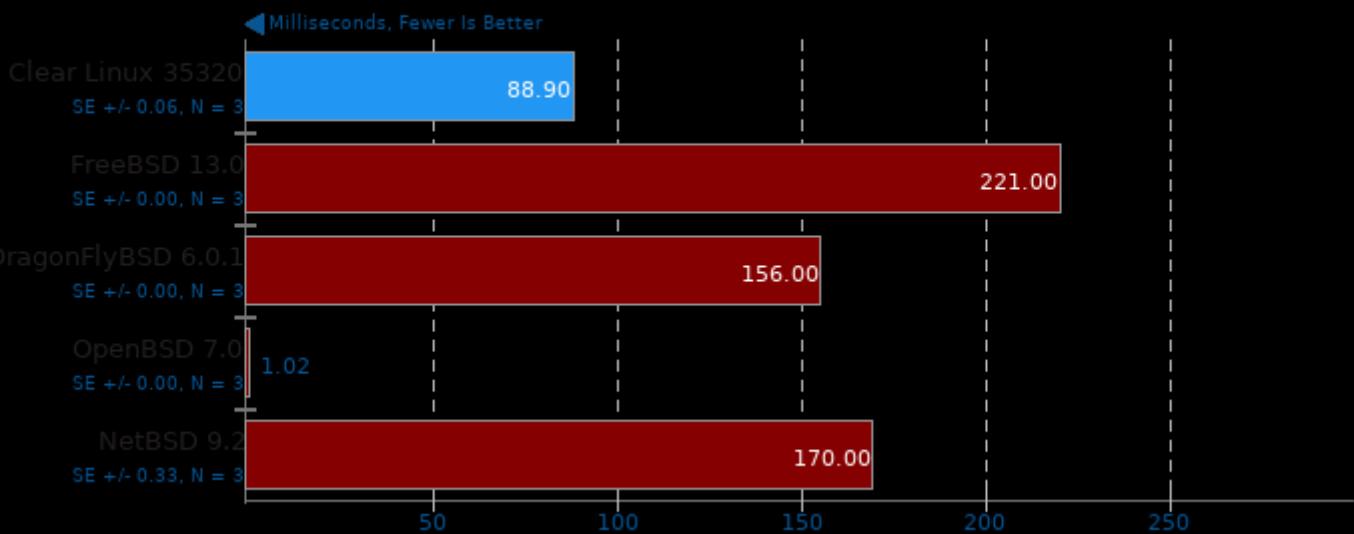
## PyPerformance 1.0.0

Benchmark: chaos



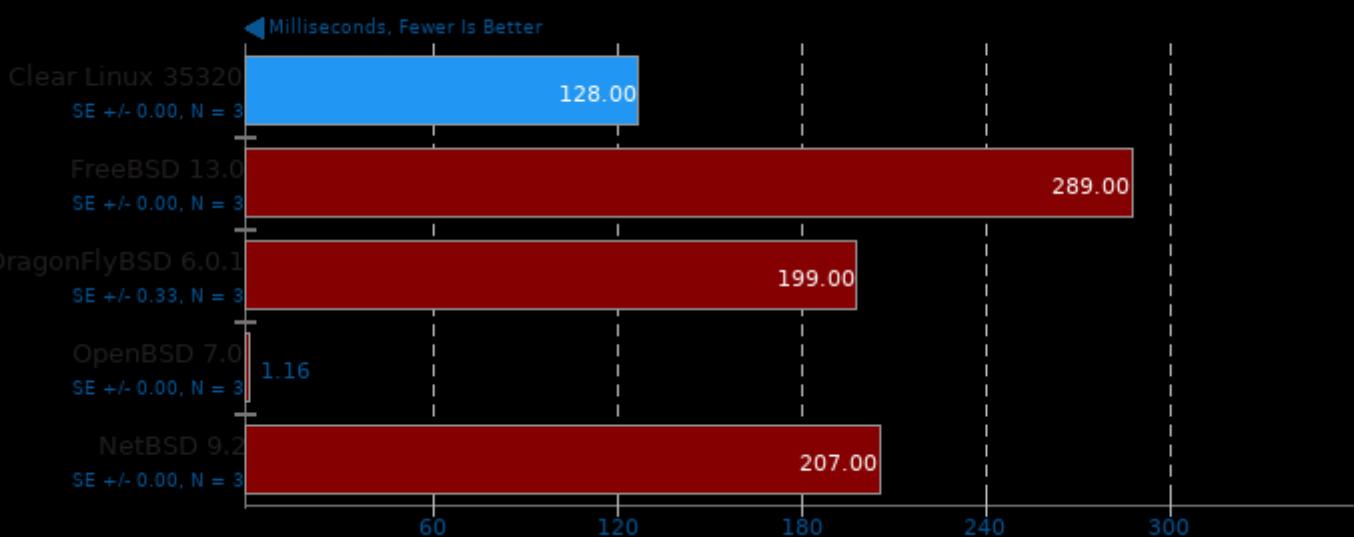
## PyPerformance 1.0.0

Benchmark: float



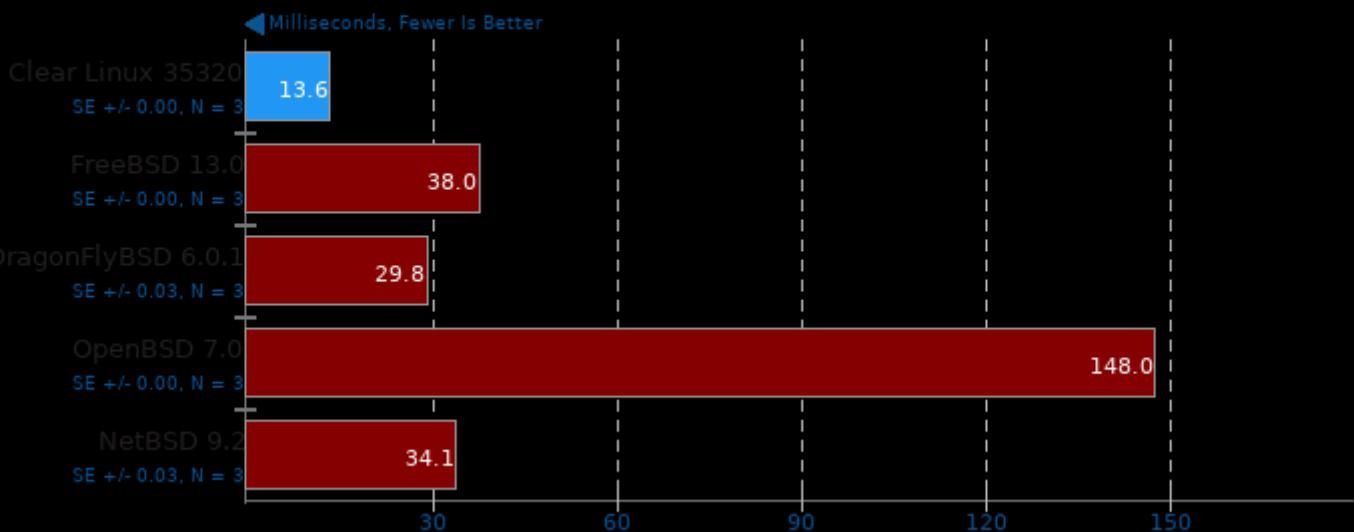
## PyPerformance 1.0.0

Benchmark: nbody



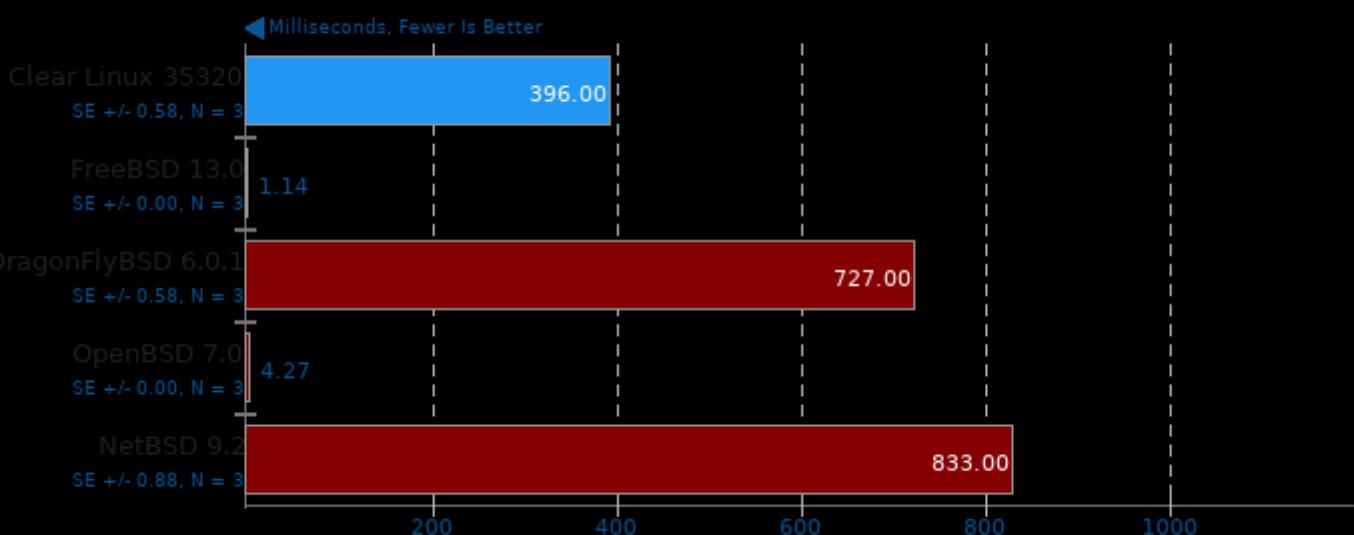
## PyPerformance 1.0.0

Benchmark: pathlib



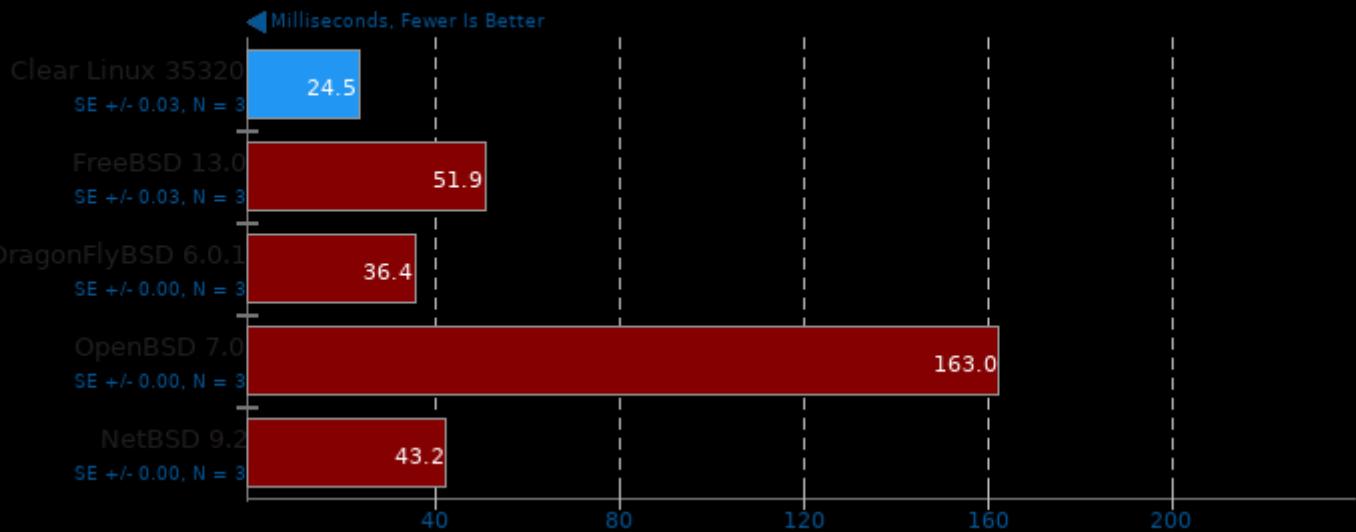
