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NVIDIA GeForce RTX 3090

AMD Ryzen 9 5950X 16-Core testing with a ASUS ROG CROSSHAIR VIII HERO (WI-FI) (3801 BIOS) and NVIDIA GeForce RTX 3090 24GB on Ubuntu 21.10 via the Phoronix Test Suite.

Automated Executive Summary

NVIDIA 3090 had the most wins, coming in first place for 39% of the tests.

Based on the geometric mean of all complete results, the fastest (NVIDIA RTX 3090) was 1.001x the speed of the slowest (RTX 3090). NVIDIA 3090 was 1x the speed of NVIDIA RTX 3090 and RTX 3090 was 1x the speed of NVIDIA 3090.

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

NCNN (Target: Vulkan GPU-v3-v3 - Model: mobilenet-v3) at 1.415x

NCNN (Target: Vulkan GPU - Model: yolov4-tiny) at 1.106x

Unvanquished (Resolution: 1920 x 1080 - Effects Quality: High) at 1.095x

NCNN (Target: Vulkan GPU - Model: shufflenet-v2) at 1.078x

Rodinia (Test: OpenCL Particle Filter) at 1.06x

cpeak (OpenCL Test: Integer Compute INT) at 1.057x

NCNN (Target: Vulkan GPU - Model: efficientnet-b0) at 1.052x

ViennaCL (Test: CPU BLAS - dGEMM-NT) at 1.047x

VkFFT at 1.038x

ParaView (Test: Wavelet Volume - Resolution: 2560 x 1440) at 1.038x.

Test Systems:

RTX 3090

NVIDIA RTX 3090

NVIDIA 3090

Processor: AMD Ryzen 9 5950X 16-Core @ 3.40GHz (16 Cores / 32 Threads), Motherboard: ASUS ROG CROSSHAIR VIII HERO (WI-FI) (3801 BIOS), Chipset: AMD Starship/Matisse, Memory: 32GB, Disk: 1000GB Sabrent Rocket 4.0 Plus, Graphics: NVIDIA GeForce RTX 3090 24GB, Audio: NVIDIA GA102 HD Audio, Monitor: ASUS MG28U, Network: Realtek RTL8125 2.5GbE + Intel I211 + Intel Wi-Fi 6 AX200

OS: Ubuntu 21.10, Kernel: 5.13.0-22-generic (x86_64), Desktop: GNOME Shell 40.5, Display Server: X Server 1.20.13, Display Driver: NVIDIA 495.44, OpenGL: 4.6.0, OpenCL: OpenCL 3.0 CUDA 11.5.100, Vulkan: 1.2.186, Compiler: GCC 11.2.0 + Clang 13.0.0-2, 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-bootstrap --enable-cet --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-link-serialization=2 --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-11-ZPT0kp/gcc-11-11.2.0/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-11-ZPT0kp/gcc-11-11.2.0/debian/tmp-gcn/usr --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-build-config=bootstrap-lto-lean --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 schedutil (Boost: Enabled) - CPU Microcode: 0xa201016

Graphics Notes: BAR1 / Visible vRAM Size: 32768 MiB

OpenCL Notes: GPU Compute Cores: 10496

Python Notes: Python 3.9.7

Security Notes: i11b_multithit: 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/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Full AMD retrpoline IBPB: conditional IBRS_FW STIBP: always-on RSB filling + srbd: Not affected + tsx_async_abort: Not affected

	RTX 3090	NVIDIA RTX 3090	NVIDIA 3090
VkFFT (Benchmark Score)	45831	44252	44147
Normalized	100%	96.55%	96.33%
Standard Deviation		2.6%	
ParaView - Many Spheres - 1920 x 1080	93.95	94.05	93.79
(Frames / Sec)			
Normalized	99.89%	100%	99.72%
Standard Deviation		0.1%	
ParaView - Many Spheres - 1920 x 1200	93.91	94.28	92.13
(Frames / Sec)			
Normalized	99.61%	100%	97.72%

	Standard Deviation	0.1%	
ParaView - Many Spheres - 2560 x 1440	93.2 (Frames / Sec)	93.33	93.57
	Normalized	99.6%	99.74%
	Standard Deviation	0.1%	100%
ParaView - Many Spheres - 3840 x 2160	91.46 (Frames / Sec)	91.94	92.03
	Normalized	99.38%	99.9%
	Standard Deviation	0.1%	100%
ParaView - Wavelet Volume - 1920 x 1080	679.67 (Frames / Sec)	689.81	696.47
	Normalized	97.59%	99.04%
	Standard Deviation	1.4%	100%
ParaView - Wavelet Volume - 1920 x 1200	634.47 (Frames / Sec)	643.75	656.12
	Normalized	96.7%	98.11%
	Standard Deviation	1.3%	100%
ParaView - Wavelet Volume - 2560 x 1440	559.05 (Frames / Sec)	544.98	565.6
	Normalized	98.84%	96.35%
	Standard Deviation	1%	100%
ParaView - Wavelet Volume - 3840 x 2160	384.84 (Frames / Sec)	376.77	381.69
	Normalized	100%	97.9%
	Standard Deviation	2.4%	99.18%
ParaView - Wavelet Contour - 1920 x 1080	602.09 (Frames / Sec)	595.52	599.52
	Normalized	100%	98.91%
	Standard Deviation	1.5%	99.57%
ParaView - Wavelet Contour - 1920 x 1200	561.32 (Frames / Sec)	563.05	560.03
	Normalized	99.69%	100%
	Standard Deviation	1.6%	99.46%
ParaView - Wavelet Contour - 2560 x 1440	514.93 (Frames / Sec)	515.78	521.09
	Normalized	98.82%	98.98%
	Standard Deviation	0.5%	100%
ParaView - Wavelet Contour - 3840 x 2160	396.74 (Frames / Sec)	390.64	391.63
	Normalized	100%	98.46%
	Standard Deviation	1.3%	98.71%
ET: Legacy - 1920 x 1080 (FPS)	652.3	654.5	659.8
	Normalized	98.86%	99.2%
	Standard Deviation	1%	100%
ET: Legacy - 1920 x 1200 (FPS)	645.3	659.1	657.8
	Normalized	97.91%	100%
	Standard Deviation	0.6%	99.8%
ET: Legacy - 2560 x 1440 (FPS)	640.2	647.6	643.7
	Normalized	98.86%	100%
	Standard Deviation	2.4%	99.4%
ET: Legacy - 3840 x 2160 (FPS)	648.4	638.7	635.5
	Normalized	100%	98.5%
	Standard Deviation	1.6%	98.01%

Unvanquished - 1920 x 1080 - High (FPS)	482	479.0	440
Normalized	100%	99.38%	91.29%
Standard Deviation		0.8%	
Unvanquished - 1920 x 1200 - High (FPS)	464.9	478.3	474.6
Normalized	97.2%	100%	99.23%
Standard Deviation		1.7%	
Unvanquished - 2560 x 1440 - High (FPS)	469	467.6	475.7
Normalized	98.59%	98.3%	100%
Standard Deviation		1.1%	
Unvanquished - 3840 x 2160 - High (FPS)	463.6	471.0	472.9
Normalized	98.03%	99.6%	100%
Standard Deviation		1.3%	
Unvanquished - 1920 x 1080 - Ultra (FPS)	470.8	469.5	474.5
Normalized	99.22%	98.95%	100%
Standard Deviation		0.4%	
Unvanquished - 1920 x 1200 - Ultra (FPS)	463	469.8	471.1
Normalized	98.28%	99.72%	100%
Standard Deviation		2%	
Unvanquished - 2560 x 1440 - Ultra (FPS)	461.7	452.5	466.6
Normalized	98.95%	96.98%	100%
Standard Deviation		10.8%	
Unvanquished - 3840 x 2160 - Ultra (FPS)	456.8	461.2	469.7
Normalized	97.25%	98.19%	100%
Standard Deviation		1.7%	
Unvanquished - 1920 x 1080 - Medium (FPS)	496.1	487.3	491.9
Normalized	100%	98.23%	99.15%
Standard Deviation		1.4%	
Unvanquished - 1920 x 1200 - Medium (FPS)	473.6	488.5	484
Normalized	96.95%	100%	99.08%
Standard Deviation		0.7%	
Unvanquished - 2560 x 1440 - Medium (FPS)	492.5	488.5	481.2
Normalized	100%	99.19%	97.71%
Standard Deviation		1.3%	
Unvanquished - 3840 x 2160 - Medium (FPS)	490.1	485.6	483
Normalized	100%	99.08%	98.55%
Standard Deviation		0.8%	
Warow - 1920 x 1080 (FPS)	984.3	975.5	984.8
Normalized	99.95%	99.06%	100%
Standard Deviation		1%	
Warow - 1920 x 1200 (FPS)	984.8	980.3	984.9
Normalized	99.99%	99.53%	100%
Standard Deviation		1%	
Warow - 2560 x 1440 (FPS)	984.7	985.7	985.5
Normalized	99.9%	100%	99.98%
Standard Deviation		0.1%	
Warow - 3840 x 2160 (FPS)	960.8	980.7	978.6
Normalized	97.97%	100%	99.79%
Standard Deviation		0.1%	
Xonotic - 3840 x 2160 - Low (FPS)	655.142588	659.9059394	645.8515908
Normalized	99.28%	100%	97.87%
Standard Deviation		0.1%	
Xonotic - 3840 x 2160 - High (FPS)	556.9297001	567.7214300	566.1228693
Normalized	98.1%	100%	99.72%
Standard Deviation		0.6%	
Xonotic - 3840 x 2160 - Ultra (FPS)	499.2632615	492.4660277	490.2778714

	Normalized	100%	98.64%	98.2%
	Standard Deviation		0.4%	
Xonotic - 3840 x 2160 - Ultimate (FPS)	374.4286255		369.9242194	367.1052632
	Normalized	100%	98.8%	98.04%
	Standard Deviation		0.7%	
SHOC Scalable Heterogeneous Computing - OpenCL - Triad (GB/s)	25.4781		25.4840	25.4505
	Normalized	99.98%	100%	99.87%
	Standard Deviation		0%	
SHOC Scalable Heterogeneous Computing - OpenCL - Reduction (GB/s)	391.209		391.573	392.03
	Normalized	99.79%	99.88%	100%
	Standard Deviation		0.1%	
SHOC Scalable Heterogeneous Computing - OpenCL - Bus Speed Download (GB/s)	26.3342		26.3282	26.3202
	Normalized	100%	99.98%	99.95%
	Standard Deviation		0.1%	
SHOC Scalable Heterogeneous Computing - OpenCL - Bus Speed Readback (GB/s)	27.1252		27.1252	27.0904
	Normalized	100%	100%	99.87%
	Standard Deviation		0%	
SHOC Scalable Heterogeneous Computing - OpenCL - T.R.B (GB/s)	2246		2240	2245
	Normalized	100%	99.73%	99.96%
	Standard Deviation		0.2%	
cl-mem - Copy (GB/s)	364.1		364.2	362.8
	Normalized	99.97%	100%	99.62%
	Standard Deviation		0.1%	
cl-mem - Read (GB/s)	794.6		794.3	795.2
	Normalized	99.92%	99.89%	100%
	Standard Deviation		0.2%	
cl-mem - Write (GB/s)	743.1		744.7	742.8
	Normalized	99.79%	100%	99.74%
	Standard Deviation		0.1%	
ViennaCL - CPU BLAS - sCOPY (GB/s)	66.1		65.5	65.3
	Normalized	100%	99.09%	98.79%
	Standard Deviation		0.2%	
ViennaCL - CPU BLAS - sAXPY (GB/s)	99.6		98.2	98.3
	Normalized	100%	98.59%	98.69%
	Standard Deviation		1.2%	
ViennaCL - CPU BLAS - sDOT (GB/s)	140		137	137
	Normalized	100%	97.86%	97.86%
	Standard Deviation		0.8%	
ViennaCL - CPU BLAS - dCOPY (GB/s)	23.3		23.2	23.2
	Normalized	100%	99.57%	99.57%
	Standard Deviation		0%	
ViennaCL - CPU BLAS - dAXPY (GB/s)	34.9		34.7	34.3
	Normalized	100%	99.43%	98.28%
	Standard Deviation		0%	
ViennaCL - CPU BLAS - dDOT (GB/s)	42.4		41.6	42.2
	Normalized	100%	98.11%	99.53%
	Standard Deviation		1.7%	
ViennaCL - CPU BLAS - dGEMV-N (GB/s)	68.1		67.1	67.5
	Normalized	100%	98.53%	99.12%
	Standard Deviation		0.4%	

ViennaCL - CPU BLAS - dGEMV-T (GB/s)	76.1	75.5	75.4
Normalized	100%	99.21%	99.08%
Standard Deviation		0.8%	
ViennaCL - OpenCL BLAS - sCOPY (GB/s)	368	364	364
Normalized	100%	98.91%	98.91%
Standard Deviation		0.4%	
ViennaCL - OpenCL BLAS - sAXPY (GB/s)	503	501	500
Normalized	100%	99.6%	99.4%
Standard Deviation		0.1%	
ViennaCL - OpenCL BLAS - sDOT (GB/s)	375	371	371
Normalized	100%	98.93%	98.93%
Standard Deviation		0.3%	
ViennaCL - OpenCL BLAS - dCOPY (GB/s)	606	605	608
Normalized	99.67%	99.51%	100%
Standard Deviation		0.1%	
ViennaCL - OpenCL BLAS - dAXPY (GB/s)	722	722	723
Normalized	99.86%	99.86%	100%
Standard Deviation		0%	
ViennaCL - OpenCL BLAS - dDOT (GB/s)	660	657	637
Normalized	100%	99.55%	96.52%
Standard Deviation		0.2%	
ViennaCL - OpenCL BLAS - dGEMV-N (GB/s)	239	240	237
Normalized	99.58%	100%	98.75%
Standard Deviation		0.2%	
ViennaCL - OpenCL BLAS - dGEMV-T (GB/s)	377	377	377
Standard Deviation		0.2%	
clpeak - G.M.B (GBPS)	813.42	813.45	813.47
Normalized	99.99%	100%	100%
Standard Deviation		0%	
vkpeak - fp32-scalar (GFLOPS)	20928	20827	20960
Normalized	99.85%	99.36%	100%
Standard Deviation		0.5%	
vkpeak - fp32-vec4 (GFLOPS)	27807	27458	27807
Normalized	100%	98.75%	100%
Standard Deviation		0.4%	
vkpeak - fp16-scalar (GFLOPS)	20950	20717	20954
Normalized	99.98%	98.87%	100%
Standard Deviation		0.4%	
vkpeak - fp16-vec4 (GFLOPS)	41185	40926	41497
Normalized	99.25%	98.63%	100%
Standard Deviation		0.2%	
vkpeak - fp64-scalar (GFLOPS)	653.61	649.53	658.5
Normalized	99.26%	98.64%	100%
Standard Deviation		0.2%	
SHOC Scalable Heterogeneous Computing - OpenCL - S3D (GFLOPS)	429.082	430.347	430.279
Normalized	99.71%	100%	99.98%
Standard Deviation		0.1%	
SHOC Scalable Heterogeneous Computing - OpenCL - FFT SP (GFLOPS)	2101	2101	2102
Normalized	99.94%	99.96%	100%
Standard Deviation		0%	

SHOC Scalable Heterogeneous Computing -	8102	8337	8098
OpenCL - GEMM SGEMM_N (GFLOPS)			
Normalized	97.19%	100%	97.14%
Standard Deviation		1.4%	
SHOC Scalable Heterogeneous Computing -	40754	40239	40566
OpenCL - Max SP Flops (GFLOPS)			
Normalized	100%	98.74%	99.54%
Standard Deviation		1.3%	
clpeak - S.P.F (GFLOPS)	35227	35137	35225
Normalized	100%	99.74%	99.99%
Standard Deviation		0.4%	
clpeak - D.P.D (GFLOPS)	658.16	657.71	658.16
Normalized	100%	99.93%	100%
Standard Deviation		0%	
vkpeak - fp64-vec4 (GFLOPS)		651.17	658.51
Normalized		98.89%	100%
Standard Deviation		0.4%	
ViennaCL - CPU BLAS - dGEMM-NN	81.5	81.9	82.6
(GFLOPs/s)			
Normalized	98.67%	99.15%	100%
Standard Deviation		0.4%	
ViennaCL - CPU BLAS - dGEMM-NT	88.4	84.4	86.8
(GFLOPs/s)			
Normalized	100%	95.48%	98.19%
Standard Deviation		0.2%	
ViennaCL - CPU BLAS - dGEMM-TN	93.8	92.5	92.8
(GFLOPs/s)			
Normalized	100%	98.61%	98.93%
Standard Deviation		0.6%	
ViennaCL - CPU BLAS - dGEMM-TT	91.9	90.7	90.8
(GFLOPs/s)			
Normalized	100%	98.69%	98.8%
Standard Deviation		0.5%	
ViennaCL - OpenCL BLAS - dGEMM-NN	601	600	604
(GFLOPs/s)			
Normalized	99.5%	99.34%	100%
ViennaCL - OpenCL BLAS - dGEMM-NT	604	605	606
(GFLOPs/s)			
Normalized	99.67%	99.83%	100%
Standard Deviation		0.5%	
ViennaCL - OpenCL BLAS - dGEMM-TN	599	601	602
(GFLOPs/s)			
Normalized	99.5%	99.83%	100%
Standard Deviation		0.4%	
ViennaCL - OpenCL BLAS - dGEMM-TT	602	601	605
(GFLOPs/s)			
Normalized	99.5%	99.34%	100%
SHOC Scalable Heterogeneous Computing -	44.1932	44.5453	44.5358
OpenCL - MD5 Hash (GHash/s)			
Normalized	99.21%	100%	99.98%
Standard Deviation		0%	
vkpeak - int32-scalar (GIOPS)	20769	20690	20925
Normalized	99.26%	98.88%	100%

	Standard Deviation		0.4%
vkpeak - int32-vec4 (GIGOPS)	20672	20595	20672
Normalized	100%	99.63%	100%
	Standard Deviation	0.4%	
vkpeak - int16-scalar (GIGOPS)	13709	13657	13709
Normalized	99.99%	99.62%	100%
	Standard Deviation	0.4%	
vkpeak - int16-vec4 (GIGOPS)	16886	16880	17012
Normalized	99.26%	99.22%	100%
	Standard Deviation	0%	
clpeak - I.C.I (GIGOPS)	17725	18044	18743
Normalized	94.57%	96.27%	100%
	Standard Deviation	1.1%	
Hashcat - MD5 (H/s)	71446900000	71411366667	71436200000
Normalized	100%	99.95%	99.99%
	Standard Deviation	0.2%	
Hashcat - SHA1 (H/s)	22599300000	22678500000	22813100000
Normalized	99.06%	99.41%	100%
	Standard Deviation	0.2%	
Hashcat - 7-Zip (H/s)	1138500	1140100	1141500
Normalized	99.74%	99.88%	100%
	Standard Deviation	0.6%	
Hashcat - SHA-512 (H/s)	2887000000	2884666667	2892900000
Normalized	99.8%	99.72%	100%
	Standard Deviation	0.1%	
Hashcat - T.R.X (H/s)	846100	825633	816300
Normalized	100%	97.58%	96.48%
	Standard Deviation	0.9%	
IndigoBench - OpenCL GPU - Bedroom (M samples/s)	20.961	20.951	20.943
Normalized	100%	99.95%	99.91%
	Standard Deviation	0.1%	
IndigoBench - OpenCL GPU - Supercar (M samples/s)	53.438	53.500	53.6
Normalized	99.7%	99.81%	100%
	Standard Deviation	0.1%	
LuxCoreRender - DLSC - GPU (M samples/sec)		11.57	11.61
Normalized		99.66%	100%
	Standard Deviation	0.4%	
LuxCoreRender - Danish Mood - GPU (M samples/sec)	9.18	9.20	9.01
Normalized	99.78%	100%	97.93%
	Standard Deviation	1.6%	
LuxCoreRender - Orange Juice - GPU (M samples/sec)	10.45	10.41	10.43
Normalized	100%	99.62%	99.81%
	Standard Deviation	1.6%	
LuxCoreRender - LuxCore Benchmark - GPU (M samples/sec)		11.20	11.22
Normalized		99.82%	100%
	Standard Deviation	0.2%	
LuxCoreRender - R.C.a.P - GPU (M samples/sec)	32.33	32.60	32.25
Normalized	99.17%	100%	98.93%

	Standard Deviation		
ParaView - Many Spheres - 1920 x 1080	9419	1.1%	
(MiPolys / Sec)		9430	9403
Normalized	99.89%	100%	99.71%
	Standard Deviation	0.1%	
ParaView - Many Spheres - 1920 x 1200	9415	9452	9237
(MiPolys / Sec)			
Normalized	99.61%	100%	97.72%
	Standard Deviation	0.1%	
ParaView - Many Spheres - 2560 x 1440	9344	9357	9381
(MiPolys / Sec)			
Normalized	99.6%	99.74%	100%
	Standard Deviation	0.1%	
ParaView - Many Spheres - 3840 x 2160	9170	9217	9227
(MiPolys / Sec)			
Normalized	99.38%	99.9%	100%
	Standard Deviation	0.1%	
ParaView - Wavelet Contour - 1920 x 1080	6275	6206	6248
(MiPolys / Sec)			
Normalized	100%	98.91%	99.57%
	Standard Deviation	1.5%	
ParaView - Wavelet Contour - 1920 x 1200	5850	5868	5836
(MiPolys / Sec)			
Normalized	99.69%	100%	99.46%
	Standard Deviation	1.6%	
ParaView - Wavelet Contour - 2560 x 1440	5366	5375	5430
(MiPolys / Sec)			
Normalized	98.82%	98.98%	100%
	Standard Deviation	0.5%	
ParaView - Wavelet Contour - 3840 x 2160	4134	4071	4081
(MiPolys / Sec)			
Normalized	100%	98.46%	98.71%
	Standard Deviation	1.3%	
ParaView - Wavelet Volume - 1920 x 1080	10875	11037	11143
(MiVoxels / Sec)			
Normalized	97.59%	99.04%	100%
	Standard Deviation	1.4%	
ParaView - Wavelet Volume - 1920 x 1200	10151	10300	10498
(MiVoxels / Sec)			
Normalized	96.7%	98.12%	100%
	Standard Deviation	1.3%	
ParaView - Wavelet Volume - 2560 x 1440	8945	8720	9050
(MiVoxels / Sec)			
Normalized	98.84%	96.36%	100%
	Standard Deviation	1%	
ParaView - Wavelet Volume - 3840 x 2160	6157	6028	6107
(MiVoxels / Sec)			
Normalized	100%	97.91%	99.18%
	Standard Deviation	2.4%	
LeelaChessZero - OpenCL (Nodes/s)	22739	22711	23029
	Normalized	98.74%	
	Standard Deviation	0.8%	
FAHBench (Ns/Day)	353.8915	353.3272	354.4623

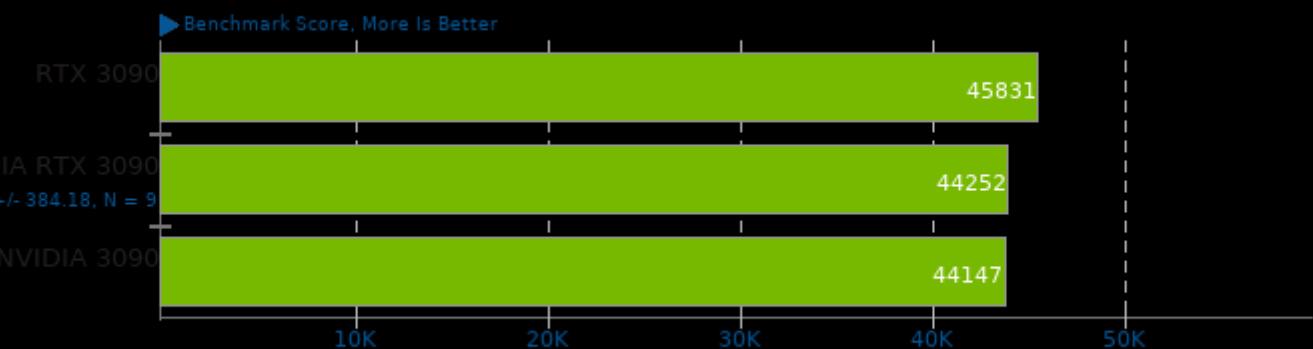
NVIDIA GeForce RTX 3090

	Normalized	99.84%	99.68%	100%
	Standard Deviation	0.2%		
MandelGPU - GPU (Samples/sec)	481322760	475794832	472928215	
	Normalized	100%	98.85%	98.26%
	Standard Deviation	0.6%		
OctaneBench - Total Score (Score)	686.231258	685.109656	681.126108	
	Normalized	100%	99.84%	99.26%
Chaos Group V-RAY - NVIDIA CUDA GPU (vpaths)	2119	2112	2115	
	Normalized	100%	99.67%	99.81%
	Standard Deviation	0%		
Chaos Group V-RAY - NVIDIA RTX GPU (vrays)	2856	2856	2829	
	Normalized	100%	100%	99.05%
	Standard Deviation	0.7%		
NAMD CUDA - ATPase Simulation - 327,506 Atoms (days/ns)	0.12792	0.12912	0.12779	
	Normalized	99.9%	98.97%	100%
	Standard Deviation	0.6%		
VkResample - 2x - Double (ms)	117.817	118.517	119.073	
	Normalized	100%	99.41%	98.95%
	Standard Deviation	0.1%		
VkResample - 2x - Single (ms)	9.272	9.292	9.291	
	Normalized	100%	99.78%	99.8%
	Standard Deviation	0.1%		
ArrayFire - C.G.O (ms)	1.47	1.470	1.485	
	Normalized	100%	100%	98.99%
	Standard Deviation	0.6%		
FinanceBench - B.S.O (ms)	6.259	6.258	6.256	
	Normalized	99.95%	99.97%	100%
	Standard Deviation	0.1%		
NCNN - Vulkan GPU - mobilenet (ms)	4.28	4.22	4.23	
	Normalized	98.6%	100%	99.76%
	Standard Deviation	0.5%		
NCNN - Vulkan GPU-v2-v2 - mobilenet-v2	1.98	1.97	1.97	
	Normalized	99.49%	100%	100%
	Standard Deviation	0.3%		
NCNN - Vulkan GPU-v3-v3 - mobilenet-v3	3.17	2.24	2.24	
	Normalized	70.66%	100%	100%
	Standard Deviation	0%		
NCNN - Vulkan GPU - shufflenet-v2 (ms)	1.94	1.8	1.8	
	Normalized	92.78%	100%	100%
	Standard Deviation	0%		
NCNN - Vulkan GPU - mnasnet (ms)	2.08	2.08	2.08	
	Normalized		0.5%	
NCNN - Vulkan GPU - efficientnet-b0 (ms)	3.26	3.25	3.42	
	Normalized	99.69%	100%	95.03%
	Standard Deviation	0.2%		
NCNN - Vulkan GPU - blazeface (ms)	1.06	1.03	1.05	
	Normalized	97.17%	100%	98.1%
	Standard Deviation	0.6%		
NCNN - Vulkan GPU - googlenet (ms)	5.85	6.07	5.75	
	Normalized	98.29%	94.73%	100%
	Standard Deviation	7.4%		

NCNN - Vulkan GPU - vgg16 (ms)	4.17	4.18	4.17
Normalized	100%	99.76%	100%
Standard Deviation		0.8%	
NCNN - Vulkan GPU - resnet18 (ms)	1.67	1.67	1.7
Normalized	100%	100%	98.24%
Standard Deviation		0.3%	
NCNN - Vulkan GPU - alexnet (ms)	1.91	1.92	1.9
Normalized	99.48%	98.96%	100%
Standard Deviation		0.6%	
NCNN - Vulkan GPU - resnet50 (ms)	3.55	3.55	3.56
Normalized	100%	100%	99.72%
Standard Deviation		0.2%	
NCNN - Vulkan GPU - yolov4-tiny (ms)	7.02	6.72	7.43
Normalized	95.73%	100%	90.44%
Standard Deviation		1%	
NCNN - Vulkan GPU - squeezenet_ssd (ms)	15.96	17.31	19.73
Normalized	100%	92.2%	80.89%
Standard Deviation		12.4%	
NCNN - Vulkan GPU - regnety_400m (ms)	2.54	2.53	2.53
Normalized	99.61%	100%	100%
Standard Deviation		0.4%	
RealSR-NCNN - 4x - No (sec)	5.621	5.715	5.673
Normalized	100%	98.36%	99.08%
Standard Deviation		0.7%	
RealSR-NCNN - 4x - Yes (sec)	28.949	29.064	28.891
Normalized	99.8%	99.4%	100%
Standard Deviation		0.4%	
Waifu2x-NCNN Vulkan - 2x - 3 - Yes (sec)	3.313	3.362	3.318
Normalized	100%	98.54%	99.85%
Standard Deviation		0.2%	
Rodinia - O.P.F (sec)	3.843	3.694	3.627
Normalized	94.38%	98.19%	100%
Standard Deviation		0.6%	
Blender - BMW27 - CUDA (sec)	11.04	11.02	11.09
Normalized	99.82%	100%	99.37%
Standard Deviation		0.1%	
Blender - Classroom - CUDA (sec)	22.76	22.69	22.64
Normalized	99.47%	99.78%	100%
Standard Deviation		0.2%	
Blender - Fishy Cat - CUDA (sec)	22.86	22.87	22.78
Normalized	99.65%	99.61%	100%
Standard Deviation		0.3%	
Blender - Barbershop - CUDA (sec)	91.13	91.29	90.36
Normalized	99.16%	98.98%	100%
Standard Deviation		0.3%	
Blender - BMW27 - NVIDIA OptiX (sec)	6.94	6.91	6.92
Normalized	99.57%	100%	99.86%
Standard Deviation		0.3%	
Blender - Classroom - NVIDIA OptiX (sec)	17.4	17.43	17.98
Normalized	100%	99.83%	96.77%
Standard Deviation		0.2%	
Blender - Fishy Cat - NVIDIA OptiX (sec)	11.22	11.32	11.22
Normalized	100%	99.12%	100%
Standard Deviation		1.4%	
Blender - Barbershop - NVIDIA OptiX (sec)	56.19	56.35	56.34

	Normalized	100%	99.72%	99.73%
	Standard Deviation		0.2%	
Blender - Pabellon Barcelona - CUDA (sec)		48.11		48.09
	Normalized	99.96%	99.81%	100%
	Standard Deviation		0%	
Blender - Pabellon Barcelona - NVIDIA OptiX (sec)		17.96	18.00	17.96
	Normalized	100%	99.78%	100%
	Standard Deviation		0.2%	

