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Raspberry Pi 4 vs. Intel Comet Lake

Benchmarks for a future article.

Automated Executive Summary

Core i3 10100 had the most wins, coming in first place for 83% of the tests.

Based on the geometric mean of all complete results, the fastest (Core i3 10100) was 6.231x the speed of the slowest (rk3288 5101). Pentium Gold G6400 was 0.749x the speed of Core i3 10100, Celeron G5900 was 0.781x the speed of Pentium Gold G6400, Raspberry Pi 4 was 0.309x the speed of Celeron G5900, rk3288 Asus C100PA Mainline 5.8 was 0.906x the speed of Raspberry Pi 4, rk3288 5101 was 0.98x the speed of rk3288 Asus C100PA Mainline 5.8.

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

*PyPerformance (Benchmark: 2to3) at 221.788x
librsvg (Operation: SVG Files To PNG) at 18.777x
GNU Octave Benchmark at 16.278x
PolyBench-C (Test: Covariance Computation) at 14.306x
PolyBench-C (Test: Correlation Computation) at 14.295x
Numpy Benchmark at 14.15x
SQLite Speedtest (Timed Time - Size 1,000) at 14.131x
FLAC Audio Encoding (WAV To FLAC) at 13.694x*

Aircrack-ng at 13.351x

GraphicsMagick (Operation: Rotate) at 13.341x.

Test Systems:

Raspberry Pi 4

Processor: ARMv7 Cortex-A72 @ 1.50GHz (4 Cores), Motherboard: BCM2711 Raspberry Pi 4 Model B Rev 1.1, Memory: 2048MB, Disk: 32GB SC32G, Graphics: V3D 4.2 2GB, Monitor: VA2431

OS: Raspbian 10, Kernel: 5.4.51-v7l+ (armv7l), Desktop: LXDE 0.10.0, Display Server: X Server 1.20.4, Display Driver: modesetting 1.20.4, OpenGL: 2.1 Mesa 19.3.2, Compiler: GCC 8.3.0, File-System: ext4, Screen Resolution: 1920x1080

Kernel Notes: snd_bcm2835.enable_compat_alsa=0 snd_bcm2835.enable_hdmi=1 snd_bcm2835.enable_headphones=1
Compiler Notes: --build=arm-linux-gnueabihf --disable-libitm --disable-libquadmath --disable-libquadmath-support --disable-sjlj-exceptions --disable-werror --enable-bootstrap --enable-checking=release --enable-clocale=gnu --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-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=armv6 --with-default-libstdcxx-abi=new --with-float=hard --with-fpu=vfp --with-gcc-major-version-only --with-target-system-zlib -v
Processor Notes: Scaling Governor: cpufreq-dt ondemand
Java Notes: OpenJDK Runtime Environment (build 11.0.8+10-post-Raspbian-1deb10u1)
Python Notes: Python 2.7.16 + Python 3.7.3

Core i3 10100

Processor: Intel Core i3-10100 @ 4.30GHz (4 Cores / 8 Threads), Motherboard: Gigabyte B460M DS3H (F2 BIOS), Chipset: Intel Device 9b63, Memory: 16GB, Disk: 500GB Western Digital WDS500G3X0C-00SJG0, Graphics: EFI VGA, Audio: Realtek ALC887-VD, Network: Realtek RTL8111/8168/8411

OS: Debian 10, Kernel: 4.19.0-9-amd64 (x86_64), Display Server: X Server 1.20.4, Display Driver: modesetting 1.20.4, Compiler: GCC 8.3.0, File-System: ext4, Screen Resolution: 1024x768

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 powersave - CPU Microcode: 0xcc
Java Notes: OpenJDK Runtime Environment (build 11.0.8+10-post-Debian-1deb10u1)
Python Notes: Python 2.7.16 + Python 3.7.3
Security Notes: itlb_multihit: KVM: Mitigation of Split huge pages + I1tf: Not affected + mds: Not affected + meltdown: Not affected + 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 IPBPs: conditional RSB filling + srbs: Not affected + tsx_async_abort: Not affected

Pentium Gold G6400

Processor: Intel Pentium Gold G6400 @ 4.00GHz (2 Cores / 4 Threads), Motherboard: Gigabyte B460M DS3H (F2 BIOS), Chipset: Intel Device 9b73, Memory: 16GB, Disk: 500GB Western Digital WDS500G3X0C-00SJG0, Graphics: EFI VGA, Audio: Realtek ALC887-VD, Network: Realtek RTL8111/8168/8411

OS: Debian 10, Kernel: 4.19.0-9-amd64 (x86_64), Display Server: X Server 1.20.4, Display Driver: modesetting 1.20.4, Compiler: GCC 8.3.0, File-System: ext4, Screen Resolution: 1024x768

Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-default-pie

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```
--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 powersave - CPU Microcode: 0xcc

Java Notes: OpenJDK Runtime Environment (build 11.0.8+10-post-Debian-1deb10u1)

Python Notes: Python 2.7.16 + Python 3.7.3

Security Notes: i1lb_multithit: KVM: Mitigation of Split huge pages + l1tf: Not affected + mds: Not affected + meltdown: Not affected + 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 IPBPs: conditional RSB filling + srbs: Not affected + tsx_async_abort: Not affected

Celeron G5900

Processor: Intel Celeron G5900 @ 3.40GHz (2 Cores), Motherboard: Gigabyte B460M DS3H (F2 BIOS), Chipset: Intel Device 9b73, Memory: 16GB, Disk: 500GB Western Digital WDS500G3X0C-00SJG0, Graphics: EFI VGA, Audio: Realtek ALC887-VD, Network: Realtek RTL8111/8168/8411

OS: Debian 10, Kernel: 4.19.0-9-amd64 (x86_64), Display Server: X Server 1.20.4, Display Driver: modesetting 1.20.4, Compiler: GCC 8.3.0, File-System: ext4, Screen Resolution: 1024x768

```
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 powersave - CPU Microcode: 0xcc

Java Notes: OpenJDK Runtime Environment (build 11.0.8+10-post-Debian-1deb10u1)

Python Notes: Python 2.7.16 + Python 3.7.3

Security Notes: i1lb_multithit: KVM: Mitigation of Split huge pages + l1tf: Not affected + mds: Not affected + meltdown: Not affected + 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 IPBPs: conditional RSB filling + srbs: Not affected + tsx_async_abort: Not affected

rk3288 Asus C100PA Mainline 5.8

Processor: ARMv7 @ 1.80GHz (4 Cores), Motherboard: Rockchip (Device Tree) Google Minnie, Memory: 4096MB, Disk: 1000GB Elements 25A2 + 16GB SDW16G, Graphics: Mali T760 4GB

OS: Debian testing, Kernel: 5.8.0jan (armv7l), Desktop: KDE Plasma 5.17.5, Display Server: X Server 1.20.8, Display Driver: modesetting 1.20.8, OpenGL: 2.1 Mesa 20.1.4, Compiler: GCC 9.3.0, File-System: ext4, Screen Resolution: 1280x800

```
Compiler Notes: --build=arm-linux-gnueabihf --disable-libitm --disable-libquadmath --disable-libquadmath-support --disable-sjli-exceptions --disable-werror
--enable-bootstrap --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-link-mutex --enable-multiarch --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-build-config=bootstrap-lto-lean --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 schedutil

Java Notes: OpenJDK Runtime Environment (build 11.0.8+10-post-Debian-1)

Python Notes: Python 2.7.18 + Python 3.8.5

rk3288 5101

Processor: ARMv7 @ 1.80GHz (4 Cores), Motherboard: Rockchip (Device Tree) Google Minnie, Memory: 4096MB, Disk: 1000GB Elements 25A2 + 16GB SDW16G, Graphics: Mali T760 4GB

OS: Debian testing, Kernel: 5.10.1jan (armv7l), Desktop: KDE Plasma 5.19.5, Display Server: X Server 1.20.10, Display Driver: modesetting 1.20.10, OpenGL: 2.1 Mesa 20.2.4, OpenCL: OpenCL 1.1 Mesa 20.2.4, Compiler: GCC 10.2.1 20201207, File-System: ext4, Screen Resolution: 1280x800

```
Compiler Notes: --build=arm-linux-gnueabihf --disable-libitm --disable-libquadmath --disable-libquadmath-support --disable-sjli-exceptions --disable-werror
--enable-bootstrap --enable-checking=release --enable-clocale-gnu --enable-default-pie --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-multiarch
```

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--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 schedutil

Java Notes: OpenJDK Runtime Environment (build 11.0.9.1+1-post-Debian-1)

Python Notes: Python 3.9.1

	Raspberry Pi 4	Core i3 10100	Pentium Gold G6400	Celeron G5900	rk3288 Asus C100PA	rk3288 5101 Mainline 5.8
LAMMPS Molecular Dynamics Simulator - Rhodopsin Protein (ns/day)	0.499	3.219	1.657	1.381		0.407
Normalized	15.5%	100%	51.48%	42.9%		12.64%
Standard Deviation	0.2%	0.4%	0.6%	0.7%		0.4%
DaCapo Benchmark - H2	14385	3146	3375	3616	19128	19132
(msec)						
Normalized	21.87%	100%	93.21%	87%	16.45%	16.44%
Standard Deviation	3.9%	5.8%	9.7%	2.7%	2.9%	4.1%
DaCapo Benchmark - Jython	34367	4151	5482	6084	50290	53234
(msec)						
Normalized	12.08%	100%	75.72%	68.23%	8.25%	7.8%
Standard Deviation	2%	1.4%	6%	1.8%	2.2%	1.8%
DaCapo Benchmark - Tradebeans	21087		4135		24233	24439
(msec)						
Normalized	19.61%		100%		17.06%	16.92%
Standard Deviation	0.7%				0.6%	2.9%
TSCP - A.C.P (Nodes/s)	350771	1376258	1268492	1078690	282538	281439
Normalized	25.49%	100%	92.17%	78.38%	20.53%	20.45%
Standard Deviation	0.2%	0.1%	0.2%	0.2%	0.3%	0.1%
GraphicsMagick - Swirl	34	187	94	65	29	29
(Iterations/min)						
Normalized	18.18%	100%	50.27%	34.76%	15.51%	15.51%
Standard Deviation	1.7%	2.5%			2%	2.8%
GraphicsMagick - Rotate	85	1134	1057	873	100	95
(Iterations/min)						
Normalized	7.5%	100%	93.21%	76.98%	8.82%	8.38%
Standard Deviation		2.7%	0.1%	0.8%		0.6%
GraphicsMagick - Sharpen	15	60	30	25	12	11
(Iterations/min)						
Normalized	25%	100%	50%	41.67%	20%	18.33%
Standard Deviation					2.9%	2.8%
GraphicsMagick - Enhanced	16	92	45	37	11	11
(Iterations/min)						
Normalized	17.39%	100%	48.91%	40.22%	11.96%	11.96%
GraphicsMagick - Resizing	48	437	246	197	55	52
(Iterations/min)						
Normalized	10.98%	100%	56.29%	45.08%	12.59%	11.9%
Standard Deviation		0.3%	0.4%		1.8%	

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GraphicsMagick - Noise-Gaussian (Iterations/min)	16	117	55	39	18	18
Normalized	13.68%	100%	47.01%	33.33%	15.38%	15.38%
Standard Deviation	25.4%					
GraphicsMagick - HWB	83	933	519	419	76	76
Color Space (Iterations/min)						
Normalized	8.9%	100%	55.63%	44.91%	8.15%	8.15%
Standard Deviation	0.2%		0.1%	0.1%		
TTSIOD 3D Renderer - P.R.W.S.S.M (FPS)	25.4479	262.097	132.556	76.4398	29.6899	28.7101
Normalized	9.71%	100%	50.58%	29.16%	11.33%	10.95%
Standard Deviation	0.7%	0.3%	0.9%	0.3%	0.1%	0.2%
Coremark - CoreMark Size	33031	179882	88892	53412	31193	32662
666 - I.P.S (Iterations/Sec)						
Normalized	18.36%	100%	49.42%	29.69%	17.34%	18.16%
Standard Deviation	0%	1.1%	1.9%	0.1%	2.8%	0.7%
7-Zip Compression - C.S.T (MIPS)	3466	27500	15033	7920	3515	3453
Normalized	12.6%	100%	54.67%	28.8%	12.78%	12.56%
Standard Deviation	0.1%	1.2%	0.2%	0.6%	1.4%	0.5%
Timed GDB GNU Debugger	970.537	118.874	178.803	274.528	859.339	933.667
Compilation - Time To Compile (sec)						
Normalized	12.25%	100%	66.48%	43.3%	13.83%	12.73%
Standard Deviation	0.5%	0.3%	0.1%	0.1%	0.2%	0.3%
Timed MPlayer Compilation - Time To Compile (sec)	543.837	69.218	128.701	198.335	537.706	584.479
Normalized	12.73%	100%	53.78%	34.9%	12.87%	11.84%
Standard Deviation	0%	0.1%	0%	0.1%	0.1%	0.1%
Timed PHP Compilation - Time To Compile (sec)	638.584	88.578	143.935	220.076	605.265	663.845
Normalized	13.87%	100%	61.54%	40.25%	14.63%	13.34%
Standard Deviation	0.2%	0.2%	0.1%	0.3%	0.1%	0.1%
C-Ray - Total Time - 4.1.R.P.P (sec)	680.080	157.068	322.191	400.348	1103	1173
Normalized	23.1%	100%	48.75%	39.23%	14.24%	13.39%
Standard Deviation	4.3%	0%	0%	0%	0.7%	1.6%
Smallpt - G.I.R.1.S (sec)	130.180	22.802	46.453	74.585	186.387	185.460
Normalized	17.52%	100%	49.09%	30.57%	12.23%	12.29%
Standard Deviation	1.4%	0.1%	0.1%	0.1%	0.6%	0.4%
Numpy Benchmark (Score)	26.54	375.55	336.12	282.42	35.49	33.68
Normalized	7.07%	100%	89.5%	75.2%	9.45%	8.97%
Standard Deviation	0.1%	0.2%	0.1%	0.4%	0.3%	1.8%
XZ Compression - XZ Compression - C.u.1.0.3.s.i.i.C.L.9 (sec)	416.907	42.488	69.307	123.883	277.978	295.546
Normalized	10.19%	100%	61.3%	34.3%	15.28%	14.38%
Standard Deviation	2.8%	0.3%	0.4%	0.1%	0.3%	1.5%
OpenSSL - R.4.b.P	97.6	1253	389.3	315.0	101.7	102.2
Normalized	7.79%	100%	31.06%	25.14%	8.12%	8.16%
Standard Deviation	0.1%	0.3%	0.1%	0.6%	2.9%	2.4%
Aircrack-ng (k/s)	1162	15519	2813	2347		
Normalized	7.49%	100%	18.12%	15.12%		

	Standard Deviation	0.6%	0.4%	0.3%	0%	
libjpeg-turbo tjbench - D.T	49.657148	205.777836	172.928584	147.209265	44.228762	44.715100
(Megapixels/sec)						
Normalized	24.13%	100%	84.04%	71.54%	21.49%	21.73%
Standard Deviation	0.4%	0.4%	0.5%	1%	0.7%	0.1%
SQLite Speedtest - Timed	766.550	54.246	65.150	82.015	595.495	634.672
Time - Size 1,000 (sec)						
Normalized	7.08%	100%	83.26%	66.14%	9.11%	8.55%
Standard Deviation	0.5%	0.6%	2.3%	0%	1.3%	2.5%
GEGL - Crop (sec)	50.874	8.527	9.509	10.893	45.992	46.700
Normalized	16.76%	100%	89.67%	78.28%	18.54%	18.26%
Standard Deviation	2.7%	0.9%	1.5%	1.1%	5.5%	4.4%
GEGL - Scale (sec)	36.875	5.478	6.236	7.229	35.735	36.151
Normalized	14.86%	100%	87.84%	75.78%	15.33%	15.15%
Standard Deviation	0.5%	1.1%	1.3%	0.1%	0.3%	0.1%
GEGL - Cartoon (sec)	647.548	105.900	117.134	137.544	597.039	611.340
Normalized	16.35%	100%	90.41%	76.99%	17.74%	17.32%
Standard Deviation	0.8%	0.3%	0.3%	0.1%	0.2%	0.4%
GEGL - Reflect (sec)	14.988	31.140	33.538	39.431	151.242	154.046
Normalized	100%	48.13%	44.69%	38.01%	9.91%	9.73%
Standard Deviation	0.7%	0.4%	0.2%	0.3%	0.2%	0.2%
GEGL - Antialias (sec)	214.859	40.701	47.341	56.741	191.124	198.802
Normalized	18.94%	100%	85.97%	71.73%	21.3%	20.47%
Standard Deviation	0.5%	0.1%	0.5%	0.1%	0.1%	0.1%
GEGL - Tile Glass (sec)	161.312	30.744	33.043	38.373	151.369	156.340
Normalized	19.06%	100%	93.04%	80.12%	20.31%	19.66%
Standard Deviation	1.2%	0.2%	0.6%	0.1%	0.1%	0.1%
GEGL - Wavelet Blur (sec)	326.606	62.372	68.478	79.504	275.793	289.792
Normalized	19.1%	100%	91.08%	78.45%	22.62%	21.52%
Standard Deviation	0.7%	0.3%	0.3%	0%	0%	0.2%
GEGL - Color Enhance (sec)	341.548	59.441	64.276	75.070	331.259	346.142
Normalized	17.4%	100%	92.48%	79.18%	17.94%	17.17%
Standard Deviation	0.5%	0.1%	0.1%	0.1%	0.1%	0%
GEGL - Rotate 90 Degrees (sec)	246.618	41.734	47.592	56.293	238.824	245.110
Normalized	16.92%	100%	87.69%	74.14%	17.47%	17.03%
Standard Deviation	0.3%	0.2%	0.4%	0.1%	0.2%	0%
GIMP - resize (sec)	4.576	8.728	10.648	13.147		
Normalized	100%	52.43%	42.98%	34.81%		
Standard Deviation	23.2%	0.5%	0.1%	1.7%		
GIMP - rotate (sec)	4.389	17.599	18.878	22.125		
Normalized	100%	24.94%	23.25%	19.84%		
Standard Deviation	8.9%	0%	0.2%	0.1%		
GIMP - auto-levels (sec)	4.291	20.780	23.198	27.685		
Normalized	100%	20.65%	18.5%	15.5%		
Standard Deviation	0.5%	0.5%	0.1%	0.1%		
GIMP - unsharp-mask (sec)	4.345	24.968	26.371	31.529		
Normalized	100%	17.4%	16.48%	13.78%		
Standard Deviation	1.9%	0.1%	0.1%	0.1%		
Hugin - P.P.A.S.T (sec)	471.413	68.367	96.509	140.394	418.813	411.815
Normalized	14.5%	100%	70.84%	48.7%	16.32%	16.6%
Standard Deviation	0.4%	0.6%	0.5%	0.2%	8.5%	2.7%

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Inkscape - SVG Files To PNG	137.212	24.347	25.719	30.616		
	(sec)					
Normalized	17.74%	100%	94.67%	79.52%		
Standard Deviation	0.8%	0.1%	0.2%	0.2%		
OCRMyPDF - P.6.P.P.D (sec)	376.428	44.347	89.362	121.326		
Normalized	11.78%	100%	49.63%	36.55%		
Standard Deviation	0.3%	0.1%	0.1%	0.1%		
GNU Octave Benchmark	100.389	6.167	6.605	7.633		
Normalized	6.14%	100%	93.37%	80.79%		
Standard Deviation	0.5%	0.4%	1.1%	1%		
RawTherapee - T.B.T (sec)	748.022	104.108	147.977	213.383	751.231	750.545
Normalized	13.92%	100%	70.35%	48.79%	13.86%	13.87%
Standard Deviation	0.3%	0%	0%	0.1%	10.6%	0.7%
librsvg - SVG Files To PNG	77.222	13.551	13.878	16.452	247.250	254.450
	(sec)					
Normalized	17.55%	100%	97.64%	82.37%	5.48%	5.33%
Standard Deviation	2.2%	0.3%	0.1%	0.2%	0.8%	2.2%
PyBench - T.F.A.T.T	5235	945	1020	1199	5883	5908
	(Milliseconds)					
Normalized	18.05%	100%	92.65%	78.82%	16.06%	16%
Standard Deviation	0.2%		0.5%	0.5%	0.1%	0.2%
PHPBench - P.B.S (Score)	102546	729845	668540	568837	79058	78770
Normalized	14.05%	100%	91.6%	77.94%	10.83%	10.79%
Standard Deviation	0.5%	0.1%	0.3%	0.1%	0.1%	0.2%
Scikit-Learn (sec)	79.112	27.067	29.554	34.693	80.272	83.698
Normalized	34.21%	100%	91.58%	78.02%	33.72%	32.34%
Standard Deviation	0.4%	0.3%	0.1%	0.1%	2.8%	2.6%
Tesseract OCR - T.T.O.7.I	136.504	25.010	30.871	54.798		
	(sec)					
Normalized	18.32%	100%	81.01%	45.64%		
Standard Deviation	0.1%	0.2%	0.1%	0%		
PolyBench-C - C.C (sec)	31.015				2.168	17.148
					100%	12.64%
Normalized	6.99%				0.3%	0.7%
Standard Deviation	0.1%				2.170	17.071
PolyBench-C - C.C (sec)	31.021				100%	12.71%
					0.4%	0.2%
Normalized	7%				2.170	17.071
Standard Deviation	0.1%				100%	12.22%
PolyBench-C - 3.M.M (sec)	24.910	3.338	3.832	4.446	31.028	32.312
Normalized	13.4%	100%	87.11%	75.08%	10.76%	10.33%
Standard Deviation	0%	0.1%	0.1%	0.1%	0.4%	0.2%
Timed HMMer Search - P.D.S	53.889	7.438	12.846	19.579	60.125	65.046
	(sec)					
Normalized	13.8%	100%	57.9%	37.99%	12.37%	11.43%
Standard Deviation	1.4%	1.5%	0.9%	0.2%	1.1%	1.5%
Timed MAFFT Alignment - M.S.A (sec)	22.514	3.855	6.593	9.417	21.589	
Normalized	17.12%	100%	58.47%	40.94%	17.86%	
Standard Deviation	3%	6.6%	1.2%	0.4%	6.8%	
AOBench - 2048 x 2048 -	123.692	32.747	35.179	41.546	171.943	160.334
	Total Time (sec)					
Normalized	26.47%	100%	93.09%	78.82%	19.05%	20.42%
Standard Deviation	0%	0%	0%	2.7%	0.3%	0.2%

Raspberry Pi 4 vs. Intel Comet Lake

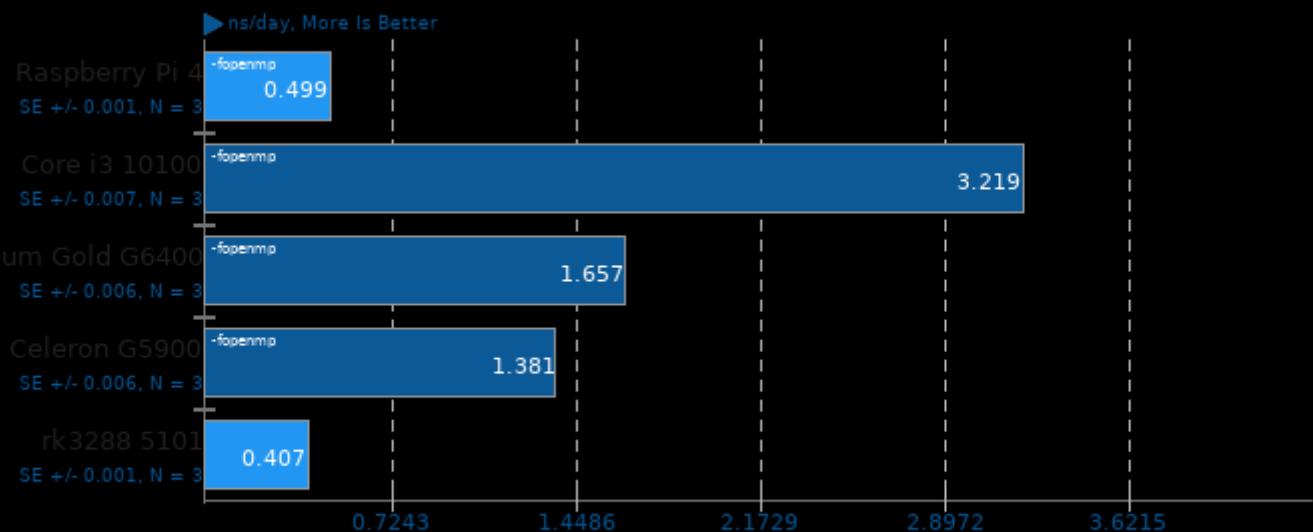
FLAC Audio Encoding - WAV	109.371	8.420	9.456	11.108	115.298	115.306
To FLAC (sec)						
Normalized	7.7%	100%	89.04%	75.8%	7.3%	7.3%
Standard Deviation	1.1%	0.2%	0.1%	0.1%	1.3%	2.2%
LAME MP3 Encoding - WAV	41.587	8.122	8.667	10.181	45.744	46.307
To MP3 (sec)						
Normalized	19.53%	100%	93.71%	79.78%	17.76%	17.54%
Standard Deviation	0.2%	0.1%	0%	0.2%	0.2%	0.1%
Perl Benchmarks - Pod2html	0.61497660	0.10872912	0.11884498	0.14005805	0.72314832	0.73886582
(sec)						
Normalized	17.68%	100%	91.49%	77.63%	15.04%	14.72%
Standard Deviation	0.5%	0.2%	0.4%	0.3%	0.3%	0.3%
Perl Benchmarks - Interpreter (sec)	0.00714413	0.00108894	0.00075872	0.00101531	0.00801654	0.00702554
LibreOffice - 2.D.T.P (sec)	5.751	7.510	8.064	9.739		139.730
Normalized	100%	76.58%	71.32%	59.05%		4.12%
Standard Deviation	2.7%	2.7%	1.4%	1.8%		6.9%
PyPerformance - 2to3 (Milliseconds)	1.79	304	328	397	1.88	1.9
Normalized	100%	0.59%	0.55%	0.45%	95.21%	94.21%
Standard Deviation	0%				0.3%	0%
PyPerformance - float (Milliseconds)	629	95.7	104	123	660	635
Normalized	15.21%	100%	92.02%	77.8%	14.5%	15.07%
Standard Deviation	0.1%				0.3%	
PyPerformance - pathlib (Milliseconds)	142	17.9	19.5	23.6	122	123
Normalized	12.61%	100%	91.79%	75.85%	14.67%	14.55%
Standard Deviation	0%		0.3%	0%		0.5%
PyPerformance - json.loads (Milliseconds)	144	23.6	25.5	30.1	148	140
Normalized	16.39%	100%	92.55%	78.41%	15.95%	16.86%
Standard Deviation	0.7%	0.2%	0.2%	0.2%		
PyPerformance - regex_compile	962	167	180	212	929	947
Normalized	17.36%	100%	92.78%	78.77%	17.98%	17.63%
Standard Deviation	0.1%				0.2%	
PyPerformance - python_startup	42.5	7.49	7.96	9.8	42.3	43.5
Normalized	17.62%	100%	94.1%	76.43%	17.71%	17.22%
Standard Deviation	0.1%	0.2%	0%	0%	0.2%	0.1%
Timed Apache Compilation - Time To Compile (sec)	180.753	24.444	37.116	54.742	182.695	194.293
Normalized	13.52%	100%	65.86%	44.65%	13.38%	12.58%
Standard Deviation	0.6%	0.2%	0.1%	0.1%	0.4%	0.1%
GIMP - resize (sec)					67.402	
Standard Deviation					2.9%	
GIMP - rotate (sec)					85.905	
Standard Deviation					0.3%	
GIMP - auto-levels (sec)					96.044	
Standard Deviation					0.1%	

GIMP - unsharp-mask (sec)		122.032
Standard Deviation	0.1%	
OCRMyPDF - P.6.P.P.D (sec)		399.479 410.123
Normalized	100%	97.4%
Standard Deviation	0.7%	0.9%
GNU Octave Benchmark		58.668 60.596
Normalized	100%	96.82%
Standard Deviation	2%	1.9%
Tesseract OCR - T.T.O.7.I		135.703 138.904
(sec)		
Normalized	100%	97.7%
Standard Deviation	0.5%	0.5%
GIMP - resize (sec)		65.687
Normalized	100%	
Standard Deviation	2.5%	
GIMP - rotate (sec)		85.572
Normalized	100%	
Standard Deviation	0.1%	
GIMP - auto-levels (sec)		95.616
Normalized	100%	
Standard Deviation	0.1%	
GIMP - unsharp-mask (sec)		123.620
Normalized	100%	
Standard Deviation	0.1%	

