www.phoronix-test-suite.com

rpi march

ARMv8 Cortex-A72 testing with a BCM2835 Raspberry Pi 400 Rev 1.0 and vc4drmfb on Debian 11 via the Phoronix Test Suite.

Automated Executive Summary

A had the most wins, coming in first place for 40% of the tests.

Based on the geometric mean of all complete results, the fastest (B) was 1.027x the speed of the slowest (C). A was 0.988x the speed of B and C was 0.986x the speed of A.

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

fast-cli (Internet Latency) at 1.444x
fast-cli (Internet Loaded Latency (Bufferbloat)) at 1.2x
fast-cli (Internet Upload Speed) at 1.167x
perf-bench (Benchmark: Memset 1MB) at 1.071x
speedtest-cli (Internet Latency) at 1.069x
ONNX Runtime (Model: bertsquad-12 - Device: CPU) at 1.045x
perf-bench (Benchmark: Memcpy 1MB) at 1.043x
ONNX Runtime (Model: GPT-2 - Device: CPU) at 1.039x
fast-cli (Internet Download Speed) at 1.038x

speedtest-cli (Internet Download Speed) at 1.037x.

Test Systems:

A

B

C

Processor: ARMv8 Cortex-A72 @ 1.80GHz (4 Cores), Motherboard: BCM2835 Raspberry Pi 400 Rev 1.0, Chipset: Broadcom BCM2711, Memory: 4096MB, Disk: 128GB SF128, Graphics: vc4drmfb, Monitor: DELL P2210H

OS: Debian 11, Kernel: 5.10.92-v8+ (aarch64), Desktop: LXDE, Display Server: X Server 1.20.11, OpenGL: 2.1 Mesa 20.3.5, Compiler: GCC 10.2.1 20210110, File-System: ext4, Screen Resolution: 1920x1080

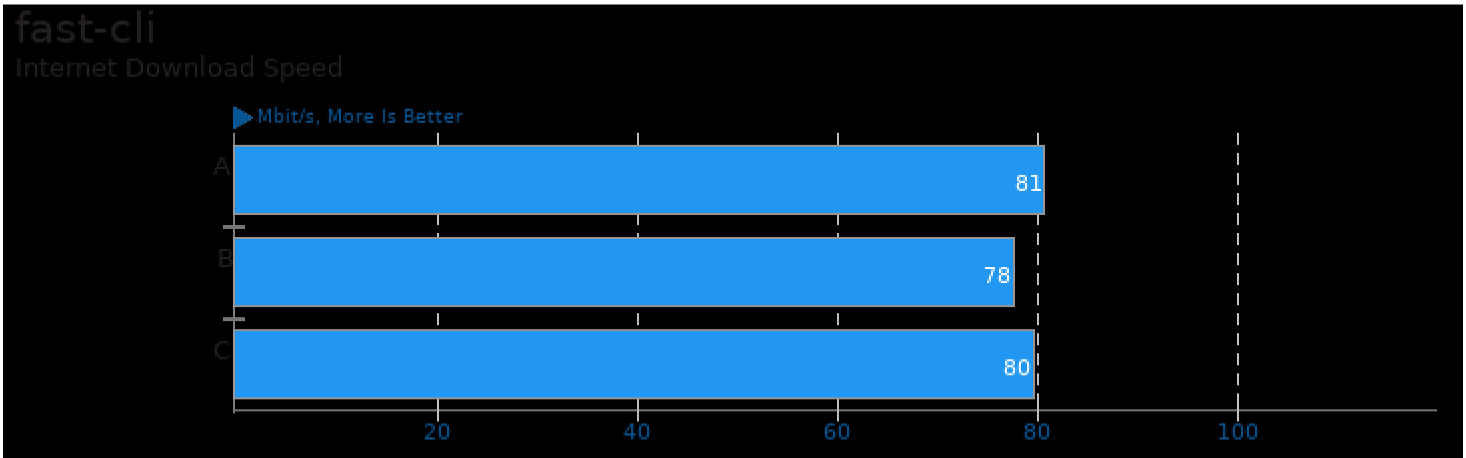
Kernel Notes: snd_bcm2835.enable_compat_alsa=0 snd_bcm2835.enable_hdmi=1
Compiler Notes: --build=aarch64-linux-gnu --disable-libquadmath --disable-libquadmath-support --disable-werror --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-fix-cortex-a53-843419 --enable-gnu-unique-object --enable-languages=c,ada,c++,go,d,fortran,objc,obj-c++,m2 --enable-libphobos-checking=release --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-link-mutex --enable-multiarch --enable-nls --enable-objc-gc=auto --enable-plugin --enable-shared --enable-threads=posix --host=aarch64-linux-gnu --program-prefix=aarch64-linux-gnu- --target=aarch64-linux-gnu --with-build-config=bootstrap-lto-lean --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-target-system-zlib=auto -v
Processor Notes: Scaling Governor: cpufreq-dt ondemand
Python Notes: Python 3.9.2
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 + srbds: Not affected + tsx_async_abort: Not affected

	A	B	C
fast-cli - I.D.S (Mbit/s)	**81**	**78**	80
Normalized	100%	96.3%	98.77%
fast-cli - I.U.S (Mbit/s)	**6.6**	**7.7**	7
Normalized	85.71%	100%	90.91%
fast-cli - Internet Latency (ms)	11	**9**	**13**
Normalized	81.82%	100%	69.23%
fast-cli - I.L.L.B (ms)	**15**	**18**	16
Normalized	100%	83.33%	93.75%
perf-bench - Epoll Wait (ops/sec)	**126057**	124019	**123837**
Normalized	100%	98.38%	98.24%
perf-bench - Futex Hash (ops/sec)	719709	**719077**	**721382**
Normalized	99.77%	99.68%	100%
perf-bench - Memcpy 1MB (GB/sec)	2.553221	**2.594987**	**2.488623**
Normalized	98.39%	100%	95.9%
perf-bench - Memset 1MB (GB/sec)	**5.518769**	5.514337	**5.152385**
Normalized	100%	99.92%	93.36%
perf-bench - Sched Pipe (ops/sec)	41315	**41103**	**41397**
Normalized	99.8%	99.29%	100%