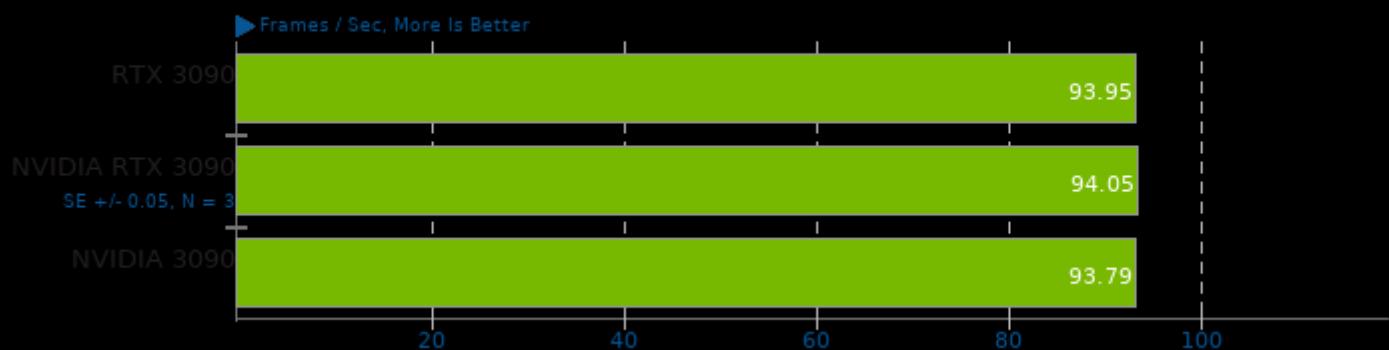
VkFFT 1.1.1



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

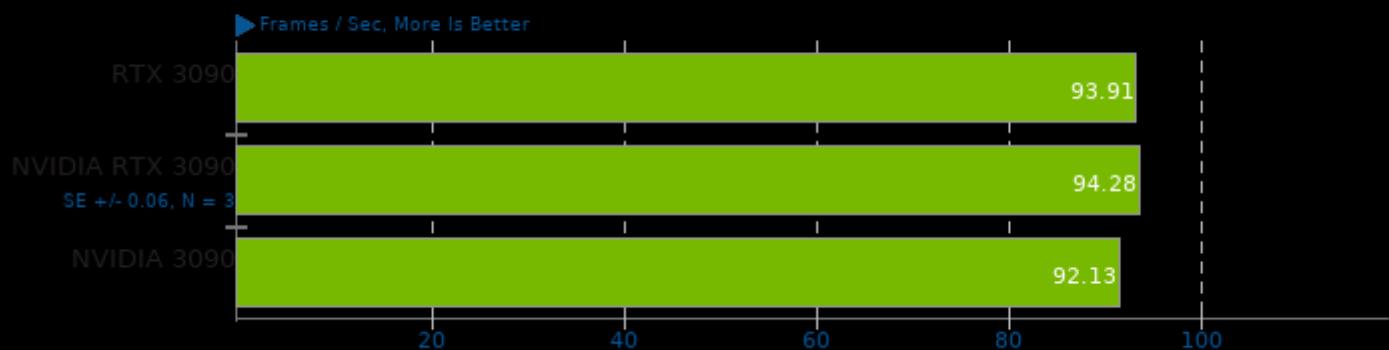
ParaView 5.9

Test: Many Spheres - Resolution: 1920 x 1080



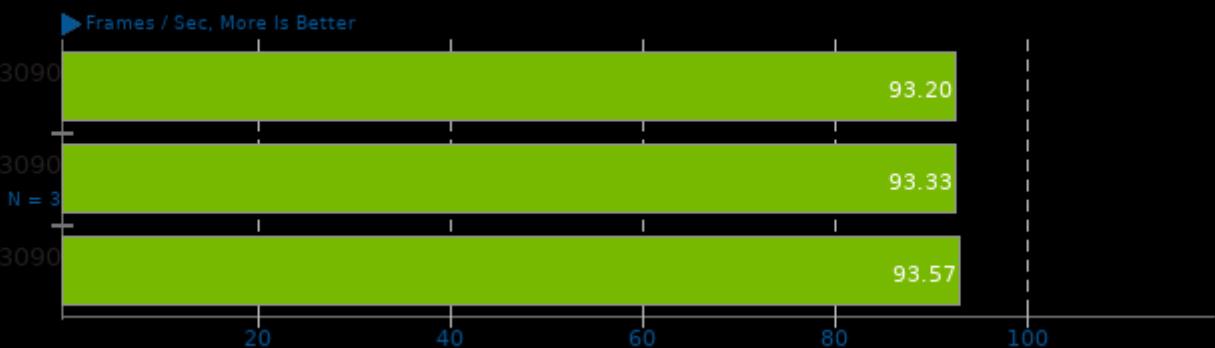
ParaView 5.9

Test: Many Spheres - Resolution: 1920 x 1200



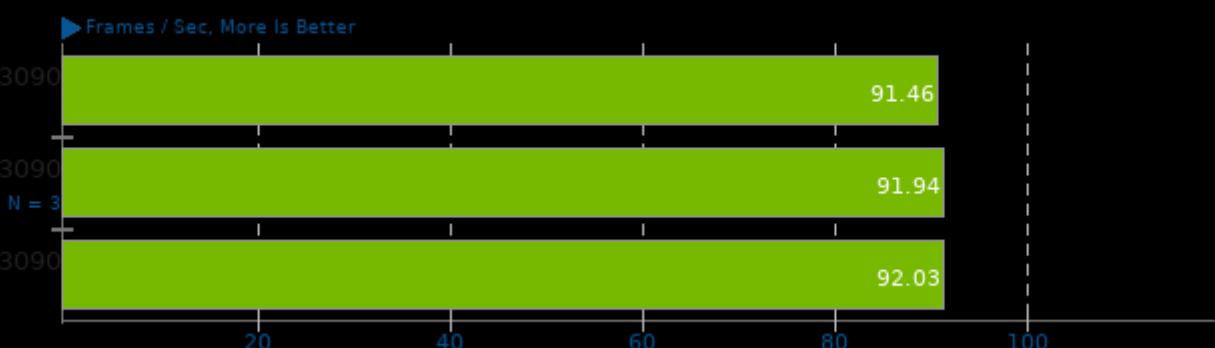
ParaView 5.9

Test: Many Spheres - Resolution: 2560 x 1440



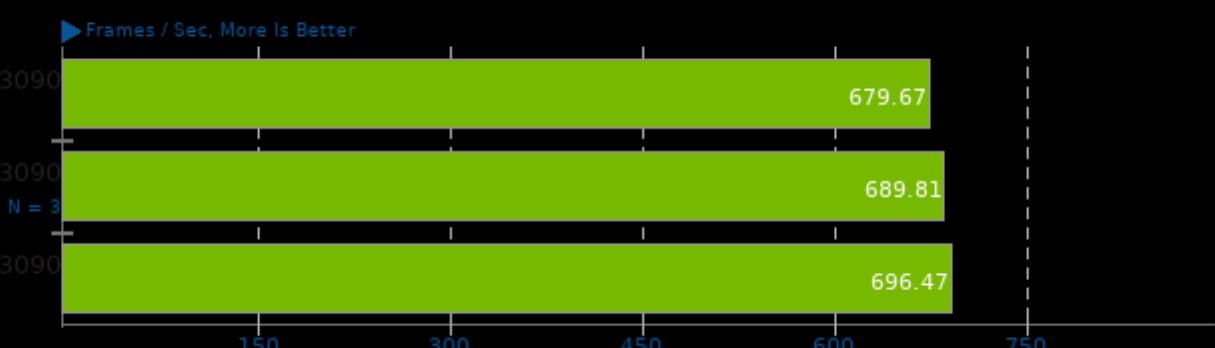
ParaView 5.9

Test: Many Spheres - Resolution: 3840 x 2160



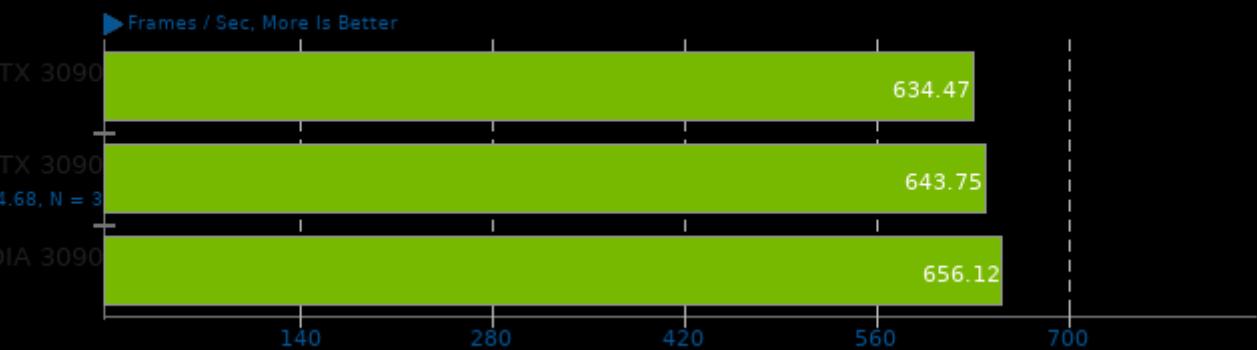
ParaView 5.9

Test: Wavelet Volume - Resolution: 1920 x 1080



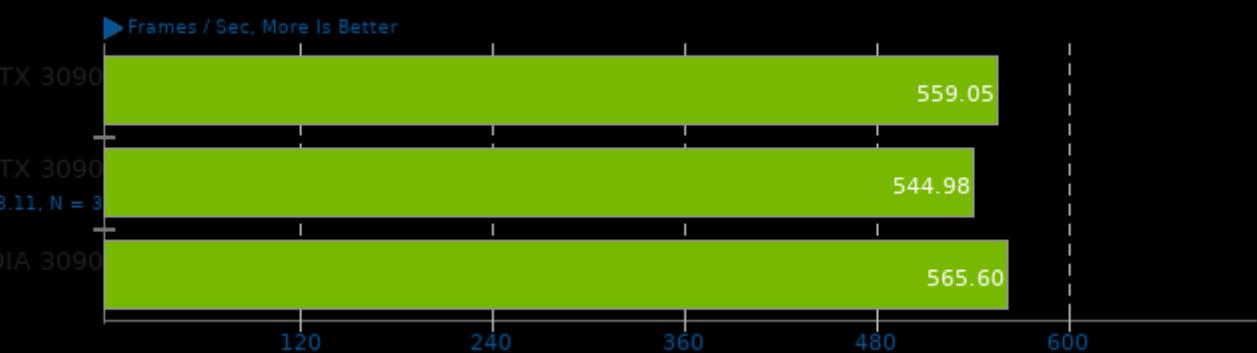
ParaView 5.9

Test: Wavelet Volume - Resolution: 1920 x 1200



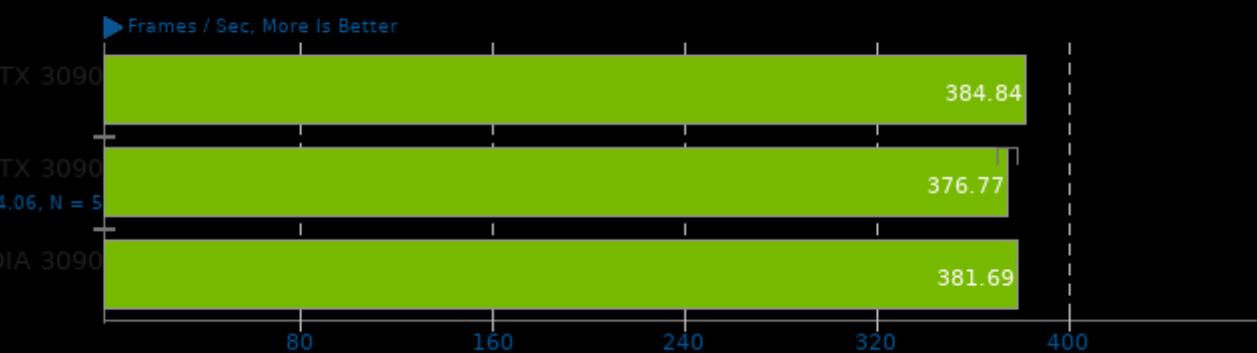
ParaView 5.9

Test: Wavelet Volume - Resolution: 2560 x 1440



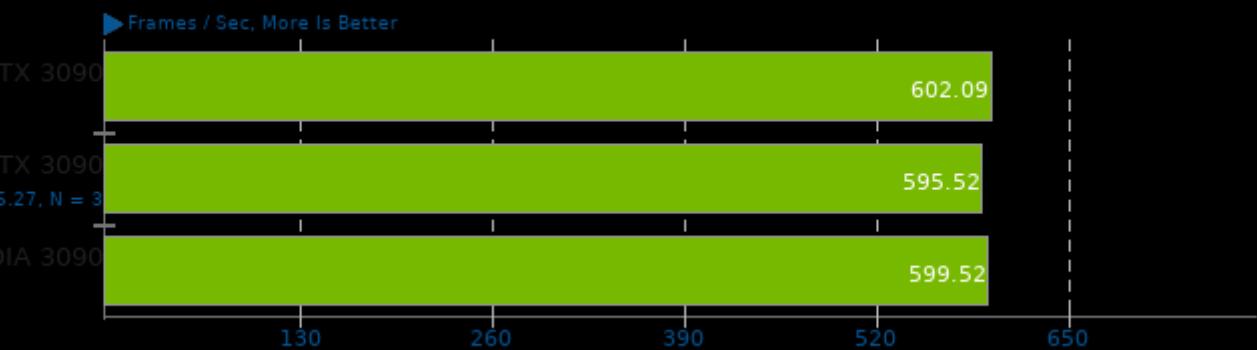
ParaView 5.9

Test: Wavelet Volume - Resolution: 3840 x 2160



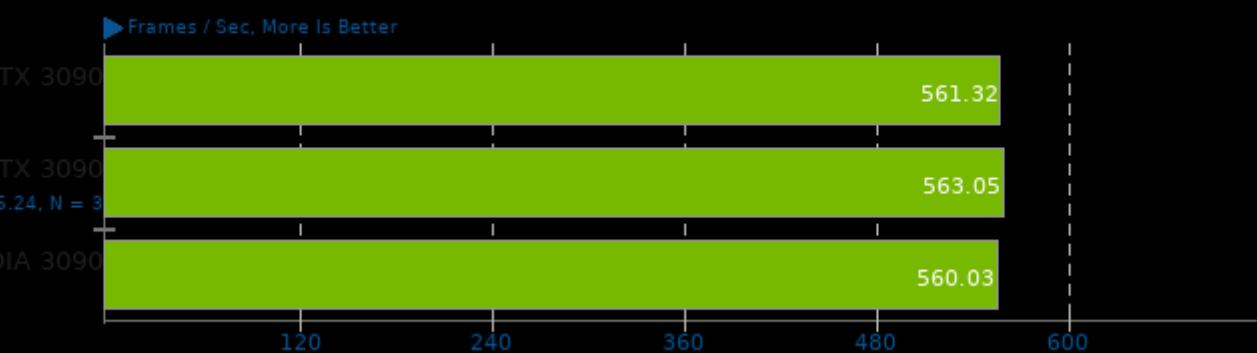
ParaView 5.9

Test: Wavelet Contour - Resolution: 1920 x 1080



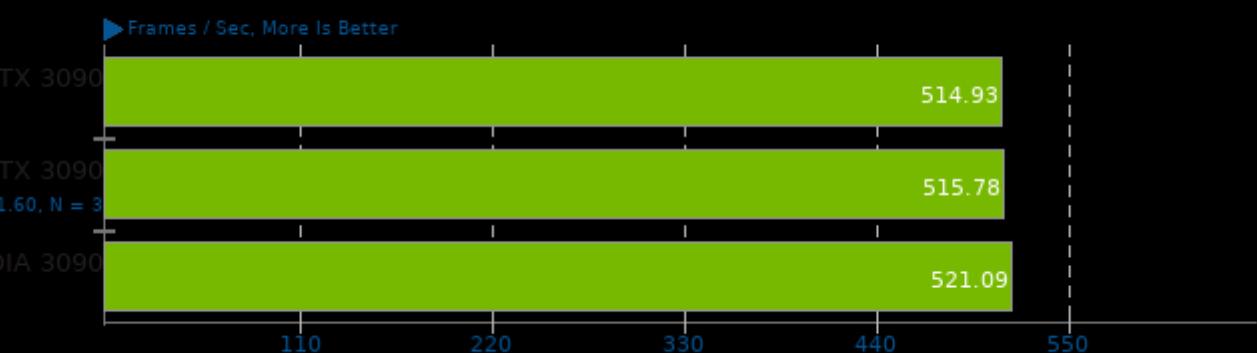
ParaView 5.9

Test: Wavelet Contour - Resolution: 1920 x 1200



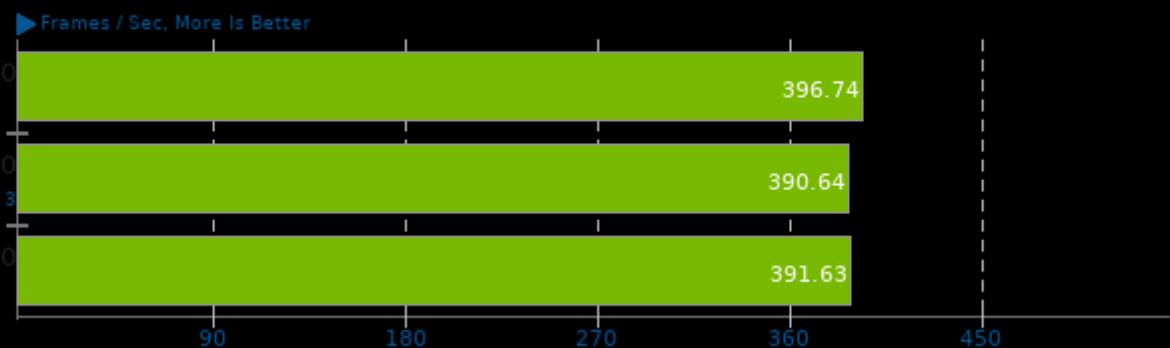
ParaView 5.9

Test: Wavelet Contour - Resolution: 2560 x 1440



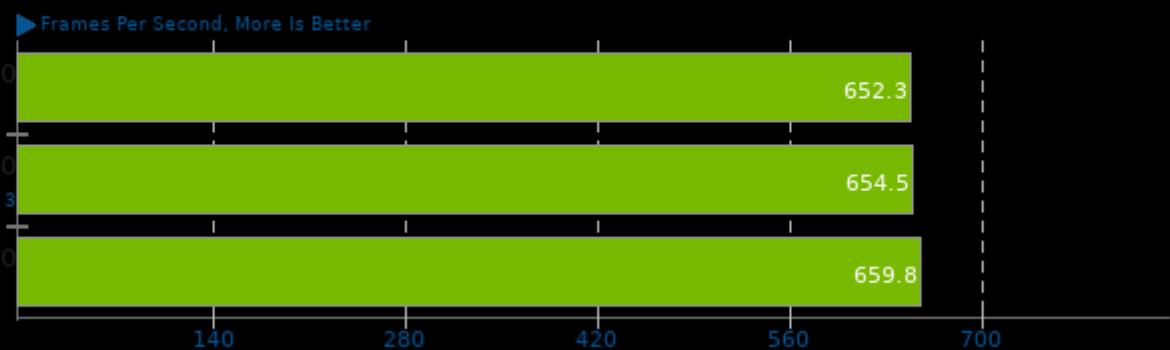
ParaView 5.9

Test: Wavelet Contour - Resolution: 3840 x 2160



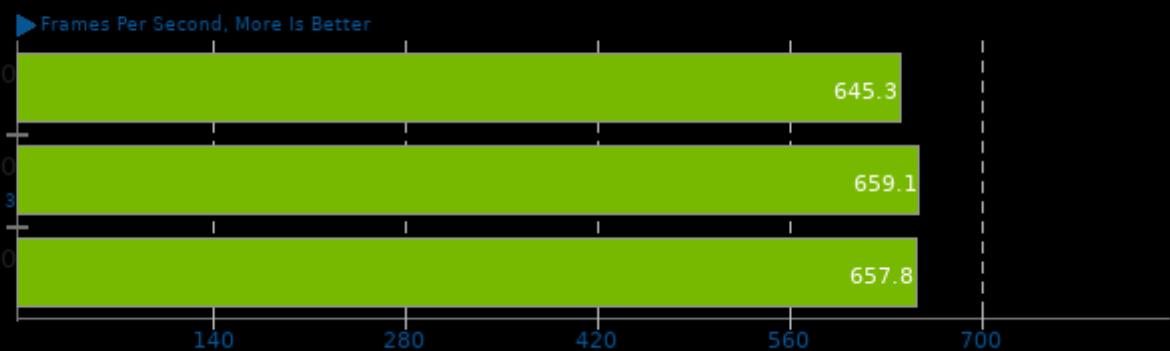
ET: Legacy 2.78

Resolution: 1920 x 1080



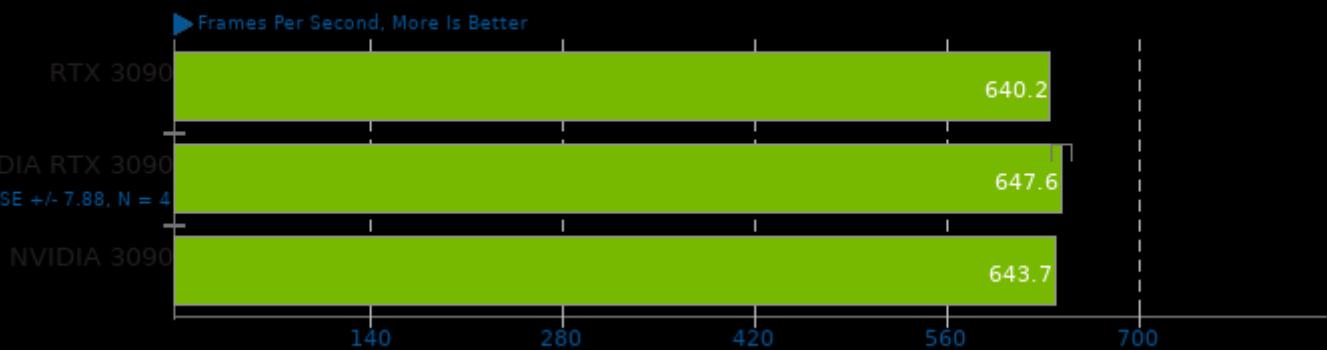
ET: Legacy 2.78

Resolution: 1920 x 1200

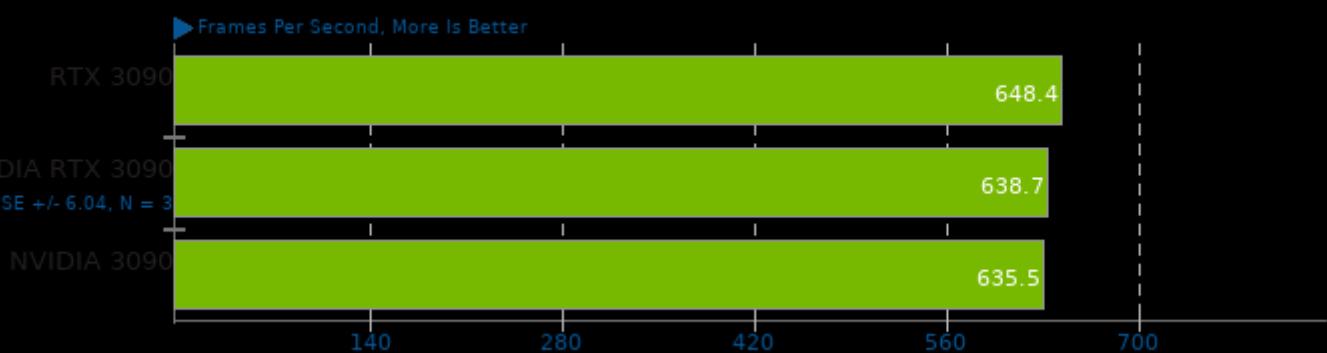


ET: Legacy 2.78

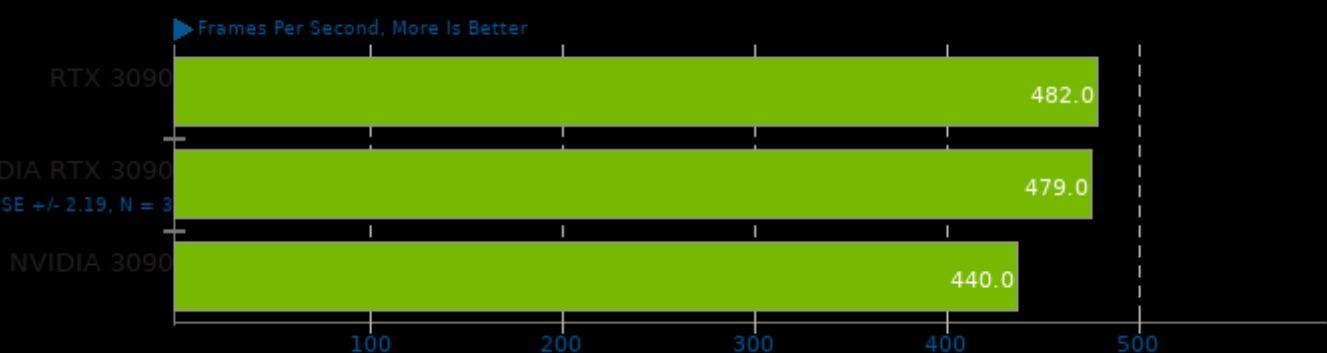
Resolution: 2560 x 1440

**ET: Legacy 2.78**

Resolution: 3840 x 2160

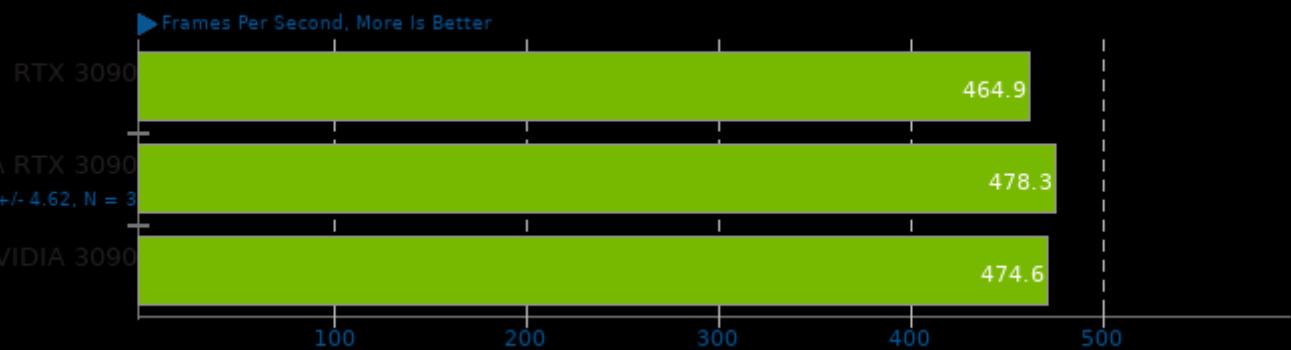
**Unvanquished 0.52.1**

Resolution: 1920 x 1080 - Effects Quality: High



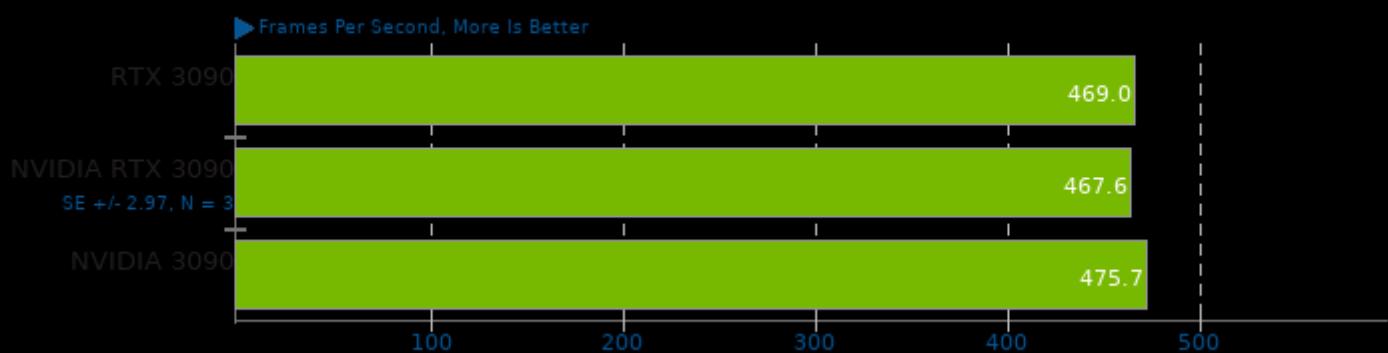
Unvanquished 0.52.1

Resolution: 1920 x 1200 - Effects Quality: High



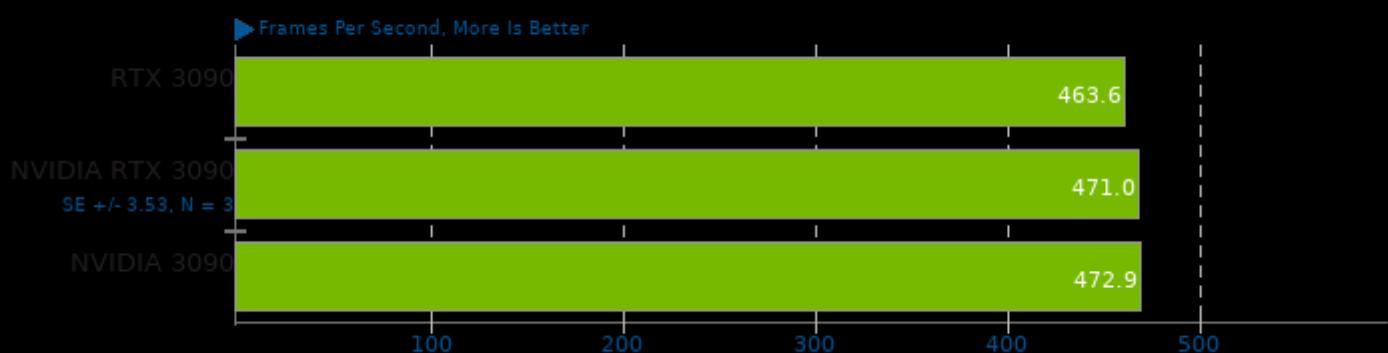
Unvanquished 0.52.1

Resolution: 2560 x 1440 - Effects Quality: High



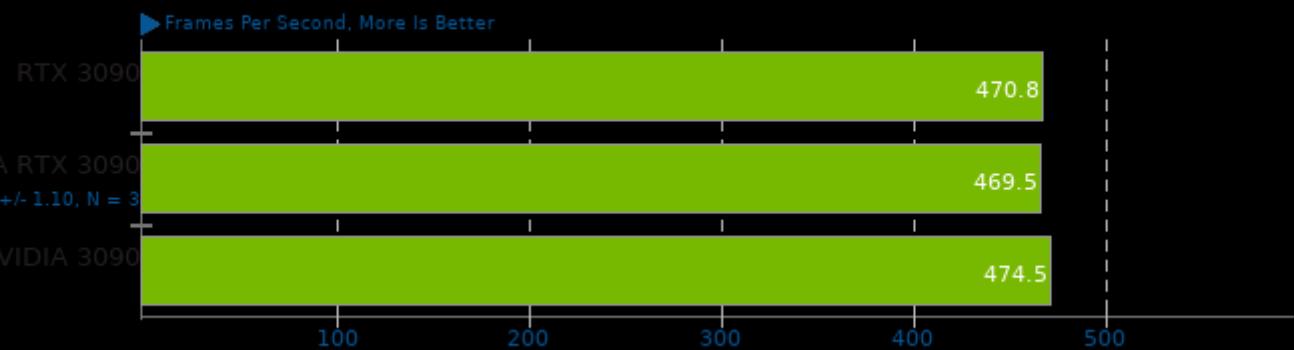
Unvanquished 0.52.1

Resolution: 3840 x 2160 - Effects Quality: High



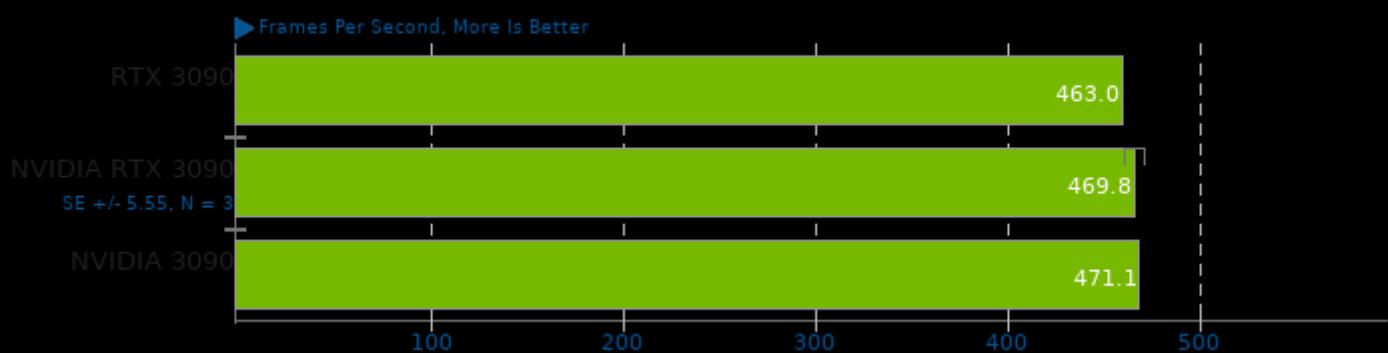
Unvanquished 0.52.1

Resolution: 1920 x 1080 - Effects Quality: Ultra



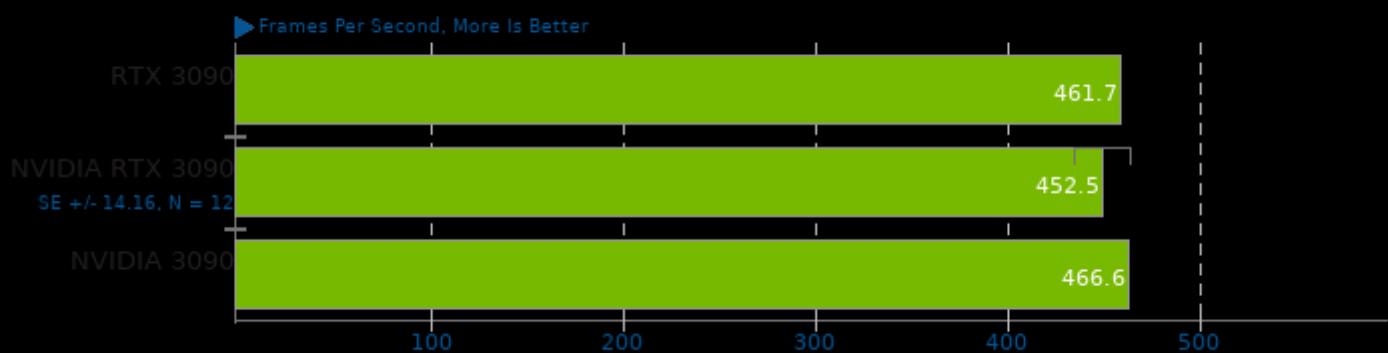
Unvanquished 0.52.1

Resolution: 1920 x 1200 - Effects Quality: Ultra



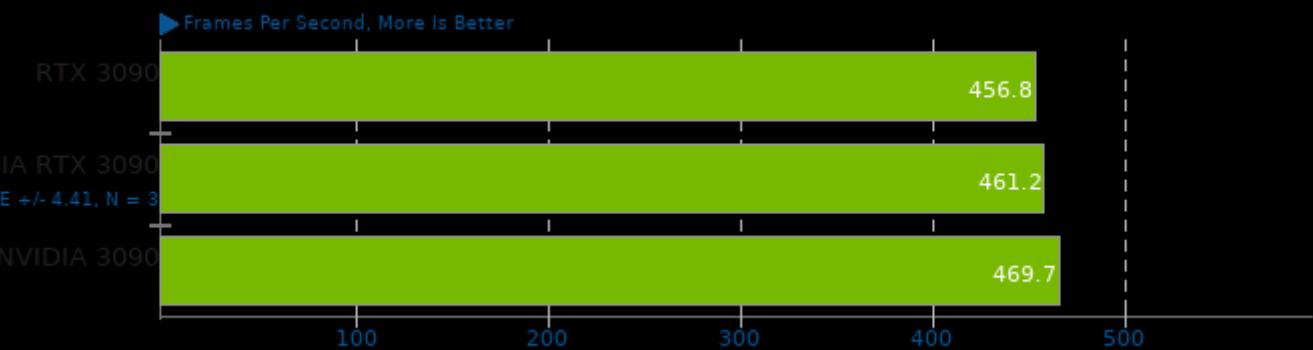
Unvanquished 0.52.1

