

www.phoronix-test-suite.com

Vulkan Ray-Tracing GPUs On Linux

AMD using -PRO Vulkan driver extracted. Latest drivers for RTX 3070 Ti launch day testing for a future article.

Automated Executive Summary

RTX 3090 had the most wins, coming in first place for 84% of the tests.

Based on the geometric mean of all complete results, the fastest (RTX 3090) was 6.331x the speed of the slowest (RX 6700 XT).

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

Quake II RTX (Resolution: 1920 x 1080 - Global Illumination: High - Denoiser: Off - Ray Tracing API: VK_KHR_ray_query) at 21.168x
Quake II RTX (Resolution: 1920 x 1080 - Global Illumination: High - Denoiser: Off - Ray Tracing API: VK_KHR_ray_tracing_pipeline) at 19.905x
Quake II RTX (Resolution: 1920 x 1080 - Global Illumination: Off - Denoiser: Off - Ray Tracing API: VK_KHR_ray_query) at 19.585x
Quake II RTX (Resolution: 1920 x 1080 - Global Illumination: Off - Denoiser: Off - Ray Tracing API: VK_KHR_ray_tracing_pipeline) at 19.453x
Quake II RTX (Resolution: 1920 x 1080 - Global Illumination: High - Denoiser: On - Ray Tracing API: VK_KHR_ray_query) at 16.421x

Quake II RTX (Resolution: 1920 x 1080 - Global Illumination: High - Denoiser: On - Ray Tracing API: VK_KHR_ray_tracing_pipeline) at 15.639x
Quake II RTX (Resolution: 1920 x 1080 - Global Illumination: Off - Denoiser: On - Ray Tracing API: VK_KHR_ray_query) at 15.267x
Quake II RTX (Resolution: 2560 x 1440 - Global Illumination: Off - Denoiser: Off - Ray Tracing API: VK_KHR_ray_query) at 14.394x
Quake II RTX (Resolution: 1920 x 1080 - Global Illumination: Off - Denoiser: On - Ray Tracing API: VK_KHR_ray_tracing_pipeline) at 14.286x
Quake II RTX (Resolution: 2560 x 1440 - Global Illumination: High - Denoiser: Off - Ray Tracing API: VK_KHR_ray_query) at 13.829x.

Test Systems:

RTX 2060

Processor: AMD Ryzen 9 5900X 12-Core @ 3.70GHz (12 Cores / 24 Threads), Motherboard: ASUS ROG CROSSHAIR VIII HERO (3402 BIOS), Chipset: AMD Starship/Matisse, Memory: 16GB, Disk: 1000GB Sabrent Rocket 4.0 Plus + 2000GB, Graphics: NVIDIA GeForce RTX 2060 6GB, Audio: NVIDIA TU106 HD Audio, Monitor: ASUS VP28U, Network: Realtek RTL8125 2.5GbE + Intel I211

OS: Ubuntu 21.04, Kernel: 5.11.0-17-generic (x86_64), Desktop: GNOME Shell 3.38.4, Display Server: X Server 1.20.11, Display Driver: NVIDIA 465.31, OpenGL: 4.6.0, OpenCL: OpenCL 3.0 CUDA 11.3.116, Vulkan: 1.2.168, Compiler: GCC 10.3.0 + CUDA 11.3, File-System: ext4, Screen Resolution: 3840x2160

Kernel Notes: Transparent Huge Pages: madvise
Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --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++,m2 --enable-libphobos-checking=release --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-link-mutex --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-10-gDeRY6/gcc-10-10.3.0/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-10-gDeRY6/gcc-10-10.3.0/debian/tmp-gcn/usr, hsa --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-build-config=bootstrap-lto-lean --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq performance (Boost: Enabled) - CPU Microcode: 0xa201009
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Full AMD retpoline IBPB: conditional IBRS_FW STIBP: always-on RSB filling + srbds: Not affected + tsx_async_abort: Not affected

RTX 2060 SUPER

Processor: AMD Ryzen 9 5900X 12-Core @ 3.70GHz (12 Cores / 24 Threads), Motherboard: ASUS ROG CROSSHAIR VIII HERO (3402 BIOS), Chipset: AMD Starship/Matisse, Memory: 16GB, Disk: 1000GB Sabrent Rocket 4.0 Plus + 2000GB, Graphics: NVIDIA GeForce RTX 2060 SUPER 8GB, Audio: NVIDIA TU106 HD Audio, Monitor: ASUS VP28U, Network: Realtek RTL8125 2.5GbE + Intel I211

OS: Ubuntu 21.04, Kernel: 5.11.0-17-generic (x86_64), Desktop: GNOME Shell 3.38.4, Display Server: X Server 1.20.11, Display Driver: NVIDIA 465.31, OpenGL: 4.6.0, OpenCL: OpenCL 3.0 CUDA 11.3.116, Vulkan: 1.2.168, Compiler: GCC 10.3.0 + CUDA 11.3, File-System: ext4, Screen Resolution: 3840x2160

Kernel Notes: Transparent Huge Pages: madvise
Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --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++,m2 --enable-libphobos-checking=release --enable-libstdcxx-debug

--enable-libstdcxx-time=yes --enable-link-mutex --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-10-gDeRY6/gcc-10-10.3.0/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-10-gDeRY6/gcc-10-10.3.0/debian/tmp-gcn/usr, hsa --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-build-config=bootstrap-lto-lean --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq performance (Boost: Enabled) - CPU Microcode: 0xa201009
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Full AMD retpoline IBPB: conditional IBRS_FW STIBP: always-on RSB filling + srbds: Not affected + tsx_async_abort: Not affected

RTX 2070

Processor: AMD Ryzen 9 5900X 12-Core @ 3.70GHz (12 Cores / 24 Threads), Motherboard: ASUS ROG CROSSHAIR VIII HERO (3402 BIOS), Chipset: AMD Starship/Matisse, Memory: 16GB, Disk: 1000GB Sabrent Rocket 4.0 Plus + 2000GB, Graphics: ASUS NVIDIA GeForce RTX 2070 8GB, Audio: NVIDIA TU106 HD Audio, Monitor: ASUS VP28U, Network: Realtek RTL8125 2.5GbE + Intel I211

OS: Ubuntu 21.04, Kernel: 5.11.0-17-generic (x86_64), Desktop: GNOME Shell 3.38.4, Display Server: X Server 1.20.11, Display Driver: NVIDIA 465.31, OpenGL: 4.6.0, OpenCL: OpenCL 3.0 CUDA 11.3.116, Vulkan: 1.2.168, Compiler: GCC 10.3.0 + CUDA 11.3, File-System: ext4, Screen Resolution: 3840x2160

Kernel Notes: Transparent Huge Pages: madvise
Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --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++,m2 --enable-libphobos-checking=release --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-link-mutex --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-10-gDeRY6/gcc-10-10.3.0/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-10-gDeRY6/gcc-10-10.3.0/debian/tmp-gcn/usr, hsa --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-build-config=bootstrap-lto-lean --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq performance (Boost: Enabled) - CPU Microcode: 0xa201009
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Full AMD retpoline IBPB: conditional IBRS_FW STIBP: always-on RSB filling + srbds: Not affected + tsx_async_abort: Not affected

RTX 2070 SUPER

Processor: AMD Ryzen 9 5900X 12-Core @ 3.70GHz (12 Cores / 24 Threads), Motherboard: ASUS ROG CROSSHAIR VIII HERO (3402 BIOS), Chipset: AMD Starship/Matisse, Memory: 16GB, Disk: 1000GB Sabrent Rocket 4.0 Plus + 2000GB, Graphics: NVIDIA GeForce RTX 2070 SUPER 8GB, Audio: NVIDIA TU104 HD Audio, Monitor: ASUS VP28U, Network: Realtek RTL8125 2.5GbE + Intel I211

OS: Ubuntu 21.04, Kernel: 5.11.0-17-generic (x86_64), Desktop: GNOME Shell 3.38.4, Display Server: X Server 1.20.11, Display Driver: NVIDIA 465.31, OpenGL: 4.6.0, OpenCL: OpenCL 3.0 CUDA 11.3.116, Vulkan: 1.2.168, Compiler: GCC 10.3.0 + CUDA 11.3, File-System: ext4, Screen Resolution: 3840x2160

Kernel Notes: Transparent Huge Pages: madvise
Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --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++,m2 --enable-libphobos-checking=release --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-link-mutex --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-10-gDeRY6/gcc-10-10.3.0/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-10-gDeRY6/gcc-10-10.3.0/debian/tmp-gcn/usr, hsa --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-build-config=bootstrap-lto-lean --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq performance (Boost: Enabled) - CPU Microcode: 0xa201009
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Full AMD retpoline IBPB: conditional IBRS_FW STIBP: always-on RSB filling + srbds: Not affected + tsx_async_abort: Not affected

RTX 2080

Processor: AMD Ryzen 9 5900X 12-Core @ 3.70GHz (12 Cores / 24 Threads), Motherboard: ASUS ROG CROSSHAIR VIII HERO (3402 BIOS), Chipset: AMD Starship/Matisse, Memory: 16GB, Disk: 1000GB Sabrent Rocket 4.0 Plus + 2000GB, Graphics: Zotac NVIDIA GeForce RTX 2080 8GB, Audio: NVIDIA TU104 HD Audio, Monitor: ASUS VP28U,

Network: Realtek RTL8125 2.5GbE + Intel I211

OS: Ubuntu 21.04, Kernel: 5.11.0-17-generic (x86_64), Desktop: GNOME Shell 3.38.4, Display Server: X Server 1.20.11, Display Driver: NVIDIA 465.31, OpenGL: 4.6.0, OpenCL: OpenCL 3.0 CUDA 11.3.116, Vulkan: 1.2.168, Compiler: GCC 10.3.0 + CUDA 11.3, File-System: ext4, Screen Resolution: 3840x2160

Kernel Notes: Transparent Huge Pages: madvise
Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --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++,m2 --enable-libphobos-checking=release --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-link-mutex --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-10-gDeRY6/gcc-10-10.3.0/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-10-gDeRY6/gcc-10-10.3.0/debian/tmp-gcn/usr, hsa --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-build-config=bootstrap-lto-lean --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq performance (Boost: Enabled) - CPU Microcode: 0xa201009
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Full AMD retpoline IBPB: conditional IBRS_FW STIBP: always-on RSB filling + srbds: Not affected + tsx_async_abort: Not affected

RTX 2080 SUPER

Processor: AMD Ryzen 9 5900X 12-Core @ 3.70GHz (12 Cores / 24 Threads), Motherboard: ASUS ROG CROSSHAIR VIII HERO (3402 BIOS), Chipset: AMD Starship/Matisse, Memory: 16GB, Disk: 1000GB Sabrent Rocket 4.0 Plus + 2000GB, Graphics: NVIDIA GeForce RTX 2080 SUPER 8GB, Audio: NVIDIA TU104 HD Audio, Monitor: ASUS VP28U, Network: Realtek RTL8125 2.5GbE + Intel I211

OS: Ubuntu 21.04, Kernel: 5.11.0-17-generic (x86_64), Desktop: GNOME Shell 3.38.4, Display Server: X Server 1.20.11, Display Driver: NVIDIA 465.31, OpenGL: 4.6.0, OpenCL: OpenCL 3.0 CUDA 11.3.116, Vulkan: 1.2.168, Compiler: GCC 10.3.0 + CUDA 11.3, File-System: ext4, Screen Resolution: 3840x2160

Kernel Notes: Transparent Huge Pages: madvise
Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --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++,m2 --enable-libphobos-checking=release --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-link-mutex --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-10-gDeRY6/gcc-10-10.3.0/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-10-gDeRY6/gcc-10-10.3.0/debian/tmp-gcn/usr, hsa --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-build-config=bootstrap-lto-lean --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq performance (Boost: Enabled) - CPU Microcode: 0xa201009
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Full AMD retpoline IBPB: conditional IBRS_FW STIBP: always-on RSB filling + srbds: Not affected + tsx_async_abort: Not affected

RTX 2080 Ti

Processor: AMD Ryzen 9 5900X 12-Core @ 3.70GHz (12 Cores / 24 Threads), Motherboard: ASUS ROG CROSSHAIR VIII HERO (3402 BIOS), Chipset: AMD Starship/Matisse, Memory: 16GB, Disk: 1000GB Sabrent Rocket 4.0 Plus + 2000GB, Graphics: NVIDIA GeForce RTX 2080 Ti 11GB, Audio: NVIDIA TU102 HD Audio, Monitor: ASUS VP28U, Network: Realtek RTL8125 2.5GbE + Intel I211

OS: Ubuntu 21.04, Kernel: 5.11.0-17-generic (x86_64), Desktop: GNOME Shell 3.38.4, Display Server: X Server 1.20.11, Display Driver: NVIDIA 465.31, OpenGL: 4.6.0, OpenCL: OpenCL 3.0 CUDA 11.3.116, Vulkan: 1.2.168, Compiler: GCC 10.3.0 + CUDA 11.3, File-System: ext4, Screen Resolution: 3840x2160

Kernel Notes: Transparent Huge Pages: madvise
Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --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++,m2 --enable-libphobos-checking=release --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-link-mutex --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-10-gDeRY6/gcc-10-10.3.0/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-10-gDeRY6/gcc-10-10.3.0/debian/tmp-gcn/usr, hsa --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-build-config=bootstrap-lto-lean --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq performance (Boost: Enabled) - CPU Microcode: 0xa201009

Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Full AMD retpoline IBPB: conditional IBRS_FW STIBP: always-on RSB filling + srbds: Not affected + tsx_async_abort: Not affected

TITAN RTX

Processor: AMD Ryzen 9 5900X 12-Core @ 3.70GHz (12 Cores / 24 Threads), Motherboard: ASUS ROG CROSSHAIR VIII HERO (3402 BIOS), Chipset: AMD Starship/Matisse, Memory: 16GB, Disk: 1000GB Sabrent Rocket 4.0 Plus + 2000GB, Graphics: NVIDIA TITAN RTX 24GB, Audio: NVIDIA TU102 HD Audio, Monitor: ASUS VP28U, Network: Realtek RTL8125 2.5GbE + Intel I211

OS: Ubuntu 21.04, Kernel: 5.11.0-17-generic (x86_64), Desktop: GNOME Shell 3.38.4, Display Server: X Server 1.20.11, Display Driver: NVIDIA 465.31, OpenGL: 4.6.0, OpenCL: OpenCL 3.0 CUDA 11.3.116, Vulkan: 1.2.168, Compiler: GCC 10.3.0 + CUDA 11.3, File-System: ext4, Screen Resolution: 3840x2160

Kernel Notes: Transparent Huge Pages: madvise
Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --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++,m2 --enable-libphobos-checking=release --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-link-mutex --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-10-gDeRY6/gcc-10-10.3.0/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-10-gDeRY6/gcc-10-10.3.0/debian/tmp-gcn/usr, hsa --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-build-config=bootstrap-lto-lean --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq performance (Boost: Enabled) - CPU Microcode: 0xa201009
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Full AMD retpoline IBPB: conditional IBRS_FW STIBP: always-on RSB filling + srbds: Not affected + tsx_async_abort: Not affected

RTX 3060

Processor: AMD Ryzen 9 5900X 12-Core @ 3.70GHz (12 Cores / 24 Threads), Motherboard: ASUS ROG CROSSHAIR VIII HERO (3402 BIOS), Chipset: AMD Starship/Matisse, Memory: 16GB, Disk: 1000GB Sabrent Rocket 4.0 Plus + 2000GB, Graphics: eVGA NVIDIA GeForce RTX 3060 12GB, Audio: NVIDIA GeForce RTX 3060, Monitor: ASUS VP28U, Network: Realtek RTL8125 2.5GbE + Intel I211

OS: Ubuntu 21.04, Kernel: 5.11.0-17-generic (x86_64), Desktop: GNOME Shell 3.38.4, Display Server: X Server 1.20.11, Display Driver: NVIDIA 465.31, OpenGL: 4.6.0, OpenCL: OpenCL 3.0 CUDA 11.3.116, Vulkan: 1.2.168, Compiler: GCC 10.3.0 + CUDA 11.3, File-System: ext4, Screen Resolution: 3840x2160

Kernel Notes: Transparent Huge Pages: madvise
Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --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++,m2 --enable-libphobos-checking=release --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-link-mutex --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-10-gDeRY6/gcc-10-10.3.0/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-10-gDeRY6/gcc-10-10.3.0/debian/tmp-gcn/usr, hsa --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-build-config=bootstrap-lto-lean --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq performance (Boost: Enabled) - CPU Microcode: 0xa201009
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Full AMD retpoline IBPB: conditional IBRS_FW STIBP: always-on RSB filling + srbds: Not affected + tsx_async_abort: Not affected

RTX 3060 Ti

Processor: AMD Ryzen 9 5900X 12-Core @ 3.70GHz (12 Cores / 24 Threads), Motherboard: ASUS ROG CROSSHAIR VIII HERO (3402 BIOS), Chipset: AMD Starship/Matisse, Memory: 16GB, Disk: 1000GB Sabrent Rocket 4.0 Plus + 2000GB, Graphics: NVIDIA GeForce RTX 3060 Ti 8GB, Audio: NVIDIA GA104 HD Audio, Monitor: ASUS VP28U, Network: Realtek RTL8125 2.5GbE + Intel I211

OS: Ubuntu 21.04, Kernel: 5.11.0-17-generic (x86_64), Desktop: GNOME Shell 3.38.4, Display Server: X Server 1.20.11, Display Driver: NVIDIA 465.31, OpenGL: 4.6.0, OpenCL: OpenCL 3.0 CUDA 11.3.116, Vulkan: 1.2.168,

Compiler: GCC 10.3.0 + CUDA 11.3, File-System: ext4, Screen Resolution: 3840x2160

Kernel Notes: Transparent Huge Pages: madvise
Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --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++,m2 --enable-libphobos-checking=release --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-link-mutex --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-10-gDeRY6/gcc-10-10.3.0/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-10-gDeRY6/gcc-10-10.3.0/debian/tmp-gcn/usr, hsa --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-build-config=bootstrap-lto-lean --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq performance (Boost: Enabled) - CPU Microcode: 0xa201009
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Full AMD retpoline IBPB: conditional IBRS_FW STIBP: always-on RSB filling + srbds: Not affected + tsx_async_abort: Not affected

RTX 3070

Processor: AMD Ryzen 9 5900X 12-Core @ 3.70GHz (12 Cores / 24 Threads), Motherboard: ASUS ROG CROSSHAIR VIII HERO (3402 BIOS), Chipset: AMD Starship/Matisse, Memory: 16GB, Disk: 1000GB Sabrent Rocket 4.0 Plus + 2000GB, Graphics: NVIDIA GeForce RTX 3070 8GB, Audio: NVIDIA GA104 HD Audio, Monitor: ASUS VP28U, Network: Realtek RTL8125 2.5GbE + Intel I211

OS: Ubuntu 21.04, Kernel: 5.11.0-17-generic (x86_64), Desktop: GNOME Shell 3.38.4, Display Server: X Server 1.20.11, Display Driver: NVIDIA 465.31, OpenGL: 4.6.0, OpenCL: OpenCL 3.0 CUDA 11.3.116, Vulkan: 1.2.168, Compiler: GCC 10.3.0 + CUDA 11.3, File-System: ext4, Screen Resolution: 3840x2160

Kernel Notes: Transparent Huge Pages: madvise
Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --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++,m2 --enable-libphobos-checking=release --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-link-mutex --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-10-gDeRY6/gcc-10-10.3.0/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-10-gDeRY6/gcc-10-10.3.0/debian/tmp-gcn/usr, hsa --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-build-config=bootstrap-lto-lean --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq performance (Boost: Enabled) - CPU Microcode: 0xa201009
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Full AMD retpoline IBPB: conditional IBRS_FW STIBP: always-on RSB filling + srbds: Not affected + tsx_async_abort: Not affected

RTX 3070 Ti

Processor: AMD Ryzen 9 5900X 12-Core @ 3.70GHz (12 Cores / 24 Threads), Motherboard: ASUS ROG CROSSHAIR VIII HERO (3402 BIOS), Chipset: AMD Starship/Matisse, Memory: 16GB, Disk: 1000GB Sabrent Rocket 4.0 Plus + 2000GB, Graphics: NVIDIA GeForce RTX 3070 Ti 8GB, Audio: NVIDIA GA104 HD Audio, Monitor: ASUS VP28U, Network: Realtek RTL8125 2.5GbE + Intel I211

OS: Ubuntu 21.04, Kernel: 5.11.0-17-generic (x86_64), Desktop: GNOME Shell 3.38.4, Display Server: X Server 1.20.11, Display Driver: NVIDIA 465.31, OpenGL: 4.6.0, OpenCL: OpenCL 3.0 CUDA 11.3.116, Vulkan: 1.2.168, Compiler: GCC 10.3.0 + CUDA 11.3, File-System: ext4, Screen Resolution: 3840x2160

Kernel Notes: Transparent Huge Pages: madvise
Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --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++,m2 --enable-libphobos-checking=release --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-link-mutex --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-10-gDeRY6/gcc-10-10.3.0/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-10-gDeRY6/gcc-10-10.3.0/debian/tmp-gcn/usr, hsa --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-build-config=bootstrap-lto-lean --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq performance (Boost: Enabled) - CPU Microcode: 0xa201009
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Full AMD retpoline IBPB: conditional IBRS_FW STIBP: always-on RSB filling + srbds: Not affected + tsx_async_abort: Not affected

RTX 3080

Processor: AMD Ryzen 9 5900X 12-Core @ 3.70GHz (12 Cores / 24 Threads), Motherboard: ASUS ROG CROSSHAIR VIII HERO (3402 BIOS), Chipset: AMD Starship/Matisse, Memory: 16GB, Disk: 1000GB Sabrent Rocket 4.0 Plus + 2000GB, Graphics: NVIDIA GeForce RTX 3080 10GB, Audio: NVIDIA GA102 HD Audio, Monitor: ASUS VP28U, Network: Realtek RTL8125 2.5GbE + Intel I211

OS: Ubuntu 21.04, Kernel: 5.11.0-17-generic (x86_64), Desktop: GNOME Shell 3.38.4, Display Server: X Server 1.20.11, Display Driver: NVIDIA 465.31, OpenGL: 4.6.0, OpenCL: OpenCL 3.0 CUDA 11.3.116, Vulkan: 1.2.168, Compiler: GCC 10.3.0 + CUDA 11.3, File-System: ext4, Screen Resolution: 3840x2160

Kernel Notes: Transparent Huge Pages: madvise
Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --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++,m2 --enable-libphobos-checking=release --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-link-mutex --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-10-gDeRY6/gcc-10-10.3.0/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-10-gDeRY6/gcc-10-10.3.0/debian/tmp-gcn/usr, hsa --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-build-config=bootstrap-lto-lean --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq performance (Boost: Enabled) - CPU Microcode: 0xa201009
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Full AMD retpoline IBPB: conditional IBRS_FW STIBP: always-on RSB filling + srbds: Not affected + tsx_async_abort: Not affected

RTX 3080 Ti

Processor: AMD Ryzen 9 5900X 12-Core @ 3.70GHz (12 Cores / 24 Threads), Motherboard: ASUS ROG CROSSHAIR VIII HERO (3402 BIOS), Chipset: AMD Starship/Matisse, Memory: 16GB, Disk: 1000GB Sabrent Rocket 4.0 Plus + 2000GB, Graphics: NVIDIA GeForce RTX 3080 Ti 12GB, Audio: NVIDIA GA102 HD Audio, Monitor: ASUS VP28U, Network: Realtek RTL8125 2.5GbE + Intel I211

OS: Ubuntu 21.04, Kernel: 5.11.0-17-generic (x86_64), Desktop: GNOME Shell 3.38.4, Display Server: X Server 1.20.11, Display Driver: NVIDIA 465.31, OpenGL: 4.6.0, OpenCL: OpenCL 3.0 CUDA 11.3.116, Vulkan: 1.2.168, Compiler: GCC 10.3.0 + CUDA 11.3, File-System: ext4, Screen Resolution: 3840x2160

Kernel Notes: Transparent Huge Pages: madvise
Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --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++,m2 --enable-libphobos-checking=release --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-link-mutex --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-10-gDeRY6/gcc-10-10.3.0/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-10-gDeRY6/gcc-10-10.3.0/debian/tmp-gcn/usr, hsa --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-build-config=bootstrap-lto-lean --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq performance (Boost: Enabled) - CPU Microcode: 0xa201009
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Full AMD retpoline IBPB: conditional IBRS_FW STIBP: always-on RSB filling + srbds: Not affected + tsx_async_abort: Not affected

RTX 3090

Processor: AMD Ryzen 9 5900X 12-Core @ 3.70GHz (12 Cores / 24 Threads), Motherboard: ASUS ROG CROSSHAIR VIII HERO (3402 BIOS), Chipset: AMD Starship/Matisse, Memory: 16GB, Disk: 1000GB Sabrent Rocket 4.0 Plus + 2000GB, Graphics: NVIDIA GeForce RTX 3090 24GB, Audio: NVIDIA GA102 HD Audio, Monitor: ASUS VP28U, Network: Realtek RTL8125 2.5GbE + Intel I211

OS: Ubuntu 21.04, Kernel: 5.11.0-17-generic (x86_64), Desktop: GNOME Shell 3.38.4, Display Server: X Server 1.20.11, Display Driver: NVIDIA 465.31, OpenGL: 4.6.0, OpenCL: OpenCL 3.0 CUDA 11.3.116, Vulkan: 1.2.168, Compiler: GCC 10.3.0 + CUDA 11.3, File-System: ext4, Screen Resolution: 3840x2160

Kernel Notes: Transparent Huge Pages: madvise
Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --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++,m2 --enable-libphobos-checking=release --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-link-mutex --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto

--enable-offload-targets=nvptx-none=/build/gcc-10-gDeRY6/gcc-10-10.3.0/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-10-gDeRY6/gcc-10-10.3.0/debian/tmp-gcn/usr, hsa --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-build-config=bootstrap-lto-lean --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq performance (Boost: Enabled) - CPU Microcode: 0xa201009
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Full AMD retpoline IBPB: conditional IBRS_FW STIBP: always-on RSB filling + srbds: Not affected + tsx_async_abort: Not affected

RX 6700 XT

RX 6800

Processor: AMD Ryzen 9 5900X 12-Core @ 3.70GHz (12 Cores / 24 Threads), Motherboard: ASUS ROG CROSSHAIR VIII HERO (3402 BIOS), Chipset: AMD Starship/Matisse, Memory: 16GB, Disk: 1000GB Sabrent Rocket 4.0 Plus + 2000GB, Graphics: AMD Radeon RX 6700/6700 XT / 6800M 12GB (2855/1000MHz), Audio: AMD Navi 21 HDMI Audio, Monitor: ASUS VP28U, Network: Realtek RTL8125 2.5GbE + Intel I211

OS: Ubuntu 21.04, Kernel: 5.13.0-051300rc3daily20210525-generic (x86_64) 20210524, Desktop: GNOME Shell 3.38.4, Display Server: X Server 1.20.11 + Wayland, OpenGL: 4.6 Mesa 21.2.0-devel (git-b8d59e6 2021-05-27 hirsute-oibaf-ppa) (LLVM 12.0.0), Vulkan: 1.2.169, Compiler: GCC 10.3.0 + CUDA 11.3, File-System: ext4, Screen Resolution: 3840x2160

Kernel Notes: Transparent Huge Pages: madvise
Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --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++,m2 --enable-libphobos-checking=release --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-link-mutex --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-10-gDeRY6/gcc-10-10.3.0/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-10-gDeRY6/gcc-10-10.3.0/debian/tmp-gcn/usr, hsa --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-build-config=bootstrap-lto-lean --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq performance (Boost: Enabled) - CPU Microcode: 0xa201009
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Full AMD retpoline IBPB: conditional IBRS_FW STIBP: always-on RSB filling + srbds: Not affected + tsx_async_abort: Not affected

RX 6800 XT

Processor: AMD Ryzen 9 5900X 12-Core @ 3.70GHz (12 Cores / 24 Threads), Motherboard: ASUS ROG CROSSHAIR VIII HERO (3402 BIOS), Chipset: AMD Starship/Matisse, Memory: 16GB, Disk: 1000GB Sabrent Rocket 4.0 Plus + 2000GB, Graphics: AMD Radeon RX 6800/6800 XT / 6900 16GB (2575/1000MHz), Audio: AMD Navi 21 HDMI Audio, Monitor: ASUS VP28U, Network: Realtek RTL8125 2.5GbE + Intel I211

OS: Ubuntu 21.04, Kernel: 5.13.0-051300rc3daily20210525-generic (x86_64) 20210524, Desktop: GNOME Shell 3.38.4, Display Server: X Server 1.20.11 + Wayland, OpenGL: 4.6 Mesa 21.2.0-devel (git-b8d59e6 2021-05-27 hirsute-oibaf-ppa) (LLVM 12.0.0), Vulkan: 1.2.169, Compiler: GCC 10.3.0 + CUDA 11.3, File-System: ext4, Screen Resolution: 3840x2160

Kernel Notes: Transparent Huge Pages: madvise
Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --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++,m2 --enable-libphobos-checking=release --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-link-mutex --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-10-gDeRY6/gcc-10-10.3.0/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-10-gDeRY6/gcc-10-10.3.0/debian/tmp-gcn/usr, hsa --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-build-config=bootstrap-lto-lean --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq performance (Boost: Enabled) - CPU Microcode: 0xa201009
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Full AMD retpoline IBPB: conditional IBRS_FW STIBP: always-on RSB filling + srbds: Not affected + tsx_async_abort: Not affected

Vulkan Ray-Tracing GPUs On Linux

	RTX 2060	RTX 2060 SUPER	RTX 2070	RTX 2070 SUPER	RTX 2080	RTX 2080 SUPER	RTX 2080 Ti	TITAN RTX	RTX 3060	RTX 3060 Ti	RTX 3070	RTX 3070 Ti	RTX 3080	RTX 3080 Ti	RTX 3090	RX 6700 XT	RX 6800	RX 6800 XT
Quake II RTX - 1920 x 1080 - Off - On - VK_KHR_ray_query (FPS)	74.45	86.87	88.44	97.98	102.95	109.61	135.86	141.87	103.04	133.34	148.25	158.59	194.20	209.59	212.52	13.92	13.93	14.96
Normalized	35.03%	40.87%	41.62%	46.1%	48.46%	51.59%	63.93%	66.76%	48.47%	62.74%	69.76%	74.62%	91.38%	98.62%	100%	6.55%	6.56%	7.04%
Standard Deviation	0.9%	0.2%	0.6%	0.8%	2%	1.9%	1.2%	1.8%	1.3%	1.1%	2.1%	1.6%	1.8%	2.1%	2.5%	0.6%	0.6%	0%
Quake II RTX - 2560 x 1440 - Off - On - VK_KHR_ray_query (FPS)	44.11	52.02	52.83	59.31	62.42	68.05	84.08	89.31	61.96	81.70	92.18	100.03	125.76	133.64	141.25	13.87	13.88	14.96
Normalized	31.23%	36.83%	37.4%	41.99%	44.19%	48.18%	59.53%	63.23%	43.87%	57.84%	65.26%	70.82%	88.9%	94.61%	100%	9.82%	9.83%	10.59%
Standard Deviation	0.9%	0.3%	0.3%	0.2%	0.8%	0.1%	1.5%	0.7%	0.5%	1.6%	0.7%	0.5%	1%	2.1%	1.6%	0.2%	0.6%	0%
Quake II RTX - 3840 x 2160 - Off - On - VK_KHR_ray_query (FPS)	19.94	23.64	23.99	27.26	28.73	31.27	40.12	42.51	28.56	38.57	44.01	47.41	61.36	67.38	70.15	13.79	13.89	14.96
Normalized	28.43%	33.71%	34.21%	38.87%	40.97%	44.58%	57.2%	60.6%	40.71%	54.98%	62.74%	67.59%	87.48%	96.06%	100%	19.67%	19.81%	21.33%
Standard Deviation	0.5%	0.3%	0.7%	0.6%	0.5%	0.1%	0.2%	0.3%	0.1%	0.2%	0.3%	0.5%	0.6%	0.3%	0.3%	0.3%	0.3%	0%
Quake II RTX - 1920 x 1080 - High - On - VK_KHR_ray_query (FPS)	50.49	58.47	59.29	67.79	71.65	77.92	95.91	100.98	71.83	94.52	106.59	113.54	142.15	153.23	158.61	9.659	9.682	13.37
Normalized	31.84%	36.86%	37.38%	42.74%	45.18%	49.13%	60.47%	63.67%	45.29%	59.59%	67.21%	71.59%	89.62%	96.61%	100%	6.09%	6.1%	8.43%
Standard Deviation	0.7%	0.2%	0.1%	0.1%	0.1%	0.2%	1%	0.6%	0.1%	0.3%	0.5%	1.5%	0.9%	1.2%	2%	0.2%	0.2%	0.9%

Vulkan Ray-Tracing GPUs On Linux

Quake II RTX - 1920 x 1080 - Off - Off - VK_KHR_ray_query (FPS)	125.609949	143.853760	145.600775	159.400311	166.318561	176.964529	211.437811	217.641508	164.429541	206.646884	219.235834	235.624014	280.533435	292.617194	**293.036647**	**14.962652**	14.963125	22.698851
Normalized	42.86%	49.09%	49.69%	54.4%	56.76%	60.39%	72.15%	74.27%	56.11%	70.52%	74.82%	80.41%	95.73%	99.86%	100%	5.11%	5.11%	7.75%
Standard Deviation	0.2%	0.8%	0.8%	0.2%	0.5%	1.8%	1.4%	2.4%	0.5%	0.5%	2.5%	1.9%	0.8%	2.4%	3.4%	0%	0%	1.4%
Quake II RTX - 2560 x 1440 - High - On - VK_KHR_ray_query (FPS)	29.440400	34.370907	34.976103	40.143479	42.654020	46.761717	58.699782	61.598605	42.296956	56.590520	64.402001	69.504885	87.952543	96.469954	**100.522621**	**9.648233**	9.662646	13.347464
Normalized	29.29%	34.19%	34.79%	39.93%	42.43%	46.52%	58.39%	61.28%	42.08%	56.3%	64.07%	69.14%	87.5%	95.97%	100%	9.6%	9.61%	13.28%
Standard Deviation	0.6%	0.3%	0.3%	0.2%	0.5%	0.3%	0.3%	0.6%	0.1%	0.3%	0.5%	0.1%	0.6%	0.5%	0.3%	0.1%	0.3%	1.3%
Quake II RTX - 2560 x 1440 - Off - Off - VK_KHR_ray_query (FPS)	78.843497	91.320463	91.557661	102.597609	107.295315	116.467440	140.622353	146.028314	103.554926	132.367249	145.398889	155.878453	193.948482	205.956836	**215.382923**	**14.963243**	**14.963243**	22.907520
Normalized	36.61%	42.4%	42.51%	47.63%	49.82%	54.07%	65.29%	67.8%	48.08%	61.46%	67.51%	72.37%	90.07%	95.62%	100%	6.95%	6.95%	10.64%
Standard Deviation	1%	0.2%	0.9%	0.1%	1.3%	0.7%	1.3%	1.8%	0.9%	1.1%	0.8%	2.4%	0.3%	2.1%	1.2%	0%	0%	1%
Quake II RTX - 3840 x 2160 - High - On - VK_KHR_ray_query (FPS)	13.273981	15.492279	15.764731	18.233424	19.314691	21.259767	27.083439	28.628763	19.193729	25.882973	29.746503	31.992652	41.783488	46.206045	**48.066120**	**9.675606**	9.683956	13.346842
Normalized	27.62%	32.23%	32.8%	37.93%	40.18%	44.23%	56.35%	59.56%	39.93%	53.85%	61.89%	66.56%	86.93%	96.13%	100%	20.13%	20.15%	27.77%
Standard Deviation	0.4%	0.5%	0.7%	0.3%	0.8%	0.3%	0.4%	0.9%	0.1%	0.2%	0.5%	0.2%	0.1%	0.4%	0.5%	0.2%	0.1%	1%

Vulkan Ray-Tracing GPUs On Linux

Quake II RTX - 3840 x 2160 - Off - Off - VK_KHR_ray_query (FPS)	37.856358	43.935449	44.449539	50.236527	53.145887	58.131780	71.452606	74.802296	50.135254	65.547269	72.139528	78.729302	99.387409	109.1252221	**112.34301 2**	**14.962889**	14.963361	22.806700
Normalized	33.7%	39.11%	39.57%	44.72%	47.31%	51.74%	63.6%	66.58%	44.63%	58.35%	64.21%	70.08%	88.47%	97.14%	100%	13.32%	13.32%	20.3%
Standard Deviation	0.6%	0.2%	0.7%	0.3%	0.2%	0.2%	0.6%	1.4%	0.2%	0.2%	0.7%	1.1%	1.3%	1%	1.1%	0%	0%	1%
Quake II RTX - 1920 x 1080 - High - Off - VK_KHR_ray_query (FPS)	73.699953	83.088413	84.898514	96.484169	102.718657	110.833590	132.67102	140.88030 3	102.505730	133.490349	148.192837	158.471603	192.586243	207.320069	**214.07523 2**	**10.113177**	10.124172	14.959580
Normalized	34.43%	38.81%	39.66%	45.07%	47.98%	51.77%	61.97%	65.81%	47.88%	62.36%	69.22%	74.03%	89.96%	96.84%	100%	4.72%	4.73%	6.99%
Standard Deviation	0.1%	0.9%	0.4%	0.4%	0.1%	0.3%	1.8%	2.1%	1.3%	0.4%	0.3%	0.2%	1.1%	1.5%	2.3%	0.3%	0.2%	0%
Quake II RTX - 2560 x 1440 - High - Off - VK_KHR_ray_query (FPS)	44.278812	50.686858	51.447492	58.834300	62.978307	68.806965	85.238852	89.318651	62.241659	81.884441	91.426849	98.903368	124.1536 50	134.2366 14	**139.41357 4**	10.129584	**10.081055**	14.963480
Normalized	31.76%	36.36%	36.9%	42.2%	45.17%	49.35%	61.14%	64.07%	44.65%	58.73%	65.58%	70.94%	89.05%	96.29%	100%	7.27%	7.23%	10.73%
Standard Deviation	0.2%	0.1%	0.3%	0.6%	0.1%	0.5%	0.2%	0.5%	0.4%	0.2%	1%	0.3%	0.5%	1%	1.4%	0.5%	0.1%	0%
Quake II RTX - 3840 x 2160 - High - Off - VK_KHR_ray_query (FPS)	20.467878	23.489962	23.894638	27.680743	29.621539	32.611328	40.951062	43.052528	28.898605	38.480782	43.865326	47.058875	60.852231	66.731476	**68.984600**	**10.102337**	10.120576	14.963480
Normalized	29.67%	34.05%	34.64%	40.13%	42.94%	47.27%	59.36%	62.41%	41.89%	55.78%	63.59%	68.22%	88.21%	96.73%	100%	14.64%	14.67%	21.69%
Standard Deviation	0.3%	0.5%	0.2%	0.2%	0.4%	0.8%	0.2%	0.4%	0.2%	0.4%	0.3%	1.2%	1.2%	0.6%	1.1%	0.2%	0.2%	0%

Vulkan Ray-Tracing GPUs On Linux

Quake II RTX - 1920 x 1080 - Off - On - VK_KHR_ray_tracing_pipeline	72.050095	83.766470	84.889671	94.614107	98.024613	105.42423	129.42299	136.29456	101.93877	130.58136	145.77959	154.98932	188.14265	205.98235	**211.48523**	14.807470	**14.803477**	14.962889
Normalized	34.07%	39.61%	40.14%	44.74%	46.35%	49.85%	61.2%	64.45%	48.2%	61.74%	68.93%	73.29%	88.96%	97.4%	100%	7%	7%	7.08%
Standard Deviation	1%	0.5%	0.6%	1%	1.1%	0.6%	0.8%	0.5%	0.1%	0.2%	0.4%	0.9%	1.6%	0.4%	0.8%	0.4%	0.3%	0%
Quake II RTX - 2560 x 1440 - Off - On - VK_KHR_ray_tracing_pipeline	42.887087	50.613716	51.392750	57.463234	59.910967	64.770272	79.652306	84.276718	60.925003	80.053465	89.972574	96.602143	120.707793	131.500221	**136.699516**	**14.761089**	14.768507	14.963125
Normalized	31.37%	37.03%	37.6%	42.04%	43.83%	47.38%	58.27%	61.65%	44.57%	58.56%	65.82%	70.67%	88.3%	96.2%	100%	10.8%	10.8%	10.95%
Standard Deviation	0.5%	0.2%	0.1%	0.3%	0.7%	0.6%	1%	1%	0.1%	0.2%	0.1%	0.3%	1.1%	0.3%	0.3%	0.2%	0.3%	0%
Quake II RTX - 3840 x 2160 - Off - On - VK_KHR_ray_tracing_pipeline	19.616863	23.144706	23.545297	26.640702	27.737285	30.046475	38.211540	40.498202	28.031572	37.374092	42.420367	45.641596	58.838251	64.091999	**66.554492**	14.799886	**14.760980**	14.963243
Normalized	29.47%	34.78%	35.38%	40.03%	41.68%	45.15%	57.41%	60.85%	42.12%	56.16%	63.74%	68.58%	88.41%	96.3%	100%	22.24%	22.18%	22.48%
Standard Deviation	0.2%	0.2%	0.4%	0.3%	0.3%	0.4%	0.5%	0.2%	0%	0.8%	0.6%	0.8%	0.2%	0.4%	0.3%	0.4%	0.2%	0%
Quake II RTX - 1920 x 1080 - High - On - VK_KHR_ray_tracing_pipeline	50.880297	58.257318	59.078709	68.047663	71.056552	77.555951	95.006777	99.001911	70.641599	91.445774	103.995079	112.024876	138.262605	151.488503	**155.131660**	**9.919260**	9.926067	14.000509
Normalized	32.8%	37.55%	38.08%	43.86%	45.8%	49.99%	61.24%	63.82%	45.54%	58.95%	67.04%	72.21%	89.1%	97.65%	100%	6.39%	6.4%	9.02%
Standard Deviation	0.1%	0.3%	0%	0.4%	1.7%	0.6%	0.9%	0.9%	0.7%	1%	0.6%	0.4%	1.9%	0.5%	1.5%	0.1%	0.1%	0.3%

Vulkan Ray-Tracing GPUs On Linux

Quake II RTX - 1920 x 1080 - Off - Off - VK_KHR_ray_tracing_pipeline	118.71328	138.16412	139.46567	152.18072	156.33535	165.62086	194.61058	207.23871	158.58104	198.72248	214.21948	227.25193	269.76531	282.17814	**291.08451**	14.967268	**14.963361**	25.531778
Normalized	40.78%	47.47%	47.91%	52.28%	53.71%	56.9%	66.86%	71.2%	54.48%	68.27%	73.59%	78.07%	92.68%	96.94%	100%	5.14%	5.14%	8.77%
Standard Deviation	0.7%	0.8%	0.5%	0.6%	1%	2.2%	2.5%	1.3%	0.8%	1.1%	1%	2.5%	1.7%	2.3%	1.2%	0%	0%	0.5%
Quake II RTX - 2560 x 1440 - High - On - VK_KHR_ray_tracing_pipeline	29.789414	34.426141	34.924160	40.713183	42.649818	46.629253	57.481467	60.298293	41.583871	55.275561	63.275231	67.771439	85.546005	92.934103	**96.365006**	**9.917385**	9.933002	14.049056
Normalized	30.91%	35.72%	36.24%	42.25%	44.26%	48.39%	59.65%	62.57%	43.15%	57.36%	65.66%	70.33%	88.77%	96.44%	100%	10.29%	10.31%	14.58%
Standard Deviation	0.5%	0.4%	0.5%	0%	0.3%	0.3%	0.5%	1.2%	0.7%	0.8%	0.2%	0.7%	1%	1%	1.4%	0.1%	0.1%	0.3%
Quake II RTX - 2560 x 1440 - Off - Off - VK_KHR_ray_tracing_pipeline	75.890745	88.145306	88.661722	96.945038	100.938917	108.666702	129.700206	137.204605	101.093756	126.827652	138.178464	150.858554	179.924252	197.066977	**200.758548**	**14.963125**	14.963243	25.589859
Normalized	37.8%	43.91%	44.16%	48.29%	50.28%	54.13%	64.61%	68.34%	50.36%	63.2%	68.83%	75.16%	89.63%	98.16%	100%	7.45%	7.45%	12.75%
Standard Deviation	0.5%	0.5%	1.2%	1.2%	1.2%	0.1%	1.6%	0.3%	0.2%	1.5%	1.1%	0.3%	2.4%	0.6%	2.1%	0%	0%	0.3%
Quake II RTX - 3840 x 2160 - High - On - VK_KHR_ray_tracing_pipeline	13.475414	15.554536	15.797445	18.582075	19.456426	21.344598	26.805210	28.197027	18.954288	25.437144	29.271754	31.255415	40.435432	44.533054	**46.109526**	9.920944	**9.919157**	14.032917
Normalized	29.22%	33.73%	34.26%	40.3%	42.2%	46.29%	58.13%	61.15%	41.11%	55.17%	63.48%	67.79%	87.69%	96.58%	100%	21.52%	21.51%	30.43%
Standard Deviation	0.3%	0.4%	0.6%	0.3%	0.8%	0.5%	0.3%	0.2%	0.1%	0.2%	0.2%	0.6%	0.4%	0.7%	1%	0.2%	0.1%	1.1%

Vulkan Ray-Tracing GPUs On Linux

Quake II RTX - 3840 x 2160 - Off - Off - VK_KHR_ray_tracing_pipeline	36.715949	42.535695	42.931249	48.284888	50.238969	54.040936	65.523567	69.580775	48.606337	63.104333	68.648209	75.233053	94.155581	100.804863	**104.691553**	14.963361	**14.963243**	25.729016
Normalized	35.07%	40.63%	41.01%	46.12%	47.99%	51.62%	62.59%	66.46%	46.43%	60.28%	65.57%	71.86%	89.94%	96.29%	100%	14.29%	14.29%	24.58%
Standard Deviation	0.1%	0.3%	0.3%	0.3%	0.2%	0%	0.6%	0.3%	0.7%	0.2%	1.2%	0.3%	0.4%	1.4%	0.8%	0%	0%	0.5%
Quake II RTX - 1920 x 1080 - High - Off - VK_KHR_ray_tracing_pipeline	73.263123	83.116453	84.010538	97.173899	101.058451	109.193565	131.166548	137.255367	101.177928	130.278290	143.024750	154.033635	184.755721	196.407736	**210.896103**	10.618338	**10.594867**	14.963480
Normalized	34.74%	39.41%	39.84%	46.08%	47.92%	51.78%	62.19%	65.08%	47.98%	61.77%	67.82%	73.04%	87.61%	93.13%	100%	5.03%	5.02%	7.1%
Standard Deviation	1.2%	0.9%	1%	0.7%	1.3%	1.3%	0.9%	1.8%	0.3%	0.2%	1.9%	0.5%	2.5%	1.7%	0.2%	0.4%	0.6%	0%
Quake II RTX - 2560 x 1440 - High - Off - VK_KHR_ray_tracing_pipeline	44.581307	50.742679	51.280070	59.939510	62.777038	68.436269	82.125969	86.586640	61.101595	79.506252	88.806711	96.189165	118.162163	128.746351	**135.045723**	10.654447	**10.602433**	14.963361
Normalized	33.01%	37.57%	37.97%	44.38%	46.49%	50.68%	60.81%	64.12%	45.25%	58.87%	65.76%	71.23%	87.5%	95.34%	100%	7.89%	7.85%	11.08%
Standard Deviation	0.3%	0.2%	0.2%	0.3%	0.6%	0.4%	1.3%	1%	0.6%	1.4%	1.1%	0.1%	1.5%	2.2%	0.2%	0.5%	0.1%	0%
Quake II RTX - 3840 x 2160 - High - Off - VK_KHR_ray_tracing_pipeline	20.793708	23.602904	23.823412	28.373232	29.784797	32.553870	39.972260	41.879195	28.462314	37.535384	42.591031	45.808960	58.378567	63.391673	**66.135676**	**10.596561**	10.638356	14.963243
Normalized	31.44%	35.69%	36.02%	42.9%	45.04%	49.22%	60.44%	63.32%	43.04%	56.76%	64.4%	69.27%	88.27%	95.85%	100%	16.02%	16.09%	22.63%
Standard Deviation	0.4%	0.4%	0.7%	0.2%	0.1%	0.2%	0.2%	0.4%	0%	0.7%	0.1%	0.3%	0.6%	0.1%	0.1%	0.3%	0.3%	0%

Vulkan Ray-Tracing GPUs On Linux

Quake II RTX - 1920 x 1080 - Off - On - VK_KHR_ray_query (FPS/Watt)	0.893	1.006	1.063	0.981	1.087	1.072	1.264	1.265	1.365	1.662	**1.831**	1.387	1.615	1.485	1.518	**0.141**	**0.141**
Normalized	48.77%	54.94%	58.06%	53.58%	59.37%	58.55%	69.03%	69.09%	74.55%	90.77%	100%	75.75%	88.2%	81.1%	82.91%	7.7%	7.7%
Quake II RTX - 2560 x 1440 - Off - On - VK_KHR_ray_query (FPS/Watt)	0.44	0.484	0.504	0.493	0.507	0.519	0.66	0.666	0.648	0.814	**0.897**	0.702	0.863	0.814	0.882	0.14	**0.128**
Normalized	49.05%	53.96%	56.19%	54.96%	56.52%	57.86%	73.58%	74.25%	72.24%	90.75%	100%	78.26%	96.21%	90.75%	98.33%	15.61%	14.27%
Quake II RTX - 3840 x 2160 - Off - On - VK_KHR_ray_query (FPS/Watt)	0.164	0.181	0.186	0.186	0.19	0.192	0.244	0.242	0.235	0.3	0.325	0.259	0.331	0.326	**0.351**	0.141	**0.138**
Normalized	46.72%	51.57%	52.99%	52.99%	54.13%	54.7%	69.52%	68.95%	66.95%	85.47%	92.59%	73.79%	94.3%	92.88%	100%	40.17%	39.32%
Quake II RTX - 1920 x 1080 - High - On - VK_KHR_ray_query (FPS/Watt)	0.513	0.572	0.586	0.577	0.604	0.628	0.777	0.757	0.778	0.978	**1.077**	0.827	0.987	0.943	1.017	**0.08**	0.083
Normalized	47.63%	53.11%	54.41%	53.57%	56.08%	58.31%	72.14%	70.29%	72.24%	90.81%	100%	76.79%	91.64%	87.56%	94.43%	7.43%	7.71%
Quake II RTX - 1920 x 1080 - Off - Off - VK_KHR_ray_query (FPS/Watt)	1.786	1.984	2.019	2.005	1.952	2.231	2.394	2.28	2.601	2.96	**3.165**	2.269	2.468	2.255	2.243	**0.242**	0.277
Normalized	56.43%	62.69%	63.79%	63.35%	61.67%	70.49%	75.64%	72.04%	82.18%	93.52%	100%	71.69%	77.98%	71.25%	70.87%	7.65%	8.75%

Quake II RTX - 2560 x 1440 - High - On - VK_KHR_ray_query (FPS/Watt)	0.259	0.287	0.291	0.287	0.302	0.306	0.408	0.395	0.386	0.488	0.543	0.419	0.518	0.521	**0.557**	**0.079**	0.083
Normalized	46.5%	51.53%	52.24%	51.53%	54.22%	54.94%	73.25%	70.92%	69.3%	87.61%	97.49%	75.22%	93%	93.54%	100%	14.18%	14.9%
Quake II RTX - 2560 x 1440 - Off - Off - VK_KHR_ray_query (FPS/Watt)	0.943	1.04	1.069	1.053	1.085	1.254	1.323	1.285	1.348	1.572	**1.691**	1.284	1.498	1.417	1.536	**0.235**	0.276
Normalized	55.77%	61.5%	63.22%	62.27%	64.16%	74.16%	78.24%	75.99%	79.72%	92.96%	100%	75.93%	88.59%	83.8%	90.83%	13.9%	16.32%
Quake II RTX - 3840 x 2160 - High - On - VK_KHR_ray_query (FPS/Watt)	0.101	0.11	0.113	0.109	0.114	0.115	0.148	0.144	0.144	0.18	0.195	0.157	0.197	0.201	**0.217**	**0.079**	0.083
Normalized	46.54%	50.69%	52.07%	50.23%	52.53%	53%	68.2%	66.36%	66.36%	82.95%	89.86%	72.35%	90.78%	92.63%	100%	36.41%	38.25%
Quake II RTX - 3840 x 2160 - Off - Off - VK_KHR_ray_query (FPS/Watt)	0.361	0.399	0.398	0.399	0.417	0.432	0.533	0.51	0.493	0.607	0.64	0.516	0.623	0.626	**0.658**	**0.239**	0.271
Normalized	54.86%	60.64%	60.49%	60.64%	63.37%	65.65%	81%	77.51%	74.92%	92.25%	97.26%	78.42%	94.68%	95.14%	100%	36.32%	41.19%
Quake II RTX - 1920 x 1080 - High - Off - VK_KHR_ray_query (FPS/Watt)	0.841	0.909	0.959	0.938	0.969	1.092	1.217	1.178	1.3	1.591	**1.718**	1.286	1.494	1.418	1.508	**0.107**	0.12
Normalized	48.95%	52.91%	55.82%	54.6%	56.4%	63.56%	70.84%	68.57%	75.67%	92.61%	100%	74.85%	86.96%	82.54%	87.78%	6.23%	6.98%

Vulkan Ray-Tracing GPUs On Linux

Quake II RTX - 2560 x 1440 - High - Off - VK_KHR_ray_query (FPS/Watt)	0.431	0.472	0.498	0.483	0.505	0.537	0.646	0.64	0.644	0.798	**0.873**	0.683	0.825	0.806	0.855	**0.105**	0.124
Normalized	49.37%	54.07%	57.04%	55.33%	57.85%	61.51%	74%	73.31%	73.77%	91.41%	100%	78.24%	94.5%	92.33%	97.94%	12.03%	14.2%
Quake II RTX - 3840 x 2160 - High - Off - VK_KHR_ray_query (FPS/Watt)	0.168	0.18	0.186	0.183	0.196	0.205	0.247	0.244	0.24	0.297	0.324	0.259	0.326	0.329	**0.343**	**0.105**	0.117
Normalized	48.98%	52.48%	54.23%	53.35%	57.14%	59.77%	72.01%	71.14%	69.97%	86.59%	94.46%	75.51%	95.04%	95.92%	100%	30.61%	34.11%
Quake II RTX - 1920 x 1080 - Off - On - VK_KHR_ray_tracing_pipeline (FPS/Watt)	0.905	0.94	1.074	0.966	1.006	1.061	1.27	1.247	1.341	1.637	**1.821**	1.374	1.55	1.488	1.572	0.145	**0.139**
Normalized	49.7%	51.62%	58.98%	53.05%	55.24%	58.26%	69.74%	68.48%	73.64%	89.9%	100%	75.45%	85.12%	81.71%	86.33%	7.96%	7.63%
Quake II RTX - 2560 x 1440 - Off - On - VK_KHR_ray_tracing_pipeline (FPS/Watt)	0.431	0.481	0.497	0.475	0.503	0.519	0.648	0.623	0.658	0.804	**0.902**	0.692	0.835	0.818	0.876	0.147	**0.122**
Normalized	47.78%	53.33%	55.1%	52.66%	55.76%	57.54%	71.84%	69.07%	72.95%	89.14%	100%	76.72%	92.57%	90.69%	97.12%	16.3%	13.53%

Vulkan Ray-Tracing GPUs On Linux

Quake II RTX - 3840 x 2160 - Off - On - VK_KHR_ray_tracing_pipeline (FPS/Watt)	0.162	0.181	0.187	0.181	0.183	0.183	0.237	0.227	0.237	0.297	0.325	0.258	0.319	0.322	**0.35**	0.143	**0.139**
Normalized	46.29%	51.71%	53.43%	51.71%	52.29%	52.29%	67.71%	64.86%	67.71%	84.86%	92.86%	73.71%	91.14%	92%	100%	40.86%	39.71%
Quake II RTX - 1920 x 1080 - High - On - VK_KHR_ray_tracing_pipeline (FPS/Watt)	0.541	0.583	0.616	0.612	0.613	0.66	0.771	0.761	0.792	0.972	**1.103**	0.844	1.001	0.996	1.045	**0.078**	0.083
Normalized	49.05%	52.86%	55.85%	55.49%	55.58%	59.84%	69.9%	68.99%	71.8%	88.12%	100%	76.52%	90.75%	90.3%	94.74%	7.07%	7.52%
Quake II RTX - 1920 x 1080 - Off - Off - VK_KHR_ray_tracing_pipeline (FPS/Watt)	1.761	1.903	1.931	1.961	1.856	2.092	2.316	2.132	2.627	2.946	**3.124**	2.241	2.44	2.222	2.453	**0.259**	0.294
Normalized	56.37%	60.92%	61.81%	62.77%	59.41%	66.97%	74.14%	68.25%	84.09%	94.3%	100%	71.73%	78.1%	71.13%	78.52%	8.29%	9.41%
Quake II RTX - 2560 x 1440 - High - On - VK_KHR_ray_tracing_pipeline (FPS/Watt)	0.266	0.291	0.305	0.305	0.31	0.315	0.394	0.386	0.387	0.492	0.537	0.426	0.518	0.52	**0.557**	**0.08**	0.083
Normalized	47.76%	52.24%	54.76%	54.76%	55.66%	56.55%	70.74%	69.3%	69.48%	88.33%	96.41%	76.48%	93%	93.36%	100%	14.36%	14.9%

Vulkan Ray-Tracing GPUs On Linux

Quake II RTX - 2560 x 1440 - Off - Off - VK_KHR_ray_tracing_pipeline (FPS/Watt)	0.945	1.049	1.042	1.044	1.008	1.129	1.293	1.237	1.346	1.569	**1.682**	1.288	1.405	1.41	1.499	**0.242**	0.294
Normalized	56.18%	62.37%	61.95%	62.07%	59.93%	67.12%	76.87%	73.54%	80.02%	93.28%	100%	76.58%	83.53%	83.83%	89.12%	14.39%	17.48%
Quake II RTX - 3840 x 2160 - High - On - VK_KHR_ray_tracing_pipeline (FPS/Watt)	0.104	0.113	0.115	0.114	0.118	0.117	0.147	0.145	0.145	0.18	0.196	0.158	0.194	0.199	**0.212**	**0.079**	0.083
Normalized	49.06%	53.3%	54.25%	53.77%	55.66%	55.19%	69.34%	68.4%	68.4%	84.91%	92.45%	74.53%	91.51%	93.87%	100%	37.26%	39.15%
Quake II RTX - 3840 x 2160 - Off - Off - VK_KHR_ray_tracing_pipeline (FPS/Watt)	0.361	0.39	0.401	0.389	0.389	0.42	0.492	0.475	0.493	0.598	**0.635**	0.504	0.605	0.592	0.634	**0.234**	0.293
Normalized	56.85%	61.42%	63.15%	61.26%	61.26%	66.14%	77.48%	74.8%	77.64%	94.17%	100%	79.37%	95.28%	93.23%	99.84%	36.85%	46.14%
Quake II RTX - 1920 x 1080 - High - Off - VK_KHR_ray_tracing_pipeline (FPS/Watt)	0.881	0.96	0.96	1.002	0.991	1.1	1.289	1.253	1.321	1.597	**1.756**	1.324	1.439	1.413	1.584	**0.109**	0.121
Normalized	50.17%	54.67%	54.67%	57.06%	56.44%	62.64%	73.41%	71.36%	75.23%	90.95%	100%	75.4%	81.95%	80.47%	90.21%	6.21%	6.89%

Vulkan Ray-Tracing GPUs On Linux

Quake II RTX - 2560 x 1440 - High - Off - VK_KHR_ray_tracing_pipeline (FPS/Watt)	0.46	0.481	0.52	0.527	0.529	0.566	0.665	0.636	0.659	0.808	**0.882**	0.686	0.831	0.804	0.872	**0.11**	0.117
Normalized	52.15%	54.54%	58.96%	59.75%	59.98%	64.17%	75.4%	72.11%	74.72%	91.61%	100%	77.78%	94.22%	91.16%	98.87%	12.47%	13.27%
Quake II RTX - 3840 x 2160 - High - Off - VK_KHR_ray_tracing_pipeline (FPS/Watt)	0.173	0.185	0.189	0.195	0.2	0.21	0.245	0.238	0.243	0.298	0.322	0.258	0.322	0.319	**0.341**	**0.109**	0.115
Normalized	50.73%	54.25%	55.43%	57.18%	58.65%	61.58%	71.85%	69.79%	71.26%	87.39%	94.43%	75.66%	94.43%	93.55%	100%	31.96%	33.72%
Ray Tracing In Vulkan - 1920 x 1080 - Cornell	46.2114	51.7367	53.0707	61.7613	67.9629	74.4112	100.896	105.884	48.0800	67.9096	80.5794	81.2650	116.747	131.930	**139.849**	**40.5813**	40.7360	65.0329
Normalized	33.04%	36.99%	37.95%	44.16%	48.6%	53.21%	72.15%	75.71%	34.38%	48.56%	57.62%	58.11%	83.48%	94.34%	100%	29.02%	29.13%	46.5%
Standard Deviation	0.4%	0.1%	0.2%	0.1%	0.6%	0.5%	0.2%	0.2%	0.1%	0.2%	0.6%	0.3%	0.4%	0.4%	0.1%	0.2%	0.1%	0.5%
Ray Tracing In Vulkan - 2560 x 1440 - Cornell	26.4794	29.7683	30.4725	35.2480	38.8304	42.7626	57.8643	60.7656	27.4544	38.4762	45.9271	46.3032	66.8571	75.4047	**79.8735**	**22.3557**	22.5687	36.9903
Normalized	33.15%	37.27%	38.15%	44.13%	48.61%	53.54%	72.44%	76.08%	34.37%	48.17%	57.5%	57.97%	83.7%	94.41%	100%	27.99%	28.26%	46.31%
Standard Deviation	0.1%	0.1%	0.1%	0.2%	0.5%	0.3%	0.3%	0.3%	0.1%	0.3%	0.1%	0.3%	0.4%	0.3%	0.2%	0.1%	0.1%	0.1%
Ray Tracing In Vulkan - 3840 x 2160 - Cornell	12.6011	14.1657	14.5184	16.7750	18.5197	20.2455	27.4695	28.7104	13.1073	18.4452	21.7784	21.9238	31.5017	35.5543	**37.6387**	**10.4187**	10.4551	17.6418
Normalized	33.48%	37.64%	38.57%	44.57%	49.2%	53.79%	72.98%	76.28%	34.82%	49.01%	57.86%	58.25%	83.69%	94.46%	100%	27.68%	27.78%	46.87%
Standard Deviation	0%	0%	0%	0%	0.5%	0.4%	0.3%	0.2%	0.1%	0.3%	0.3%	0.4%	0%	0.5%	0%	0.2%	0.1%	0%

Vulkan Ray-Tracing GPUs On Linux

Ray Tracing In Vulkan - 1920 x 1080 - Cornell Box + Lucy	17.09	21.77	22.20	24.53	24.83	25.60	37.50	39.56	19.15	32.54	38.75	40.66	55.83	63.64	**66.88**	**10.09**	12.18	24.29
Normalized	25.56	32.55	33.21	36.69	37.14	38.29	56.08	59.15	28.64	48.66	57.95	60.81	83.49	95.16	100%	15.1%	18.22	36.33
Standard Deviation	0.1%	0.2%	0.3%	0.1%	0.6%	0.1%	0%	0.3%	0.2%	0.3%	0.3%	0.1%	0.5%	0.3%	0.2%	0.4%	3.9%	0.1%
Ray Tracing In Vulkan - 2560 x 1440 - Cornell Box + Lucy	9.790	12.47	12.67	14.12	14.33	14.76	21.68	22.93	11.02	18.72	22.32	23.55	32.06	36.45	**38.35**	**5.802**	6.953	13.47
Normalized	25.53	32.51	33.04	36.82	37.38	38.5%	56.54	59.79	28.73	48.83	58.2%	61.42	83.61	95.06	100%	15.13	18.13	35.12
Standard Deviation	0.1%	0.1%	0.3%	0.2%	0.3%	0.3%	0.1%	0%	0.3%	0.1%	0.2%	0.1%	0%	0.4%	0.2%	1.3%	2.5%	0.1%
Ray Tracing In Vulkan - 3840 x 2160 - Cornell Box + Lucy	4.688	5.989	6.095	6.784	6.933	7.135	10.53	11.11	5.336	8.992	10.75	11.38	15.65	17.77	**18.73**	**2.734**	3.362	6.498
Normalized	25.03	31.98	32.54	36.22	37.02	38.09	56.24	59.35	28.49	48%	57.39	60.75	83.58	94.88	100%	14.6%	17.95	34.69
Standard Deviation	0.2%	0.1%	0.4%	0.2%	0.1%	0.2%	0.1%	0.3%	0.1%	0.1%	0.2%	0%	0.2%	0.4%	0.3%	0.4%	1.3%	0.1%
Ray Tracing In Vulkan - 1920 x 1080 - L.I.O.W	**18.82**	23.40	23.78	26.33	27.28	28.48	40.40	42.45	23.69	33.17	39.07	40.45	55.75	63.50	**66.59**	21.02	21.38	34.54
Normalized	28.27	35.15	35.71	39.55	40.97	42.77	60.67	63.76	35.58	49.82	58.68	60.75	83.72	95.36	100%	31.58	32.11	51.88
Standard Deviation	0.1%	0.2%	0.4%	0.1%	0.2%	0.2%	0.3%	0.3%	0.1%	0.2%	0.1%	0.2%	0.3%	0.4%	0.2%	0.2%	0.2%	0.4%
Ray Tracing In Vulkan - 2560 x 1440 - L.I.O.W	**11.17**	13.84	14.08	15.70	16.36	17.20	24.42	25.66	13.71	19.15	22.61	23.33	32.01	36.32	**38.19**	11.74	11.85	20.80
Normalized	29.26	36.24	36.86	41.12	42.84	45.05	63.94	67.18	35.9%	50.15	59.21	61.08	83.81	95.08	100%	30.73	31.02	54.45
Standard Deviation	0%	0.2%	0.4%	0.3%	0.3%	0.4%	0.3%	0.2%	0.1%	0%	0.1%	0%	0.2%	0.5%	0.2%	1.7%	0.3%	0.2%

Vulkan Ray-Tracing GPUs On Linux

Ray Tracing In Vulkan - 3840 x 2160 - L.I.O.W	5.642 40	6.903 70	7.050 96	7.961 45	8.378 99	8.850 32	12.50 81	13.15 75	6.706 92	9.450 74	11.24 83	11.60 17	16.04 79	18.15 51	19.12 87	5.855 22	5.854 00	10.62 77
Normalized	29.5%	36.09 %	36.86 %	41.62 %	43.8%	46.27 %	65.39 %	68.78 %	35.06 %	49.41 %	58.8%	60.65 %	83.89 %	94.91 %	100%	30.61 %	30.6%	55.56 %
Standard Deviation	0.1%	0.1%	0.4%	0.4%	0.3%	0.4%	0.2%	0.4%	0%	0%	0%	0.1%	0.2%	0.4%	0.1%	0.5%	0.2%	0.2%
Ray Tracing In Vulkan - 1920 x 1080 - P.I.O.W	30.13 29	33.96 89	34.59 86	40.20 85	44.41 28	48.44 84	64.95 26	67.91 81	26.16 09	36.56 38	43.52 00	43.96 74	63.68 63	71.75 35	76.35 79	49.94 22	50.12 22	83.06 70
Normalized	36.28 %	40.89 %	41.65 %	48.4%	53.47 %	58.32 %	78.19 %	81.76 %	31.49 %	44.02 %	52.39 %	52.93 %	76.67 %	86.38 %	91.92 %	60.12 %	60.34 %	100%
Standard Deviation	0%	0.1%	0.5%	0.4%	0.1%	0.1%	0.5%	0%	0.2%	0.1%	0.5%	0.5%	0.2%	0.4%	0.2%	0.1%	0.3%	0.3%
Ray Tracing In Vulkan - 2560 x 1440 - P.I.O.W	17.20 32	19.38 42	19.78 51	22.89 77	25.30 20	27.65 93	36.83 91	38.59 95	14.96 18	20.92 60	24.74 33	25.02 32	35.91 37	40.59 35	43.23 54	27.23 98	27.48 72	47.15 89
Normalized	36.48 %	41.1%	41.95 %	48.55 %	53.65 %	58.65 %	78.12 %	81.85 %	31.73 %	44.37 %	52.47 %	53.06 %	76.15 %	86.08 %	91.68 %	57.76 %	58.29 %	100%
Standard Deviation	0%	0.2%	0.4%	0.4%	0.2%	0.1%	0.3%	0.3%	0.2%	0%	0.2%	0.3%	0.1%	0.5%	0.3%	0.1%	0.1%	0.2%
Ray Tracing In Vulkan - 3840 x 2160 - P.I.O.W	8.155 11	9.206 30	9.411 98	10.91 71	12.08 84	13.20 94	17.75 24	18.54 58	7.083 06	9.995 70	11.86 99	12.00 71	17.32 96	19.61 64	20.77 17	13.12 51	13.19 70	22.74 45
Normalized	35.86 %	40.48 %	41.38 %	48%	53.15 %	58.08 %	78.05 %	81.54 %	31.14 %	43.95 %	52.19 %	52.79 %	76.19 %	86.25 %	91.33 %	57.71 %	58.02 %	100%
Standard Deviation	0%	0.5%	0.5%	0.4%	0.1%	0%	0.3%	0.2%	0.1%	0.1%	0%	0.2%	0%	0.6%	0%	0.1%	0%	0.1%
Ray Tracing In Vulkan - 1920 x 1080 - R.T.I.O.W	29.51 38	33.27 69	33.88 54	39.22 63	43.60 14	47.53 28	64.14 00	67.04 14	25.55 58	35.73 15	42.45 61	42.83 40	62.17 10	70.56 53	74.53 93	52.89 12	53.30 42	83.91 94
Normalized	35.17 %	39.65 %	40.38 %	46.74 %	51.96 %	56.64 %	76.43 %	79.89 %	30.45 %	42.58 %	50.59 %	51.04 %	74.08 %	84.09 %	88.82 %	63.03 %	63.52 %	100%
Standard Deviation	0.1%	0%	0.5%	0.5%	0.5%	0.1%	0.6%	0.2%	0.1%	0.1%	0.2%	0%	0.4%	0.4%	0.2%	0.3%	0.1%	0.3%

Vulkan Ray-Tracing GPUs On Linux

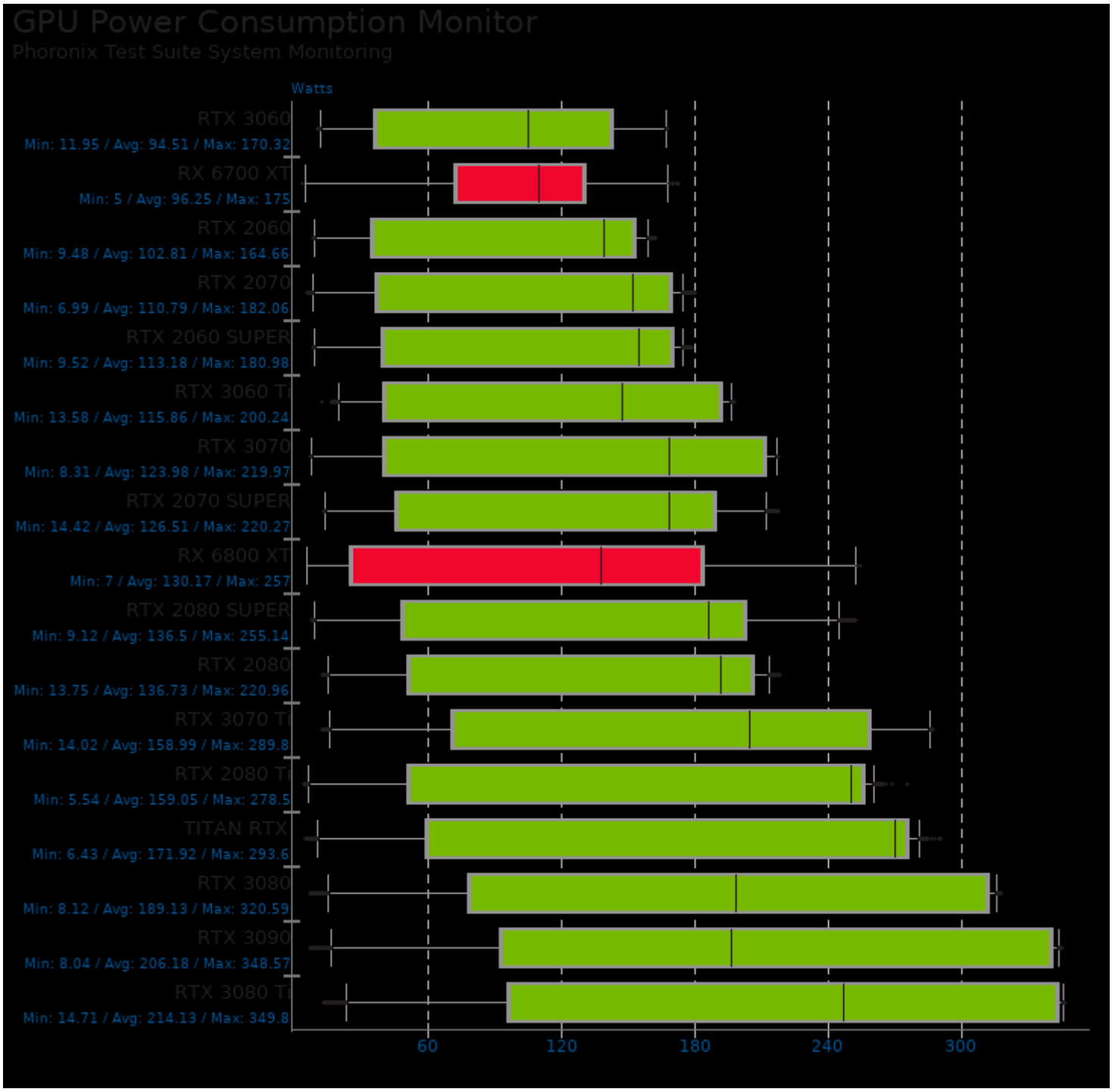
Ray Tracing In Vulkan - 2560 x 1440 - R.T.I.O.W	16.84	19.02	19.43	22.38	24.81	27.04	36.14	37.84	**14.58**	20.44	24.16	24.44	35.17	39.93	42.20	28.84	29.08	**48.43**
	51	30	35	29	63	00	65	04	**82**	48	91	32	96	93	19	90	96	**07**
Normalized	34.78%	39.28%	40.13%	46.22%	51.24%	55.83%	74.64%	78.13%	30.12%	42.21%	49.9%	50.47%	72.64%	82.47%	87.14%	59.57%	60.06%	100%
Standard Deviation	0.3%	0%	0.4%	0.5%	0.5%	0.1%	0.3%	0.3%	0.1%	0%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0%	0.4%
Ray Tracing In Vulkan - 3840 x 2160 - R.T.I.O.W	7.988	9.033	9.209	10.66	11.84	12.92	17.39	18.20	**6.925**	9.753	11.58	11.73	16.98	19.22	20.33	13.63	13.69	**23.17**
	14	27	73	57	91	54	9	56	**00**	07	57	07	93	69	58	35	64	**38**
Normalized	34.47%	38.98%	39.74%	46.02%	51.13%	55.78%	75.08%	78.56%	29.88%	42.09%	49.99%	50.62%	73.31%	82.97%	87.75%	58.83%	59.1%	100%
Standard Deviation	0.1%	0%	0.5%	0.4%	0.5%	0%	0.1%	0.2%	0%	0%	0%	0.1%	0%	0.2%	0.3%	0.1%	0.2%	0.2%
Ray Tracing In Vulkan - 1920 x 1080 - Cornell Box	0.386	0.391	0.416	0.427	0.4	0.451	0.443	0.428	0.48	0.477	**0.494**	0.406	0.415	0.43	0.458	**0.271**		0.293
Normalized	78.14%	79.15%	84.21%	86.44%	80.97%	91.3%	89.68%	86.64%	97.17%	96.56%	100%	82.19%	84.01%	87.04%	92.71%	54.86%		59.31%
Ray Tracing In Vulkan - 2560 x 1440 - Cornell Box	0.219	0.224	0.236	0.241	0.227	0.255	0.253	0.247	0.271	0.27	**0.278**	0.231	0.239	0.245	0.263	**0.151**		0.164
Normalized	78.78%	80.58%	84.89%	86.69%	81.65%	91.73%	91.01%	88.85%	97.48%	97.12%	100%	83.09%	85.97%	88.13%	94.6%	54.32%		58.99%
Ray Tracing In Vulkan - 3840 x 2160 - Cornell Box	0.103	0.106	0.111	0.114	0.108	0.121	0.121	0.117	0.129	0.128	**0.132**	0.109	0.114	0.115	0.125	**0.07**		0.078
Normalized	78.03%	80.3%	84.09%	86.36%	81.82%	91.67%	91.67%	88.64%	97.73%	96.97%	100%	82.58%	86.36%	87.12%	94.7%	53.03%		59.09%

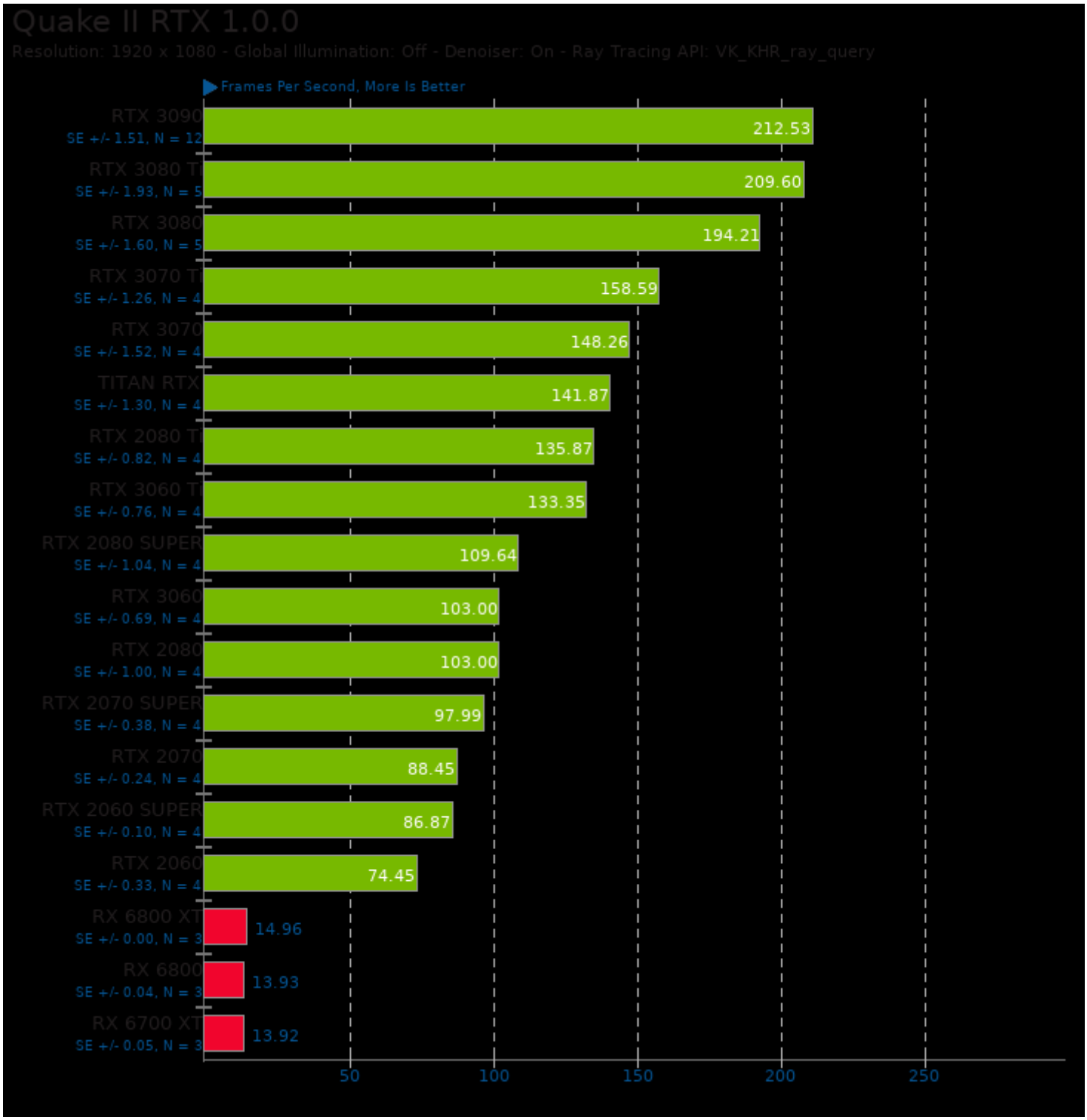
Vulkan Ray-Tracing GPUs On Linux

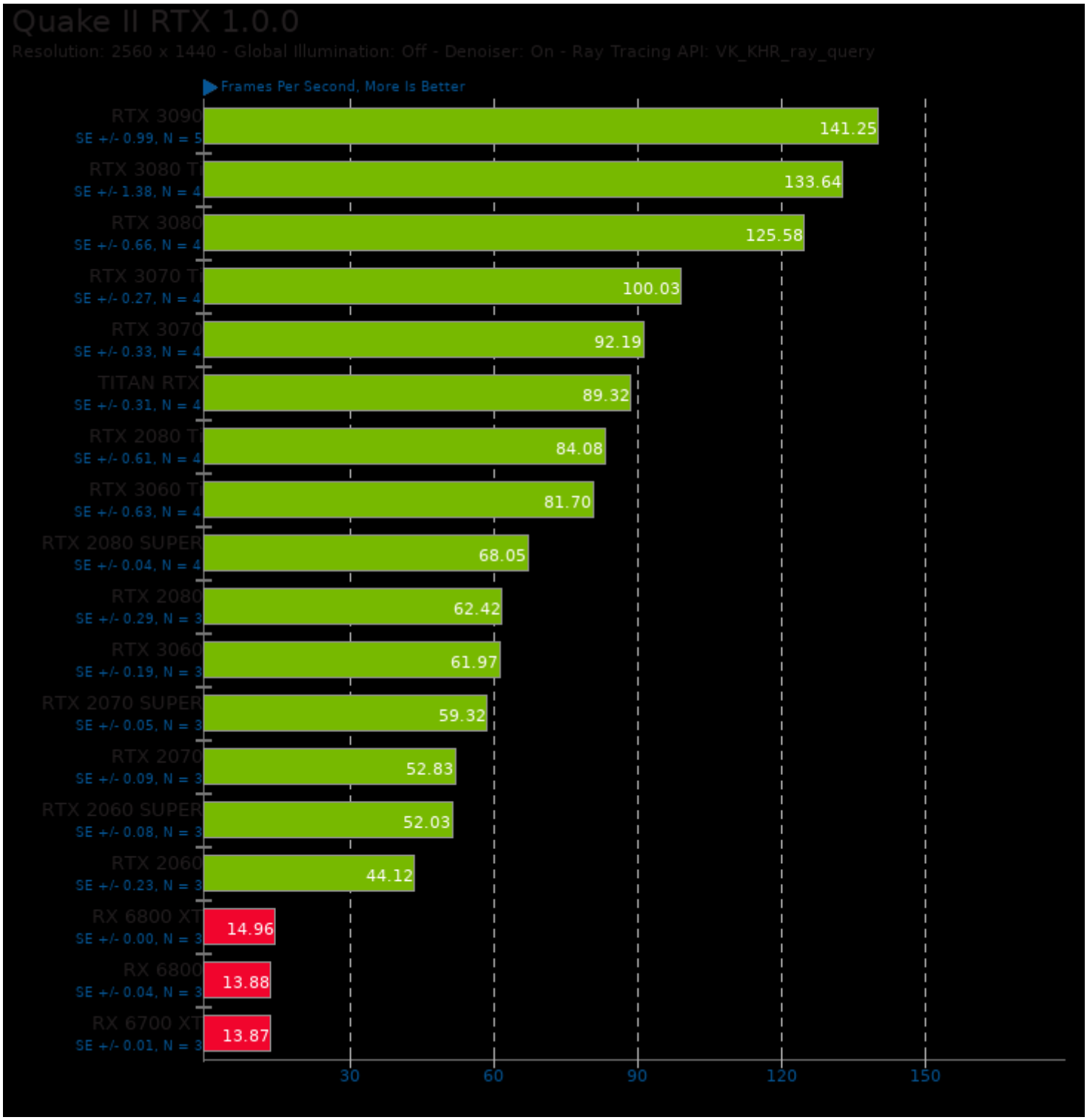
Ray Tracing In Vulkan - 1920 x 1080 - Cornell Box + Lucy	0.133	0.142	0.146	0.15	0.142	0.153	0.165	0.161	0.157	0.189	0.202	0.168	0.198	0.205	**0.219**	**0.086**	0.109
Normalized	60.73%	64.84%	66.67%	68.49%	64.84%	69.86%	75.34%	73.52%	71.69%	86.3%	92.24%	76.71%	90.41%	93.61%	100%	39.27%	49.77%
Ray Tracing In Vulkan - 2560 x 1440 - Cornell Box + Lucy	0.077	0.081	0.083	0.086	0.081	0.087	0.095	0.093	0.089	0.108	0.117	0.096	0.114	0.118	**0.125**	**0.048**	0.061
Normalized	61.6%	64.8%	66.4%	68.8%	64.8%	69.6%	76%	74.4%	71.2%	86.4%	93.6%	76.8%	91.2%	94.4%	100%	38.4%	48.8%
Ray Tracing In Vulkan - 3840 x 2160 - Cornell Box + Lucy	0.037	0.039	0.04	0.041	0.039	0.041	0.046	0.045	0.043	0.052	0.056	0.045	0.055	0.058	**0.061**	**0.023**	0.029
Normalized	60.66%	63.93%	65.57%	67.21%	63.93%	67.21%	75.41%	73.77%	70.49%	85.25%	91.8%	73.77%	90.16%	95.08%	100%	37.7%	47.54%
Ray Tracing In Vulkan - 1920 x 1080 - L.I.O.W	0.15	0.155	0.159	0.164	0.155	0.167	0.178	0.172	0.189	0.195	0.207	0.174	0.198	0.206	**0.218**	**0.141**	0.156
Normalized	68.81%	71.1%	72.94%	75.23%	71.1%	76.61%	81.65%	78.9%	86.7%	89.45%	94.95%	79.82%	90.83%	94.5%	100%	64.68%	71.56%
Ray Tracing In Vulkan - 2560 x 1440 - L.I.O.W	0.088	0.091	0.093	0.096	0.091	0.097	0.107	0.104	0.111	0.114	0.121	0.101	0.115	0.118	**0.125**	**0.083**	0.093
Normalized	70.4%	72.8%	74.4%	76.8%	72.8%	77.6%	85.6%	83.2%	88.8%	91.2%	96.8%	80.8%	92%	94.4%	100%	66.4%	74.4%
Ray Tracing In Vulkan - 3840 x 2160 - L.I.O.W	0.044	0.045	0.046	0.047	0.046	0.049	0.055	0.053	0.055	0.057	0.06	0.05	0.058	0.059	**0.063**	**0.04**	0.048
Normalized	69.84%	71.43%	73.02%	74.6%	73.02%	77.78%	87.3%	84.13%	87.3%	90.48%	95.24%	79.37%	92.06%	93.65%	100%	63.49%	76.19%

