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## Haswell Core i5

Intel Core i5-4670 testing with a MSI B85M-P33 (MS-7817) v1.0 (V4.9 BIOS) and MSI Intel HD 4600 2GB on Ubuntu 20.04 via the Phoronix Test Suite.

### Automated Executive Summary

2 had the most wins, coming in first place for 43% of the tests.

Based on the geometric mean of all complete results, the fastest (1) was 1.009x the speed of the slowest (3). 2 was 0.993x the speed of 1 and 3 was 0.998x the speed of 2.

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

DDraceNetwork (Resolution: 1920 x 1080 - Mode: Fullscreen - Renderer: OpenGL 3.0 - Zoom: Default - Demo: RaiNyMore2 - Total Frame Time) at 15.432x

DDraceNetwork (Resolution: 1920 x 1080 - Mode: Fullscreen - Renderer: OpenGL 3.3 - Zoom: Default - Demo: Multeasymap - Total Frame Time) at 3.352x

DDraceNetwork (Resolution: 1920 x 1080 - Mode: Fullscreen - Renderer: OpenGL 3.0 - Zoom: Default - Demo: Multeasymap - Total Frame Time) at 3.216x

DDraceNetwork (Resolution: 1920 x 1080 - Mode: Fullscreen - Renderer: OpenGL 3.0 - Zoom: Zoomed out - Demo: Multeasymap - Total Frame Time) at 2.827x

DDraceNetwork (Resolution: 1920 x 1080 - Mode: Fullscreen - Renderer: OpenGL 3.3 - Zoom: Zoomed out - Demo:

Multeasymap - Total Frame Time) at 2.575x

DDraceNetwork (Resolution: 1920 x 1080 - Mode: Fullscreen - Renderer: OpenGL 3.0 - Zoom: Zoomed out - Demo: RaiNyMore2 - Total Frame Time) at 2.193x

DDraceNetwork (Resolution: 1920 x 1080 - Mode: Fullscreen - Renderer: OpenGL 3.3 - Zoom: Default - Demo: RaiNyMore2 - Total Frame Time) at 2.168x

DDraceNetwork (Resolution: 1920 x 1080 - Mode: Fullscreen - Renderer: OpenGL 3.3 - Zoom: Zoomed out - Demo: RaiNyMore2 - Total Frame Time) at 2.1x

Redis (Test: LPOP) at 1.599x

Redis (Test: GET) at 1.082x.

## Test Systems:

**1**

**2**

**3**

Processor: Intel Core i5-4670 @ 3.80GHz (4 Cores), Motherboard: MSI B85M-P33 (MS-7817) v1.0 (V4.9 BIOS), Chipset: Intel 4th Gen Core DRAM, Memory: 8GB, Disk: 2000GB Samsung SSD 860, Graphics: MSI Intel HD 4600 2GB (1200MHz), Audio: Intel Xeon E3-1200 v3/4th, Monitor: DELL S2409W, Network: Realtek RTL8111/8168/8411

OS: Ubuntu 20.04, Kernel: 5.9.0-050900rc7daily20201002-generic (x86\_64) 20201001, Desktop: GNOME Shell 3.36.3, Display Server: X Server 1.20.8, Display Driver: modesetting 1.20.8, OpenGL: 4.5 Mesa 20.0.8, Compiler: GCC 9.3.0, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=x86\_64-linux-gnu --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale-gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none,hsa --enable-plugin --enable-shared --enable-threads=posix --host=x86\_64-linux-gnu --program-prefix=x86\_64-linux-gnu- --target=x86\_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system=zlib=auto --with-tune=generic --without-cuda-driver -v

Processor Notes: Scaling Governor: intel\_cpfufreq ondemand - CPU Microcode: 0x28 - ThermalD 1.9.1

Java Notes: OpenJDK Runtime Environment (build 11.0.7+10-post-Ubuntu-3ubuntu1)

Python Notes: Python 2.7.18rc1 + Python 3.8.2

Security Notes: itlb\_multihit: KVM: Mitigation of VMX disabled + l1tf: Mitigation of PTE Inversion; VMX: conditional cache flushes SMT disabled + mds: Mitigation of Clear buffers; SMT disabled + meltdown: Mitigation of PTI + 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 generic retpoline IBPB: conditional IBRS\_FW STIBP: disabled RSB filling + srbs: Mitigation of Microcode + tsx\_async\_abort: Not affected

	1	2	3
<b>Basis Universal - U.L.2.R.P.P (sec)</b>	<b>972.013</b>	<b>971.706</b>	971.961
Normalized	99.97%	100%	99.97%
Standard Deviation	0%	0%	0%
<b>ASTC Encoder - Exhaustive (sec)</b>	797.64	<b>797.49</b>	<b>798.71</b>
Normalized	99.98%	100%	99.85%
Standard Deviation	0.1%	0%	0.1%

<b>GROMACS - Water Benchmark (Ns/Day)</b>	<b>0.353</b>	<b>0.354</b>	<b>0.354</b>
Normalized	99.72%	100%	100%
Standard Deviation	1.4%	0.9%	2.9%
<b>Kvazaar - Bosphorus 4K - Slow (FPS)</b>	<b>1.67</b>	<b>1.67</b>	<b>1.68</b>
Normalized	99.4%	99.4%	100%
Standard Deviation	0.3%	0.3%	0.3%
<b>Kvazaar - Bosphorus 4K - Medium (FPS)</b>	1.72	1.72	1.72
Standard Deviation	0%	0%	0%
<b>BRL-CAD - V.P.M (VGR Performance Metric)</b>	<b>36197</b>	36253	<b>36267</b>
Normalized	99.81%	99.96%	100%
<b>Numpy Benchmark (Score)</b>	258.05	<b>257.96</b>	<b>258.24</b>
Normalized	99.93%	99.89%	100%
Standard Deviation	0.4%	0.1%	0.5%
<b>asmFish - 1.H.M.2.D (Nodes/s)</b>	8587560	<b>8664235</b>	<b>8419184</b>
Normalized	99.12%	100%	97.17%
Standard Deviation	0.9%	1.2%	2.1%
<b>Basis Universal - UASTC Level 3 (sec)</b>	<b>180.659</b>	<b>180.445</b>	180.567
Normalized	99.88%	100%	99.93%
Standard Deviation	0.1%	0.1%	0.1%
<b>Timed HMMer Search - P.D.S (sec)</b>	<b>140.374</b>	140.276	<b>140.066</b>
Normalized	99.78%	99.85%	100%
Standard Deviation	0.3%	0.1%	0.1%
<b>Kvazaar - Bosphorus 4K - Very Fast (FPS)</b>	<b>4.56</b>	<b>4.58</b>	<b>4.56</b>
Normalized	99.56%	100%	99.56%
Standard Deviation	0.4%	0.1%	0.3%
<b>ASTC Encoder - Thorough (sec)</b>	99.94	<b>99.91</b>	<b>100.16</b>
Normalized	99.97%	100%	99.75%
Standard Deviation	0.1%	0.1%	0.9%
<b>x265 - Bosphorus 4K (FPS)</b>	<b>5.77</b>	<b>5.76</b>	<b>5.76</b>
Normalized	100%	99.83%	99.83%
Standard Deviation	0.3%	0.4%	0.9%
<b>Basis Universal - ETC1S (sec)</b>	90.031	<b>90.248</b>	<b>89.978</b>
Normalized	99.94%	99.7%	100%
Standard Deviation	0.1%	0.3%	0.1%
<b>Basis Universal - UASTC Level 2 (sec)</b>	<b>89.120</b>	<b>89.063</b>	89.101
Normalized	99.94%	100%	99.96%
Standard Deviation	0%	0%	0.1%
<b>Kvazaar - Bosphorus 1080p - Slow (FPS)</b>	<b>7.47</b>	<b>7.46</b>	<b>7.46</b>
Normalized	100%	99.87%	99.87%
Standard Deviation	0.3%	0.1%	0.2%
<b>Kvazaar - Bosphorus 1080p - Medium (FPS)</b>	<b>7.68</b>	<b>7.67</b>	<b>7.68</b>
Normalized	100%	99.87%	100%
Standard Deviation	0.3%	0%	0.4%
<b>Stockfish - Total Time (Nodes/s)</b>	<b>5875954</b>	<b>6014673</b>	5910545
Normalized	97.69%	100%	98.27%
Standard Deviation	1.7%	1.9%	2.6%
<b>Kvazaar - Bosphorus 4K - Ultra Fast (FPS)</b>	8.07	8.07	8.07
Standard Deviation	0.1%	0.3%	0.5%
<b>LZ4 Compression - 9 - D.S (MB/s)</b>	5882	<b>5881</b>	<b>5885</b>
Normalized	99.94%	99.93%	100%
Standard Deviation	0.2%	0.2%	0.1%
<b>LZ4 Compression - 9 - Compression Speed (MB/s)</b>	<b>44.98</b>	<b>45.04</b>	45.00
Normalized	99.87%	100%	99.91%
Standard Deviation	0.2%	0%	0.2%

<b>LZ4 Compression - 3 - D.S (MB/s)</b>	<b>5884</b>	5879	<b>5869</b>
Normalized	100%	99.91%	99.74%
Standard Deviation	0.1%	0.1%	0.1%
<b>LZ4 Compression - 3 - Compression Speed (MB/s)</b>	<b>46.05</b>	46.03	<b>45.91</b>
Normalized	100%	99.96%	99.7%
Standard Deviation	0%	0%	0.2%
<b>rav1e - 1 (FPS)</b>	<b>0.294</b>	0.293	<b>0.292</b>
Normalized	100%	99.66%	99.32%
Standard Deviation	0.2%	0.4%	0.4%
<b>rav1e - 5 (FPS)</b>	<b>0.884</b>	<b>0.885</b>	<b>0.883</b>
Normalized	99.89%	100%	99.77%
Standard Deviation	0.6%	0.6%	0.2%
<b>IndigoBench - CPU - Bedroom (M samples/s)</b>	<b>0.461</b>	<b>0.463</b>	<b>0.463</b>
Normalized	99.57%	100%	100%
Standard Deviation	0.6%	0.5%	0.2%
<b>IndigoBench - CPU - Supercar (M samples/s)</b>	<b>1.143</b>	1.144	<b>1.149</b>
Normalized	99.48%	99.56%	100%
Standard Deviation	0.2%	0.4%	0.3%
<b>DDraceNetwork - 1920 x 1080 - Fullscreen - OpenGL 3.0 - Default - Multeasymap (FPS)</b>	<b>106.51</b>	106.67	<b>106.81</b>
Normalized	99.72%	99.87%	100%
Standard Deviation	0.4%	0.2%	0.2%
<b>DDraceNetwork - 1920 x 1080 - Fullscreen - OpenGL 3.0 - Default - RaiNyMore2 (FPS)</b>	<b>52.50</b>	52.82	<b>52.84</b>
Normalized	99.36%	99.96%	100%
Standard Deviation	0.2%	0%	0%
<b>DDraceNetwork - 1920 x 1080 - Fullscreen - OpenGL 3.3 - Default - Multeasymap (FPS)</b>	<b>87.57</b>	<b>88.46</b>	87.91
Normalized	98.99%	100%	99.38%
Standard Deviation	0.4%	0.6%	0.2%
<b>DDraceNetwork - 1920 x 1080 - Fullscreen - OpenGL 3.0 - Zoomed out - Multeasymap</b>	<b>102.69</b>	<b>103.51</b>	103.37
Normalized	99.21%	100%	99.86%
Standard Deviation	0.1%	0.5%	0.1%
<b>DDraceNetwork - 1920 x 1080 - Fullscreen - OpenGL 3.3 - Default - RaiNyMore2 (FPS)</b>	<b>40.14</b>	<b>40.36</b>	40.35
Normalized	99.45%	100%	99.98%
Standard Deviation	0.2%	0%	0.1%
<b>DDraceNetwork - 1920 x 1080 - Fullscreen - OpenGL 3.3 - Zoomed out - Multeasymap</b>	<b>85.65</b>	85.21	<b>85.03</b>
Normalized	100%	99.49%	99.28%
Standard Deviation	0.4%	0.4%	0.2%
<b>DDraceNetwork - 1920 x 1080 - Fullscreen - OpenGL 3.0 - Zoomed out - RaiNyMore2</b>	<b>62.28</b>	<b>62.61</b>	62.57
Normalized	99.47%	100%	99.94%
Standard Deviation	0.1%	0.1%	0.1%
<b>DDraceNetwork - 1920 x 1080 - Fullscreen - OpenGL 3.3 - Zoomed out - RaiNyMore2</b>	<b>49.97</b>	50.26	<b>50.34</b>
Normalized	99.26%	99.84%	100%
Standard Deviation	0.2%	0.3%	0%
<b>eSpeak-NG Speech Engine - T.T.S.S (sec)</b>	<b>36.619</b>	<b>35.869</b>	36.027
Normalized	97.95%	100%	99.56%
Standard Deviation	2.9%	0.9%	0.8%

rav1e - 6 (FPS)	1.184	1.184	1.184
Standard Deviation	0.2%	0.2%	0.1%
LZ4 Compression - 1 - D.S (MB/s)	<b>5938</b>	5934	<b>5930</b>
Normalized	100%	99.92%	99.85%
Standard Deviation	0.2%	0.4%	0.1%
LZ4 Compression - 1 - Compression Speed (MB/s)	<b>5168</b>	<b>5188</b>	5175
Normalized	99.62%	100%	99.75%
Standard Deviation	0.1%	0.5%	0.2%
rav1e - 10 (FPS)	2.680	<b>2.688</b>	<b>2.670</b>
Normalized	99.7%	100%	99.33%
Standard Deviation	0.3%	0.3%	0.8%
Sunflow Rendering System - G.I.I.S (sec)	<b>2.915</b>	2.941	<b>2.948</b>
Normalized	100%	99.12%	98.88%
Standard Deviation	2.4%	2.7%	1.6%
Kvazaar - Bosphorus 1080p - Very Fast (FPS)	<b>18.98</b>	19.02	<b>19.05</b>
Normalized	99.63%	99.84%	100%
Standard Deviation	0.6%	0.5%	0.4%
Crafty - Elapsed Time (Nodes/s)	6920082	<b>6972916</b>	<b>6917977</b>
Normalized	99.24%	100%	99.21%
Standard Deviation	0%	1.1%	0.3%
x265 - Bosphorus 1080p (FPS)	<b>25.16</b>	<b>25.16</b>	<b>25.31</b>
Normalized	99.41%	99.41%	100%
Standard Deviation	0.7%	0.5%	0.9%
ASTC Encoder - Medium (sec)	<b>14.93</b>	<b>14.93</b>	<b>14.92</b>
Normalized	99.93%	99.93%	100%
Standard Deviation	0.1%	0.2%	0.4%
Kvazaar - Bosphorus 1080p - Ultra Fast	<b>33.19</b>	33.31	<b>33.49</b>
Normalized	99.1%	99.46%	100%
Standard Deviation	0.6%	0.3%	0.7%
Redis - LPUSH (Reqs/sec)	<b>1426779</b>	<b>1404306</b>	1408595
Normalized	100%	98.42%	98.73%
Standard Deviation	0.1%	2.7%	0.5%
Redis - LPOP (Reqs/sec)	<b>2293425</b>	<b>1434327</b>	1436520
Normalized	100%	62.54%	62.64%
Standard Deviation	2.8%	1.1%	0.9%
Basis Universal - UASTC Level 0 (sec)	12.408	<b>12.401</b>	<b>12.423</b>
Normalized	99.94%	100%	99.82%
Standard Deviation	0.2%	0.2%	0.1%
Redis - SET (Reqs/sec)	1648746	<b>1653394</b>	<b>1640575</b>
Normalized	99.72%	100%	99.22%
Standard Deviation	1.4%	1.5%	0.9%
Redis - SADD (Reqs/sec)	<b>1846456</b>	1844432	<b>1843710</b>
Normalized	100%	99.89%	99.85%
Standard Deviation	1.1%	1.5%	2.3%
Redis - GET (Reqs/sec)	<b>2179226</b>	2041494	<b>2013411</b>
Normalized	100%	93.68%	92.39%
Standard Deviation	1.4%	0.7%	2.7%
ASTC Encoder - Fast (sec)	<b>9.70</b>	<b>9.72</b>	<b>9.70</b>
Normalized	100%	99.79%	100%
Standard Deviation	0.8%	0.7%	0.3%
yquake2 - Software CPU - 1920 x 1080 (FPS)	<b>77.2</b>	<b>78.2</b>	77.9
Normalized	98.72%	100%	99.62%
Standard Deviation	0.8%	0.4%	0.5%

**LAMMPS Molecular Dynamics Simulator - 2.643      2.652      2.646****Rhodopsin Protein (ns/day)**

Normalized 99.66%      100%      99.77%

Standard Deviation 0.9%      1.3%      1%

**yquake2 - OpenGL 3.x - 1920 x 1080 (FPS) 158.6      158.4      158.4**

Normalized 100%      99.87%      99.87%

Standard Deviation 0.2%      0.4%      0.3%

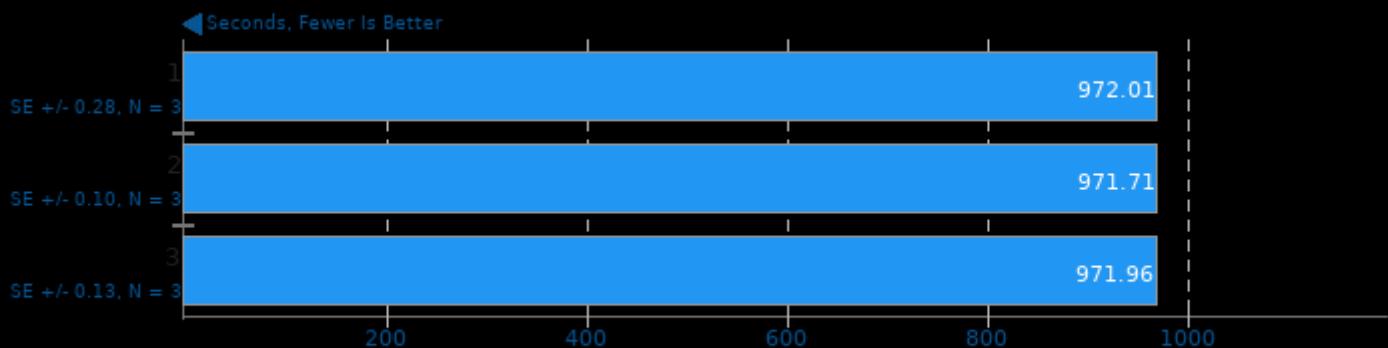
**yquake2 - OpenGL 1.x - 1920 x 1080 (FPS) 164.5      164.7      162.1**

Normalized 99.88%      100%      98.42%

Standard Deviation 0.5%      0.8%      0.2%

## Basis Universal 1.12

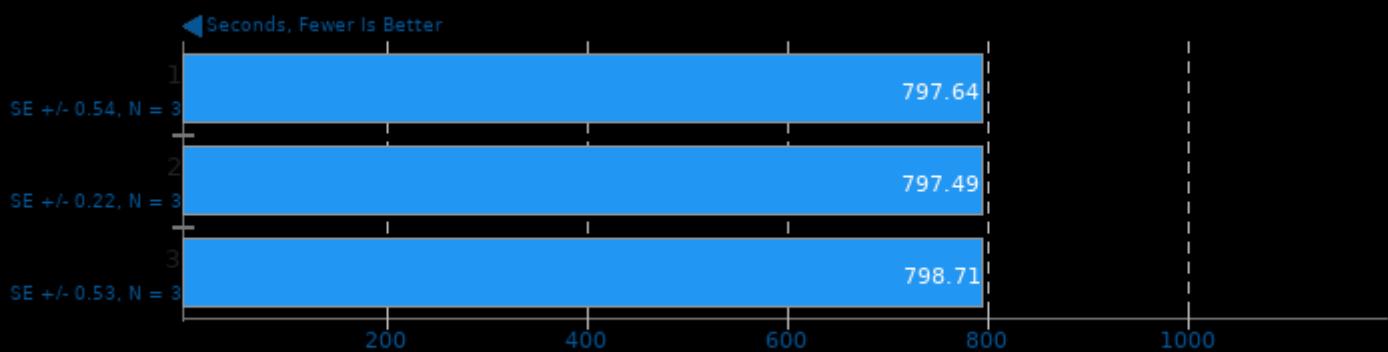
Settings: UASTC Level 2 + RDO Post-Processing



1. (CXX) g++ options: -std=c++11 -fvisibility=hidden -fPIC -fno-strict-aliasing -O3 -rdynamic -lm -lpthread

