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OdroidXu4 Global system

ARMv7 Cortex-A15 testing with a Hardkernel ODROID-XU4 Odroid XU4 and exynosdrmfb on Ubuntu 20.04 via the Phoronix Test Suite.

Automated Executive Summary

Gentoo Glibc SD defauly O2 had the most wins, coming in first place for 33% of the tests.

Based on the geometric mean of all complete results, the fastest (Gentoo Glibc SD lto-overlay neon-vfpv4) was 1.279x the speed of the slowest (Gentoo Glibc SD Clang 11.1 c7 vpfpv3-d16). Gentoo Glibc SD defauly O2 was 0.999x the speed of Gentoo Glibc SD lto-overlay neon-vfpv4, Armbian 20.04 Glibc EMMC Default 9.3 was 0.939x the speed of Gentoo Glibc SD defauly O2, Gentoo Glibc SD Clang 11.1 c7 vpfpv3-d16 was 0.834x the speed of Armbian 20.04 Glibc EMMC Default 9.3.

Test Systems:

Gentoo Glibc SD defauly O2

Gentoo Glibc SD lto-overlay neon-vfpv4

Processor: ARMv7 Cortex-A15 @ 1.40GHz (8 Cores), Motherboard: Hardkernel ODROID-XU4 Odroid XU4, Memory: 2048MB, Disk: 16GB SDW16G + 64GB SP64G

OS: Gentoo 2.7, Kernel: 5.4.98+ (armv7l), Display Server: X Server, Compiler: GCC 10.2.0 + Clang 11.1.0 + LLVM 11.1.0, File-System: ext4

Environment Notes: FFLAGS="-march=armv7ve+simd -mfpu=neon-vfpv4 -mfloat-abi=hard -funsafe-math-optimizations -O3 -fgraphite-identity -floop-nest-optimize -fdevirtualize-at-ltrans -fipa-pta -fno-semantic-interposition -flto=8 -fuse-linker-plugin -Wl,-O1 -Wl,--as-needed" CXXFLAGS="-march=armv7ve+simd -mfpu=neon-vfpv4 -mfloat-abi=hard -funsafe-math-optimizations -O3 -fgraphite-identity -floop-nest-optimize -fdevirtualize-at-ltrans -fipa-pta -fno-semantic-interposition -flto=8 -fuse-linker-plugin -Wl,-O1 -Wl,--as-needed" FCFLAGS="-march=armv7ve+simd -mfpu=neon-vfpv4 -mfloat-abi=hard -funsafe-math-optimizations -O3 -fgraphite-identity -floop-nest-optimize -fdevirtualize-at-ltrans -fipa-pta -fno-semantic-interposition -flto=8 -fuse-linker-plugin -Wl,-O1 -Wl,--as-needed" CFLAGS="-march=armv7ve+simd -mfpu=neon-vfpv4 -mfloat-abi=hard -funsafe-math-optimizations -O3 -fgraphite-identity -floop-nest-optimize -fdevirtualize-at-ltrans -fipa-pta -fno-semantic-interposition -flto=8 -fuse-linker-plugin -Wl,-O1 -Wl,--as-needed"
Processor Notes: Scaling Governor: cpufreq-dt performance

Gentoo Glibc SD Clang 11.1 c7 vpfpv3-d16

Processor: ARMv7 Cortex-A15 @ 1.40GHz (8 Cores), Motherboard: Hardkernel ODROID-XU4 Odroid XU4, Memory: 2048MB, Disk: 16GB SDW16G + 64GB SP64G

OS: Gentoo 2.7, Kernel: 5.4.98+ (armv7l), Display Server: X Server, Compiler: Clang 11.1.0 + GCC 10.2.0 + LLVM 11.1.0, File-System: ext4

