

RX 6700 XT vs GTX 1080 Ti Game Performance Benchmarks (Core i9-10900K vs i7-7700K)

Our Verdict: Upgrading from GTX 1080 Ti to RX 6700 XT is not recommended as it is less than 30% of improvement in performance. In general, a reasonable upgrade is between 30% and 50% or more to justify the purchase of new hardware. The price/performance ratio is much better for RX 6700 XT.

AMD Radeon RX 6700 XT

AMD's xx00 cards have always been defined by mid-range prices with performance that knocks on the door of high-end graphics cards – especially when overclocked. After taking the time to fully test the RDNA 2.0 graphics card inside the RX 6700 XT, we can say without a doubt that it continues the trend. The RX 6700 XT is much more expensive than the RX 5700 as it costs a whopping \$ 479. Compare this to the RX 5700, AMD Radeon RX 5700 XT, which came originally at a price of \$ 349, \$ 399. Meanwhile, the NVIDIA closest equivalent card is the RTX 3070 which costs \$ 499.

The RX 6700 XT has 12 GB RAM compared to the RX 5700's 8 GB video memory. Unfortunately, gaming performance was not quite as impressive. Even if the RX 6700 XT consistently delivers frame rate increases over the RX 5700, AMD Radeon RX 5700 XT, the gain is not much to justify an upgrade.

Whether it is a justifiable upgrade depends on what graphics card you are upgrading from. Users with a RX 5700, AMD Radeon RX 5700 XT will not see a remarkable increase in frame rates after paying more for this RX 6700 XT. Similarly, those holding onto RTX 3070's RTX 2070 graphics cards will not have a reason to jump teams yet. For 1080p Full HD, we were able to play Halo Infinite, Assassin's Creed Valhalla, Cyberpunk 2077, Red Dead Redemption 2, Metro Exodus at 71 fps to 90 fps and kept frame rates hovering around 77 fps.

For 1440p Quad HD, we were able to play Red Dead Redemption 2, Halo Infinite, Assassin's Creed Valhalla, Assassin's Creed Odyssey, Marvel's Avengers at 62 fps to 69 fps and kept frame rates hovering around 66 fps. For 2160p 4K, we were able to play God of War, Forza Horizon 5, Hitman 2, Far Cry New Dawn, Resident Evil 2 at 61 fps to 65 fps and kept frame rates hovering around 63 fps.

NVIDIA GeForce GTX 1080 Ti

The GTX 1080 Ti is much more expensive than the GTX 980 as it costs a whopping \$ 759. Compare this to the GTX 980, NVIDIA GeForce GTX 980 Ti, which came originally at a price of \$ 549, \$ 649. Meanwhile, the AMD closest equivalent card is the RX Vega 64 which costs \$ 499. Spec for spec, this GTX 1080 Ti leapfrogs its direct predecessor, the GTX 980, by boasting 2 % more fps.

The GTX 1080 Ti has 11 GB RAM compared to the GTX 980's 4 GB video memory. Fortunately, gaming performance was quite impressive. The GTX 1080 Ti consistently delivers great frame rate increases over the GTX 980, NVIDIA GeForce GTX 980 Ti and it really justifies an upgrade.

For 1080p Full HD, we were able to play Red Dead Redemption 2, Assassin's Creed Odyssey, Metro Exodus, God of War, Forza Horizon 5 at 60 fps to 73 fps and kept frame rates hovering around 69 fps. For 1440p Quad HD, we were able to play God of War, Forza Horizon 5, Battlefield 2042, Anthem, Gears of War 5 at 62 fps to 74 fps and kept frame rates hovering around 67 fps.

For 2160p 4K, we were able to play World War Z, Strange Brigade, Battlefield V, Call of Duty Modern Warfare, Fallout 76 at 62 fps to 69 fps and kept frame rates hovering around 65 fps.

AMD Radeon RX 6700 XT vs EVGA GeForce GTX 1080 Ti Gaming: What is the difference?

VERSUS

- 26 GPixel/s higher pixel rate?165.2 GPixel/svs139.2 GPixel/s
- 20W lower TDP?230Wvs250W
- 624MHz faster memory clock speed?2000MHzvs1376MHz
- 9.09% more VRAM?12GBvs11GB
- 4984MHz higher effective memory clock speed?16000MHzvs11016MHz
- 58.6 GTexels/s higher texture rate?413 GTexels/svs354.4 GTexels/s

Why is EVGA GeForce GTX 1080 Ti Gaming better than AMD Radeon RX 6700 XT?