## ASTC Encoder 2.0

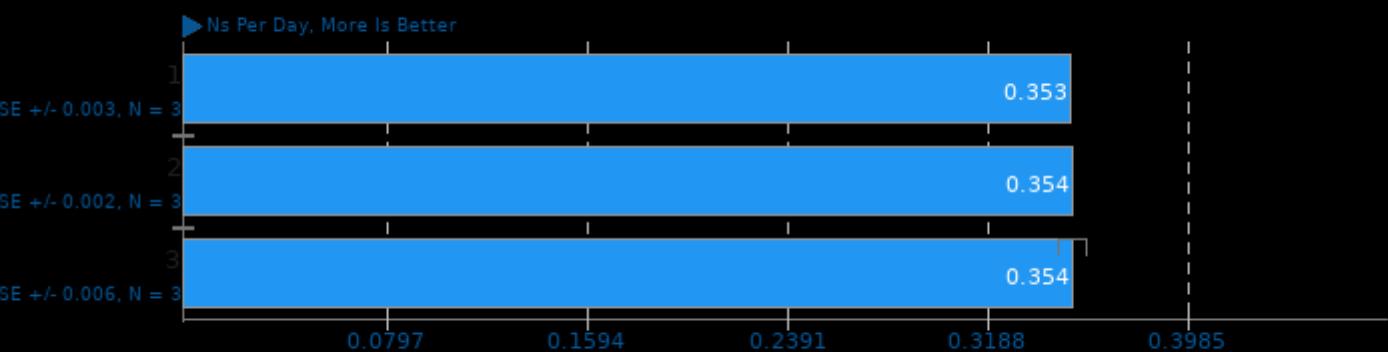
Preset: Exhaustive



1. (CXX) g++ options: -std=c++14 -fvisibility=hidden -O3 -fno-math-errno -mfpmath=sse -mavx2 -mpopcnt -lpthread

## GROMACS 2020.3

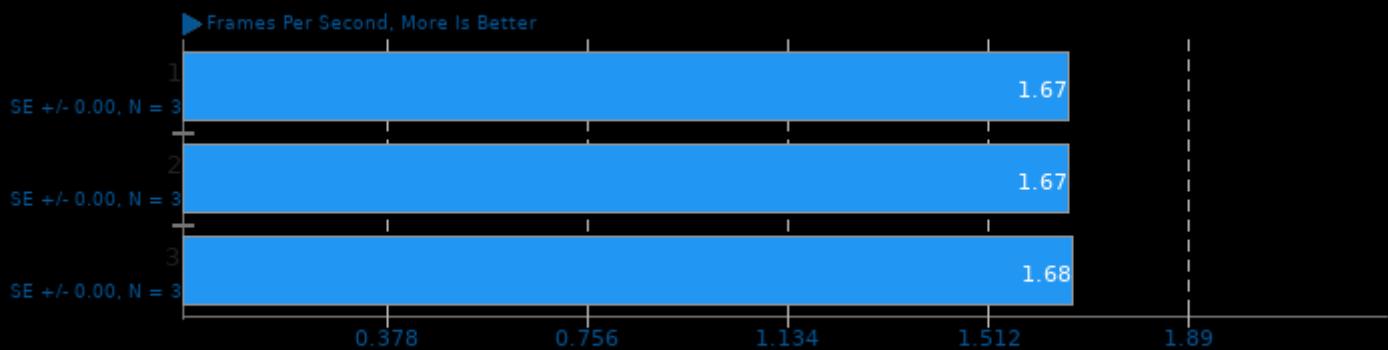
Water Benchmark



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

## Kvazaar 2.0

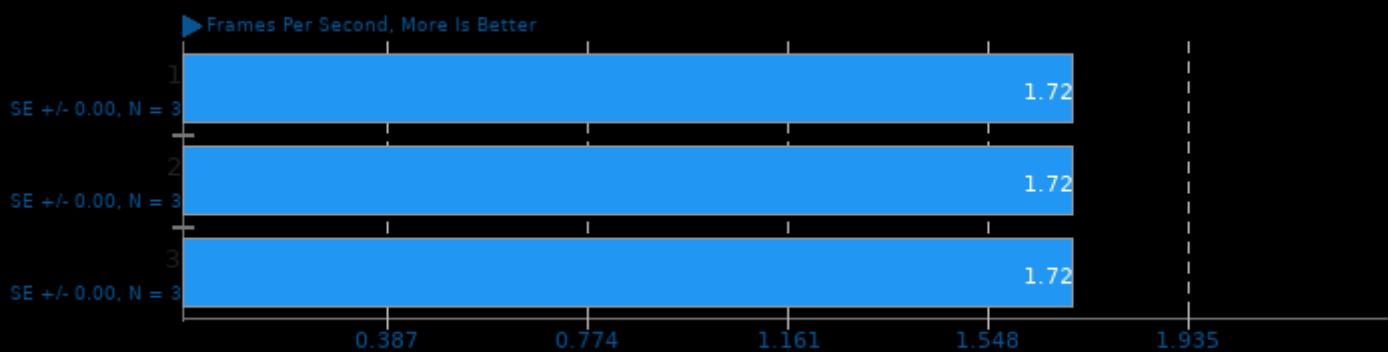
Video Input: Bosphorus 4K - Video Preset: Slow



1. (CC) gcc options: -pthread -fno-tree-vectorize -fvisibility=hidden -O2 -lpthread -lm -lrt

## Kvazaar 2.0

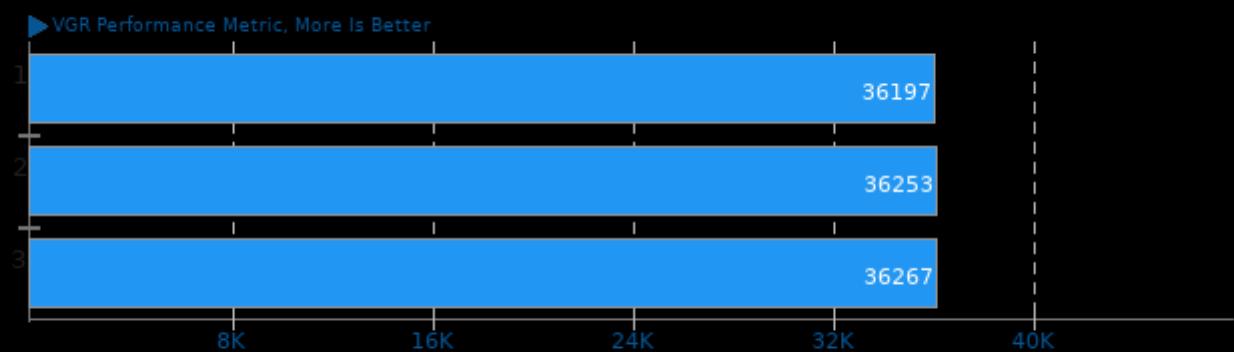
Video Input: Bosphorus 4K - Video Preset: Medium



1. (CC) gcc options: -pthread -fno-tree-vectorize -fvisibility=hidden -O2 -lpthread -lm -lrt

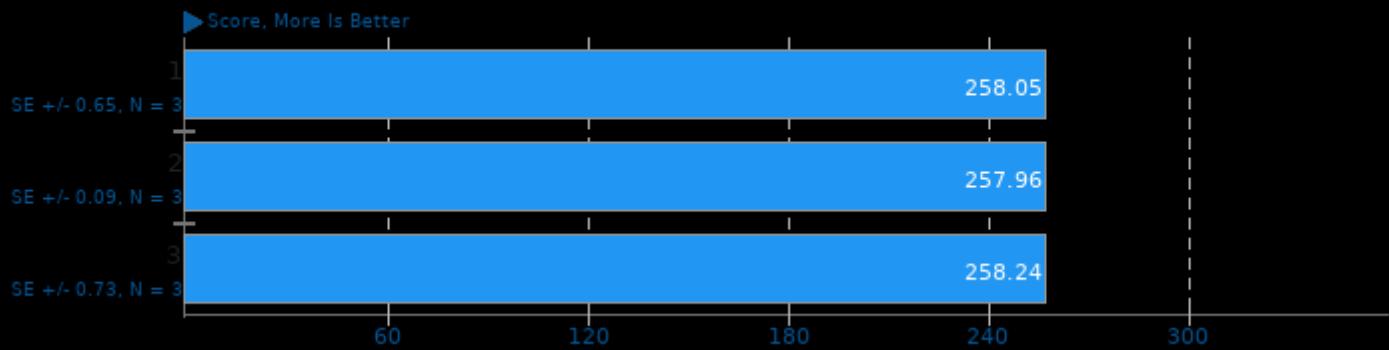
## BRL-CAD 7.30.8

VGR Performance Metric



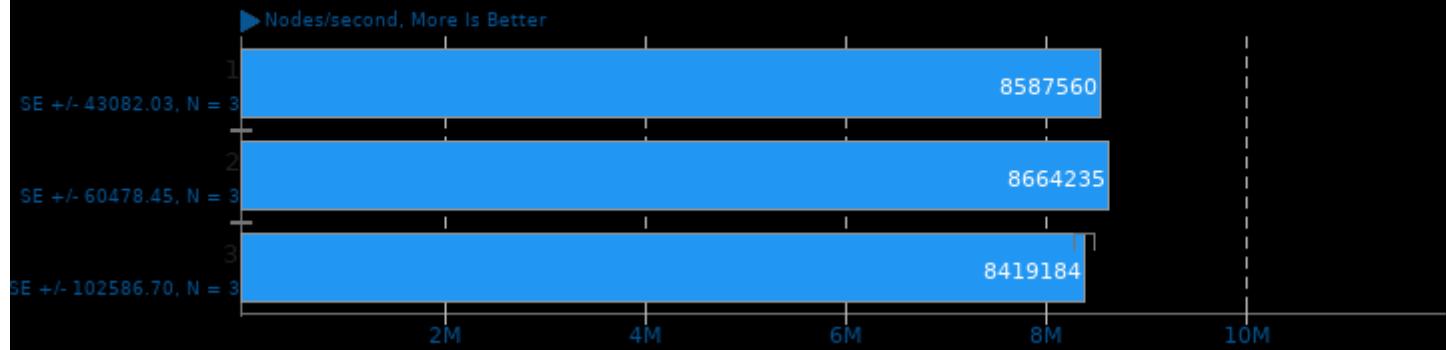
1. (CXX) g++ options: -std=c++11 -pipe -fno-strict-aliasing -fno-common -fexceptions -ftemplate-depth=128 -m64 -ggdb3 -O3 -fipa-pta -fstrength-reduce

## Numpy Benchmark



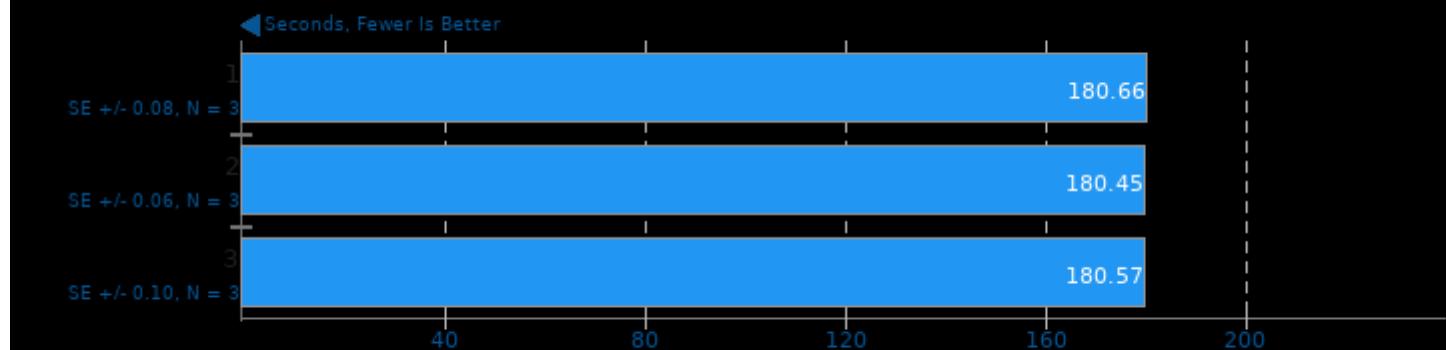
## asmFish 2018-07-23

1024 Hash Memory, 26 Depth



## Basis Universal 1.12

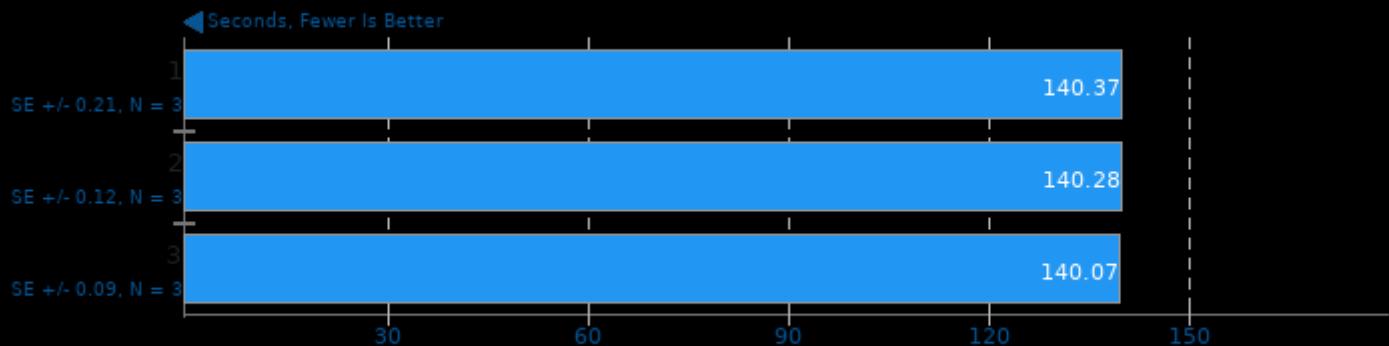
Settings: UASTC Level 3



1. (CXX) g++ options: -std=c++11 -fvisibility=hidden -fPIC -fno-strict-aliasing -O3 -rdynamic -lm -lpthread

## Timed HMMer Search 3.3.1

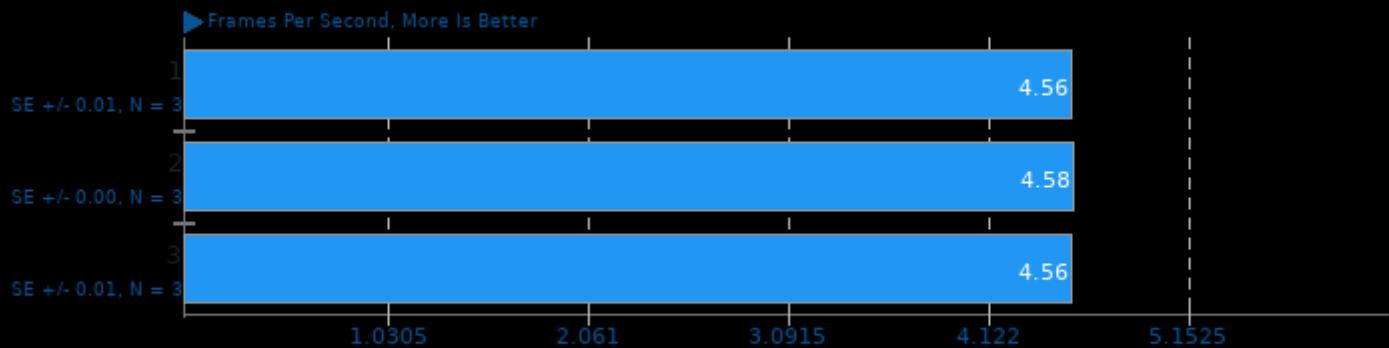
Pfam Database Search



1. (CC) gcc options: -O3 -pthread -lhmmer -leasel -lm

## Kvazaar 2.0

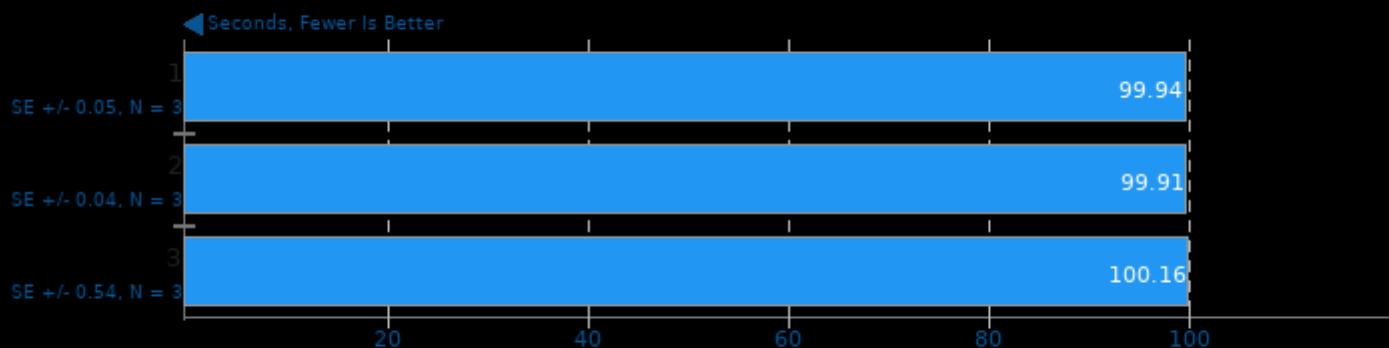
Video Input: Bosphorus 4K - Video Preset: Very Fast



1. (CC) gcc options: -pthread -fno-tree-vectorize -fvisibility=hidden -O2 -lpthread -lm -lrt

## ASTC Encoder 2.0

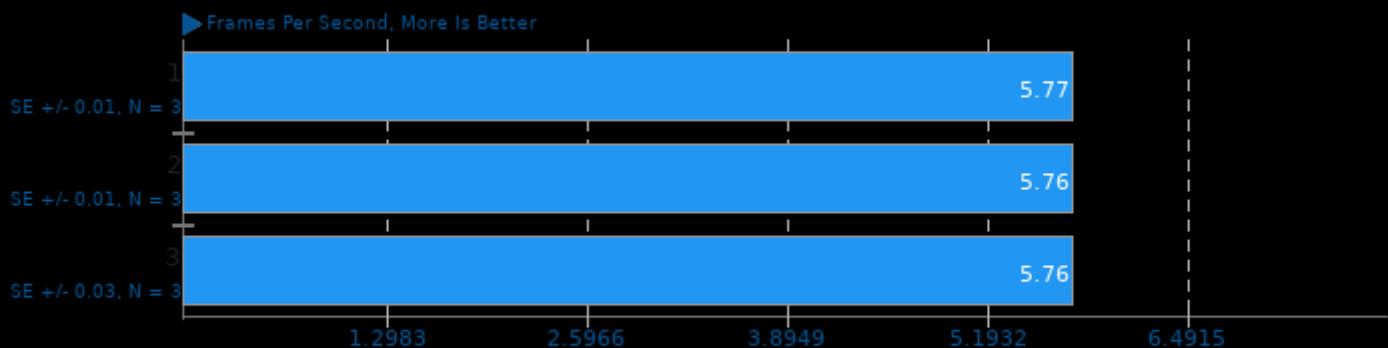
Preset: Thorough



1. (CXX) g++ options: -std=c++14 -fvisibility=hidden -O3 -fno-math-errno -mfpmath=sse -mavx2 -mpopcnt -lpthread

## x265 3.4

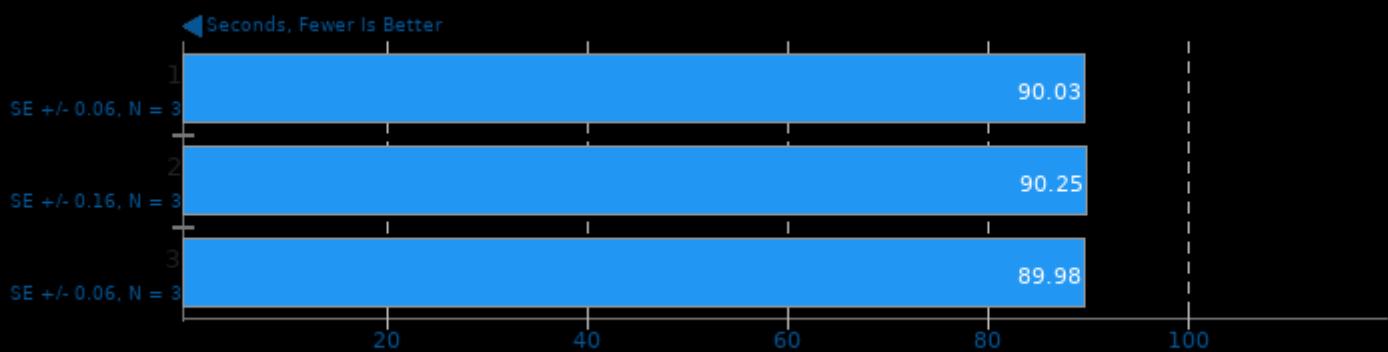
Video Input: Bosphorus 4K



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

## Basis Universal 1.12

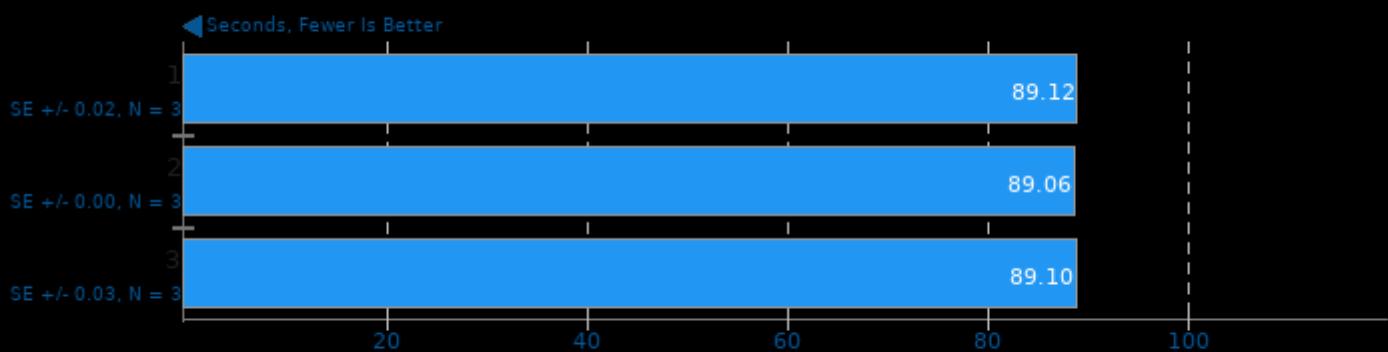
Settings: ETC1S



1. (CXX) g++ options: -std=c++11 -fvisibility=hidden -fPIC -fno-strict-aliasing -O3 -rdynamic -lm -lpthread