Resolution: 2560 x 1440 - Effects Quality: Ultra



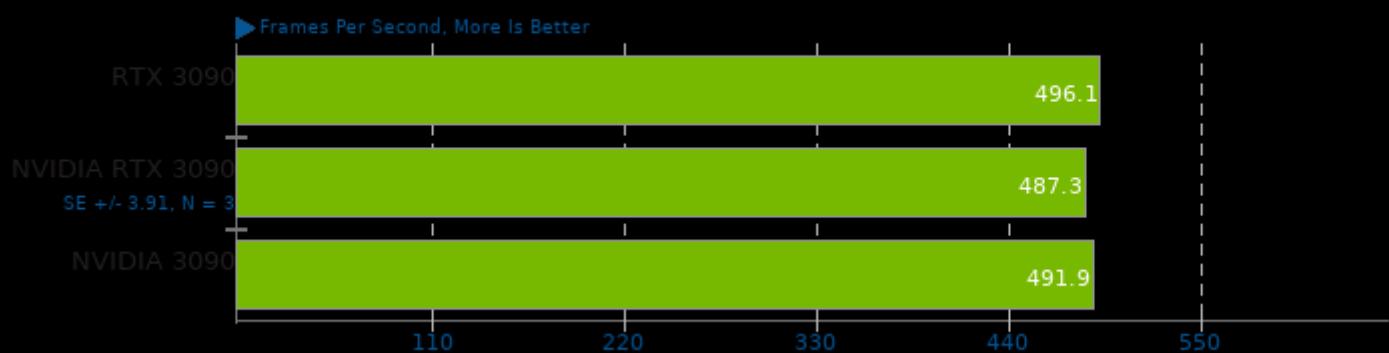
Unvanquished 0.52.1

Resolution: 3840 x 2160 - Effects Quality: Ultra



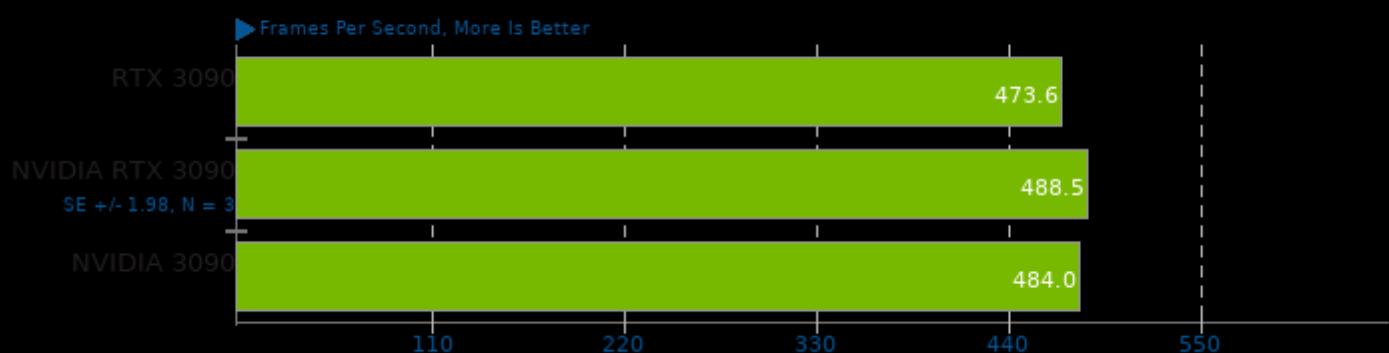
Unvanquished 0.52.1

Resolution: 1920 x 1080 - Effects Quality: Medium



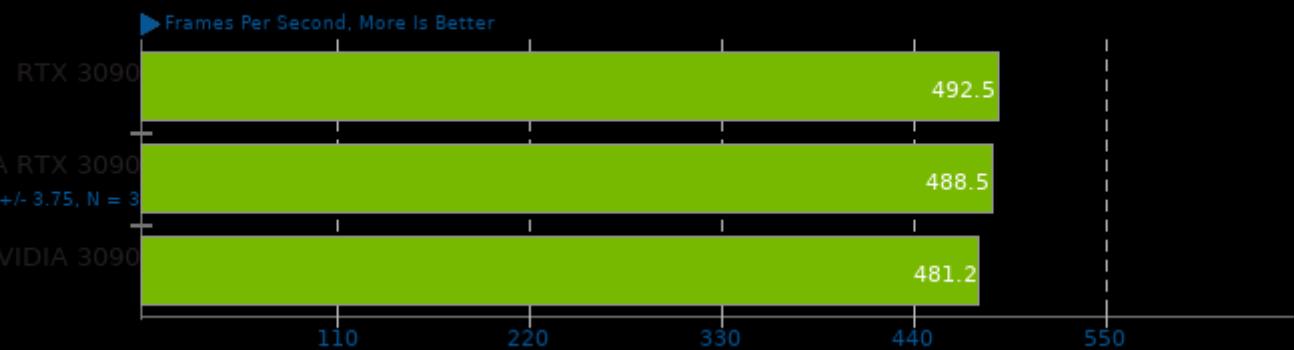
Unvanquished 0.52.1

Resolution: 1920 x 1200 - Effects Quality: Medium



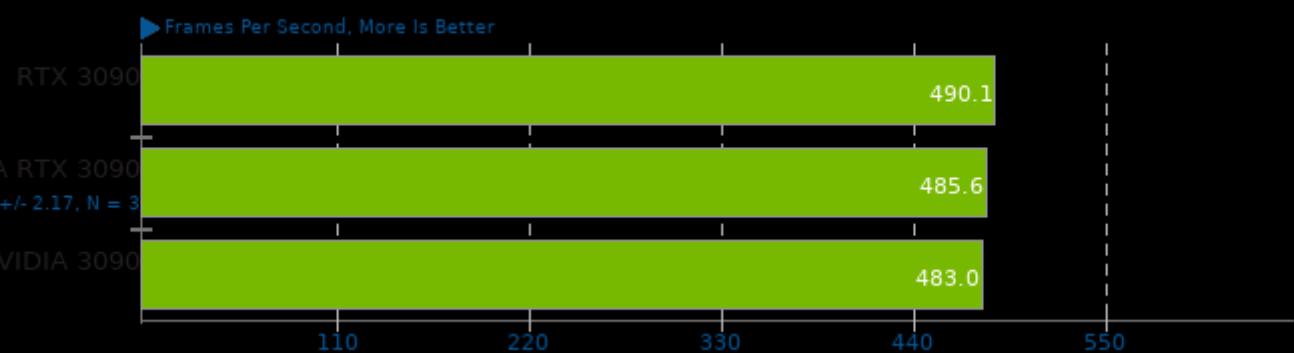
Unvanquished 0.52.1

Resolution: 2560 x 1440 - Effects Quality: Medium



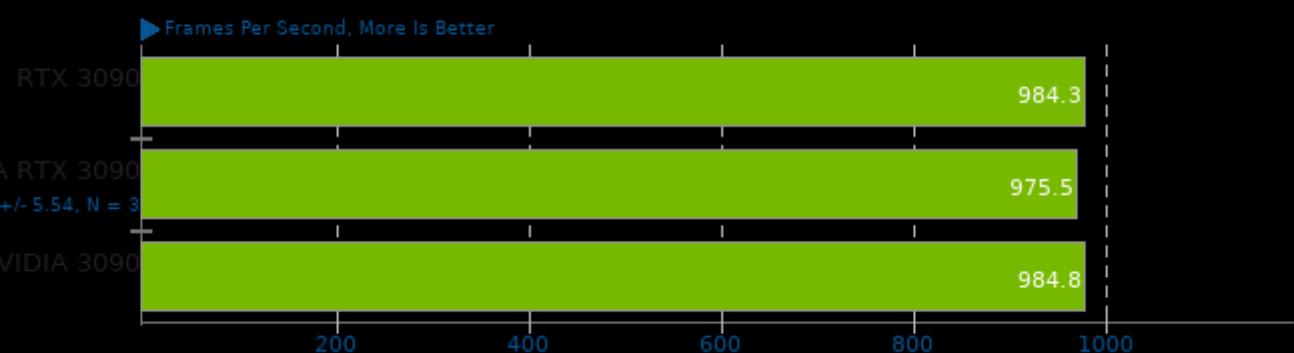
Unvanquished 0.52.1

Resolution: 3840 x 2160 - Effects Quality: Medium



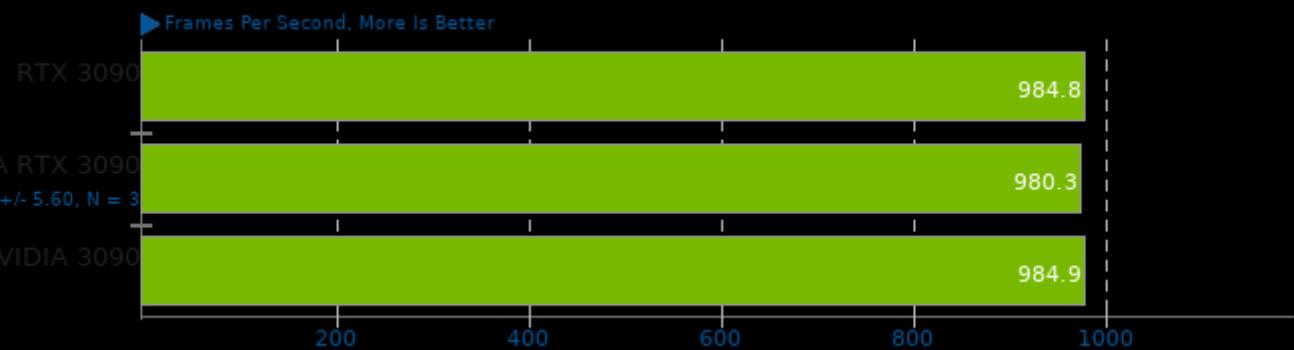
Warsow 2.5 Beta

Resolution: 1920 x 1080



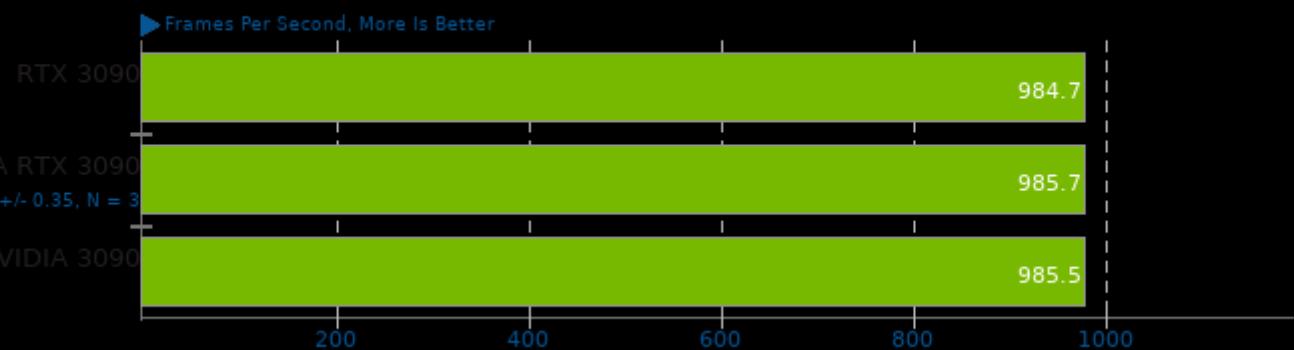
Warsow 2.5 Beta

Resolution: 1920 x 1200



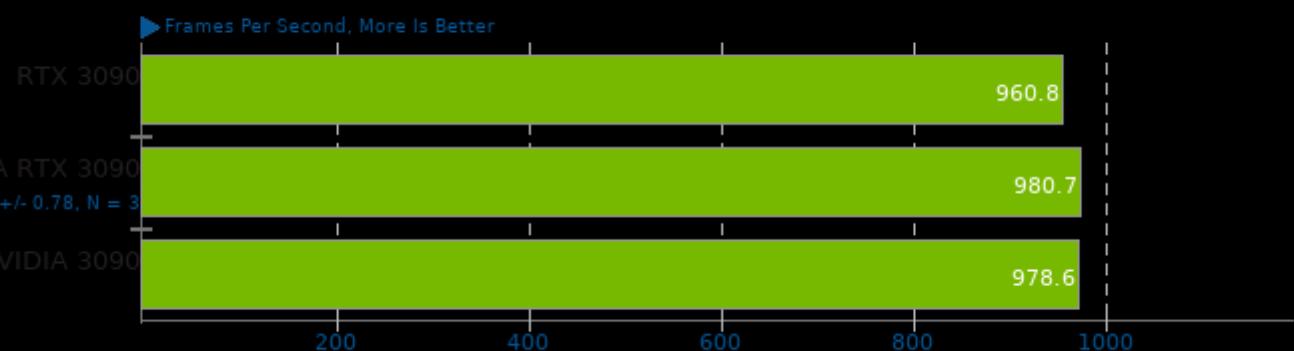
Warsow 2.5 Beta

Resolution: 2560 x 1440



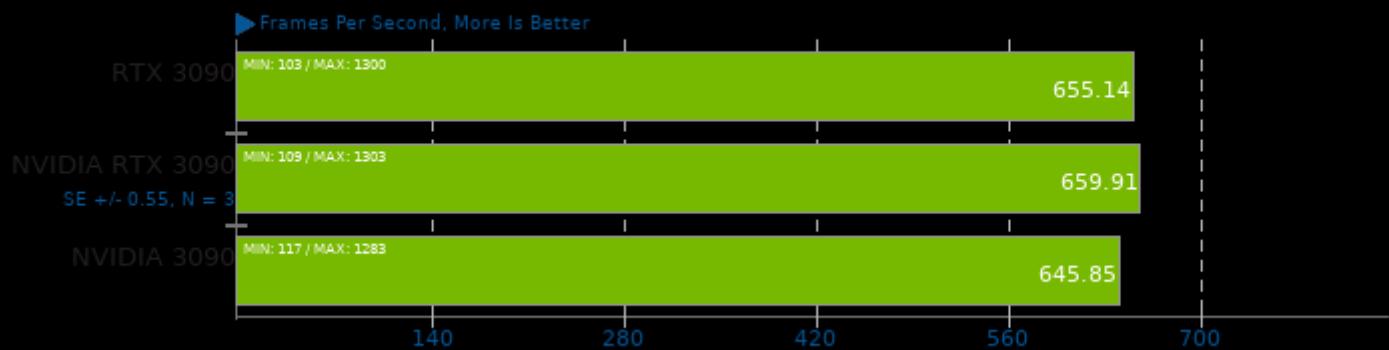
Warsow 2.5 Beta

Resolution: 3840 x 2160



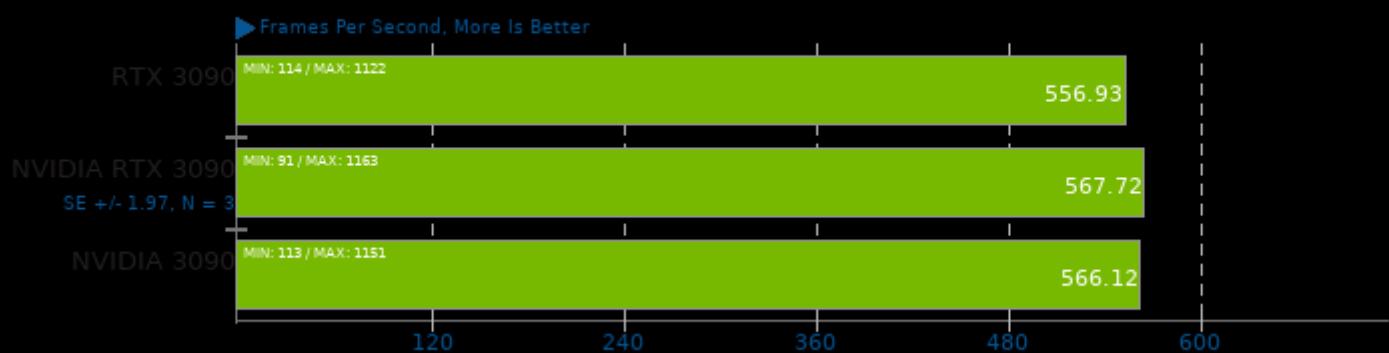
Xonotic 0.8.2

Resolution: 3840 x 2160 - Effects Quality: Low



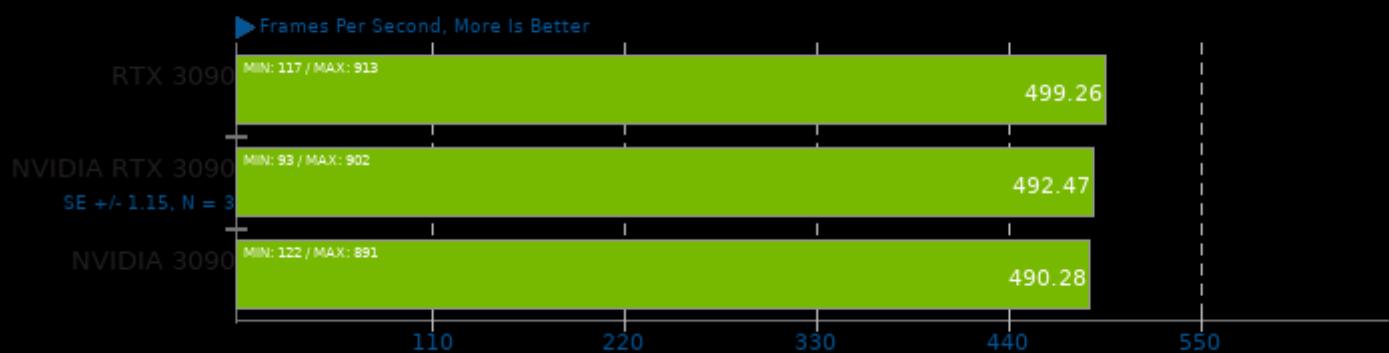
Xonotic 0.8.2

Resolution: 3840 x 2160 - Effects Quality: High



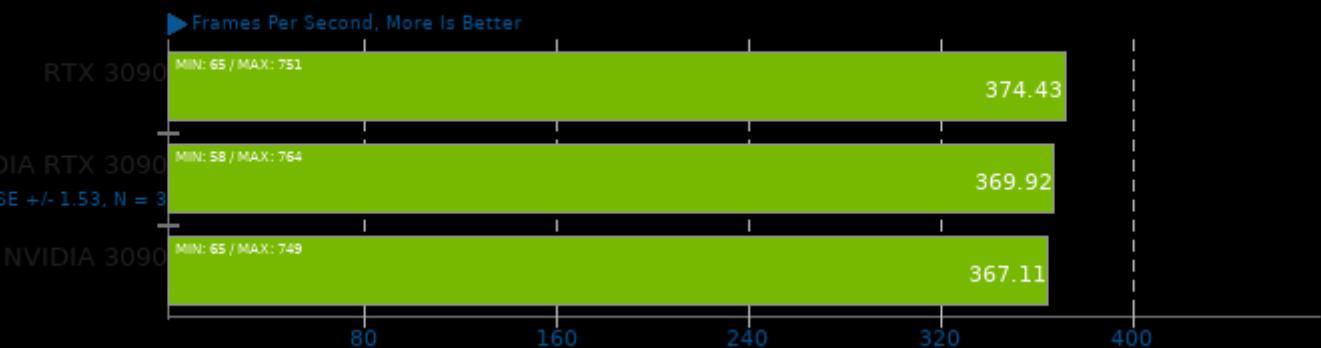
Xonotic 0.8.2

Resolution: 3840 x 2160 - Effects Quality: Ultra



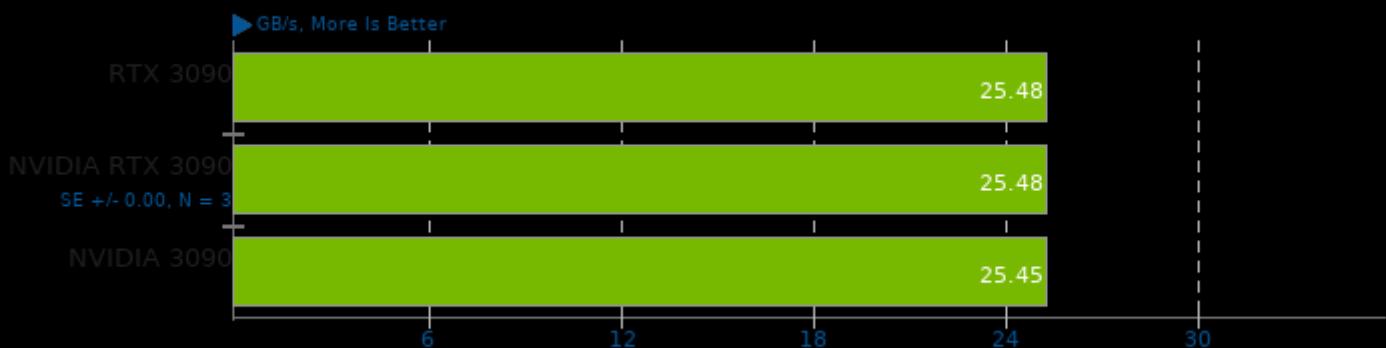
Xonotic 0.8.2

Resolution: 3840 x 2160 - Effects Quality: Ultimate



SHOC Scalable Heterogeneous Computing 2020-04-17

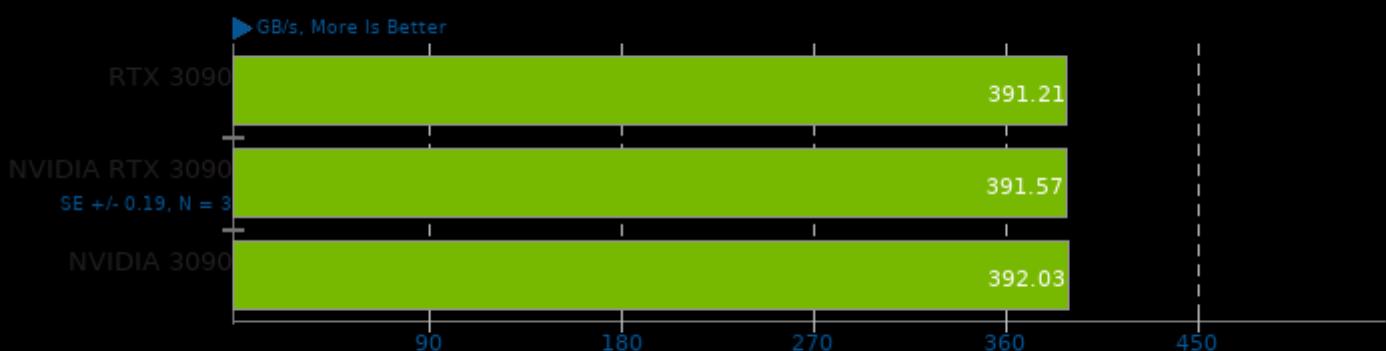
Target: OpenCL - Benchmark: Triad



1. (CXX) g++ options: -O2 -I SHOCCommonMPI -I SHOCCommonOpenCL -I SHOCCommon -I OpenCL -I rt -I mpi_cxx -I mpi

SHOC Scalable Heterogeneous Computing 2020-04-17

Target: OpenCL - Benchmark: Reduction

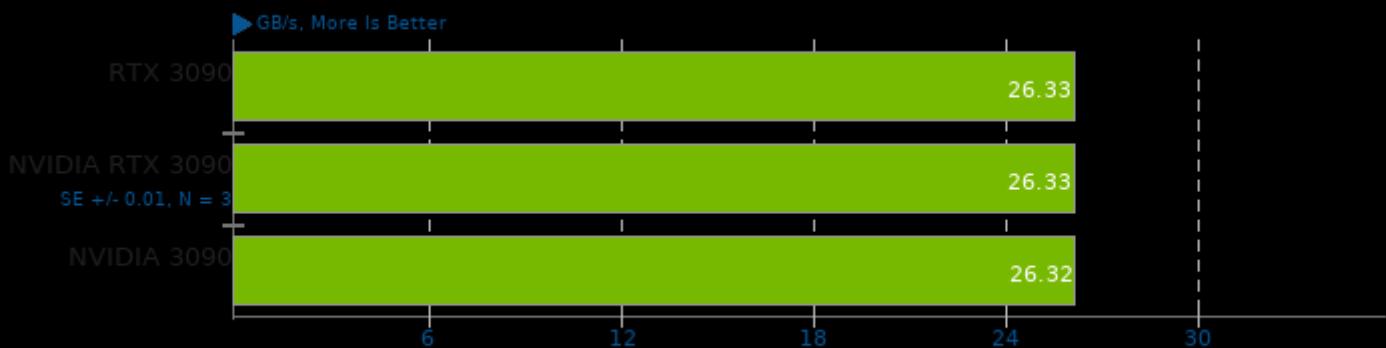


1. (CXX) g++ options: -O2 -I SHOCCommonMPI -I SHOCCommonOpenCL -I SHOCCommon -I OpenCL -I rt -I mpi_cxx -I mpi

NVIDIA GeForce RTX 3090

SHOC Scalable Heterogeneous Computing 2020-04-17

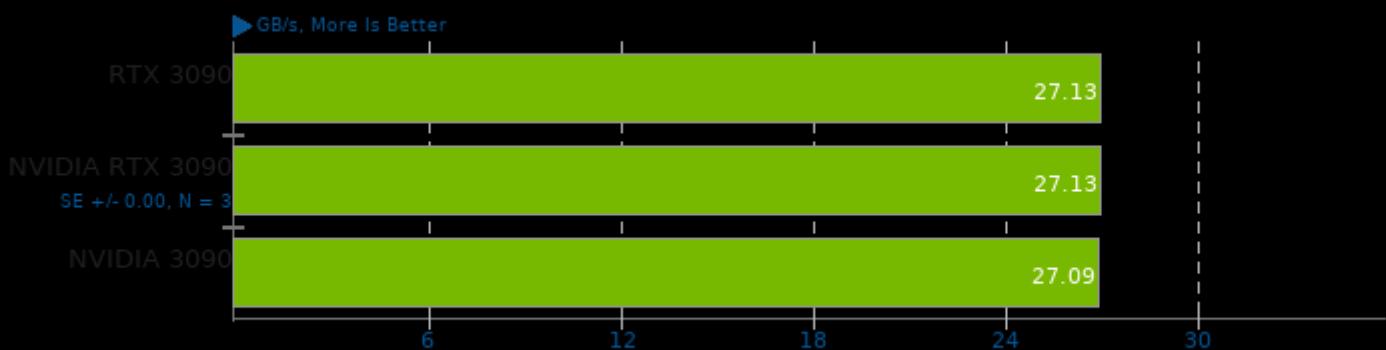
Target: OpenCL - Benchmark: Bus Speed Download



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

SHOC Scalable Heterogeneous Computing 2020-04-17

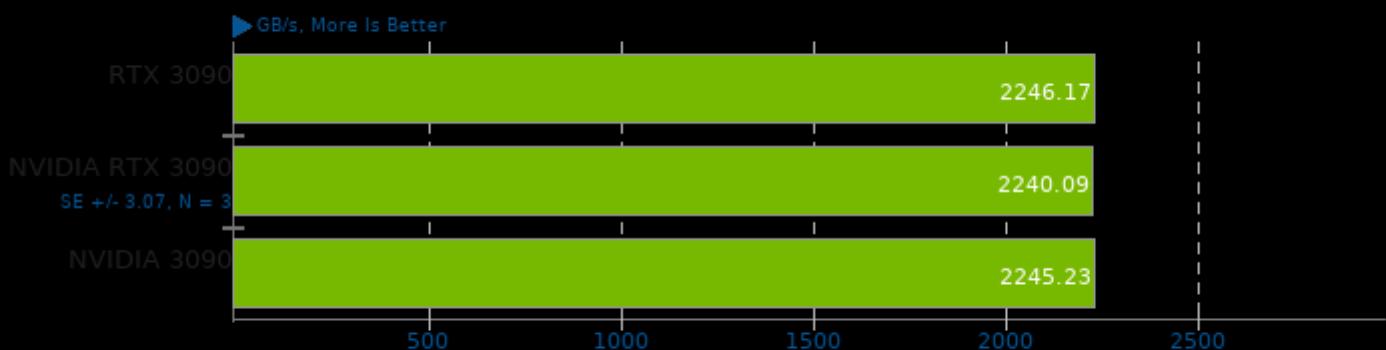
Target: OpenCL - Benchmark: Bus Speed Readback



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

SHOC Scalable Heterogeneous Computing 2020-04-17

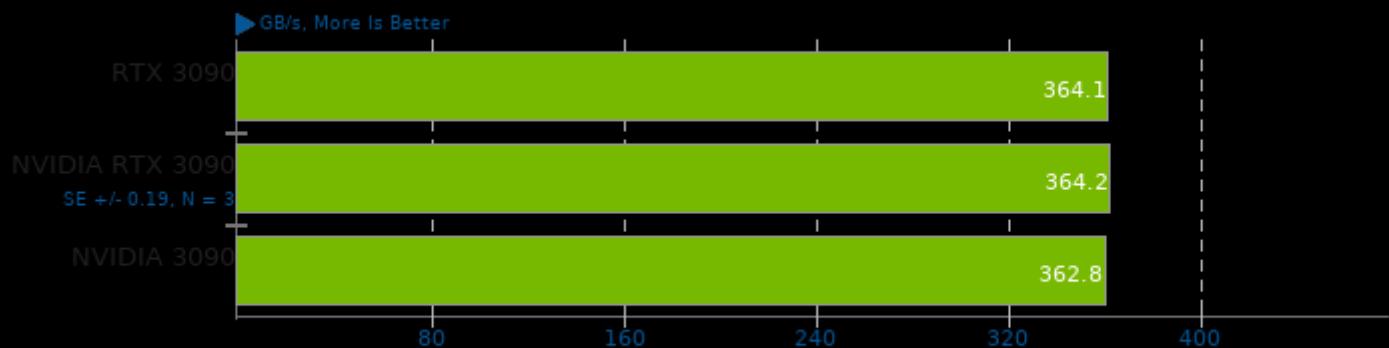
Target: OpenCL - Benchmark: Texture Read Bandwidth



