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rpi4@2GHz

ARMv8 Cortex-A72 testing on Debian 10 via the Phoronix Test Suite.

Automated Executive Summary

rockpi4@2GHz had the most wins, coming in first place for 84% of the tests.

Based on the geometric mean of all complete results, the fastest (rockpi4@2GHz) was 1.423x the speed of the slowest (rpi4b_r@2ghz).

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

Stress-NG (Test: MEMFD) at 3.164x

IPC_benchmark (Type: TCP Socket - Message Bytes: 128) at 2.807x

IPC_benchmark (Type: TCP Socket - Message Bytes: 256) at 2.747x

IPC_benchmark (Type: TCP Socket - Message Bytes: 512) at 2.536x

Stress-NG (Test: MMAP) at 2.155x

IPC_benchmark (Type: FIFO Named Pipe - Message Bytes: 128) at 1.998x

IPC_benchmark (Type: Unnamed Unix Domain Socket - Message Bytes: 256) at 1.962x

IPC_benchmark (Type: Unnamed Unix Domain Socket - Message Bytes: 128) at 1.934x

IPC_benchmark (Type: Unnamed Pipe - Message Bytes: 128) at 1.93x

IPC_benchmark (Type: Unnamed Unix Domain Socket - Message Bytes: 512) at 1.923x.

Test Systems:

rockpi4@2GHz

Processor: Rockchip ARMv8 Cortex-A72 @ 1.51GHz (6 Cores), Motherboard: ROCK PI 4B, Memory: 4096MB, Disk: 31GB SDU1 + 31GB SLD32G

OS: Debian 10, Kernel: 4.4.154-113-rockchip-gdb9dfc2cdd25 (aarch64), Display Server: X Server 1.20.4, Compiler: GCC 8.3.0, File-System: ext4, Screen Resolution: 1024x768

Compiler Notes: --build=aarch64-linux-gnu --disable-libphobos --disable-libquadmath --disable-libquadmath-support --disable-werror --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-fix-cortex-a53-843419 --enable-gnu-unique-object --enable-languages=c,ada,c++,go,d,fortran,objc,obj-c++ --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-nls --enable-plugin --enable-shared --enable-threads=posix --host=aarch64-linux-gnu --program-prefix=aarch64-linux-gnu- --target=aarch64-linux-gnu --with-default-libstdcxx-abi=new --with-gcc-major-version-only -v
 Processor Notes: Scaling Governor: cpufreq-dt performance
 Disk Mount Options Notes: data=ordered,relatime,rw
 Disk Details Notes: Block Size: 4096
 Python Notes: Python 3.7.3

rpi4b_r@2ghz

Processor: ARMv8 Cortex-A72 @ 2.00GHz (4 Cores), Motherboard: BCM2835 Raspberry Pi 4 Model B Rev 1.2, Memory: 2048MB, Disk: 15GB SD16G

OS: Debian 10, Kernel: 5.4.51-v8+ (aarch64), Display Server: X Server 1.20.4, Compiler: GCC 8.3.0, File-System: ext4

Kernel Notes: snd_bcm2835.enable_compat_alsa=0 snd_bcm2835.enable_hdmi=1 snd_bcm2835.enable_headphones=1
 Compiler Notes: --build=aarch64-linux-gnu --disable-libphobos --disable-libquadmath --disable-libquadmath-support --disable-werror --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-fix-cortex-a53-843419 --enable-gnu-unique-object --enable-languages=c,ada,c++,go,d,fortran,objc,obj-c++ --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-nls --enable-plugin --enable-shared --enable-threads=posix --host=aarch64-linux-gnu --program-prefix=aarch64-linux-gnu- --target=aarch64-linux-gnu --with-default-libstdcxx-abi=new --with-gcc-major-version-only -v
 Processor Notes: Scaling Governor: cpufreq-dt ondemand
 Disk Mount Options Notes: noatime,rw
 Disk Details Notes: Block Size: 4096
 Python Notes: Python 2.7.16 + Python 3.7.3
 Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Vulnerable + spectre_v1: Mitigation of __user pointer sanitization + spectre_v2: Vulnerable + srbs: Not affected + tsx_async_abort: Not affected

	rockpi4@2GHz	rpi4b_r@2ghz
7-Zip Compression - C.S.T (MIPS)	4451	4183
Normalized	100%	93.98%
Standard Deviation	1.3%	0.3%
CacheBench - R.M.W (MB/s)	14892	14783
Normalized	100%	99.26%
Standard Deviation	0.2%	0.1%
Coremark - CoreMark Size 666 - I.P.S (Iterations/Sec)	35944	43915
Normalized	81.85%	100%
Standard Deviation	0%	0.1%
Hackbench - 1 - Thread (sec)	31.059	34.415
Normalized	100%	90.25%
Standard Deviation	20.2%	1.2%
Hackbench - 2 - Thread (sec)	50.501	62.608
Normalized	100%	80.66%

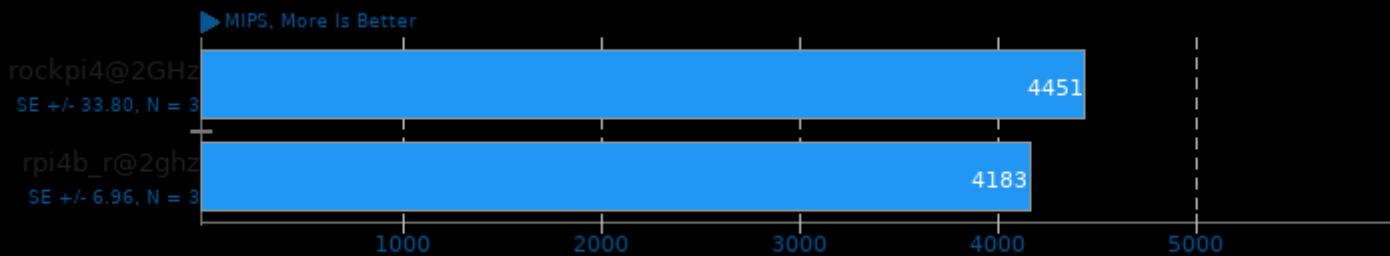
	Standard Deviation	2.7%	0.8%
Hackbench - 4 - Thread (sec)	97.029	119.657	
	Normalized	100%	81.09%
	Standard Deviation	0.7%	0.3%
IPC_benchmark - TCP Socket - 128 (Messages/sec)	1296725	462024	
	Normalized	100%	35.63%
	Standard Deviation	2.4%	0.7%
IPC_benchmark - TCP Socket - 256 (Messages/sec)	1242060	452076	
	Normalized	100%	36.4%
	Standard Deviation	0.2%	1.8%
IPC_benchmark - TCP Socket - 512 (Messages/sec)	1085305	427877	
	Normalized	100%	39.42%
	Standard Deviation	1.3%	1.5%
IPC_benchmark - TCP Socket - 1024 (Messages/sec)	681836	379937	
	Normalized	100%	55.72%
	Standard Deviation	6.7%	2.4%
IPC_benchmark - Unnamed Pipe - 128 (Messages/sec)	1319651	683713	
	Normalized	100%	51.81%
	Standard Deviation	5.9%	1.1%
IPC_benchmark - Unnamed Pipe - 256 (Messages/sec)	1279133	682966	
	Normalized	100%	53.39%
	Standard Deviation	1.7%	1.4%
IPC_benchmark - Unnamed Pipe - 512 (Messages/sec)	1214093	665088	
	Normalized	100%	54.78%
	Standard Deviation	4.8%	0.8%
IPC_benchmark - Unnamed Pipe - 1024	1184817	621057	
	Normalized	100%	52.42%
	Standard Deviation	0.5%	0.8%
IPC_benchmark - FIFO Named Pipe - 128 (Messages/sec)	1369741	685499	
	Normalized	100%	50.05%
	Standard Deviation	3.8%	0.2%
IPC_benchmark - FIFO Named Pipe - 256 (Messages/sec)	1284175	675667	
	Normalized	100%	52.61%
	Standard Deviation	1%	0.6%
IPC_benchmark - FIFO Named Pipe - 512 (Messages/sec)	1198549	657047	
	Normalized	100%	54.82%
	Standard Deviation	3.6%	2.7%
IPC_benchmark - FIFO Named Pipe - 1024 (Messages/sec)	1176832	627821	
	Normalized	100%	53.35%
	Standard Deviation	2.5%	0.4%
IPC_benchmark - U.U.D.S - 128 (Messages/sec)	929281	480562	
	Normalized	100%	51.71%
	Standard Deviation	2.3%	1.2%
IPC_benchmark - U.U.D.S - 256 (Messages/sec)	921845	469955	
	Normalized	100%	50.98%
	Standard Deviation	2.1%	0.8%
IPC_benchmark - U.U.D.S - 512 (Messages/sec)	887585	461486	
	Normalized	100%	51.99%
	Standard Deviation	2.4%	1.8%
IPC_benchmark - U.U.D.S - 1024 (Messages/sec)	787023	433128	
	Normalized	100%	55.03%

	Standard Deviation	3.8%	0.8%
LibRaw - P.P.B (Mpix/sec)	6.42	6.96	
Normalized	92.24%	100%	
	Standard Deviation	0.4%	0.2%
OpenSSL (sign/s)	145.3	127.2	
Normalized	100%	87.54%	
	Standard Deviation	0%	0.4%
OpenSSL (verify/s)	9908	8682	
Normalized	100%	87.63%	
	Standard Deviation	0.1%	0%
PyBench - T.F.A.T.T (Milliseconds)	4513	4263	
Normalized	94.46%	100%	
	Standard Deviation	0.5%	0.2%
RAMspeed SMP - Add - Integer (MB/s)	4794	3972	
Normalized	100%	82.84%	
	Standard Deviation	0%	0.3%
RAMspeed SMP - Copy - Integer (MB/s)	5143	4240	
Normalized	100%	82.44%	
	Standard Deviation	0.2%	3.4%
RAMspeed SMP - Scale - Integer (MB/s)	5105	4649	
Normalized	100%	91.07%	
	Standard Deviation	0.2%	0.4%
RAMspeed SMP - Triad - Integer (MB/s)	3856	2566	
Normalized	100%	66.56%	
	Standard Deviation	1.4%	0.1%
RAMspeed SMP - Average - Integer (MB/s)	4722	3866	
Normalized	100%	81.86%	
	Standard Deviation	0.2%	0.5%
Smallpt - G.I.R.1.S (sec)	99.594	91.508	
Normalized	91.88%	100%	
	Standard Deviation	0.2%	0.4%
SQLite - 1 (sec)	105.509	139.275	
Normalized	100%	75.76%	
	Standard Deviation	0.5%	4.5%
SQLite - 8 (sec)	601.414	728.346	
Normalized	100%	82.57%	
	Standard Deviation	1.9%	1.6%
Stress-NG - MMAP (Bogo Ops/s)	9.48	4.40	
Normalized	100%	46.41%	
	Standard Deviation	0.1%	0.5%
Stress-NG - NUMA (Bogo Ops/s)	65.67	44.70	
Normalized	100%	68.07%	
	Standard Deviation	0.1%	0.1%
Stress-NG - MEMFD (Bogo Ops/s)	53.37	16.87	
Normalized	100%	31.61%	
	Standard Deviation	0.2%	0.5%
Stress-NG - Atomic (Bogo Ops/s)	68958	101834	
Normalized	67.72%	100%	
	Standard Deviation	0.2%	0.1%
Stress-NG - Crypto (Bogo Ops/s)	342.52	332.72	
Normalized	100%	97.14%	
	Standard Deviation	0.1%	0.2%
Stress-NG - Malloc (Bogo Ops/s)	4584714	2650730	
Normalized	100%	57.82%	
	Standard Deviation	0.1%	0.1%

