



ngc rtx 3090

AMD Ryzen 9 5900X 12-Core testing with a ASUS ROG CROSSHAIR VIII HERO (3402 BIOS) and NVIDIA GeForce RTX 3090 24GB on Ubuntu 20.04 via the Phoronix Test Suite.

Automated Executive Summary

1 had the most wins, coming in first place for 55% of the tests.

Based on the geometric mean of all complete results, the fastest (3) was 1.008x the speed of the slowest (2). 1 was 0.999x the speed of 3 and 2 was 0.993x the speed of 1.

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

VkFFT at 1.036x

NCNN (Target: Vulkan GPU - Model: resnet18) at 1.024x

NAMD CUDA (ATPase Simulation - 327,506 Atoms) at 1.023x

NCNN (Target: Vulkan GPU - Model: efficientnet-b0) at 1.022x

NCNN (Target: Vulkan GPU - Model: mnasnet) at 1.02x

NCNN (Target: Vulkan GPU - Model: squeezenet_ssd) at 1.017x

NCNN (Target: Vulkan GPU-v3-v3 - Model: mobilenet-v3) at 1.017x

NCNN (Target: Vulkan GPU - Model: vgg16) at 1.016x

ViennaCL (Test: CPU BLAS - sDOT) at 1.015x

ViennaCL (Test: CPU BLAS - dDOT) at 1.014x.

Test Systems:

1

2

3

Processor: AMD Ryzen 9 5900X 12-Core @ 3.70GHz (12 Cores / 24 Threads), Motherboard: ASUS ROG CROSSHAIR VIII HERO (3402 BIOS), Chipset: AMD Starship/Matisse, Memory: 16GB, Disk: 1000GB Sabrent Rocket 4.0 Plus + 2000GB, Graphics: NVIDIA GeForce RTX 3090 24GB, Audio: NVIDIA Device 1aef, Monitor: ASUS VP28U, Network: Realtek RTL8125 2.5GbE + Intel I211

OS: Ubuntu 20.04, Kernel: 5.8.0-48-generic (x86_64), Desktop: GNOME Shell 3.36.7, Display Server: X Server 1.20.9, Display Driver: NVIDIA 460.67, OpenGL: 4.6.0, OpenCL: OpenCL 1.2 CUDA 11.2.162, Vulkan: 1.2.155, Compiler: GCC 9.3.0 + CUDA 11.2, File-System: ext4, Screen Resolution: 3840x2160

Kernel Notes: Transparent Huge Pages: madvise

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++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-9-HskZEa/gcc-9-9.3.0/debian/tmp-nvptx/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: acpi-cpufreq performance (Boost: Enabled) - CPU Microcode: 0xa201009

OpenCL Notes: GPU Compute Cores: 10496

Security Notes: itlb_multihit: Not affected + 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 Full AMD retpoline IBPB: conditional IBRS_FW STIBP: always-on RSB filling + srbds: Not affected + tsx_async_abort: Not affected

	1	2	3
VkFFT (Benchmark Score)	43686	43194	44750
Normalized	97.62%	96.52%	100%
Standard Deviation	2.4%	1.3%	2.2%
SHOC Scalable Heterogeneous Computing -	25.4764	25.4634	25.4698
OpenCL - Triad (GB/s)			
Normalized	100%	99.95%	99.97%
Standard Deviation	0%	0.1%	0.1%
SHOC Scalable Heterogeneous Computing -	390.957	389.899	391.275
OpenCL - Reduction (GB/s)			
Normalized	99.92%	99.65%	100%
Standard Deviation	0%	0%	0%
SHOC Scalable Heterogeneous Computing -	26.3101	26.3106	
OpenCL - Bus Speed Download (GB/s)			
Normalized	100%	100%	

	Standard Deviation	0.2%	0.2%
SHOC Scalable Heterogeneous Computing - OpenCL - Bus Speed Readback (GB/s)		26.3585	26.3873
	Normalized	99.89%	100%
	Standard Deviation	0.1%	0.1%
SHOC Scalable Heterogeneous Computing - OpenCL - T.R.B (GB/s)		2224	2226
	Normalized	99.89%	100%
	Standard Deviation	0.2%	0.2%
cl-mem - Copy (GB/s)		363.5	363.0
	Normalized	100%	99.86%
	Standard Deviation	0.1%	0.1%
cl-mem - Read (GB/s)		825.3	825.9
	Normalized	99.93%	100%
	Standard Deviation	0.1%	0.1%
cl-mem - Write (GB/s)		742.0	740.8
	Normalized	100%	99.84%
	Standard Deviation	0.1%	0.2%
ViennaCL - CPU BLAS - sCOPY (GB/s)		62.6	62.5
	Normalized	100%	99.84%
	Standard Deviation	1.4%	1.7%
ViennaCL - CPU BLAS - sAXPY (GB/s)		91.6	91.5
	Normalized	100%	99.89%
	Standard Deviation	3.9%	5.1%
ViennaCL - CPU BLAS - sDOT (GB/s)		136	138
	Normalized	98.55%	100%
	Standard Deviation	2.1%	4%
ViennaCL - CPU BLAS - dCOPY (GB/s)		22.8	22.5
	Normalized	100%	98.68%
	Standard Deviation	1.3%	4.9%
ViennaCL - CPU BLAS - dAXPY (GB/s)		33.4	33.3
	Normalized	100%	99.7%
	Standard Deviation	5.7%	4.7%
ViennaCL - CPU BLAS - dDOT (GB/s)		43.8	43.2
	Normalized	100%	98.63%
	Standard Deviation	3.3%	5.3%
ViennaCL - CPU BLAS - dGEMV-N (GB/s)		77.8	78.1
	Normalized	99.62%	100%
	Standard Deviation	0.6%	0.6%
ViennaCL - CPU BLAS - dGEMV-T (GB/s)		83.2	83.1
	Normalized	100%	99.88%
	Standard Deviation	0.3%	1%
ViennaCL - OpenCL BLAS - sCOPY (GB/s)		366	364
	Normalized	100%	99.45%
	Standard Deviation		0.3%
ViennaCL - OpenCL BLAS - sAXPY (GB/s)		504	503
	Normalized	100%	99.8%
ViennaCL - OpenCL BLAS - sDOT (GB/s)		375	374
	Normalized	100%	99.73%
	Standard Deviation	0.4%	
ViennaCL - OpenCL BLAS - dCOPY (GB/s)		607	607
	Standard Deviation	0.2%	0.2%
ViennaCL - OpenCL BLAS - dAXPY (GB/s)		722	722
	Standard Deviation	0.1%	0.1%

ViennaCL - OpenCL BLAS - dDOT (GB/s)	650	651	
Normalized	99.85%	100%	
Standard Deviation		0.1%	
ViennaCL - OpenCL BLAS - dGEMV-N (GB/s)	237	237	
Standard Deviation	0.5%	0.5%	
ViennaCL - OpenCL BLAS - dGEMV-T (GB/s)	378	376	
Normalized	100%	99.47%	
Standard Deviation		0.3%	
clpeak - G.M.B (GBPS)	810.12	813.37	
Normalized	99.6%	100%	
Standard Deviation	0.7%	0%	
Mixbench - OpenCL - Double Precision (GFLOPS)	496.29	467.53	459.26
Normalized	100%	94.21%	92.54%
Standard Deviation	7.2%	0%	2.1%
Mixbench - OpenCL - Single Precision (GFLOPS)	34053	34079	35867
Normalized	94.94%	95.02%	100%
Standard Deviation	0.1%	0.1%	6.7%
SHOC Scalable Heterogeneous Computing - OpenCL - S3D (GFLOPS)	428.916	430.512	429.952
Normalized	99.63%	100%	99.87%
Standard Deviation	0.1%	0.2%	0.5%
SHOC Scalable Heterogeneous Computing - OpenCL - FFT SP (GFLOPS)	2347	2342	2344
Normalized	100%	99.78%	99.87%
Standard Deviation	0.1%	0.1%	0.2%
SHOC Scalable Heterogeneous Computing - OpenCL - GEMM SGEMM_N (GFLOPS)	8203	8273	8229
Normalized	99.15%	100%	99.47%
Standard Deviation	2.2%	2.1%	1.4%
SHOC Scalable Heterogeneous Computing - OpenCL - Max SP Flops (GFLOPS)	39925	39800	
Normalized	100%	99.69%	
Standard Deviation	1%	1.5%	
clpeak - S.P.F (GFLOPS)	35174	35204	
Normalized	99.91%	100%	
Standard Deviation	0.3%	0.1%	
clpeak - D.P.D (GFLOPS)	654.89	657.03	
Normalized	99.67%	100%	
Standard Deviation	0%	0%	
ViennaCL - CPU BLAS - dGEMM-NN (GFLOPs/s)	53.5	53.2	
Normalized	100%	99.44%	
Standard Deviation	2.1%	2.4%	
ViennaCL - CPU BLAS - dGEMM-NT (GFLOPs/s)	52.9	52.9	
Standard Deviation	1.1%	0.6%	
ViennaCL - CPU BLAS - dGEMM-TN (GFLOPs/s)	56.7	56.5	
Normalized	100%	99.65%	
Standard Deviation	0.2%	0.4%	

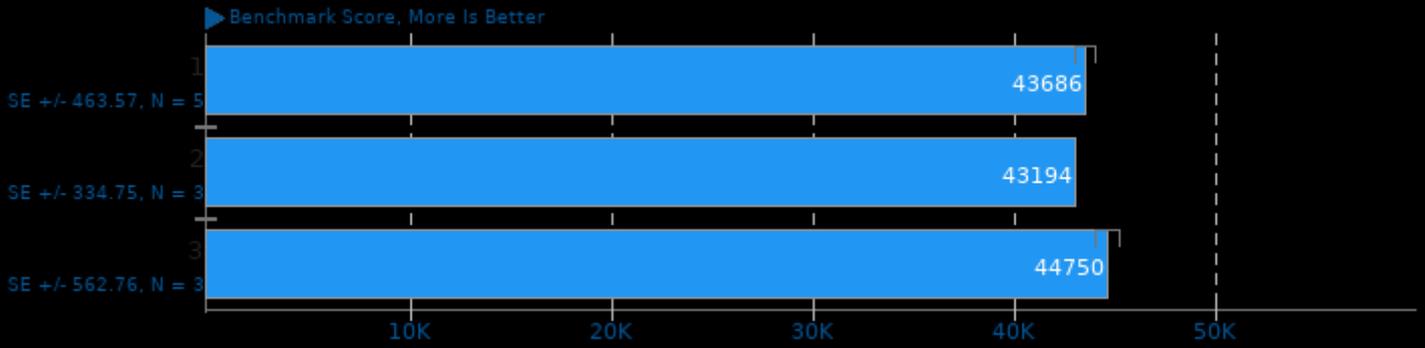
ViennaCL - CPU BLAS - dGEMM-TT	55.3	55.1	
(GFLOPs/s)			
Normalized	100%	99.64%	
Standard Deviation	0.2%	0.5%	
ViennaCL - OpenCL BLAS - dGEMM-NN	603	602	
(GFLOPs/s)			
Normalized	100%	99.83%	
Standard Deviation	0.5%	0.3%	
ViennaCL - OpenCL BLAS - dGEMM-NT	605	604	
(GFLOPs/s)			
Normalized	100%	99.83%	
Standard Deviation	0.4%	0.5%	
ViennaCL - OpenCL BLAS - dGEMM-TN	601	600	
(GFLOPs/s)			
Normalized	100%	99.83%	
Standard Deviation	0.4%	0.4%	
ViennaCL - OpenCL BLAS - dGEMM-TT		605	
(GFLOPs/s)			
Standard Deviation		0.1%	
SHOC Scalable Heterogeneous Computing -	44.1934	43.9588	44.0181
OpenCL - MD5 Hash (GHash/s)			
Normalized	100%	99.47%	99.6%
Standard Deviation	0.5%	0%	0.7%
Mixbench - OpenCL - Integer (GIOPS)	20686	19683	20678
Normalized	100%	95.15%	99.96%
Standard Deviation	0.1%	7.1%	0.1%
clpeak - I.C.I (GIOPS)	17922	17952	
Normalized	99.84%	100%	
Standard Deviation	1.3%	2.5%	
Hashcat - MD5 (H/s)	66413233333	66432866667	66617033333
Normalized	99.69%	99.72%	100%
Standard Deviation	0.2%	0.2%	0.1%
Hashcat - SHA1 (H/s)	22583233333	22585700000	22665866667
Normalized	99.64%	99.65%	100%
Standard Deviation	0.2%	0.1%	0.2%
Hashcat - 7-Zip (H/s)	1149333	1144667	1147133
Normalized	100%	99.59%	99.81%
Standard Deviation	0.2%	0.5%	0.5%
Hashcat - SHA-512 (H/s)	28530333333	2851266667	2857366667
Normalized	99.85%	99.79%	100%
Standard Deviation	0.2%	0.1%	0.2%
Hashcat - T.R.X (H/s)	846967	845867	849167
Normalized	99.74%	99.61%	100%
Standard Deviation	0.2%	0%	0.2%
IndigoBench - OpenCL GPU - Bedroom (M	20.865	20.870	
samples/s)			
Normalized	99.98%	100%	
Standard Deviation	0.4%	0.3%	
IndigoBench - OpenCL GPU - Supercar (M	52.929	52.720	
samples/s)			
Normalized	100%	99.61%	
Standard Deviation	0%	0.1%	

LuxCoreRender OpenCL - DLSC (M samples/sec)	11.20	11.17
Normalized	100%	99.73%
Standard Deviation	0.3%	0.2%
LuxCoreRender OpenCL - Food (M samples/sec)	4.70	4.68
Normalized	100%	99.57%
Standard Deviation	1.9%	1.5%
LuxCoreRender OpenCL - LuxCore Benchmark (M samples/sec)	9.08	9.13
Normalized	99.45%	100%
Standard Deviation	1.3%	1.1%
LuxCoreRender OpenCL - R.C.a.P (M samples/sec)	26.12	26.29
Normalized	99.35%	100%
Standard Deviation	0.5%	0.2%
LeelaChessZero - OpenCL (Nodes/s)	39148	38996
Normalized	100%	99.61%
Standard Deviation	0.7%	0.9%
GROMACS - Water Benchmark (Ns/Day)	9.643	9.670
Normalized	99.72%	100%
Standard Deviation	1.1%	0.3%
FAHBench (Ns/Day)	343.6182	344.7206
Normalized	99.68%	100%
Standard Deviation	0.1%	0.1%
MandelGPU - GPU (Samples/sec)	466253752	468356718
Normalized	99.55%	100%
Standard Deviation	1.7%	2.2%
OctaneBench - Total Score (Score)	680.723023	680.186086
Normalized	100%	99.92%
Chaos Group V-RAY - NVIDIA CUDA GPU (vpaths)	1963	1963
Chaos Group V-RAY - NVIDIA RTX GPU (vrays)	2601	2610
Normalized	99.66%	100%
Standard Deviation	0.4%	0.6%
NAMD CUDA - ATPase Simulation - 327,506 Atoms (days/ns)	0.12884	0.12599
Normalized	97.79%	100%
Standard Deviation	0.8%	0.8%
VkResample - 2x - Double (ms)	122.795	122.873
Normalized	100%	99.94%
Standard Deviation	0%	0.1%
VkResample - 2x - Single (ms)	9.282	9.284
Normalized	100%	99.98%
Standard Deviation	0.1%	0.1%
ArrayFire - C.G.O (ms)	1.477	1.491
Normalized	100%	99.06%
Standard Deviation	0.4%	0.3%
FinanceBench - B.S.O (ms)	6.234	6.265
Normalized	100%	99.51%
Standard Deviation	0.5%	0.1%
NCNN - Vulkan GPU - mobilenet (ms)	12.78	12.92
Normalized	100%	98.92%

	Standard Deviation	1.9%	1.2%	
NCNN - Vulkan GPU-v2-v2 - mobilenet-v2		4.42	4.45	
	Normalized	100%	99.33%	
	Standard Deviation	1.5%	2.9%	
NCNN - Vulkan GPU-v3-v3 - mobilenet-v3		4.11	4.18	
	Normalized	100%	98.33%	
	Standard Deviation	2%	1.8%	
NCNN - Vulkan GPU - shufflenet-v2 (ms)		4.78	4.77	
	Normalized	99.79%	100%	
	Standard Deviation	2.8%	1.6%	
NCNN - Vulkan GPU - mnasnet (ms)		4.12	4.04	
	Normalized	98.06%	100%	
	Standard Deviation	0%	5.6%	
NCNN - Vulkan GPU - efficientnet-b0 (ms)		5.69	5.57	
	Normalized	97.89%	100%	
	Standard Deviation	1.8%	1.7%	
NCNN - Vulkan GPU - blazeface (ms)		1.88	1.83	
	Normalized	97.34%	100%	
	Standard Deviation	6.4%	2.5%	
NCNN - Vulkan GPU - googlenet (ms)		13.16	13.11	
	Normalized	99.62%	100%	
	Standard Deviation	2.4%	1%	
NCNN - Vulkan GPU - vgg16 (ms)		55.24	56.10	
	Normalized	100%	98.47%	
	Standard Deviation	0.7%	0.6%	
NCNN - Vulkan GPU - resnet18 (ms)		13.98	13.65	
	Normalized	97.64%	100%	
	Standard Deviation	0.6%	2%	
NCNN - Vulkan GPU - alexnet (ms)		11.06	11.08	
	Normalized	100%	99.82%	
	Standard Deviation	0.7%	0.7%	
NCNN - Vulkan GPU - resnet50 (ms)		24.75	24.60	
	Normalized	99.39%	100%	
	Standard Deviation	1.7%	0.4%	
NCNN - Vulkan GPU - yolov4-tiny (ms)		21.92	21.99	
	Normalized	100%	99.68%	
	Standard Deviation	2.2%	0.6%	
NCNN - Vulkan GPU - squeezenet_ssd (ms)		14.93	15.19	
	Normalized	100%	98.29%	
	Standard Deviation	2.1%	1.5%	
NCNN - Vulkan GPU - regnety_400m (ms)		16.75	16.74	
	Normalized	99.94%	100%	
	Standard Deviation	3%	1.7%	
RealSR-NCNN - 4x - No (sec)		5.866	5.867	5.845
	Normalized	99.64%	99.63%	100%
	Standard Deviation	2.3%	2.4%	2.3%
RealSR-NCNN - 4x - Yes (sec)		29.623	29.598	29.574
	Normalized	99.83%	99.92%	100%
	Standard Deviation	0.2%	0.3%	0.2%
Waifu2x-NCNN Vulkan - 2x - 3 - Yes (sec)		3.439	3.444	3.440
	Normalized	100%	99.85%	99.97%
	Standard Deviation	0.4%	0.7%	0.4%
Betsy GPU Compressor - ETC1 - Highest		3.040	3.015	
	Normalized	99.18%	100%	
	Standard Deviation	0.8%	0.9%	

Betsy GPU Compressor - ETC2 RGB - Highest (sec)	4.054	4.049
Normalized	99.88%	100%
Standard Deviation	1.2%	0.7%
RedShift Demo (sec)	141	141
Standard Deviation	0.8%	0.8%
Rodinia - O.P.F (sec)	3.743	3.729
Normalized	99.63%	100%
Standard Deviation	1.3%	0.6%
Blender - BMW27 - CUDA (sec)	18.35	18.36
Normalized	100%	99.95%
Standard Deviation	0.3%	0.2%
Blender - Classroom - CUDA (sec)	51.42	51.42
Standard Deviation	0.1%	0.2%
Blender - Fishy Cat - CUDA (sec)	34.60	34.61
Normalized	100%	99.97%
Standard Deviation	0%	0%
Blender - Barbershop - CUDA (sec)	373.50	374.21
Normalized	100%	99.81%
Standard Deviation	0.1%	0.2%
Blender - BMW27 - NVIDIA OptiX (sec)	9.76	9.77
Normalized	100%	99.9%
Standard Deviation	0.6%	0.8%
Blender - Classroom - NVIDIA OptiX (sec)	30.52	30.33
Normalized	99.38%	100%
Standard Deviation	0.5%	0.9%
Blender - Fishy Cat - NVIDIA OptiX (sec)	20.43	20.42
Normalized	99.95%	100%
Standard Deviation	0.1%	0.2%
Blender - Barbershop - NVIDIA OptiX (sec)	335.89	335.87
Normalized	99.99%	100%
Standard Deviation	0.4%	0.1%
Blender - Pabellon Barcelona - CUDA (sec)	120.48	120.49
Normalized	100%	99.99%
Standard Deviation	0.1%	0.1%
Blender - Pabellon Barcelona - NVIDIA OptiX (sec)	46.68	46.72
Normalized	100%	99.91%
Standard Deviation	0.5%	0.3%

