



# NVIDIA VIRTUAL GPU PACKAGING, PRICING AND LICENSING

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## TERMINOLOGY

| Term                  | Meaning   |
|-----------------------|---|
| SUMs                  | Support, Upgrade and Maintenance program  |
| Perpetual License     | A non-expiring, permanent software license that can be used on a perpetual basis without a need to renew. SUMS is required and is available in three, four, or five year increments. One year SUMS available only for renewals. |
| Annual Subscription   | A software license that is active for a fixed period as defined by the terms of the subscription license, typically yearly. This includes SUMS for the duration of the license term.  |
| License Manager       | An application that manages license allocation, installed on a physical or virtual server.  |
| Concurrent User (CCU) | A method of counting licenses based on active user VMs. If the VM is active and the NVIDIA virtual GPU software is running, then this counts as one CCU. A vGPU CCU is independent of the connection to the VM.                 |

# OVERVIEW

The NVIDIA virtual GPU software delivers accelerated virtual desktops and applications from the data center to any user, on any device, anywhere.

This guide covers the entitlement, packaging and licensing of the NVIDIA virtual GPU (vGPU) family of products. It is intended to be a quick reference to understand the product portfolio at a high level, with the corresponding SKU information. It does not contain detailed product information, which can be accessed from the NVIDIA vGPU website at <http://www.nvidia.com/virtualgpu>. This document is not intended to replace or contradict the End User License Agreement (EULA). Please refer to the EULA ([here](#)) for more detailed information.

| NVIDIA virtual GPU Software Editions     |  |
|--|--|
| <b>NVIDIA GRID® Virtual Applications</b> | For organizations deploying XenApp or other RDSH solution. Designed for PC level applications and server based desktops.                     |
| <b>NVIDIA GRID® Virtual PC</b>           | For users who want a virtual desktop but need great user experience leveraging PC Windows applications, browsers, and high definition video. |
| <b>NVIDIA Quadro® vDWS</b>               | For users who want to be able to use remote professional graphics applications with full performance on any device, anywhere.                |

NVIDIA vGPU brings graphics and virtualization capabilities to NVIDIA Tesla data-center deployments, and is currently supported on the following Tesla GPUs. Find certified servers with Tesla GPUs that are supported by vGPU at <http://www.nvidia.com/grid-certified-servers>.

|                                 | Tesla M10                  | Tesla M60                  | Tesla M6             | Tesla V100                                       |
|---------------------------------|----------------------------|----------------------------|----------------------|--|
| <b>Use case</b>                 | User Density-Optimized     | Performance-Optimized      | Blade-Optimized      | Performance-Optimized                            |
| <b>Number of GPUs</b>           | 4 NVIDIA Maxwell GPUs      | 2 NVIDIA Maxwell GPUs      | 1 NVIDIA Maxwell GPU | 1 NVIDIA Volta GPU                               |
| <b>Total NVIDIA CUDA® Cores</b> | 2,560 (640 per GPU)        | 4,096 (2,048 per GPU)      | 1,536                | 5120   |
| <b>Total Memory Size</b>        | 32 GB GDDR5 (8 GB per GPU) | 16 GB GDDR5 (8 GB per GPU) | 8 GB GDDR5           | 16 GB HBM2                                       |
| <b>Max Power</b>                | 225 W                      | 300 W                      | 100 W                | 300 W  |
| <b>Form Factor</b>              | PCIe 3.0 Dual Slot         | PCIe 3.0 Dual Slot         | MXM                  | PCIe, SXM2, Full Height/Length                   |
| <b>Board Dimensions</b>         | 10.5" x 4.4"               | 10.5" x 4.4"               | 3.2" x 4.1"          | 10.5" x 4.4"<br>5.5" x 3.1" x .5"<br>6.9" x 4.4" |
| <b>Cooling Solution</b>         | Passive                    | Passive / Active           | Bare Board           | Passive  |

