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combined-2

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

Test Systems:

Odyssey #1

Odyssey #2

Odyssey #3

Processor: Intel Celeron J4105 @ 2.50GHz (4 Cores), Motherboard: SeeedStudio ODYSSEY-X86J4105 (SD-BS-CJ41G-M-101-E BIOS), Chipset: Intel Device 31f0, Memory: 8GB, Disk: 63GB DA4064, Graphics: inteldrmfb (750MHz), Monitor: ROG PG348Q, Network: 2 x Intel I211

OS: Debian 10, Kernel: 4.19.0-16-amd64 (x86_64), Compiler: GCC 8.3.0, File-System: ext4, Screen Resolution: 3440x1440

Kernel Notes: Transparent Huge Pages: always
 Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib --with-tune=generic --without-cuda-driver -v
 Processor Notes: Scaling Governor: intel_pstate performance - CPU Microcode: 0x32
 Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Mitigation of PTI + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swaps barriers and __user pointer sanitization + spectre_v2: Mitigation of Enhanced IBRS IBPB: conditional RSB filling + srbs: Not affected + tsx_async_abort: Not affected

Raspberry Pi 4 (2Ghz) #1

Raspberry Pi 4 (2Ghz) #2

Raspberry Pi 4 (2Ghz) #3

Raspberry Pi 4 (2Ghz) #4

Processor: ARMv8 Cortex-A72 @ 2.00GHz (4 Cores), Motherboard: BCM2835 Raspberry Pi 4 Model B Rev 1.1, Memory: 4096MB, Disk: 32GB EB1QT

OS: Debian 10, Kernel: 5.10.17-v8+ (aarch64), Compiler: GCC 8.3.0, File-System: ext4

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
 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

Raspberry Pi 4 1.5Ghz

Processor: ARMv8 Cortex-A72 @ 1.50GHz (4 Cores), Motherboard: BCM2835 Raspberry Pi 4 Model B Rev 1.1, Memory: 4096MB, Disk: 32GB EB1QT

OS: Debian 10, Kernel: 5.10.17-v8+ (aarch64), Compiler: GCC 8.3.0, File-System: ext4

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
 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

Rock Pi 4 1.8/1.4ghz

Processor: ARMv8 Cortex-A72 @ 1.42GHz (6 Cores), Motherboard: Radxa ROCK Pi 4B, Memory: 4096MB, Disk: 16GB D9D16G

OS: Debian 10, Kernel: 5.10.21-rockchip64 (aarch64), Compiler: GCC 8.3.0, File-System: ext4

Kernel Notes: Transparent Huge Pages: madvise
 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

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

Rock Pi 4 2.0/1.5ghz

Processor: ARMv8 Cortex-A72 @ 1.51GHz (6 Cores), Motherboard: Radxa ROCK Pi 4B, Memory: 4096MB, Disk: 16GB D9D16G

OS: Debian 10, Kernel: 5.10.21-rockchip64 (aarch64), Compiler: GCC 8.3.0, File-System: ext4

