

# ThinkSystem NVIDIA RTX A6000 48GB PCIe Active GPU

## Product Guide

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.

Unlock the next generation of revolutionary designs, scientific breakthroughs, and immersive entertainment with the NVIDIA RTX A6000, the world's most powerful visual computing GPU. With cutting-edge performance and features, the RTX A6000 lets you work at the speed of inspiration—to tackle the urgent needs of today and meet the rapidly evolving, compute-intensive tasks of tomorrow.



Figure 1. ThinkSystem NVIDIA Quadro RTX A6000 48GB PCIe Active GPU

## Did you know?

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.

## Part number information

The following table shows the part numbers for the RTX A6000 GPU.

Table 1. Ordering information

| Part number | Feature code | Description                                       |
|-------------|--------------|---|
| 4X67A71310  | BFT0         | ThinkSystem NVIDIA RTX A6000 48GB PCIe Active GPU |

The PCIe option part numbers includes the following:

- One RTX A6000 GPU with full-height (3U) adapter bracket attached
- Documentation

## Features

The ThinkSystem NVIDIA RTX A6000 48GB PCIe Active GPU offers the following features:

- **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 photo-realistic 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 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.

## Technical specifications

The following table lists the specifications of the RTX A6000 GPU.

Table 2. NVIDIA RTX A6000 specifications

| Feature                       | Specification   |
|-------------------------------|---|
| GPU Memory                    | 48 GB GDDR6   |
| Memory Interface              | 384-bit   |
| Memory Bandwidth              | Up to 768 GB/s  |
| ECC                           | Yes   |
| NVIDIA CUDA Cores             | 10,752  |
| NVIDIA Tensor Cores           | 336   |
| NVIDIA RT Cores               | 84  |
| Single-Precision Performance  | 38.7 TFLOPS (peak)  |
| RT Core performance           | 75.6 TFLOPS (peak)  |
| Tensor Performance            | 309.7 TFLOPS (peak)   |
| Host Interface                | PCI Express 4.0 x 16  |
| NVLink support                | Yes; 1x NVLink Bridge supported per pair of GPUs                                |
| Power Consumption             | 300 W   |
| Thermal Solution              | Active cooling  |
| Form Factor                   | 4.4" H x 10.5" L, Dual Slot, Full Height, Full Length                           |
| Display Connectors            | 4x DisplayPort 1.4a   |
| Maximum simultaneous displays | 4x 4096 x 2160 @ 120 Hz, 4x 5120 x 2880 @ 60 Hz, 2x 7680 x 4320 @ 60 Hz         |
| 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, Shader Model 5.17, OpenGL 4.68, Vulkan 1.18                      |
| Compute APIs                  | CUDA, DirectCompute, OpenCL   |

## Server support

The following tables list the ThinkSystem servers that are compatible.

Table 3. Server support (Part 1 of 4)

| Part Number | Description                                       | 2S AMD V3              |                        |                        |                        | 2S Intel V3            |                        |                        |                        | 4S 8S Intel V3         |                        |                        |                        | Multi Node             |                        | GPU Rich               |                  |                  |                        | 1S V3                  |  |
|-------------|---|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------|------------------|------------------------|------------------------|--|
|             |   | SR635 V3 (7D9H / 7D9G) | SR655 V3 (7D9F / 7D9E) | SR645 V3 (7D9D / 7D9C) | SR665 V3 (7D9B / 7D9A) | ST650 V3 (7D7B / 7D7A) | SR630 V3 (7D72 / 7D73) | SR650 V3 (7D75 / 7D76) | SR850 V3 (7D97 / 7D96) | SR860 V3 (7D94 / 7D93) | SR950 V3 (7DC5 / 7DC4) | SD535 V3 (7DD8 / 7DD1) | SD530 V3 (7DDA / 7DD3) | SD550 V3 (7DD9 / 7DD2) | SR670 V2 (7Z22 / 7Z23) | SR675 V3 (7D9Q / 7D9R) | SR680a V3 (7DHE) | SR685a V3 (7DHC) | ST250 V3 (7DCF / 7DCE) | SR250 V3 (7DCM / 7DCL) |  |
| 4X67A71310  | ThinkSystem NVIDIA RTX A6000 48GB PCIe Active GPU | N                      | 3                      | N                      | 3                      | 4                      | N                      | 3                      | 2                      | 4                      | N                      | N                      | N                      | N                      | N                      | N                      | N                | N                | N                      | N                      |  |