## Basis Universal 1.12

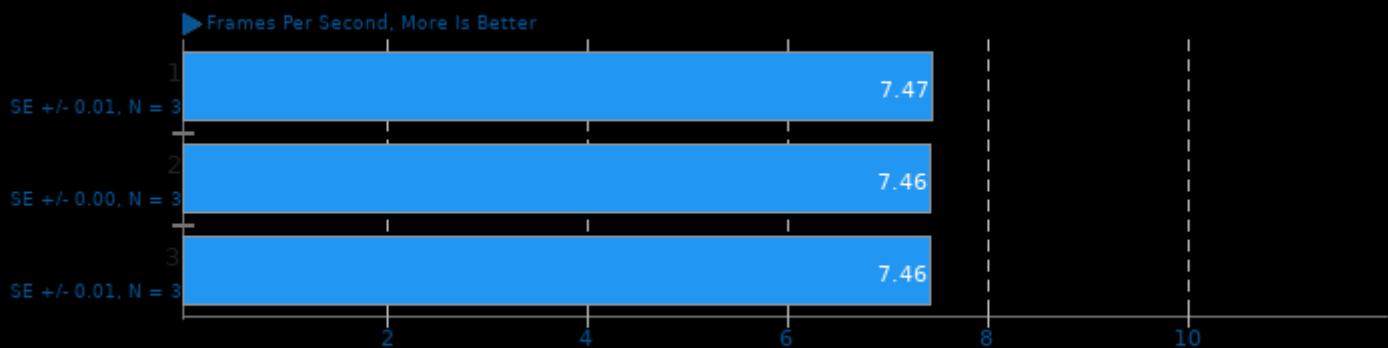
Settings: UASTC Level 2



1. (CXX) g++ options: -std=c++11 -fvisibility=hidden -fPIC -fno-strict-aliasing -O3 -rdynamic -lm -lpthread

## Kvazaar 2.0

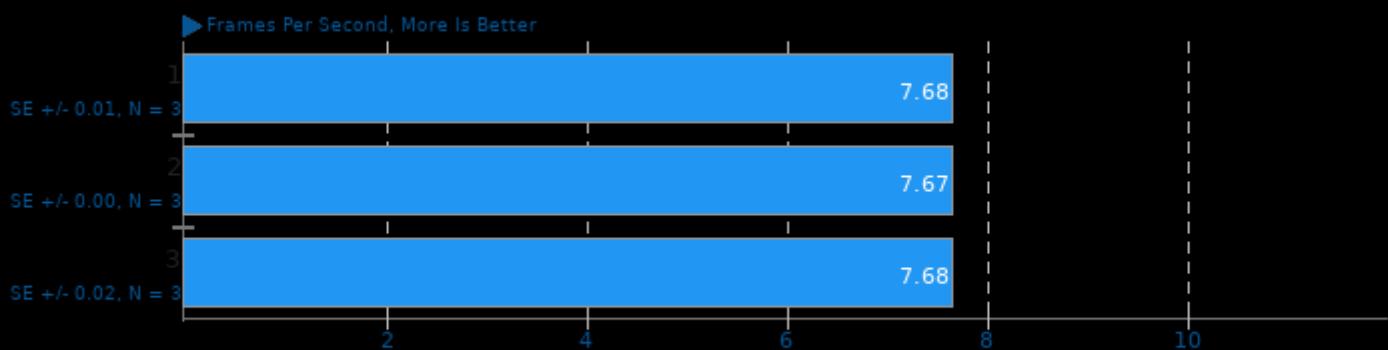
Video Input: Bosphorus 1080p - Video Preset: Slow



1. (CC) gcc options: -pthread -fno-vectorize -visibility=hidden -O2 -lpthread -lm -lrt

## Kvazaar 2.0

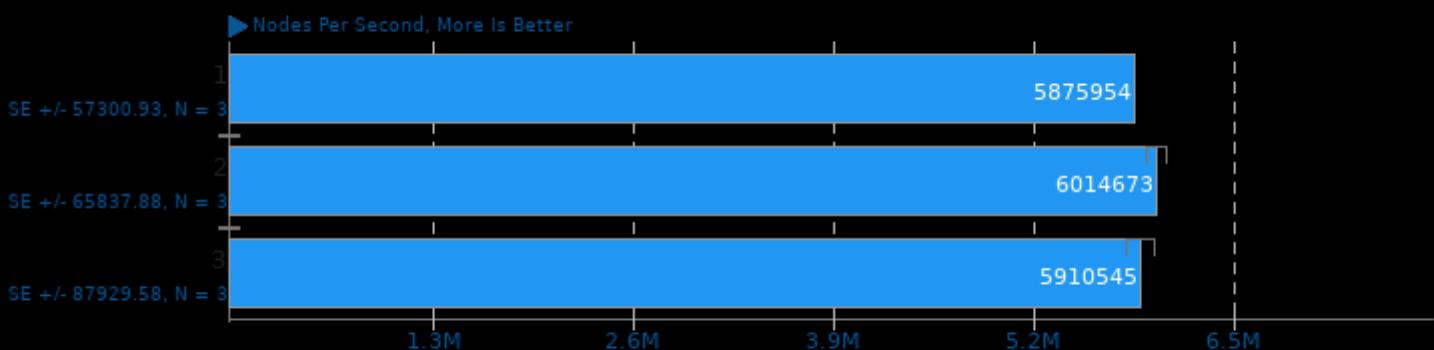
Video Input: Bosphorus 1080p - Video Preset: Medium



1. (CC) gcc options: -pthread -fno-vectorize -visibility=hidden -O2 -lpthread -lm -lrt

## Stockfish 12

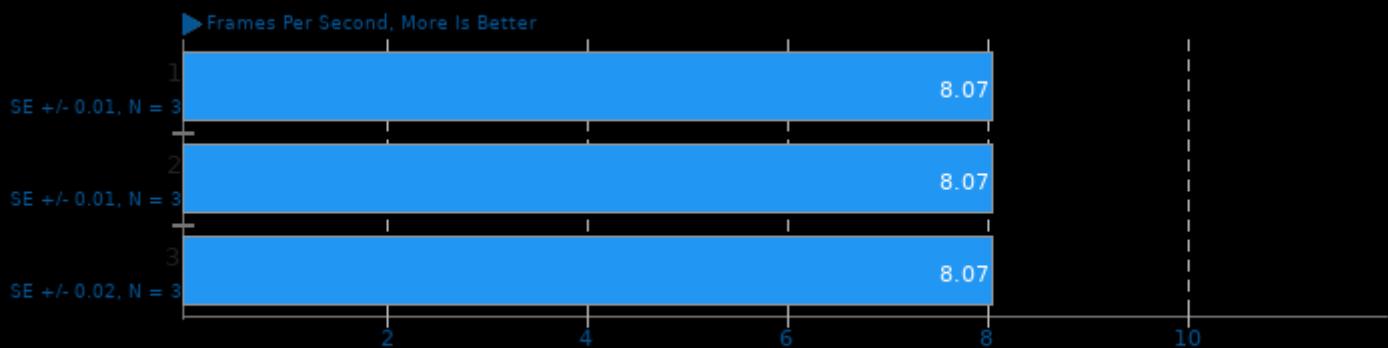
Total Time



1. (CXX) g++ options: -m64 -lpthread -fno-exceptions -std=c++17 -pedantic -O3 -msse3 -mpopcnt -msse4.1 -msse3 -msse2 -fno -fno=jobserver

## Kvazaar 2.0

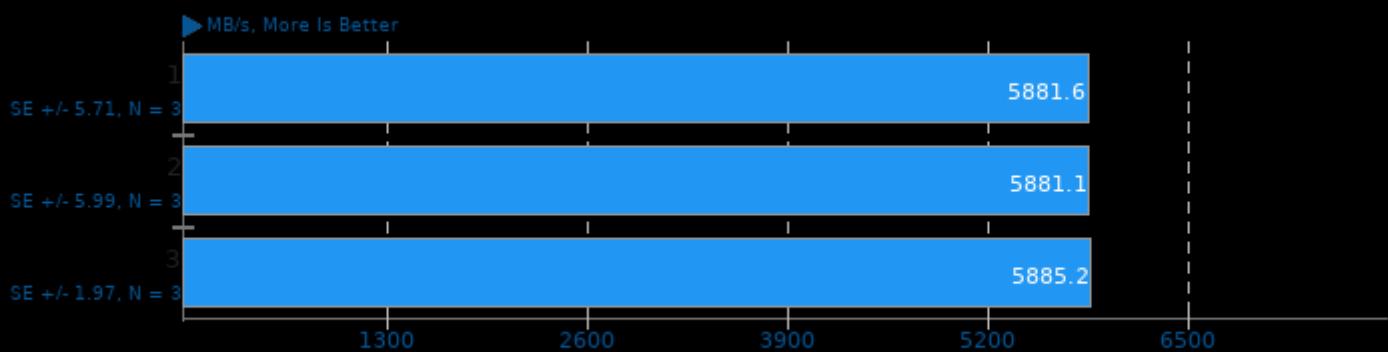
Video Input: Bosphorus 4K - Video Preset: Ultra Fast



1. (CC) gcc options: -pthread -fno-tree-vectorize -fvisibility=hidden -O2 -lpthread -lm -lrt

## LZ4 Compression 1.9.3

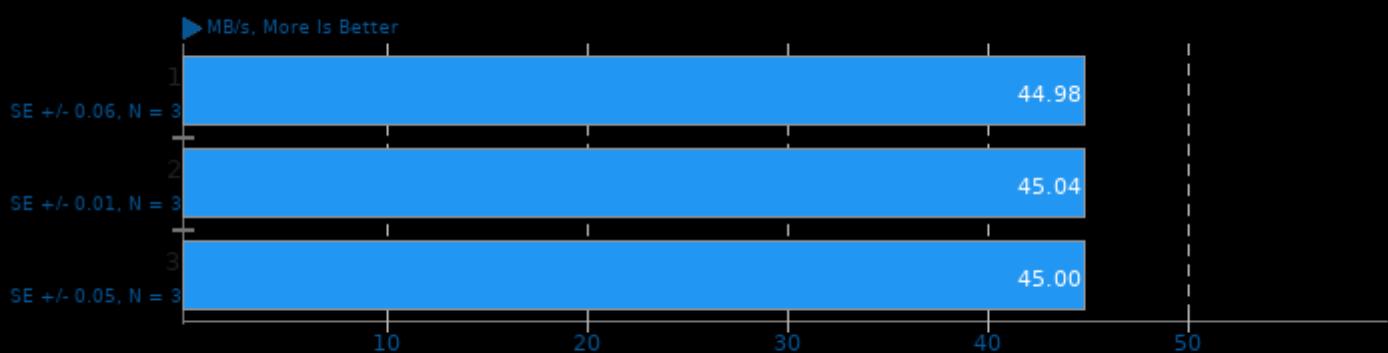
Compression Level: 9 - Decompression Speed



1. (CC) gcc options: -O3

## LZ4 Compression 1.9.3

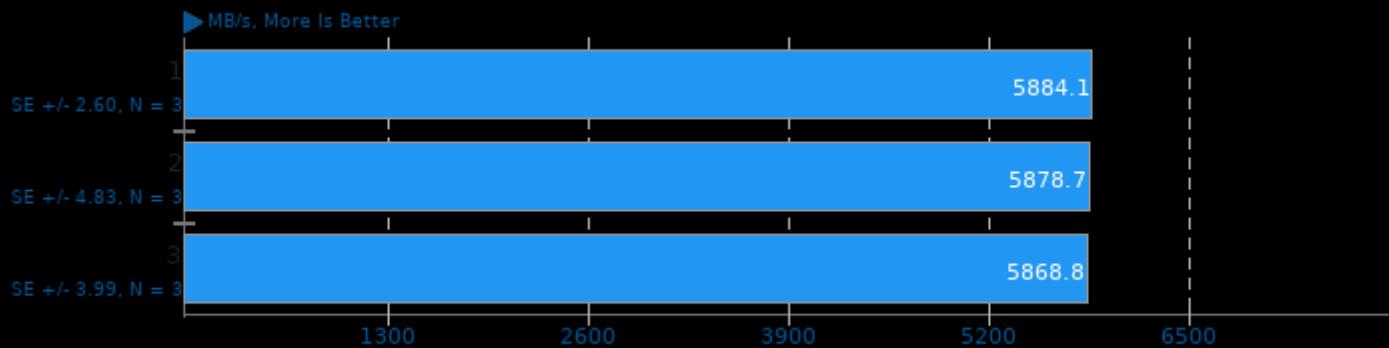
Compression Level: 9 - Compression Speed



1. (CC) gcc options: -O3

## LZ4 Compression 1.9.3

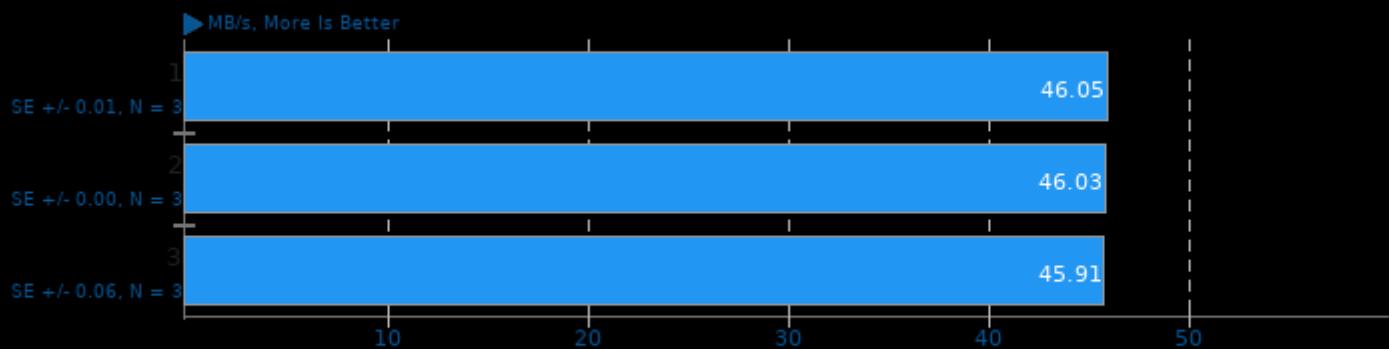
Compression Level: 3 - Decompression Speed



1. (CC) gcc options: -O3

## LZ4 Compression 1.9.3

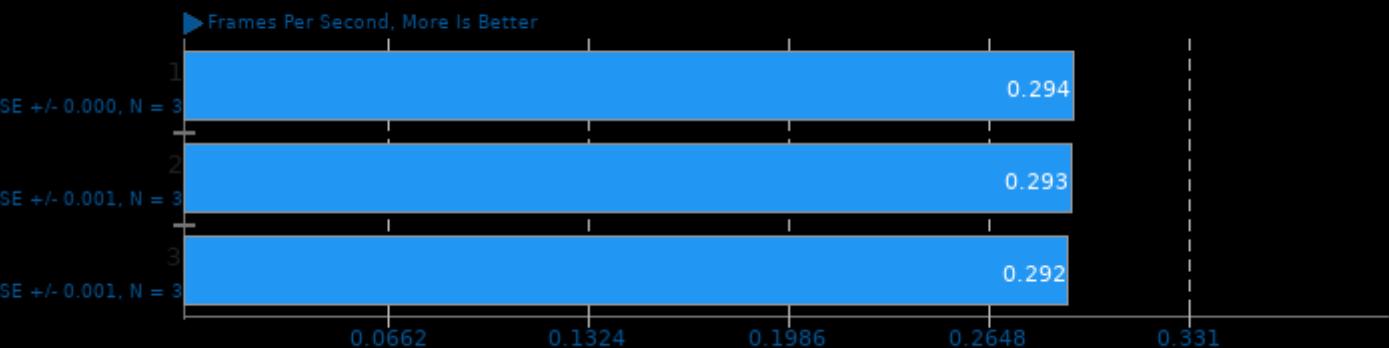
Compression Level: 3 - Compression Speed