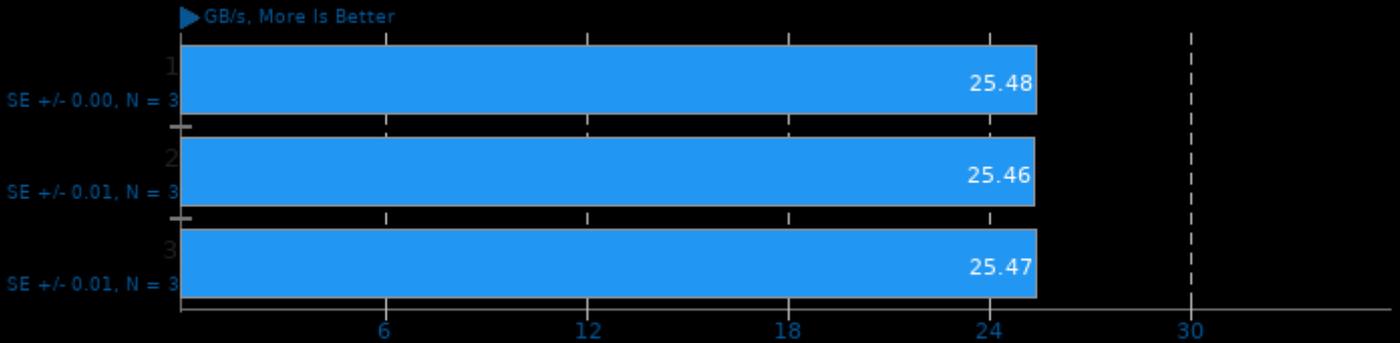
VkFFT 1.1.1



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

SHOC Scalable Heterogeneous Computing 2020-04-17

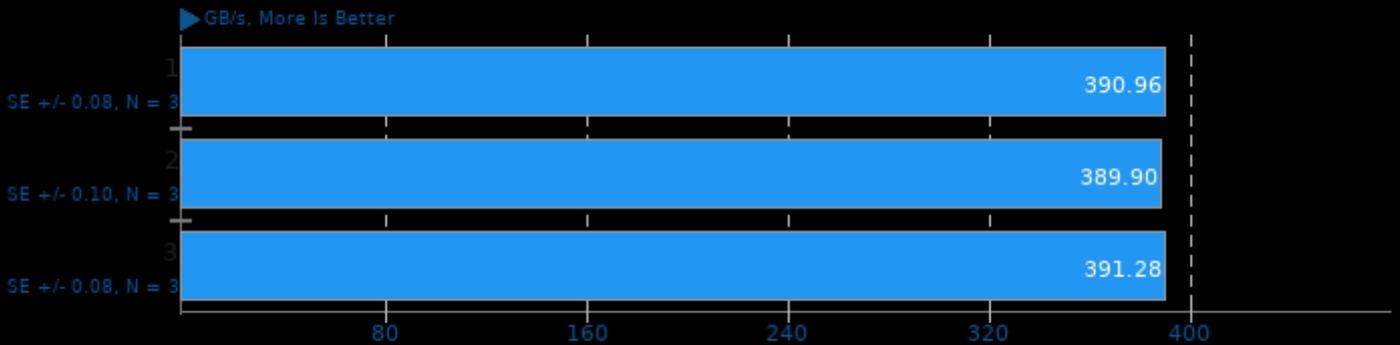
Target: OpenCL - Benchmark: Triad



1. (CXX) g++ options: -O2 -ISHOCCommonMPI -ISHOCCommonOpenCL -ISHOCCommon -lOpenCL -lrt -pthread -lmpi_cxx -lmpi

SHOC Scalable Heterogeneous Computing 2020-04-17

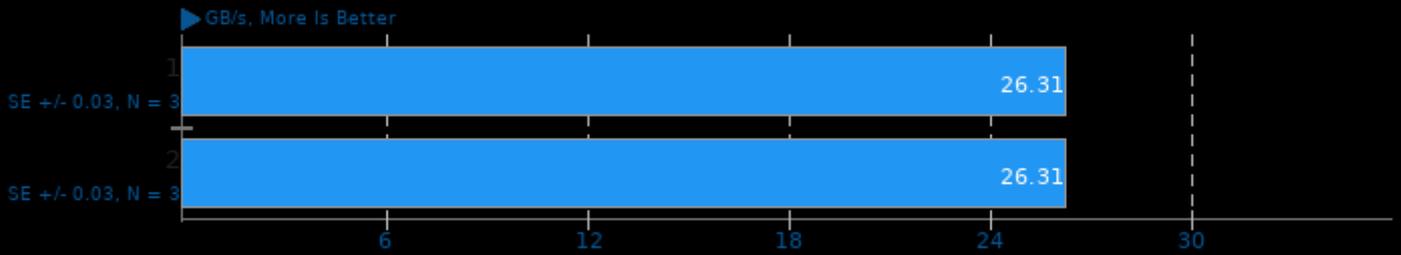
Target: OpenCL - Benchmark: Reduction



1. (CXX) g++ options: -O2 -ISHOCCommonMPI -ISHOCCommonOpenCL -ISHOCCommon -lOpenCL -lrt -pthread -lmpi_cxx -lmpi

SHOC Scalable Heterogeneous Computing 2020-04-17

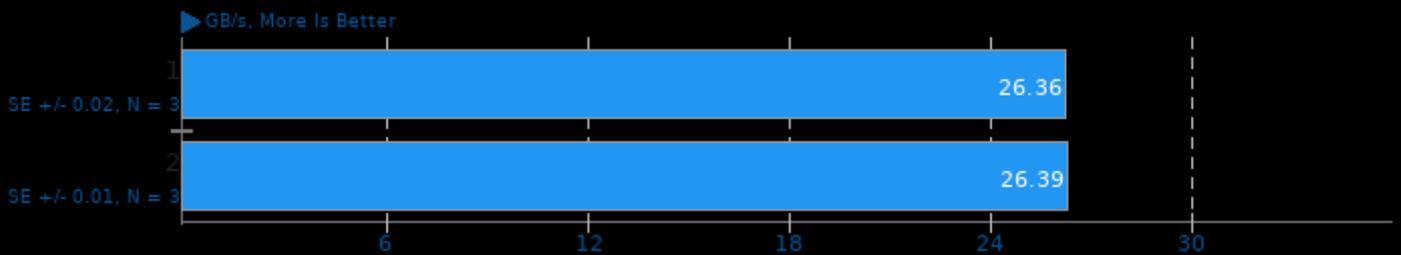
Target: OpenCL - Benchmark: Bus Speed Download



1. (CXX) g++ options: -O2 -ISHOCCommonMPI -ISHOCCommonOpenCL -ISHOCCommon -lOpenCL -lrt -pthread -lmpi_cxx -lmpi

SHOC Scalable Heterogeneous Computing 2020-04-17

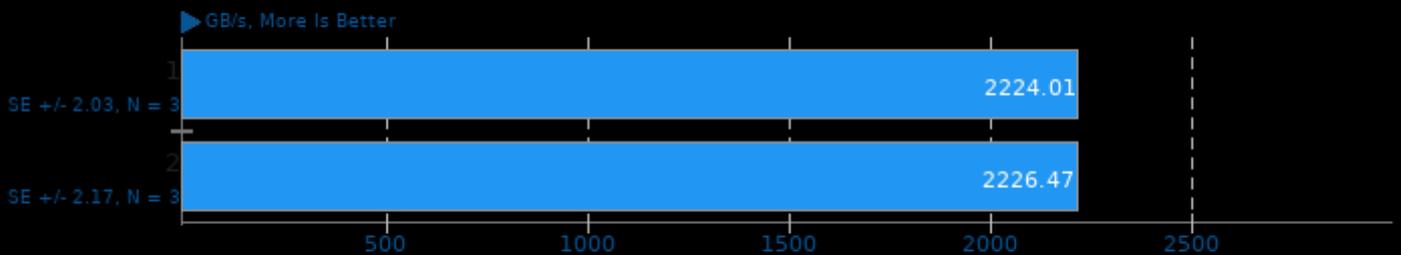
Target: OpenCL - Benchmark: Bus Speed Readback



1. (CXX) g++ options: -O2 -ISHOCCommonMPI -ISHOCCommonOpenCL -ISHOCCommon -lOpenCL -lrt -pthread -lmpi_cxx -lmpi

SHOC Scalable Heterogeneous Computing 2020-04-17

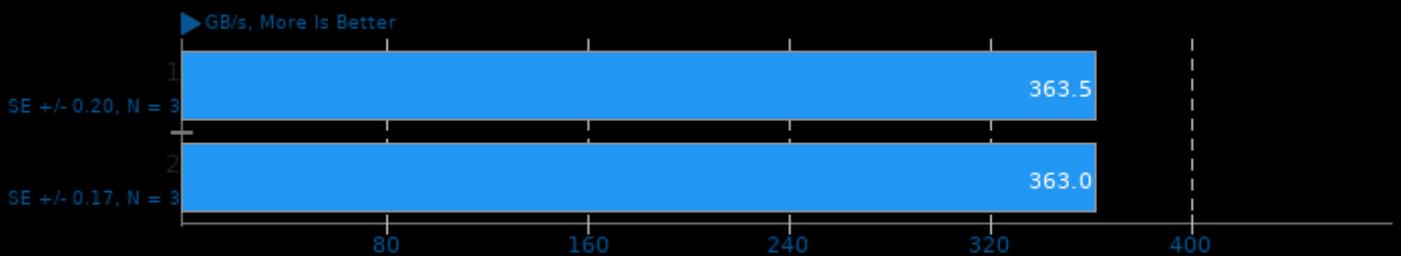
Target: OpenCL - Benchmark: Texture Read Bandwidth



1. (CXX) g++ options: -O2 -ISHOCCommonMPI -ISHOCCommonOpenCL -ISHOCCommon -lOpenCL -lrt -pthread -lmpi_cxx -lmpi

