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FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

WIP benchmarks by Michael Larabel.

Automated Executive Summary

FreeBSD 13 BETA1 had the most wins, coming in first place for 96% of the tests.

Based on the geometric mean of all complete results, the fastest (FreeBSD 12.2) was 10.453x the speed of the slowest (FreeBSD 12.2).

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

OSBench (Test: Create Threads) at 5.208x

OSBench (Test: Launch Programs) at 2.556x

Stress-NG (Test: Forking) at 2.464x

OSBench (Test: Memory Allocations) at 2.297x

BlogBench (Test: Read) at 2.267x

OSBench (Test: Create Processes) at 2.249x

Stress-NG (Test: Socket Activity) at 2.048x

iPerf (Server Address: localhost - Server Port: 5201 - Duration: 10 Seconds - Test: TCP - Parallel: 1) at 1.997x

PyPerformance (Benchmark: pathlib) at 1.978x

SQLite Speedtest (Timed Time - Size 1,000) at 1.973x.

Test Systems:

FreeBSD 12.2

Processor: Intel Xeon E-2278GEL @ 2.00GHz (16 Cores), Motherboard: Logic Supply RXM-181 TBD by OEM, Chipset: Intel, Memory: 16GB, Disk: TS512GMTE510T, Graphics: Intel, Audio: Intel Coffee Lake HDA, Network: Intel PRO/1000 Connection

OS: FreeBSD, Kernel: 12.2-RELEASE (x86_64), Compiler: Clang 10.0.1, File-System: zfs, Screen Resolution: 800x600

Java Notes: OpenJDK Runtime Environment (build 11.0.9+11-1)

Python Notes: Python 3.7.9

FreeBSD 13 BETA1

Processor: Intel Xeon E-2278GEL @ 1.99GHz (16 Cores), Motherboard: Logic Supply RXM-181 TBD by OEM, Chipset: Intel, Memory: 16GB, Disk: TS512GMTE510T, Graphics: Intel, Audio: Intel Coffee Lake HDA, Network: Intel PRO/1000 Connection

OS: FreeBSD, Kernel: 13.0-BETA1 (x86_64), Compiler: Clang 11.0.1, File-System: zfs, Screen Resolution: 800x600

Java Notes: OpenJDK Runtime Environment (build 11.0.9+11-1)

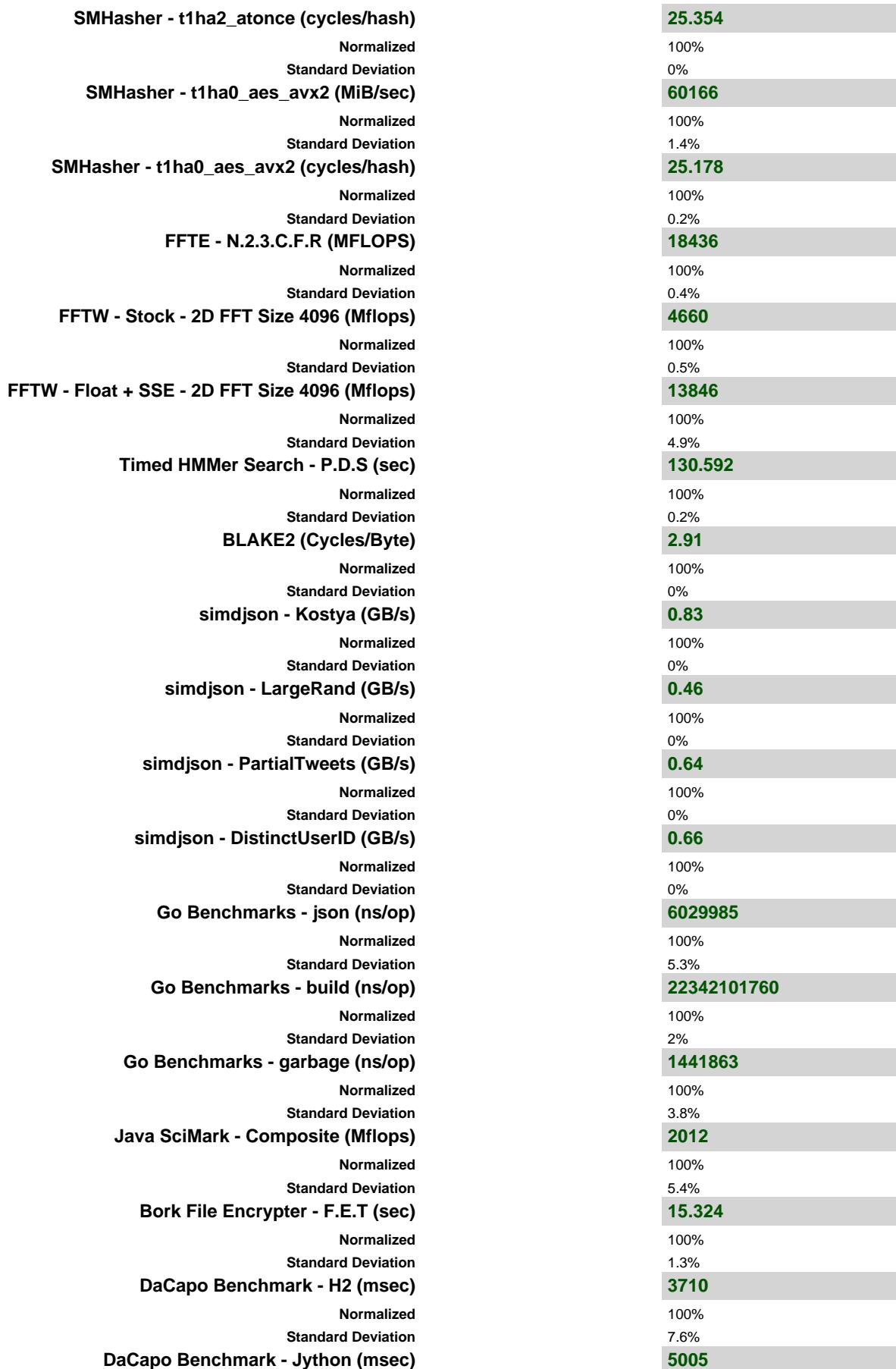
Python Notes: Python 3.7.9

	FreeBSD 12.2	FreeBSD 13 BETA1
BlogBench - Read (Final Score)	728692	1652105
Normalized	44.11%	100%
Standard Deviation	4.8%	1.6%
BlogBench - Write (Final Score)	4370	10259
Normalized	42.6%	100%
Standard Deviation	6.1%	
MBW - Memory Copy - 1024 MiB (MiB/s)	6637	6839
Normalized	97.05%	100%
Standard Deviation	1.7%	1.8%
MBW - M.C.F.B.S - 1024 MiB (MiB/s)	6831	7371
Normalized	92.67%	100%
Standard Deviation	1%	0.3%
iPerf - 5201 - 10 Seconds - UDP - 1000Mbit Objective - 32 (Mbits/s)	27600	30597
Normalized	90.2%	100%
Standard Deviation	1.7%	0.6%
iPerf - 5201 - 10 Seconds - TCP - 1 (Mbits/s)	35013	69905
Normalized	50.09%	100%
Standard Deviation	3.8%	1%
iPerf - 5201 - 10 Seconds - TCP - 32 (Mbits/s)	34030	62574
Normalized	54.38%	100%
Standard Deviation	1.4%	1%
OSBench - Create Files (us/Event)	123.229822	67.993345
Normalized	55.18%	100%

FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

	Standard Deviation	11.1%	51.5%
OSBench - Create Threads (us/Event)	Normalized	15.397072	2.956391
	Standard Deviation	0.7%	1.5%
OSBench - Launch Programs (us/Event)	Normalized	127.126376	49.739679
	Standard Deviation	0.2%	0.4%
OSBench - Create Processes (us/Event)	Normalized	60.876210	27.066866
	Standard Deviation	0.7%	0.8%
OSBench - Memory Allocations (Ns/Event)	Normalized	60.998678	26.557922
	Standard Deviation	0.3%	0.1%
GNU MPC - M.P.B (Global Score)	Normalized	4593	8020
	Standard Deviation	0.1%	
Rodinia - OpenMP CFD Solver (sec)	Normalized	45.227	33.306
	Standard Deviation	0.1%	
PolyBench-C - C.C (sec)	Normalized		6.489
	Standard Deviation	0.1%	
PolyBench-C - C.C (sec)	Normalized		6.484
	Standard Deviation	0.2%	
PolyBench-C - 3.M.M (sec)	Normalized		3.343
	Standard Deviation	0.6%	
SMHasher - wyhash (MiB/sec)	Normalized		24086
	Standard Deviation	0.2%	
SMHasher - wyhash (cycles/hash)	Normalized		18.838
	Standard Deviation	0%	
SMHasher - MeowHash (MiB/sec)	Normalized		50310
	Standard Deviation	0.8%	
SMHasher - MeowHash (cycles/hash)	Normalized		41.421
	Standard Deviation	0.2%	
SMHasher - Spooky32 (MiB/sec)	Normalized		20891
	Standard Deviation	0.3%	
SMHasher - Spooky32 (cycles/hash)	Normalized		32.106
	Standard Deviation	0%	
SMHasher - fasthash32 (MiB/sec)	Normalized		9433
	Standard Deviation	0%	
SMHasher - fasthash32 (cycles/hash)	Normalized		25.996
	Standard Deviation	0%	
SMHasher - t1ha2_atonce (MiB/sec)	Normalized		21002
	Standard Deviation	0.5%	

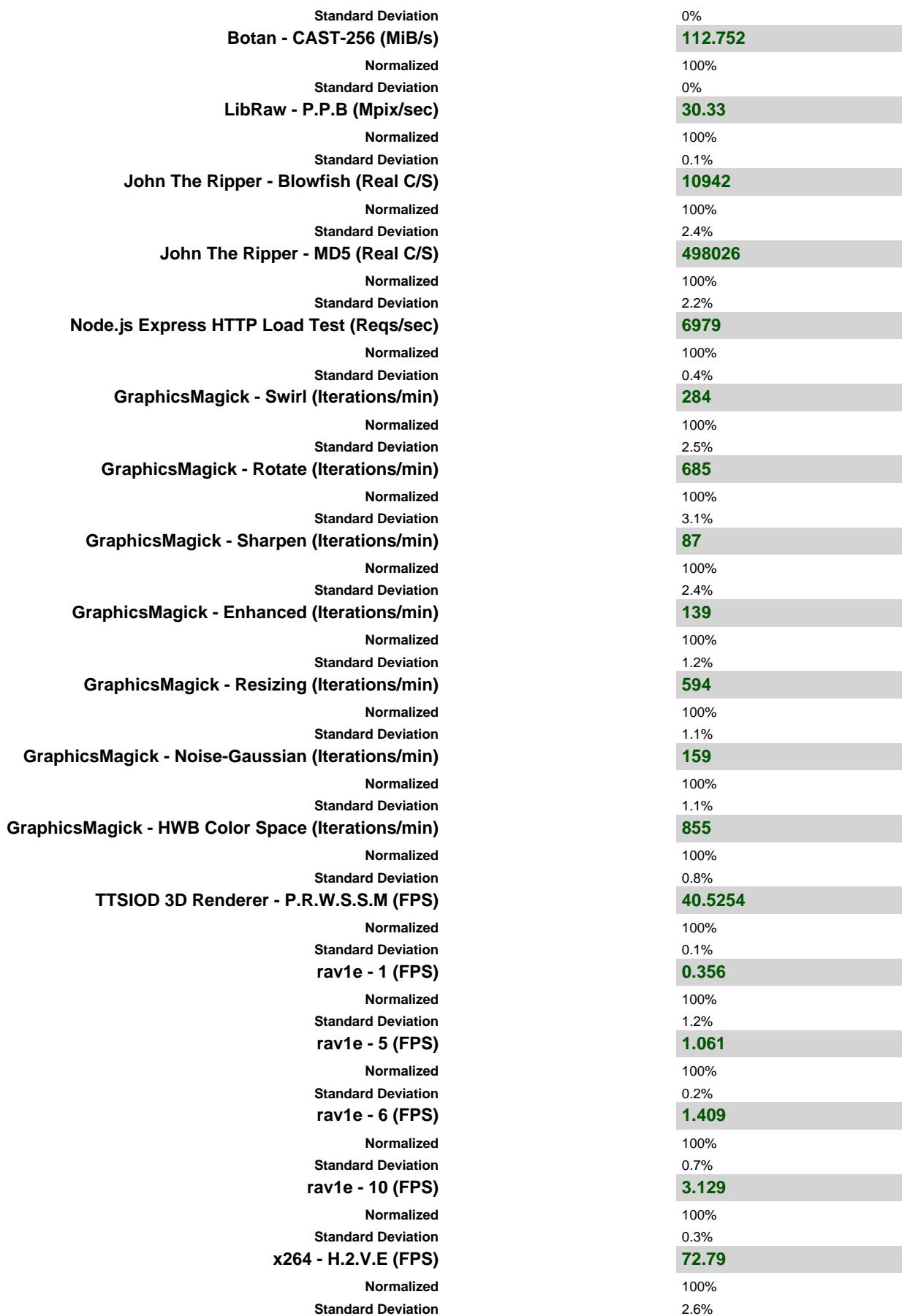
FreeBSD 12.2 vs. FreeBSD 13 Benchmarks



FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

Normalized	100%
Standard Deviation	1.1%
Renaissance - Scala Dotty (ms)	1934
Normalized	100%
Standard Deviation	1.1%
Renaissance - Savina Reactors.IO (ms)	19121
Normalized	100%
Standard Deviation	1.4%
Renaissance - T.H.R (ms)	2702
Normalized	100%
Standard Deviation	1.3%
Renaissance - A.U.C.T (ms)	12361
Normalized	100%
Standard Deviation	2.1%
Renaissance - G.A.U.J.F (ms)	1860
Normalized	100%
Standard Deviation	12.9%
Fhourstones - C.C.4.S (Kpos / sec)	12858
Normalized	100%
Standard Deviation	0.2%
CacheBench - Read (MB/s)	6663
Normalized	100%
Standard Deviation	0%
LuaJIT - Composite (Mflops)	1304
Normalized	100%
Standard Deviation	0.1%
LuaJIT - Monte Carlo (Mflops)	441.46
Normalized	100%
Standard Deviation	0.2%
LuaJIT - F.F.T (Mflops)	439.56
Normalized	100%
Standard Deviation	0.5%
LuaJIT - S.M.M (Mflops)	1129
Normalized	100%
Standard Deviation	0.1%
LuaJIT - D.L.M.F (Mflops)	3195
Normalized	100%
Standard Deviation	0.1%
LuaJIT - J.S.O.R (Mflops)	1317
Normalized	100%
Standard Deviation	0%
SciMark - Composite (Mflops)	613.82
Normalized	100%
Standard Deviation	0.1%
Botan - KASUMI (MiB/s)	73.008
Normalized	100%
Standard Deviation	0%
Botan - AES-256 (MiB/s)	3182
Normalized	100%
Standard Deviation	0%
Botan - Twofish (MiB/s)	255.691
Normalized	100%
Standard Deviation	0.1%
Botan - Blowfish (MiB/s)	315.925
Normalized	100%

FreeBSD 12.2 vs. FreeBSD 13 Benchmarks



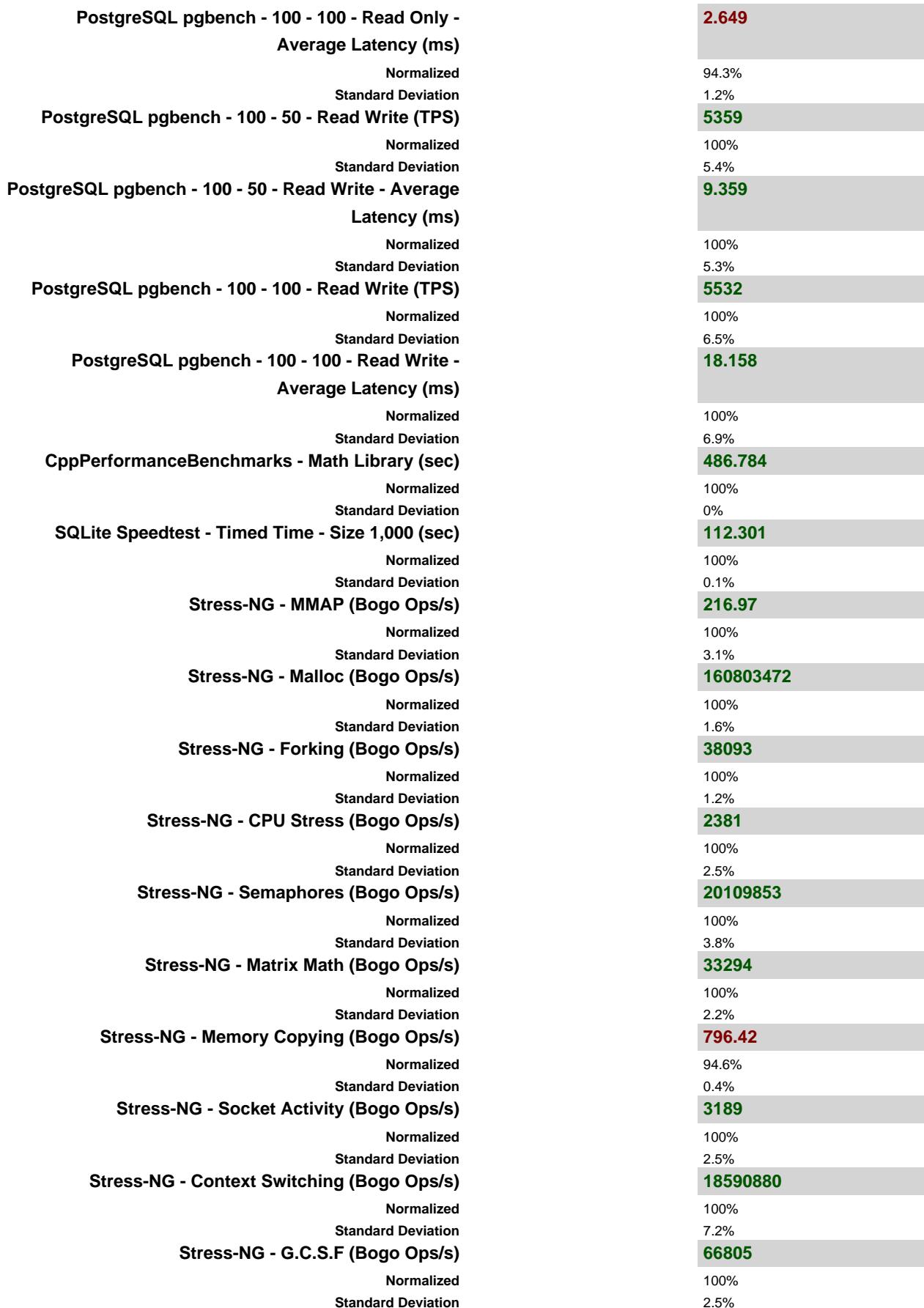
FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

x265 - Bosphorus 4K (FPS)	8.40
Normalized	100%
Standard Deviation	2.5%
x265 - Bosphorus 1080p (FPS)	44.39
Normalized	100%
Standard Deviation	1.8%
Coremark - CoreMark Size 666 - I.P.S (Iterations/Sec)	245018
Normalized	100%
Standard Deviation	2.5%
Himeno Benchmark - P.P.S (MFLOPS)	2879
Normalized	100%
Standard Deviation	0.1%
Stockfish - Total Time (Nodes/s)	12872811
Normalized	100%
Standard Deviation	3.5%
Swet - Average (Operations/sec)	323138442
Normalized	100%
Standard Deviation	0.4%
libavif avifenc - 0 (sec)	133.054
Normalized	100%
Standard Deviation	1.6%
libavif avifenc - 2 (sec)	78.805
Normalized	100%
Standard Deviation	1%
libavif avifenc - 8 (sec)	7.137
Normalized	100%
Standard Deviation	0.5%
libavif avifenc - 10 (sec)	6.795
Normalized	100%
Standard Deviation	0.7%
Timed LLVM Compilation - Time To Compile (sec)	868.511
Normalized	100%
Standard Deviation	0.2%
Timed PHP Compilation - Time To Compile (sec)	52.808
Normalized	100%
Standard Deviation	1.4%
C-Ray - Total Time - 4.1.R.P.P (sec)	138.167
Normalized	100%
Standard Deviation	0.6%
Primesieve - 1.P.N.G (sec)	42.439
Normalized	100%
Standard Deviation	2.4%
Rust Mandelbrot - T.T.C.S.P.M (sec)	61.733
Normalized	100%
Standard Deviation	0%
Rust Prime Benchmark - P.N.T.T.2.0.0 (sec)	13.883
Normalized	100%
Standard Deviation	0.1%
Smallpt - G.I.R.1.S (sec)	18.005
Normalized	100%
Standard Deviation	2.5%
Numpy Benchmark (Score)	290.02
Normalized	100%
Standard Deviation	0.4%
AOBench - 2048 x 2048 - Total Time (sec)	46.765

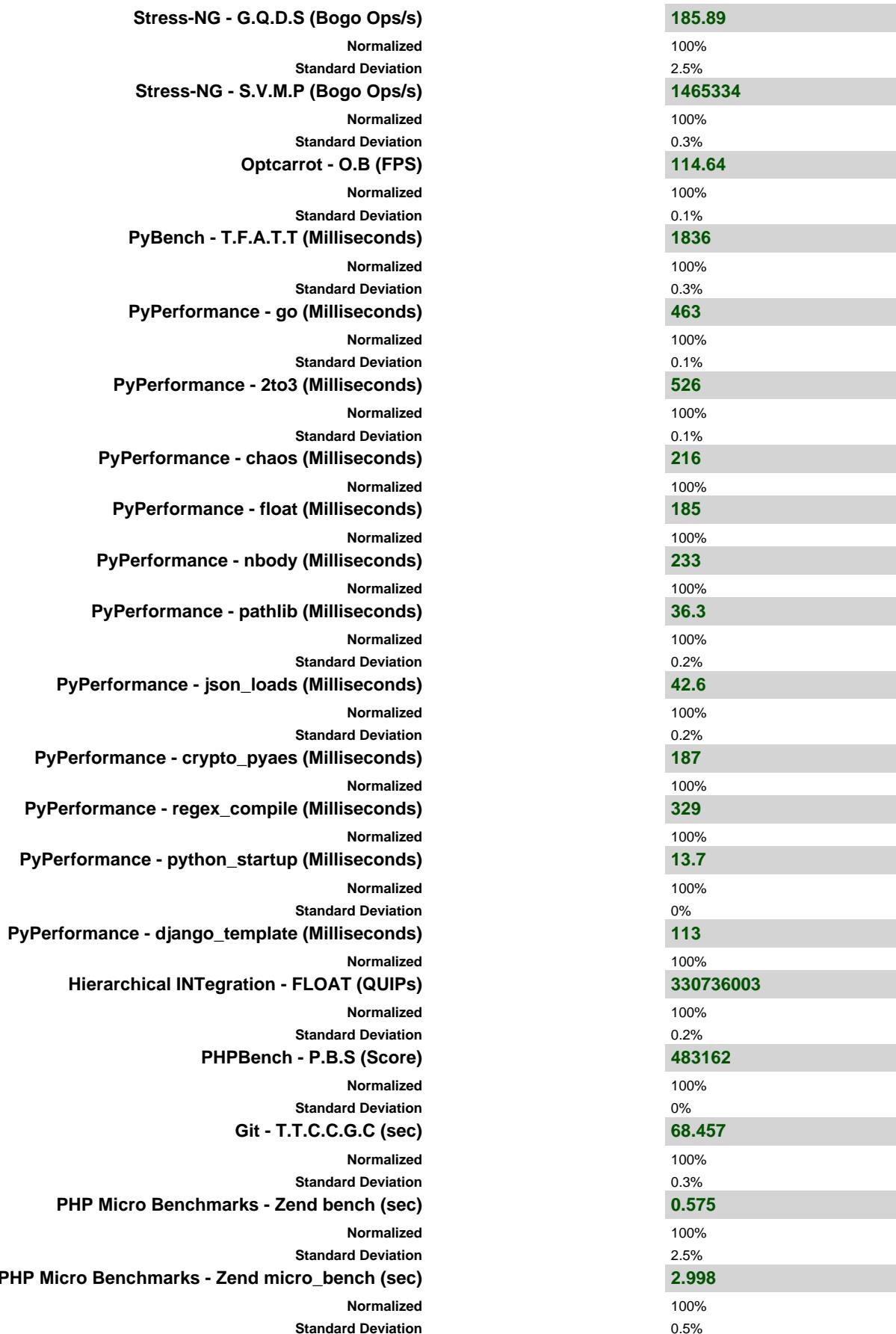
FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

Timed Eigen Compilation - Time To Compile (sec)	Normalized Standard Deviation	100%
		0%
		90.517
LZMA Compression - 2.F.C (sec)	Normalized Standard Deviation	100%
		0.2%
		279.073
ddraw - R.T.P.I.C (sec)	Normalized Standard Deviation	100%
		0.5%
		42.263
Monkey Audio Encoding - WAV To APE (sec)	Normalized Standard Deviation	100%
		0.1%
		35.125
FLAC Audio Encoding - WAV To FLAC (sec)	Normalized Standard Deviation	100%
		0%
		12.418
LAME MP3 Encoding - WAV To MP3 (sec)	Normalized Standard Deviation	100%
		0.1%
		11.707
FFmpeg - H.2.H.T.N.D (sec)	Normalized Standard Deviation	100%
		0%
		5.623
Gcrypt Library (sec)	Normalized Standard Deviation	100%
		1.1%
		272.392
m-queens - Time To Solve (sec)	Normalized Standard Deviation	100%
		0.2%
		124.431
Perl Benchmarks - Pod2html (sec)	Normalized Standard Deviation	100%
		1.2%
		0.16873474
R Benchmark (sec)	Normalized Standard Deviation	100%
		0.9%
		0.7841
Aircrack-ng (k/s)	Normalized Standard Deviation	100%
		0.4%
		26757
libjpeg-turbo tjbench - D.T (Megapixels/sec)	Normalized Standard Deviation	100%
		0%
		169.459136
PostgreSQL pgbench - 100 - 50 - Read Only (TPS)	Normalized Standard Deviation	100%
		0.1%
		38615
PostgreSQL pgbench - 100 - 50 - Read Only - Average Latency (ms)	Normalized Standard Deviation	82.25%
		0.7%
		1.296
PostgreSQL pgbench - 100 - 100 - Read Only (TPS)	Normalized Standard Deviation	82.25%
		0.7%
		37777
		94.32%
		1.2%

FreeBSD 12.2 vs. FreeBSD 13 Benchmarks



FreeBSD 12.2 vs. FreeBSD 13 Benchmarks



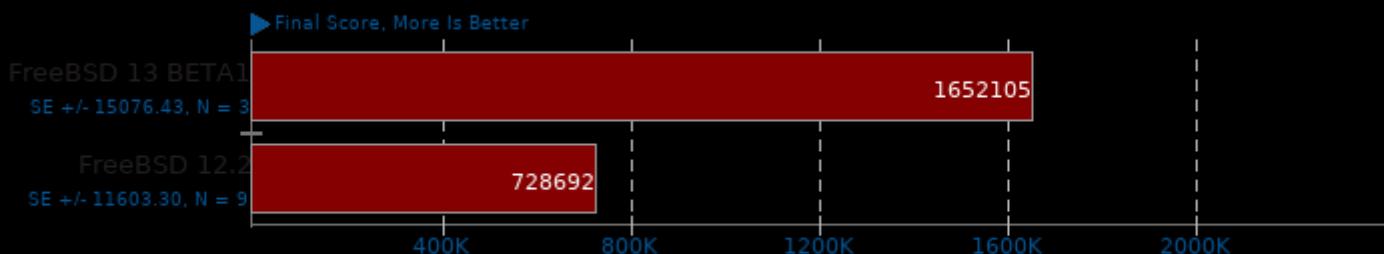
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Scikit-Learn (sec)	168.313
Normalized	100%
Standard Deviation	0%
Sunflow Rendering System - G.I.I.S (sec)	1.520
Normalized	100%
Standard Deviation	3.7%

FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

BlogBench 1.1

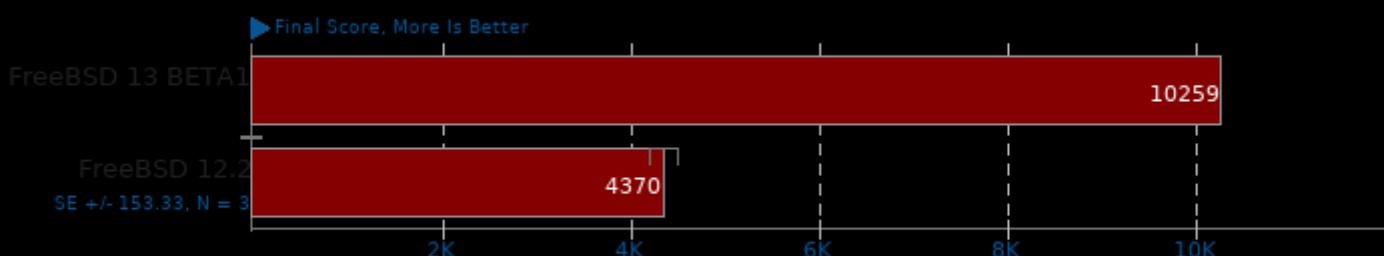
Test: Read



1. (CC) clang options: -O2 -pthread

BlogBench 1.1

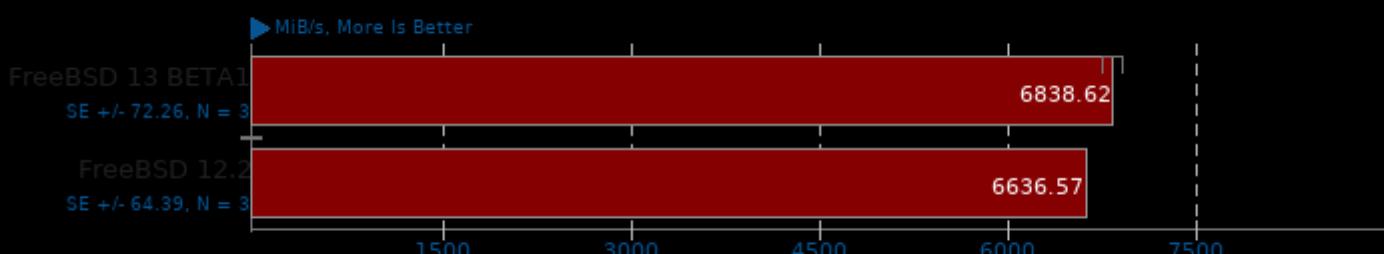
Test: Write



1. (CC) clang options: -O2 -pthread

MBW 2018-09-08

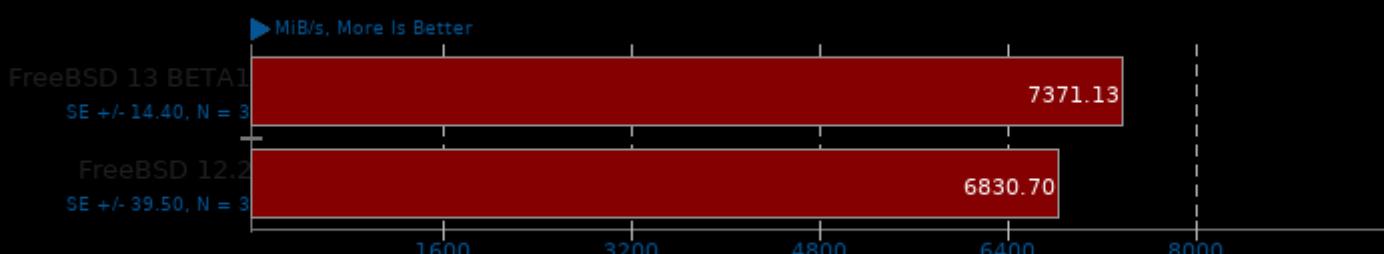
Test: Memory Copy - Array Size: 1024 MiB



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

MBW 2018-09-08

Test: Memory Copy, Fixed Block Size - Array Size: 1024 MiB

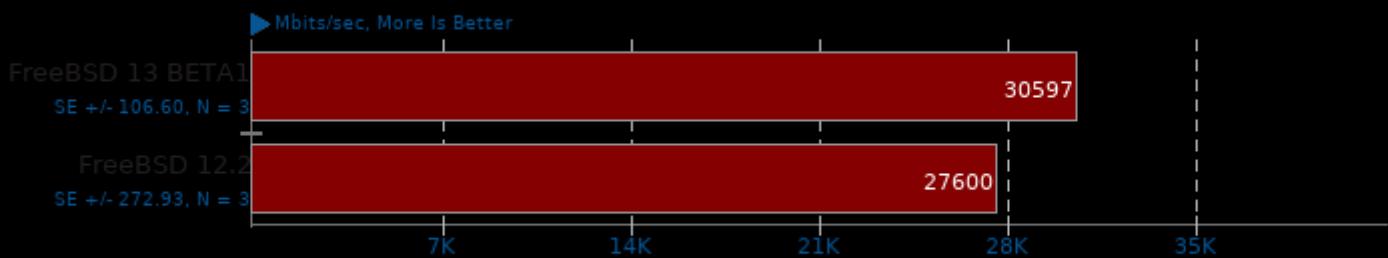


1. (CC) clang options: -O3 -march=native

FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

iPerf 3.7

Server Address: localhost - Server Port: 5201 - Duration: 10 Seconds - Test: UDP - 1000Mbit Objective - Parallel: 32



1. (CC) clang options: -O3 -march=native -lssl -lcrypto -lm

iPerf 3.7

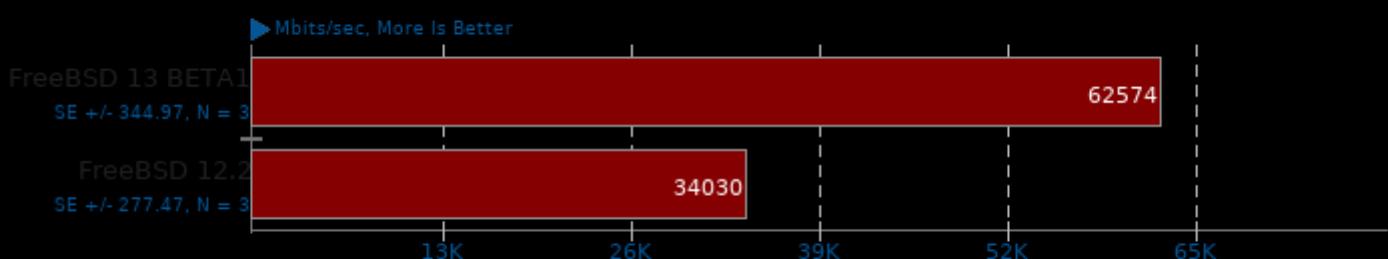
Server Address: localhost - Server Port: 5201 - Duration: 10 Seconds - Test: TCP - Parallel: 1



1. (CC) clang options: -O3 -march=native -lssl -lcrypto -lm

iPerf 3.7

Server Address: localhost - Server Port: 5201 - Duration: 10 Seconds - Test: TCP - Parallel: 32



1. (CC) clang options: -O3 -march=native -lssl -lcrypto -lm

OSBench

Test: Create Files

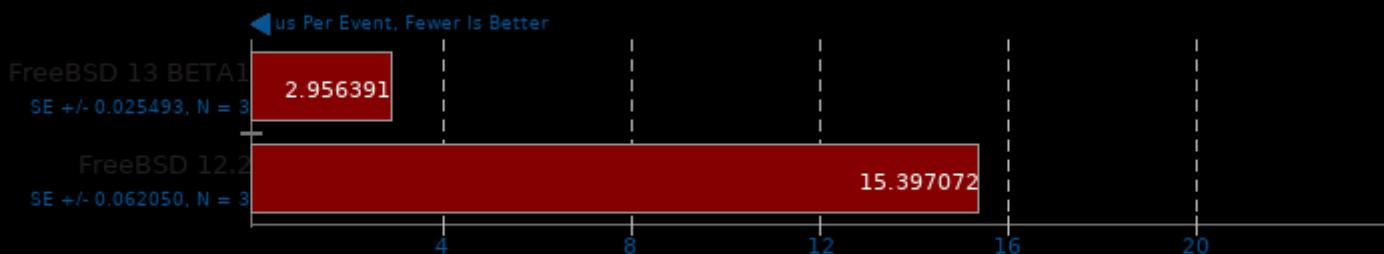


1. (CC) clang options: -lm

FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

OSBench

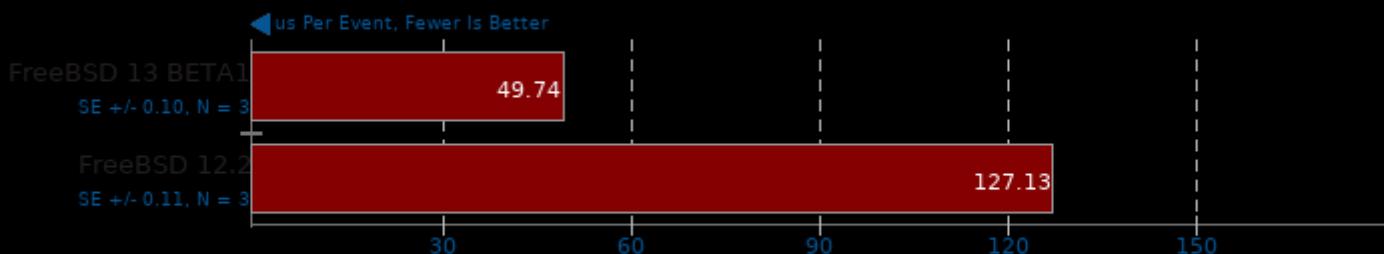
Test: Create Threads



1. (CC) clang options: -lm

OSBench

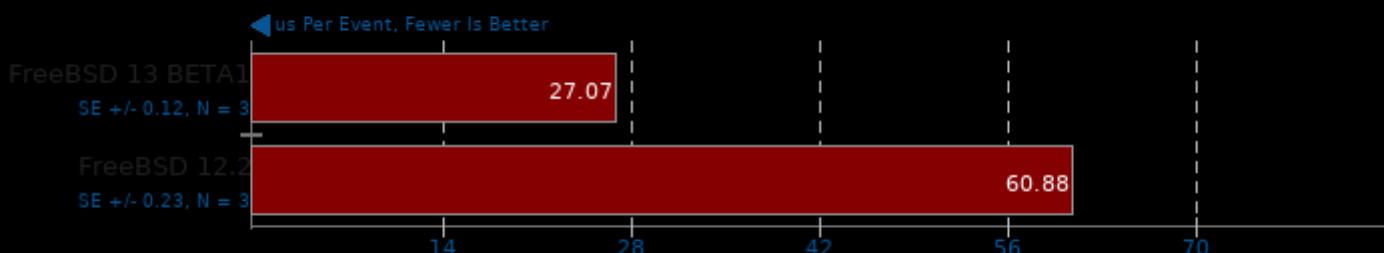
Test: Launch Programs



1. (CC) clang options: -lm

OSBench

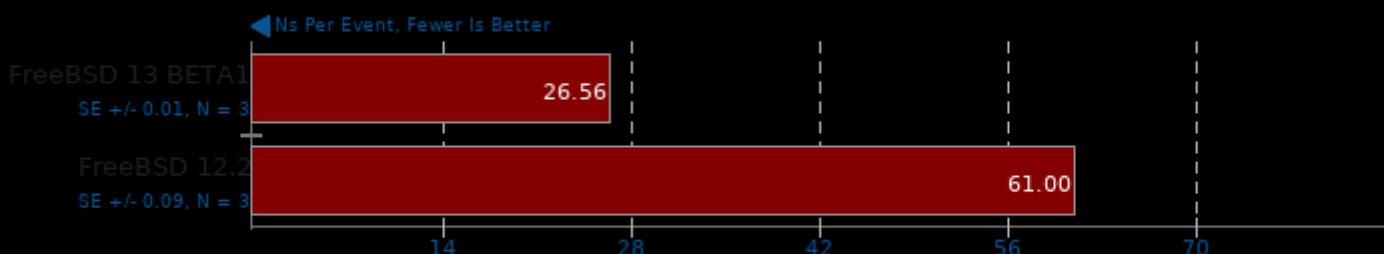
Test: Create Processes



1. (CC) clang options: -lm

OSBench

Test: Memory Allocations

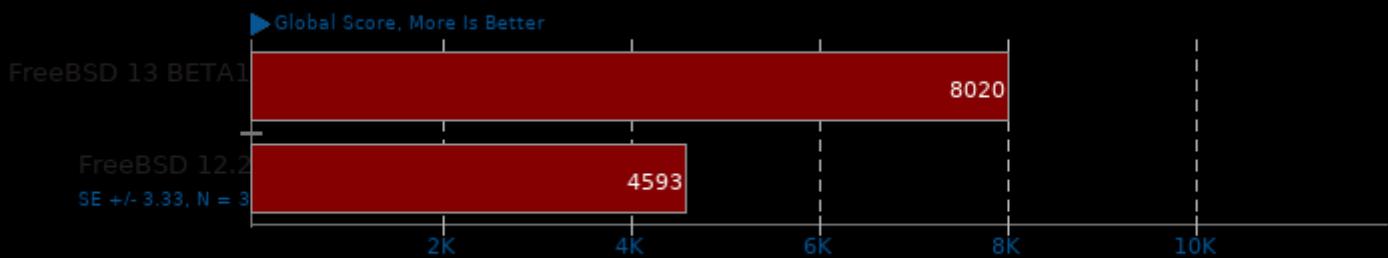


1. (CC) clang options: -lm

FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

GNU MPC 1.1.0

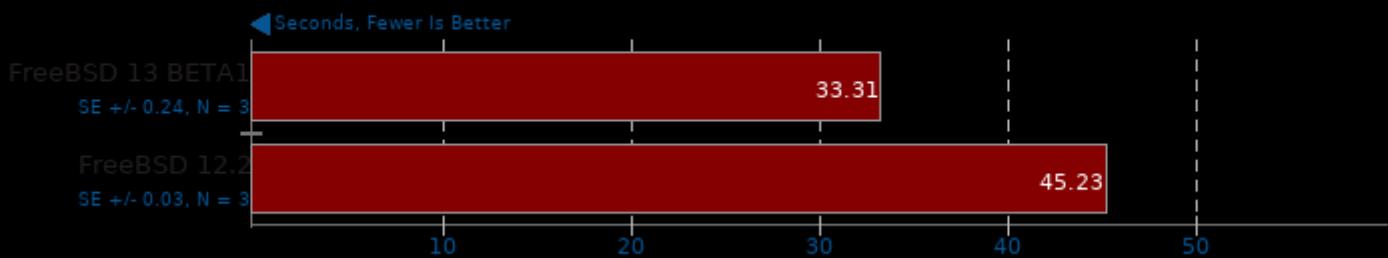
Multi-Precision Benchmark



1. (CC) clang options: -lm -O2 -MT -MD -MP -MF

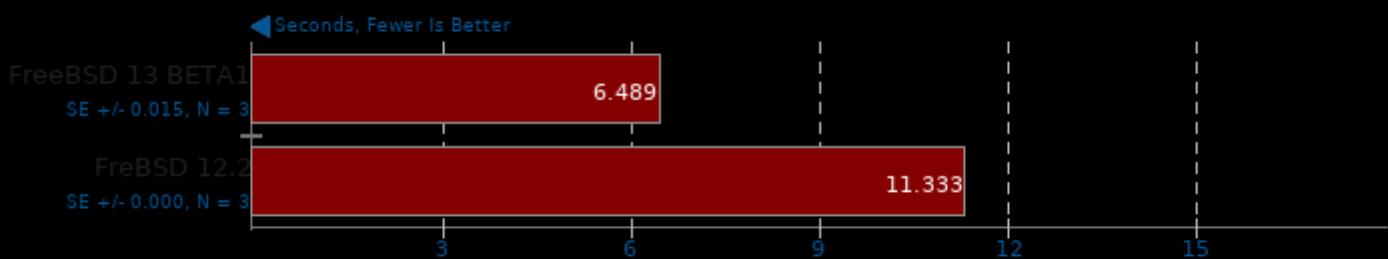
Rodinia 3.1

Test: OpenMP CFD Solver



PolyBench-C 4.2

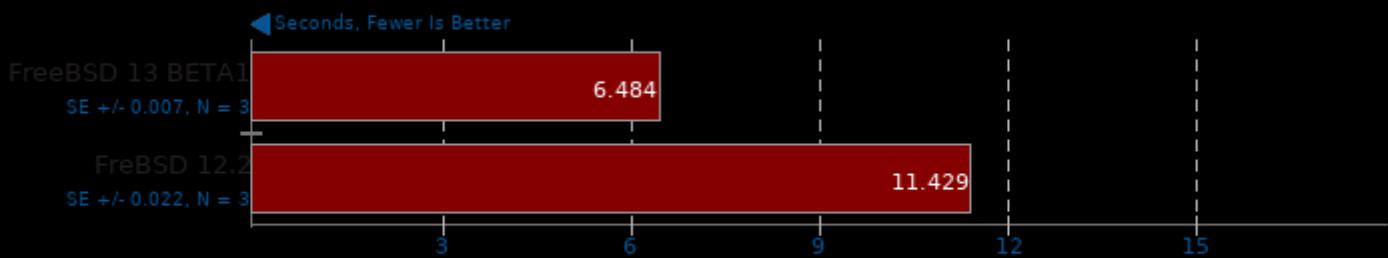
Test: Covariance Computation



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

PolyBench-C 4.2

Test: Correlation Computation

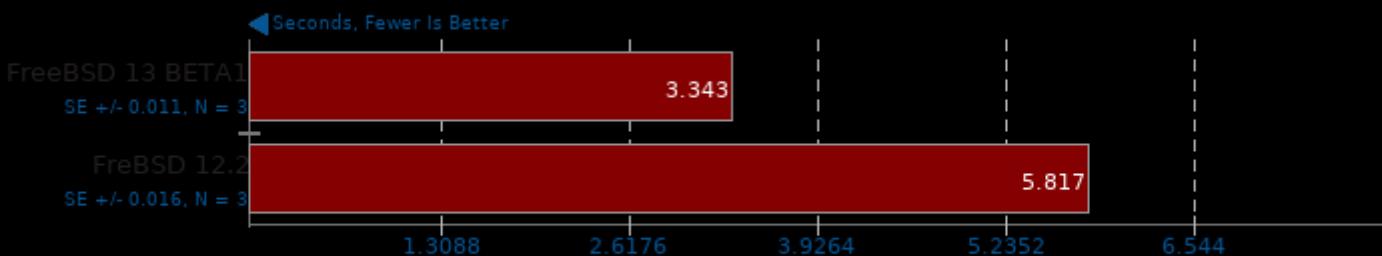


1. (CC) clang options: -O3 -march=native

FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

PolyBench-C 4.2

Test: 3 Matrix Multiplications



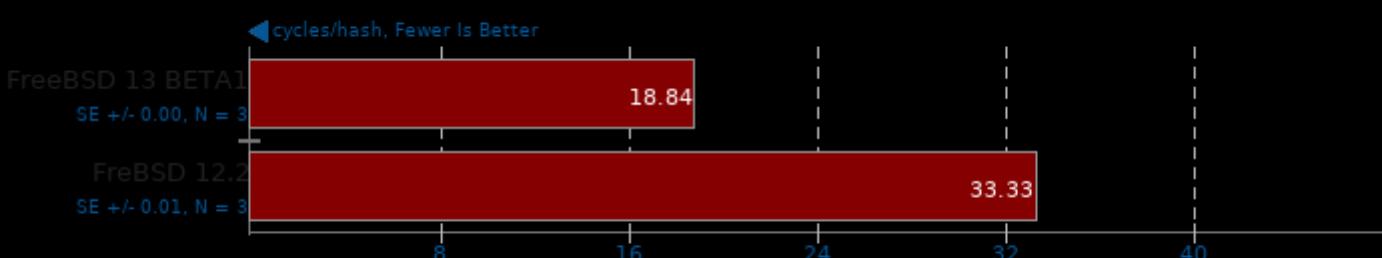
SMHasher 2020-02-29

Hash: wyhash



SMHasher 2020-02-29

Hash: wyhash



SMHasher 2020-02-29

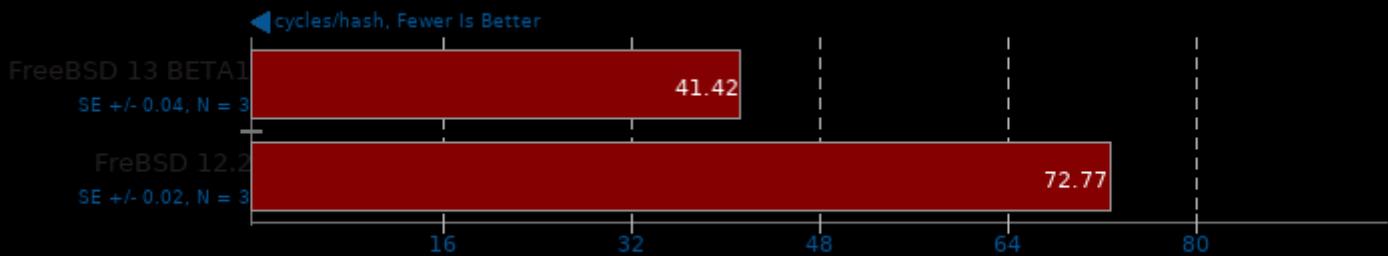
Hash: MeowHash



FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

SMHasher 2020-02-29

Hash: MeowHash



1. (CXX) clang++ options: -march=native -O3 -lpthread

SMHasher 2020-02-29

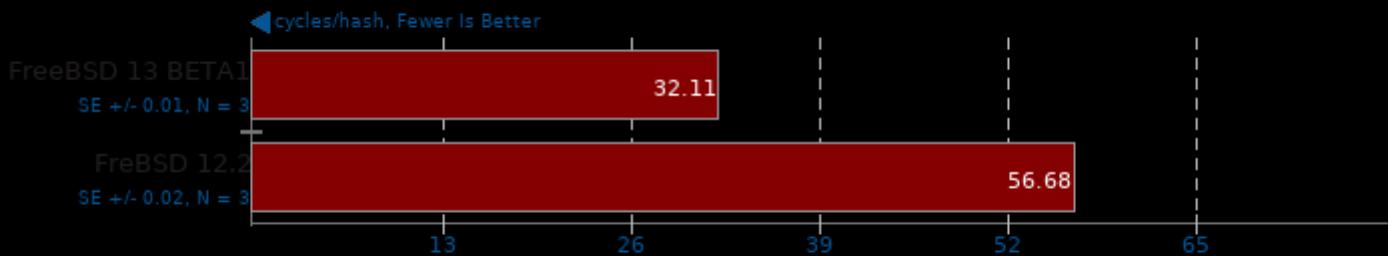
Hash: Spooky32



1. (CXX) clang++ options: -march=native -O3 -lpthread

SMHasher 2020-02-29

Hash: Spooky32



1. (CXX) clang++ options: -march=native -O3 -lpthread

SMHasher 2020-02-29

Hash: fasthash32

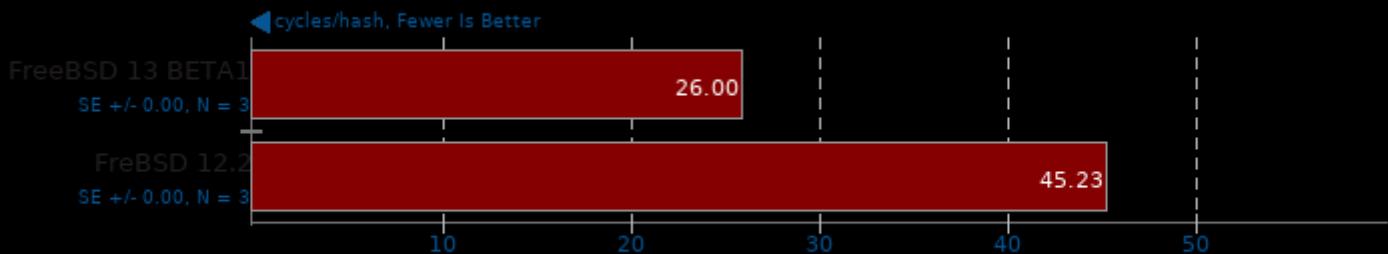


1. (CXX) clang++ options: -march=native -O3 -lpthread

FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

SMHasher 2020-02-29

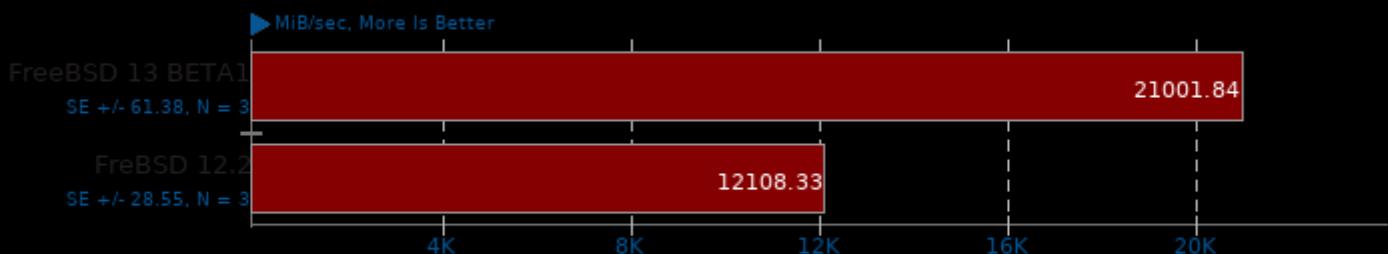
Hash: fasthash32



1. (CXX) clang++ options: -march=native -O3 -lpthread

SMHasher 2020-02-29

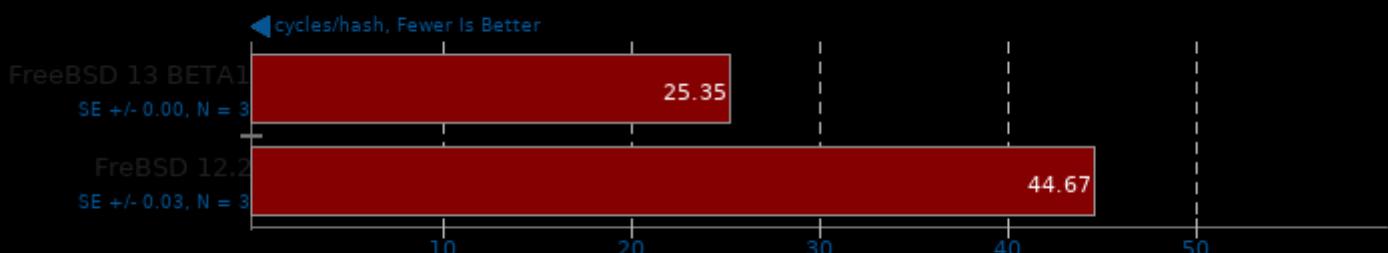
Hash: tlha2_atonce



1. (CXX) clang++ options: -march=native -O3 -lpthread

SMHasher 2020-02-29

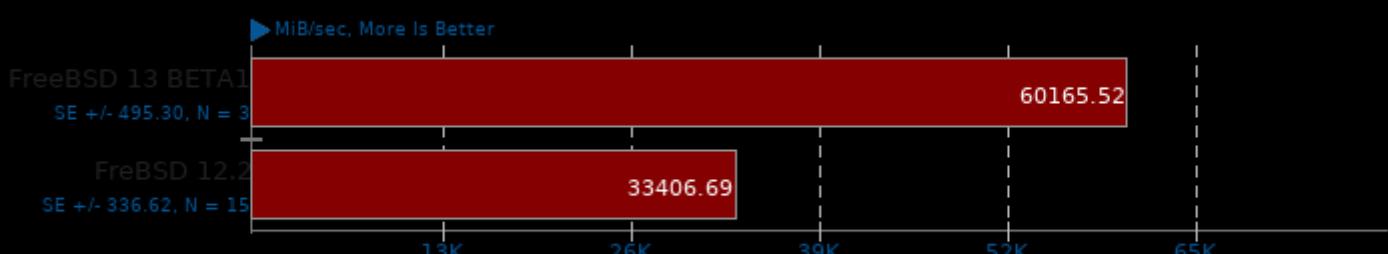
Hash: tlha2_atonce



1. (CXX) clang++ options: -march=native -O3 -lpthread

SMHasher 2020-02-29

Hash: tlha0_aes_avx2

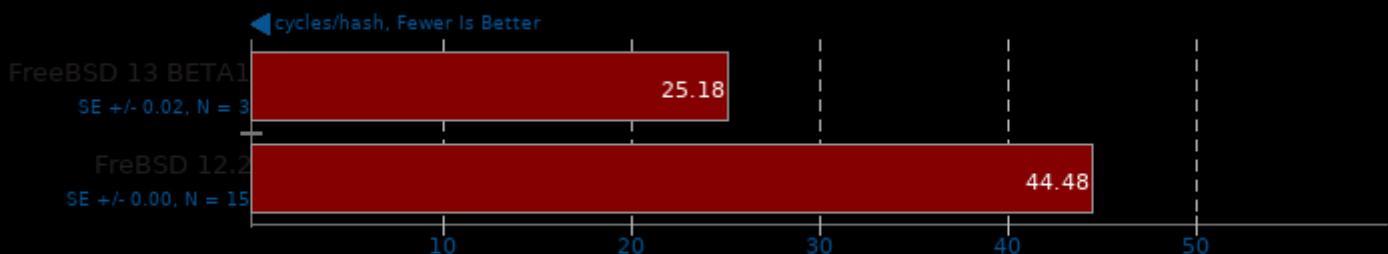


1. (CXX) clang++ options: -march=native -O3 -lpthread

FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

SMHasher 2020-02-29

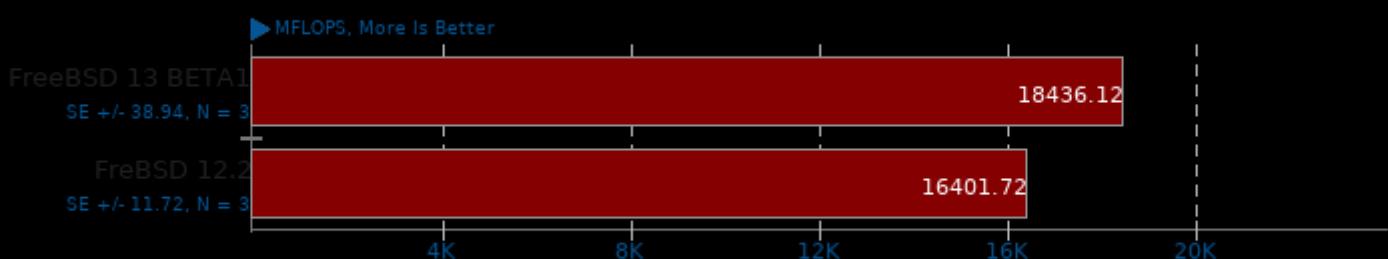
Hash: tlha0_aes_avx2



1. (CXX) clang++ options: -march=native -O3 -lpthread

FFTE 7.0

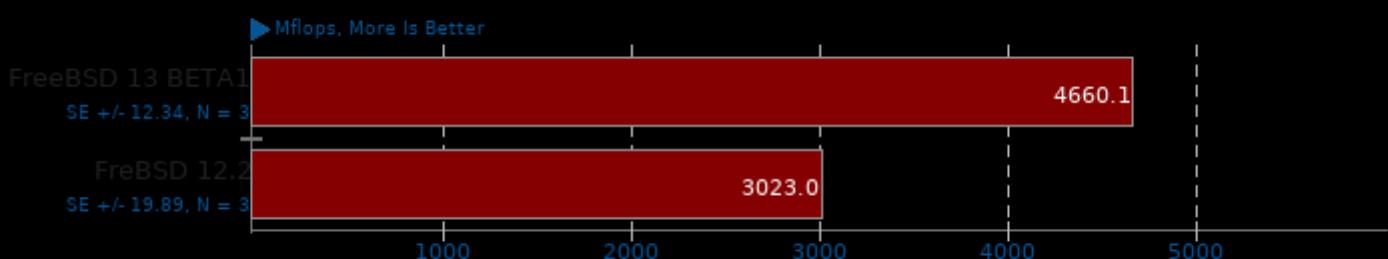
N=256, 3D Complex FFT Routine



1. (F9X) gfortran9 options: -O3 -fomit-frame-pointer -fopenmp

FFTW 3.3.6

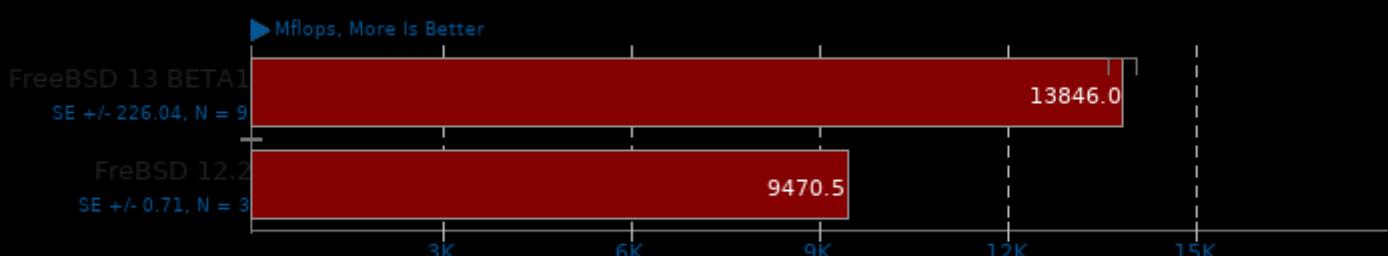
Build: Stock - Size: 2D FFT Size 4096



1. (CC) clang options: -pthread -O3 -fomit-frame-pointer -mtune=native -fstrict-aliasing -ffast-math -lm