## PyPerformance 1.0.0

Benchmark: raytrace



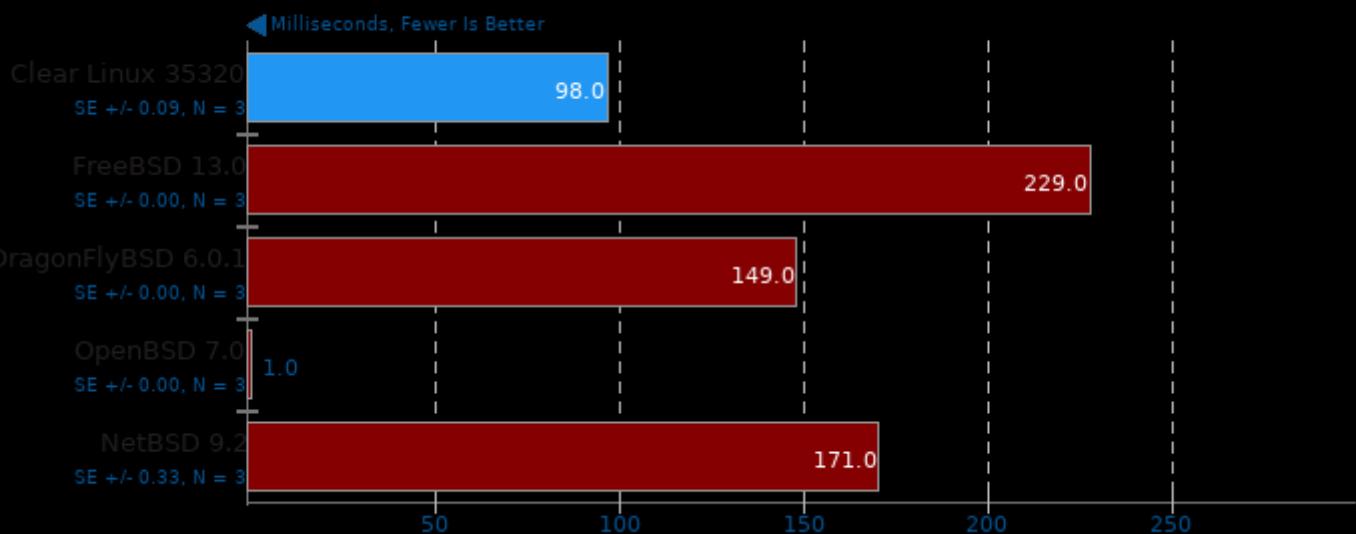
## PyPerformance 1.0.0

Benchmark: json.loads



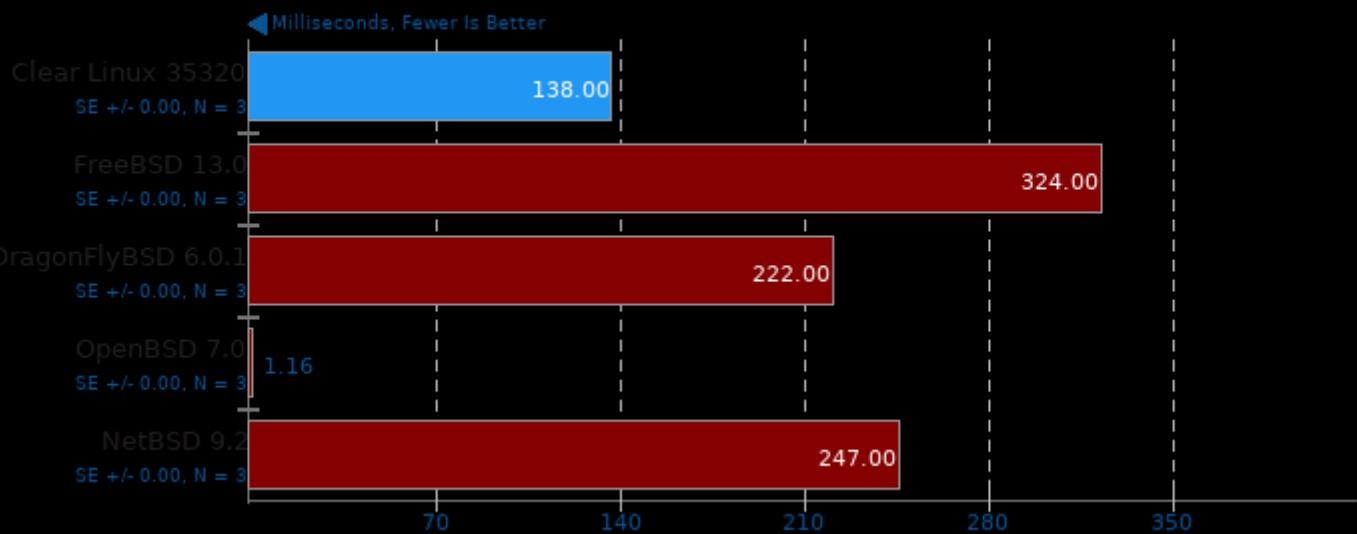
## PyPerformance 1.0.0

Benchmark: crypto\_pyaes



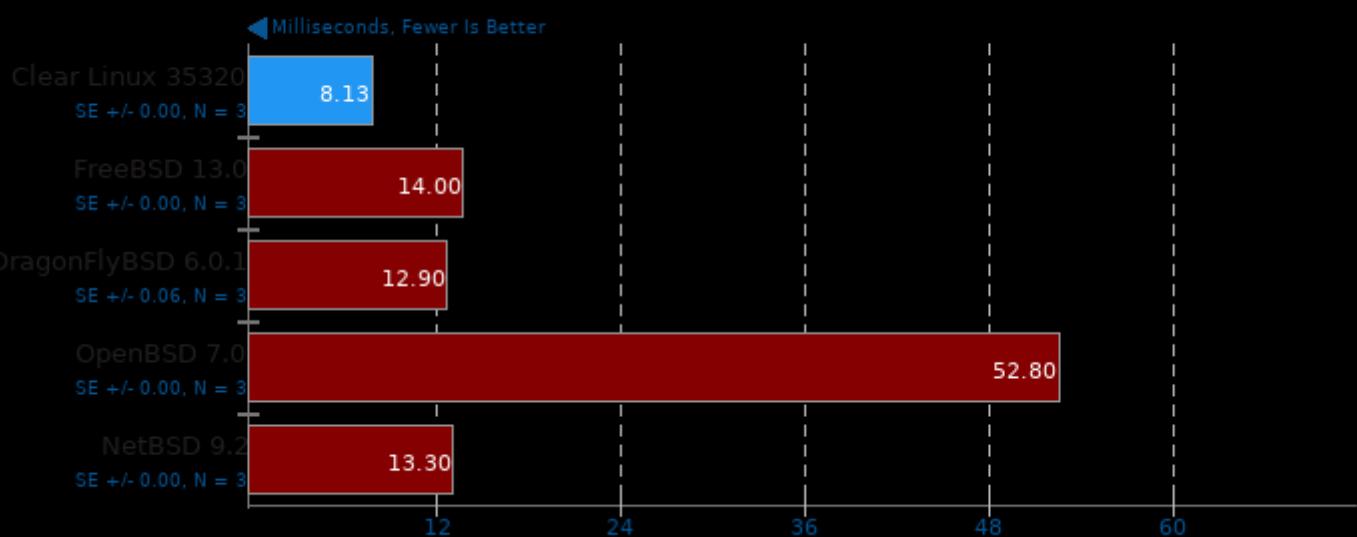
## PyPerformance 1.0.0

Benchmark: regex\_compile



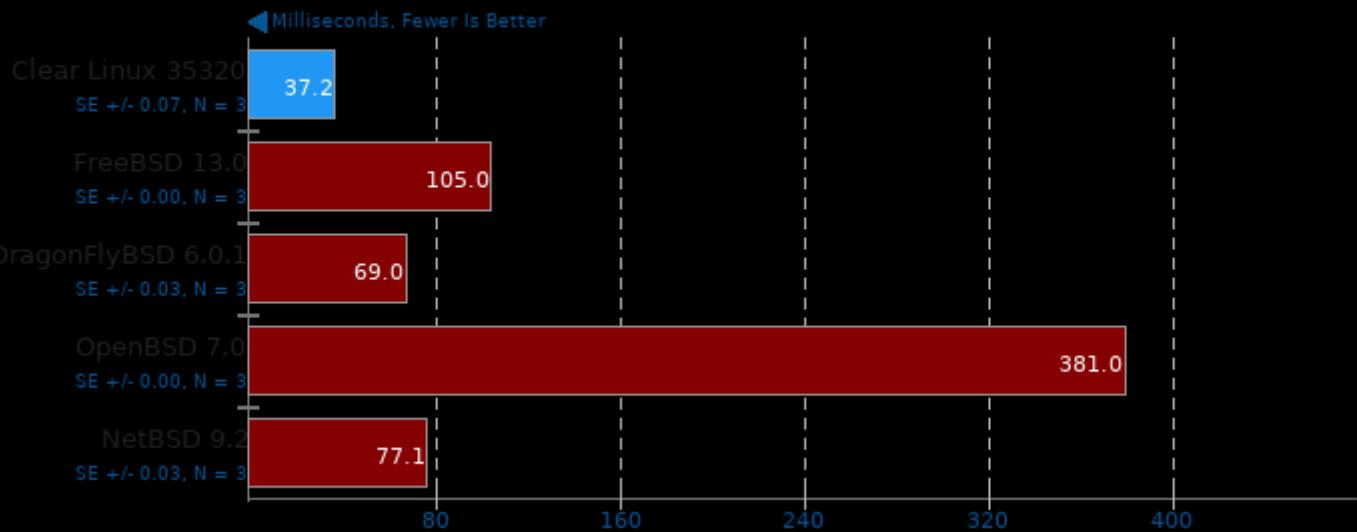