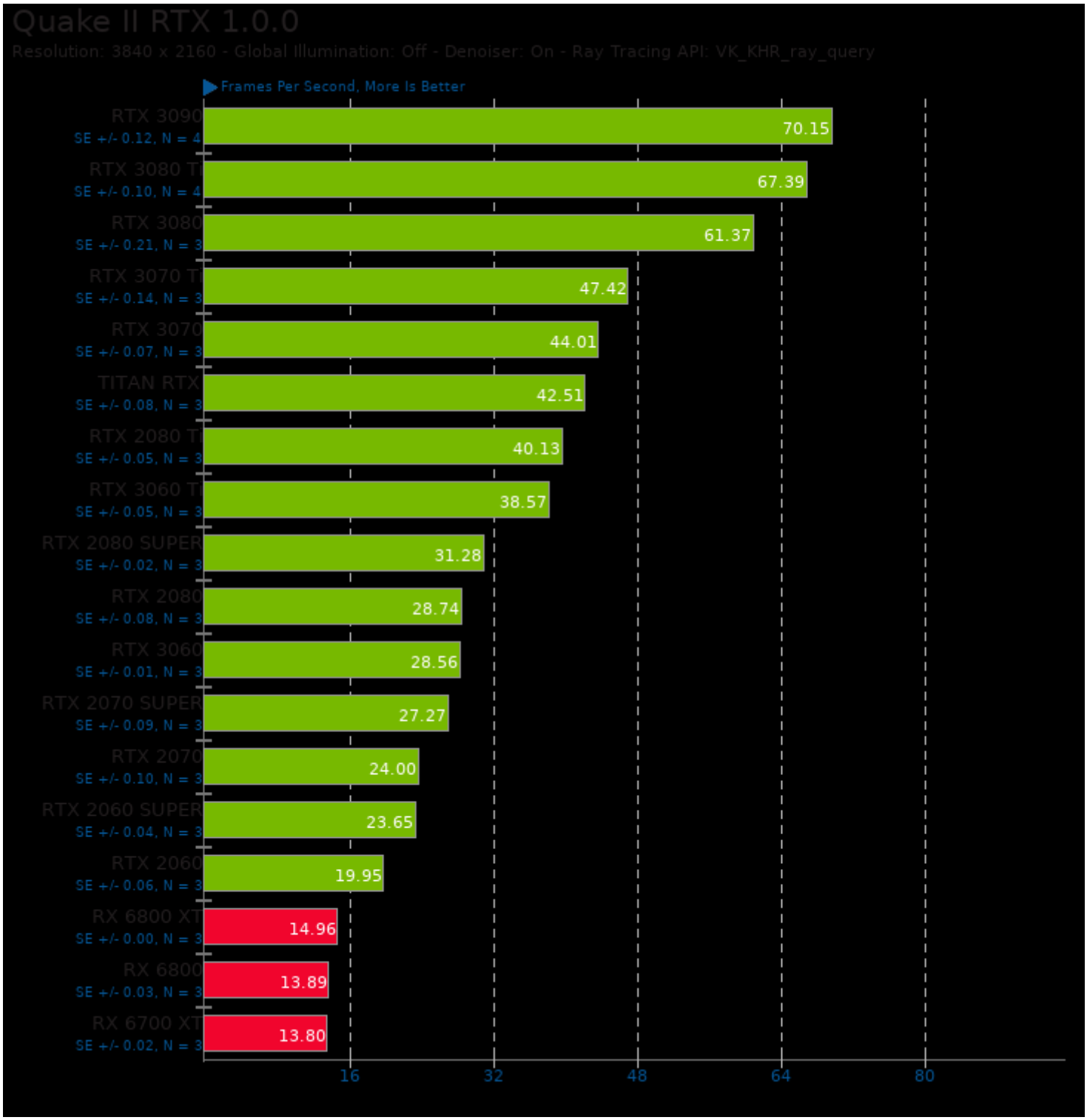
Vulkan Ray-Tracing GPUs On Linux

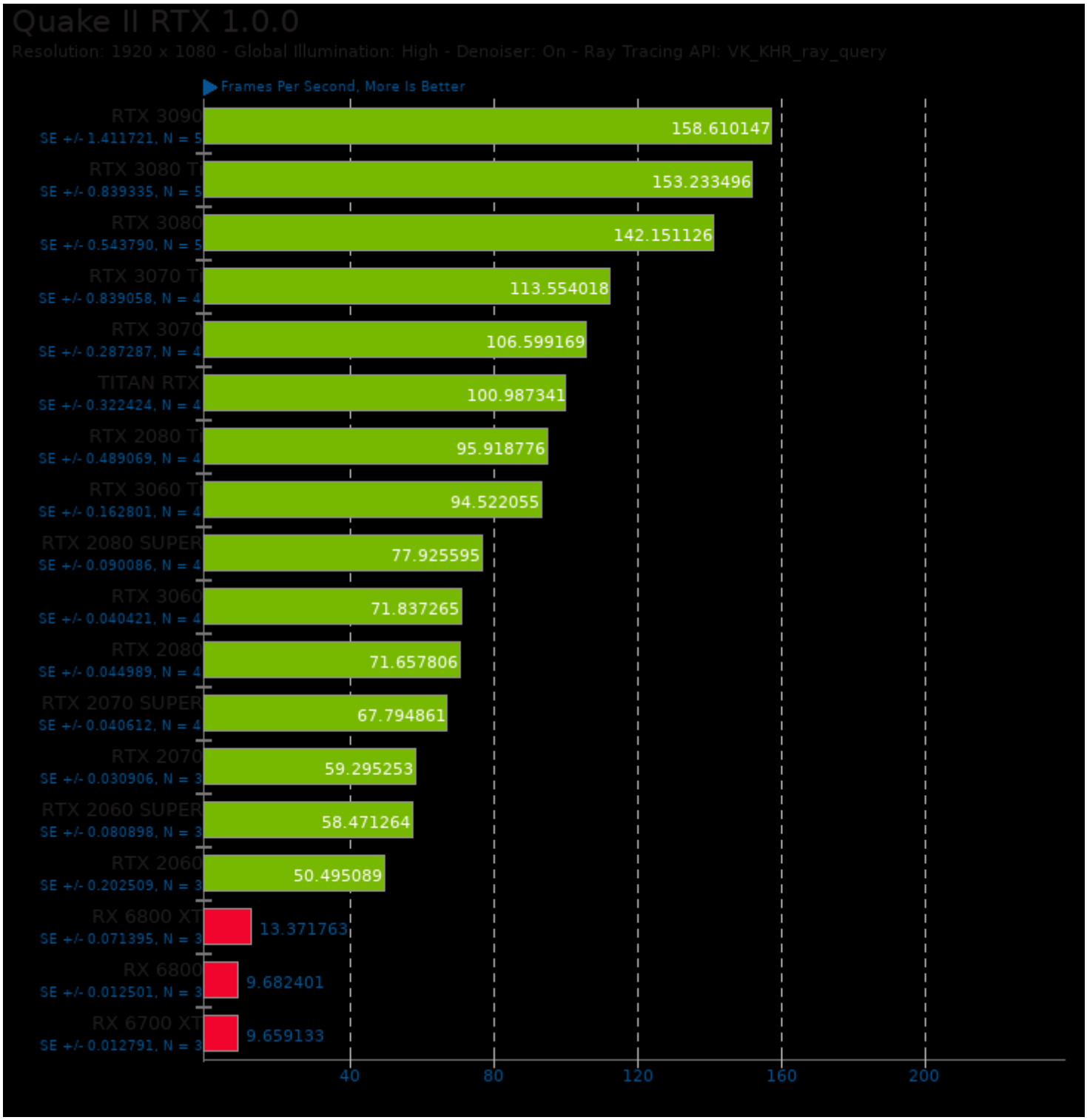
Ray Tracing In Vulkan - 1920 x 1080 - P.I.O.W	0.24	0.239	0.249	0.256	0.245	0.272	0.285	0.275	0.274	0.271	0.285	**0.231**	0.234	0.235	0.251	0.349	**0.373**
Normalized	64.34%	64.08%	66.76%	68.63%	65.68%	72.92%	76.41%	73.73%	73.46%	72.65%	76.41%	61.93%	62.73%	63%	67.29%	93.57%	100%
Ray Tracing In Vulkan - 2560 x 1440 - P.I.O.W	0.137	0.138	0.143	0.145	0.14	0.154	0.163	0.157	0.155	0.155	0.162	**0.132**	0.133	0.135	0.143	0.191	**0.212**
Normalized	64.62%	65.09%	67.45%	68.4%	66.04%	72.64%	76.89%	74.06%	73.11%	73.11%	76.42%	62.26%	62.74%	63.68%	67.45%	90.09%	100%
Ray Tracing In Vulkan - 3840 x 2160 - P.I.O.W	0.065	0.065	0.067	0.069	0.066	0.073	0.079	0.075	0.074	0.074	0.077	**0.063**	0.064	0.065	0.069	0.091	**0.101**
Normalized	64.36%	64.36%	66.34%	68.32%	65.35%	72.28%	78.22%	74.26%	73.27%	73.27%	76.24%	62.38%	63.37%	64.36%	68.32%	90.1%	100%
Ray Tracing In Vulkan - 1920 x 1080 - R.T.I.O.W	0.237	0.24	0.248	0.255	0.24	0.271	0.28	0.272	0.271	0.271	0.282	0.23	0.233	**0.229**	0.246	0.356	**0.375**
Normalized	63.2%	64%	66.13%	68%	64%	72.27%	74.67%	72.53%	72.27%	72.27%	75.2%	61.33%	62.13%	61.07%	65.6%	94.93%	100%
Ray Tracing In Vulkan - 2560 x 1440 - R.T.I.O.W	0.132	0.136	0.139	0.145	0.135	0.154	0.159	0.155	0.154	0.154	0.159	**0.13**	0.132	**0.13**	0.141	0.196	**0.217**
Normalized	60.83%	62.67%	64.06%	66.82%	62.21%	70.97%	73.27%	71.43%	70.97%	70.97%	73.27%	59.91%	60.83%	59.91%	64.98%	90.32%	100%
Ray Tracing In Vulkan - 3840 x 2160 - R.T.I.O.W	0.064	0.064	0.067	0.068	0.064	0.073	0.076	0.074	0.073	0.072	0.076	**0.062**	0.063	0.063	0.067	0.092	**0.103**
Normalized	62.14%	62.14%	65.05%	66.02%	62.14%	70.87%	73.79%	71.84%	70.87%	69.9%	73.79%	60.19%	61.17%	61.17%	65.05%	89.32%	100%

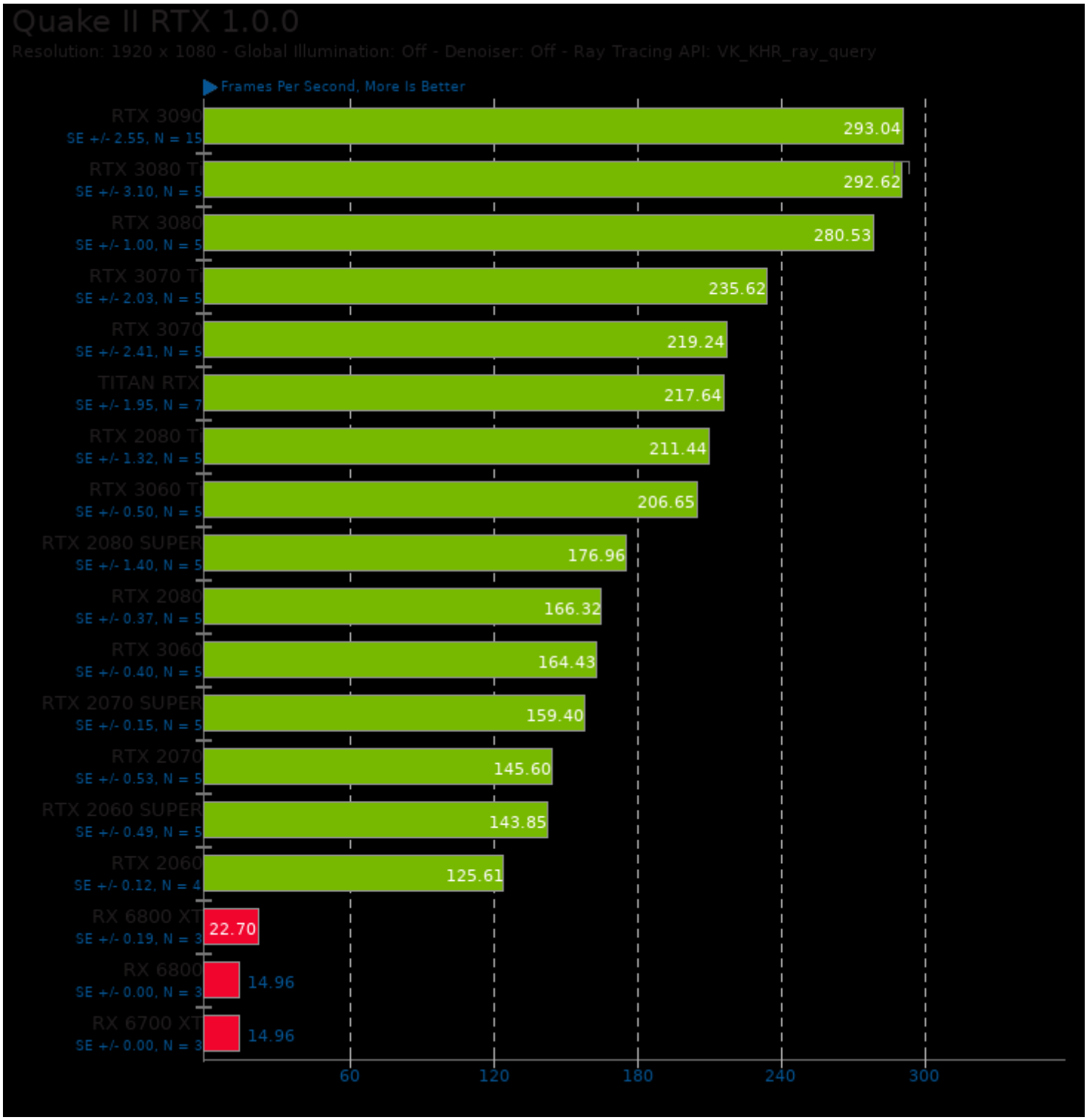

GPU Power Consumption Monitor
Phoronix Test Suite System Monitoring
Watts
RTX 3060
Min: 11.95 / Avg: 94.51 / Max: 170.32
RX 6700 XT
Min: 5 / Avg: 96.25 / Max: 175
RTX 2060
Min: 9.48 / Avg: 102.81 / Max: 164.66
RTX 2070
Min: 6.99 / Avg: 110.79 / Max: 182.06
RTX 2060 SUPER
Min: 9.52 / Avg: 113.18 / Max: 180.98
RTX 3060 Ti
Min: 13.58 / Avg: 115.86 / Max: 200.24
RTX 3070
Min: 8.31 / Avg: 123.98 / Max: 219.97
RTX 2070 SUPER
Min: 14.42 / Avg: 126.51 / Max: 220.27
RX 6800 XT
Min: 7 / Avg: 130.17 / Max: 257
RTX 2080 SUPER
Min: 9.12 / Avg: 136.5 / Max: 255.14
RTX 2080
Min: 13.75 / Avg: 136.73 / Max: 220.96
RTX 3070 Ti
Min: 14.02 / Avg: 158.99 / Max: 289.8
RTX 2080 Ti
Min: 5.54 / Avg: 159.05 / Max: 278.5
TITAN RTX
Min: 6.43 / Avg: 171.92 / Max: 293.6
RTX 3080
Min: 8.12 / Avg: 189.13 / Max: 320.59
RTX 3090
Min: 8.04 / Avg: 206.18 / Max: 348.57
RTX 3080 Ti
Min: 14.71 / Avg: 214.13 / Max: 349.8
60
120
180
240
300

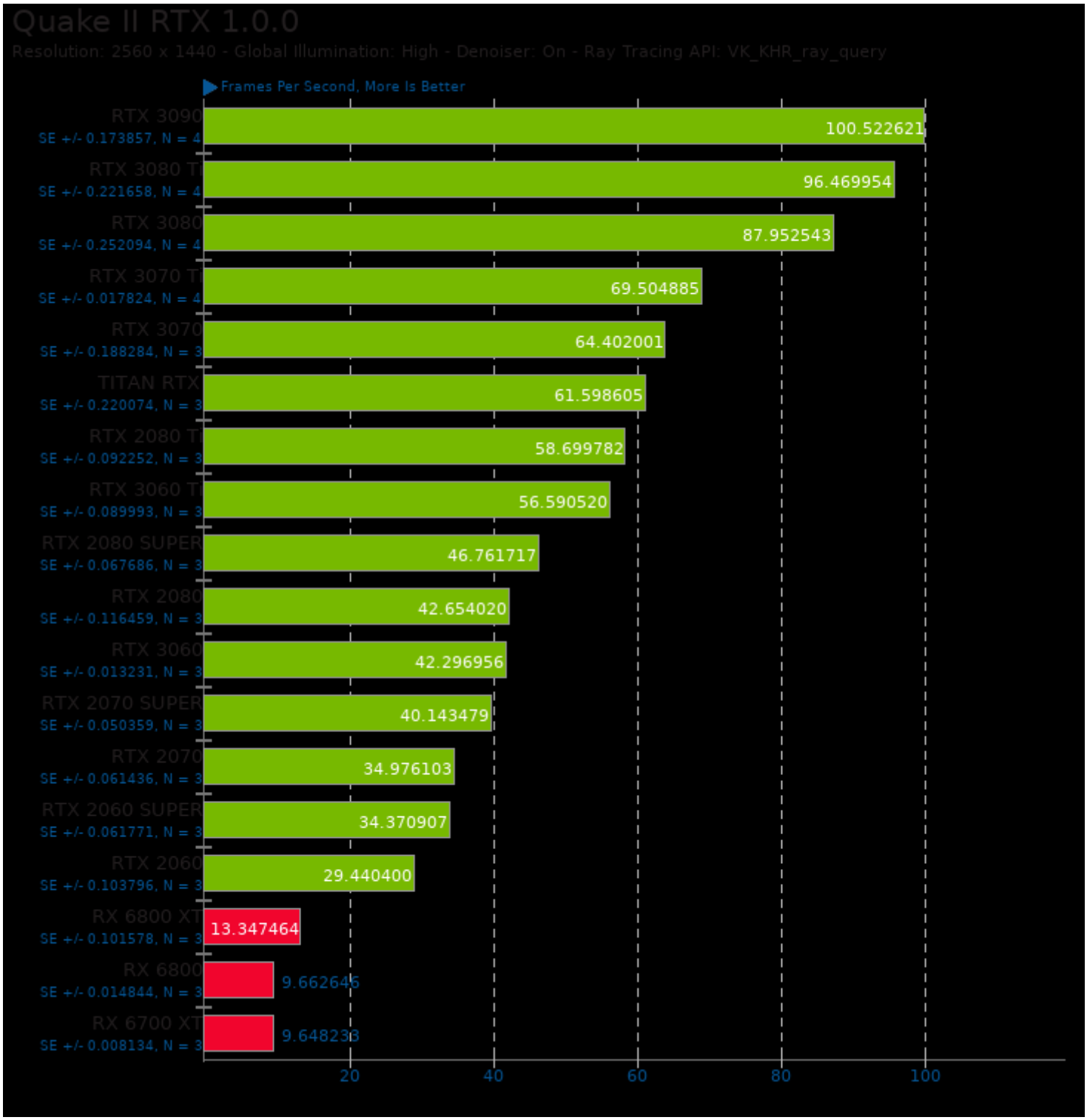

Quake II RTX 1.0.0
Resolution: 1920 x 1080 - Global Illumination: Off - Denoiser: On - Ray Tracing API: VK_KHR_ray_query
Frames Per Second, More Is Better
RTX 3090
SE +/- 1.51, N = 12
212.53
RTX 3080 Ti
SE +/- 1.93, N = 5
209.60
RTX 3080
SE +/- 1.60, N = 5
194.21
RTX 3070 Ti
SE +/- 1.26, N = 4
158.59
RTX 3070
SE +/- 1.52, N = 4
148.26
TITAN RTX
SE +/- 1.30, N = 4
141.87
RTX 2080 Ti
SE +/- 0.82, N = 4
135.87
RTX 3060 Ti
SE +/- 0.76, N = 4
133.35
RTX 2080 SUPER
SE +/- 1.04, N = 4
109.64
RTX 3060
SE +/- 0.69, N = 4
103.00
RTX 2080
SE +/- 1.00, N = 4
103.00
RTX 2070 SUPER
SE +/- 0.38, N = 4
97.99
RTX 2070
SE +/- 0.24, N = 4
88.45
RTX 2060 SUPER
SE +/- 0.10, N = 4
86.87
RTX 2060
SE +/- 0.33, N = 4
74.45
RX 6800 XT
SE +/- 0.00, N = 3
14.96
RX 6800
SE +/- 0.04, N = 3
13.93
RX 6700 XT
SE +/- 0.05, N = 3
13.92
50
100
150
200
250

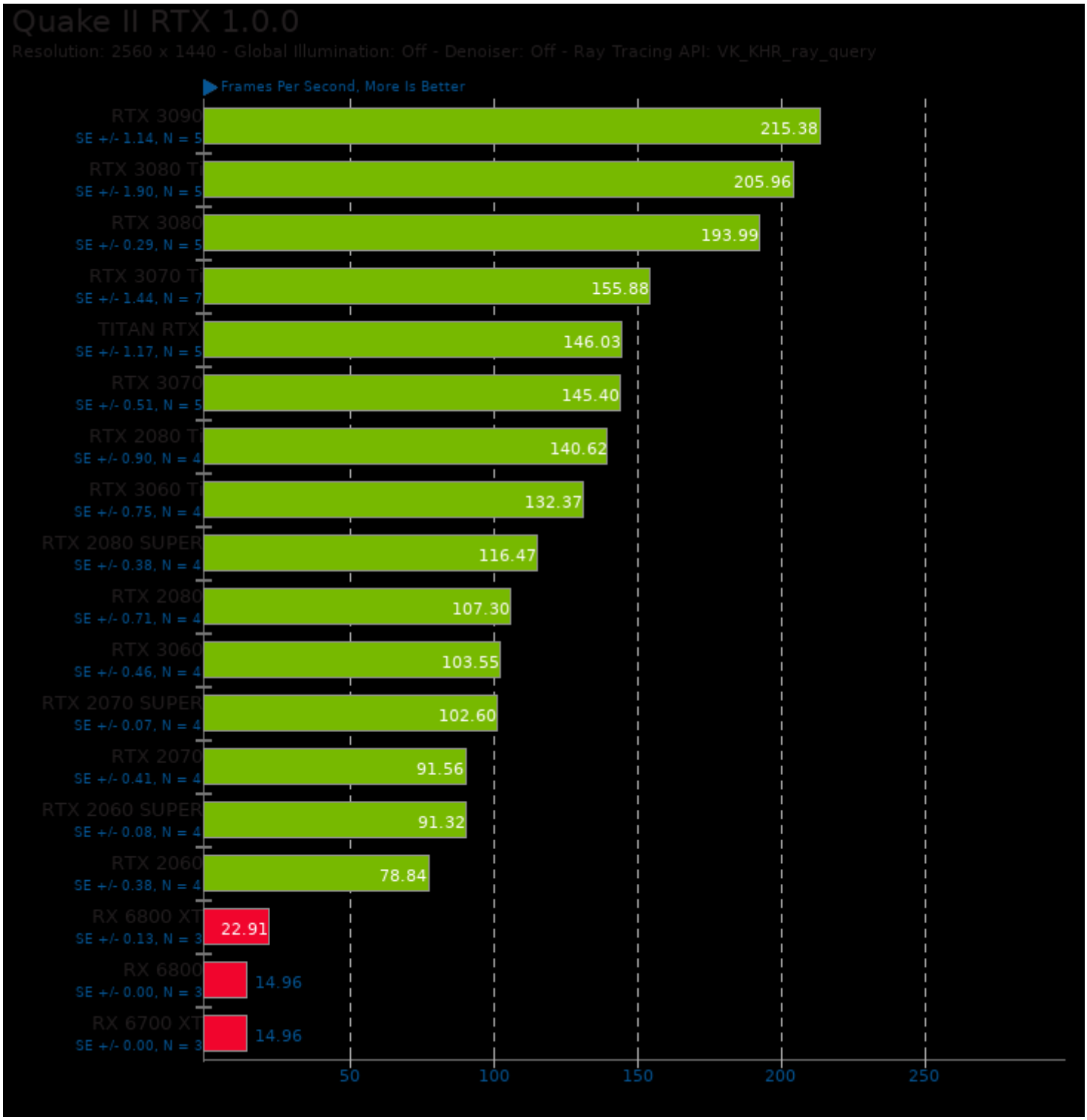

Quake II RTX 1.0.0
Resolution: 2560 x 1440 - Global Illumination: Off - Denoiser: On - Ray Tracing API: VK_KHR_ray_query
Frames Per Second, More Is Better
RTX 3090
SE +/- 0.99, N = 5
141.25
RTX 3080 Ti
SE +/- 1.38, N = 4
133.64
RTX 3080
SE +/- 0.66, N = 4
125.58
RTX 3070 Ti
SE +/- 0.27, N = 4
100.03
RTX 3070
SE +/- 0.33, N = 4
92.19
TITAN RTX
SE +/- 0.31, N = 4
89.32
RTX 2080 Ti
SE +/- 0.61, N = 4
84.08
RTX 3060 Ti
SE +/- 0.63, N = 4
81.70
RTX 2080 SUPER
SE +/- 0.04, N = 4
68.05
RTX 2080
SE +/- 0.29, N = 3
62.42
RTX 3060
SE +/- 0.19, N = 3
61.97
RTX 2070 SUPER
SE +/- 0.05, N = 3
59.32
RTX 2070
SE +/- 0.09, N = 3
52.83
RTX 2060 SUPER
SE +/- 0.08, N = 3
52.03
RTX 2060
SE +/- 0.23, N = 3
44.12
RX 6800 XT
SE +/- 0.00, N = 3
14.96
RX 6800
SE +/- 0.04, N = 3
13.88
RX 6700 XT
SE +/- 0.01, N = 3
13.87
30
60
90
120
150

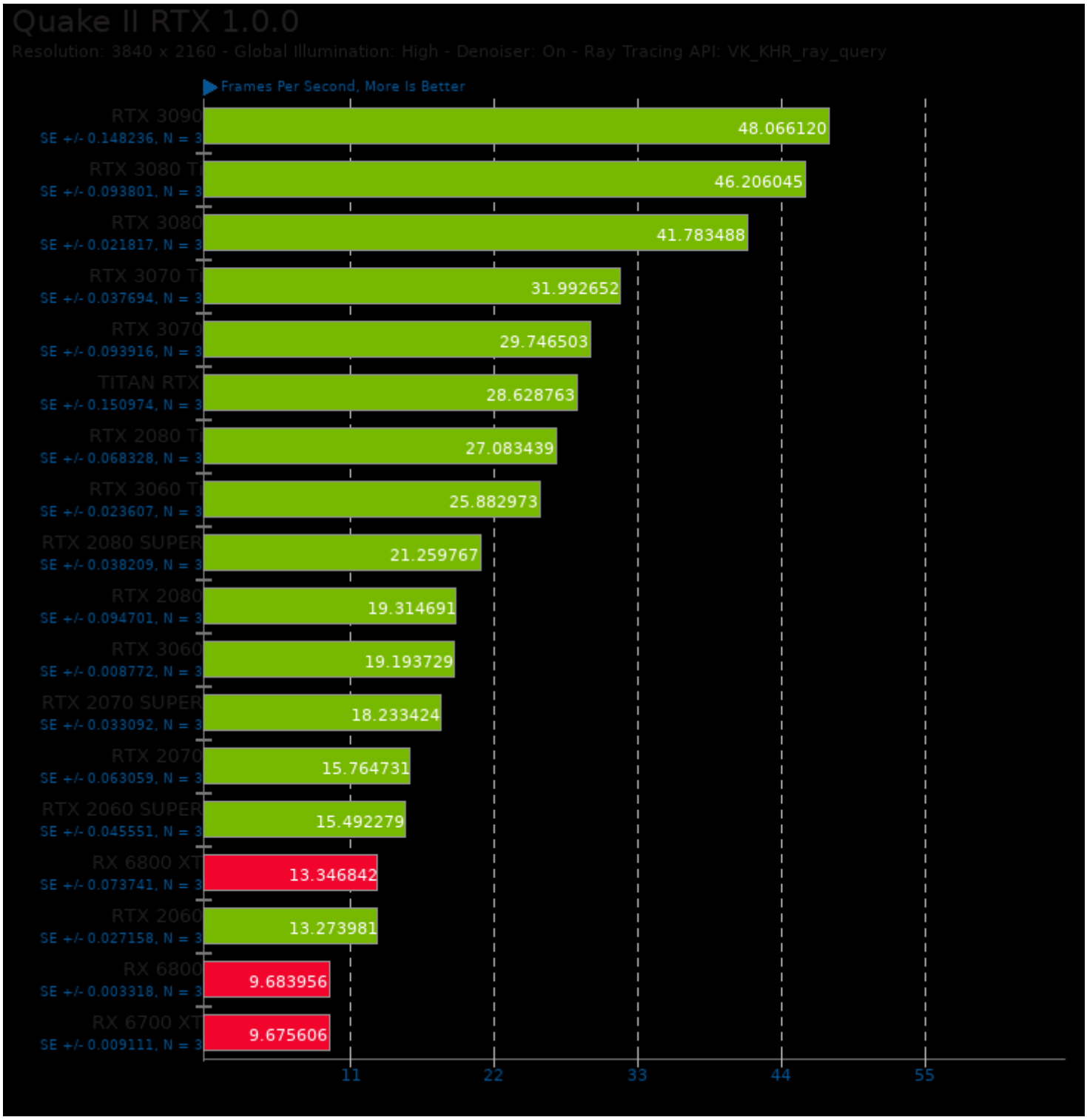

Quake II RTX 1.0.0
Resolution: 3840 x 2160 - Global Illumination: Off - Denoiser: On - Ray Tracing API: VK_KHR_ray_query
Frames Per Second, More Is Better
RTX 3090
SE +/- 0.12, N = 4
70.15
RTX 3080 Ti
SE +/- 0.10, N = 4
67.39
RTX 3080
SE +/- 0.21, N = 3
61.37
RTX 3070 Ti
SE +/- 0.14, N = 3
47.42
RTX 3070
SE +/- 0.07, N = 3
44.01
TITAN RTX
SE +/- 0.08, N = 3
42.51
RTX 2080 Ti
SE +/- 0.05, N = 3
40.13
RTX 3060 Ti
SE +/- 0.05, N = 3
38.57
RTX 2080 SUPER
SE +/- 0.02, N = 3
31.28
RTX 2080
SE +/- 0.08, N = 3
28.74
RTX 3060
SE +/- 0.01, N = 3
28.56
RTX 2070 SUPER
SE +/- 0.09, N = 3
27.27
RTX 2070
SE +/- 0.10, N = 3
24.00
RTX 2060 SUPER
SE +/- 0.04, N = 3
23.65
RTX 2060
SE +/- 0.06, N = 3
19.95
RX 6800 XT
SE +/- 0.00, N = 3
14.96
RX 6800
SE +/- 0.03, N = 3
13.89
RX 6700 XT
SE +/- 0.02, N = 3
13.80
16
32
48
64
80

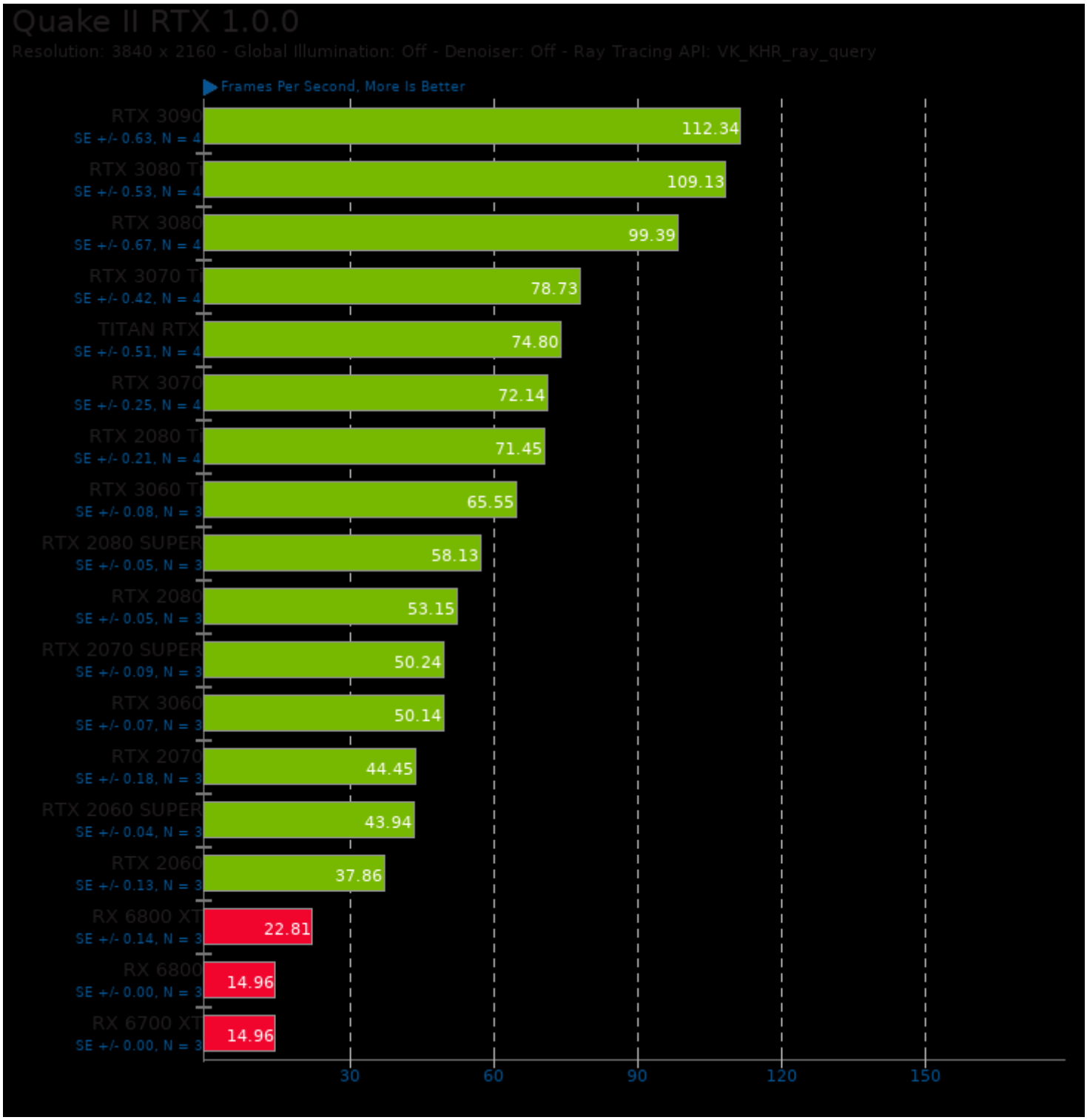

Quake II RTX 1.0.0
Resolution: 1920 x 1080 - Global Illumination: High - Denoiser: On - Ray Tracing API: VK_KHR_ray_query
Frames Per Second, More Is Better
RTX 3090
SE +/- 1.411721, N = 5
158.610147
RTX 3080 Ti
SE +/- 0.839335, N = 5
153.233496
RTX 3080
SE +/- 0.543790, N = 5
142.151126
RTX 3070 Ti
SE +/- 0.839058, N = 4
113.554018
RTX 3070
SE +/- 0.287287, N = 4
106.599169
TITAN RTX
SE +/- 0.322424, N = 4
100.987341
RTX 2080 Ti
SE +/- 0.489069, N = 4
95.918776
RTX 3060 Ti
SE +/- 0.162801, N = 4
94.522055
RTX 2080 SUPER
SE +/- 0.090086, N = 4
77.925595
RTX 3060
SE +/- 0.040421, N = 4
71.837265
RTX 2080
SE +/- 0.044989, N = 4
71.657806
RTX 2070 SUPER
SE +/- 0.040612, N = 4
67.794861
RTX 2070
SE +/- 0.030906, N = 3
59.295253
RTX 2060 SUPER
SE +/- 0.080898, N = 3
58.471264
RTX 2060
SE +/- 0.202509, N = 3
50.495089
RX 6800 XT
SE +/- 0.071395, N = 3
13.371763
RX 6800
SE +/- 0.012501, N = 3
9.682401
RX 6700 XT
SE +/- 0.012791, N = 3
9.659133
40
80
120
160
200

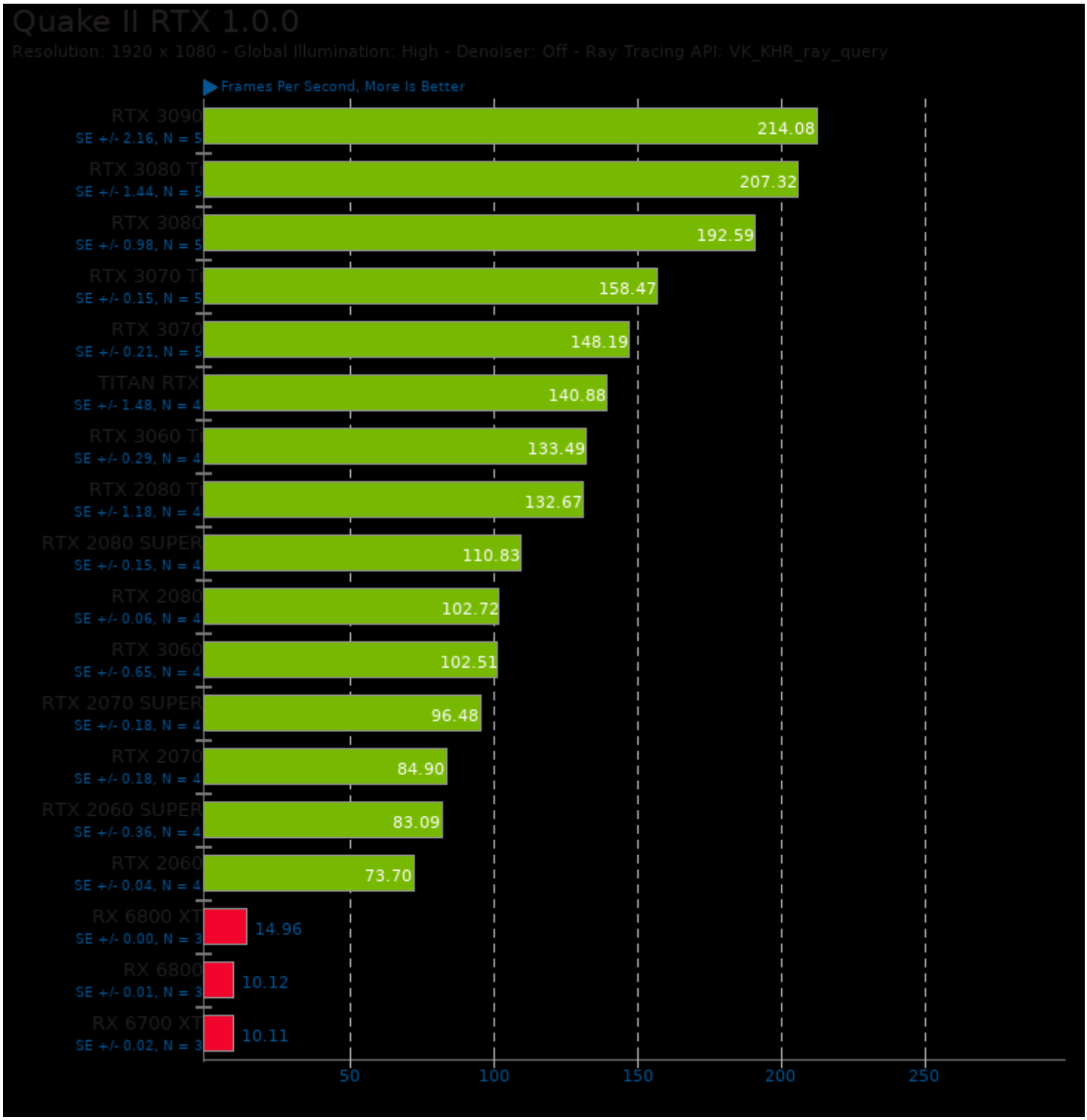

Quake II RTX 1.0.0
Resolution: 1920 x 1080 - Global Illumination: Off - Denoiser: Off - Ray Tracing API: VK_KHR_ray_query
Frames Per Second, More Is Better
RTX 3090
SE +/- 2.55, N = 15
293.04
RTX 3080 Ti
SE +/- 3.10, N = 5
292.62
RTX 3080
SE +/- 1.00, N = 5
280.53
RTX 3070 Ti
SE +/- 2.03, N = 5
235.62
RTX 3070
SE +/- 2.41, N = 5
219.24
TITAN RTX
SE +/- 1.95, N = 7
217.64
RTX 2080 Ti
SE +/- 1.32, N = 5
211.44
RTX 3060 Ti
SE +/- 0.50, N = 5
206.65
RTX 2080 SUPER
SE +/- 1.40, N = 5
176.96
RTX 2080
SE +/- 0.37, N = 5
166.32
RTX 3060
SE +/- 0.40, N = 5
164.43
RTX 2070 SUPER
SE +/- 0.15, N = 5
159.40
RTX 2070
SE +/- 0.53, N = 5
145.60
RTX 2060 SUPER
SE +/- 0.49, N = 5
143.85
RTX 2060
SE +/- 0.12, N = 4
125.61
RX 6800 XT
SE +/- 0.19, N = 3
22.70
RX 6800
SE +/- 0.00, N = 3
14.96
RX 6700 XT
SE +/- 0.00, N = 3
14.96
60
120
180
240
300

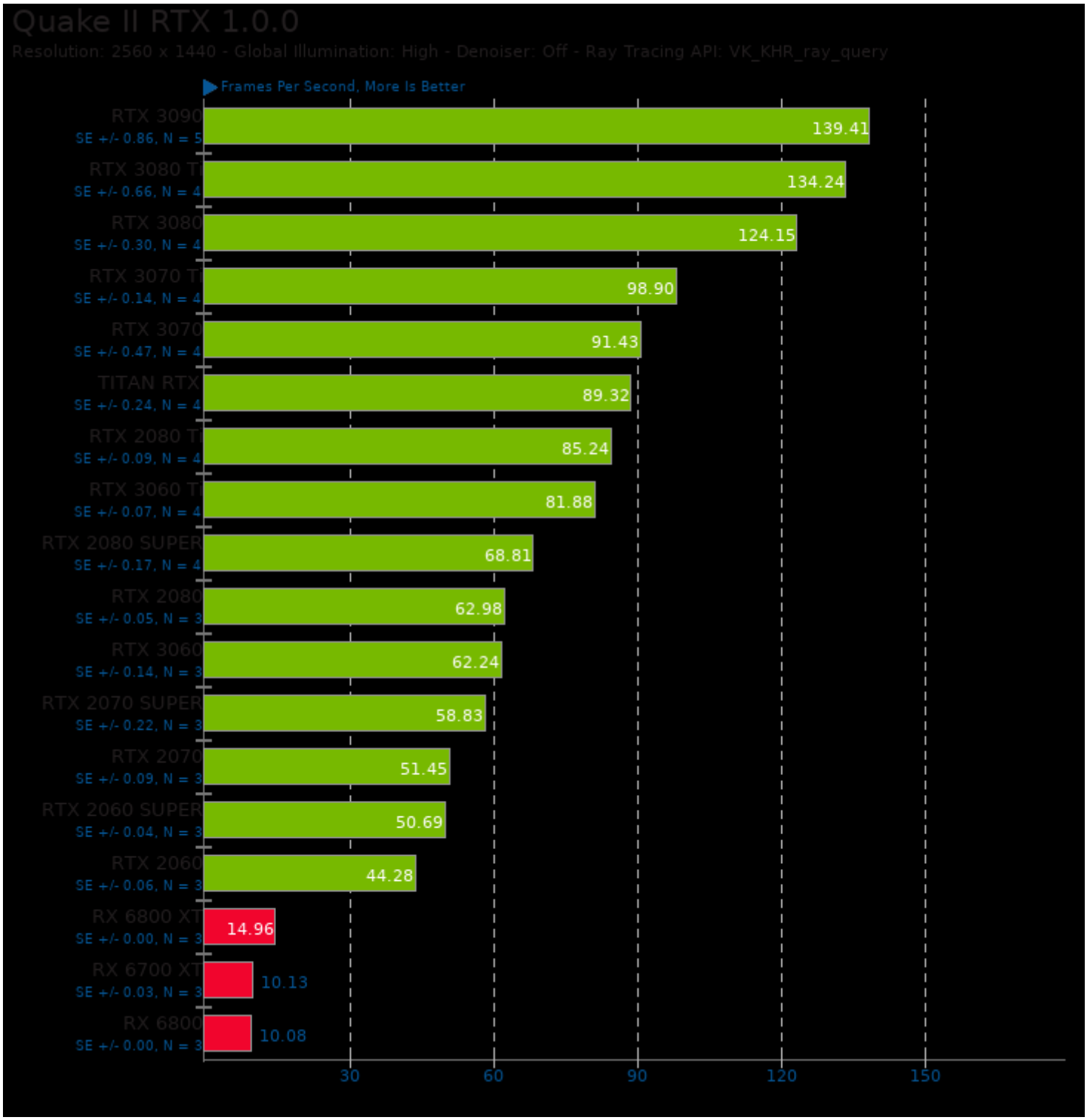

Quake II RTX 1.0.0
Resolution: 2560 x 1440 - Global Illumination: High - Denoiser: On - Ray Tracing API: VK_KHR_ray_query
Frames Per Second, More Is Better
RTX 3090
SE +/- 0.173857, N = 4
100.522621
RTX 3080 Ti
SE +/- 0.221658, N = 4
96.469954
RTX 3080
SE +/- 0.252094, N = 4
87.952543
RTX 3070 Ti
SE +/- 0.017824, N = 4
69.504885
RTX 3070
SE +/- 0.188284, N = 3
64.402001
TITAN RTX
SE +/- 0.220074, N = 3
61.598605
RTX 2080 Ti
SE +/- 0.092252, N = 3
58.699782
RTX 3060 Ti
SE +/- 0.089993, N = 3
56.590520
RTX 2080 SUPER
SE +/- 0.067686, N = 3
46.761717
RTX 2080
SE +/- 0.116459, N = 3
42.654020
RTX 3060
SE +/- 0.013231, N = 3
42.296956
RTX 2070 SUPER
SE +/- 0.050359, N = 3
40.143479
RTX 2070
SE +/- 0.061436, N = 3
34.976103
RTX 2060 SUPER
SE +/- 0.061771, N = 3
34.370907
RTX 2060
SE +/- 0.103796, N = 3
29.440400
RX 6800 XT
SE +/- 0.101578, N = 3
13.347464
RX 6800
SE +/- 0.014844, N = 3
9.662646
RX 6700 XT
SE +/- 0.008134, N = 3
9.648233
20
40
60
80
100

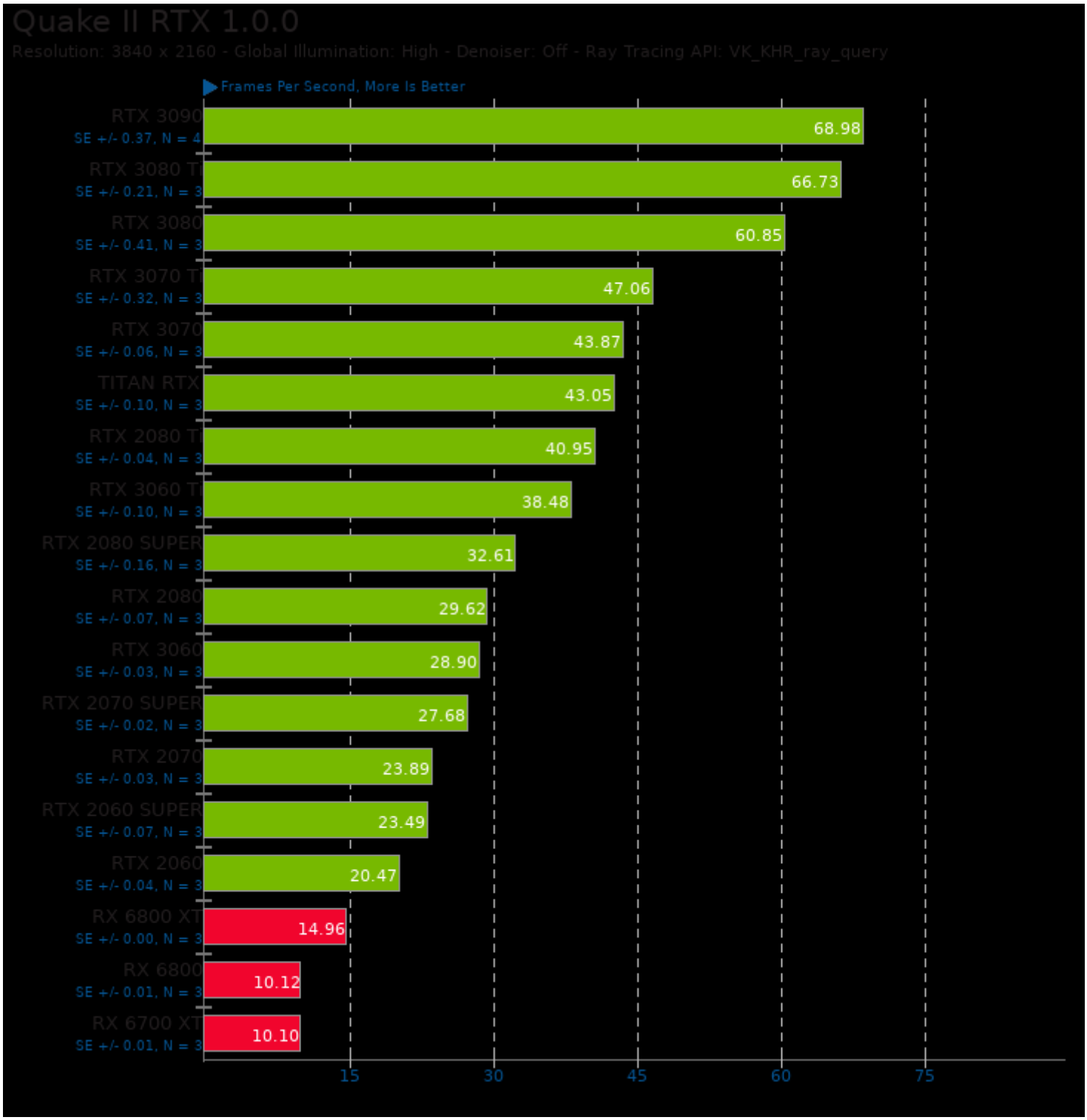

Quake II RTX 1.0.0
Resolution: 2560 x 1440 - Global Illumination: Off - Denoiser: Off - Ray Tracing API: VK_KHR_ray_query
Frames Per Second, More Is Better
RTX 3090
SE +/- 1.14, N = 5
215.38
RTX 3080 Ti
SE +/- 1.90, N = 5
205.96
RTX 3080
SE +/- 0.29, N = 5
193.99
RTX 3070 Ti
SE +/- 1.44, N = 7
155.88
TITAN RTX
SE +/- 1.17, N = 5
146.03
RTX 3070
SE +/- 0.51, N = 5
145.40
RTX 2080 Ti
SE +/- 0.90, N = 4
140.62
RTX 3060 Ti
SE +/- 0.75, N = 4
132.37
RTX 2080 SUPER
SE +/- 0.38, N = 4
116.47
RTX 2080
SE +/- 0.71, N = 4
107.30
RTX 3060
SE +/- 0.46, N = 4
103.55
RTX 2070 SUPER
SE +/- 0.07, N = 4
102.60
RTX 2070
SE +/- 0.41, N = 4
91.56
RTX 2060 SUPER
SE +/- 0.08, N = 4
91.32
RTX 2060
SE +/- 0.38, N = 4
78.84
RX 6800 XT
SE +/- 0.13, N = 3
22.91
RX 6800
SE +/- 0.00, N = 3
14.96
RX 6700 XT
SE +/- 0.00, N = 3
14.96
50
100
150
200
250

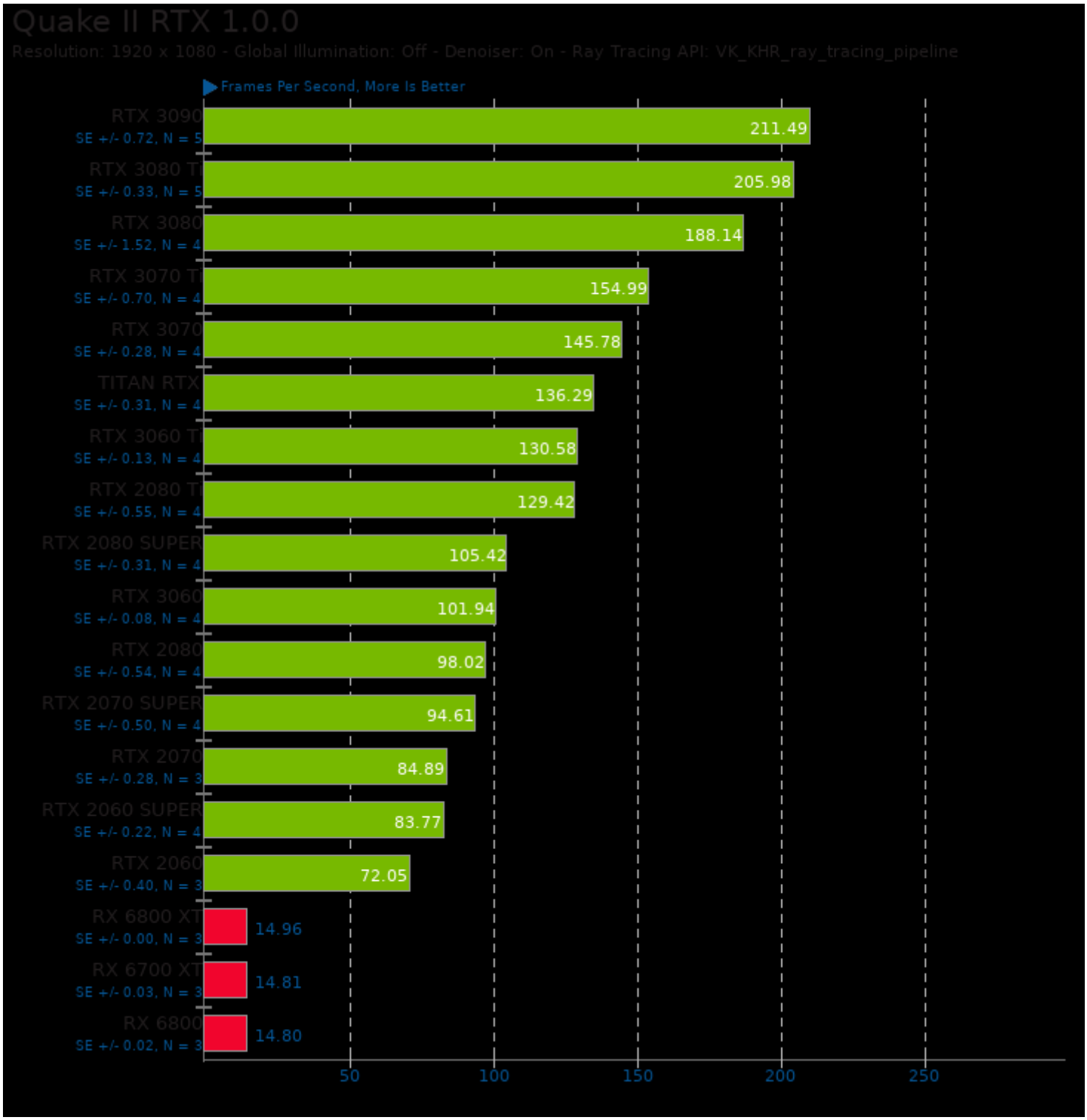

Quake II RTX 1.0.0
Resolution: 3840 x 2160 - Global Illumination: High - Denoiser: On - Ray Tracing API: VK_KHR_ray_query
Frames Per Second, More Is Better
RTX 3090
SE +/- 0.148236, N = 3
48.066120
RTX 3080 Ti
SE +/- 0.093801, N = 3
46.206045
RTX 3080
SE +/- 0.021817, N = 3
41.783488
RTX 3070 Ti
SE +/- 0.037694, N = 3
31.992652
RTX 3070
SE +/- 0.093916, N = 3
29.746503
TITAN RTX
SE +/- 0.150974, N = 3
28.628763
RTX 2080 Ti
SE +/- 0.068328, N = 3
27.083439
RTX 3060 Ti
SE +/- 0.023607, N = 3
25.882973
RTX 2080 SUPER
SE +/- 0.038209, N = 3
21.259767
RTX 2080
SE +/- 0.094701, N = 3
19.314691
RTX 3060
SE +/- 0.008772, N = 3
19.193729
RTX 2070 SUPER
SE +/- 0.033092, N = 3
18.233424
RTX 2070
SE +/- 0.063059, N = 3
15.764731
RTX 2060 SUPER
SE +/- 0.045551, N = 3
15.492279
RX 6800 XT
SE +/- 0.073741, N = 3
13.346842
RTX 2060
SE +/- 0.027158, N = 3
13.273981
RX 6800
SE +/- 0.003318, N = 3
9.683956
RX 6700 XT
SE +/- 0.009111, N = 3
9.675606
11
22
33
44
55

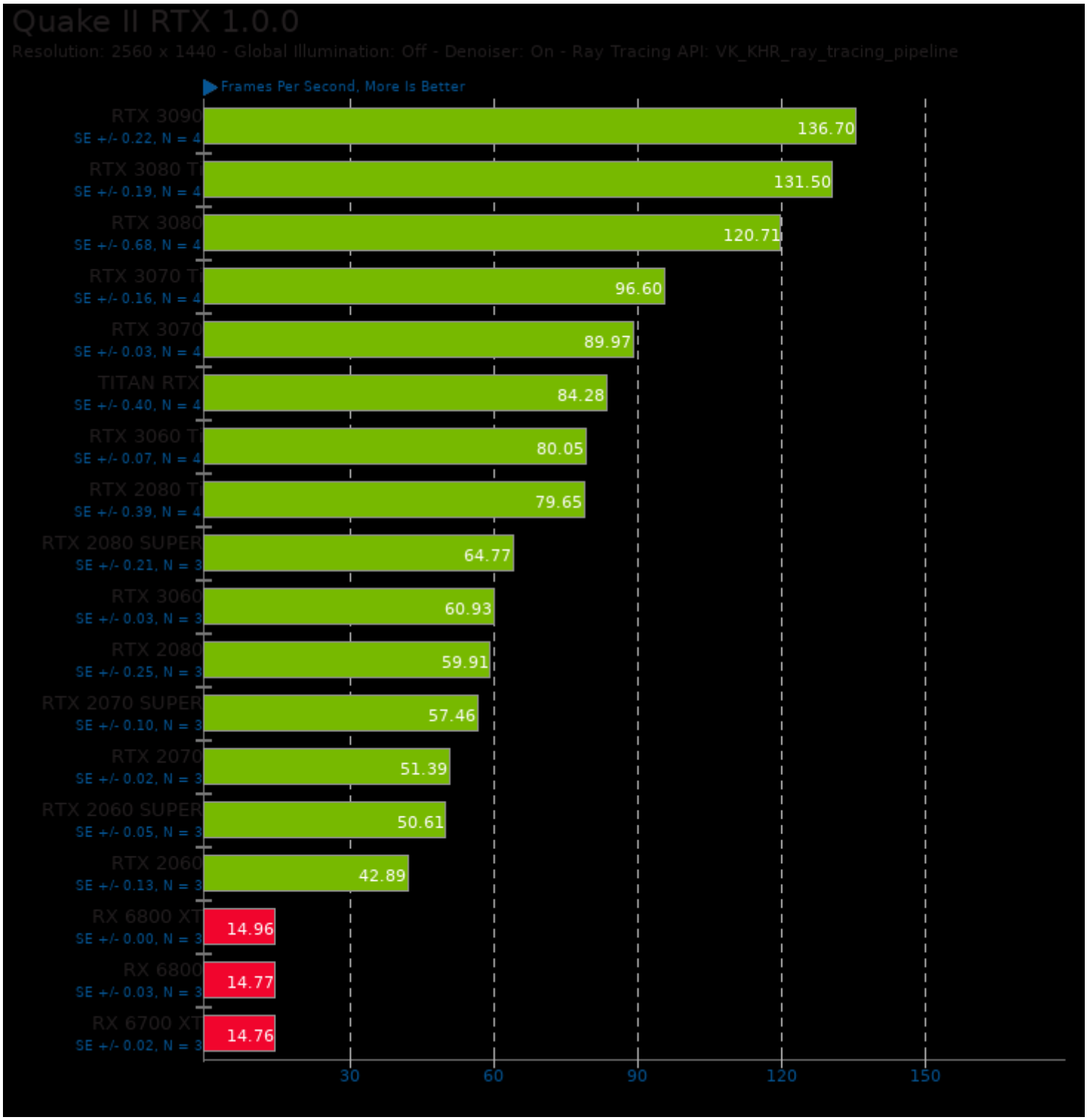

Quake II RTX 1.0.0
Resolution: 3840 x 2160 - Global Illumination: Off - Denoiser: Off - Ray Tracing API: VK_KHR_ray_query
Frames Per Second, More Is Better
RTX 3090
SE +/- 0.63, N = 4
112.34
RTX 3080 Ti
SE +/- 0.53, N = 4
109.13
RTX 3080
SE +/- 0.67, N = 4
99.39
RTX 3070 Ti
SE +/- 0.42, N = 4
78.73
TITAN RTX
SE +/- 0.51, N = 4
74.80
RTX 3070
SE +/- 0.25, N = 4
72.14
RTX 2080 Ti
SE +/- 0.21, N = 4
71.45
RTX 3060 Ti
SE +/- 0.08, N = 3
65.55
RTX 2080 SUPER
SE +/- 0.05, N = 3
58.13
RTX 2080
SE +/- 0.05, N = 3
53.15
RTX 2070 SUPER
SE +/- 0.09, N = 3
50.24
RTX 3060
SE +/- 0.07, N = 3
50.14
RTX 2070
SE +/- 0.18, N = 3
44.45
RTX 2060 SUPER
SE +/- 0.04, N = 3
43.94
RTX 2060
SE +/- 0.13, N = 3
37.86
RX 6800 XT
SE +/- 0.14, N = 3
22.81
RX 6800
SE +/- 0.00, N = 3
14.96
RX 6700 XT
SE +/- 0.00, N = 3
14.96
30
60
90
120
150

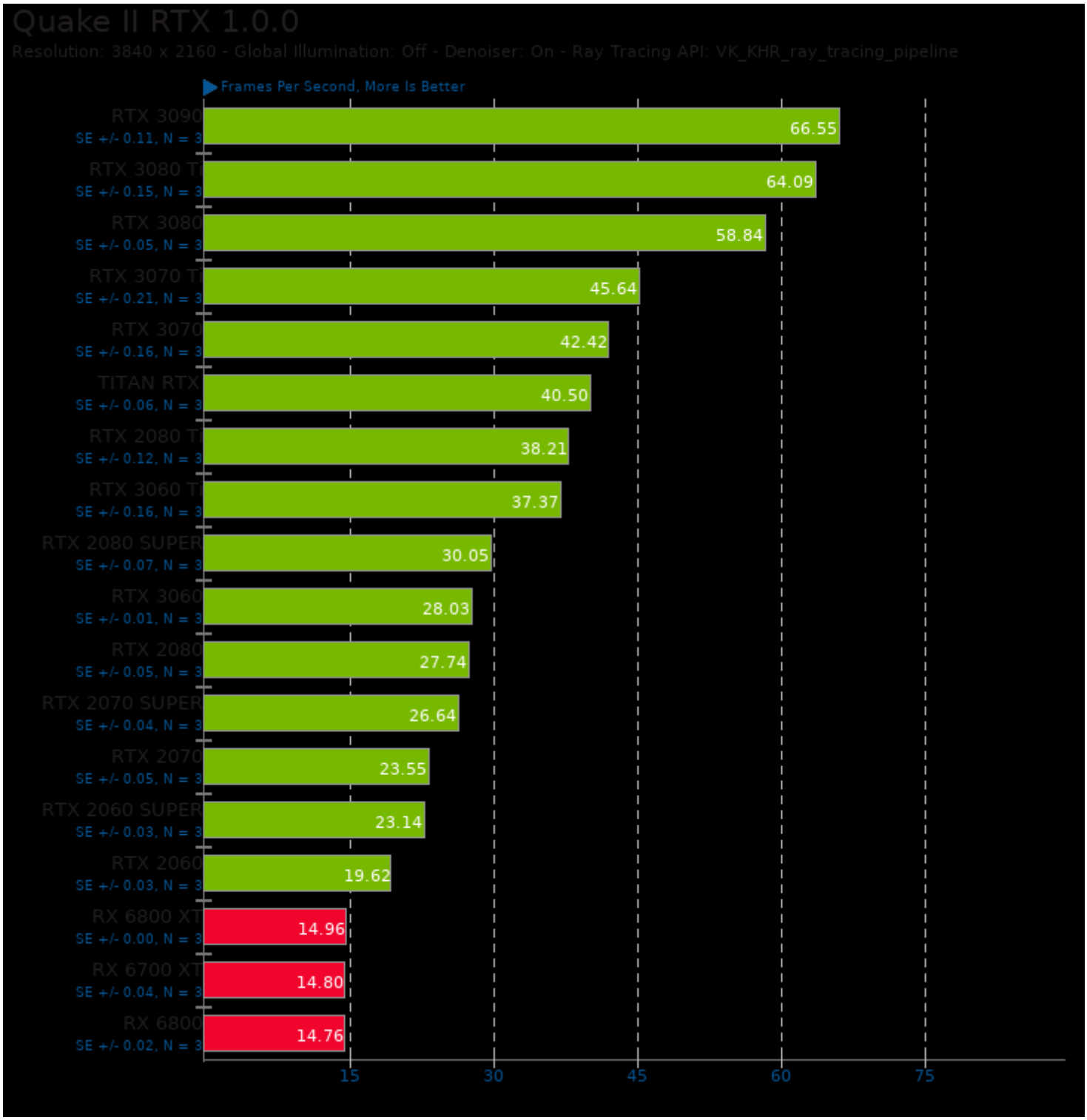

Quake II RTX 1.0.0
Resolution: 1920 x 1080 - Global Illumination: High - Denoiser: Off - Ray Tracing API: VK_KHR_ray_query
Frames Per Second, More Is Better
RTX 3090
SE +/- 2.16, N = 5
214.08
RTX 3080 Ti
SE +/- 1.44, N = 5
207.32
RTX 3080
SE +/- 0.98, N = 5
192.59
RTX 3070 Ti
SE +/- 0.15, N = 5
158.47
RTX 3070
SE +/- 0.21, N = 5
148.19
TITAN RTX
SE +/- 1.48, N = 4
140.88
RTX 3060 Ti
SE +/- 0.29, N = 4
133.49
RTX 2080 Ti
SE +/- 1.18, N = 4
132.67
RTX 2080 SUPER
SE +/- 0.15, N = 4
110.83
RTX 2080
SE +/- 0.06, N = 4
102.72
RTX 3060
SE +/- 0.65, N = 4
102.51
RTX 2070 SUPER
SE +/- 0.18, N = 4
96.48
RTX 2070
SE +/- 0.18, N = 4
84.90
RTX 2060 SUPER
SE +/- 0.36, N = 4
83.09
RTX 2060
SE +/- 0.04, N = 4
73.70
RX 6800 XT
SE +/- 0.00, N = 3
14.96
RX 6800
SE +/- 0.01, N = 3
10.12
RX 6700 XT
SE +/- 0.02, N = 3
10.11
50
100
150
200
250

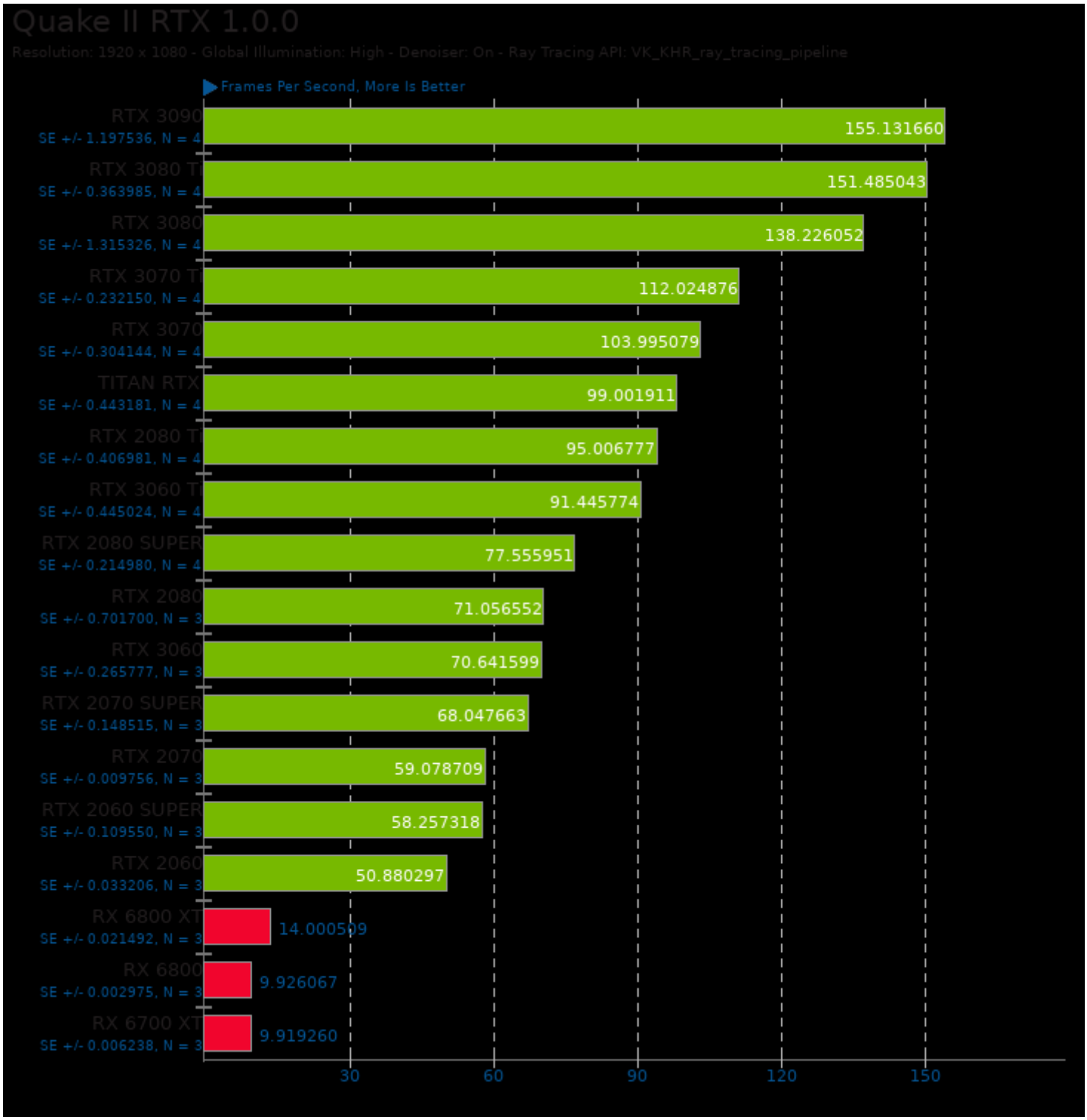

Quake II RTX 1.0.0
Resolution: 2560 x 1440 - Global Illumination: High - Denoiser: Off - Ray Tracing API: VK_KHR_ray_query
Frames Per Second, More Is Better
RTX 3090
SE +/- 0.86, N = 5
139.41
RTX 3080 Ti
SE +/- 0.66, N = 4
134.24
RTX 3080
SE +/- 0.30, N = 4
124.15
RTX 3070 Ti
SE +/- 0.14, N = 4
98.90
RTX 3070
SE +/- 0.47, N = 4
91.43
TITAN RTX
SE +/- 0.24, N = 4
89.32
RTX 2080 Ti
SE +/- 0.09, N = 4
85.24
RTX 3060 Ti
SE +/- 0.07, N = 4
81.88
RTX 2080 SUPER
SE +/- 0.17, N = 4
68.81
RTX 2080
SE +/- 0.05, N = 3
62.98
RTX 3060
SE +/- 0.14, N = 3
62.24
RTX 2070 SUPER
SE +/- 0.22, N = 3
58.83
RTX 2070
SE +/- 0.09, N = 3
51.45
RTX 2060 SUPER
SE +/- 0.04, N = 3
50.69
RTX 2060
SE +/- 0.06, N = 3
44.28
RX 6800 XT
SE +/- 0.00, N = 3
14.96
RX 6700 XT
SE +/- 0.03, N = 3
10.13
RX 6800
SE +/- 0.00, N = 3
10.08
30
60
90
120
150

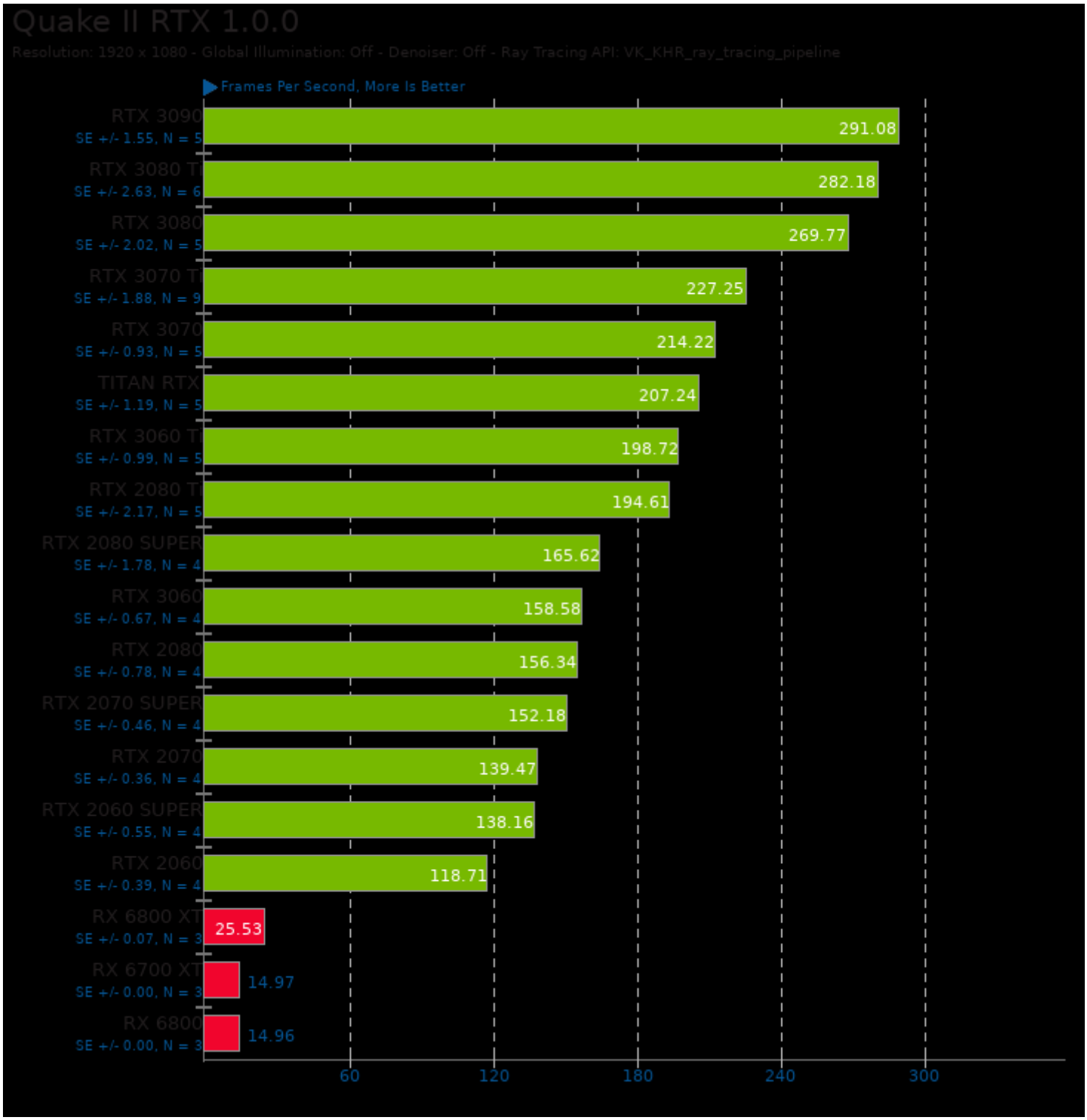

Quake II RTX 1.0.0
Resolution: 3840 x 2160 - Global Illumination: High - Denoiser: Off - Ray Tracing API: VK_KHR_ray_query
Frames Per Second, More Is Better
RTX 3090
SE +/- 0.37, N = 4
68.98
RTX 3080 Ti
SE +/- 0.21, N = 3
66.73
RTX 3080
SE +/- 0.41, N = 3
60.85
RTX 3070 Ti
SE +/- 0.32, N = 3
47.06
RTX 3070
SE +/- 0.06, N = 3
43.87
TITAN RTX
SE +/- 0.10, N = 3
43.05
RTX 2080 Ti
SE +/- 0.04, N = 3
40.95
RTX 3060 Ti
SE +/- 0.10, N = 3
38.48
RTX 2080 SUPER
SE +/- 0.16, N = 3
32.61
RTX 2080
SE +/- 0.07, N = 3
29.62
RTX 3060
SE +/- 0.03, N = 3
28.90
RTX 2070 SUPER
SE +/- 0.02, N = 3
27.68
RTX 2070
SE +/- 0.03, N = 3
23.89
RTX 2060 SUPER
SE +/- 0.07, N = 3
23.49
RTX 2060
SE +/- 0.04, N = 3
20.47
RX 6800 XT
SE +/- 0.00, N = 3
14.96
RX 6800
SE +/- 0.01, N = 3
10.12
RX 6700 XT
SE +/- 0.01, N = 3
10.10
15
30
45
60
75

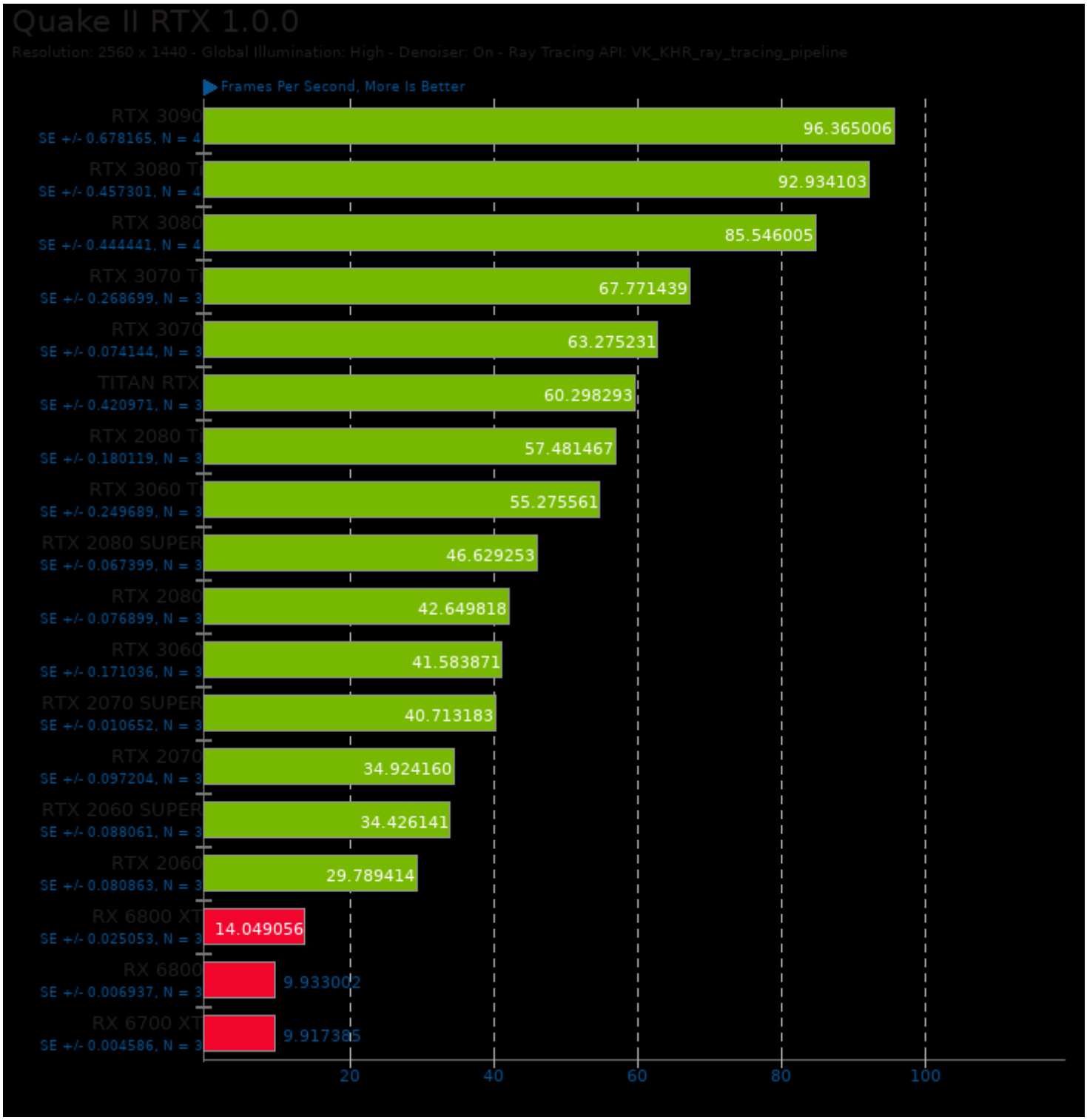

Quake II RTX 1.0.0
Resolution: 1920 x 1080 - Global Illumination: Off - Denoiser: On - Ray Tracing API: VK_KHR_ray_tracing_pipeline
Frames Per Second, More Is Better
RTX 3090
SE +/- 0.72, N = 5
211.49
RTX 3080 Ti
SE +/- 0.33, N = 5
205.98
RTX 3080
SE +/- 1.52, N = 4
188.14
RTX 3070 Ti
SE +/- 0.70, N = 4
154.99
RTX 3070
SE +/- 0.28, N = 4
145.78
TITAN RTX
SE +/- 0.31, N = 4
136.29
RTX 3060 Ti
SE +/- 0.13, N = 4
130.58
RTX 2080 Ti
SE +/- 0.55, N = 4
129.42
RTX 2080 SUPER
SE +/- 0.31, N = 4
105.42
RTX 3060
SE +/- 0.08, N = 4
101.94
RTX 2080
SE +/- 0.54, N = 4
98.02
RTX 2070 SUPER
SE +/- 0.50, N = 4
94.61
RTX 2070
SE +/- 0.28, N = 3
84.89
RTX 2060 SUPER
SE +/- 0.22, N = 4
83.77
RTX 2060
SE +/- 0.40, N = 3
72.05
RX 6800 XT
SE +/- 0.00, N = 3
14.96
RX 6700 XT
SE +/- 0.03, N = 3
14.81
RX 6800
SE +/- 0.02, N = 3
14.80
50
100
150
200
250