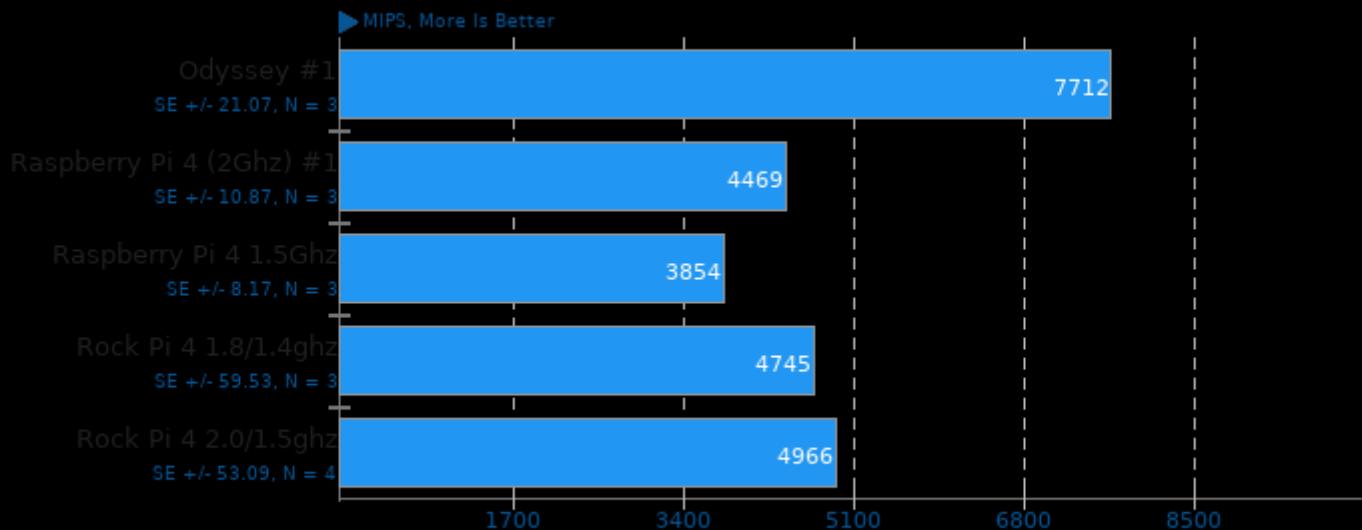
Kernel Notes: Transparent Huge Pages: madvise
 Compiler Notes: --build=aarch64-linux-gnu --disable-libphobos --disable-libquadmath --disable-libquadmath-support --disable-werror --enable-bootstrap
 --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-fix-cortex-a53-843419 --enable-gnu-unique-object
 --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
 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

	Odyssey #1	Odyssey #2	Odyssey #3	Raspberry Pi 4 (2Ghz) #1	Raspberry Pi 4 (2Ghz) #2	Raspberry Pi 4 (2Ghz) #3	Raspberry Pi 4 (2Ghz) #4	Raspberry Pi 4 1.5Ghz	Rock Pi 4 z	Rock Pi 4 z
7-Zip Compression - C.S.T (MIPS)	7712			4469				3854	4745	4966
Normalized	100%			57.95%				49.97%	61.53%	64.39%
Standard Deviation	0.5%			0.4%				0.4%	2.2%	2.1%
OpenSSL - R.4.b.P (Signs/sec)	247.3			127.2				95.7	132.8	144.7
Normalized	100%			51.44%				38.7%	53.7%	58.51%
Standard Deviation	0.1%			0.2%				0.2%	0.2%	0.1%
POV-Ray - Trace Time (sec)	340.866			548.129				560.939	535.666	524.913
Normalized	100%			62.19%				60.77%	63.63%	64.94%
Standard Deviation	0.3%			2.5%				1.2%	1.1%	0.4%
GraphicsMagick - Swirl	72			59				43	47	
Normalized	100%			81.94%				62.5%	59.72%	65.28%
Standard Deviation				1.3%						
GraphicsMagick - Rotate	541			113				100	104	108
Normalized	100%									
GraphicsMagick - (Iterations/min)	25									
Normalized	100%			20.89%				18.48%	19.22%	19.96%
Standard Deviation	0.9%			1.5%					1.1%	2.3%
GraphicsMagick - Sharpen	15			16				15	17	18
Normalized	100%			64%				60%	68%	72%
Standard Deviation				5.6%						

GraphicsMagick - Enhanced (Iterations/min)	31	23	18	16	18
Normalized	100%	74.19%	58.06%	51.61%	58.06%
GraphicsMagick - Resizing (Iterations/min)	193	60	51	61	64
Normalized	100%	31.09%	26.42%	31.61%	33.16%
GraphicsMagick - Noise-Gaussian (Iterations/min)	35	28	23	24	26
Normalized	100%	80%	65.71%	68.57%	74.29%
Standard Deviation	2%				
GraphicsMagick - HWB Color Space (Iterations/min)	298	168	133	139	151
Normalized	100%	56.38%	44.63%	46.64%	50.67%
Standard Deviation	0.3%	0.7%	1.1%	0.4%	
x264 - H.2.V.E (FPS)	12.22	7.16	5.45	7.35	7.86
Normalized	100%	58.59%	44.6%	60.15%	64.32%
Standard Deviation	0.1%	0.4%	2.4%	1%	1.1%