## PyPerformance 1.0.0

Benchmark: python\_startup



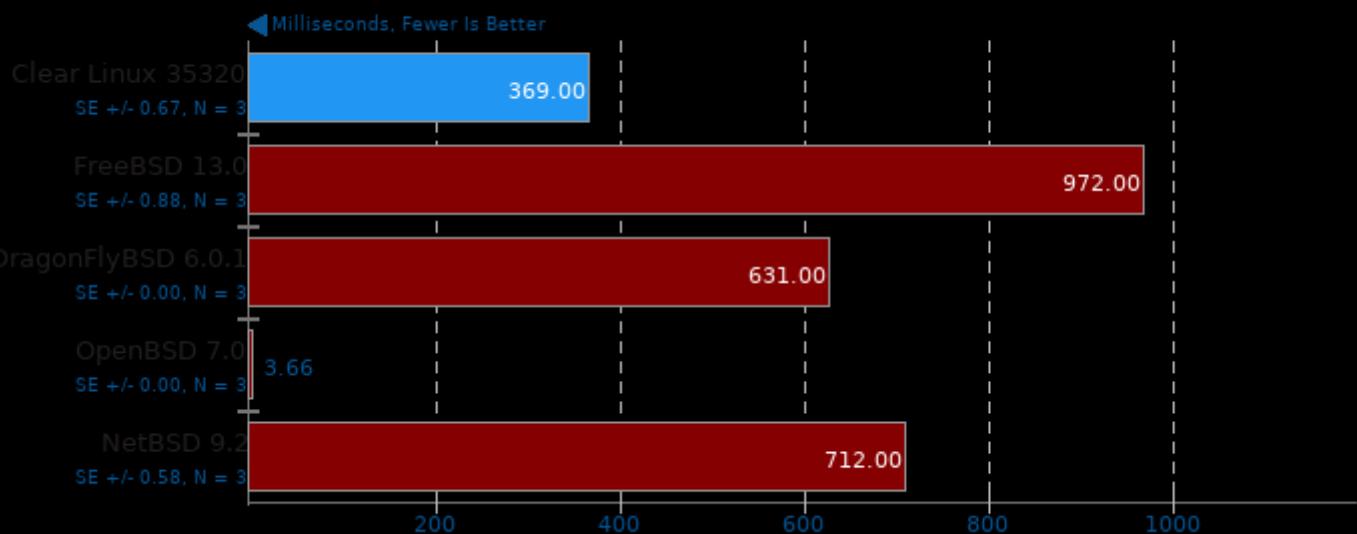
## PyPerformance 1.0.0

Benchmark: django\_template



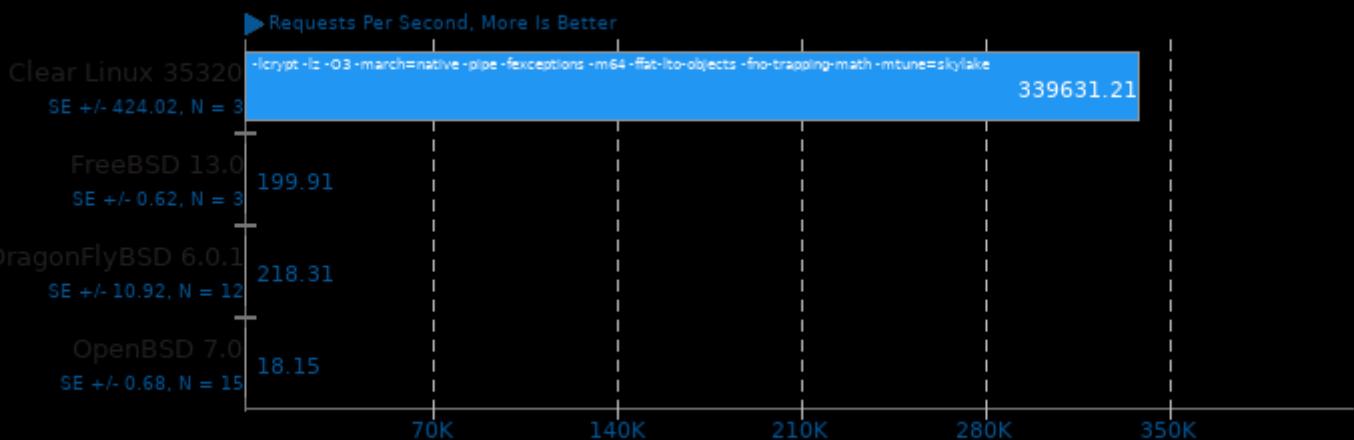
## PyPerformance 1.0.0

Benchmark: pickle\_pure\_python



## nginx 1.21.1

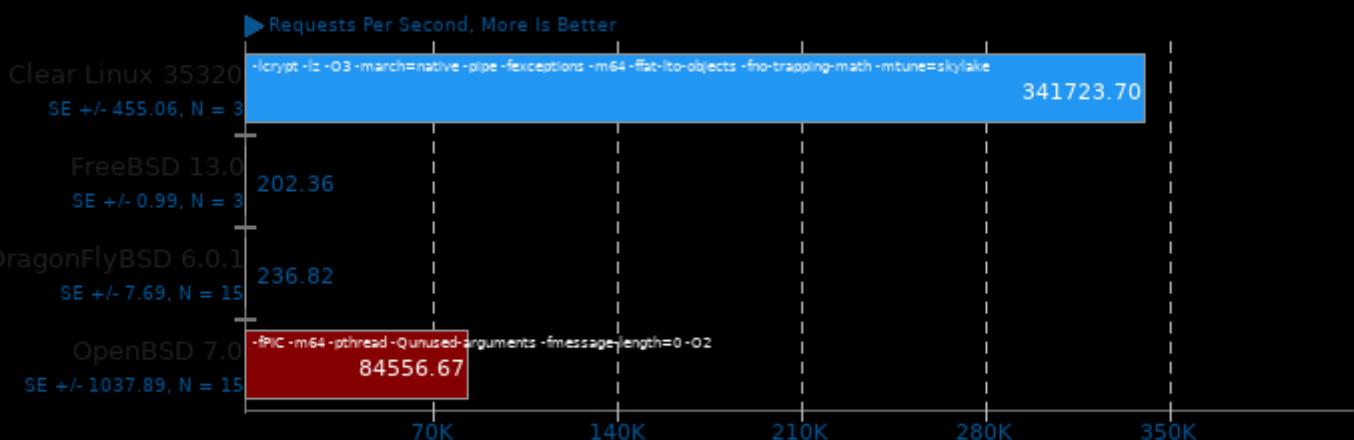
Concurrent Requests: 100



1. (CC) gcc options:

