

10 Years in the Making: NVIDIA Brings Real-Time Ray Tracing to Gamers with GeForce RTX

NVIDIA RTX Hybrid Graphics Made Possible by AI and Ray Tracing Inventions; Delivers 6x Performance Boost; September Availability

Gamescom--NVIDIA today unveiled the [GeForce RTX™ series](#), the first gaming GPUs based on the new [NVIDIA Turing™ architecture](#) and the [NVIDIA RTX™ platform](#), which fuses next-generation shaders with real-time ray tracing and all-new AI capabilities.

This new hybrid graphics capability represents the biggest generational leap ever in gaming GPUs. Turing -- which delivers 6x more performance than its predecessor, Pascal™ -- redefines the PC as the ultimate gaming platform, with new features and technologies that deliver 4K HDR gaming at 60 frames per second on even the most advanced titles.

"Turing opens up a new golden age of gaming, with realism only possible with ray tracing, which most people thought was still a decade away," said Jensen Huang, founder and CEO of NVIDIA, speaking before Gamescom, the world's largest gaming expo. "The breakthrough is a hybrid rendering model that boosts today's computer graphics with the addition of lightning-fast ray-tracing acceleration and AI. RTX is going to define a new look for computer graphics. Once you see an RTX game, you can't go back."

GeForce RTX -- New Family of Gaming GPUs

The new GeForce RTX 2080 Ti, 2080 and 2070 GPUs are packed with features never before seen in a gaming GPU, including:

- New RT Cores to enable real-time ray tracing of objects and environments with physically accurate shadows, reflections, refractions and global illumination.
- Turing Tensor Cores to perform lightning-fast deep neural network processing.
- New NGX neural graphics framework integrates AI into the overall graphics pipeline, enabling AI algorithms to perform amazing image enhancement and generation.
- New Turing shader architecture with Variable Rate Shading allows shaders to focus processing power on areas of rich detail, boosting overall performance.
- New memory system featuring ultra-fast GDDR6 with over 600GB/s of memory bandwidth for high-speed, high-resolution gaming.
- [NVIDIA NVLink®](#), a high-speed interconnect that provides higher bandwidth (up to 100 GB/s) and improved scalability for multi-GPU configurations (SLI).
- Hardware support for USB Type-C™ and [VirtualLink™\(1\)](#), a new open industry standard being developed to meet the power, display and bandwidth demands of next-generation VR headsets through a single USB-C™ connector.
- New and enhanced technologies to improve performance of VR applications, including Variable Rate Shading, Multi-View Rendering and VRWorks Audio.

Designed by NVIDIA for Gamers

NVIDIA is releasing special Founders Edition versions of the new GeForce RTX GPUs. Designed and built to the company's high standards, the GPUs' key features include:

- Factory-overclocked design out of the box, with a next-gen 13-phase iMON DrMOS power supply and sub-millisecond power management for maximum overclocking.
- Dual 13-blade axial fans produce 3x higher airflow and ultra-quiet acoustics.
- Forged and machine-finished diecast aluminum cover with diamond-cut edge detailing provides a rigid, lightweight frame for an open design with beautifully smooth, continuous curves.
- First full-card vapor chamber, which is 2x larger to maximize heat spreading and heat transfer to the finstack.
- Enhanced DisplayPort 1.4a with DSC allows a single connector to drive an 8K monitor at 60Hz.

Industry-Wide Support for GeForce RTX

The world's [top game publishers, developers and engine creators](#) have announced support for the NVIDIA RTX platform to bring the holy grail of real-time ray tracing and the power of AI to gamers everywhere. They include Battlefield V, Shadow of the Tomb Raider, Metro Exodus, Control, and Assetto Corsa Competizione. Developers include EA, Square Enix, EPIC Games, and more.

The NVIDIA RTX platform has quickly emerged as the industry standard for real-time ray tracing and artificial intelligence in games.

The RTX platform is also being [adopted by a large number of developers](#) of professional rendering applications, including Adobe, Autodesk and Pixar.

Starting at \$499, Pre-Orders Today, Availability Sept. 20

Starting at \$499, GeForce RTX graphics cards, including the NVIDIA Founders Edition, will be available worldwide, across 238 countries and territories. They will be sold by partners including ASUS, Colorful, EVGA, Gainward, Galaxy, Gigabyte, Innvision 3D, MSI, Palit, PNY and Zotac.