Raspberry Pi 4 vs. Intel Comet Lake

LAMMPS Molecular Dynamics Simulator 9Jan2020

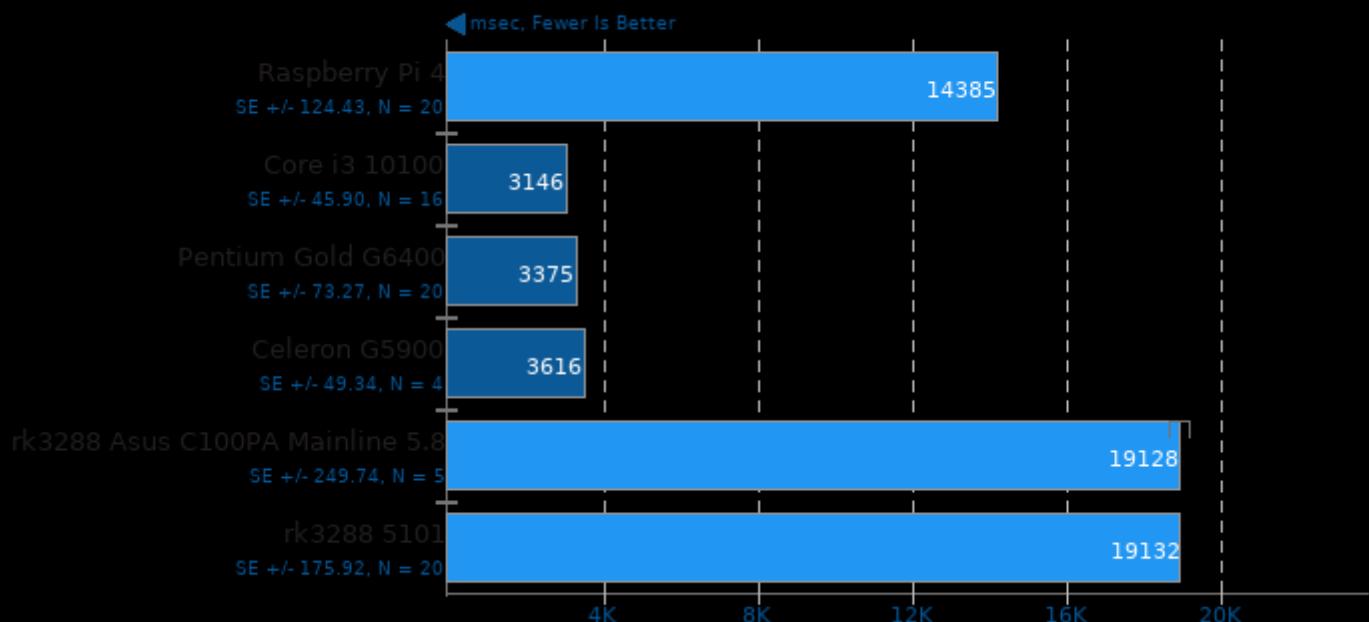
Model: Rhodopsin Protein



1. (CXX) g++ options: -O3 -rdynamic -ljpeg -lpng -lz -lfftw3 -lm

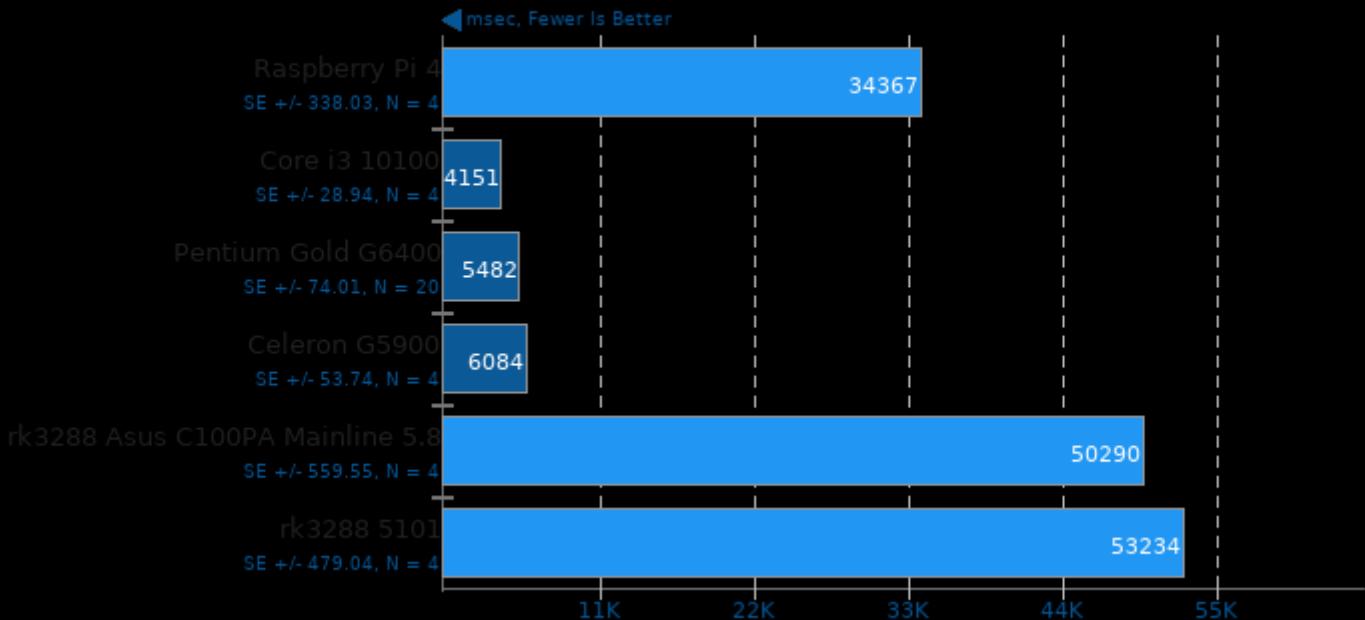
DaCapo Benchmark 9.12-MR1

Java Test: H2



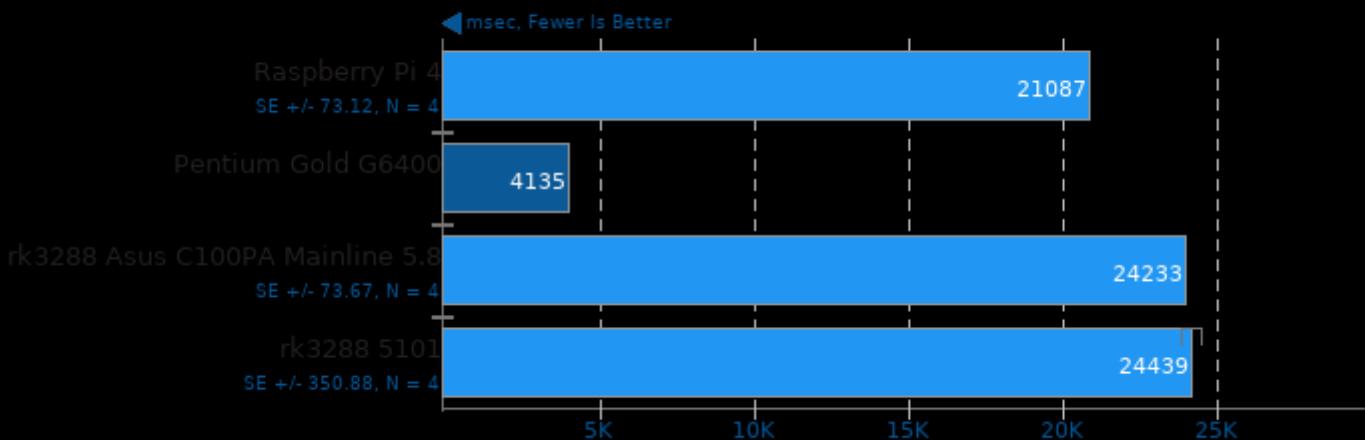
DaCapo Benchmark 9.12-MR1

Java Test: Jython



DaCapo Benchmark 9.12-MR1

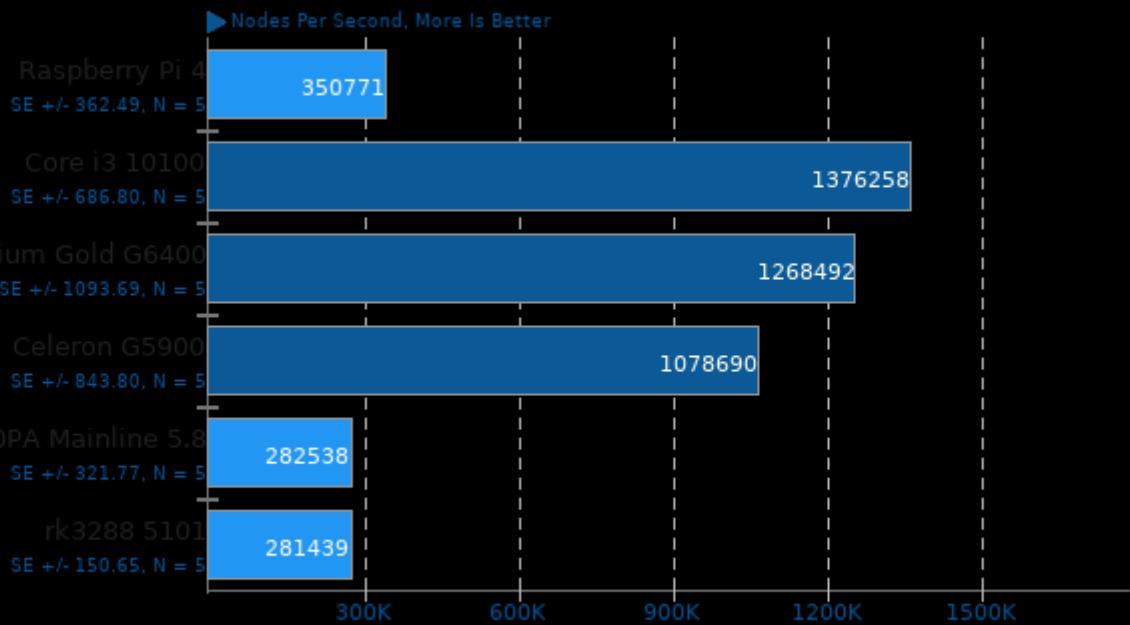
Java Test: Tradebeans



Raspberry Pi 4 vs. Intel Comet Lake

TSCP 1.81

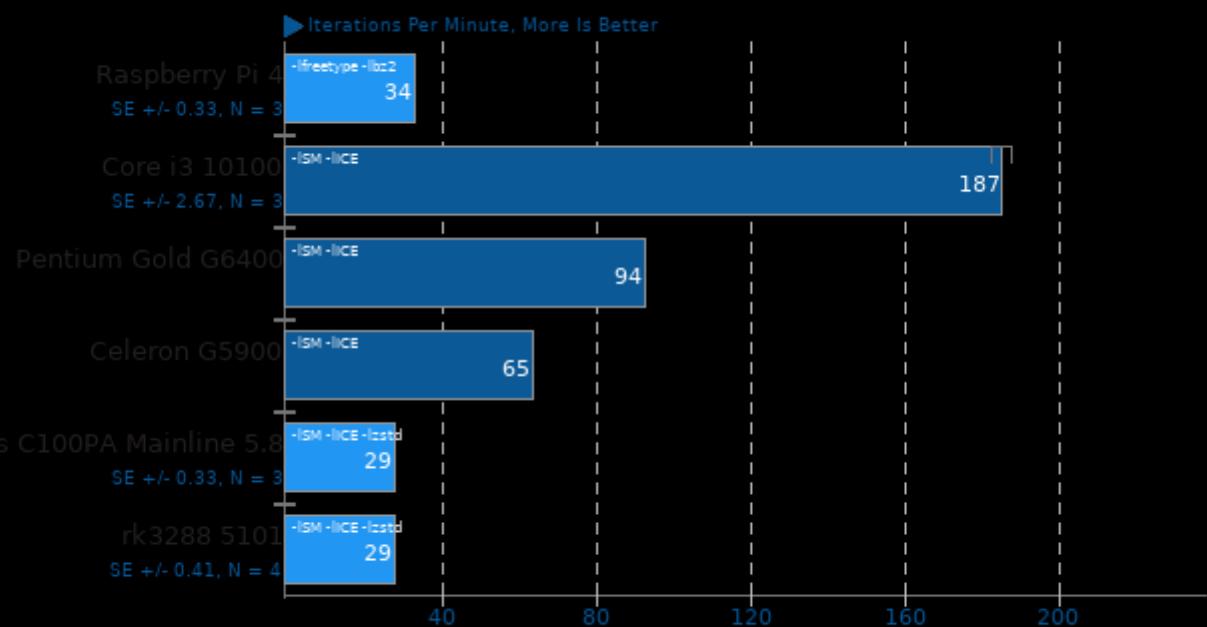
AI Chess Performance



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

GraphicsMagick 1.3.33

Operation: Swirl

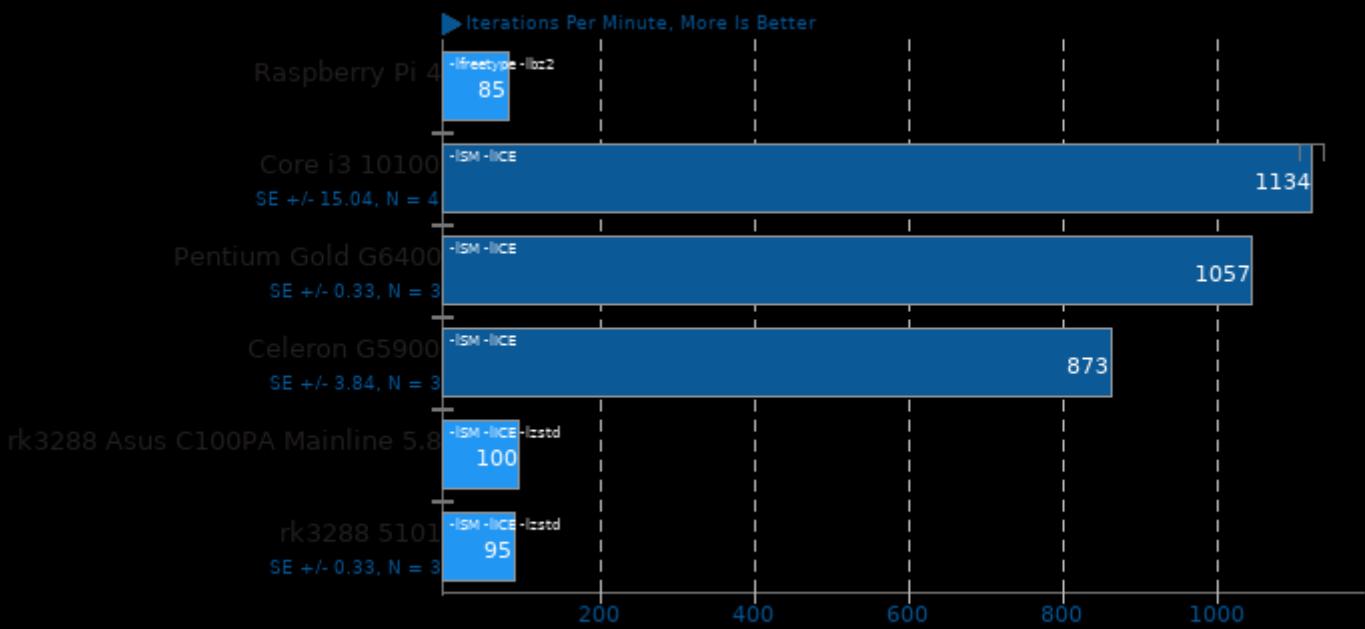


1. (CC) gcc options: -fopenmp -O2 -pthread -ljbig -lwebp -lwebrtc -ltiff -ljpeg -lXext -lX11 -lzma -lxml2 -lz -lm -lpthread

Raspberry Pi 4 vs. Intel Comet Lake

GraphicsMagick 1.3.33

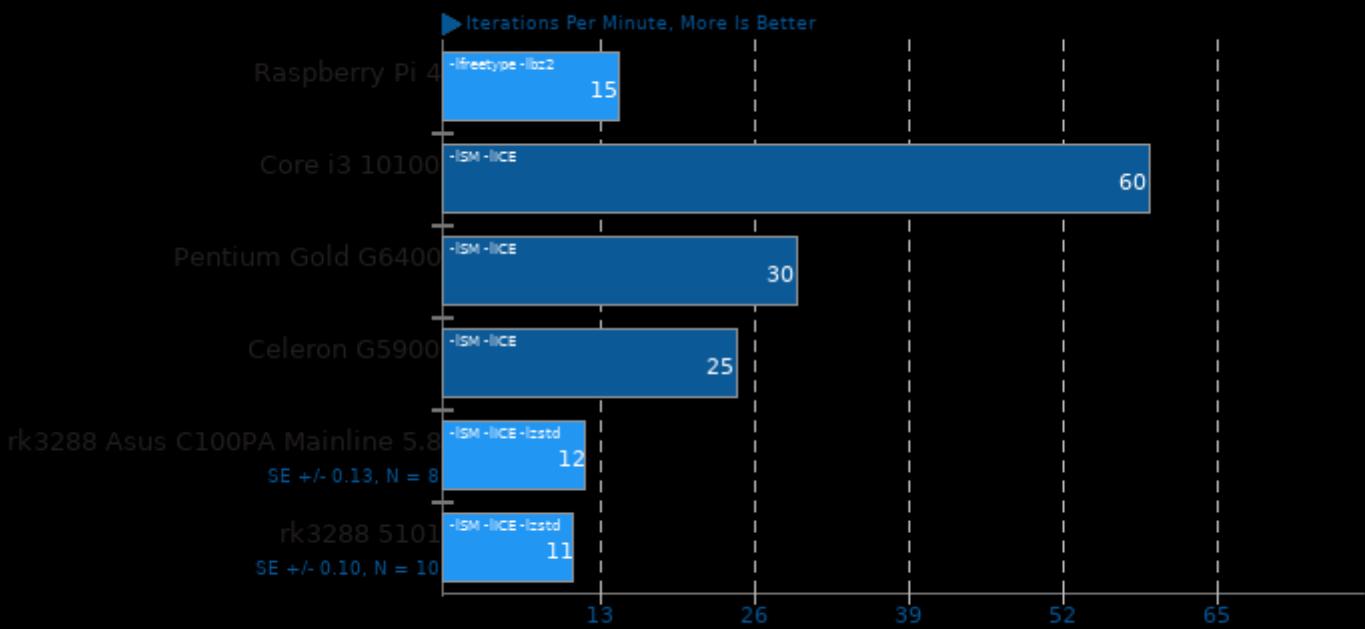
Operation: Rotate



1. (CC) gcc options: -fopenmp -O2 -pthread -ljbig -lwebp -lwebpmux -ltiff -ljpeg -lXext -lX11 -lizma -lxml2 -lz -lm -lpthread

GraphicsMagick 1.3.33

Operation: Sharpen

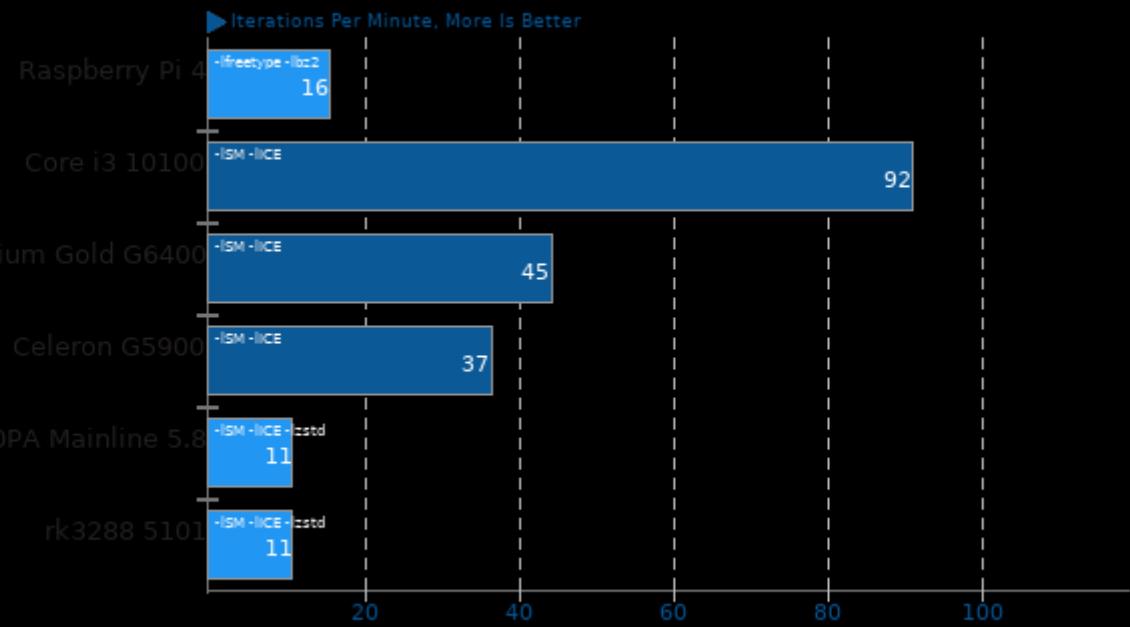


1. (CC) gcc options: -fopenmp -O2 -pthread -ljbig -lwebp -lwebpmux -ltiff -ljpeg -lXext -lX11 -lizma -lxml2 -lz -lm -lpthread

Raspberry Pi 4 vs. Intel Comet Lake

GraphicsMagick 1.3.33

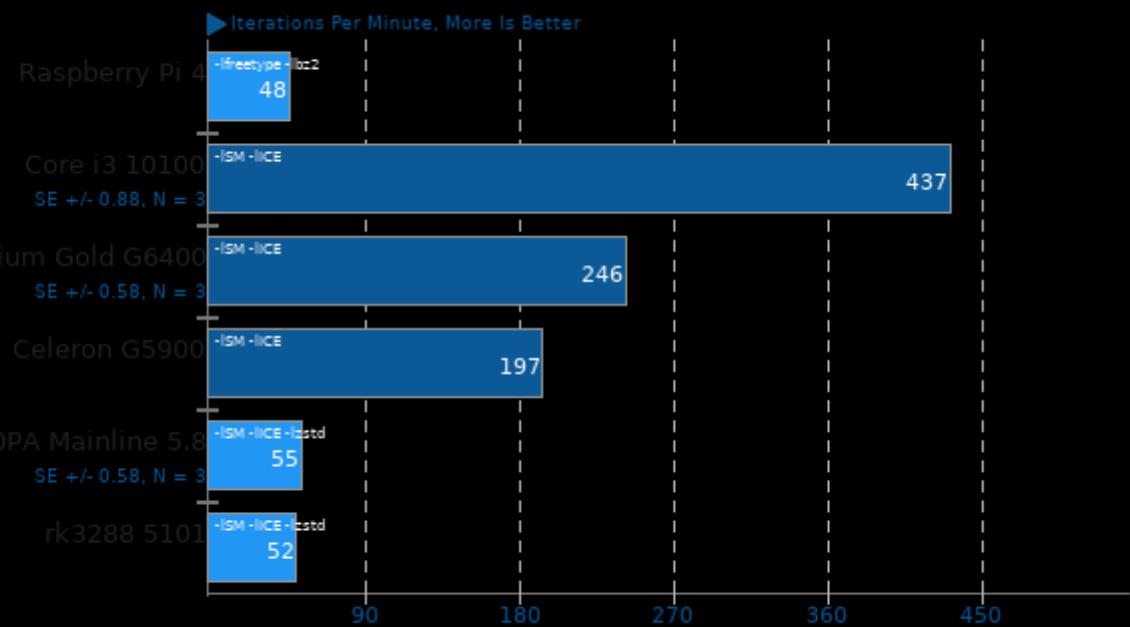
Operation: Enhanced



1. (CC) gcc options: -fopenmp -O2 -pthread -ljpeg -lwebp -lwebpmux -ltiff -lxml2 -lzma -lxz -lm -lpthread

GraphicsMagick 1.3.33

Operation: Resizing

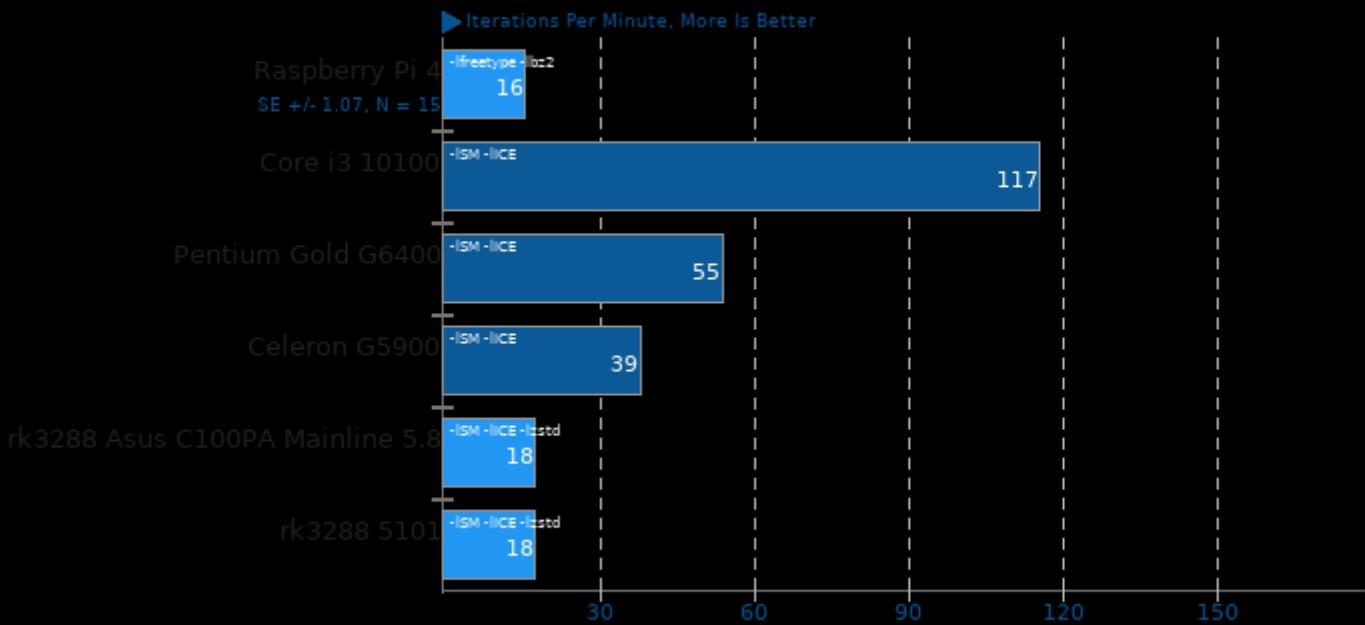


1. (CC) gcc options: -fopenmp -O2 -pthread -ljpeg -lwebp -lwebpmux -ltiff -lxml2 -lzma -lxz -lm -lpthread

Raspberry Pi 4 vs. Intel Comet Lake

GraphicsMagick 1.3.33

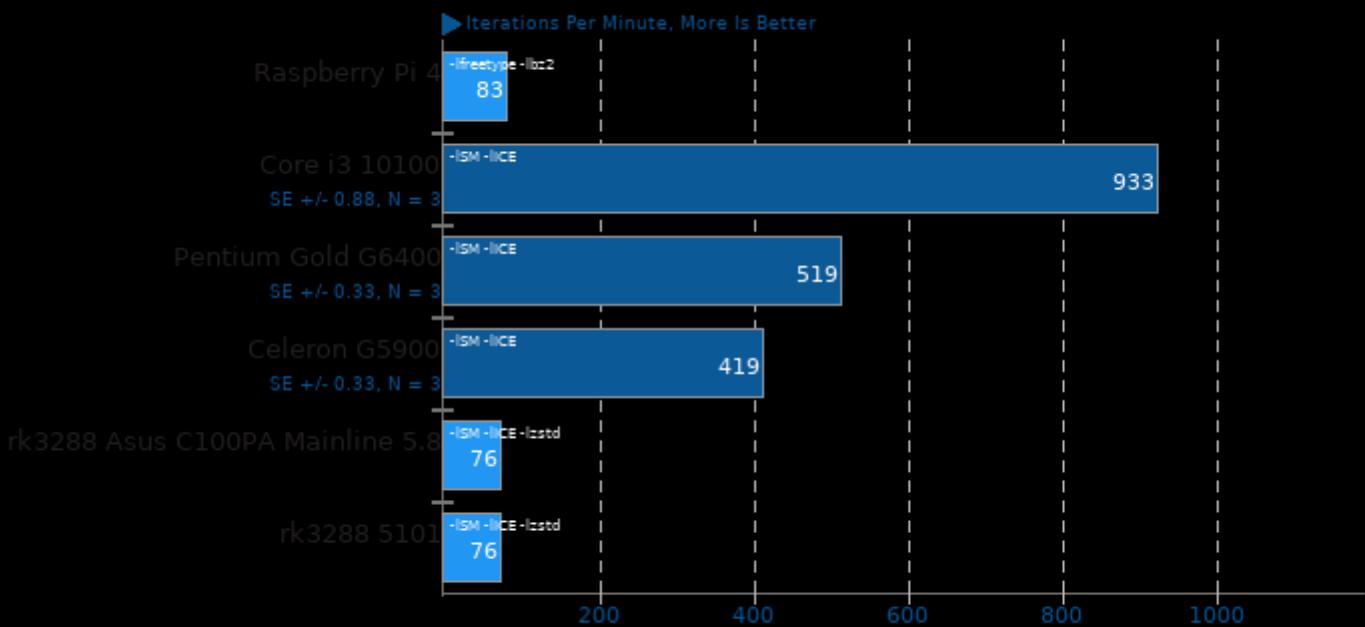
Operation: Noise-Gaussian



1. (CC) gcc options: -fopenmp -O2 -pthread -ljpeg -lwebp -lwebpmux -ltiff -lxml2 -lzma -lxz -lm -lpthread

GraphicsMagick 1.3.33

Operation: HWB Color Space

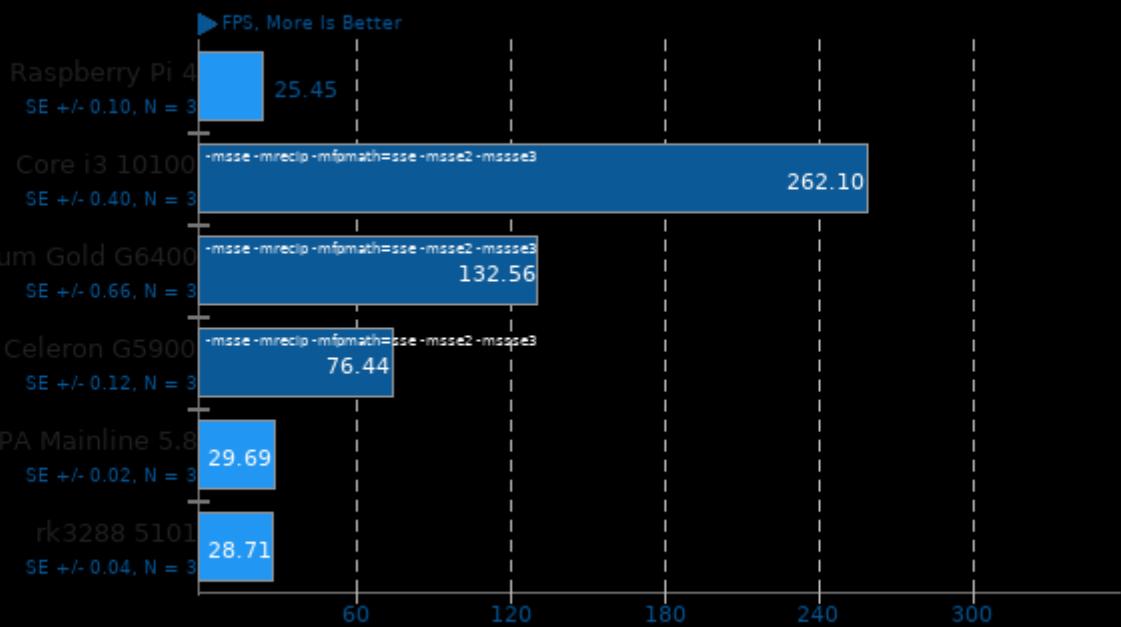


1. (CC) gcc options: -fopenmp -O2 -pthread -ljpeg -lwebp -lwebpmux -ltiff -lxml2 -lzma -lxz -lm -lpthread

Raspberry Pi 4 vs. Intel Comet Lake

TTSIOD 3D Renderer 2.3b

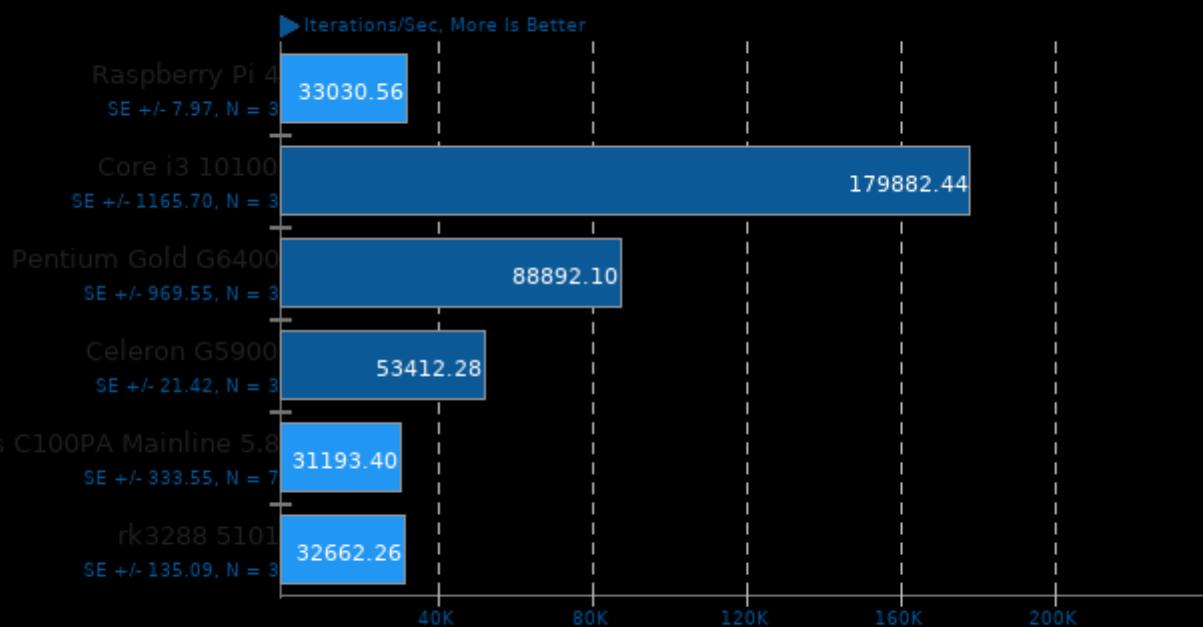
Phong Rendering With Soft-Shadow Mapping



1. (CXX) g++ options: -O3 -fomit-frame-pointer -ffast-math -mtune=native -fno-DSL -fopenmp -fwhole-program -fstd=c++