cl-mem 2017-01-13

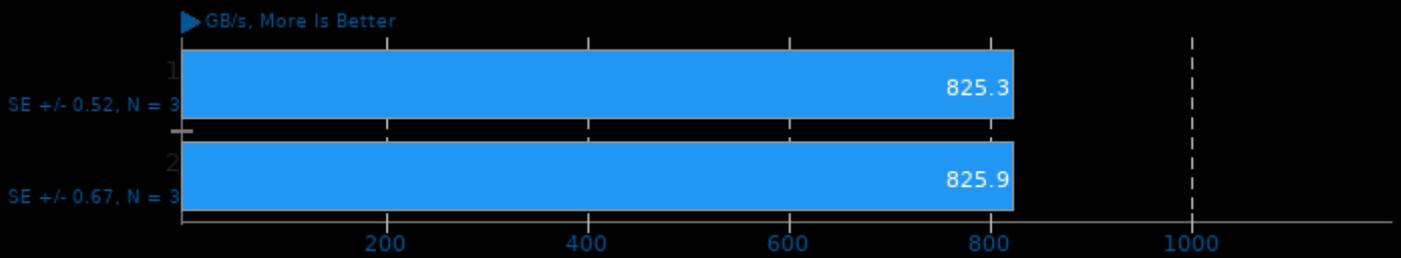
Benchmark: Copy



1. (CC) gcc options: -O2 -fno-rtti -lOpenCL

cl-mem 2017-01-13

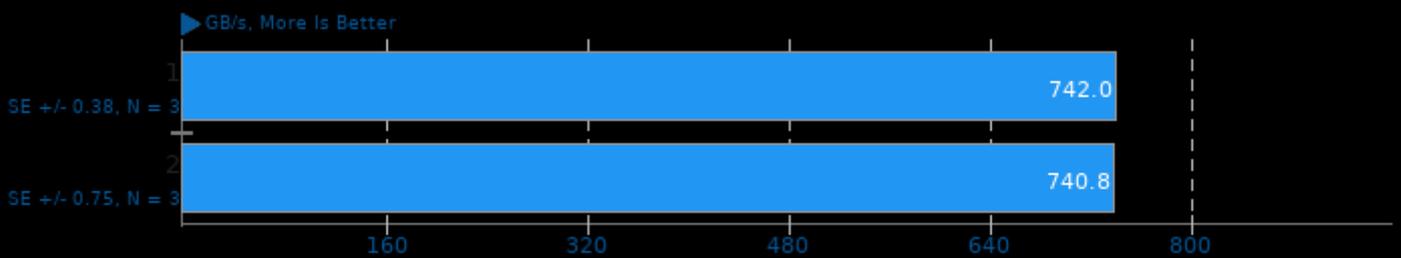
Benchmark: Read



1. (CC) gcc options: -O2 -fno -fOpenCL

cl-mem 2017-01-13

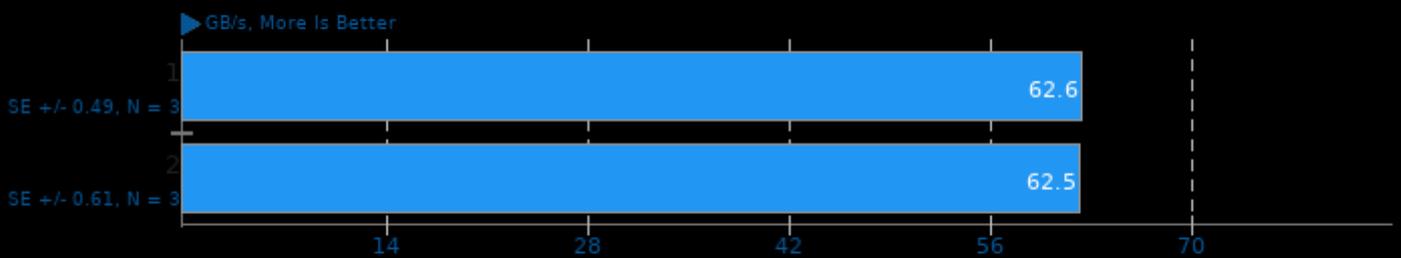
Benchmark: Write



1. (CC) gcc options: -O2 -fno -fOpenCL

ViennaCL 1.7.1

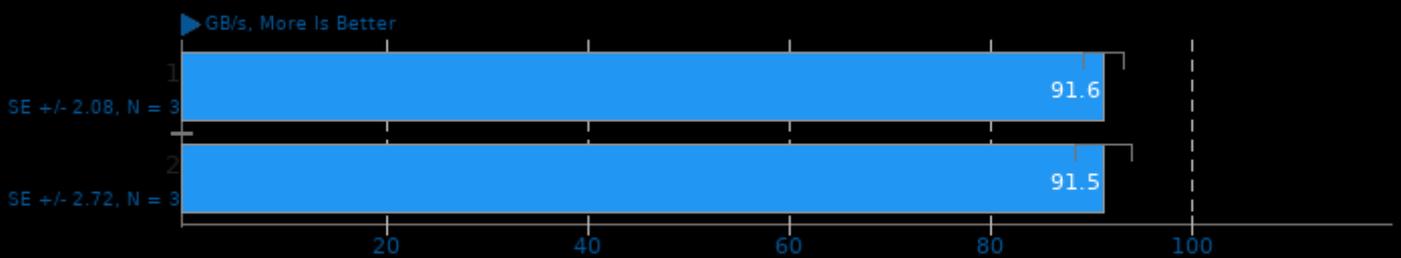
Test: CPU BLAS - sCOPY



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

ViennaCL 1.7.1

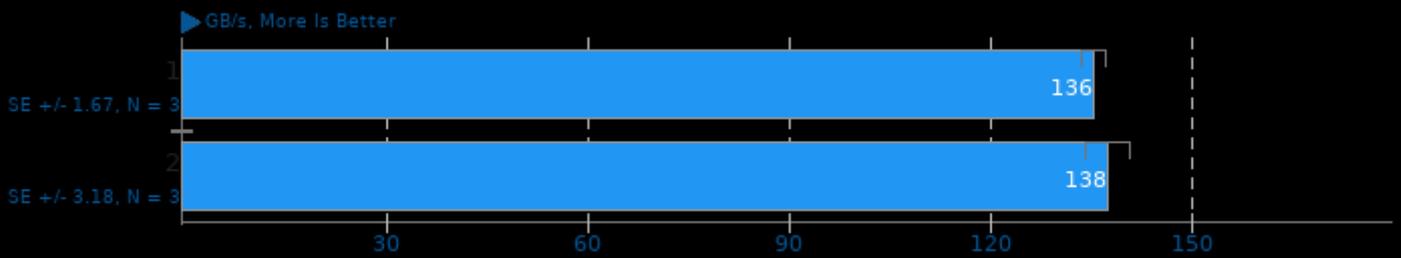
Test: CPU BLAS - sAXPY



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

ViennaCL 1.7.1

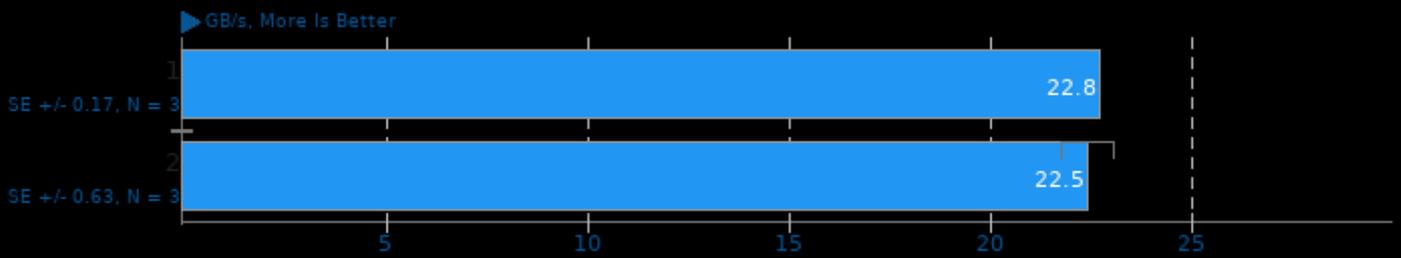
Test: CPU BLAS - sDOT



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

ViennaCL 1.7.1

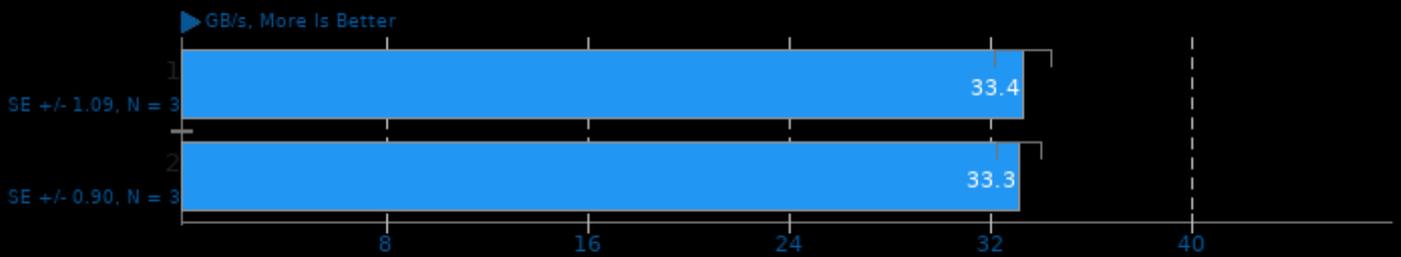
Test: CPU BLAS - dCOPY



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

ViennaCL 1.7.1

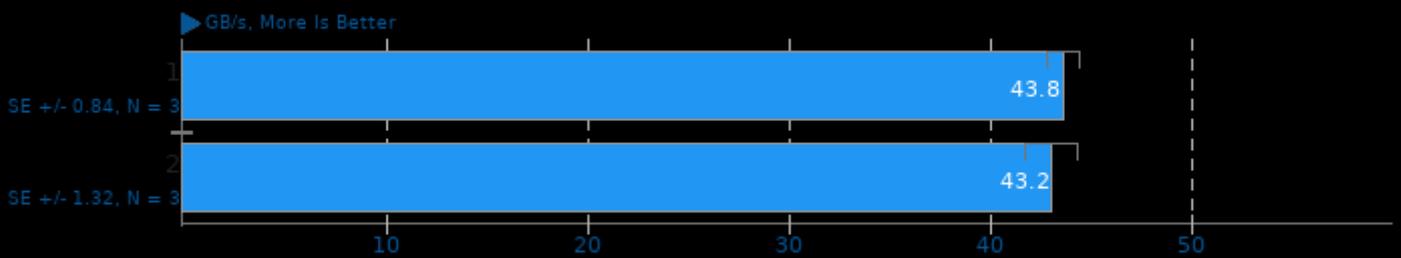
Test: CPU BLAS - dAXPY



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

ViennaCL 1.7.1

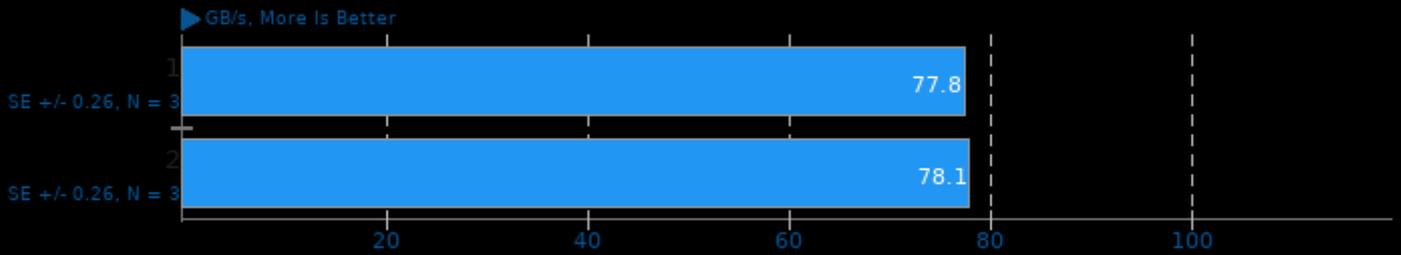
Test: CPU BLAS - dDOT



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

ViennaCL 1.7.1

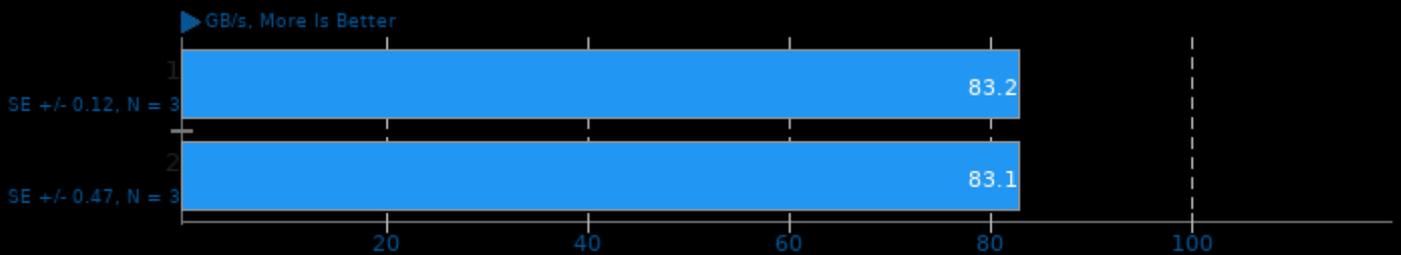
Test: CPU BLAS - dGEMV-N



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

ViennaCL 1.7.1

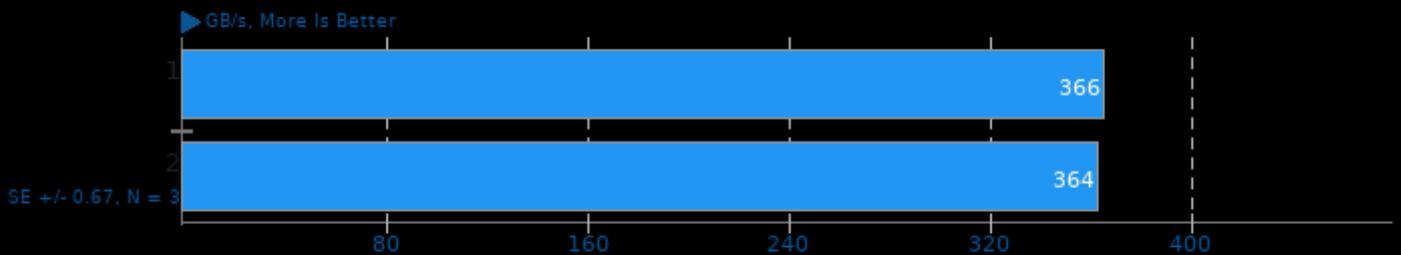
Test: CPU BLAS - dGEMV-T



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

ViennaCL 1.7.1

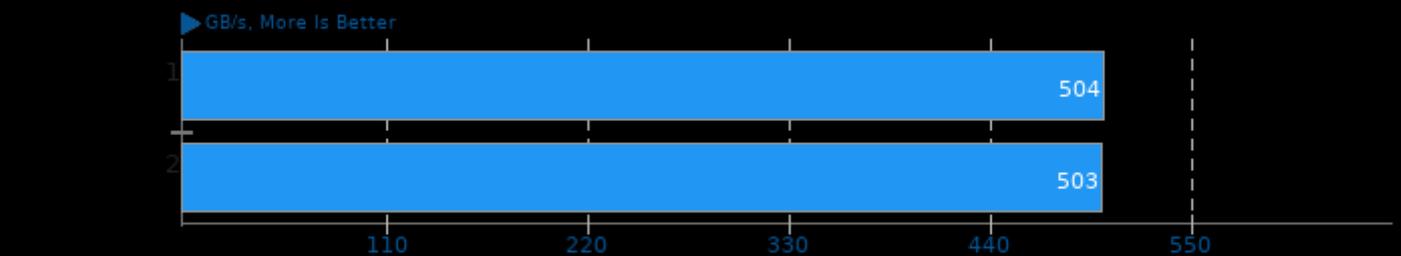
Test: OpenCL BLAS - sCOPY



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

ViennaCL 1.7.1

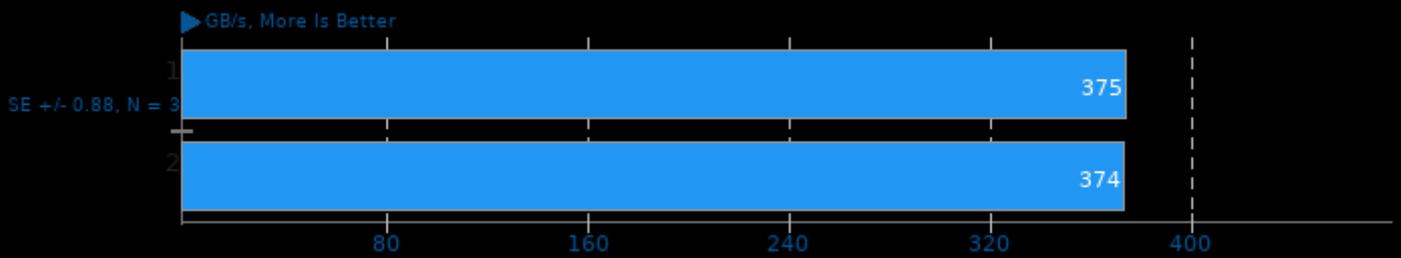
Test: OpenCL BLAS - sAXPY



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

ViennaCL 1.7.1

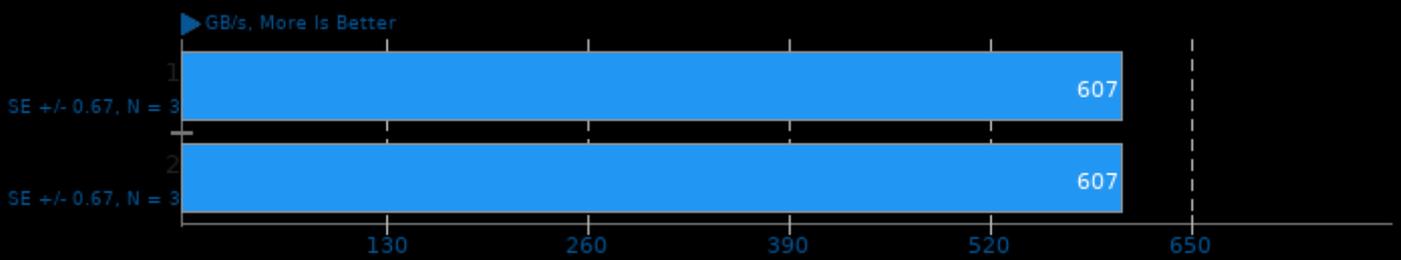
Test: OpenCL BLAS - sDOT



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

ViennaCL 1.7.1

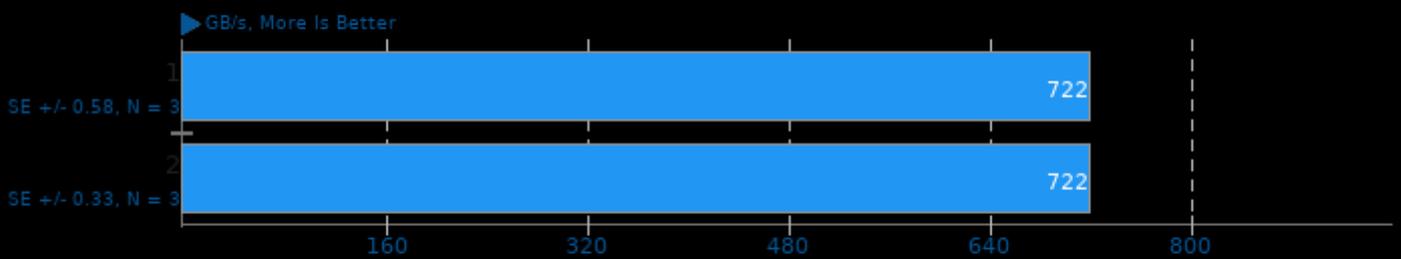
Test: OpenCL BLAS - dCOPY



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

ViennaCL 1.7.1

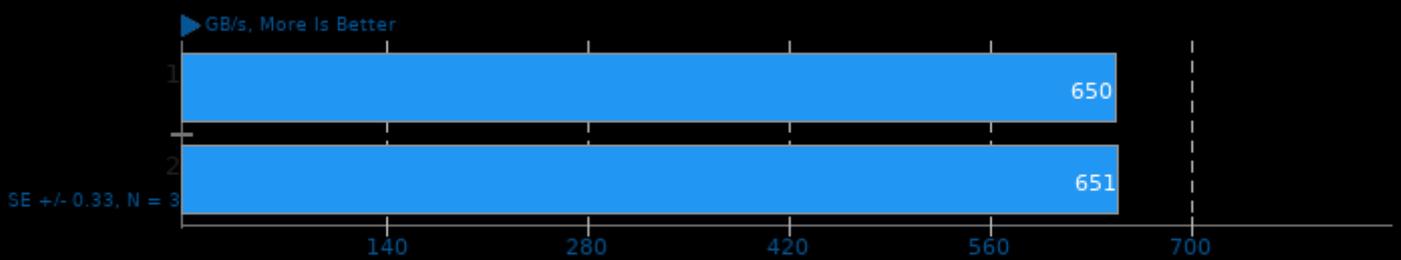
Test: OpenCL BLAS - dAXPY



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

ViennaCL 1.7.1

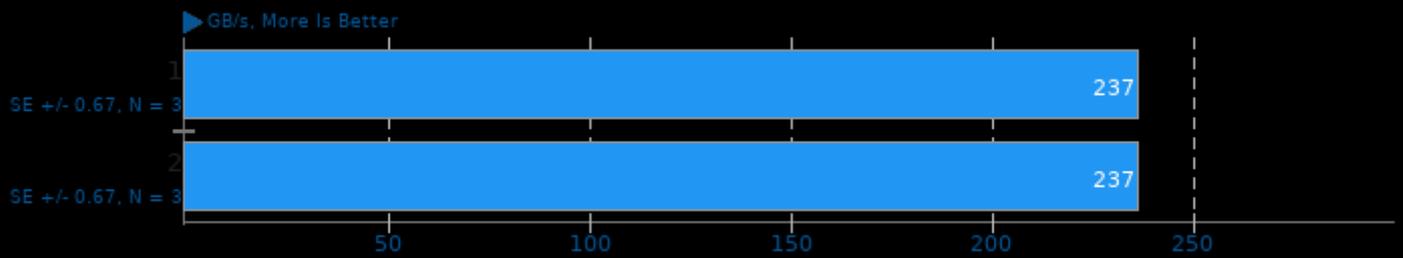
Test: OpenCL BLAS - dDOT



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

ViennaCL 1.7.1

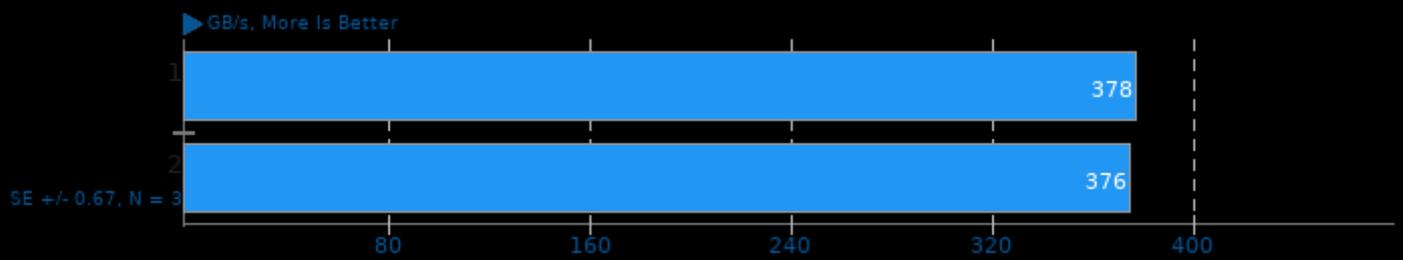
Test: OpenCL BLAS - dGEMV-N



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

ViennaCL 1.7.1

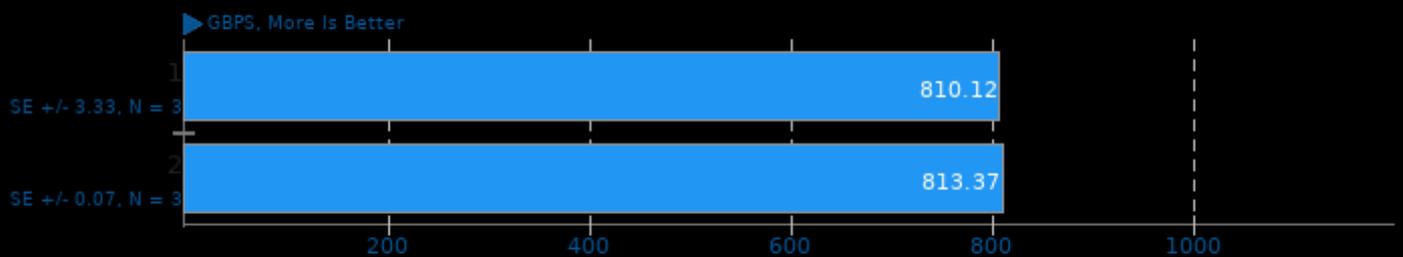
Test: OpenCL BLAS - dGEMV-T



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

clpeak

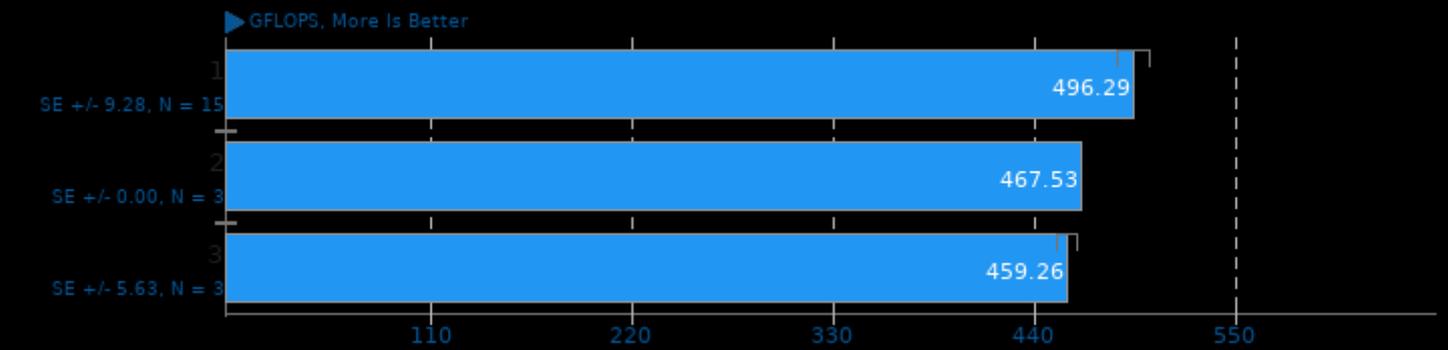
OpenCL Test: Global Memory Bandwidth



1. (CXX) g++ options: -O3 -rdynamic -lOpenCL

Mixbench 2020-06-23

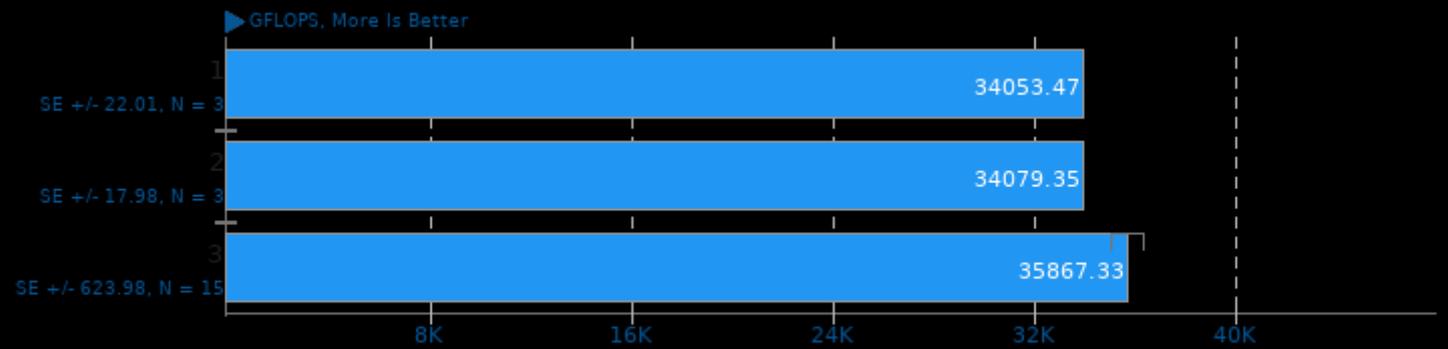
Backend: OpenCL - Benchmark: Double Precision



1. (CXX) g++ options: -lm -lstdc++ -lOpenCL -lrt -O2

Mixbench 2020-06-23

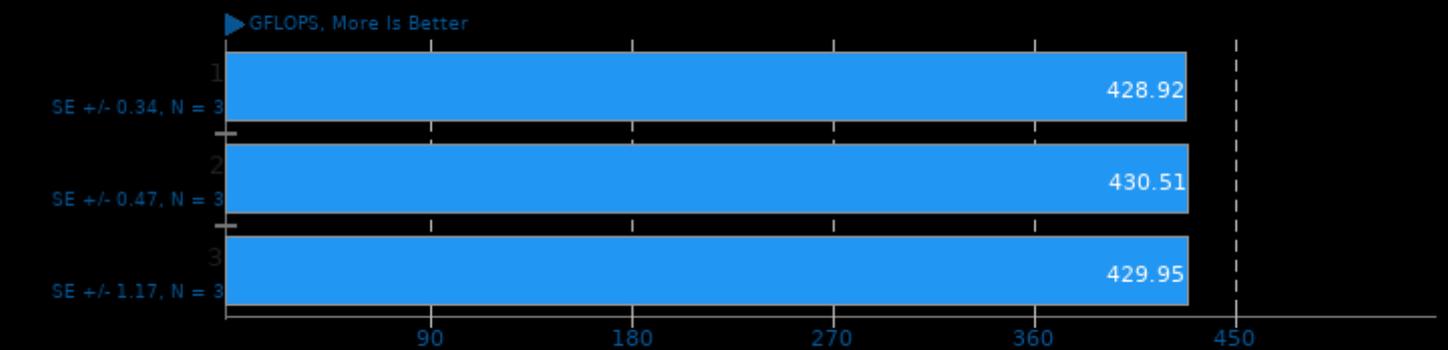
Backend: OpenCL - Benchmark: Single Precision



1. (CXX) g++ options: -lm -lstdc++ -lOpenCL -lrt -O2

SHOC Scalable Heterogeneous Computing 2020-04-17

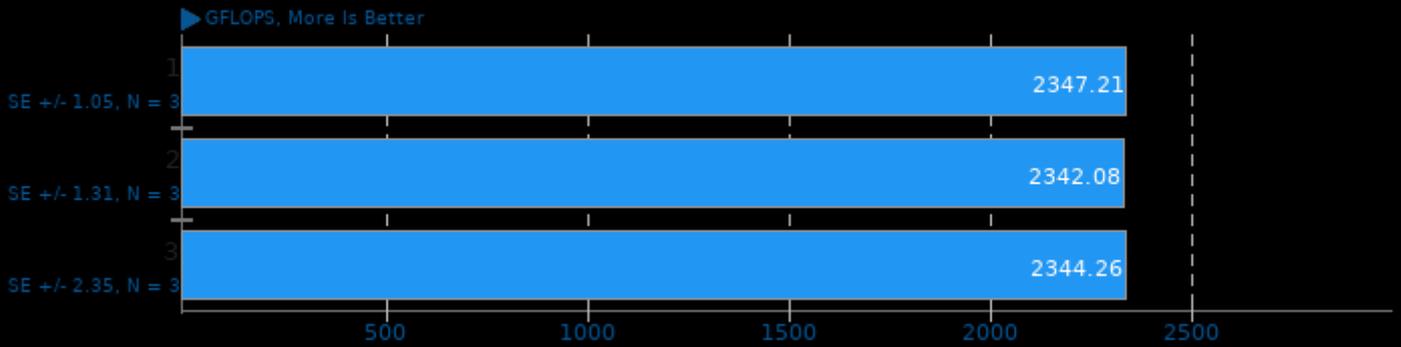
Target: OpenCL - Benchmark: S3D



1. (CXX) g++ options: -O2 -lSHOCCommonMPI -lSHOCCommonOpenCL -lSHOCCommon -lOpenCL -lrt -pthread -lmpi_cxx -lmpi

