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AMD Radeon RX Vega Performance 2019

vega64msi

Automated Executive Summary

2019: RX Vega 64 had the most wins, coming in first place for 73% of the tests.

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

HITMAN (Resolution: 2560 x 1440 - Quality Level: Ultra - Total Frame Time) at 30.944x
ParaView (Test: Many Spheres - Resolution: 3840 x 2160) at 26.245x
ParaView (Test: Many Spheres - Resolution: 3840 x 2160) at 26.176x
HITMAN (Resolution: 3840 x 2160 - Quality Level: Ultra - Total Frame Time) at 24.176x
HITMAN (System Power Consumption Monitor) at 7.914x
Deus Ex: Mankind Divided (System Power Consumption Monitor) at 7.818x
Metro: Last Light Redux (System Power Consumption Monitor) at 7.784x
Deus Ex: Mankind Divided (System Power Consumption Monitor) at 7.688x
Dawn of War III (System Power Consumption Monitor) at 7.643x
HITMAN (System Power Consumption Monitor) at 7.553x.

Test Systems:

Launch: RX Vega 56

Processor: Intel Core i9-9900K @ 5.00GHz (8 Cores / 16 Threads), Motherboard: ASUS PRIME Z390-A (0602 BIOS), Chipset: Intel Device a36f, Memory: 16384MB, Disk: Samsung SSD 970 EVO 250GB + 2000GB SABRENT, Graphics: AMD Radeon RX Vega 8GB (1590/800MHz), Audio: Realtek ALC1220, Monitor: Acer B286HK, Network: Intel I219-V

OS: Ubuntu 17.10, Kernel: 4.15.0-041500-generic (x86_64), Desktop: GNOME Shell 3.26.2, Display Server: X Server 1.19.5, Display Driver: modesetting 1.19.5, OpenGL: 4.5 Mesa 17.2.8 (LLVM 5.0.0), Vulkan: 1.0.61, Compiler: GCC 7.2.0, File-System: ext4, Screen Resolution: 3840x2160

Processor Notes: Scaling Governor: intel_pstate performance
Python Notes: Python 2.7.14 + Python 3.6.3
Security Notes: KPTI + Full generic retpoline

Launch: RX Vega 64

Processor: Intel Core i9-9900K @ 5.00GHz (8 Cores / 16 Threads), Motherboard: ASUS PRIME Z390-A (0602 BIOS), Chipset: Intel Device a36f, Memory: 16384MB, Disk: Samsung SSD 970 EVO 250GB + 2000GB SABRENT, Graphics: AMD Radeon RX Vega 8GB (1630/945MHz), Audio: Realtek ALC1220, Monitor: Acer B286HK, Network: Intel I219-V

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Processor Notes: Scaling Governor: intel_pstate performance
Python Notes: Python 2.7.14 + Python 3.6.3
Security Notes: KPTI + Full generic retpoline

2019: RX Vega 56

Processor: Intel Core i9-9900K @ 5.00GHz (8 Cores / 16 Threads), Motherboard: ASUS PRIME Z390-A (0602 BIOS), Chipset: Intel Cannon Lake PCH Shared SRAM, Memory: 16384MB, Disk: Samsung SSD 970 EVO 250GB + 2000GB SABRENT, Graphics: AMD Radeon RX 64 8GB (1590/800MHz), Audio: Realtek ALC1220, Monitor: Acer B286HK, Network: Intel I219-V

OS: Ubuntu 18.10, Kernel: 5.0.0-999-generic (x86_64) 20190118, Desktop: GNOME Shell 3.30.1, Display Server: X Server 1.20.1, Display Driver: amdgpu 18.1.0, OpenGL: 4.5 Mesa 19.0.0-devel padoka PPA (LLVM 8.0.0), Compiler: GCC 8.2.0, File-System: ext4, Screen Resolution: 3840x2160

Processor Notes: Scaling Governor: intel_pstate performance
Graphics Notes: GLAMOR
Python Notes: Python 2.7.15+ + Python 3.6.7
Security Notes: __user pointer sanitization + Full generic retpoline IBPB: conditional IBRS_FW STIBP: conditional RSB filling + SSB disabled via prctl and seccomp

2019: RX Vega 64

Processor: Intel Core i9-9900K @ 5.00GHz (8 Cores / 16 Threads), Motherboard: ASUS PRIME Z390-A (0602 BIOS), Chipset: Intel Cannon Lake PCH Shared SRAM, Memory: 16384MB, Disk: Samsung SSD 970 EVO 250GB + 2000GB SABRENT, Graphics: AMD Radeon RX 64 8GB (1630/945MHz), Audio: Realtek ALC1220, Monitor: Acer B286HK, Network: Intel I219-V

OS: Ubuntu 18.10, Kernel: 5.0.0-999-generic (x86_64) 20190118, Desktop: GNOME Shell 3.30.1, Display Server: X

Server 1.20.1, Display Driver: amdgpu 18.1.0, OpenGL: 4.5 Mesa 19.0.0-devel padoka PPA (LLVM 8.0.0), Compiler: GCC 8.2.0, File-System: ext4, Screen Resolution: 3840x2160

Processor Notes: Scaling Governor: intel_pstate performance
Graphics Notes: GLAMOR
Python Notes: Python 2.7.15+ + Python 3.6.7
Security Notes: __user pointer sanitization + Full generic retpoline IBPB: conditional IBRS_FW STIBP: conditional RSB filling + SSB disabled via prctl and seccomp

1070tilinux

Processor: AMD Ryzen 7 1700X Eight-Core @ 3.90GHz (8 Cores / 16 Threads), Motherboard: ASRock X370 Taichi (P3.20 BIOS), Chipset: AMD Family 17h, Memory: 32768MB, Disk: 1024GB Samsung SSD 970 PRO 1TB + 512GB LITEONIT LCS-512 + 512GB Crucial_CT512M55, Graphics: MSI NVIDIA GeForce GTX 1070 Ti 8GB (139/405MHz), Audio: NVIDIA Generic, Monitor: DELL U3014, Network: Intel I211 + Intel Dual Band-AC 3168NGW

OS: Gentoo/Linux, Kernel: 4.20.7-gentoo (x86_64), Desktop: GNOME Shell 3.26.2, Display Server: X Server 1.20.3, Display Driver: NVIDIA 418.30, Compiler: GCC 8.2.0 + Clang 7.0.1 + LLVM 7.0.1, File-System: ext4, Screen Resolution: 2560x1600

Processor Notes: Scaling Governor: acpi-cpufreq ondemand
Python Notes: Python 3.6.6
Security Notes: __user pointer sanitization + disabled + SSB disabled via prctl and seccomp

vega561700x

Processor: AMD Ryzen 7 1700X Eight-Core @ 3.90GHz (8 Cores / 16 Threads), Motherboard: ASRock X370 Taichi (P3.20 BIOS), Chipset: AMD Family 17h, Memory: 32768MB, Disk: 1024GB Samsung SSD 970 PRO 1TB + Samsung SSD 970 EVO 500GB + 512GB LITEONIT LCS-512 + 512GB Crucial_CT512M55, Graphics: llvmpipe 8GB (1622/800MHz), Audio: AMD Device aaf8, Monitor: DELL U3014, Network: Intel I211 + Intel Dual Band-AC 3168NGW

OS: Gentoo/Linux, Kernel: 4.20.11-gentoo (x86_64), Desktop: GNOME Shell 3.28.3, Display Server: X Server 1.20.4, OpenGL: 3.3 Mesa 19.0.0-rc7 (LLVM 7.0 128 bits), Compiler: GCC 8.2.0 + Clang 7.0.1 + LLVM 7.0.1, File-System: ext4, Screen Resolution: 2560x1600

Processor Notes: Scaling Governor: acpi-cpufreq ondemand
Python Notes: Python 3.6.8
Security Notes: __user pointer sanitization + disabled + SSB disabled via prctl and seccomp

vega56

Processor: AMD Ryzen 7 1700X Eight-Core @ 3.90GHz (8 Cores / 16 Threads), Motherboard: ASRock X370 Taichi (P3.20 BIOS), Chipset: AMD Family 17h, Memory: 32768MB, Disk: 1024GB Samsung SSD 970 PRO 1TB + Samsung SSD 970 EVO 500GB + 512GB LITEONIT LCS-512 + 512GB Crucial_CT512M55, Graphics: MSI AMD Radeon RX 56/64 8GB (1622/800MHz), Audio: AMD Device aaf8, Monitor: DELL U3014, Network: Intel I211 + Intel Dual Band-AC 3168NGW

OS: Gentoo/Linux, Kernel: 4.20.11-gentoo (x86_64), Desktop: GNOME Shell 3.28.3, Display Server: X Server 1.20.4, OpenGL: 4.5 Mesa 19.0.0-rc7 (LLVM 7.0.1), Compiler: GCC 8.2.0 + Clang 7.0.1 + LLVM 7.0.1, File-System: ext4, Screen Resolution: 2560x1600

Processor Notes: Scaling Governor: acpi-cpufreq ondemand
Python Notes: Python 3.6.8
Security Notes: __user pointer sanitization + disabled + SSB disabled via prctl and seccomp

MSI AMD Radeon RX 56

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OS: Gentoo/Linux, Kernel: 4.20.11-gentoo (x86_64), Desktop: GNOME Shell 3.28.3, Display Server: X Server 1.20.4, OpenGL: 4.5 Mesa 19.0.0-rc7 (LLVM 7.0.1), Compiler: GCC 8.2.0 + Clang 7.0.1 + LLVM 7.0.1, File-System: ext4, Screen Resolution: 2560x1600

Processor Notes: Scaling Governor: acpi-cpufreq ondemand
Python Notes: Python 3.6.8
Security Notes: __user pointer sanitization + disabled + SSB disabled via prctl and seccomp

	Launch: RX Vega 56	Launch: RX Vega 64	2019: RX Vega 56	2019: RX Vega 64	1070tilinux	vega56 17 00x	vega56	MSI AMD Radeon RX 56	vega64msi
DiRT Rally - 2560 x 1440 - Ultra (FPS)	134	144	143	150					
Normalized	89.33%	96%	95.33%	100%					
Standard Deviation	0.1%	0.3%	0.3%	0.5%					
DiRT Showdown - 2560 x 1440 - High - 2x MSAA (FPS)	240	237	266	269					
Normalized	89.22%	88.1%	98.88%	100%					
Standard Deviation	0.2%	1.5%	2.7%	0.7%					
The Talos Principle - OpenGL - 3840 x 2160 (FPS)	50.23	55.30	55.93	60.93					
Normalized	82.44%	90.76%	91.79%	100%					
Standard Deviation	0.8%	0.5%	0.8%	2.4%					
The Talos Principle - Vulkan - 3840 x 2160 (FPS)	51.87	57.57	68.03	78.30					
Normalized	66.25%	73.52%	86.88%	100%					
Standard Deviation	0.1%	0.3%	0.1%	0.1%					
HITMAN - 2560 x 1440 - Ultra (FPS)	75.33	83.11	81.80	90.02					
Normalized	83.68%	92.32%	90.87%	100%					
HITMAN - 3840 x 2160 - Ultra (FPS)	43.25	49.82	47.30	55.49					
Normalized	77.94%	89.78%	85.24%	100%					
Deus Ex: Mankind Divided - 1920 x 1080 - Low Quality (FPS)	88.60	91.20	91.47	98.23					
Normalized	90.2%	92.84%	93.12%	100%					
Standard Deviation	0.4%	9.2%	3.2%	1.5%					

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Deus Ex: Mankind Divided - 1920 x 1080 - Low Quality (FPS/Watt)	**0.30**	0.31	**0.36**	0.32
Normalized	83.33%	86.11%	100%	88.89%
Deus Ex: Mankind Divided - 1920 x 1080 - High Quality (FPS)	**63.77**	69.97	66.50	**71.27**
Normalized	89.48%	98.18%	93.31%	100%
Standard Deviation	0.6%	1%	1.7%	1.8%
Deus Ex: Mankind Divided - 1920 x 1080 - High Quality (FPS/Watt)	**0.22**	**0.19**	**0.22**	0.20
Normalized	100%	86.36%	100%	90.91%
Mad Max - 2560 x 1440 - High - Vulkan - Camp Hollow Point (FPS)	**90.68**	100.92	95.18	**104.49**
Normalized	86.78%	96.58%	91.09%	100%
Mad Max - 2560 x 1440 - High - Vulkan - Stronghold (FPS)	**74.66**	82.75	84.55	**89.76**
Normalized	83.18%	92.19%	94.2%	100%
Mad Max - 2560 x 1440 - High - Vulkan - H.G.a.D.i.D (FPS)	**88.08**	94.72	93.76	**105.63**
Normalized	83.39%	89.67%	88.76%	100%
Mad Max - 2560 x 1440 - High - Vulkan - Landmover (FPS)	**93.69**	101	106	**119**
Normalized	78.73%	84.87%	89.08%	100%
Mad Max - 2560 x 1440 - High - Vulkan - Landmover (FPS/Watt)	0.34	**0.29**	**0.38**	0.34
Normalized	89.47%	76.32%	100%	89.47%
Mad Max - 2560 x 1440 - High - OpenGL - Camp Hollow Point (FPS)	**90.94**	104	103	**134**
Normalized	67.87%	77.61%	76.87%	100%
Mad Max - 2560 x 1440 - High - OpenGL -	**80.46**	89.87	88.00	**101.20**
Normalized	79.51%	88.8%	86.96%	100%

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Mad Max - 2560 x 1440 - High - OpenGL - H.G.a.D.i.D	92.32	101	101	113
Normalized	81.7%	89.38%	89.38%	100%
Mad Max - 2560 x 1440 - High - OpenGL -	106	116	116	126
Normalized	84.13%	92.06%	92.06%	100%
Mad Max - 2560 x 1440 - High - OpenGL - Landmover	0.37	0.34	0.42	0.37
Normalized	88.1%	80.95%	100%	88.1%
BioShock Infinite - 3840 x 2160 - Ultra (FPS)	123	130	137	144
Normalized	85.42%	90.28%	95.14%	100%
Standard Deviation	0.1%	1.1%	0%	1.4%
BioShock Infinite - 3840 x 2160 - Ultra (FPS/Watt)	0.42	0.37	0.48	0.41
Normalized	87.5%	77.08%	100%	85.42%
Dota 2 - 3840 x 2160 - OpenGL (FPS)	82.77	89.77	98.60	109.47
Normalized	75.61%	82%	90.07%	100%
Standard Deviation	0.2%	3.2%	0.8%	0.4%
Dota 2 - 3840 x 2160 - OpenGL (FPS/Watt)	0.35	0.36	0.62	0.57
Normalized	56.45%	58.06%	100%	91.94%
Dota 2 - 3840 x 2160 - Vulkan (FPS)	70.03	75.10	98.43	113.60
Normalized	61.65%	66.11%	86.65%	100%
Standard Deviation	0.1%	2.7%	5.6%	0.3%
Dota 2 - 3840 x 2160 - Vulkan (FPS/Watt)	0.32	0.29	0.45	0.47
Normalized	68.09%	61.7%	95.74%	100%
Dawn of War III - 2560 x 1440 - High - OpenGL (FPS)	68.53	78.87	74.33	87.85
Normalized	78.01%	89.78%	84.61%	100%
Standard Deviation	0.7%	2.1%	1.7%	0.4%
Dawn of War III - 2560 x 1440 - High - OpenGL (FPS/Watt)	0.32	0.30	0.37	0.36
Normalized	86.49%	81.08%	100%	97.3%
Metro: Last Light Redux - 3840 x 2160 (FPS)	82.47	88.62	86.31	92.60
Normalized	89.06%	95.7%	93.21%	100%
Standard Deviation	0.3%	0.2%	0.3%	0.8%

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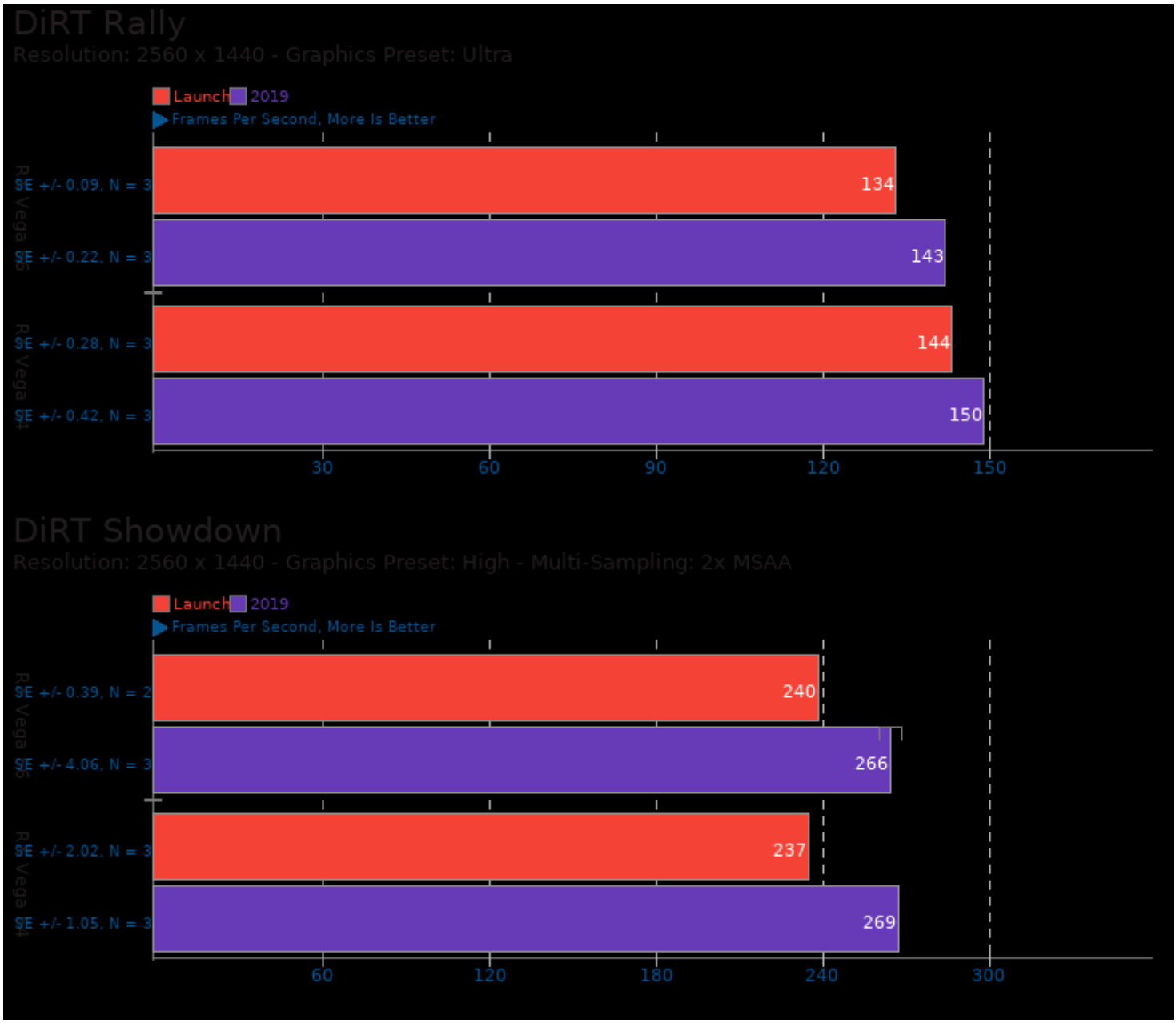
Metro: Last Light Redux - 3840 x 2160 (FPS/Watt)	0.28	**0.24**	**0.29**	0.25				
Normalized	96.55%	82.76%	100%	86.21%				
Portal - 3840 x 2160 (FPS)	**374**	430	422	**488**				
Normalized	76.64%	88.11%	86.48%	100%				
Standard Deviation	0.2%	0.1%	0.1%	0.2%				
Portal - 3840 x 2160 (FPS/Watt)	**1.98**	2.28	2.80	**3.14**				
Normalized	63.06%	72.61%	89.17%	100%				
Tomb Raider - 3840 x 2160 - High (FPS)	**70.13**	77.67	73.53	**82.10**				
Normalized	85.42%	94.6%	89.56%	100%				
Standard Deviation	0.2%	1.2%	0.2%	0.7%				
Tomb Raider - 3840 x 2160 - High (FPS/Watt)	0.26	**0.24**	**0.28**	0.26				
Normalized	92.86%	85.71%	100%	92.86%				
SuperTuxKart - 3840 x 2160 - Fullscreen - Ultimate - 6 - Candela City (FPS)	47.76	55.71	49.96	58.83	**47.20**	92.92	**106.72**	105.11
Normalized	44.75%	52.2%	46.81%	55.13%	44.23%	87.07%	100%	98.49%
Standard Deviation	0.3%	2.3%	0.4%	0.6%	3.3%	0.4%	0.4%	0.4%
SuperTuxKart - 3840 x 2160 - Fullscreen - Ultimate - 6 - Candela City	0.17	**0.16**	**0.18**	0.17				
Normalized	94.44%	88.89%	100%	94.44%				
SuperTuxKart - 3840 x 2160 - Fullscreen - Ultimate - 6 - Cocoa Temple (FPS)	**45.71**	53.38	46.93	54.99	69.01	83.05	93.88	**94.25**
Normalized	48.5%	56.64%	49.79%	58.34%	73.22%	88.12%	99.61%	100%
Standard Deviation	0.5%	1.2%	0.4%	0.7%	2.4%	1.1%	1.7%	0.9%
SuperTuxKart - 3840 x 2160 - Fullscreen - Ultimate - 6 - Cocoa Temple (FPS/Watt)	0.16	**0.15**	**0.17**	0.16				
Normalized	94.12%	88.24%	100%	94.12%				
Tesseract - 3840 x 2160 (FPS)	**270**	307	302	354	347	380	**387**	381
Normalized	69.77%	79.33%	78.04%	91.47%	89.66%	98.19%	100%	98.45%
Standard Deviation	0.4%	1.1%	0.7%	0.9%	0.5%	2.3%	1.7%	1.3%
Tesseract - 3840 x 2160 (FPS/Watt)	1.04	**0.93**	**1.20**	1.11				
Normalized	86.67%	77.5%	100%	92.5%				

