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Ubuntu 18.04 - KDE GNOME Wayland vs. X.Org Radeon

Radeon benchmarks with Ubuntu 18.04 using KDE Xorg. KDE Wayland, GNOME Xorg, GNOME Wayland. Tests by Michael Larabel for a future article.

Automated Executive Summary

RX Vega 64: GNOME Xorg had the most wins, coming in first place for 55% of the tests.

Based on the geometric mean of all complete results, the fastest (RX Vega 64: GNOME Xorg) was 1.424x the speed of the slowest (RX 580: GNOME Wayland). RX 580: GNOME Wayland was 0.931x the speed of RX 580: GNOME Xorg, RX 580: KDE Xorg was 1.1x the speed of RX 580: GNOME Wayland, RX 580: KDE Wayland was 0.922x the speed of RX 580: KDE Xorg, RX Vega 64: GNOME Xorg was 1.404x the speed of RX 580: KDE Wayland, RX Vega 64: GNOME Wayland was 0.954x the speed of RX Vega 64: GNOME Xorg, RX Vega 64: KDE Xorg was 1.039x the speed of RX Vega 64: GNOME Wayland, RX Vega 64: KDE Wayland was 1.004x the speed of RX Vega 64: KDE Xorg.

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

Portal (Resolution: 2560 x 1440) at 1.874x
DiRT Rally (Resolution: 3840 x 2160 - Graphics Preset: High) at 1.627x
BioShock Infinite (Resolution: 3840 x 2160 - Effects Quality: High) at 1.622x
Dawn of War III (Resolution: 2560 x 1440 - Graphics Preset: High - Renderer: Vulkan) at 1.603x
Mad Max (Resolution: 3840 x 2160 - Graphics Preset: Default - Renderer: Vulkan - Scene: Hope, Glory, and Dog is

Dead) at 1.577x
Mad Max (Resolution: 3840 x 2160 - Graphics Preset: Default - Renderer: Vulkan - Scene: Camp Hollow Point) at 1.575x
Dawn of War III (Resolution: 3840 x 2160 - Graphics Preset: High - Renderer: Vulkan) at 1.56x
Mad Max (Resolution: 3840 x 2160 - Graphics Preset: Default - Renderer: Vulkan - Scene: Landmover) at 1.55x
Xonotic (Resolution: 3840 x 2160 - Effects Quality: Ultimate) at 1.549x
Mad Max (Resolution: 3840 x 2160 - Graphics Preset: Default - Renderer: Vulkan - Scene: Stronghold) at 1.536x.

Test Systems:

RX 580: GNOME Xorg

Processor: Intel Core i7-8700K @ 4.70GHz (6 Cores / 12 Threads), Motherboard: ASUS PRIME Z370-A (0607 BIOS), Chipset: Intel Device 3ec2, Memory: 16384MB, Disk: 525GB Crucial_CT525MX3 + 118GB INTEL SSDPEK1W120GA, Graphics: MSI AMD Radeon RX 580 8192MB, Audio: Realtek ALC1220, Monitor: DELL P2415Q, Network: Intel Connection

OS: Ubuntu 18.04, Kernel: 4.15.0-20-generic (x86_64), Desktop: GNOME Shell 3.28.1, Display Driver: modesetting 1.19.6, OpenGL: 4.5 Mesa 18.0.0-rc5 (LLVM 6.0.0), Compiler: GCC 7.3.0, File-System: ext4, Screen Resolution: 3840x2160

Processor Notes: Scaling Governor: intel_pstate performance
Graphics Notes: GLAMOR
Security Notes: KPTI + __user pointer sanitization + Full generic retpoline Protection

RX 580: GNOME Wayland

Processor: Intel Core i7-8700K @ 4.70GHz (6 Cores / 12 Threads), Motherboard: ASUS PRIME Z370-A (0607 BIOS), Chipset: Intel Device 3ec2, Memory: 16384MB, Disk: 525GB Crucial_CT525MX3 + 118GB INTEL SSDPEK1W120GA, Graphics: MSI AMD Radeon RX 580 8192MB, Audio: Realtek ALC1220, Monitor: DELL P2415Q, Network: Intel Connection

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RX 580: KDE Xorg

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OS: Ubuntu 18.04, Kernel: 4.15.0-20-generic (x86_64), Desktop: KDE Plasma 5.12.4, Display Driver: modesetting

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RX Vega 64: GNOME Xorg

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RX Vega 64: KDE Xorg

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Phoronix Test Suite

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	RX 580: GNOME Xorg	RX 580: GNOME Wayland	RX 580: KDE Xorg	RX 580: KDE Wayland	RX Vega 64: GNOME Xorg	RX Vega 64: GNOME Wayland	RX Vega 64: KDE Xorg	RX Vega 64: KDE Wayland
BioShock Infinite - 3840 x 2160 - High (FPS)	95.18	**88.97**	96.84	90.52	**144.32**	135.71	142.27	141.11
Normalized	65.95%	61.65%	67.1%	62.72%	100%	94.03%	98.58%	97.78%
Standard Deviation	0.1%	2.3%	0.1%	0.2%	1.2%	1.5%	1.8%	2.2%
Deus Ex: Mankind Divided - 2560 x 1440 - High Quality (FPS)	38.10	**36.20**	38.27	36.63	**54.93**	51.23	53.93	51.93
Normalized	69.36%	65.9%	69.67%	66.68%	100%	93.26%	98.18%	94.54%
Standard Deviation	0.5%	0%	0.8%	0.4%	0.4%	0.7%	2.1%	1.3%
Deus Ex: Mankind Divided - 1920 x 1080 - Ultra Quality (FPS)	39.67	**37.90**	39.77	38.33	57.53	54.87	**57.57**	56.23
Normalized	68.91%	65.83%	69.08%	66.58%	99.93%	95.31%	100%	97.67%
Standard Deviation	0.8%	1.3%	0.3%	0.8%	0.6%	0.1%	0.2%	0.6%
Dota 2 - 2560 x 1440 - Vulkan (FPS)	126.20	**117.23**	125.20	119.17	**133.87**	133.30	133.23	131.13
Normalized	94.27%	87.57%	93.52%	89.02%	100%	99.57%	99.52%	97.95%
Standard Deviation	0.5%	0.5%	0.6%	0.8%	0.4%	0.2%	0.7%	6.4%
Dota 2 - 3840 x 2160 - OpenGL (FPS)	73.63	**69.40**	74.20	70.83	**96.97**	93.57	96.50	93.97
Normalized	75.93%	71.57%	76.52%	73.04%	100%	96.49%	99.52%	96.91%
Standard Deviation	0.3%	0.9%	0.1%	0.5%	0.5%	0.2%	0.1%	3.5%

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Dota 2 - 3840 x 2160 - Vulkan (FPS)	71.87	**68.17**	75.20	68.60	92.67	89.57	93.10	**95.70**
Normalized	75.1%	71.23%	78.58%	71.68%	96.83%	93.59%	97.28%	100%
Standard Deviation	0.2%	0.2%	0.2%	3.2%	0.3%	0.6%	0.5%	2.8%
Dawn of War III - 1920 x 1080 - High - Vulkan (FPS)	79.18	**73.02**	79.55	74.57	95.69	94.73	**95.87**	94.01
Normalized	82.59%	76.17%	82.98%	77.78%	99.81%	98.81%	100%	98.06%
Standard Deviation	0.3%	9.7%	0.1%	3.1%	0.6%	0.3%	0.5%	3.2%
Dawn of War III - 2560 x 1440 - High - Vulkan (FPS)	50.12	**48.18**	50.94	48.59	76.98	74.68	**77.24**	76.48
Normalized	64.89%	62.38%	65.95%	62.91%	99.66%	96.69%	100%	99.02%
Standard Deviation	0.9%	1.1%	0.6%	0.2%	0.5%	0.4%	0.3%	0.3%
Dawn of War III - 3840 x 2160 - High - Vulkan (FPS)	23.55	**23.17**	23.80	23.23	**36.14**	35.39	35.62	35.86
Normalized	65.16%	64.11%	65.86%	64.28%	100%	97.92%	98.56%	99.23%
Standard Deviation	0.5%	1%	0.5%	0.2%	1.8%	0.2%	0.3%	0.3%
F1 2017 - 2560 x 1440 - Medium - Off (FPS)	105	**97**	106	99	**136**	129	**136**	134
Normalized	77.21%	71.32%	77.94%	72.79%	100%	94.85%	100%	98.53%
Standard Deviation			1.1%	0.6%	0.7%	0.8%		
F1 2017 - 3840 x 2160 - Medium - Off (FPS)	58	**55**		56	**77**	74	**77**	76
Normalized	75.32%	71.43%		72.73%	100%	96.1%	100%	98.7%
Standard Deviation					2.2%			
Mad Max - 3840 x 2160 - Default - Vulkan - Camp Hollow Point	37.83	36.07	38.37	**35.95**	56.16	54.58	**56.62**	55.22
Normalized	66.81%	63.71%	67.77%	63.49%	99.19%	96.4%	100%	97.53%
Mad Max - 3840 x 2160 - Default - Vulkan - Stronghold (FPS)	37.04	35.62	37.22	**35.49**	54.40	52.98	54.26	**54.52**
Normalized	67.94%	65.33%	68.27%	65.1%	99.78%	97.18%	99.52%	100%
Mad Max - 3840 x 2160 - Default - Vulkan - H.G.a.D.i.D (FPS)	35.65	34.56	35.81	**34.17**	53.31	52.98	**53.87**	53.45
Normalized	66.18%	64.15%	66.47%	63.43%	98.96%	98.35%	100%	99.22%
Mad Max - 3840 x 2160 - Default - Vulkan - Landmover (FPS)	41.21	39.85	41.31	**39.56**	60.87	59.90	**61.31**	60.78
Normalized	67.22%	65%	67.38%	64.52%	99.28%	97.7%	100%	99.14%
Portal - 2560 x 1440 (FPS)	587.39	**487.70**	592.23	502.63	877.41	770.23	785.71	**913.97**
Normalized	64.27%	53.36%	64.8%	54.99%	96%	84.27%	85.97%	100%
Standard Deviation	0.1%	0%	0%	0.1%	0.1%	0.3%	0.2%	0.3%

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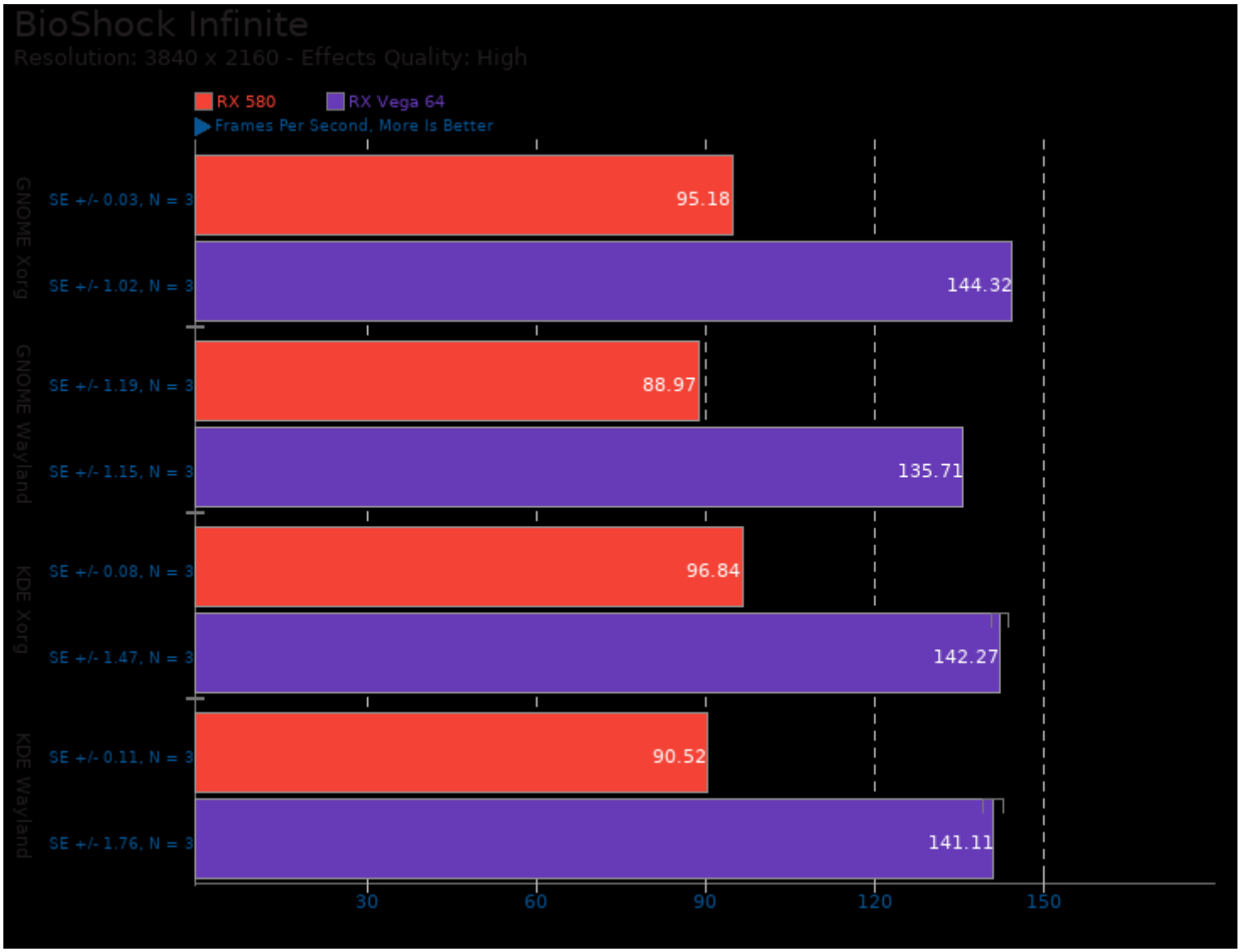
Rise of the Tomb Raider - 1920 x 1080 - Medium - FXAA -	110.80	**102.45**	112.65	104.05	**139.30**	129.90	138.65	137.60
Normalized	79.54%	73.55%	80.87%	74.69%	100%	93.25%	99.53%	98.78%
Standard Deviation	0.8%	0.5%	0.6%	1.4%	0.1%	1%	0.6%	0.5%
Rise of the Tomb Raider - 1920 x 1080 - Medium - FXAA - Prophets Tomb (FPS)	75.95	**71.40**	76.30	73.00	**96.35**	91.65	96.30	95.80
Normalized	78.83%	74.1%	79.19%	75.77%	100%	95.12%	99.95%	99.43%
Standard Deviation	0.1%	0.8%	0%	1.2%	0.8%	0.5%	0.1%	0%
Rise of the Tomb Raider - 1920 x 1080 - Medium - FXAA - Geothermal Valley	83.70	**77.90**	84.80	79.95	**103.80**	98.00	**103.80**	103.65
Normalized	80.64%	75.05%	81.7%	77.02%	100%	94.41%	100%	99.86%
Standard Deviation	0.3%	0.2%	0.3%	0.1%	0.3%	0.4%	0.1%	0.6%
Rise of the Tomb Raider - 2560 x 1440 - Medium - FXAA -	78.10	**73.70**	78.40	75.35	**100.90**	95.80	100.55	100.45
Normalized	77.4%	73.04%	77.7%	74.68%	100%	94.95%	99.65%	99.55%
Standard Deviation	0%	0.2%	0.4%	0.7%	0.1%	0.3%	0.2%	0.9%
Rise of the Tomb Raider - 2560 x 1440 - Medium - FXAA - Prophets Tomb (FPS)	53.00	**51.10**	53.20	51.95	69.90	67.75	69.80	**70.05**
Normalized	75.66%	72.95%	75.95%	74.16%	99.79%	96.72%	99.64%	100%
Standard Deviation	0.5%	0%	0.3%	0.1%	0.2%	0.1%	0%	0.7%
Rise of the Tomb Raider - 2560 x 1440 - Medium - FXAA - Geothermal Valley	58.65	**56.20**	58.60	56.90	**75.90**	72.80	**75.90**	75.80
Normalized	77.27%	74.04%	77.21%	74.97%	100%	95.92%	100%	99.87%
Standard Deviation	0.1%	0%	0.2%	0.2%	0.4%	0.4%	0%	0.2%
Rise of the Tomb Raider - 3840 x 2160 - Medium - FXAA -	40.75	**39.35**	40.80	39.80	**56.00**	54.10	**56.00**	55.80
Normalized	72.77%	70.27%	72.86%	71.07%	100%	96.61%	100%	99.64%
Standard Deviation	0.5%	0.9%	0.3%	0.7%	0.3%	0.8%	0.5%	0.3%
Rise of the Tomb Raider - 3840 x 2160 - Medium - FXAA - Prophets Tomb (FPS)	28.05	**27.30**	28.25	27.65	39.05	38.45	38.95	**39.15**
Normalized	71.65%	69.73%	72.16%	70.63%	99.74%	98.21%	99.49%	100%
Standard Deviation	0.8%	0%	0.3%	0.3%	0.2%	0.2%	0.5%	0.2%

