www.phoronix-test-suite.com

shocing

Intel Xeon E-2288G testing with a Compulab SBC-ATCFL v1.2 (ATOP3.PRD.0.29.2 BIOS) and NVIDIA Quadro RTX 4000 8GB on Ubuntu 20.10 via the Phoronix Test Suite.

Automated Executive Summary

1 had the most wins, coming in first place for 73% of the tests.

Based on the geometric mean of all complete results, the fastest (1) was 1.006x the speed of the slowest (2). 3 was 0.998x the speed of 1 and 2 was 0.996x the speed of 3.

Test Systems:

1

2

3

Processor: Intel Xeon E-2288G @ 5.00GHz (8 Cores / 16 Threads), Motherboard: Compulab SBC-ATCFL v1.2 (ATOP3.PRD.0.29.2 BIOS), Chipset: Intel Cannon Lake PCH, Memory: 2 x 32 GB DDR4-2667MT/s Samsung M378A4G43MB1-CTD, Disk: Samsung SSD 970 EVO Plus 250GB, Graphics: NVIDIA Quadro RTX 4000 8GB, Audio: Intel Cannon Lake PCH cAVS, Network: Intel I219-LM + Intel I210

OS: Ubuntu 20.10, Kernel: 5.8.0-41-generic (x86_64), Desktop: GNOME Shell 3.38.2, Display Server: X Server 1.20.9, Display Driver: modesetting 1.20.9, OpenCL: OpenCL 1.2 CUDA 11.2.109, Vulkan: 1.2.155, Compiler: GCC 10.2.0, File-System: ext4, Screen Resolution: 1920x1080

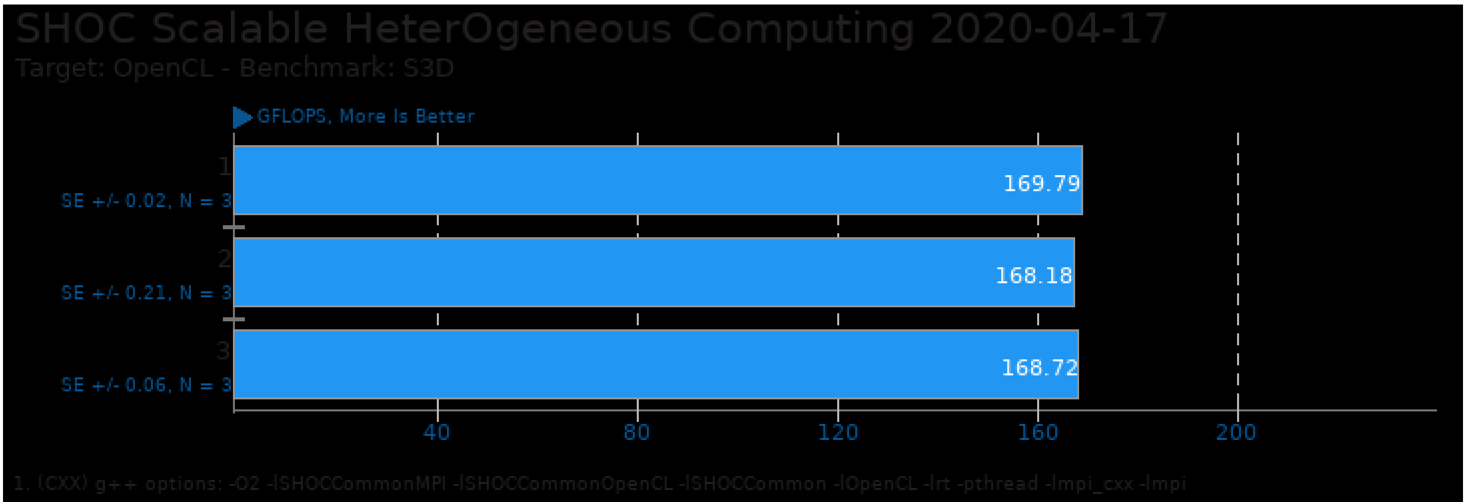
Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,m2 --enable-libphobos-checking=release --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-10-JvwpWM/gcc-10-10.2.0/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-10-JvwpWM/gcc-10-10.2.0/debian/tmp-gcn/usr,hsa --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=auto --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: intel_pstate powersave - CPU Microcode: 0xde
Python Notes: Python 3.8.6
Security Notes: itlb_multihit: KVM: Mitigation of VMX disabled + 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/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Enhanced IBRS IBPB: conditional RSB filling + srbds: Mitigation of TSX disabled + tsx_async_abort: Mitigation of TSX disabled