7-Zip Compression 16.02

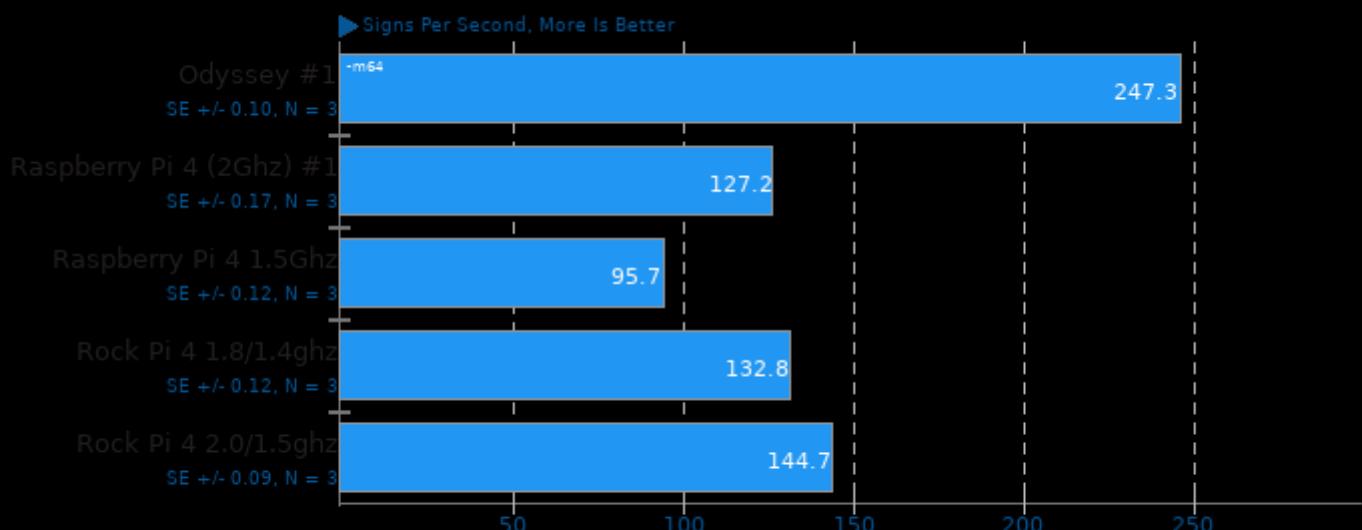
Compress Speed Test



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

OpenSSL 1.1.1

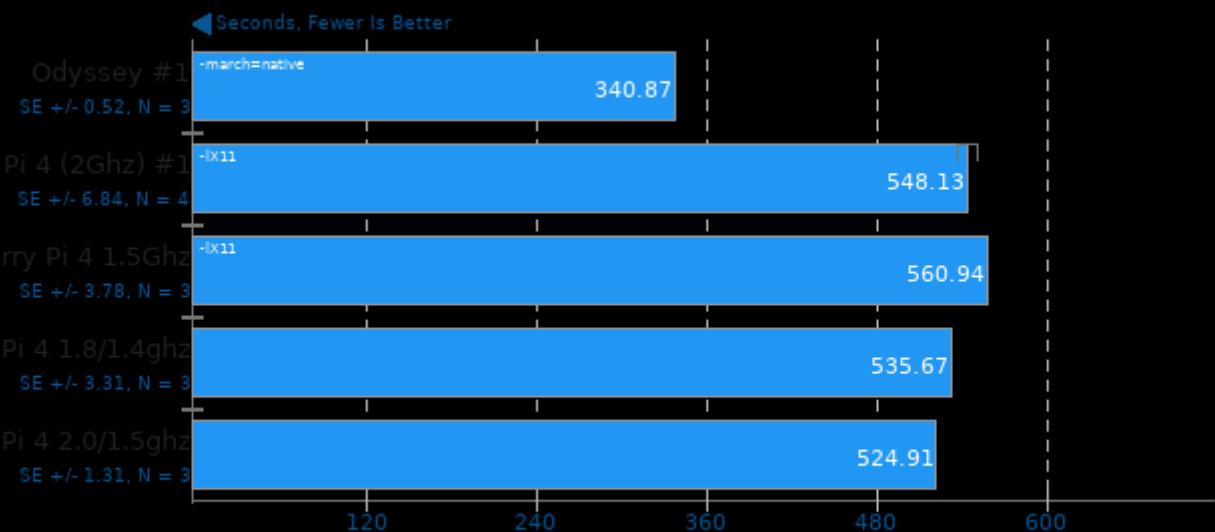
RSA 4096-bit Performance