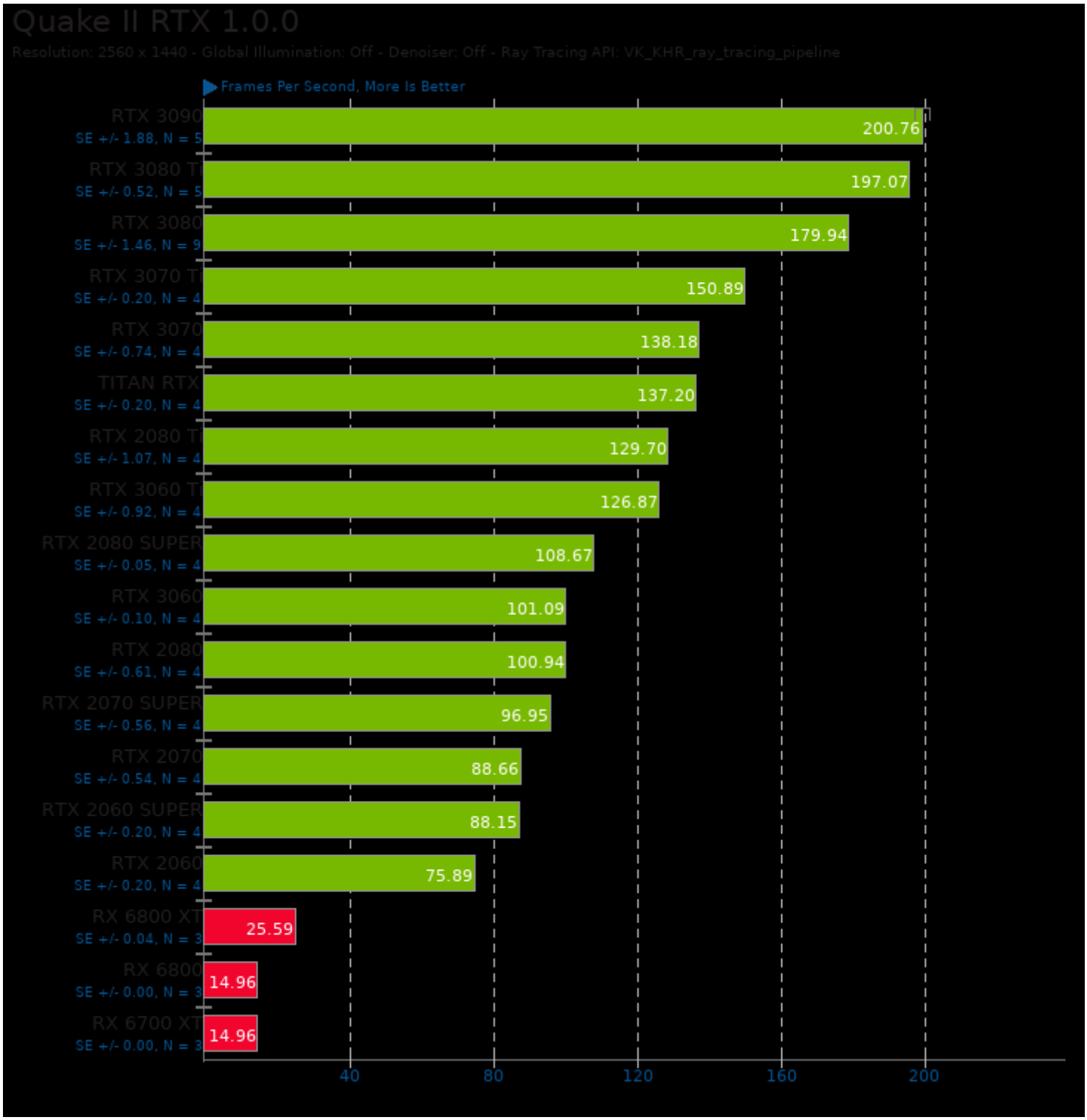

Quake II RTX 1.0.0
Resolution: 2560 x 1440 - Global Illumination: Off - Denoiser: On - Ray Tracing API: VK_KHR_ray_tracing_pipeline
Frames Per Second, More Is Better
RTX 3090
SE +/- 0.22, N = 4
136.70
RTX 3080 Ti
SE +/- 0.19, N = 4
131.50
RTX 3080
SE +/- 0.68, N = 4
120.71
RTX 3070 Ti
SE +/- 0.16, N = 4
96.60
RTX 3070
SE +/- 0.03, N = 4
89.97
TITAN RTX
SE +/- 0.40, N = 4
84.28
RTX 3060 Ti
SE +/- 0.07, N = 4
80.05
RTX 2080 Ti
SE +/- 0.39, N = 4
79.65
RTX 2080 SUPER
SE +/- 0.21, N = 3
64.77
RTX 3060
SE +/- 0.03, N = 3
60.93
RTX 2080
SE +/- 0.25, N = 3
59.91
RTX 2070 SUPER
SE +/- 0.10, N = 3
57.46
RTX 2070
SE +/- 0.02, N = 3
51.39
RTX 2060 SUPER
SE +/- 0.05, N = 3
50.61
RTX 2060
SE +/- 0.13, N = 3
42.89
RX 6800 XT
SE +/- 0.00, N = 3
14.96
RX 6800
SE +/- 0.03, N = 3
14.77
RX 6700 XT
SE +/- 0.02, N = 3
14.76
30
60
90
120
150

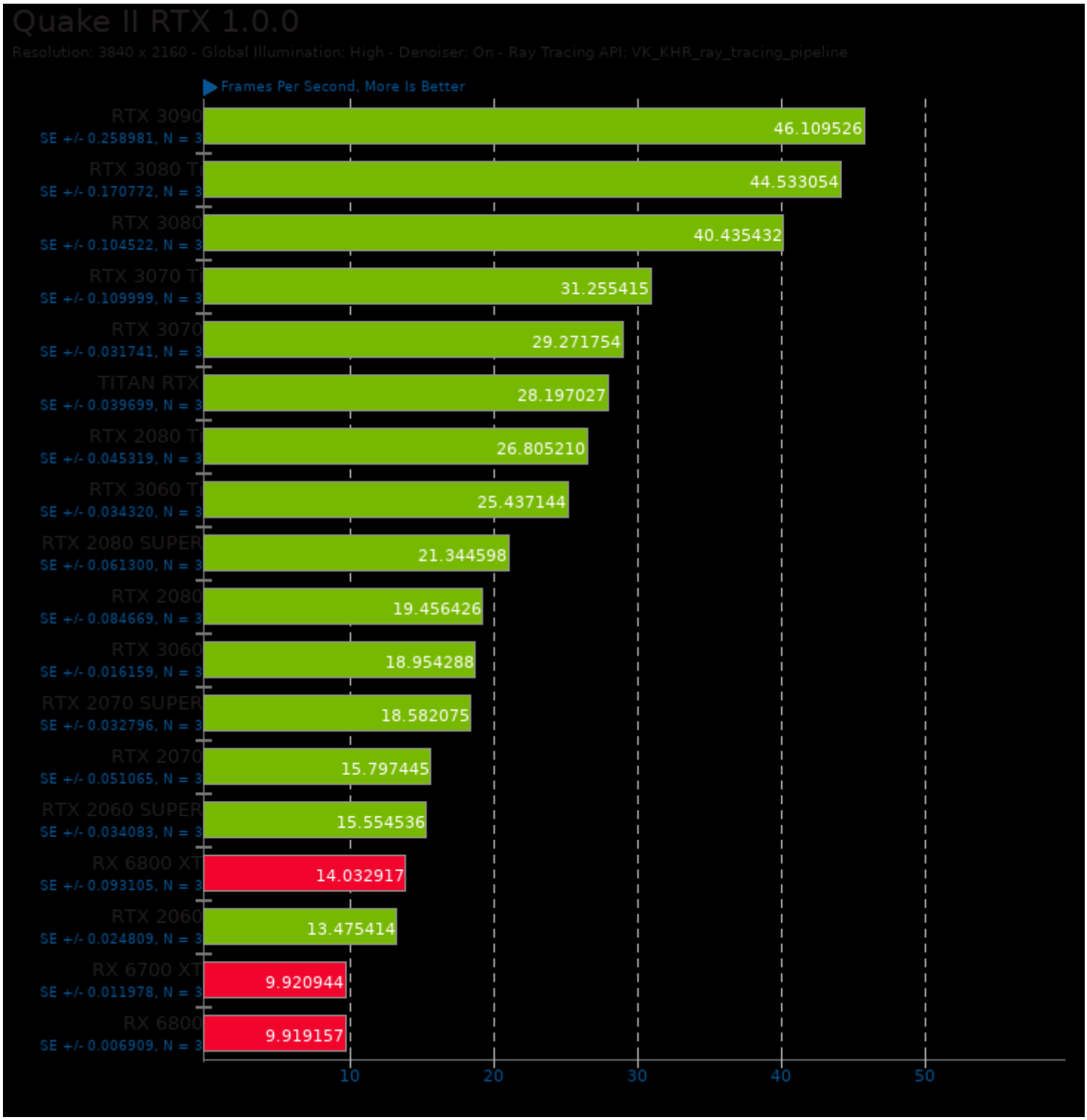

Quake II RTX 1.0.0
Resolution: 3840 x 2160 - Global Illumination: Off - Denoiser: On - Ray Tracing API: VK_KHR_ray_tracing_pipeline
Frames Per Second, More Is Better
RTX 3090
SE +/- 0.11, N = 3
66.55
RTX 3080 Ti
SE +/- 0.15, N = 3
64.09
RTX 3080
SE +/- 0.05, N = 3
58.84
RTX 3070 Ti
SE +/- 0.21, N = 3
45.64
RTX 3070
SE +/- 0.16, N = 3
42.42
TITAN RTX
SE +/- 0.06, N = 3
40.50
RTX 2080 Ti
SE +/- 0.12, N = 3
38.21
RTX 3060 Ti
SE +/- 0.16, N = 3
37.37
RTX 2080 SUPER
SE +/- 0.07, N = 3
30.05
RTX 3060
SE +/- 0.01, N = 3
28.03
RTX 2080
SE +/- 0.05, N = 3
27.74
RTX 2070 SUPER
SE +/- 0.04, N = 3
26.64
RTX 2070
SE +/- 0.05, N = 3
23.55
RTX 2060 SUPER
SE +/- 0.03, N = 3
23.14
RTX 2060
SE +/- 0.03, N = 3
19.62
RX 6800 XT
SE +/- 0.00, N = 3
14.96
RX 6700 XT
SE +/- 0.04, N = 3
14.80
RX 6800
SE +/- 0.02, N = 3
14.76
15
30
45
60
75

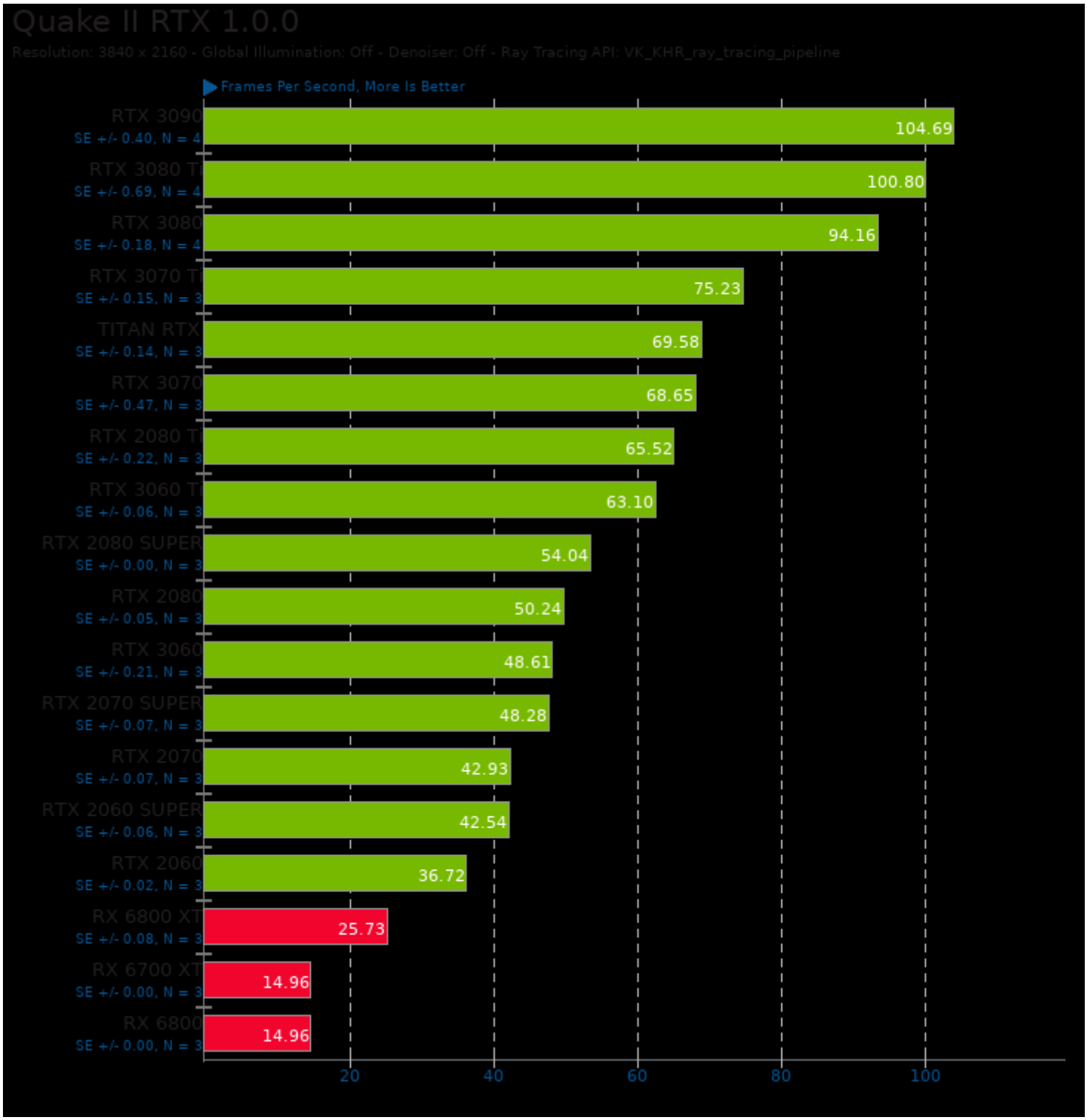

Quake II RTX 1.0.0
Resolution: 1920 x 1080 - Global Illumination: High - Denoiser: On - Ray Tracing API: VK_KHR_ray_tracing_pipeline
Frames Per Second, More Is Better
RTX 3090
SE +/- 1.197536, N = 4
155.131660
RTX 3080 Ti
SE +/- 0.363985, N = 4
151.485043
RTX 3080
SE +/- 1.315326, N = 4
138.226052
RTX 3070 Ti
SE +/- 0.232150, N = 4
112.024876
RTX 3070
SE +/- 0.304144, N = 4
103.995079
TITAN RTX
SE +/- 0.443181, N = 4
99.001911
RTX 2080 Ti
SE +/- 0.406981, N = 4
95.006777
RTX 3060 Ti
SE +/- 0.445024, N = 4
91.445774
RTX 2080 SUPER
SE +/- 0.214980, N = 4
77.555951
RTX 2080
SE +/- 0.701700, N = 3
71.056552
RTX 3060
SE +/- 0.265777, N = 3
70.641599
RTX 2070 SUPER
SE +/- 0.148515, N = 3
68.047663
RTX 2070
SE +/- 0.009756, N = 3
59.078709
RTX 2060 SUPER
SE +/- 0.109550, N = 3
58.257318
RTX 2060
SE +/- 0.033206, N = 3
50.880297
RX 6800 XT
SE +/- 0.021492, N = 3
14.000509
RX 6800
SE +/- 0.002975, N = 3
9.926067
RX 6700 XT
SE +/- 0.006238, N = 3
9.919260
30
60
90
120
150

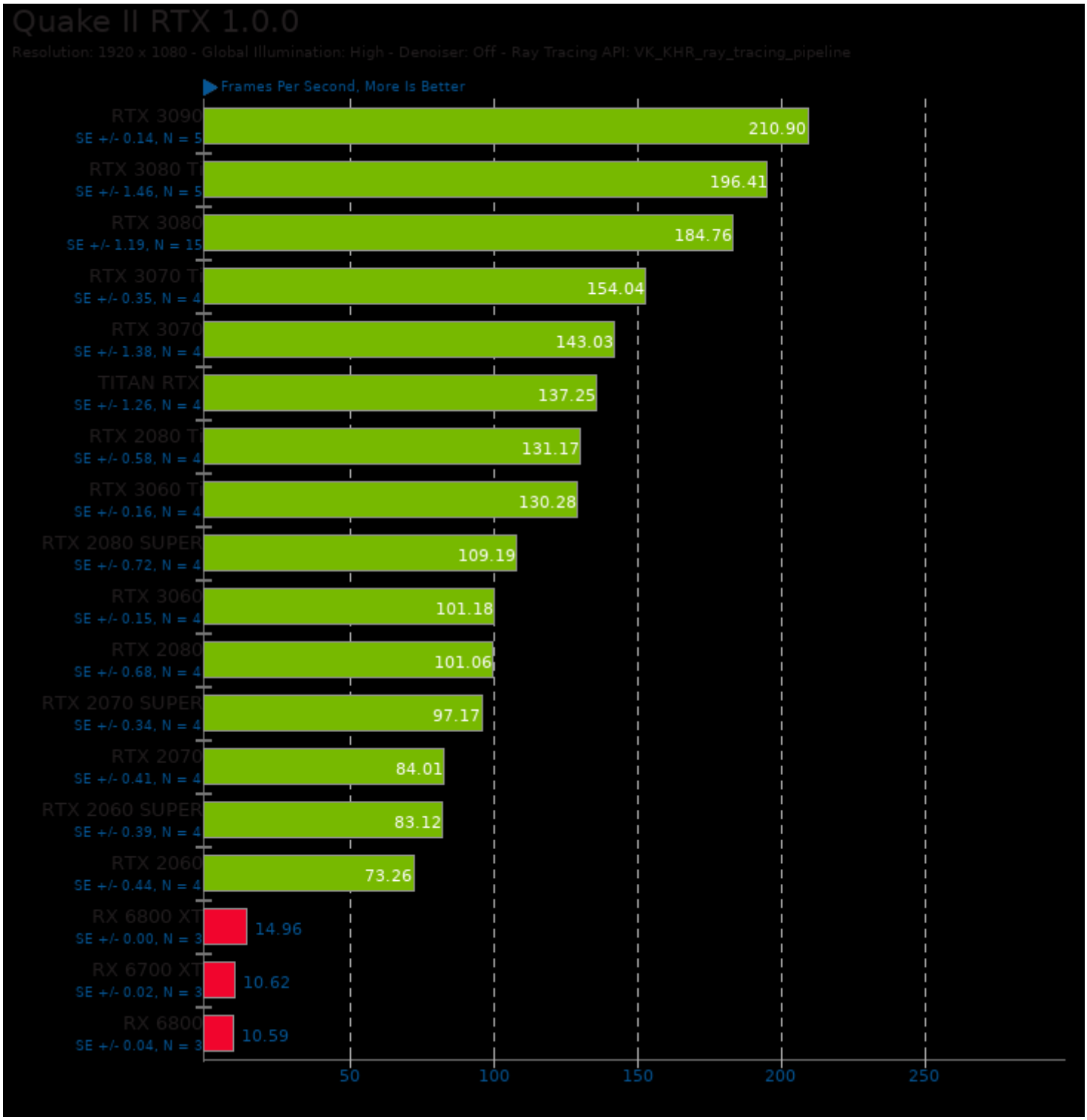

Quake II RTX 1.0.0
Resolution: 1920 x 1080 - Global Illumination: Off - Denoiser: Off - Ray Tracing API: VK_KHR_ray_tracing_pipeline
Frames Per Second, More Is Better
RTX 3090
SE +/- 1.55, N = 5
291.08
RTX 3080 Ti
SE +/- 2.63, N = 6
282.18
RTX 3080
SE +/- 2.02, N = 5
269.77
RTX 3070 Ti
SE +/- 1.88, N = 9
227.25
RTX 3070
SE +/- 0.93, N = 5
214.22
TITAN RTX
SE +/- 1.19, N = 5
207.24
RTX 3060 Ti
SE +/- 0.99, N = 5
198.72
RTX 2080 Ti
SE +/- 2.17, N = 5
194.61
RTX 2080 SUPER
SE +/- 1.78, N = 4
165.62
RTX 3060
SE +/- 0.67, N = 4
158.58
RTX 2080
SE +/- 0.78, N = 4
156.34
RTX 2070 SUPER
SE +/- 0.46, N = 4
152.18
RTX 2070
SE +/- 0.36, N = 4
139.47
RTX 2060 SUPER
SE +/- 0.55, N = 4
138.16
RTX 2060
SE +/- 0.39, N = 4
118.71
RX 6800 XT
SE +/- 0.07, N = 3
25.53
RX 6700 XT
SE +/- 0.00, N = 3
14.97
RX 6800
SE +/- 0.00, N = 3
14.96
60
120
180
240
300

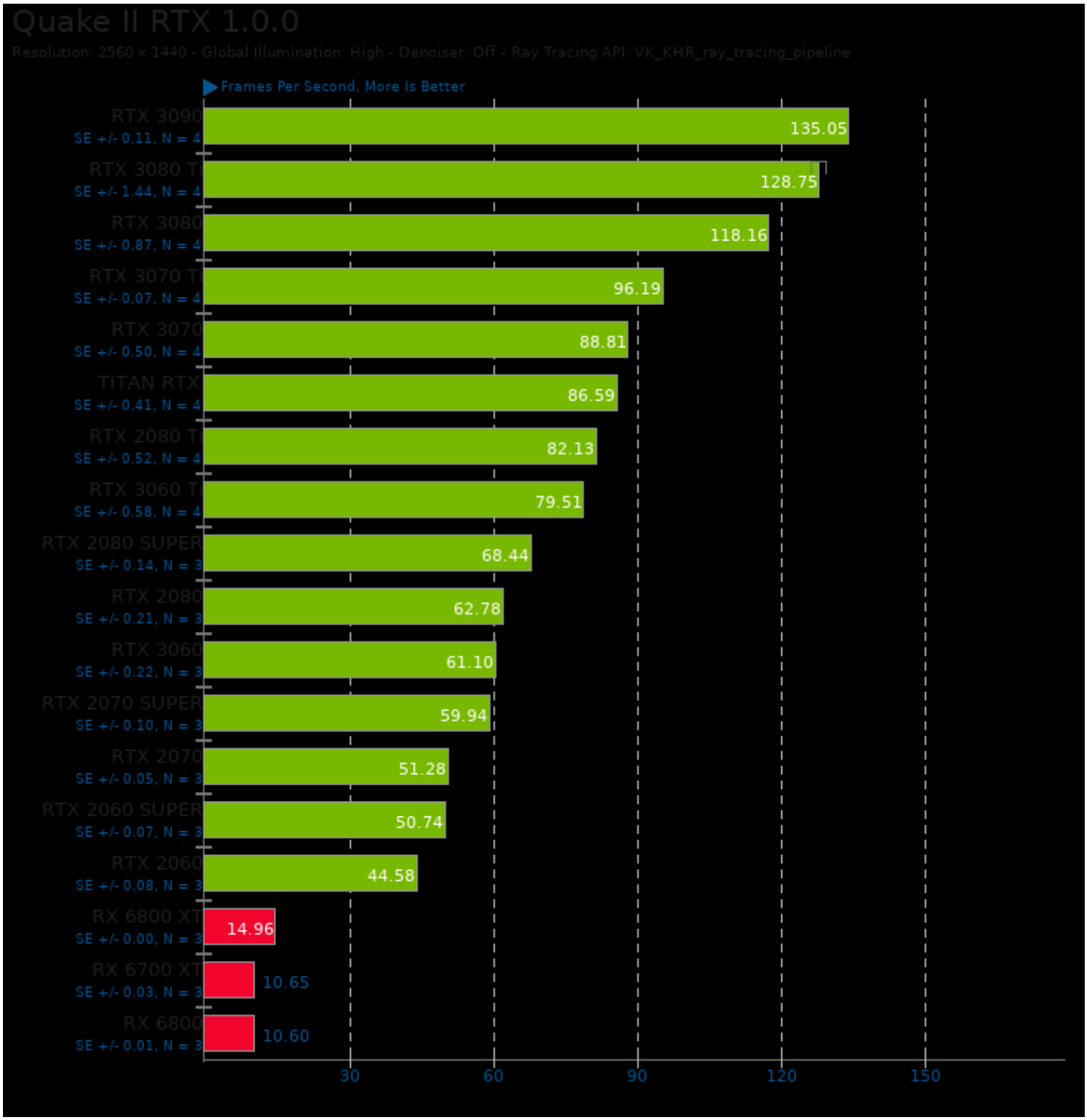

Quake II RTX 1.0.0
Resolution: 2560 x 1440 - Global Illumination: High - Denoiser: On - Ray Tracing API: VK_KHR_ray_tracing_pipeline
Frames Per Second, More Is Better
RTX 3090
SE +/- 0.678165, N = 4
96.365006
RTX 3080 Ti
SE +/- 0.457301, N = 4
92.934103
RTX 3080
SE +/- 0.444441, N = 4
85.546005
RTX 3070 Ti
SE +/- 0.268699, N = 3
67.771439
RTX 3070
SE +/- 0.074144, N = 3
63.275231
TITAN RTX
SE +/- 0.420971, N = 3
60.298293
RTX 2080 Ti
SE +/- 0.180119, N = 3
57.481467
RTX 3060 Ti
SE +/- 0.249689, N = 3
55.275561
RTX 2080 SUPER
SE +/- 0.067399, N = 3
46.629253
RTX 2080
SE +/- 0.076899, N = 3
42.649818
RTX 3060
SE +/- 0.171036, N = 3
41.583871
RTX 2070 SUPER
SE +/- 0.010652, N = 3
40.713183
RTX 2070
SE +/- 0.097204, N = 3
34.924160
RTX 2060 SUPER
SE +/- 0.088061, N = 3
34.426141
RTX 2060
SE +/- 0.080863, N = 3
29.789414
RX 6800 XT
SE +/- 0.025053, N = 3
14.049056
RX 6800
SE +/- 0.006937, N = 3
9.933002
RX 6700 XT
SE +/- 0.004586, N = 3
9.917385
20
40
60
80
100

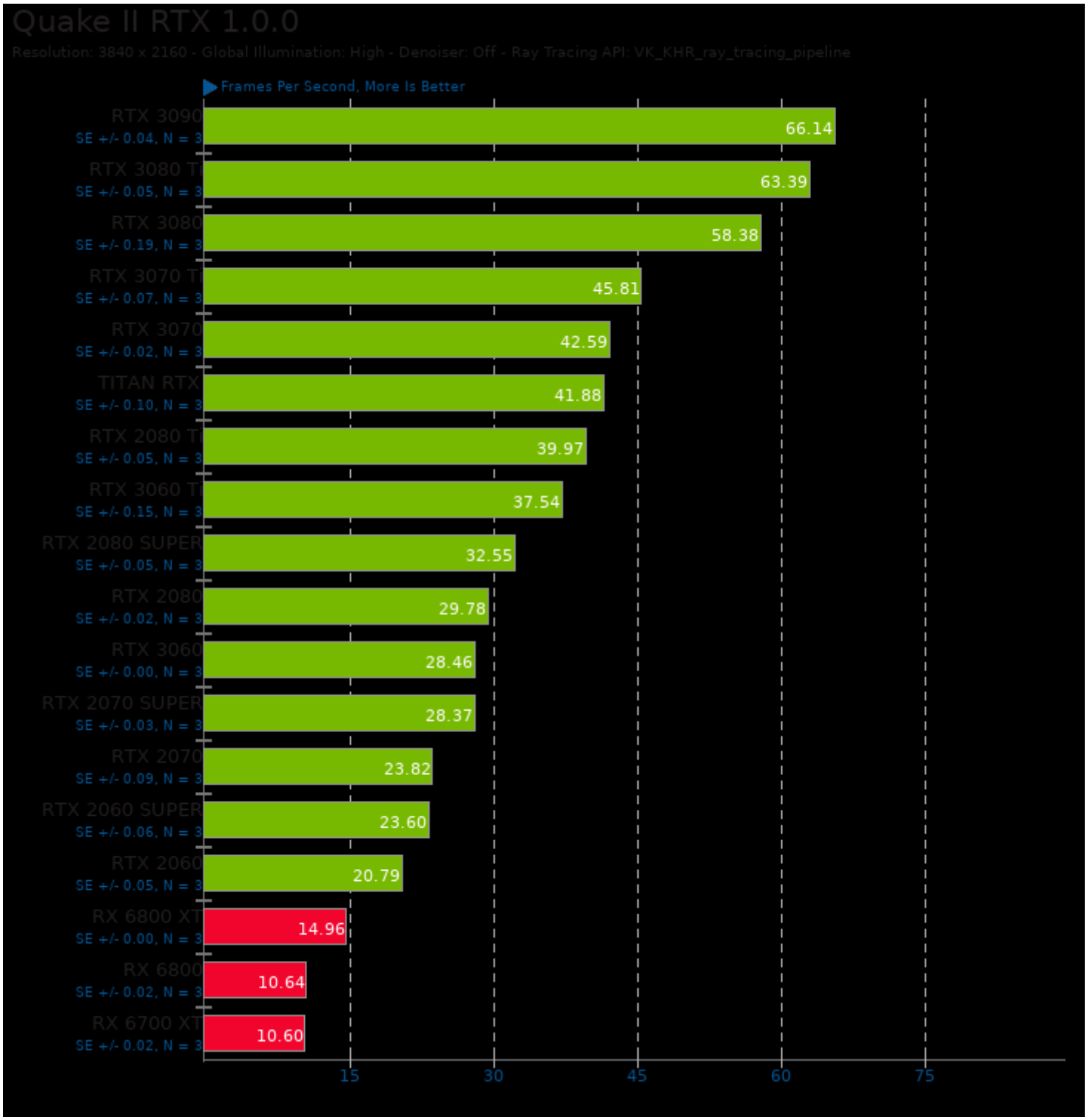

Quake II RTX 1.0.0
Resolution: 2560 x 1440 - Global Illumination: Off - Denoiser: Off - Ray Tracing API: VK_KHR_ray_tracing_pipeline
Frames Per Second, More Is Better
RTX 3090
SE +/- 1.88, N = 5
200.76
RTX 3080 Ti
SE +/- 0.52, N = 5
197.07
RTX 3080
SE +/- 1.46, N = 9
179.94
RTX 3070 Ti
SE +/- 0.20, N = 4
150.89
RTX 3070
SE +/- 0.74, N = 4
138.18
TITAN RTX
SE +/- 0.20, N = 4
137.20
RTX 2080 Ti
SE +/- 1.07, N = 4
129.70
RTX 3060 Ti
SE +/- 0.92, N = 4
126.87
RTX 2080 SUPER
SE +/- 0.05, N = 4
108.67
RTX 3060
SE +/- 0.10, N = 4
101.09
RTX 2080
SE +/- 0.61, N = 4
100.94
RTX 2070 SUPER
SE +/- 0.56, N = 4
96.95
RTX 2070
SE +/- 0.54, N = 4
88.66
RTX 2060 SUPER
SE +/- 0.20, N = 4
88.15
RTX 2060
SE +/- 0.20, N = 4
75.89
RX 6800 XT
SE +/- 0.04, N = 3
25.59
RX 6800
SE +/- 0.00, N = 3
14.96
RX 6700 XT
SE +/- 0.00, N = 3
14.96
40
80
120
160
200

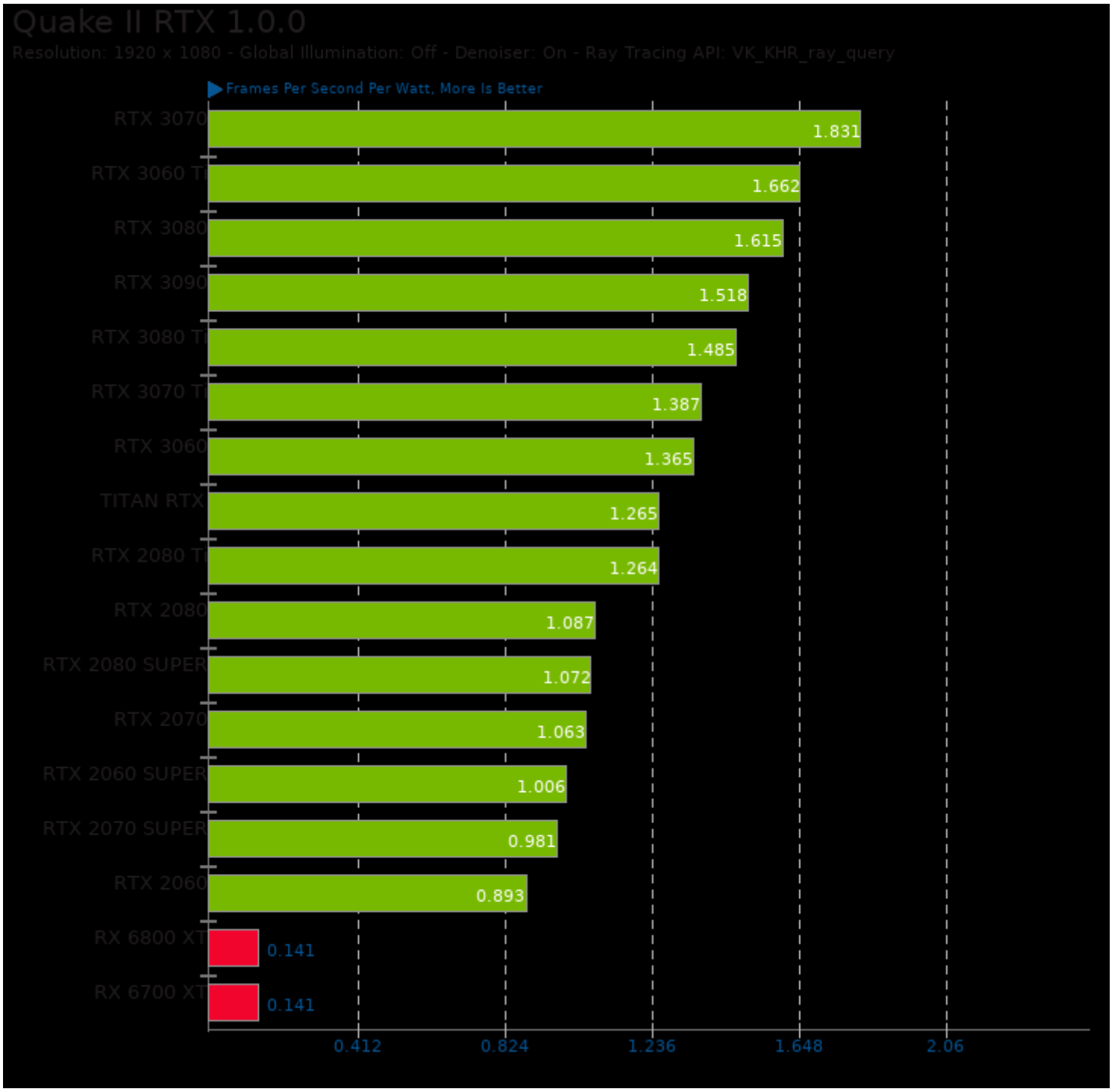

Quake II RTX 1.0.0
Resolution: 3840 x 2160 - Global Illumination: High - Denoiser: On - Ray Tracing API: VK_KHR_ray_tracing_pipeline
Frames Per Second, More Is Better
RTX 3090
SE +/- 0.258981, N = 3
46.109526
RTX 3080 Ti
SE +/- 0.170772, N = 3
44.533054
RTX 3080
SE +/- 0.104522, N = 3
40.435432
RTX 3070 Ti
SE +/- 0.109999, N = 3
31.255415
RTX 3070
SE +/- 0.031741, N = 3
29.271754
TITAN RTX
SE +/- 0.039699, N = 3
28.197027
RTX 2080 Ti
SE +/- 0.045319, N = 3
26.805210
RTX 3060 Ti
SE +/- 0.034320, N = 3
25.437144
RTX 2080 SUPER
SE +/- 0.061300, N = 3
21.344598
RTX 2080
SE +/- 0.084669, N = 3
19.456426
RTX 3060
SE +/- 0.016159, N = 3
18.954288
RTX 2070 SUPER
SE +/- 0.032796, N = 3
18.582075
RTX 2070
SE +/- 0.051065, N = 3
15.797445
RTX 2060 SUPER
SE +/- 0.034083, N = 3
15.554536
RX 6800 XT
SE +/- 0.093105, N = 3
14.032917
RTX 2060
SE +/- 0.024809, N = 3
13.475414
RX 6700 XT
SE +/- 0.011978, N = 3
9.920944
RX 6800
SE +/- 0.006909, N = 3
9.919157
10
20
30
40
50

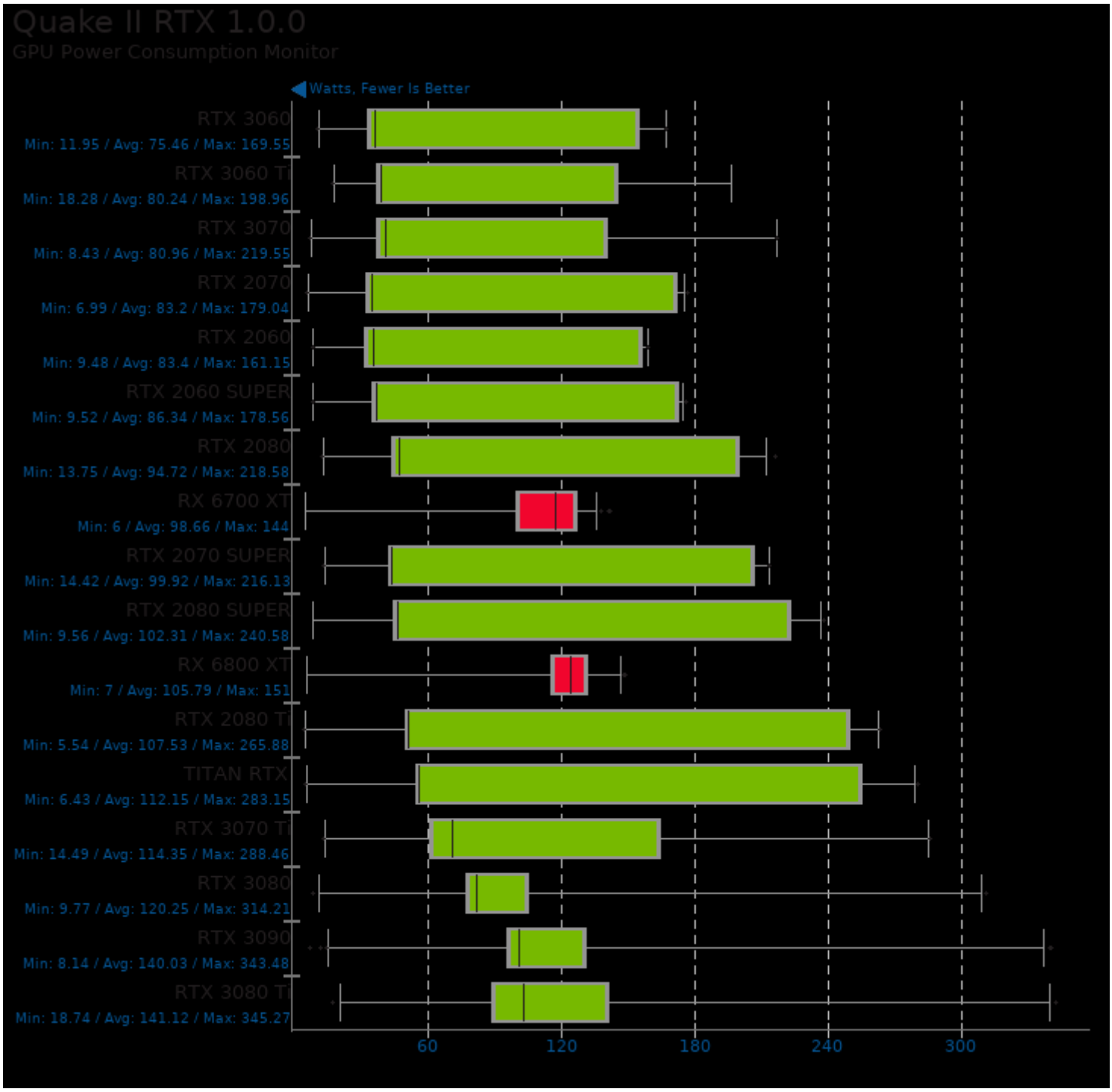

Quake II RTX 1.0.0
Resolution: 3840 x 2160 - Global Illumination: Off - Denoiser: Off - Ray Tracing API: VK_KHR_ray_tracing_pipeline
Frames Per Second, More Is Better
RTX 3090
SE +/- 0.40, N = 4
104.69
RTX 3080 Ti
SE +/- 0.69, N = 4
100.80
RTX 3080
SE +/- 0.18, N = 4
94.16
RTX 3070 Ti
SE +/- 0.15, N = 3
75.23
TITAN RTX
SE +/- 0.14, N = 3
69.58
RTX 3070
SE +/- 0.47, N = 3
68.65
RTX 2080 Ti
SE +/- 0.22, N = 3
65.52
RTX 3060 Ti
SE +/- 0.06, N = 3
63.10
RTX 2080 SUPER
SE +/- 0.00, N = 3
54.04
RTX 2080
SE +/- 0.05, N = 3
50.24
RTX 3060
SE +/- 0.21, N = 3
48.61
RTX 2070 SUPER
SE +/- 0.07, N = 3
48.28
RTX 2070
SE +/- 0.07, N = 3
42.93
RTX 2060 SUPER
SE +/- 0.06, N = 3
42.54
RTX 2060
SE +/- 0.02, N = 3
36.72
RX 6800 XT
SE +/- 0.08, N = 3
25.73
RX 6700 XT
SE +/- 0.00, N = 3
14.96
RX 6800
SE +/- 0.00, N = 3
14.96
20
40
60
80
100

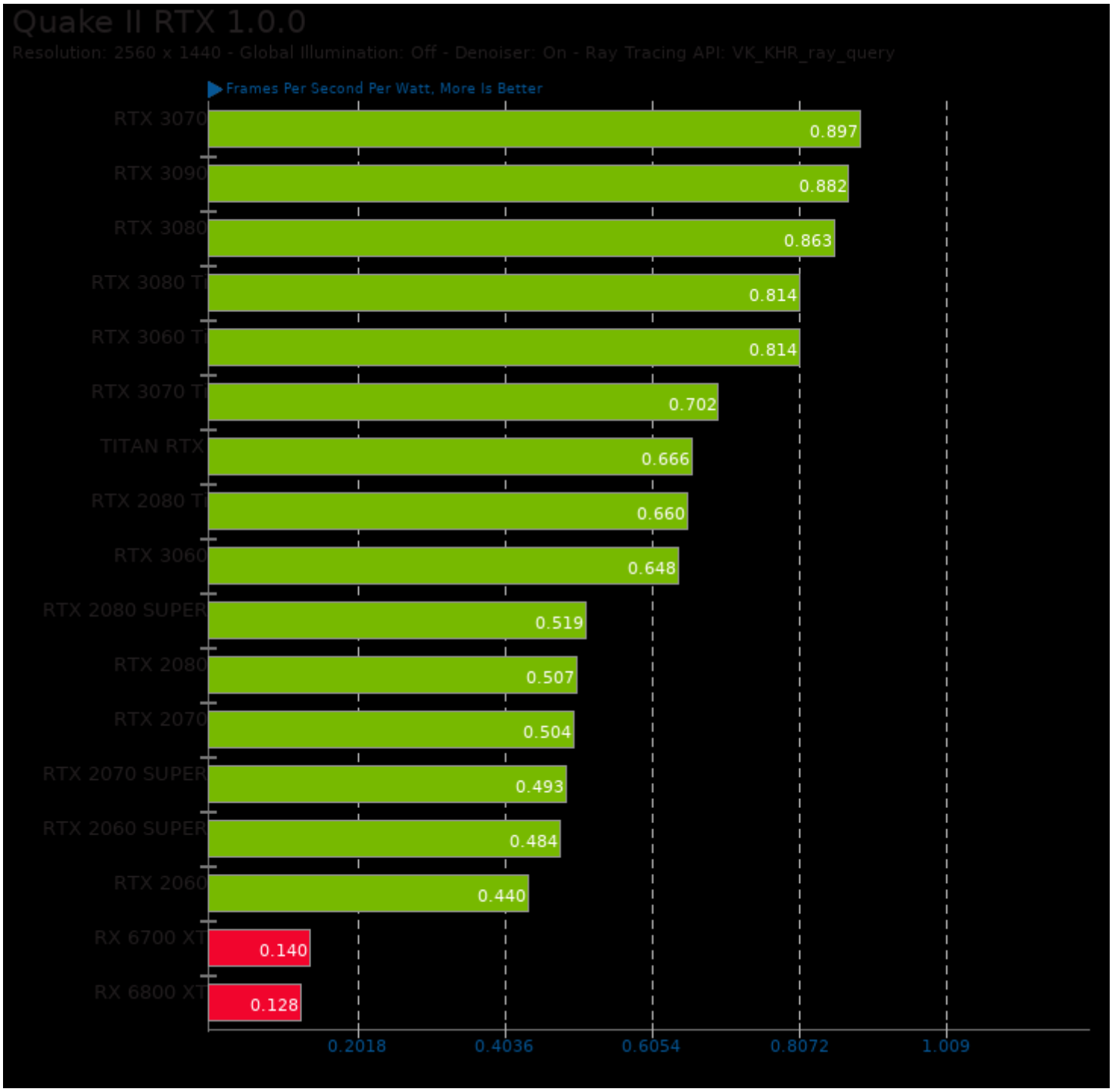

Quake II RTX 1.0.0
Resolution: 1920 x 1080 - Global Illumination: High - Denoiser: Off - Ray Tracing API: VK_KHR_ray_tracing_pipeline
Frames Per Second, More Is Better
RTX 3090
SE +/- 0.14, N = 5
210.90
RTX 3080 Ti
SE +/- 1.46, N = 5
196.41
RTX 3080
SE +/- 1.19, N = 15
184.76
RTX 3070 Ti
SE +/- 0.35, N = 4
154.04
RTX 3070
SE +/- 1.38, N = 4
143.03
TITAN RTX
SE +/- 1.26, N = 4
137.25
RTX 2080 Ti
SE +/- 0.58, N = 4
131.17
RTX 3060 Ti
SE +/- 0.16, N = 4
130.28
RTX 2080 SUPER
SE +/- 0.72, N = 4
109.19
RTX 3060
SE +/- 0.15, N = 4
101.18
RTX 2080
SE +/- 0.68, N = 4
101.06
RTX 2070 SUPER
SE +/- 0.34, N = 4
97.17
RTX 2070
SE +/- 0.41, N = 4
84.01
RTX 2060 SUPER
SE +/- 0.39, N = 4
83.12
RTX 2060
SE +/- 0.44, N = 4
73.26
RX 6800 XT
SE +/- 0.00, N = 3
14.96
RX 6700 XT
SE +/- 0.02, N = 3
10.62
RX 6800
SE +/- 0.04, N = 3
10.59
50
100
150
200
250

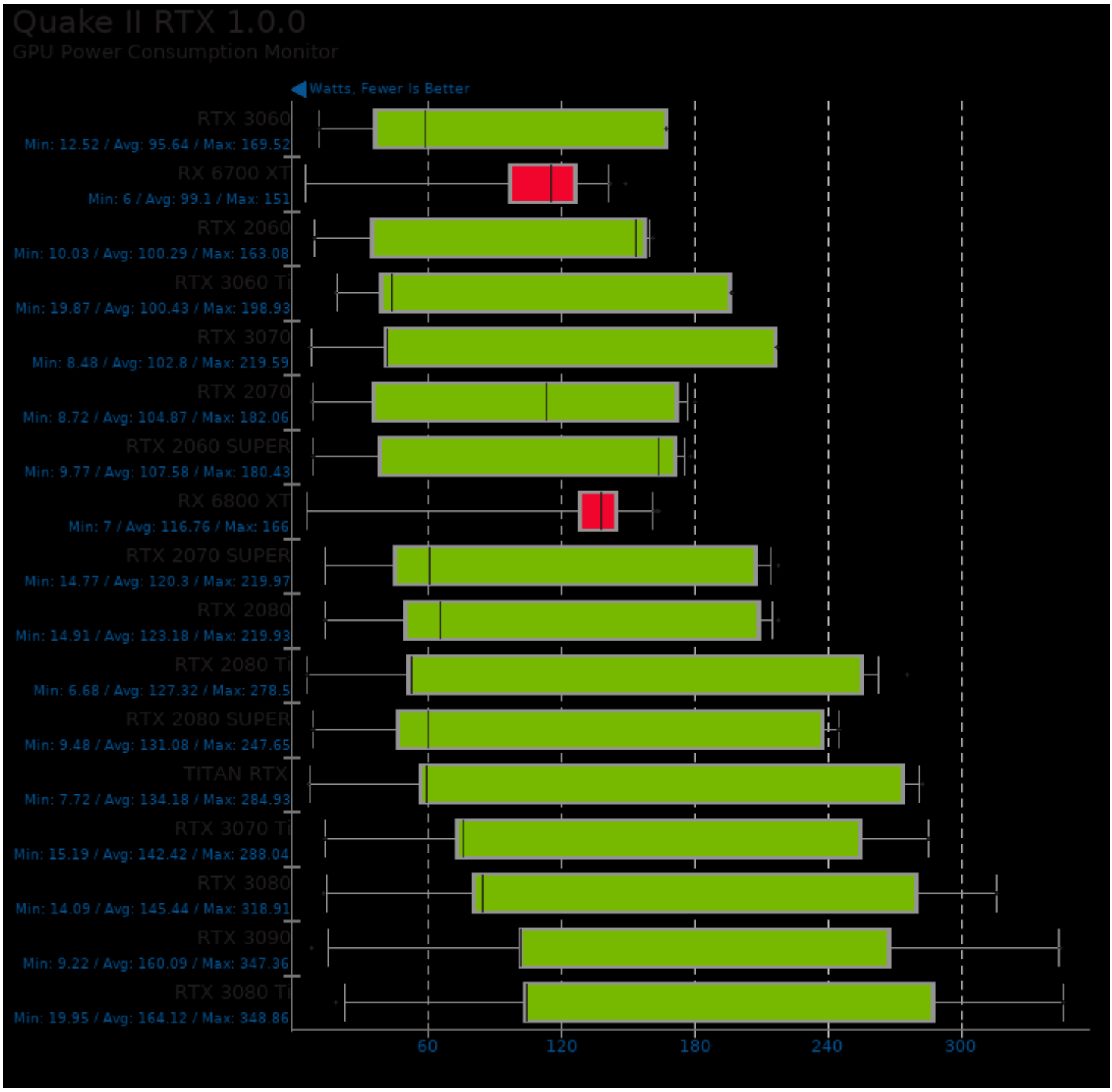

Quake II RTX 1.0.0
Resolution: 2560 x 1440 - Global Illumination: High - Denoiser: Off - Ray Tracing API: VK_KHR_ray_tracing_pipeline
Frames Per Second, More Is Better
RTX 3090
SE +/- 0.11, N = 4
135.05
RTX 3080 Ti
SE +/- 1.44, N = 4
128.75
RTX 3080
SE +/- 0.87, N = 4
118.16
RTX 3070 Ti
SE +/- 0.07, N = 4
96.19
RTX 3070
SE +/- 0.50, N = 4
88.81
TITAN RTX
SE +/- 0.41, N = 4
86.59
RTX 2080 Ti
SE +/- 0.52, N = 4
82.13
RTX 3060 Ti
SE +/- 0.58, N = 4
79.51
RTX 2080 SUPER
SE +/- 0.14, N = 3
68.44
RTX 2080
SE +/- 0.21, N = 3
62.78
RTX 3060
SE +/- 0.22, N = 3
61.10
RTX 2070 SUPER
SE +/- 0.10, N = 3
59.94
RTX 2070
SE +/- 0.05, N = 3
51.28
RTX 2060 SUPER
SE +/- 0.07, N = 3
50.74
RTX 2060
SE +/- 0.08, N = 3
44.58
RX 6800 XT
SE +/- 0.00, N = 3
14.96
RX 6700 XT
SE +/- 0.03, N = 3
10.65
RX 6800
SE +/- 0.01, N = 3
10.60
30
60
90
120
150

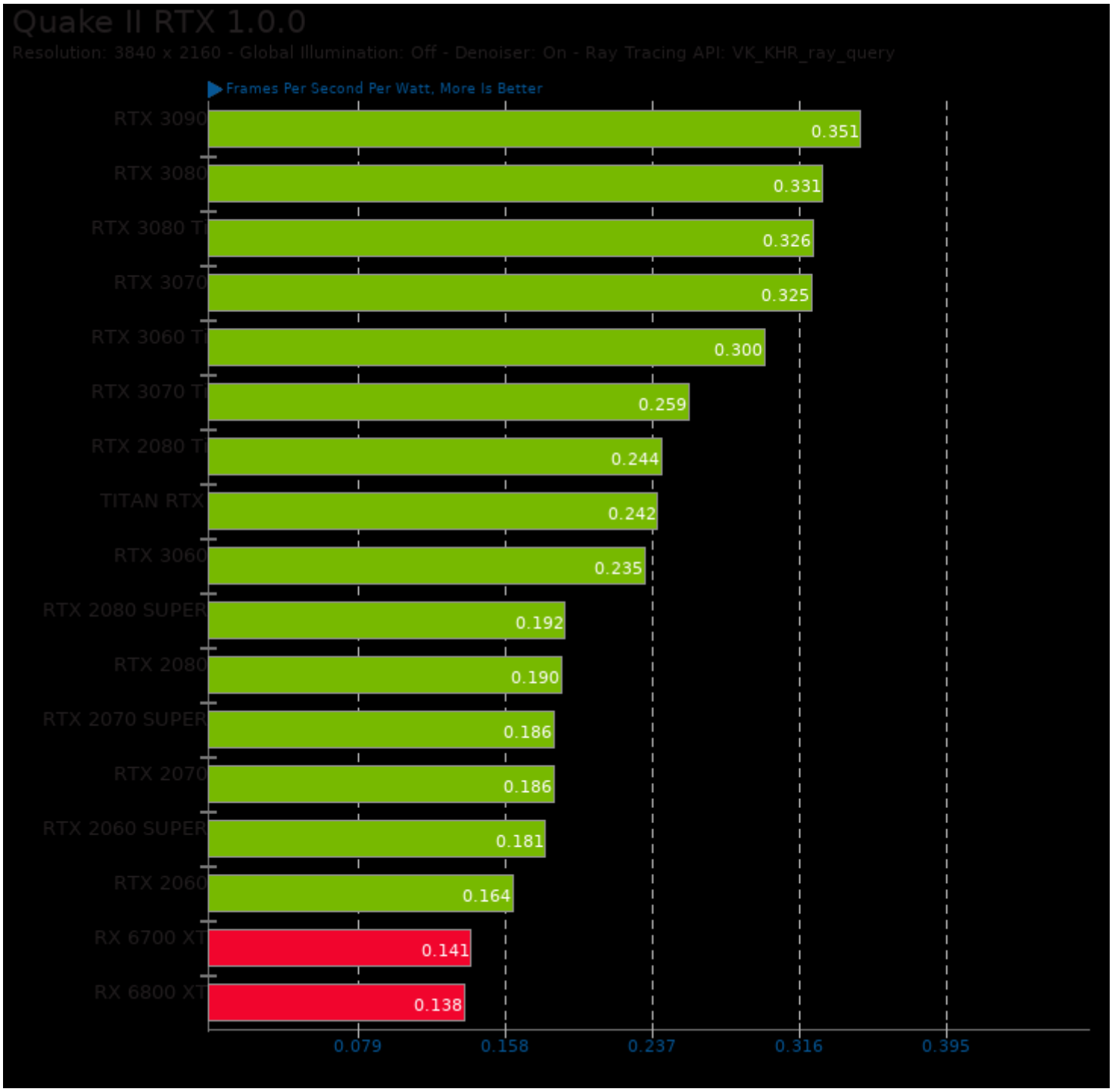

Quake II RTX 1.0.0
Resolution: 3840 x 2160 - Global Illumination: High - Denoiser: Off - Ray Tracing API: VK_KHR_ray_tracing_pipeline
Frames Per Second, More Is Better
RTX 3090
SE +/- 0.04, N = 3
66.14
RTX 3080 T
SE +/- 0.05, N = 3
63.39
RTX 3080
SE +/- 0.19, N = 3
58.38
RTX 3070 T
SE +/- 0.07, N = 3
45.81
RTX 3070
SE +/- 0.02, N = 3
42.59
TITAN RTX
SE +/- 0.10, N = 3
41.88
RTX 2080 T
SE +/- 0.05, N = 3
39.97
RTX 3060 T
SE +/- 0.15, N = 3
37.54
RTX 2080 SUPER
SE +/- 0.05, N = 3
32.55
RTX 2080
SE +/- 0.02, N = 3
29.78
RTX 3060
SE +/- 0.00, N = 3
28.46
RTX 2070 SUPER
SE +/- 0.03, N = 3
28.37
RTX 2070
SE +/- 0.09, N = 3
23.82
RTX 2060 SUPER
SE +/- 0.06, N = 3
23.60
RTX 2060
SE +/- 0.05, N = 3
20.79
RX 6800 XT
SE +/- 0.00, N = 3
14.96
RX 6800
SE +/- 0.02, N = 3
10.64
RX 6700 XT
SE +/- 0.02, N = 3
10.60
15
30
45
60
75

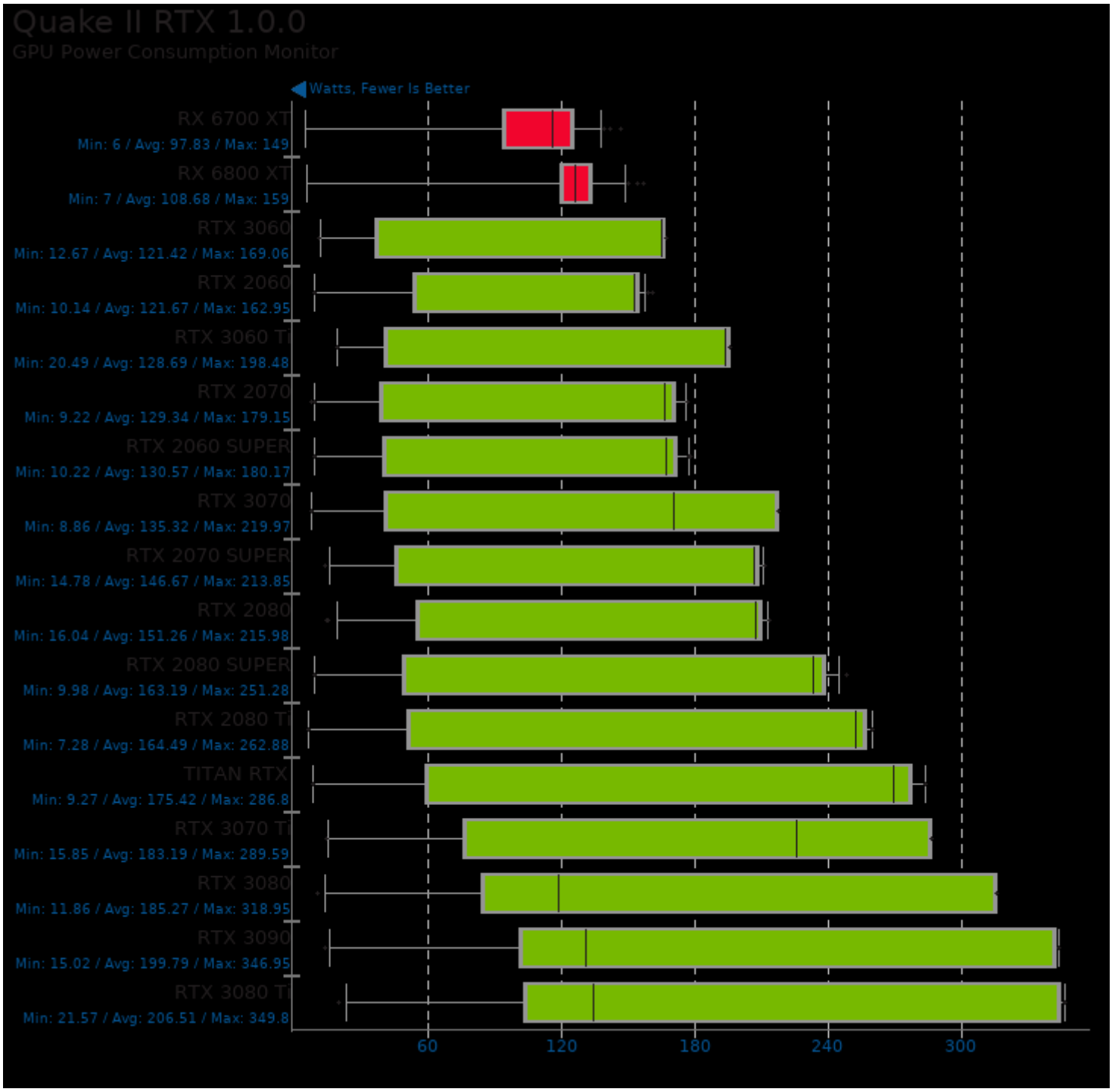

Quake II RTX 1.0.0
Resolution: 1920 x 1080 - Global Illumination: Off - Denoiser: On - Ray Tracing API: VK_KHR_ray_query
Frames Per Second Per Watt, More Is Better
RTX 3070
1.831
RTX 3060 Ti
1.662
RTX 3080
1.615
RTX 3090
1.518
RTX 3080 Ti
1.485
RTX 3070 Ti
1.387
RTX 3060
1.365
TITAN RTX
1.265
RTX 2080 Ti
1.264
RTX 2080
1.087
RTX 2080 SUPER
1.072
RTX 2070
1.063
RTX 2060 SUPER
1.006
RTX 2070 SUPER
0.981
RTX 2060
0.893
RX 6800 XT
0.141
RX 6700 XT
0.141
0.412
0.824
1.236
1.648
2.06

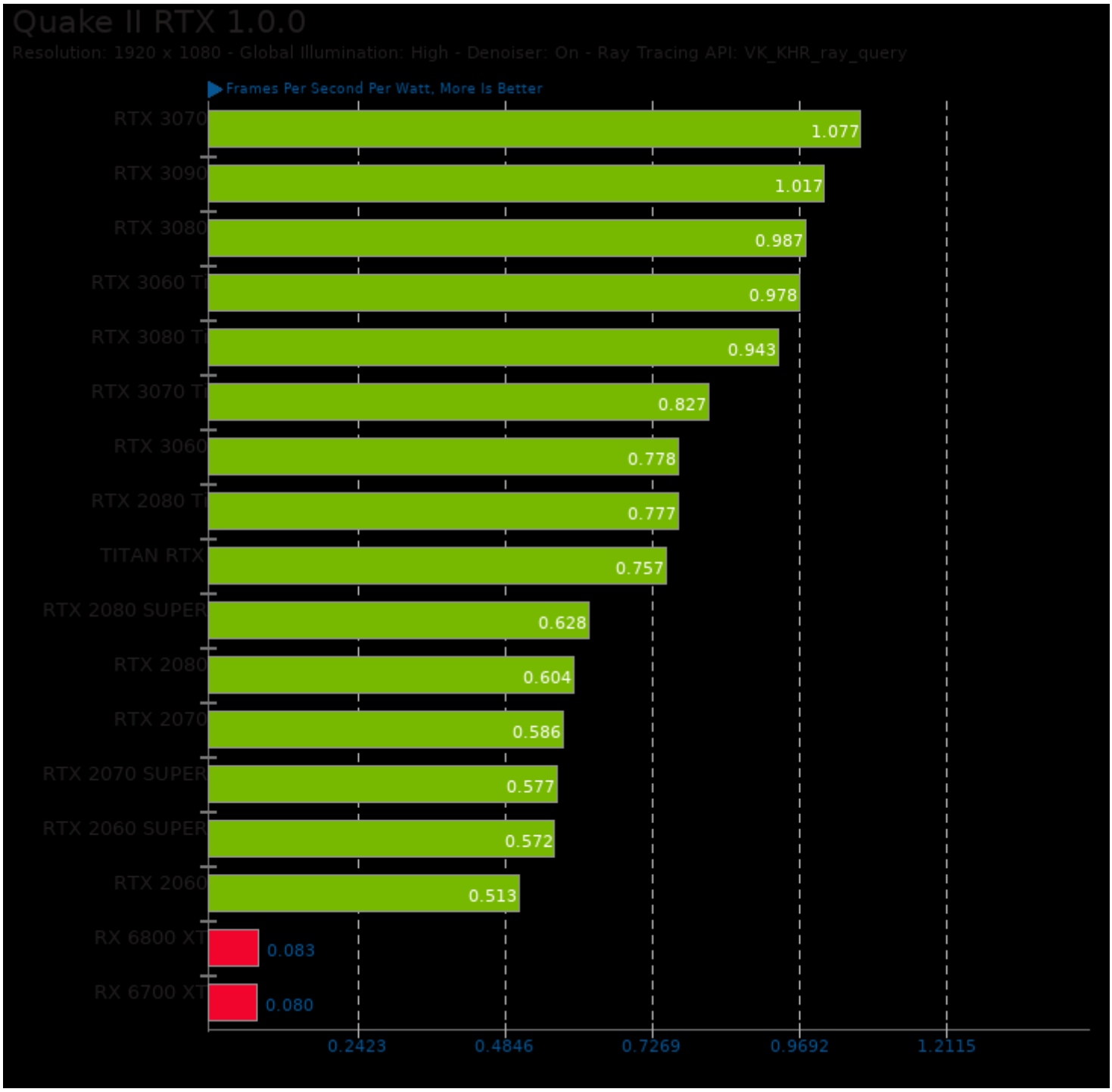

Quake II RTX 1.0.0
GPU Power Consumption Monitor
Watts, Fewer Is Better
RTX 3060
Min: 11.95 / Avg: 75.46 / Max: 169.55
RTX 3060 Ti
Min: 18.28 / Avg: 80.24 / Max: 198.96
RTX 3070
Min: 8.43 / Avg: 80.96 / Max: 219.55
RTX 2070
Min: 6.99 / Avg: 83.2 / Max: 179.04
RTX 2060
Min: 9.48 / Avg: 83.4 / Max: 161.15
RTX 2060 SUPER
Min: 9.52 / Avg: 86.34 / Max: 178.56
RTX 2080
Min: 13.75 / Avg: 94.72 / Max: 218.58
RX 6700 XT
Min: 6 / Avg: 98.66 / Max: 144
RTX 2070 SUPER
Min: 14.42 / Avg: 99.92 / Max: 216.13
RTX 2080 SUPER
Min: 9.56 / Avg: 102.31 / Max: 240.58
RX 6800 XT
Min: 7 / Avg: 105.79 / Max: 151
RTX 2080 Ti
Min: 5.54 / Avg: 107.53 / Max: 265.88
TITAN RTX
Min: 6.43 / Avg: 112.15 / Max: 283.15
RTX 3070 Ti
Min: 14.49 / Avg: 114.35 / Max: 288.46
RTX 3080
Min: 9.77 / Avg: 120.25 / Max: 314.21
RTX 3090
Min: 8.14 / Avg: 140.03 / Max: 343.48
RTX 3080 Ti
Min: 18.74 / Avg: 141.12 / Max: 345.27
60
120
180
240
300

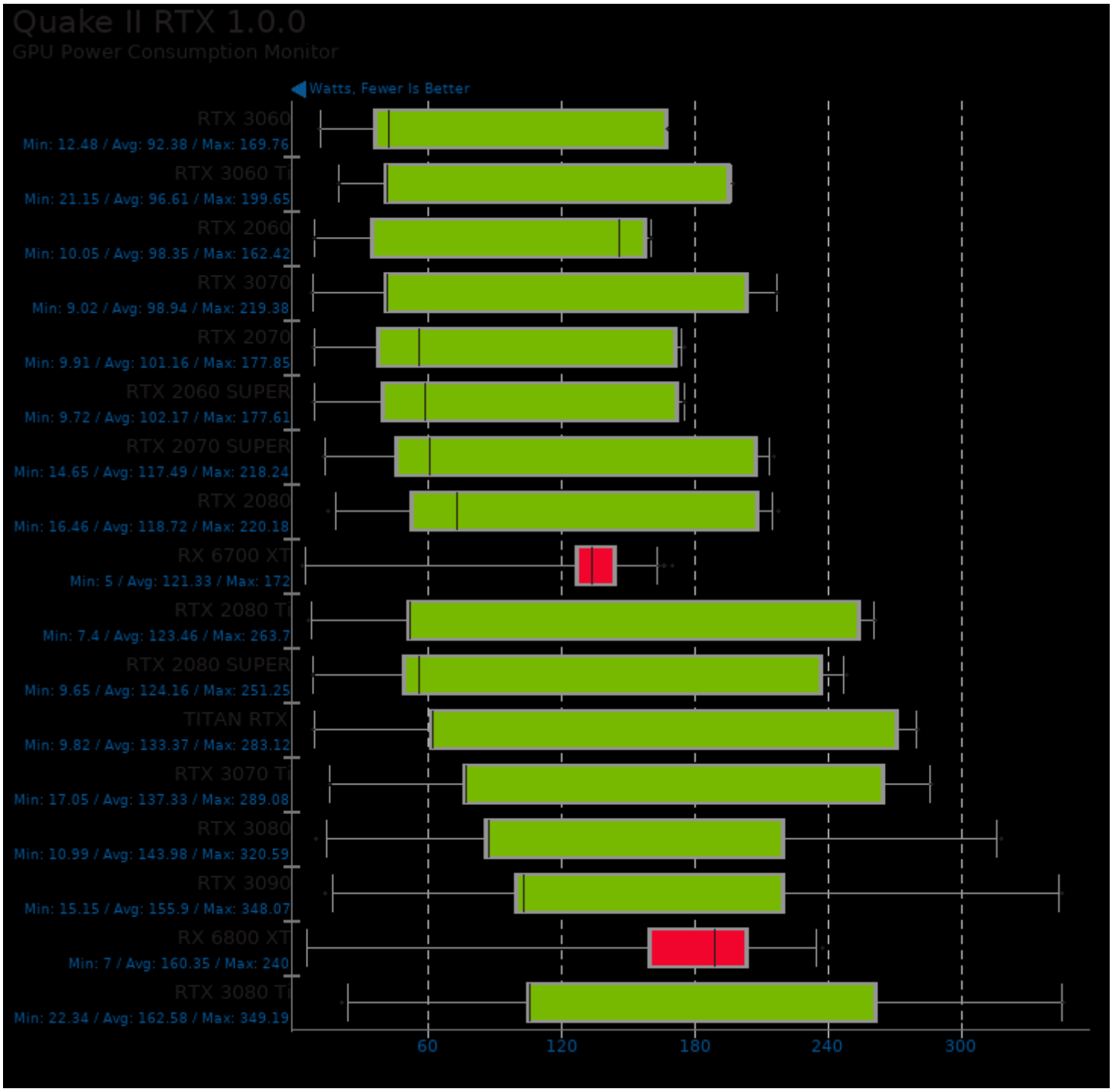

Quake II RTX 1.0.0
Resolution: 2560 x 1440 - Global Illumination: Off - Denoiser: On - Ray Tracing API: VK_KHR_ray_query
Frames Per Second Per Watt, More Is Better
RTX 3070
0.897
RTX 3090
0.882
RTX 3080
0.863
RTX 3080 T
0.814
RTX 3060 T
0.814
RTX 3070 T
0.702
TITAN RTX
0.666
RTX 2080 T
0.660
RTX 3060
0.648
RTX 2080 SUPER
0.519
RTX 2080
0.507
RTX 2070
0.504
RTX 2070 SUPER
0.493
RTX 2060 SUPER
0.484
RTX 2060
0.440
RX 6700 XT
0.140
RX 6800 XT
0.128
0.2018
0.4036
0.6054
0.8072
1.009

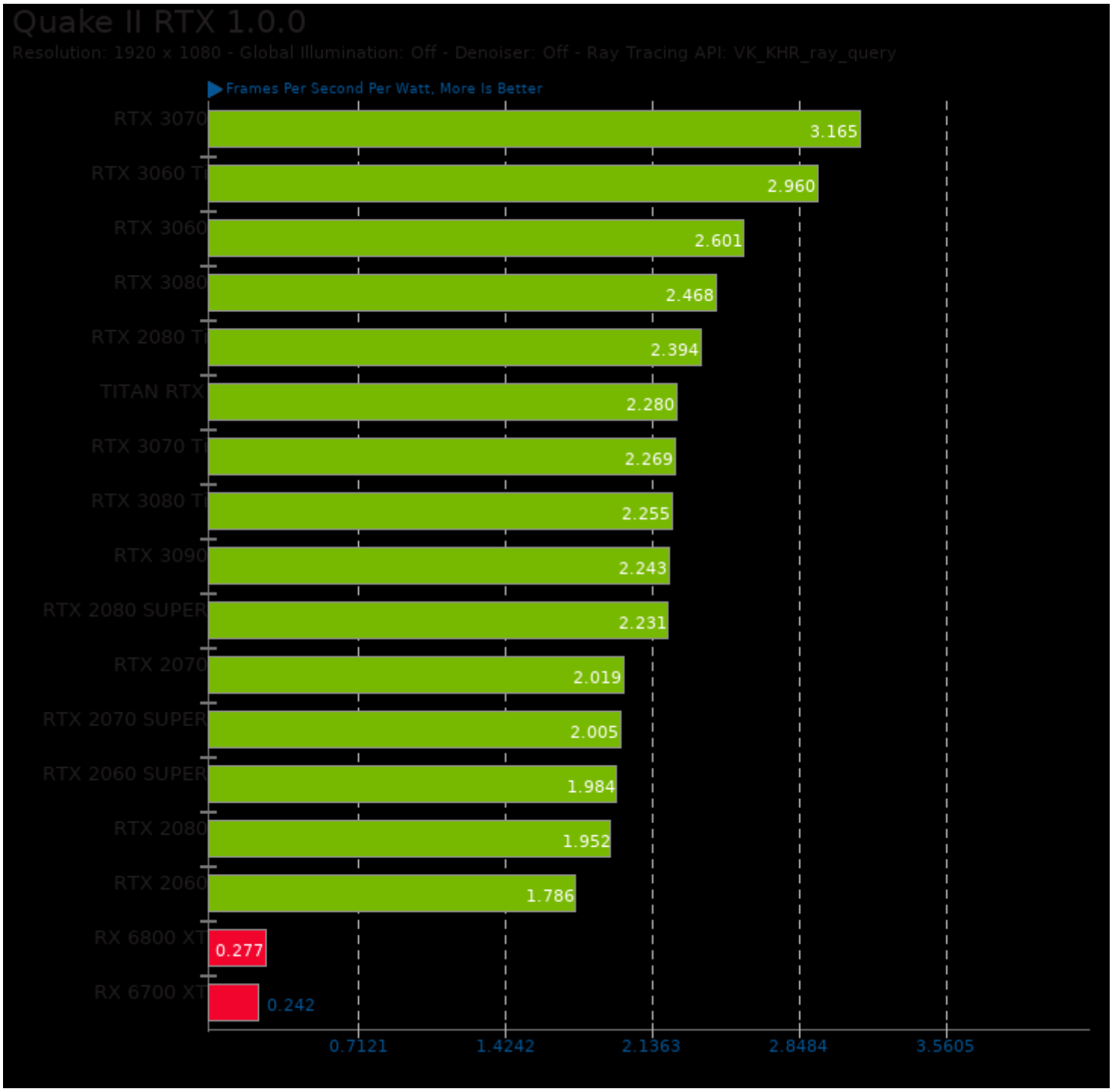

Quake II RTX 1.0.0
GPU Power Consumption Monitor
Watts, Fewer Is Better
RTX 3060
Min: 12.52 / Avg: 95.64 / Max: 169.52
RX 6700 XT
Min: 6 / Avg: 99.1 / Max: 151
RTX 2060
Min: 10.03 / Avg: 100.29 / Max: 163.08
RTX 3060 Ti
Min: 19.87 / Avg: 100.43 / Max: 198.93
RTX 3070
Min: 8.48 / Avg: 102.8 / Max: 219.59
RTX 2070
Min: 8.72 / Avg: 104.87 / Max: 182.06
RTX 2060 SUPER
Min: 9.77 / Avg: 107.58 / Max: 180.43
RX 6800 XT
Min: 7 / Avg: 116.76 / Max: 166
RTX 2070 SUPER
Min: 14.77 / Avg: 120.3 / Max: 219.97
RTX 2080
Min: 14.91 / Avg: 123.18 / Max: 219.93
RTX 2080 Ti
Min: 6.68 / Avg: 127.32 / Max: 278.5
RTX 2080 SUPER
Min: 9.48 / Avg: 131.08 / Max: 247.65
TITAN RTX
Min: 7.72 / Avg: 134.18 / Max: 284.93
RTX 3070 Ti
Min: 15.19 / Avg: 142.42 / Max: 288.04
RTX 3080
Min: 14.09 / Avg: 145.44 / Max: 318.91
RTX 3090
Min: 9.22 / Avg: 160.09 / Max: 347.36
RTX 3080 Ti
Min: 19.95 / Avg: 164.12 / Max: 348.86
60
120
180
240
300

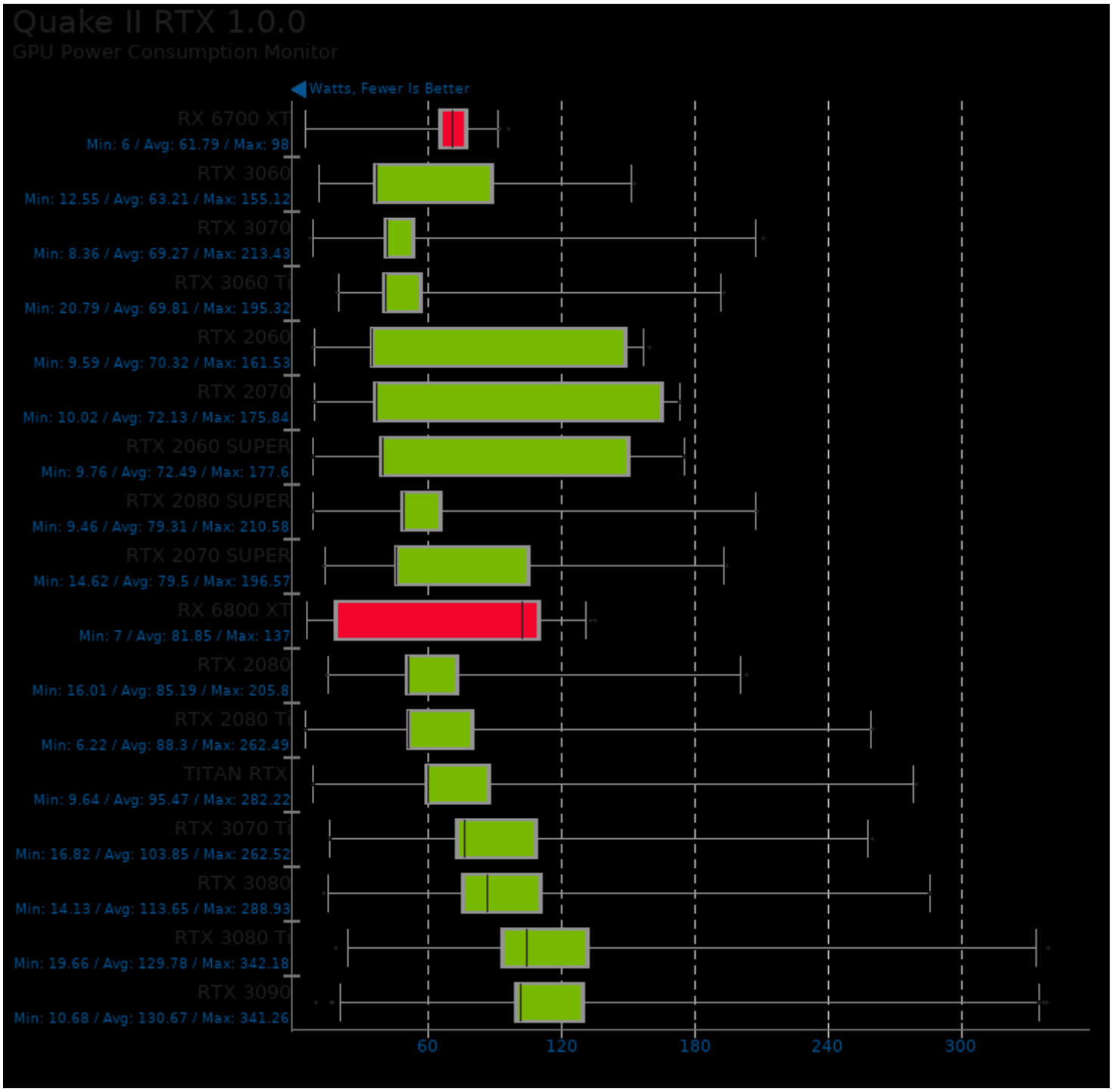

Quake II RTX 1.0.0
Resolution: 3840 x 2160 - Global Illumination: Off - Denoiser: On - Ray Tracing API: VK_KHR_ray_query
Frames Per Second Per Watt, More Is Better
RTX 3090
0.351
RTX 3080
0.331
RTX 3080 Ti
0.326
RTX 3070
0.325
RTX 3060 Ti
0.300
RTX 3070 Ti
0.259
RTX 2080 Ti
0.244
TITAN RTX
0.242
RTX 3060
0.235
RTX 2080 SUPER
0.192
RTX 2080
0.190
RTX 2070 SUPER
0.186
RTX 2070
0.186
RTX 2060 SUPER
0.181
RTX 2060
0.164
RX 6700 XT
0.141
RX 6800 XT
0.138
0.079
0.158
0.237
0.316
0.395