Table 4. Server support (Part 2 of 4)

| Part Number | Description                                       | Edge                |                 |                 |              |                 | Super Computing |                   |                 |                   |                   | 1S Intel V2           |                        | 2S Intel V2            |                        |                        |                        |
|-------------|---|---------------------|-----------------|-----------------|--------------|-----------------|-----------------|-------------------|-----------------|-------------------|-------------------|-----------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
|             |   | SE350 (7Z46 / 7D1X) | SE350 V2 (7DA9) | SE360 V2 (7DAM) | SE450 (7D8T) | SE455 V3 (7DBY) | SD665 V3 (7D9P) | SD665-N V3 (7DAZ) | SD650 V3 (7D7M) | SD650-I V3 (7D7L) | SD650-N V3 (7D7N) | ST50 V2 (7D8K / 7D8J) | ST250 V2 (7D8G / 7D8F) | SR250 V2 (7D7R / 7D7Q) | ST650 V2 (7Z75 / 7Z74) | SR630 V2 (7Z70 / 7Z71) | SR650 V2 (7Z72 / 7Z73) |
| 4X67A71310  | ThinkSystem NVIDIA RTX A6000 48GB PCIe Active GPU | N                   | N               | N               | N            | N               | N               | N                 | N               | N                 | N                 | N                     | N                      | N                      | 4                      | N                      | 3                      |

Table 5. Server support (Part 3 of 4)

| Part Number | Description                                       | AMD V1              |                     |                 |                     |                     | Dense V2        |                 |                   |                 | 4S V2                  | 8S                     | 4S V1               |                     | 1S Intel V1          |                     |                    |                     |              |                     |
|-------------|---|---------------------|---------------------|-----------------|---------------------|---------------------|-----------------|-----------------|-------------------|-----------------|------------------------|------------------------|---------------------|---------------------|----------------------|---------------------|--------------------|---------------------|--------------|---------------------|
|             |   | SR635 (7Y98 / 7Y99) | SR655 (7Y00 / 7Z01) | SR655 Client OS | SR645 (7D2Y / 7D2X) | SR665 (7D2W / 7D2V) | SD630 V2 (7D1K) | SD650 V2 (7D1M) | SD650-N V2 (7D1N) | SN550 V2 (7Z69) | SR850 V2 (7D31 / 7D32) | SR860 V2 (7Z59 / 7Z60) | SR950 (7X11 / 7X12) | SR850 (7X18 / 7X19) | SR850P (7D2F / 2D2G) | SR860 (7X69 / 7X70) | ST50 (7Y48 / 7Y50) | ST250 (7Y45 / 7Y46) | SR150 (7Y54) | SR250 (7Y52 / 7Y51) |
| 4X67A71310  | ThinkSystem NVIDIA RTX A6000 48GB PCIe Active GPU | N                   | N                   | 2               | N                   | N                   | N               | N               | N                 | N               | N                      | N                      | N                   | N                   | N                    | N                   | N                  | N                   | N            | N                   |

Table 6. Server support (Part 4 of 4)

| Part Number | Description                                       | 2S Intel V1         |                     |                     |                     |                     |                     |                     |                     | Dense V1     |              |              |              |
|-------------|---|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|--------------|--------------|--------------|--------------|
|             |   | ST550 (7X09 / 7X10) | SR530 (7X07 / 7X08) | SR550 (7X03 / 7X04) | SR570 (7Y02 / 7Y03) | SR590 (7X98 / 7X99) | SR630 (7X01 / 7X02) | SR650 (7X05 / 7X06) | SR670 (7Y36 / 7Y37) | SD530 (7X21) | SD650 (7X58) | SN550 (7X16) | SN850 (7X15) |
| 4X67A71310  | ThinkSystem NVIDIA RTX A6000 48GB PCIe Active GPU | N                   | N                   | N                   | N                   | N                   | N                   | 2                   | N                   | N            | N            | N            | N            |