- 100.4GB/s more memory bandwidth?484.4GB/svs384GB/s
- 160bit wider memory bus width?352bitvs192bit
- 1024 more shading units?3584vs2560
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Price comparison

User reviews

Overall Rating

AMD Radeon RX 6700 XT

3 User reviews

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EVGA GeForce GTX 1080 Ti Gaming

0 User reviews

EVGA GeForce GTX 1080 Ti Gaming

Features

Performance

The graphics processing unit (GPU) has a higher clock speed.

When the GPU is running below its limitations, it can boost to a higher clock speed in order to give increased performance.

The number of pixels that can be rendered to the screen every second.

Floating-point performance is a measurement of the raw processing power of the GPU.

The number of textured pixels that can be rendered to the screen every second.

The memory clock speed is one aspect that determines the memory bandwidth.

Shading units (or stream processors) are small processors within the graphics card that are responsible for processing different aspects of the image.

TMUs take textures and map them to the geometry of a 3D scene. More TMUs will typically mean that texture information is processed faster.

The ROPs are responsible for some of the final steps of the rendering process, writing the final pixel data to memory and carrying out other tasks such as anti-aliasing to improve the look of graphics.

Memory

The effective memory clock speed is calculated from the size and data rate of the memory. Higher clock speeds can give increased performance in games and other apps.

This is the maximum rate that data can be read from or stored into memory.

VRAM (video RAM) is the dedicated memory of a graphics card. More VRAM generally allows you to run games at higher settings, especially for things like texture resolution.

A wider bus width means that it can carry more data per cycle. It is an important factor of memory performance, and therefore the general performance of the graphics card.

Newer versions of GDDR memory offer improvements such as higher transfer rates that give increased performance.

Error-correcting code memory can detect and correct data corruption. It is used when it is essential to avoid corruption, such as scientific computing or when running a server.

Features

DirectX is used in games, with newer versions supporting better graphics.

OpenGL is used in games, with newer versions supporting better graphics.

Some apps use OpenCL to apply the power of the graphics processing unit (GPU) for non-graphical computing. Newer versions introduce more functionality and better performance.

The graphics card supports multi-display technology. This allows you to configure multiple monitors in order to create a more immersive gaming experience, such as having a wider field of view.

load GPU temperature

Unknown. Help us by suggesting a value. (AMD Radeon RX 6700 XT)

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A lower load temperature means that the card produces less heat and its cooling system performs better.

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Allows you to view in 3D (if you have a 3D display and glasses).

DLSS (Deep Learning Super Sampling) is an upscaling technology powered by AI. It allows the graphics card to render games at a lower resolution and upscale them to a higher resolution with near-native visual quality and increased performance. DLSS is only available on select games.

PassMark (G3D) result

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This benchmark measures the graphics performance of a video card. Source: PassMark.

Ports

Devices with a HDMI or mini HDMI port can transfer high definition video and audio to a display.

More HDMI ports mean that you can simultaneously connect numerous devices, such as video game consoles and set-top boxes.

Newer versions of HDMI support higher bandwidth, which allows for higher resolutions and frame rates.

Allows you to connect to a display using DisplayPort.

Allows you to connect to a display using DVI.

Allows you to connect to a display using mini-DisplayPort.

General info

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A higher transistor count generally indicates a newer, more powerful processor.

Small semiconductors provide better performance and reduced power consumption. Chipsets with a higher number of transistors, semiconductor components of electronic devices, offer more computational power. A small form factor allows more transistors to fit on a chip, therefore increasing its performance.

Peripheral Component Interconnect Express (PCIe) is a high-speed interface standard for connecting components, such as graphics cards and SSDs, to a motherboard. Newer versions can support more bandwidth and deliver better performance.

warranty period

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When covered under the manufacturer's warranty it is possible to get a replacement in the case of a malfunction. Note: This may vary by region.

The graphics card uses a combination of water and air to reduce the temperature of the card. This allows it to be overclocked more, increasing performance.

