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Windows 10 vs. Ubuntu 18.04 - NVIDIA + AMD Radeon GPUs

Windows 10 graphics cards benchmarked against Ubuntu 18.04 on the same system.

Automated Executive Summary

Ubuntu 18.04: GTX 1080 Ti had the most wins, coming in first place for 64% of the tests.

Based on the geometric mean of all complete results, the fastest (Ubuntu 18.04: GTX 1080 Ti) was 2.06x the speed of the slowest (Windows 10: RX 580). Windows 10: GTX 1080 Ti was 1.279x the speed of Windows 10: GTX 1060, Windows 10: RX 580 was 0.64x the speed of Windows 10: GTX 1080 Ti, Windows 10: RX Vega 64 was 1.208x the speed of Windows 10: RX 580, Ubuntu 18.04: GTX 1060 was 1.212x the speed of Windows 10: RX Vega 64, Ubuntu 18.04: GTX 1080 Ti was 1.407x the speed of Ubuntu 18.04: GTX 1060, Ubuntu 18.04: RX 580 was 0.712x the speed of Ubuntu 18.04: GTX 1080 Ti, Ubuntu 18.04: RX Vega 64 was 1.167x the speed of Ubuntu 18.04: RX 580.

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

OpenArena (Resolution: 1920 x 1080 - Total Frame Time) at 29x
Java 2D Microbenchmark (Rendering Test: Vector Graphics Rendering) at 8.805x
Java 2D Microbenchmark (Rendering Test: Image Rendering) at 4.535x
FAHBench at 3.118x
LuxMark (OpenCL Device: GPU - Scene: Microphone) at 2.963x
Unigine Heaven (Resolution: 3840 x 2160 - Mode: Fullscreen - Renderer: OpenGL) at 2.96x

Unigine Heaven (Resolution: 1920 x 1080 - Mode: Fullscreen - Renderer: OpenGL) at 2.595x
LuxMark (OpenCL Device: GPU - Scene: Luxball HDR) at 2.522x
X-Plane (Quality: Low - Resolution: 1920 x 1080) at 2.5x
Java 2D Microbenchmark (Rendering Test: Text Rendering) at 2.449x.

Test Systems:

Windows 10: GTX 1060

Processor: Intel Core i9-7980XE @ 2.59GHz (18 Cores / 36 Threads), Motherboard: ASUS PRIME X299-A, Memory: 4 x 4096 MB 3200MHz Corsair CMK16GX4M4C3200C16, Disk: 238GB INTEL SSDPEKKW256G8, Graphics: NVIDIA GeForce GTX 1060 6GB 6144MB (1911/4004MHz), Network: Intel Connection I219-V

OS: Microsoft Windows 10 Pro Build 17134, Kernel: 10.0 (x86_64), Display Driver: 398.11 (24.21.13.9811), Compiler: GCC 7.1.0, File-System: NTFS, Screen Resolution: 3840x2160

Windows 10: GTX 1080 Ti

Processor: Intel Core i9-7980XE @ 2.59GHz (18 Cores / 36 Threads), Motherboard: ASUS PRIME X299-A, Memory: 4 x 4096 MB 3200MHz Corsair CMK16GX4M4C3200C16, Disk: 238GB INTEL SSDPEKKW256G8, Graphics: NVIDIA GeForce GTX 1080 Ti 11264MB (1911/5505MHz), Network: Intel Connection I219-V

OS: Microsoft Windows 10 Pro Build 17134, Kernel: 10.0 (x86_64), Display Driver: 398.11 (24.21.13.9811), Compiler: GCC 7.1.0, File-System: NTFS, Screen Resolution: 3840x2160

Windows 10: RX 580

Processor: Intel Core i9-7980XE @ 2.59GHz (18 Cores / 36 Threads), Motherboard: ASUS PRIME X299-A, Memory: 4 x 4096 MB 3200MHz Corsair CMK16GX4M4C3200C16, Disk: 238GB INTEL SSDPEKKW256G8, Graphics: AMD Radeon RX 580, Network: Intel Connection I219-V

OS: Microsoft Windows 10 Pro Build 17134, Kernel: 10.0 (x86_64), Display Driver: 24.20.11021.1000, OpenCL: OpenCL 2.1 AMD-APP (2580.6), Compiler: GCC 7.1.0, File-System: NTFS, Screen Resolution: 3840x2160

Windows 10: RX Vega 64

Processor: Intel Core i9-7980XE @ 2.59GHz (18 Cores / 36 Threads), Motherboard: ASUS PRIME X299-A, Memory: 4 x 4096 MB 3200MHz Corsair CMK16GX4M4C3200C16, Disk: 238GB INTEL SSDPEKKW256G8, Graphics: AMD Radeon RX Vega, Network: Intel Connection I219-V

OS: Microsoft Windows 10 Pro Build 17134, Kernel: 10.0 (x86_64), Display Driver: 24.20.11021.1000, OpenCL: OpenCL 2.1 AMD-APP (2580.6), Compiler: GCC 7.1.0, File-System: NTFS, Screen Resolution: 3840x2160

Ubuntu 18.04: GTX 1060

Processor: Intel Core i9-7980XE @ 4.40GHz (18 Cores / 36 Threads), Motherboard: ASUS PRIME X299-A (1301 BIOS), Chipset: Intel Sky Lake-E DMI3 Registers, Memory: 16384MB, Disk: 256GB INTEL SSDPEKKW256G8, Graphics: NVIDIA GeForce GTX 1060 6GB 6144MB (1506/4006MHz), Audio: Realtek ALC1220, Monitor: Acer B286HK, Network: Intel Connection

OS: Ubuntu 18.04, Kernel: 4.15.0-23-generic (x86_64), Desktop: GNOME Shell 3.28.1, Display Server: X Server 1.19.6, Display Driver: NVIDIA 396.24, OpenGL: 4.6.0, Compiler: GCC 7.3.0, File-System: ext4, Screen Resolution: 3840x2160

Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-as=/usr/bin/x86_64-linux-gnu-as --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-ld=/usr/bin/x86_64-linux-gnu-ld --with-multilib-list=m32,m64,mx32 --with-target-system-zlib --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: intel_pstate performance
OpenCL Notes: GPU Compute Cores: 1280
Security Notes: KPTI + __user pointer sanitization + Full generic retpoline IBPB IBRS_FW Protection

Ubuntu 18.04: GTX 1080 Ti

Processor: Intel Core i9-7980XE @ 4.40GHz (18 Cores / 36 Threads), Motherboard: ASUS PRIME X299-A (1301 BIOS), Chipset: Intel Sky Lake-E DMI3 Registers, Memory: 16384MB, Disk: 525GB SABRENT + 256GB INTEL SSDPEKKW256G8, Graphics: NVIDIA GeForce GTX 1080 Ti 11264MB (1480/5508MHz), Audio: Realtek ALC1220, Monitor: Acer B286HK, Network: Intel Connection

OS: Ubuntu 18.04, Kernel: 4.15.0-23-generic (x86_64), Desktop: GNOME Shell 3.28.1, Display Server: X Server 1.19.6, Display Driver: NVIDIA 396.24, OpenGL: 4.6.0, Compiler: GCC 7.3.0, File-System: ext4, Screen Resolution: 3840x2160

Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-as=/usr/bin/x86_64-linux-gnu-as --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-ld=/usr/bin/x86_64-linux-gnu-ld --with-multilib-list=m32,m64,mx32 --with-target-system-zlib --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: intel_pstate performance
OpenCL Notes: GPU Compute Cores: 3584
Security Notes: KPTI + __user pointer sanitization + Full generic retpoline IBPB IBRS_FW Protection

Ubuntu 18.04: RX 580

Processor: Intel Core i9-7980XE @ 4.40GHz (18 Cores / 36 Threads), Motherboard: ASUS PRIME X299-A (1301 BIOS), Chipset: Intel Sky Lake-E DMI3 Registers, Memory: 16384MB, Disk: 525GB SABRENT + 256GB INTEL SSDPEKKW256G8, Graphics: MSI AMD Radeon RX 580 8192MB, Audio: Realtek ALC1220, Monitor: Acer B286HK, Network: Intel Connection

OS: Ubuntu 18.04, Kernel: 4.18.0-999-generic (x86_64) 20180620, Desktop: GNOME Shell 3.28.1, Display Server: X Server 1.19.6, Display Driver: modesetting 1.19.6, OpenGL: 4.5 Mesa 18.1.1- padoka PPA (LLVM 6.0.0), Compiler: GCC 7.3.0, File-System: ext4, Screen Resolution: 3840x2160

Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-as=/usr/bin/x86_64-linux-gnu-as --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-ld=/usr/bin/x86_64-linux-gnu-ld --with-multilib-list=m32,m64,mx32 --with-target-system-zlib --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: intel_pstate performance
Security Notes: KPTI + __user pointer sanitization + Full generic retpoline IBPB IBRS_FW Protection

Ubuntu 18.04: RX Vega 64

Windows 10 vs. Ubuntu 18.04 - NVIDIA + AMD Radeon GPUs

Processor: Intel Core i9-7980XE @ 4.40GHz (18 Cores / 36 Threads), Motherboard: ASUS PRIME X299-A (1301 BIOS), Chipset: Intel Sky Lake-E DMI3 Registers, Memory: 16384MB, Disk: 525GB SABRENT + 256GB INTEL SSDPEKKW256G8, Graphics: AMD Radeon RX Vega 8192MB, Audio: Realtek ALC1220, Monitor: Acer B286HK, Network: Intel Connection

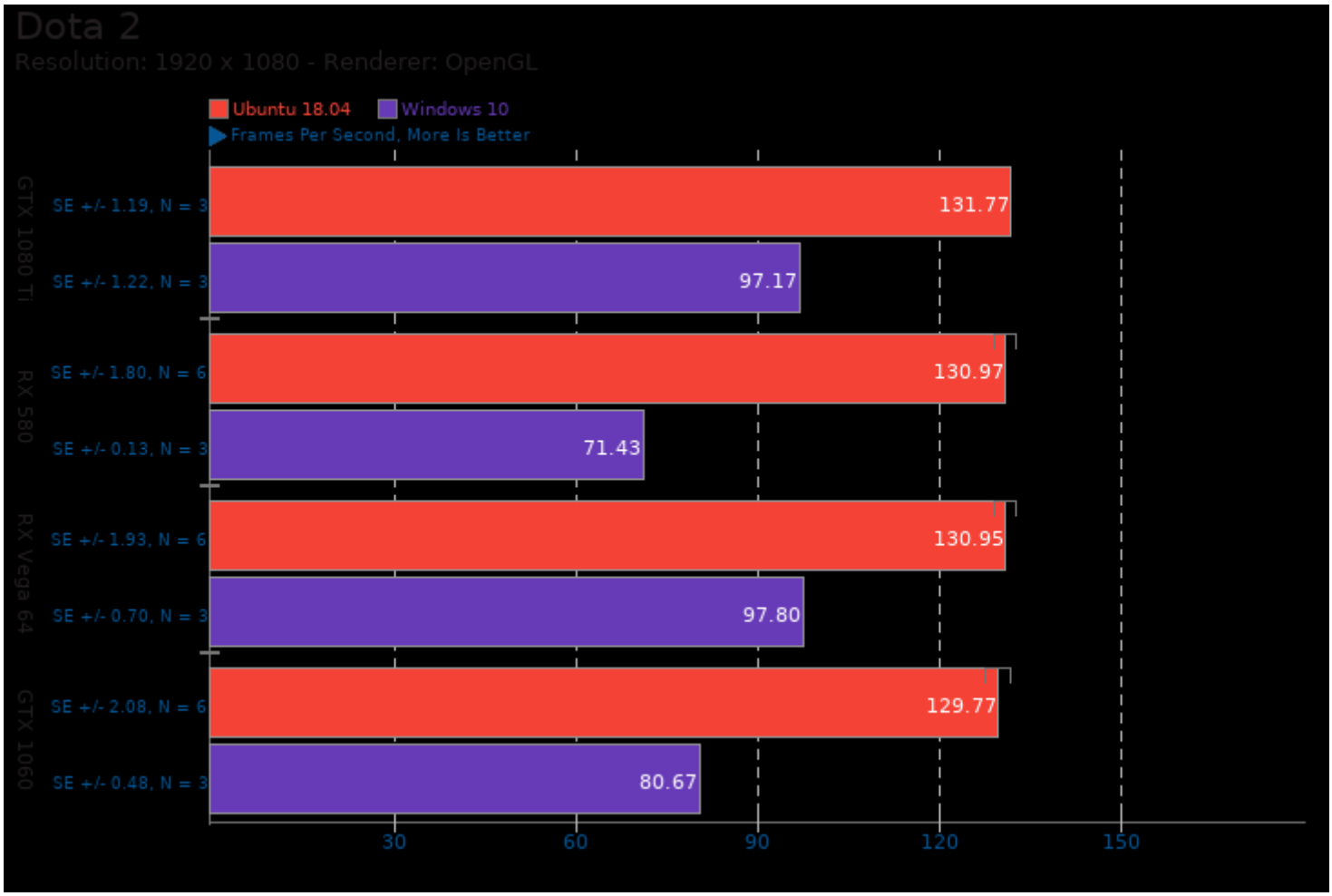
OS: Ubuntu 18.04, Kernel: 4.17.2-041702-generic (x86_64), Desktop: GNOME Shell 3.28.1, Display Server: X Server 1.19.6, Display Driver: modesetting 1.19.6, OpenGL: 4.5 Mesa 18.1.1- padoka PPA (LLVM 6.0.0), Compiler: GCC 7.3.0, File-System: ext4, Screen Resolution: 3840x2160

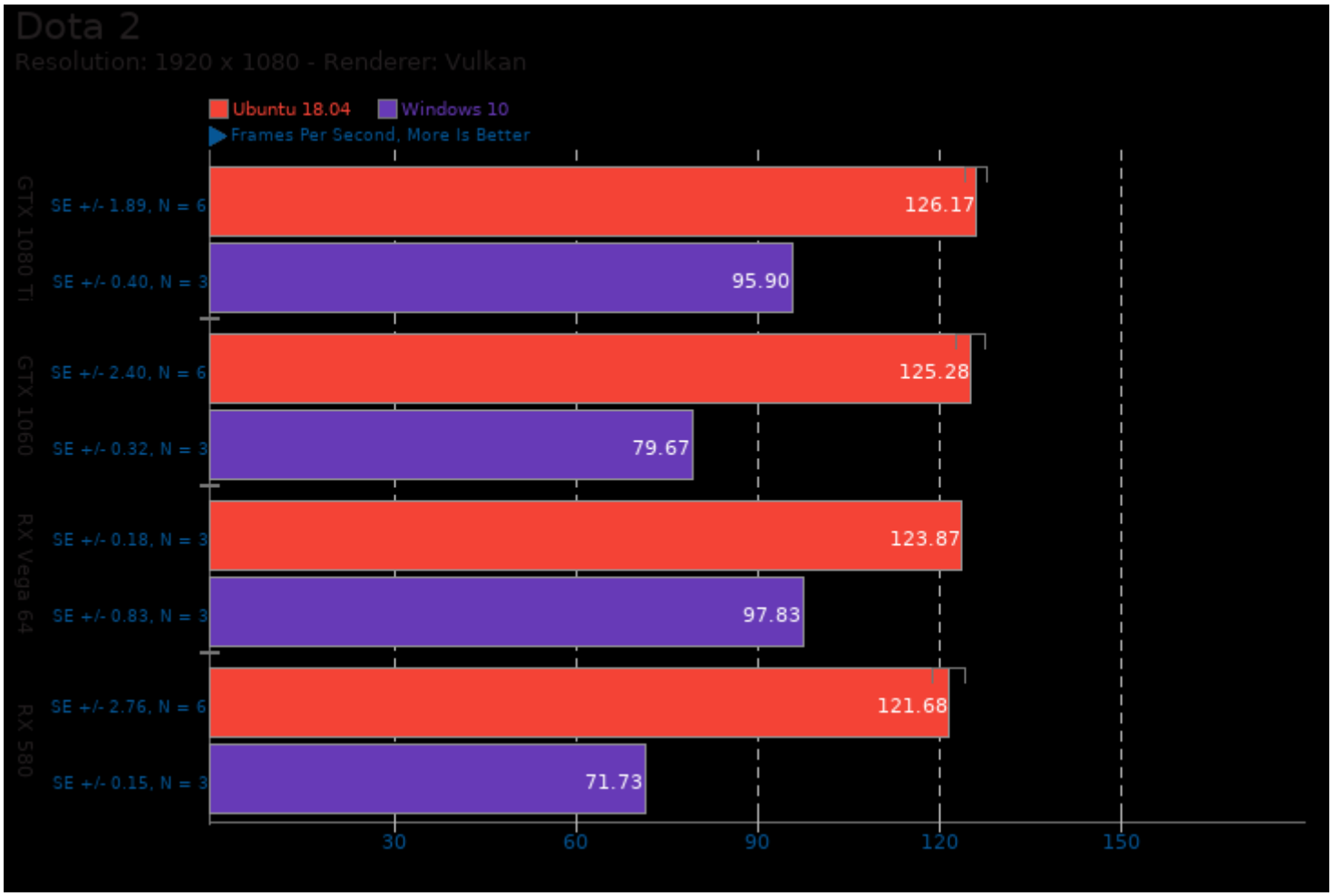
Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-as=/usr/bin/x86_64-linux-gnu-as --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-ld=/usr/bin/x86_64-linux-gnu-ld --with-multilib-list=m32,m64,mx32 --with-target-system-zlib --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: intel_pstate performance
Security Notes: KPTI + __user pointer sanitization + Full generic retpoline IBPB IBRS_FW Protection