Coremark 1.0

CoreMark Size 666 - Iterations Per Second

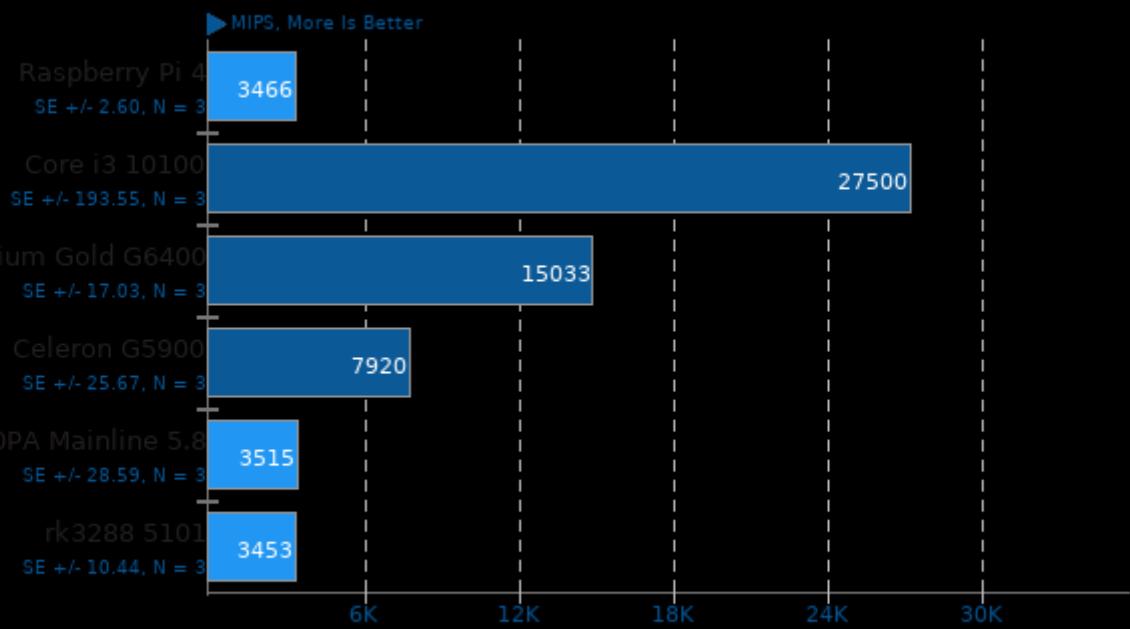


1. (CC) gcc options: -O2 -fintc -fintc

Raspberry Pi 4 vs. Intel Comet Lake

7-Zip Compression 16.02

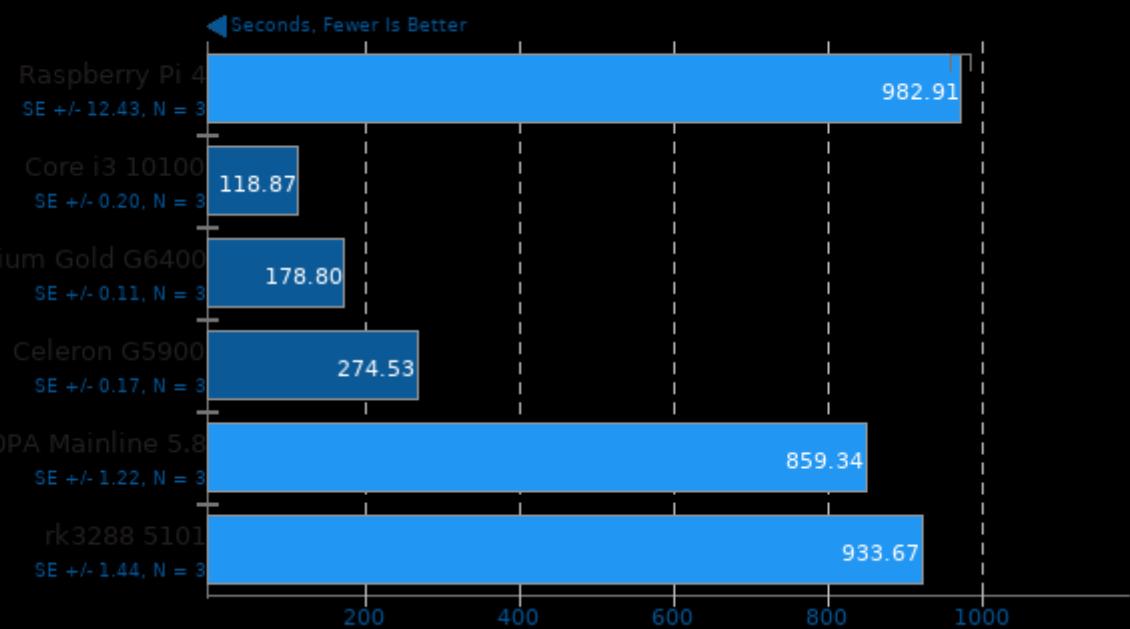
Compress Speed Test



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

Timed GDB GNU Debugger Compilation 9.1

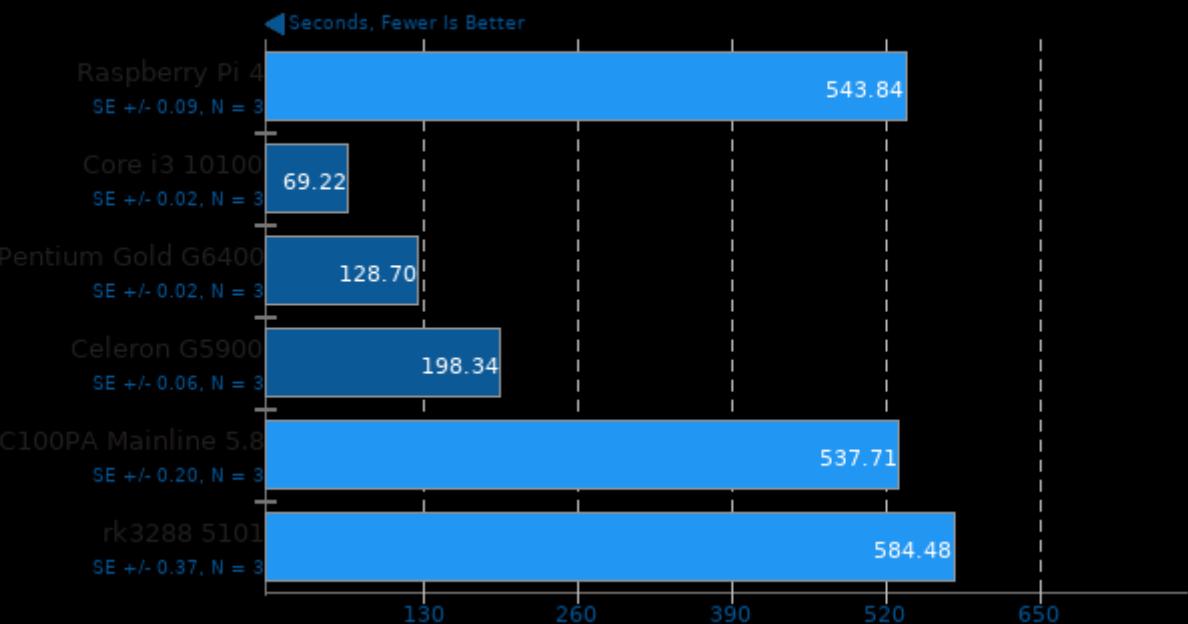
Time To Compile



Raspberry Pi 4 vs. Intel Comet Lake

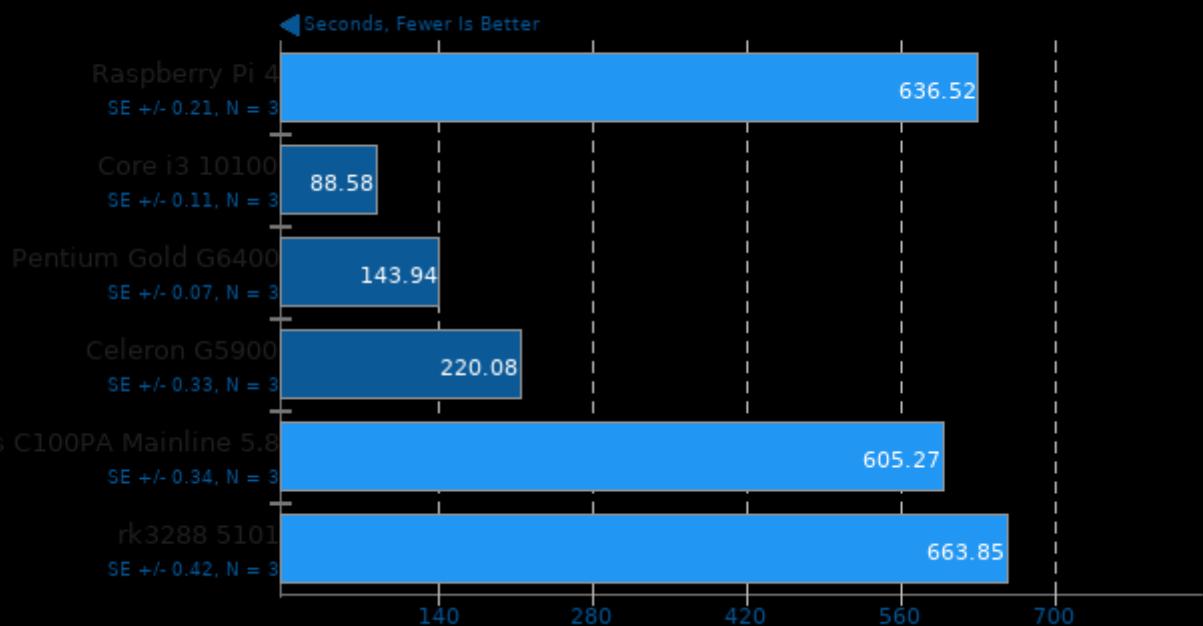
Timed MPlayer Compilation 1.4

Time To Compile



Timed PHP Compilation 7.4.2

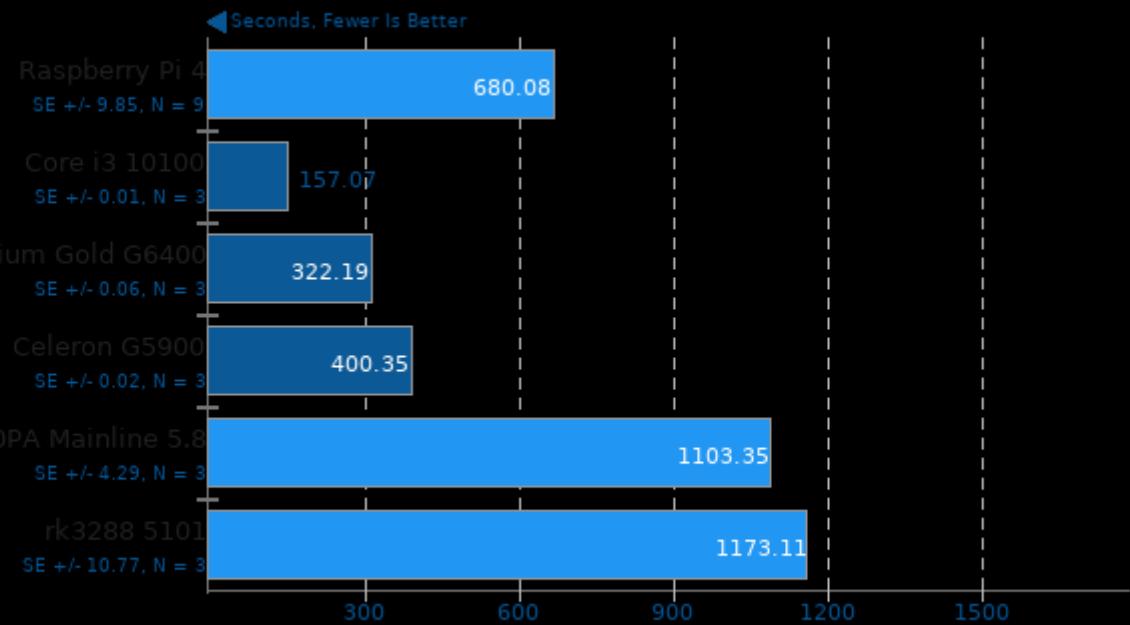
Time To Compile



Raspberry Pi 4 vs. Intel Comet Lake

C-Ray 1.1

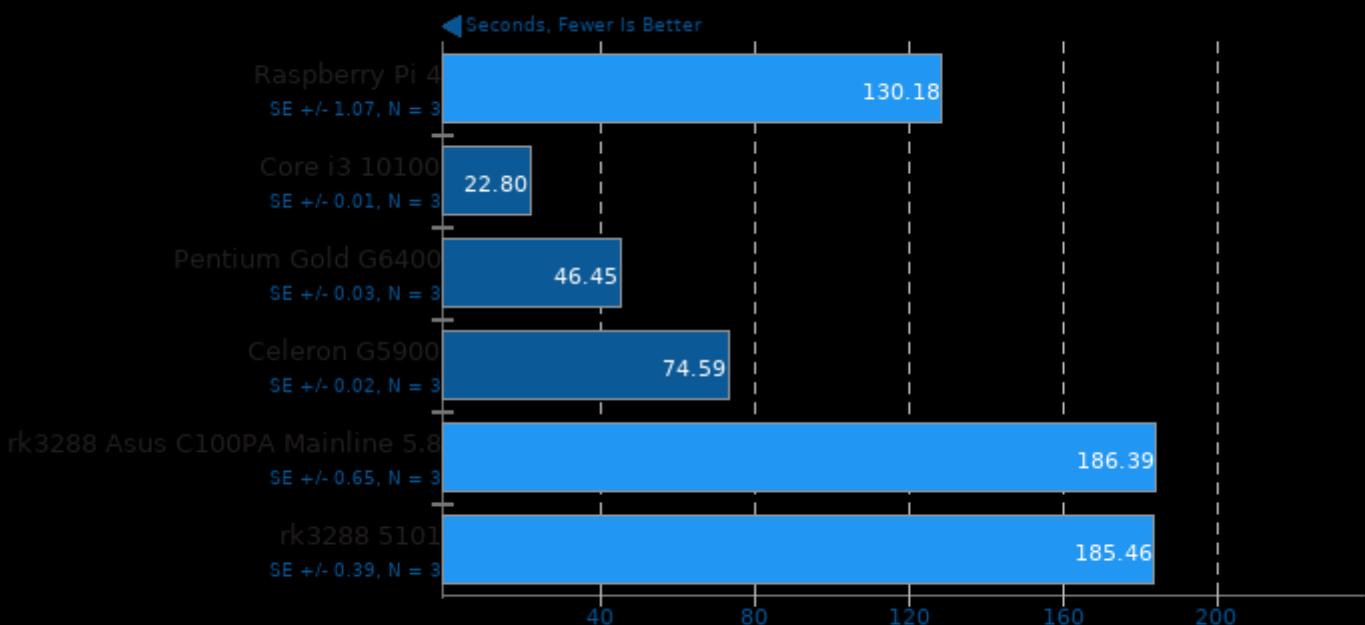
Total Time - 4K, 16 Rays Per Pixel



1. (CC) gcc options: -lm -lpthread -O3

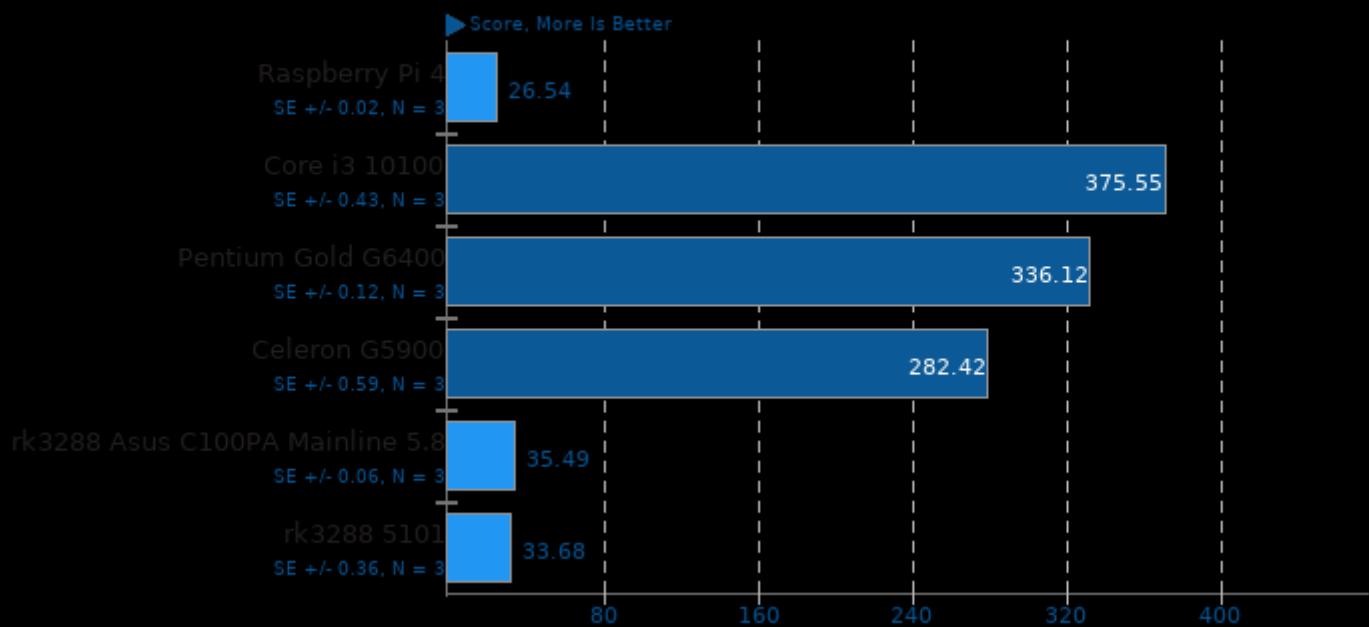
Smallpt 1.0

Global Illumination Renderer; 128 Samples



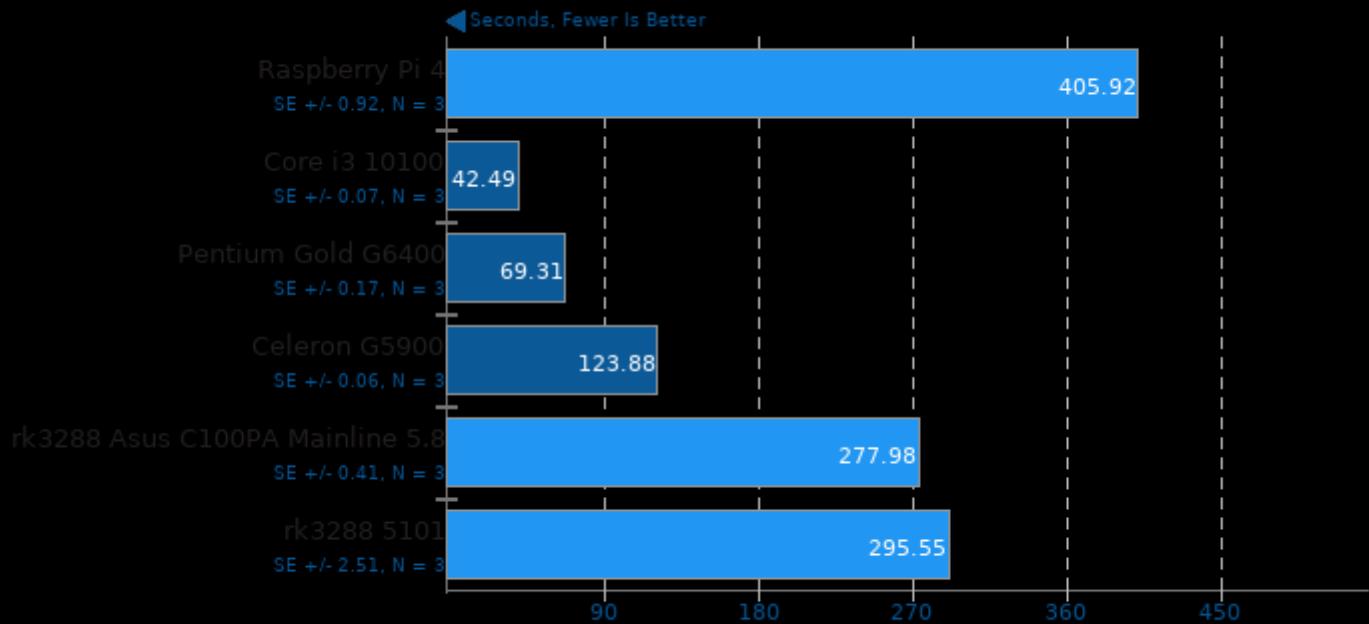
1. (CXX) g++ options: -fopenmp -O3

Numpy Benchmark



XZ Compression 5.2.4

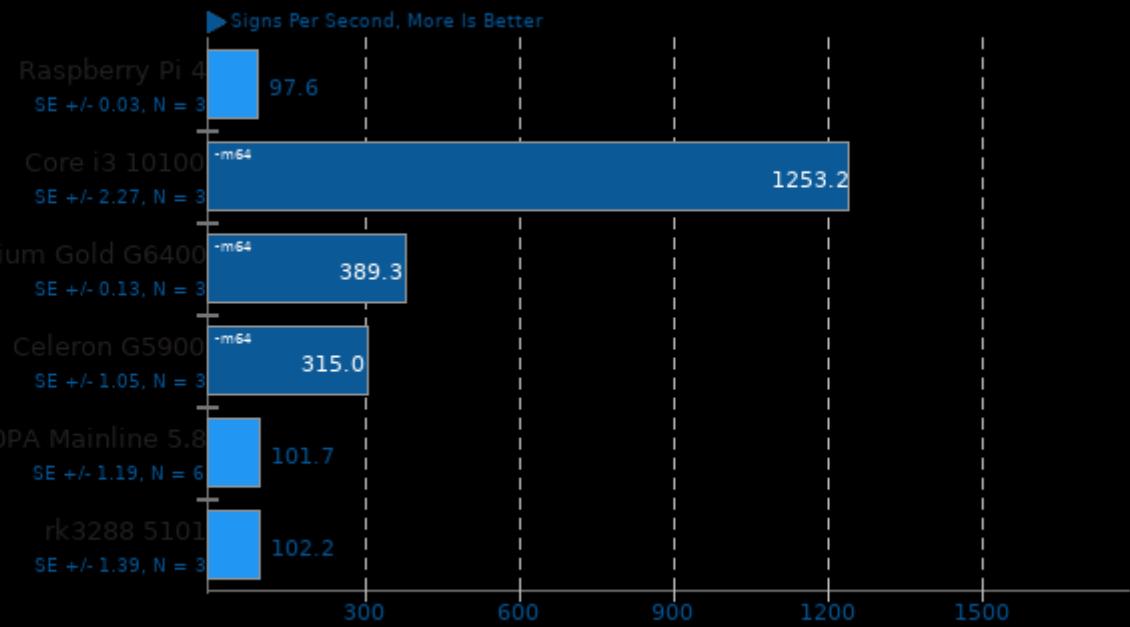
Compressing ubuntu-16.04.3-server-i386.img, Compression Level 9



1. (CC) gcc options: -pthread -fvisibility=hidden -O2

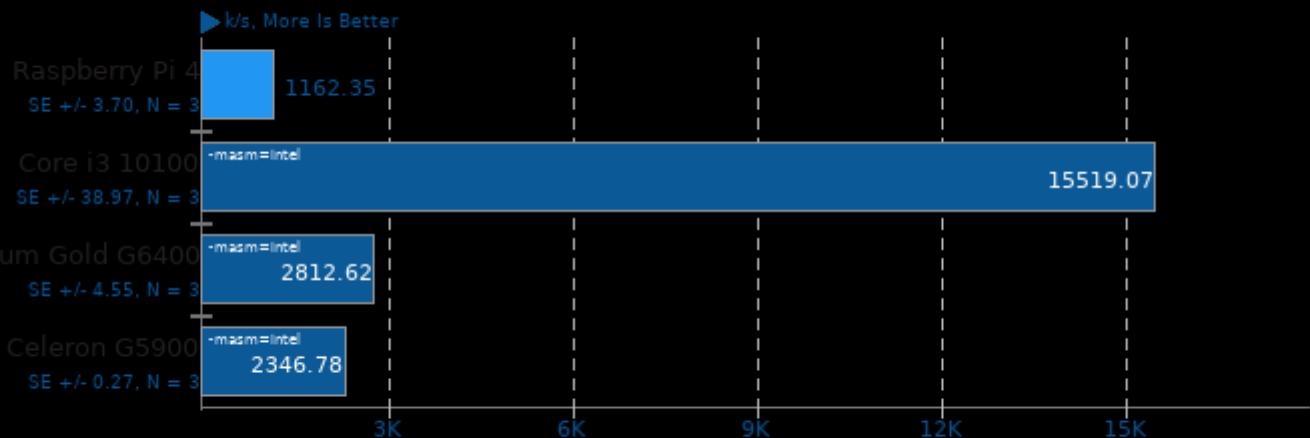
OpenSSL 1.1.1

RSA 4096-bit Performance



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

Aircrack-ng 1.5.2

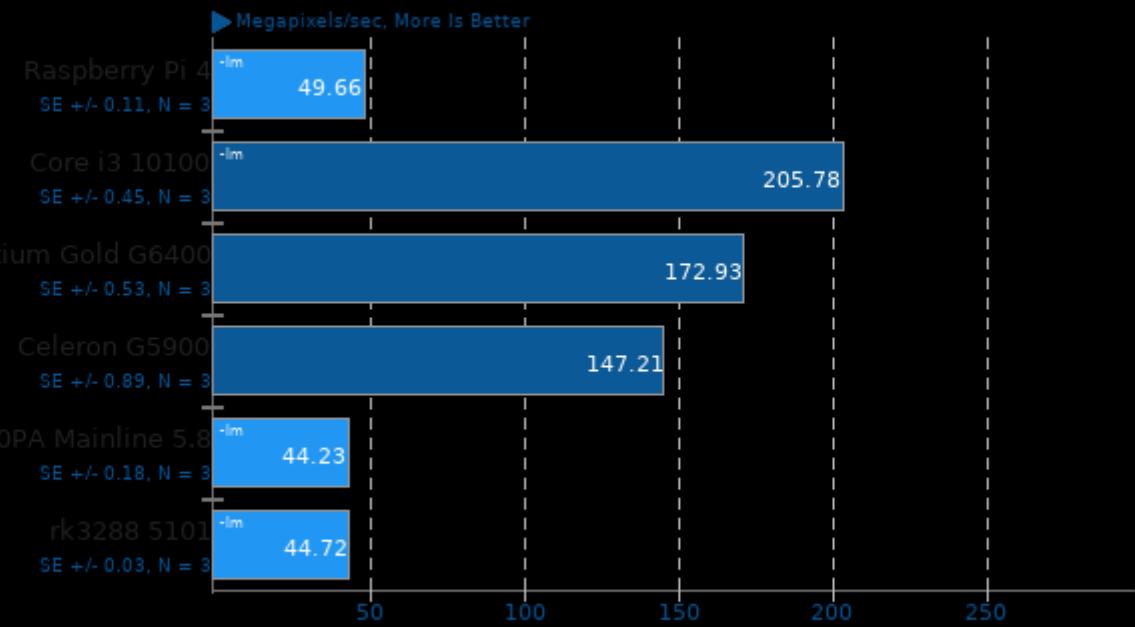


1. (CXX) g++ options: -O3 -fvisibility=hidden -fcommon -rdynamic -lpthread -lz -lcrypto -lhwloc -ldl -lm -pthread