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

cl-mem 2017-01-13

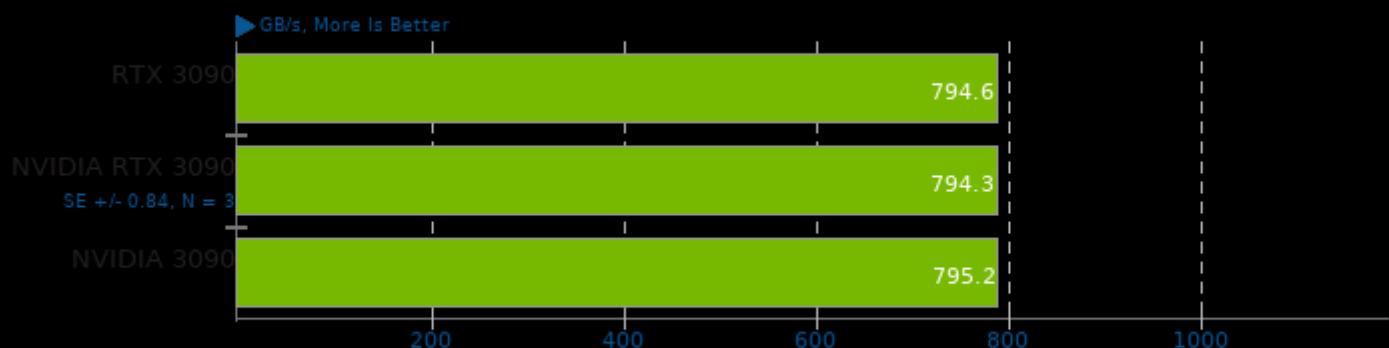
Benchmark: Copy



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

cl-mem 2017-01-13

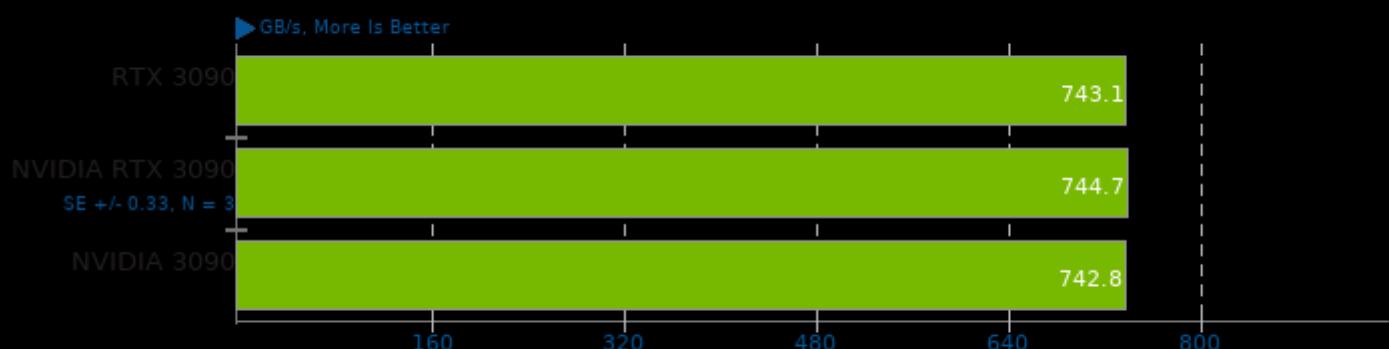
Benchmark: Read



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

cl-mem 2017-01-13

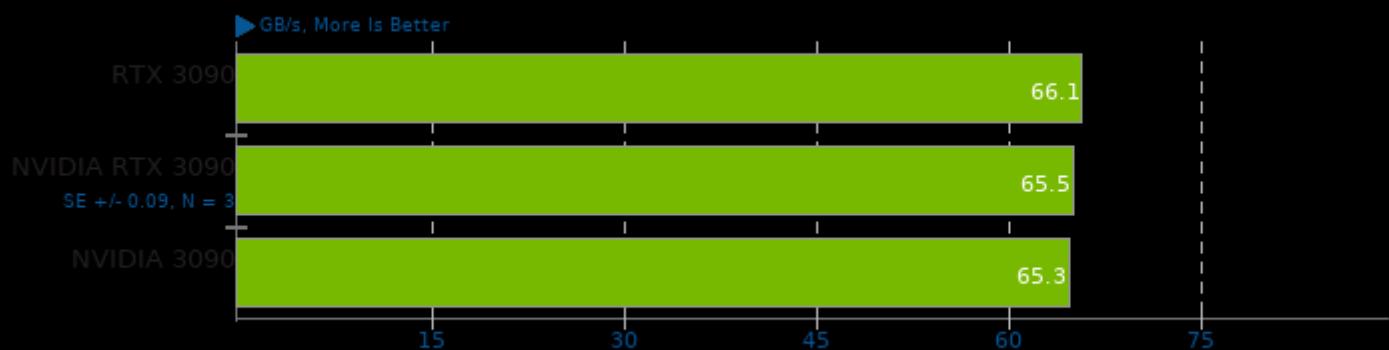
Benchmark: Write



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

ViennaCL 1.7.1

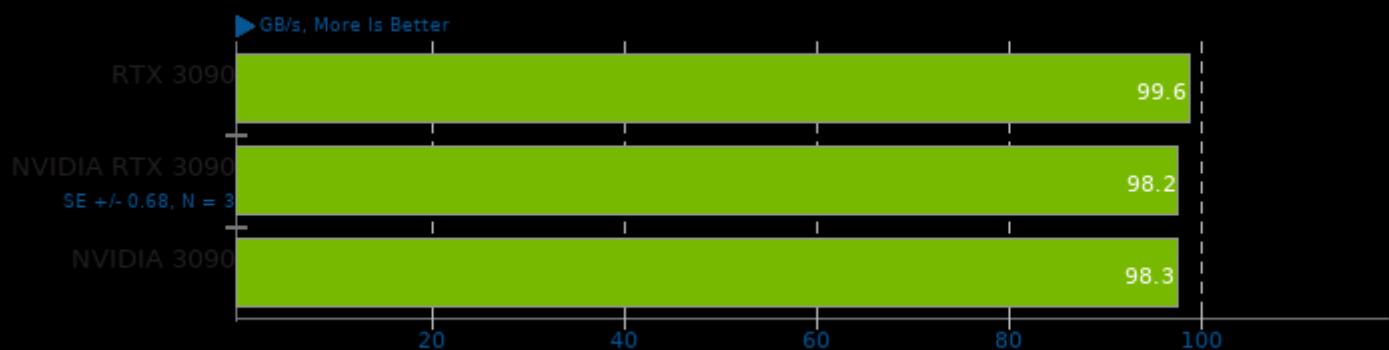
Test: CPU BLAS - sCOPY



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

ViennaCL 1.7.1

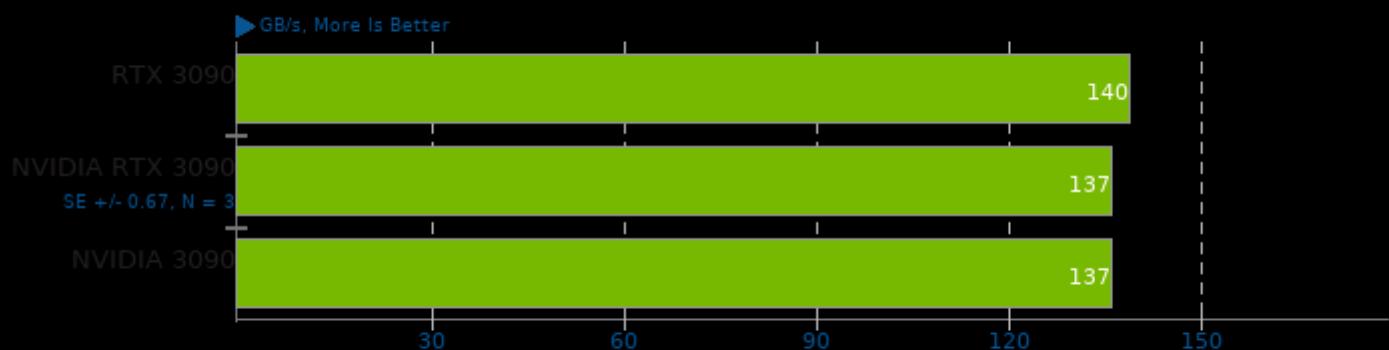
Test: CPU BLAS - sAXPY



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

ViennaCL 1.7.1

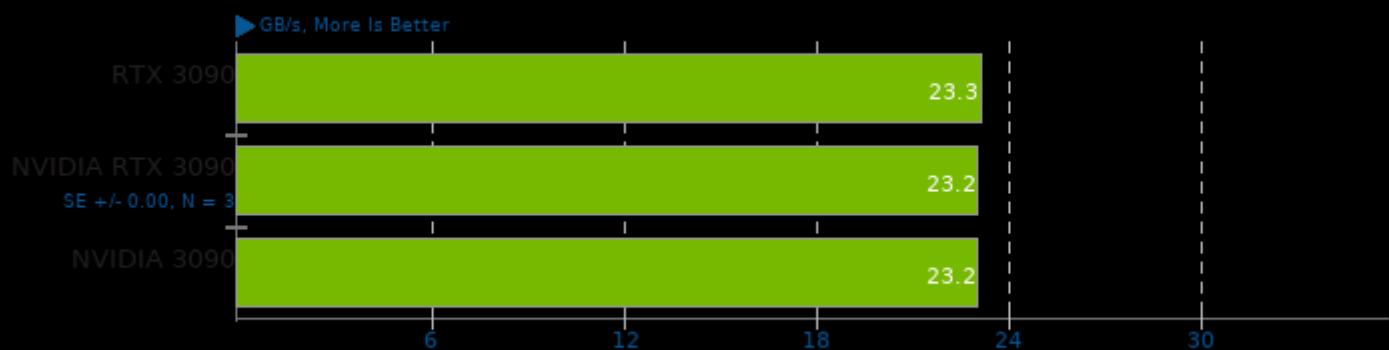
Test: CPU BLAS - sDOT



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

ViennaCL 1.7.1

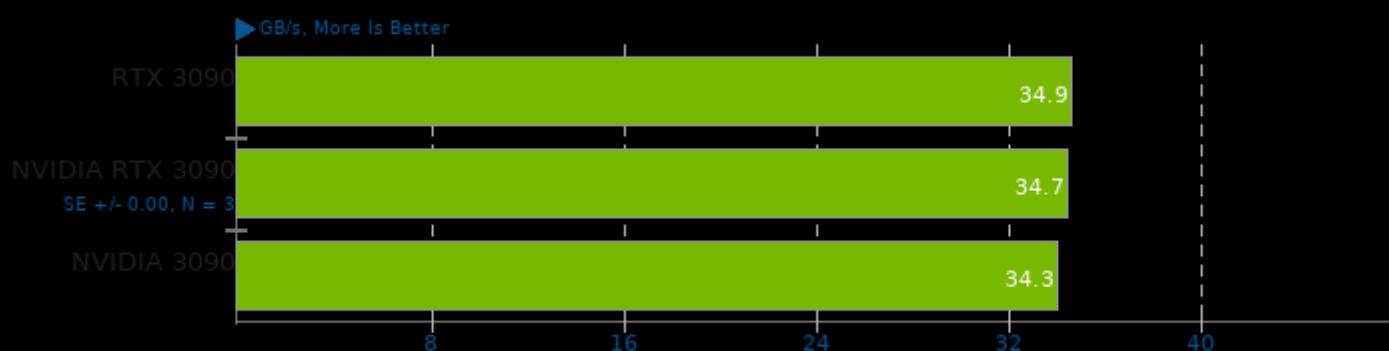
Test: CPU BLAS - dCOPY



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

ViennaCL 1.7.1

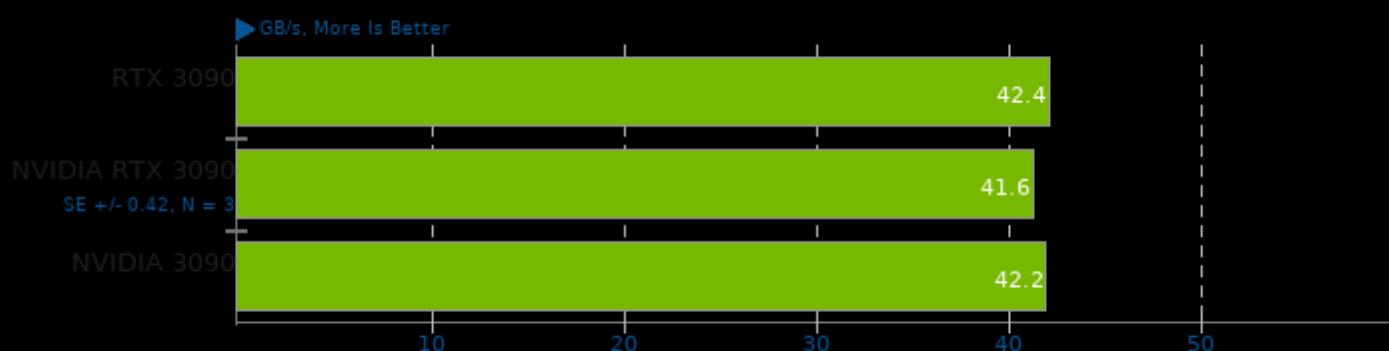
Test: CPU BLAS - dAXPY



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

ViennaCL 1.7.1

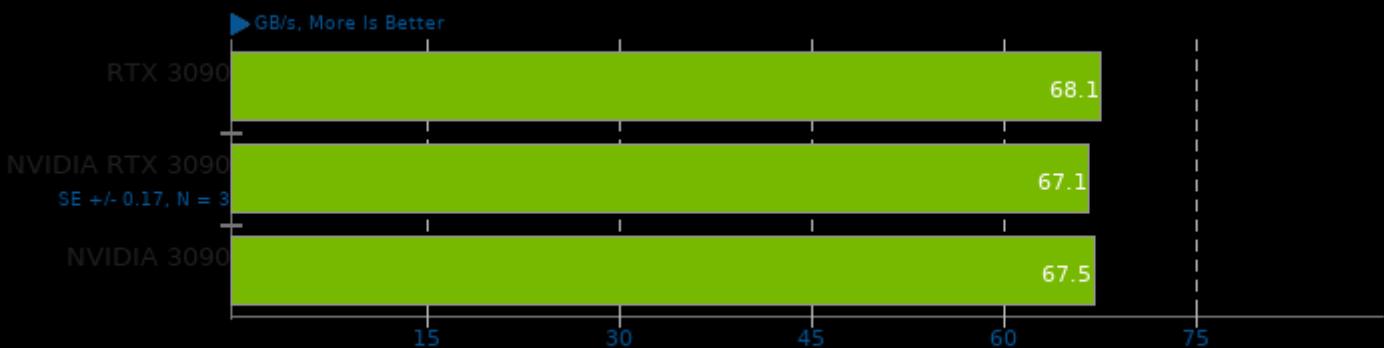
Test: CPU BLAS - dDOT



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

ViennaCL 1.7.1

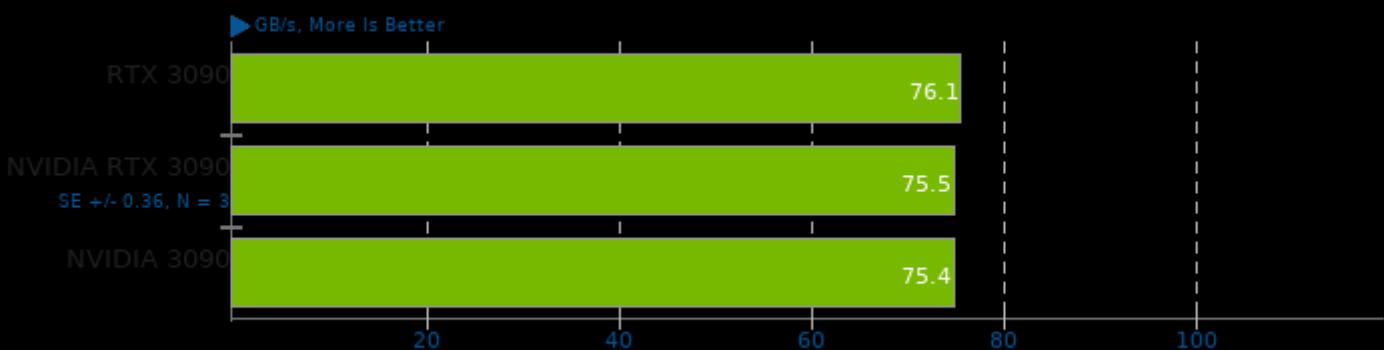
Test: CPU BLAS - dGEMV-N



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

ViennaCL 1.7.1

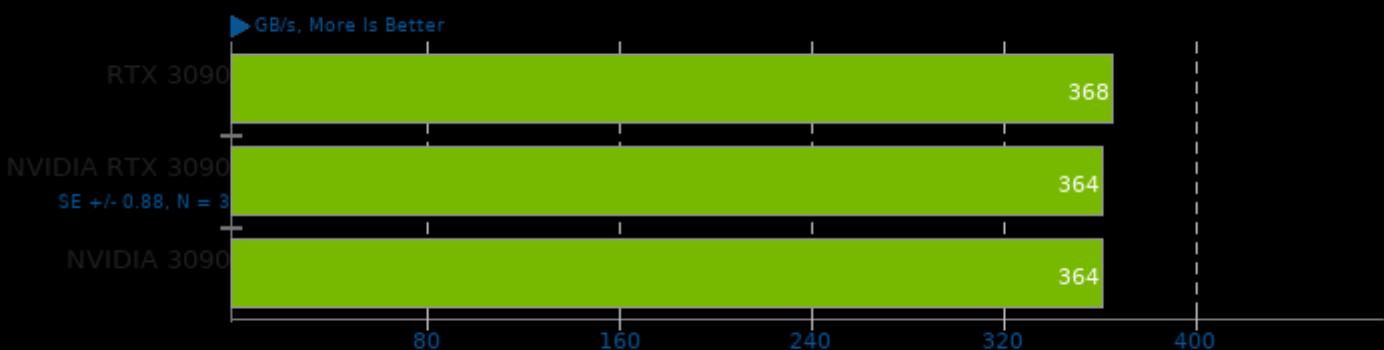
Test: CPU BLAS - dGEMV-T



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

ViennaCL 1.7.1

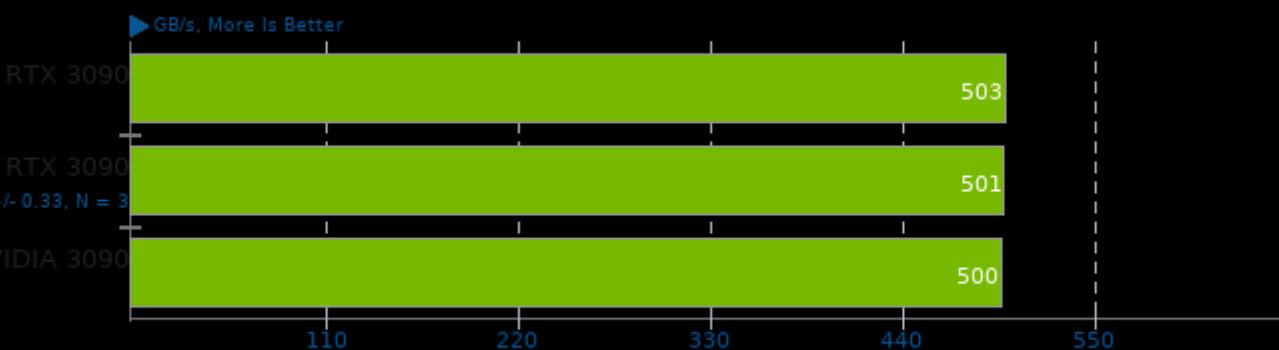
Test: OpenCL BLAS - sCOPY



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

ViennaCL 1.7.1

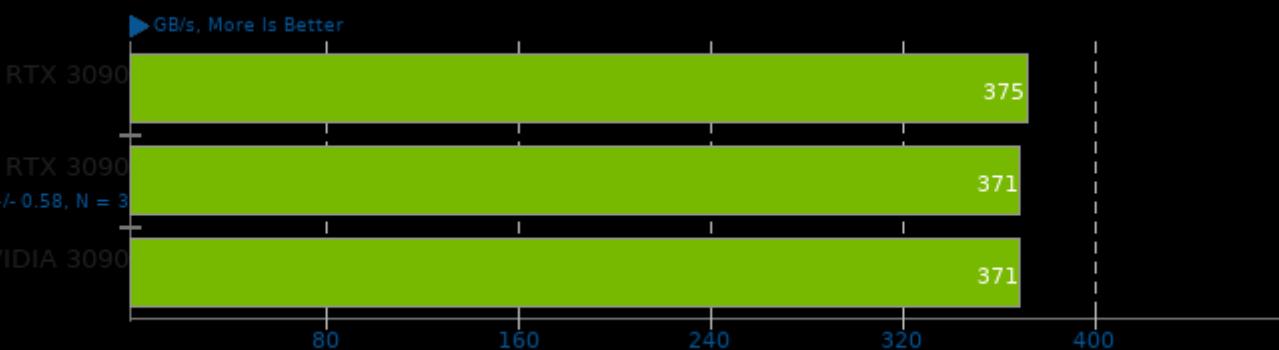
Test: OpenCL BLAS - sAXPY



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

ViennaCL 1.7.1

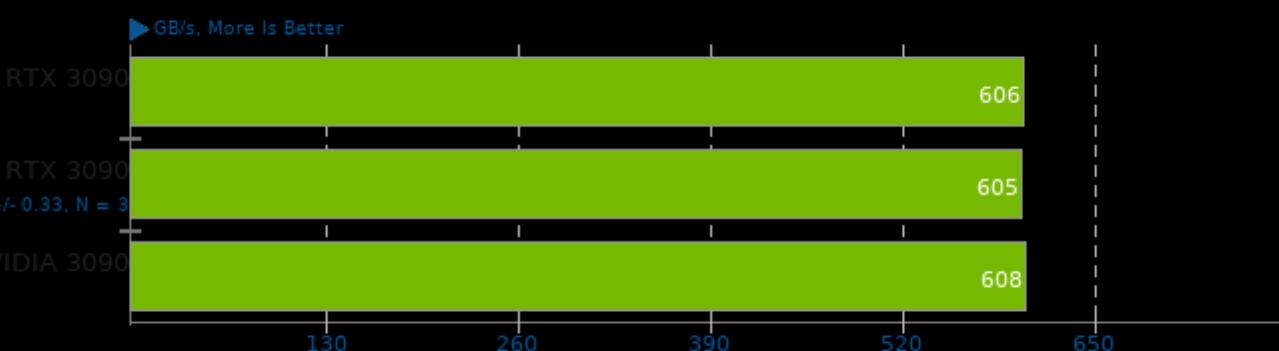
Test: OpenCL BLAS - sDOT



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

ViennaCL 1.7.1

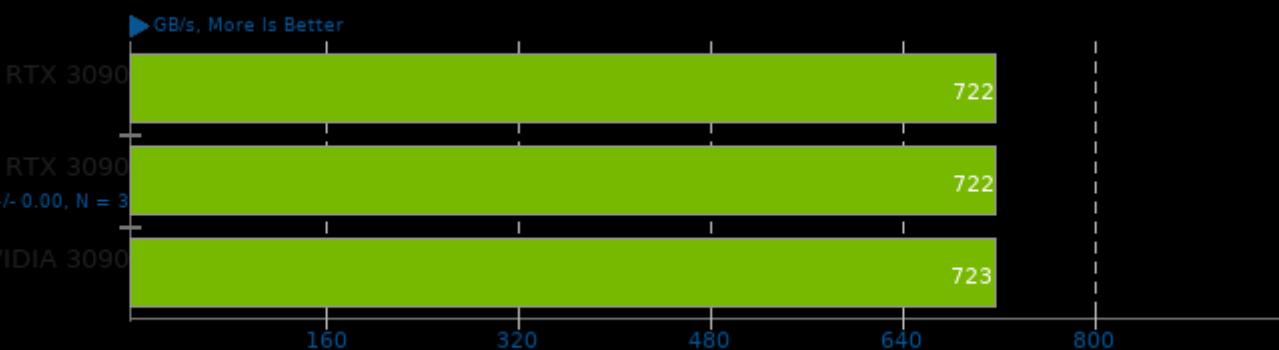
Test: OpenCL BLAS - dCOPY



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

ViennaCL 1.7.1

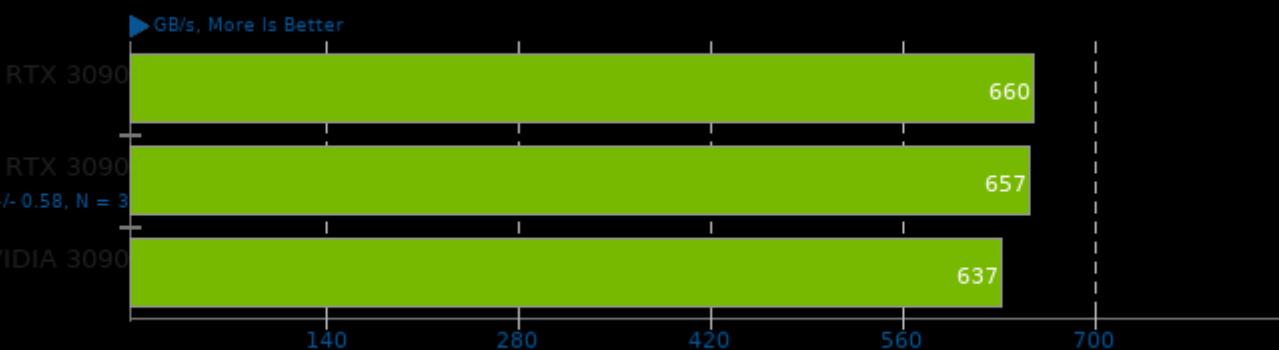
Test: OpenCL BLAS - dAXPY



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

ViennaCL 1.7.1

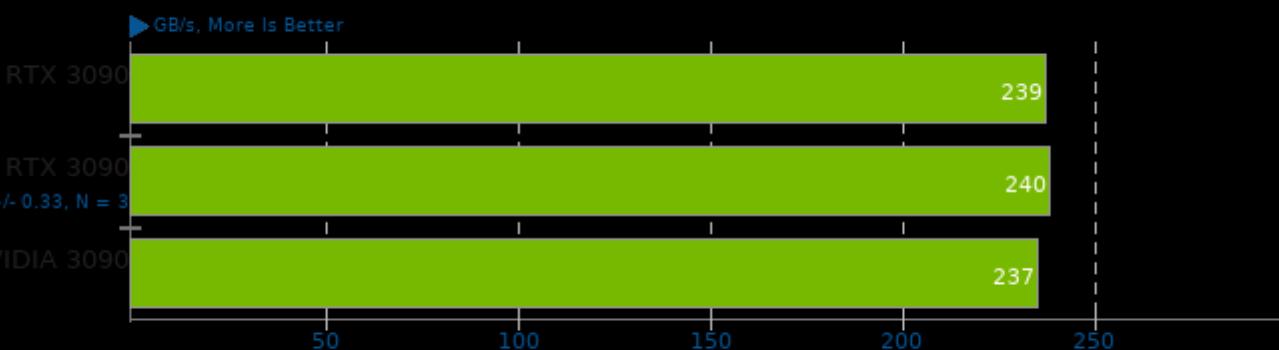
Test: OpenCL BLAS - dDOT



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

ViennaCL 1.7.1

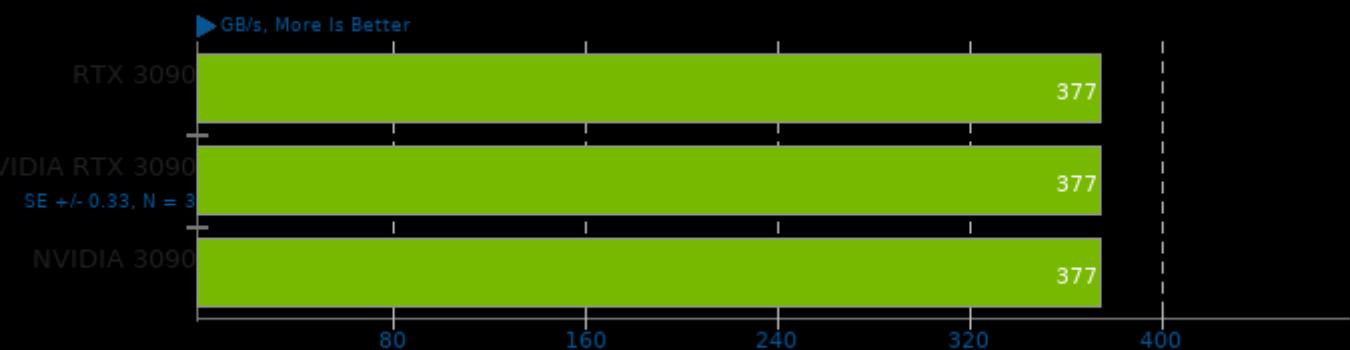
Test: OpenCL BLAS - dGEMV-N



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

ViennaCL 1.7.1

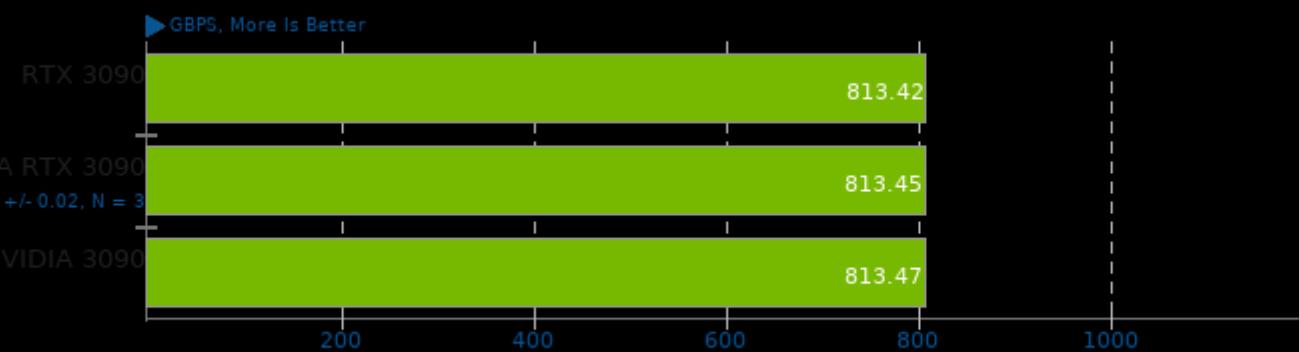
Test: OpenCL BLAS - dGEMV-T



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

clpeak

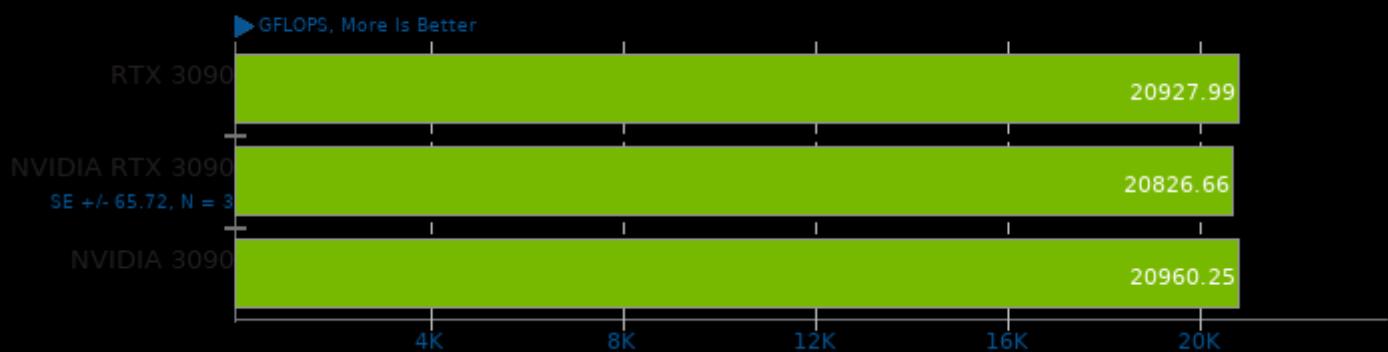
OpenCL Test: Global Memory Bandwidth



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

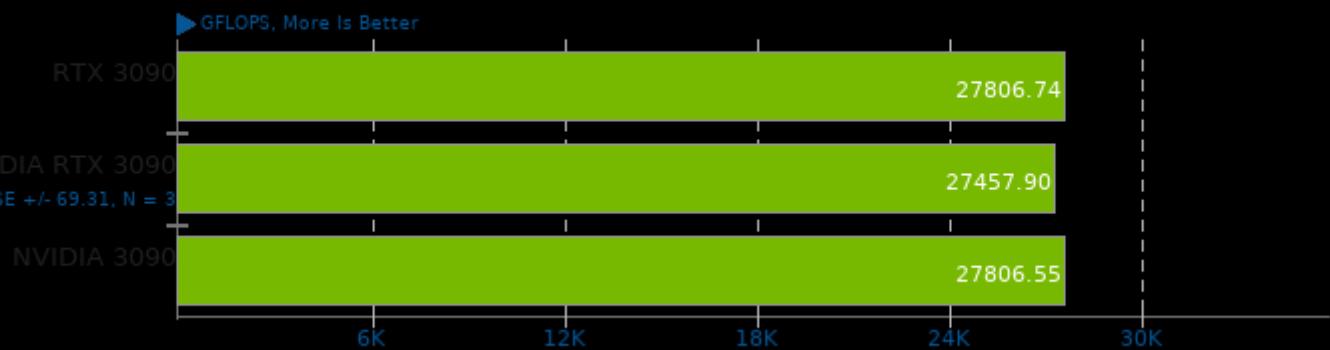
vkpeak 20210424

fp32-scalar



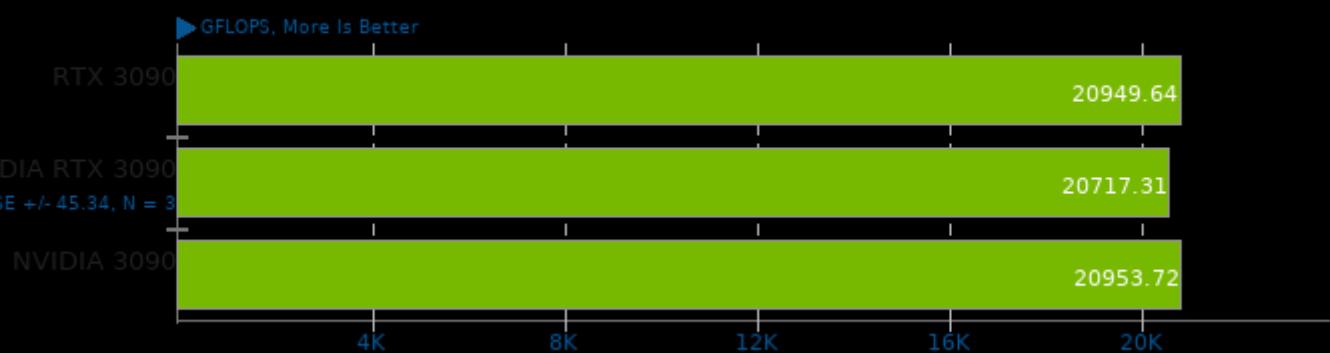
vkpeak 20210424

fp32-vec4



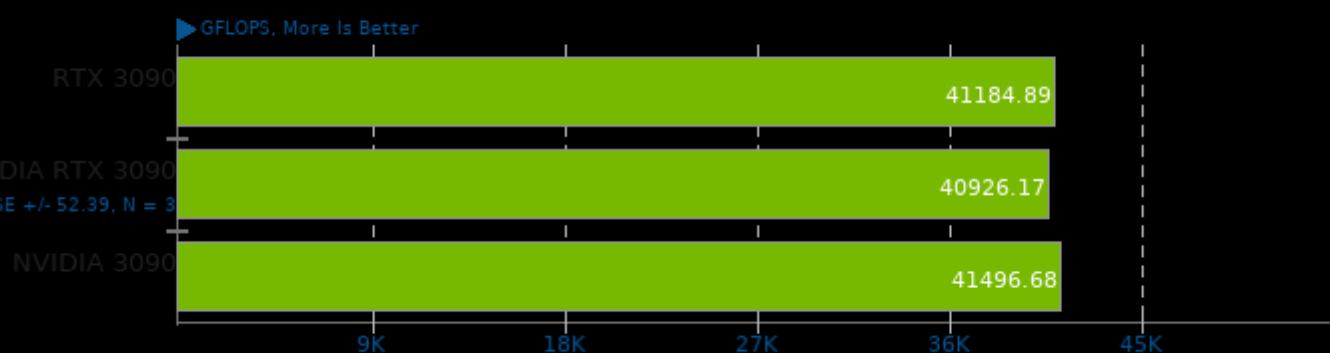
vkpeak 20210424

fp16-scalar



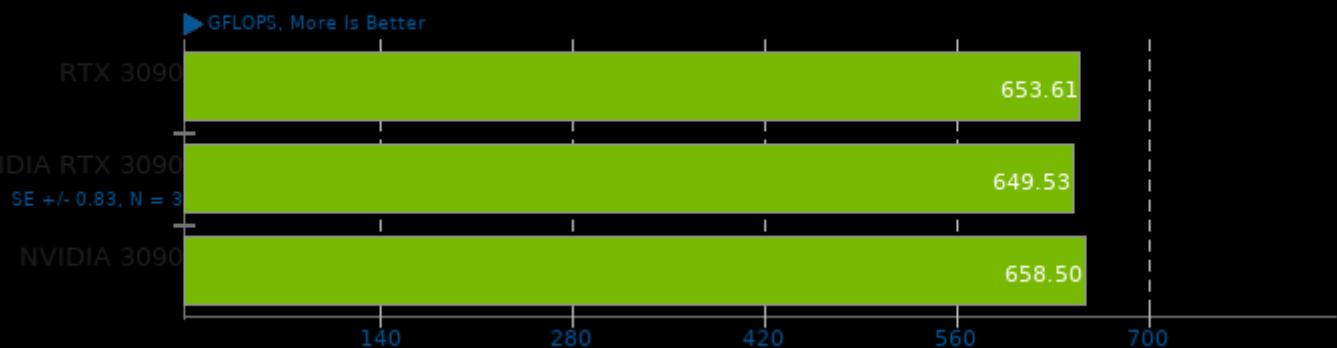
vkpeak 20210424

fp16-vec4



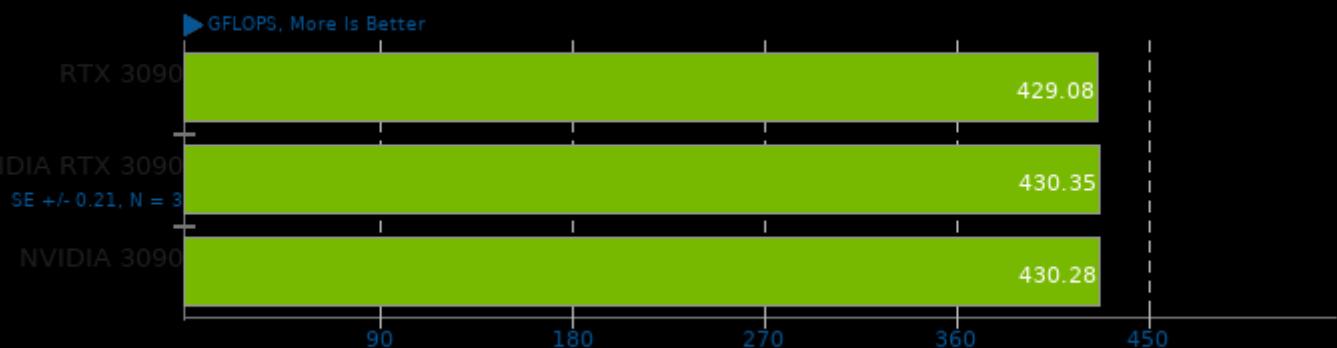
vkpeak 20210424

fp64-scalar



SHOC Scalable Heterogeneous Computing 2020-04-17

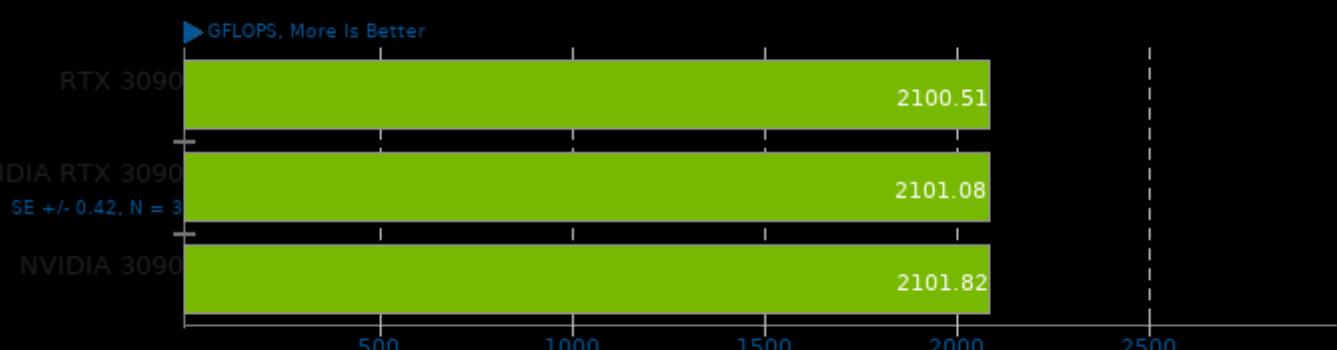
Target: OpenCL - Benchmark: S3D



1. (CXX) g++ options: -O2 -I SHOCCommonMPI -I SHOCCommonOpenCL -I SHOCCommon -I OpenCL -I rt -I mpi_cxx -I mpi

SHOC Scalable Heterogeneous Computing 2020-04-17

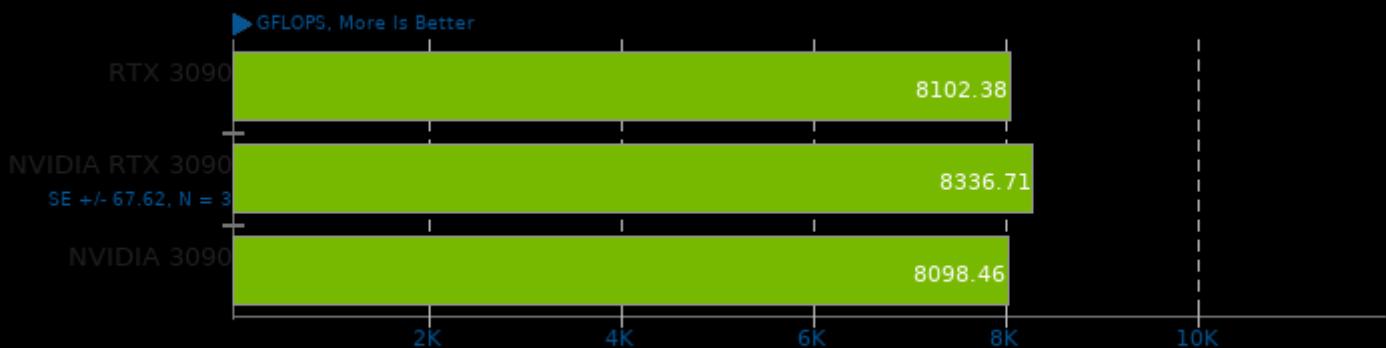
Target: OpenCL - Benchmark: FFT SP



1. (CXX) g++ options: -O2 -I SHOCCommonMPI -I SHOCCommonOpenCL -I SHOCCommon -I OpenCL -I rt -I mpi_cxx -I mpi

SHOC Scalable Heterogeneous Computing 2020-04-17

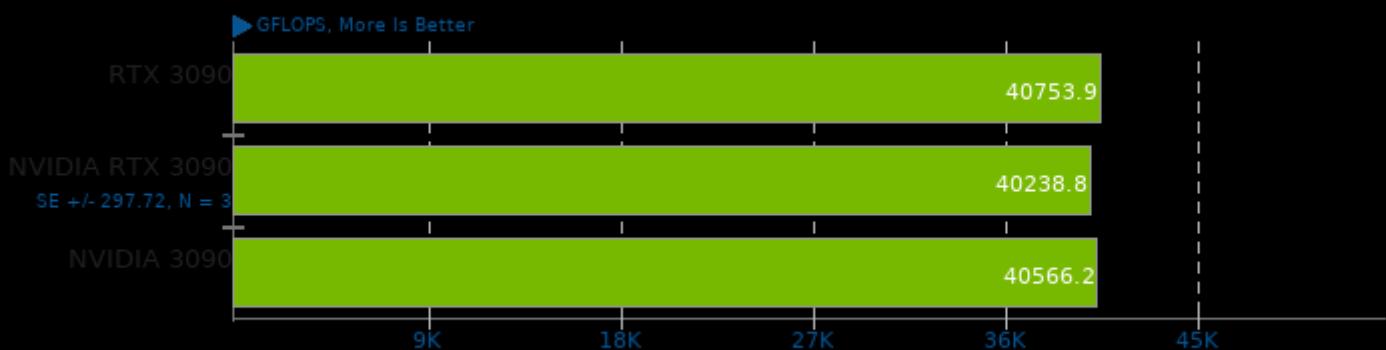
Target: OpenCL - Benchmark: GEMM SGEMM_N



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

SHOC Scalable Heterogeneous Computing 2020-04-17

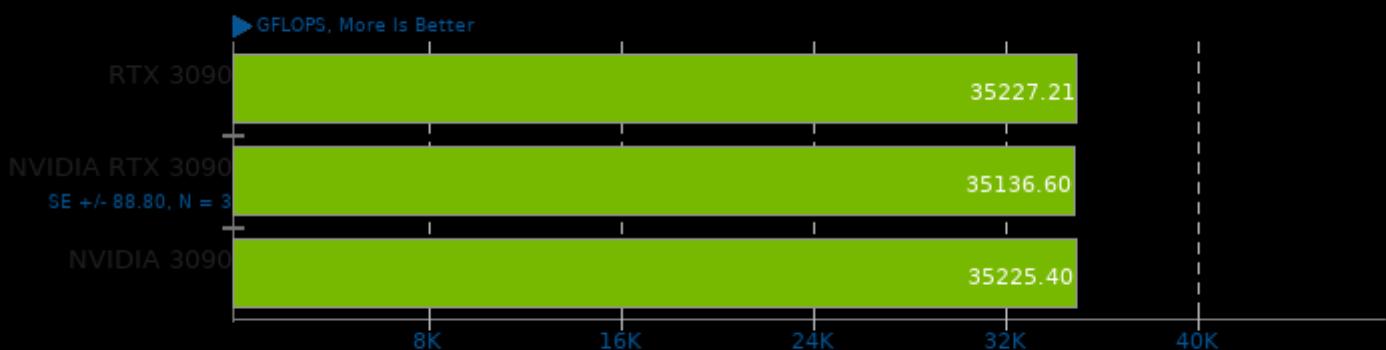
Target: OpenCL - Benchmark: Max SP Flops