|                          | Tesla P4                   | Tesla P6              | Tesla P40                 | Tesla P100                | Turing T4                  |
|--------------------------|----------------------------|-----------------------|---------------------------|---------------------------|----------------------------|
| Use case                 | Quadro vDWS (Entry to mid) | Blade-Optimized       | Quadro vDWS (Mid to high) | Quadro vDWS (Mid to high) | Quadro vDWS (Entry to mid) |
| Number of GPUs           | 1 NVIDIA Pascal GP104      | 1 NVIDIA Pascal GP104 | 1 NVIDIA Pascal GP102     | 1 NVIDIA Pascal GP100     | 1 NVIDIA Turing TU104      |
| Total NVIDIA CUDA® Cores | 2,560                      | 2,048                 | 3,840                     | 3,584                     | 2,560                      |
| Tensor Cores             | -                          | -                     | -                         | -                         | 320                        |
| RT Cores                 | -                          | -                     | -                         | -                         | 40                         |
| Total Memory Size        | 8 GB GDDR5                 | 16 GB GDDR5           | 24 GB GDDR5               | 12 GB HBM2/16 GB HBM2     | 16 GB GDDR6                |
| Max Power                | 75 W                       | 90 W                  | 250 W                     | 250 W/300 W               | 70 W                       |
| Form Factor              | PCIe 3.0 Single Slot       | MXM                   | PCIe 3.0 Dual Slot        | SXM2/PCIe 3.0             | PCIe 3.0 Single Slot       |
| Board Dimensions         | 2.7" x 6.6"                | 3.2" x 4.1"           | 4.376" x 10.5"            | 4.376" x 10.5"            | 2.7" x 6.6"                |
| Cooling Solution         | Passive                    | Bare Board            | Passive                   | Passive                   | Passive                    |

## GENERAL PURCHASING INFORMATION

NVIDIA vGPU software products can be purchased through NVIDIA Preferred Partners and select server OEMs. A list of these Preferred Partners and OEMs can be obtained from: <http://www.nvidia.com/buygrid>.

All three NVIDIA vGPU software products can be purchased as either perpetual licenses with yearly Support Updates and Maintenance agreement (SUMS), or as an annual subscription. The perpetual license gives the user the right to use the software indefinitely, with no expiration. All NVIDIA vGPU software products with perpetual licenses must be purchased in conjunction with three, four, or five year of SUMS. One year SUMS is available *only for renewals*.

The annual subscription offering is a more affordable option to allow IT departments to better manage the flexibility of license volumes. NVIDIA vGPU software products with annual subscription are bundled with SUMS for the duration of the software's subscription license.

| Entitlement                  | NVIDIA vGPU Production SUMS   |
|------------------------------|---|
| Maintenance                  | Access to all maintenance releases, defect resolutions, and security patches for flexibility in upgrading for up to 3 years |
| Upgrades                     | Access to all new major version releases including feature enhancements and new hardware support                            |
| Long-Term branch maintenance | Available for up to 3 years from general availability   |
| Direct support               | Direct access to NVIDIA support engineering for timely resolution of customer-specific issues                               |
| Support availability         | 24 x 7  |
| Knowledgebase access         | ✓   |
| Web support                  | ✓   |
| E-mail support               | ✓   |
| Phone support                | ✓   |

## VIRTUAL GPU PRODUCT DETAILS

NVIDIA vGPU is the industry's most advanced technology for sharing true virtual GPU hardware acceleration between multiple users—without compromising the graphics experience. This virtualization technology ensures complete application compatibility which means features and experience are the same as they would be on a physical device.

## 1.1 VIRTUAL GPU SOFTWARE EDITIONS

NVIDIA vGPU desktop and application virtualization solutions are designed to bring the power of virtualization to the users who need to be their most productive. vGPU technology ensures application compatibility, meaning any application that can run in a physical desktop can run in a virtual environment. Organizations can now expand their virtualization footprint without compromise.

NVIDIA vGPU software is available in three editions: NVIDIA GRID Virtual PC (GRID vPC), NVIDIA Quadro® Virtual Data Center Workstation (Quadro vDWS), and GRID Virtual Applications (GRID vApps).

### GRID vPC

This product is ideal for users who want a virtual desktop but need great user experience leveraging PC Windows applications, browsers and high definition video. NVIDIA GRID Virtual PC delivers a native experience to users in a virtual environment, allowing them to run all of their PC applications at full performance.

