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1080p AMD NVIDIA Linux Comparison

Large AMD Radeon and NVIDIA GeForce Linux perf comparison with perf per watt and perf per dollar value. Benchmarks by Michael Larabel for a future article on Phoronix.

Automated Executive Summary

GeForce GTX TITAN X had the most wins, coming in first place for 50% of the tests.

Based on the geometric mean of all complete results, the fastest (GeForce GTX TITAN X) was 2.146x the speed of the slowest (Radeon R7 370). GeForce GTX 980 Ti was 0.989x the speed of GeForce GTX TITAN X, GeForce GTX 980 was 0.983x the speed of GeForce GTX 980 Ti, GeForce GTX 970 was 0.974x the speed of GeForce GTX 980, GeForce GTX 960 was 0.845x the speed of GeForce GTX 970, GeForce GTX 950 was 0.914x the speed of GeForce GTX 960, Radeon R9 Fury was 0.837x the speed of GeForce GTX 950, Radeon R9 290 was 0.968x the speed of Radeon R9 Fury, Radeon R9 270X was 0.844x the speed of Radeon R9 290, Radeon R9 285 was 0.996x the speed of Radeon R9 270X, Radeon R7 370 was 0.935x the speed of Radeon R9 285.

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

Elemental Demo (Resolution: 1920 x 1080 - Total Frame Time) at 42.662x
Matinee Fight Scene Demo (Resolution: 1920 x 1080 - Total Frame Time) at 9.811x
Metro 2033 Redux (Performance / Cost - Phoronix Test Suite v6.0.0m1) at 7x
Team Fortress 2 (Performance / Cost - Resolution: 1920 x 1080) at 6.083x

Unigine Valley (System Power Consumption Monitor) at 5.945x
Metro: Last Light Redux (System Power Consumption Monitor) at 5.761x
Xonotic (Performance / Cost - Resolution: 1920 x 1080 - Effects Quality: Ultimate) at 5.5x
Elemental Demo (System Power Consumption Monitor) at 5.446x
Metro: Last Light Redux (Performance / Cost - Phoronix Test Suite v6.0.0m1) at 5.429x
Matinee Fight Scene Demo (System Power Consumption Monitor) at 5.015x.

Test Systems:

Radeon R9 270X

Processor: Intel Core i7-5960X @ 3.50GHz (16 Cores), Motherboard: Gigabyte X99-UD4-CF, Chipset: Intel Xeon E5 v3/Core, Memory: 16384MB, Disk: 240GB OCZ VERTEX3, Graphics: Supported device 6810 2048MB (1100/1400MHz), Audio: Intel C610/X99, Monitor: ASUS PB278, Network: Intel Connection

OS: Ubuntu 15.04, Kernel: 3.19.0-15-generic (x86_64), Desktop: Xfce 4.12, Display Server: X Server 1.17.1, Display Driver: fglrx 15.20.3, OpenGL: 4.4.13399, Compiler: GCC 4.9.2 + LLVM 3.8.0, File-System: ext4, Screen Resolution: 1920x1080

Environment Notes: LIBGL_DRIVERS_PATH=/usr/lib/i386-linux-gnu/dri:/usr/lib/x86_64-linux-gnu/dri
Compiler Notes: --build=x86_64-linux-gnu --disable-browser-plugin --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-gnu-unique-object --enable-gtk-cairo --enable-java-awt=gtk --enable-java-home --enable-languages=c,c++,java,go,d,fortran,objc,obj-c++ --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-arch-directory=amd64 --with-multilib-list=m32,m64,mx32 --with-tune=generic -v
Processor Notes: Scaling Governor: intel_pstate powersave

Radeon R9 285

Processor: Intel Core i7-5960X @ 3.50GHz (16 Cores), Motherboard: Gigabyte X99-UD4-CF, Chipset: Intel Xeon E5 v3/Core, Memory: 16384MB, Disk: 240GB OCZ VERTEX3, Graphics: Supported device 6939 2048MB (918/1375MHz), Audio: Intel C610/X99, Monitor: ASUS PB278, Network: Intel Connection

OS: Ubuntu 15.04, Kernel: 3.19.0-15-generic (x86_64), Desktop: Xfce 4.12, Display Server: X Server 1.17.1, Display Driver: fglrx 15.20.3, OpenGL: 4.4.13399, Compiler: GCC 4.9.2 + LLVM 3.8.0, File-System: ext4, Screen Resolution: 1920x1080

Environment Notes: LIBGL_DRIVERS_PATH=/usr/lib/i386-linux-gnu/dri:/usr/lib/x86_64-linux-gnu/dri
Compiler Notes: --build=x86_64-linux-gnu --disable-browser-plugin --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-gnu-unique-object --enable-gtk-cairo --enable-java-awt=gtk --enable-java-home --enable-languages=c,c++,java,go,d,fortran,objc,obj-c++ --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-arch-directory=amd64 --with-multilib-list=m32,m64,mx32 --with-tune=generic -v
Processor Notes: Scaling Governor: intel_pstate powersave

Radeon R9 290

Processor: Intel Core i7-5960X @ 3.50GHz (16 Cores), Motherboard: Gigabyte X99-UD4-CF, Chipset: Intel Xeon E5 v3/Core, Memory: 16384MB, Disk: 240GB OCZ VERTEX3, Graphics: Supported device 67B1 4096MB (947/1250MHz), Audio: Intel C610/X99, Monitor: ASUS PB278, Network: Intel Connection

OS: Ubuntu 15.04, Kernel: 3.19.0-15-generic (x86_64), Desktop: Xfce 4.12, Display Server: X Server 1.17.1, Display Driver: fglrx 15.20.3, OpenGL: 4.4.13399, Compiler: GCC 4.9.2 + LLVM 3.8.0, File-System: ext4, Screen Resolution: 1920x1080

Environment Notes: LIBGL_DRIVERS_PATH=/usr/lib/i386-linux-gnu/dri:/usr/lib/x86_64-linux-gnu/dri
Compiler Notes: --build=x86_64-linux-gnu --disable-browser-plugin --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-gnu-unique-object --enable-gtk-cairo --enable-java-awt=gtk --enable-java-home --enable-languages=c,c++,java,go,d,fortran,objc,obj-c++ --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-arch-directory=amd64 --with-multilib-list=m32,m64,mx32 --with-tune=generic -v
Processor Notes: Scaling Governor: intel_pstate powersave

Radeon R7 370

Processor: Intel Core i7-5960X @ 3.50GHz (16 Cores), Motherboard: Gigabyte X99-UD4-CF, Chipset: Intel Xeon E5 v3/Core, Memory: 16384MB, Disk: 240GB OCZ VERTEX3, Graphics: MSI AMD Radeon R7 370 4096MB (1030/1400MHz), Audio: Intel C610/X99, Monitor: ASUS PB278, Network: Intel Connection

OS: Ubuntu 15.04, Kernel: 3.19.0-15-generic (x86_64), Desktop: Xfce 4.12, Display Server: X Server 1.17.1, Display Driver: fglrx 15.20.3, OpenGL: 4.4.13399, Compiler: GCC 4.9.2 + LLVM 3.8.0, File-System: ext4, Screen Resolution: 1920x1080

Environment Notes: LIBGL_DRIVERS_PATH=/usr/lib/i386-linux-gnu/dri:/usr/lib/x86_64-linux-gnu/dri
Compiler Notes: --build=x86_64-linux-gnu --disable-browser-plugin --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-gnu-unique-object --enable-gtk-cairo --enable-java-awt=gtk --enable-java-home --enable-languages=c,c++,java,go,d,fortran,objc,obj-c++ --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-arch-directory=amd64 --with-multilib-list=m32,m64,mx32 --with-tune=generic -v
Processor Notes: Scaling Governor: intel_pstate powersave

Radeon R9 Fury

Processor: Intel Core i7-5960X @ 3.50GHz (16 Cores), Motherboard: Gigabyte X99-UD4-CF, Chipset: Intel Xeon E5 v3/Core, Memory: 16384MB, Disk: 240GB OCZ VERTEX3, Graphics: Sapphire AMD Radeon R9 Fury 4096MB (1000/500MHz), Audio: Intel C610/X99, Monitor: ASUS PB278, Network: Intel Connection

OS: Ubuntu 15.04, Kernel: 3.19.0-15-generic (x86_64), Desktop: Xfce 4.12, Display Server: X Server 1.17.1, Display Driver: fglrx 15.20.3, OpenGL: 4.4.13399, Compiler: GCC 4.9.2 + LLVM 3.8.0, File-System: ext4, Screen Resolution: 1920x1080

Environment Notes: LIBGL_DRIVERS_PATH=/usr/lib/i386-linux-gnu/dri:/usr/lib/x86_64-linux-gnu/dri
Compiler Notes: --build=x86_64-linux-gnu --disable-browser-plugin --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-gnu-unique-object --enable-gtk-cairo --enable-java-awt=gtk --enable-java-home --enable-languages=c,c++,java,go,d,fortran,objc,obj-c++ --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-arch-directory=amd64 --with-multilib-list=m32,m64,mx32 --with-tune=generic -v
Processor Notes: Scaling Governor: intel_pstate powersave

GeForce GTX 950

Processor: Intel Core i7-5960X @ 3.50GHz (16 Cores), Motherboard: Gigabyte X99-UD4-CF, Chipset: Intel Xeon E5 v3/Core, Memory: 16384MB, Disk: 240GB OCZ VERTEX3, Graphics: eVGA NVIDIA GeForce GTX 950 2048MB (1201/3304MHz), Audio: Intel C610/X99, Network: Intel Connection

OS: Ubuntu 15.04, Kernel: 3.19.0-15-generic (x86_64), Desktop: Xfce 4.12, Display Server: X Server 1.17.1, Display Driver: NVIDIA 355.11, OpenGL: 4.4.0, Compiler: GCC 4.9.2 + LLVM 3.8.0, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=x86_64-linux-gnu --disable-browser-plugin --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu

--enable-gnu-unique-object --enable-gtk-cairo --enable-java-awt=gtk --enable-java-home --enable-languages=c,c++,java,go,d,fortran,objc,obj-c++ --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-arch-directory=amd64 --with-multilib-list=m32,m64,mx32 --with-tune=generic -v
Processor Notes: Scaling Governor: intel_pstate powersave

GeForce GTX 960

Processor: Intel Core i7-5960X @ 3.50GHz (16 Cores), Motherboard: Gigabyte X99-UD4-CF, Chipset: Intel Xeon E5 v3/Core, Memory: 16384MB, Disk: 240GB OCZ VERTEX3, Graphics: eVGA NVIDIA GeForce GTX 960 2048MB (1277/3505MHz), Audio: Intel C610/X99, Network: Intel Connection

OS: Ubuntu 15.04, Kernel: 3.19.0-15-generic (x86_64), Desktop: Xfce 4.12, Display Server: X Server 1.17.1, Display Driver: NVIDIA 355.11, OpenGL: 4.4.0, Compiler: GCC 4.9.2 + LLVM 3.8.0, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=x86_64-linux-gnu --disable-browser-plugin --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-gnu-unique-object --enable-gtk-cairo --enable-java-awt=gtk --enable-java-home --enable-languages=c,c++,java,go,d,fortran,objc,obj-c++ --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-arch-directory=amd64 --with-multilib-list=m32,m64,mx32 --with-tune=generic -v
Processor Notes: Scaling Governor: intel_pstate powersave

GeForce GTX 970

Processor: Intel Core i7-5960X @ 3.50GHz (16 Cores), Motherboard: Gigabyte X99-UD4-CF, Chipset: Intel Xeon E5 v3/Core, Memory: 16384MB, Disk: 240GB OCZ VERTEX3, Graphics: eVGA NVIDIA GeForce GTX 970 4096MB (1163/3505MHz), Audio: Intel C610/X99, Network: Intel Connection

OS: Ubuntu 15.04, Kernel: 3.19.0-15-generic (x86_64), Desktop: Xfce 4.12, Display Server: X Server 1.17.1, Display Driver: NVIDIA 355.11, OpenGL: 4.4.0, Compiler: GCC 4.9.2 + LLVM 3.8.0, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=x86_64-linux-gnu --disable-browser-plugin --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-gnu-unique-object --enable-gtk-cairo --enable-java-awt=gtk --enable-java-home --enable-languages=c,c++,java,go,d,fortran,objc,obj-c++ --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-arch-directory=amd64 --with-multilib-list=m32,m64,mx32 --with-tune=generic -v
Processor Notes: Scaling Governor: intel_pstate powersave

GeForce GTX 980

Processor: Intel Core i7-5960X @ 3.50GHz (16 Cores), Motherboard: Gigabyte X99-UD4-CF, Chipset: Intel Xeon E5 v3/Core, Memory: 16384MB, Disk: 240GB OCZ VERTEX3, Graphics: NVIDIA GeForce GTX 980 4096MB (1126/3505MHz), Audio: Intel C610/X99, Network: Intel Connection

OS: Ubuntu 15.04, Kernel: 3.19.0-15-generic (x86_64), Desktop: Xfce 4.12, Display Server: X Server 1.17.1, Display Driver: NVIDIA 355.11, OpenGL: 4.4.0, Compiler: GCC 4.9.2 + LLVM 3.8.0, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=x86_64-linux-gnu --disable-browser-plugin --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-gnu-unique-object --enable-gtk-cairo --enable-java-awt=gtk --enable-java-home --enable-languages=c,c++,java,go,d,fortran,objc,obj-c++ --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-arch-directory=amd64 --with-multilib-list=m32,m64,mx32 --with-tune=generic -v
Processor Notes: Scaling Governor: intel_pstate powersave

GeForce GTX 980 Ti

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Processor: Intel Core i7-5960X @ 3.50GHz (16 Cores), Motherboard: Gigabyte X99-UD4-CF, Chipset: Intel Xeon E5 v3/Core, Memory: 16384MB, Disk: 240GB OCZ VERTEX3, Graphics: NVIDIA GeForce GTX 980 Ti 6144MB (999/3505MHz), Audio: Intel C610/X99, Network: Intel Connection

OS: Ubuntu 15.04, Kernel: 3.19.0-15-generic (x86_64), Desktop: Xfce 4.12, Display Server: X Server 1.17.1, Display Driver: NVIDIA 355.11, OpenGL: 4.4.0, Compiler: GCC 4.9.2 + LLVM 3.8.0, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=x86_64-linux-gnu --disable-browser-plugin --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-gnu-unique-object --enable-gtk-cairo --enable-java-awt=gtk --enable-java-home --enable-languages=c,c++,java,go,d,fortran,objc,obj-c++ --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-arch-directory=amd64 --with-multilib-list=m32,m64,mx32 --with-tune=generic -v
Processor Notes: Scaling Governor: intel_pstate powersave

GeForce GTX TITAN X

Processor: Intel Core i7-5960X @ 3.50GHz (16 Cores), Motherboard: Gigabyte X99-UD4-CF, Chipset: Intel Xeon E5 v3/Core, Memory: 16384MB, Disk: 240GB OCZ VERTEX3, Graphics: NVIDIA GeForce GTX TITAN X 12288MB (1001/3505MHz), Audio: Intel C610/X99, Network: Intel Connection

OS: Ubuntu 15.04, Kernel: 3.19.0-15-generic (x86_64), Desktop: Xfce 4.12, Display Server: X Server 1.17.1, Display Driver: NVIDIA 355.11, OpenGL: 4.4.0, Compiler: GCC 4.9.2 + LLVM 3.8.0, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=x86_64-linux-gnu --disable-browser-plugin --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-gnu-unique-object --enable-gtk-cairo --enable-java-awt=gtk --enable-java-home --enable-languages=c,c++,java,go,d,fortran,objc,obj-c++ --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-arch-directory=amd64 --with-multilib-list=m32,m64,mx32 --with-tune=generic -v
Processor Notes: Scaling Governor: intel_pstate powersave

	Radeon R9 270X	Radeon R9 285	Radeon R9 290	Radeon R7 370	Radeon R9 Fury	GeForce GTX 950	GeForce GTX 960	GeForce GTX 970	GeForce GTX 980	GeForce GTX 980 Ti	GeForce GTX TITAN X
Counter-Strike: Global Offensive - 1920 x 1080 (FPS/Watt)	0.71	0.67	**0.64**	0.65	0.68	1.09	1.28	1.24	**1.33**	1.07	1.15
Normalized	53.38%	50.38%	48.12%	48.87%	51.13%	81.95%	96.24%	93.23%	100%	80.45%	86.47%
Counter-Strike: Global Offensive - 1920 x 1080 (FPS)	113.22	109.01	119.33	**102.45**	120.14	155.39	178.98	203.45	211.64	207.51	**213.29**
Normalized	53.08%	51.11%	55.95%	48.03%	56.33%	72.85%	83.91%	95.39%	99.23%	97.29%	100%
Standard Deviation	2.7%	1.6%	3.3%	1.6%	2.7%	0.1%	2.6%	6.3%	5.5%	2.1%	3.9%
Metro 2033 Redux - P.T.S.v.0.0 (FPS)	56.09	56.32	61.00	**54.72**	60.06	121.97	128.26	133.65	**135.90**	134.42	134.46
Normalized	41.27%	41.44%	44.89%	40.26%	44.19%	89.75%	94.38%	98.34%	100%	98.91%	98.94%
Standard Deviation	1.3%	0.6%	5.8%	3.7%	0.8%	0.1%	1.5%	0.9%	1.2%	0.6%	2.5%

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Metro: Last Light Redux - Performance / Cost - P.T.S.v.0.0 (FPS/Dollar)	0.36	0.26	0.30	0.33	**0.14**	**0.76**	0.67	0.47	0.31	0.23	0.15
Normalized	47.37%	34.21%	39.47%	43.42%	18.42%	100%	88.16%	61.84%	40.79%	30.26%	19.74%
Metro: Last Light Redux - P.T.S.v.0.0 (FPS)	61.49	63.58	75.53	**59.39**	76.62	121.19	133.27	154.00	**154.29**	152.30	150.19
Normalized	39.85%	41.21%	48.95%	38.49%	49.66%	78.55%	86.38%	99.81%	100%	98.71%	97.34%
Standard Deviation	1.7%	1.1%	0.4%	2%	2.7%	0.5%	0.3%	0.9%	0.9%	0.7%	1.9%
Metro 2033 Redux - Performance / Cost - P.T.S.v.0.0 (FPS/Dollar)	0.33	0.23	0.24	0.31	**0.11**	**0.77**	0.64	0.41	0.27	0.21	0.13
Normalized	42.86%	29.87%	31.17%	40.26%	14.29%	100%	83.12%	53.25%	35.06%	27.27%	16.88%
Elemental Demo - 1920 x 1080 (FPS)	28.53	28.93	40.65	**24.95**	42.98	39.77	44.61	60.14	**62.61**	62.27	61.96
Normalized	45.57%	46.21%	64.93%	39.85%	68.65%	63.52%	71.25%	96.05%	100%	99.46%	98.96%
Standard Deviation	0.1%	0.1%	1.5%	0.4%	3.1%	0.6%	0.5%	0.9%	0.3%	1.9%	0.3%
Matinee Fight Scene Demo - Performance / Cost - 1920 x 1080 (FPS/Dollar)	0.12	0.08	0.10	0.10	**0.04**	**0.17**	0.15	0.12	0.08	0.07	**0.04**
Normalized	70.59%	47.06%	58.82%	58.82%	23.53%	100%	88.24%	70.59%	47.06%	41.18%	23.53%
Metro 2033 Redux - P.T.S.v.0.0 (FPS/Watt)	0.34	0.33	**0.31**	0.37	0.34	0.75	**0.79**	0.75	0.74	0.63	0.61
Normalized	43.04%	41.77%	39.24%	46.84%	43.04%	94.94%	100%	94.94%	93.67%	79.75%	77.22%
Metro: Last Light Redux - P.T.S.v.0.0	0.30	**0.29**	**0.29**	0.32	0.34	0.61	0.63	**0.66**	0.65	0.57	0.54
Normalized	45.45%	43.94%	43.94%	48.48%	51.52%	92.42%	95.45%	100%	98.48%	86.36%	81.82%
Matinee Fight Scene Demo - 1920 x 1080 (FPS)	20.24	18.50	24.23	**18.08**	23.13	26.79	29.44	37.97	40.37	42.86	**44.52**
Normalized	45.46%	41.55%	54.42%	40.61%	51.95%	60.18%	66.13%	85.29%	90.68%	96.27%	100%
Standard Deviation	0.4%	0.8%	0.8%	0.4%	0.9%	1.1%	1%	0.6%	0.4%	2.1%	1%
Unigine Valley - 1920 x 1080 - Fullscreen (FPS)	45.83	51.67	74.66	**38.77**	94.82	53.05	61.00	86.61	91.54	104.18	**107.23**
Normalized	42.74%	48.19%	69.63%	36.16%	88.43%	49.47%	56.89%	80.77%	85.37%	97.16%	100%
Standard Deviation	0.1%	0.2%	0.1%	0.1%	0.1%	0%	0.1%	0%	0.5%	0.1%	0.6%
Xonotic - 1920 x 1080 - Ultimate (FPS)	118.27	**116.05**	119.21	118.34	119.04	192.96	210.39	229.18	230.34	229.45	**233.92**
Normalized	50.56%	49.61%	50.96%	50.59%	50.89%	82.49%	89.94%	97.97%	98.47%	98.09%	100%
Standard Deviation	1.1%	1.6%	4.8%	4.3%	4.1%	0.7%	0.8%	0.8%	0.4%	0.1%	1.3%

