

www.phoronix-test-suite.com

Raspberry Pi vs Orange Pi vs Banana Pi 2016-03 Showdown by LoveRPi

Ubuntu 16.04.2 with Linux 4.10 on NanoPi NEO 2

Automated Executive Summary

MeUbuntu 14.04.3 had the most wins, coming in first place for 57% of the tests.

Test Systems:

Orange Pi One on Armbian

Processor: ARMv7 rev 5 @ 1.20GHz (4 Cores), Motherboard: sun8i, Memory: 494MB, Disk: 32GB 00000

OS: Debian 8.3, Kernel: 3.4.110-sun8i (armv7l), Compiler: GCC 4.9.2, File-System: ext4, Screen Resolution: 1280x1440

Compiler Notes: --build=arm-linux-gnueabihf --disable-browser-plugin --disable-libitm --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-gnueabihf --target=arm-linux-gnueabihf --with-arch-directory=arm --with-arch=armv7-a --with-float=hard --with-fpu=vfpv3-d16 --with-mode=thumb -v
Processor Notes: Scaling Governor: cpufreq-sunxi interactive

Orange Pi PC on Armbian

Processor: ARMv7 rev 5 @ 1.30GHz (4 Cores), Motherboard: sun8i, Memory: 1024MB, Disk: 32GB 00000

OS: Debian 8.3, Kernel: 3.4.110-sun8i (armv7l), Compiler: GCC 4.9.2, File-System: ext4, Screen Resolution: 1280x1440

Compiler Notes: --build=arm-linux-gnueabihf --disable-browser-plugin --disable-libitm --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-gnueabihf --target=arm-linux-gnueabihf --with-arch-directory=arm --with-arch=armv7-a --with-float=hard --with-fpu=vfpv3-d16 --with-mode=thumb -v
Processor Notes: Scaling Governor: cpufreq-sunxi interactive

Orange Pi Plus on Armbian

Processor: ARMv7 rev 5 @ 1.30GHz (4 Cores), Motherboard: sun8i, Memory: 1024MB, Disk: 32GB 00000 + 8GB M8G1GC

OS: Debian 8.3, Kernel: 3.4.110-sun8i (armv7l), Compiler: GCC 4.9.2, File-System: ext4, Screen Resolution: 1280x1440

Compiler Notes: --build=arm-linux-gnueabihf --disable-browser-plugin --disable-libitm --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-gnueabihf --target=arm-linux-gnueabihf --with-arch-directory=arm --with-arch=armv7-a --with-float=hard --with-fpu=vfpv3-d16 --with-mode=thumb -v
Processor Notes: Scaling Governor: cpufreq-sunxi interactive

Raspberry Pi 2 on Raspbian

Processor: ARMv7 rev 5 @ 0.90GHz (4 Cores), Motherboard: BCM2709 Raspberry Pi 2 Model B Rev 1.1, Memory: 925MB, Disk: 8GB SD

OS: Raspbian 8.0, Kernel: 4.1.13-v7+ (armv7l), Desktop: LXDE 0.7.2, Display Server: X Server 1.16.4, Compiler: GCC 4.9.2, File-System: ext4, Screen Resolution: 1824x984

Compiler Notes: --build=arm-linux-gnueabihf --disable-browser-plugin --disable-libitm --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-gnueabihf --target=arm-linux-gnueabihf --with-arch-directory=arm --with-arch=armv6 --with-float=hard --with-fpu=vfp -v
Processor Notes: Scaling Governor: BCM2835 Freq ondemand

Raspberry Pi 3 on Raspbian

Processor: ARMv7 rev 4 @ 1.20GHz (4 Cores), Motherboard: BCM2709 Raspberry Pi 3 Model B Rev 1.2, Memory: 925MB, Disk: 63GB 00000

OS: Raspbian GNU/Linux 8, Kernel: 4.1.20-v7+ (armv7l), Compiler: GCC 4.9.2, File-System: ext4, Screen Resolution: 1824x984

Compiler Notes: --build=arm-linux-gnueabihf --disable-browser-plugin --disable-libitm --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-gnueabihf --target=arm-linux-gnueabihf --with-arch-directory=arm --with-arch=armv6 --with-float=hard --with-fpu=vfp -v
Processor Notes: Scaling Governor: BCM2835 Freq ondemand

Banana Pi M2 by LoveRPi

Processor: ARMv7 rev 3 @ 1.01GHz (4 Cores), Motherboard: Allwinner sun6i (A31) Family Sinovoip BPI-M2, Memory: 1024MB, Disk: 129GB 00000

OS: Ubuntu 14.04, Kernel: 4.4.1-sunxi (armv7l), Compiler: GCC 4.8.4, File-System: ext4

Compiler Notes: --build=arm-linux-gnueabihf --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-gnueabihf --target=arm-linux-gnueabihf --with-arch-directory=arm --with-arch=armv7-a --with-float=hard --with-fpu=vfpv3-d16 --with-mode=thumb -v
Processor Notes: Scaling Governor: cpufreq-dt ondemand

Banana Pi M3 by LoveRPi

Processor: ARMv7 rev 5 @ 1.80GHz (8 Cores), Motherboard: sun8i, Memory: 2048MB, Disk: 8GB M8G1GC + 129GB TO

OS: Ubuntu 15.10, Kernel: 3.4.39-BPI-M3-aufs (armv7l), Compiler: GCC 5.2.1 20151010, File-System: aufs, Screen Resolution: 1920x2160

Compiler Notes: --build=arm-linux-gnueabihf --disable-browser-plugin --disable-libitm --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,ada,c++,java,go,d,fortran,objc,obj-c++ --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-multilib --enable-nls --enable-objc-gc --enable-plugin --enable-shared --enable-threads=posix --host=arm-linux-gnueabihf --target=arm-linux-gnueabihf --with-arch-directory=arm --with-arch=armv7-a --with-default-libstdcxx-abi=new --with-float=hard --with-fpu=vfpv3-d16 --with-mode=thumb -v
Processor Notes: Scaling Governor: sunxi-iks interactive

Banana Pi M2+ SinoVoip

Processor: ARMv7 rev 5 @ 1.20GHz (1 Core), Motherboard: sun8i, Memory: 745MB, Disk: 64GB 00000 + 8GB 8WMB3R

OS: Debian 8.4, Kernel: 3.4.111-sun8i (armv7l), Desktop: Xfce, Display Driver: modesetting 0.9.0, Compiler: GCC 4.9.2, File-System: ext4, Screen Resolution: 1280x720

Compiler Notes: --build=arm-linux-gnueabihf --disable-browser-plugin --disable-libitm --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-gnueabihf --target=arm-linux-gnueabihf --with-arch-directory=arm --with-arch=armv7-a --with-float=hard --with-fpu=vfpv3-d16 --with-mode=thumb -v
Processor Notes: Scaling Governor: cpufreq-sunxi interactive

Banana Pi M2+ on Armbian

Processor: ARMv7 rev 5 @ 1.20GHz (4 Cores), Motherboard: sun8i, Memory: 745MB, Disk: 64GB 00000 + 8GB 8WMB3R

OS: Debian 8.4, Kernel: 3.4.111-sun8i (armv7l), Desktop: Xfce, Display Driver: modesetting 0.9.0, Compiler: GCC 4.9.2, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=arm-linux-gnueabihf --disable-browser-plugin --disable-libitm --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-gnueabihf --target=arm-linux-gnueabihf --with-arch-directory=arm --with-arch=armv7-a --with-float=hard --with-fpu=vfpv3-d16 --with-mode=thumb -v
Processor Notes: Scaling Governor: cpufreq-sunxi interactive

Banana Pi M2+ Raspbian 8.0

Processor: ARMv7 rev 5 @ 1.20GHz (3 Cores), Motherboard: sun8i, Memory: 1024MB, Disk: 8GB SU08G + 8GB 8WMB3R

OS: Raspbian 8.0, Kernel: 3.4.39-02-lobo (armv7l), Desktop: LXDE, Compiler: GCC 4.9.2, File-System: ext4, Screen Resolution: 1280x720

Compiler Notes: --build=arm-linux-gnueabihf --disable-browser-plugin --disable-libitm --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-gnueabihf --target=arm-linux-gnueabihf --with-arch-directory=arm --with-arch=armv6 --with-float=hard --with-fpu=vfp -v
Processor Notes: Scaling Governor: cpufreq-sunxi ondemand

MiQi on Lubuntu 14.04

Processor: ARMv7 rev 1 @ 1.80GHz (4 Cores), Motherboard: Rockchip RK3288 (Flattened Device Tree), Memory: 2048MB, Disk: 31GB BIWIN

OS: Ubuntu 14.04, Kernel: 3.10.0 (armv7l), Desktop: LXDE, Compiler: GCC 4.8.4, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=arm-linux-gnueabihf --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-gnueabihf --target=arm-linux-gnueabihf --with-arch-directory=arm --with-arch=armv7-a --with-float=hard --with-fpu=vfpv3-d16 --with-mode=thumb -v
Processor Notes: Scaling Governor: rockchip interactive

DragonBoard 410c on Debian RPB 16.03

Processor: Unknown @ 1.21GHz (4 Cores), Memory: 833MB, Disk: 8GB DS2008, Monitor: TX-NR636

