



ARM-SBC-Benchmark

Running pts/stream-1.2.0, pts/scimark2-1.2.0, pts/x264-1.8.1, pts/compress-7zip-1.6.0, pts/compress-pbzip2-1.4.0, pts/encode-mp3-1.4.0, pts/openssl-1.9.0, pts/pybench-1.0.0, pts/nginx-1.1.0, pts/phpbench-1.1.0 via the Phoronix Test Suite.

Automated Executive Summary

HummingBoard_i2ex had the most wins, coming in first place for 83% of the tests.

Based on the geometric mean of all complete results, the fastest (HummingBoard_i2ex) was 3.613x the speed of the slowest (Raspberry Pi). Banana Pi was 0.655x the speed of HummingBoard_i2ex and Raspberry Pi was 0.423x the speed of Banana Pi.

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

NGINX Benchmark (Static Web Page Serving) at 9.759x

SciMark (Computational Test: Sparse Matrix Multiply) at 4.923x

Parallel BZIP2 Compression (256MB File Compression) at 4.247x

SciMark (Computational Test: Jacobi Successive Over-Relaxation) at 3.864x

SciMark (Computational Test: Composite) at 3.573x

OpenSSL (RSA 4096-bit Performance) at 3.446x

7-Zip Compression (Compress Speed Test) at 3.301x

SciMark (Computational Test: Dense LU Matrix Factorization) at 3.282x

PyBench (Total For Average Test Times) at 3.14x

SciMark (Computational Test: Fast Fourier Transform) at 3.035x.

Test Systems:

Banana Pi

Processor: ARMv7 rev 4 @ 0.91GHz (2 Cores), Motherboard: sun7i, Memory: 873MB, Disk: 8GB SU08G

OS: Ubuntu 14.04, Kernel: 3.4.90 (armv7l), Compiler: GCC 4.8, File-System: ext4, Screen Resolution: 1280x1440

Compiler Notes: --build=arm-linux-gnueabi --disable-browser-plugin --disable-libitm --disable-libmudflap --disable-libquadmath --disable-sjlj-exceptions --disable-werror --enable-checking=release --enable-clocale=gnu --enable-gnu-unique-object --enable-gtk-cairo --enable-java-awt=gtk --enable-java-home --enable-languages=c,c++,java,go,d,fortran,objc,obj-c++ --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc --enable-plugin --enable-shared --enable-threads=posix --host=arm-linux-gnueabi --target=arm-linux-gnueabi --with-arch-directory=arm --with-arch=armv7-a --with-ecj-jar=/usr/share/java/eclipse-ecj.jar --with-fpu=hard --with-fpu=vfpv3-d16 --with-java-home=/usr/lib/jvm/java-1.5.0-gcj-4.8-armhf/jre --with-jvm-jar-dir=/usr/lib/jvm-exports/java-1.5.0-gcj-4.8-armhf --with-jvm-root-dir=/usr/lib/jvm/java-1.5.0-gcj-4.8-armhf --with-mode=thumb -v
Processor Notes: Scaling Governor: sunxi interactive
System Notes: Python 2.7.6.

Raspberry Pi

Processor: ARMv6-compatible rev 7 @ 0.90GHz (1 Core), Motherboard: BCM2708, Memory: 469MB, Disk: 8GB SL08G

OS: Debian Linux 7.5, Kernel: 3.12.22+ (armv6l), Compiler: GCC 4.6, File-System: ext4, Screen Resolution: 656x416

Compiler Notes: --build=arm-linux-gnueabi --disable-sjlj-exceptions --enable-checking=release --enable-clocale=gnu --enable-gnu-unique-object --enable-languages=c,c++,fortran,objc,obj-c++ --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-nls --enable-objc-gc --enable-plugin --enable-shared --enable-threads=posix --host=arm-linux-gnueabi --target=arm-linux-gnueabi --with-arch=armv6 --with-fpu=hard --with-fpu=vfp -v
System Notes: Python 2.7.3.

HummingBoard_i2ex

Processor: ARMv7 rev 10 @ 1.00GHz (2 Cores), Motherboard: SolidRun i.MX6 Quad/Dual/DualLite/Solo HummingBoard, Memory: 745MB, Disk: 8GB SU08G

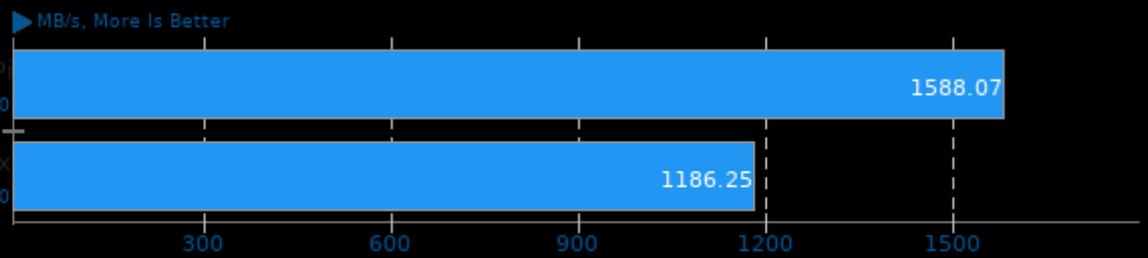
OS: Debian testing, Kernel: 3.0.35-g01c6ae1 (armv7l), Compiler: GCC 4.8.2, File-System: ext4, Screen Resolution: 1280x720

Compiler Notes: --build=arm-linux-gnueabi --disable-browser-plugin --disable-libitm --disable-libmudflap --disable-libquadmath --disable-sjlj-exceptions --enable-checking=release --enable-clocale=gnu --enable-gnu-unique-object --enable-gtk-cairo --enable-java-awt=gtk --enable-java-home --enable-languages=c,c++,java,go,d,fortran,objc,obj-c++ --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-nls --enable-objc-gc --enable-plugin --enable-shared --enable-threads=posix --host=arm-linux-gnueabi --target=arm-linux-gnueabi --with-arch-directory=arm --with-arch=armv7-a --with-fpu=hard --with-fpu=vfpv3-d16 --with-mode=thumb -v
Processor Notes: Scaling Governor: imx performance
System Notes: Python 2.7.6.