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

POV-Ray 3.7.0.7

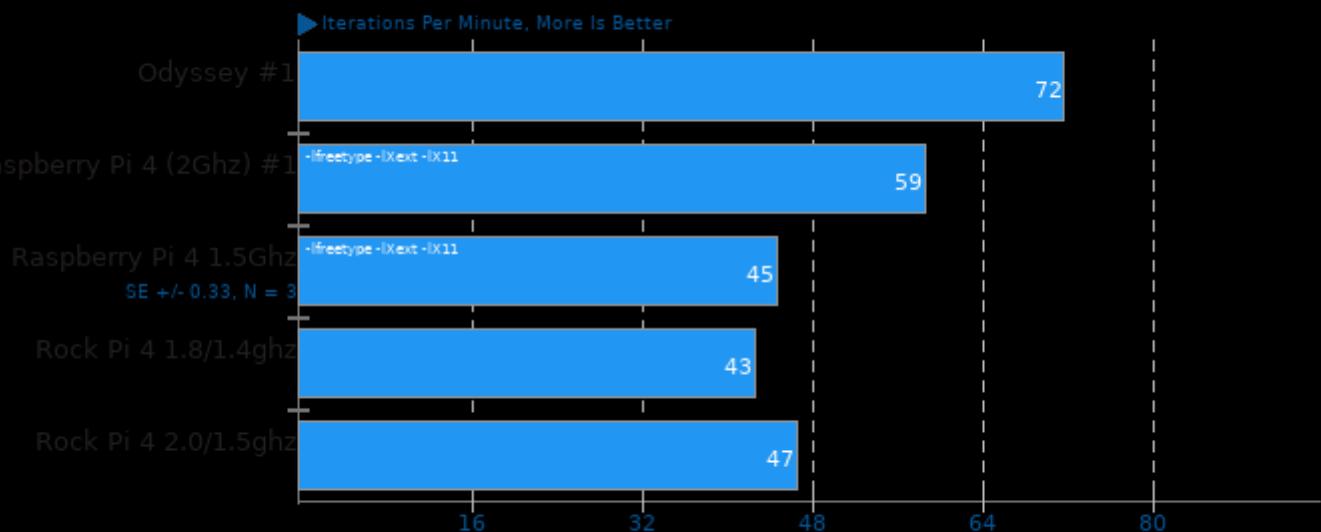
Trace Time



1. (CXX) g++ options: -pipe -O3 -ffast-math -pthread -ltiff -jpeg -lpng -lz -lrt -lm -lboost_thread -lboost_system

