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OpenCL 2.0 Intel Beignet CPU Comparison

Intel OpenCL benchmark on Eurocom Q6

Automated Executive Summary

Intel Core i7 8750H had the most wins, coming in first place for 80% of the tests.

Based on the geometric mean of all complete results, the fastest (Intel Core i7 8750H) was 5.085x the speed of the slowest (Pentium G4400). Core i7 7700K was 0.329x the speed of Intel Core i7 8750H, Xeon E3-1245 v5 was 0.948x the speed of Core i7 7700K, Core i5 7600K was 0.997x the speed of Xeon E3-1245 v5, Core i5 6600K was 0.999x the speed of Core i5 7600K, Core i3 7100 was 0.928x the speed of Core i5 6600K, Core i5 6500 was 0.966x the speed of Core i3 7100, Xeon E3-1235L v5 was 0.977x the speed of Core i5 6500, Pentium G4400 was 0.724x the speed of Xeon E3-1235L v5.

Test Systems:

Core i5 6500

Processor: Intel Core i5-6500 @ 3.20GHz (4 Cores), Motherboard: Gigabyte Z170M-D3H-CF, Chipset: Intel Skylake, Memory: 8192MB, Disk: 250GB Samsung SSD 850, Graphics: Intel HD 530 (Skylake GT2) 3072MB (1050MHz), Audio: Realtek ALC892, Monitor: DELL P2415Q, Network: Intel Connection

OS: Clear Linux, Kernel: 4.9.5-302.native (x86_64), Desktop: Xfce 4.12, Display Server: X Server 1.19.1, Display Driver: modesetting 1.19.1, OpenGL: 4.5 Mesa 17.0.0-devel, OpenCL: OpenCL 2.0 beignet 1.3, Vulkan: 1.0.37, Compiler: GCC 6.3.0 + Clang 3.9.1 + LLVM 3.9.1, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=x86_64-generic-linux --disable-libunwind-exceptions --disable-multiarch --disable-vtable-verify --enable-__cxa_atexit --enable-bootstrap --enable-clocale=gnu --enable-gnu-indirect-function --enable-languages=c,c++,fortran,go --enable-ld=default --enable-libmpx --enable-libstdcxx-pch --enable-lto --enable-multilib --enable-plugin --enable-shared --enable-threads=posix --exec-prefix=/usr --includedir=/usr/include --target=x86_64-generic-linux --with-arch=westmere --with-glibc-version=2.19 --with-gnu-ld --with-isl --with-ppl=yes --with-tune=haswell
Processor Notes: Scaling Governor: acpi-cpufreq performance

Core i5 6600K

Processor: Intel Core i5-6600K @ 3.50GHz (4 Cores), Motherboard: MSI Z170A GAMING PRO (MS-7984) v1.0, Chipset: Intel Skylake, Memory: 15360MB, Disk: 256GB TS256GSSD370S, Graphics: Intel HD 530 (Skylake GT2) 3072MB (1150MHz), Audio: Realtek ALC1150, Monitor: DELL P2415Q, Network: Intel Connection

OS: Clear Linux, Kernel: 4.9.5-302.native (x86_64), Desktop: Xfce 4.12, Display Server: X Server 1.19.1, Display Driver: modesetting 1.19.1, OpenGL: 4.5 Mesa 17.0.0-devel, OpenCL: OpenCL 2.0 beignet 1.3, Vulkan: 1.0.37, Compiler: GCC 6.3.0 + Clang 3.9.1 + LLVM 3.9.1, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=x86_64-generic-linux --disable-libunwind-exceptions --disable-multiarch --disable-vtable-verify --enable-__cxa_atexit --enable-bootstrap --enable-clocale=gnu --enable-gnu-indirect-function --enable-languages=c,c++,fortran,go --enable-ld=default --enable-libmpx --enable-libstdcxx-pch --enable-lto --enable-multilib --enable-plugin --enable-shared --enable-threads=posix --exec-prefix=/usr --includedir=/usr/include --target=x86_64-generic-linux --with-arch=westmere --with-glibc-version=2.19 --with-gnu-ld --with-isl --with-ppl=yes --with-tune=haswell
Processor Notes: Scaling Governor: acpi-cpufreq performance

Pentium G4400

Processor: Intel Pentium G4400 @ 3.30GHz (2 Cores), Motherboard: MSI B150M MORTAR (MS-7972) v2.0, Chipset: Intel Skylake, Memory: 8192MB, Disk: 120GB Samsung SSD 850, Graphics: Intel HD 510 (Skylake GT1) 3072MB (1000MHz), Audio: Realtek ALC892, Monitor: DELL P2415Q, Network: Realtek RTL8111/8168/8411

OS: Clear Linux, Kernel: 4.9.5-302.native (x86_64), Desktop: Xfce 4.12, Display Server: X Server 1.19.1, Display Driver: modesetting 1.19.1, OpenGL: 4.5 Mesa 17.0.0-devel, OpenCL: OpenCL 2.0 beignet 1.3, Vulkan: 1.0.37, Compiler: GCC 6.3.0 + Clang 3.9.1 + LLVM 3.9.1, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=x86_64-generic-linux --disable-libunwind-exceptions --disable-multiarch --disable-vtable-verify --enable-__cxa_atexit --enable-bootstrap --enable-clocale=gnu --enable-gnu-indirect-function --enable-languages=c,c++,fortran,go --enable-ld=default --enable-libmpx --enable-libstdcxx-pch --enable-lto --enable-multilib --enable-plugin --enable-shared --enable-threads=posix --exec-prefix=/usr --includedir=/usr/include --target=x86_64-generic-linux --with-arch=westmere --with-glibc-version=2.19 --with-gnu-ld --with-isl --with-ppl=yes --with-tune=haswell
Processor Notes: Scaling Governor: acpi-cpufreq performance

Core i3 7100

Processor: Intel Core i3-7100 @ 3.90GHz (4 Cores), Motherboard: ASUS PRIME Z270-P, Chipset: Intel Device 590f, Memory: 16384MB, Disk: Samsung SSD 950 PRO 256GB, Graphics: Intel Kabylake GT2 3072MB (1100MHz), Audio: Realtek ALC887-VD, Monitor: DELL P2415Q, Network: Realtek RTL8111/8168/8411

OS: Clear Linux, Kernel: 4.9.5-302.native (x86_64), Desktop: Xfce 4.12, Display Server: X Server 1.19.1, Display Driver: modesetting 1.19.1, OpenGL: 4.5 Mesa 17.0.0-devel, OpenCL: OpenCL 2.0 beignet 1.3, Vulkan: 1.0.37, Compiler: GCC 6.3.0 + Clang 3.9.1 + LLVM 3.9.1, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=x86_64-generic-linux --disable-libunwind-exceptions --disable-multiarch --disable-vtable-verify --enable-__cxa_atexit --enable-bootstrap --enable-clocale=gnu --enable-gnu-indirect-function --enable-languages=c,c++,fortran,go --enable-ld=default --enable-libmpx --enable-libstdcxx-pch --enable-lto --enable-multilib --enable-plugin --enable-shared --enable-threads=posix --exec-prefix=/usr --includedir=/usr/include --target=x86_64-generic-linux --with-arch=westmere --with-glibc-version=2.19 --with-gnu-ld --with-isl --with-ppl=yes --with-tune=haswell
Processor Notes: Scaling Governor: acpi-cpufreq performance

Core i5 7600K

Processor: Intel Core i5-7600K @ 3.80GHz (4 Cores), Motherboard: ASUS PRIME Z270-P, Chipset: Intel Device 591f, Memory: 16384MB, Disk: Samsung SSD 950 PRO 256GB, Graphics: Intel Kabylake GT2 3072MB (1150MHz), Audio: Realtek ALC887-VD, Monitor: DELL P2415Q, Network: Realtek RTL8111/8168/8411

OS: Clear Linux, Kernel: 4.9.5-302.native (x86_64), Desktop: Xfce 4.12, Display Server: X Server 1.19.1, Display Driver: modesetting 1.19.1, OpenGL: 4.5 Mesa 17.0.0-devel, OpenCL: OpenCL 2.0 beignet 1.3, Vulkan: 1.0.37, Compiler: GCC 6.3.0 + Clang 3.9.1 + LLVM 3.9.1, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=x86_64-generic-linux --disable-libunwind-exceptions --disable-multiarch --disable-vtable-verify --enable-__cxa_atexit --enable-bootstrap --enable-clocale=gnu --enable-gnu-indirect-function --enable-languages=c,c++,fortran,go --enable-ld=default --enable-libmpx --enable-libstdcxx-pch --enable-lto --enable-multilib --enable-plugin --enable-shared --enable-threads=posix --exec-prefix=/usr --includedir=/usr/include --target=x86_64-generic-linux --with-arch=westmere --with-glibc-version=2.19 --with-gnu-ld --with-isl --with-ppl=yes --with-tune=haswell
Processor Notes: Scaling Governor: acpi-cpufreq performance

Core i7 7700K

Processor: Intel Core i7-7700K @ 4.20GHz (8 Cores), Motherboard: ASUS PRIME Z270-P, Chipset: Intel Device 591f, Memory: 16384MB, Disk: Samsung SSD 950 PRO 256GB, Graphics: Intel Kabylake GT2 3072MB (1150MHz), Audio: Realtek ALC887-VD, Monitor: DELL P2415Q, Network: Realtek RTL8111/8168/8411

OS: Clear Linux, Kernel: 4.9.5-302.native (x86_64), Desktop: Xfce 4.12, Display Server: X Server 1.19.1, Display Driver: modesetting 1.19.1, OpenGL: 4.5 Mesa 17.0.0-devel, OpenCL: OpenCL 2.0 beignet 1.3, Vulkan: 1.0.37, Compiler: GCC 6.3.0 + Clang 3.9.1 + LLVM 3.9.1, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=x86_64-generic-linux --disable-libunwind-exceptions --disable-multiarch --disable-vtable-verify --enable-__cxa_atexit --enable-bootstrap --enable-clocale=gnu --enable-gnu-indirect-function --enable-languages=c,c++,fortran,go --enable-ld=default --enable-libmpx --enable-libstdcxx-pch --enable-lto --enable-multilib --enable-plugin --enable-shared --enable-threads=posix --exec-prefix=/usr --includedir=/usr/include --target=x86_64-generic-linux --with-arch=westmere --with-glibc-version=2.19 --with-gnu-ld --with-isl --with-ppl=yes --with-tune=haswell
Processor Notes: Scaling Governor: acpi-cpufreq performance

