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workstation20201212_win10

AMD Ryzen 9 3900X 12-Core testing with a Gigabyte X570 AORUS ULTRA (F12e BIOS) and NVIDIA GeForce GTX 980 4GB on Ubuntu 20.04 via the Phoronix Test Suite.

Automated Executive Summary

workstation20210302_ubuntu had the most wins, coming in first place for 81% of the tests.

Based on the geometric mean of all complete results, the fastest (workstation20210302_ubuntu) was 1.178x the speed of the slowest (2 x 932GB Samsung SSD 970 EVO Plus 1TB).

Test Systems:

2 x 932GB Samsung SSD 970 EVO Plus 1TB

Processor: AMD Ryzen 9 3900X 12-Core @ 3.79GHz (12 Cores / 24 Threads), Motherboard: Gigabyte X570 AORUS ULTRA (F12e BIOS), Memory: 2 x 32768 MB 3200MHz CMK64GX4M2E3200C16, Disk: 2 x 932GB Samsung SSD 970 EVO Plus 1TB, Graphics: NVIDIA GeForce GTX 980 + Microsoft Remote Display 4GB (1392/3505MHz), Network: Intel

I211 Gigabit Connection

OS: Microsoft Windows 10 Pro Build 18363, Kernel: 10.0 (x86_64), Display Driver: 460.79 (27.21.14.6079), Compiler: GCC 8.3.0, File-System: NTFS, Screen Resolution: 2560x1440

Security Notes: __user pointer sanitization: Disabled + Retpoline: Full + IBPB: Always + STIBP: Enabled

workstation20210302_ubuntu

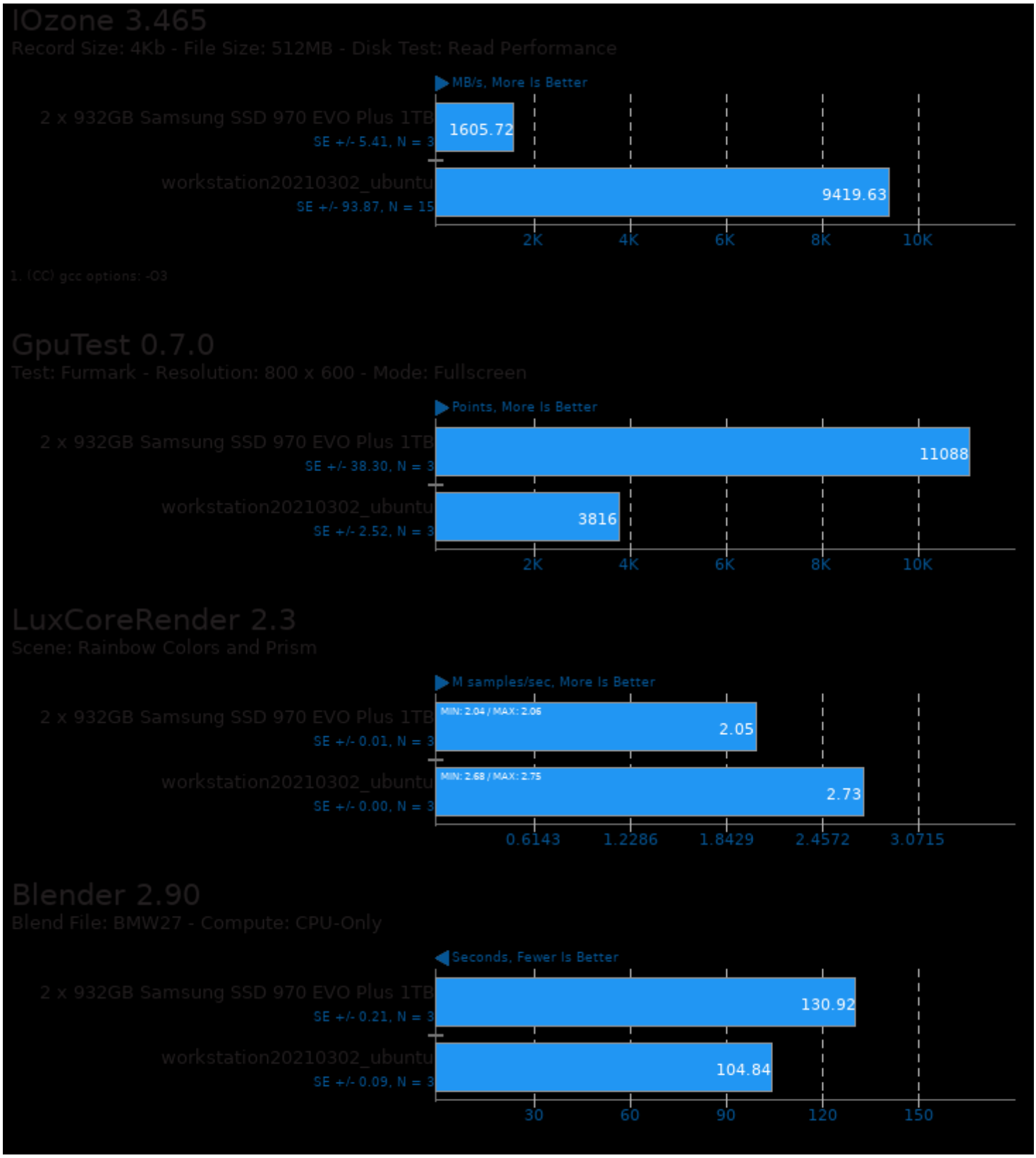
Processor: AMD Ryzen 9 3900X 12-Core @ 3.80GHz (12 Cores / 24 Threads), Motherboard: Gigabyte X570 AORUS ULTRA (F12e BIOS), Chipset: AMD Starship/Matisse, Memory: 64GB, Disk: 2 x 1000GB Samsung SSD 970 EVO Plus 1TB, Graphics: NVIDIA GeForce GTX 980 4GB (1126/3505MHz), Audio: NVIDIA GM204 HD Audio, Monitor: DELL U2715H, Network: Intel I211 + Intel Wi-Fi 6 AX200