Raspberry Pi 4 vs. Intel Comet Lake

libjpeg-turbo tjbench 2.0.2

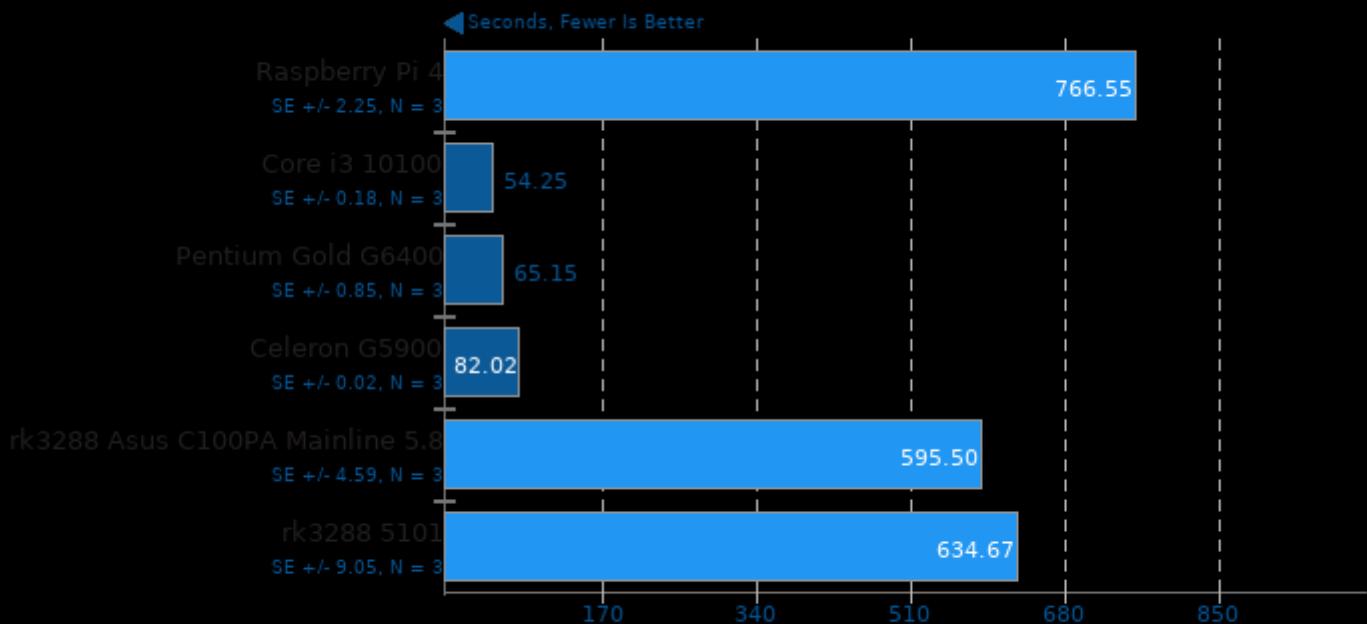
Test: Decompression Throughput



1. (CC) gcc options: -O3 -rdynamic

SQLite Speedtest 3.30

Timed Time - Size 1,000

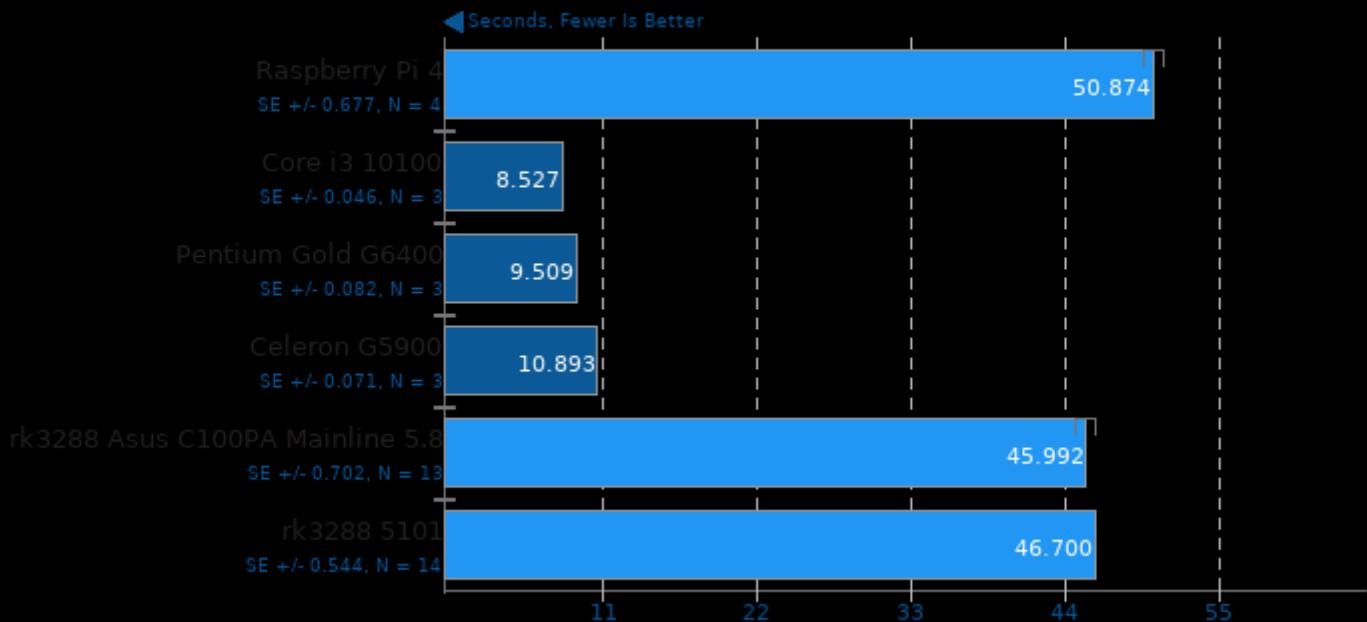


1. (CC) gcc options: -O2 -ldl -lz -lpthread

Raspberry Pi 4 vs. Intel Comet Lake

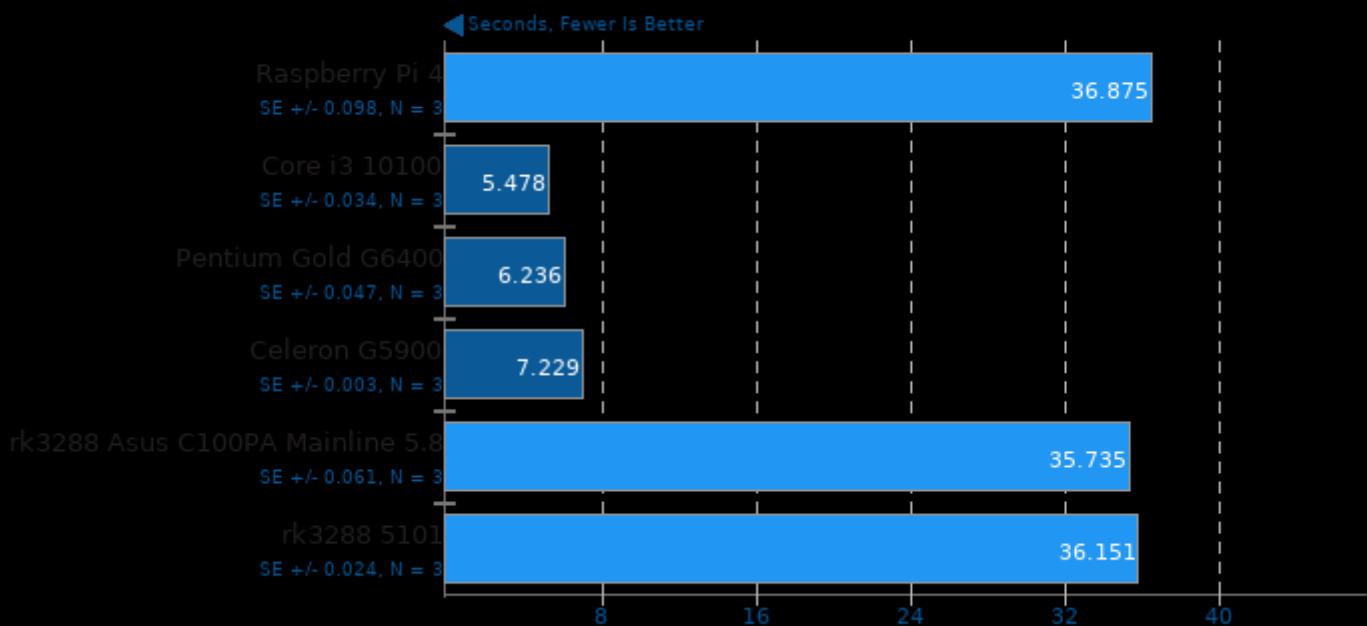
GEGL

Operation: Crop



GEGL

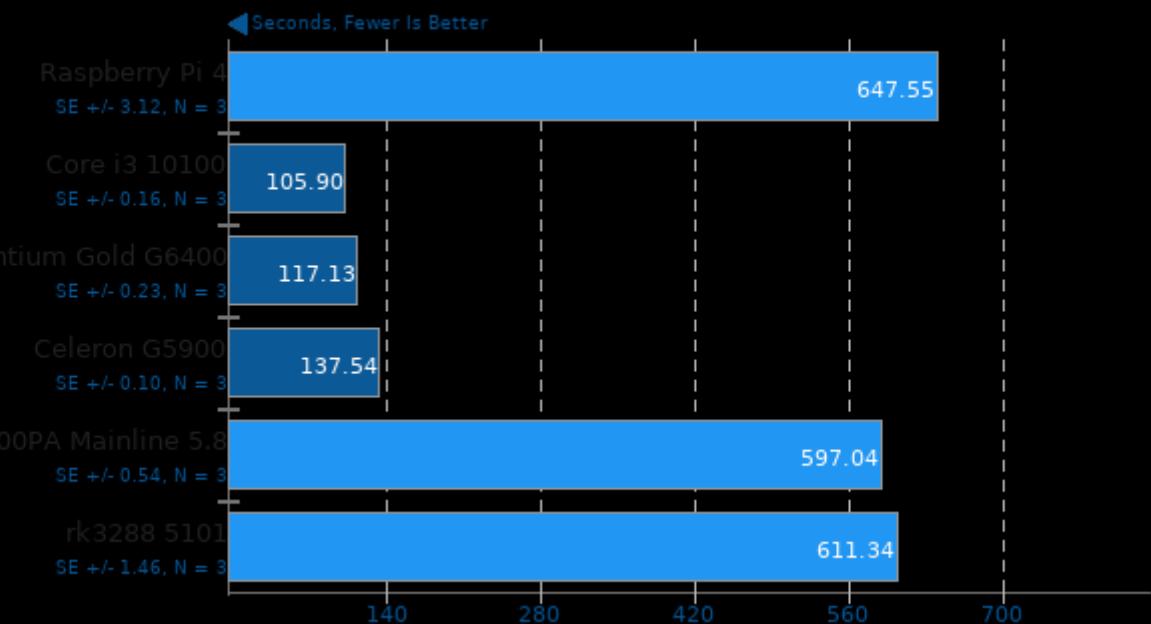
Operation: Scale



Raspberry Pi 4 vs. Intel Comet Lake

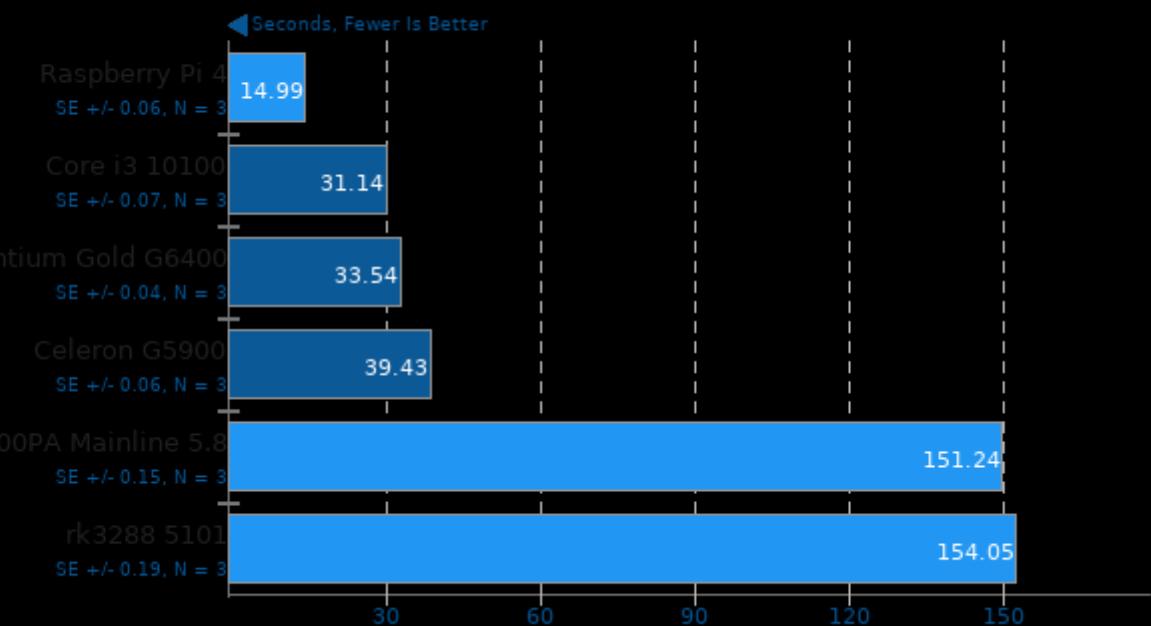
GEGL

Operation: Cartoon



GEGL

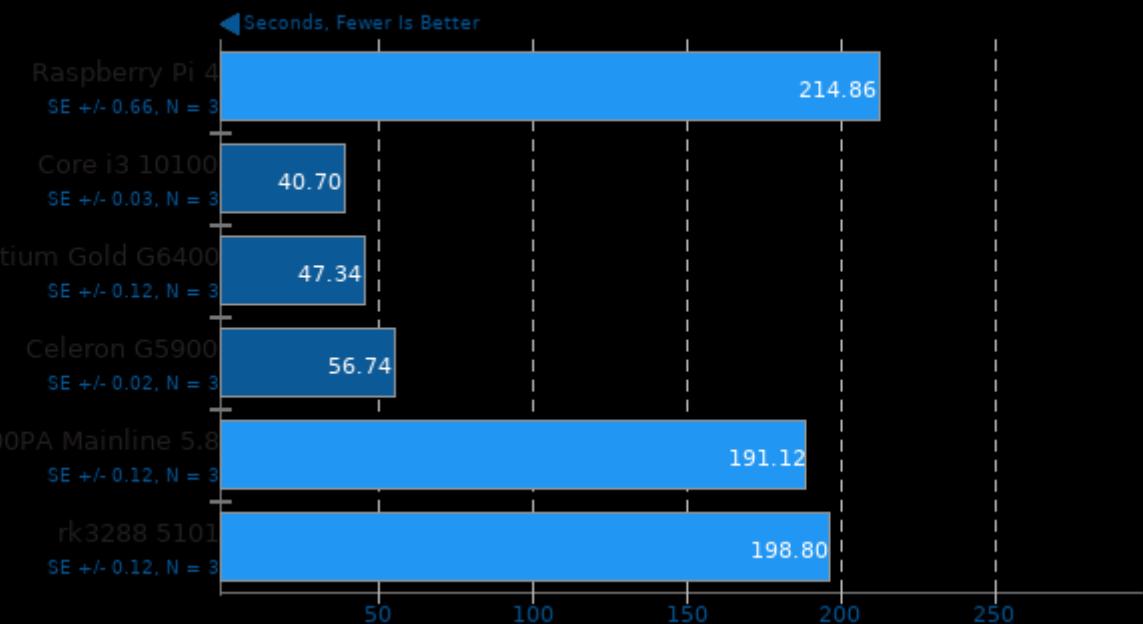
Operation: Reflect



Raspberry Pi 4 vs. Intel Comet Lake

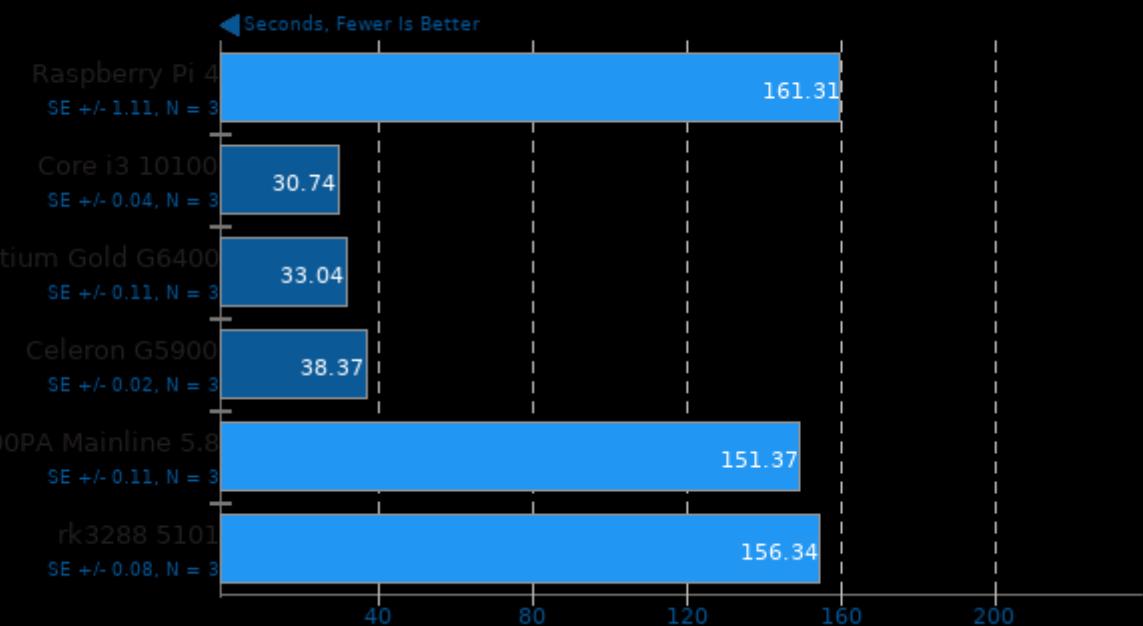
GEGL

Operation: Antialias



GEGL

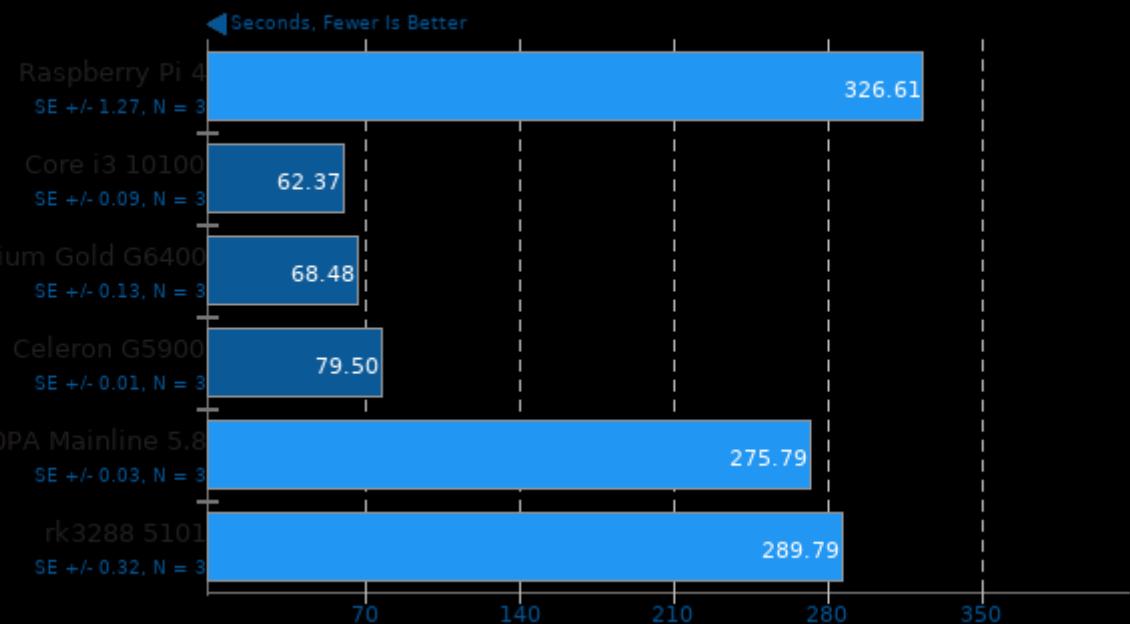
Operation: Tile Glass



Raspberry Pi 4 vs. Intel Comet Lake

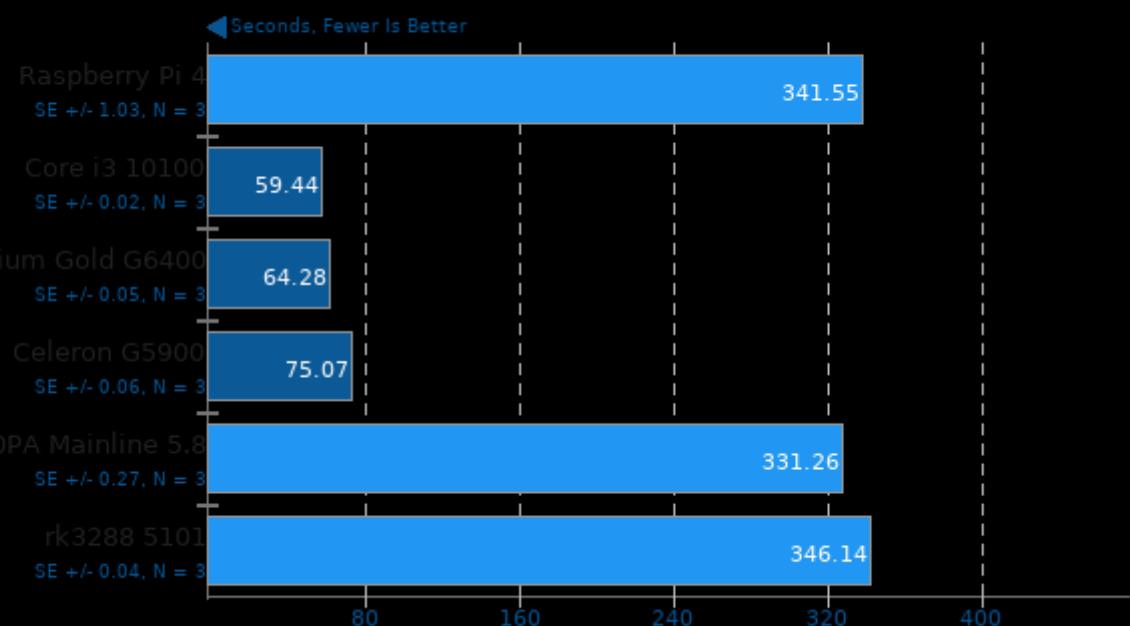
GEGL

Operation: Wavelet Blur



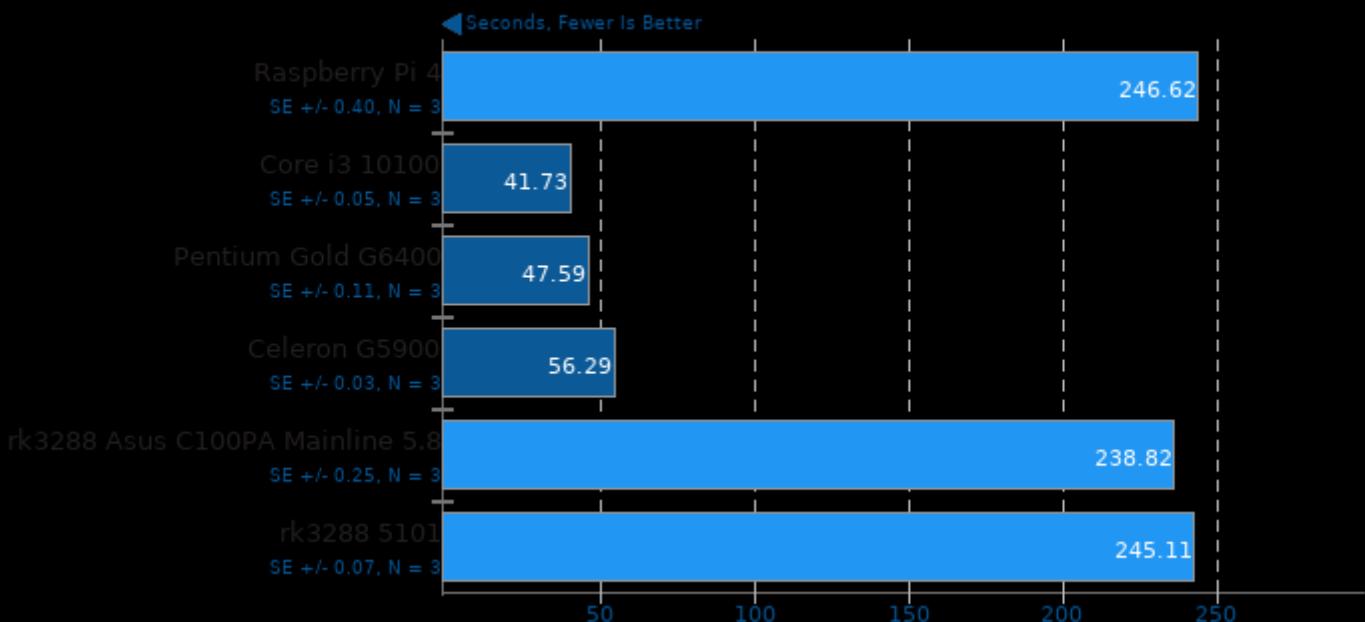
GEGL

Operation: Color Enhance



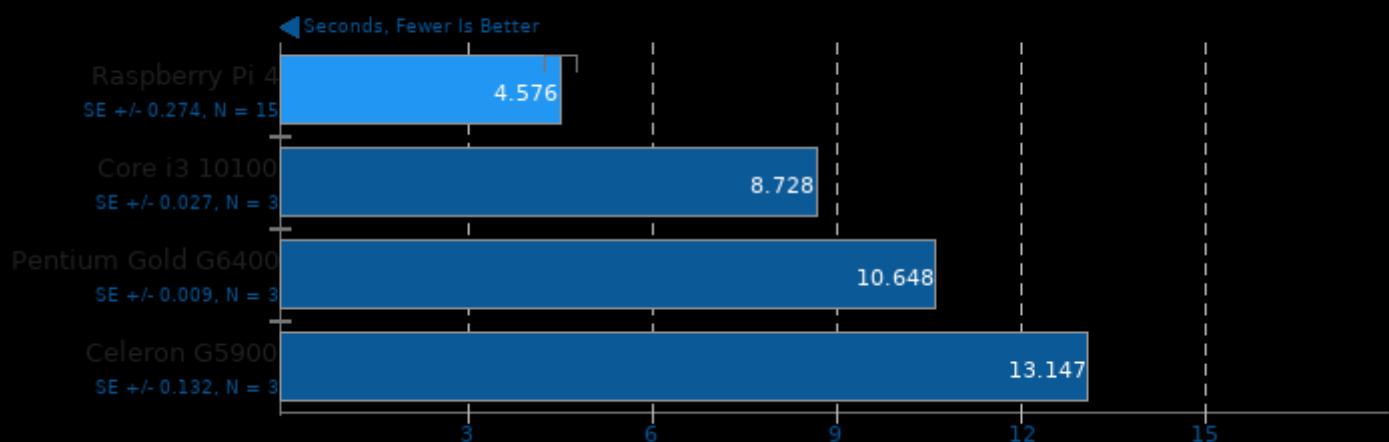
GEGL

Operation: Rotate 90 Degrees



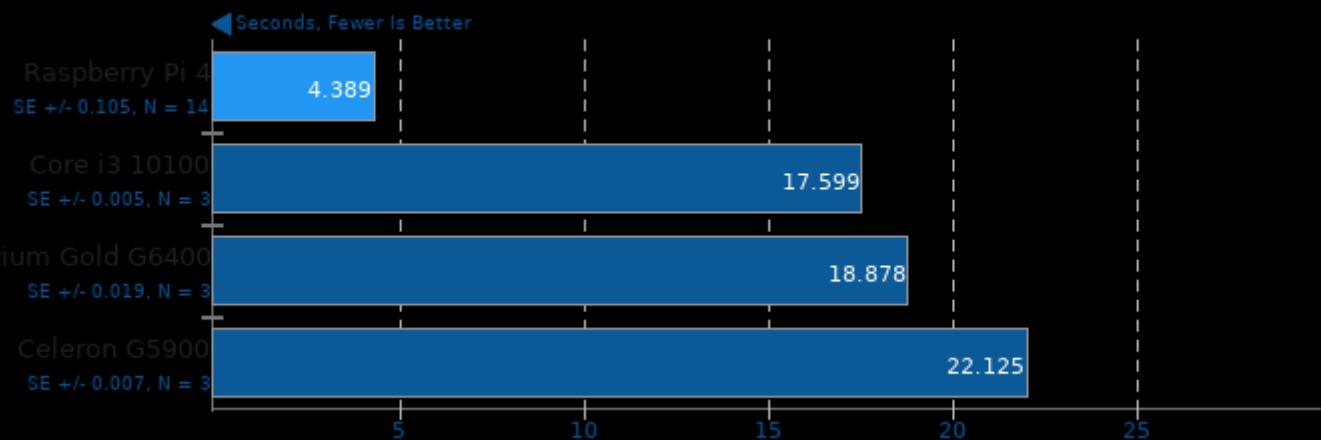
GIMP 2.10.8

Test: resize



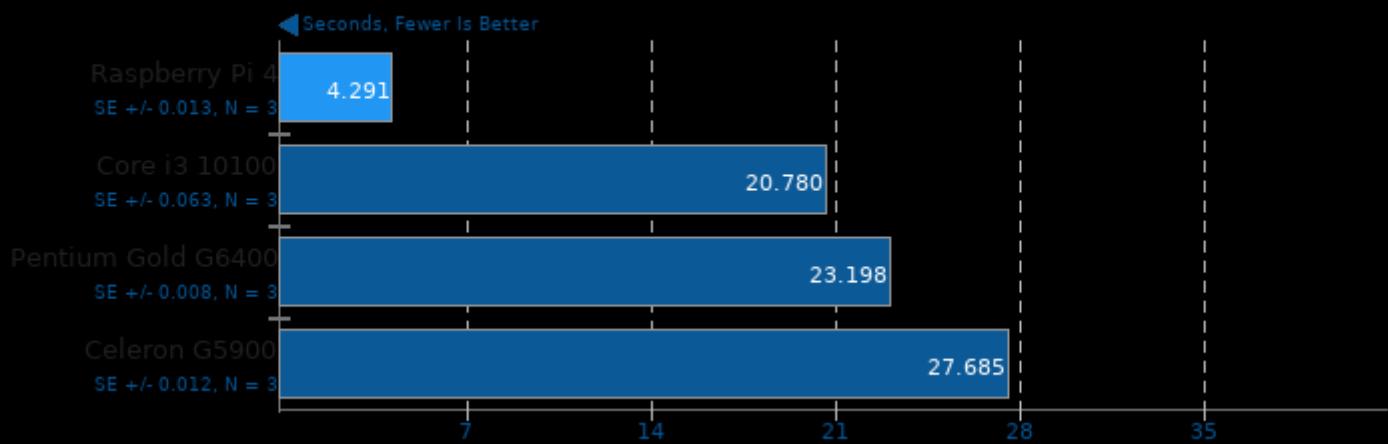
GIMP 2.10.8

Test: rotate



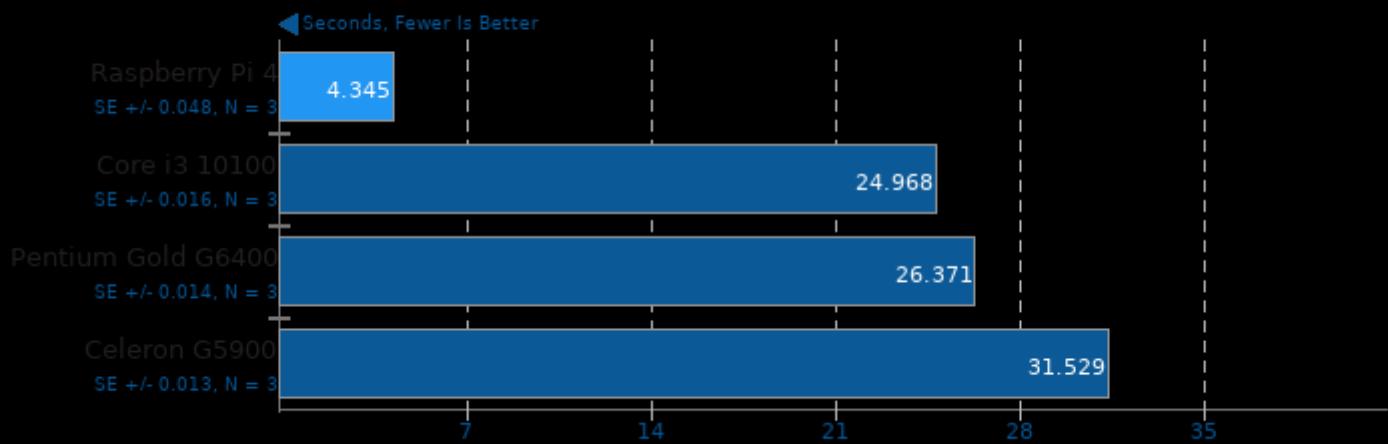
GIMP 2.10.8

Test: auto-levels



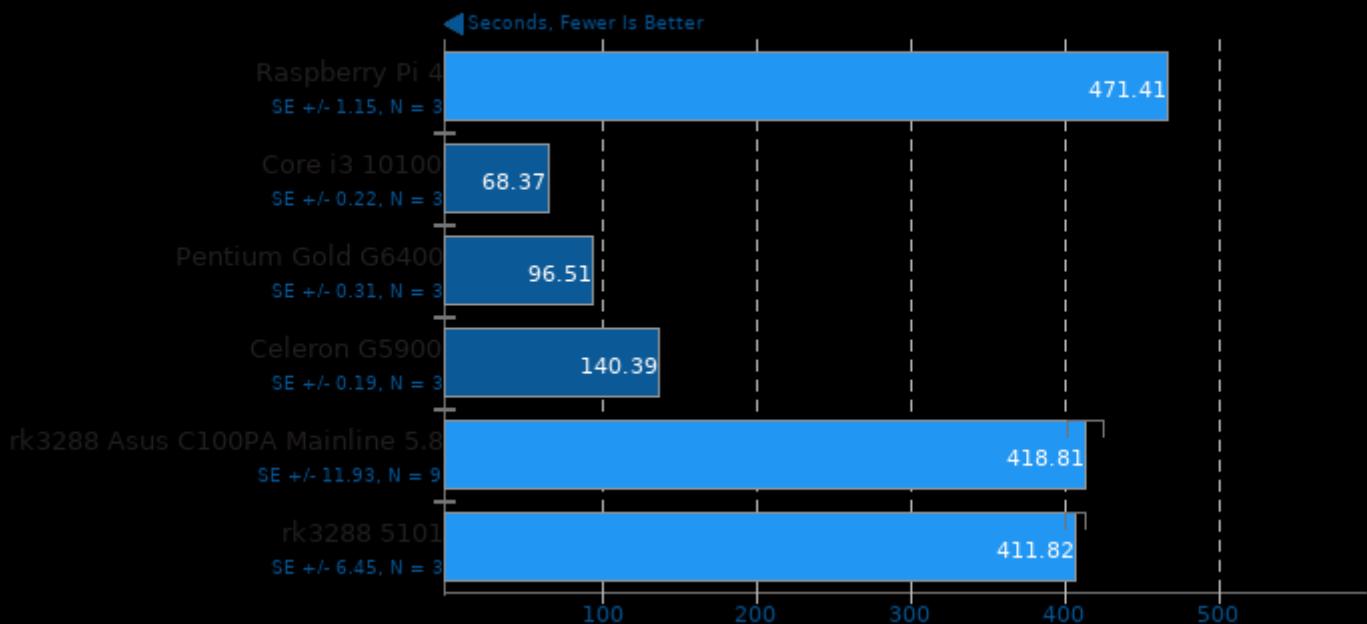
GIMP 2.10.8

Test: unsharp-mask



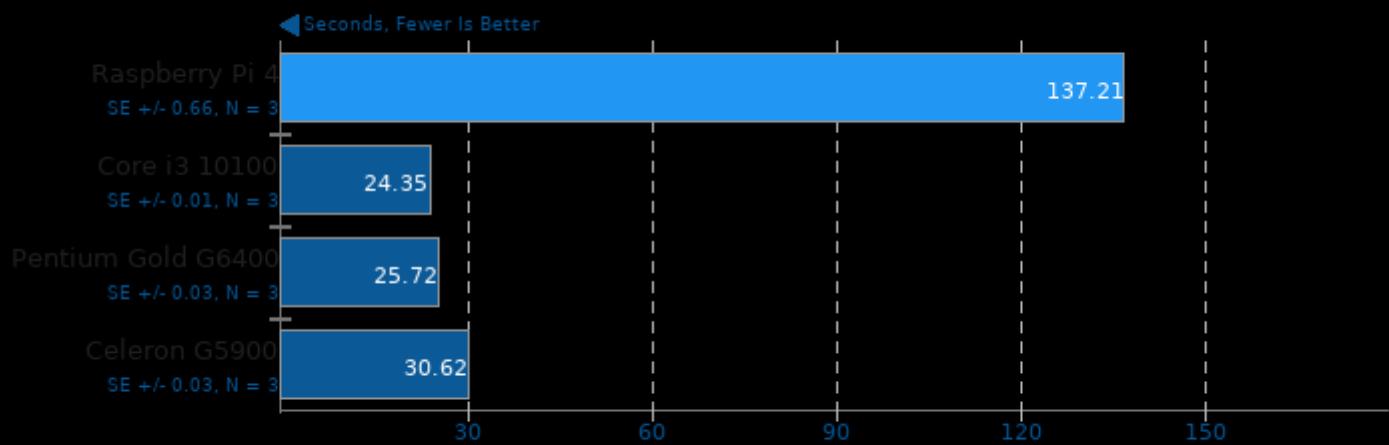
Hugin

Panorama Photo Assistant + Stitching Time



Inkscape

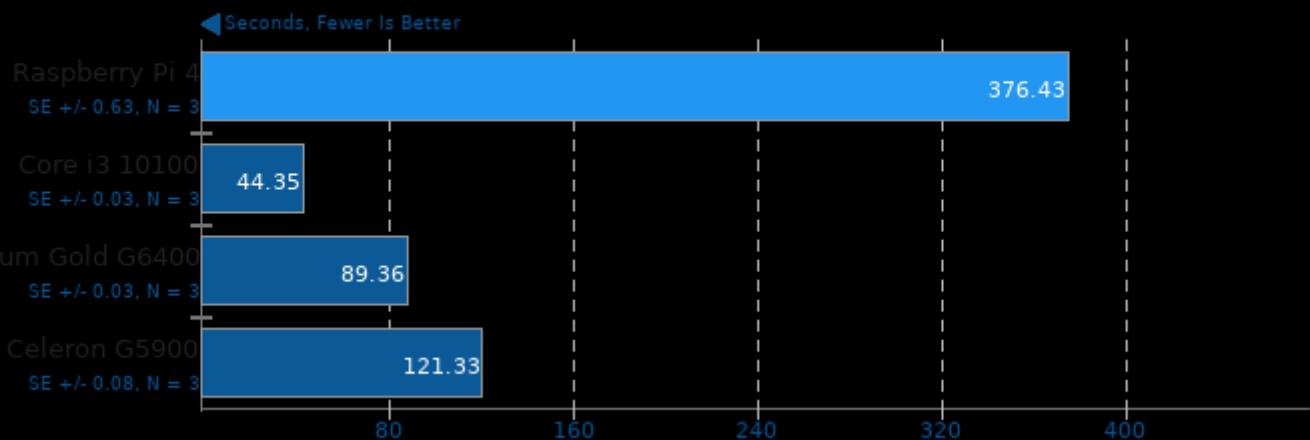
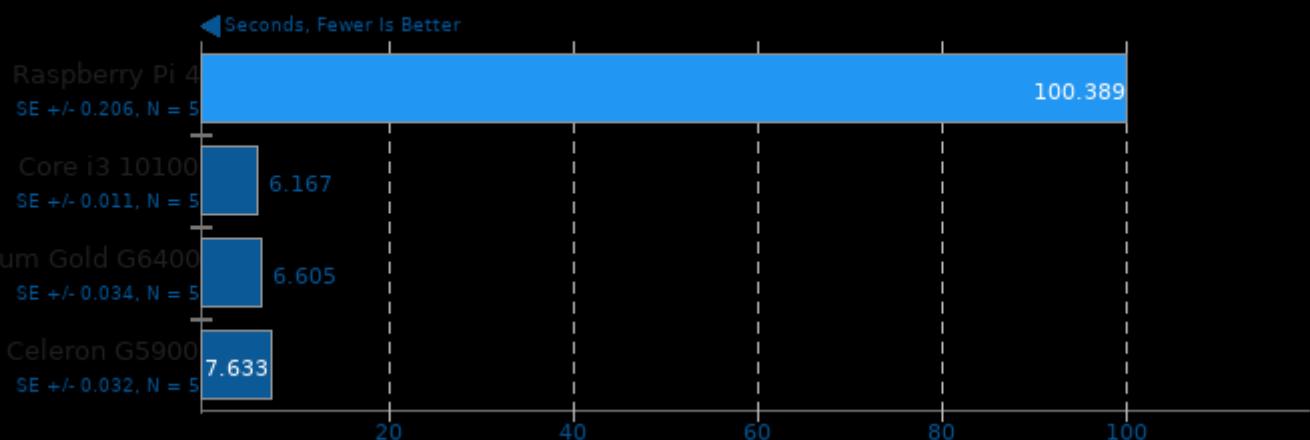
Operation: SVG Files To PNG



1. Inkscape 0.92.4 (5da689c313, 2019-01-14)

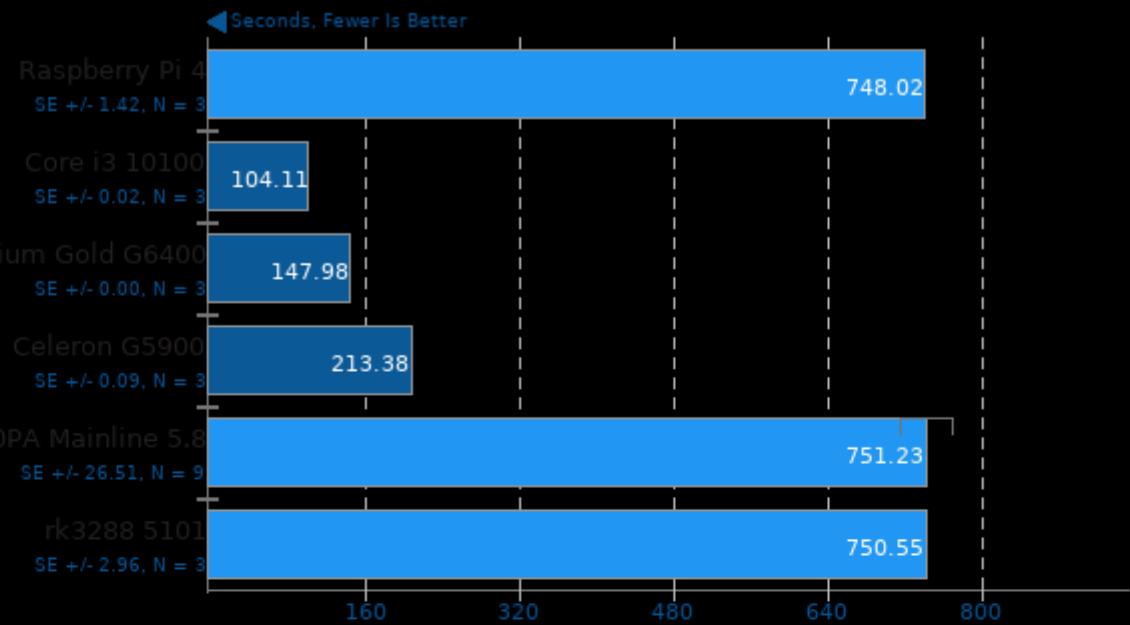
OCRMyPDF 8.0.1+dfsg

Processing 60 Page PDF Document

**GNU Octave Benchmark 4.4.1**

RawTherapee

Total Benchmark Time



1. Raspberry Pi 4: RawTherapee, version 5.5, command line.
An advanced, cross-platform program for developing raw photos.

Website: <http://www.rawtherapee.com/>
Documentation: <http://rawpedia.rawtherapee.com/>
Forum: <https://discuss.pixls.us/c/software/rawtherapee>
Code and bug reports: <https://github.com/Beep6581/RawTherapee>

Symbols:

<Chevrons> indicate parameters you can change.
[Square brackets] mean the parameter is optional.
The pipe symbol | indicates a choice of one or the other.
The dash symbol - denotes a range of possible values from one to the other.

Usage:

rawtherapee-cli -c <dir>|<files> Convert files in batch with default parameters.
rawtherapee-cli <other options> -c <dir>|<files> Convert files in batch with your own settings.

Options:

rawtherapee-cli[-o <output>]-O <output> [-q] [-a] [-s|-S] [-p <one.pp3> [-p <two.pp3> ...]] [-d] [-j[1-100] -js<1-3> | -t[z] -b<8|16|16f|32> | -n -b<8

-c <files> Specify one or more input files or folders.

When specifying folders, Rawtherapee will look for image file types which comply with the selected extensions (see also '-a').