Stress-NG - Forking (Bogo Ops/s)	3991	3145
Normalized	100%	78.79%
Standard Deviation	1.6%	0.9%
Stress-NG - SENDFILE (Bogo Ops/s)	29024	16205
Normalized	100%	55.83%
Standard Deviation	1.7%	0.1%
Stress-NG - CPU Cache (Bogo Ops/s)	52.85	83.89
Normalized	63%	100%
Standard Deviation	6.7%	1.6%
Stress-NG - CPU Stress (Bogo Ops/s)	536.18	555.08
Normalized	96.6%	100%
Standard Deviation	0.3%	0.4%
Stress-NG - Semaphores (Bogo Ops/s)	292744	255835
Normalized	100%	87.39%
Standard Deviation	0.2%	0.5%
Stress-NG - Matrix Math (Bogo Ops/s)	1903	1483
Normalized	100%	77.91%
Standard Deviation	2.3%	2.5%
Stress-NG - Vector Math (Bogo Ops/s)	5924	4926
Normalized	100%	83.15%
Standard Deviation	0%	0.1%
Stress-NG - Memory Copying (Bogo Ops/s)	168.21	92.51
Normalized	100%	55%
Standard Deviation	0.1%	2.4%
Stress-NG - Socket Activity (Bogo Ops/s)	783.00	418.50
Normalized	100%	53.45%
Standard Deviation	0.6%	1.3%
Stress-NG - Context Switching (Bogo Ops/s)	806439	345762
Normalized	100%	42.88%
Standard Deviation	6%	4.7%
Stress-NG - G.C.S.F (Bogo Ops/s)	100359	110045
Normalized	91.2%	100%
Standard Deviation	0.1%	0.3%
Stress-NG - G.Q.D.S (Bogo Ops/s)	14.09	14.09
Standard Deviation	2.2%	0.7%
Stress-NG - S.V.M.P (Bogo Ops/s)	1258234	1130537
Normalized	100%	89.85%
Standard Deviation	0.2%	1.8%

7-Zip Compression 16.02

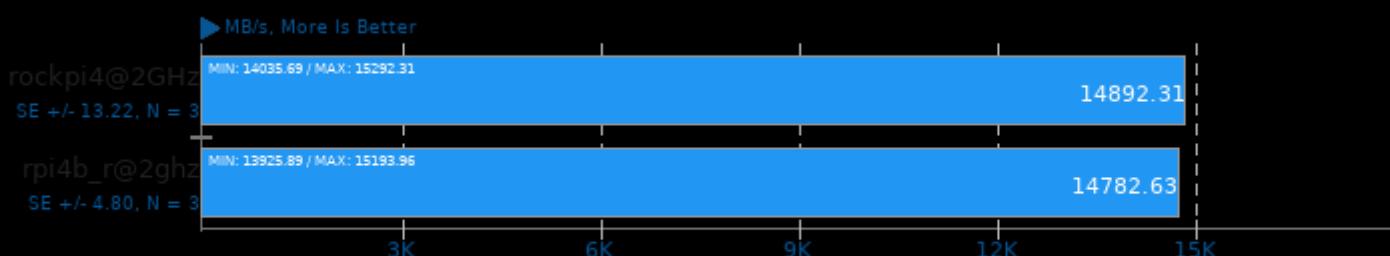
Compress Speed Test



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

CacheBench

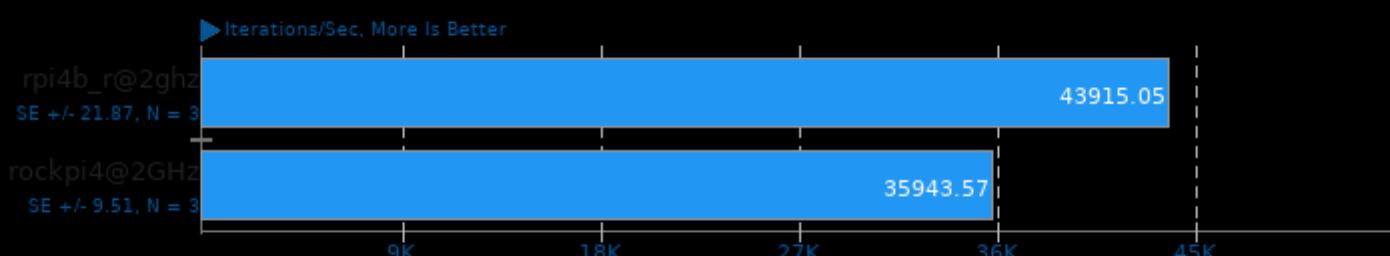
Test: Read / Modify / Write



1. (CC) gcc options: -lrt

Coremark 1.0

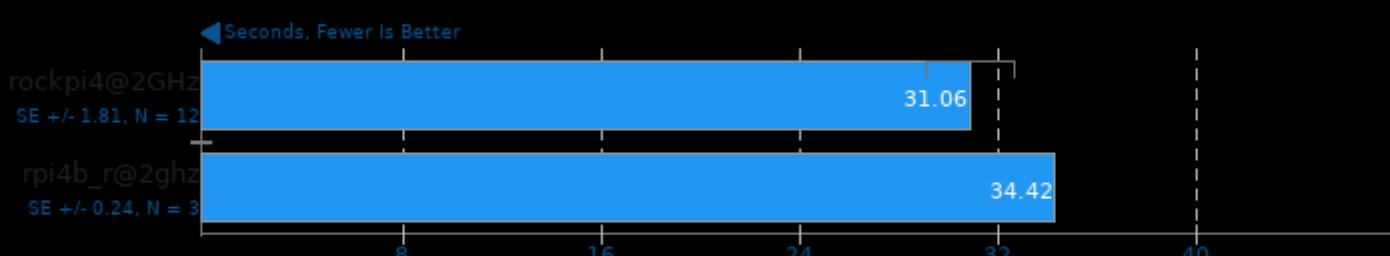
CoreMark Size 666 - Iterations Per Second