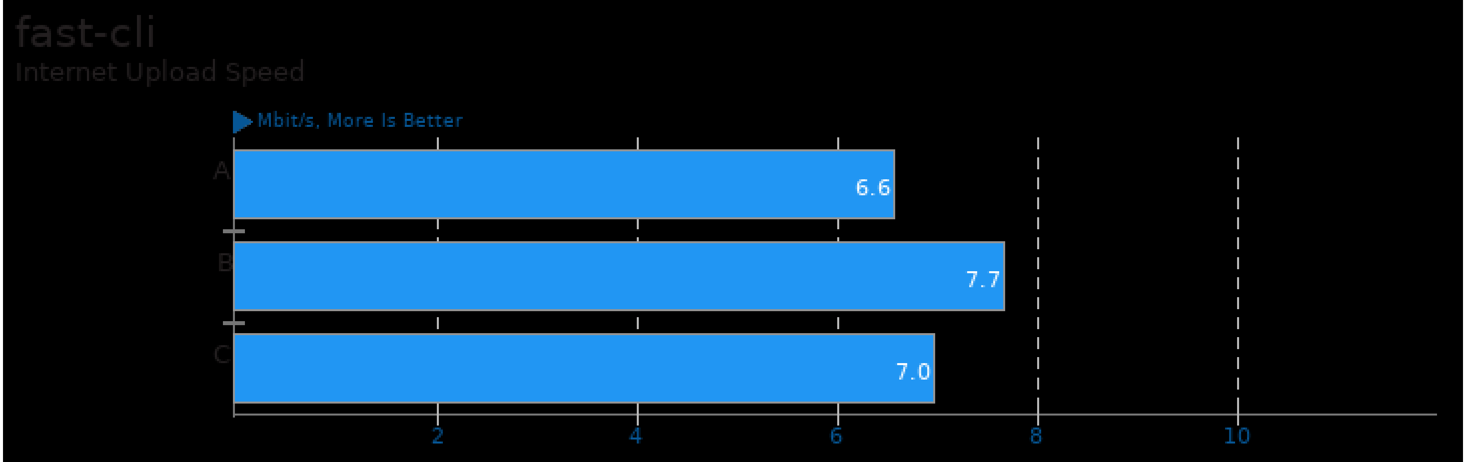
rpi march

perf-bench - Futex Lock-Pi (ops/sec)	2605	2608	2601
Normalized	99.88%	100%	99.73%
perf-bench - Syscall Basic (ops/sec)	898552	921144	931354
Normalized	96.48%	98.9%	100%
ONNX Runtime - GPT-2 - CPU	491	495	510
Normalized	96.27%	97.06%	100%
ONNX Runtime - yolov4 - CPU	14	14	14
ONNX Runtime - bertsquad-12 - CPU (Inferences/min)	22	23	22
Normalized	95.65%	100%	95.65%
ONNX Runtime - fcn-resnet101-11 - CPU (Inferences/min)	2	2	2
ONNX Runtime - ArcFace ResNet-100 - CPU (Inferences/min)	39	39	38
Normalized	100%	100%	97.44%
ONNX Runtime - super-resolution-10 - CPU (Inferences/min)	153	152	153
Normalized	100%	99.35%	100%
speedtest-cli - I.D.S (Mbit/s)		54.31	56.32
Normalized		96.43%	100%
speedtest-cli - I.U.S (Mbit/s)		9.99	9.78
Normalized		100%	97.9%
speedtest-cli - Internet Latency (ms)		25.132	26.868
Normalized		100%	93.54%

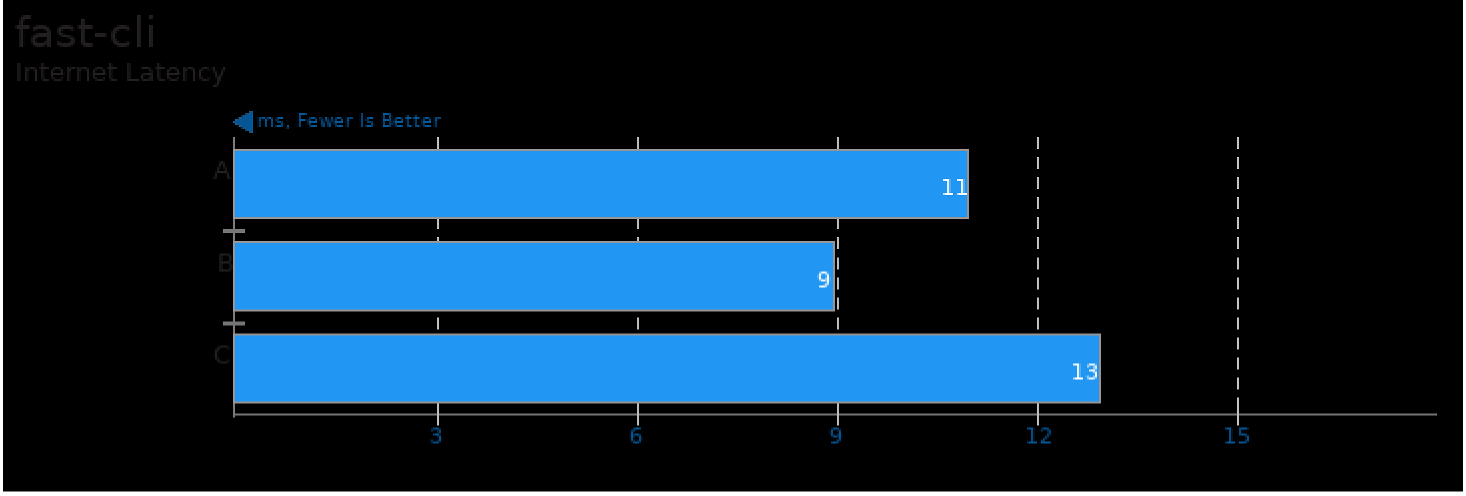
rpi march



fast-cli
Internet Download Speed
Mbit/s, More Is Better
A
B
C
81
78
80
20
40
60
80
100

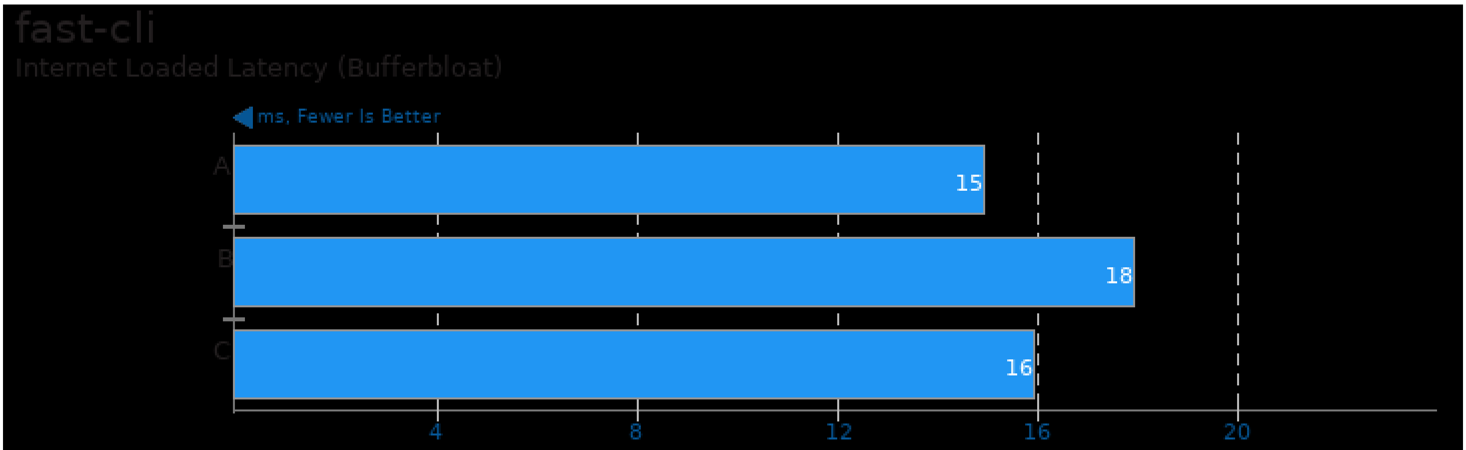


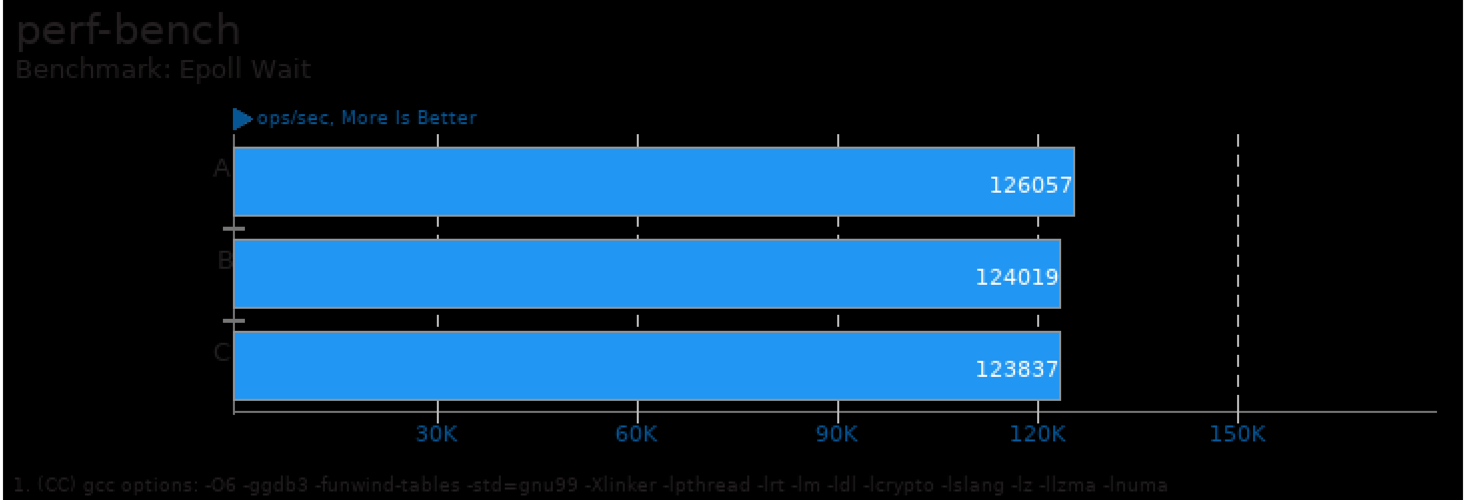
fast-cli
Internet Upload Speed
Mbit/s, More Is Better
A
B
C
6.6
7.7
7.0
2
4
6
8
10