-c must be the last option.

-o <file>|<dir> Set output file alongside input file if -o is not specified.

Saves output file alongside input file if -o is not specified.

2. Core i3 10100: RawTherapee, version 5.5, command line.

An advanced, cross-platform program for developing raw photos.

-q Quick-start mode. Does not load cached files to speedup start time.

Website: <http://www.rawtherapee.com/>
Documentation: <http://rawpedia.rawtherapee.com/>

Forum: <https://discuss.pixls.us/c/software/rawtherapee>

Code and bug reports: <https://github.com/Beep6581/RawTherapee>

If the sidecar file does not exist, neutral values will be used.

Symbols: Like -s but skip if the sidecar file does not exist.

-c<Chevrons> Specify processing profile to be used for all conversions.

[Square brackets] mean the parameter is optional.

<one><two><three>...> Options as you like, separated by commas as explained below.

The pipe symbol | indicates a choice of one or the other.

The dash symbol - denotes a range of possible values from one to the other.

Preferences > Image Processing > Default Processing Profile

-u[1-100] Specify output to be JPEG (default, if -t and -n are not set).

rawtherapee-cli[-o <output>]-O <output> [-q] [-a] [-s|-S] [-p <one.pp3> [-p <two.pp3> ...]] [-d] [-j[1-100] -js<1-3> | -t[z] -b<8|16|16f|32> | -n -b<8

-c <files> Specify the JPEG chroma subsampling parameters with your own settings.

1 = Best compression: 2x2, 1x1, 1x1 (4:2:0)

Options: Chroma halved vertically and horizontally.

rawtherapee-cli[-o <output>]-O <output> [-q] [-a] [-s|-S] [-p <one.pp3> [-p <two.pp3> ...]] [-d] [-j[1-100] -js<1-3> | -t[z] -b<8|16|16f|32> | -n -b<8

-c <files> 3 = Best quality for most input files or folders.

When choosing 3 or 4, Rawtherapee will look for image file types which comply with the selected extensions (see also '-a').

-b<8|16|16f> Specified depth per channel. Default for JPEG and PNG.

B must be integer. Applies to JPEG, PNG and TIFF. Default for TIFF.

-o <file>|<dir> Set outputname or folder. Set outputname alongside input file if -o is not specified.

3 = Set outputname alongside input file for TIFF.

Options: -t[1-3] Set output mode. The TIFF output mode is recommended.

-t1 = Output mode: raw (not compressed) to speedup start time.

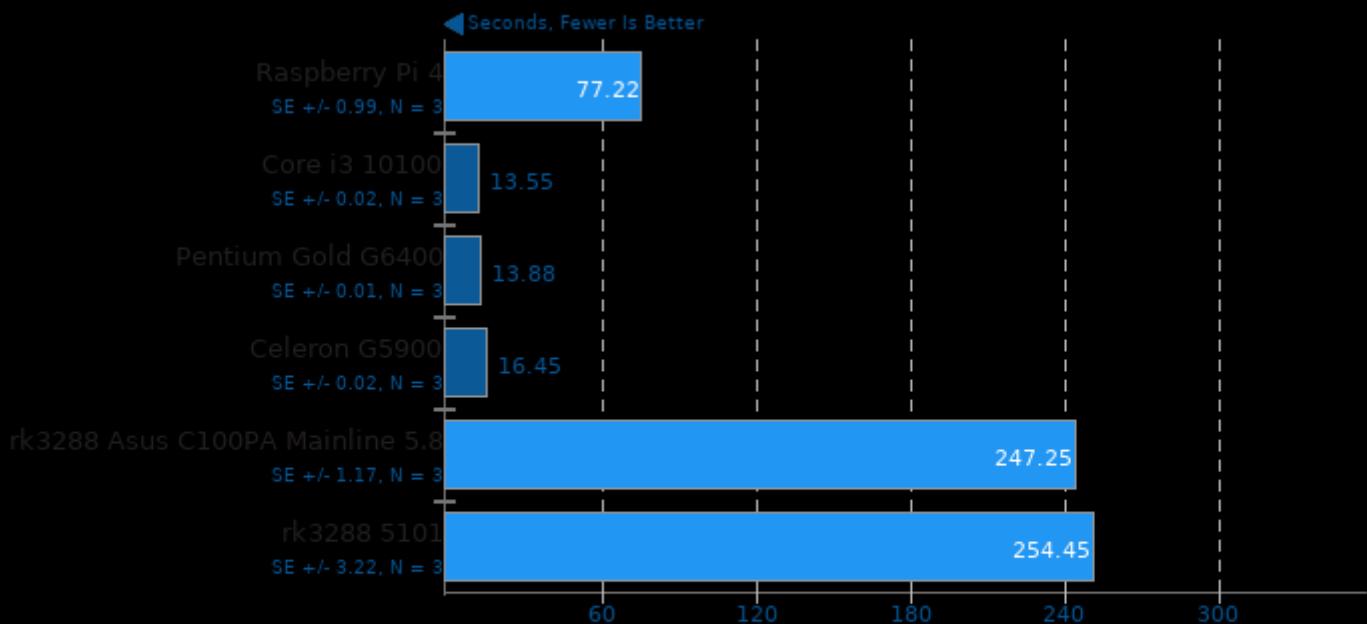
-t2 = Output mode: compressed PNG. This requires a full decompression.

-t3 = Output mode: compressed JPEG. This requires a full decompression.

Raspberry Pi 4 vs. Intel Comet Lake

librsvg

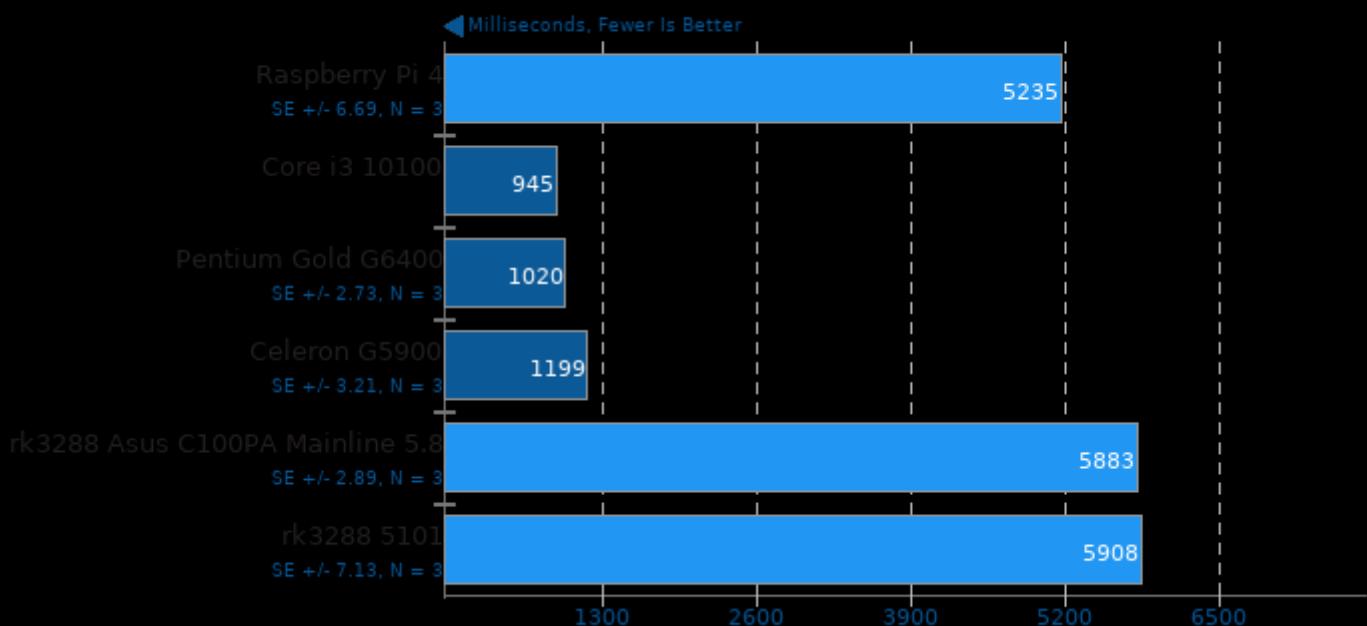
Operation: SVG Files To PNG



1. Raspberry Pi 4: rsvg-convert version 2.44.10
2. Core i3 10100: rsvg-convert version 2.44.10
3. Pentium Gold G6400: rsvg-convert version 2.44.10
4. Celeron G5900: rsvg-convert version 2.44.10
5. rk3288 Asus C100PA Mainline 5.8: rsvg-convert version 2.48.7
6. rk3288 5101: rsvg-convert version 2.50.2