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

Hackbench

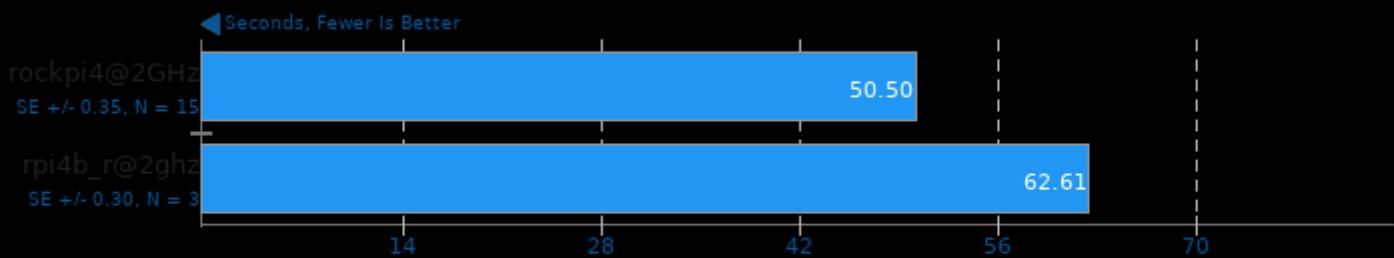
Count: 1 - Type: Thread



1. (CC) gcc options: -lpthread

Hackbench

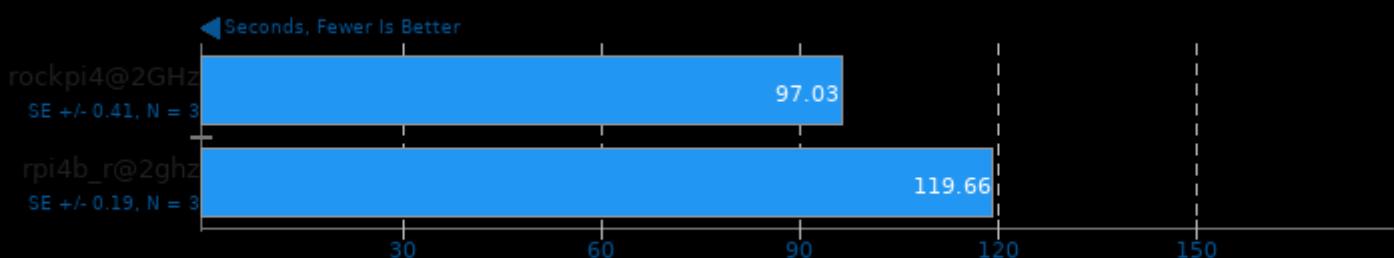
Count: 2 - Type: Thread



1. (CC) gcc options: -lpthread

Hackbench

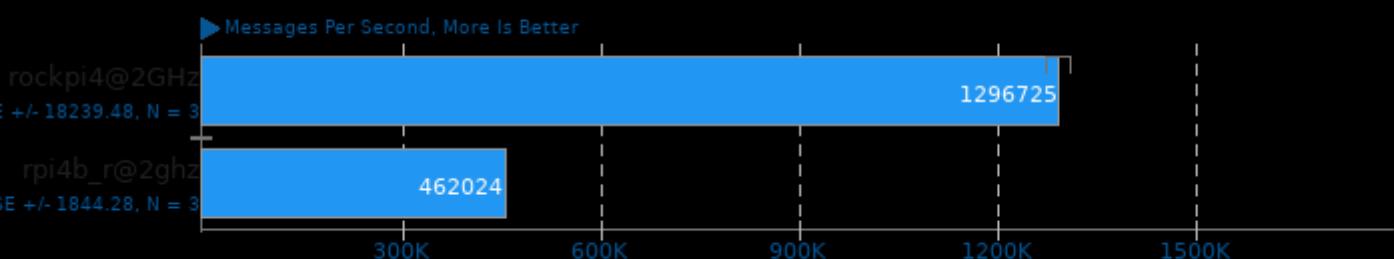
Count: 4 - Type: Thread



1. (CC) gcc options: -lpthread

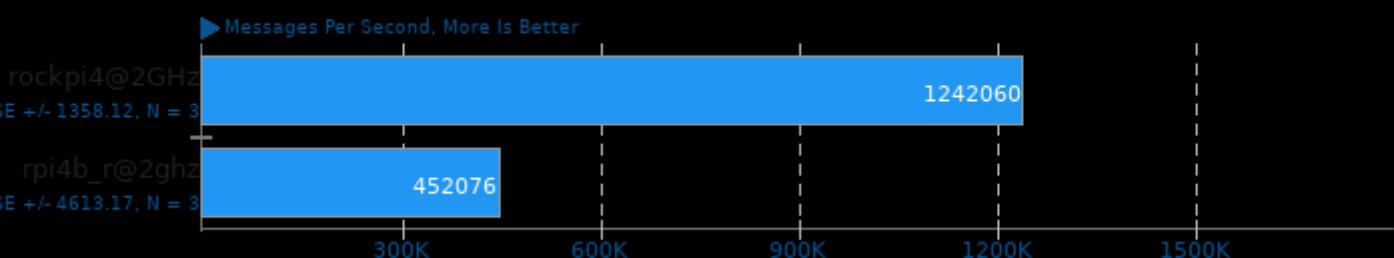
IPC_benchmark

Type: TCP Socket - Message Bytes: 128



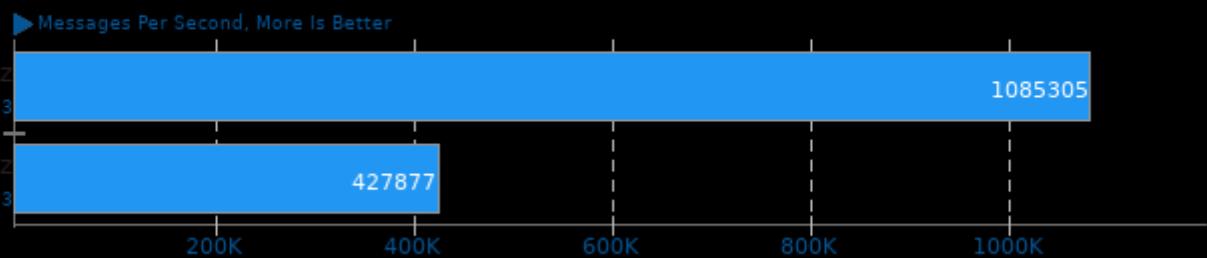
IPC_benchmark

Type: TCP Socket - Message Bytes: 256

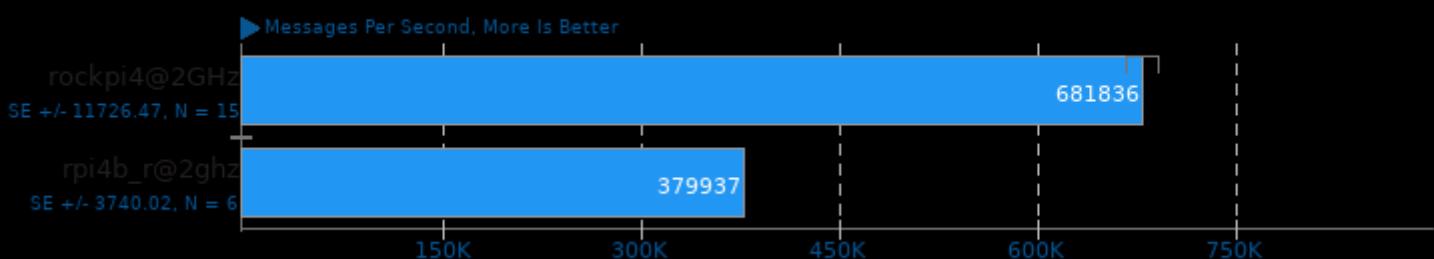


IPC_benchmark

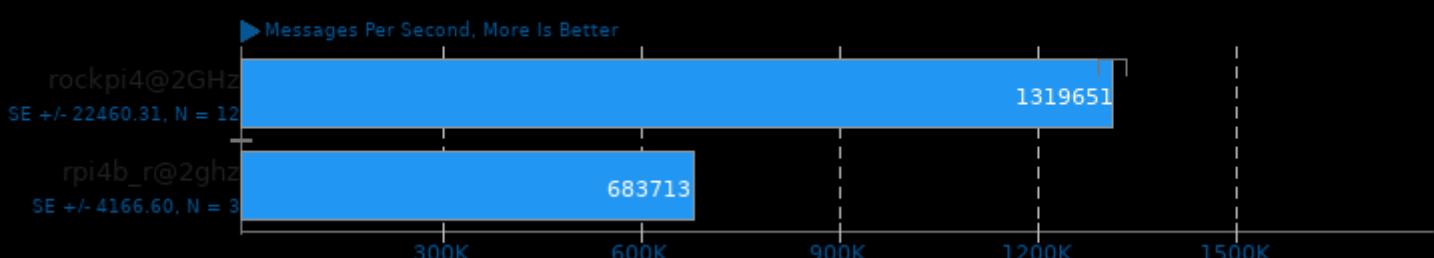
Type: TCP Socket - Message Bytes: 512

**IPC_benchmark**

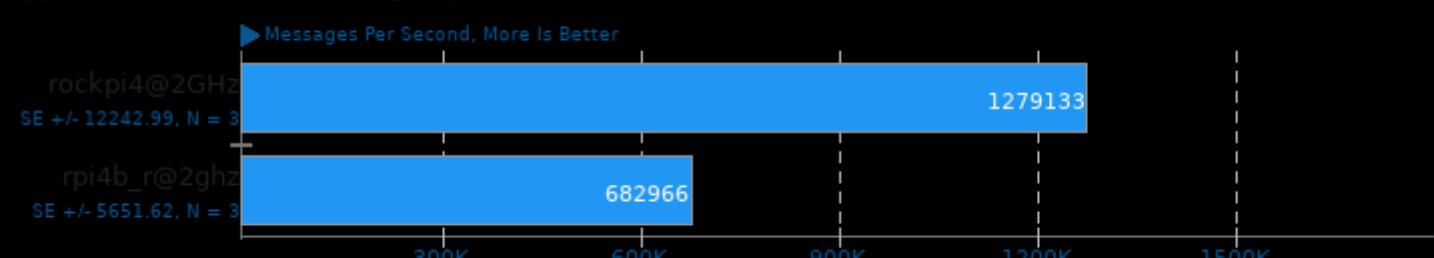
Type: TCP Socket - Message Bytes: 1024

**IPC_benchmark**

Type: Unnamed Pipe - Message Bytes: 128

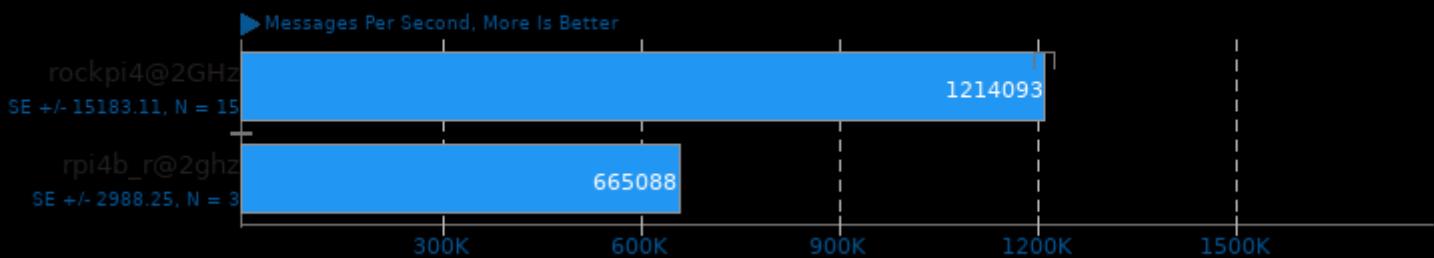
**IPC_benchmark**

Type: Unnamed Pipe - Message Bytes: 256

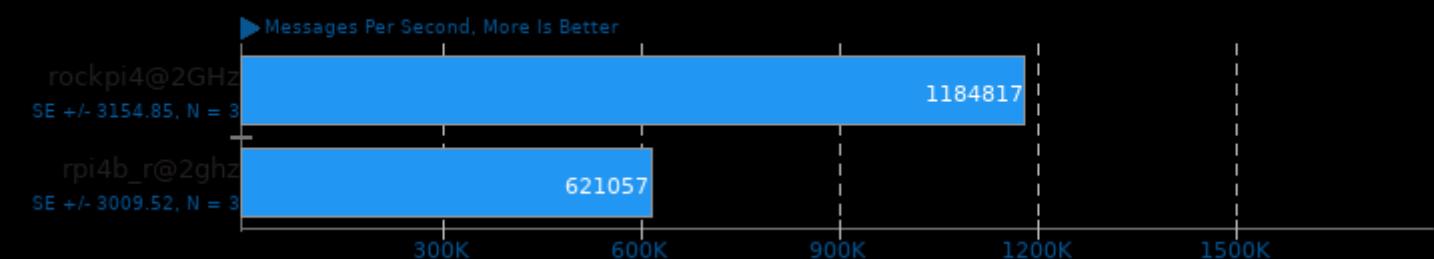


IPC_benchmark

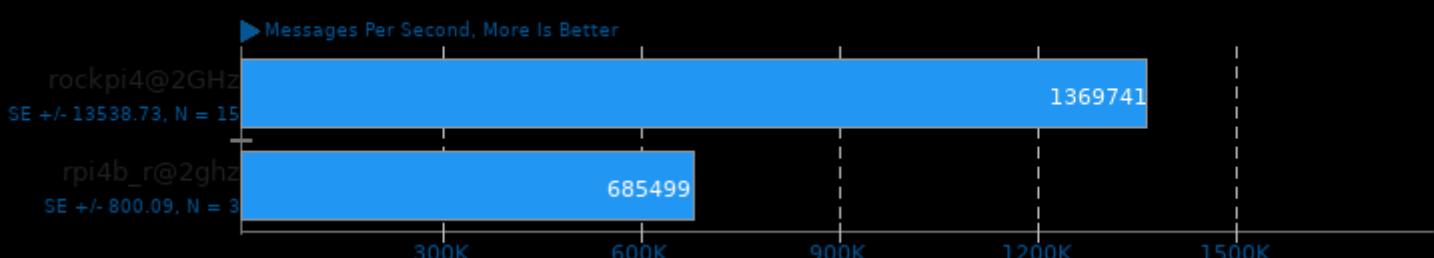
Type: Unnamed Pipe - Message Bytes: 512

**IPC_benchmark**

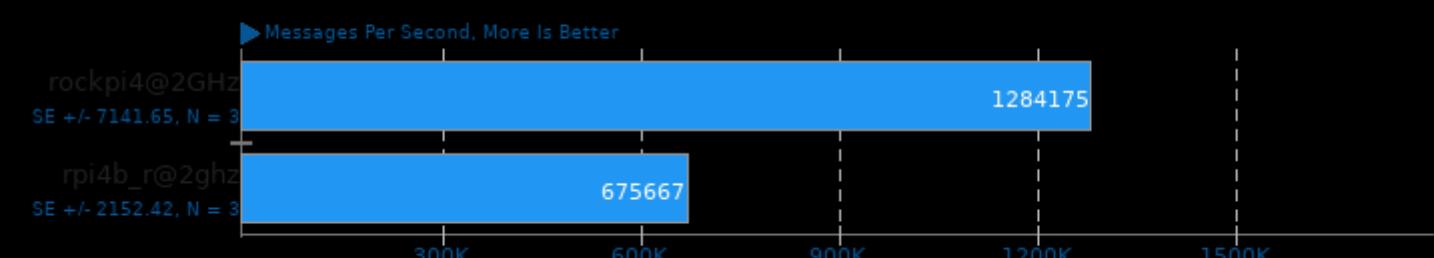
Type: Unnamed Pipe - Message Bytes: 1024