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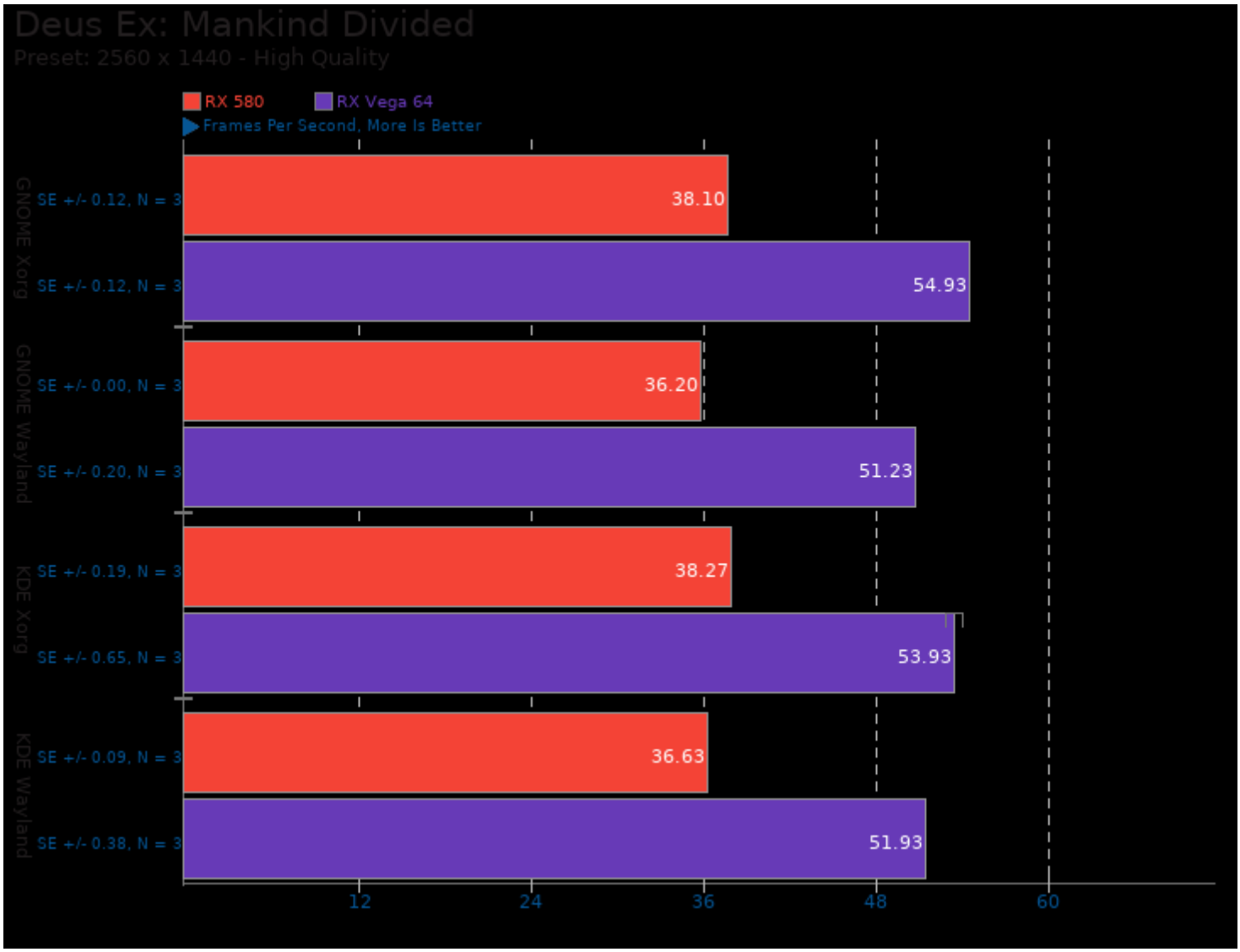
Phoronix Test Suite

Rise of the Tomb Raider - 3840 x 2160 - Medium - FXAA - Geothermal Valley	31.40	**30.45**	31.55	30.90	42.80	42.20	**42.95**	**42.95**
Normalized	73.11%	70.9%	73.46%	71.94%	99.65%	98.25%	100%	100%
Standard Deviation	0%	0.2%	0.2%	0.5%	0.3%	0%	0.5%	0.2%
Xonotic - 3840 x 2160 - Low (FPS)	443.90	**441.28**	442.46	442.97	**451.65**	449.65	451.14	446.51
Normalized	98.28%	97.7%	97.97%	98.08%	100%	99.56%	99.89%	98.86%
Standard Deviation	0.1%	0.5%	0.9%	0.3%	0.8%	0.2%	0.4%	0.3%
Xonotic - 3840 x 2160 - Ultimate (FPS)	205.57	**191.37**	281.13	195.37	273.77	267.72	273.55	**296.49**
Normalized	69.33%	64.55%	94.82%	65.89%	92.34%	90.3%	92.26%	100%
Standard Deviation	0.5%	0.2%	0.5%	0.6%	0.3%	0.3%	0.4%	0.8%
X-Plane - Very High - 2560 x 1440 (FPS)	79.24	**62.35**	78.45	63.40	78.81	69.38	78.56	**81.66**
Normalized	97.04%	76.35%	96.07%	77.64%	96.51%	84.96%	96.2%	100%
DiRT Rally - 3840 x 2160 - High (FPS)	74.95	**70.42**	74.96	71.41	114.07	108.58	**114.60**	112.29
Normalized	65.4%	61.45%	65.41%	62.31%	99.54%	94.75%	100%	97.98%
Standard Deviation	0.2%	0.1%	0.1%	0.1%	0.4%	0.2%	0.5%	0.6%