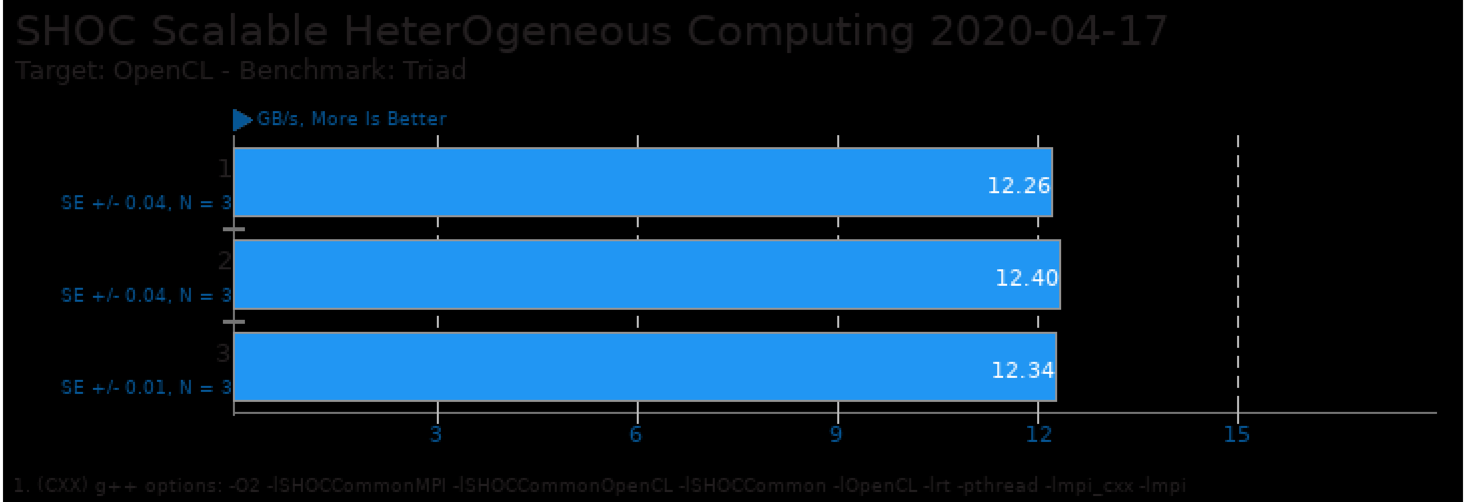
	1	2	3
SHOC Scalable HeterOgeneous Computing - OpenCL - S3D (GFLOPS)	169.794	168.178	168.715
Normalized	100%	99.05%	99.36%
Standard Deviation	0%	0.2%	0.1%
SHOC Scalable HeterOgeneous Computing - OpenCL - Triad (GB/s)	12.2605	12.3965	12.3425
Normalized	98.9%	100%	99.56%
Standard Deviation	0.5%	0.5%	0.1%
SHOC Scalable HeterOgeneous Computing - OpenCL - FFT SP (GFLOPS)	736.352	757.899	759.284
Normalized	96.98%	99.82%	100%
Standard Deviation	0%	7.6%	8%
SHOC Scalable HeterOgeneous Computing - OpenCL - MD5 Hash (GHash/s)	16.6940	16.0891	16.3155
Normalized	100%	96.38%	97.73%
Standard Deviation	0.3%	0%	0.4%
SHOC Scalable HeterOgeneous Computing - OpenCL - Reduction (GB/s)	303.711	302.688	303.184
Normalized	100%	99.66%	99.83%
Standard Deviation	0.2%	0.1%	0.3%
SHOC Scalable HeterOgeneous Computing - OpenCL - GEMM SGEMM_N (GFLOPS)	2825	2665	2766
Normalized	100%	94.34%	97.9%
Standard Deviation	1.6%	0.7%	2.4%
SHOC Scalable HeterOgeneous Computing - OpenCL - Max SP Flops (GFLOPS)	8352	8188	8214
Normalized	100%	98.03%	98.34%
Standard Deviation	2.4%	1.2%	1.6%