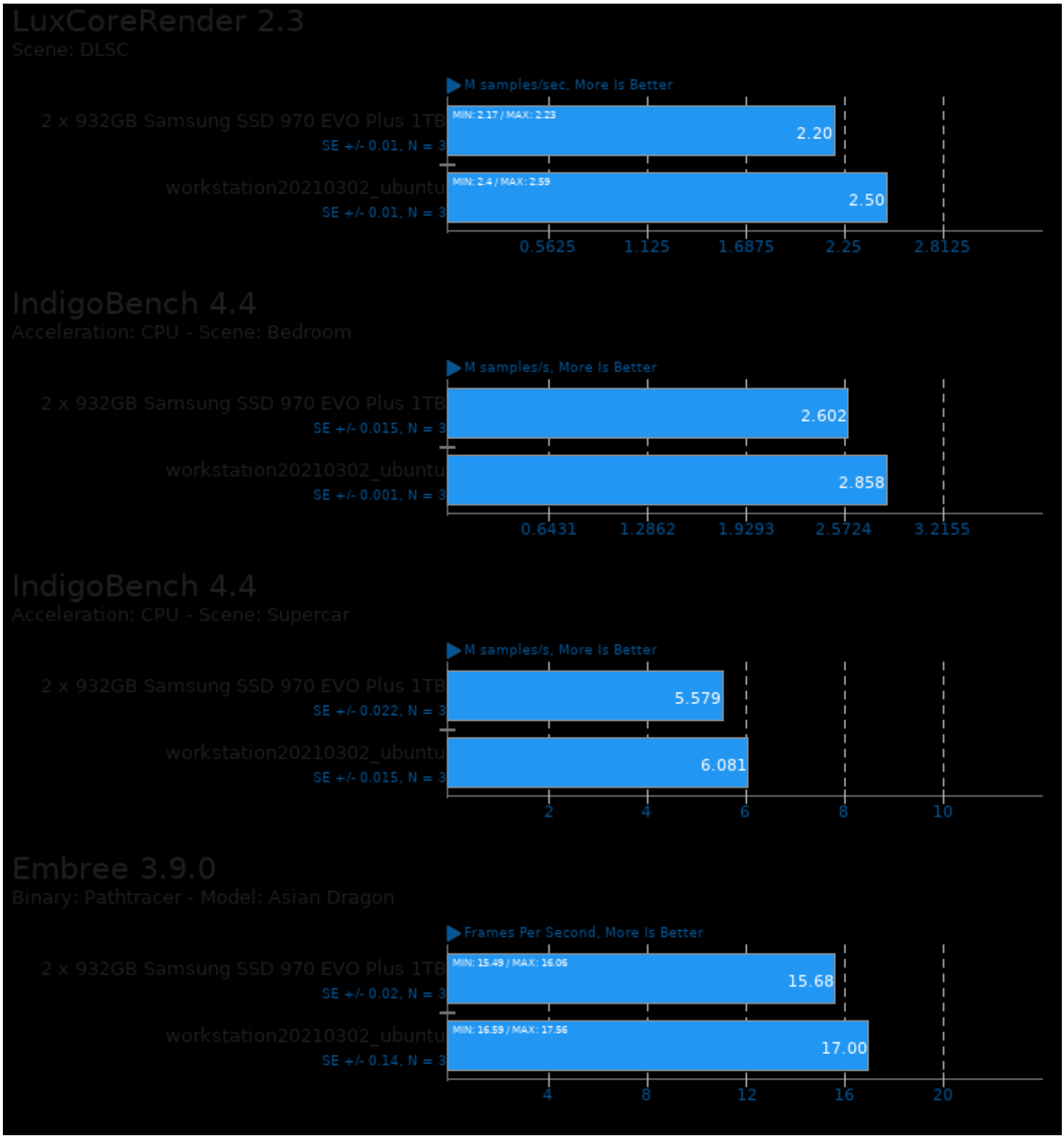
OS: Ubuntu 20.04, Kernel: 5.8.0-44-generic (x86_64), Desktop: GNOME Shell 3.36.4, Display Server: X Server 1.20.9, Display Driver: NVIDIA 450.102.04, OpenGL: 4.6.0, OpenCL: OpenCL 1.2 CUDA 11.0.228, Vulkan: 1.2.133, Compiler: GCC 9.3.0, File-System: ext4, Screen Resolution: 2560x1440

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
Disk Notes: NONE / relatime,rw
Processor Notes: Scaling Governor: acpi-cpufreq ondemand - CPU Microcode: 0x8701013
OpenCL Notes: GPU Compute Cores: 2048
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/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Full AMD retpoline IBPB: conditional STIBP: conditional RSB filling + srbds: Not affected + tsx_async_abort: Not affected

