



## TR 2970WX sun

AMD Ryzen Threadripper 2970WX 24-Core testing with a Gigabyte X399 AORUS Gaming 7 (F12h BIOS) and Sapphire AMD Radeon RX 550 640SP / 560/560X 4GB on Ubuntu 20.04 via the Phoronix Test Suite.

### Automated Executive Summary

*2 had the most wins, coming in first place for 46% of the tests.*

*Based on the geometric mean of all complete results, the fastest (2) was 1.006x the speed of the slowest (4). 3 was 0.995x the speed of 2, 1 was 1x the speed of 3, 4 was 0.999x the speed of 1.*

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

*ViennaCL (Test: CPU BLAS - dAXPY) at 1.083x*

*ViennaCL (Test: CPU BLAS - dCOPY) at 1.074x*

*LuxCoreRender (Scene: DLSC - Acceleration: CPU) at 1.048x*

*Xmrig (Variant: Monero - Hash Count: 1M) at 1.034x*

*ViennaCL (Test: CPU BLAS - dGEMV-N) at 1.029x*

*SecureMark (Benchmark: SecureMark-TLS) at 1.024x*

*ViennaCL (Test: CPU BLAS - dGEMM-NT) at 1.022x*

*CP2K Molecular Dynamics (Input: Fayalite-FIST) at 1.018x*

*LuxCoreRender (Scene: Danish Mood - Acceleration: CPU) at 1.016x*

ViennaCL (Test: CPU BLAS - dGEMM-NN) at 1.016x.

## Test Systems:

1

2

3

4

Processor: AMD Ryzen Threadripper 2970WX 24-Core @ 3.00GHz (24 Cores / 48 Threads), Motherboard: Gigabyte X399 AORUS Gaming 7 (F12h BIOS), Chipset: AMD 17h, Memory: 16GB, Disk: 120GB Corsair Force MP500, Graphics: Sapphire AMD Radeon RX 550 640SP / 560/560X 4GB (1300/1750MHz), Audio: Realtek ALC1220, Monitor: VA2431, Network: Qualcomm Atheros Killer E2500 + 2 x QLogic cLOM8214 1/10GbE + Intel 8265 / 8275

OS: Ubuntu 20.04, Kernel: 5.9.0-050900rc6daily20200926-generic (x86\_64) 20200925, Desktop: GNOME Shell 3.36.4, Display Server: X Server 1.20.9, OpenGL: 4.6 Mesa 20.2.6 (LLVM 11.0.0), Compiler: GCC 9.3.0, File-System: ext4, Screen Resolution: 1920x1080

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 ondemand (Boost: Enabled) - CPU Microcode: 0x800820d

Graphics Notes: GLAMOR

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 STIBP: disabled RSB filling + srbds: Not affected + tsx\_async\_abort: Not affected

	1	2	3	4
<b>CP2K Molecular Dynamics - Fayalite-FIST (sec)</b>	<b>1646</b>	<b>1617</b>	1625	1642
Normalized	98.27%	100%	99.56%	98.5%
<b>Xmrig - Wownero - 1M (H/s)</b>	<b>7069</b>	6918	<b>6782</b>	
Normalized	100%	97.86%	95.94%	
Standard Deviation	6.2%	3.2%	2.9%	
<b>Xmrig - Monero - 1M (H/s)</b>	2972	<b>3049</b>	2967	<b>2949</b>
Normalized	97.47%	100%	97.31%	96.71%
Standard Deviation	3%	5.5%	1.9%	2.4%
<b>SecureMark - SecureMark-TLS</b>	<b>207268</b>	203614	<b>202482</b>	
Normalized	100%	98.24%	97.69%	
Standard Deviation	1.1%	1.4%	0.5%	

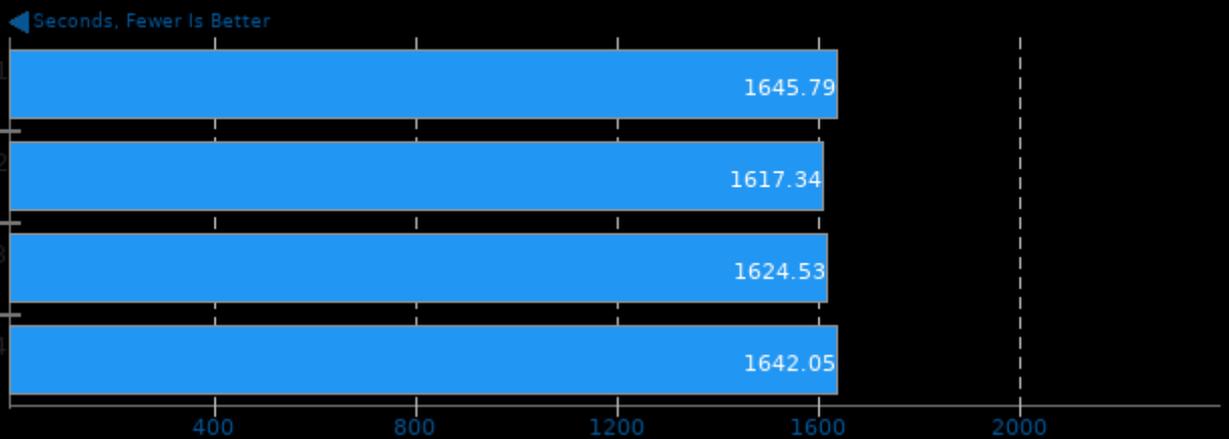
KTX-Software toktx - U.4.Z.C.1 (sec)	174.015	<b>174.008</b>	<b>175.511</b>	
Normalized	100%	100%	99.14%	
Standard Deviation	2.8%	2.6%	2.7%	
LuxCoreRender - DLSC - CPU (M samples/sec)	<b>3.53</b>	<b>3.70</b>	<b>3.70</b>	
Normalized	95.41%	100%	100%	
Standard Deviation	3.2%	2.9%	2.9%	
GNU GMP GMPbench - Total Time (GMPbench Score)	5149	5156	<b>5120</b>	<b>5158</b>
Normalized	99.84%	99.96%	99.28%	100%
vkpeak - int32-vec4 (GIOPS)	<b>521.65</b>	<b>521.65</b>	<b>521.73</b>	<b>521.65</b>
Normalized	99.98%	99.98%	100%	99.98%
Standard Deviation	0%	0%	0%	0%
vkpeak - int32-scalar (GIOPS)	<b>523.27</b>	523.35	523.41	<b>523.43</b>
Normalized	99.97%	99.98%	100%	100%
Standard Deviation	0%	0%	0%	0%
vkpeak - fp64-scalar (GFLOPS)	109.11	<b>109.13</b>	109.11	<b>109.10</b>
Normalized	99.98%	100%	99.98%	99.97%
Standard Deviation	0%	0.1%	0.1%	0.1%
vkpeak - fp32-vec4 (GFLOPS)	<b>2477</b>	2471	2472	<b>2470</b>
Normalized	100%	99.74%	99.77%	99.72%
Standard Deviation	0.3%	0.1%	0.1%	0.1%
vkpeak - fp32-scalar (GFLOPS)	2607	<b>2609</b>	2603	<b>2603</b>
Normalized	99.92%	100%	99.76%	99.75%
Standard Deviation	0.1%	0%	0.1%	0.2%
Helsing - 14 digit (sec)	247.415	<b>247.442</b>	<b>246.177</b>	
Normalized	99.5%	99.49%	100%	
LuxCoreRender - R.C.a.P - CPU (M samples/sec)	11.27	<b>11.51</b>	<b>11.15</b>	
Normalized	97.91%	100%	96.87%	
Standard Deviation	6%	6.2%	4.9%	
LuxCoreRender - Orange Juice - CPU (M samples/sec)	<b>5.39</b>	5.38	<b>5.36</b>	
Normalized	100%	99.81%	99.44%	
Standard Deviation	0.9%	0.9%	0.6%	
LuxCoreRender - Danish Mood - CPU (M samples/sec)	2.45	<b>2.47</b>	<b>2.43</b>	
Normalized	99.19%	100%	98.38%	
Standard Deviation	2.1%	1.8%	2.5%	
LuxCoreRender - LuxCore Benchmark - CPU (M samples/sec)	<b>2.58</b>	<b>2.60</b>	<b>2.60</b>	
Normalized	99.23%	100%	100%	
Standard Deviation	1.6%	1.3%	1.3%	
Botan - AES-256 - Decrypt (MiB/s)	<b>5572</b>	5589	<b>5646</b>	
Normalized	98.69%	98.99%	100%	
Standard Deviation	0.1%	0.5%	1%	
Botan - AES-256 (MiB/s)	<b>5556</b>	5567	<b>5639</b>	
Normalized	98.53%	98.71%	100%	
Standard Deviation	0.1%	0.2%	1.1%	
Botan - Blowfish - Decrypt (MiB/s)	446.135	<b>445.997</b>	<b>446.473</b>	
Normalized	99.92%	99.89%	100%	
Standard Deviation	0.1%	0.1%	0.1%	
Botan - Blowfish (MiB/s)	<b>447.321</b>	447.551	<b>447.787</b>	
Normalized	99.9%	99.95%	100%	

	Standard Deviation	0.1%	0.1%	0.1%
Botan - ChaCha20Poly1305 - Decrypt	497.766	<b>497.425</b>	<b>504.105</b>	
	(MiB/s)			
	Normalized	98.74%	98.67%	100%
	Standard Deviation	0.1%	0.2%	0.9%
Botan - ChaCha20Poly1305 (MiB/s)	<b>499.408</b>	499.450	<b>506.266</b>	
	Normalized	98.65%	98.65%	100%
	Standard Deviation	0%	0.1%	1%
Botan - Twofish - Decrypt (MiB/s)	<b>363.921</b>	<b>368.521</b>	364.159	
	Normalized	98.75%	100%	98.82%
	Standard Deviation	0%	0.4%	0.1%
Botan - Twofish (MiB/s)	<b>364.677</b>	<b>369.541</b>	365.861	
	Normalized	98.68%	100%	99%
	Standard Deviation	0.3%	0.3%	0.1%
Botan - CAST-256 - Decrypt (MiB/s)	<b>146.793</b>	146.885	<b>147.129</b>	
	Normalized	99.77%	99.83%	100%
	Standard Deviation	0%	0.1%	0.2%
Botan - CAST-256 (MiB/s)	<b>147.007</b>	147.127	<b>147.243</b>	
	Normalized	99.84%	99.92%	100%
	Standard Deviation	0%	0.1%	0.1%
Botan - KASUMI - Decrypt (MiB/s)	<b>90.124</b>	<b>90.191</b>	90.128	
	Normalized	99.93%	100%	99.93%
	Standard Deviation	0.4%	0.5%	0.5%
Botan - KASUMI (MiB/s)	<b>93.831</b>	93.881	<b>93.897</b>	
	Normalized	99.93%	99.98%	100%
	Standard Deviation	0.4%	0.5%	0.6%
ViennaCL - CPU BLAS - dGEMM-TT	<b>69.9</b>	<b>70.8</b>	70.6	
	(GFLOPs/s)			
	Normalized	98.73%	100%	99.72%
	Standard Deviation	1.9%	4.3%	0.9%
ViennaCL - CPU BLAS - dGEMM-TN	71.8	<b>71.2</b>	<b>72.2</b>	
	(GFLOPs/s)			
	Normalized	99.45%	98.61%	100%
	Standard Deviation	2.1%	2.4%	1.3%
ViennaCL - CPU BLAS - dGEMM-NT	67.8	<b>68.2</b>	<b>66.7</b>	
	(GFLOPs/s)			
	Normalized	99.41%	100%	97.8%
	Standard Deviation	0.4%	2.3%	3.8%
ViennaCL - CPU BLAS - dGEMM-NN	70.5	<b>70.8</b>	<b>69.7</b>	
	(GFLOPs/s)			
	Normalized	99.58%	100%	98.45%
	Standard Deviation	0.3%	0.8%	2.4%
ViennaCL - CPU BLAS - dGEMV-T	<b>65.4</b>	63.4	<b>61.9</b>	
	(GB/s)			
	Normalized	100%	96.94%	94.65%
	Standard Deviation	16.4%	15.3%	8%
ViennaCL - CPU BLAS - dGEMV-N	55.6	<b>54.6</b>	<b>56.2</b>	
	(GB/s)			
	Normalized	98.93%	97.15%	100%
	Standard Deviation	1%	2.6%	4.1%
ViennaCL - CPU BLAS - dDOT (GB/s)	<b>43.8</b>	<b>49.5</b>	48.1	
	Normalized	88.48%	100%	97.17%
	Standard Deviation	2%	4.7%	8.4%
ViennaCL - CPU BLAS - dAXPY (GB/s)	46.0	<b>48.2</b>	<b>44.5</b>	