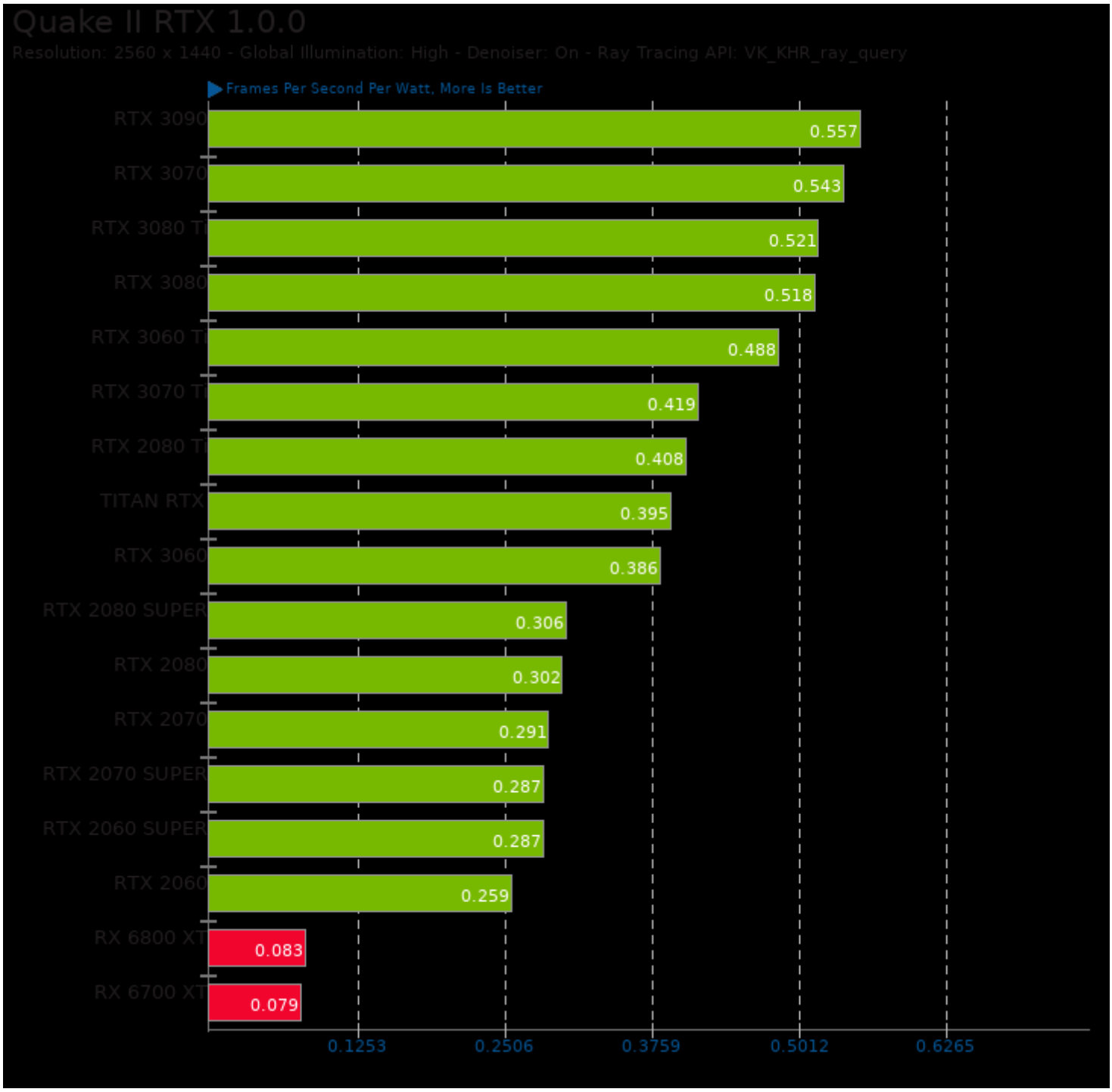

Quake II RTX 1.0.0
GPU Power Consumption Monitor
Watts, Fewer Is Better
RX 6700 XT
Min: 6 / Avg: 97.83 / Max: 149
RX 6800 XT
Min: 7 / Avg: 108.68 / Max: 159
RTX 3060
Min: 12.67 / Avg: 121.42 / Max: 169.06
RTX 2060
Min: 10.14 / Avg: 121.67 / Max: 162.95
RTX 3060 Ti
Min: 20.49 / Avg: 128.69 / Max: 198.48
RTX 2070
Min: 9.22 / Avg: 129.34 / Max: 179.15
RTX 2060 SUPER
Min: 10.22 / Avg: 130.57 / Max: 180.17
RTX 3070
Min: 8.86 / Avg: 135.32 / Max: 219.97
RTX 2070 SUPER
Min: 14.78 / Avg: 146.67 / Max: 213.85
RTX 2080
Min: 16.04 / Avg: 151.26 / Max: 215.98
RTX 2080 SUPER
Min: 9.98 / Avg: 163.19 / Max: 251.28
RTX 2080 Ti
Min: 7.28 / Avg: 164.49 / Max: 262.88
TITAN RTX
Min: 9.27 / Avg: 175.42 / Max: 286.8
RTX 3070 Ti
Min: 15.85 / Avg: 183.19 / Max: 289.59
RTX 3080
Min: 11.86 / Avg: 185.27 / Max: 318.95
RTX 3090
Min: 15.02 / Avg: 199.79 / Max: 346.95
RTX 3080 Ti
Min: 21.57 / Avg: 206.51 / Max: 349.8
60
120
180
240
300

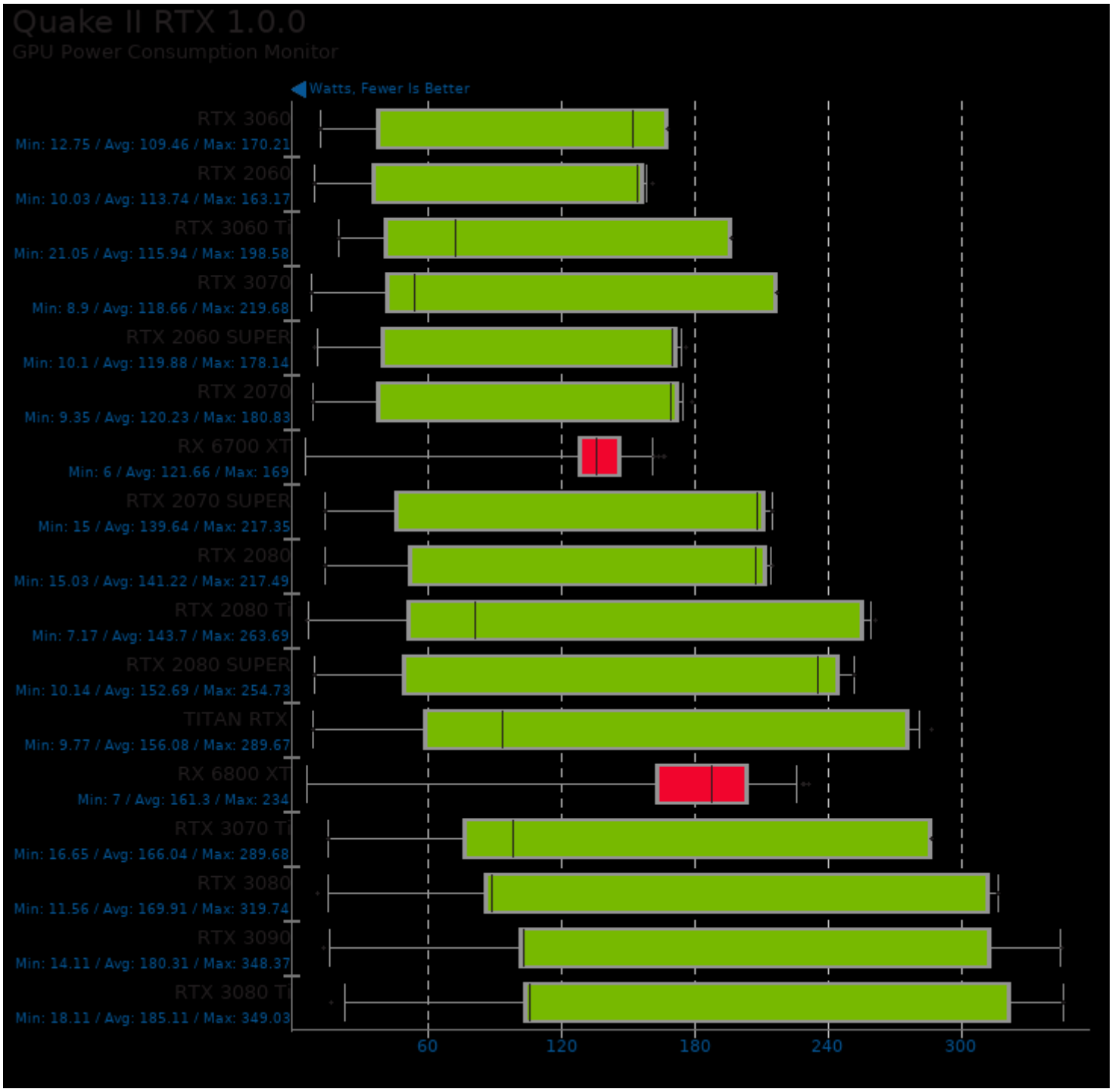

Quake II RTX 1.0.0
Resolution: 1920 x 1080 - Global Illumination: High - Denoiser: On - Ray Tracing API: VK_KHR_ray_query
Frames Per Second Per Watt, More Is Better
RTX 3070
1.077
RTX 3090
1.017
RTX 3080
0.987
RTX 3060 T
0.978
RTX 3080 T
0.943
RTX 3070 T
0.827
RTX 3060
0.778
RTX 2080 T
0.777
TITAN RTX
0.757
RTX 2080 SUPER
0.628
RTX 2080
0.604
RTX 2070
0.586
RTX 2070 SUPER
0.577
RTX 2060 SUPER
0.572
RTX 2060
0.513
RX 6800 XT
0.083
RX 6700 XT
0.080
0.2423
0.4846
0.7269
0.9692
1.2115

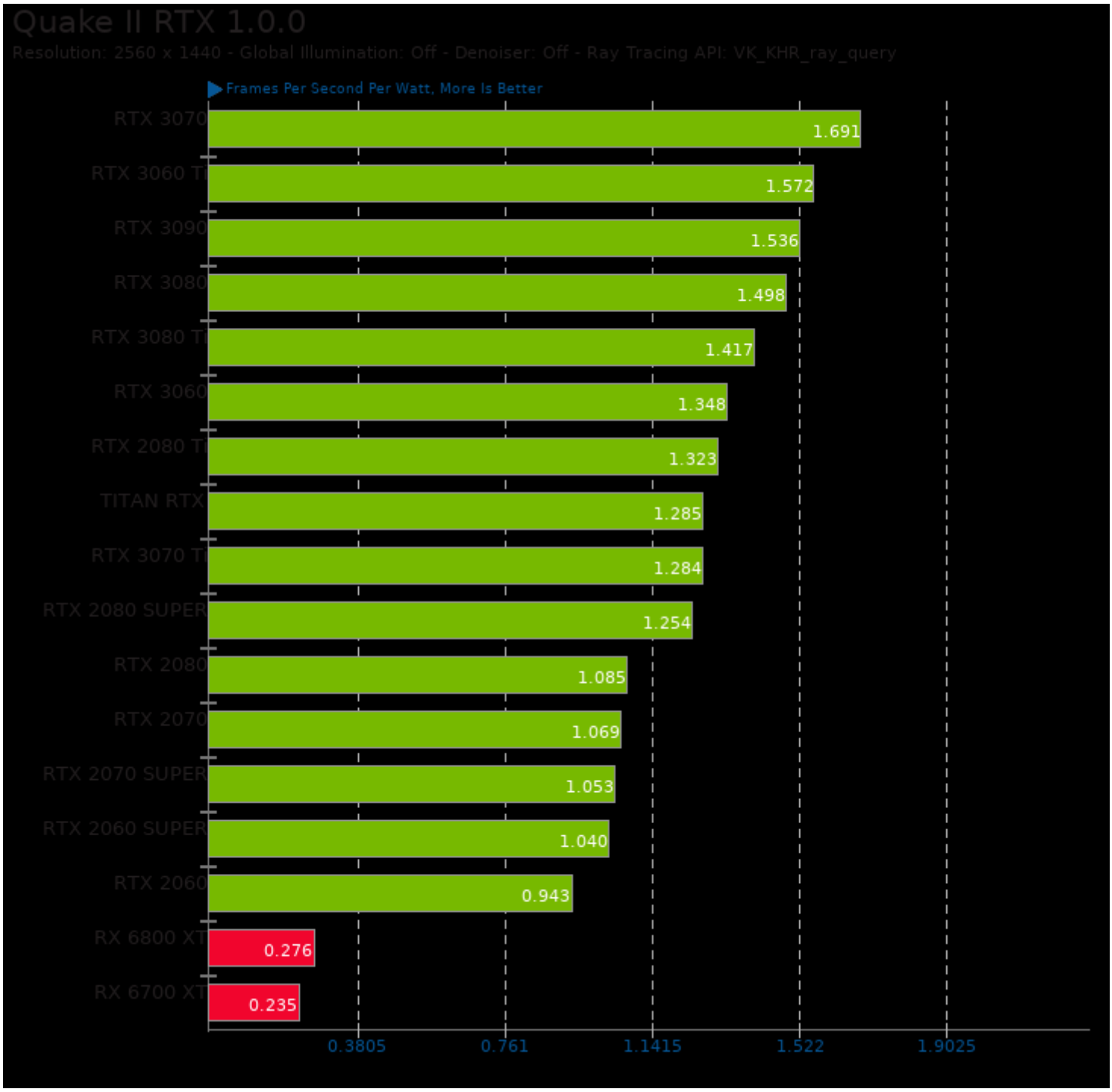

Quake II RTX 1.0.0
GPU Power Consumption Monitor
Watts, Fewer Is Better
RTX 3060
Min: 12.48 / Avg: 92.38 / Max: 169.76
RTX 3060 Ti
Min: 21.15 / Avg: 96.61 / Max: 199.65
RTX 2060
Min: 10.05 / Avg: 98.35 / Max: 162.42
RTX 3070
Min: 9.02 / Avg: 98.94 / Max: 219.38
RTX 2070
Min: 9.91 / Avg: 101.16 / Max: 177.85
RTX 2060 SUPER
Min: 9.72 / Avg: 102.17 / Max: 177.61
RTX 2070 SUPER
Min: 14.65 / Avg: 117.49 / Max: 218.24
RTX 2080
Min: 16.46 / Avg: 118.72 / Max: 220.18
RX 6700 XT
Min: 5 / Avg: 121.33 / Max: 172
RTX 2080 Ti
Min: 7.4 / Avg: 123.46 / Max: 263.7
RTX 2080 SUPER
Min: 9.65 / Avg: 124.16 / Max: 251.25
TITAN RTX
Min: 9.82 / Avg: 133.37 / Max: 283.12
RTX 3070 Ti
Min: 17.05 / Avg: 137.33 / Max: 289.08
RTX 3080
Min: 10.99 / Avg: 143.98 / Max: 320.59
RTX 3090
Min: 15.15 / Avg: 155.9 / Max: 348.07
RX 6800 XT
Min: 7 / Avg: 160.35 / Max: 240
RTX 3080 Ti
Min: 22.34 / Avg: 162.58 / Max: 349.19
60
120
180
240
300

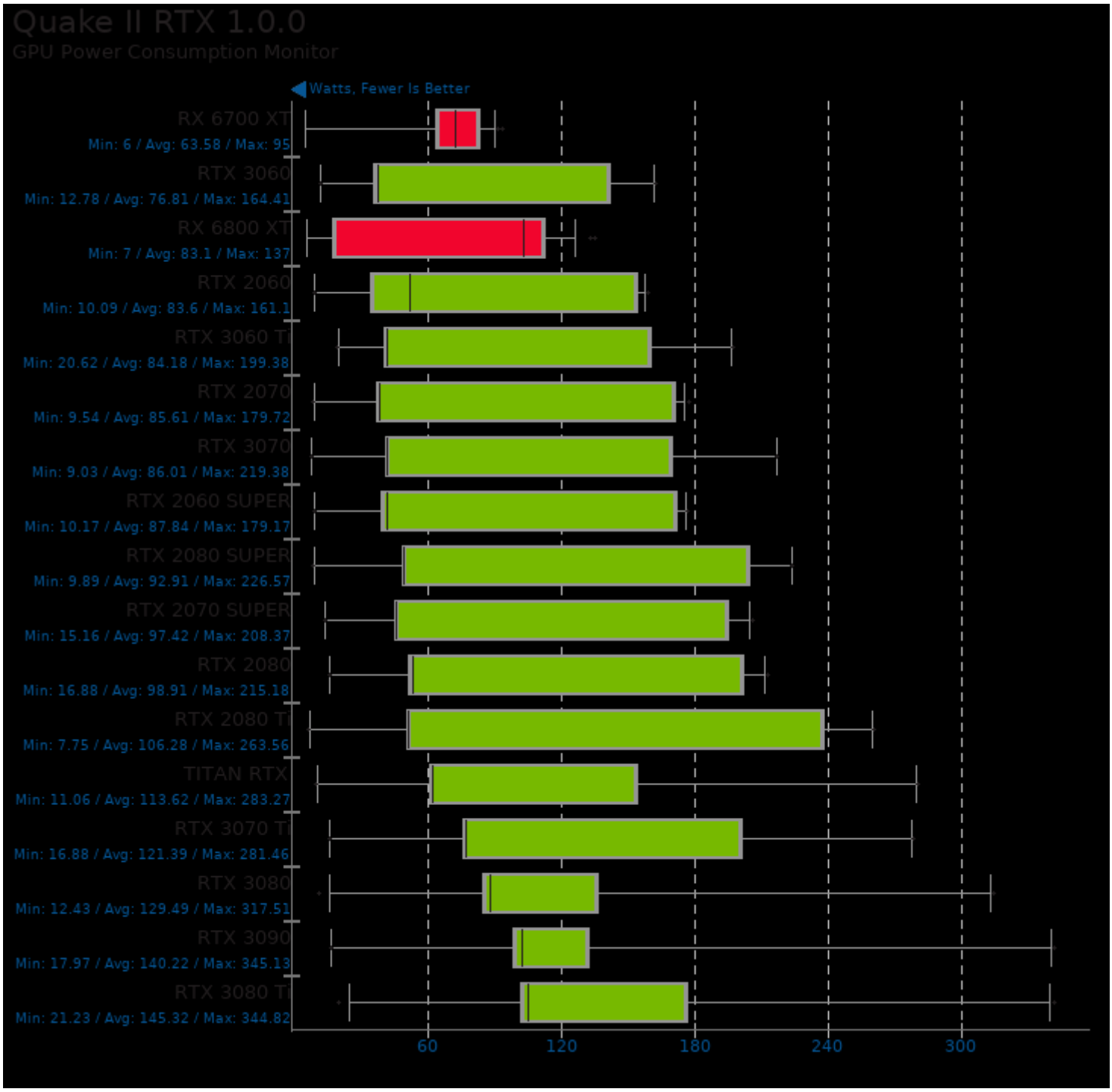

Quake II RTX 1.0.0
Resolution: 1920 x 1080 - Global Illumination: Off - Denoiser: Off - Ray Tracing API: VK_KHR_ray_query
Frames Per Second Per Watt, More Is Better
RTX 3070
3.165
RTX 3060 T
2.960
RTX 3060
2.601
RTX 3080
2.468
RTX 2080 T
2.394
TITAN RTX
2.280
RTX 3070 T
2.269
RTX 3080 T
2.255
RTX 3090
2.243
RTX 2080 SUPER
2.231
RTX 2070
2.019
RTX 2070 SUPER
2.005
RTX 2060 SUPER
1.984
RTX 2080
1.952
RTX 2060
1.786
RX 6800 XT
0.277
RX 6700 XT
0.242
0.7121
1.4242
2.1363
2.8484
3.5605

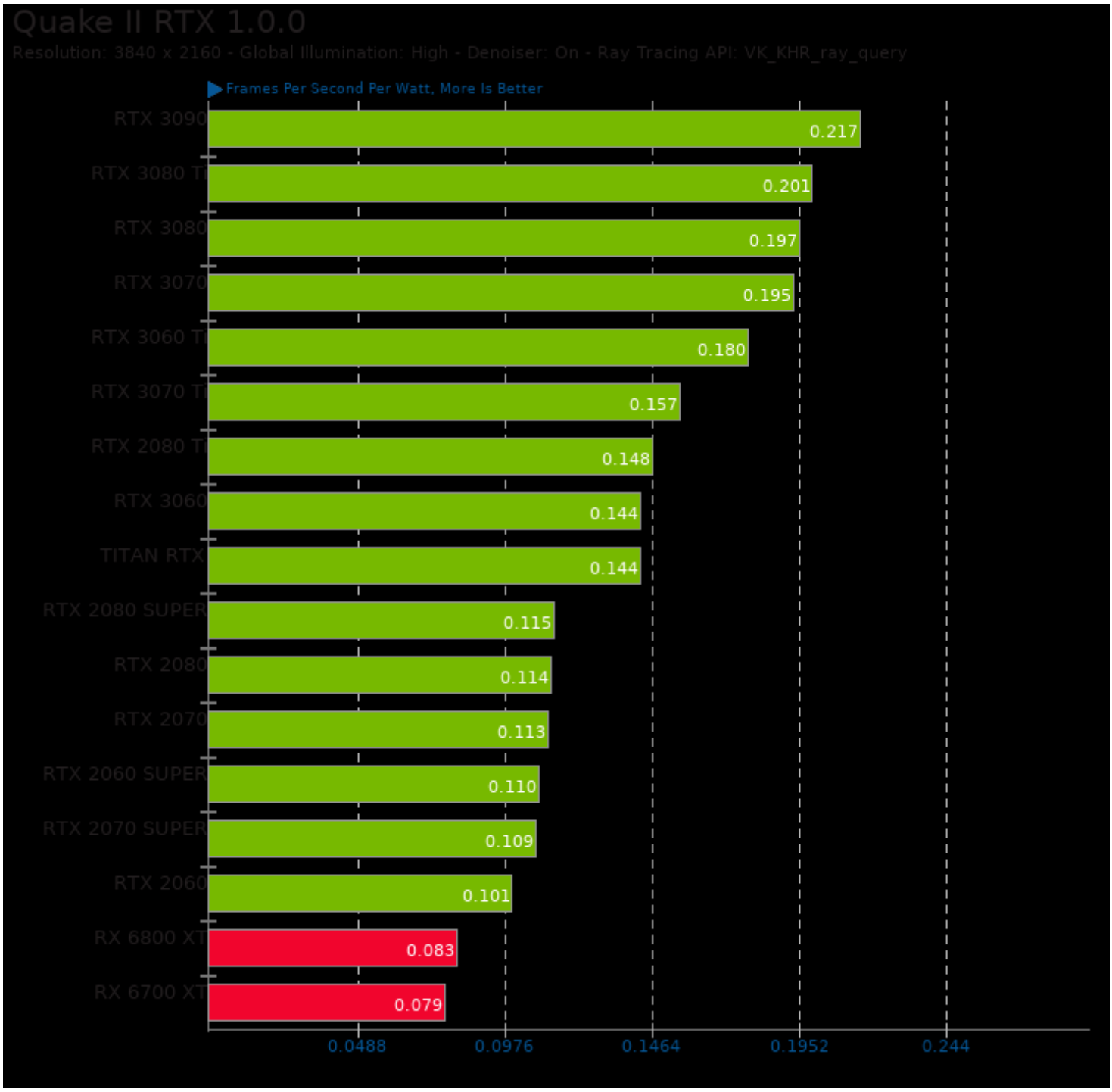

Quake II RTX 1.0.0
GPU Power Consumption Monitor
Watts, Fewer Is Better
RX 6700 XT
Min: 6 / Avg: 61.79 / Max: 98
RTX 3060
Min: 12.55 / Avg: 63.21 / Max: 155.12
RTX 3070
Min: 8.36 / Avg: 69.27 / Max: 213.43
RTX 3060 Ti
Min: 20.79 / Avg: 69.81 / Max: 195.32
RTX 2060
Min: 9.59 / Avg: 70.32 / Max: 161.53
RTX 2070
Min: 10.02 / Avg: 72.13 / Max: 175.84
RTX 2060 SUPER
Min: 9.76 / Avg: 72.49 / Max: 177.6
RTX 2080 SUPER
Min: 9.46 / Avg: 79.31 / Max: 210.58
RTX 2070 SUPER
Min: 14.62 / Avg: 79.5 / Max: 196.57
RX 6800 XT
Min: 7 / Avg: 81.85 / Max: 137
RTX 2080
Min: 16.01 / Avg: 85.19 / Max: 205.8
RTX 2080 Ti
Min: 6.22 / Avg: 88.3 / Max: 262.49
TITAN RTX
Min: 9.64 / Avg: 95.47 / Max: 282.22
RTX 3070 Ti
Min: 16.82 / Avg: 103.85 / Max: 262.52
RTX 3080
Min: 14.13 / Avg: 113.65 / Max: 288.93
RTX 3080 Ti
Min: 19.66 / Avg: 129.78 / Max: 342.18
RTX 3090
Min: 10.68 / Avg: 130.67 / Max: 341.26
60
120
180
240
300

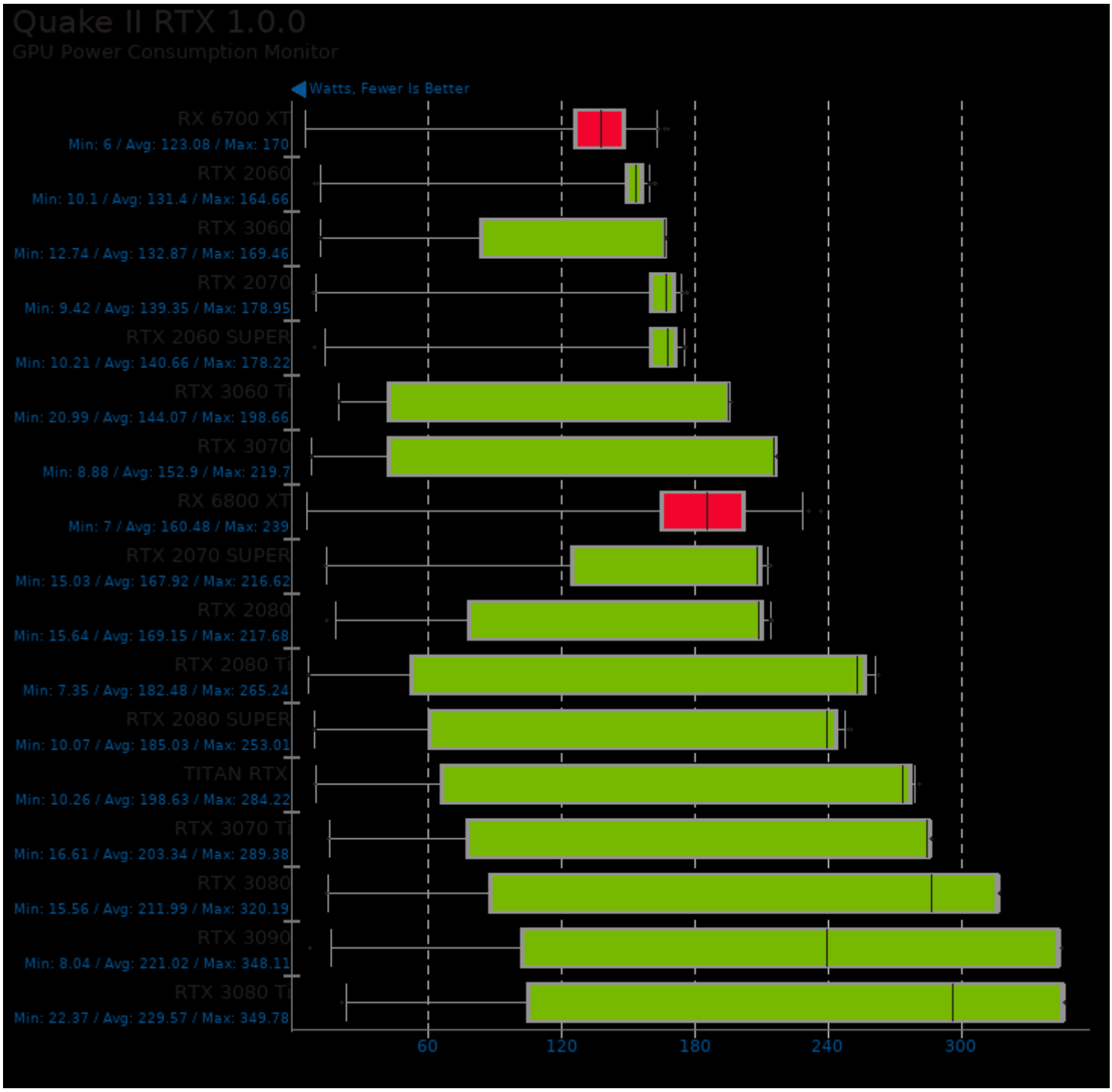

Quake II RTX 1.0.0
Resolution: 2560 x 1440 - Global Illumination: High - Denoiser: On - Ray Tracing API: VK_KHR_ray_query
Frames Per Second Per Watt, More Is Better
RTX 3090
0.557
RTX 3070
0.543
RTX 3080 Ti
0.521
RTX 3080
0.518
RTX 3060 Ti
0.488
RTX 3070 Ti
0.419
RTX 2080 Ti
0.408
TITAN RTX
0.395
RTX 3060
0.386
RTX 2080 SUPER
0.306
RTX 2080
0.302
RTX 2070
0.291
RTX 2070 SUPER
0.287
RTX 2060 SUPER
0.287
RTX 2060
0.259
RX 6800 XT
0.083
RX 6700 XT
0.079
0.1253
0.2506
0.3759
0.5012
0.6265

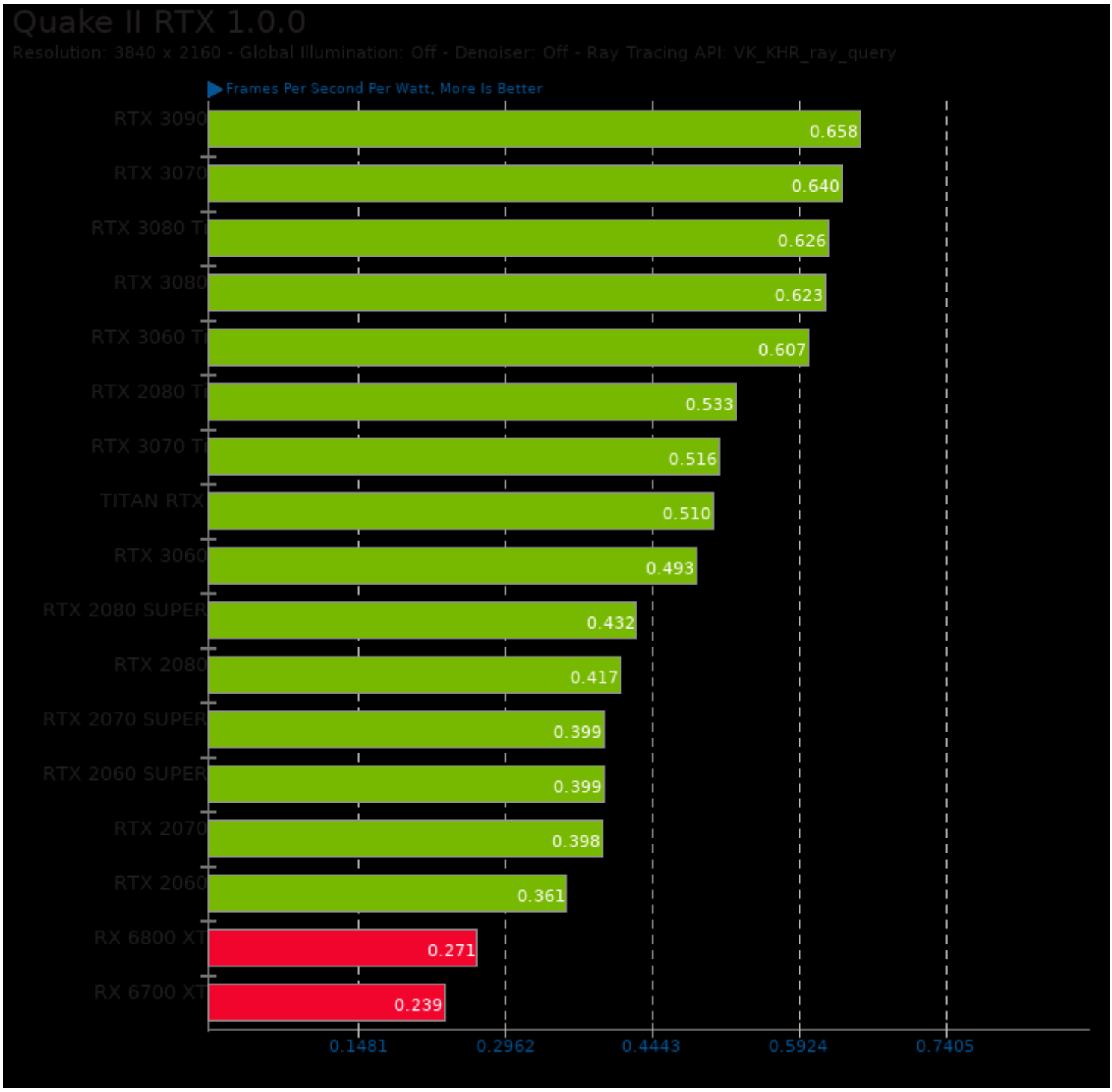

Quake II RTX 1.0.0
GPU Power Consumption Monitor
Watts, Fewer Is Better
RTX 3060
Min: 12.75 / Avg: 109.46 / Max: 170.21
RTX 2060
Min: 10.03 / Avg: 113.74 / Max: 163.17
RTX 3060 Ti
Min: 21.05 / Avg: 115.94 / Max: 198.58
RTX 3070
Min: 8.9 / Avg: 118.66 / Max: 219.68
RTX 2060 SUPER
Min: 10.1 / Avg: 119.88 / Max: 178.14
RTX 2070
Min: 9.35 / Avg: 120.23 / Max: 180.83
RX 6700 XT
Min: 6 / Avg: 121.66 / Max: 169
RTX 2070 SUPER
Min: 15 / Avg: 139.64 / Max: 217.35
RTX 2080
Min: 15.03 / Avg: 141.22 / Max: 217.49
RTX 2080 Ti
Min: 7.17 / Avg: 143.7 / Max: 263.69
RTX 2080 SUPER
Min: 10.14 / Avg: 152.69 / Max: 254.73
TITAN RTX
Min: 9.77 / Avg: 156.08 / Max: 289.67
RX 6800 XT
Min: 7 / Avg: 161.3 / Max: 234
RTX 3070 Ti
Min: 16.65 / Avg: 166.04 / Max: 289.68
RTX 3080
Min: 11.56 / Avg: 169.91 / Max: 319.74
RTX 3090
Min: 14.11 / Avg: 180.31 / Max: 348.37
RTX 3080 Ti
Min: 18.11 / Avg: 185.11 / Max: 349.03
60
120
180
240
300

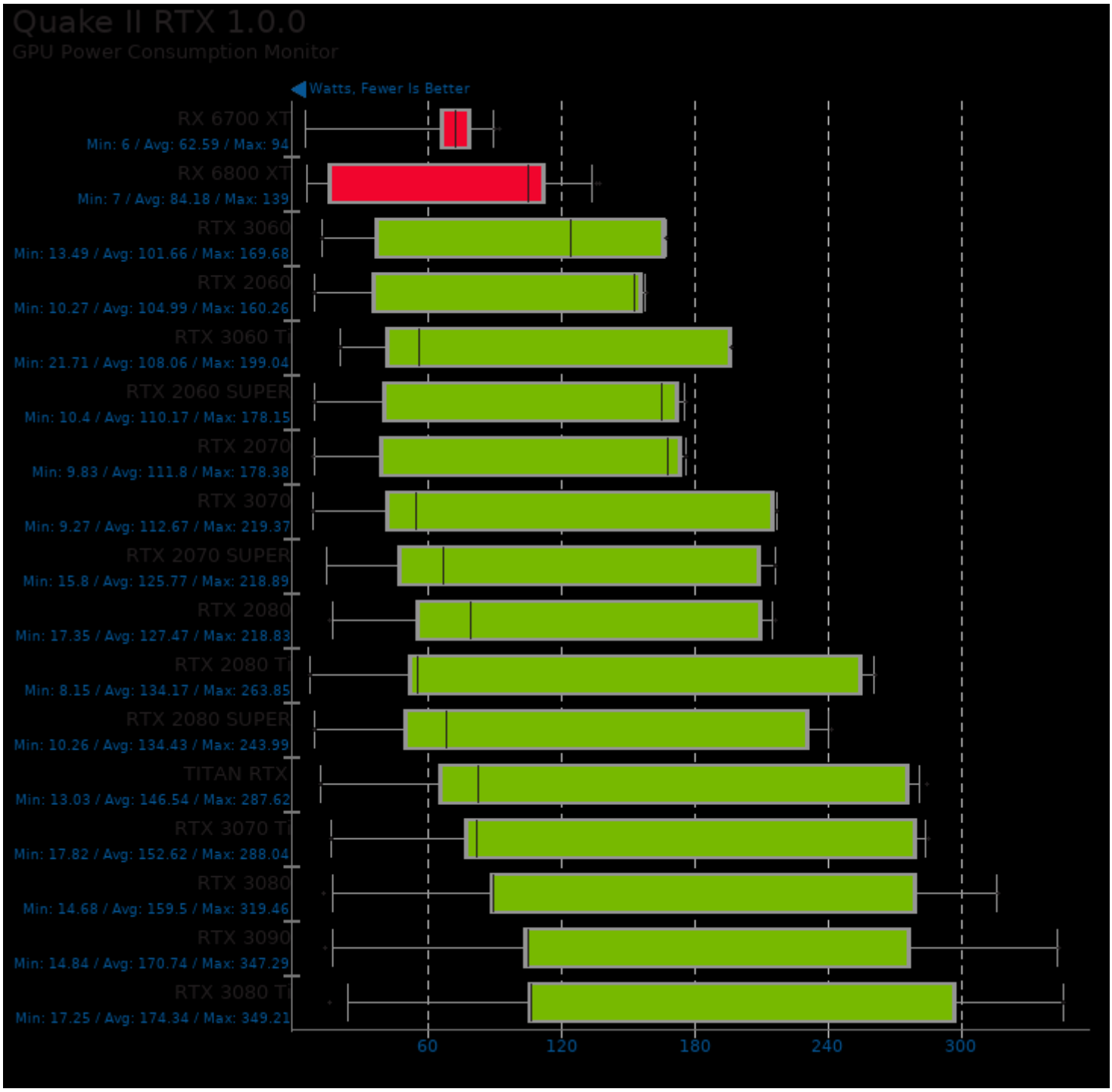

Quake II RTX 1.0.0
Resolution: 2560 x 1440 - Global Illumination: Off - Denoiser: Off - Ray Tracing API: VK_KHR_ray_query
Frames Per Second Per Watt, More Is Better
RTX 3070
1.691
RTX 3060 Ti
1.572
RTX 3090
1.536
RTX 3080
1.498
RTX 3080 Ti
1.417
RTX 3060
1.348
RTX 2080 Ti
1.323
TITAN RTX
1.285
RTX 3070 Ti
1.284
RTX 2080 SUPER
1.254
RTX 2080
1.085
RTX 2070
1.069
RTX 2070 SUPER
1.053
RTX 2060 SUPER
1.040
RTX 2060
0.943
RX 6800 XT
0.276
RX 6700 XT
0.235
0.3805
0.761
1.1415
1.522
1.9025

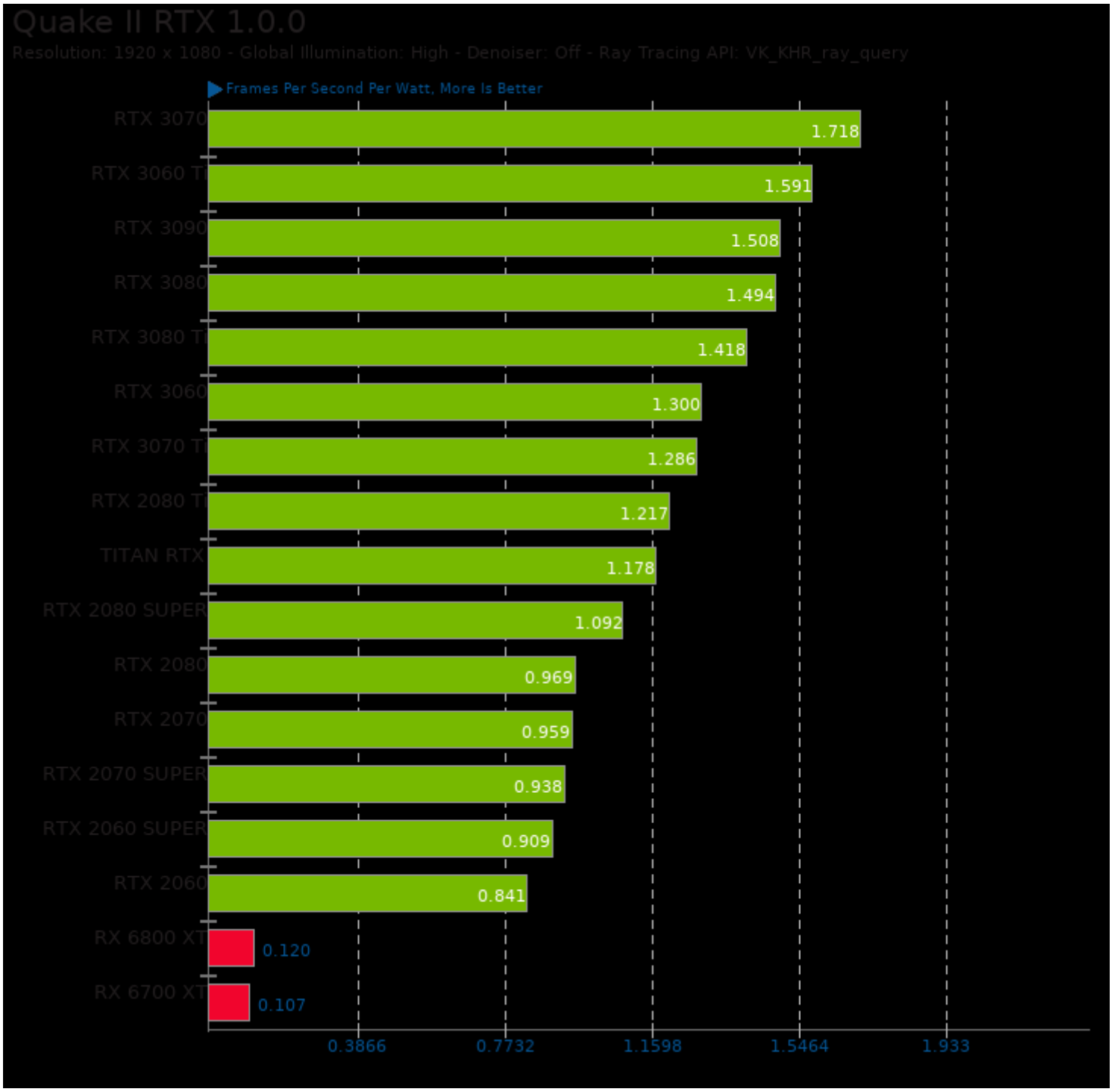

Quake II RTX 1.0.0
GPU Power Consumption Monitor
Watts, Fewer Is Better
RX 6700 XT
Min: 6 / Avg: 63.58 / Max: 95
RTX 3060
Min: 12.78 / Avg: 76.81 / Max: 164.41
RX 6800 XT
Min: 7 / Avg: 83.1 / Max: 137
RTX 2060
Min: 10.09 / Avg: 83.6 / Max: 161.1
RTX 3060 Ti
Min: 20.62 / Avg: 84.18 / Max: 199.38
RTX 2070
Min: 9.54 / Avg: 85.61 / Max: 179.72
RTX 3070
Min: 9.03 / Avg: 86.01 / Max: 219.38
RTX 2060 SUPER
Min: 10.17 / Avg: 87.84 / Max: 179.17
RTX 2080 SUPER
Min: 9.89 / Avg: 92.91 / Max: 226.57
RTX 2070 SUPER
Min: 15.16 / Avg: 97.42 / Max: 208.37
RTX 2080
Min: 16.88 / Avg: 98.91 / Max: 215.18
RTX 2080 Ti
Min: 7.75 / Avg: 106.28 / Max: 263.56
TITAN RTX
Min: 11.06 / Avg: 113.62 / Max: 283.27
RTX 3070 Ti
Min: 16.88 / Avg: 121.39 / Max: 281.46
RTX 3080
Min: 12.43 / Avg: 129.49 / Max: 317.51
RTX 3090
Min: 17.97 / Avg: 140.22 / Max: 345.13
RTX 3080 Ti
Min: 21.23 / Avg: 145.32 / Max: 344.82
60
120
180
240
300

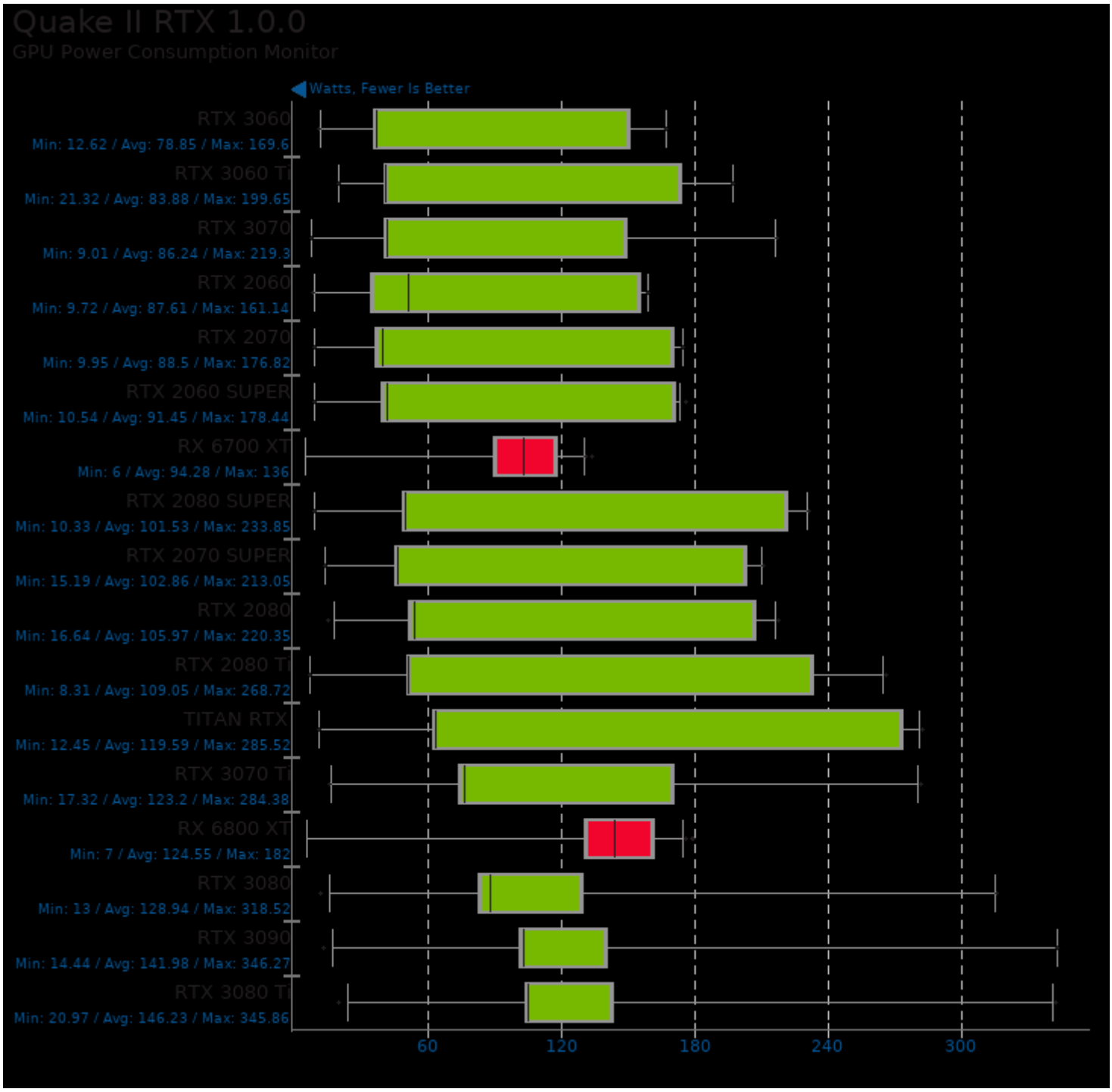

Quake II RTX 1.0.0
Resolution: 3840 x 2160 - Global Illumination: High - Denoiser: On - Ray Tracing API: VK_KHR_ray_query
Frames Per Second Per Watt, More Is Better
RTX 3090
0.217
RTX 3080 Ti
0.201
RTX 3080
0.197
RTX 3070
0.195
RTX 3060 Ti
0.180
RTX 3070 Ti
0.157
RTX 2080 Ti
0.148
RTX 3060
0.144
TITAN RTX
0.144
RTX 2080 SUPER
0.115
RTX 2080
0.114
RTX 2070
0.113
RTX 2060 SUPER
0.110
RTX 2070 SUPER
0.109
RTX 2060
0.101
RX 6800 XT
0.083
RX 6700 XT
0.079
0.0488
0.0976
0.1464
0.1952
0.244

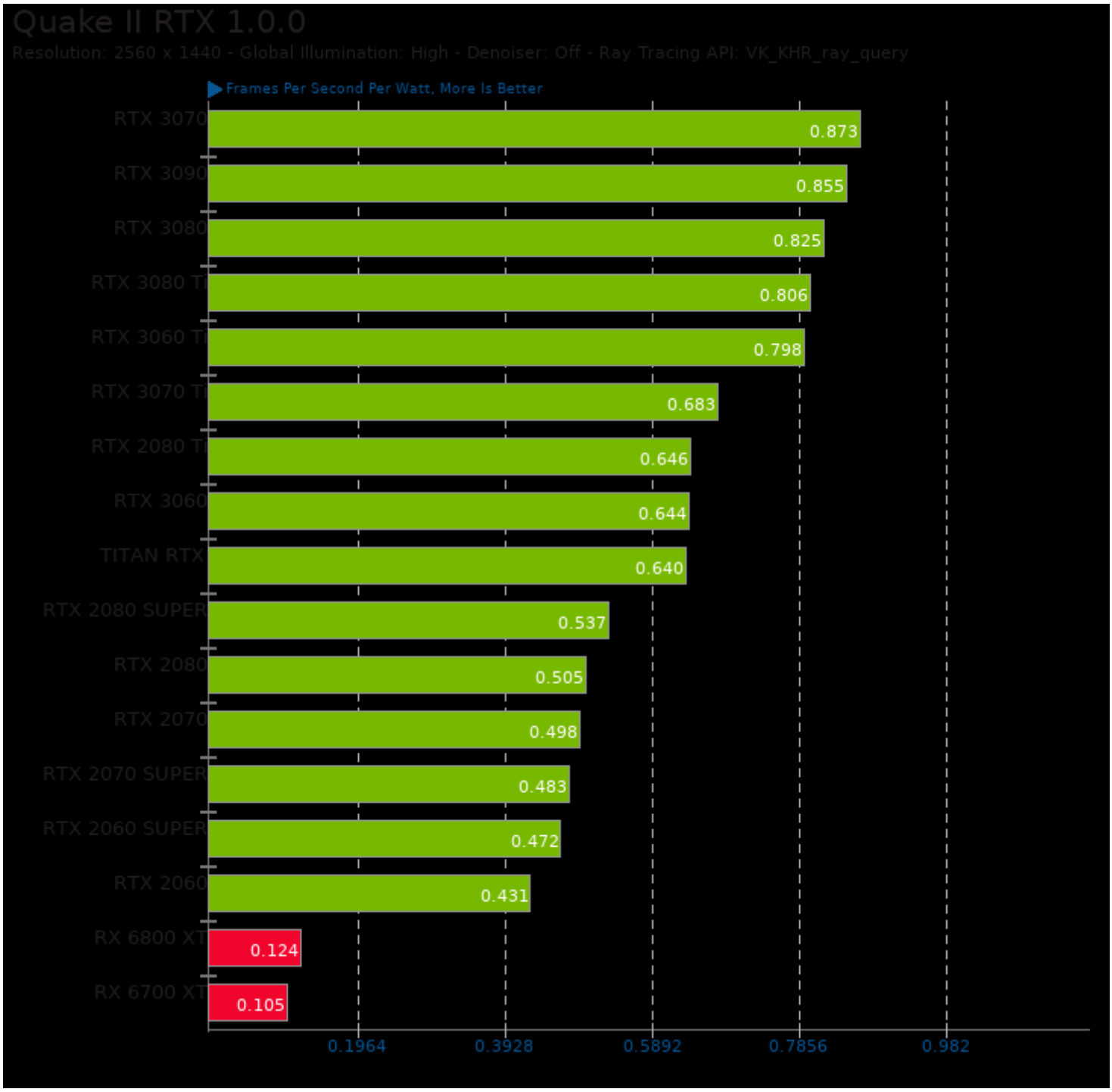

Quake II RTX 1.0.0
GPU Power Consumption Monitor
Watts, Fewer Is Better
RX 6700 XT
Min: 6 / Avg: 123.08 / Max: 170
RTX 2060
Min: 10.1 / Avg: 131.4 / Max: 164.66
RTX 3060
Min: 12.74 / Avg: 132.87 / Max: 169.46
RTX 2070
Min: 9.42 / Avg: 139.35 / Max: 178.95
RTX 2060 SUPER
Min: 10.21 / Avg: 140.66 / Max: 178.22
RTX 3060 Ti
Min: 20.99 / Avg: 144.07 / Max: 198.66
RTX 3070
Min: 8.88 / Avg: 152.9 / Max: 219.7
RX 6800 XT
Min: 7 / Avg: 160.48 / Max: 239
RTX 2070 SUPER
Min: 15.03 / Avg: 167.92 / Max: 216.62
RTX 2080
Min: 15.64 / Avg: 169.15 / Max: 217.68
RTX 2080 Ti
Min: 7.35 / Avg: 182.48 / Max: 265.24
RTX 2080 SUPER
Min: 10.07 / Avg: 185.03 / Max: 253.01
TITAN RTX
Min: 10.26 / Avg: 198.63 / Max: 284.22
RTX 3070 Ti
Min: 16.61 / Avg: 203.34 / Max: 289.38
RTX 3080
Min: 15.56 / Avg: 211.99 / Max: 320.19
RTX 3090
Min: 8.04 / Avg: 221.02 / Max: 348.11
RTX 3080 Ti
Min: 22.37 / Avg: 229.57 / Max: 349.78
60
120
180
240
300

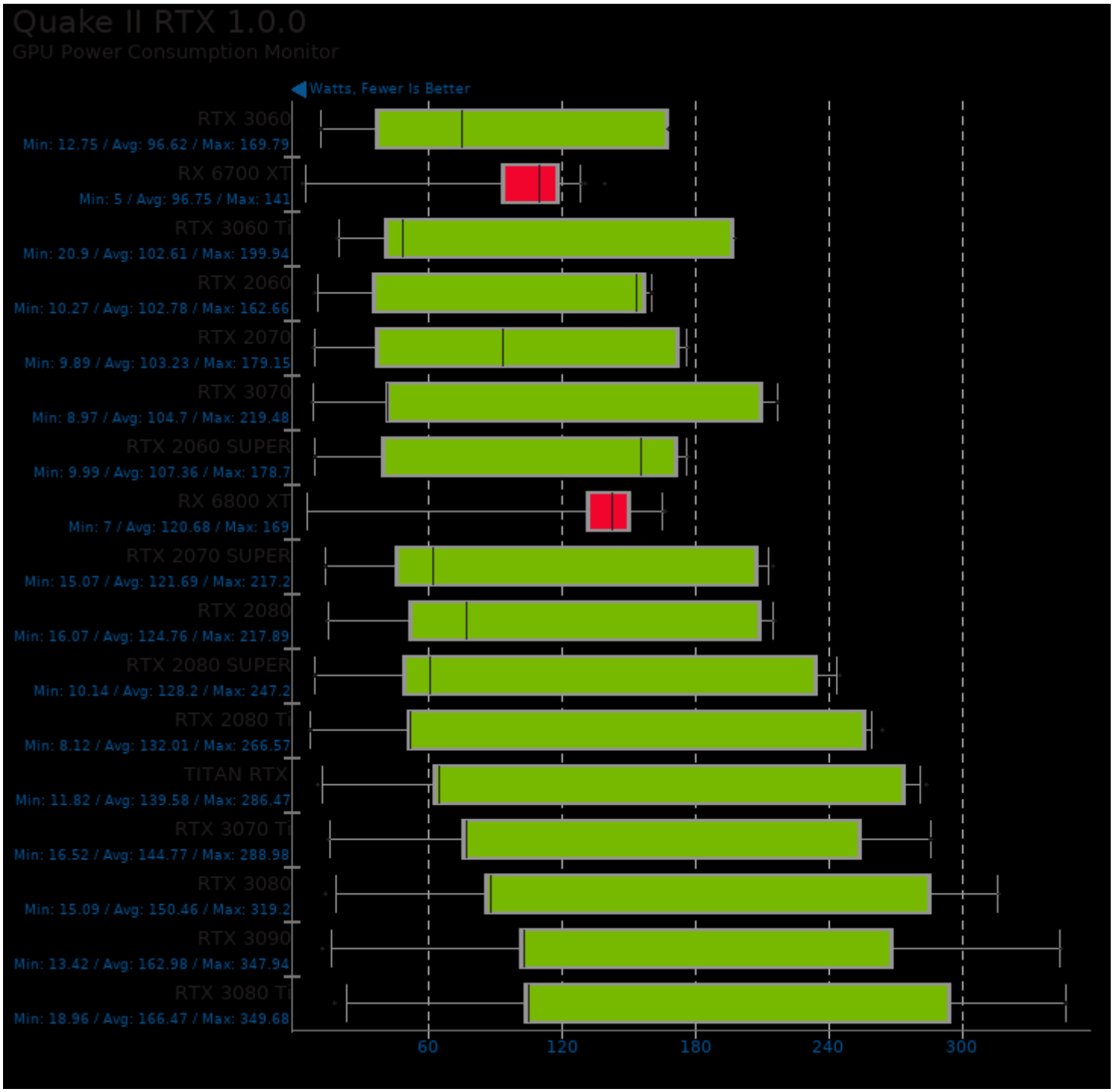

Quake II RTX 1.0.0
Resolution: 3840 x 2160 - Global Illumination: Off - Denoiser: Off - Ray Tracing API: VK_KHR_ray_query
Frames Per Second Per Watt, More Is Better
RTX 3090
0.658
RTX 3070
0.640
RTX 3080 Ti
0.626
RTX 3080
0.623
RTX 3060 Ti
0.607
RTX 2080 Ti
0.533
RTX 3070 Ti
0.516
TITAN RTX
0.510
RTX 3060
0.493
RTX 2080 SUPER
0.432
RTX 2080
0.417
RTX 2070 SUPER
0.399
RTX 2060 SUPER
0.399
RTX 2070
0.398
RTX 2060
0.361
RX 6800 XT
0.271
RX 6700 XT
0.239
0.1481
0.2962
0.4443
0.5924
0.7405

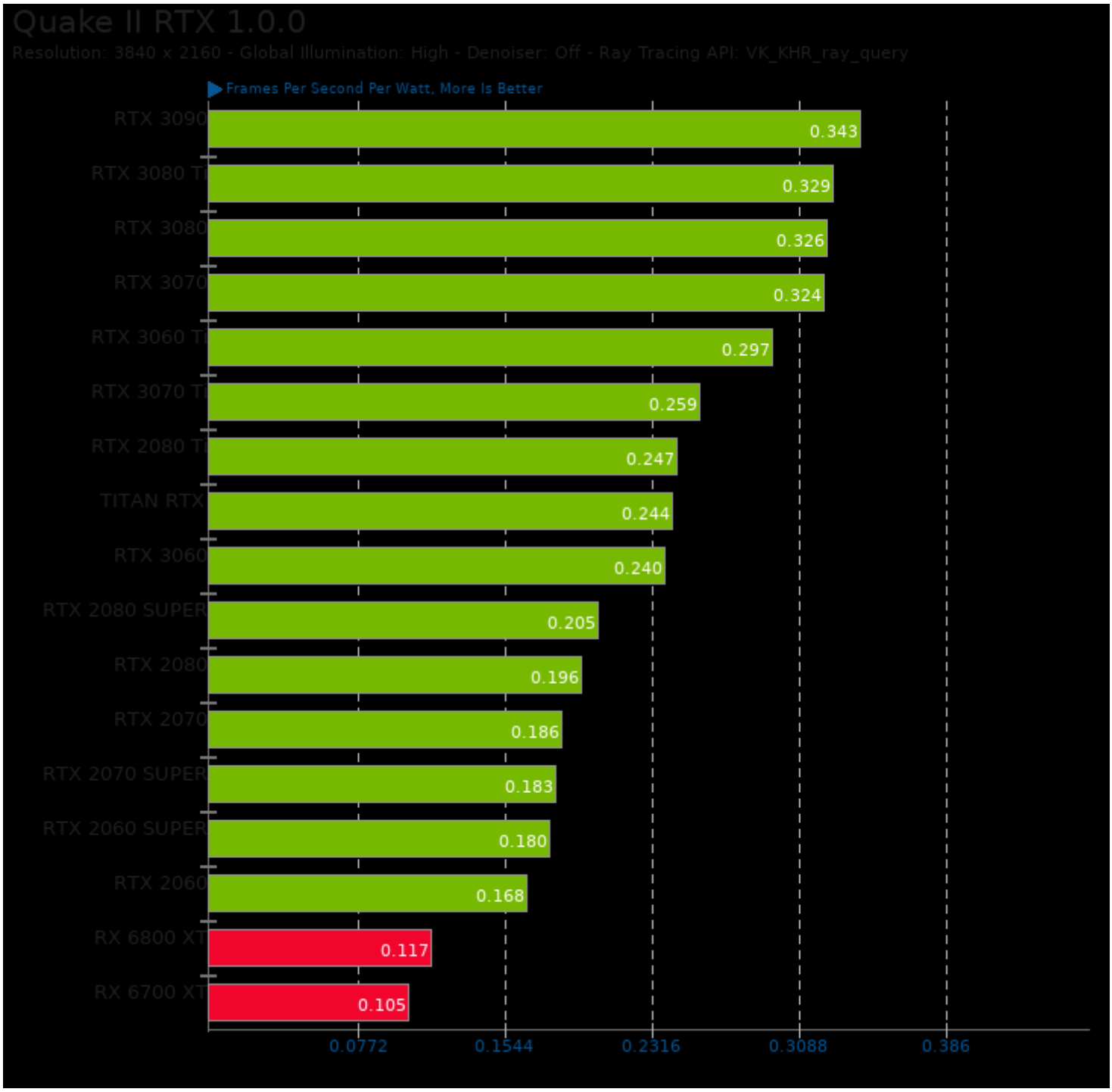

Quake II RTX 1.0.0
GPU Power Consumption Monitor
Watts, Fewer Is Better
RX 6700 XT
Min: 6 / Avg: 62.59 / Max: 94
RX 6800 XT
Min: 7 / Avg: 84.18 / Max: 139
RTX 3060
Min: 13.49 / Avg: 101.66 / Max: 169.68
RTX 2060
Min: 10.27 / Avg: 104.99 / Max: 160.26
RTX 3060 Ti
Min: 21.71 / Avg: 108.06 / Max: 199.04
RTX 2060 SUPER
Min: 10.4 / Avg: 110.17 / Max: 178.15
RTX 2070
Min: 9.83 / Avg: 111.8 / Max: 178.38
RTX 3070
Min: 9.27 / Avg: 112.67 / Max: 219.37
RTX 2070 SUPER
Min: 15.8 / Avg: 125.77 / Max: 218.89
RTX 2080
Min: 17.35 / Avg: 127.47 / Max: 218.83
RTX 2080 Ti
Min: 8.15 / Avg: 134.17 / Max: 263.85
RTX 2080 SUPER
Min: 10.26 / Avg: 134.43 / Max: 243.99
TITAN RTX
Min: 13.03 / Avg: 146.54 / Max: 287.62
RTX 3070 Ti
Min: 17.82 / Avg: 152.62 / Max: 288.04
RTX 3080
Min: 14.68 / Avg: 159.5 / Max: 319.46
RTX 3090
Min: 14.84 / Avg: 170.74 / Max: 347.29
RTX 3080 Ti
Min: 17.25 / Avg: 174.34 / Max: 349.21
60
120
180
240
300

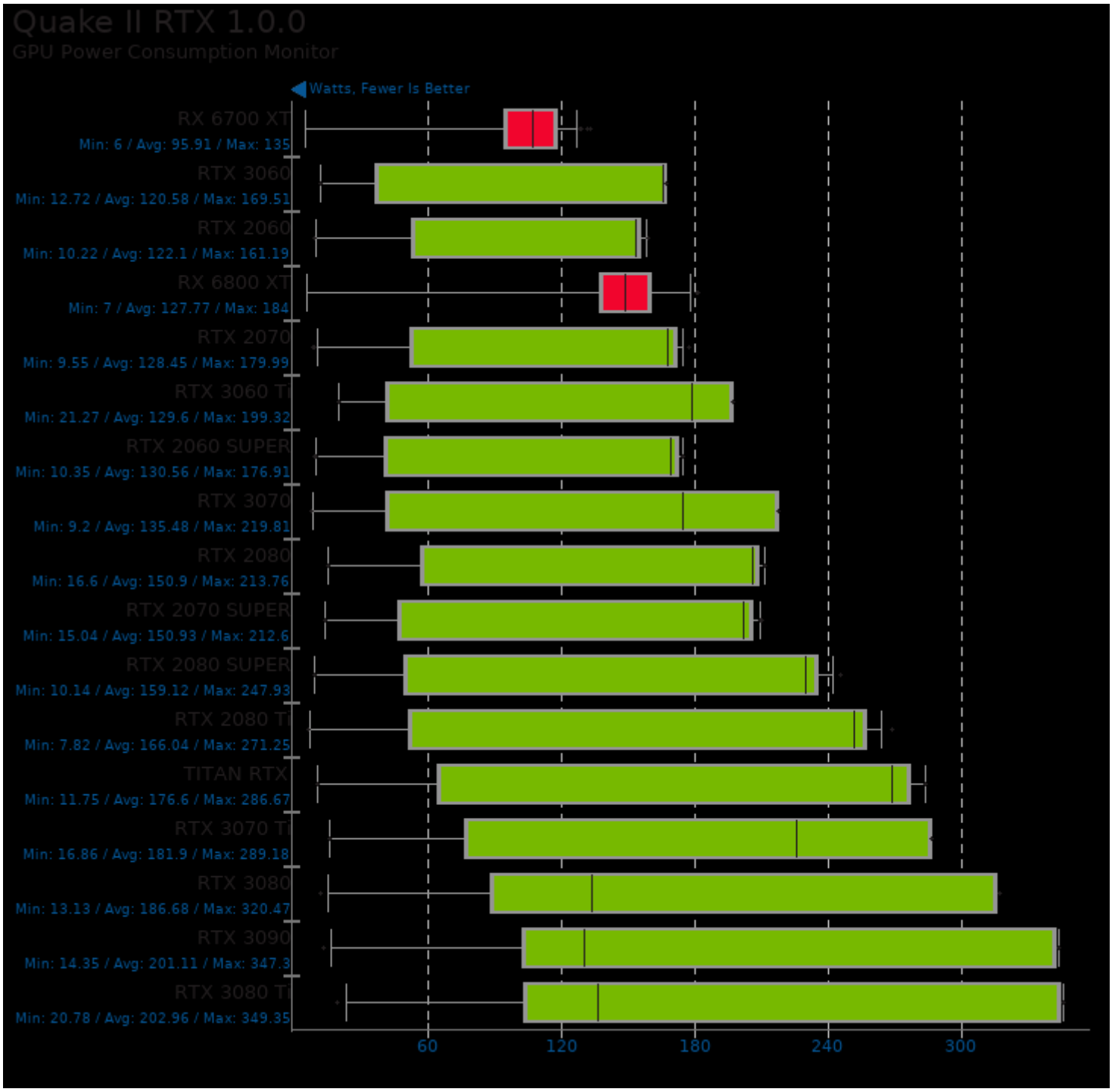

Quake II RTX 1.0.0
Resolution: 1920 x 1080 - Global Illumination: High - Denoiser: Off - Ray Tracing API: VK_KHR_ray_query
Frames Per Second Per Watt, More Is Better
RTX 3070
1.718
RTX 3060 Ti
1.591
RTX 3090
1.508
RTX 3080
1.494
RTX 3080 Ti
1.418
RTX 3060
1.300
RTX 3070 Ti
1.286
RTX 2080 Ti
1.217
TITAN RTX
1.178
RTX 2080 SUPER
1.092
RTX 2080
0.969
RTX 2070
0.959
RTX 2070 SUPER
0.938
RTX 2060 SUPER
0.909
RTX 2060
0.841
RX 6800 XT
0.120
RX 6700 XT
0.107
0.3866
0.7732
1.1598
1.5464
1.933

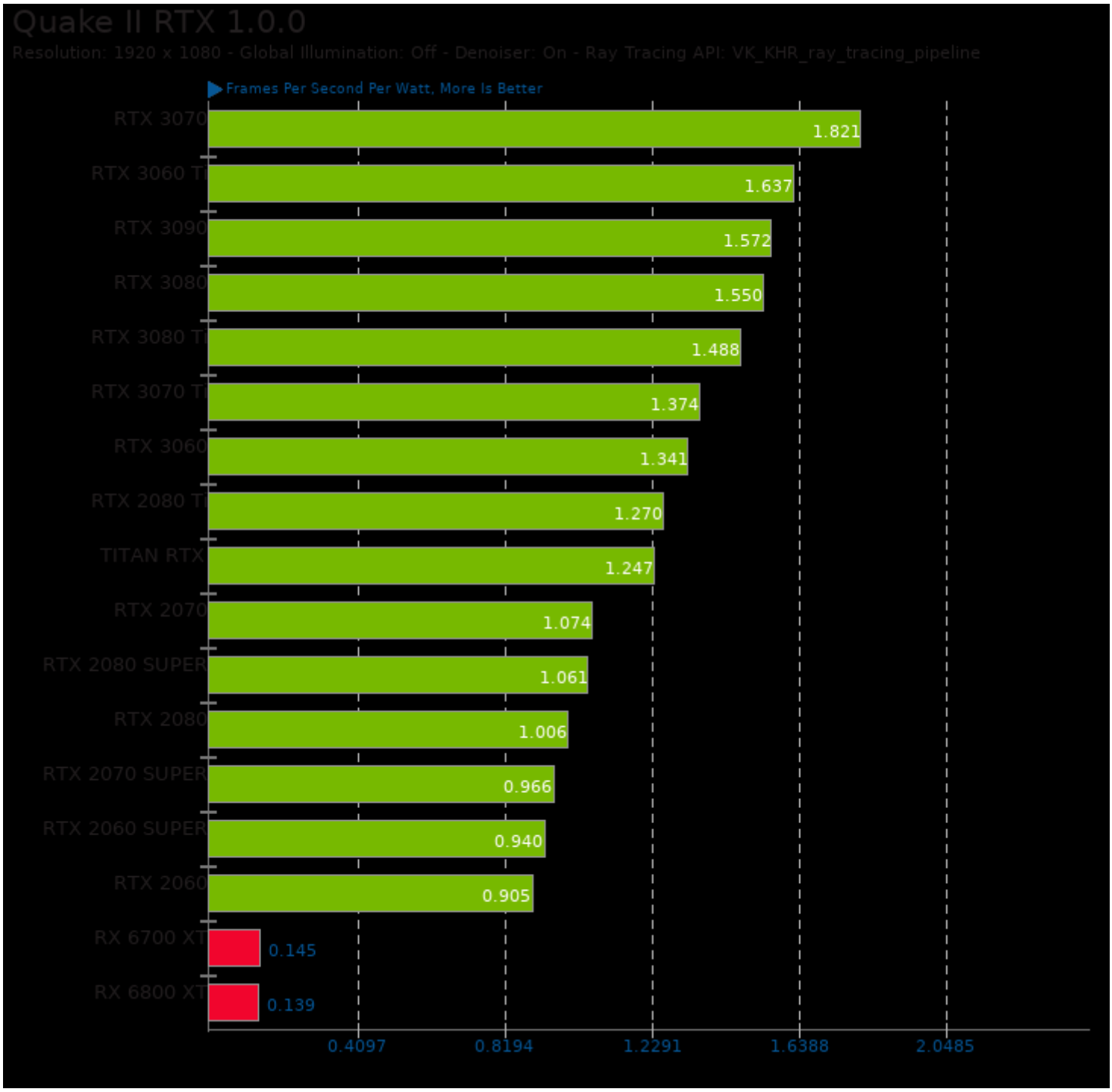

Quake II RTX 1.0.0
GPU Power Consumption Monitor
Watts, Fewer Is Better
RTX 3060
Min: 12.62 / Avg: 78.85 / Max: 169.6
RTX 3060 Ti
Min: 21.32 / Avg: 83.88 / Max: 199.65
RTX 3070
Min: 9.01 / Avg: 86.24 / Max: 219.3
RTX 2060
Min: 9.72 / Avg: 87.61 / Max: 161.14
RTX 2070
Min: 9.95 / Avg: 88.5 / Max: 176.82
RTX 2060 SUPER
Min: 10.54 / Avg: 91.45 / Max: 178.44
RX 6700 XT
Min: 6 / Avg: 94.28 / Max: 136
RTX 2080 SUPER
Min: 10.33 / Avg: 101.53 / Max: 233.85
RTX 2070 SUPER
Min: 15.19 / Avg: 102.86 / Max: 213.05
RTX 2080
Min: 16.64 / Avg: 105.97 / Max: 220.35
RTX 2080 Ti
Min: 8.31 / Avg: 109.05 / Max: 268.72
TITAN RTX
Min: 12.45 / Avg: 119.59 / Max: 285.52
RTX 3070 Ti
Min: 17.32 / Avg: 123.2 / Max: 284.38
RX 6800 XT
Min: 7 / Avg: 124.55 / Max: 182
RTX 3080
Min: 13 / Avg: 128.94 / Max: 318.52
RTX 3090
Min: 14.44 / Avg: 141.98 / Max: 346.27
RTX 3080 Ti
Min: 20.97 / Avg: 146.23 / Max: 345.86
60
120
180
240
300

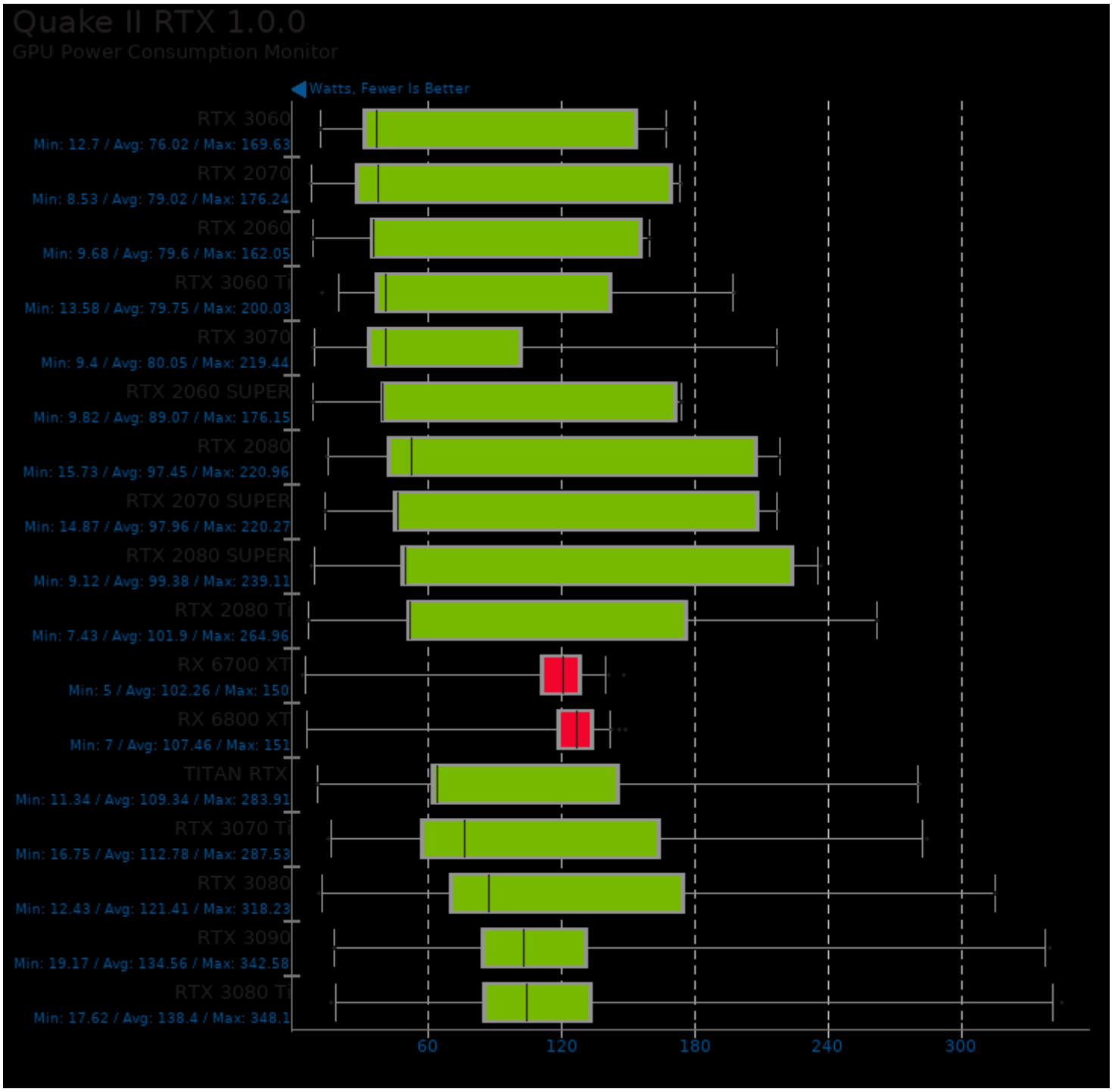

Quake II RTX 1.0.0
Resolution: 2560 x 1440 - Global Illumination: High - Denoiser: Off - Ray Tracing API: VK_KHR_ray_query
Frames Per Second Per Watt, More Is Better
RTX 3070
0.873
RTX 3090
0.855
RTX 3080
0.825
RTX 3080 T
0.806
RTX 3060 T
0.798
RTX 3070 T
0.683
RTX 2080 T
0.646
RTX 3060
0.644
TITAN RTX
0.640
RTX 2080 SUPER
0.537
RTX 2080
0.505
RTX 2070
0.498
RTX 2070 SUPER
0.483
RTX 2060 SUPER
0.472
RTX 2060
0.431
RX 6800 XT
0.124
RX 6700 XT
0.105
0.1964
0.3928
0.5892
0.7856
0.982

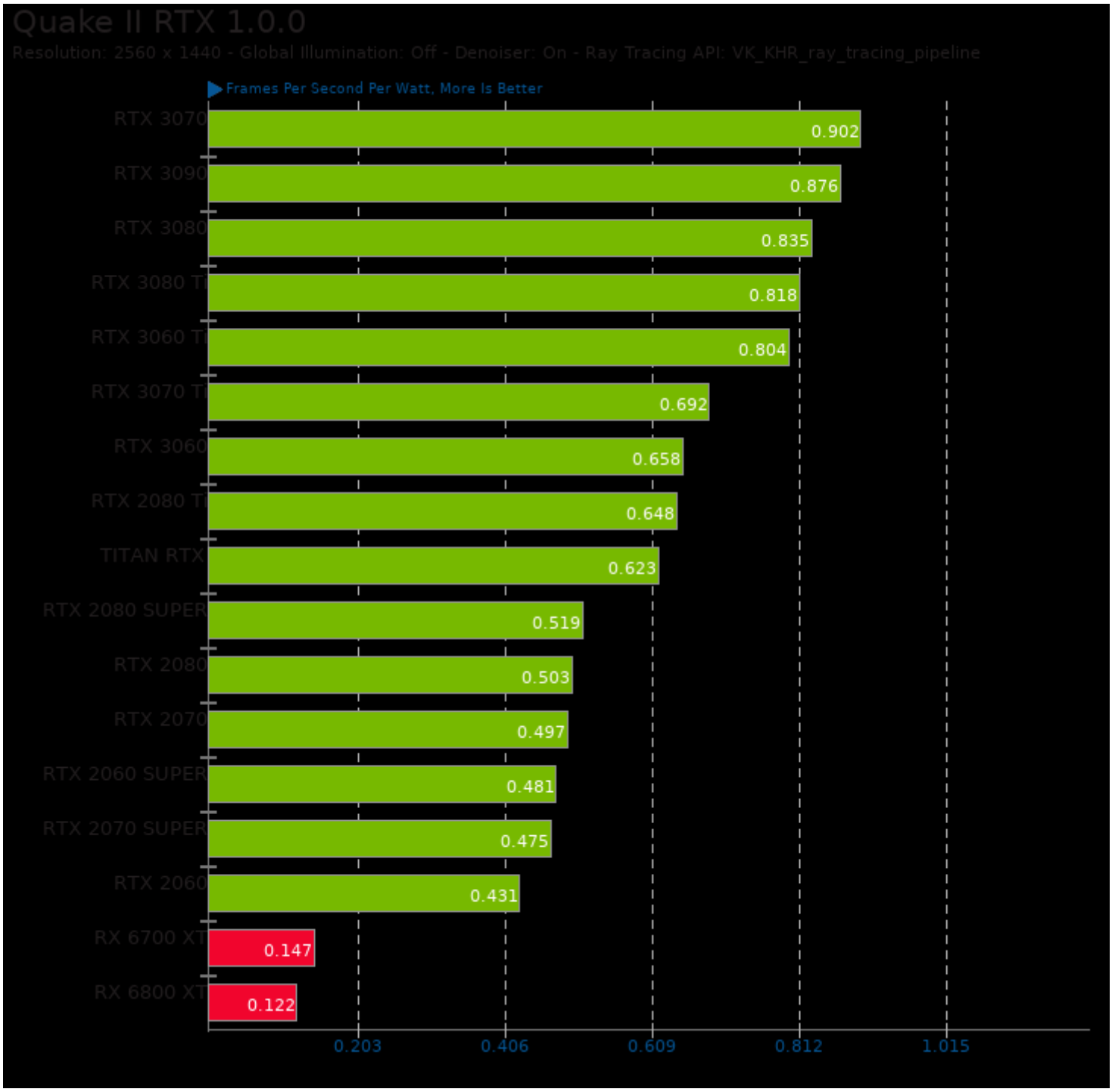

Quake II RTX 1.0.0
GPU Power Consumption Monitor
Watts, Fewer Is Better
RTX 3060
Min: 12.75 / Avg: 96.62 / Max: 169.79
RX 6700 XT
Min: 5 / Avg: 96.75 / Max: 141
RTX 3060 Ti
Min: 20.9 / Avg: 102.61 / Max: 199.94
RTX 2060
Min: 10.27 / Avg: 102.78 / Max: 162.66
RTX 2070
Min: 9.89 / Avg: 103.23 / Max: 179.15
RTX 3070
Min: 8.97 / Avg: 104.7 / Max: 219.48
RTX 2060 SUPER
Min: 9.99 / Avg: 107.36 / Max: 178.7
RX 6800 XT
Min: 7 / Avg: 120.68 / Max: 169
RTX 2070 SUPER
Min: 15.07 / Avg: 121.69 / Max: 217.2
RTX 2080
Min: 16.07 / Avg: 124.76 / Max: 217.89
RTX 2080 SUPER
Min: 10.14 / Avg: 128.2 / Max: 247.2
RTX 2080 Ti
Min: 8.12 / Avg: 132.01 / Max: 266.57
TITAN RTX
Min: 11.82 / Avg: 139.58 / Max: 286.47
RTX 3070 Ti
Min: 16.52 / Avg: 144.77 / Max: 288.98
RTX 3080
Min: 15.09 / Avg: 150.46 / Max: 319.2
RTX 3090
Min: 13.42 / Avg: 162.98 / Max: 347.94
RTX 3080 Ti
Min: 18.96 / Avg: 166.47 / Max: 349.68
60
120
180
240
300