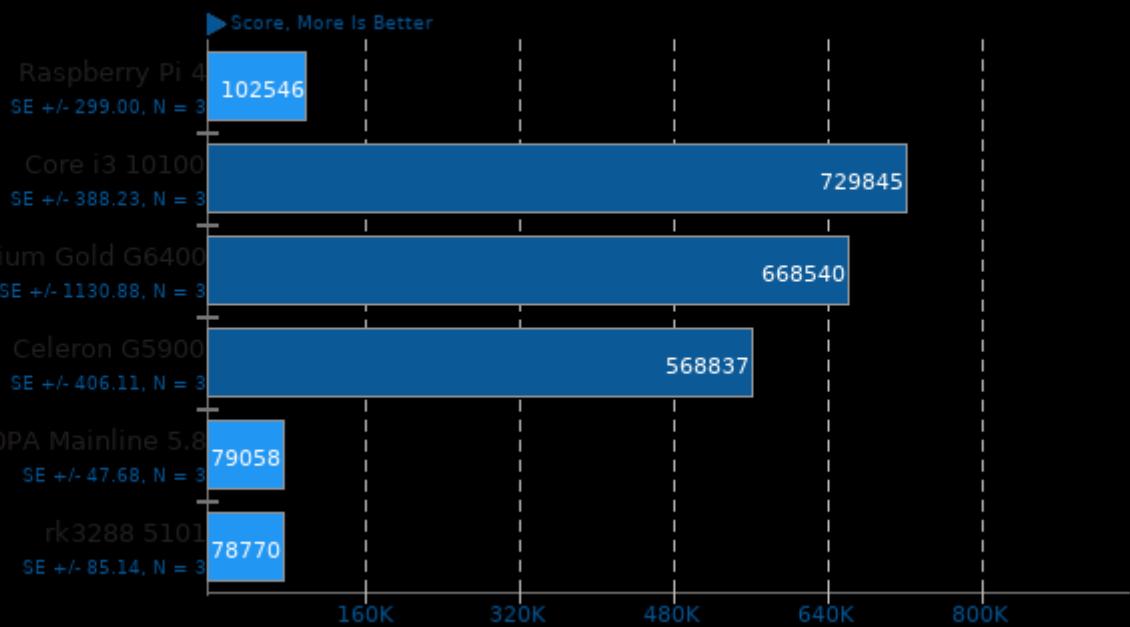
PyBench 2018-02-16

Total For Average Test Times

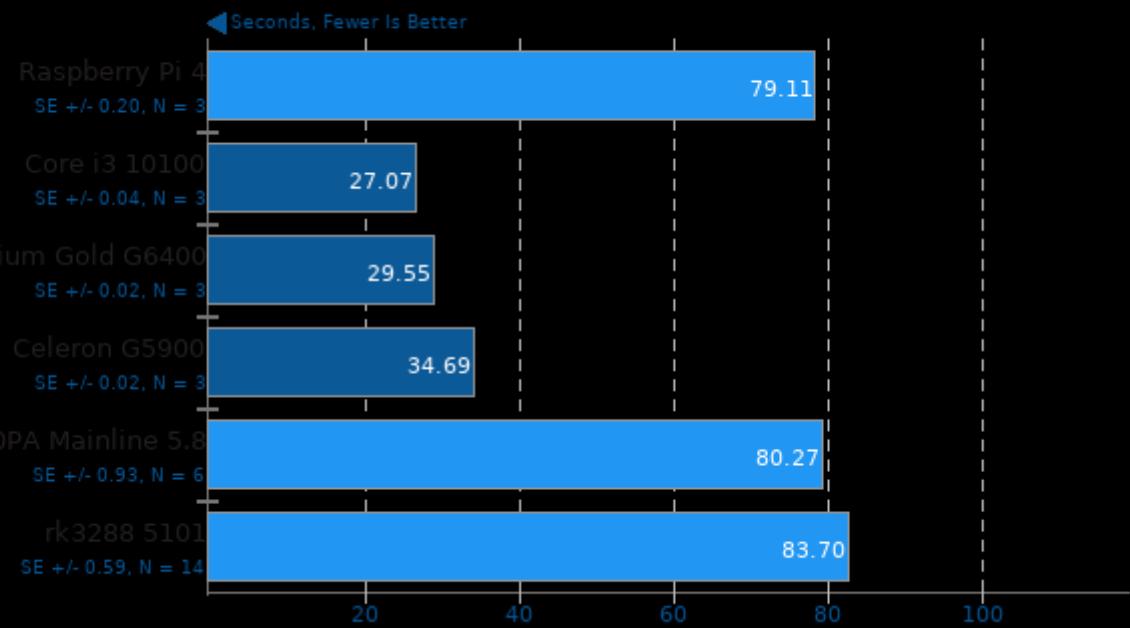


PHPBench 0.8.1

PHP Benchmark Suite

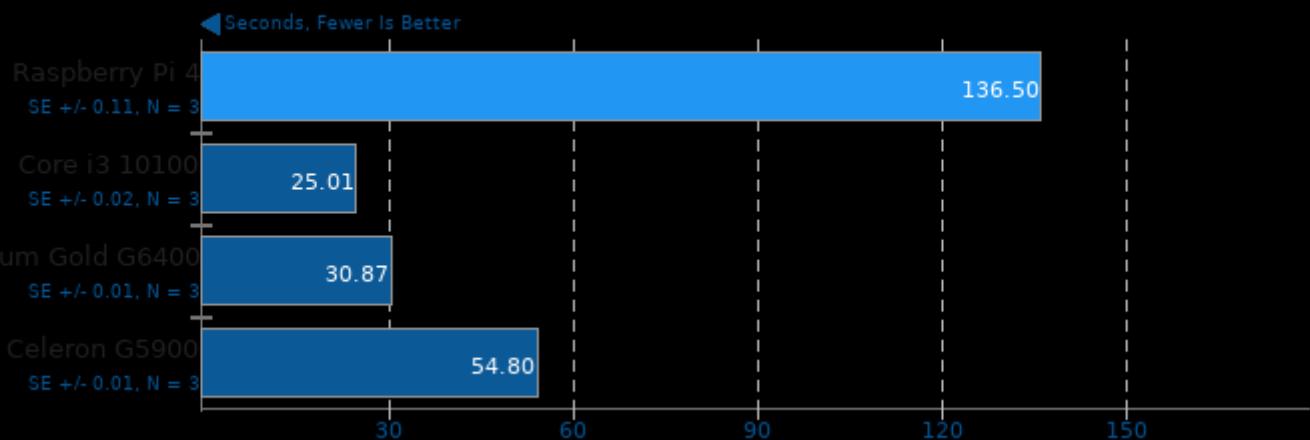


Scikit-Learn 0.22.1



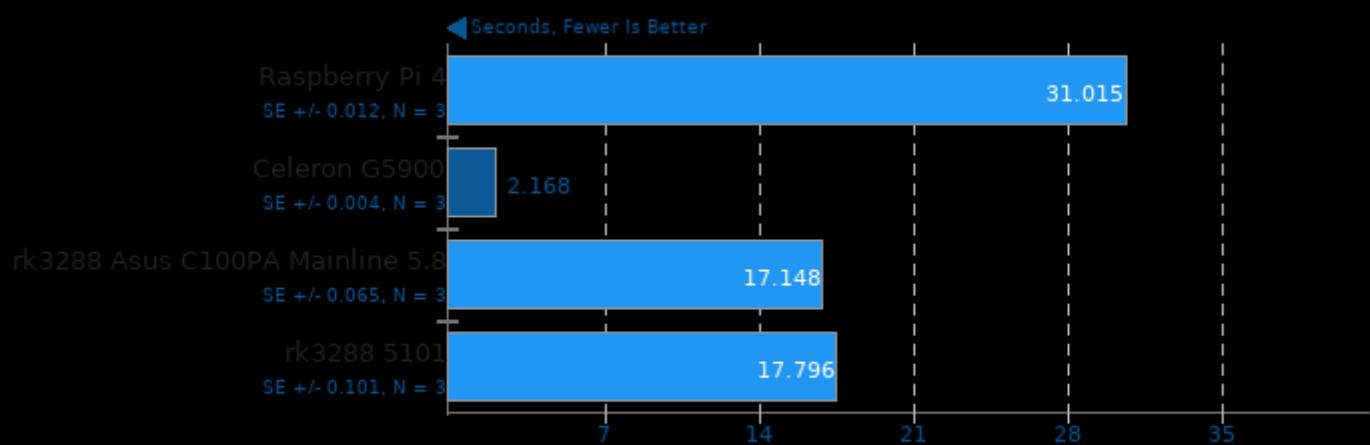
Tesseract OCR 4.0.0

Time To OCR 7 Images



PolyBench-C 4.2

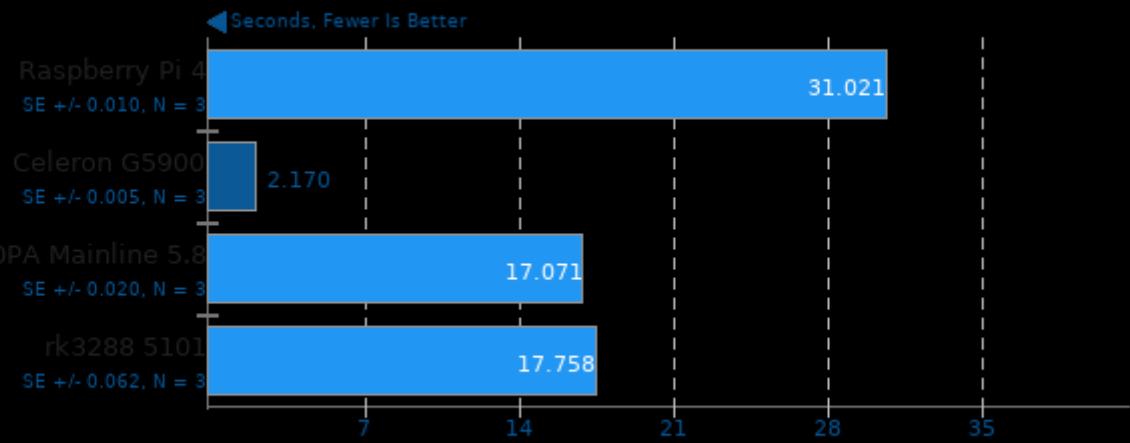
Test: Covariance Computation



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

PolyBench-C 4.2

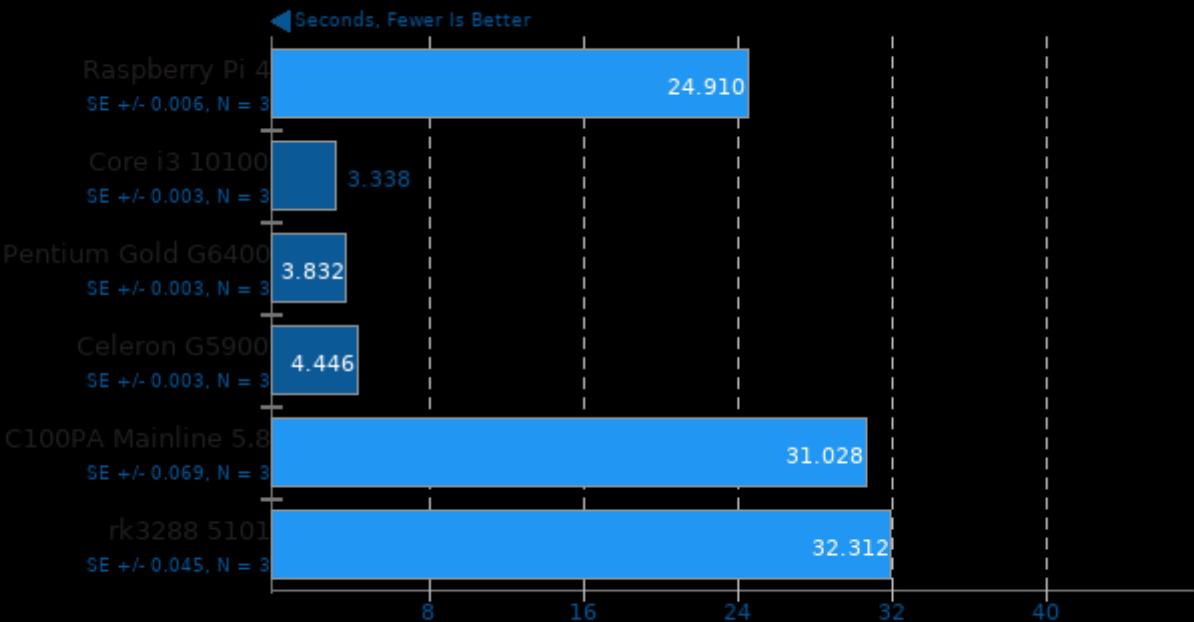
Test: Correlation Computation



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

PolyBench-C 4.2

Test: 3 Matrix Multiplications

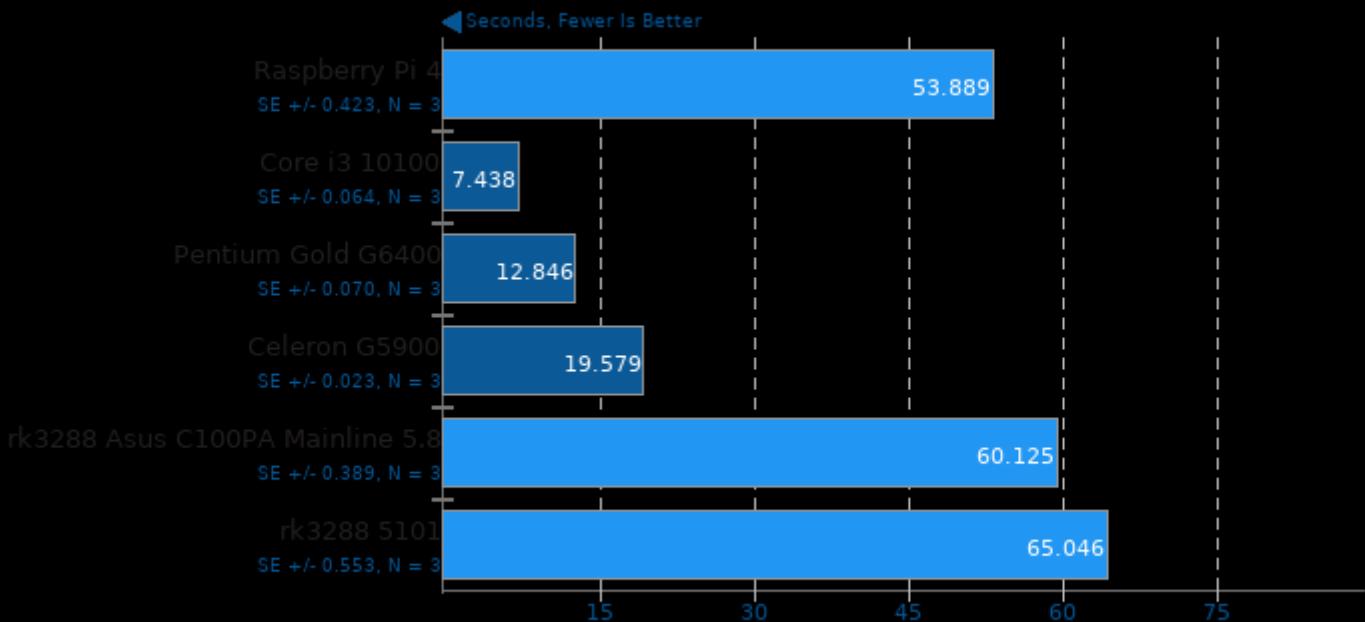


1. (CC) gcc options: -O3 -march=native

Raspberry Pi 4 vs. Intel Comet Lake

Timed HMMer Search 2.3.2

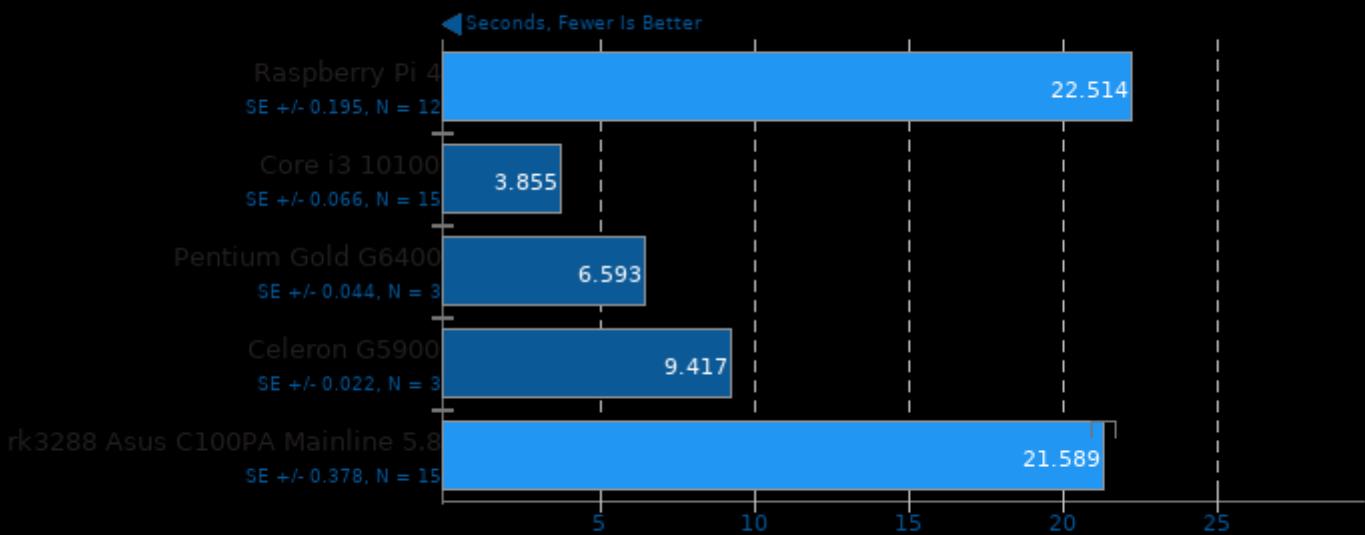
Pfam Database Search



1. (CC) gcc options: -O2 -pthread -lhmmer -lsquid -lm

Timed MAFFT Alignment 7.392

Multiple Sequence Alignment

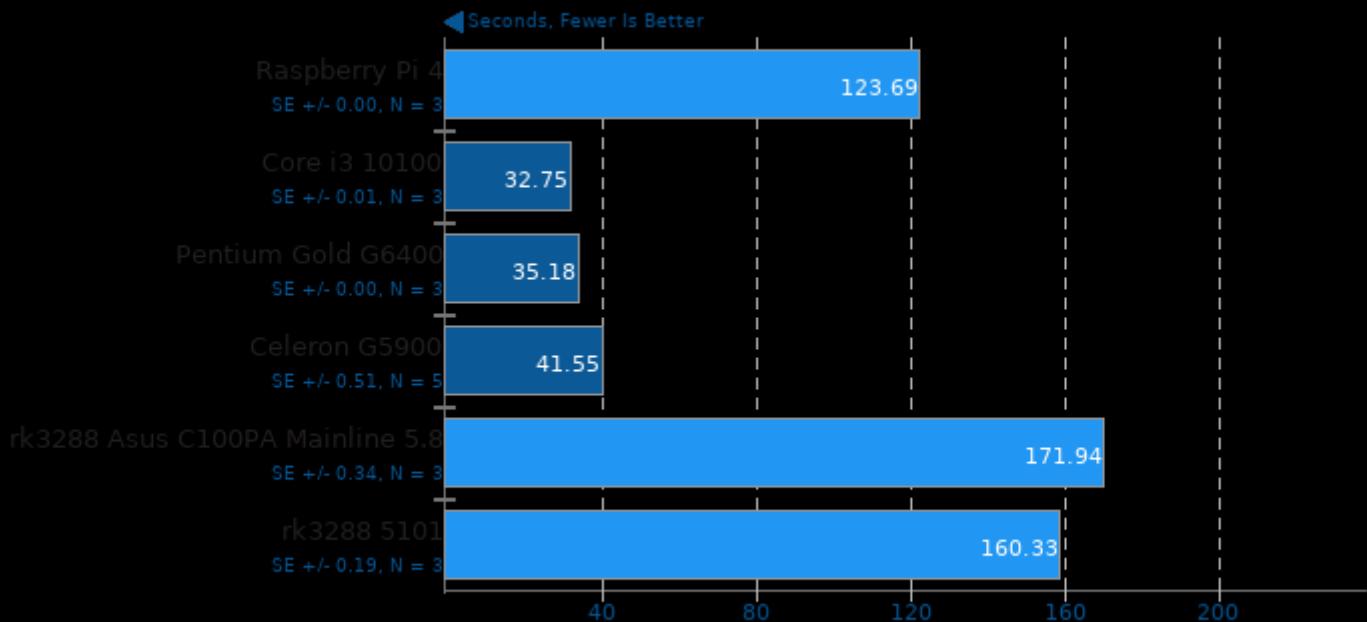


1. (CC) gcc options: -std=c99 -O3 -lm -lpthread

Raspberry Pi 4 vs. Intel Comet Lake

AOBench

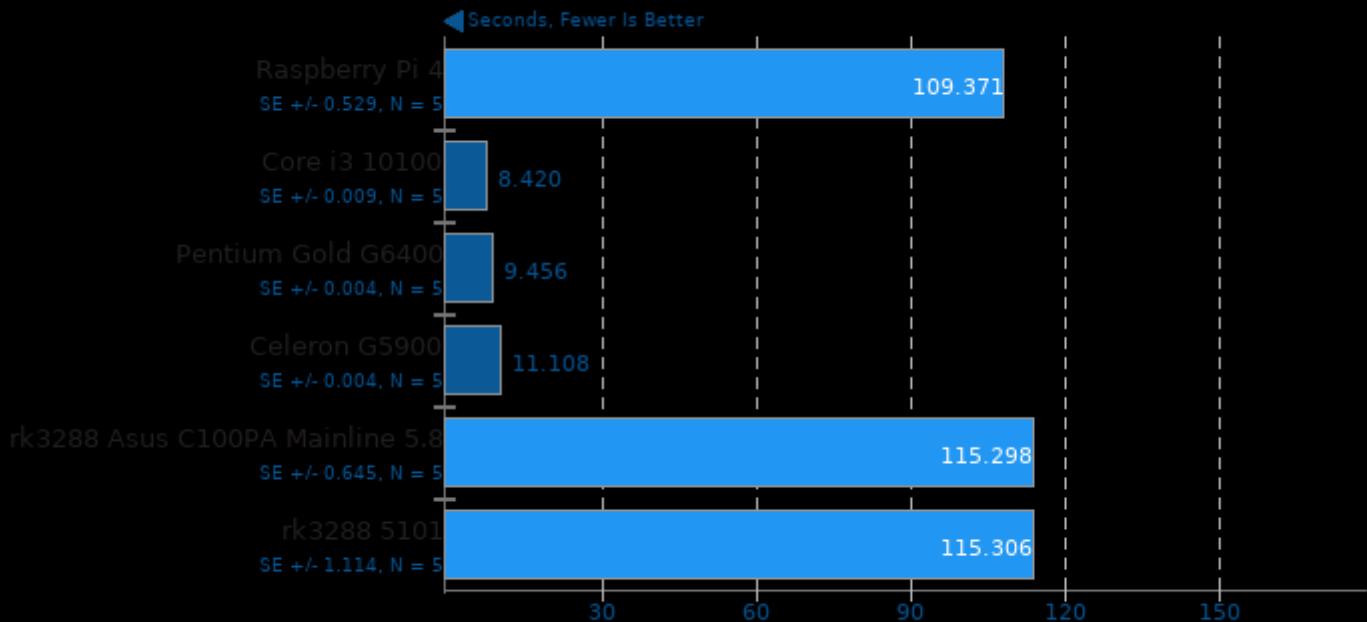
Size: 2048 x 2048 - Total Time



1. (CC) gcc options: -lm -O3

FLAC Audio Encoding 1.3.2

WAV To FLAC

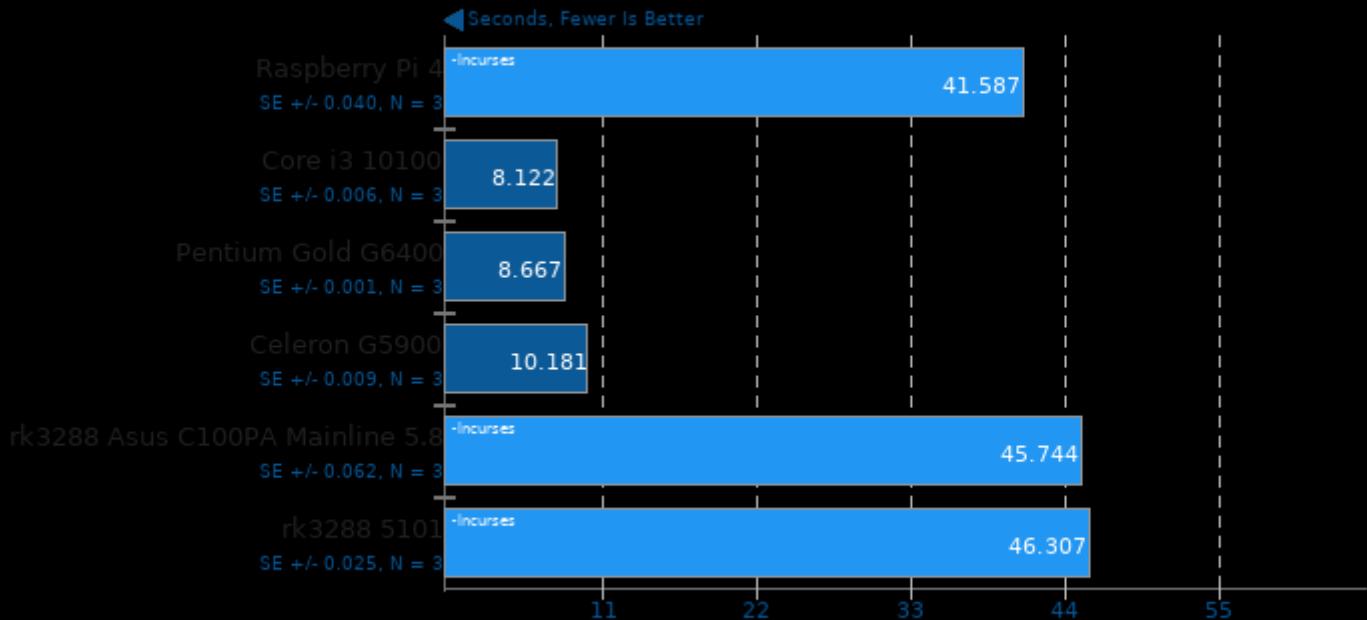


1. (CXX) g++ options: -O2 -fvisibility=hidden -logg -lm

Raspberry Pi 4 vs. Intel Comet Lake

LAME MP3 Encoding 3.100

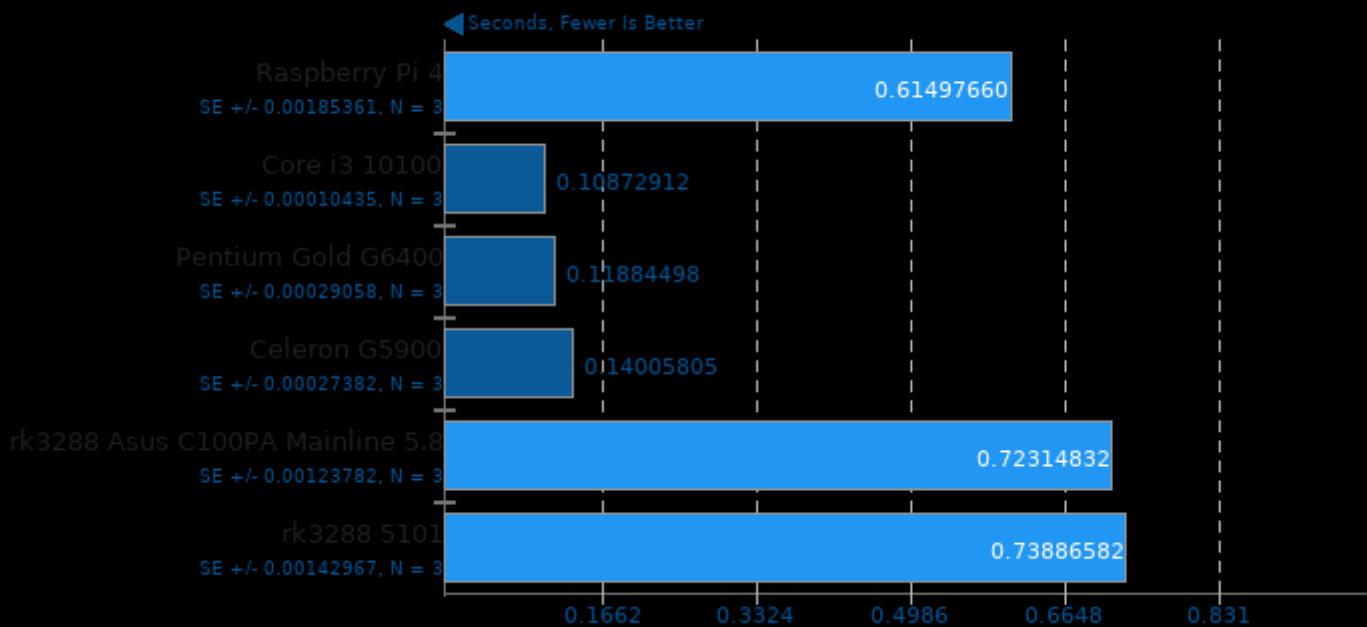
WAV To MP3



1. (CC) gcc options: -O3 -ffast-math -funroll-loops -fschedule-insns2 -fbranch-count-reg -fforce-addr -pipe -lm

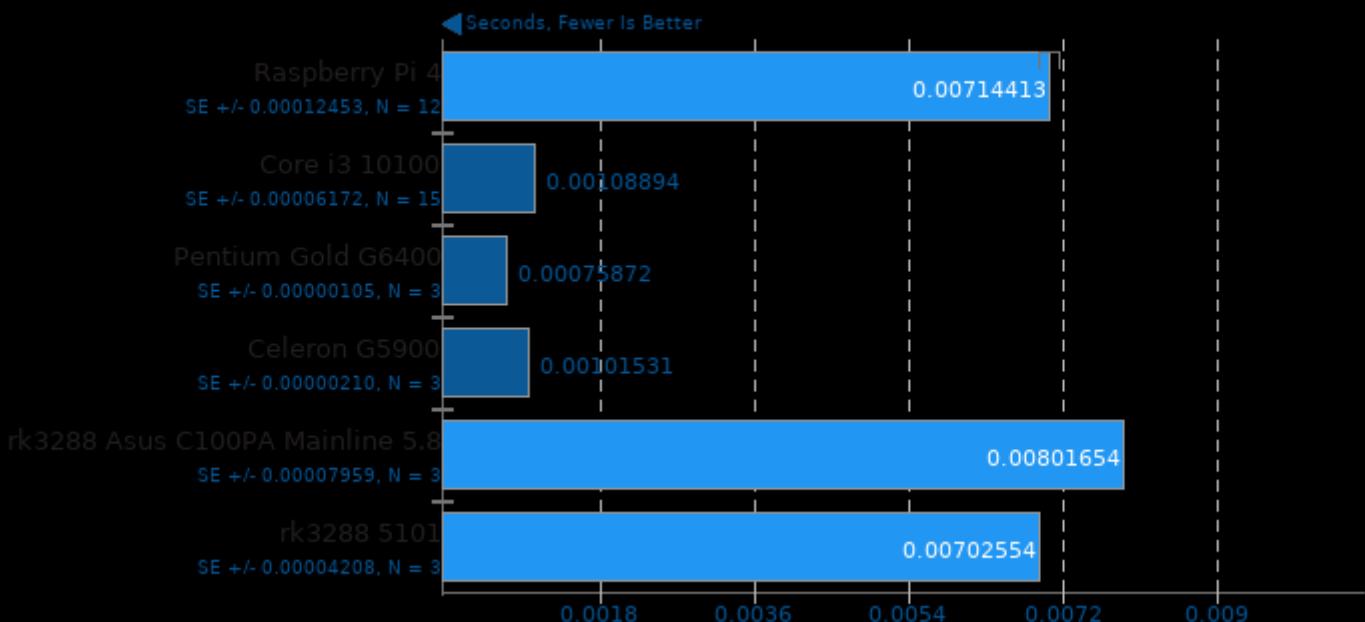
Perl Benchmarks

Test: Pod2html



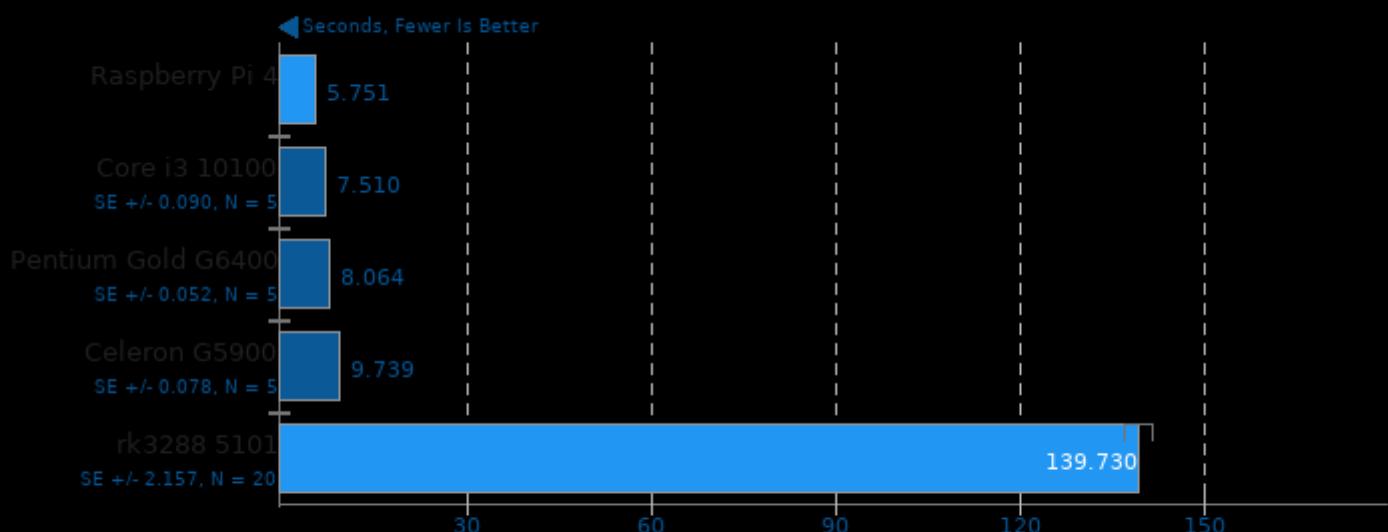
Perl Benchmarks

Test: Interpreter



LibreOffice

Test: 20 Documents To PDF

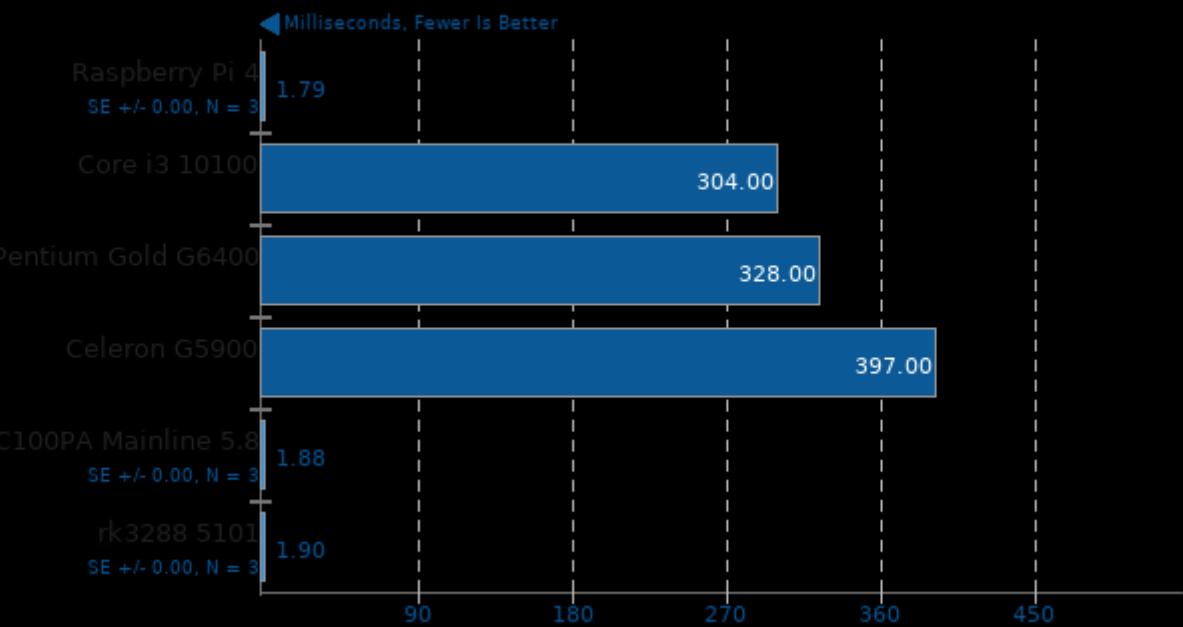


1. Raspberry Pi 4: LibreOffice 6.1.5.2 10(Build:2)
2. Core i3 10100: LibreOffice 6.1.5.2 10(Build:2)
3. Pentium Gold G6400: LibreOffice 6.1.5.2 10(Build:2)
4. Celeron G5900: LibreOffice 6.1.5.2 10(Build:2)
5. rk3288 5101: LibreOffice 7.0.4.2 00(Build:2)