	Normalized	95.44%	100%	92.32%
	Standard Deviation	3.2%	1.9%	4.5%
<b>ViennaCL - CPU BLAS - dCOPY (GB/s)</b>		31.3	<b>32.0</b>	<b>29.8</b>
	Normalized	97.81%	100%	93.13%
	Standard Deviation	4.2%	1.7%	3.8%
<b>ViennaCL - CPU BLAS - sDOT (GB/s)</b>		<b>135</b>	<b>135</b>	<b>126</b>
	Normalized	100%	100%	93.33%
	Standard Deviation	2.6%	1.5%	8.9%
<b>ViennaCL - CPU BLAS - sAXPY (GB/s)</b>		<b>129</b>	<b>123</b>	127
	Normalized	100%	95.35%	98.45%
	Standard Deviation	1.9%	7.4%	3%
<b>ViennaCL - CPU BLAS - sCOPY (GB/s)</b>		85.2	<b>85.4</b>	<b>84.5</b>
	Normalized	99.77%	100%	98.95%
	Standard Deviation	1.9%	0.5%	2.8%
<b>libjpeg-turbo tjbench - D.T (Megapixels/sec)</b>		<b>171.452130</b>	<b>173.268416</b>	172.715108
	Normalized	98.95%	100%	99.68%
	Standard Deviation	0.1%	0.5%	0%
<b>KTX-Software toktx - Z.C.1 (sec)</b>		22.263	<b>22.258</b>	<b>22.302</b>
	Normalized	99.98%	100%	99.8%
	Standard Deviation	0.2%	0.2%	0.6%
<b>KTX-Software toktx - U.3.Z.C.1 (sec)</b>		<b>13.500</b>	<b>13.525</b>	13.518
	Normalized	100%	99.82%	99.87%
	Standard Deviation	0.1%	0.2%	0.1%
<b>Google Draco - Church Facade (ms)</b>		7922	<b>7919</b>	<b>7997</b>
	Normalized	99.96%	100%	99.02%
	Standard Deviation	0.8%	0.9%	1%
<b>KTX-Software toktx - UASTC 3 (sec)</b>		<b>7.386</b>	7.355	<b>7.351</b>
	Normalized	99.53%	99.95%	100%
	Standard Deviation	0.1%	0%	0.5%
<b>Google Draco - Lion (ms)</b>		<b>5705</b>	<b>5711</b>	5708
	Normalized	100%	99.89%	99.95%
	Standard Deviation	0.1%	0.4%	0.4%
<b>KTX-Software toktx - Zstd Compression 9 (sec)</b>		<b>3.041</b>	<b>3.029</b>	<b>3.041</b>
	Normalized	99.61%	100%	99.61%
	Standard Deviation	0.8%	0.3%	0.9%
<b>Helsing - 12 digit (sec)</b>		<b>2.369</b>	2.354	<b>2.334</b>
	Normalized	98.52%	99.15%	100%

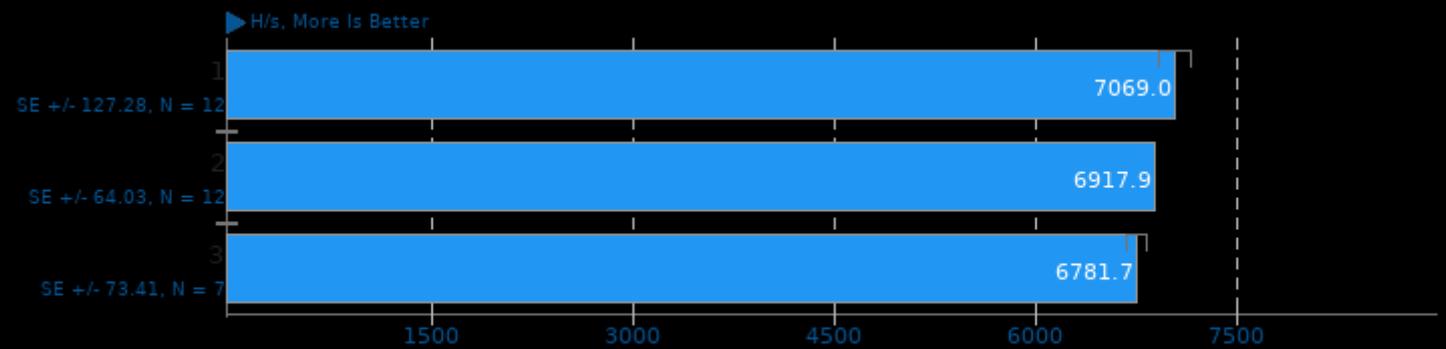
### CP2K Molecular Dynamics 8.1

Input: Fayalite-FIST



### Xmrig 6.12.1

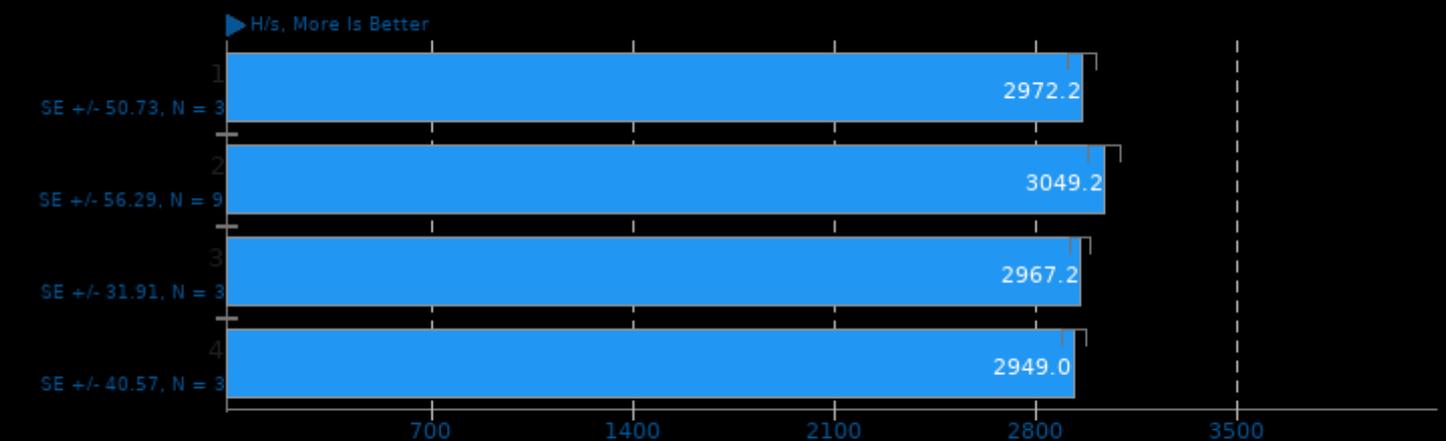
Variant: Wownero - Hash Count: 1M



1. (CXX) g++ options: -fexceptions -fno-rtti -maes -O3 -Ofast -static-libgcc -static-libstdc++ -rdynamic -lssl -lcrypto -luv -lpthread -lrt -ldl -hwloc

### Xmrig 6.12.1

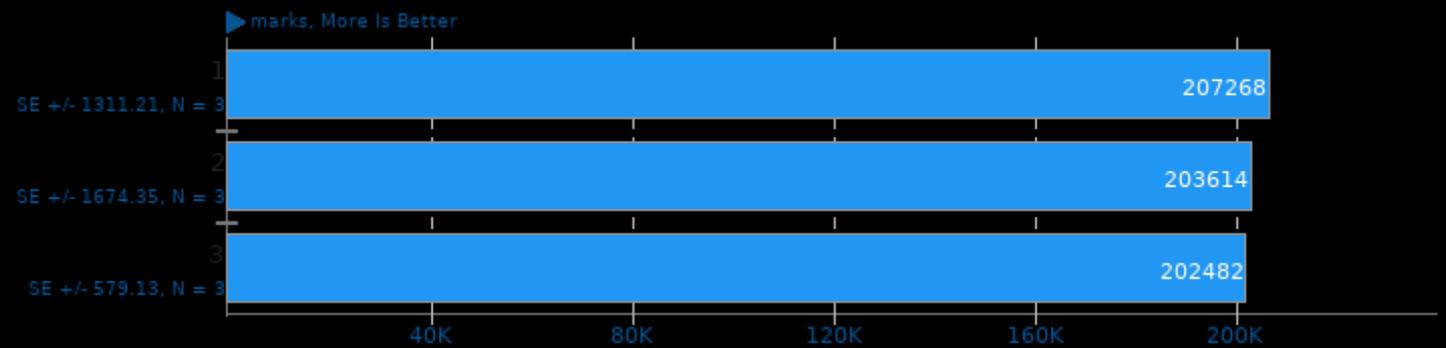
Variant: Monero - Hash Count: 1M



1. (CXX) g++ options: -fexceptions -fno-rtti -maes -O3 -Ofast -static-libgcc -static-libstdc++ -rdynamic -lssl -lcrypto -luv -lpthread -lrt -ldl -hwloc