OS: Debian 8.3, Kernel: 4.4.0-104-arm64 (aarch64), Desktop: LXDE, Compiler: GCC 4.9.2, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=aarch64-linux-gnu --disable-browser-plugin --disable-libquadmath --disable-libsanitizer --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-plugin --enable-shared --enable-threads=posix --host=aarch64-linux-gnu --target=aarch64-linux-gnu --with-arch-directory=arm64 -v
Processor Notes: Scaling Governor: cpufreq-dt ondemand

MeUbuntu 14.04.3

Processor: Intel Atom Z3735F @ 1.83GHz (4 Cores), Motherboard: Mini PC v2.80, Chipset: Intel ValleyView SSA-CUnit, Memory: 2048MB, Disk: 31GB NCard, Graphics: Intel ValleyView Gen7 (646MHz), Monitor: TX-NR636

OS: Ubuntu 14.04, Kernel: 3.16.0-45-generic (x86_64), Desktop: Unity 7.2.6, Display Driver: intel 2.99.914, Compiler: GCC 4.8.4, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=x86_64-linux-gnu --disable-browser-plugin --disable-libmudflap --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-nls --enable-objc-gc --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-arch-directory=amd64 --with-multilib-list=m32,m64,mx32 --with-tune=generic -v
Processor Notes: Scaling Governor: intel_pstate powersave

NanoPi NEO 512MB No Heatsink

Processor: ARMv7 rev 5 @ 0.82GHz (4 Cores), Motherboard: sun8i, Memory: 495MB, Disk: 8GB SL08G

OS: Ubuntu 15.10, Kernel: 3.4.39-h3 (armv7l), Compiler: GCC 5.2.1 20151010, File-System: ext4, Screen Resolution: 1280x1440

Compiler Notes: --build=arm-linux-gnueabihf --disable-browser-plugin --disable-libitm --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,ada,c++,java,go,d,fortran,objc,obj-c++ --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-multilib --enable-nls --enable-objc-gc --enable-plugin --enable-shared --enable-threads=posix --host=arm-linux-gnueabihf --target=arm-linux-gnueabihf --with-arch-directory=arm --with-arch=armv7-a --with-default-libstdcxx-abi=new --with-float=hard --with-fpu=vfpv3-d16 --with-mode=thumb -v
Processor Notes: Scaling Governor: cpufreq-sunxi interactive

NanoPi NEO 512MB Heatsink

NanoPi NEO 512MB Heatsink 2

NanoPi NEO 512MB Heatsink2

Processor: ARMv7 rev 5 @ 1.20GHz (4 Cores), Motherboard: sun8i, Memory: 495MB, Disk: 8GB SL08G

OS: Ubuntu 15.10, Kernel: 3.4.39-h3 (armv7l), Compiler: GCC 5.2.1 20151010, File-System: ext4, Screen Resolution: 1280x1440

Compiler Notes: --build=arm-linux-gnueabihf --disable-browser-plugin --disable-libitm --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,ada,c++,java,go,d,fortran,objc,obj-c++ --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-multilib --enable-nls --enable-objc-gc --enable-plugin --enable-shared --enable-threads=posix --host=arm-linux-gnueabihf --target=arm-linux-gnueabihf --with-arch-directory=arm --with-arch=armv7-a --with-default-libstdcxx-abi=new --with-float=hard --with-fpu=vfpv3-d16 --with-mode=thumb -v
Processor Notes: Scaling Governor: cpufreq-sunxi interactive

NanoPi NEO 2 FA Ubuntu 16.04.2

Processor: AArch64 rev 4 @ 0.82GHz (4 Cores), Motherboard: sun50iw2, Memory: 468MB, Disk: 8GB SL08G

OS: Ubuntu 16.04, Kernel: 3.10.65 (aarch64), Compiler: GCC 5.4.0 20160609, File-System: ext4, Screen Resolution: 1280x1440

Compiler Notes: --build=aarch64-linux-gnu --disable-browser-plugin --disable-libquadmath --disable-werror --enable-checking=release --enable-clocale=gnu --enable-fix-cortex-a53-843419 --enable-gnu-unique-object --enable-gtk-cairo --enable-java-awt=gtk --enable-java-home --enable-languages=c,ada,c++,java,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 --target=aarch64-linux-gnu --with-arch-directory=aarch64 --with-default-libstdcxx-abi=new -v
Processor Notes: Scaling Governor: cpufreq-sunxi interactive

NanoPi NEO 2 Armbian Ubuntu 16.04.2

Processor: AArch64 rev 4 (4 Cores), Motherboard: Xunlong Orange Pi PC 2, Memory: 483MB, Disk: 8GB SL08G

OS: Ubuntu 16.04, Kernel: 4.10.0-sun50iw2 (aarch64), Compiler: GCC 5.4.0 20160609, File-System: ext4

Compiler Notes: --build=aarch64-linux-gnu --disable-browser-plugin --disable-libquadmath --disable-werror --enable-checking=release --enable-clocale=gnu --enable-fix-cortex-a53-843419 --enable-gnu-unique-object --enable-gtk-cairo --enable-java-awt=gtk --enable-java-home --enable-languages=c,ada,c++,java,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 --target=aarch64-linux-gnu --with-arch-directory=aarch64 --with-default-libstdcxx-abi=new -v

Raspberry Pi vs Orange Pi vs Banana Pi 2016-03 Showdown by LoveRPi

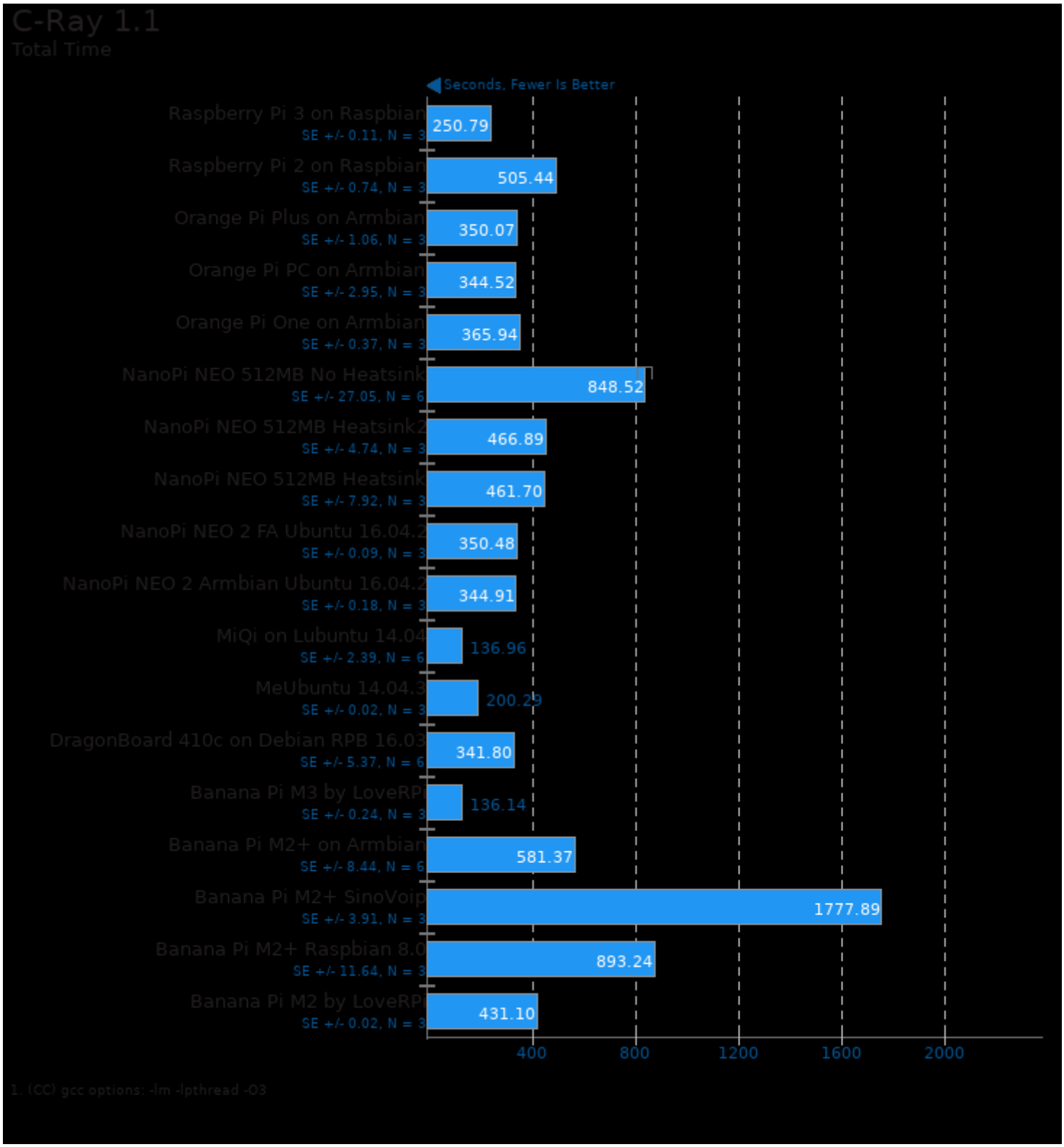
	Orange Pi One on Armbian	Orange Pi PC on Armbian	Orange Pi Plus on Armbian	Raspberry Pi 2 on Raspbian	Raspberry Pi 3 on Raspbian	Banana Pi M2 by LoveRPi	Banana Pi M3 by LoveRPi	Banana Pi M2+ Sino Voip	Banana Pi M2+ on Armbian	Banana Pi M2+ Raspbian 8.0	MiQi on Lubuntu 14.04	Dragon Board 410c on Debian RPB 16.0	MeUbuntu 14.04.3	NanoPi NEO 512MB No Heatsink	NanoPi NEO 512MB Heatsink	NanoPi NEO 512MB Heatsink 2	NanoPi NEO 512MB Heatsink 2	NanoPi NEO2 FA Ubuntu 16.04.2	NanoPi NEO2 Armbian Ubuntu 16.04.2
C-Ray - Total Time (sec)	365.94	344.52	350.07	505.44	250.79	431.10	**136.14**	**1778**	581.37	893.24	136.96	341.80	200.29	848.52	461.70		466.89	350.48	344.91
Normalized	37.2%	39.52%	38.89%	26.93%	54.28%	31.58%	100%	7.66%	23.42%	15.24%	99.4%	39.83%	67.97%	16.04%	29.49%		29.16%	38.84%	39.47%
Standard Deviation	0.2%	1.5%	0.5%	0.3%	0.1%	0%	0.3%	0.4%	3.6%	2.3%	4.3%	3.8%	0%	7.8%	3%		1.8%	0%	0.1%
FLAC Audio Encoding - WAV To FLAC (sec)	229.54	228.09	231.38	314.58	237.30	288.16		279.95	230.20	282.60	81.96	198.14	**36.43**	**325.72**	231.39		230.99	236.51	290.91
Normalized	15.87%	15.97%	15.74%	11.58%	15.35%	12.64%		13.01%	15.83%	12.89%	44.45%	18.39%	100%	11.18%	15.74%		15.77%	15.4%	12.52%
Standard Deviation	0.2%	1%	1.4%	0.9%	1.6%	0.1%		0.2%	0.3%	0.3%	0.9%	3.3%	7.7%	1.8%	0.3%		0.1%	0.2%	0%
Himeno Benchmark - P.P.S (MFLOPS)	64.38	68.23	68.01	33.29	60.28	61.26	31.80	56.83	64.35	63.04	89.84	66.91	**443.65**	41.32	15.34		**15.31**	52.67	49.18
Normalized	14.51%	15.38%	15.33%	7.5%	13.59%	13.81%	7.17%	12.81%	14.5%	14.21%	20.25%	15.08%	100%	9.31%	3.46%		3.45%	11.87%	11.09%
Standard Deviation	0.4%	0.8%	0.1%	2.4%	1.1%	0.2%	2.7%	1.4%	1%	1.5%	3%	1.2%	0.9%	0.2%	0.5%		1.8%	8.2%	0.7%
Himeno Benchmark - Performance / Cost - P.P.S (MFLOPS/Dollar)	**6.44**	4.55	1.74		1.72	1.36	**0.40**												
Normalized	100%	70.65%	27.02%		26.71%	21.12%	6.21%												