Raspberry Pi 4 vs. Intel Comet Lake

PyPerformance 1.0.0

Benchmark: 2to3



PyPerformance 1.0.0

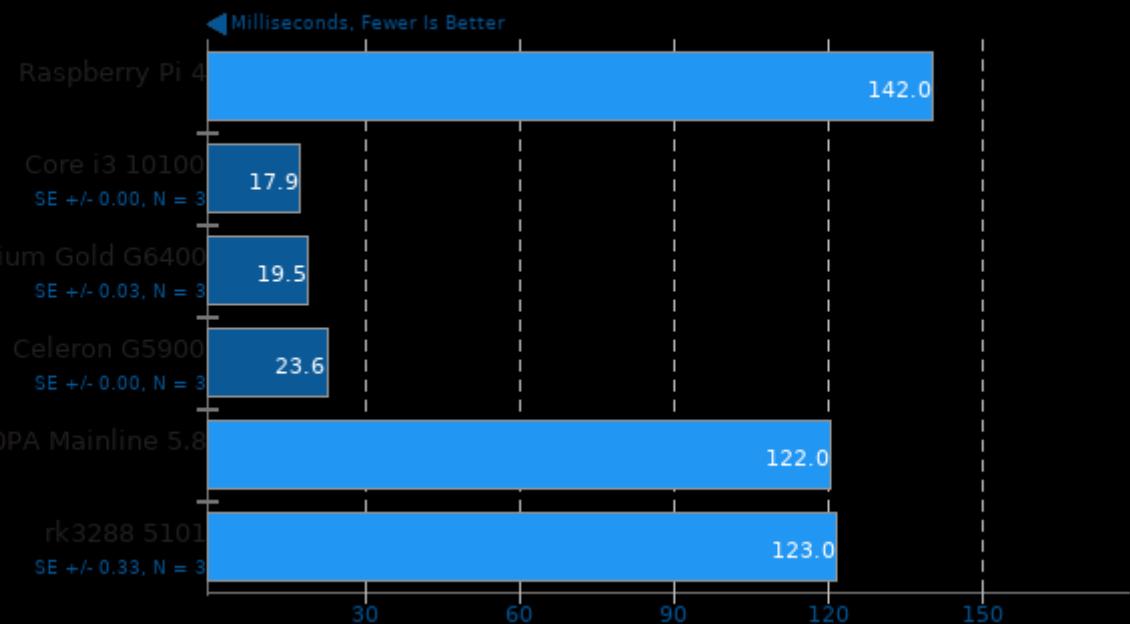
Benchmark: float



Raspberry Pi 4 vs. Intel Comet Lake

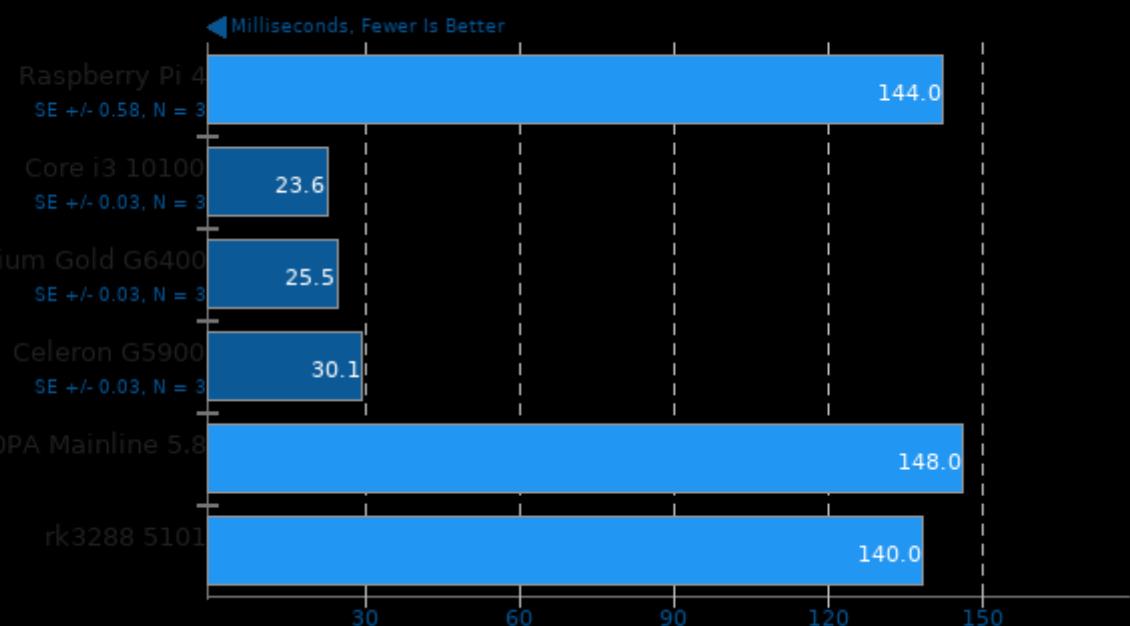
PyPerformance 1.0.0

Benchmark: pathlib



PyPerformance 1.0.0

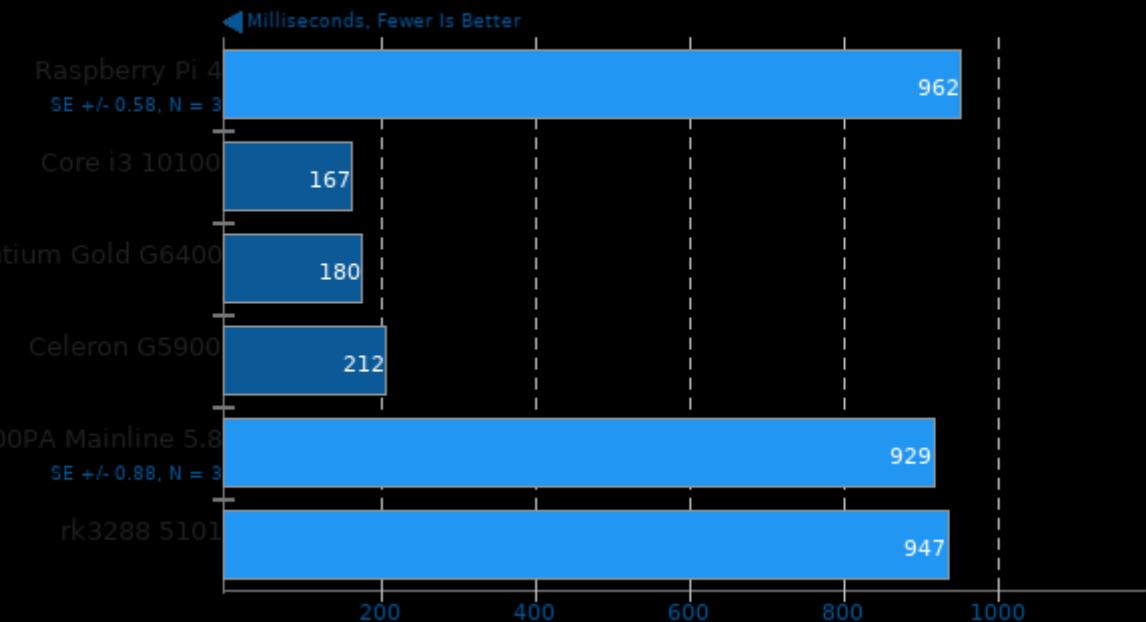
Benchmark: json.loads



Raspberry Pi 4 vs. Intel Comet Lake

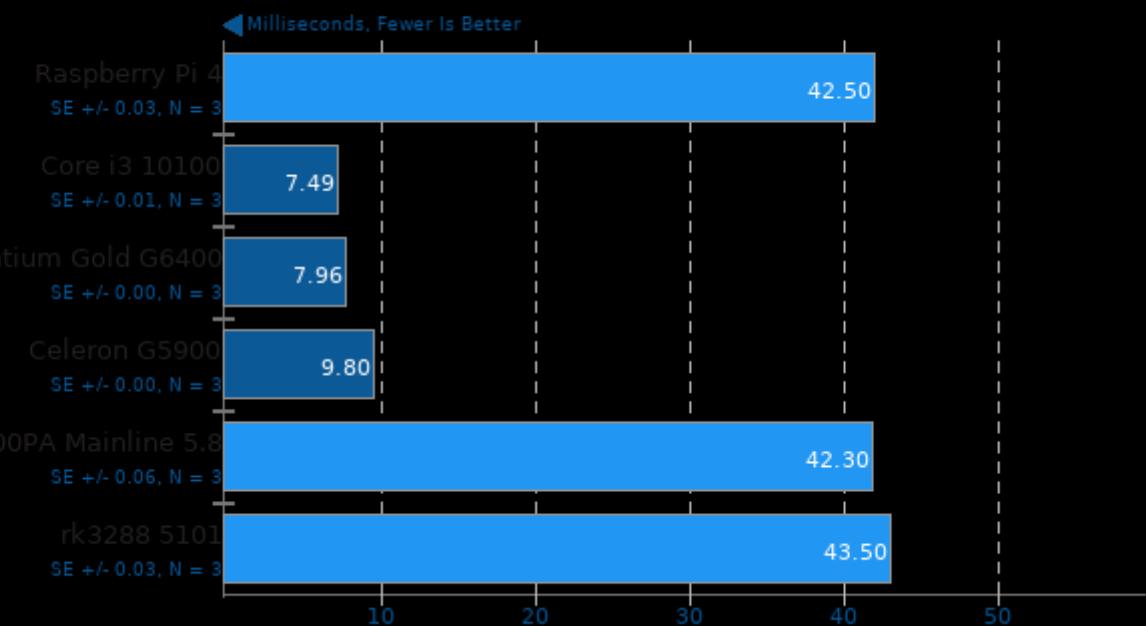
PyPerformance 1.0.0

Benchmark: regex_compile



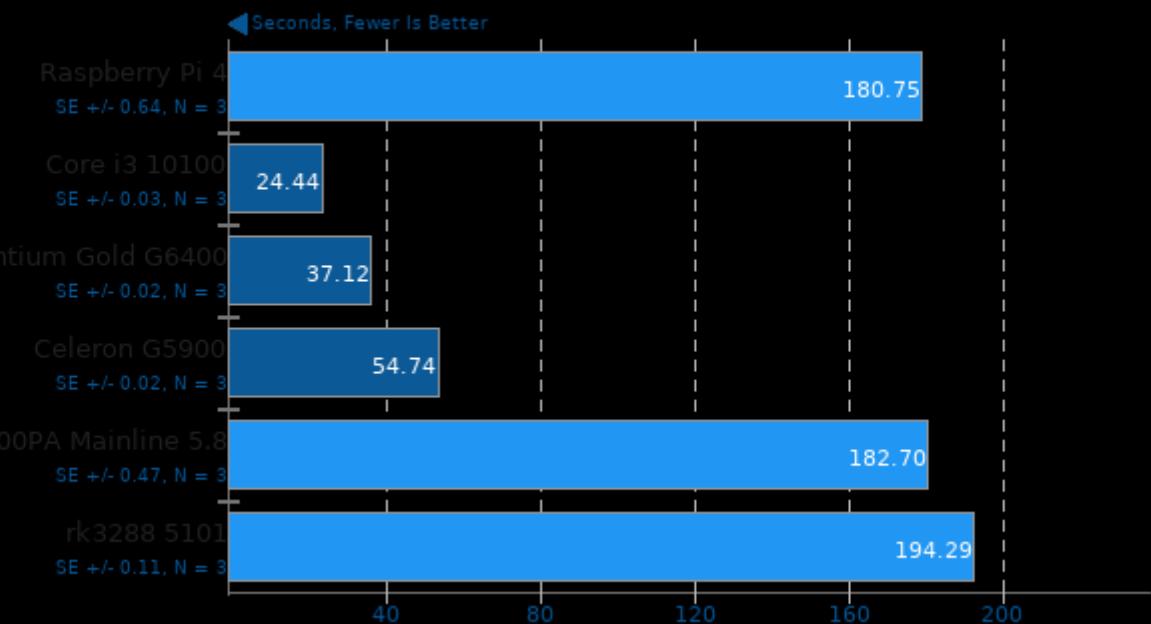
PyPerformance 1.0.0

Benchmark: python_startup



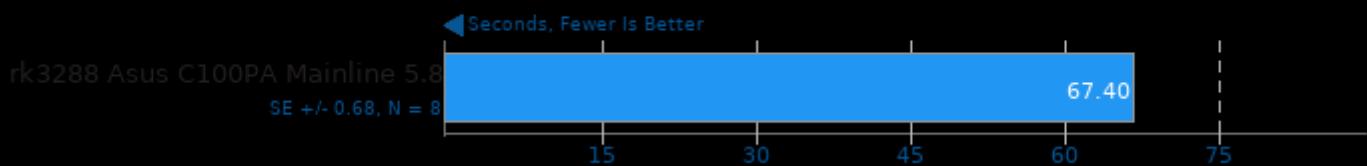
Timed Apache Compilation 2.4.41

Time To Compile



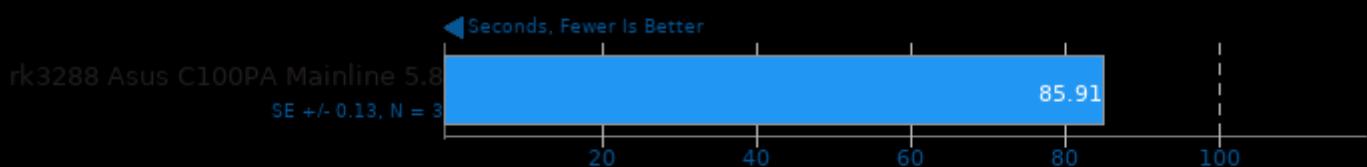
GIMP 2.10.18

Test: resize



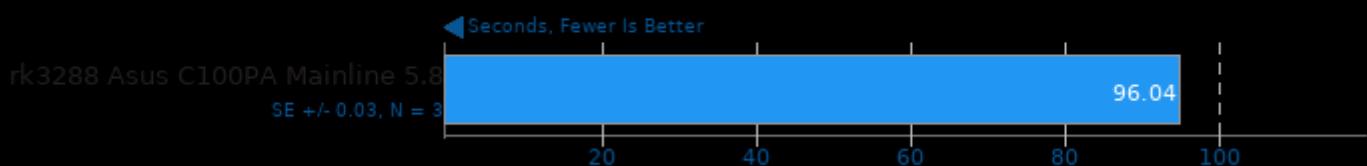
GIMP 2.10.18

Test: rotate



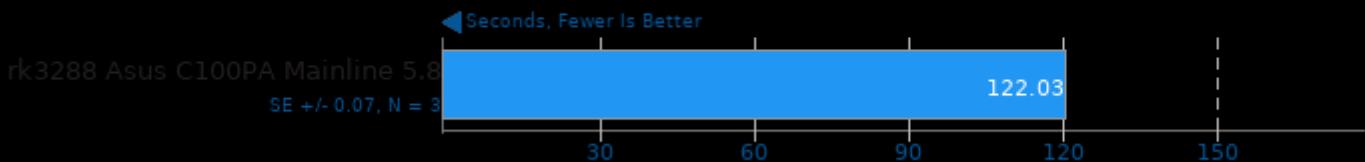
GIMP 2.10.18

Test: auto-levels



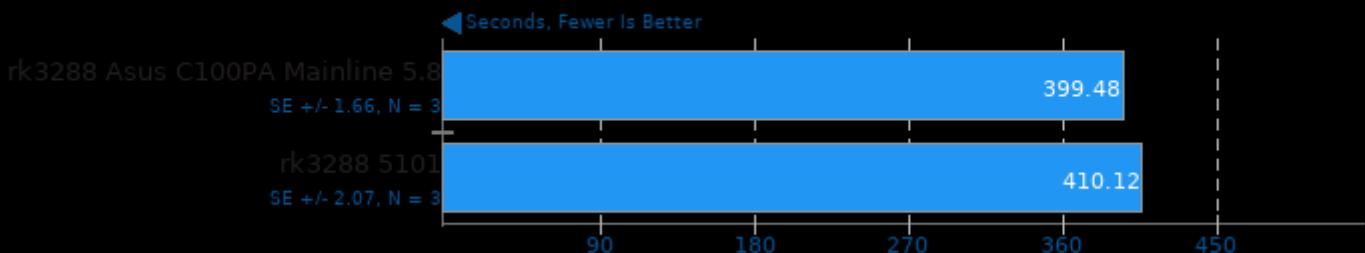
GIMP 2.10.18

Test: unsharp-mask

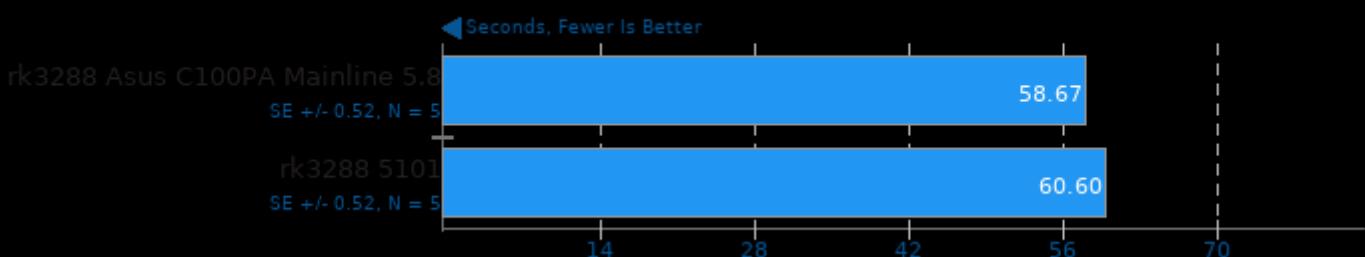


OCRMyPDF 10.3.1+dfsg

Processing 60 Page PDF Document

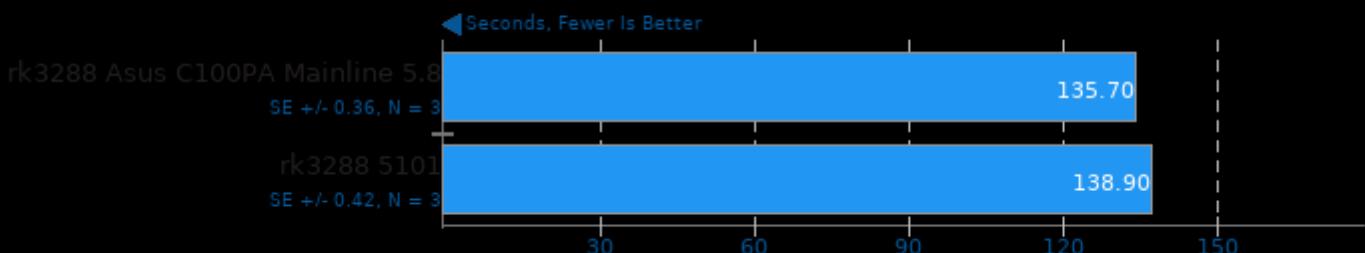


GNU Octave Benchmark 5.2.0



Tesseract OCR 4.1.1

Time To OCR 7 Images



GIMP 2.10.22

Test: resize



GIMP 2.10.22

Test: rotate

**GIMP 2.10.22**

Test: auto-levels

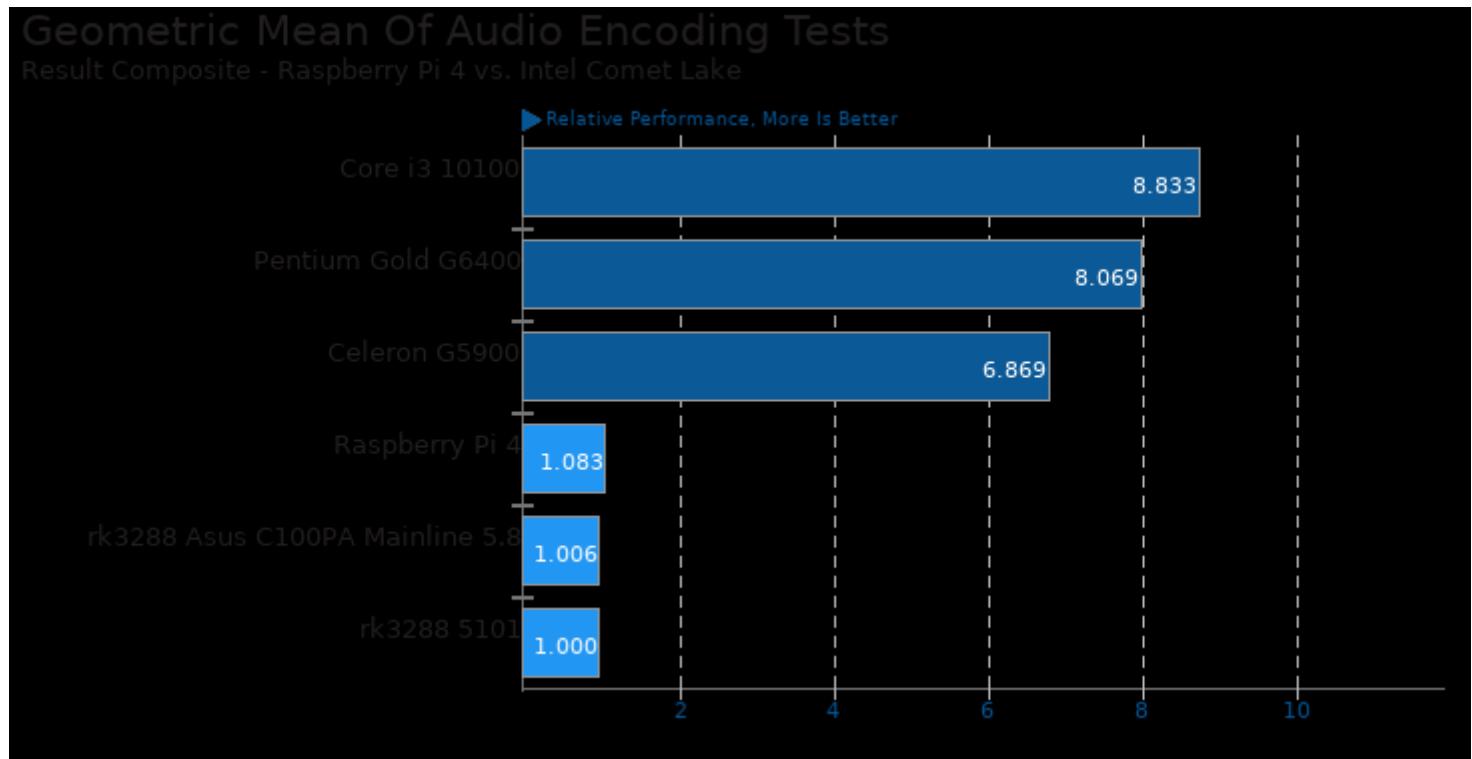
**GIMP 2.10.22**

Test: unsharp-mask

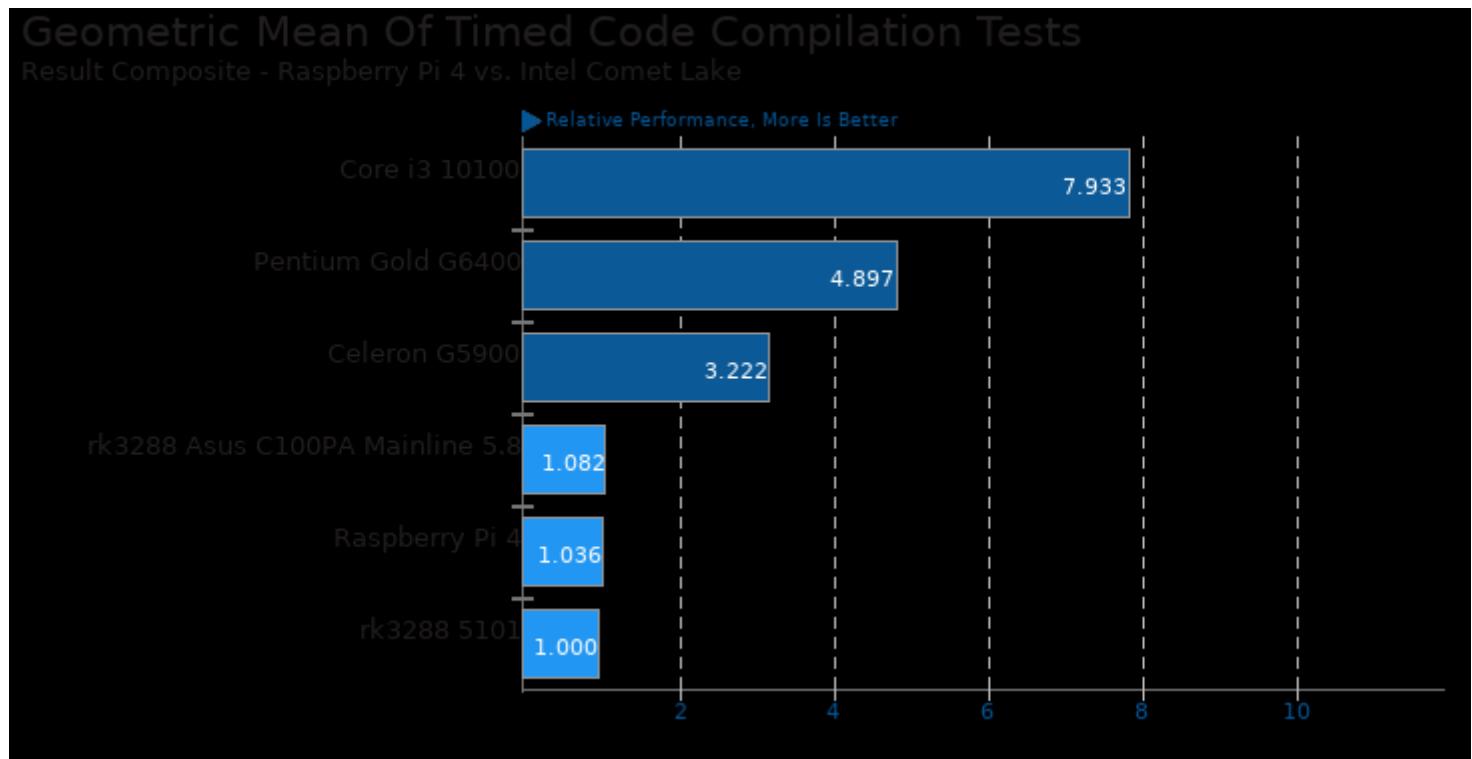


Raspberry Pi 4 vs. Intel Comet Lake

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



Geometric mean based upon tests: pts/encode-mp3 and pts/encode-flac

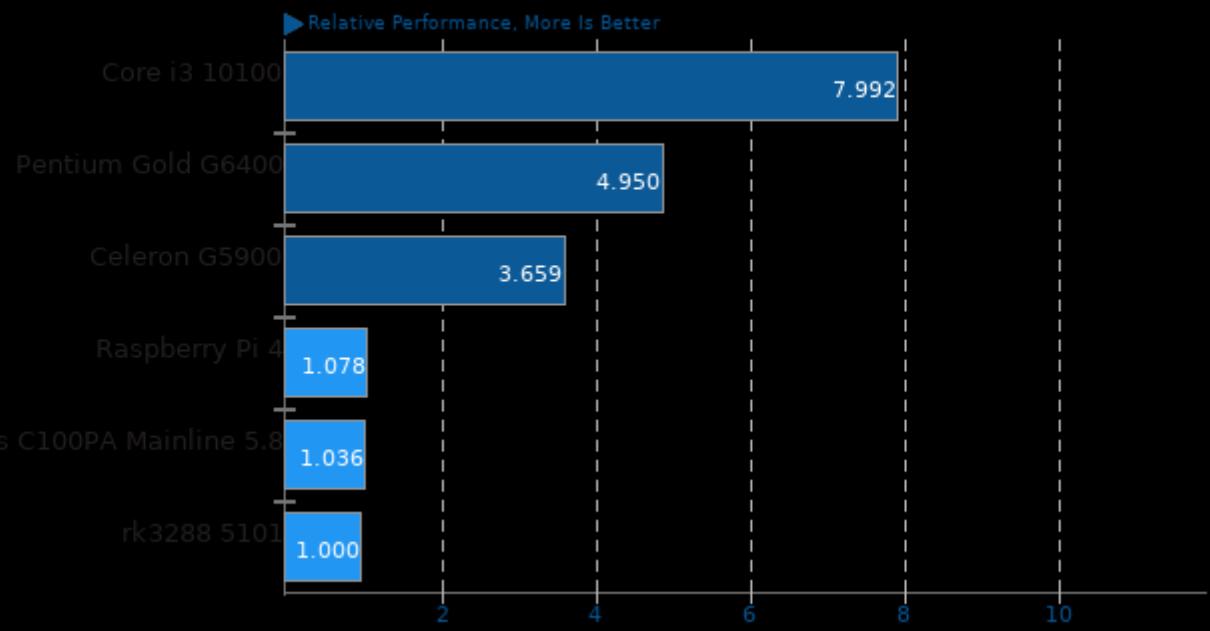


Geometric mean based upon tests: pts/build-apache, pts/build-php, pts/build-gdb and pts/build-mplayer

Raspberry Pi 4 vs. Intel Comet Lake

Geometric Mean Of C/C++ Compiler Tests

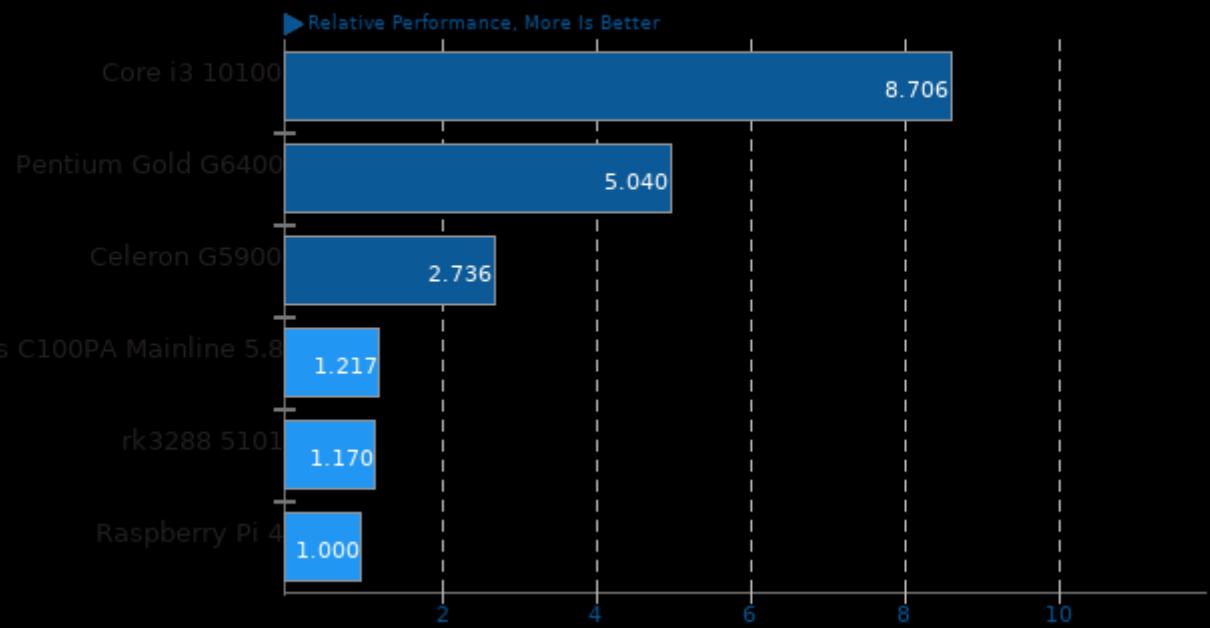
Result Composite - Raspberry Pi 4 vs. Intel Comet Lake



Geometric mean based upon tests: pts/mafft, pts/aobench, pts/tscp, pts/graphics-magick, pts/hammer, pts/build-php, pts/c-ray, pts/compress-7zip, pts/encode-mp3, pts/encode-flac, pts/sqlite-speedtest, pts/compress-xz, pts/openssl, pts/lammps, pts/aircrack-ng, pts/build-gdb, pts/build-apache and pts/build-mplayer

Geometric Mean Of Compression Tests

Result Composite - Raspberry Pi 4 vs. Intel Comet Lake

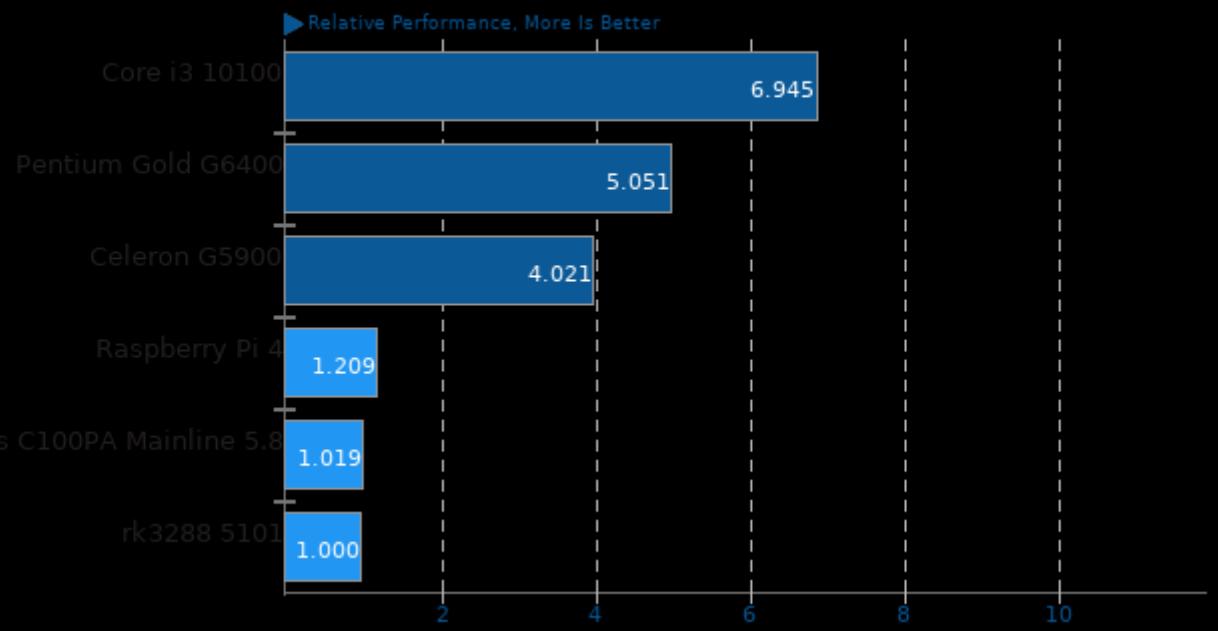


Geometric mean based upon tests: pts/compress-7zip and pts/compress-xz

Raspberry Pi 4 vs. Intel Comet Lake

Geometric Mean Of Creator Workloads Tests

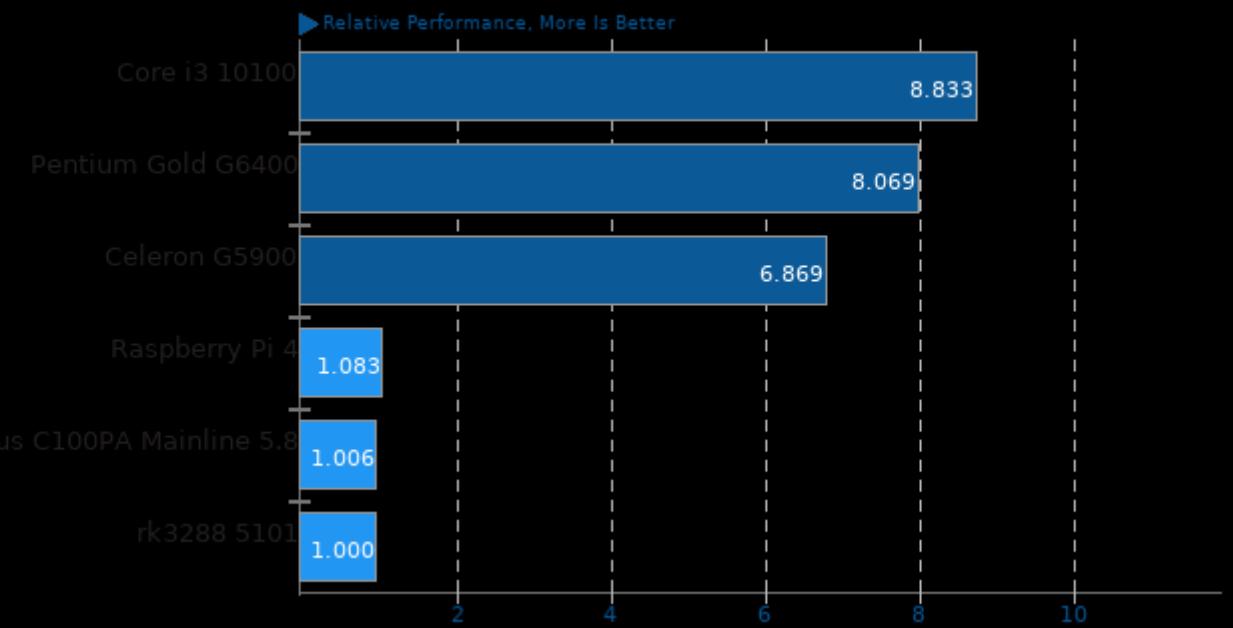
Result Composite - Raspberry Pi 4 vs. Intel Comet Lake



Geometric mean based upon tests: pts/c-ray, pts/aobench, pts/smallpt, pts/ttsiod-renderer, system/tesseract-ocr, system/ocrmypdf, pts/encode-mp3, pts/encode-flac, pts/graphics-magick, system/inkscape, system/rawtherapee, pts/tjbench, system/gimp, system/hugin, system/rsvg and system/gegl