Xeon E3-1235L v5

Processor: Intel Xeon E3-1235L v5 @ 2.00GHz (4 Cores), Motherboard: ASRockRack C236M WS, Chipset: Intel Skylake, Memory: 8192MB, Disk: 120GB OCZ TRION150, Graphics: Intel HD 530 (Skylake GT2) 3072MB (1000MHz), Audio: Realtek ALC1150, Monitor: DELL S2409W, Network: Intel Connection

OS: Clear Linux, Kernel: 4.9.5-302.native (x86_64), Desktop: Xfce 4.12, Display Server: X Server 1.19.1, Display Driver: modesetting 1.19.1, OpenGL: 4.5 Mesa 17.0.0-devel, OpenCL: OpenCL 2.0 beignet 1.3, Vulkan: 1.0.37, Compiler: GCC 6.3.0 + Clang 3.9.1 + LLVM 3.9.1, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=x86_64-generic-linux --disable-libunwind-exceptions --disable-multiarch --disable-vtable-verify --enable-__cxa_atexit --enable-bootstrap --enable-clocale=gnu --enable-gnu-indirect-function --enable-languages=c,c++,fortran,go --enable-ld=default --enable-libmpx --enable-libstdcxx-pch --enable-lto --enable-multilib --enable-plugin --enable-shared --enable-threads=posix --exec-prefix=/usr --includedir=/usr/include --target=x86_64-generic-linux --with-arch=westmere --with-glibc-version=2.19 --with-gnu-ld --with-isl --with-ppl=yes --with-tune=haswell
Processor Notes: Scaling Governor: acpi-cpufreq performance

Xeon E3-1245 v5

Processor: Intel Xeon E3-1245 v5 @ 3.50GHz (8 Cores), Motherboard: MSI C236A WORKSTATION (MS-7998) v1.0, Chipset: Intel Skylake, Memory: 32768MB, Disk: 120GB Samsung SSD 850, Graphics: Intel HD P530 (Skylake GT2)

3072MB (1150MHz), Audio: Realtek ALC1150, Monitor: DELL P2415Q, Network: Intel Connection

OS: Clear Linux, Kernel: 4.9.5-302.native (x86_64), Desktop: Xfce 4.12, Display Server: X Server 1.19.1, Display Driver: modesetting 1.19.1, OpenGL: 4.5 Mesa 17.0.0-devel, OpenCL: OpenCL 2.0 beignet 1.3, Vulkan: 1.0.37, Compiler: GCC 6.3.0 + Clang 3.9.1 + LLVM 3.9.1, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=x86_64-generic-linux --disable-libunwind-exceptions --disable-multiarch --disable-vtable-verify --enable-__cxa_atexit --enable-bootstrap --enable-clocale=gnu --enable-gnu-indirect-function --enable-languages=c,c++,fortran,go --enable-ld=default --enable-libmpx --enable-libstdcxx-pch --enable-lto --enable-multilib --enable-plugin --enable-shared --enable-threads=posix --exec-prefix=/usr --includedir=/usr/include --target=x86_64-generic-linux --with-arch=westmere --with-glibc-version=2.19 --with-gnu-ld --with-isl --with-ppl=yes --with-tune=haswell
Processor Notes: Scaling Governor: acpi-cpufreq performance

Intel Core i7 8750H

Processor: Intel Core i7-8750H @ 4.10GHz (6 Cores / 12 Threads), Motherboard: Eurocom Q6 (7.005 BIOS), Chipset: Intel Cannon Lake PCH Shared SRAM, Memory: 32768MB, Disk: 2050GB Crucial_CT2050MX + 1000GB Samsung SSD 960 EVO 1TB, Graphics: NVIDIA GeForce GTX 1070 with Max-Q Design 8192MB (1101/4006MHz), Audio: Realtek ALC1220, Network: Realtek RTL8111/8168/8411 + Intel Wireless-AC 9260

OS: Ubuntu 18.04, Kernel: 4.17.2 (x86_64), Desktop: GNOME Shell 3.28.1, Display Server: X Server 1.19.6, Display Driver: NVIDIA 396.24.02, OpenGL: 4.6.0, OpenCL: OpenCL 1.2 CUDA 9.2.127 + OpenCL 2.1, Compiler: GCC 7.3.0 + Clang 4.0.1-10 + LLVM 4.0.1 + CUDA 9.2, File-System: ext4, Screen Resolution: 1920x1080

Kernel Notes: drm.debug=0xe
Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --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-as=/usr/bin/x86_64-linux-gnu-as --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-ld=/usr/bin/x86_64-linux-gnu-ld --with-multilib-list=m32,m64,mx32 --with-target-system-zlib --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: intel_pstate performance
OpenCL Notes: GPU Compute Cores: 2048
Security Notes: KPTI + __user pointer sanitization + Full generic retpoline IBPB IBRS_FW Protection

	Core i5 6500	Core i5 6600K	Pentium G4400	Core i3 7100	Core i5 7600K	Core i7 7700K	Xeon E3-1235L v5	Xeon E3-1245 v5	Intel Core i7 8750H
SHOC Scalable HeterOgeneous Computing - OpenCL - Max SP Flops (GFLOPS)	292.46	340.71	**138.13**	297.39	340.69	340.71	280.07	324.36	**6227**
Normalized	4.7%	5.47%	2.22%	4.78%	5.47%	5.47%	4.5%	5.21%	100%
Standard Deviation	0.1%	0%	0%	0%	0%	0%	0.1%	0%	0.1%
SmallPT GPU - GPU - Caustic3 (Samples/sec)	14856510 21			14854924 83	**14854625 59**	14855333 33		14855751 56	**15295626 75**
Normalized	97.13%			97.12%	97.12%	97.12%		97.12%	100%
Standard Deviation	0%			0%	0%	0%		0%	0%

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SmallPT GPU - GPU - Cornell	14856508 94			14854923 54	**14854624 37**	14855332 11		14855750 33	**15295625 49**
Normalized	97.13%			97.12%	97.12%	97.12%		97.12%	100%
Standard Deviation	0%			0%	0%	0%		0%	0%
SmallPT GPU - GPU - Complex (Samples/sec)	14856501 08			14854915 82	**14854617 59**	14855325 34		14855743 20	**15295624 33**
Normalized	97.13%			97.12%	97.12%	97.12%		97.12%	100%
Standard Deviation	0%			0%	0%	0%		0%	0%
SHOC Scalable HeterOgeneous Computing - OpenCL - T.R.B (GB/s)	49.86	57.60	**31.98**	51.52	58.11	57.89	47.60	55.52	**428.00**
Normalized	11.65%	13.46%	7.47%	12.04%	13.58%	13.53%	11.12%	12.97%	100%
Standard Deviation	1.2%	1.6%	2.2%	0%	0%	0.7%	1.4%	0.2%	0.4%
JuliaGPU - GPU (Samples/sec)	31757837	36351872	**16211893**	31987657	36333557	37085080	29888423	34988792	**132480810**
Normalized	23.97%	27.44%	12.24%	24.15%	27.43%	27.99%	22.56%	26.41%	100%
Standard Deviation	0%	0%	0%	0.2%	1.8%	2.2%	0%	2.1%	0.3%
MandelGPU - GPU (Samples/sec)	7886706	9149327	**3613231**	8031119	9180692	9186739	7788606	8686154	**126728903**
Normalized	6.22%	7.22%	2.85%	6.34%	7.24%	7.25%	6.15%	6.85%	100%
Standard Deviation	0%	0.2%	0.1%	0%	0%	0.1%	0.2%	0.1%	0.2%
cl-mem - Read	45.88	39.92	40.32	44.12	**39.72**	41.07	39.85	42.18	**206.77**
Normalized	22.19%	19.31%	19.5%	21.34%	19.21%	19.86%	19.27%	20.4%	100%
Standard Deviation	13.5%	11.4%	16.9%	8%	8.5%	14.3%	11.5%	12.7%	0.1%
cl-mem - Write	40.48	46.02	42.30	47.97	42.92	**39.13**	44.15	46.68	**204.80**
Normalized	19.77%	22.47%	20.65%	23.42%	20.96%	19.11%	21.56%	22.79%	100%
Standard Deviation	15.1%	6.7%	11.7%	17.1%	11.6%	3.4%	18.6%	3.1%	0%
MandelbulbGPU - GPU (Samples/sec)	6852443	7914468		6991142	7893609	7953468	**6421850**	7523189	**74293202**
Normalized	9.22%	10.65%		9.41%	10.62%	10.71%	8.64%	10.13%	100%
Standard Deviation	0.4%	0%		0%	0.4%	0.4%	0.6%	0%	1%
SHOC Scalable HeterOgeneous Computing - OpenCL - FFT SP (GFLOPS)	9.32	10.89		9.67	10.90	10.88	**8.96**	10.33	**526.16**
Normalized	1.77%	2.07%		1.84%	2.07%	2.07%	1.7%	1.96%	100%
Standard Deviation	0.1%	0%		0.1%	0%	0%	0%	0.3%	1.6%
SHOC Scalable HeterOgeneous Computing - OpenCL - MD5 Hash	0.28	0.32		0.28	0.32	0.32	**0.26**	0.30	**8.68**
Normalized	3.23%	3.69%		3.23%	3.69%	3.69%	3%	3.46%	100%
Standard Deviation	0.2%	0%		0%	0%	0%	0.1%	0.1%	0.8%
SHOC Scalable HeterOgeneous Computing - OpenCL - Triad (GB/s)	7.43	8.27	**6.24**	6.61	8.37	**12.23**	9.67	10.49	11.29
Normalized	60.75%	67.62%	51.02%	54.05%	68.44%	100%	79.07%	85.77%	92.31%
Standard Deviation	0.5%	0.7%	0.2%	0.2%	0.4%	2.7%	3.6%	1.3%	0.2%