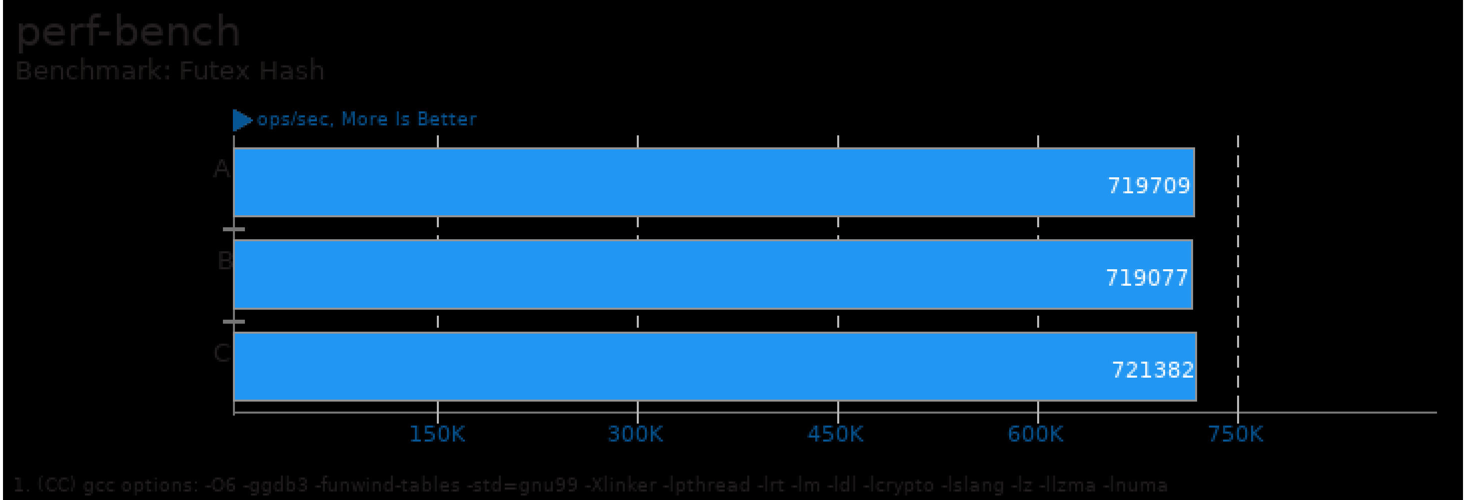


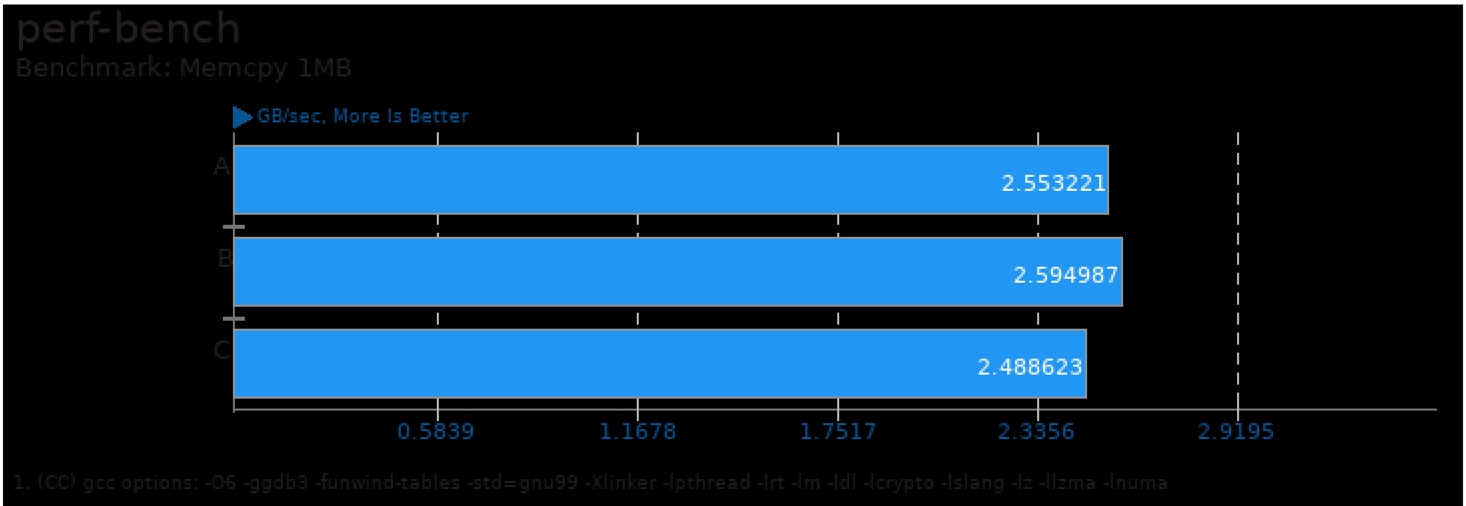
fast-cli
Internet Latency
ms, Fewer Is Better
A
B
C
11
9
13
3
6
9
12
15