SHOC Scalable Heterogeneous Computing 2020-04-17

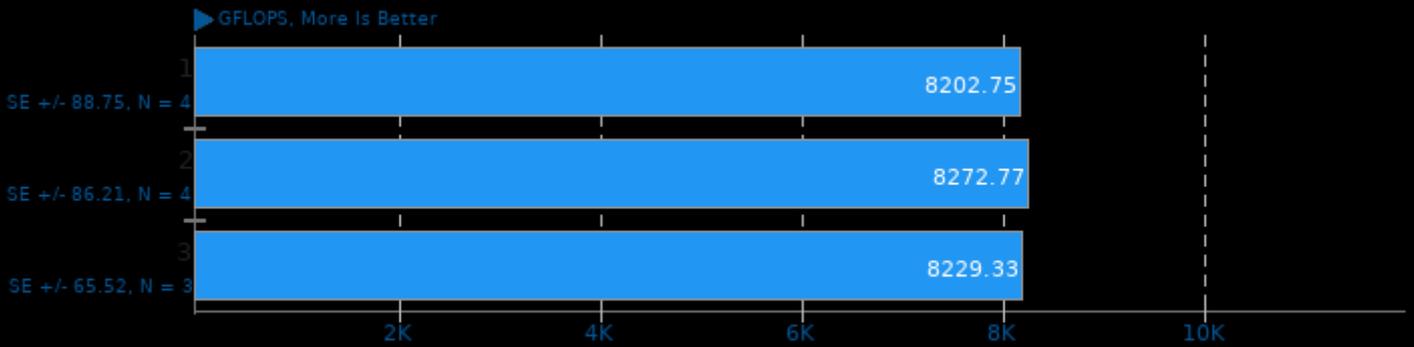
Target: OpenCL - Benchmark: FFT SP



1. (CXX) g++ options: -O2 -ISHOCCommonMPI -ISHOCCommonOpenCL -ISHOCCommon -lOpenCL -lrt -pthread -lmpi_cxx -lmpi

SHOC Scalable Heterogeneous Computing 2020-04-17

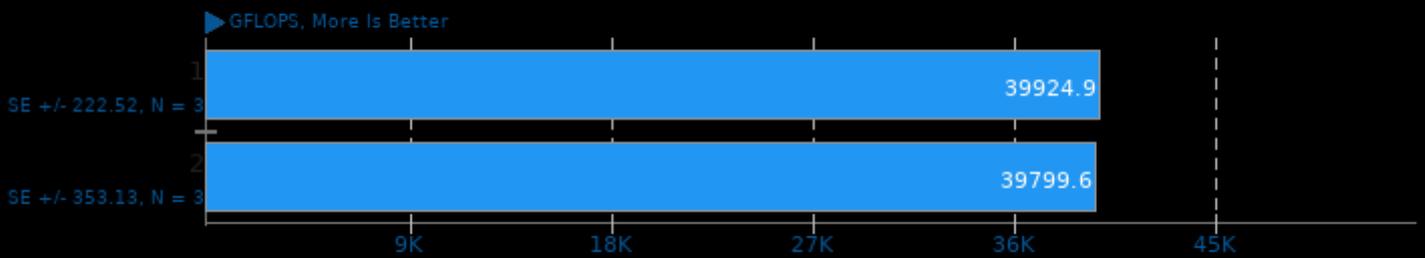
Target: OpenCL - Benchmark: GEMM SGEMM_N



1. (CXX) g++ options: -O2 -ISHOCCommonMPI -ISHOCCommonOpenCL -ISHOCCommon -lOpenCL -lrt -pthread -lmpi_cxx -lmpi

SHOC Scalable Heterogeneous Computing 2020-04-17

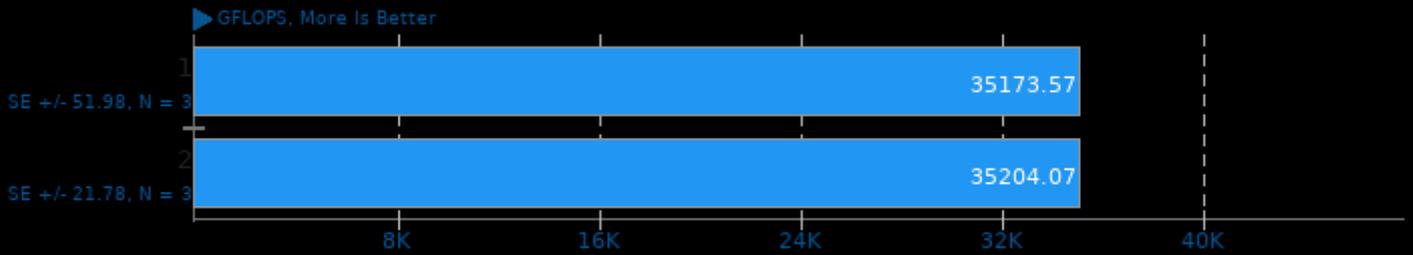
Target: OpenCL - Benchmark: Max SP Flops



1. (CXX) g++ options: -O2 -ISHOCCommonMPI -ISHOCCommonOpenCL -ISHOCCommon -lOpenCL -lrt -pthread -lmpi_cxx -lmpi

clpeak

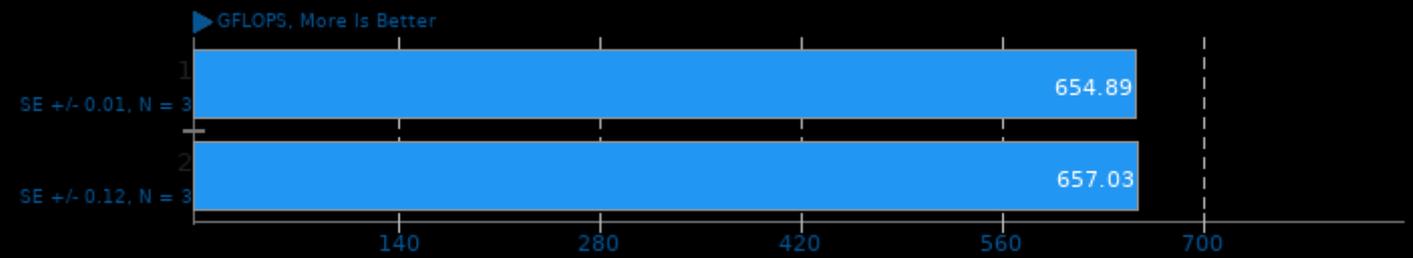
OpenCL Test: Single-Precision Float



1. (CXX) g++ options: -O3 -rdynamic -lOpenCL

clpeak

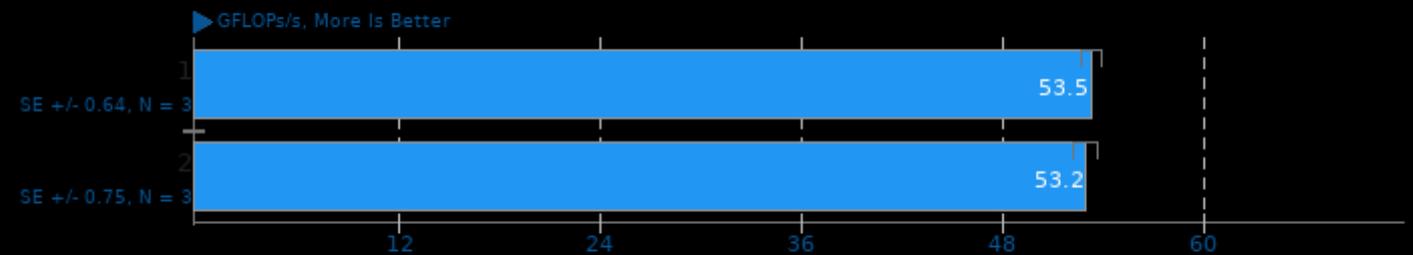
OpenCL Test: Double-Precision Double



1. (CXX) g++ options: -O3 -rdynamic -lOpenCL

ViennaCL 1.7.1

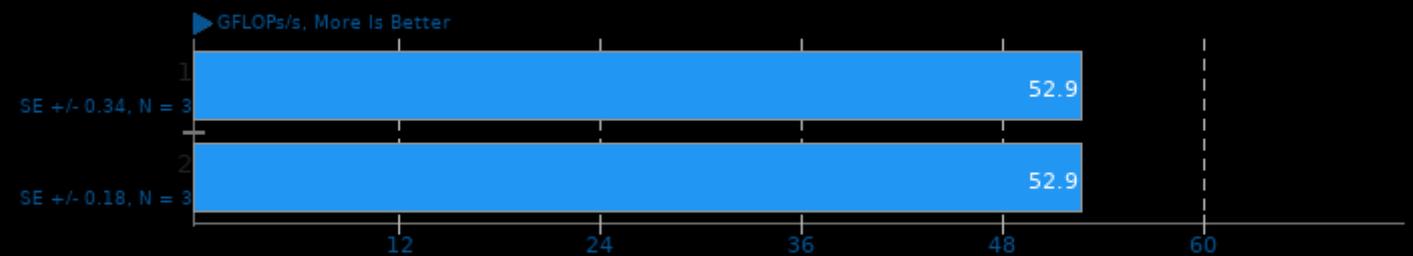
Test: CPU BLAS - dGEMM-NN



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

ViennaCL 1.7.1

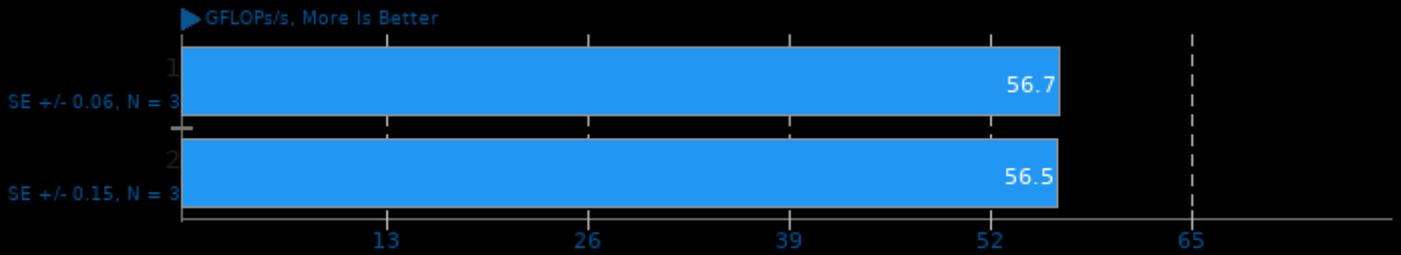
Test: CPU BLAS - dGEMM-NT



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

ViennaCL 1.7.1

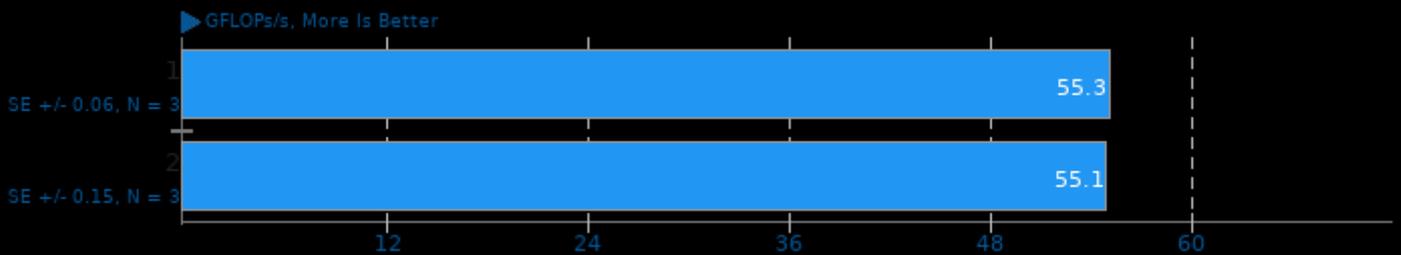
Test: CPU BLAS - dGEMM-TN



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

ViennaCL 1.7.1

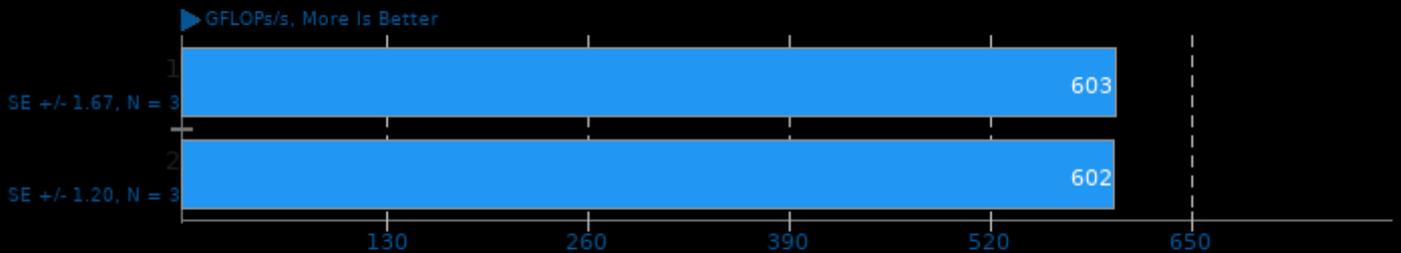
Test: CPU BLAS - dGEMM-TT



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

ViennaCL 1.7.1

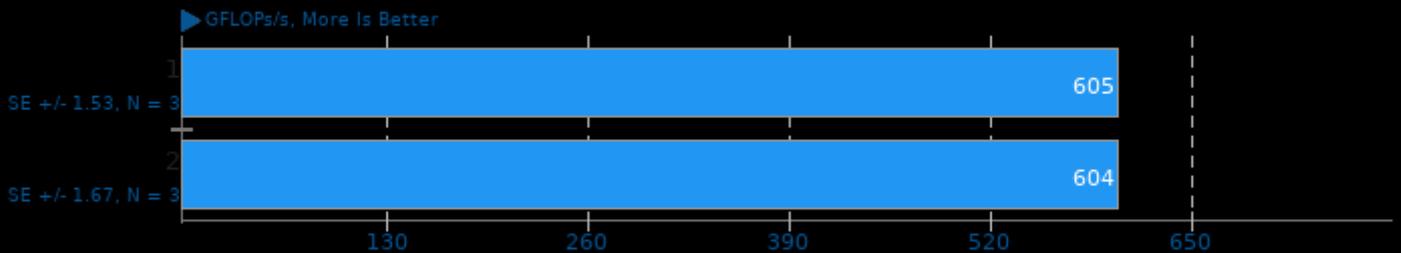
Test: OpenCL BLAS - dGEMM-NN



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

ViennaCL 1.7.1

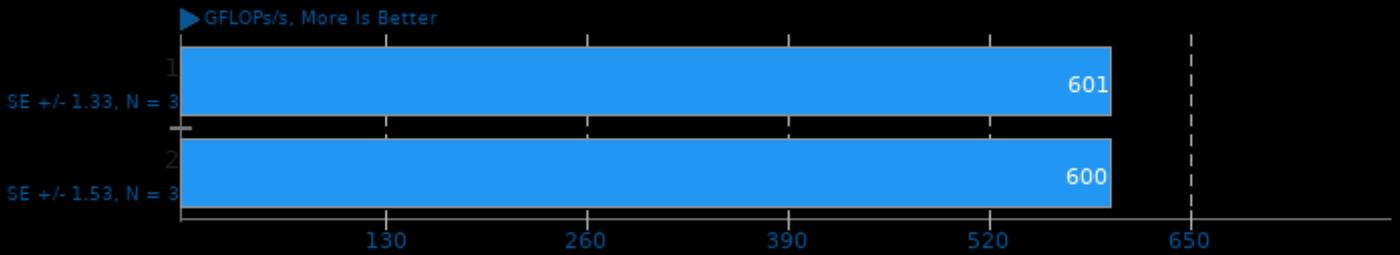
Test: OpenCL BLAS - dGEMM-NT



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

ViennaCL 1.7.1

Test: OpenCL BLAS - dGEMM-TN



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

ViennaCL 1.7.1

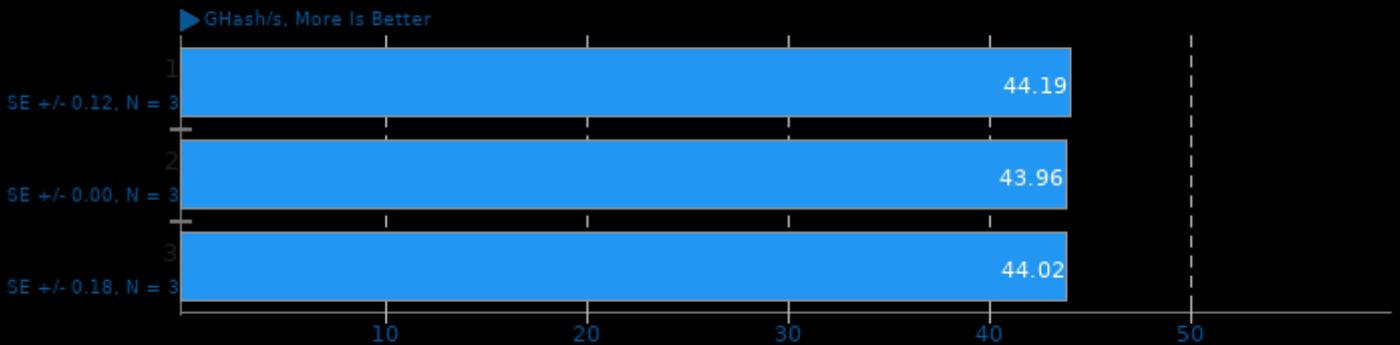
Test: OpenCL BLAS - dGEMM-TT



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

SHOC Scalable Heterogeneous Computing 2020-04-17

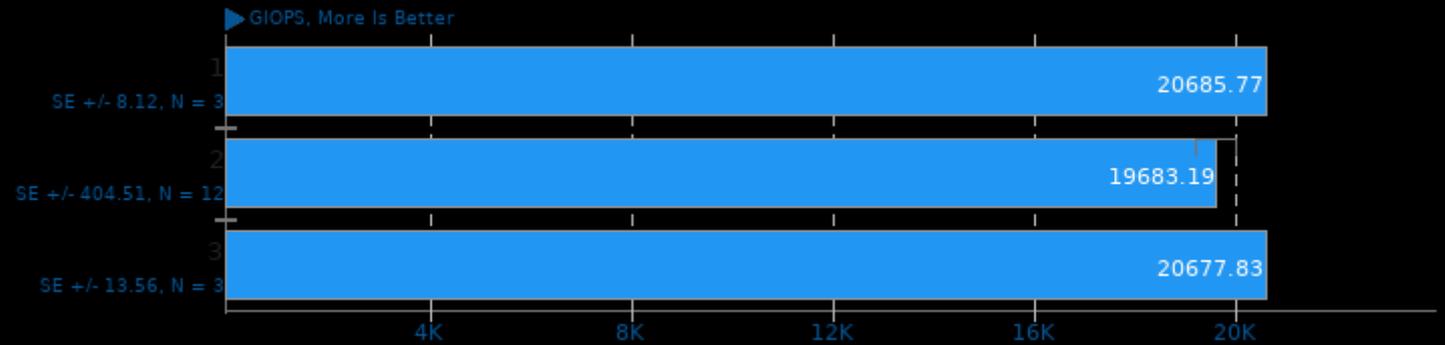
Target: OpenCL - Benchmark: MD5 Hash



1. (CXX) g++ options: -O2 -lSHOCCommonMPI -lSHOCCommonOpenCL -lSHOCCommon -lOpenCL -lrt -pthread -lmpi_cxx -lmpi