1. (CC) gcc options: -O3

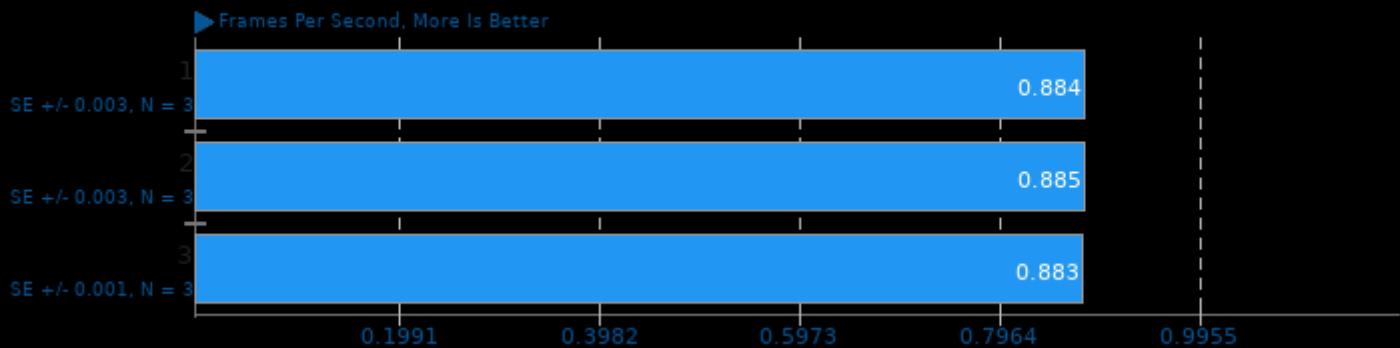
## rav1e 0.4 Alpha

Speed: 1

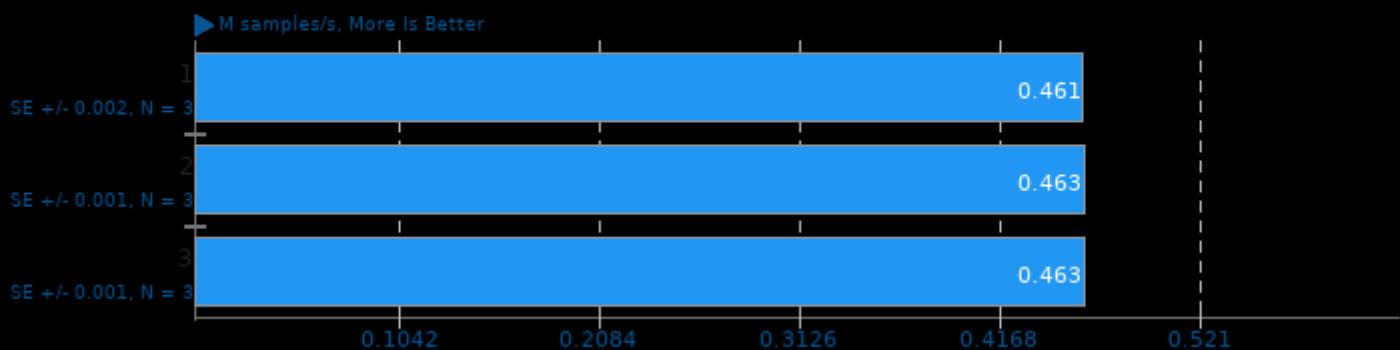


**rav1e 0.4 Alpha**

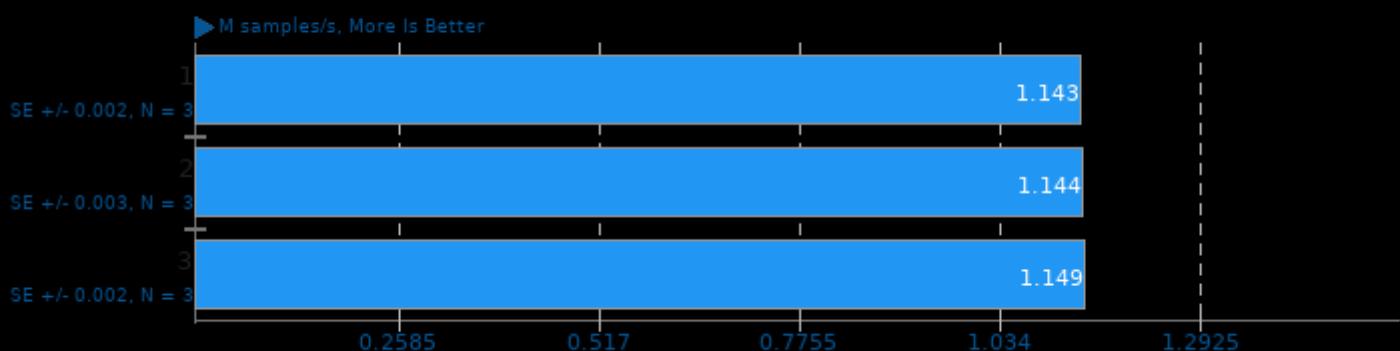
Speed: 5

**IndigoBench 4.4**

Acceleration: CPU - Scene: Bedroom

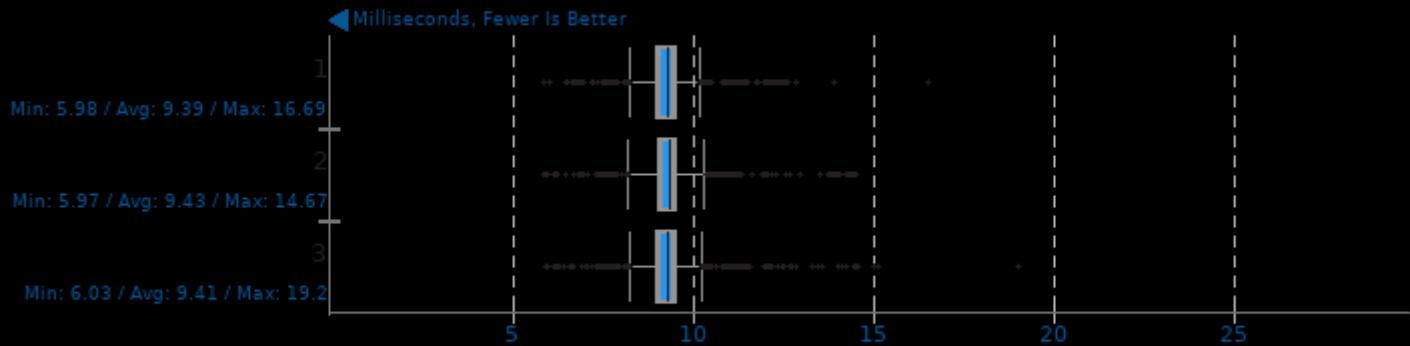
**IndigoBench 4.4**

Acceleration: CPU - Scene: Supercar



### DDrakeNetwork 15.2.3

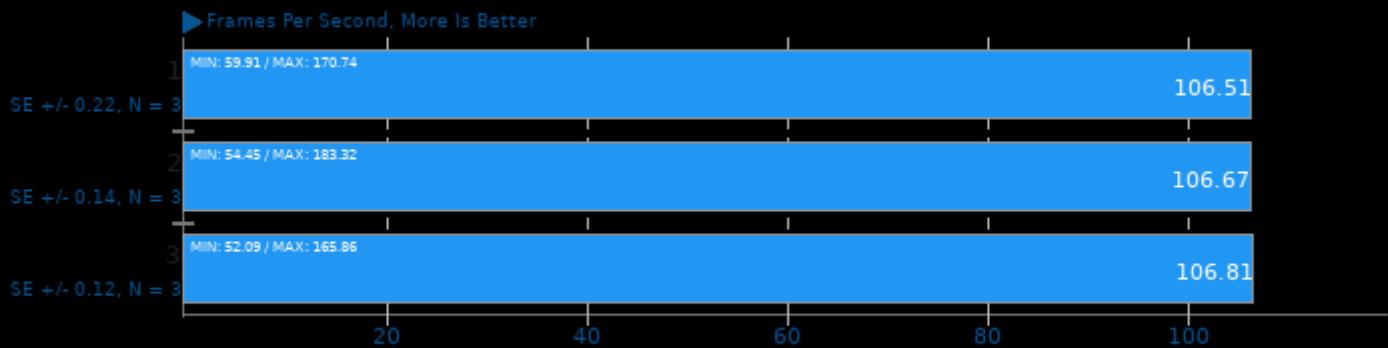
Resolution: 1920 x 1080 - Mode: Fullscreen - Renderer: OpenGL 3.0 - Zoom: Default - Demo: Multeasymap - Total Frame Time



1. (CXX) g++ options: -O3 -rdynamic -lcrypto -lz -lrt -lpthread -curl -freetype -SDL2 -wavpack -opusfile -opus -logg -GL -X11 -notify -gdk\_pixbuf-2.0 -

### DDrakeNetwork 15.2.3

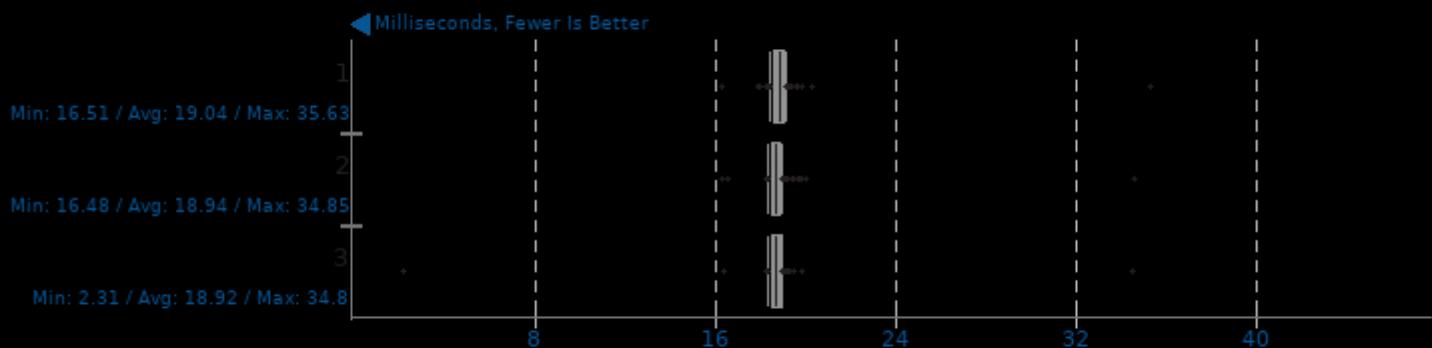
Resolution: 1920 x 1080 - Mode: Fullscreen - Renderer: OpenGL 3.0 - Zoom: Default - Demo: Multeasymap



1. (CXX) g++ options: -O3 -rdynamic -lcrypto -lz -lrt -lpthread -curl -freetype -SDL2 -wavpack -opusfile -opus -logg -GL -X11 -notify -gdk\_pixbuf-2.0 -

### DDrakeNetwork 15.2.3

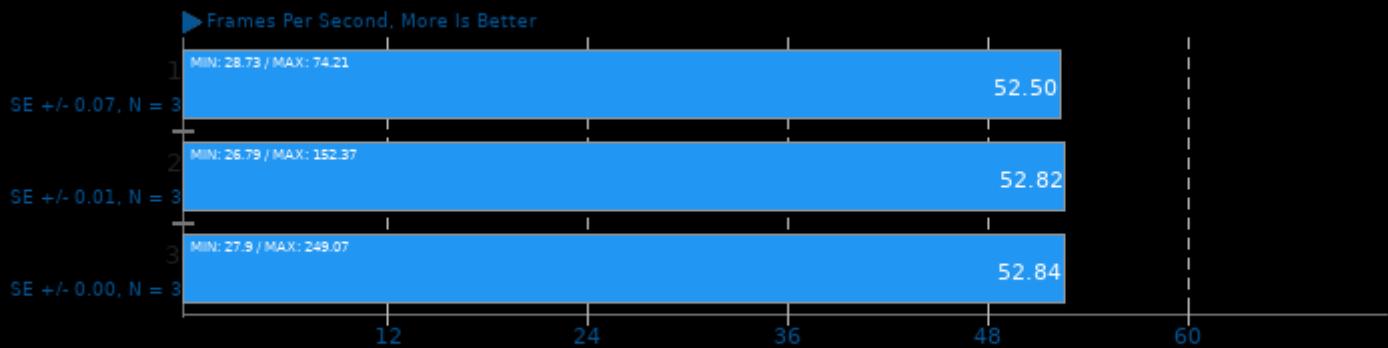
Resolution: 1920 x 1080 - Mode: Fullscreen - Renderer: OpenGL 3.0 - Zoom: Default - Demo: RaiNyMore2 - Total Frame Time



1. (CXX) g++ options: -O3 -rdynamic -lcrypto -lz -lrt -lpthread -curl -freetype -SDL2 -wavpack -opusfile -opus -logg -GL -X11 -notify -gdk\_pixbuf-2.0 -

## DDrakeNetwork 15.2.3

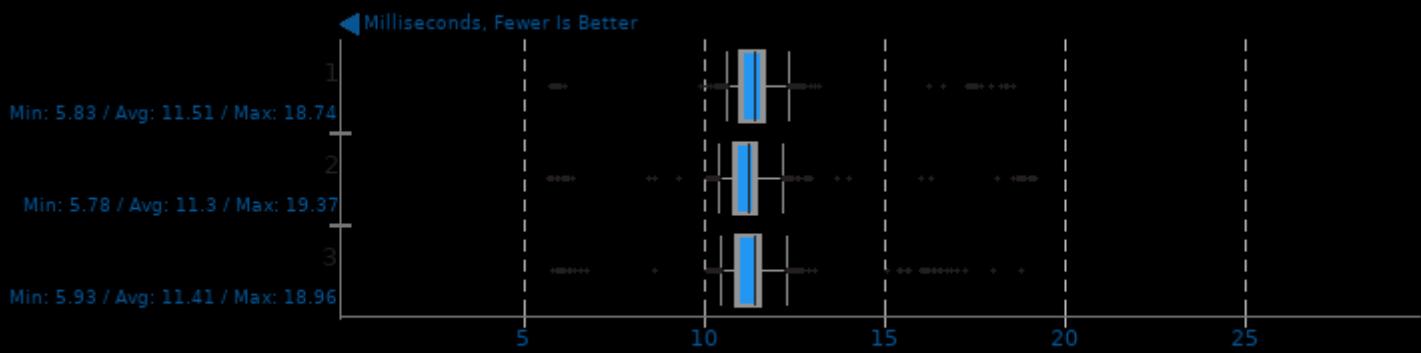
Resolution: 1920 x 1080 - Mode: Fullscreen - Renderer: OpenGL 3.0 - Zoom: Default - Demo: RaiNyMore2



1. (CXX) g++ options: -O3 -rdynamic -lcrypto -lz -lrt -lpthread -curl -freetype -SDL2 -wavpack -opusfile -opus -logg -GL -X11 -notify -gdk\_pixbuf-2.0 -

## DDrakeNetwork 15.2.3

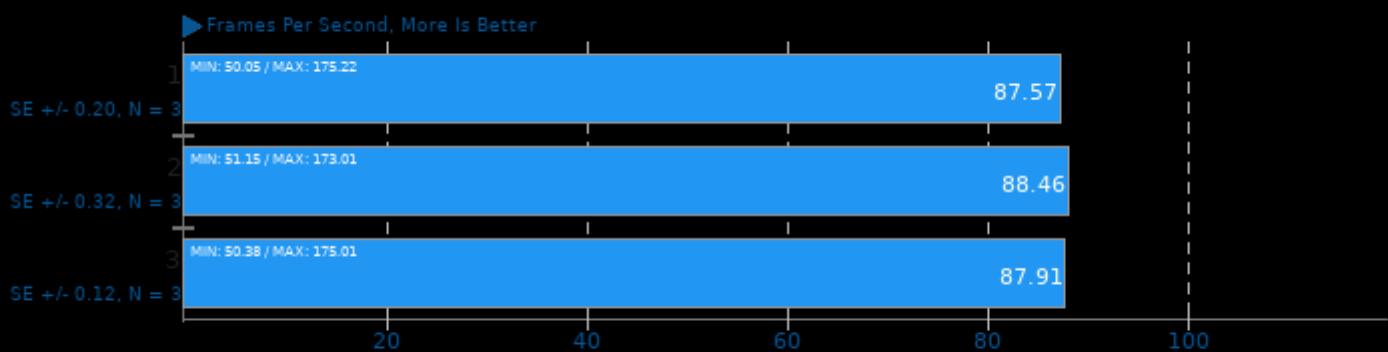
Resolution: 1920 x 1080 - Mode: Fullscreen - Renderer: OpenGL 3.3 - Zoom: Default - Demo: Multeasymap - Total Frame Time



1. (CXX) g++ options: -O3 -rdynamic -lcrypto -lz -lrt -lpthread -curl -freetype -SDL2 -wavpack -opusfile -opus -logg -GL -X11 -notify -gdk\_pixbuf-2.0 -

## DDrakeNetwork 15.2.3

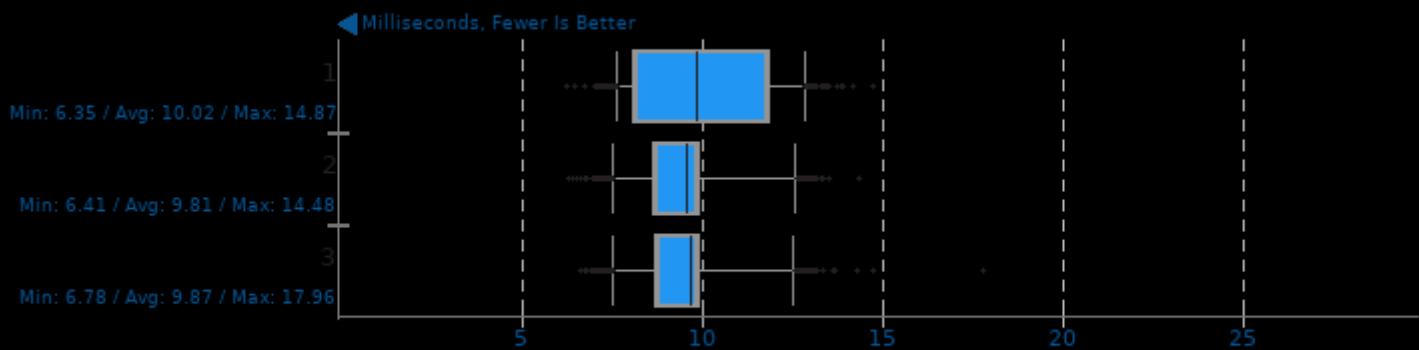
Resolution: 1920 x 1080 - Mode: Fullscreen - Renderer: OpenGL 3.3 - Zoom: Default - Demo: Multeasymap



1. (CXX) g++ options: -O3 -rdynamic -lcrypto -lz -lrt -lpthread -curl -freetype -SDL2 -wavpack -opusfile -opus -logg -GL -X11 -notify -gdk\_pixbuf-2.0 -

### DDrakeNetwork 15.2.3

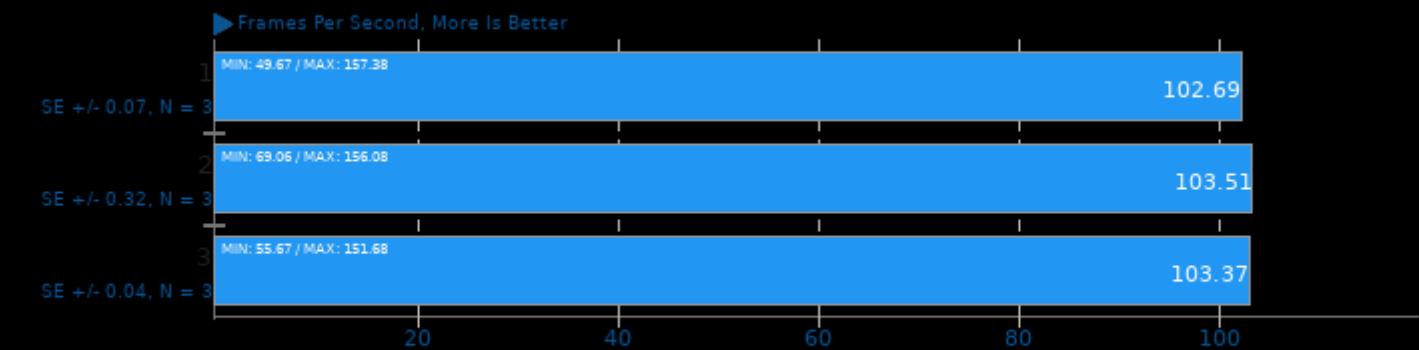
Resolution: 1920 x 1080 - Mode: Fullscreen - Renderer: OpenGL 3.0 - Zoom: Zoomed out - Demo: Multeasymap - Total Frame Time



1. (CXX) g++ options: -O3 -rdynamic -lcrypto -lz -lrt -lpthread -curl -freetype -SDL2 -wavpack -opusfile -opus -logg -GL -X11 -notify -gdk\_pixbuf-2.0 -

### DDrakeNetwork 15.2.3

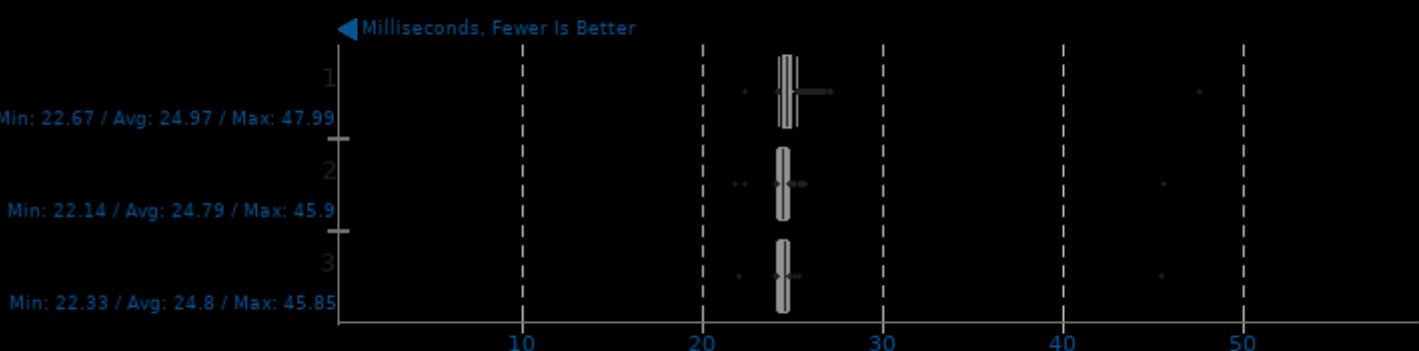
Resolution: 1920 x 1080 - Mode: Fullscreen - Renderer: OpenGL 3.0 - Zoom: Zoomed out - Demo: Multeasymap



1. (CXX) g++ options: -O3 -rdynamic -lcrypto -lz -lrt -lpthread -curl -freetype -SDL2 -wavpack -opusfile -opus -logg -GL -X11 -notify -gdk\_pixbuf-2.0 -

### DDrakeNetwork 15.2.3

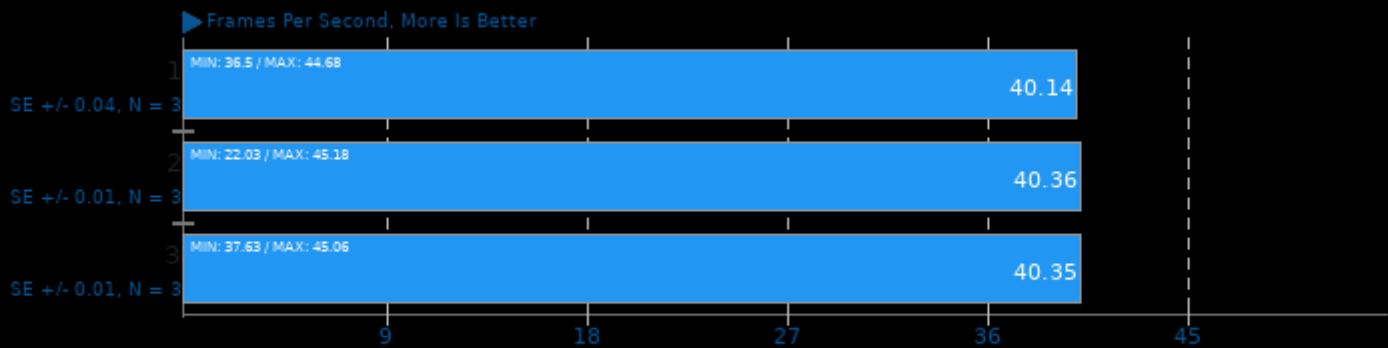
Resolution: 1920 x 1080 - Mode: Fullscreen - Renderer: OpenGL 3.3 - Zoom: Default - Demo: RaiNyMore2 - Total Frame Time