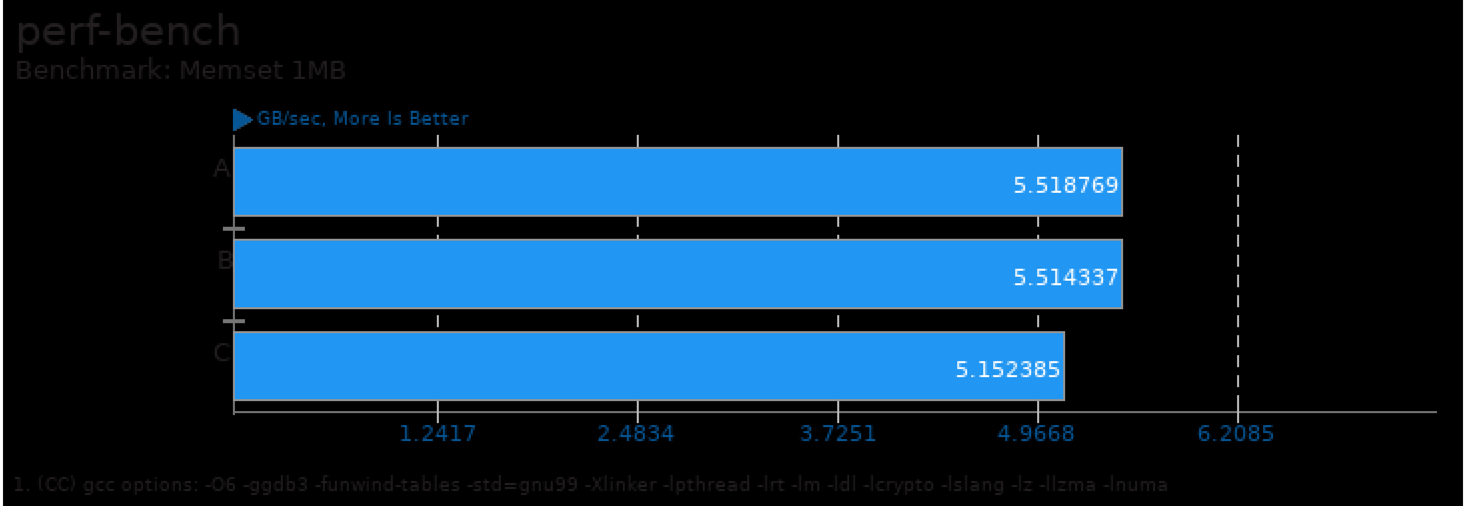
rpi march

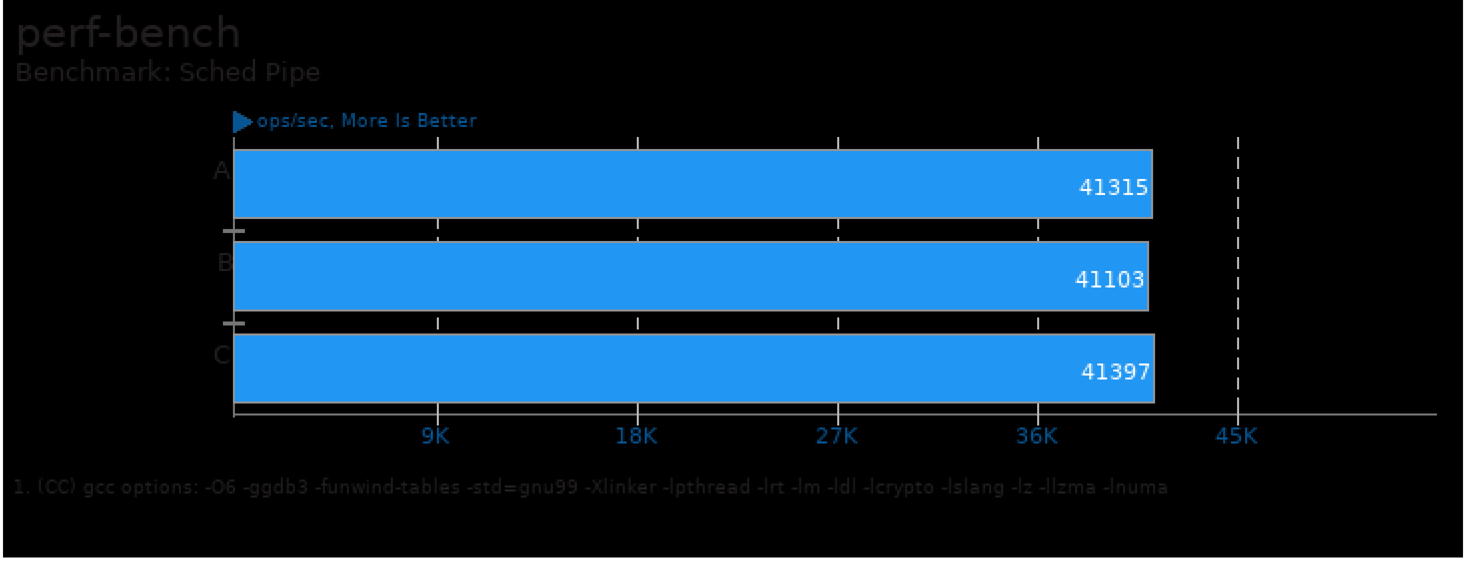

fast-cli
Internet Loaded Latency (Bufferbloat)
ms, Fewer Is Better
A
B
C
15
18
16
4
8
12
16
20


perf-bench
Benchmark: Epoll Wait
ops/sec, More Is Better
A
B
C
126057
124019
123837
30K
60K
90K
120K
150K
1. (CC) gcc options: -O6 -ggdb3 -funwind-tables -std=gnu99 -Xlinker -lpthread -lrt -lm -ldl -lcrypto -lslang -lz -llzma -lnuma

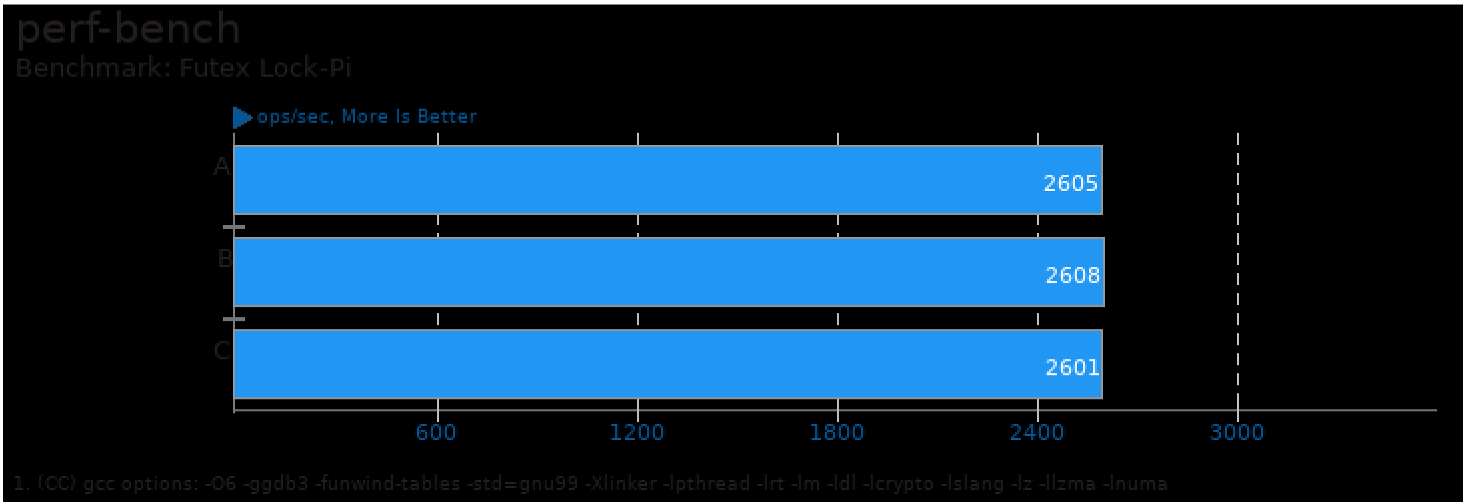

perf-bench
Benchmark: Futex Hash
ops/sec, More Is Better
A
B
C
719709
719077
721382
150K
300K
450K
600K
750K
1. (CC) gcc options: -O6 -ggdb3 -funwind-tables -std=gnu99 -Xlinker -lpthread -lrt -lm -ldl -lcrypto -lslang -lz -llzma -lnuma