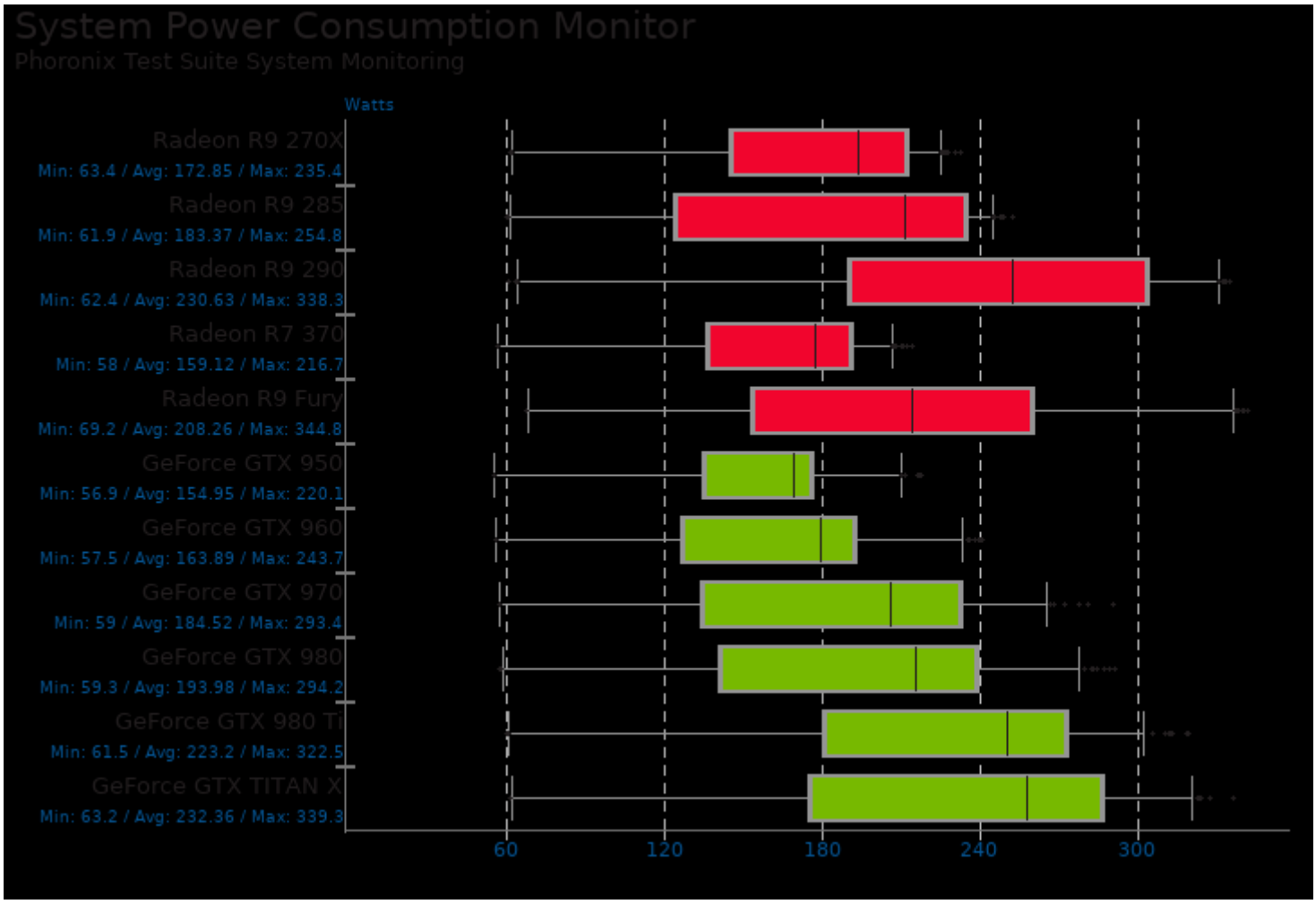
1080p AMD NVIDIA Linux Comparison

Team Fortress 2 - 1920 x 1080 (FPS)	114.32	108.14	112.77	115.14	113.33	116.35	116.14	120.97	119.79	120.25	119.64
Normalized	94.5%	89.39%	93.22%	95.18%	93.68%	96.18%	96.01%	100%	99.02%	99.4%	98.9%
Standard Deviation	5.7%	3%	5.9%	1.7%	1.3%	3.7%	3.3%	2.6%	3.7%	2.3%	1.2%
Counter-Strike: Global Offensive - Performance / Cost - 1920 x 1080 (FPS/Dollar)	0.67	0.45	0.48	0.57	0.22	0.98	0.90	0.62	0.42	0.32	0.21
Normalized	68.37%	45.92%	48.98%	58.16%	22.45%	100%	91.84%	63.27%	42.86%	32.65%	21.43%
Elemental Demo - Performance / Cost - 1920 x 1080 (FPS/Dollar)	0.17	0.12	0.16	0.14	0.08	0.25	0.22	0.18	0.13	0.10	0.06
Normalized	68%	48%	64%	56%	32%	100%	88%	72%	52%	40%	24%
Unigine Valley - Performance / Cost - 1920 x 1080 - Fullscreen (FPS/Dollar)	0.27	0.22	0.30	0.22	0.17	0.33	0.31	0.26	0.18	0.16	0.11
Normalized	81.82%	66.67%	90.91%	66.67%	51.52%	100%	93.94%	78.79%	54.55%	48.48%	33.33%
Xonotic - Performance / Cost - 1920 x 1080 - Ultimate (FPS/Dollar)	0.70	0.48	0.48	0.66	0.22	1.21	1.06	0.70	0.46	0.35	0.23
Normalized	57.85%	39.67%	39.67%	54.55%	18.18%	100%	87.6%	57.85%	38.02%	28.93%	19.01%
Team Fortress 2 - Performance / Cost - 1920 x 1080 (FPS/Dollar)	0.68	0.45	0.45	0.64	0.21	0.73	0.58	0.37	0.24	0.19	0.12
Normalized	93.15%	61.64%	61.64%	87.67%	28.77%	100%	79.45%	50.68%	32.88%	26.03%	16.44%
Elemental Demo - 1920 x 1080 (FPS/Watt)	0.16	0.15	0.16	0.15	0.19	0.27	0.27	0.32	0.29	0.27	0.25
Normalized	50%	46.88%	50%	46.88%	59.38%	84.38%	84.38%	100%	90.63%	84.38%	78.13%
Matinee Fight Scene Demo - 1920 x 1080 (FPS/Watt)	0.11	0.10	0.10	0.11	0.12	0.18	0.19	0.20	0.20	0.19	0.18
Normalized	55%	50%	50%	55%	60%	90%	95%	100%	100%	95%	90%
Unigine Valley - 1920 x 1080 - Fullscreen (FPS/Watt)	0.22	0.22	0.24	0.21	0.30	0.32	0.34	0.38	0.40	0.38	0.37
Normalized	55%	55%	60%	52.5%	75%	80%	85%	95%	100%	95%	92.5%

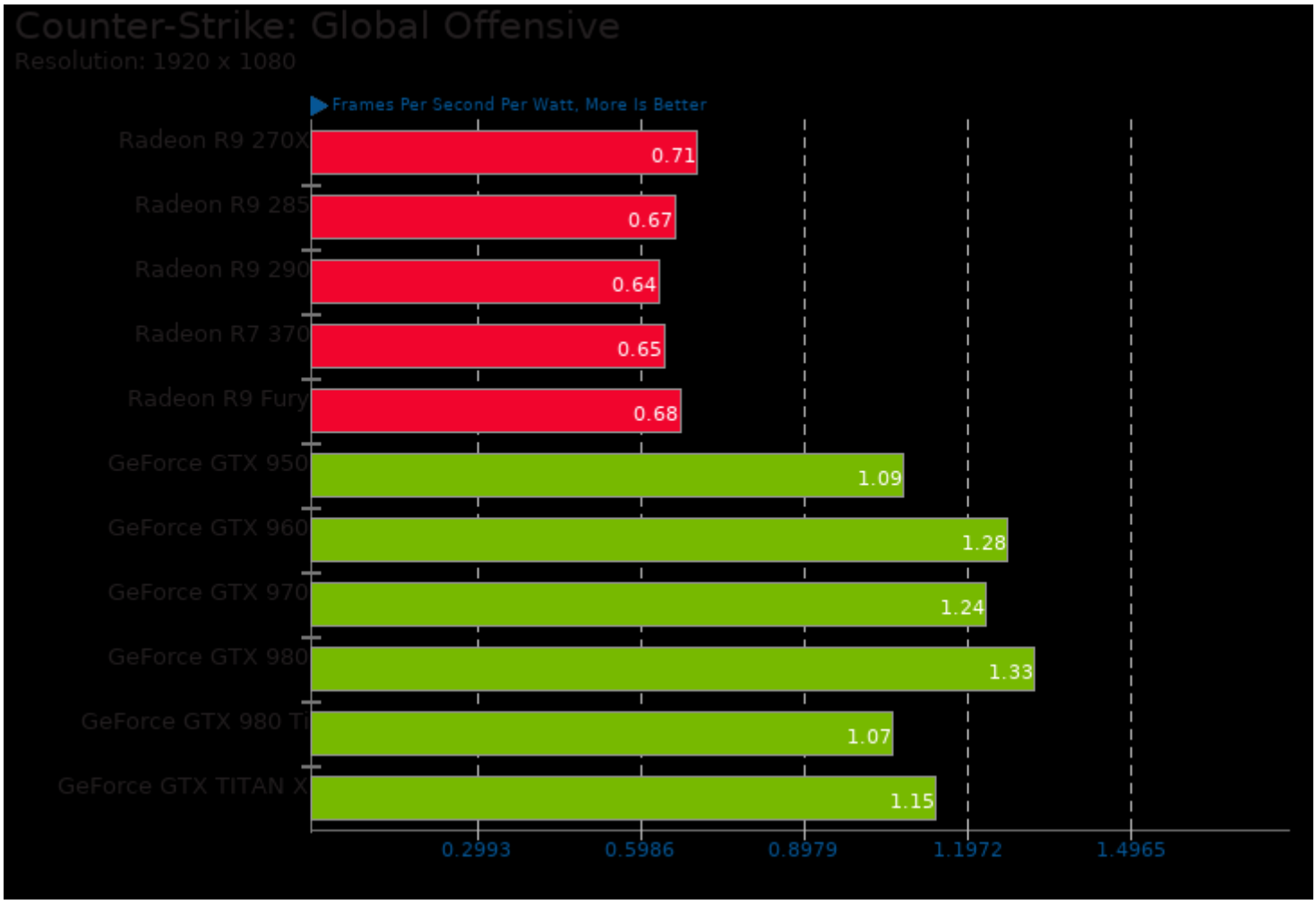
1080p AMD NVIDIA Linux Comparison

Xonotic - 1920 x 1080 - Ultimate (FPS/Watt)	0.79	0.73	**0.64**	0.85	0.73	1.36	**1.45**	1.41	1.34	1.26	1.18
Normalized	54.48%	50.34%	44.14%	58.62%	50.34%	93.79%	100%	97.24%	92.41%	86.9%	81.38%
Team Fortress 2 - 1920 x 1080 (FPS/Watt)	1.00	1.00	0.90	**1.09**	0.90	1.08	**1.09**	1.03	0.99	0.82	**0.78**
Normalized	91.74%	91.74%	82.57%	100%	82.57%	99.08%	100%	94.5%	90.83%	75.23%	71.56%