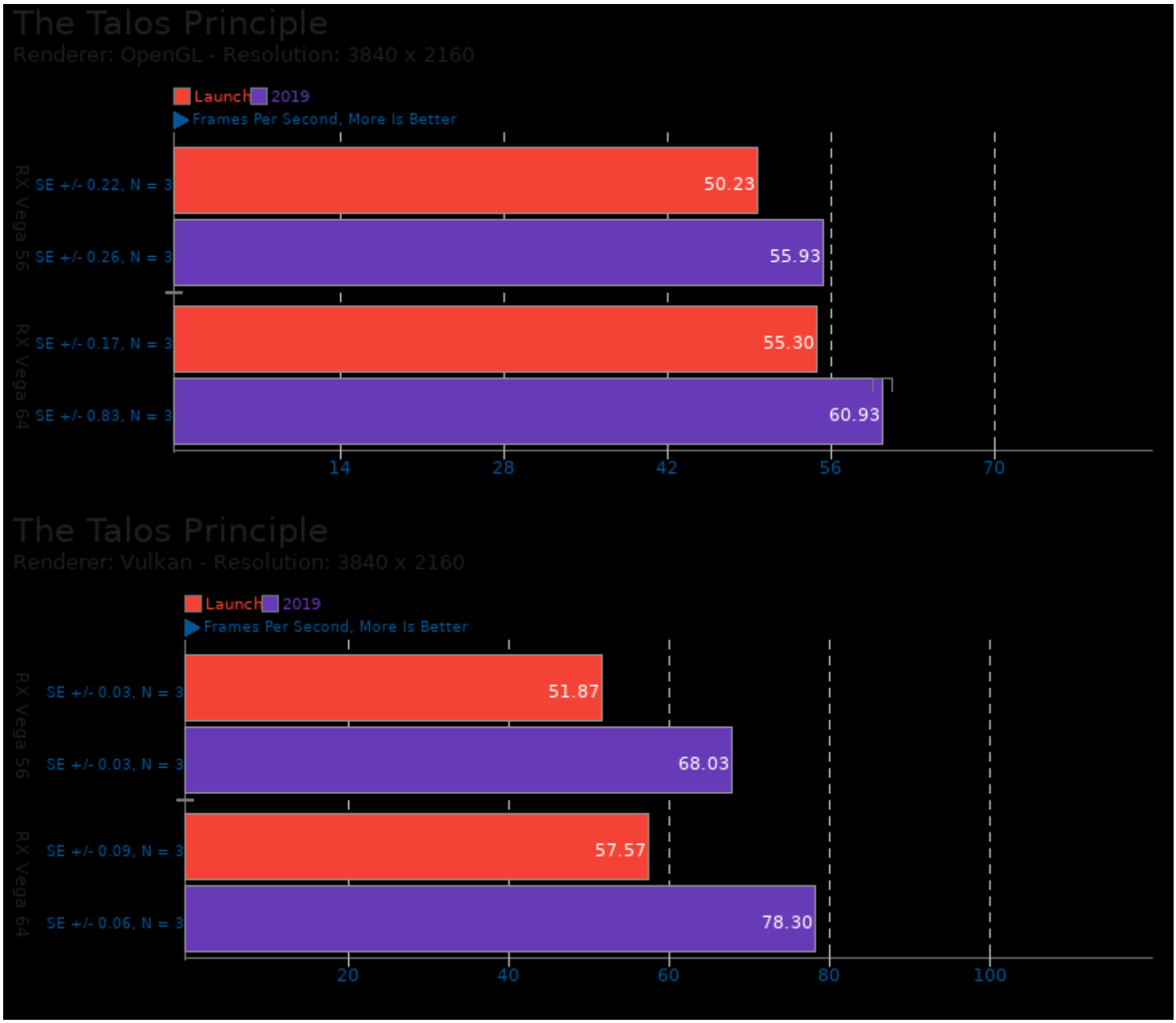
AMD Radeon RX Vega Performance 2019

Unigine Heaven - 2560 x 1440 - Fullscreen - OpenGL (FPS)	**25.23**	28.67	102	**118**	90.59	58.36	65.92	65.09
Normalized	21.38%	24.3%	86.44%	100%	76.77%	49.46%	55.86%	55.16%
Standard Deviation	0.1%	0.2%	0%	0.6%	0.2%	0.3%	0.2%	0.2%
Unigine Heaven - 2560 x 1440 - Fullscreen - OpenGL (FPS/Watt)	0.09	**0.08**	**0.38**	0.34				
Normalized	23.68%	21.05%	100%	89.47%				
Unigine Valley - 2560 x 1440 - Fullscreen - OpenGL (FPS)	**27.71**	31.83	110	**128**	92.54	62.53	71.46	71.48
Normalized	21.65%	24.87%	85.94%	100%	72.3%	48.85%	55.83%	55.84%
Standard Deviation	0.1%	0.2%	0%	0.3%	0.1%	1.5%	1.9%	0.1%
Unigine Valley - 2560 x 1440 - Fullscreen - OpenGL (FPS/Watt)	0.10	**0.09**	**0.40**	0.36				
Normalized	25%	22.5%	100%	90%				
Unigine Superposition - 1920 x 1080 - Fullscreen - High - OpenGL (FPS)	**15.40**	17.53	55.60	62.77	**68.30**	56.53	62.57	62.37
Normalized	22.55%	25.67%	81.41%	91.9%	100%	82.77%	91.61%	91.32%
Standard Deviation	0%	0.3%	0.2%	0.3%	0.1%	0.1%	0.3%	0.1%
Unigine Superposition - 1920 x 1080 - Fullscreen - High - OpenGL	0.06	**0.05**	**0.21**	0.19				
Normalized	28.57%	23.81%	100%	90.48%				
GLmark2 - 3840 x 2160 (Score)	**2054**	2160	2275	2430	**2911**	2294	2465	2463
Normalized	70.56%	74.2%	78.15%	83.48%	100%	78.8%	84.68%	84.61%
GLmark2 - 3840 x 2160 (Score/Watt)	7.43	**6.51**	**8.43**	7.37				
Normalized	88.14%	77.22%	100%	87.43%				
ParaView - Many Spheres - 3840 x 2160 (Frames / Sec)	4.74	**1.92**	37.51	40.05	**50.39**	39.85	40.79	40.86
Normalized	9.41%	3.81%	74.44%	79.48%	100%	79.08%	80.95%	81.09%
Standard Deviation	2.1%	129.9%	0.8%	0.1%	0%	0.3%	0.4%	0.4%
ParaView - Many Spheres - 3840 x 2160 (MiPolys / Sec)	476	**193**	3760	4015	**5052**	3995	4089	4096
Normalized	9.42%	3.82%	74.43%	79.47%	100%	79.08%	80.94%	81.08%
Standard Deviation	2.1%	129.7%	0.8%	0.1%	0%	0.3%	0.4%	0.4%

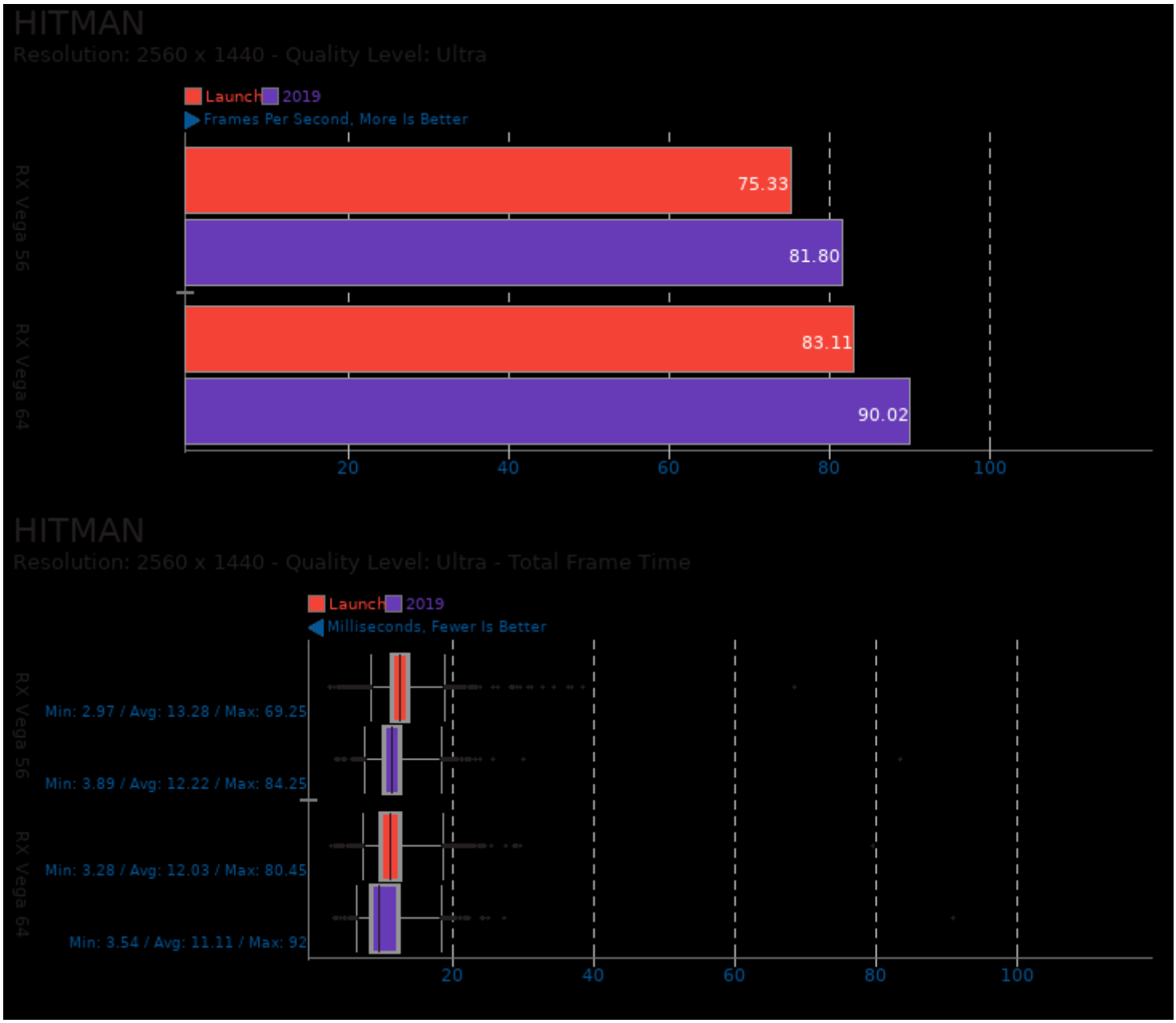
AMD Radeon RX Vega Performance 2019

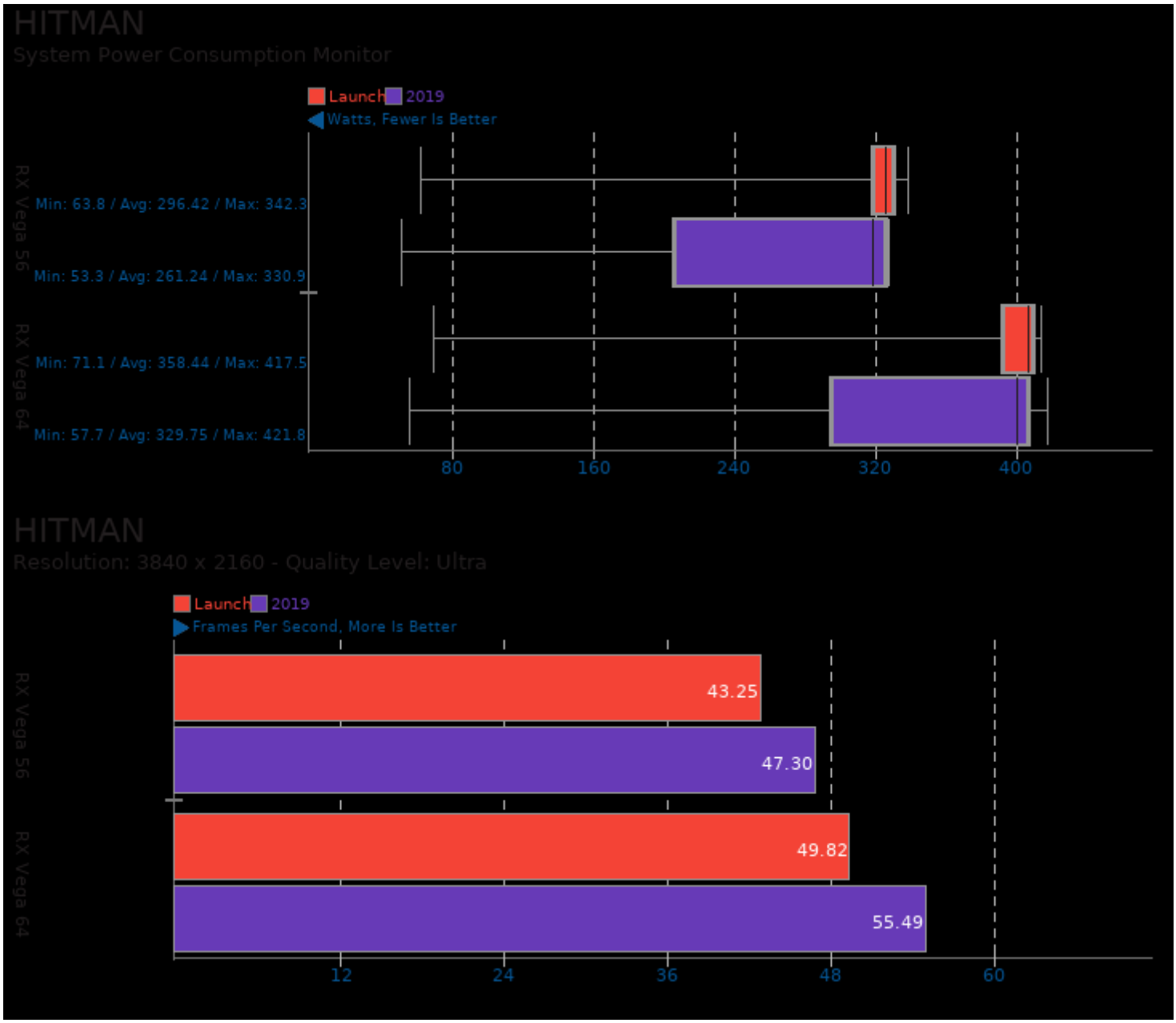
ParaView - Wavelet Contour - 3840 x 2160 (Frames / Sec)	**95.76**	96.58	132	147	171.12	190.41	**200.60**	196.12
Normalized	47.74%	48.15%	65.8%	73.28%	85.3%	94.92%	100%	97.77%
Standard Deviation	0.5%	0.2%	0.9%	0.6%	0.6%	1.7%	4%	3.3%
ParaView - Wavelet Contour - 3840 x 2160 (MiPolys / Sec)	**998**	1007	1372	1529	1783	1984	**2090**	2044
Normalized	47.75%	48.18%	65.65%	73.16%	85.31%	94.93%	100%	97.8%
Standard Deviation	0.5%	0.2%	0.9%	0.6%	0.6%	1.7%	4%	3.3%


DiRT Rally
Resolution: 2560 x 1440 - Graphics Preset: Ultra
Launch
2019
Frames Per Second, More Is Better
RX Vega 56
RX Vega 64
SE +/- 0.09, N = 3
SE +/- 0.22, N = 3
SE +/- 0.28, N = 3
SE +/- 0.42, N = 3
134
143
144
150
30
60
90
120
150
DiRT Showdown
Resolution: 2560 x 1440 - Graphics Preset: High - Multi-Sampling: 2x MSAA
Launch
2019
Frames Per Second, More Is Better
RX Vega 56
RX Vega 64
SE +/- 0.39, N = 2
SE +/- 4.06, N = 3
SE +/- 2.02, N = 3
SE +/- 1.05, N = 3
240
266
237
269
60
120
180
240
300

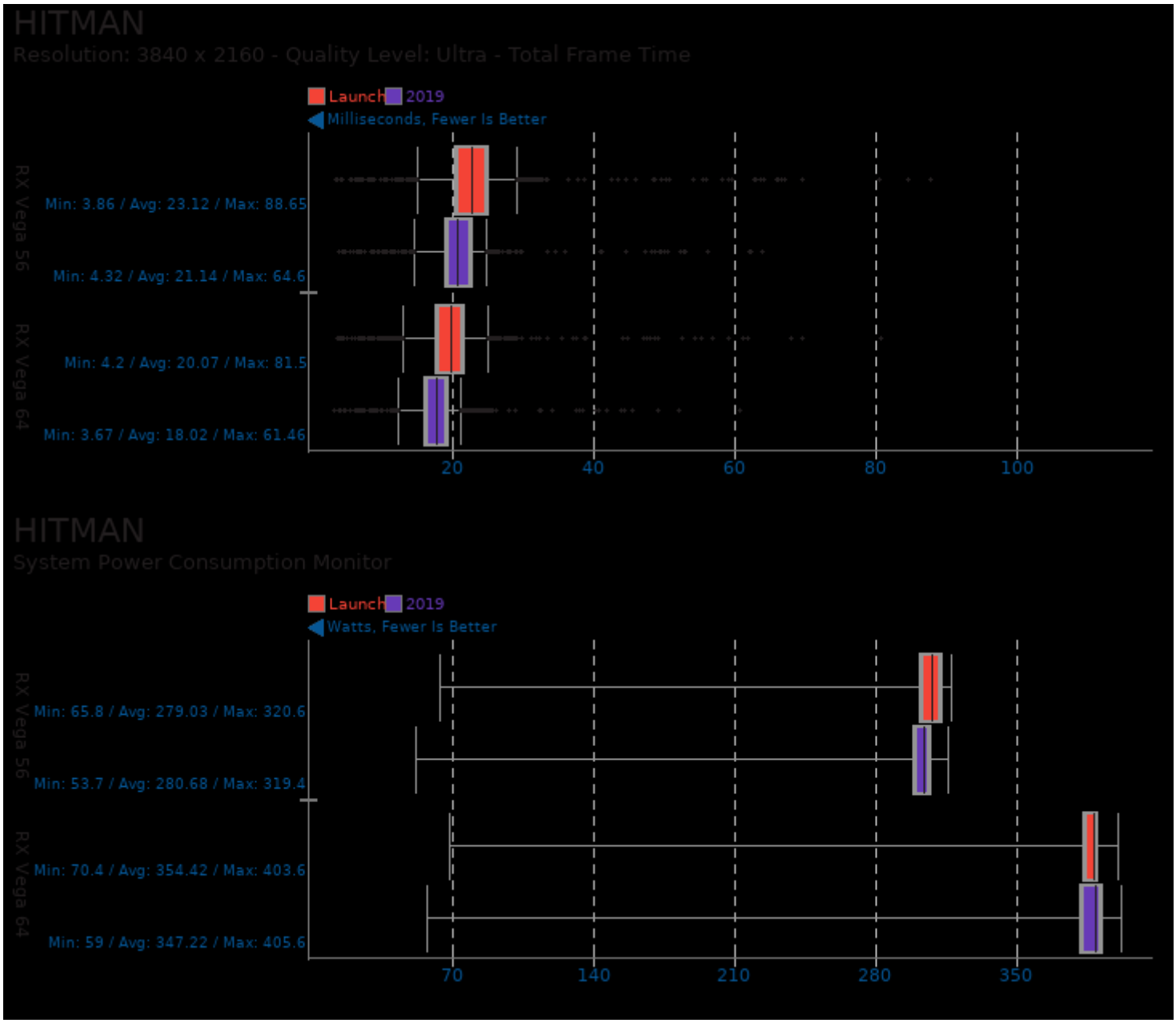

The Talos Principle
Renderer: OpenGL - Resolution: 3840 x 2160
Launch
2019
Frames Per Second, More Is Better
RX Vega 56
SE +/- 0.22, N = 3
50.23
SE +/- 0.26, N = 3
55.93
RX Vega 64
SE +/- 0.17, N = 3
55.30
SE +/- 0.83, N = 3
60.93
14
28
42
56
70
The Talos Principle
Renderer: Vulkan - Resolution: 3840 x 2160
Launch
2019
Frames Per Second, More Is Better
RX Vega 56
SE +/- 0.03, N = 3
51.87
SE +/- 0.03, N = 3
68.03
RX Vega 64
SE +/- 0.09, N = 3
57.57
SE +/- 0.06, N = 3
78.30
20
40
60
80
100