	Banana Pi	Raspberry Pi	HummingBoard_i2ex
Stream - Copy (MB/s)	1588		1186
Normalized	100%		74.7%
Standard Deviation	0.4%		0.7%
Stream - Scale (MB/s)	1315		1143
Normalized	100%		86.88%
Standard Deviation	0.2%		0.8%
Stream - Triad (MB/s)	925.85		1031
Normalized	89.78%		100%
Standard Deviation	0.1%		0.2%
Stream - Add (MB/s)	1088		1080
Normalized	100%		99.33%
Standard Deviation	0.1%		0.3%
SciMark - Composite (Mflops)	57.88	24.40	87.18
Normalized	66.39%	27.99%	100%
Standard Deviation	0.1%	0.1%	0.1%
SciMark - Monte Carlo (Mflops)	37.74	25.71	65.23
Normalized	57.86%	39.41%	100%
Standard Deviation	0.1%	0%	0.2%
SciMark - F.F.T (Mflops)	13.03	7.12	21.61
Normalized	60.3%	32.95%	100%
Standard Deviation	0.7%	0.1%	0.9%
SciMark - S.M.M (Mflops)	34.03	18.49	91.02
Normalized	37.39%	20.31%	100%
Standard Deviation	0%	0.4%	0.3%
SciMark - D.L.M.F (Mflops)	74.90	25.72	84.42
Normalized	88.72%	30.47%	100%
Standard Deviation	0%	0%	0.1%
SciMark - J.S.O.R (Mflops)	129.71	44.93	173.61
Normalized	74.71%	25.88%	100%
Standard Deviation	0.2%	0.2%	0.2%
x264 - H.2.V.E (FPS)	3.26		5.12
Normalized	63.67%		100%
Standard Deviation	0.6%		0.9%
7-Zip Compression - C.S.T (MIPS)	569	226	746
Normalized	76.27%	30.29%	100%
Standard Deviation	0.3%	1.2%	2.5%
Parallel BZIP2 Compression - 2.F.C (sec)	276.09	824.44	194.11
Normalized	70.31%	23.54%	100%
Standard Deviation	2.7%	1.5%	2.3%
LAME MP3 Encoding - WAV To MP3 (sec)	165.20	303.79	125.58
Normalized	76.02%	41.34%	100%
Standard Deviation	0.1%	1.9%	0.4%
OpenSSL - R.4.b.P (Signs/sec)	6.07	2.40	8.27
Normalized	73.4%	29.02%	100%
Standard Deviation	1%	0%	0.7%
PyBench - T.F.A.T.T (Milliseconds)	29417	62448	19887
Normalized	67.6%	31.85%	100%
Standard Deviation	0.1%	3%	0.1%
NGINX Benchmark - S.W.P.S (Reqs/sec)	1922	394.29	3848
Normalized	49.96%	10.25%	100%
Standard Deviation	0.3%	0%	1.5%
PHPBench - P.B.S (Score)	8017	3916	11389
Normalized	70.39%	34.38%	100%
Standard Deviation	0.4%	8%	0%