### SecureMark 1.0.4

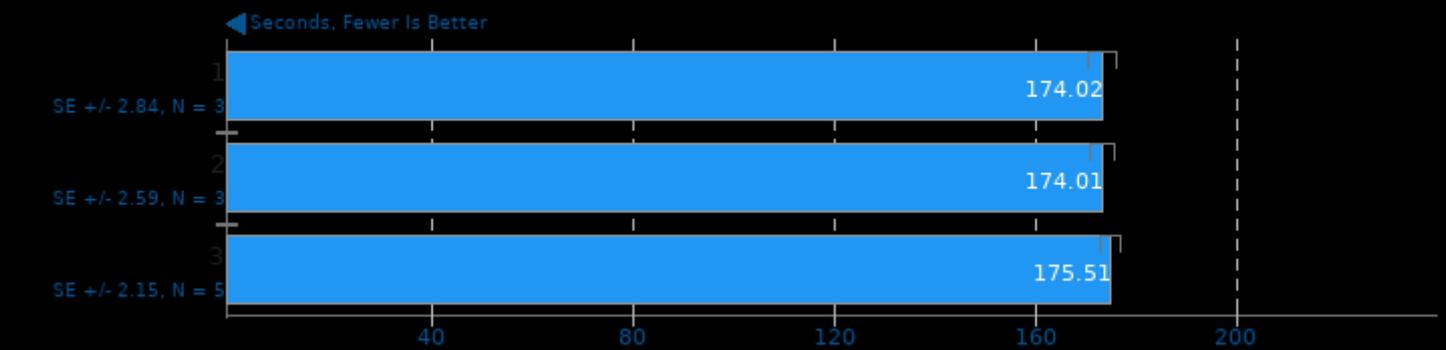
Benchmark: SecureMark-TLS



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

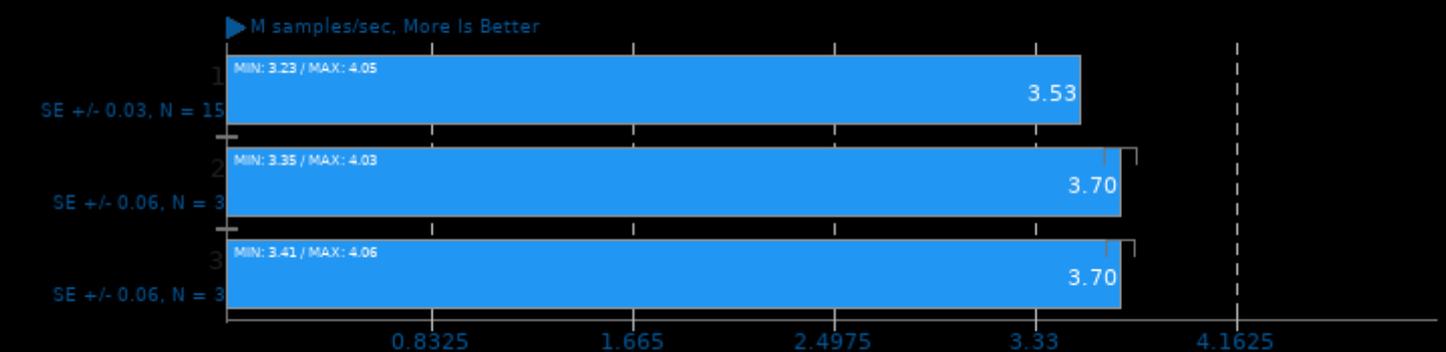
### KTX-Software toktx 4.0

Settings: UASTC 4 + Zstd Compression 19



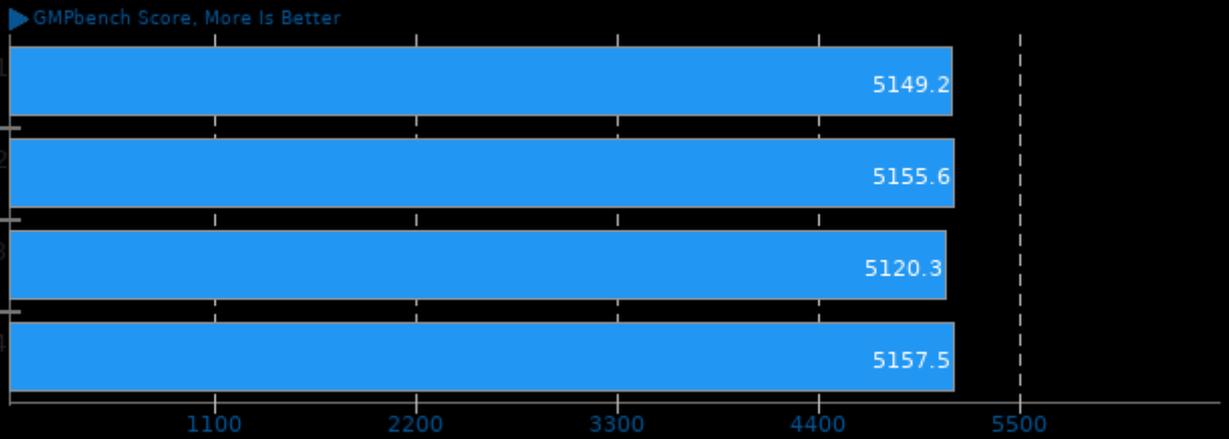
### LuxCoreRender 2.5

Scene: DLSC - Acceleration: CPU



### GNU GMP GMPbench 6.2.1

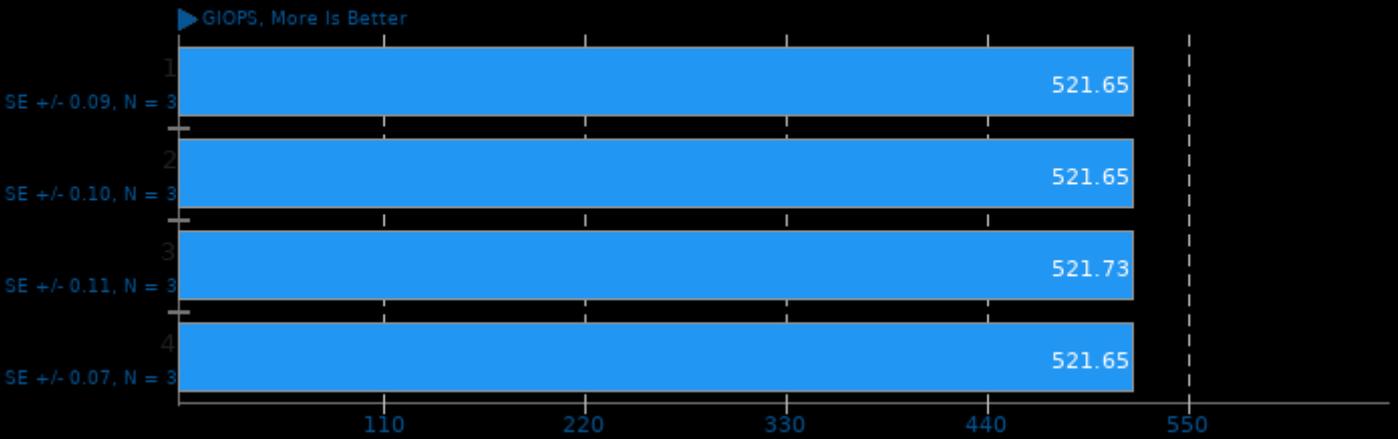
Total Time



1. (CC) gcc options: -O3 -fomit-frame-pointer -lm

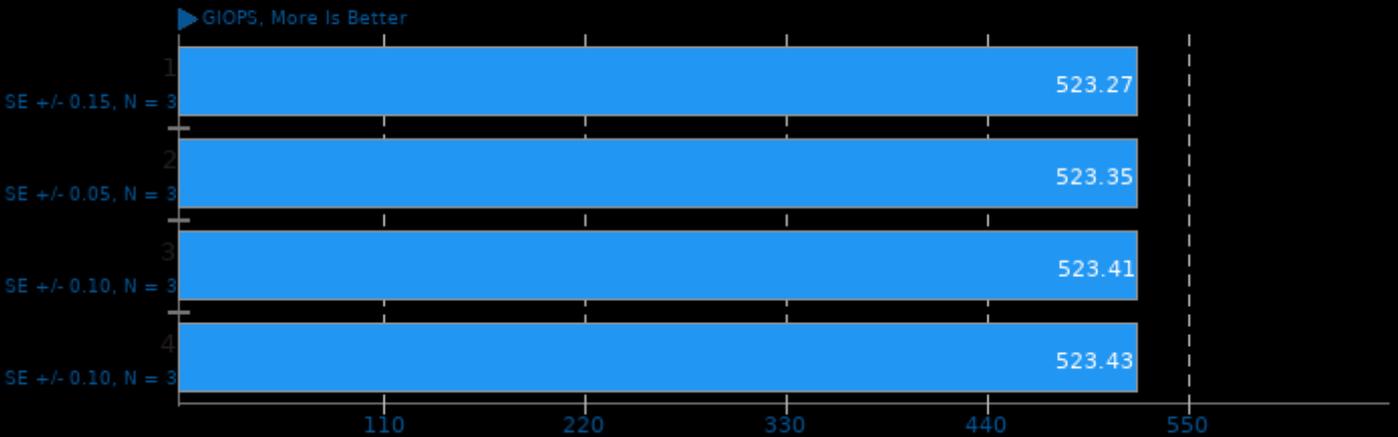
### vkpeak 20210424

int32-vec4



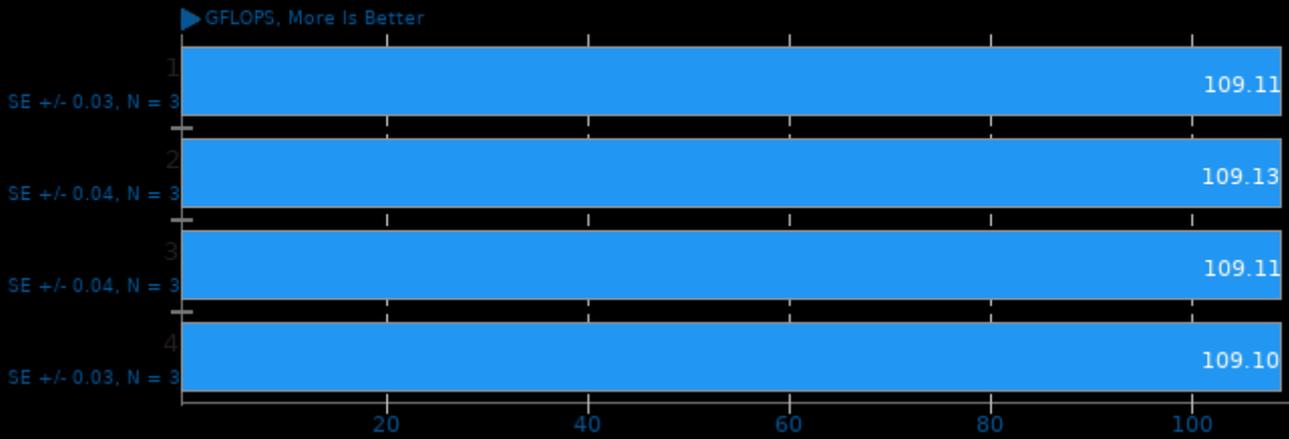
### vkpeak 20210424

int32-scalar



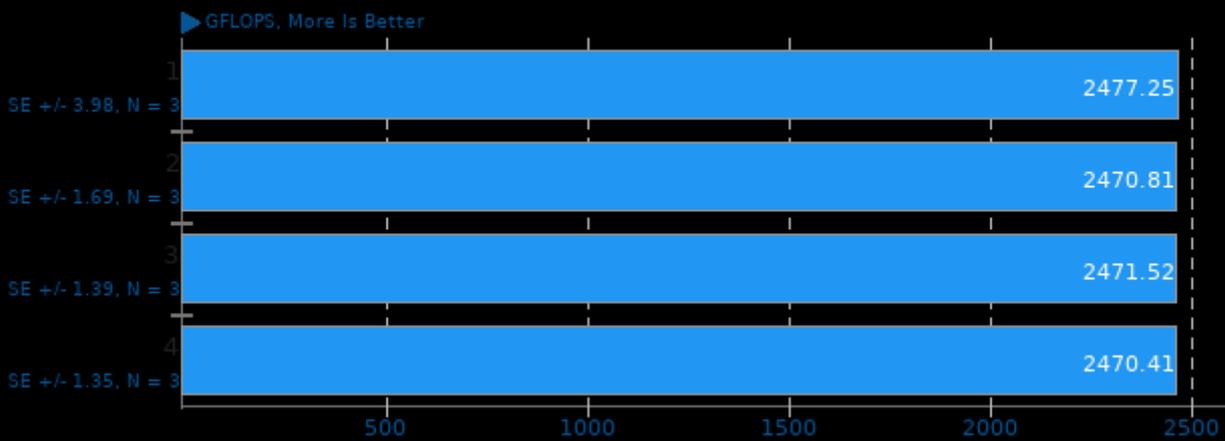
vkpeak 20210424

fp64-scalar



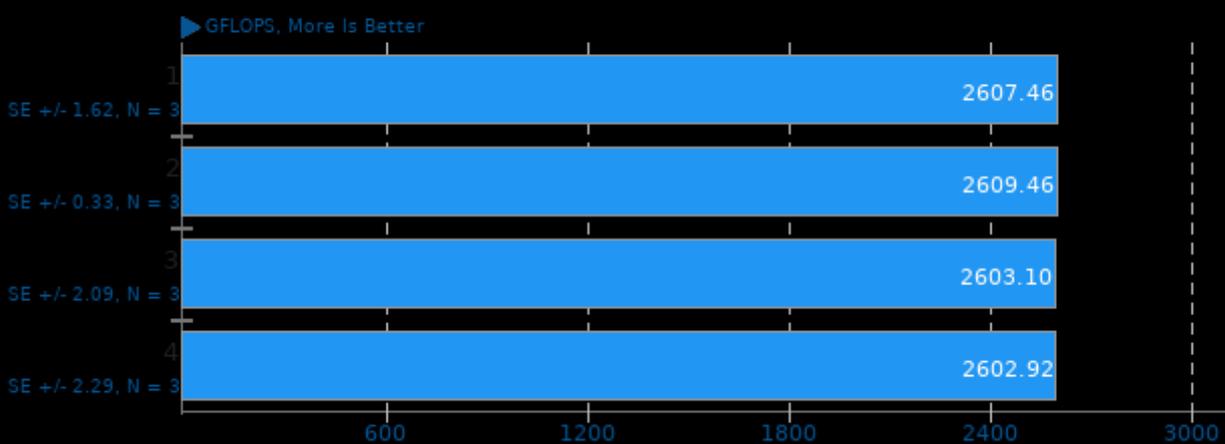
vkpeak 20210424

fp32-vec4



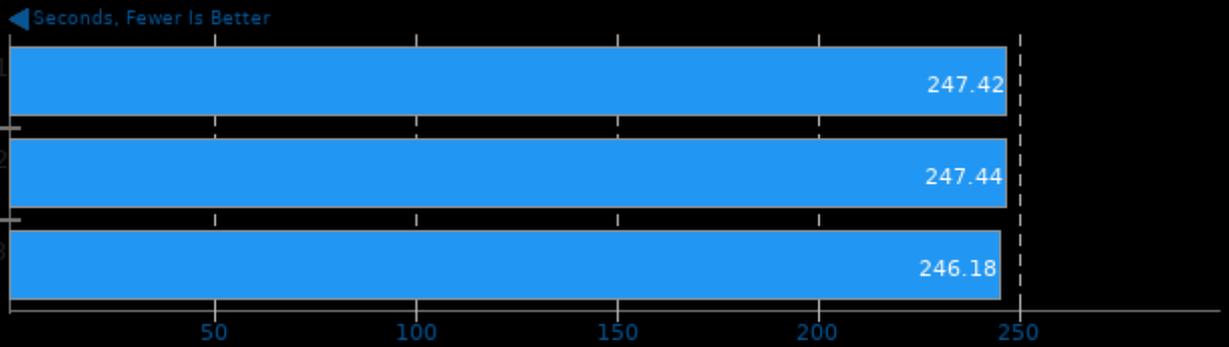
vkpeak 20210424

fp32-scalar



### Helsing 1.0-beta

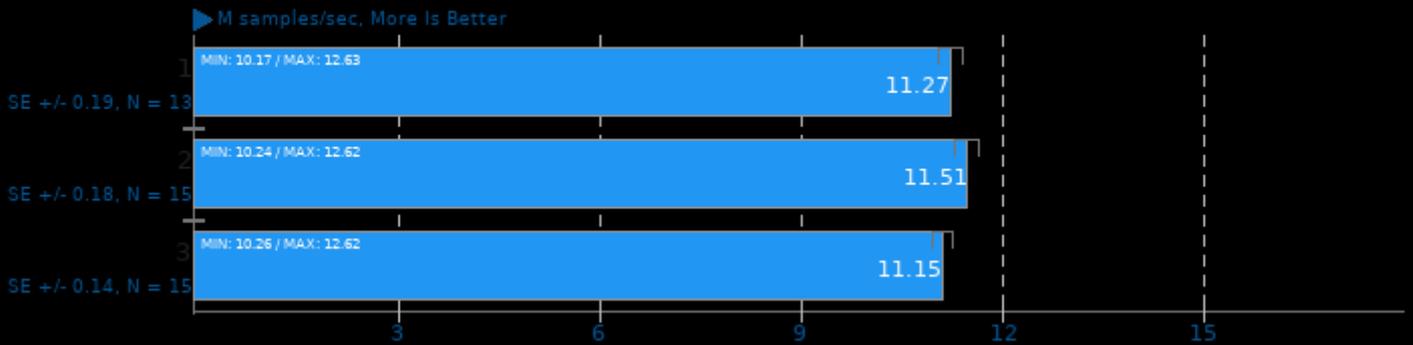
Digit Range: 14 digit



1. (CC) gcc options: -O2 -pthread -lcrypto

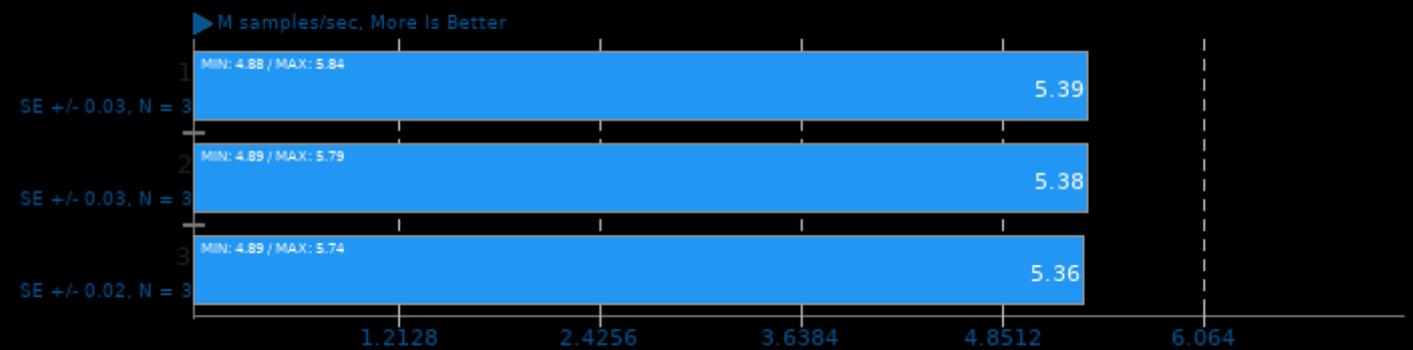