1. (CXX) g++ options: -O3 -rdynamic -lcrypto -lz -lrt -lpthread -curl -freetype -SDL2 -wavpack -opusfile -opus -logg -GL -X11 -notify -gdk\_pixbuf-2.0 -

## DDrakeNetwork 15.2.3

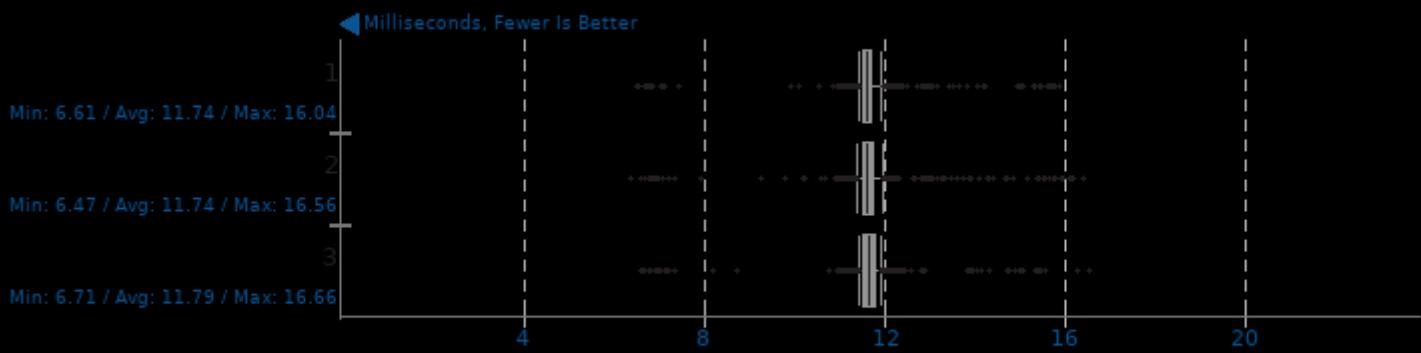
Resolution: 1920 x 1080 - Mode: Fullscreen - Renderer: OpenGL 3.3 - Zoom: Default - Demo: RaiNyMore2



1. (CXX) g++ options: -O3 -rdynamic -lcrypto -lz -lrt -lpthread -curl -freetype -SDL2 -wavpack -opusfile -opus -logg -GL -X11 -notify -gdk\_pixbuf-2.0 -

## DDrakeNetwork 15.2.3

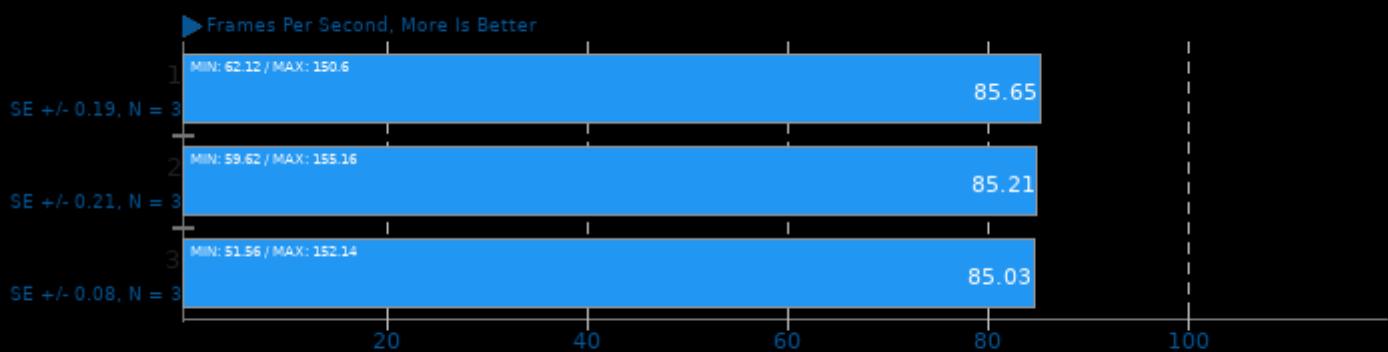
Resolution: 1920 x 1080 - Mode: Fullscreen - Renderer: OpenGL 3.3 - Zoom: Zoomed out - Demo: Multeasymap - Total Frame Time



1. (CXX) g++ options: -O3 -rdynamic -lcrypto -lz -lrt -lpthread -curl -freetype -SDL2 -wavpack -opusfile -opus -logg -GL -X11 -notify -gdk\_pixbuf-2.0 -

## DDrakeNetwork 15.2.3

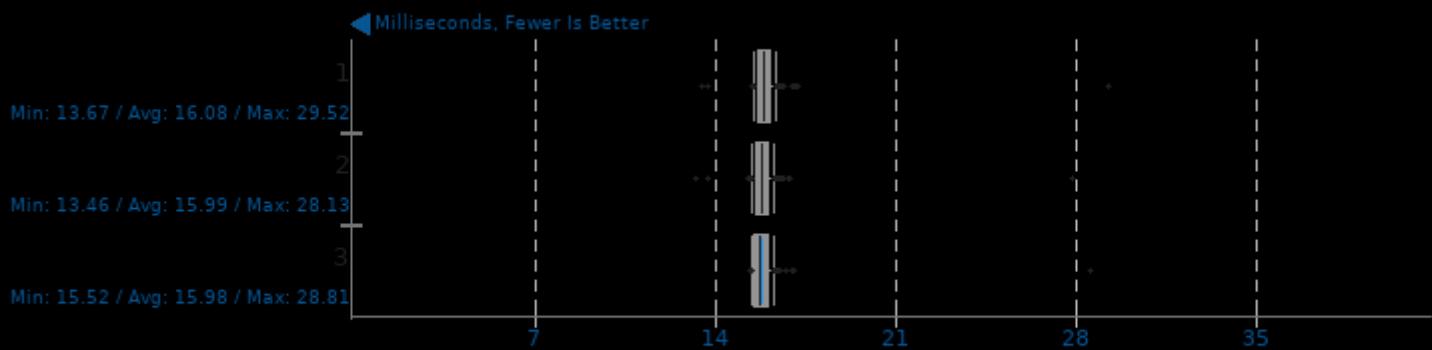
Resolution: 1920 x 1080 - Mode: Fullscreen - Renderer: OpenGL 3.3 - Zoom: Zoomed out - Demo: Multeasymap



1. (CXX) g++ options: -O3 -rdynamic -lcrypto -lz -lrt -lpthread -curl -freetype -SDL2 -wavpack -opusfile -opus -logg -GL -X11 -notify -gdk\_pixbuf-2.0 -

### DDrakeNetwork 15.2.3

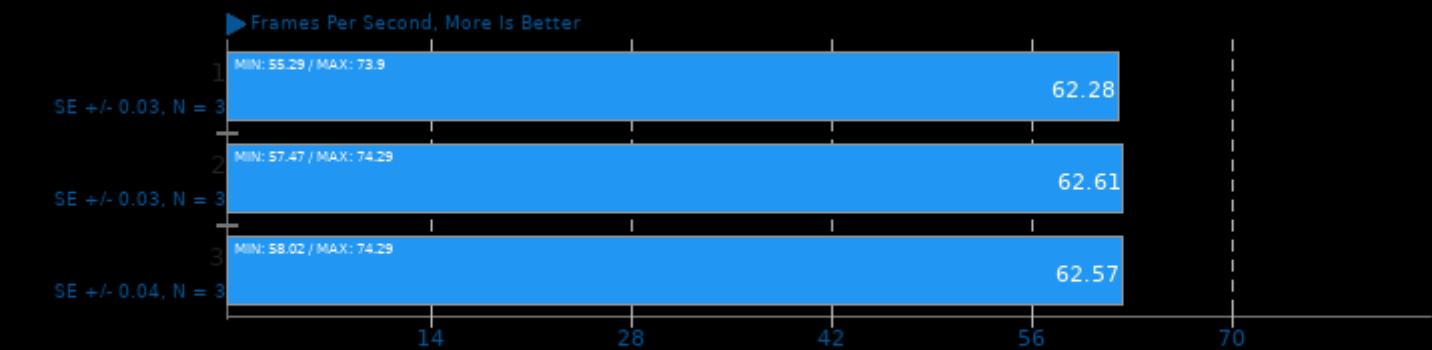
Resolution: 1920 x 1080 - Mode: Fullscreen - Renderer: OpenGL 3.0 - Zoom: Zoomed out - Demo: RaiNyMore2 - Total Frame Time



1. (CXX) g++ options: -O3 -rdynamic -lcrypto -lz -lrt -lpthread -curl -freetype -SDL2 -wavpack -opusfile -opus -logg -GL -X11 -notify -gdk\_pixbuf-2.0 -

### DDrakeNetwork 15.2.3

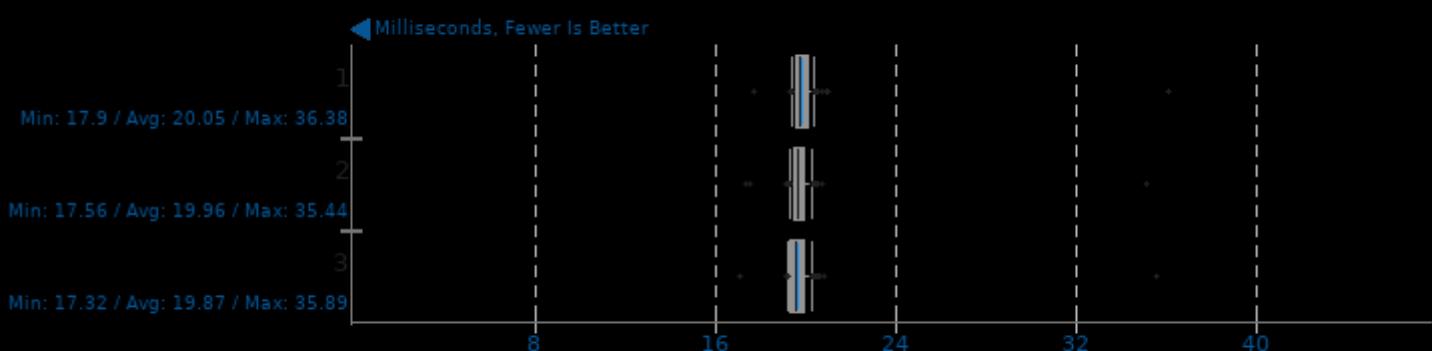
Resolution: 1920 x 1080 - Mode: Fullscreen - Renderer: OpenGL 3.0 - Zoom: Zoomed out - Demo: RaiNyMore2



1. (CXX) g++ options: -O3 -rdynamic -lcrypto -lz -lrt -lpthread -curl -freetype -SDL2 -wavpack -opusfile -opus -logg -GL -X11 -notify -gdk\_pixbuf-2.0 -

### DDrakeNetwork 15.2.3

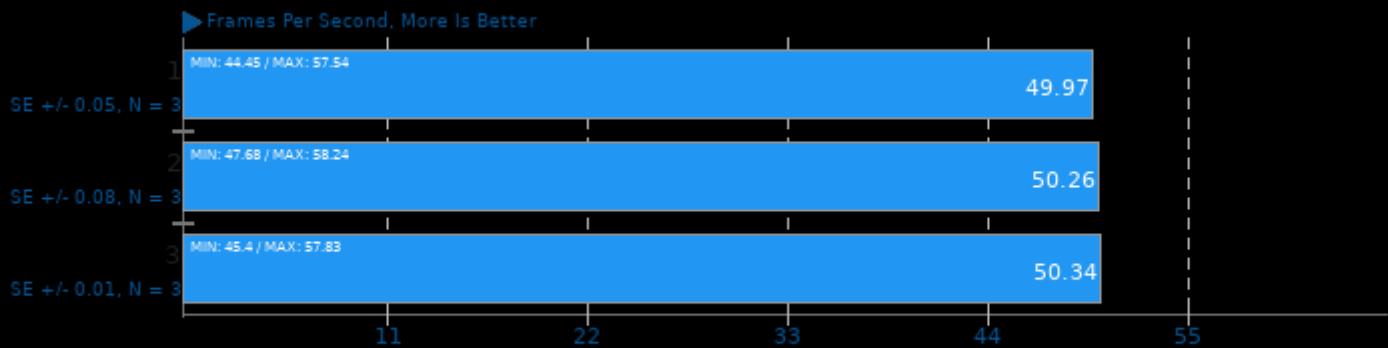
Resolution: 1920 x 1080 - Mode: Fullscreen - Renderer: OpenGL 3.3 - Zoom: Zoomed out - Demo: RaiNyMore2 - Total Frame Time



1. (CXX) g++ options: -O3 -rdynamic -lcrypto -lz -lrt -lpthread -curl -freetype -SDL2 -wavpack -opusfile -opus -logg -GL -X11 -notify -gdk\_pixbuf-2.0 -

## DDrakeNetwork 15.2.3

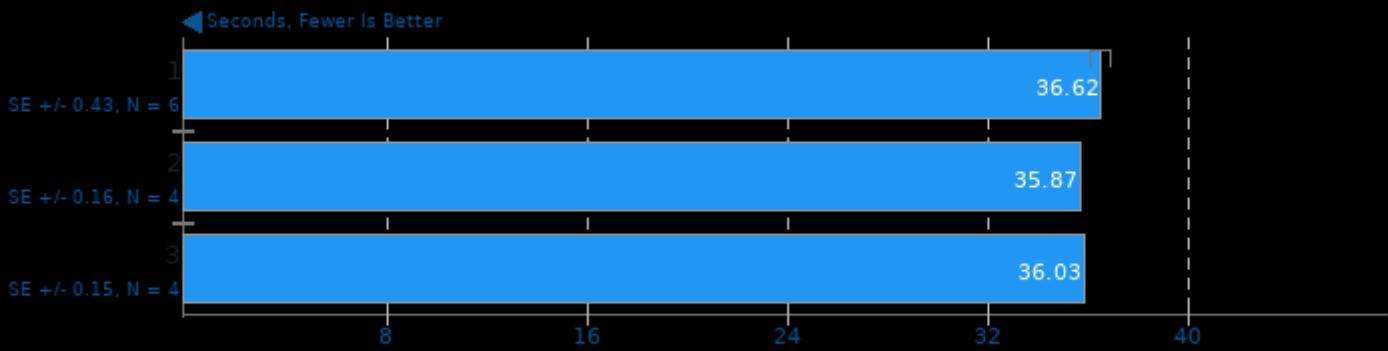
Resolution: 1920 x 1080 - Mode: Fullscreen - Renderer: OpenGL 3.3 - Zoom: Zoomed out - Demo: RaiNyMore2



1. (CXX) g++ options: -O3 -rdynamic -lcrypto -lz -lrt -lpthread -curl -freetype -SDL2 -wavpack -opusfile -opus -ogg -GL -X11 -notify -gdk\_pixbuf-2.0 -

## eSpeak-NG Speech Engine 20200907

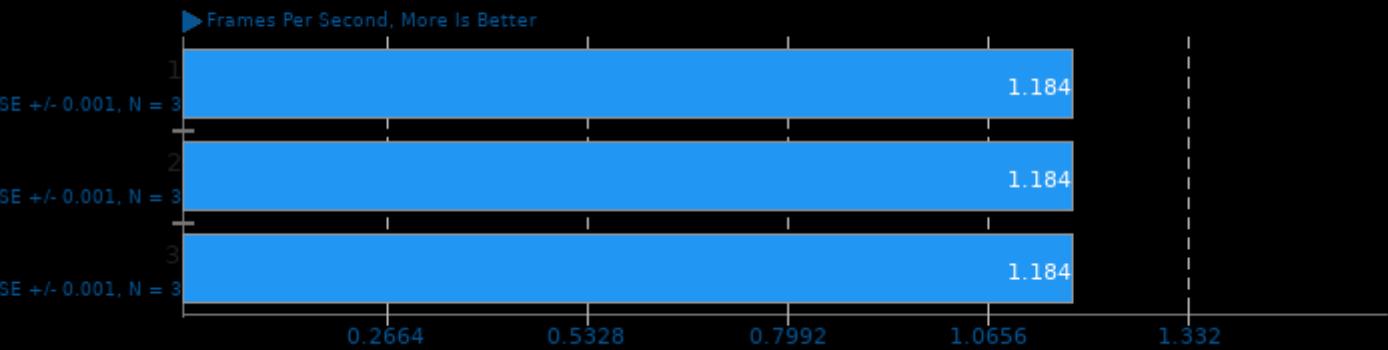
Text-To-Speech Synthesis



1. (CC) gcc options: -O2 -std=c99

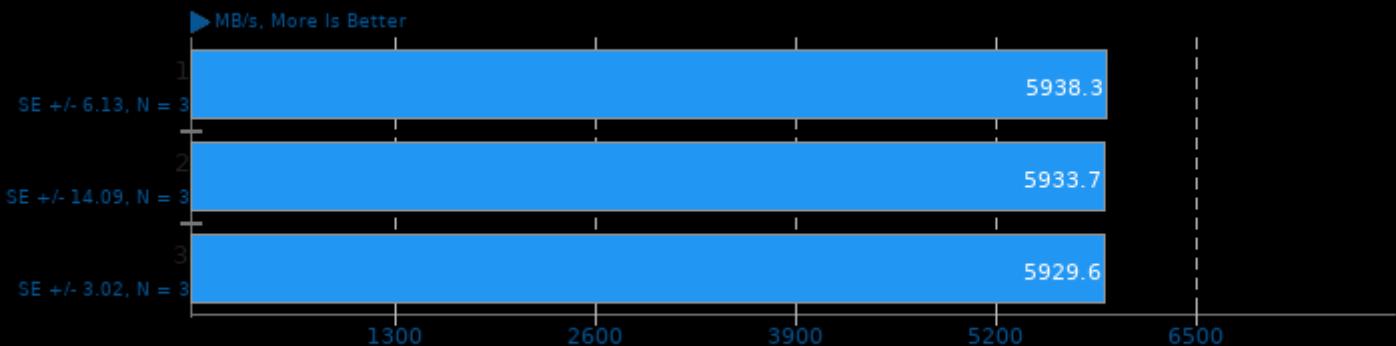
## rav1e 0.4 Alpha

Speed: 6



## LZ4 Compression 1.9.3

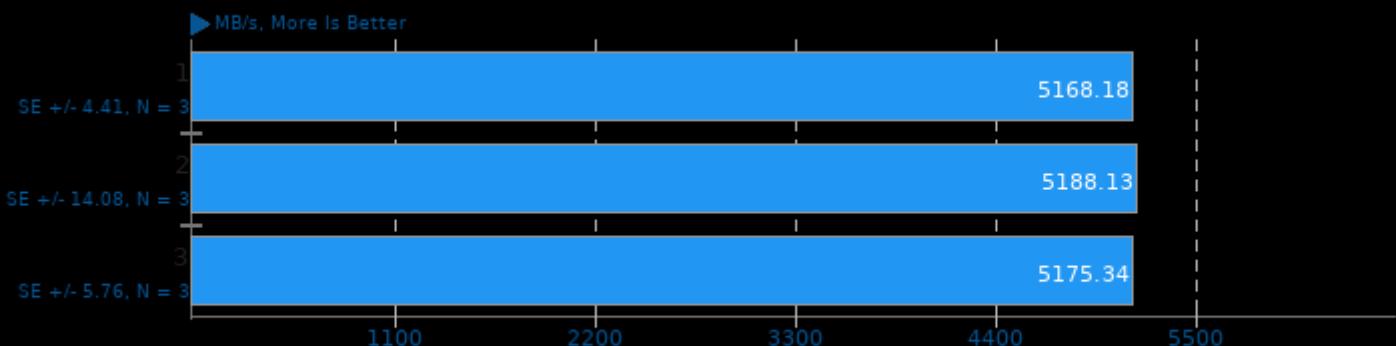
Compression Level: 1 - Decompression Speed