Stream 2013-01-17

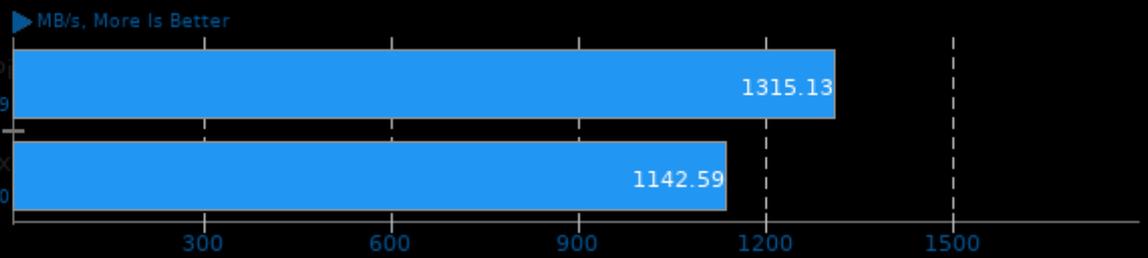
Type: Copy



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

Stream 2013-01-17

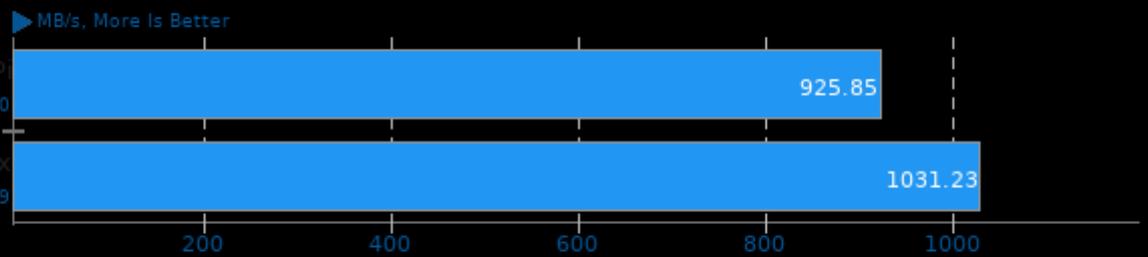
Type: Scale



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

Stream 2013-01-17

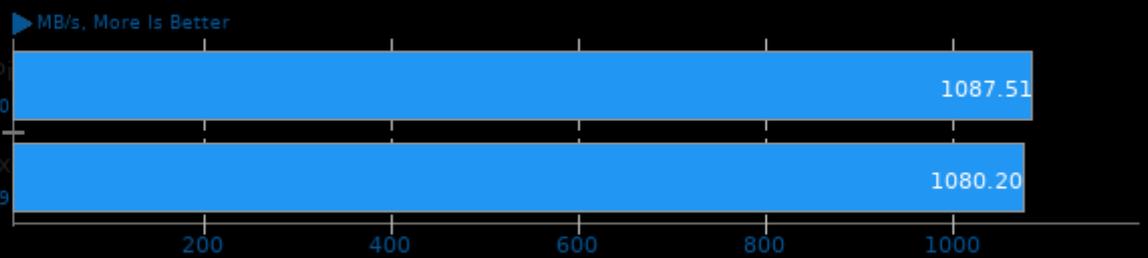
Type: Triad



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

Stream 2013-01-17

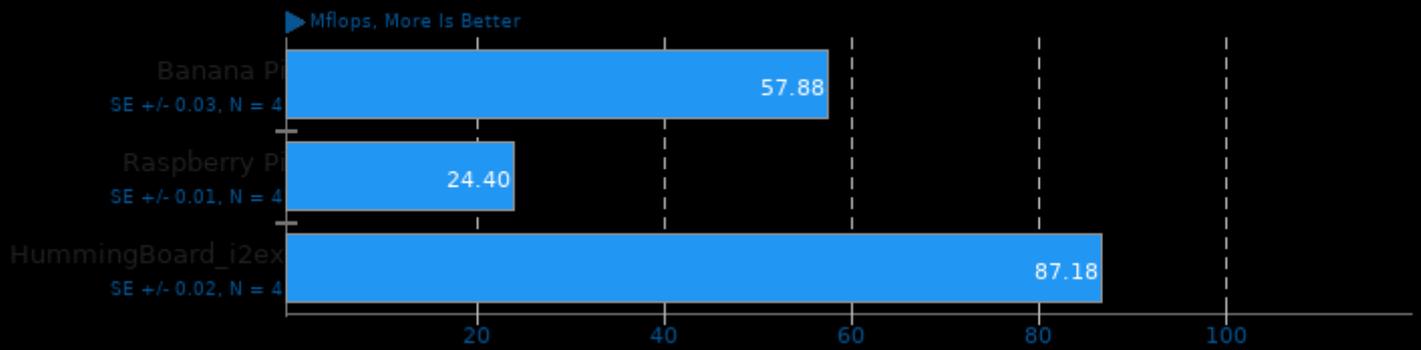
Type: Add



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

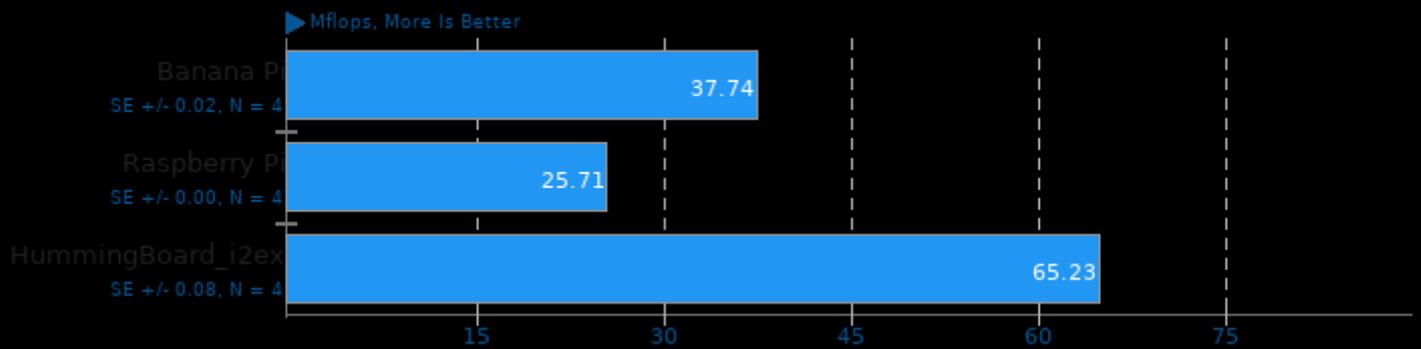
SciMark 2.0

Computational Test: Composite



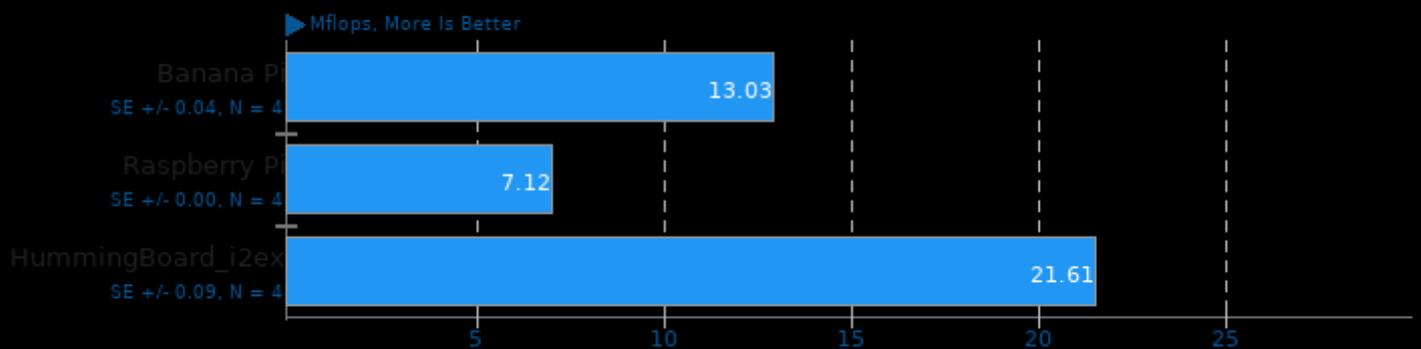
SciMark 2.0

Computational Test: Monte Carlo



SciMark 2.0

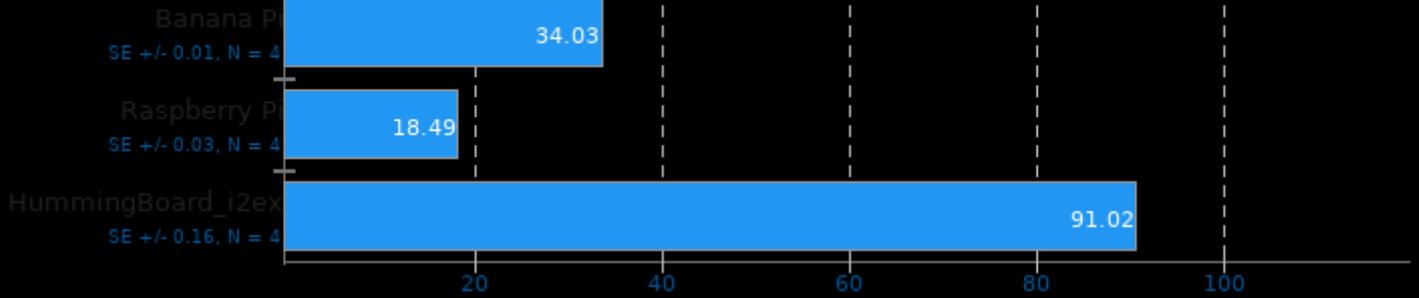
Computational Test: Fast Fourier Transform



