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AMD Ryzen 5 4500U testing with a LENOVO LNVNB161216 (EECN20WW BIOS) and AMD Renoir 512MB on Pop 22.04 via the Phoronix Test Suite.

Automated Executive Summary

A had the most wins, coming in first place for 59% of the tests.

Based on the geometric mean of all complete results, the fastest (A) was 1x the speed of the slowest (A). B was 1x the speed of C and A was 1x the speed of B.

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

Xonotic (Resolution: 1920 x 1080 - Effects Quality: High) at 1.263x
Xonotic (Resolution: 1920 x 1080 - Effects Quality: Low) at 1.257x
Xonotic (Resolution: 1920 x 1080 - Effects Quality: Ultra) at 1.12x
Xonotic (Resolution: 1920 x 1080 - Effects Quality: Ultimate) at 1.068x
OSPRay Studio (Camera: 1 - Resolution: 4K - Samples Per Pixel: 1 - Renderer: Path Tracer) at 1.031x
OSPRay Studio (Camera: 2 - Resolution: 4K - Samples Per Pixel: 1 - Renderer: Path Tracer) at 1.024x
OSPRay Studio (Camera: 1 - Resolution: 4K - Samples Per Pixel: 16 - Renderer: Path Tracer) at 1.023x
OSPRay Studio (Camera: 2 - Resolution: 1080p - Samples Per Pixel: 16 - Renderer: Path Tracer) at 1.018x
OSPRay Studio (Camera: 3 - Resolution: 4K - Samples Per Pixel: 1 - Renderer: Path Tracer) at 1.018x

OSPRay Studio (Camera: 1 - Resolution: 4K - Samples Per Pixel: 32 - Renderer: Path Tracer) at 1.013x.

Test Systems:

A

B

C

Processor: AMD Ryzen 5 4500U @ 2.38GHz (6 Cores), Motherboard: LENOVO LNVNB161216 (EECN20WW BIOS), Chipset: AMD Renoir/Cezanne, Memory: 16GB, Disk: 256GB SK hynix HFM256GDHTNI-87A0B, Graphics: AMD Renoir 512MB (1500/400MHz), Audio: AMD Renoir Radeon HD Audio, Network: Realtek RTL8822CE 802.11ac PCIe

OS: Pop 22.04, Kernel: 5.17.5-76051705-generic (x86_64), Desktop: GNOME Shell 42.1, Display Server: X Server 1.21.1.3, OpenGL: 4.6 Mesa 22.0.1 (LLVM 13.0.1 DRM 3.44), Vulkan: 1.2.204, Compiler: GCC 11.2.0, File-System: ext4, Screen Resolution: 1920x1080