Mixbench 2020-06-23

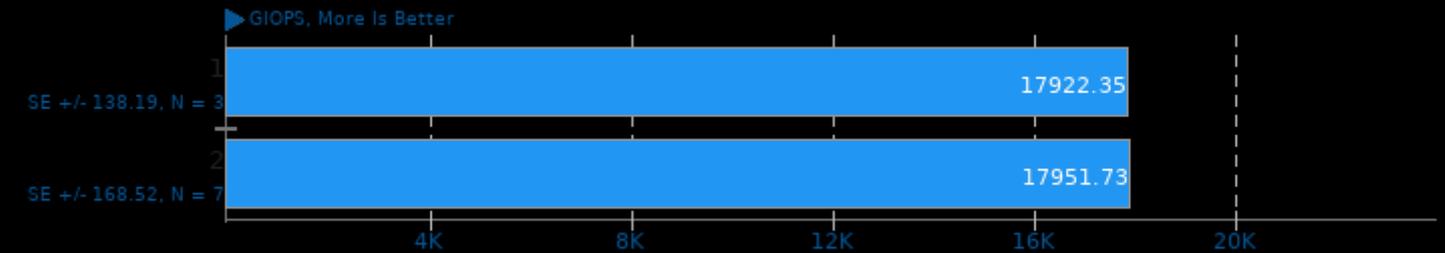
Backend: OpenCL - Benchmark: Integer



1. (CXX) g++ options: -lm -lstdc++ -lOpenCL -lrt -O2

clpeak

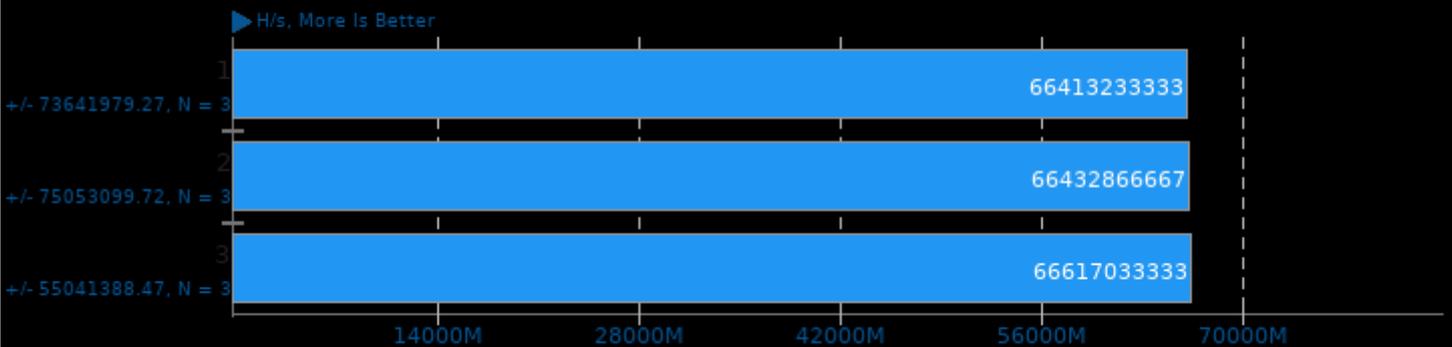
OpenCL Test: Integer Compute INT



1. (CXX) g++ options: -O3 -rdynamic -lOpenCL

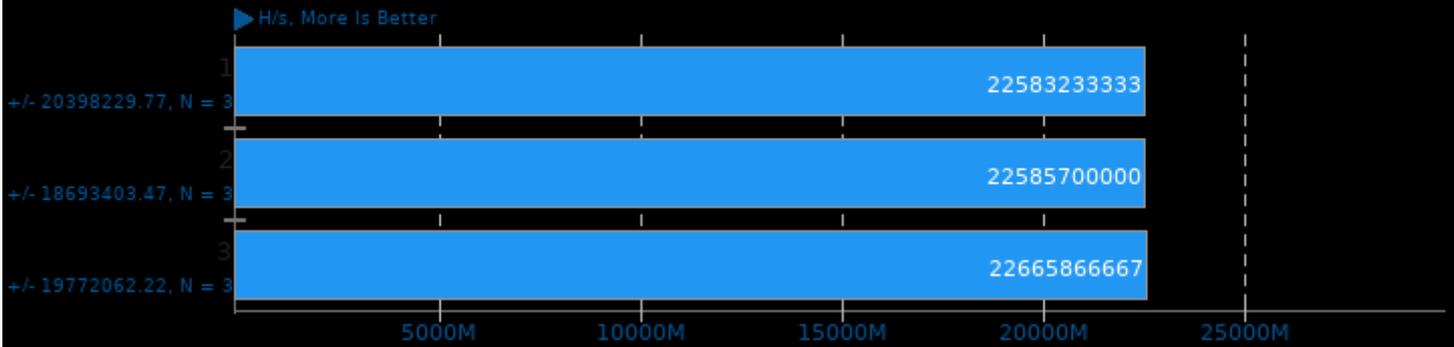
Hashcat 6.1.1

Benchmark: MD5



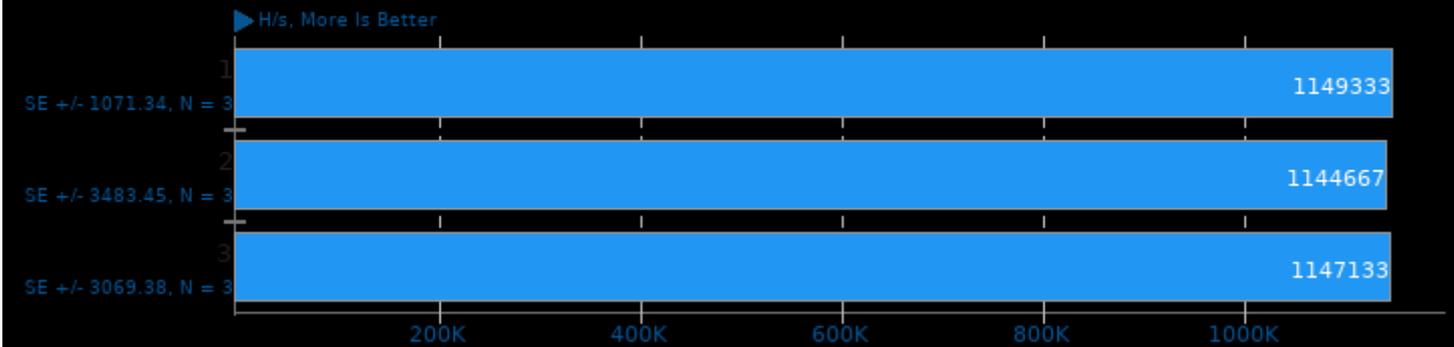
Hashcat 6.1.1

Benchmark: SHA1



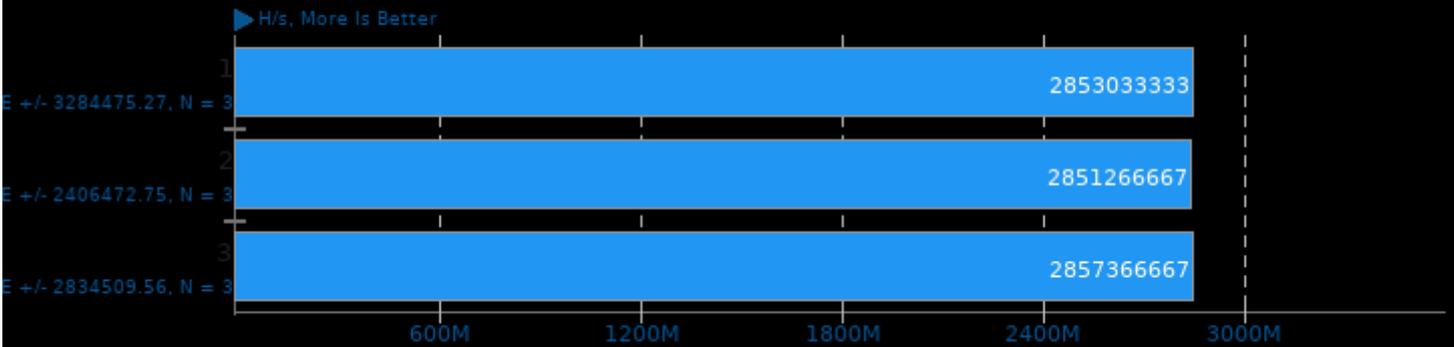
Hashcat 6.1.1

Benchmark: 7-Zip



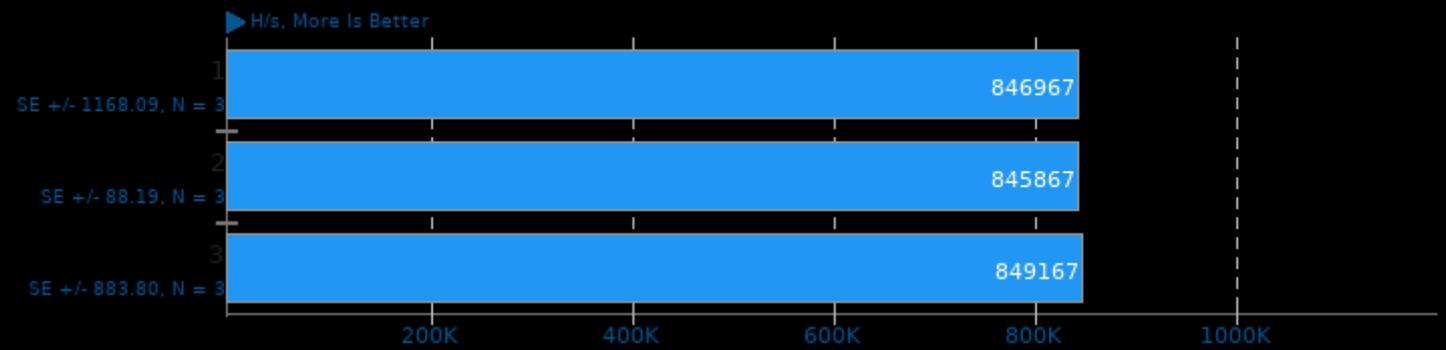
Hashcat 6.1.1

Benchmark: SHA-512



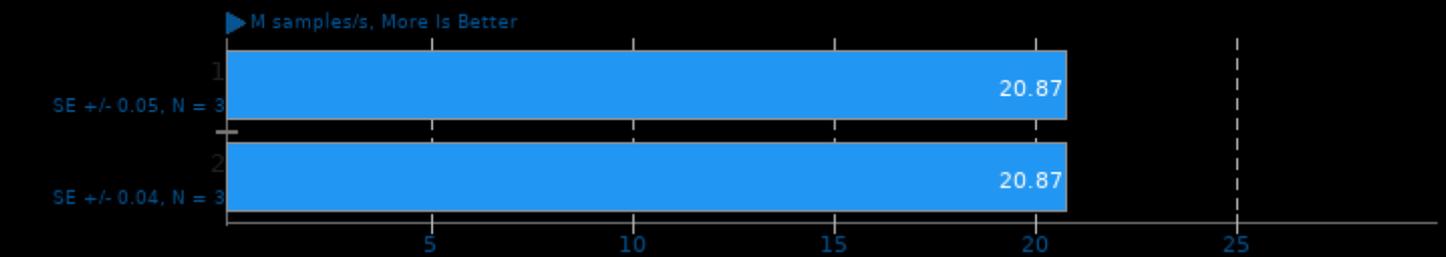
Hashcat 6.1.1

Benchmark: TrueCrypt RIPEMD160 + XTS



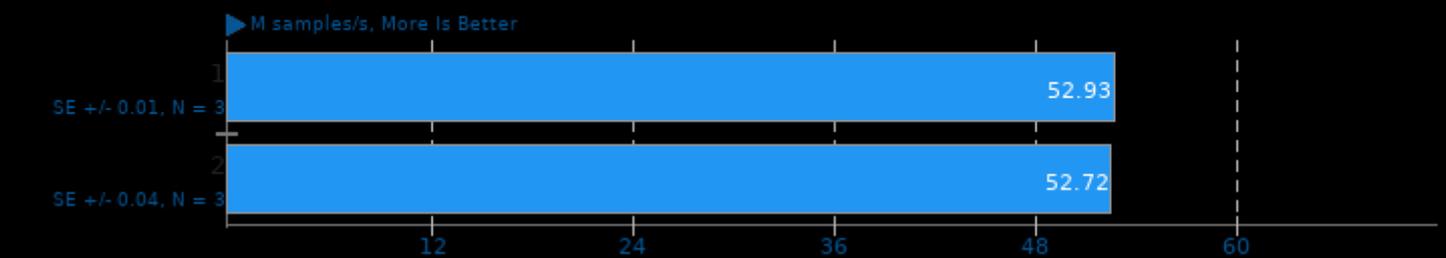
IndigoBench 4.4

Acceleration: OpenCL GPU - Scene: Bedroom



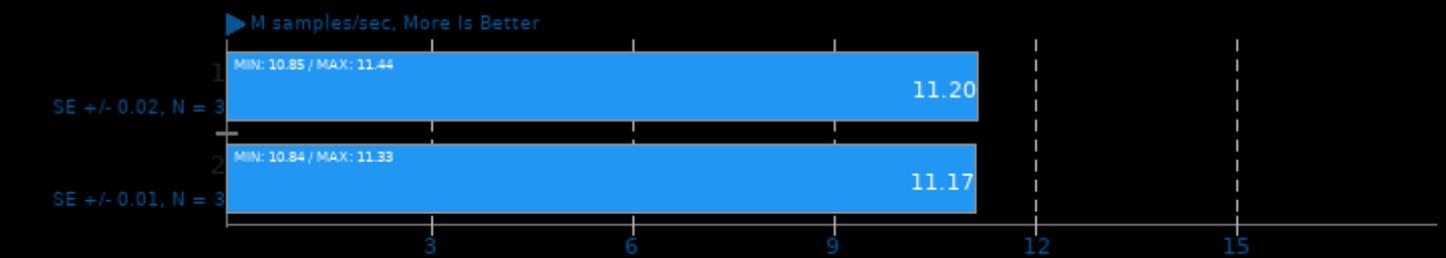
IndigoBench 4.4

Acceleration: OpenCL GPU - Scene: Supercar



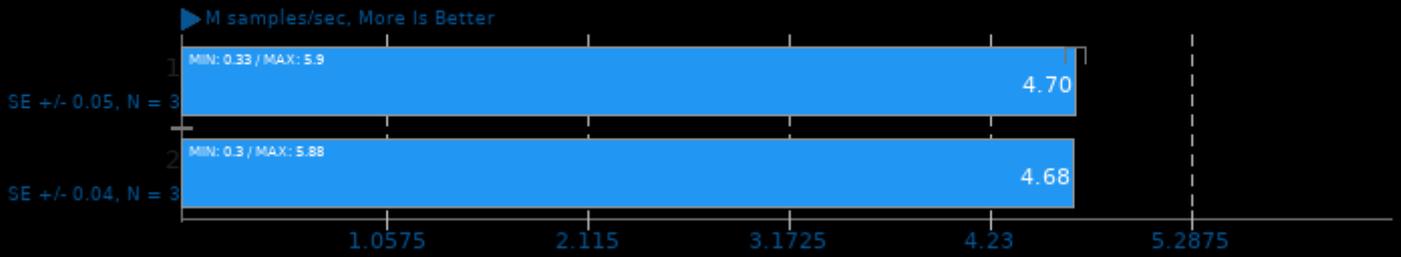
LuxCoreRender OpenCL 2.3

Scene: DLSC



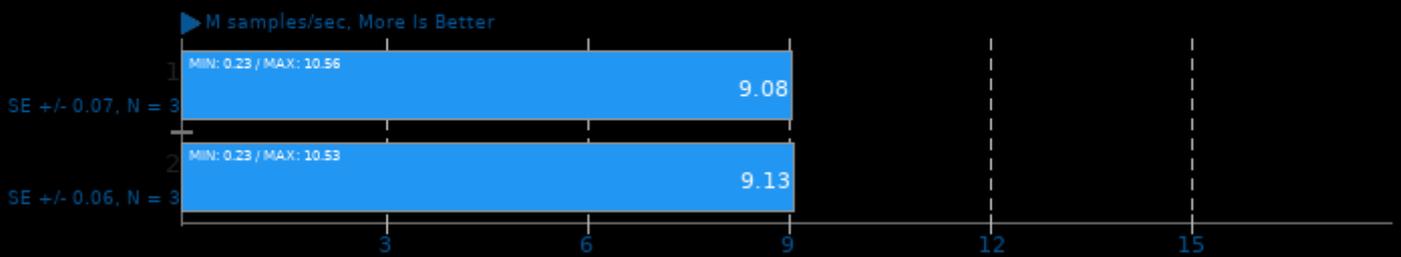
LuxCoreRender OpenCL 2.3

Scene: Food



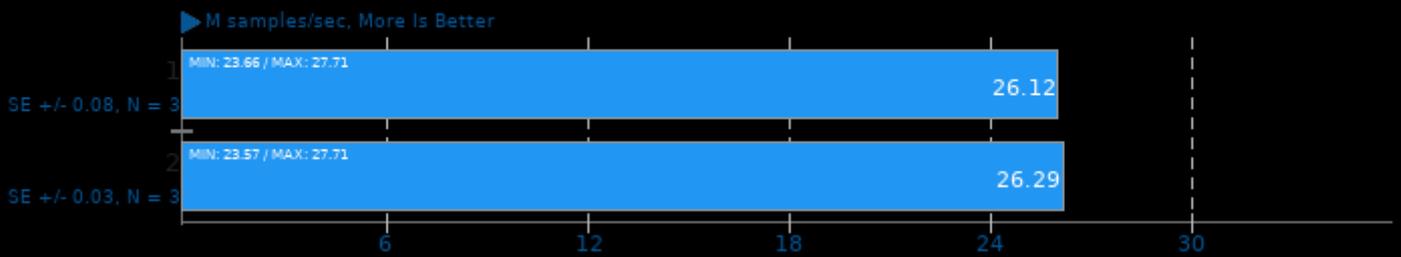
LuxCoreRender OpenCL 2.3

Scene: LuxCore Benchmark



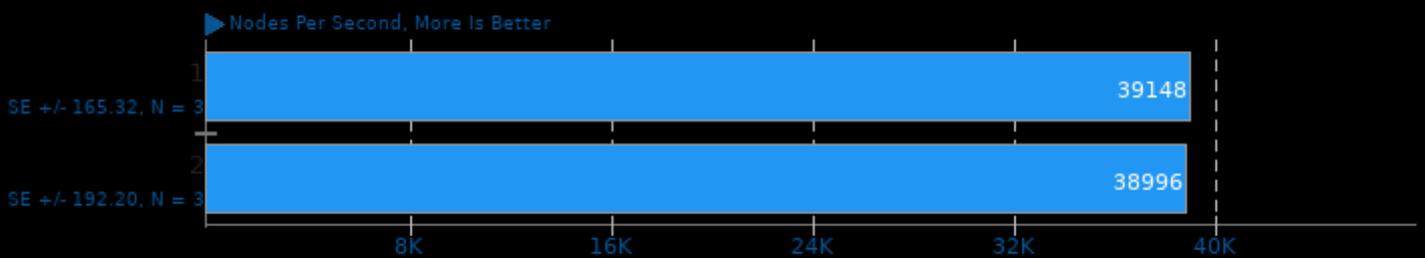
LuxCoreRender OpenCL 2.3

Scene: Rainbow Colors and Prism



LeelaChessZero 0.26

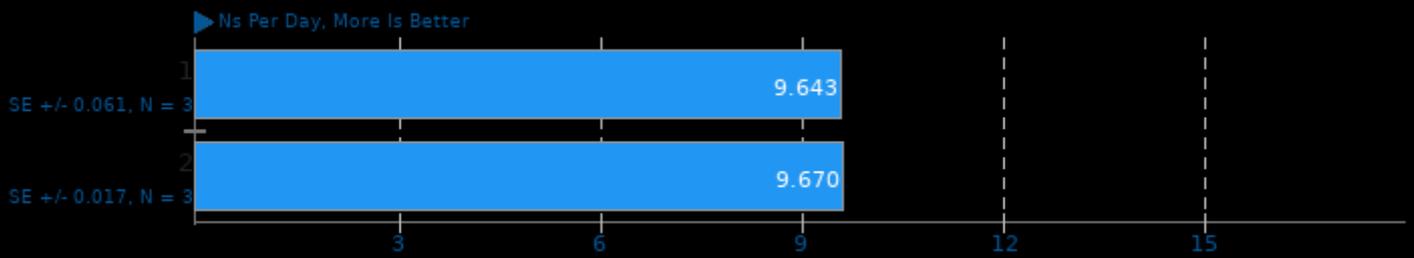
Backend: OpenCL



1. (CXX) g++ options: -fno -pthread

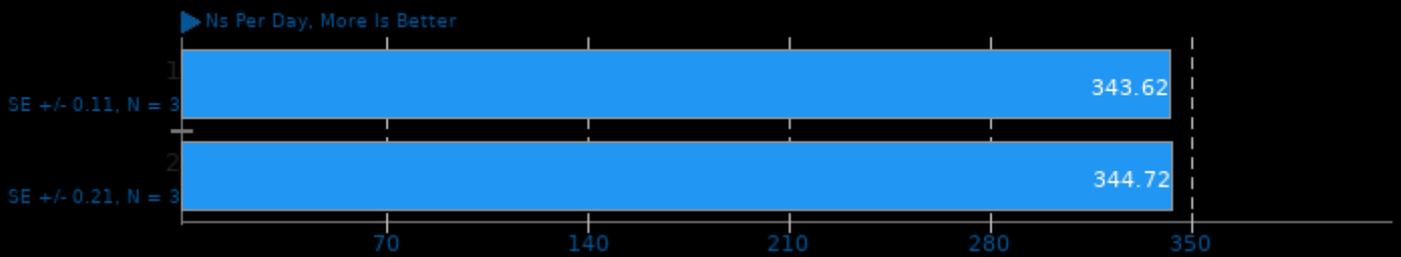
GROMACS 2020.3

Water Benchmark



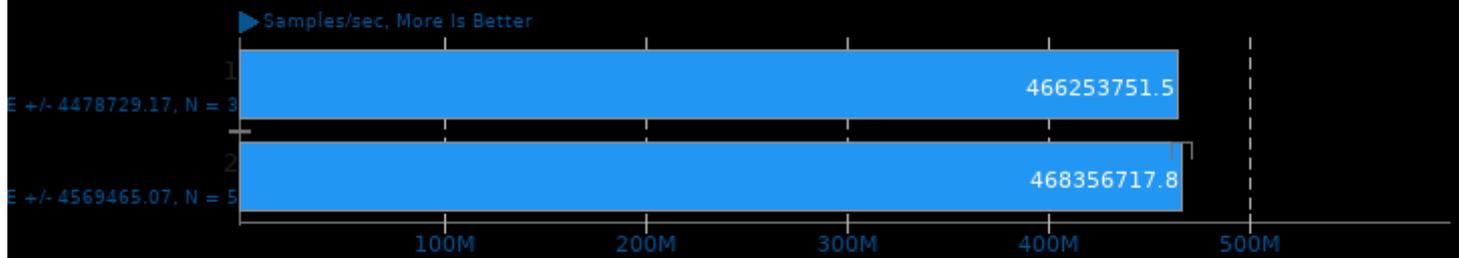
1. (CXX) g++ options: -O3 -lpthread -ldl -lrt -lm