GraphicsMagick 1.3.33

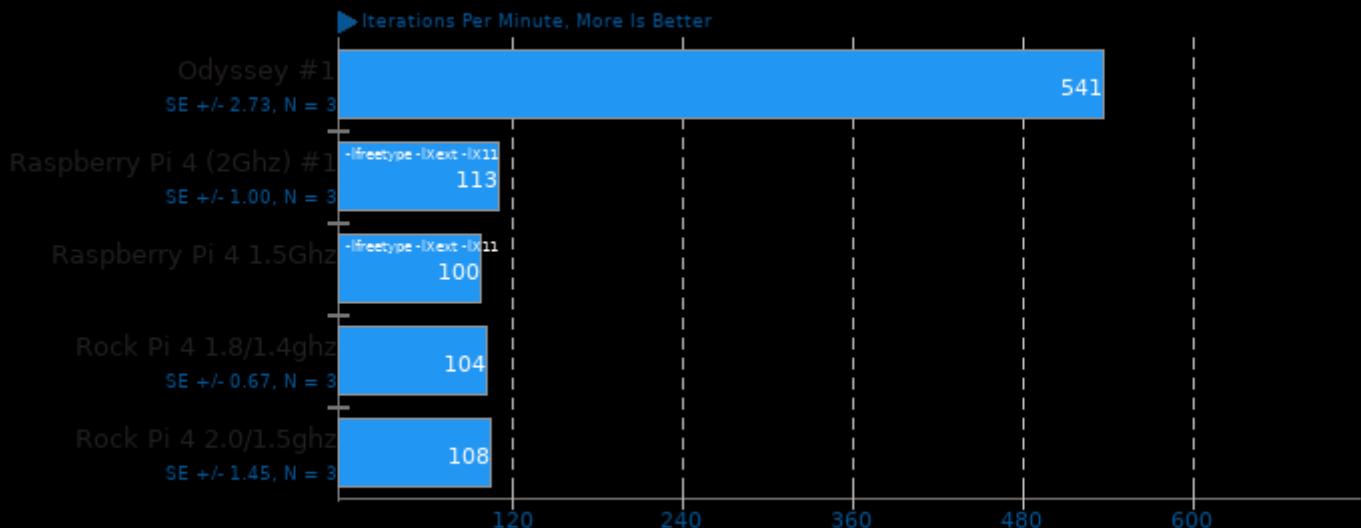
Operation: Swirl



1. (CC) gcc options: -fopenmp -O2 -pthread -ljbig -ltiff -jpeg -llzma -lz -lmt -lpthread

GraphicsMagick 1.3.33

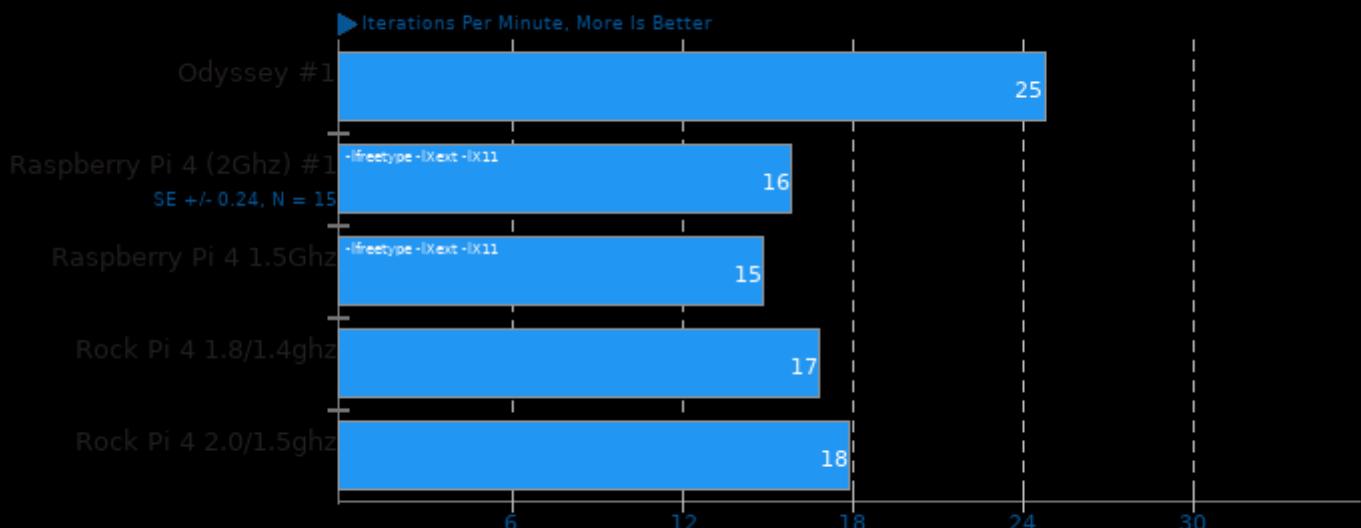
Operation: Rotate



1. (CC) gcc options: -fopenmp -O2 -pthread -ljpeg -ltiff -lxml -lzma -lz -lm -lpthread