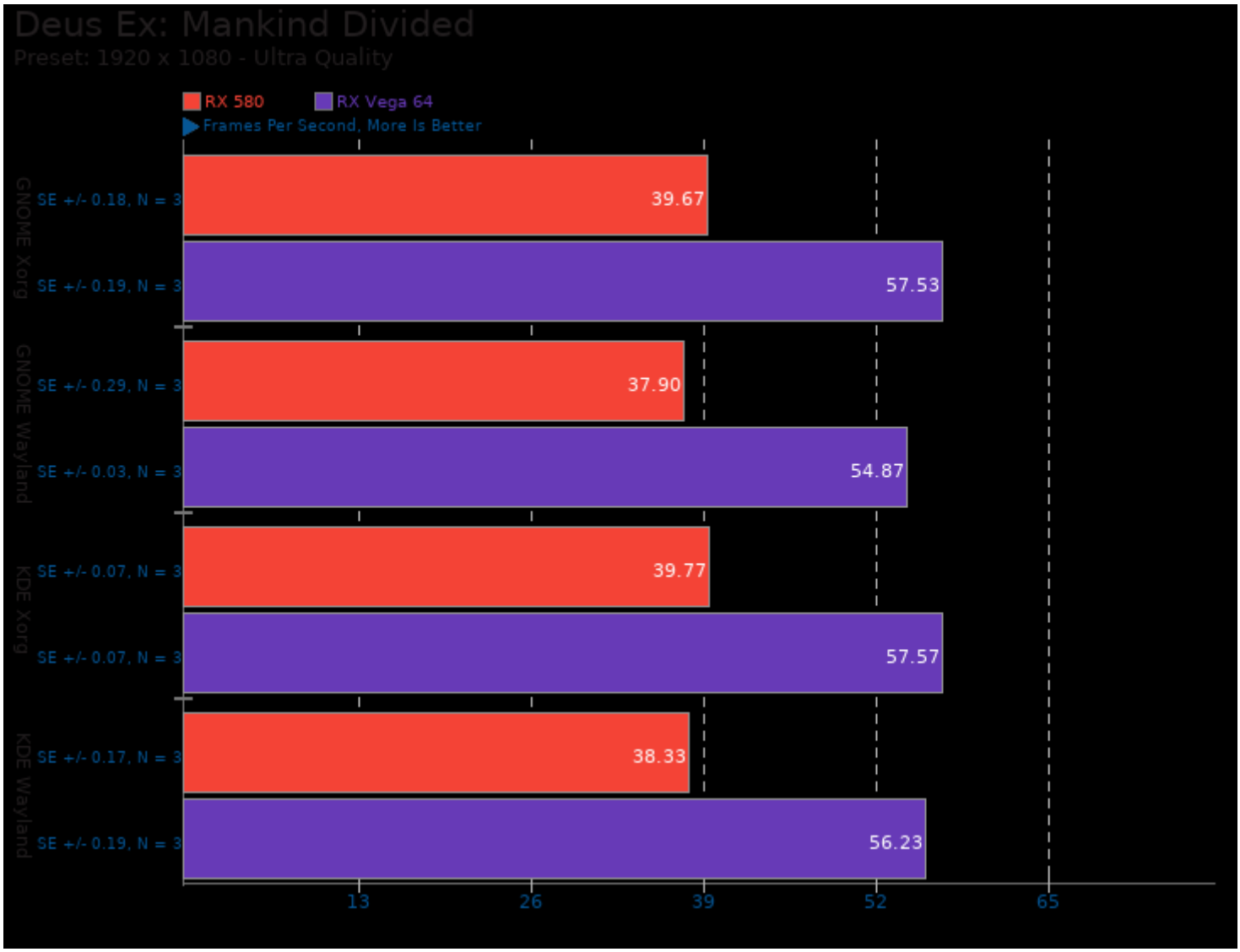
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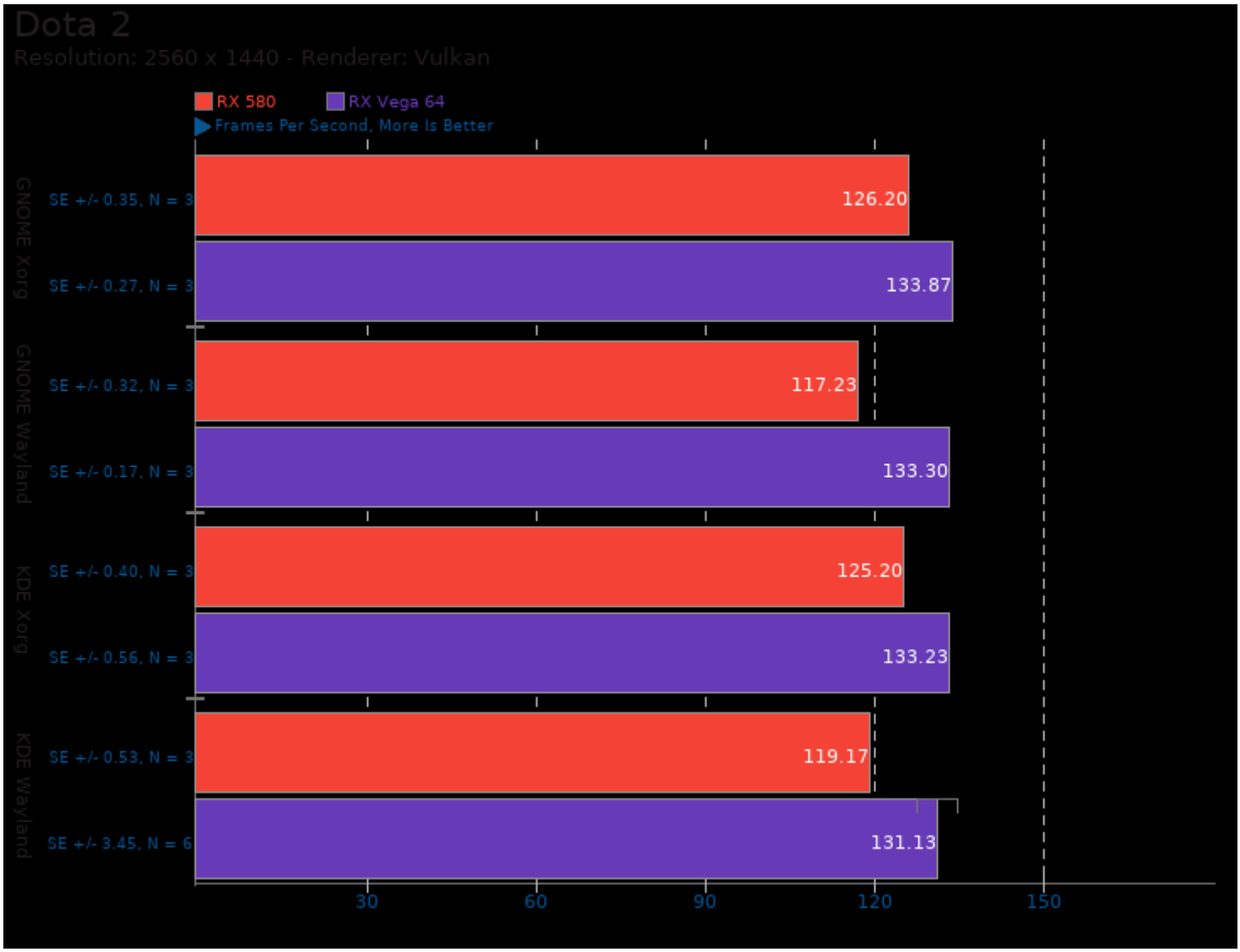
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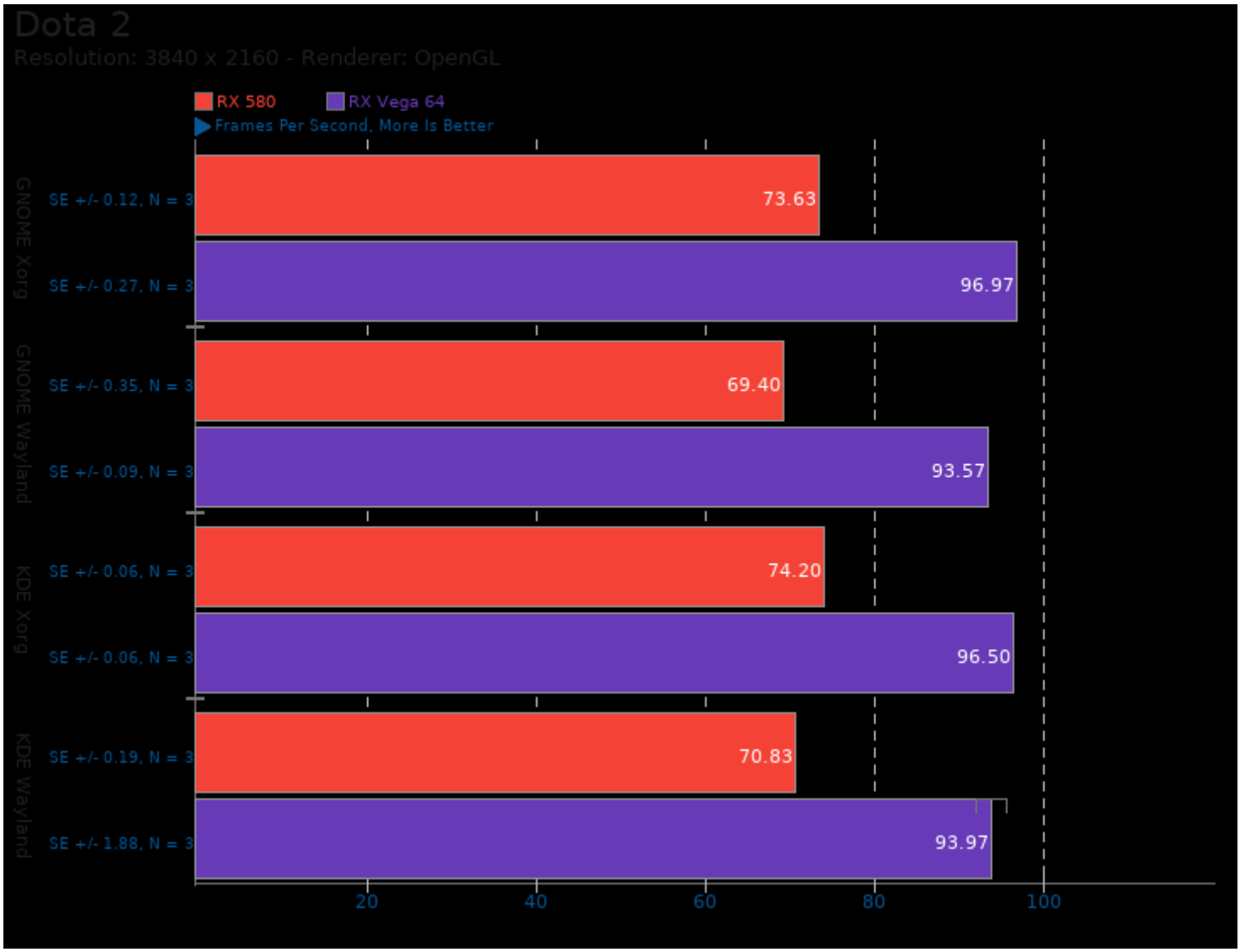
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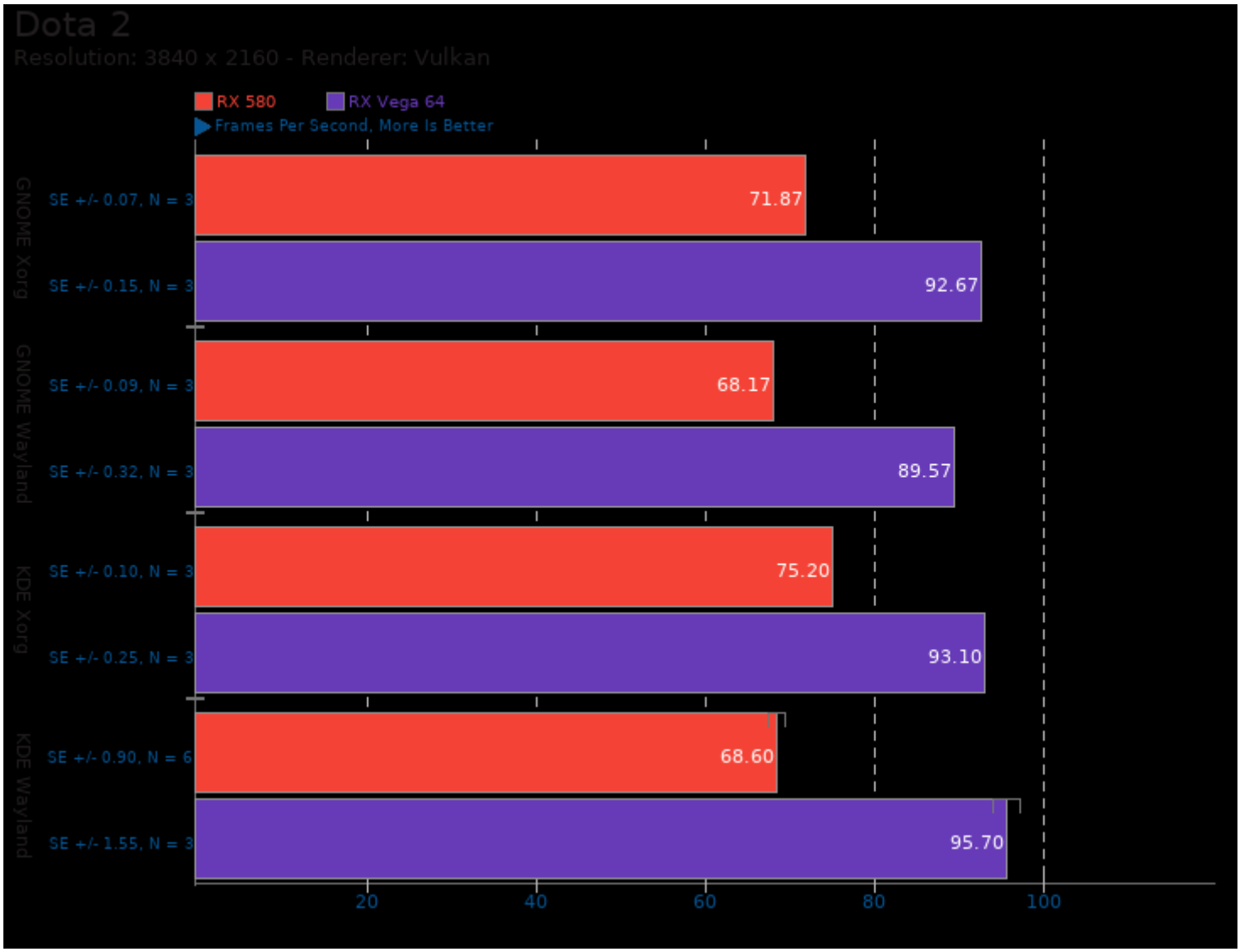
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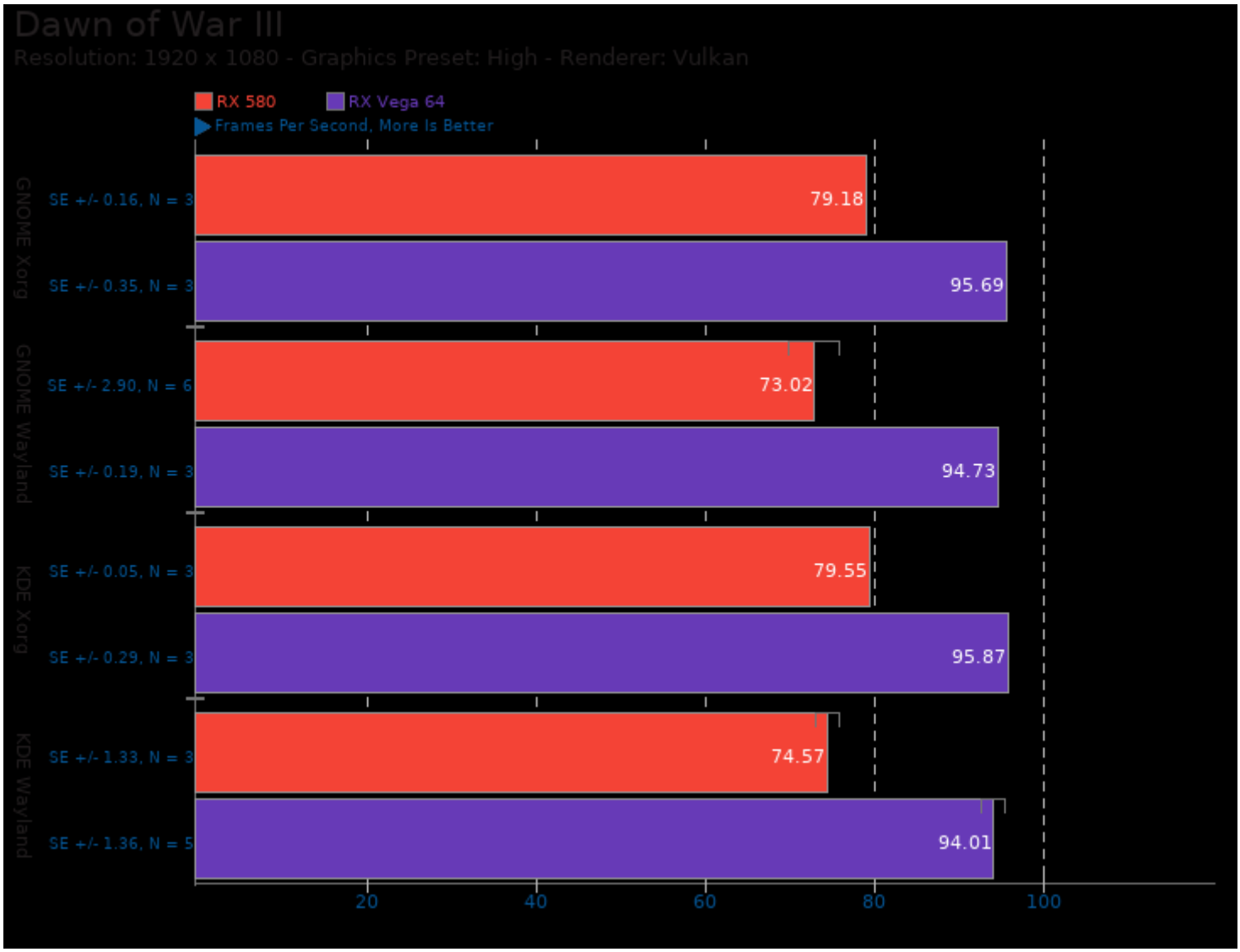
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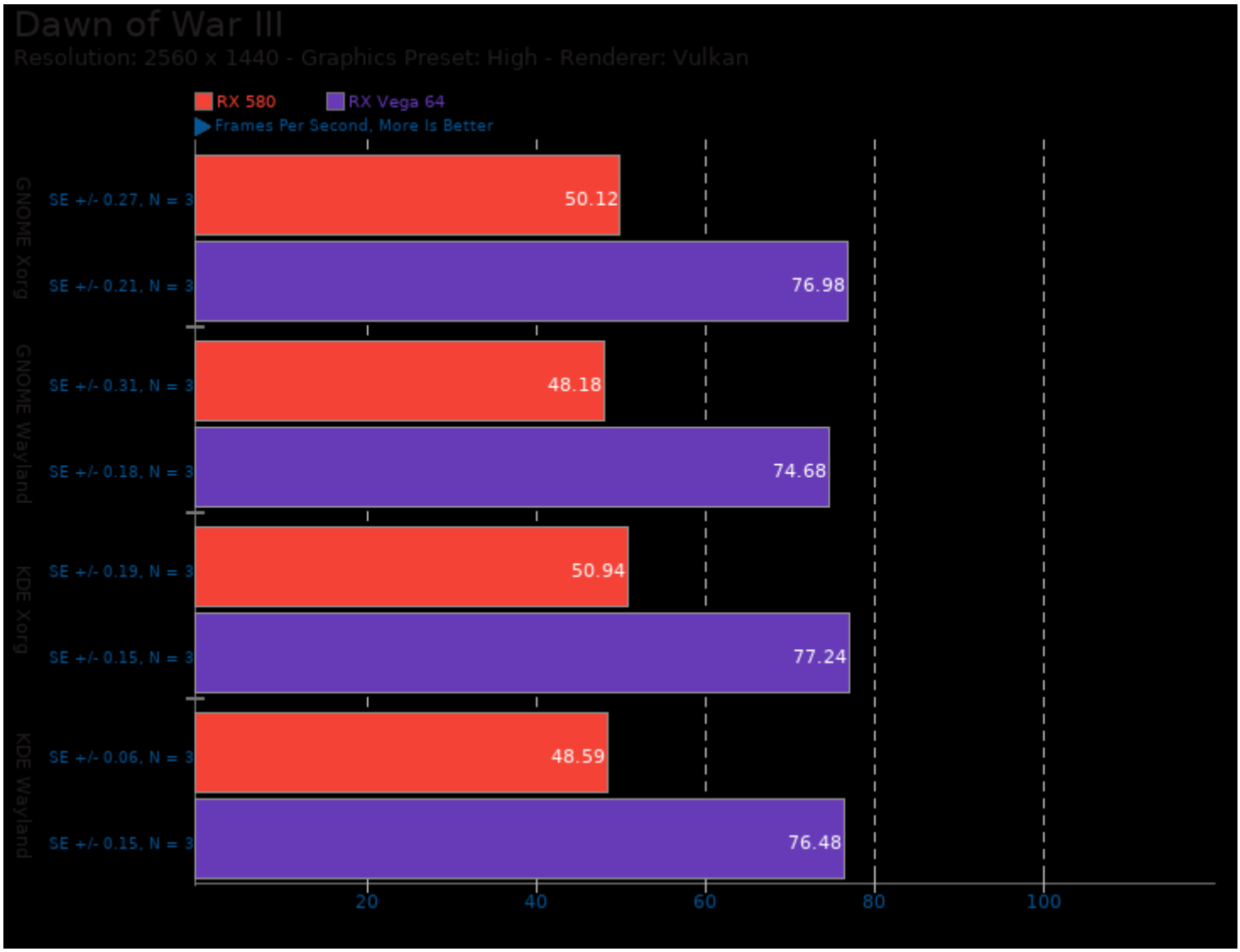
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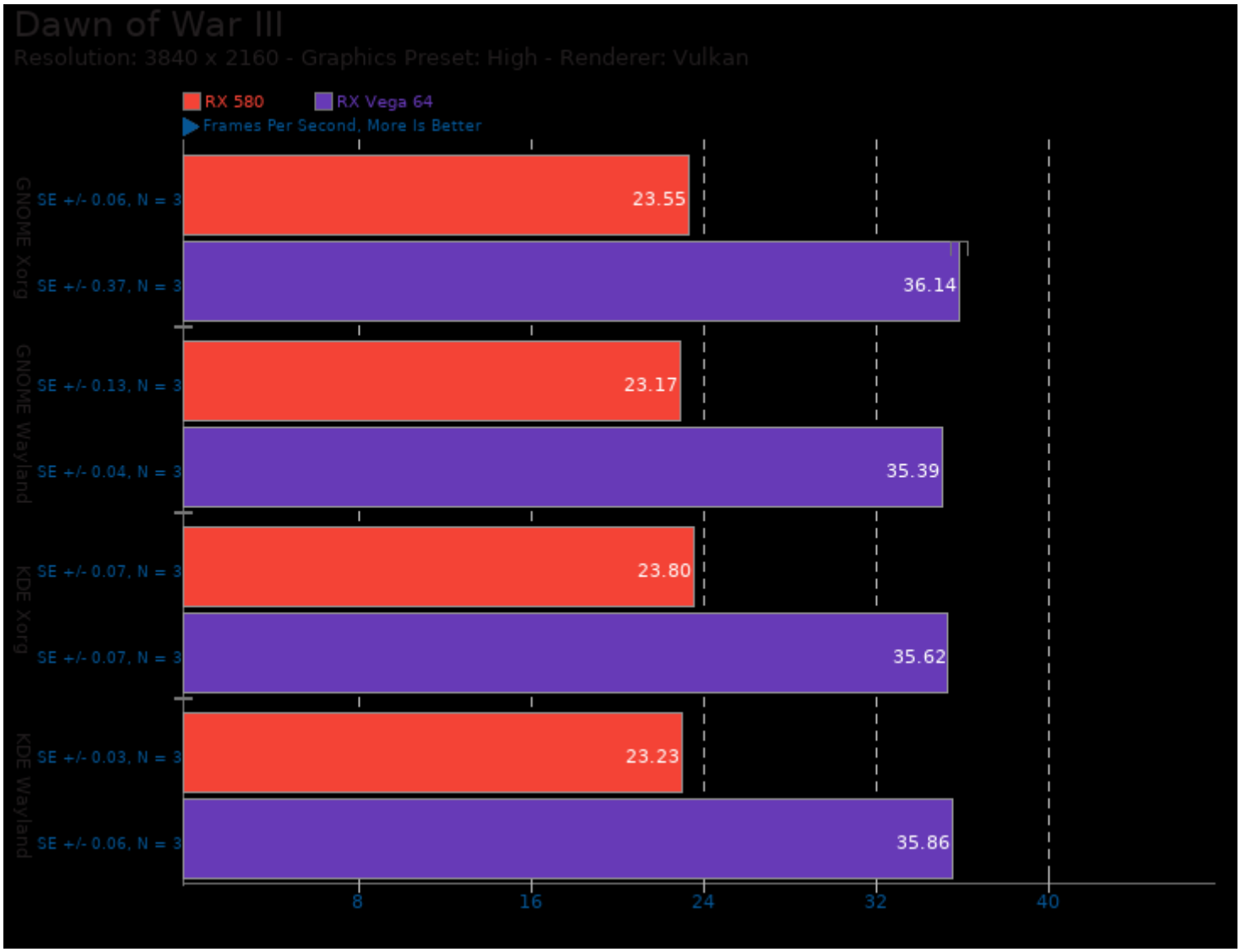
Ubuntu 18.04 - KDE GNOME Wayland vs. X.Org Radeon