FAHBench 2.3.2



MandelGPU 1.3pts1

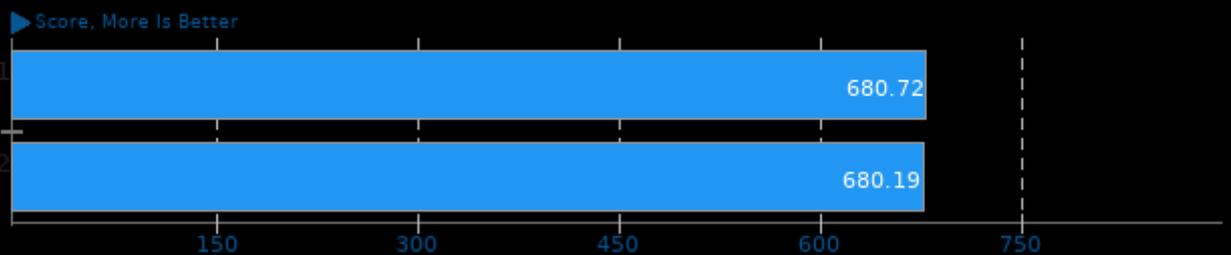
OpenCL Device: GPU



1. (CC) gcc options: -O3 -lm -ftree-vectorize -funroll-loops -lglut -lOpenCL -lGL

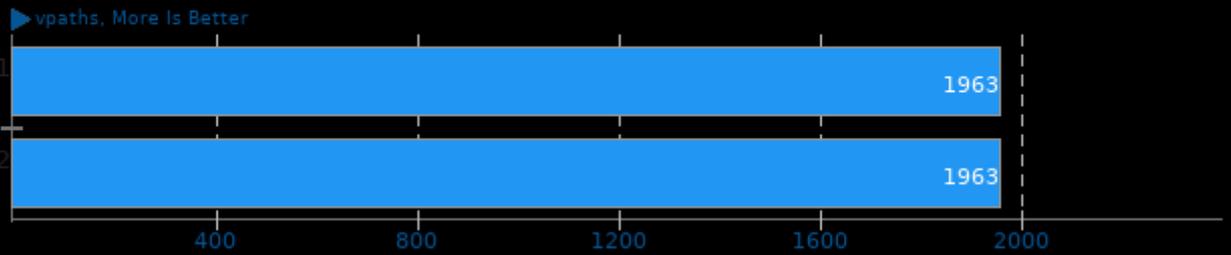
OctaneBench 2020.1

Total Score



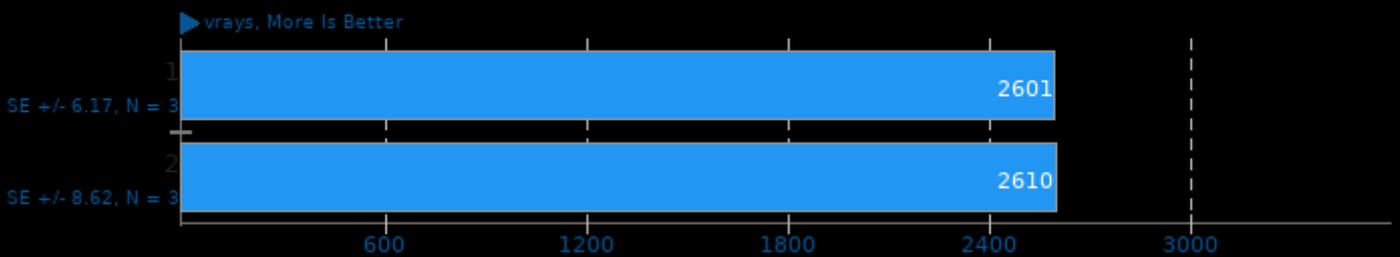
Chaos Group V-RAY 5

Mode: NVIDIA CUDA GPU



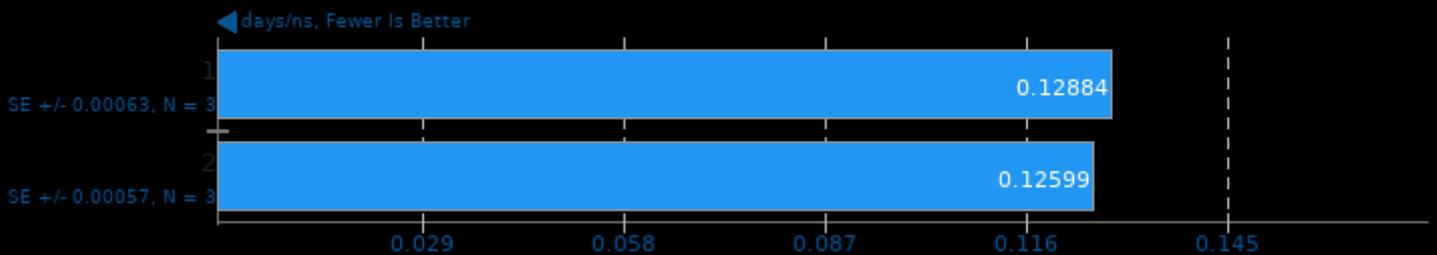
Chaos Group V-RAY 5

Mode: NVIDIA RTX GPU



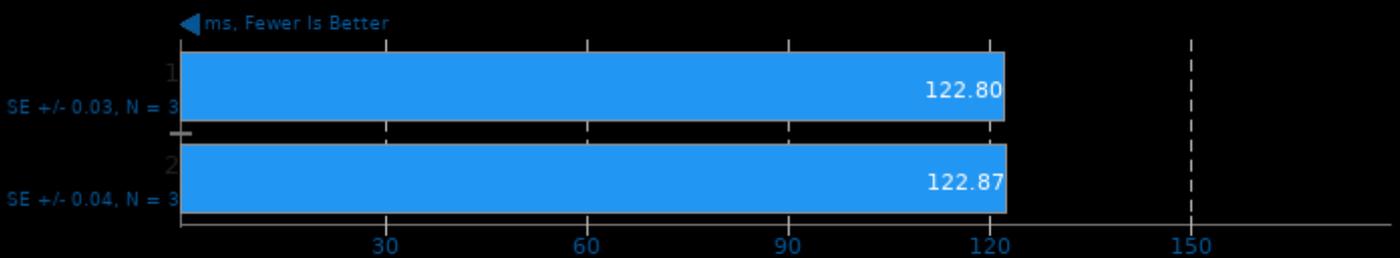
NAMD CUDA 2.14

ATPase Simulation - 327,506 Atoms



VkResample 1.0

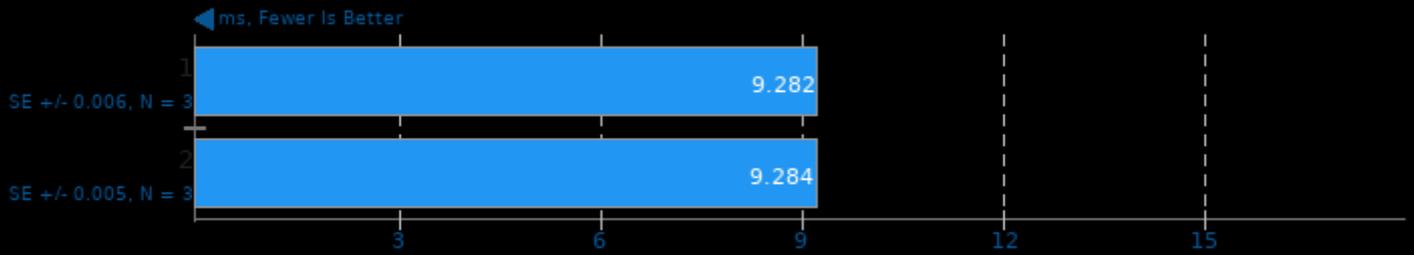
Upscale: 2x - Precision: Double



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

VkResample 1.0

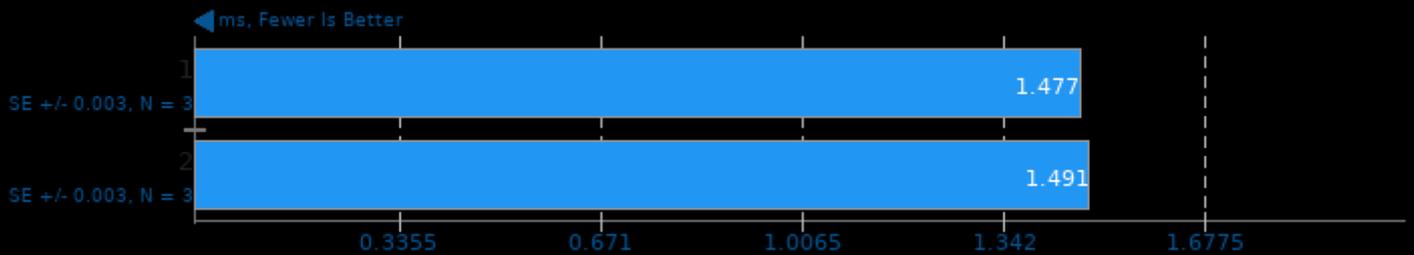
Upscale: 2x - Precision: Single



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

ArrayFire 3.7

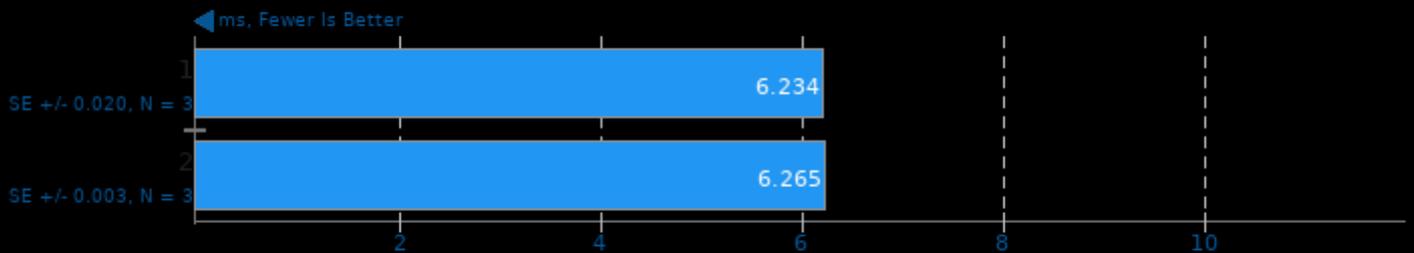
Test: Conjugate Gradient OpenCL



1. (CXX) g++ options: -rdynamic

FinanceBench 2016-07-25

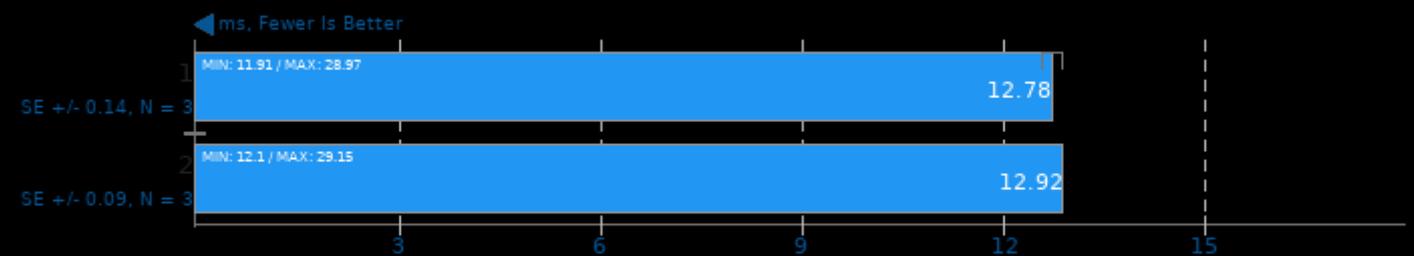
Benchmark: Black-Scholes OpenCL



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

NCNN 20201218

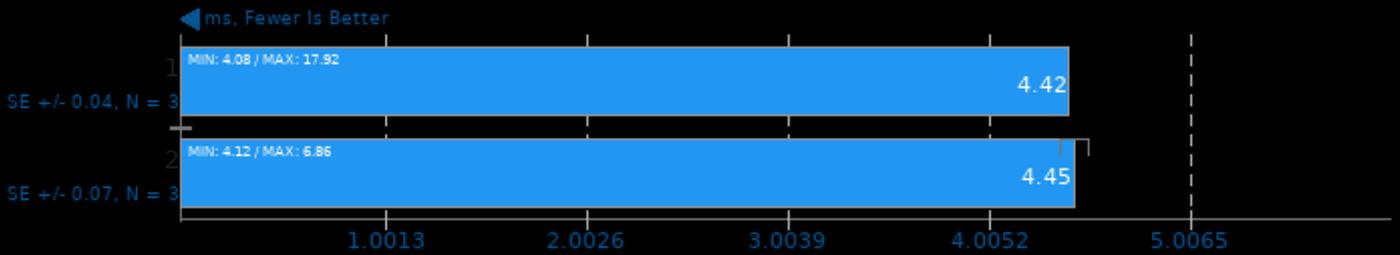
Target: Vulkan GPU - Model: mobilenet



1. (CXX) g++ options: -O3 -rdynamic -lgomp -pthread

NCNN 20201218

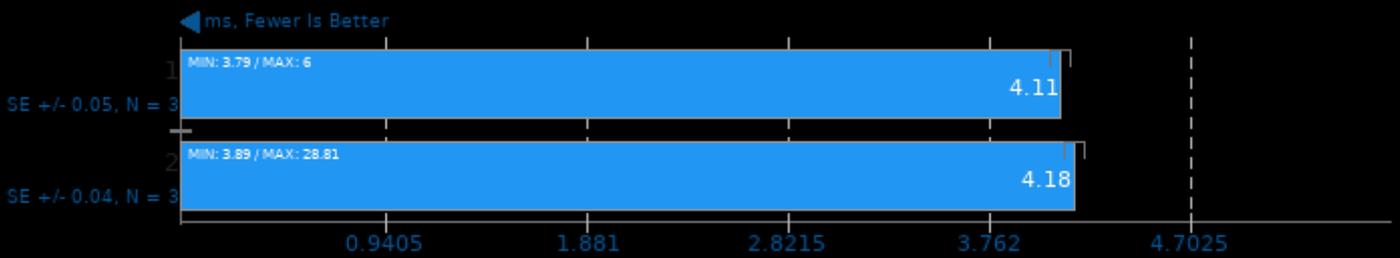
Target: Vulkan GPU-v2-v2 - Model: mobilenet-v2



1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

NCNN 20201218

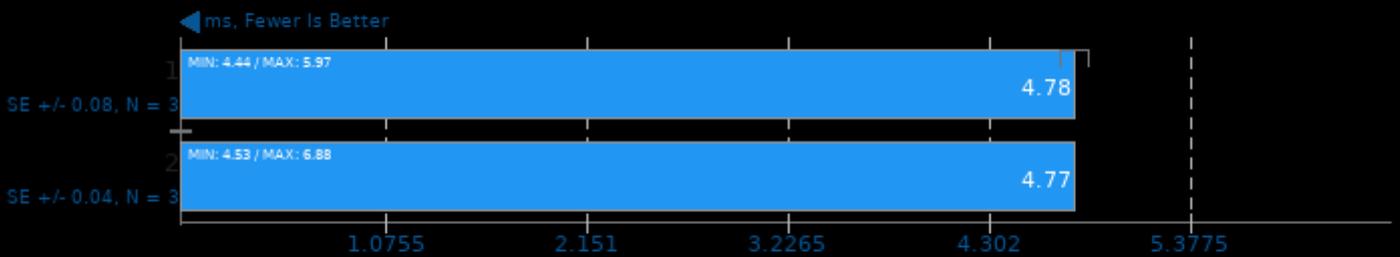
Target: Vulkan GPU-v3-v3 - Model: mobilenet-v3



1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

NCNN 20201218

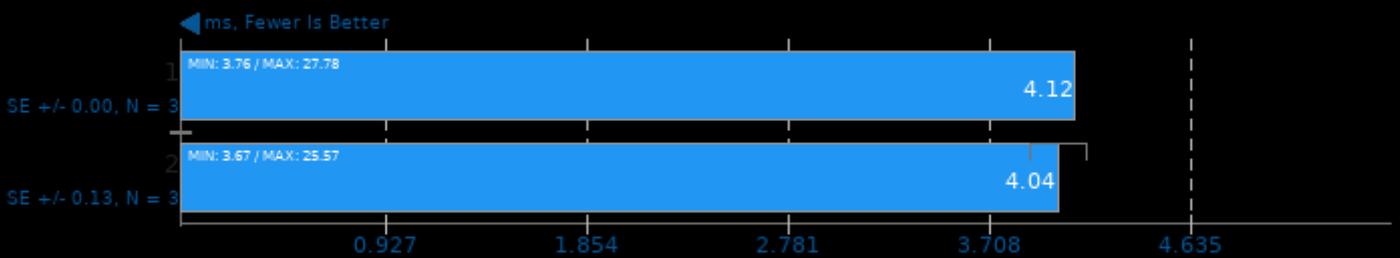
Target: Vulkan GPU - Model: shufflenet-v2



1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

NCNN 20201218

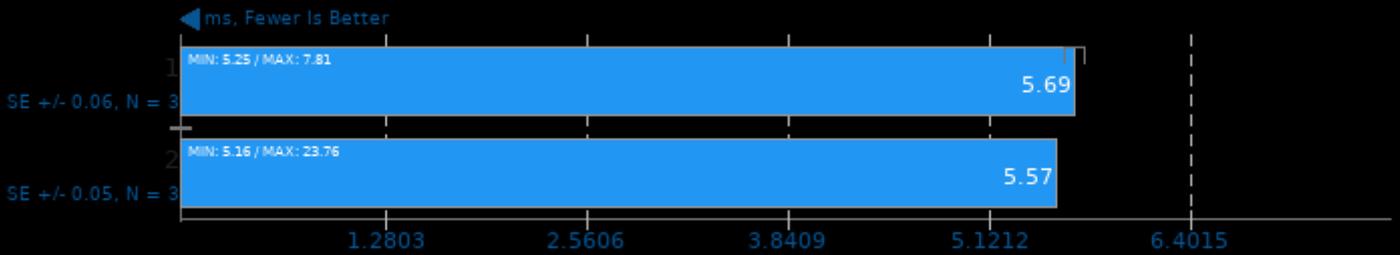
Target: Vulkan GPU - Model: mnasnet



1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

NCNN 20201218

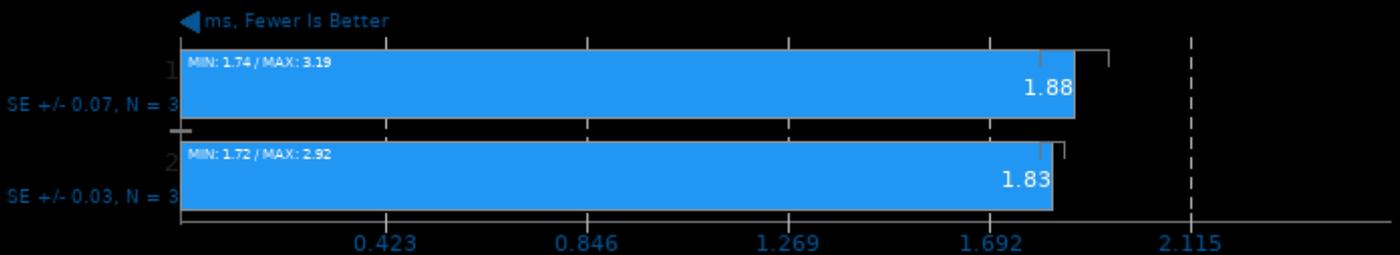
Target: Vulkan GPU - Model: efficientnet-b0



