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AMDGPU DC 4.15 + Mesa 17.3-dev vs. NVIDIA GeForce Linux OpenGL Vulkan

Tests for a future article on Phoronix.

Automated Executive Summary

GeForce GTX 1080 Ti had the most wins, coming in first place for 86% of the tests.

Based on the geometric mean of all complete results, the fastest (GeForce GTX 1080 Ti) was 3.805x the speed of the slowest (GeForce GTX 1050).

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

Deus Ex: Mankind Divided (Preset: 3840 x 2160 - Low Quality) at 23.664x
Dawn of War III (Resolution: 3840 x 2160 - Graphics Preset: High - Renderer: OpenGL) at 19.599x
Deus Ex: Mankind Divided (Preset: 2560 x 1440 - High Quality) at 13.391x
Dawn of War III (Resolution: 3840 x 2160 - Graphics Preset: Low - Renderer: OpenGL) at 10.632x
Unigine Superposition (Resolution: 1920 x 1080 - Mode: Fullscreen - Quality: Extreme) at 9.919x
Dawn of War III (Resolution: 3840 x 2160 - Graphics Preset: High - Renderer: Vulkan) at 7.779x
Mad Max (Resolution: 3840 x 2160 - Graphics Preset: Default - Renderer: Vulkan - Scene: Camp Hollow Point) at 6.162x
Mad Max (Resolution: 3840 x 2160 - Graphics Preset: Default - Renderer: Vulkan - Scene: Hope, Glory, and Dog is Dead) at 5.881x

Mad Max (Resolution: 3840 x 2160 - Graphics Preset: Default - Renderer: Vulkan - Scene: Landmover) at 5.615x
Dawn of War III (Resolution: 3840 x 2160 - Graphics Preset: Low - Renderer: Vulkan) at 5.512x.

Test Systems:

Radeon R9 Fury

Processor: Intel Core i9-7980XE @ 4.40GHz (36 Cores), Motherboard: ASUS PRIME X299-A, Chipset: Intel Device 2020, Memory: 16384MB, Disk: 525GB Crucial_CT525MX3 + 240GB Force MP500, Graphics: Sapphire AMD Radeon 4096MB, Audio: Realtek ALC1220, Monitor: Acer B286HK, Network: Intel Connection

OS: Ubuntu 17.04, Kernel: 4.13.0-rc5-phx-drm-next-4.15-dc (x86_64) 20170928, Desktop: Unity 7.5.0, Display Server: X Server 1.19.3, Display Driver: modesetting 1.19.3, OpenGL: 4.5 Mesa 17.3.0-devel- padoka PPA (LLVM 6.0.0), Vulkan: 1.0.42, Compiler: GCC 6.3.0 20170406, File-System: ext4, Screen Resolution: 3840x2160

Processor Notes: Scaling Governor: intel_pstate powersave
Graphics Notes: GLAMOR

Radeon RX Vega 56

Processor: Intel Core i9-7980XE @ 4.40GHz (36 Cores), Motherboard: ASUS PRIME X299-A, Chipset: Intel Sky Lake-E DMI3 Registers, Memory: 16384MB, Disk: 525GB Crucial_CT525MX3 + 240GB Force MP500, Graphics: AMD Radeon RX Vega 8192MB, Audio: Realtek ALC1220, Monitor: Acer B286HK, Network: Intel Connection

OS: Ubuntu 17.04, Kernel: 4.13.0-rc5-phx-drm-next-4.15-dc (x86_64) 20170928, Desktop: Unity 7.5.0, Display Server: X Server 1.19.3, Display Driver: amdgpu 1.3.99, OpenGL: 4.5 Mesa 17.3.0-devel- padoka PPA (LLVM 6.0.0), Vulkan: 1.0.42, Compiler: GCC 6.3.0 20170406, File-System: ext4, Screen Resolution: 3840x2160

Processor Notes: Scaling Governor: intel_pstate powersave
Graphics Notes: GLAMOR

Radeon RX 580

Processor: Intel Core i9-7980XE @ 4.40GHz (36 Cores), Motherboard: ASUS PRIME X299-A, Chipset: Intel Sky Lake-E DMI3 Registers, Memory: 16384MB, Disk: 525GB Crucial_CT525MX3 + 240GB Force MP500, Graphics: MSI AMD Radeon RX 580 8192MB, Audio: Realtek ALC1220, Monitor: Acer B286HK, Network: Intel Connection

OS: Ubuntu 17.04, Kernel: 4.13.0-rc5-phx-drm-next-4.15-dc (x86_64) 20170928, Desktop: Unity 7.5.0, Display Server: X Server 1.19.3, Display Driver: modesetting 1.19.3, OpenGL: 4.5 Mesa 17.3.0-devel- padoka PPA (LLVM 6.0.0), Vulkan: 1.0.42, Compiler: GCC 6.3.0 20170406, File-System: ext4, Screen Resolution: 3840x2160

Processor Notes: Scaling Governor: intel_pstate powersave
Graphics Notes: GLAMOR

Radeon RX Vega 64

Processor: Intel Core i9-7980XE @ 4.40GHz (36 Cores), Motherboard: ASUS PRIME X299-A, Chipset: Intel Sky Lake-E DMI3 Registers, Memory: 16384MB, Disk: 525GB Crucial_CT525MX3 + 240GB Force MP500, Graphics: AMD Radeon

RX Vega 8192MB, Audio: Realtek ALC1220, Monitor: Acer B286HK, Network: Intel Connection

OS: Ubuntu 17.04, Kernel: 4.13.0-rc5-phx-drm-next-4.15-dc (x86_64) 20170928, Desktop: Unity 7.5.0, Display Server: X Server 1.19.3, Display Driver: amdgpu 1.3.99, OpenGL: 4.5 Mesa 17.3.0-devel- padoka PPA (LLVM 6.0.0), Vulkan: 1.0.42, Compiler: GCC 6.3.0 20170406, File-System: ext4, Screen Resolution: 3840x2160

Processor Notes: Scaling Governor: intel_pstate powersave
Graphics Notes: GLAMOR

GeForce GTX 1070

Processor: Intel Core i9-7980XE @ 4.40GHz (36 Cores), Motherboard: ASUS PRIME X299-A, Chipset: Intel Sky Lake-E DMI3 Registers, Memory: 16384MB, Disk: 525GB Crucial_CT525MX3 + 240GB Force MP500, Graphics: NVIDIA GeForce GTX 1070 8192MB (1506/4006MHz), Audio: Realtek Generic, Monitor: Acer B286HK, Network: Intel Connection

OS: Ubuntu 17.04, Kernel: 4.10.0-35-generic (x86_64), Desktop: Unity 7.5.0, Display Server: X Server 1.19.3, Display Driver: NVIDIA 384.90, OpenGL: 4.5.0, Vulkan: 1.0.42, Compiler: GCC 6.3.0 20170406, File-System: ext4, Screen Resolution: 3840x2160

Processor Notes: Scaling Governor: intel_pstate powersave

GeForce GTX 1080 Ti

Processor: Intel Core i9-7980XE @ 4.40GHz (36 Cores), Motherboard: ASUS PRIME X299-A, Chipset: Intel Sky Lake-E DMI3 Registers, Memory: 16384MB, Disk: 525GB Crucial_CT525MX3 + 240GB Force MP500, Graphics: NVIDIA GeForce GTX 1080 Ti 11264MB (1480/5508MHz), Audio: Realtek Generic, Monitor: Acer B286HK, Network: Intel Connection

OS: Ubuntu 17.04, Kernel: 4.10.0-35-generic (x86_64), Desktop: Unity 7.5.0, Display Server: X Server 1.19.3, Display Driver: NVIDIA 384.90, OpenGL: 4.5.0, Vulkan: 1.0.42, Compiler: GCC 6.3.0 20170406, File-System: ext4, Screen Resolution: 3840x2160

Processor Notes: Scaling Governor: intel_pstate powersave

GeForce GTX 1060

Processor: Intel Core i9-7980XE @ 4.40GHz (36 Cores), Motherboard: ASUS PRIME X299-A, Chipset: Intel Sky Lake-E DMI3 Registers, Memory: 16384MB, Disk: 525GB Crucial_CT525MX3 + 240GB Force MP500, Graphics: NVIDIA GeForce GTX 1060 6GB 6144MB (1506/4006MHz), Audio: Realtek Generic, Monitor: Acer B286HK, Network: Intel Connection

OS: Ubuntu 17.04, Kernel: 4.10.0-35-generic (x86_64), Desktop: Unity 7.5.0, Display Server: X Server 1.19.3, Display Driver: NVIDIA 384.90, OpenGL: 4.5.0, Vulkan: 1.0.42, Compiler: GCC 6.3.0 20170406, File-System: ext4, Screen Resolution: 3840x2160

Processor Notes: Scaling Governor: intel_pstate powersave

GeForce GTX 1080

Processor: Intel Core i9-7980XE @ 4.40GHz (36 Cores), Motherboard: ASUS PRIME X299-A, Chipset: Intel Sky Lake-E DMI3 Registers, Memory: 16384MB, Disk: 525GB Crucial_CT525MX3 + 240GB Force MP500, Graphics: NVIDIA

GeForce GTX 1080 8192MB (1607/5005MHz), Audio: Realtek Generic, Monitor: Acer B286HK, Network: Intel Connection

OS: Ubuntu 17.04, Kernel: 4.10.0-35-generic (x86_64), Desktop: Unity 7.5.0, Display Server: X Server 1.19.3, Display Driver: NVIDIA 384.90, OpenGL: 4.5.0, Vulkan: 1.0.42, Compiler: GCC 6.3.0 20170406, File-System: ext4, Screen Resolution: 3840x2160

Processor Notes: Scaling Governor: intel_pstate powersave

GeForce GTX 1050

Processor: Intel Core i9-7980XE @ 4.40GHz (36 Cores), Motherboard: ASUS PRIME X299-A, Chipset: Intel Sky Lake-E DMI3 Registers, Memory: 16384MB, Disk: 525GB Crucial_CT525MX3 + 240GB Force MP500, Graphics: Zotac NVIDIA GeForce GTX 1050 2048MB (1354/3504MHz), Audio: Realtek Generic, Monitor: Acer B286HK, Network: Intel Connection

OS: Ubuntu 17.04, Kernel: 4.10.0-35-generic (x86_64), Desktop: Unity 7.5.0, Display Server: X Server 1.19.3, Display Driver: NVIDIA 384.90, OpenGL: 4.5.0, Vulkan: 1.0.42, Compiler: GCC 6.3.0 20170406, File-System: ext4, Screen Resolution: 3840x2160

Processor Notes: Scaling Governor: intel_pstate powersave

GeForce GTX 980 Ti

Processor: Intel Core i9-7980XE @ 4.40GHz (36 Cores), Motherboard: ASUS PRIME X299-A, Chipset: Intel Sky Lake-E DMI3 Registers, Memory: 16384MB, Disk: 525GB Crucial_CT525MX3 + 240GB Force MP500, Graphics: NVIDIA GeForce GTX 980 Ti 6144MB (999/3505MHz), Audio: Realtek Generic, Monitor: Acer B286HK, Network: Intel Connection

OS: Ubuntu 17.04, Kernel: 4.10.0-35-generic (x86_64), Desktop: Unity 7.5.0, Display Server: X Server 1.19.3, Display Driver: NVIDIA 384.90, OpenGL: 4.5.0, Vulkan: 1.0.42, Compiler: GCC 6.3.0 20170406, File-System: ext4, Screen Resolution: 3840x2160

Processor Notes: Scaling Governor: intel_pstate powersave

GeForce GTX 980

Processor: Intel Core i9-7980XE @ 4.40GHz (36 Cores), Motherboard: ASUS PRIME X299-A, Chipset: Intel Sky Lake-E DMI3 Registers, Memory: 16384MB, Disk: 525GB Crucial_CT525MX3 + 240GB Force MP500, Graphics: NVIDIA GeForce GTX 980 4096MB (1126/3505MHz), Audio: Realtek Generic, Monitor: Acer B286HK, Network: Intel Connection

OS: Ubuntu 17.04, Kernel: 4.10.0-35-generic (x86_64), Desktop: Unity 7.5.0, Display Server: X Server 1.19.3, Display Driver: NVIDIA 384.90, OpenGL: 4.5.0, Vulkan: 1.0.42, Compiler: GCC 6.3.0 20170406, File-System: ext4, Screen Resolution: 3840x2160

Processor Notes: Scaling Governor: intel_pstate powersave

GeForce GTX 970

Processor: Intel Core i9-7980XE @ 4.40GHz (36 Cores), Motherboard: ASUS PRIME X299-A, Chipset: Intel Sky Lake-E DMI3 Registers, Memory: 16384MB, Disk: 525GB Crucial_CT525MX3 + 240GB Force MP500, Graphics: eVGA NVIDIA GeForce GTX 970 4096MB (1163/3505MHz), Audio: Realtek Generic, Monitor: Acer B286HK, Network: Intel Connection

OS: Ubuntu 17.04, Kernel: 4.10.0-35-generic (x86_64), Desktop: Unity 7.5.0, Display Server: X Server 1.19.3, Display Driver: NVIDIA 384.90, OpenGL: 4.5.0, Vulkan: 1.0.42, Compiler: GCC 6.3.0 20170406, File-System: ext4, Screen Resolution: 3840x2160

Processor Notes: Scaling Governor: intel_pstate powersave

Radeon RX 560

Processor: Intel Core i9-7980XE @ 4.40GHz (36 Cores), Motherboard: ASUS PRIME X299-A, Chipset: Intel Sky Lake-E DMI3 Registers, Memory: 16384MB, Disk: 525GB Crucial_CT525MX3 + 240GB Force MP500, Graphics: AMD Baffin [Polaris11] 4096MB, Audio: Realtek ALC1220, Monitor: Acer B286HK, Network: Intel Connection

OS: Ubuntu 17.04, Kernel: 4.13.0-rc5-phx-drm-next-4.15-dc (x86_64) 20170928, Desktop: Unity 7.5.0, Display Server: X Server 1.19.3, Display Driver: amdgpu 1.3.99, OpenGL: 4.5 Mesa 17.3.0-devel- padoka PPA (LLVM 6.0.0), Vulkan: 1.0.42, Compiler: GCC 6.3.0 20170406, File-System: ext4, Screen Resolution: 3840x2160

Processor Notes: Scaling Governor: intel_pstate powersave
Graphics Notes: GLAMOR

Radeon R9 285

Processor: Intel Core i9-7980XE @ 4.40GHz (36 Cores), Motherboard: ASUS PRIME X299-A, Chipset: Intel Sky Lake-E DMI3 Registers, Memory: 16384MB, Disk: 525GB Crucial_CT525MX3 + 240GB Force MP500, Graphics: XFX AMD Radeon R9 200 2048MB, Audio: Realtek ALC1220, Monitor: Acer B286HK, Network: Intel Connection

OS: Ubuntu 17.04, Kernel: 4.13.0-rc5-phx-drm-next-4.15-dc (x86_64) 20170928, Desktop: Unity 7.5.0, Display Server: X Server 1.19.3, Display Driver: modesetting 1.19.3, OpenGL: 4.5 Mesa 17.3.0-devel- padoka PPA (LLVM 6.0.0), Vulkan: 1.0.42, Compiler: GCC 6.3.0 20170406, File-System: ext4, Screen Resolution: 3840x2160

Processor Notes: Scaling Governor: intel_pstate powersave
Graphics Notes: GLAMOR

	Radeon R9 Fury	Radeon RX Vega 56	Radeon RX 580	Radeon RX Vega 64	GeForce GTX 1070	GeForce GTX 1080 Ti	GeForce GTX 1060	GeForce GTX 1080	GeForce GTX 1050	GeForce GTX 980 Ti	GeForce GTX 980	GeForce GTX 970	Radeon RX 560	Radeon R9 285
Unigine Superposition - 1920 x 1080 - Fullscreen - Extreme (FPS)	65.10	92.60	58.70	105.30	98.30	**133.90**	71.60	117.80	22.90	85.30	70.20	35.70	28.50	**13.50**
Normalized	48.62%	69.16%	43.84%	78.64%	73.41%	100%	53.47%	87.98%	17.1%	63.7%	52.43%	26.66%	21.28%	10.08%