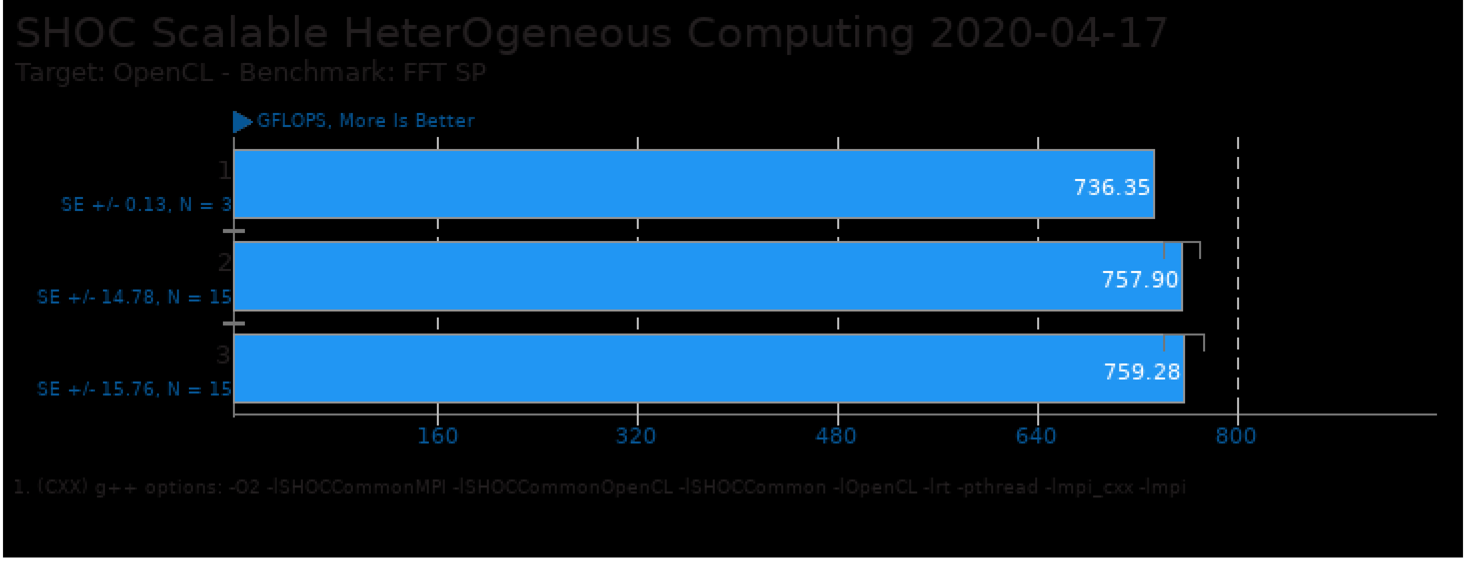
shocing

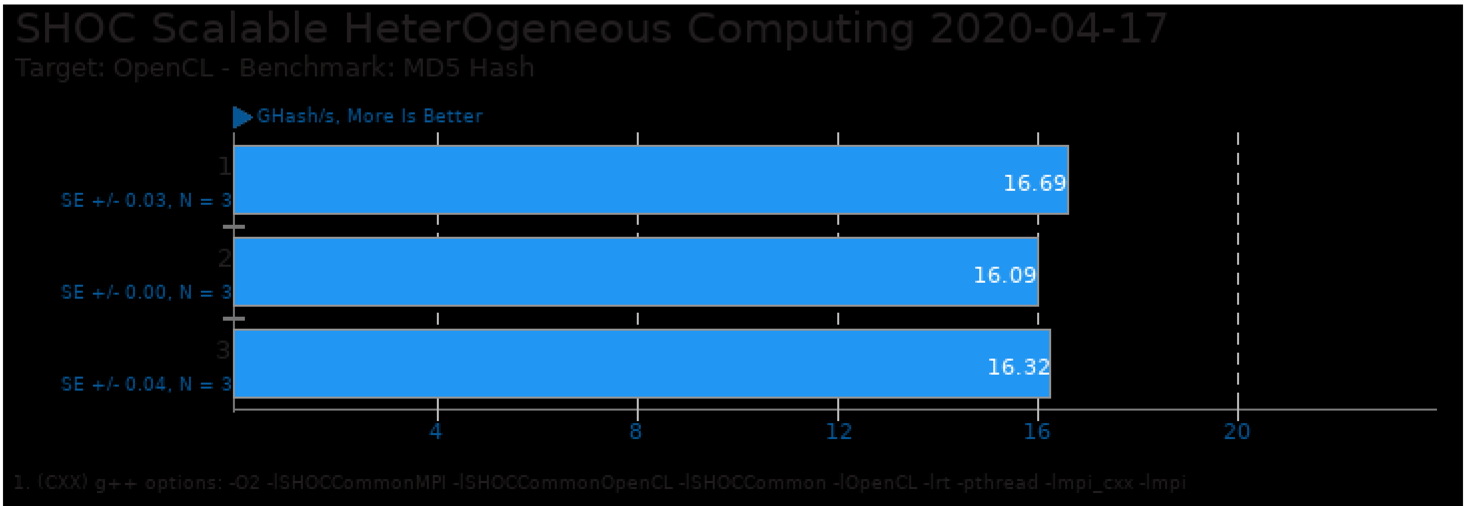
SHOC Scalable HeterOgeneous Computing - OpenCL - Bus Speed Download (GB/s)	12.9659	12.9492	12.9677
Normalized	99.99%	99.86%	100%
Standard Deviation	0%	0.1%	0.1%
SHOC Scalable HeterOgeneous Computing - OpenCL - Bus Speed Readback (GB/s)	13.1645	13.1667	13.1656
Normalized	99.98%	100%	99.99%
Standard Deviation	0%	0%	0%
SHOC Scalable HeterOgeneous Computing - OpenCL - T.R.B (GB/s)	1052	1049	1047
Normalized	100%	99.68%	99.5%
Standard Deviation	0.4%	0.4%	0.3%
Systemd Total Boot Time - Total (ms)	24039	24039	24039
Systemd Total Boot Time - Kernel (ms)	2844	2844	2844
Systemd Total Boot Time - Loader (ms)	5376	5376	5376
Systemd Total Boot Time - Firmware (ms)	5458	5458	5458
Systemd Total Boot Time - Userspace (ms)	21195	21195	21195