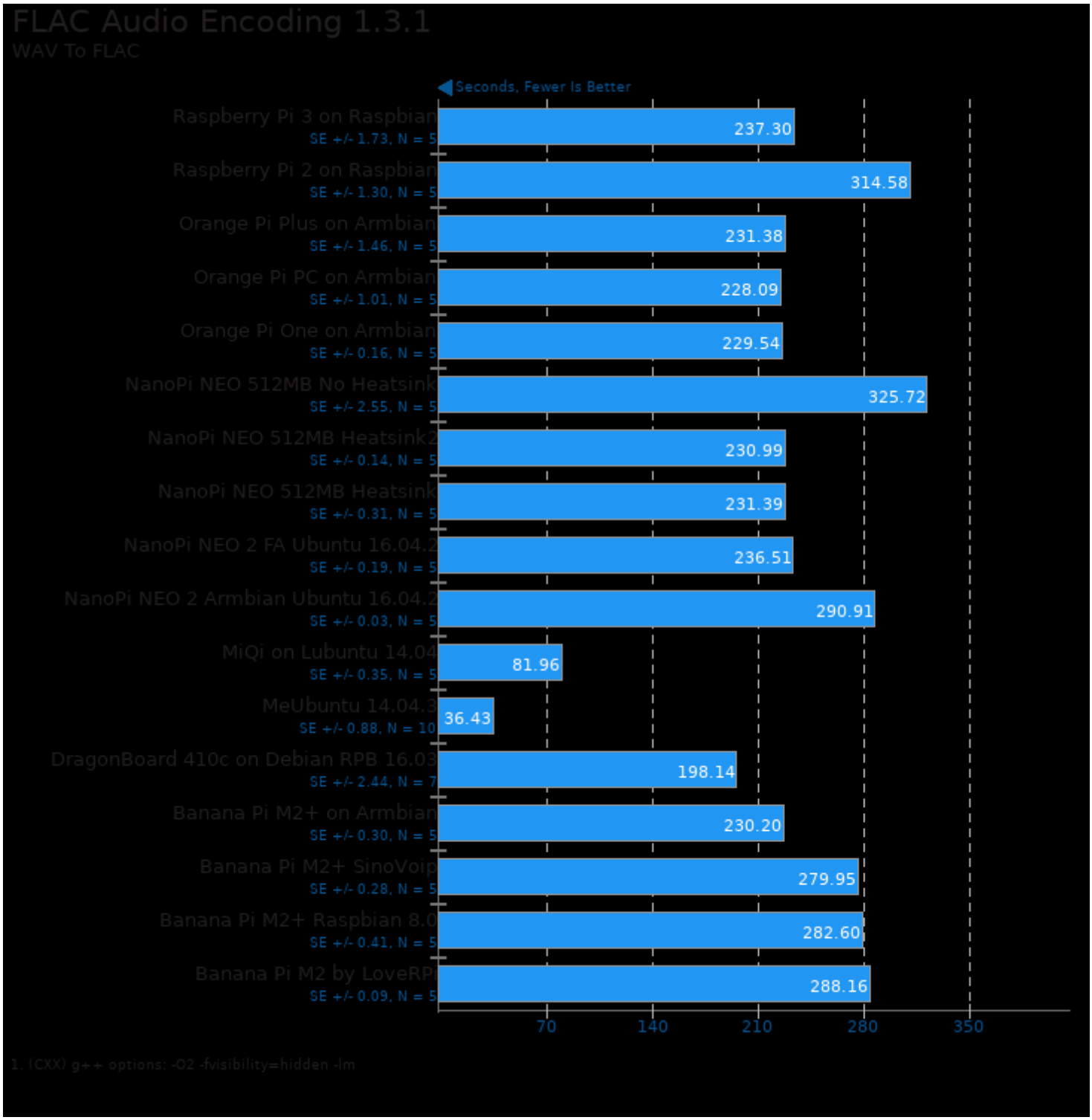
Raspberry Pi vs Orange Pi vs Banana Pi 2016-03 Showdown by LoveRPi