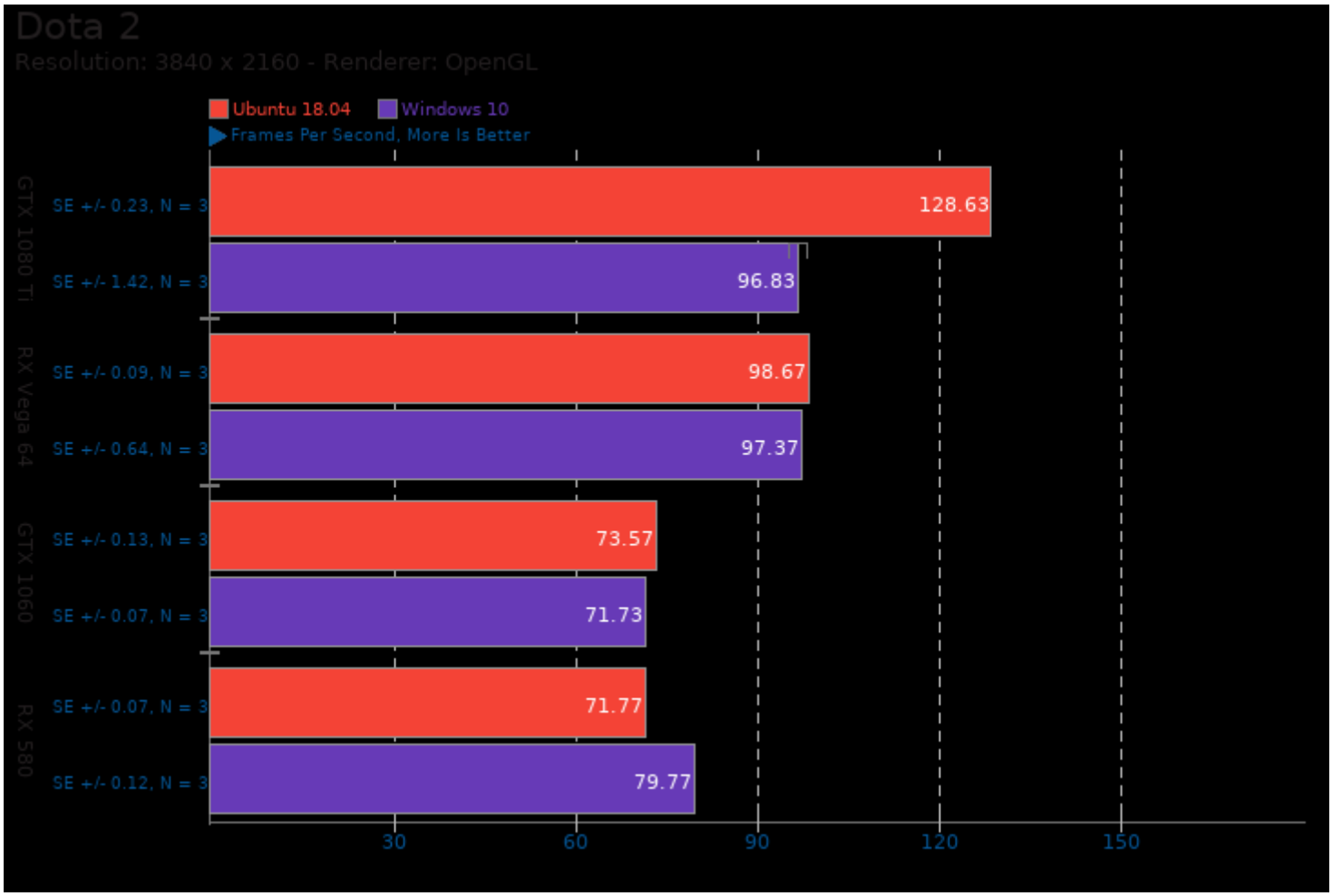
	Windows 10: GTX 1060	Windows 10: GTX 1080 Ti	Windows 10: RX 580	Windows 10: RX Vega 64	Ubuntu 18.04: GTX 1060	Ubuntu 18.04: GTX 1080 Ti	Ubuntu 18.04: RX 580	Ubuntu 18.04: RX Vega 64
Dota 2 - 1920 x 1080 - OpenGL (FPS)	80.67	97.17	**71.43**	97.80	129.77	**131.77**	130.97	130.95
Normalized	61.22%	73.74%	54.21%	74.22%	98.48%	100%	99.39%	99.38%
Standard Deviation	1%	2.2%	0.3%	1.2%	3.9%	1.6%	3.4%	3.6%
Dota 2 - 1920 x 1080 - Vulkan (FPS)	79.67	95.90	**71.73**	97.83	125.28	**126.17**	121.68	123.87
Normalized	63.14%	76.01%	56.85%	77.54%	99.29%	100%	96.44%	98.18%
Standard Deviation	0.7%	0.7%	0.4%	1.5%	4.7%	3.7%	5.6%	0.2%
Dota 2 - 3840 x 2160 - OpenGL (FPS)	79.77	96.83	**71.73**	97.37	71.77	**128.63**	73.57	98.67
Normalized	62.02%	75.28%	55.76%	75.7%	55.8%	100%	57.2%	76.71%
Standard Deviation	0.3%	2.5%	0.2%	1.1%	0.2%	0.3%	0.3%	0.2%
Dota 2 - 3840 x 2160 - Vulkan (FPS)	79.80	95.53	**71.83**	97.77	80.57	**126.40**	77.43	93.28
Normalized	63.13%	75.58%	56.83%	77.35%	63.74%	100%	61.26%	73.8%
Standard Deviation	0.6%	1.1%	0.2%	0.7%	0.1%	0.4%	1%	5.1%
OpenArena - 1920 x 1080 (FPS)	379.13	395.23	**249.37**	260.00	543.00	**591.87**	376.37	371.03
Normalized	64.06%	66.78%	42.13%	43.93%	91.74%	100%	63.59%	62.69%
Standard Deviation	0.6%	1.5%	0.2%	0.5%	1.2%	0.6%	0.3%	0.9%
Portal - 1920 x 1080 (FPS)	687.72	1117	928.52	1111	**640.43**	**1222**	850.22	1103
Normalized	56.27%	91.41%	75.97%	90.93%	52.4%	100%	69.56%	90.23%
Standard Deviation	0.4%	6%	0.5%	1%	2%	1%	0.2%	0.4%
Portal - 3840 x 2160 (FPS)	267.17	**568.83**	324.88	545.20	**247.52**	559.10	297.86	479.09
Normalized	46.97%	100%	57.11%	95.85%	43.51%	98.29%	52.36%	84.22%
Standard Deviation	0.1%	0.4%	0.1%	0.2%	0.1%	0.1%	0.2%	0.1%

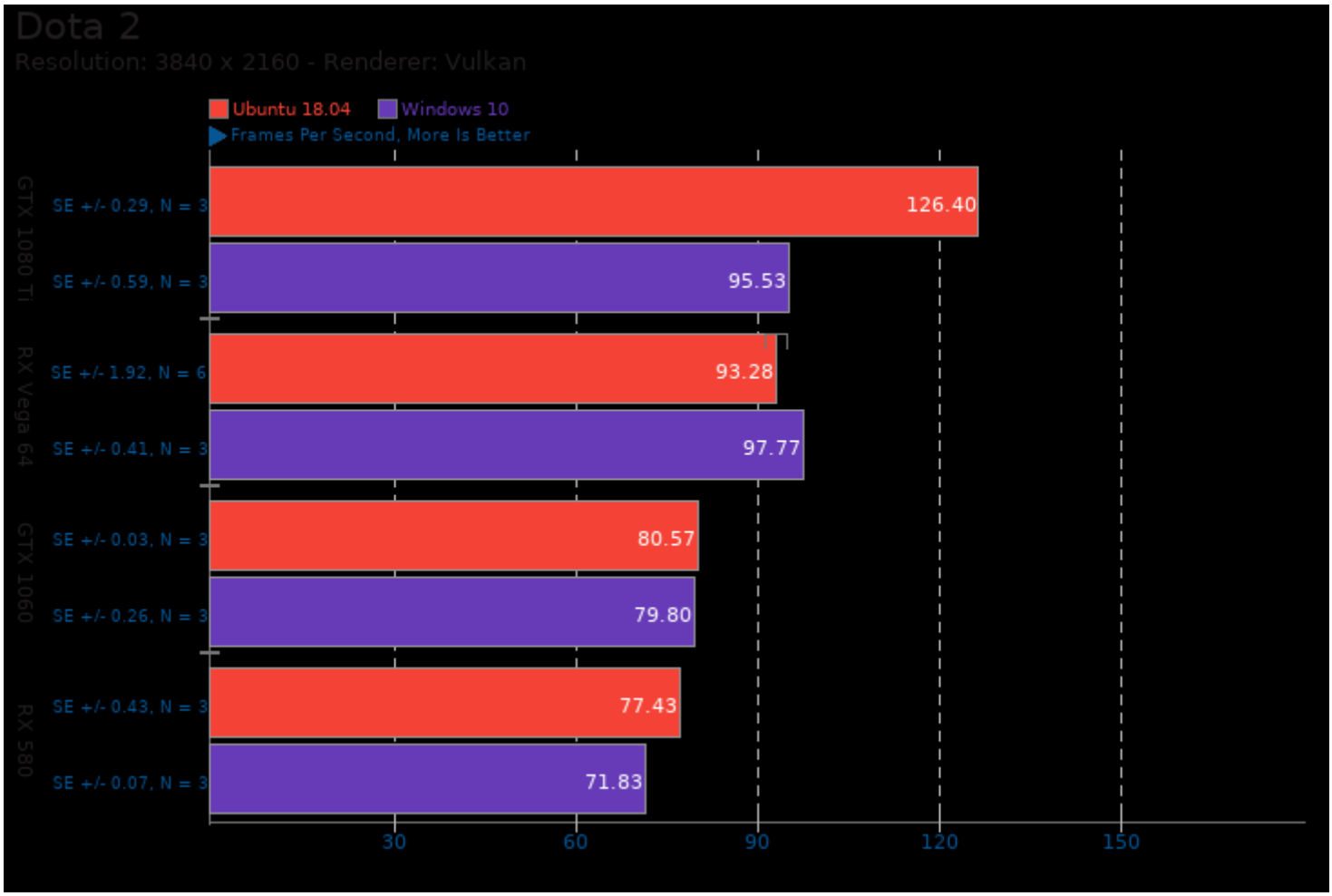
Unigine Heaven - 1920 x 1080 - Fullscreen - OpenGL (FPS)	96.82	**191.06**	**73.62**	114.50	95.45	190.60	80.90	125.29
Normalized	50.68%	100%	38.53%	59.93%	49.96%	99.76%	42.34%	65.58%
Standard Deviation	0.5%	0.4%	0.4%	0.2%	0.1%	0.2%	0.1%	0.3%
Unigine Heaven - 3840 x 2160 - Fullscreen - OpenGL (FPS)	20.30	45.45	**16.78**	30.15	20.85	**49.67**	18.06	29.16
Normalized	40.87%	91.5%	33.78%	60.7%	41.98%	100%	36.36%	58.71%
Standard Deviation	0%	0.3%	0%	0.2%	0%	0.2%	0%	0.4%
Xonotic - 3840 x 2160 - Low (FPS)	357.24	355.76	**305.99**	307.52	437.72	**438.79**	380.82	387.05
Normalized	81.41%	81.08%	69.73%	70.08%	99.76%	100%	86.79%	88.21%
Standard Deviation	0.1%	1%	0.4%	0.3%	0.8%	0.6%	0.6%	0.4%
Xonotic - 3840 x 2160 - High (FPS)	313.86	327.71	260.51	**255.85**	262.58	**381.68**	306.95	332.59
Normalized	82.23%	85.86%	68.25%	67.03%	68.8%	100%	80.42%	87.14%
Standard Deviation	0.3%	0.6%	0.9%	0.6%	0%	0.2%	0.1%	0.3%
Xonotic - 3840 x 2160 - Ultra (FPS)	273.48	298.46	228.80	223.15	**191.12**	**332.60**	267.17	300.50
Normalized	82.22%	89.74%	68.79%	67.09%	57.46%	100%	80.33%	90.35%
Standard Deviation	0.5%	1%	0.7%	0.1%	0.3%	0.9%	0.4%	0.5%
Xonotic - 3840 x 2160 - Ultimate (FPS)	201.09	238.75	164.36	165.67	**131.84**	**252.91**	204.35	246.37
Normalized	79.51%	94.4%	64.99%	65.51%	52.13%	100%	80.8%	97.41%
Standard Deviation	0.3%	0.8%	3.1%	2.4%	0.1%	1.6%	0.3%	0.5%
X-Plane - Low - 1920 x 1080 (FPS)	50.98	51.42	49.41	**49.40**	110.58	**123.51**	115.70	118.69
Normalized	41.28%	41.63%	40%	40%	89.53%	100%	93.68%	96.1%
X-Plane - Medium - 1920 x 1080 (FPS)	52.32	51.89	**48.74**	48.84	90.03	**105.68**	100.04	101.32
Normalized	49.51%	49.1%	46.12%	46.21%	85.19%	100%	94.66%	95.87%
X-Plane - Very High - 1920 x 1080 (FPS)	54.39	54.66	**45.74**	46.62	74.80	74.32	78.18	**79.61**
Normalized	68.32%	68.66%	57.46%	58.56%	93.96%	93.36%	98.2%	100%
X-Plane - Very High CPU - 1920 x 1080	42.43	**42.62**	**22.95**	25.03	38.02	37.74	37.99	38.49
Normalized	99.55%	100%	53.85%	58.73%	89.21%	88.55%	89.14%	90.31%
X-Plane - Very High GPU - 1920 x 1080	33.78	**33.91**	**18.12**	19.64	24.54	27.18	27.61	28.14
Normalized	99.62%	100%	53.44%	57.92%	72.37%	80.15%	81.42%	82.98%
Java 2D Microbenchmark - Text Rendering (Units/sec)	14944	15326	14034	**12968**	**31755**	31742	29818	29470
Normalized	47.06%	48.26%	44.19%	40.84%	100%	99.96%	93.9%	92.8%
Standard Deviation	0.9%	1.8%	1.4%	18%	0.9%	0.9%	0.1%	1.2%
Java 2D Microbenchmark - Image Rendering	7125702	14029757	**5457679**	5631670	15693619	**24752999**	10927526	11541403
Normalized	28.79%	56.68%	22.05%	22.75%	63.4%	100%	44.15%	46.63%
Standard Deviation	0.2%	0.1%	0.3%	57.6%	0.1%	0.8%	0.1%	1.9%