SciMark 2.0

Computational Test: Sparse Matrix Multiply

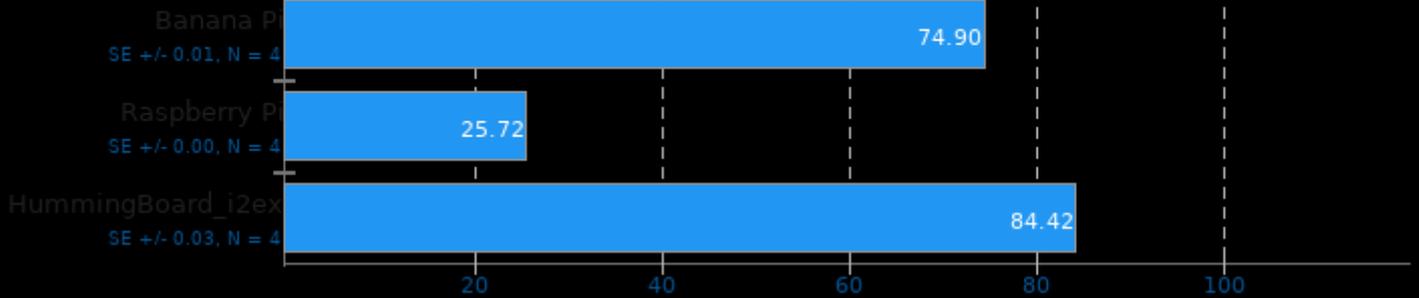
Mflops, More Is Better



SciMark 2.0

Computational Test: Dense LU Matrix Factorization

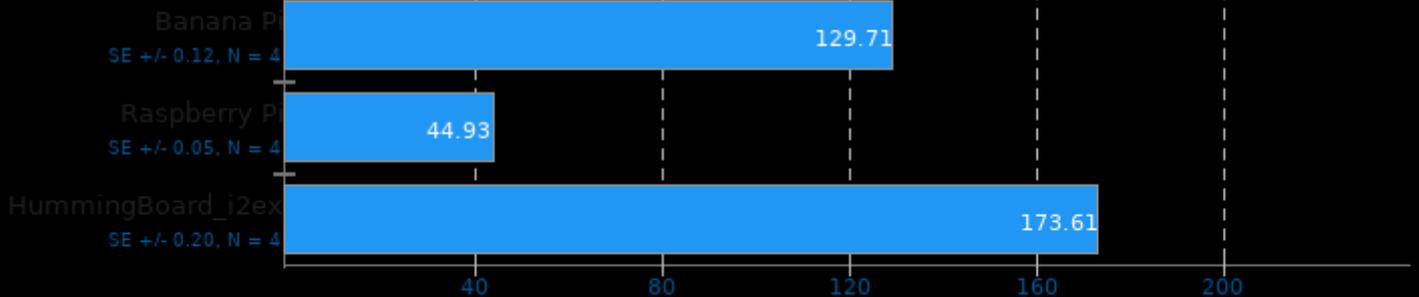
Mflops, More Is Better



SciMark 2.0

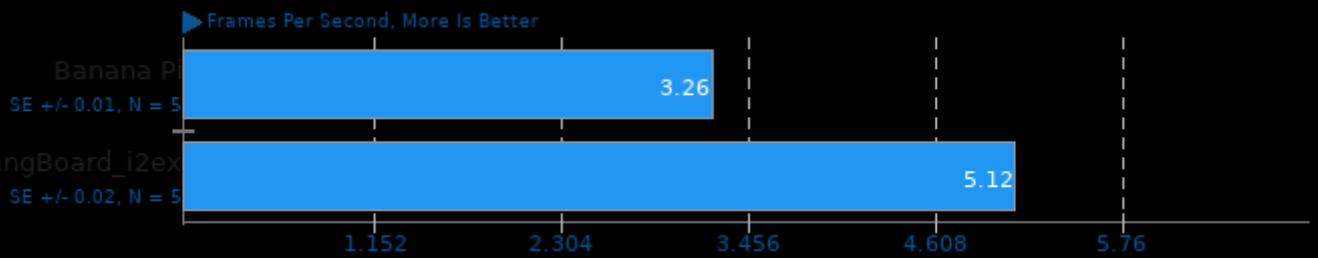
Computational Test: Jacobi Successive Over-Relaxation