### Quadro vDWS

This edition is ideal for mainstream and high-end designers who use powerful 3D content creation applications like Dassault CATIA, SOLIDWORKS, and 3DExcite, Siemens NX, PTC Creo, Schlumberger Petrel, or Autodesk Maya. NVIDIA Quadro® Virtual Data Center Workstation allows users to access their professional graphics applications with full features and performance, anywhere, on any device.

### GRID vApps

For organizations deploying XenApp or other RDSH solutions. Designed to deliver PC Windows applications at full performance. NVIDIA GRID Virtual Applications allows users to access any Windows application at full performance on any device, anywhere.

This edition is suited for users who would like to virtualize applications using XenApp or other RDSH solutions. Windows Server hosted RDSH desktops are also supported by GRID vApps.

## 1.2 vGPU SOFTWARE EDITIONS AND ENTITLEMENT

NVIDIA vGPU software is licensed per concurrent user. Each product includes the following feature entitlement:

| Feature                                    | GRID vApps     | GRID vPC                    | Quadro vDWS      |
|--|----------------|-----------------------------|------------------|
| <b>License Entitlement</b>                 |                |                             |                  |
| Concurrent User (CCU)                      | Yes            | Yes                         | Yes              |
| <b>Capability Entitlement</b>              |                |                             |                  |
| Desktop Virtualization                     |                | Yes                         | Yes              |
| RDSH App Hosting                           | Yes            | Yes                         | Yes <sup>1</sup> |
| RDSH Desktop Hosting                       | Yes            | Yes                         | Yes <sup>1</sup> |
| Windows Guest OS                           | Yes            | Yes                         | Yes              |
| Linux Guest OS                             |                | Yes                         | Yes              |
| Maximum Displays                           | 1 <sup>2</sup> | 4                           | 4                |
| Maximum Resolution                         | 1280*1024      | 4096*2160 (4K) <sup>3</sup> | 4096*2160 (4K)   |
| NVIDIA Quadro Software Features            |                |                             | Yes              |
| CUDA & OpenCL Supported                    | No             |                             | Yes <sup>4</sup> |
| GPU Pass-through Supported <sup>5</sup>    | Yes            |                             | Yes              |
| Bare Metal Supported <sup>6</sup>          | Yes            |                             | Yes              |
| <b>vGPU Profiles Supported<sup>7</sup></b> |                |                             |                  |
| 512 MB                                     |                | Yes                         | Yes              |
| 1 GB                                       | Yes            | Yes                         | Yes              |
| 2 GB                                       | Yes            | Yes                         | Yes              |
| 3 GB                                       | Yes            |                             | Yes              |
| 4 GB                                       | Yes            |                             | Yes              |
| 6 GB                                       | Yes            |                             | Yes              |
| 8 GB                                       | Yes            |                             | Yes              |
| 12 GB                                      | Yes            |                             | Yes              |
| 16 GB                                      | Yes            |                             | Yes              |
| 24 GB                                      | Yes            |                             | Yes              |

<sup>1</sup> With packaged GRID vApps license

<sup>2</sup> Applies only to the console display in remote application environments. For details, see [Supported GPUs](#)

<sup>3</sup> Supports up to two 4K displays or four 2560x1600 displays on 2B profile. Supports up to four 2560x1600 displays on 1B profile.

<sup>4</sup> Supported on 8GB 1:1 profile on Maxwell and all profiles on Pascal

<sup>5</sup> Only supported on 1:1 profiles

<sup>6</sup> Only NVIDIA Tesla M6 Hardware supported as primary display device

<sup>7</sup> Please review the [Virtual GPU Software User Guide](#) for the vGPU profiles supported on your GPU

# VGPU SOFTWARE LICENSING AND PRICING

GRID vPC, Quadro vDWS and GRID vApps are available on a per Concurrent User (CCU) model. A CCU license is required for every user who is accessing or using the software at any given time, whether or not an active connection to the virtualized desktop or session is maintained.

NVIDIA vGPU editions can be purchased by enterprises as either perpetual licenses with annual Support Updates and Maintenance Subscription (SUMS), or as an annual subscription. All NVIDIA vGPU software products with perpetual licenses must be purchased in conjunction with three, four, or five year of SUMS. One year SUMS is available only for renewals. For annual licenses, SUMS is bundled into the annual license cost.