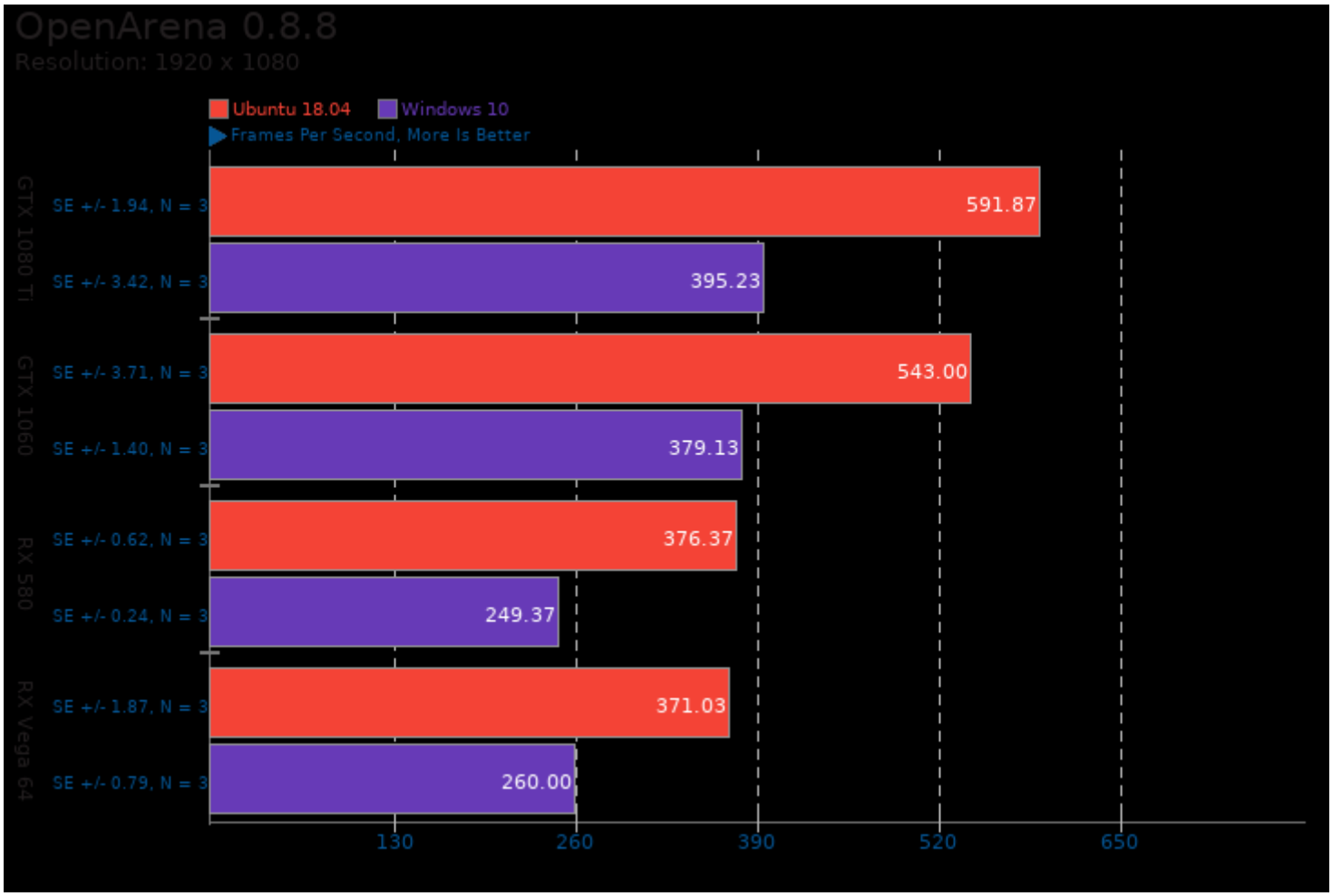
Java 2D Microbenchmark -	3134651	5953246	**1395138**	3249083	6670959	**12284238**	4524326	8018662
Normalized	25.52%	48.46%	11.36%	26.45%	54.31%	100%	36.83%	65.28%
Standard Deviation	0.1%	0.5%	63.9%	36.4%	0.1%	0.4%	0.3%	0.3%
FAHBench (Ns/Day)	74.80	115.59	**59.95**	69.70	99.61	**186.91**		
Normalized	40.02%	61.84%	32.07%	37.29%	53.29%	100%		
Standard Deviation	0.1%	0.3%	0.1%	4.2%	0%	0%		
LuxMark - GPU - Hotel (Score)	**2625**	5720	2897	**5991**	2642	5713		
Normalized	43.82%	95.48%	48.36%	100%	44.1%	95.36%		
Standard Deviation	0.1%	0.6%	0.4%	0.4%	0%	0.6%		
LuxMark - GPU - Microphone (Score)	7016	13558	9792	**20682**	**6979**	13673		
Normalized	33.92%	65.55%	47.35%	100%	33.74%	66.11%		
Standard Deviation	0.1%	0.2%	0.3%		0.1%	0.2%		
LuxMark - GPU - Luxball HDR (Score)	**12224**	21301	14719	**30835**	12277	21389		
Normalized	39.64%	69.08%	47.73%	100%	39.82%	69.37%		
Standard Deviation	0.2%	0.8%	0.3%	0.7%	0.3%	0%		

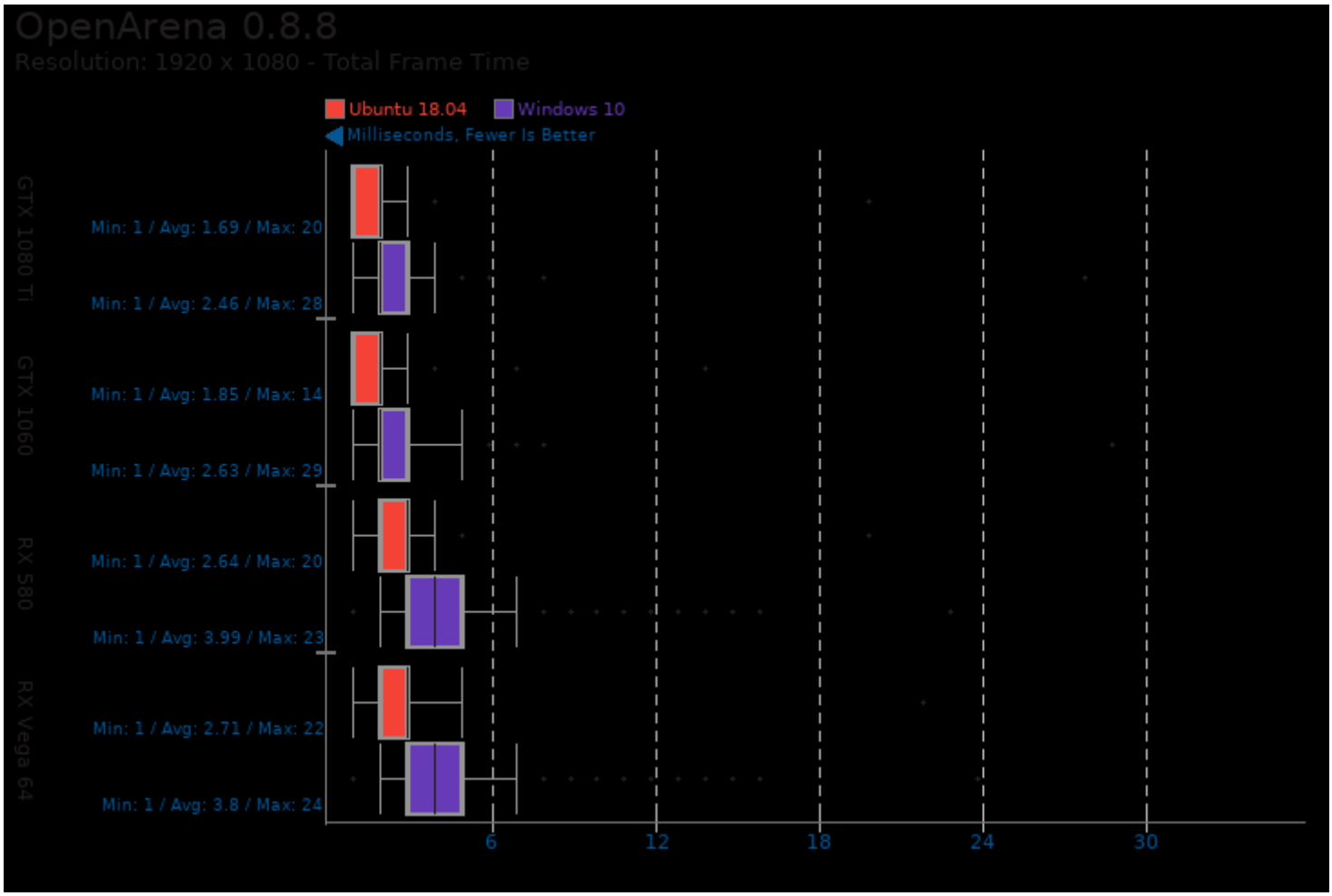

Dota 2
Resolution: 1920 x 1080 - Renderer: OpenGL
Ubuntu 18.04
Windows 10
Frames Per Second, More Is Better
GTX 1080 Ti
SE +/- 1.19, N = 3
131.77
SE +/- 1.22, N = 3
97.17
RX 580
SE +/- 1.80, N = 6
130.97
SE +/- 0.13, N = 3
71.43
RX Vega 64
SE +/- 1.93, N = 6
130.95
SE +/- 0.70, N = 3
97.80
GTX 1060
SE +/- 2.08, N = 6
129.77
SE +/- 0.48, N = 3
80.67
30
60
90
120
150

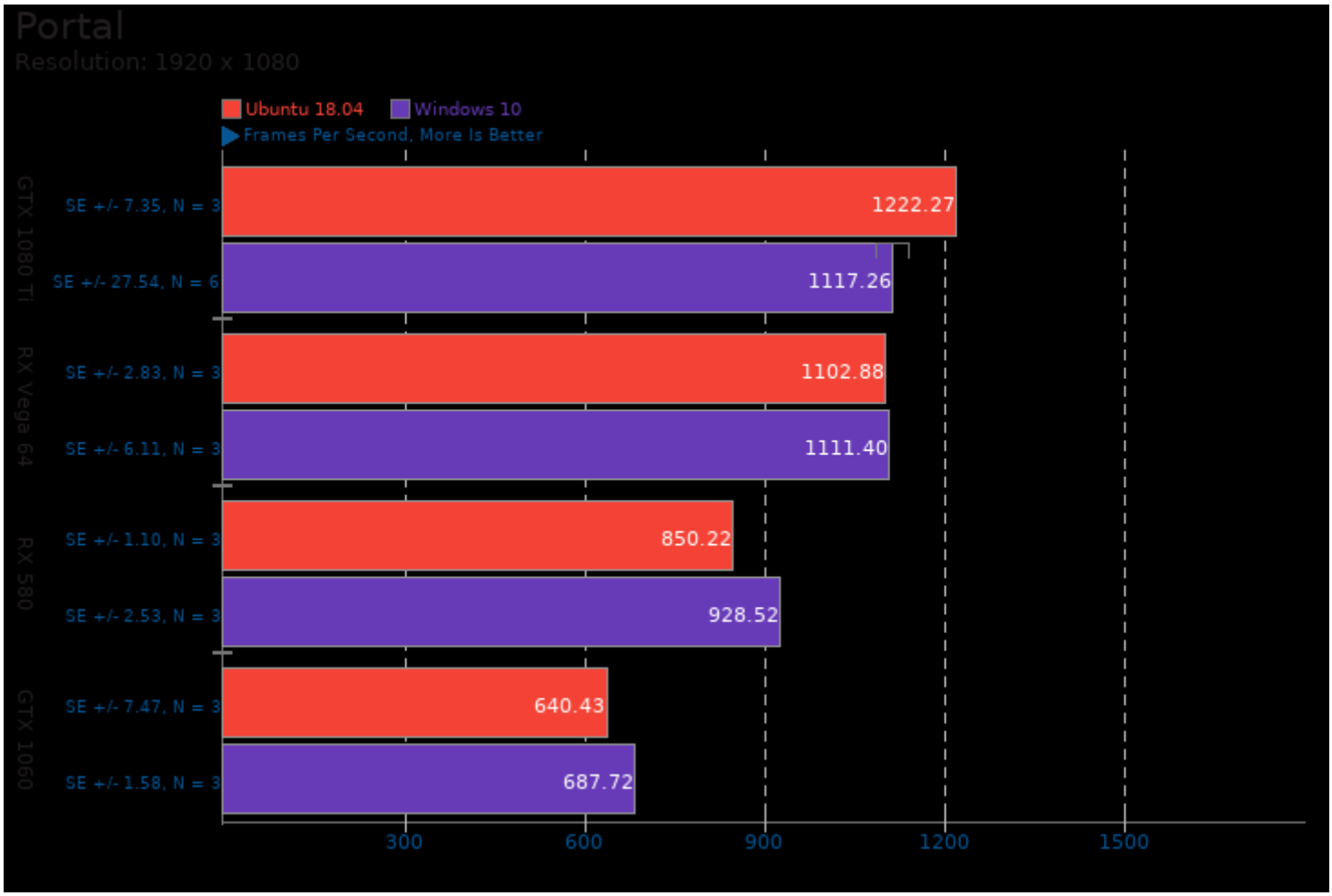

Dota 2
Resolution: 1920 x 1080 - Renderer: Vulkan
Ubuntu 18.04
Windows 10
Frames Per Second, More Is Better
GTX 1080 Ti
GTX 1060
RX Vega 64
RX 580
SE +/- 1.89, N = 6
126.17
SE +/- 0.40, N = 3
95.90
SE +/- 2.40, N = 6
125.28
SE +/- 0.32, N = 3
79.67
SE +/- 0.18, N = 3
123.87
SE +/- 0.83, N = 3
97.83
SE +/- 2.76, N = 6
121.68
SE +/- 0.15, N = 3
71.73
30
60
90
120
150

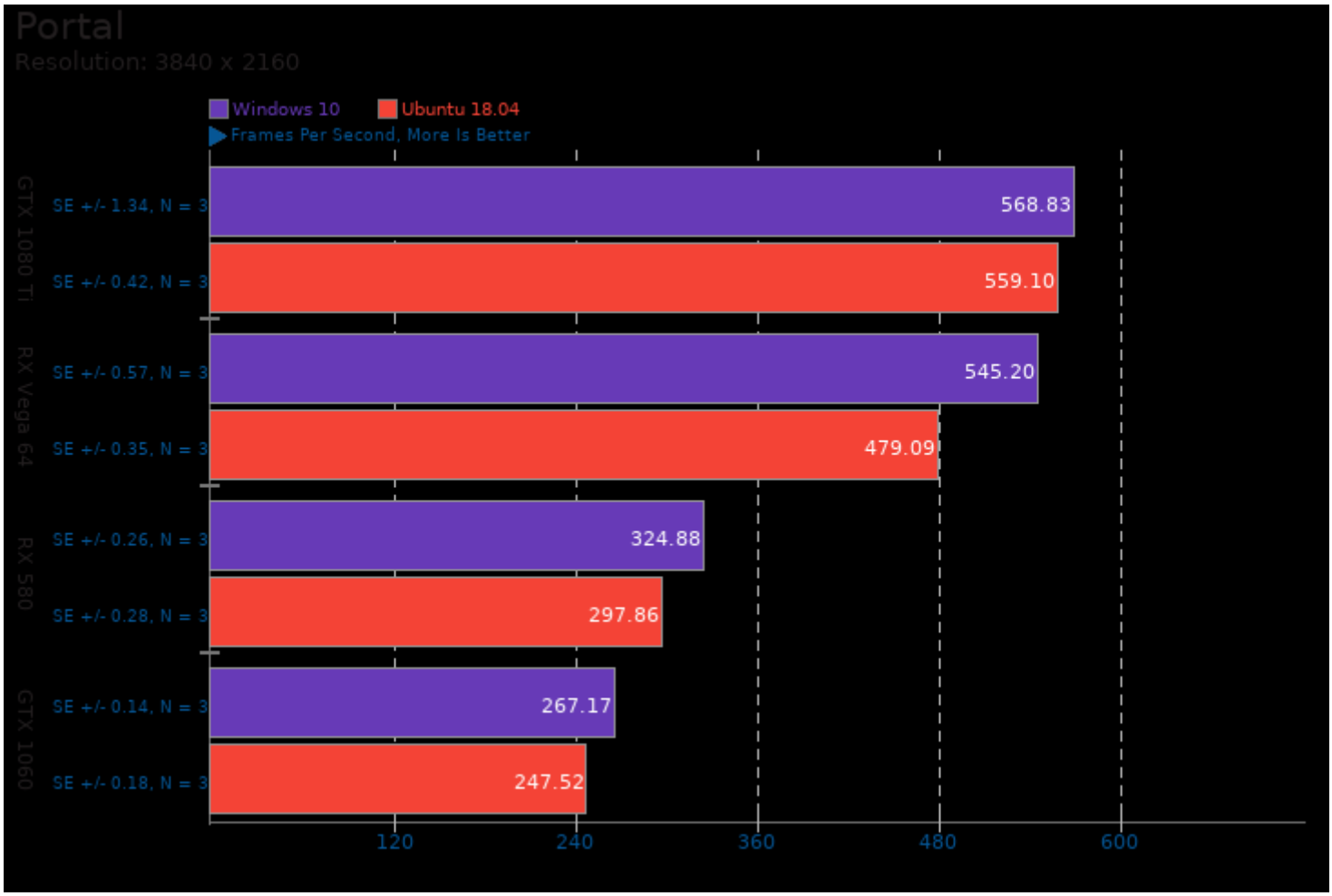

Dota 2
Resolution: 3840 x 2160 - Renderer: OpenGL
Ubuntu 18.04
Windows 10
Frames Per Second, More Is Better
GTX 1080 Ti
SE +/- 0.23, N = 3
128.63
SE +/- 1.42, N = 3
96.83
RX Vega 64
SE +/- 0.09, N = 3
98.67
SE +/- 0.64, N = 3
97.37
GTX 1060
SE +/- 0.13, N = 3
73.57
SE +/- 0.07, N = 3
71.73
RX 580
SE +/- 0.07, N = 3
71.77
SE +/- 0.12, N = 3
79.77
30
60
90
120
150