GraphicsMagick 1.3.33

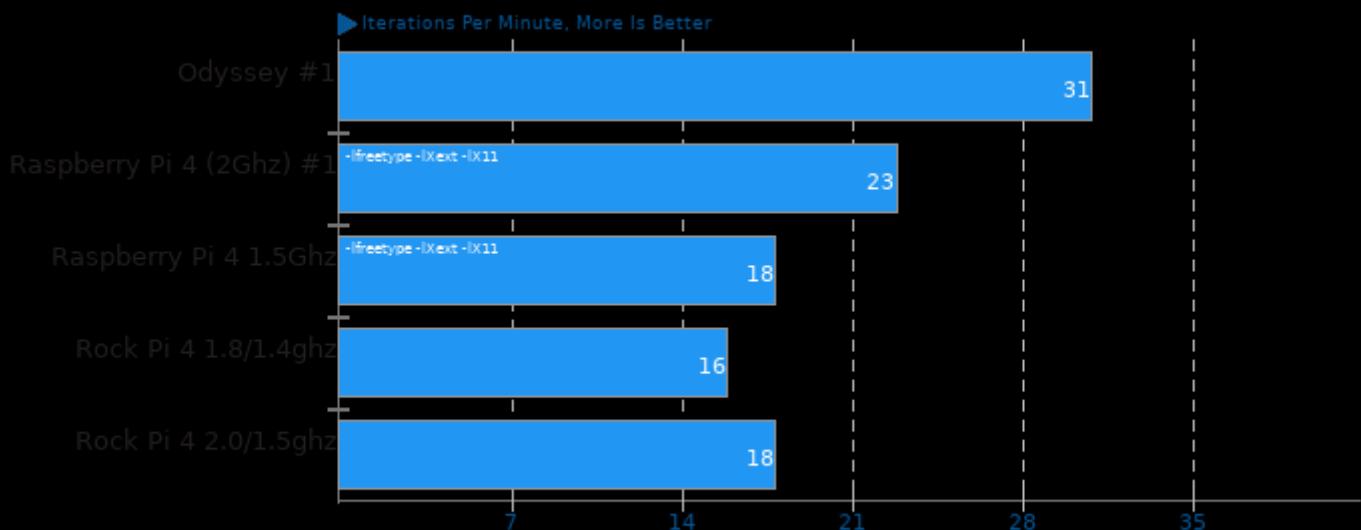
Operation: Sharpen



1. (CC) gcc options: -fopenmp -O2 -pthread -ljpeg -ltiff -lxml -lzma -lz -lm -lpthread

GraphicsMagick 1.3.33

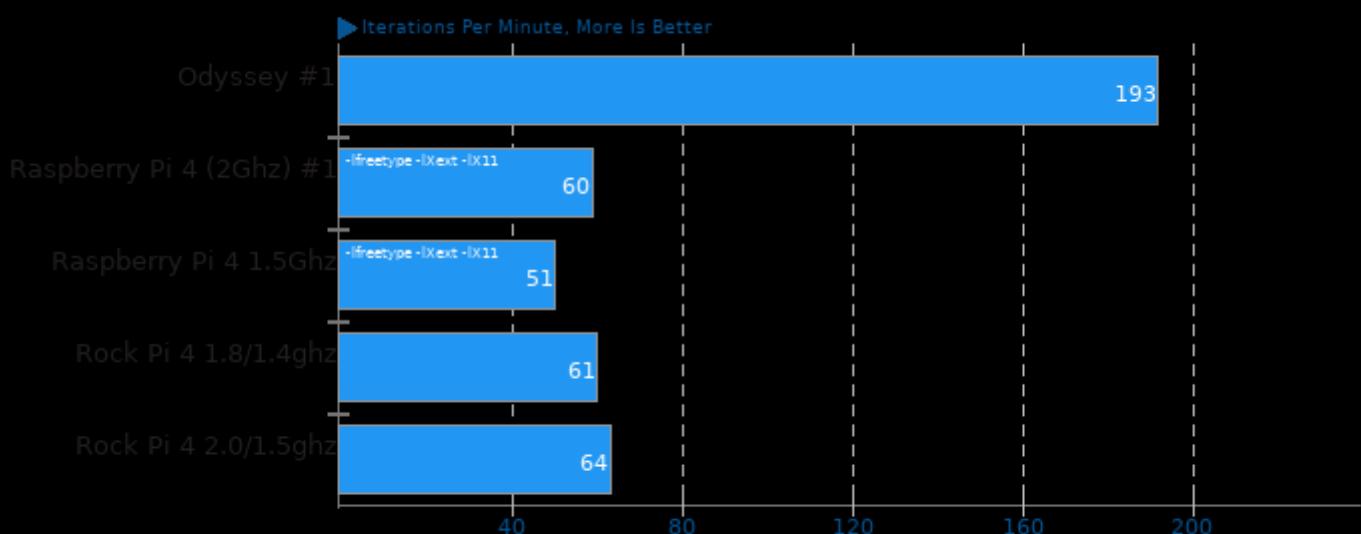
Operation: Enhanced



1. (CC) gcc options: -fopenmp -O2 -pthread -ljbig -ltiff -ljpeg -llzma -lz -lm -lpthread