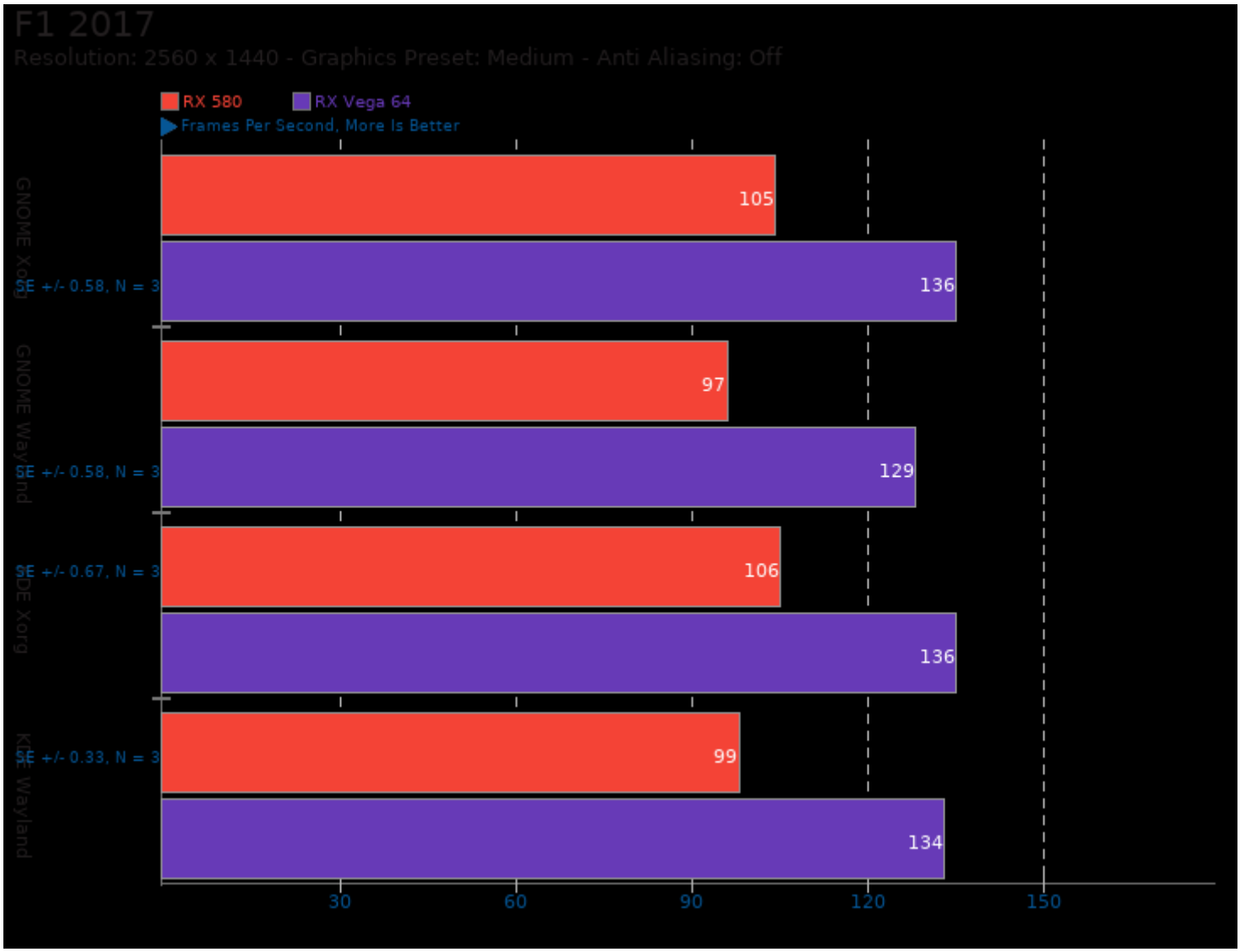
Ubuntu 18.04 - KDE GNOME Wayland vs. X.Org Radeon



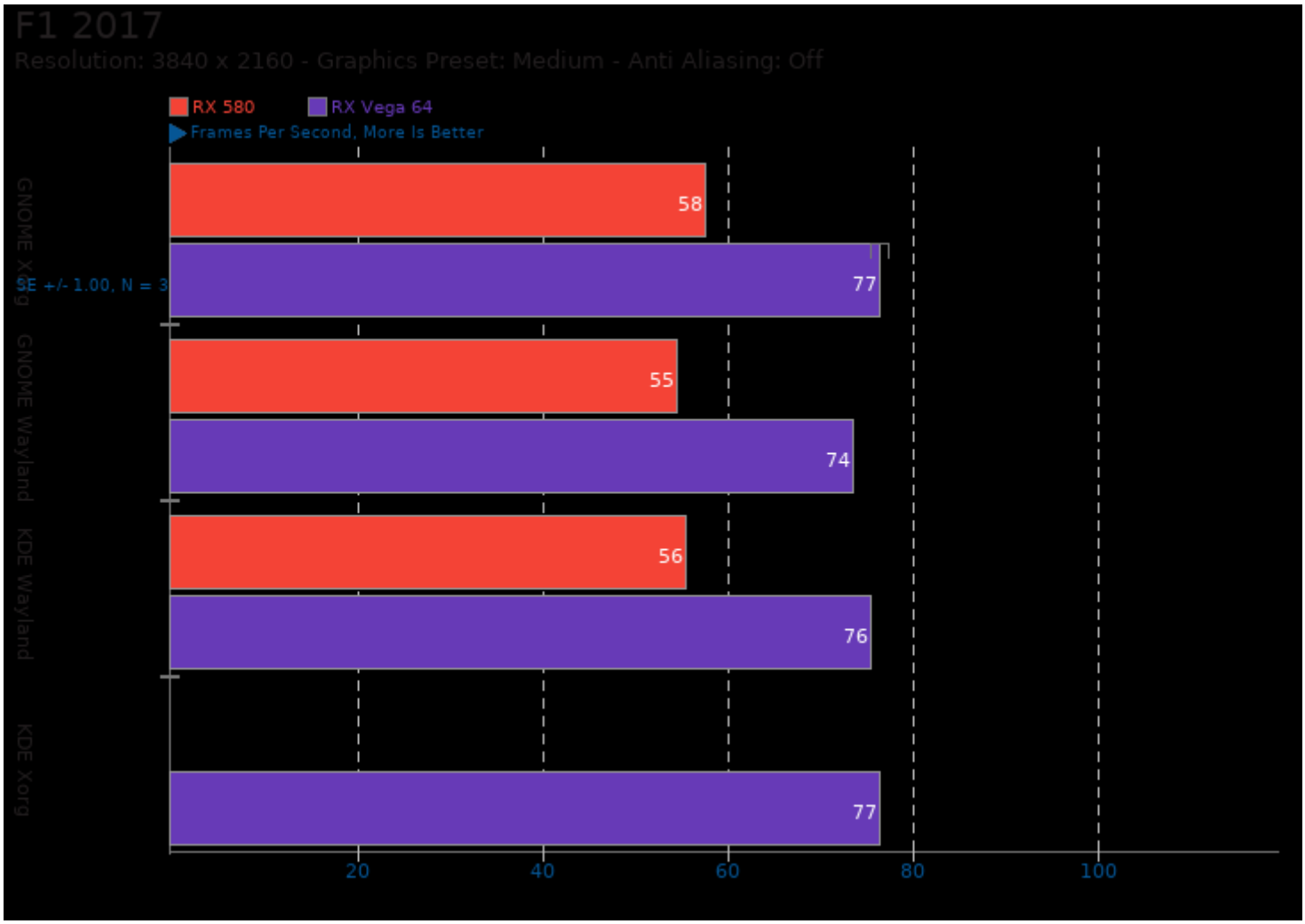
Ubuntu 18.04 - KDE GNOME Wayland vs. X.Org Radeon