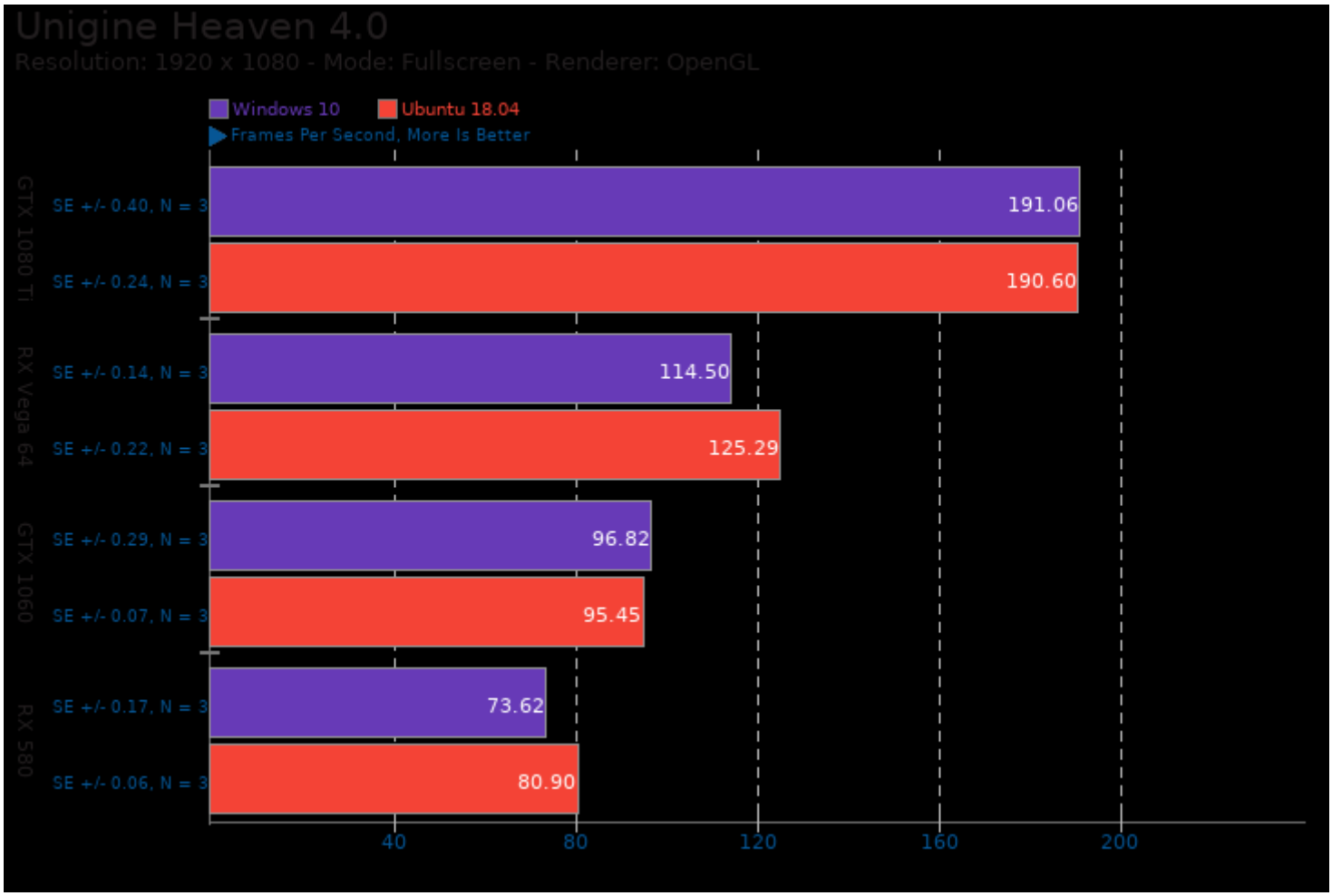

Dota 2
Resolution: 3840 x 2160 - Renderer: Vulkan
Ubuntu 18.04
Windows 10
Frames Per Second, More Is Better
GTX 1080 Ti
SE +/- 0.29, N = 3
126.40
SE +/- 0.59, N = 3
95.53
RX Vega 64
SE +/- 1.92, N = 6
93.28
SE +/- 0.41, N = 3
97.77
GTX 1060
SE +/- 0.03, N = 3
80.57
SE +/- 0.26, N = 3
79.80
RX 580
SE +/- 0.43, N = 3
77.43
SE +/- 0.07, N = 3
71.83
30
60
90
120
150

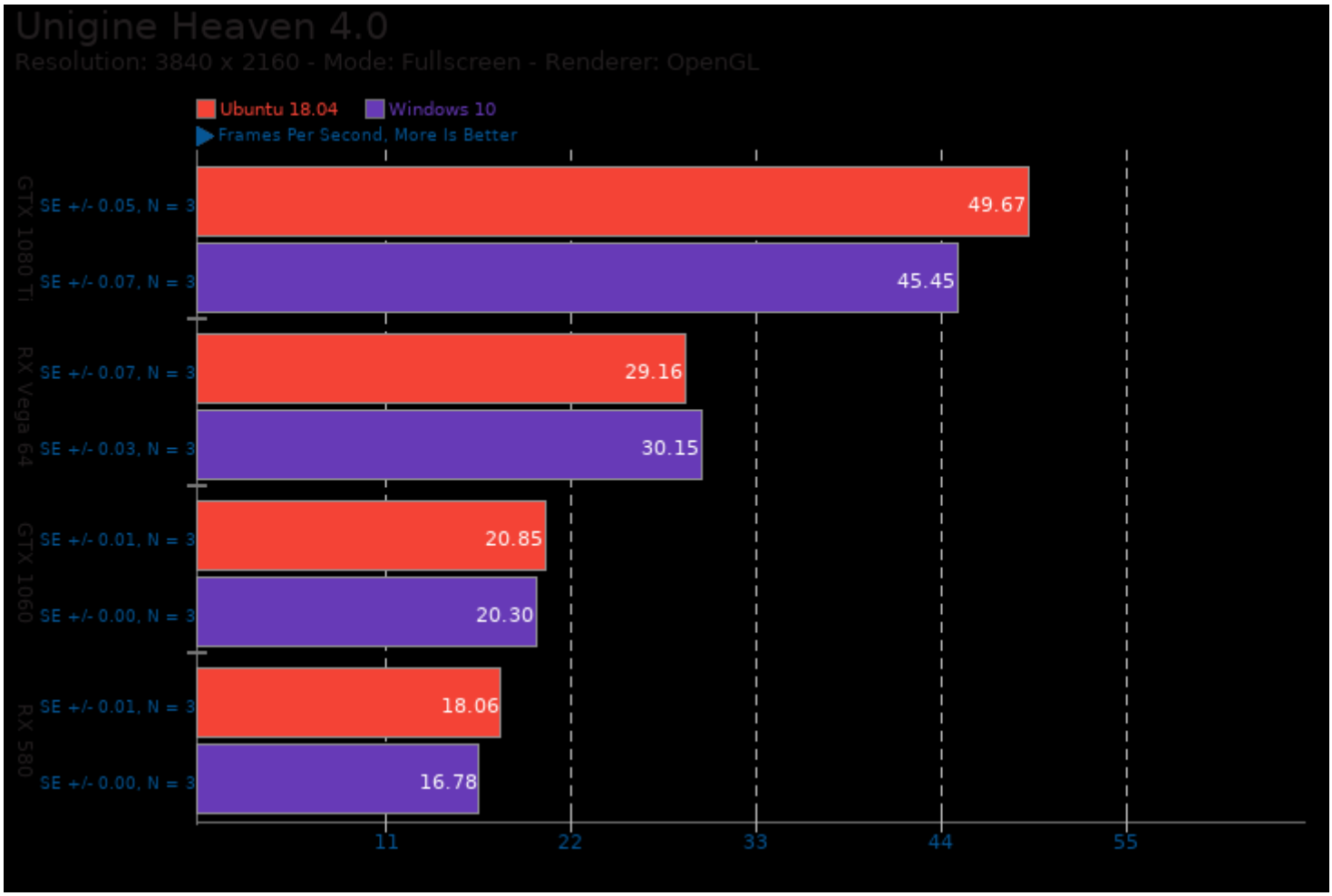

OpenArena 0.8.8
Resolution: 1920 x 1080
Ubuntu 18.04
Windows 10
Frames Per Second, More Is Better
GTX 1080 Ti
SE +/- 1.94, N = 3
591.87
SE +/- 3.42, N = 3
395.23
GTX 1060
SE +/- 3.71, N = 3
543.00
SE +/- 1.40, N = 3
379.13
RX 580
SE +/- 0.62, N = 3
376.37
SE +/- 0.24, N = 3
249.37
RX Vega 64
SE +/- 1.87, N = 3
371.03
SE +/- 0.79, N = 3
260.00
130
260
390
520
650

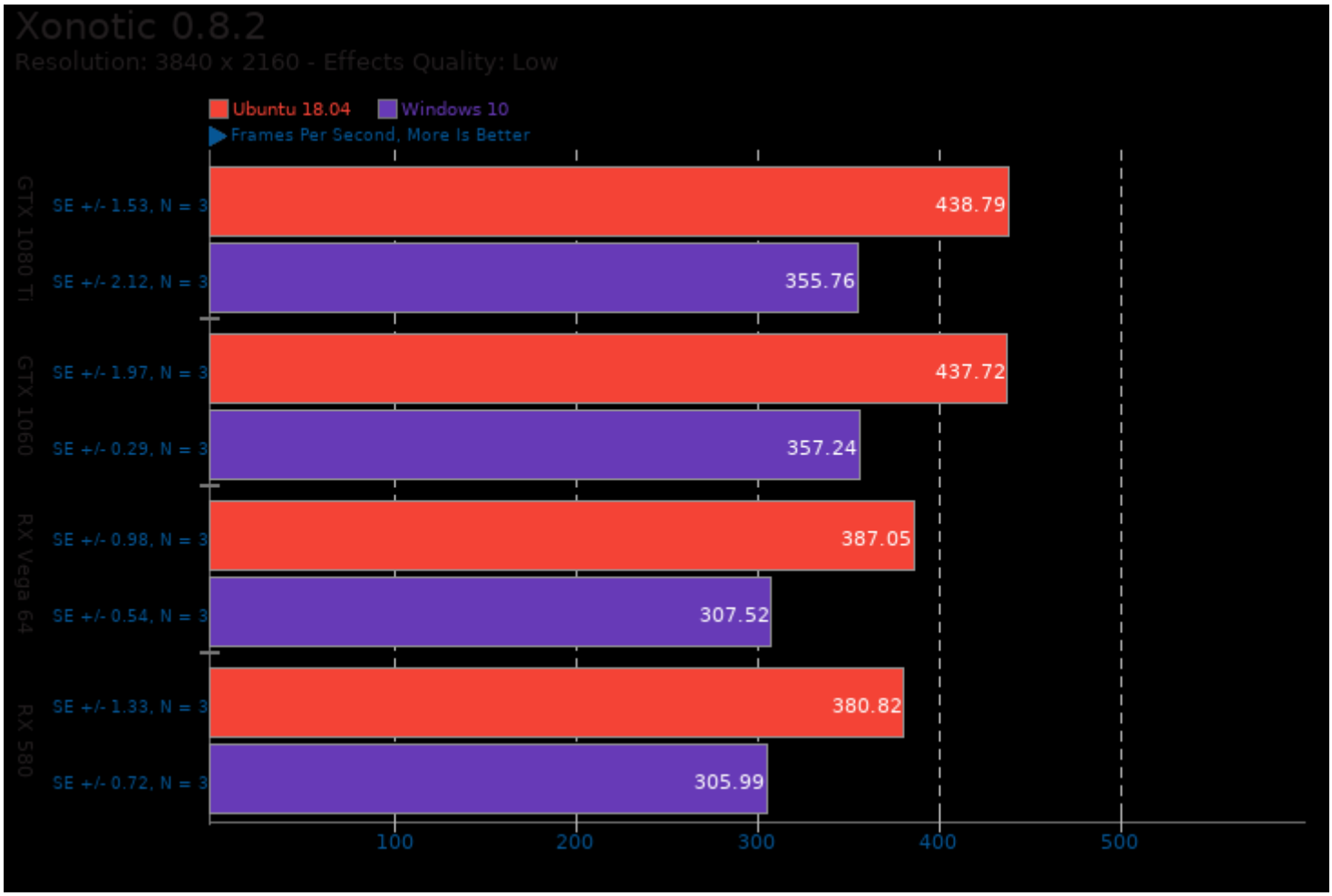

OpenArena 0.8.8
Resolution: 1920 x 1080 - Total Frame Time
Ubuntu 18.04
Windows 10
Milliseconds, Fewer Is Better
GTX 1080 Ti
GTX 1060
RX 580
RX Vega 64
Min: 1 / Avg: 1.69 / Max: 20
Min: 1 / Avg: 2.46 / Max: 28
Min: 1 / Avg: 1.85 / Max: 14
Min: 1 / Avg: 2.63 / Max: 29
Min: 1 / Avg: 2.64 / Max: 20
Min: 1 / Avg: 3.99 / Max: 23
Min: 1 / Avg: 2.71 / Max: 22
Min: 1 / Avg: 3.8 / Max: 24
6
12
18
24
30