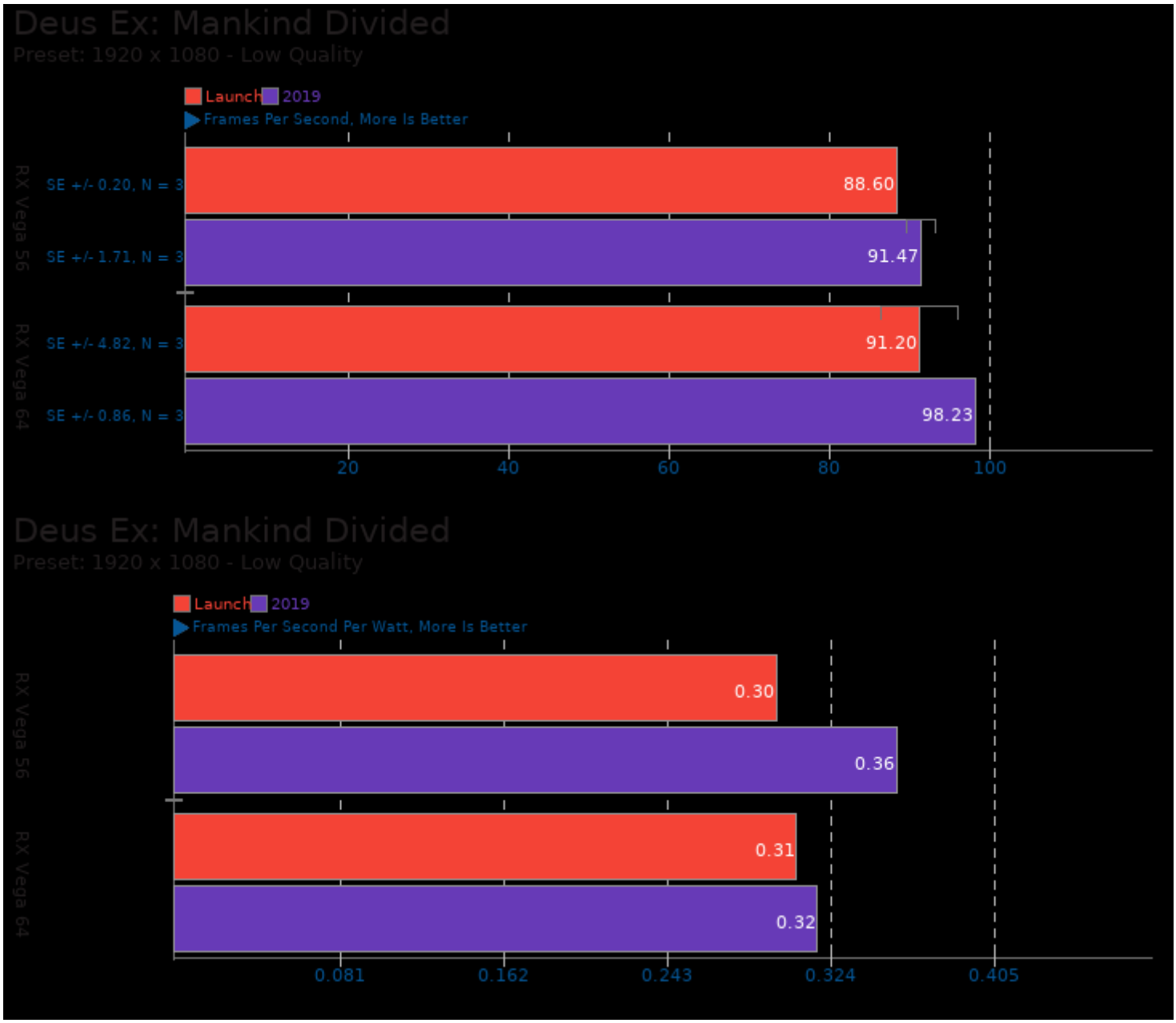
AMD Radeon RX Vega Performance 2019

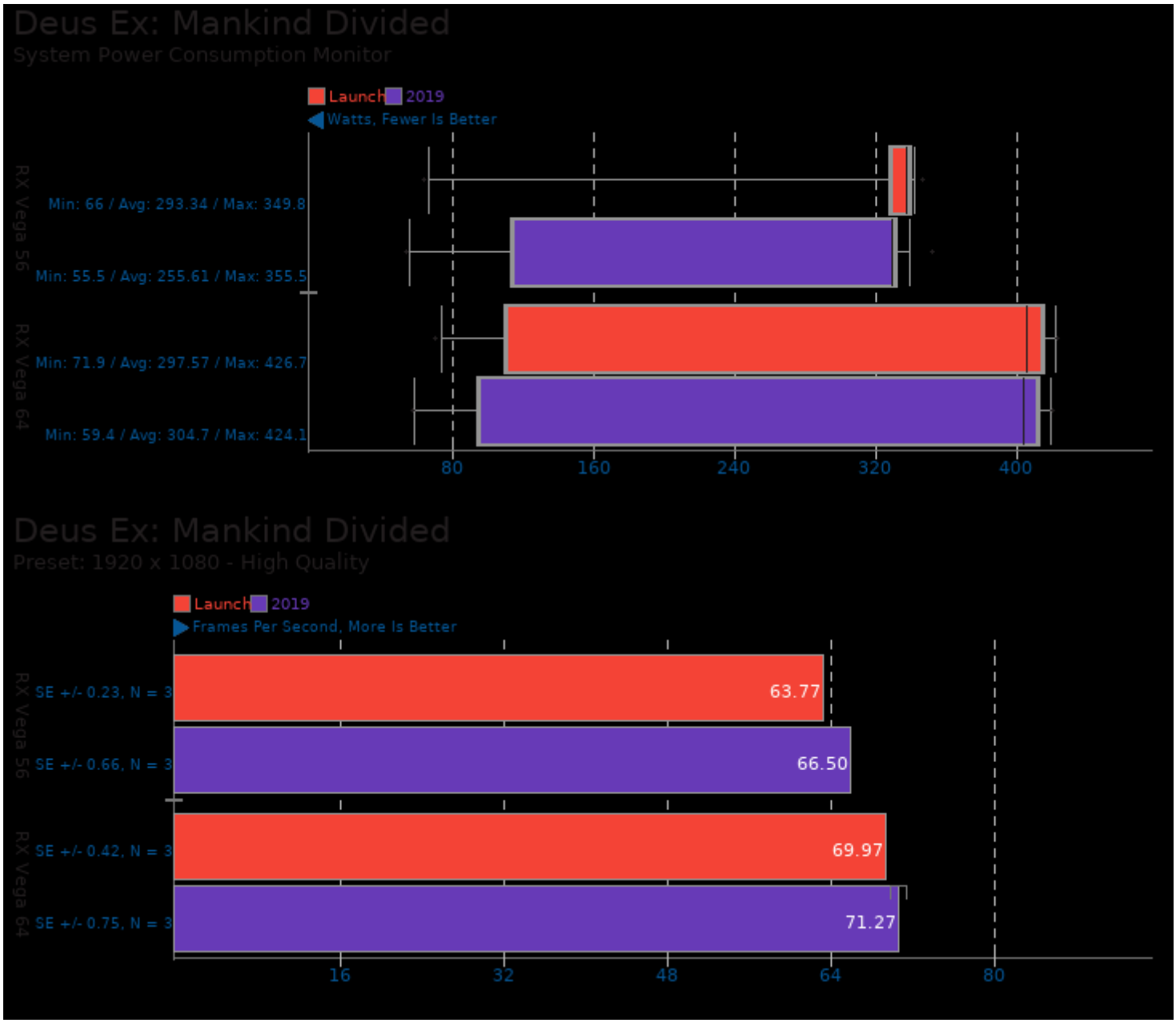


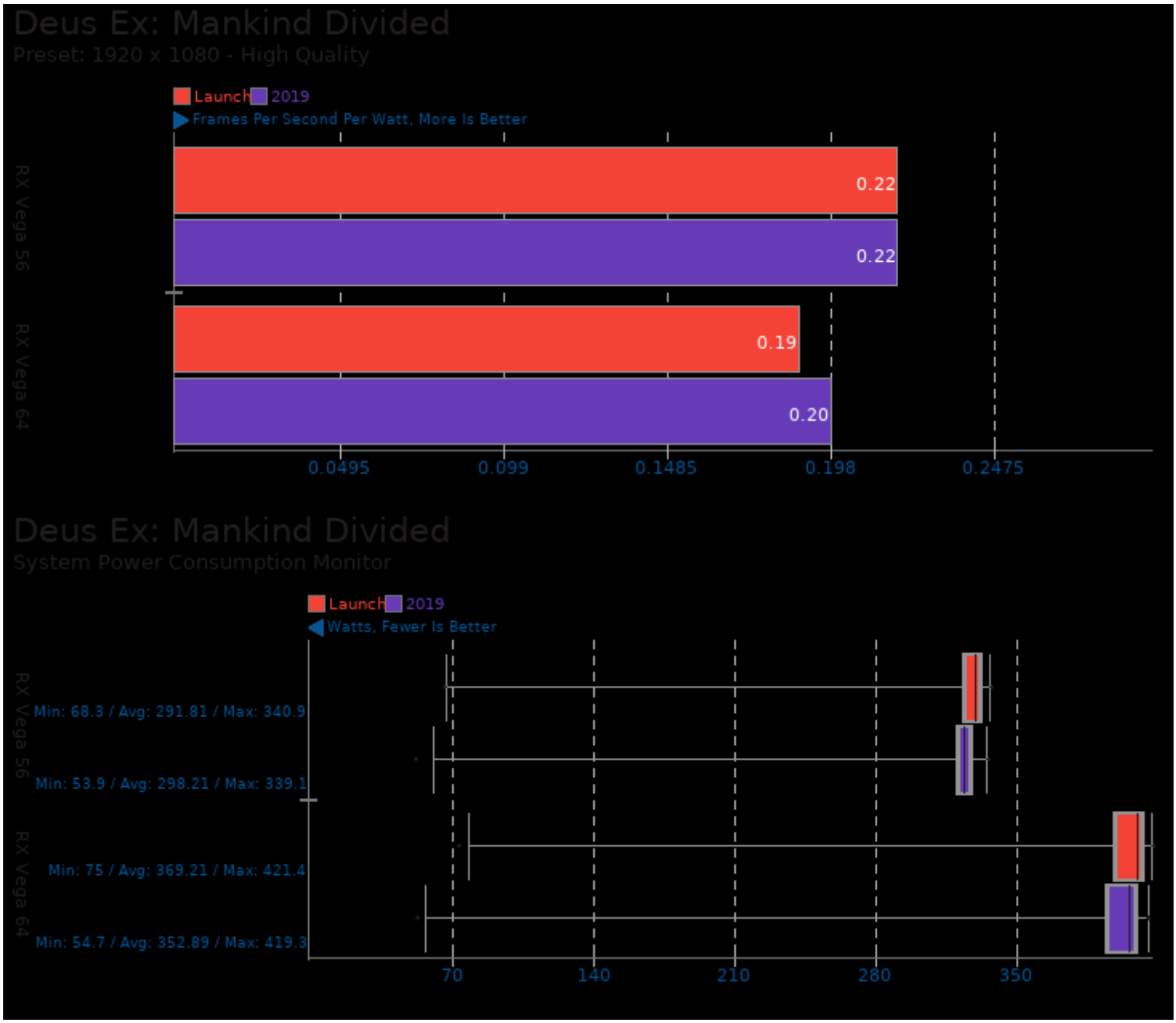

HITMAN
System Power Consumption Monitor
Launch
2019
Watts, Fewer Is Better
RX Vega 56
Min: 63.8 / Avg: 296.42 / Max: 342.3
Min: 53.3 / Avg: 261.24 / Max: 330.9
RX Vega 64
Min: 71.1 / Avg: 358.44 / Max: 417.5
Min: 57.7 / Avg: 329.75 / Max: 421.8
80
160
240
320
400
HITMAN
Resolution: 3840 x 2160 - Quality Level: Ultra
Launch
2019
Frames Per Second, More Is Better
RX Vega 56
43.25
47.30
RX Vega 64
49.82
55.49
12
24
36
48
60

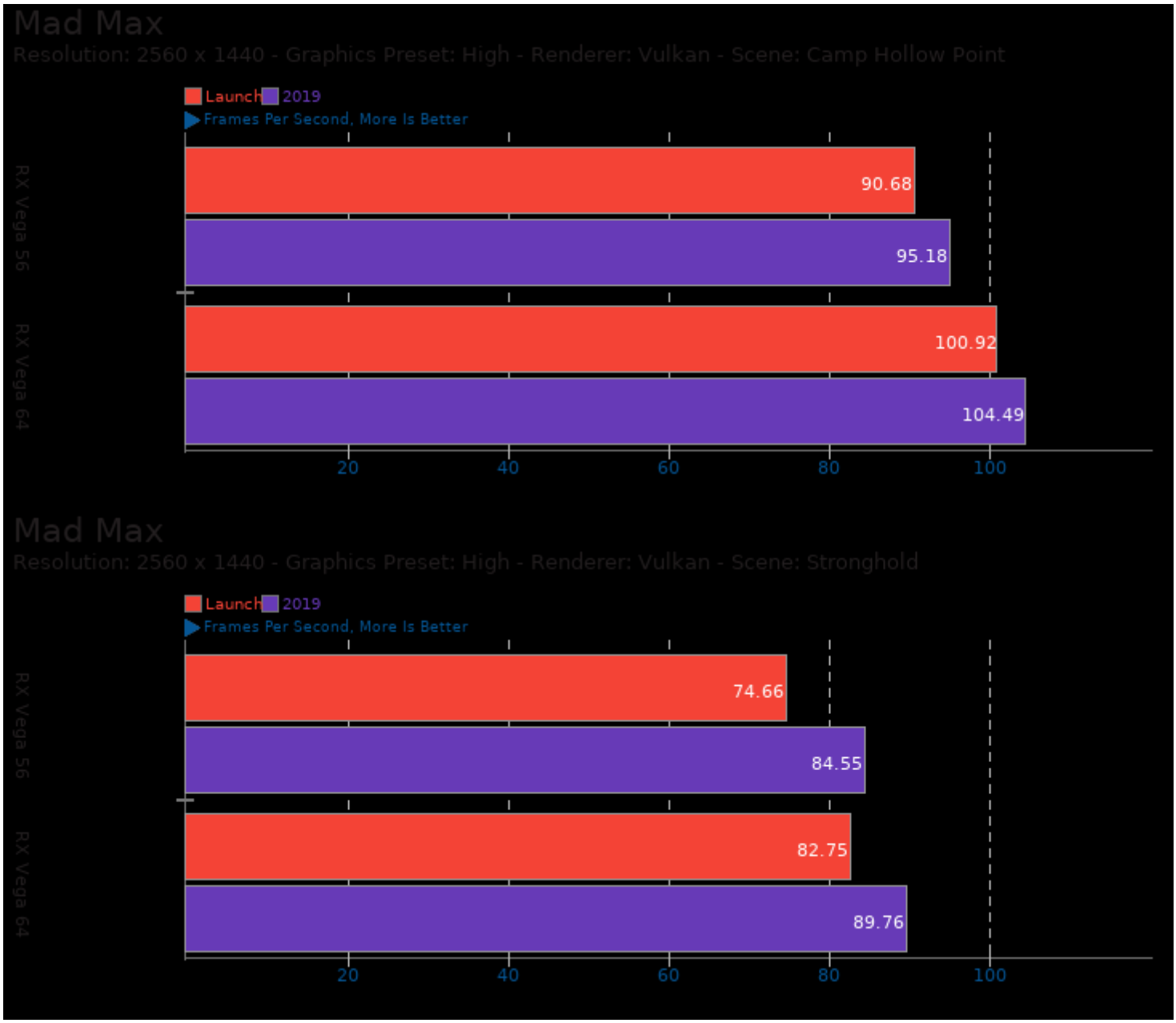
AMD Radeon RX Vega Performance 2019

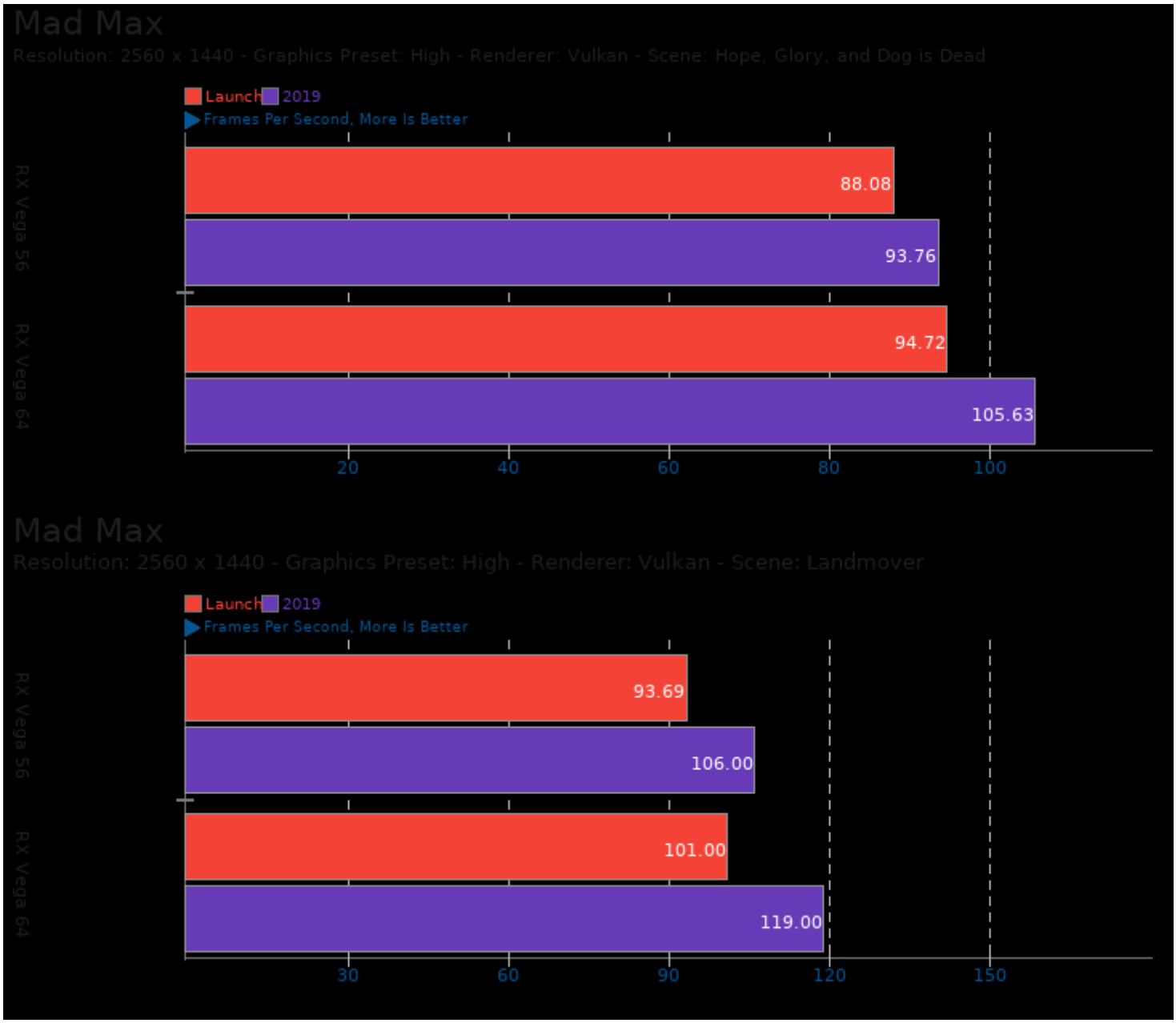



Deus Ex: Mankind Divided
Preset: 1920 x 1080 - Low Quality
Launch
2019
Frames Per Second, More Is Better
RX Vega 56
RX Vega 64
SE +/- 0.20, N = 3
SE +/- 1.71, N = 3
SE +/- 4.82, N = 3
SE +/- 0.86, N = 3
88.60
91.47
91.20
98.23
20
40
60
80
100
Deus Ex: Mankind Divided
Preset: 1920 x 1080 - Low Quality
Launch
2019
Frames Per Second Per Watt, More Is Better
RX Vega 56
RX Vega 64
0.30
0.36
0.31
0.32
0.081
0.162
0.243
0.324
0.405

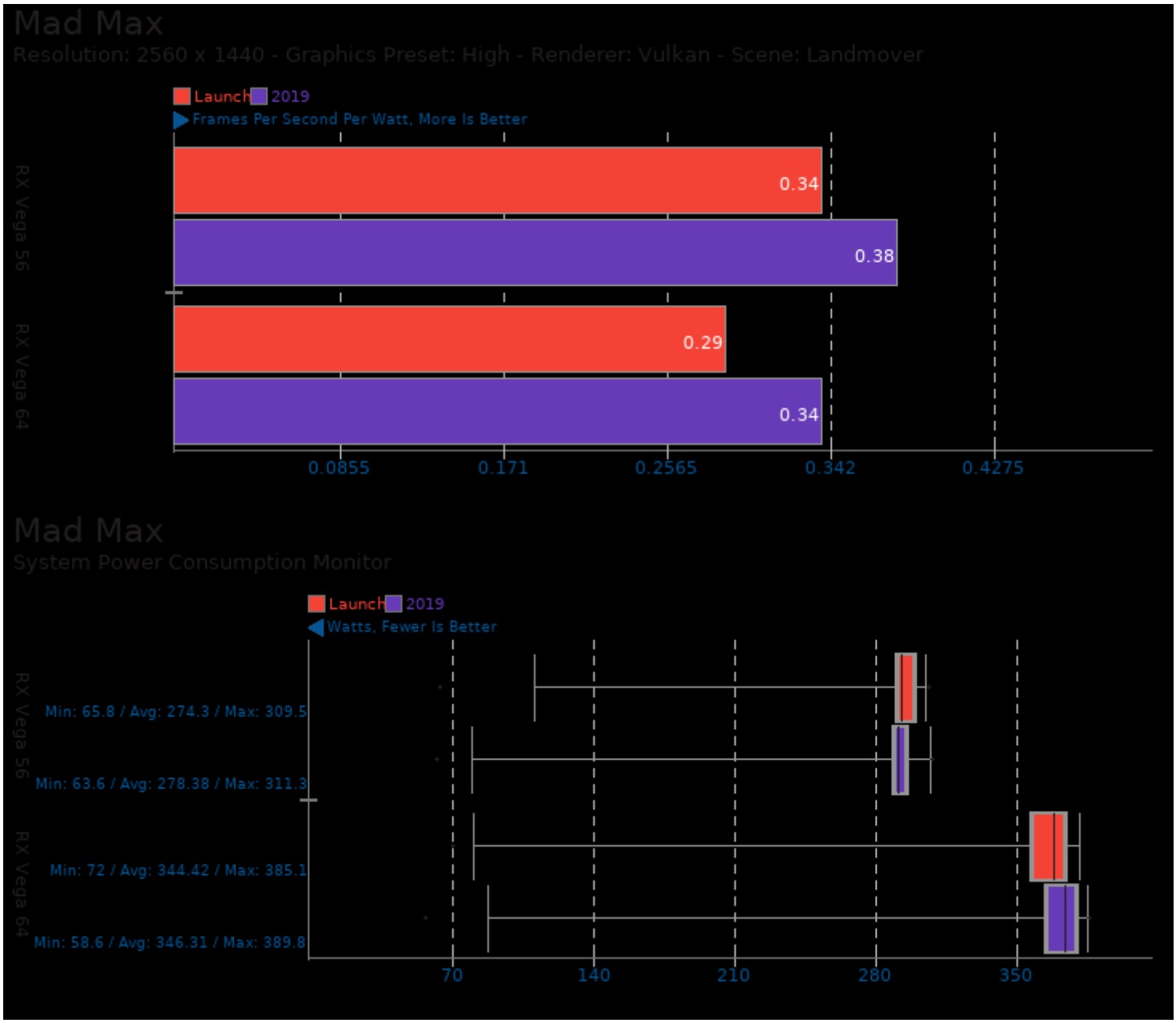

Deus Ex: Mankind Divided
System Power Consumption Monitor
Launch
2019
Watts, Fewer Is Better
RX Vega 56
RX Vega 64
Min: 66 / Avg: 293.34 / Max: 349.8
Min: 55.5 / Avg: 255.61 / Max: 355.5
Min: 71.9 / Avg: 297.57 / Max: 426.7
Min: 59.4 / Avg: 304.7 / Max: 424.1
80
160
240
320
400
Deus Ex: Mankind Divided
Preset: 1920 x 1080 - High Quality
Launch
2019
Frames Per Second, More Is Better
RX Vega 56
RX Vega 64
SE +/- 0.23, N = 3
SE +/- 0.66, N = 3
SE +/- 0.42, N = 3
SE +/- 0.75, N = 3
63.77
66.50
69.97
71.27
16
32
48
64
80

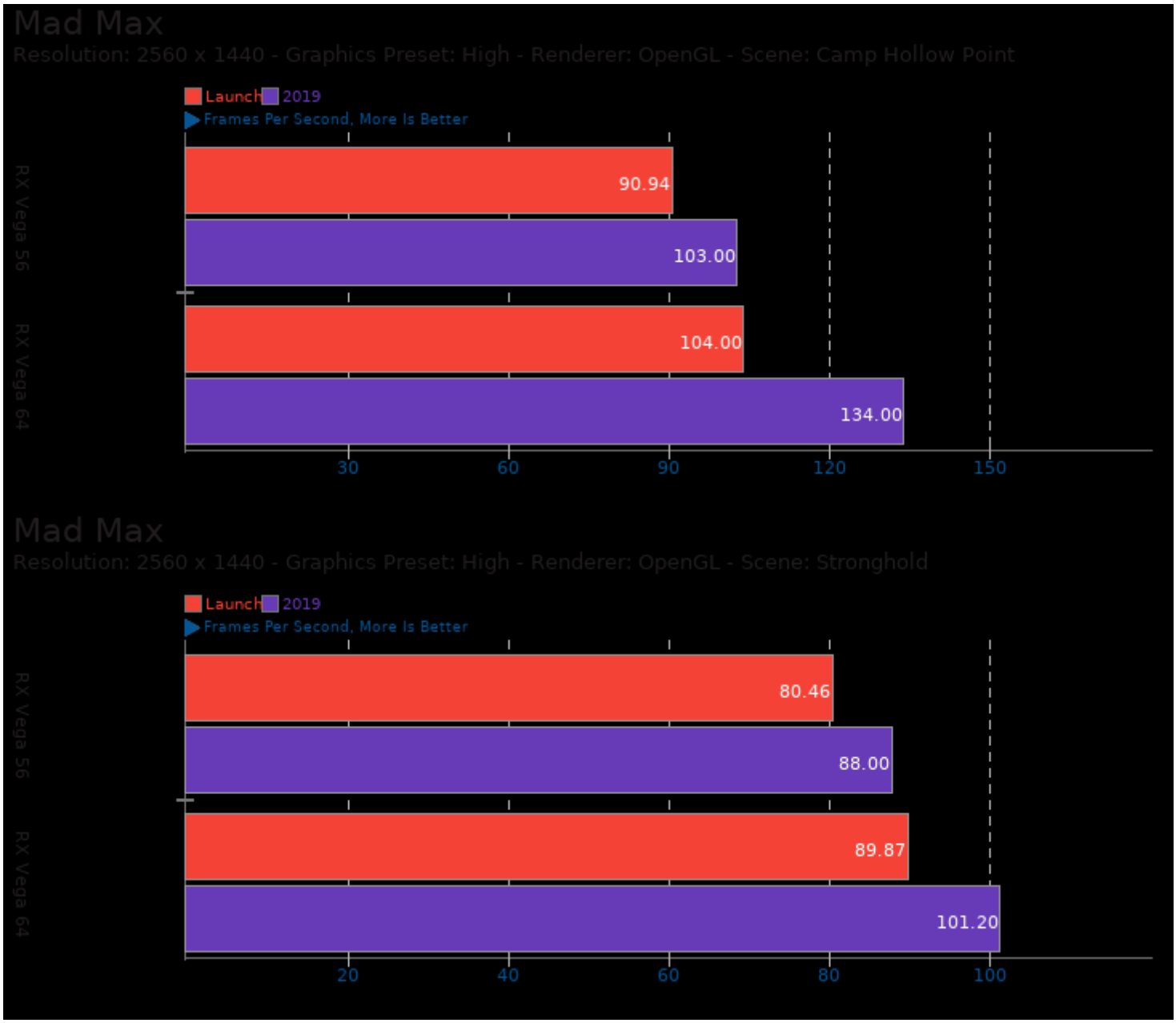

Deus Ex: Mankind Divided
Preset: 1920 x 1080 - High Quality
Launch
2019
Frames Per Second Per Watt, More Is Better
RX Vega 56
RX Vega 64
0.22
0.22
0.19
0.20
0.0495
0.099
0.1485
0.198
0.2475
Deus Ex: Mankind Divided
System Power Consumption Monitor
Launch
2019
Watts, Fewer Is Better
RX Vega 56
RX Vega 64
Min: 68.3 / Avg: 291.81 / Max: 340.9
Min: 53.9 / Avg: 298.21 / Max: 339.1
Min: 75 / Avg: 369.21 / Max: 421.4
Min: 54.7 / Avg: 352.89 / Max: 419.3
70
140
210
280
350