Dawn of War III - 3840 x 2160 - High - Vulkan (FPS)	23.70				36.73	**54.84**	26.66	45.60					8.73	**7.05**
Normalized	43.22%				66.98%	100%	48.61%	83.15%					15.92%	12.86%
Standard Deviation	0.6%				1.8%	1.2%	0.7%	1.6%					0.3%	12.3%
Mad Max - 3840 x 2160 - Default - Vulkan - Camp Hollow Point (FPS)	84.01	112.06	59.81	120.45	101.69	**179.69**	75.37	131.36	**29.16**	101.16	77.47	67.70	76.55	76.55
Normalized	46.75%	62.36%	33.29%	67.03%	56.59%	100%	41.94%	73.1%	16.23%	56.3%	43.11%	37.68%	42.6%	42.6%
Mad Max - 3840 x 2160 - Default - Vulkan - H.G.a.D.i.D (FPS)	71.45	91.12	52.12	101.49	93.44	**155.90**	69.69	117.17	**26.51**	88.55	71.92	62.73	70.01	70.01
Normalized	45.83%	58.45%	33.43%	65.1%	59.94%	100%	44.7%	75.16%	17%	56.8%	46.13%	40.24%	44.91%	44.91%
Mad Max - 3840 x 2160 - Default - Vulkan - Landmover (FPS)	85.16	101.68	62.53	111.59	112.27	**181.31**	83.73	139.69	**32.29**	106.57	85.19	75.84	84.17	84.17
Normalized	46.97%	56.08%	34.49%	61.55%	61.92%	100%	46.18%	77.04%	17.81%	58.78%	46.99%	41.83%	46.42%	46.42%
Dawn of War III - 3840 x 2160 - Low - Vulkan (FPS)	30.40		23.60		45.52	**60.74**	32.99	53.12					**11.02**	12.25
Normalized	50.05%		38.85%		74.94%	100%	54.31%	87.45%					18.14%	20.17%
Standard Deviation	3.1%		0.2%		4.8%	5.7%	4.1%	4.3%					0.8%	0.4%
GpuTest - Furmark - 1920 x 1080 - Fullscreen (Points)	3478	3326	2240	3626	2740	**4756**	2035	3454	982	2663	2033	1766	**969**	1555
Normalized	73.13%	69.93%	47.1%	76.24%	57.61%	100%	42.79%	72.62%	20.65%	55.99%	42.75%	37.13%	20.37%	32.7%
Standard Deviation	0.3%	0.3%	1.2%	3.4%	0.2%	1.3%	1.4%	0.1%	0.4%	1.3%	0.3%	0.1%	1.2%	0.1%
Counter-Strike: Global Offensive - 3840 x 2160 (FPS)	149.56	156.51	101.91	169.00	181.06	**252.44**	132.21	241.81	65.60	163.82	133.72	119.47	**57.06**	88.77
Normalized	59.25%	62%	40.37%	66.95%	71.72%	100%	52.37%	95.79%	25.99%	64.89%	52.97%	47.33%	22.6%	35.16%
Standard Deviation	0.1%	2.6%	3.1%	2.8%	3.9%	5.7%	2.8%	4.4%	0.1%	3.4%	0.2%	0.2%	0.1%	5.2%

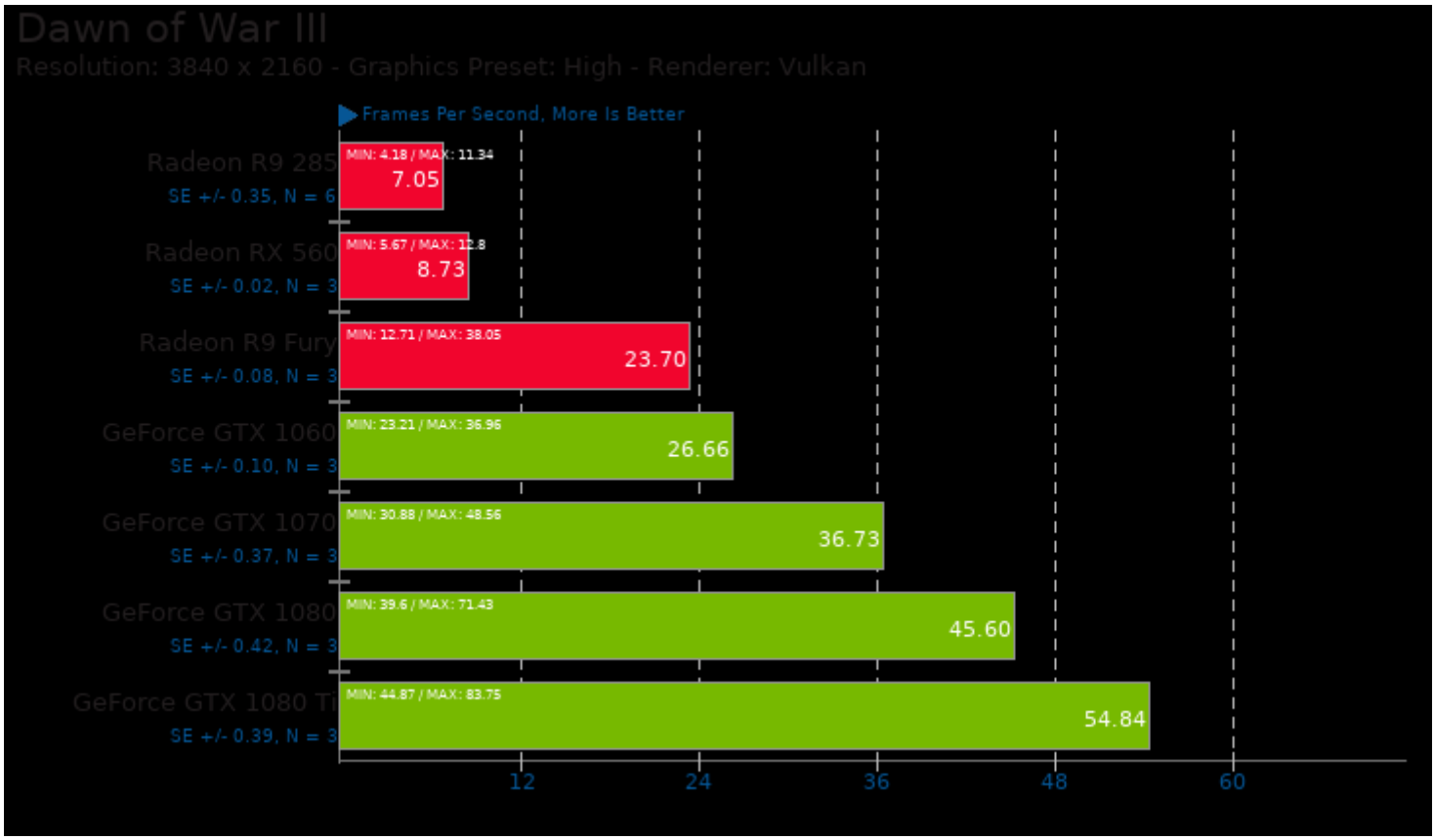
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GpuTest - Triangle - 1920 x 1080 - Fullscreen (Points)	273562	365057	241885	**394779**	171536	280012	138792	213723	**89337**	207031	163517	141358	114039	114476
Normalized	69.29%	92.47%	61.27%	100%	43.45%	70.93%	35.16%	54.14%	22.63%	52.44%	41.42%	35.81%	28.89%	29%
Standard	0.4%	0.1%	0%	1.3%	0.1%	0%	0.1%	0.3%	0.1%	0.1%	0.1%	0.1%	0%	0%
Mad Max - 3840 x 2160 - Default - OpenGL - H.G.a.D.i.D (FPS)	89.70	92.90	63.09	104.55	83.67	**138.86**	61.60	103.49	**33.08**	79.17	63.76	56.88	70.01	70.01
Normalized	64.6%	66.9%	45.43%	75.29%	60.25%	100%	44.36%	74.53%	23.82%	57.01%	45.92%	40.96%	50.42%	50.42%
Portal - 3840 x 2160 (FPS)	395.25	436.90	300.28	512.28	350.20	**573.44**	258.53	444.35	**140.00**	337.37	270.84	240.27	142.48	198.16
Normalized	68.93%	76.19%	52.36%	89.33%	61.07%	100%	45.08%	77.49%	24.41%	58.83%	47.23%	41.9%	24.85%	34.56%
Standard	0.2%	0%	0.2%	0.2%	0.2%	0.4%	0.1%	0.2%	0.1%	0.3%	0.2%	0.2%	0.4%	0.2%
Mad Max - 3840 x 2160 - Default - OpenGL - Camp Hollow Point (FPS)	114.93	116.86	74.50	119.66	85.03	**149.83**	66.97	104.25	**38.81**	85.01	71.52	61.76	76.55	76.55
Normalized	76.71%	78%	49.72%	79.86%	56.75%	100%	44.7%	69.58%	25.9%	56.74%	47.73%	41.22%	51.09%	51.09%
Serious Sam 3: BFE - 3840 x 2160 - Ultra - Vulkan (FPS)	53.47	51.40	41.50	57.56	54.40	**85.10**	40.23	64.83		49.90	40.22	33.03	**22.40**	29.03
Normalized	62.83%	60.4%	48.77%	67.64%	63.92%	100%	47.27%	76.18%		58.64%	47.26%	38.81%	26.32%	34.11%
Standard	1.9%	2.6%	1.5%	3.2%	2.4%	1.8%	1.9%	0.6%		3%	3.3%	2.2%	0.4%	2.5%
Mad Max - 3840 x 2160 - Default - OpenGL - Landmover (FPS)	109.90	113.70	77.16	124.60	99.16	**154.21**	74.42	118.63	**41.55**	93.74	76.05	68.81	84.17	84.17
Normalized	71.27%	73.73%	50.04%	80.8%	64.3%	100%	48.26%	76.93%	26.94%	60.79%	49.32%	44.62%	54.58%	54.58%
Unigine Superposition - 1920 x 1080 - Fullscreen - Low (FPS)	91.20	133.90	85.20	134.90	145.10	**153.30**	120.40	147.50	63.40	134.10	116.10	102	**43.20**	55.30
Normalized	59.49%	87.35%	55.58%	88%	94.65%	100%	78.54%	96.22%	41.36%	87.48%	75.73%	66.54%	28.18%	36.07%

Mad Max - 3840 x 2160 - Default - Vulkan - Stronghold (FPS)	80.26	79.70	63.67	82.04	92.93	94.86	80.27	95.62	**31.24**	**96.56**	81.97	72.10	81.94	81.94
Normalized	83.12%	82.54%	65.94%	84.96%	96.24%	98.24%	83.13%	99.03%	32.35%	100%	84.89%	74.67%	84.86%	84.86%
Xonotic - 3840 x 2160 - Ultimate (FPS)	191.02	198.55	163.26	202.75	168.93	**211.54**	130.93	193.87	**70.10**	164.92	140.62	127.02	97.42	132.92
Normalized	90.3%	93.86%	77.18%	95.84%	79.86%	100%	61.89%	91.65%	33.14%	77.96%	66.47%	60.05%	46.05%	62.83%
Standard	0.7%	0.9%	1.4%	0.1%	0.5%	0.2%	0.2%	0.2%	0.1%	0.4%	0.3%	0.3%	0.4%	7.1%
Deus Ex: Mankind Divided - 3840 x 2160 - Low Quality (FPS)	31.30	32.77	25.63	36.60	33.90	**54.90**	24.40	41.17	**2.32**	30.77	25.73	22.77	11.83	15.60
Normalized	57.01%	59.69%	46.68%	66.67%	61.75%	100%	44.44%	74.99%	4.23%	56.05%	46.87%	41.48%	21.55%	28.42%
Standard	0.3%	3.3%	0.6%	2.9%	0.3%	0%	0%	0.1%	31.5%	0.2%	0.2%	0.3%	0.5%	5.3%
Tesseract - 3840 x 2160 (FPS)	245.30	251.94	192.65	271.62	216.17	**281.31**	185.37	234.15	112.59	197.65	177.81	167.73	**104.20**	143.15
Normalized	87.2%	89.56%	68.48%	96.56%	76.84%	100%	65.9%	83.24%	40.02%	70.26%	63.21%	59.62%	37.04%	50.89%
Standard	1.7%	1%	5.4%	0.5%	0.7%	1.2%	0.6%	0.6%	0.7%	1%	1.3%	0.6%	0.9%	0.9%
Dota 2 - 3840 x 2160 - Vulkan (FPS)	52.27	51.17	48.90	51.97	67.63	**68.23**	55.33	68.10	40.40	67.63	63.97	60.23	**26.07**	35.97
Normalized	76.61%	75%	71.67%	76.17%	99.12%	100%	81.09%	99.81%	59.21%	99.12%	93.76%	88.27%	38.21%	52.72%
Standard	1.1%	1.3%	2.3%	2.1%	0.4%	2.2%	42%	2.4%	1.8%	1.3%	2.4%	3.1%	0.6%	1.6%
Dota 2 - 3840 x 2160 - OpenGL (FPS)	62.03	62.20	55.73	63.07	79.67	**81.13**	69.23	80.67	41.87	74.73	68.57	64.27	**31.63**	42.70
Normalized	76.46%	76.67%	68.69%	77.74%	98.2%	100%	85.33%	99.43%	51.61%	92.11%	84.52%	79.22%	38.99%	52.63%
Standard	0.5%	1%	1.5%	0.6%	0.6%	0.8%	0.5%	0.8%	0.3%	0.9%	1.5%	0.2%	1.2%	1.4%
Mad Max - 3840 x 2160 - Default - OpenGL - Stronghold (FPS)	66.84	62.48	66.80	73.53	90.41	**95.30**	67.85	92.53	**37.47**	81.56	67.85	62.21	81.94	81.94
Normalized	70.14%	65.56%	70.09%	77.16%	94.87%	100%	71.2%	97.09%	39.32%	85.58%	71.2%	65.28%	85.98%	85.98%
Deus Ex: Mankind Divided - 1920 x 1080 - Low Quality (FPS)	59.43	60.97	58.50	61.03	**73.90**	73.30	69.07	73.20	31.30	73.00	70.07	65.63	**30.13**	42.23
Normalized	80.42%	82.5%	79.16%	82.58%	100%	99.19%	93.46%	99.05%	42.35%	98.78%	94.82%	88.81%	40.77%	57.14%
Standard Deviation	1.5%	0.6%	1.1%	0.3%	0.8%	0.4%	0.5%	1.3%	43.4%	1.1%	0.2%	0.1%	0.8%	0.7%

Metro: Last Light Redux - 3840 x 2160 (FPS)	58.31	57.51	52.75		75.22	**86.76**	61.14	81.80	**38.12**	84.24	74.37	68.80	
Normalized	67.21%	66.29%	60.8%		86.7%	100%	70.47%	94.28%	43.94%	97.1%	85.72%	79.3%	
Standard Deviation	0.8%	0.9%	0.4%		0.4%	0.8%	0.9%	0.5%	0.3%	0.7%	0.6%	0.4%	
Dawn of War III - 3840 x 2160 - High - OpenGL (FPS)	32.44				34.48	**54.68**	24.92	42.45					11.79	**2.79**
Normalized	59.33%				63.06%	100%	45.57%	77.63%					21.56%	5.1%
Standard Deviation	2.2%				0.3%	0.9%	0.5%	0.5%					1.3%	31.7%
Deus Ex: Mankind Divided - 2560 x 1440 - High Quality (FPS)	38.07	41.87	32.13	45.73	45.50	**62.67**	33.53	54.07	**4.68**	41.60	35.33	31.70	15.17	21.53
Normalized	60.75%	66.81%	51.27%	72.97%	72.6%	100%	53.5%	86.28%	7.47%	66.38%	56.37%	50.58%	24.21%	34.35%
Standard Deviation	0.6%	1.3%	0.5%	0.7%	0%	0.4%	0.2%	0.1%	11.6%	0.4%	0.2%	0%	0.4%	1.2%
Dawn of War III - 3840 x 2160 - Low - OpenGL (FPS)	36.29	41.41	28.88	47.30	42.84	**68.79**	31.35	52.49					13.36	**6.47**
Normalized	52.75%	60.2%	41.98%	68.76%	62.28%	100%	45.57%	76.3%					19.42%	9.41%
Standard Deviation	1.2%	0.2%	2%	0.2%	3.3%	17%	3.5%	3.3%					1.9%	3%
ET: Legacy - Renderer2 - 3840 x 2160 (FPS)	218.50	223.37	213.42	227.07	265.12	268.70	236.67	**272.08**	170.20	269.57	249.30	232.43	**136.47**	181.93
Normalized	80.31%	82.1%	78.44%	83.46%	97.44%	98.76%	86.99%	100%	62.56%	99.08%	91.63%	85.43%	50.16%	66.87%
Standard Deviation	2.3%	0.4%	3.6%	2.6%	4.7%	5.4%	1.1%	4.7%	0.3%	0.9%	4.4%	0.5%	2%	1%
Serious Sam 3: BFE - 3840 x 2160 - Low - Vulkan (FPS)	129.27	143.65	114.55	155.93	171.62	**221.42**	129.38	189.02	70.22	151.17	120.80	103.13	**52.72**	73.55
Normalized	58.38%	64.88%	51.73%	70.42%	77.51%	100%	58.43%	85.37%	31.71%	68.27%	54.56%	46.58%	23.81%	33.22%
Standard Deviation	8.5%	5.6%	7.1%	4.3%	8.4%	4.4%	5%	4.8%	4.7%	6.2%	5.4%	6.1%	5.7%	6.9%