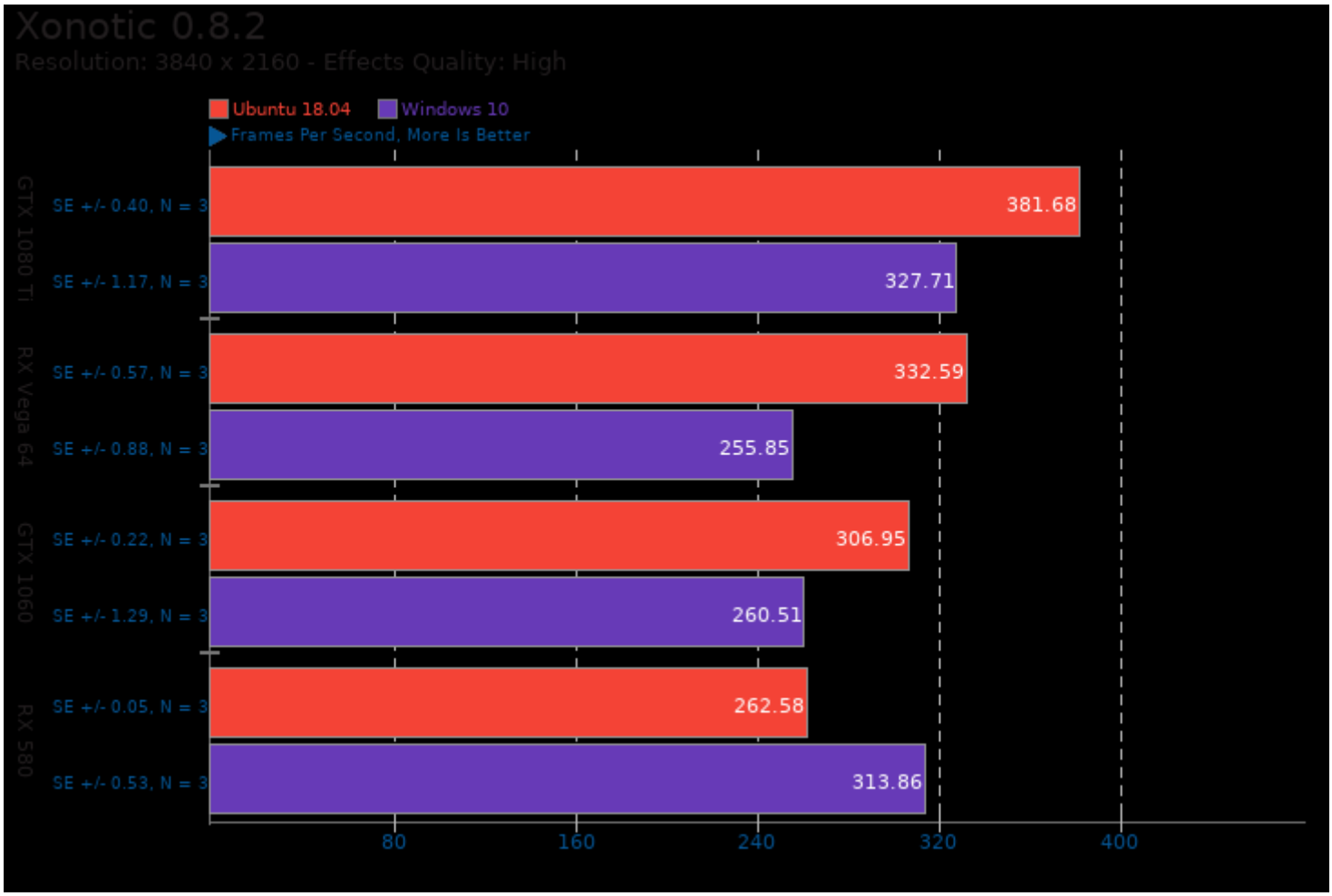

Portal
Resolution: 1920 x 1080
Ubuntu 18.04
Windows 10
Frames Per Second, More Is Better
GTX 1080 Ti
SE +/- 7.35, N = 3
1222.27
SE +/- 27.54, N = 6
1117.26
RX Vega 64
SE +/- 2.83, N = 3
1102.88
SE +/- 6.11, N = 3
1111.40
RX 580
SE +/- 1.10, N = 3
850.22
SE +/- 2.53, N = 3
928.52
GTX 1060
SE +/- 7.47, N = 3
640.43
SE +/- 1.58, N = 3
687.72
300
600
900
1200
1500

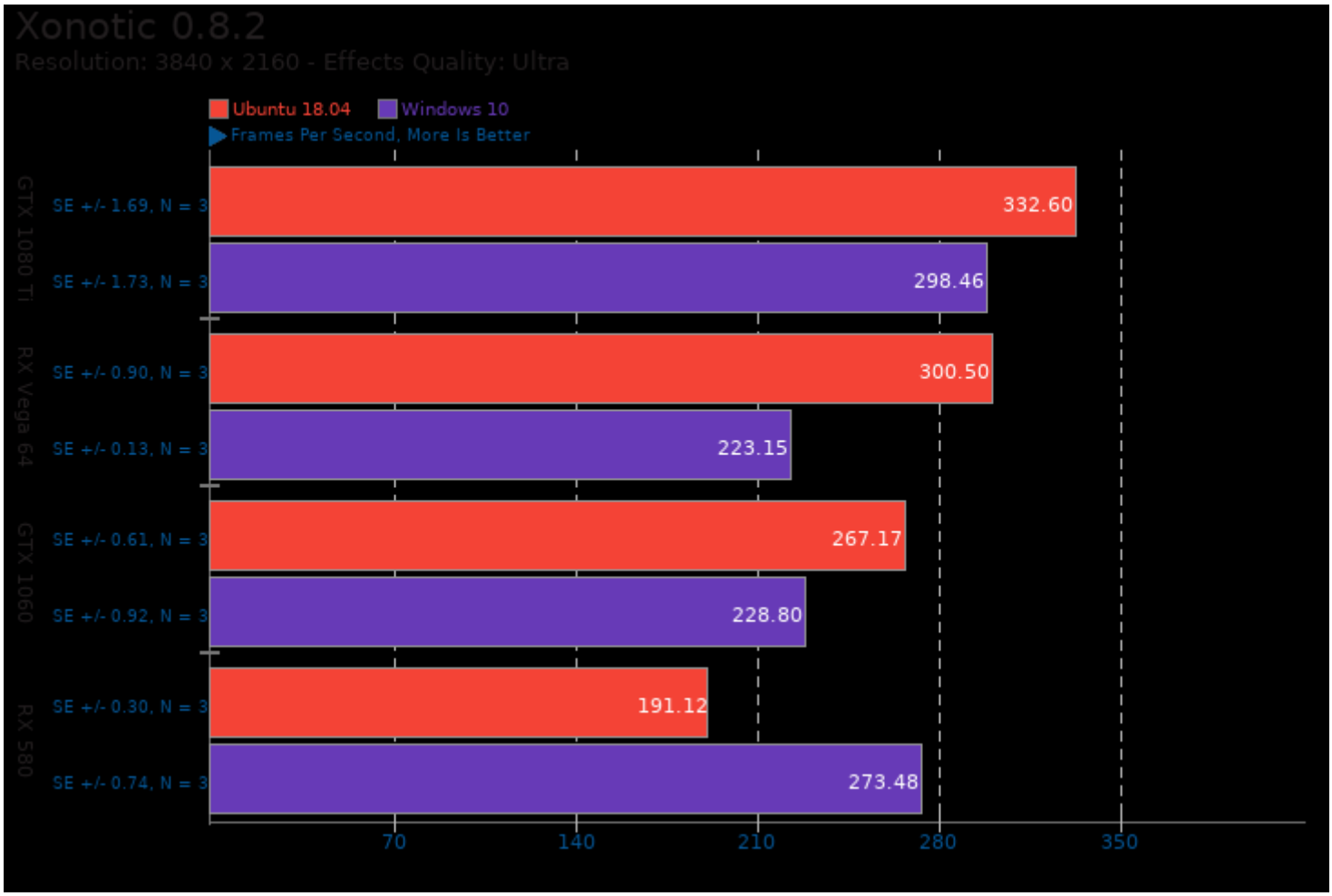

Portal
Resolution: 3840 x 2160
Windows 10
Ubuntu 18.04
Frames Per Second, More Is Better
GTX 1080 Ti
RX Vega 64
RX 580
GTX 1060
SE +/- 1.34, N = 3
SE +/- 0.42, N = 3
SE +/- 0.57, N = 3
SE +/- 0.35, N = 3
SE +/- 0.26, N = 3
SE +/- 0.28, N = 3
SE +/- 0.14, N = 3
SE +/- 0.18, N = 3
568.83
559.10
545.20
479.09
324.88
297.86
267.17
247.52
120
240
360
480
600

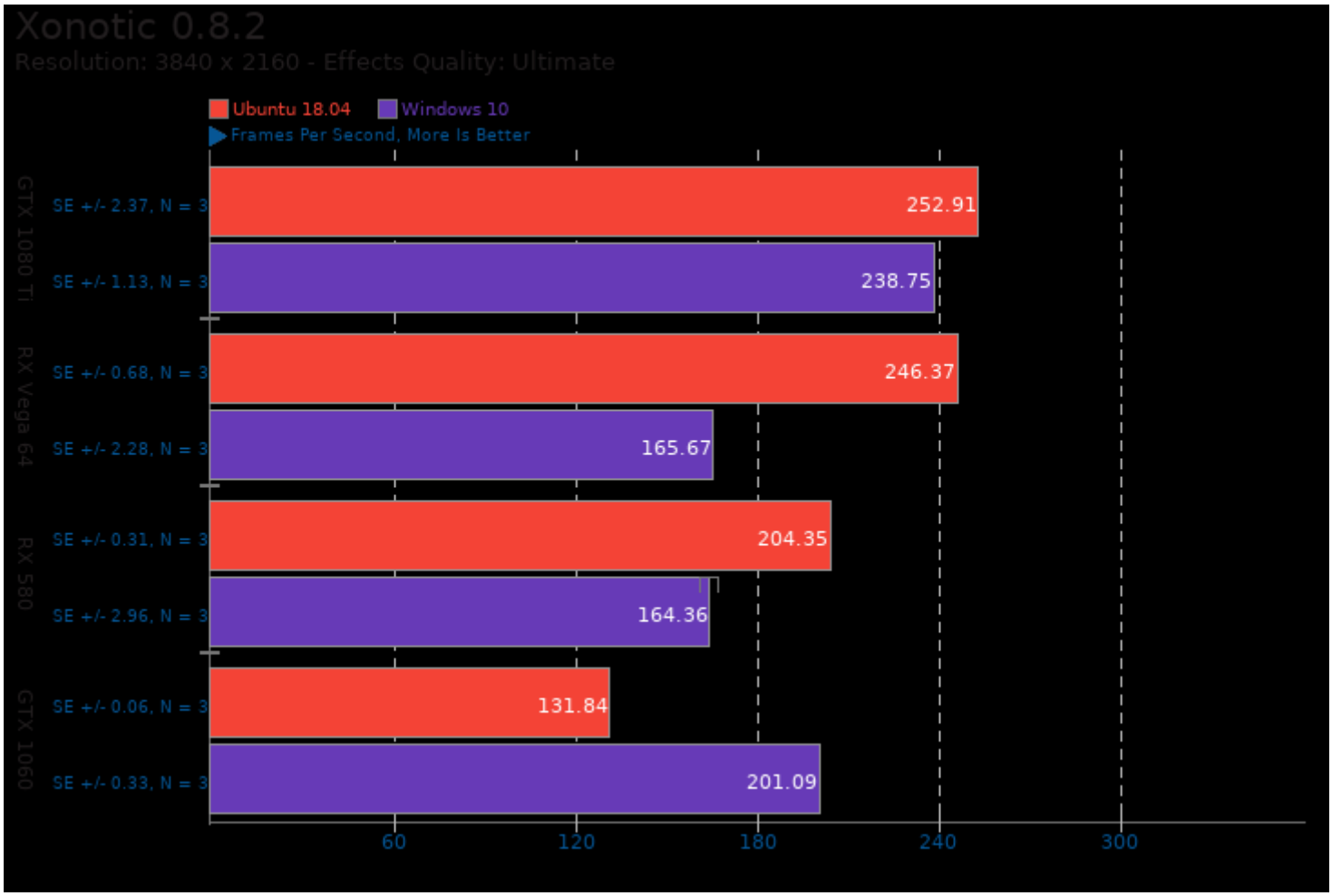

Unigine Heaven 4.0
Resolution: 1920 x 1080 - Mode: Fullscreen - Renderer: OpenGL
Windows 10
Ubuntu 18.04
Frames Per Second, More Is Better
GTX 1080 Ti
RX Vega 64
GTX 1060
RX 580
SE +/- 0.40, N = 3
SE +/- 0.24, N = 3
SE +/- 0.14, N = 3
SE +/- 0.22, N = 3
SE +/- 0.29, N = 3
SE +/- 0.07, N = 3
SE +/- 0.17, N = 3
SE +/- 0.06, N = 3
191.06
190.60
114.50
125.29
96.82
95.45
73.62
80.90
40
80
120
160
200

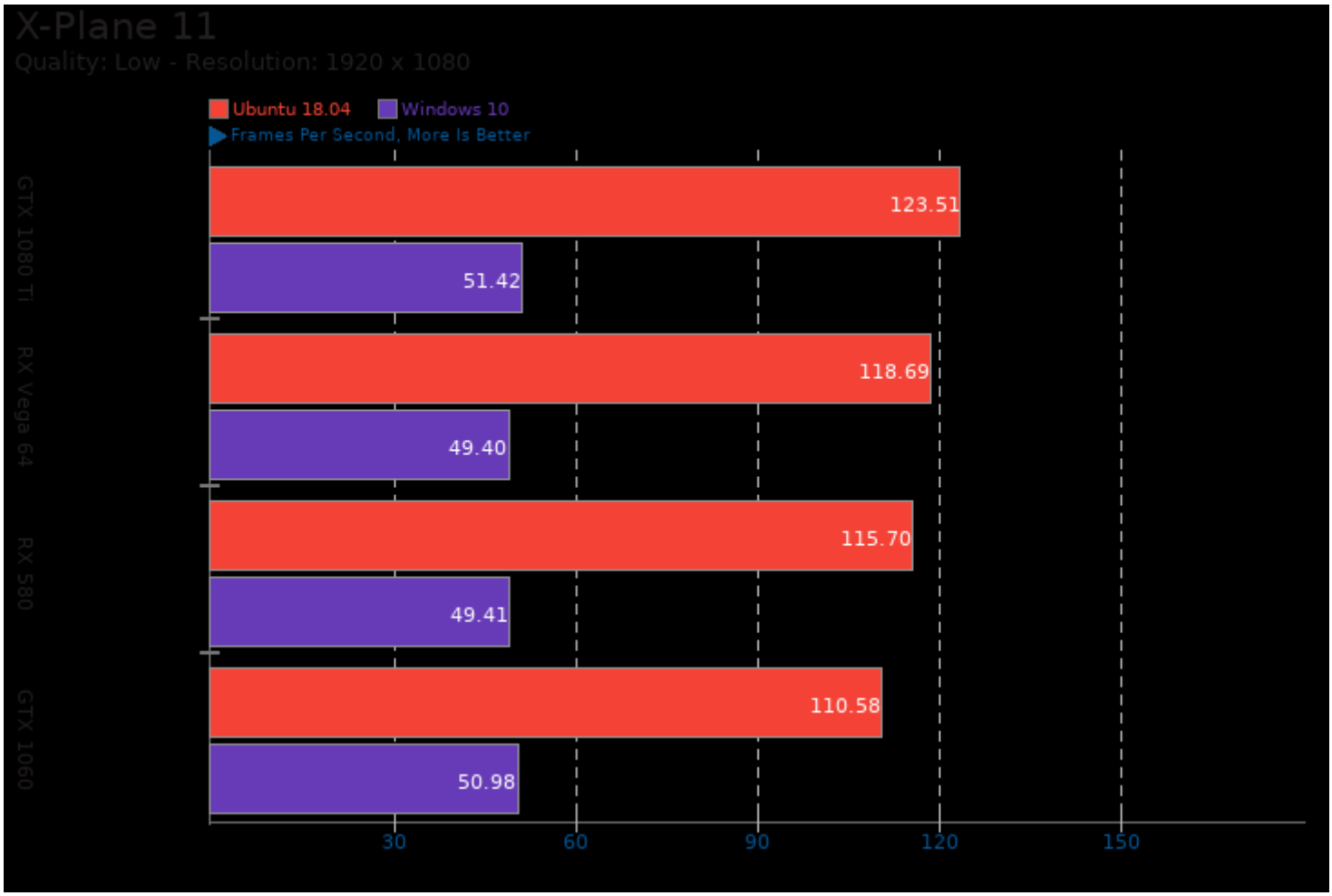

Unigine Heaven 4.0
Resolution: 3840 x 2160 - Mode: Fullscreen - Renderer: OpenGL
Ubuntu 18.04
Windows 10
Frames Per Second, More Is Better
GTX 1080 Ti
SE +/- 0.05, N = 3
49.67
SE +/- 0.07, N = 3
45.45
RX Vega 64
SE +/- 0.07, N = 3
29.16
SE +/- 0.03, N = 3
30.15
GTX 1060
SE +/- 0.01, N = 3
20.85
SE +/- 0.00, N = 3
20.30
RX 580
SE +/- 0.01, N = 3
18.06
SE +/- 0.00, N = 3
16.78
11
22
33
44
55