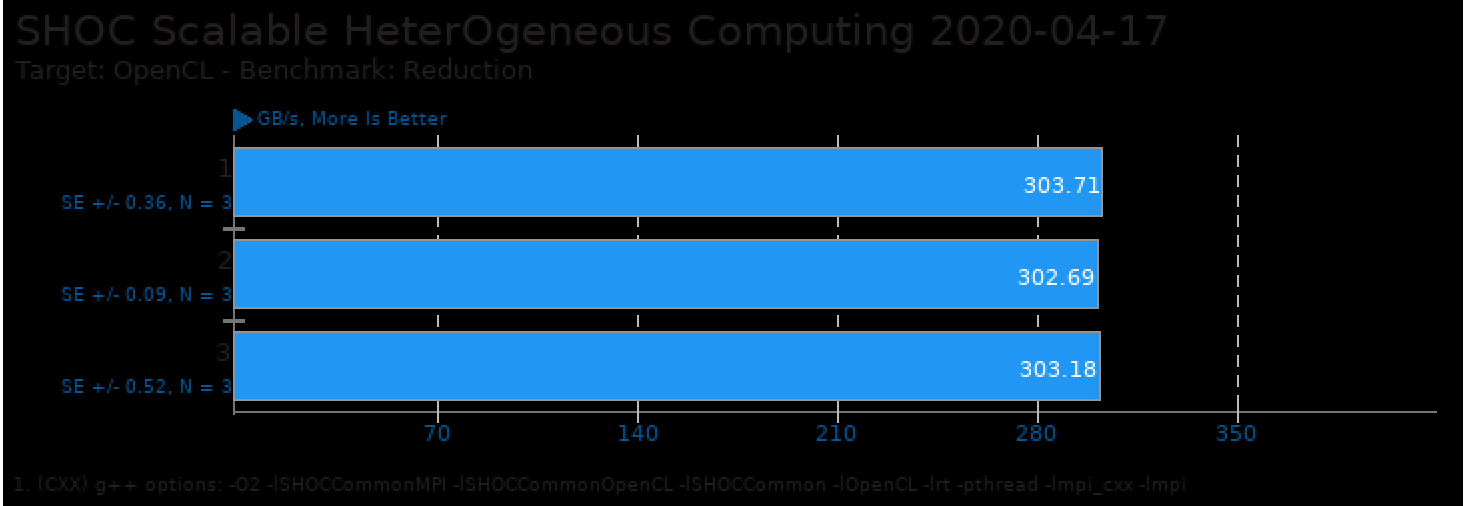
shocing

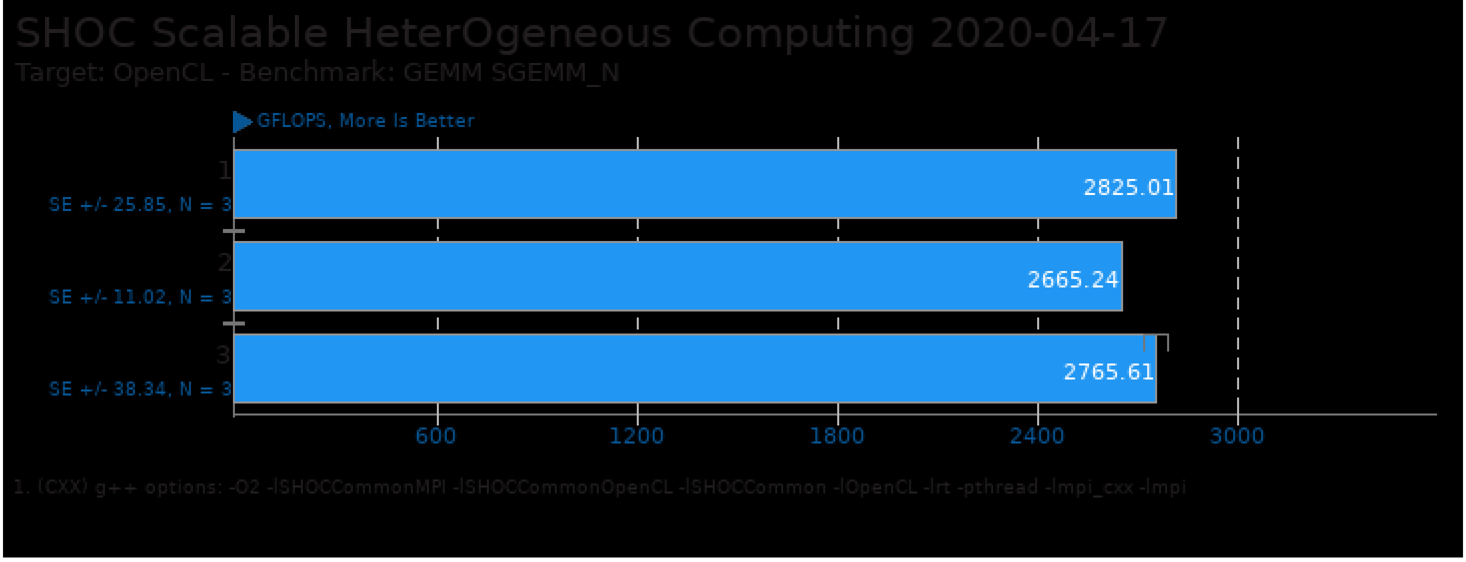

SHOC Scalable HeterOgeneous Computing 2020-04-17
Target: OpenCL - Benchmark: S3D
GFLOPS, More Is Better
1
SE +/- 0.02, N = 3
169.79
2
SE +/- 0.21, N = 3
168.18
3
SE +/- 0.06, N = 3
168.72
40
80
120
160
200
1. (CXX) g++ options: -O2 -lSHOCCommonMPI -lSHOCCommonOpenCL -lSHOCCommon -lOpenCL -lrt -pthread -lmpi_cxx -lmpi


SHOC Scalable HeterOgeneous Computing 2020-04-17
Target: OpenCL - Benchmark: Triad
GB/s, More Is Better
1
SE +/- 0.04, N = 3
12.26
2
SE +/- 0.04, N = 3
12.40
3
SE +/- 0.01, N = 3
12.34
3
6
9
12
15
1. (CXX) g++ options: -O2 -lSHOCCommonMPI -lSHOCCommonOpenCL -lSHOCCommon -lOpenCL -lrt -pthread -lmpi_cxx -lmpi