## Operating system support

The following table lists the supported operating systems:

**Tip:** These tables are automatically generated based on data from [Lenovo ServerProven](#).

Table 7. Operating system support for ThinkSystem NVIDIA RTX A6000 48GB PCIe Active GPU, 4X67A71310

| Operating systems             | SR650 V3 (4th Gen Xeon) | SR650 V3 (5th Gen Xeon) | SR655 V3 | SR665 V3 | SR850 V3       | SR860 V3       | ST650 V3 | SR650 V2 | ST650 V2 | SR655          | SR650 (Xeon Gen 2) |
|-------------------------------|-------------------------|-------------------------|----------|----------|----------------|----------------|----------|----------|----------|----------------|--------------------|
| Microsoft Windows 10          | Y                       | Y                       | Y        | Y        | N              | N              | N        | N        | N        | N              | N                  |
| Microsoft Windows 11          | Y                       | Y                       | Y        | Y        | N              | N              | N        | N        | N        | N              | N                  |
| Microsoft Windows Server 2016 | N                       | N                       | N        | N        | N              | N              | N        | Y        | Y        | N              | Y                  |
| Microsoft Windows Server 2019 | Y                       | Y                       | Y        | Y        | Y <sup>1</sup> | Y <sup>1</sup> | Y        | Y        | Y        | N              | Y                  |
| Microsoft Windows Server 2022 | Y                       | Y                       | Y        | Y        | Y              | Y              | Y        | Y        | Y        | N              | Y                  |
| Red Hat Enterprise Linux 7.7  | N                       | N                       | N        | N        | N              | N              | N        | N        | N        | N              | Y                  |
| Red Hat Enterprise Linux 7.8  | N                       | N                       | N        | N        | N              | N              | N        | N        | N        | N              | Y                  |
| Red Hat Enterprise Linux 7.9  | N                       | N                       | N        | N        | N              | N              | N        | Y        | Y        | N              | Y                  |
| Red Hat Enterprise Linux 8.1  | N                       | N                       | N        | N        | N              | N              | N        | N        | N        | Y <sup>2</sup> | Y                  |
| Red Hat Enterprise Linux 8.2  | N                       | N                       | N        | N        | N              | N              | N        | Y        | Y        | Y <sup>2</sup> | Y                  |
| Red Hat Enterprise Linux 8.3  | N                       | N                       | N        | N        | N              | N              | N        | Y        | Y        | Y              | Y                  |
| Red Hat Enterprise Linux 8.4  | N                       | N                       | N        | N        | N              | N              | N        | Y        | Y        | Y              | Y                  |
| Red Hat Enterprise Linux 8.5  | N                       | N                       | N        | N        | N              | N              | N        | Y        | Y        | Y              | Y                  |
| Red Hat Enterprise Linux 8.6  | Y                       | N                       | Y        | Y        | Y              | Y              | Y        | Y        | Y        | N              | Y                  |
| Red Hat Enterprise Linux 8.7  | Y                       | N                       | Y        | Y        | Y              | Y              | Y        | Y        | Y        | N              | Y                  |
| Red Hat Enterprise Linux 8.8  | Y                       | Y                       | Y        | Y        | Y              | Y              | Y        | Y        | Y        | N              | Y                  |
| Red Hat Enterprise Linux 9.0  | Y                       | N                       | Y        | Y        | Y              | Y              | Y        | Y        | Y        | N              | Y                  |