Environment Notes: FFLAGS="-march=armv7ve+simd -mfpu=neon-vfpv4 -mfloat-abi=hard -funsafe-math-optimizations -O3 -fgraphite-identity -floop-nest-optimize -fdevirtualize-at-ltrans -fipa-pta -fno-semantic-interposition -flto=8 -fuse-linker-plugin -Wl,-O1 -Wl,--as-needed" CXXFLAGS="-march=armv7-a -mcpu=cortex-a7 -mfloat-abi=hard -mfpu=vfpv3-d16" CFLAGS="-march=armv7-a -mcpu=cortex-a7 -mfloat-abi=hard -mfpu=vfpv3-d16"
Compiler Notes: Optimized build; Default target: armv7a-unknown-linux-gnueabihf; Host CPU: (unknown)
Processor Notes: Scaling Governor: cpufreq-dt performance

Armbian 20.04 Glibc EMMC Default 9.3

Processor: ARMv7 Cortex-A15 @ 1.20GHz (8 Cores), Motherboard: Hardkernel ODROID-XU4 Odroid XU4, Memory: 2048MB, Disk: 64GB SP64G + 16GB SDW16G, Graphics: exynosdrmfb

OS: Ubuntu 20.04, Kernel: 5.11.2-odroidxu4 (armv7l), Compiler: GCC 9.3.0, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=arm-linux-gnueabihf --disable-libitm --disable-libquadmath --disable-libquadmath-support --disable-sjlj-exceptions --disable-werror --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,d,fortran,objc,obj-c++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-multilib --enable-nls --enable-objc-gc=auto --enable-plugin --enable-shared --enable-threads=posix --host=arm-linux-gnueabihf --program-prefix=arm-linux-gnueabihf- --target=arm-linux-gnueabihf --with-arch=armv7-a --with-default-libstdcxx-abi=new --with-float=hard --with-fpu=vfpv3-d16 --with-gcc-major-version-only --with-mode=thumb --with-target-system-zlib=auto -v
Processor Notes: Scaling Governor: cpufreq-dt performance

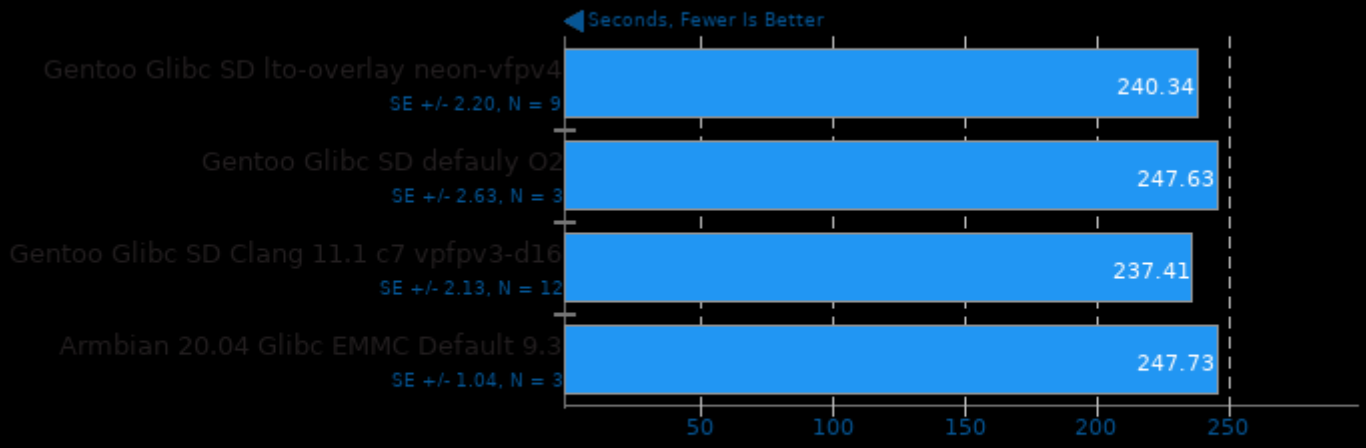
	Gentoo Glibc SD defauly O2	Gentoo Glibc SD lto-overlay neon-vfpv4	Gentoo Glibc SD Clang 11.1 c7 vpfpv3-d16	Armbian 20.04 Glibc EMMC Default 9.3
Git - T.T.C.C.G.C (sec)	247.633	240.336	**237.408**	**247.727**
Normalized	95.87%	98.78%	100%	95.83%
Standard Deviation	1.8%	2.7%	3.1%	0.7%
MariaDB - 1 (Queries/sec)	**537**			**766**
Normalized	70.1%			100%