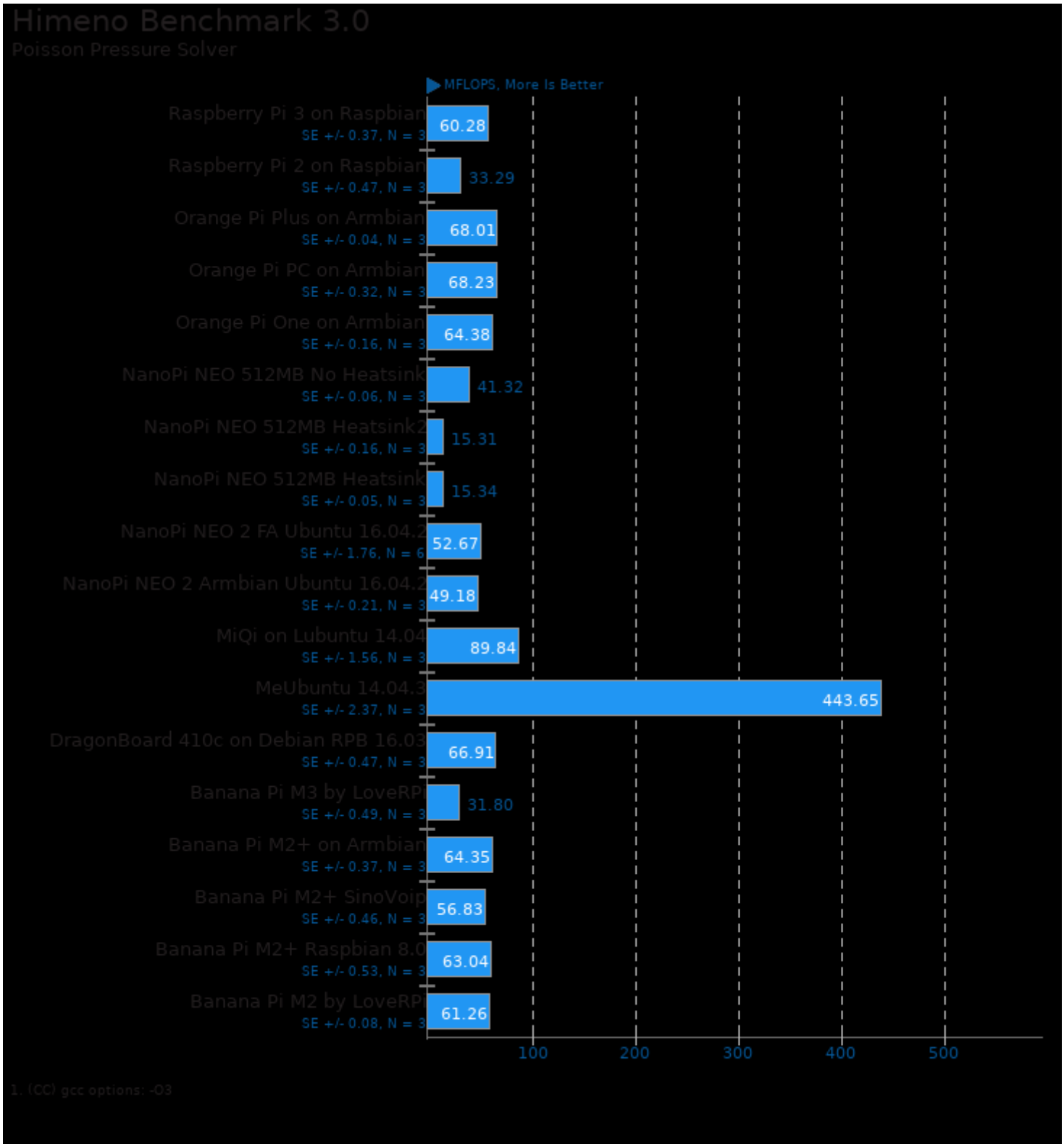
John The Ripper - Blowfish (Real C/S)	509	550	540	387	599	438	1408	1043	390	323	1055	535	1003	313	462	452	456	478
Normalized	36.15%	39.06%	38.35%	27.49%	42.54%	31.11%	100%	7.39%	27.7%	22.94%	74.93%	38%	71.24%	22.23%	32.81%	32.1%	32.39%	33.95%
Standard Deviation	0.1%	0%	0%	0.3%	0.6%	0.1%	0.6%	3%	14.2%	0.8%	0.2%	11.2%	20.4%	9.1%	2.7%	2.7%	0.6%	
John The Ripper - Performance / Cost - Blowfish (Real C/S/Dollar	50.90	36.67	13.85		17.11	9.73	17.60											
Normalized	100%	72.04%	27.21%		33.61%	19.12%	34.58%											
Meta Performance Per Dollar - P.P.D (Performance/Dollar	19.65	14.12	5.34		6.48	3.80	6.18											
Normalized	100%	71.86%	27.18%		32.98%	19.34%	31.45%											
OpenSSL - R.4.b.P (Signs/sec	16	17.20	17.13	11.93	20.60	13.40	43.30	3.30	10.48	6.67	29.70	10.90	66.53	7.68	12.35	12.40		
Normalized	24.05%	25.85%	25.75%	17.93%	30.96%	20.14%	65.08%	4.96%	15.75%	10.03%	44.64%	16.38%	100%	11.54%	18.56%	18.64%		
Standard Deviation	0%	0%	0.3%	0.5%	8.9%	0%	2%	0%	14.2%	0.9%	0%	9%	1.4%	18.6%	3.4%	4.4%		
OpenSSL - Performance / Cost - R.4.b.P (Signs/sec	1.60	1.15	0.44		0.59	0.30	0.54											
Normalized	100%	71.88%	27.5%		36.88%	18.75%	33.75%											
Smallpt - G.I.R.1.S (sec)	1665	1547	1549	2175	1390	1954	6217	8127	2483	3906	8661	2341	6203	2829	2134	2101	1308	1285
Normalized	37.24%	40.08%	40.03%	28.51%	44.6%	31.73%	99.84%	7.63%	24.97%	15.87%	71.59%	26.48%	100%	21.92%	29.05%	29.51%	47.4%	48.25%
Standard Deviation	0%	0.4%	0.1%	0.5%	0.2%	0.1%	0.4%	0.5%	0%	0.3%	0.5%	11%	0.2%	4%	0.2%	0.1%	0%	0.1%

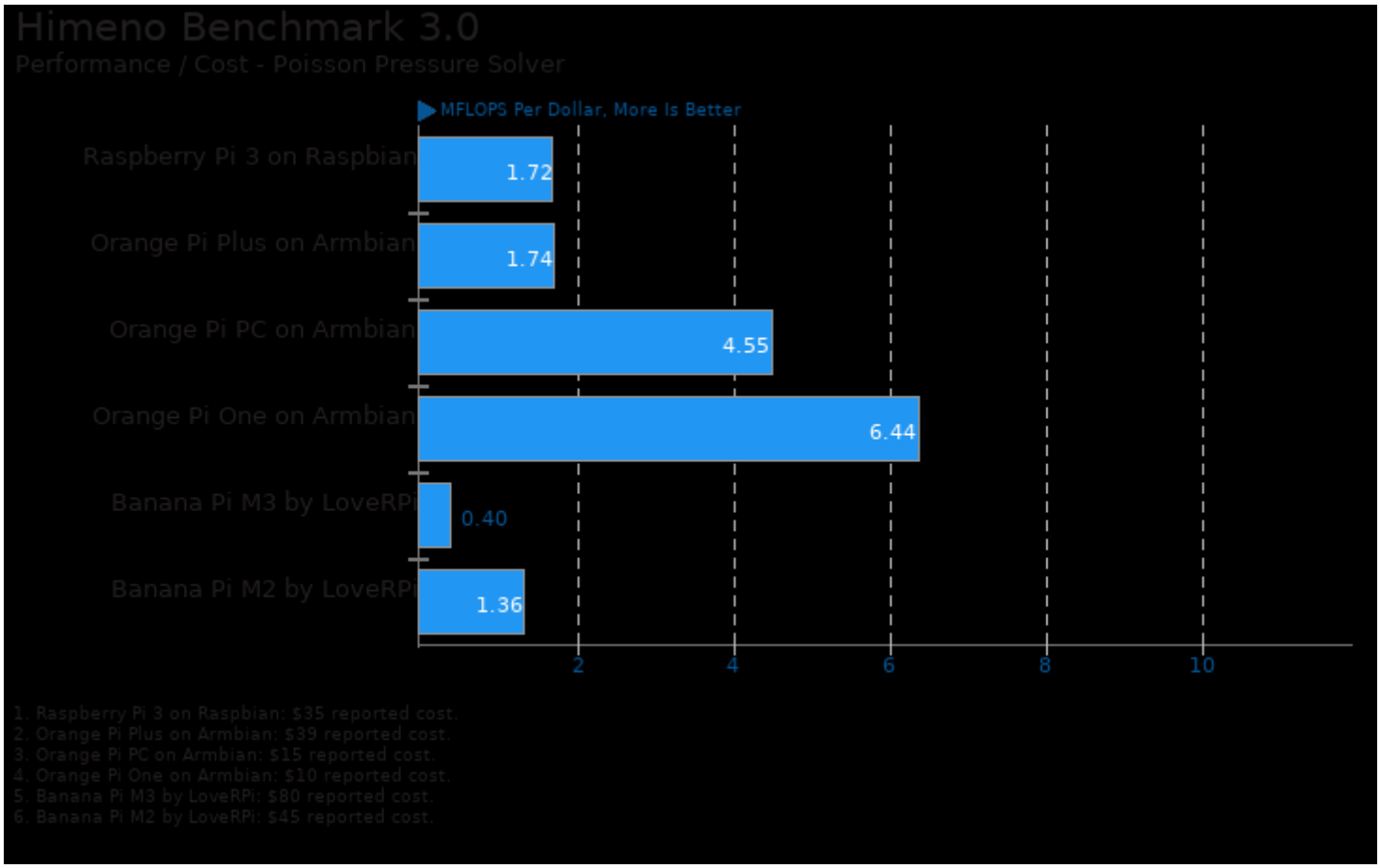
Raspberry Pi vs Orange Pi vs Banana Pi 2016-03 Showdown by LoveRPi