FFTW 3.3.6

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

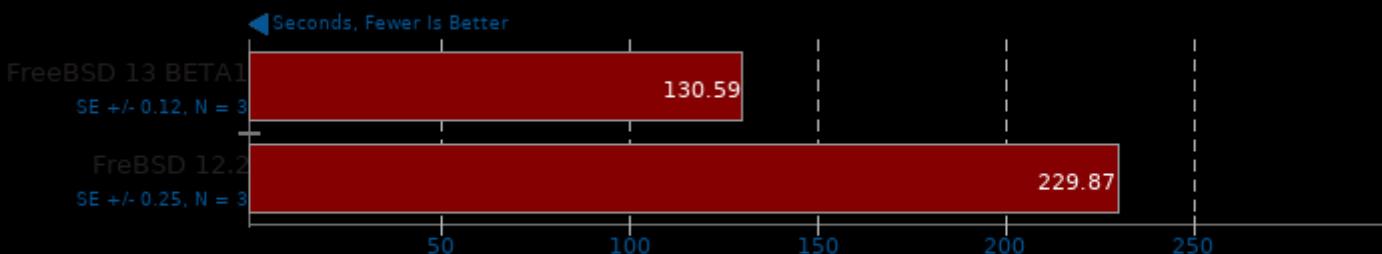


1. (CC) clang options: -pthread -O3 -fomit-frame-pointer -mtune=native -fstrict-aliasing -ffast-math -lm

FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

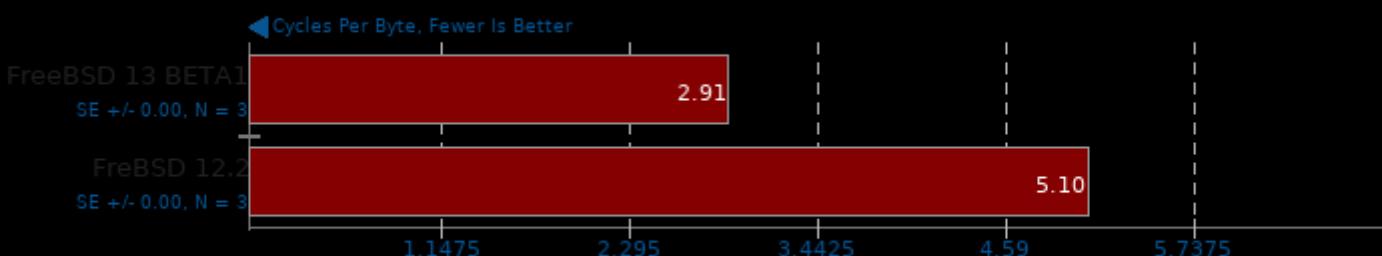
Timed HMMer Search 3.3.1

Pfam Database Search



1. (CC) clang options: -O3 -pthread -lhmmer -lseasel -lm

BLAKE2 20170307



1. (CC) clang options: -O3 -march=native -lcrypto -lz

simdjson 0.7.1

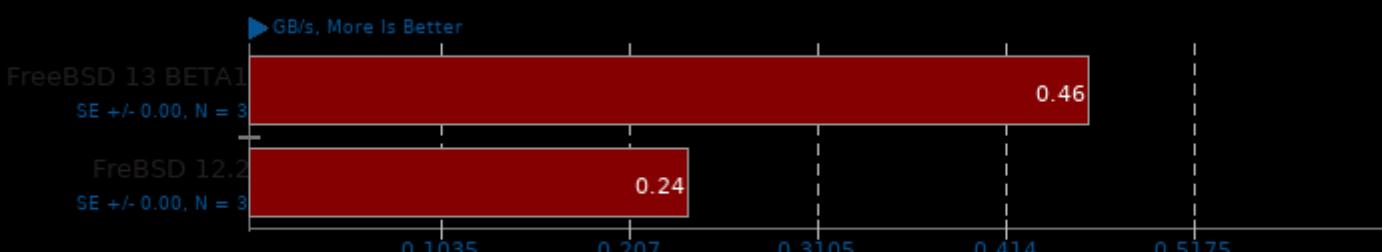
Throughput Test: Kostya



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

simdjson 0.7.1

Throughput Test: LargeRandom

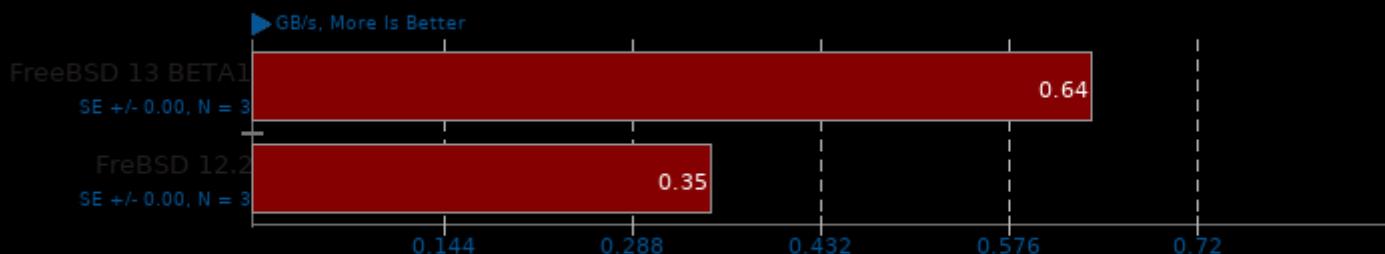


1. (CXX) clang++ options: -O3 -pthread

FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

simdjson 0.7.1

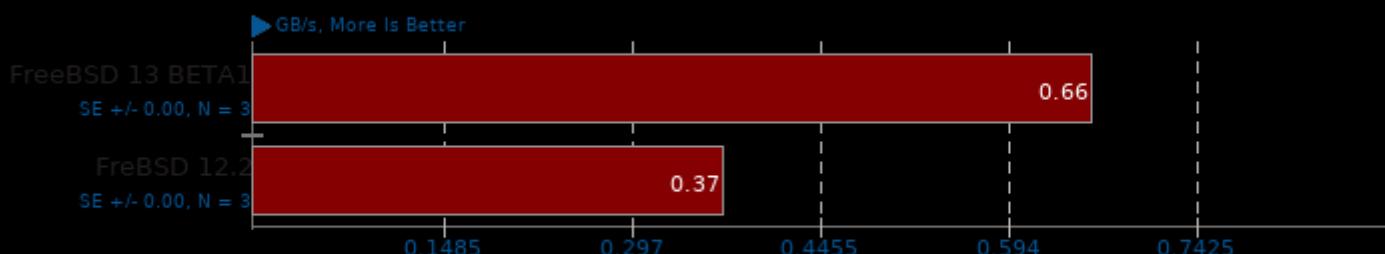
Throughput Test: PartialTweets



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

simdjson 0.7.1

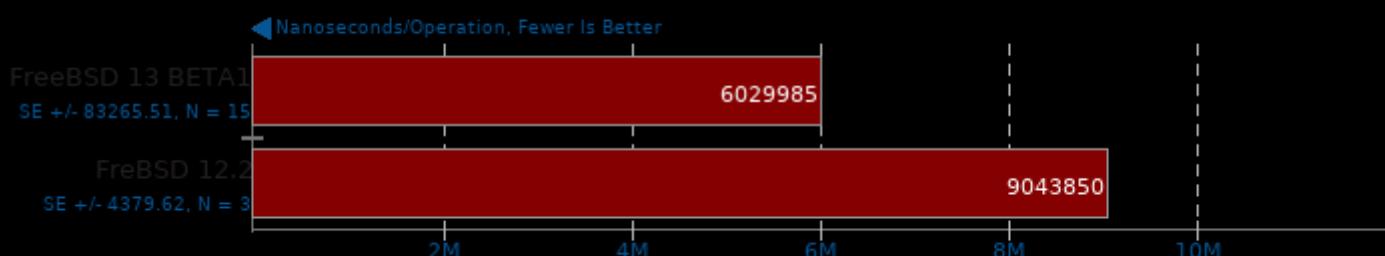
Throughput Test: DistinctUserID



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

Go Benchmarks

Test: json



Go Benchmarks

Test: build



FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

Go Benchmarks

Test: garbage



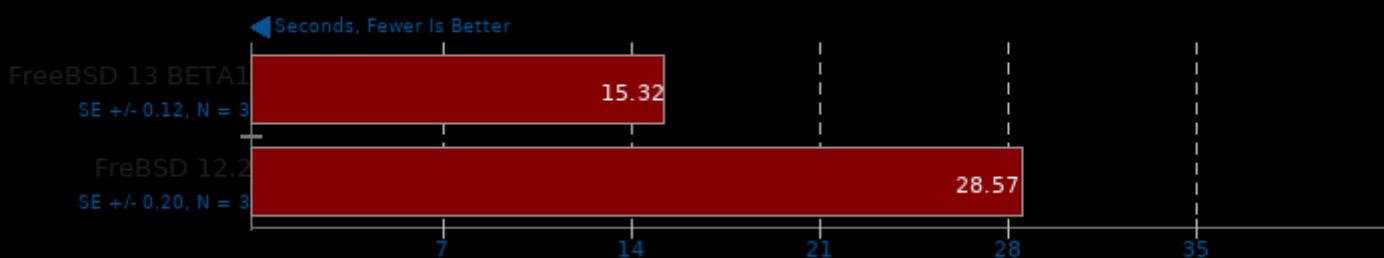
Java SciMark 2.0

Computational Test: Composite



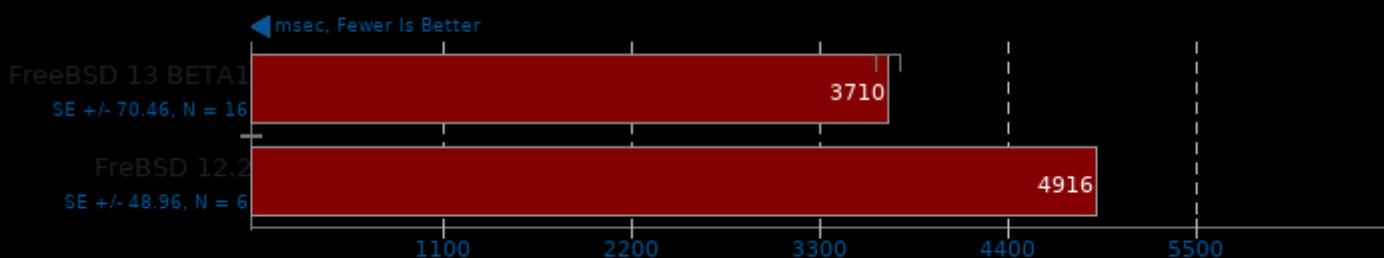
Bork File Encrypter 1.4

File Encryption Time



DaCapo Benchmark 9.12-MR1

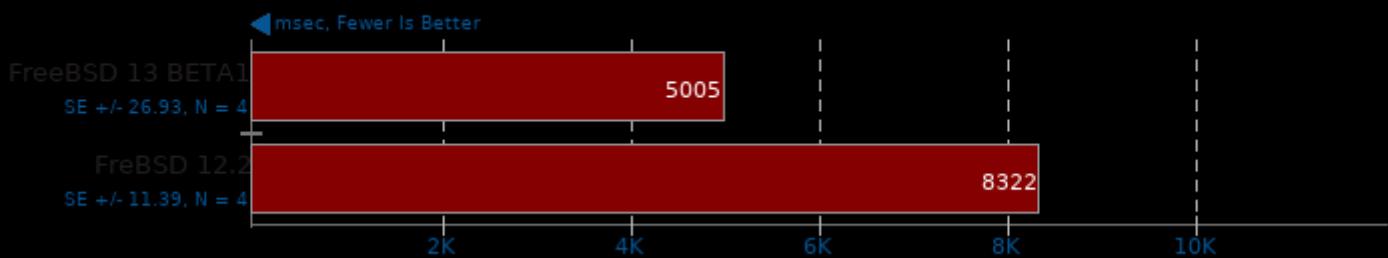
Java Test: H2



FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

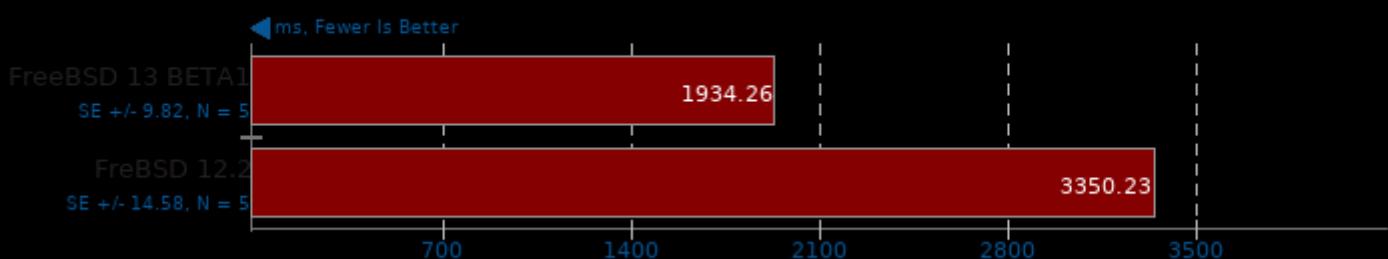
DaCapo Benchmark 9.12-MR1

Java Test: Jython



Renaissance 0.10.0

Test: Scala Dotty



Renaissance 0.10.0

Test: Savina Reactors.IO



Renaissance 0.10.0

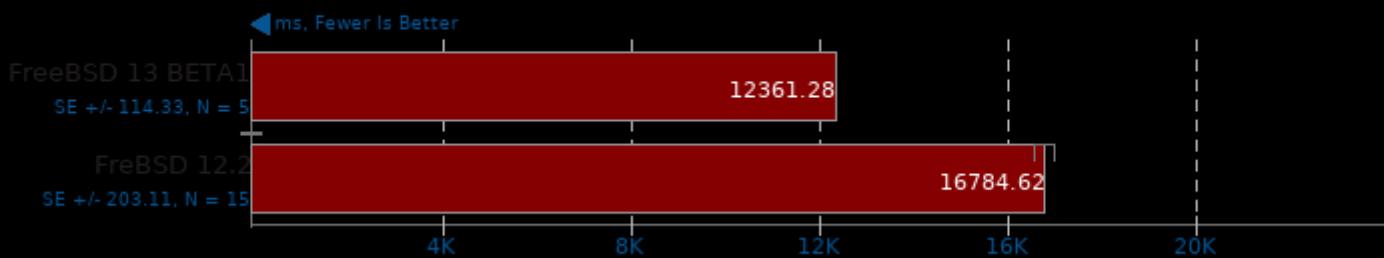
Test: Twitter HTTP Requests



FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

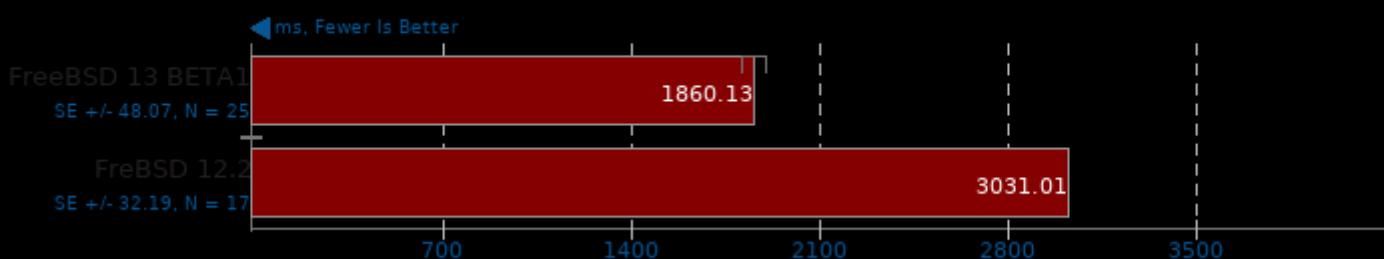
Renaissance 0.10.0

Test: Akka Unbalanced Cobwebbed Tree



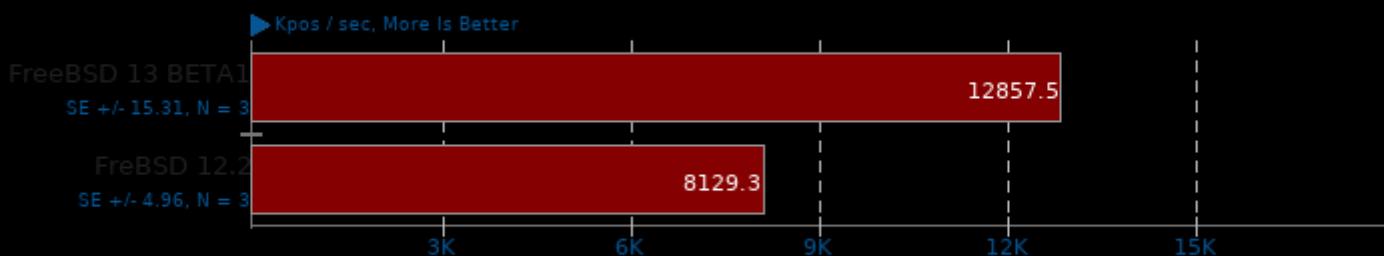
Renaissance 0.10.0

Test: Genetic Algorithm Using Jenetics + Futures



Fhourstones 3.1

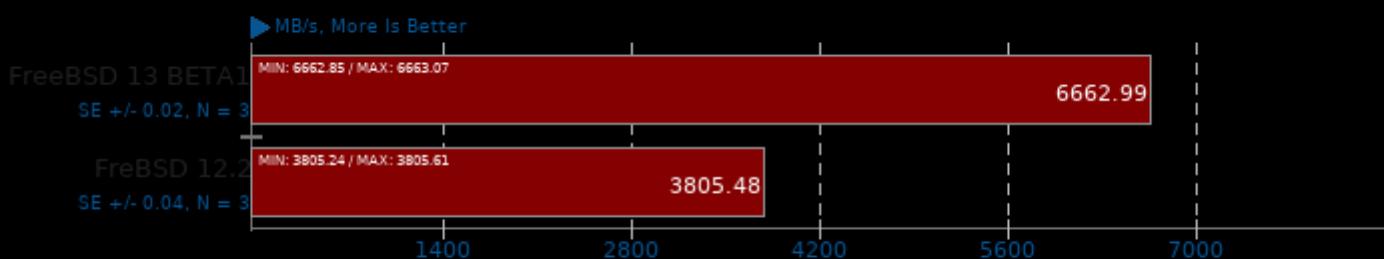
Complex Connect-4 Solving



1. (CC) clang options: -O3

CacheBench

Test: Read

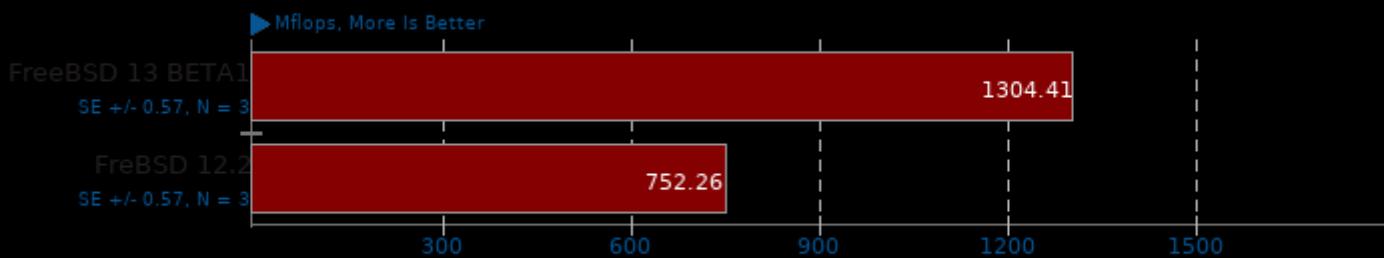


1. (CC) clang options: -fomit-frame-pointer

FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

LuaJIT 2.1-git

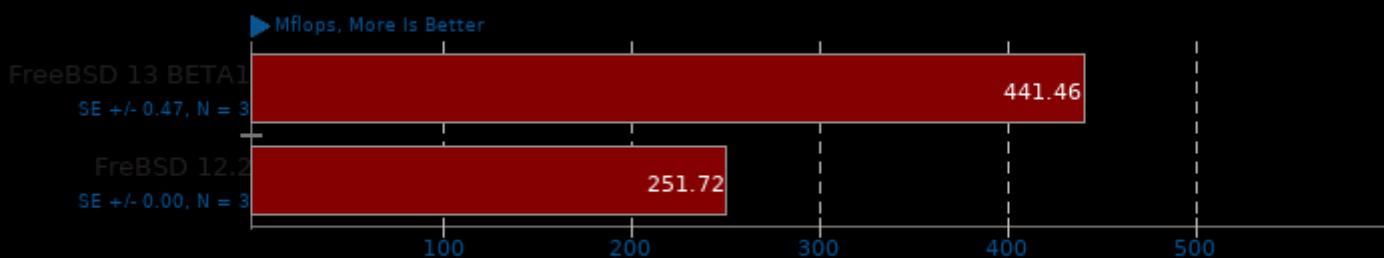
Test: Composite



1. (CC) clang options: -lm -O2 -fomit-frame-pointer -U_FORTIFY_SOURCE -fno-stack-protector

LuaJIT 2.1-git

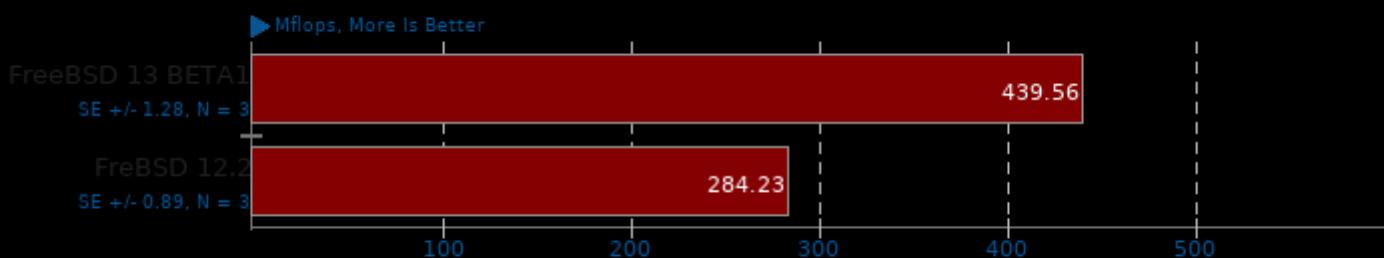
Test: Monte Carlo



1. (CC) clang options: -lm -O2 -fomit-frame-pointer -U_FORTIFY_SOURCE -fno-stack-protector

LuaJIT 2.1-git

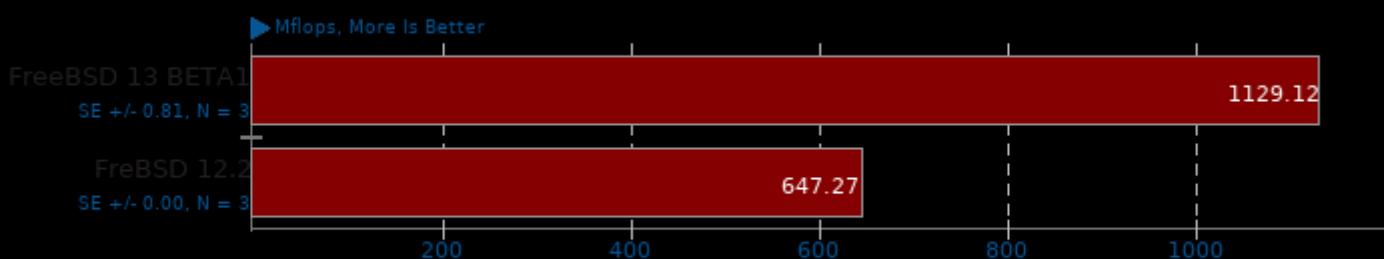
Test: Fast Fourier Transform



1. (CC) clang options: -lm -O2 -fomit-frame-pointer -U_FORTIFY_SOURCE -fno-stack-protector

LuaJIT 2.1-git

Test: Sparse Matrix Multiply

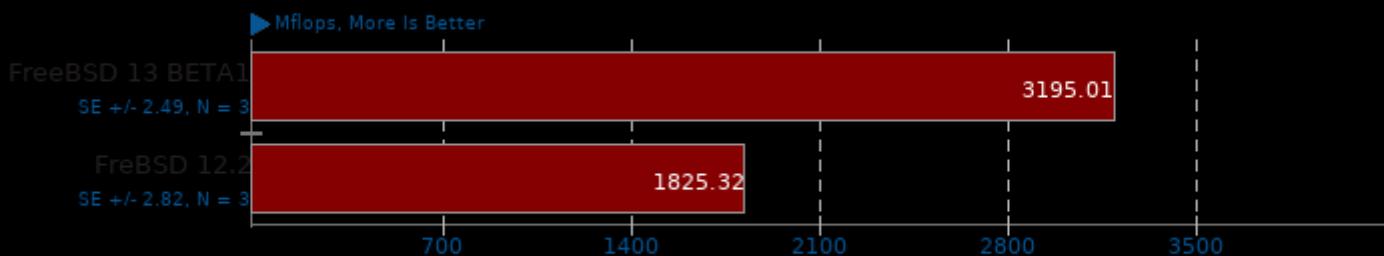


1. (CC) clang options: -lm -O2 -fomit-frame-pointer -U_FORTIFY_SOURCE -fno-stack-protector

FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

LuaJIT 2.1-git

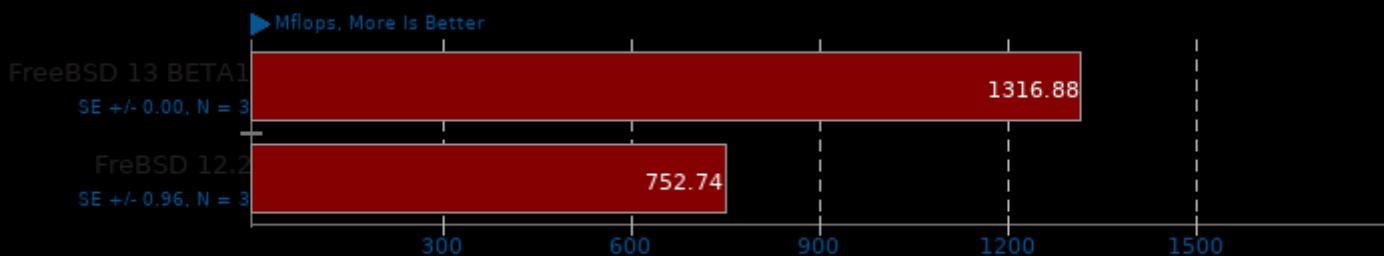
Test: Dense LU Matrix Factorization



1. (CC) clang options: -lm -O2 -fomit-frame-pointer -U_FORTIFY_SOURCE -fno-stack-protector

LuaJIT 2.1-git

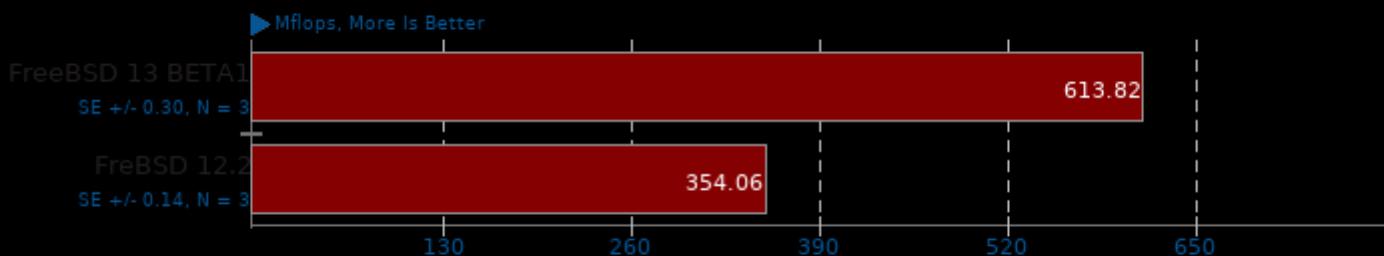
Test: Jacobi Successive Over-Relaxation



1. (CC) clang options: -lm -O2 -fomit-frame-pointer -U_FORTIFY_SOURCE -fno-stack-protector

SciMark 2.0

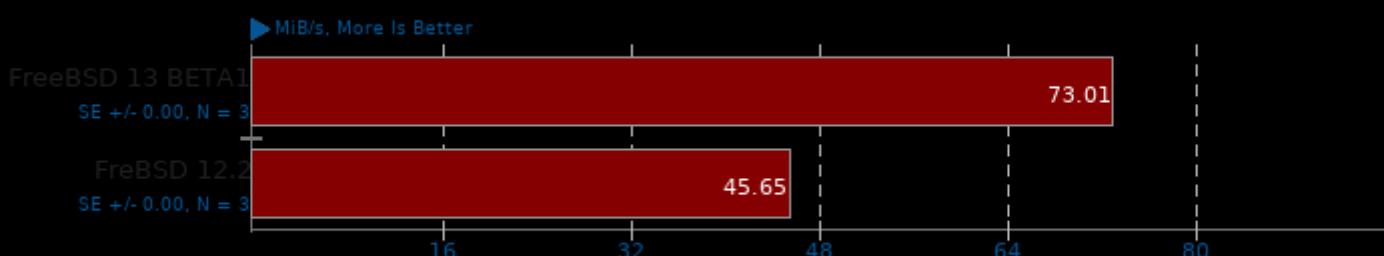
Computational Test: Composite



1. (CC) clang options: -lm

Botan 2.13.0

Test: KASUMI

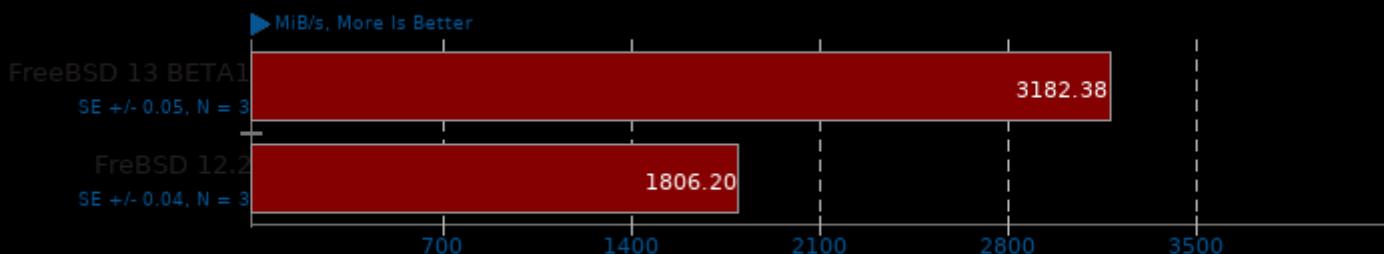


1. (CXX) clang++ options: -fstack-protector -pthread -lbotan-2

FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

Botan 2.13.0

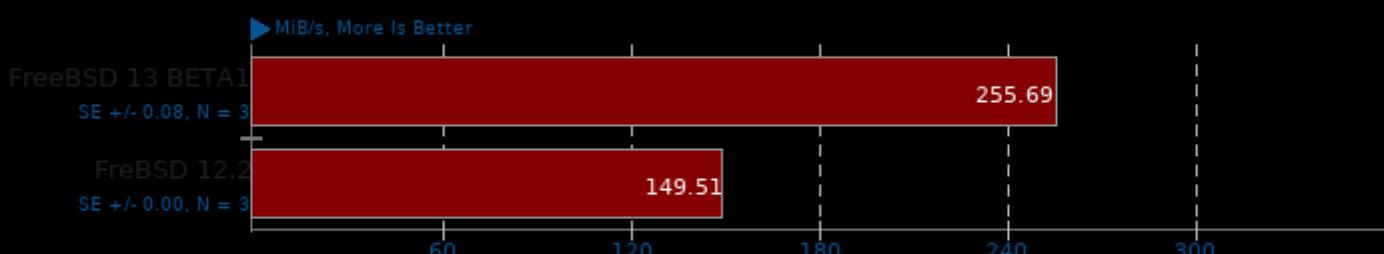
Test: AES-256



1. (CXX) clang++ options: -fstack-protector -pthread -lbotan-2

Botan 2.13.0

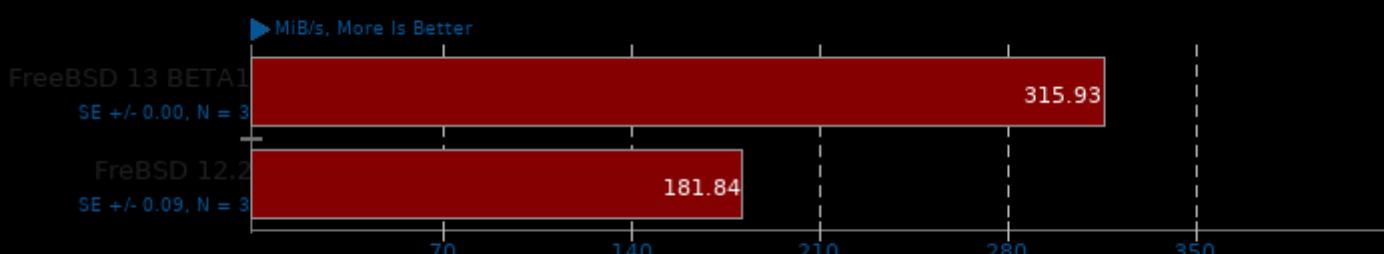
Test: Twofish



1. (CXX) clang++ options: -fstack-protector -pthread -lbotan-2

Botan 2.13.0

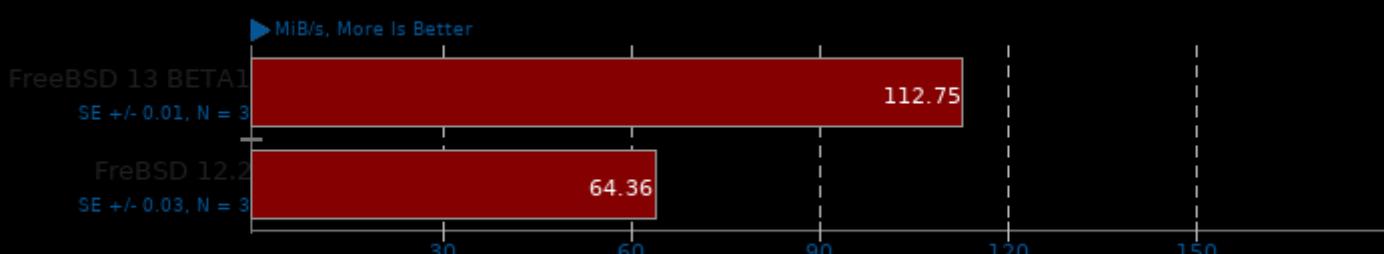
Test: Blowfish



1. (CXX) clang++ options: -fstack-protector -pthread -lbotan-2

Botan 2.13.0

Test: CAST-256

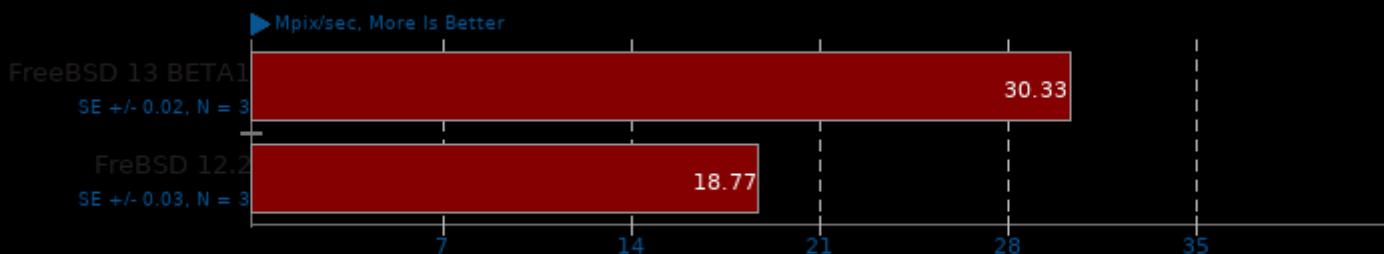


1. (CXX) clang++ options: -fstack-protector -pthread -lbotan-2

FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

LibRaw 0.20

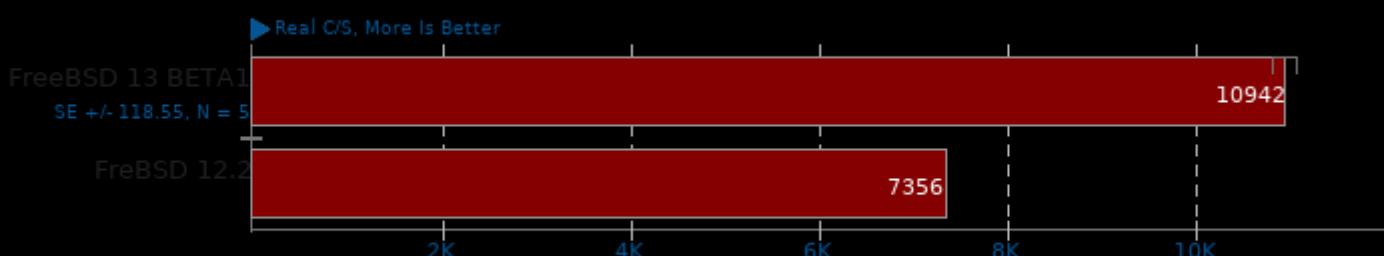
Post-Processing Benchmark



1. (CXX) clang++ options: -O2 -fopenmp -lz -lcms2 -lm

John The Ripper 1.9.0-jumbo-1

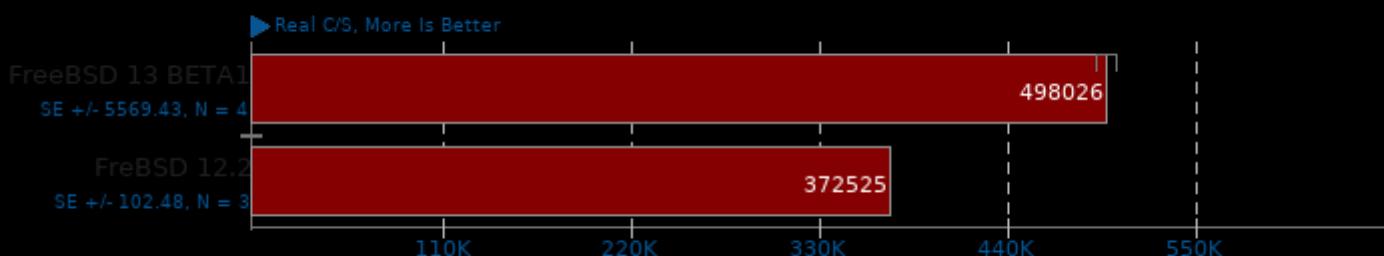
Test: Blowfish



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

John The Ripper 1.9.0-jumbo-1

Test: MD5



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

Node.js Express HTTP Load Test

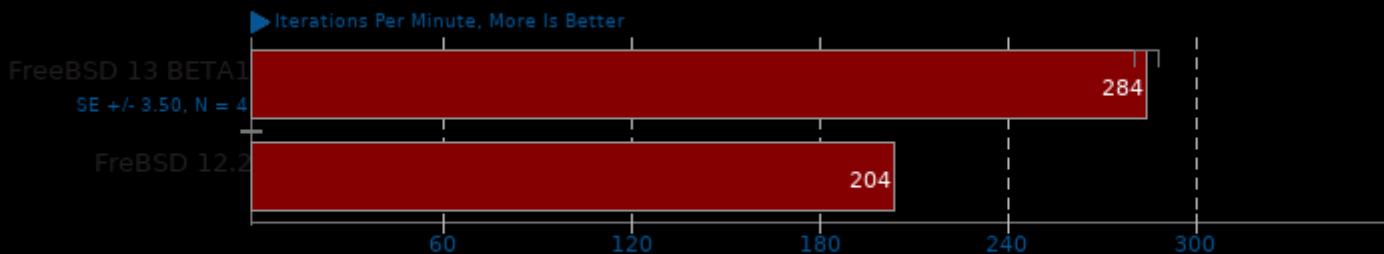


1. Nodejs

FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

GraphicsMagick 1.3.33

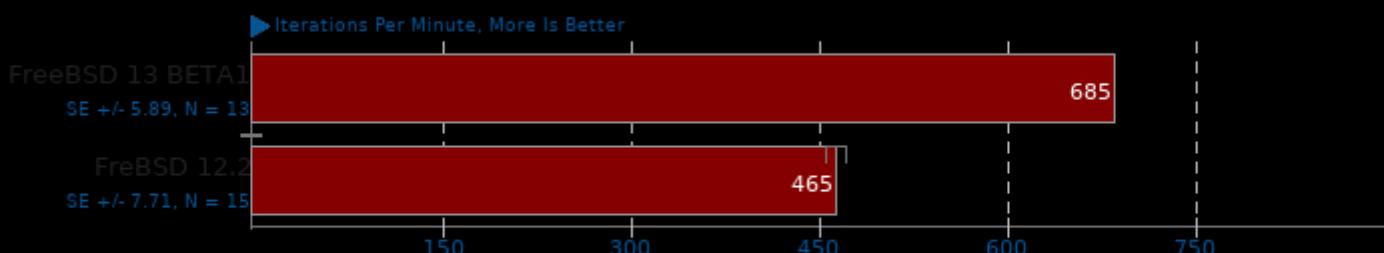
Operation: Swirl



1. (CC) clang options: -fopenmp -O2 -pthread -ljbig -lcms2 -ltiff -freetype -jpeg -lXext -lSM -ICE -lX11 -lzma -lbz2 -lxml2 -lz -lm -pthread

GraphicsMagick 1.3.33

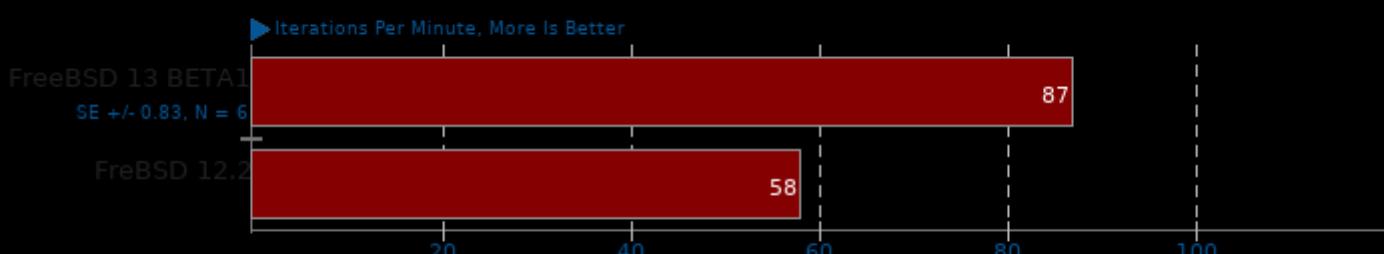
Operation: Rotate



1. (CC) clang options: -fopenmp -O2 -pthread -ljbig -lcms2 -ltiff -freetype -jpeg -lXext -lSM -ICE -lX11 -lzma -lbz2 -lxml2 -lz -lm -pthread

GraphicsMagick 1.3.33

Operation: Sharpen

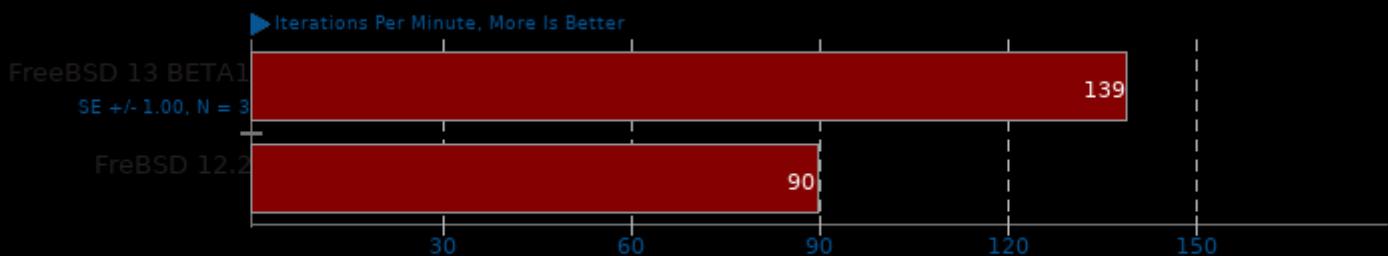


1. (CC) clang options: -fopenmp -O2 -pthread -ljbig -lcms2 -ltiff -freetype -jpeg -lXext -lSM -ICE -lX11 -lzma -lbz2 -lxml2 -lz -lm -pthread

FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

GraphicsMagick 1.3.33

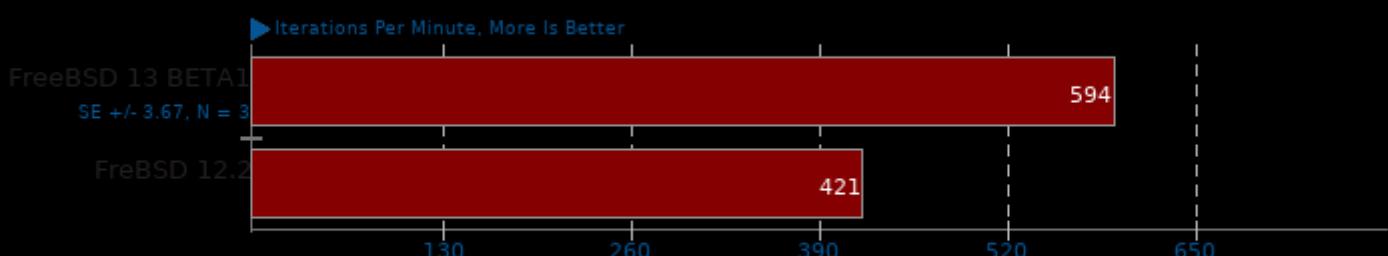
Operation: Enhanced



1. (CC) clang options: -fopenmp -O2 -pthread -ljbig -lcms2 -ltiff -lfreetype -jpeg -lXext -lSM -ICE -lX11 -lzma -lbz2 -lxml2 -lz -lm -pthread

GraphicsMagick 1.3.33

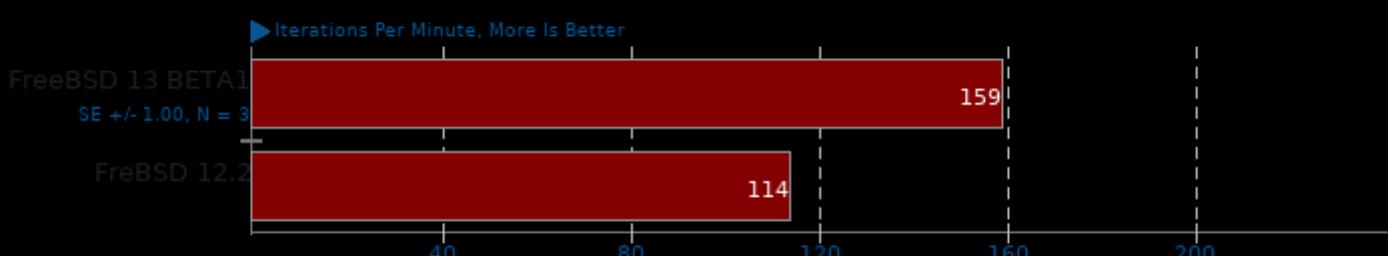
Operation: Resizing



1. (CC) clang options: -fopenmp -O2 -pthread -ljbig -lcms2 -ltiff -lfreetype -jpeg -lXext -lSM -ICE -lX11 -lzma -lbz2 -lxml2 -lz -lm -pthread

GraphicsMagick 1.3.33

Operation: Noise-Gaussian

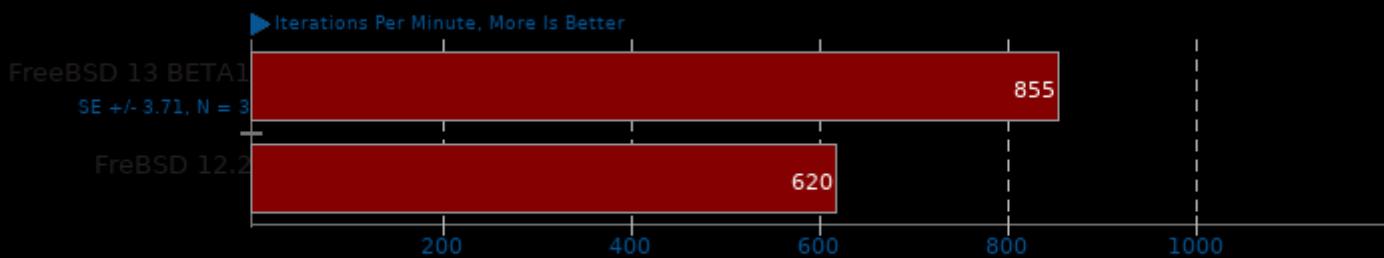


1. (CC) clang options: -fopenmp -O2 -pthread -ljbig -lcms2 -ltiff -lfreetype -jpeg -lXext -lSM -ICE -lX11 -lzma -lbz2 -lxml2 -lz -lm -pthread

FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

GraphicsMagick 1.3.33

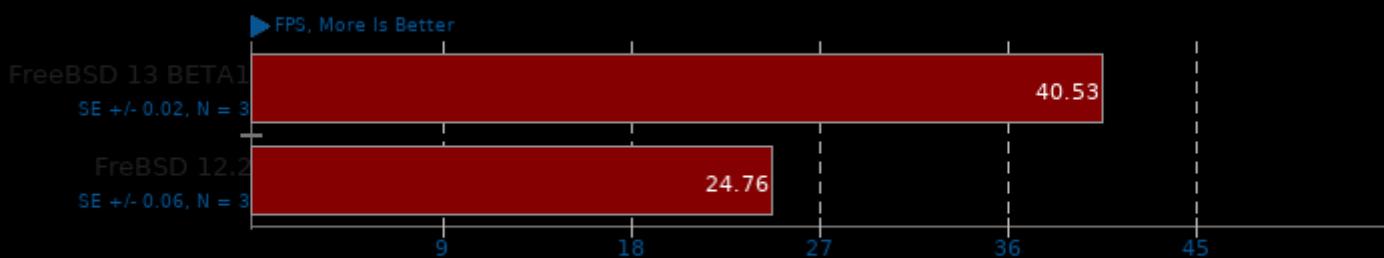
Operation: HWB Color Space



1. (CC) clang options: -fopenmp -O2 -pthread -ljbig -lcms2 -ltiff -lfreetype -ljpeg -lXext -lSM -ICE -lX11 -lzma -lbz2 -lxml2 -lz -lm -lpthread

TTSIOD 3D Renderer 2.3b

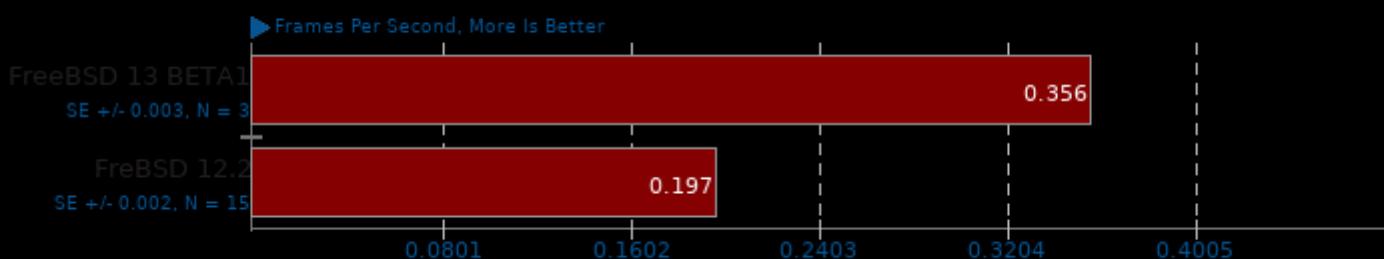
Phong Rendering With Soft-Shadow Mapping



1. (CXX) clang++ options: -O3 -fomit-frame-pointer -ffast-math -mtune=native -fno -msse -mrecip -mfpmath=sse -msse2 -msse3 -SDL -pthread -fopen