**IPC_benchmark**

Type: FIFO Named Pipe - Message Bytes: 128

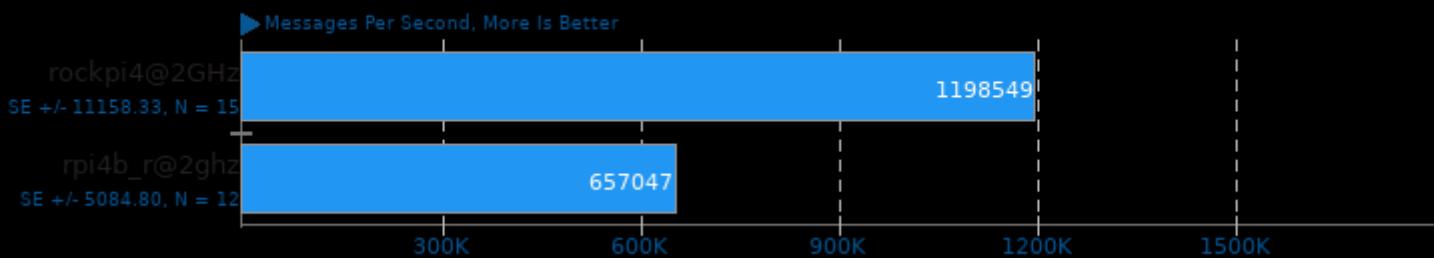
**IPC_benchmark**

Type: FIFO Named Pipe - Message Bytes: 256

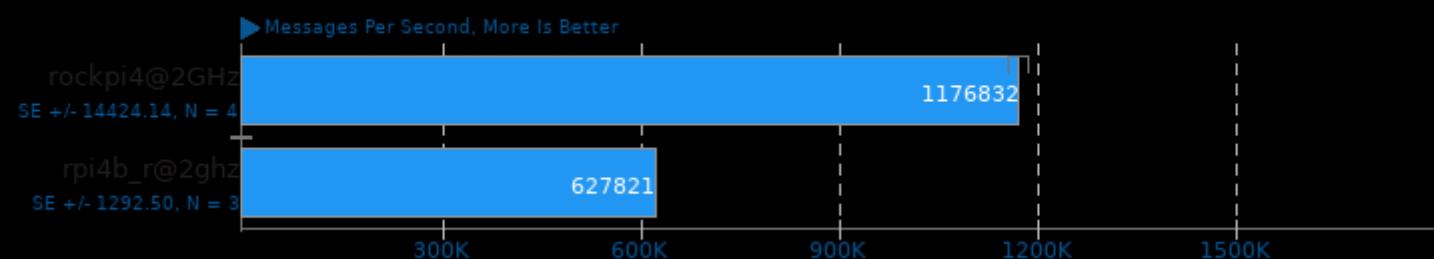


IPC_benchmark

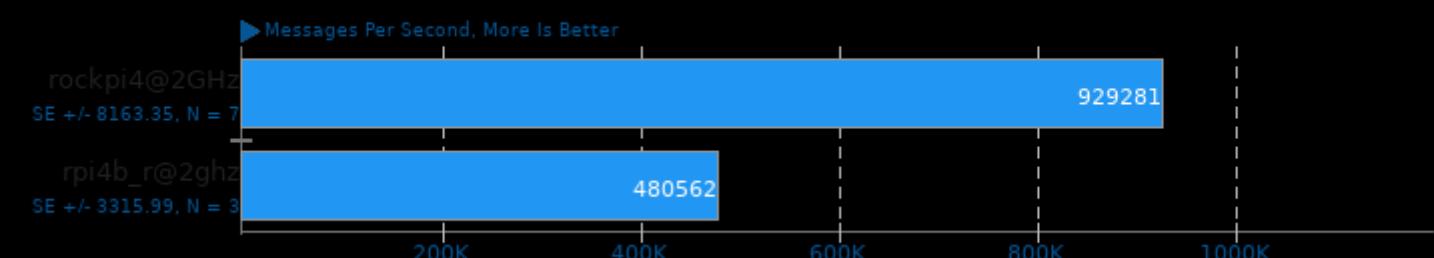
Type: FIFO Named Pipe - Message Bytes: 512

**IPC_benchmark**

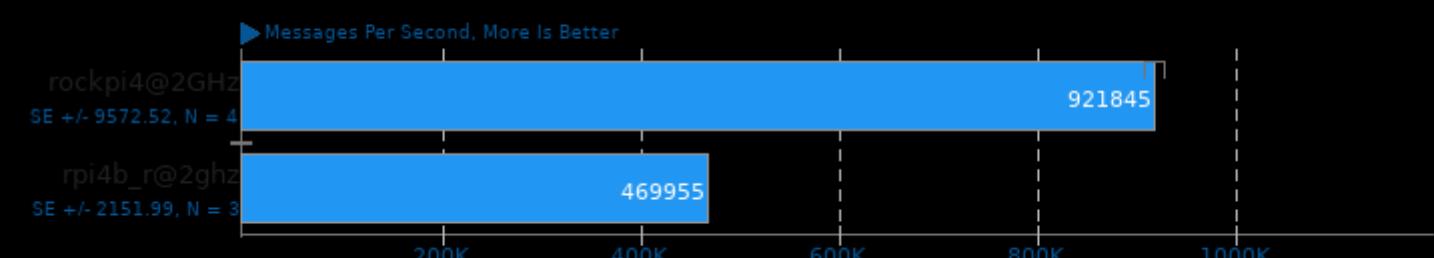
Type: FIFO Named Pipe - Message Bytes: 1024