| Operating systems                       | SR650 V3 (4th Gen Xeon) | SR650 V3 (5th Gen Xeon) | SR655 V3 | SR665 V3 | SR850 V3 | SR860 V3 | ST650 V3 | SR650 V2 | ST650 V2 | SR655 | SR650 (Xeon Gen 2) |
|---|-------------------------|-------------------------|----------|----------|----------|----------|----------|----------|----------|-------|--------------------|
| Red Hat Enterprise Linux 9.1            | Y                       | N                       | Y        | Y        | Y        | Y        | Y        | Y        | Y        | N     | Y                  |
| Red Hat Enterprise Linux 9.2            | Y                       | Y                       | Y        | Y        | Y        | Y        | Y        | Y        | Y        | N     | Y                  |
| SUSE Linux Enterprise Server 15 SP1     | N                       | N                       | N        | N        | N        | N        | N        | N        | N        | N     | Y                  |
| SUSE Linux Enterprise Server 15 SP2     | N                       | N                       | N        | N        | N        | N        | N        | Y        | Y        | N     | Y                  |
| SUSE Linux Enterprise Server 15 SP3     | N                       | N                       | N        | N        | N        | N        | N        | Y        | Y        | N     | Y                  |
| SUSE Linux Enterprise Server 15 SP4     | Y                       | N                       | Y        | Y        | Y        | Y        | Y        | Y        | Y        | N     | Y                  |
| SUSE Linux Enterprise Server 15 SP5     | Y                       | Y                       | Y        | Y        | Y        | Y        | Y        | Y        | Y        | N     | Y                  |
| Ubuntu 18.04.5 LTS                      | N                       | N                       | N        | N        | N        | N        | N        | Y        | Y        | N     | N                  |
| Ubuntu 20.04 LTS                        | N                       | N                       | N        | N        | N        | N        | N        | Y        | N        | N     | N                  |
| Ubuntu 20.04.5 LTS                      | N                       | N                       | Y        | Y        | Y        | Y        | N        | N        | N        | N     | N                  |
| Ubuntu 22.04 LTS                        | Y                       | N                       | Y        | Y        | Y        | Y        | Y        | Y        | Y        | N     | Y                  |
| VMware vSphere Hypervisor (ESXi) 6.5 U2 | N                       | N                       | N        | N        | N        | N        | N        | N        | N        | N     | Y                  |
| VMware vSphere Hypervisor (ESXi) 6.5 U3 | N                       | N                       | N        | N        | N        | N        | N        | N        | N        | N     | Y                  |
| VMware vSphere Hypervisor (ESXi) 6.7 U1 | N                       | N                       | N        | N        | N        | N        | N        | N        | N        | N     | Y                  |
| VMware vSphere Hypervisor (ESXi) 6.7 U2 | N                       | N                       | N        | N        | N        | N        | N        | N        | N        | N     | Y                  |
| VMware vSphere Hypervisor (ESXi) 6.7 U3 | N                       | N                       | N        | N        | N        | N        | N        | Y        | Y        | N     | Y                  |
| VMware vSphere Hypervisor (ESXi) 7.0    | N                       | N                       | N        | N        | N        | N        | N        | N        | N        | N     | Y                  |
| VMware vSphere Hypervisor (ESXi) 7.0 U1 | N                       | N                       | N        | N        | N        | N        | N        | N        | N        | N     | Y                  |
| VMware vSphere Hypervisor (ESXi) 7.0 U2 | N                       | N                       | N        | N        | N        | N        | N        | Y        | Y        | N     | Y                  |
| VMware vSphere Hypervisor (ESXi) 7.0 U3 | Y                       | Y                       | Y        | Y        | Y        | Y        | Y        | Y        | Y        | N     | Y                  |
| VMware vSphere Hypervisor (ESXi) 8.0    | Y                       | N                       | Y        | Y        | N        | N        | N        | Y        | Y        | N     | Y                  |
| VMware vSphere Hypervisor (ESXi) 8.0 U1 | Y                       | N                       | Y        | Y        | Y        | Y        | Y        | Y        | Y        | N     | Y                  |
| VMware vSphere Hypervisor (ESXi) 8.0 U2 | Y                       | Y                       | Y        | Y        | Y        | Y        | Y        | Y        | Y        | N     | Y                  |

<sup>1</sup> For limitation, please refer [Support Tip TT1591](#)

<sup>2</sup> The OS is not supported with EPYC 7003 processors.