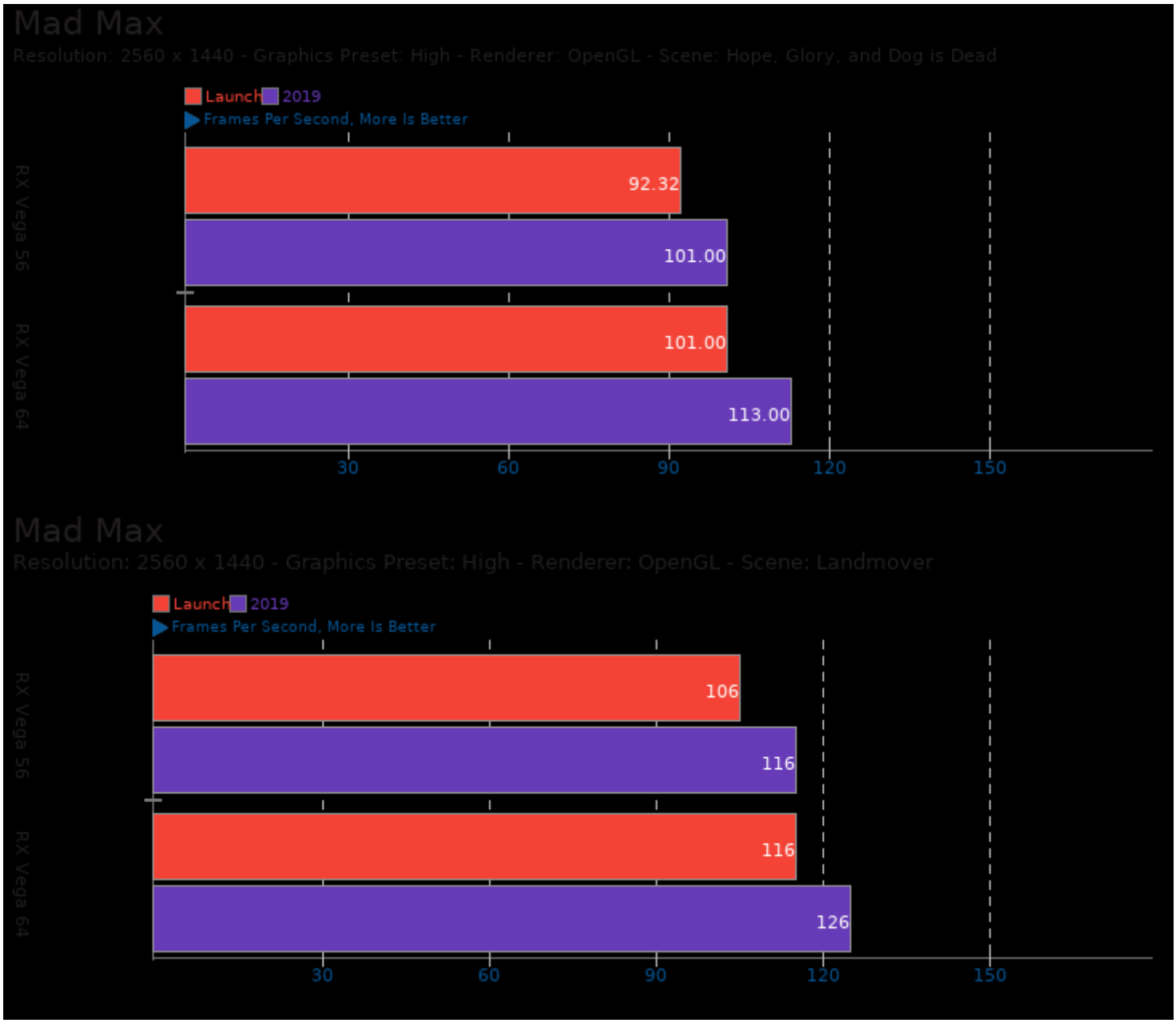

Mad Max
Resolution: 2560 x 1440 - Graphics Preset: High - Renderer: Vulkan - Scene: Camp Hollow Point
Launch
2019
Frames Per Second, More Is Better
RX Vega 56
RX Vega 64
90.68
95.18
100.92
104.49
20
40
60
80
100
Mad Max
Resolution: 2560 x 1440 - Graphics Preset: High - Renderer: Vulkan - Scene: Stronghold
Launch
2019
Frames Per Second, More Is Better
RX Vega 56
RX Vega 64
74.66
84.55
82.75
89.76
20
40
60
80
100

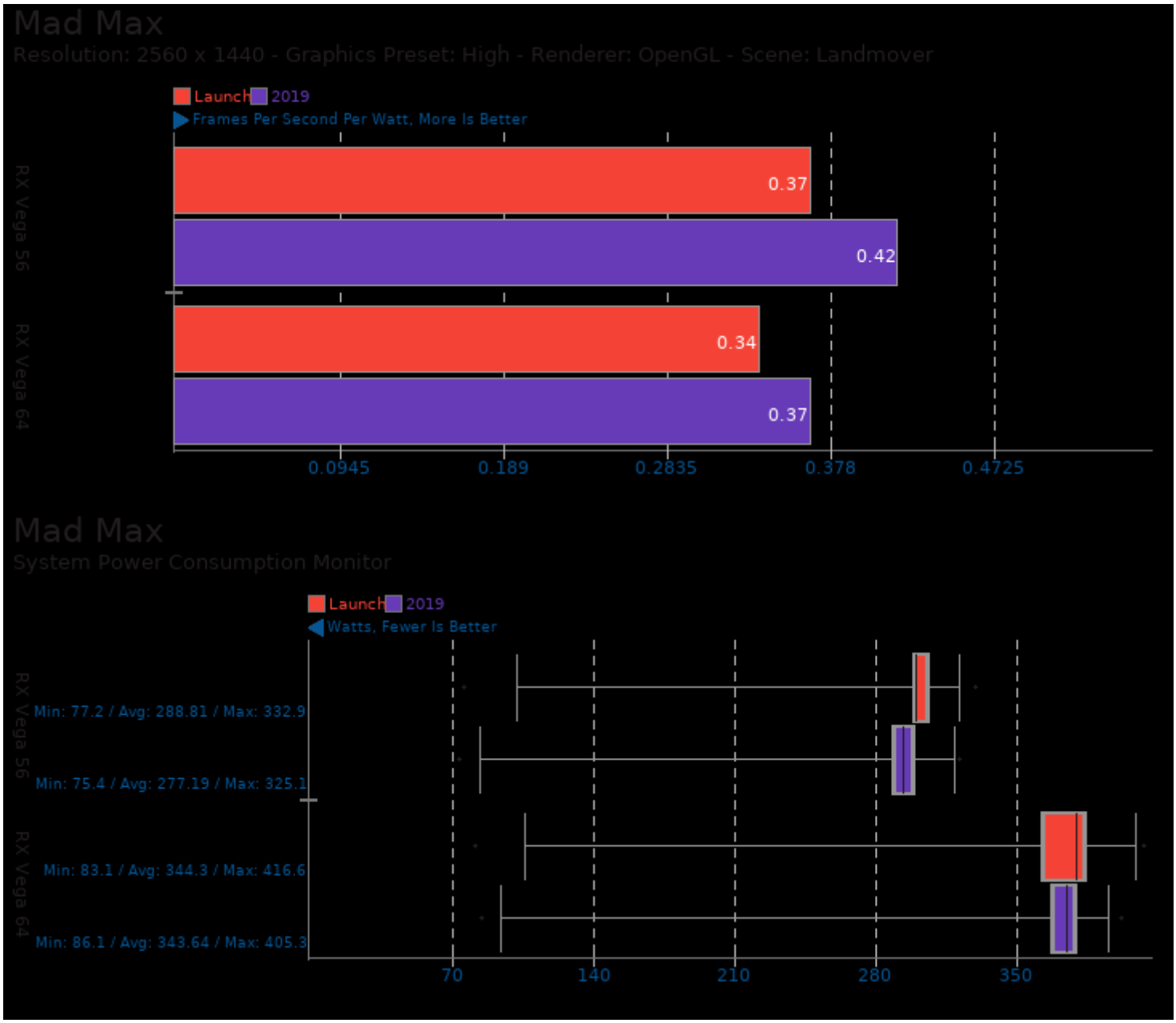

Mad Max
Resolution: 2560 x 1440 - Graphics Preset: High - Renderer: Vulkan - Scene: Hope, Glory, and Dog is Dead
Launch
2019
Frames Per Second, More Is Better
RX Vega 56
RX Vega 64
88.08
93.76
94.72
105.63
20
40
60
80
100
Mad Max
Resolution: 2560 x 1440 - Graphics Preset: High - Renderer: Vulkan - Scene: Landmover
Launch
2019
Frames Per Second, More Is Better
RX Vega 56
RX Vega 64
93.69
106.00
101.00
119.00
30
60
90
120
150

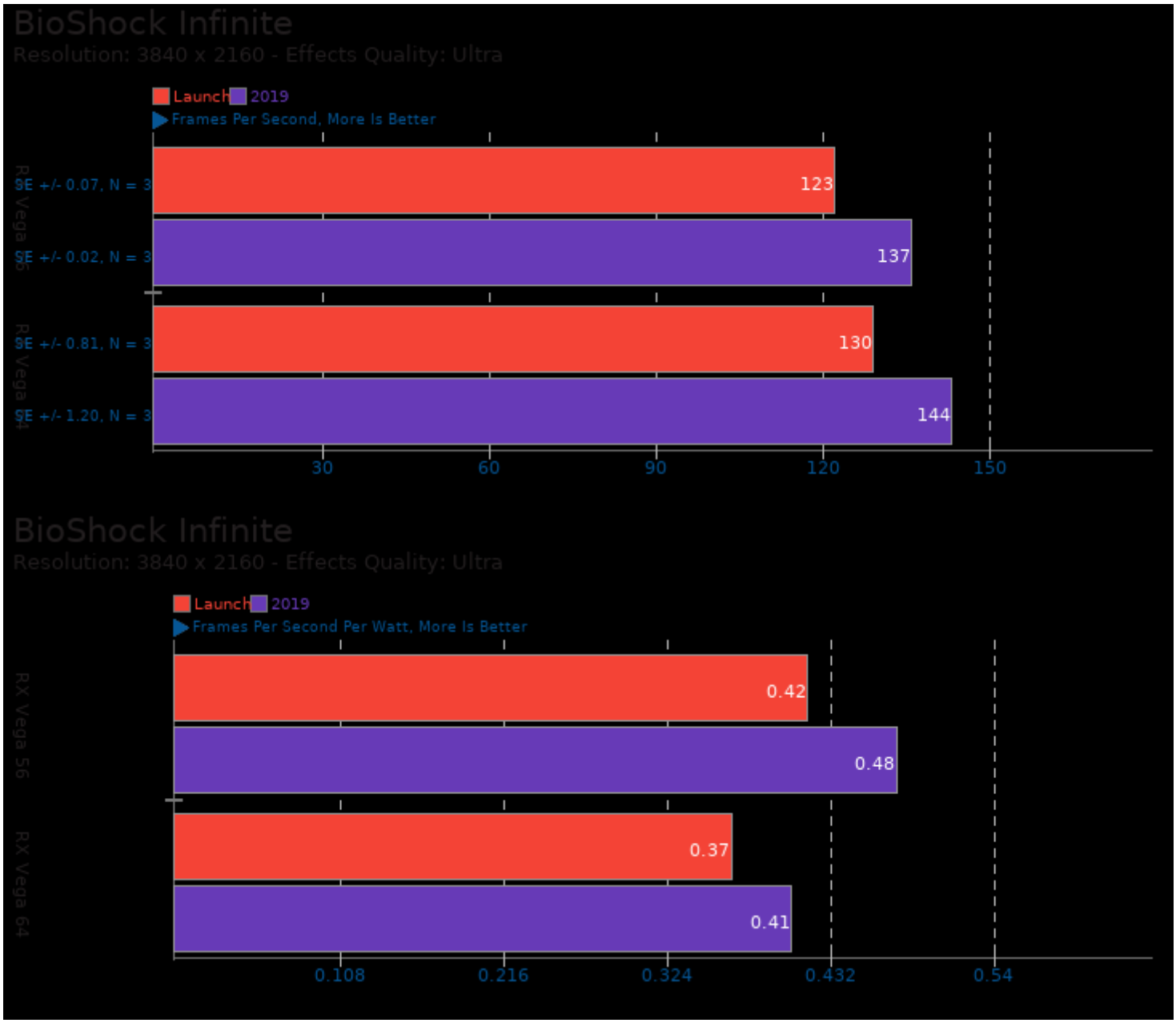
AMD Radeon RX Vega Performance 2019

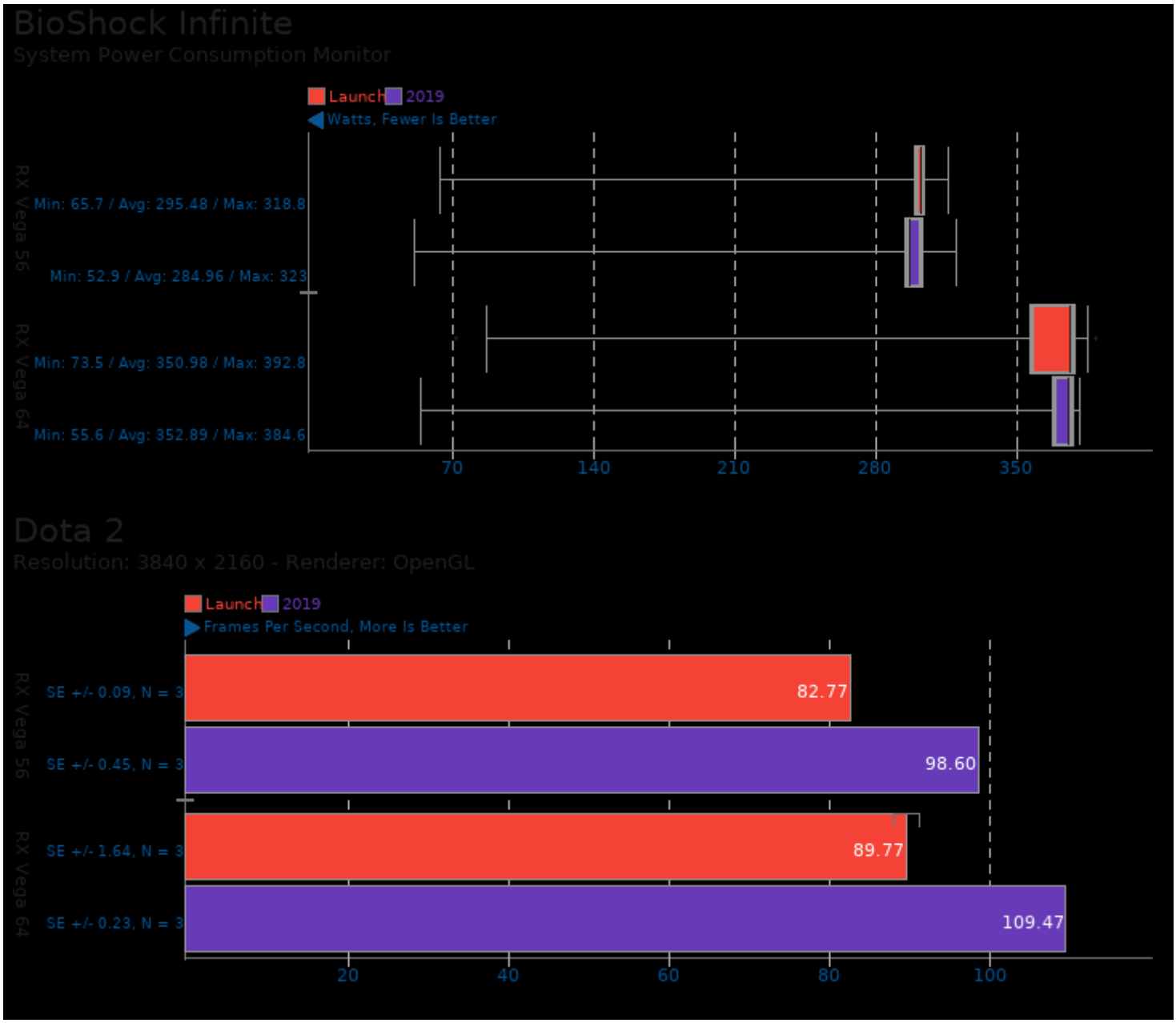


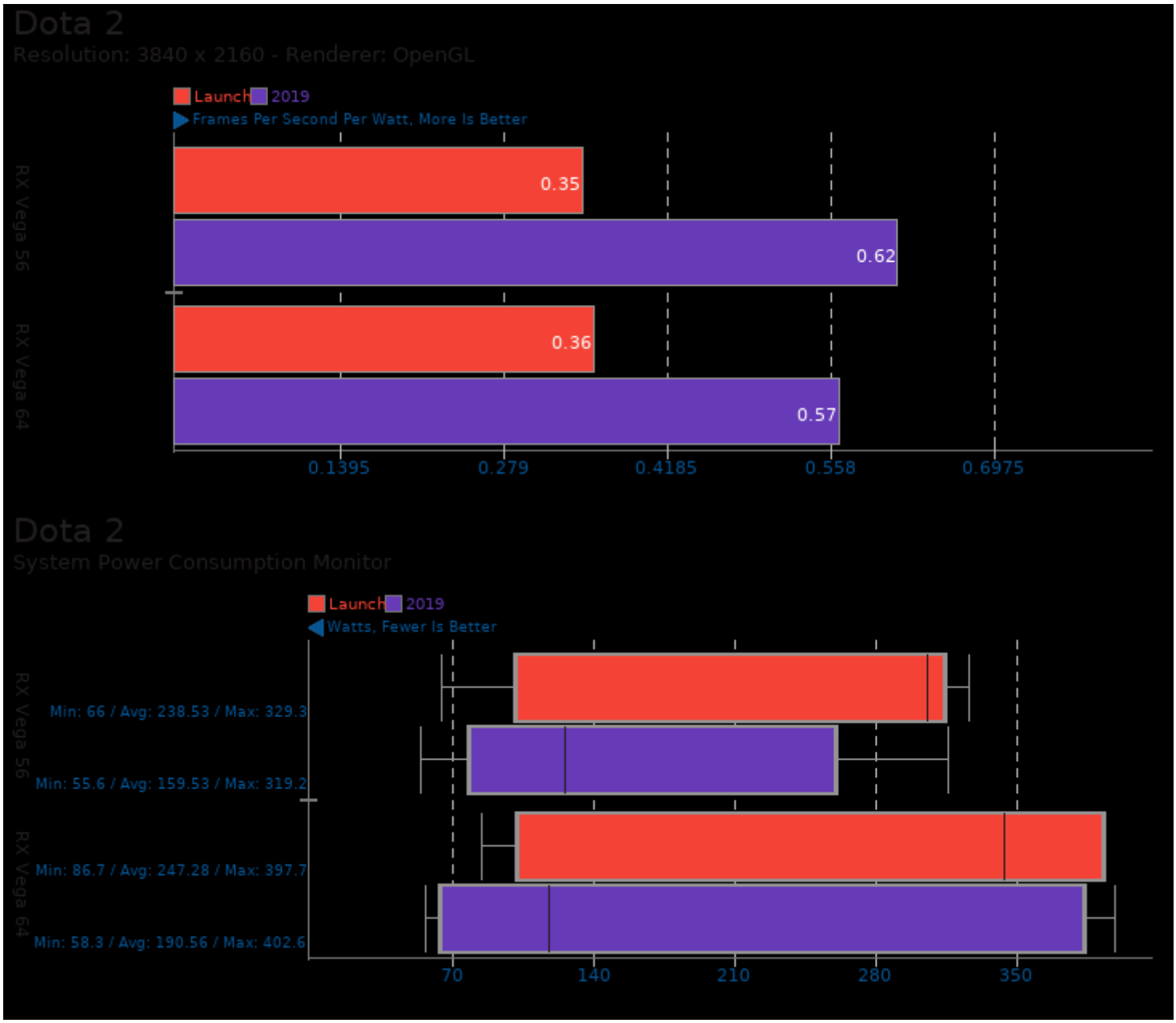

Mad Max
Resolution: 2560 x 1440 - Graphics Preset: High - Renderer: OpenGL - Scene: Camp Hollow Point
Launch
2019
Frames Per Second, More Is Better
RX Vega 56
RX Vega 64
90.94
103.00
104.00
134.00
30
60
90
120
150
Mad Max
Resolution: 2560 x 1440 - Graphics Preset: High - Renderer: OpenGL - Scene: Stronghold
Launch
2019
Frames Per Second, More Is Better
RX Vega 56
RX Vega 64
80.46
88.00
89.87
101.20
20
40
60
80
100

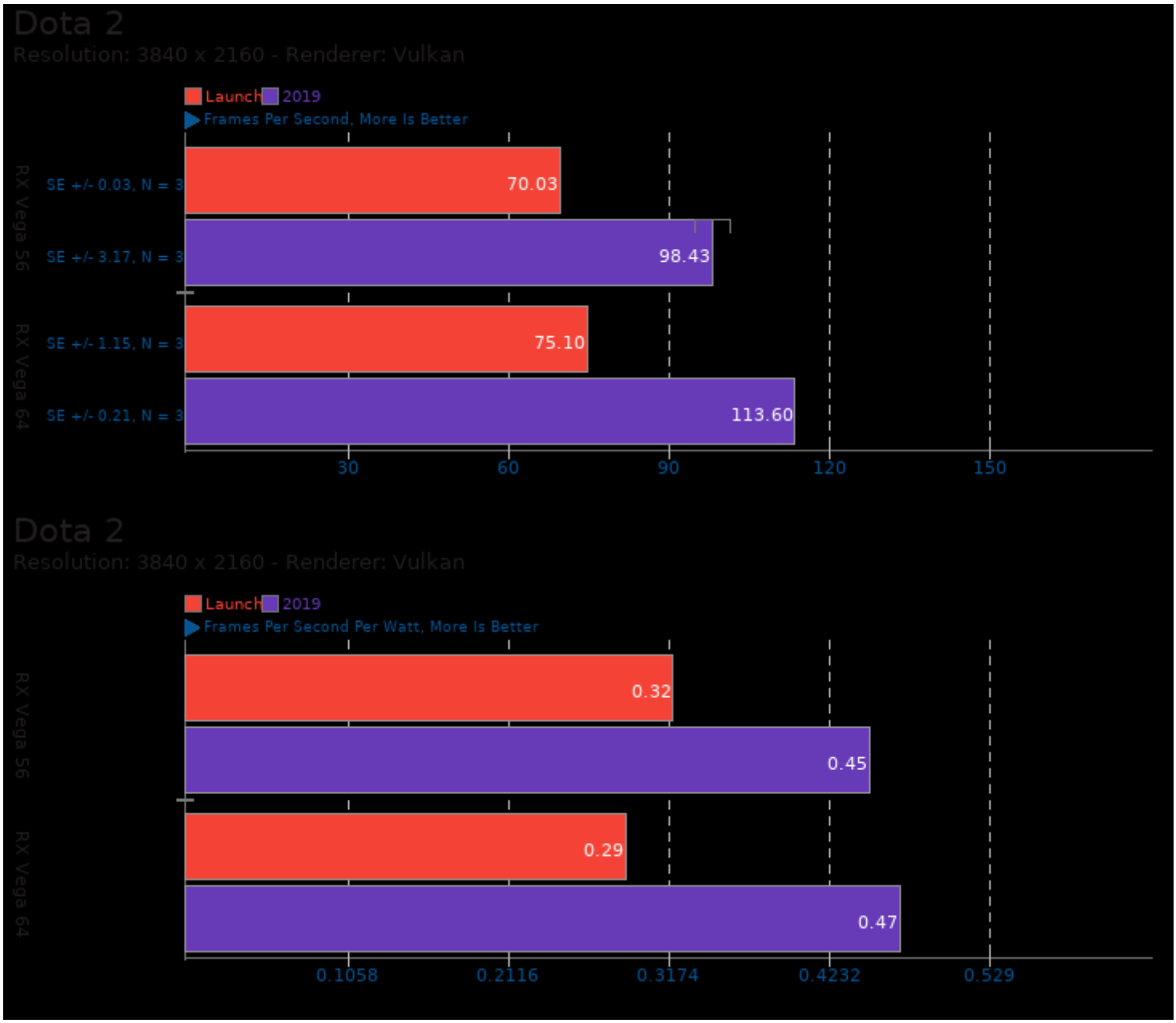

Mad Max
Resolution: 2560 x 1440 - Graphics Preset: High - Renderer: OpenGL - Scene: Hope, Glory, and Dog is Dead
Launch
2019
Frames Per Second, More Is Better
RX Vega 56
RX Vega 64
92.32
101.00
101.00
113.00
30
60
90
120
150
Mad Max
Resolution: 2560 x 1440 - Graphics Preset: High - Renderer: OpenGL - Scene: Landmover
Launch
2019
Frames Per Second, More Is Better
RX Vega 56
RX Vega 64
106
116
116
126
30
60
90
120
150