**IPC_benchmark**

Type: Unnamed Unix Domain Socket - Message Bytes: 128

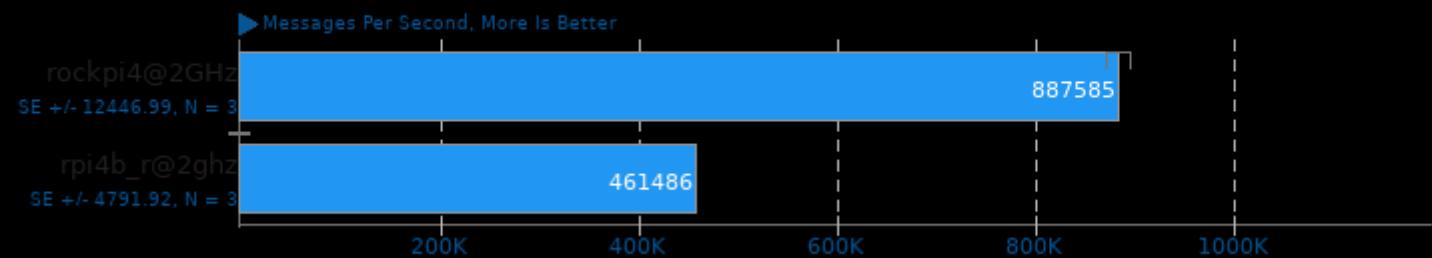
**IPC_benchmark**

Type: Unnamed Unix Domain Socket - Message Bytes: 256



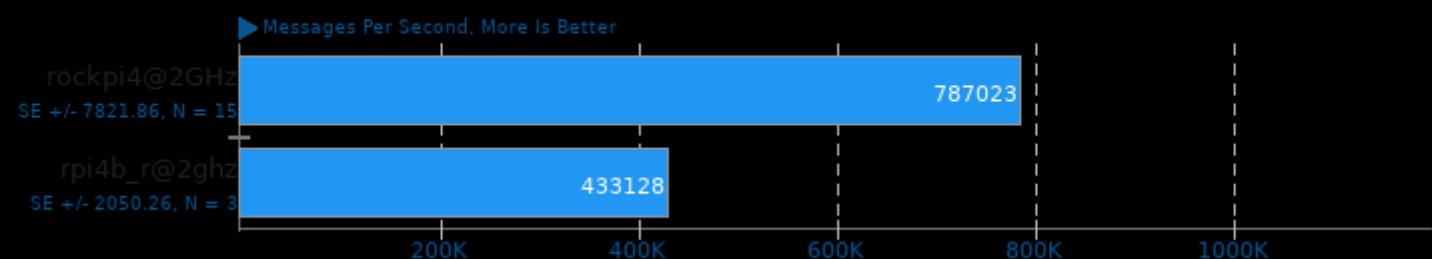
IPC_benchmark

Type: Unnamed Unix Domain Socket - Message Bytes: 512



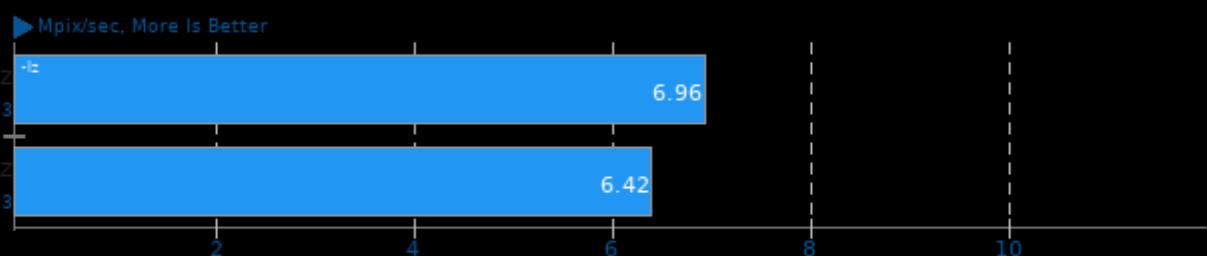
IPC_benchmark

Type: Unnamed Unix Domain Socket - Message Bytes: 1024



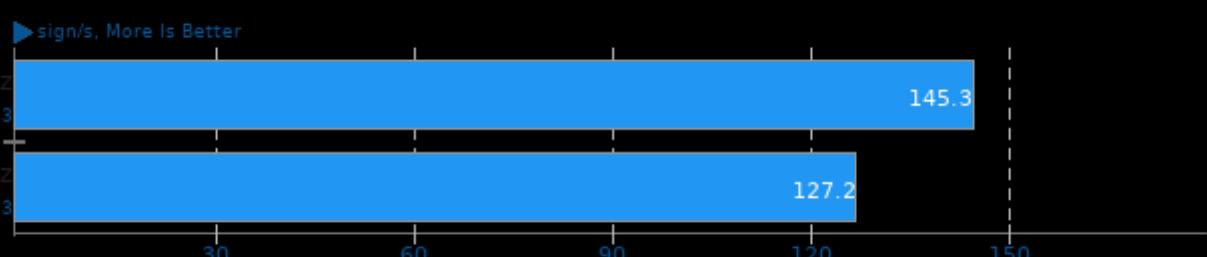
LibRaw 0.20

Post-Processing Benchmark



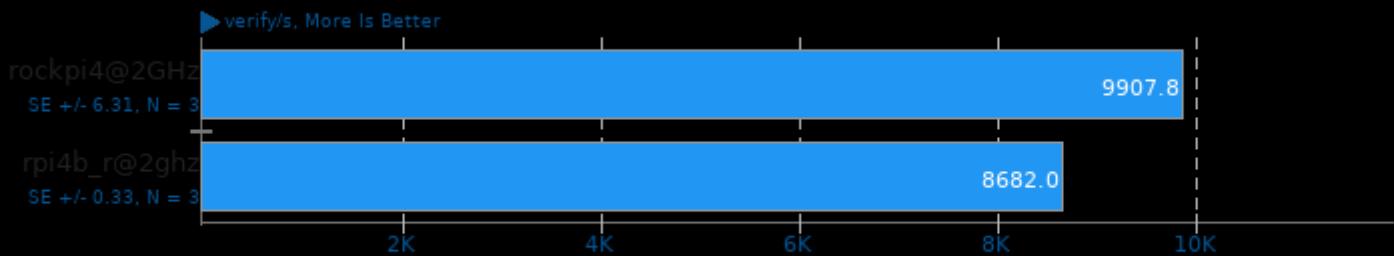
1. (CXX) g++ options: -O2 -fopenmp -lm

OpenSSL



1. OpenSSL 1.1.1d 10 Sep 2019

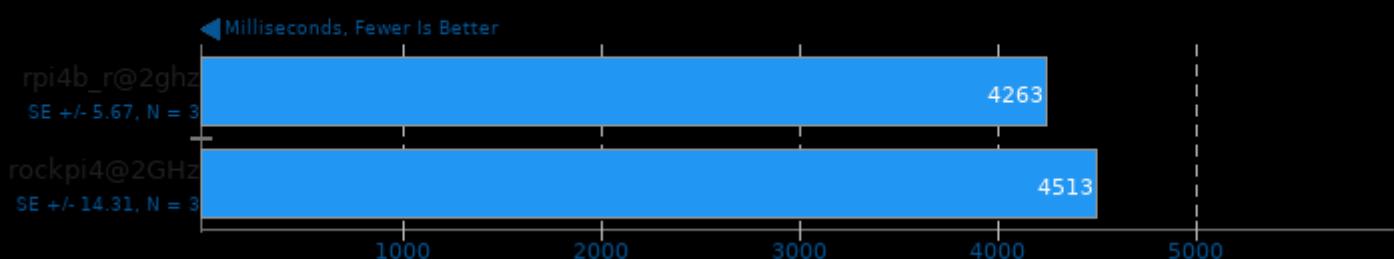
OpenSSL



1. OpenSSL 1.1.1d 10 Sep 2019

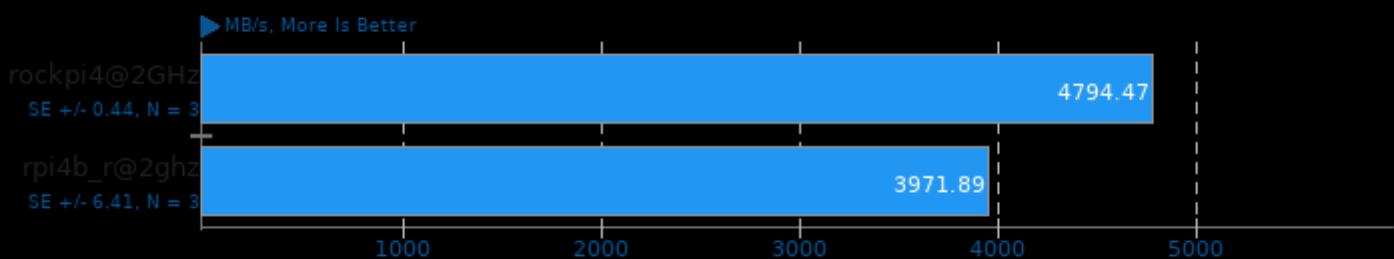
PyBench 2018-02-16

Total For Average Test Times



RAMspeed SMP 3.5.0

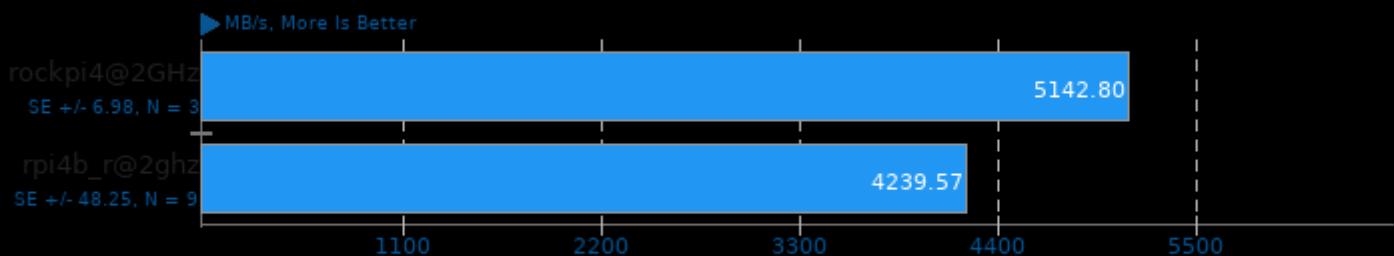
Type: Add - Benchmark: Integer



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

RAMspeed SMP 3.5.0

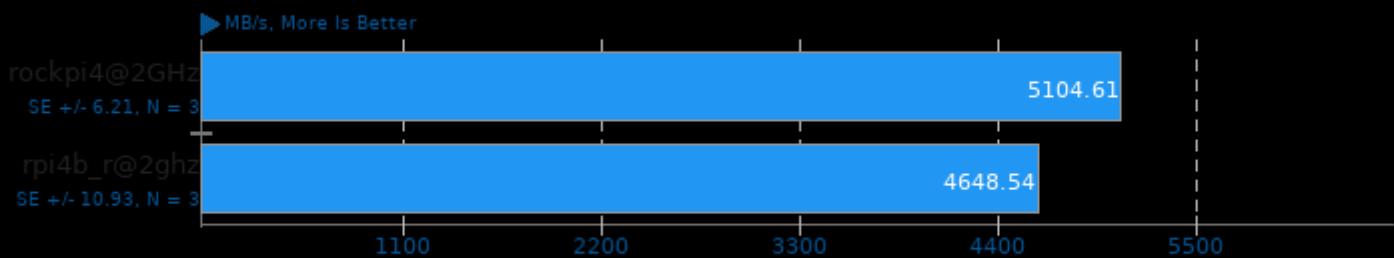
Type: Copy - Benchmark: Integer



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

RAMspeed SMP 3.5.0

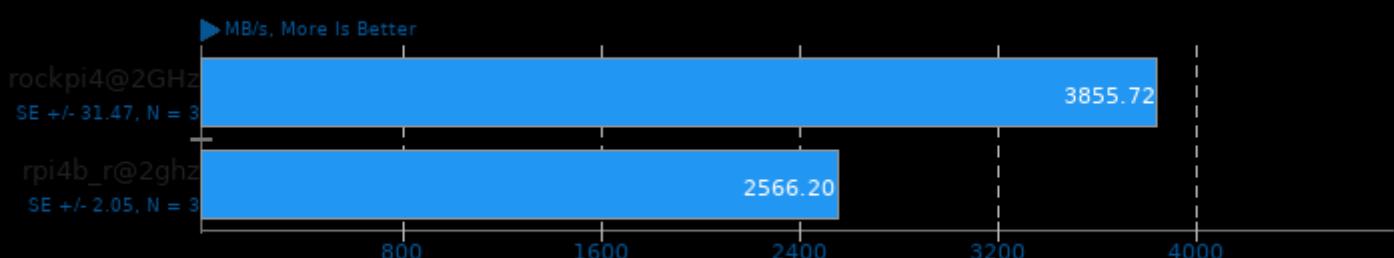
Type: Scale - Benchmark: Integer



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

RAMspeed SMP 3.5.0

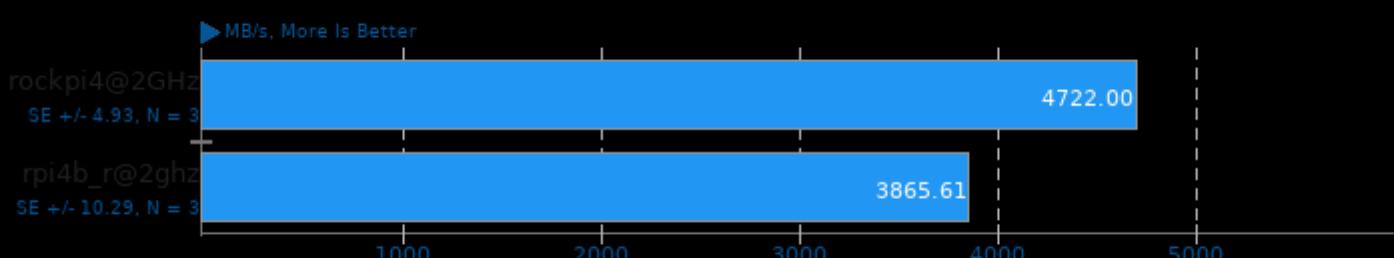
Type: Triad - Benchmark: Integer



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

RAMspeed SMP 3.5.0

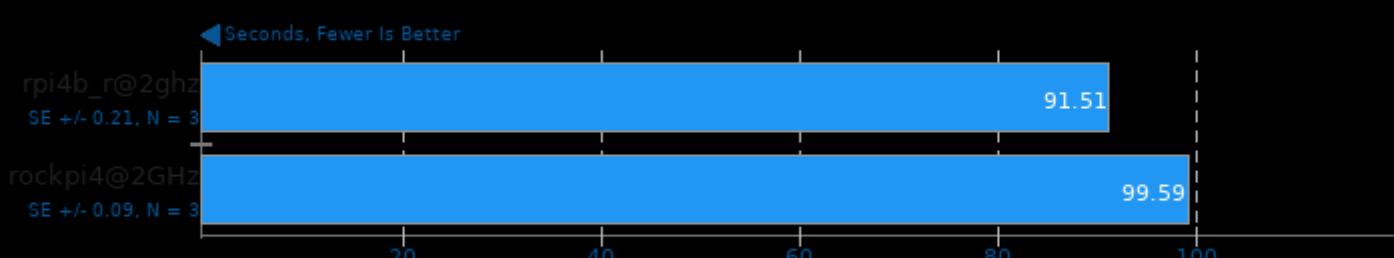
Type: Average - Benchmark: Integer



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

Smallpt 1.0

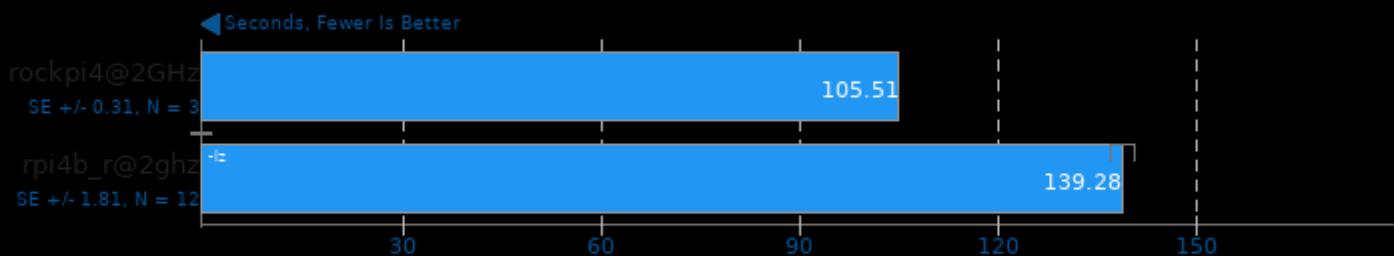
Global Illumination Renderer; 128 Samples