1. (CC) gcc options: -O3

## LZ4 Compression 1.9.3

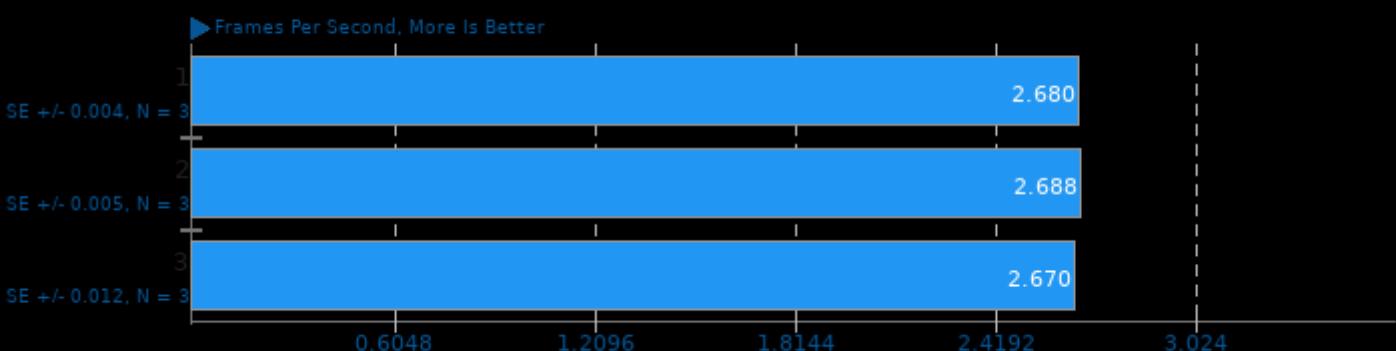
Compression Level: 1 - Compression Speed



1. (CC) gcc options: -O3

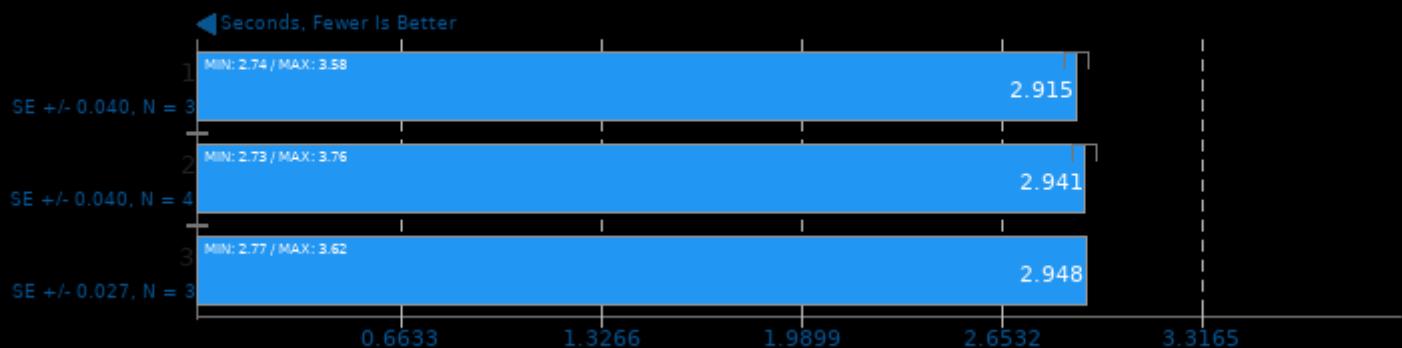
## rav1e 0.4 Alpha

Speed: 10



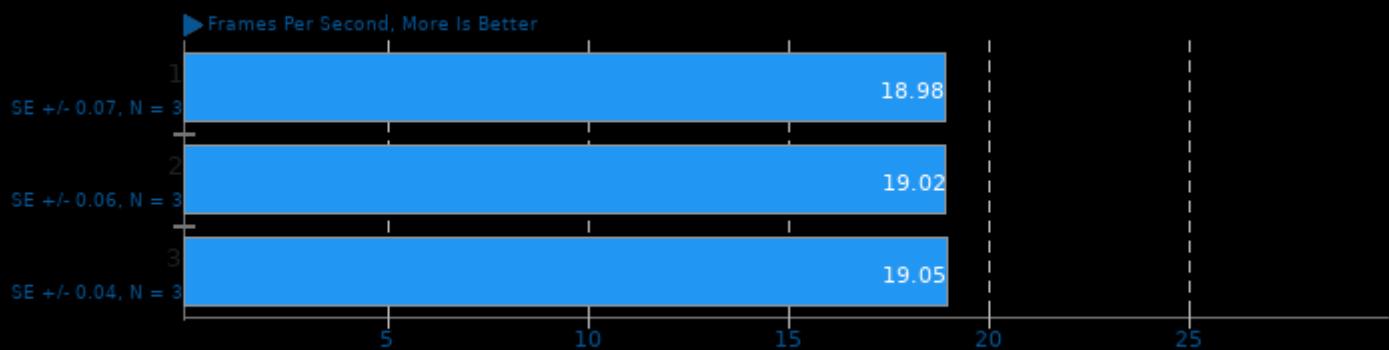
## Sunflow Rendering System 0.07.2

Global Illumination + Image Synthesis



## Kvazaar 2.0

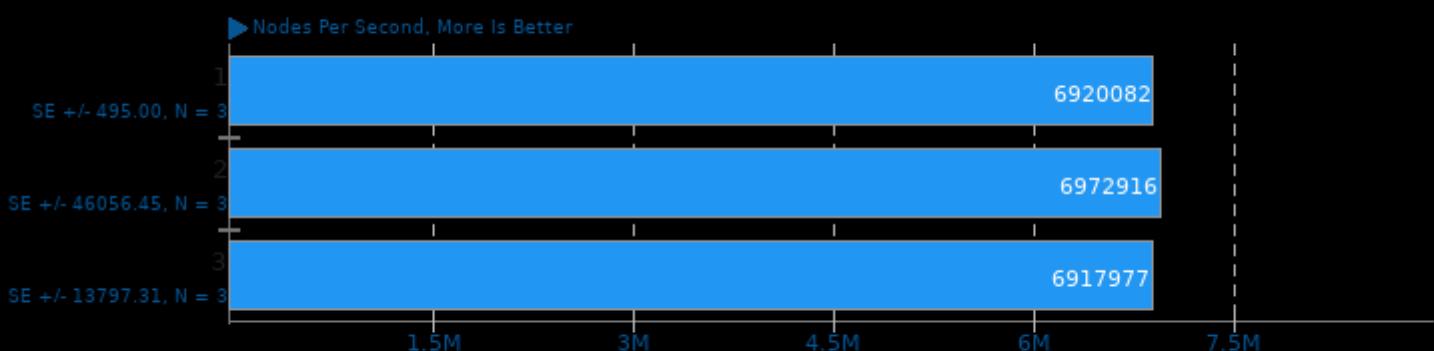
Video Input: Bosphorus 1080p - Video Preset: Very Fast



1. (CC) gcc options: -pthread -fthread-vectorize -visibility=hidden -O2 -lpthread -lm -lrt

## Crafty 25.2

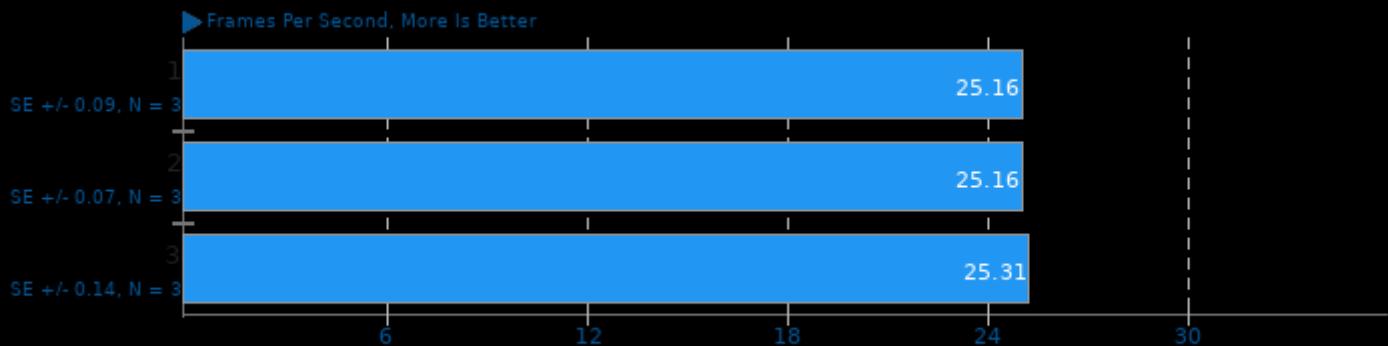
Elapsed Time



1. (CC) gcc options: -pthread -stdc++ -fprofile-use -lm

## x265 3.4

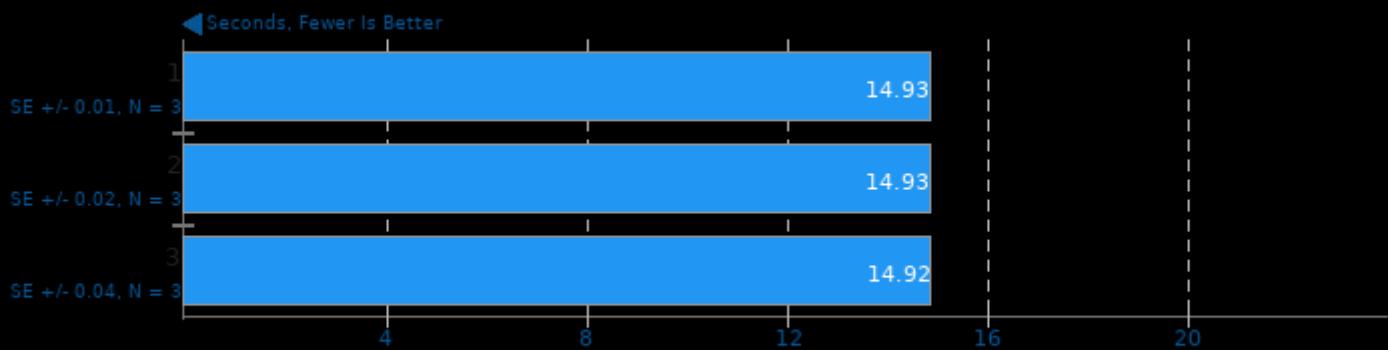
Video Input: Bosphorus 1080p



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

## ASTC Encoder 2.0

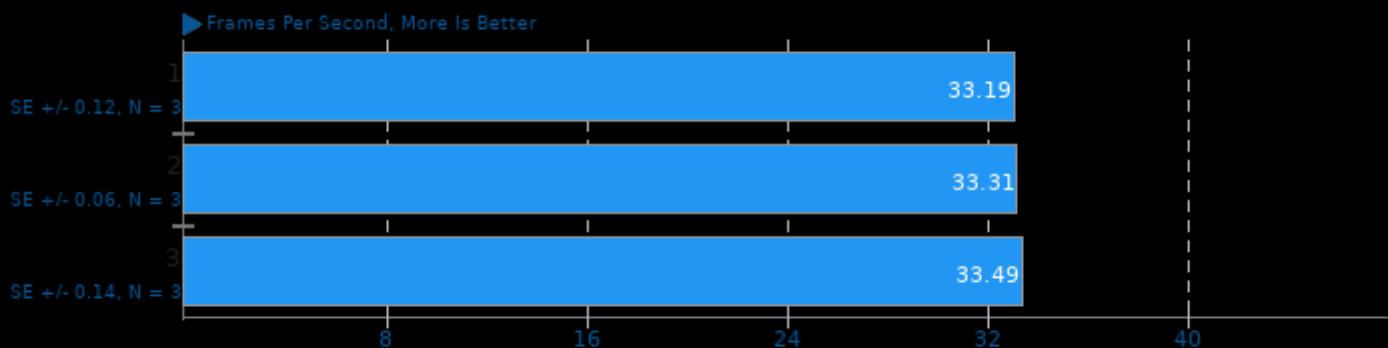
Preset: Medium



1. (CXX) g++ options: -std=c++14 -fvisibility=hidden -O3 -fno -mfpmath=sse -mavx2 -mpopcnt -lpthread

## Kvazaar 2.0

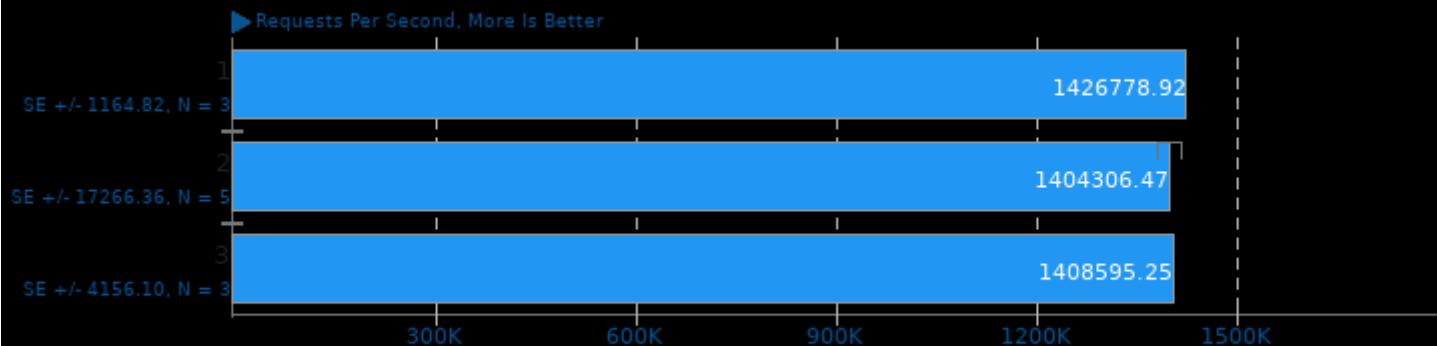
Video Input: Bosphorus 1080p - Video Preset: Ultra Fast



1. (CC) gcc options: -pthread -ftree-vectorize -fvisibility=hidden -O2 -lpthread -lm -lrt

## Redis 6.0.9

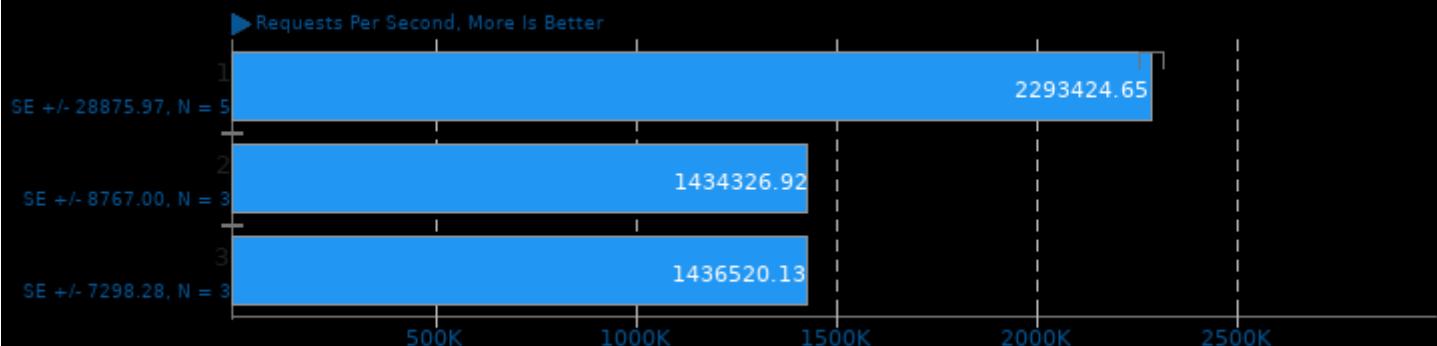
Test: LPUSH



1. (CXX) g++ options: -MM -MT -g3 -fvisibility=hidden -O3

## Redis 6.0.9

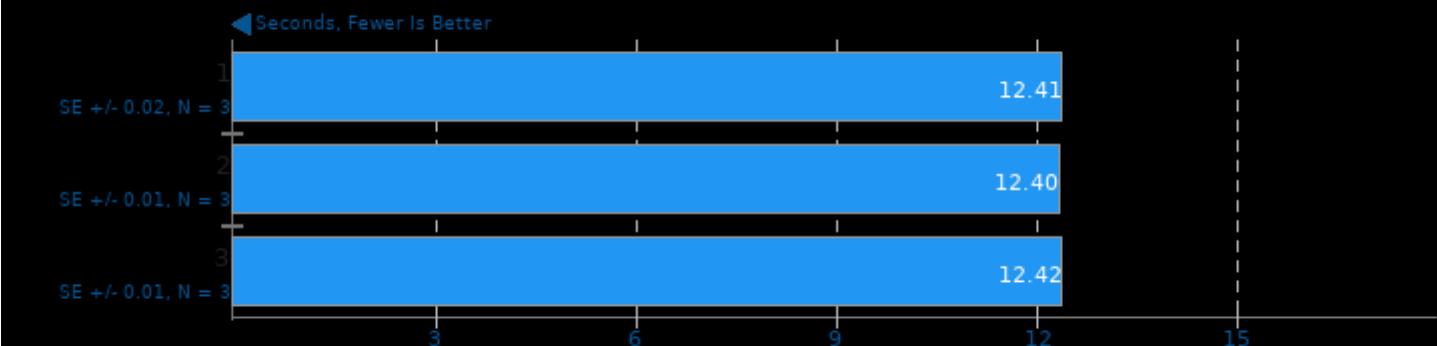
Test: LPOP



1. (CXX) g++ options: -MM -MT -g3 -fvisibility=hidden -O3

## Basis Universal 1.12

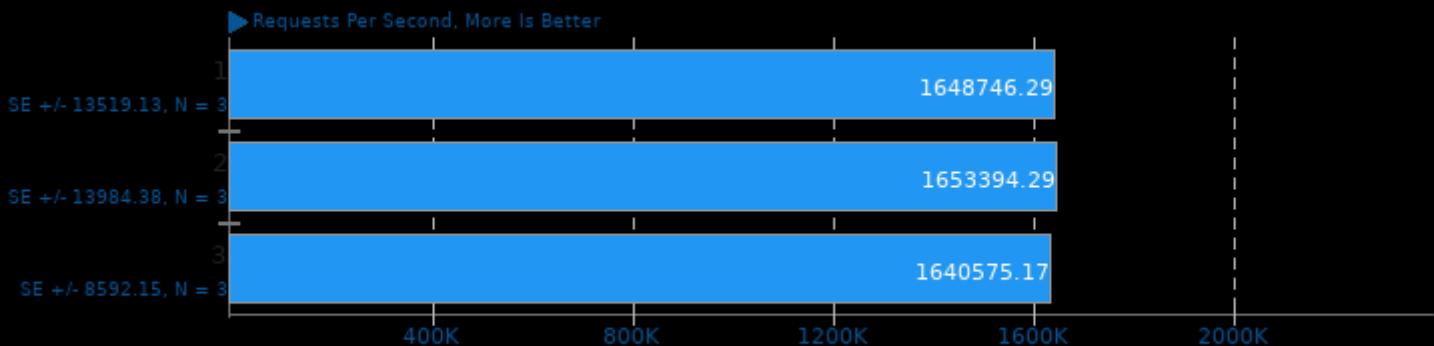
Settings: UASTC Level 0



1. (CXX) g++ options: -std=c++11 -fvisibility=hidden -fPIC -fno-strict-aliasing -O3 -rdynamic -lmp -lpthread