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

clpeak

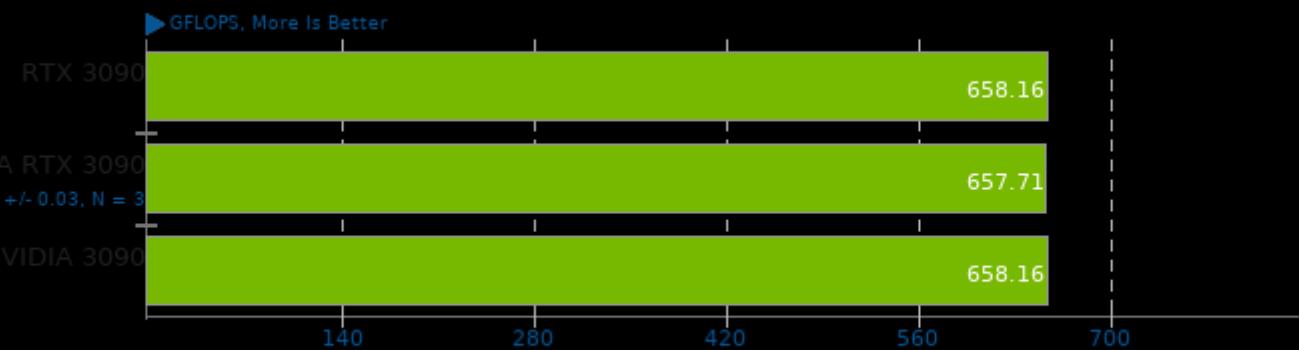
OpenCL Test: Single-Precision Float



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

clpeak

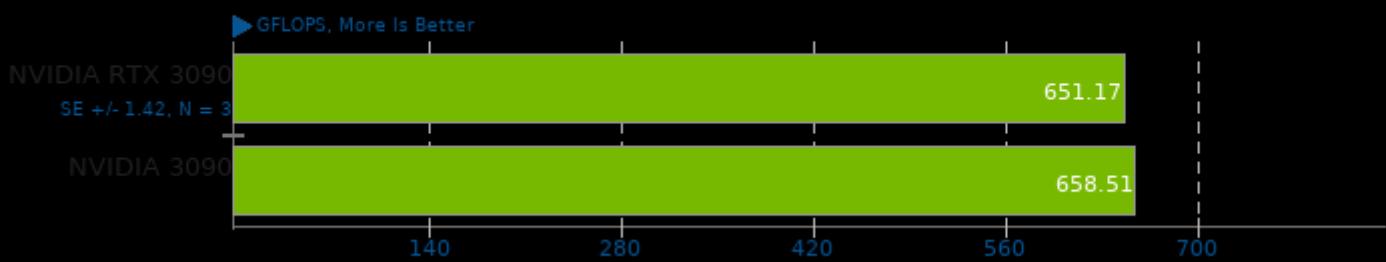
OpenCL Test: Double-Precision Double



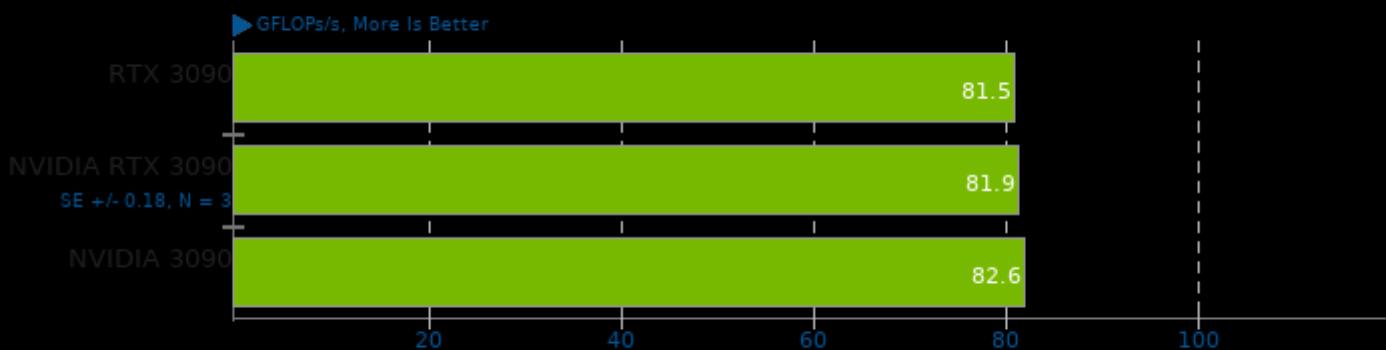
1. (CXX) g++ options: -O3 -rdynamic -lOpenCL

vkpeak 20210424

fp64-vec4

**ViennaCL 1.7.1**

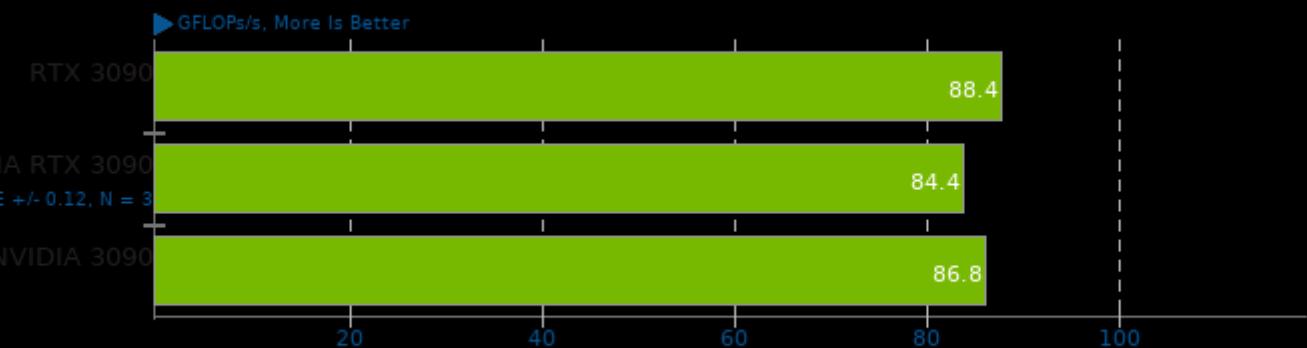
Test: CPU BLAS - dGEMM-NN



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

ViennaCL 1.7.1

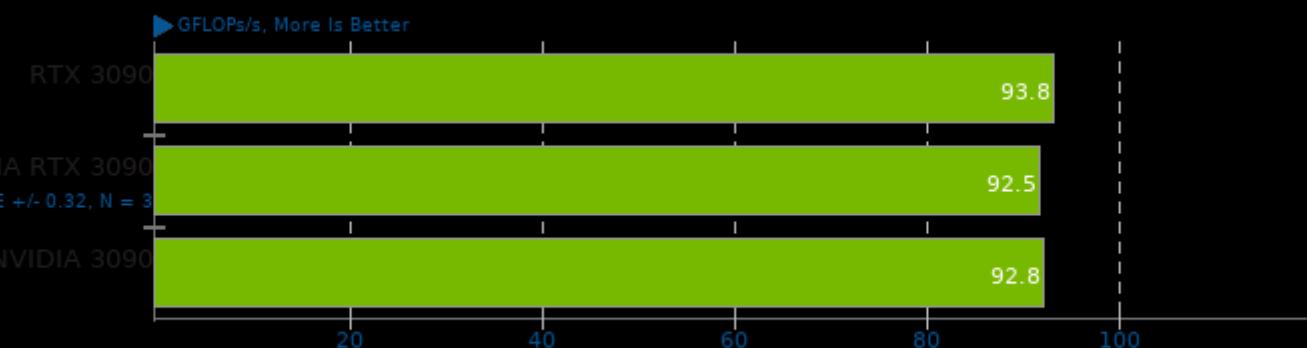
Test: CPU BLAS - dGEMM-NT



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

ViennaCL 1.7.1

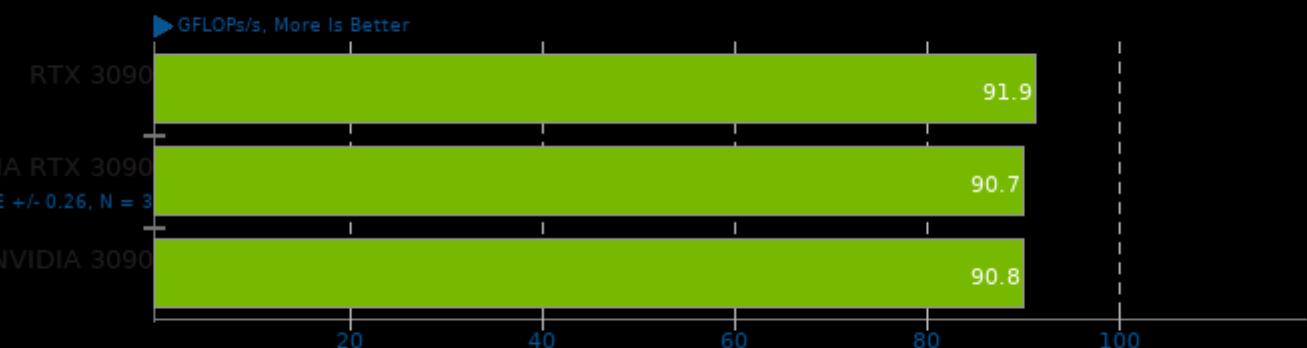
Test: CPU BLAS - dGEMM-TN



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

ViennaCL 1.7.1

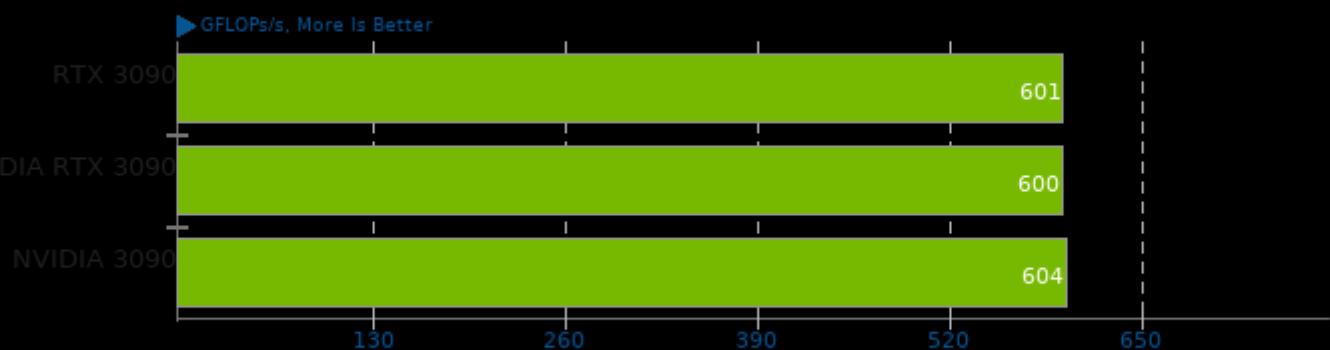
Test: CPU BLAS - dGEMM-TT



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

ViennaCL 1.7.1

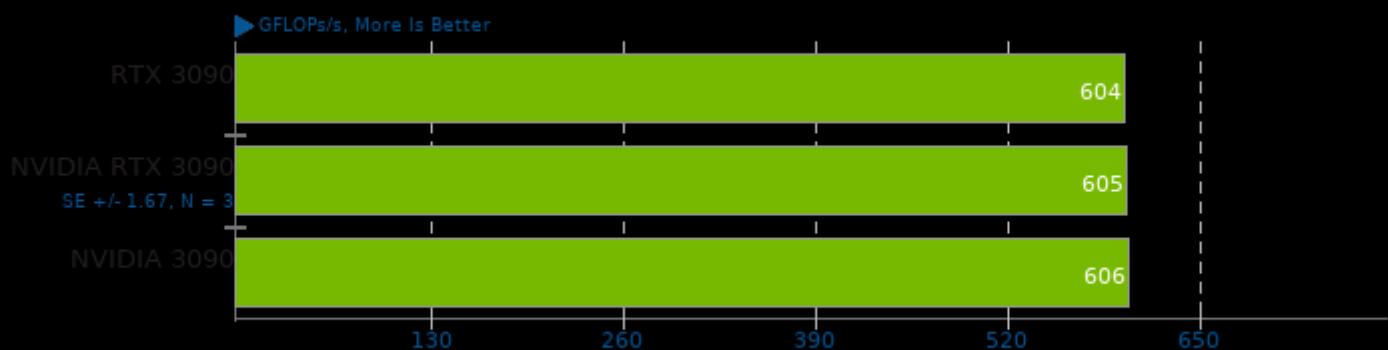
Test: OpenCL BLAS - dGEMM-NN



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

ViennaCL 1.7.1

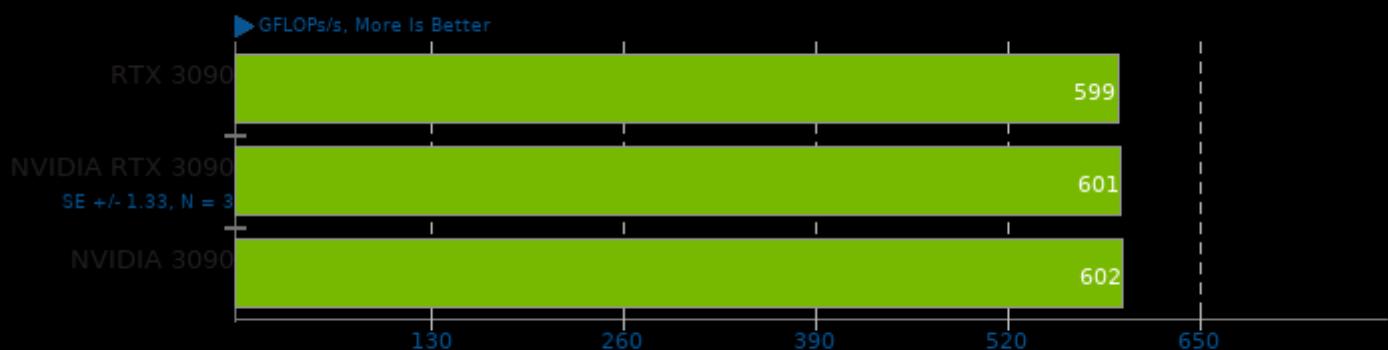
Test: OpenCL BLAS - dGEMM-NT



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

ViennaCL 1.7.1

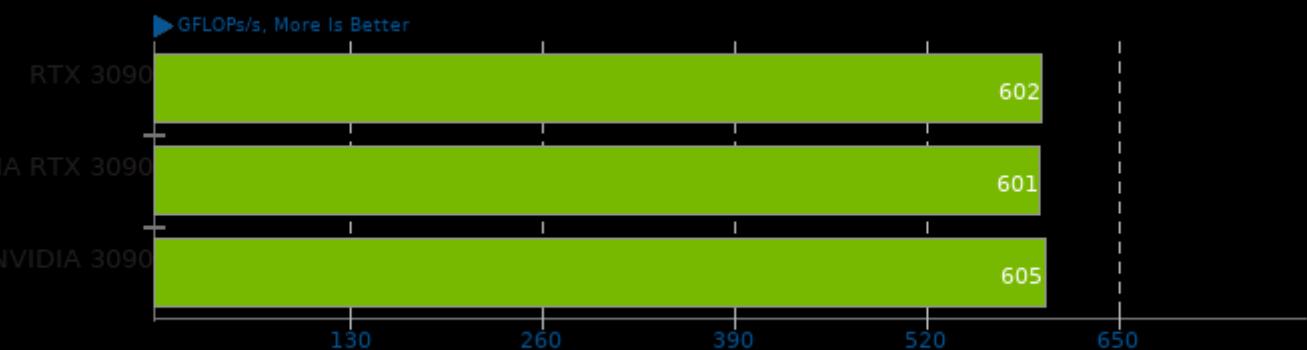
Test: OpenCL BLAS - dGEMM-TN



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

ViennaCL 1.7.1

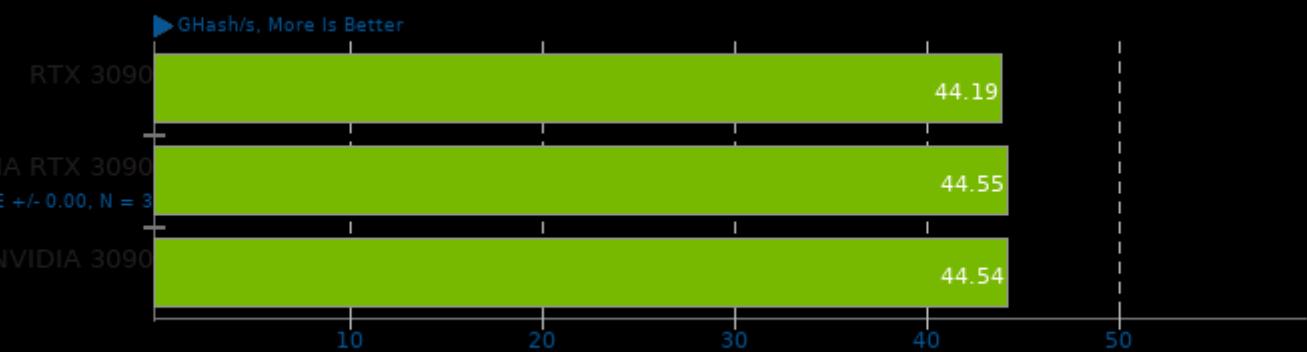
Test: OpenCL BLAS - dGEMM-TT



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

SHOC Scalable Heterogeneous Computing 2020-04-17

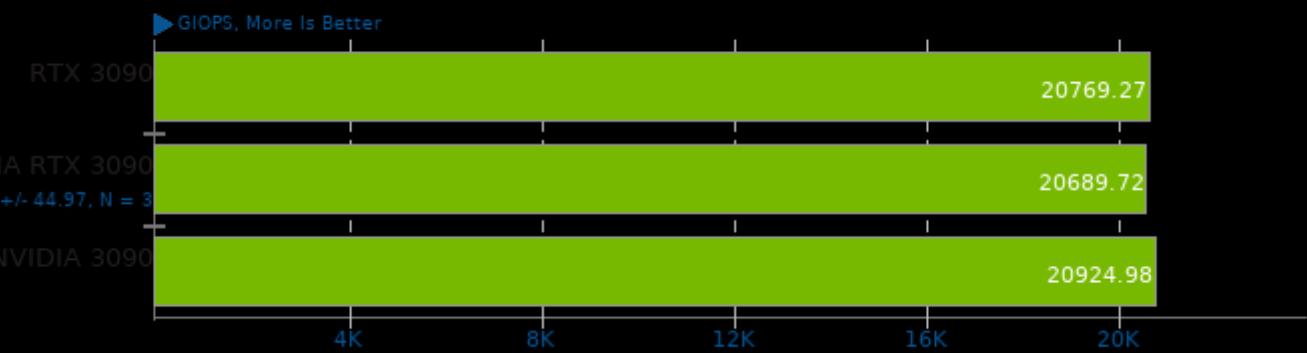
Target: OpenCL - Benchmark: MD5 Hash



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

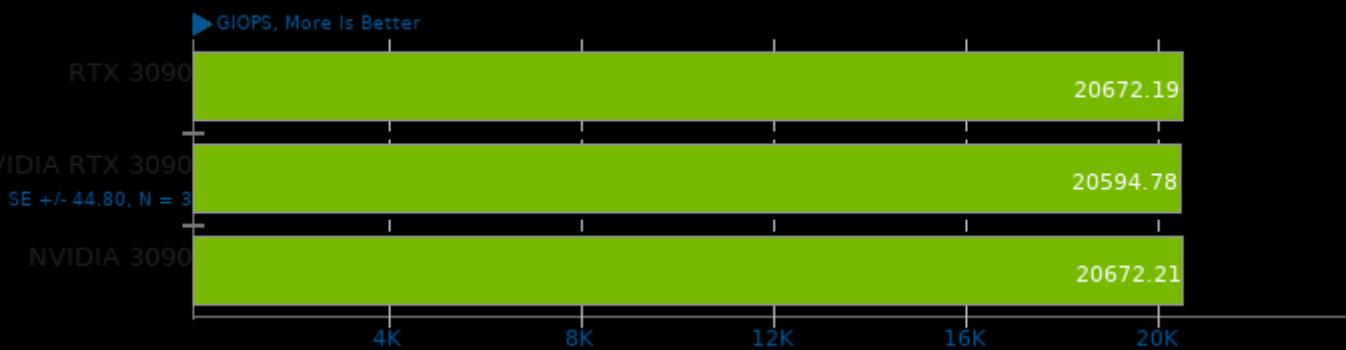
vkpeak 20210424

int32-scalar



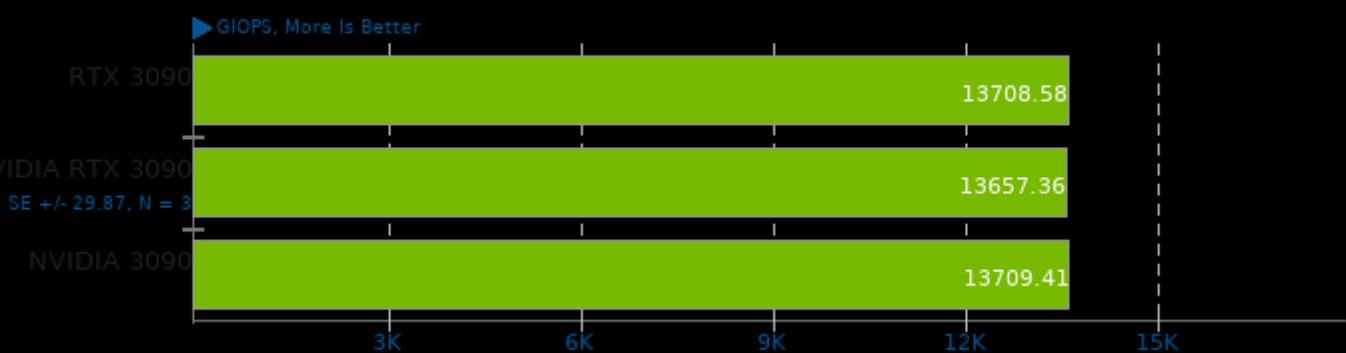
vkpeak 20210424

int32-vec4



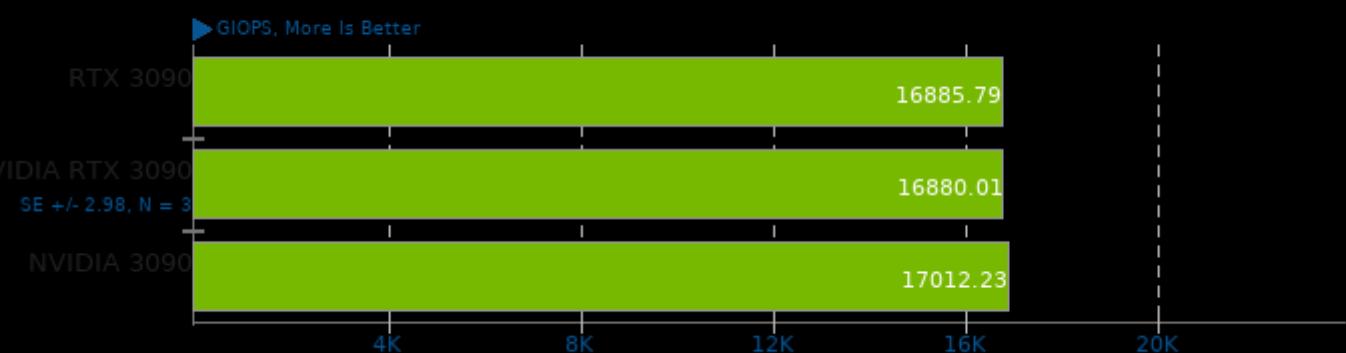
vkpeak 20210424

int16-scalar



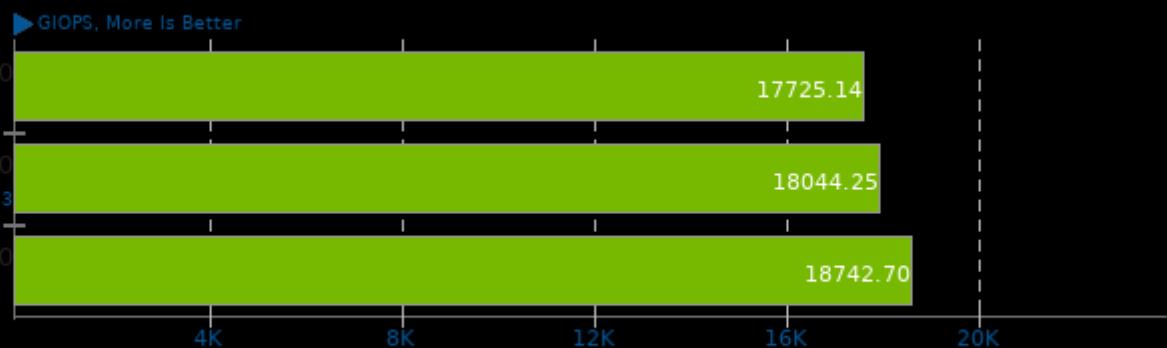
vkpeak 20210424

int16-vec4



clpeak

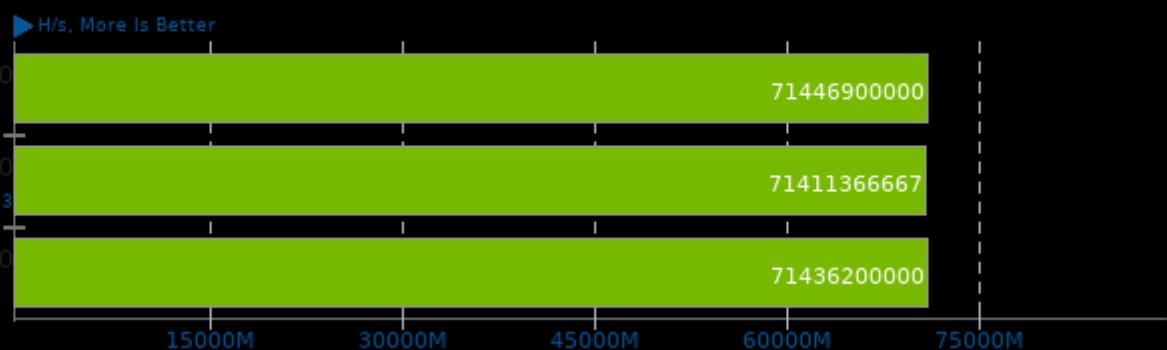
OpenCL Test: Integer Compute INT



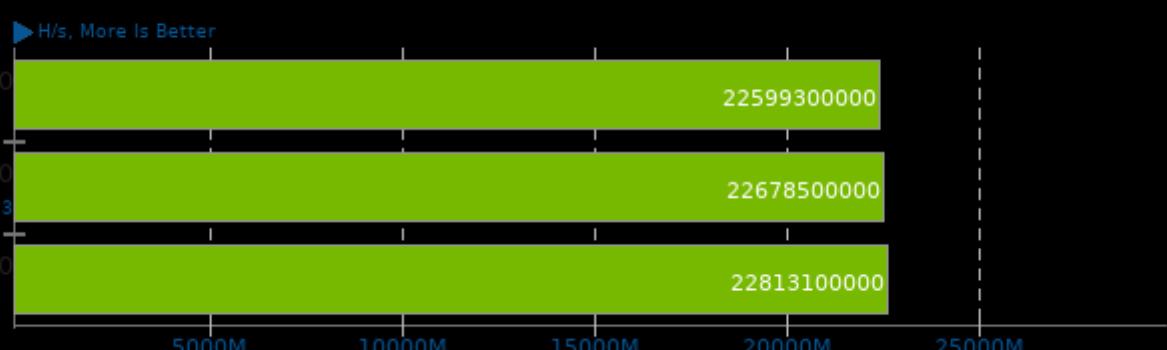
1. (CXX) g++ options: -O3 -rdynamic -lOpenCL

