Enrich Graphics and Video Applications with Powerful AI

The NVIDIA A10 Tensor Core GPU combines with NVIDIA RTX Virtual Workstation (vWS) software to bring mainstream graphics and video with AI services to mainstream enterprise servers, delivering the solutions that designers, engineers, artists, and scientists need to meet today’s challenges. Built on the latest NVIDIA Ampere architecture, the A10 combines second-generation RT Cores, third-generation Tensor Cores, and new streaming microprocessors with 24 gigabytes (GB) of GDDR6 memory—all in a 150W power envelope—for versatile graphics, rendering, AI, and compute performance. From virtual workstations, accessible anywhere in the world, to render nodes to the data centers running a variety of workloads, A10 is built to deliver optimal performance in a single-wide, full-height, full-length PCIe form factor.

NVIDIA A10 is supported as part of NVIDIA-Certified Systems™, in the on-prem data center, in the cloud, and at the edge. NVIDIA A10 builds on the rich ecosystem of AI frameworks from the NVIDIA NGC™ catalog, CUDA-X™ libraries, over 2.3 million developers, and over 1,800 GPU-optimized applications to help enterprises solve the most critical challenges in their business.

<table>
<thead>
<tr>
<th>SPECIFICATIONS</th>
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<tbody>
<tr>
<td>FP32</td>
<td>31.2 TF</td>
</tr>
<tr>
<td>TF32 Tensor Core</td>
<td>62.5 TF</td>
</tr>
<tr>
<td>BFLOAT16 Tensor Core</td>
<td>125 TF</td>
</tr>
<tr>
<td>FP16 Tensor Core</td>
<td>125 TF</td>
</tr>
<tr>
<td>INT8 Tensor Core</td>
<td>250 TOPS</td>
</tr>
<tr>
<td>INT4 Tensor Core</td>
<td>500 TOPS</td>
</tr>
<tr>
<td>RT Cores</td>
<td>72</td>
</tr>
<tr>
<td>Encode / Decode</td>
<td>1 encoder 1 decoder (+AV1 decode)</td>
</tr>
<tr>
<td>GPU Memory</td>
<td>24 GB GDDR6</td>
</tr>
<tr>
<td>GPU Memory Bandwidth</td>
<td>600 GB/s</td>
</tr>
<tr>
<td>Interconnect</td>
<td>PCIe Gen4: 64 GB/s</td>
</tr>
<tr>
<td>Form Factor</td>
<td>1-slot FHFL</td>
</tr>
<tr>
<td>Max TDP Power</td>
<td>150W</td>
</tr>
<tr>
<td>vGPU Software Support</td>
<td>NVIDIA vPC/vApps, NVIDIA RTX™ vWS, NVIDIA Virtual Compute Server (vCS)</td>
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</tbody>
</table>

Secure and Measured Boot with Hardware Root of Trust: Yes

NEBS Ready: Level 3

Power Connector: PEX 8-pin

*with sparsity

A10 delivers up to 2.5X faster virtual workstation performance compared to T4

A10 delivers up to 2.5X more inference performance compared to T4

NVIDIA vCS delivers equivalent performance to bare metal

SPECviewperf 2020

T4 | 1X
A10 | 2.5X
A Look Inside the NVIDIA Ampere Architecture

NVIDIA AMPERE ARCHITECTURE CUDA CORES
Double-speed processing for single-precision floating point (FP32) operations and improved power efficiency provide significant performance gains in graphics and compute workflows, such as complex 3D computer-aided design (CAD) and computer-aided engineering (CAE).

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, architectural design evaluations, 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 TENSOR CORES
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 any code changes. Hardware support for structural sparsity provides up to double the throughput for inferencing. Tensor Cores also bring AI to graphics with capabilities like deep learning super sampling (DLSS), AI denoising, and enhanced editing for select applications.

PCI EXPRESS GEN 4
PCI Express Gen 4 doubles the bandwidth of PCIe Gen 3, improving data-transfer speeds from CPU memory for data-intensive tasks like AI, data science, and 3D design. Faster PCIe performance also accelerates GPU direct memory access (DMA) transfers, providing faster input/output communication of video data between the GPU and NVIDIA GPUDirect® for video-enabled devices, delivering a powerful solution for live broadcast. A10 is also backwards compatible with PCI Express Gen 3 for deployment flexibility.

DATA CENTER EFFICIENCY AND SECURITY
Featuring a single-slot, full-height, full-length power efficient design, NVIDIA A10 is compatible with a wide range of servers from worldwide OEMs. The NVIDIA A10 includes secure and measured boot with hardware root-of-trust technology, ensuring that firmware isn’t tampered with or corrupted.

24 GB GDDR6
Ultra-fast GDDR6 memory, delivering 600 GB/s of bandwidth for rendering, data science, engineering simulation, and other GPU-memory intensive workloads.

EVERY DEEP LEARNING FRAMEWORK
mxnet
PYTORCH
Spark
TensorFlow

RTX FOR PROFESSIONAL APPLICATIONS
AUTODESK
REVT

CATIA

SOLIDWORKS
SIEMENS

NVIDIA A10 Tensor Core GPU is ideal for mainstream graphics and video with AI. 2nd Gen RT Cores and 3rd Gen Tensor Cores enrich graphics and video applications with powerful AI in 150W TDP for mainstream servers.

NVIDIA A10 also combines with NVIDIA virtual GPU (vGPU) software to accelerate multiple data center workloads—from graphics-rich VDI to high-performance virtual workstations to AI—in an easily managed, secure, and flexible infrastructure that can be scaled to accommodate resource needs.

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To learn more about the NVIDIA A10 Tensor Core GPU, visit www.nvidia.com/a10

1 Test run on a server with 2x Xeon Gold 6154 3.0GHz (3.7GHz Turbo), NVIDIA RTX vWS software, VMware ESXi 7 U2, host/guest driver 461.33. | SPECviewperf 2020 Subtest, and HD 3dsmax-07 composite

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