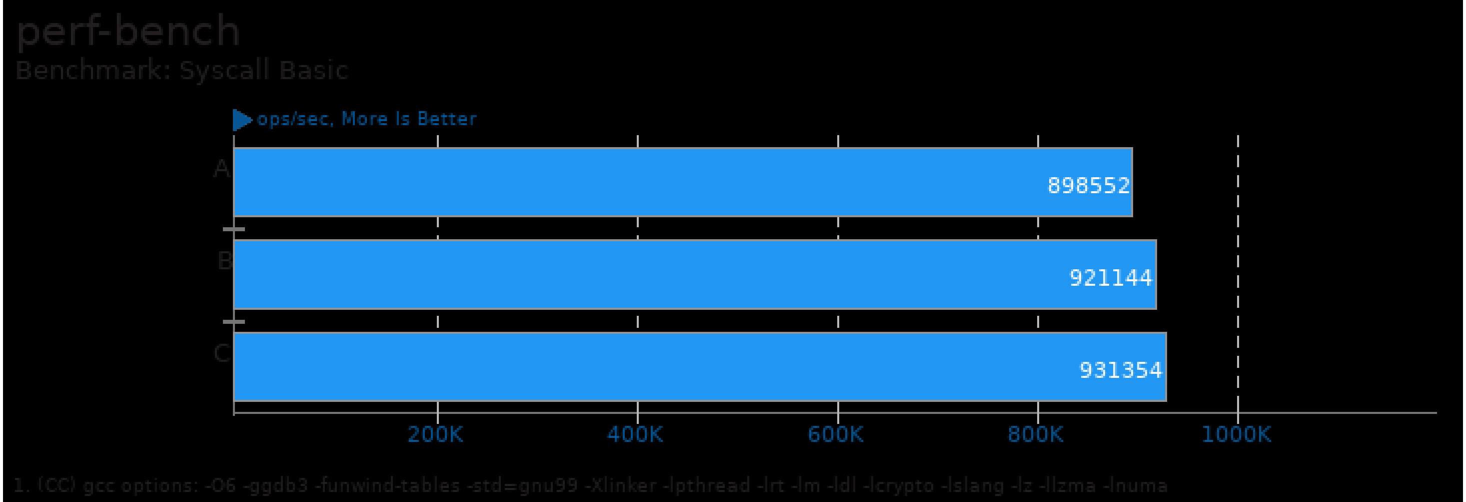

perf-bench
Benchmark: Memcpy 1MB
GB/sec, More Is Better
A
B
C
2.553221
2.594987
2.488623
0.5839
1.1678
1.7517
2.3356
2.9195
1. (CC) gcc options: -O6 -ggdb3 -funwind-tables -std=gnu99 -Xlinker -lpthread -lrt -lm -ldl -lcrypto -lslang -lz -llzma -lnuma

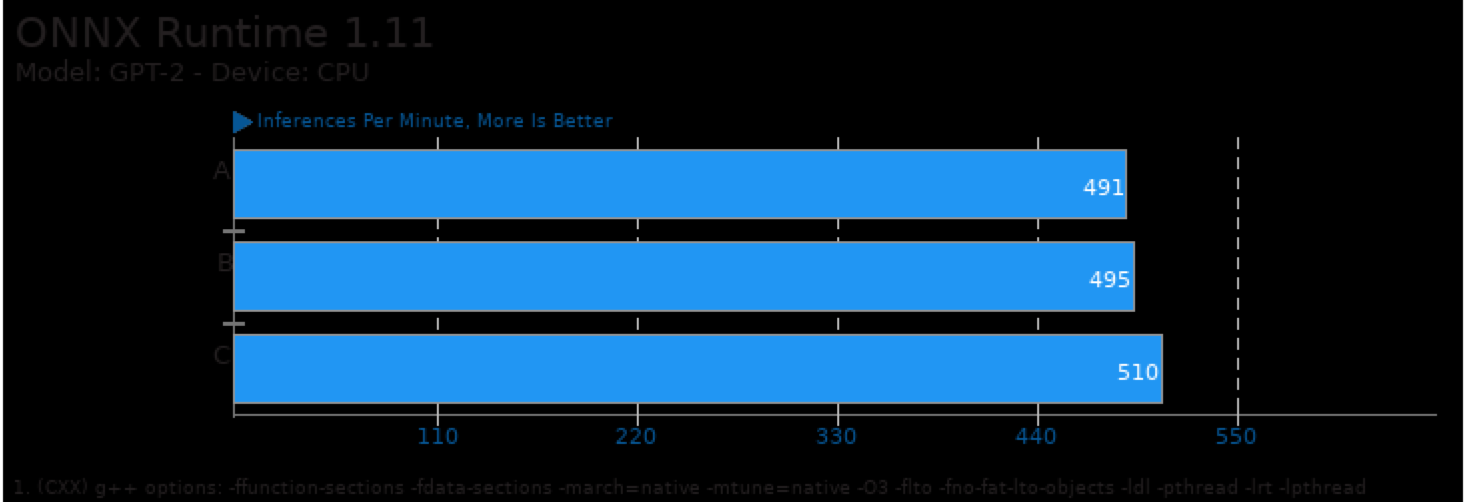

perf-bench
Benchmark: Memset 1MB
GB/sec, More Is Better
A
B
C
5.518769
5.514337
5.152385
1.2417
2.4834
3.7251
4.9668
6.2085
1. (CC) gcc options: -O6 -ggdb3 -funwind-tables -std=gnu99 -Xlinker -lpthread -lrt -lm -ldl -lcrypto -lslang -lz -llzma -lnuma

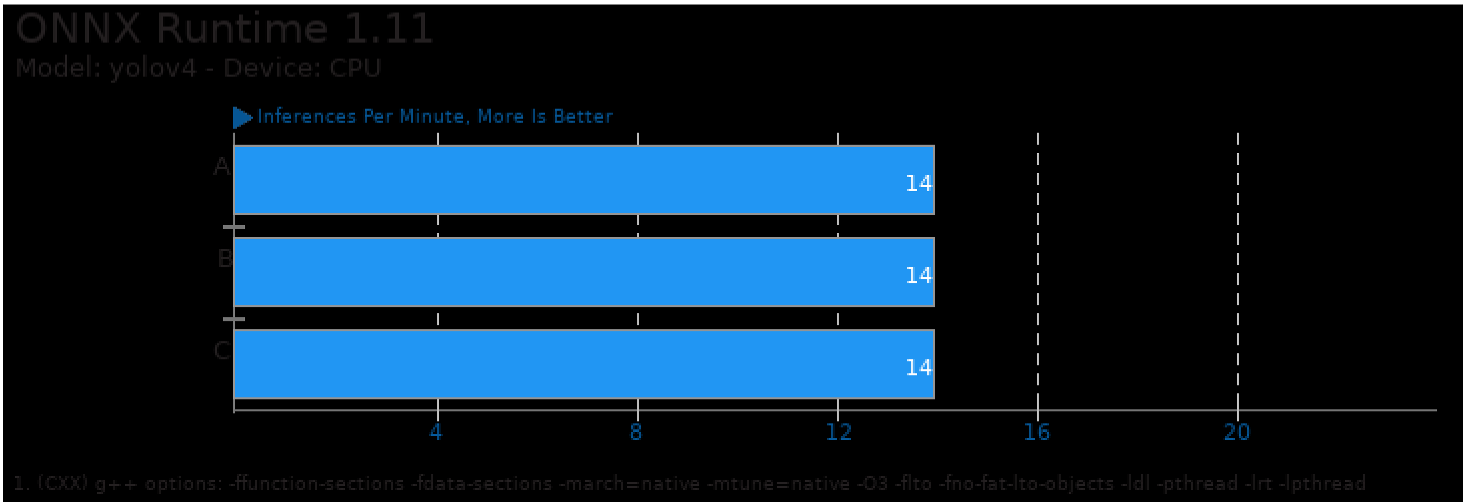

perf-bench
Benchmark: Sched Pipe
ops/sec, More Is Better
A
B
C
41315
41103
41397
9K
18K
27K
36K
45K
1. (CC) gcc options: -O6 -ggdb3 -funwind-tables -std=gnu99 -Xlinker -lpthread -lrt -lm -ldl -lcrypto -lslang -lz -llzma -lnuma