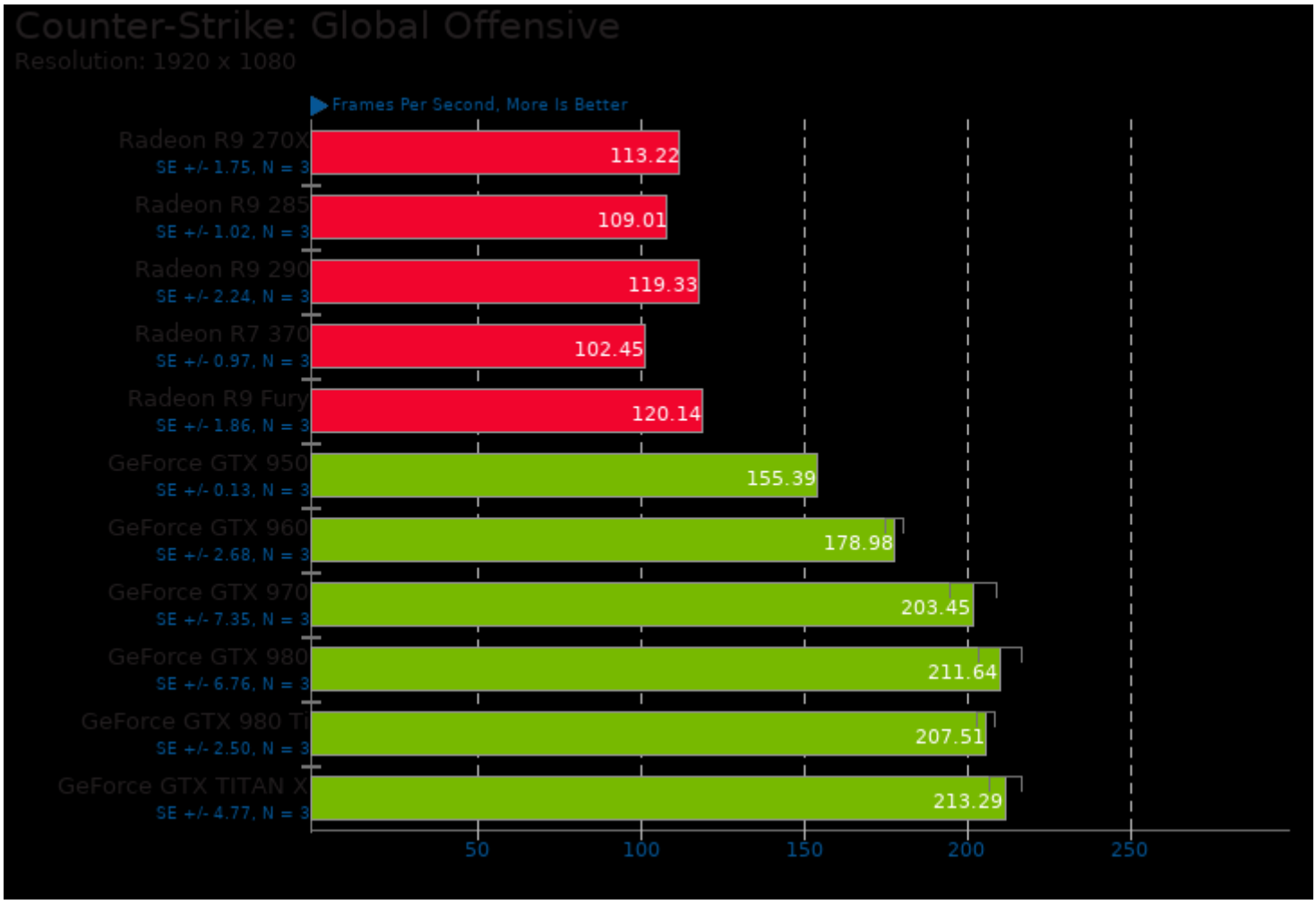
1080p AMD NVIDIA Linux Comparison



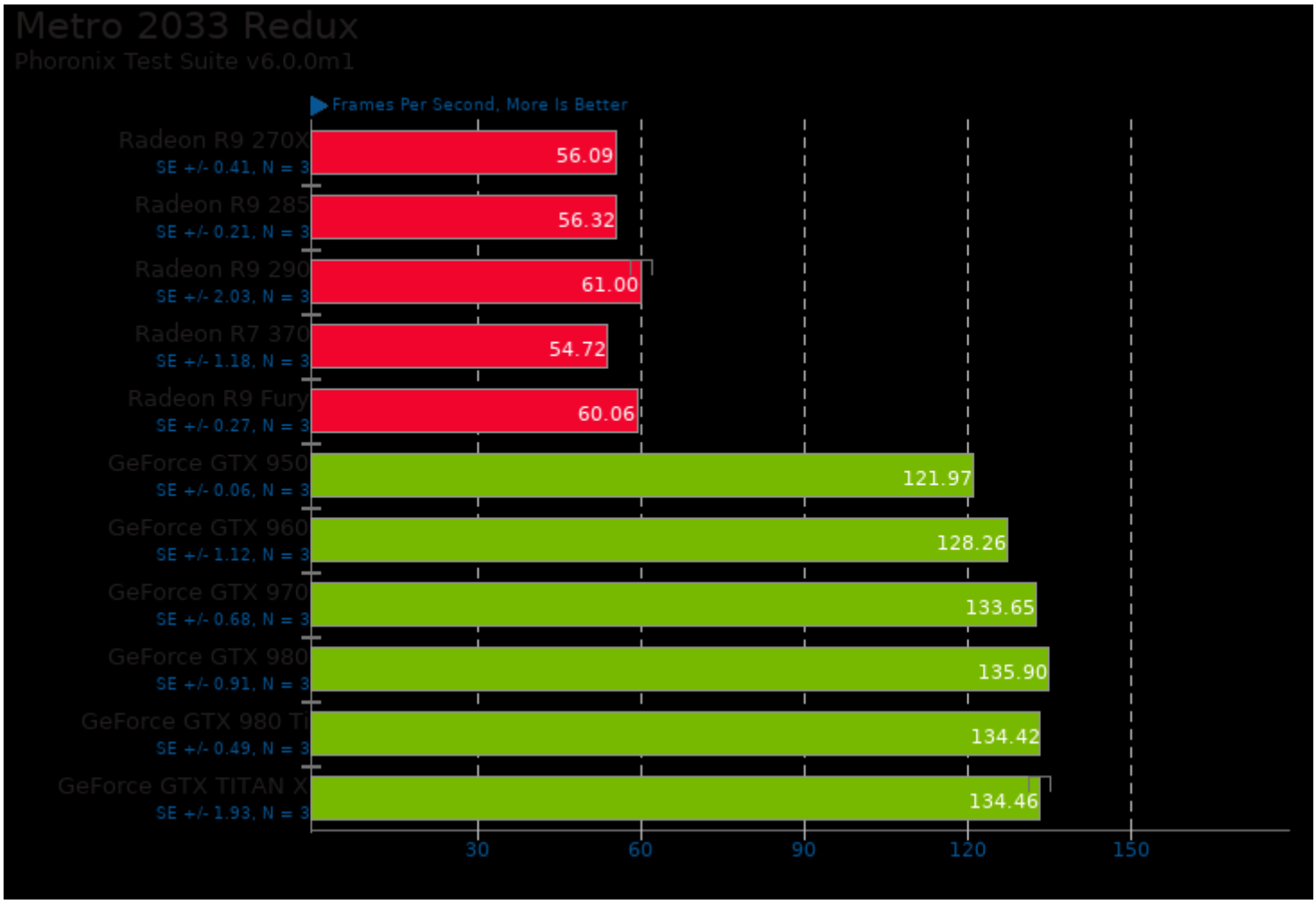
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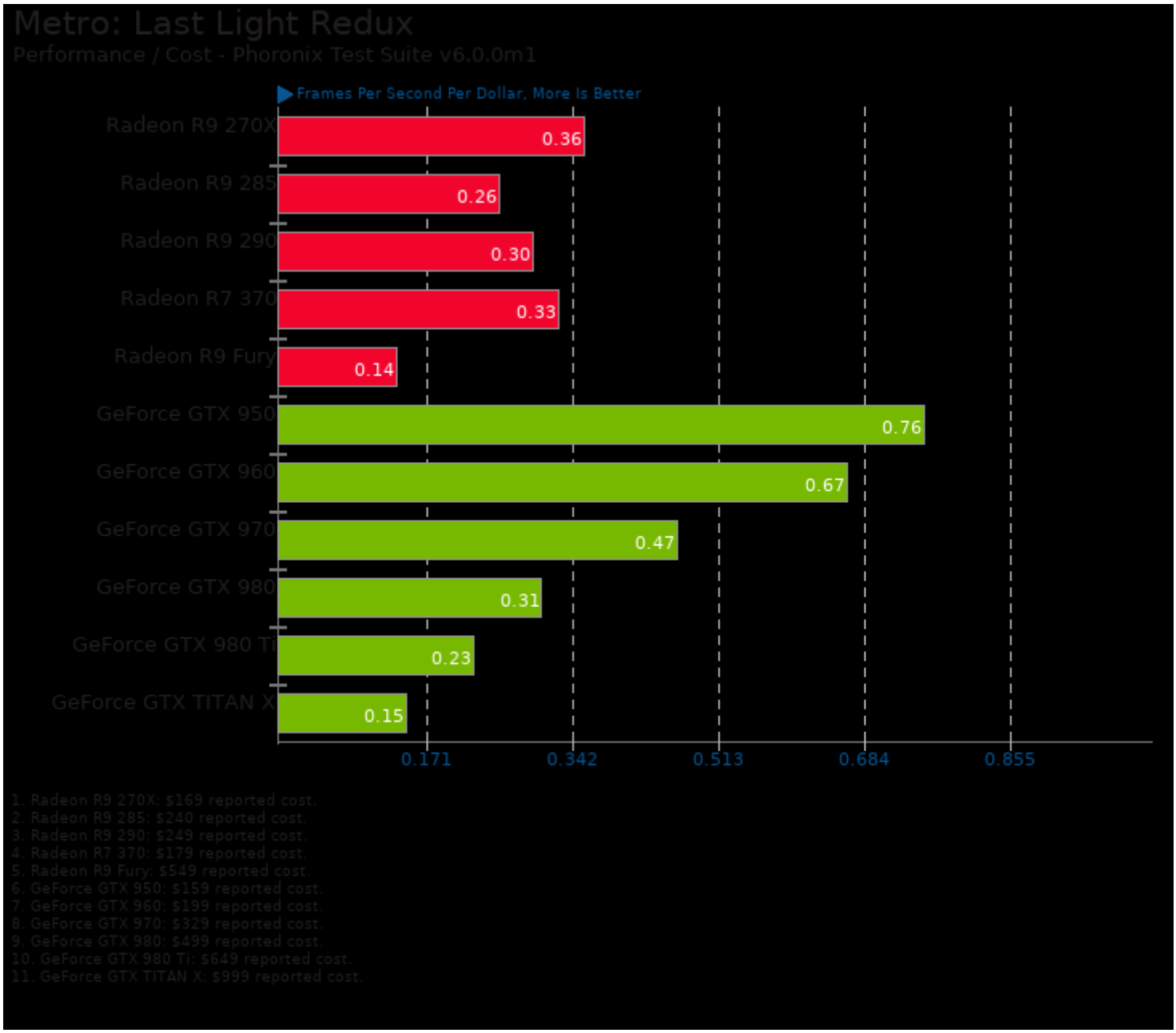
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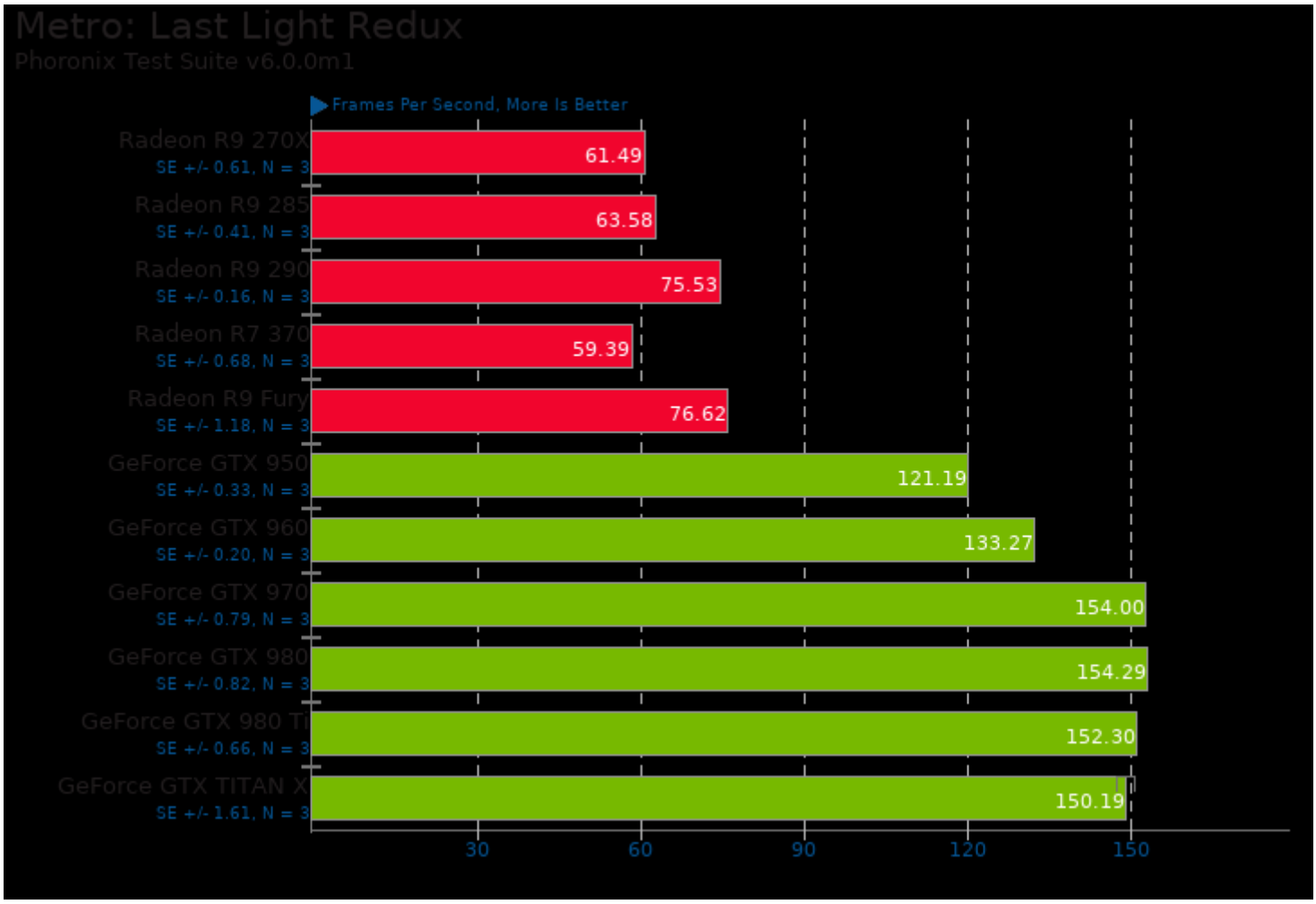
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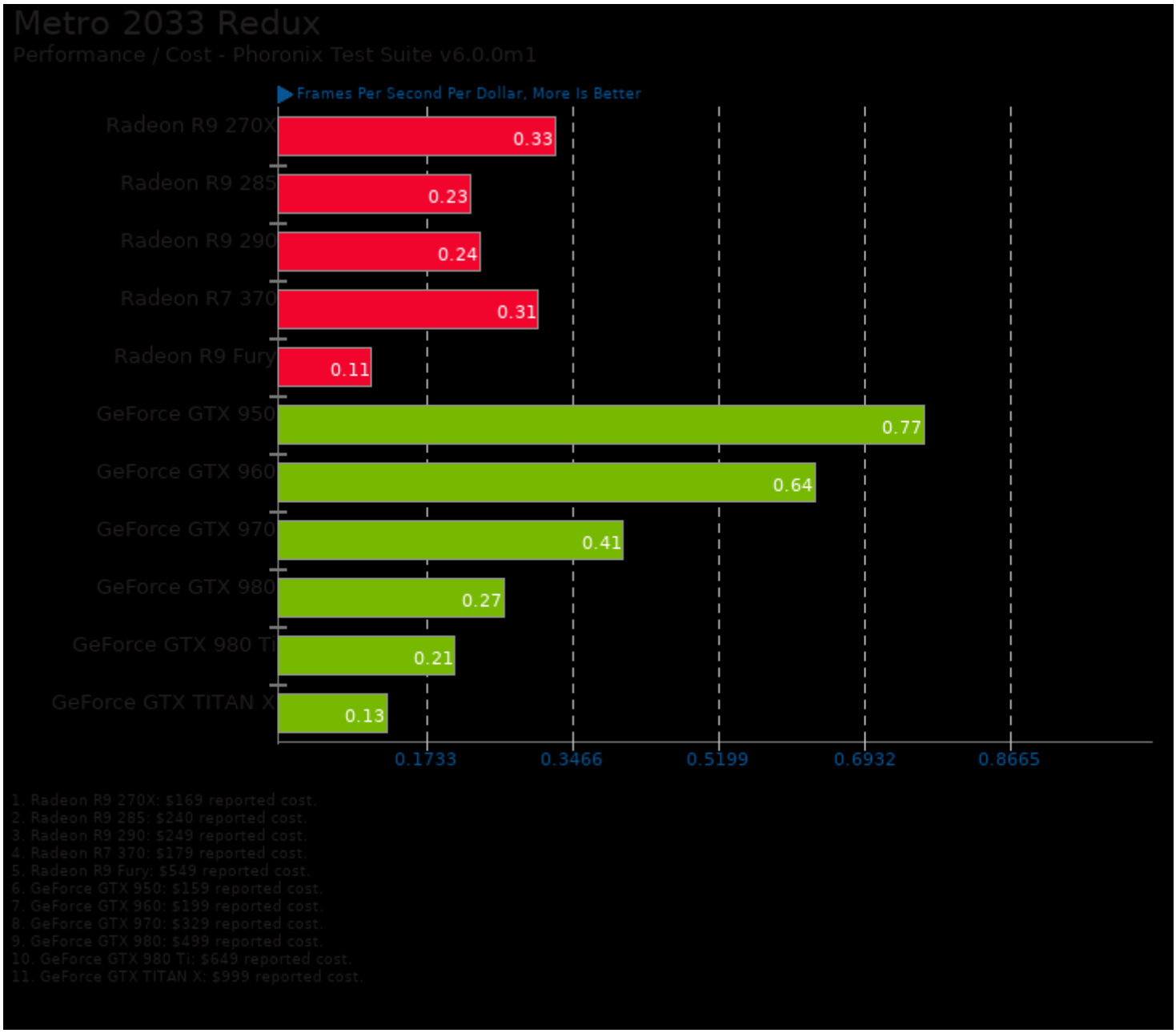
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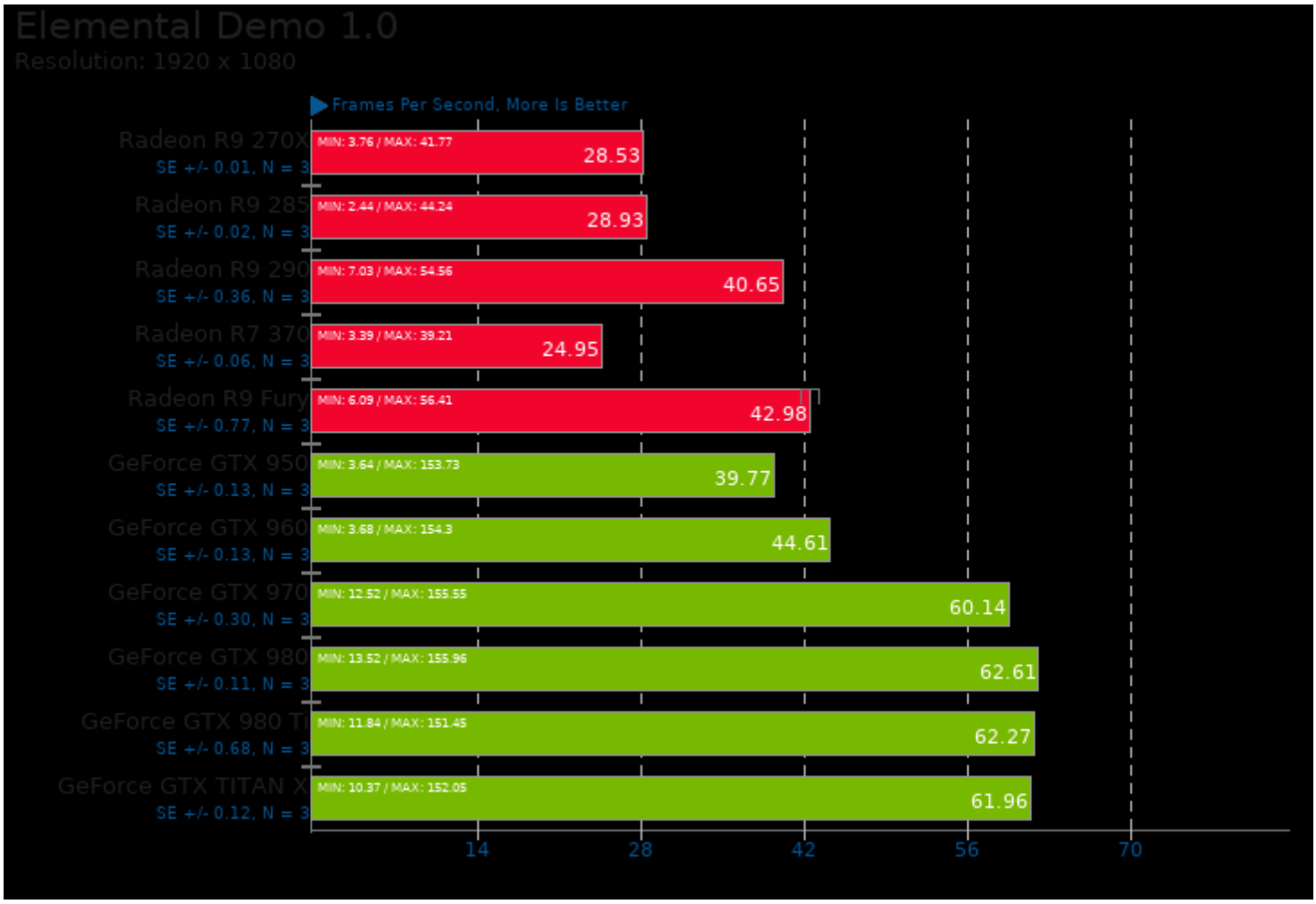
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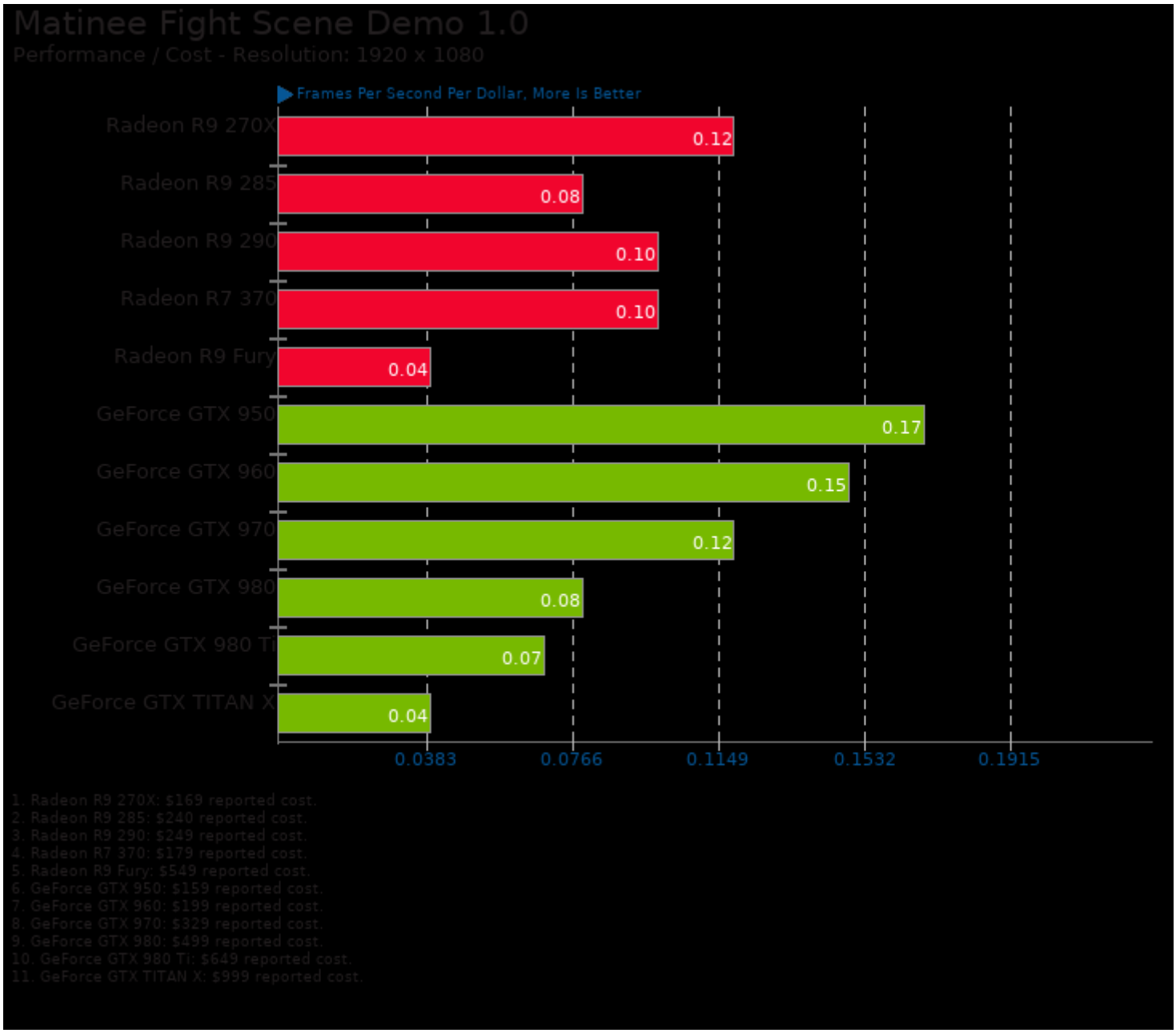
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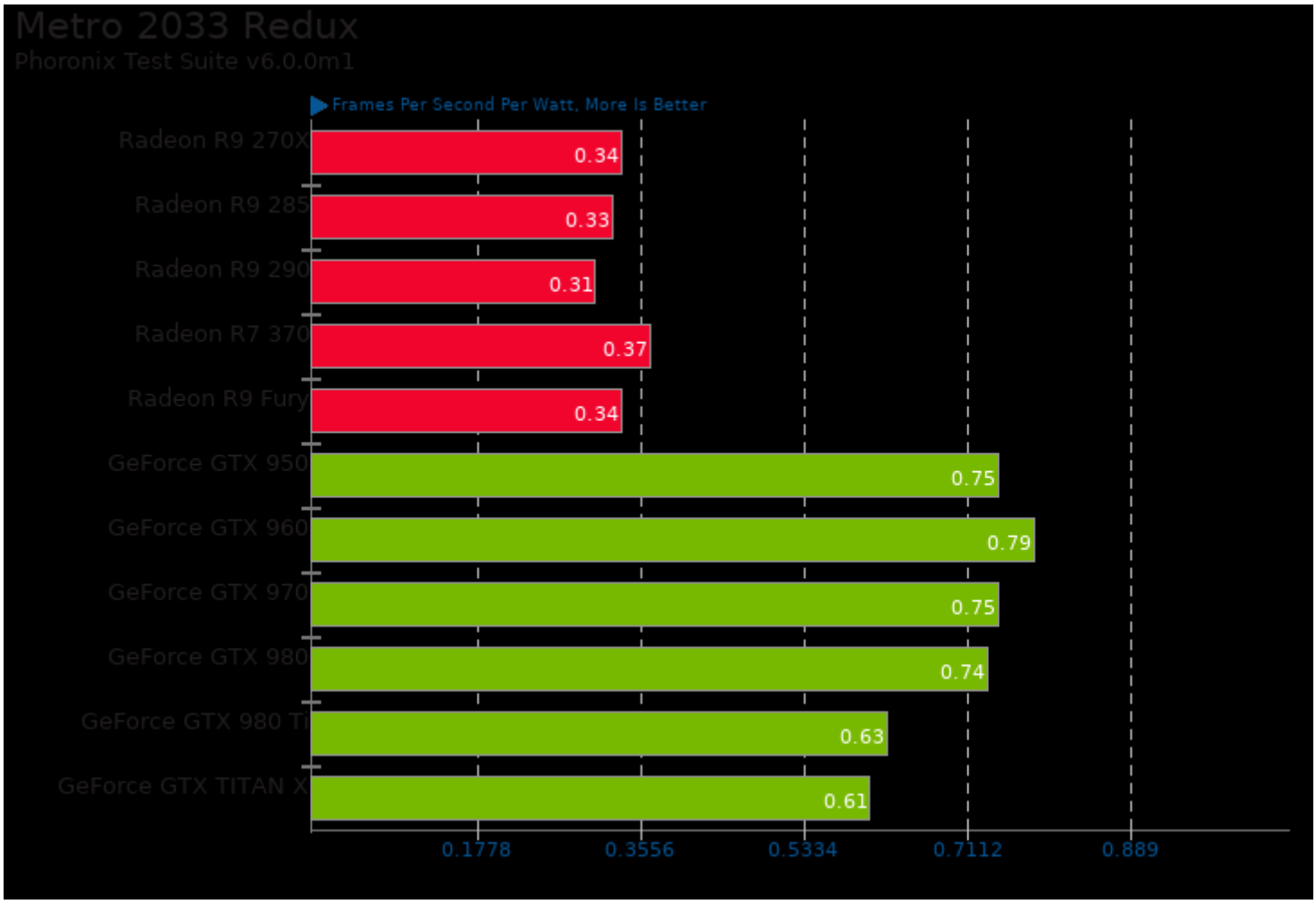
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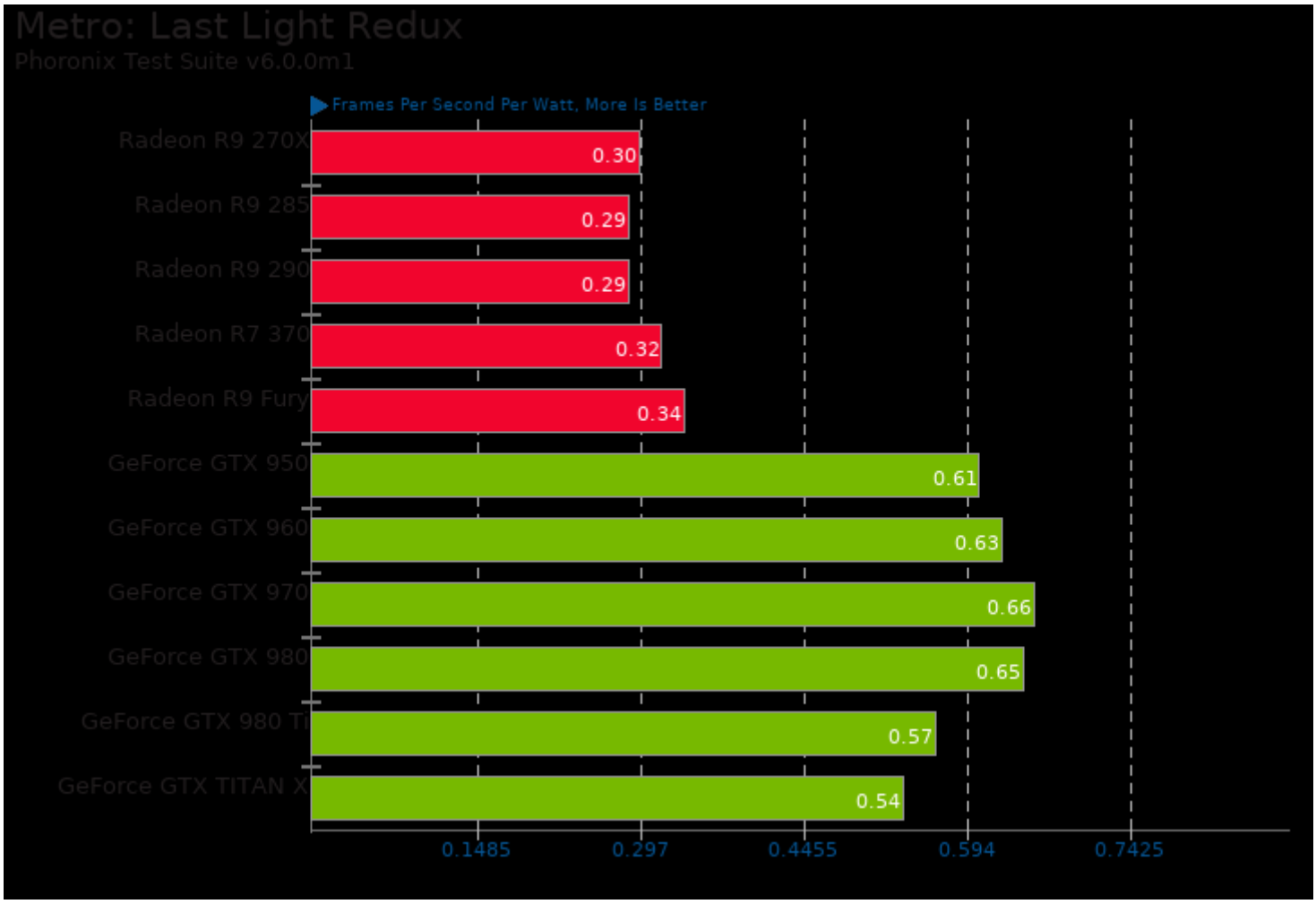