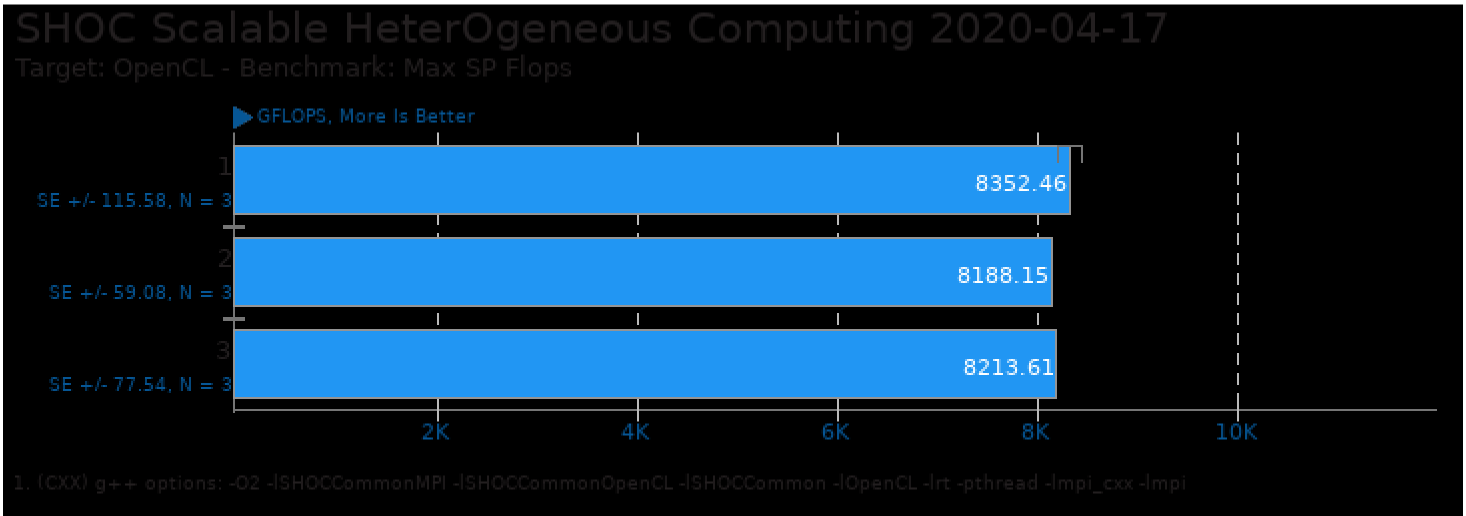

SHOC Scalable HeterOgeneous Computing 2020-04-17
Target: OpenCL - Benchmark: FFT SP
GFLOPS, More Is Better
1
SE +/- 0.13, N = 3
736.35
2
SE +/- 14.78, N = 15
757.90
3
SE +/- 15.76, N = 15
759.28
160
320
480
640
800
1. (CXX) g++ options: -O2 -lSHOCCommonMPI -lSHOCCommonOpenCL -lSHOCCommon -lOpenCL -lrt -pthread -lmpi_cxx -lmpi

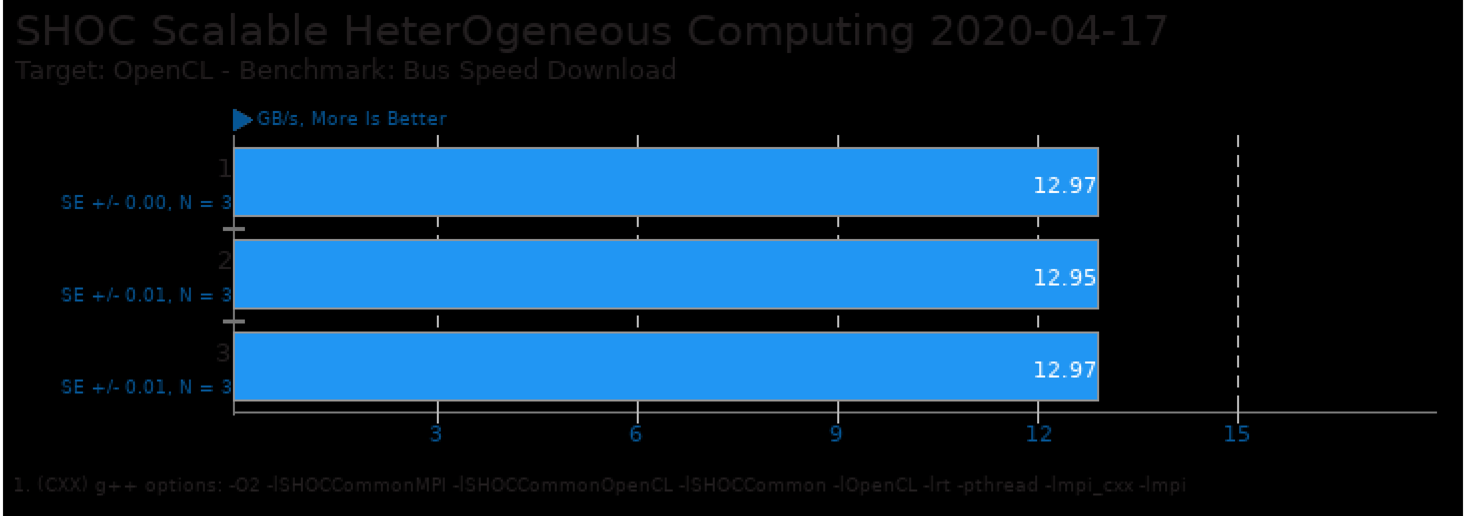

SHOC Scalable HeterOgeneous Computing 2020-04-17
Target: OpenCL - Benchmark: MD5 Hash
GHash/s, More Is Better
1
SE +/- 0.03, N = 3
16.69
2
SE +/- 0.00, N = 3
16.09
3
SE +/- 0.04, N = 3
16.32
4
8
12
16
20
1. (CXX) g++ options: -O2 -lSHOCCommonMPI -lSHOCCommonOpenCL -lSHOCCommon -lOpenCL -lrt -pthread -lmpi_cxx -lmpi

