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AMD Ryzen 9 5900X 12-Core testing with a Gigabyte X570 AORUS ELITE (F33 BIOS) and AMD Radeon RX 6800 16GB on Ubuntu 20.04 via the Phoronix Test Suite.

Automated Executive Summary

AMDGPU-Open had the most wins, coming in first place for 50% of the tests.

Based on the geometric mean of all complete results, the fastest (AMDGPU-Open) was 1.013x the speed of the slowest (AMDGPU-Pro vs Open Gravitymark).

Test Systems:

AMDGPU-Pro vs Open Gravitymark

Processor: AMD Ryzen 9 5900X 12-Core @ 3.70GHz (12 Cores / 24 Threads), Motherboard: Gigabyte X570 AORUS ELITE (F33 BIOS), Chipset: AMD Starship/Matisse, Memory: 32GB, Disk: 1000GB Samsung SSD 980 PRO 1TB + 256GB SAMSUNG MZVLB256HAHQ-000L7 + 1000GB Samsung SSD 860 + 2000GB Samsung SSD 860 + 3001GB

Western Digital WD3003FZEX-0, Graphics: AMD Radeon RX 6800 16GB (2475/1000MHz), Audio: AMD Device ab28, Monitor: LG QHD + ASUS VX239, Network: Intel I211

OS: Ubuntu 20.04, Kernel: 5.8.0-55-generic (x86_64), Desktop: GNOME Shell 3.36.9, Display Server: X Server 1.20.9, Display Driver: modesetting 1.20.9, OpenGL: 4.6.14735, Vulkan: 1.2.131, Compiler: GCC 9.3.0, File-System: btrfs, Screen Resolution: 2560x1440

Kernel Notes: amdgpu.ppfeaturemask=0xffffffff
Processor Notes: Scaling Governor: acpi-cpufreq ondemand (Boost: Enabled) - CPU Microcode: 0xa201009
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 IBRS_FW STIBP: always-on RSB filling + srbds: Not affected + tsx_async_abort: Not affected

AMDGPU-Open

Processor: AMD Ryzen 9 5900X 12-Core @ 3.70GHz (12 Cores / 24 Threads), Motherboard: Gigabyte X570 AORUS ELITE (F33 BIOS), Chipset: AMD Starship/Matisse, Memory: 32GB, Disk: 1000GB Samsung SSD 980 PRO 1TB + 256GB SAMSUNG MZVLB256HAHQ-000L7 + 1000GB Samsung SSD 860 + 2000GB Samsung SSD 860 + 3001GB Western Digital WD3003FZEX-0, Graphics: AMD Radeon RX 6800 16GB (2475/1000MHz), Audio: AMD Device ab28, Monitor: LG QHD + ASUS VX239, Network: Intel I211

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	AMDGPU-Pro vs Open Gravitymark	AMDGPU-Open
GravityMark - 800 x 600 - OpenGL (FPS)	**180.7**	**224.1**
Normalized	80.63%	100%
Standard Deviation	0.2%	0.2%
GravityMark - 1280 x 1024 - OpenGL (FPS)	**167.0**	**203.1**
Normalized	82.23%	100%
Standard Deviation	0.1%	0%
GravityMark - 1920 x 1080 - OpenGL (FPS)	**150.1**	**176.4**
Normalized	85.09%	100%
Standard Deviation	0.2%	0.1%
GravityMark - 1024 x 768 - OpenGL (FPS)	**174.2**	**215.5**
Normalized	80.84%	100%
Standard Deviation	0.3%	0.4%
GravityMark - 800 x 600 - Vulkan (FPS)	**274.3**	**234.7**
Normalized	100%	85.56%
Standard Deviation	0.3%	0.2%
GravityMark - 1920 x 1080 - Vulkan (FPS)	**214.3**	**182.1**
Normalized	100%	84.97%
Standard Deviation	0.1%	0.2%

