NVIDIA RTX A6000

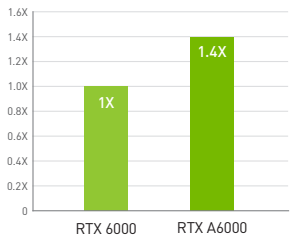
POWERING THE WORLD'S HIGHEST-PERFORMING WORKSTATIONS

Amplified Performance for Professionals

The NVIDIA RTX™ A6000, built on the NVIDIA Ampere architecture, delivers everything designers, engineers, scientists, and artists need to meet the most graphics and compute-intensive workflows. The RTX A6000 is equipped with the latest generation RT Cores, Tensor Cores, and CUDA® cores for unprecedented rendering, AI, graphics, and compute performance. Certified with a broad range of professional applications, tested by leading independent software vendors (ISVs) and workstation manufacturers, and backed by a global team of support specialists, NVIDIA RTX is the visual computing solution of choice for demanding enterprise deployments.

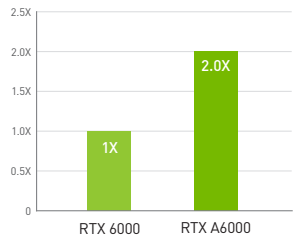
Up to 40% Faster Graphics Performance[1]

SPECviewperf 2020



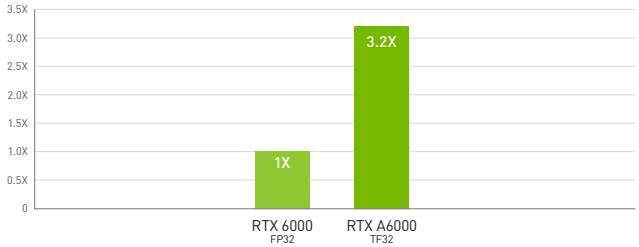
Up to 2X Faster Rendering Performance[2]

Autodesk VRED



Over 3X Higher Out-of-the-Box Performance with TF32 for AI Training[3]

BERT Large Training



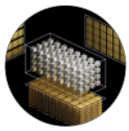
SPECIFICATIONS

GPU memory	**48 GB GDDR6**
Memory interface	**384-bit**
Memory bandwidth	**768 GB/s**
Error-correcting code (ECC)	**Yes**
NVIDIA Ampere architecture-based CUDA Cores	**10,752**
NVIDIA third-generation Tensor Cores	**336**
NVIDIA second-generation RT Cores	**84**
Single-precision performance	**38.7 TFLOPS[7]**
RT Core performance	**75.6 TFLOPS[7]**
Tensor performance	**309.7 TFLOPS[8]**
NVIDIA NVLink	**Connects two NVIDIA RTX A6000 GPUs[12]**
NVIDIA NVLink bandwidth	**112.5 GB/s (bidirectional)**
System interface	**PCI Express 4.0 x16**
Power consumption	**Total board power: 300 W**
Thermal solution	**Active**
Form factor	**4.4" H x 10.5" L, dual slot, full height**
Display connectors	**4x DisplayPort 1.4a[9]**
Max simultaneous displays	**4x 4096 x 2160 @ 120 Hz, 4x 5120 x 2880 @ 60 Hz, 2x 7680 x 4320 @ 60 Hz**
Power connector	**1x 8-pin CPU**
Encode/decode engines	**1x encode, 2x decode (+AV1 decode)**
VR ready	**Yes**
vGPU software support	**NVIDIA vPC/vApps, NVIDIA RTX Virtual Workstation, NVIDIA Virtual Compute Server**
vGPU profiles supported	**1 GB, 2 GB, 3 GB, 4 GB, 6 GB, 8 GB, 12 GB, 16 GB, 24 GB, 48 GB**
Graphics APIs	**DirectX 12.07[10], Shader Model 5.17[10], OpenGL 4.68[11], Vulkan 1.18[11]**
Compute APIs	**CUDA, DirectCompute, OpenCL™**

Groundbreaking Innovations

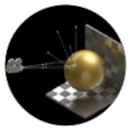
NVIDIA AMPERE ARCHITECTURE

NVIDIA® RTX™ technology revolutionized professional visual computing forever. The NVIDIA Ampere architecture builds on the power of RTX to significantly enhance the performance of rendering, graphics, AI, and compute workloads. Engineered to perfection and featuring cutting-edge innovations, the NVIDIA Ampere architecture takes RTX to new heights for professional workloads.