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

SQLite 3.30.1

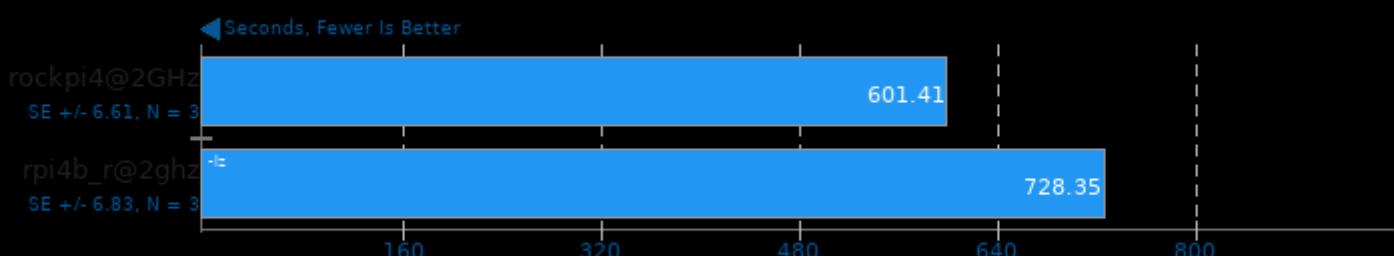
Threads / Copies: 1



1. (CC) gcc options: -O2 -lm -ldl -lpthread

SQLite 3.30.1

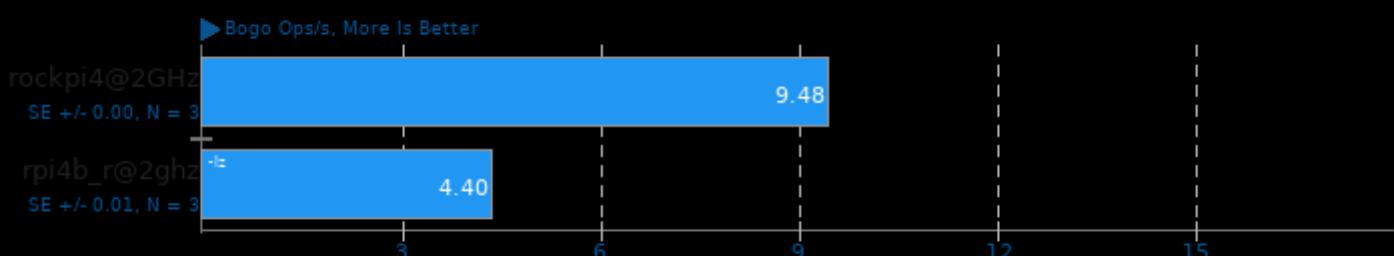
Threads / Copies: 8



1. (CC) gcc options: -O2 -lm -ldl -lpthread

Stress-NG 0.13.02

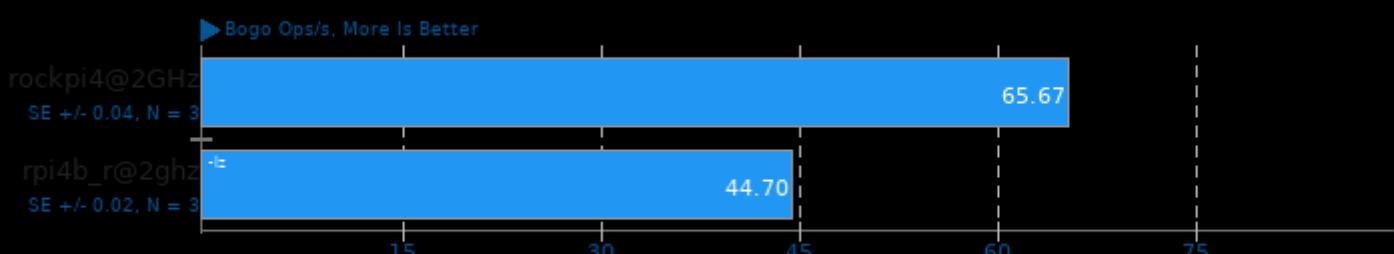
Test: MMAP



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

Stress-NG 0.13.02

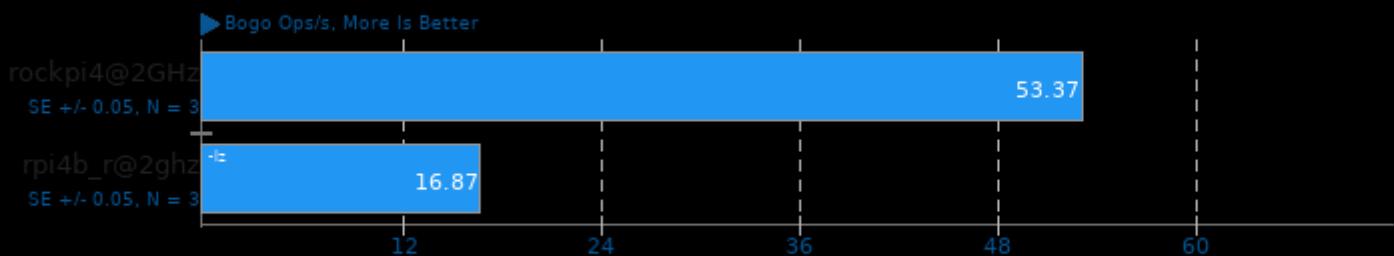
Test: NUMA



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

Stress-NG 0.13.02

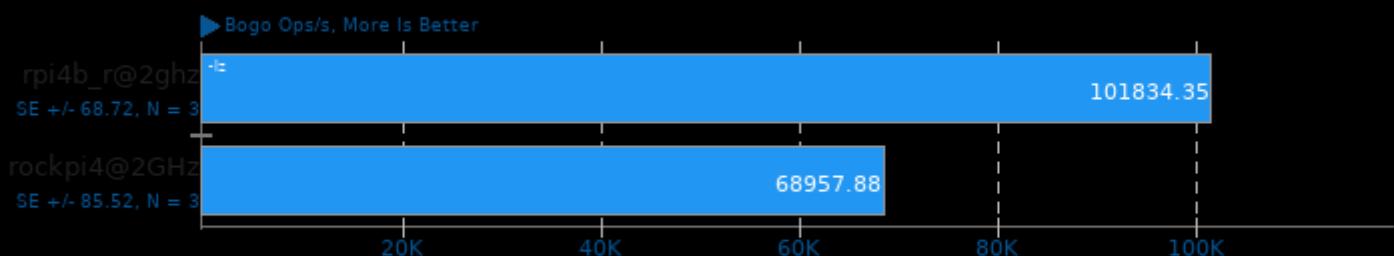
Test: MEMFD



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

Stress-NG 0.13.02

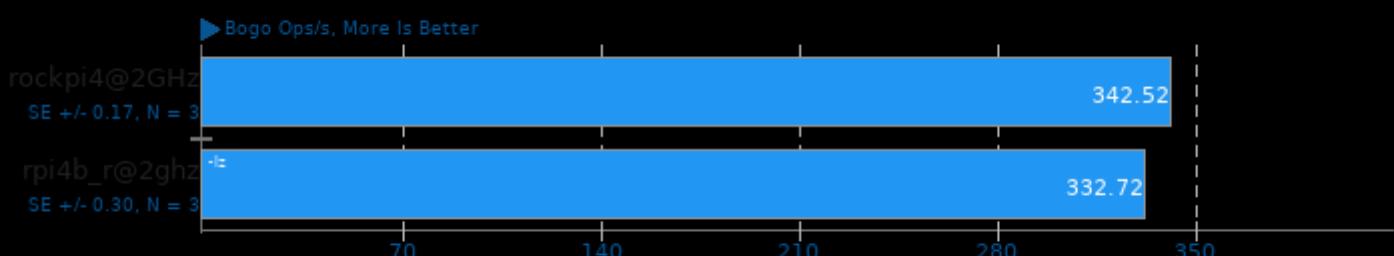
Test: Atomic



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

Stress-NG 0.13.02

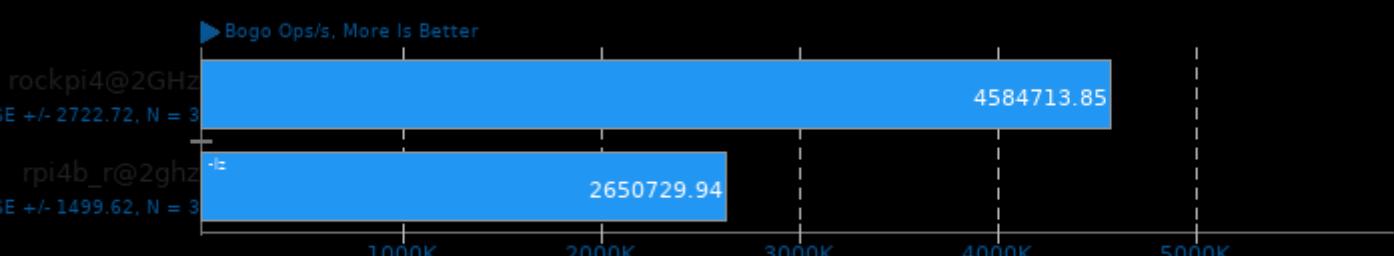
Test: Crypto



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

Stress-NG 0.13.02

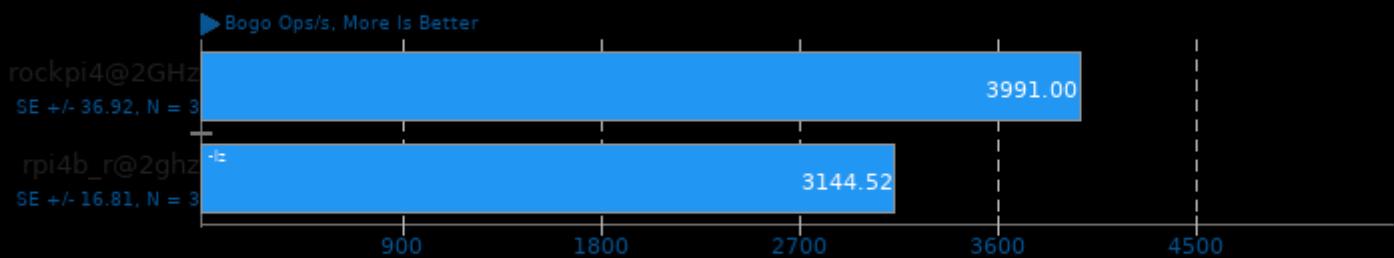
Test: Malloc



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

Stress-NG 0.13.02

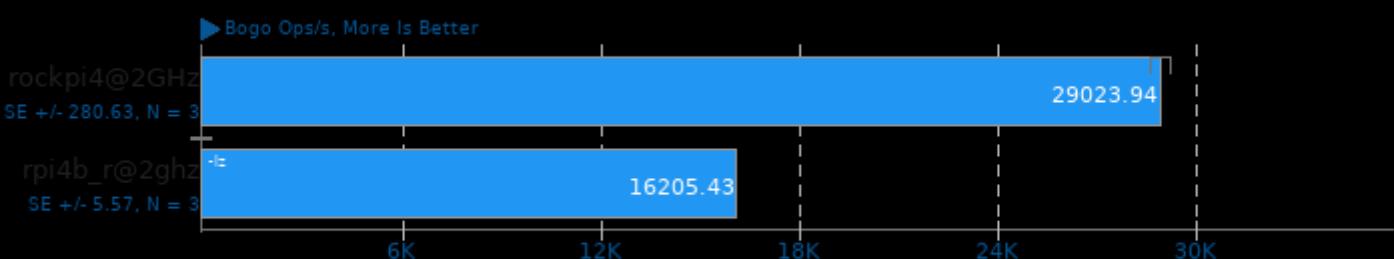
Test: Forking



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

Stress-NG 0.13.02

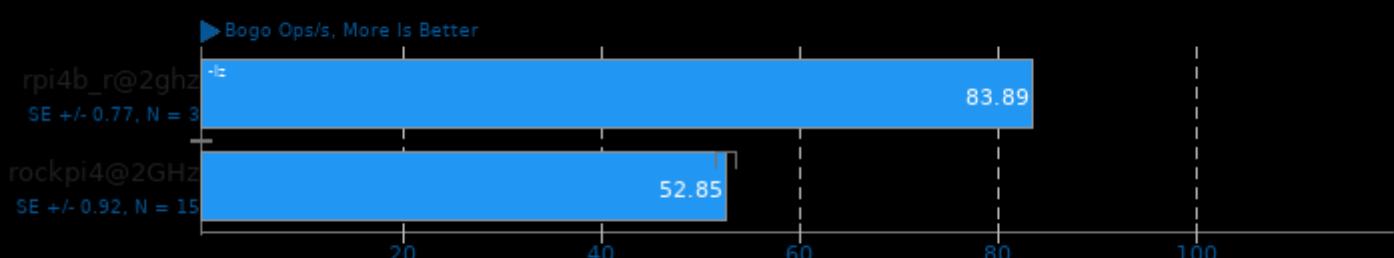
Test: SENDFILE



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