OdroidXu4 Global system

Standard Deviation	0.6%			2.3%
Parallel BZIP2 Compression - 2.F.C (sec)	**51.491**	**54.953**		54.435
Normalized	100%	93.7%		94.59%
Standard Deviation	1.4%	1.2%		3.3%
Primesieve - 1.P.N.G (sec)	487.024	**486.631**	515.948	**537.777**
Normalized	99.92%	100%	94.32%	90.49%
Standard Deviation	5.3%	5.5%	3.6%	1.6%
Zstd Compression - 8 - Compression Speed (MB/s)	**38.6**	37.6	**18.8**	35.3
Normalized	100%	97.41%	48.7%	91.45%
Standard Deviation	2.4%	0.3%	2.2%	1.8%
Zstd Compression - 8 - D.S (MB/s)		**262.1**	**55.0**	
Normalized		100%	20.98%	
Standard Deviation		154.6%	89.8%	

Git

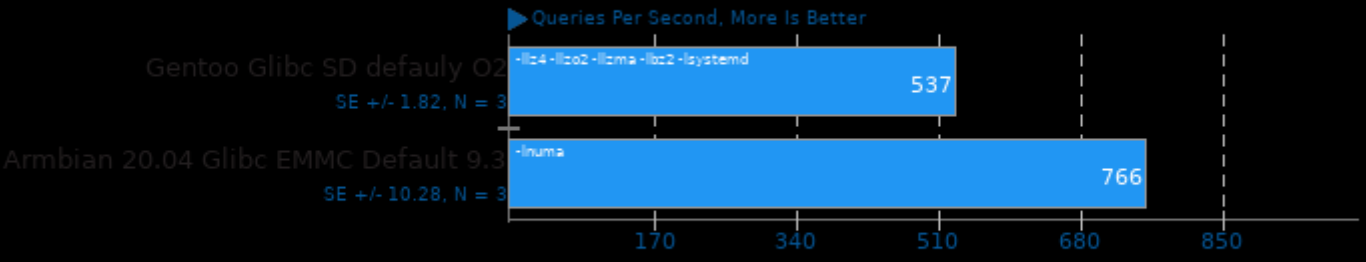
Time To Complete Common Git Commands



1. Gentoo Glibc SD lto-overlay neon-vfpv4: git version 2.31.1
2. Gentoo Glibc SD defauly O2: git version 2.30.1
3. Gentoo Glibc SD Clang 11.1 c7 vpfpv3-d16: git version 2.31.1
4. Armbian 20.04 Glibc EMMC Default 9.3: git version 2.25.1