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GravityMark - 1280 x 1024 - Vulkan (FPS)	**246.7**	**214.3**
Normalized	100%	86.87%
Standard Deviation	0%	0.5%
GravityMark - 1024 x 768 - Vulkan (FPS)	**260.9**	**225.4**
Normalized	100%	86.39%
Standard Deviation	0.1%	0.1%
GravityMark - 1920 x 1200 - OpenGL (FPS)	**149.6**	**174.6**
Normalized	85.68%	100%
Standard Deviation	0.1%	0.9%
GravityMark - 1600 x 1200 - Vulkan (FPS)	**228.7**	**196.4**
Normalized	100%	85.88%
Standard Deviation	0.1%	0.3%
GravityMark - 2560 x 1440 - OpenGL (FPS)	**133.2**	**153.1**
Normalized	87%	100%
Standard Deviation	0%	0.2%
GravityMark - 1920 x 1200 - Vulkan (FPS)	**214.5**	**181.9**
Normalized	100%	84.8%
Standard Deviation	0%	0.2%
GravityMark - 2560 x 1440 - Vulkan (FPS)	**188.1**	**159.1**
Normalized	100%	84.58%
Standard Deviation	0.1%	0.1%
GravityMark - 1600 x 1200 - OpenGL (FPS)	**154.7**	**187.7**
Normalized	82.42%	100%
Standard Deviation	0%	0.8%

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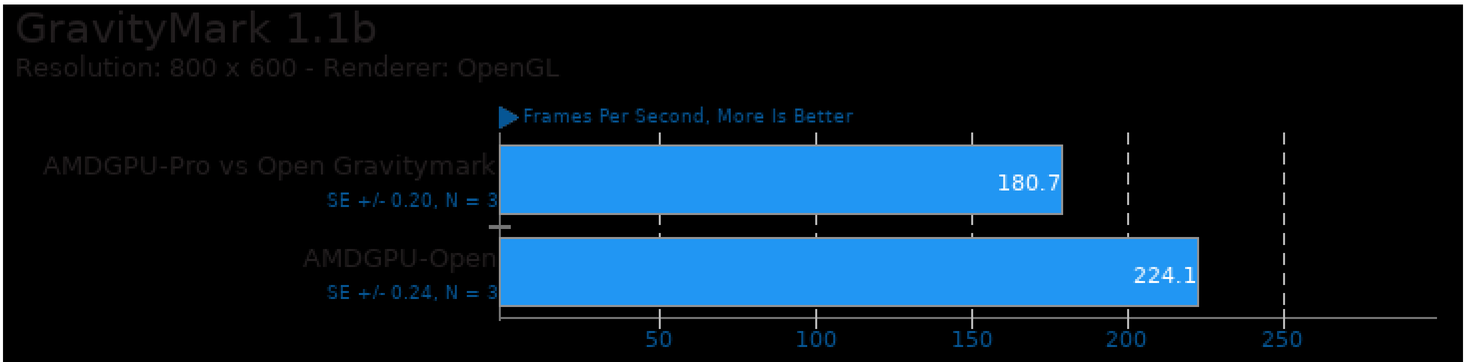