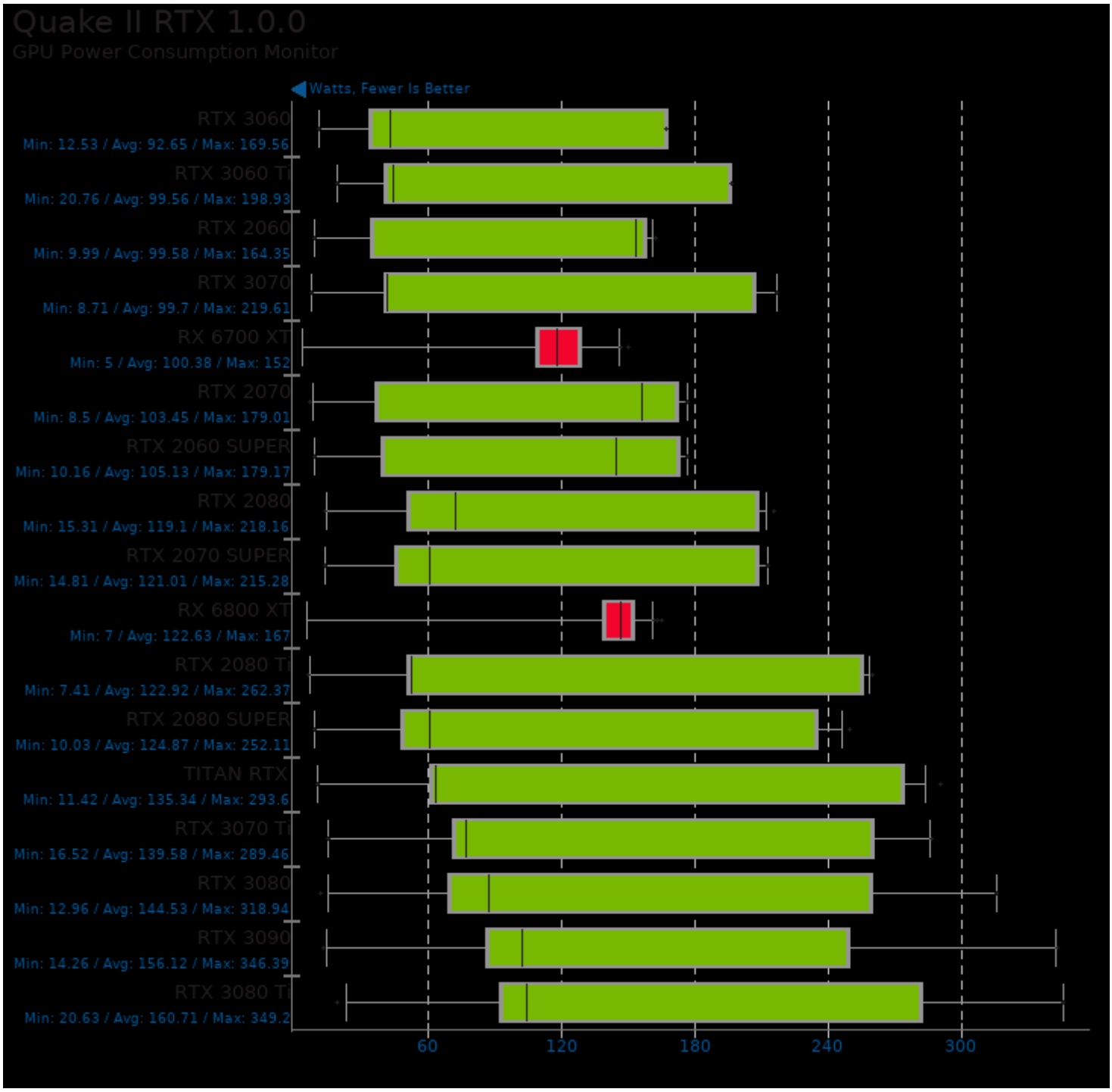

Quake II RTX 1.0.0
Resolution: 3840 x 2160 - Global Illumination: High - Denoiser: Off - Ray Tracing API: VK_KHR_ray_query
Frames Per Second Per Watt, More Is Better
RTX 3090
0.343
RTX 3080 Ti
0.329
RTX 3080
0.326
RTX 3070
0.324
RTX 3060 Ti
0.297
RTX 3070 Ti
0.259
RTX 2080 Ti
0.247
TITAN RTX
0.244
RTX 3060
0.240
RTX 2080 SUPER
0.205
RTX 2080
0.196
RTX 2070
0.186
RTX 2070 SUPER
0.183
RTX 2060 SUPER
0.180
RTX 2060
0.168
RX 6800 XT
0.117
RX 6700 XT
0.105
0.0772
0.1544
0.2316
0.3088
0.386

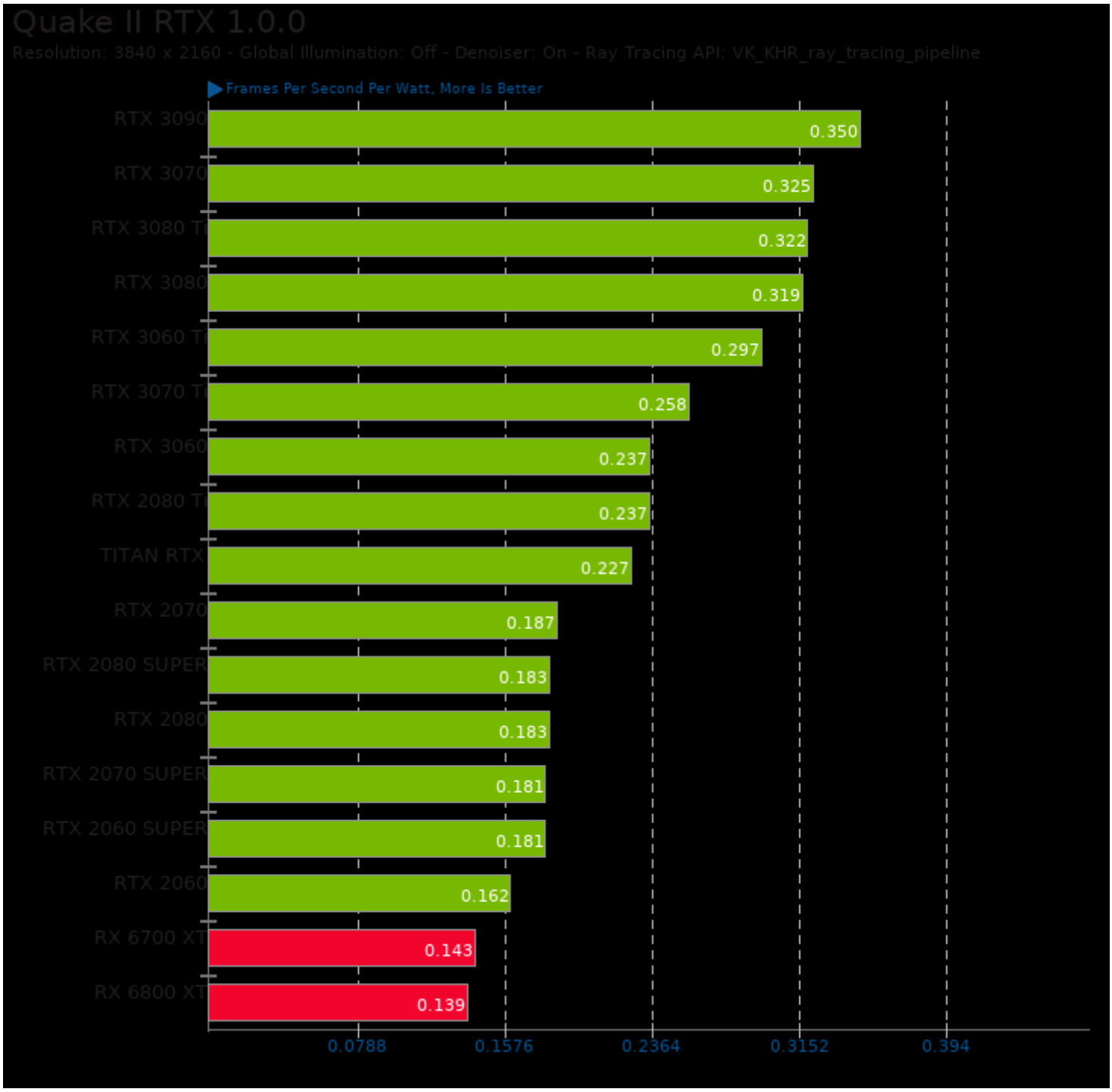

Quake II RTX 1.0.0
GPU Power Consumption Monitor
Watts, Fewer Is Better
RX 6700 XT
Min: 6 / Avg: 95.91 / Max: 135
RTX 3060
Min: 12.72 / Avg: 120.58 / Max: 169.51
RTX 2060
Min: 10.22 / Avg: 122.1 / Max: 161.19
RX 6800 XT
Min: 7 / Avg: 127.77 / Max: 184
RTX 2070
Min: 9.55 / Avg: 128.45 / Max: 179.99
RTX 3060 Ti
Min: 21.27 / Avg: 129.6 / Max: 199.32
RTX 2060 SUPER
Min: 10.35 / Avg: 130.56 / Max: 176.91
RTX 3070
Min: 9.2 / Avg: 135.48 / Max: 219.81
RTX 2080
Min: 16.6 / Avg: 150.9 / Max: 213.76
RTX 2070 SUPER
Min: 15.04 / Avg: 150.93 / Max: 212.6
RTX 2080 SUPER
Min: 10.14 / Avg: 159.12 / Max: 247.93
RTX 2080 Ti
Min: 7.82 / Avg: 166.04 / Max: 271.25
TITAN RTX
Min: 11.75 / Avg: 176.6 / Max: 286.67
RTX 3070 Ti
Min: 16.86 / Avg: 181.9 / Max: 289.18
RTX 3080
Min: 13.13 / Avg: 186.68 / Max: 320.47
RTX 3090
Min: 14.35 / Avg: 201.11 / Max: 347.3
RTX 3080 Ti
Min: 20.78 / Avg: 202.96 / Max: 349.35
60
120
180
240
300

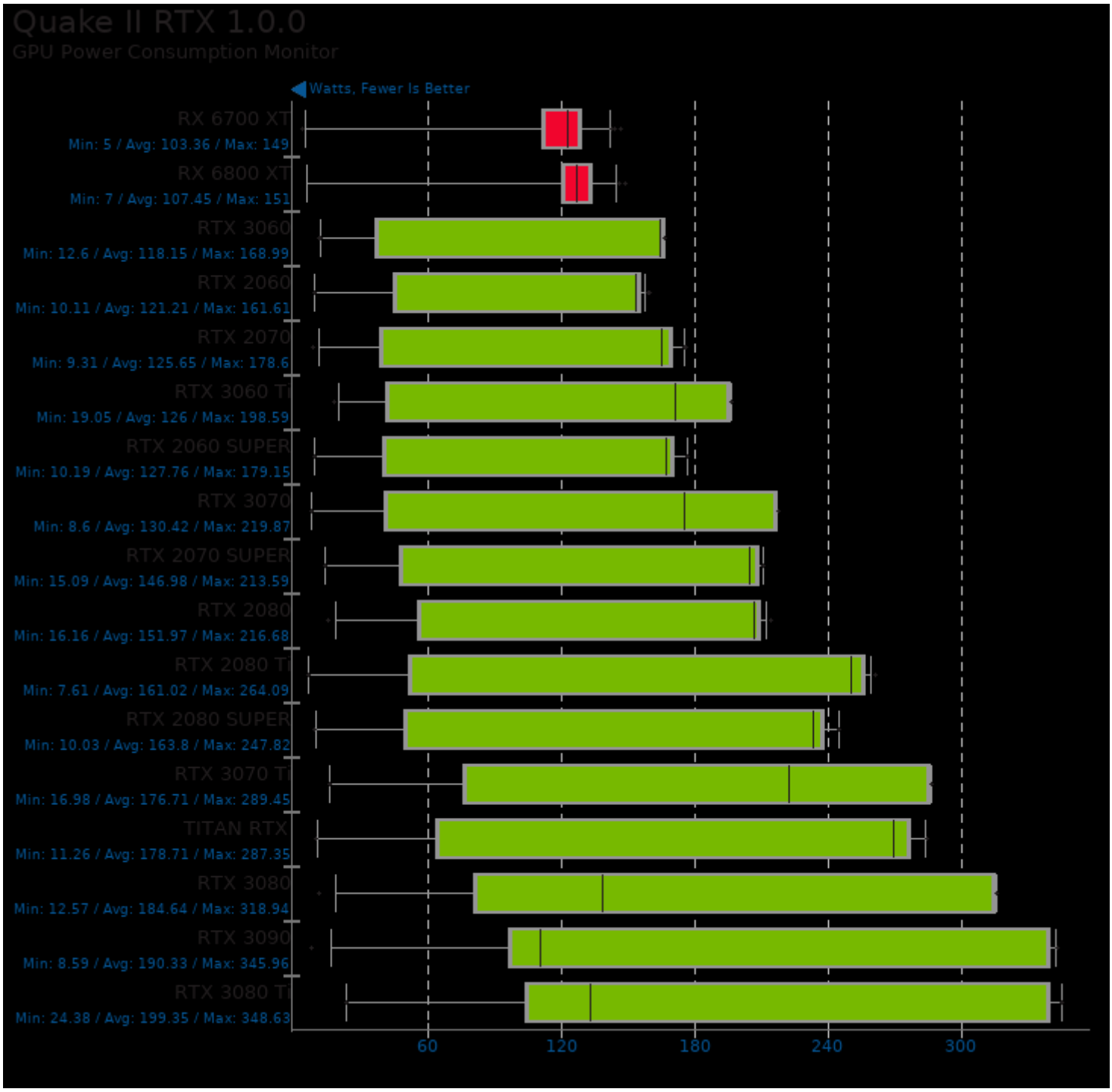

Quake II RTX 1.0.0
Resolution: 1920 x 1080 - Global Illumination: Off - Denoiser: On - Ray Tracing API: VK_KHR_ray_tracing_pipeline
Frames Per Second Per Watt, More Is Better
RTX 3070
1.821
RTX 3060 Ti
1.637
RTX 3090
1.572
RTX 3080
1.550
RTX 3080 Ti
1.488
RTX 3070 Ti
1.374
RTX 3060
1.341
RTX 2080 Ti
1.270
TITAN RTX
1.247
RTX 2070
1.074
RTX 2080 SUPER
1.061
RTX 2080
1.006
RTX 2070 SUPER
0.966
RTX 2060 SUPER
0.940
RTX 2060
0.905
RX 6700 XT
0.145
RX 6800 XT
0.139
0.4097
0.8194
1.2291
1.6388
2.0485

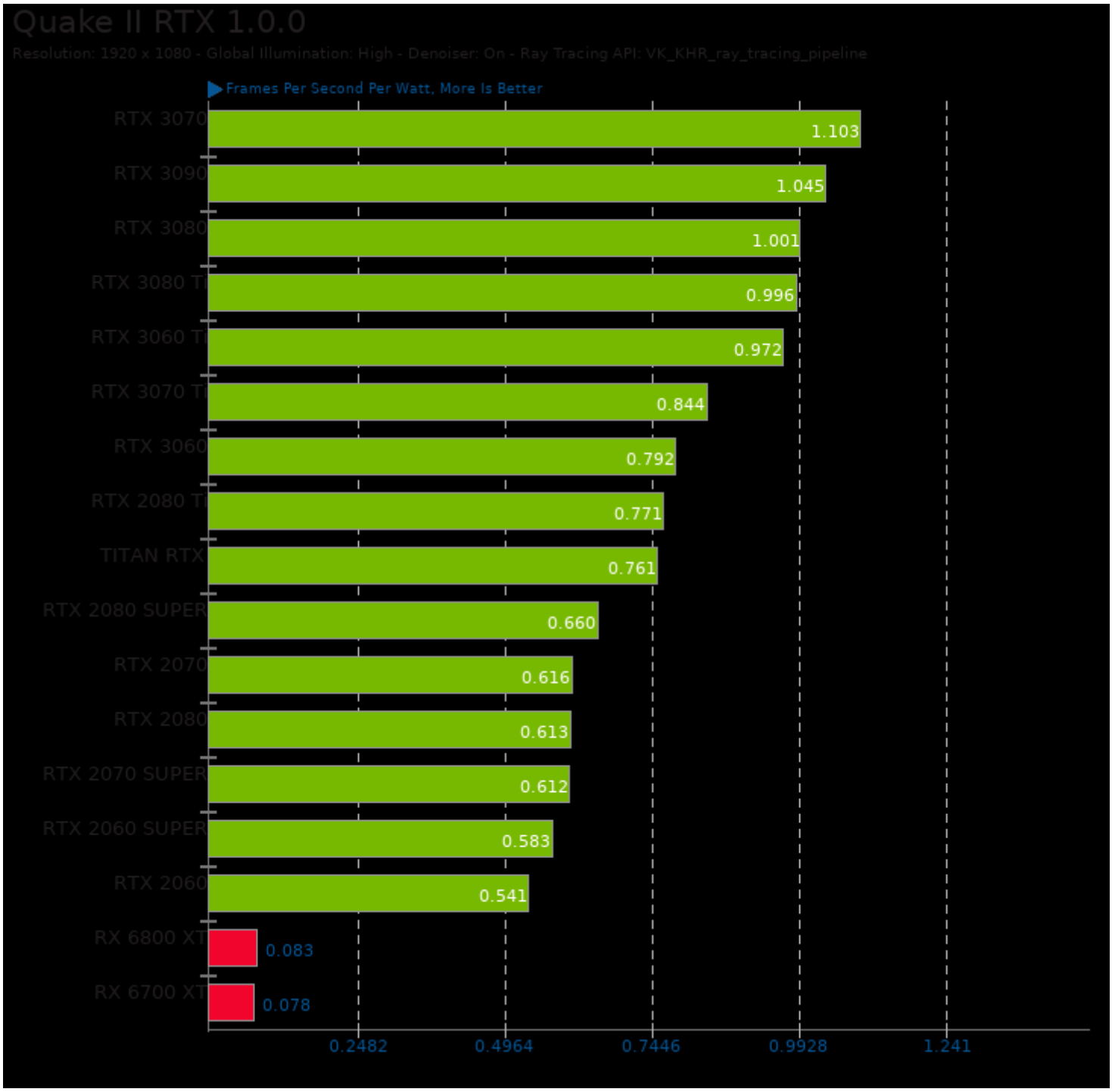

Quake II RTX 1.0.0
GPU Power Consumption Monitor
Watts, Fewer Is Better
RTX 3060
Min: 12.7 / Avg: 76.02 / Max: 169.63
RTX 2070
Min: 8.53 / Avg: 79.02 / Max: 176.24
RTX 2060
Min: 9.68 / Avg: 79.6 / Max: 162.05
RTX 3060 Ti
Min: 13.58 / Avg: 79.75 / Max: 200.03
RTX 3070
Min: 9.4 / Avg: 80.05 / Max: 219.44
RTX 2060 SUPER
Min: 9.82 / Avg: 89.07 / Max: 176.15
RTX 2080
Min: 15.73 / Avg: 97.45 / Max: 220.96
RTX 2070 SUPER
Min: 14.87 / Avg: 97.96 / Max: 220.27
RTX 2080 SUPER
Min: 9.12 / Avg: 99.38 / Max: 239.11
RTX 2080 Ti
Min: 7.43 / Avg: 101.9 / Max: 264.96
RX 6700 XT
Min: 5 / Avg: 102.26 / Max: 150
RX 6800 XT
Min: 7 / Avg: 107.46 / Max: 151
TITAN RTX
Min: 11.34 / Avg: 109.34 / Max: 283.91
RTX 3070 Ti
Min: 16.75 / Avg: 112.78 / Max: 287.53
RTX 3080
Min: 12.43 / Avg: 121.41 / Max: 318.23
RTX 3090
Min: 19.17 / Avg: 134.56 / Max: 342.58
RTX 3080 Ti
Min: 17.62 / Avg: 138.4 / Max: 348.1
60
120
180
240
300

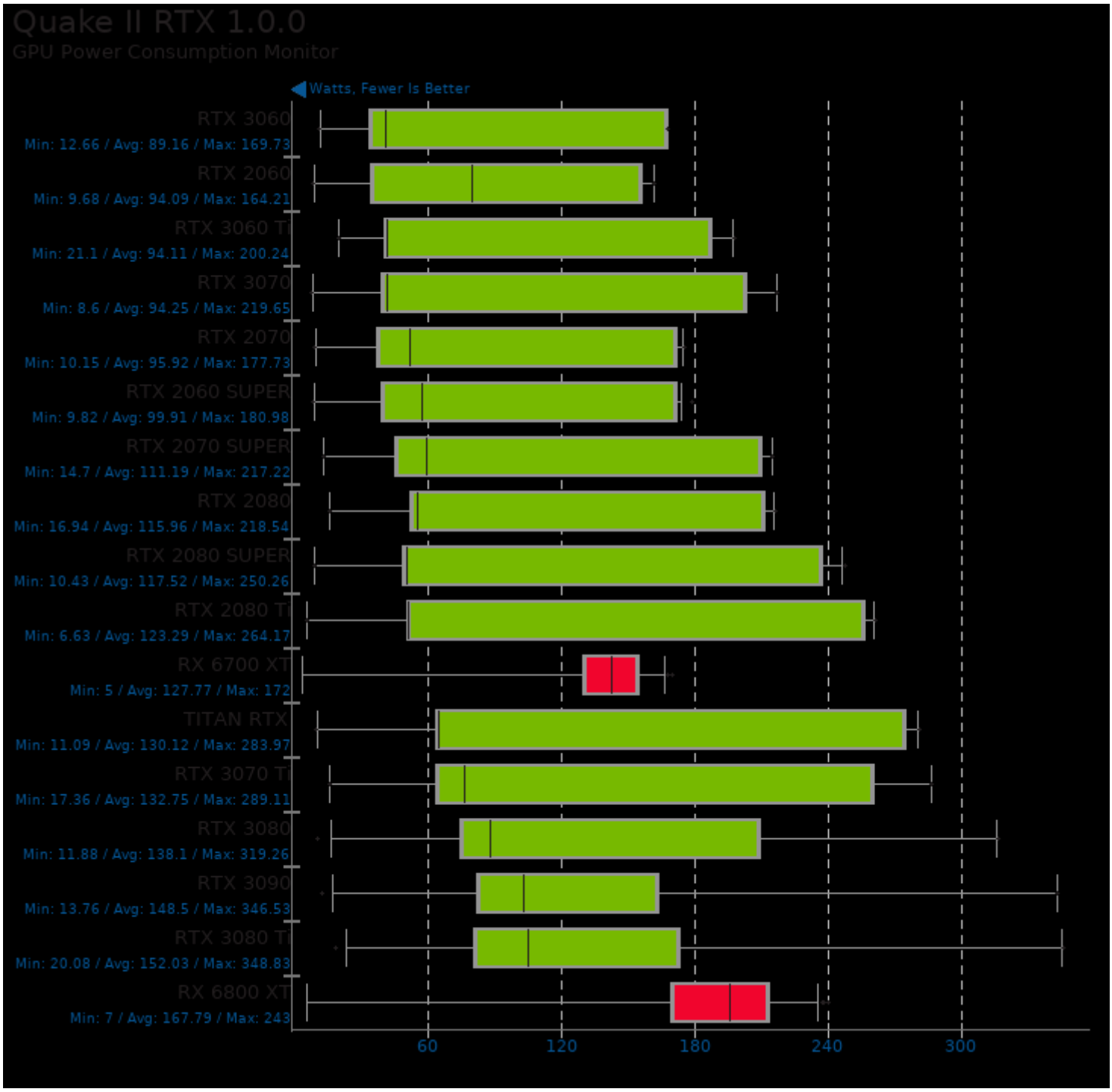

Quake II RTX 1.0.0
Resolution: 2560 x 1440 - Global Illumination: Off - Denoiser: On - Ray Tracing API: VK_KHR_ray_tracing_pipeline
Frames Per Second Per Watt, More Is Better
RTX 3070
0.902
RTX 3090
0.876
RTX 3080
0.835
RTX 3080 T
0.818
RTX 3060 T
0.804
RTX 3070 T
0.692
RTX 3060
0.658
RTX 2080 T
0.648
TITAN RTX
0.623
RTX 2080 SUPER
0.519
RTX 2080
0.503
RTX 2070
0.497
RTX 2060 SUPER
0.481
RTX 2070 SUPER
0.475
RTX 2060
0.431
RX 6700 XT
0.147
RX 6800 XT
0.122
0.203
0.406
0.609
0.812
1.015

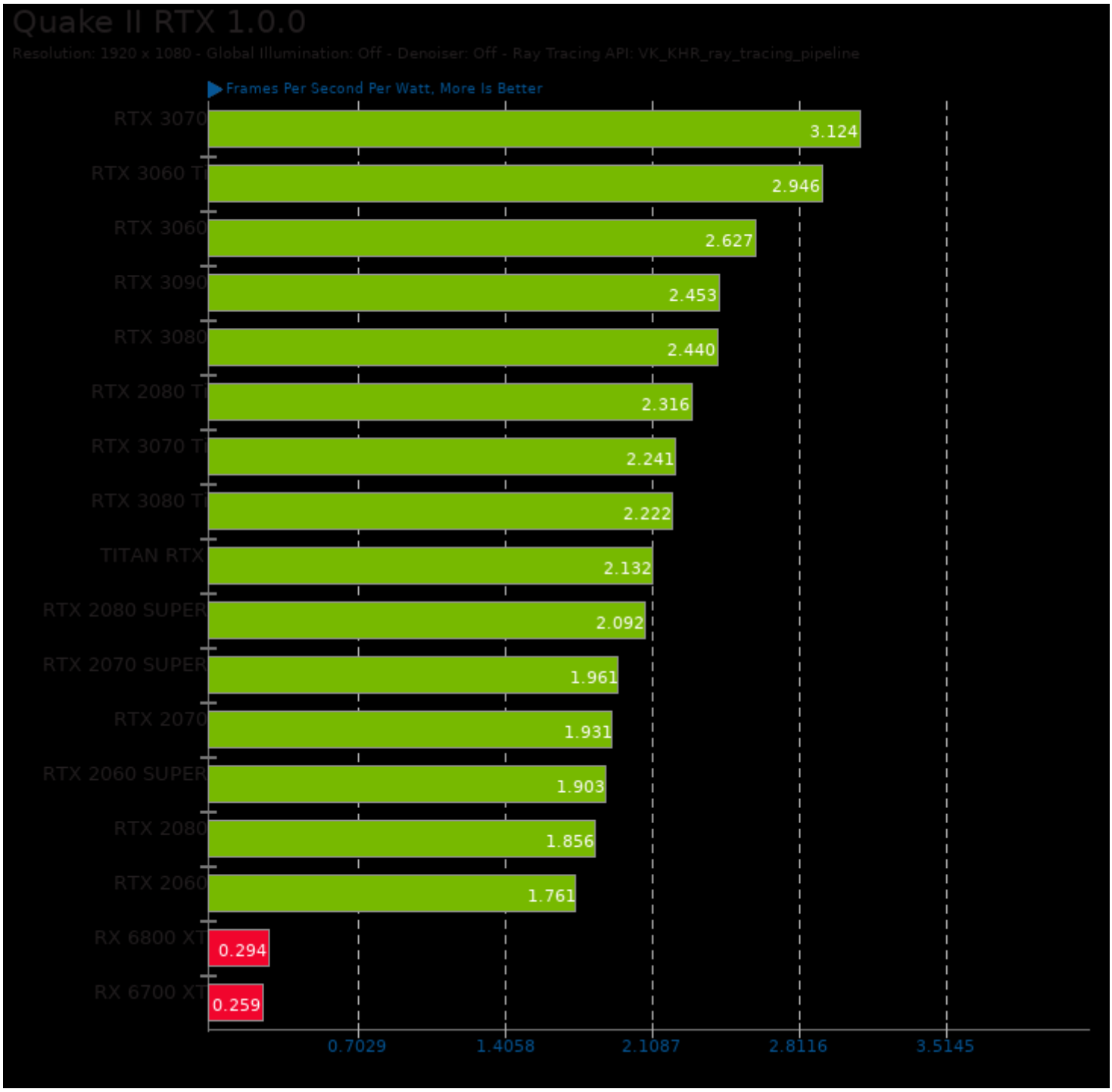

Quake II RTX 1.0.0
GPU Power Consumption Monitor
Watts, Fewer Is Better
RTX 3060
Min: 12.53 / Avg: 92.65 / Max: 169.56
RTX 3060 Ti
Min: 20.76 / Avg: 99.56 / Max: 198.93
RTX 2060
Min: 9.99 / Avg: 99.58 / Max: 164.35
RTX 3070
Min: 8.71 / Avg: 99.7 / Max: 219.61
RX 6700 XT
Min: 5 / Avg: 100.38 / Max: 152
RTX 2070
Min: 8.5 / Avg: 103.45 / Max: 179.01
RTX 2060 SUPER
Min: 10.16 / Avg: 105.13 / Max: 179.17
RTX 2080
Min: 15.31 / Avg: 119.1 / Max: 218.16
RTX 2070 SUPER
Min: 14.81 / Avg: 121.01 / Max: 215.28
RX 6800 XT
Min: 7 / Avg: 122.63 / Max: 167
RTX 2080 Ti
Min: 7.41 / Avg: 122.92 / Max: 262.37
RTX 2080 SUPER
Min: 10.03 / Avg: 124.87 / Max: 252.11
TITAN RTX
Min: 11.42 / Avg: 135.34 / Max: 293.6
RTX 3070 Ti
Min: 16.52 / Avg: 139.58 / Max: 289.46
RTX 3080
Min: 12.96 / Avg: 144.53 / Max: 318.94
RTX 3090
Min: 14.26 / Avg: 156.12 / Max: 346.39
RTX 3080 Ti
Min: 20.63 / Avg: 160.71 / Max: 349.2
60
120
180
240
300

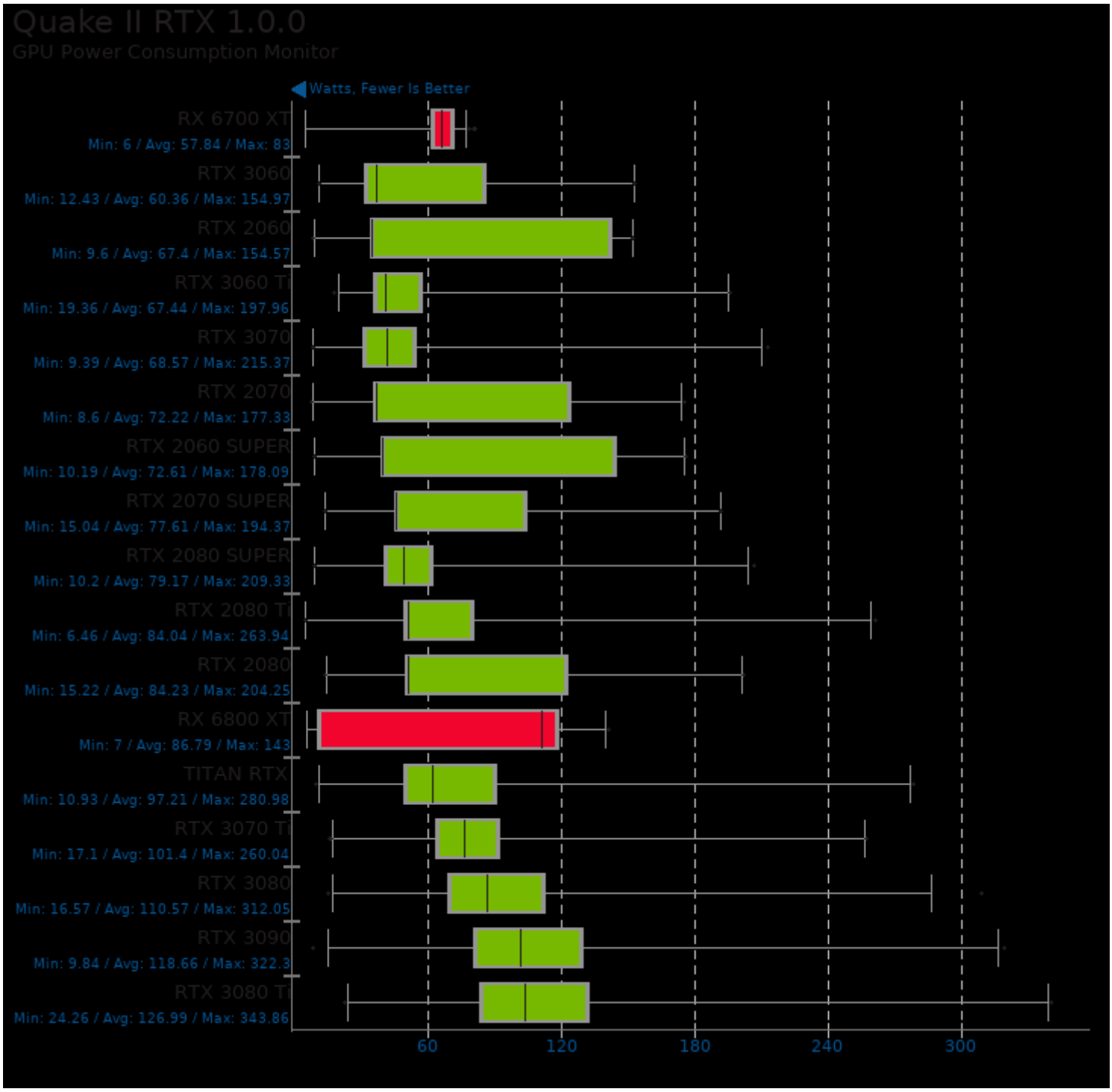

Quake II RTX 1.0.0
Resolution: 3840 x 2160 - Global Illumination: Off - Denoiser: On - Ray Tracing API: VK_KHR_ray_tracing_pipeline
Frames Per Second Per Watt, More Is Better
RTX 3090
0.350
RTX 3070
0.325
RTX 3080 T
0.322
RTX 3080
0.319
RTX 3060 T
0.297
RTX 3070 T
0.258
RTX 3060
0.237
RTX 2080 T
0.237
TITAN RTX
0.227
RTX 2070
0.187
RTX 2080 SUPER
0.183
RTX 2080
0.183
RTX 2070 SUPER
0.181
RTX 2060 SUPER
0.181
RTX 2060
0.162
RX 6700 XT
0.143
RX 6800 XT
0.139
0.0788
0.1576
0.2364
0.3152
0.394

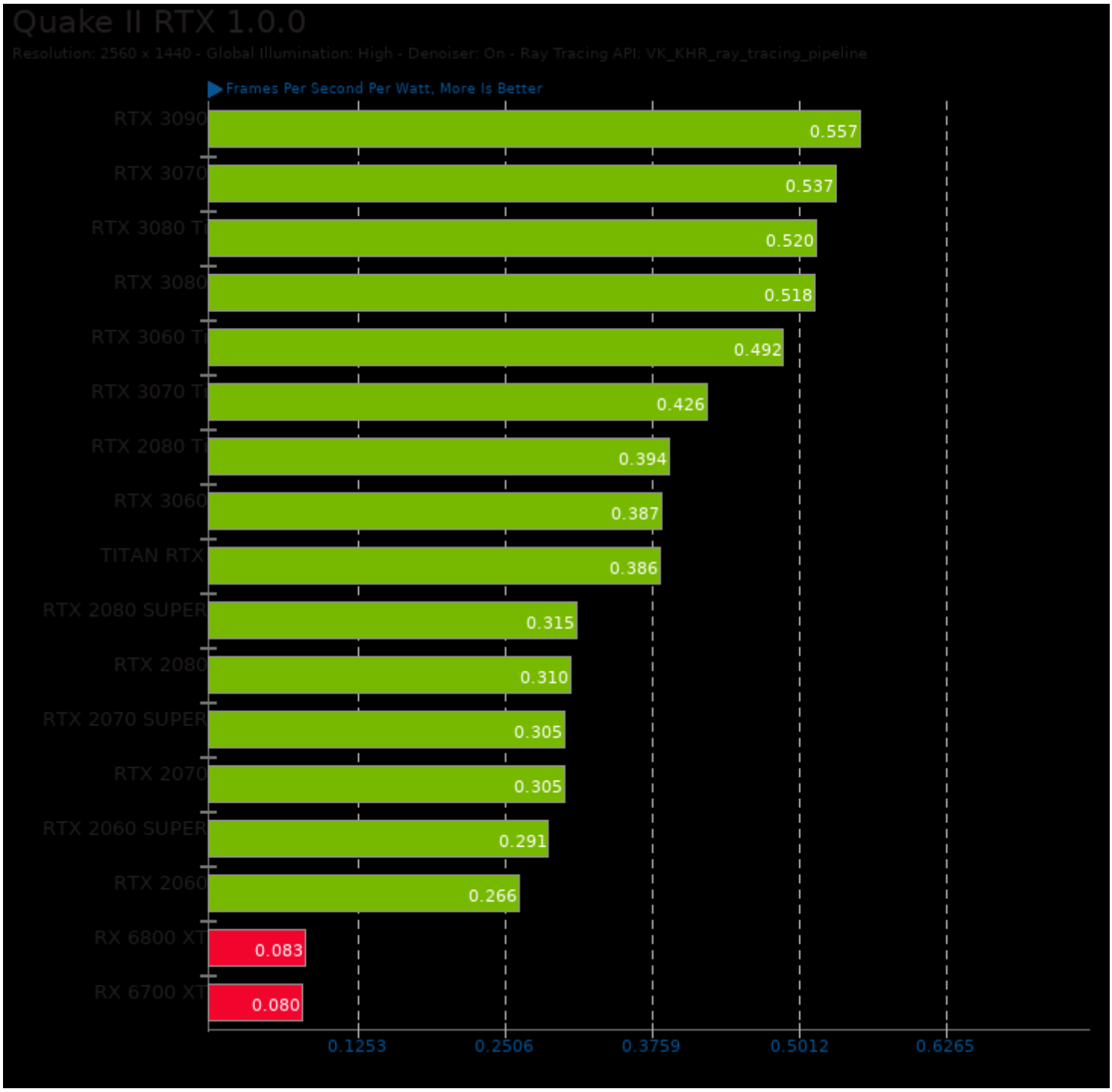

Quake II RTX 1.0.0
GPU Power Consumption Monitor
Watts, Fewer Is Better
RX 6700 XT
Min: 5 / Avg: 103.36 / Max: 149
RX 6800 XT
Min: 7 / Avg: 107.45 / Max: 151
RTX 3060
Min: 12.6 / Avg: 118.15 / Max: 168.99
RTX 2060
Min: 10.11 / Avg: 121.21 / Max: 161.61
RTX 2070
Min: 9.31 / Avg: 125.65 / Max: 178.6
RTX 3060 Ti
Min: 19.05 / Avg: 126 / Max: 198.59
RTX 2060 SUPER
Min: 10.19 / Avg: 127.76 / Max: 179.15
RTX 3070
Min: 8.6 / Avg: 130.42 / Max: 219.87
RTX 2070 SUPER
Min: 15.09 / Avg: 146.98 / Max: 213.59
RTX 2080
Min: 16.16 / Avg: 151.97 / Max: 216.68
RTX 2080 Ti
Min: 7.61 / Avg: 161.02 / Max: 264.09
RTX 2080 SUPER
Min: 10.03 / Avg: 163.8 / Max: 247.82
RTX 3070 Ti
Min: 16.98 / Avg: 176.71 / Max: 289.45
TITAN RTX
Min: 11.26 / Avg: 178.71 / Max: 287.35
RTX 3080
Min: 12.57 / Avg: 184.64 / Max: 318.94
RTX 3090
Min: 8.59 / Avg: 190.33 / Max: 345.96
RTX 3080 Ti
Min: 24.38 / Avg: 199.35 / Max: 348.63
60
120
180
240
300

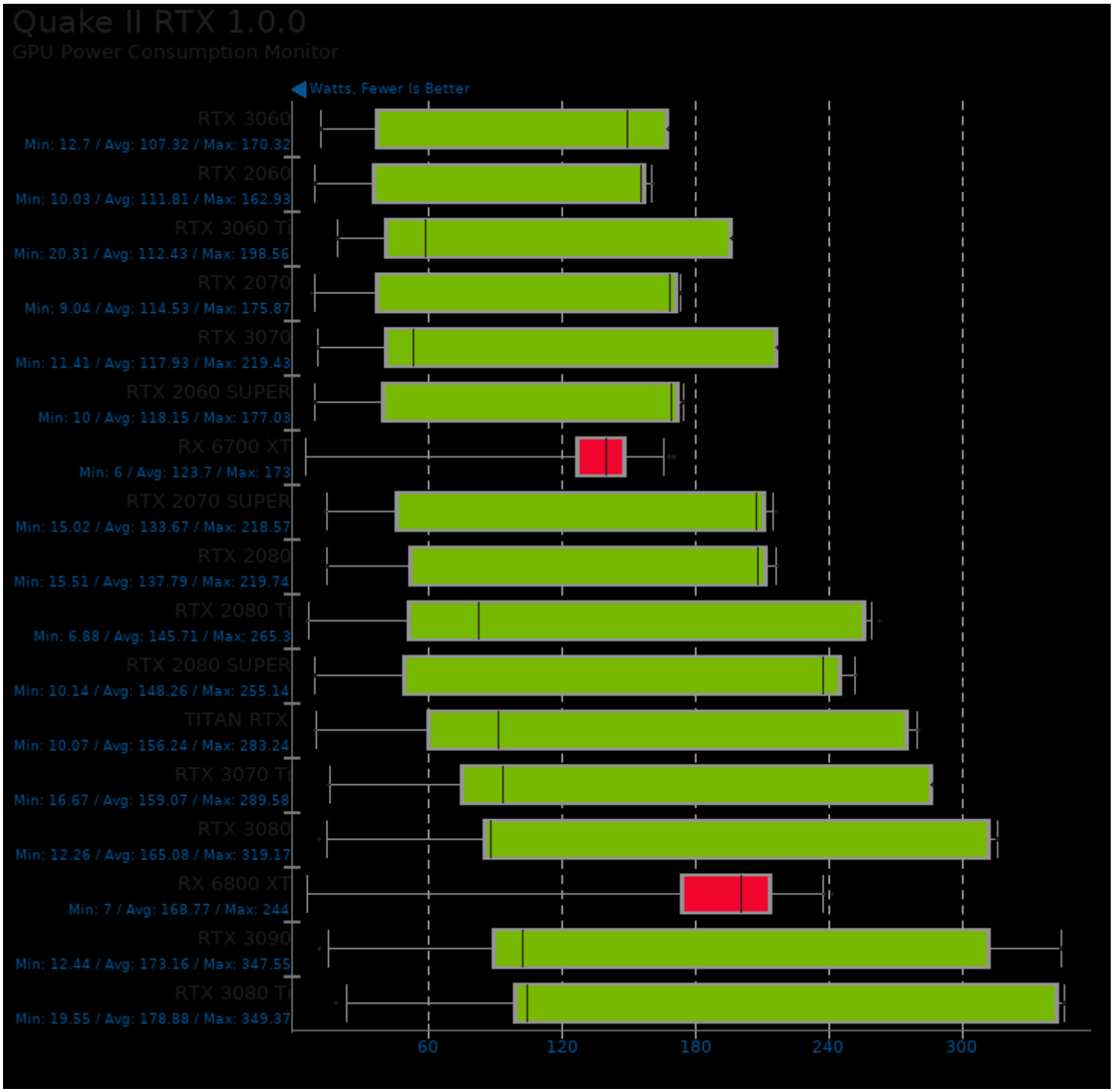

Quake II RTX 1.0.0
Resolution: 1920 x 1080 - Global Illumination: High - Denoiser: On - Ray Tracing API: VK_KHR_ray_tracing_pipeline
Frames Per Second Per Watt, More Is Better
RTX 3070
1.103
RTX 3090
1.045
RTX 3080
1.001
RTX 3080 T
0.996
RTX 3060 T
0.972
RTX 3070 T
0.844
RTX 3060
0.792
RTX 2080 T
0.771
TITAN RTX
0.761
RTX 2080 SUPER
0.660
RTX 2070
0.616
RTX 2080
0.613
RTX 2070 SUPER
0.612
RTX 2060 SUPER
0.583
RTX 2060
0.541
RX 6800 XT
0.083
RX 6700 XT
0.078
0.2482
0.4964
0.7446
0.9928
1.241

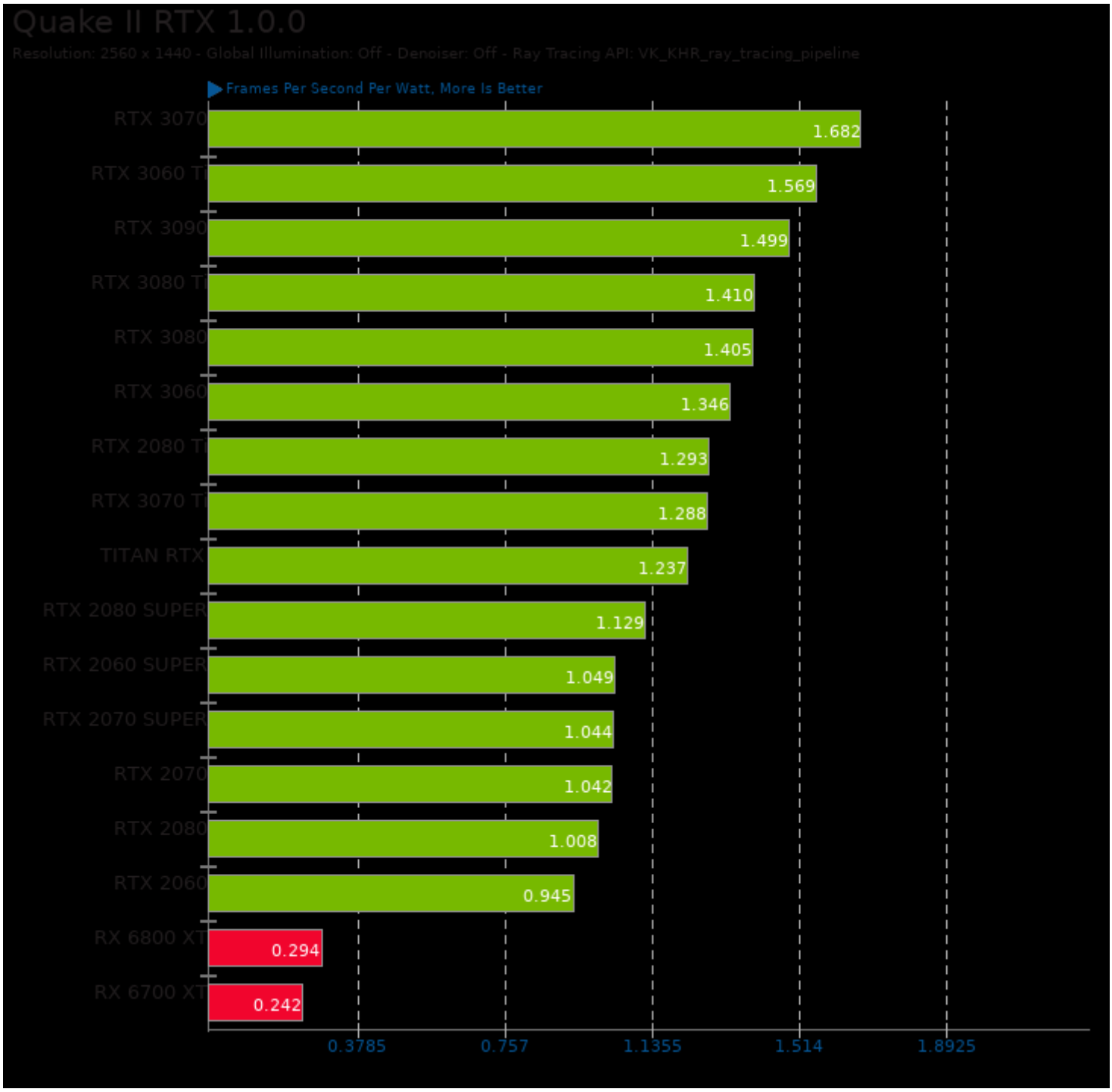

Quake II RTX 1.0.0
GPU Power Consumption Monitor
Watts, Fewer Is Better
RTX 3060
Min: 12.66 / Avg: 89.16 / Max: 169.73
RTX 2060
Min: 9.68 / Avg: 94.09 / Max: 164.21
RTX 3060 Ti
Min: 21.1 / Avg: 94.11 / Max: 200.24
RTX 3070
Min: 8.6 / Avg: 94.25 / Max: 219.65
RTX 2070
Min: 10.15 / Avg: 95.92 / Max: 177.73
RTX 2060 SUPER
Min: 9.82 / Avg: 99.91 / Max: 180.98
RTX 2070 SUPER
Min: 14.7 / Avg: 111.19 / Max: 217.22
RTX 2080
Min: 16.94 / Avg: 115.96 / Max: 218.54
RTX 2080 SUPER
Min: 10.43 / Avg: 117.52 / Max: 250.26
RTX 2080 Ti
Min: 6.63 / Avg: 123.29 / Max: 264.17
RX 6700 XT
Min: 5 / Avg: 127.77 / Max: 172
TITAN RTX
Min: 11.09 / Avg: 130.12 / Max: 283.97
RTX 3070 Ti
Min: 17.36 / Avg: 132.75 / Max: 289.11
RTX 3080
Min: 11.88 / Avg: 138.1 / Max: 319.26
RTX 3090
Min: 13.76 / Avg: 148.5 / Max: 346.53
RTX 3080 Ti
Min: 20.08 / Avg: 152.03 / Max: 348.83
RX 6800 XT
Min: 7 / Avg: 167.79 / Max: 243
60
120
180
240
300

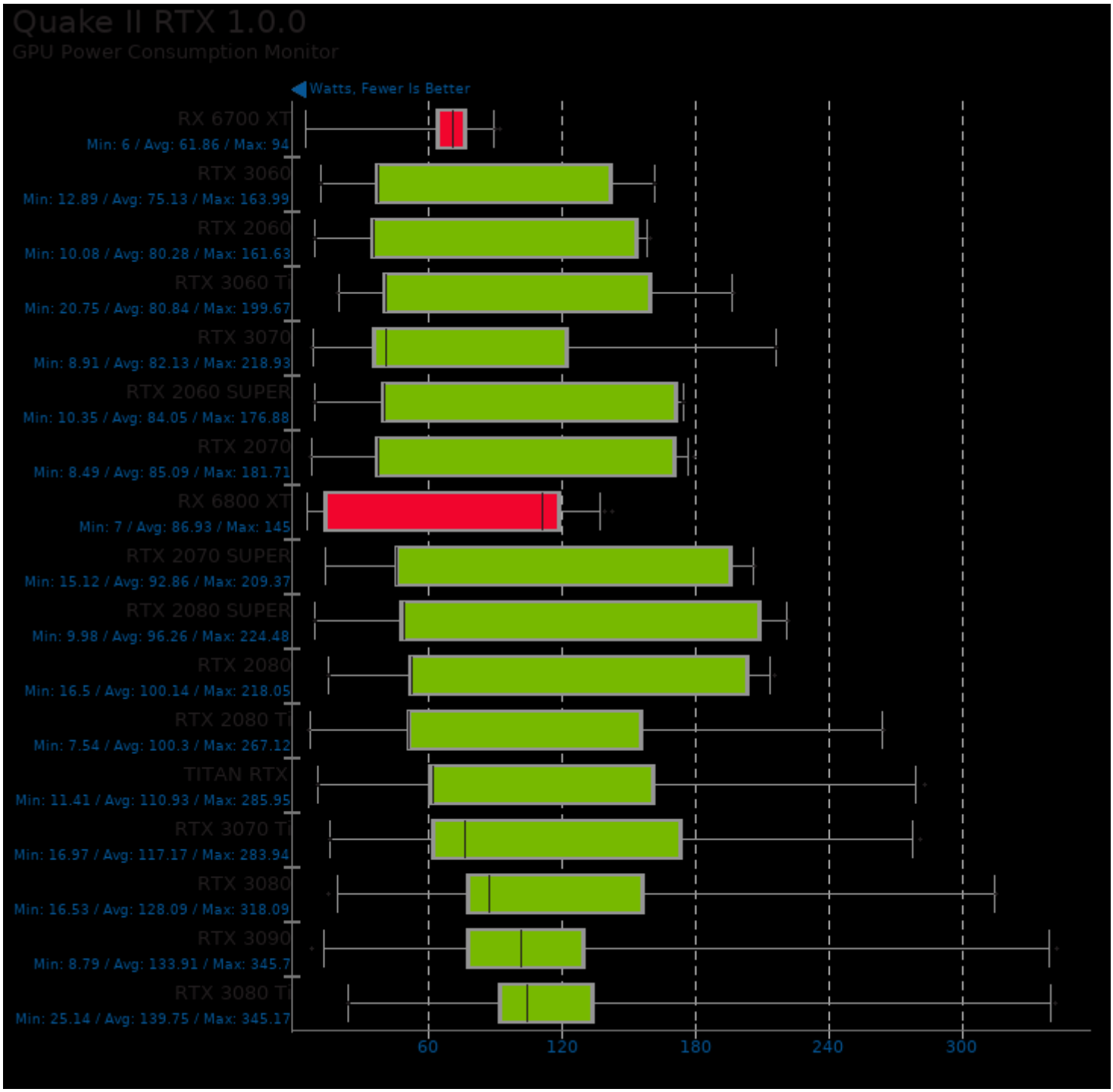

Quake II RTX 1.0.0
Resolution: 1920 x 1080 - Global Illumination: Off - Denoiser: Off - Ray Tracing API: VK_KHR_ray_tracing_pipeline
Frames Per Second Per Watt, More Is Better
RTX 3070
3.124
RTX 3060 Ti
2.946
RTX 3060
2.627
RTX 3090
2.453
RTX 3080
2.440
RTX 2080 Ti
2.316
RTX 3070 Ti
2.241
RTX 3080 Ti
2.222
TITAN RTX
2.132
RTX 2080 SUPER
2.092
RTX 2070 SUPER
1.961
RTX 2070
1.931
RTX 2060 SUPER
1.903
RTX 2080
1.856
RTX 2060
1.761
RX 6800 XT
0.294
RX 6700 XT
0.259
0.7029
1.4058
2.1087
2.8116
3.5145

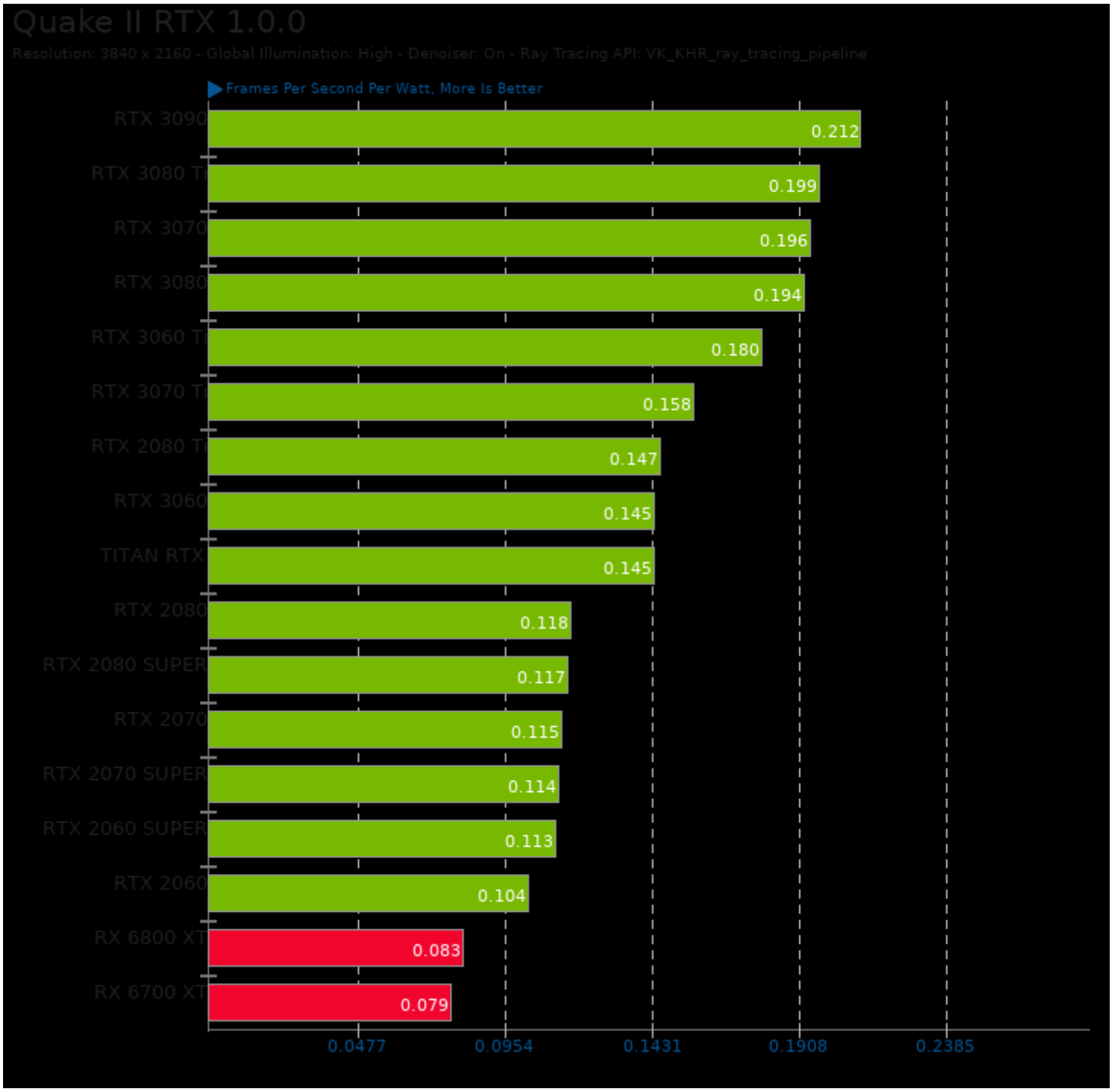

Quake II RTX 1.0.0
GPU Power Consumption Monitor
Watts, Fewer Is Better
RX 6700 XT
Min: 6 / Avg: 57.84 / Max: 83
RTX 3060
Min: 12.43 / Avg: 60.36 / Max: 154.97
RTX 2060
Min: 9.6 / Avg: 67.4 / Max: 154.57
RTX 3060 Ti
Min: 19.36 / Avg: 67.44 / Max: 197.96
RTX 3070
Min: 9.39 / Avg: 68.57 / Max: 215.37
RTX 2070
Min: 8.6 / Avg: 72.22 / Max: 177.33
RTX 2060 SUPER
Min: 10.19 / Avg: 72.61 / Max: 178.09
RTX 2070 SUPER
Min: 15.04 / Avg: 77.61 / Max: 194.37
RTX 2080 SUPER
Min: 10.2 / Avg: 79.17 / Max: 209.33
RTX 2080 Ti
Min: 6.46 / Avg: 84.04 / Max: 263.94
RTX 2080
Min: 15.22 / Avg: 84.23 / Max: 204.25
RX 6800 XT
Min: 7 / Avg: 86.79 / Max: 143
TITAN RTX
Min: 10.93 / Avg: 97.21 / Max: 280.98
RTX 3070 Ti
Min: 17.1 / Avg: 101.4 / Max: 260.04
RTX 3080
Min: 16.57 / Avg: 110.57 / Max: 312.05
RTX 3090
Min: 9.84 / Avg: 118.66 / Max: 322.3
RTX 3080 Ti
Min: 24.26 / Avg: 126.99 / Max: 343.86
60
120
180
240
300

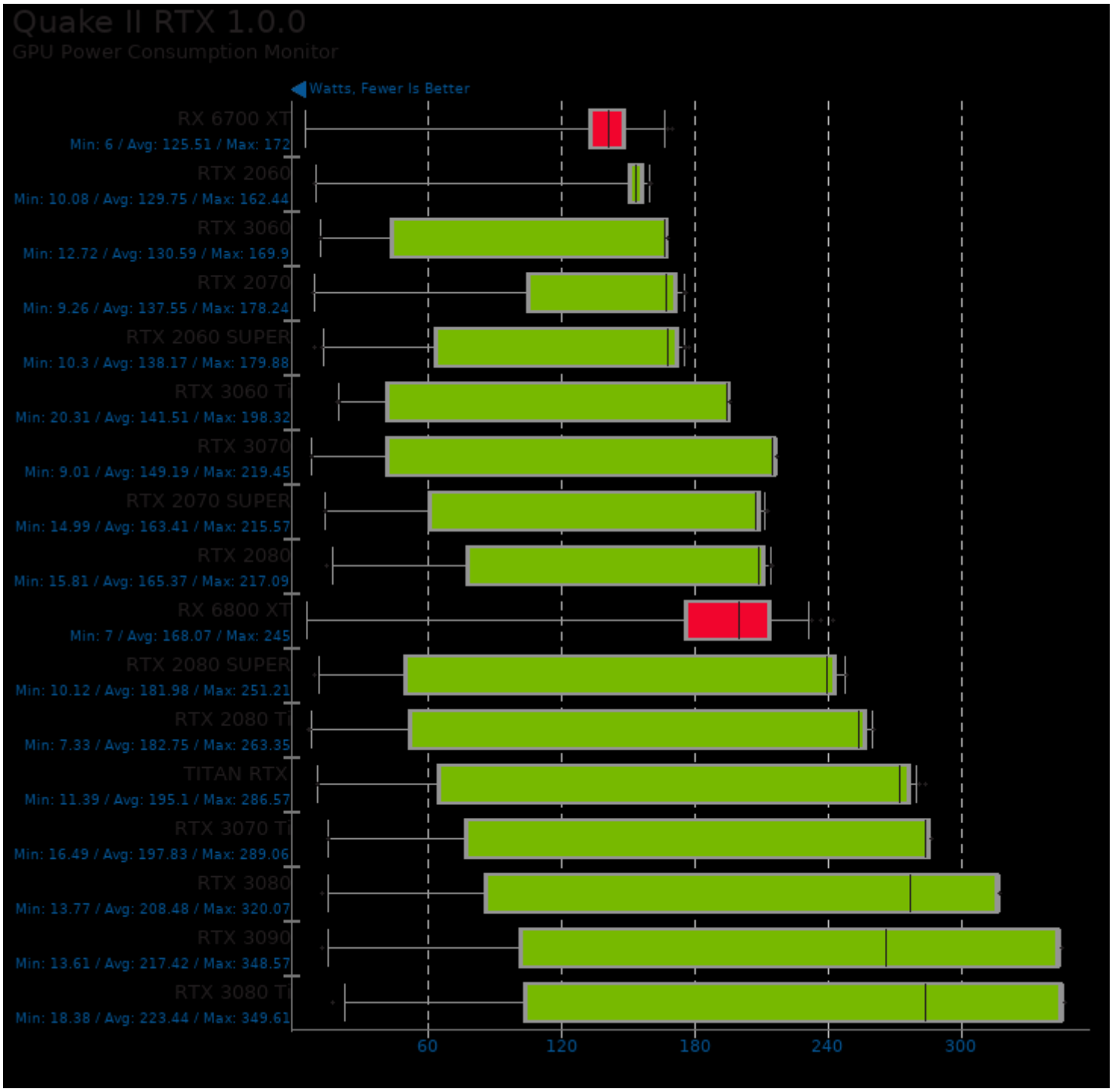

Quake II RTX 1.0.0
Resolution: 2560 x 1440 - Global Illumination: High - Denoiser: On - Ray Tracing API: VK_KHR_ray_tracing_pipeline
Frames Per Second Per Watt, More Is Better
RTX 3090
0.557
RTX 3070
0.537
RTX 3080 Ti
0.520
RTX 3080
0.518
RTX 3060 Ti
0.492
RTX 3070 Ti
0.426
RTX 2080 Ti
0.394
RTX 3060
0.387
TITAN RTX
0.386
RTX 2080 SUPER
0.315
RTX 2080
0.310
RTX 2070 SUPER
0.305
RTX 2070
0.305
RTX 2060 SUPER
0.291
RTX 2060
0.266
RX 6800 XT
0.083
RX 6700 XT
0.080
0.1253
0.2506
0.3759
0.5012
0.6265

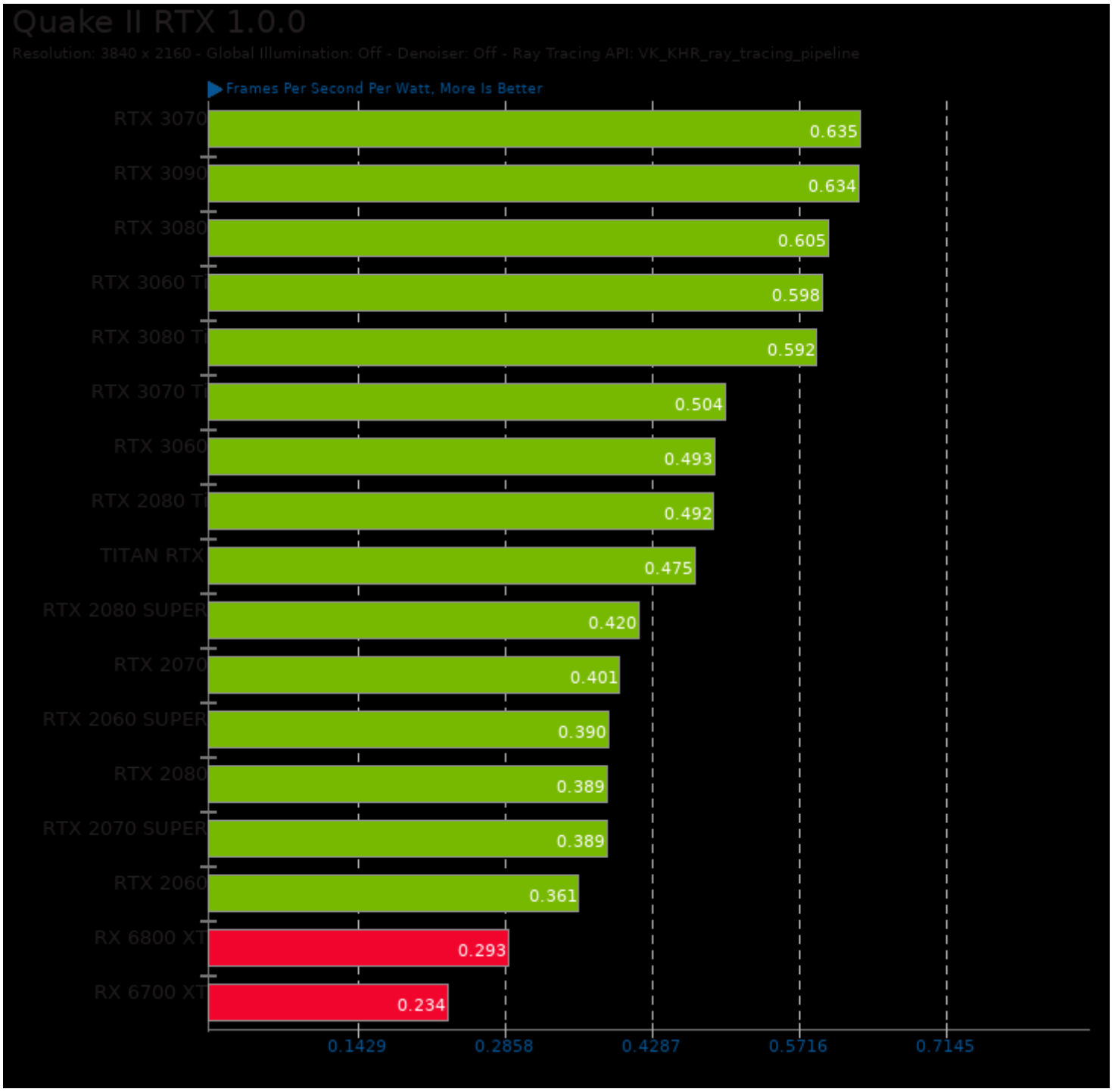

Quake II RTX 1.0.0
GPU Power Consumption Monitor
Watts, Fewer Is Better
RTX 3060
Min: 12.7 / Avg: 107.32 / Max: 170.32
RTX 2060
Min: 10.03 / Avg: 111.81 / Max: 162.93
RTX 3060 Ti
Min: 20.31 / Avg: 112.43 / Max: 198.56
RTX 2070
Min: 9.04 / Avg: 114.53 / Max: 175.87
RTX 3070
Min: 11.41 / Avg: 117.93 / Max: 219.43
RTX 2060 SUPER
Min: 10 / Avg: 118.15 / Max: 177.03
RX 6700 XT
Min: 6 / Avg: 123.7 / Max: 173
RTX 2070 SUPER
Min: 15.02 / Avg: 133.67 / Max: 218.57
RTX 2080
Min: 15.51 / Avg: 137.79 / Max: 219.74
RTX 2080 Ti
Min: 6.88 / Avg: 145.71 / Max: 265.3
RTX 2080 SUPER
Min: 10.14 / Avg: 148.26 / Max: 255.14
TITAN RTX
Min: 10.07 / Avg: 156.24 / Max: 283.24
RTX 3070 Ti
Min: 16.67 / Avg: 159.07 / Max: 289.58
RTX 3080
Min: 12.26 / Avg: 165.08 / Max: 319.17
RX 6800 XT
Min: 7 / Avg: 168.77 / Max: 244
RTX 3090
Min: 12.44 / Avg: 173.16 / Max: 347.55
RTX 3080 Ti
Min: 19.55 / Avg: 178.88 / Max: 349.37
60
120
180
240
300

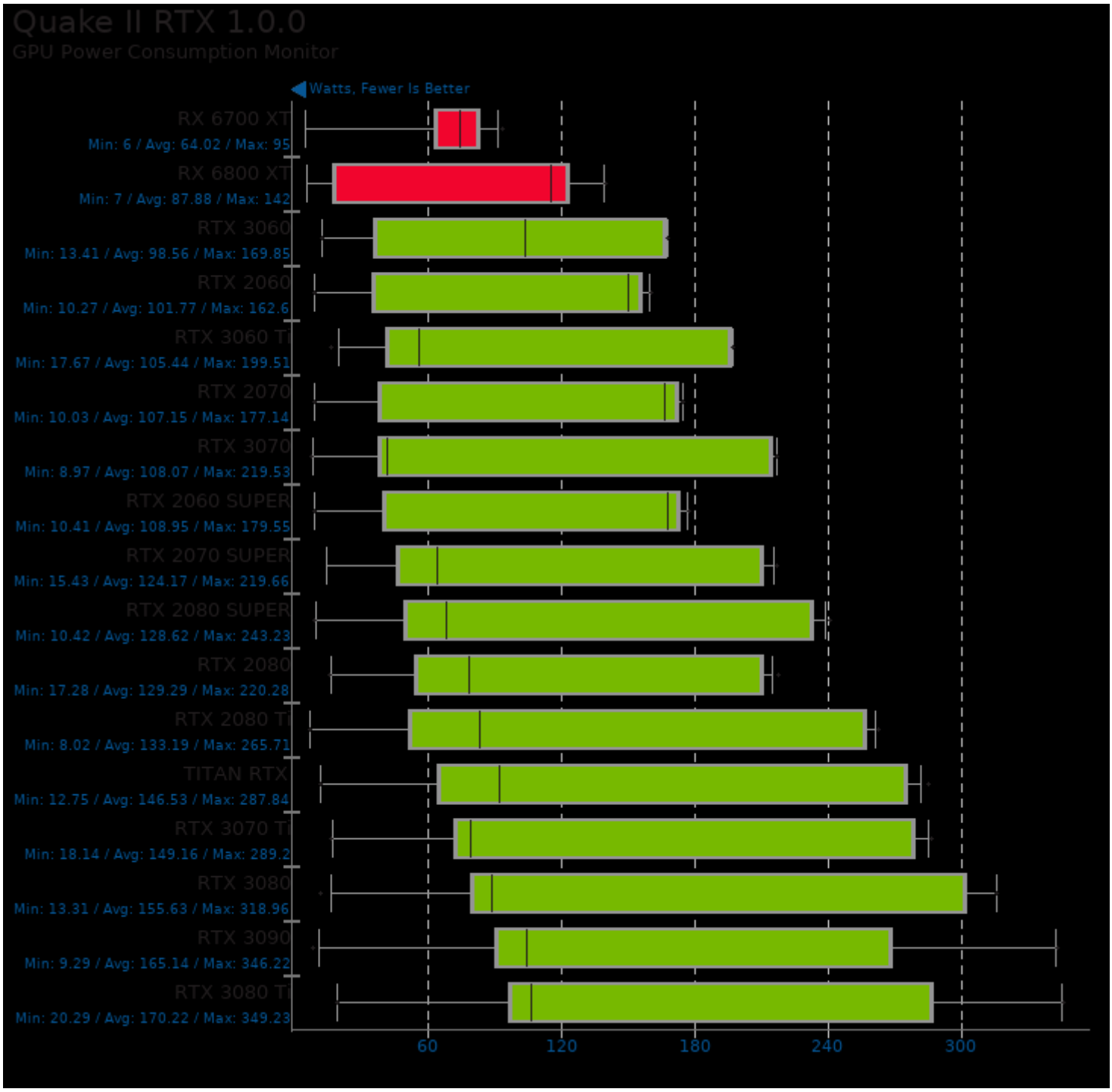

Quake II RTX 1.0.0
Resolution: 2560 x 1440 - Global Illumination: Off - Denoiser: Off - Ray Tracing API: VK_KHR_ray_tracing_pipeline
Frames Per Second Per Watt, More Is Better
RTX 3070
1.682
RTX 3060 Ti
1.569
RTX 3090
1.499
RTX 3080 Ti
1.410
RTX 3080
1.405
RTX 3060
1.346
RTX 2080 Ti
1.293
RTX 3070 Ti
1.288
TITAN RTX
1.237
RTX 2080 SUPER
1.129
RTX 2060 SUPER
1.049
RTX 2070 SUPER
1.044
RTX 2070
1.042
RTX 2080
1.008
RTX 2060
0.945
RX 6800 XT
0.294
RX 6700 XT
0.242
0.3785
0.757
1.1355
1.514
1.8925

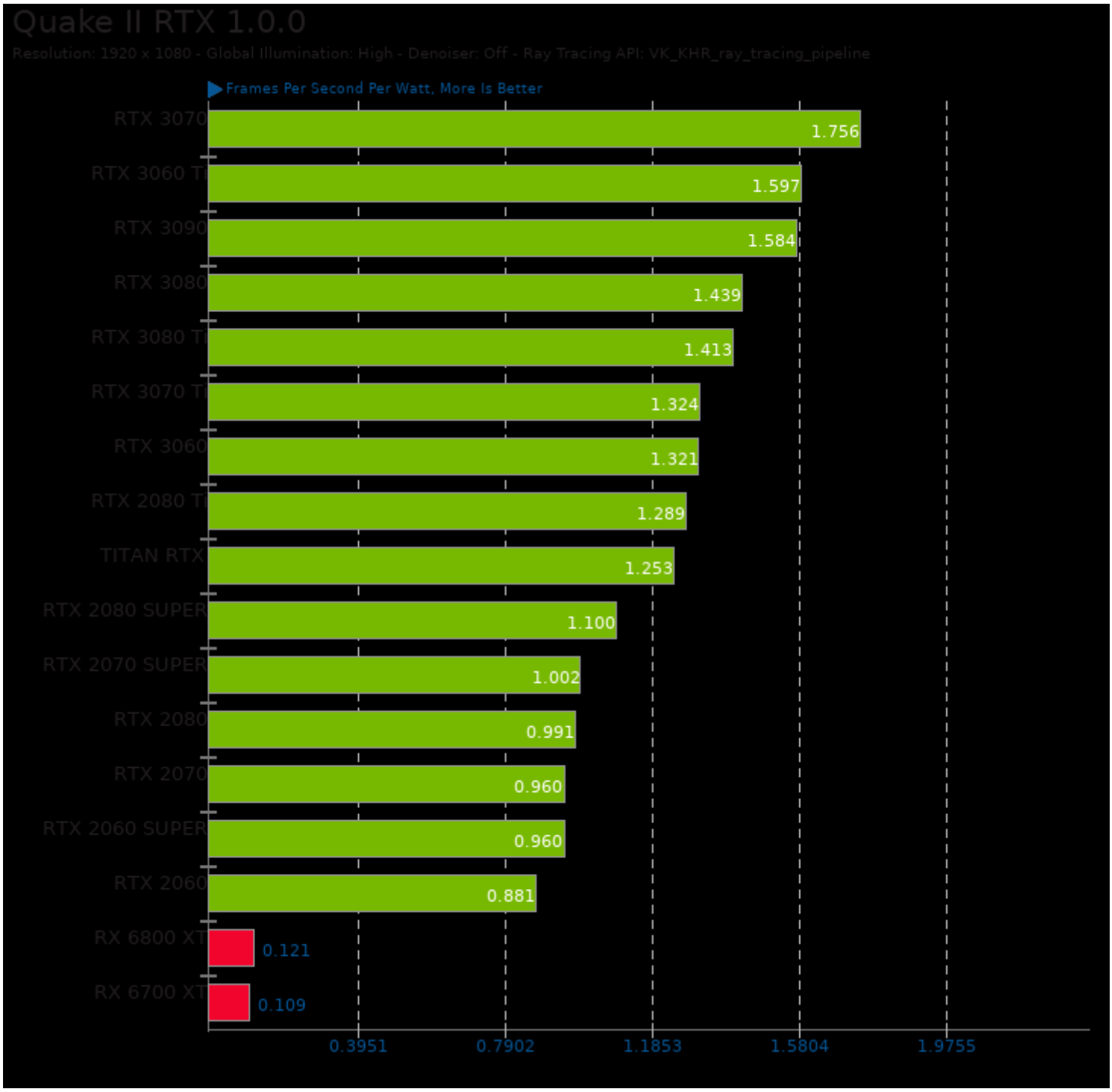

Quake II RTX 1.0.0
GPU Power Consumption Monitor
Watts, Fewer Is Better
RX 6700 XT
Min: 6 / Avg: 61.86 / Max: 94
RTX 3060
Min: 12.89 / Avg: 75.13 / Max: 163.99
RTX 2060
Min: 10.08 / Avg: 80.28 / Max: 161.63
RTX 3060 Ti
Min: 20.75 / Avg: 80.84 / Max: 199.67
RTX 3070
Min: 8.91 / Avg: 82.13 / Max: 218.93
RTX 2060 SUPER
Min: 10.35 / Avg: 84.05 / Max: 176.88
RTX 2070
Min: 8.49 / Avg: 85.09 / Max: 181.71
RX 6800 XT
Min: 7 / Avg: 86.93 / Max: 145
RTX 2070 SUPER
Min: 15.12 / Avg: 92.86 / Max: 209.37
RTX 2080 SUPER
Min: 9.98 / Avg: 96.26 / Max: 224.48
RTX 2080
Min: 16.5 / Avg: 100.14 / Max: 218.05
RTX 2080 Ti
Min: 7.54 / Avg: 100.3 / Max: 267.12
TITAN RTX
Min: 11.41 / Avg: 110.93 / Max: 285.95
RTX 3070 Ti
Min: 16.97 / Avg: 117.17 / Max: 283.94
RTX 3080
Min: 16.53 / Avg: 128.09 / Max: 318.09
RTX 3090
Min: 8.79 / Avg: 133.91 / Max: 345.7
RTX 3080 Ti
Min: 25.14 / Avg: 139.75 / Max: 345.17
60
120
180
240
300

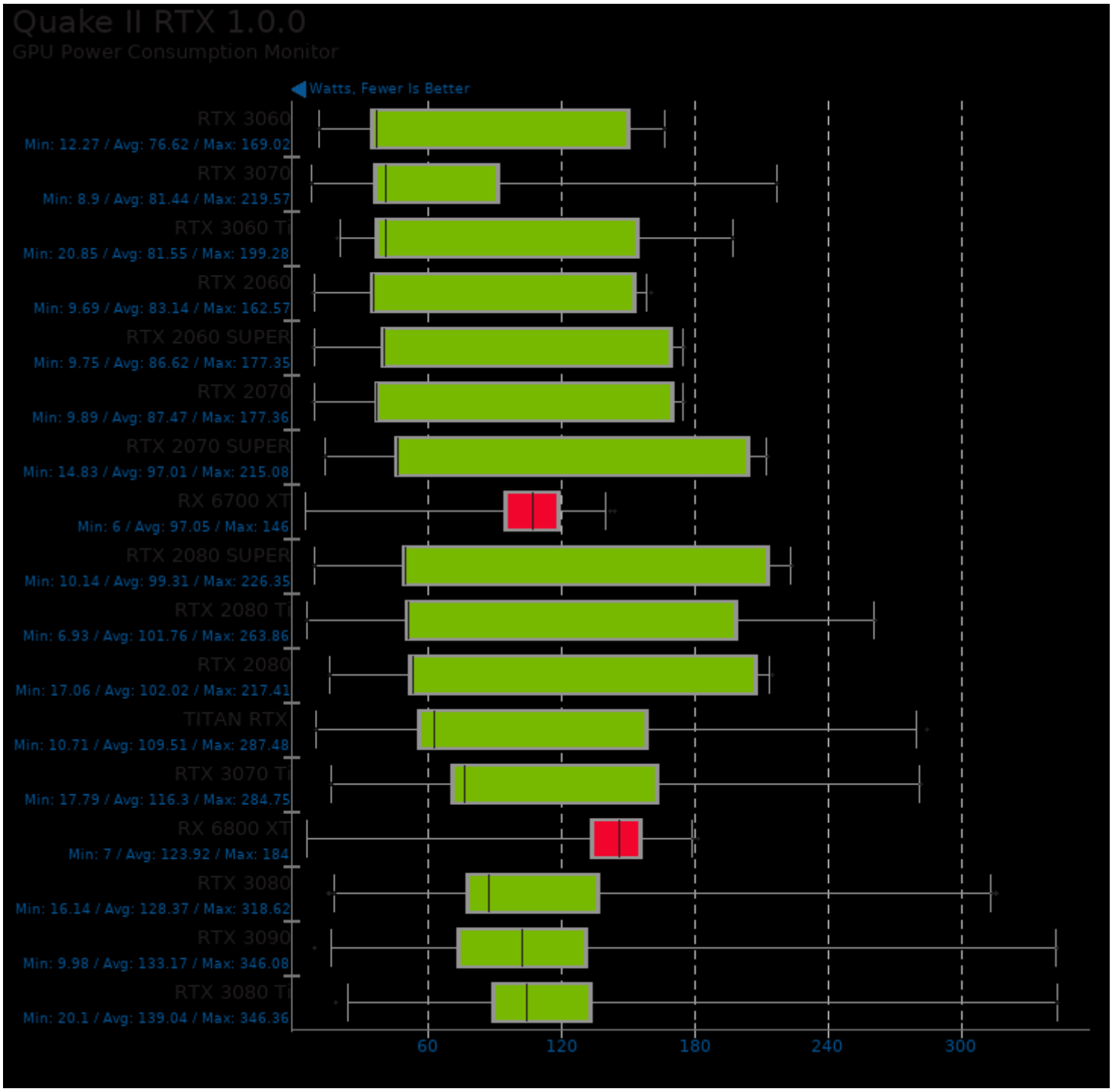

Quake II RTX 1.0.0
Resolution: 3840 x 2160 - Global Illumination: High - Denoiser: On - Ray Tracing API: VK_KHR_ray_tracing_pipeline
Frames Per Second Per Watt, More Is Better
RTX 3090
0.212
RTX 3080 Ti
0.199
RTX 3070
0.196
RTX 3080
0.194
RTX 3060 Ti
0.180
RTX 3070 Ti
0.158
RTX 2080 Ti
0.147
RTX 3060
0.145
TITAN RTX
0.145
RTX 2080
0.118
RTX 2080 SUPER
0.117
RTX 2070
0.115
RTX 2070 SUPER
0.114
RTX 2060 SUPER
0.113
RTX 2060
0.104
RX 6800 XT
0.083
RX 6700 XT
0.079
0.0477
0.0954
0.1431
0.1908
0.2385