MariaDB 10.5.2

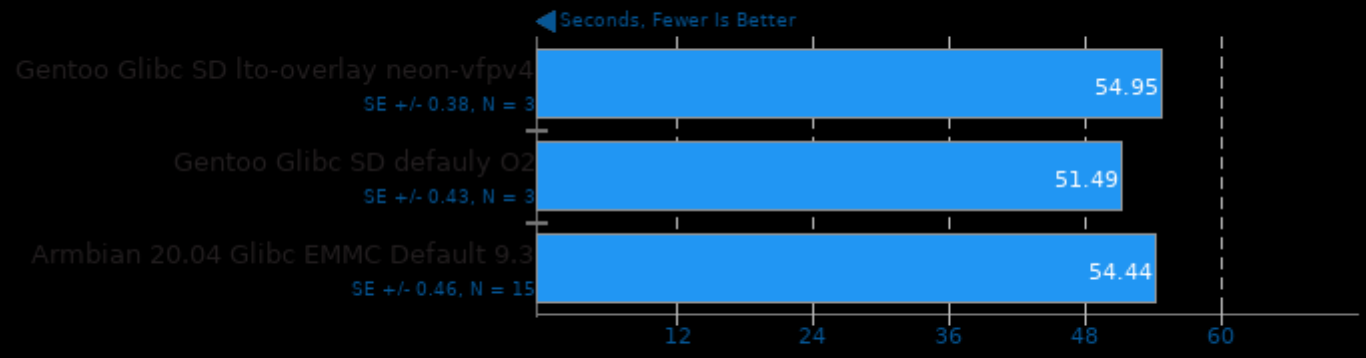
Clients: 1



1. (CXX) g++ options: -pie -fPIC -fstack-protector -O2 -lpthread -laio -lpcre2-8 -lcrypt -lz -lm -lssl -lcrypto -ldl