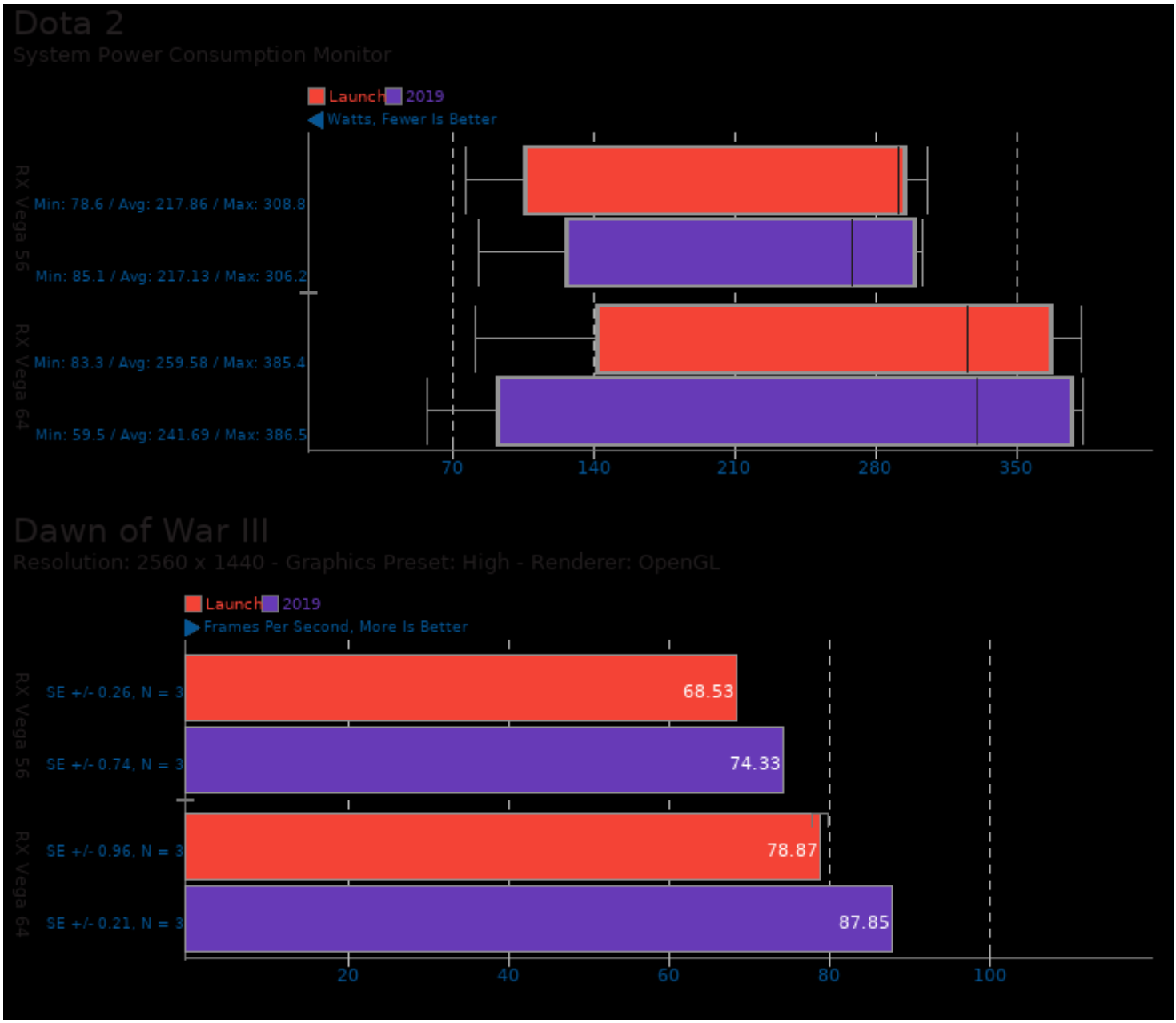

Mad Max
Resolution: 2560 x 1440 - Graphics Preset: High - Renderer: OpenGL - Scene: Landmover
Launch
2019
Frames Per Second Per Watt, More Is Better
RX Vega 56
RX Vega 64
0.37
0.42
0.34
0.37
0.0945
0.189
0.2835
0.378
0.4725
Mad Max
System Power Consumption Monitor
Launch
2019
Watts, Fewer Is Better
RX Vega 56
RX Vega 64
Min: 77.2 / Avg: 288.81 / Max: 332.9
Min: 75.4 / Avg: 277.19 / Max: 325.1
Min: 83.1 / Avg: 344.3 / Max: 416.6
Min: 86.1 / Avg: 343.64 / Max: 405.3
70
140
210
280
350

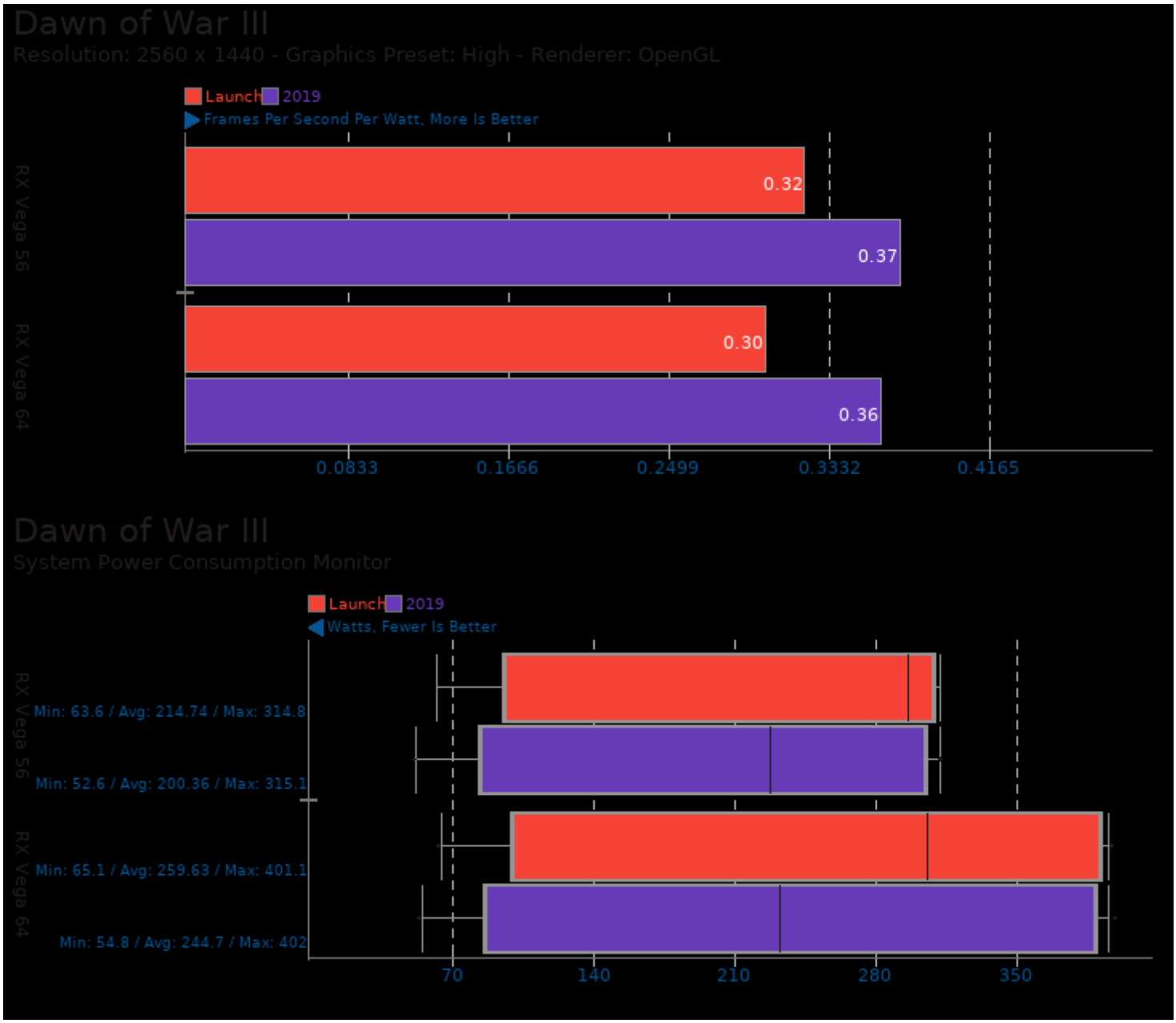

BioShock Infinite
Resolution: 3840 x 2160 - Effects Quality: Ultra
Launch
2019
Frames Per Second, More Is Better
RX Vega 56
SE +/- 0.07, N = 3
123
RX Vega 64
SE +/- 0.02, N = 3
137
RX Vega 56
SE +/- 0.81, N = 3
130
RX Vega 64
SE +/- 1.20, N = 3
144
30
60
90
120
150
BioShock Infinite
Resolution: 3840 x 2160 - Effects Quality: Ultra
Launch
2019
Frames Per Second Per Watt, More Is Better
RX Vega 56
0.42
RX Vega 64
0.48
RX Vega 56
0.37
RX Vega 64
0.41
0.108
0.216
0.324
0.432
0.54

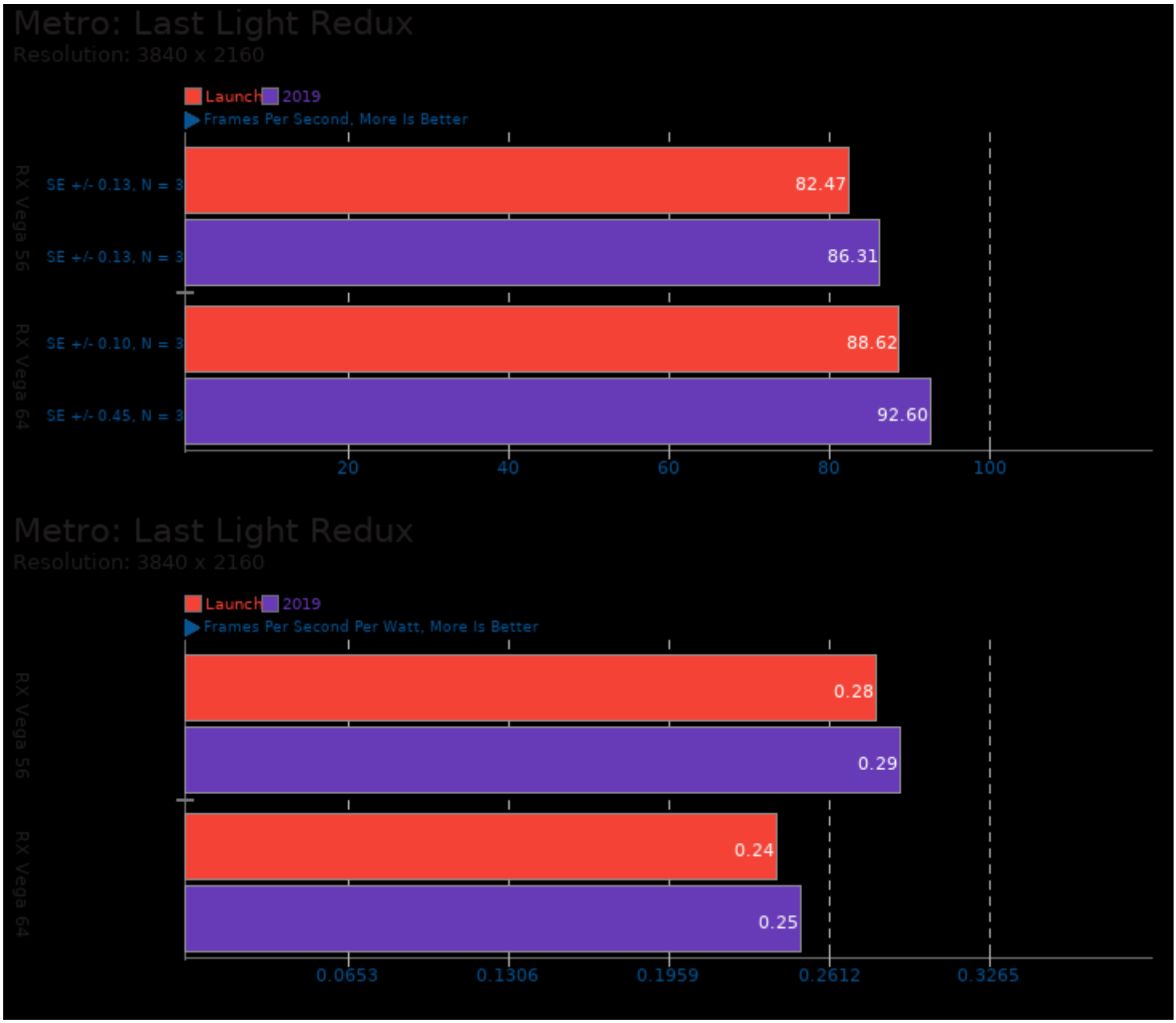

BioShock Infinite
System Power Consumption Monitor
Launch
2019
Watts, Fewer Is Better
RX Vega 56
Min: 65.7 / Avg: 295.48 / Max: 318.8
Min: 52.9 / Avg: 284.96 / Max: 323
RX Vega 64
Min: 73.5 / Avg: 350.98 / Max: 392.8
Min: 55.6 / Avg: 352.89 / Max: 384.6
70
140
210
280
350
Dota 2
Resolution: 3840 x 2160 - Renderer: OpenGL
Launch
2019
Frames Per Second, More Is Better
RX Vega 56
SE +/- 0.09, N = 3
82.77
SE +/- 0.45, N = 3
98.60
RX Vega 64
SE +/- 1.64, N = 3
89.77
SE +/- 0.23, N = 3
109.47
20
40
60
80
100

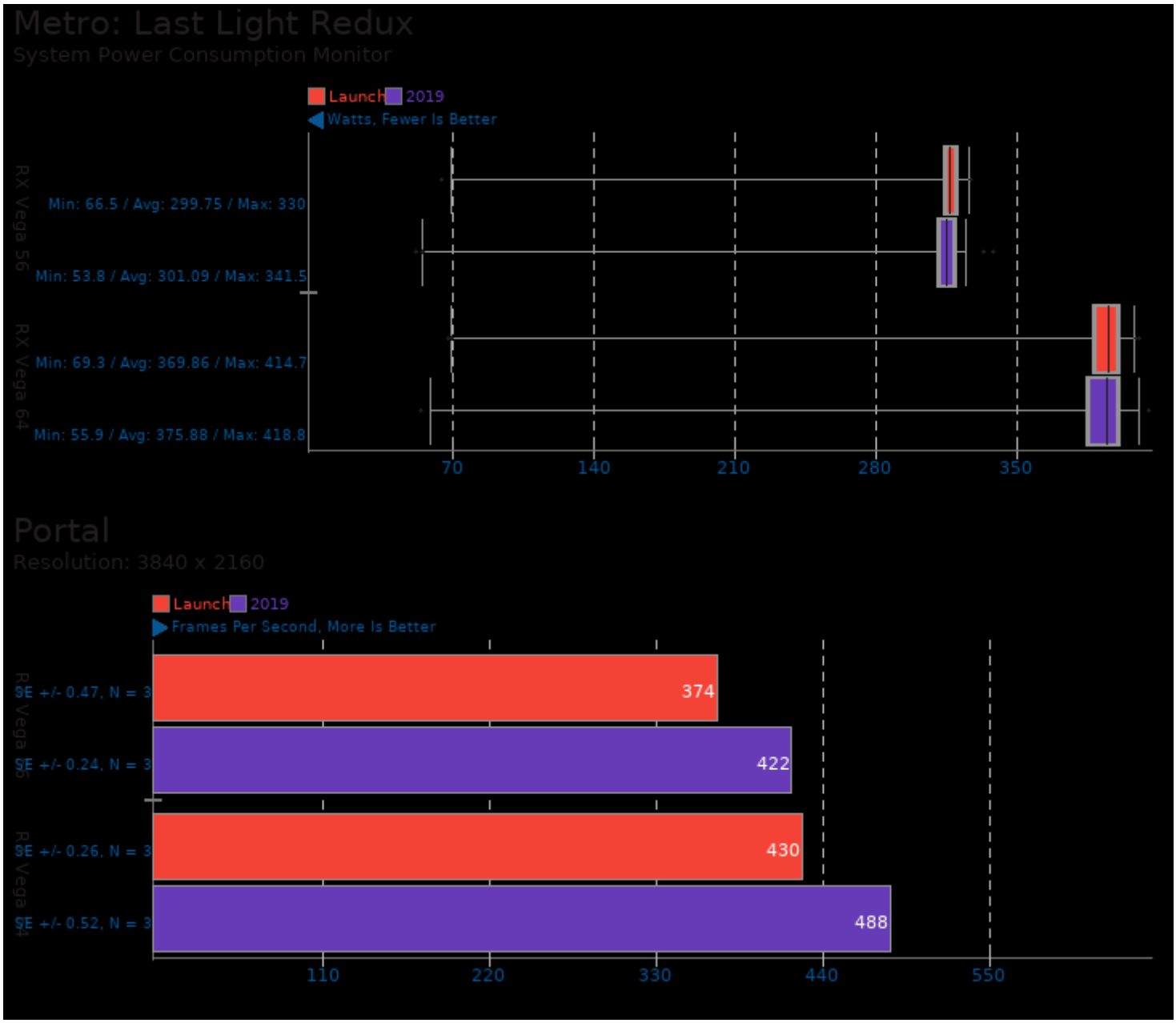

Dota 2
Resolution: 3840 x 2160 - Renderer: OpenGL
Launch
2019
Frames Per Second Per Watt, More Is Better
RX Vega 56
RX Vega 64
0.35
0.62
0.36
0.57
0.1395
0.279
0.4185
0.558
0.6975
Dota 2
System Power Consumption Monitor
Launch
2019
Watts, Fewer Is Better
RX Vega 56
RX Vega 64
Min: 66 / Avg: 238.53 / Max: 329.3
Min: 55.6 / Avg: 159.53 / Max: 319.2
Min: 86.7 / Avg: 247.28 / Max: 397.7
Min: 58.3 / Avg: 190.56 / Max: 402.6
70
140
210
280
350

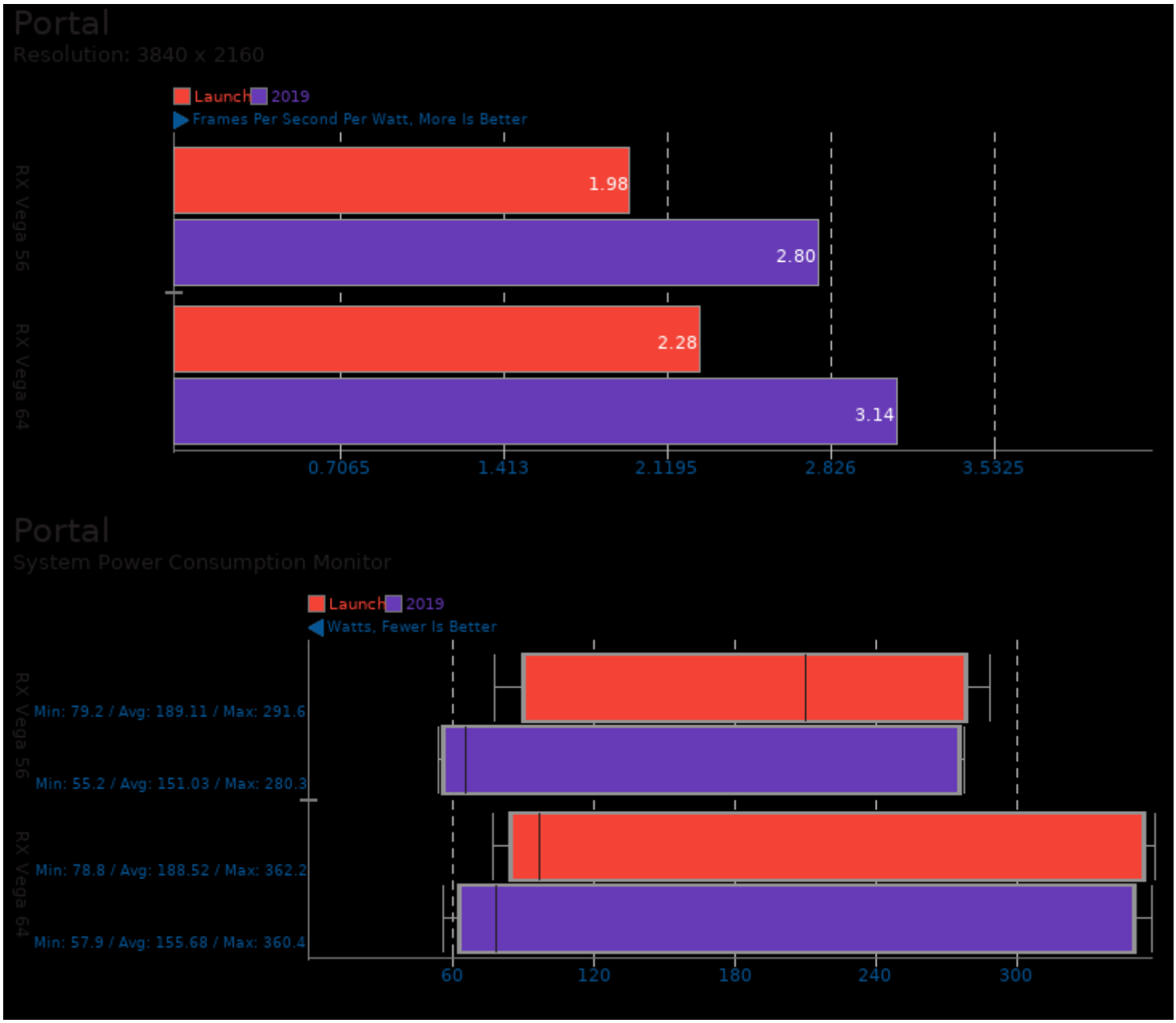

Dota 2
Resolution: 3840 x 2160 - Renderer: Vulkan
Launch
2019
Frames Per Second, More Is Better
RX Vega 56
SE +/- 0.03, N = 3
70.03
SE +/- 3.17, N = 3
98.43
RX Vega 64
SE +/- 1.15, N = 3
75.10
SE +/- 0.21, N = 3
113.60
30
60
90
120
150
Dota 2
Resolution: 3840 x 2160 - Renderer: Vulkan
Launch
2019
Frames Per Second Per Watt, More Is Better
RX Vega 56
0.32
0.45
RX Vega 64
0.29
0.47
0.1058
0.2116
0.3174
0.4232
0.529

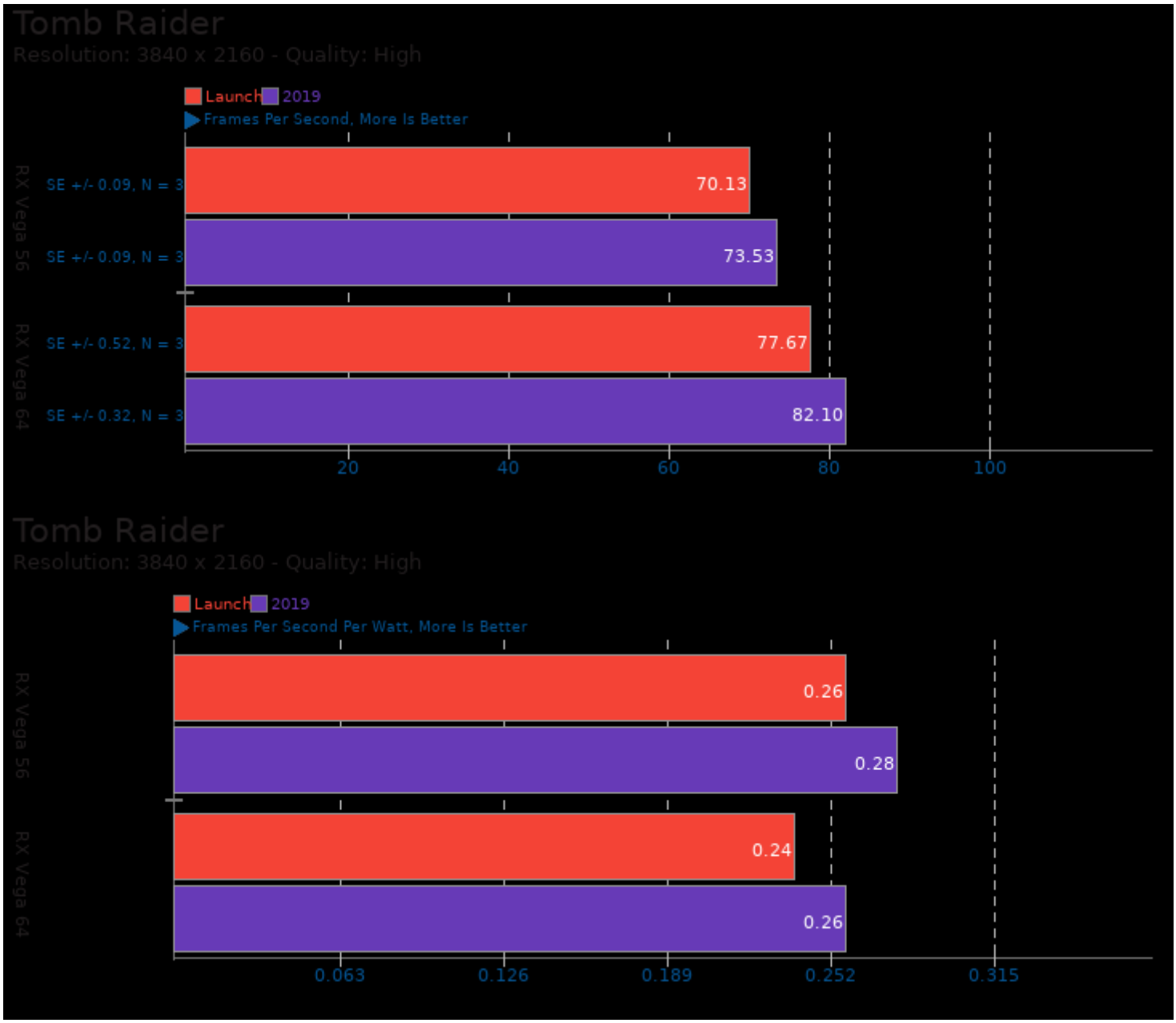

Dota 2
System Power Consumption Monitor
Launch
2019
Watts, Fewer Is Better
RX Vega 56
Min: 78.6 / Avg: 217.86 / Max: 308.8
Min: 85.1 / Avg: 217.13 / Max: 306.2
RX Vega 64
Min: 83.3 / Avg: 259.58 / Max: 385.4
Min: 59.5 / Avg: 241.69 / Max: 386.5
70
140
210
280
350
Dawn of War III
Resolution: 2560 x 1440 - Graphics Preset: High - Renderer: OpenGL
Launch
2019
Frames Per Second, More Is Better
RX Vega 56
SE +/- 0.26, N = 3
68.53
SE +/- 0.74, N = 3
74.33
RX Vega 64
SE +/- 0.96, N = 3
78.87
SE +/- 0.21, N = 3
87.85
20
40
60
80
100