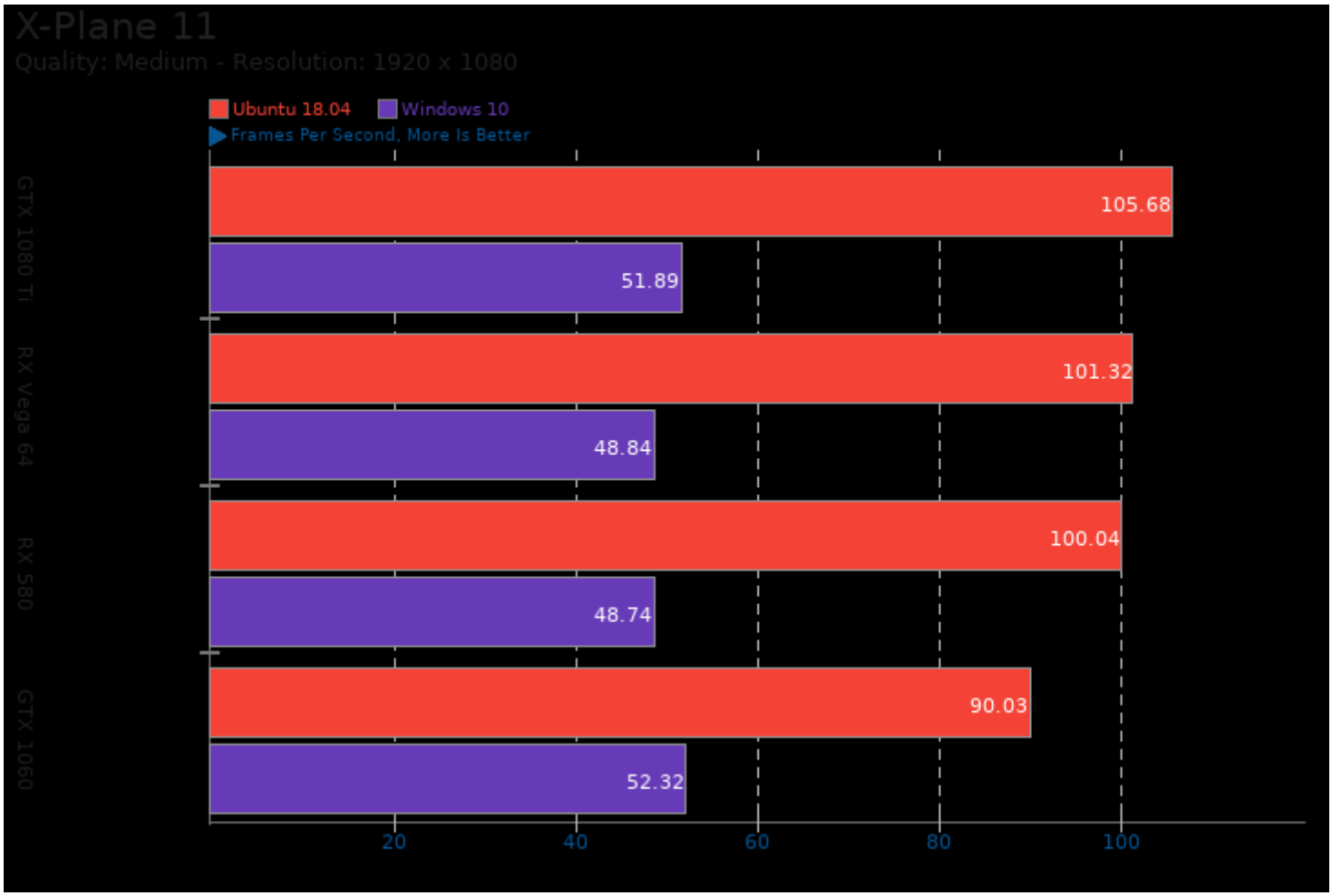

Xonotic 0.8.2
Resolution: 3840 x 2160 - Effects Quality: Low
Ubuntu 18.04
Windows 10
Frames Per Second, More Is Better
GTX 1080 Ti
SE +/- 1.53, N = 3
438.79
SE +/- 2.12, N = 3
355.76
GTX 1060
SE +/- 1.97, N = 3
437.72
SE +/- 0.29, N = 3
357.24
RX Vega 64
SE +/- 0.98, N = 3
387.05
SE +/- 0.54, N = 3
307.52
RX 580
SE +/- 1.33, N = 3
380.82
SE +/- 0.72, N = 3
305.99
100
200
300
400
500

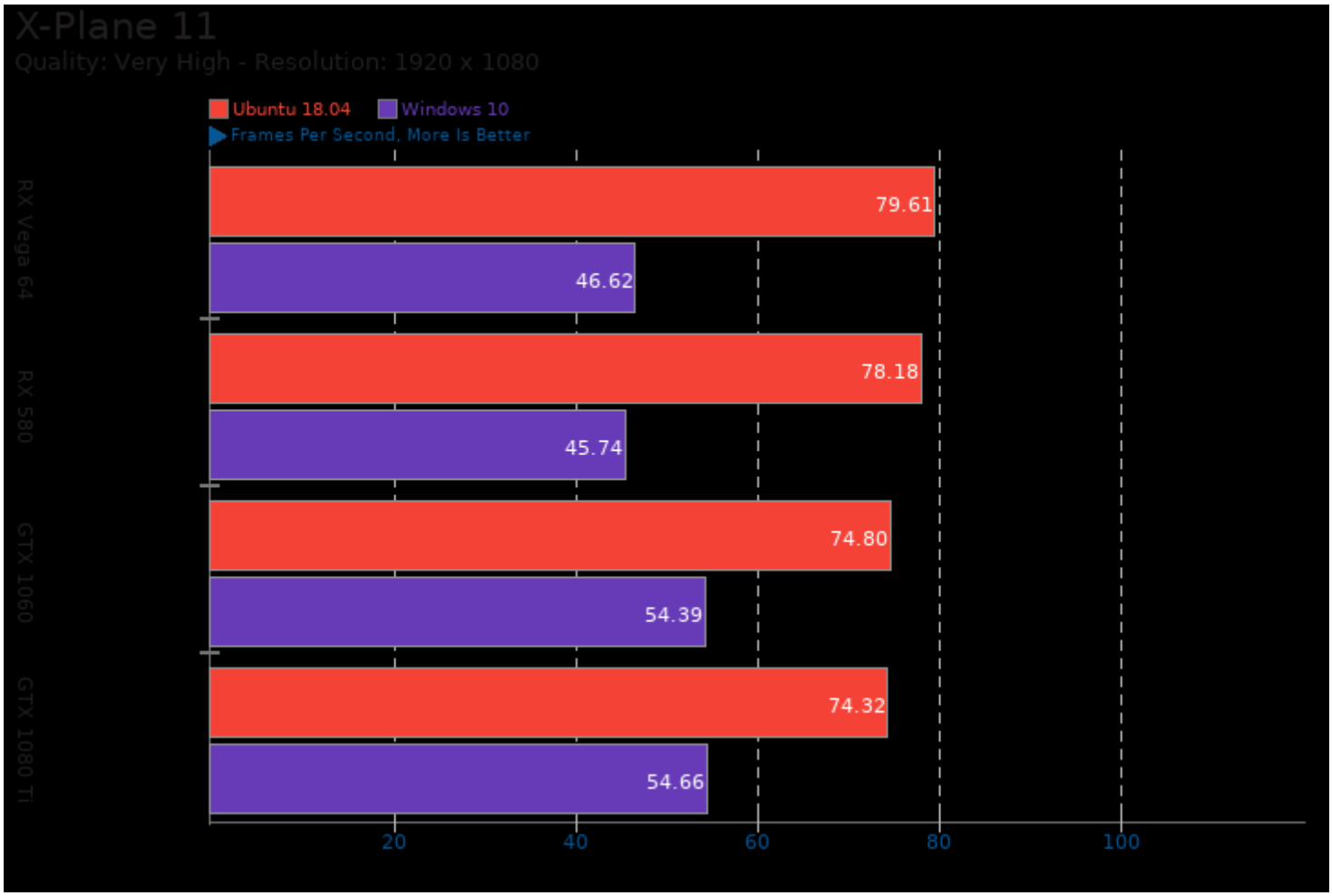

Xonotic 0.8.2
Resolution: 3840 x 2160 - Effects Quality: High
Ubuntu 18.04
Windows 10
Frames Per Second, More Is Better
GTX 1080 Ti
RX Vega 64
GTX 1060
RX 580
SE +/- 0.40, N = 3
381.68
SE +/- 1.17, N = 3
327.71
SE +/- 0.57, N = 3
332.59
SE +/- 0.88, N = 3
255.85
SE +/- 0.22, N = 3
306.95
SE +/- 1.29, N = 3
260.51
SE +/- 0.05, N = 3
262.58
SE +/- 0.53, N = 3
313.86
80
160
240
320
400

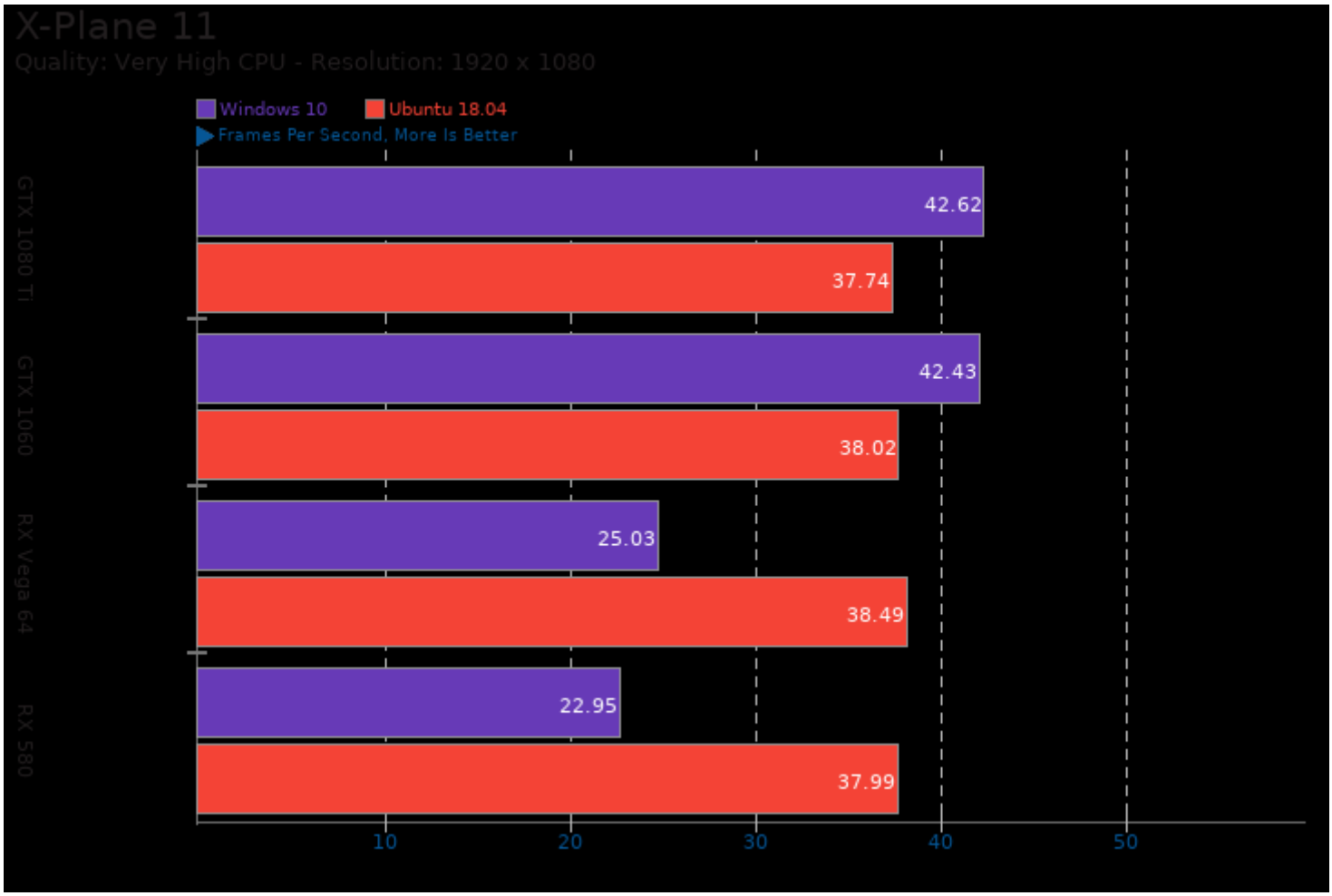

Xonotic 0.8.2
Resolution: 3840 x 2160 - Effects Quality: Ultra
Ubuntu 18.04
Windows 10
Frames Per Second, More Is Better
GTX 1080 Ti
SE +/- 1.69, N = 3
332.60
SE +/- 1.73, N = 3
298.46
RX Vega 64
SE +/- 0.90, N = 3
300.50
SE +/- 0.13, N = 3
223.15
GTX 1060
SE +/- 0.61, N = 3
267.17
SE +/- 0.92, N = 3
228.80
RX 580
SE +/- 0.30, N = 3
191.12
SE +/- 0.74, N = 3
273.48
70
140
210
280
350

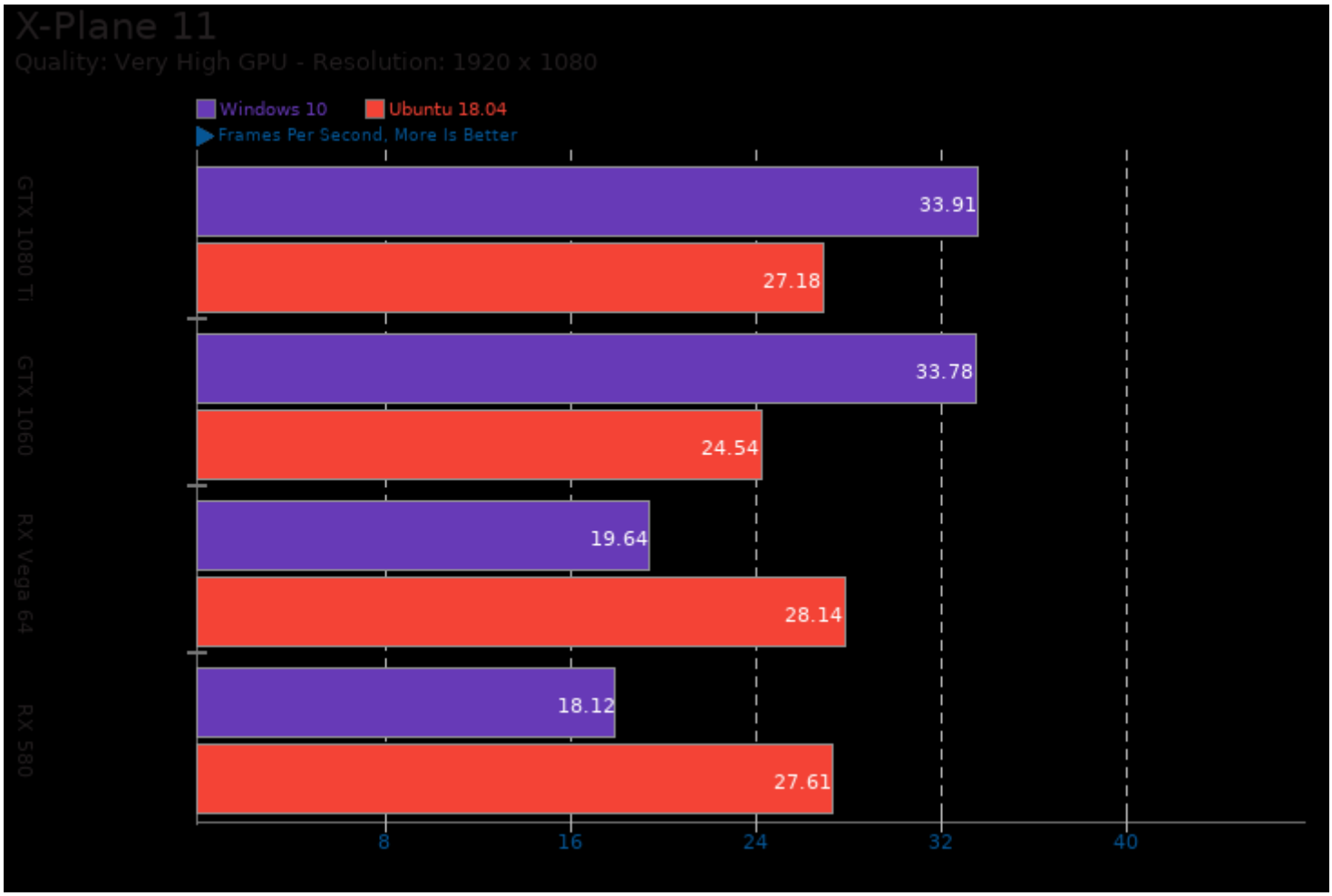

Xonotic 0.8.2
Resolution: 3840 x 2160 - Effects Quality: Ultimate
Ubuntu 18.04
Windows 10
Frames Per Second, More Is Better
GTX 1080 Ti
SE +/- 2.37, N = 3
252.91
238.75
RX Vega 64
SE +/- 0.68, N = 3
246.37
165.67
SE +/- 2.28, N = 3
RX 580
SE +/- 0.31, N = 3
204.35
164.36
SE +/- 2.96, N = 3
GTX 1060
SE +/- 0.06, N = 3
131.84
201.09
SE +/- 0.33, N = 3
60
120
180
240
300