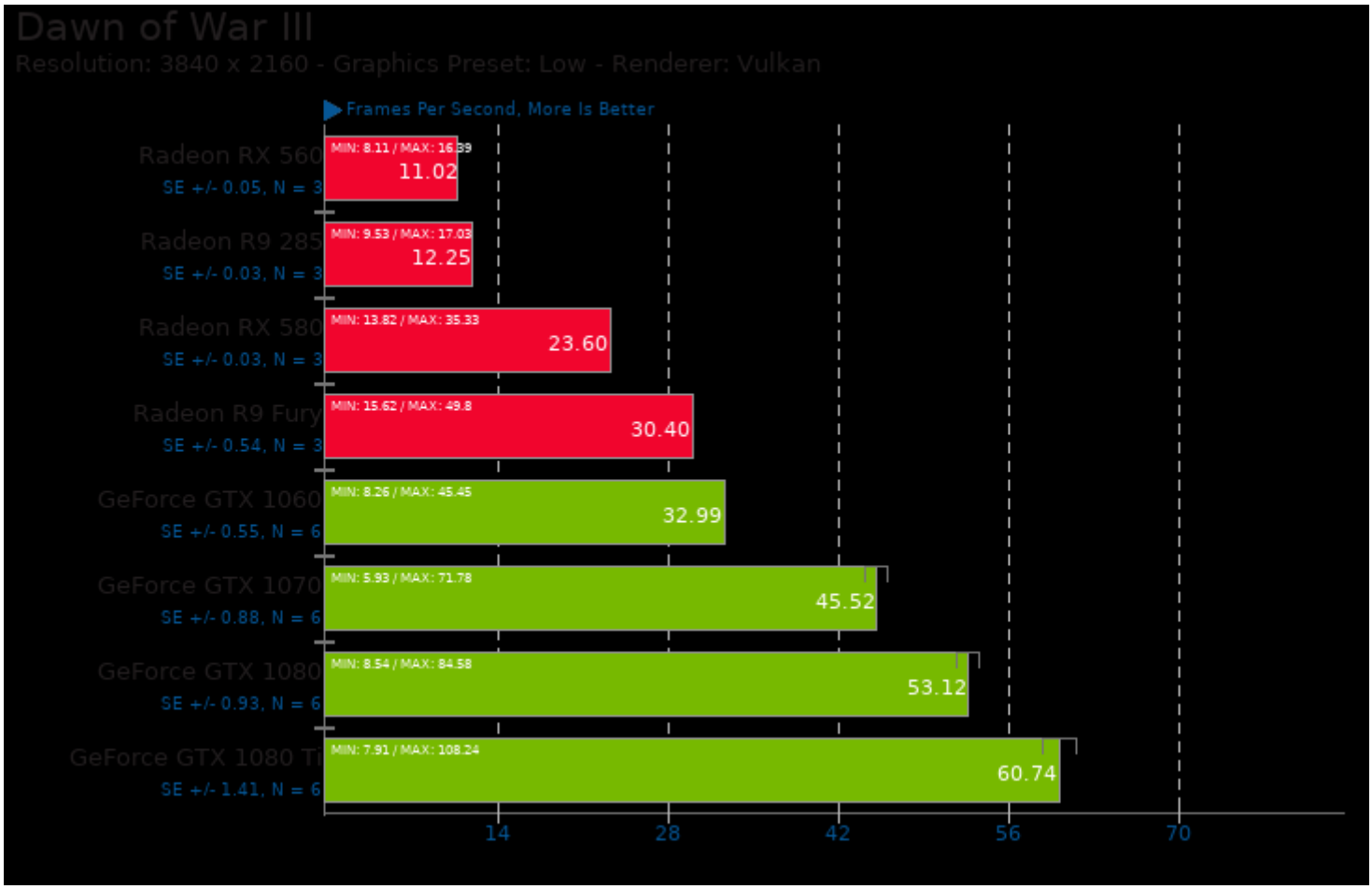

Unigine Superposition 1.0
Resolution: 1920 x 1080 - Mode: Fullscreen - Quality: Extreme
Frames Per Second, More Is Better
Radeon R9 285
MAX: 20.5
13.50
GeForce GTX 1050
MAX: 34.5
22.90
Radeon RX 560
MAX: 38.8
28.50
GeForce GTX 970
MAX: 45.5
35.70
Radeon RX 580
MAX: 83.2
58.70
Radeon R9 Fury
MAX: 93.2
65.10
GeForce GTX 980
MAX: 96.8
70.20
GeForce GTX 1060
MAX: 92.2
71.60
GeForce GTX 980 Ti
MAX: 111.7
85.30
Radeon RX Vega 56
MAX: 122.9
92.60
GeForce GTX 1070
MAX: 128
98.30
Radeon RX Vega 64
MAX: 145.7
105.30
GeForce GTX 1080
MAX: 159.7
117.80
GeForce GTX 1080 Ti
MAX: 183.1
133.90
30
60
90
120
150

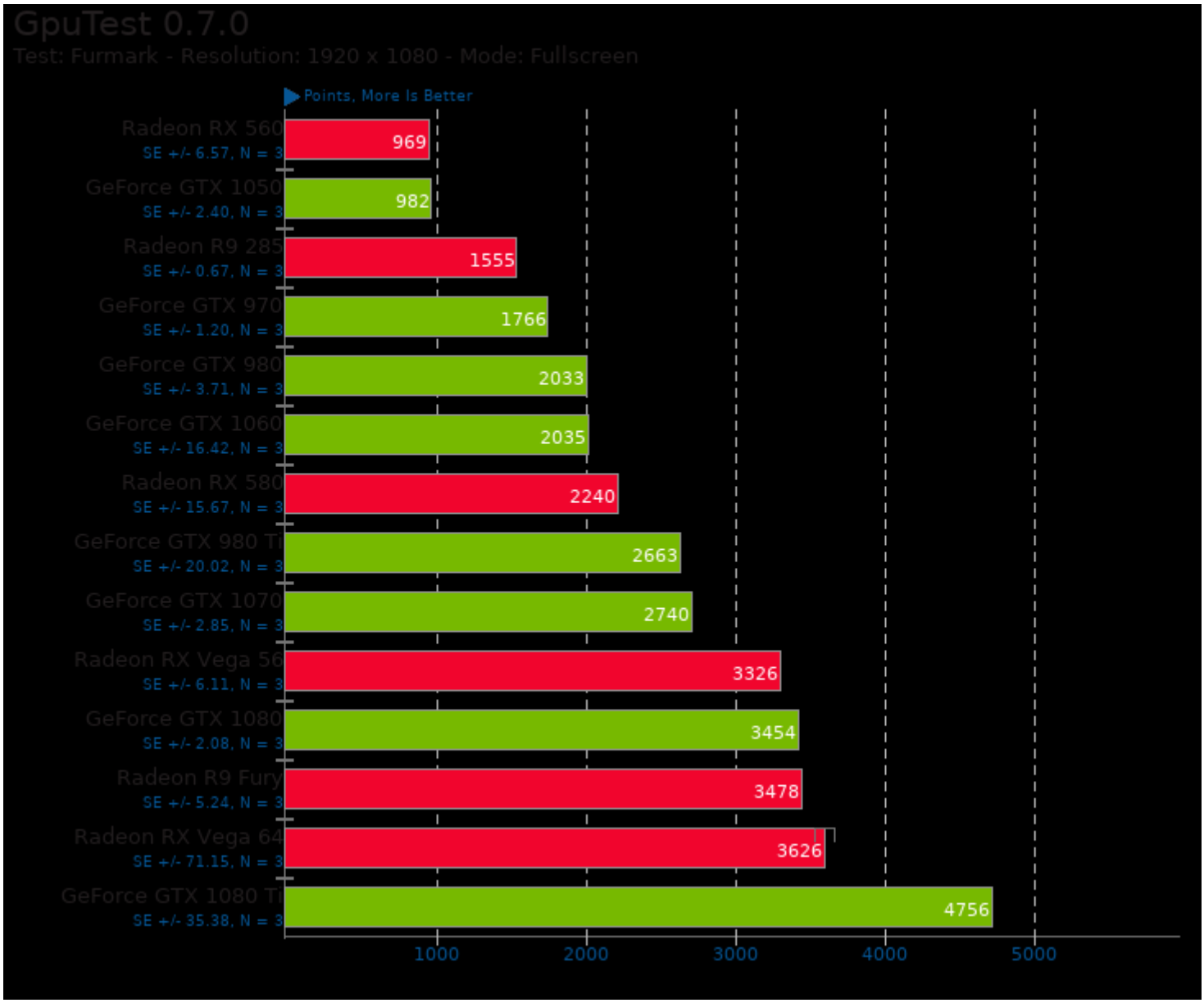

Dawn of War III
Resolution: 3840 x 2160 - Graphics Preset: High - Renderer: Vulkan
Frames Per Second, More Is Better
Radeon R9 285
SE +/- 0.35, N = 6
MIN: 4.18 / MAX: 11.34
7.05
Radeon RX 560
SE +/- 0.02, N = 3
MIN: 5.67 / MAX: 12.8
8.73
Radeon R9 Fury
SE +/- 0.08, N = 3
MIN: 12.71 / MAX: 38.05
23.70
GeForce GTX 1060
SE +/- 0.10, N = 3
MIN: 23.21 / MAX: 36.96
26.66
GeForce GTX 1070
SE +/- 0.37, N = 3
MIN: 30.88 / MAX: 48.56
36.73
GeForce GTX 1080
SE +/- 0.42, N = 3
MIN: 39.6 / MAX: 71.43
45.60
GeForce GTX 1080 Ti
SE +/- 0.39, N = 3
MIN: 44.87 / MAX: 83.75
54.84
12
24
36
48
60

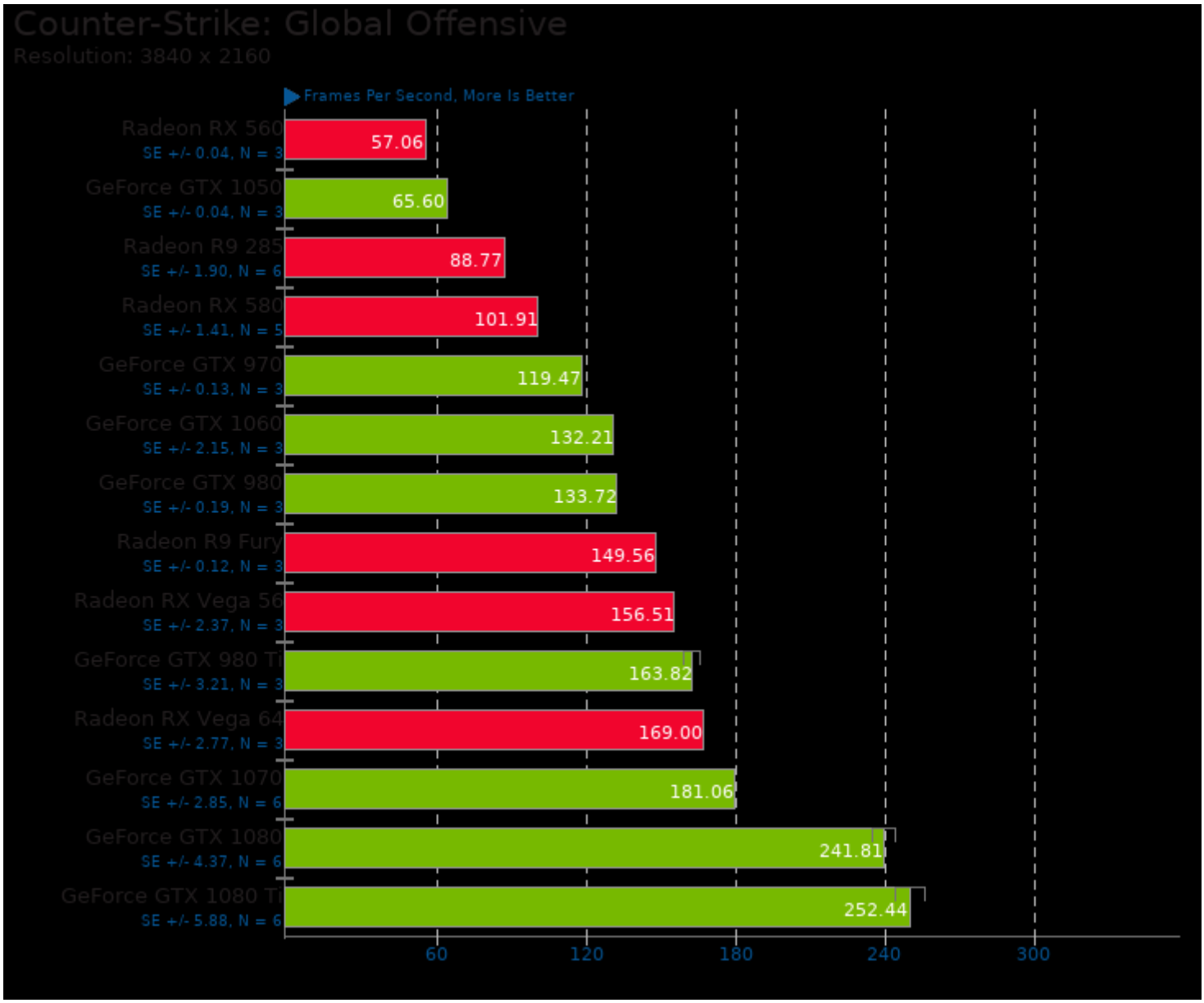

Mad Max
Resolution: 3840 x 2160 - Graphics Preset: Default - Renderer: Vulkan - Scene: Camp Hollow Point
Frames Per Second, More Is Better
GeForce GTX 1050
MIN: 19.13 / MAX: 30.91
29.16
Radeon RX 580
MIN: 26.98 / MAX: 60.75
59.81
GeForce GTX 970
MIN: 62.03 / MAX: 69.65
67.70
GeForce GTX 1060
MIN: 61.82 / MAX: 79.48
75.37
Radeon RX 560
MIN: 62.27 / MAX: 91.75
76.55
Radeon R9 285
MIN: 62.27 / MAX: 91.75
76.55
GeForce GTX 980
MIN: 69.63 / MAX: 88.4
77.47
Radeon R9 Fury
MIN: 26.62 / MAX: 85.87
84.01
GeForce GTX 980 Ti
MIN: 91.52 / MAX: 103.64
101.16
GeForce GTX 1070
MIN: 73.31 / MAX: 126.49
101.69
Radeon RX Vega 56
MIN: 95.37 / MAX: 131.1
112.06
Radeon RX Vega 64
MIN: 26.64 / MAX: 162.1
120.45
GeForce GTX 1080
MIN: 92.39 / MAX: 159.24
131.36
GeForce GTX 1080 Ti
MIN: 112.31 / MAX: 253.36
179.69
40
80
120
160
200