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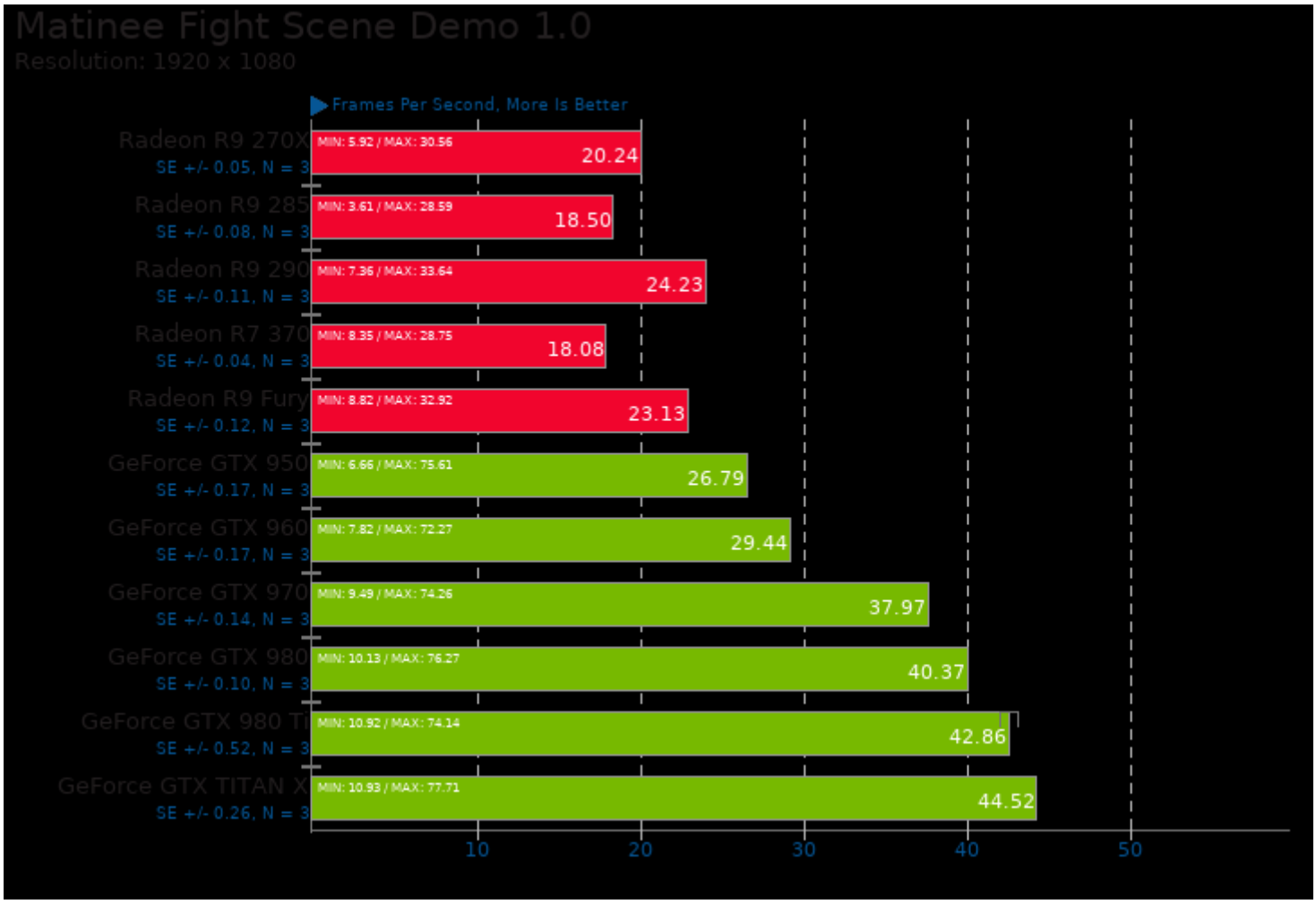
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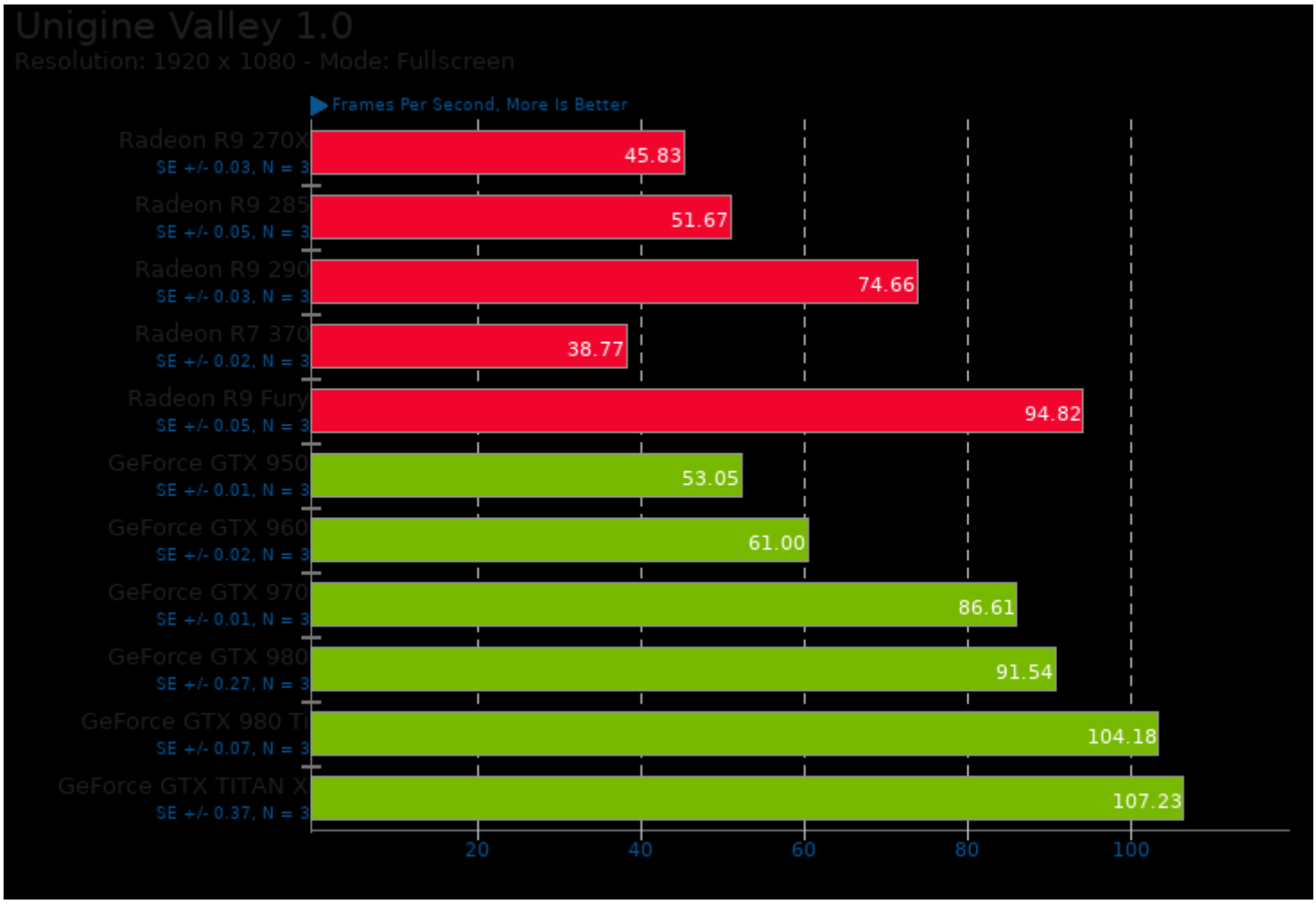
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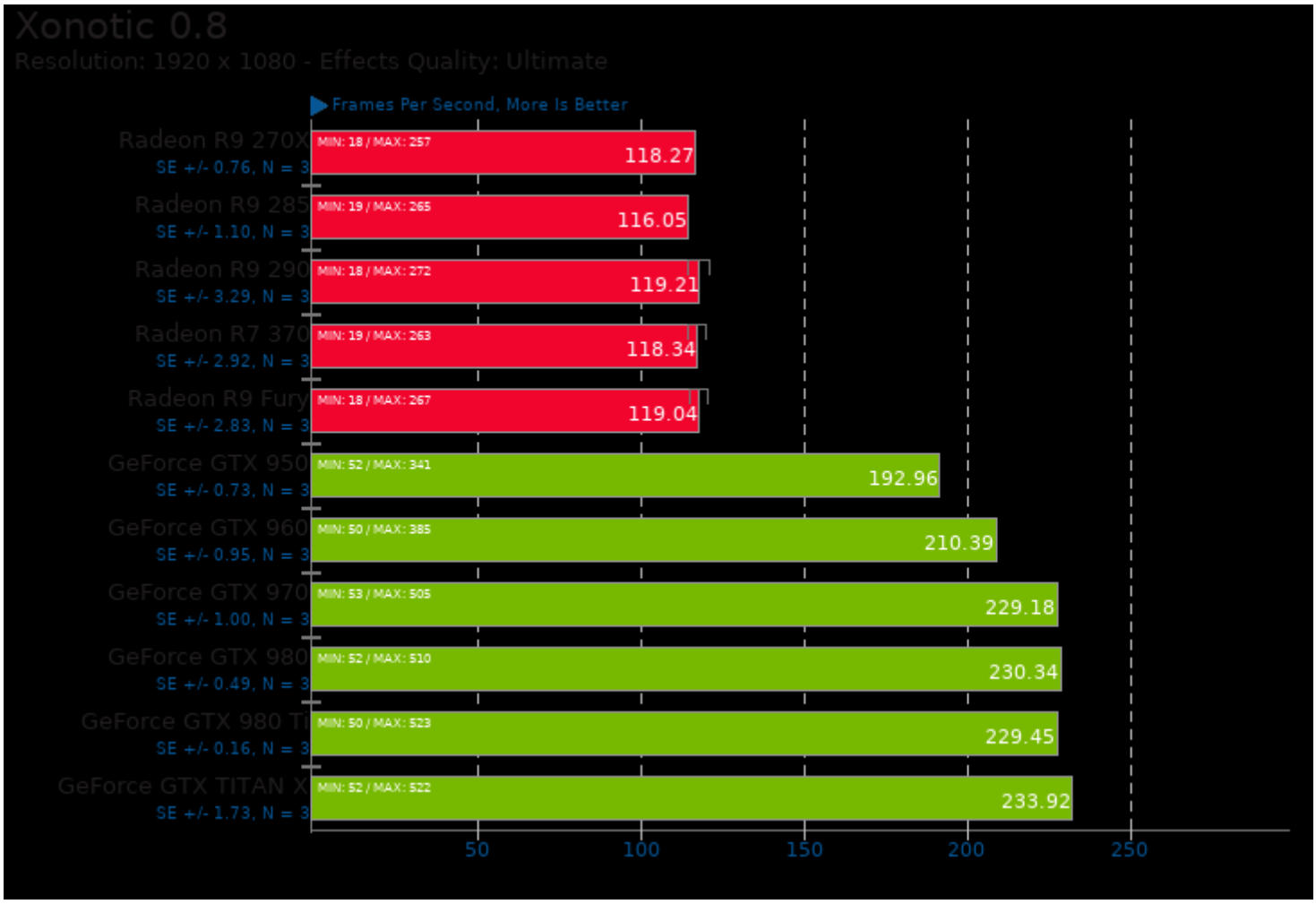
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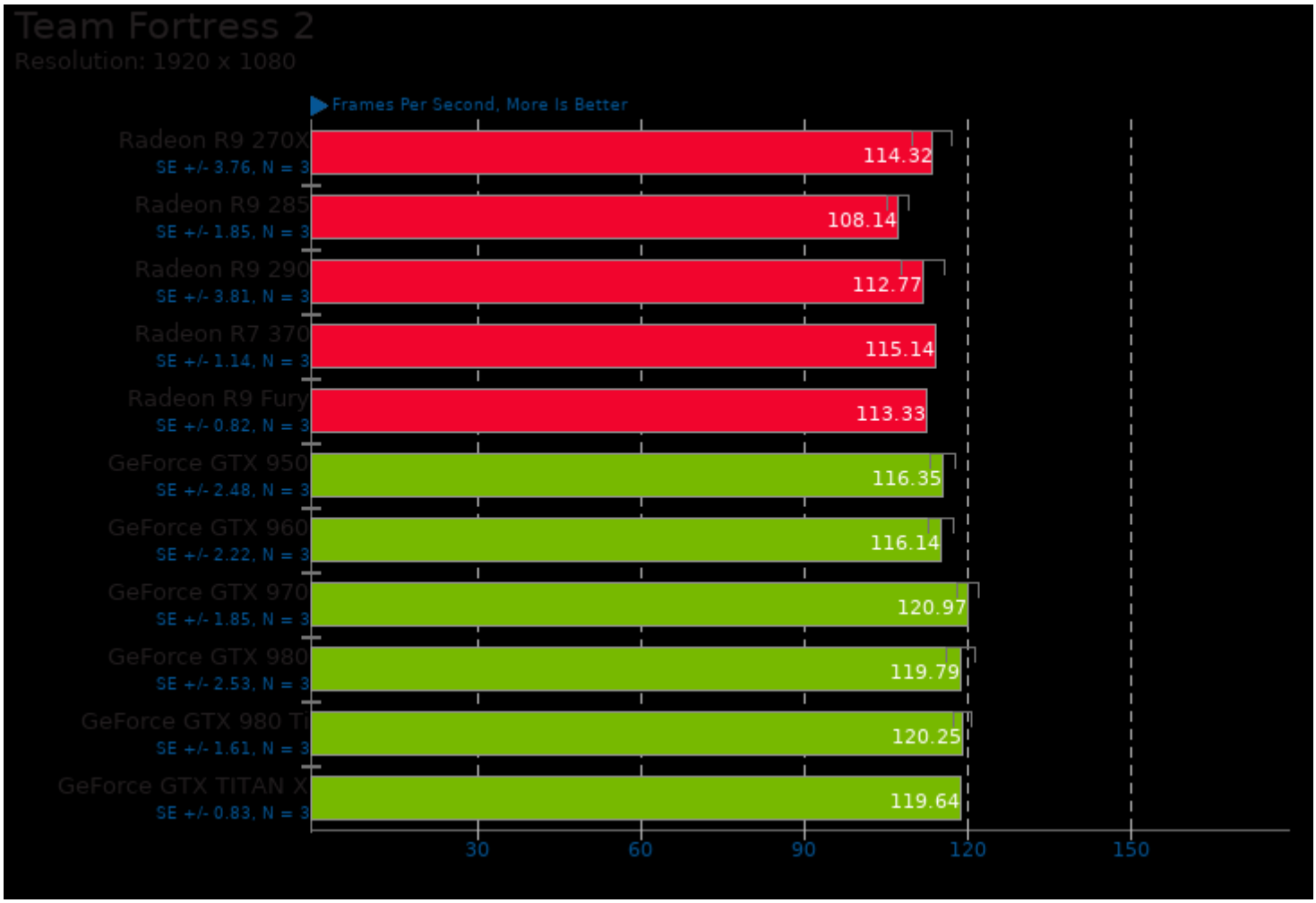
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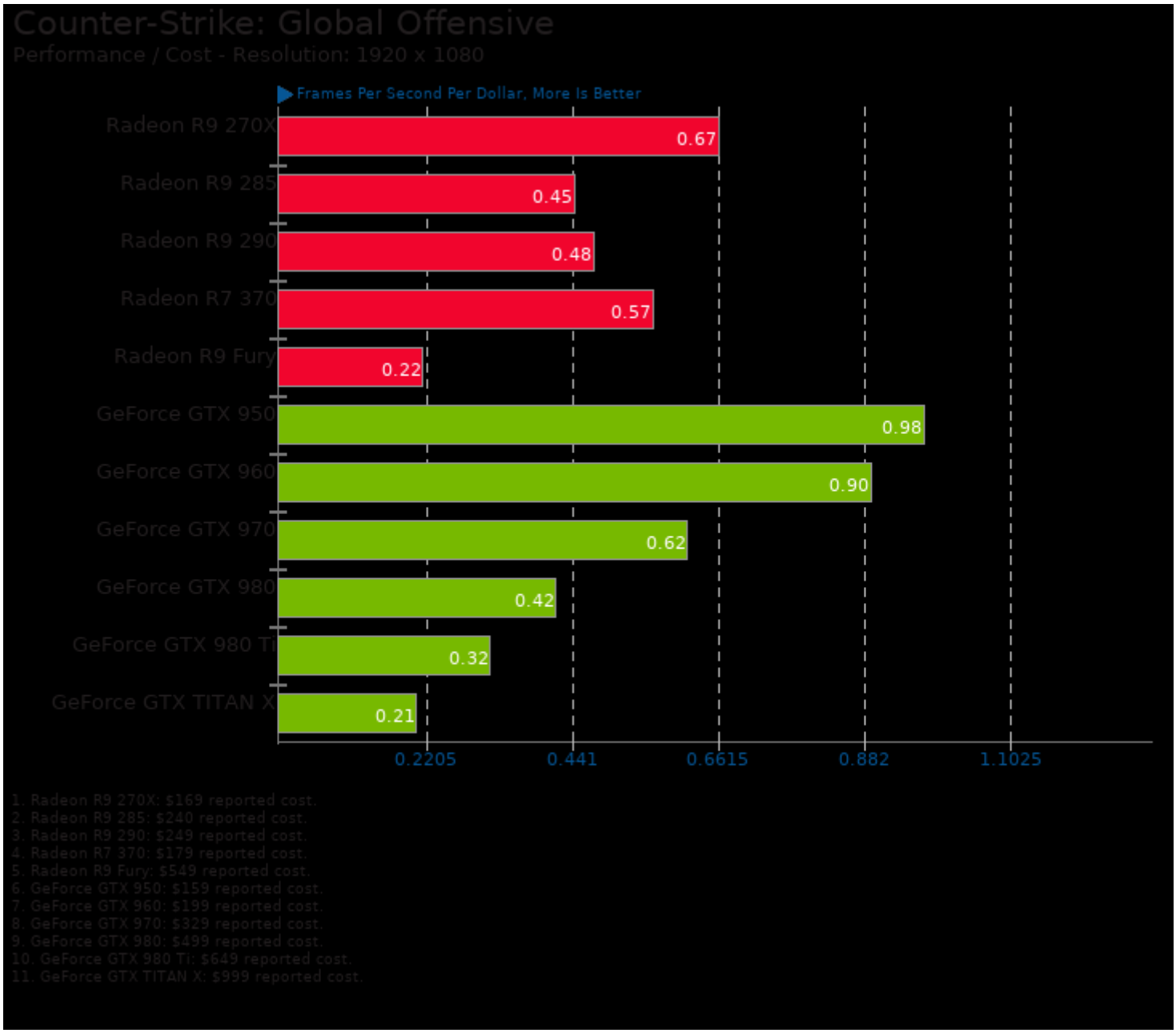
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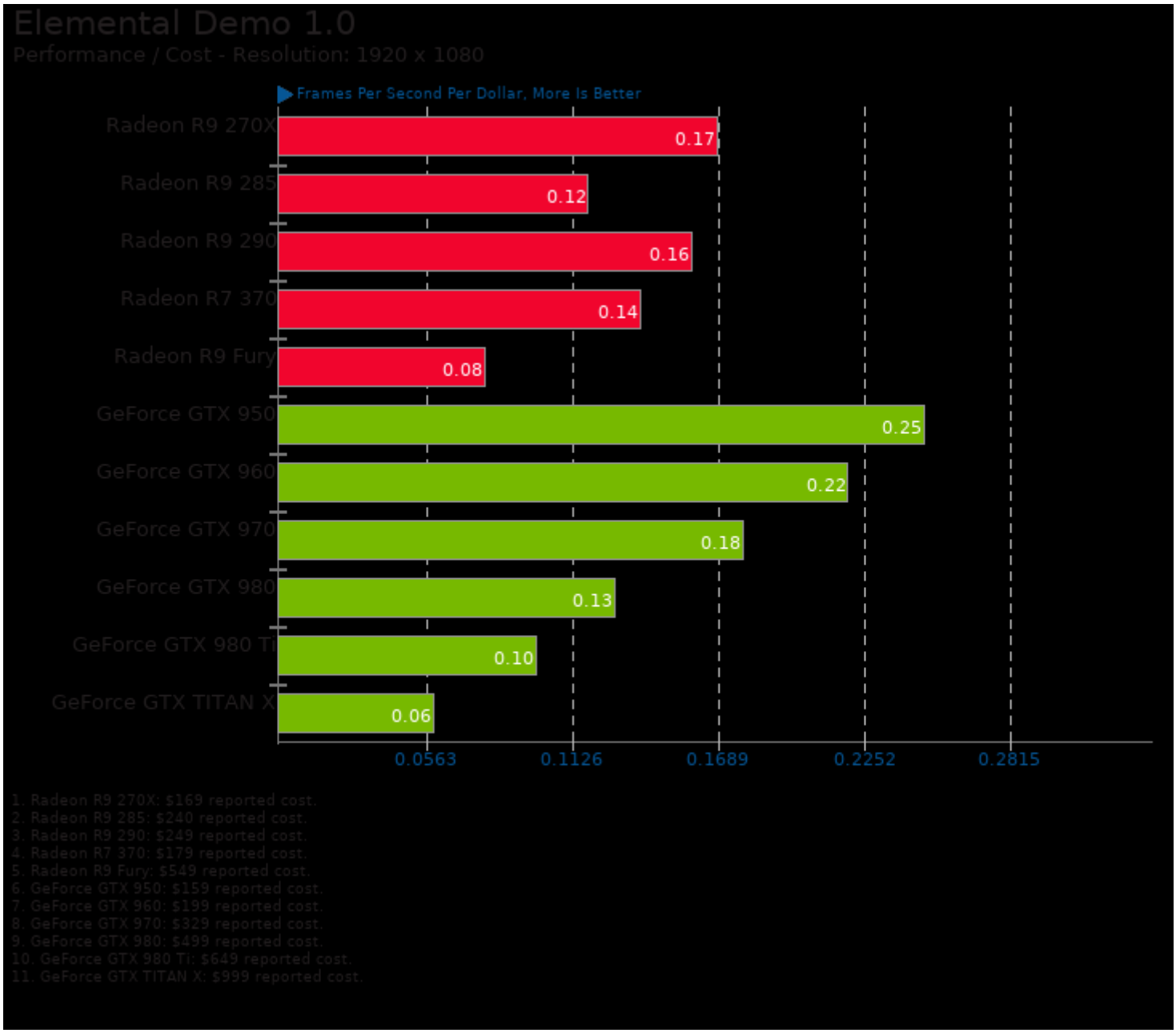
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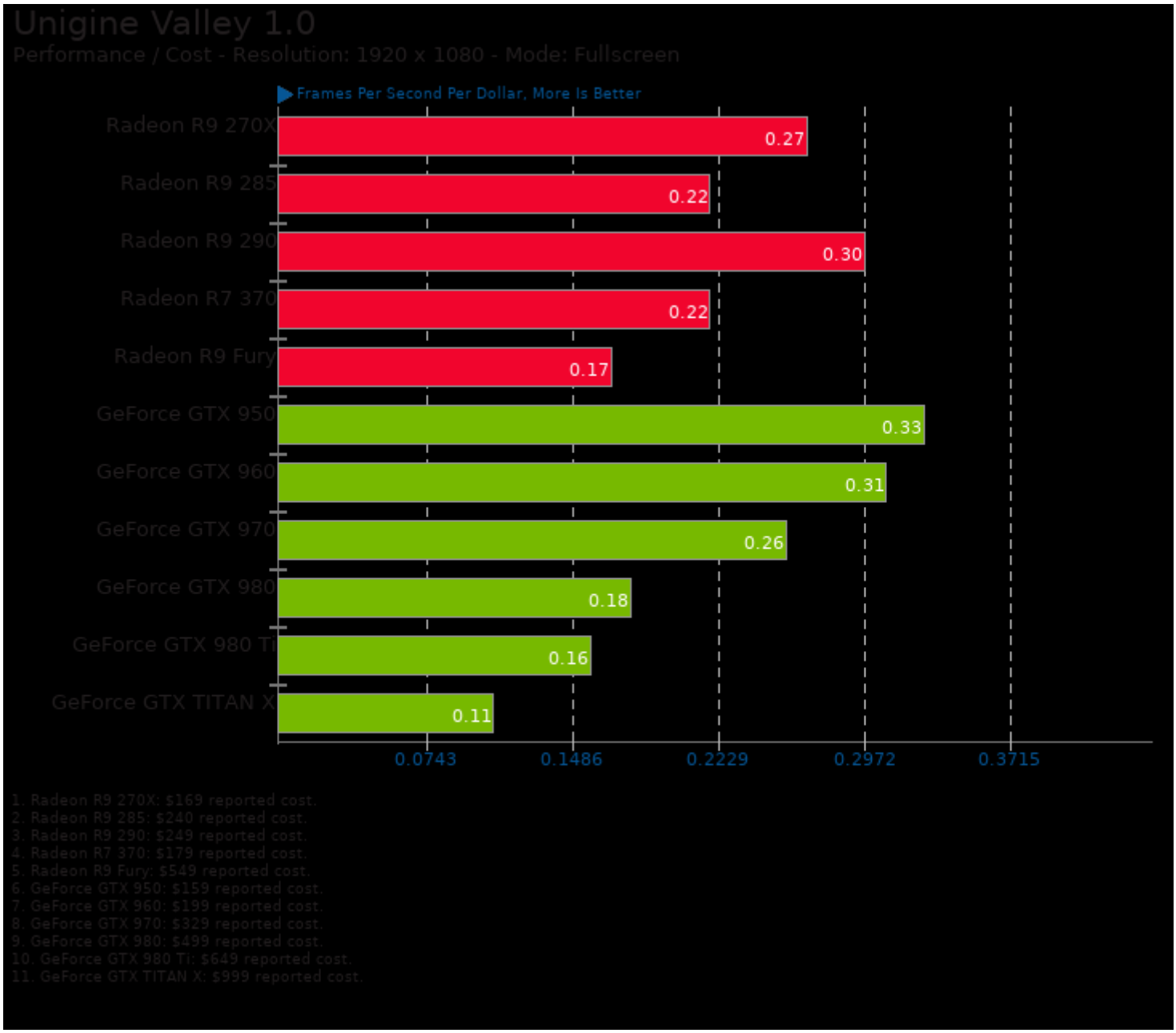
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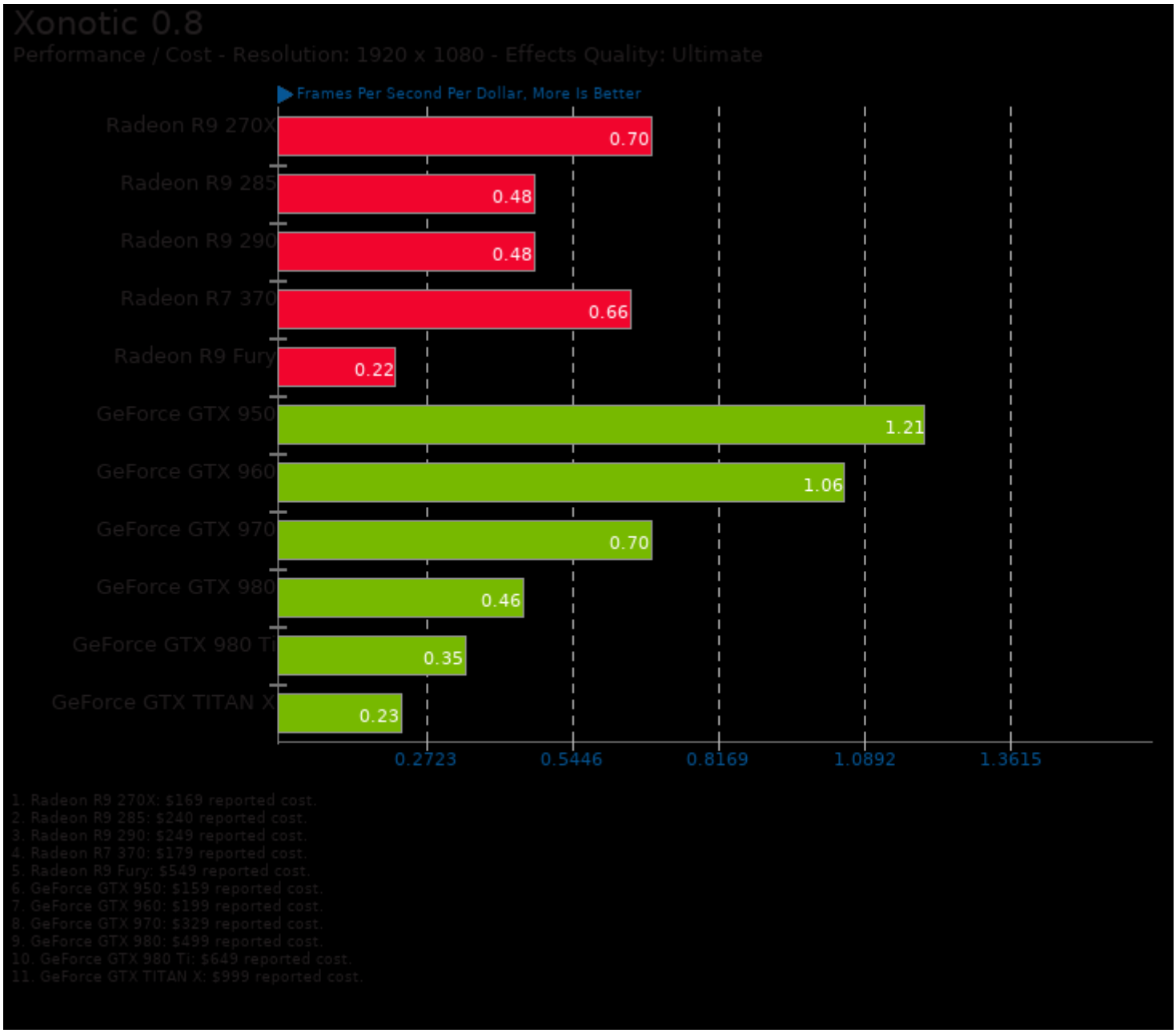