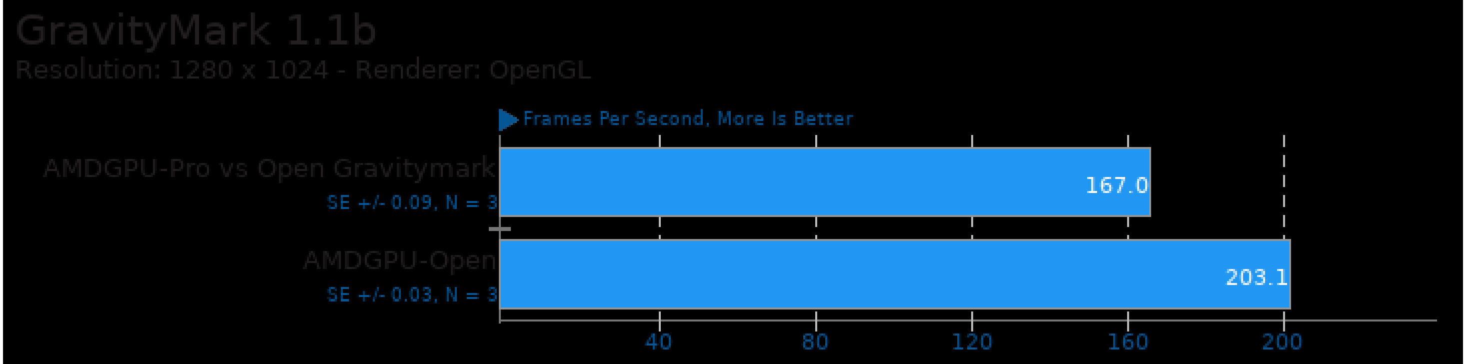

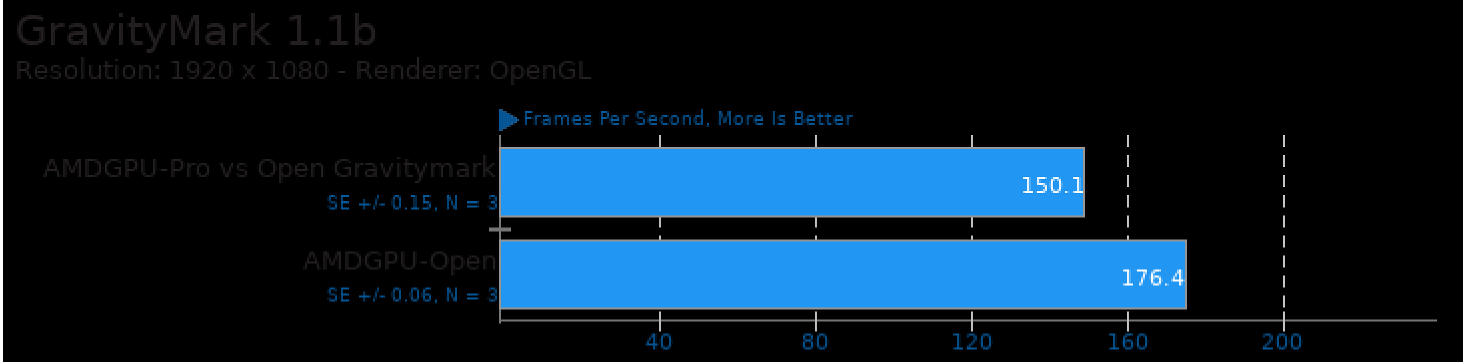

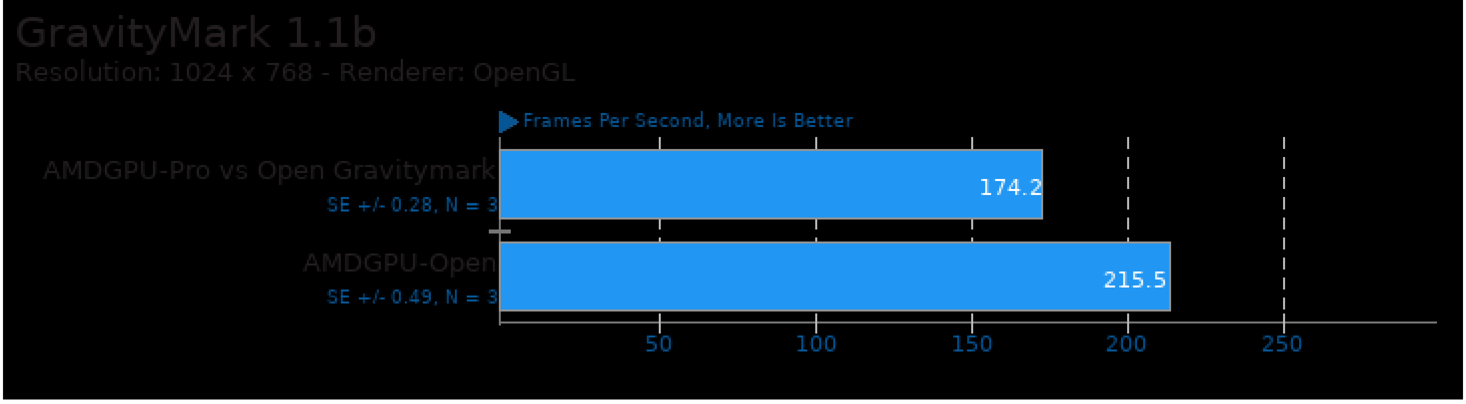