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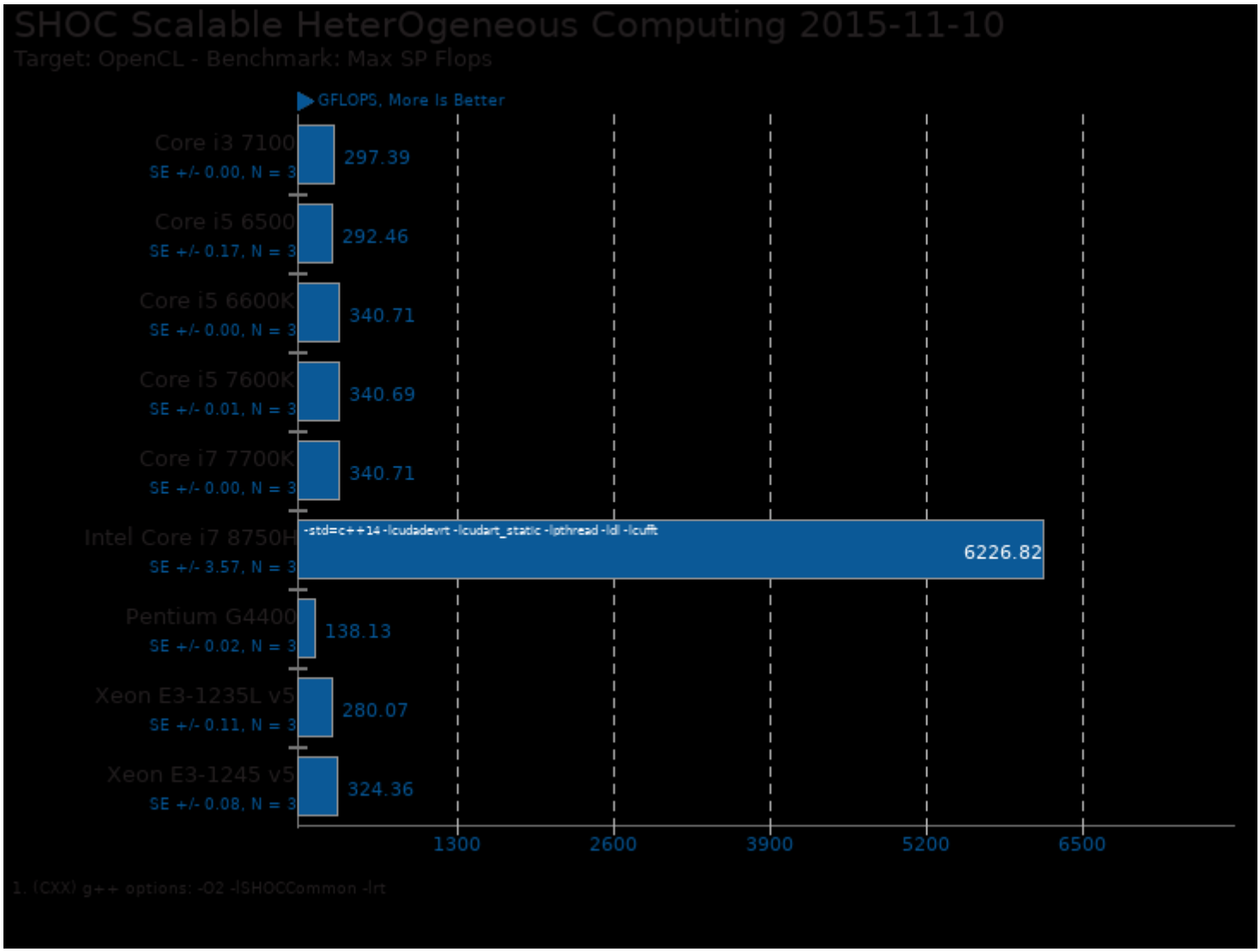
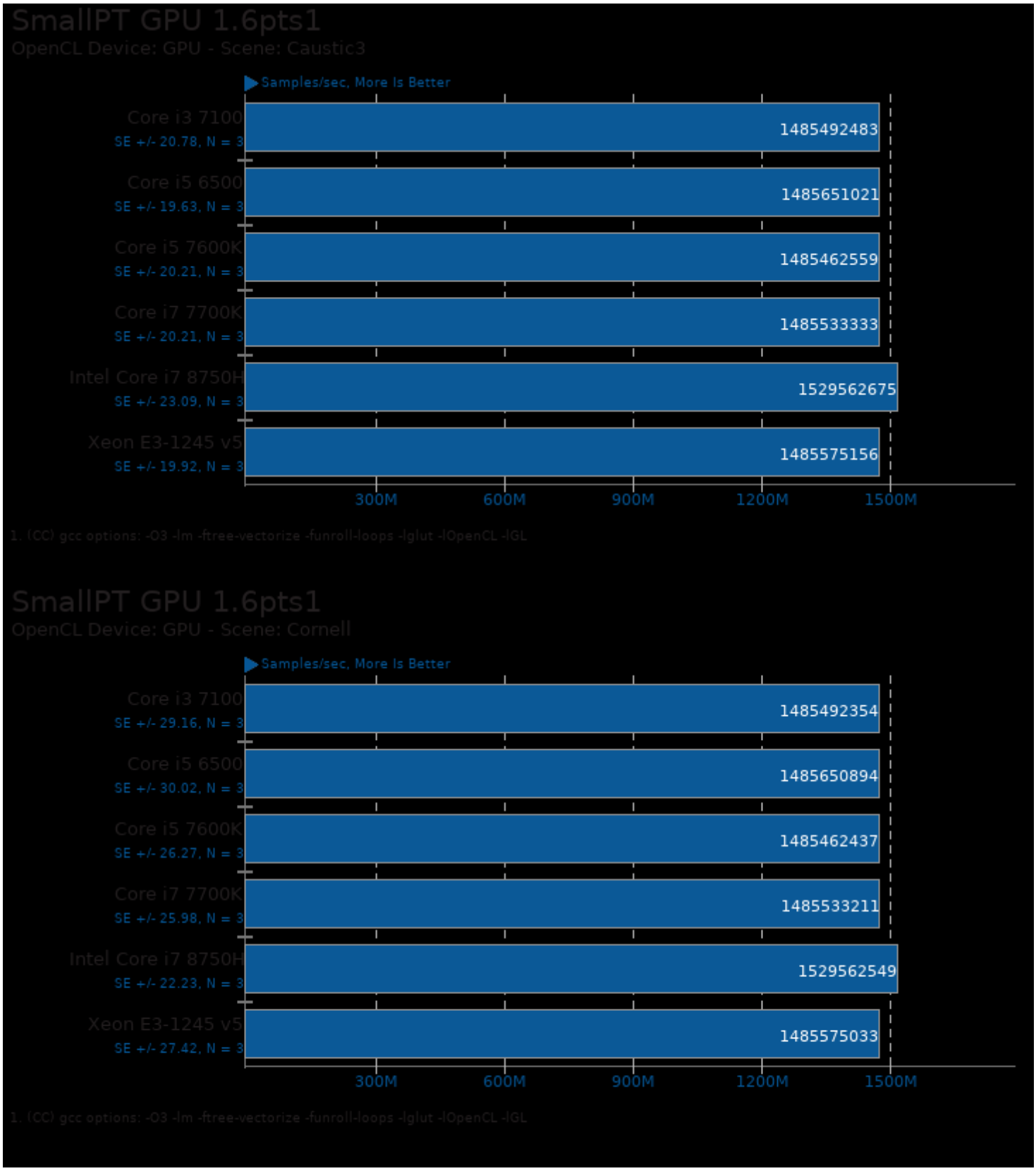
SHOC Scalable HeterOgeneous Computing - OpenCL - Bus Speed Readback (GB/s)	29.57	33.96	24.35	32.08	35.12	**38.52**	25.60	32.65	**12.03**
Normalized	76.77%	88.16%	63.21%	83.28%	91.17%	100%	66.46%	84.76%	31.23%
Standard Deviation	1.6%	1.8%	1.8%	1.6%	1.8%	1.4%	1.5%	2.4%	0%
SHOC Scalable HeterOgeneous Computing - OpenCL - Bus Speed Download (GB/s)	21.51	25.60	21.07	24.86	26.18	**28.39**	19.23	24.17	**12.48**
Normalized	75.77%	90.17%	74.22%	87.57%	92.22%	100%	67.74%	85.14%	43.96%
Standard Deviation	1.2%	0.4%	0.6%	0.2%	1.3%	0.3%	0.3%	1%	0%