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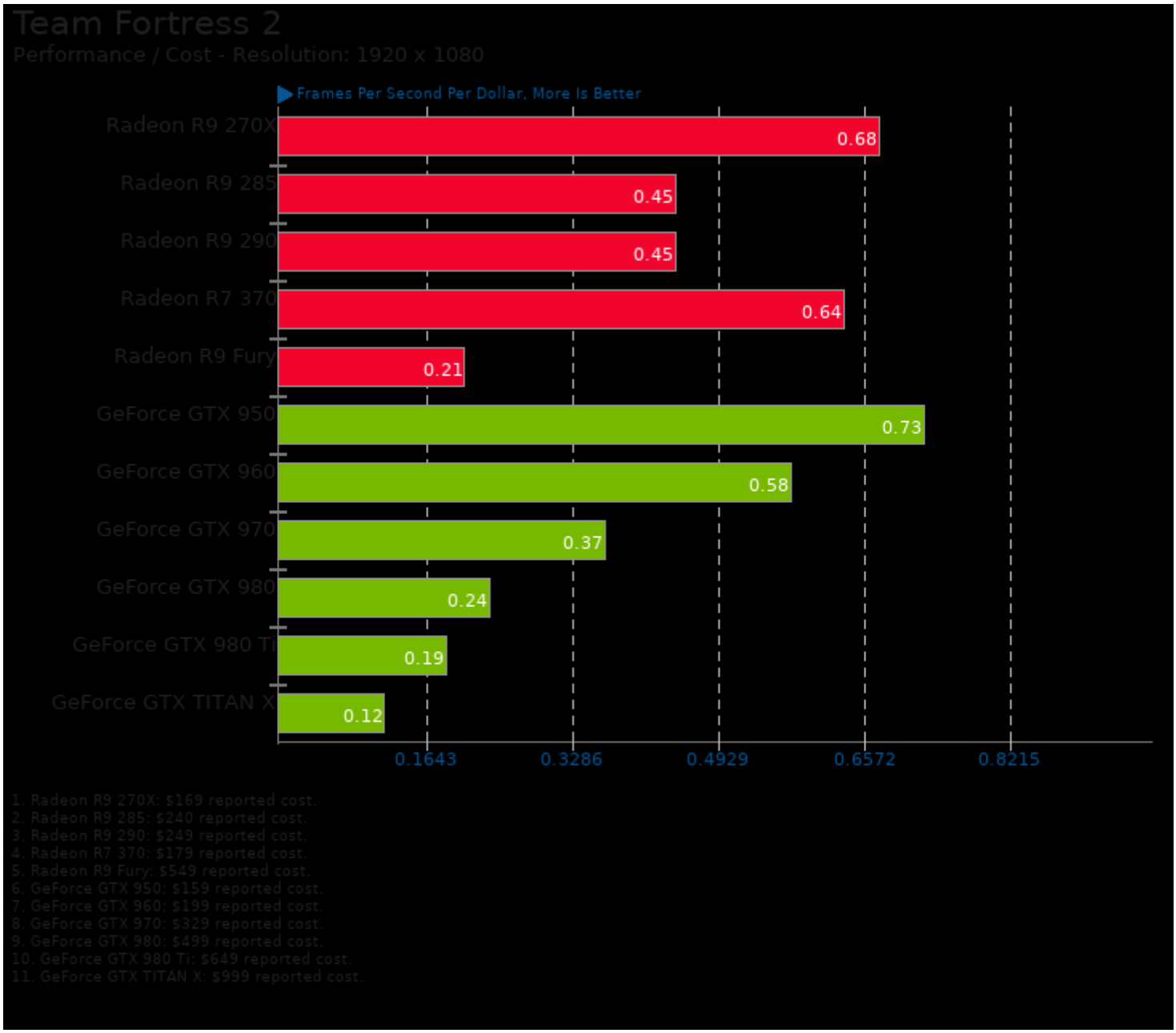


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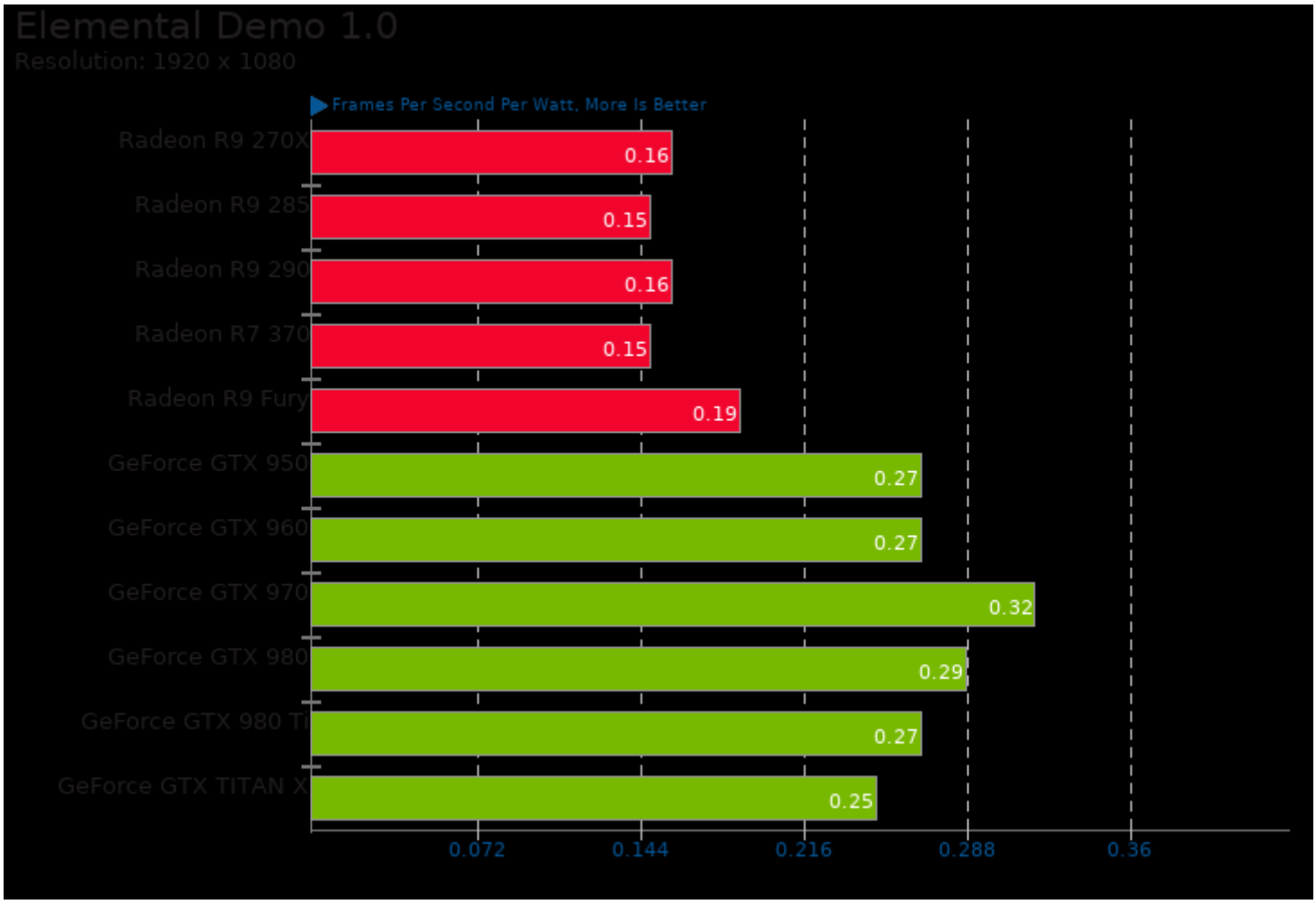



Xonotic 0.8
Performance / Cost - Resolution: 1920 x 1080 - Effects Quality: Ultimate
Frames Per Second Per Dollar, More Is Better
Radeon R9 270X
Radeon R9 285
Radeon R9 290
Radeon R7 370
Radeon R9 Fury
GeForce GTX 950
GeForce GTX 960
GeForce GTX 970
GeForce GTX 980
GeForce GTX 980 Ti
GeForce GTX TITAN X
0.70
0.48
0.48
0.66
0.22
1.21
1.06
0.70
0.46
0.35
0.23
0.2723
0.5446
0.8169
1.0892
1.3615
1. Radeon R9 270X: $169 reported cost.
2. Radeon R9 285: $240 reported cost.
3. Radeon R9 290: $249 reported cost.
4. Radeon R7 370: $179 reported cost.
5. Radeon R9 Fury: $549 reported cost.
6. GeForce GTX 950: $159 reported cost.
7. GeForce GTX 960: $199 reported cost.
8. GeForce GTX 970: $329 reported cost.
9. GeForce GTX 980: $499 reported cost.
10. GeForce GTX 980 Ti: $649 reported cost.
11. GeForce GTX TITAN X: $999 reported cost.