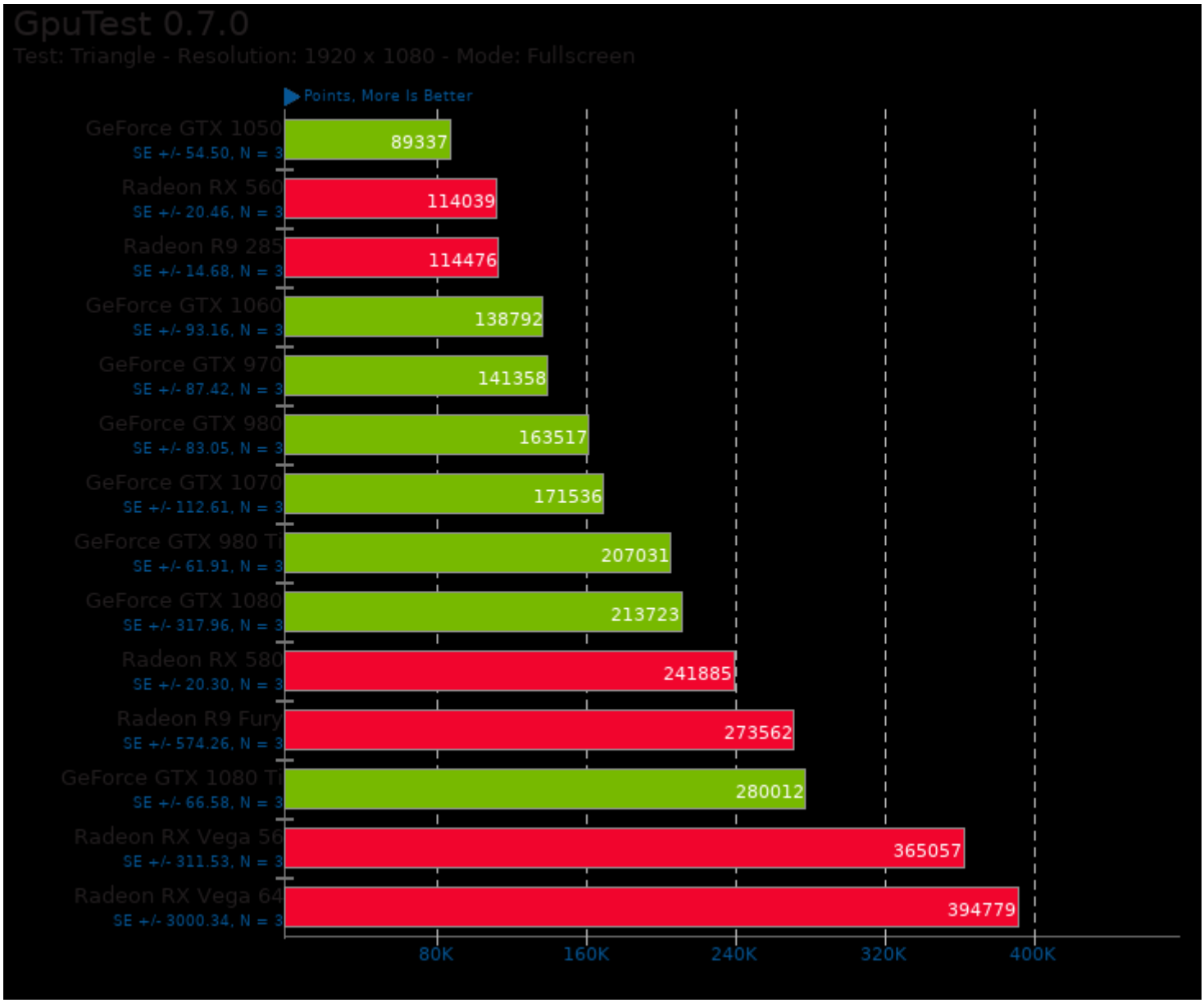

Mad Max
Resolution: 3840 x 2160 - Graphics Preset: Default - Renderer: Vulkan - Scene: Hope, Glory, and Dog is Dead
Frames Per Second, More Is Better
GeForce GTX 1050
MIN: 4.67 / MAX: 42.85
26.51
Radeon RX 580
MIN: 8 / MAX: 83.13
52.12
GeForce GTX 970
MIN: 3.86 / MAX: 137.1
62.73
GeForce GTX 1060
MIN: 3.86 / MAX: 142.31
69.69
Radeon RX 560
MIN: 3.08 / MAX: 193.99
70.01
Radeon R9 285
MIN: 3.08 / MAX: 193.99
70.01
Radeon R9 Fury
MIN: 8.66 / MAX: 109.15
71.45
GeForce GTX 980
MIN: 3.86 / MAX: 178
71.92
GeForce GTX 980 Ti
MIN: 3.81 / MAX: 251.07
88.55
Radeon RX Vega 56
MIN: 8.91 / MAX: 248.88
91.12
GeForce GTX 1070
MIN: 3.8 / MAX: 241.02
93.44
Radeon RX Vega 64
MIN: 8.76 / MAX: 168.63
101.49
GeForce GTX 1080
MIN: 3.78 / MAX: 250.82
117.17
GeForce GTX 1080 Ti
MIN: 3.78 / MAX: 276.24
155.90
30
60
90
120
150


Mad Max
Resolution: 3840 x 2160 - Graphics Preset: Default - Renderer: Vulkan - Scene: Landmover
Frames Per Second, More Is Better
GeForce GTX 1050
MIN: 4.64 / MAX: 54.06
32.29
Radeon RX 580
MIN: 7.54 / MAX: 100.99
62.53
GeForce GTX 970
MIN: 4.67 / MAX: 155.35
75.84
GeForce GTX 1060
MIN: 4.63 / MAX: 157.85
83.73
Radeon RX 560
MIN: 4.65 / MAX: 151.52
84.17
Radeon R9 285
MIN: 4.65 / MAX: 151.52
84.17
Radeon R9 Fury
MIN: 9.22 / MAX: 157.04
85.16
GeForce GTX 980
MIN: 4.67 / MAX: 163.48
85.19
Radeon RX Vega 56
MIN: 7.79 / MAX: 167.67
101.68
GeForce GTX 980 Ti
MIN: 4.6 / MAX: 204.12
106.57
Radeon RX Vega 64
MIN: 9.24 / MAX: 215.15
111.59
GeForce GTX 1070
MIN: 4.55 / MAX: 232.4
112.27
GeForce GTX 1080
MIN: 4.67 / MAX: 417.19
139.69
GeForce GTX 1080 Ti
MIN: 4.67 / MAX: 354.74
181.31
40
80
120
160
200

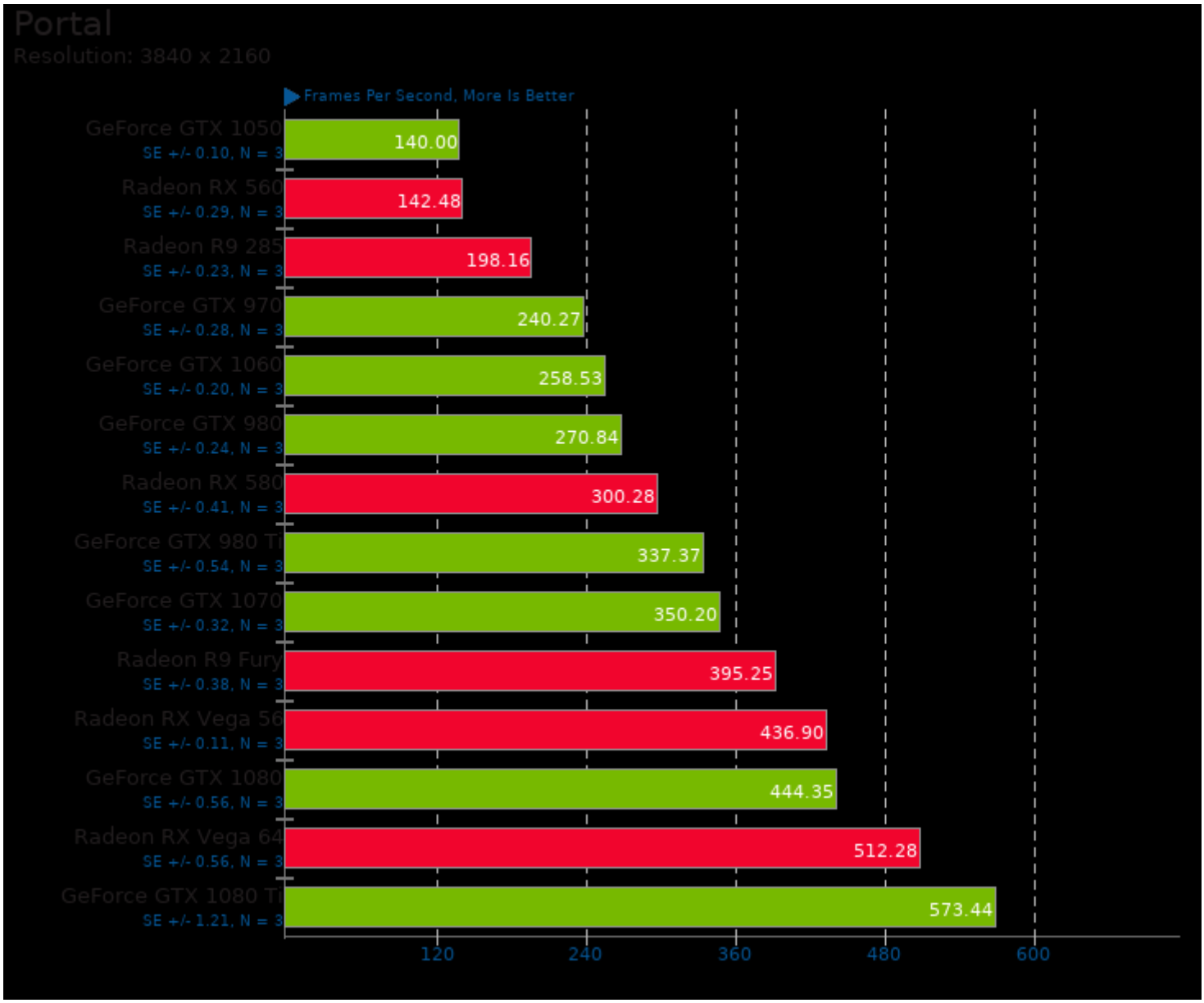

Dawn of War III
Resolution: 3840 x 2160 - Graphics Preset: Low - Renderer: Vulkan
Frames Per Second, More Is Better
Radeon RX 560
SE +/- 0.05, N = 3
MIN: 8.11 / MAX: 16.39
11.02
Radeon R9 285
SE +/- 0.03, N = 3
MIN: 9.53 / MAX: 17.03
12.25
Radeon RX 580
SE +/- 0.03, N = 3
MIN: 13.82 / MAX: 35.33
23.60
Radeon R9 Fury
SE +/- 0.54, N = 3
MIN: 15.62 / MAX: 49.8
30.40
GeForce GTX 1060
SE +/- 0.55, N = 6
MIN: 8.26 / MAX: 45.45
32.99
GeForce GTX 1070
SE +/- 0.88, N = 6
MIN: 5.93 / MAX: 71.78
45.52
GeForce GTX 1080
SE +/- 0.93, N = 6
MIN: 8.54 / MAX: 84.58
53.12
GeForce GTX 1080 Ti
SE +/- 1.41, N = 6
MIN: 7.91 / MAX: 108.24
60.74
14
28
42
56
70


GpuTest 0.7.0
Test: Furmark - Resolution: 1920 x 1080 - Mode: Fullscreen
Points, More Is Better
Radeon RX 560
SE +/- 6.57, N = 3
969
GeForce GTX 1050
SE +/- 2.40, N = 3
982
Radeon R9 285
SE +/- 0.67, N = 3
1555
GeForce GTX 970
SE +/- 1.20, N = 3
1766
GeForce GTX 980
SE +/- 3.71, N = 3
2033
GeForce GTX 1060
SE +/- 16.42, N = 3
2035
Radeon RX 580
SE +/- 15.67, N = 3
2240
GeForce GTX 980 Ti
SE +/- 20.02, N = 3
2663
GeForce GTX 1070
SE +/- 2.85, N = 3
2740
Radeon RX Vega 56
SE +/- 6.11, N = 3
3326
GeForce GTX 1080
SE +/- 2.08, N = 3
3454
Radeon R9 Fury
SE +/- 5.24, N = 3
3478
Radeon RX Vega 64
SE +/- 71.15, N = 3
3626
GeForce GTX 1080 Ti
SE +/- 35.38, N = 3
4756
1000
2000
3000
4000
5000

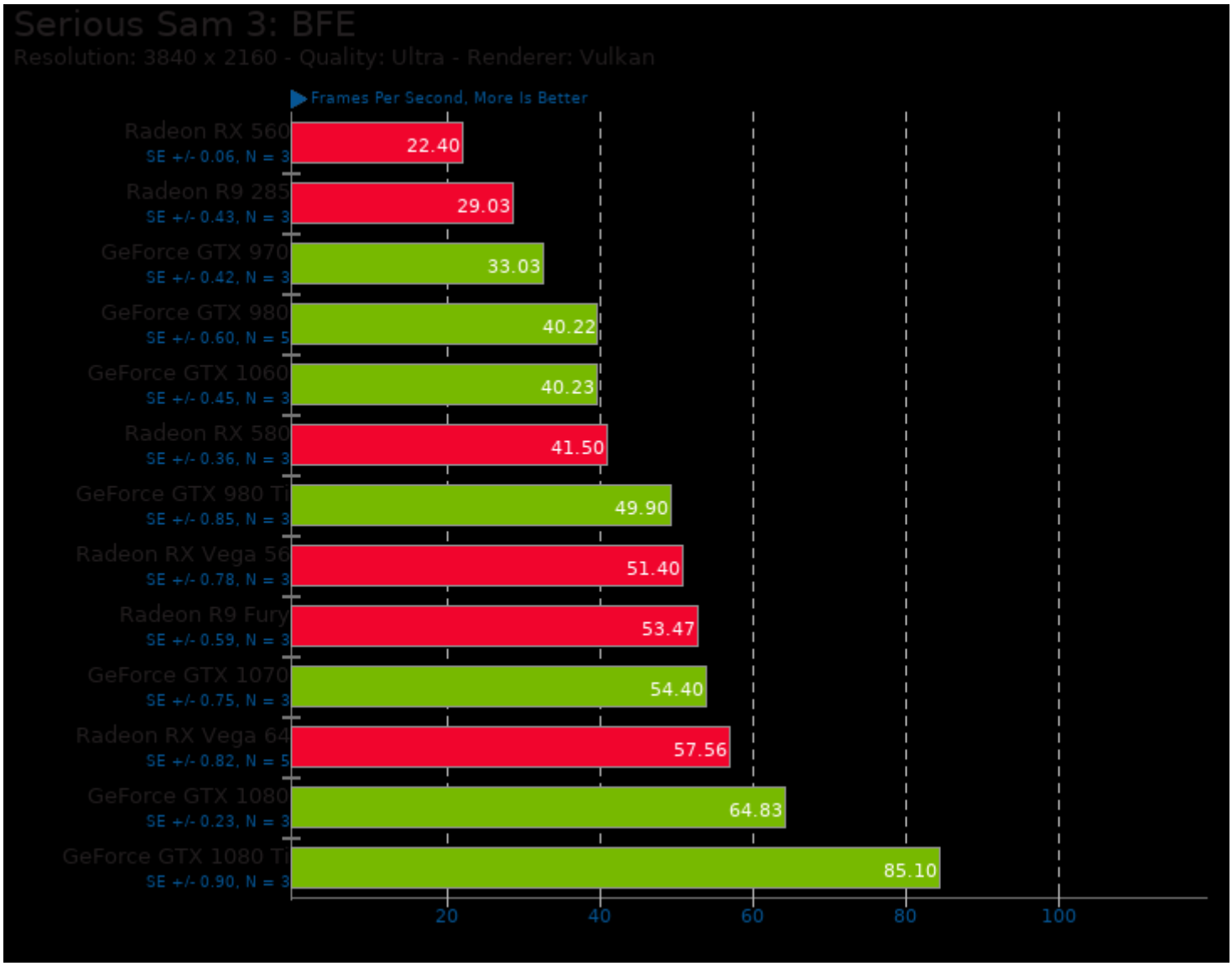

Counter-Strike: Global Offensive
Resolution: 3840 x 2160
Frames Per Second, More Is Better
Radeon RX 560
SE +/- 0.04, N = 3
57.06
GeForce GTX 1050
SE +/- 0.04, N = 3
65.60
Radeon R9 285
SE +/- 1.90, N = 6
88.77
Radeon RX 580
SE +/- 1.41, N = 5
101.91
GeForce GTX 970
SE +/- 0.13, N = 3
119.47
GeForce GTX 1060
SE +/- 2.15, N = 3
132.21
GeForce GTX 980
SE +/- 0.19, N = 3
133.72
Radeon R9 Fury
SE +/- 0.12, N = 3
149.56
Radeon RX Vega 56
SE +/- 2.37, N = 3
156.51
GeForce GTX 980 Ti
SE +/- 3.21, N = 3
163.82
Radeon RX Vega 64
SE +/- 2.77, N = 3
169.00
GeForce GTX 1070
SE +/- 2.85, N = 6
181.06
GeForce GTX 1080
SE +/- 4.37, N = 6
241.81
GeForce GTX 1080 Ti
SE +/- 5.88, N = 6
252.44
60
120
180
240
300