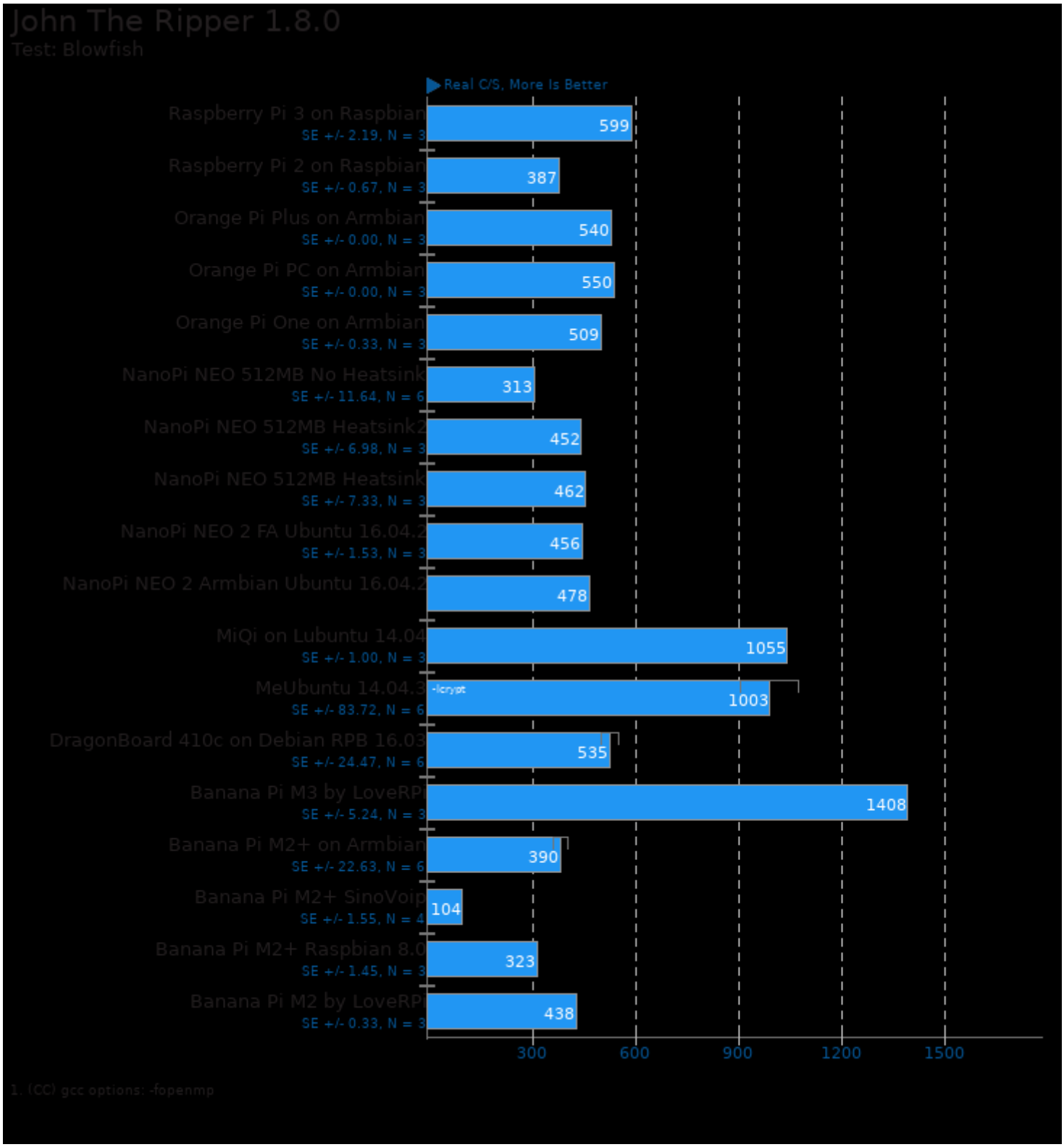
Timed MAFFT Alignment - M.S.A (sec)	62.45	63.17	75.46	61.06	70.58	**29.72**	**210.62**	81.13	121.86	42.84	73.91	33.12	132.29	77.66	75.34	63.73	64.47
Normalized	47.59%	47.05%	39.39%	48.67%	42.11%	100%	14.11%	36.63%	24.39%	69.37%	40.21%	89.73%	22.47%	38.27%	39.45%	46.63%	46.1%
Standard Deviation	8.2%	2.1%	2.3%	10.4%	2%	0.8%	0%	8.4%	9.5%	4.6%	8.1%	1.2%	9.4%	2.5%	1.6%	8.2%	0.4%


C-Ray 1.1
Total Time
Seconds, Fewer Is Better
Raspberry Pi 3 on Raspbian
SE +/- 0.11, N = 3
250.79
Raspberry Pi 2 on Raspbian
SE +/- 0.74, N = 3
505.44
Orange Pi Plus on Armbian
SE +/- 1.06, N = 3
350.07
Orange Pi PC on Armbian
SE +/- 2.95, N = 3
344.52
Orange Pi One on Armbian
SE +/- 0.37, N = 3
365.94
NanoPi NEO 512MB No Heatsink
SE +/- 27.05, N = 6
848.52
NanoPi NEO 512MB Heatsink2
SE +/- 4.74, N = 3
466.89
NanoPi NEO 512MB Heatsink
SE +/- 7.92, N = 3
461.70
NanoPi NEO 2 FA Ubuntu 16.04.2
SE +/- 0.09, N = 3
350.48
NanoPi NEO 2 Armbian Ubuntu 16.04.2
SE +/- 0.18, N = 3
344.91
MiQi on Lubuntu 14.04
SE +/- 2.39, N = 6
136.96
MeUbuntu 14.04.3
SE +/- 0.02, N = 3
200.29
DragonBoard 410c on Debian RPB 16.03
SE +/- 5.37, N = 6
341.80
Banana Pi M3 by LoveRPi
SE +/- 0.24, N = 3
136.14
Banana Pi M2+ on Armbian
SE +/- 8.44, N = 6
581.37
Banana Pi M2+ SinoVoip
SE +/- 3.91, N = 3
1777.89
Banana Pi M2+ Raspbian 8.0
SE +/- 11.64, N = 3
893.24
Banana Pi M2 by LoveRPi
SE +/- 0.02, N = 3
431.10
400
800
1200
1600
2000
1. (CC) gcc options: -lm -lpthread -O3


FLAC Audio Encoding 1.3.1
WAV To FLAC
Seconds, Fewer Is Better
Raspberry Pi 3 on Raspbian
SE +/- 1.73, N = 5
237.30
Raspberry Pi 2 on Raspbian
SE +/- 1.30, N = 5
314.58
Orange Pi Plus on Armbian
SE +/- 1.46, N = 5
231.38
Orange Pi PC on Armbian
SE +/- 1.01, N = 5
228.09
Orange Pi One on Armbian
SE +/- 0.16, N = 5
229.54
NanoPi NEO 512MB No Heatsink
SE +/- 2.55, N = 5
325.72
NanoPi NEO 512MB Heatsink2
SE +/- 0.14, N = 5
230.99
NanoPi NEO 512MB Heatsink
SE +/- 0.31, N = 5
231.39
NanoPi NEO 2 FA Ubuntu 16.04.2
SE +/- 0.19, N = 5
236.51
NanoPi NEO 2 Armbian Ubuntu 16.04.2
SE +/- 0.03, N = 5
290.91
MiQi on Lubuntu 14.04
SE +/- 0.35, N = 5
81.96
MeUbuntu 14.04.3
SE +/- 0.88, N = 10
36.43
DragonBoard 410c on Debian RPB 16.03
SE +/- 2.44, N = 7
198.14
Banana Pi M2+ on Armbian
SE +/- 0.30, N = 5
230.20
Banana Pi M2+ SinoVoip
SE +/- 0.28, N = 5
279.95
Banana Pi M2+ Raspbian 8.0
SE +/- 0.41, N = 5
282.60
Banana Pi M2 by LoveRPi
SE +/- 0.09, N = 5
288.16
70
140
210
280
350
1. (CXX) g++ options: -O2 -fvisibility=hidden -lm