Pre-orders on [nvidia.com](#) and at over 100 participating partners starts today for GeForce RTX 2080 Ti and GeForce RTX 2080, with availability starting on Sept. 20. GeForce RTX 2070 will be available in October.

GeForce GPU	Ray Tracing	Performance*	Memory	Starting At	Founders Edition
RTX 2080 Ti	10 GigaRays/sec	78T RTX-OPS	11GB	\$999	\$1,199

RTX 2080	8 GigaRays/sec	60T RTX-OPS	8GB	\$699	\$799
RTX 2070	6 GigaRays/sec	45T RTX-OPS	8GB	\$499	\$599

* Equivalent aggregate math operations contributed by the Turing Shaders, CUDA Cores, Tensor Cores, and RT Cores needed to render RTX graphics. Result applies to Founders Edition version.

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About NVIDIA

[NVIDIA](#)'s (NASDAQ: NVDA) invention of the GPU in 1999 sparked the growth of the PC gaming market, redefined modern computer graphics and revolutionized parallel computing. More recently, GPU deep learning ignited modern AI — the next era of computing — with the GPU acting as the brain of computers, robots and self-driving cars that can perceive and understand the world. More information at <http://nvidianews.nvidia.com/>.

(1) In preparation for the emerging VirtualLink standard, Turing GPUs have implemented hardware support according to the "VirtualLink Advance Overview." To learn more about VirtualLink, see www.virtuallink.org.

Certain statements in this press release including, but not limited to, statements as to: NVIDIA GeForce RTX bringing real-time ray tracing to gamers; the benefits, impact, performance, abilities, pricing and availability of NVIDIA GeForce RTX gaming GPUs, including its hybrid graphics capability and it representing the biggest generational leap in gaming GPUs, it redefining the PC as the ultimate gaming platform by enabling new features and technologies and it bringing the holy grail of real-time ray tracing and the power of AI to gamers; Turing opening up a new golden age of gaming, with ray tracing that people thought was a decade away; the GeForce RTX containing a hybrid rendering model that boosts today's computer graphics, defining a new look for computer graphics, and once you see it not being able to go back; the features included in the GeForce family of gaming GPUs that have never been seen before, including RT Cores enabling real time ray tracing, Turing Tensor cores performing fast deep neural network processing, NGX neural graphics framework integrating AI into the overall graphics pipeline and its benefits, the benefits and performance of the Turing shader architecture, the new memory system to improve the speed and resolution in gaming, NVIDIA NVLink providing higher bandwidth and improved scalability, hardware support for USB Type-C and its benefits and new technologies improving VR applications including Variable Rate Shading, Multi-View Rendering and VRWorks Audio; NVIDIA releasing a Founders Edition versions of the GeForce RTX GPUs and its benefits, performance, abilities and features, including factory-overclocked design, dual 13-lade axial fans producing higher airflow and quiet acoustics, an aluminum cover with detailing that provides a rigid and lightweight frame for an open design with smooth curves, a full-card vapor chamber to maximize heat spreading and transfer, and enhanced DisplayPort allowing a single connector to drive an 8K monitor; the world's top game publishers, developers and engine creators announcing support for the NVIDIA RTX platform; NVIDIA RTX emerging as the industry standard for real-time ray tracing and artificial intelligence in games; NVIDIA RTX being adopted by developers of professional rendering applications; and the partners selling GeForce graphics cards are forward-looking statements that are subject to risks and uncertainties that could cause results to be materially different than expectations. Important factors that could cause actual results to differ materially include: global economic conditions; our reliance on third parties to manufacture, assemble, package and test our products; the impact of technological development and competition; development of new products and technologies or enhancements to our existing product and technologies; market acceptance of our products or our partners' products; design, manufacturing or software defects; changes in consumer preferences or demands; changes in industry standards and interfaces; unexpected loss of performance of our products or technologies when integrated into systems; as well as other factors detailed from time to time in the most recent reports NVIDIA files with the Securities and Exchange Commission, or SEC, including, but not limited to, its annual report on Form 10-K and quarterly reports on Form 10-Q. Copies of reports filed with the SEC are posted on the company's website and are available from NVIDIA without charge. These forward-looking statements are not guarantees of future performance and speak only as of the date hereof, and, except as required by law, NVIDIA disclaims any obligation to update these forward-looking statements to reflect future events or circumstances.

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