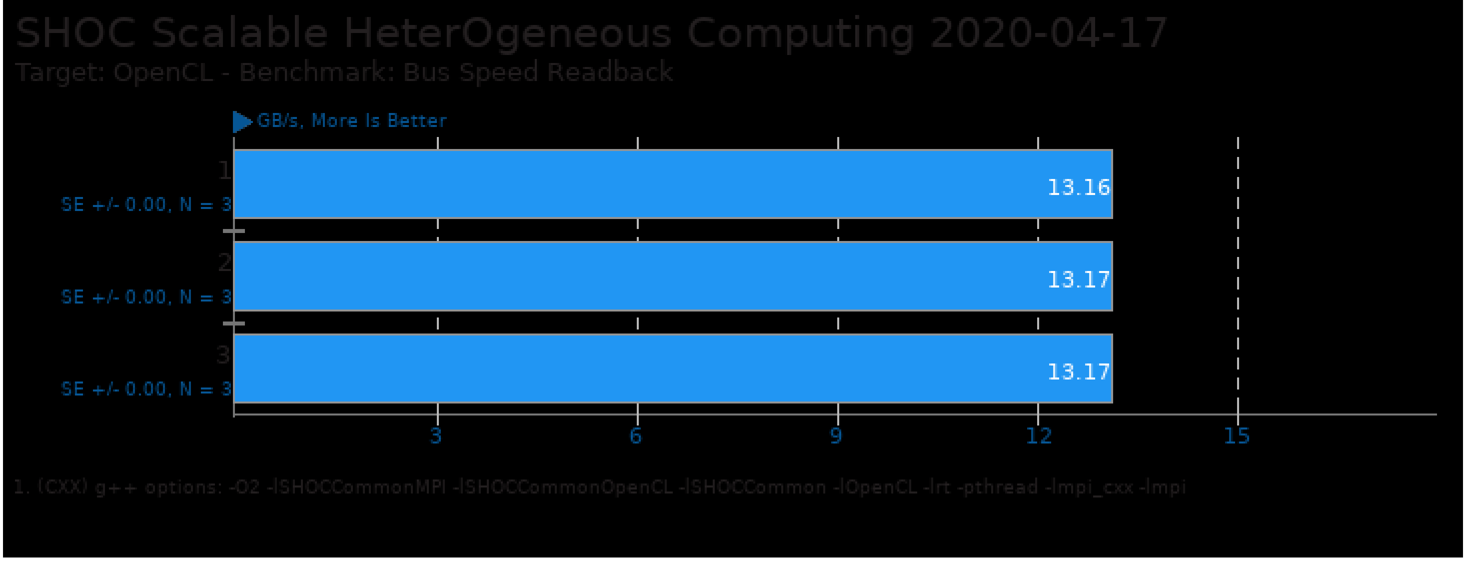

SHOC Scalable HeterOgeneous Computing 2020-04-17
Target: OpenCL - Benchmark: Reduction
GB/s, More Is Better
1
SE +/- 0.36, N = 3
303.71
2
SE +/- 0.09, N = 3
302.69
3
SE +/- 0.52, N = 3
303.18
70
140
210
280
350
1. (CXX) g++ options: -O2 -lSHOCCommonMPI -lSHOCCommonOpenCL -lSHOCCommon -lOpenCL -lrt -pthread -lmpi_cxx -lmpi

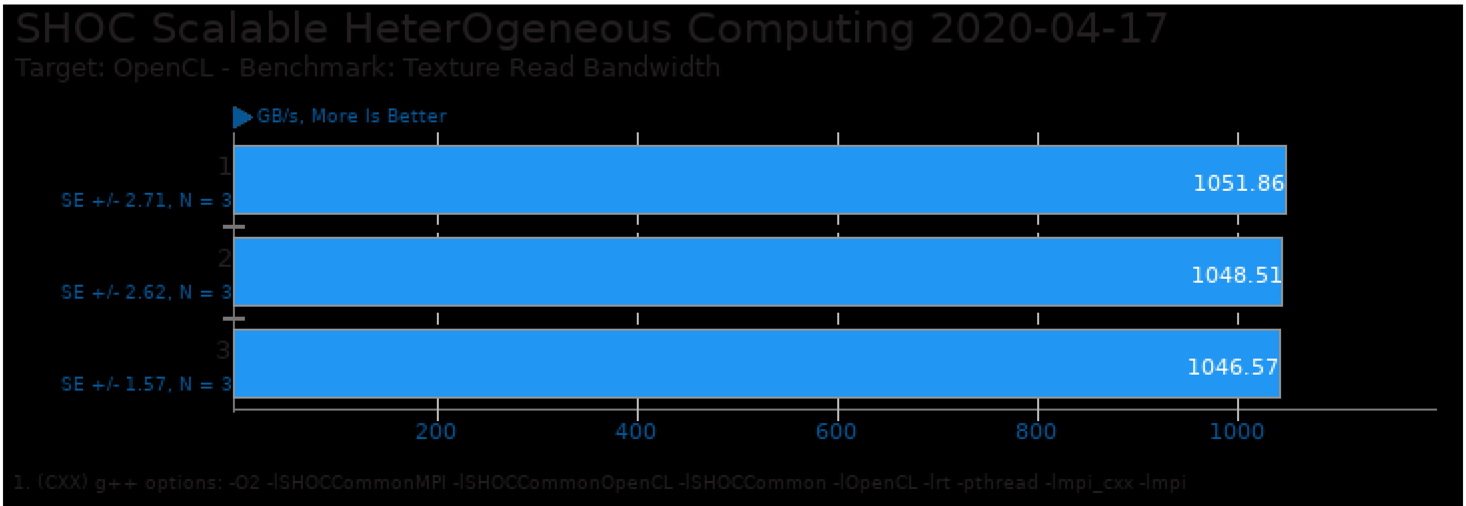

SHOC Scalable HeterOgeneous Computing 2020-04-17
Target: OpenCL - Benchmark: GEMM SGEMM_N
GFLOPS, More Is Better
1
SE +/- 25.85, N = 3
2825.01
2
SE +/- 11.02, N = 3
2665.24
3
SE +/- 38.34, N = 3
2765.61
600
1200
1800
2400
3000
1. (CXX) g++ options: -O2 -lSHOCCommonMPI -lSHOCCommonOpenCL -lSHOCCommon -lOpenCL -lrt -pthread -lmpi_cxx -lmpi