### LuxCoreRender 2.5

Scene: Rainbow Colors and Prism - Acceleration: CPU



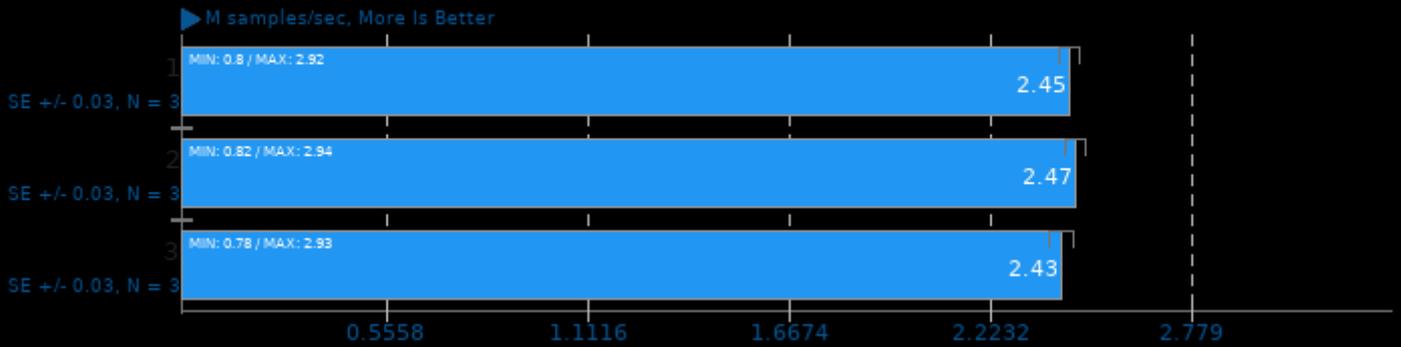
### LuxCoreRender 2.5

Scene: Orange Juice - Acceleration: CPU



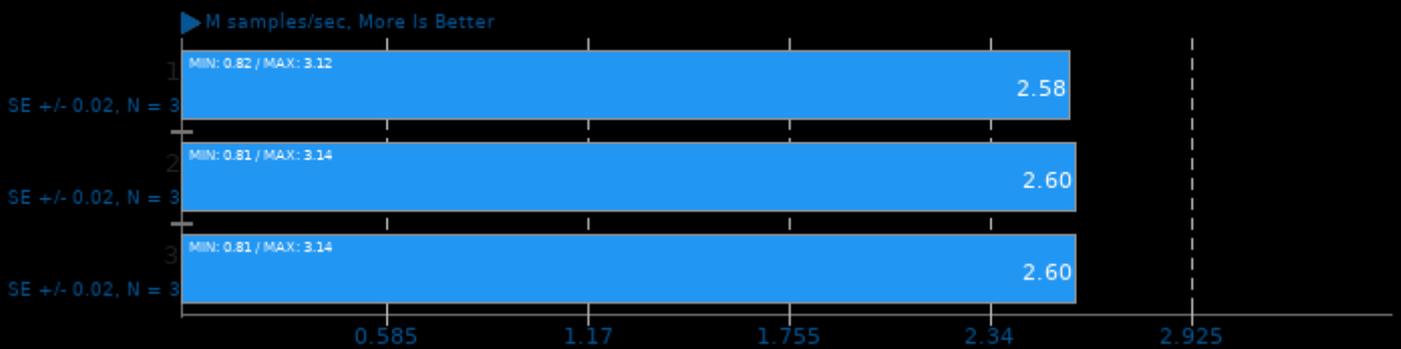
### LuxCoreRender 2.5

Scene: Danish Mood - Acceleration: CPU



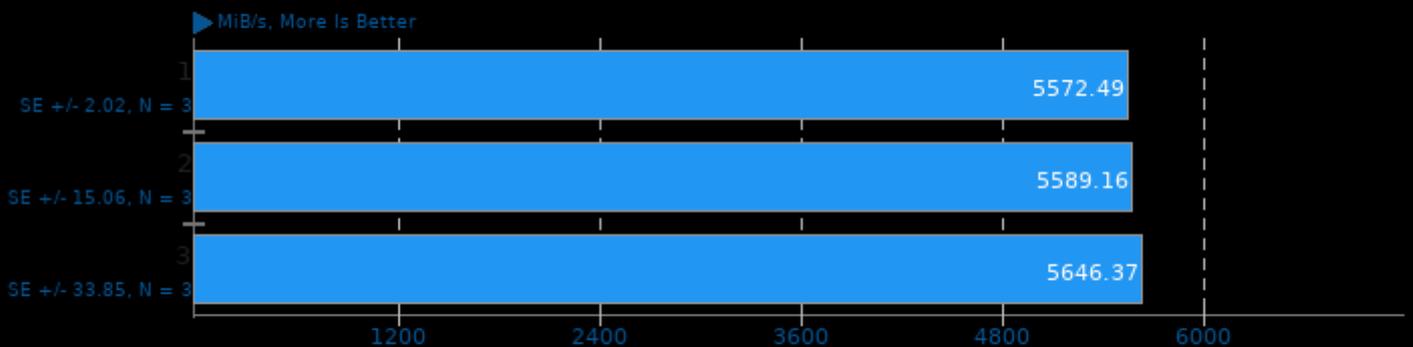
### LuxCoreRender 2.5

Scene: LuxCore Benchmark - Acceleration: CPU



### Botan 2.17.3

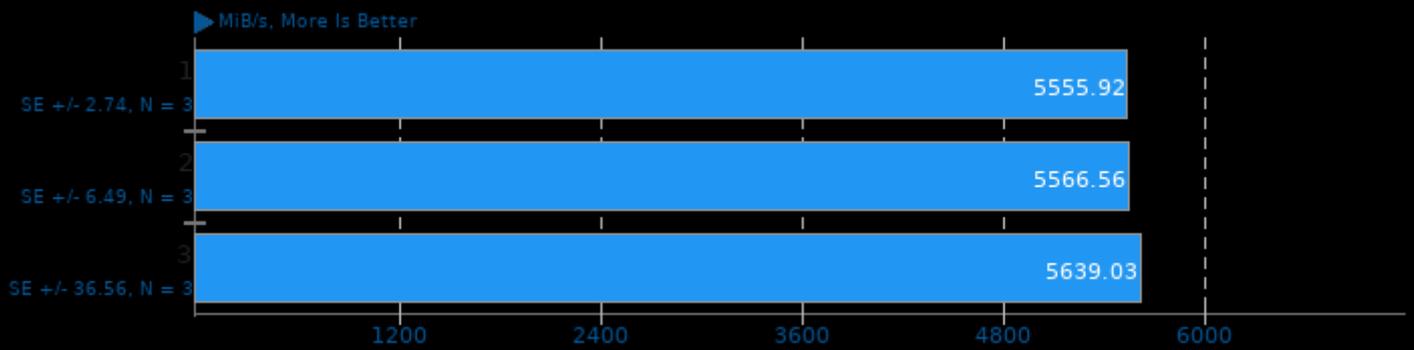
Test: AES-256 - Decrypt



1. (CXX) g++ options: -fstack-protector -m64 -pthread -lbotan-2 -ldl -lrt

### Botan 2.17.3

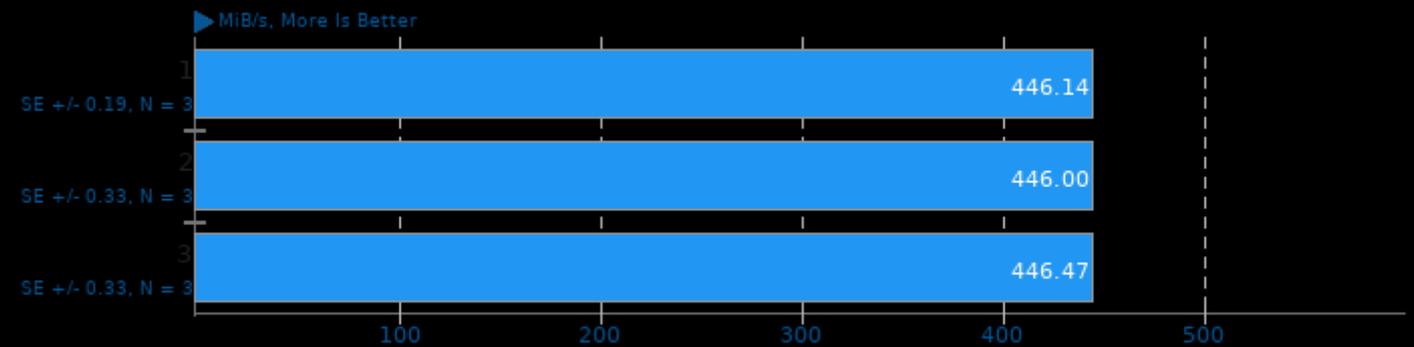
Test: AES-256



1. (CXX) g++ options: -fstack-protector -m64 -pthread -lbotan-2 -ldl -lrt

### Botan 2.17.3

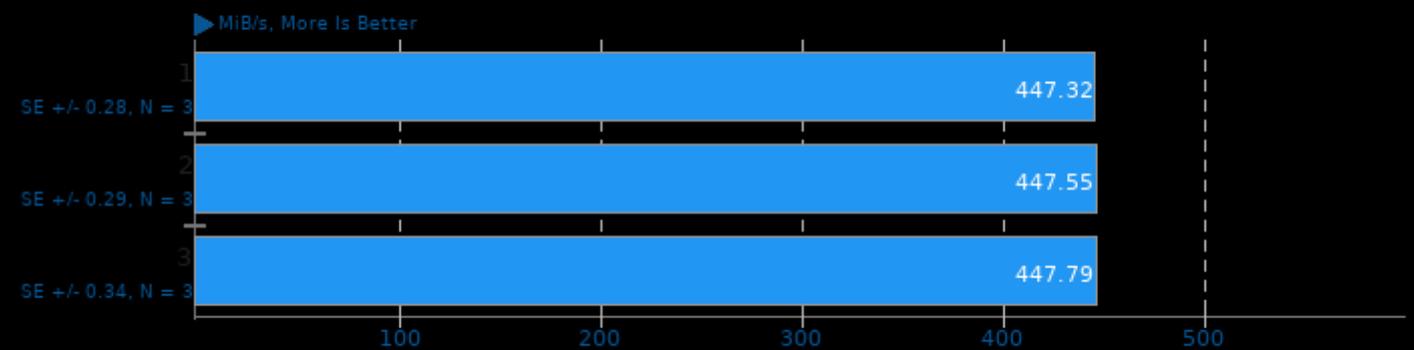
Test: Blowfish - Decrypt



1. (CXX) g++ options: -fstack-protector -m64 -pthread -lbotan-2 -ldl -lrt

### Botan 2.17.3

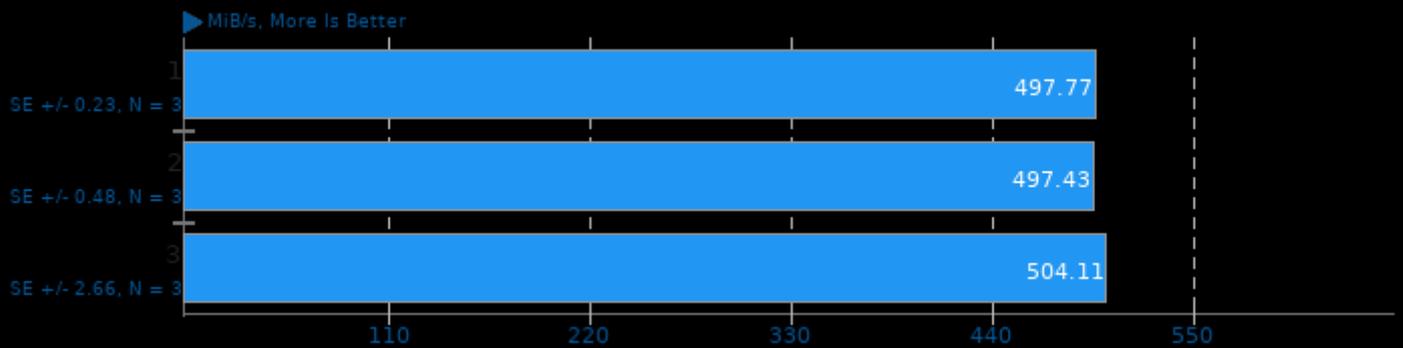
Test: Blowfish



1. (CXX) g++ options: -fstack-protector -m64 -pthread -lbotan-2 -ldl -lrt