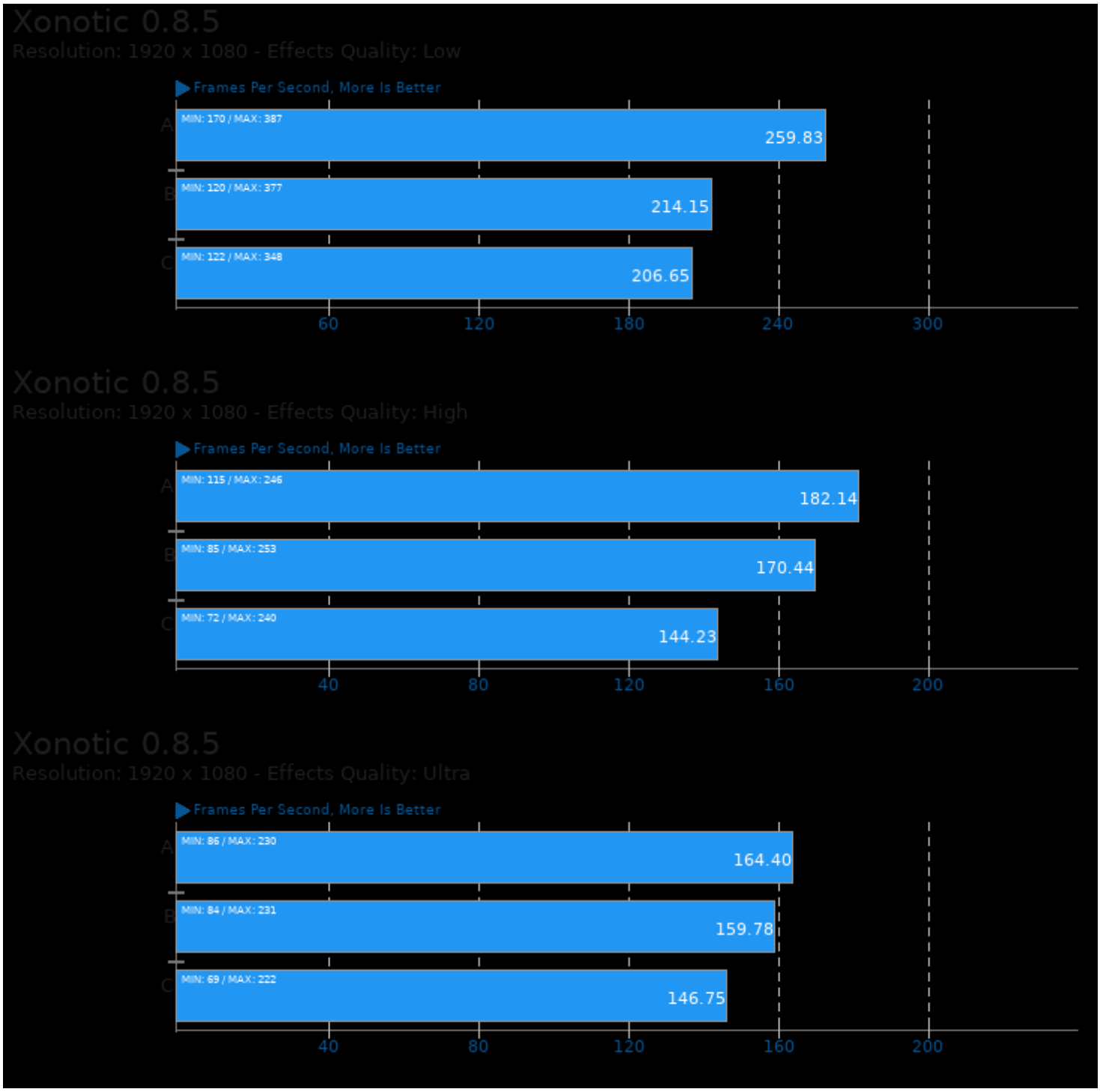
Kernel Notes: Transparent Huge Pages: madvise
Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --enable-cet --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,m2 --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-gBFGDP/gcc-11-11.2.0/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-11-gBFGDP/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) - Platform Profile: balanced - CPU Microcode: 0x8600102 - ACPI Profile: balanced
Graphics Notes: GLAMOR - BAR1 / Visible vRAM Size: 512 MB - vBIOS Version: 113-RENOIR-025
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Retpolines IBPB: conditional IBRS_FW STIBP: disabled RSB filling + srbds: Not affected + tsx_async_abort: Not affected

	A	B	C
Xonotic - 1920 x 1080 - Low (FPS)	**259.8283744**	214.1521244	**206.6470818**
Normalized	100%	82.42%	79.53%
Xonotic - 1920 x 1080 - High (FPS)	**182.141354**	170.4352824	**144.2320402**
Normalized	100%	93.57%	79.19%
Xonotic - 1920 x 1080 - Ultra (FPS)	**164.4020064**	159.7799366	**146.7480143**
Normalized	100%	97.19%	89.26%
Xonotic - 1920 x 1080 - Ultimate (FPS)	**123.6839859**	120.6501633	**115.8451344**
Normalized	100%	97.55%	93.66%
OSPRay Studio - 1 - 4K - 1 - Path Tracer (ms)	41493	**41615**	**40364**
Normalized	97.28%	96.99%	100%
OSPRay Studio - 2 - 4K - 1 - Path Tracer (ms)	42743	**42910**	**41896**
Normalized	98.02%	97.64%	100%
OSPRay Studio - 3 - 4K - 1 - Path Tracer (ms)	50182	**50572**	**49700**
Normalized	99.04%	98.28%	100%