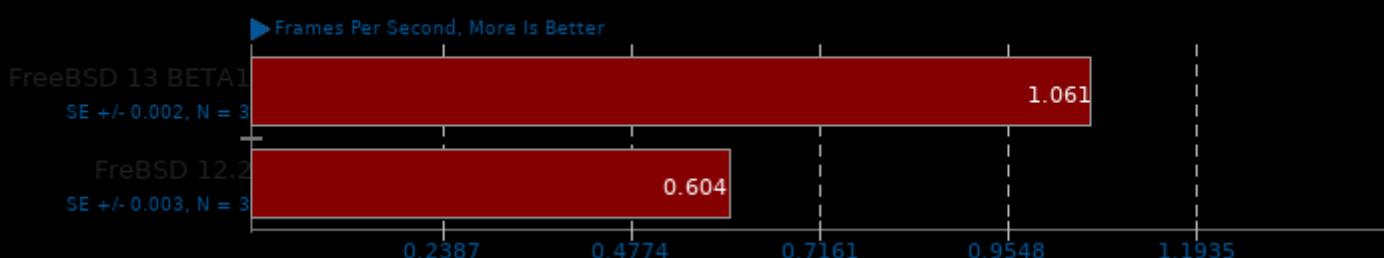
rav1e 0.4

Speed: 1



rav1e 0.4

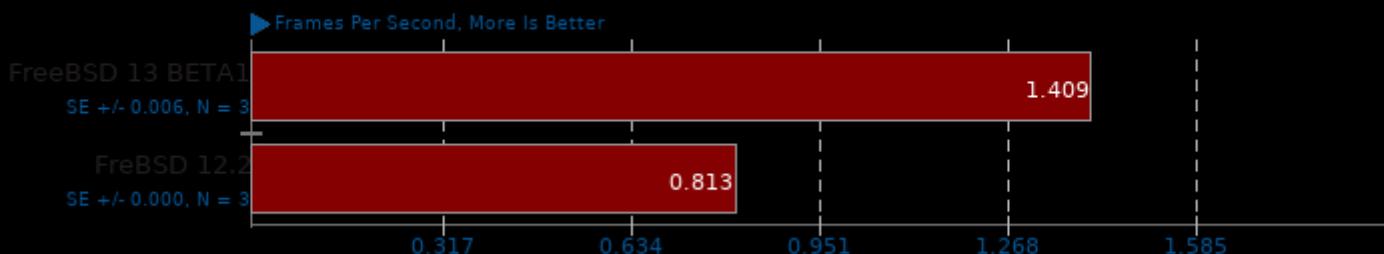
Speed: 5



FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

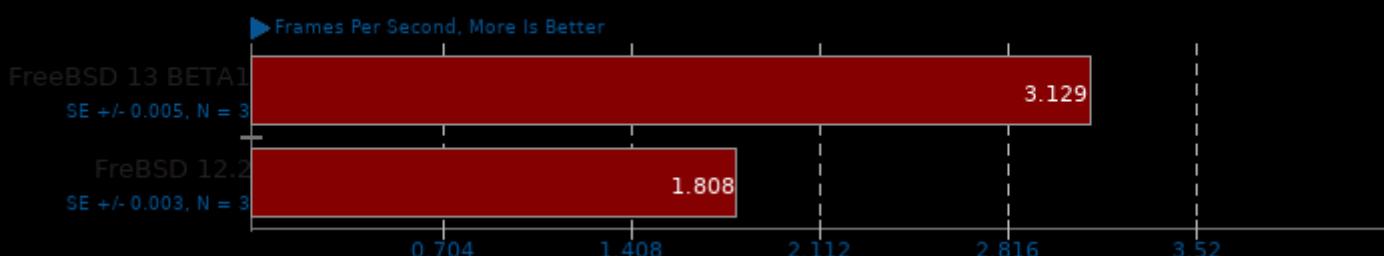
rav1e 0.4

Speed: 6



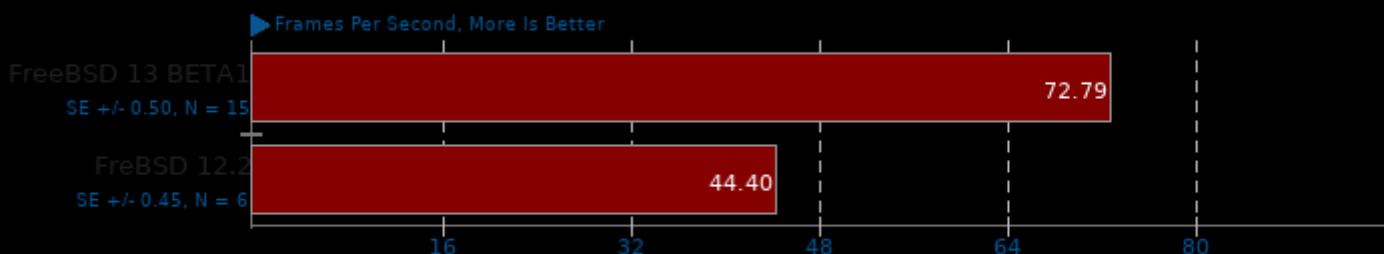
rav1e 0.4

Speed: 10



x264 2019-12-17

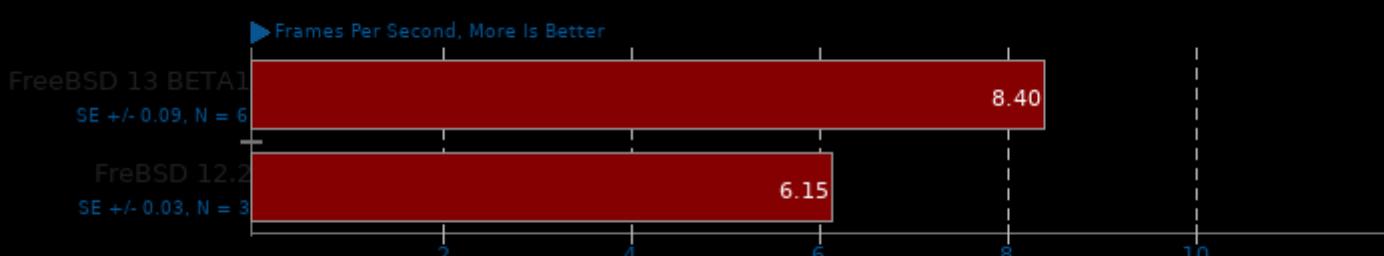
H.264 Video Encoding



1. (CC) clang options: -m64 -lm -lpthread -O3 -ffast-math -std=gnu99 -fstack-alignment=64 -fPIC -fomit-frame-pointer -fno-tree-vectorize

x265 3.4

Video Input: Bosphorus 4K

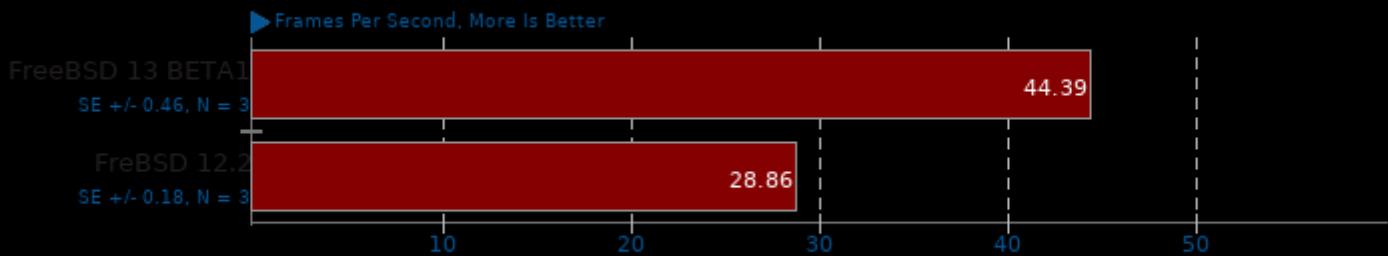


1. (CXX) clang++ options: -O3 -lpthread -lrt -ldl

FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

x265 3.4

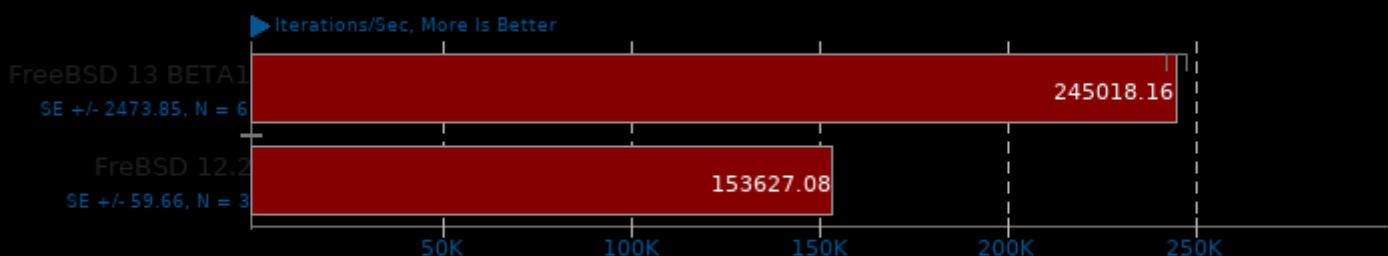
Video Input: Bosphorus 1080p



1. (CXX) clang++ options: -O3 -lpthread -lrt -ldl

Coremark 1.0

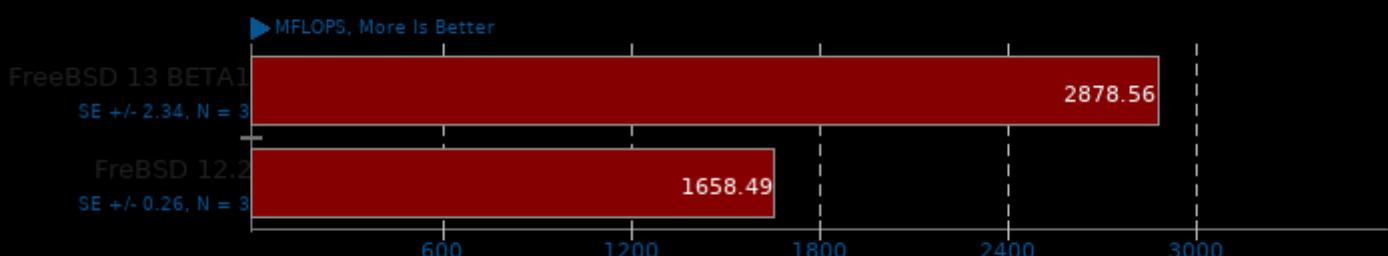
CoreMark Size 666 - Iterations Per Second



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

Himeno Benchmark 3.0

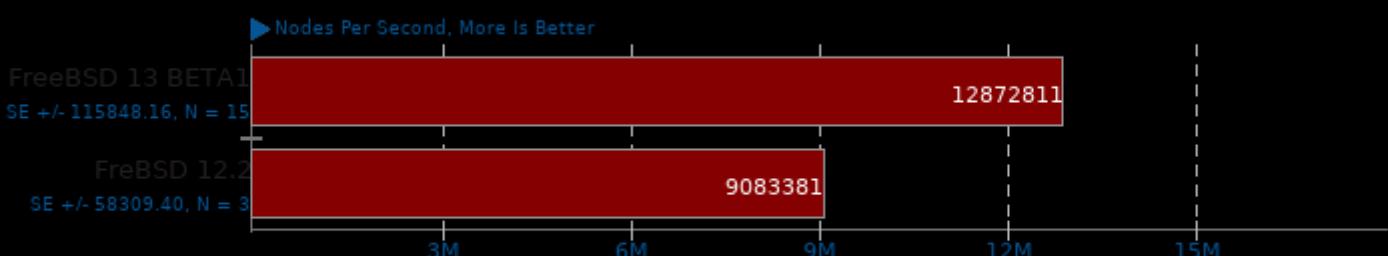
Poisson Pressure Solver



1. (CC) clang options: -O3

Stockfish 12

Total Time

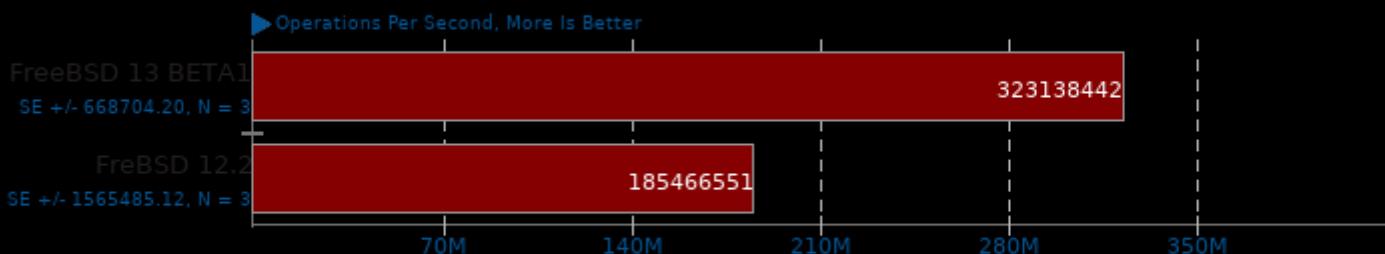


1. (CXX) clang++ options: -m64 -lpthread -fno-exceptions -std=c++17 -pedantic -O3 -msse -msse3 -mpopcnt -msse4.1 -msse3 -msse2 -fno-thin

FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

Swet 1.5.16

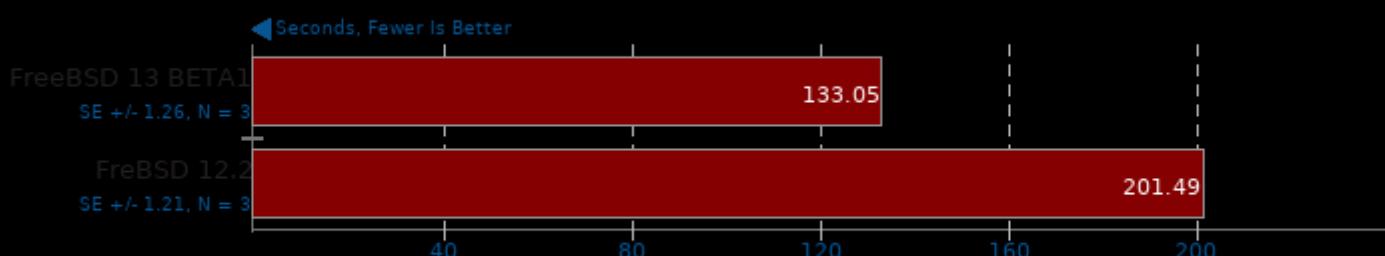
Average



1. (CC) clang options: -lm -lpthread -lcurses -lrt

libavif avifenc 0.7.3

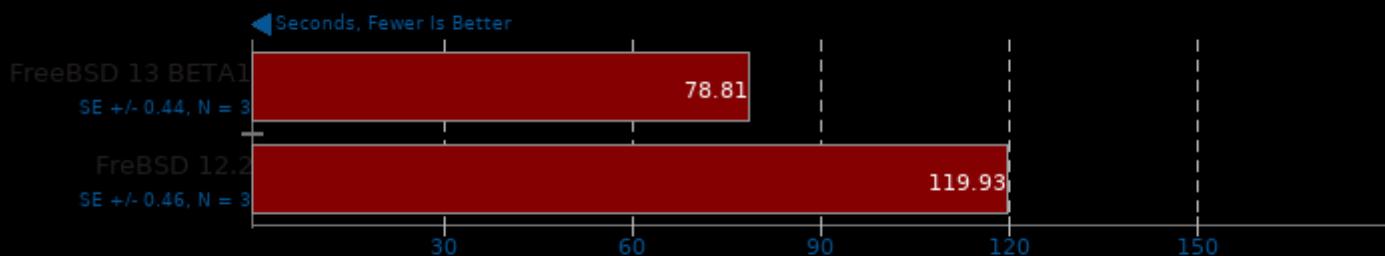
Encoder Speed: 0



1. (CXX) clang++ options: -O3 -fPIC

libavif avifenc 0.7.3

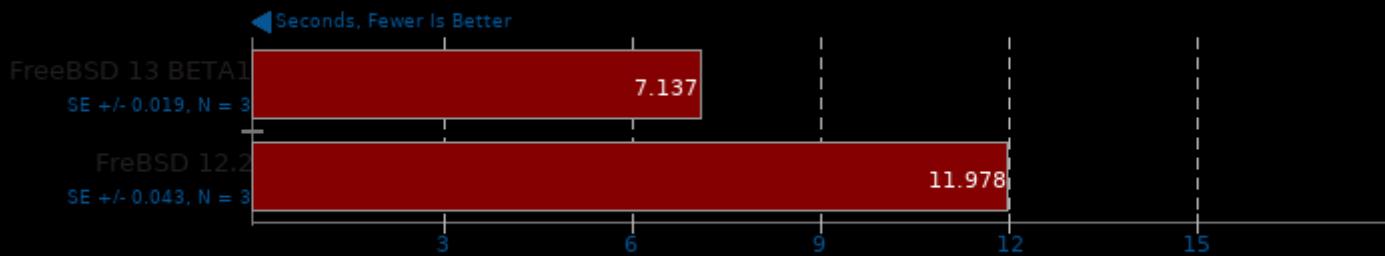
Encoder Speed: 2



1. (CXX) clang++ options: -O3 -fPIC

libavif avifenc 0.7.3

Encoder Speed: 8

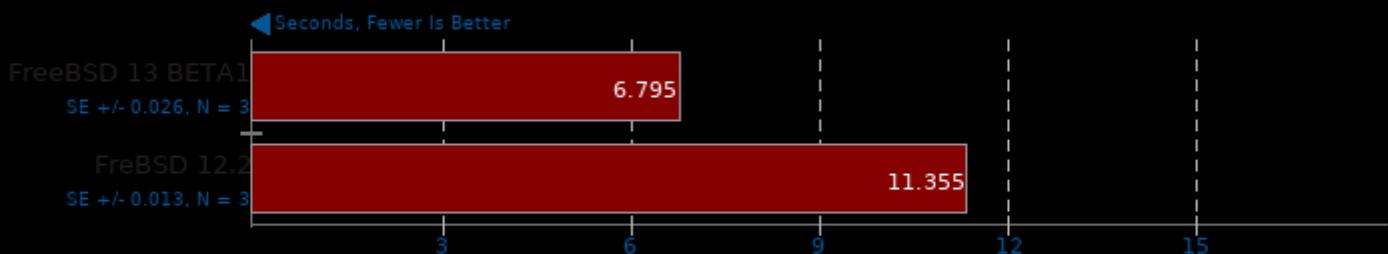


1. (CXX) clang++ options: -O3 -fPIC

FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

libavif avifenc 0.7.3

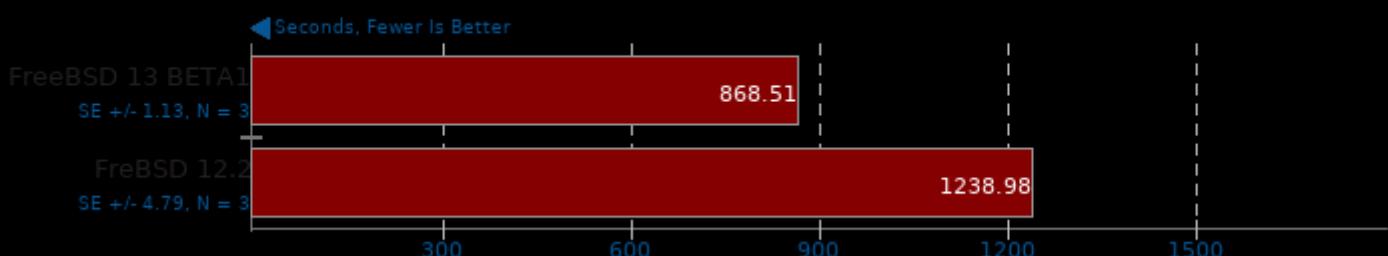
Encoder Speed: 10



1. (CXX) clang++ options: -O3 -fPIC

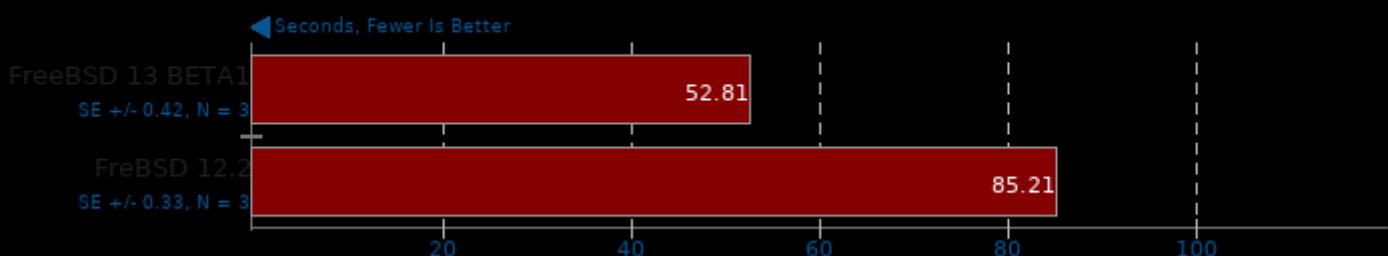
Timed LLVM Compilation 10.0

Time To Compile



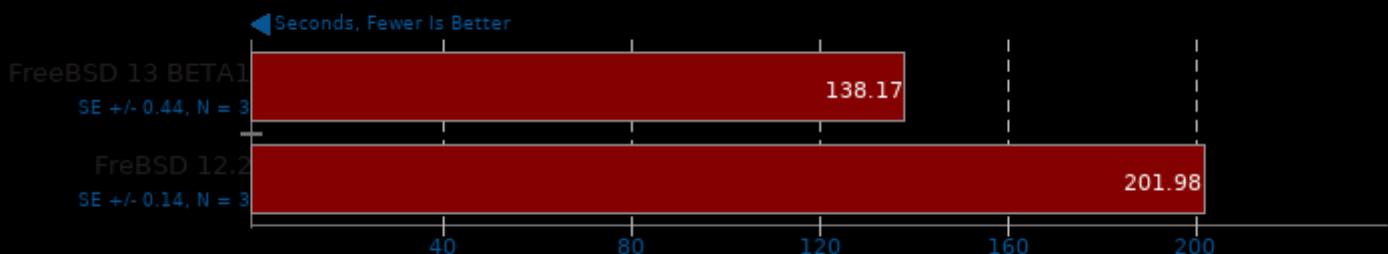
Timed PHP Compilation 7.4.2

Time To Compile



C-Ray 1.1

Total Time - 4K, 16 Rays Per Pixel

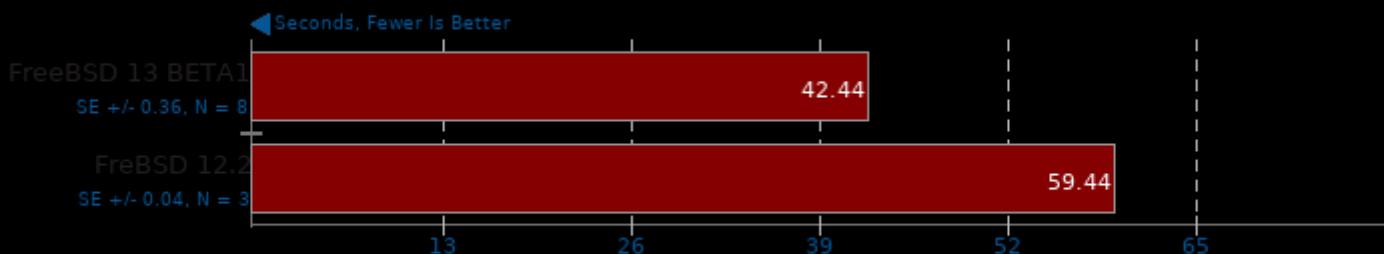


1. (CC) clang options: -lm -lpthread -O3

FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

Primesieve 7.4

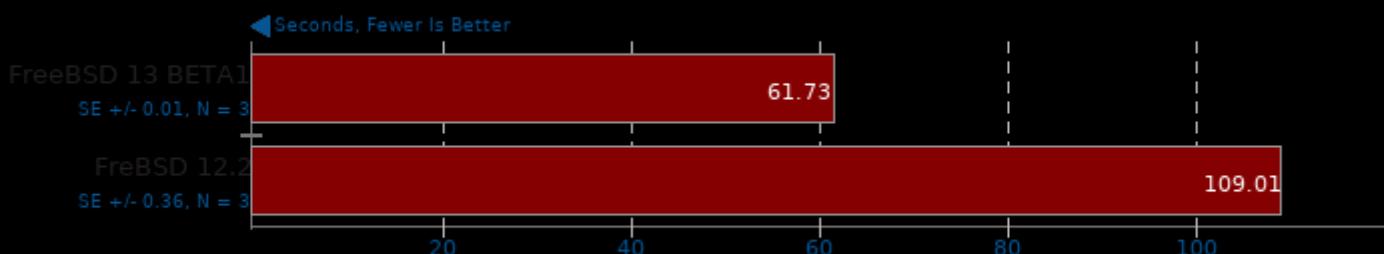
1e12 Prime Number Generation



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

Rust Mandelbrot

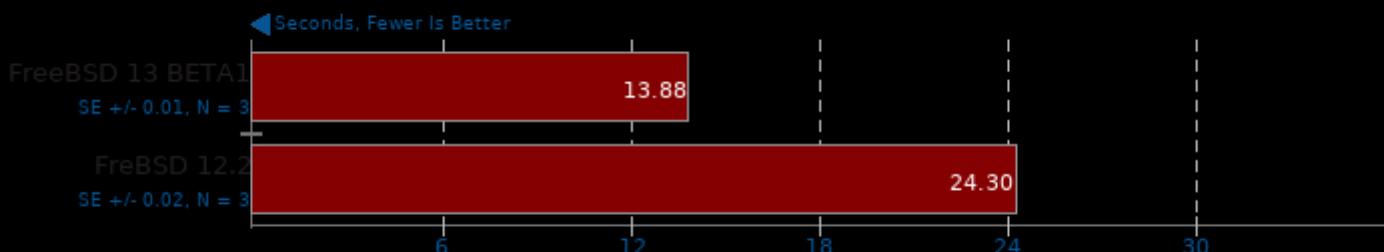
Time To Complete Serial/Parallel Mandelbrot



1. (CC) clang options: -m64 -pie -nodefaultlibs -lrt -lutil -execinfo -lpthread -lgcc_s -lc -lm

Rust Prime Benchmark

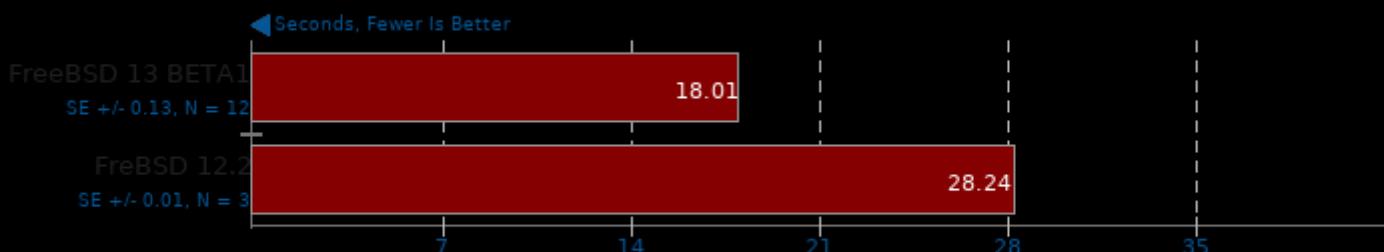
Prime Number Test To 200,000,000



1. (CC) clang options: -m64 -pie -nodefaultlibs -execinfo -lpthread -lgcc_s -lc -lm -lrt -lutil

Smallpt 1.0

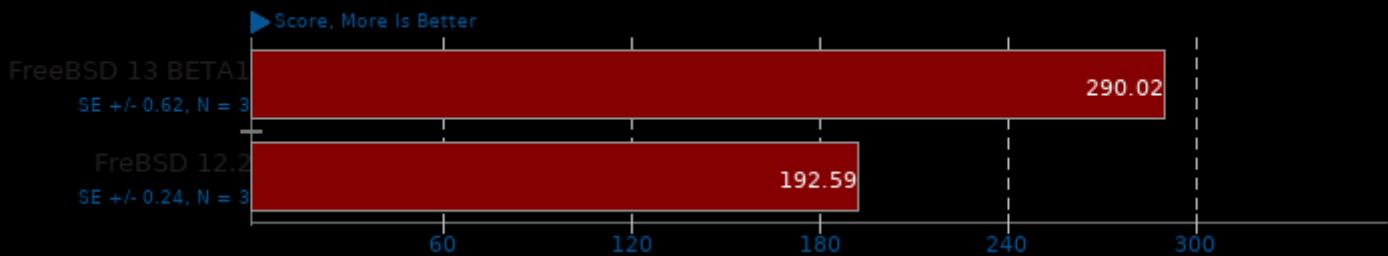
Global Illumination Renderer; 128 Samples



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

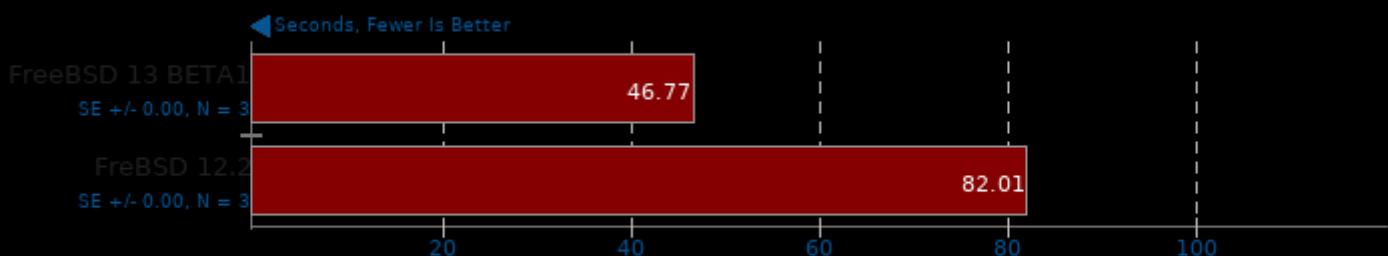
FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