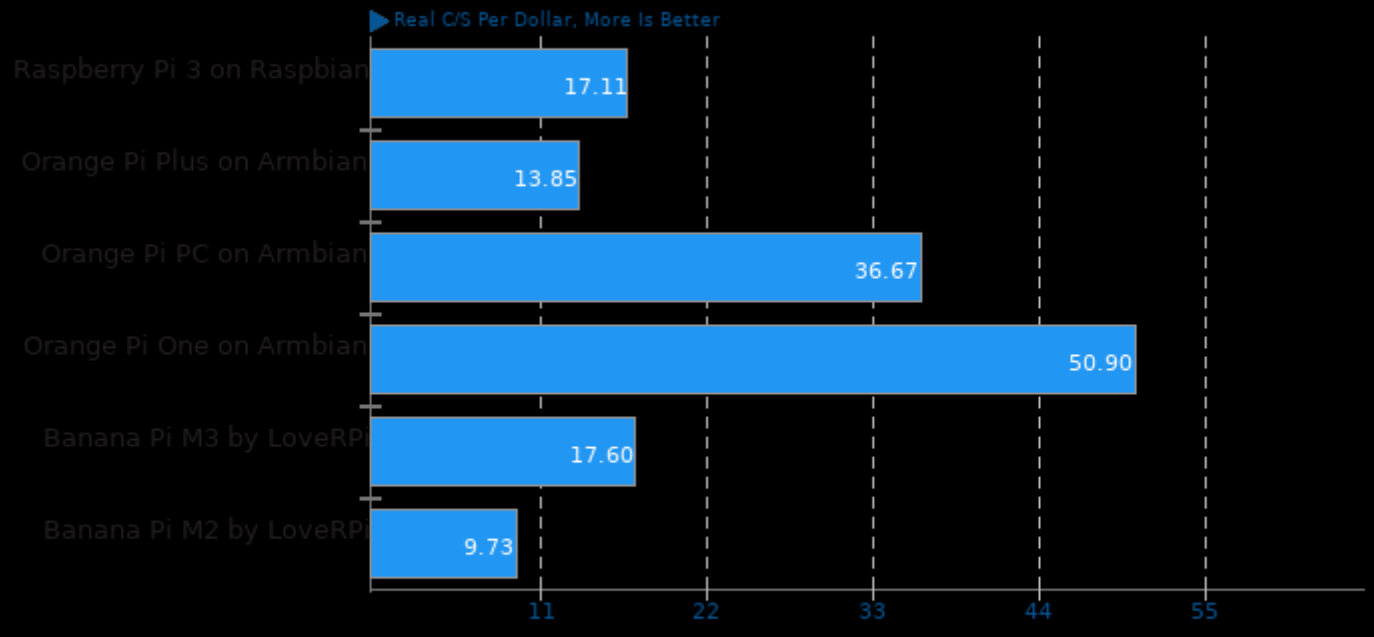

Himeno Benchmark 3.0
Poisson Pressure Solver
MFLOPS, More Is Better
Raspberry Pi 3 on Raspbian
SE +/- 0.37, N = 3
60.28
Raspberry Pi 2 on Raspbian
SE +/- 0.47, N = 3
33.29
Orange Pi Plus on Armbian
SE +/- 0.04, N = 3
68.01
Orange Pi PC on Armbian
SE +/- 0.32, N = 3
68.23
Orange Pi One on Armbian
SE +/- 0.16, N = 3
64.38
NanoPi NEO 512MB No Heatsink
SE +/- 0.06, N = 3
41.32
NanoPi NEO 512MB Heatsink2
SE +/- 0.16, N = 3
15.31
NanoPi NEO 512MB Heatsink
SE +/- 0.05, N = 3
15.34
NanoPi NEO 2 FA Ubuntu 16.04.2
SE +/- 1.76, N = 6
52.67
NanoPi NEO 2 Armbian Ubuntu 16.04.2
SE +/- 0.21, N = 3
49.18
MiQi on Lubuntu 14.04
SE +/- 1.56, N = 3
89.84
MeUbuntu 14.04.3
SE +/- 2.37, N = 3
443.65
DragonBoard 410c on Debian RPB 16.03
SE +/- 0.47, N = 3
66.91
Banana Pi M3 by LoveRPi
SE +/- 0.49, N = 3
31.80
Banana Pi M2+ on Armbian
SE +/- 0.37, N = 3
64.35
Banana Pi M2+ SinoVoip
SE +/- 0.46, N = 3
56.83
Banana Pi M2+ Raspbian 8.0
SE +/- 0.53, N = 3
63.04
Banana Pi M2 by LoveRPi
SE +/- 0.08, N = 3
61.26
100
200
300
400
500
1. (CC) gcc options: -O3


Himeno Benchmark 3.0
Performance / Cost - Poisson Pressure Solver
MFLOPS Per Dollar, More Is Better
Raspberry Pi 3 on Raspbian
1.72
Orange Pi Plus on Armbian
1.74
Orange Pi PC on Armbian
4.55
Orange Pi One on Armbian
6.44
Banana Pi M3 by LoveRPi
0.40
Banana Pi M2 by LoveRPi
1.36
2
4
6
8
10
1. Raspberry Pi 3 on Raspbian: $35 reported cost.
2. Orange Pi Plus on Armbian: $39 reported cost.
3. Orange Pi PC on Armbian: $15 reported cost.
4. Orange Pi One on Armbian: $10 reported cost.
5. Banana Pi M3 by LoveRPi: $80 reported cost.
6. Banana Pi M2 by LoveRPi: $45 reported cost.


John The Ripper 1.8.0
Test: Blowfish
Real C/S, More Is Better
Raspberry Pi 3 on Raspbian
SE +/- 2.19, N = 3
599
Raspberry Pi 2 on Raspbian
SE +/- 0.67, N = 3
387
Orange Pi Plus on Armbian
SE +/- 0.00, N = 3
540
Orange Pi PC on Armbian
SE +/- 0.00, N = 3
550
Orange Pi One on Armbian
SE +/- 0.33, N = 3
509
NanoPi NEO 512MB No Heatsink
SE +/- 11.64, N = 6
313
NanoPi NEO 512MB Heatsink2
SE +/- 6.98, N = 3
452
NanoPi NEO 512MB Heatsink
SE +/- 7.33, N = 3
462
NanoPi NEO 2 FA Ubuntu 16.04.2
SE +/- 1.53, N = 3
456
NanoPi NEO 2 Armbian Ubuntu 16.04.2
478
MiQi on Lubuntu 14.04
SE +/- 1.00, N = 3
1055
MeUbuntu 14.04.3
SE +/- 83.72, N = 6
-lcrypt
1003
DragonBoard 410c on Debian RPB 16.03
SE +/- 24.47, N = 6
535
Banana Pi M3 by LoveRPi
SE +/- 5.24, N = 3
1408
Banana Pi M2+ on Armbian
SE +/- 22.63, N = 6
390
Banana Pi M2+ SinoVoip
SE +/- 1.55, N = 4
104
Banana Pi M2+ Raspbian 8.0
SE +/- 1.45, N = 3
323
Banana Pi M2 by LoveRPi
SE +/- 0.33, N = 3
438
300
600
900
1200
1500
1. (CC) gcc options: -fopenmp

John The Ripper 1.8.0

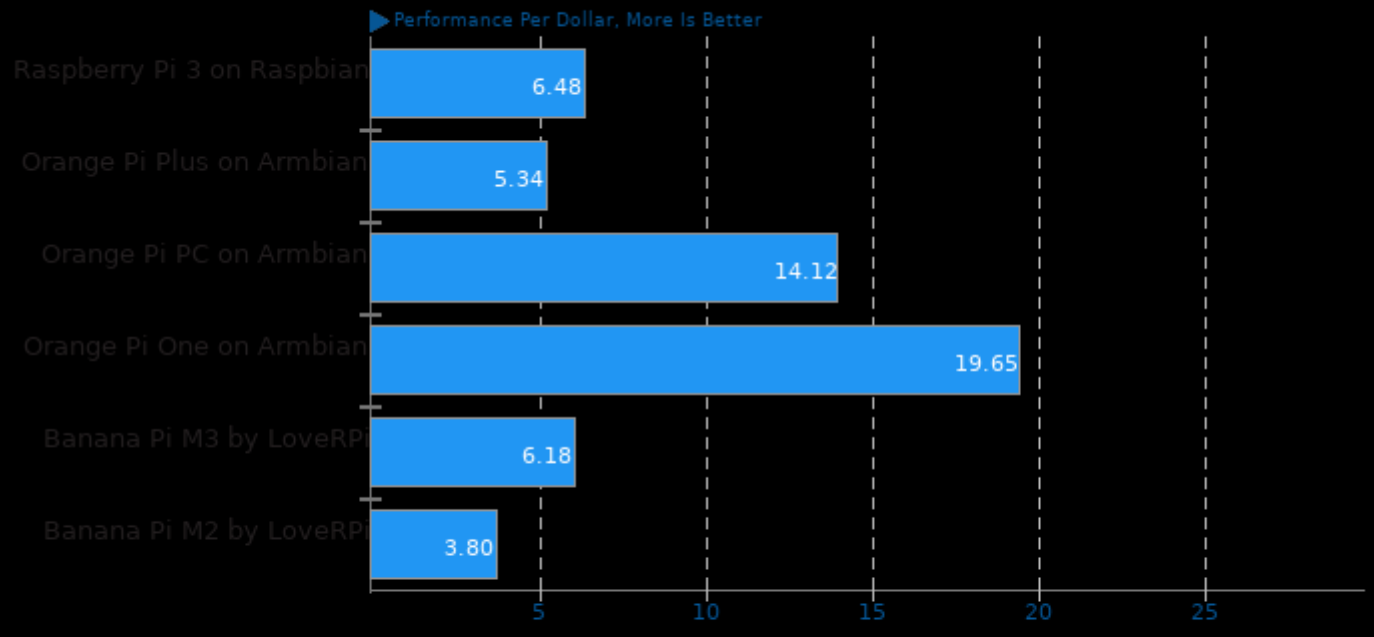
Performance / Cost - Test: Blowfish



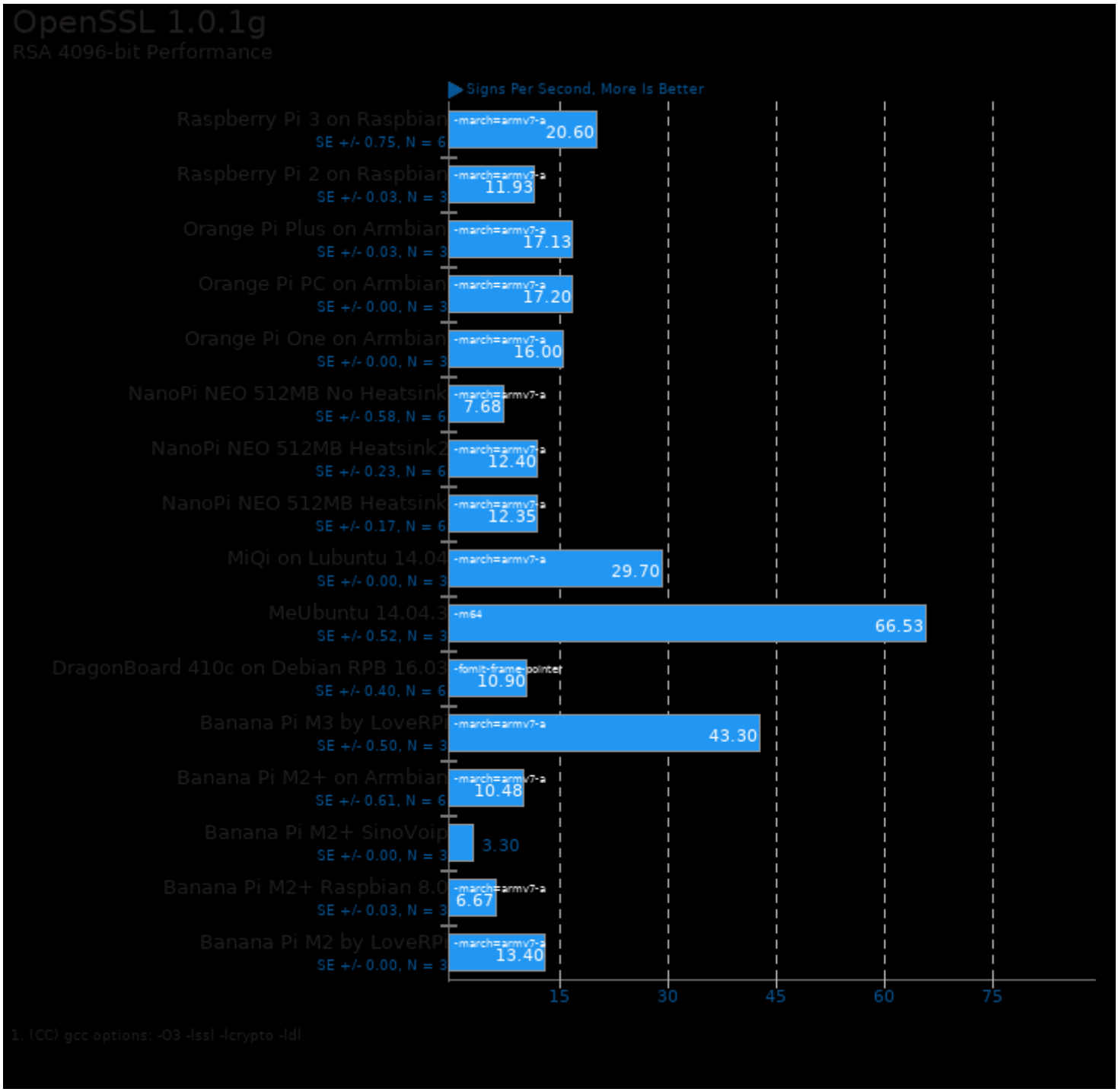
1. Raspberry Pi 3 on Raspbian: $35 reported cost.
2. Orange Pi Plus on Armbian: $39 reported cost.
3. Orange Pi PC on Armbian: $15 reported cost.
4. Orange Pi One on Armbian: $10 reported cost.
5. Banana Pi M3 by LoveRPi: $80 reported cost.
6. Banana Pi M2 by LoveRPi: $45 reported cost.