Enterprise vGPU Software Pricing is listed in the tables below, [find the full SKU list here](#). Pricing is suggested pricing only, contact your authorized NVIDIA partner for final pricing. If you are looking to run or host a service using NVIDIA vGPU Software, you need to join the [NPN CSP partner program](#).

## 1.1 SUBSCRIPTION CONCURRENT USER LICENSE

An Annual Enterprise Subscription is active for a fixed period as defined by the terms of the subscription license. To be kept active, the license will need to be renewed at the end of the subscription period. The subscription license includes the software license and production level SUMS for the duration of the license subscription period.

| Enterprise Annual Subscription Pricing |                            |
|--|----------------------------|
| GRID Virtual Applications              | \$10 per CCU subscription  |
| GRID Virtual PC                        | \$50 per CCU subscription  |
| Quadro Virtual Data Center Workstation | \$250 per CCU subscription |



## 1.2 PERPETUAL CONCURRENT USER LICENSE

A Perpetual Enterprise License allows for use of the licensed software indefinitely. Users that opt to license using this model are required to subscribe to SUMS for three years. The SUMS subscription can be renewed on a yearly basis after the expiration of the initial subscription.

| Enterprise Perpetual Licensing + SUMS Pricing |                                 |
|---|---------------------------------|
| GRID Virtual Applications                     | \$20 per CCU perpetual license  |
|   | \$5 SUMS per year               |
| GRID Virtual PC                               | \$100 per CCU perpetual license |
|   | \$25 SUMS per year              |
| Quadro Virtual Data Center Workstation        | \$450 per CCU perpetual license |
|   | \$100 SUMS per year             |