GpuTest 0.7.0
Test: Triangle - Resolution: 1920 x 1080 - Mode: Fullscreen
Points, More Is Better
GeForce GTX 1050
SE +/- 54.50, N = 3
89337
Radeon RX 560
SE +/- 20.46, N = 3
114039
Radeon R9 285
SE +/- 14.68, N = 3
114476
GeForce GTX 1060
SE +/- 93.16, N = 3
138792
GeForce GTX 970
SE +/- 87.42, N = 3
141358
GeForce GTX 980
SE +/- 83.05, N = 3
163517
GeForce GTX 1070
SE +/- 112.61, N = 3
171536
GeForce GTX 980 Ti
SE +/- 61.91, N = 3
207031
GeForce GTX 1080
SE +/- 317.96, N = 3
213723
Radeon RX 580
SE +/- 20.30, N = 3
241885
Radeon R9 Fury
SE +/- 574.26, N = 3
273562
GeForce GTX 1080 Ti
SE +/- 66.58, N = 3
280012
Radeon RX Vega 56
SE +/- 311.53, N = 3
365057
Radeon RX Vega 64
SE +/- 3000.34, N = 3
394779
80K
160K
240K
320K
400K


Mad Max
Resolution: 3840 x 2160 - Graphics Preset: Default - Renderer: OpenGL - Scene: Hope, Glory, and Dog is Dead
Frames Per Second, More Is Better
GeForce GTX 1050
MIN: 1.52 / MAX: 221.58
33.08
GeForce GTX 970
MIN: 6.89 / MAX: 107.86
56.88
GeForce GTX 1060
MIN: 6.86 / MAX: 266.03
61.60
Radeon RX 580
MIN: 9.14 / MAX: 225.73
63.09
GeForce GTX 980
MIN: 7.05 / MAX: 244.5
63.76
Radeon RX 560
MIN: 3.08 / MAX: 193.99
70.01
Radeon R9 285
MIN: 3.08 / MAX: 193.99
70.01
GeForce GTX 980 Ti
MIN: 7.5 / MAX: 123.17
79.17
GeForce GTX 1070
MIN: 6.79 / MAX: 260.62
83.67
Radeon R9 Fury
MIN: 8.69 / MAX: 251.89
89.70
Radeon RX Vega 56
MIN: 7.33 / MAX: 321.44
92.90
GeForce GTX 1080
MIN: 7.41 / MAX: 274.05
103.49
Radeon RX Vega 64
MIN: 32.64 / MAX: 254.65
104.55
GeForce GTX 1080 Ti
MIN: 7.33 / MAX: 332.56
138.86
30
60
90
120
150


Portal
Resolution: 3840 x 2160
Frames Per Second, More Is Better
GeForce GTX 1050
SE +/- 0.10, N = 3
140.00
Radeon RX 560
SE +/- 0.29, N = 3
142.48
Radeon R9 285
SE +/- 0.23, N = 3
198.16
GeForce GTX 970
SE +/- 0.28, N = 3
240.27
GeForce GTX 1060
SE +/- 0.20, N = 3
258.53
GeForce GTX 980
SE +/- 0.24, N = 3
270.84
Radeon RX 580
SE +/- 0.41, N = 3
300.28
GeForce GTX 980 Ti
SE +/- 0.54, N = 3
337.37
GeForce GTX 1070
SE +/- 0.32, N = 3
350.20
Radeon R9 Fury
SE +/- 0.38, N = 3
395.25
Radeon RX Vega 56
SE +/- 0.11, N = 3
436.90
GeForce GTX 1080
SE +/- 0.56, N = 3
444.35
Radeon RX Vega 64
SE +/- 0.56, N = 3
512.28
GeForce GTX 1080 Ti
SE +/- 1.21, N = 3
573.44
120
240
360
480
600

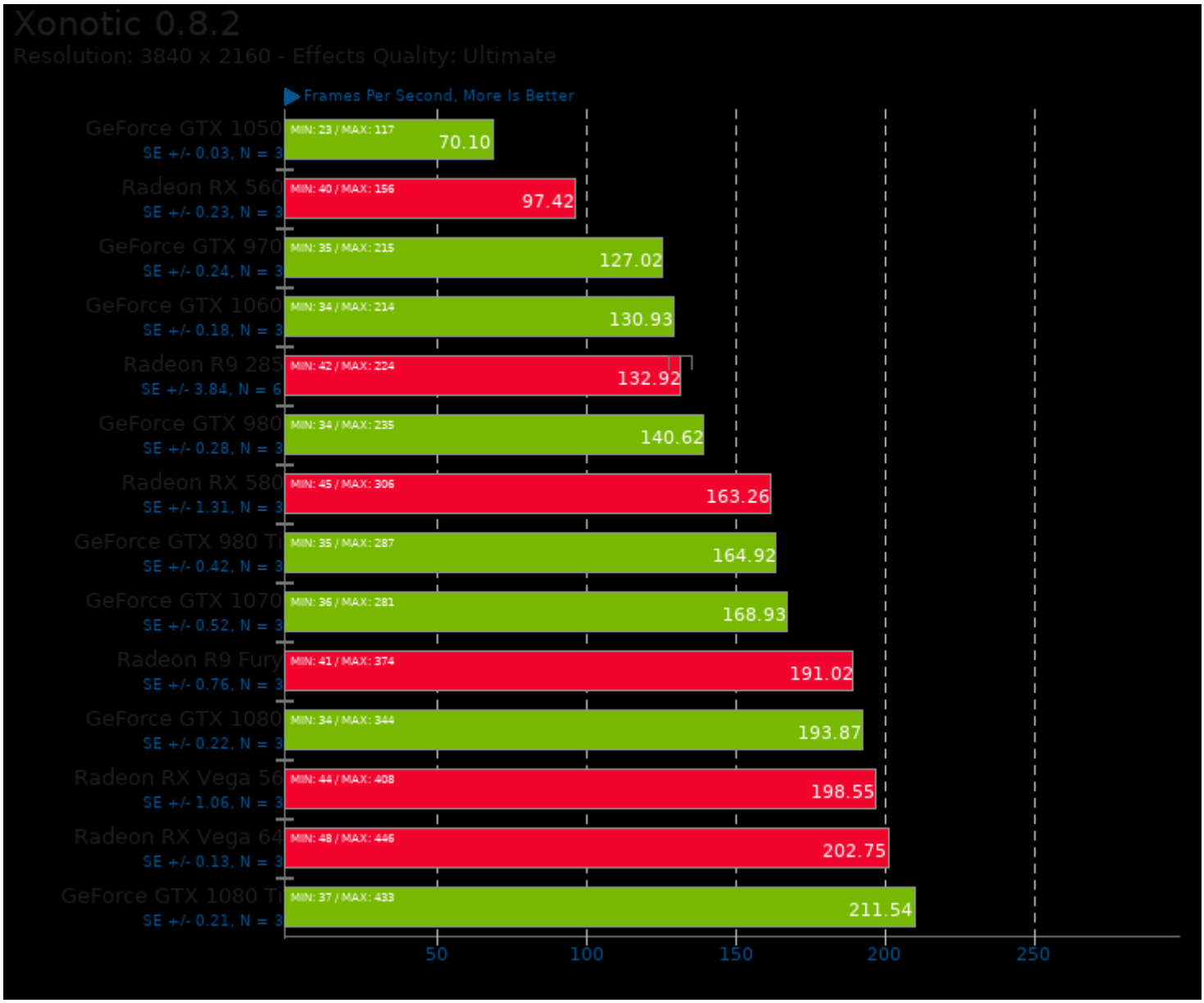

Mad Max
Resolution: 3840 x 2160 - Graphics Preset: Default - Renderer: OpenGL - Scene: Camp Hollow Point
Frames Per Second, More Is Better
GeForce GTX 1050
MIN: 23.09 / MAX: 40.87
38.81
GeForce GTX 970
MIN: 24.59 / MAX: 68.99
61.76
GeForce GTX 1060
MIN: 56.53 / MAX: 68.94
66.97
GeForce GTX 980
MIN: 66.63 / MAX: 73.22
71.52
Radeon RX 580
MIN: 56.6 / MAX: 98
74.50
Radeon RX 560
MIN: 62.27 / MAX: 91.75
76.55
Radeon R9 285
MIN: 62.27 / MAX: 91.75
76.55
GeForce GTX 980 Ti
MIN: 78.02 / MAX: 87.02
85.01
GeForce GTX 1070
MIN: 2.52 / MAX: 146.43
85.03
GeForce GTX 1080
MIN: 82.9 / MAX: 148.63
104.25
Radeon R9 Fury
MIN: 89.23 / MAX: 155.13
114.93
Radeon RX Vega 56
MIN: 88.29 / MAX: 175.07
116.86
Radeon RX Vega 64
MIN: 63.61 / MAX: 184.47
119.66
GeForce GTX 1080 Ti
MIN: 87.43 / MAX: 204.79
149.83
30
60
90
120
150


Serious Sam 3: BFE
Resolution: 3840 x 2160 - Quality: Ultra - Renderer: Vulkan
Frames Per Second, More Is Better
Radeon RX 560
SE +/- 0.06, N = 3
22.40
Radeon R9 285
SE +/- 0.43, N = 3
29.03
GeForce GTX 970
SE +/- 0.42, N = 3
33.03
GeForce GTX 980
SE +/- 0.60, N = 5
40.22
GeForce GTX 1060
SE +/- 0.45, N = 3
40.23
Radeon RX 580
SE +/- 0.36, N = 3
41.50
GeForce GTX 980 Ti
SE +/- 0.85, N = 3
49.90
Radeon RX Vega 56
SE +/- 0.78, N = 3
51.40
Radeon R9 Fury
SE +/- 0.59, N = 3
53.47
GeForce GTX 1070
SE +/- 0.75, N = 3
54.40
Radeon RX Vega 64
SE +/- 0.82, N = 5
57.56
GeForce GTX 1080
SE +/- 0.23, N = 3
64.83
GeForce GTX 1080 Ti
SE +/- 0.90, N = 3
85.10
20
40
60
80
100

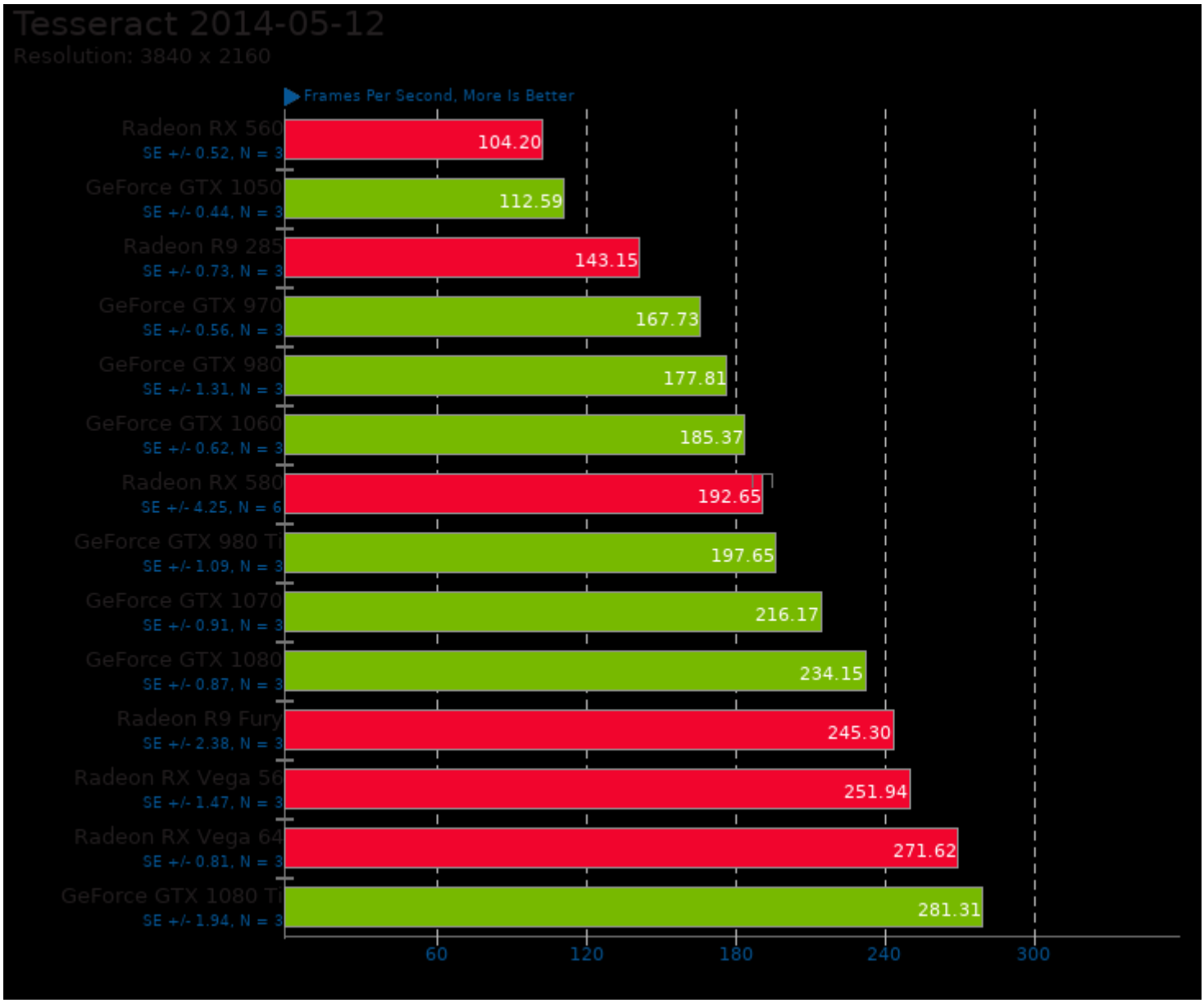

Mad Max
Resolution: 3840 x 2160 - Graphics Preset: Default - Renderer: OpenGL - Scene: Landmover
Frames Per Second, More Is Better
GeForce GTX 1050
MIN: 4.17 / MAX: 140.51
41.55
GeForce GTX 970
MIN: 7.55 / MAX: 507.87
68.81
GeForce GTX 1060
MIN: 7.44 / MAX: 339.79
74.42
GeForce GTX 980
MIN: 7.44 / MAX: 529.1
76.05
Radeon RX 580
MIN: 9.32 / MAX: 539.96
77.16
Radeon RX 560
MIN: 4.65 / MAX: 151.52
84.17
Radeon R9 285
MIN: 4.65 / MAX: 151.52
84.17
GeForce GTX 980 Ti
MIN: 7.38 / MAX: 588.93
93.74
GeForce GTX 1070
MIN: 7.39 / MAX: 720.46
99.16
Radeon R9 Fury
MIN: 9.2 / MAX: 553.1
109.90
Radeon RX Vega 56
MIN: 9.98 / MAX: 479.85
113.70
GeForce GTX 1080
MIN: 7.33 / MAX: 710.23
118.63
Radeon RX Vega 64
MIN: 16.42 / MAX: 553.71
124.60
GeForce GTX 1080 Ti
MIN: 7.33 / MAX: 584.11
154.21
30
60
90
120
150