## nginx 1.21.1

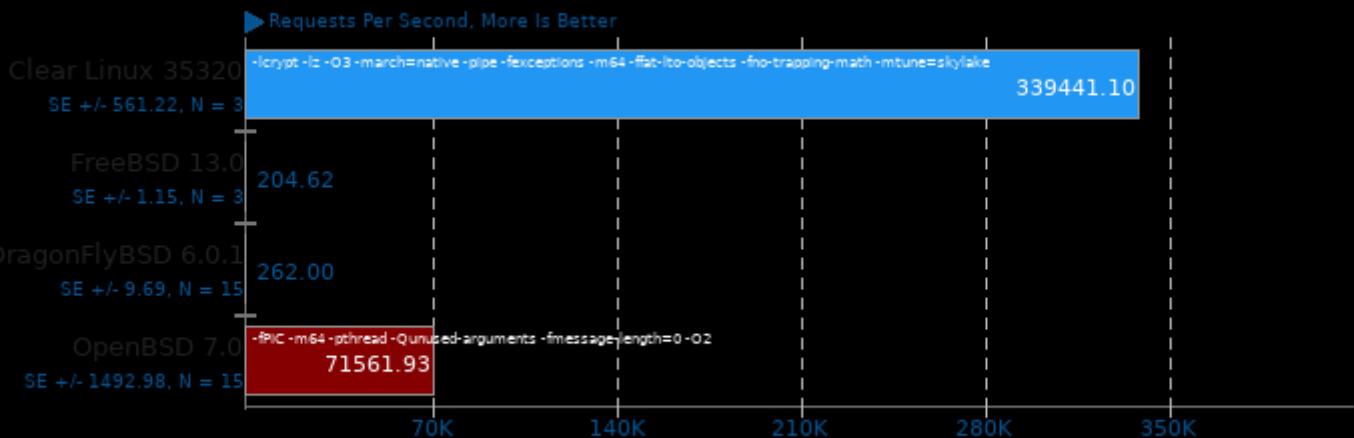
Concurrent Requests: 200



1. (CC) gcc options:

## nginx 1.21.1

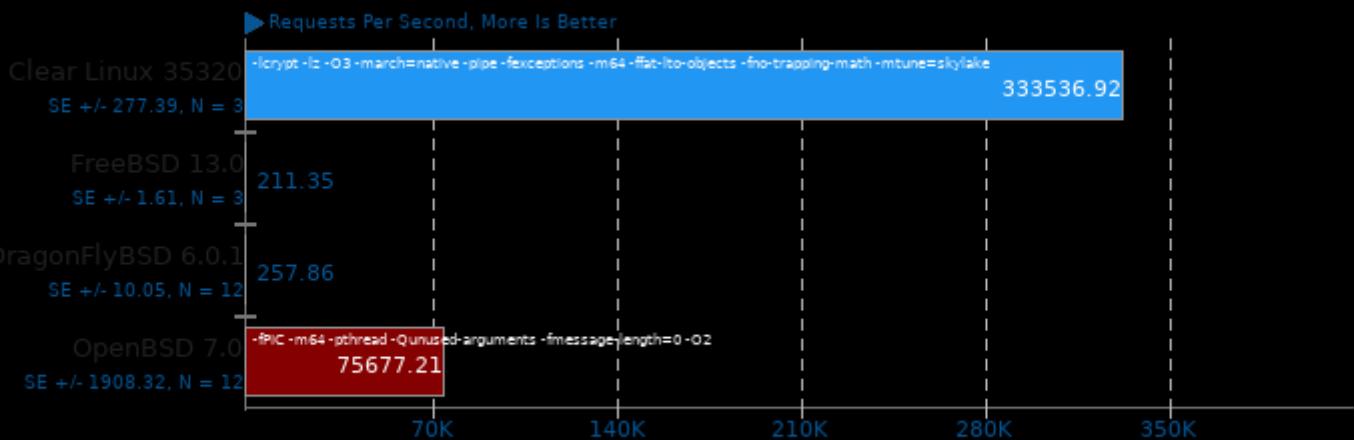
Concurrent Requests: 500



1. (CC) gcc options:

## nginx 1.21.1

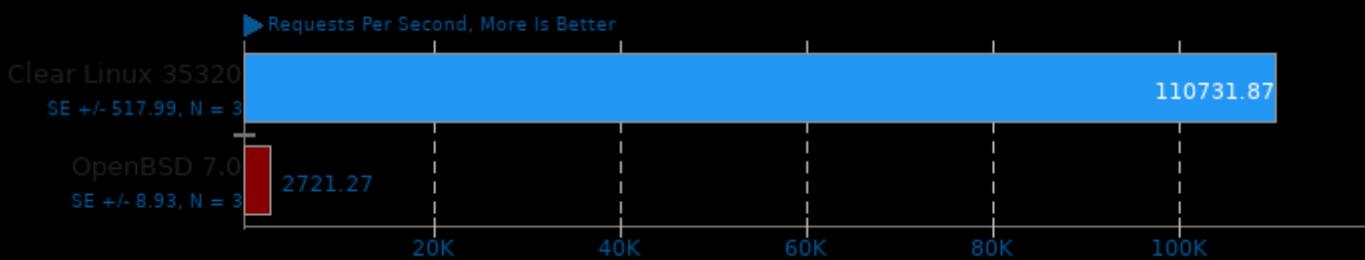
Concurrent Requests: 1000



1. (CC) gcc options:

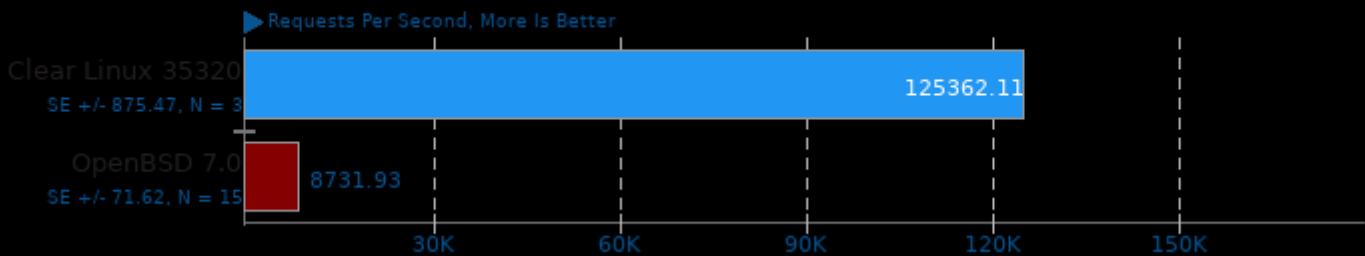
## Apache HTTP Server 2.4.48

Concurrent Requests: 100



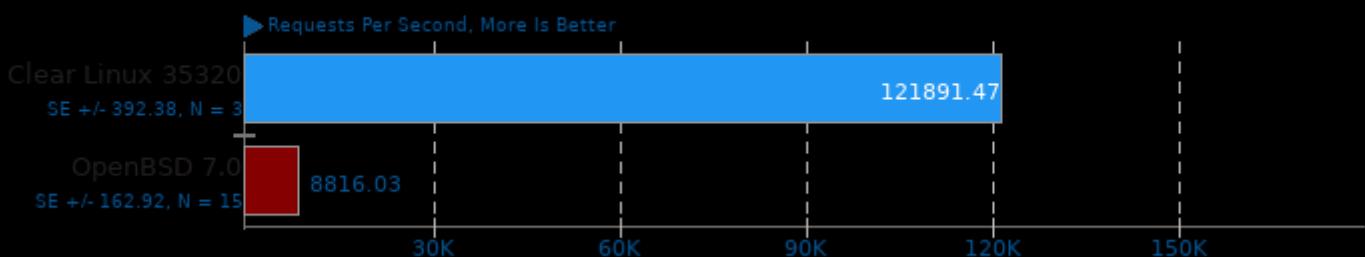
## Apache HTTP Server 2.4.48

Concurrent Requests: 200



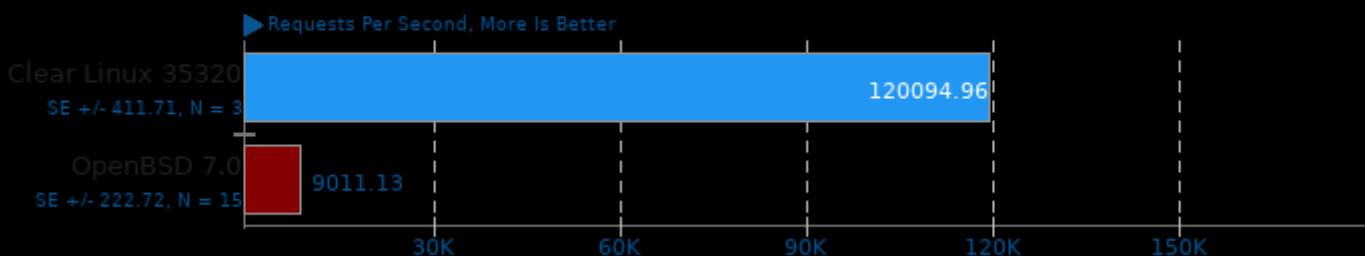
## Apache HTTP Server 2.4.48

Concurrent Requests: 500



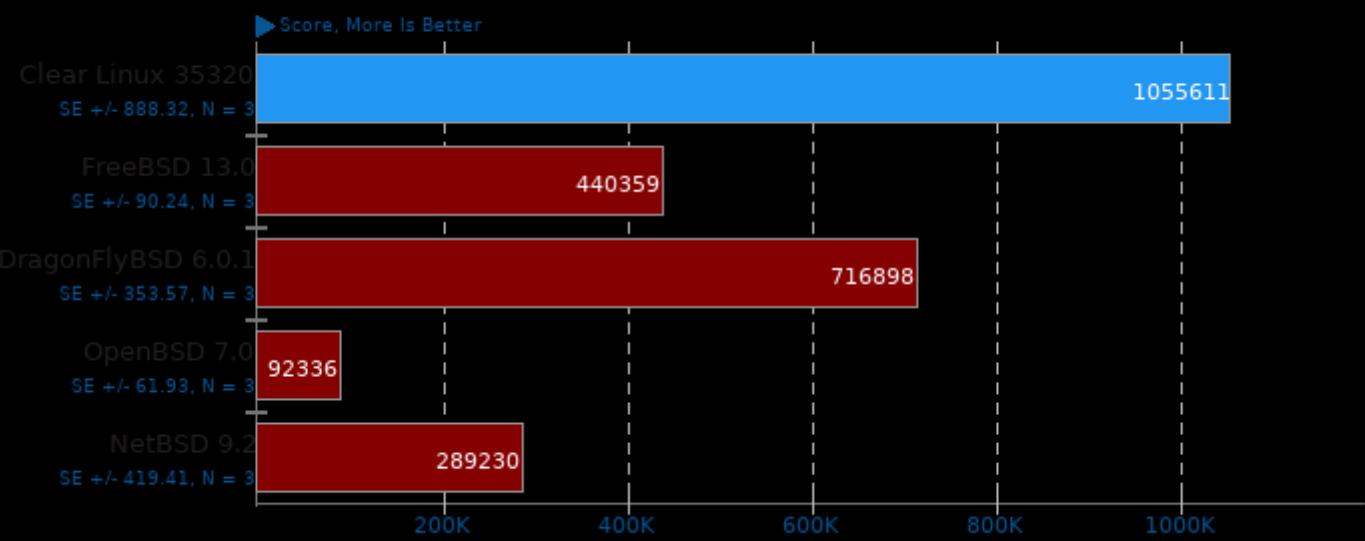
## Apache HTTP Server 2.4.48

Concurrent Requests: 1000



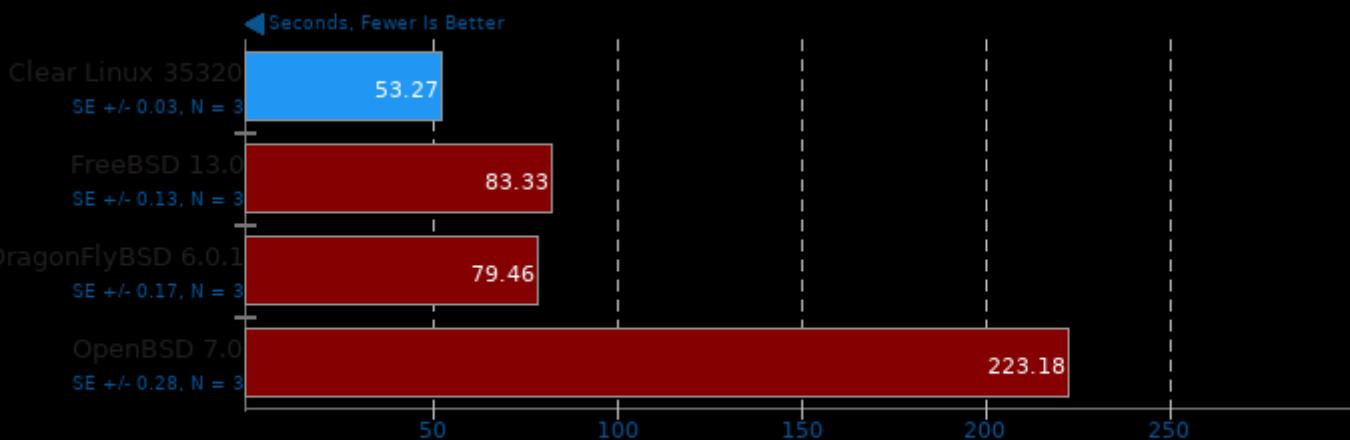
## PHPBench 0.8.1

PHP Benchmark Suite



## Git

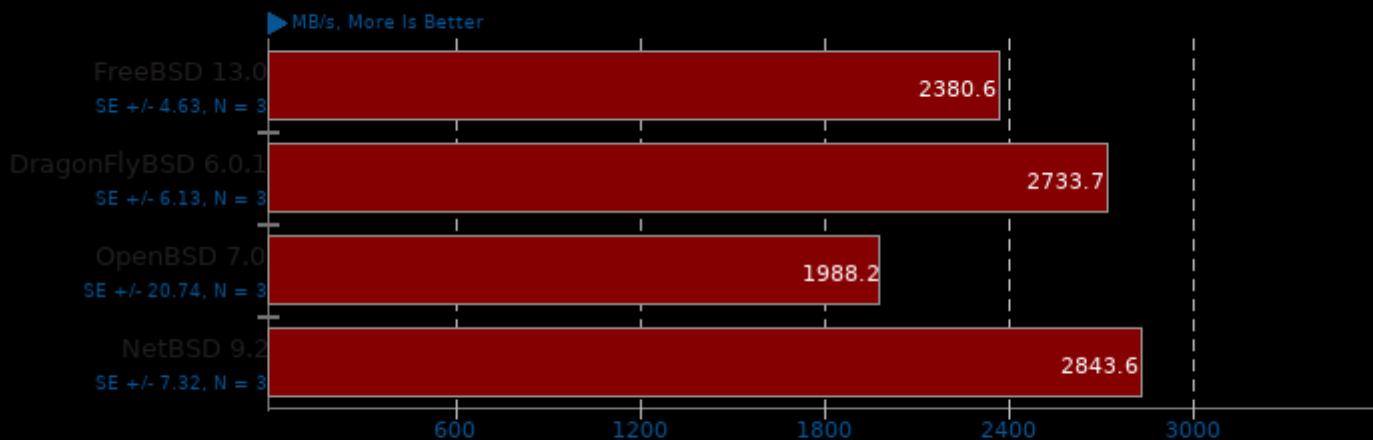
Time To Complete Common Git Commands



1. Clear Linux 35320: git version 2.34.0
2. FreeBSD 13.0: git version 2.32.0
3. DragonFlyBSD 6.0.1: git version 2.32.0
4. OpenBSD 7.0: git version 2.33.0

## Zstd Compression

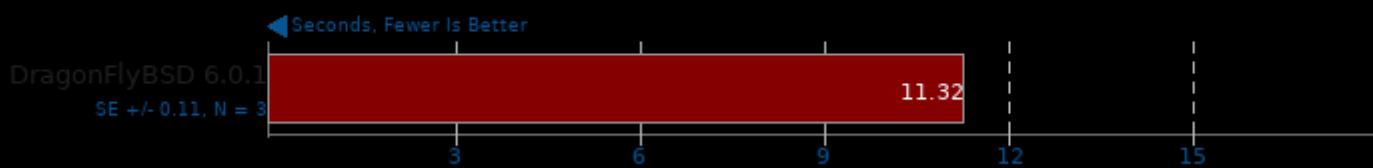
Compression Level: 3 - Decompression Speed



1. FreeBSD 13.0: \*\*\* zstd command line interface 64-bits v1.4.8, by Yann Collet \*\*\*
2. DragonFlyBSD 6.0.1: \*\*\* zstd command line interface 64-bits v1.4.8, by Yann Collet \*\*\*
3. OpenBSD 7.0: \*\*\* zstd command line interface 64-bits v1.5.0, by Yann Collet \*\*\*
4. NetBSD 9.2: \*\*\* zstd command line interface 64-bits v1.5.0, by Yann Collet \*\*\*