### Botan 2.17.3

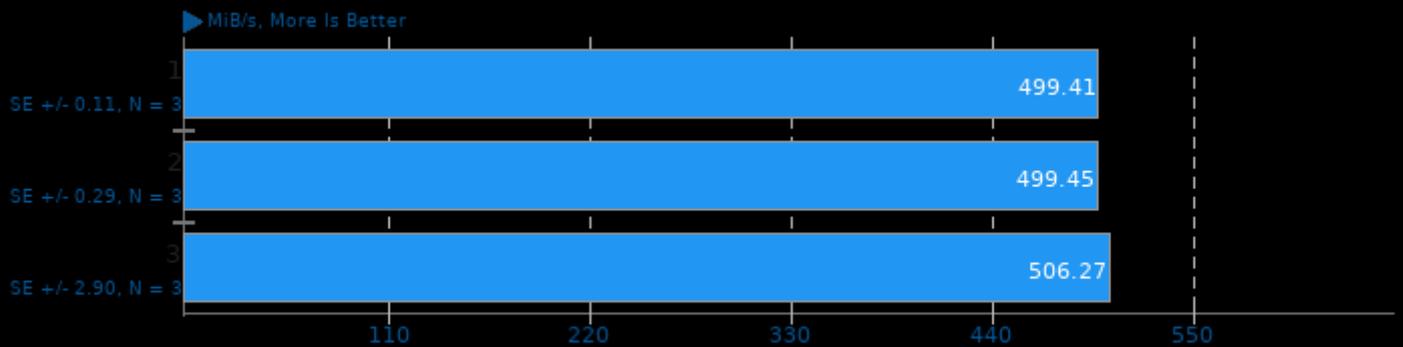
Test: ChaCha20Poly1305 - Decrypt



1. (CXX) g++ options: -fstack-protector -m64 -pthread -lbotan-2 -ldl -lrt

### Botan 2.17.3

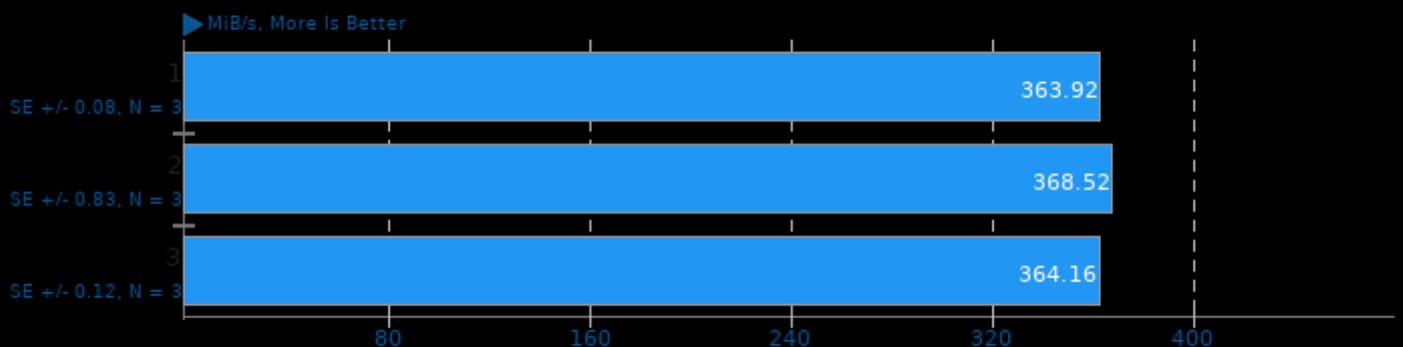
Test: ChaCha20Poly1305



1. (CXX) g++ options: -fstack-protector -m64 -pthread -lbotan-2 -ldl -lrt

### Botan 2.17.3

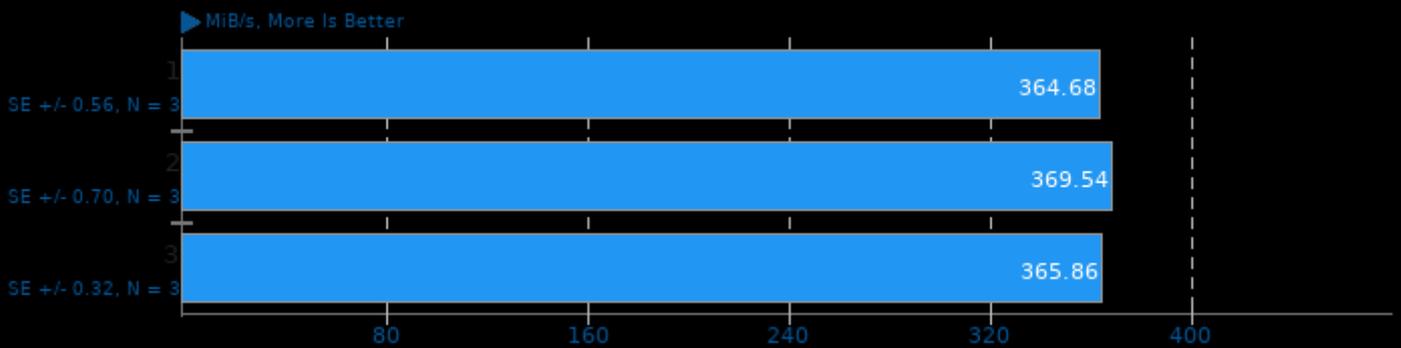
Test: Twofish - Decrypt



1. (CXX) g++ options: -fstack-protector -m64 -pthread -lbotan-2 -ldl -lrt

### Botan 2.17.3

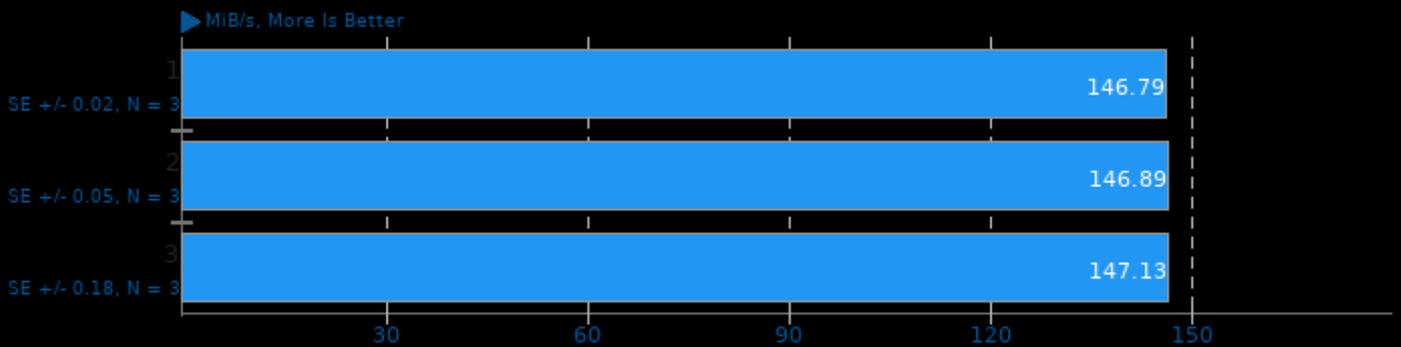
Test: Twofish



1. (CXX) g++ options: -fstack-protector -m64 -pthread -lbotan-2 -ldl -lrt

### Botan 2.17.3

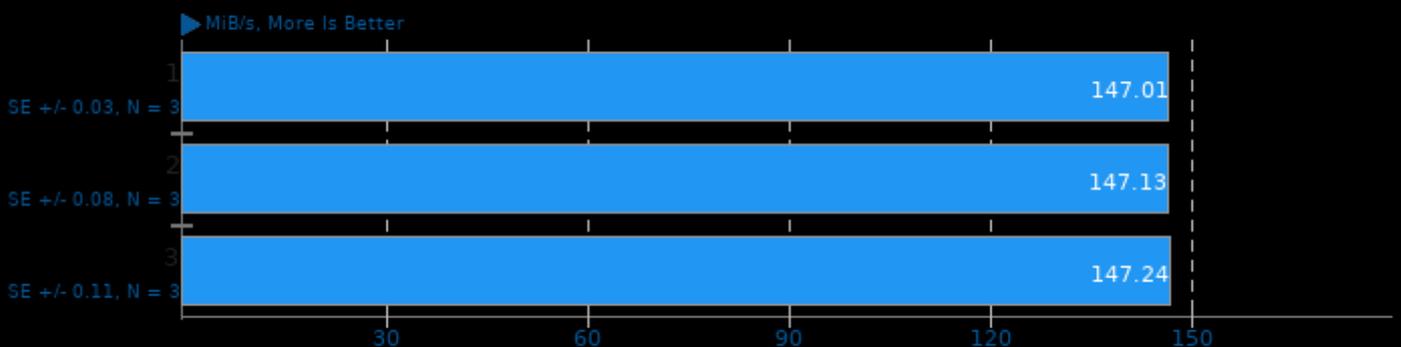
Test: CAST-256 - Decrypt



1. (CXX) g++ options: -fstack-protector -m64 -pthread -lbotan-2 -ldl -lrt

### Botan 2.17.3

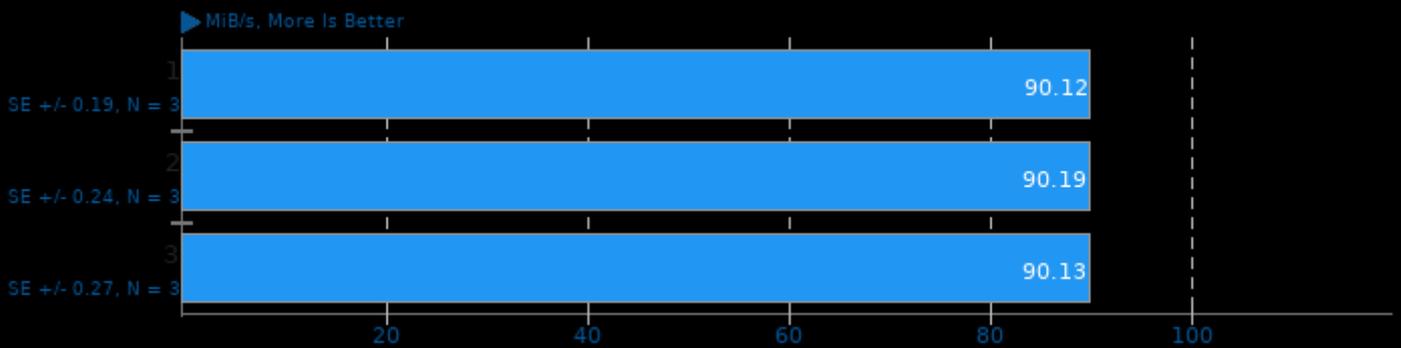
Test: CAST-256



1. (CXX) g++ options: -fstack-protector -m64 -pthread -lbotan-2 -ldl -lrt

### Botan 2.17.3

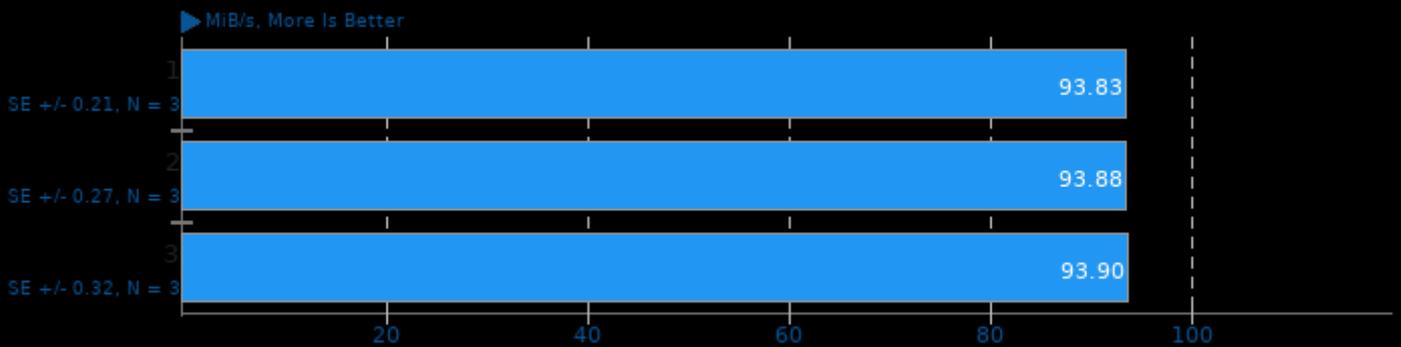