The width represents the horizontal dimension of the product.

The height represents the vertical dimension of the product.

Price comparison

Which are the best graphics cards?

Asus ROG Strix GeForce RTX 4090 OC

Asus TUF GeForce RTX 4090 OC

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AMD RX 6700-XT vs Nvidia GTX 1080-Ti

- CPU
- GPU
- SSD
- HDD
- RAM
- USB

Real World Speed

Performance profile from 856,780 user samples

74,537 User Benchmarks

Best Bench: 126% XFX(1EAE 6601) ≥ 4GB; xfx quickster 6700xt Worst Bench: 110% XFX(1EAE 6601) ≥ 4GB

Effective 3D Speed Effective 3D Gaming GPU Speed 136 % Faster effective speed.+14% 119 %

Lighting Avg. Locally-deformable PRT (Bat) 168 fps Better lighting effects.+23% 137 fps Reflection Avg. High dynamic range lighting (Teapot)

191 fps Much better reflection handling.+44% 133 fps MRender Avg. Render target array GShader (Sphere) 133 fps 234 fps Much faster multi rendering.+76% Gravity Avg. NBody particle system (Galaxy) 176 fps Faster NBody calculation.+20% 147 fps

Lighting Locally-deformable PRT (Bat) 187 fps Better peak lighting effects.+28% 146 fps Reflection High dynamic range lighting (Teapot) 273 fps

Hugely better peak reflection handling.+95% 140 fps MRender Render target array GShader (Sphere) 143 fps 249 fps Much faster peak multi rendering.+74% Gravity NBody particle system (Galaxy) 193 fps Faster peak NBody calculation.+25% 154 fps

Market Share

Based on 57,421,632 GPUs tested.

Market Share Market Share (trailing 30 days) 1.72 % Hugely higher market share.+237% 0.51 % Value Value For Money 81.6 % Much better value.+39% 58.9 % User Rating UBM User Rating 75 % More popular.+27% 59 % Price Price (score) €340 Cheaper.+18% €413 Age Newest 69 Months 21 Months Much more recent.+70% Parallax Parallax occlusion mapping (Stones) 203 fps 307 fps Much better peak texture detail.+51% Splatting Force Splatted Flocking (Swarm) 133 fps 210 fps Much faster peak complex splatting.+58% Parallax Avg. Parallax occlusion mapping (Stones) 178 fps 284 fps Much better texture detail.+60% Splatting Avg. Force Splatted Flocking (Swarm) 123 fps 198 fps Much faster complex splatting.+61%

Hyped as the "Ultimate GeForce", the 1080 Ti is NVIDIA's latest flagship 4K VR ready GPU. It supersedes last years GTX 1080, offering a 30% increase in performance for a 40% premium (founders edition 1080 Tis will be priced at \$699, pushing down the price of the 1080 to \$499). It also supersedes the prohibitively expensive Titan X Pascal, pushing it off poll position in performance rankings. The 1080 Ti is based on the Pascal architecture and features a slightly modified version of the same flagship GP102 silicon found in the Titan X Pascal. It has 11GB of the high bandwidth GDDR5X video memory (versus 12GB in the Titan X Pascal) and an impressive 11GB frame buffer. Like the Titan X Pascal, it features 12bn transistors and 3584 CUDA cores which can run at a boost clock speed of 1.582 GHz – 3% faster than the Titan X Pascal's 1.531 GHz. This increased speed is partially attributable to the 1080 Ti's new dualFET power system which allows the chip to run at higher power and more efficiently than ever before. The release of the 1080 Ti comes ahead of the competition from AMD's Vega - rumored for release in Q2 2017. Vega is AMD's next generation graphics card (following on from Polaris 10) featuring their new HBM2 die which is alleged to have eight times the capacity of GDDR5 with half of the footprint. NVIDIA's own next generation graphics cards (Volta) are in the pipeline for 2018. [Mar '17 GPUPro]