## Redis 6.0.9

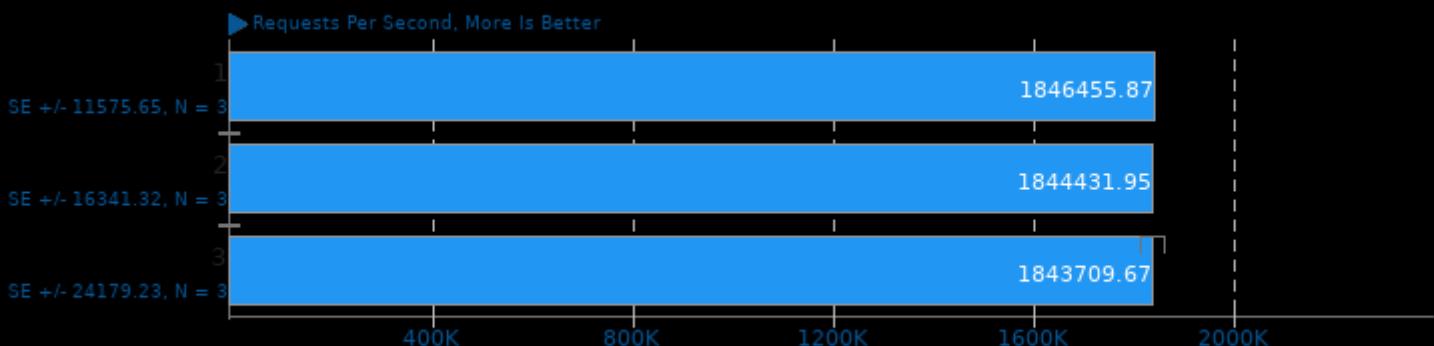
Test: SET



1. (CXX) g++ options: -MM -MT -g3 -fvisibility=hidden -O3

## Redis 6.0.9

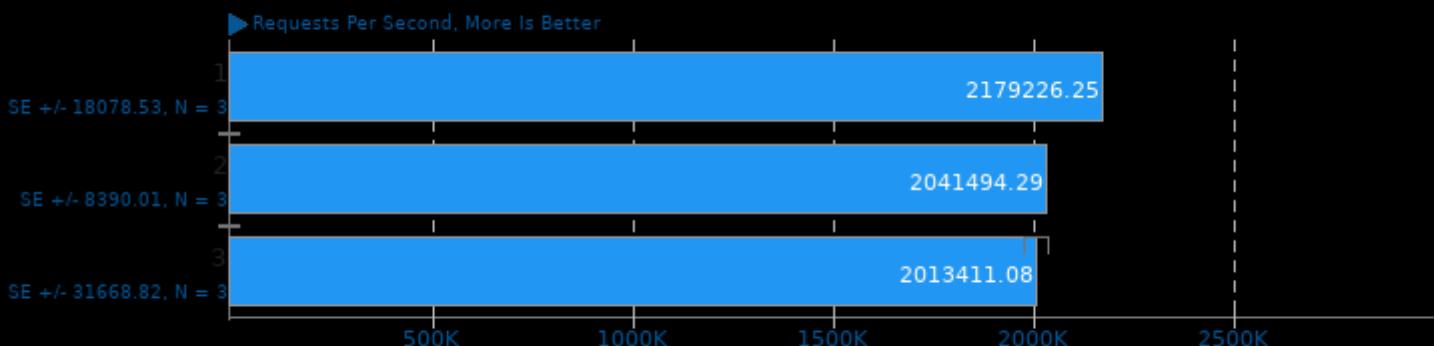
Test: SADD



1. (CXX) g++ options: -MM -MT -g3 -fvisibility=hidden -O3

## Redis 6.0.9

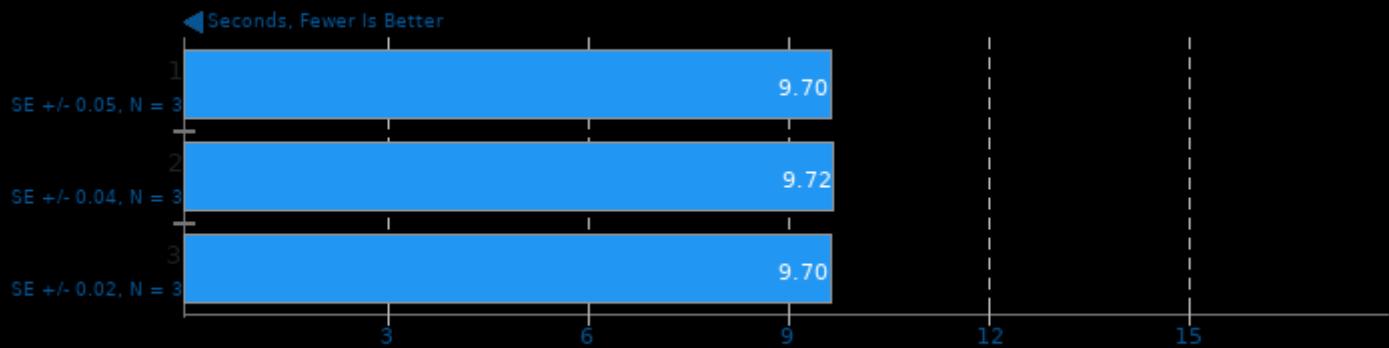
Test: GET



1. (CXX) g++ options: -MM -MT -g3 -fvisibility=hidden -O3

## ASTC Encoder 2.0

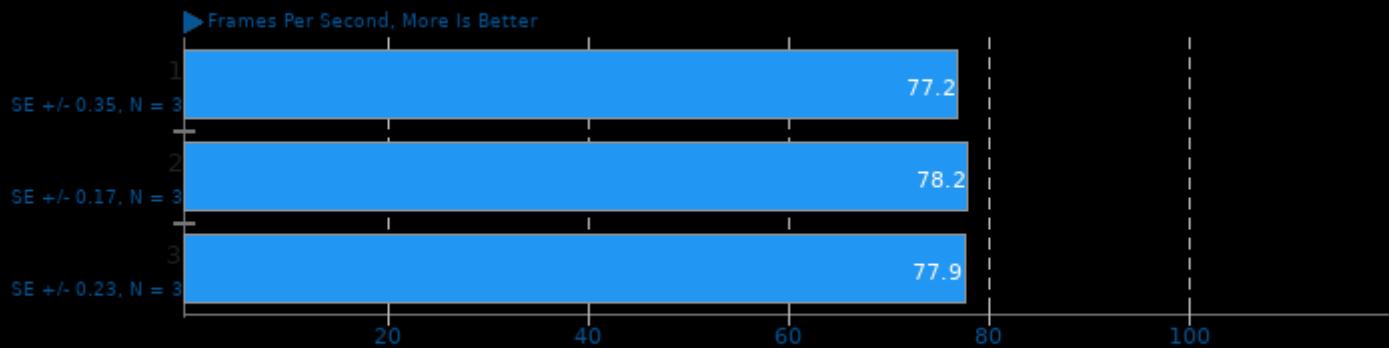
Preset: Fast



1. (CXX) g++ options: -std=c++14 -fvisibility=hidden -O3 -fno-math-errno -mavx2 -mpopcnt -lpthread

## yquake2 7.45

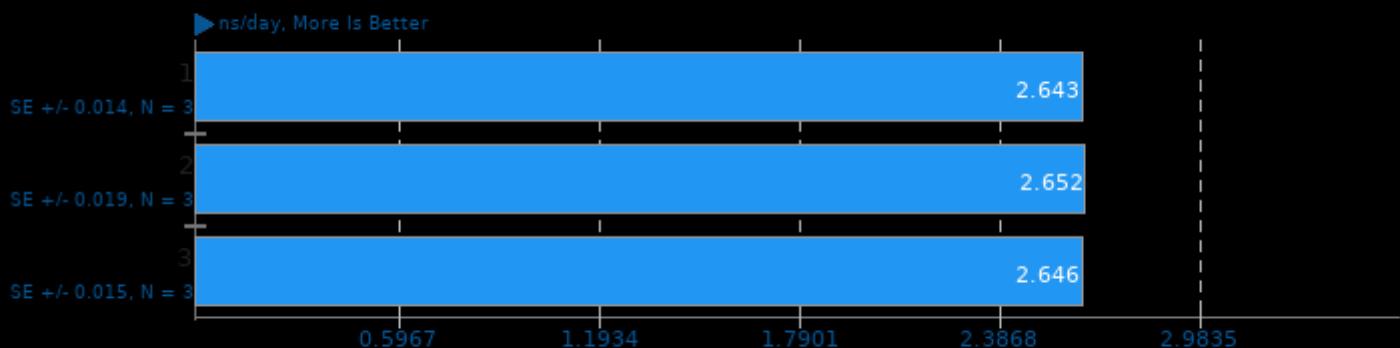
Renderer: Software CPU - Resolution: 1920 x 1080



1. (CC) gcc options: -lm -ldl -rdynamic -shared -lSDL2 -O2 -pipe -fomit-frame-pointer -std=gnu99 -fno-strict-aliasing -fwrapv -fvisibility=hidden -MMD -mfpmath=sse

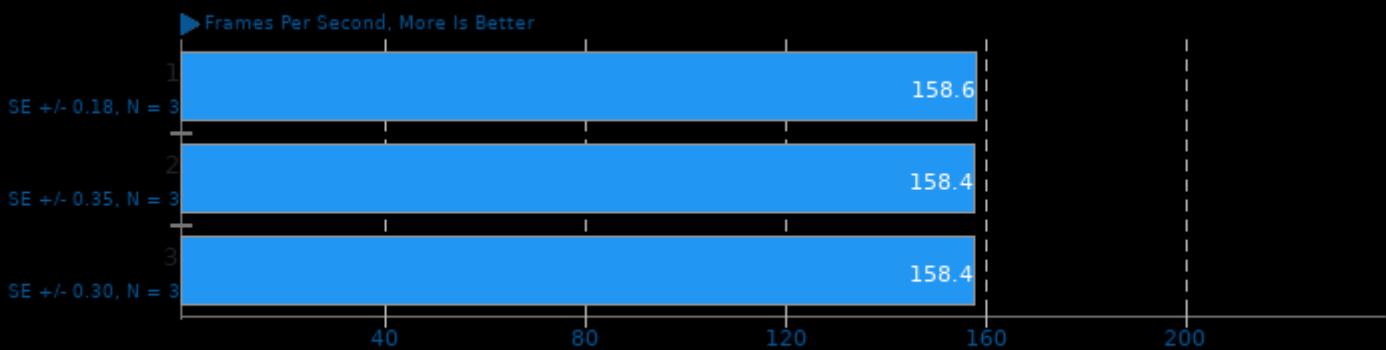
## LAMMPS Molecular Dynamics Simulator 29Oct2020

Model: Rhodopsin Protein

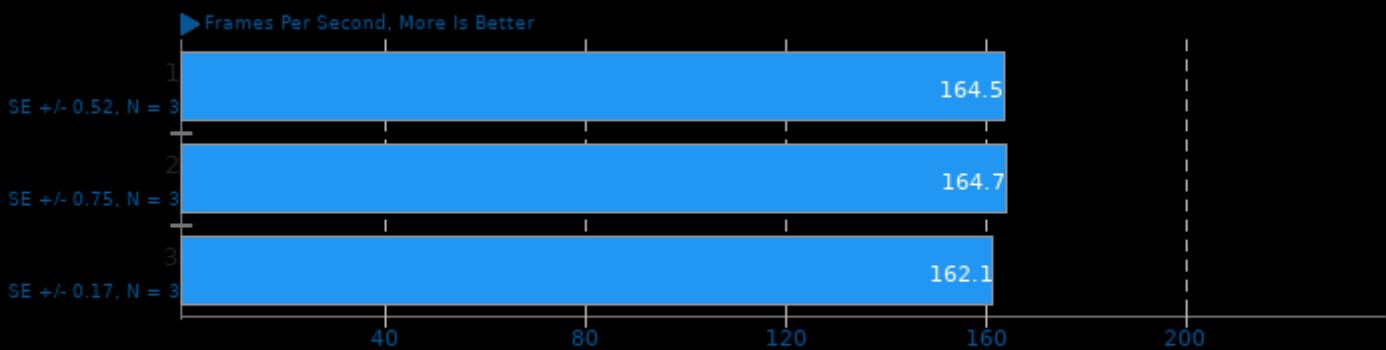


1. (CXX) g++ options: -O3 -pthread -lm

yquake2 7.45



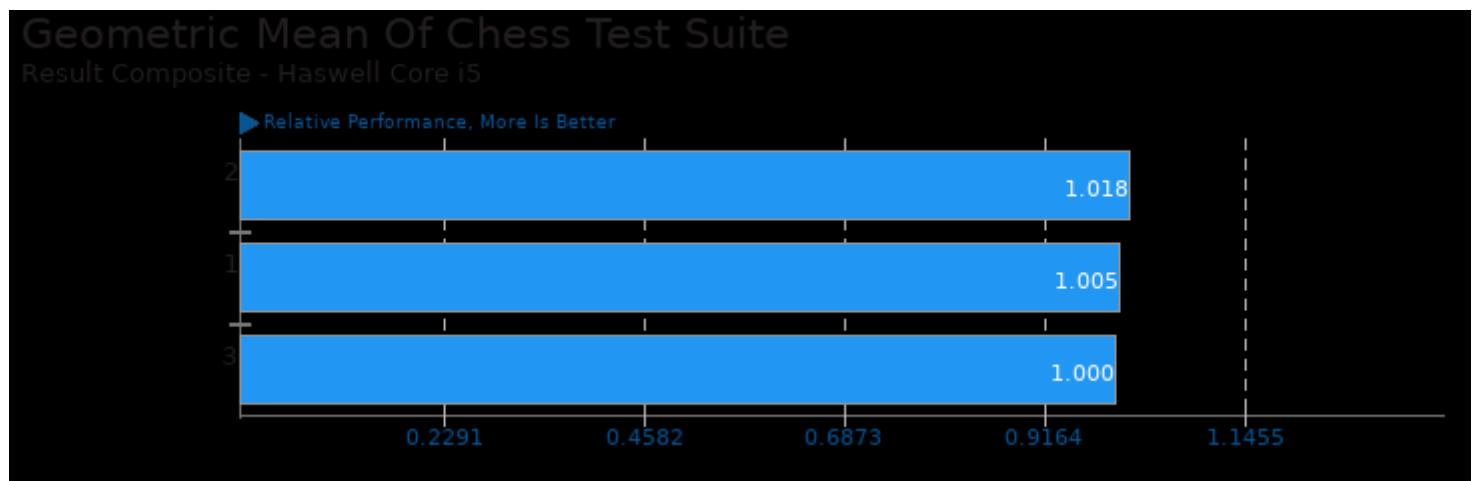
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -fvisibility=hidden -MMD -mfp



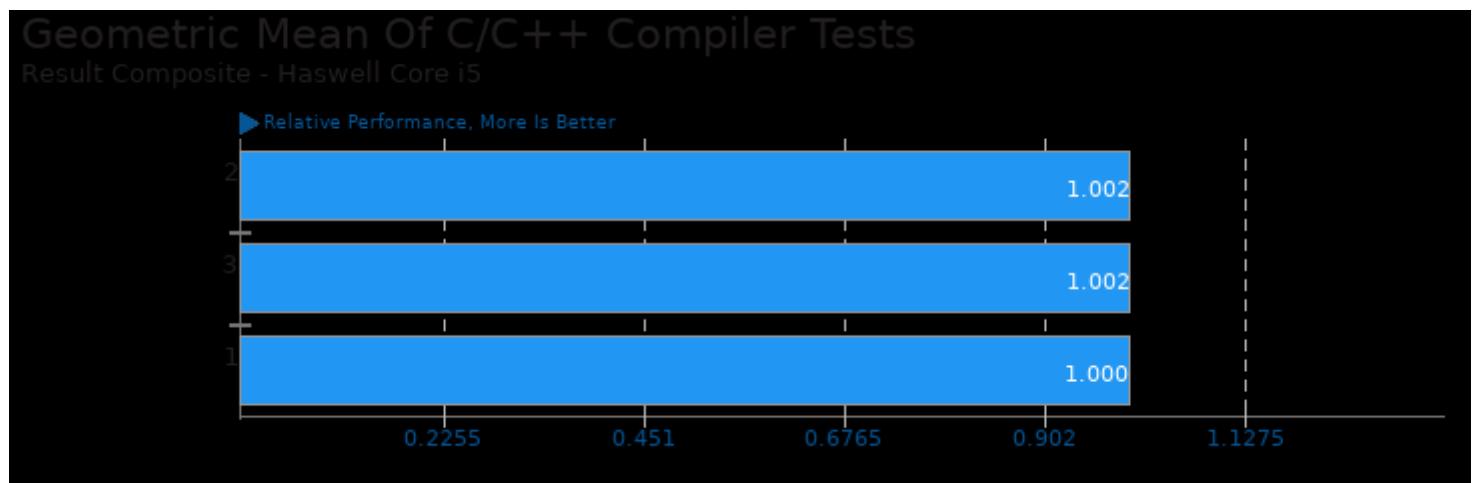
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -fvisibility=hidden -MMD -mfpu

## Haswell Core i5

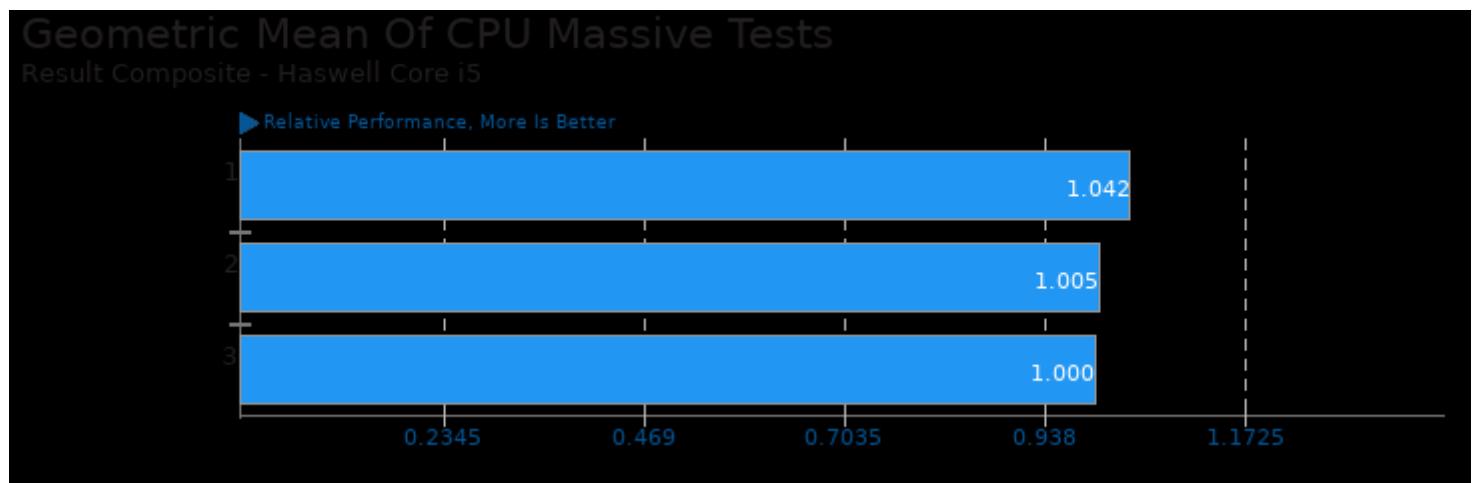
These geometric means are based upon test groupings / test suites for this result file.



Geometric mean based upon tests: pts/crafty, pts/stockfish and pts/asmfish



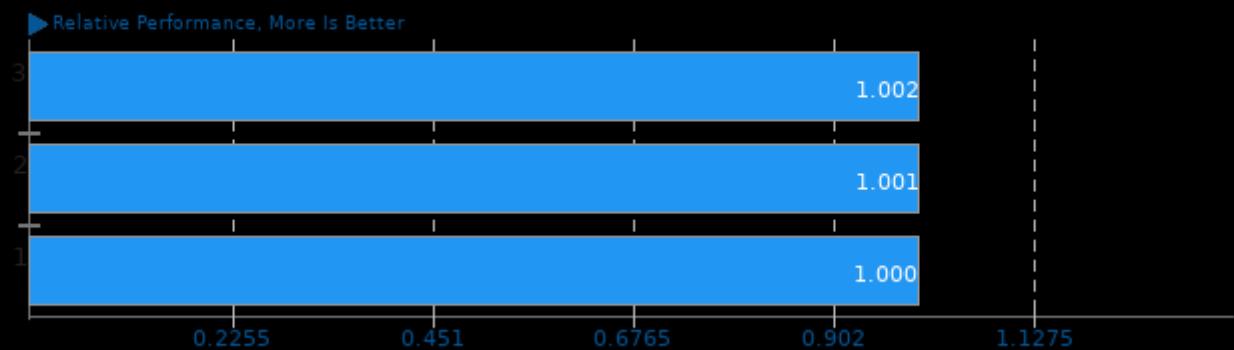
Geometric mean based upon tests: pts/stockfish, pts/hmmer, pts/x265, pts/kvazaar, pts/lammps, pts/gromacs and pts/basis



Geometric mean based upon tests: pts/asmfish, pts/brl-cad, pts/crafty, pts/x265, pts/hmmer, pts/lammps, pts(numpy, pts/redis and pts/stockfish

## Geometric Mean Of Creator Workloads Tests

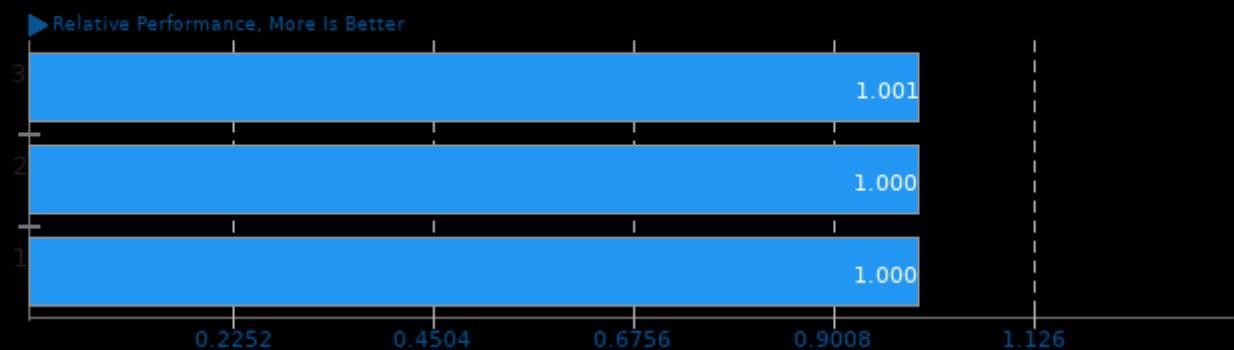
Result Composite - Haswell Core i5



Geometric mean based upon tests: pts/indigobench, pts/x265, pts/kvazaar, pts/rav1e, pts/basis, pts/astcenc, pts/espeak and pts/brl-cad