Mflops, More Is Better



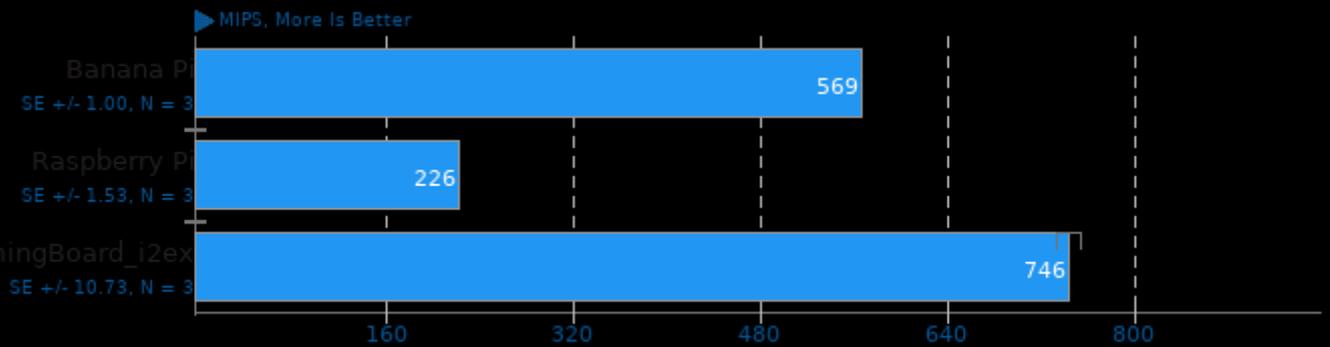
x264 2014-01-09

H.264 Video Encoding



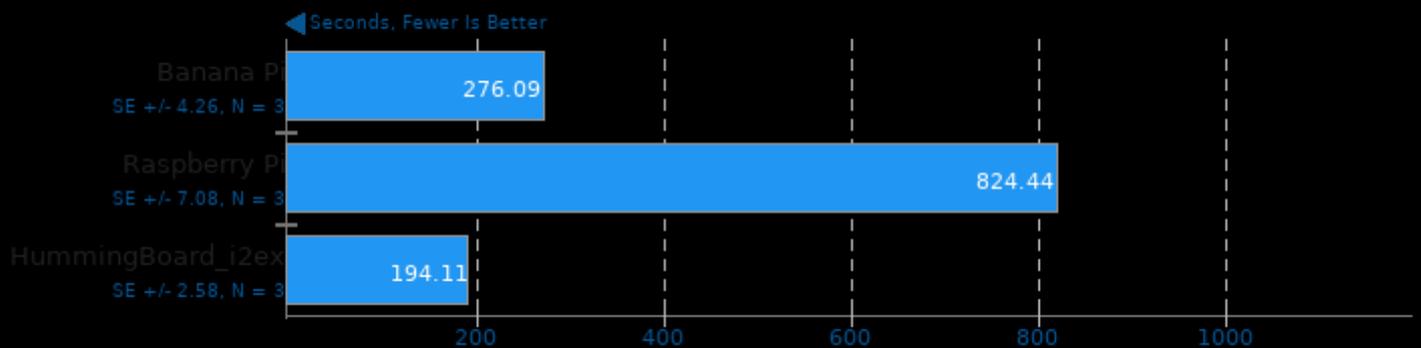
7-Zip Compression 9.20.1

Compress Speed Test



Parallel BZIP2 Compression 1.1.6

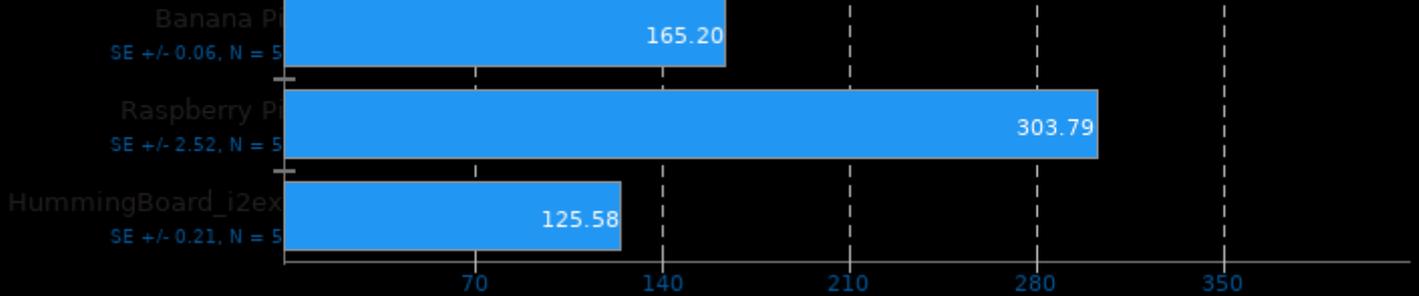
256MB File Compression



LAME MP3 Encoding 3.99.3

WAV To MP3

◀ Seconds, Fewer Is Better

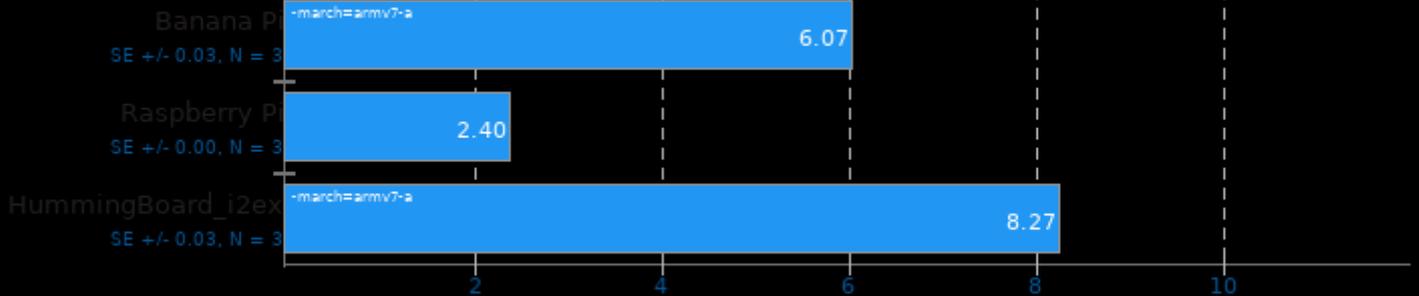


1. (CC) gcc options: -O3 -fomit-frame-pointer -ffast-math -pipe -lm

OpenSSL 1.0.1g

RSA 4096-bit Performance

▶ Signs Per Second, More Is Better

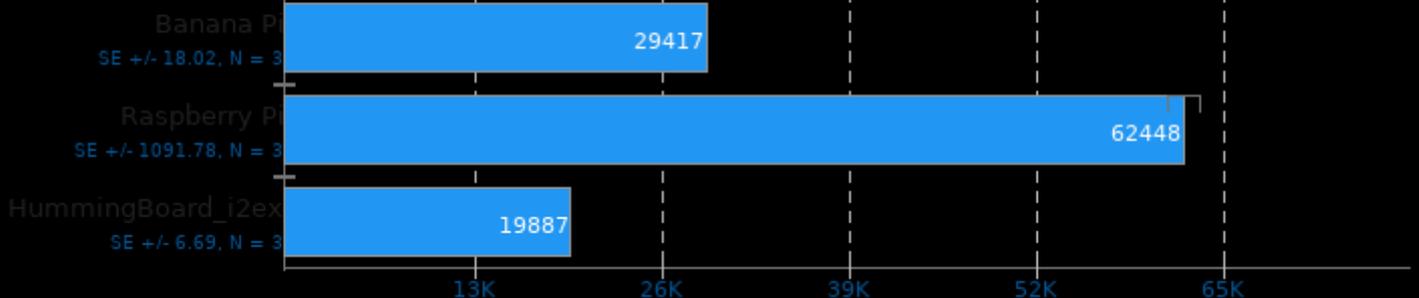


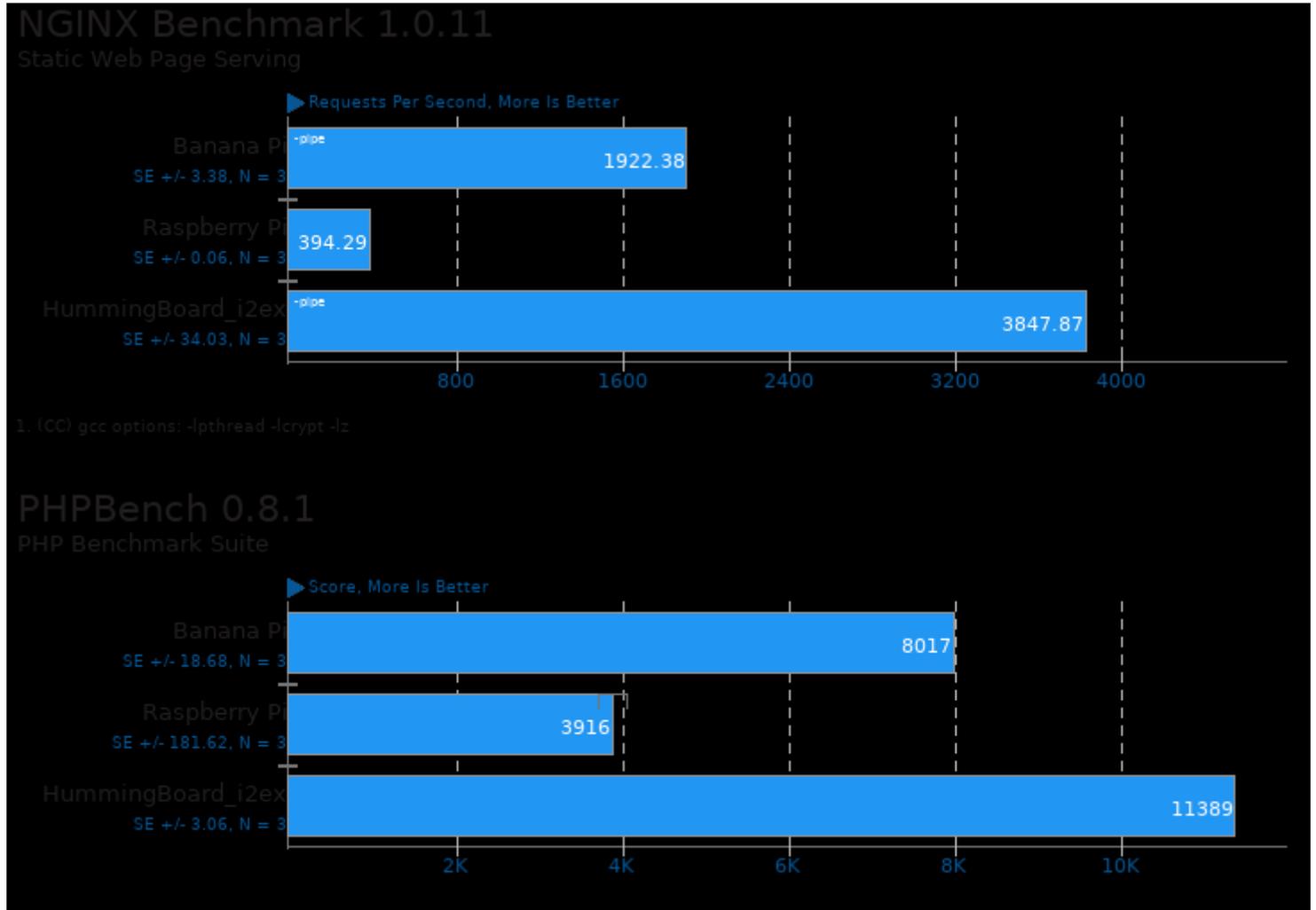
1. (CC) gcc options: -O3 -lssl -lcrypto -ldl