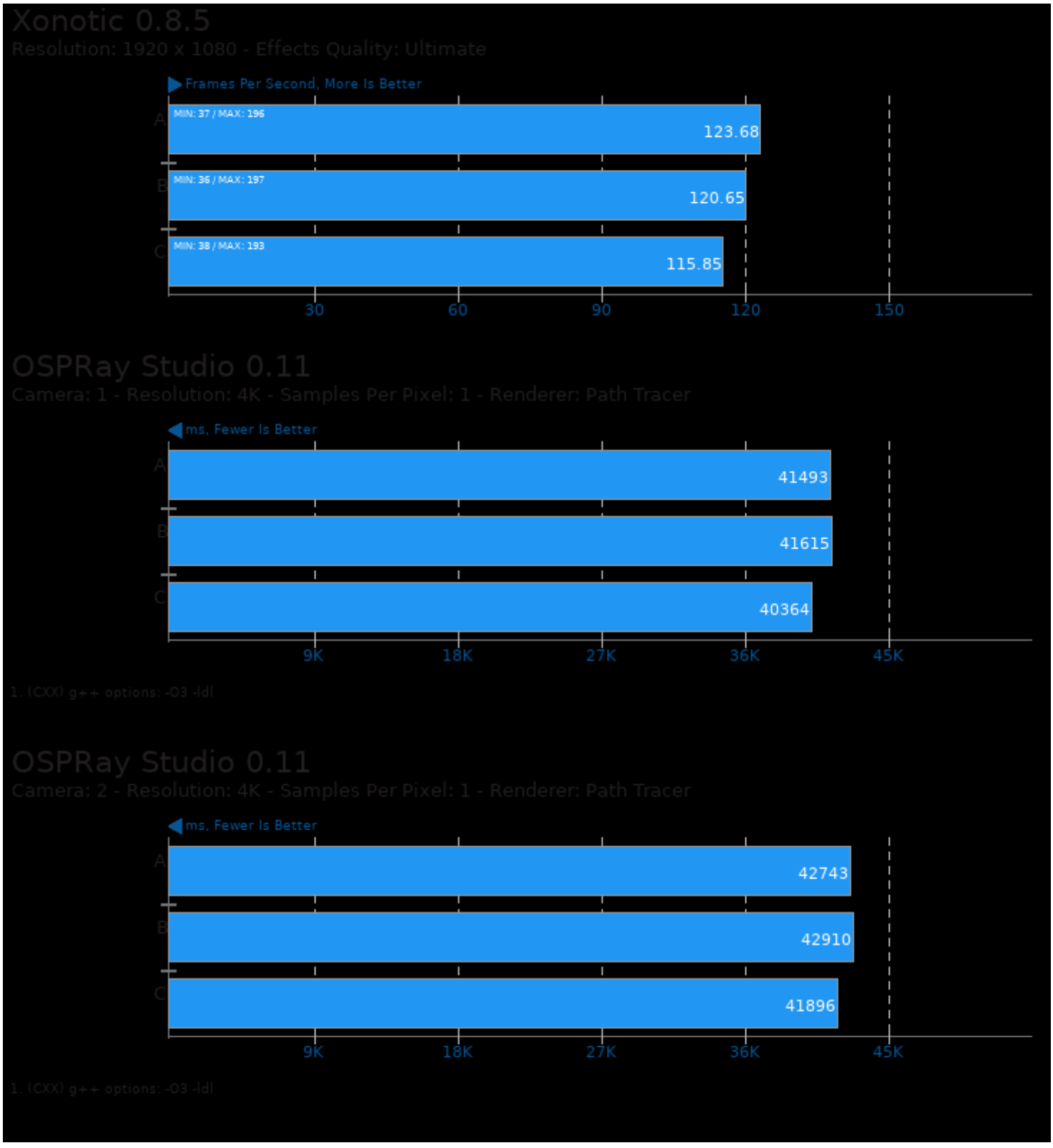
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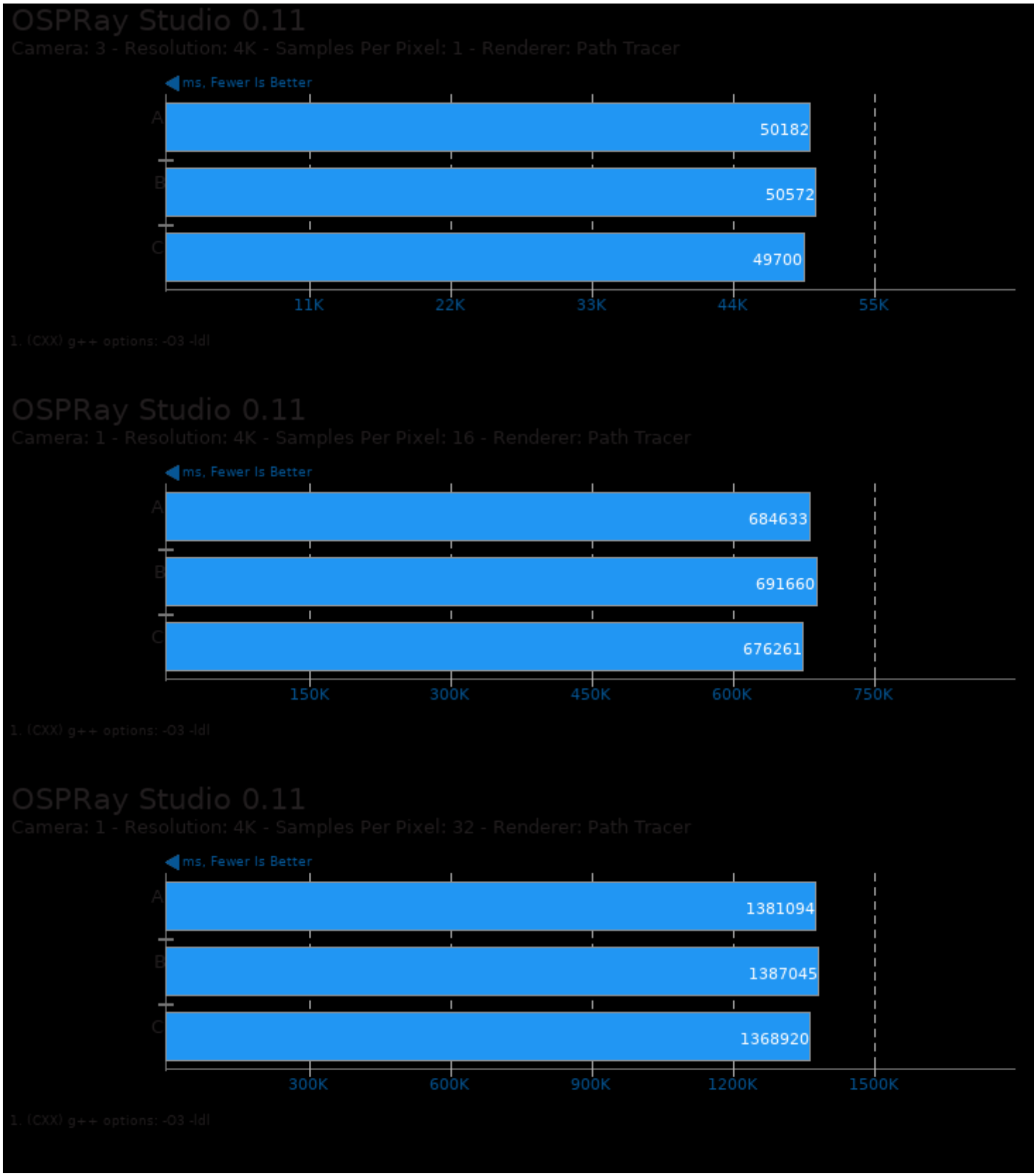
OSPRay Studio - 1 - 4K - 16 - Path Tracer	684633	**691660**	**676261**
Normalized	98.78%	97.77%	100%
OSPRay Studio - 1 - 4K - 32 - Path Tracer	1381094	**1387045**	**1368920**
Normalized	99.12%	98.69%	100%
OSPRay Studio - 2 - 4K - 16 - Path Tracer	**703755**	707312	**709462**
Normalized	100%	99.5%	99.2%
OSPRay Studio - 2 - 4K - 32 - Path Tracer	**1413873**	**1427435**	1415983
Normalized	100%	99.05%	99.85%
OSPRay Studio - 3 - 4K - 16 - Path Tracer	829863	**826106**	**834534**
Normalized	99.55%	100%	98.99%
OSPRay Studio - 3 - 4K - 32 - Path Tracer	**1660065**	**1671692**	1662586
Normalized	100%	99.3%	99.85%
OSPRay Studio - 1 - 1080p - 1 - Path Tracer (ms)	**10791**	**10836**	10813
Normalized	100%	99.58%	99.8%