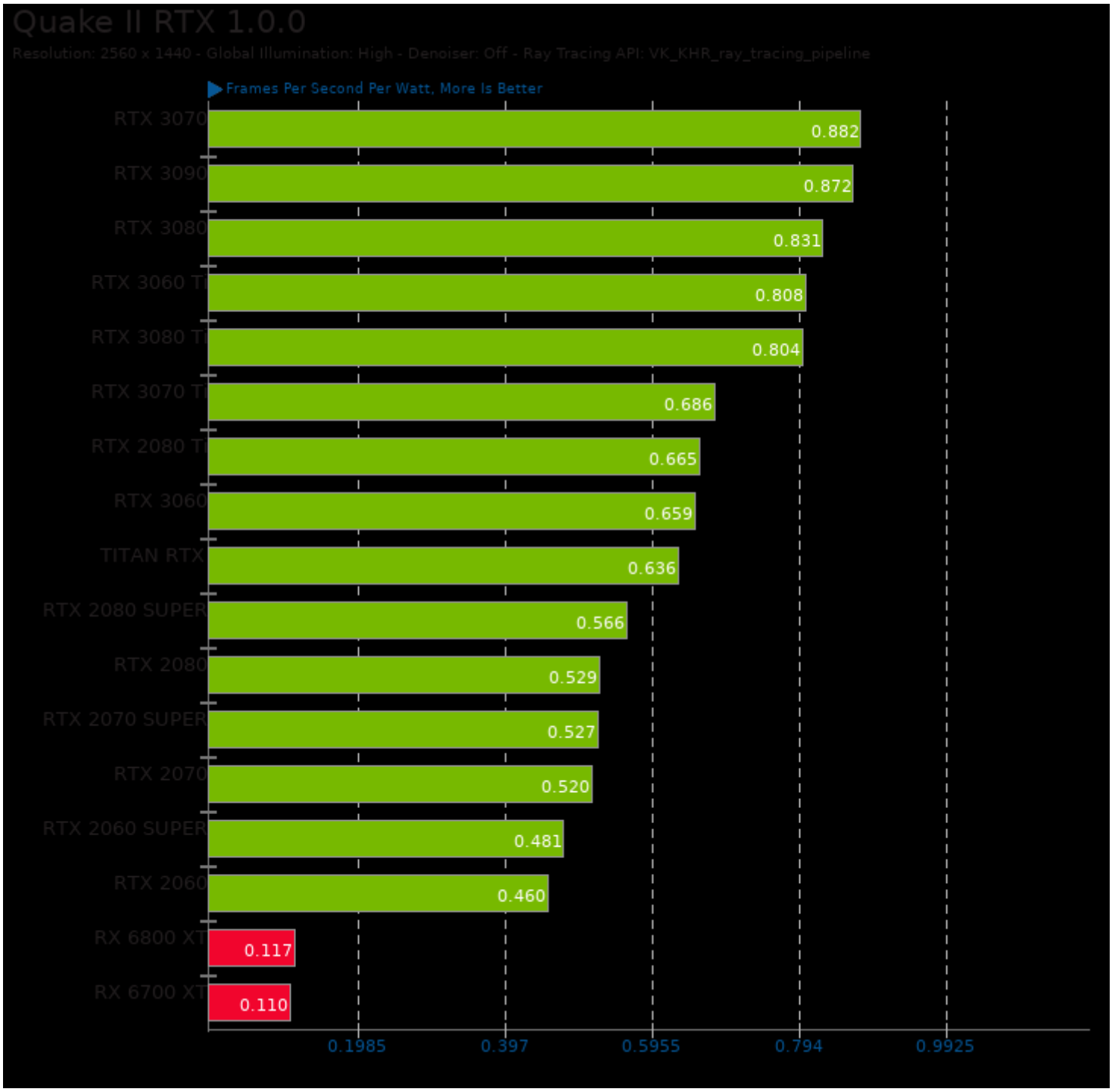

Quake II RTX 1.0.0
GPU Power Consumption Monitor
Watts, Fewer Is Better
RX 6700 XT
Min: 6 / Avg: 125.51 / Max: 172
RTX 2060
Min: 10.08 / Avg: 129.75 / Max: 162.44
RTX 3060
Min: 12.72 / Avg: 130.59 / Max: 169.9
RTX 2070
Min: 9.26 / Avg: 137.55 / Max: 178.24
RTX 2060 SUPER
Min: 10.3 / Avg: 138.17 / Max: 179.88
RTX 3060 Ti
Min: 20.31 / Avg: 141.51 / Max: 198.32
RTX 3070
Min: 9.01 / Avg: 149.19 / Max: 219.45
RTX 2070 SUPER
Min: 14.99 / Avg: 163.41 / Max: 215.57
RTX 2080
Min: 15.81 / Avg: 165.37 / Max: 217.09
RX 6800 XT
Min: 7 / Avg: 168.07 / Max: 245
RTX 2080 SUPER
Min: 10.12 / Avg: 181.98 / Max: 251.21
RTX 2080 Ti
Min: 7.33 / Avg: 182.75 / Max: 263.35
TITAN RTX
Min: 11.39 / Avg: 195.1 / Max: 286.57
RTX 3070 Ti
Min: 16.49 / Avg: 197.83 / Max: 289.06
RTX 3080
Min: 13.77 / Avg: 208.48 / Max: 320.07
RTX 3090
Min: 13.61 / Avg: 217.42 / Max: 348.57
RTX 3080 Ti
Min: 18.38 / Avg: 223.44 / Max: 349.61
60
120
180
240
300

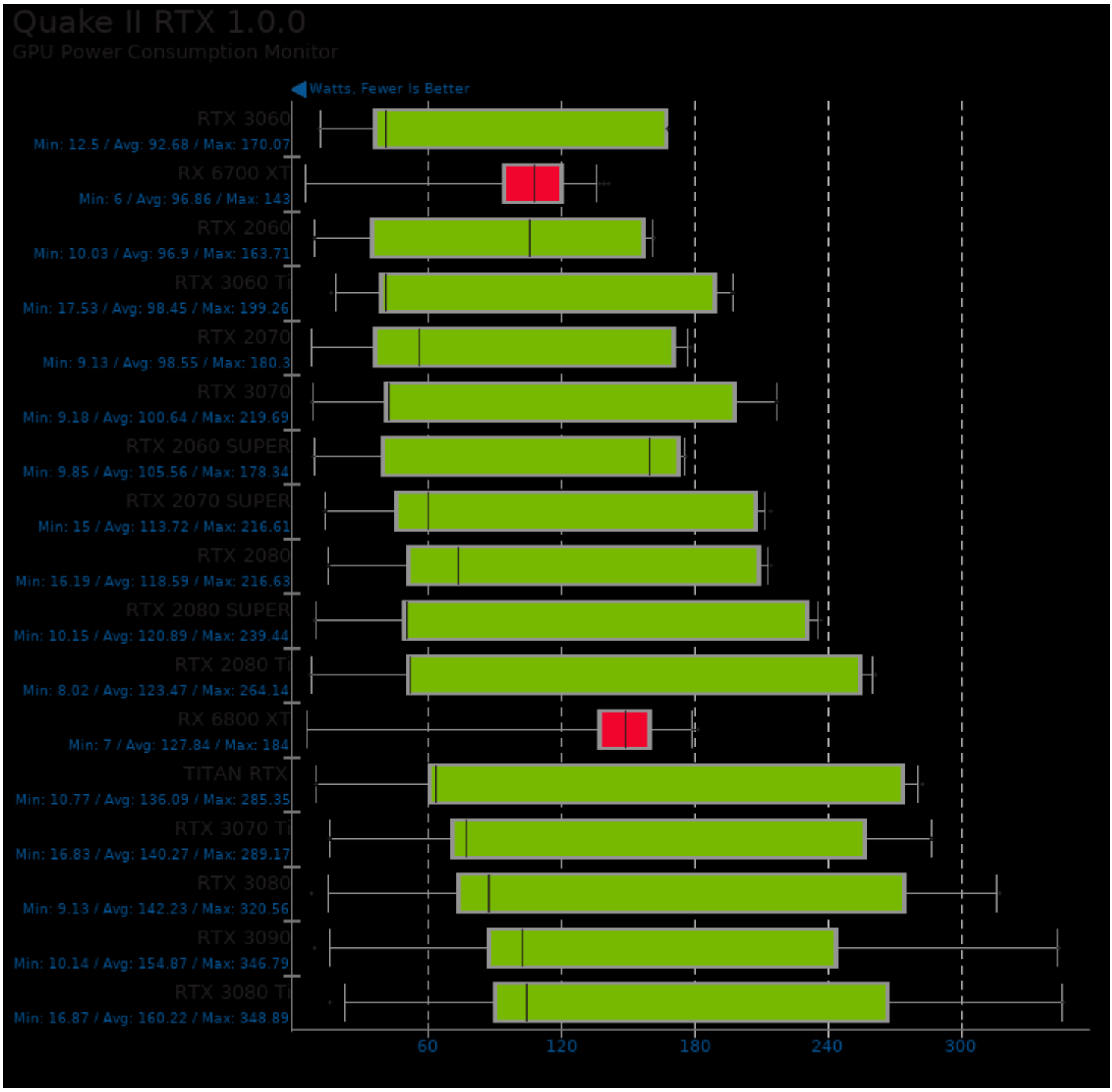

Quake II RTX 1.0.0
Resolution: 3840 x 2160 - Global Illumination: Off - Denoiser: Off - Ray Tracing API: VK_KHR_ray_tracing_pipeline
Frames Per Second Per Watt, More Is Better
RTX 3070
0.635
RTX 3090
0.634
RTX 3080
0.605
RTX 3060 T
0.598
RTX 3080 T
0.592
RTX 3070 T
0.504
RTX 3060
0.493
RTX 2080 T
0.492
TITAN RTX
0.475
RTX 2080 SUPER
0.420
RTX 2070
0.401
RTX 2060 SUPER
0.390
RTX 2080
0.389
RTX 2070 SUPER
0.389
RTX 2060
0.361
RX 6800 XT
0.293
RX 6700 XT
0.234
0.1429
0.2858
0.4287
0.5716
0.7145

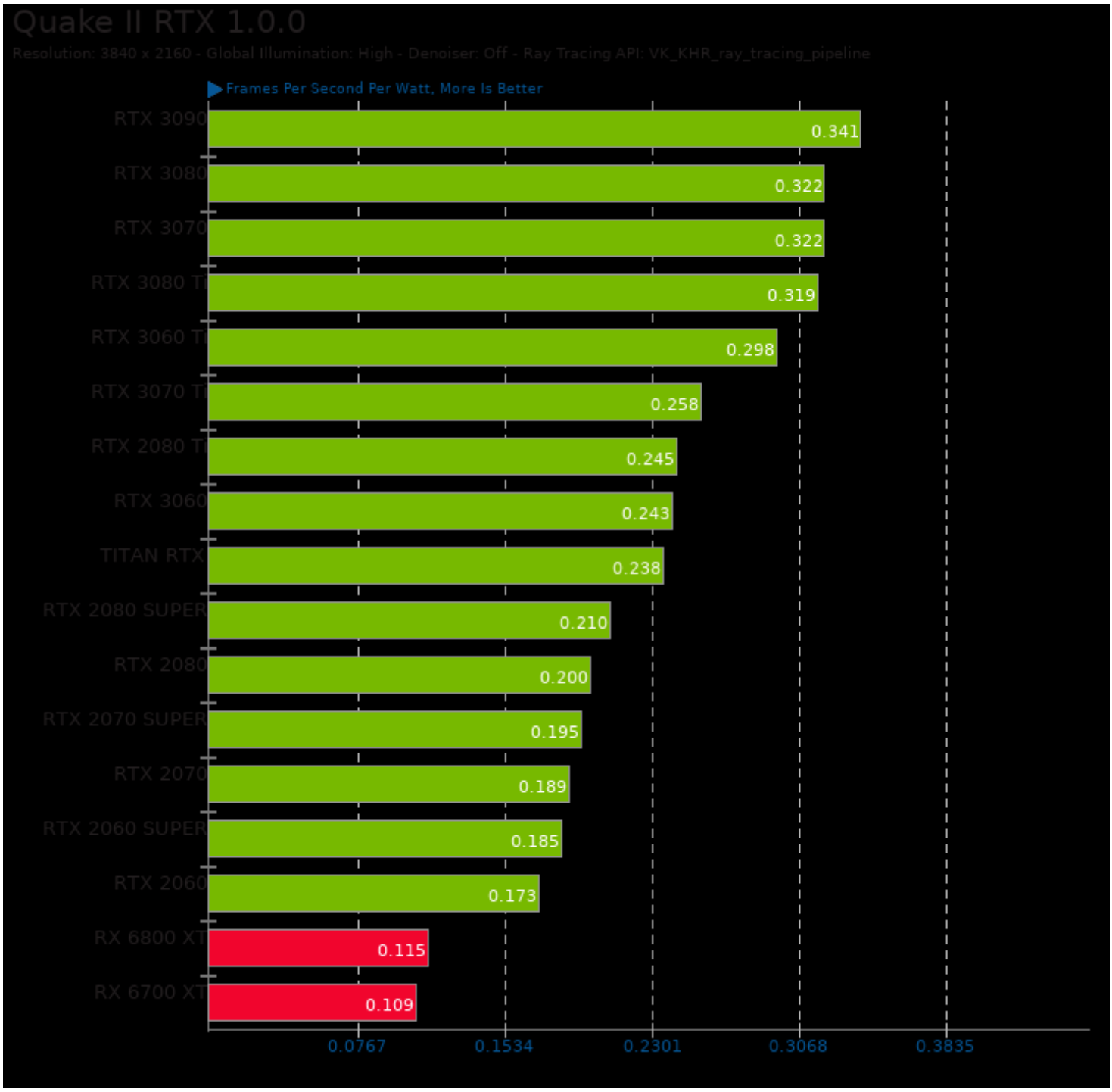

Quake II RTX 1.0.0
GPU Power Consumption Monitor
Watts, Fewer Is Better
RX 6700 XT
Min: 6 / Avg: 64.02 / Max: 95
RX 6800 XT
Min: 7 / Avg: 87.88 / Max: 142
RTX 3060
Min: 13.41 / Avg: 98.56 / Max: 169.85
RTX 2060
Min: 10.27 / Avg: 101.77 / Max: 162.6
RTX 3060 Ti
Min: 17.67 / Avg: 105.44 / Max: 199.51
RTX 2070
Min: 10.03 / Avg: 107.15 / Max: 177.14
RTX 3070
Min: 8.97 / Avg: 108.07 / Max: 219.53
RTX 2060 SUPER
Min: 10.41 / Avg: 108.95 / Max: 179.55
RTX 2070 SUPER
Min: 15.43 / Avg: 124.17 / Max: 219.66
RTX 2080 SUPER
Min: 10.42 / Avg: 128.62 / Max: 243.23
RTX 2080
Min: 17.28 / Avg: 129.29 / Max: 220.28
RTX 2080 Ti
Min: 8.02 / Avg: 133.19 / Max: 265.71
TITAN RTX
Min: 12.75 / Avg: 146.53 / Max: 287.84
RTX 3070 Ti
Min: 18.14 / Avg: 149.16 / Max: 289.2
RTX 3080
Min: 13.31 / Avg: 155.63 / Max: 318.96
RTX 3090
Min: 9.29 / Avg: 165.14 / Max: 346.22
RTX 3080 Ti
Min: 20.29 / Avg: 170.22 / Max: 349.23
60
120
180
240
300

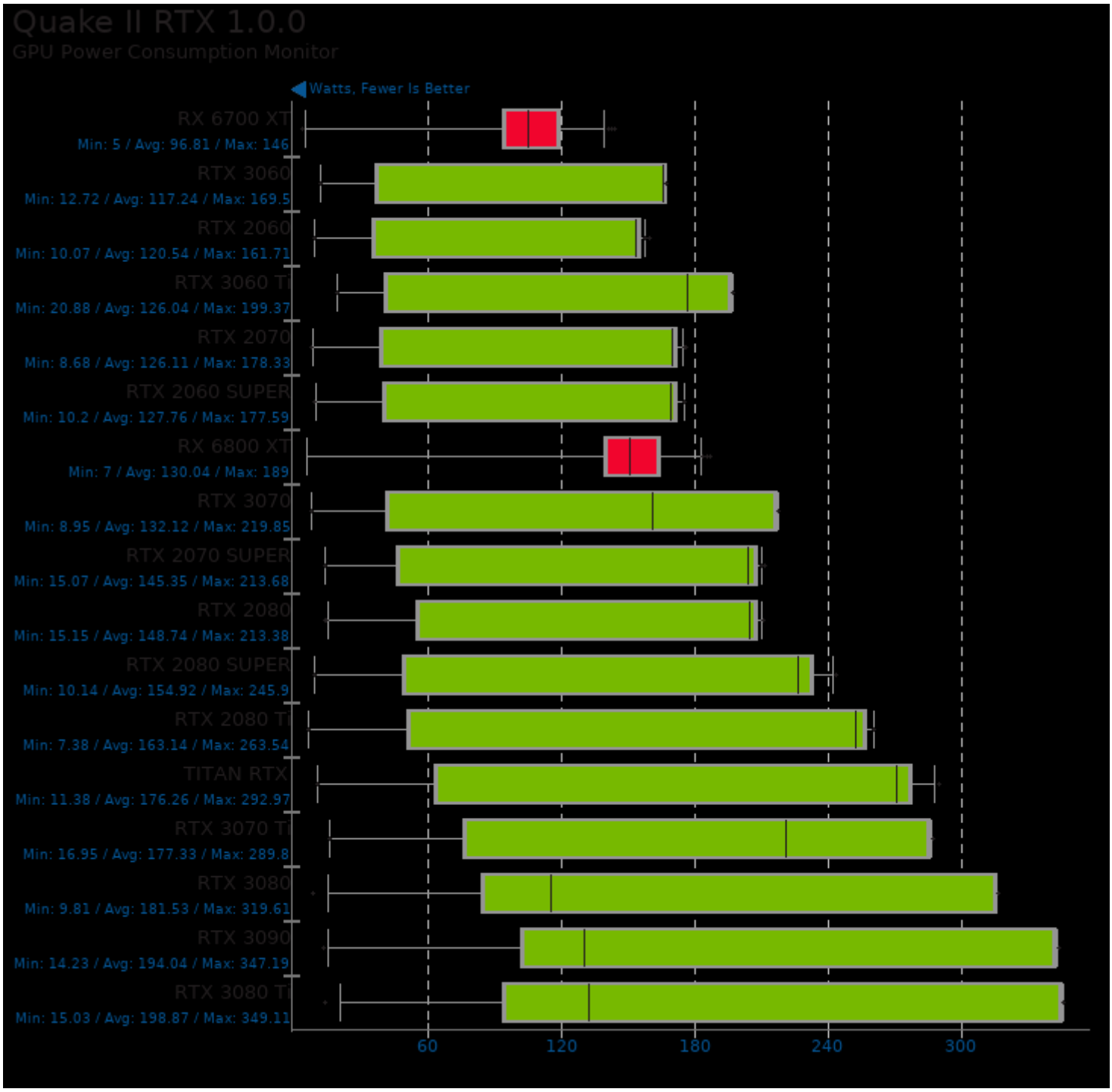

Quake II RTX 1.0.0
Resolution: 1920 x 1080 - Global Illumination: High - Denoiser: Off - Ray Tracing API: VK_KHR_ray_tracing_pipeline
Frames Per Second Per Watt, More Is Better
RTX 3070
1.756
RTX 3060 T
1.597
RTX 3090
1.584
RTX 3080
1.439
RTX 3080 T
1.413
RTX 3070 T
1.324
RTX 3060
1.321
RTX 2080 T
1.289
TITAN RTX
1.253
RTX 2080 SUPER
1.100
RTX 2070 SUPER
1.002
RTX 2080
0.991
RTX 2070
0.960
RTX 2060 SUPER
0.960
RTX 2060
0.881
RX 6800 XT
0.121
RX 6700 XT
0.109
0.3951
0.7902
1.1853
1.5804
1.9755

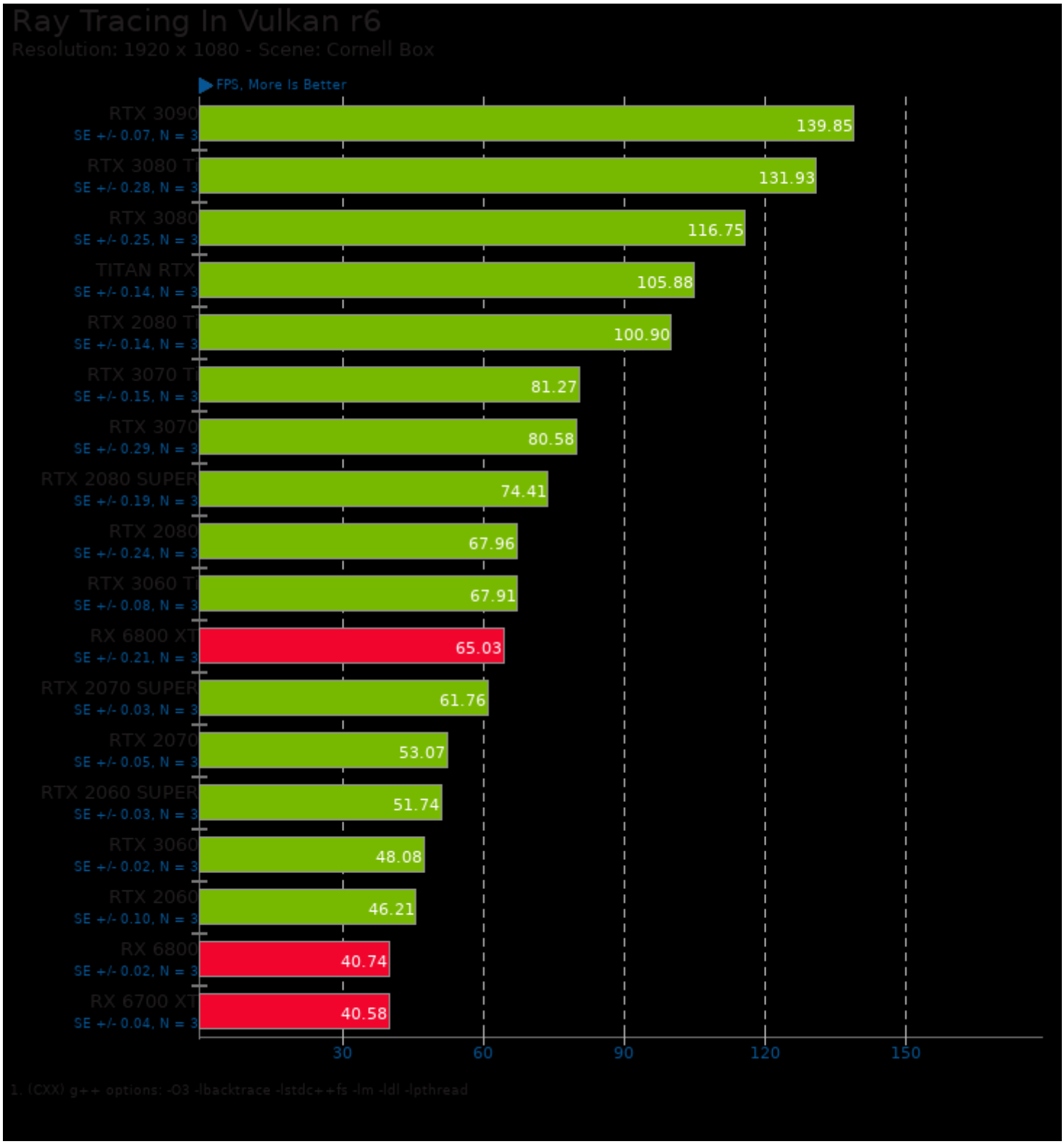

Quake II RTX 1.0.0
GPU Power Consumption Monitor
Watts, Fewer Is Better
RTX 3060
Min: 12.27 / Avg: 76.62 / Max: 169.02
RTX 3070
Min: 8.9 / Avg: 81.44 / Max: 219.57
RTX 3060 Ti
Min: 20.85 / Avg: 81.55 / Max: 199.28
RTX 2060
Min: 9.69 / Avg: 83.14 / Max: 162.57
RTX 2060 SUPER
Min: 9.75 / Avg: 86.62 / Max: 177.35
RTX 2070
Min: 9.89 / Avg: 87.47 / Max: 177.36
RTX 2070 SUPER
Min: 14.83 / Avg: 97.01 / Max: 215.08
RX 6700 XT
Min: 6 / Avg: 97.05 / Max: 146
RTX 2080 SUPER
Min: 10.14 / Avg: 99.31 / Max: 226.35
RTX 2080 Ti
Min: 6.93 / Avg: 101.76 / Max: 263.86
RTX 2080
Min: 17.06 / Avg: 102.02 / Max: 217.41
TITAN RTX
Min: 10.71 / Avg: 109.51 / Max: 287.48
RTX 3070 Ti
Min: 17.79 / Avg: 116.3 / Max: 284.75
RX 6800 XT
Min: 7 / Avg: 123.92 / Max: 184
RTX 3080
Min: 16.14 / Avg: 128.37 / Max: 318.62
RTX 3090
Min: 9.98 / Avg: 133.17 / Max: 346.08
RTX 3080 Ti
Min: 20.1 / Avg: 139.04 / Max: 346.36
60
120
180
240
300

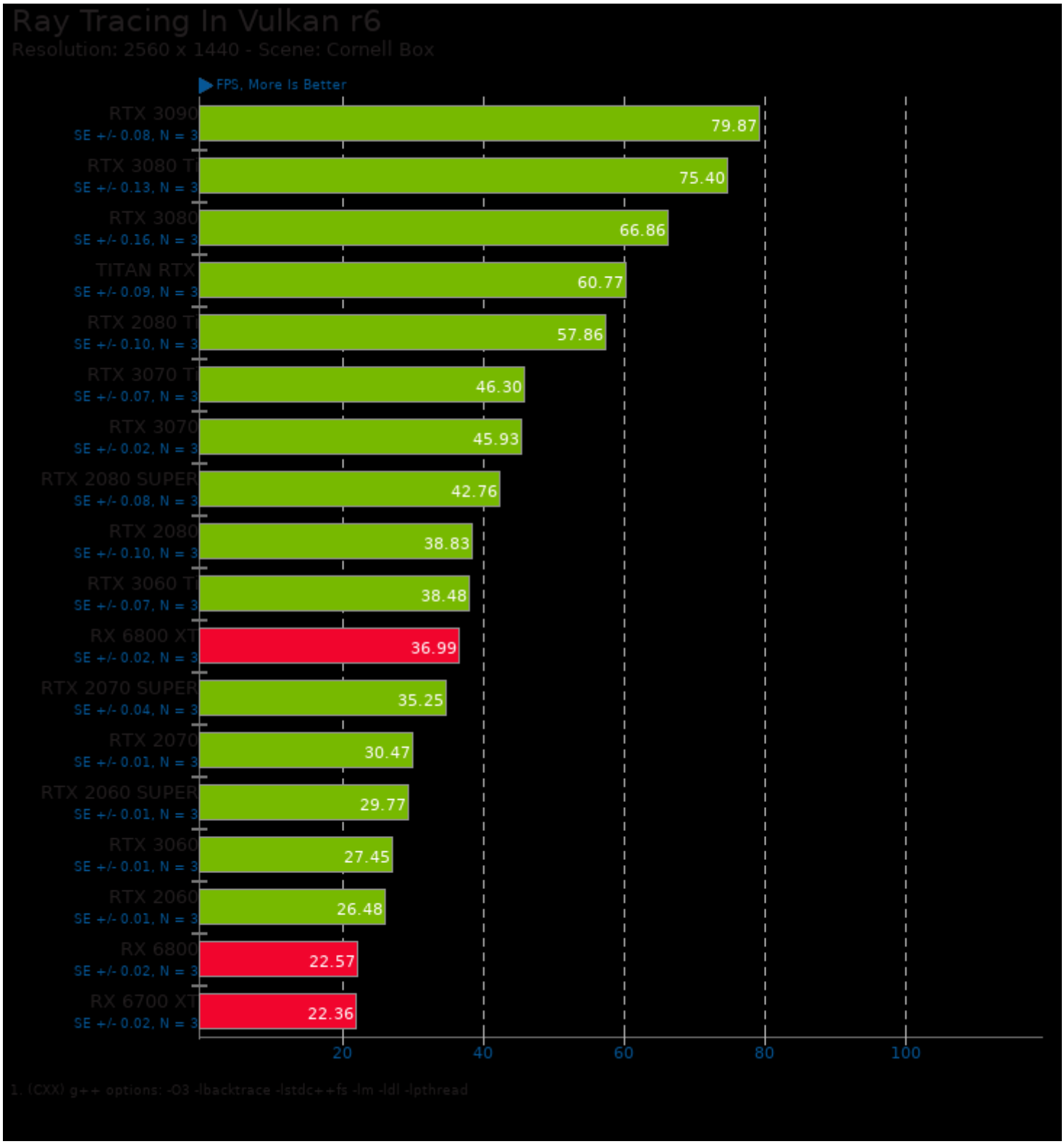

Quake II RTX 1.0.0
Resolution: 2560 x 1440 - Global Illumination: High - Denoiser: Off - Ray Tracing API: VK_KHR_ray_tracing_pipeline
Frames Per Second Per Watt, More Is Better
RTX 3070
0.882
RTX 3090
0.872
RTX 3080
0.831
RTX 3060 Ti
0.808
RTX 3080 Ti
0.804
RTX 3070 Ti
0.686
RTX 2080 Ti
0.665
RTX 3060
0.659
TITAN RTX
0.636
RTX 2080 SUPER
0.566
RTX 2080
0.529
RTX 2070 SUPER
0.527
RTX 2070
0.520
RTX 2060 SUPER
0.481
RTX 2060
0.460
RX 6800 XT
0.117
RX 6700 XT
0.110
0.1985
0.397
0.5955
0.794
0.9925

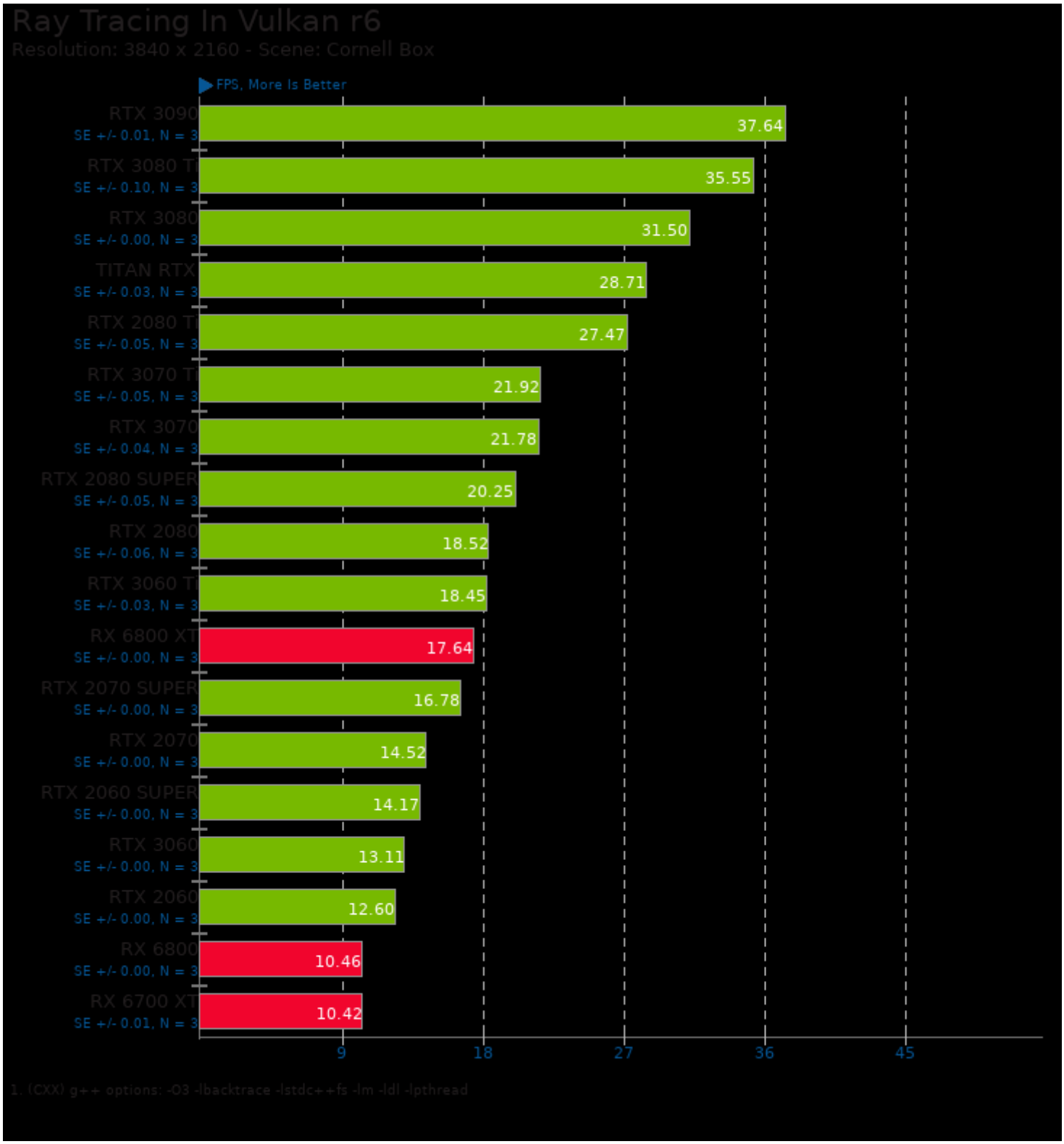

Quake II RTX 1.0.0
GPU Power Consumption Monitor
Watts, Fewer Is Better
RTX 3060
Min: 12.5 / Avg: 92.68 / Max: 170.07
RX 6700 XT
Min: 6 / Avg: 96.86 / Max: 143
RTX 2060
Min: 10.03 / Avg: 96.9 / Max: 163.71
RTX 3060 Ti
Min: 17.53 / Avg: 98.45 / Max: 199.26
RTX 2070
Min: 9.13 / Avg: 98.55 / Max: 180.3
RTX 3070
Min: 9.18 / Avg: 100.64 / Max: 219.69
RTX 2060 SUPER
Min: 9.85 / Avg: 105.56 / Max: 178.34
RTX 2070 SUPER
Min: 15 / Avg: 113.72 / Max: 216.61
RTX 2080
Min: 16.19 / Avg: 118.59 / Max: 216.63
RTX 2080 SUPER
Min: 10.15 / Avg: 120.89 / Max: 239.44
RTX 2080 Ti
Min: 8.02 / Avg: 123.47 / Max: 264.14
RX 6800 XT
Min: 7 / Avg: 127.84 / Max: 184
TITAN RTX
Min: 10.77 / Avg: 136.09 / Max: 285.35
RTX 3070 Ti
Min: 16.83 / Avg: 140.27 / Max: 289.17
RTX 3080
Min: 9.13 / Avg: 142.23 / Max: 320.56
RTX 3090
Min: 10.14 / Avg: 154.87 / Max: 346.79
RTX 3080 Ti
Min: 16.87 / Avg: 160.22 / Max: 348.89
60
120
180
240
300

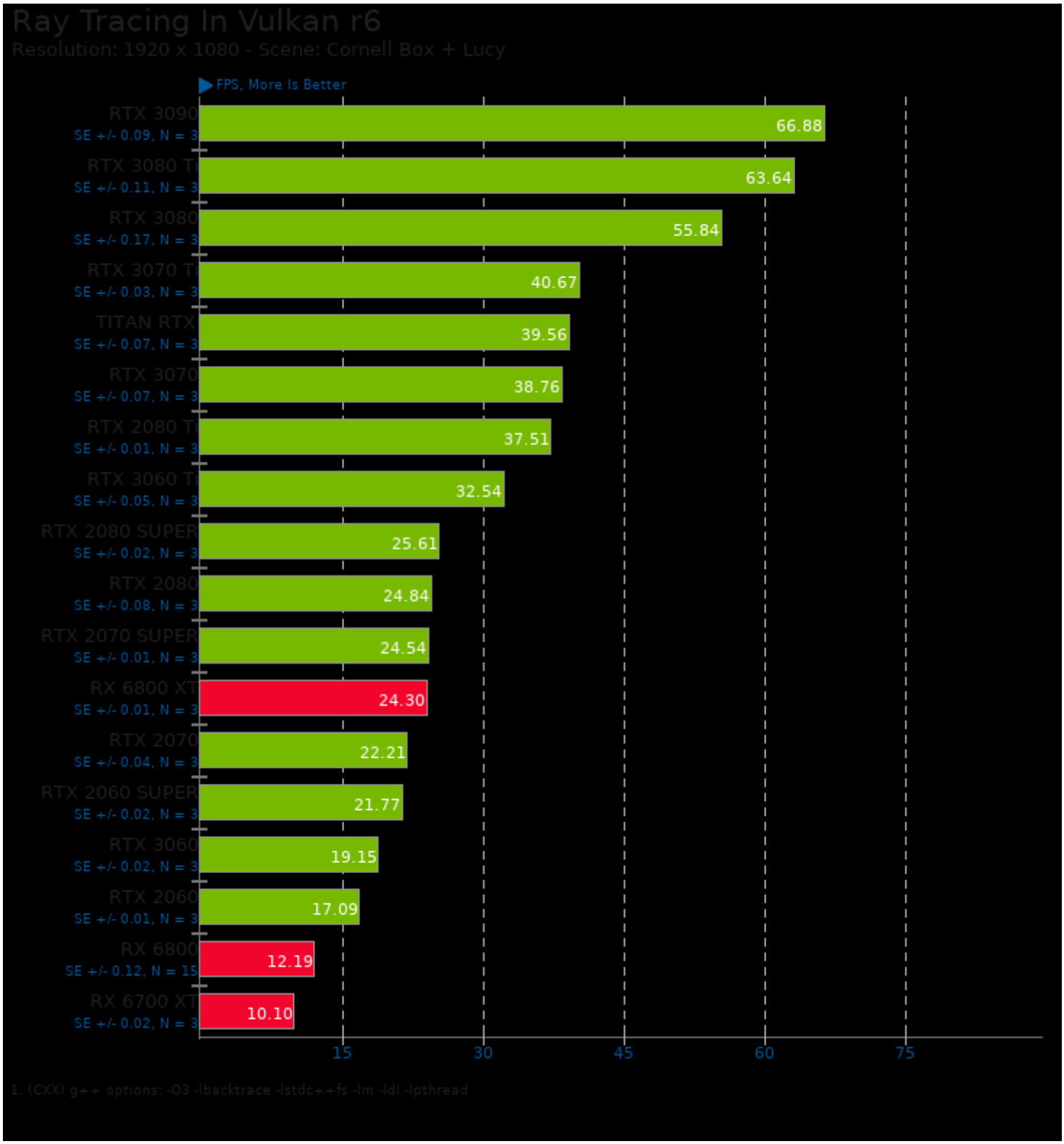

Quake II RTX 1.0.0
Resolution: 3840 x 2160 - Global Illumination: High - Denoiser: Off - Ray Tracing API: VK_KHR_ray_tracing_pipeline
Frames Per Second Per Watt, More Is Better
RTX 3090
0.341
RTX 3080
0.322
RTX 3070
0.322
RTX 3080 Ti
0.319
RTX 3060 Ti
0.298
RTX 3070 Ti
0.258
RTX 2080 Ti
0.245
RTX 3060
0.243
TITAN RTX
0.238
RTX 2080 SUPER
0.210
RTX 2080
0.200
RTX 2070 SUPER
0.195
RTX 2070
0.189
RTX 2060 SUPER
0.185
RTX 2060
0.173
RX 6800 XT
0.115
RX 6700 XT
0.109
0.0767
0.1534
0.2301
0.3068
0.3835

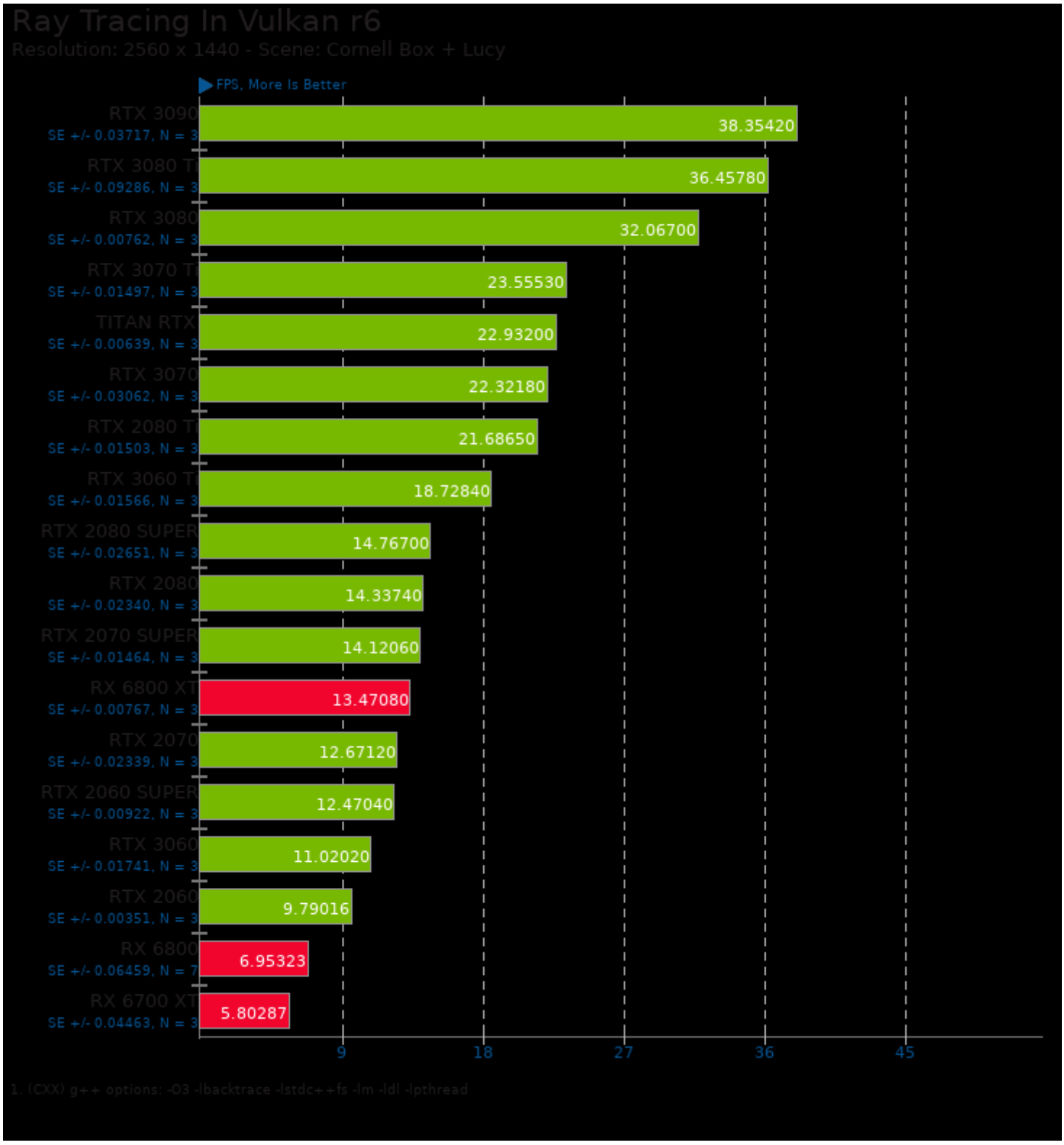

Quake II RTX 1.0.0
GPU Power Consumption Monitor
Watts, Fewer Is Better
RX 6700 XT
Min: 5 / Avg: 96.81 / Max: 146
RTX 3060
Min: 12.72 / Avg: 117.24 / Max: 169.5
RTX 2060
Min: 10.07 / Avg: 120.54 / Max: 161.71
RTX 3060 Ti
Min: 20.88 / Avg: 126.04 / Max: 199.37
RTX 2070
Min: 8.68 / Avg: 126.11 / Max: 178.33
RTX 2060 SUPER
Min: 10.2 / Avg: 127.76 / Max: 177.59
RX 6800 XT
Min: 7 / Avg: 130.04 / Max: 189
RTX 3070
Min: 8.95 / Avg: 132.12 / Max: 219.85
RTX 2070 SUPER
Min: 15.07 / Avg: 145.35 / Max: 213.68
RTX 2080
Min: 15.15 / Avg: 148.74 / Max: 213.38
RTX 2080 SUPER
Min: 10.14 / Avg: 154.92 / Max: 245.9
RTX 2080 Ti
Min: 7.38 / Avg: 163.14 / Max: 263.54
TITAN RTX
Min: 11.38 / Avg: 176.26 / Max: 292.97
RTX 3070 Ti
Min: 16.95 / Avg: 177.33 / Max: 289.8
RTX 3080
Min: 9.81 / Avg: 181.53 / Max: 319.61
RTX 3090
Min: 14.23 / Avg: 194.04 / Max: 347.19
RTX 3080 Ti
Min: 15.03 / Avg: 198.87 / Max: 349.11
60
120
180
240
300

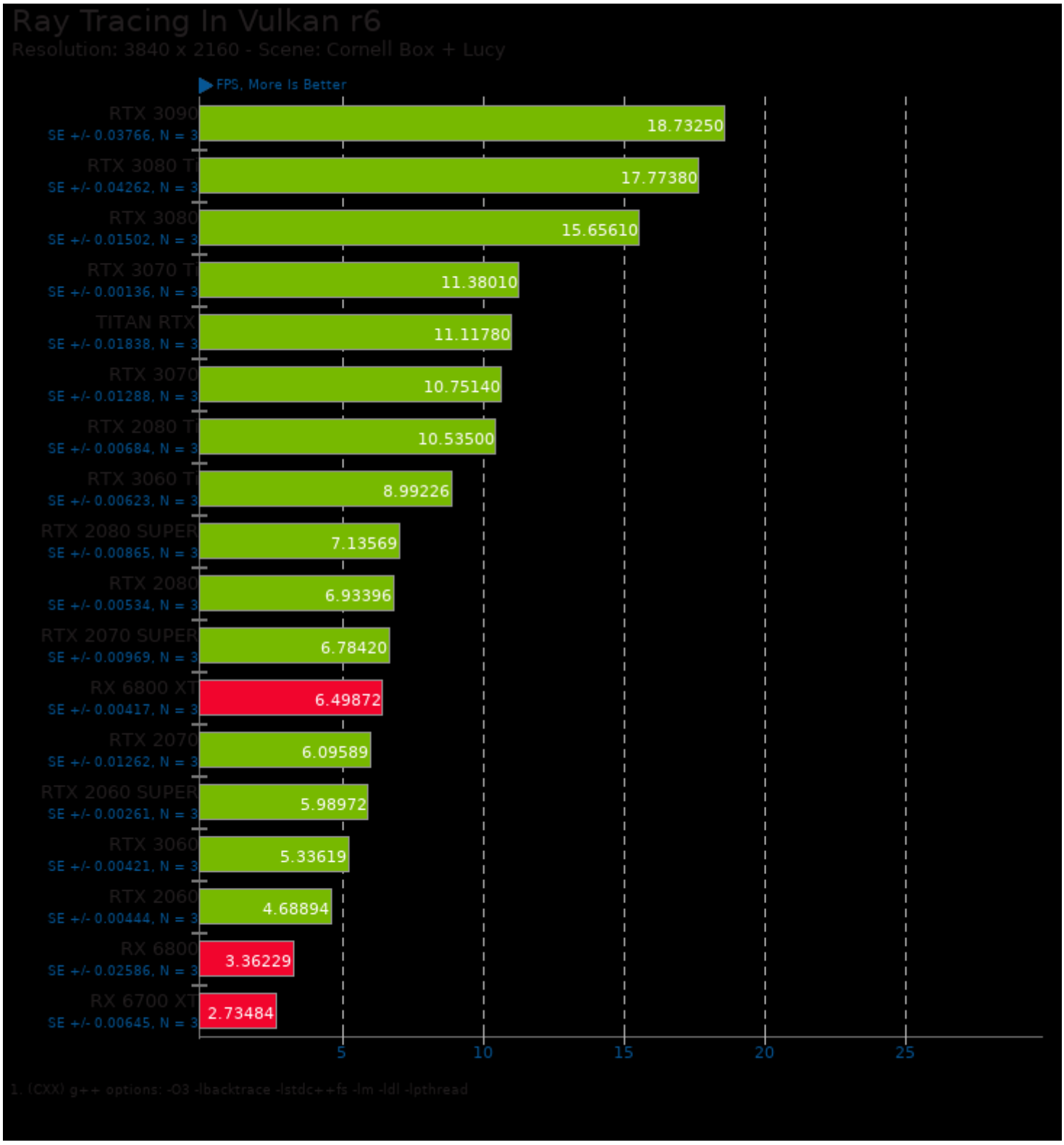

Ray Tracing In Vulkan r6
Resolution: 1920 x 1080 - Scene: Cornell Box
FPS, More Is Better
RTX 3090
SE +/- 0.07, N = 3
139.85
RTX 3080 T
SE +/- 0.28, N = 3
131.93
RTX 3080
SE +/- 0.25, N = 3
116.75
TITAN RTX
SE +/- 0.14, N = 3
105.88
RTX 2080 T
SE +/- 0.14, N = 3
100.90
RTX 3070 T
SE +/- 0.15, N = 3
81.27
RTX 3070
SE +/- 0.29, N = 3
80.58
RTX 2080 SUPER
SE +/- 0.19, N = 3
74.41
RTX 2080
SE +/- 0.24, N = 3
67.96
RTX 3060 T
SE +/- 0.08, N = 3
67.91
RX 6800 XT
SE +/- 0.21, N = 3
65.03
RTX 2070 SUPER
SE +/- 0.03, N = 3
61.76
RTX 2070
SE +/- 0.05, N = 3
53.07
RTX 2060 SUPER
SE +/- 0.03, N = 3
51.74
RTX 3060
SE +/- 0.02, N = 3
48.08
RTX 2060
SE +/- 0.10, N = 3
46.21
RX 6800
SE +/- 0.02, N = 3
40.74
RX 6700 XT
SE +/- 0.04, N = 3
40.58
30
60
90
120
150
1. (CXX) g++ options: -O3 -lbacktrace -lstdc++fs -lm -ldl -lpthread

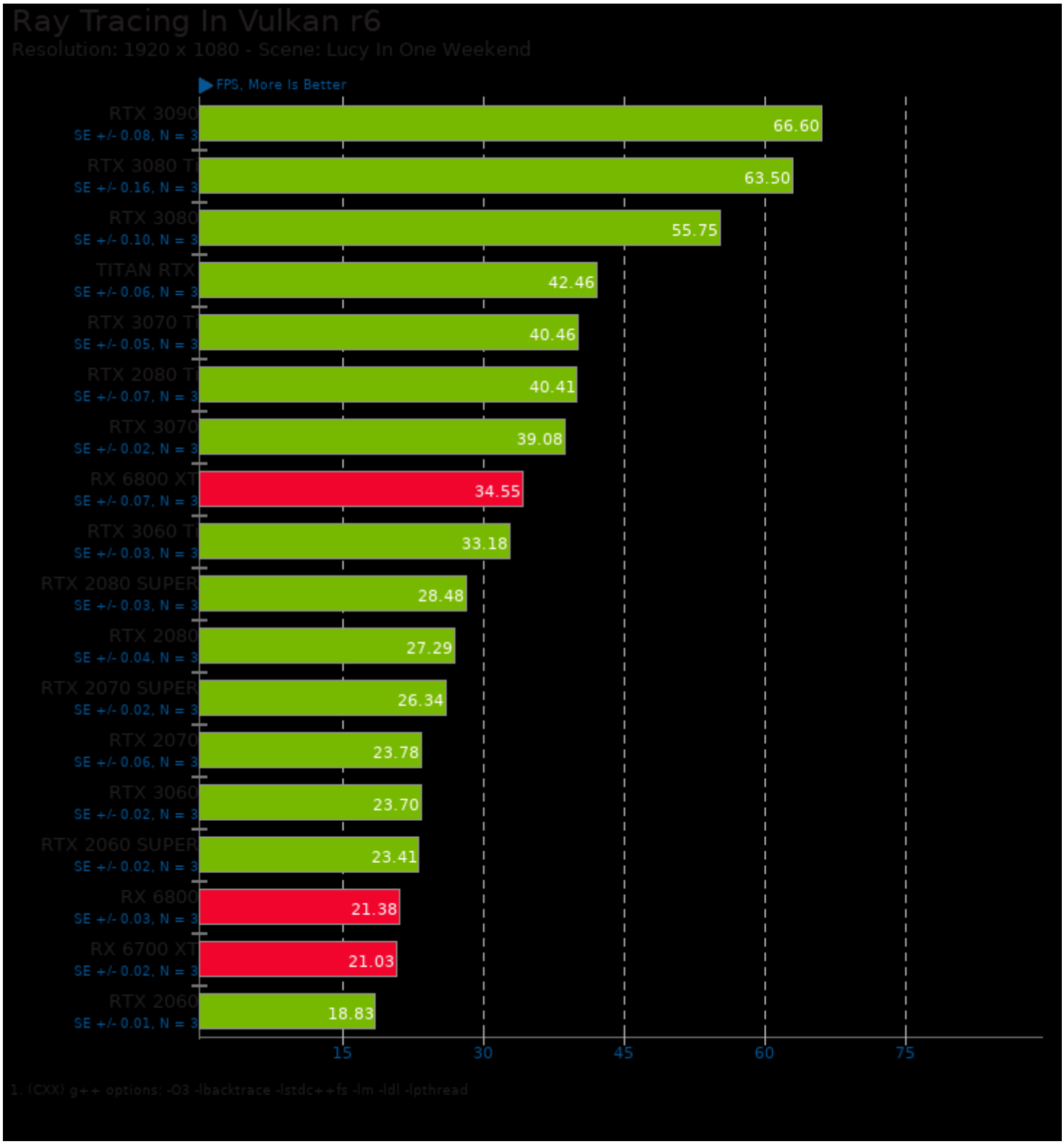

Ray Tracing In Vulkan r6
Resolution: 2560 x 1440 - Scene: Cornell Box
FPS, More Is Better
RTX 3090
SE +/- 0.08, N = 3
79.87
RTX 3080 T
SE +/- 0.13, N = 3
75.40
RTX 3080
SE +/- 0.16, N = 3
66.86
TITAN RTX
SE +/- 0.09, N = 3
60.77
RTX 2080 T
SE +/- 0.10, N = 3
57.86
RTX 3070 T
SE +/- 0.07, N = 3
46.30
RTX 3070
SE +/- 0.02, N = 3
45.93
RTX 2080 SUPER
SE +/- 0.08, N = 3
42.76
RTX 2080
SE +/- 0.10, N = 3
38.83
RTX 3060 T
SE +/- 0.07, N = 3
38.48
RX 6800 XT
SE +/- 0.02, N = 3
36.99
RTX 2070 SUPER
SE +/- 0.04, N = 3
35.25
RTX 2070
SE +/- 0.01, N = 3
30.47
RTX 2060 SUPER
SE +/- 0.01, N = 3
29.77
RTX 3060
SE +/- 0.01, N = 3
27.45
RTX 2060
SE +/- 0.01, N = 3
26.48
RX 6800
SE +/- 0.02, N = 3
22.57
RX 6700 XT
SE +/- 0.02, N = 3
22.36
20
40
60
80
100
1. (CXX) g++ options: -O3 -lbacktrace -lstdc++fs -lm -ldl -lpthread

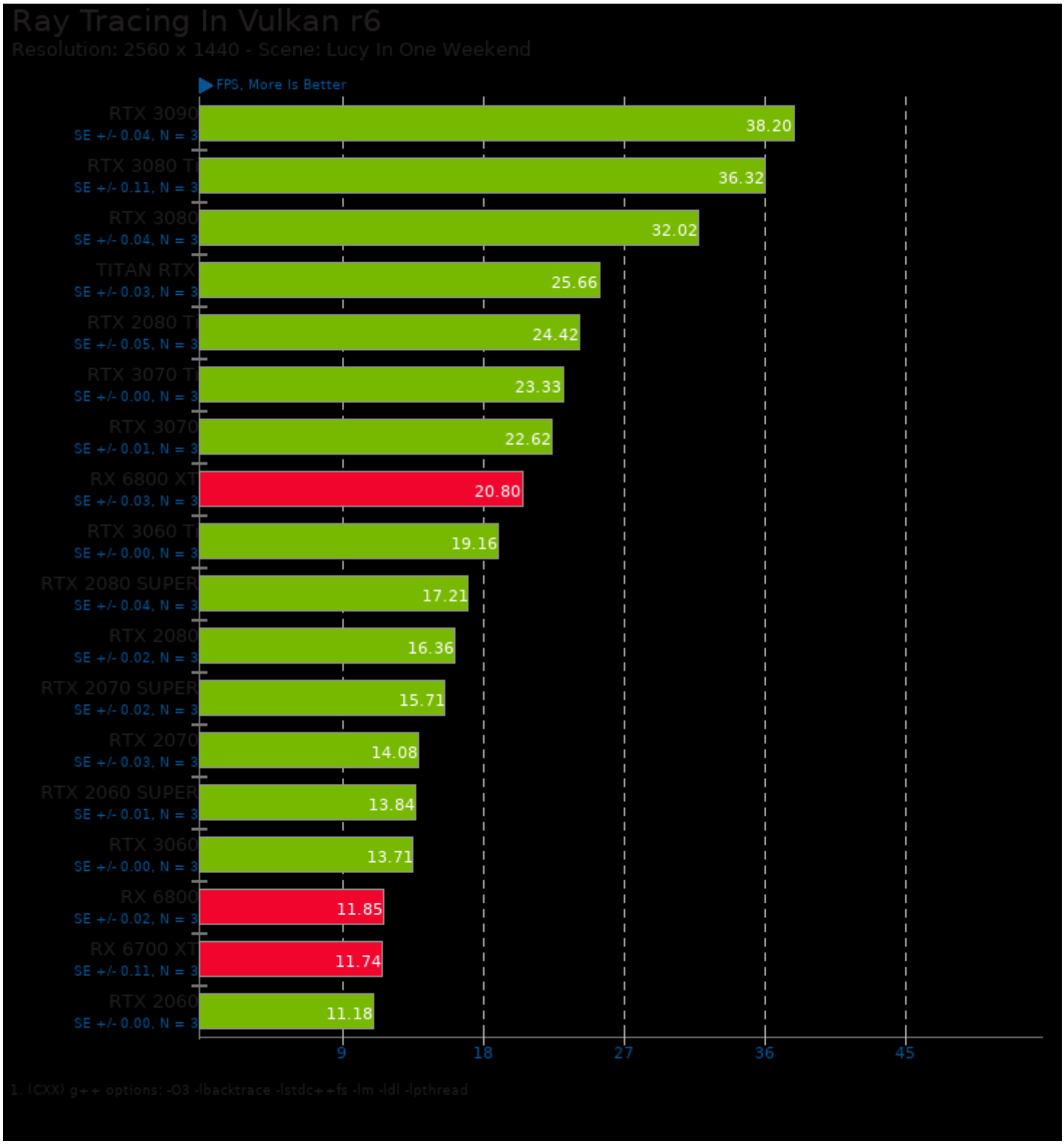

Ray Tracing In Vulkan r6
Resolution: 3840 x 2160 - Scene: Cornell Box
FPS, More Is Better
RTX 3090
SE +/- 0.01, N = 3
37.64
RTX 3080 T
SE +/- 0.10, N = 3
35.55
RTX 3080
SE +/- 0.00, N = 3
31.50
TITAN RTX
SE +/- 0.03, N = 3
28.71
RTX 2080 T
SE +/- 0.05, N = 3
27.47
RTX 3070 T
SE +/- 0.05, N = 3
21.92
RTX 3070
SE +/- 0.04, N = 3
21.78
RTX 2080 SUPER
SE +/- 0.05, N = 3
20.25
RTX 2080
SE +/- 0.06, N = 3
18.52
RTX 3060 T
SE +/- 0.03, N = 3
18.45
RX 6800 XT
SE +/- 0.00, N = 3
17.64
RTX 2070 SUPER
SE +/- 0.00, N = 3
16.78
RTX 2070
SE +/- 0.00, N = 3
14.52
RTX 2060 SUPER
SE +/- 0.00, N = 3
14.17
RTX 3060
SE +/- 0.00, N = 3
13.11
RTX 2060
SE +/- 0.00, N = 3
12.60
RX 6800
SE +/- 0.00, N = 3
10.46
RX 6700 XT
SE +/- 0.01, N = 3
10.42
9
18
27
36
45
1. (CXX) g++ options: -O3 -lbacktrace -lstdc++fs -lm -ldl -lpthread

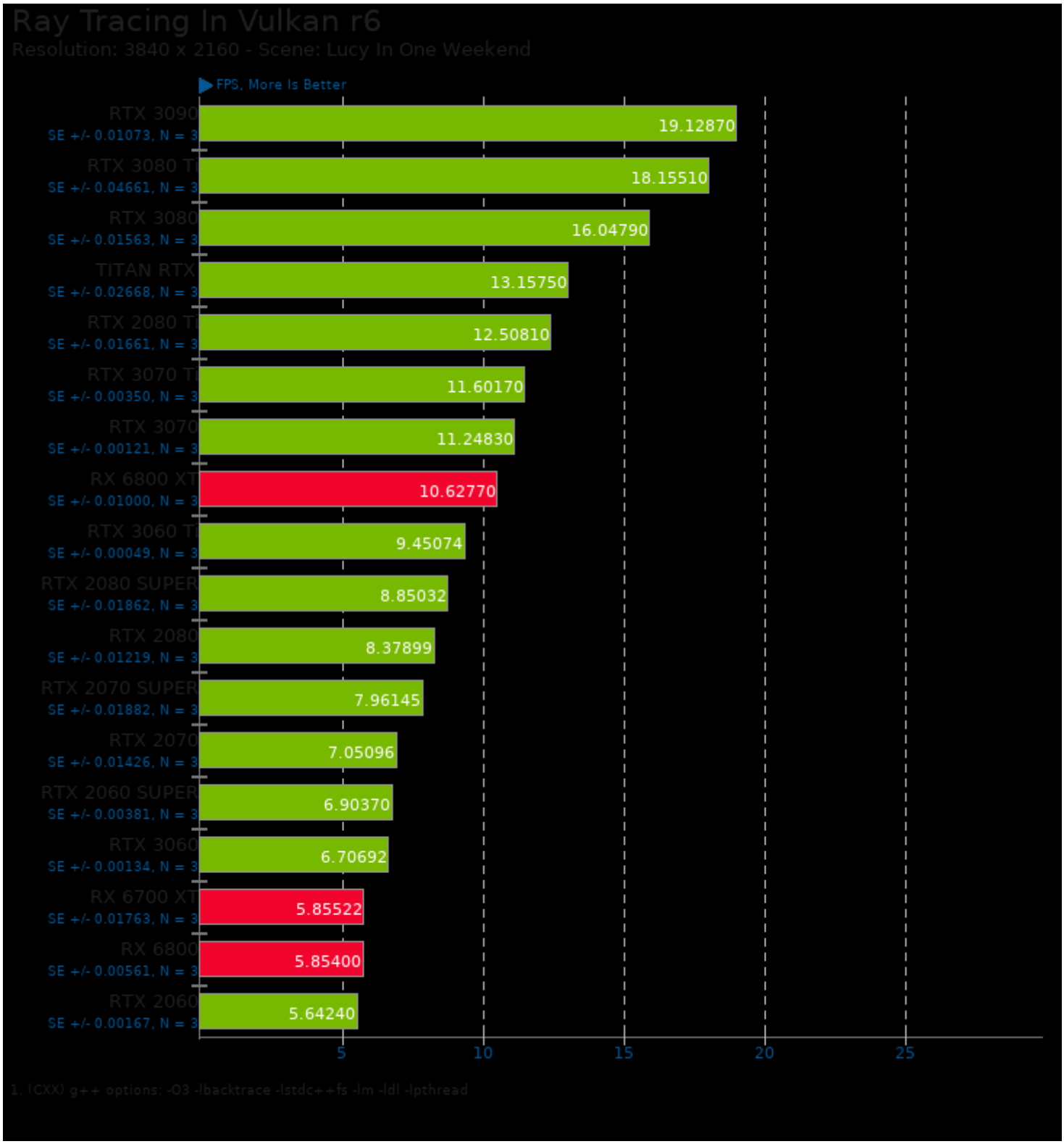

Ray Tracing In Vulkan r6
Resolution: 1920 x 1080 - Scene: Cornell Box + Lucy
FPS, More Is Better
RTX 3090
SE +/- 0.09, N = 3
66.88
RTX 3080 T
SE +/- 0.11, N = 3
63.64
RTX 3080
SE +/- 0.17, N = 3
55.84
RTX 3070 T
SE +/- 0.03, N = 3
40.67
TITAN RTX
SE +/- 0.07, N = 3
39.56
RTX 3070
SE +/- 0.07, N = 3
38.76
RTX 2080 T
SE +/- 0.01, N = 3
37.51
RTX 3060 T
SE +/- 0.05, N = 3
32.54
RTX 2080 SUPER
SE +/- 0.02, N = 3
25.61
RTX 2080
SE +/- 0.08, N = 3
24.84
RTX 2070 SUPER
SE +/- 0.01, N = 3
24.54
RX 6800 XT
SE +/- 0.01, N = 3
24.30
RTX 2070
SE +/- 0.04, N = 3
22.21
RTX 2060 SUPER
SE +/- 0.02, N = 3
21.77
RTX 3060
SE +/- 0.02, N = 3
19.15
RTX 2060
SE +/- 0.01, N = 3
17.09
RX 6800
SE +/- 0.12, N = 15
12.19
RX 6700 XT
SE +/- 0.02, N = 3
10.10
15
30
45
60
75
1. (CXX) g++ options: -O3 -lbacktrace -lstdc++fs -lm -ldl -lpthread

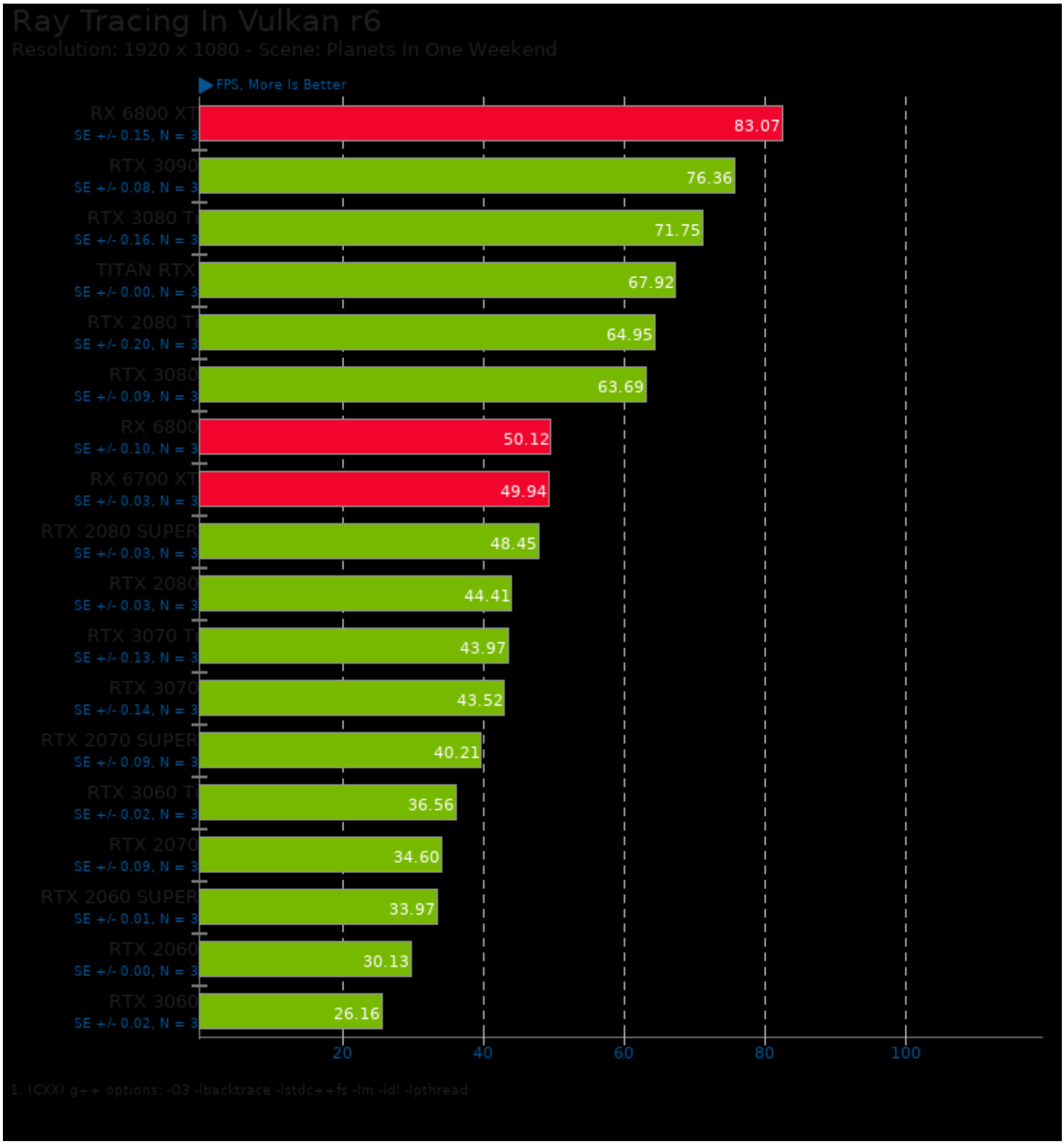

Ray Tracing In Vulkan r6
Resolution: 2560 x 1440 - Scene: Cornell Box + Lucy
FPS, More Is Better
RTX 3090
SE +/- 0.03717, N = 3
38.35420
RTX 3080 T
SE +/- 0.09286, N = 3
36.45780
RTX 3080
SE +/- 0.00762, N = 3
32.06700
RTX 3070 T
SE +/- 0.01497, N = 3
23.55530
TITAN RTX
SE +/- 0.00639, N = 3
22.93200
RTX 3070
SE +/- 0.03062, N = 3
22.32180
RTX 2080 T
SE +/- 0.01503, N = 3
21.68650
RTX 3060 T
SE +/- 0.01566, N = 3
18.72840
RTX 2080 SUPER
SE +/- 0.02651, N = 3
14.76700
RTX 2080
SE +/- 0.02340, N = 3
14.33740
RTX 2070 SUPER
SE +/- 0.01464, N = 3
14.12060
RX 6800 XT
SE +/- 0.00767, N = 3
13.47080
RTX 2070
SE +/- 0.02339, N = 3
12.67120
RTX 2060 SUPER
SE +/- 0.00922, N = 3
12.47040
RTX 3060
SE +/- 0.01741, N = 3
11.02020
RTX 2060
SE +/- 0.00351, N = 3
9.79016
RX 6800
SE +/- 0.06459, N = 7
6.95323
RX 6700 XT
SE +/- 0.04463, N = 3
5.80287
9
18
27
36
45
1. (CXX) g++ options: -O3 -lbacktrace -lstdc++fs -lm -ldl -lpthread

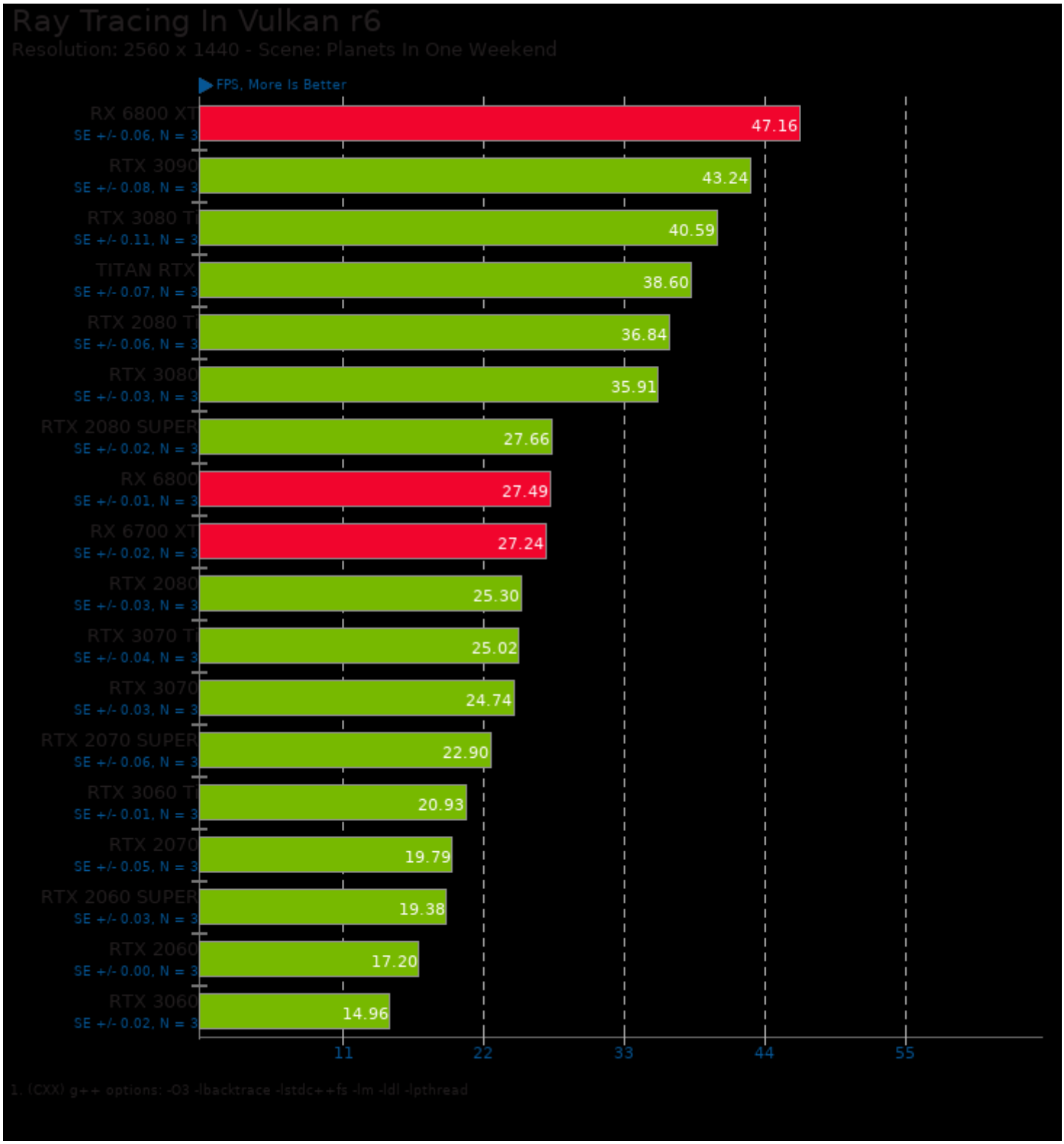

Ray Tracing In Vulkan r6
Resolution: 3840 x 2160 - Scene: Cornell Box + Lucy
FPS, More Is Better
RTX 3090
SE +/- 0.03766, N = 3
18.73250
RTX 3080 T
SE +/- 0.04262, N = 3
17.77380
RTX 3080
SE +/- 0.01502, N = 3
15.65610
RTX 3070 T
SE +/- 0.00136, N = 3
11.38010
TITAN RTX
SE +/- 0.01838, N = 3
11.11780
RTX 3070
SE +/- 0.01288, N = 3
10.75140
RTX 2080 T
SE +/- 0.00684, N = 3
10.53500
RTX 3060 T
SE +/- 0.00623, N = 3
8.99226
RTX 2080 SUPER
SE +/- 0.00865, N = 3
7.13569
RTX 2080
SE +/- 0.00534, N = 3
6.93396
RTX 2070 SUPER
SE +/- 0.00969, N = 3
6.78420
RX 6800 XT
SE +/- 0.00417, N = 3
6.49872
RTX 2070
SE +/- 0.01262, N = 3
6.09589
RTX 2060 SUPER
SE +/- 0.00261, N = 3
5.98972
RTX 3060
SE +/- 0.00421, N = 3
5.33619
RTX 2060
SE +/- 0.00444, N = 3
4.68894
RX 6800
SE +/- 0.02586, N = 3
3.36229
RX 6700 XT
SE +/- 0.00645, N = 3
2.73484
5
10
15
20
25
1. (CXX) g++ options: -O3 -lbacktrace -lstdc++fs -lm -ldl -lpthread

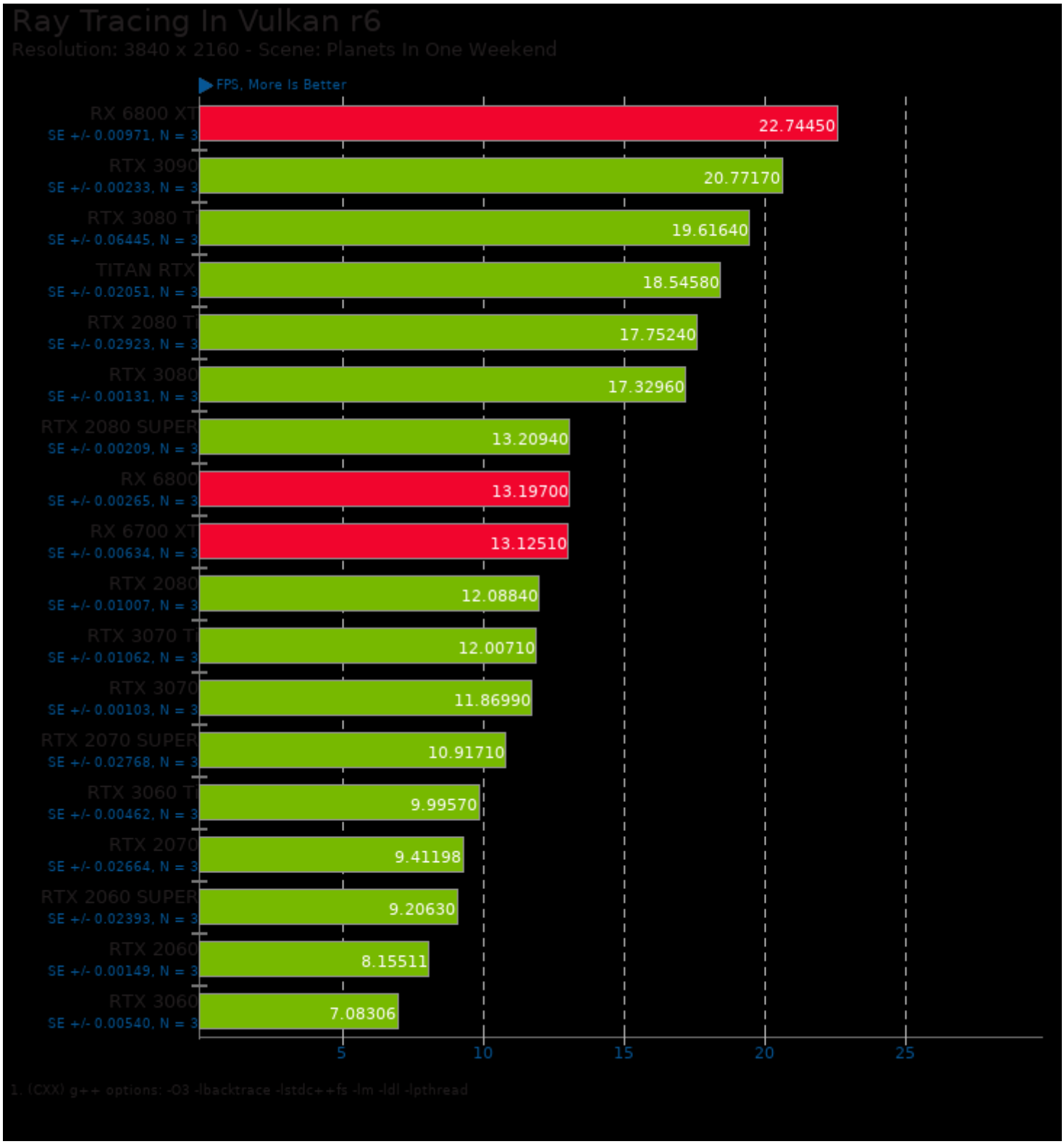

Ray Tracing In Vulkan r6
Resolution: 1920 x 1080 - Scene: Lucy In One Weekend
FPS, More Is Better
RTX 3090
SE +/- 0.08, N = 3
66.60
RTX 3080 Ti
SE +/- 0.16, N = 3
63.50
RTX 3080
SE +/- 0.10, N = 3
55.75
TITAN RTX
SE +/- 0.06, N = 3
42.46
RTX 3070 Ti
SE +/- 0.05, N = 3
40.46
RTX 2080 Ti
SE +/- 0.07, N = 3
40.41
RTX 3070
SE +/- 0.02, N = 3
39.08
RX 6800 XT
SE +/- 0.07, N = 3
34.55
RTX 3060 Ti
SE +/- 0.03, N = 3
33.18
RTX 2080 SUPER
SE +/- 0.03, N = 3
28.48
RTX 2080
SE +/- 0.04, N = 3
27.29
RTX 2070 SUPER
SE +/- 0.02, N = 3
26.34
RTX 2070
SE +/- 0.06, N = 3
23.78
RTX 3060
SE +/- 0.02, N = 3
23.70
RTX 2060 SUPER
SE +/- 0.02, N = 3
23.41
RX 6800
SE +/- 0.03, N = 3
21.38
RX 6700 XT
SE +/- 0.02, N = 3
21.03
RTX 2060
SE +/- 0.01, N = 3
18.83
15
30
45
60
75
1. (CXX) g++ options: -O3 -lbacktrace -lstdc++fs -lm -ldl -lpthread

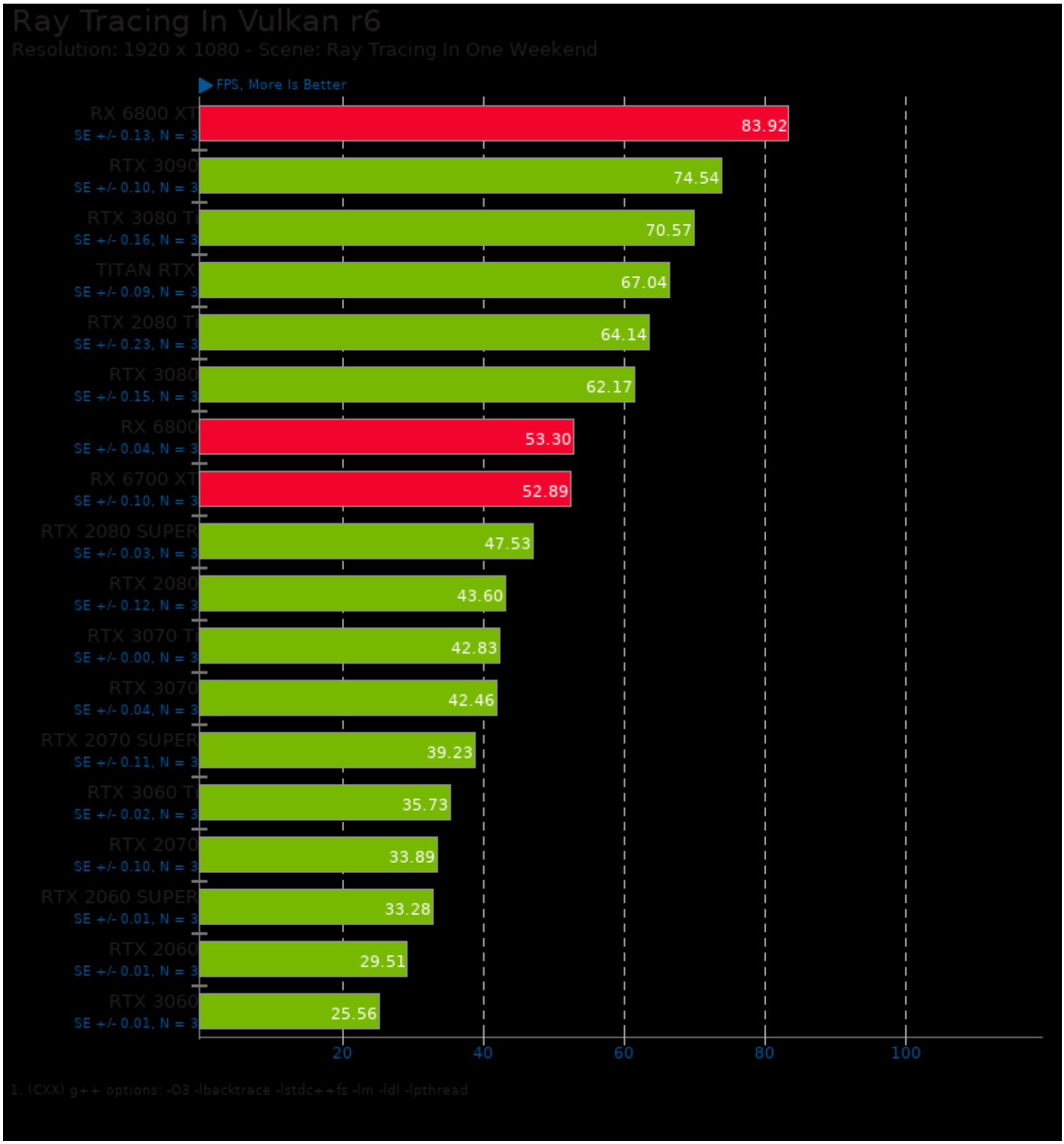

Ray Tracing In Vulkan r6
Resolution: 2560 x 1440 - Scene: Lucy In One Weekend
FPS, More Is Better
RTX 3090
SE +/- 0.04, N = 3
38.20
RTX 3080 Ti
SE +/- 0.11, N = 3
36.32
RTX 3080
SE +/- 0.04, N = 3
32.02
TITAN RTX
SE +/- 0.03, N = 3
25.66
RTX 2080 Ti
SE +/- 0.05, N = 3
24.42
RTX 3070 Ti
SE +/- 0.00, N = 3
23.33
RTX 3070
SE +/- 0.01, N = 3
22.62
RX 6800 XT
SE +/- 0.03, N = 3
20.80
RTX 3060 Ti
SE +/- 0.00, N = 3
19.16
RTX 2080 SUPER
SE +/- 0.04, N = 3
17.21
RTX 2080
SE +/- 0.02, N = 3
16.36
RTX 2070 SUPER
SE +/- 0.02, N = 3
15.71
RTX 2070
SE +/- 0.03, N = 3
14.08
RTX 2060 SUPER
SE +/- 0.01, N = 3
13.84
RTX 3060
SE +/- 0.00, N = 3
13.71
RX 6800
SE +/- 0.02, N = 3
11.85
RX 6700 XT
SE +/- 0.11, N = 3
11.74
RTX 2060
SE +/- 0.00, N = 3
11.18
9
18
27
36
45
1. (CXX) g++ options: -O3 -lbacktrace -lstdc++fs -lm -ldl -lpthread