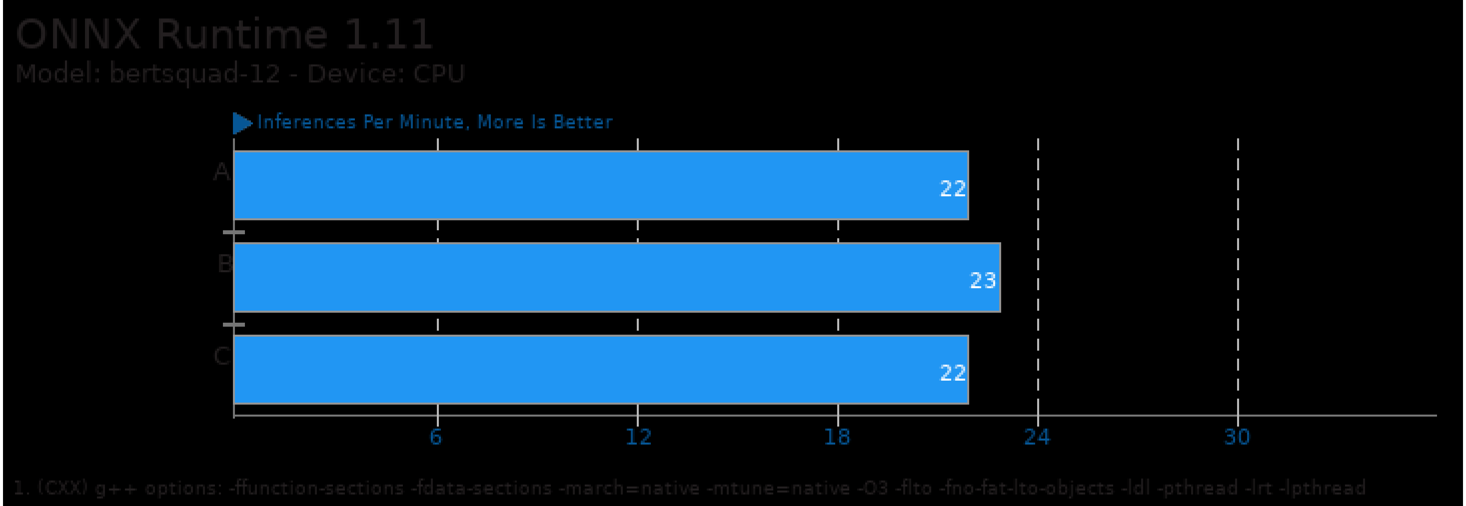
rpi march

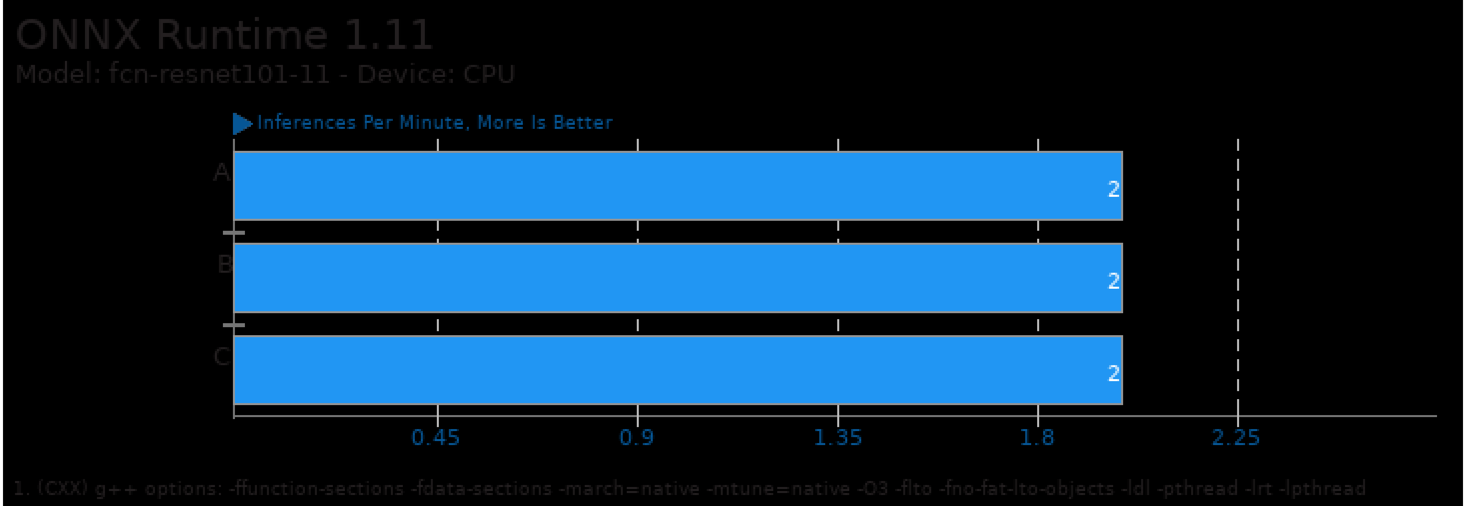

perf-bench
Benchmark: Futex Lock-Pi
ops/sec, More Is Better
A
B
C
2605
2608
2601
600
1200
1800
2400
3000
1. (CC) gcc options: -O6 -ggdb3 -funwind-tables -std=gnu99 -Xlinker -lpthread -lrt -lm -ldl -lcrypto -lslang -lz -llzma -lnuma

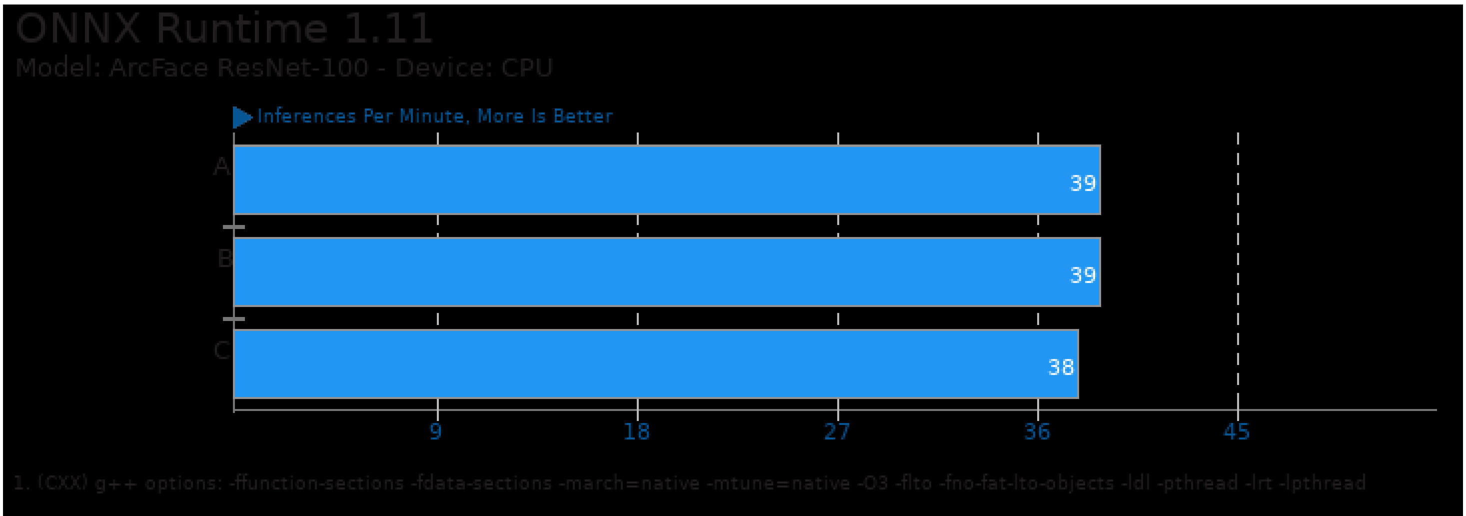

perf-bench
Benchmark: Syscall Basic
ops/sec, More Is Better
A
B
C
898552
921144
931354
200K
400K
600K
800K
1000K
1. (CC) gcc options: -O6 -ggdb3 -funwind-tables -std=gnu99 -Xlinker -lpthread -lrt -lm -ldl -lcrypto -lslang -lz -llzma -lnuma