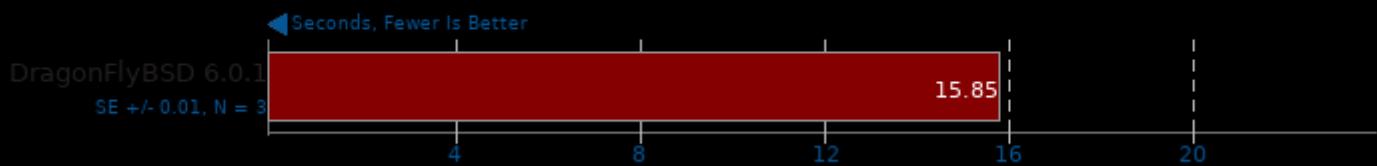
## GIMP 2.10.24

Test: resize



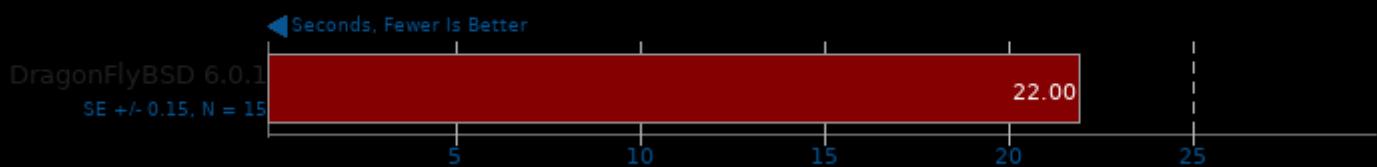
## GIMP 2.10.24

Test: rotate



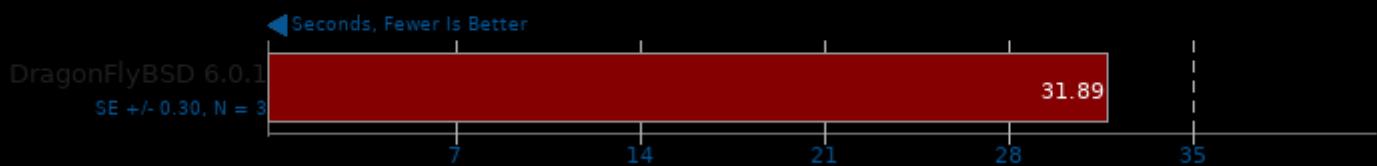
## GIMP 2.10.24

Test: auto-levels



## GIMP 2.10.24

Test: unsharp-mask

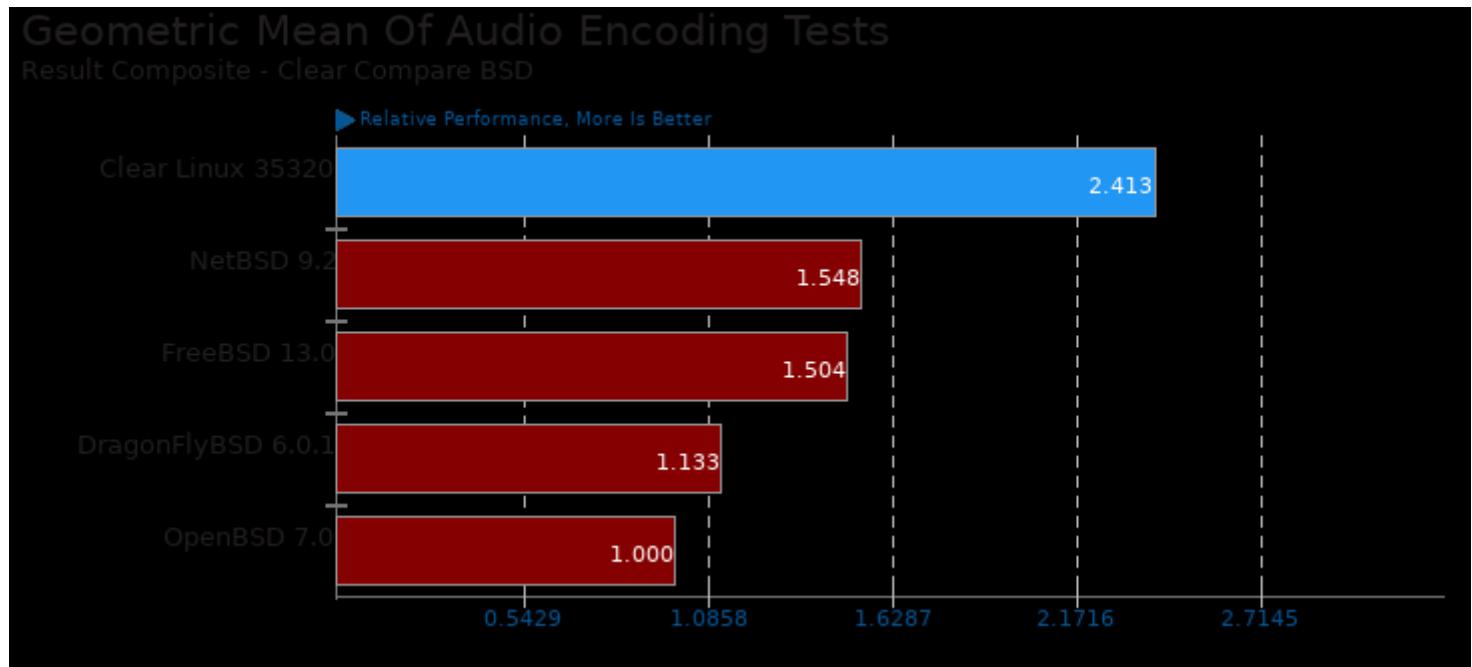


## Build2 0.13

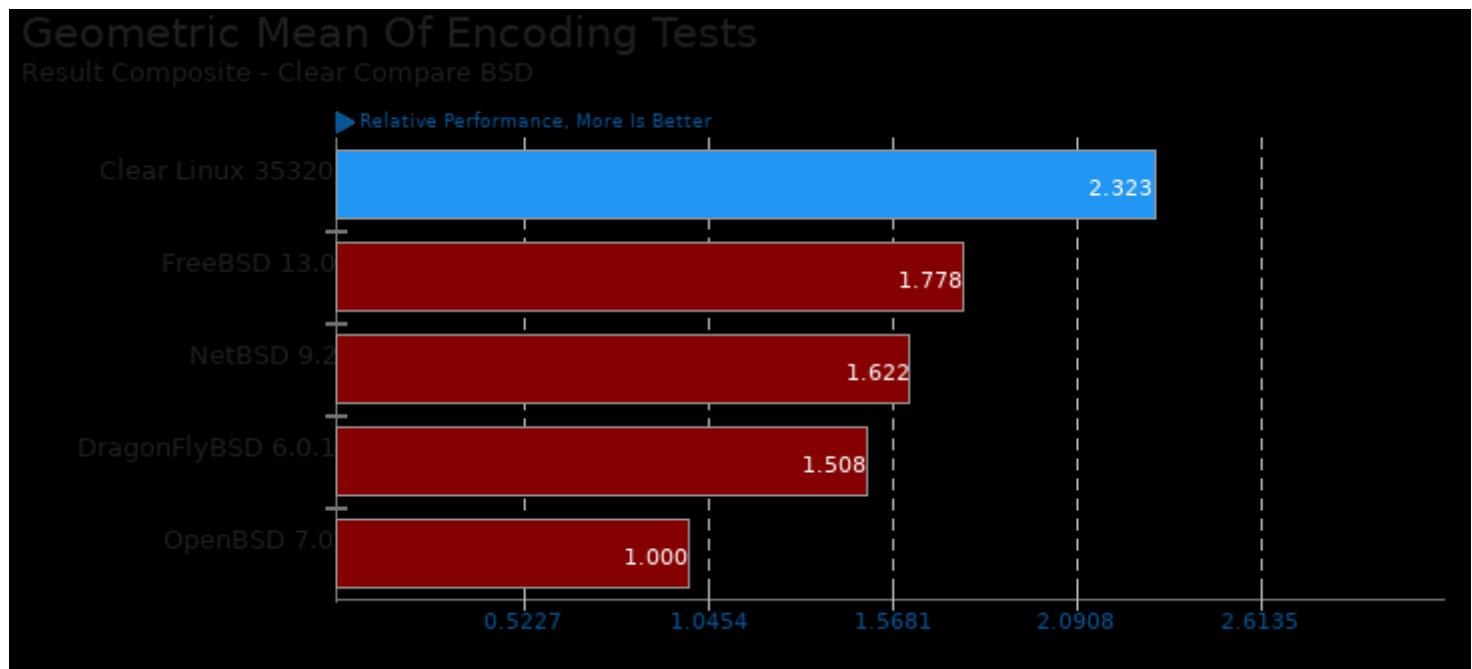
Time To Compile



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



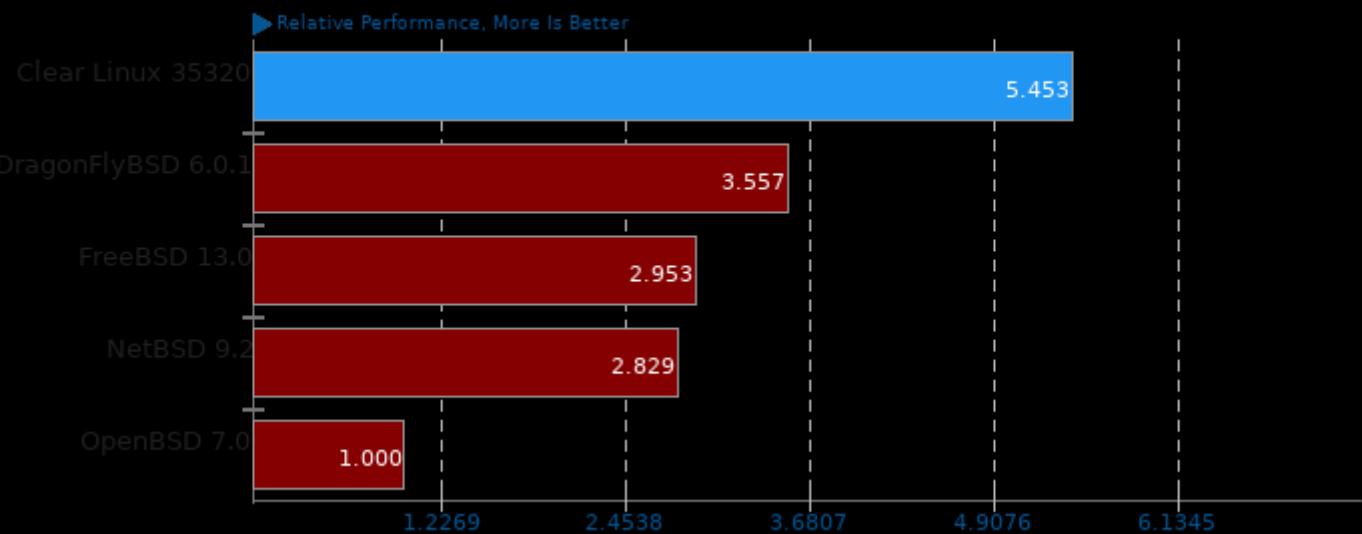
Geometric mean based upon tests: pts/encode-mp3, pts/encode-flac and pts/encode-opus



Geometric mean based upon tests: pts/encode-mp3, pts/encode-flac, pts/encode-opus, pts/x264, pts/x265, pts/kvazaar, pts/vpxenc, pts/dav1d, pts/aom-av1 and pts/avifenc