GraphicsMagick 1.3.33

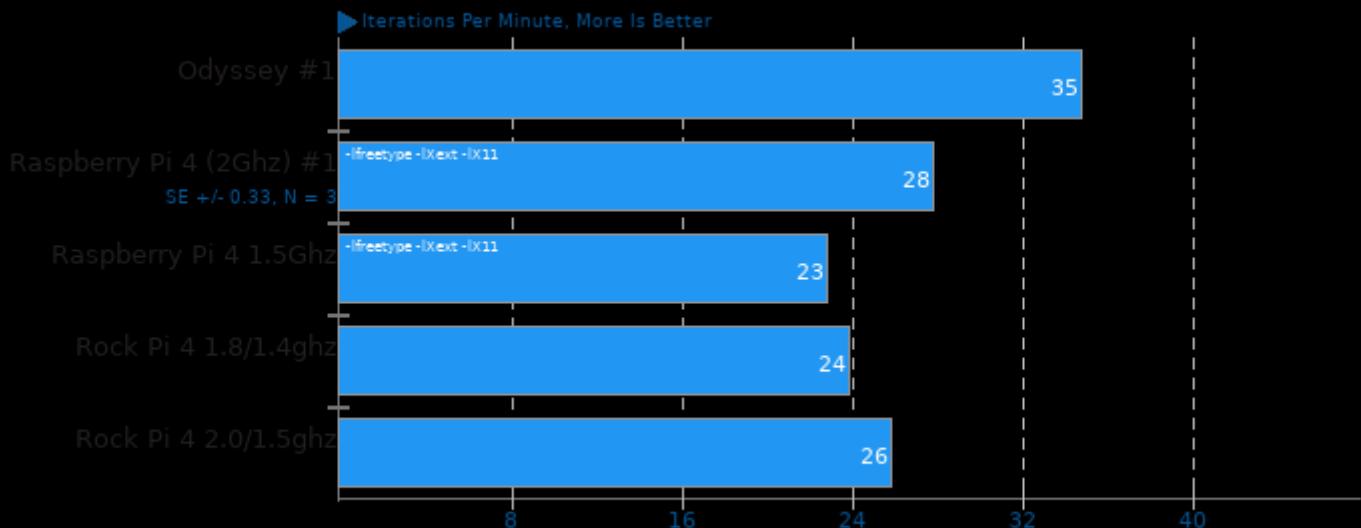
Operation: Resizing



1. (CC) gcc options: -fopenmp -O2 -pthread -ljbig -ltiff -ljpeg -llzma -lz -lm -lpthread