OSPRay Studio - 2 - 1080p - 1 - Path Tracer (ms)	**11122**	11119	**11066**
Normalized	99.5%	99.52%	100%
OSPRay Studio - 3 - 1080p - 1 - Path Tracer (ms)	**12872**	12896	**13010**
Normalized	100%	99.81%	98.94%
OSPRay Studio - 1 - 1080p - 16 - Path Tracer (ms)	**177873**	**176742**	177494
Normalized	99.36%	100%	99.58%
OSPRay Studio - 1 - 1080p - 32 - Path Tracer (ms)	**350278**	351929	**353042**
Normalized	100%	99.53%	99.22%
OSPRay Studio - 2 - 1080p - 16 - Path Tracer (ms)	**180520**	181741	**183784**
Normalized	100%	99.33%	98.22%
OSPRay Studio - 2 - 1080p - 32 - Path Tracer (ms)	**359064**	359477	**360756**
Normalized	100%	99.89%	99.53%
OSPRay Studio - 3 - 1080p - 16 - Path Tracer (ms)	**212183**	212905	**212937**
Normalized	100%	99.66%	99.65%
OSPRay Studio - 3 - 1080p - 32 - Path Tracer (ms)	422762	**421931**	**423179**
Normalized	99.8%	100%	99.71%