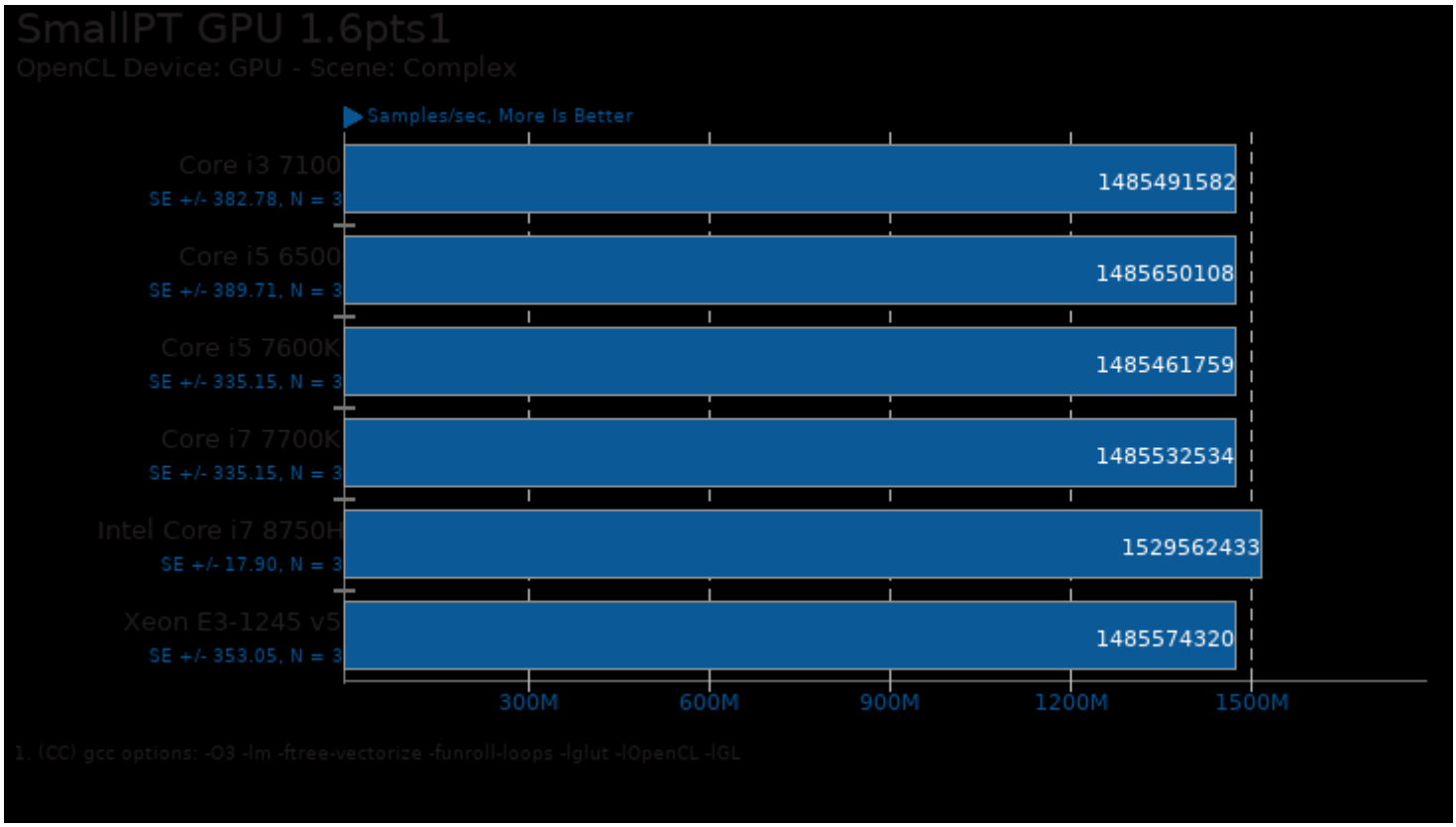
OpenCL 2.0 Intel Beignet CPU Comparison



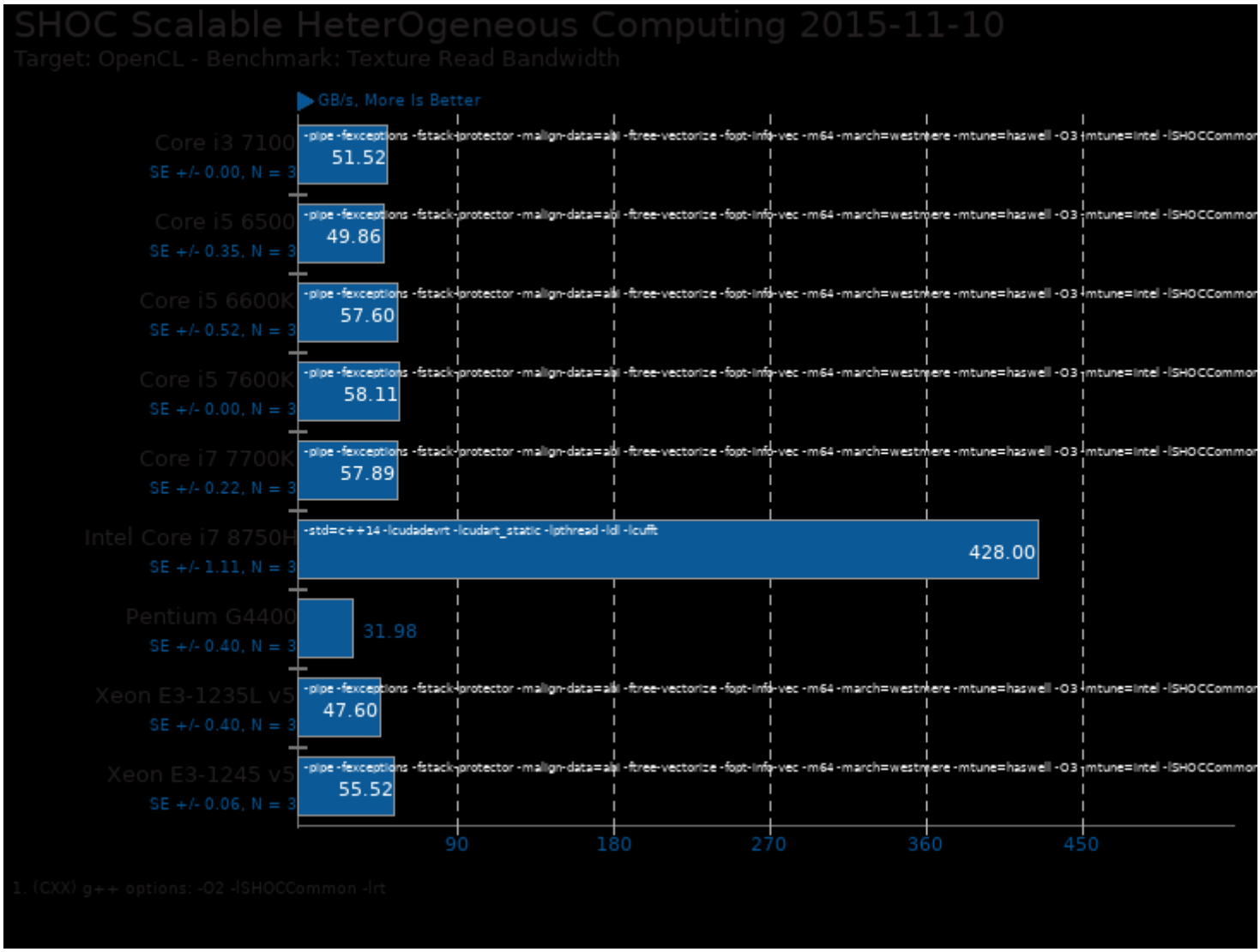
OpenCL 2.0 Intel Beignet CPU Comparison



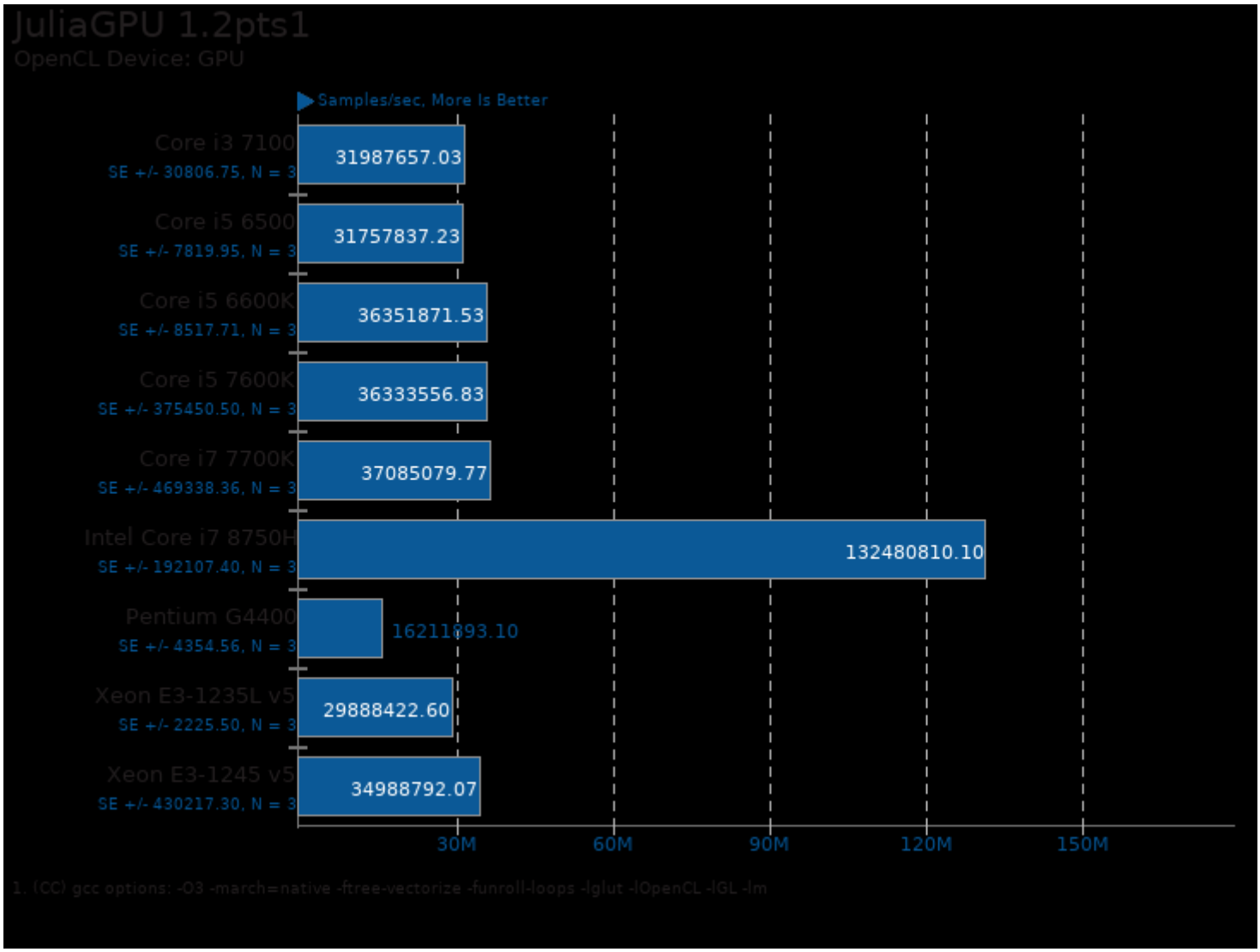
OpenCL 2.0 Intel Beignet CPU Comparison



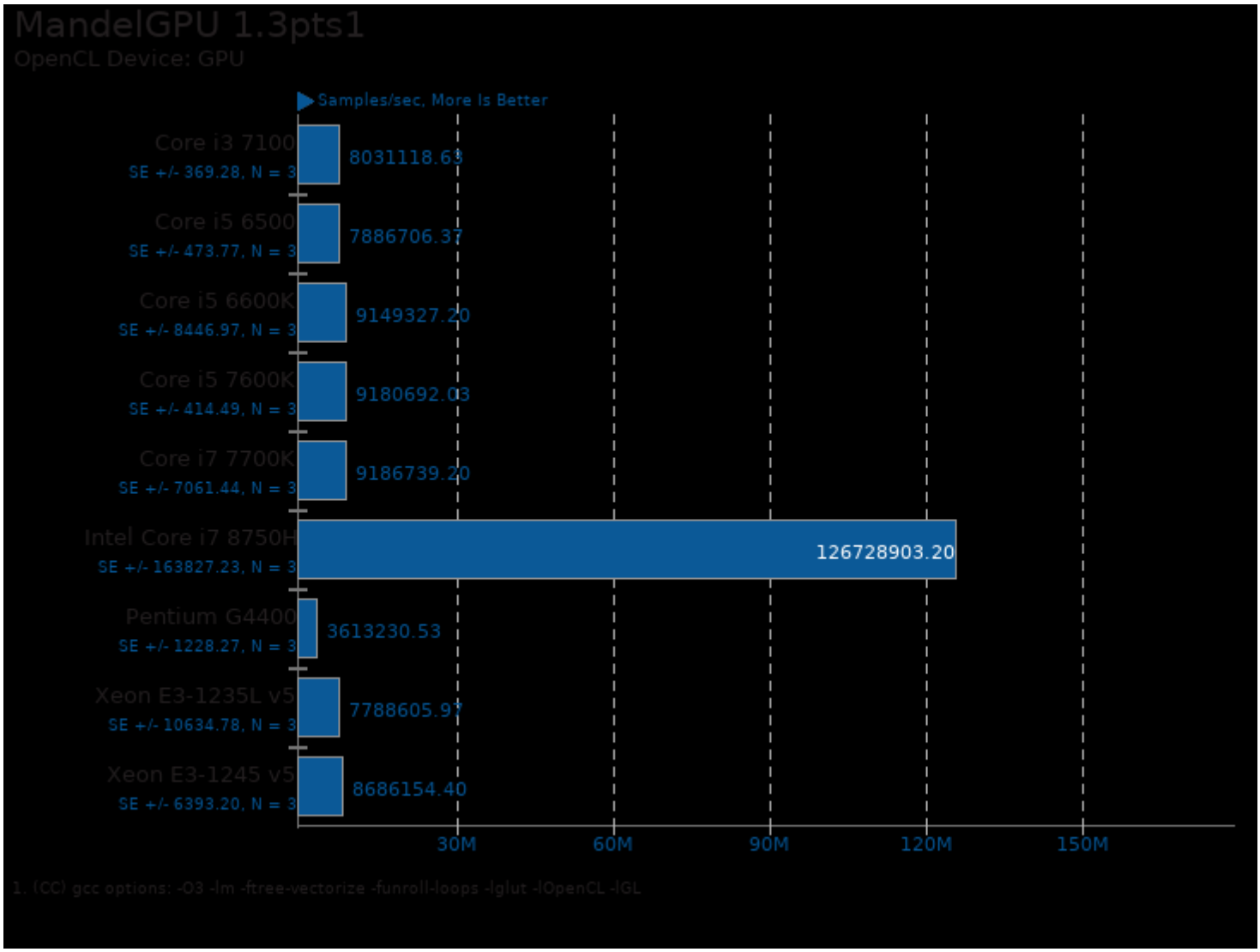
OpenCL 2.0 Intel Beignet CPU Comparison