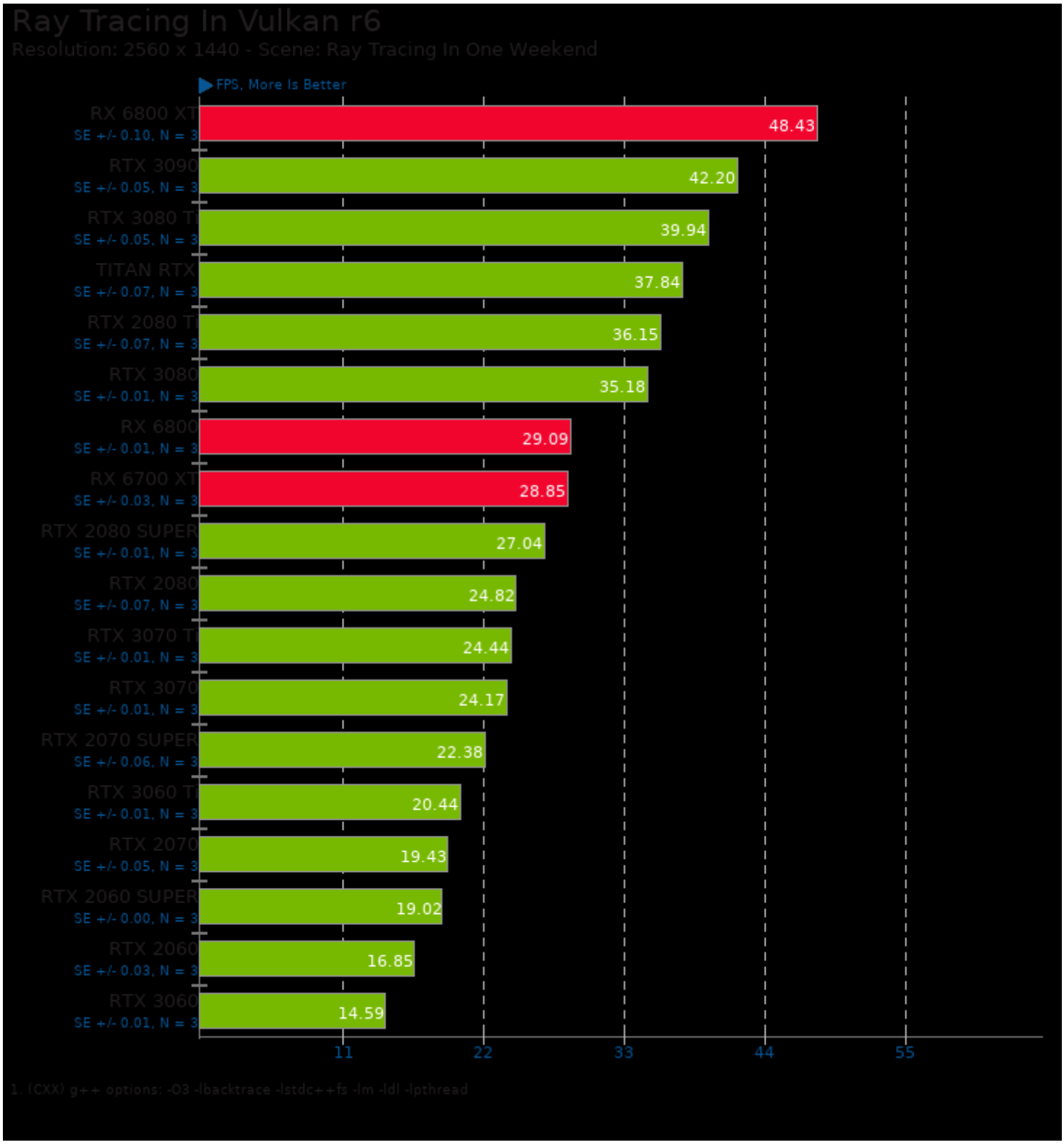

Ray Tracing In Vulkan r6
Resolution: 3840 x 2160 - Scene: Lucy In One Weekend
FPS, More Is Better
RTX 3090
SE +/- 0.01073, N = 3
19.12870
RTX 3080 Ti
SE +/- 0.04661, N = 3
18.15510
RTX 3080
SE +/- 0.01563, N = 3
16.04790
TITAN RTX
SE +/- 0.02668, N = 3
13.15750
RTX 2080 Ti
SE +/- 0.01661, N = 3
12.50810
RTX 3070 Ti
SE +/- 0.00350, N = 3
11.60170
RTX 3070
SE +/- 0.00121, N = 3
11.24830
RX 6800 XT
SE +/- 0.01000, N = 3
10.62770
RTX 3060 Ti
SE +/- 0.00049, N = 3
9.45074
RTX 2080 SUPER
SE +/- 0.01862, N = 3
8.85032
RTX 2080
SE +/- 0.01219, N = 3
8.37899
RTX 2070 SUPER
SE +/- 0.01882, N = 3
7.96145
RTX 2070
SE +/- 0.01426, N = 3
7.05096
RTX 2060 SUPER
SE +/- 0.00381, N = 3
6.90370
RTX 3060
SE +/- 0.00134, N = 3
6.70692
RX 6700 XT
SE +/- 0.01763, N = 3
5.85522
RX 6800
SE +/- 0.00561, N = 3
5.85400
RTX 2060
SE +/- 0.00167, N = 3
5.64240
5
10
15
20
25
1. (CXX) g++ options: -O3 -lbacktrace -lstdc++fs -lm -ldl -lpthread

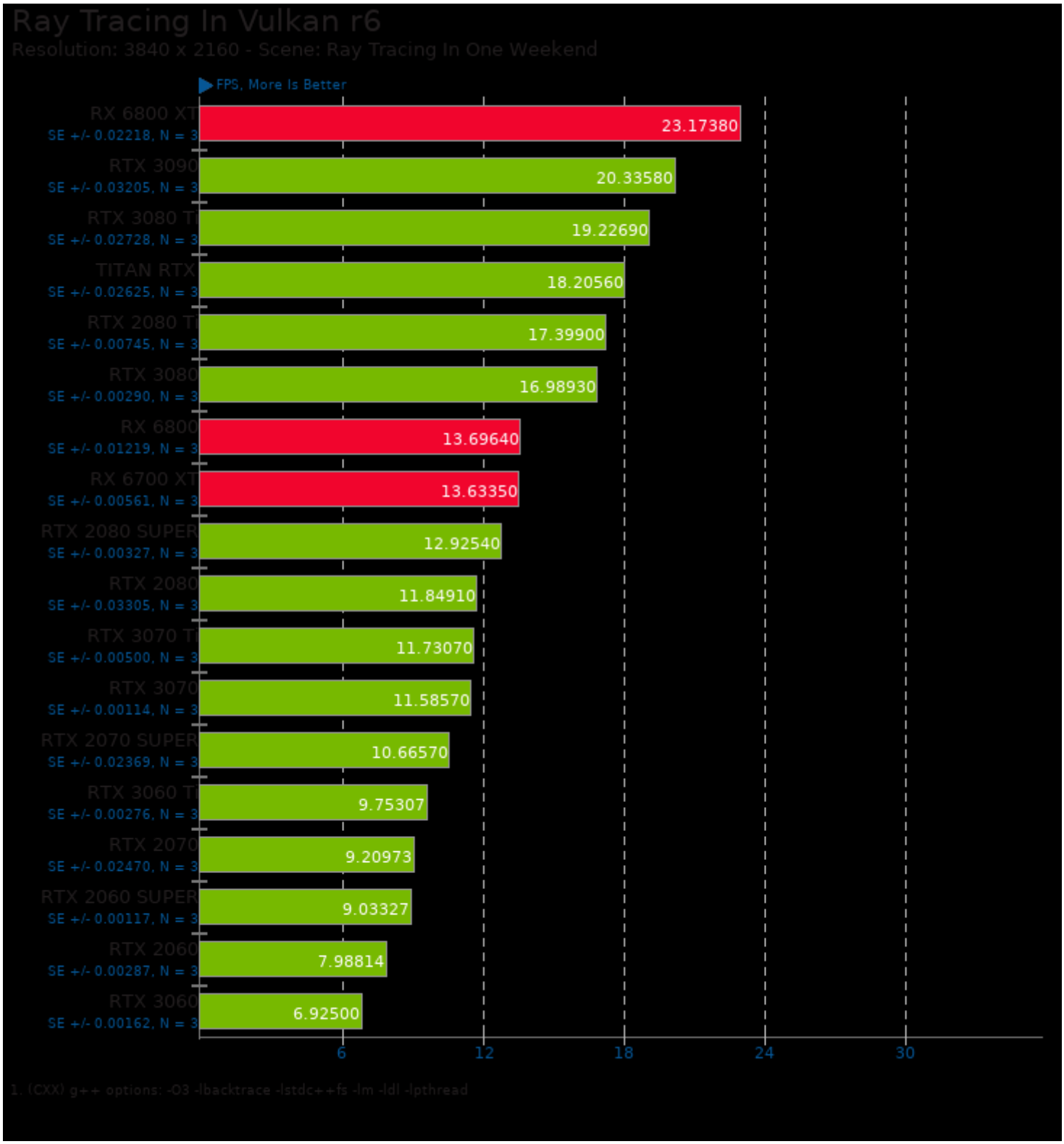

Ray Tracing In Vulkan r6
Resolution: 1920 x 1080 - Scene: Planets In One Weekend
FPS, More Is Better
RX 6800 XT
SE +/- 0.15, N = 3
83.07
RTX 3090
SE +/- 0.08, N = 3
76.36
RTX 3080 T
SE +/- 0.16, N = 3
71.75
TITAN RTX
SE +/- 0.00, N = 3
67.92
RTX 2080 T
SE +/- 0.20, N = 3
64.95
RTX 3080
SE +/- 0.09, N = 3
63.69
RX 6800
SE +/- 0.10, N = 3
50.12
RX 6700 XT
SE +/- 0.03, N = 3
49.94
RTX 2080 SUPER
SE +/- 0.03, N = 3
48.45
RTX 2080
SE +/- 0.03, N = 3
44.41
RTX 3070 T
SE +/- 0.13, N = 3
43.97
RTX 3070
SE +/- 0.14, N = 3
43.52
RTX 2070 SUPER
SE +/- 0.09, N = 3
40.21
RTX 3060 T
SE +/- 0.02, N = 3
36.56
RTX 2070
SE +/- 0.09, N = 3
34.60
RTX 2060 SUPER
SE +/- 0.01, N = 3
33.97
RTX 2060
SE +/- 0.00, N = 3
30.13
RTX 3060
SE +/- 0.02, N = 3
26.16
20
40
60
80
100
1. (CXX) g++ options: -O3 -lbacktrace -lstdc++fs -lm -ldl -lpthread

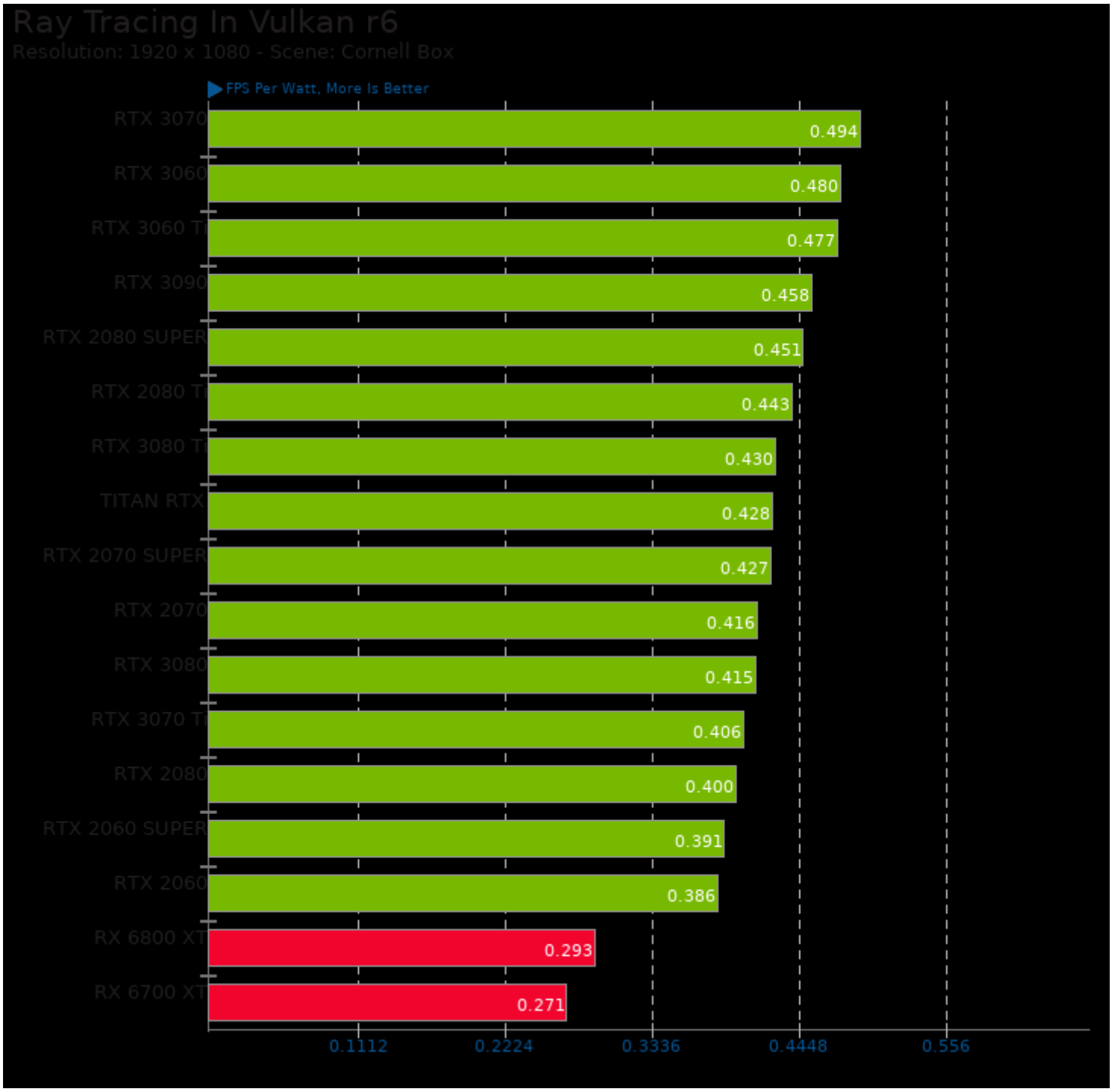

Ray Tracing In Vulkan r6
Resolution: 2560 x 1440 - Scene: Planets In One Weekend
FPS, More Is Better
RX 6800 XT
SE +/- 0.06, N = 3
47.16
RTX 3090
SE +/- 0.08, N = 3
43.24
RTX 3080 T
SE +/- 0.11, N = 3
40.59
TITAN RTX
SE +/- 0.07, N = 3
38.60
RTX 2080 T
SE +/- 0.06, N = 3
36.84
RTX 3080
SE +/- 0.03, N = 3
35.91
RTX 2080 SUPER
SE +/- 0.02, N = 3
27.66
RX 6800
SE +/- 0.01, N = 3
27.49
RX 6700 XT
SE +/- 0.02, N = 3
27.24
RTX 2080
SE +/- 0.03, N = 3
25.30
RTX 3070 T
SE +/- 0.04, N = 3
25.02
RTX 3070
SE +/- 0.03, N = 3
24.74
RTX 2070 SUPER
SE +/- 0.06, N = 3
22.90
RTX 3060 T
SE +/- 0.01, N = 3
20.93
RTX 2070
SE +/- 0.05, N = 3
19.79
RTX 2060 SUPER
SE +/- 0.03, N = 3
19.38
RTX 2060
SE +/- 0.00, N = 3
17.20
RTX 3060
SE +/- 0.02, N = 3
14.96
11
22
33
44
55
1. (CXX) g++ options: -O3 -lbacktrace -lstdc++fs -lm -ldl -lpthread

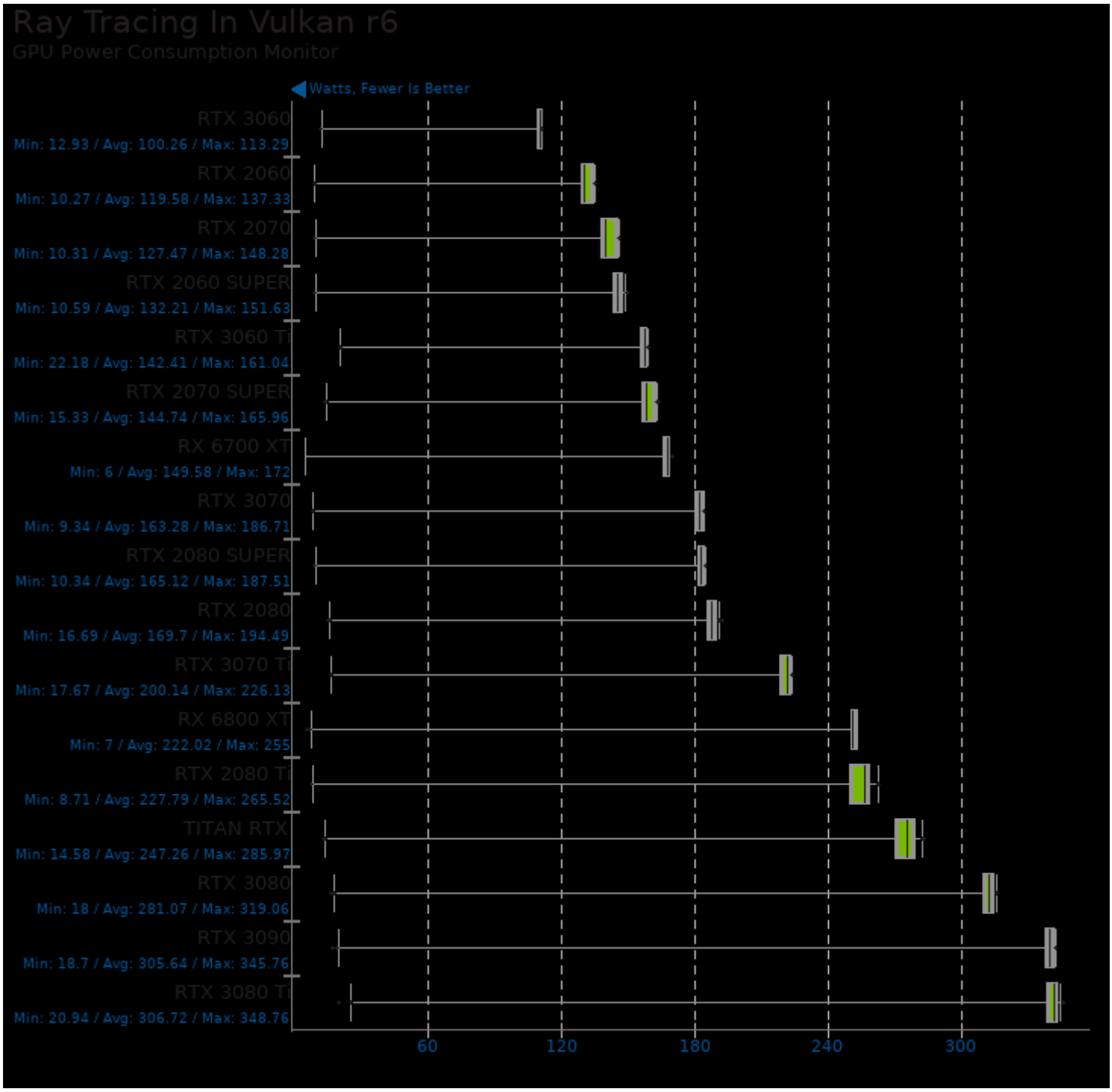

Ray Tracing In Vulkan r6
Resolution: 3840 x 2160 - Scene: Planets In One Weekend
FPS, More Is Better
RX 6800 XT
SE +/- 0.00971, N = 3
22.74450
RTX 3090
SE +/- 0.00233, N = 3
20.77170
RTX 3080 T
SE +/- 0.06445, N = 3
19.61640
TITAN RTX
SE +/- 0.02051, N = 3
18.54580
RTX 2080 T
SE +/- 0.02923, N = 3
17.75240
RTX 3080
SE +/- 0.00131, N = 3
17.32960
RTX 2080 SUPER
SE +/- 0.00209, N = 3
13.20940
RX 6800
SE +/- 0.00265, N = 3
13.19700
RX 6700 XT
SE +/- 0.00634, N = 3
13.12510
RTX 2080
SE +/- 0.01007, N = 3
12.08840
RTX 3070 T
SE +/- 0.01062, N = 3
12.00710
RTX 3070
SE +/- 0.00103, N = 3
11.86990
RTX 2070 SUPER
SE +/- 0.02768, N = 3
10.91710
RTX 3060 T
SE +/- 0.00462, N = 3
9.99570
RTX 2070
SE +/- 0.02664, N = 3
9.41198
RTX 2060 SUPER
SE +/- 0.02393, N = 3
9.20630
RTX 2060
SE +/- 0.00149, N = 3
8.15511
RTX 3060
SE +/- 0.00540, N = 3
7.08306
5
10
15
20
25
1. (CXX) g++ options: -O3 -lbacktrace -lstdc++fs -lm -ldl -lpthread

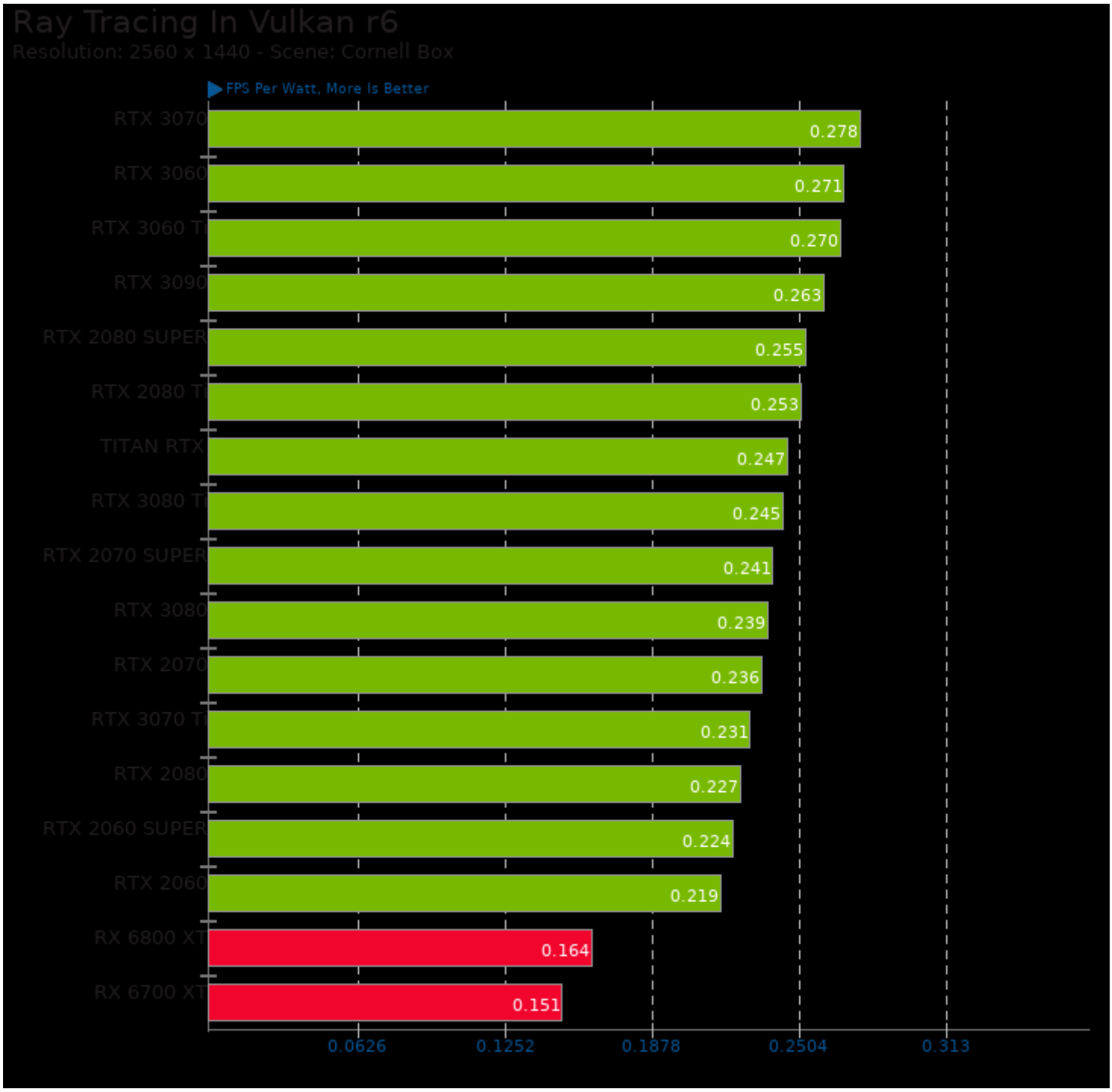

Ray Tracing In Vulkan r6
Resolution: 1920 x 1080 - Scene: Ray Tracing In One Weekend
FPS, More Is Better
RX 6800 XT
SE +/- 0.13, N = 3
83.92
RTX 3090
SE +/- 0.10, N = 3
74.54
RTX 3080 T
SE +/- 0.16, N = 3
70.57
TITAN RTX
SE +/- 0.09, N = 3
67.04
RTX 2080 T
SE +/- 0.23, N = 3
64.14
RTX 3080
SE +/- 0.15, N = 3
62.17
RX 6800
SE +/- 0.04, N = 3
53.30
RX 6700 XT
SE +/- 0.10, N = 3
52.89
RTX 2080 SUPER
SE +/- 0.03, N = 3
47.53
RTX 2080
SE +/- 0.12, N = 3
43.60
RTX 3070 T
SE +/- 0.00, N = 3
42.83
RTX 3070
SE +/- 0.04, N = 3
42.46
RTX 2070 SUPER
SE +/- 0.11, N = 3
39.23
RTX 3060 T
SE +/- 0.02, N = 3
35.73
RTX 2070
SE +/- 0.10, N = 3
33.89
RTX 2060 SUPER
SE +/- 0.01, N = 3
33.28
RTX 2060
SE +/- 0.01, N = 3
29.51
RTX 3060
SE +/- 0.01, N = 3
25.56
20
40
60
80
100
1. (CXX) g++ options: -O3 -lbacktrace -lstdc++fs -lm -ldl -lpthread

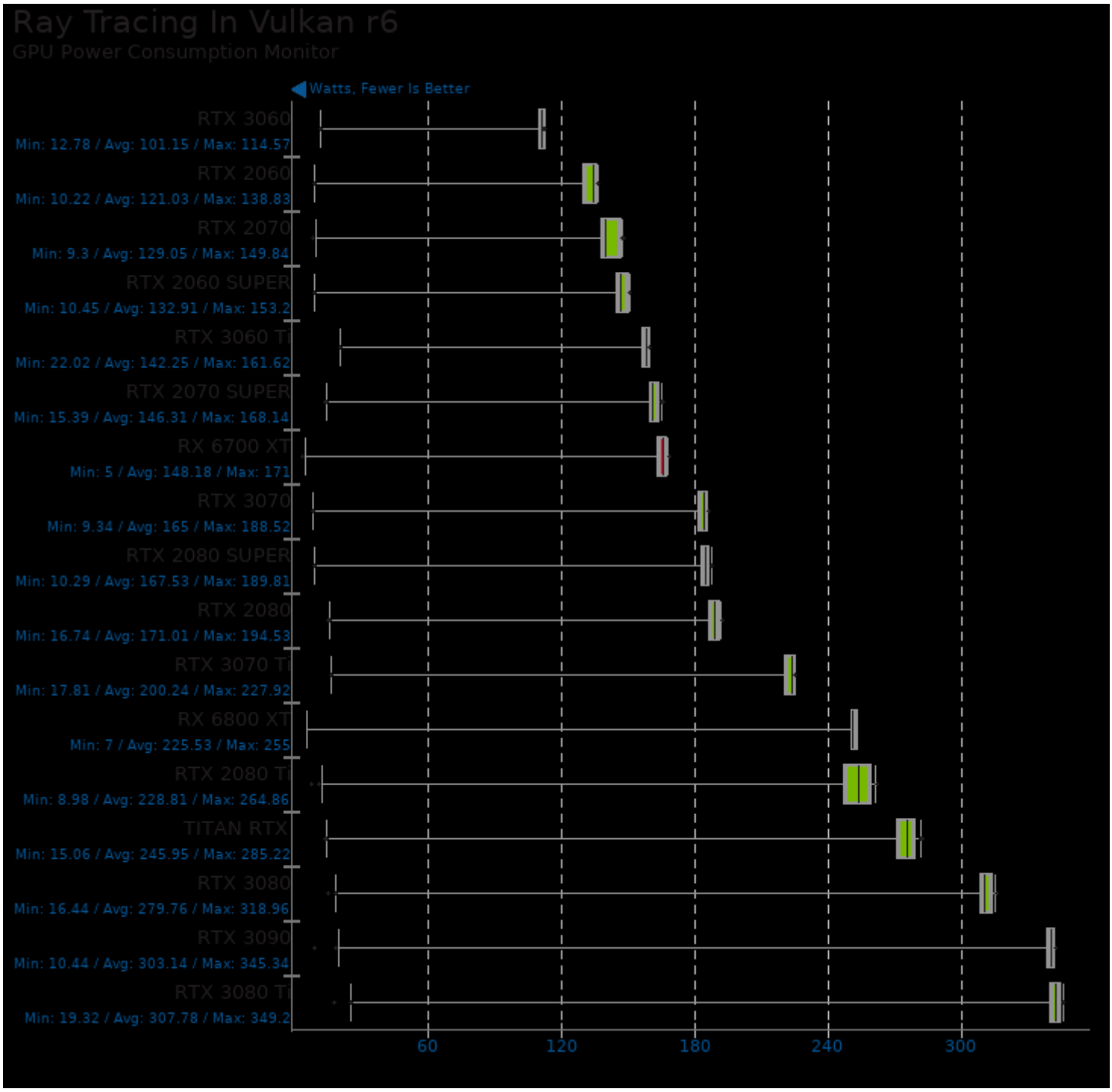

Ray Tracing In Vulkan r6
Resolution: 2560 x 1440 - Scene: Ray Tracing In One Weekend
FPS, More Is Better
RX 6800 XT
SE +/- 0.10, N = 3
48.43
RTX 3090
SE +/- 0.05, N = 3
42.20
RTX 3080 T
SE +/- 0.05, N = 3
39.94
TITAN RTX
SE +/- 0.07, N = 3
37.84
RTX 2080 T
SE +/- 0.07, N = 3
36.15
RTX 3080
SE +/- 0.01, N = 3
35.18
RX 6800
SE +/- 0.01, N = 3
29.09
RX 6700 XT
SE +/- 0.03, N = 3
28.85
RTX 2080 SUPER
SE +/- 0.01, N = 3
27.04
RTX 2080
SE +/- 0.07, N = 3
24.82
RTX 3070 T
SE +/- 0.01, N = 3
24.44
RTX 3070
SE +/- 0.01, N = 3
24.17
RTX 2070 SUPER
SE +/- 0.06, N = 3
22.38
RTX 3060 T
SE +/- 0.01, N = 3
20.44
RTX 2070
SE +/- 0.05, N = 3
19.43
RTX 2060 SUPER
SE +/- 0.00, N = 3
19.02
RTX 2060
SE +/- 0.03, N = 3
16.85
RTX 3060
SE +/- 0.01, N = 3
14.59
11
22
33
44
55
1. (CXX) g++ options: -O3 -lbacktrace -lstdc++fs -lm -ldl -lpthread

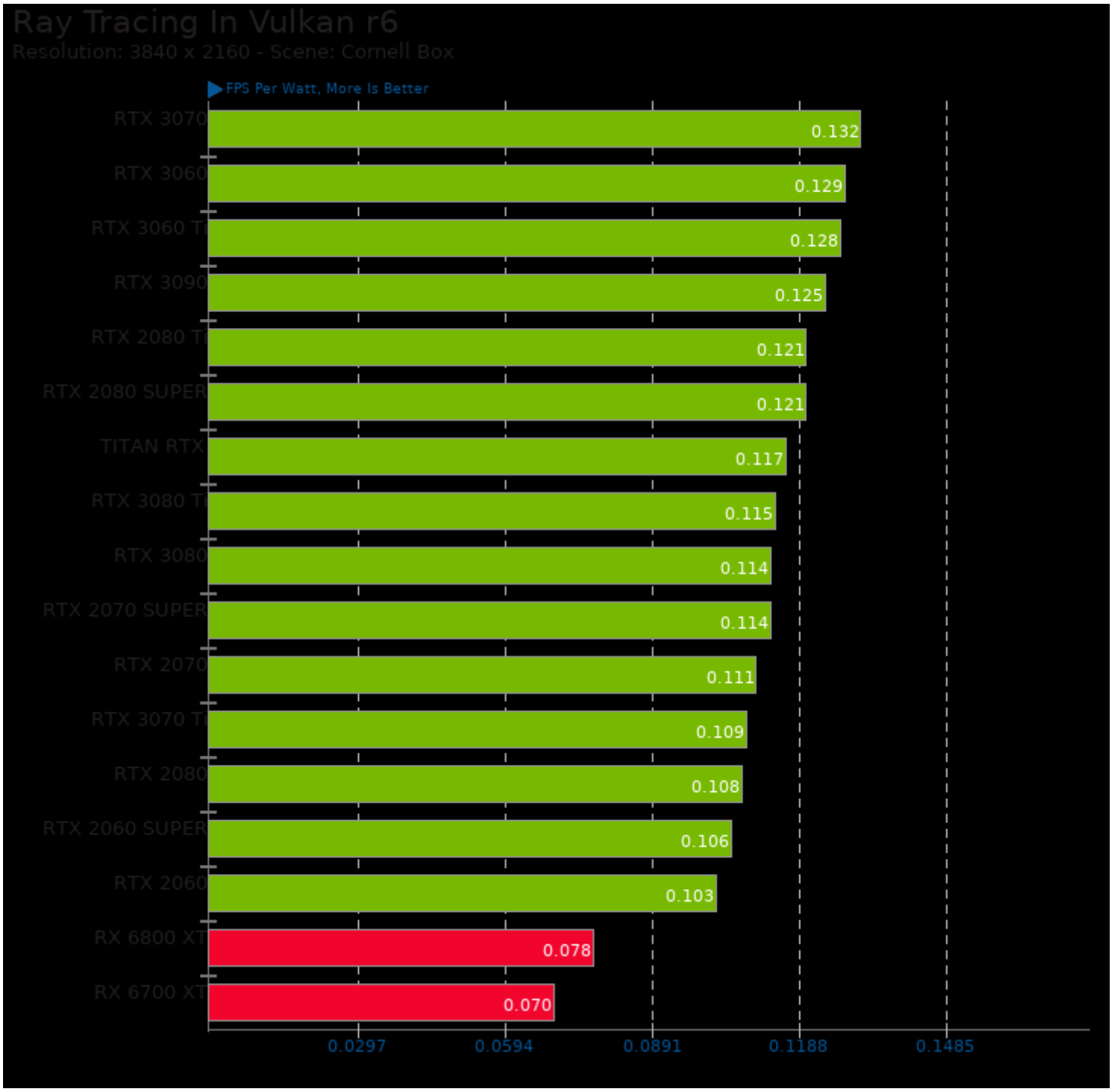

Ray Tracing In Vulkan r6
Resolution: 3840 x 2160 - Scene: Ray Tracing In One Weekend
FPS, More Is Better
RX 6800 XT
SE +/- 0.02218, N = 3
23.17380
RTX 3090
SE +/- 0.03205, N = 3
20.33580
RTX 3080 T
SE +/- 0.02728, N = 3
19.22690
TITAN RTX
SE +/- 0.02625, N = 3
18.20560
RTX 2080 T
SE +/- 0.00745, N = 3
17.39900
RTX 3080
SE +/- 0.00290, N = 3
16.98930
RX 6800
SE +/- 0.01219, N = 3
13.69640
RX 6700 XT
SE +/- 0.00561, N = 3
13.63350
RTX 2080 SUPER
SE +/- 0.00327, N = 3
12.92540
RTX 2080
SE +/- 0.03305, N = 3
11.84910
RTX 3070 T
SE +/- 0.00500, N = 3
11.73070
RTX 3070
SE +/- 0.00114, N = 3
11.58570
RTX 2070 SUPER
SE +/- 0.02369, N = 3
10.66570
RTX 3060 T
SE +/- 0.00276, N = 3
9.75307
RTX 2070
SE +/- 0.02470, N = 3
9.20973
RTX 2060 SUPER
SE +/- 0.00117, N = 3
9.03327
RTX 2060
SE +/- 0.00287, N = 3
7.98814
RTX 3060
SE +/- 0.00162, N = 3
6.92500
6
12
18
24
30
1. (CXX) g++ options: -O3 -lbacktrace -lstdc++fs -lm -ldl -lpthread

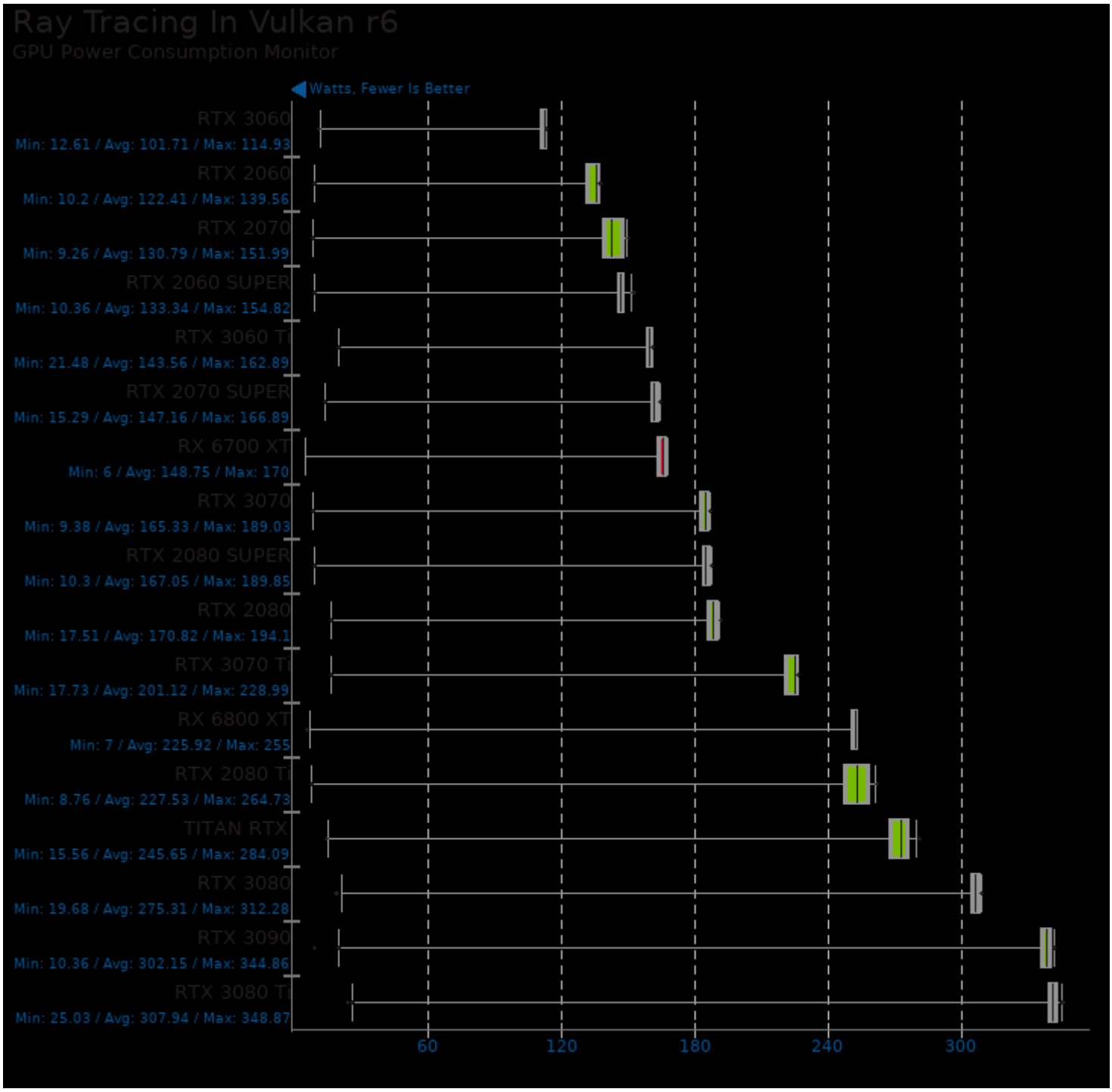

Ray Tracing In Vulkan r6
Resolution: 1920 x 1080 - Scene: Cornell Box
FPS Per Watt, More Is Better
RTX 3070
0.494
RTX 3060
0.480
RTX 3060 Ti
0.477
RTX 3090
0.458
RTX 2080 SUPER
0.451
RTX 2080 Ti
0.443
RTX 3080 Ti
0.430
TITAN RTX
0.428
RTX 2070 SUPER
0.427
RTX 2070
0.416
RTX 3080
0.415
RTX 3070 Ti
0.406
RTX 2080
0.400
RTX 2060 SUPER
0.391
RTX 2060
0.386
RX 6800 XT
0.293
RX 6700 XT
0.271
0.1112
0.2224
0.3336
0.4448
0.556

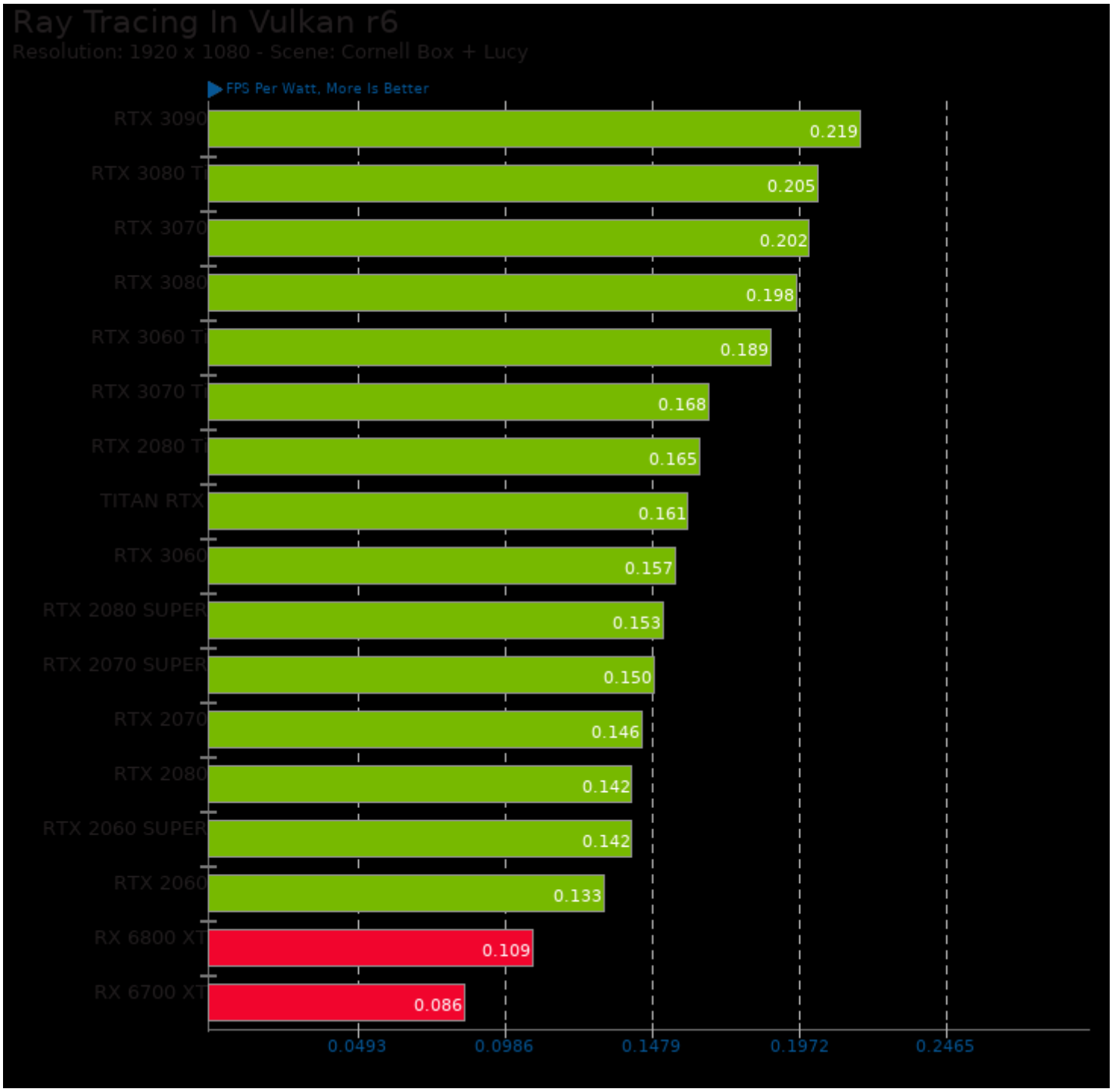

Ray Tracing In Vulkan r6
GPU Power Consumption Monitor
Watts, Fewer Is Better
RTX 3060
Min: 12.93 / Avg: 100.26 / Max: 113.29
RTX 2060
Min: 10.27 / Avg: 119.58 / Max: 137.33
RTX 2070
Min: 10.31 / Avg: 127.47 / Max: 148.28
RTX 2060 SUPER
Min: 10.59 / Avg: 132.21 / Max: 151.63
RTX 3060 Ti
Min: 22.18 / Avg: 142.41 / Max: 161.04
RTX 2070 SUPER
Min: 15.33 / Avg: 144.74 / Max: 165.96
RX 6700 XT
Min: 6 / Avg: 149.58 / Max: 172
RTX 3070
Min: 9.34 / Avg: 163.28 / Max: 186.71
RTX 2080 SUPER
Min: 10.34 / Avg: 165.12 / Max: 187.51
RTX 2080
Min: 16.69 / Avg: 169.7 / Max: 194.49
RTX 3070 Ti
Min: 17.67 / Avg: 200.14 / Max: 226.13
RX 6800 XT
Min: 7 / Avg: 222.02 / Max: 255
RTX 2080 Ti
Min: 8.71 / Avg: 227.79 / Max: 265.52
TITAN RTX
Min: 14.58 / Avg: 247.26 / Max: 285.97
RTX 3080
Min: 18 / Avg: 281.07 / Max: 319.06
RTX 3090
Min: 18.7 / Avg: 305.64 / Max: 345.76
RTX 3080 Ti
Min: 20.94 / Avg: 306.72 / Max: 348.76
60
120
180
240
300

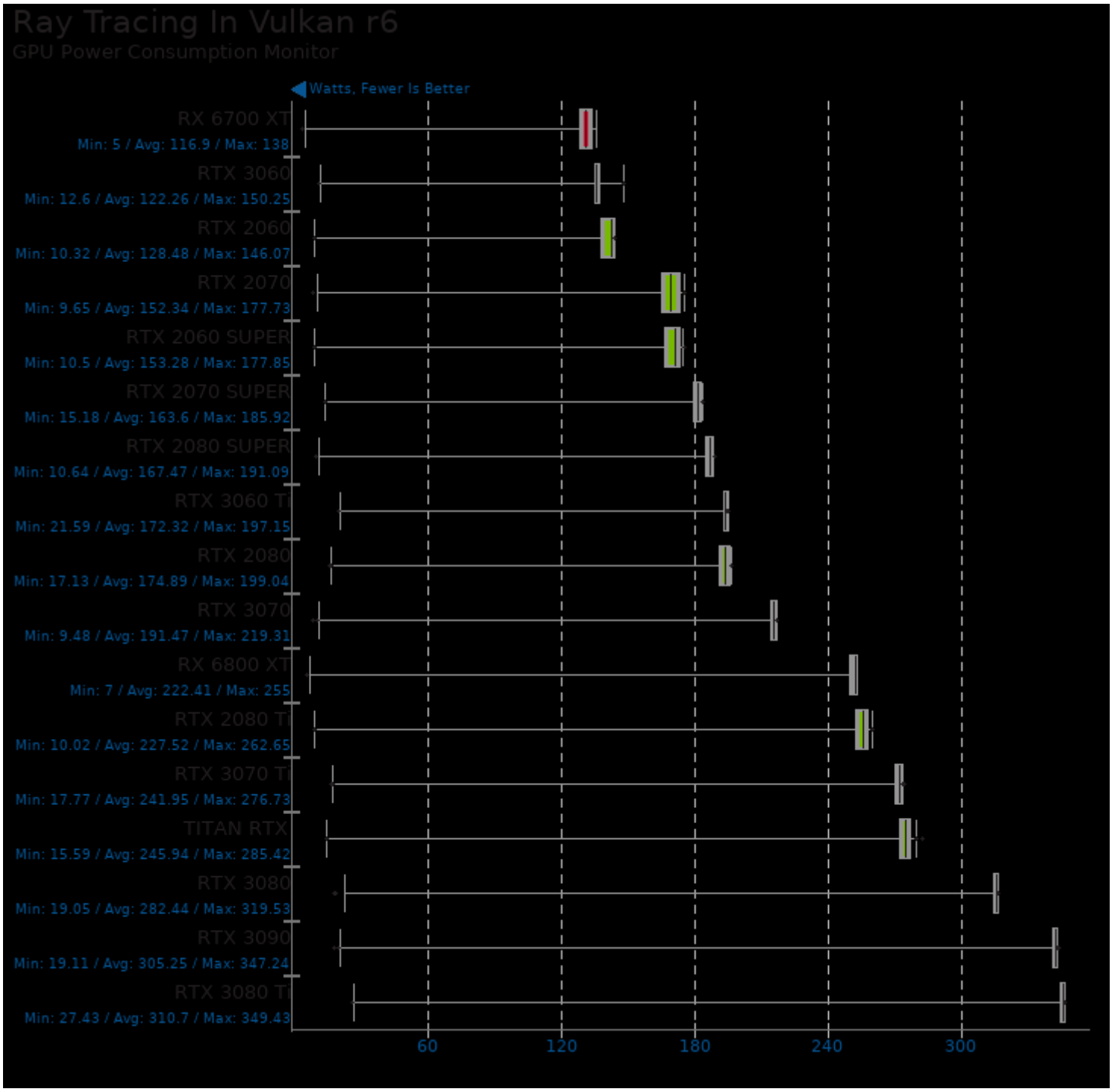

Ray Tracing In Vulkan r6
Resolution: 2560 x 1440 - Scene: Cornell Box
FPS Per Watt, More Is Better
RTX 3070
0.278
RTX 3060
0.271
RTX 3060 Ti
0.270
RTX 3090
0.263
RTX 2080 SUPER
0.255
RTX 2080 Ti
0.253
TITAN RTX
0.247
RTX 3080 Ti
0.245
RTX 2070 SUPER
0.241
RTX 3080
0.239
RTX 2070
0.236
RTX 3070 Ti
0.231
RTX 2080
0.227
RTX 2060 SUPER
0.224
RTX 2060
0.219
RX 6800 XT
0.164
RX 6700 XT
0.151
0.0626
0.1252
0.1878
0.2504
0.313

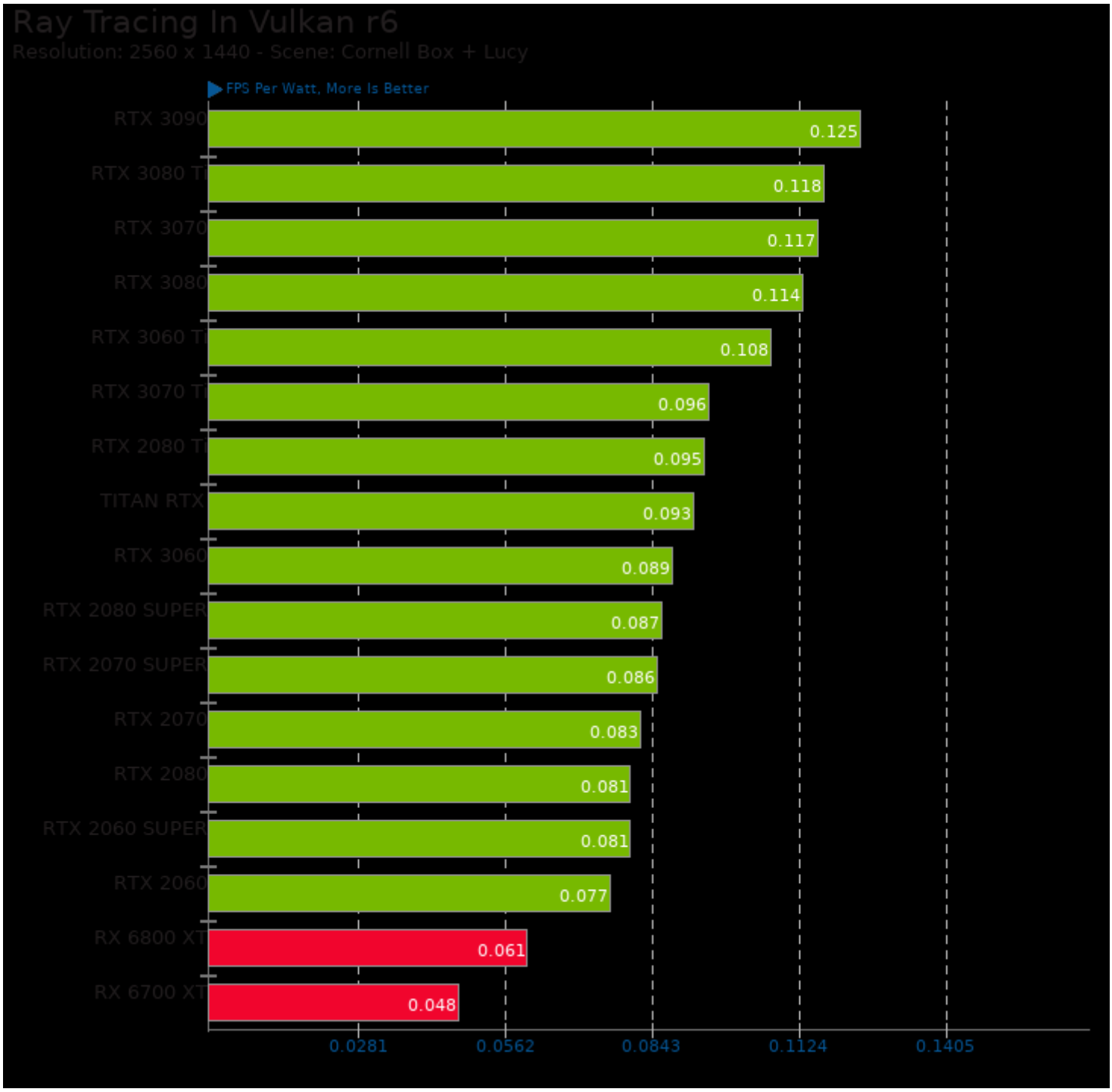

Ray Tracing In Vulkan r6
GPU Power Consumption Monitor
Watts, Fewer Is Better
RTX 3060
Min: 12.78 / Avg: 101.15 / Max: 114.57
RTX 2060
Min: 10.22 / Avg: 121.03 / Max: 138.83
RTX 2070
Min: 9.3 / Avg: 129.05 / Max: 149.84
RTX 2060 SUPER
Min: 10.45 / Avg: 132.91 / Max: 153.2
RTX 3060 Ti
Min: 22.02 / Avg: 142.25 / Max: 161.62
RTX 2070 SUPER
Min: 15.39 / Avg: 146.31 / Max: 168.14
RX 6700 XT
Min: 5 / Avg: 148.18 / Max: 171
RTX 3070
Min: 9.34 / Avg: 165 / Max: 188.52
RTX 2080 SUPER
Min: 10.29 / Avg: 167.53 / Max: 189.81
RTX 2080
Min: 16.74 / Avg: 171.01 / Max: 194.53
RTX 3070 Ti
Min: 17.81 / Avg: 200.24 / Max: 227.92
RX 6800 XT
Min: 7 / Avg: 225.53 / Max: 255
RTX 2080 Ti
Min: 8.98 / Avg: 228.81 / Max: 264.86
TITAN RTX
Min: 15.06 / Avg: 245.95 / Max: 285.22
RTX 3080
Min: 16.44 / Avg: 279.76 / Max: 318.96
RTX 3090
Min: 10.44 / Avg: 303.14 / Max: 345.34
RTX 3080 Ti
Min: 19.32 / Avg: 307.78 / Max: 349.2
60
120
180
240
300

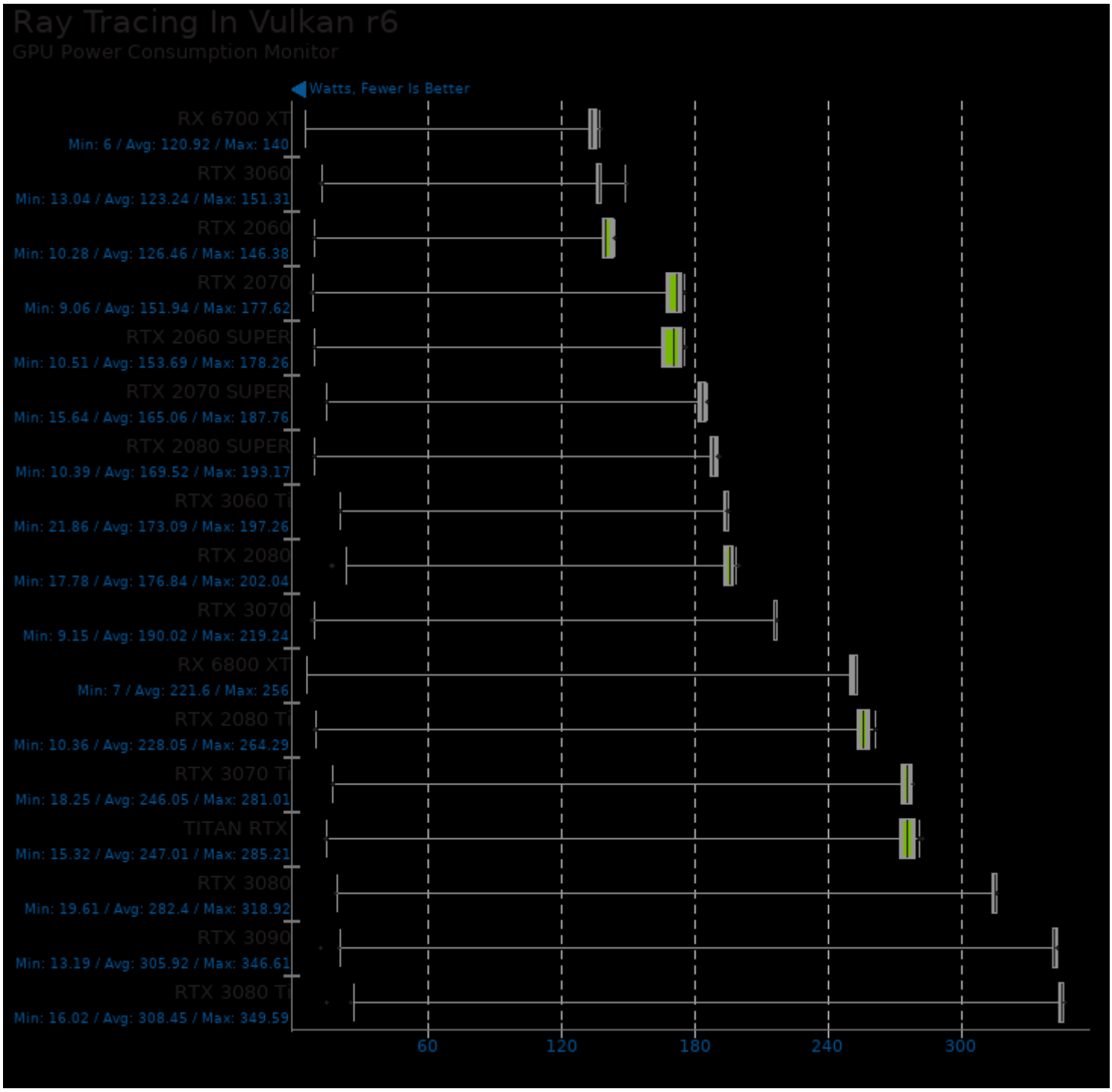

Ray Tracing In Vulkan r6
Resolution: 3840 x 2160 - Scene: Cornell Box
FPS Per Watt, More Is Better
RTX 3070
0.132
RTX 3060
0.129
RTX 3060 Ti
0.128
RTX 3090
0.125
RTX 2080 Ti
0.121
RTX 2080 SUPER
0.121
TITAN RTX
0.117
RTX 3080 Ti
0.115
RTX 3080
0.114
RTX 2070 SUPER
0.114
RTX 2070
0.111
RTX 3070 Ti
0.109
RTX 2080
0.108
RTX 2060 SUPER
0.106
RTX 2060
0.103
RX 6800 XT
0.078
RX 6700 XT
0.070
0.0297
0.0594
0.0891
0.1188
0.1485

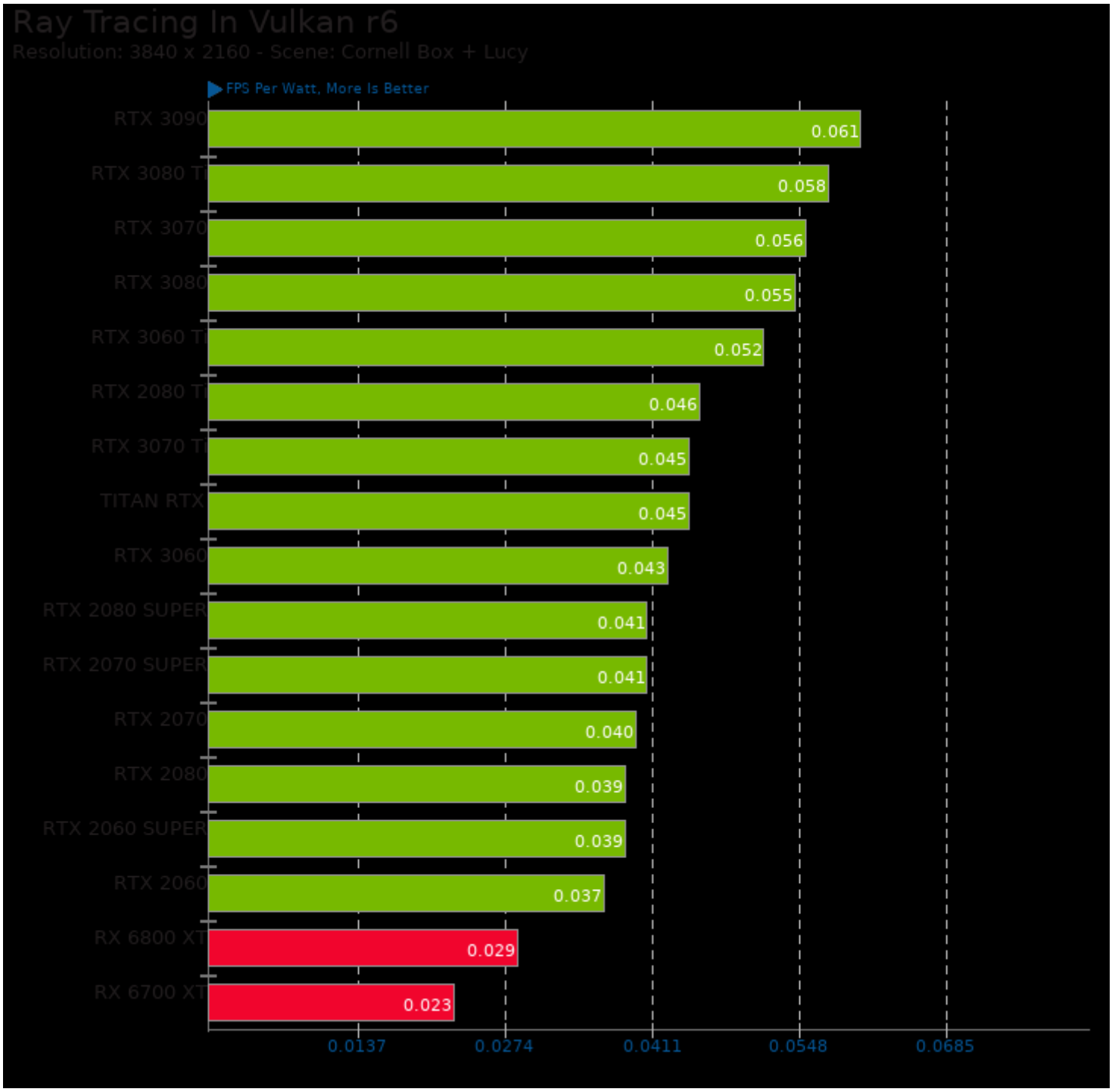

Ray Tracing In Vulkan r6
GPU Power Consumption Monitor
Watts, Fewer Is Better
RTX 3060
Min: 12.61 / Avg: 101.71 / Max: 114.93
RTX 2060
Min: 10.2 / Avg: 122.41 / Max: 139.56
RTX 2070
Min: 9.26 / Avg: 130.79 / Max: 151.99
RTX 2060 SUPER
Min: 10.36 / Avg: 133.34 / Max: 154.82
RTX 3060 Ti
Min: 21.48 / Avg: 143.56 / Max: 162.89
RTX 2070 SUPER
Min: 15.29 / Avg: 147.16 / Max: 166.89
RX 6700 XT
Min: 6 / Avg: 148.75 / Max: 170
RTX 3070
Min: 9.38 / Avg: 165.33 / Max: 189.03
RTX 2080 SUPER
Min: 10.3 / Avg: 167.05 / Max: 189.85
RTX 2080
Min: 17.51 / Avg: 170.82 / Max: 194.1
RTX 3070 Ti
Min: 17.73 / Avg: 201.12 / Max: 228.99
RX 6800 XT
Min: 7 / Avg: 225.92 / Max: 255
RTX 2080 Ti
Min: 8.76 / Avg: 227.53 / Max: 264.73
TITAN RTX
Min: 15.56 / Avg: 245.65 / Max: 284.09
RTX 3080
Min: 19.68 / Avg: 275.31 / Max: 312.28
RTX 3090
Min: 10.36 / Avg: 302.15 / Max: 344.86
RTX 3080 Ti
Min: 25.03 / Avg: 307.94 / Max: 348.87
60
120
180
240
300

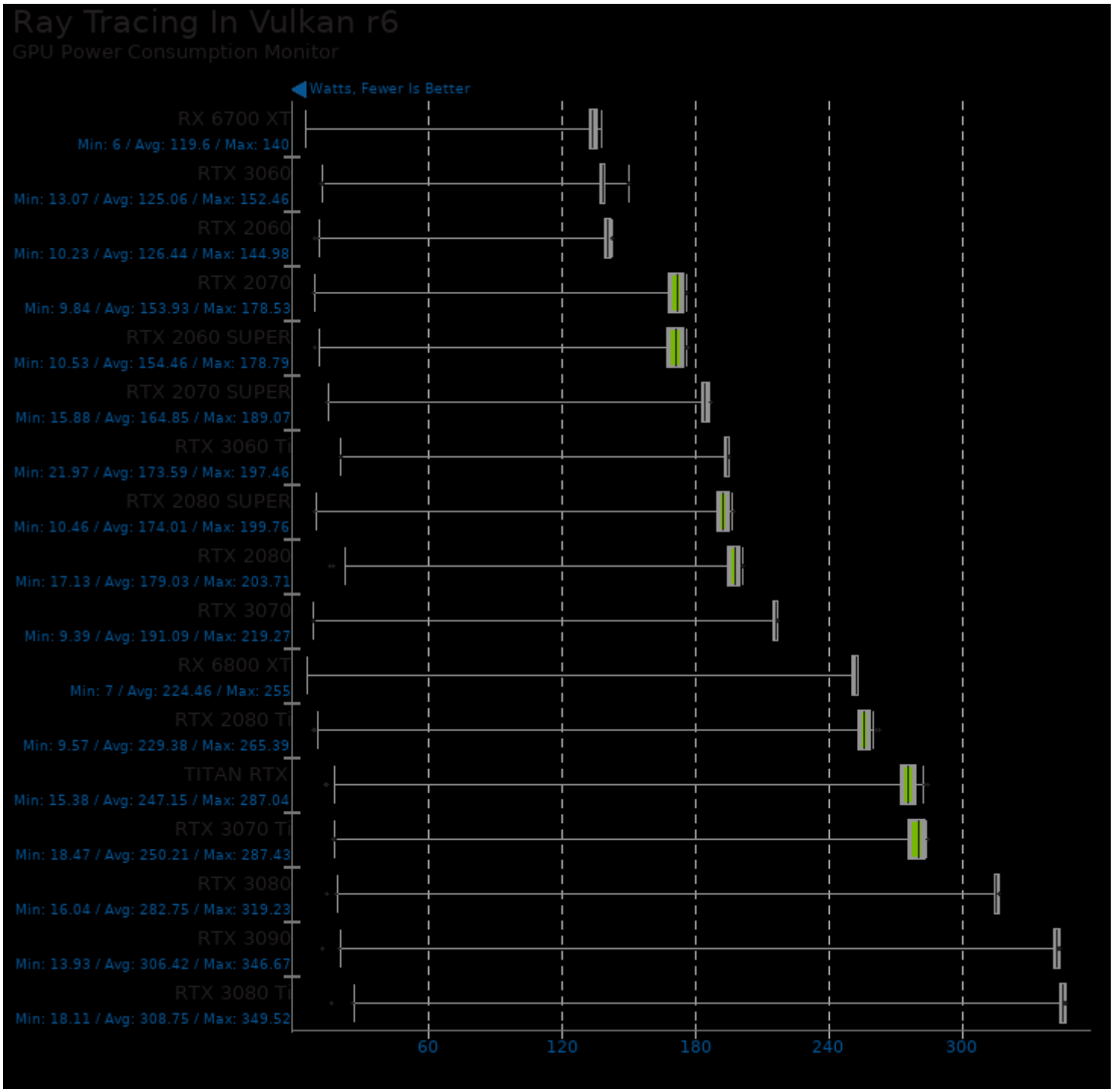

Ray Tracing In Vulkan r6
Resolution: 1920 x 1080 - Scene: Cornell Box + Lucy
FPS Per Watt, More Is Better
RTX 3090
0.219
RTX 3080 Ti
0.205
RTX 3070
0.202
RTX 3080
0.198
RTX 3060 Ti
0.189
RTX 3070 Ti
0.168
RTX 2080 Ti
0.165
TITAN RTX
0.161
RTX 3060
0.157
RTX 2080 SUPER
0.153
RTX 2070 SUPER
0.150
RTX 2070
0.146
RTX 2080
0.142
RTX 2060 SUPER
0.142
RTX 2060
0.133
RX 6800 XT
0.109
RX 6700 XT
0.086
0.0493
0.0986
0.1479
0.1972
0.2465

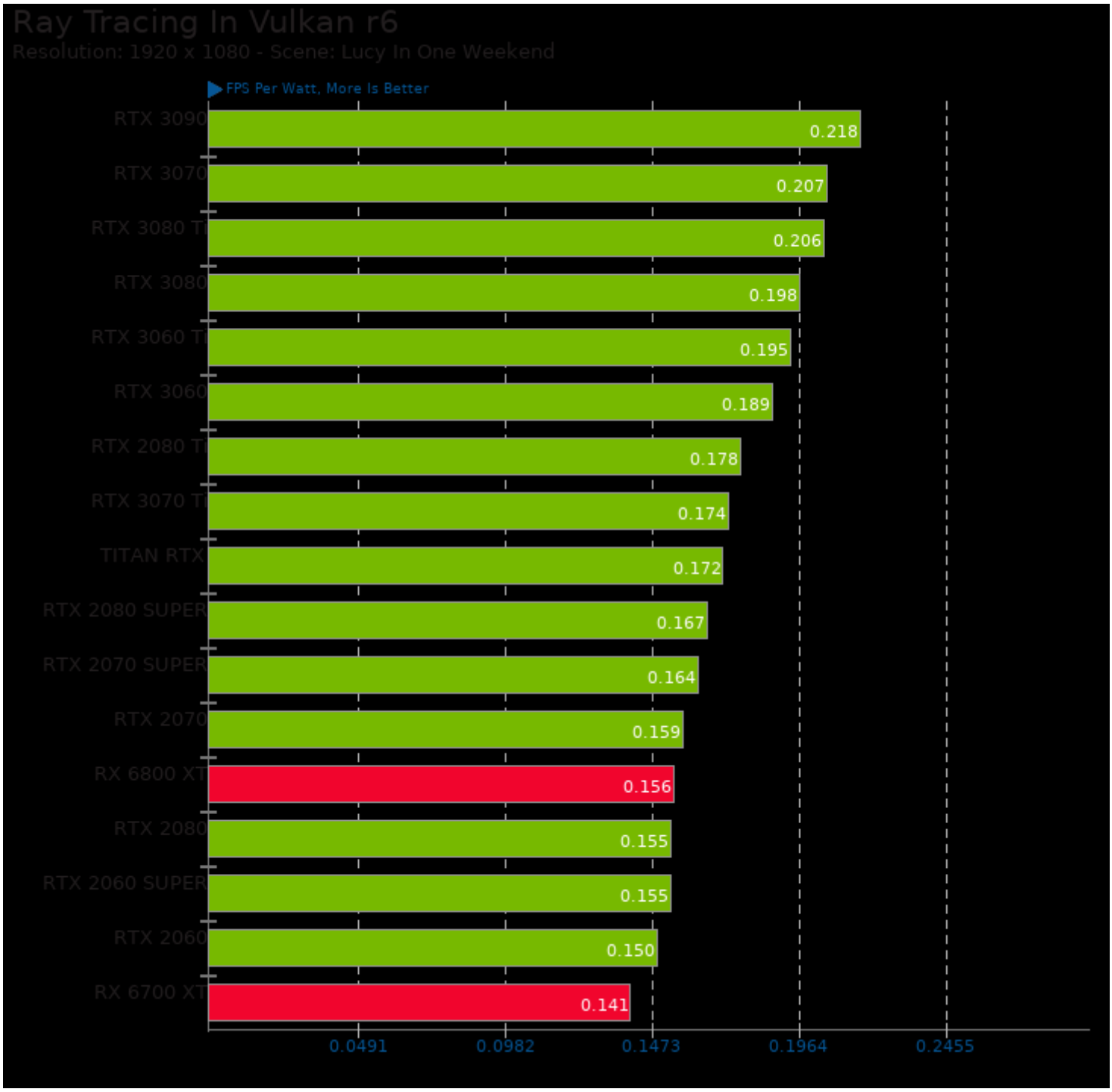

Ray Tracing In Vulkan r6
GPU Power Consumption Monitor
Watts, Fewer Is Better
RX 6700 XT
Min: 5 / Avg: 116.9 / Max: 138
RTX 3060
Min: 12.6 / Avg: 122.26 / Max: 150.25
RTX 2060
Min: 10.32 / Avg: 128.48 / Max: 146.07
RTX 2070
Min: 9.65 / Avg: 152.34 / Max: 177.73
RTX 2060 SUPER
Min: 10.5 / Avg: 153.28 / Max: 177.85
RTX 2070 SUPER
Min: 15.18 / Avg: 163.6 / Max: 185.92
RTX 2080 SUPER
Min: 10.64 / Avg: 167.47 / Max: 191.09
RTX 3060 Ti
Min: 21.59 / Avg: 172.32 / Max: 197.15
RTX 2080
Min: 17.13 / Avg: 174.89 / Max: 199.04
RTX 3070
Min: 9.48 / Avg: 191.47 / Max: 219.31
RX 6800 XT
Min: 7 / Avg: 222.41 / Max: 255
RTX 2080 Ti
Min: 10.02 / Avg: 227.52 / Max: 262.65
RTX 3070 Ti
Min: 17.77 / Avg: 241.95 / Max: 276.73
TITAN RTX
Min: 15.59 / Avg: 245.94 / Max: 285.42
RTX 3080
Min: 19.05 / Avg: 282.44 / Max: 319.53
RTX 3090
Min: 19.11 / Avg: 305.25 / Max: 347.24
RTX 3080 Ti
Min: 27.43 / Avg: 310.7 / Max: 349.43
60
120
180
240
300

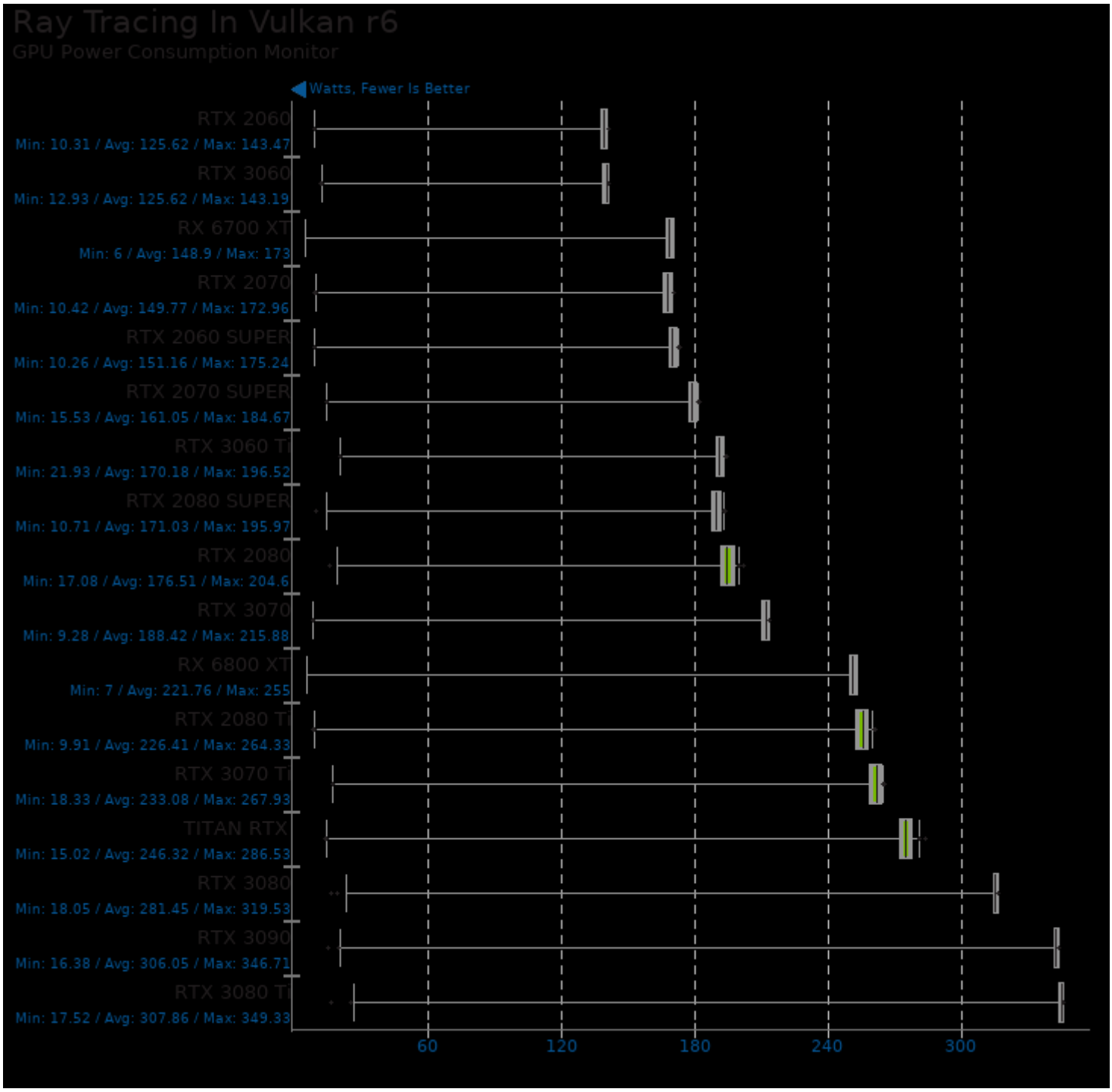

Ray Tracing In Vulkan r6
Resolution: 2560 x 1440 - Scene: Cornell Box + Lucy
FPS Per Watt, More Is Better
RTX 3090
0.125
RTX 3080 Ti
0.118
RTX 3070
0.117
RTX 3080
0.114
RTX 3060 Ti
0.108
RTX 3070 Ti
0.096
RTX 2080 Ti
0.095
TITAN RTX
0.093
RTX 3060
0.089
RTX 2080 SUPER
0.087
RTX 2070 SUPER
0.086
RTX 2070
0.083
RTX 2080
0.081
RTX 2060 SUPER
0.081
RTX 2060
0.077
RX 6800 XT
0.061
RX 6700 XT
0.048
0.0281
0.0562
0.0843
0.1124
0.1405