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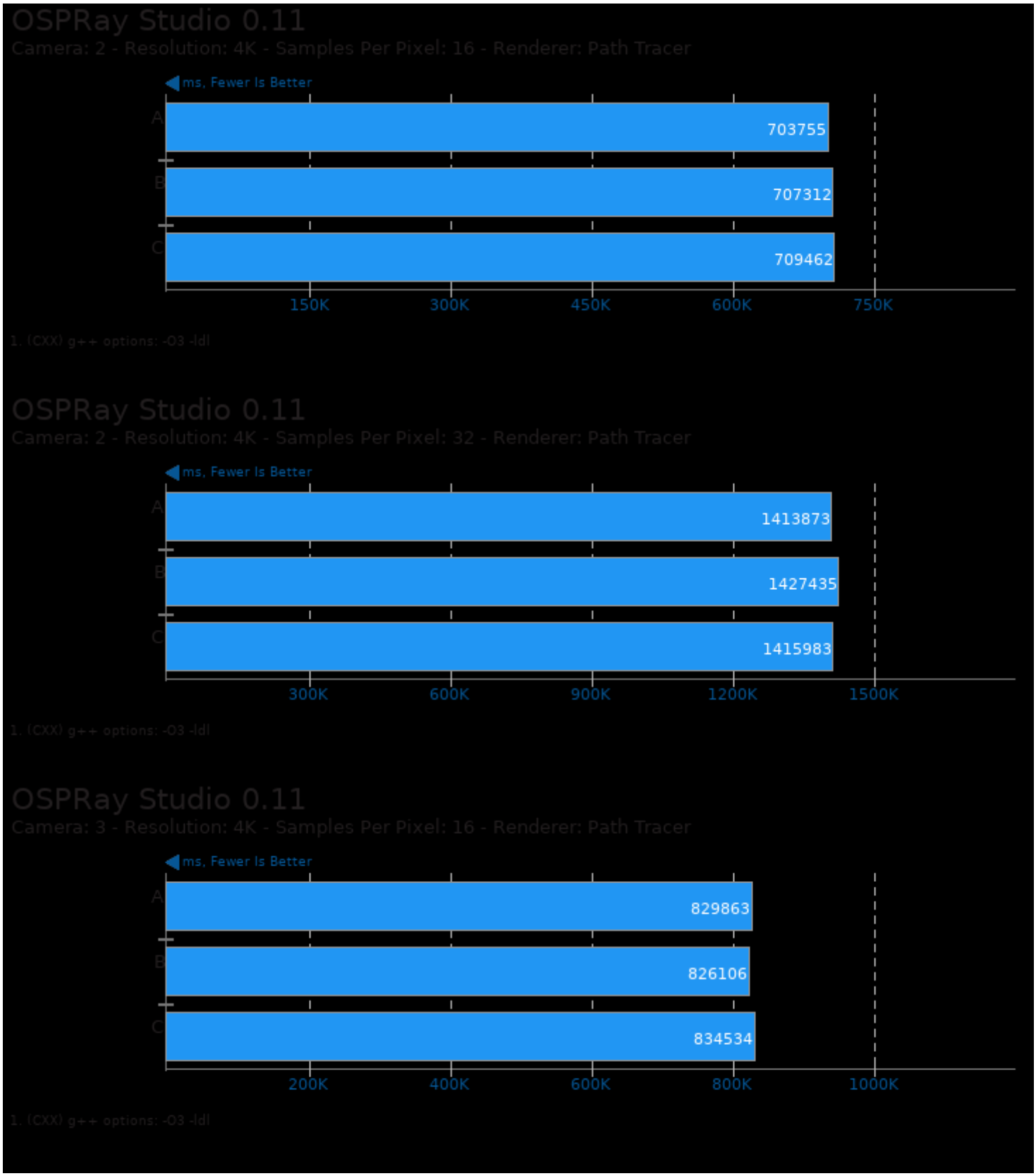