## Geometric Mean Of Imaging Tests

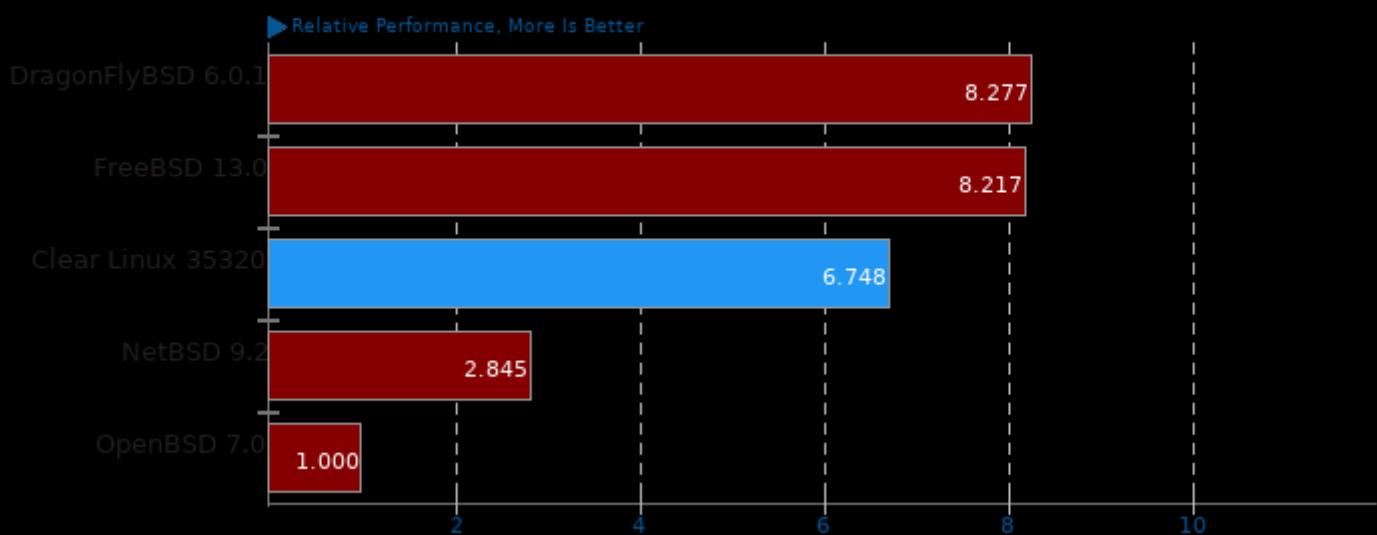
Result Composite - Clear Compare BSD



Geometric mean based upon tests: pts/graphics-magick, pts/libraw, system/rawtherapee, pts/tjbench, system/gimp and pts/avifenc

## Geometric Mean Of Common Kernel Benchmarks Tests

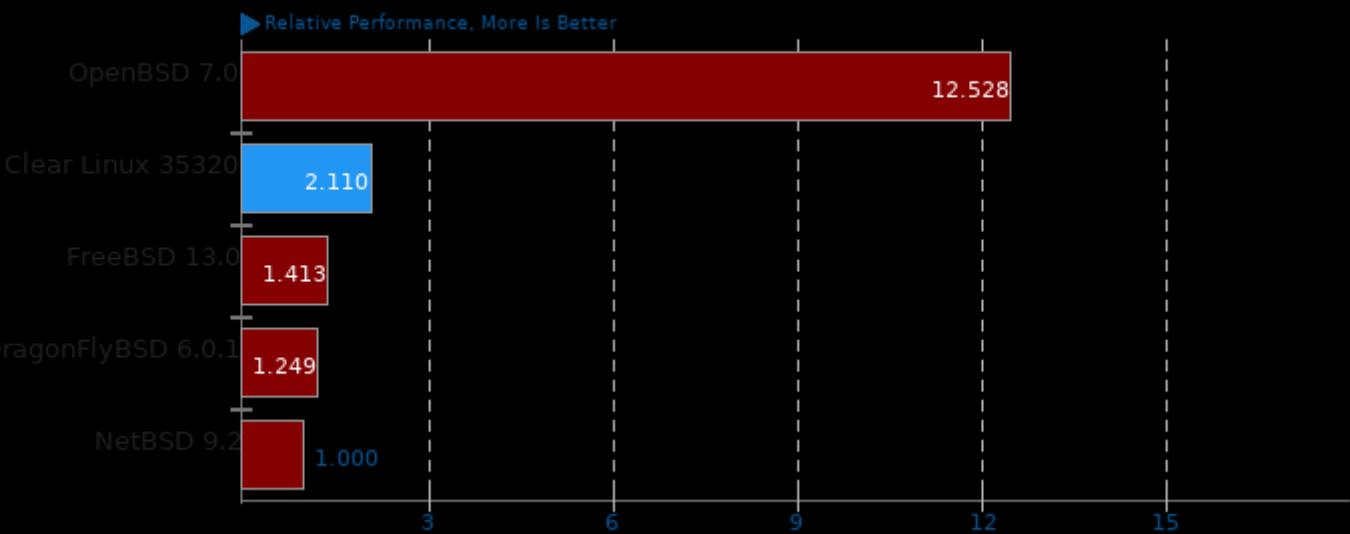
Result Composite - Clear Compare BSD



Geometric mean based upon tests: pts/apache, pts/sqlite-speedtest, pts/openssl, pts/stress-ng and pts/osbench

## Geometric Mean Of Programmer / Developer System Benchmarks Tests

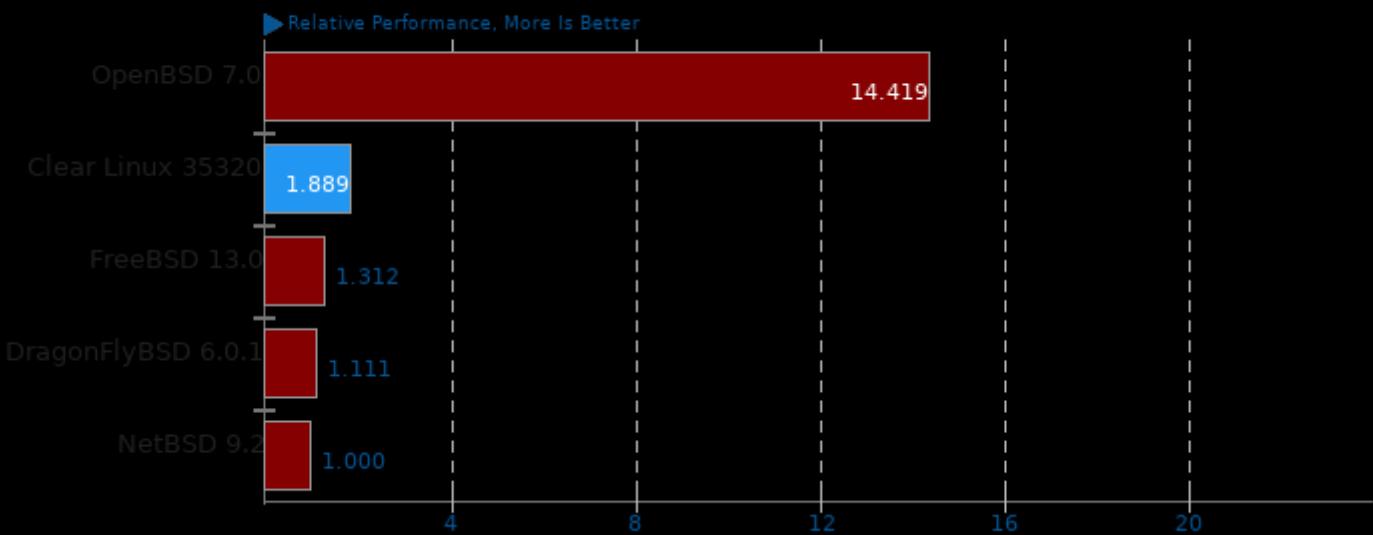
Result Composite - Clear Compare BSD



Geometric mean based upon tests: pts/sqlite-speedtest, pts/node-web-tooling, pts/git, pts/blosc, pts/compress-zstd, pts/pyperformance, pts/pybench, pts/build-apache, pts/build-php, pts/build-llvm, pts/build-ffmpeg, pts/build2, pts/build-nodejs and pts/mt-dgemm