THIRD-GENERATION TENSOR CORES

New Tensor Float 32 (TF32) precision provides up to 5X the training throughput over the previous generation to accelerate AI and data science model training without requiring any code changes. Hardware support for structural sparsity doubles the throughput for inferencing. Tensor Cores also bring AI to graphics with capabilities like DLSS, AI denoising, and enhanced editing for select applications.



SECOND-GENERATION RT CORES

With up to 2X the throughput over the previous generation and the ability to concurrently run ray tracing with either shading or denoising capabilities, second-generation RT Cores deliver massive speedups for workloads like photorealistic rendering of movie content and virtual prototyping of product designs. This technology also speeds up the rendering of ray-traced motion blur for faster results with greater visual accuracy.

THIRD-GENERATION NVLINK

Third-generation NVIDIA NVLink® technology enables users to connect two GPUs together to share GPU performance and memory. With up to 112 gigabytes per second (GB/s) of bidirectional bandwidth and combined graphics memory of up to 96 GB, professionals can tackle the largest rendering, AI, virtual reality, and visual computing workloads. The new NVLink connector also features a shorter Z height, which enables NVLink functionality in a wider range of chassis.

NVIDIA AMPERE ARCHITECTURE-BASED CUDA CORES

The NVIDIA Ampere architecture's CUDA® cores bring double-speed processing for single-precision floating point (FP32) operations and are up to 2X more power efficient than Turing GPUs. This provides significant performance gains for graphics workflows like 3D model development and compute workflows like desktop simulation for computer-aided engineering (CAE).

PCI EXPRESS GEN 4.0

NVIDIA Ampere architecture-based GPUs support PCI Express Gen 4.0 (PCIe Gen 4.0), which provides 2X the bandwidth of PCIe Gen 3.0. This improves data transfer speeds from CPU memory for data-intensive tasks such as AI and data science. Faster PCIe performance also accelerates GPU direct memory access (DMA) transfers, enabling faster video data transfers from GPUDirect® for video-enabled devices and faster input/output (I/O) with GPUDirect Storage.

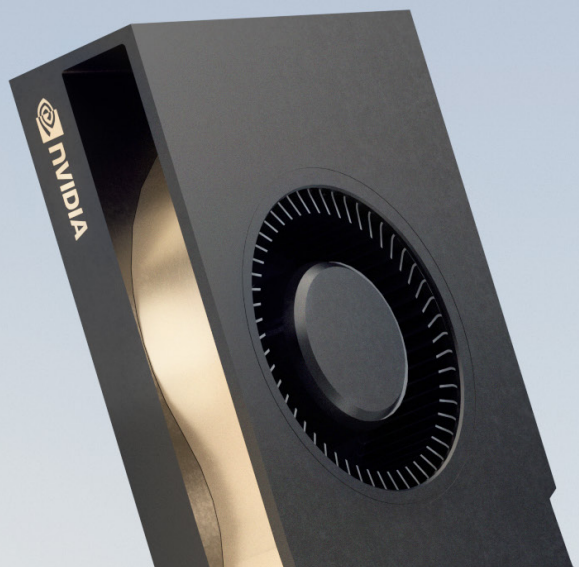
Features

- PCI Express Gen 4
- Four DisplayPort 1.4a connectors
- AV1 decode support
- DisplayPort with audio
- VGA support[4]
- 3D stereo support with stereo connector
- NVIDIA GPUDirect® for Video support
- NVIDIA virtual GPU (vGPU) software support
- NVIDIA Quadro® Sync II[5] compatibility
- NVIDIA Quadro Experience™
- Desktop Management Software
- NVIDIA RTX IO support
- HDCP 2.2 support
- NVIDIA Mosaic[6] technology

To learn more about the NVIDIA RTX A6000, visit **www.nvidia.com/rtx-a6000**

1 Tests run on workstation with 1x Xeon Gold 6154, 3GHz (3.7GHz Turbo), Win10 x 64, NVIDIA driver version 460.48. SPECviewperf 2020, energy subtest. | 2 Tests run on workstation with 2x Xeon Gold 6126, 2.6GHz (3.7GHz Turbo), Win10 x 64, NVIDIA driver version 456.37. Autodesk VRED 221.0 GA Release. | 3 Tests run on workstation with AMD Ryzen 3900X, 3.8GHz, 4.6 Turbo, NVIDIA driver 460.17, BERT pre-training throughput using Pytorch, phase 1 sequence length 128, RTX 6000 using FP32 precision, RTX A6000 using TF32 precision. | 4 Via adapter/connector/bracket. | 5 Quadro Sync II card sold separately. | 6 Windows 7, 8, 8.1, 10, and Linux. | 7 Peak rates based on GPU Boost Clock. | 8 Effective teraFLOPS (TFLOPS) using the new sparsity feature. | 9 Display ports are on by default for Quadro RTX A6000. Display ports are not active when using vGPU software. | 10 GPU supports DX 12.0 API, hardware feature level 12 + 1. | 11 Product is based on a published Khronos specification and is expected to pass the Khronos conformance testing process when available. Current conformance status can be found at www.krhonos.org/conformance. | 12 NVIDIA NVLink sold separately.