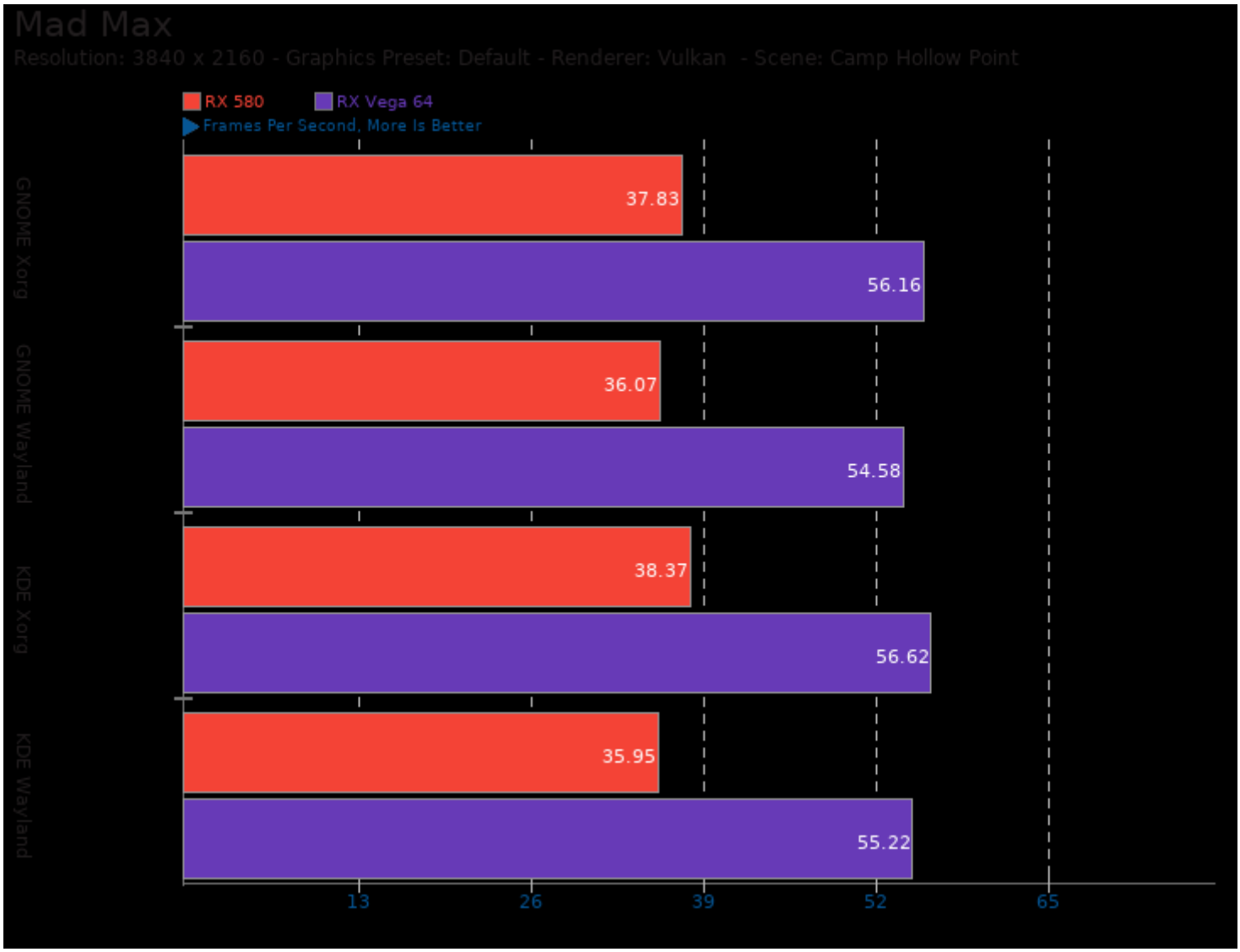


Ubuntu 18.04 - KDE GNOME Wayland vs. X.Org Radeon

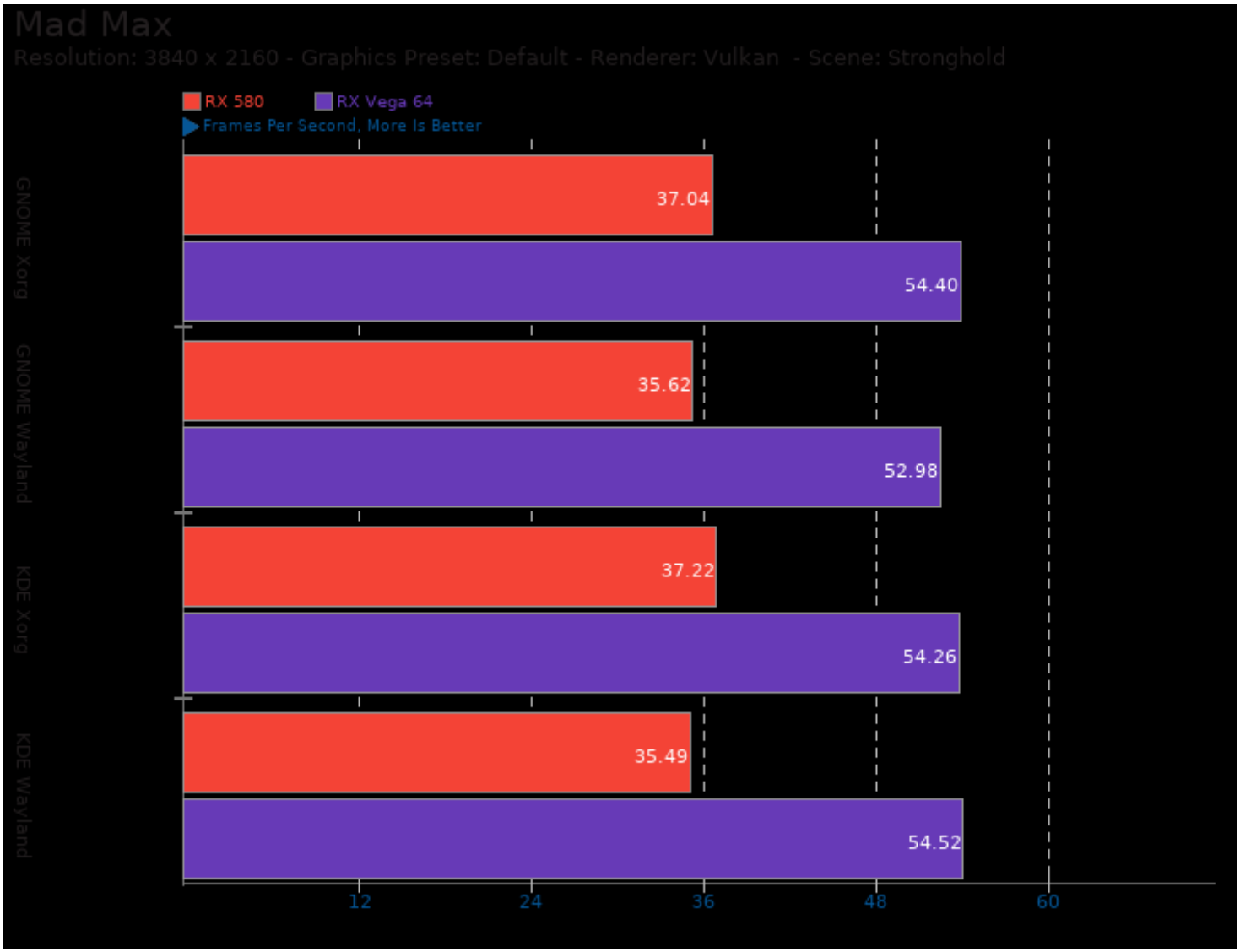


Ubuntu 18.04 - KDE GNOME Wayland vs. X.Org Radeon

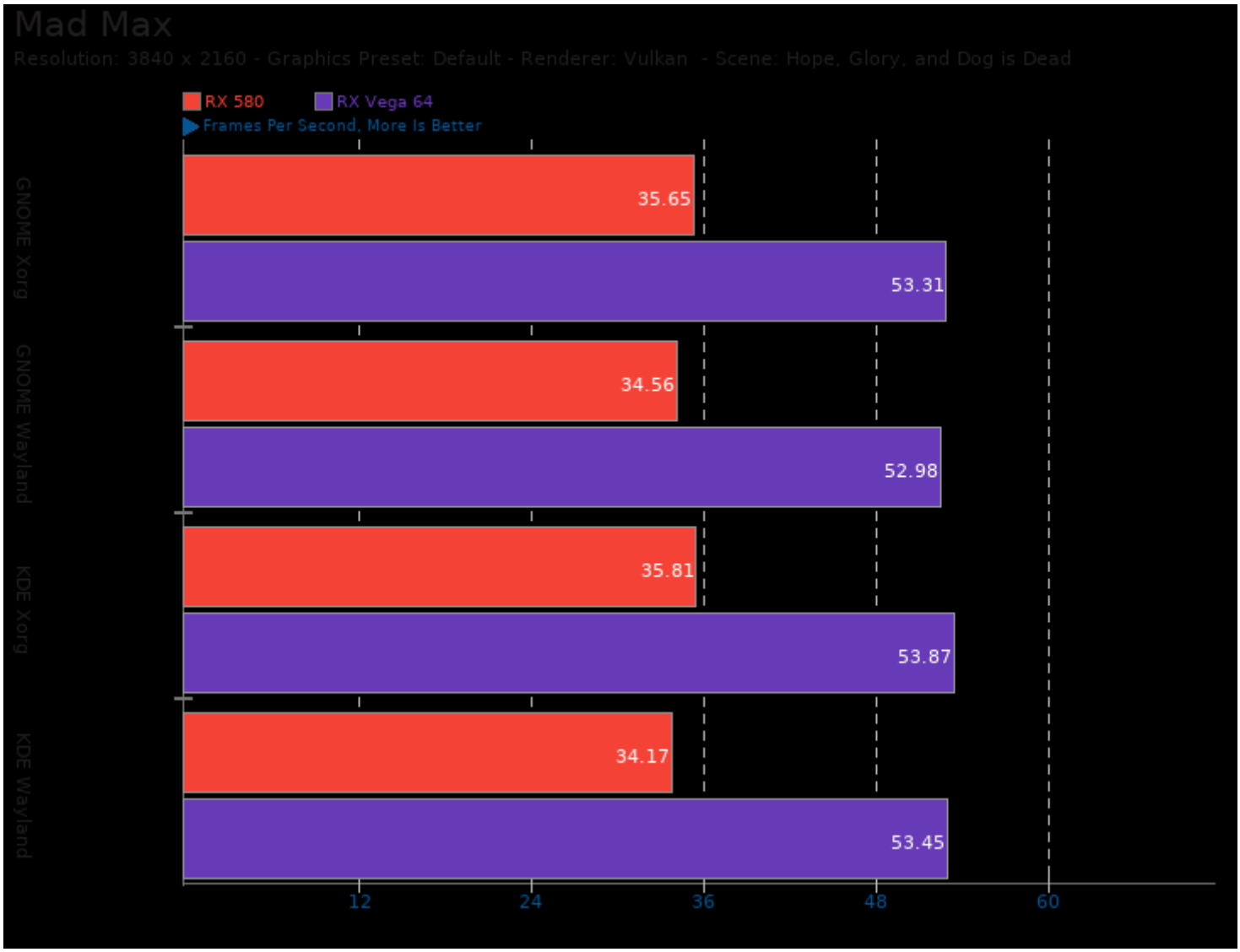



Mad Max
Resolution: 3840 x 2160 - Graphics Preset: Default - Renderer: Vulkan - Scene: Camp Hollow Point
RX 580
RX Vega 64
Frames Per Second, More Is Better
GNOME Xorg
GNOME Wayland
KDE Xorg
KDE Wayland
37.83
56.16
36.07
54.58
38.37
56.62
35.95
55.22
13
26
39
52
65