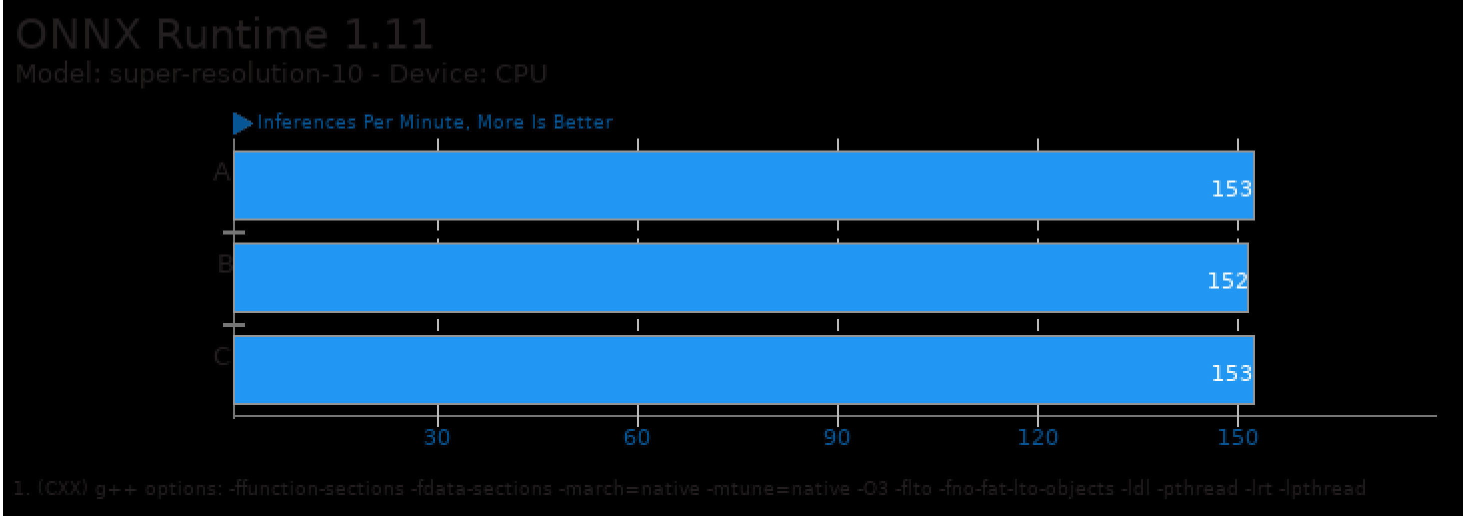

ONNX Runtime 1.11
Model: GPT-2 - Device: CPU
Inferences Per Minute, More Is Better
A
B
C
491
495
510
110
220
330
440
550
1. (CXX) g++ options: -ffunction-sections -fdata-sections -march=native -mtune=native -O3 -flto -fno-fat-lto-objects -ldl -pthread -lrt -lpthread

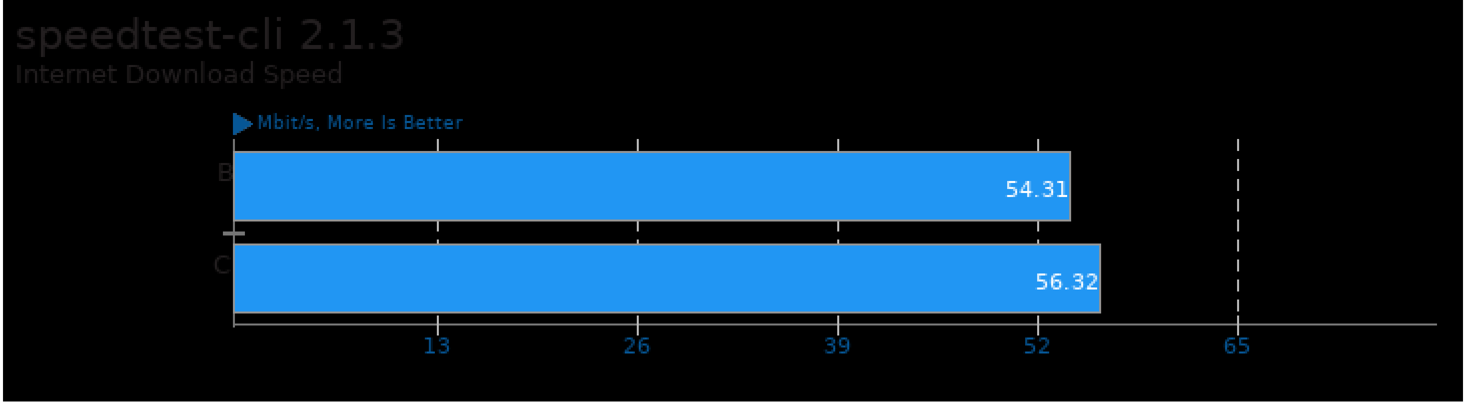

ONNX Runtime 1.11
Model: yolov4 - Device: CPU
Inferences Per Minute, More Is Better
A
14
B
14
C
14
4
8
12
16
20
1. (CXX) g++ options: -ffunction-sections -fdata-sections -march=native -mtune=native -O3 -flto -fno-fat-lto-objects -ldl -pthread -lrt -lpthread