Test: KASUMI - Decrypt



1. (CXX) g++ options: -fstack-protector -m64 -pthread -lbotan-2 -ldl -lrt

### Botan 2.17.3

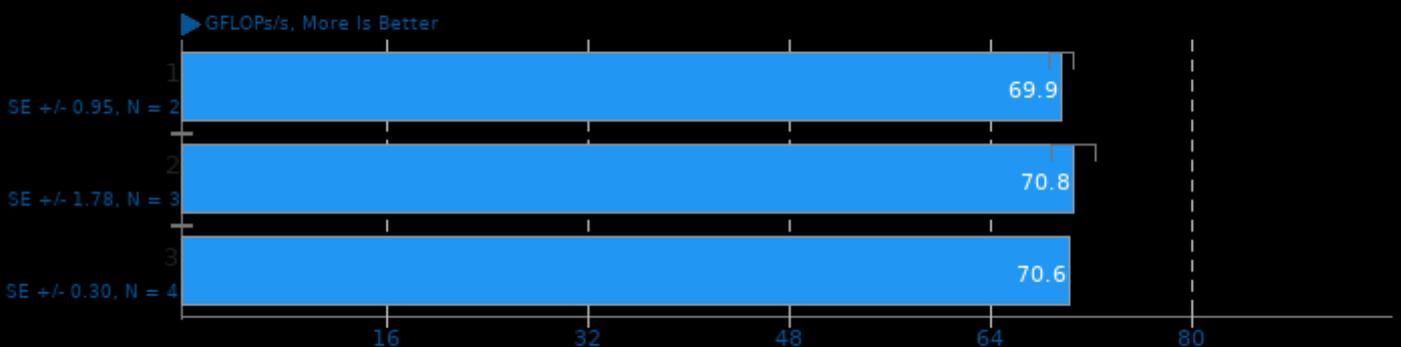
Test: KASUMI



1. (CXX) g++ options: -fstack-protector -m64 -pthread -lbotan-2 -ldl -lrt

### ViennaCL 1.7.1

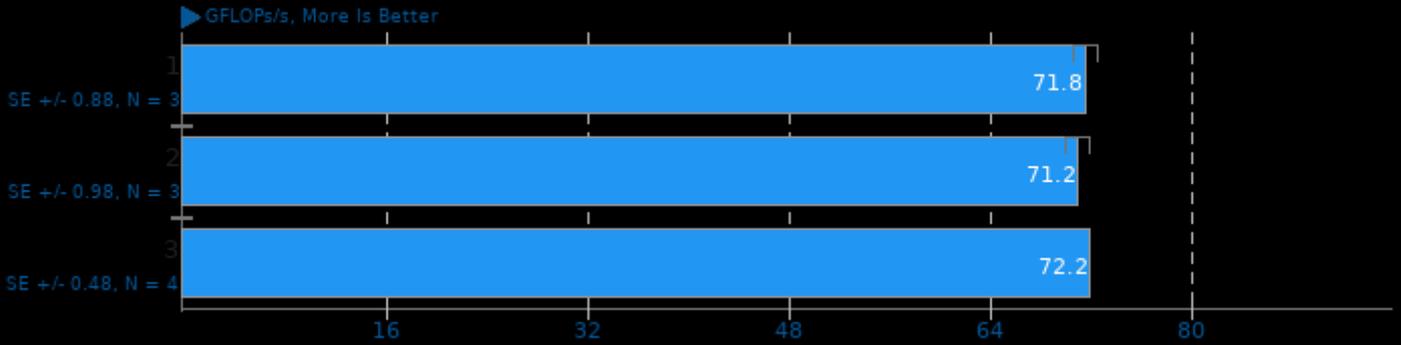
Test: CPU BLAS - dGEMM-TT



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

### ViennaCL 1.7.1

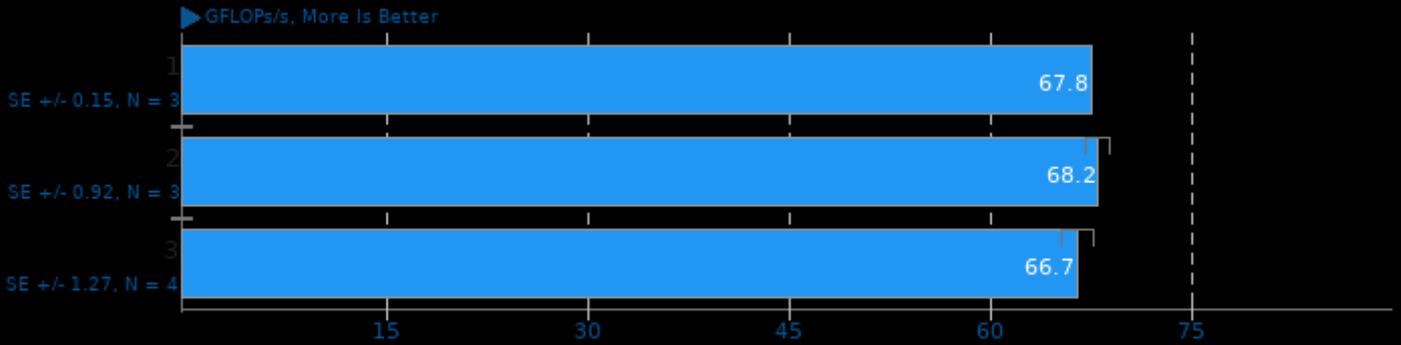
Test: CPU BLAS - dGEMM-TN



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

### ViennaCL 1.7.1

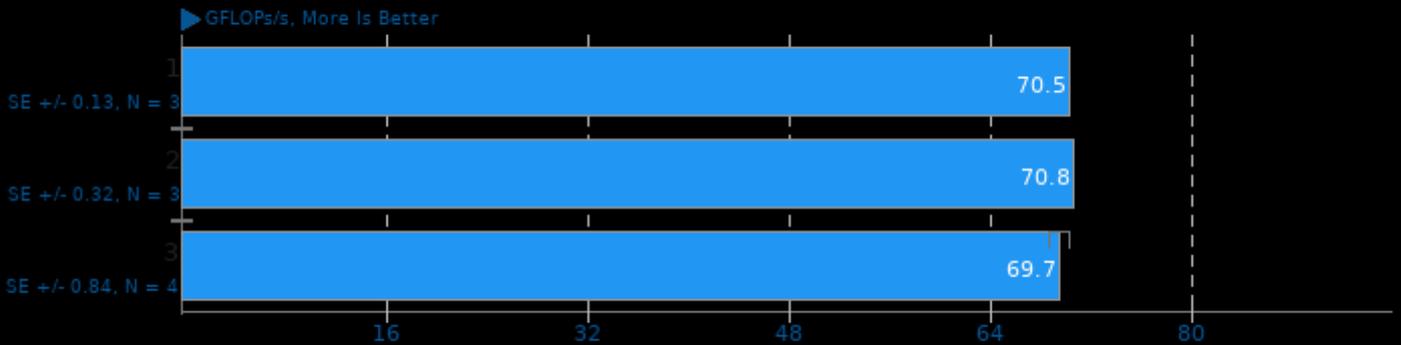
Test: CPU BLAS - dGEMM-NT



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

### ViennaCL 1.7.1

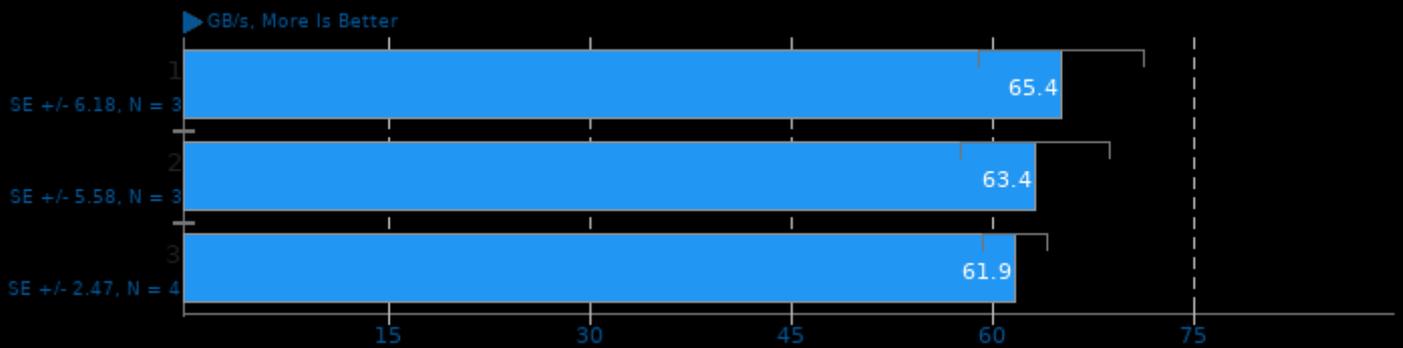
Test: CPU BLAS - dGEMM-NN



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

### ViennaCL 1.7.1

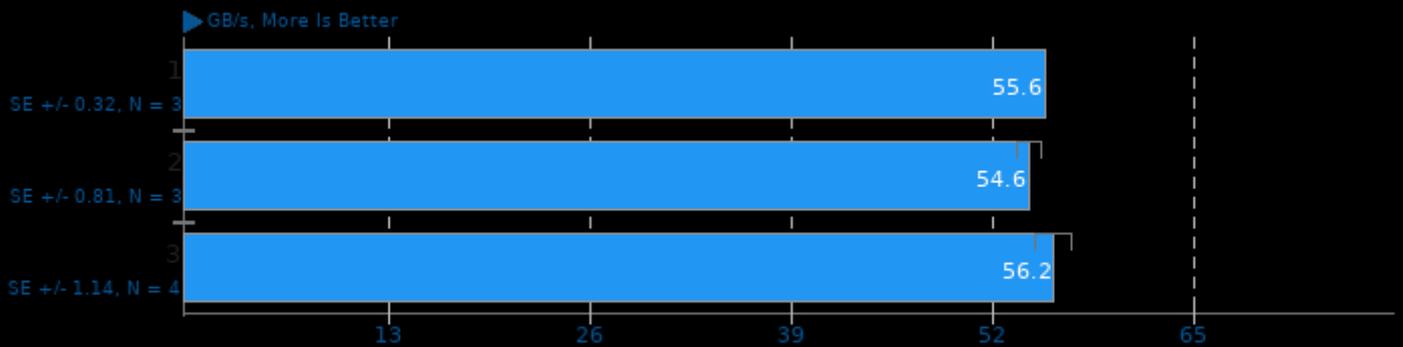
Test: CPU BLAS - dGEMV-T



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

### ViennaCL 1.7.1

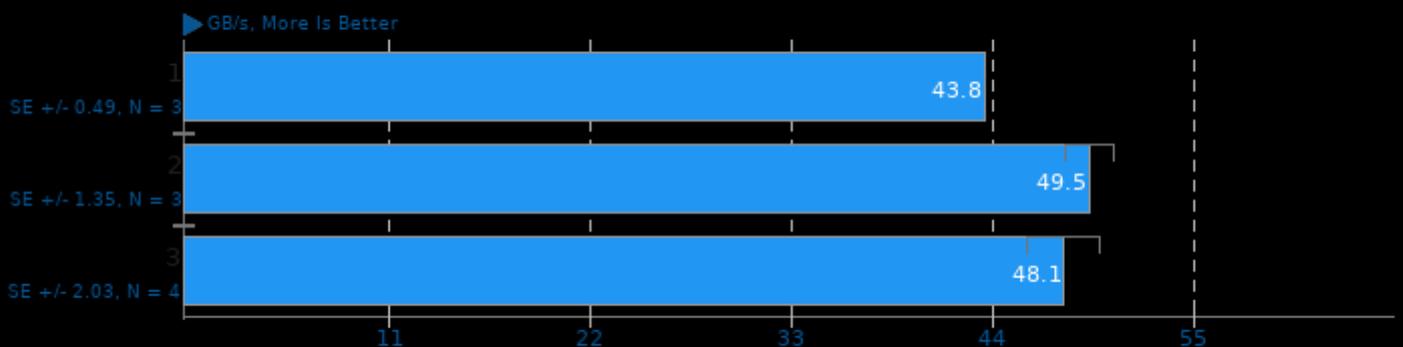