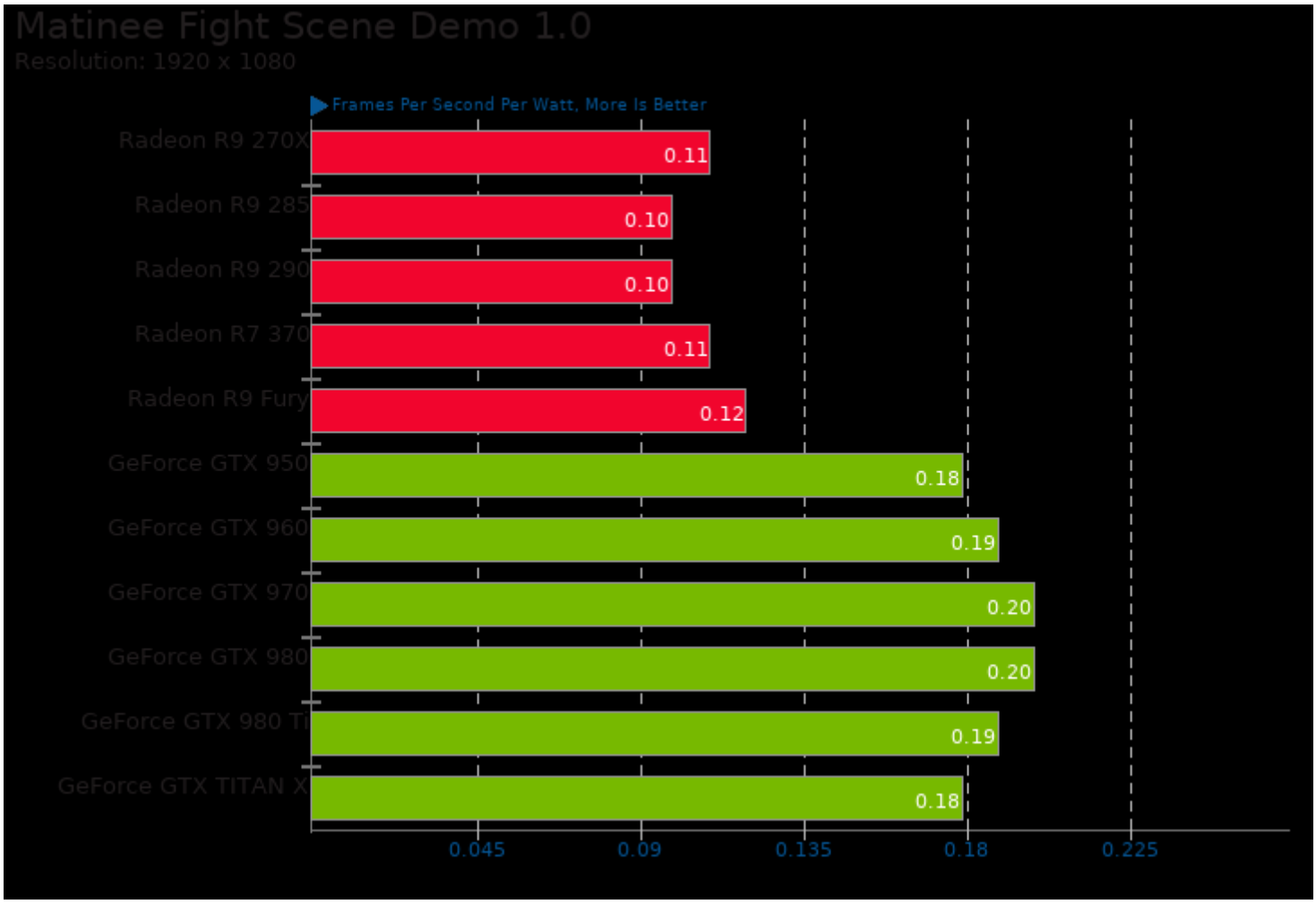
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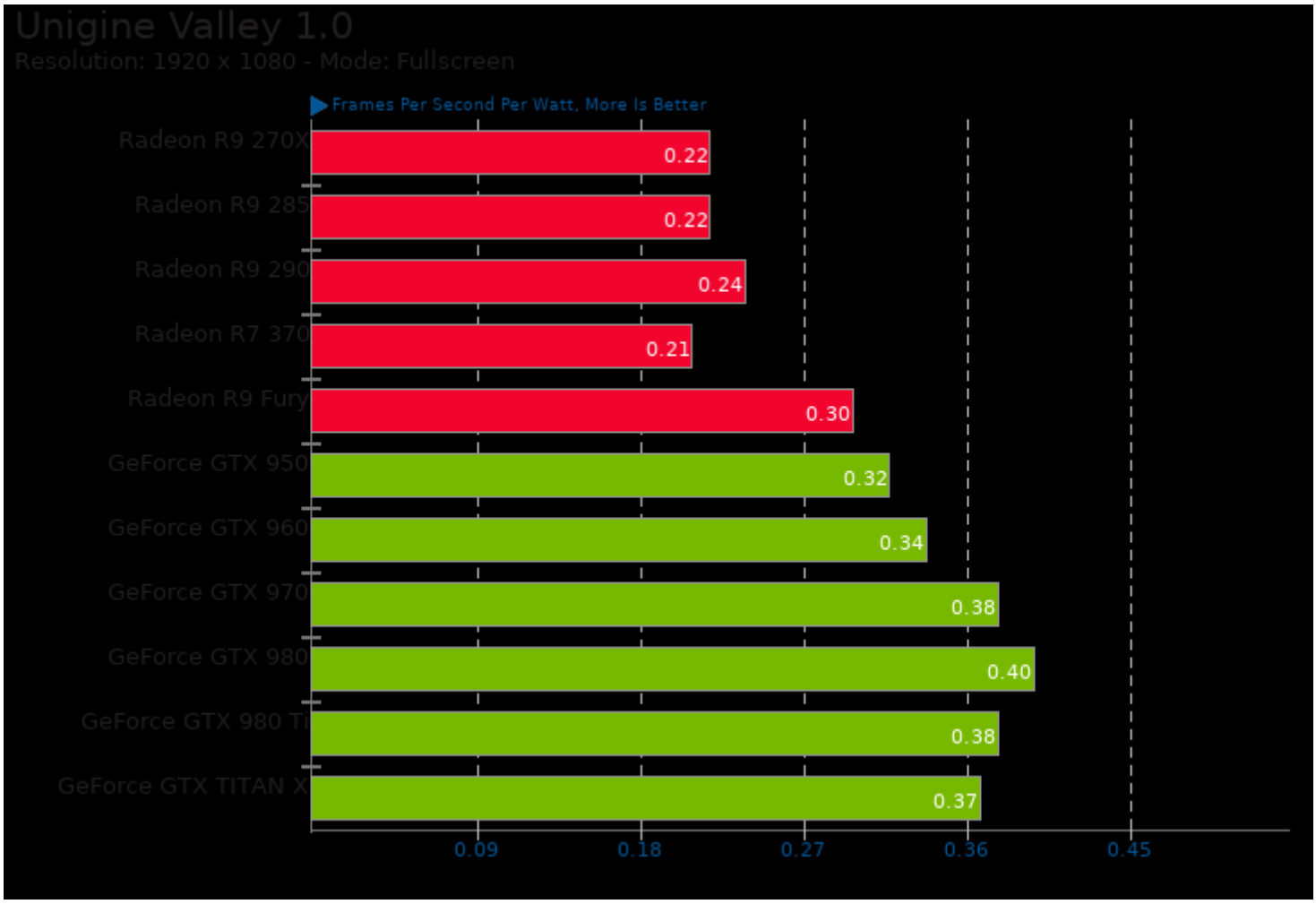
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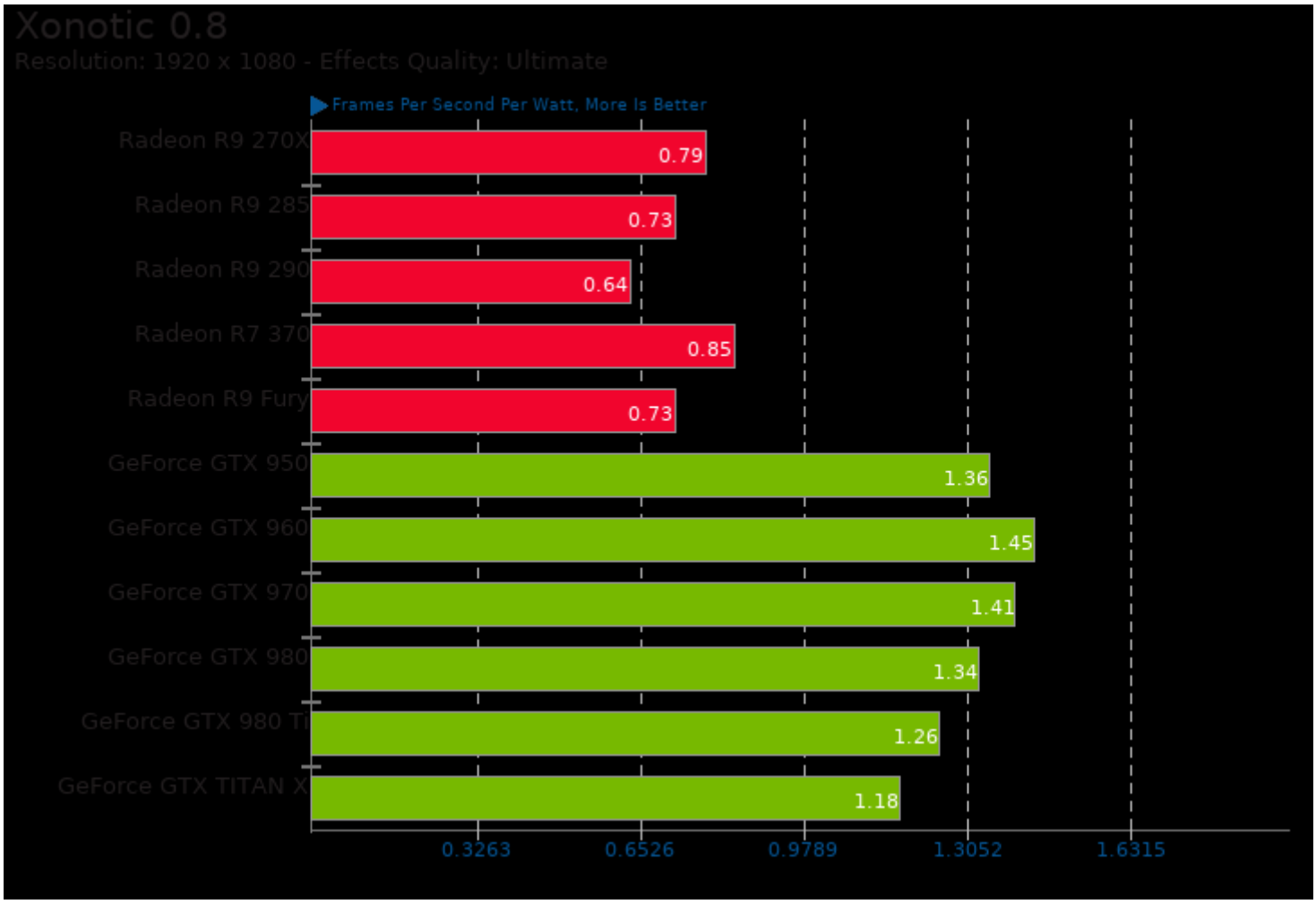
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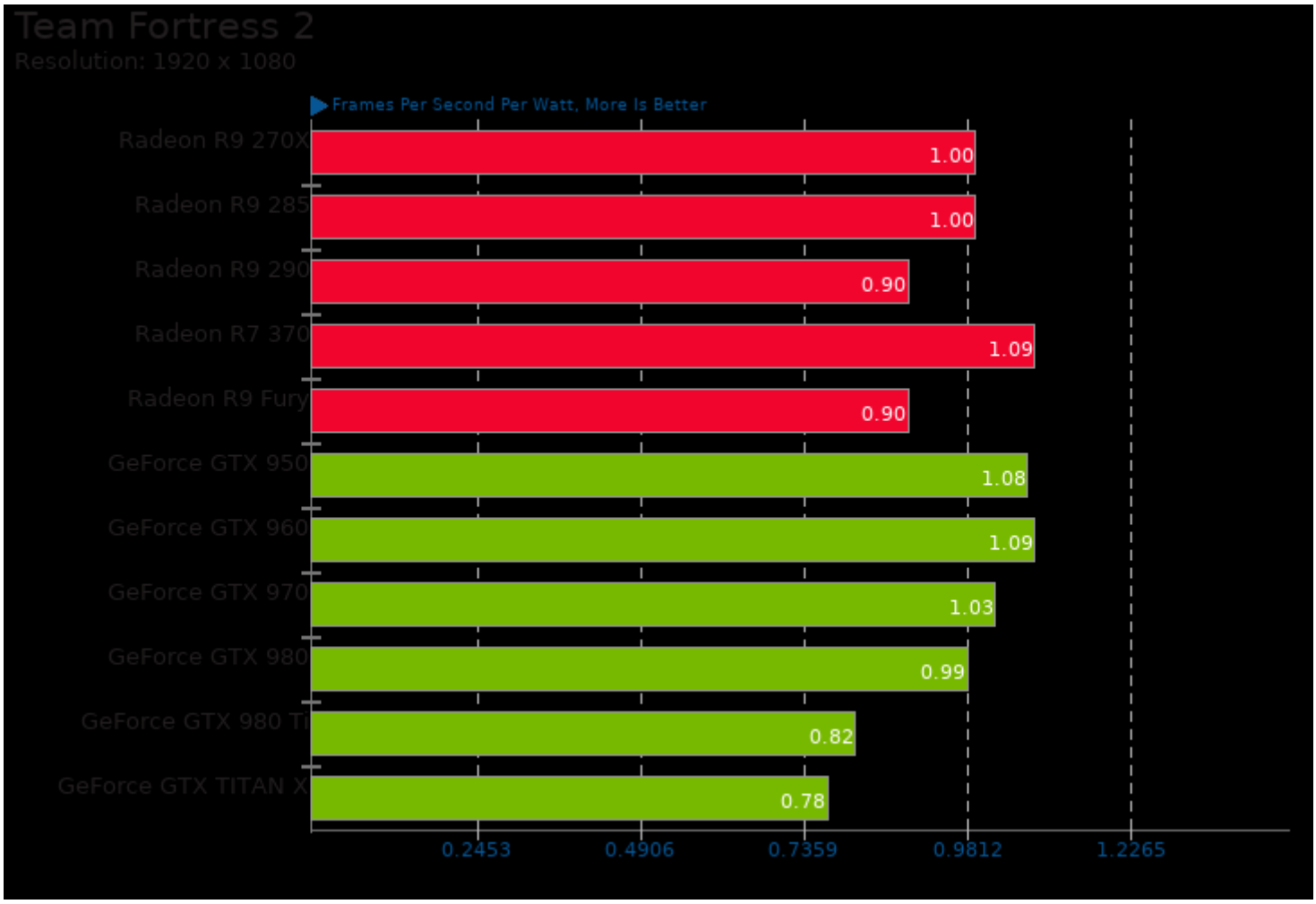
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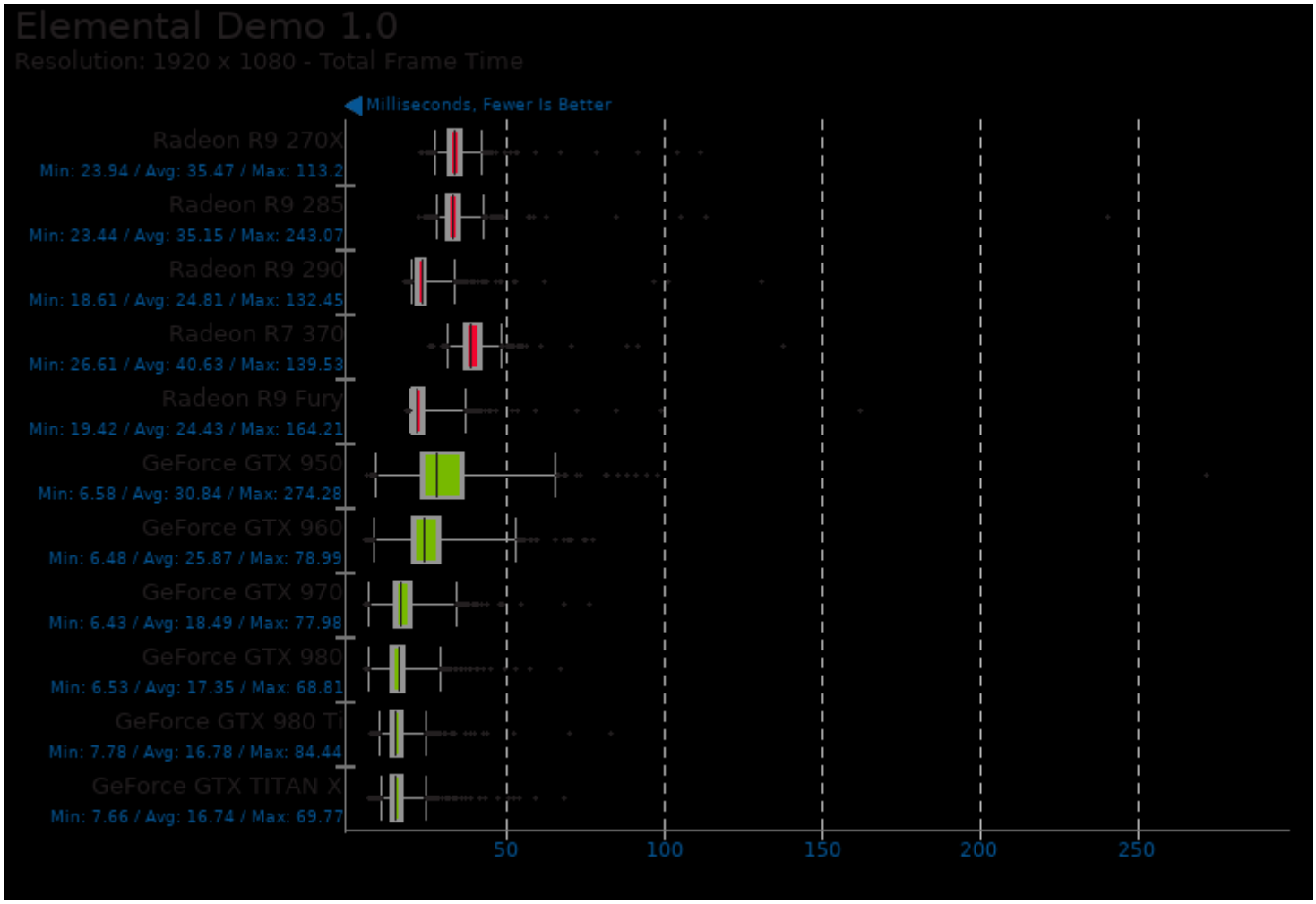
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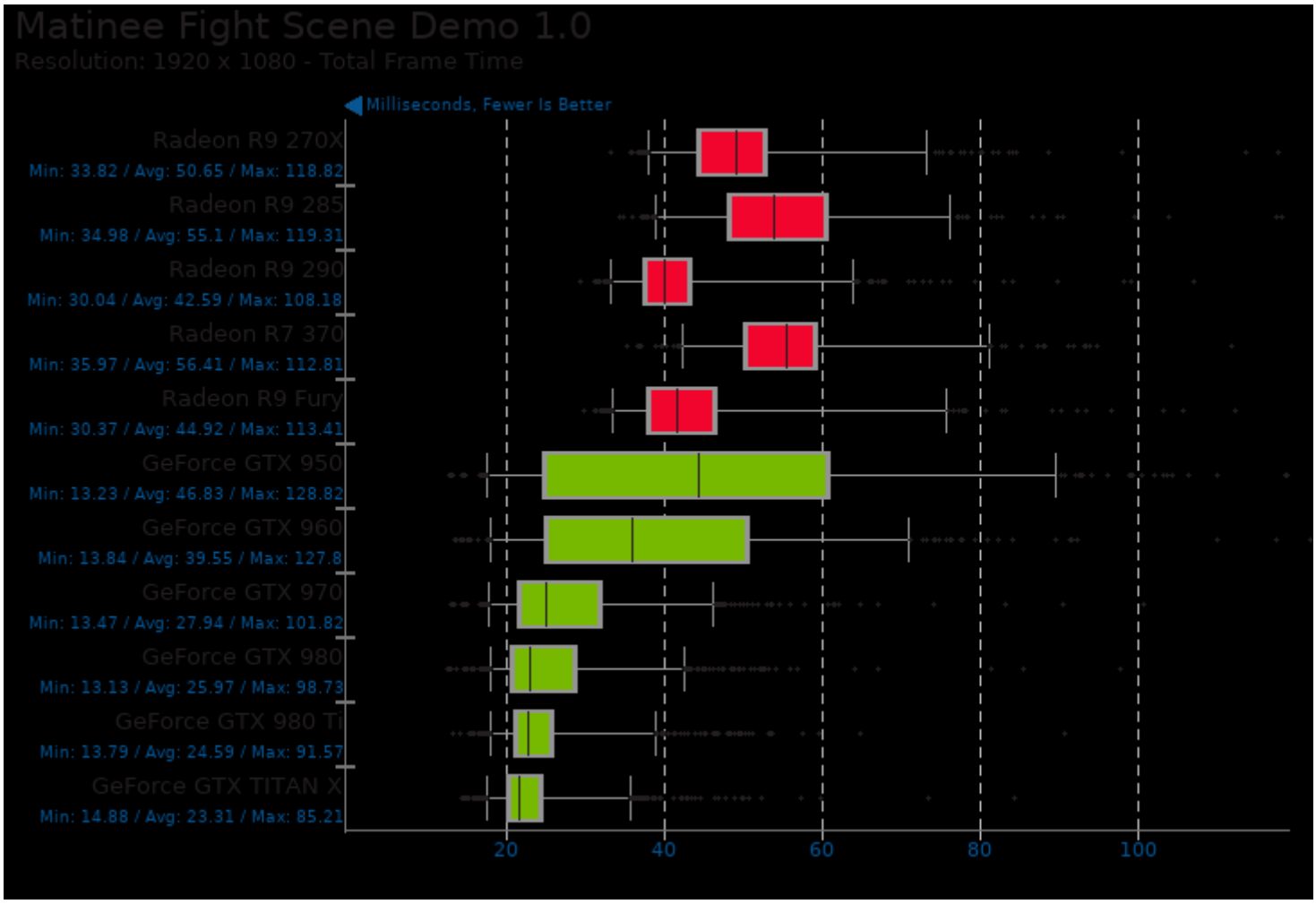
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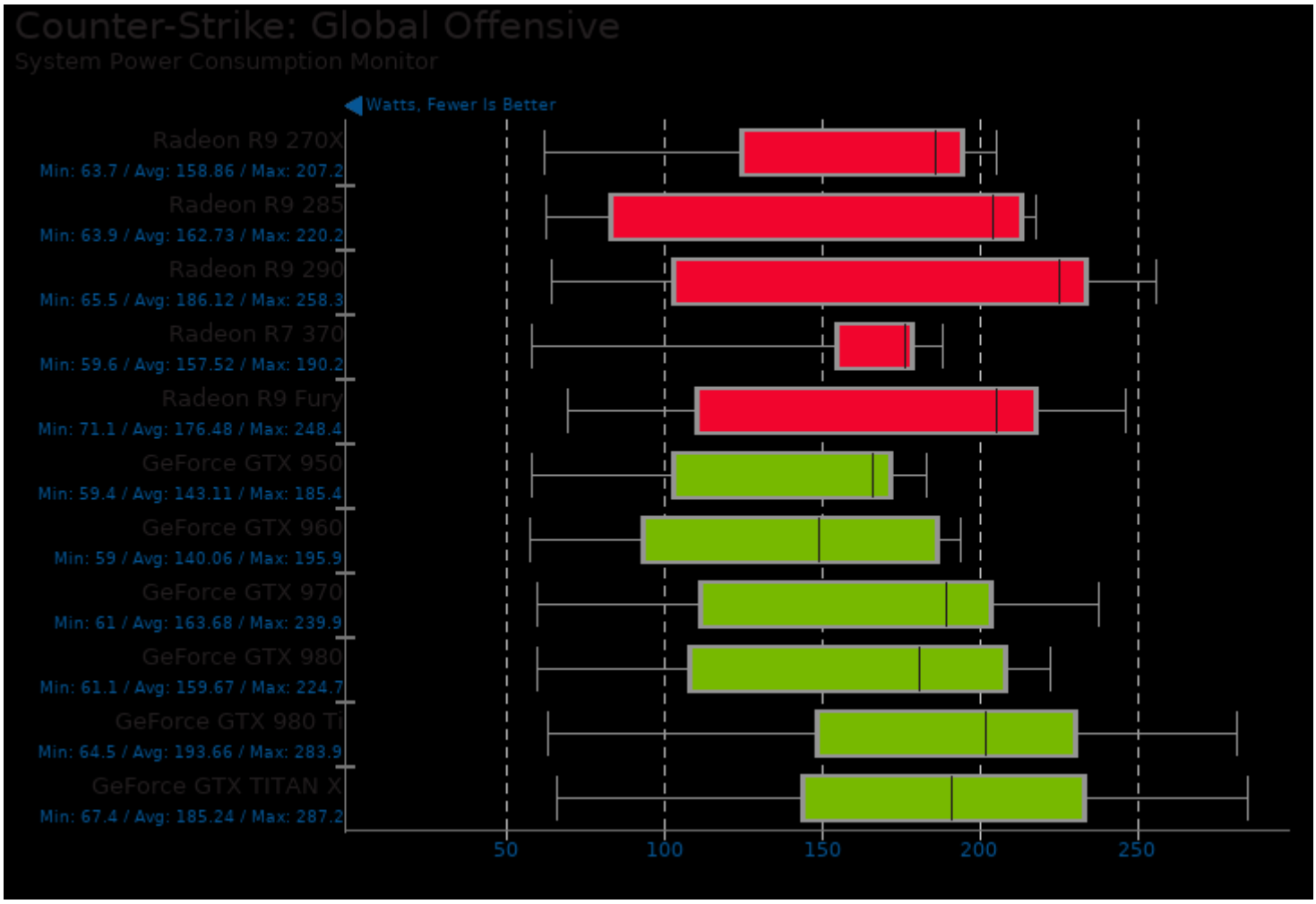
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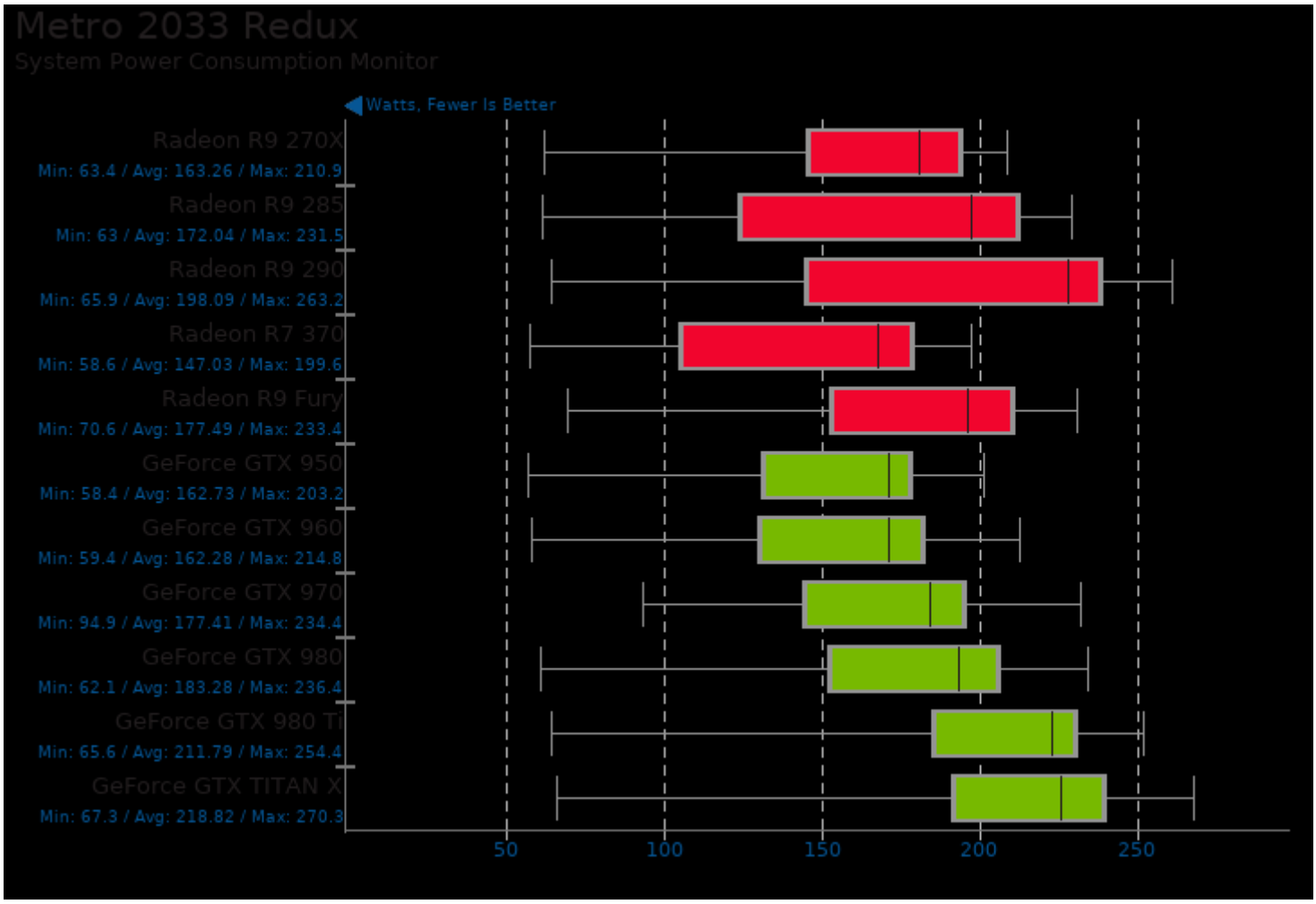