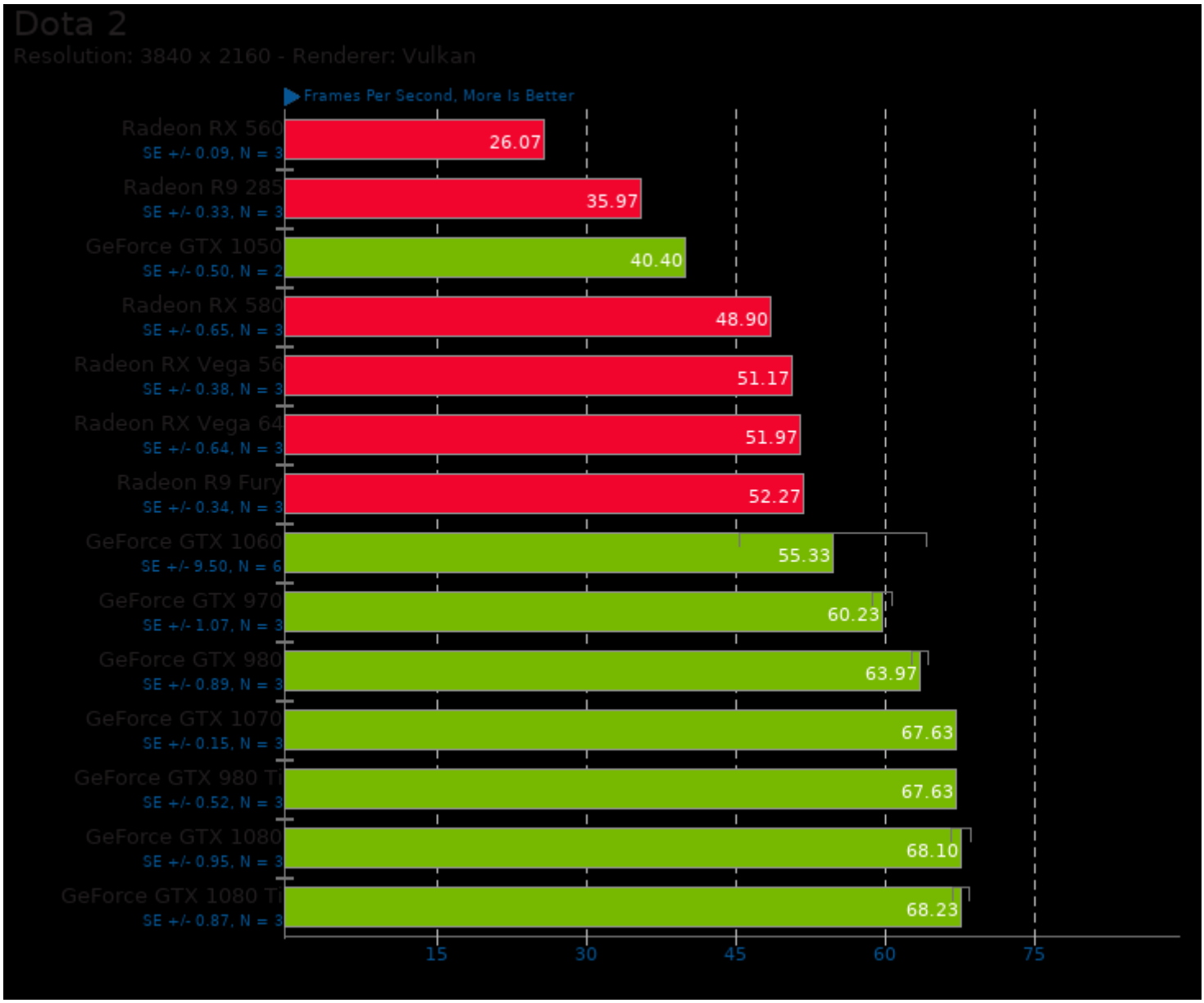

Unigine Superposition 1.0
Resolution: 1920 x 1080 - Mode: Fullscreen - Quality: Low
Frames Per Second, More Is Better
Radeon RX 560
MAX: 61.5
43.20
Radeon R9 285
MAX: 82.7
55.30
GeForce GTX 1050
MAX: 85.2
63.40
Radeon RX 580
MAX: 126.4
85.20
Radeon R9 Fury
MAX: 137.2
91.20
GeForce GTX 970
MAX: 144.4
102.00
GeForce GTX 980
MAX: 168.9
116.10
GeForce GTX 1060
MAX: 166.5
120.40
Radeon RX Vega 56
MAX: 203.7
133.90
GeForce GTX 980 Ti
MAX: 194.9
134.10
Radeon RX Vega 64
MAX: 196.3
134.90
GeForce GTX 1070
MAX: 205.4
145.10
GeForce GTX 1080
MAX: 203.3
147.50
GeForce GTX 1080 Ti
MAX: 211.5
153.30
30
60
90
120
150

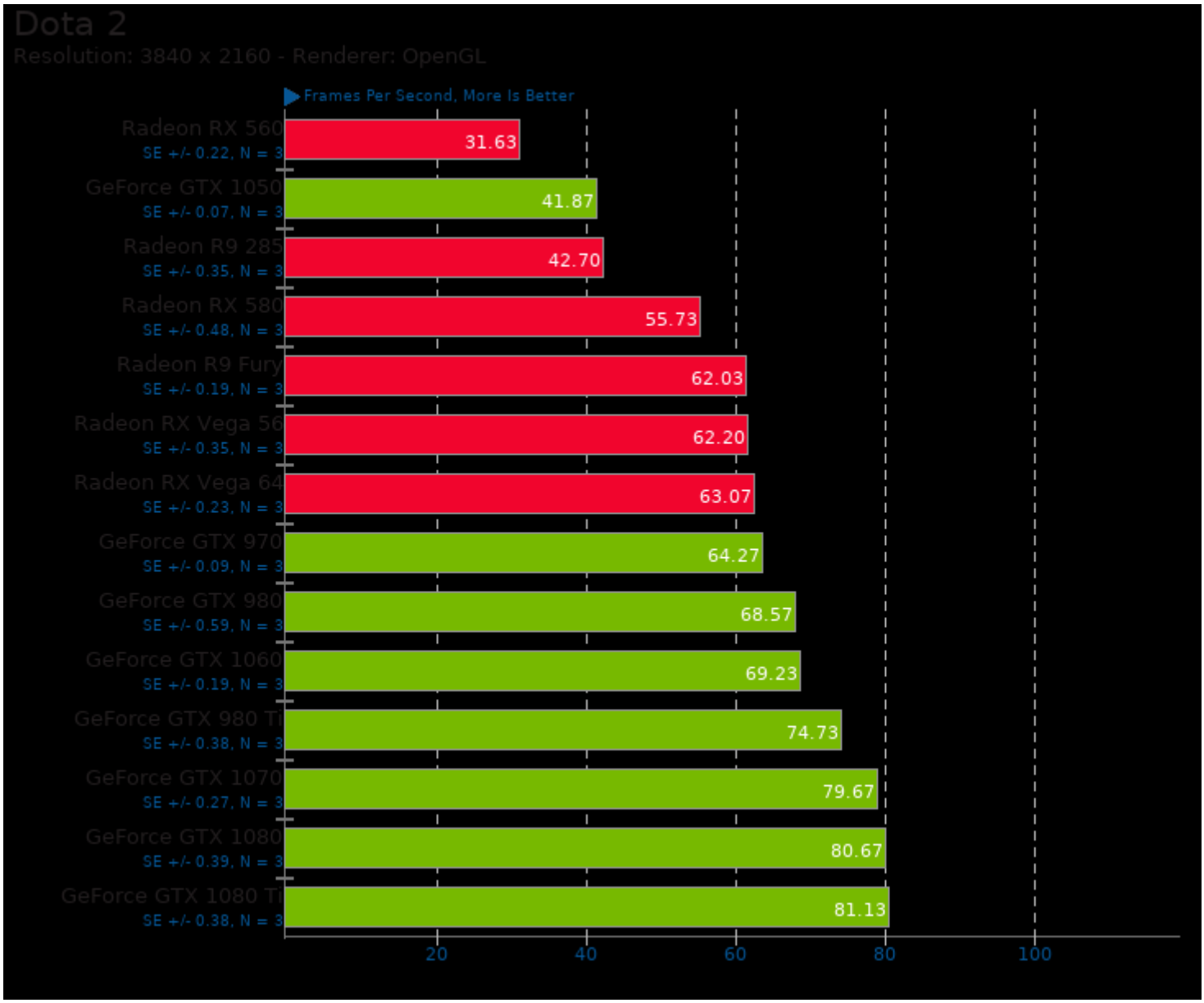

Mad Max
Resolution: 3840 x 2160 - Graphics Preset: Default - Renderer: Vulkan - Scene: Stronghold
Frames Per Second, More Is Better
GeForce GTX 1050
MIN: 29.89 / MAX: 31.52
31.24
Radeon RX 580
MIN: 51.1 / MAX: 82.08
63.67
GeForce GTX 970
MIN: 58.67 / MAX: 90.03
72.10
Radeon RX Vega 56
MIN: 43.68 / MAX: 85.44
79.70
Radeon R9 Fury
MIN: 44.23 / MAX: 86.44
80.26
GeForce GTX 1060
MIN: 63.04 / MAX: 85.54
80.27
Radeon RX 560
MIN: 49.11 / MAX: 94.54
81.94
Radeon R9 285
MIN: 49.11 / MAX: 94.54
81.94
GeForce GTX 980
MIN: 61.79 / MAX: 93.95
81.97
Radeon RX Vega 64
MIN: 61.27 / MAX: 86.36
82.04
GeForce GTX 1070
MIN: 59.63 / MAX: 97.77
92.93
GeForce GTX 1080 Ti
MIN: 60.71 / MAX: 99.5
94.86
GeForce GTX 1080
MIN: 60.85 / MAX: 99.38
95.62
GeForce GTX 980 Ti
MIN: 61.32 / MAX: 99.71
96.56
20
40
60
80
100


Xonotic 0.8.2
Resolution: 3840 x 2160 - Effects Quality: Ultimate
Frames Per Second, More Is Better
GeForce GTX 1050
SE +/- 0.03, N = 3
MIN: 23 / MAX: 117
70.10
Radeon RX 560
SE +/- 0.23, N = 3
MIN: 40 / MAX: 156
97.42
GeForce GTX 970
SE +/- 0.24, N = 3
MIN: 35 / MAX: 215
127.02
GeForce GTX 1060
SE +/- 0.18, N = 3
MIN: 34 / MAX: 214
130.93
Radeon R9 285
SE +/- 3.84, N = 6
MIN: 42 / MAX: 224
132.92
GeForce GTX 980
SE +/- 0.28, N = 3
MIN: 34 / MAX: 235
140.62
Radeon RX 580
SE +/- 1.31, N = 3
MIN: 45 / MAX: 306
163.26
GeForce GTX 980 Ti
SE +/- 0.42, N = 3
MIN: 35 / MAX: 287
164.92
GeForce GTX 1070
SE +/- 0.52, N = 3
MIN: 36 / MAX: 281
168.93
Radeon R9 Fury
SE +/- 0.76, N = 3
MIN: 41 / MAX: 374
191.02
GeForce GTX 1080
SE +/- 0.22, N = 3
MIN: 34 / MAX: 344
193.87
Radeon RX Vega 56
SE +/- 1.06, N = 3
MIN: 44 / MAX: 408
198.55
Radeon RX Vega 64
SE +/- 0.13, N = 3
MIN: 48 / MAX: 446
202.75
GeForce GTX 1080 Ti
SE +/- 0.21, N = 3
MIN: 37 / MAX: 433
211.54
50
100
150
200
250

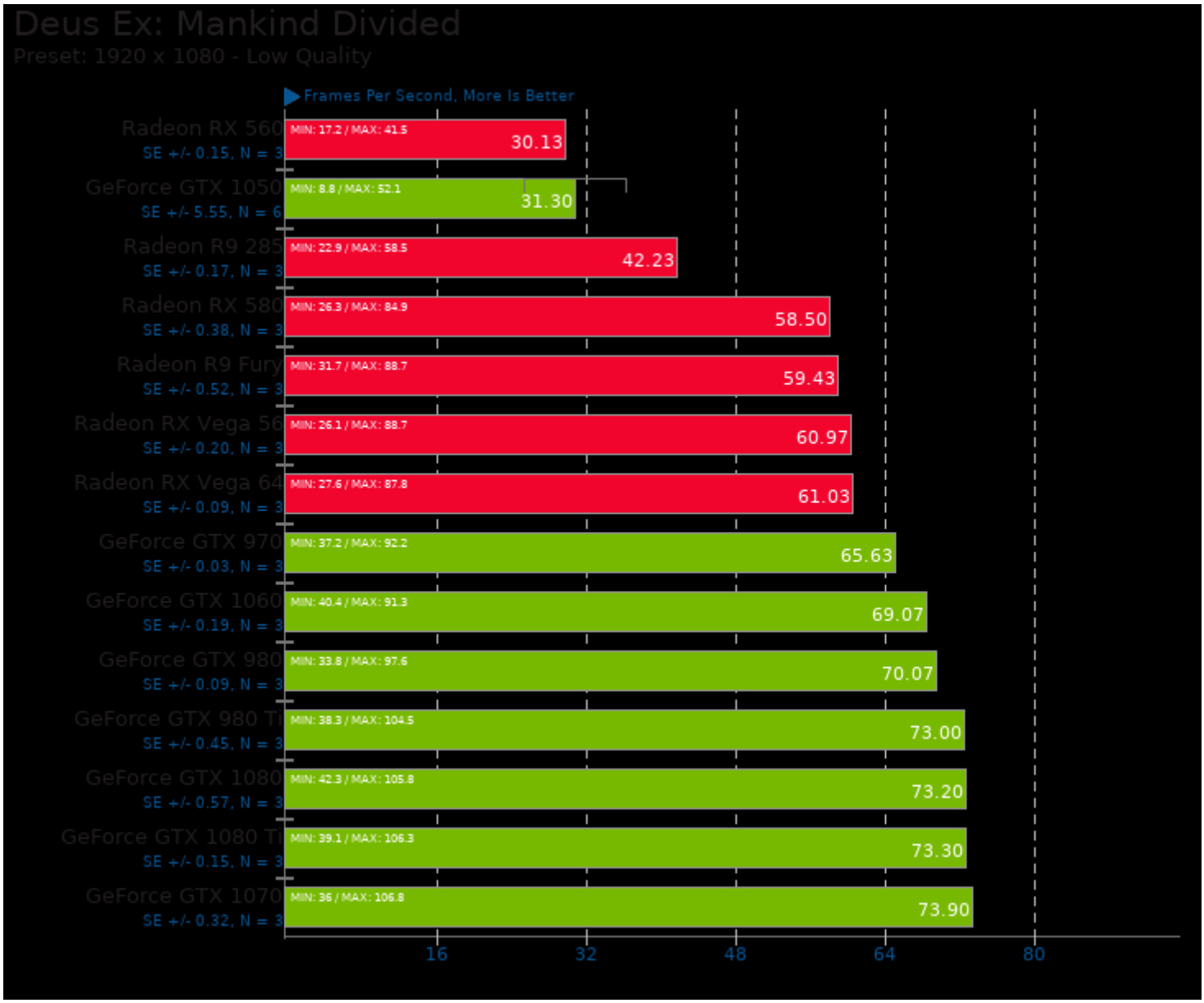

Deus Ex: Mankind Divided
Preset: 3840 x 2160 - Low Quality
Frames Per Second, More Is Better
GeForce GTX 1050
SE +/- 0.30, N = 6
2.32
Radeon RX 560
SE +/- 0.03, N = 3
MIN: 3.6 / MAX: 19
11.83
Radeon R9 285
SE +/- 0.34, N = 6
MIN: 4.2 / MAX: 24.9
15.60
GeForce GTX 970
SE +/- 0.03, N = 3
MIN: 17.7 / MAX: 28.8
22.77
GeForce GTX 1060
SE +/- 0.00, N = 3
MIN: 17.5 / MAX: 29.7
24.40
Radeon RX 580
SE +/- 0.09, N = 3
MIN: 14.3 / MAX: 35.1
25.63
GeForce GTX 980
SE +/- 0.03, N = 3
MIN: 19.3 / MAX: 32.3
25.73
GeForce GTX 980 Ti
SE +/- 0.03, N = 3
MIN: 23.4 / MAX: 39
30.77
Radeon R9 Fury
SE +/- 0.06, N = 3
MIN: 17.4 / MAX: 42.7
31.30
Radeon RX Vega 56
SE +/- 0.62, N = 3
MIN: 14.4 / MAX: 45.7
32.77
GeForce GTX 1070
SE +/- 0.06, N = 3
MIN: 23.9 / MAX: 42.9
33.90
Radeon RX Vega 64
SE +/- 0.60, N = 3
MIN: 17.9 / MAX: 47.8
36.60
GeForce GTX 1080
SE +/- 0.03, N = 3
MIN: 32.4 / MAX: 50.5
41.17
GeForce GTX 1080 Ti
SE +/- 0.00, N = 3
MIN: 33.8 / MAX: 68.6
54.90
12
24
36
48
60