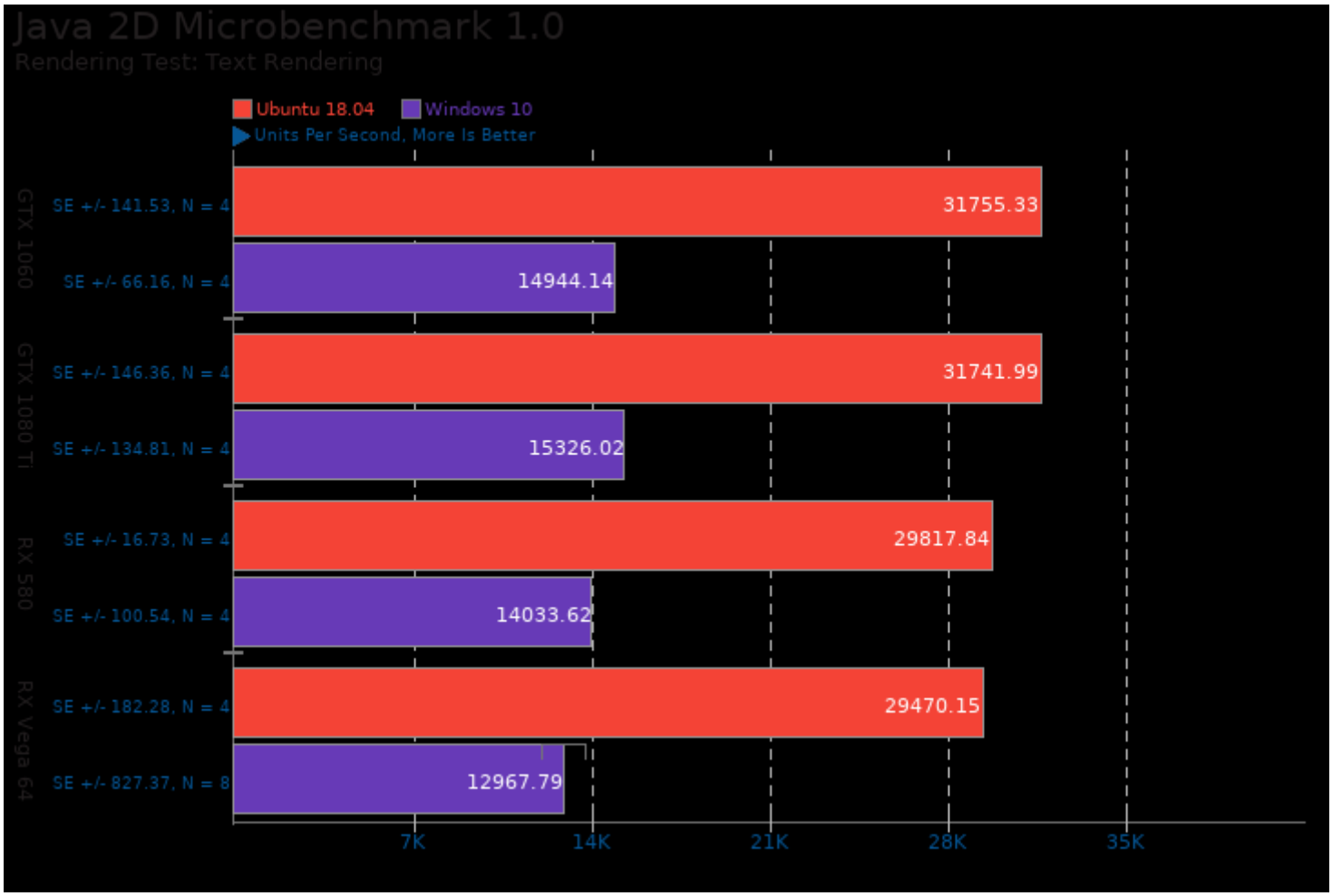

X-Plane 11
Quality: Low - Resolution: 1920 x 1080
Ubuntu 18.04
Windows 10
Frames Per Second, More Is Better
GTX 1080 Ti
123.51
51.42
RX Vega 64
118.69
49.40
RX 580
115.70
49.41
GTX 1060
110.58
50.98
30
60
90
120
150

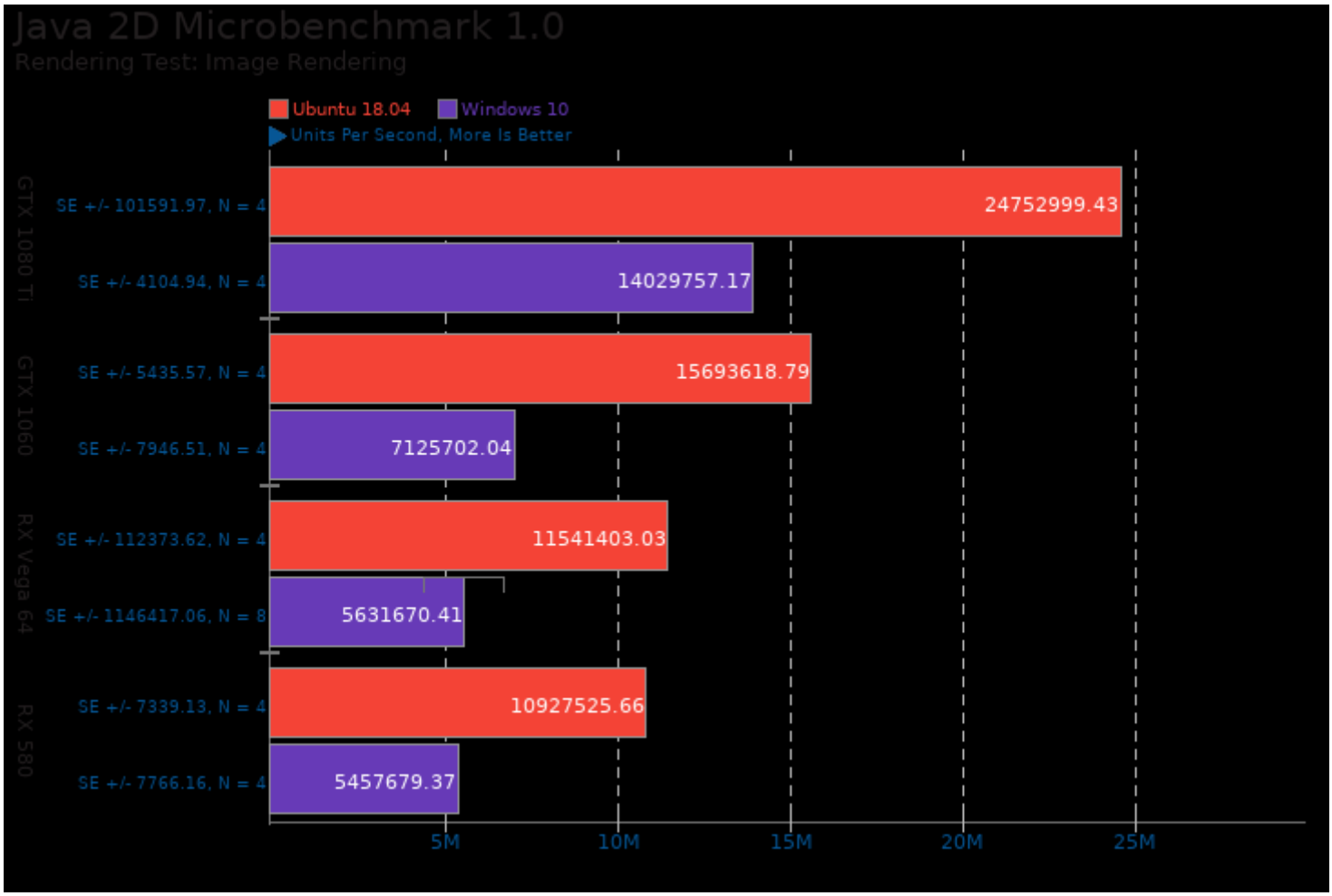

X-Plane 11
Quality: Medium - Resolution: 1920 x 1080
Ubuntu 18.04
Windows 10
Frames Per Second, More Is Better
GTX 1080 Ti
105.68
51.89
RX Vega 64
101.32
48.84
RX 580
100.04
48.74
GTX 1060
90.03
52.32
20
40
60
80
100

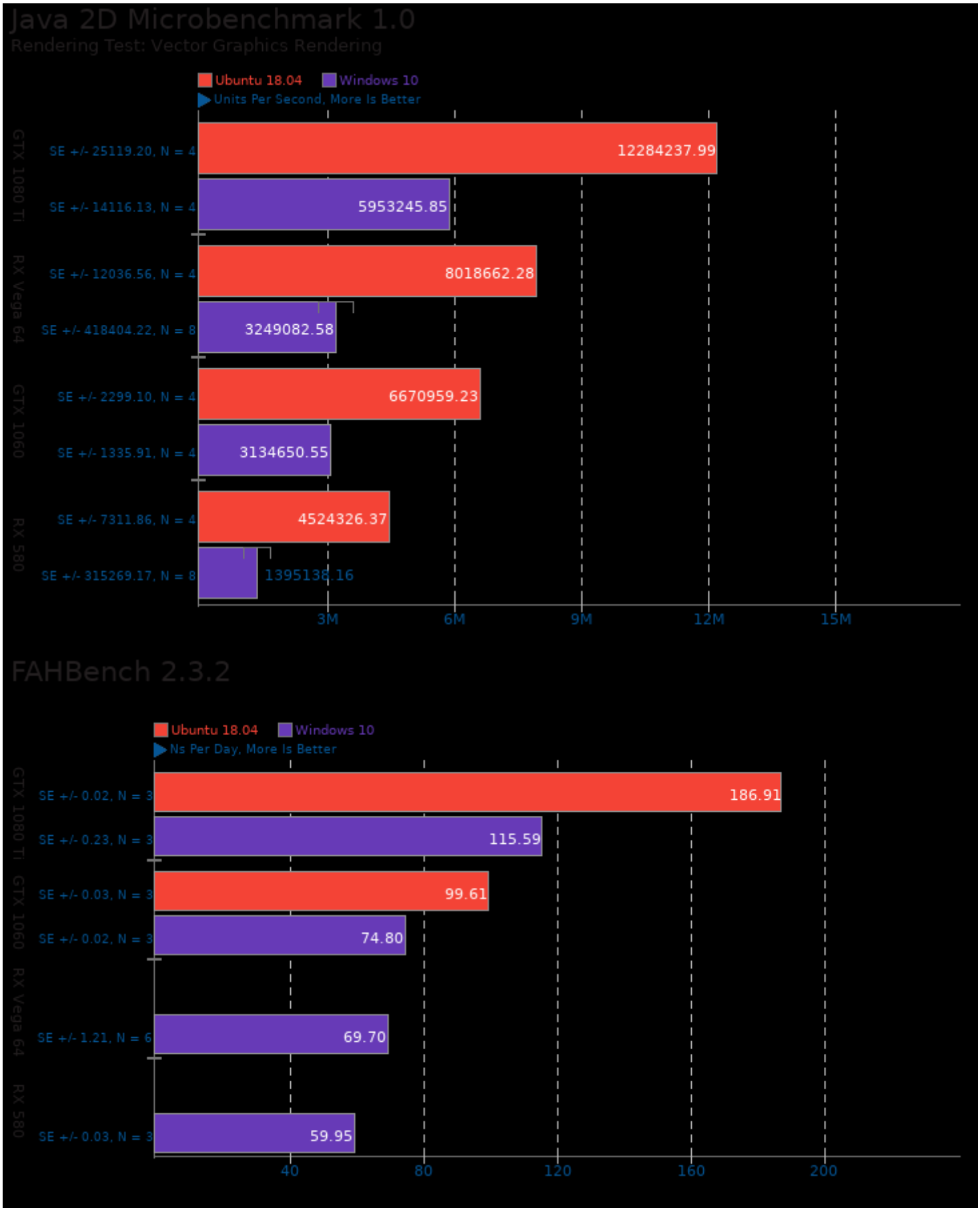

X-Plane 11
Quality: Very High - Resolution: 1920 x 1080
Ubuntu 18.04
Windows 10
Frames Per Second, More Is Better
RX Vega 64
79.61
46.62
RX 580
78.18
45.74
GTX 1060
74.80
54.39
GTX 1080 Ti
74.32
54.66
20
40
60
80
100