	2 x 932GB Samsung SSD 970 EVO Plus 1TB	workstation20210302_ubuntu
IOzone - 4Kb - 512MB - Read Performance (MB/s)	**1606**	**9420**
Normalized	17.05%	100%
Standard Deviation	0.6%	3.9%
GpuTest - Furmark - 800 x 600 - Fullscreen (Points)	**11088**	**3816**
Normalized	100%	34.42%
Standard Deviation	0.6%	0.1%
LuxCoreRender - R.C.a.P (M samples/sec)	**2.05**	**2.73**
Normalized	75.09%	100%
Standard Deviation	0.5%	0.2%
Blender - BMW27 - CPU-Only (sec)	**130.92**	**104.84**
Normalized	80.08%	100%
Standard Deviation	0.3%	0.2%
LuxCoreRender - DLSC (M samples/sec)	**2.20**	**2.50**
Normalized	88%	100%
Standard Deviation	1%	0.4%
IndigoBench - CPU - Bedroom (M samples/s)	**2.602**	**2.858**
Normalized	91.04%	100%
Standard Deviation	1%	0.1%
IndigoBench - CPU - Supercar (M samples/s)	**5.579**	**6.081**
Normalized	91.74%	100%

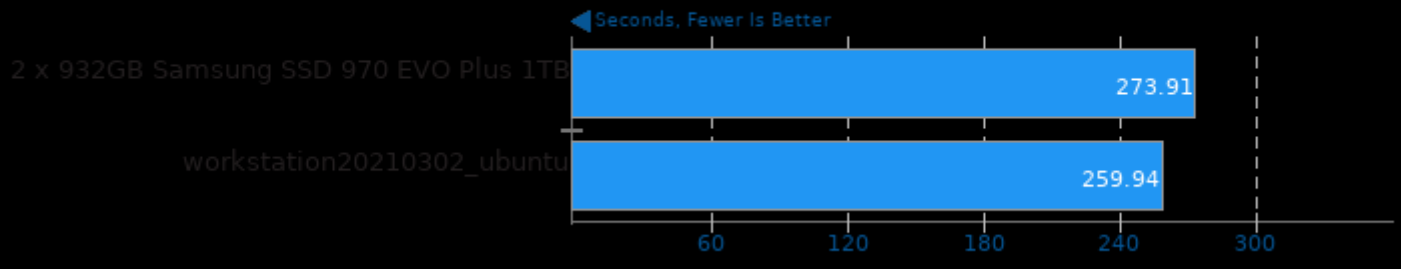
Standard Deviation	0.7%	0.4%
Embree - Pathtracer - Asian Dragon (FPS)	**15.6829**	**17.0038**
Normalized	92.23%	100%
Standard Deviation	0.3%	1.4%
Appleseed - Emily (sec)	**273.906**	**259.944251**
Normalized	94.9%	100%
7-Zip Compression - C.S.T (MIPS)	**78508**	**80392**
Normalized	97.66%	100%
Standard Deviation	0.3%	0.6%
Embree - Pathtracer ISPC - Asian Dragon (FPS)	**16.3465**	**16.6528**
Normalized	98.16%	100%
Standard Deviation	0.2%	0.2%
IndigoBench - OpenCL GPU - Bedroom (M samples/s)	**4.347**	**4.427**
Normalized	98.19%	100%
Standard Deviation	0.2%	0.1%
IndigoBench - OpenCL GPU - Supercar (M samples/s)	**12.091**	**12.294**
Normalized	98.35%	100%
Standard Deviation	0.1%	0.1%
x264 - H.2.V.E (FPS)	**140.04**	**138.30**
Normalized	100%	98.76%
Standard Deviation	0.3%	2.5%
OctaneBench - Total Score (Score)	**95.504949**	**95.434674**
Normalized	100%	99.93%
IOzone - 4Kb - 512MB - Write Performance (MB/s)	**532.08**	**1321**
Normalized	40.29%	100%
Standard Deviation	22.6%	0.8%


IOzone 3.465
Record Size: 4Kb - File Size: 512MB - Disk Test: Read Performance
MB/s, More Is Better
2 x 932GB Samsung SSD 970 EVO Plus 1TB
SE +/- 5.41, N = 3
1605.72
workstation20210302_ubuntu
SE +/- 93.87, N = 15
9419.63
2K
4K
6K
8K
10K
1. (CC) gcc options: -O3
GpuTest 0.7.0
Test: Furmark - Resolution: 800 x 600 - Mode: Fullscreen
Points, More Is Better
2 x 932GB Samsung SSD 970 EVO Plus 1TB
SE +/- 38.30, N = 3
11088
workstation20210302_ubuntu
SE +/- 2.52, N = 3
3816
2K
4K
6K
8K
10K
LuxCoreRender 2.3
Scene: Rainbow Colors and Prism
M samples/sec, More Is Better
2 x 932GB Samsung SSD 970 EVO Plus 1TB
SE +/- 0.01, N = 3
MIN: 2.04 / MAX: 2.06
2.05
workstation20210302_ubuntu
SE +/- 0.00, N = 3
MIN: 2.68 / MAX: 2.75
2.73
0.6143
1.2286
1.8429
2.4572
3.0715
Blender 2.90
Blend File: BMW27 - Compute: CPU-Only
Seconds, Fewer Is Better
2 x 932GB Samsung SSD 970 EVO Plus 1TB
SE +/- 0.21, N = 3
130.92
workstation20210302_ubuntu
SE +/- 0.09, N = 3
104.84
30
60
90
120
150


