NVIDIA virtual GPU (vGPU) software enables delivery of graphics-rich virtual desktops and workstations accelerated by NVIDIA® GPUs, the most powerful data center GPUs on the market today. With NVIDIA virtual GPU software, GPU resources can be divided so the GPUs are shared across multiple virtual machines, or multiple GPUs can be allocated to a single virtual machine to power the most demanding workflows. NVIDIA virtual GPU software runs on GPUs based on NVIDIA Turing™, Volta™, Pascal™, and Maxwell™ architectures.

Choose the right virtual GPU software edition for your use case:

**NVIDIA vComputeServer**
NVIDIA Virtual Compute Server (vComputeServer) software virtualizes NVIDIA GPUs to accelerate compute-intensive workloads, including over 600 GPU-accelerated applications for AI, deep learning, data science, and high-performance computing. vComputeServer gives data center admins the ability to manage GPU clusters with standard server virtualization management applications, maximizing GPU utilization and ensuring security.

**NVIDIA QUADRO® vDWS**
NVIDIA Quadro Virtual Data Center Workstation (Quadro vDWS) is targeted for designers, architects, engineers, and artists. When paired with a powerful NVIDIA GPU, users can virtualize any application from the data center with an amazing user experience—including ANSYS Discovery Live, ESRI ArcGIS Pro, Siemens NX, Dassault Systèmes SOLIDWORKS, Autodesk Revit, and more—allowing you to deliver workstation-class performance on any device.

**NVIDIA GRID® vPC**
NVIDIA GRID Virtual PC (GRID vPC) targets mobile professionals and knowledge workers running virtual desktops optimized for Windows 10 and office applications. Software developers can also enjoy a modern software development environment, using 2D electronic design automation (EDA) tools and Linux applications. Healthcare providers and financial traders also benefit from increased productivity with multiple high-resolution monitor support.

**NVIDIA GRID® vApps**
NVIDIA GRID Virtual Apps (GRID vApps) is used to launch applications on any device without having to present a full, virtualized desktop to a user. Remote desktop session host (RDSH) solutions can be paired with a more powerful GPU to run more graphics-intensive applications or paired with a less powerful GPU to run general-purpose applications and have more users share a virtual machine.
# NVIDIA GPUs Recommended for Virtualization