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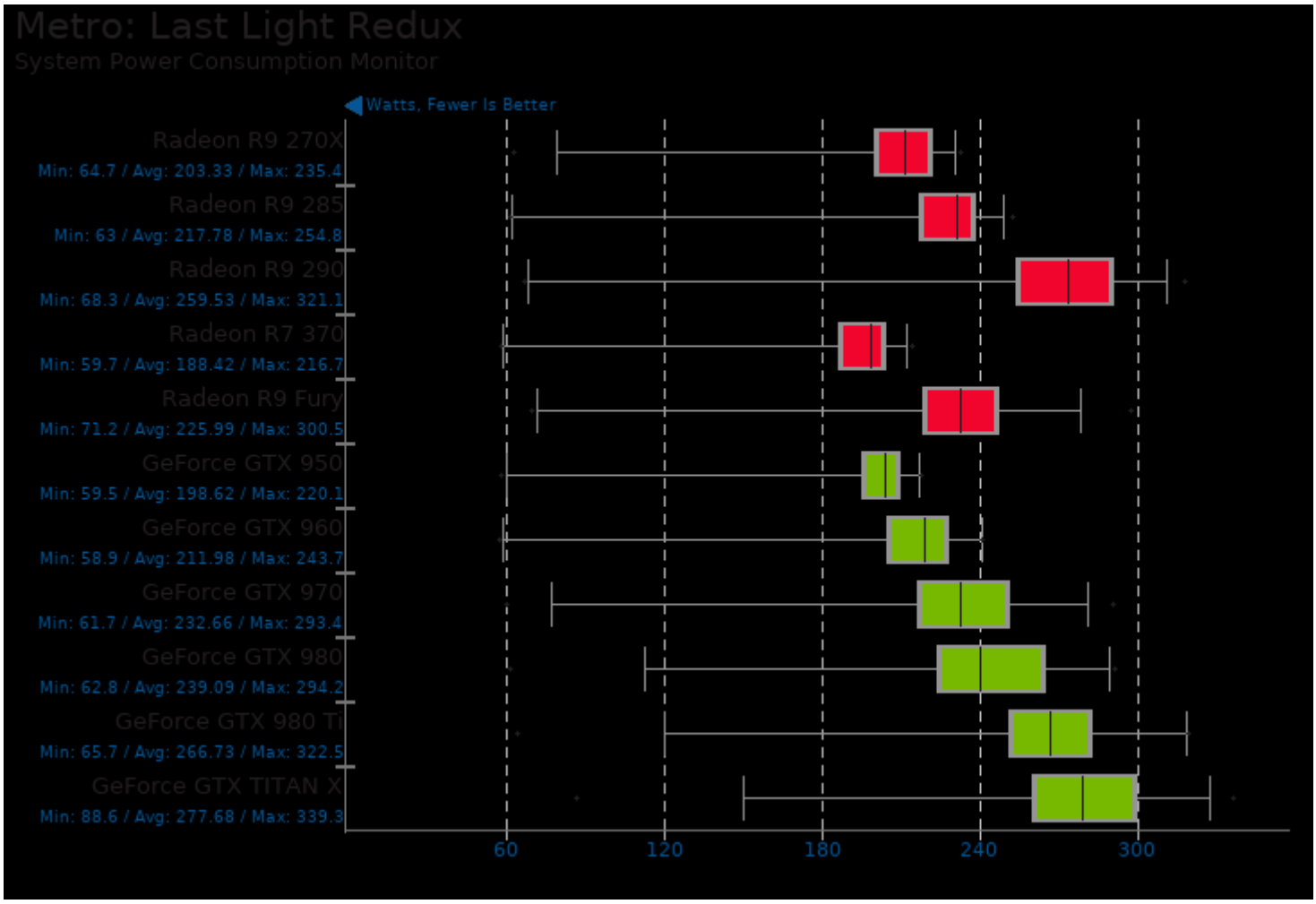
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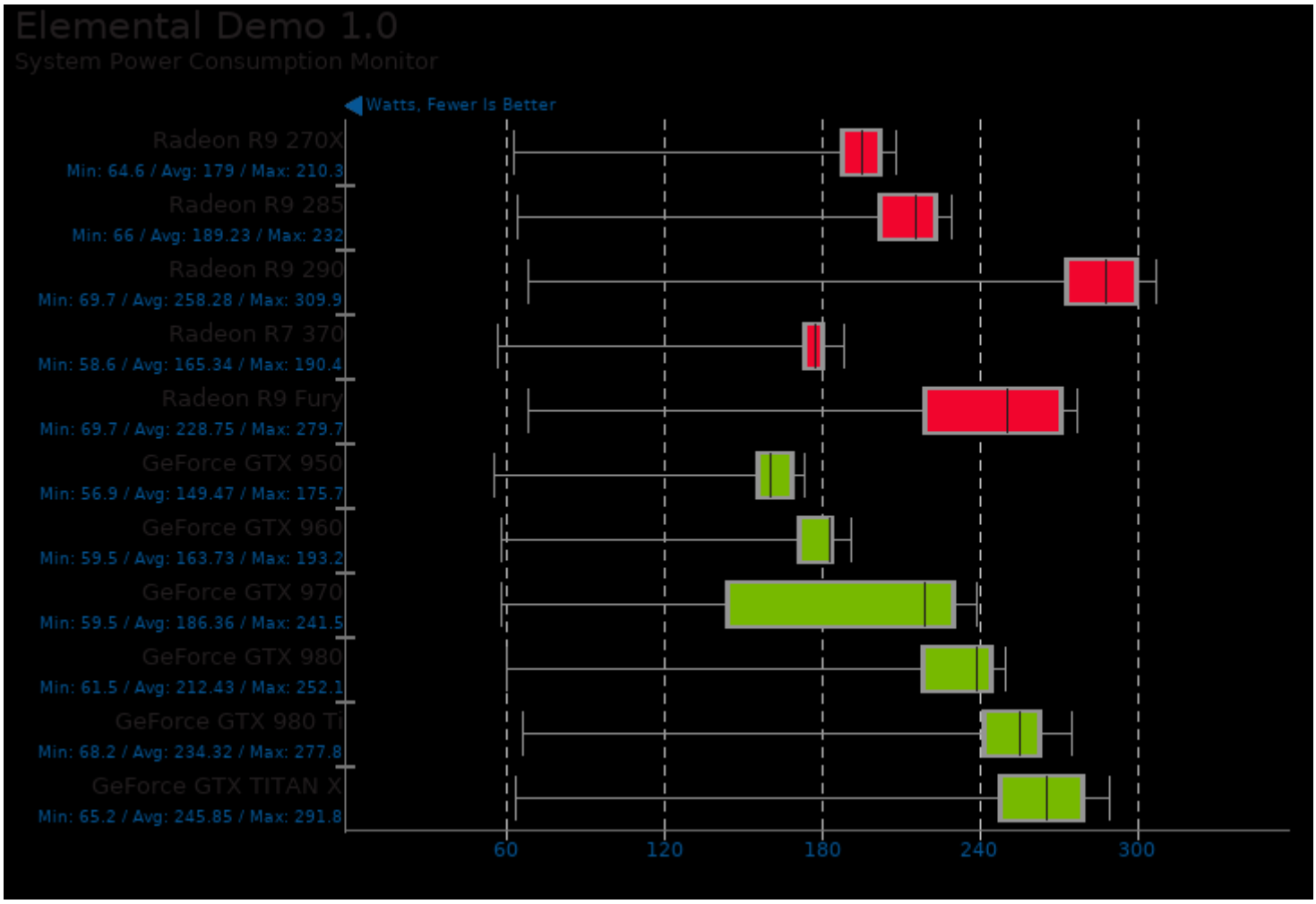
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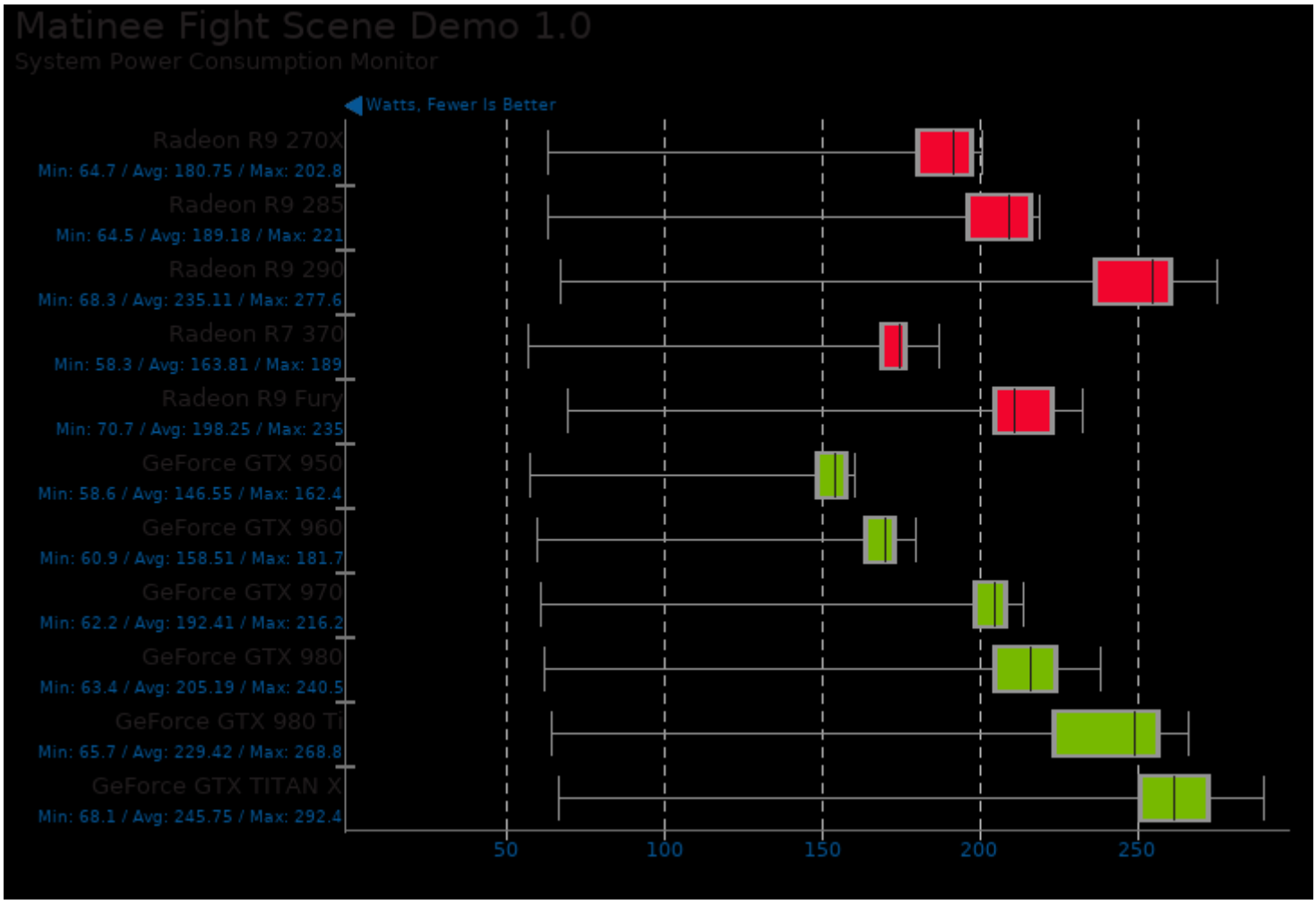
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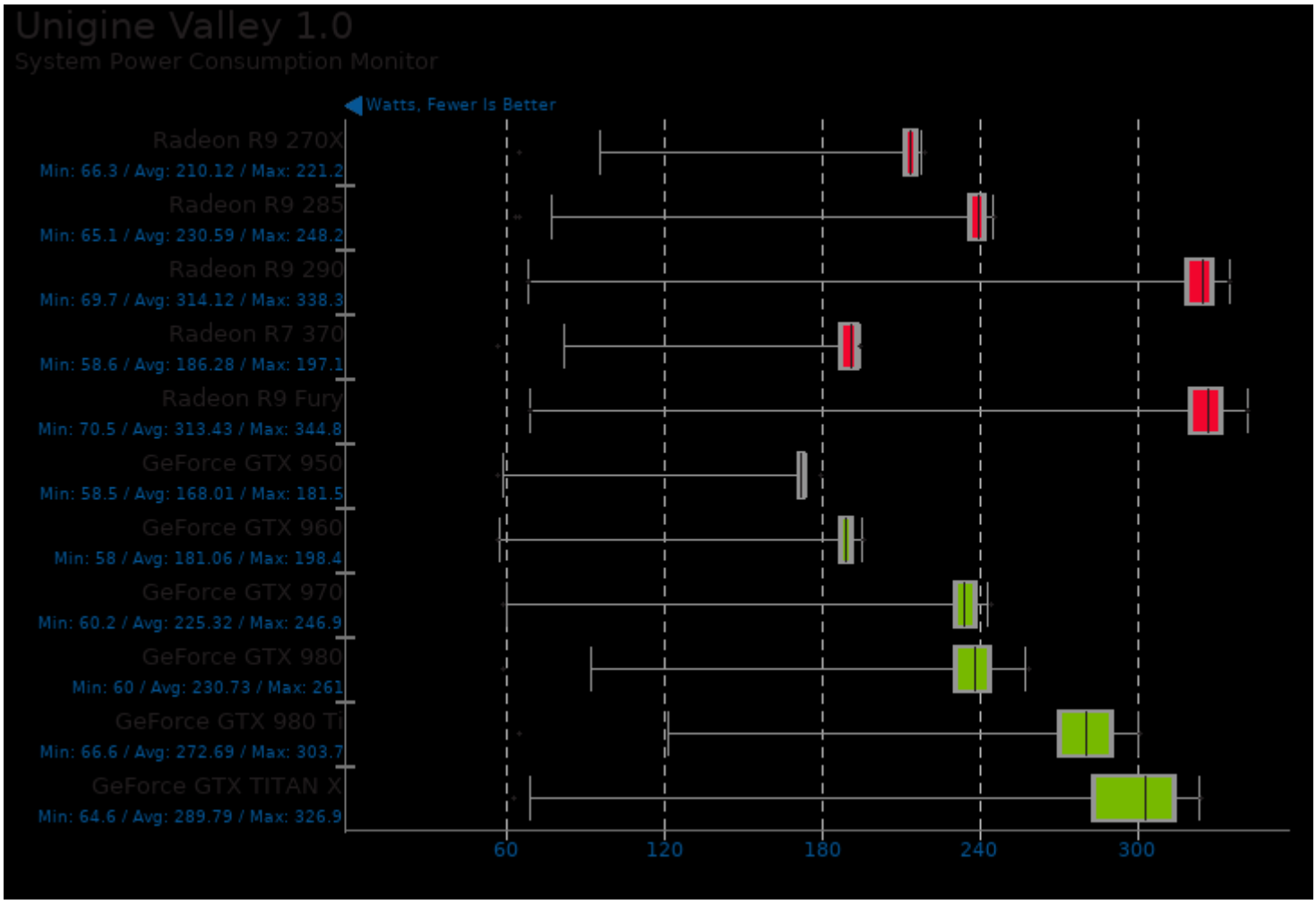
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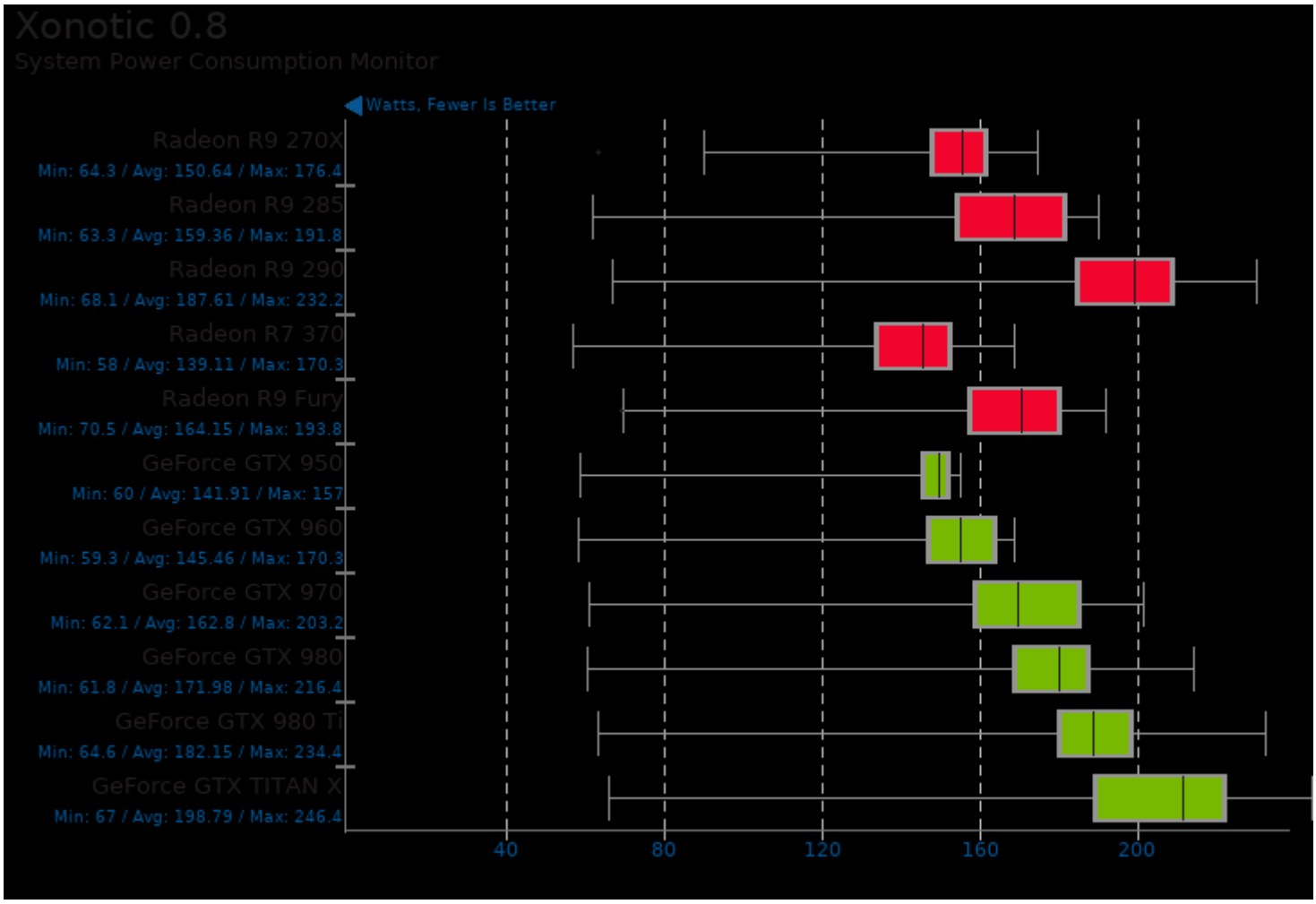
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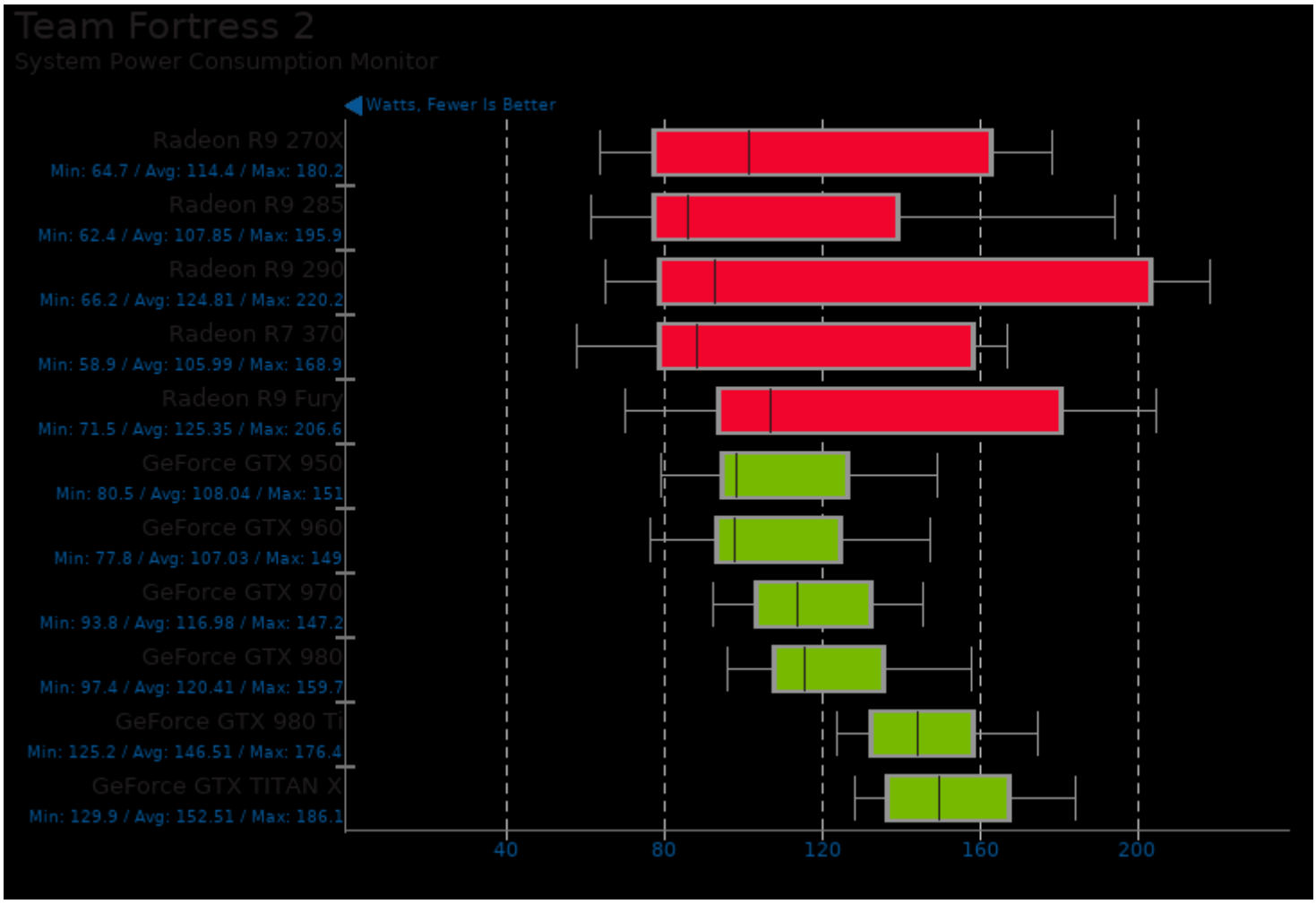
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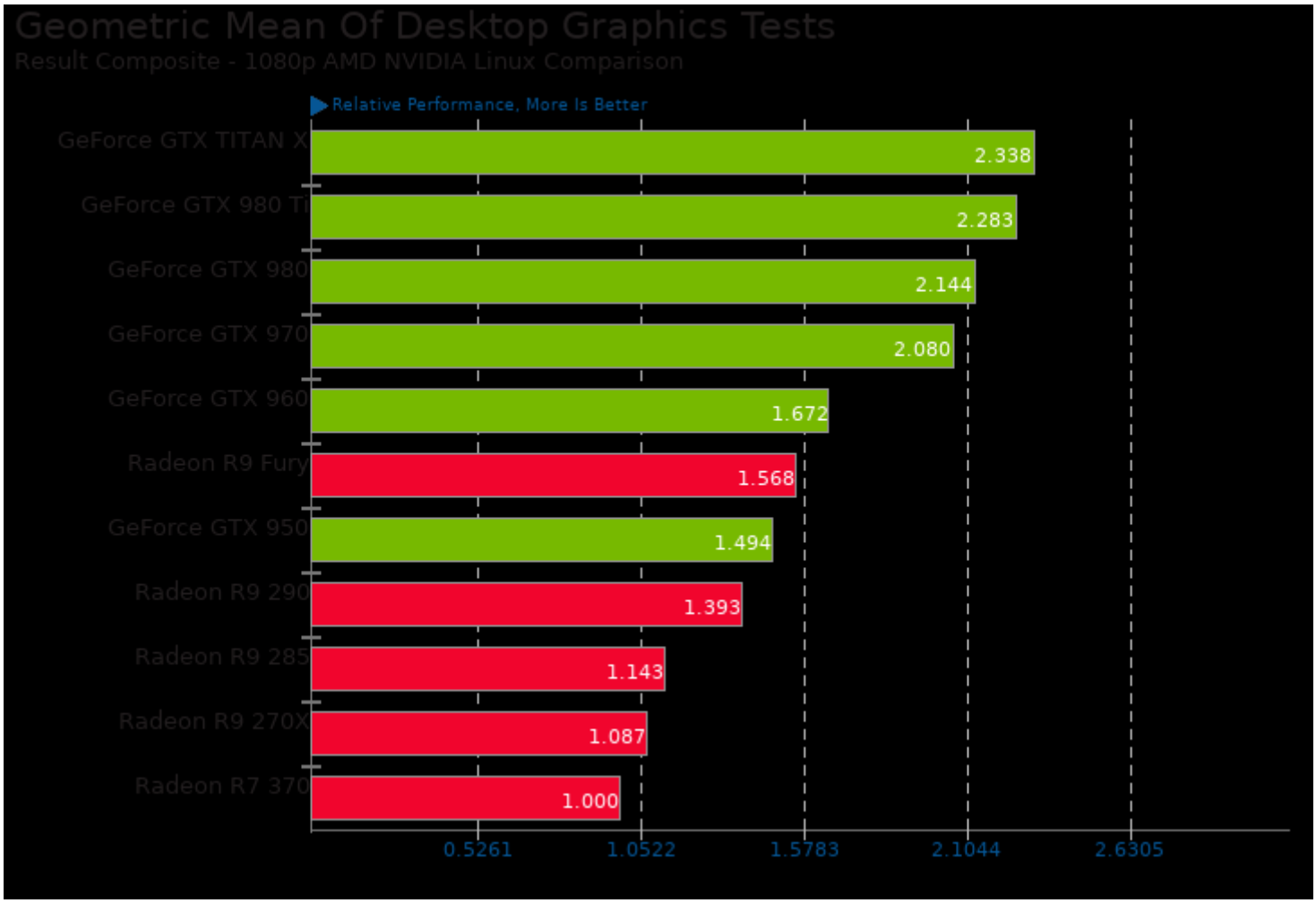