LuxCoreRender 2.3
Scene: DLSC
M samples/sec, More Is Better
2 x 932GB Samsung SSD 970 EVO Plus 1TB
SE +/- 0.01, N = 3
MIN: 2.17 / MAX: 2.23
2.20
workstation20210302_ubuntu
SE +/- 0.01, N = 3
MIN: 2.4 / MAX: 2.59
2.50
0.5625
1.125
1.6875
2.25
2.8125
IndigoBench 4.4
Acceleration: CPU - Scene: Bedroom
M samples/s, More Is Better
2 x 932GB Samsung SSD 970 EVO Plus 1TB
SE +/- 0.015, N = 3
2.602
workstation20210302_ubuntu
SE +/- 0.001, N = 3
2.858
0.6431
1.2862
1.9293
2.5724
3.2155
IndigoBench 4.4
Acceleration: CPU - Scene: Supercar
M samples/s, More Is Better
2 x 932GB Samsung SSD 970 EVO Plus 1TB
SE +/- 0.022, N = 3
5.579
workstation20210302_ubuntu
SE +/- 0.015, N = 3
6.081
2
4
6
8
10
Embree 3.9.0
Binary: Pathtracer - Model: Asian Dragon
Frames Per Second, More Is Better
2 x 932GB Samsung SSD 970 EVO Plus 1TB
SE +/- 0.02, N = 3
MIN: 15.49 / MAX: 16.06
15.68
workstation20210302_ubuntu
SE +/- 0.14, N = 3
MIN: 16.59 / MAX: 17.56
17.00
4
8
12
16
20