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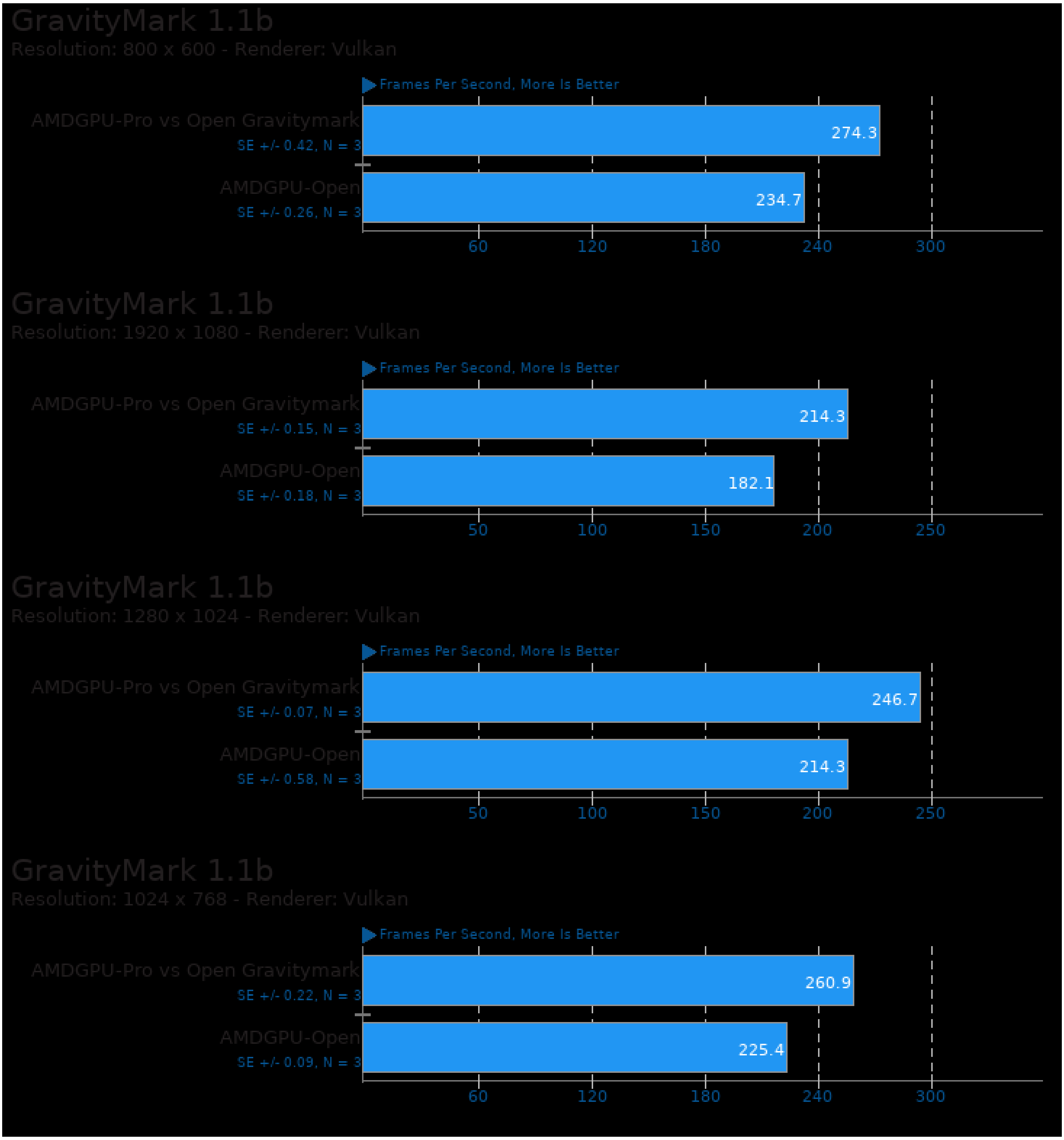