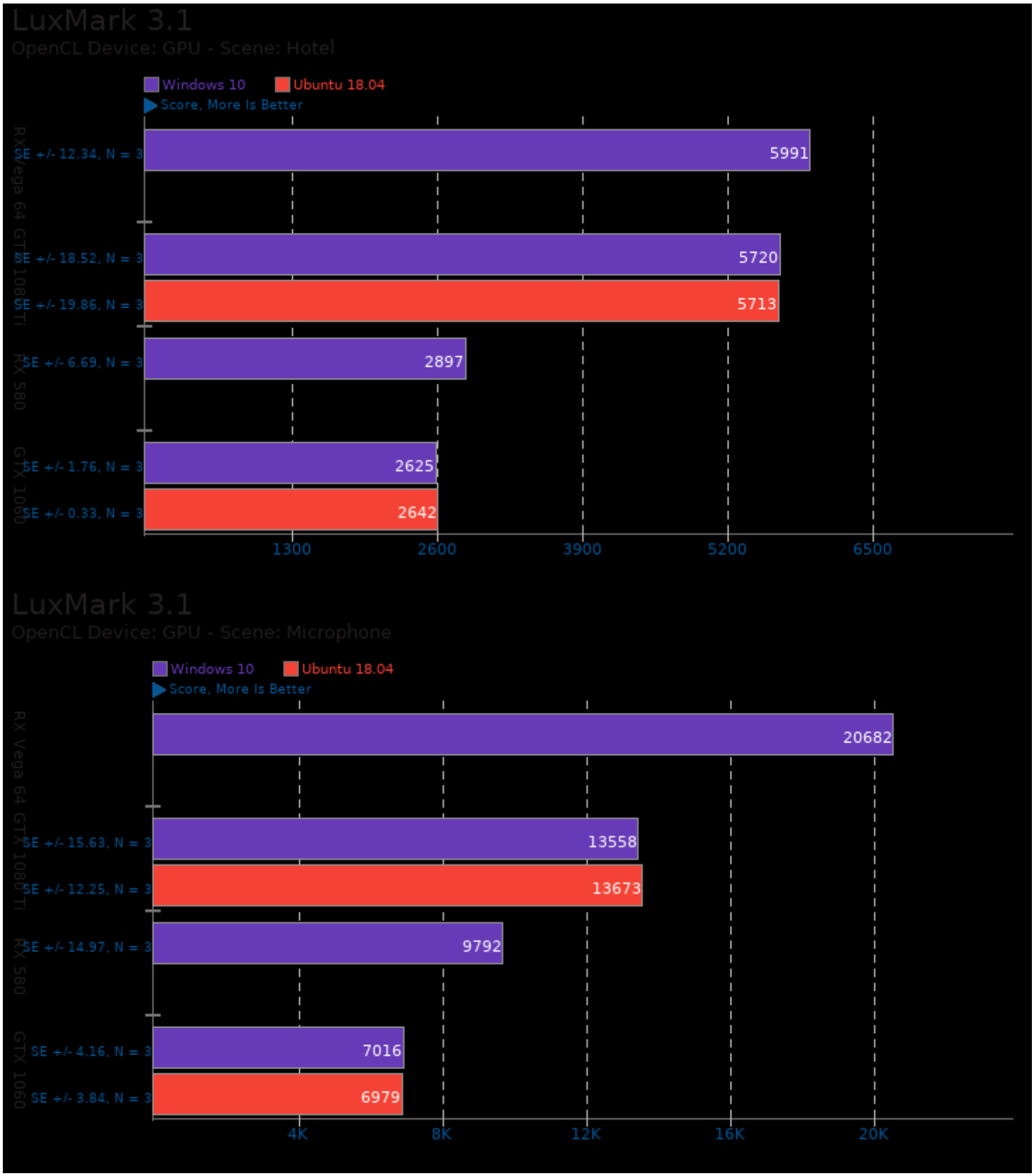

X-Plane 11
Quality: Very High CPU - Resolution: 1920 x 1080
Windows 10
Ubuntu 18.04
Frames Per Second, More Is Better
GTX 1080 Ti
GTX 1060
RX Vega 64
RX 580
42.62
37.74
42.43
38.02
25.03
38.49
22.95
37.99
10
20
30
40
50

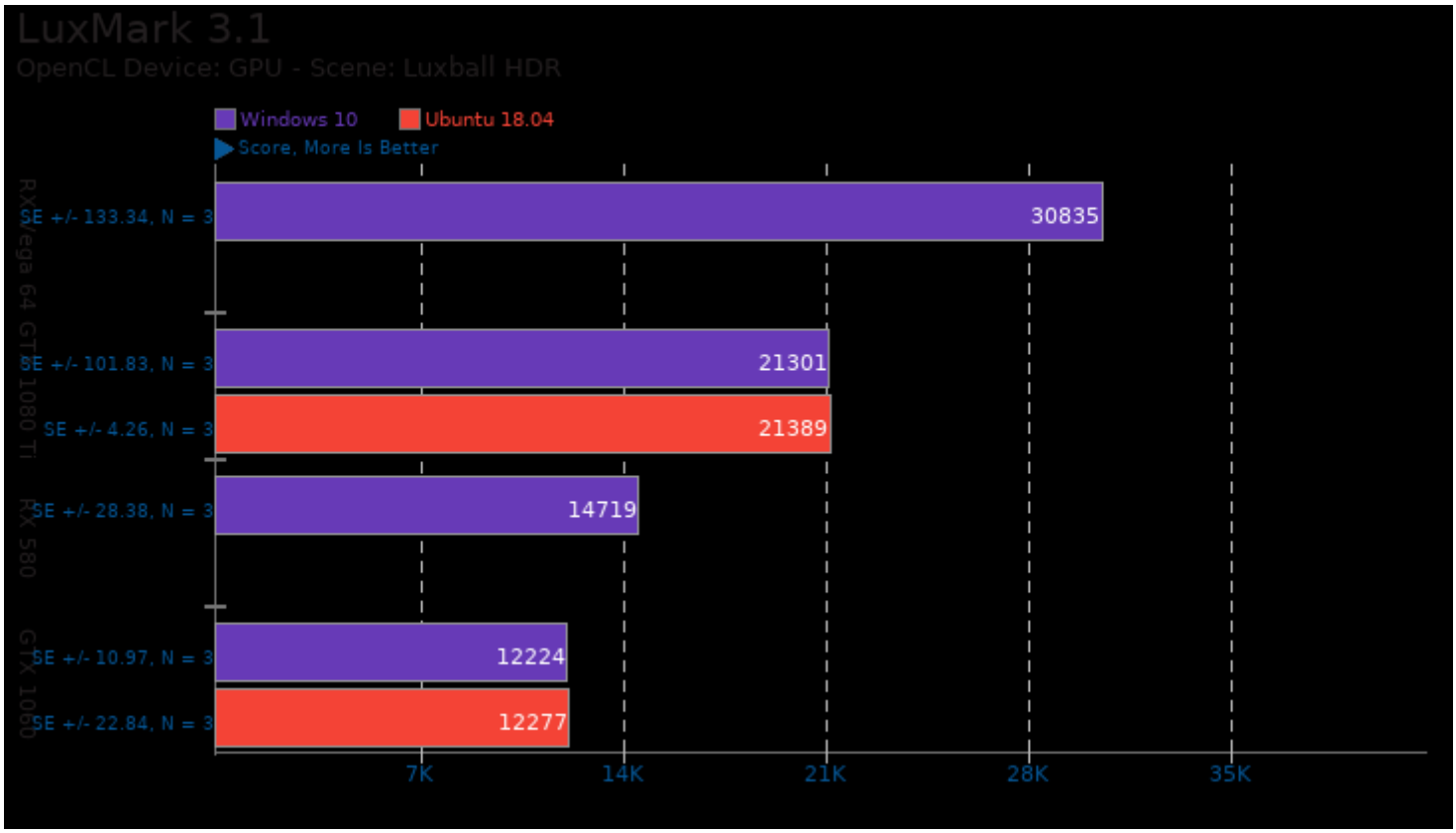

X-Plane 11
Quality: Very High GPU - Resolution: 1920 x 1080
Windows 10
Ubuntu 18.04
Frames Per Second, More Is Better
GTX 1080 Ti
GTX 1060
RX Vega 64
RX 580
33.91
27.18
33.78
24.54
19.64
28.14
18.12
27.61
8
16
24
32
40


Java 2D Microbenchmark 1.0
Rendering Test: Text Rendering
Ubuntu 18.04
Windows 10
Units Per Second, More Is Better
GTX 1060
GTX 1080 Ti
RX 580
RX Vega 64
SE +/- 141.53, N = 4
31755.33
SE +/- 66.16, N = 4
14944.14
SE +/- 146.36, N = 4
31741.99
SE +/- 134.81, N = 4
15326.02
SE +/- 16.73, N = 4
29817.84
SE +/- 100.54, N = 4
14033.62
SE +/- 182.28, N = 4
29470.15
SE +/- 827.37, N = 8
12967.79
7K
14K
21K
28K
35K

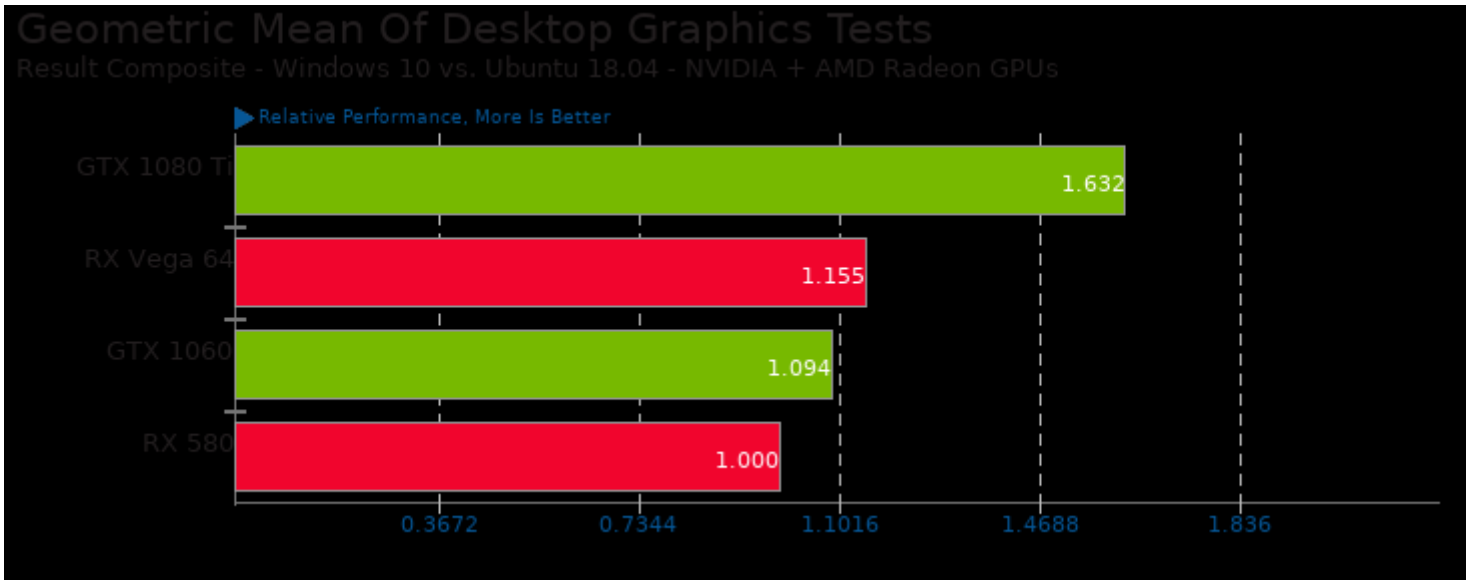

Java 2D Microbenchmark 1.0
Rendering Test: Image Rendering
Ubuntu 18.04
Windows 10
Units Per Second, More Is Better
GTX 1080 Ti
GTX 1060
RX Vega 64
RX 580
SE +/- 101591.97, N = 4
24752999.43
SE +/- 4104.94, N = 4
14029757.17
SE +/- 5435.57, N = 4
15693618.79
SE +/- 7946.51, N = 4
7125702.04
SE +/- 112373.62, N = 4
11541403.03
SE +/- 1146417.06, N = 8
5631670.41
SE +/- 7339.13, N = 4
10927525.66
SE +/- 7766.16, N = 4
5457679.37
5M
10M
15M
20M
25M


Java 2D Microbenchmark 1.0
Rendering Test: Vector Graphics Rendering
Ubuntu 18.04
Windows 10
Units Per Second, More Is Better
GTX 1080 Ti
RX Vega 64
GTX 1060
RX 580
SE +/- 25119.20, N = 4
12284237.99
SE +/- 14116.13, N = 4
5953245.85
SE +/- 12036.56, N = 4
8018662.28
SE +/- 418404.22, N = 8
3249082.58
SE +/- 2299.10, N = 4
6670959.23
SE +/- 1335.91, N = 4
3134650.55
SE +/- 7311.86, N = 4
4524326.37
SE +/- 315269.17, N = 8
1395138.16
3M
6M
9M
12M
15M
FAHBench 2.3.2
Ubuntu 18.04
Windows 10
Ns Per Day, More Is Better
GTX 1080 Ti
GTX 1060
RX Vega 64
RX 580
SE +/- 0.02, N = 3
186.91
SE +/- 0.23, N = 3
115.59
SE +/- 0.03, N = 3
99.61
SE +/- 0.02, N = 3
74.80
SE +/- 1.21, N = 6
69.70
SE +/- 0.03, N = 3
59.95
40
80
120
160
200

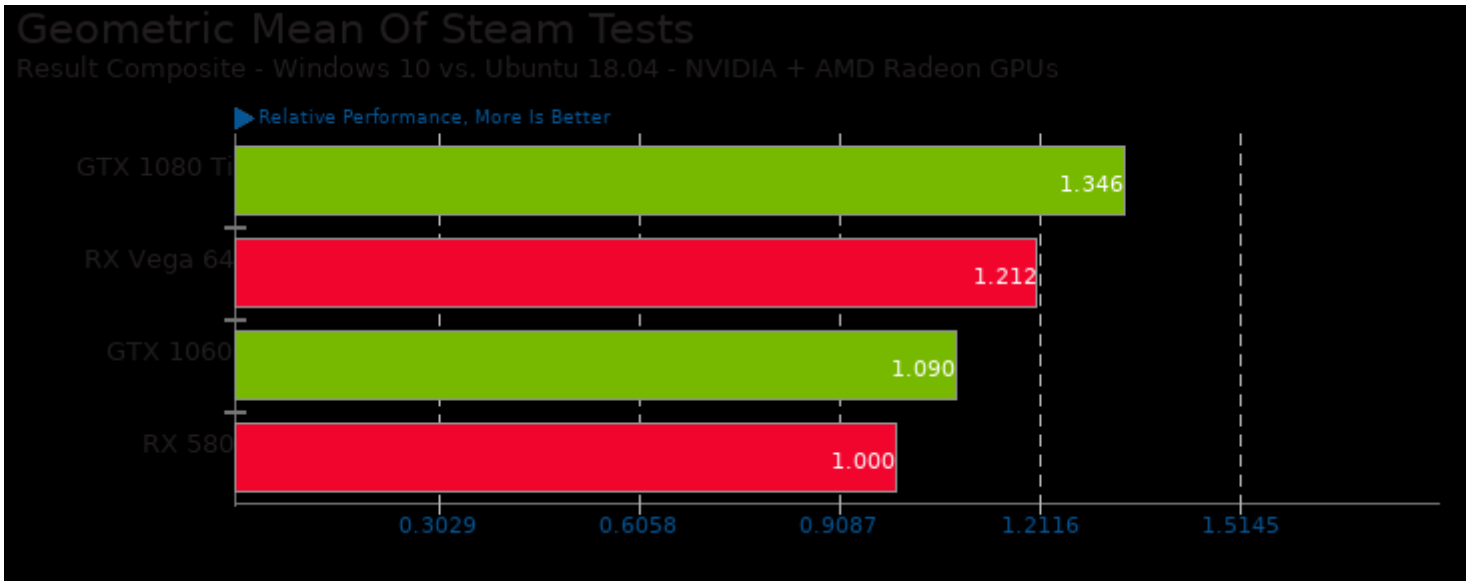

LuxMark 3.1
OpenCL Device: GPU - Scene: Hotel
Windows 10
Ubuntu 18.04
Score, More Is Better
RX Vega 64
GTX 1080 Ti
RX 580
GTX 1060
SE +/- 12.34, N = 3
5991
SE +/- 18.52, N = 3
5720
SE +/- 19.86, N = 3
5713
SE +/- 6.69, N = 3
2897
SE +/- 1.76, N = 3
2625
SE +/- 0.33, N = 3
2642
1300
2600
3900
5200
6500
LuxMark 3.1
OpenCL Device: GPU - Scene: Microphone
Windows 10
Ubuntu 18.04
Score, More Is Better
RX Vega 64
GTX 1080 Ti
RX 580
GTX 1060
20682
SE +/- 15.63, N = 3
13558
SE +/- 12.25, N = 3
13673
SE +/- 14.97, N = 3
9792
SE +/- 4.16, N = 3
7016
SE +/- 3.84, N = 3
6979
4K
8K
12K
16K
20K


LuxMark 3.1
OpenCL Device: GPU - Scene: Luxball HDR
Windows 10
Ubuntu 18.04
Score, More Is Better
RX Vega 64
GTX 1080 Ti
RX 580
GTX 1060
SE +/- 133.34, N = 3
30835
SE +/- 101.83, N = 3
21301
SE +/- 4.26, N = 3
21389
SE +/- 28.38, N = 3
14719
SE +/- 10.97, N = 3
12224
SE +/- 22.84, N = 3
12277
7K
14K
21K
28K
35K

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



Geometric mean based upon tests: pts/xonotic, pts/openarena and pts/unigine-heaven



Geometric mean based upon tests: pts/dota2, pts/portal and pts/xplane11

This file was automatically generated via the Phoronix Test Suite benchmarking software on Thursday, 28 March 2024 22:11.