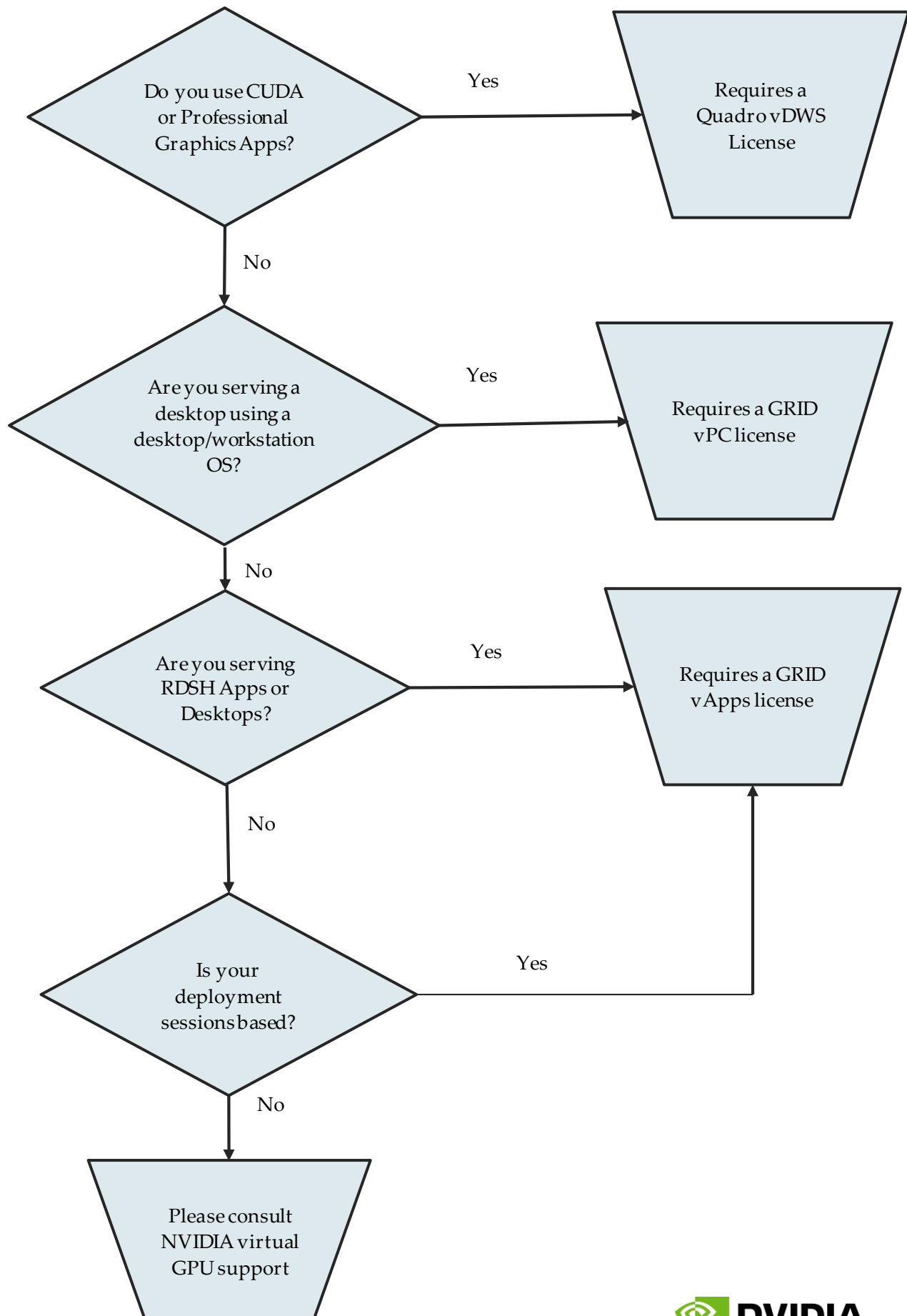
## 1.3 NVIDIA EDUCATION PRICING PROGRAM

The NVIDIA Education Pricing Program supports the use of visual computing in teaching and research institutions. The program makes it easy to procure and administer and helps reduce the total cost of NVIDIA Solutions, software licensing and services for qualified educational institutions. The program includes NVIDIA solutions, software and services. For more information on eligibility, please review the [NVIDIA Education Pricing Program](#) documentation.

| Annual Subscription Pricing            |                                |
|--|--------------------------------|
| Quadro Virtual Data Center Workstation | \$50 per CCU subscription      |
| Perpetual Licensing + SUMS Pricing     |                                |
| Quadro Virtual Data Center Workstation | \$99 per CCU perpetual license |
|  | \$25 SUMS per year             |

## 1.3 DECIDING THE RIGHT LICENSE BASED ON CAPABILITY AND ENTITLEMENT

The following flowchart provides a simple decision tree to help decide which license is required based on the desired entitlement and capability. If you have further questions or are unable to decide based on the decision tree, please contact NVIDIA vGPU Support at <http://www.nvidia.com/gridsupport>.



The table below summarizes some common use cases of different solutions. This is not an all-inclusive list of possible solutions. If you have questions, please contact NVIDIA vGPU Support.

| I am using...              | I need this license...  |
|----------------------------|---|
| Citrix<br>XenDesktop       | GRID vPC - for PC level applications<br>Quadro vDWS - for workstation/professional 3D use cases                         |
| VMware<br>Horizon (View)   | GRID vPC - for PC level applications<br>Quadro vDWS - for each session utilizing a workstation/professional 3D use case |
| Citrix XenApp              | GRID vApps<br>Quadro vDWS - for each session utilizing a workstation/professional 3D use case                           |
| VMware<br>Horizon RDSH     | GRID vApps<br>Quadro vDWS - for each session utilizing a workstation/professional 3D use case                           |
| Other RDSH                 | GRID vApps<br>Quadro vDWS - for each session utilizing a workstation/professional 3D use case                           |
| Microsoft<br>RemoteFX      | GRID vPC - for PC level applications  |
| VMware<br>Horizon vSGA     | GRID vPC - for PC level applications  |
| Microsoft<br>Hyper-V (DDA) | Quadro vDWS   |

## 1.4 NVIDIA LICENSE MANAGER

The NVIDIA License Manager provides monitoring and reporting on license usage for capacity planning and is included with the vGPU software packages. This License Manager can be installed on either a physical server or, more likely, a dedicated virtual machine.

To improve end user experience, the vGPU software will run with or without a valid license server connection. This is done to ensure that user experience is not impacted by license overages or connection issues. The license server will allow the IT administrator to track license usage and determine correct sizing for their environments. In compliance with the EULA, IT administrators may also use any other method that reliably tracks the software usage to ensure they have enough licenses for their CCU usage.

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