GraphicsMagick 1.3.33

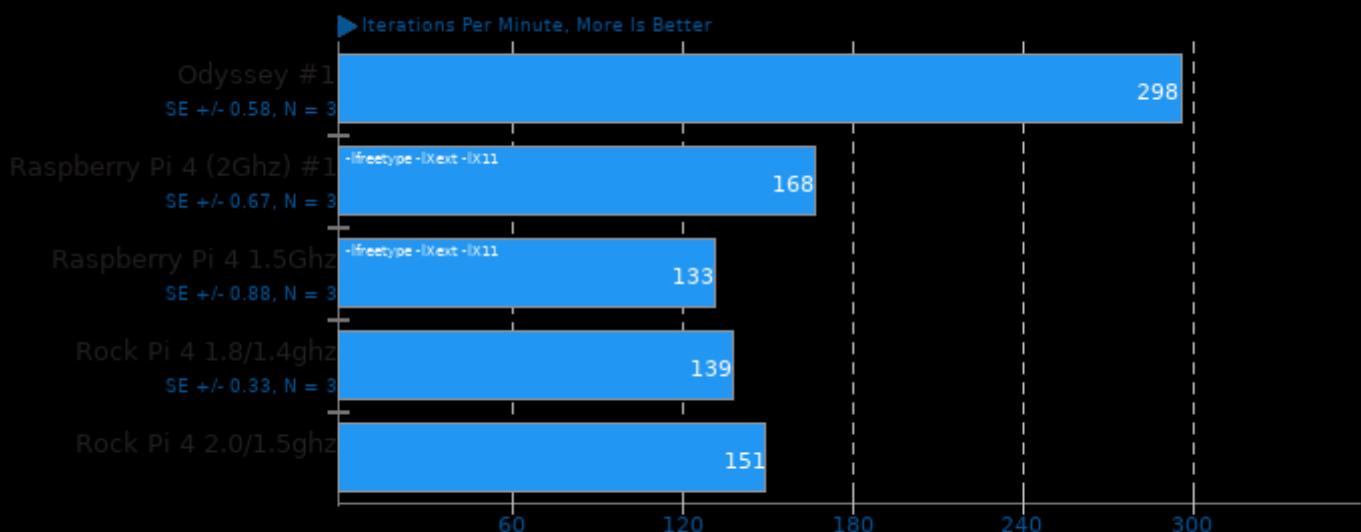
Operation: Noise-Gaussian



1. (CC) gcc options: -fopenmp -O2 -pthread -ljbig -ltiff -ljpeg -llzma -lz -lm -lpthread

GraphicsMagick 1.3.33

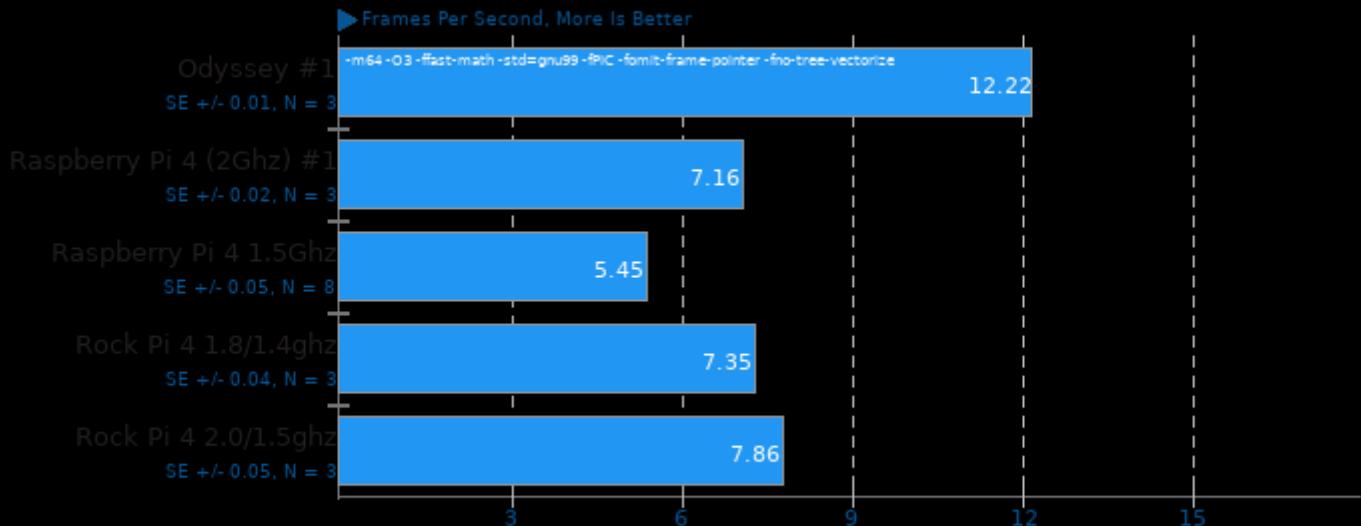
Operation: HWB Color Space



1. (CC) gcc options: -fopenmp -O2 -pthread -ljbig -ltiff -ljpeg -llzma -lz -lm -lpthread

x264 2019-12-17

H.264 Video Encoding



1. (CC) gcc options: -O3 -fPIC -fno-tree-vectorize

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