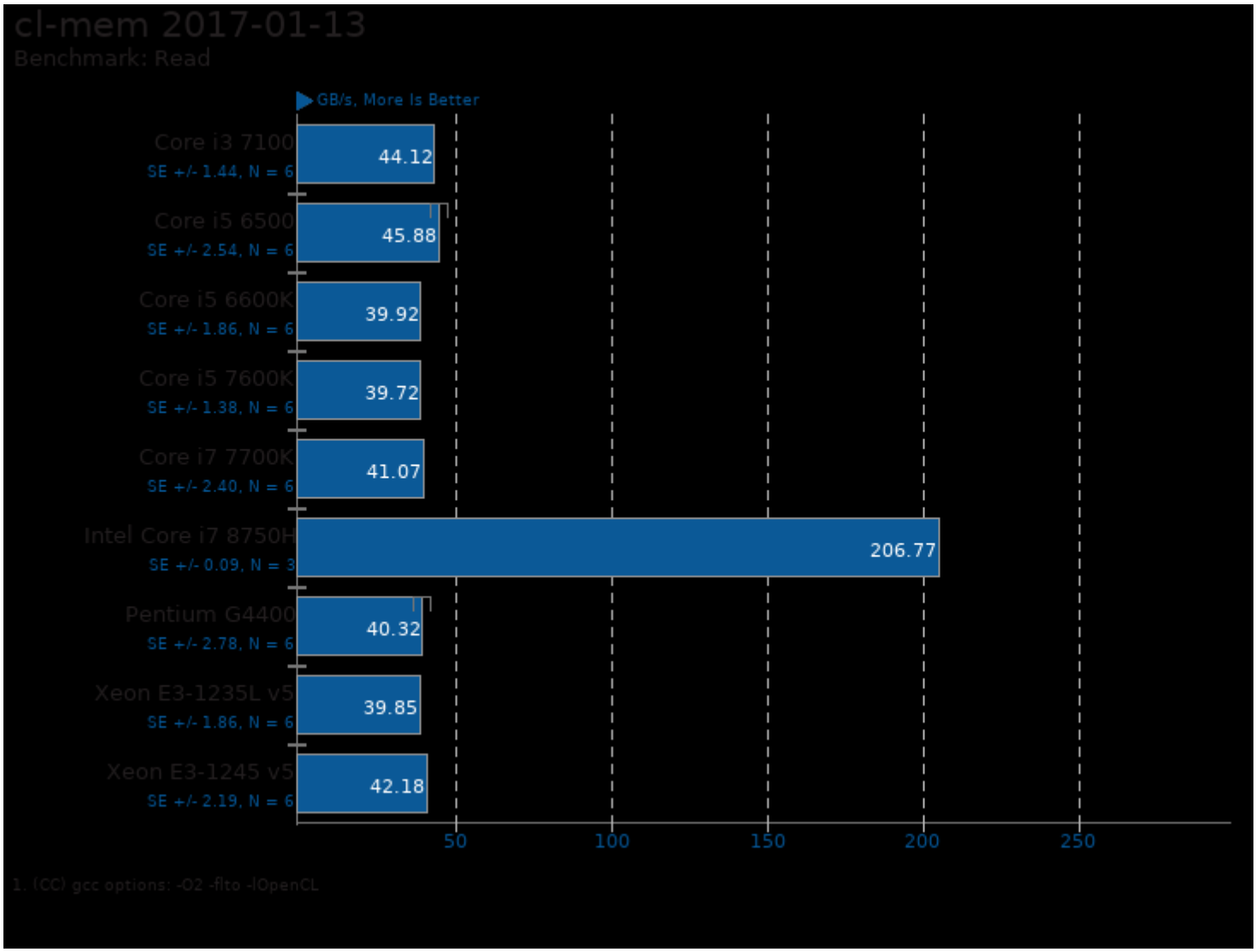
OpenCL 2.0 Intel Beignet CPU Comparison



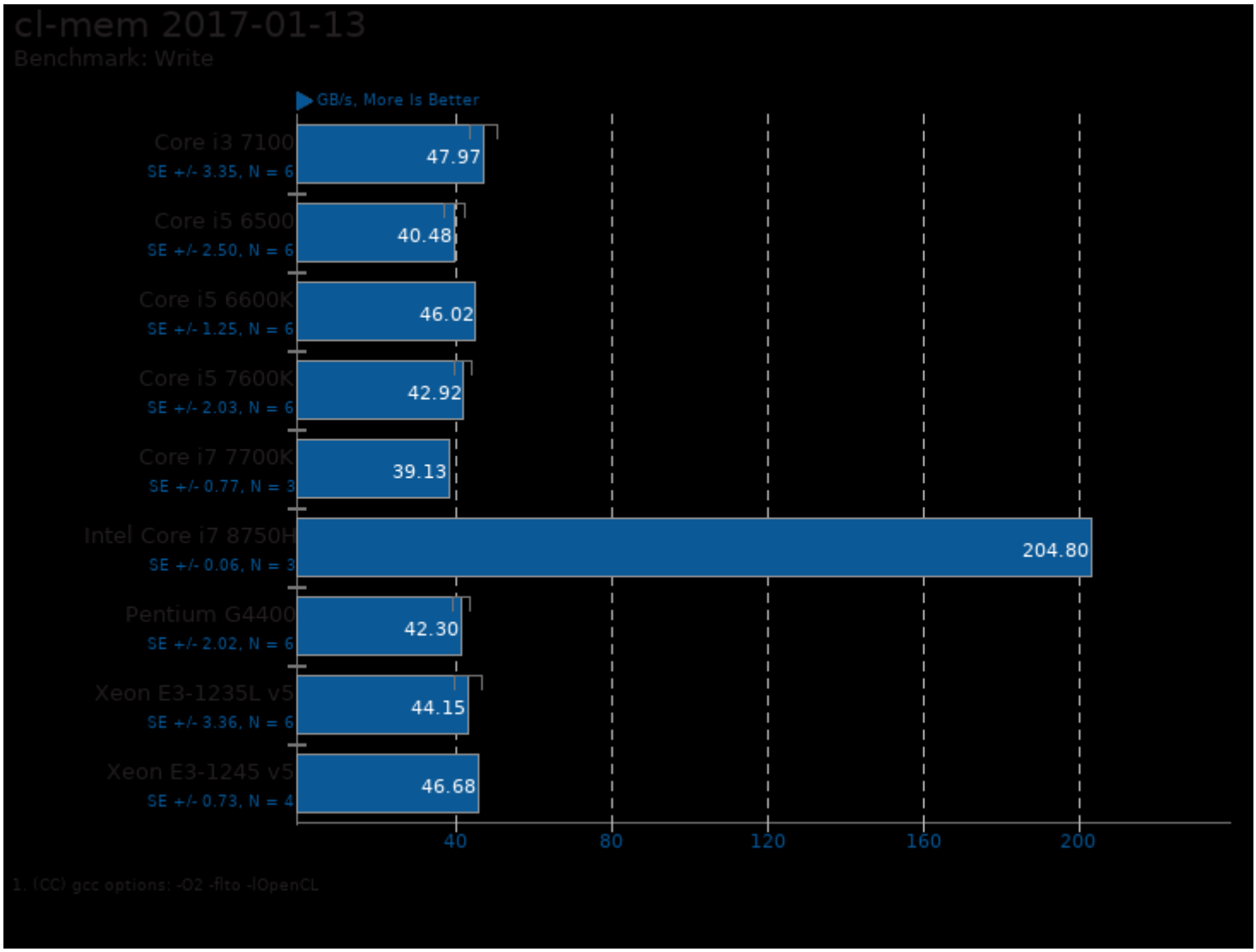
OpenCL 2.0 Intel Beignet CPU Comparison



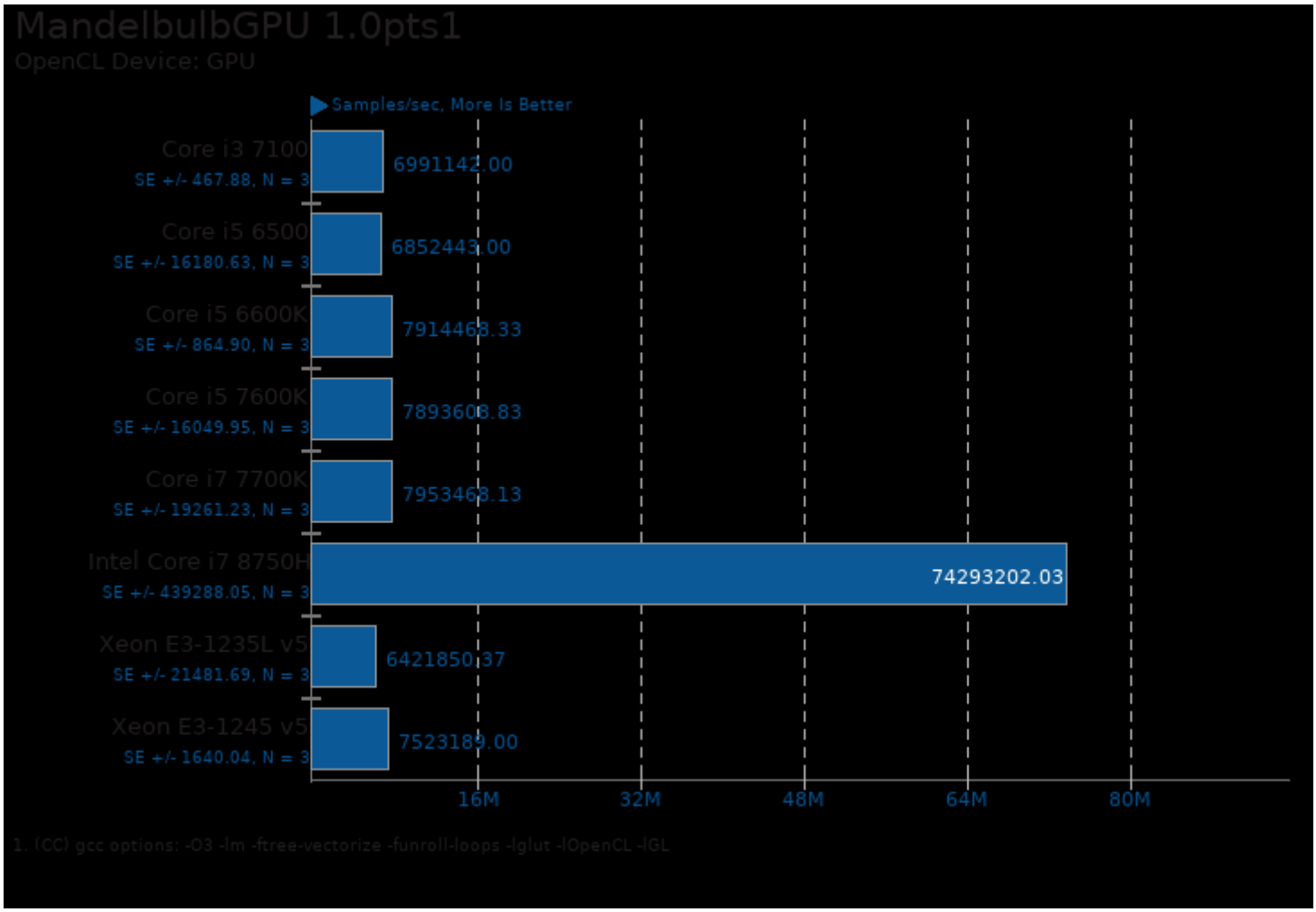
OpenCL 2.0 Intel Beignet CPU Comparison



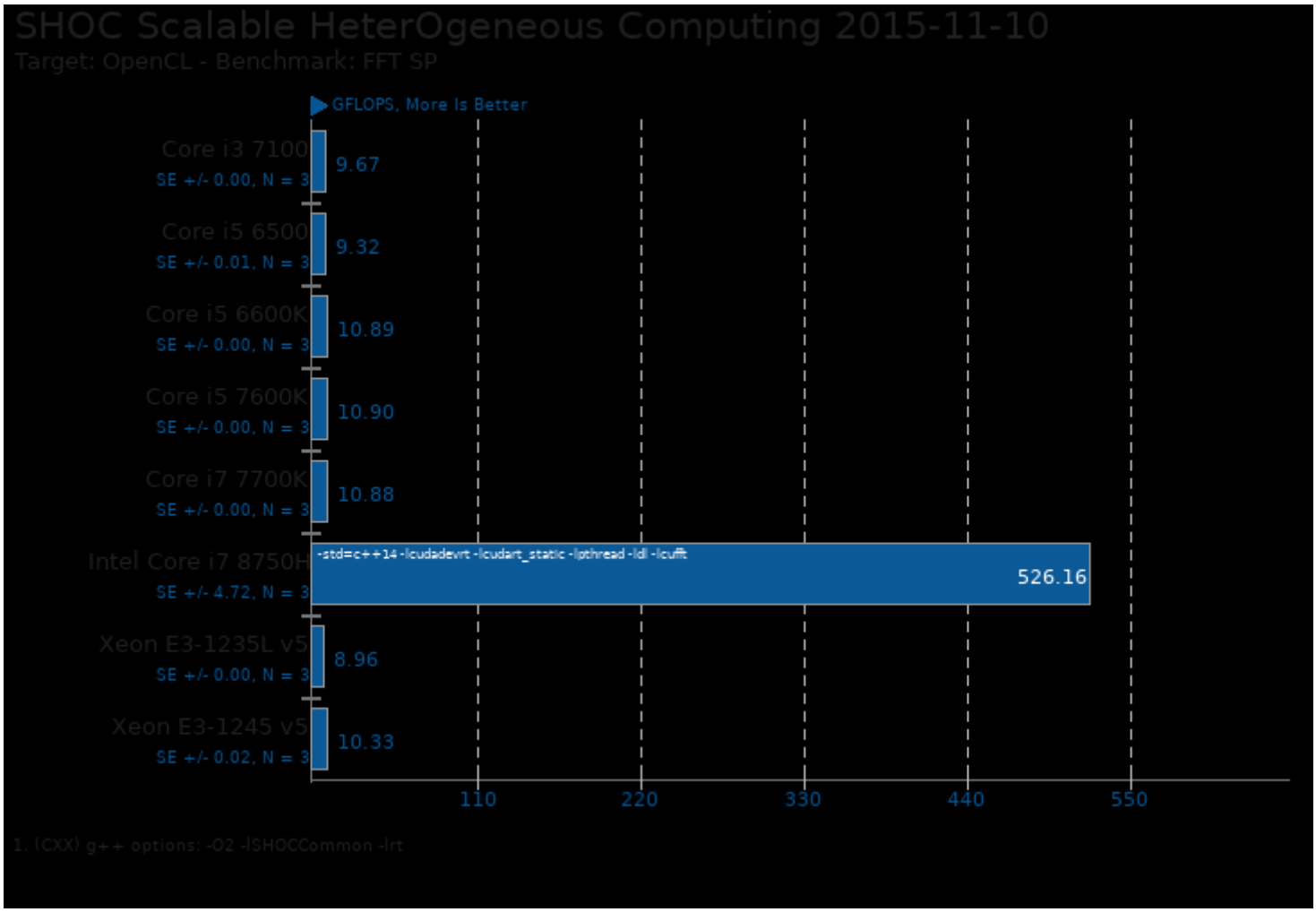
OpenCL 2.0 Intel Beignet CPU Comparison