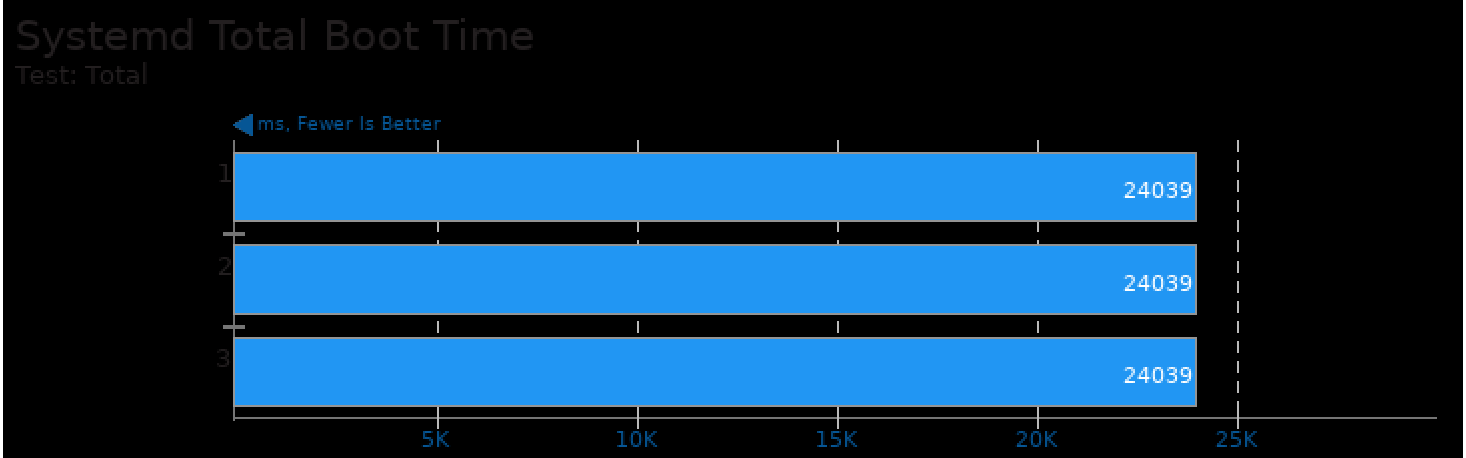
shocing

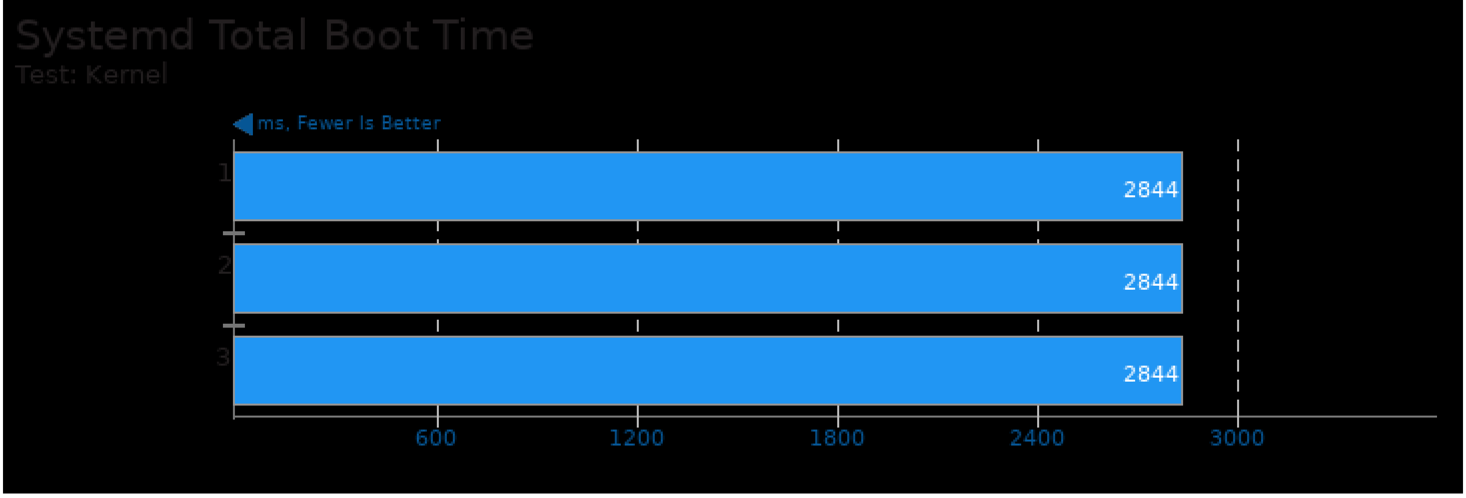

SHOC Scalable HeterOgeneous Computing 2020-04-17
Target: OpenCL - Benchmark: Max SP Flops
GFLOPS, More Is Better
1
SE +/- 115.58, N = 3
8352.46
2
SE +/- 59.08, N = 3
8188.15
3
SE +/- 77.54, N = 3
8213.61
2K
4K
6K
8K
10K
1. (CXX) g++ options: -O2 -lSHOCCommonMPI -lSHOCCommonOpenCL -lSHOCCommon -lOpenCL -lrt -pthread -lmpi_cxx -lmpi