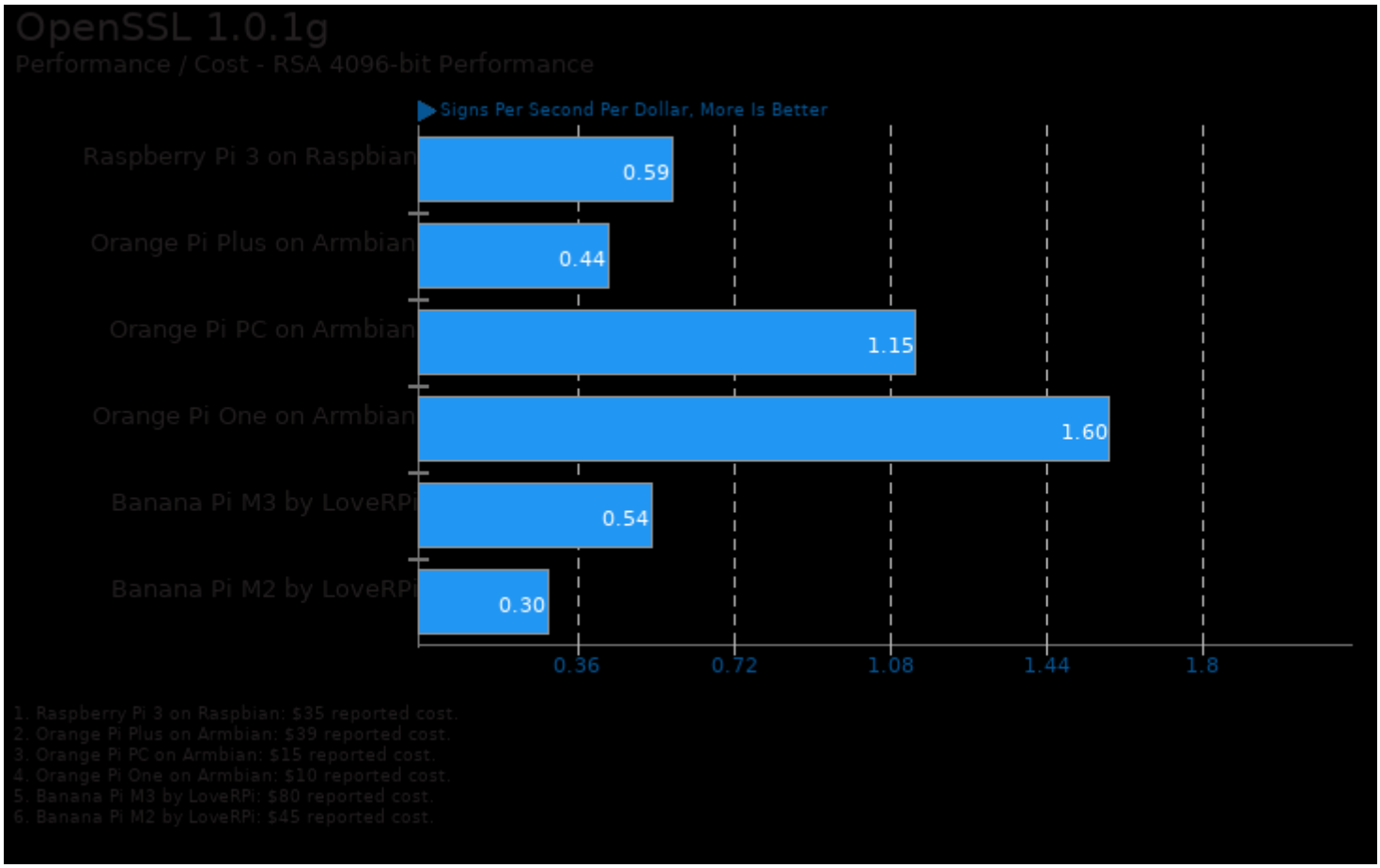
Meta Performance Per Dollar

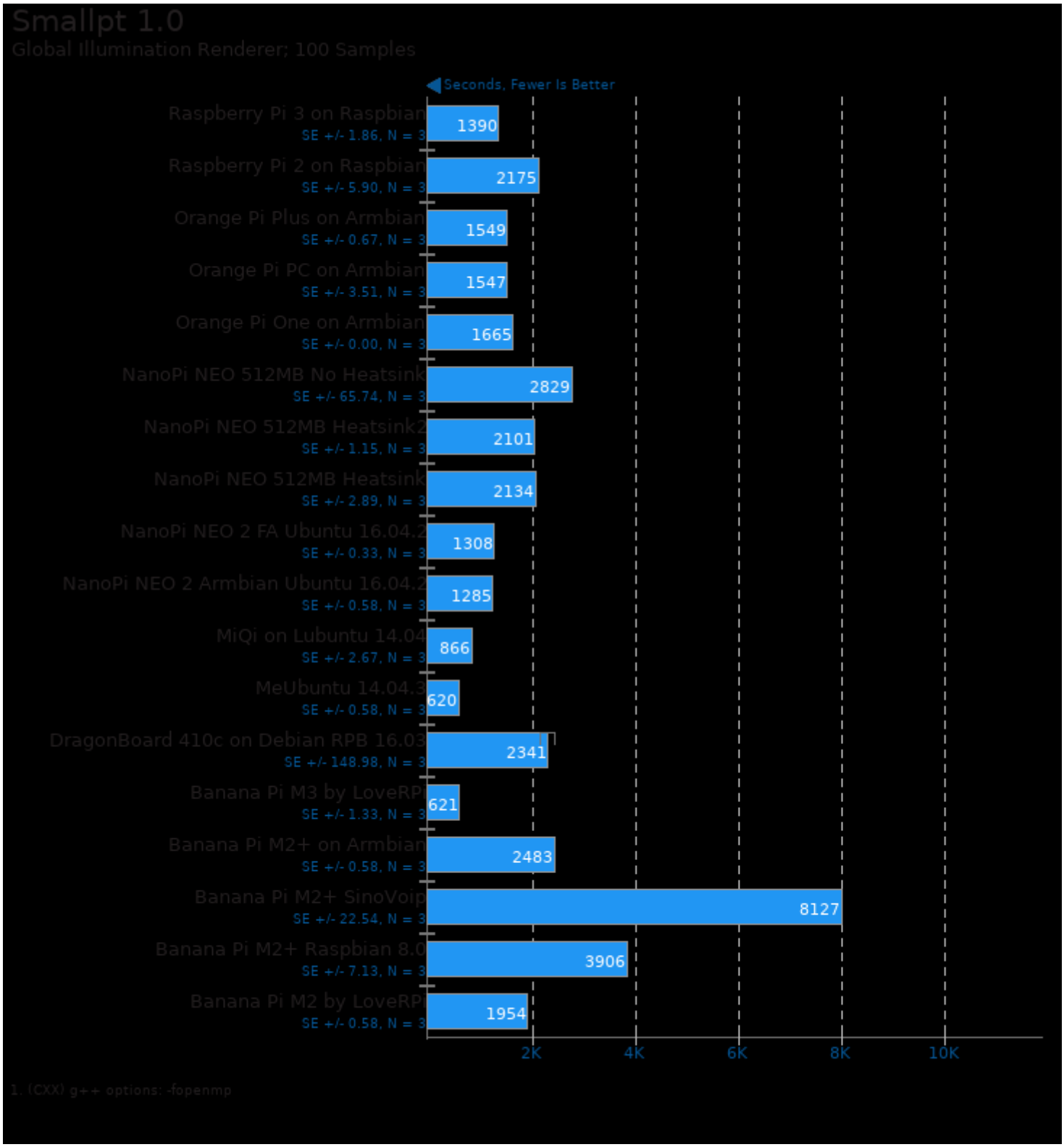
Performance Per Dollar

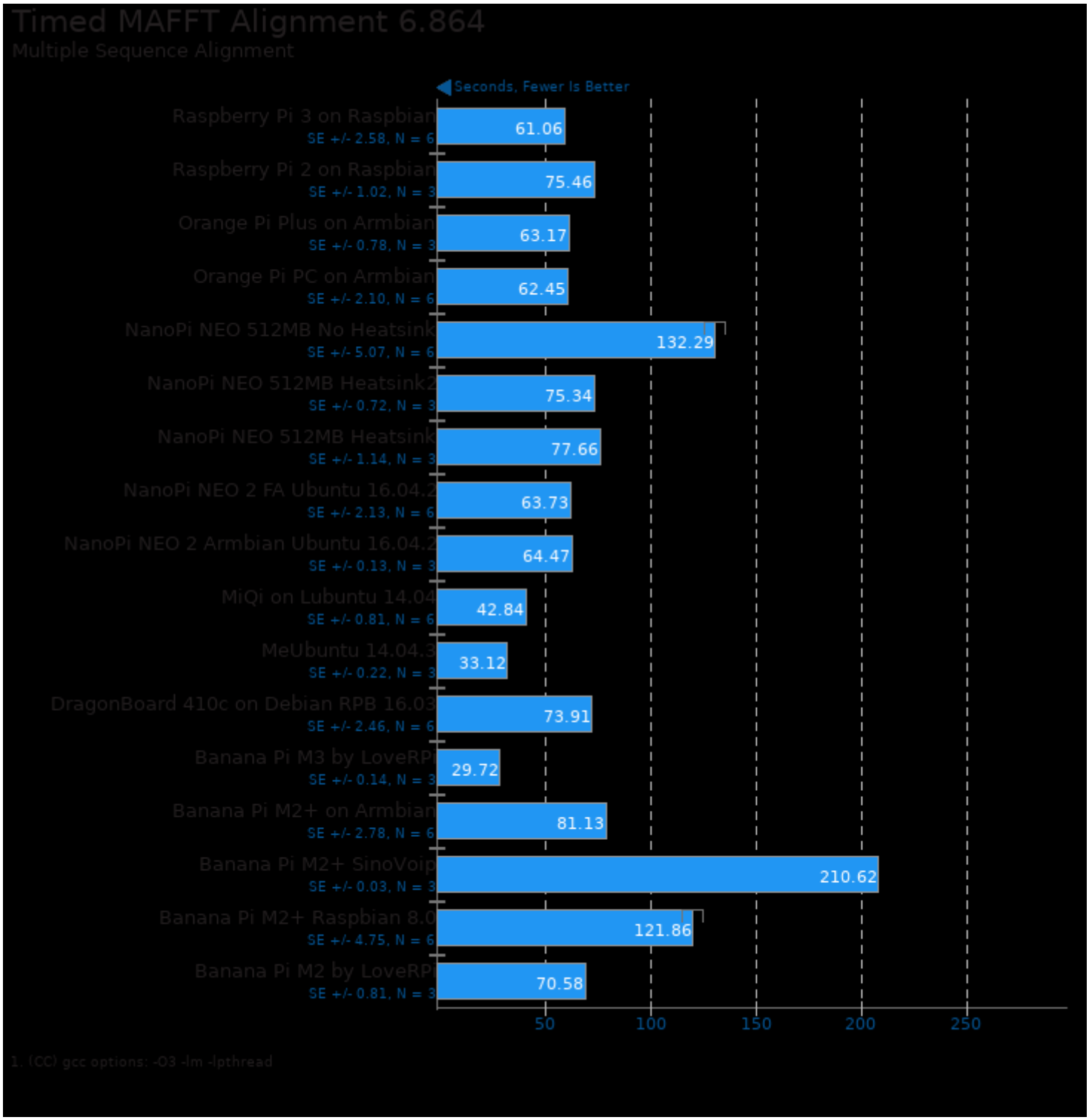


1. Raspberry Pi 3 on Raspbian: $35 reported cost. Average result: 226.63.
2. Orange Pi Plus on Armbian: $39 reported cost. Average result: 208.38.
3. Orange Pi PC on Armbian: $15 reported cost. Average result: 211.81.
4. Orange Pi One on Armbian: $10 reported cost. Average result: 196.46.
5. Banana Pi M3 by LoveRPi: $80 reported cost. Average result: 494.37.
6. Banana Pi M2 by LoveRPi: $45 reported cost. Average result: 170.89.


OpenSSL 1.0.1g
RSA 4096-bit Performance
Signs Per Second, More Is Better
Raspberry Pi 3 on Raspbian
SE +/- 0.75, N = 6
-march=armv7-a
20.60
Raspberry Pi 2 on Raspbian
SE +/- 0.03, N = 3
-march=armv7-a
11.93
Orange Pi Plus on Armbian
SE +/- 0.03, N = 3
-march=armv7-a
17.13
Orange Pi PC on Armbian
SE +/- 0.00, N = 3
-march=armv7-a
17.20
Orange Pi One on Armbian
SE +/- 0.00, N = 3
-march=armv7-a
16.00
NanoPi NEO 512MB No Heatsink
SE +/- 0.58, N = 6
-march=armv7-a
7.68
NanoPi NEO 512MB Heatsink2
SE +/- 0.23, N = 6
-march=armv7-a
12.40
NanoPi NEO 512MB Heatsink
SE +/- 0.17, N = 6
-march=armv7-a
12.35
MiQi on Lubuntu 14.04
SE +/- 0.00, N = 3
-march=armv7-a
29.70
MeUbuntu 14.04.3
SE +/- 0.52, N = 3
-m64
66.53
DragonBoard 410c on Debian RPB 16.03
SE +/- 0.40, N = 6
-fomit-frame-pointer
10.90
Banana Pi M3 by LoveRPi
SE +/- 0.50, N = 3
-march=armv7-a
43.30
Banana Pi M2+ on Armbian
SE +/- 0.61, N = 6
-march=armv7-a
10.48
Banana Pi M2+ SinoVoip
SE +/- 0.00, N = 3
3.30
Banana Pi M2+ Raspbian 8.0
SE +/- 0.03, N = 3
-march=armv7-a
6.67
Banana Pi M2 by LoveRPi
SE +/- 0.00, N = 3
-march=armv7-a
13.40
15
30
45
60
75
1. (CC) gcc options: -O3 -lssl -lcrypto -ldl