Dawn of War III
Resolution: 2560 x 1440 - Graphics Preset: High - Renderer: OpenGL
Launch
2019
Frames Per Second Per Watt, More Is Better
RX Vega 56
RX Vega 64
0.32
0.37
0.30
0.36
0.0833
0.1666
0.2499
0.3332
0.4165
Dawn of War III
System Power Consumption Monitor
Launch
2019
Watts, Fewer Is Better
RX Vega 56
RX Vega 64
Min: 63.6 / Avg: 214.74 / Max: 314.8
Min: 52.6 / Avg: 200.36 / Max: 315.1
Min: 65.1 / Avg: 259.63 / Max: 401.1
Min: 54.8 / Avg: 244.7 / Max: 402
70
140
210
280
350

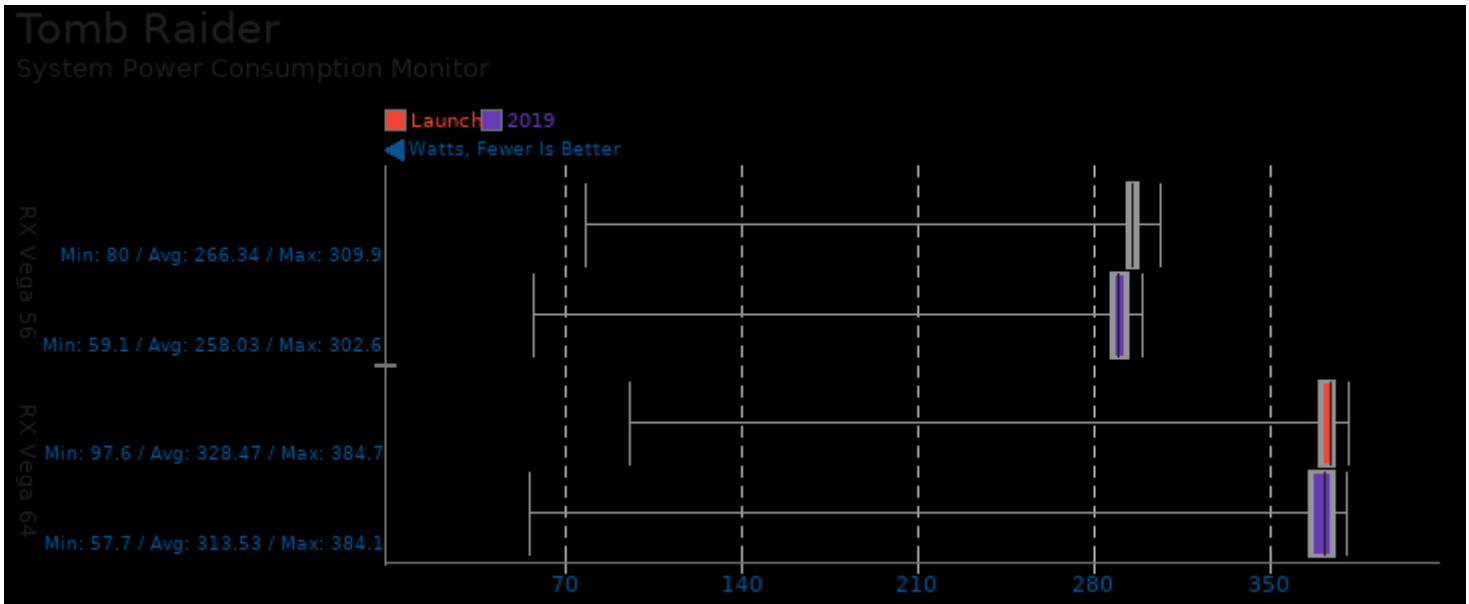

Metro: Last Light Redux
Resolution: 3840 x 2160
Launch
2019
Frames Per Second, More Is Better
RX Vega 56
RX Vega 64
SE +/- 0.13, N = 3
SE +/- 0.13, N = 3
SE +/- 0.10, N = 3
SE +/- 0.45, N = 3
82.47
86.31
88.62
92.60
20
40
60
80
100
Metro: Last Light Redux
Resolution: 3840 x 2160
Launch
2019
Frames Per Second Per Watt, More Is Better
RX Vega 56
RX Vega 64
0.28
0.29
0.24
0.25
0.0653
0.1306
0.1959
0.2612
0.3265

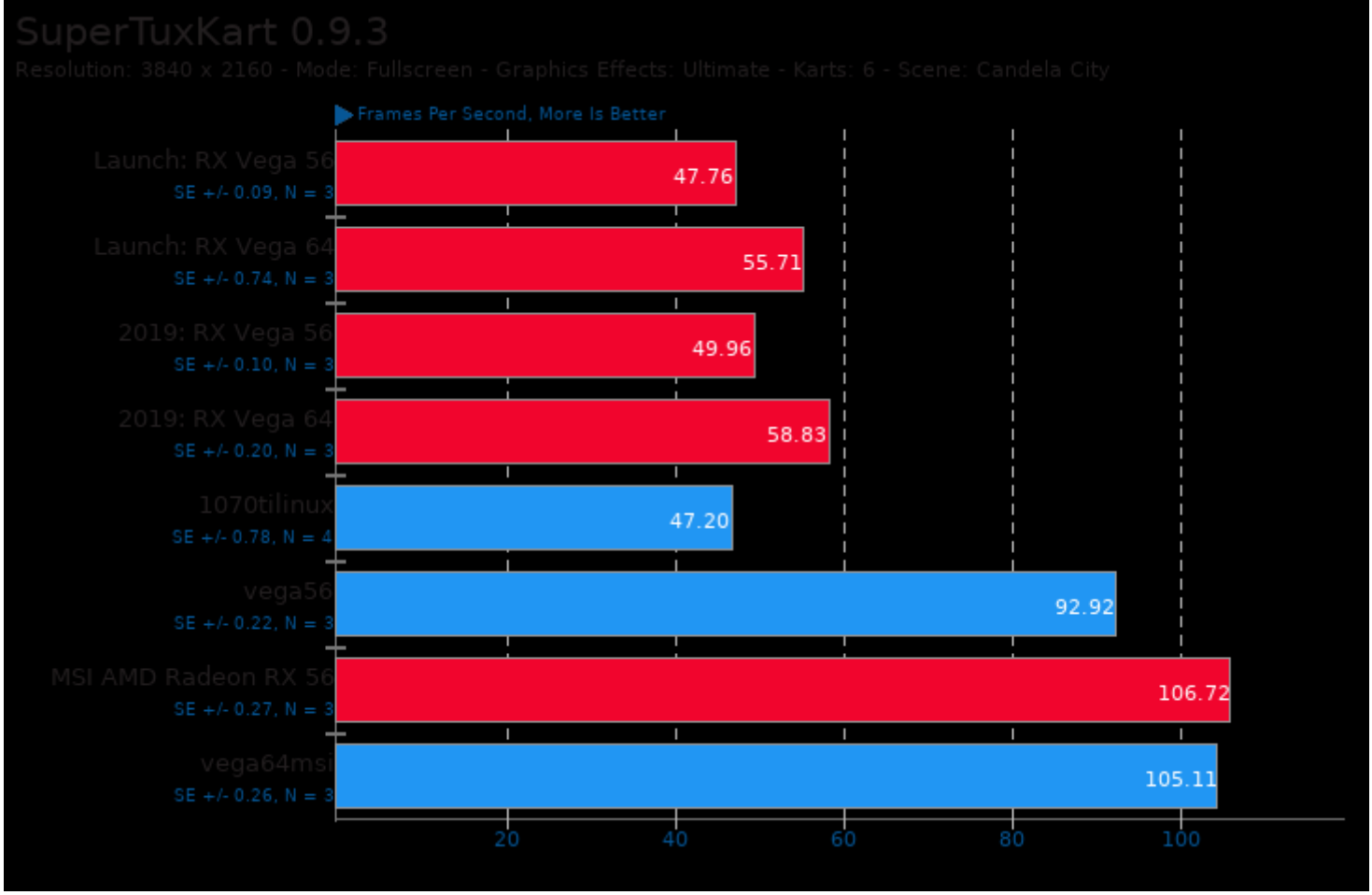

Metro: Last Light Redux
System Power Consumption Monitor
Launch
2019
Watts, Fewer Is Better
RX Vega 56
Min: 66.5 / Avg: 299.75 / Max: 330
Min: 53.8 / Avg: 301.09 / Max: 341.5
RX Vega 64
Min: 69.3 / Avg: 369.86 / Max: 414.7
Min: 55.9 / Avg: 375.88 / Max: 418.8
70
140
210
280
350
Portal
Resolution: 3840 x 2160
Launch
2019
Frames Per Second, More Is Better
RX Vega 56
SE +/- 0.47, N = 3
374
RX Vega 64
SE +/- 0.24, N = 3
422
SE +/- 0.26, N = 3
430
SE +/- 0.52, N = 3
488
110
220
330
440
550

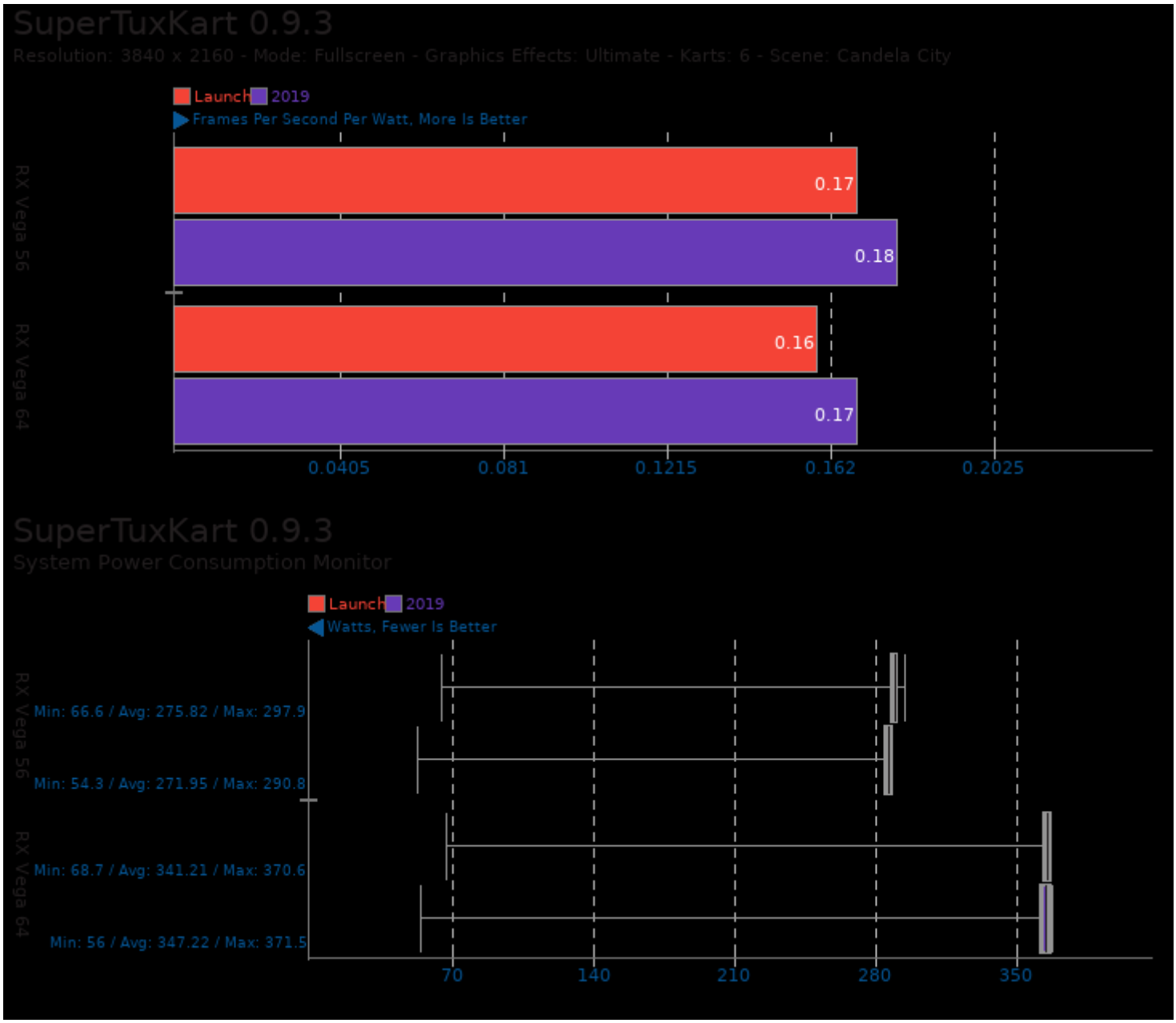

Portal
Resolution: 3840 x 2160
Launch
2019
Frames Per Second Per Watt, More Is Better
RX Vega 56
RX Vega 64
1.98
2.80
2.28
3.14
0.7065
1.413
2.1195
2.826
3.5325
Portal
System Power Consumption Monitor
Launch
2019
Watts, Fewer Is Better
RX Vega 56
RX Vega 64
Min: 79.2 / Avg: 189.11 / Max: 291.6
Min: 55.2 / Avg: 151.03 / Max: 280.3
Min: 78.8 / Avg: 188.52 / Max: 362.2
Min: 57.9 / Avg: 155.68 / Max: 360.4
60
120
180
240
300


Tomb Raider
Resolution: 3840 x 2160 - Quality: High
Launch
2019
Frames Per Second, More Is Better
RX Vega 56
RX Vega 64
SE +/- 0.09, N = 3
SE +/- 0.09, N = 3
SE +/- 0.52, N = 3
SE +/- 0.32, N = 3
70.13
73.53
77.67
82.10
20
40
60
80
100
Tomb Raider
Resolution: 3840 x 2160 - Quality: High
Launch
2019
Frames Per Second Per Watt, More Is Better
RX Vega 56
RX Vega 64
0.26
0.28
0.24
0.26
0.063
0.126
0.189
0.252
0.315