## Geometric Mean Of Encoding Tests

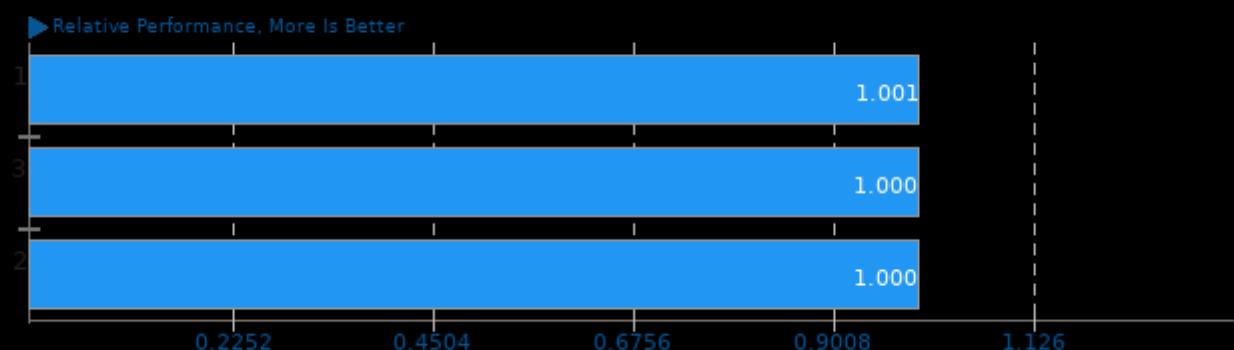
Result Composite - Haswell Core i5



Geometric mean based upon tests: pts/x265, pts/kvazaar and pts/rav1e

## Geometric Mean Of Game Development Tests

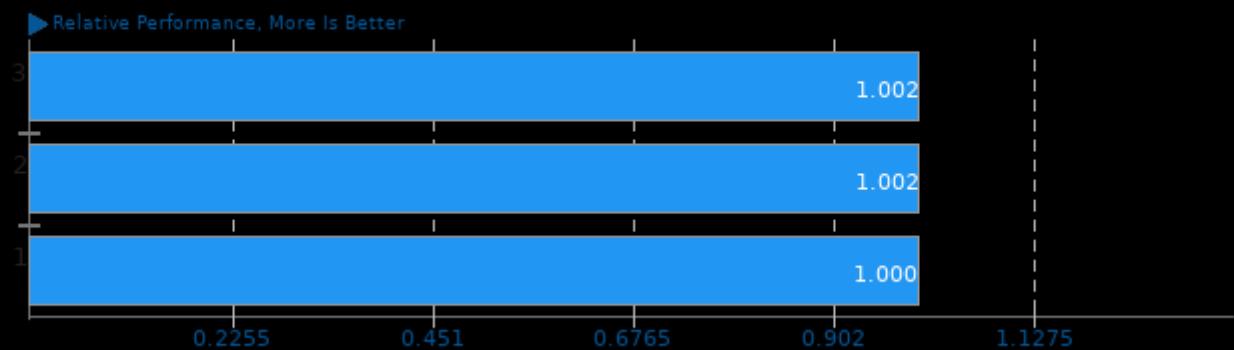
Result Composite - Haswell Core i5



Geometric mean based upon tests: pts/basis and pts/astcenc

## Geometric Mean Of HPC - High Performance Computing Tests

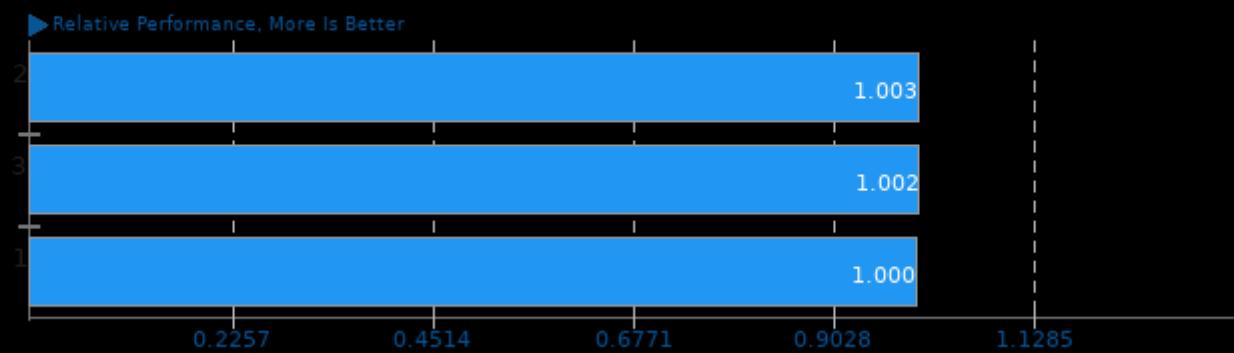
Result Composite - Haswell Core i5



Geometric mean based upon tests: pts/gromacs, pts/lammps, pts/hmmer and pts/numpy

## Geometric Mean Of Molecular Dynamics Tests

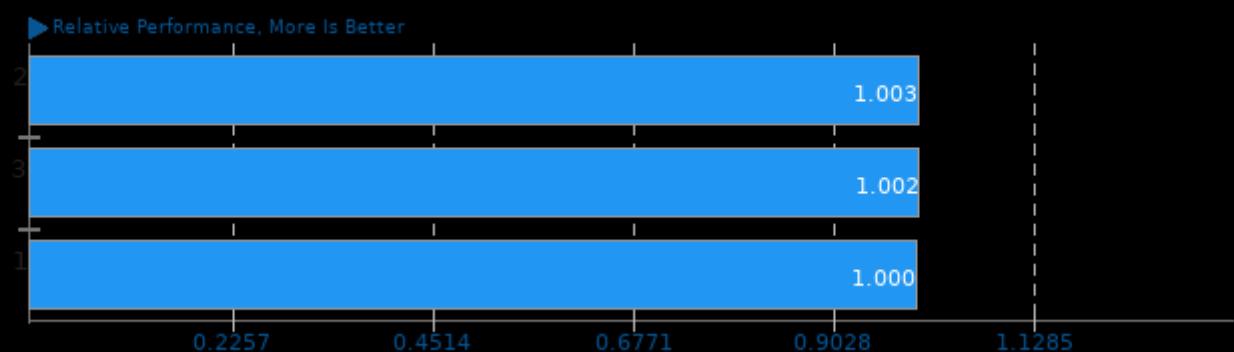
Result Composite - Haswell Core i5



Geometric mean based upon tests: pts/gromacs and pts/lammps

## Geometric Mean Of MPI Benchmarks Tests

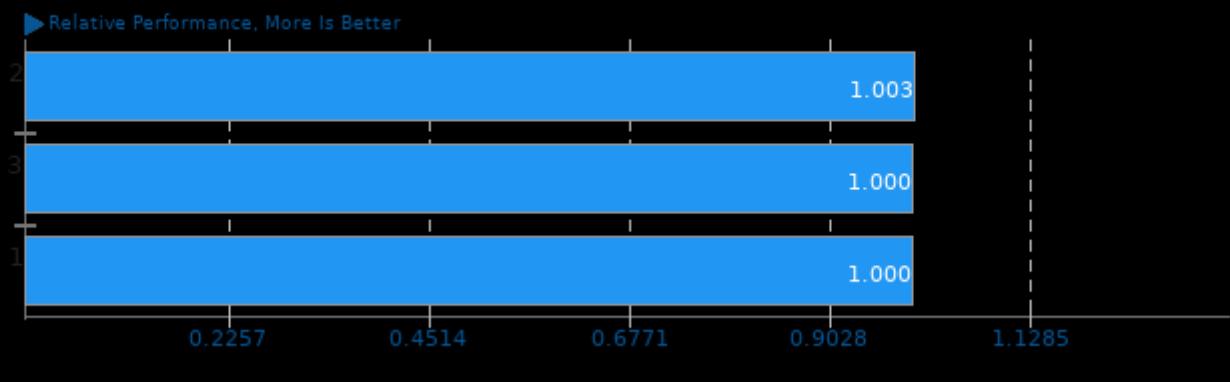
Result Composite - Haswell Core i5



Geometric mean based upon tests: pts/lammps and pts/gromacs

## Geometric Mean Of Multi-Core Tests

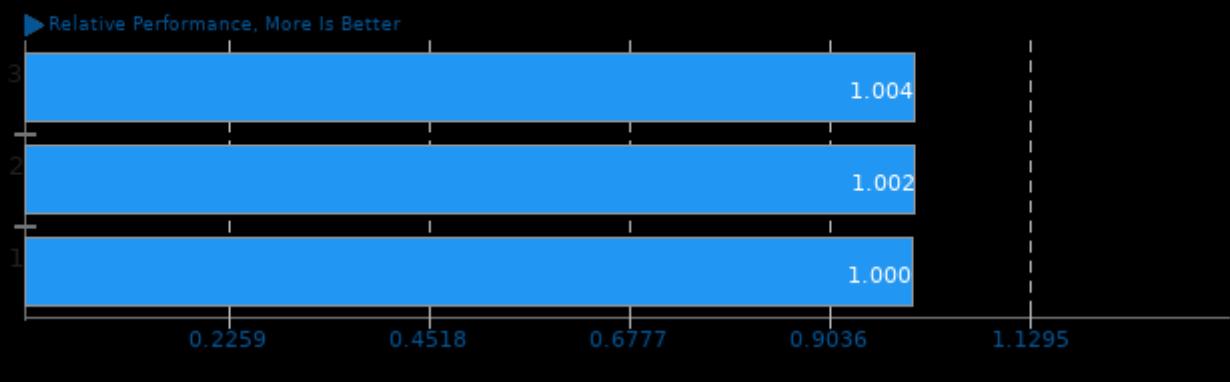
Result Composite - Haswell Core i5



Geometric mean based upon tests: pts/stockfish, pts/x265, pts/kvazaar, pts/rav1e, pts/asmpfish, pts/lammps, pts/gromacs and pts/indigobench

## Geometric Mean Of NVIDIA GPU Compute Tests

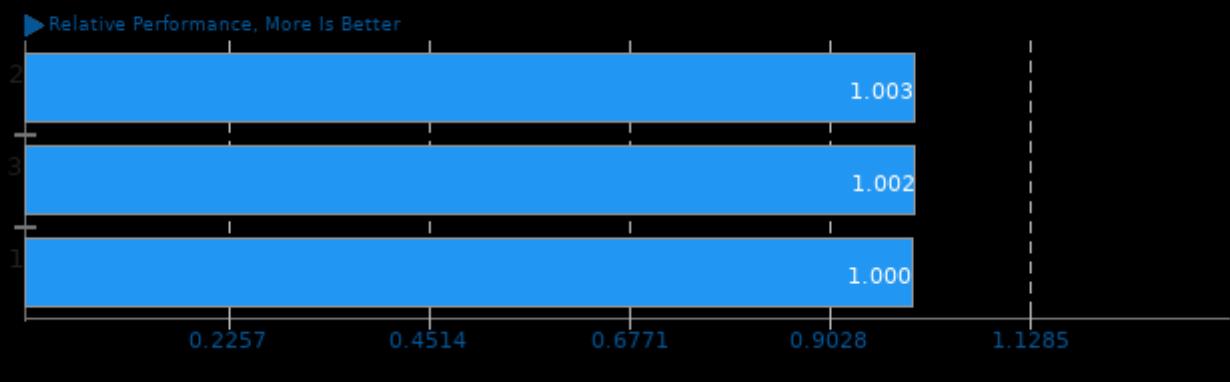
Result Composite - Haswell Core i5



Geometric mean based upon tests: pts/gromacs and pts/indigobench

## Geometric Mean Of OpenMPI Tests

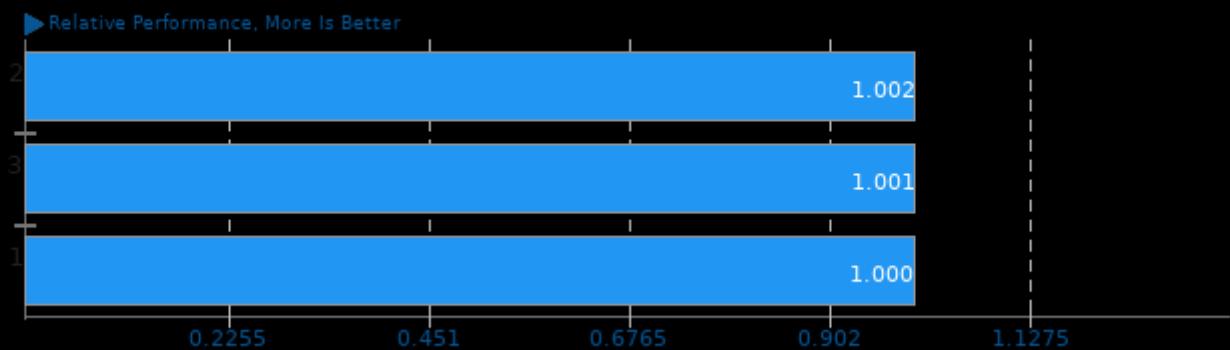
Result Composite - Haswell Core i5



Geometric mean based upon tests: pts/gromacs and pts/lammps

## Geometric Mean Of Scientific Computing Tests

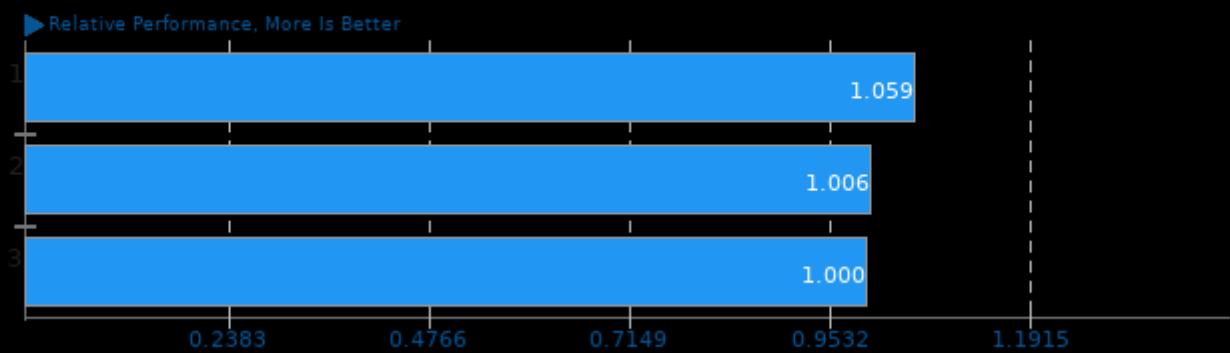
Result Composite - Haswell Core i5



Geometric mean based upon tests: pts/gromacs, pts/lammps and pts/hmmer

## Geometric Mean Of Server CPU Tests

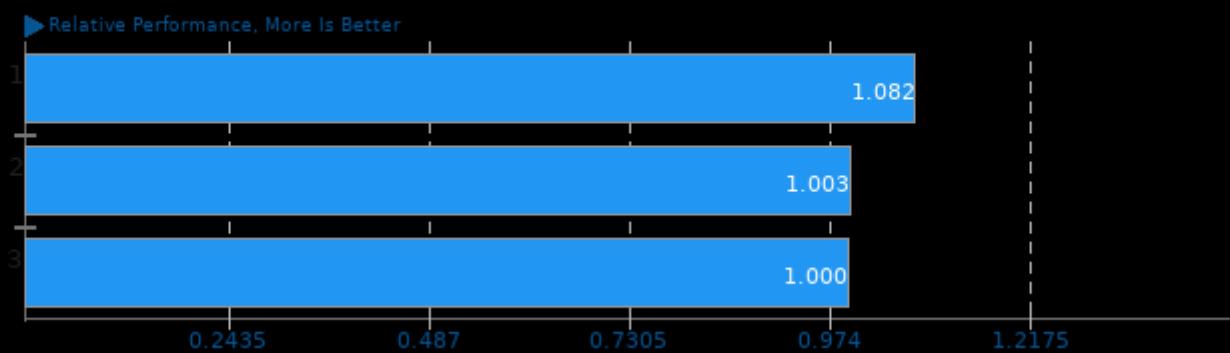
Result Composite - Haswell Core i5



Geometric mean based upon tests: pts/x265, pts/stockfish, pts/asmfish, pts/redis and pts/numpy

## Geometric Mean Of Single-Threaded Tests

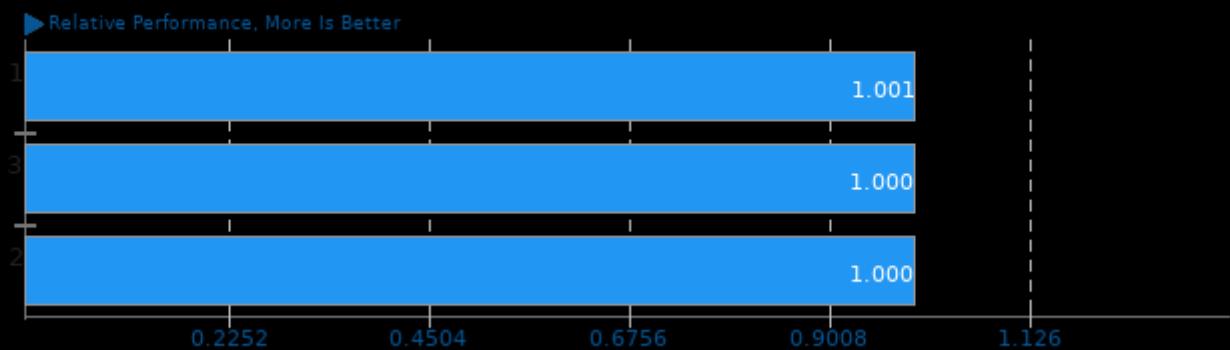
Result Composite - Haswell Core i5



Geometric mean based upon tests: pts/numpy, pts/espeak and pts/redis

## Geometric Mean Of Texture Compression Tests

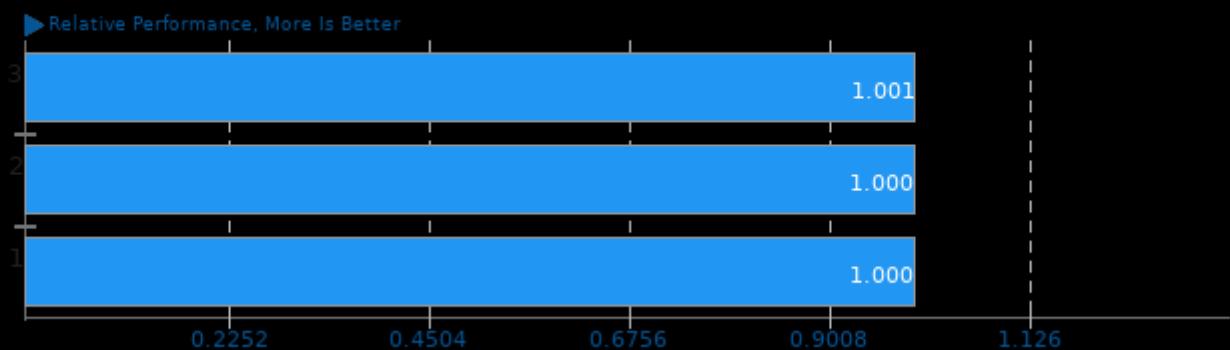
Result Composite - Haswell Core i5



Geometric mean based upon tests: pts/basis and pts/astcenc

## Geometric Mean Of Video Encoding Tests

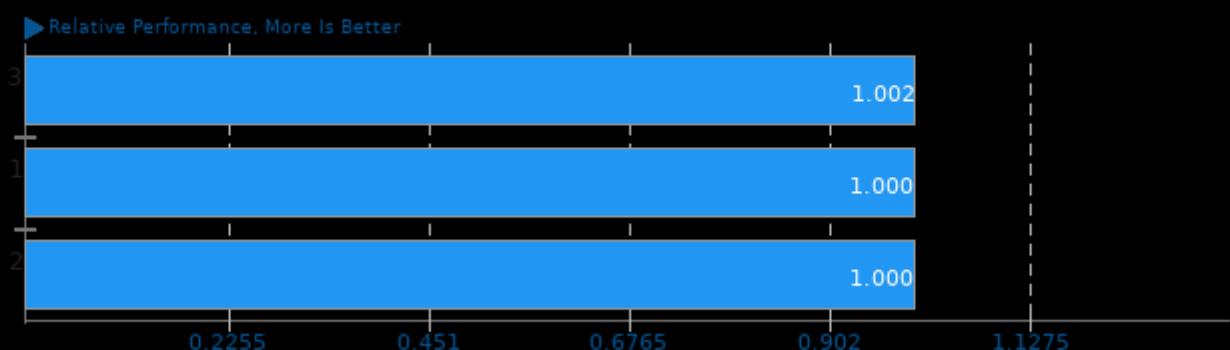
Result Composite - Haswell Core i5



Geometric mean based upon tests: pts/x265, pts/kvazaar and pts/rav1e

## Geometric Mean Of Common Workstation Benchmarks Tests

Result Composite - Haswell Core i5



Geometric mean based upon tests: pts/brl-cad and pts/x265

*This file was automatically generated via the Phoronix Test Suite benchmarking software on Thursday, 28 March 2024 11:23.*