OpenSSL 1.0.1g
Performance / Cost - RSA 4096-bit Performance
Signs Per Second Per Dollar, More Is Better
Raspberry Pi 3 on Raspbian
Orange Pi Plus on Armbian
Orange Pi PC on Armbian
Orange Pi One on Armbian
Banana Pi M3 by LoveRPi
Banana Pi M2 by LoveRPi
0.59
0.44
1.15
1.60
0.54
0.30
0.36
0.72
1.08
1.44
1.8
1. Raspberry Pi 3 on Raspbian: $35 reported cost.
2. Orange Pi Plus on Armbian: $39 reported cost.
3. Orange Pi PC on Armbian: $15 reported cost.
4. Orange Pi One on Armbian: $10 reported cost.
5. Banana Pi M3 by LoveRPi: $80 reported cost.
6. Banana Pi M2 by LoveRPi: $45 reported cost.


Smallpt 1.0
Global Illumination Renderer; 100 Samples
Seconds, Fewer Is Better
Raspberry Pi 3 on Raspbian
SE +/- 1.86, N = 3
1390
Raspberry Pi 2 on Raspbian
SE +/- 5.90, N = 3
2175
Orange Pi Plus on Armbian
SE +/- 0.67, N = 3
1549
Orange Pi PC on Armbian
SE +/- 3.51, N = 3
1547
Orange Pi One on Armbian
SE +/- 0.00, N = 3
1665
NanoPi NEO 512MB No Heatsink
SE +/- 65.74, N = 3
2829
NanoPi NEO 512MB Heatsink2
SE +/- 1.15, N = 3
2101
NanoPi NEO 512MB Heatsink
SE +/- 2.89, N = 3
2134
NanoPi NEO 2 FA Ubuntu 16.04.2
SE +/- 0.33, N = 3
1308
NanoPi NEO 2 Armbian Ubuntu 16.04.2
SE +/- 0.58, N = 3
1285
MiQi on Lubuntu 14.04
SE +/- 2.67, N = 3
866
MeUbuntu 14.04.3
SE +/- 0.58, N = 3
620
DragonBoard 410c on Debian RPB 16.03
SE +/- 148.98, N = 3
2341
Banana Pi M3 by LoveRPi
SE +/- 1.33, N = 3
621
Banana Pi M2+ on Armbian
SE +/- 0.58, N = 3
2483
Banana Pi M2+ SinoVoip
SE +/- 22.54, N = 3
8127
Banana Pi M2+ Raspbian 8.0
SE +/- 7.13, N = 3
3906
Banana Pi M2 by LoveRPi
SE +/- 0.58, N = 3
1954
2K
4K
6K
8K
10K
1. (CXX) g++ options: -fopenmp



This file was automatically generated via the Phoronix Test Suite benchmarking software on Thursday, 28 March 2024 14:19.