<table>
<thead>
<tr>
<th>GPU</th>
<th>V100</th>
<th>RTX 8000</th>
<th>RTX 6000</th>
<th>P40</th>
<th>T4</th>
<th>M10</th>
<th>P6</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPU</td>
<td>1 NVIDIA Volta</td>
<td>1 NVIDIA Turing</td>
<td>1 NVIDIA Turing</td>
<td>1 NVIDIA Pascal</td>
<td>1 NVIDIA Turing</td>
<td>4 NVIDIA Maxwell</td>
<td>1 NVIDIA Pascal</td>
</tr>
<tr>
<td>CUDA Cores</td>
<td>5,120</td>
<td>4,608</td>
<td>4,608</td>
<td>3,840</td>
<td>2,560</td>
<td>2,560 (640 per GPU)</td>
<td>2,048</td>
</tr>
<tr>
<td>Tensor Cores</td>
<td>640</td>
<td>576</td>
<td>576</td>
<td>—</td>
<td>320</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>RT Cores</td>
<td>—</td>
<td>72</td>
<td>72</td>
<td>—</td>
<td>40</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Guaranteed QoS (GPU Scheduler)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>—</td>
<td>✓</td>
</tr>
<tr>
<td>Live Migration</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>—</td>
<td>✓</td>
</tr>
<tr>
<td>Multi-vGPU</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>—</td>
<td>✓</td>
</tr>
<tr>
<td>Memory Size</td>
<td>32/16 GB HBM2</td>
<td>48 GB GDDR6</td>
<td>24 GB GDDR6</td>
<td>24 GB GDDR5</td>
<td>16 GB GDDR6</td>
<td>32 GB GDDR5 (8 GB per GPU)</td>
<td>16 GB GDDR5</td>
</tr>
<tr>
<td>vGPU Profiles</td>
<td>1 GB, 2 GB, 4 GB, 8 GB, 16 GB, 32 GB</td>
<td>1 GB, 2 GB, 3 GB, 4 GB, 6 GB, 8 GB, 12 GB, 24 GB</td>
<td>1 GB, 2 GB, 3 GB, 4 GB, 6 GB, 8 GB, 12 GB, 24 GB</td>
<td>1 GB, 2 GB, 3 GB, 4 GB, 6 GB, 8 GB, 12 GB, 24 GB</td>
<td>1 GB, 2 GB, 4 GB, 8 GB, 16 GB</td>
<td>0.5 GB, 1 GB, 2 GB, 4 GB, 8 GB, 16 GB</td>
<td>1 GB, 2 GB, 4 GB, 8 GB, 16 GB</td>
</tr>
<tr>
<td>Form Factor</td>
<td>PCIe 3.0 dual slot and SXM2 (rack servers)</td>
<td>PCIe 3.0 dual slot</td>
<td>PCIe 3.0 dual slot</td>
<td>PCIe 3.0 single slot (rack servers)</td>
<td>PCIe 3.0 dual slot (rack servers)</td>
<td>PCIe 3.0 dual slot (rack servers)</td>
<td>MXM (blade servers)</td>
</tr>
<tr>
<td>Power</td>
<td>250 W /300 W (SXM2)</td>
<td>295 W</td>
<td>295 W</td>
<td>250 W</td>
<td>70 W</td>
<td>225 W</td>
<td>90 W</td>
</tr>
<tr>
<td>Thermal</td>
<td>passive</td>
<td>active</td>
<td>active</td>
<td>active</td>
<td>passive</td>
<td>passive</td>
<td>bare board</td>
</tr>
<tr>
<td>vGPU Software Support</td>
<td>Quadro vDWS, GRID vPC, GRID vApps, vComputeServer</td>
<td>Quadro vDWS, vComputeServer</td>
<td>Quadro vDWS, vComputeServer</td>
<td>Quadro vDWS, GRID vPC, GRID vApps, vComputeServer</td>
<td>Quadro vDWS, GRID vPC, GRID vApps</td>
<td>Quadro vDWS, GRID vPC, GRID vApps, vComputeServer</td>
<td>Quadro vDWS, GRID vPC, GRID vApps, vComputeServer</td>
</tr>
<tr>
<td>Use Case</td>
<td>Ultra-high-end rendering, simulation, 3D design with Quadro vDWS; AI, deep learning, and data science with vComputeServer; ideal upgrade path for P100</td>
<td>High-end rendering, 3D design and creative workflows with Quadro vDWS</td>
<td>Mid-range to high-end rendering, 3D design and creative workflows with Quadro vDWS</td>
<td>Entry-level to high-end 3D design and engineering workflows with Quadro vDWS. High-density, low power GPU acceleration for knowledge workers with NVIDIA GRID software. AI, deep learning and data science with vComputeServer.</td>
<td>Knowledge workers using modern productivity apps and Windows 10 requiring best density and total cost of ownership (TCO), multi-monitor support with NVIDIA GRID vPC/vApps</td>
<td>For customers requiring GPUs in a blade server form factor; ideal upgrade path for M6</td>
<td></td>
</tr>
</tbody>
</table>

### WHAT MAKES NVIDIA VIRTUAL GPUs POWERFUL

- **EXCEPTIONAL USER EXPERIENCE**
  - Ultimate user experience, with the ability to support both compute and graphics workloads for every vGPU

- **BEST USER DENSITY**
  - Industry’s highest user-density solution with support for up to 32 virtual desktops per physical GPU. Lower TCO with more than eight vGPU profiles for the most flexibility to provision resources to match your users’ needs

- **CONTINUOUS INNOVATION**
  - Regular cadence of new software releases to ensure you stay on top of the latest features and enhancements

- **PREDICTABLE PERFORMANCE**
  - Consistent performance with guaranteed quality of service, whether on premises or in the cloud

- **OPTIMAL MANAGEMENT AND MONITORING**
  - End-to-end management and monitoring for realtime insight into GPU performance. Broad partner integrations so you can use the tools you know and love

- **BROADEST ECOSYSTEM SUPPORT**
  - Support for all major hypervisors. Most extensive portfolio of professional apps certifications with Quadro drivers

To learn more about NVIDIA virtual GPU technology, visit [www.nvidia.com/virtualgpu](http://www.nvidia.com/virtualgpu)

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