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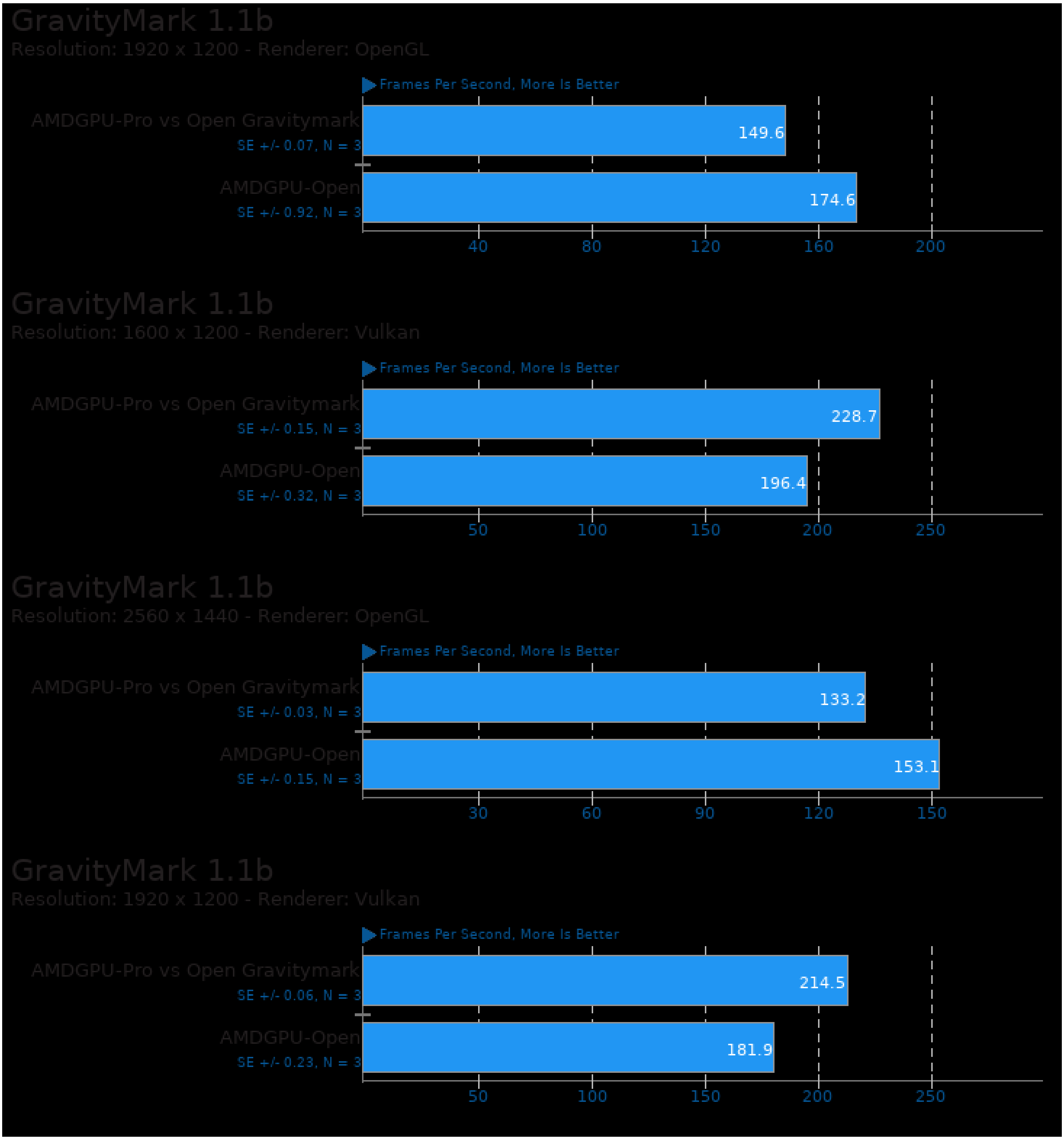