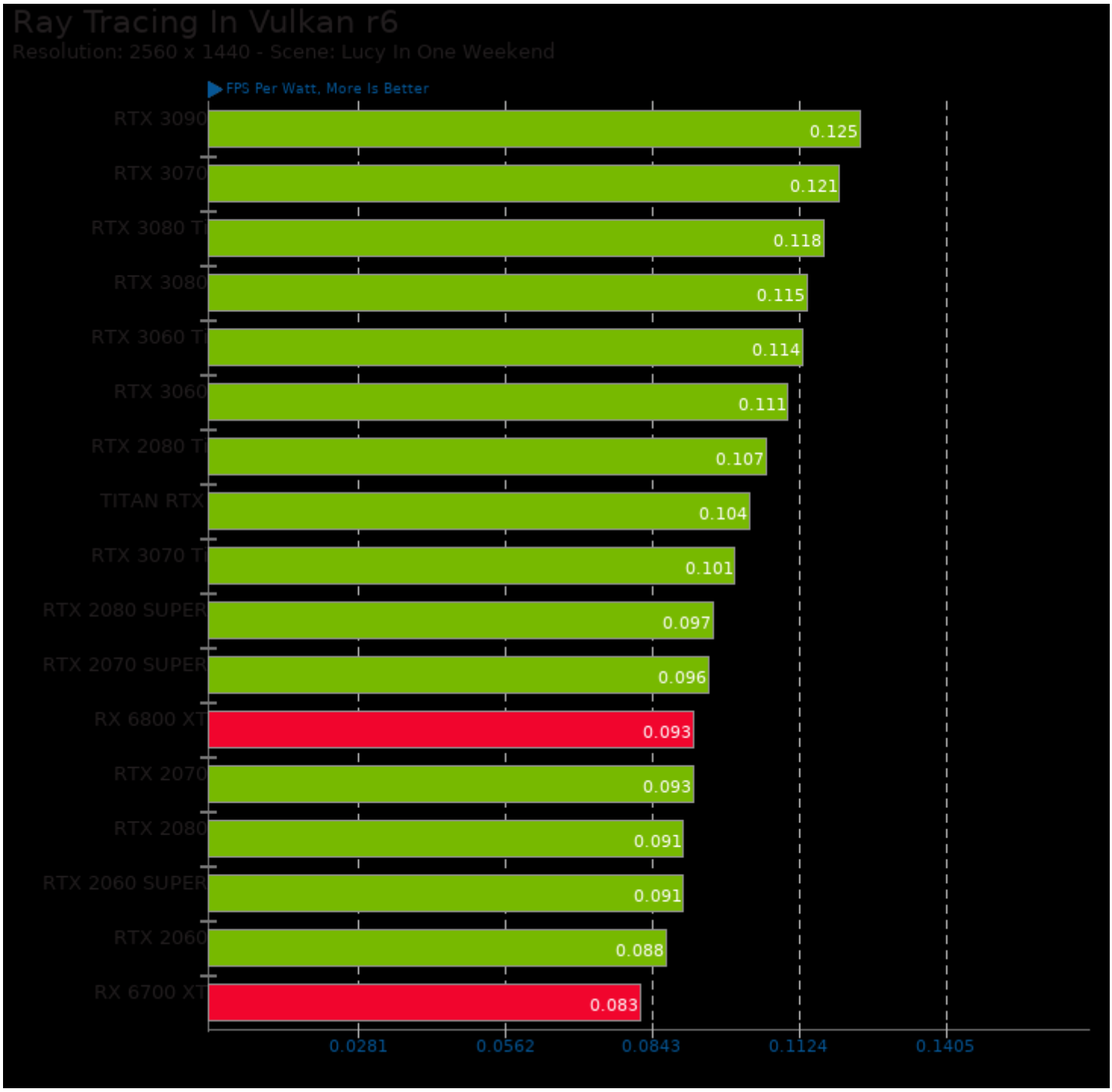

Ray Tracing In Vulkan r6
GPU Power Consumption Monitor
Watts, Fewer Is Better
RX 6700 XT
Min: 6 / Avg: 120.92 / Max: 140
RTX 3060
Min: 13.04 / Avg: 123.24 / Max: 151.31
RTX 2060
Min: 10.28 / Avg: 126.46 / Max: 146.38
RTX 2070
Min: 9.06 / Avg: 151.94 / Max: 177.62
RTX 2060 SUPER
Min: 10.51 / Avg: 153.69 / Max: 178.26
RTX 2070 SUPER
Min: 15.64 / Avg: 165.06 / Max: 187.76
RTX 2080 SUPER
Min: 10.39 / Avg: 169.52 / Max: 193.17
RTX 3060 Ti
Min: 21.86 / Avg: 173.09 / Max: 197.26
RTX 2080
Min: 17.78 / Avg: 176.84 / Max: 202.04
RTX 3070
Min: 9.15 / Avg: 190.02 / Max: 219.24
RX 6800 XT
Min: 7 / Avg: 221.6 / Max: 256
RTX 2080 Ti
Min: 10.36 / Avg: 228.05 / Max: 264.29
RTX 3070 Ti
Min: 18.25 / Avg: 246.05 / Max: 281.01
TITAN RTX
Min: 15.32 / Avg: 247.01 / Max: 285.21
RTX 3080
Min: 19.61 / Avg: 282.4 / Max: 318.92
RTX 3090
Min: 13.19 / Avg: 305.92 / Max: 346.61
RTX 3080 Ti
Min: 16.02 / Avg: 308.45 / Max: 349.59
60
120
180
240
300

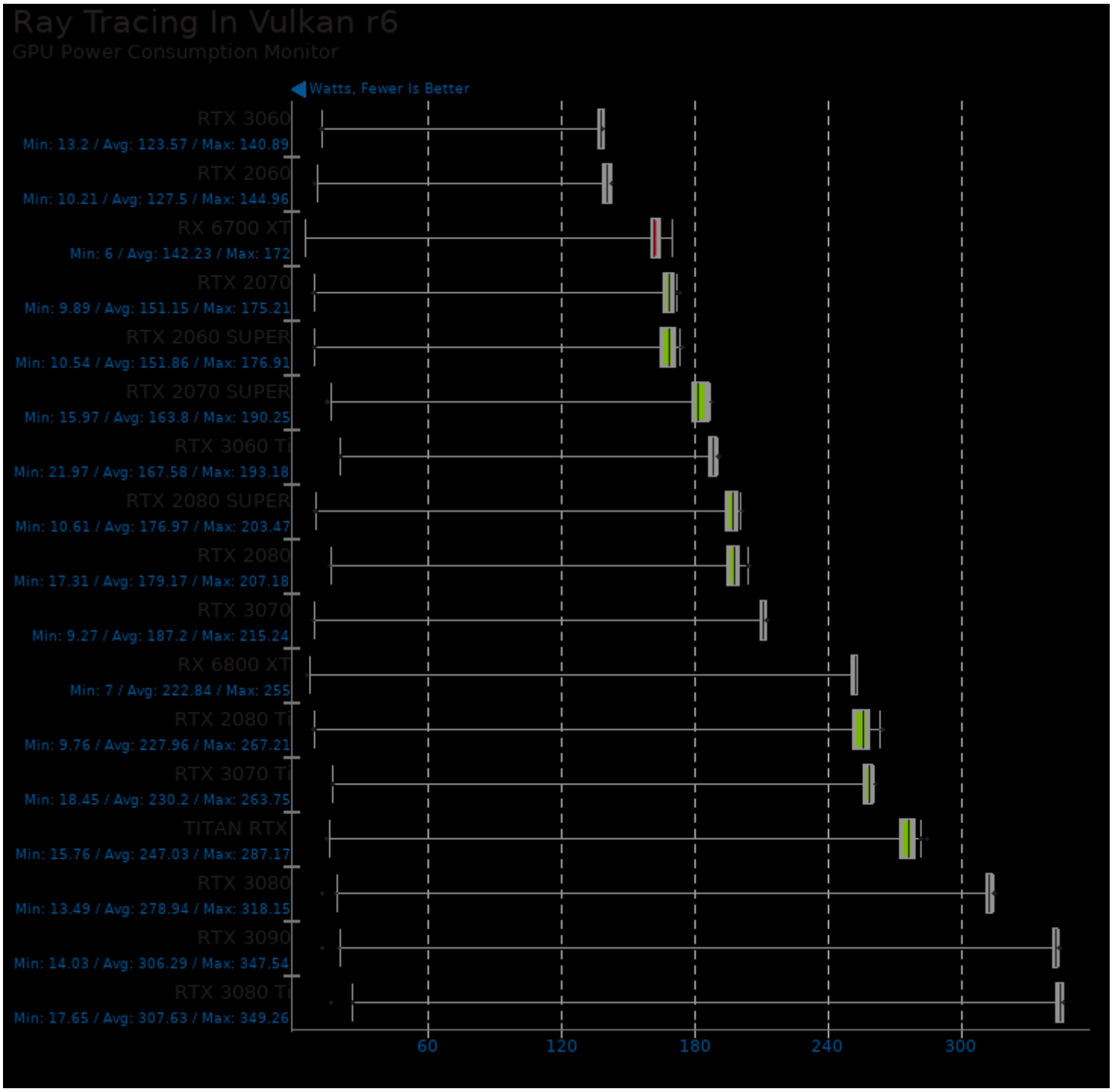

Ray Tracing In Vulkan r6
Resolution: 3840 x 2160 - Scene: Cornell Box + Lucy
FPS Per Watt, More Is Better
RTX 3090
0.061
RTX 3080 Ti
0.058
RTX 3070
0.056
RTX 3080
0.055
RTX 3060 Ti
0.052
RTX 2080 Ti
0.046
RTX 3070 Ti
0.045
TITAN RTX
0.045
RTX 3060
0.043
RTX 2080 SUPER
0.041
RTX 2070 SUPER
0.041
RTX 2070
0.040
RTX 2080
0.039
RTX 2060 SUPER
0.039
RTX 2060
0.037
RX 6800 XT
0.029
RX 6700 XT
0.023
0.0137
0.0274
0.0411
0.0548
0.0685

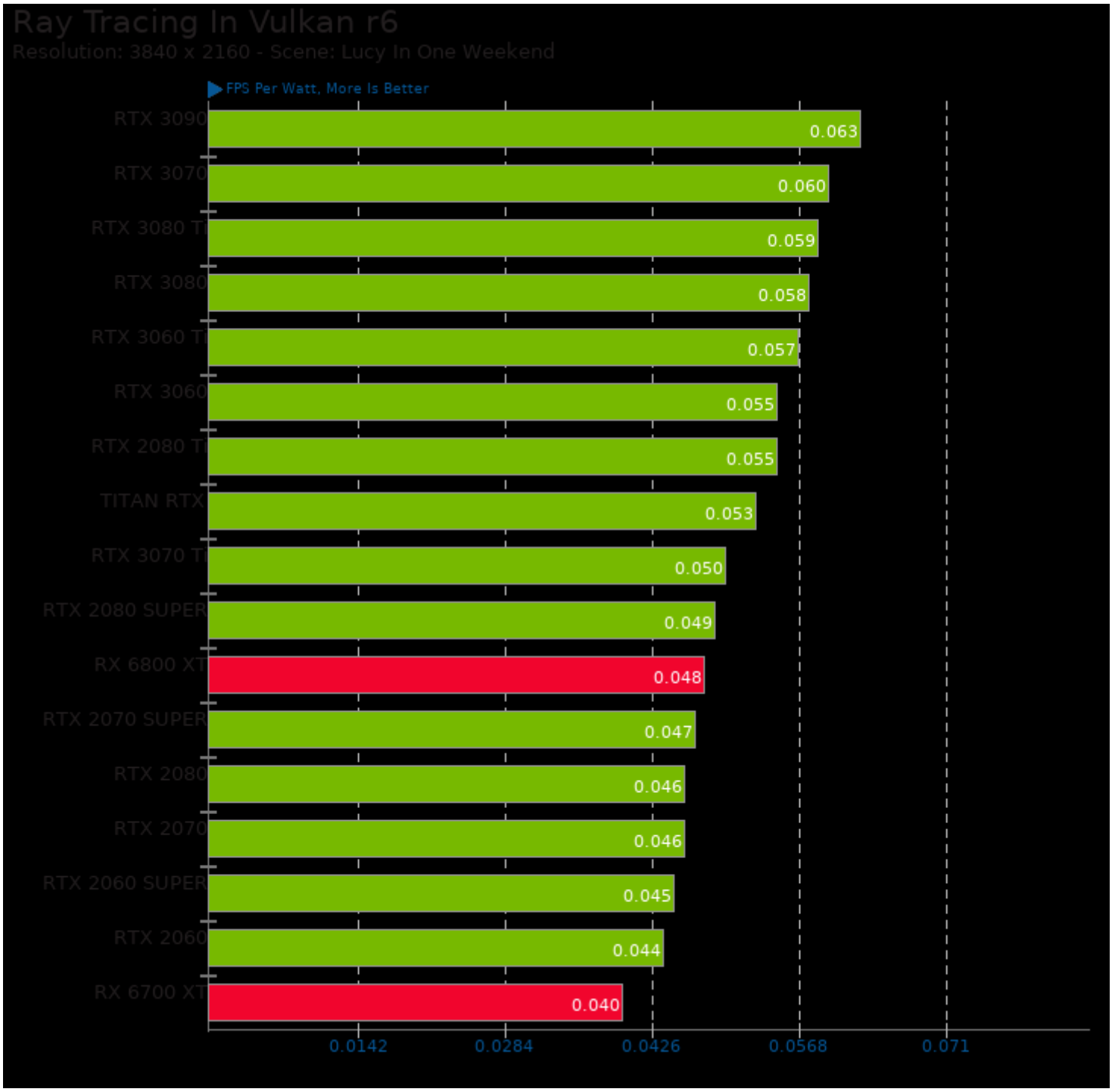

Ray Tracing In Vulkan r6
GPU Power Consumption Monitor
Watts, Fewer Is Better
RX 6700 XT
Min: 6 / Avg: 119.6 / Max: 140
RTX 3060
Min: 13.07 / Avg: 125.06 / Max: 152.46
RTX 2060
Min: 10.23 / Avg: 126.44 / Max: 144.98
RTX 2070
Min: 9.84 / Avg: 153.93 / Max: 178.53
RTX 2060 SUPER
Min: 10.53 / Avg: 154.46 / Max: 178.79
RTX 2070 SUPER
Min: 15.88 / Avg: 164.85 / Max: 189.07
RTX 3060 Ti
Min: 21.97 / Avg: 173.59 / Max: 197.46
RTX 2080 SUPER
Min: 10.46 / Avg: 174.01 / Max: 199.76
RTX 2080
Min: 17.13 / Avg: 179.03 / Max: 203.71
RTX 3070
Min: 9.39 / Avg: 191.09 / Max: 219.27
RX 6800 XT
Min: 7 / Avg: 224.46 / Max: 255
RTX 2080 Ti
Min: 9.57 / Avg: 229.38 / Max: 265.39
TITAN RTX
Min: 15.38 / Avg: 247.15 / Max: 287.04
RTX 3070 Ti
Min: 18.47 / Avg: 250.21 / Max: 287.43
RTX 3080
Min: 16.04 / Avg: 282.75 / Max: 319.23
RTX 3090
Min: 13.93 / Avg: 306.42 / Max: 346.67
RTX 3080 Ti
Min: 18.11 / Avg: 308.75 / Max: 349.52
60
120
180
240
300

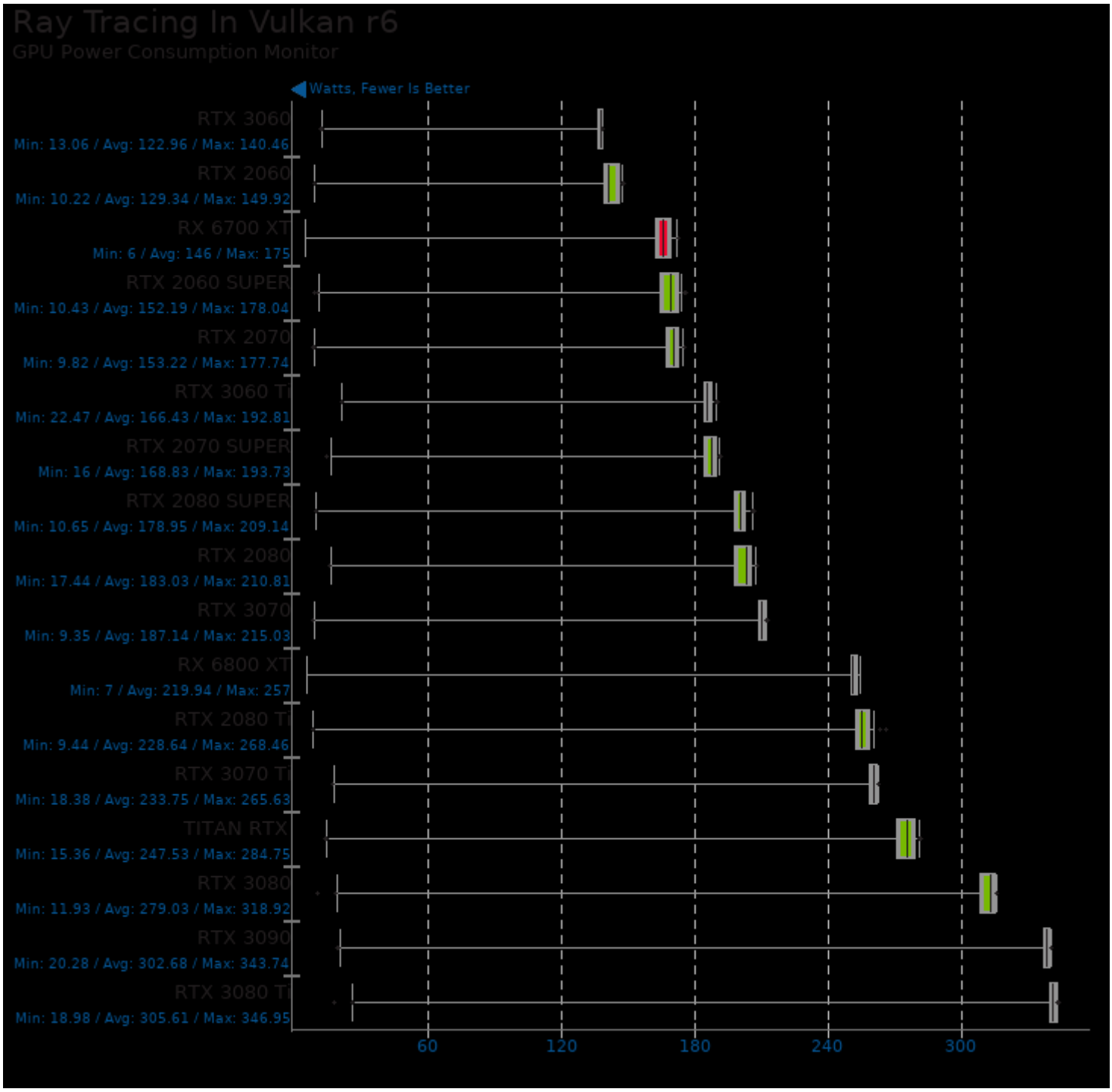

Ray Tracing In Vulkan r6
Resolution: 1920 x 1080 - Scene: Lucy In One Weekend
FPS Per Watt, More Is Better
RTX 3090
0.218
RTX 3070
0.207
RTX 3080 Ti
0.206
RTX 3080
0.198
RTX 3060 Ti
0.195
RTX 3060
0.189
RTX 2080 Ti
0.178
RTX 3070 Ti
0.174
TITAN RTX
0.172
RTX 2080 SUPER
0.167
RTX 2070 SUPER
0.164
RTX 2070
0.159
RX 6800 XT
0.156
RTX 2080
0.155
RTX 2060 SUPER
0.155
RTX 2060
0.150
RX 6700 XT
0.141
0.0491
0.0982
0.1473
0.1964
0.2455

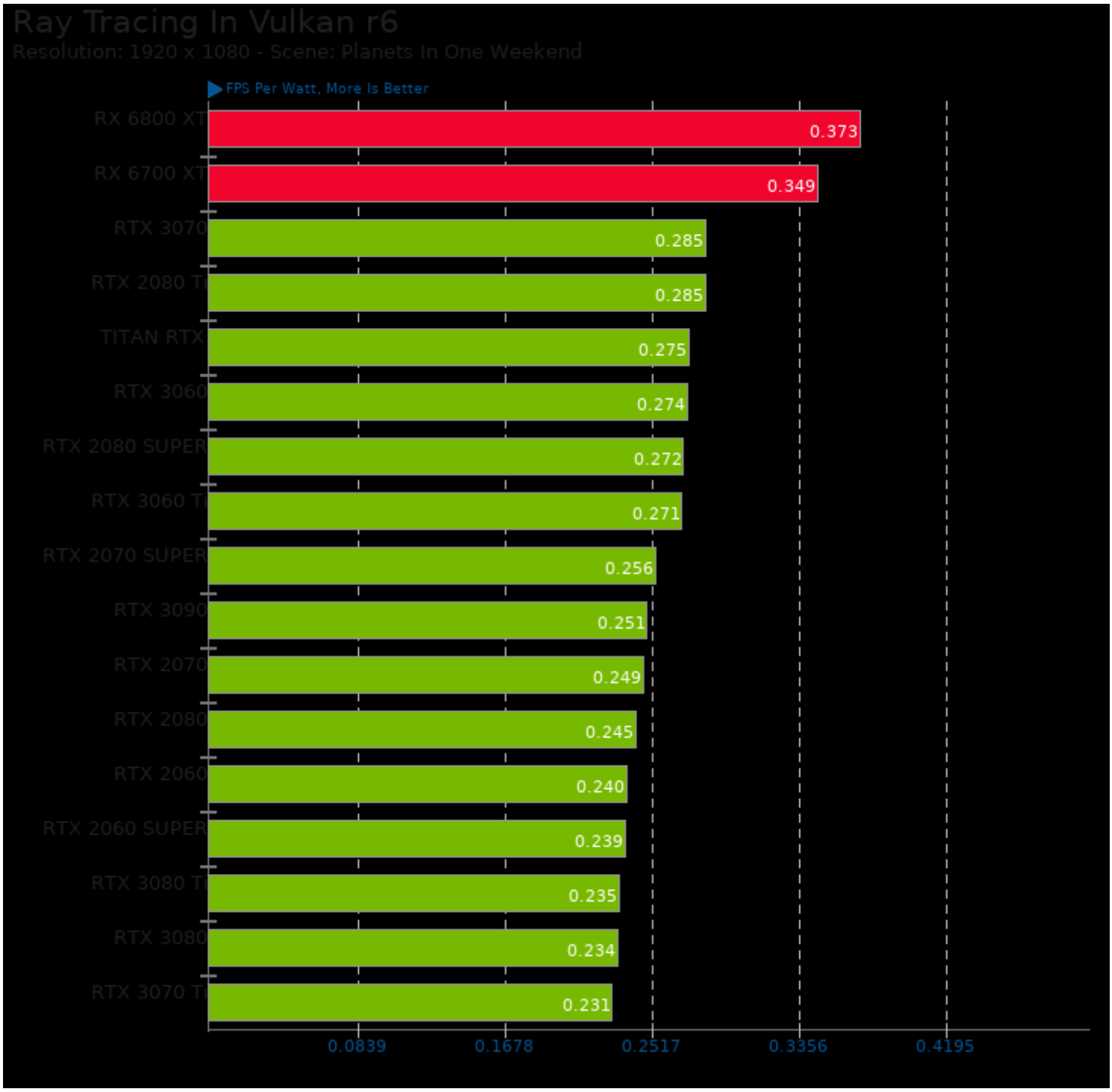

Ray Tracing In Vulkan r6
GPU Power Consumption Monitor
Watts, Fewer Is Better
RTX 2060
Min: 10.31 / Avg: 125.62 / Max: 143.47
RTX 3060
Min: 12.93 / Avg: 125.62 / Max: 143.19
RX 6700 XT
Min: 6 / Avg: 148.9 / Max: 173
RTX 2070
Min: 10.42 / Avg: 149.77 / Max: 172.96
RTX 2060 SUPER
Min: 10.26 / Avg: 151.16 / Max: 175.24
RTX 2070 SUPER
Min: 15.53 / Avg: 161.05 / Max: 184.67
RTX 3060 Ti
Min: 21.93 / Avg: 170.18 / Max: 196.52
RTX 2080 SUPER
Min: 10.71 / Avg: 171.03 / Max: 195.97
RTX 2080
Min: 17.08 / Avg: 176.51 / Max: 204.6
RTX 3070
Min: 9.28 / Avg: 188.42 / Max: 215.88
RX 6800 XT
Min: 7 / Avg: 221.76 / Max: 255
RTX 2080 Ti
Min: 9.91 / Avg: 226.41 / Max: 264.33
RTX 3070 Ti
Min: 18.33 / Avg: 233.08 / Max: 267.93
TITAN RTX
Min: 15.02 / Avg: 246.32 / Max: 286.53
RTX 3080
Min: 18.05 / Avg: 281.45 / Max: 319.53
RTX 3090
Min: 16.38 / Avg: 306.05 / Max: 346.71
RTX 3080 Ti
Min: 17.52 / Avg: 307.86 / Max: 349.33
60
120
180
240
300


Ray Tracing In Vulkan r6
Resolution: 2560 x 1440 - Scene: Lucy In One Weekend
FPS Per Watt, More Is Better
RTX 3090
0.125
RTX 3070
0.121
RTX 3080 T
0.118
RTX 3080
0.115
RTX 3060 T
0.114
RTX 3060
0.111
RTX 2080 T
0.107
TITAN RTX
0.104
RTX 3070 T
0.101
RTX 2080 SUPER
0.097
RTX 2070 SUPER
0.096
RX 6800 XT
0.093
RTX 2070
0.093
RTX 2080
0.091
RTX 2060 SUPER
0.091
RTX 2060
0.088
RX 6700 XT
0.083
0.0281
0.0562
0.0843
0.1124
0.1405

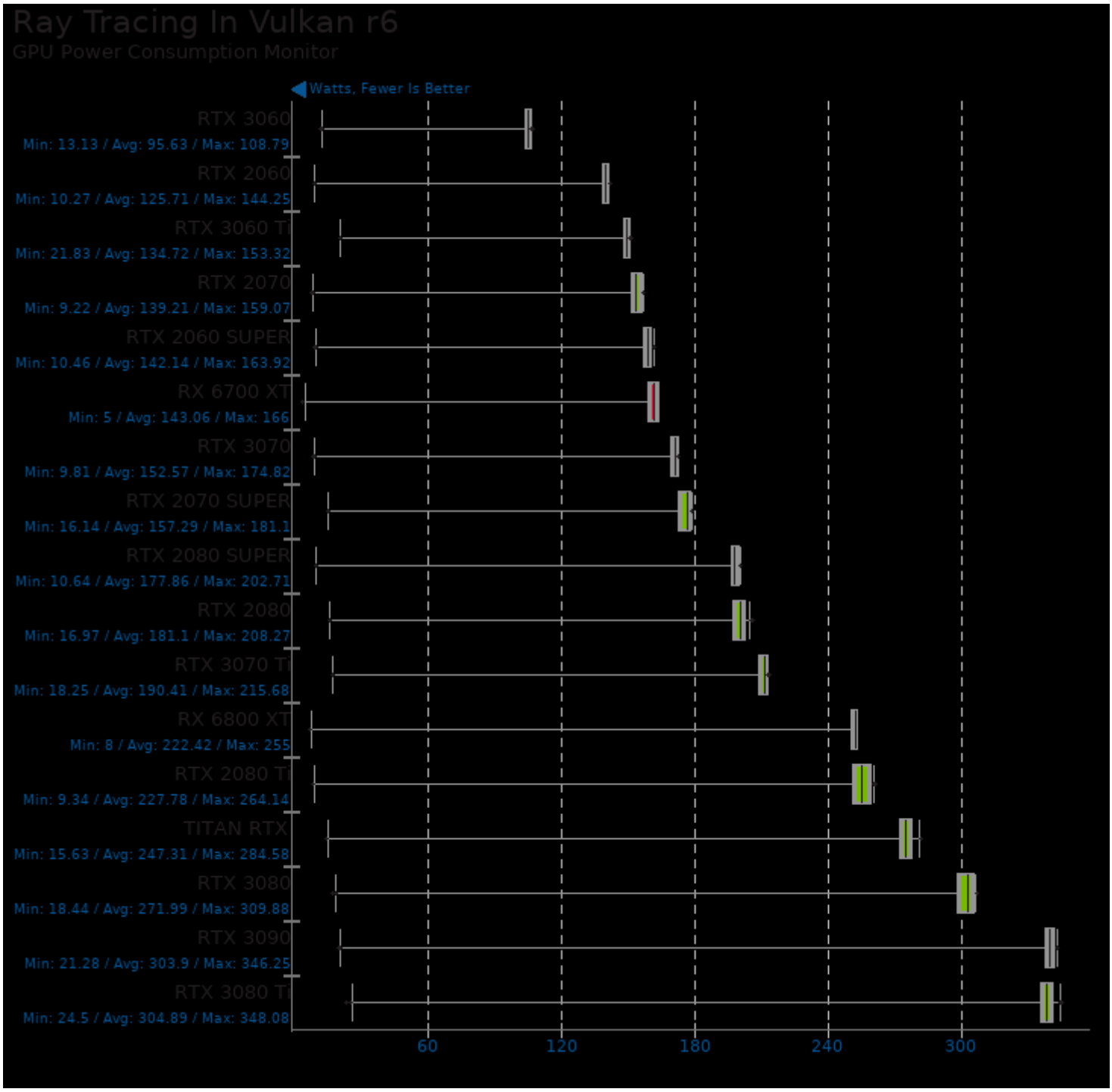

Ray Tracing In Vulkan r6
GPU Power Consumption Monitor
Watts, Fewer Is Better
RTX 3060
Min: 13.2 / Avg: 123.57 / Max: 140.89
RTX 2060
Min: 10.21 / Avg: 127.5 / Max: 144.96
RX 6700 XT
Min: 6 / Avg: 142.23 / Max: 172
RTX 2070
Min: 9.89 / Avg: 151.15 / Max: 175.21
RTX 2060 SUPER
Min: 10.54 / Avg: 151.86 / Max: 176.91
RTX 2070 SUPER
Min: 15.97 / Avg: 163.8 / Max: 190.25
RTX 3060 Ti
Min: 21.97 / Avg: 167.58 / Max: 193.18
RTX 2080 SUPER
Min: 10.61 / Avg: 176.97 / Max: 203.47
RTX 2080
Min: 17.31 / Avg: 179.17 / Max: 207.18
RTX 3070
Min: 9.27 / Avg: 187.2 / Max: 215.24
RX 6800 XT
Min: 7 / Avg: 222.84 / Max: 255
RTX 2080 Ti
Min: 9.76 / Avg: 227.96 / Max: 267.21
RTX 3070 Ti
Min: 18.45 / Avg: 230.2 / Max: 263.75
TITAN RTX
Min: 15.76 / Avg: 247.03 / Max: 287.17
RTX 3080
Min: 13.49 / Avg: 278.94 / Max: 318.15
RTX 3090
Min: 14.03 / Avg: 306.29 / Max: 347.54
RTX 3080 Ti
Min: 17.65 / Avg: 307.63 / Max: 349.26
60
120
180
240
300

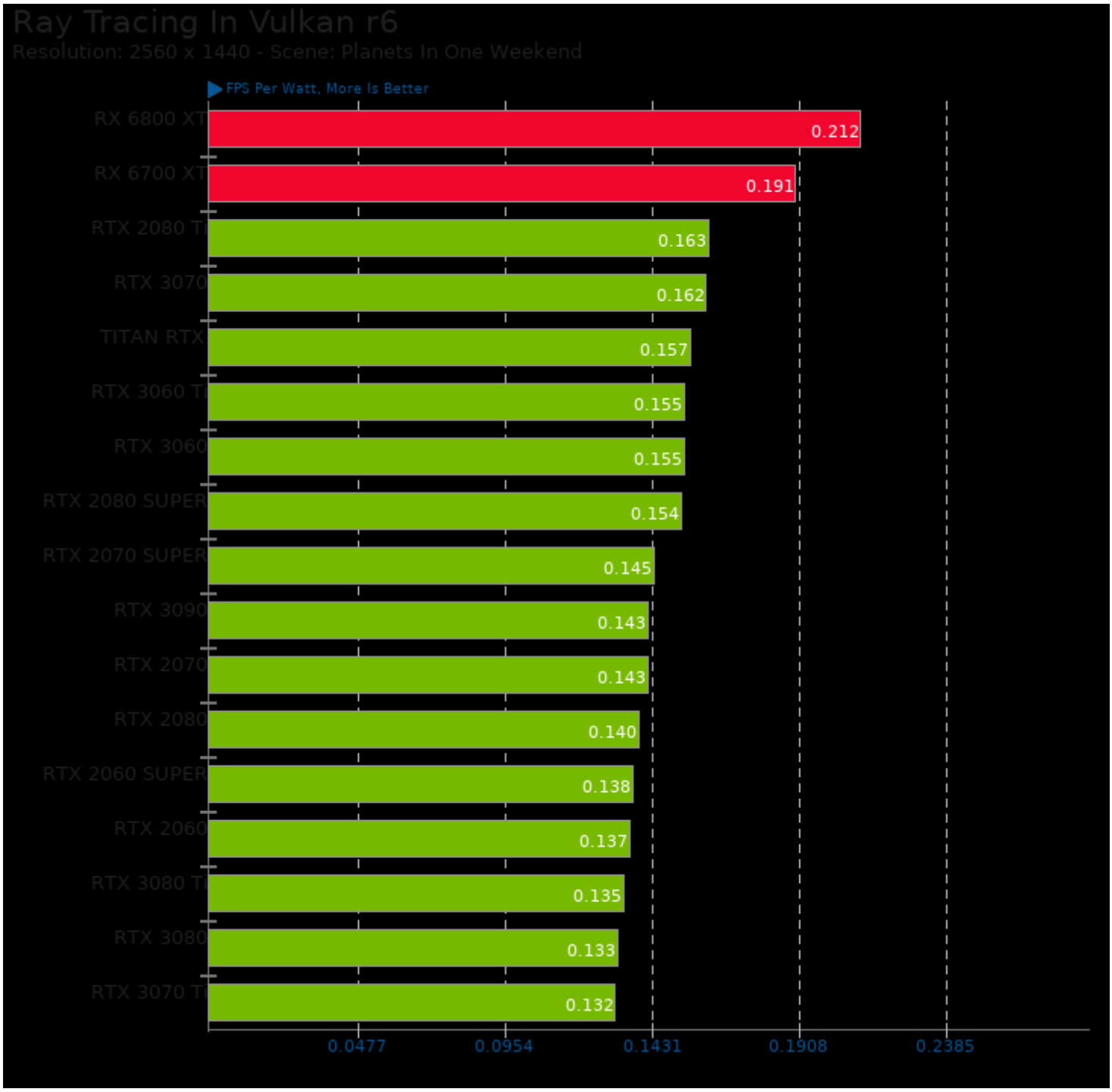

Ray Tracing In Vulkan r6
Resolution: 3840 x 2160 - Scene: Lucy In One Weekend
FPS Per Watt, More Is Better
RTX 3090
0.063
RTX 3070
0.060
RTX 3080 T
0.059
RTX 3080
0.058
RTX 3060 T
0.057
RTX 3060
0.055
RTX 2080 T
0.055
TITAN RTX
0.053
RTX 3070 T
0.050
RTX 2080 SUPER
0.049
RX 6800 XT
0.048
RTX 2070 SUPER
0.047
RTX 2080
0.046
RTX 2070
0.046
RTX 2060 SUPER
0.045
RTX 2060
0.044
RX 6700 XT
0.040
0.0142
0.0284
0.0426
0.0568
0.071

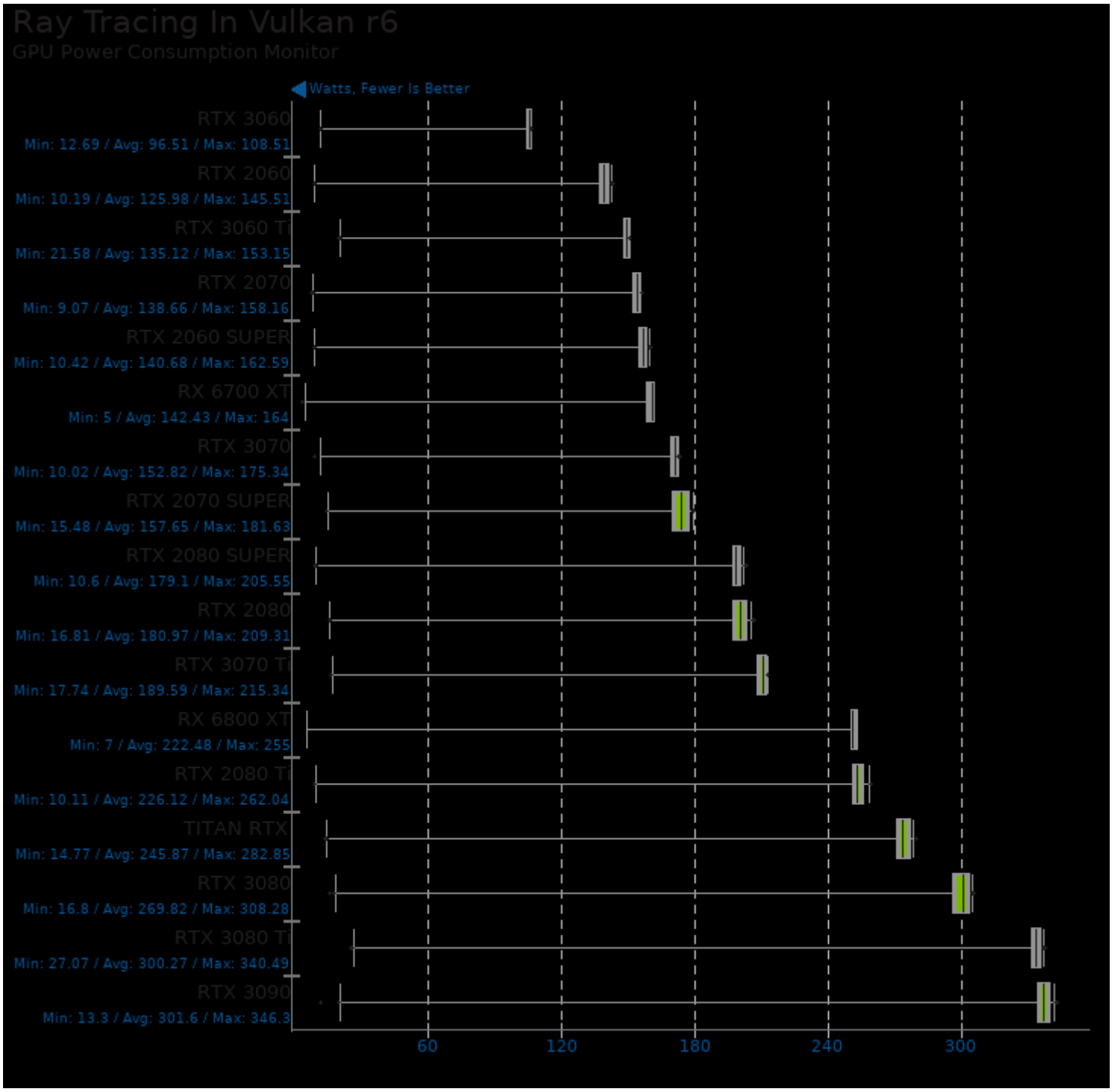

Ray Tracing In Vulkan r6
GPU Power Consumption Monitor
Watts, Fewer Is Better
RTX 3060
Min: 13.06 / Avg: 122.96 / Max: 140.46
RTX 2060
Min: 10.22 / Avg: 129.34 / Max: 149.92
RX 6700 XT
Min: 6 / Avg: 146 / Max: 175
RTX 2060 SUPER
Min: 10.43 / Avg: 152.19 / Max: 178.04
RTX 2070
Min: 9.82 / Avg: 153.22 / Max: 177.74
RTX 3060 Ti
Min: 22.47 / Avg: 166.43 / Max: 192.81
RTX 2070 SUPER
Min: 16 / Avg: 168.83 / Max: 193.73
RTX 2080 SUPER
Min: 10.65 / Avg: 178.95 / Max: 209.14
RTX 2080
Min: 17.44 / Avg: 183.03 / Max: 210.81
RTX 3070
Min: 9.35 / Avg: 187.14 / Max: 215.03
RX 6800 XT
Min: 7 / Avg: 219.94 / Max: 257
RTX 2080 Ti
Min: 9.44 / Avg: 228.64 / Max: 268.46
RTX 3070 Ti
Min: 18.38 / Avg: 233.75 / Max: 265.63
TITAN RTX
Min: 15.36 / Avg: 247.53 / Max: 284.75
RTX 3080
Min: 11.93 / Avg: 279.03 / Max: 318.92
RTX 3090
Min: 20.28 / Avg: 302.68 / Max: 343.74
RTX 3080 Ti
Min: 18.98 / Avg: 305.61 / Max: 346.95
60
120
180
240
300

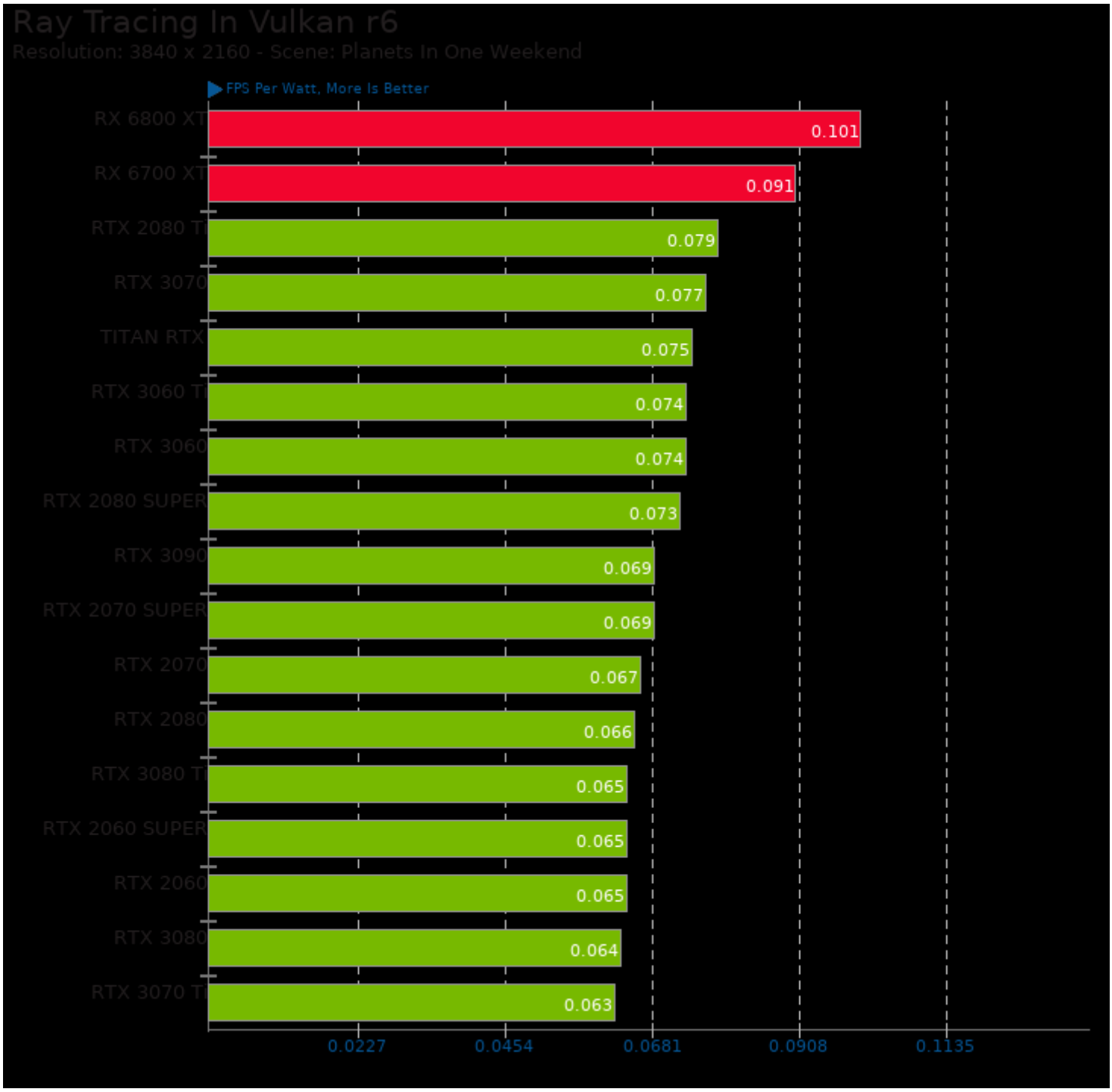

Ray Tracing In Vulkan r6
Resolution: 1920 x 1080 - Scene: Planets In One Weekend
FPS Per Watt, More Is Better
RX 6800 XT
0.373
RX 6700 XT
0.349
RTX 3070
0.285
RTX 2080 Ti
0.285
TITAN RTX
0.275
RTX 3060
0.274
RTX 2080 SUPER
0.272
RTX 3060 Ti
0.271
RTX 2070 SUPER
0.256
RTX 3090
0.251
RTX 2070
0.249
RTX 2080
0.245
RTX 2060
0.240
RTX 2060 SUPER
0.239
RTX 3080 Ti
0.235
RTX 3080
0.234
RTX 3070 Ti
0.231
0.0839
0.1678
0.2517
0.3356
0.4195

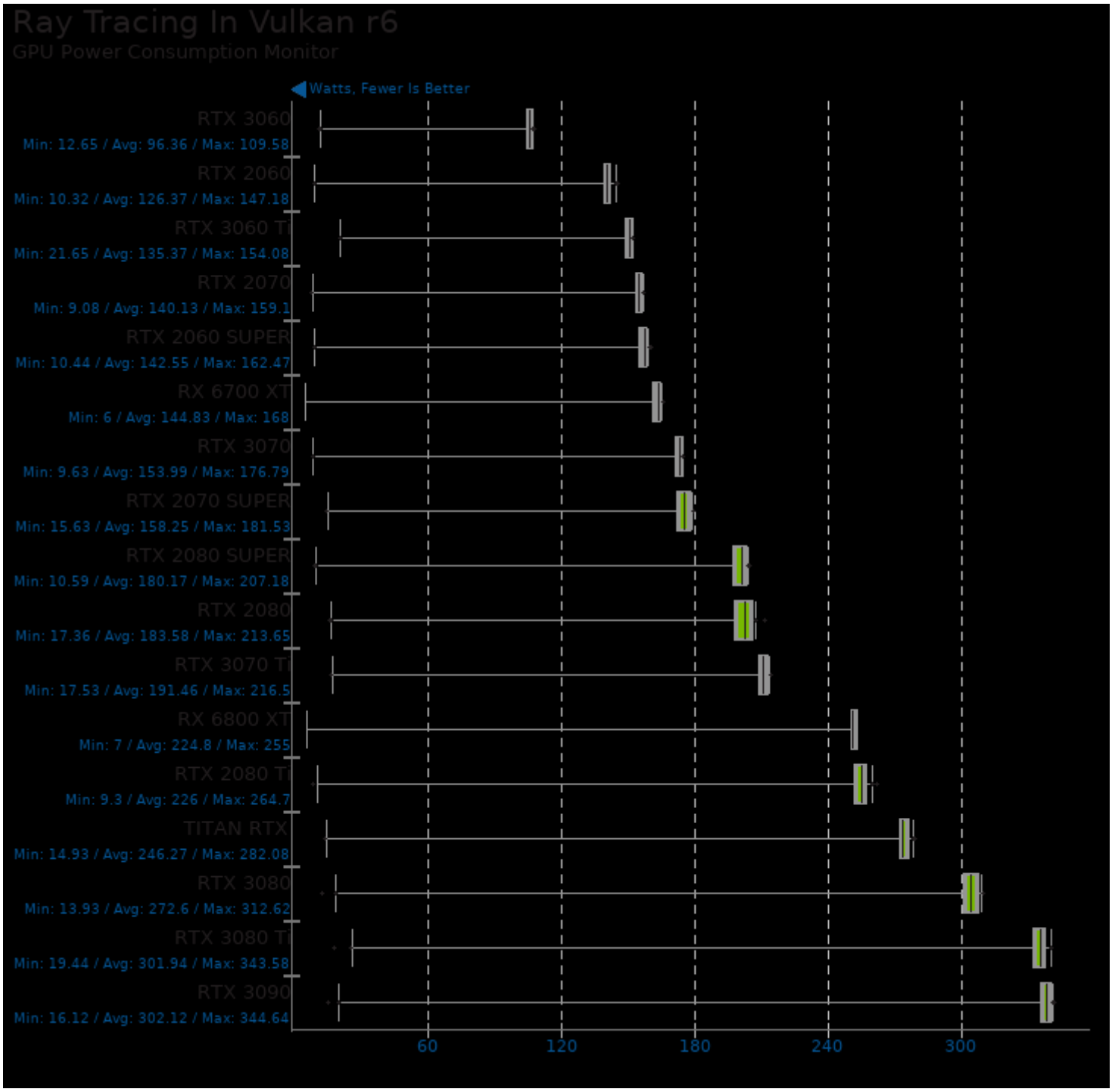
Vulkan Ray-Tracing GPUs On Linux

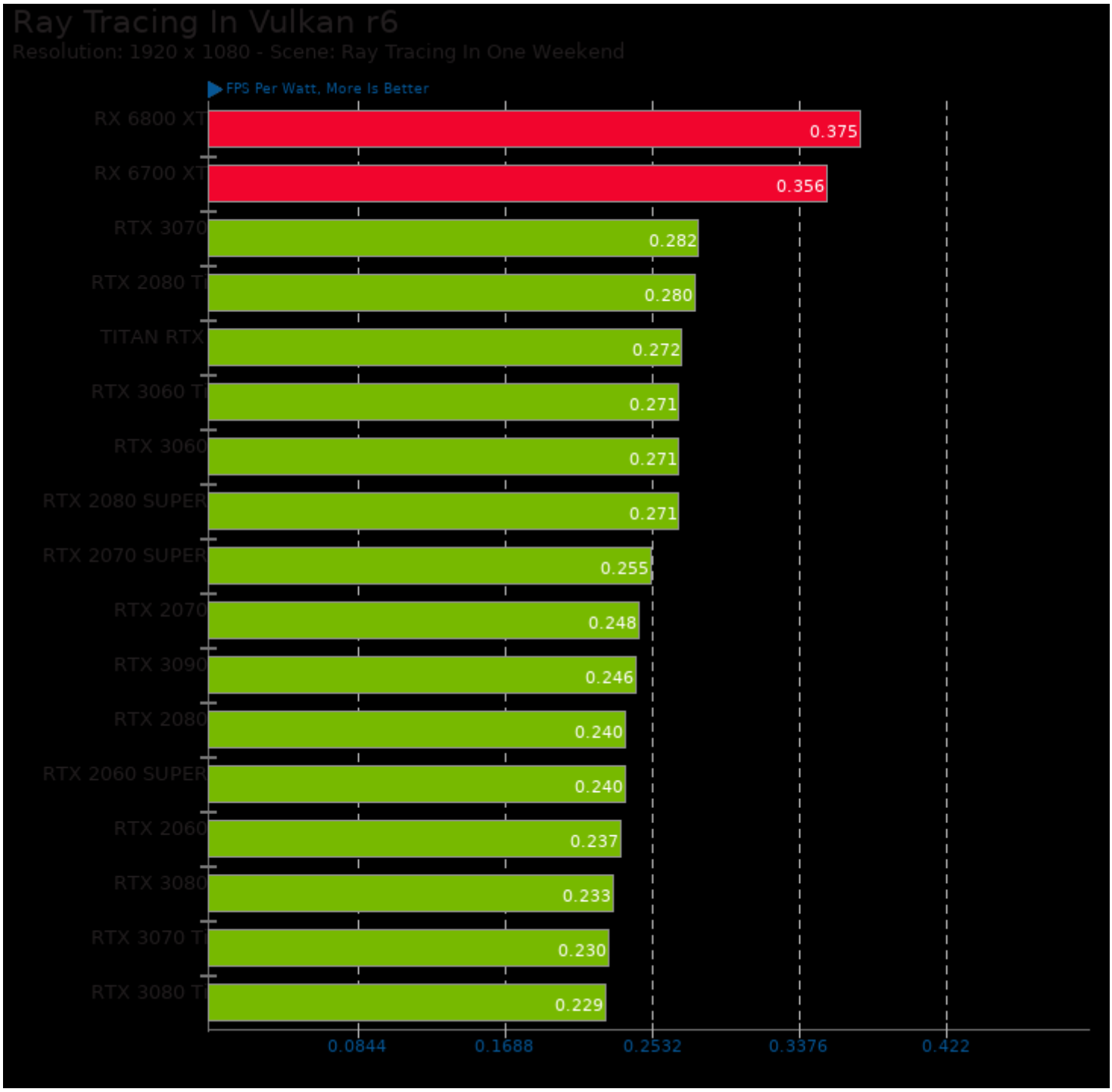



Ray Tracing In Vulkan r6
Resolution: 2560 x 1440 - Scene: Planets In One Weekend
FPS Per Watt, More Is Better
RX 6800 XT
0.212
RX 6700 XT
0.191
RTX 2080 T
0.163
RTX 3070
0.162
TITAN RTX
0.157
RTX 3060 T
0.155
RTX 3060
0.155
RTX 2080 SUPER
0.154
RTX 2070 SUPER
0.145
RTX 3090
0.143
RTX 2070
0.143
RTX 2080
0.140
RTX 2060 SUPER
0.138
RTX 2060
0.137
RTX 3080 T
0.135
RTX 3080
0.133
RTX 3070 T
0.132
0.0477
0.0954
0.1431
0.1908
0.2385

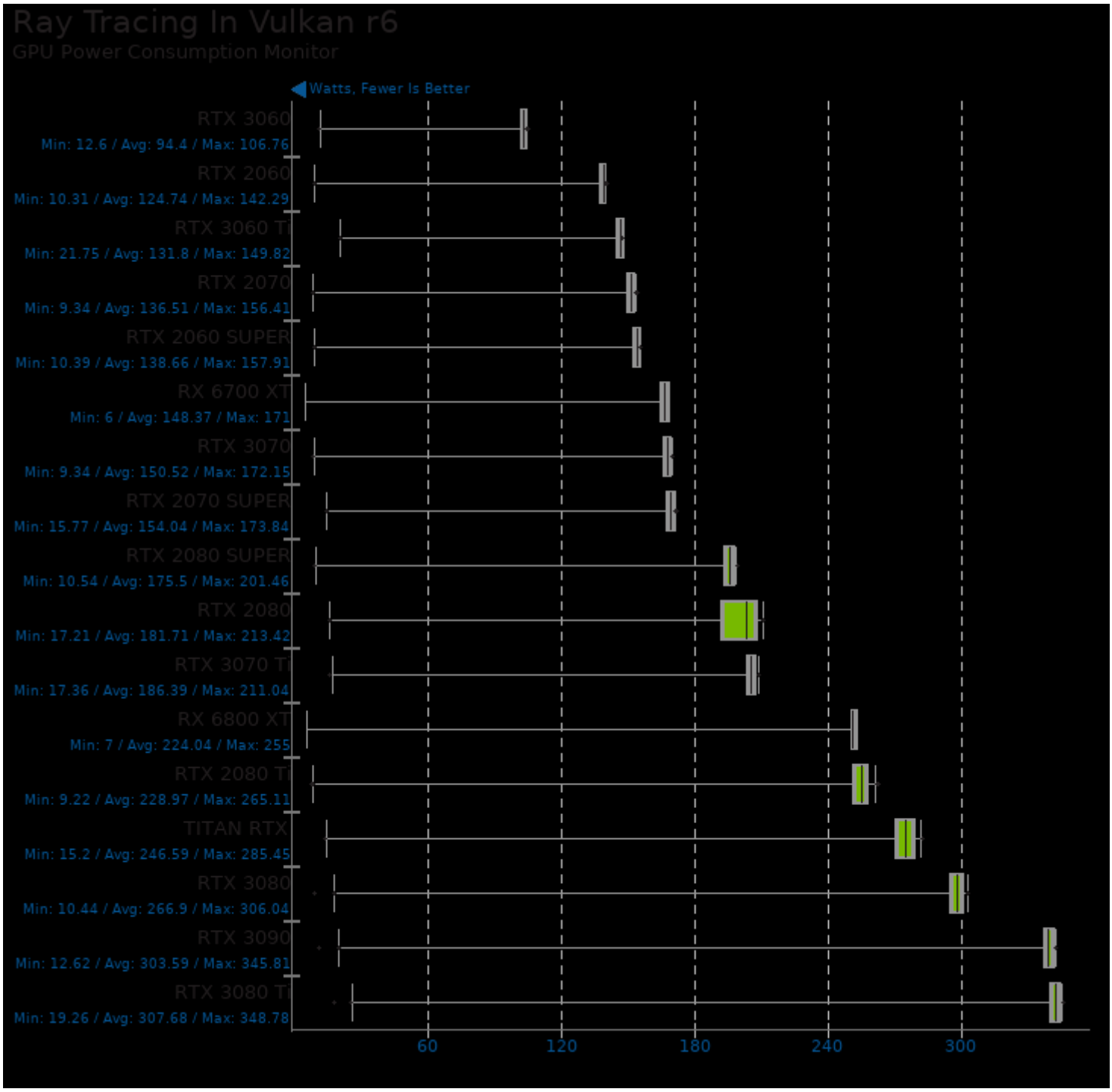

Ray Tracing In Vulkan r6
GPU Power Consumption Monitor
Watts, Fewer Is Better
RTX 3060
Min: 12.69 / Avg: 96.51 / Max: 108.51
RTX 2060
Min: 10.19 / Avg: 125.98 / Max: 145.51
RTX 3060 Ti
Min: 21.58 / Avg: 135.12 / Max: 153.15
RTX 2070
Min: 9.07 / Avg: 138.66 / Max: 158.16
RTX 2060 SUPER
Min: 10.42 / Avg: 140.68 / Max: 162.59
RX 6700 XT
Min: 5 / Avg: 142.43 / Max: 164
RTX 3070
Min: 10.02 / Avg: 152.82 / Max: 175.34
RTX 2070 SUPER
Min: 15.48 / Avg: 157.65 / Max: 181.63
RTX 2080 SUPER
Min: 10.6 / Avg: 179.1 / Max: 205.55
RTX 2080
Min: 16.81 / Avg: 180.97 / Max: 209.31
RTX 3070 Ti
Min: 17.74 / Avg: 189.59 / Max: 215.34
RX 6800 XT
Min: 7 / Avg: 222.48 / Max: 255
RTX 2080 Ti
Min: 10.11 / Avg: 226.12 / Max: 262.04
TITAN RTX
Min: 14.77 / Avg: 245.87 / Max: 282.85
RTX 3080
Min: 16.8 / Avg: 269.82 / Max: 308.28
RTX 3080 Ti
Min: 27.07 / Avg: 300.27 / Max: 340.49
RTX 3090
Min: 13.3 / Avg: 301.6 / Max: 346.3
60
120
180
240
300

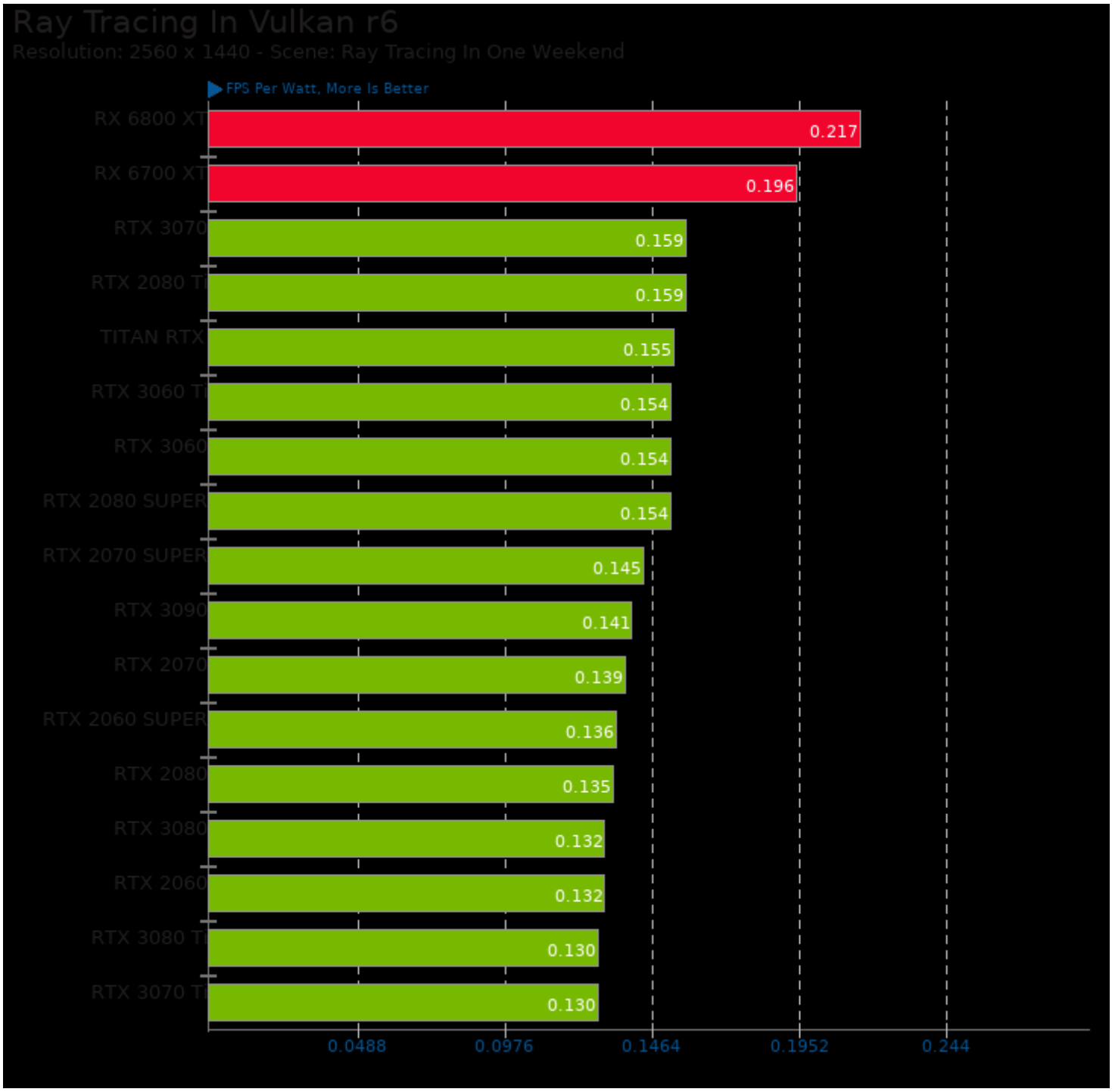

Ray Tracing In Vulkan r6
Resolution: 3840 x 2160 - Scene: Planets In One Weekend
FPS Per Watt, More Is Better
RX 6800 XT
0.101
RX 6700 XT
0.091
RTX 2080 T
0.079
RTX 3070
0.077
TITAN RTX
0.075
RTX 3060 T
0.074
RTX 3060
0.074
RTX 2080 SUPER
0.073
RTX 3090
0.069
RTX 2070 SUPER
0.069
RTX 2070
0.067
RTX 2080
0.066
RTX 3080 T
0.065
RTX 2060 SUPER
0.065
RTX 2060
0.065
RTX 3080
0.064
RTX 3070 T
0.063
0.0227
0.0454
0.0681
0.0908
0.1135

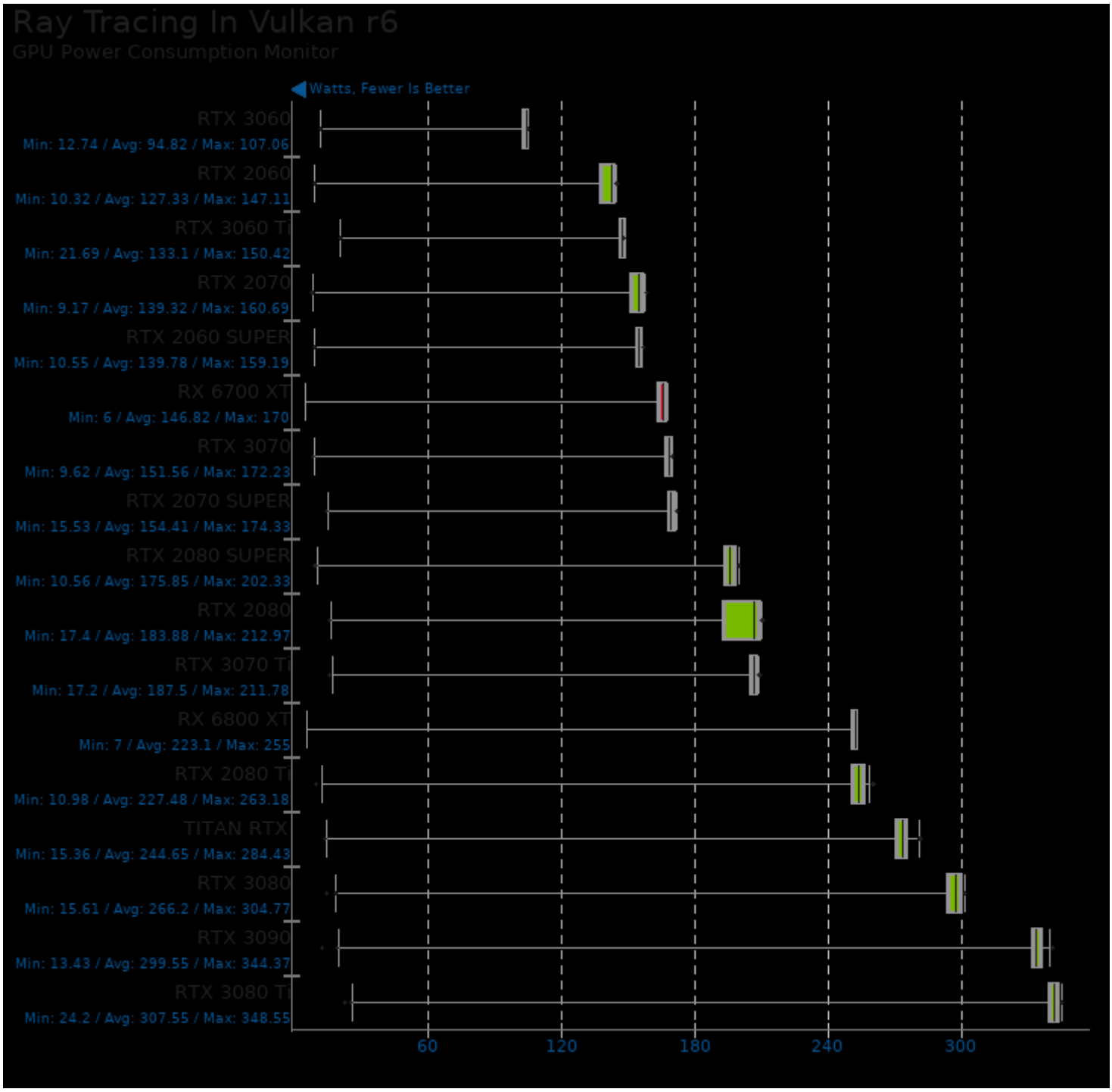

Ray Tracing In Vulkan r6
GPU Power Consumption Monitor
Watts, Fewer Is Better
RTX 3060
Min: 12.65 / Avg: 96.36 / Max: 109.58
RTX 2060
Min: 10.32 / Avg: 126.37 / Max: 147.18
RTX 3060 Ti
Min: 21.65 / Avg: 135.37 / Max: 154.08
RTX 2070
Min: 9.08 / Avg: 140.13 / Max: 159.1
RTX 2060 SUPER
Min: 10.44 / Avg: 142.55 / Max: 162.47
RX 6700 XT
Min: 6 / Avg: 144.83 / Max: 168
RTX 3070
Min: 9.63 / Avg: 153.99 / Max: 176.79
RTX 2070 SUPER
Min: 15.63 / Avg: 158.25 / Max: 181.53
RTX 2080 SUPER
Min: 10.59 / Avg: 180.17 / Max: 207.18
RTX 2080
Min: 17.36 / Avg: 183.58 / Max: 213.65
RTX 3070 Ti
Min: 17.53 / Avg: 191.46 / Max: 216.5
RX 6800 XT
Min: 7 / Avg: 224.8 / Max: 255
RTX 2080 Ti
Min: 9.3 / Avg: 226 / Max: 264.7
TITAN RTX
Min: 14.93 / Avg: 246.27 / Max: 282.08
RTX 3080
Min: 13.93 / Avg: 272.6 / Max: 312.62
RTX 3080 Ti
Min: 19.44 / Avg: 301.94 / Max: 343.58
RTX 3090
Min: 16.12 / Avg: 302.12 / Max: 344.64
60
120
180
240
300

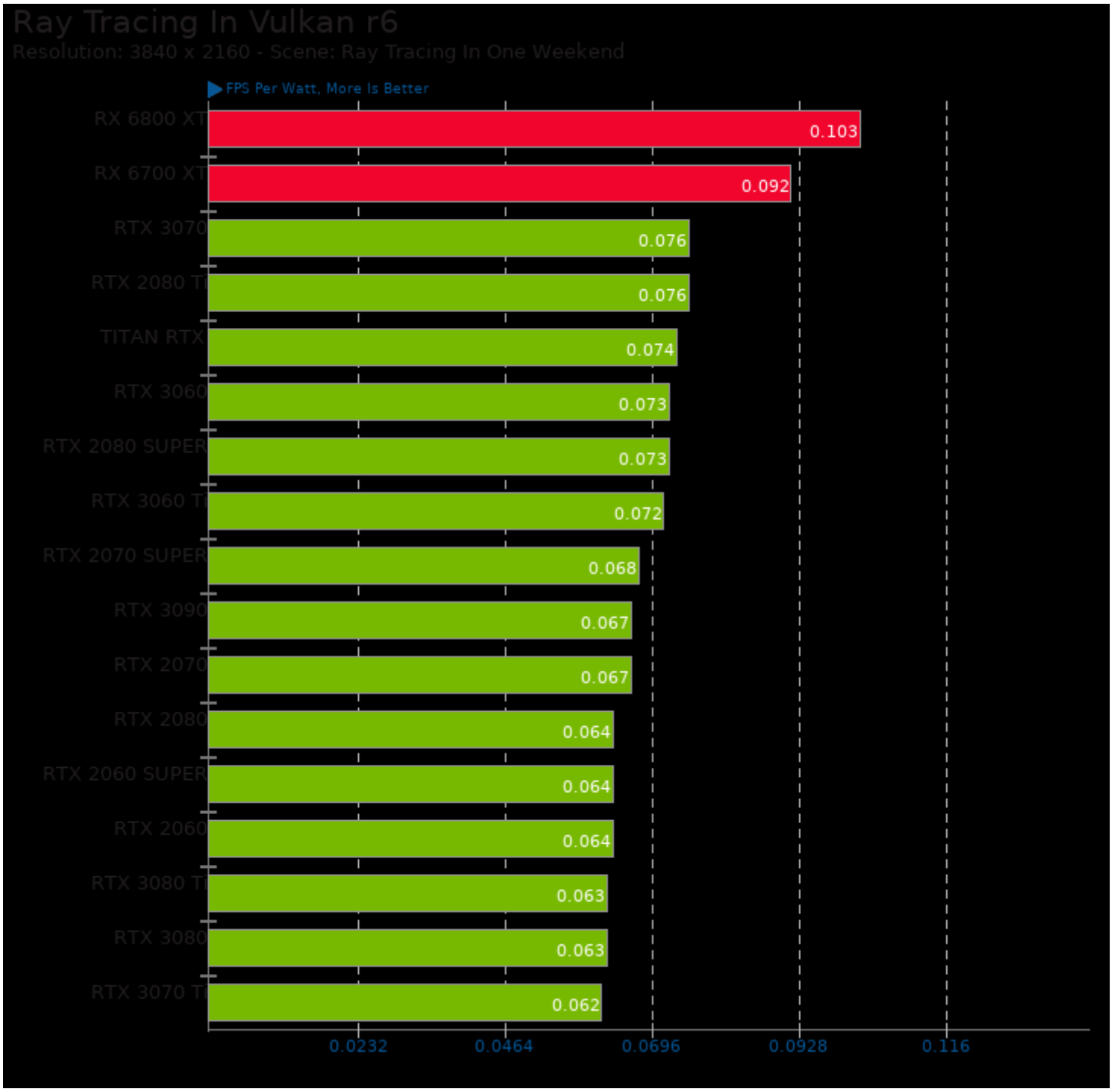

Ray Tracing In Vulkan r6
Resolution: 1920 x 1080 - Scene: Ray Tracing In One Weekend
FPS Per Watt, More Is Better
RX 6800 XT
0.375
RX 6700 XT
0.356
RTX 3070
0.282
RTX 2080 Ti
0.280
TITAN RTX
0.272
RTX 3060 Ti
0.271
RTX 3060
0.271
RTX 2080 SUPER
0.271
RTX 2070 SUPER
0.255
RTX 2070
0.248
RTX 3090
0.246
RTX 2080
0.240
RTX 2060 SUPER
0.240
RTX 2060
0.237
RTX 3080
0.233
RTX 3070 Ti
0.230
RTX 3080 Ti
0.229
0.0844
0.1688
0.2532
0.3376
0.422

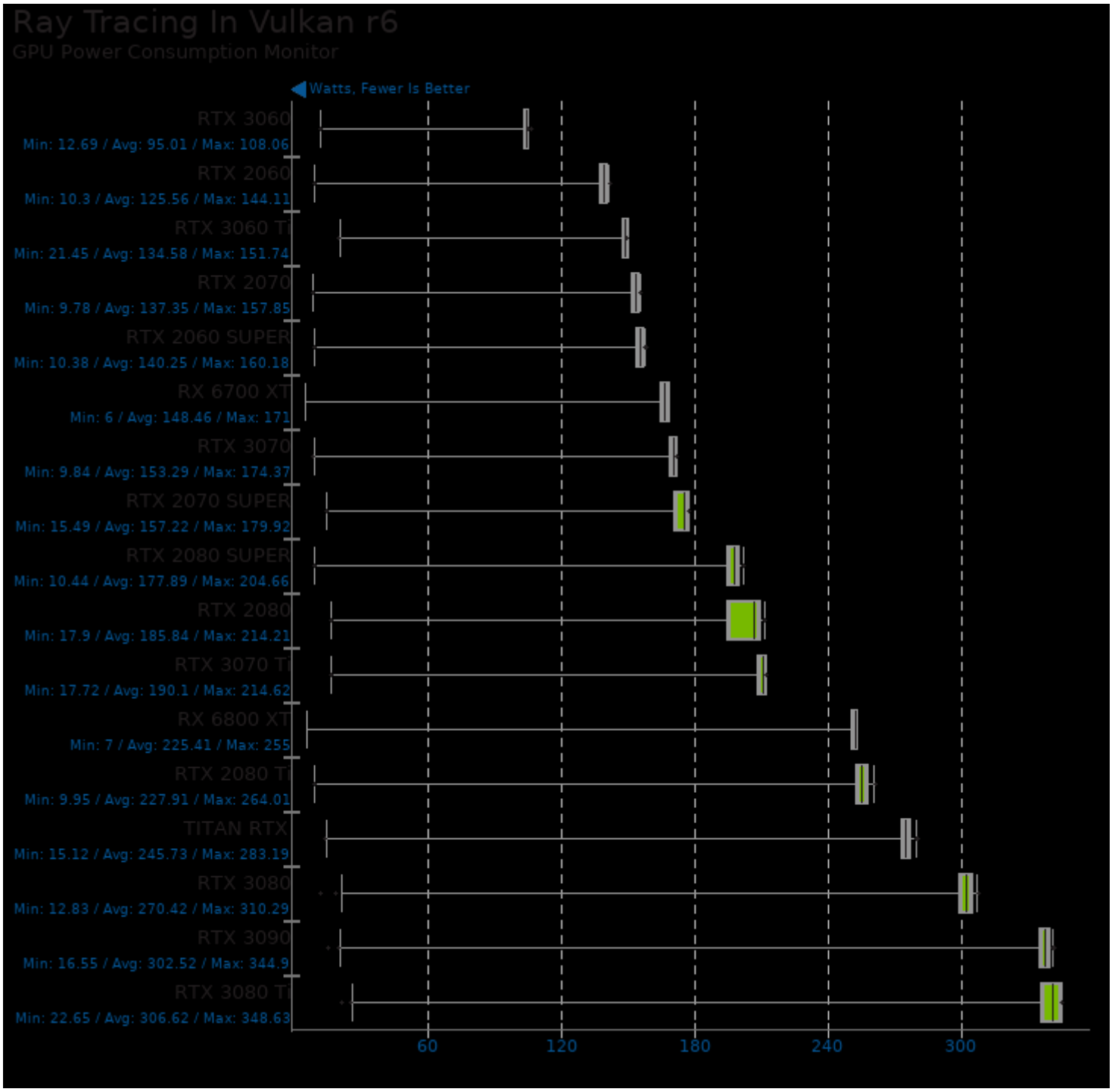
Vulkan Ray-Tracing GPUs On Linux



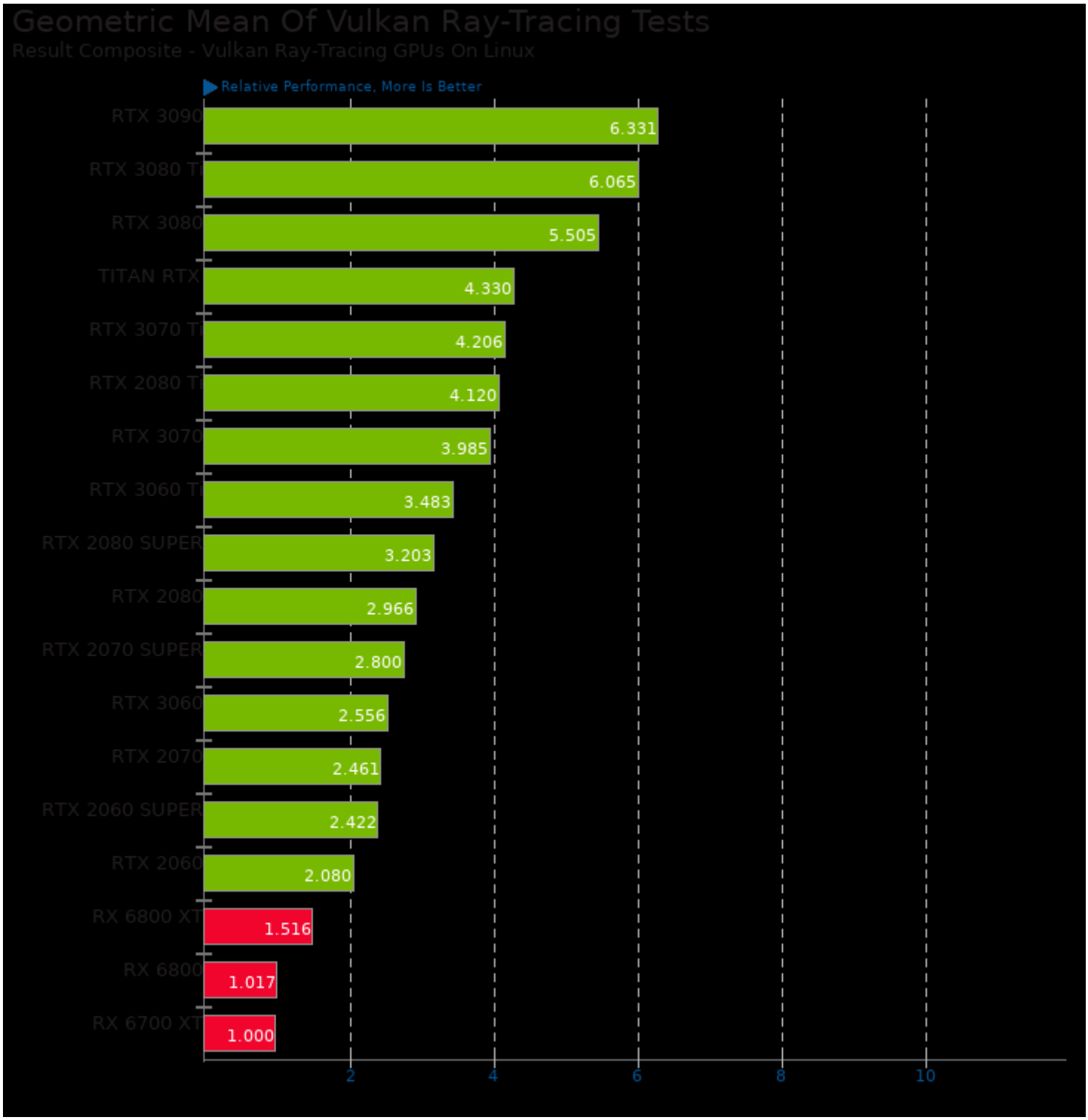

Ray Tracing In Vulkan r6
Resolution: 2560 x 1440 - Scene: Ray Tracing In One Weekend
FPS Per Watt, More Is Better
RX 6800 XT
0.217
RX 6700 XT
0.196
RTX 3070
0.159
RTX 2080 Ti
0.159
TITAN RTX
0.155
RTX 3060 Ti
0.154
RTX 3060
0.154
RTX 2080 SUPER
0.154
RTX 2070 SUPER
0.145
RTX 3090
0.141
RTX 2070
0.139
RTX 2060 SUPER
0.136
RTX 2080
0.135
RTX 3080
0.132
RTX 2060
0.132
RTX 3080 Ti
0.130
RTX 3070 Ti
0.130
0.0488
0.0976
0.1464
0.1952
0.244


Ray Tracing In Vulkan r6
GPU Power Consumption Monitor
Watts, Fewer Is Better
RTX 3060
Min: 12.74 / Avg: 94.82 / Max: 107.06
RTX 2060
Min: 10.32 / Avg: 127.33 / Max: 147.11
RTX 3060 Ti
Min: 21.69 / Avg: 133.1 / Max: 150.42
RTX 2070
Min: 9.17 / Avg: 139.32 / Max: 160.69
RTX 2060 SUPER
Min: 10.55 / Avg: 139.78 / Max: 159.19
RX 6700 XT
Min: 6 / Avg: 146.82 / Max: 170
RTX 3070
Min: 9.62 / Avg: 151.56 / Max: 172.23
RTX 2070 SUPER
Min: 15.53 / Avg: 154.41 / Max: 174.33
RTX 2080 SUPER
Min: 10.56 / Avg: 175.85 / Max: 202.33
RTX 2080
Min: 17.4 / Avg: 183.88 / Max: 212.97
RTX 3070 Ti
Min: 17.2 / Avg: 187.5 / Max: 211.78
RX 6800 XT
Min: 7 / Avg: 223.1 / Max: 255
RTX 2080 Ti
Min: 10.98 / Avg: 227.48 / Max: 263.18
TITAN RTX
Min: 15.36 / Avg: 244.65 / Max: 284.43
RTX 3080
Min: 15.61 / Avg: 266.2 / Max: 304.77
RTX 3090
Min: 13.43 / Avg: 299.55 / Max: 344.37
RTX 3080 Ti
Min: 24.2 / Avg: 307.55 / Max: 348.55
60
120
180
240
300


Ray Tracing In Vulkan r6
Resolution: 3840 x 2160 - Scene: Ray Tracing In One Weekend
FPS Per Watt, More Is Better
RX 6800 XT
0.103
RX 6700 XT
0.092
RTX 3070
0.076
RTX 2080 Ti
0.076
TITAN RTX
0.074
RTX 3060
0.073
RTX 2080 SUPER
0.073
RTX 3060 Ti
0.072
RTX 2070 SUPER
0.068
RTX 3090
0.067
RTX 2070
0.067
RTX 2080
0.064
RTX 2060 SUPER
0.064
RTX 2060
0.064
RTX 3080 Ti
0.063
RTX 3080
0.063
RTX 3070 Ti
0.062
0.0232
0.0464
0.0696
0.0928
0.116


Ray Tracing In Vulkan r6
GPU Power Consumption Monitor
Watts, Fewer Is Better
RTX 3060
Min: 12.69 / Avg: 95.01 / Max: 108.06
RTX 2060
Min: 10.3 / Avg: 125.56 / Max: 144.11
RTX 3060 Ti
Min: 21.45 / Avg: 134.58 / Max: 151.74
RTX 2070
Min: 9.78 / Avg: 137.35 / Max: 157.85
RTX 2060 SUPER
Min: 10.38 / Avg: 140.25 / Max: 160.18
RX 6700 XT
Min: 6 / Avg: 148.46 / Max: 171
RTX 3070
Min: 9.84 / Avg: 153.29 / Max: 174.37
RTX 2070 SUPER
Min: 15.49 / Avg: 157.22 / Max: 179.92
RTX 2080 SUPER
Min: 10.44 / Avg: 177.89 / Max: 204.66
RTX 2080
Min: 17.9 / Avg: 185.84 / Max: 214.21
RTX 3070 Ti
Min: 17.72 / Avg: 190.1 / Max: 214.62
RX 6800 XT
Min: 7 / Avg: 225.41 / Max: 255
RTX 2080 Ti
Min: 9.95 / Avg: 227.91 / Max: 264.01
TITAN RTX
Min: 15.12 / Avg: 245.73 / Max: 283.19
RTX 3080
Min: 12.83 / Avg: 270.42 / Max: 310.29
RTX 3090
Min: 16.55 / Avg: 302.52 / Max: 344.9
RTX 3080 Ti
Min: 22.65 / Avg: 306.62 / Max: 348.63
60
120
180
240
300

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



Geometric mean based upon tests: pts/rtiv and pts/quake2rtx

This file was automatically generated via the Phoronix Test Suite benchmarking software on Thursday, 28 March 2024 18:27.