## NVIDIA GPU software

This section lists the NVIDIA software that is available from Lenovo.

- [NVIDIA vGPU Software \(vApps, vPC, RTX vWS, and vCS\)](#)
- [NVIDIA Omniverse Software \(OVE\)](#)
- [NVIDIA AI Enterprise Software](#)
- [NVIDIA HPC Compiler Software](#)

## NVIDIA vGPU Software (vApps, vPC, RTX vWS)

Lenovo offers the following virtualization software for NVIDIA GPUs:

- **Virtual Applications (vApps)**

For organizations deploying Citrix XenApp, VMware Horizon RDSH or other RDSH solutions. Designed to deliver PC Windows applications at full performance. NVIDIA 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 vApps.

- **Virtual PC (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 Virtual PC delivers a native experience to users in a virtual environment, allowing them to run all their PC applications at full performance.

- **NVIDIA RTX Virtual Workstation (RTX vWS)**

NVIDIA RTX vWS is the only virtual workstation that supports NVIDIA RTX technology, bringing advanced features like ray tracing, AI-denoising, and Deep Learning Super Sampling (DLSS) to a virtual environment. Supporting the latest generation of NVIDIA GPUs unlocks the best performance possible, so designers and engineers can create their best work faster. IT can virtualize any application from the data center with an experience that is indistinguishable from a physical workstation — enabling workstation performance from any device.

The following license types are offered:

- **Perpetual license**

A non-expiring, permanent software license that can be used on a perpetual basis without the need to renew. Each Lenovo part number includes a fixed number of years of Support, Upgrade and Maintenance (SUMS).

- **Annual subscription**

A software license that is active for a fixed period as defined by the terms of the subscription license, typically yearly. The subscription includes Support, Upgrade and Maintenance (SUMS) for the duration of the license term.

- **Concurrent User (CCU)**

A method of counting licenses based on active user VMs. If the VM is active and the NVIDIA vGPU software is running, then this counts as one CCU. A vGPU CCU is independent of the connection to the VM.

The following table lists the ordering part numbers and feature codes.

Table 8. NVIDIA vGPU Software

| Part number  | Feature code<br>7S02CTO1WW | Description  |
|--------------|----------------------------|--|
| NVIDIA vApps |                            |  |
| 7S020003WW   | B1MP                       | NVIDIA vApps Perpetual License and SUMS 5Yr, 1 CCU |
| 7S020004WW   | B1MQ                       | NVIDIA vApps Subscription License 1 Year, 1 CCU    |
| 7S020005WW   | B1MR                       | NVIDIA vApps Subscription License 3 Years, 1 CCU   |
| 7S02003DWW   | S832                       | NVIDIA vApps Subscription License 4 Years, 1 CCU   |
| 7S02003EWW   | S833                       | NVIDIA vApps Subscription License 5 Years, 1 CCU   |
| NVIDIA vPC   |                            |  |