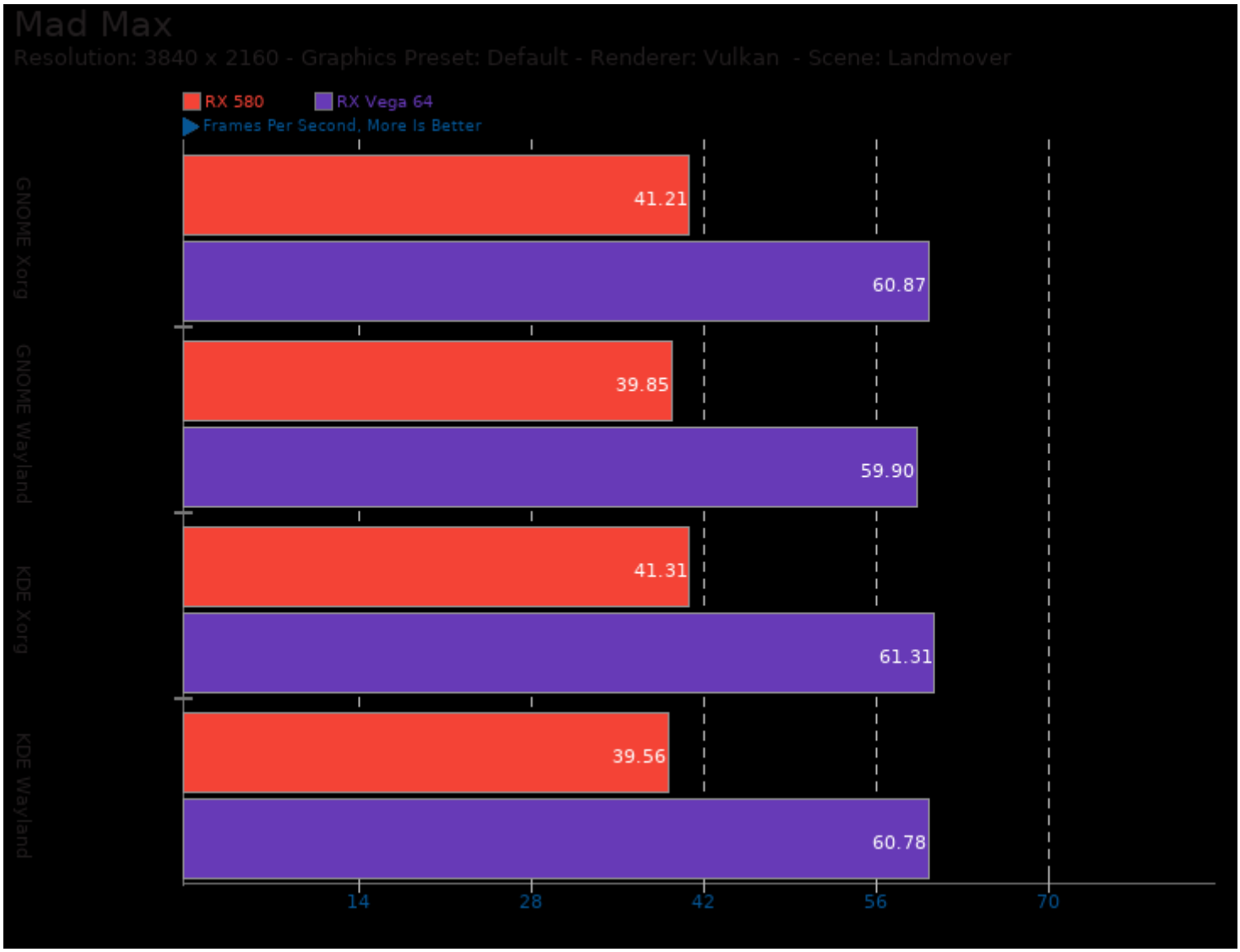
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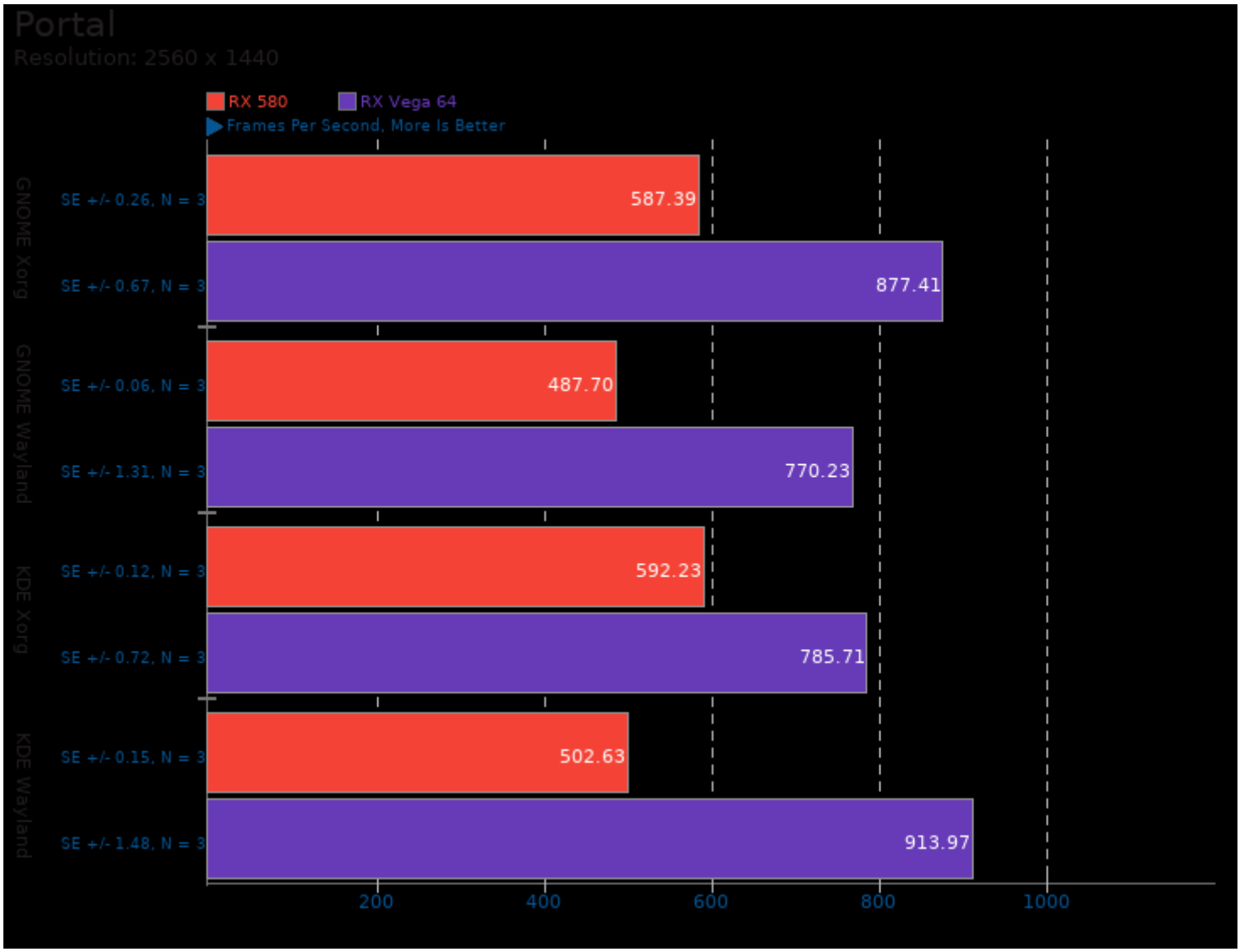
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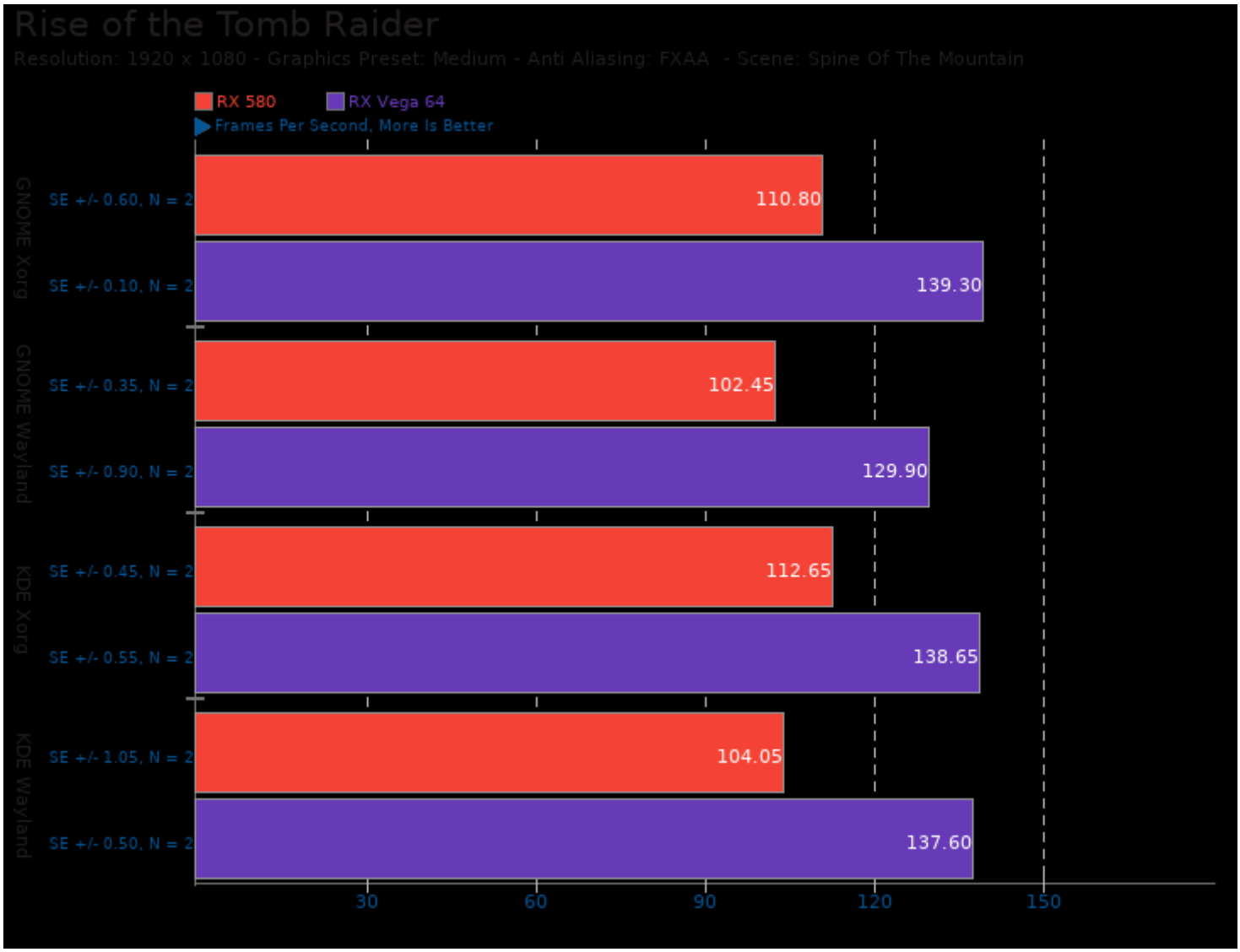
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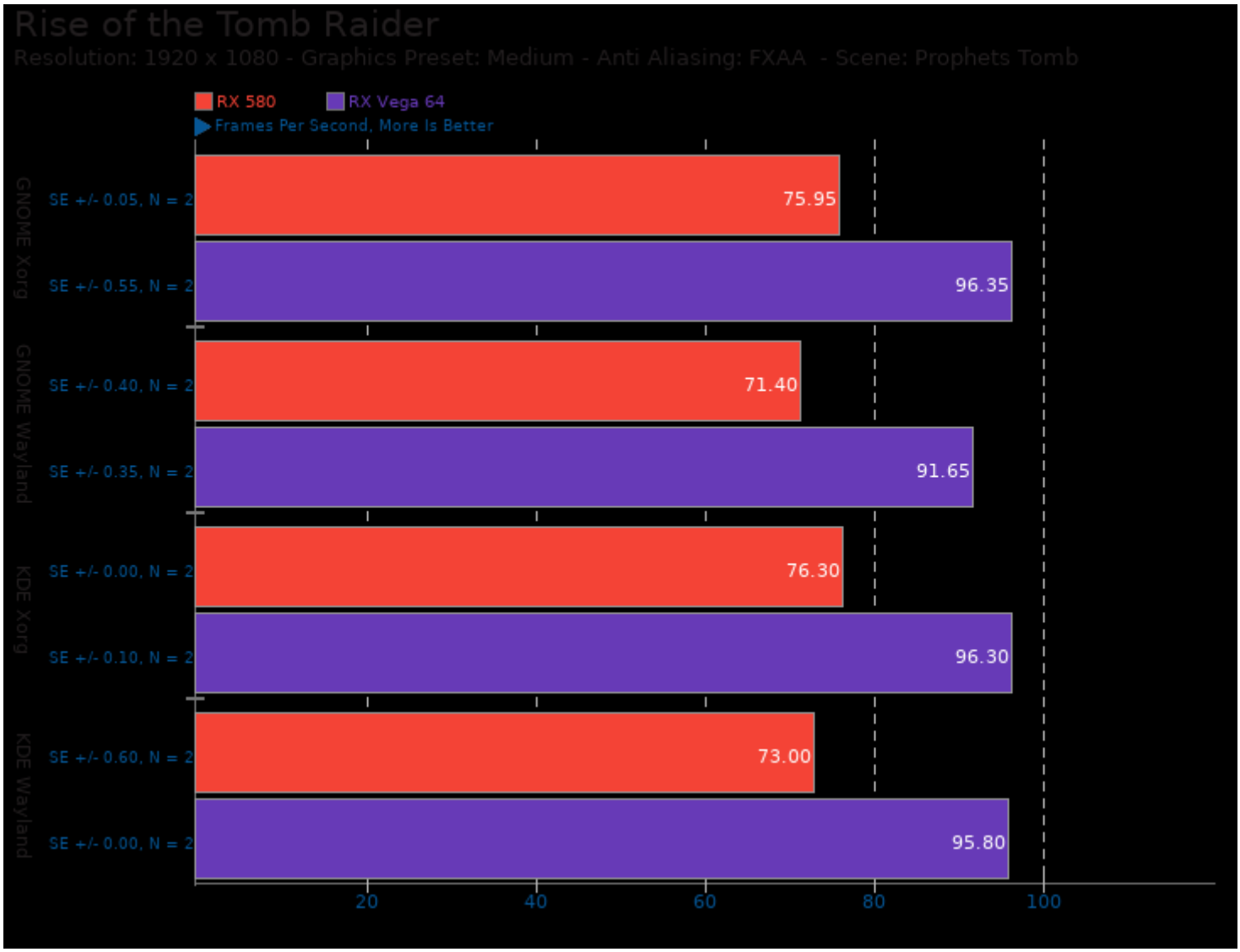
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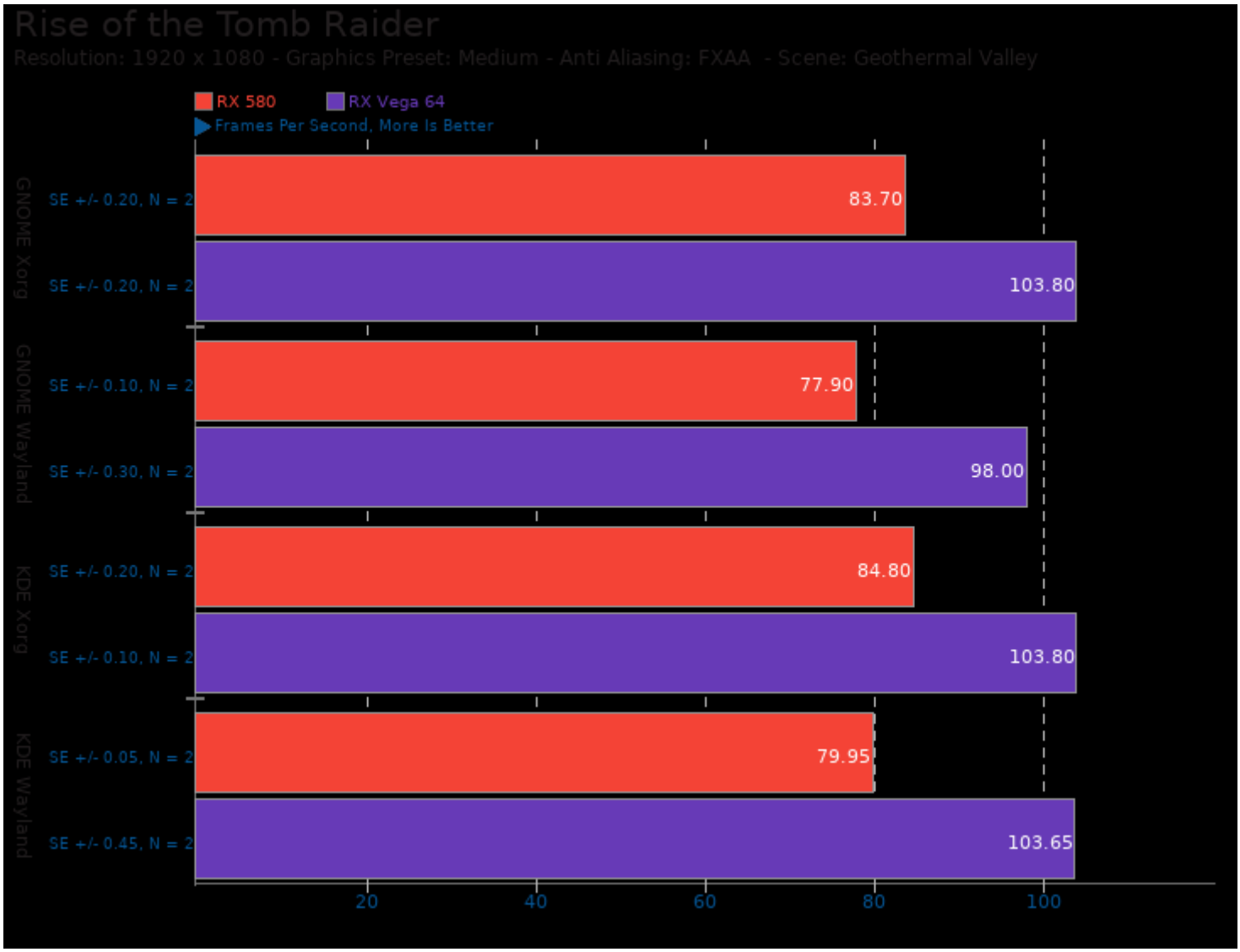
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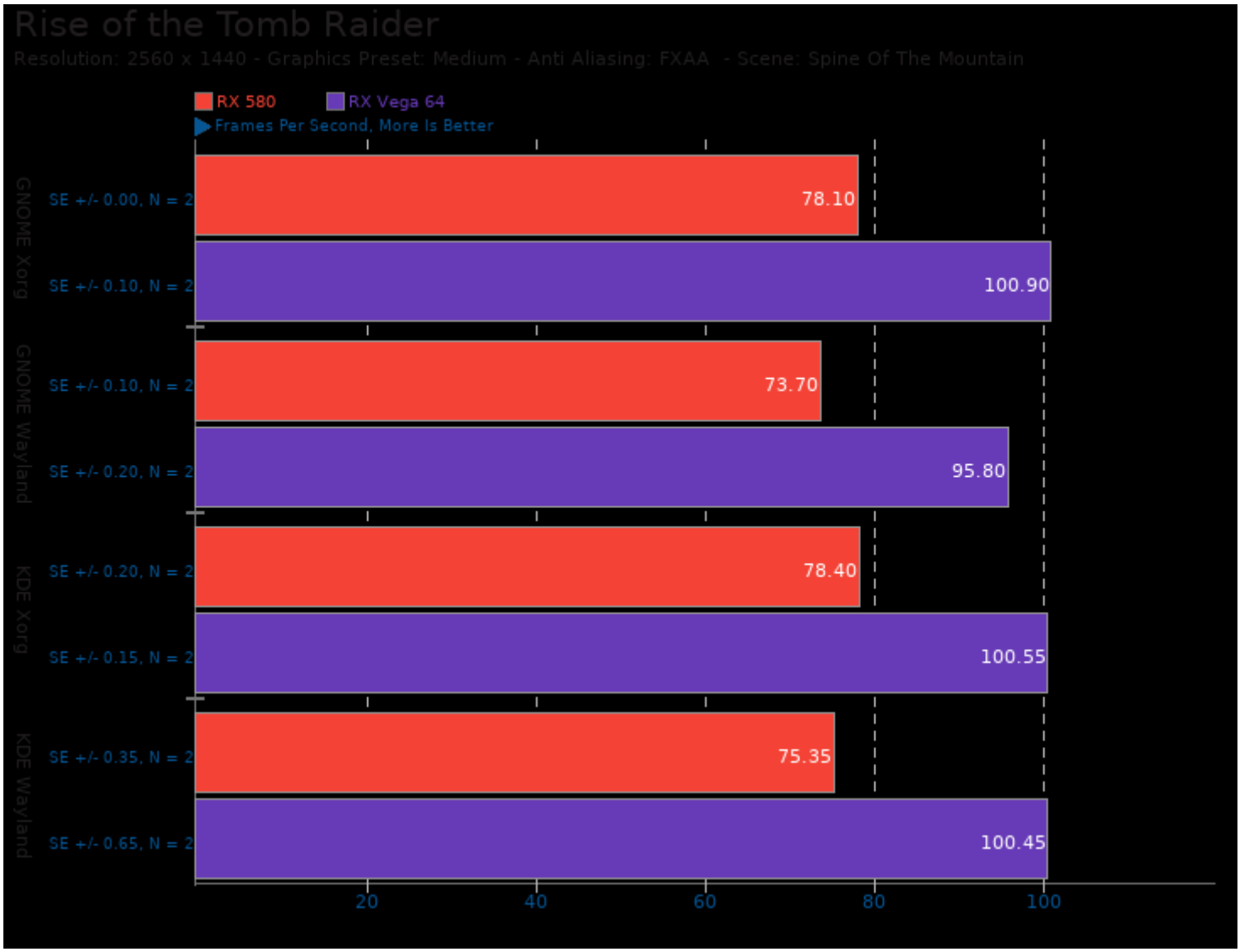
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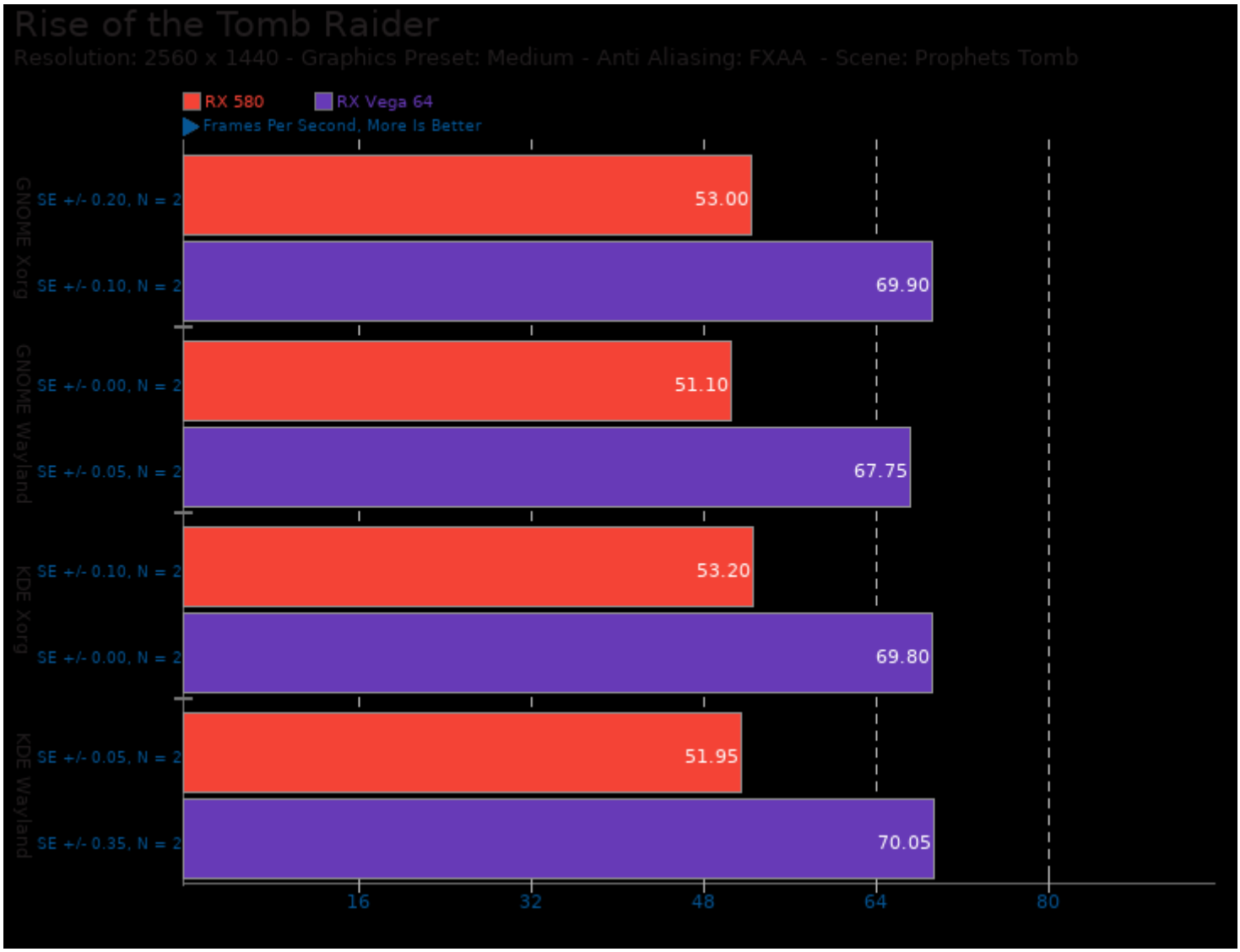