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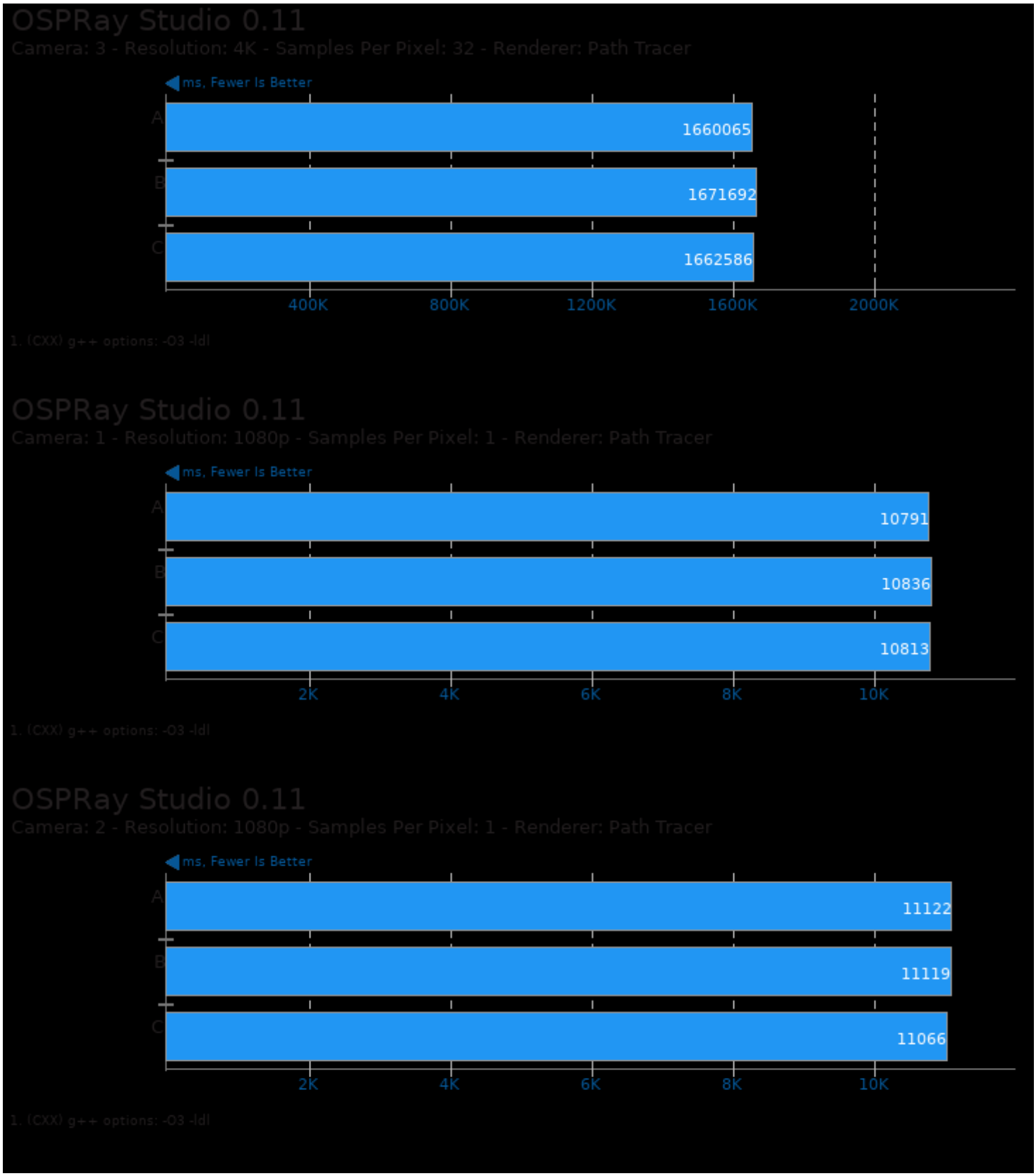