MORE DETAILS

Whilst the drought in the GPU market continues, street prices for AMD cards are around 50% lower than comparable (based on headline average fps figures) Nvidia cards. Many experienced users simply have no interest in buying AMD cards, regardless of price. The combined market share for all of AMD's RX 5000 and 6000 GPUs amongst PC gamers (Steam stats) is just 2.12% whilst Nvidia's RTX 2060 alone accounts for 5.03%. AMD's Neanderthal marketing tactics seem to have come back to haunt them. Their brazen domination of social media platforms including youtube and reddit resulted in millions of users purchasing sub standard products. Be wary of sponsored reviews with cherry picked games that showcase the wins and ignore the losses. Experienced gamers know all too well that headline average fps are worthless when they are accompanied with stutters, random crashes, excessive noise and a limited feature set. [Jan '22 GPUPro]

MORE DETAILS



Group Test Results

- Best user rated - User sentiment trumps benchmarks for this comparison.
- Best value for money - Value for money is based on real world performance.
- Fastest real world speed - Real World Speed measures performance for typical consumers.

How Fast Is Your GPU? (Bench your build) Size up your PC in less than a minute.

Welcome to our freeware PC speed test tool. UserBenchmark will test your PC and compare the results to other users with the same components. You can quickly size up your PC, identify hardware problems and explore the best upgrades.

UserBenchmark of the month

How it works

- - Download and run UserBenchmark.

- - CPU tests include: integer, floating and string.
- - GPU tests include: six 3D game simulations.
- - Drive tests include: read, write, sustained write and mixed IO.
- - RAM tests include: single/multi core bandwidth and latency.
- - SkillBench (space shooter) tests user input accuracy.
- - Reports are generated and presented on userbenchmark.com
- - Identify the strongest components in your PC.
- - See speed test results from other users.
- - Compare your components to the current market leaders.
- - Explore your best upgrade options with a virtual PC build.
- - Compare your in-game FPS to other users with your hardware.

Frequently Asked Questions

Best User Rated

MSI GTX 1080 Ti Gaming X vs MSI Radeon RX 6700 XT: What is the difference?

MSI GTX 1080 Ti Gaming X

MSI Radeon RX 6700 XT

Why is MSI GTX 1080 Ti Gaming X better than MSI Radeon RX 6700 XT?

- 100.4GB/s more memory bandwidth?484.4GB/svs384GB/s
- 160bit wider memory bus width?352bitvs192bit
- 1024 more shading units?3584vs2560
- 64 more texture mapping units (TMUs)?224vs160
- 24 more render output units (ROPs)?88vs64
- 1 more HDMI ports?2vs1
- 1 more DVI outputs?1vs0

Why is MSI Radeon RX 6700 XT better than MSI GTX 1080 Ti Gaming X?

- 777MHz faster GPU clock speed?2321MHzvs1544MHz
- 1.33 TFLOPS higher floating-point performance?13.21 TFLOPSvs11.88 TFLOPS
- 19.4 GPixel/s higher pixel rate?165.2 GPixel/svs145.8 GPixel/s
- 20W lower TDP?230Wvs250W
- 624MHz faster memory clock speed?2000MHzvs1376MHz
- 9.09% more VRAM?12GBvs11GB
- 4992MHz higher effective memory clock speed?16000MHzvs11008MHz
- 41.8 GTexels/s higher texture rate?413 GTexels/svs371.2 GTexels/s

Price comparison

Cheap alternatives

Gigabyte Radeon RX 6650 XT Gaming OC

PowerColor Hellhound Radeon RX 6650 XT

MSI Radeon RX 6650 XT Mech 2X OC

Asus Dual Radeon RX 6650 XT OC Edition

MSI Radeon RX 6650 XT Gaming X

PowerColor Red Devil Radeon RX 6650 XT

Sapphire Pulse Radeon RX 6650 XT

ASRock Radeon RX 6650 XT Phantom Gaming D OC

Sapphire Nitro+ Radeon RX 6650 XT

XFx Speedster QICK 308 Radeon RX 6650 XT Ultra

User reviews

Overall Rating

MSI GTX 1080 Ti Gaming X

0 User reviews

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MSI Radeon RX 6700 XT

2 User reviews

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This benchmark measures the graphics performance of a video card. Source: PassMark.

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Show all

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AMD Radeon RX 6700 XT vs Zotac GTX 1080 Ti: What is the difference?

AMD Radeon RX 6700 XT

Zotac GTX 1080 Ti

Why is AMD Radeon RX 6700 XT better than Zotac GTX 1080 Ti?

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