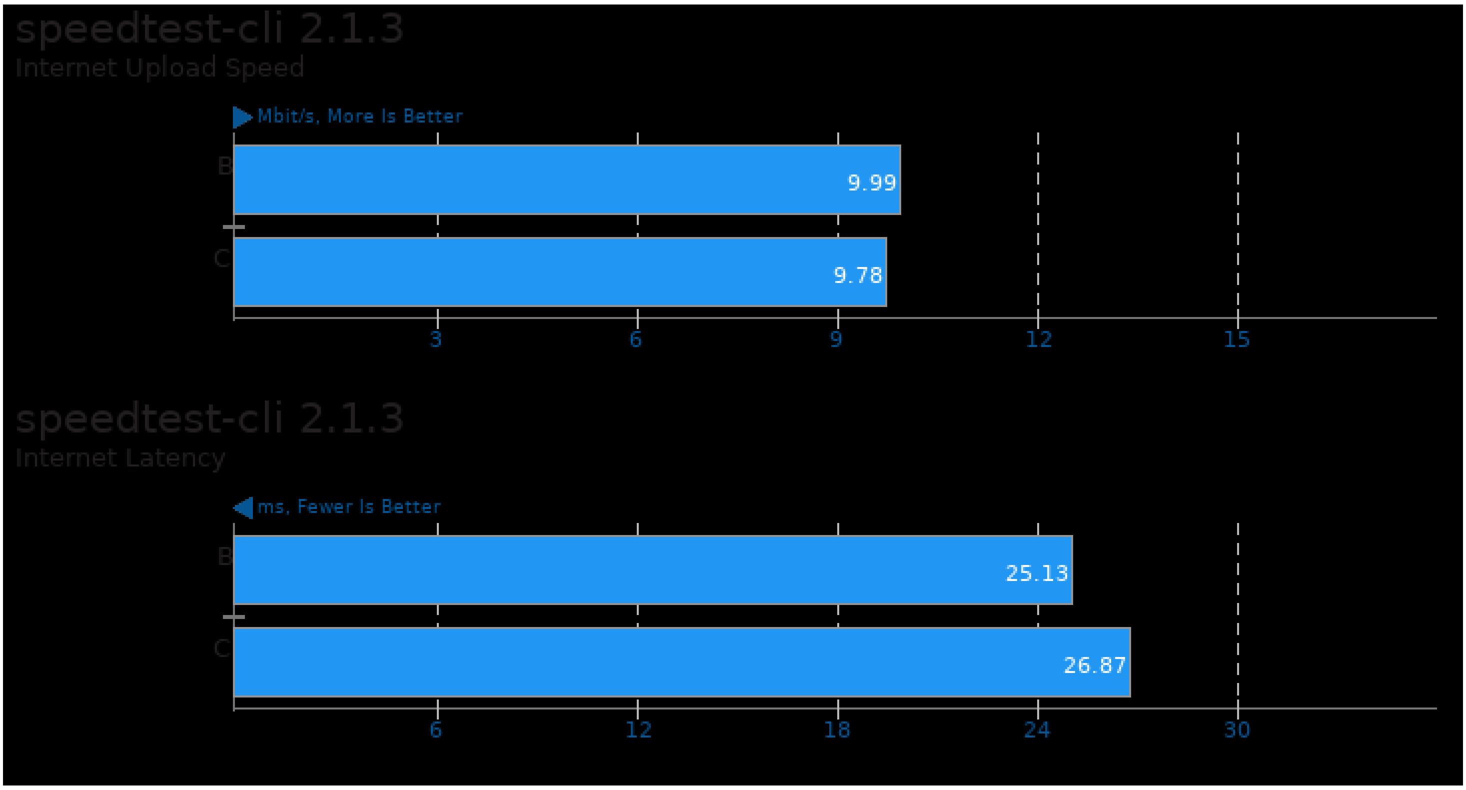

ONNX Runtime 1.11
Model: bertsquad-12 - Device: CPU
Inferences Per Minute, More Is Better
A
22
B
23
C
22
6
12
18
24
30
1. (CXX) g++ options: -ffunction-sections -fdata-sections -march=native -mtune=native -O3 -flto -fno-fat-lto-objects -ldl -pthread -lrt -lpthread


ONNX Runtime 1.11
Model: fcn-resnet101-11 - Device: CPU
Inferences Per Minute, More Is Better
A
2
B
2
C
2
0.45
0.9
1.35
1.8
2.25
1. (CXX) g++ options: -ffunction-sections -fdata-sections -march=native -mtune=native -O3 -flto -fno-fat-lto-objects -ldl -pthread -lrt -lpthread

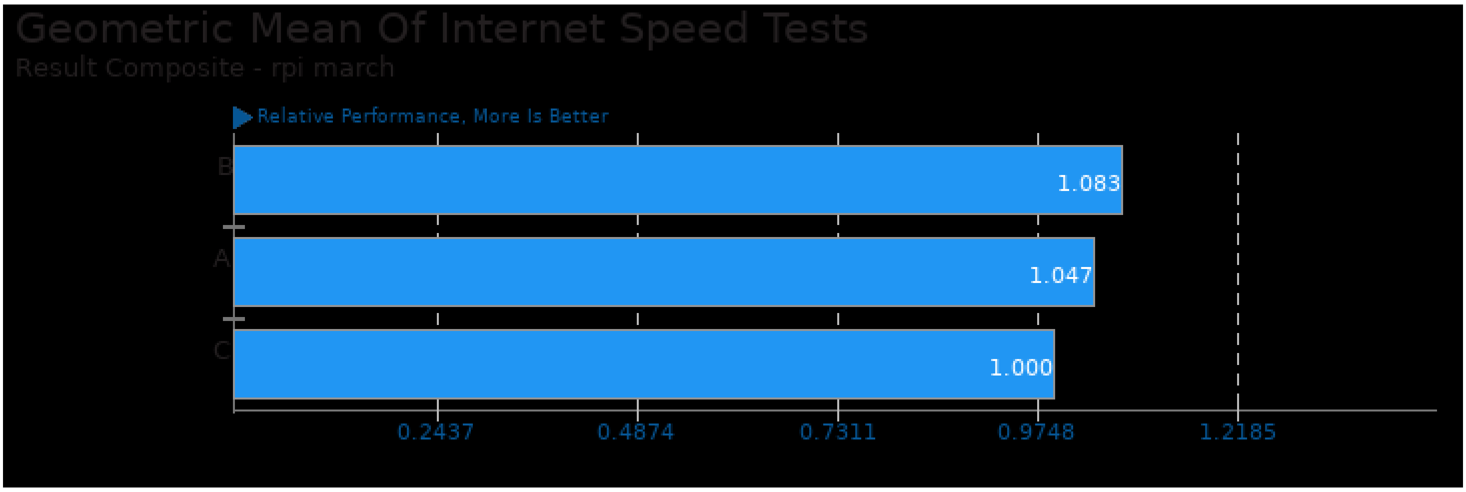

ONNX Runtime 1.11
Model: ArcFace ResNet-100 - Device: CPU
Inferences Per Minute, More Is Better
A
B
C
39
39
38
9
18
27
36
45
1. (CXX) g++ options: -ffunction-sections -fdata-sections -march=native -mtune=native -O3 -flto -fno-fat-lto-objects -ldl -pthread -lrt -lpthread


ONNX Runtime 1.11
Model: super-resolution-10 - Device: CPU
Inferences Per Minute, More Is Better
A
B
C
153
152
153
30
60
90
120
150
1. (CXX) g++ options: -ffunction-sections -fdata-sections -march=native -mtune=native -O3 -flto -fno-fat-lto-objects -ldl -pthread -lrt -lpthread

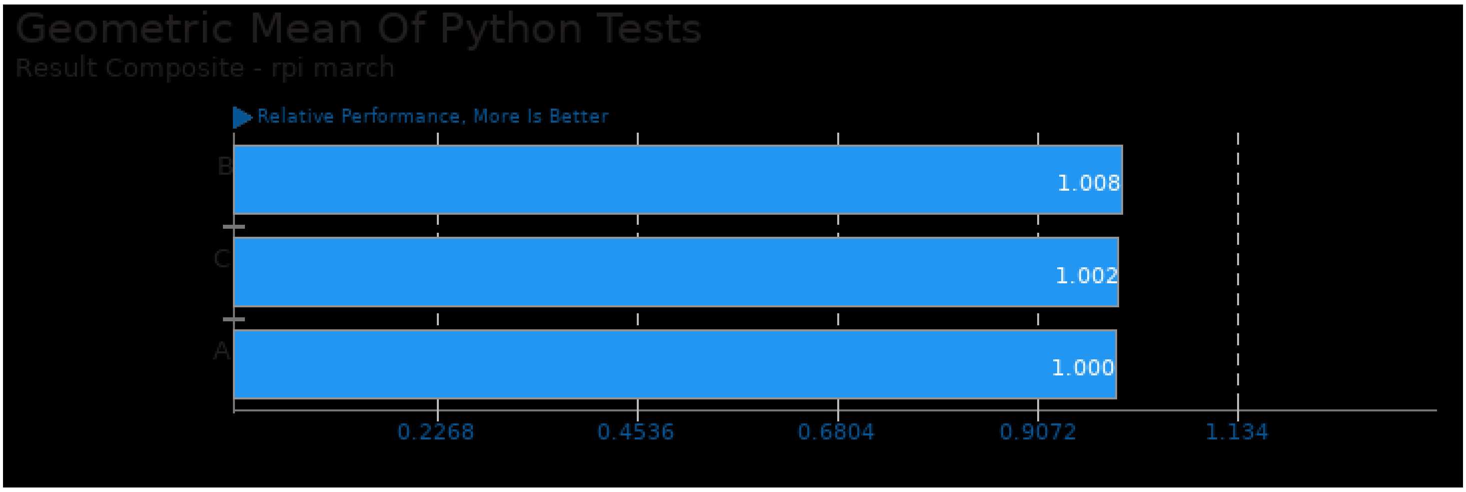

speedtest-cli 2.1.3
Internet Download Speed
Mbit/s, More Is Better
B
C
54.31
56.32
13
26
39
52
65


speedtest-cli 2.1.3
Internet Upload Speed
Mbit/s, More Is Better
B
C
9.99
9.78
3
6
9
12
15
speedtest-cli 2.1.3
Internet Latency
ms, Fewer Is Better
B
C
25.13
26.87
6
12
18
24
30

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



Geometric mean based upon tests: pts/fast-cli and pts/speedtest-cli



Geometric mean based upon tests: pts/speedtest-cli and pts/onnx

This file was automatically generated via the Phoronix Test Suite benchmarking software on Friday, 29 March 2024 03:14.