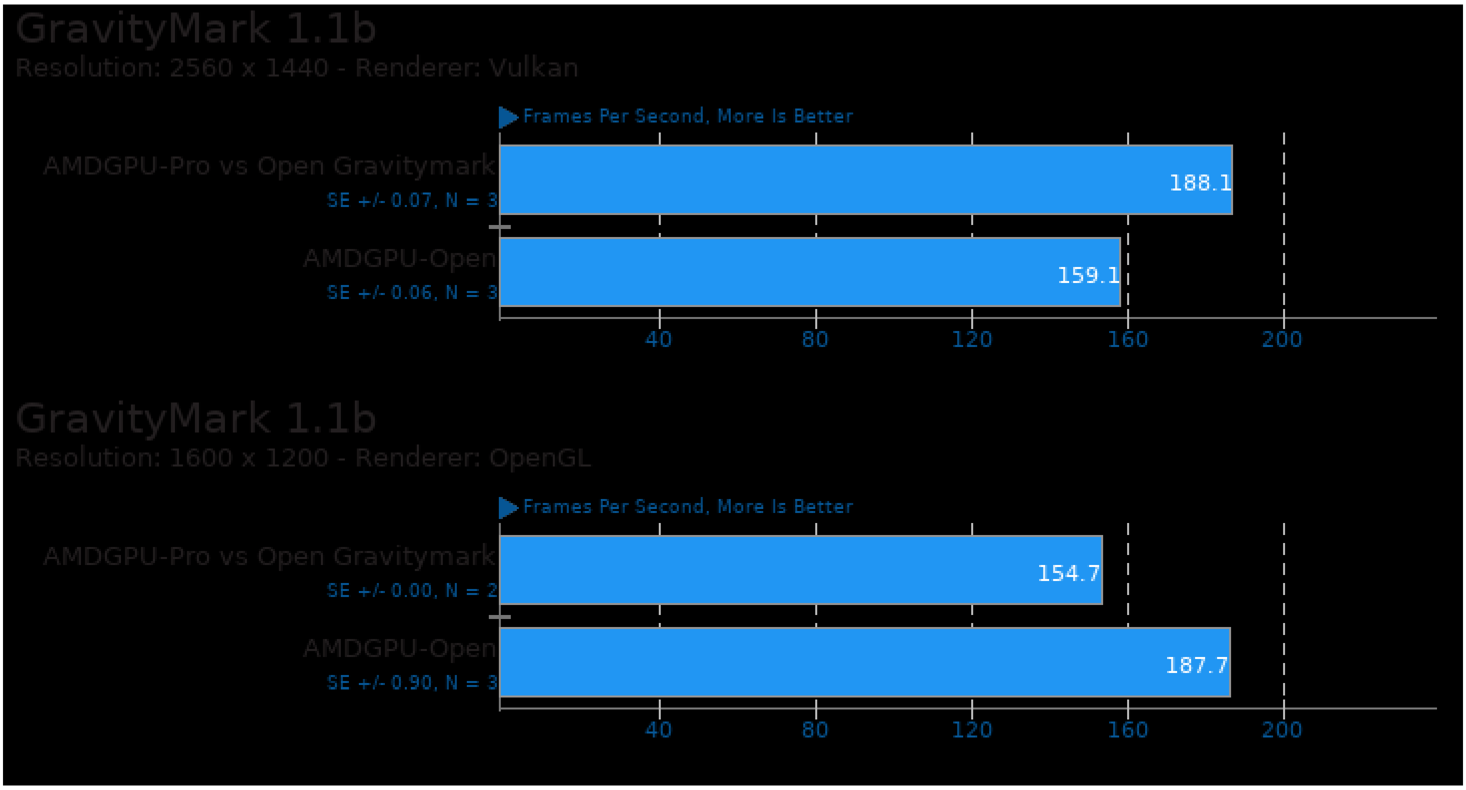

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