Numpy Benchmark



AOBench

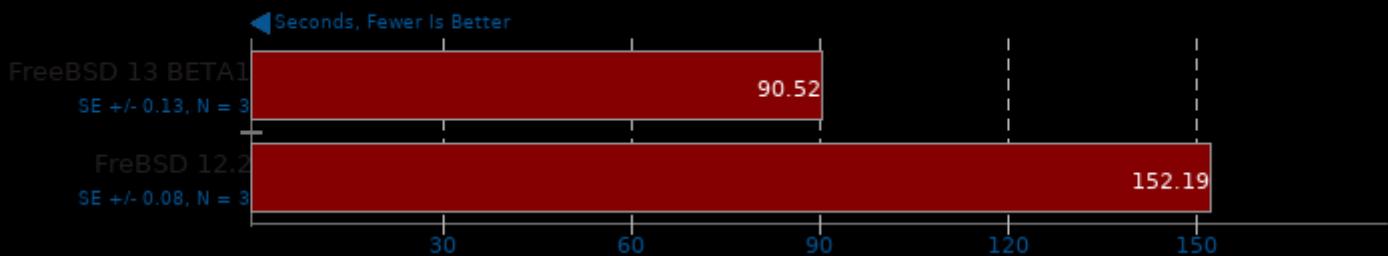
Size: 2048 x 2048 - Total Time



1. (CC) clang options: -lm -O3

Timed Eigen Compilation 3.3.9

Time To Compile



LZMA Compression

256MB File Compression

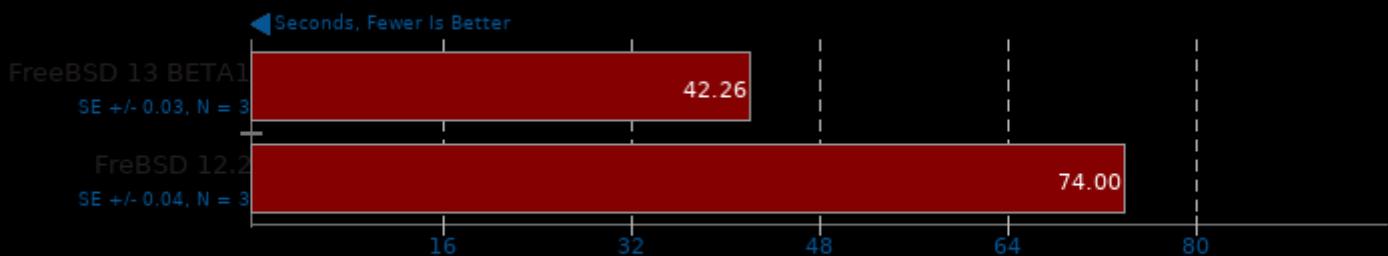


1. (CXX) clang++ options: -O2

FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

ddraw

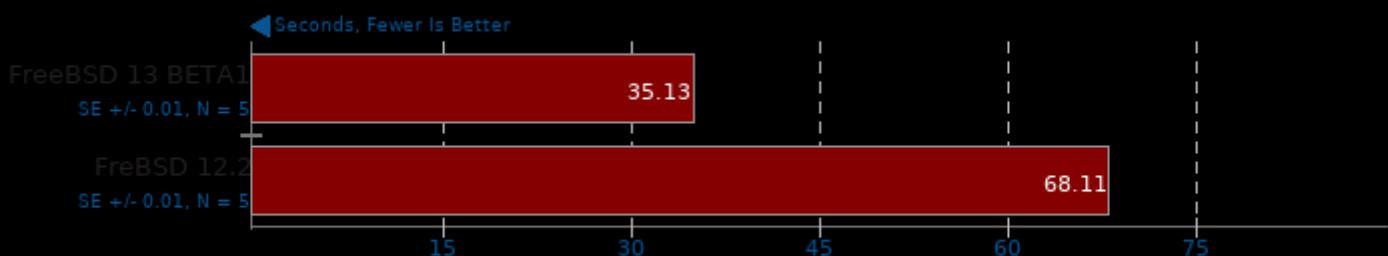
RAW To PPM Image Conversion



1. (CC) clang options: -lm

Monkey Audio Encoding 3.99.6

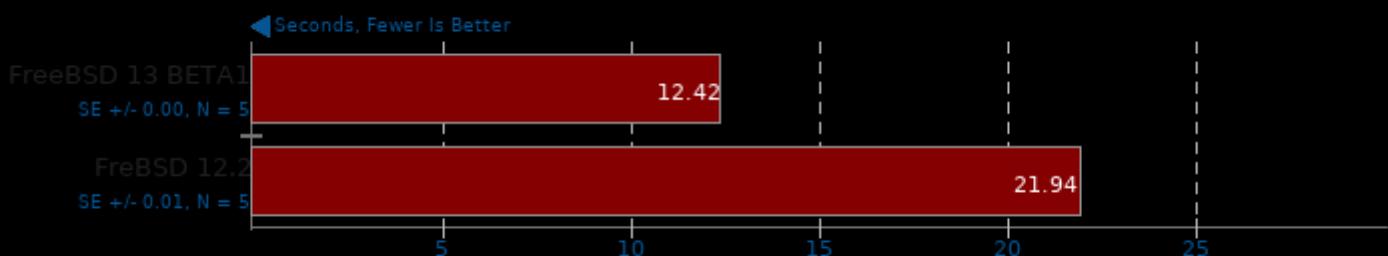
WAV To APE



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

FLAC Audio Encoding 1.3.2

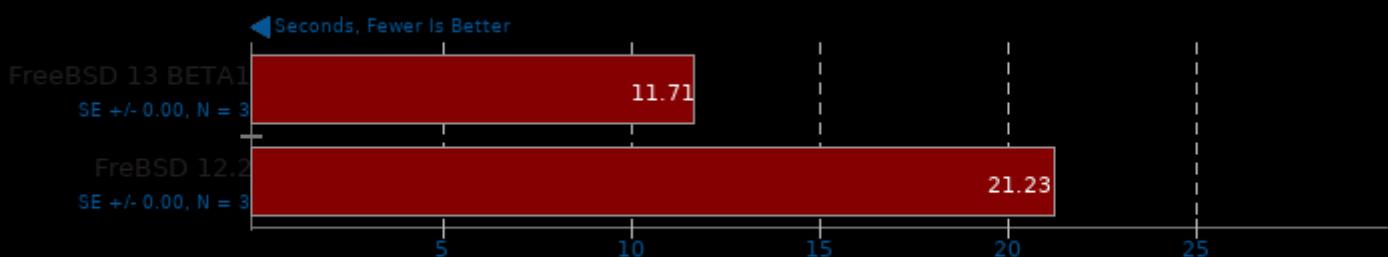
WAV To FLAC



1. (CXX) clang++ options: -O2 -lm

LAME MP3 Encoding 3.100

WAV To MP3

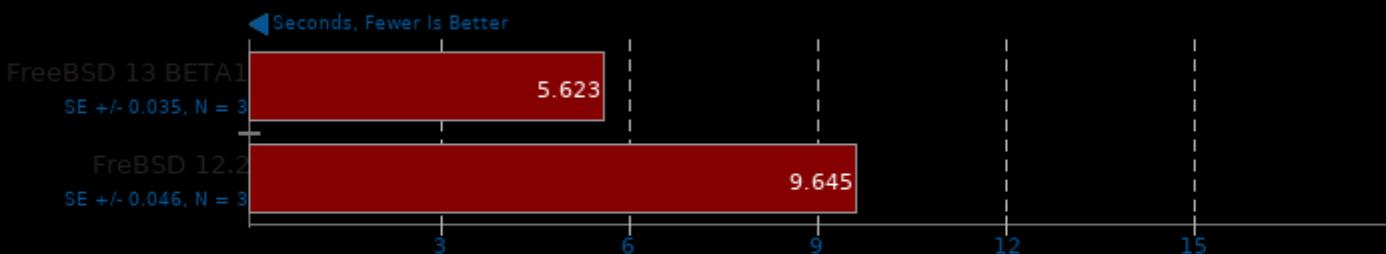


1. (CC) clang options: -O3 -pipe -fincrustes -lm

FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

FFmpeg 4.0.2

H.264 HD To NTSC DV



1. (CC) clang options: -Qunused-arguments -lavdevice -lavfilter -lavformat -lavcodec -lswresample -lswscale -lavutil -lm -lxcb -lxcb-shm -lxcb-shape -lxcb-shape-shape

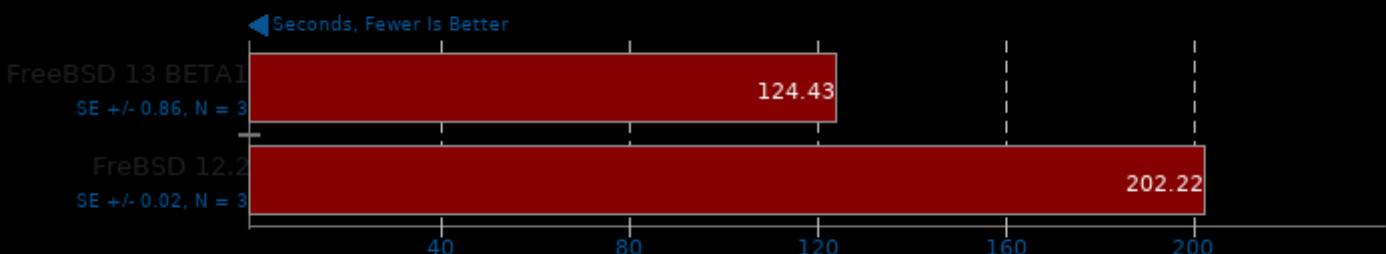
Gcrypt Library 1.9



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

m-queens 1.2

Time To Solve



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

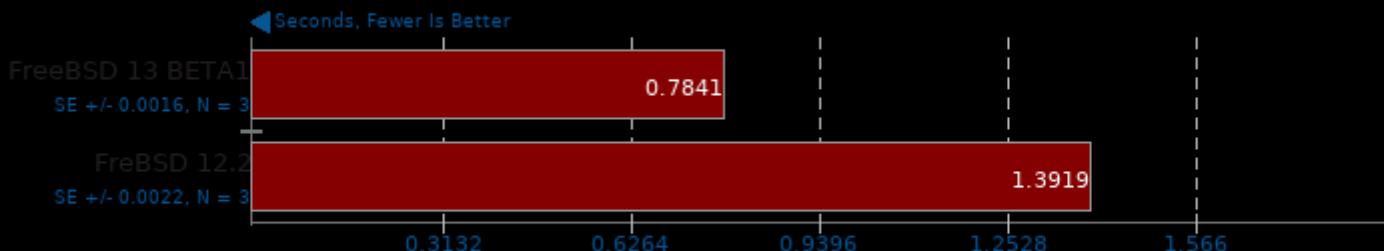
Perl Benchmarks

Test: Pod2html



FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

R Benchmark



1. R scripting front-end version 4.0.3 (2020-10-10)

OpenSSL 1.1.1

RSA 4096-bit Performance



1. (CC) clang options: -pthread -Qunused-arguments -O3 -lssl -lcrypto

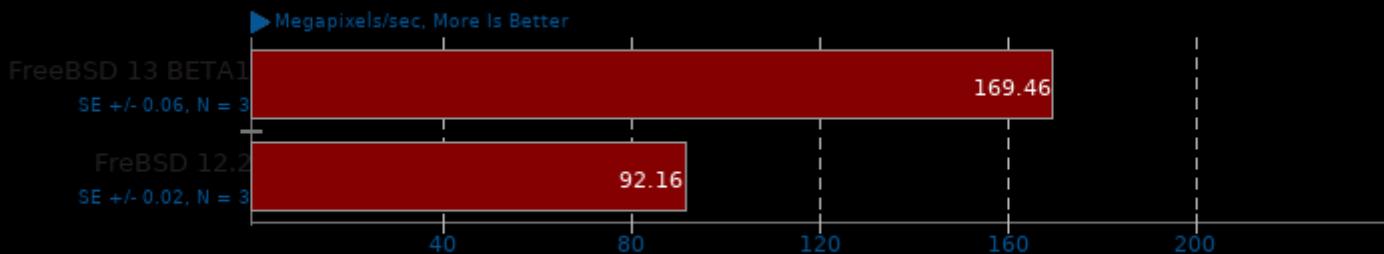
Aircrack-ng 1.5.2



1. (CXX) clang++ options: -O3 -fvisibility=hidden -fasm=intel -fcommon -rdynamic -lsqlite3 -lpthread -lz -lcrypto -lhwloc -ldl -lm -pthread

libjpeg-turbo tjbench 2.0.2

Test: Decompression Throughput

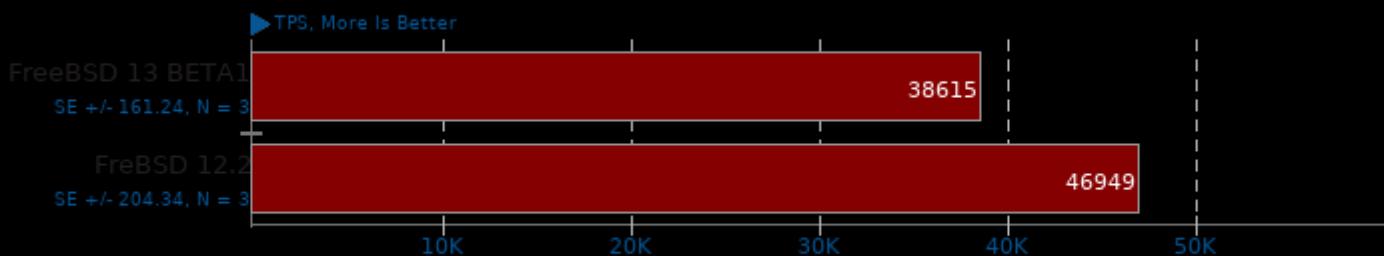


1. (CC) clang options: -O3 -lm

FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

PostgreSQL pgbench 13.0

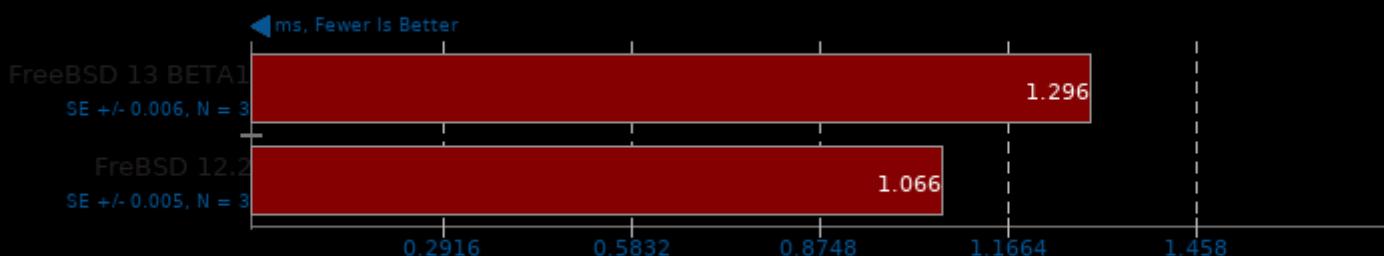
Scaling Factor: 100 - Clients: 50 - Mode: Read Only



1. (CC) clang options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lexecinfo -lm

PostgreSQL pgbench 13.0

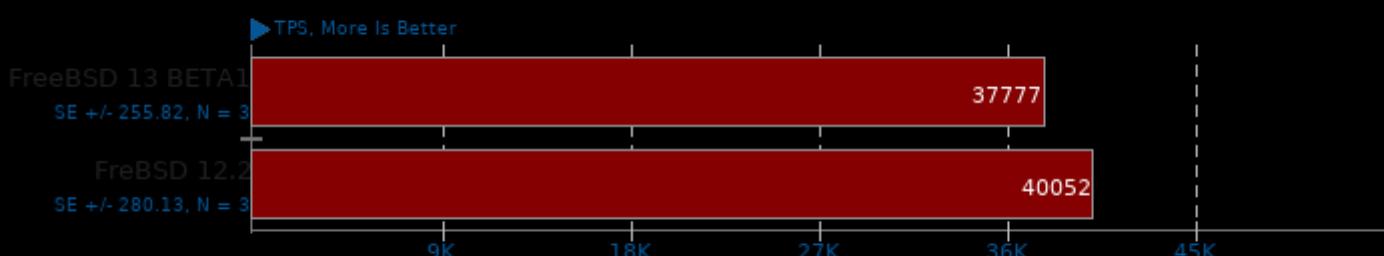
Scaling Factor: 100 - Clients: 50 - Mode: Read Only - Average Latency



1. (CC) clang options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lexecinfo -lm

PostgreSQL pgbench 13.0

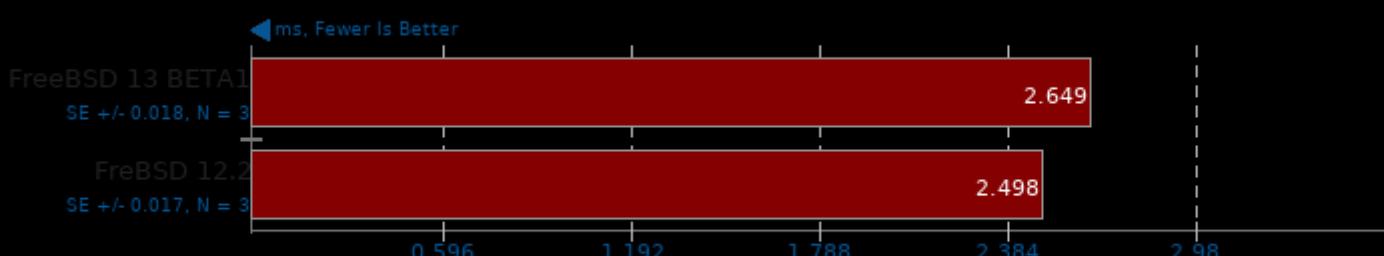
Scaling Factor: 100 - Clients: 100 - Mode: Read Only



1. (CC) clang options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lexecinfo -lm

PostgreSQL pgbench 13.0

Scaling Factor: 100 - Clients: 100 - Mode: Read Only - Average Latency

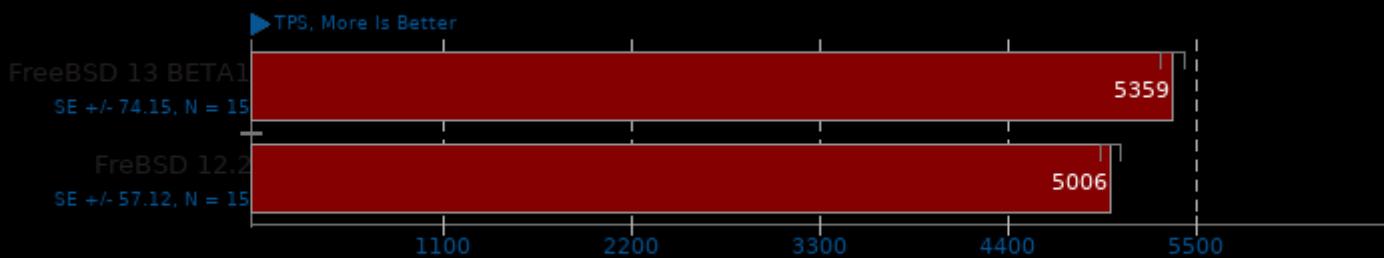


1. (CC) clang options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lexecinfo -lm

FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

PostgreSQL pgbench 13.0

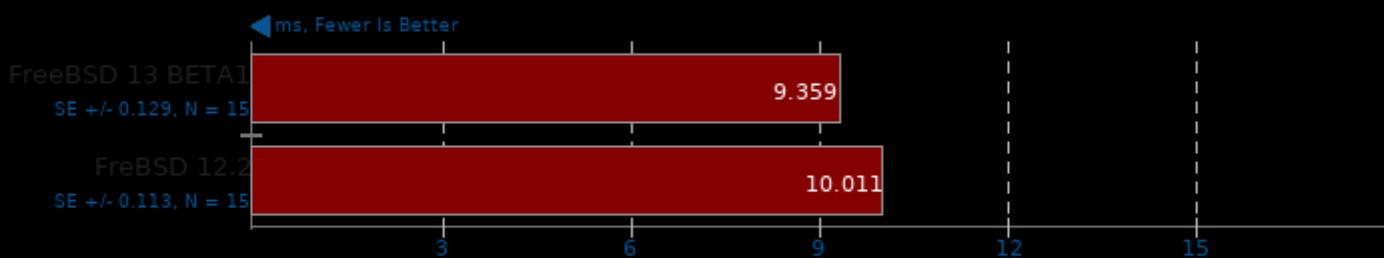
Scaling Factor: 100 - Clients: 50 - Mode: Read Write



1. (CC) clang options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lexecinfo -lm

PostgreSQL pgbench 13.0

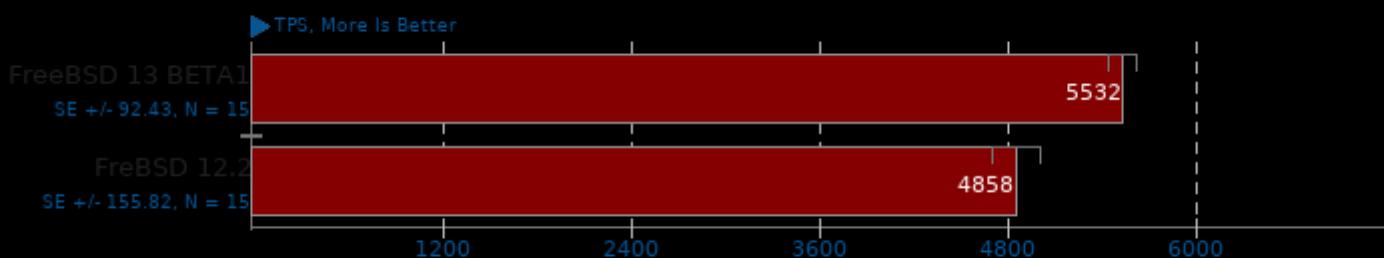
Scaling Factor: 100 - Clients: 50 - Mode: Read Write - Average Latency



1. (CC) clang options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lexecinfo -lm

PostgreSQL pgbench 13.0

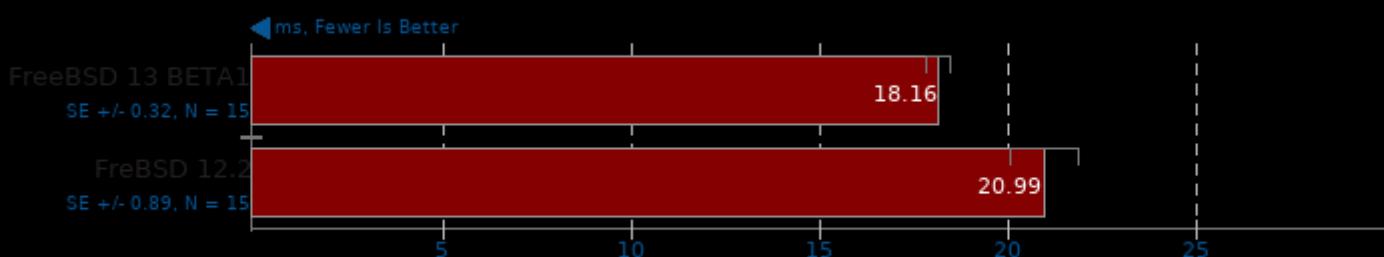
Scaling Factor: 100 - Clients: 100 - Mode: Read Write



1. (CC) clang options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lexecinfo -lm

PostgreSQL pgbench 13.0

Scaling Factor: 100 - Clients: 100 - Mode: Read Write - Average Latency

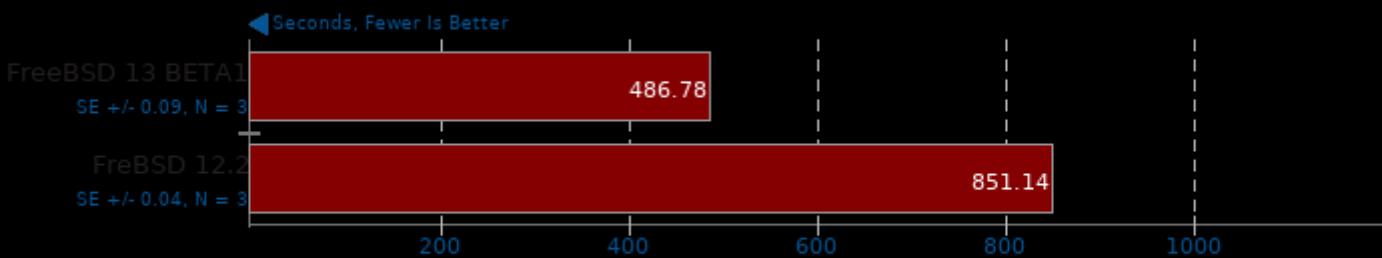


1. (CC) clang options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lexecinfo -lm

FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

CppPerformanceBenchmarks 9

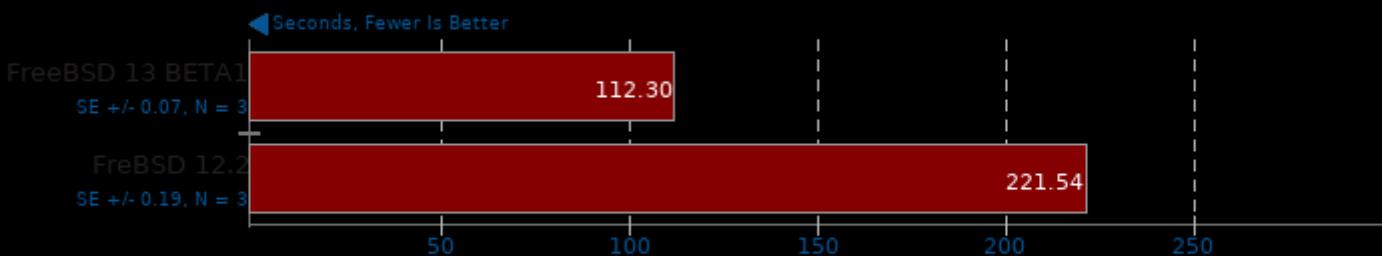
Test: Math Library



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

SQLite Speedtest 3.30

Timed Time - Size 1,000



1. (CC) clang options: -O2 -lz -lpthread

Stress-NG 0.11.07

Test: MMAP



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

Stress-NG 0.11.07

Test: Malloc

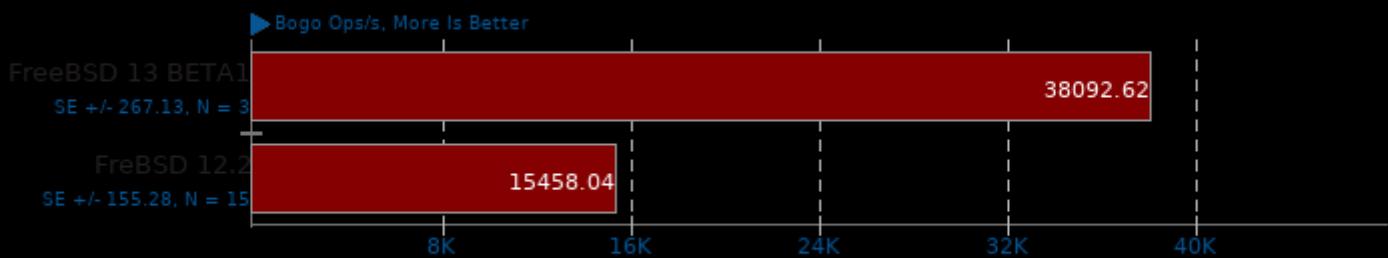


1. (CC) clang options: -O2 -std=gnu99 -lm -lrt -lz -lpthread -lc

FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

Stress-NG 0.11.07

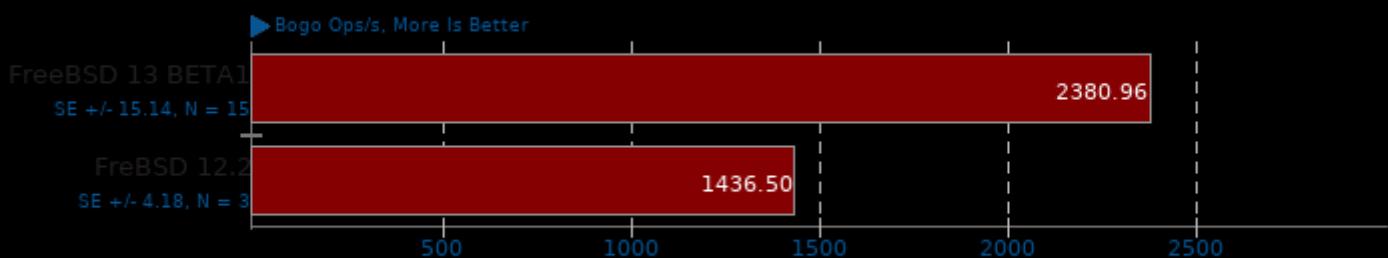
Test: Forking



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

Stress-NG 0.11.07

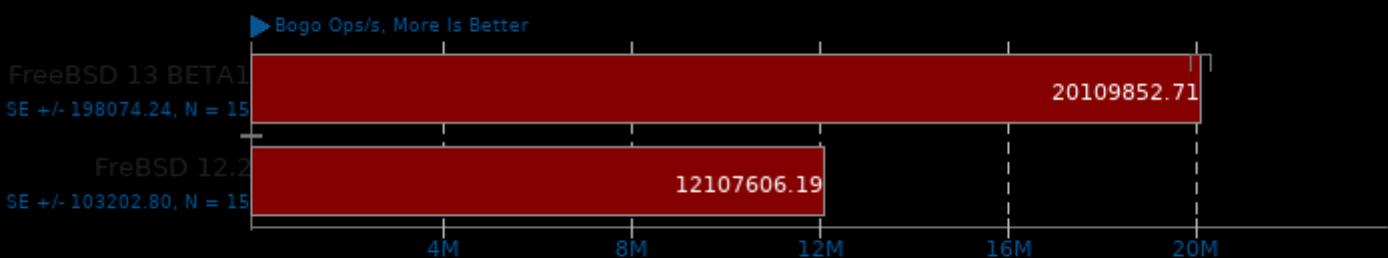
Test: CPU Stress



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

Stress-NG 0.11.07

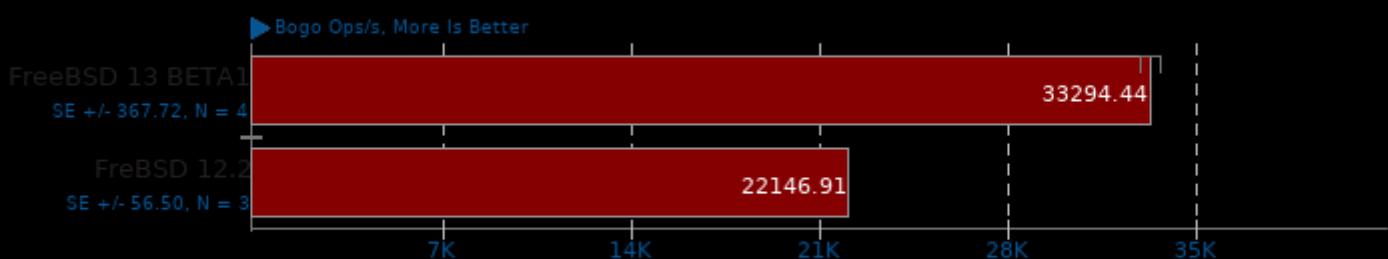
Test: Semaphores



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

Stress-NG 0.11.07

Test: Matrix Math

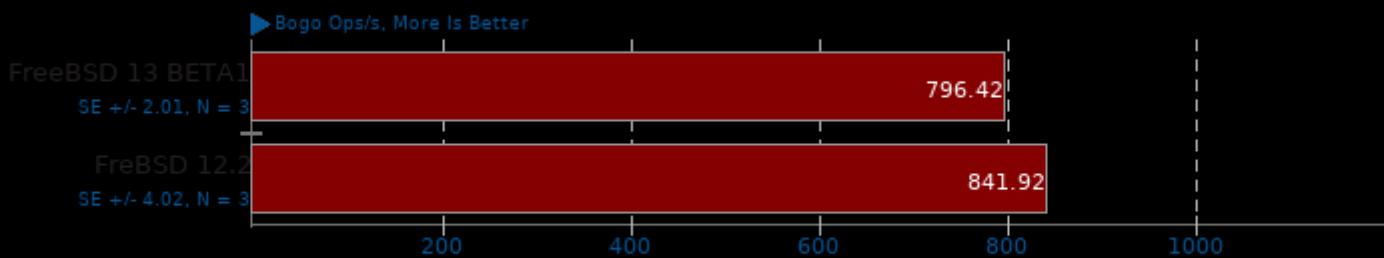


1. (CC) clang options: -O2 -std=gnu99 -lm -lrt -lz -lpthread -lc

FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

Stress-NG 0.11.07

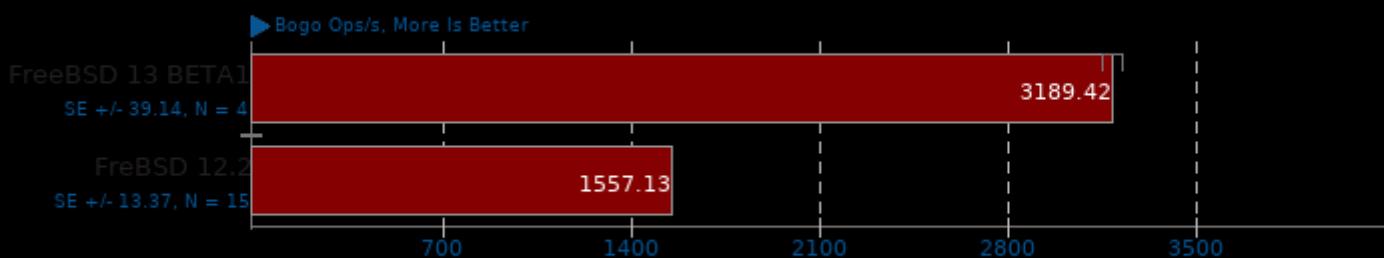
Test: Memory Copying



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

Stress-NG 0.11.07

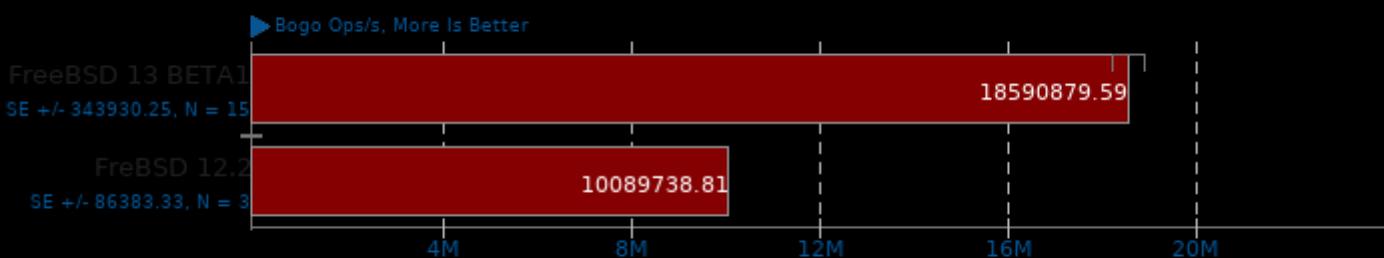
Test: Socket Activity



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

Stress-NG 0.11.07

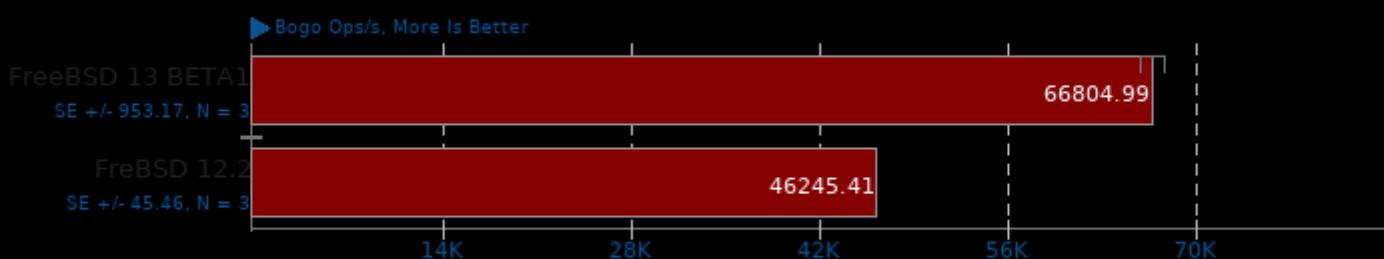
Test: Context Switching



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

Stress-NG 0.11.07

Test: Glibc C String Functions

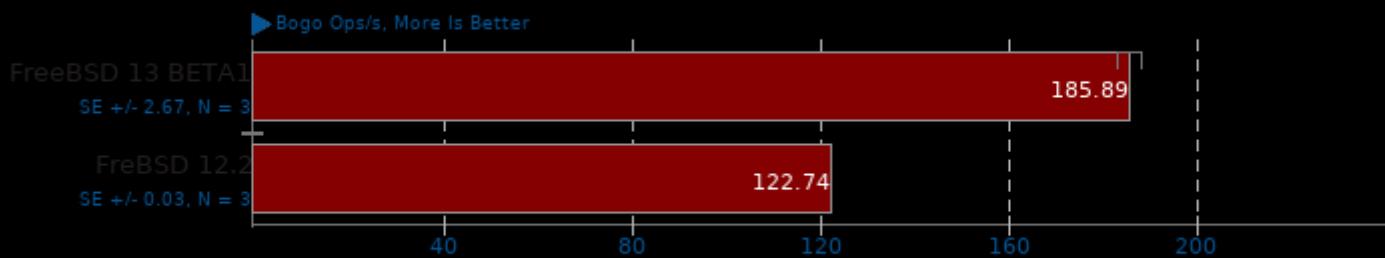


1. (CC) clang options: -O2 -std=gnu99 -lm -lrt -lz -lpthread -lc

FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

Stress-NG 0.11.07

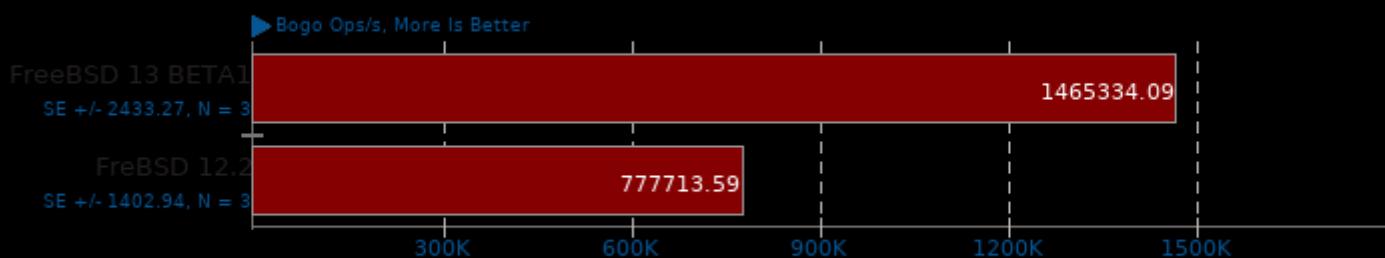
Test: Glibc Qsort Data Sorting



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

Stress-NG 0.11.07

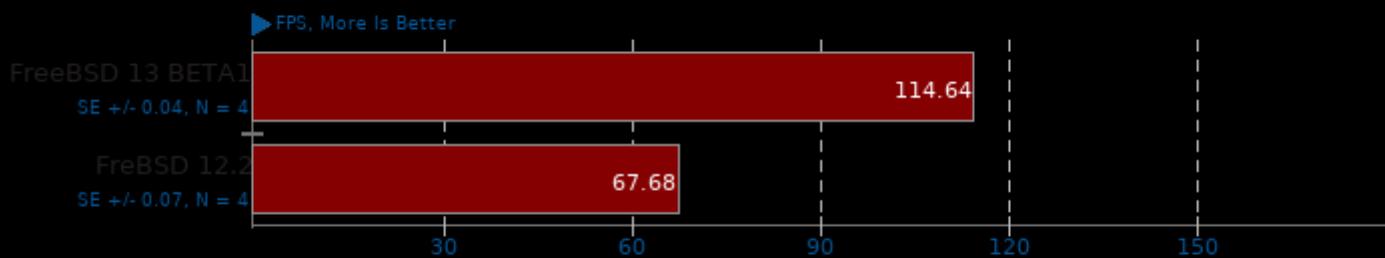
Test: System V Message Passing



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

Optcarrot

Optimized Benchmark



1. FreeBSD 13 BETA1: ruby 2.7.2p137 (2020-10-01 revision 5445e04352) [amd64-freebsd13]

2. FreeBSD 12.2: ruby 2.7.2p137 (2020-10-01 revision 5445e04352) [amd64-freebsd12]

PyBench 2018-02-16

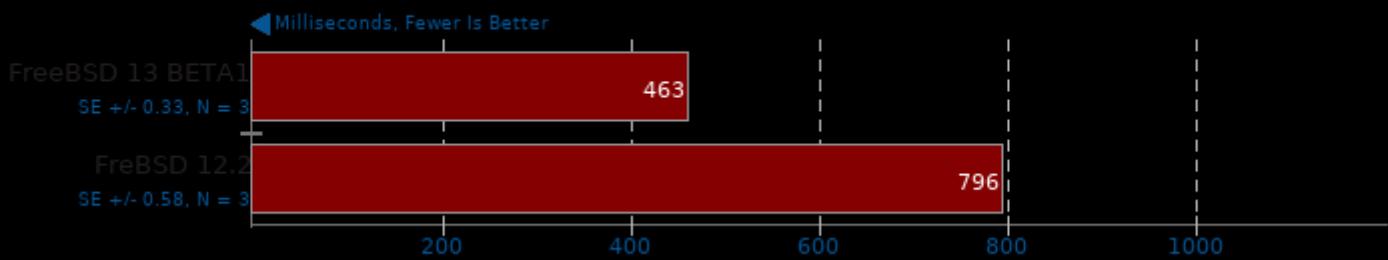
Total For Average Test Times



FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

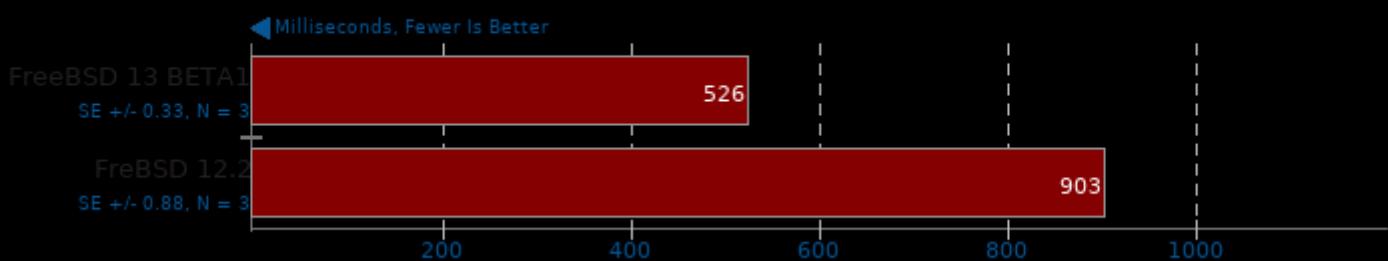
PyPerformance 1.0.0

Benchmark: go



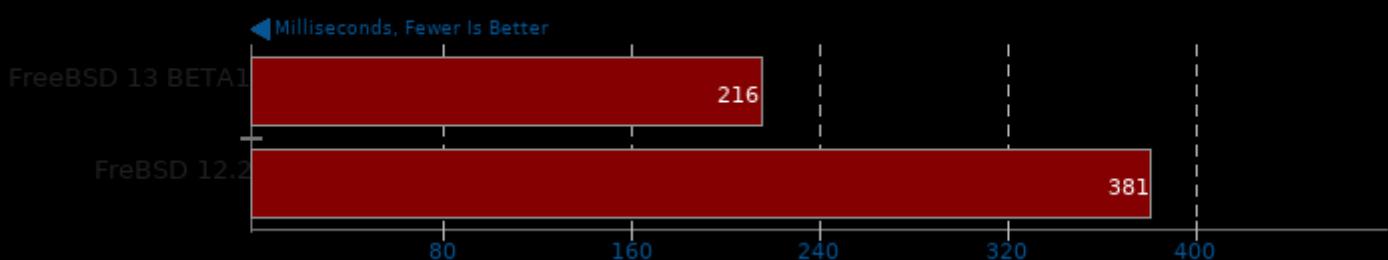
PyPerformance 1.0.0

Benchmark: 2to3



PyPerformance 1.0.0

Benchmark: chaos



PyPerformance 1.0.0

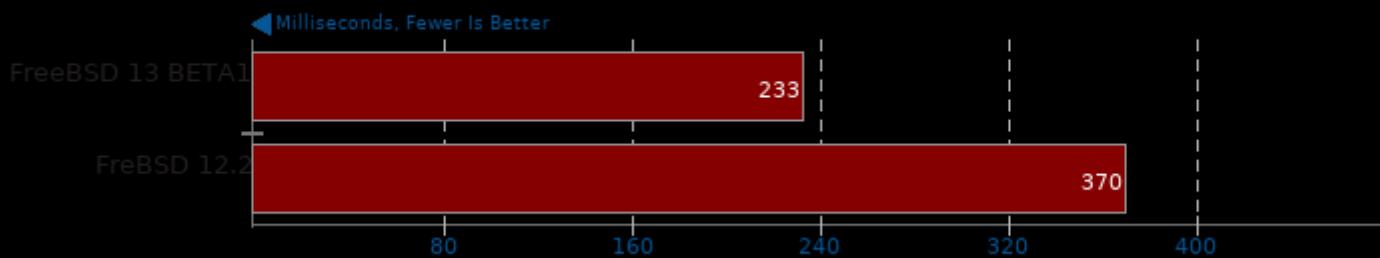
Benchmark: float



FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

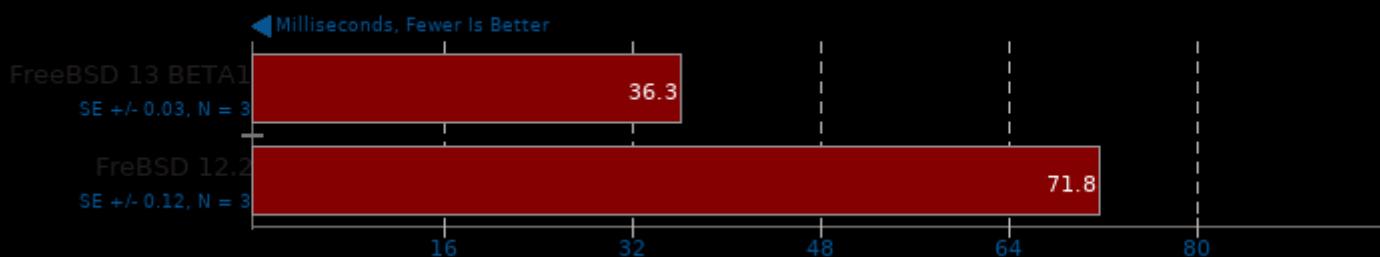
PyPerformance 1.0.0

Benchmark: nbody



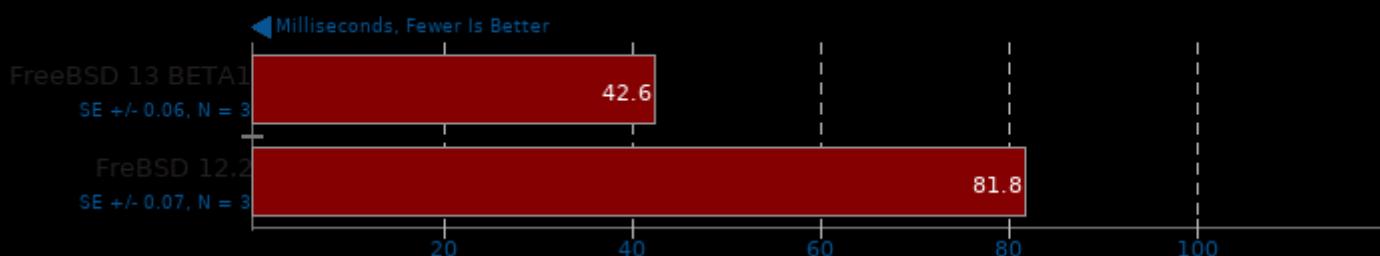
PyPerformance 1.0.0

Benchmark: pathlib



PyPerformance 1.0.0

Benchmark: json.loads



PyPerformance 1.0.0

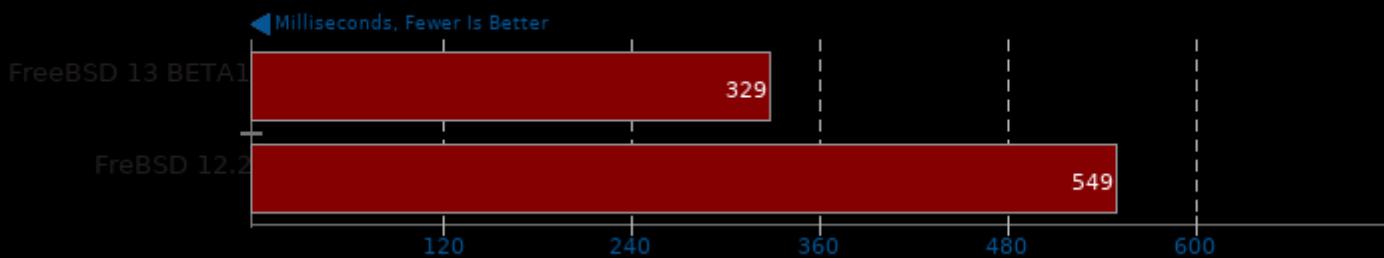
Benchmark: crypto_pyaes



FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

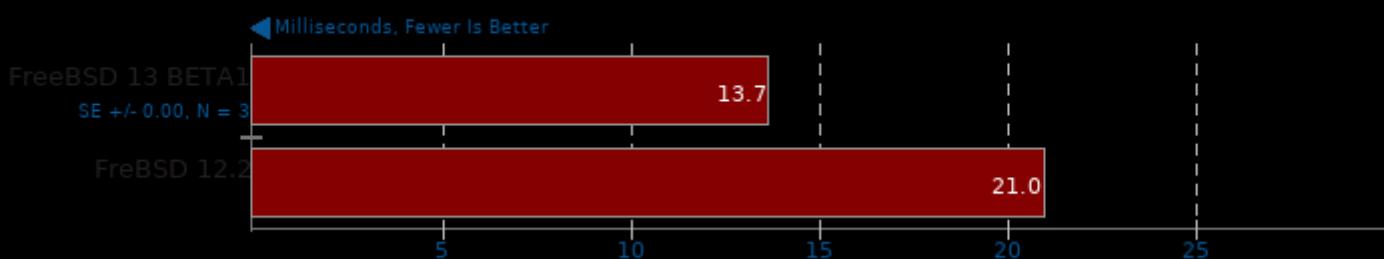
PyPerformance 1.0.0

Benchmark: regex_compile



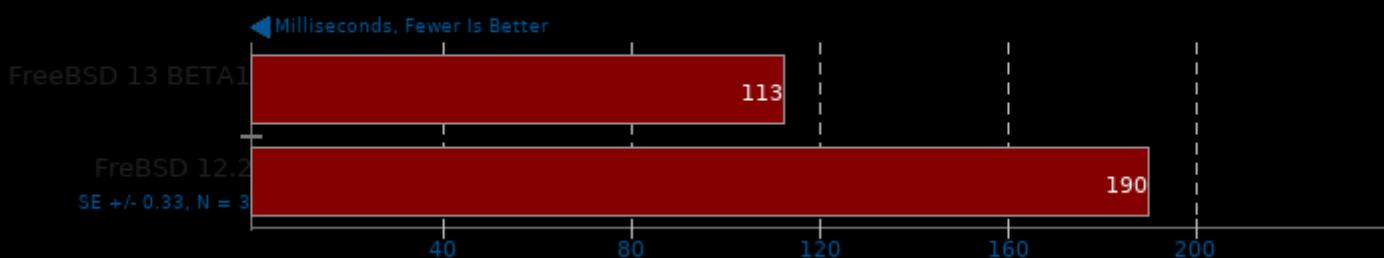
PyPerformance 1.0.0

Benchmark: python_startup



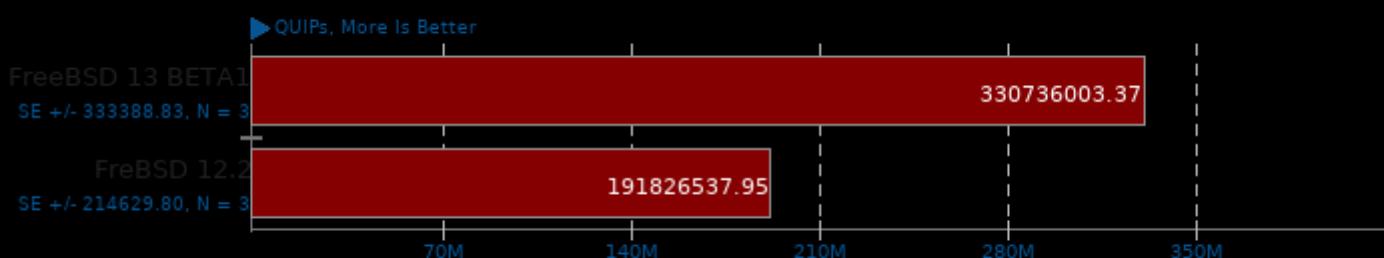
PyPerformance 1.0.0

Benchmark: django_template



Hierarchical INTegration 1.0

Test: FLOAT

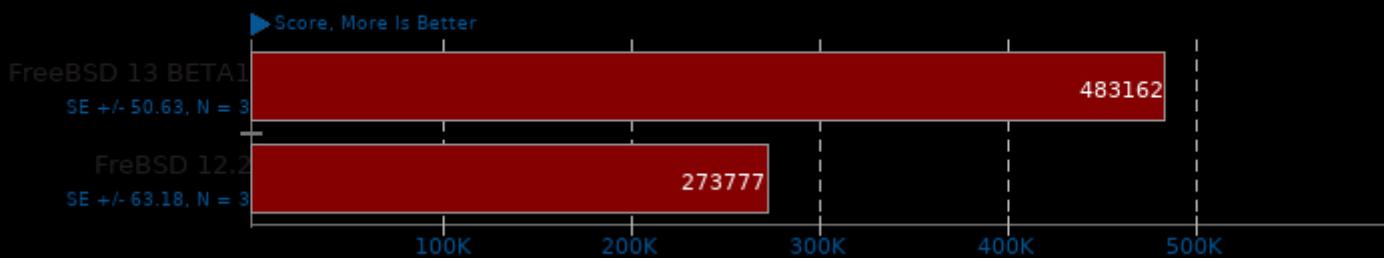


1. (CC) clang options: -O3 -march=native -lm

FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

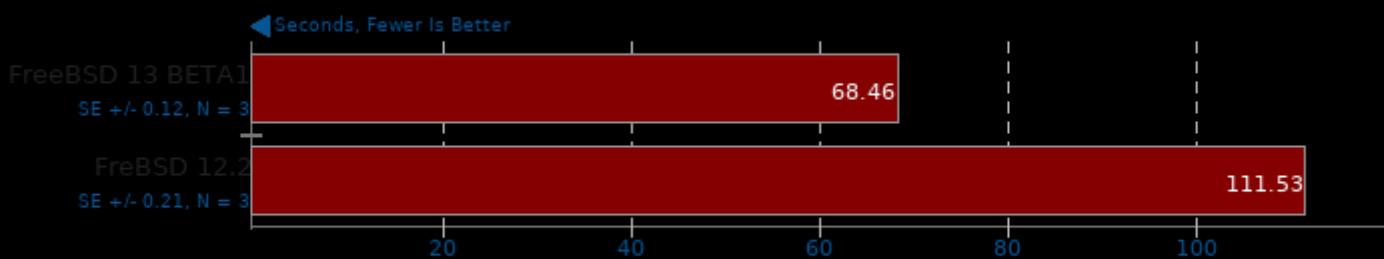
PHPBench 0.8.1

PHP Benchmark Suite



Git

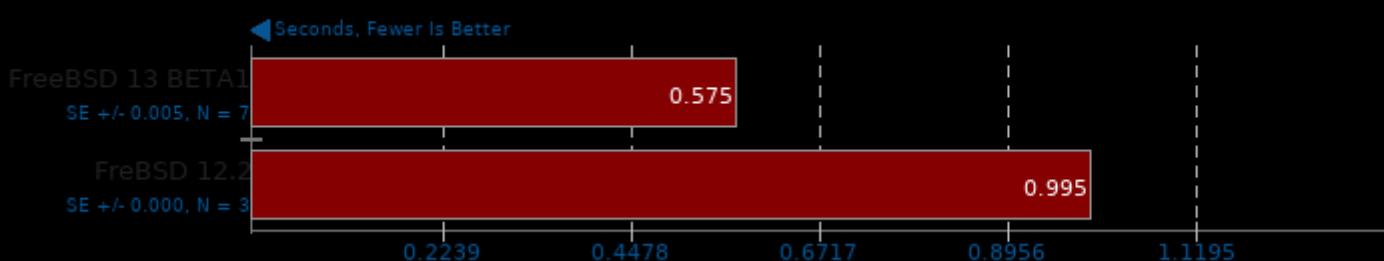
Time To Complete Common Git Commands



git version 2.30.0

PHP Micro Benchmarks

Test: Zend bench



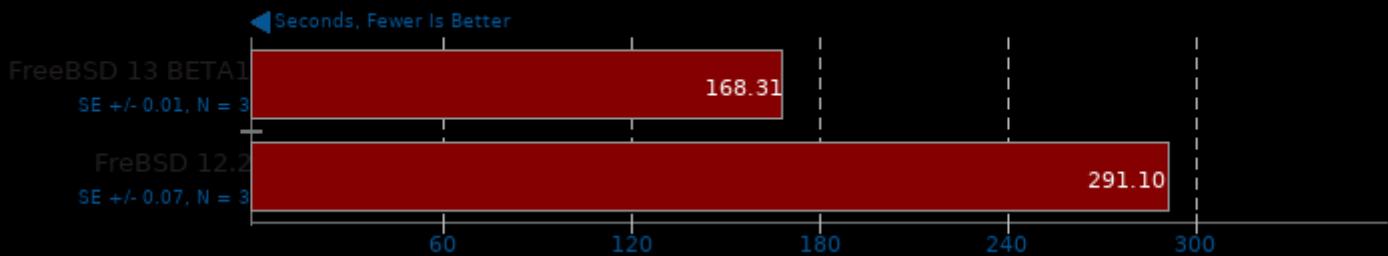
PHP Micro Benchmarks

Test: Zend micro_bench



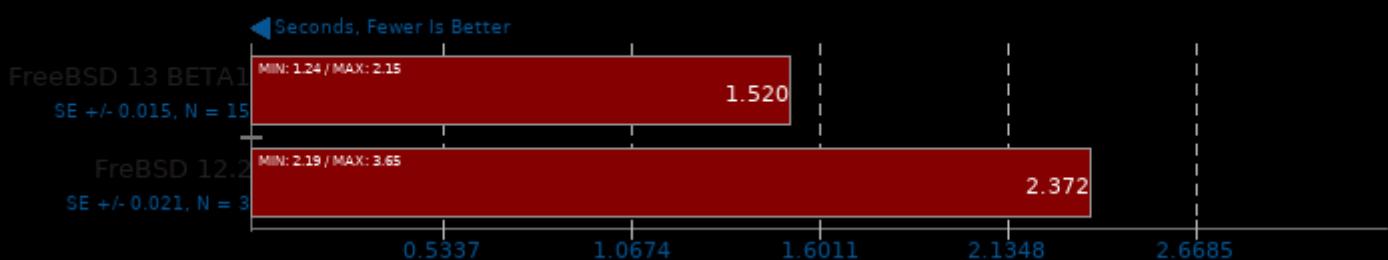
FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