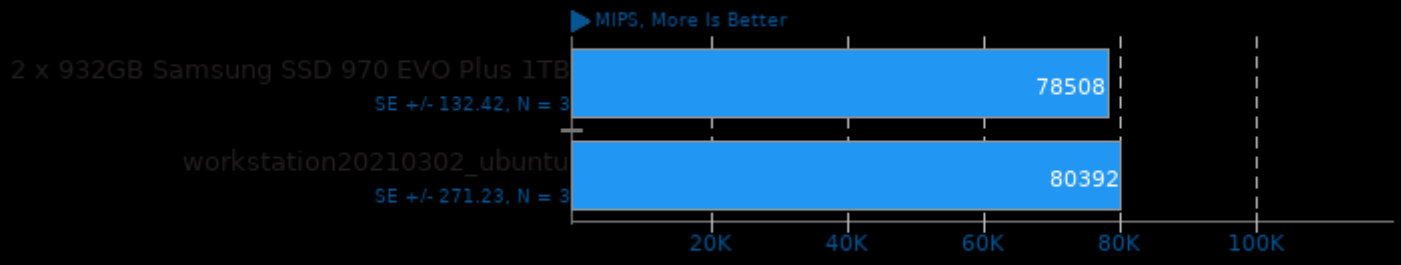
Appleseed 2.0 Beta

Scene: Emily



7-Zip Compression 16.02

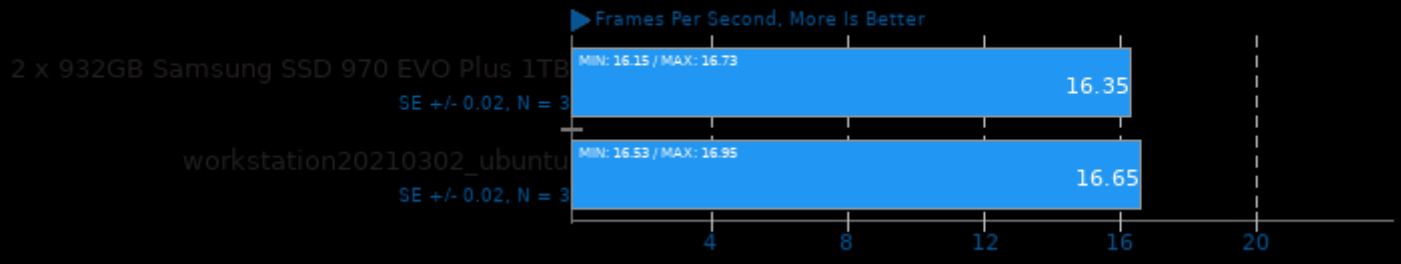
Compress Speed Test



1. (CXX) g++ options: -pipe -lpthread

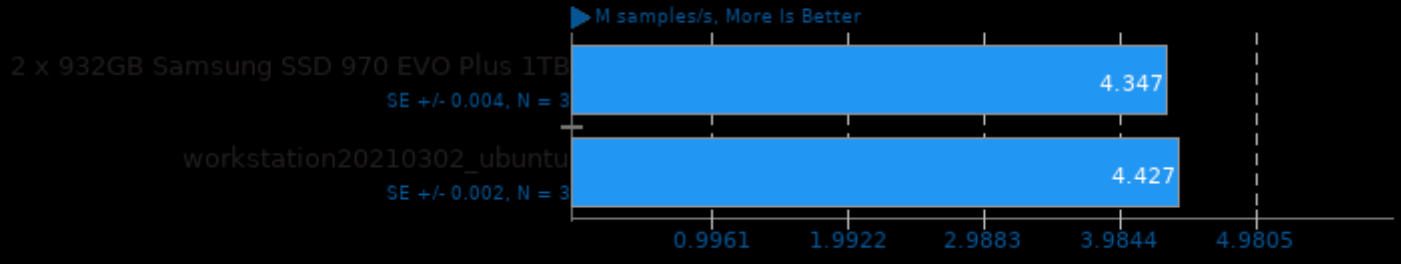
Embree 3.9.0

Binary: Pathtracer ISPC - Model: Asian Dragon



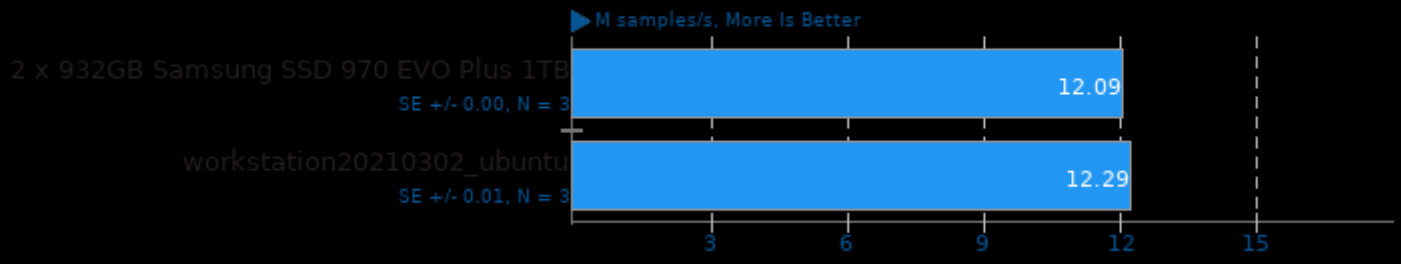
IndigoBench 4.4

Acceleration: OpenCL GPU - Scene: Bedroom



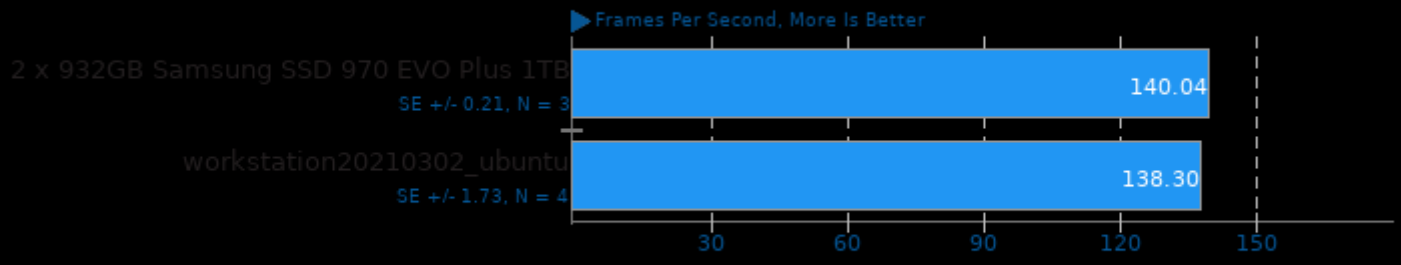
IndigoBench 4.4

Acceleration: OpenCL GPU - Scene: Supercar



x264 2019-12-17

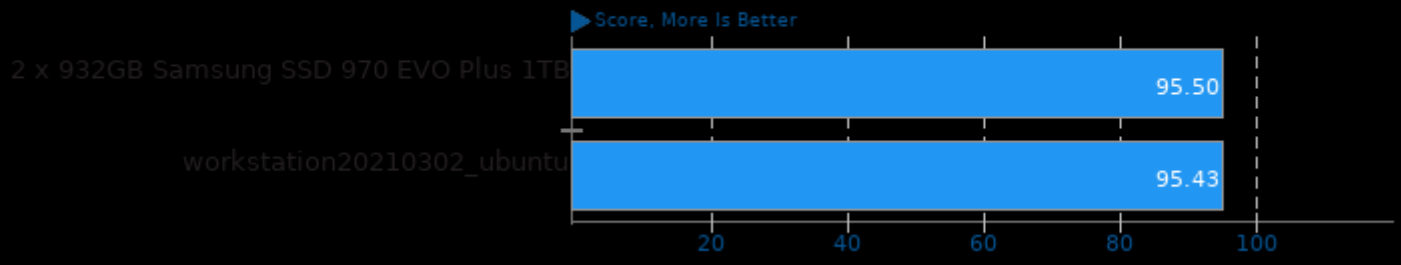
H.264 Video Encoding



1. (CC) gcc options: -ldl -m64 -lm -lpthread -O3 -ffast-math -std=gnu99 -fPIC -fomit-frame-pointer -fno-tree-vectorize