Geometric Mean Of Encoding Tests

Result Composite - Raspberry Pi 4 vs. Intel Comet Lake

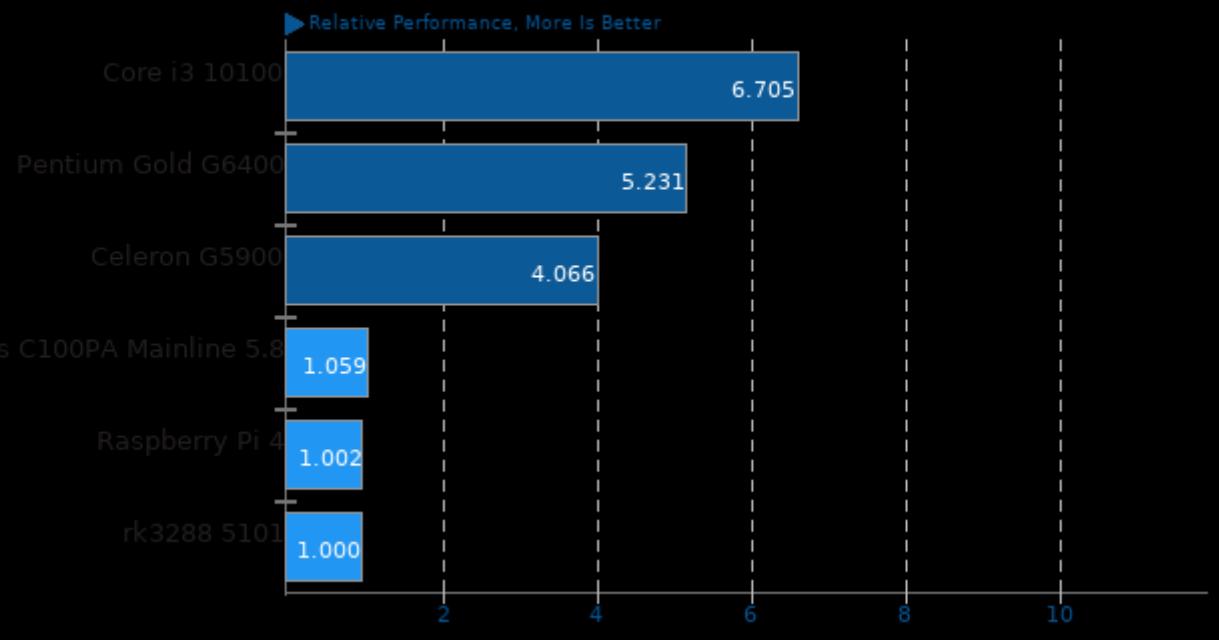


Geometric mean based upon tests: pts/encode-mp3 and pts/encode-flac

Raspberry Pi 4 vs. Intel Comet Lake

Geometric Mean Of HPC - High Performance Computing Tests

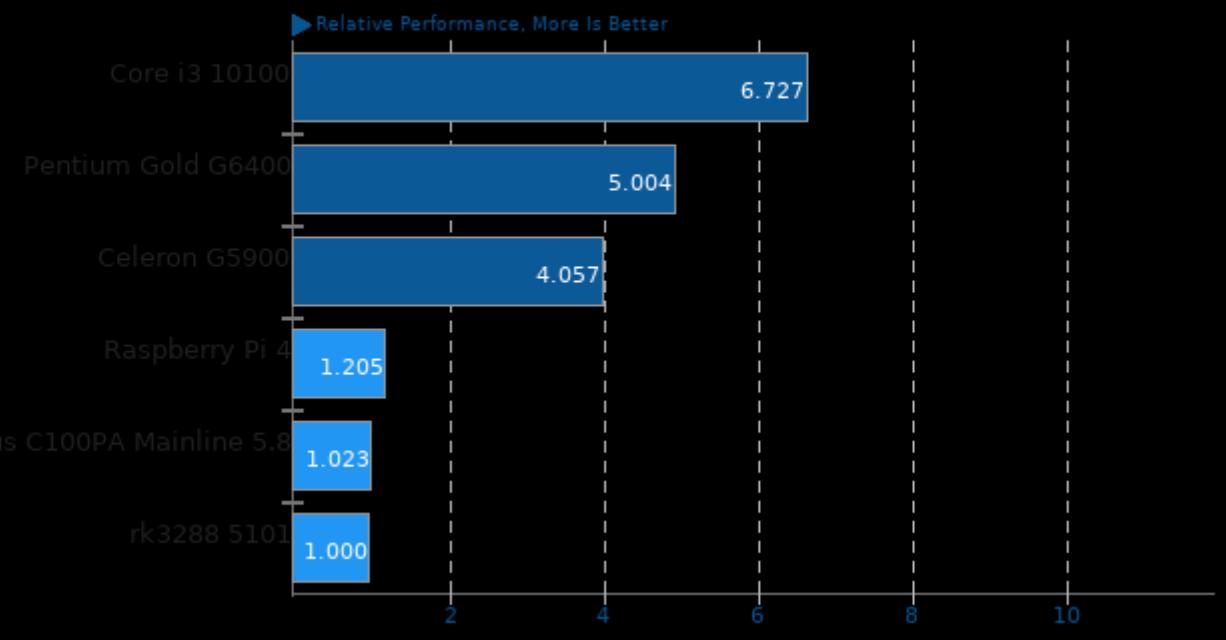
Result Composite - Raspberry Pi 4 vs. Intel Comet Lake



Geometric mean based upon tests: system/octave-benchmark, pts/lammps, pts/hmmer, pts/mafft, pts/numpy and pts/scikit-learn

Geometric Mean Of Imaging Tests

Result Composite - Raspberry Pi 4 vs. Intel Comet Lake

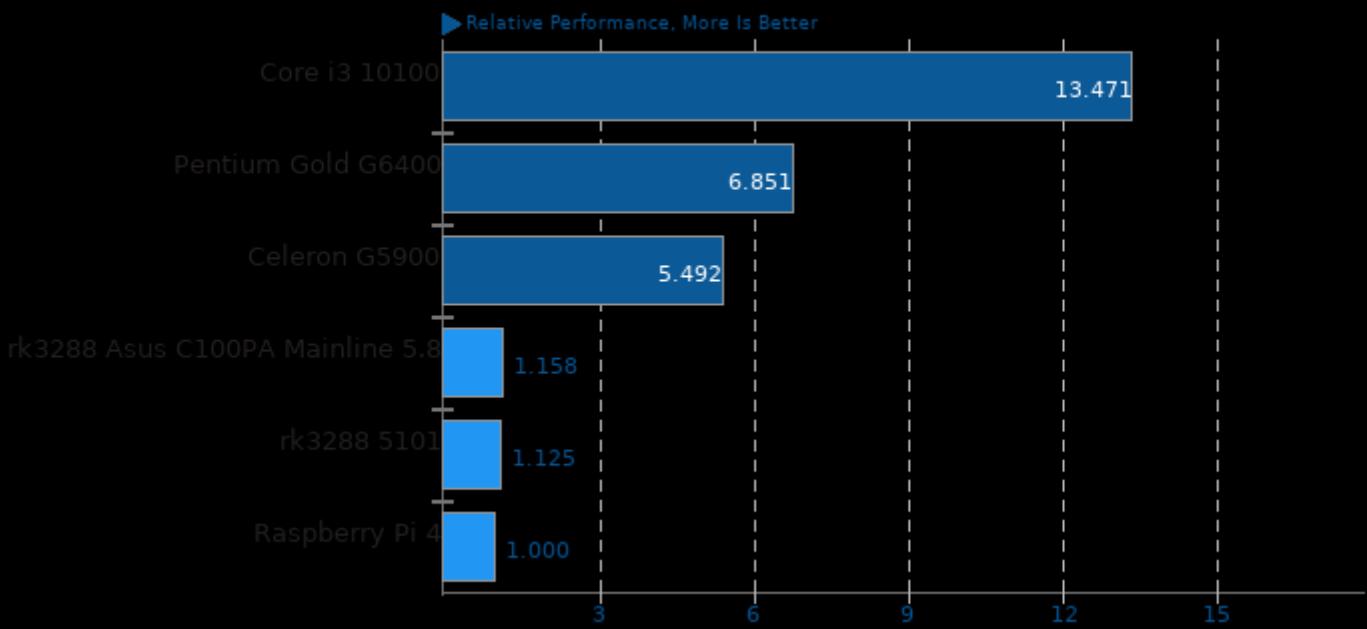


Geometric mean based upon tests: pts/graphics-magick, system/inkscape, system/rawtherapee, pts/tjbench, system/gimp, system/hugin, system/rsvg and system/gegl

Raspberry Pi 4 vs. Intel Comet Lake

Geometric Mean Of Common Kernel Benchmarks Tests

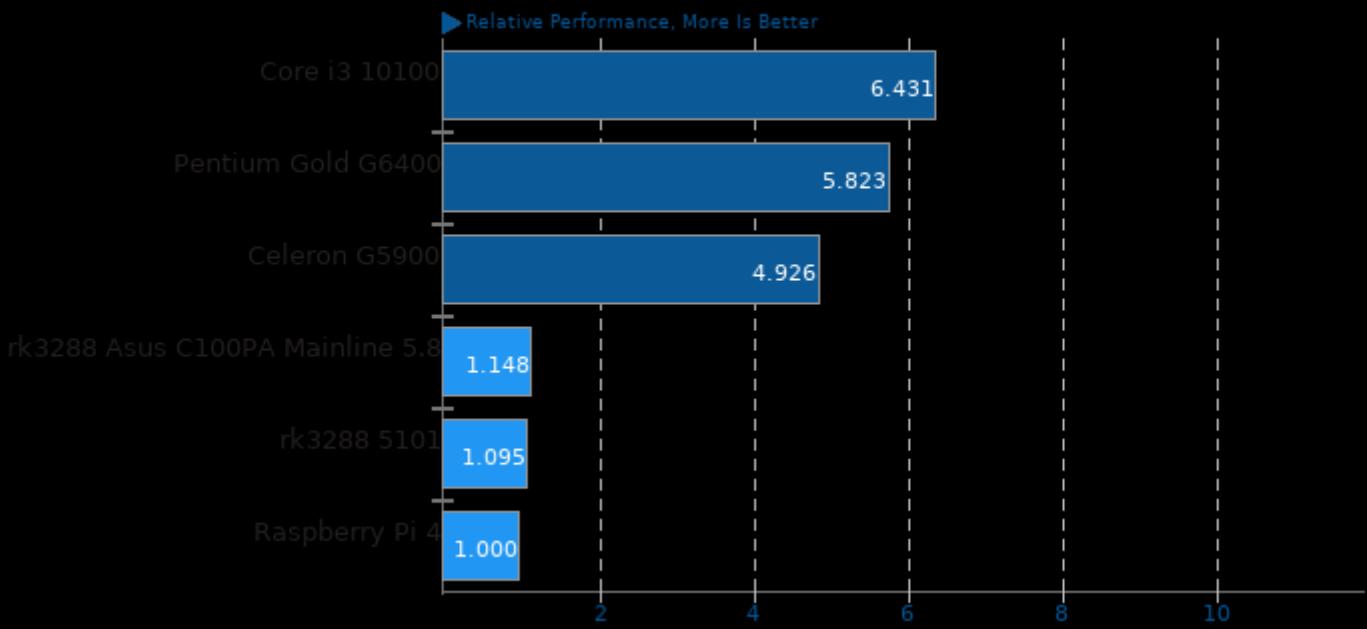
Result Composite - Raspberry Pi 4 vs. Intel Comet Lake



Geometric mean based upon tests: pts/sqlite-speedtest and pts/openssl

Geometric Mean Of Machine Learning Tests

Result Composite - Raspberry Pi 4 vs. Intel Comet Lake

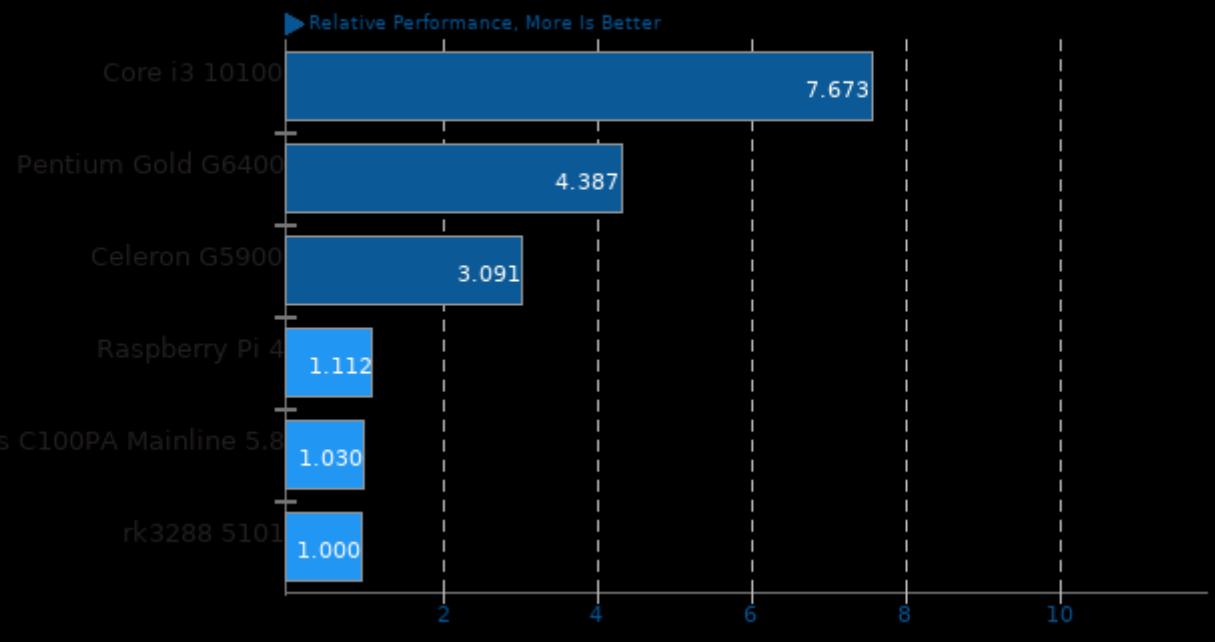


Geometric mean based upon tests: pts/numpy and pts/scikit-learn

Raspberry Pi 4 vs. Intel Comet Lake

Geometric Mean Of Multi-Core Tests

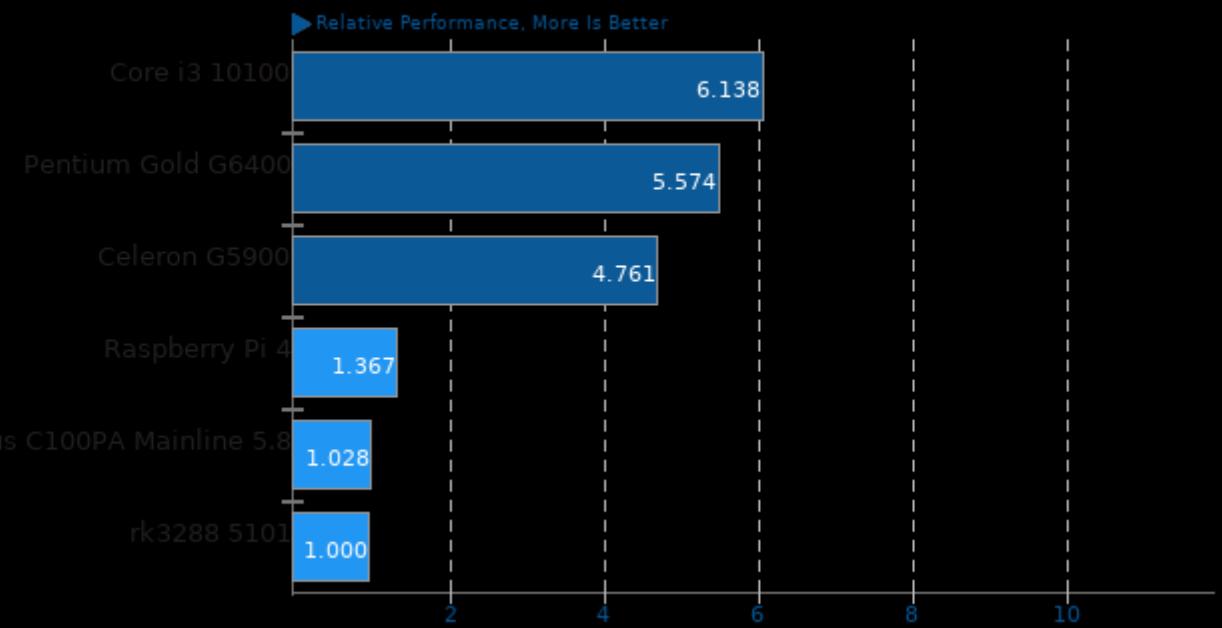
Result Composite - Raspberry Pi 4 vs. Intel Comet Lake



Geometric mean based upon tests: pts/c-ray, pts/coremark, pts/aircrack-ng, pts/smallpt, pts/graphics-magick, pts/lammps, pts/compress-7zip, pts/build-apache, pts/build-php, pts/build-gdb, pts/build-mplayer, pts/aobench and pts/ttsiod-renderer

Geometric Mean Of Productivity Tests

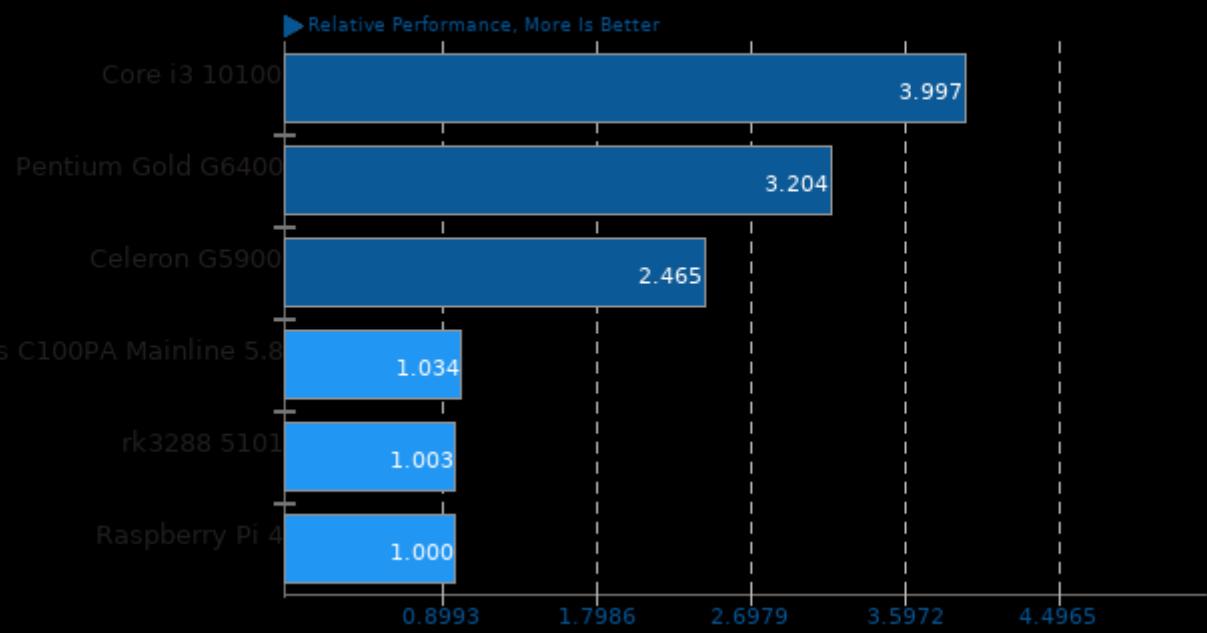
Result Composite - Raspberry Pi 4 vs. Intel Comet Lake



Geometric mean based upon tests: system/libreoffice, system/octave-benchmark, system/inkscape, system/gimp, system/gegl and system/rsvg

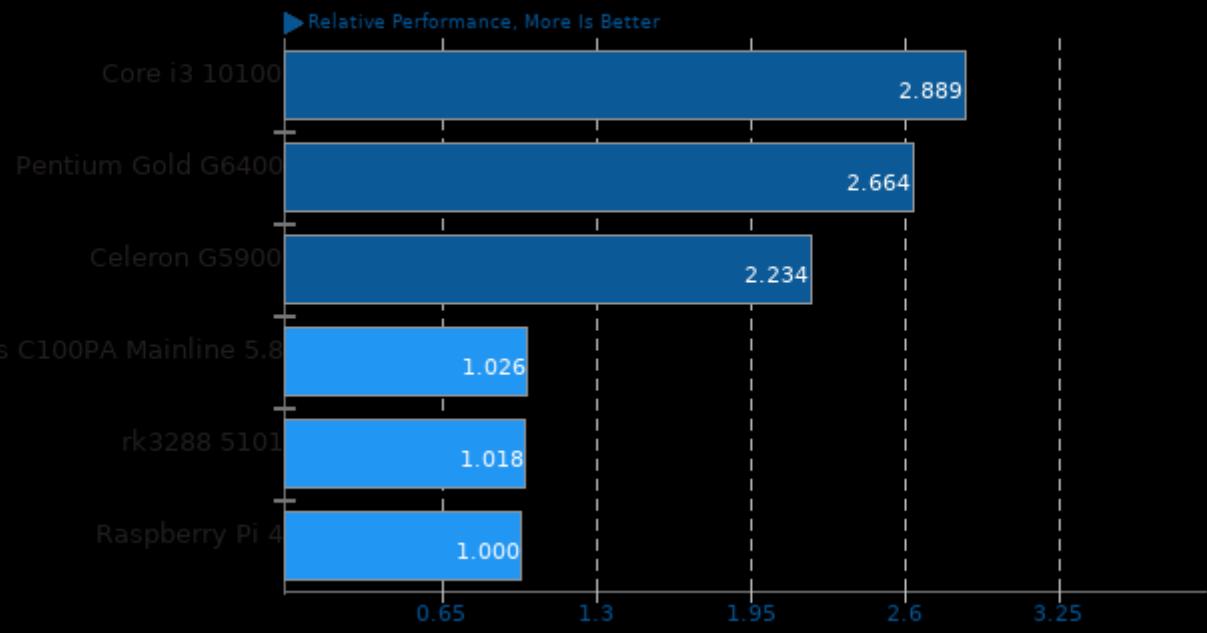
Raspberry Pi 4 vs. Intel Comet Lake

Geometric Mean Of Programmer / Developer System Benchmarks Tests Result Composite - Raspberry Pi 4 vs. Intel Comet Lake



Geometric mean based upon tests: pts/sqlite-speedtest, pts/pyperformance, pts/pybench, pts/build-apache, pts/build-php, pts/build-gdb and pts/build-mplayer

Geometric Mean Of Python Tests Result Composite - Raspberry Pi 4 vs. Intel Comet Lake

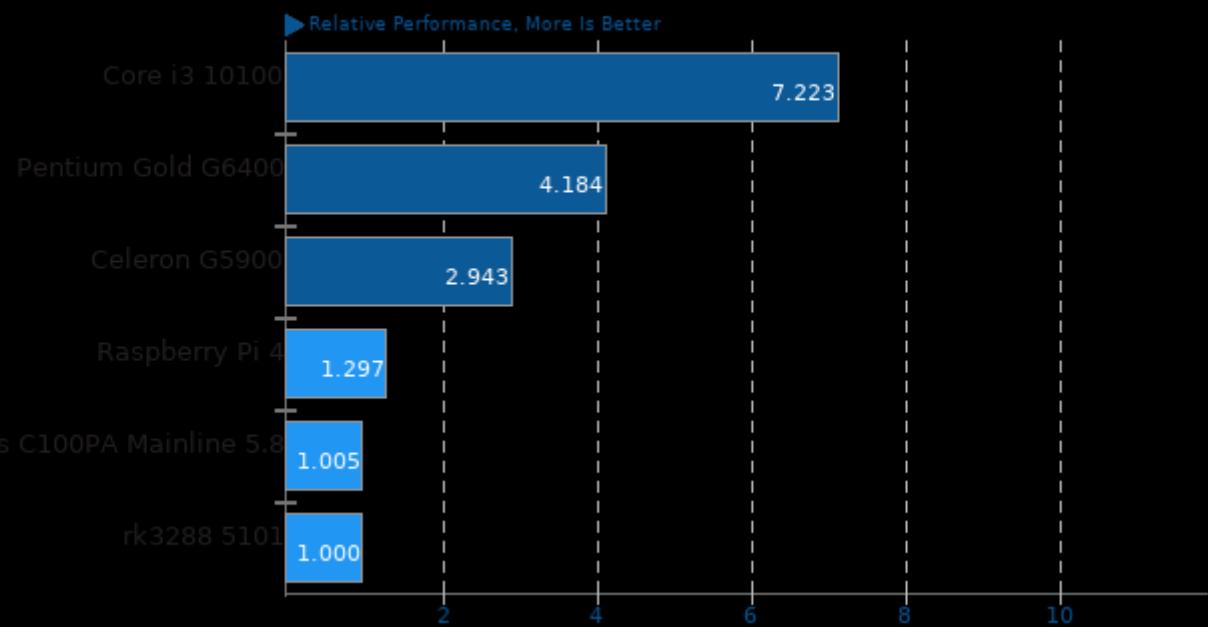


Geometric mean based upon tests: pts/pybench, pts/numpy, pts/scikit-learn and pts/pyperformance

Raspberry Pi 4 vs. Intel Comet Lake

Geometric Mean Of Renderers Tests

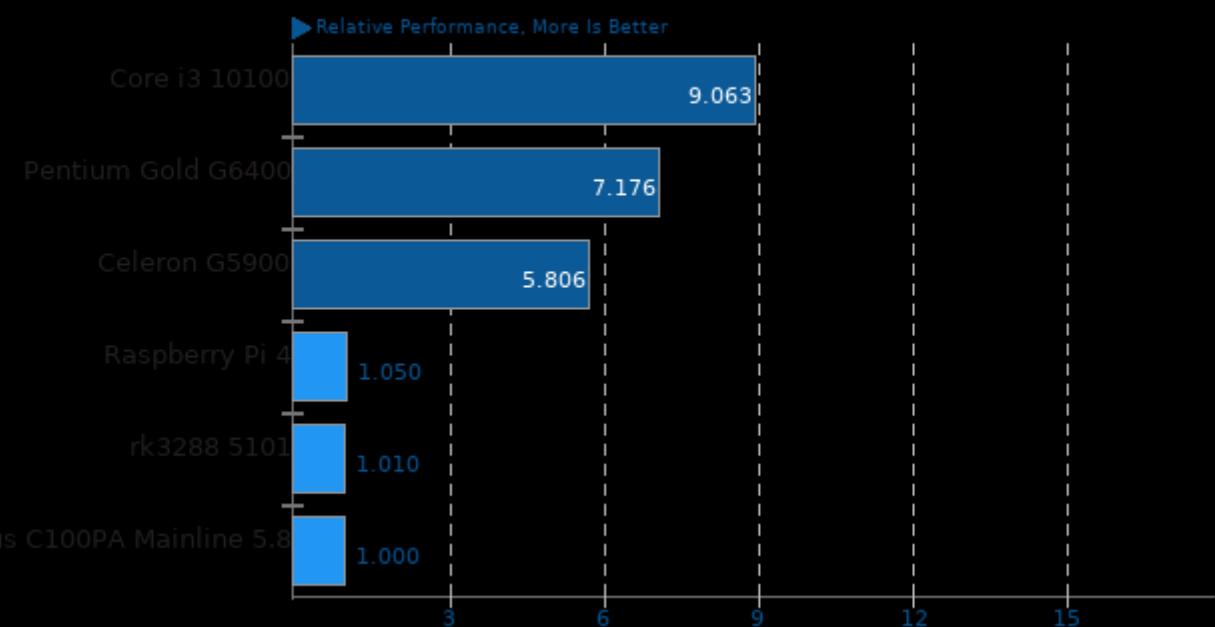
Result Composite - Raspberry Pi 4 vs. Intel Comet Lake



Geometric mean based upon tests: pts/c-ray, pts/aobench, pts/smallpt and pts/ttsiod-renderer

Geometric Mean Of Server Tests

Result Composite - Raspberry Pi 4 vs. Intel Comet Lake

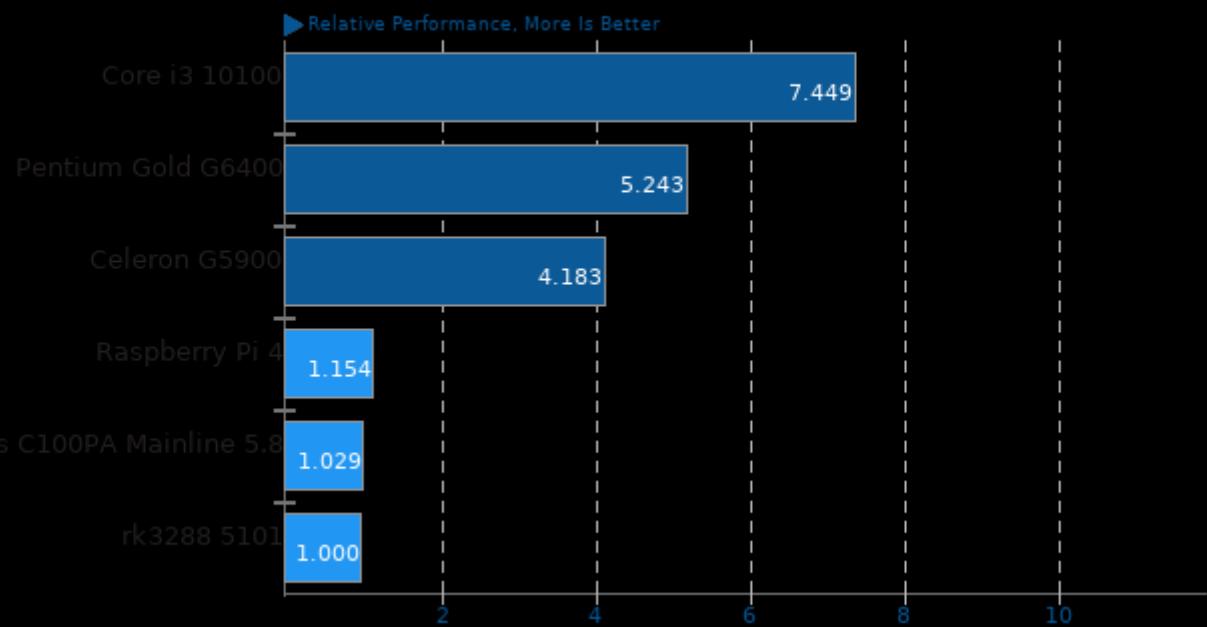


Geometric mean based upon tests: pts/phpbench, pts/openssl, pts/perl-benchmark and pts/sqlite-speedtest

Raspberry Pi 4 vs. Intel Comet Lake

Geometric Mean Of Server CPU Tests

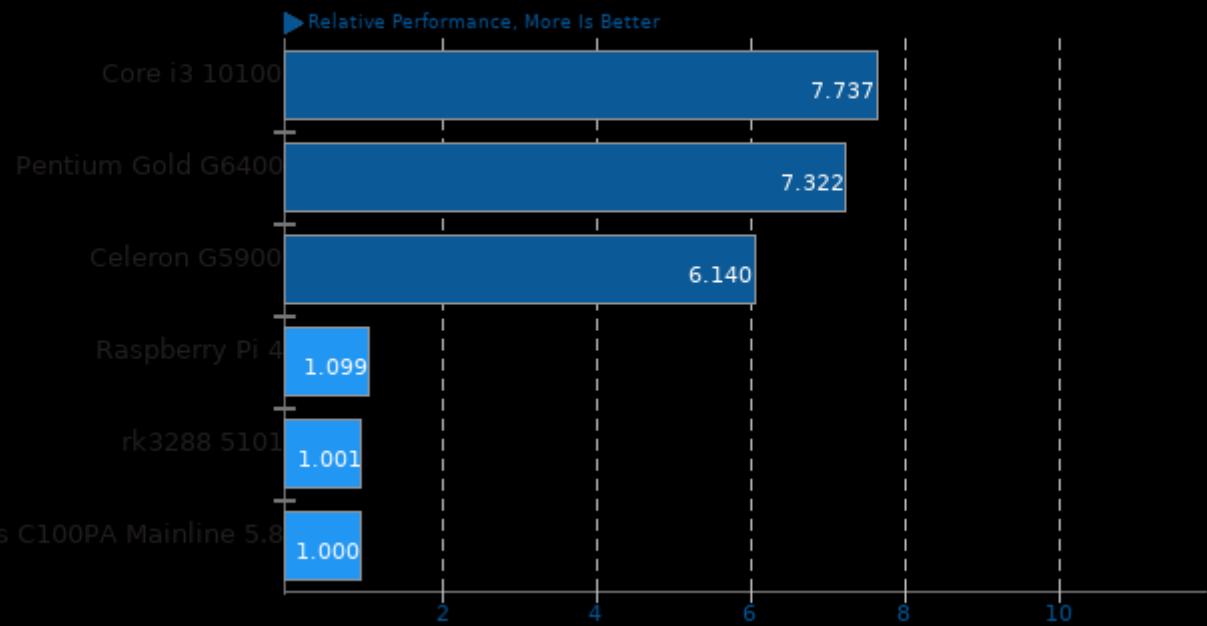
Result Composite - Raspberry Pi 4 vs. Intel Comet Lake



Geometric mean based upon tests: pts/dacapobench, pts/compress-7zip, pts/build-php, pts/c-ray, pts/openssl, pts/tjbench, system/gimp, pts/pybench, pts/numpy, pts/phpbench, pts/scikit-learn and system/tesseract-ocr

Geometric Mean Of Single-Threaded Tests

Result Composite - Raspberry Pi 4 vs. Intel Comet Lake



Geometric mean based upon tests: pts/polybench-c, pts/numpy, pts/encode-flac, pts/encode-mp3, pts/perl-benchmark, pts/tjbench, system/inkscape, pts/pybench, pts/phpbench and system/tesseract-ocr

This file was automatically generated via the Phoronix Test Suite benchmarking software on Thursday, 28 March 2024 18:49.