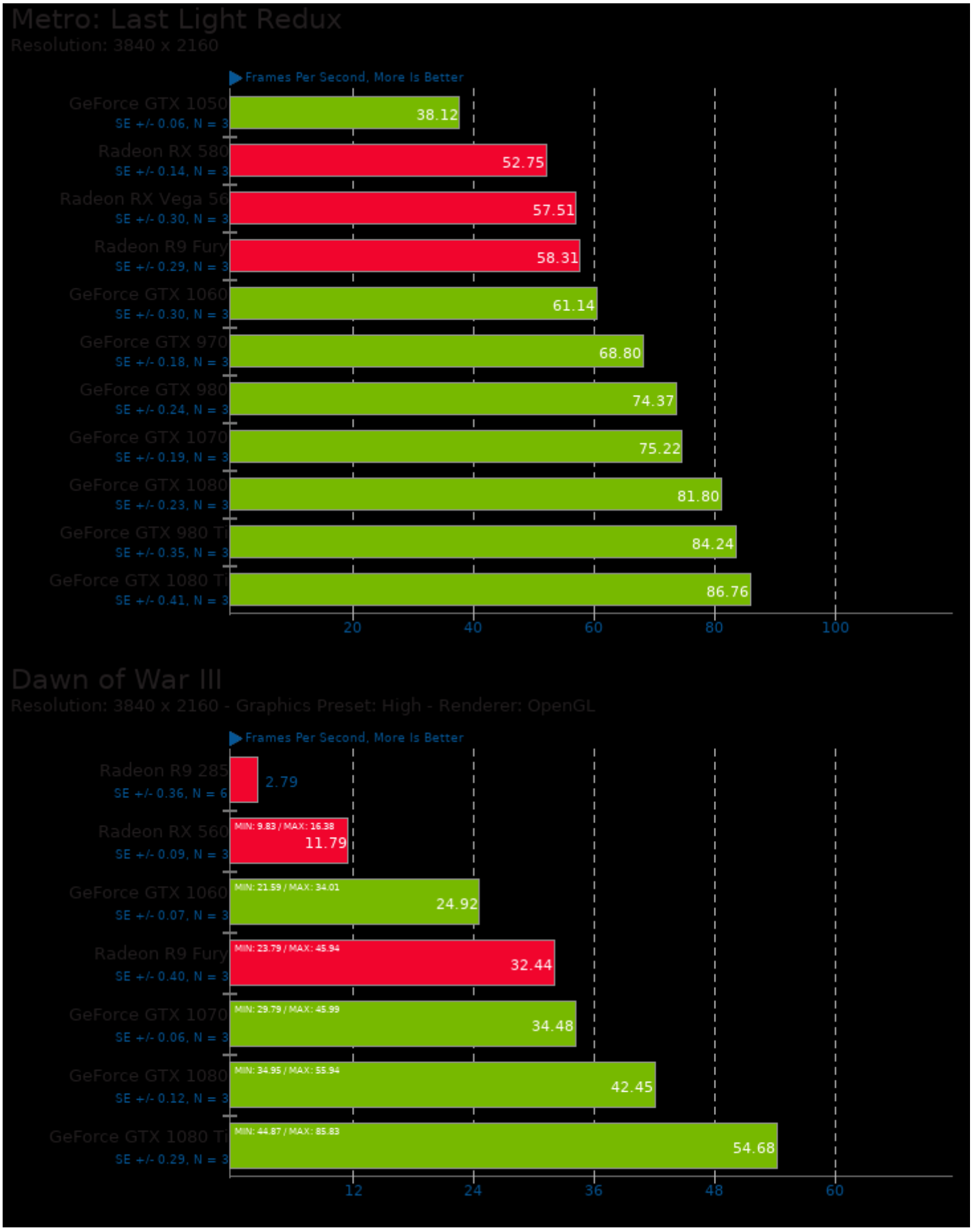

Tesseract 2014-05-12
Resolution: 3840 x 2160
Frames Per Second, More Is Better
Radeon RX 560
SE +/- 0.52, N = 3
104.20
GeForce GTX 1050
SE +/- 0.44, N = 3
112.59
Radeon R9 285
SE +/- 0.73, N = 3
143.15
GeForce GTX 970
SE +/- 0.56, N = 3
167.73
GeForce GTX 980
SE +/- 1.31, N = 3
177.81
GeForce GTX 1060
SE +/- 0.62, N = 3
185.37
Radeon RX 580
SE +/- 4.25, N = 6
192.65
GeForce GTX 980 Ti
SE +/- 1.09, N = 3
197.65
GeForce GTX 1070
SE +/- 0.91, N = 3
216.17
GeForce GTX 1080
SE +/- 0.87, N = 3
234.15
Radeon R9 Fury
SE +/- 2.38, N = 3
245.30
Radeon RX Vega 56
SE +/- 1.47, N = 3
251.94
Radeon RX Vega 64
SE +/- 0.81, N = 3
271.62
GeForce GTX 1080 Ti
SE +/- 1.94, N = 3
281.31
60
120
180
240
300


Dota 2
Resolution: 3840 x 2160 - Renderer: Vulkan
Frames Per Second, More Is Better
Radeon RX 560
SE +/- 0.09, N = 3
26.07
Radeon R9 285
SE +/- 0.33, N = 3
35.97
GeForce GTX 1050
SE +/- 0.50, N = 2
40.40
Radeon RX 580
SE +/- 0.65, N = 3
48.90
Radeon RX Vega 56
SE +/- 0.38, N = 3
51.17
Radeon RX Vega 64
SE +/- 0.64, N = 3
51.97
Radeon R9 Fury
SE +/- 0.34, N = 3
52.27
GeForce GTX 1060
SE +/- 9.50, N = 6
55.33
GeForce GTX 970
SE +/- 1.07, N = 3
60.23
GeForce GTX 980
SE +/- 0.89, N = 3
63.97
GeForce GTX 1070
SE +/- 0.15, N = 3
67.63
GeForce GTX 980 Ti
SE +/- 0.52, N = 3
67.63
GeForce GTX 1080
SE +/- 0.95, N = 3
68.10
GeForce GTX 1080 Ti
SE +/- 0.87, N = 3
68.23
15
30
45
60
75

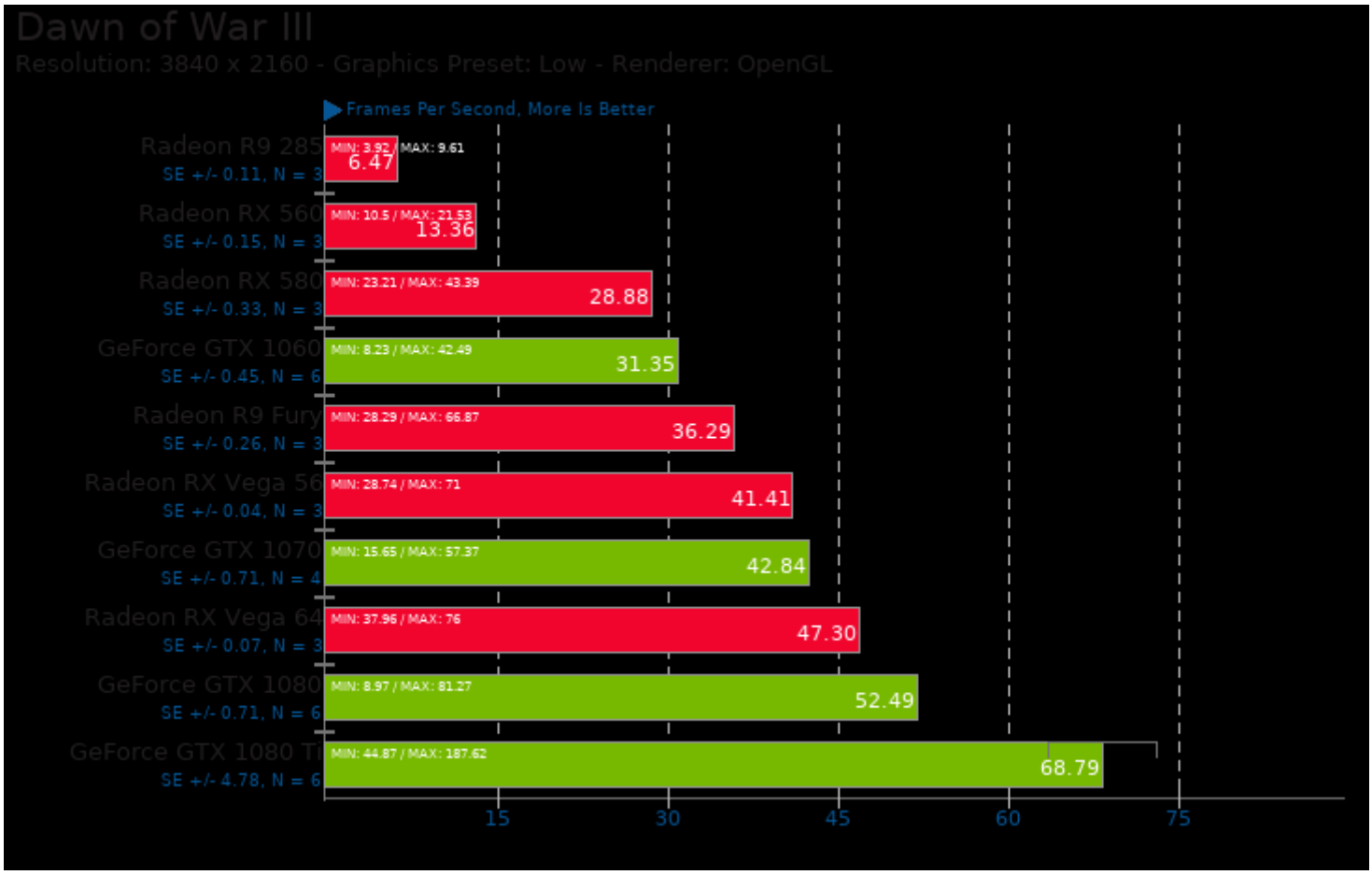

Dota 2
Resolution: 3840 x 2160 - Renderer: OpenGL
Frames Per Second, More Is Better
Radeon RX 560
SE +/- 0.22, N = 3
31.63
GeForce GTX 1050
SE +/- 0.07, N = 3
41.87
Radeon R9 285
SE +/- 0.35, N = 3
42.70
Radeon RX 580
SE +/- 0.48, N = 3
55.73
Radeon R9 Fury
SE +/- 0.19, N = 3
62.03
Radeon RX Vega 56
SE +/- 0.35, N = 3
62.20
Radeon RX Vega 64
SE +/- 0.23, N = 3
63.07
GeForce GTX 970
SE +/- 0.09, N = 3
64.27
GeForce GTX 980
SE +/- 0.59, N = 3
68.57
GeForce GTX 1060
SE +/- 0.19, N = 3
69.23
GeForce GTX 980 Ti
SE +/- 0.38, N = 3
74.73
GeForce GTX 1070
SE +/- 0.27, N = 3
79.67
GeForce GTX 1080
SE +/- 0.39, N = 3
80.67
GeForce GTX 1080 Ti
SE +/- 0.38, N = 3
81.13
20
40
60
80
100

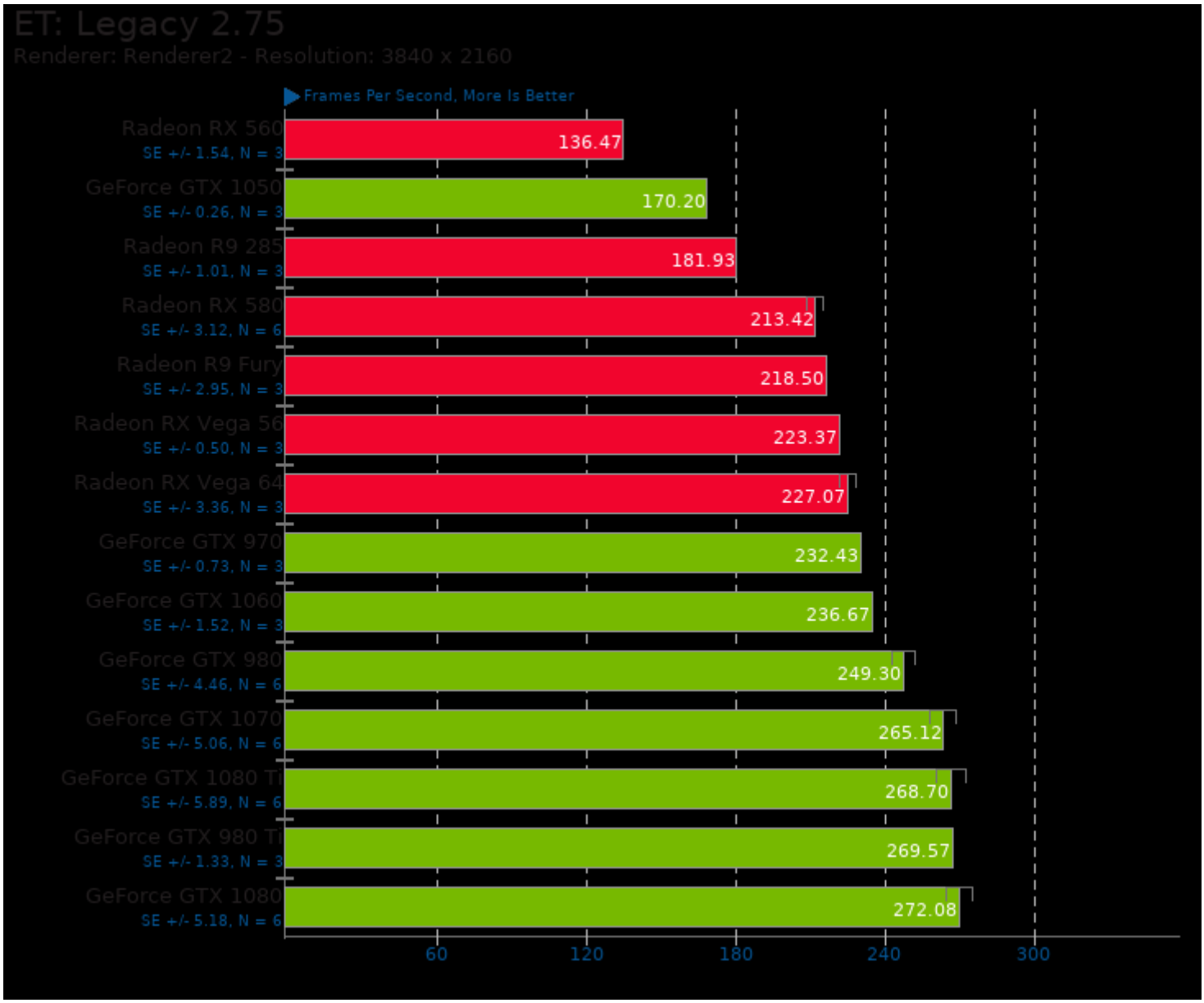

Mad Max
Resolution: 3840 x 2160 - Graphics Preset: Default - Renderer: OpenGL - Scene: Stronghold
Frames Per Second, More Is Better
GeForce GTX 1050
MIN: 14.74 / MAX: 54.5
37.47
GeForce GTX 970
MIN: 30.91 / MAX: 94.65
62.21
Radeon RX Vega 56
MIN: 39.12 / MAX: 81.25
62.48
Radeon RX 580
MIN: 30.21 / MAX: 84.66
66.80
Radeon R9 Fury
MIN: 39.75 / MAX: 91.29
66.84
GeForce GTX 1060
MIN: 17.69 / MAX: 94.27
67.85
GeForce GTX 980
MIN: 17.84 / MAX: 96.77
67.85
Radeon RX Vega 64
MIN: 16.48 / MAX: 94.29
73.53
GeForce GTX 980 Ti
MIN: 17.91 / MAX: 95.01
81.56
Radeon RX 560
MIN: 49.11 / MAX: 94.54
81.94
Radeon R9 285
MIN: 49.11 / MAX: 94.54
81.94
GeForce GTX 1070
MIN: 25.53 / MAX: 99.6
90.41
GeForce GTX 1080
MIN: 14.46 / MAX: 98.65
92.53
GeForce GTX 1080 Ti
MIN: 15.5 / MAX: 101.21
95.30
20
40
60
80
100