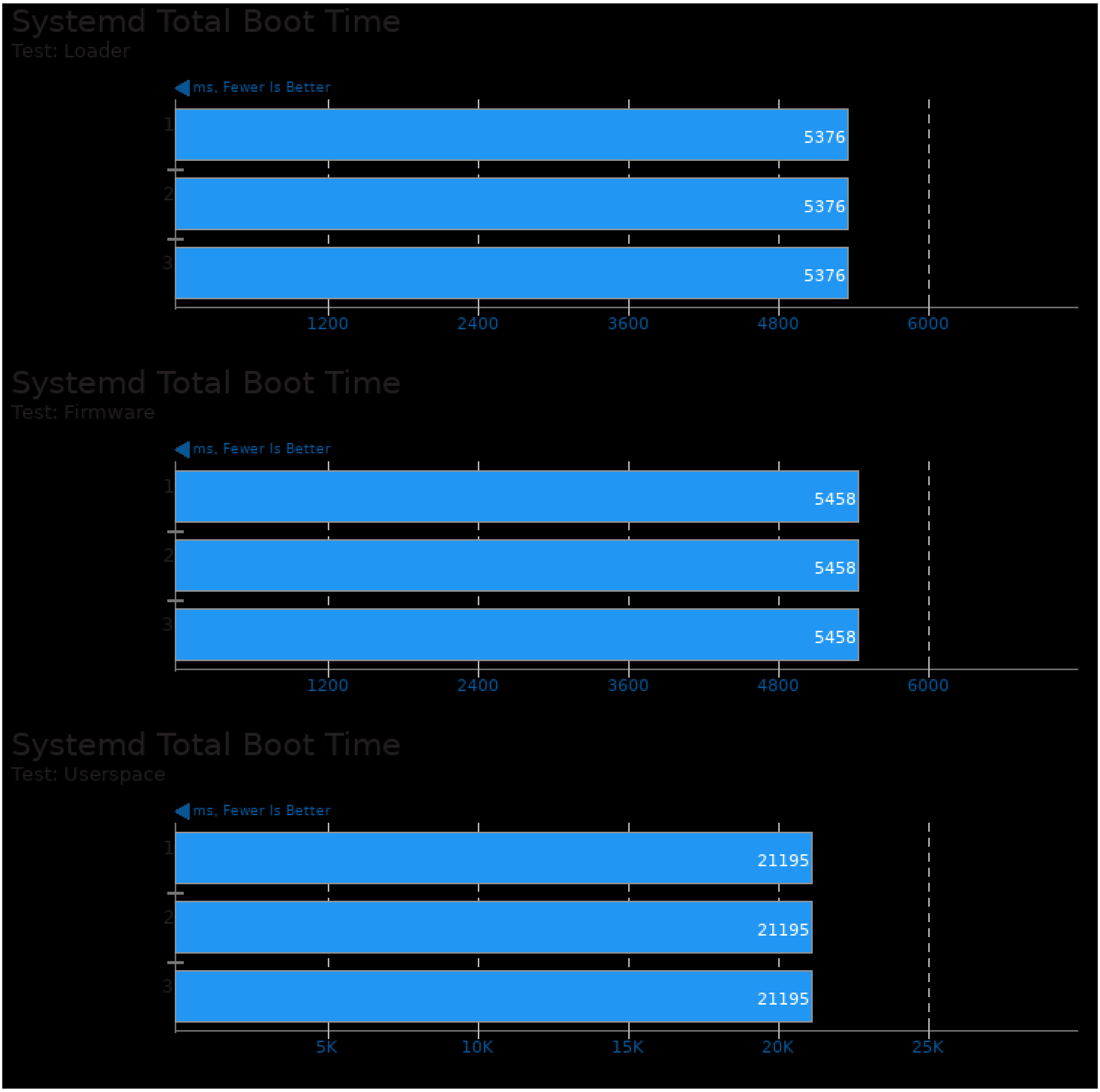

SHOC Scalable HeterOgeneous Computing 2020-04-17
Target: OpenCL - Benchmark: Bus Speed Download
GB/s, More Is Better
1
SE +/- 0.00, N = 3
12.97
2
SE +/- 0.01, N = 3
12.95
3
SE +/- 0.01, N = 3
12.97
3
6
9
12
15
1. (CXX) g++ options: -O2 -lSHOCCommonMPI -lSHOCCommonOpenCL -lSHOCCommon -lOpenCL -lrt -pthread -lmpi_cxx -lmpi


SHOC Scalable HeterOgeneous Computing 2020-04-17
Target: OpenCL - Benchmark: Bus Speed Readback
GB/s, More Is Better
1
SE +/- 0.00, N = 3
13.16
2
SE +/- 0.00, N = 3
13.17
3
SE +/- 0.00, N = 3
13.17
3
6
9
12
15
1. (CXX) g++ options: -O2 -lSHOCCommonMPI -lSHOCCommonOpenCL -lSHOCCommon -lOpenCL -lrt -pthread -lmpi_cxx -lmpi


SHOC Scalable HeterOgeneous Computing 2020-04-17
Target: OpenCL - Benchmark: Texture Read Bandwidth
GB/s, More Is Better
1
SE +/- 2.71, N = 3
1051.86
2
SE +/- 2.62, N = 3
1048.51
3
SE +/- 1.57, N = 3
1046.57
200
400
600
800
1000
1. (CXX) g++ options: -O2 -lSHOCCommonMPI -lSHOCCommonOpenCL -lSHOCCommon -lOpenCL -lrt -pthread -lmpi_cxx -lmpi


Systemd Total Boot Time
Test: Total
ms, Fewer Is Better
1
24039
2
24039
3
24039
5K
10K
15K
20K
25K


Systemd Total Boot Time
Test: Kernel
ms, Fewer Is Better
1
2844
2
2844
3
2844
600
1200
1800
2400
3000



This file was automatically generated via the Phoronix Test Suite benchmarking software on Friday, 29 March 2024 02:01.