Hashcat 6.2.4

Benchmark: MD5

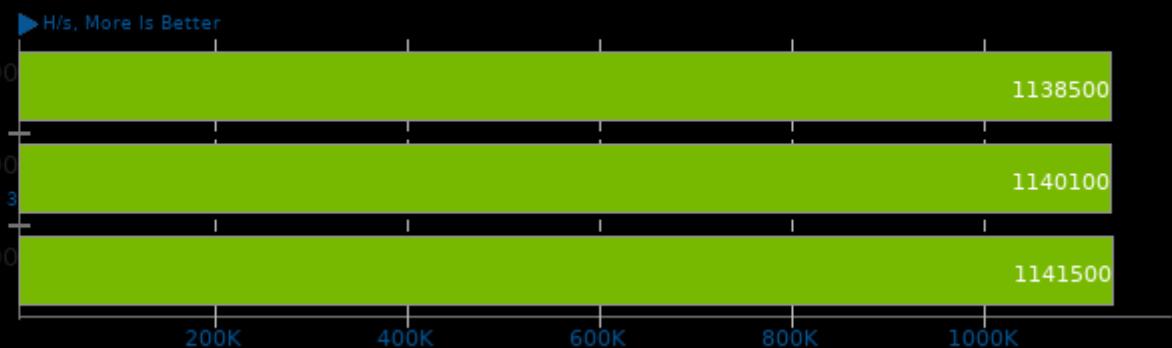
**Hashcat 6.2.4**

Benchmark: SHA1



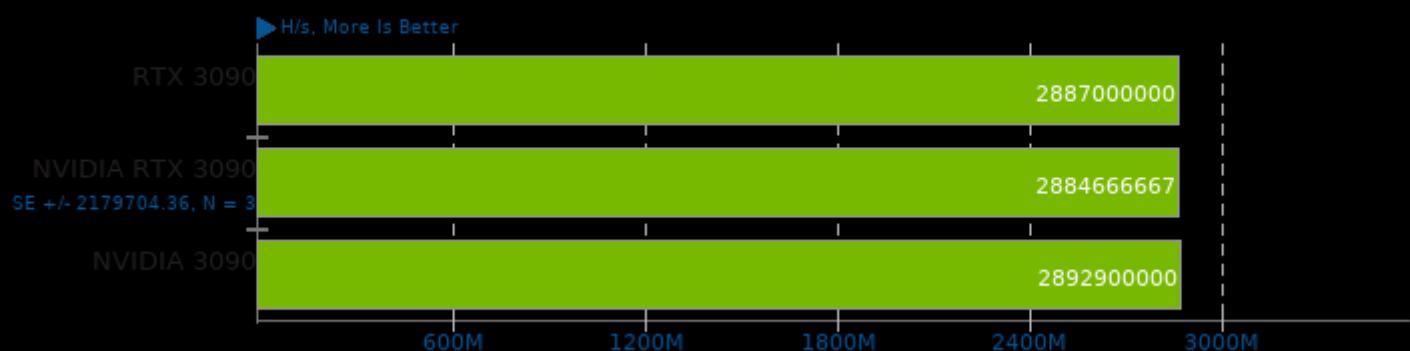
Hashcat 6.2.4

Benchmark: 7-Zip



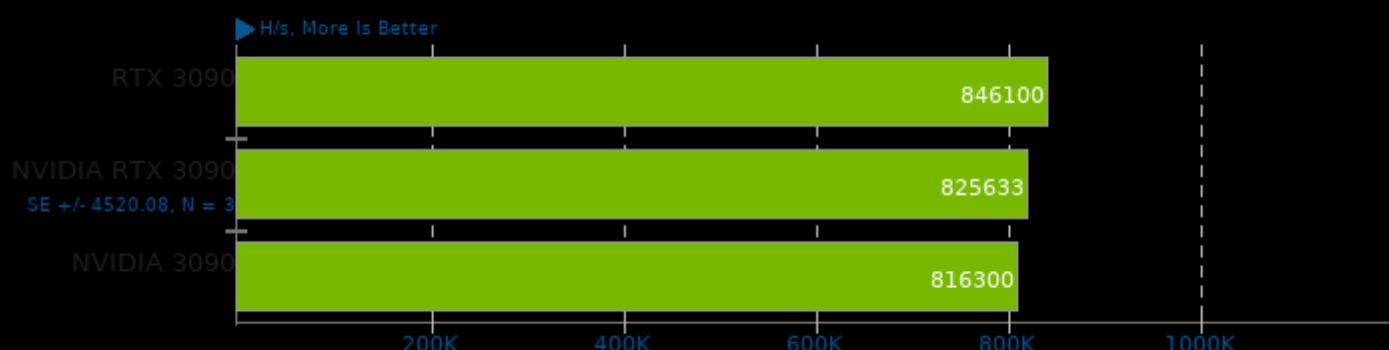
Hashcat 6.2.4

Benchmark: SHA-512



Hashcat 6.2.4

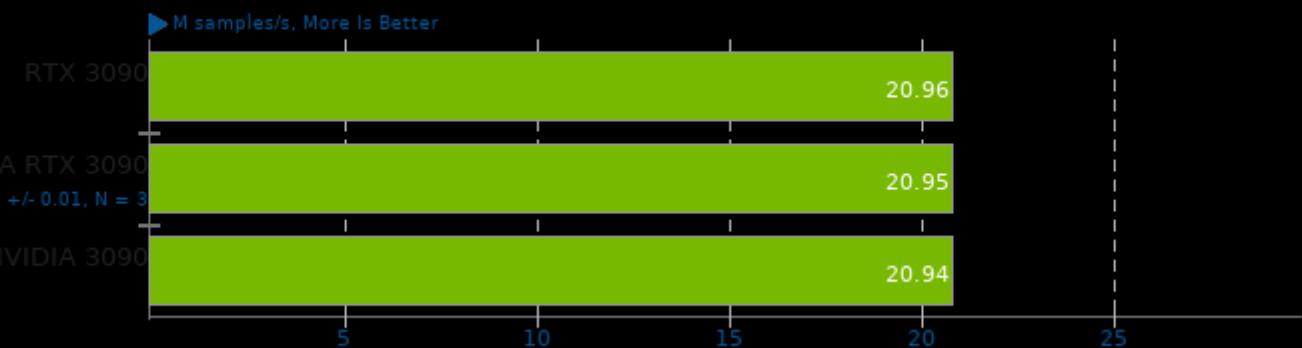
Benchmark: TrueCrypt RIPEMD160 + XTS



NVIDIA GeForce RTX 3090

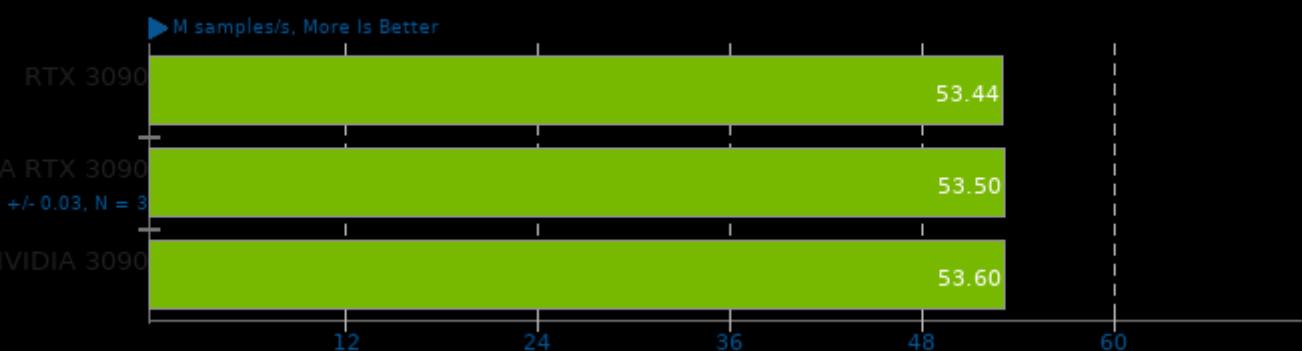
IndigoBench 4.4

Acceleration: OpenCL GPU - Scene: Bedroom



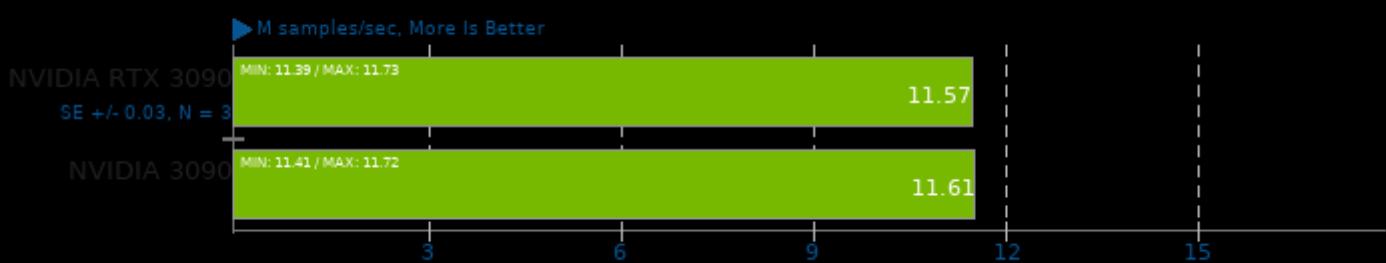
IndigoBench 4.4

Acceleration: OpenCL GPU - Scene: Supercar



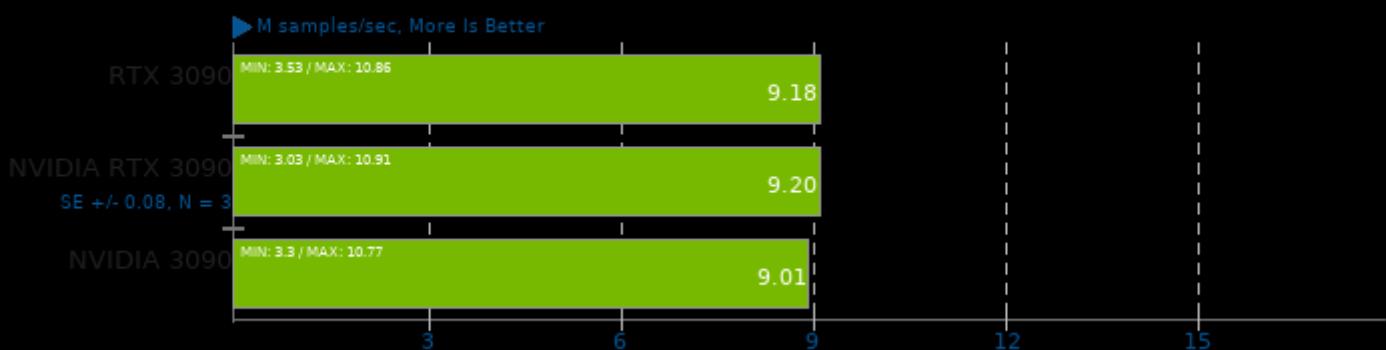
LuxCoreRender 2.5

Scene: DLSC - Acceleration: GPU



LuxCoreRender 2.5

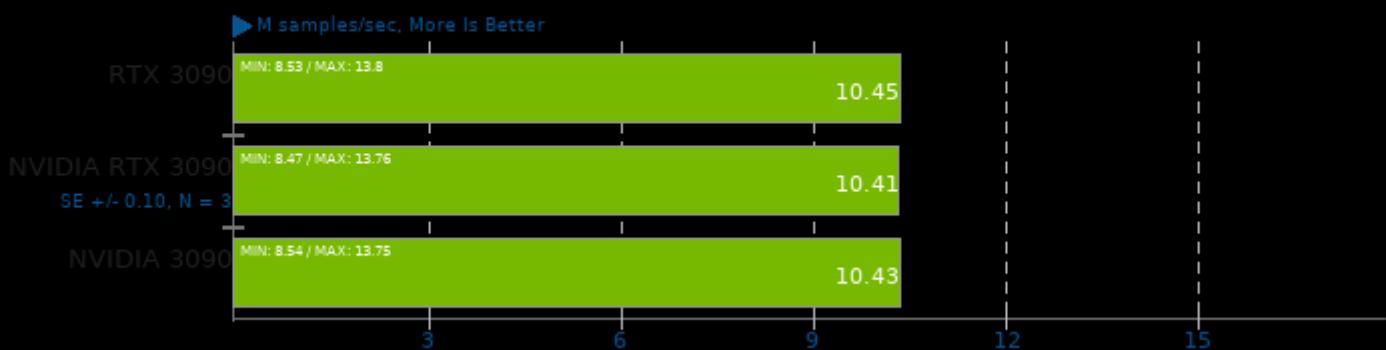
Scene: Danish Mood - Acceleration: GPU



NVIDIA GeForce RTX 3090

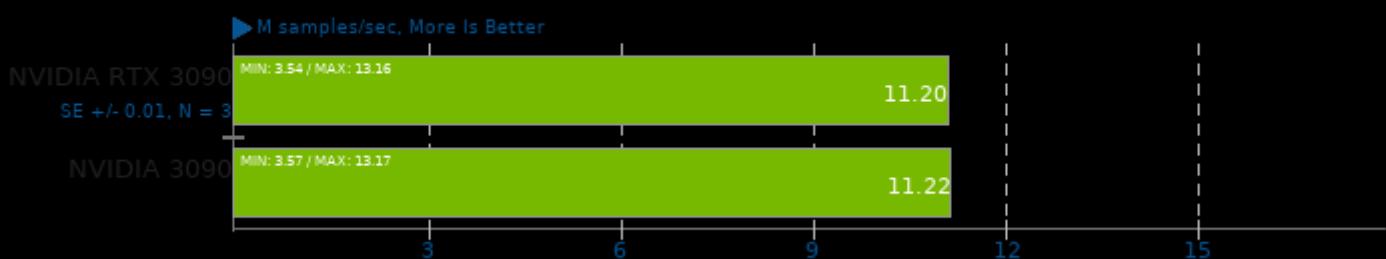
LuxCoreRender 2.5

Scene: Orange Juice - Acceleration: GPU



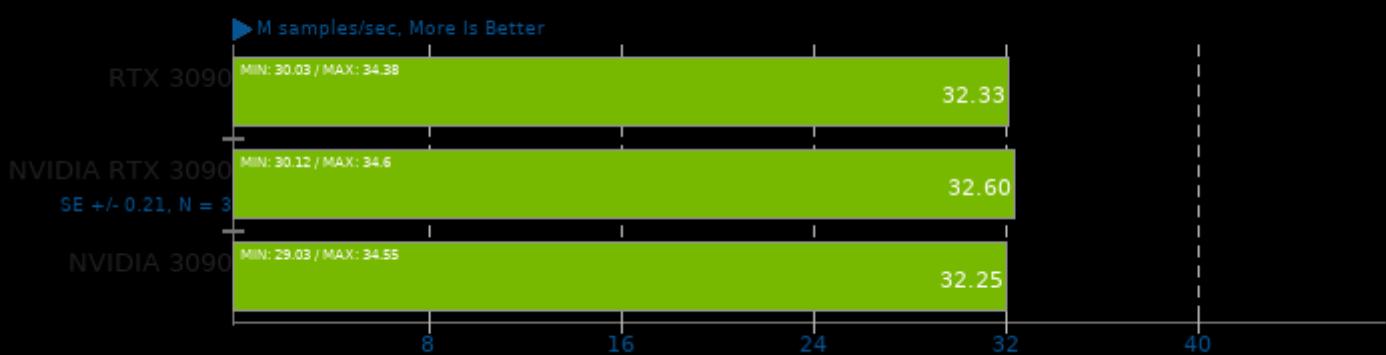
LuxCoreRender 2.5

Scene: LuxCore Benchmark - Acceleration: GPU



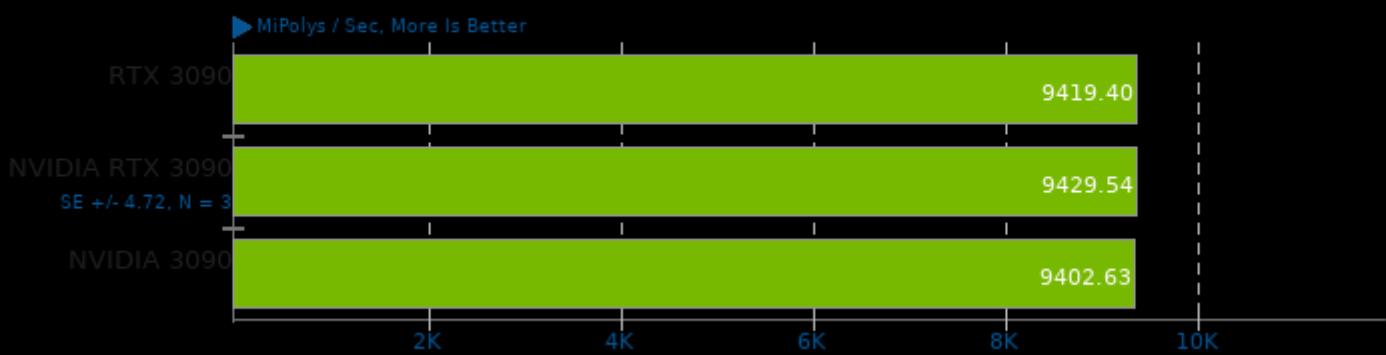
LuxCoreRender 2.5

Scene: Rainbow Colors and Prism - Acceleration: GPU



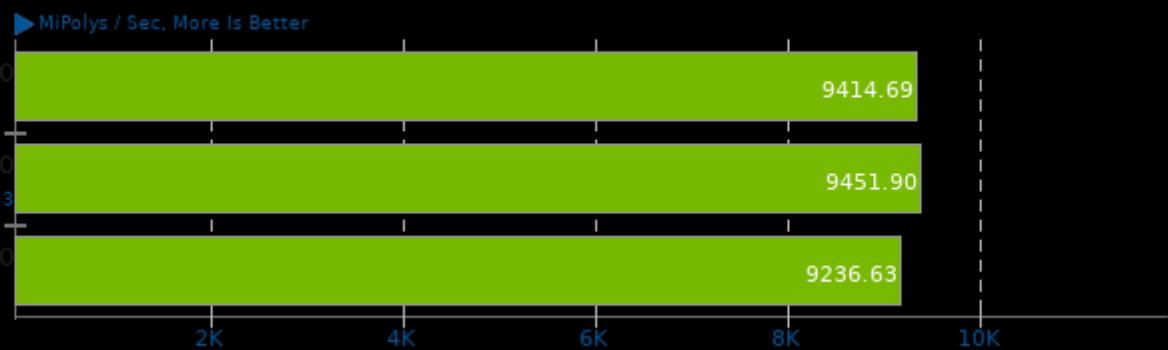
ParaView 5.9

Test: Many Spheres - Resolution: 1920 x 1080



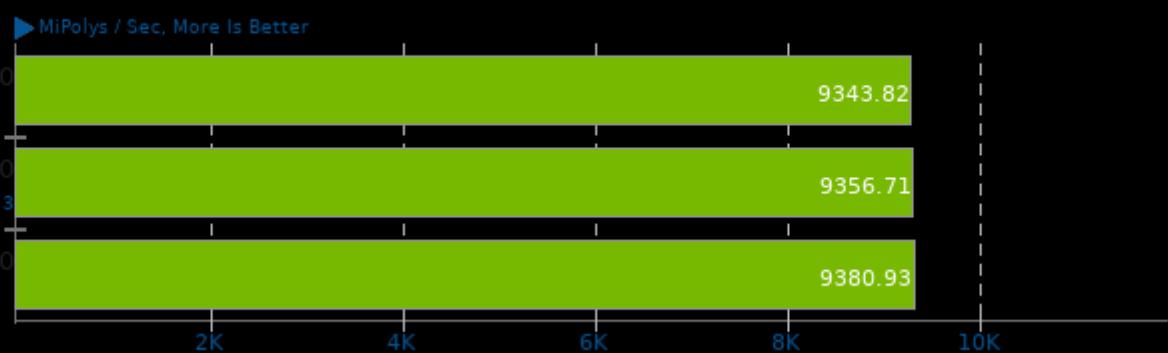
ParaView 5.9

Test: Many Spheres - Resolution: 1920 x 1200



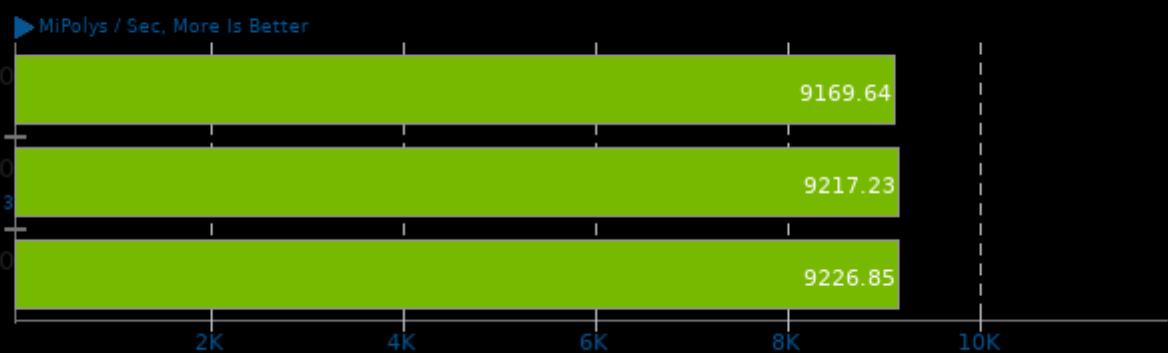
ParaView 5.9

Test: Many Spheres - Resolution: 2560 x 1440



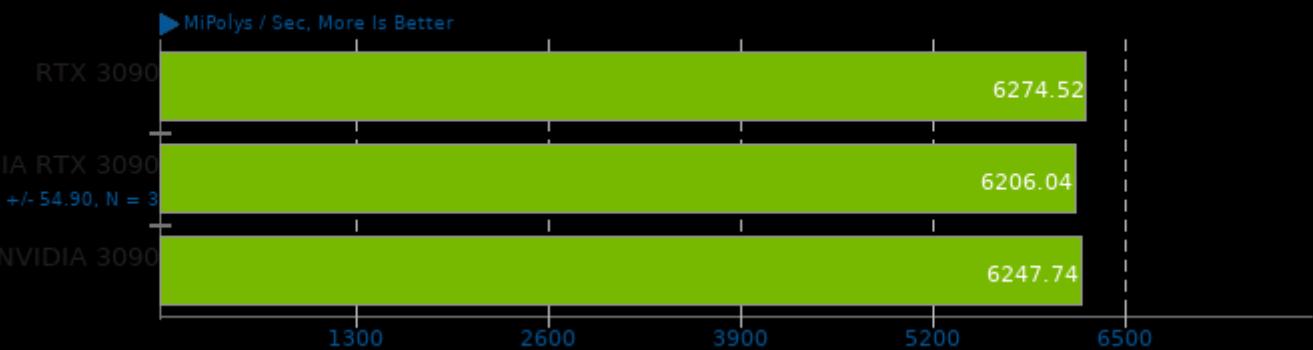
ParaView 5.9

Test: Many Spheres - Resolution: 3840 x 2160



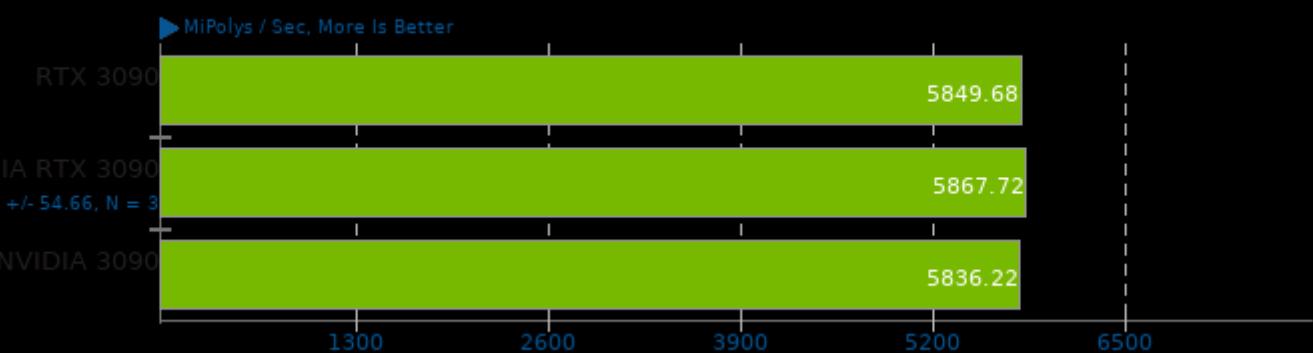
ParaView 5.9

Test: Wavelet Contour - Resolution: 1920 x 1080



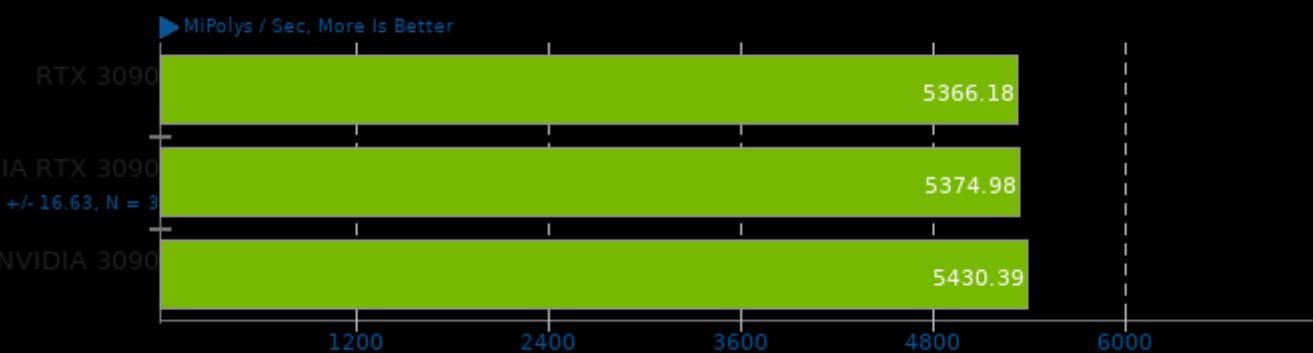
ParaView 5.9

Test: Wavelet Contour - Resolution: 1920 x 1200



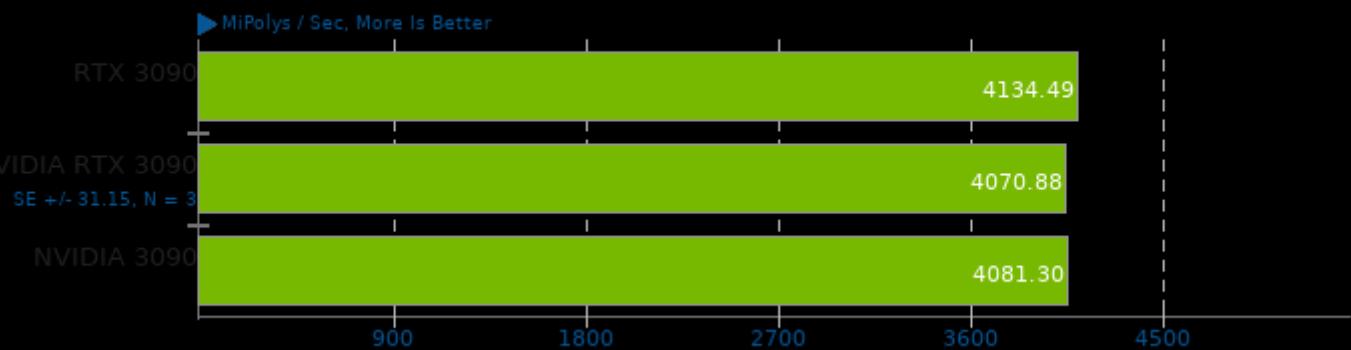
ParaView 5.9

Test: Wavelet Contour - Resolution: 2560 x 1440



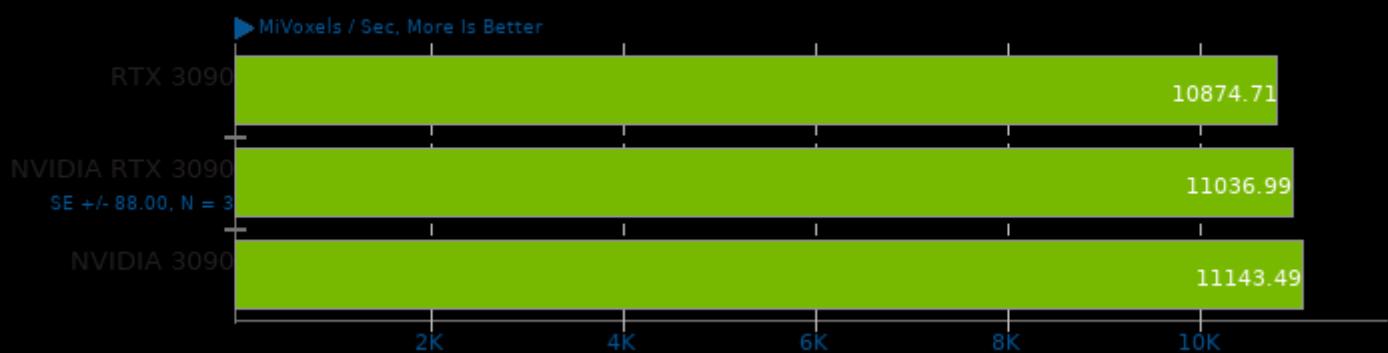
ParaView 5.9

Test: Wavelet Contour - Resolution: 3840 x 2160



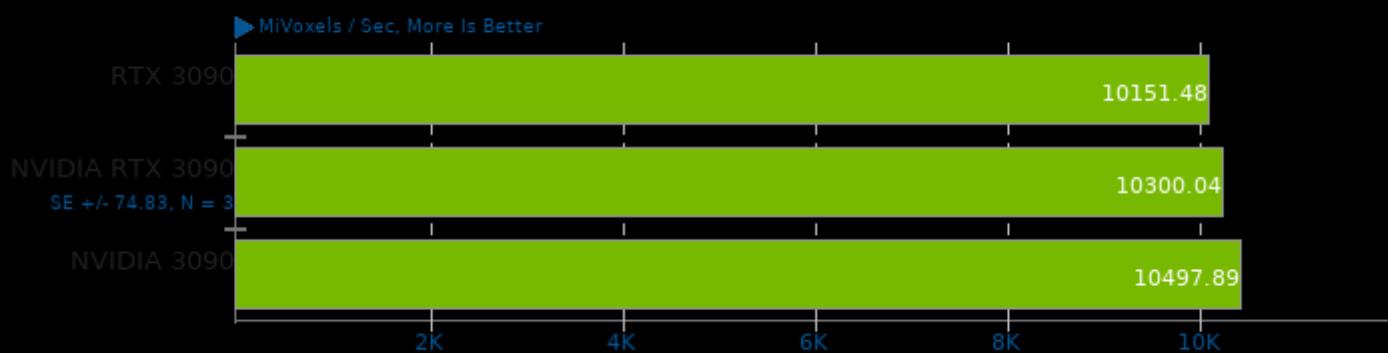
ParaView 5.9

Test: Wavelet Volume - Resolution: 1920 x 1080



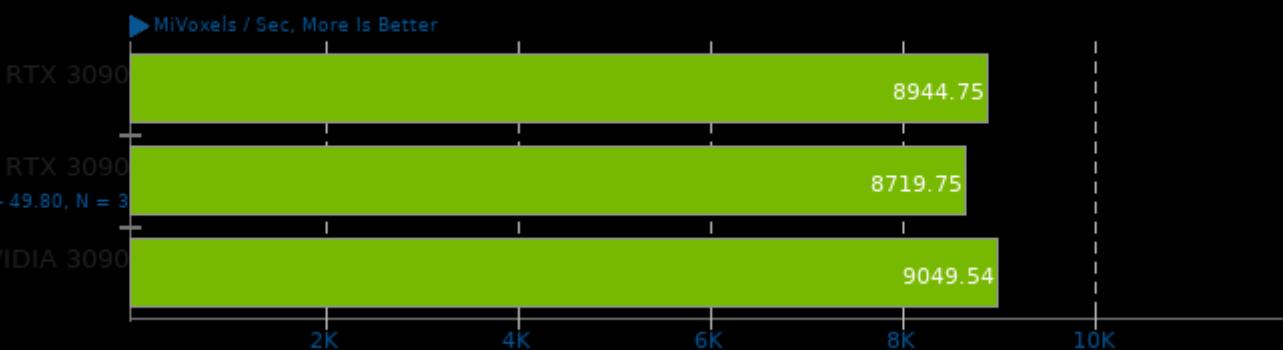
ParaView 5.9

Test: Wavelet Volume - Resolution: 1920 x 1200



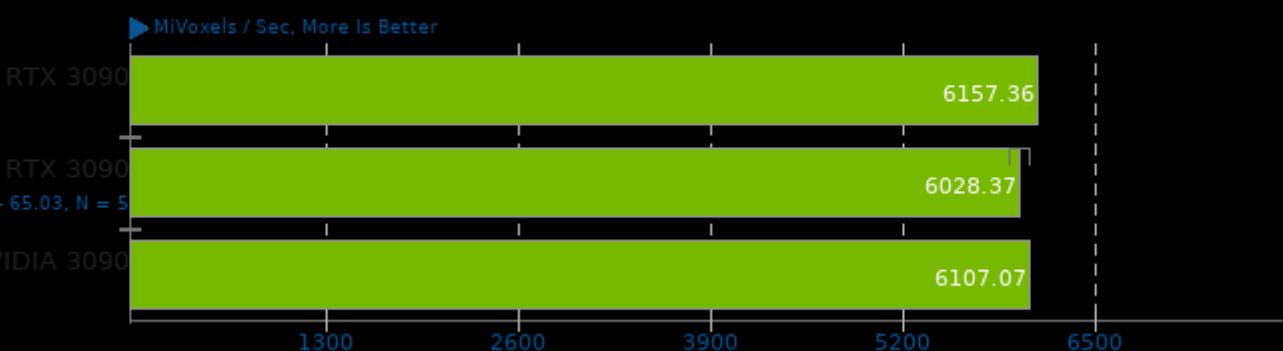
ParaView 5.9

Test: Wavelet Volume - Resolution: 2560 x 1440



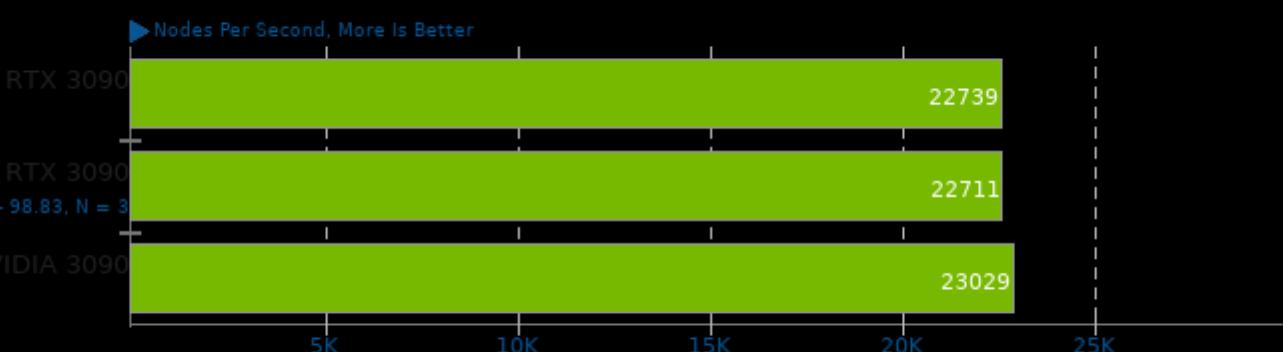
ParaView 5.9

Test: Wavelet Volume - Resolution: 3840 x 2160



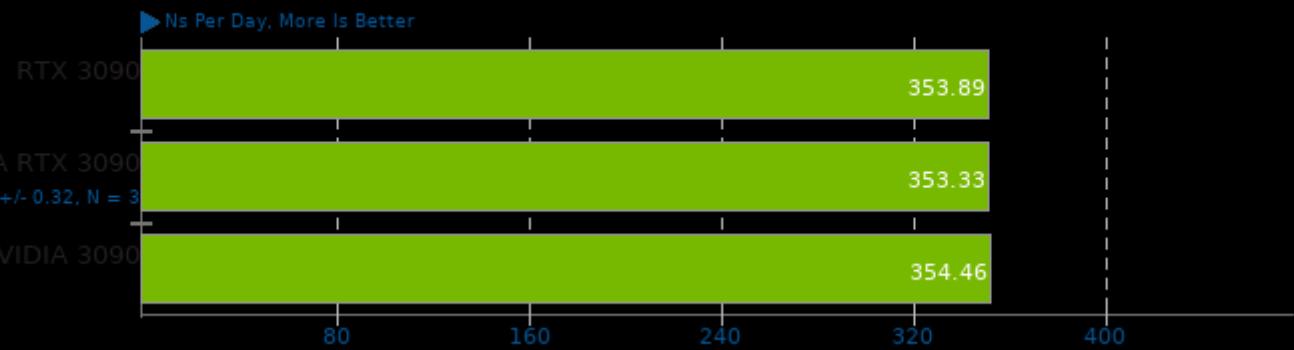
LeelaChessZero 0.28

Backend: OpenCL



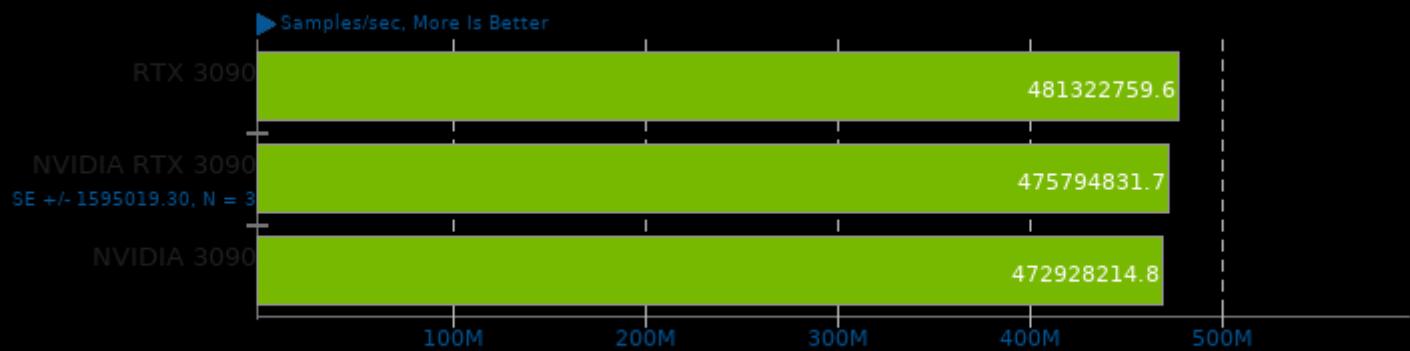
1. (CXX) g++ options: -fno -pthread

FAHBench 2.3.2



MandelGPU 1.3pts1

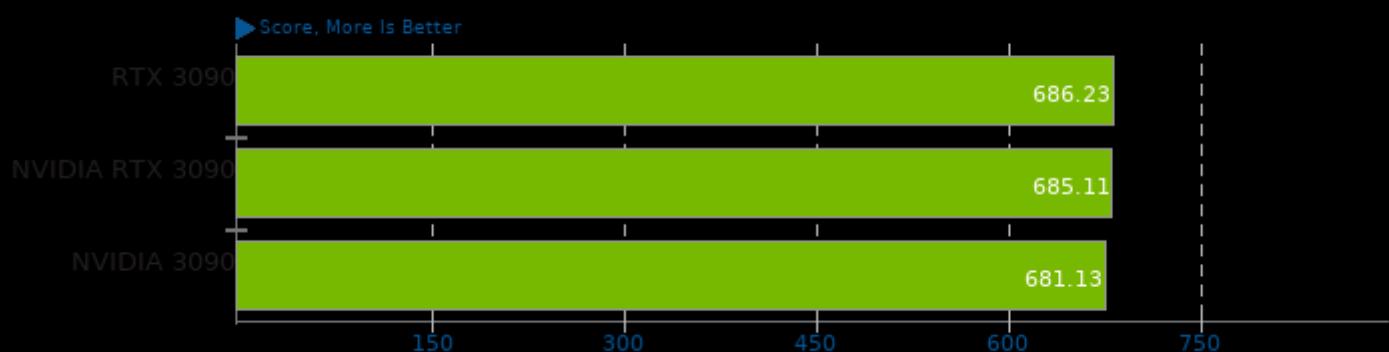
OpenCL Device: GPU



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

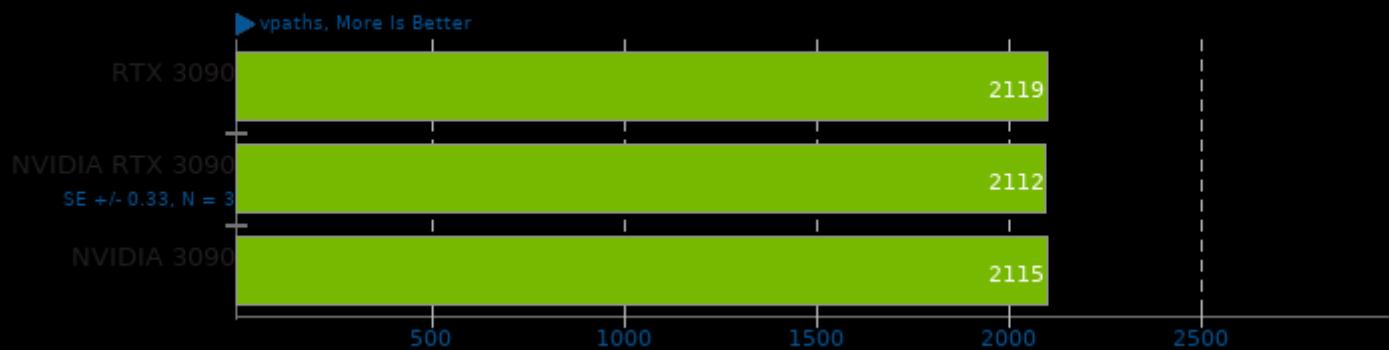
OctaneBench 2020.1

Total Score



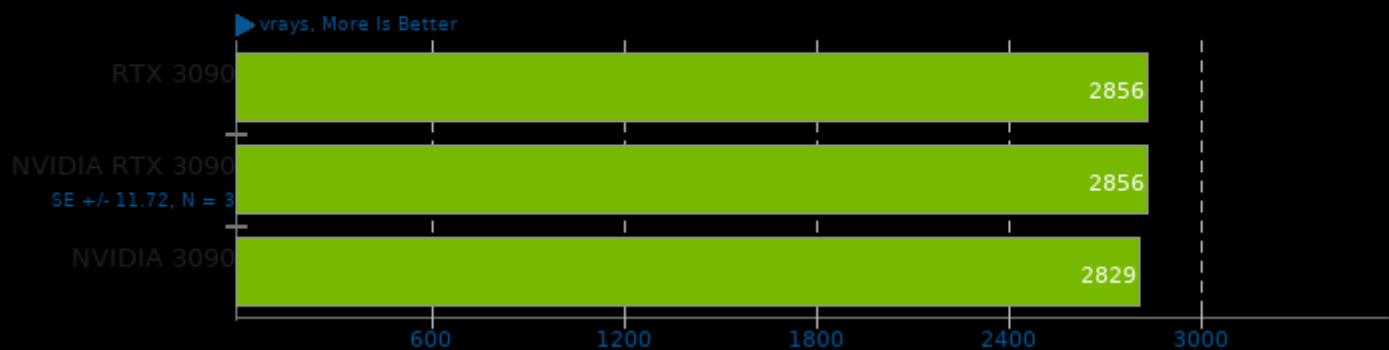
Chaos Group V-RAY 5

Mode: NVIDIA CUDA GPU



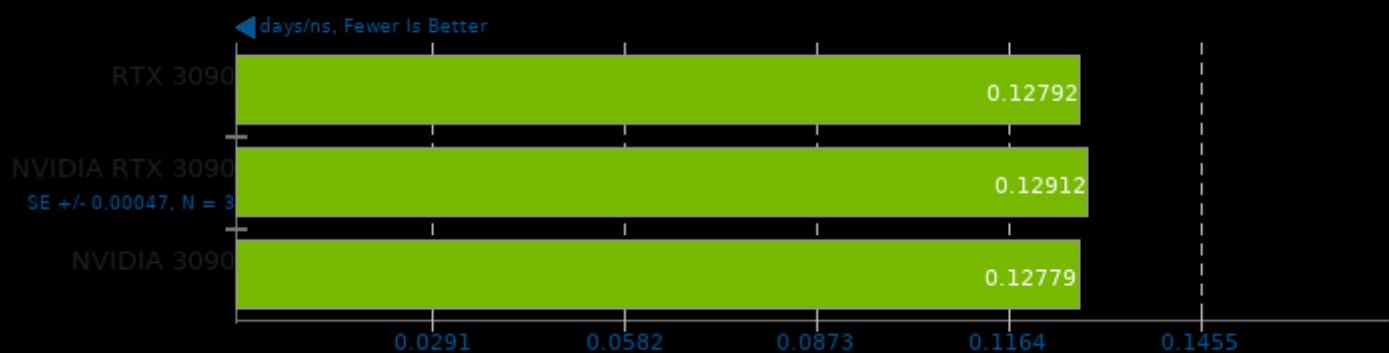
Chaos Group V-RAY 5

Mode: NVIDIA RTX GPU



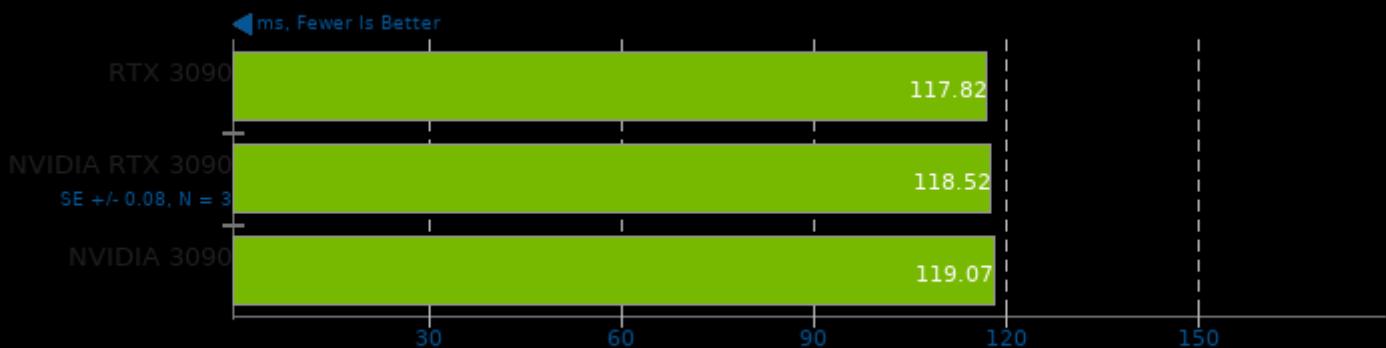