Scikit-Learn 0.22.1



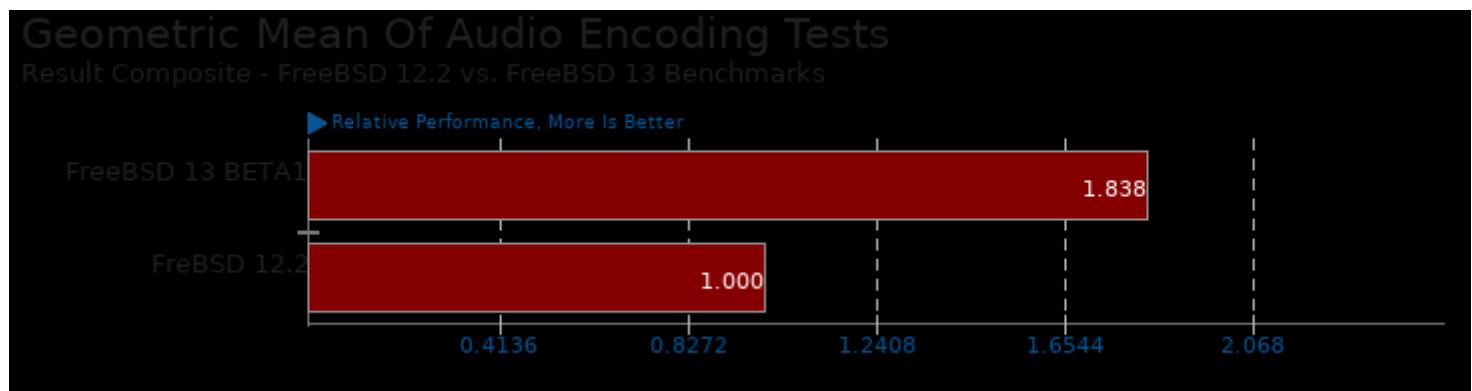
Sunflow Rendering System 0.07.2

Global Illumination + Image Synthesis

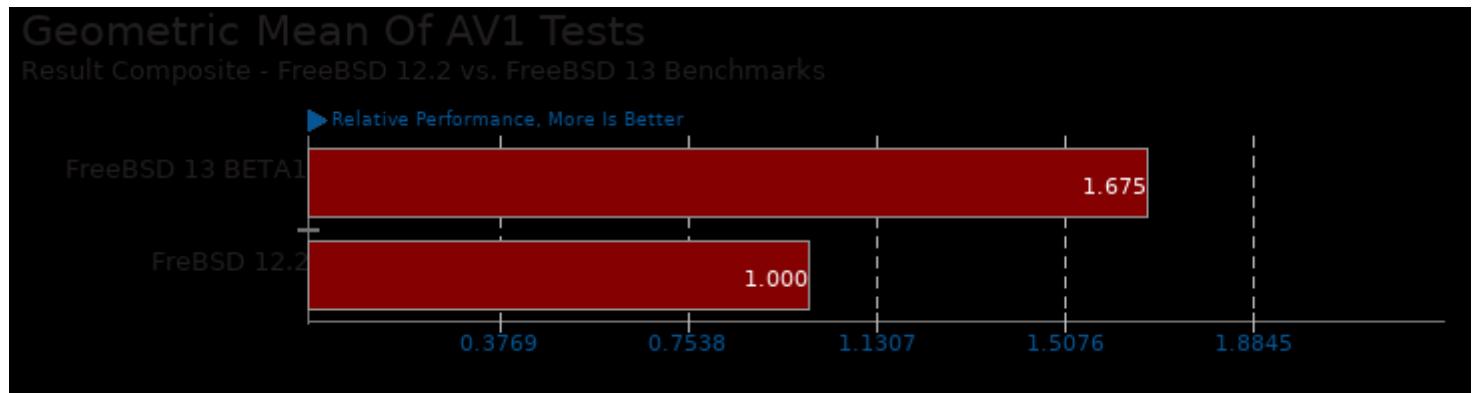


FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

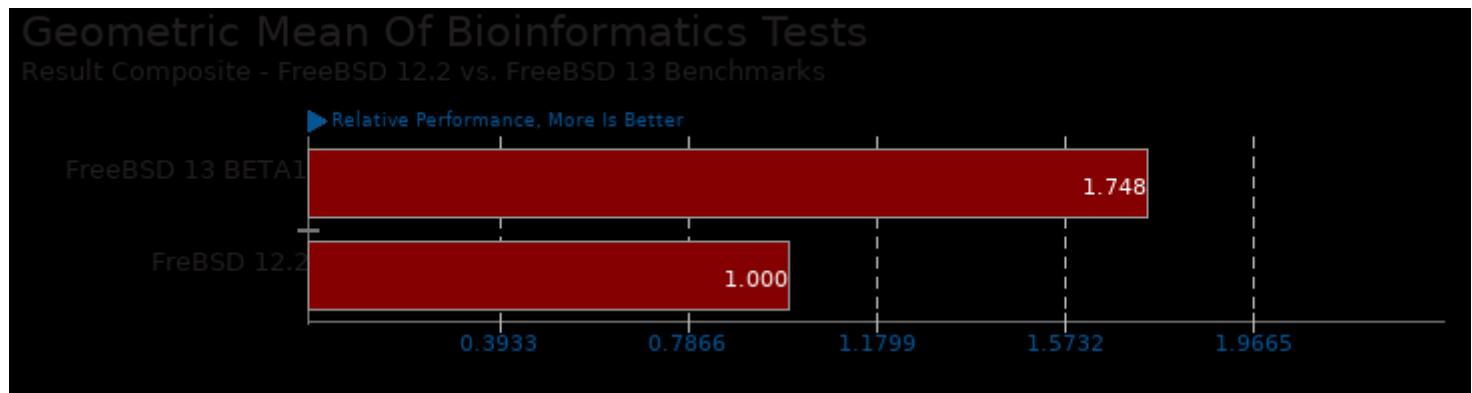
These geometric means are based upon test groupings / test suites for this result file.



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



Geometric mean based upon tests: pts/rav1e and pts/avifenc



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

FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

Geometric Mean Of Chess Test Suite

Result Composite - FreeBSD 12.2 vs. FreeBSD 13 Benchmarks



Geometric mean based upon tests: pts/stockfish and pts/m-queens

Geometric Mean Of Timed Code Compilation Tests

Result Composite - FreeBSD 12.2 vs. FreeBSD 13 Benchmarks



Geometric mean based upon tests: pts/build-php, pts/build-eigen and pts/build-llvm

Geometric Mean Of Creator Workloads Tests

Result Composite - FreeBSD 12.2 vs. FreeBSD 13 Benchmarks



Geometric mean based upon tests: pts/c-ray, pts/aobench, pts/smallpt, pts/ttsiod-renderer, pts/x264, pts/x265, pts/ffmpeg, pts/rav1e, pts/avifenc, pts/encode-mp3, pts/encode-flac, pts/encode-ape, pts/graphics-magick, pts/libraw, pts/tjbench, pts/dcraw and pts/luajit

FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

Geometric Mean Of Cryptography Tests

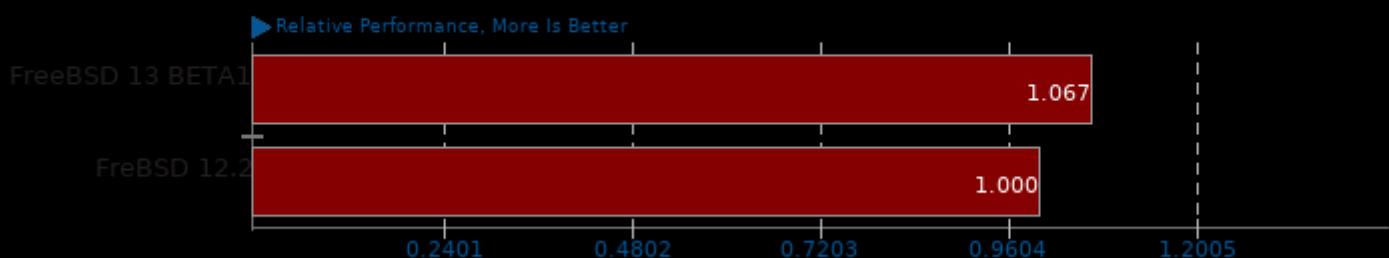
Result Composite - FreeBSD 12.2 vs. FreeBSD 13 Benchmarks



Geometric mean based upon tests: pts/openssl, pts/gcrypt, pts/blake2, pts/john-the-ripper, pts/smhasher, pts/botan, pts/bork and pts/aircrack-ng

Geometric Mean Of Database Test Suite

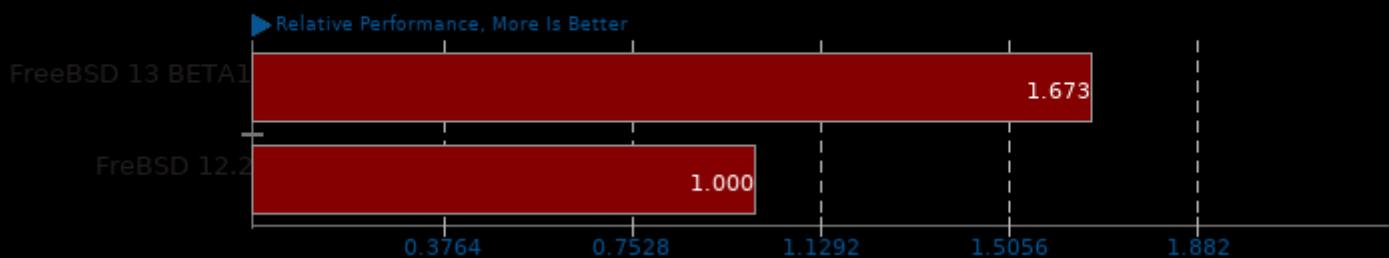
Result Composite - FreeBSD 12.2 vs. FreeBSD 13 Benchmarks



Geometric mean based upon tests: pts/sqlite-speedtest and pts/pgbench

Geometric Mean Of Encoding Tests

Result Composite - FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

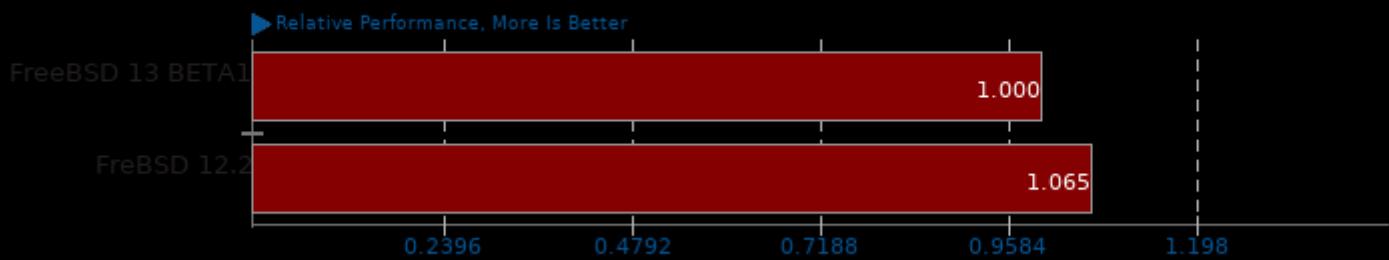


Geometric mean based upon tests: pts/encode-mp3, pts/encode-flac, pts/encode-ape, pts/x264, pts/x265, pts/ffmpeg, pts/rav1e and pts/avifenc

FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

Geometric Mean Of HPC - High Performance Computing Tests

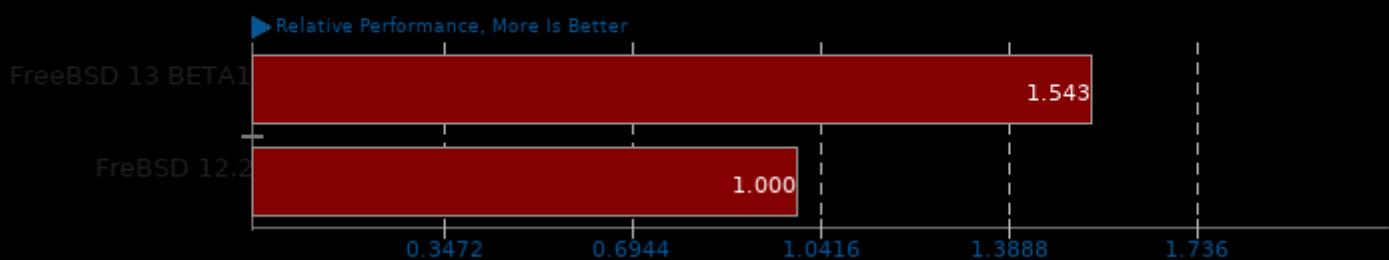
Result Composite - FreeBSD 12.2 vs. FreeBSD 13 Benchmarks



Geometric mean based upon tests: pts/rodinia, pts/ffte, pts/fftw, pts/himeno, pts/hmmer, pts/rbenchmark, pts/numpy and pts/scikit-learn

Geometric Mean Of Imaging Tests

Result Composite - FreeBSD 12.2 vs. FreeBSD 13 Benchmarks



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

Geometric Mean Of Java Tests

Result Composite - FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

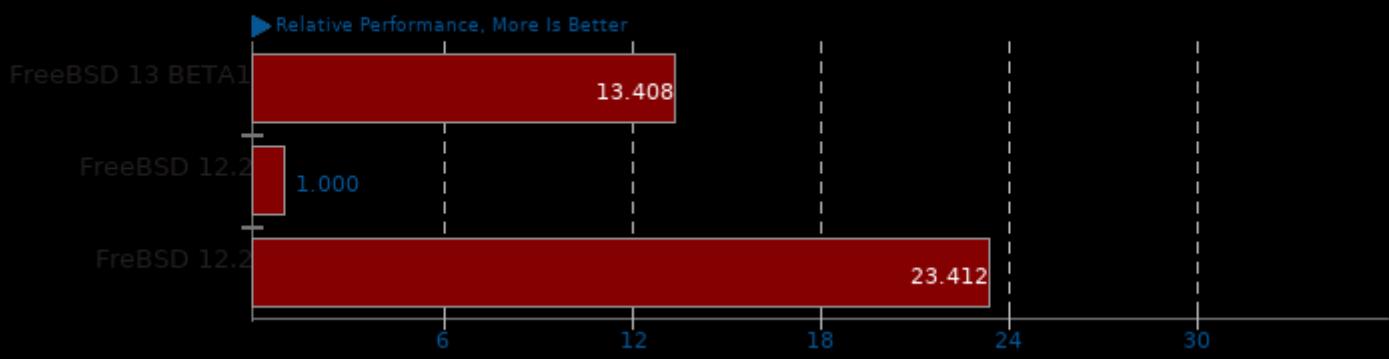


Geometric mean based upon tests: pts/sunflow, pts/bork, pts/java-scimark2, pts/dacapobench and pts/renaissance

FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

Geometric Mean Of Common Kernel Benchmarks Tests

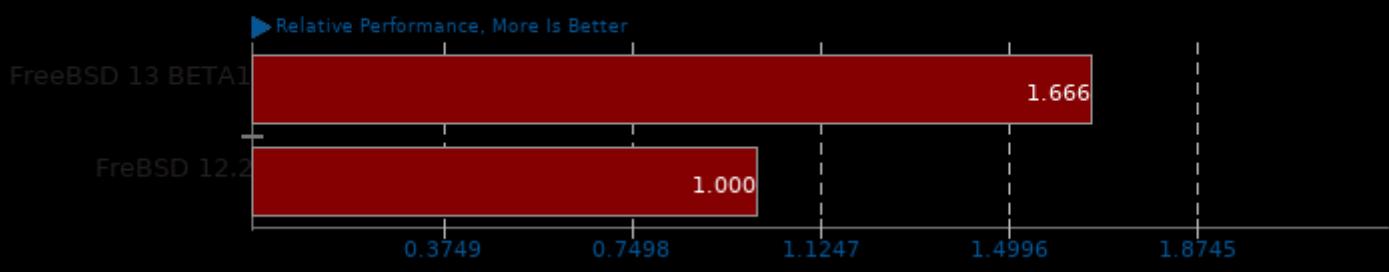
Result Composite - FreeBSD 12.2 vs. FreeBSD 13 Benchmarks



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

Geometric Mean Of Machine Learning Tests

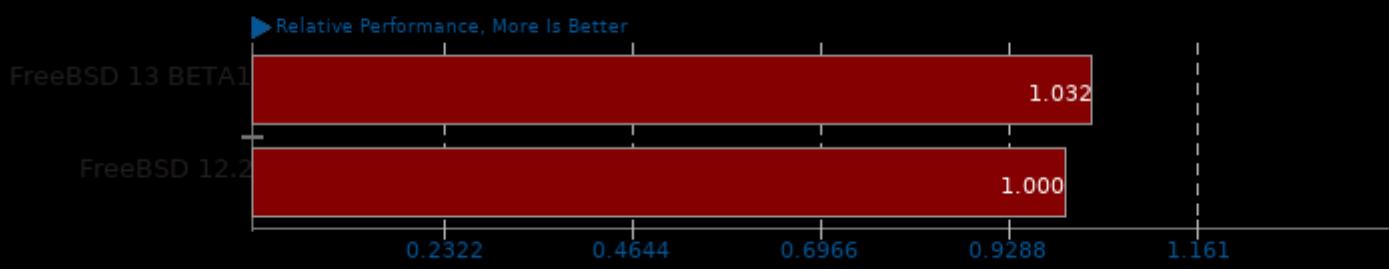
Result Composite - FreeBSD 12.2 vs. FreeBSD 13 Benchmarks



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

Geometric Mean Of Memory Test Suite

Result Composite - FreeBSD 12.2 vs. FreeBSD 13 Benchmarks



Geometric mean based upon tests: pts/cachebench and pts/mbw

FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

Geometric Mean Of Programmer / Developer System Benchmarks Tests

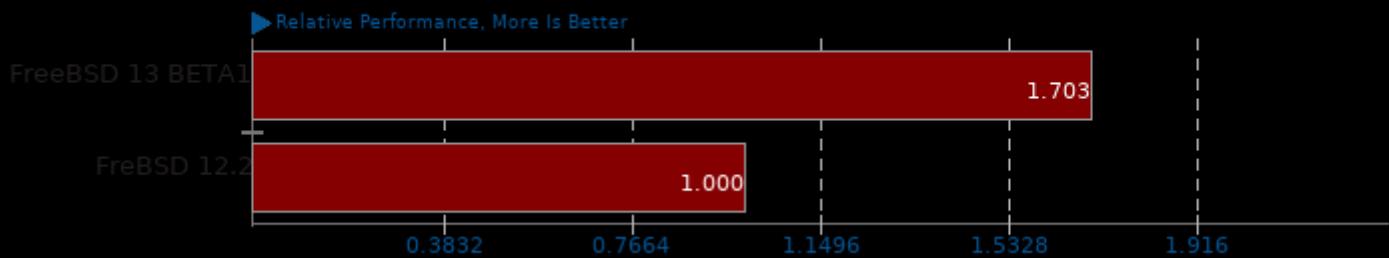
Result Composite - FreeBSD 12.2 vs. FreeBSD 13 Benchmarks



Geometric mean based upon tests: pts/simjson, pts/sqlite-speedtest, pts/git, pts/pyperformance, pts/pybench, pts/build-php, pts/build-eigen and pts/build-llvm

Geometric Mean Of Python Tests

Result Composite - FreeBSD 12.2 vs. FreeBSD 13 Benchmarks



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

Geometric Mean Of Renderers Tests

Result Composite - FreeBSD 12.2 vs. FreeBSD 13 Benchmarks



Geometric mean based upon tests: pts/c-ray, pts/aobench, pts/smallpt and pts/ttsiod-renderer

Geometric Mean Of Rust Tests

Result Composite - FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

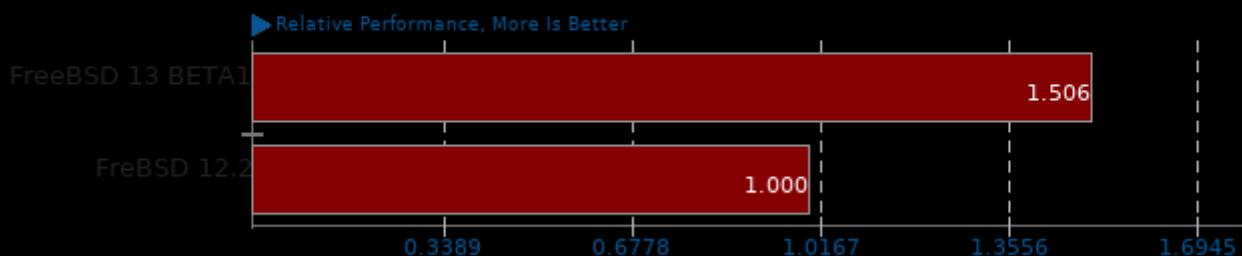


Geometric mean based upon tests: pts/rav1e, pts/rust-mandel and pts/rust-prime

FreeBSD 12.2 vs. FreeBSD 13 Benchmarks

Geometric Mean Of Scientific Computing Tests

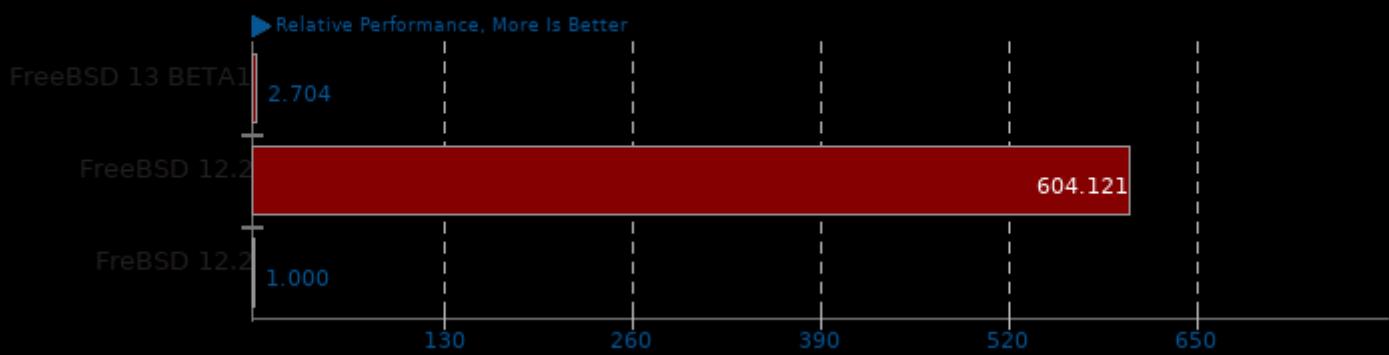
Result Composite - FreeBSD 12.2 vs. FreeBSD 13 Benchmarks



Geometric mean based upon tests: pts/ffte, pts/fftw, pts/himeno and pts/hmmer

Geometric Mean Of Server Tests

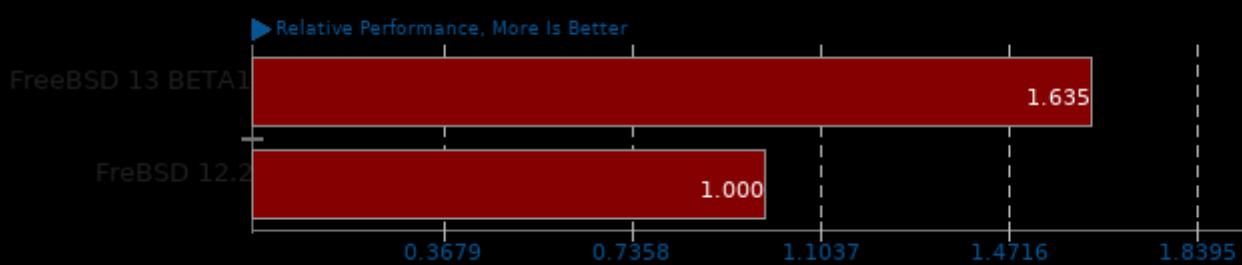
Result Composite - FreeBSD 12.2 vs. FreeBSD 13 Benchmarks



Geometric mean based upon tests: pts/blogbench, pts/pgbench, pts/php, pts/phpbench, pts/node-express-loadtest, pts/openssl, pts/perl-benchmark, pts/simdjson and pts/sqlite-speedtest

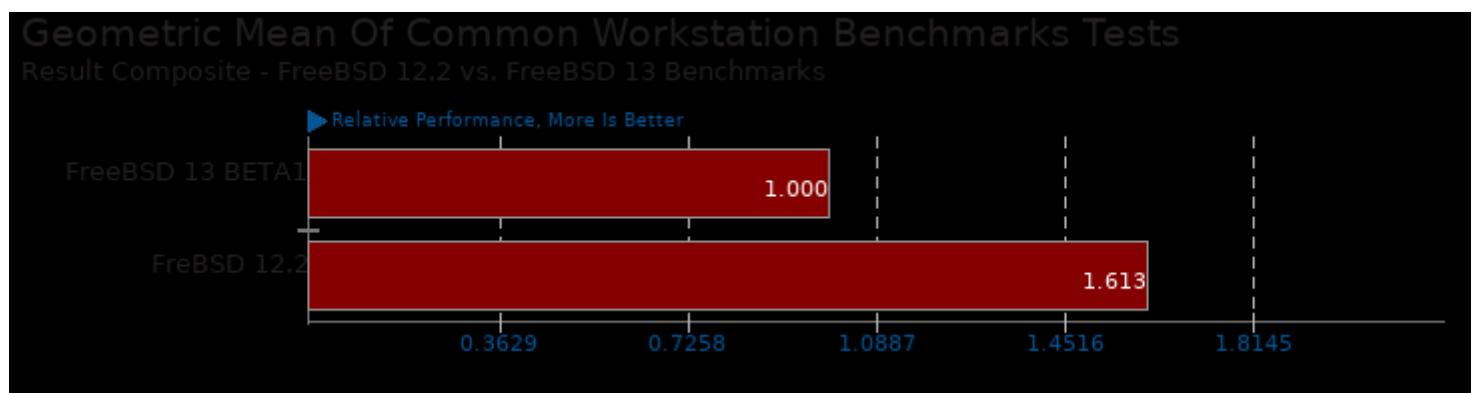
Geometric Mean Of Video Encoding Tests

Result Composite - FreeBSD 12.2 vs. FreeBSD 13 Benchmarks



Geometric mean based upon tests: pts/x264, pts/x265, pts/ffmpeg, pts/rav1e and pts/avifenc

FreeBSD 12.2 vs. FreeBSD 13 Benchmarks



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

This file was automatically generated via the Phoronix Test Suite benchmarking software on Thursday, 28 March 2024 05:19.