Stress-NG 0.13.02

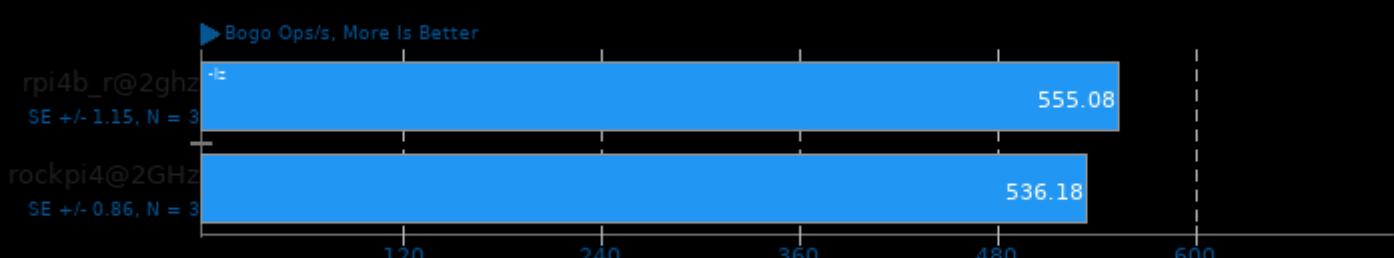
Test: CPU Cache



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

Stress-NG 0.13.02

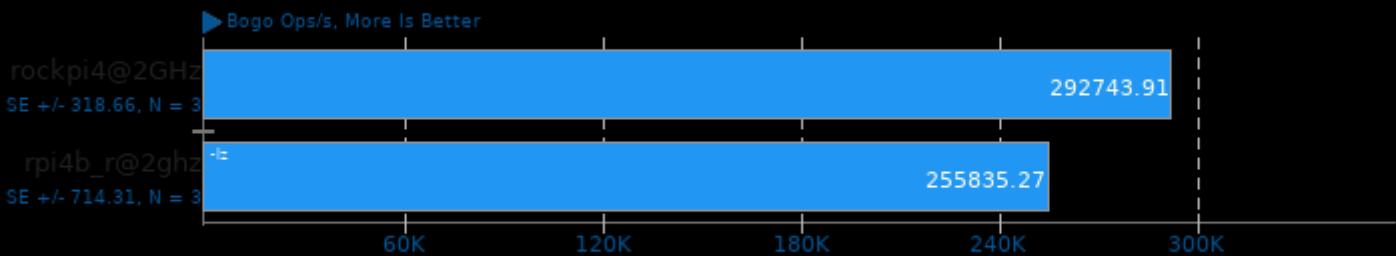
Test: CPU Stress



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

Stress-NG 0.13.02

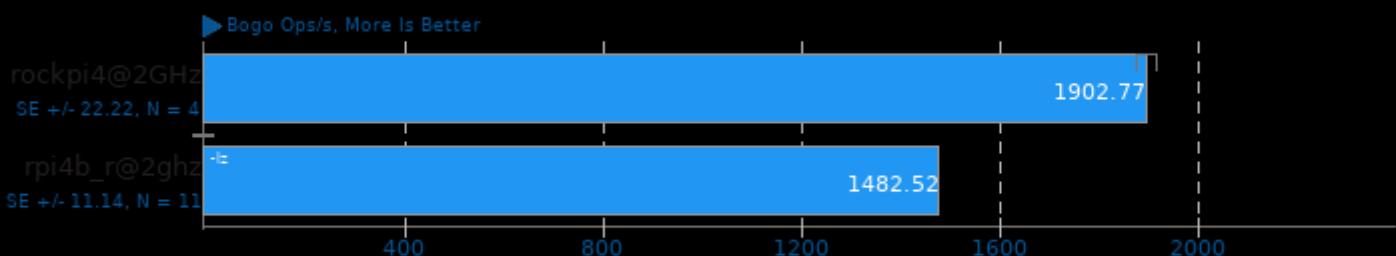
Test: Semaphores



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

Stress-NG 0.13.02

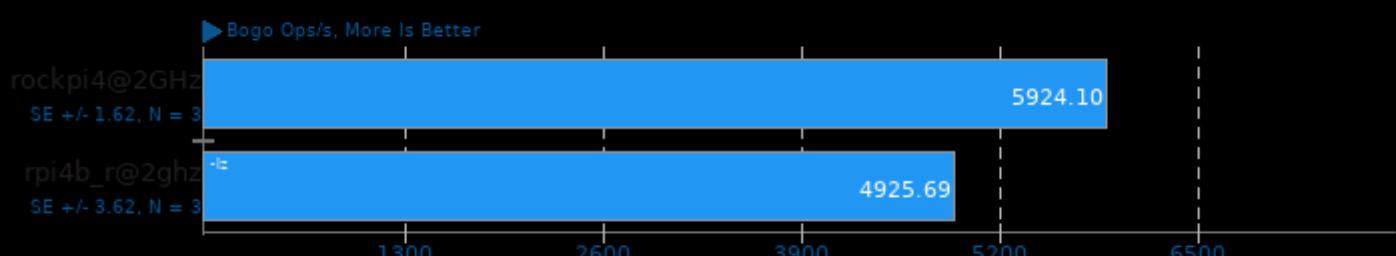
Test: Matrix Math



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

Stress-NG 0.13.02

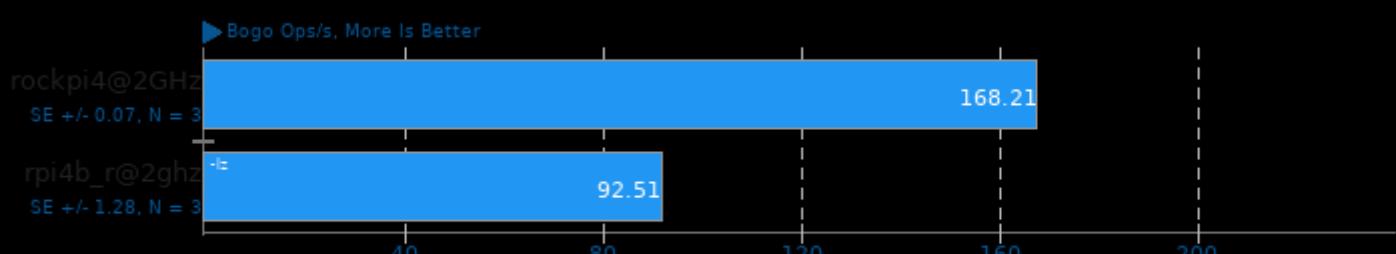
Test: Vector Math



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

Stress-NG 0.13.02

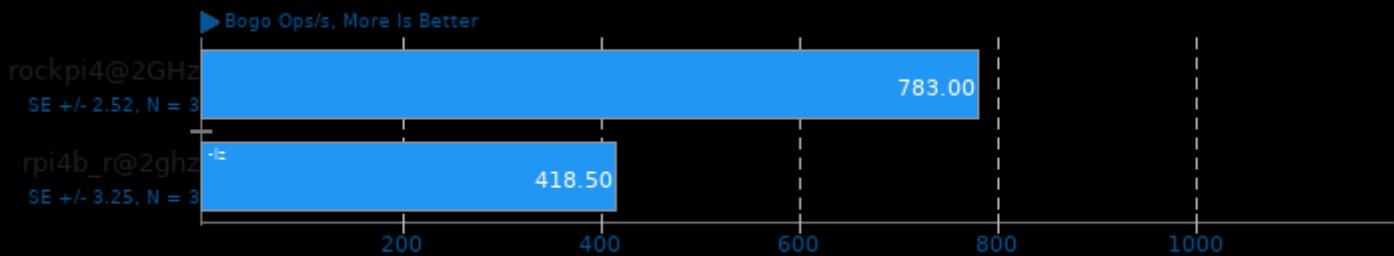
Test: Memory Copying



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

Stress-NG 0.13.02

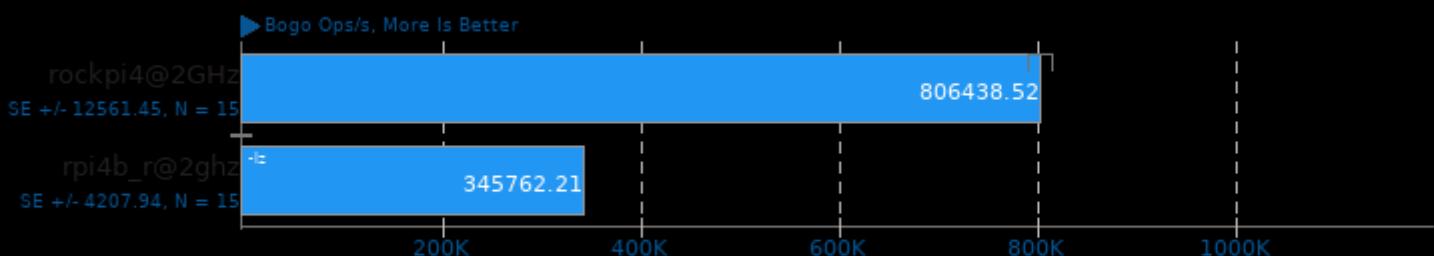
Test: Socket Activity



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

Stress-NG 0.13.02

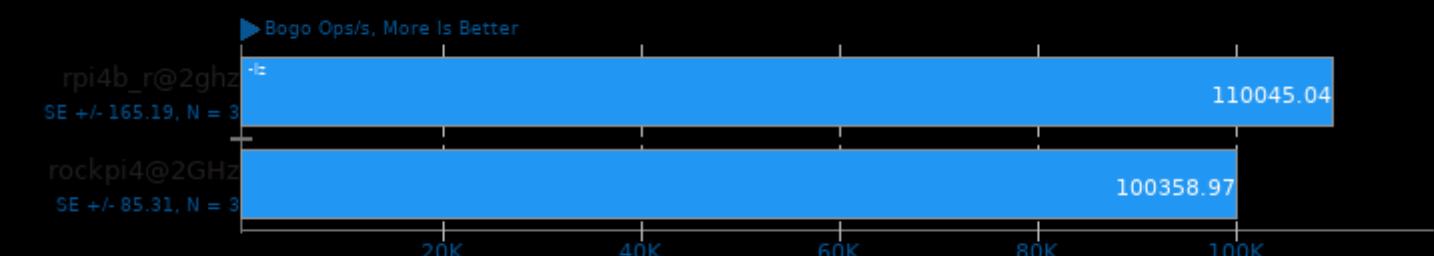
Test: Context Switching



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

Stress-NG 0.13.02

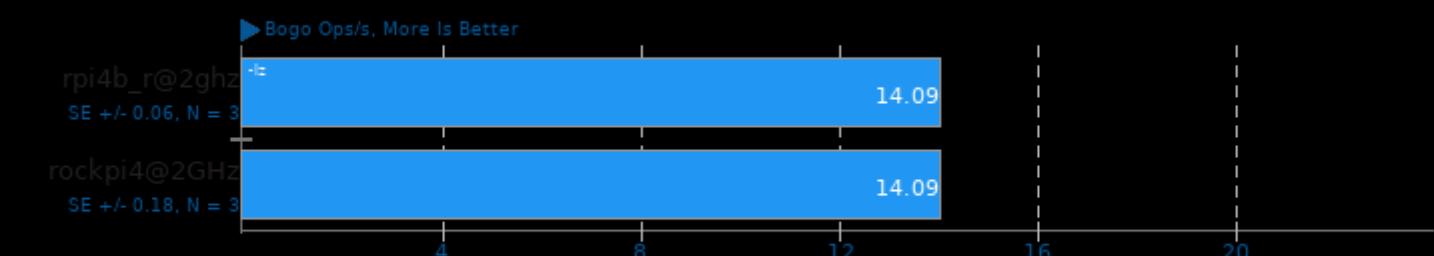
Test: Glibc C String Functions



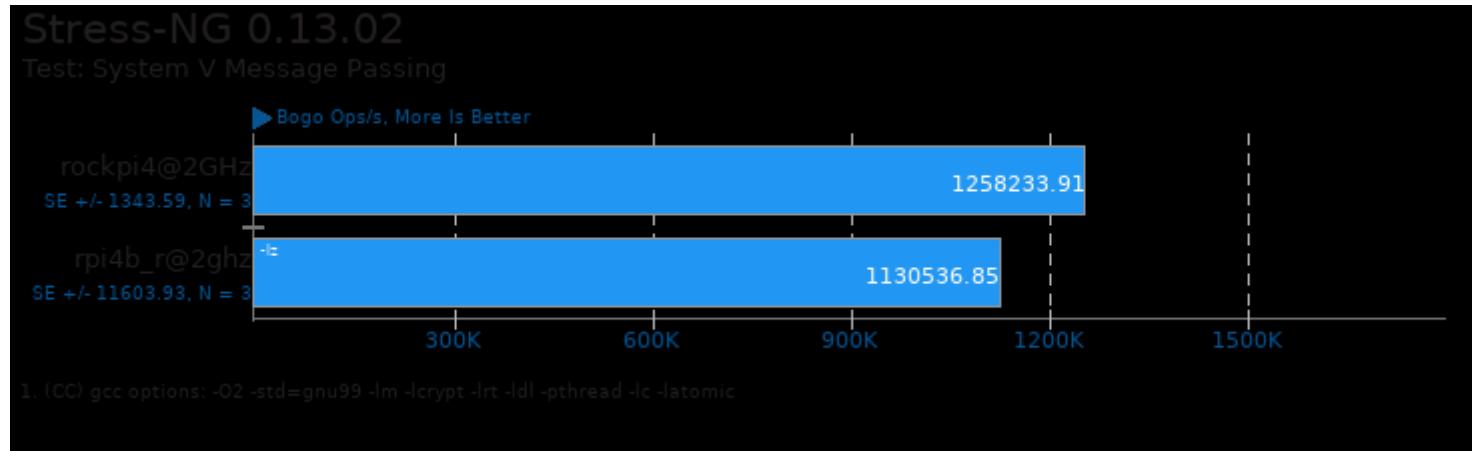
1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -ldl -pthread -lc -latomic