1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

NCNN 20201218

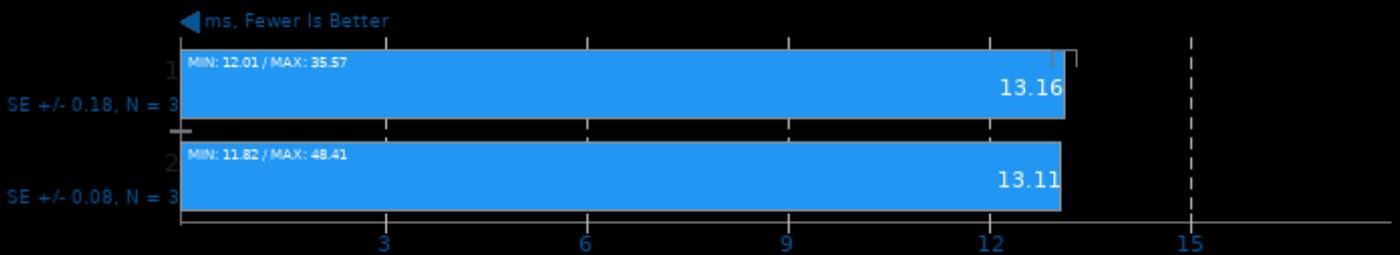
Target: Vulkan GPU - Model: blazeface



1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

NCNN 20201218

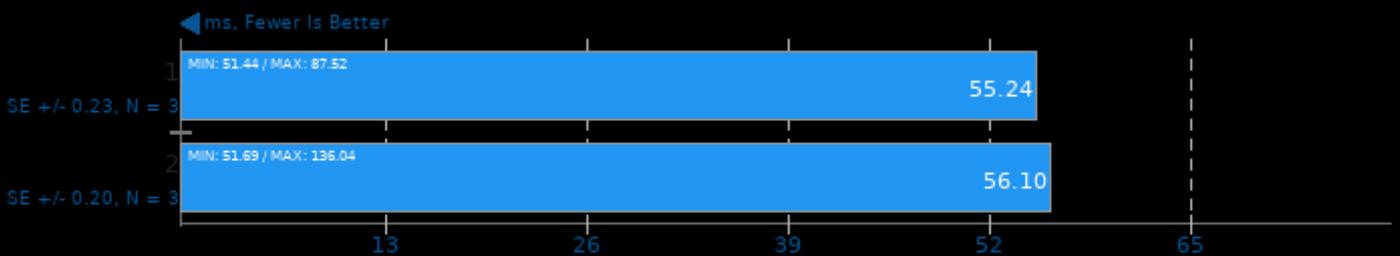
Target: Vulkan GPU - Model: googlenet



1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

NCNN 20201218

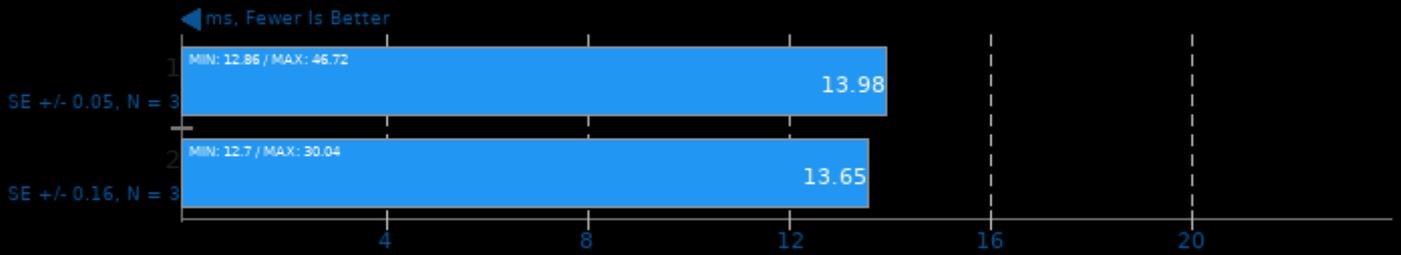
Target: Vulkan GPU - Model: vgg16



1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

NCNN 20201218

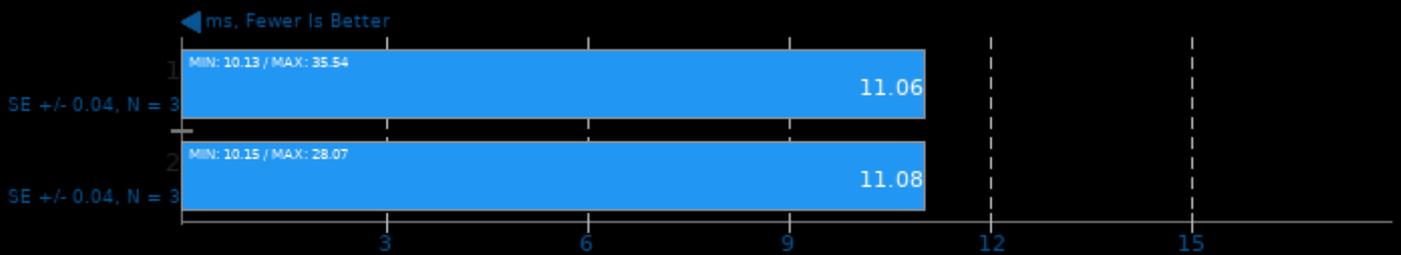
Target: Vulkan GPU - Model: resnet18



1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

NCNN 20201218

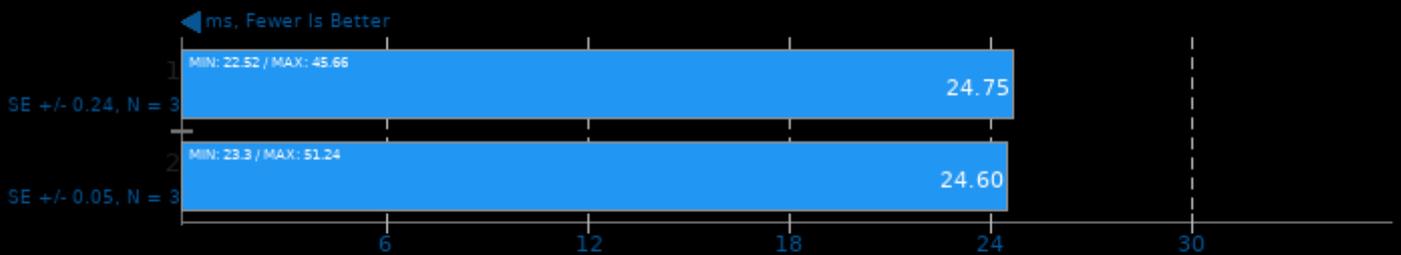
Target: Vulkan GPU - Model: alexnet



1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

NCNN 20201218

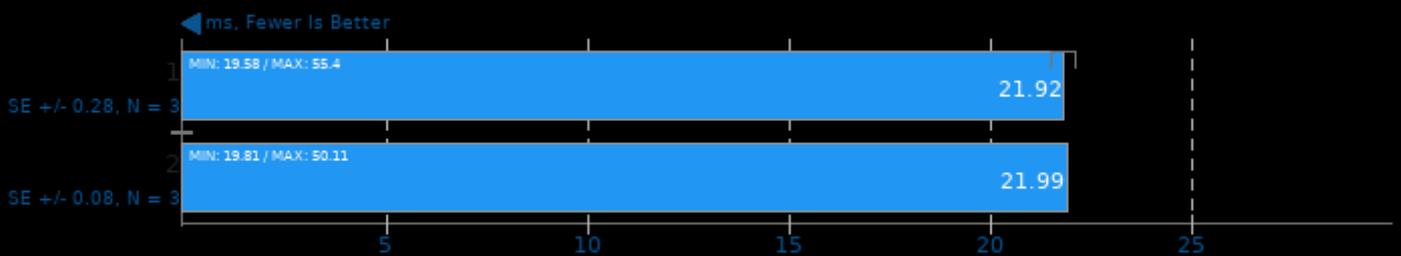
Target: Vulkan GPU - Model: resnet50



1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

NCNN 20201218

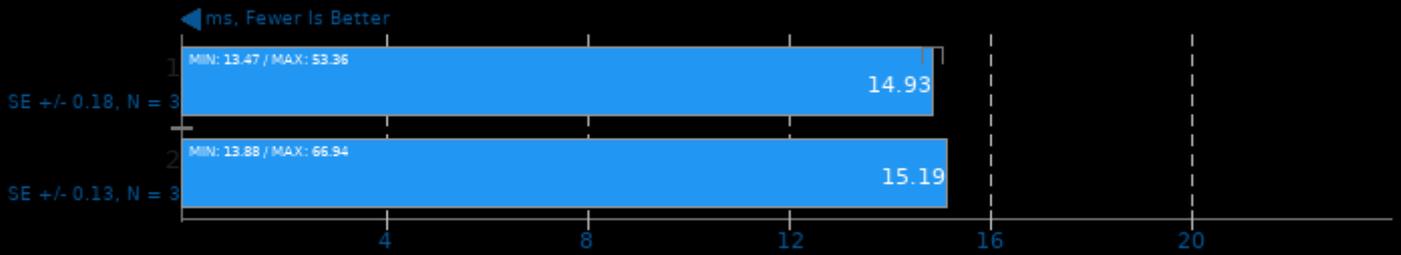
Target: Vulkan GPU - Model: yolov4-tiny



1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

NCNN 20201218

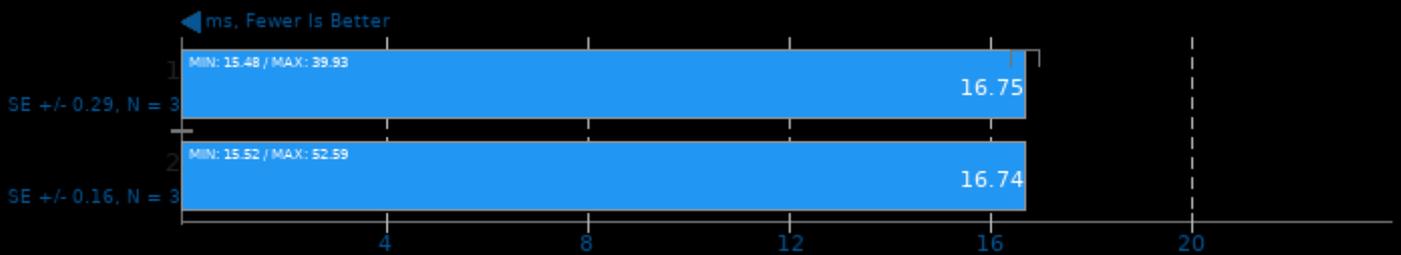
Target: Vulkan GPU - Model: squeezenet_ssd



1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

NCNN 20201218

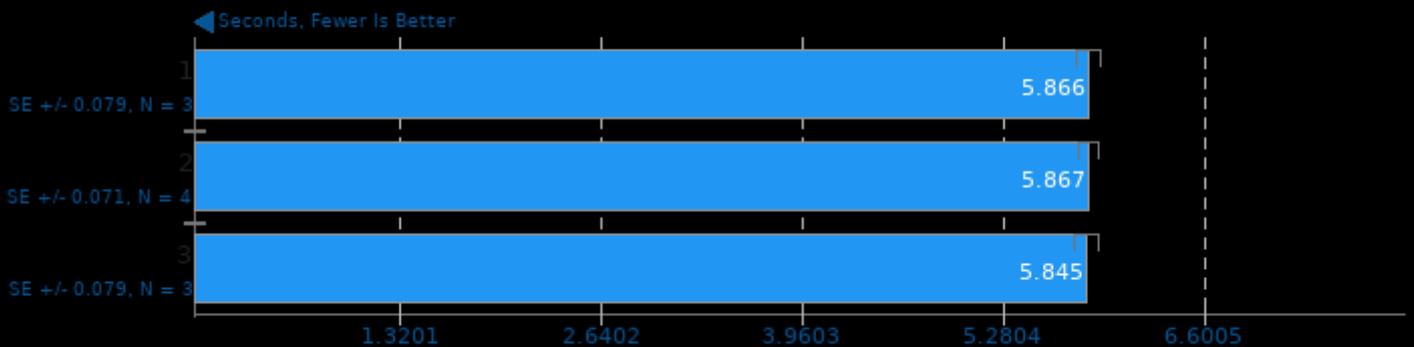
Target: Vulkan GPU - Model: regnety_400m



1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

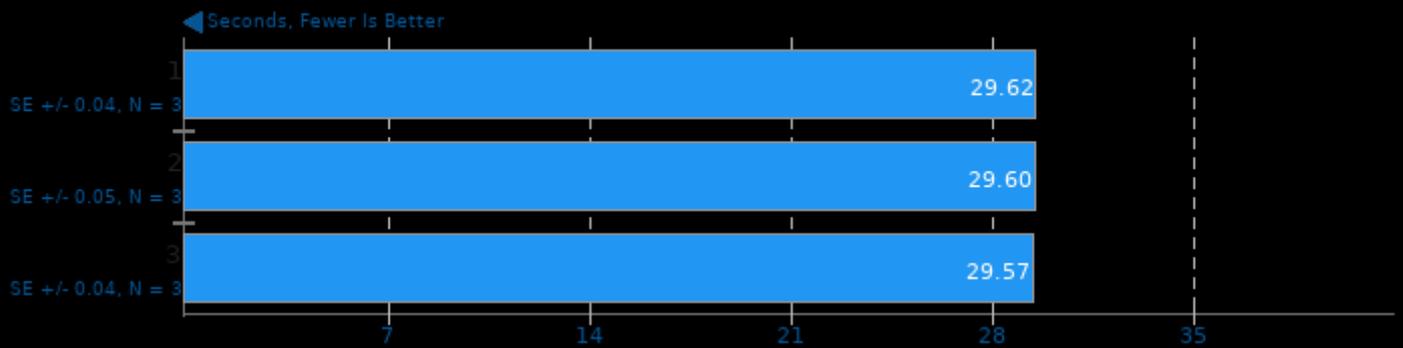
RealSR-NCNN 20200818

Scale: 4x - TAA: No



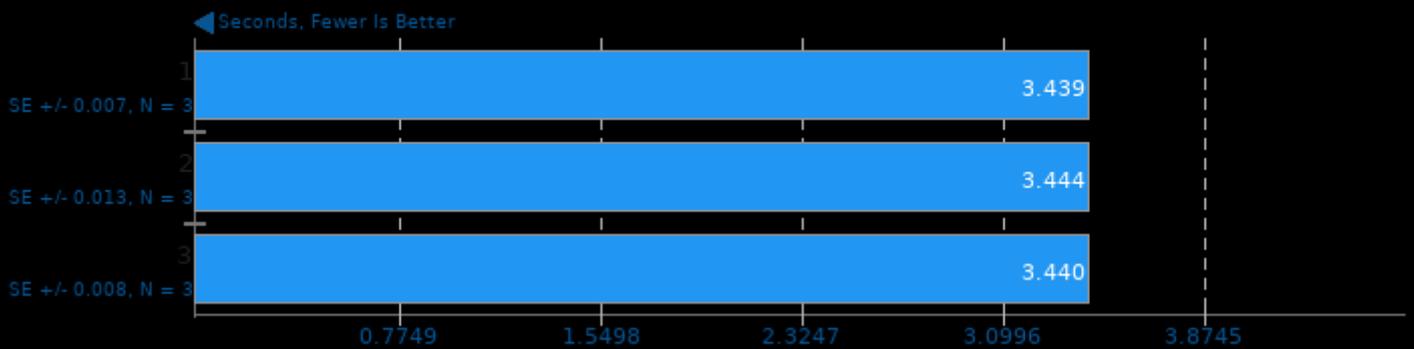
RealSR-NCNN 20200818

Scale: 4x - TAA: Yes



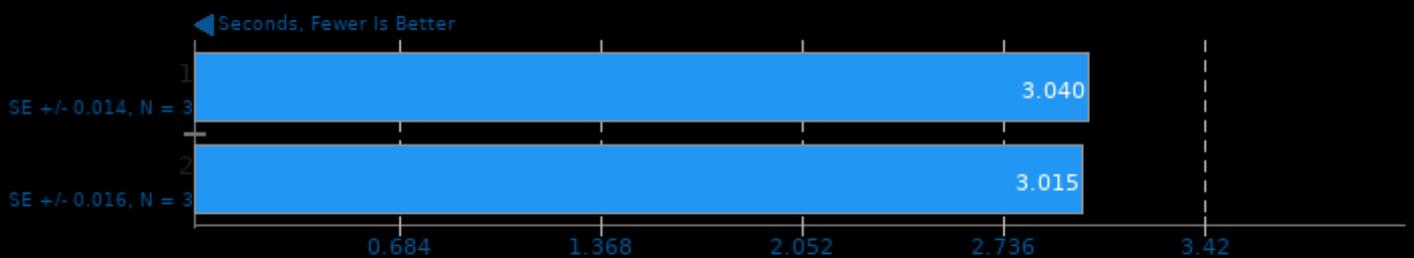
Waifu2x-NCNN Vulkan 20200818

Scale: 2x - Denoise: 3 - TAA: Yes



Betsy GPU Compressor 1.1 Beta

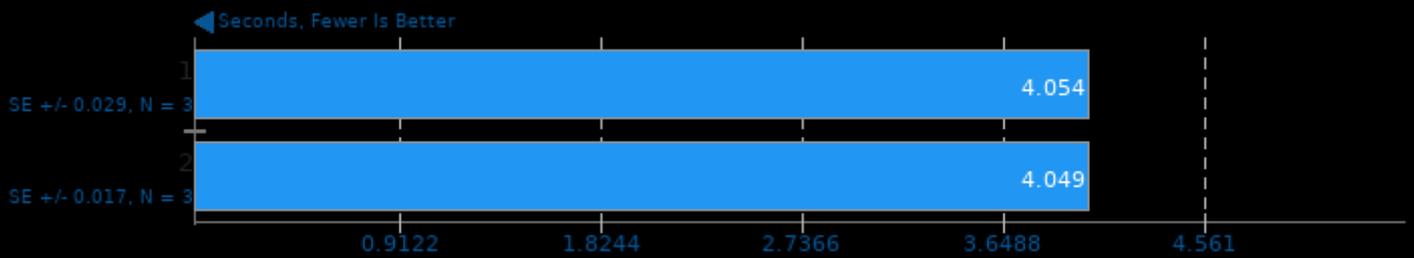
Codec: ETC1 - Quality: Highest



1. (CXX) g++ options: -O3 -O2 -pthread -ldl

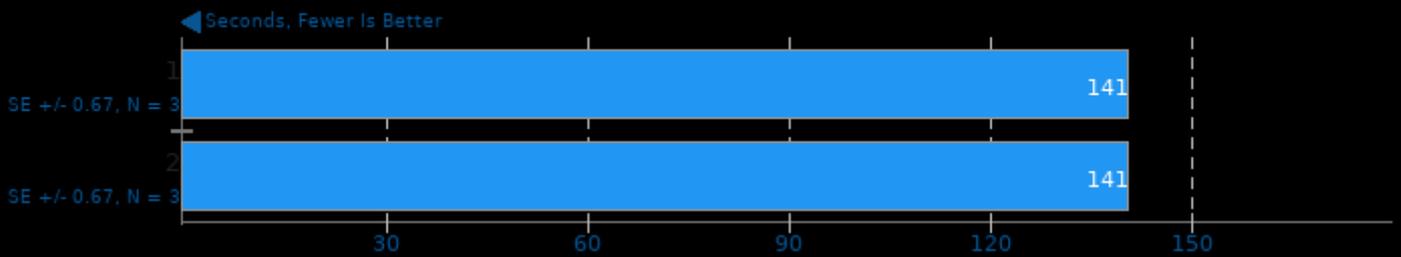
Betsy GPU Compressor 1.1 Beta

Codec: ETC2 RGB - Quality: Highest



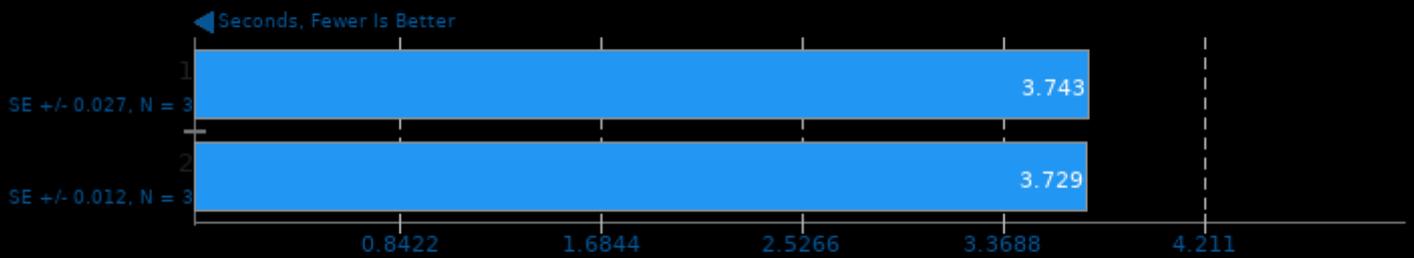
1. (CXX) g++ options: -O3 -O2 -lpthread -ldl

RedShift Demo 3.0



Rodinia 3.1

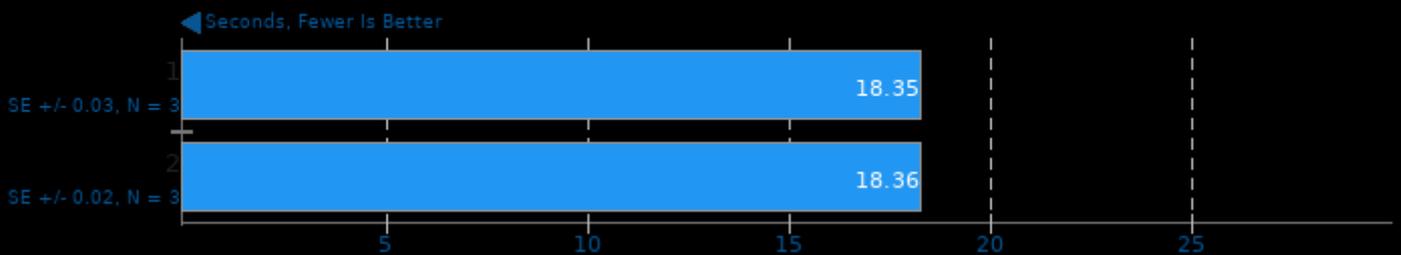
Test: OpenCL Particle Filter



1. (CXX) g++ options: -m64 -lm -lcuda -lcudart -lcudadevrt -lcudart_static -lrt -lpthread -ldl