DATASHEET



NVIDIA RTX A5500

The Power to Create.

Amplified Performance for Professionals

The NVIDIA RTX™ A5500 is a high-performance workstation graphics card that gives you the performance and capabilities required for demanding multi-application workflows. Built on the NVIDIA Ampere architecture, the RTX A5500 combines 80 second-generation RT Cores, 320 third-generation Tensor Cores, and 10,240 CUDA® cores with 24GB of graphics memory with error correction code (ECC) to supercharge rendering, AI, graphics, and compute tasks. Configure multiple GPUs[1] with NVIDIA® NVLink™[2] to scale memory and performance for memory-intensive tasks, such as large models, ultra-high resolution rendering, and complex compute workloads. With support for NVIDIA RTX Virtual Workstation (vWS) software, the RTX A5500 is ready to handle the most complex design, visualization, and compute work—from anywhere. NVIDIA RTX professional graphics cards are certified with a broad range of professional applications, tested by leading independent software vendors (ISVs) and workstation manufacturers, and backed by a global team of support specialists. Get the peace of mind you need to focus on what matters with the premier visual computing solution for mission-critical business.

Features

- PCI Express Gen 4
- Four DisplayPort 1.4a connectors
- AV1 decode support
- DisplayPort with audio
- 3D stereo support with stereo connector
- NVIDIA GPUDirect® for Video support
- NVIDIA virtual GPU (vGPU) software support
- NVIDIA Quadro® Sync II[3] compatibility
- NVIDIA RTX Experience™
- NVIDIA RTX Desktop Manager software
- NVIDIA RTX IO support
- HDCP 2.2 support
- NVIDIA Mosaic[4] technology

SPECIFICATIONS

GPU memory	**24GB GDDR6**
Memory interface	**384-bit**
Memory bandwidth	**768 GB/s**
Error correcting code (ECC)	**Yes**
NVIDIA Ampere architecture-based CUDA Cores	**10,240**
NVIDIA third-generation Tensor Cores	**320**
NVIDIA second-generation RT Cores	**80**
Single-precision performance	**34.1 TFLOPS[5]**
RT Core performance	**66.6 TFLOPS[5]**
Tensor performance	**272.8 TFLOPS[6]**
NVIDIA NVLink	**Low profile bridges connect two NVIDIA RTX A5500 GPUs[2]**
NVIDIA NVLink bandwidth	**112.5 GB/s (bidirectional)**
System interface	**PCIe 4.0 x16**
Power consumption	**Total board power: 230 W**
Thermal solution	**Active**
Form factor	**4.4" H x 10.5" L, dual slot, full height**
Display connectors	**4x DisplayPort 1.4a[7]**
Max simultaneous displays	**4x 4096 x 2160 @ 120 Hz 4x 5120 x 2880 @ 60 Hz 2x 7680 x 4320 @ 60 Hz**
Power connector	**1x 8-pin PCIe**
Encode/decode engines	**1x encode, 2x decode (+AV1 decode)**
VR ready	**Yes**
vGPU software support[7]	**NVIDIA vPC/vApps NVIDIA RTX Virtual Workstation**
vGPU profiles supported	**See the Virtual GPU Licensing Guide**
Graphics APIs	**DirectX 12 Ultimate , Shader Model 6.6, OpenGL 4.6[8], Vulkan 1.3[8]**
Compute APIs	**CUDA 11.6, DirectCompute, OpenCL 3.0**

1 Connecting two RTX A5500 cards with NVLink to scale performance and memory capacity to 48GB is only possible if your application supports NVLink technology. Please contact your application provider to confirm their support for NVLink. I 2 NVIDIA NVLink sold separately. I 3 Quadro Sync II card sold separately. I 4 Windows 10, Windows 11, and Linux. I 5 Peak rates based on GPU Boost Clock. I 6 Effective teraFLOPS (TFLOPS) using the new sparsity feature. I 7 Display ports are on by default for RTX A5500. Display ports are not active when using vGPU software. I 8 Product is based on a published Khronos specification and is expected to pass the Khronos conformance testing process when available. Current conformance status can be found at **www.khronos.org/conformance**

Learn more To learn more about the NVIDIA RTX A5500, visit **www.nvidia.com/rtx-a5500/**