OSPRay Studio 0.11
Camera: 3 - Resolution: 4K - Samples Per Pixel: 1 - Renderer: Path Tracer
ms, Fewer Is Better
A
50182
B
50572
C
49700
11K
22K
33K
44K
55K
1. (CXX) g++ options: -O3 -ldl
OSPRay Studio 0.11
Camera: 1 - Resolution: 4K - Samples Per Pixel: 16 - Renderer: Path Tracer
ms, Fewer Is Better
A
684633
B
691660
C
676261
150K
300K
450K
600K
750K
1. (CXX) g++ options: -O3 -ldl
OSPRay Studio 0.11
Camera: 1 - Resolution: 4K - Samples Per Pixel: 32 - Renderer: Path Tracer
ms, Fewer Is Better
A
1381094
B
1387045
C
1368920
300K
600K
900K
1200K
1500K
1. (CXX) g++ options: -O3 -ldl

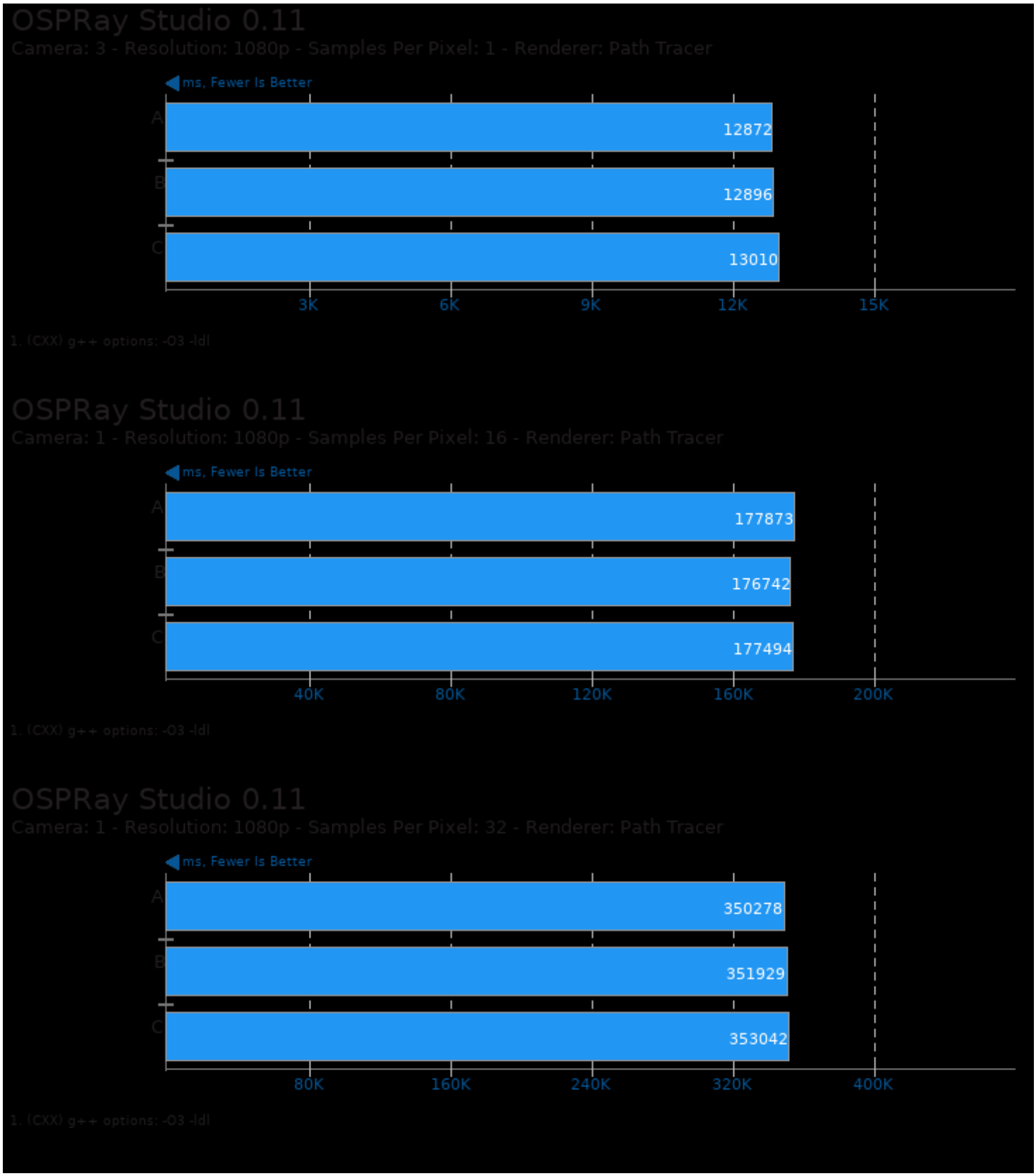
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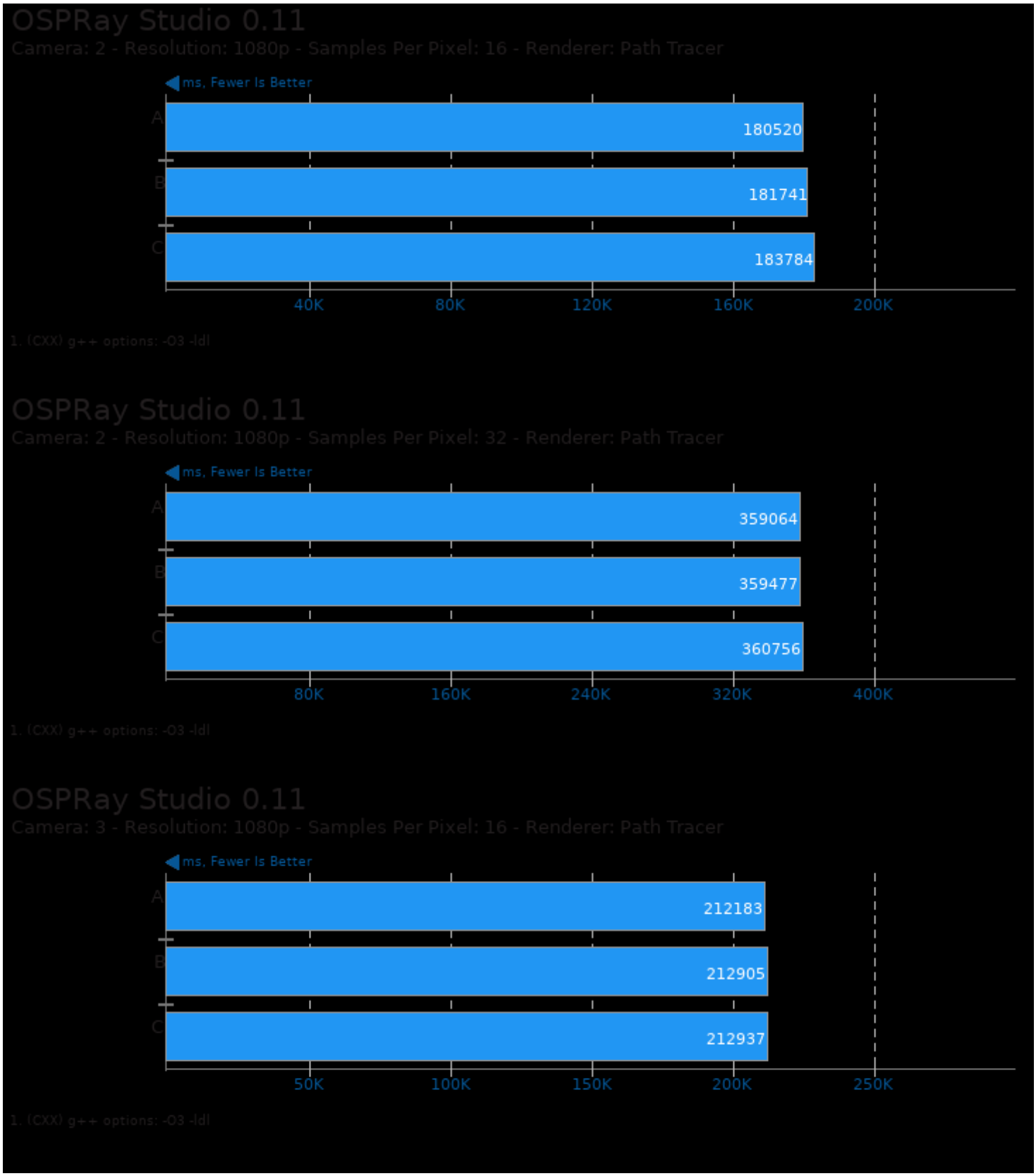