PyBench 2008-08-14

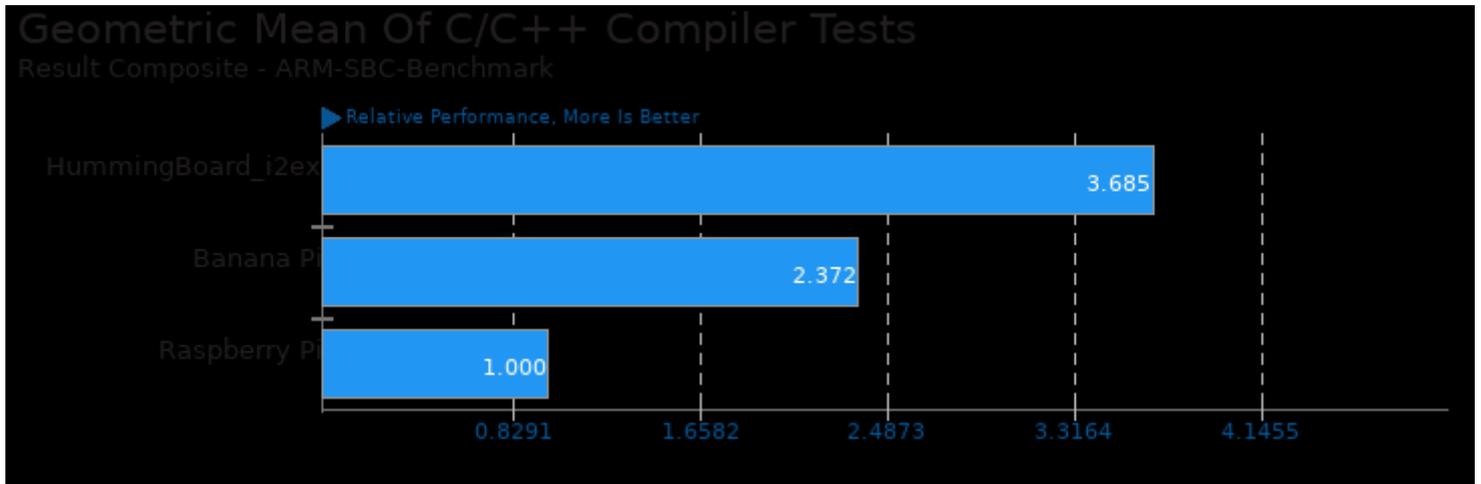
Total For Average Test Times

◀ Milliseconds, Fewer Is Better

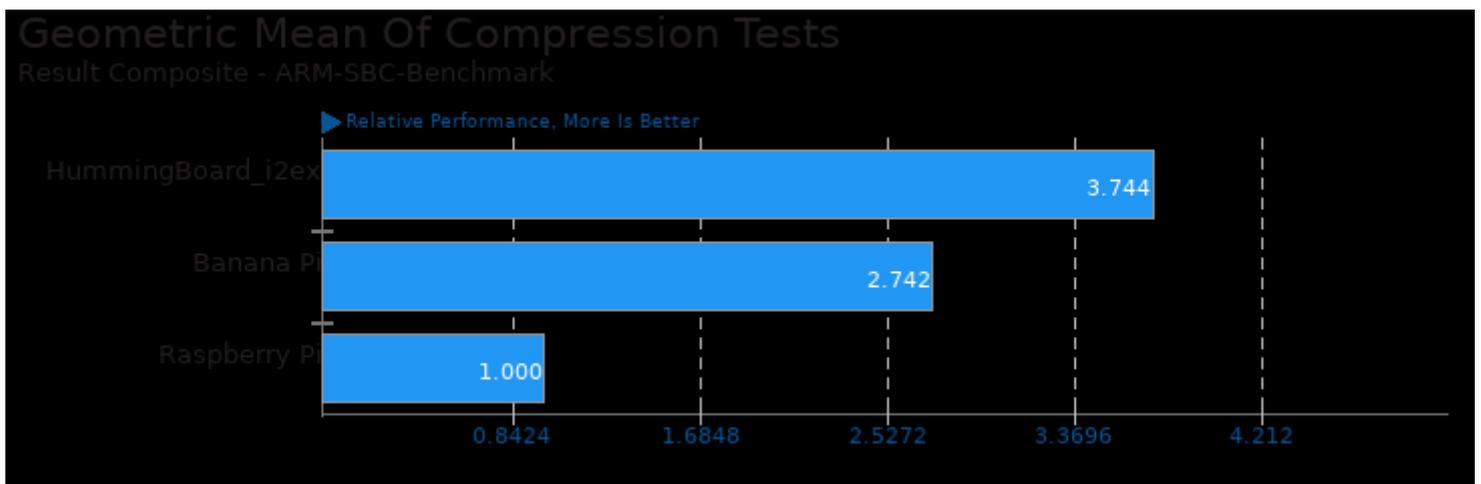




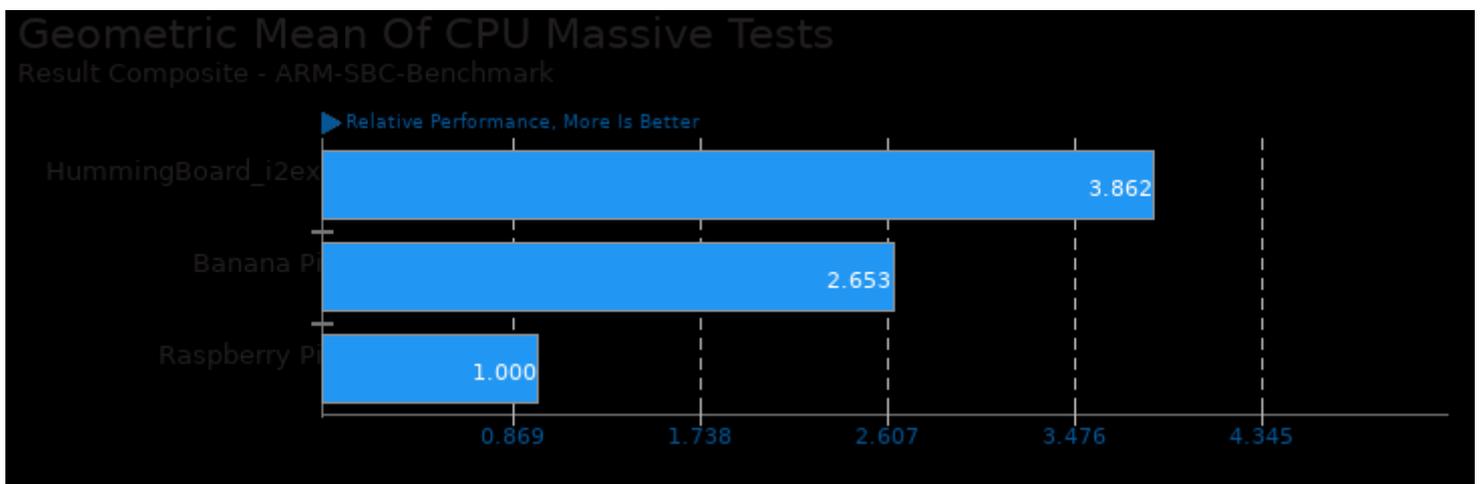
These geometric means are based upon test groupings / test suites for this result file.