NAMD CUDA 2.14

ATPase Simulation - 327,506 Atoms



VkResample 1.0

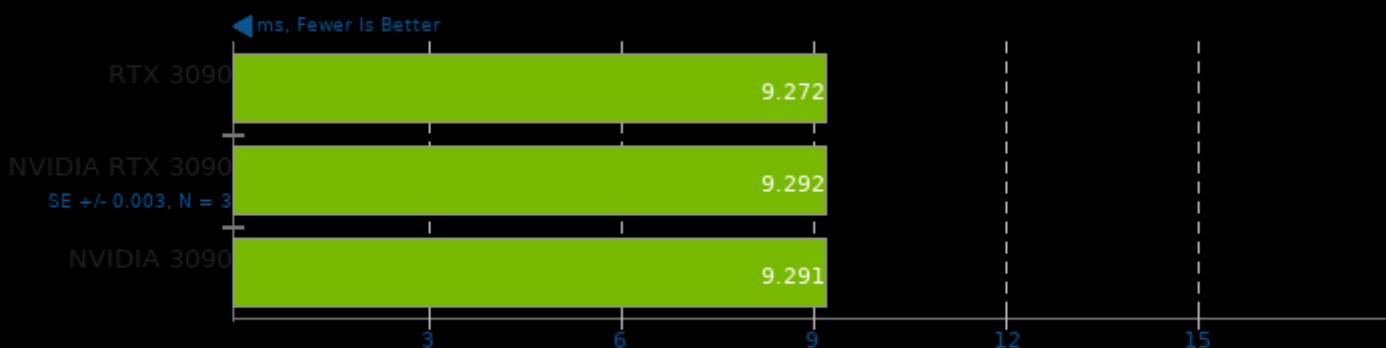
Upscale: 2x - Precision: Double



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

VkResample 1.0

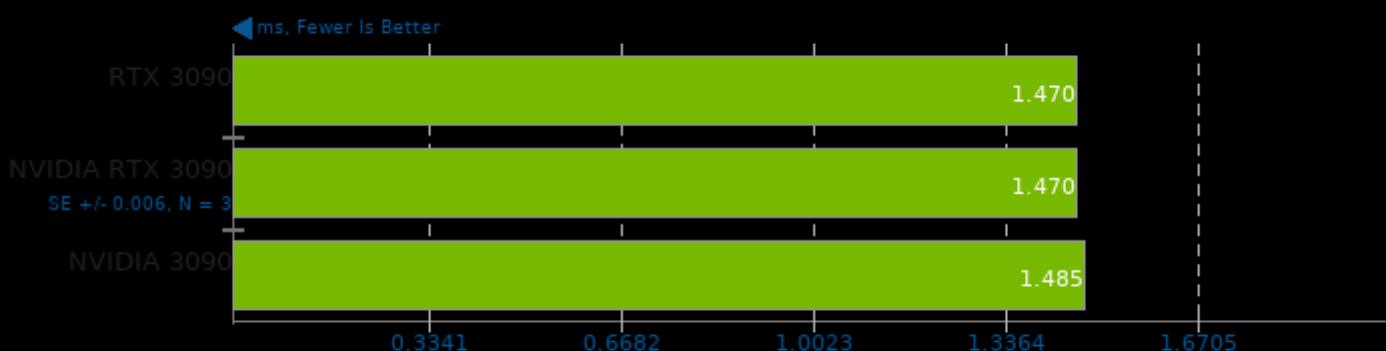
Upscale: 2x - Precision: Single



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

ArrayFire 3.7

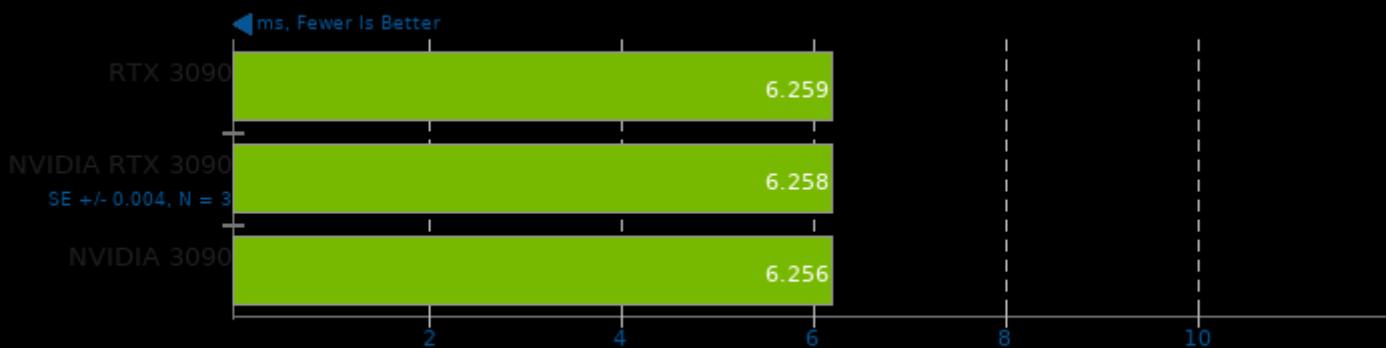
Test: Conjugate Gradient OpenCL



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

FinanceBench 2016-07-25

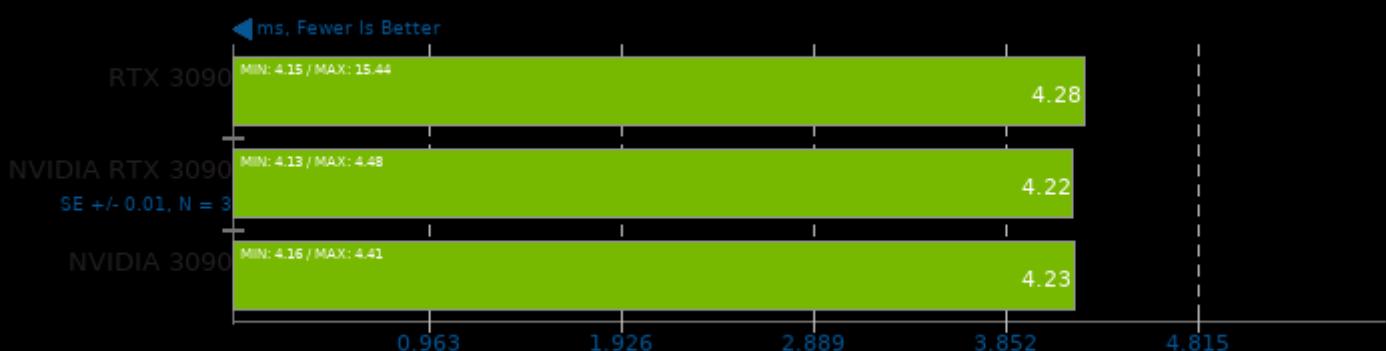
Benchmark: Black-Scholes OpenCL



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

NCNN 20210720

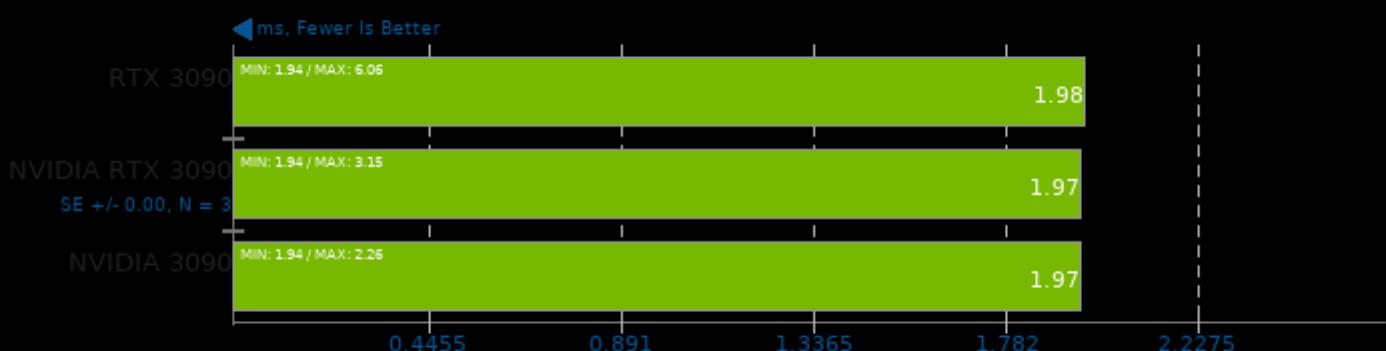
Target: Vulkan GPU - Model: mobilenet



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

NCNN 20210720

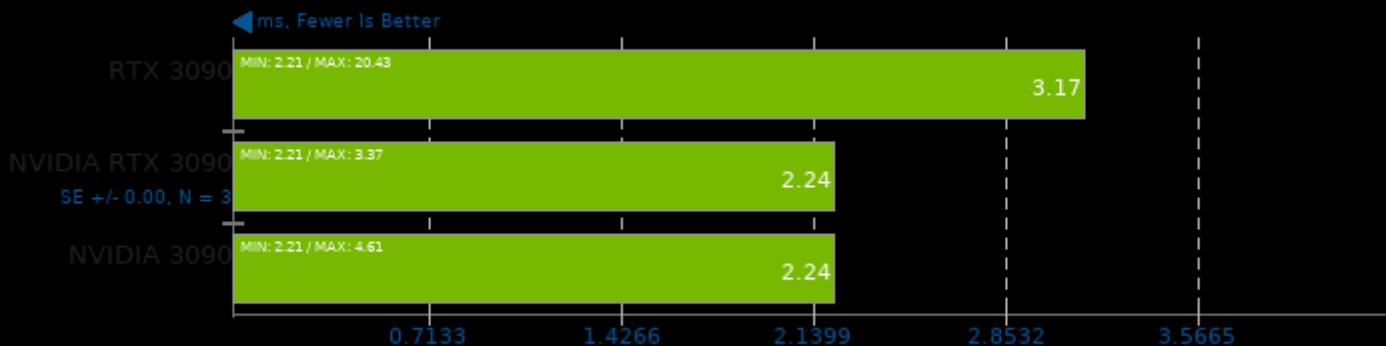
Target: Vulkan GPU-v2-v2 - Model: mobilenet-v2



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

NCNN 20210720

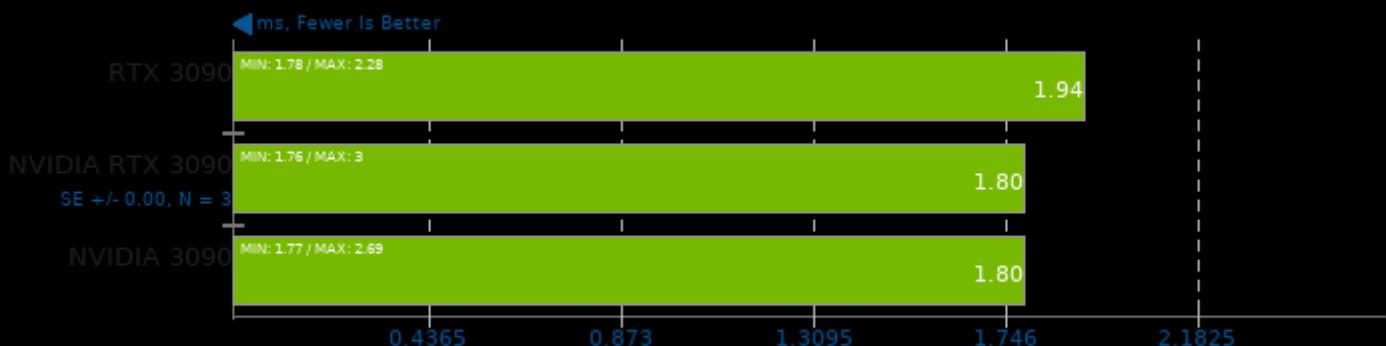
Target: Vulkan GPU-v3-v3 - Model: mobilenet-v3



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

NCNN 20210720

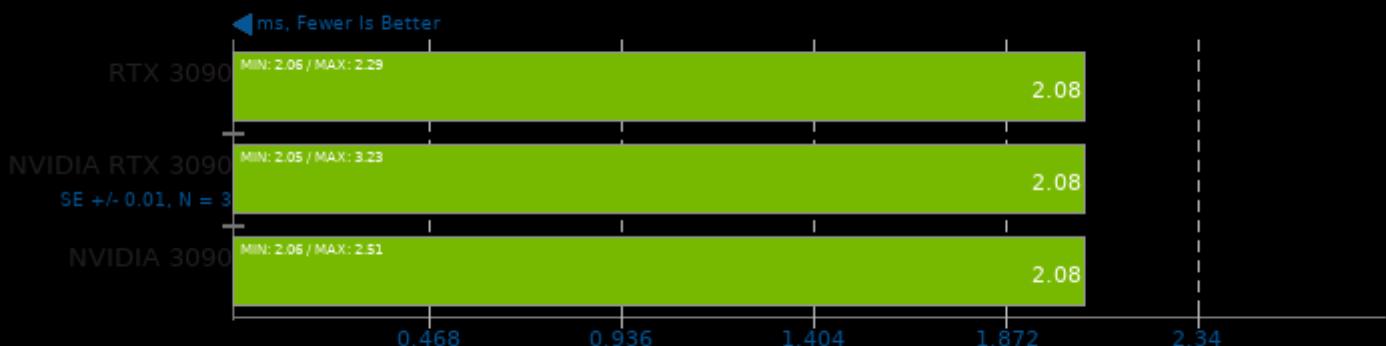
Target: Vulkan GPU - Model: shufflenet-v2



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

NCNN 20210720

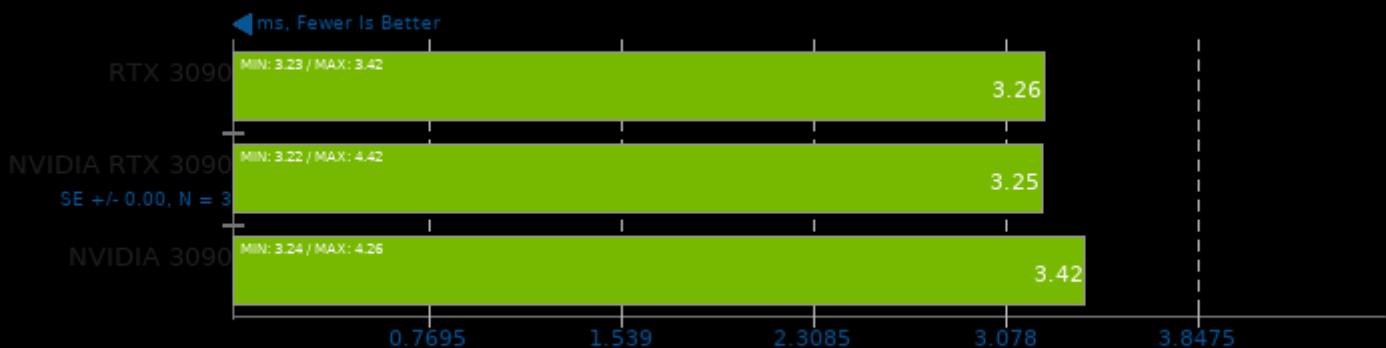
Target: Vulkan GPU - Model: mnasnet



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

NCNN 20210720

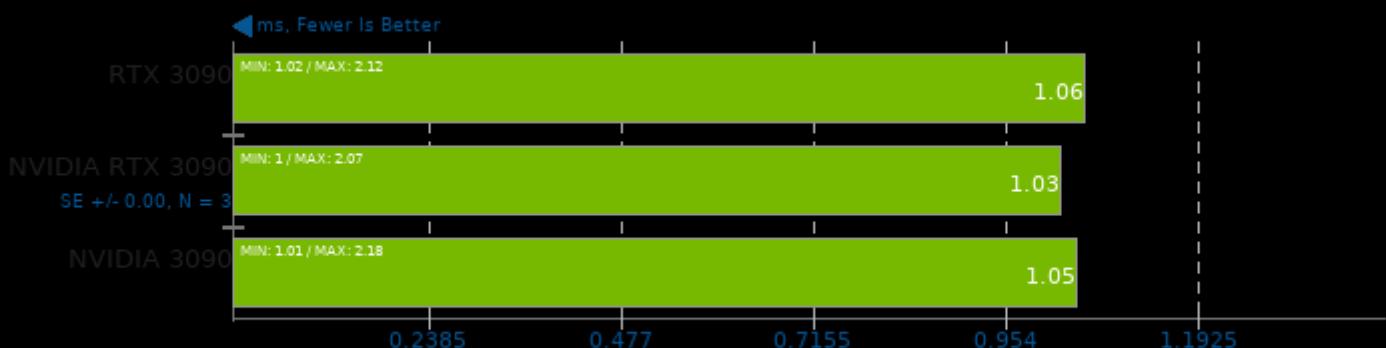
Target: Vulkan GPU - Model: efficientnet-b0



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

NCNN 20210720

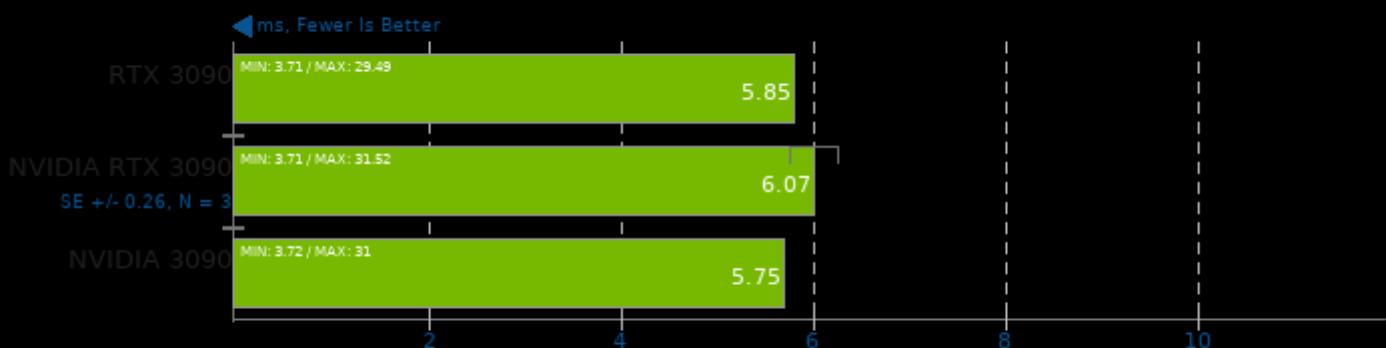
Target: Vulkan GPU - Model: blazeface



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

NCNN 20210720

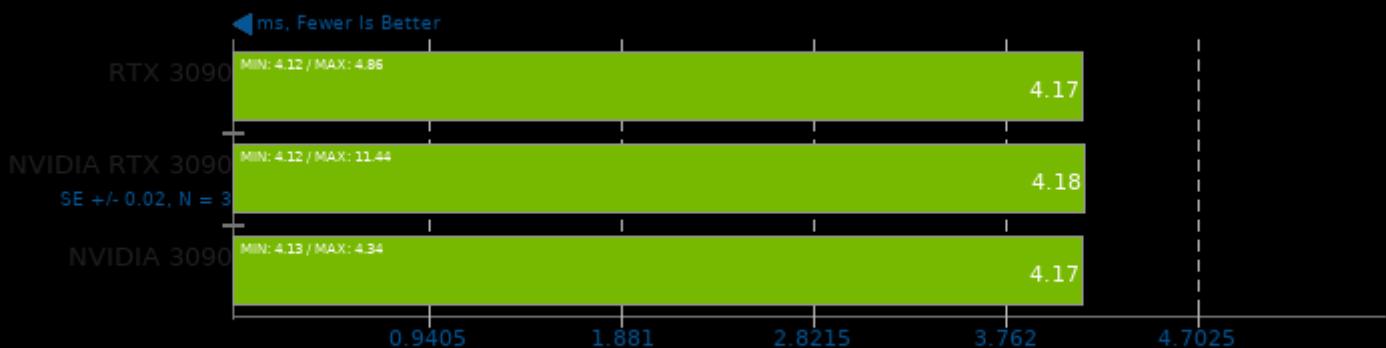
Target: Vulkan GPU - Model: googlenet



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

NCNN 20210720

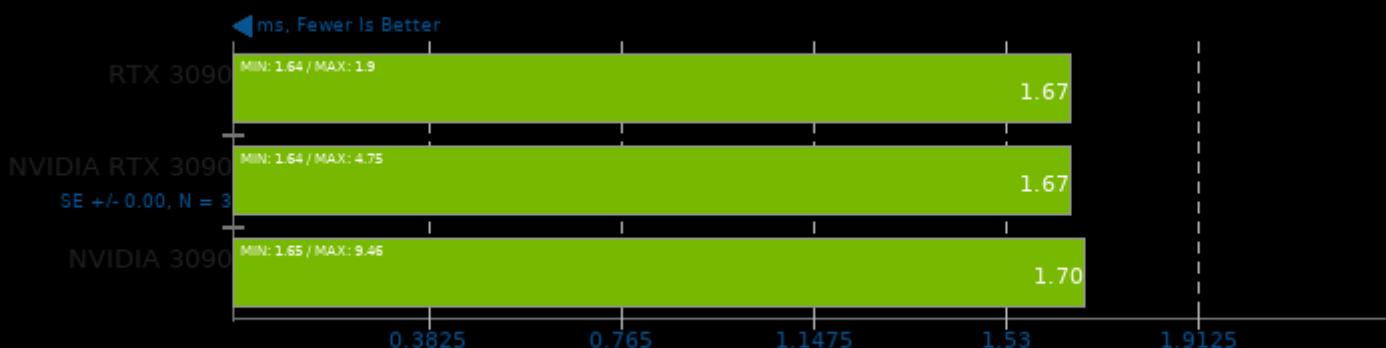
Target: Vulkan GPU - Model: vgg16



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

NCNN 20210720

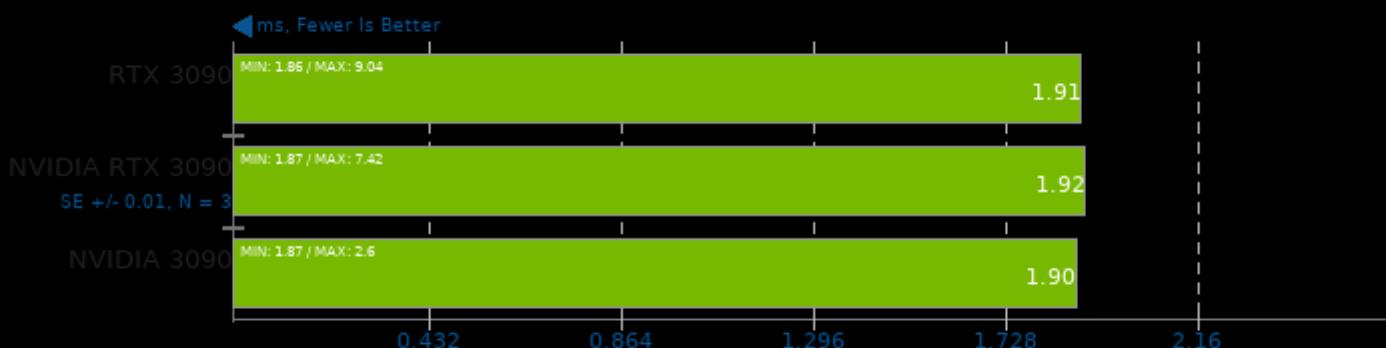
Target: Vulkan GPU - Model: resnet18



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

NCNN 20210720

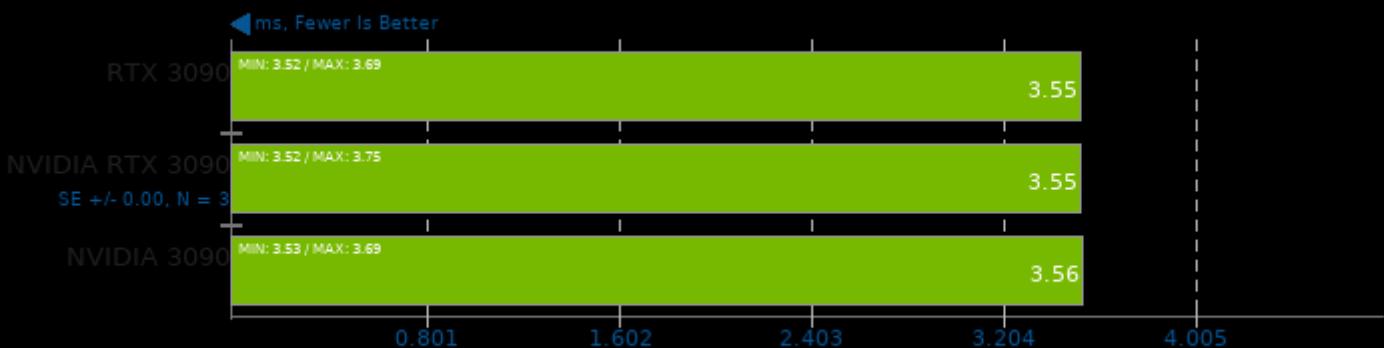
Target: Vulkan GPU - Model: alexnet



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

NCNN 20210720

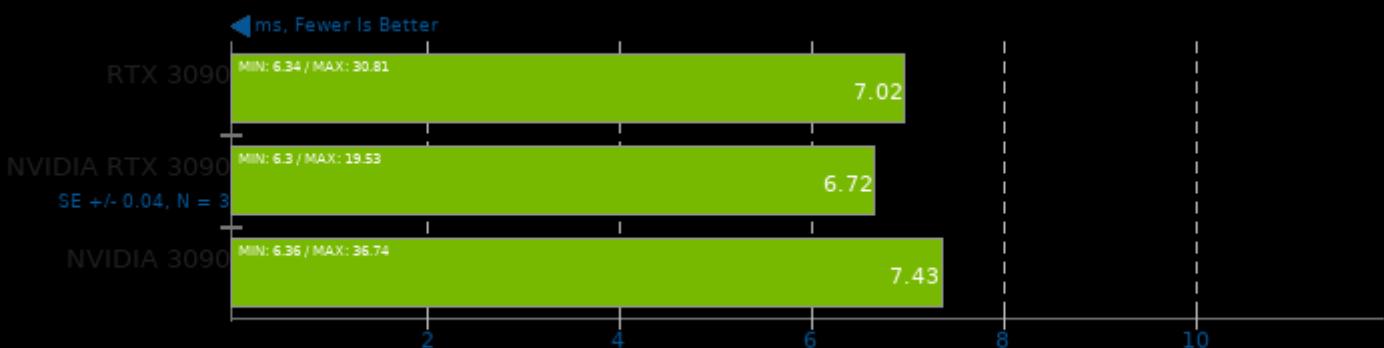
Target: Vulkan GPU - Model: resnet50



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

NCNN 20210720

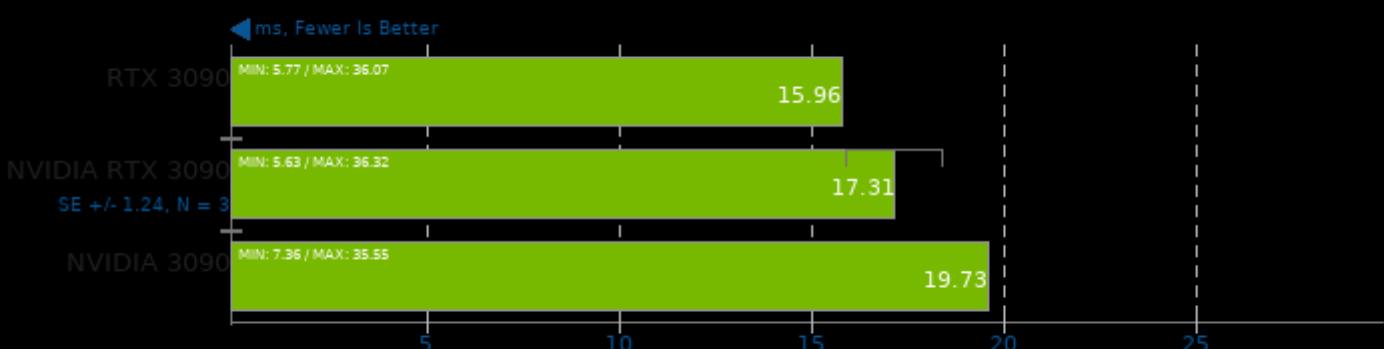
Target: Vulkan GPU - Model: yolov4-tiny



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

NCNN 20210720

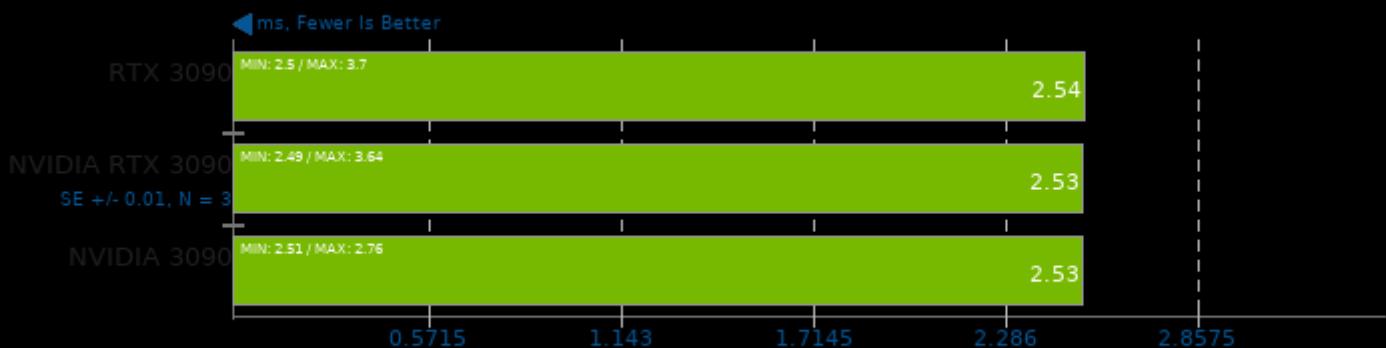
Target: Vulkan GPU - Model: squeezenet_ssd



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

NCNN 20210720

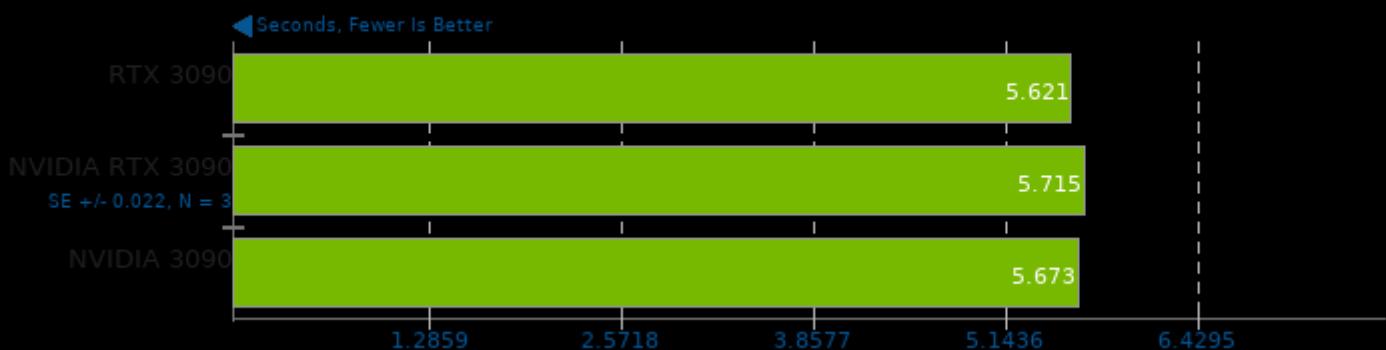
Target: Vulkan GPU - Model: regnety_400m



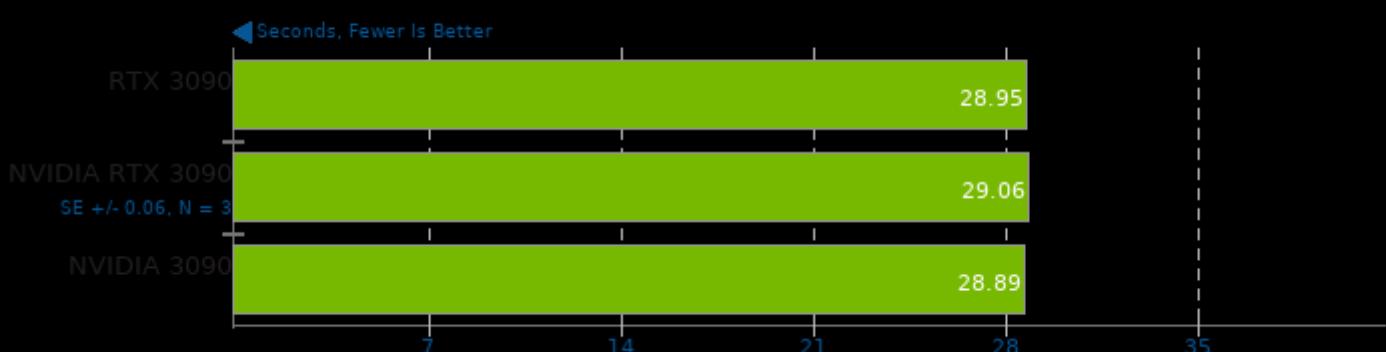
1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