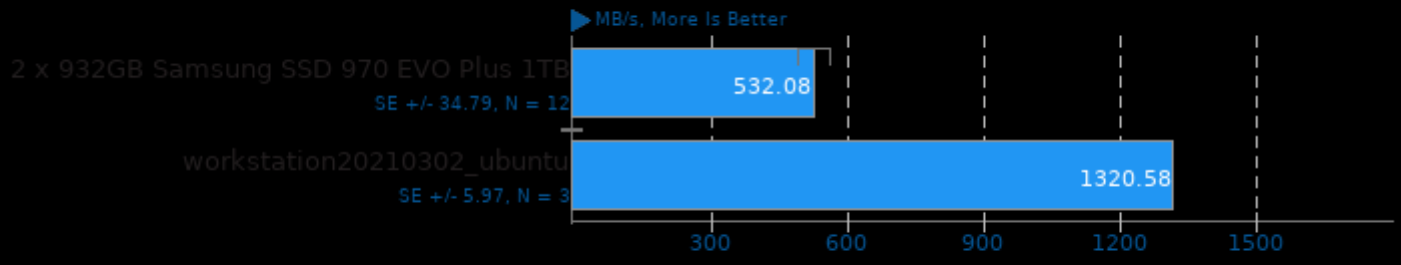
OctaneBench 2020.1

Total Score



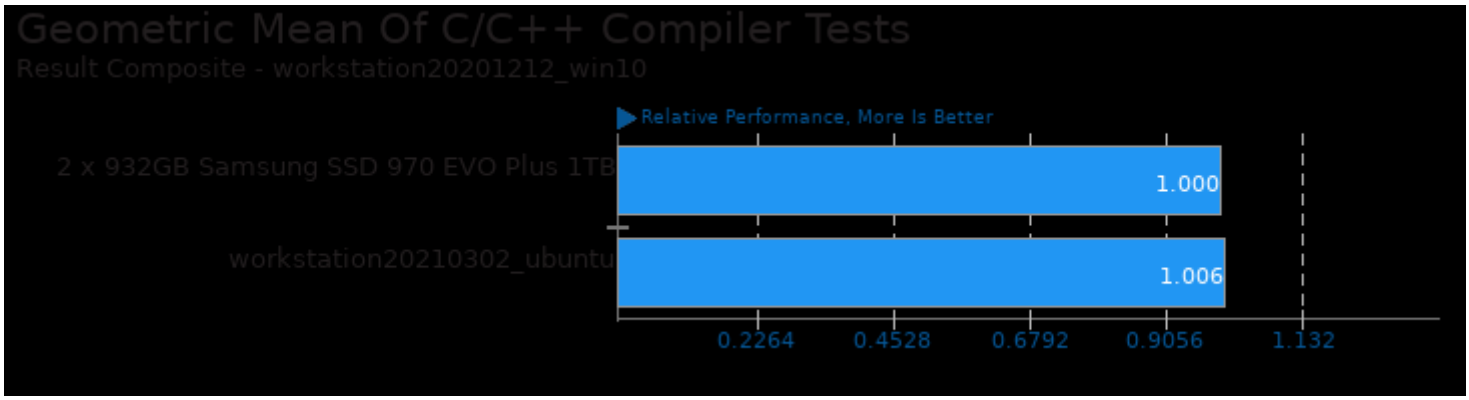
IOzone 3.465

Record Size: 4Kb - File Size: 512MB - Disk Test: Write Performance

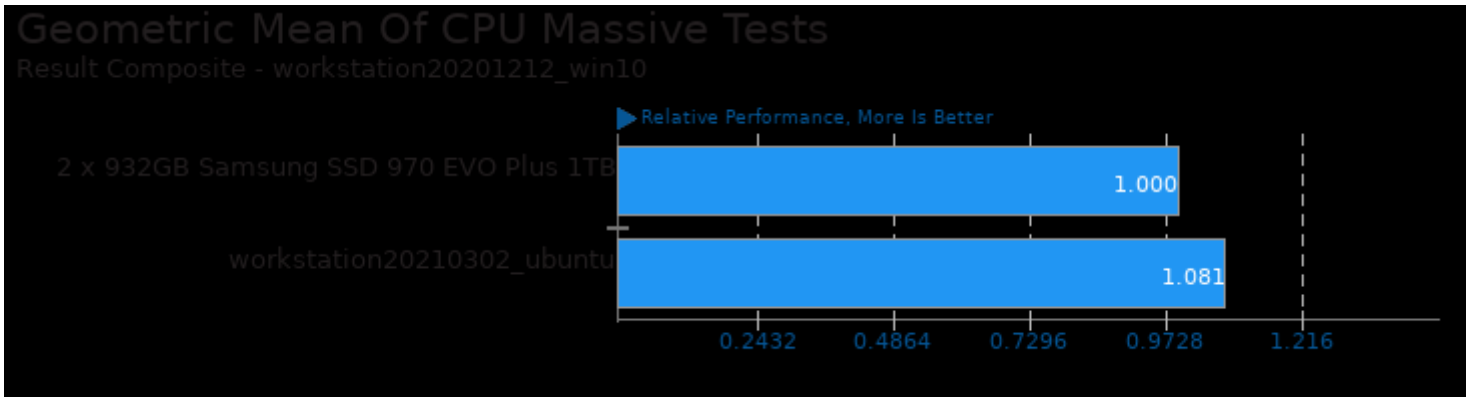


1. (CC) gcc options: -O3

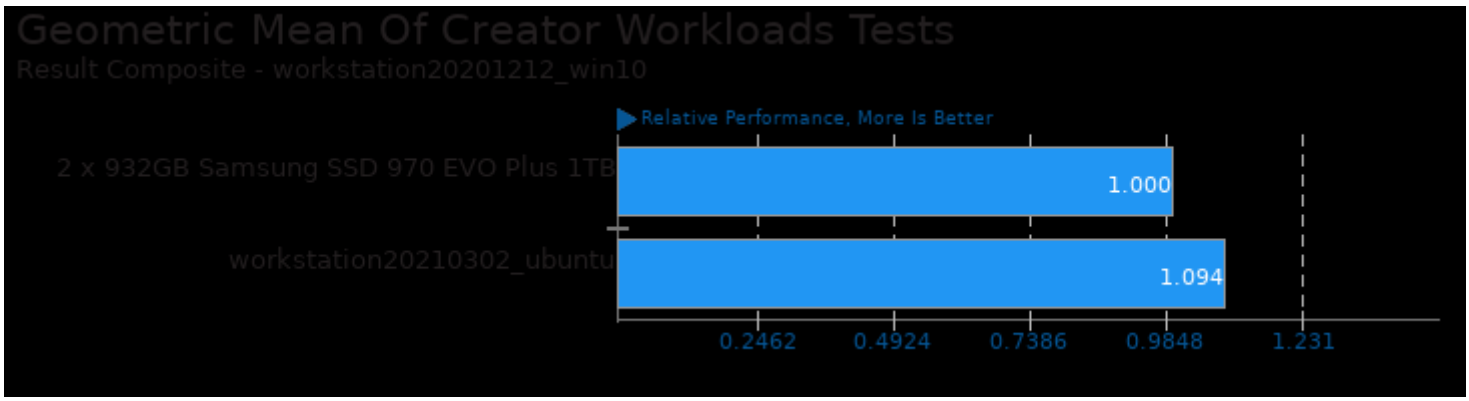