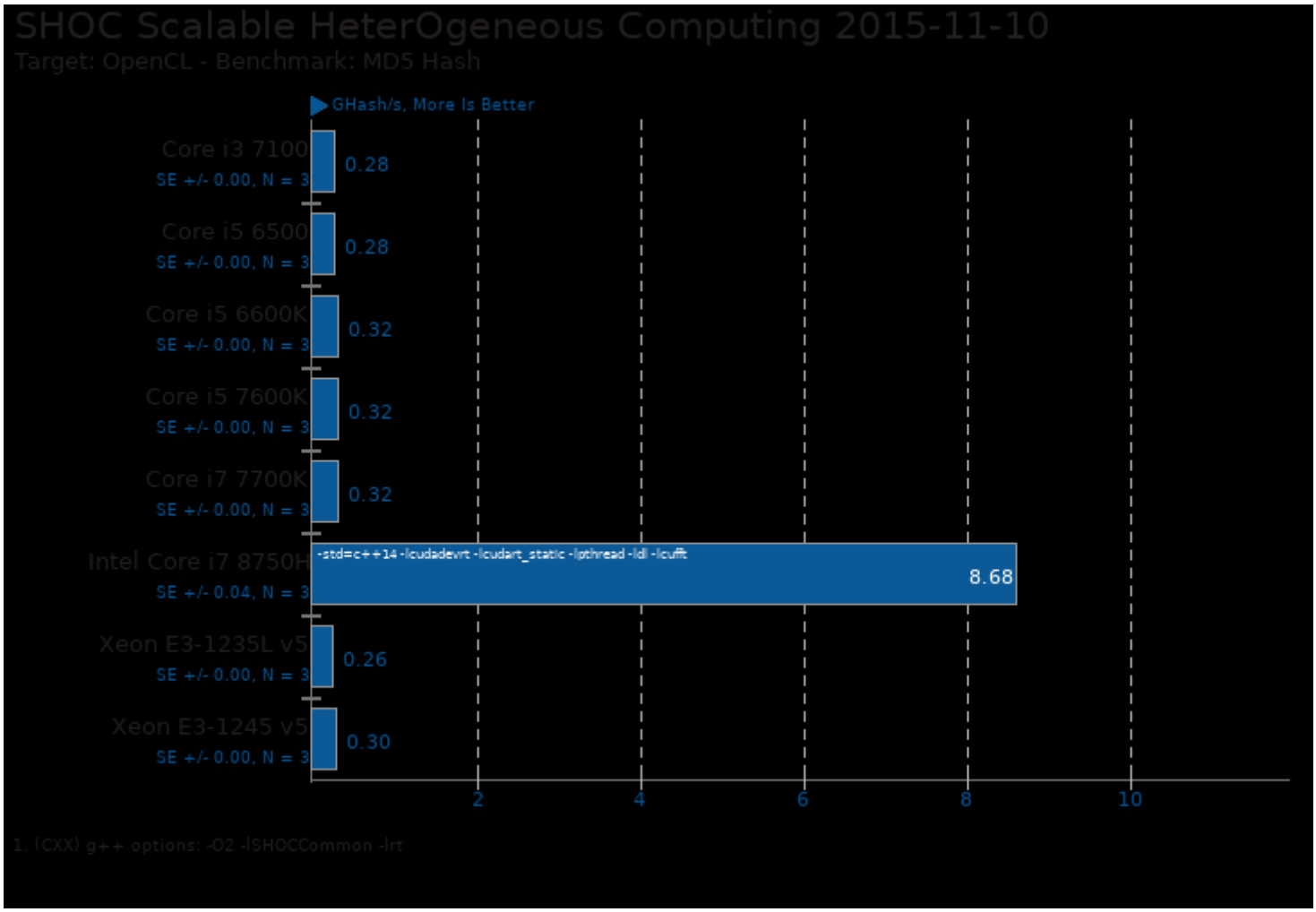
OpenCL 2.0 Intel Beignet CPU Comparison



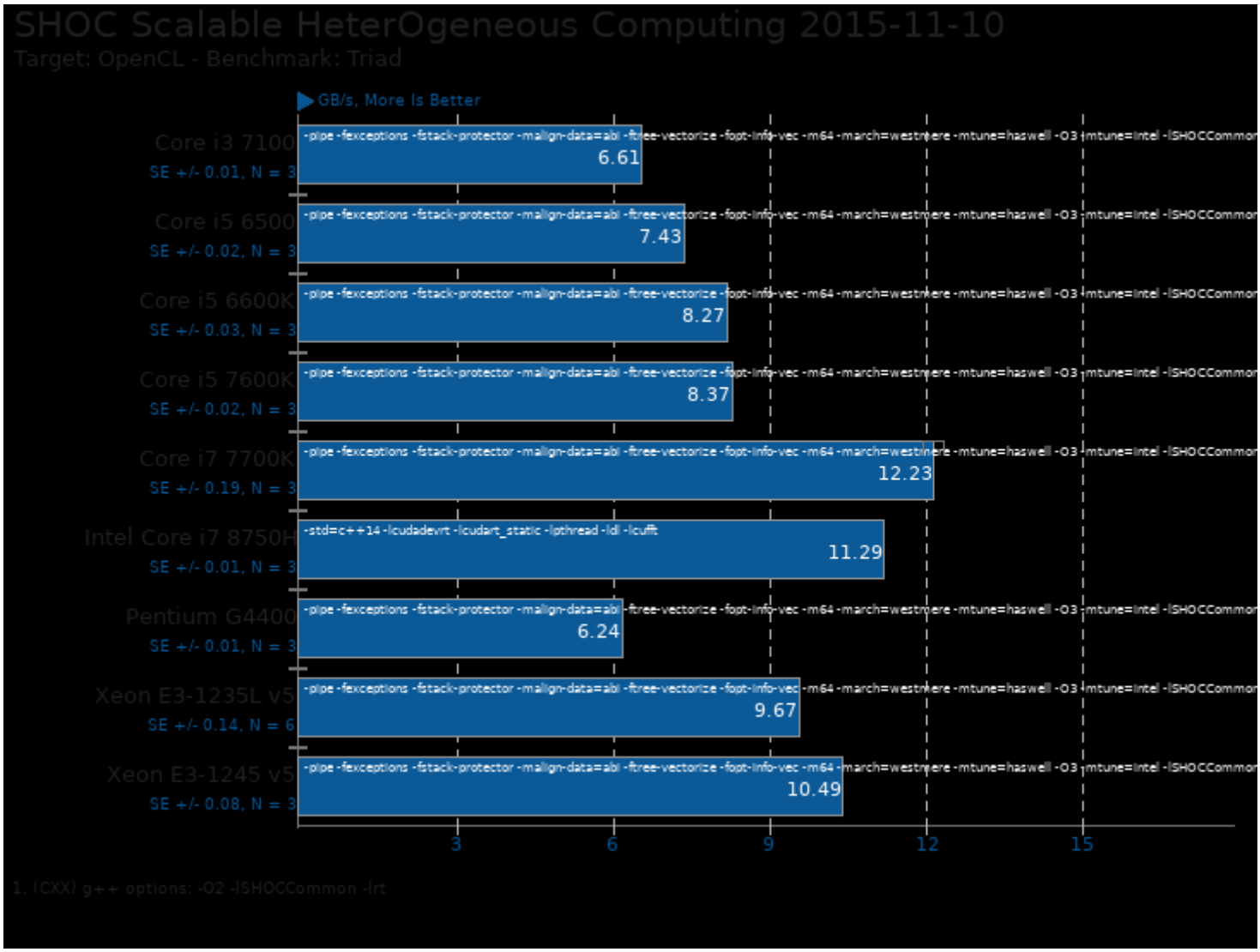
OpenCL 2.0 Intel Beignet CPU Comparison



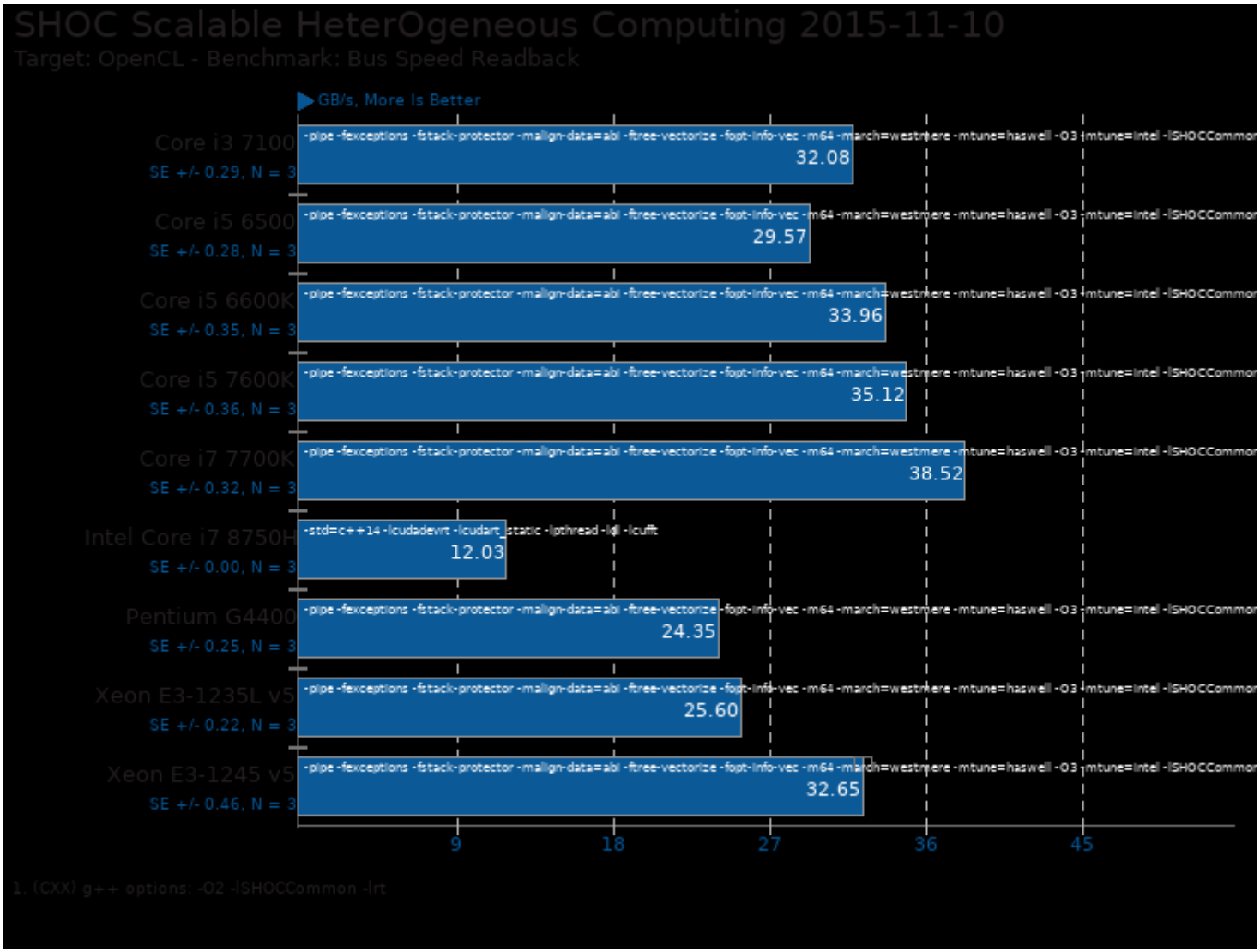
OpenCL 2.0 Intel Beignet CPU Comparison



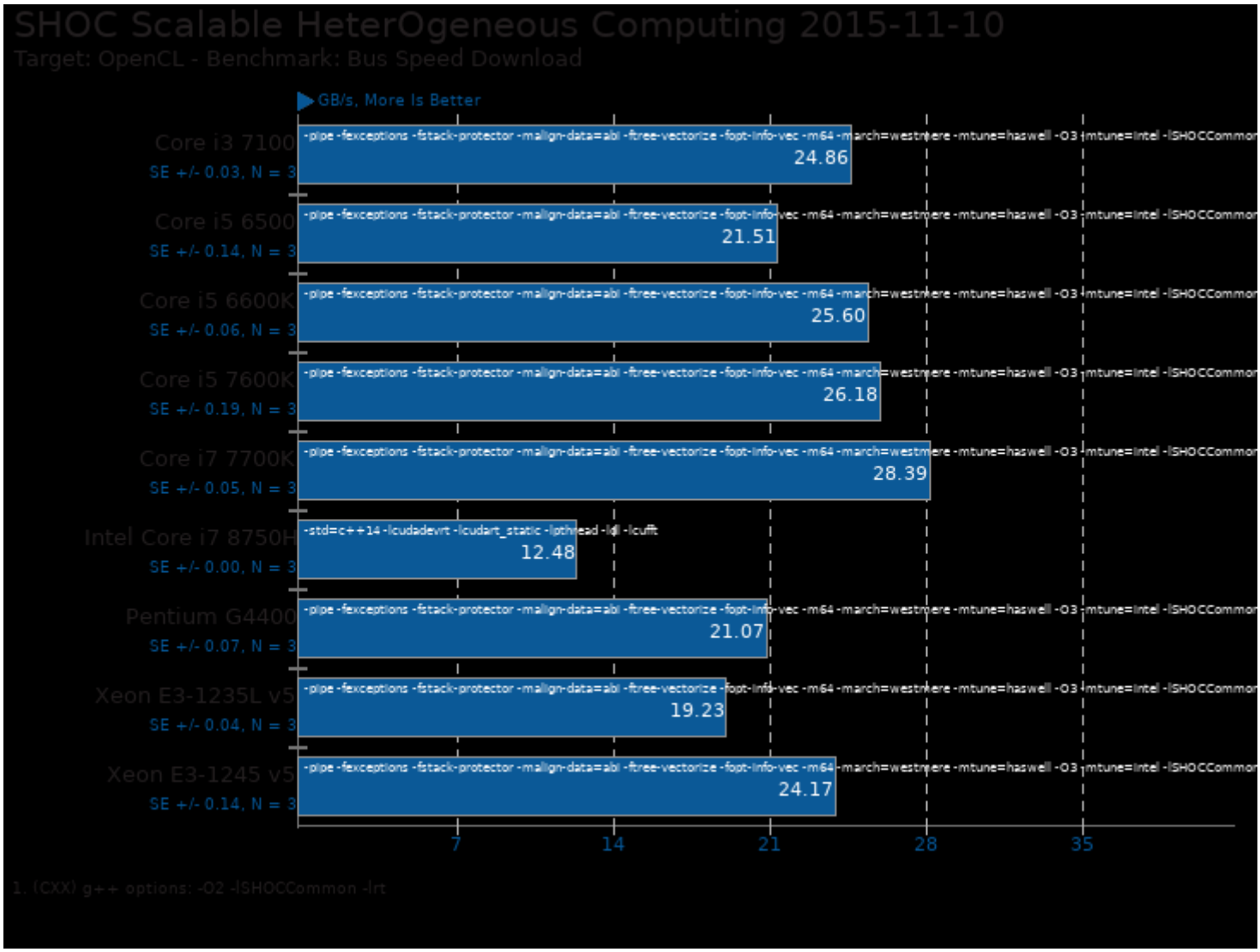