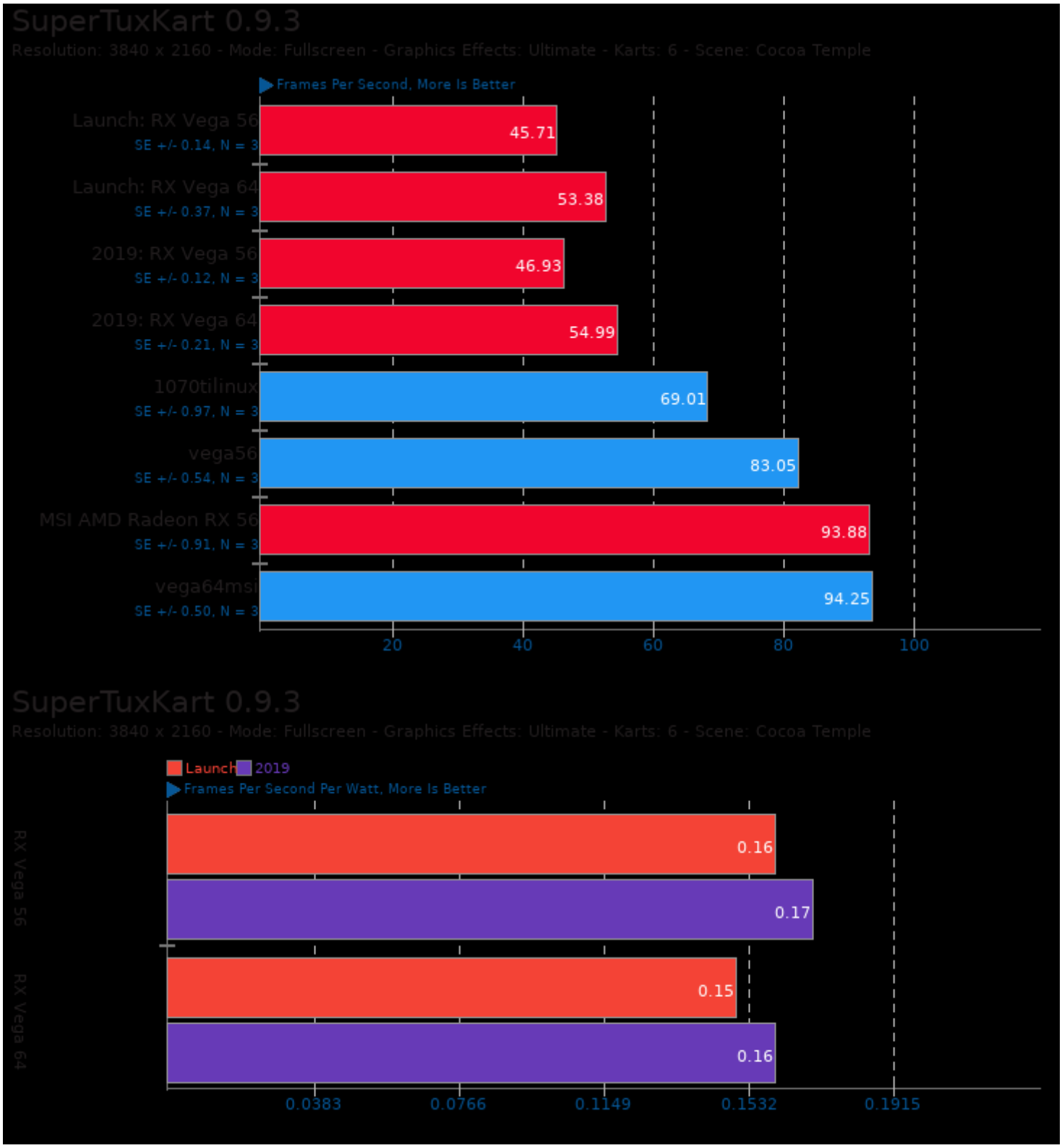
AMD Radeon RX Vega Performance 2019

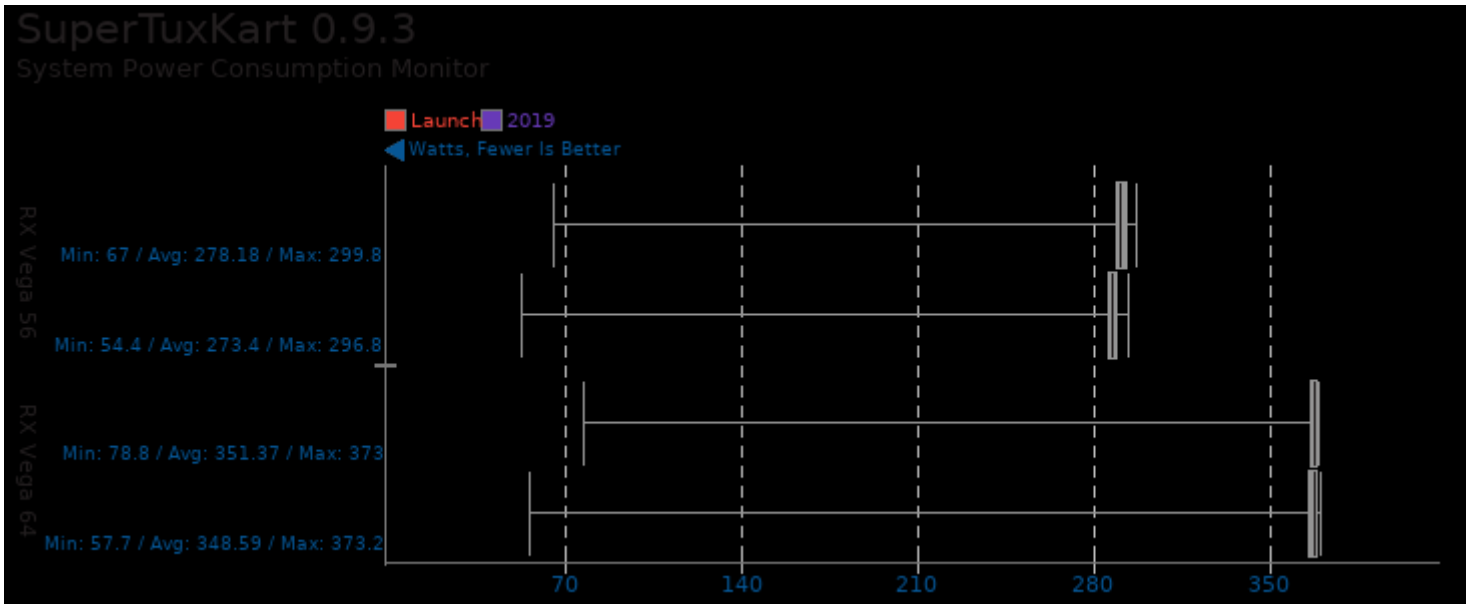


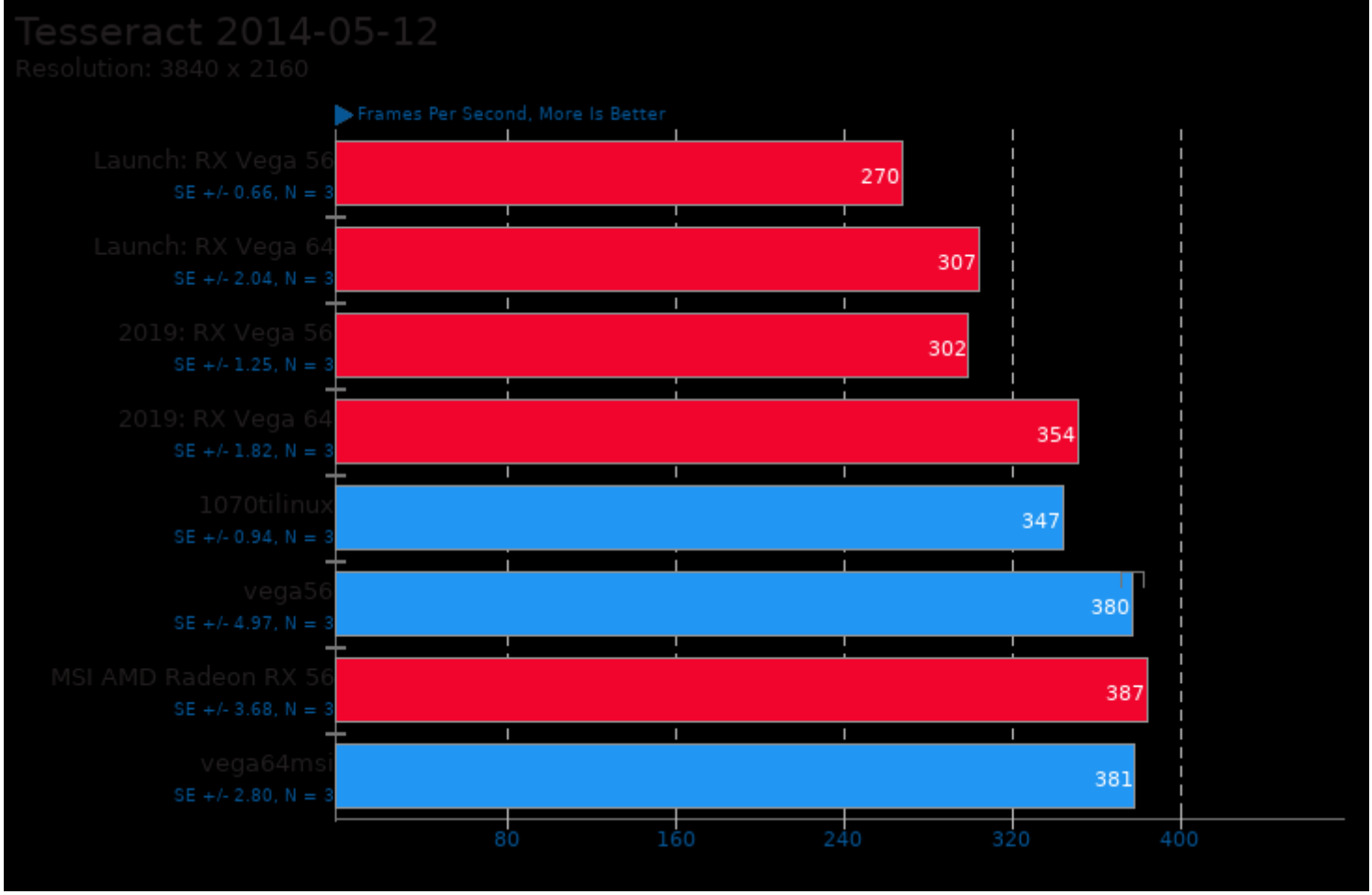


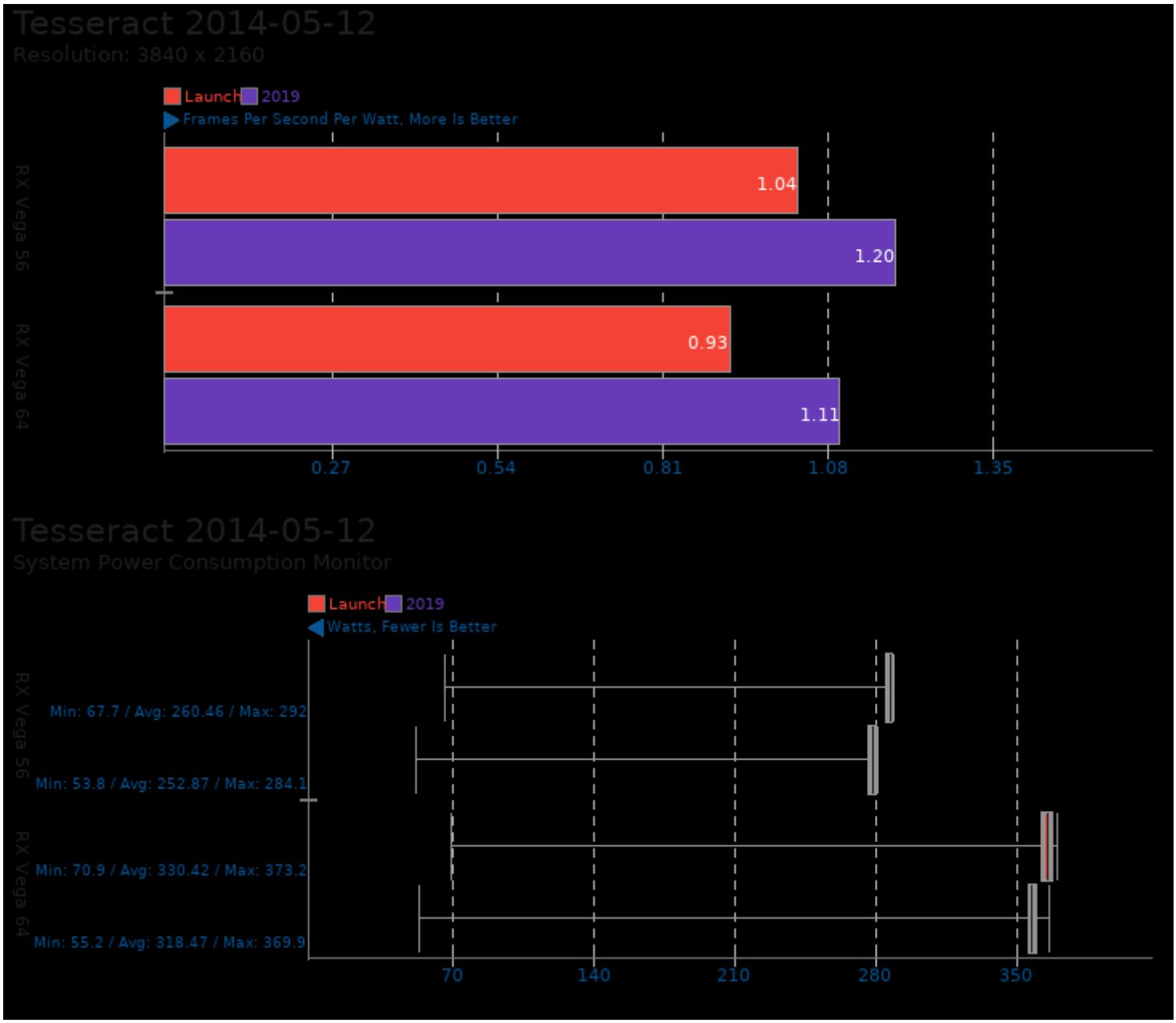

SuperTuxKart 0.9.3
Resolution: 3840 x 2160 - Mode: Fullscreen - Graphics Effects: Ultimate - Karts: 6 - Scene: Candela City
Launch
2019
Frames Per Second Per Watt, More Is Better
RX Vega 56
RX Vega 64
0.17
0.18
0.16
0.17
0.0405
0.081
0.1215
0.162
0.2025
SuperTuxKart 0.9.3
System Power Consumption Monitor
Launch
2019
Watts, Fewer Is Better
RX Vega 56
RX Vega 64
Min: 66.6 / Avg: 275.82 / Max: 297.9
Min: 54.3 / Avg: 271.95 / Max: 290.8
Min: 68.7 / Avg: 341.21 / Max: 370.6
Min: 56 / Avg: 347.22 / Max: 371.5
70
140
210
280
350

AMD Radeon RX Vega Performance 2019

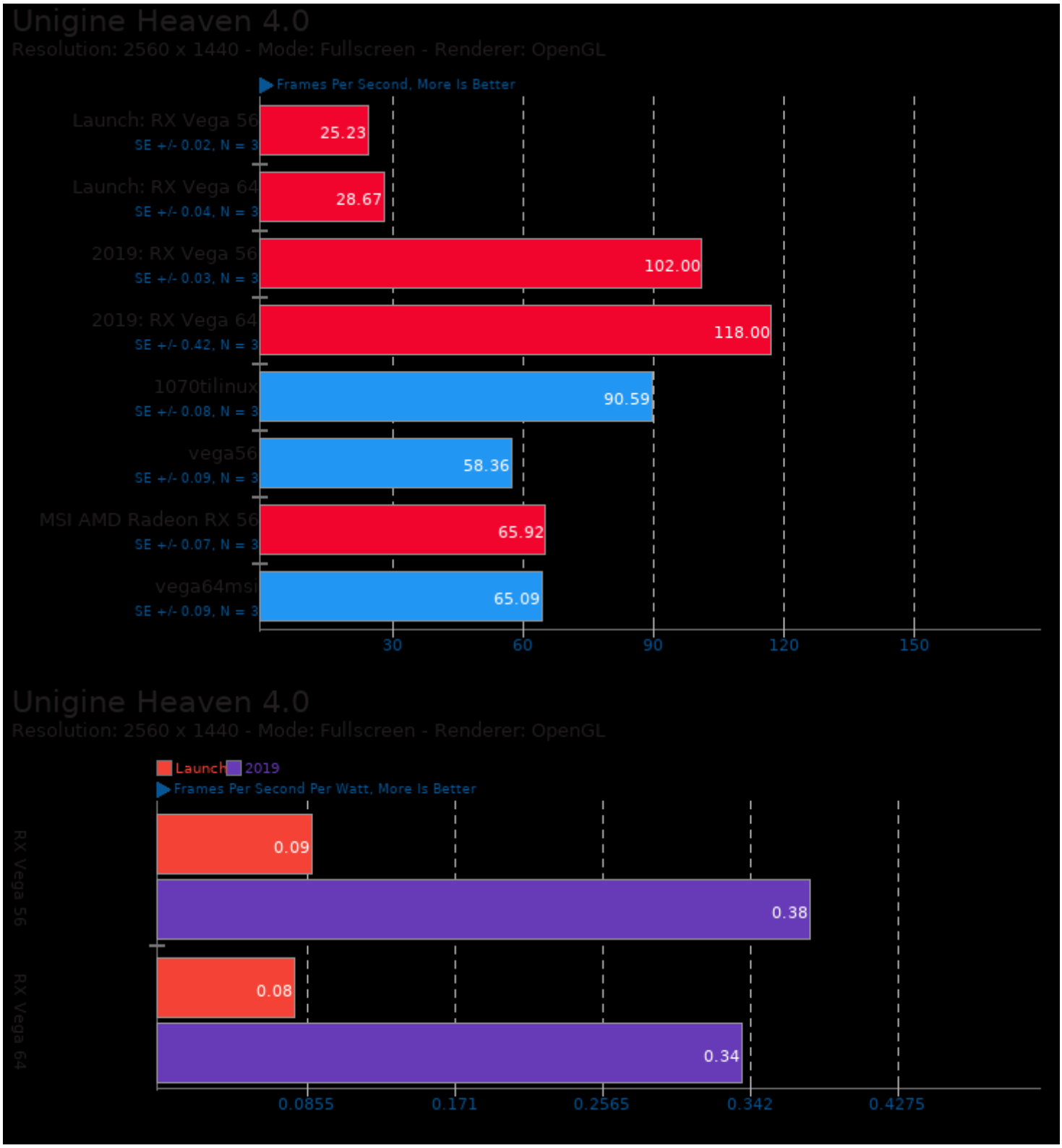


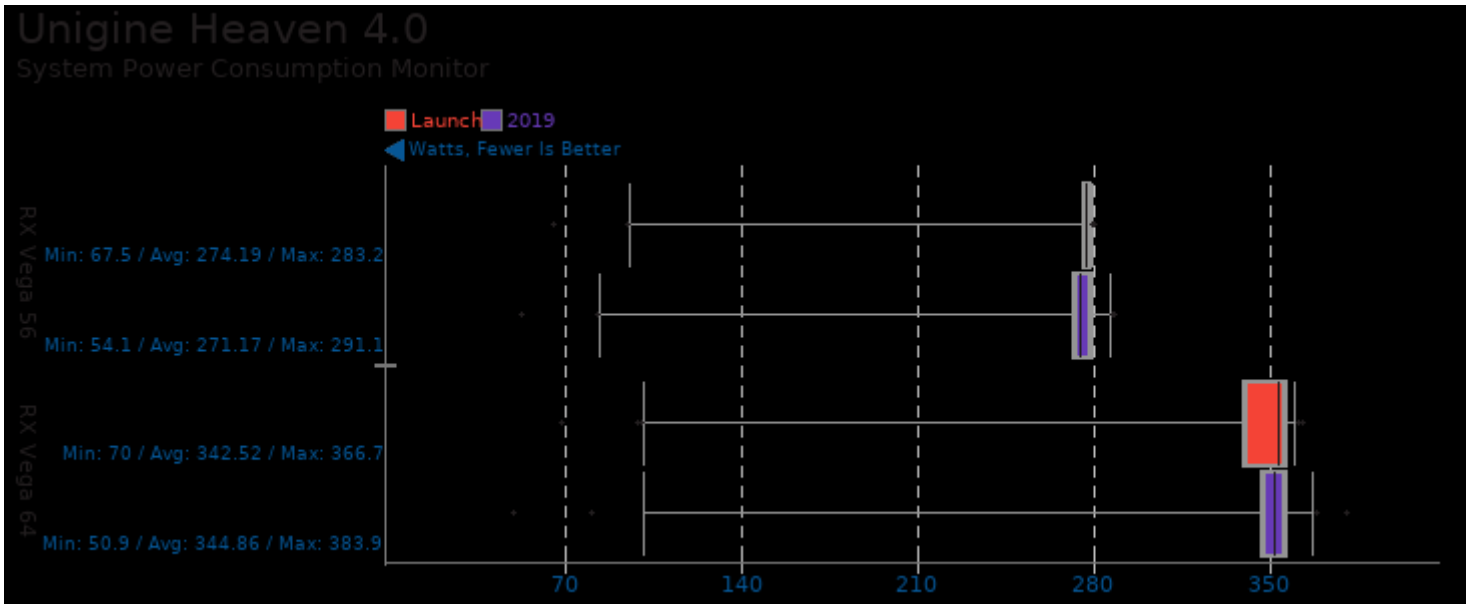

SuperTuxKart 0.9.3
System Power Consumption Monitor
Launch
2019
Watts, Fewer Is Better
RX Vega 56
Min: 67 / Avg: 278.18 / Max: 299.8
Min: 54.4 / Avg: 273.4 / Max: 296.8
RX Vega 64
Min: 78.8 / Avg: 351.37 / Max: 373
Min: 57.7 / Avg: 348.59 / Max: 373.2
70
140
210
280
350

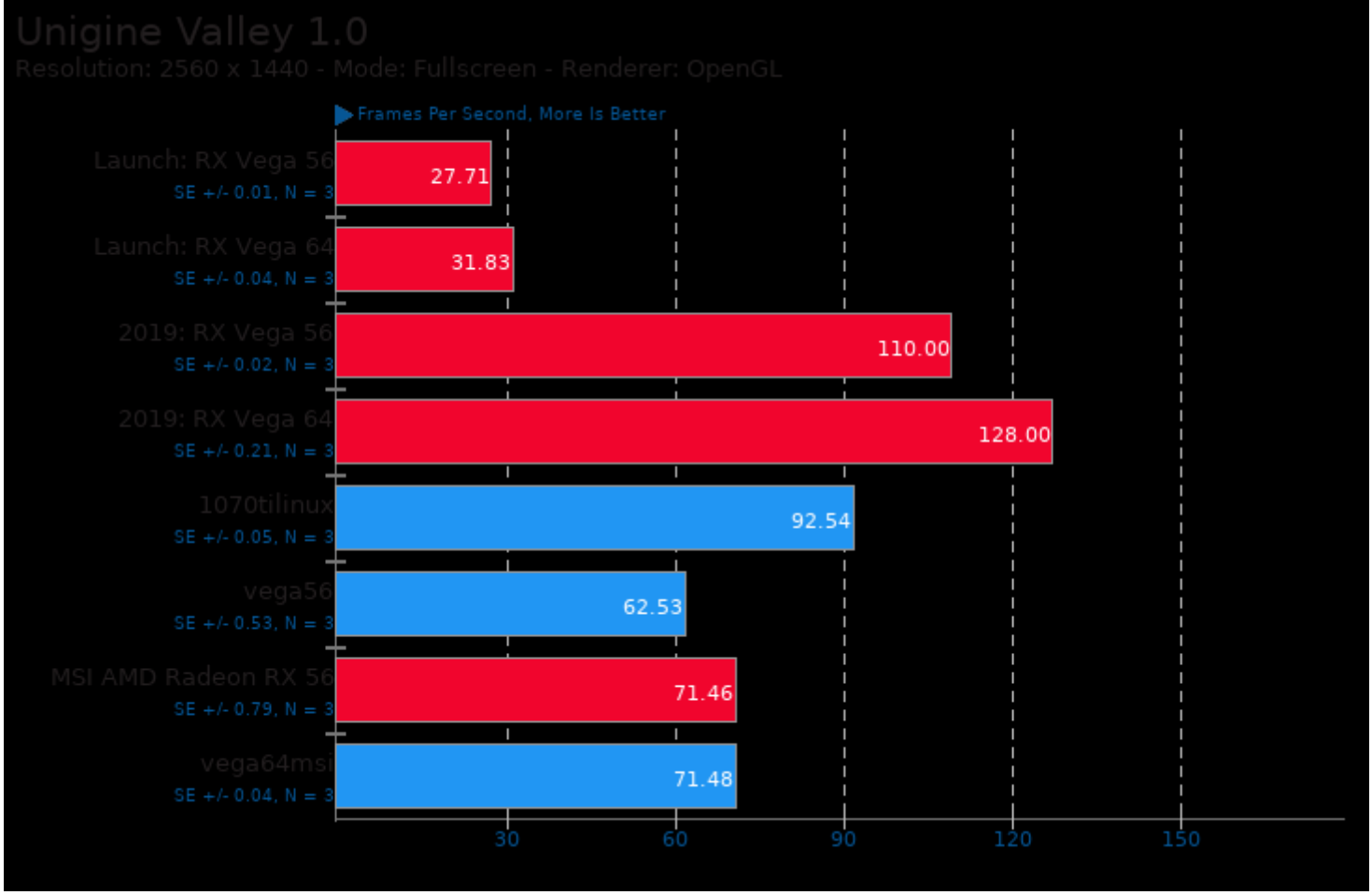

Tesseract 2014-05-12
Resolution: 3840 x 2160
Frames Per Second, More Is Better
Launch: RX Vega 56
SE +/- 0.66, N = 3
270
Launch: RX Vega 64
SE +/- 2.04, N = 3
307
2019: RX Vega 56
SE +/- 1.25, N = 3
302
2019: RX Vega 64
SE +/- 1.82, N = 3
354
1070tilinux
SE +/- 0.94, N = 3
347
vega56
SE +/- 4.97, N = 3
380
MSI AMD Radeon RX 56
SE +/- 3.68, N = 3
387
vega64msi
SE +/- 2.80, N = 3
381
80
160
240
320
400


Tesseract 2014-05-12
Resolution: 3840 x 2160
Launch
2019
Frames Per Second Per Watt, More Is Better
RX Vega 56
RX Vega 64
1.04
1.20
0.93
1.11
0.27
0.54
0.81
1.08
1.35
Tesseract 2014-05-12
System Power Consumption Monitor
Launch
2019
Watts, Fewer Is Better
RX Vega 56
RX Vega 64
Min: 67.7 / Avg: 260.46 / Max: 292
Min: 53.8 / Avg: 252.87 / Max: 284.1
Min: 70.9 / Avg: 330.42 / Max: 373.2
Min: 55.2 / Avg: 318.47 / Max: 369.9
70
140
210
280
350

AMD Radeon RX Vega Performance 2019

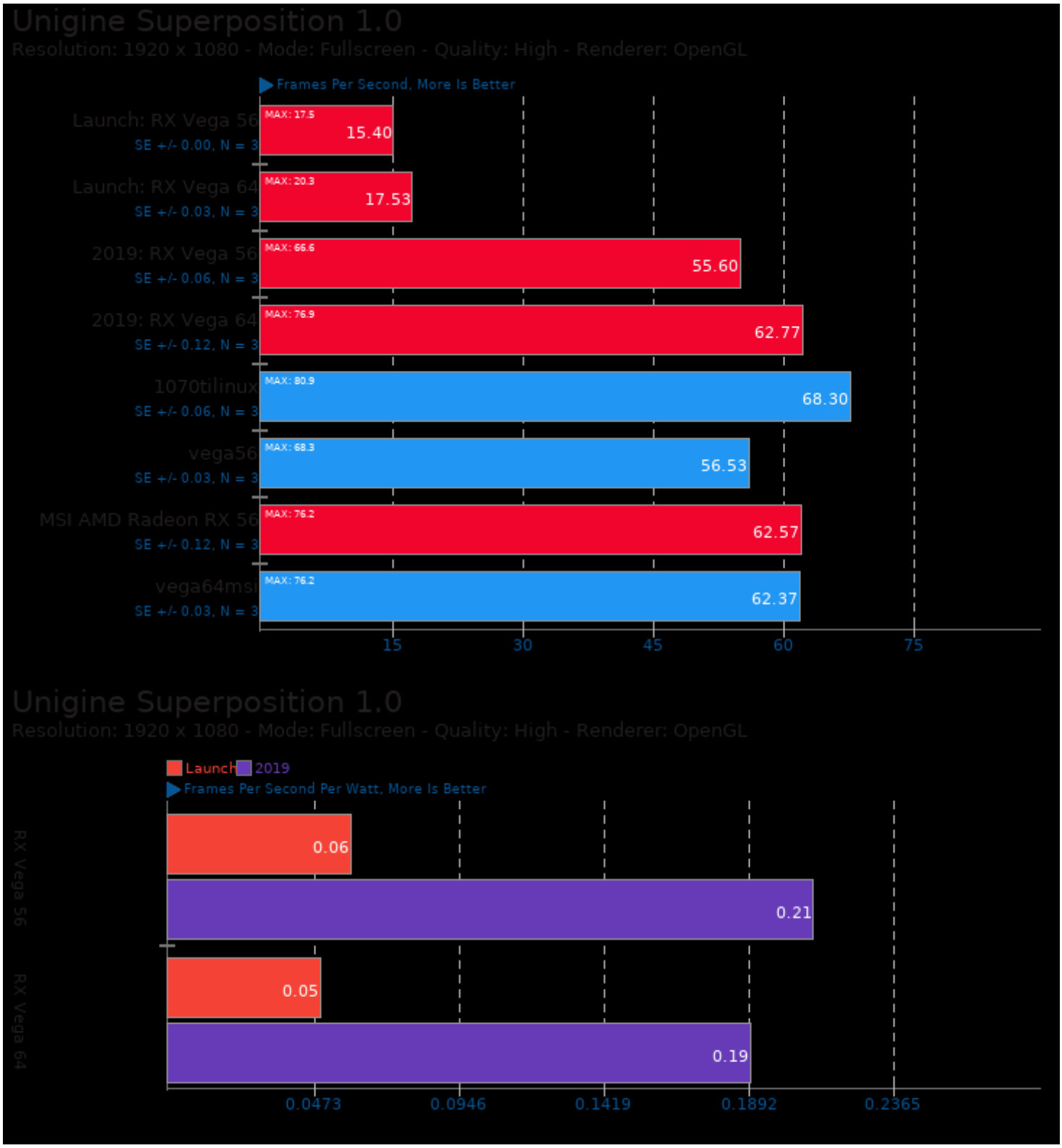


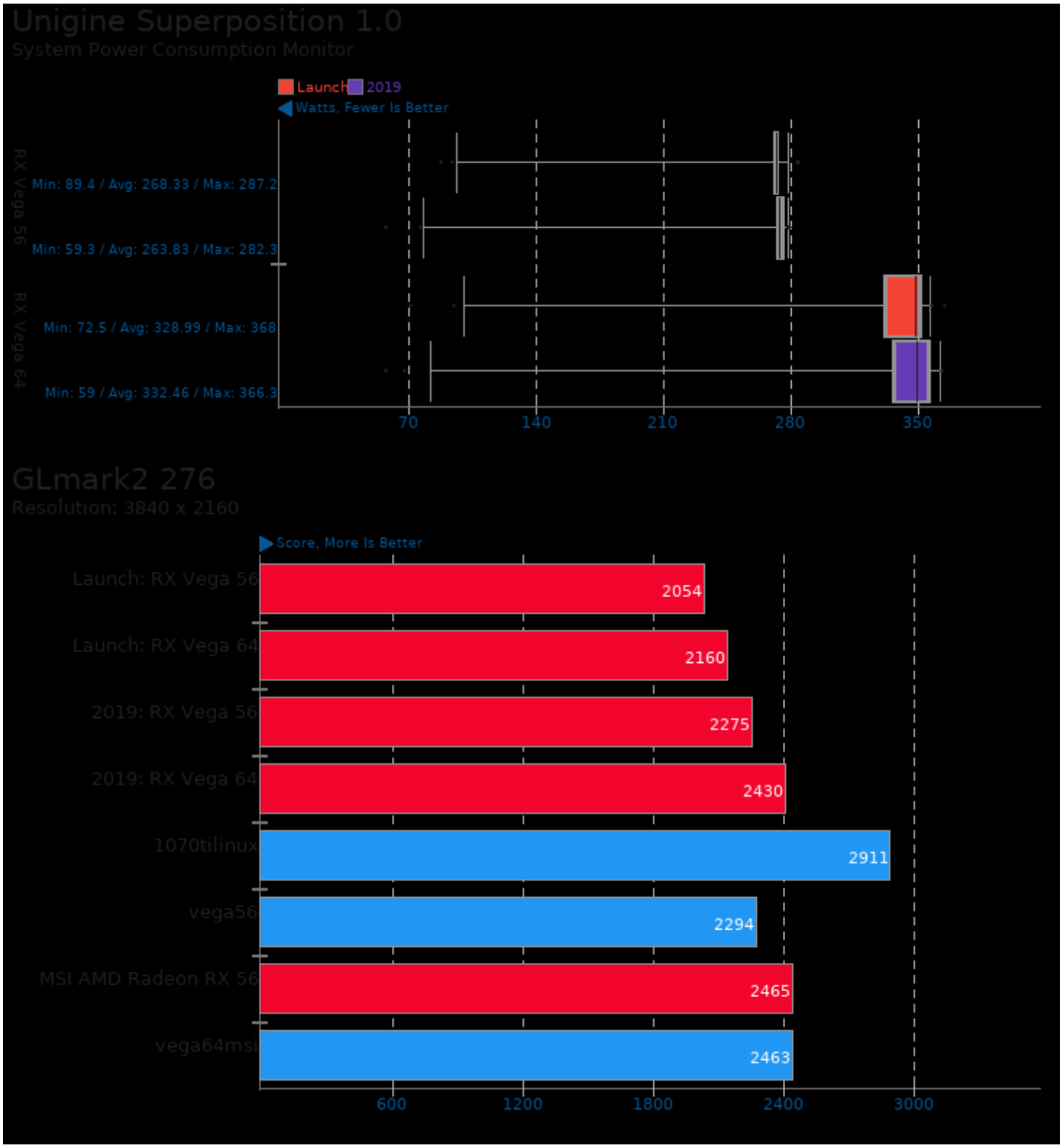

Unigine Heaven 4.0
System Power Consumption Monitor
Launch
2019
Watts, Fewer Is Better
RX Vega 56
Min: 67.5 / Avg: 274.19 / Max: 283.2
Min: 54.1 / Avg: 271.17 / Max: 291.1
RX Vega 64
Min: 70 / Avg: 342.52 / Max: 366.7
Min: 50.9 / Avg: 344.86 / Max: 383.9
70
140
210
280
350