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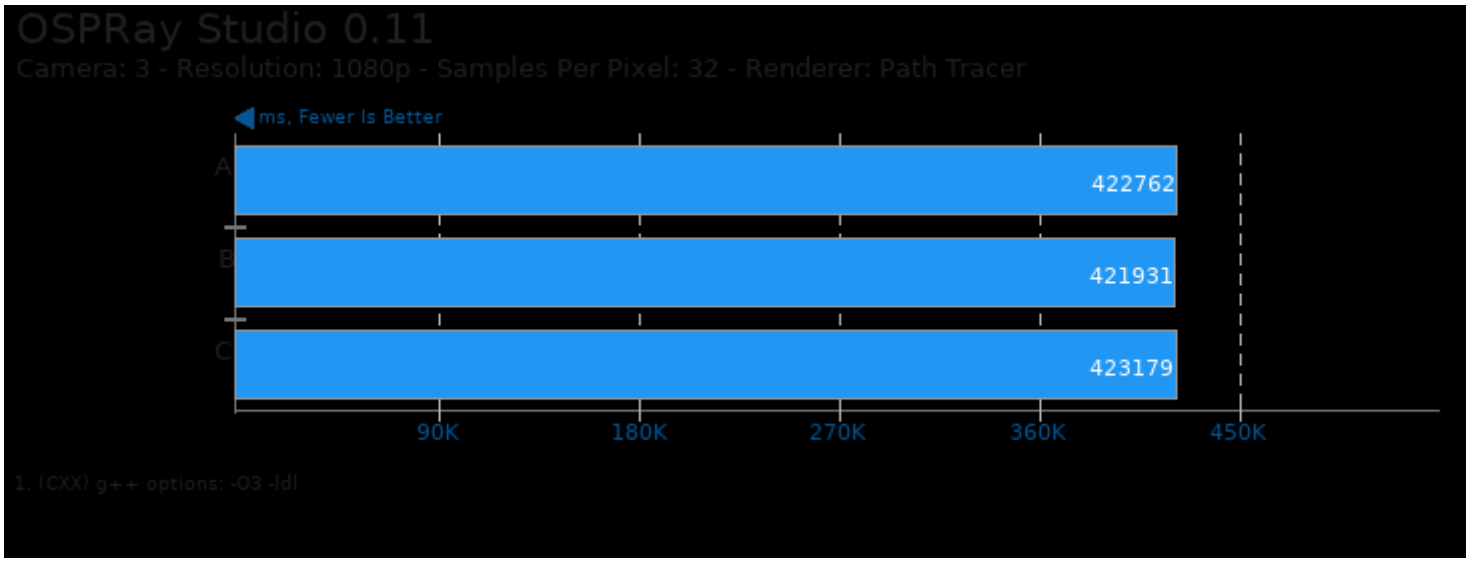


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OSPRay Studio 0.11
Camera: 2 - Resolution: 1080p - Samples Per Pixel: 16 - Renderer: Path Tracer
ms, Fewer Is Better
A
180520
B
181741
C
183784
40K
80K
120K
160K
200K
1. (CXX) g++ options: -O3 -ldl
OSPRay Studio 0.11
Camera: 2 - Resolution: 1080p - Samples Per Pixel: 32 - Renderer: Path Tracer
ms, Fewer Is Better
A
359064
B
359477
C
360756
80K
160K
240K
320K
400K
1. (CXX) g++ options: -O3 -ldl
OSPRay Studio 0.11
Camera: 3 - Resolution: 1080p - Samples Per Pixel: 16 - Renderer: Path Tracer
ms, Fewer Is Better
A
212183
B
212905
C
212937
50K
100K
150K
200K
250K
1. (CXX) g++ options: -O3 -ldl

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