Test: CPU BLAS - dGEMV-N



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

### ViennaCL 1.7.1

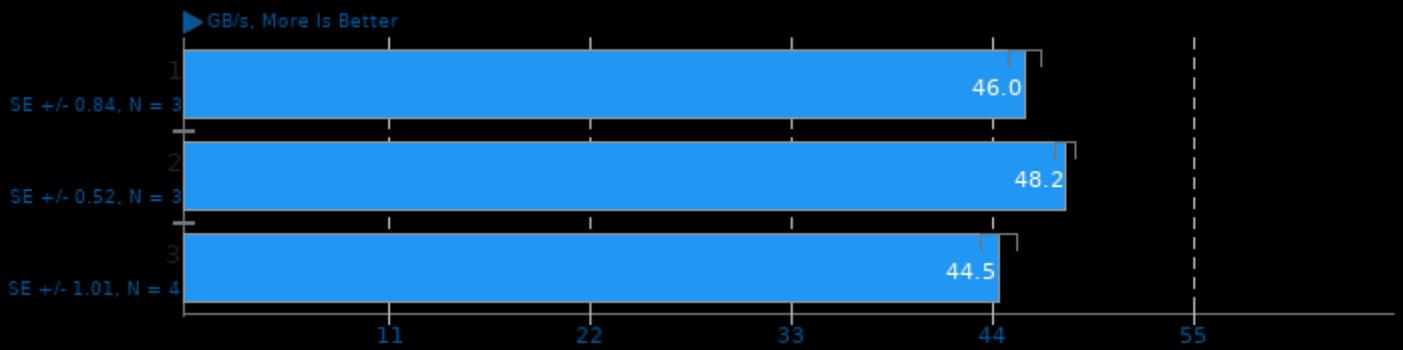
Test: CPU BLAS - dDOT



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

### ViennaCL 1.7.1

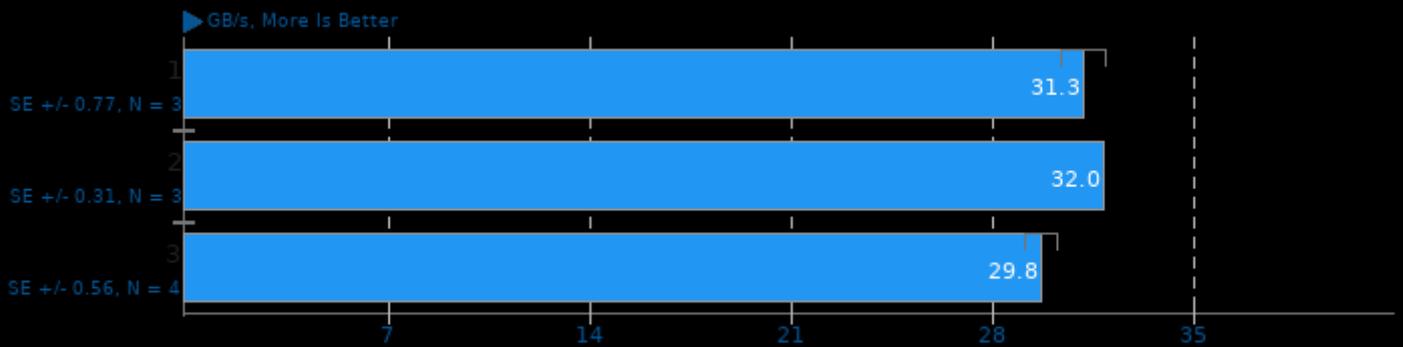
Test: CPU BLAS - dAXPY



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

### ViennaCL 1.7.1

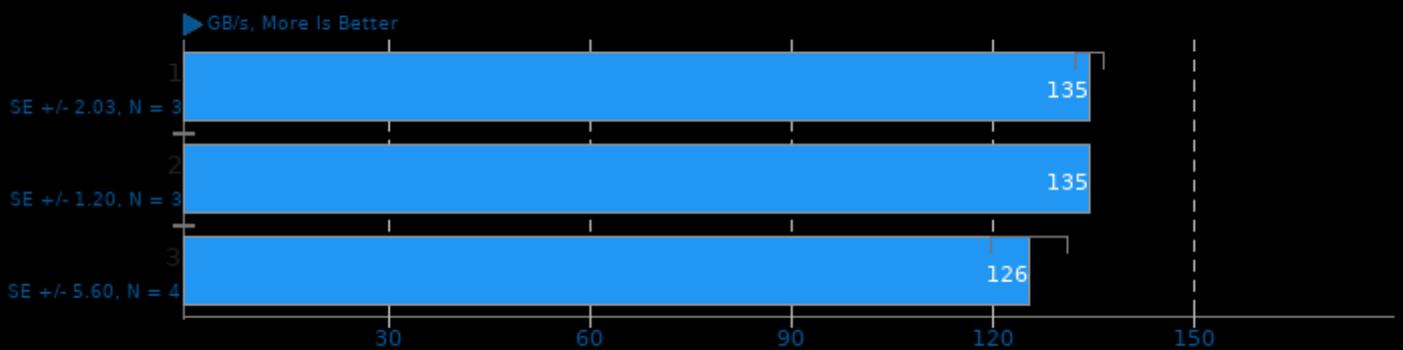
Test: CPU BLAS - dCOPY



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

### ViennaCL 1.7.1

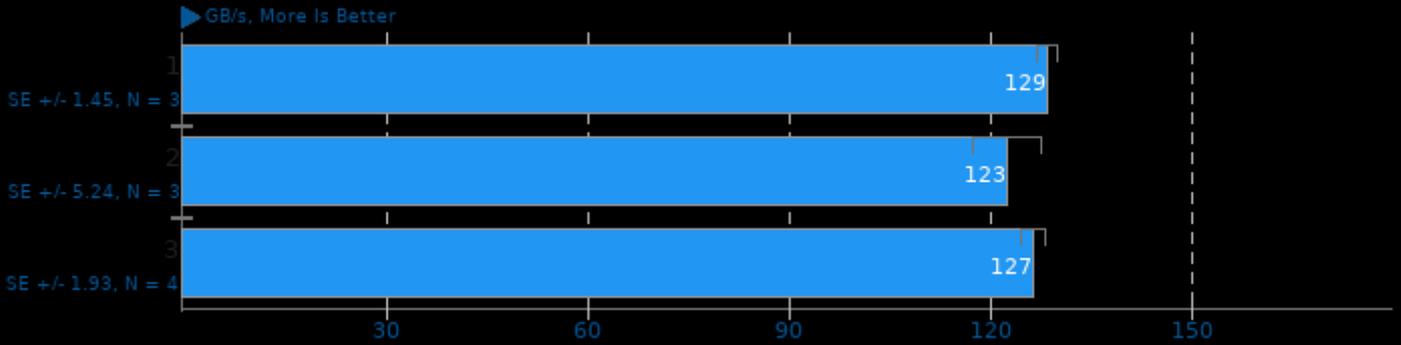
Test: CPU BLAS - sDOT



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

### ViennaCL 1.7.1

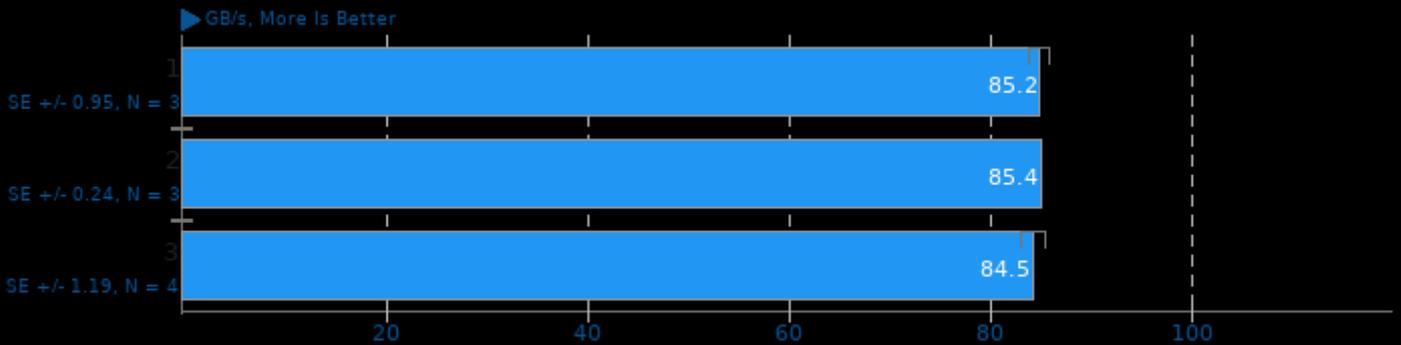
Test: CPU BLAS - sAXPY



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

### ViennaCL 1.7.1

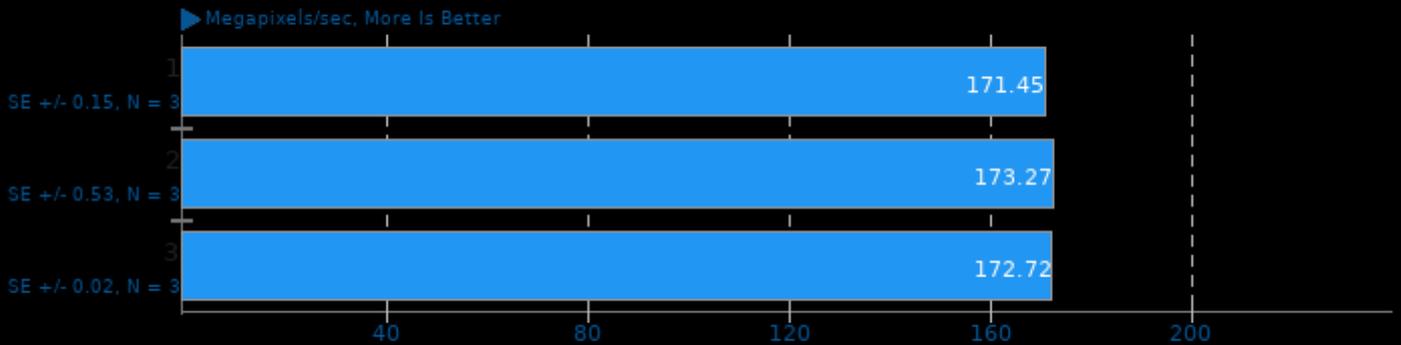
Test: CPU BLAS - sCOPY



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

### libjpeg-turbo tjbench 2.1.0

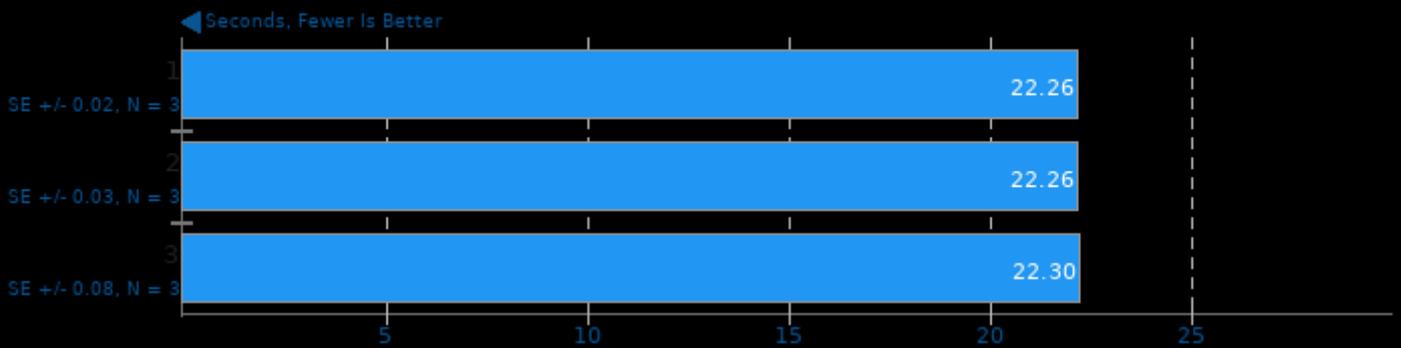
Test: Decompression Throughput