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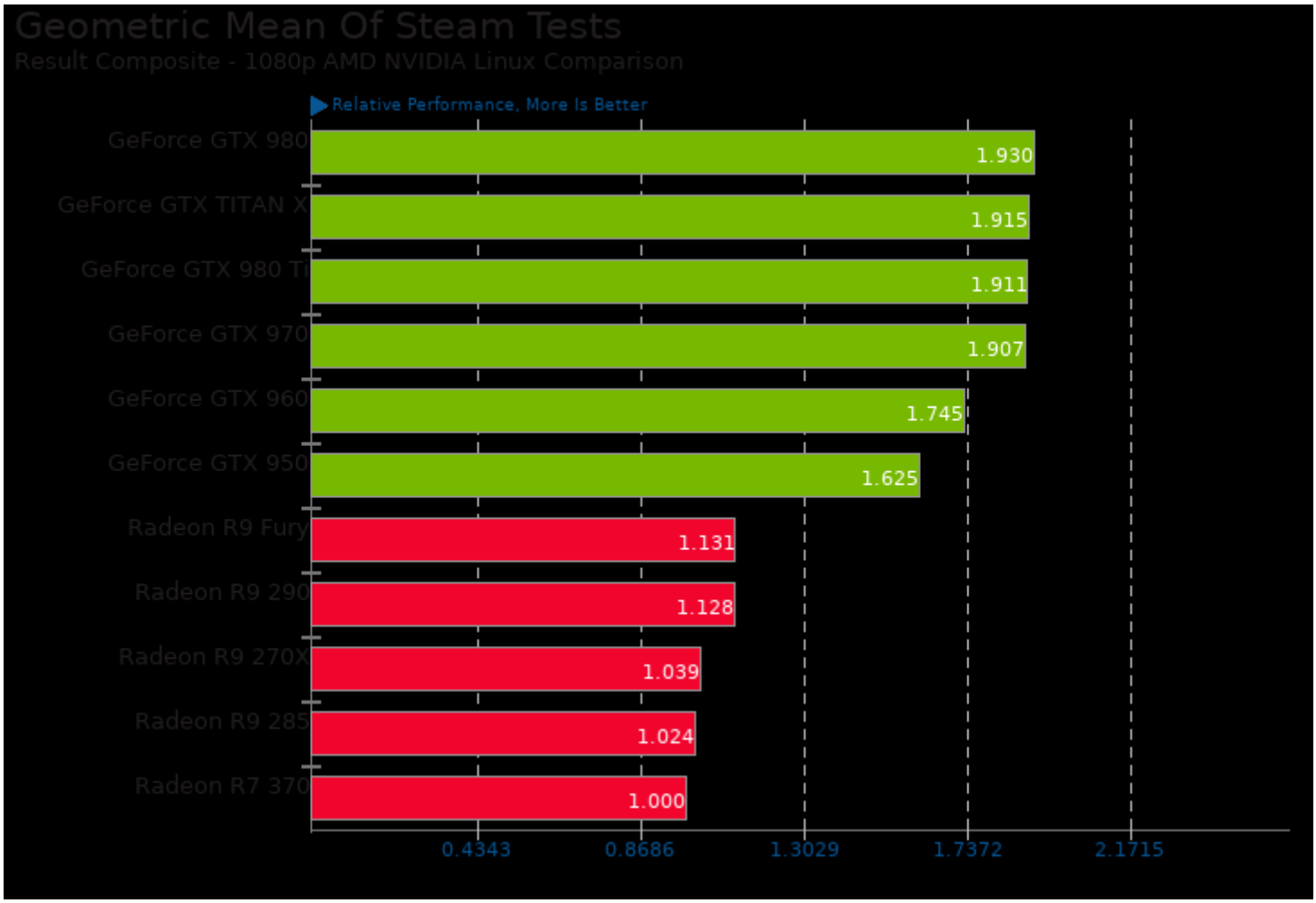


1080p AMD NVIDIA Linux Comparison

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



Geometric mean based upon tests: pts/xonotic and pts/unigine-valley



Geometric mean based upon tests: pts/csgo, pts/metro2033-redux, pts/metroll-redux and pts/tf2

This file was automatically generated via the Phoronix Test Suite benchmarking software on Friday, 29 March 2024 00:56.