Parallel BZIP2 Compression 1.1.12

256MB File Compression

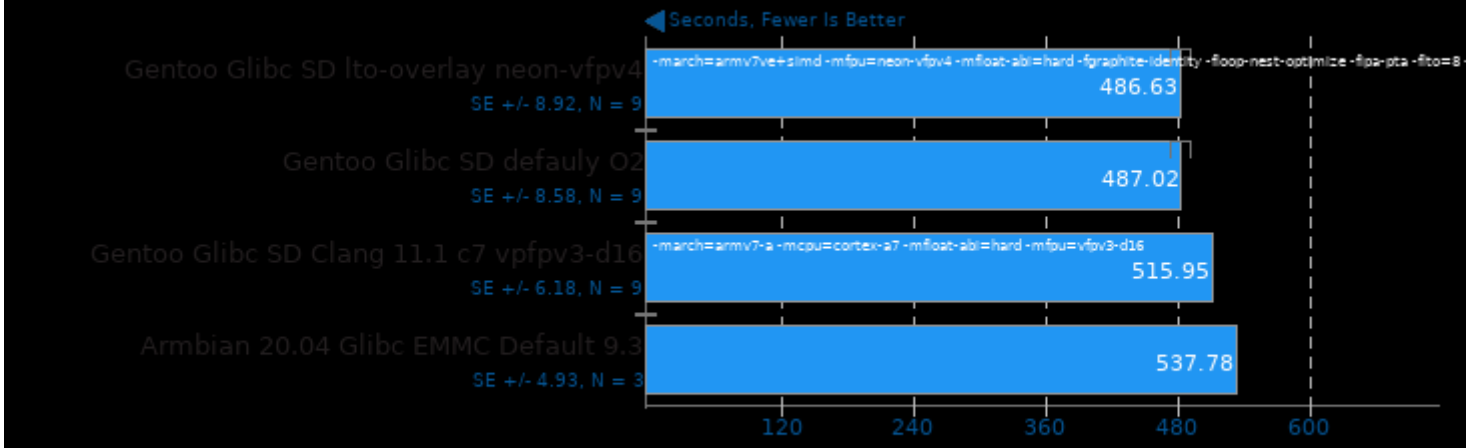


1. (CXX) g++ options: -O2 -pthread -lbz2 -lpthread

OdroidXu4 Global system

Primesieve 7.4

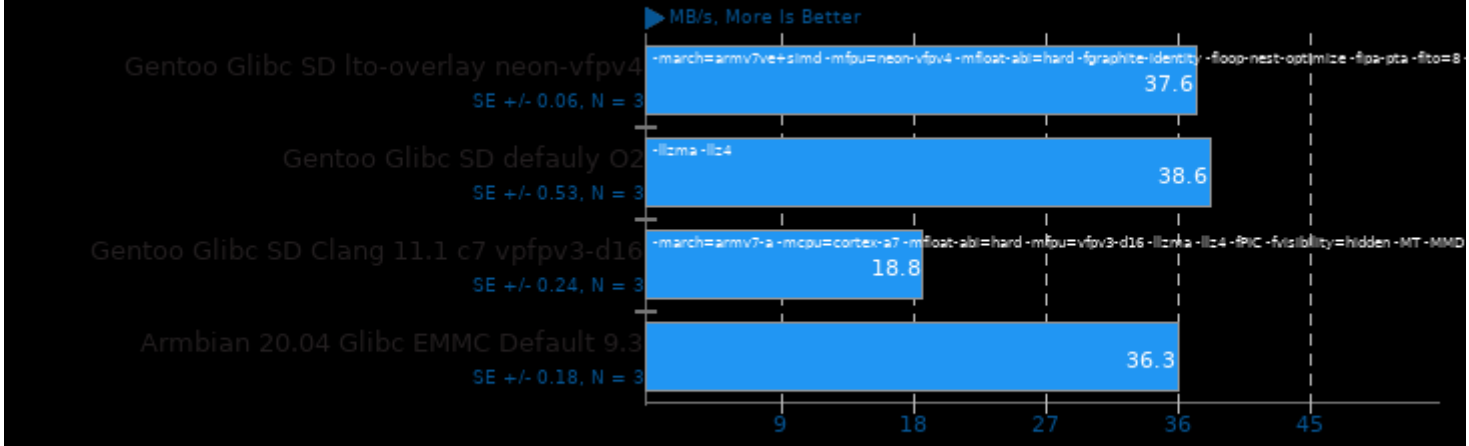
1e12 Prime Number Generation



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

Zstd Compression 1.4.9

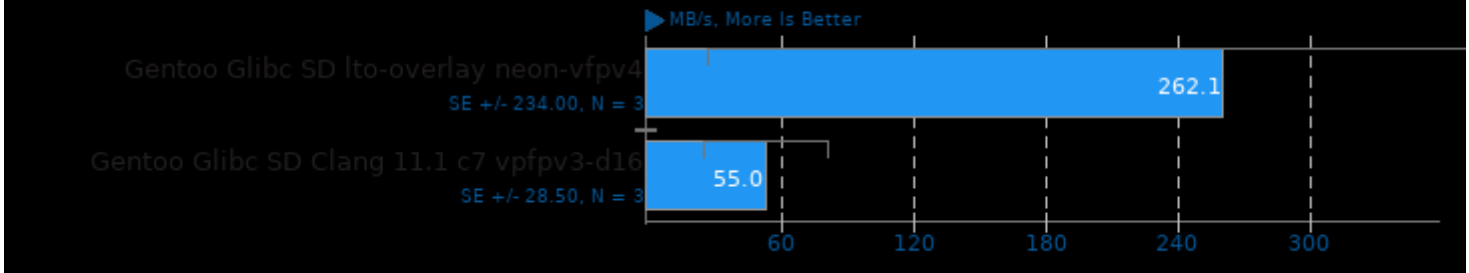
Compression Level: 8 - Compression Speed