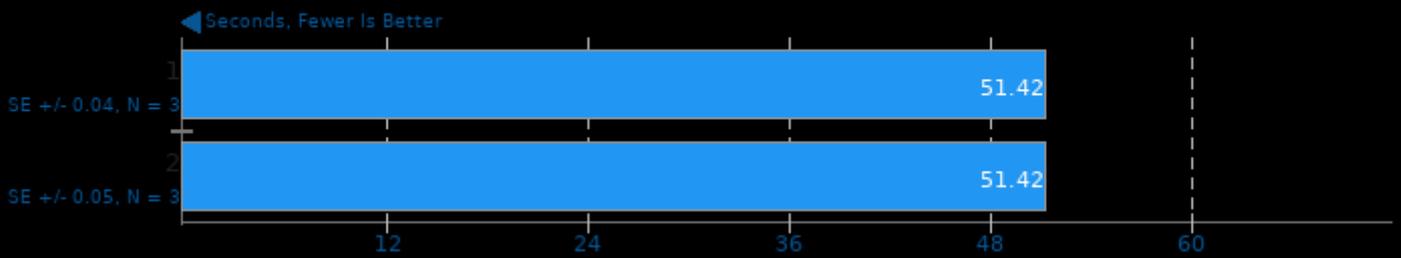
Blender 2.92

Blend File: BMW27 - Compute: CUDA



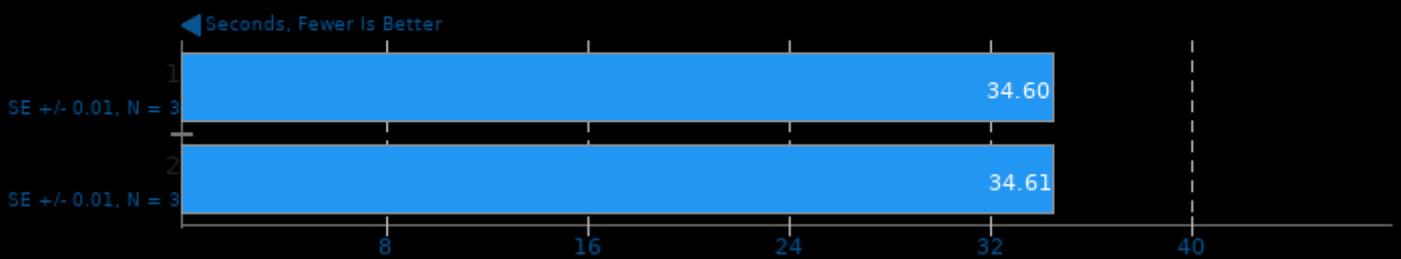
Blender 2.92

Blend File: Classroom - Compute: CUDA



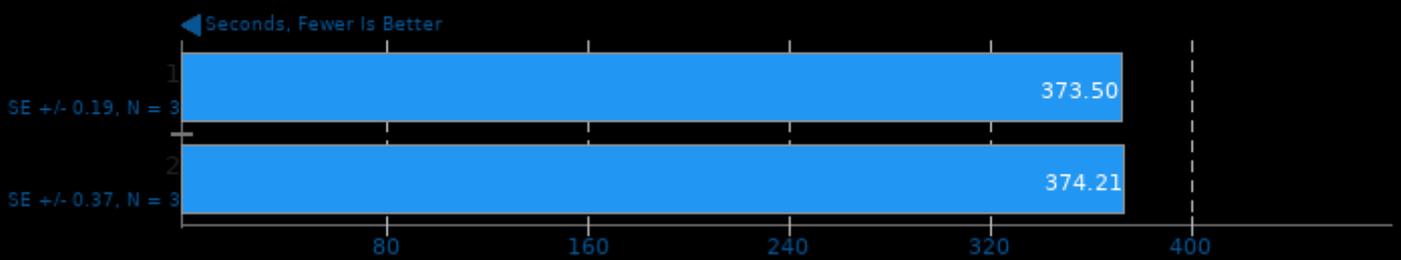
Blender 2.92

Blend File: Fishy Cat - Compute: CUDA



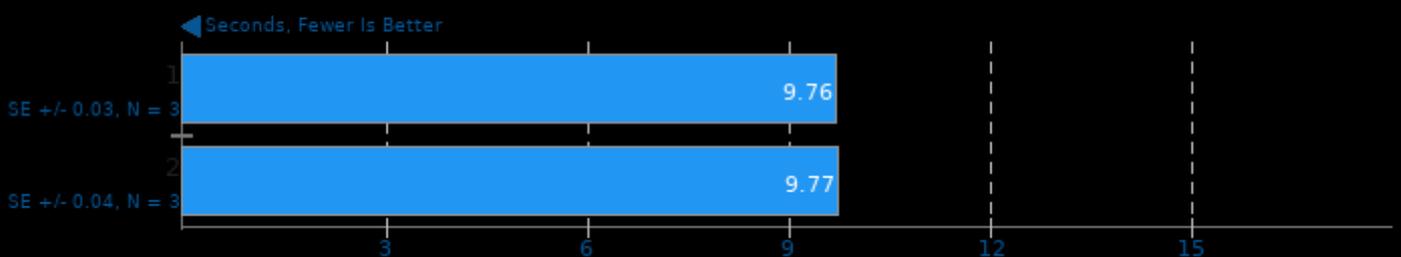
Blender 2.92

Blend File: Barbershop - Compute: CUDA



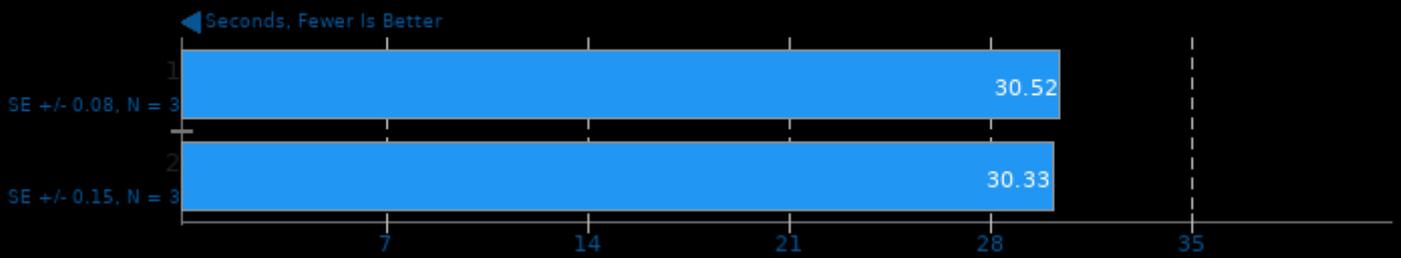
Blender 2.92

Blend File: BMW27 - Compute: NVIDIA OptiX



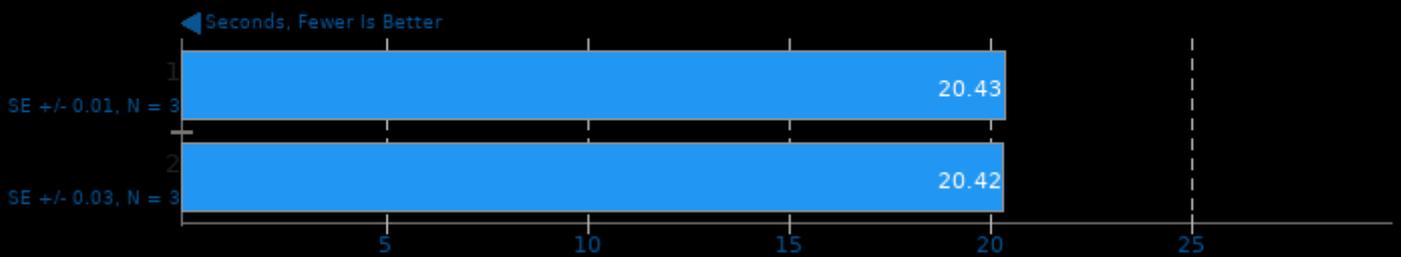
Blender 2.92

Blend File: Classroom - Compute: NVIDIA OptiX



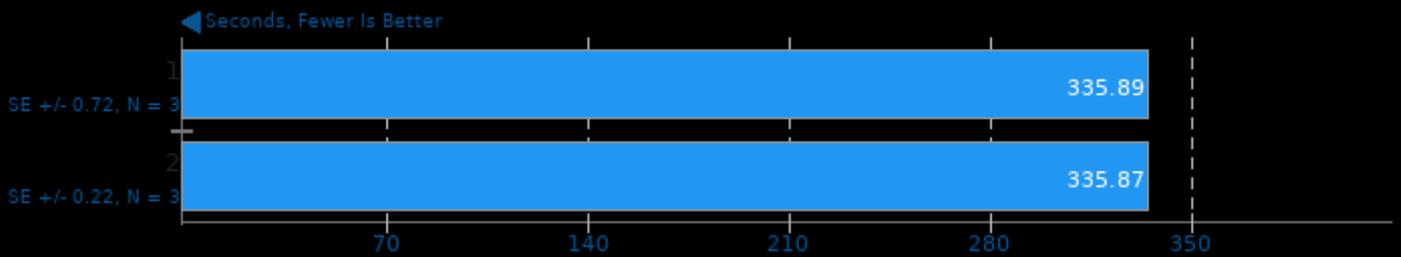
Blender 2.92

Blend File: Fishy Cat - Compute: NVIDIA OptiX



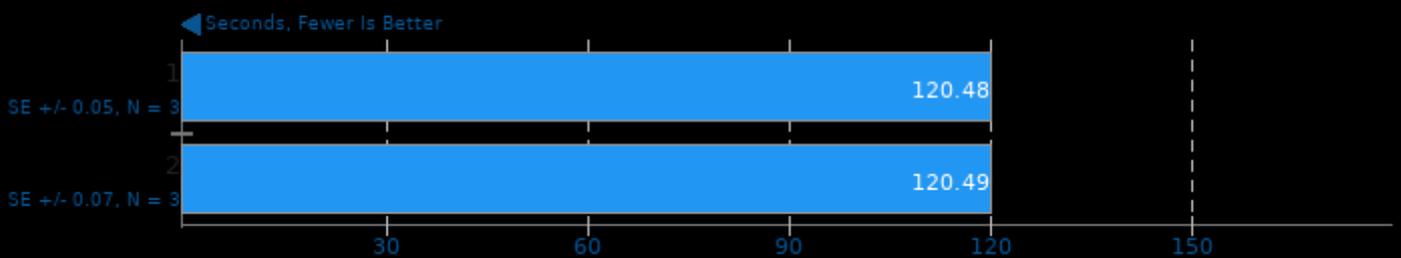
Blender 2.92

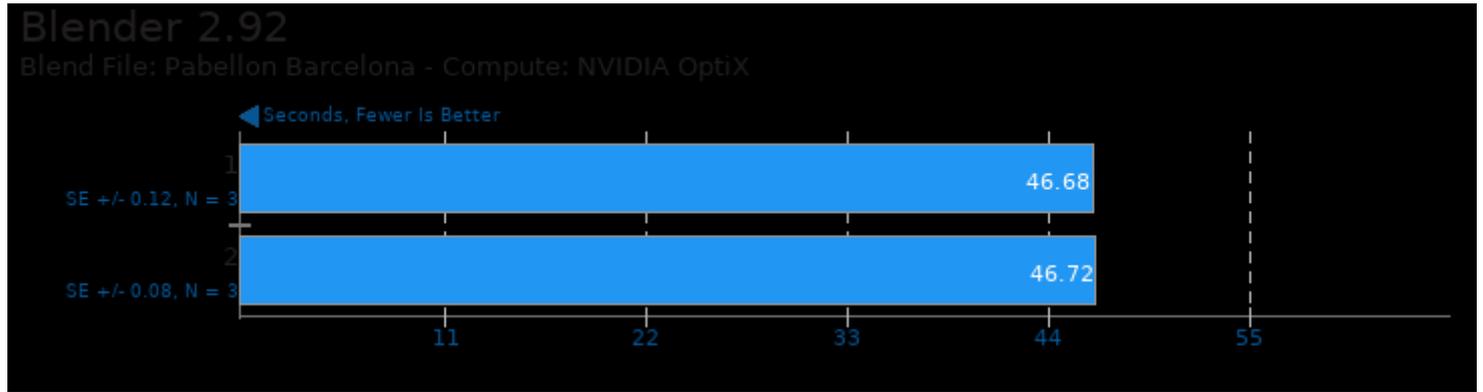
Blend File: Barbershop - Compute: NVIDIA OptiX



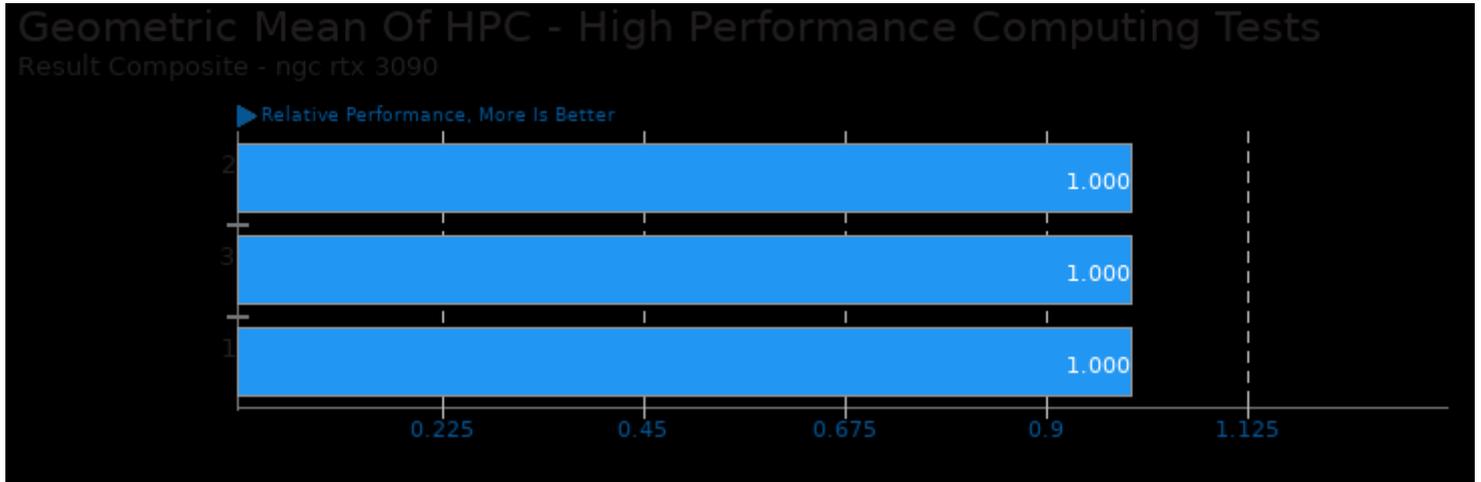
Blender 2.92

Blend File: Pabellon Barcelona - Compute: CUDA

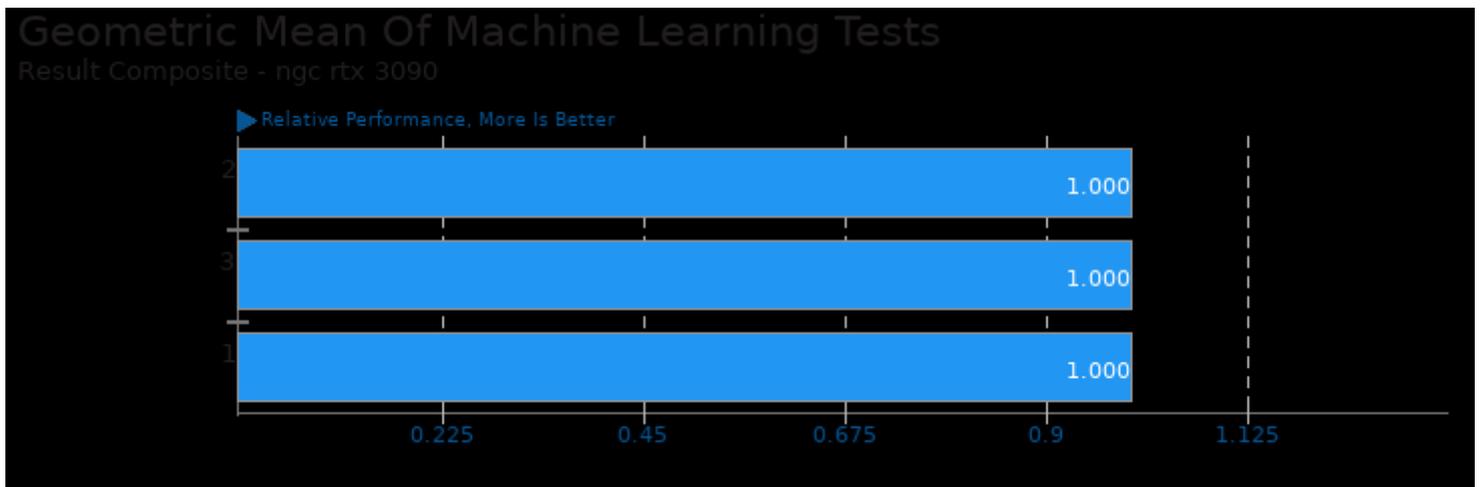




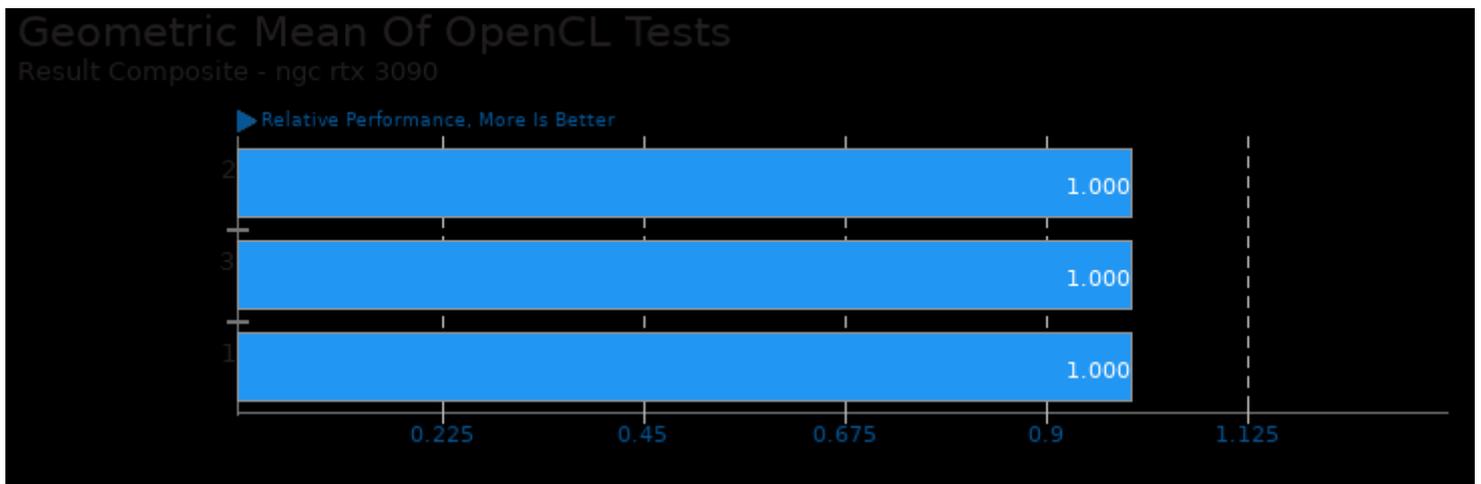
These geometric means are based upon test groupings / test suites for this result file.



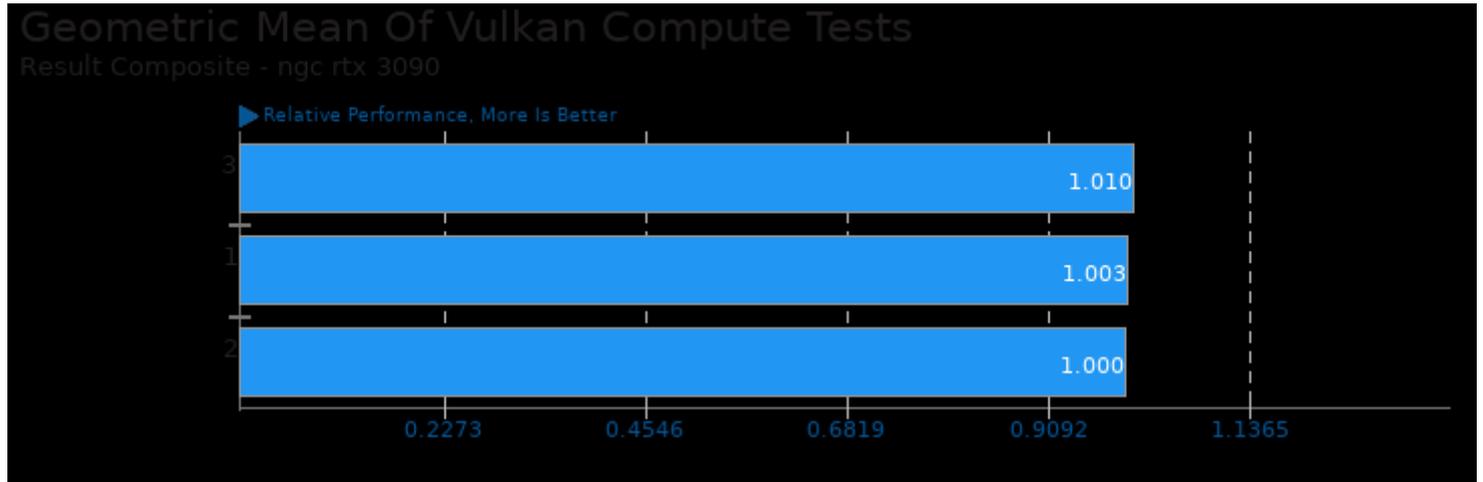
Geometric mean based upon tests: pts/rodinia, pts/arrayfire, pts/ncnn, pts/shoc and pts/lczero



Geometric mean based upon tests: pts/ncnn, pts/shoc and pts/lczero



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



Geometric mean based upon tests: pts/vkfft, pts/vkresample, pts/ncnn, pts/realsr-ncnn, pts/waifu2x-ncnn and pts/betsy

This file was automatically generated via the Phoronix Test Suite benchmarking software on Friday, 29 March 2024 05:55.