These geometric means are based upon test groupings / test suites for this result file.



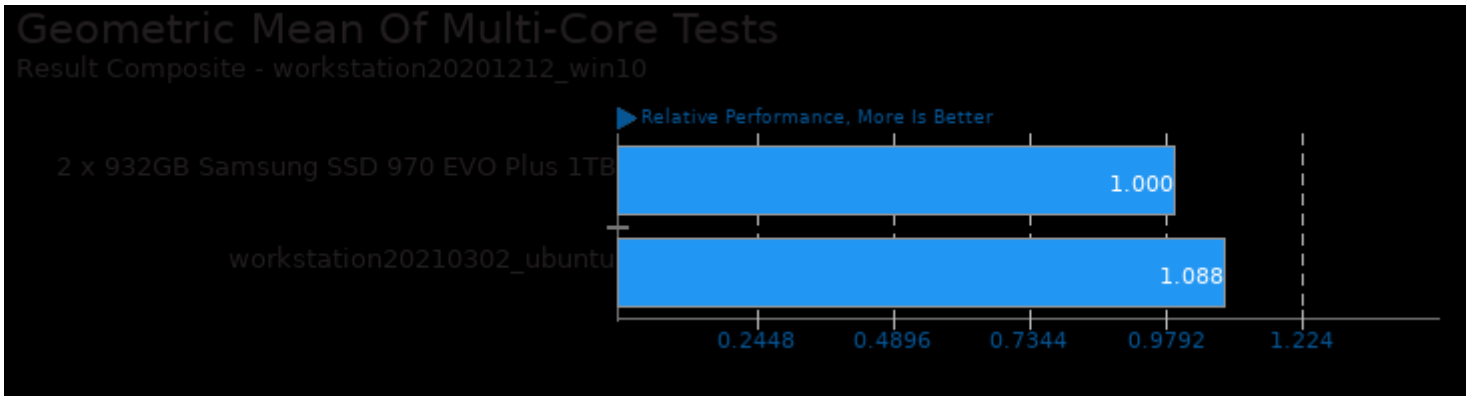
Geometric mean based upon tests: pts/compress-7zip and pts/x264



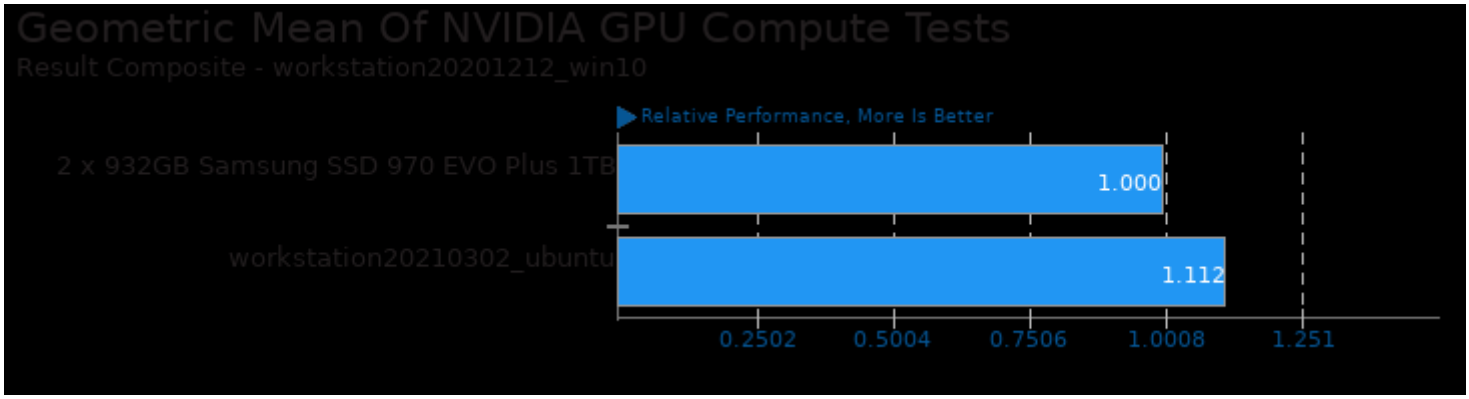
Geometric mean based upon tests: pts/compress-7zip, pts/x264 and pts/blender