1. (CC) gcc options: -O3 -pthread -lz

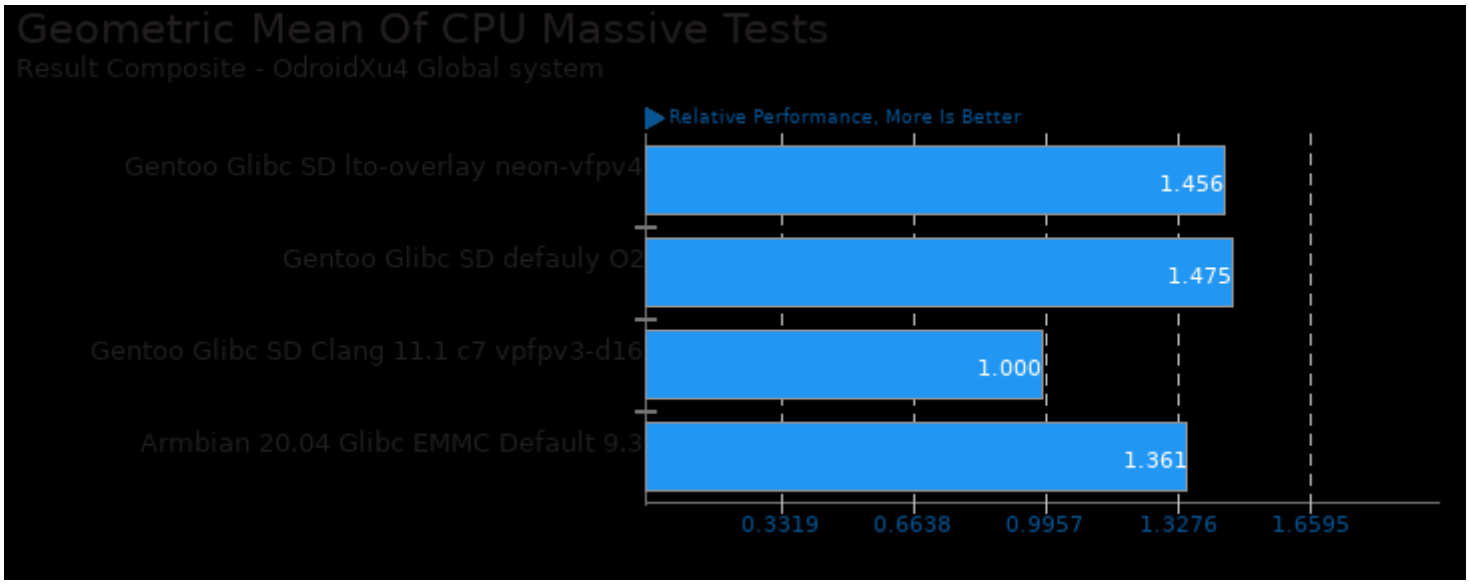
Zstd Compression 1.4.9

Compression Level: 8 - Decompression Speed

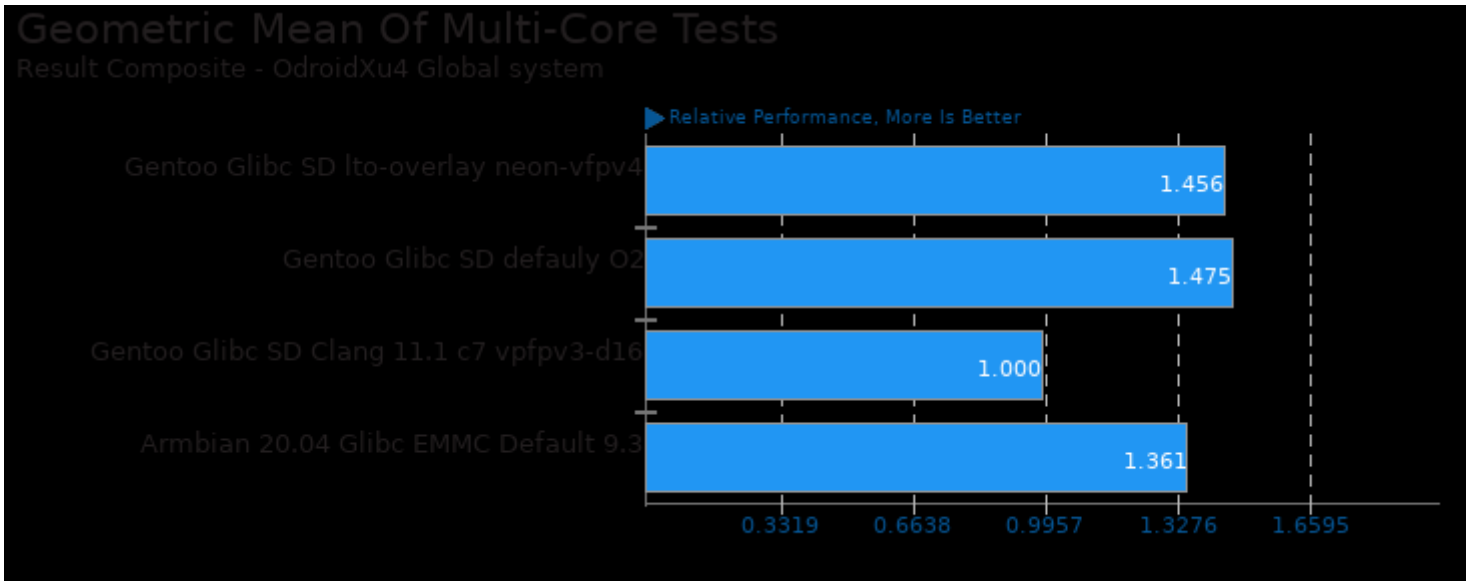


OdroidXu4 Global system

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

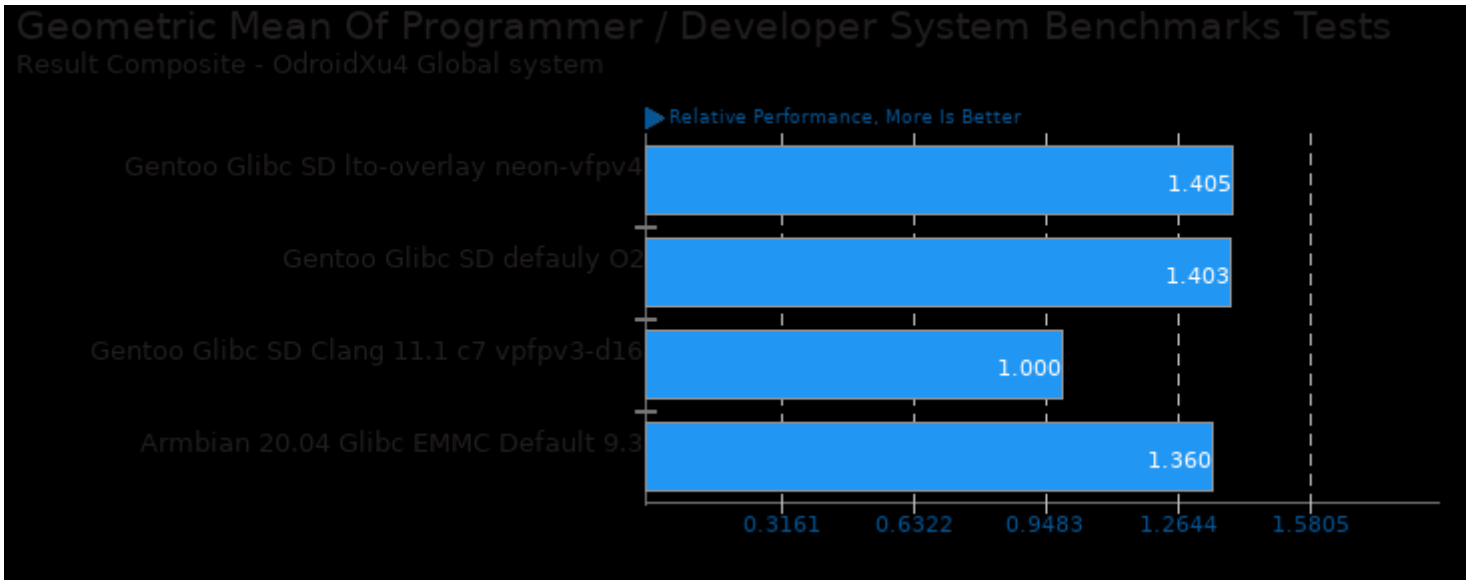


Geometric mean based upon tests: pts/mysqlslap, pts/compress-pbzip2, pts/compress-zstd and pts/primesieve



Geometric mean based upon tests: pts/primesieve, pts/mysqlslap, pts/compress-pbzip2 and pts/compress-zstd

OdroidXu4 Global system



Geometric mean based upon tests: pts/git and pts/compress-zstd

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