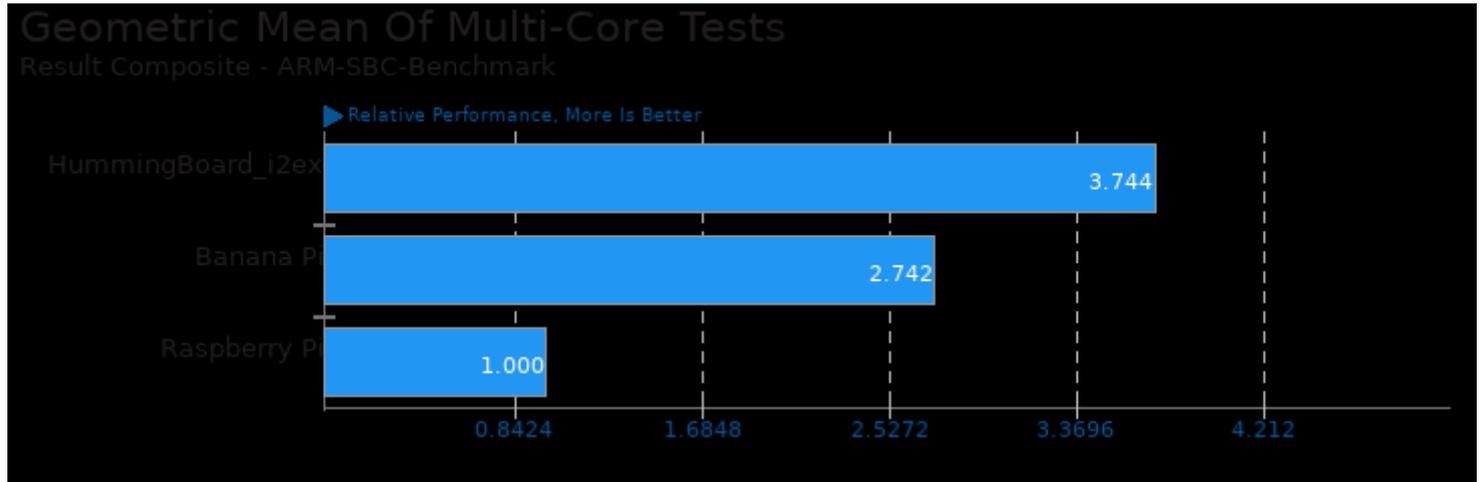
Geometric mean based upon tests: pts/scimark2, pts/compress-7zip, pts/encode-mp3, pts/x264, pts/openssl and pts/nginx



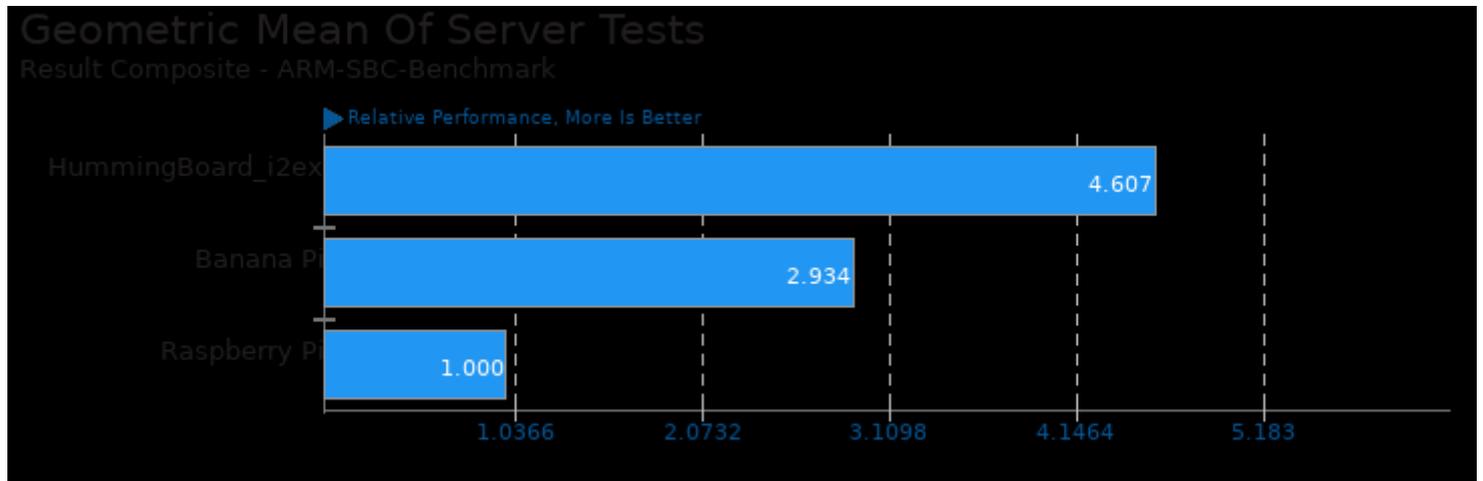
Geometric mean based upon tests: pts/compress-7zip and pts/compress-pbzip2