RealSR-NCNN 20200818

Scale: 4x - TAA: No

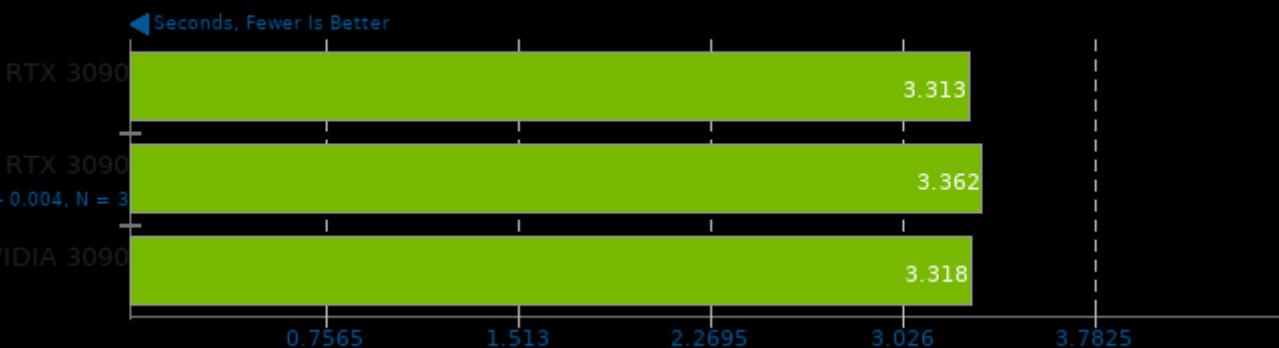
**RealSR-NCNN 20200818**

Scale: 4x - TAA: Yes



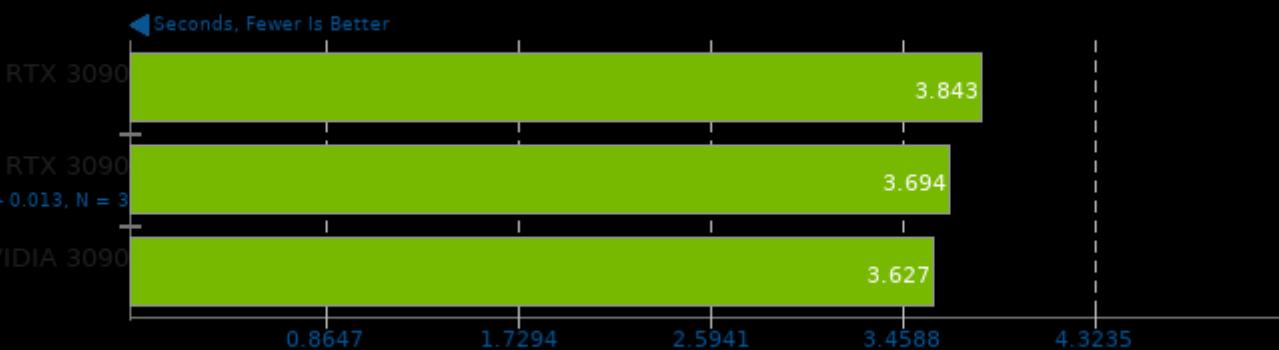
Waifu2x-NCNN Vulkan 20200818

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



Rodinia 3.1

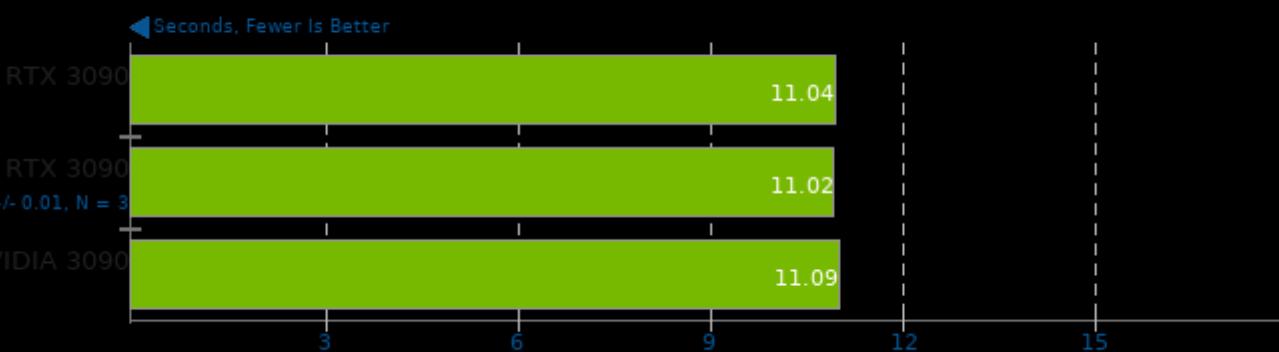
Test: OpenCL Particle Filter



1. (CXX) g++ options: -O2 -fOpenCL

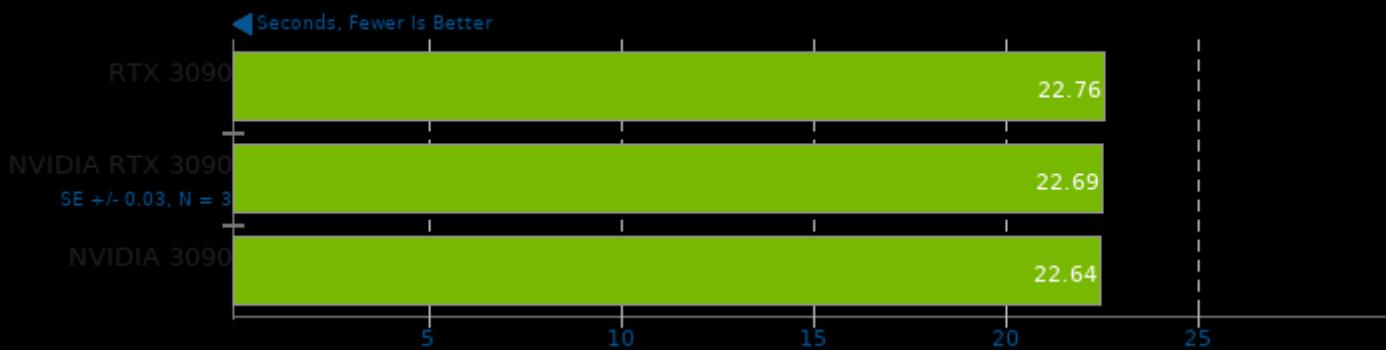
Blender 3.0

Blend File: BMW27 - Compute: CUDA



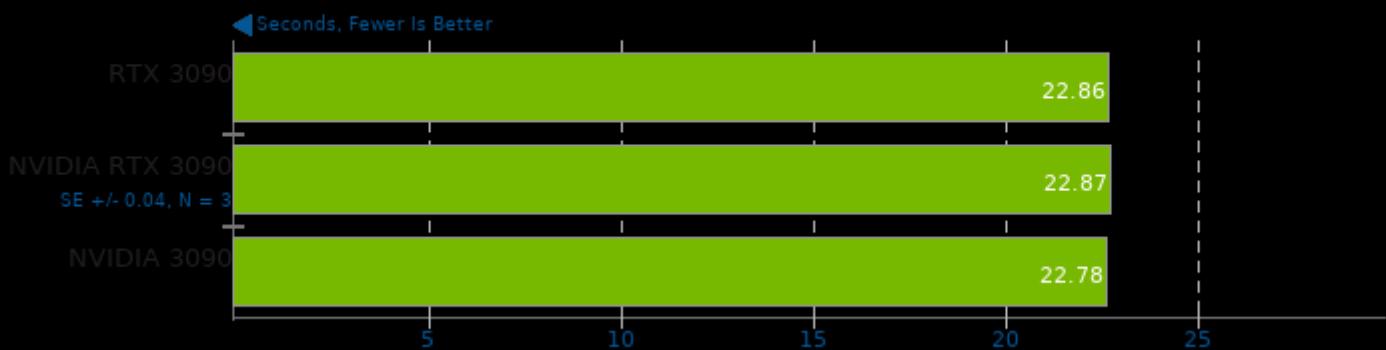
Blender 3.0

Blend File: Classroom - Compute: CUDA



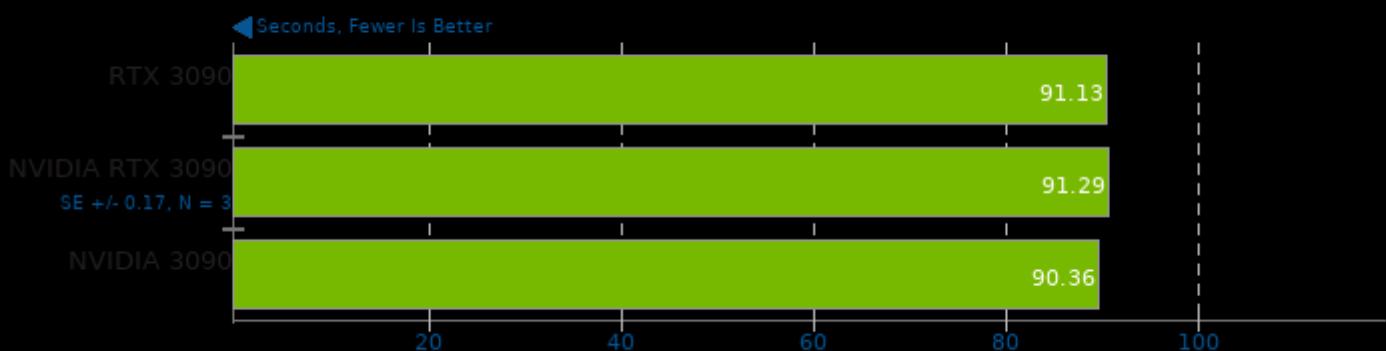
Blender 3.0

Blend File: Fishy Cat - Compute: CUDA



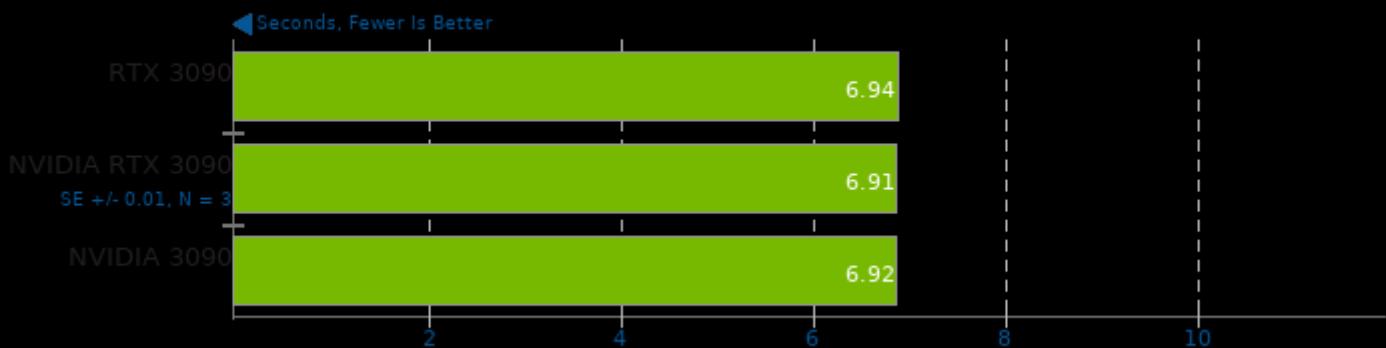
Blender 3.0

Blend File: Barbershop - Compute: CUDA



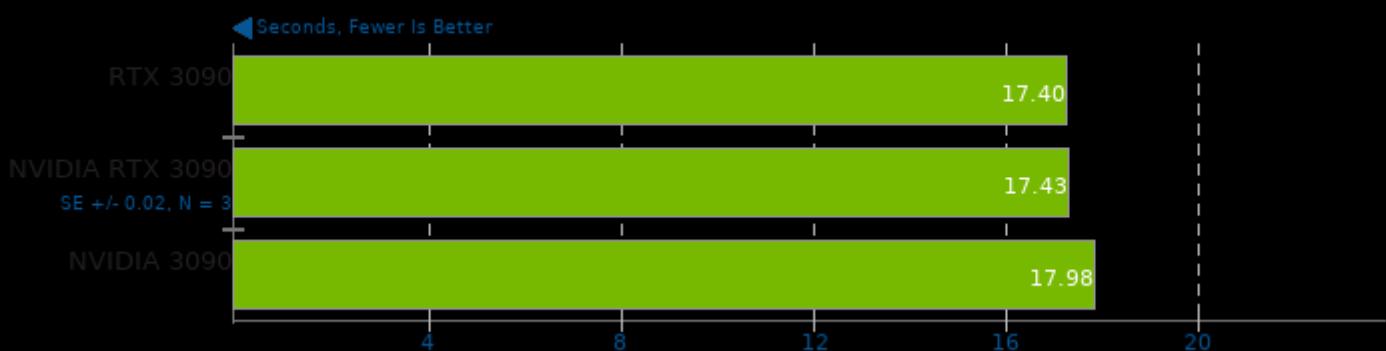
Blender 3.0

Blend File: BMW27 - Compute: NVIDIA OptiX



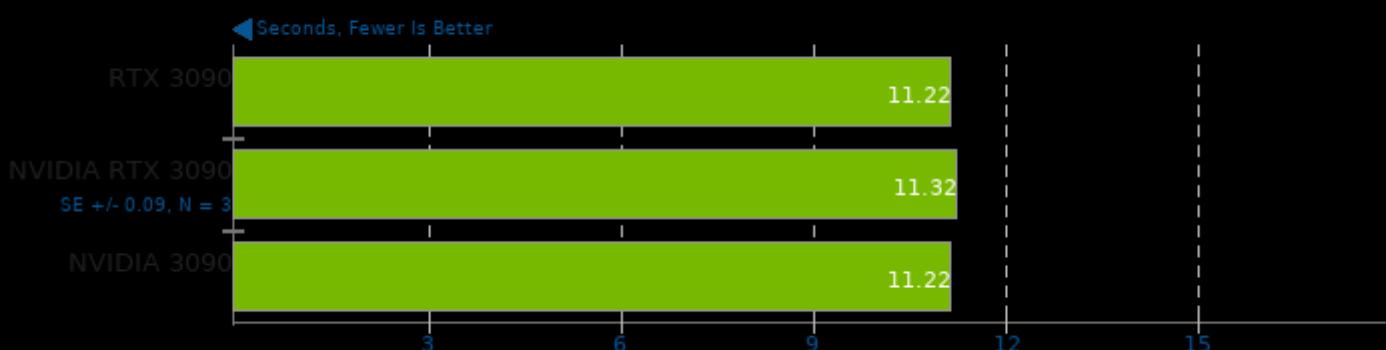
Blender 3.0

Blend File: Classroom - Compute: NVIDIA OptiX



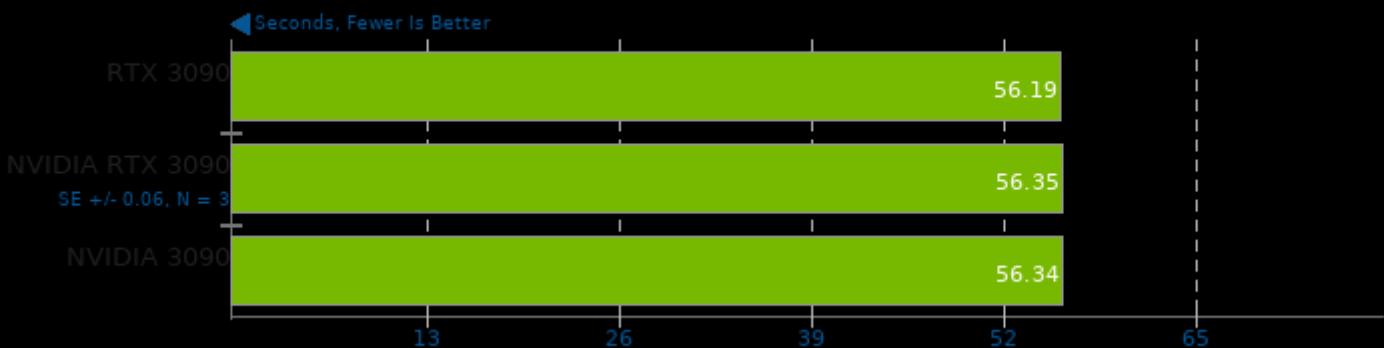
Blender 3.0

Blend File: Fishy Cat - Compute: NVIDIA OptiX



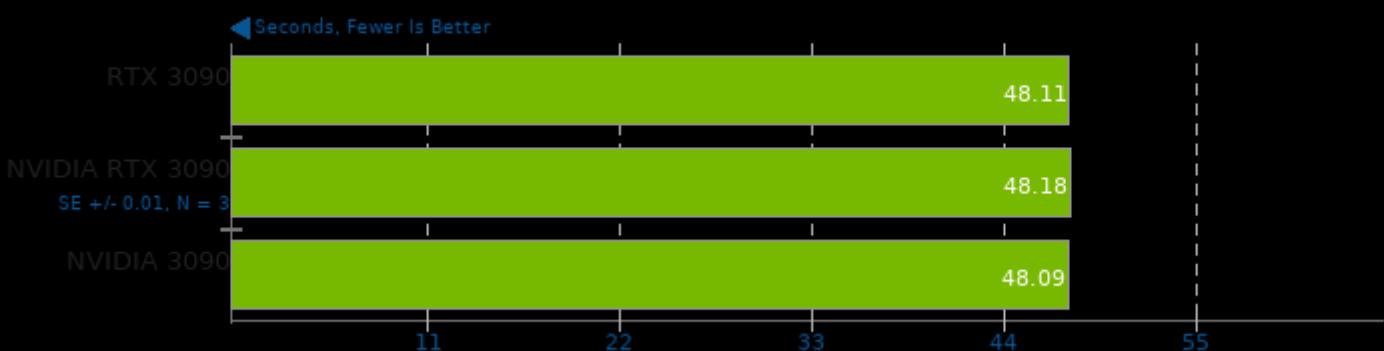
Blender 3.0

Blend File: Barbershop - Compute: NVIDIA OptiX



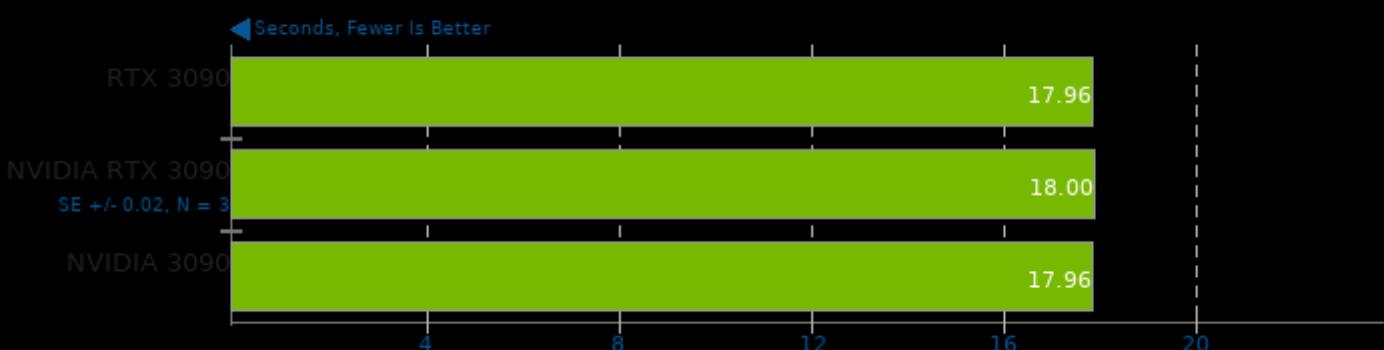
Blender 3.0

Blend File: Pabellon Barcelona - Compute: CUDA



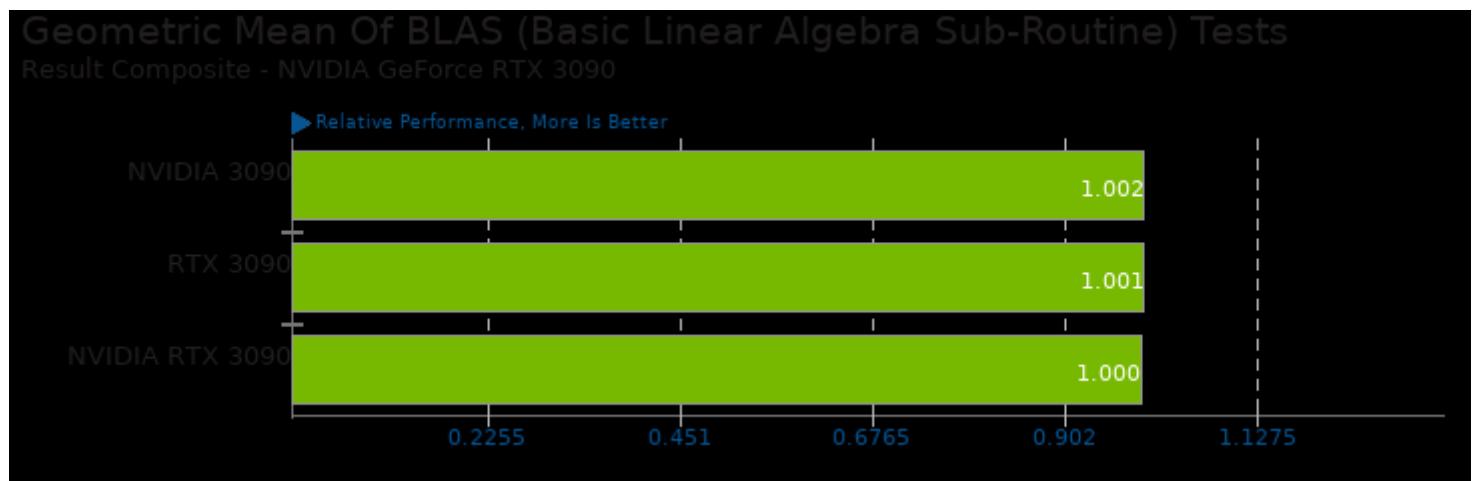
Blender 3.0

Blend File: Pabellon Barcelona - Compute: NVIDIA OptiX



NVIDIA GeForce RTX 3090

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



Geometric mean based upon tests: pts/lczero, pts/caffe and pts/arrayfire



Geometric mean based upon tests: pts/lczero, pts/plaidml, pts/rodinia, pts/v-ray and pts/blender

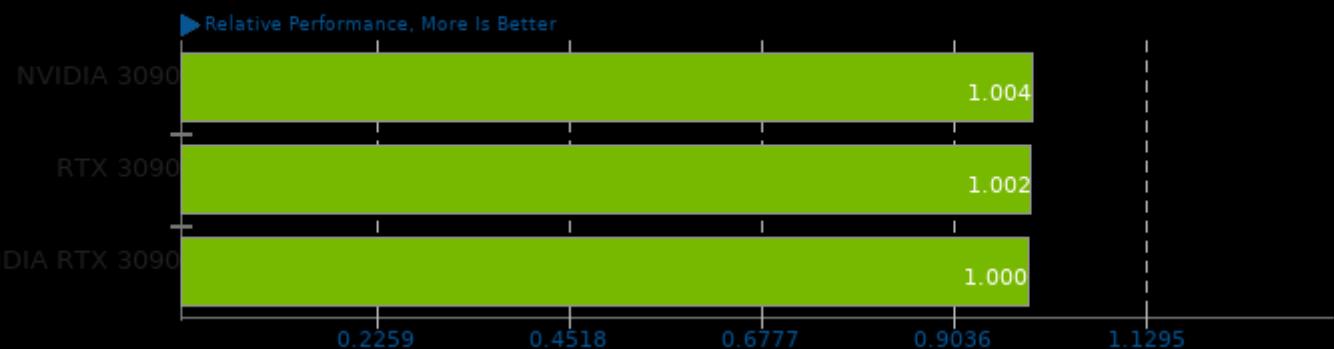


Geometric mean based upon tests: pts/blender, pts/luxcorerender, pts/v-ray, pts/indigobench, pts/neatbench and pts/betsy

NVIDIA GeForce RTX 3090

Geometric Mean Of Desktop Graphics Tests

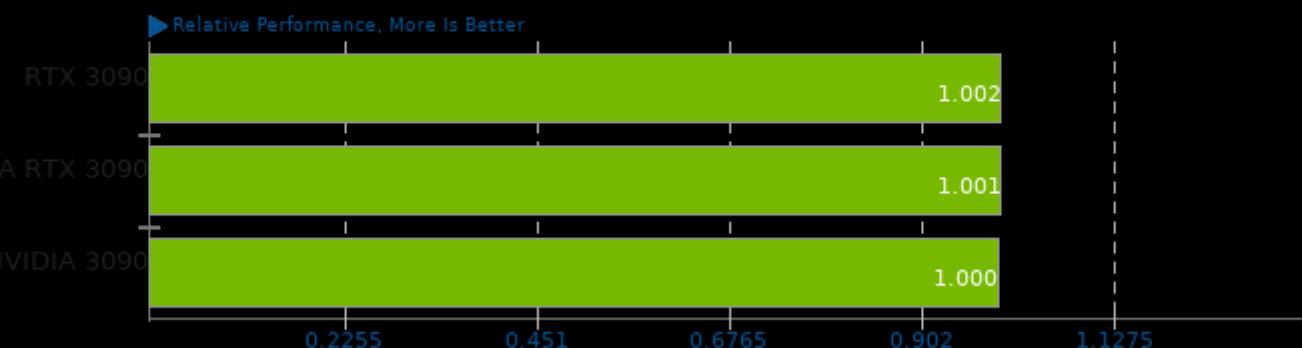
Result Composite - NVIDIA GeForce RTX 3090



Geometric mean based upon tests: pts/xonotic and pts/paraview

Geometric Mean Of Game Development Tests

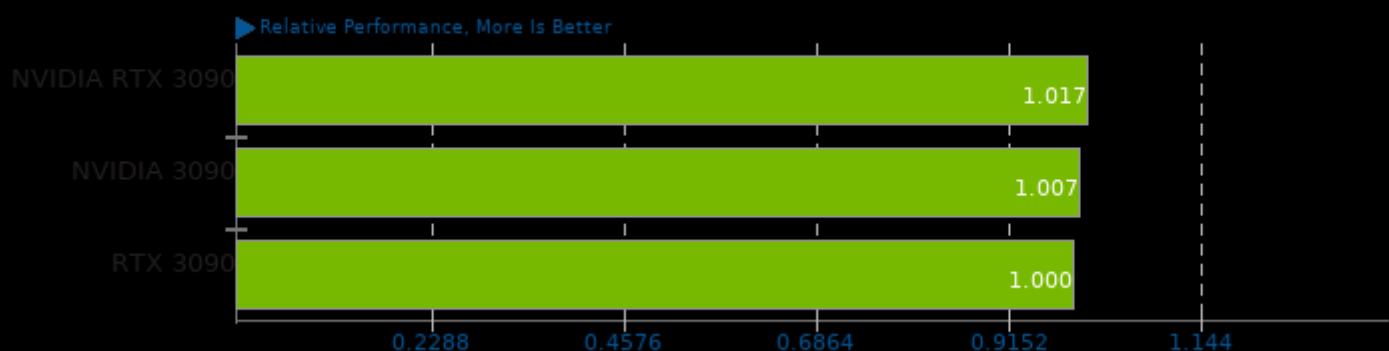
Result Composite - NVIDIA GeForce RTX 3090



Geometric mean based upon tests: pts/betsy and pts/blender

Geometric Mean Of HPC - High Performance Computing Tests

Result Composite - NVIDIA GeForce RTX 3090

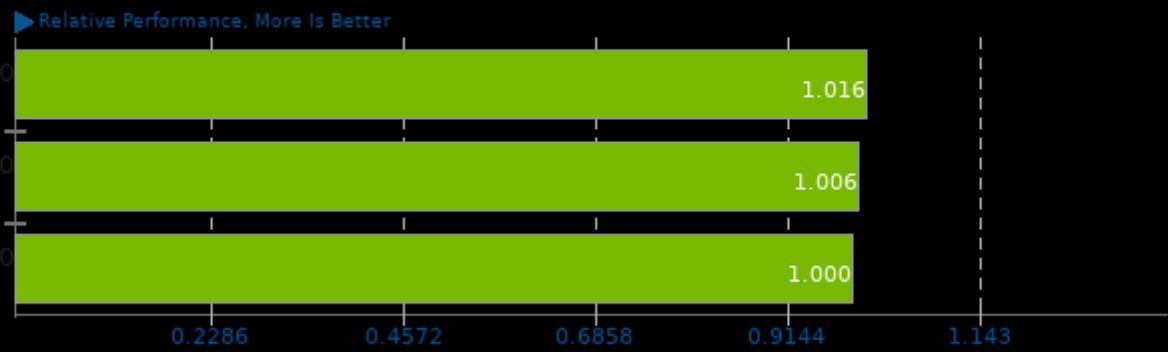


Geometric mean based upon tests: pts/rodinia, pts/arrayfire, pts/gromacs, pts/ncnn, pts/caffe, pts/shoc, pts/plaidml and pts/lczero

NVIDIA GeForce RTX 3090

Geometric Mean Of Machine Learning Tests

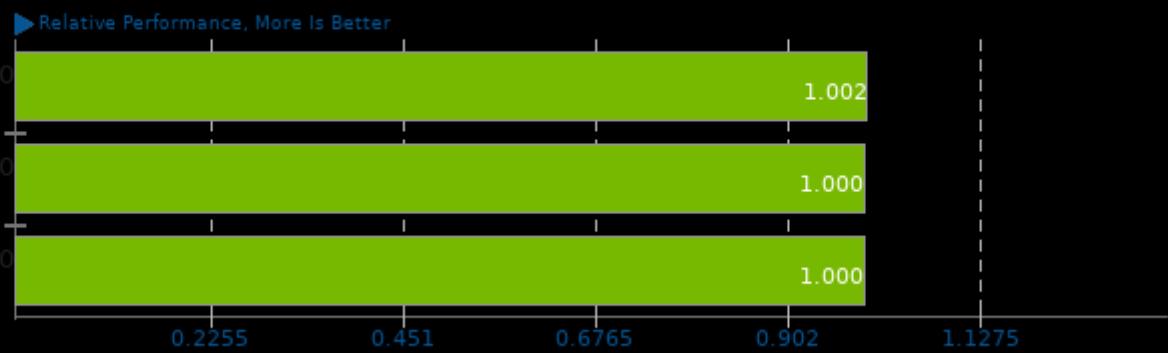
Result Composite - NVIDIA GeForce RTX 3090



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

Geometric Mean Of Multi-Core Tests

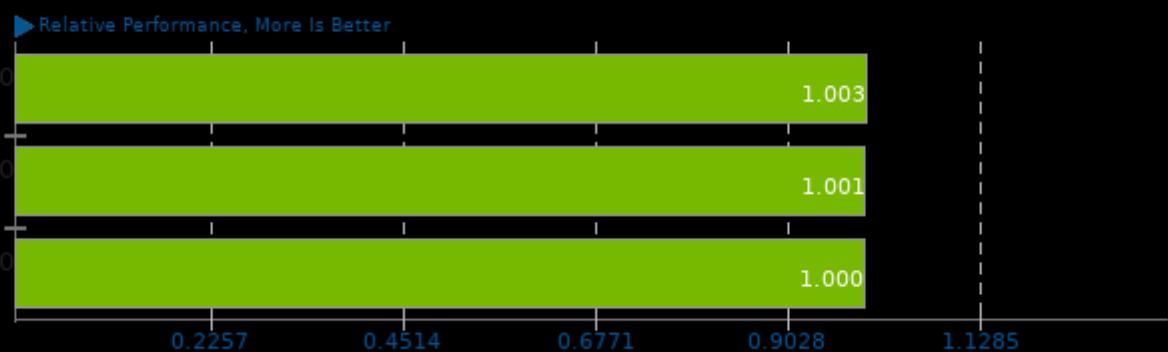
Result Composite - NVIDIA GeForce RTX 3090



Geometric mean based upon tests: pts/blender, pts/arrayfire, pts/rodinia, pts/gromacs, pts/luxcorerender, pts/v-ray, pts/indigobench and pts/neatbench

Geometric Mean Of OpenCL Tests

Result Composite - NVIDIA GeForce RTX 3090



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

Geometric Mean Of Python Tests

Result Composite - NVIDIA GeForce RTX 3090

► Relative Performance, More Is Better



Geometric mean based upon tests: pts/plaidml, pts/paraview and pts/caffe

Geometric Mean Of Renderers Tests

Result Composite - NVIDIA GeForce RTX 3090

► Relative Performance, More Is Better



Geometric mean based upon tests: pts/blender, pts/luxcorerender, pts/v-ray and pts/indigobench

Geometric Mean Of Server CPU Tests

Result Composite - NVIDIA GeForce RTX 3090

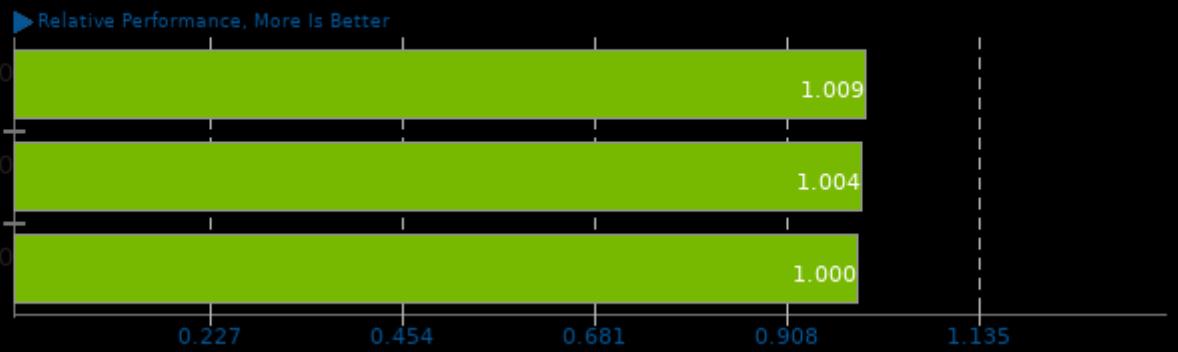
► Relative Performance, More Is Better



Geometric mean based upon tests: pts/rodinia and pts/blender

Geometric Mean Of Vulkan Compute Tests

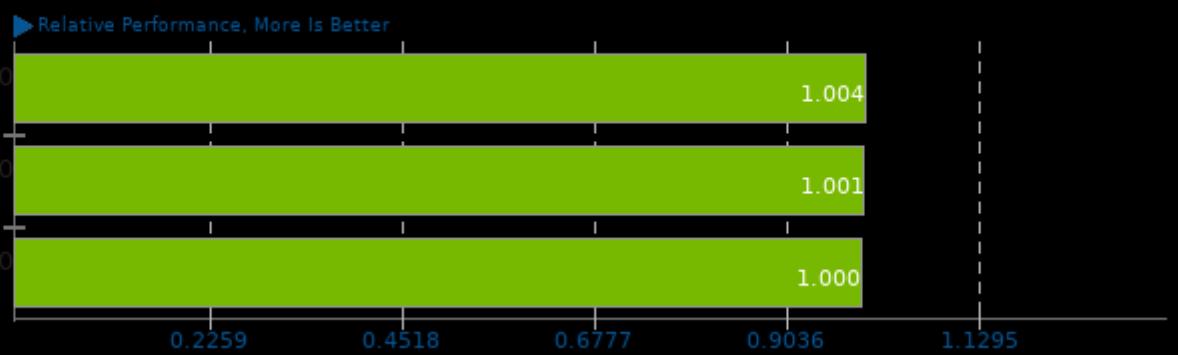
Result Composite - NVIDIA GeForce RTX 3090



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

Geometric Mean Of Common Workstation Benchmarks Tests

Result Composite - NVIDIA GeForce RTX 3090



Geometric mean based upon tests: pts/blender, pts/rodinia and pts/paraview

This file was automatically generated via the Phoronix Test Suite benchmarking software on Friday, 29 March 2024 01:04.