Stress-NG 0.13.02

Test: Glibc Qsort Data Sorting



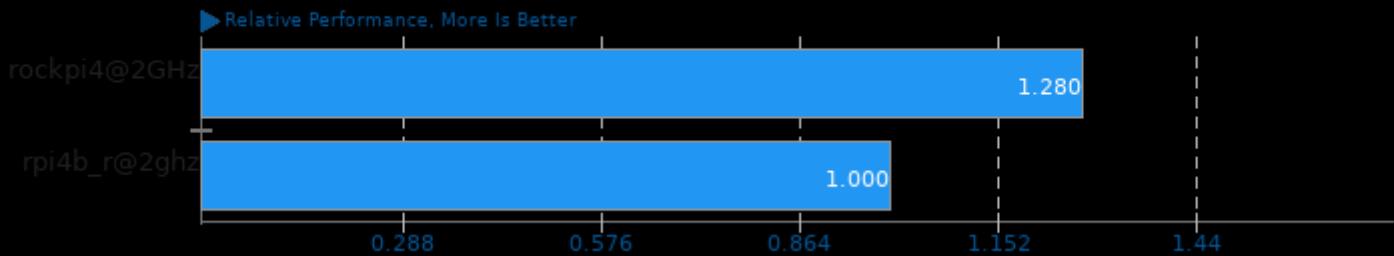
1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -ldl -pthread -lc -latomic



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

Geometric Mean Of CPU Massive Tests

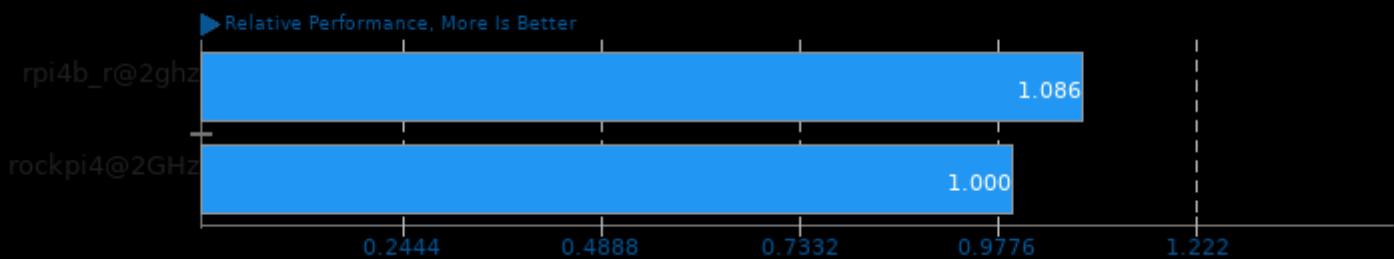
Result Composite - rpi4@2GHz



Geometric mean based upon tests: pts/cachebench, pts/compress-7zip, pts/hackbench, pts/ramspeed and pts/stress-ng

Geometric Mean Of Creator Workloads Tests

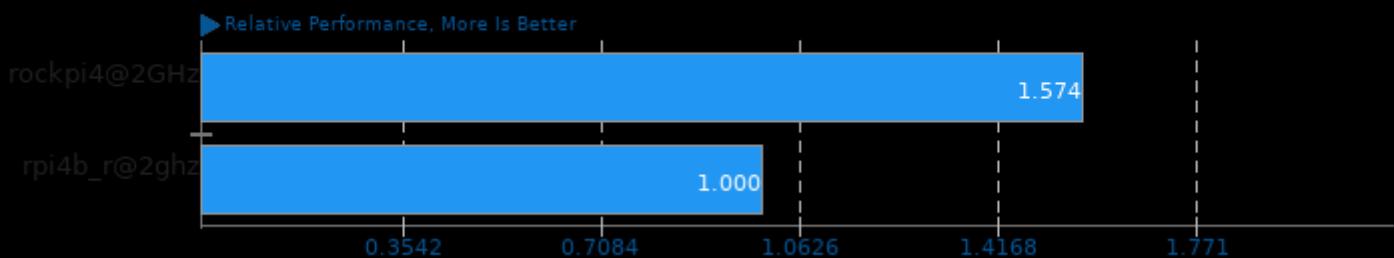
Result Composite - rpi4@2GHz



Geometric mean based upon tests: pts/smallpt and pts/libraw

Geometric Mean Of Common Kernel Benchmarks Tests

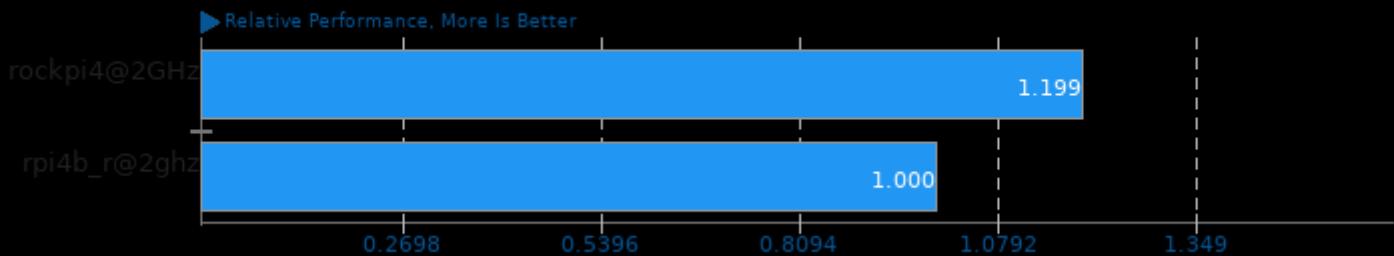
Result Composite - rpi4@2GHz



Geometric mean based upon tests: pts/hackbench, pts/ipc-benchmark and pts/stress-ng

Geometric Mean Of Memory Test Suite

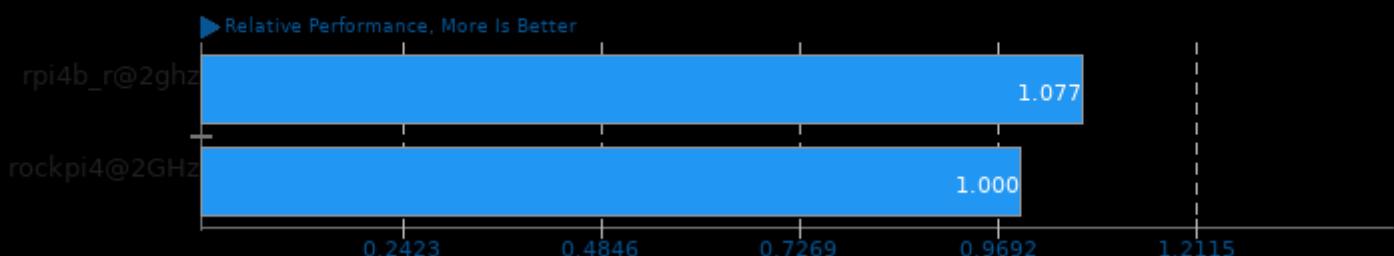
Result Composite - rpi4@2GHz



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

Geometric Mean Of Multi-Core Tests

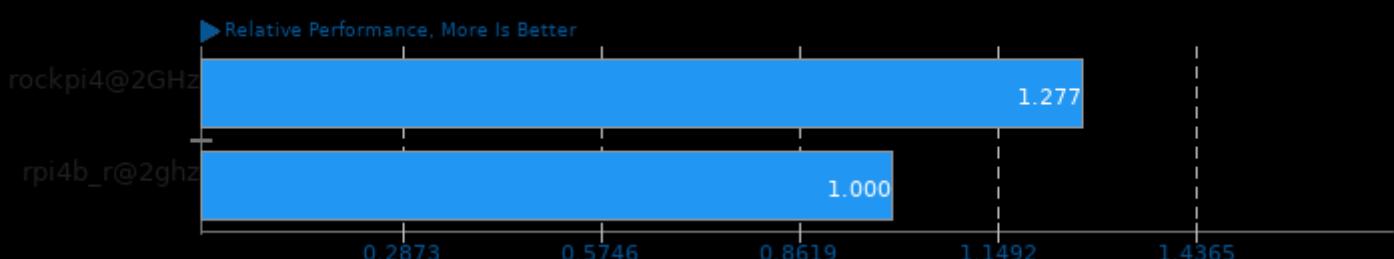
Result Composite - rpi4@2GHz



Geometric mean based upon tests: pts/coremark, pts/smallpt and pts/compress-7zip

Geometric Mean Of Server CPU Tests

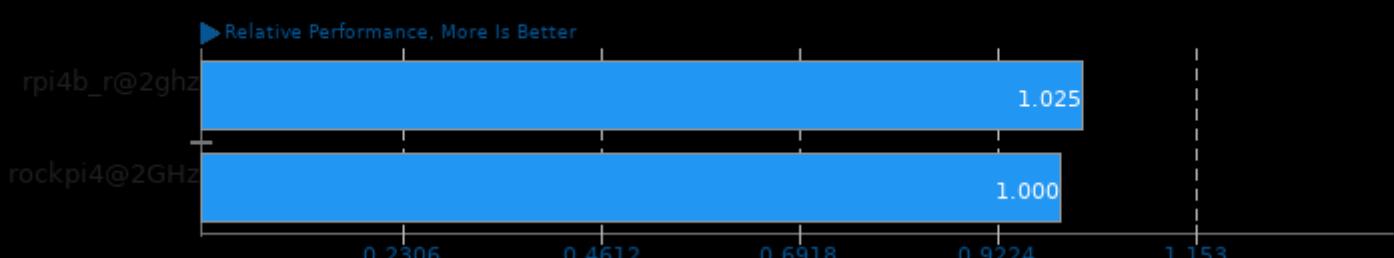
Result Composite - rpi4@2GHz



Geometric mean based upon tests: pts/compress-7zip, pts/hackbench, pts/stress-ng, pts/pybench and pts/ramspeed

Geometric Mean Of Single-Threaded Tests

Result Composite - rpi4@2GHz



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

This file was automatically generated via the Phoronix Test Suite benchmarking software on Friday, 29 March 2024 03:06.