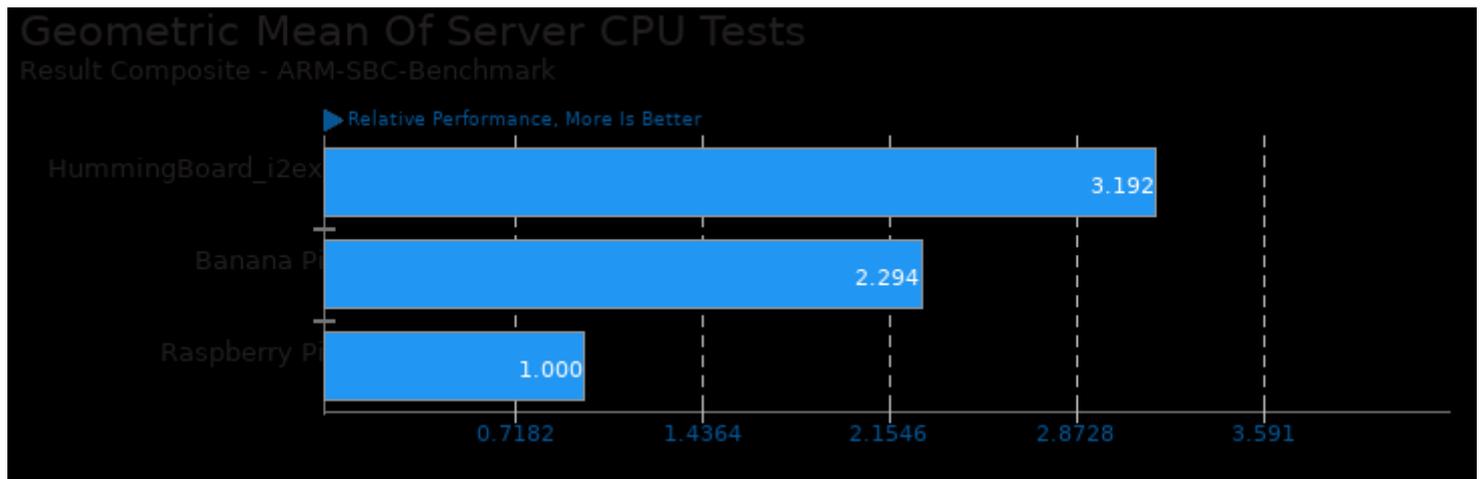
Geometric mean based upon tests: pts/compress-7zip, pts/compress-pbzip2, pts/x264, pts/encode-mp3, pts/openssl, pts/nginx, pts/phpbench and pts/stream



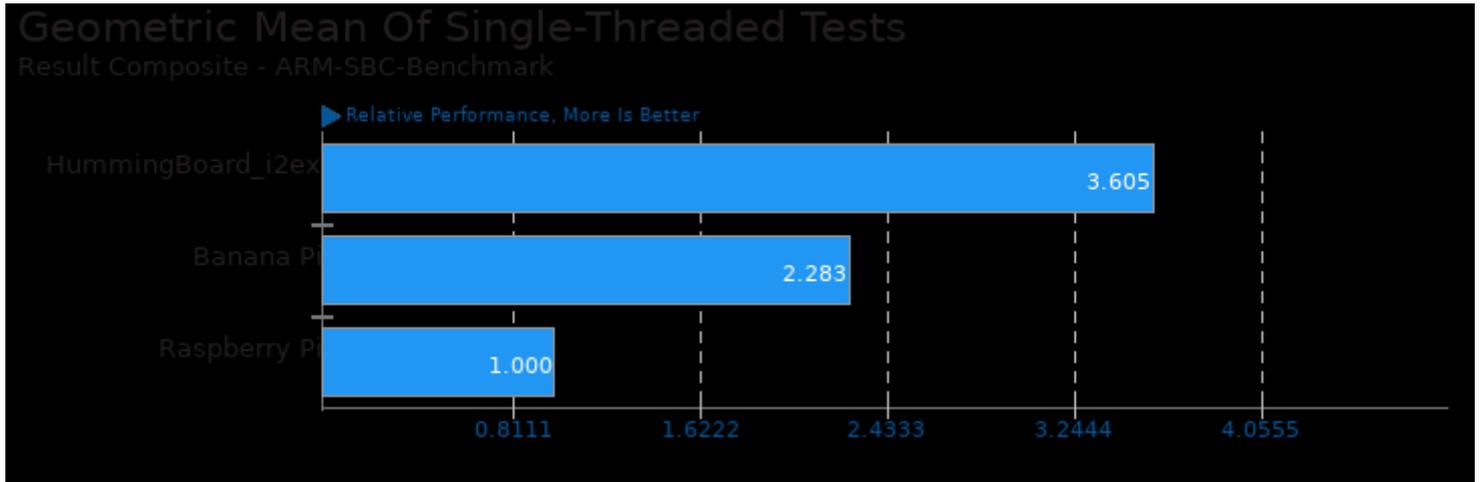
Geometric mean based upon tests: pts/x264, pts/compress-7zip and pts/compress-pbzip2



Geometric mean based upon tests: pts/nginx, pts/phpbench and pts/openssl



Geometric mean based upon tests: pts/x264, pts/compress-7zip, pts/openssl, pts/pybench, pts/phpbench and pts/stream



Geometric mean based upon tests: pts/scimark2, pts/encode-mp3, pts/pybench, pts/phpbench and pts/nginx

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