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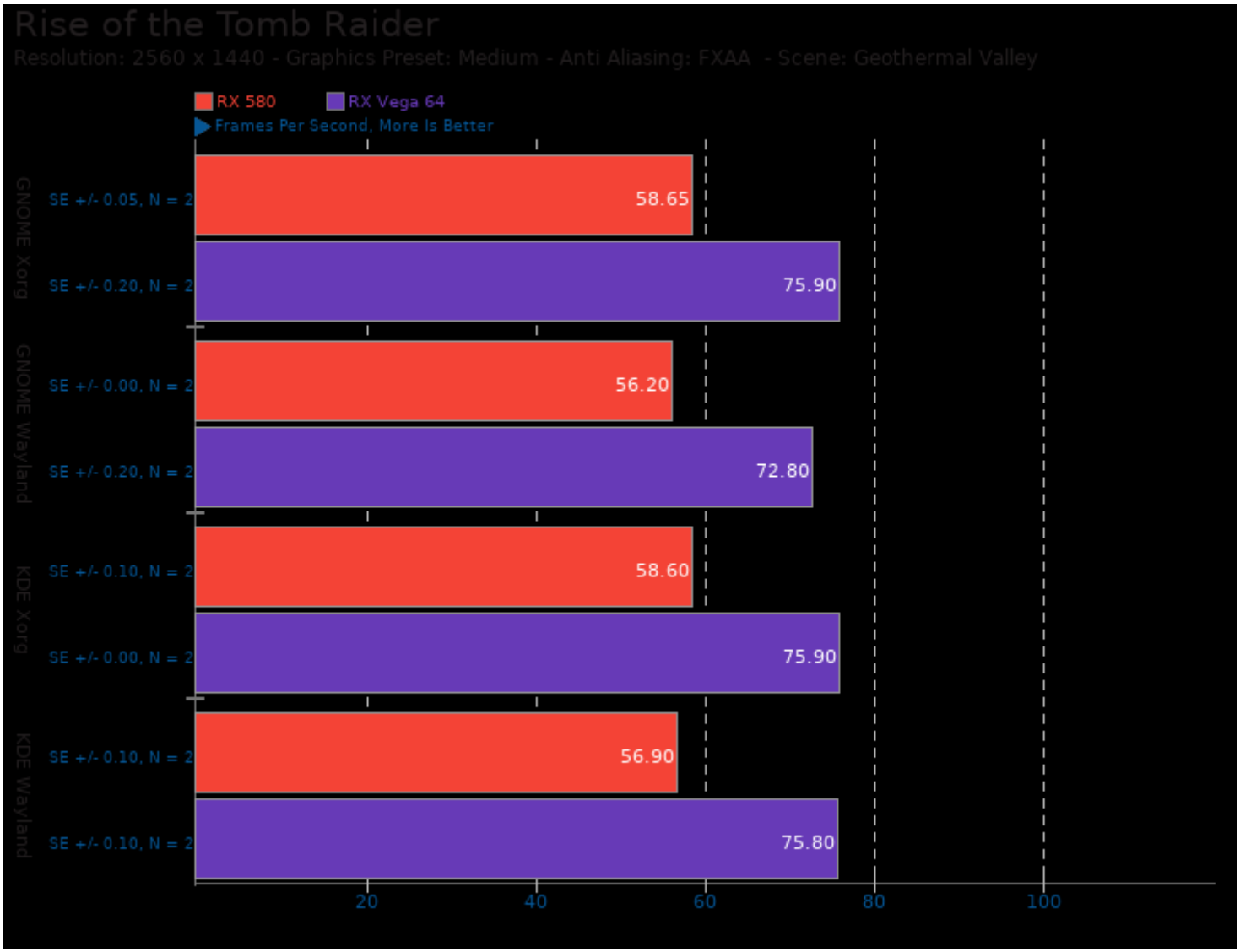
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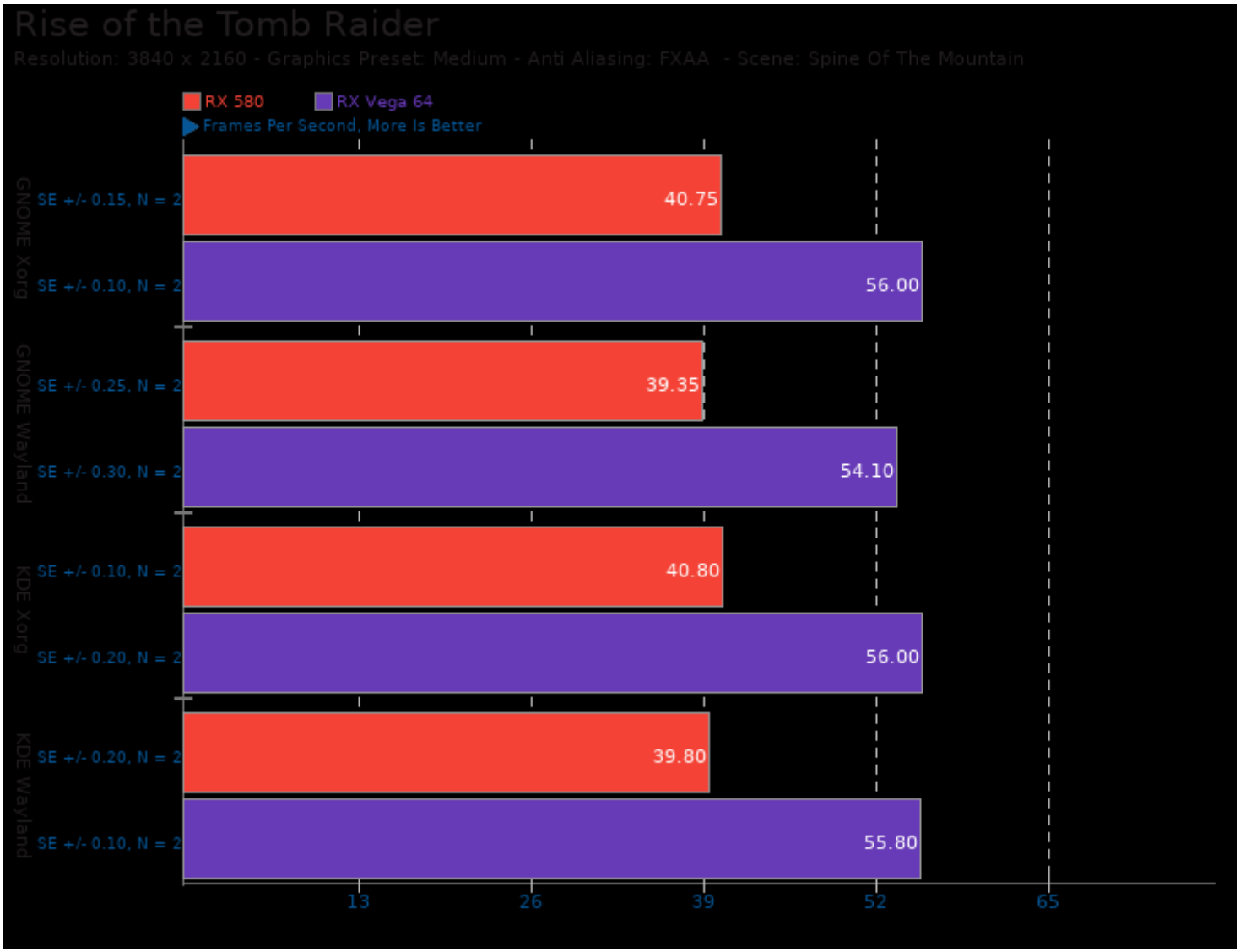
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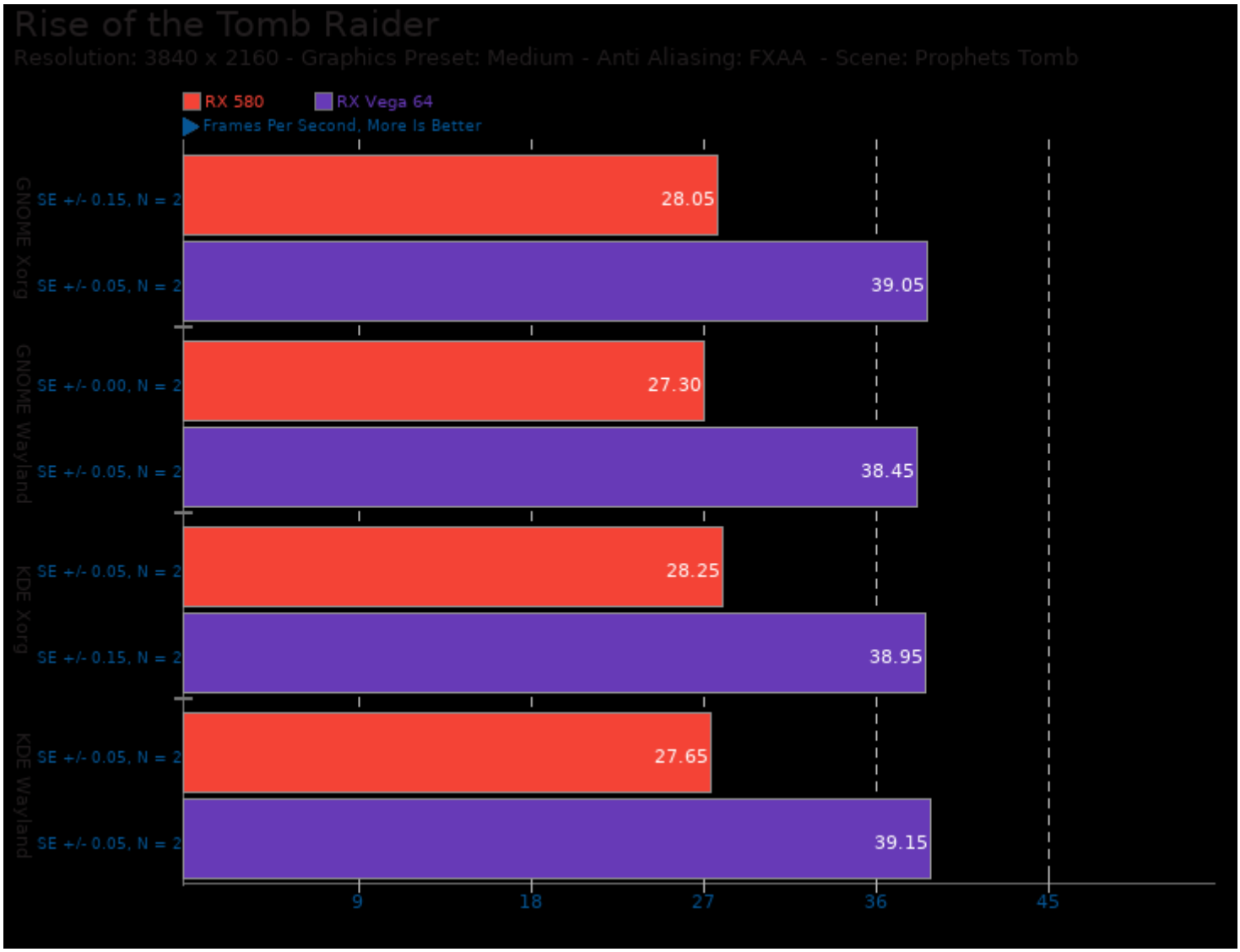
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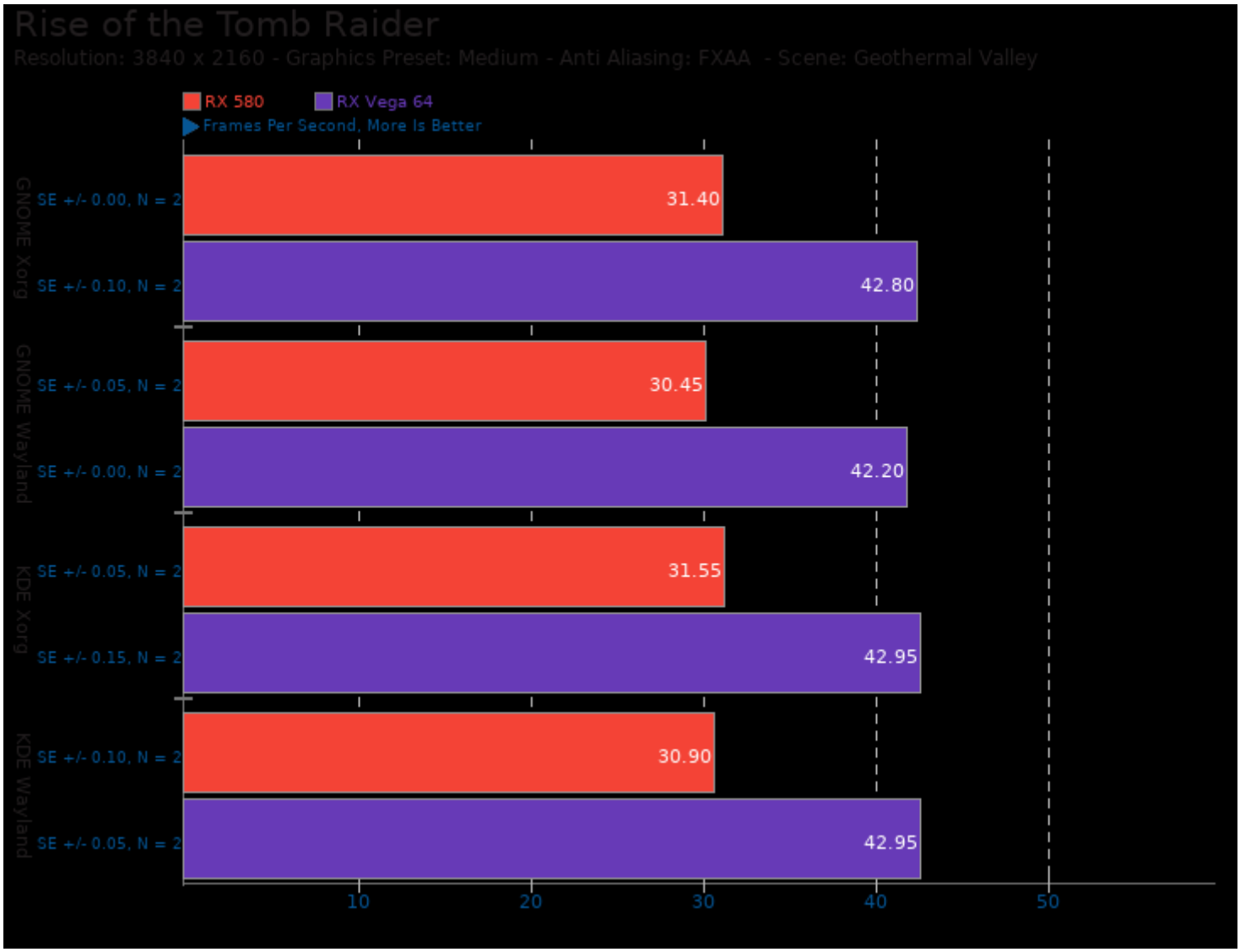
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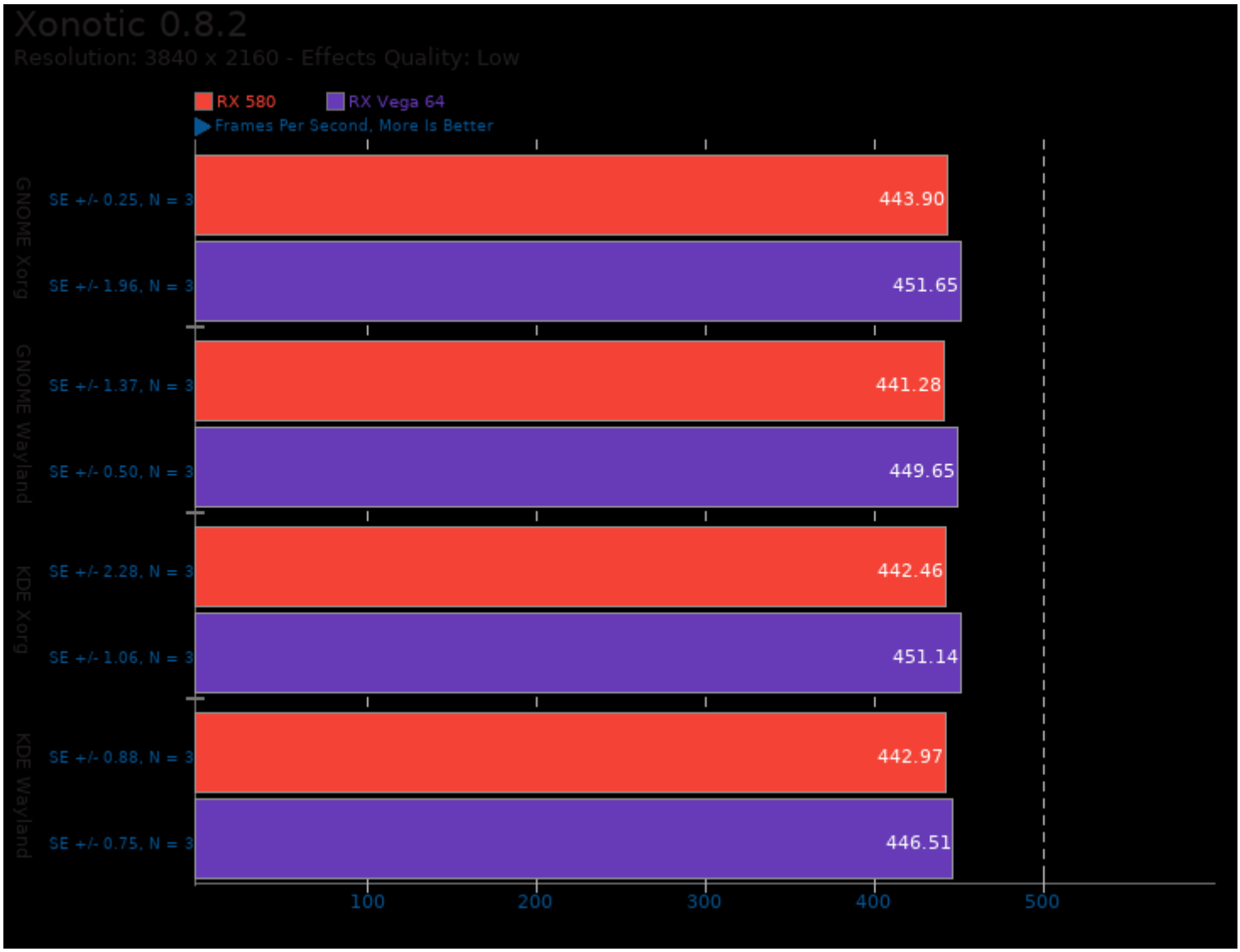
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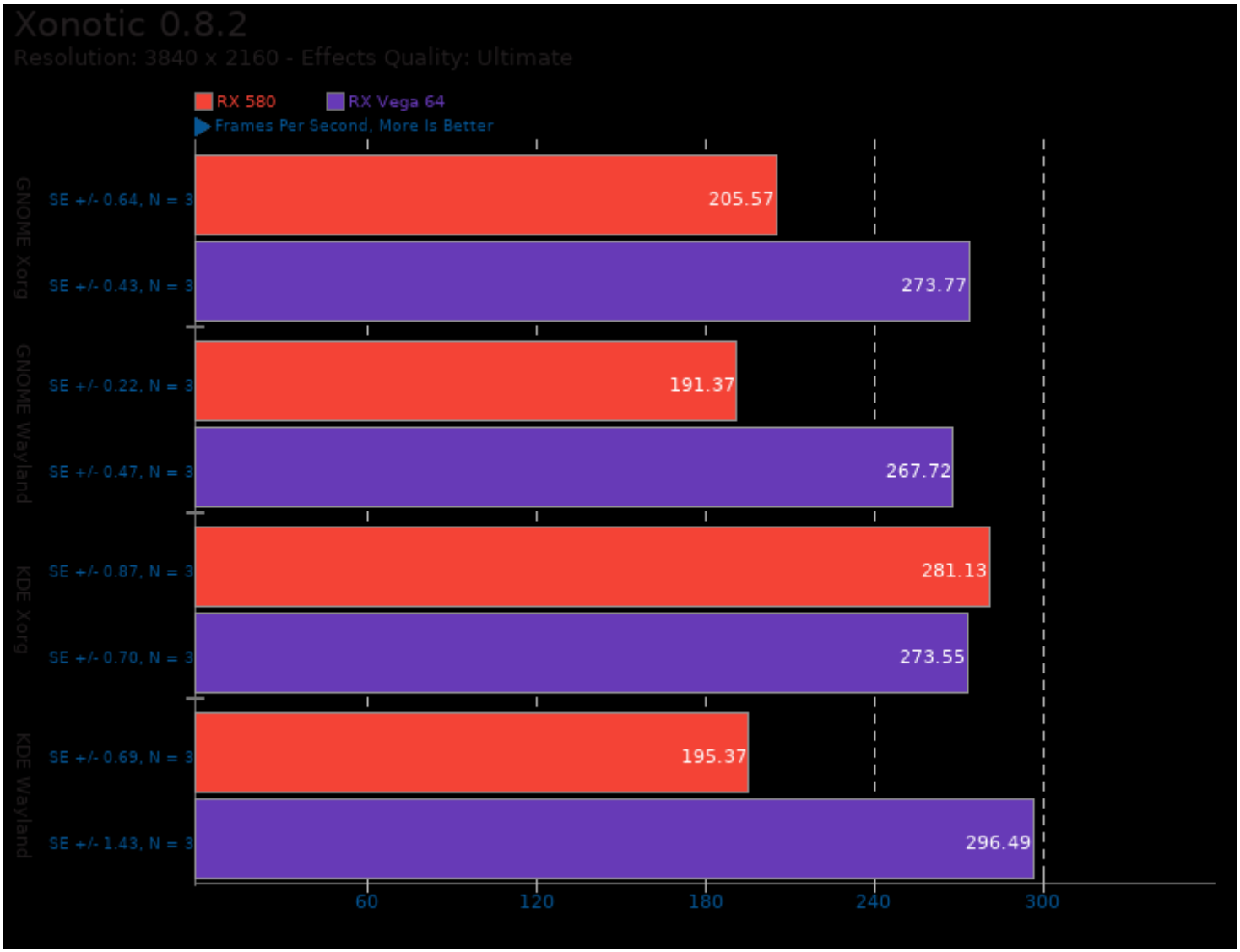
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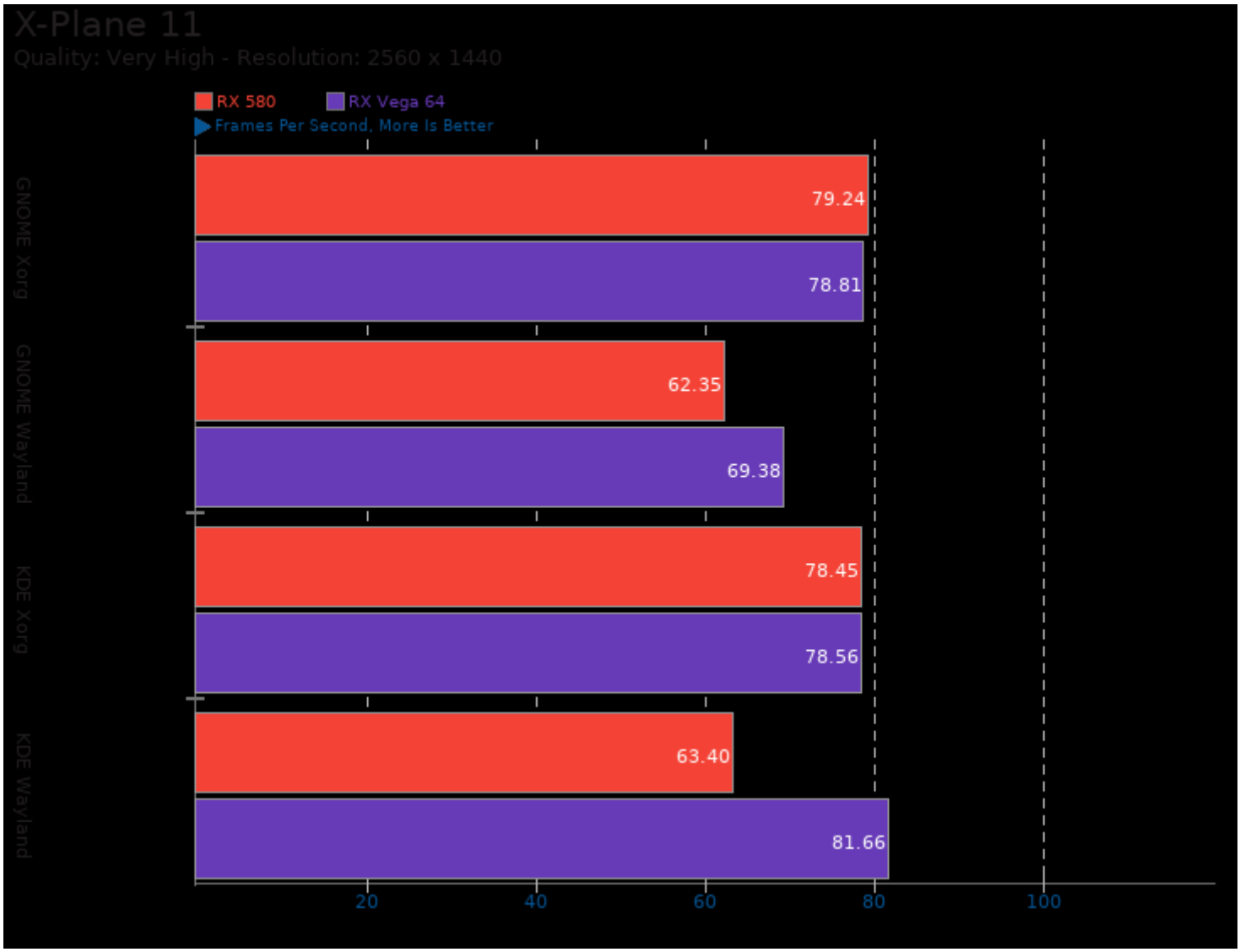