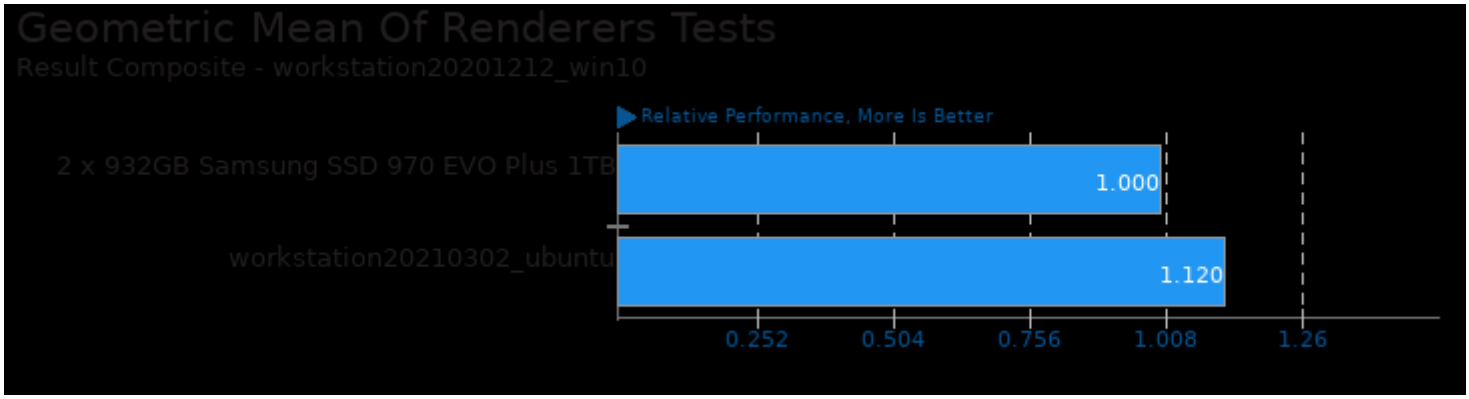
Geometric mean based upon tests: pts/blender, pts/appleseed, pts/luxcorerender, pts/indigobench, pts/x264 and pts/embree



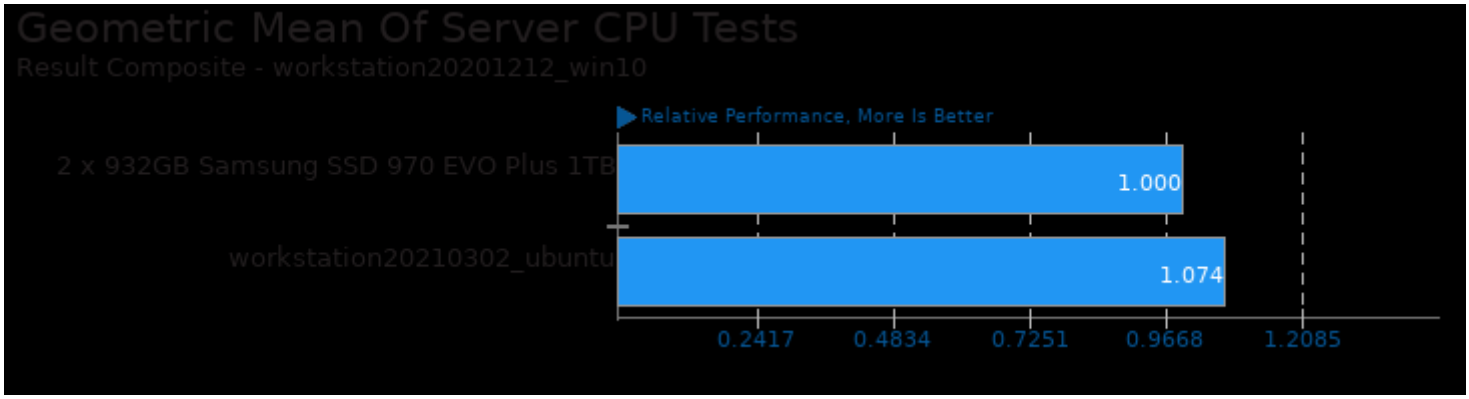
Geometric mean based upon tests: pts/blender, pts/x264, pts/compress-7zip, pts/appleseed, pts/luxcorerender, pts/indigobench and pts/embree



Geometric mean based upon tests: pts/octanebench, pts/luxcorerender, pts/indigobench and pts/blender



Geometric mean based upon tests: pts/blender, pts/appleseed, pts/luxcorerender and pts/indigobench



workstation20201212_win10

Geometric mean based upon tests: pts/x264, pts/compress-7zip, pts/blender and pts/appleseed

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