OpenCL 2.0 Intel Beignet CPU Comparison



OpenCL 2.0 Intel Beignet CPU Comparison

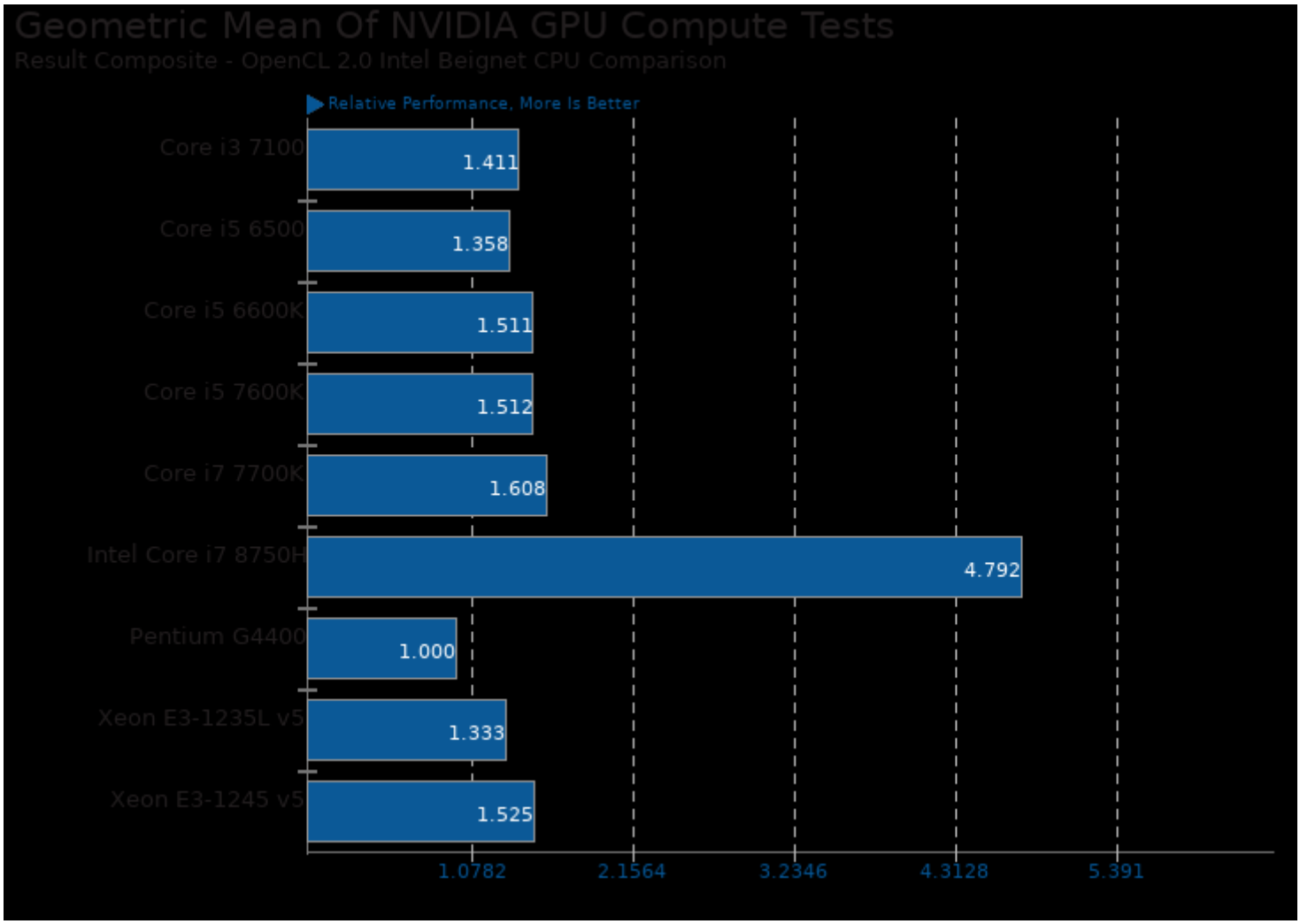


OpenCL 2.0 Intel Beignet CPU Comparison



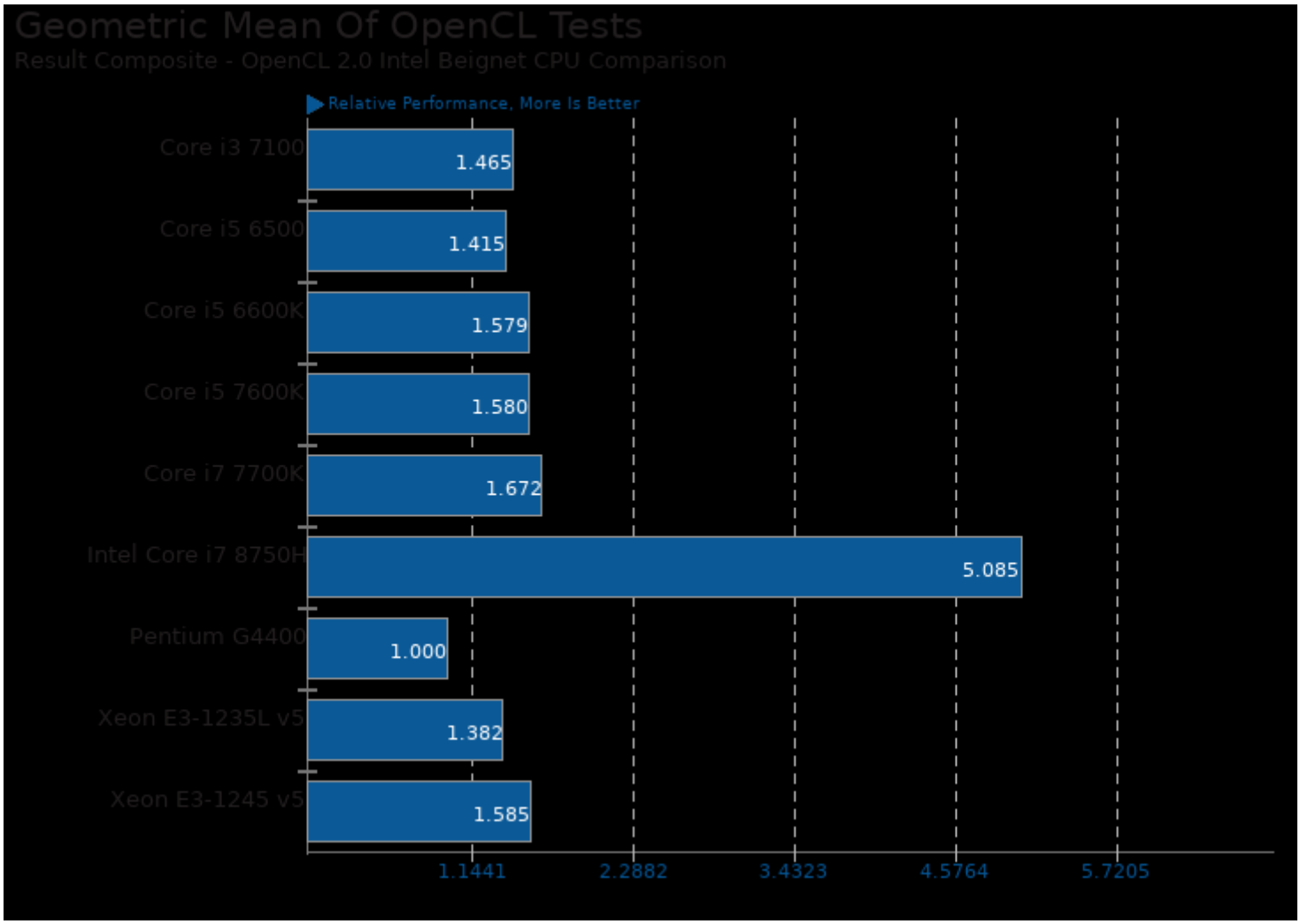
OpenCL 2.0 Intel Beignet CPU Comparison

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



Geometric mean based upon tests: pts/cl-mem, pts/mandelgpu and pts/shoc

OpenCL 2.0 Intel Beignet CPU Comparison



Geometric mean based upon tests: pts/juliagpu, pts/mandelgpu, pts/smallpt-gpu, pts/mandelbulbgpu, pts/shoc and pts/cl-mem

This file was automatically generated via the Phoronix Test Suite benchmarking software on Thursday, 28 March 2024 18:58.