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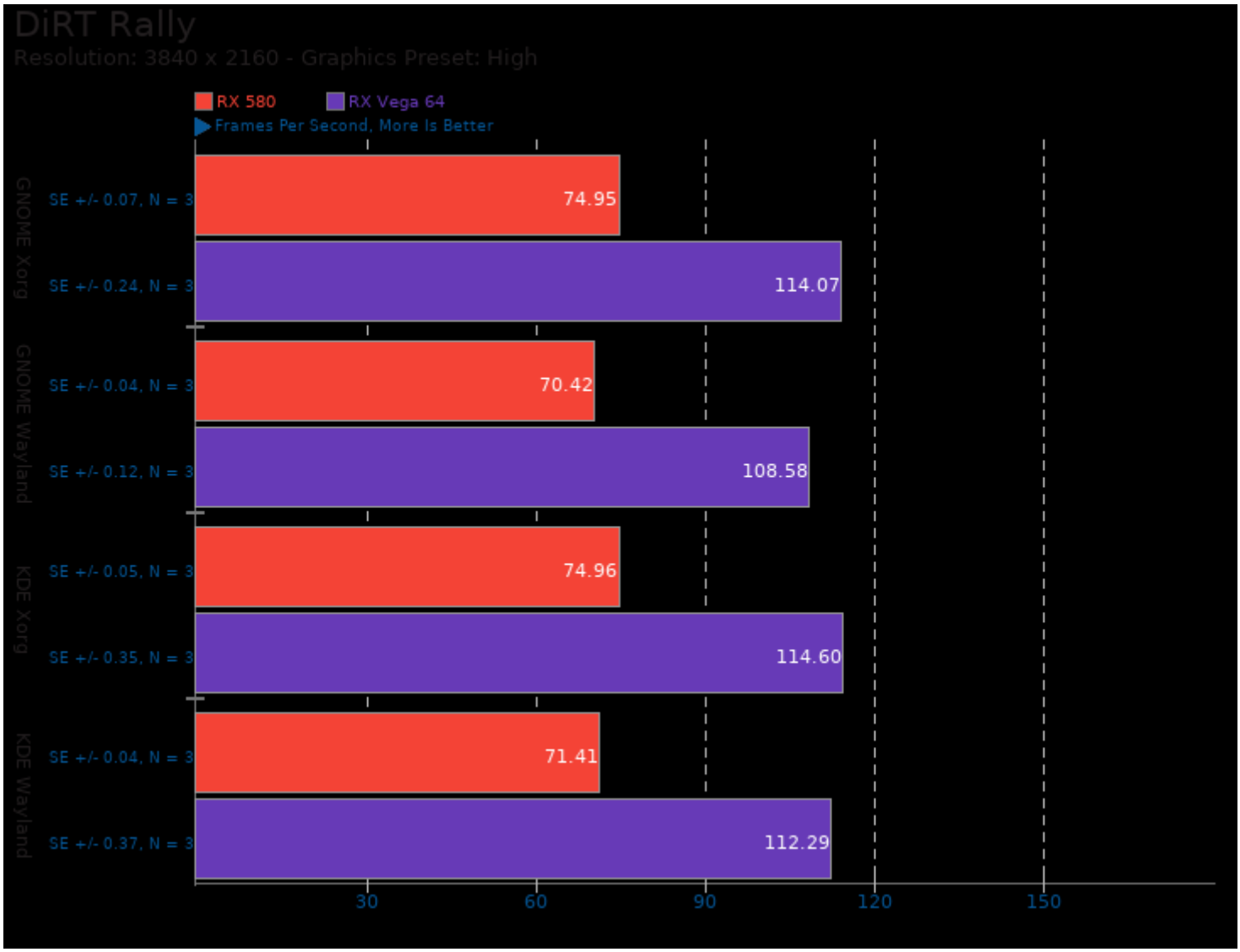
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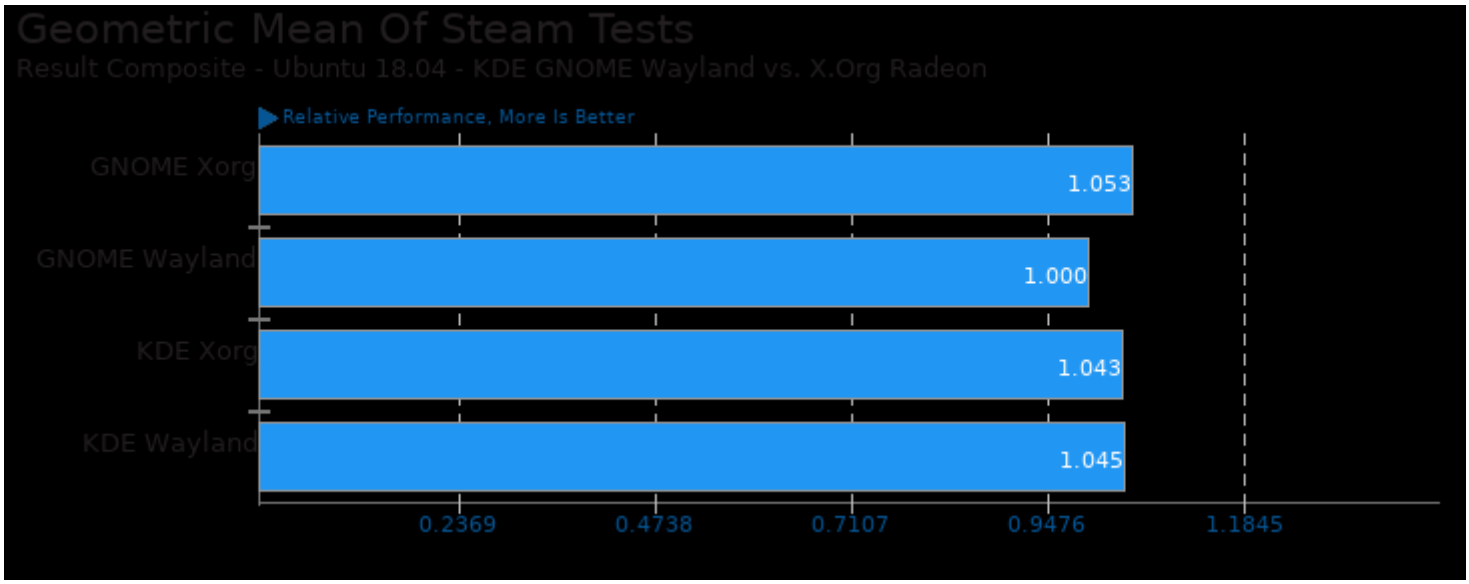


Ubuntu 18.04 - KDE GNOME Wayland vs. X.Org Radeon



Ubuntu 18.04 - KDE GNOME Wayland vs. X.Org Radeon

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



Geometric mean based upon tests: pts/bioshock-infinite, pts/dirt-rally, pts/dota2, pts/dow3, pts/f12017, pts/portal, pts/riseofthetombraider, pts/xplane11 and pts/deus-exmd

This file was automatically generated via the Phoronix Test Suite benchmarking software on Thursday, 28 March 2024 10:18.