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

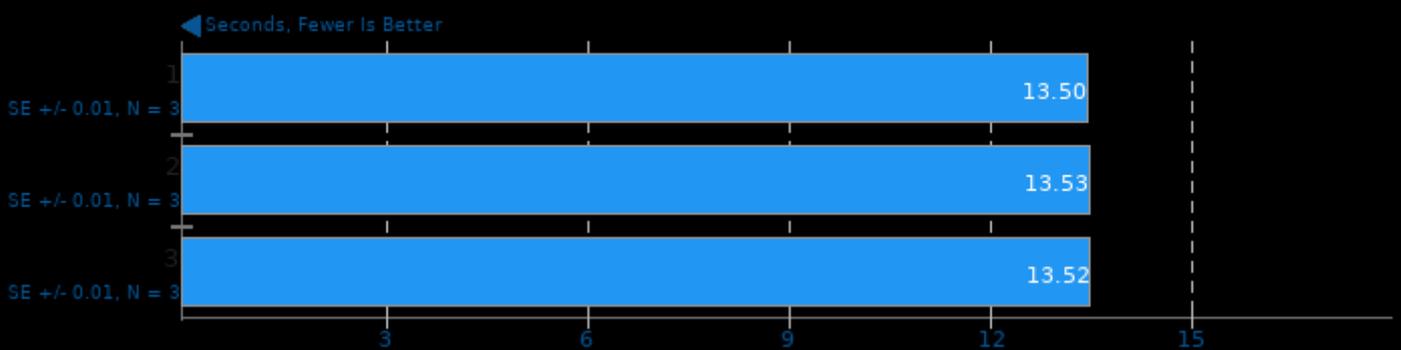
### KTX-Software toktx 4.0

Settings: Zstd Compression 19



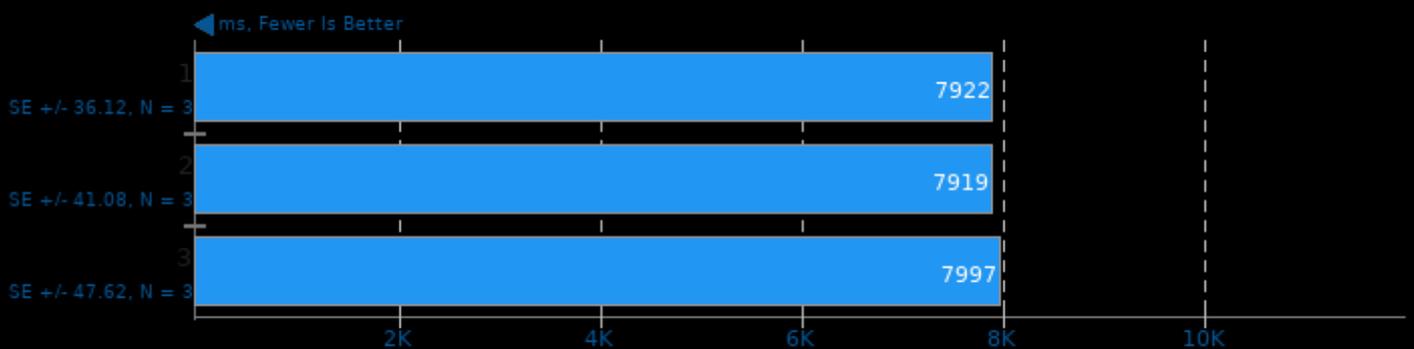
### KTX-Software toktx 4.0

Settings: UASTC 3 + Zstd Compression 19



### Google Draco 1.4.1

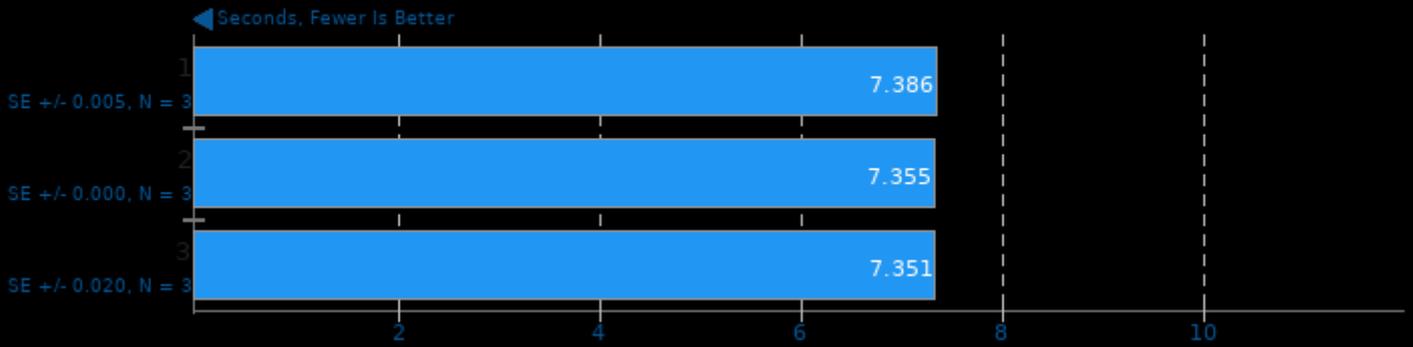
Model: Church Facade



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

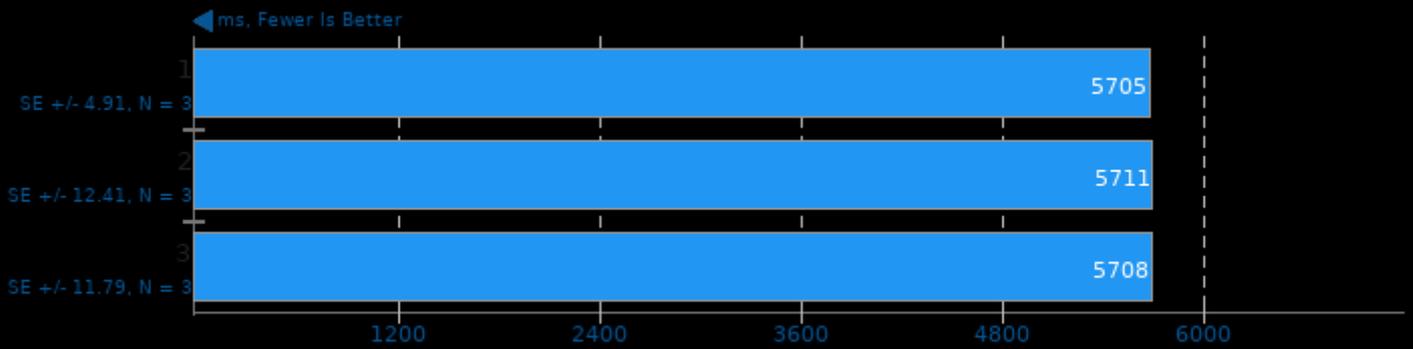
### KTX-Software toktx 4.0

Settings: UASTC 3



### Google Draco 1.4.1

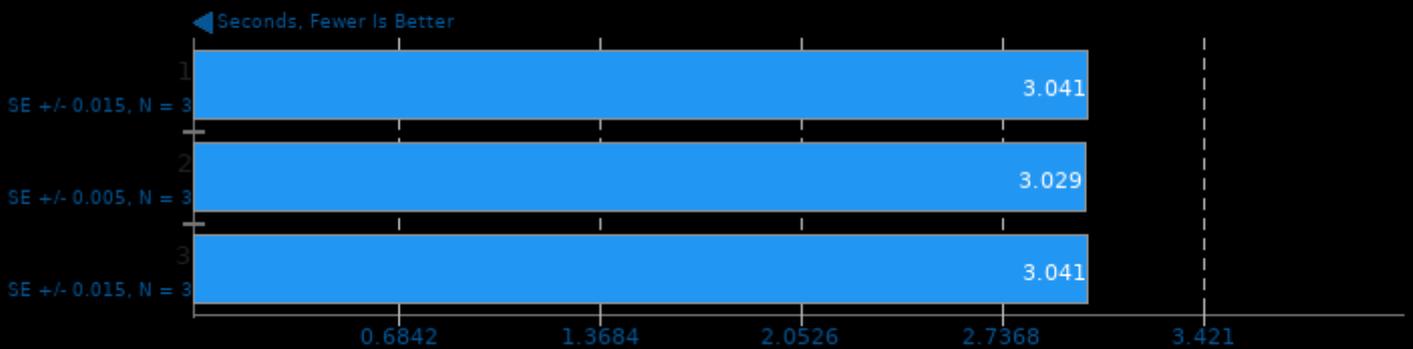
Model: Lion

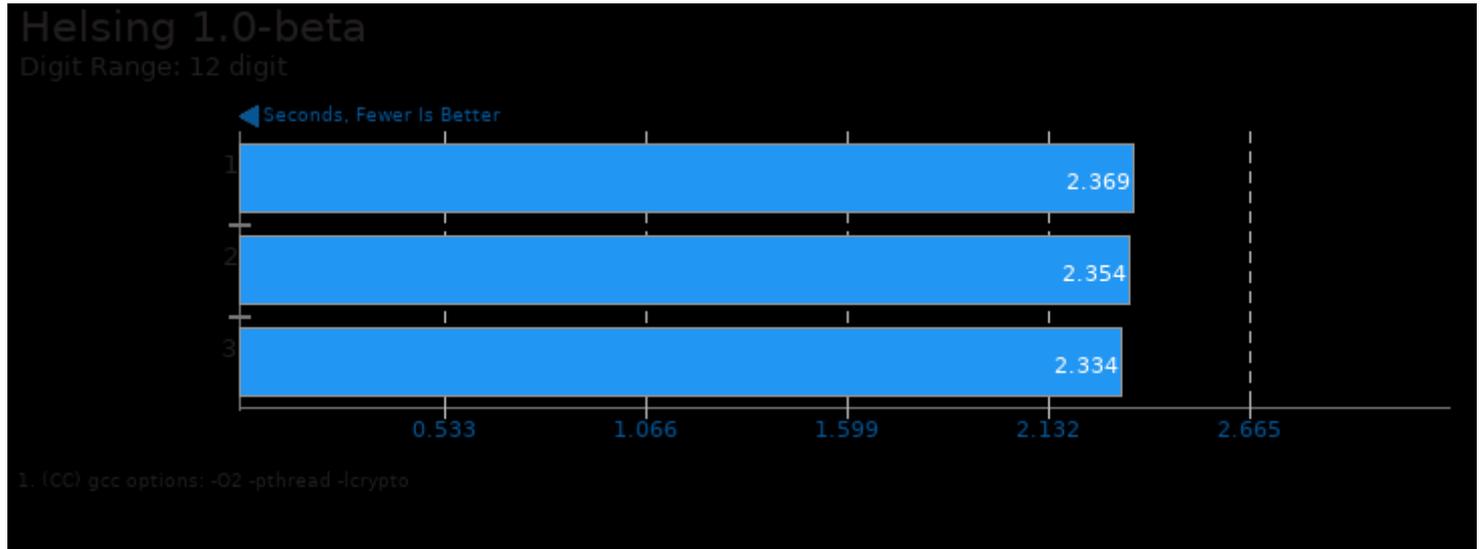


1. (CXX) g++ options: -O3

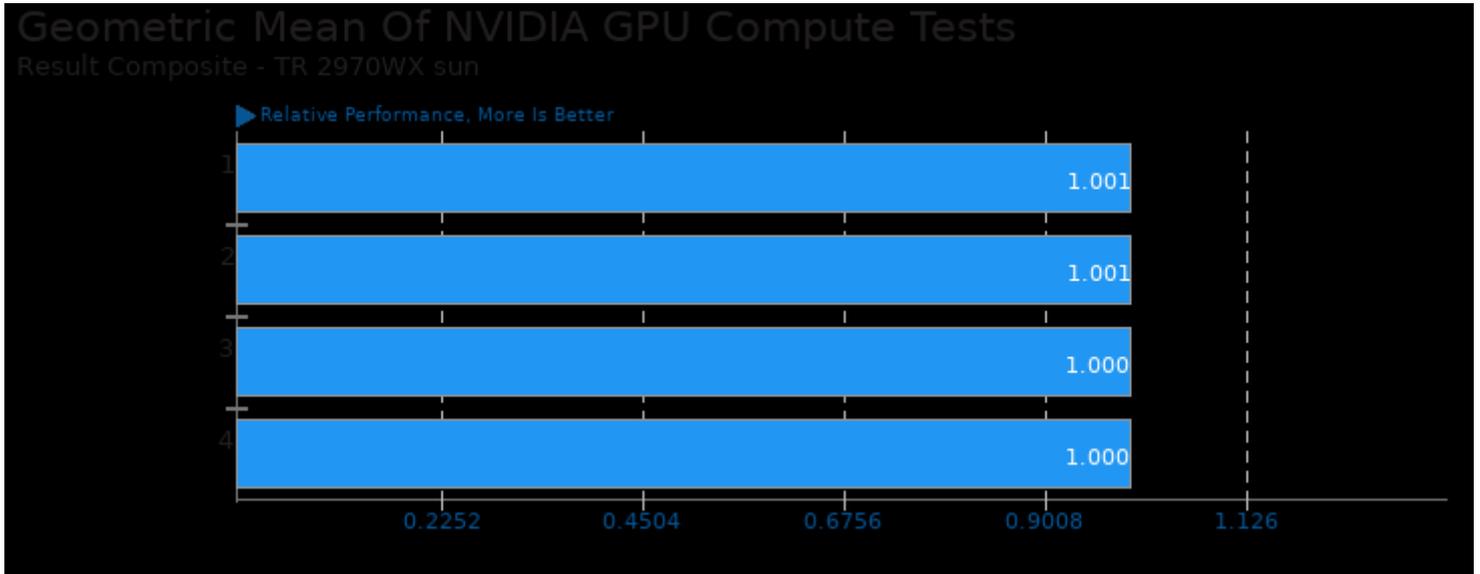
### KTX-Software toktx 4.0

Settings: Zstd Compression 9





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



Geometric mean based upon tests: pts/luxcorerender, pts/viennacl and pts/vkpeak

*This file was automatically generated via the Phoronix Test Suite benchmarking software on Friday, 29 March 2024 01:31.*