## Geometric Mean Of Python Tests

Result Composite - Clear Compare BSD

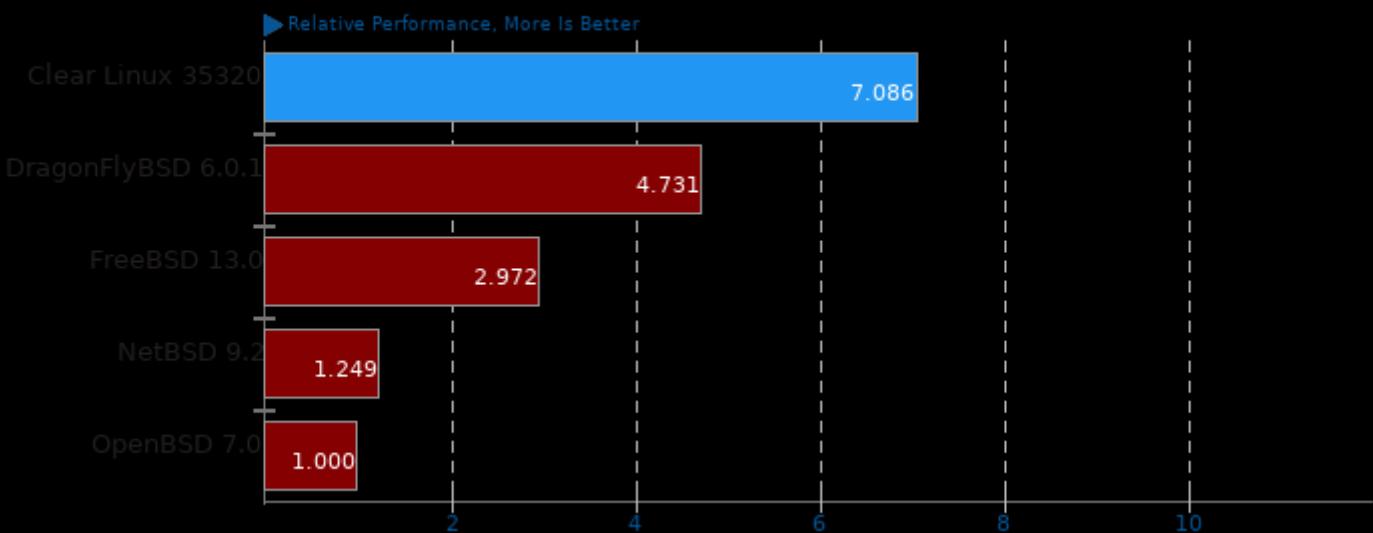


Geometric mean based upon tests: pts/pybench, pts/numpy and pts/pyperformance

## Clear Compare BSD

### Geometric Mean Of Server Tests

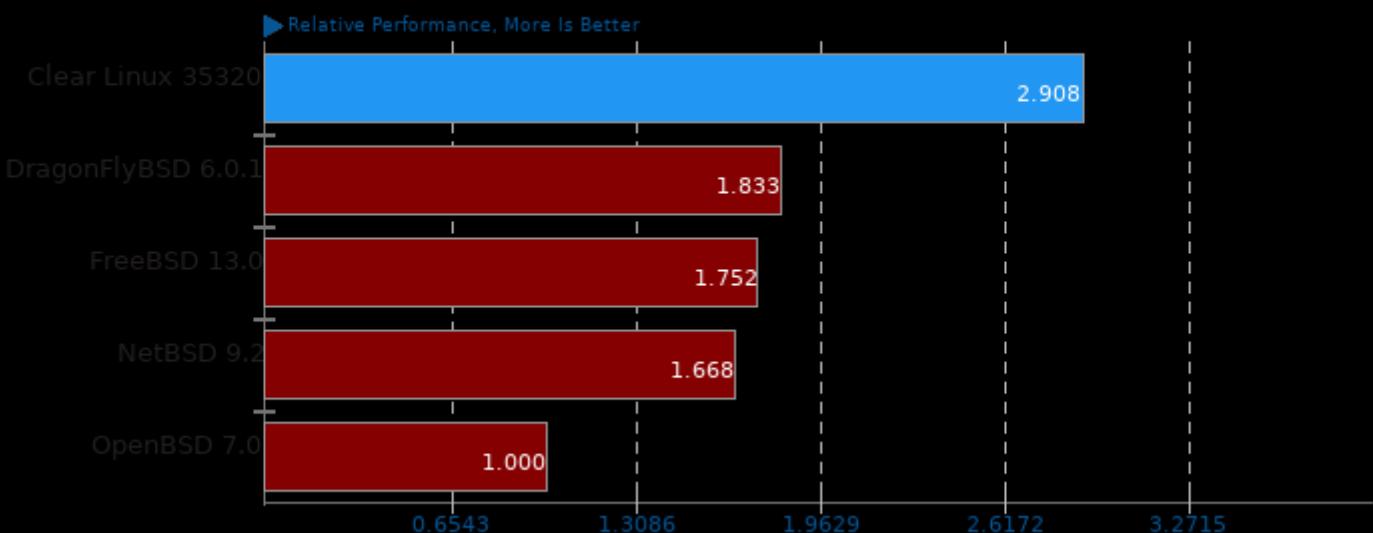
Result Composite - Clear Compare BSD



Geometric mean based upon tests: pts/apache, pts/nginx, pts/ebizzy, pts/phpbench, pts/node-express-loadtest, pts/openssl, pts/perl-benchmark, pts/node-web-tooling and pts/sqlite-speedtest

### Geometric Mean Of Single-Threaded Tests

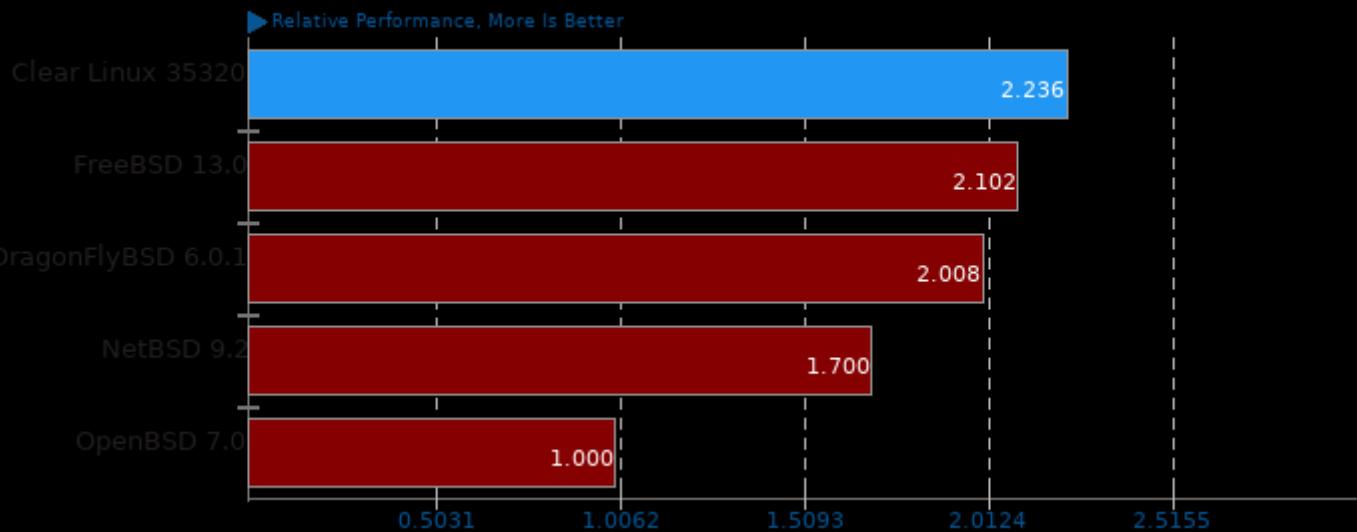
Result Composite - Clear Compare BSD



Geometric mean based upon tests: pts/lzbench, pts/blake2, pts/byte, pts/luajit, pts/node-express-loadtest, pts/numpy, pts/compress-gzip, pts/encode-flac, pts/encode-mp3, pts/perl-benchmark, pts/tjbench, pts/pybench, pts/phpbench, pts/nginx and pts/git

## Geometric Mean Of Video Encoding Tests

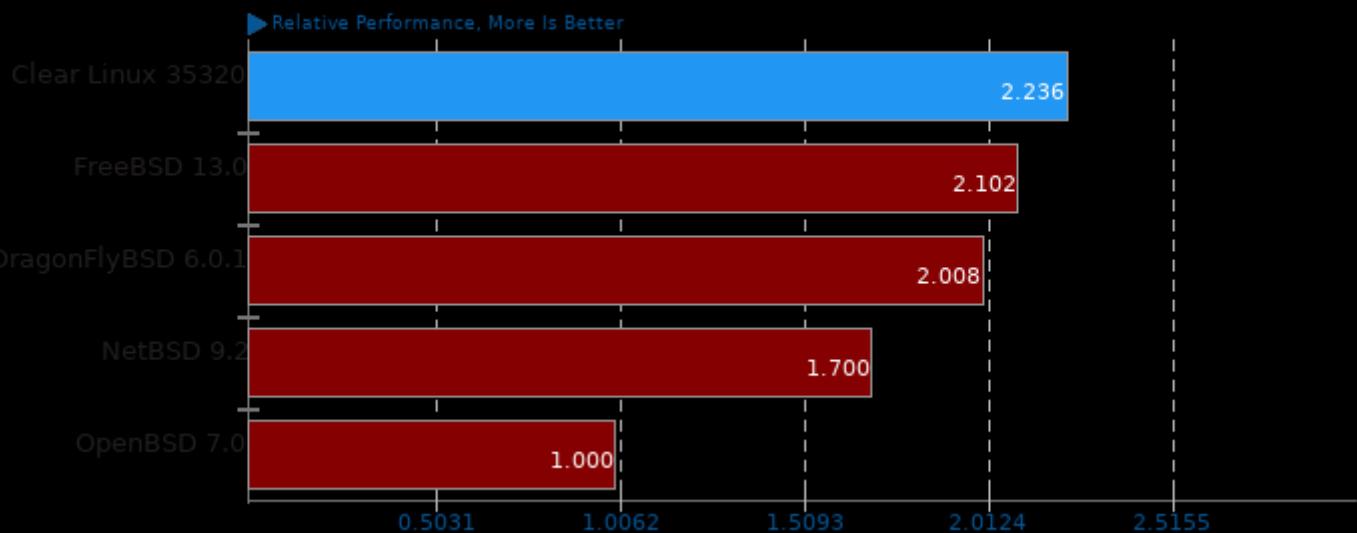
Result Composite - Clear Compare BSD



Geometric mean based upon tests: pts/x264, pts/x265, pts/kvazaar, pts/vpxenc, pts/dav1d, pts/aom-av1 and pts/avifenc

## Geometric Mean Of Common Workstation Benchmarks Tests

Result Composite - Clear Compare BSD



Geometric mean based upon tests: pts/rodinia, pts/x265 and pts/git

*This file was automatically generated via the Phoronix Test Suite benchmarking software on Thursday, 28 March 2024 06:05.*