

## NVIDIA Reinvents the Workstation with Real-Time Ray Tracing

### NVIDIA RTX Technology Delivers Biggest Advance in Computer Graphics in 15 Years

GPU Technology Conference -- NVIDIA today announced the [NVIDIA® Quadro® GV100 GPU](#) with [NVIDIA RTX™ technology](#), delivering for the first time real-time ray tracing to millions of artists and designers.

The biggest advance in computer graphics since the introduction of programmable shaders nearly two decades ago, NVIDIA RTX -- when combined with the powerful Quadro GV100 GPU -- makes computationally intensive ray tracing possible in real time when running professional design and content creation applications.

Media and entertainment professionals can see and interact with their creations with correct light and shadows, and do complex renders up to 10x faster than with a CPU alone. Product designers and architects can create interactive, photoreal visualizations of massive 3D models -- all in real time.

"NVIDIA has reinvented the workstation by taking ray-tracing technology optimized for our Volta architecture, and marrying it with the highest-performance hardware ever put in a workstation," said Bob Pette, vice president of Professional Visualization at NVIDIA. "Artists and designers can simulate and interact with their creations in ways never before possible, which will fundamentally change workflows across many industries."

NVIDIA RTX technology was introduced last week at the annual Game Developers Conference. Today NVIDIA announced that it is supported by more than two dozen of the world's leading professional design and creative applications with a combined user base of more than 25 million customers.

The Quadro GV100 GPU, with 32GB of memory, scalable to 64GB with multiple Quadro GPUs using [NVIDIA NVLink™ interconnect technology](#), is the highest-performance platform available for these applications. Based on NVIDIA's [Volta GPU architecture](#), the GV100 packs 7.4 teraflops of double-precision, 14.8 teraflops of single-precision and 118.5 teraflops of deep learning performance. And the [NVIDIA OptiX™ AI-denoiser](#) built into NVIDIA RTX delivers almost 100x the performance of CPUs for real-time, noise-free rendering.

#### Additional Benefits

Other benefits of Quadro GV100 with NVIDIA RTX technology include:

- Easy implementation through a variety of APIs -- Developers can access NVIDIA RTX technology through the NVIDIA OptiX application programming interface, Microsoft's new DirectX Raytracing API and, in the future, Vulkan, an open, cross-platform graphics standard. All three APIs have a common shader programming model that allows developers to support multiple platforms.
- Life-like lighting, reflections and shadows using real-world light and physical properties -- GV100 and NVIDIA RTX ray-tracing technology deliver unprecedented speed of cinematic-quality renderings.
- Supercharged rendering performance with AI -- OptiX AI-accelerated denoising performance for ray tracing provides fluid visual interactivity throughout the design process.
- Highly scalable performance -- Fast double-precision coupled with the ability to scale memory up to 64GB using NVLink to render large complex models with ease.
- Ability to collaborate, design, create in immersive VR -- VR ready with the maximum graphics and compute performance available means designers can use physics-based, immersive VR platforms to conduct design reviews and explore photoreal scenes and products at scale.

#### Broad Support from Software Developers

A broad range of software developers are showing strong support for GV100 and real-time ray tracing:

"We are using the NVIDIA RTX OptiX AI denoiser to bring workflow enhancements to the Arnold renderer and look forward to getting it into the hands of our customers working in animation and visual effects production." -- Chris Vienneau, senior director of Media & Entertainment Product at Autodesk

"The availability of NVIDIA RTX opens the door to make real-time ray tracing a reality. By making such powerful technology available to the game development community with the support of the new DirectX Raytracing API, NVIDIA is the driving force behind the next generation of game and movie graphics." -- Kim Libreri, chief technology officer at Epic Games

"With NVIDIA GV100 GPUs and RTX, we can now do real-time ray tracing. It's just fantastic!" -- Sébastien Guichou, CTO at Isotropix

"We use powerful NVIDIA GPU technologies like the new Quadro GV100 to accelerate [our simulation applications and algorithms](#), and NVIDIA OptiX for fast, AI-based rendering. We're excited about the potential NVIDIA RTX ray-tracing technology holds to deliver more lifelike images faster than ever." -- Jacques Delacour, CEO and founder of OPTIS

"The new Quadro GV100 with RTX technology delivers unprecedented real-time ray-tracing performance, helping our customers to be first to market, gaining hundreds of thousands of dollars over their competition each year." -- Brian Hillner, SOLIDWORKS Visualize Product Portfolio Manager

#### Availability

The Quadro GV100 GPU is available now on [nvidia.com](#), and starting in April from leading workstation manufacturers, including Dell EMC, HP, Lenovo and Fujitsu, and authorized distribution partners, including PNY Technologies in North America and Europe, ELSA/Ryoyo in Japan and Leadtek in Asia Pacific.

Learn more about the benefits of the [Quadro GV100 for deep learning and simulation](#).

#### 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/>.

Certain statements in this press release including, but not limited to, statements as to: the benefits, impact, performance, abilities, availability and application of the Quadro GV100 with NVIDIA RTX technology and its support; NVIDIA reinventing the workstation and how it will change workflows across many industries; and access to NVIDIA RTX technology through APIs 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 reports NVIDIA files with the Securities and Exchange Commission, or SEC, including its Form 10- K for the fiscal period ended January 28, 2018. 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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