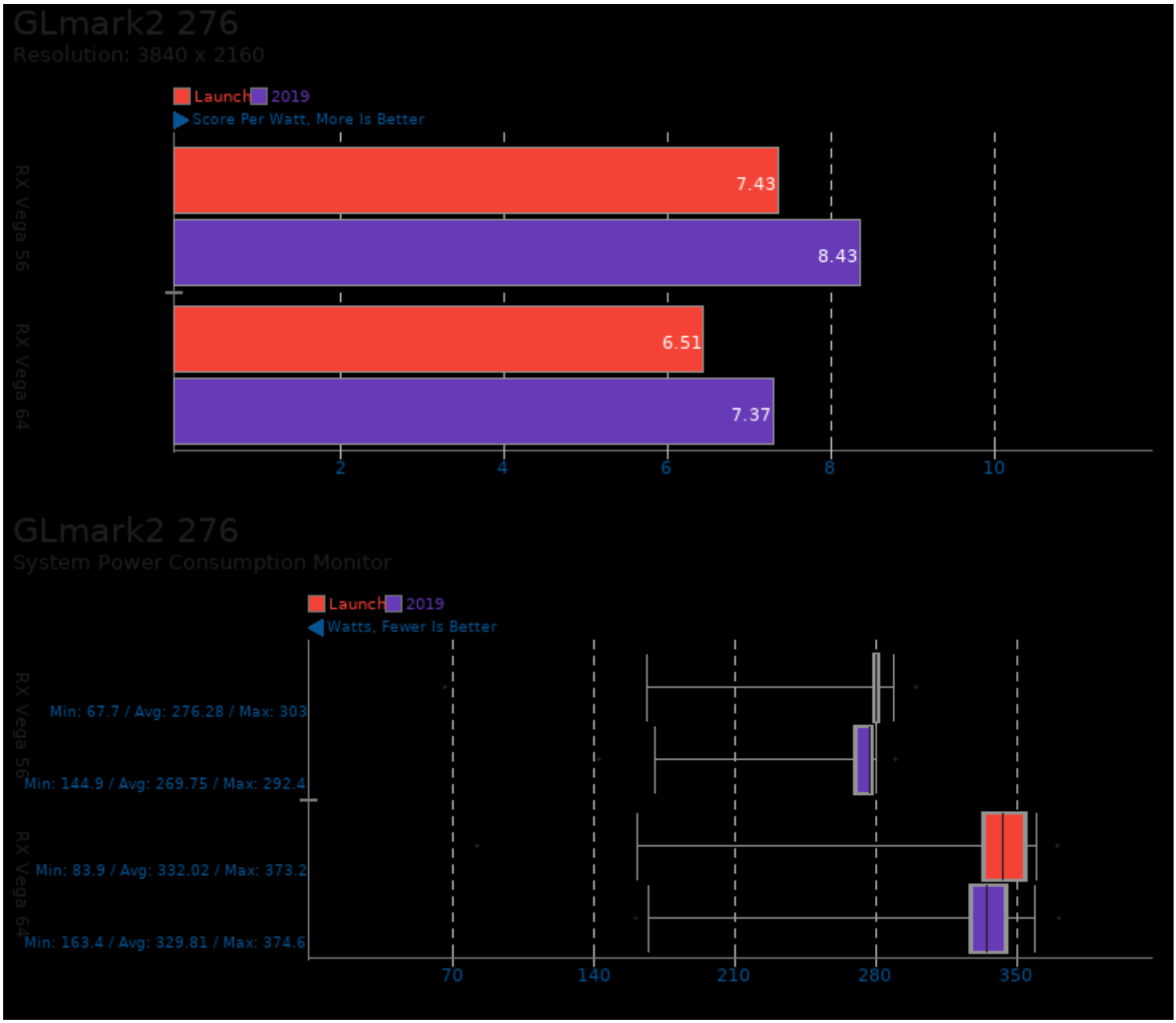

Unigine Valley 1.0
Resolution: 2560 x 1440 - Mode: Fullscreen - Renderer: OpenGL
Frames Per Second, More Is Better
Launch: RX Vega 56
SE +/- 0.01, N = 3
27.71
Launch: RX Vega 64
SE +/- 0.04, N = 3
31.83
2019: RX Vega 56
SE +/- 0.02, N = 3
110.00
2019: RX Vega 64
SE +/- 0.21, N = 3
128.00
1070tilinux
SE +/- 0.05, N = 3
92.54
vega56
SE +/- 0.53, N = 3
62.53
MSI AMD Radeon RX 56
SE +/- 0.79, N = 3
71.46
vega64msi
SE +/- 0.04, N = 3
71.48
30
60
90
120
150


Unigine Valley 1.0
Resolution: 2560 x 1440 - Mode: Fullscreen - Renderer: OpenGL
Launch
2019
Frames Per Second Per Watt, More Is Better
RX Vega 56
RX Vega 64
0.10
0.40
0.09
0.36
0.09
0.18
0.27
0.36
0.45
Unigine Valley 1.0
System Power Consumption Monitor
Launch
2019
Watts, Fewer Is Better
RX Vega 56
RX Vega 64
Min: 67.3 / Avg: 273.41 / Max: 285.9
Min: 66.6 / Avg: 276.69 / Max: 296.1
Min: 80 / Avg: 345.81 / Max: 364.4
Min: 90.5 / Avg: 350.81 / Max: 378
70
140
210
280
350

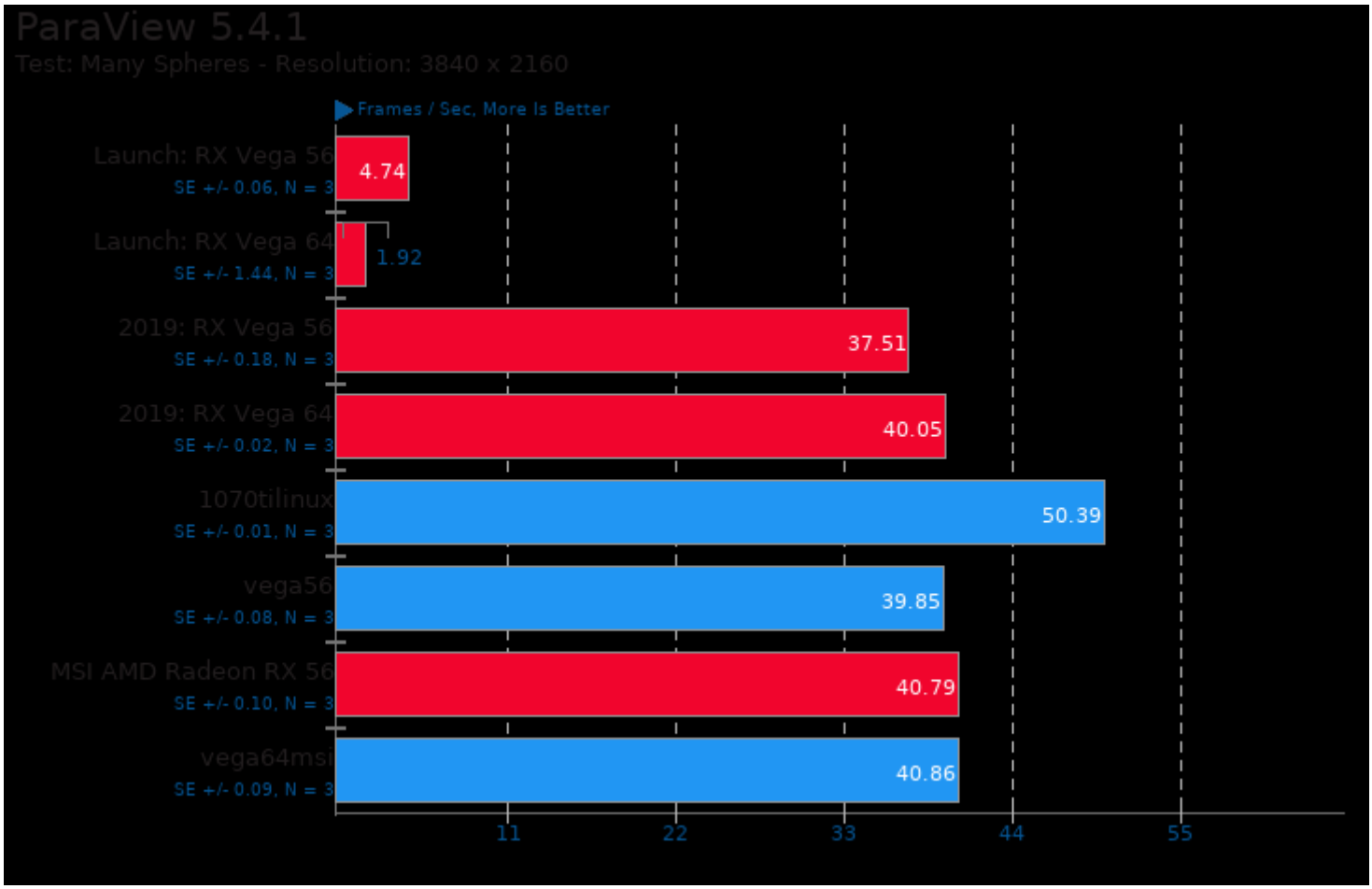
AMD Radeon RX Vega Performance 2019



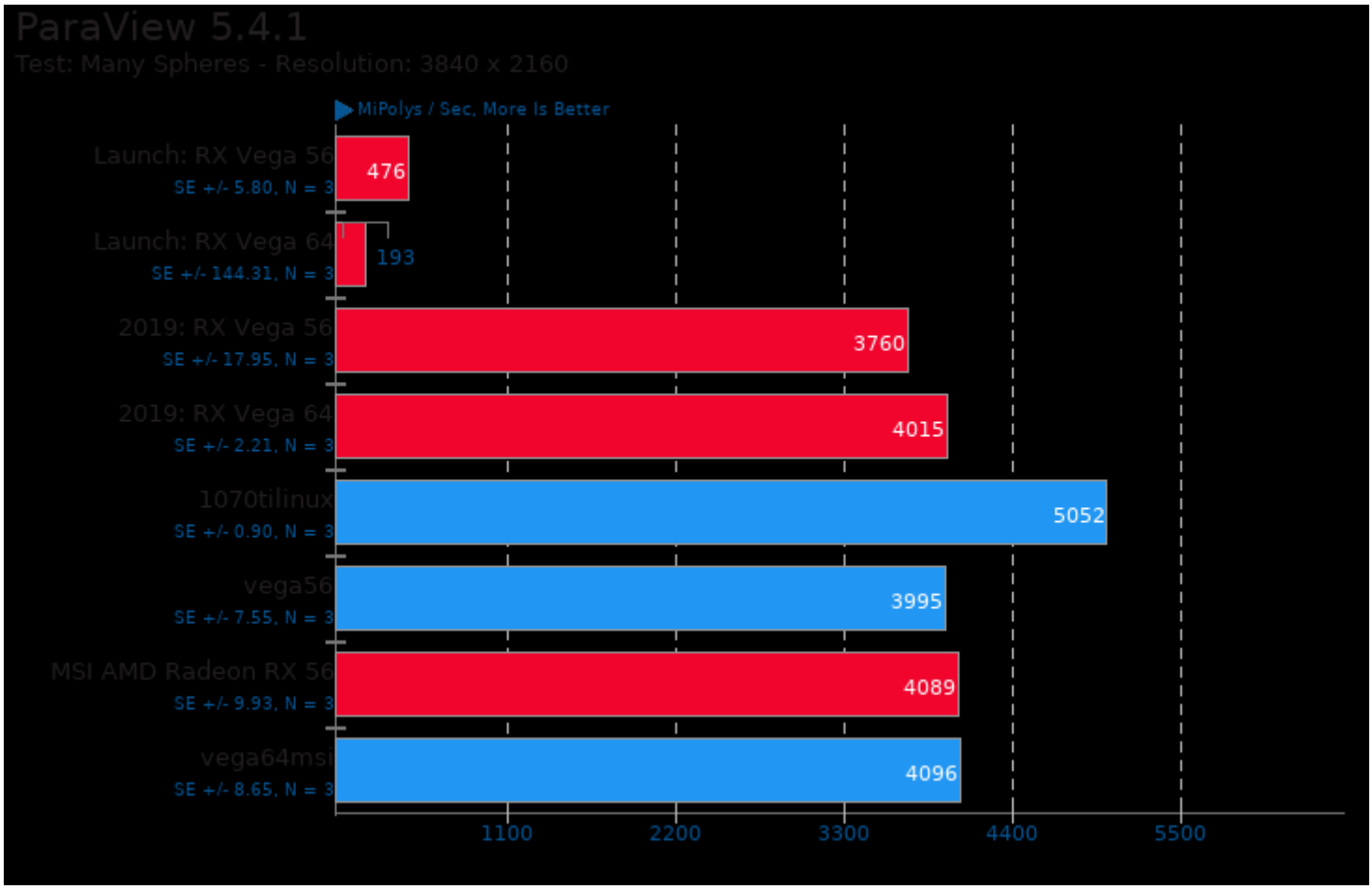

Unigine Superposition 1.0
System Power Consumption Monitor
Launch
2019
Watts, Fewer Is Better
RX Vega 56
Min: 89.4 / Avg: 268.33 / Max: 287.2
Min: 59.3 / Avg: 263.83 / Max: 282.3
RX Vega 64
Min: 72.5 / Avg: 328.99 / Max: 368
Min: 59 / Avg: 332.46 / Max: 366.3
70
140
210
280
350
GLmark2 276
Resolution: 3840 x 2160
Score, More Is Better
Launch: RX Vega 56
2054
Launch: RX Vega 64
2160
2019: RX Vega 56
2275
2019: RX Vega 64
2430
1070tilinux
2911
vega56
2294
MSI AMD Radeon RX 56
2465
vega64msi
2463
600
1200
1800
2400
3000

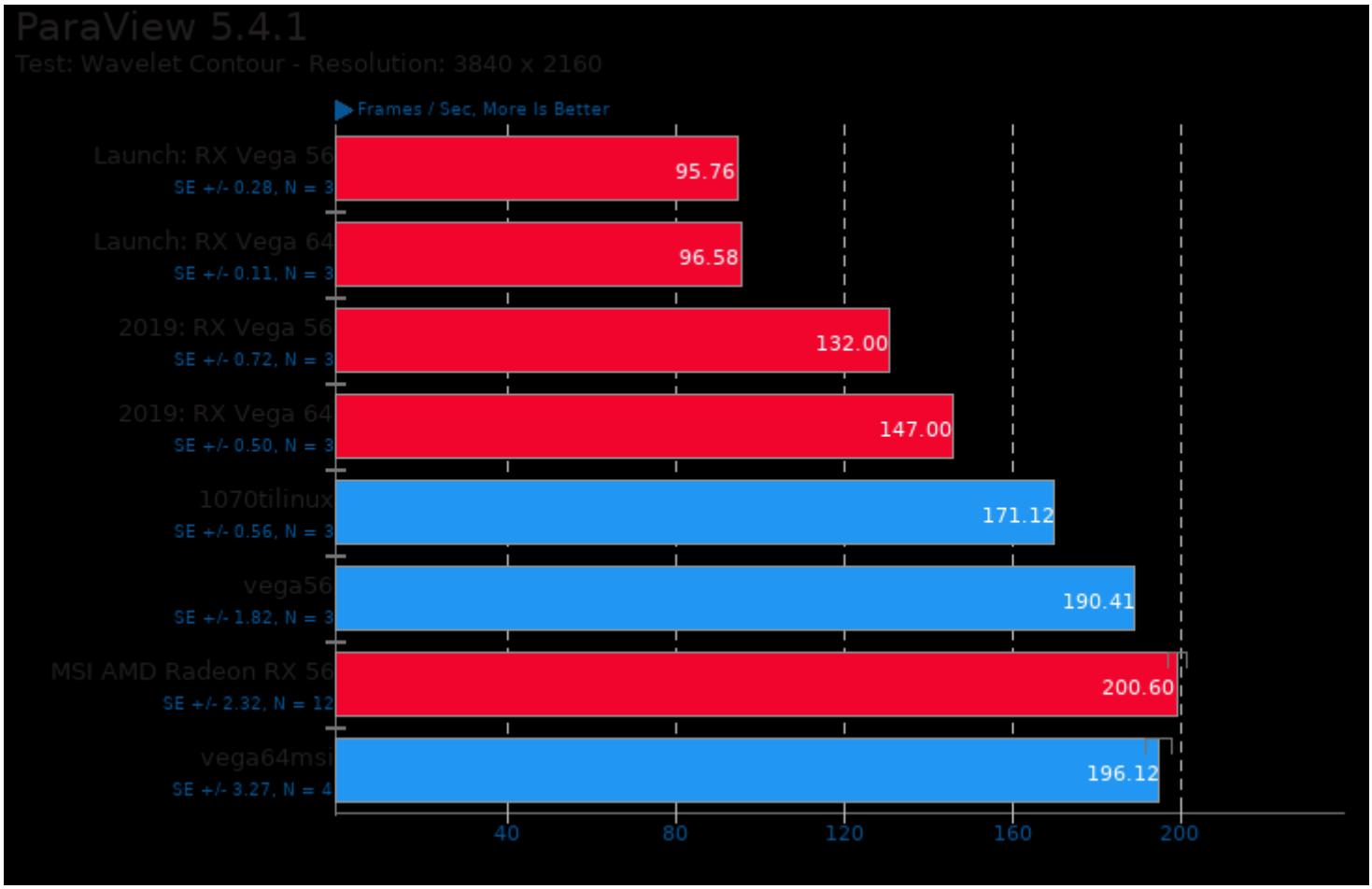

GLmark2 276
Resolution: 3840 x 2160
Launch
2019
Score Per Watt, More Is Better
RX Vega 56
RX Vega 64
7.43
8.43
6.51
7.37
2
4
6
8
10
GLmark2 276
System Power Consumption Monitor
Launch
2019
Watts, Fewer Is Better
RX Vega 56
RX Vega 64
Min: 67.7 / Avg: 276.28 / Max: 303
Min: 144.9 / Avg: 269.75 / Max: 292.4
Min: 83.9 / Avg: 332.02 / Max: 373.2
Min: 163.4 / Avg: 329.81 / Max: 374.6
70
140
210
280
350

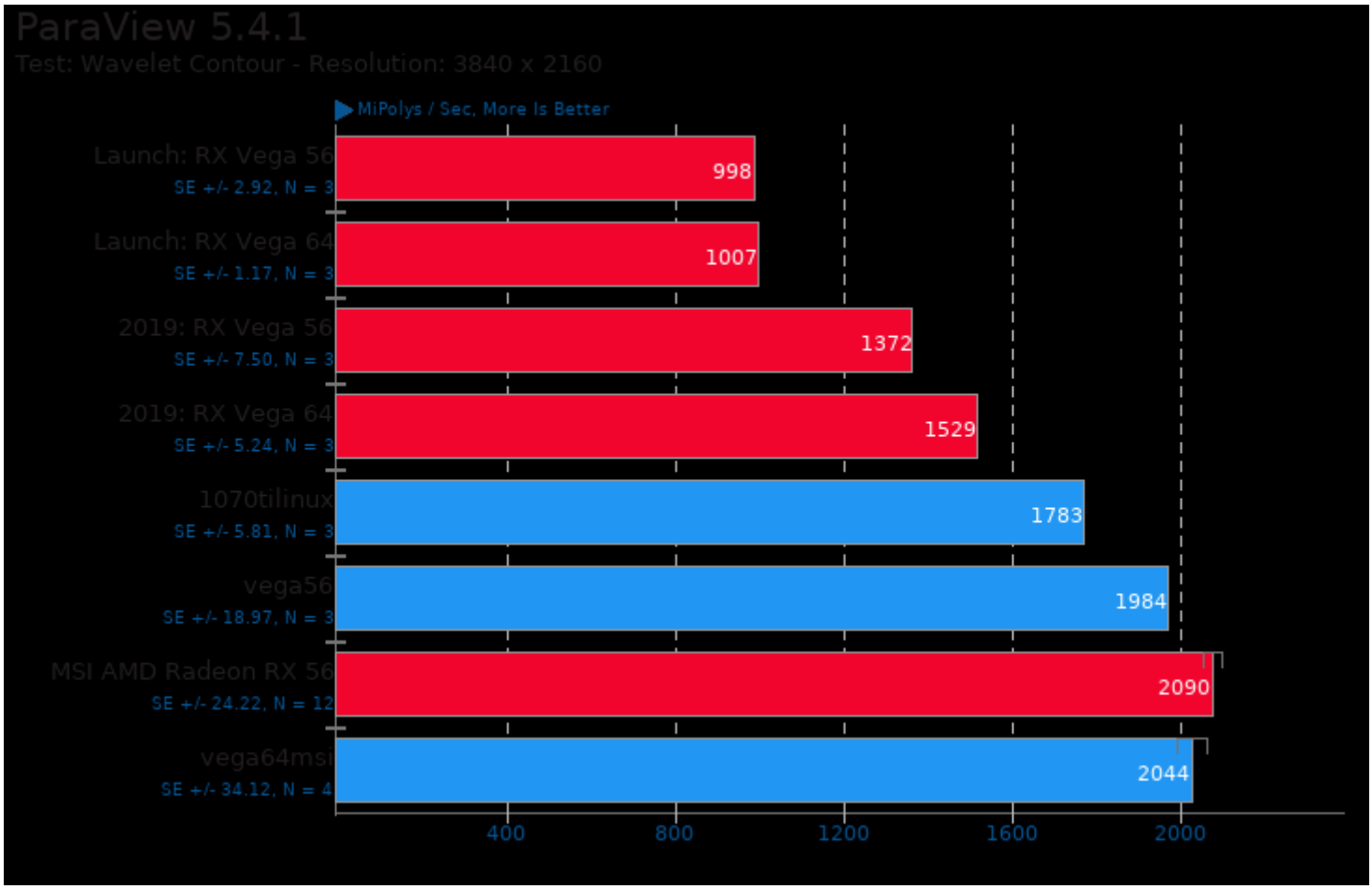
AMD Radeon RX Vega Performance 2019



AMD Radeon RX Vega Performance 2019




ParaView 5.4.1
Test: Wavelet Contour - Resolution: 3840 x 2160
Frames / Sec, More Is Better
Launch: RX Vega 56
SE +/- 0.28, N = 3
95.76
Launch: RX Vega 64
SE +/- 0.11, N = 3
96.58
2019: RX Vega 56
SE +/- 0.72, N = 3
132.00
2019: RX Vega 64
SE +/- 0.50, N = 3
147.00
1070tilinux
SE +/- 0.56, N = 3
171.12
vega56
SE +/- 1.82, N = 3
190.41
MSI AMD Radeon RX 56
SE +/- 2.32, N = 12
200.60
vega64msi
SE +/- 3.27, N = 4
196.12
40
80
120
160
200



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