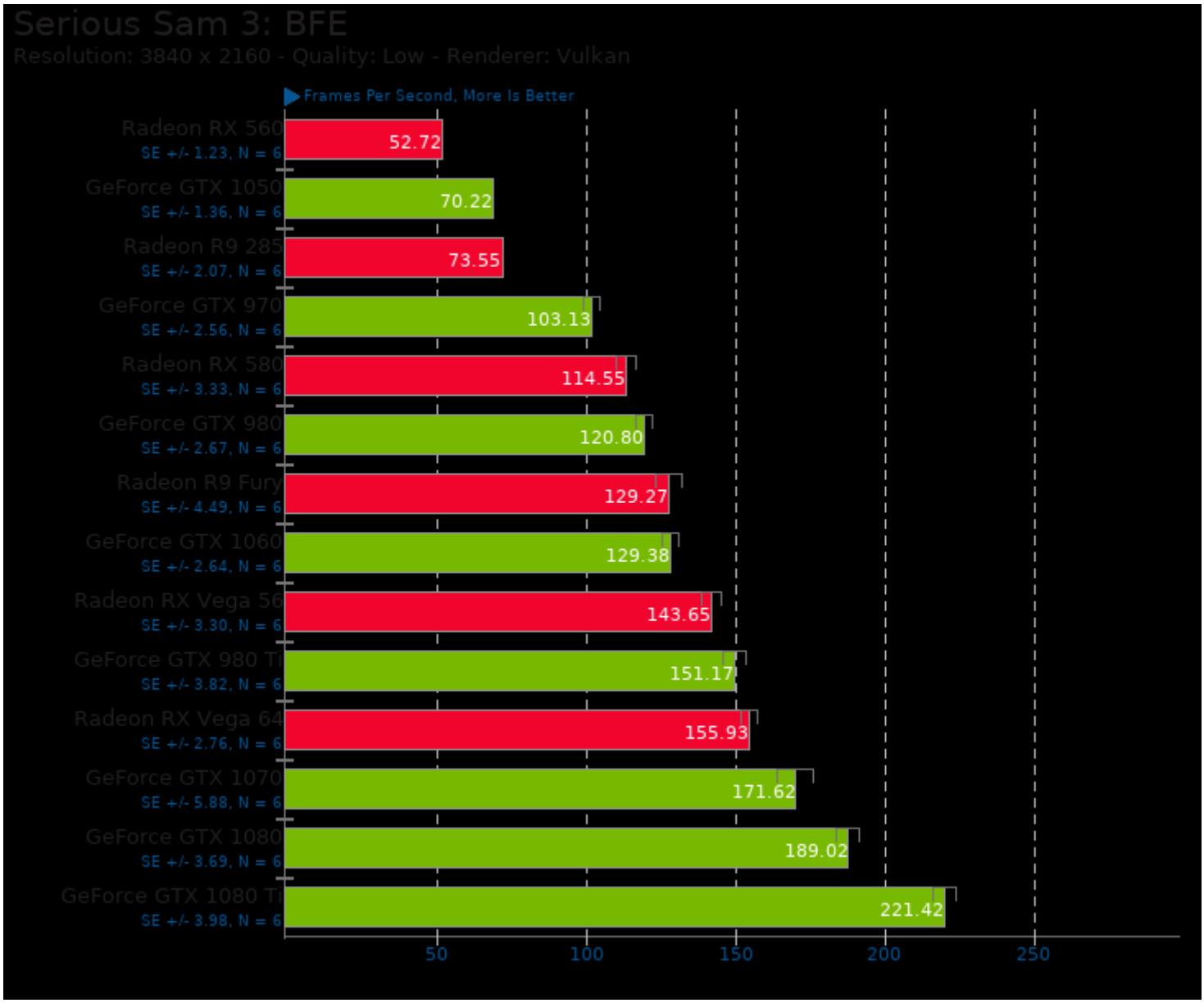

Deus Ex: Mankind Divided
Preset: 1920 x 1080 - Low Quality
Frames Per Second, More Is Better
Radeon RX 560
SE +/- 0.15, N = 3
MIN: 17.2 / MAX: 41.5
30.13
GeForce GTX 1050
SE +/- 5.55, N = 6
MIN: 8.8 / MAX: 52.1
31.30
Radeon R9 285
SE +/- 0.17, N = 3
MIN: 22.9 / MAX: 58.5
42.23
Radeon RX 580
SE +/- 0.38, N = 3
MIN: 26.3 / MAX: 84.9
58.50
Radeon R9 Fury
SE +/- 0.52, N = 3
MIN: 31.7 / MAX: 88.7
59.43
Radeon RX Vega 56
SE +/- 0.20, N = 3
MIN: 26.1 / MAX: 88.7
60.97
Radeon RX Vega 64
SE +/- 0.09, N = 3
MIN: 27.6 / MAX: 87.8
61.03
GeForce GTX 970
SE +/- 0.03, N = 3
MIN: 37.2 / MAX: 92.2
65.63
GeForce GTX 1060
SE +/- 0.19, N = 3
MIN: 40.4 / MAX: 91.3
69.07
GeForce GTX 980
SE +/- 0.09, N = 3
MIN: 33.8 / MAX: 97.6
70.07
GeForce GTX 980 Ti
SE +/- 0.45, N = 3
MIN: 38.3 / MAX: 104.5
73.00
GeForce GTX 1080
SE +/- 0.57, N = 3
MIN: 42.3 / MAX: 105.8
73.20
GeForce GTX 1080 Ti
SE +/- 0.15, N = 3
MIN: 39.1 / MAX: 106.3
73.30
GeForce GTX 1070
SE +/- 0.32, N = 3
MIN: 36 / MAX: 106.8
73.90
16
32
48
64
80


Metro: Last Light Redux
Resolution: 3840 x 2160
Frames Per Second, More Is Better
GeForce GTX 1050
SE +/- 0.06, N = 3
38.12
Radeon RX 580
SE +/- 0.14, N = 3
52.75
Radeon RX Vega 56
SE +/- 0.30, N = 3
57.51
Radeon R9 Fury
SE +/- 0.29, N = 3
58.31
GeForce GTX 1060
SE +/- 0.30, N = 3
61.14
GeForce GTX 970
SE +/- 0.18, N = 3
68.80
GeForce GTX 980
SE +/- 0.24, N = 3
74.37
GeForce GTX 1070
SE +/- 0.19, N = 3
75.22
GeForce GTX 1080
SE +/- 0.23, N = 3
81.80
GeForce GTX 980 Ti
SE +/- 0.35, N = 3
84.24
GeForce GTX 1080 Ti
SE +/- 0.41, N = 3
86.76
20
40
60
80
100
Dawn of War III
Resolution: 3840 x 2160 - Graphics Preset: High - Renderer: OpenGL
Frames Per Second, More Is Better
Radeon R9 285
SE +/- 0.36, N = 6
2.79
Radeon RX 560
SE +/- 0.09, N = 3
MIN: 9.83 / MAX: 16.38
11.79
GeForce GTX 1060
SE +/- 0.07, N = 3
MIN: 21.59 / MAX: 34.01
24.92
Radeon R9 Fury
SE +/- 0.40, N = 3
MIN: 23.79 / MAX: 45.94
32.44
GeForce GTX 1070
SE +/- 0.06, N = 3
MIN: 29.79 / MAX: 45.99
34.48
GeForce GTX 1080
SE +/- 0.12, N = 3
MIN: 34.95 / MAX: 55.94
42.45
GeForce GTX 1080 Ti
SE +/- 0.29, N = 3
MIN: 44.87 / MAX: 85.83
54.68
12
24
36
48
60

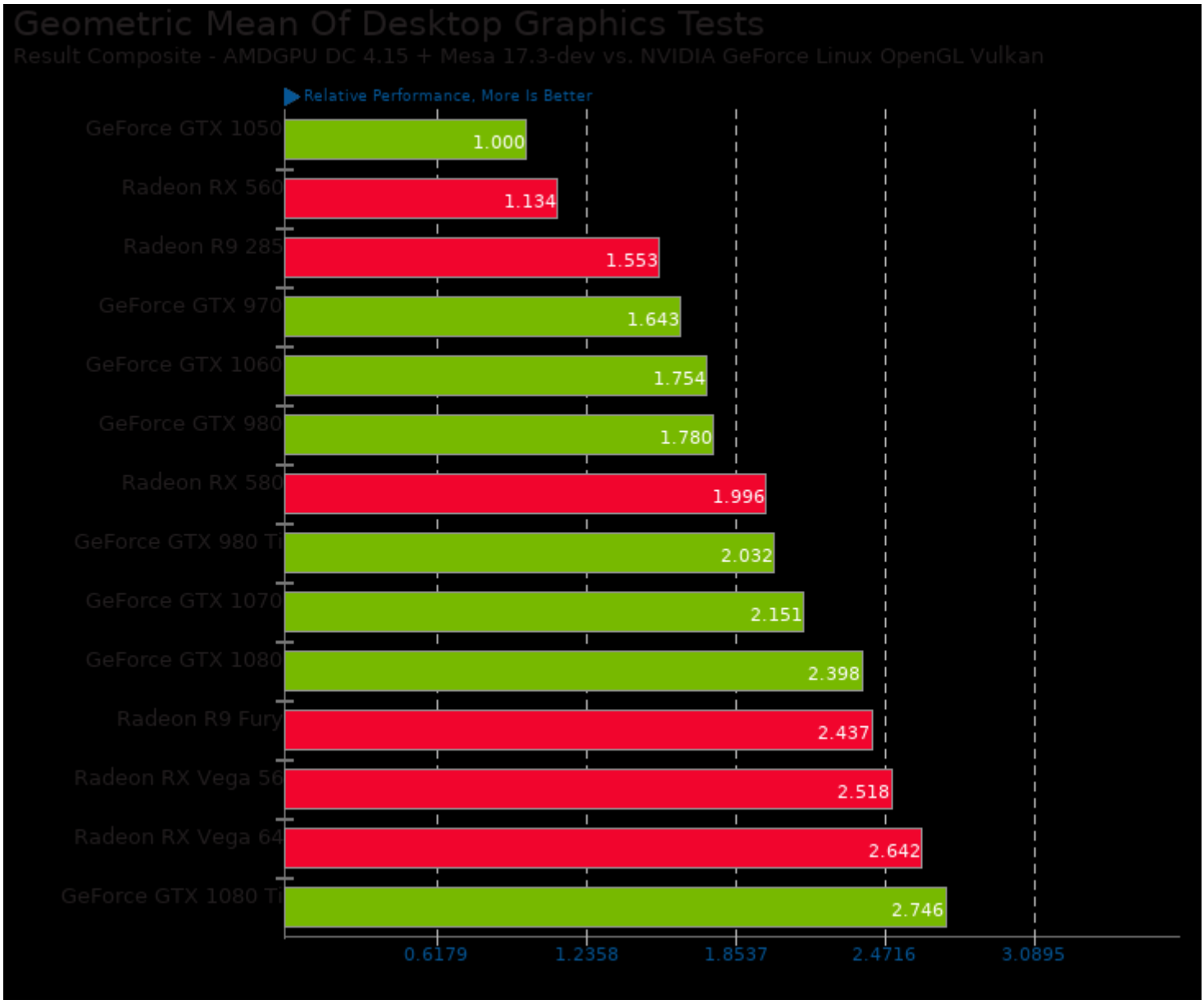

Deus Ex: Mankind Divided
Preset: 2560 x 1440 - High Quality
Frames Per Second, More Is Better
GeForce GTX 1050
SE +/- 0.22, N = 6
MIN: 0.9 / MAX: 9.9
4.68
Radeon RX 560
SE +/- 0.03, N = 3
MIN: 6.9 / MAX: 24.9
15.17
Radeon R9 285
SE +/- 0.15, N = 3
MIN: 12.2 / MAX: 32.4
21.53
GeForce GTX 970
SE +/- 0.00, N = 3
MIN: 23.5 / MAX: 40.4
31.70
Radeon RX 580
SE +/- 0.09, N = 3
MIN: 18.4 / MAX: 44.3
32.13
GeForce GTX 1060
SE +/- 0.03, N = 3
MIN: 24.5 / MAX: 42.7
33.53
GeForce GTX 980
SE +/- 0.03, N = 3
MIN: 26 / MAX: 45.2
35.33
Radeon R9 Fury
SE +/- 0.13, N = 3
MIN: 20.8 / MAX: 52.9
38.07
GeForce GTX 980 Ti
SE +/- 0.10, N = 3
MIN: 24.5 / MAX: 54.2
41.60
Radeon RX Vega 56
SE +/- 0.32, N = 3
MIN: 21 / MAX: 56.6
41.87
GeForce GTX 1070
SE +/- 0.00, N = 3
MIN: 31.4 / MAX: 57.7
45.50
Radeon RX Vega 64
SE +/- 0.18, N = 3
MIN: 27.6 / MAX: 61.9
45.73
GeForce GTX 1080
SE +/- 0.03, N = 3
MIN: 32.1 / MAX: 69
54.07
GeForce GTX 1080 Ti
SE +/- 0.13, N = 3
MIN: 37.9 / MAX: 90
62.67
14
28
42
56
70


Dawn of War III
Resolution: 3840 x 2160 - Graphics Preset: Low - Renderer: OpenGL
Frames Per Second, More Is Better
Radeon R9 285
SE +/- 0.11, N = 3
MIN: 3.92 / MAX: 9.61
6.47
Radeon RX 560
SE +/- 0.15, N = 3
MIN: 10.5 / MAX: 21.53
13.36
Radeon RX 580
SE +/- 0.33, N = 3
MIN: 23.21 / MAX: 43.39
28.88
GeForce GTX 1060
SE +/- 0.45, N = 6
MIN: 8.23 / MAX: 42.49
31.35
Radeon R9 Fury
SE +/- 0.26, N = 3
MIN: 28.29 / MAX: 66.87
36.29
Radeon RX Vega 56
SE +/- 0.04, N = 3
MIN: 28.74 / MAX: 71
41.41
GeForce GTX 1070
SE +/- 0.71, N = 4
MIN: 15.65 / MAX: 57.37
42.84
Radeon RX Vega 64
SE +/- 0.07, N = 3
MIN: 37.96 / MAX: 76
47.30
GeForce GTX 1080
SE +/- 0.71, N = 6
MIN: 8.97 / MAX: 81.27
52.49
GeForce GTX 1080 Ti
SE +/- 4.78, N = 6
MIN: 44.87 / MAX: 187.62
68.79
15
30
45
60
75


ET: Legacy 2.75
Renderer: Renderer2 - Resolution: 3840 x 2160
Frames Per Second, More Is Better
Radeon RX 560
SE +/- 1.54, N = 3
136.47
GeForce GTX 1050
SE +/- 0.26, N = 3
170.20
Radeon R9 285
SE +/- 1.01, N = 3
181.93
Radeon RX 580
SE +/- 3.12, N = 6
213.42
Radeon R9 Fury
SE +/- 2.95, N = 3
218.50
Radeon RX Vega 56
SE +/- 0.50, N = 3
223.37
Radeon RX Vega 64
SE +/- 3.36, N = 3
227.07
GeForce GTX 970
SE +/- 0.73, N = 3
232.43
GeForce GTX 1060
SE +/- 1.52, N = 3
236.67
GeForce GTX 980
SE +/- 4.46, N = 6
249.30
GeForce GTX 1070
SE +/- 5.06, N = 6
265.12
GeForce GTX 1080 Ti
SE +/- 5.89, N = 6
268.70
GeForce GTX 980 Ti
SE +/- 1.33, N = 3
269.57
GeForce GTX 1080
SE +/- 5.18, N = 6
272.08
60
120
180
240
300


Serious Sam 3: BFE
Resolution: 3840 x 2160 - Quality: Low - Renderer: Vulkan
Frames Per Second, More Is Better
Radeon RX 560
SE +/- 1.23, N = 6
52.72
GeForce GTX 1050
SE +/- 1.36, N = 6
70.22
Radeon R9 285
SE +/- 2.07, N = 6
73.55
GeForce GTX 970
SE +/- 2.56, N = 6
103.13
Radeon RX 580
SE +/- 3.33, N = 6
114.55
GeForce GTX 980
SE +/- 2.67, N = 6
120.80
Radeon R9 Fury
SE +/- 4.49, N = 6
129.27
GeForce GTX 1060
SE +/- 2.64, N = 6
129.38
Radeon RX Vega 56
SE +/- 3.30, N = 6
143.65
GeForce GTX 980 Ti
SE +/- 3.82, N = 6
151.17
Radeon RX Vega 64
SE +/- 2.76, N = 6
155.93
GeForce GTX 1070
SE +/- 5.88, N = 6
171.62
GeForce GTX 1080
SE +/- 3.69, N = 6
189.02
GeForce GTX 1080 Ti
SE +/- 3.98, N = 6
221.42
50
100
150
200
250

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



Geometric mean based upon tests: pts/xonotic and pts/tesseract



Geometric mean based upon tests: pts/csgo, pts/dota2, pts/dow3, pts/metroll-redux, pts/portal, pts/ss3bfe and pts/deus-exmd

This file was automatically generated via the Phoronix Test Suite benchmarking software on Thursday, 28 March 2024 07:31.