| Part number           | Feature code<br>7S02CTO1WW | Description  |
|-----------------------|----------------------------|--|
| 7S020009WW            | B1MV                       | NVIDIA vPC Perpetual License and SUMS 5Yr, 1 CCU         |
| 7S02000AWW            | B1MW                       | NVIDIA vPC Subscription License 1 Year, 1 CCU            |
| 7S02000BWW            | B1MX                       | NVIDIA vPC Subscription License 3 Years, 1 CCU           |
| 7S02003FWW            | S834                       | NVIDIA vPC Subscription License 4 Years, 1 CCU           |
| 7S02003GWW            | S835                       | NVIDIA vPC Subscription License 5 Years, 1 CCU           |
| <b>NVIDIA RTX vWS</b> |                            |  |
| 7S02000FWW            | B1N1                       | NVIDIA RTX vWS Perpetual License and SUMS 5Yr, 1 CCU     |
| 7S02000GWW            | B1N2                       | NVIDIA RTX vWS Subscription License 1 Year, 1 CCU        |
| 7S02000HWW            | B1N3                       | NVIDIA RTX vWS Subscription License 3 Years, 1 CCU       |
| 7S02000XWW            | S6YJ                       | NVIDIA RTX vWS Subscription License 4 Years, 1 CCU       |
| 7S02000YWW            | S6YK                       | NVIDIA RTX vWS Subscription License 5 Years, 1 CCU       |
| 7S02000LWW            | B1N6                       | NVIDIA RTX vWS EDU Perpetual License and SUMS 5Yr, 1 CCU |
| 7S02000MWW            | B1N7                       | NVIDIA RTX vWS EDU Subscription License 1 Year, 1 CCU    |
| 7S02000NWW            | B1N8                       | NVIDIA RTX vWS EDU Subscription License 3 Years, 1 CCU   |
| 7S02003BWW            | S830                       | NVIDIA RTX vWS EDU Subscription License 4 Years, 1 CCU   |
| 7S02003CWW            | S831                       | NVIDIA RTX vWS EDU Subscription License 5 Years, 1 CCU   |

## NVIDIA Omniverse Software (OVE)

NVIDIA Omniverse™ Enterprise is an end-to-end collaboration and simulation platform that fundamentally transforms complex design workflows, creating a more harmonious environment for creative teams.

NVIDIA and Lenovo offer a robust, scalable solution for deploying Omniverse Enterprise, accommodating a wide range of professional needs. This document details the critical components, deployment options, and support available, ensuring an efficient and effective Omniverse experience.

Deployment options cater to varying team sizes and workloads. Using Lenovo NVIDIA-Certified Systems™ and Lenovo OVX nodes which are meticulously designed to manage scale and complexity, ensures optimal performance for Omniverse tasks.

Deployment options include:

- Workstations: NVIDIA-Certified Workstations with A5000 or A6000 Ada GPUs for desktop environments.
- Data Center Solutions: Deployment with Lenovo OVX nodes or NVIDIA-Certified Servers equipped with L40, L40S or A40 GPUs for centralized, high-capacity needs.

NVIDIA Omniverse Enterprise includes the following components and features:

- Platform Components: Kit, Connect, Nucleus, Simulation, RTX Renderer.
- Foundation Applications: USD Composer, USD Presenter.
- Omniverse Extensions: Connect Sample & SDK.
- Integrated Development Environment (IDE)
- Nucleus Configuration: Workstation, Enterprise Nucleus Server (supports up to 8 editors per scene); Self-Service Public Cloud Hosting using Containers.
- Omniverse Farm: Supports batch workloads up to 8 GPUs.



- Enterprise Services: Authentication (SSO/SSL), Navigator Microservice, Large File Transfer, User Accounts SAML/Account Directory.
- User Interface: Workstation & IT Managed Launcher.
- Support: NVIDIA Enterprise Support.
- Deployment Scenarios: Desktop to Data Center: Workstation deployment for building and designing, with options for physical or virtual desktops. For batch tasks, rendering, and SDG workloads that require headless compute, Lenovo OVX nodes are recommended.

The following part numbers are for a subscription license which is active for a fixed period as noted in the description. The license is for a named user which means the license is for named authorized users who may not re-assign or share the license with any other person.

Table 9. NVIDIA Omniverse Software (OVE)

| Part number | Feature<br>7S02CTO1WW | Description  |
|-------------|-----------------------|--|
| 7S02003ZWW  | SCX0                  | NVIDIA Omniverse Enterprise Subscription per GPU, 1 Year       |
| 7S020042WW  | SCX3                  | NVIDIA Omniverse Enterprise Subscription per GPU, 3 Years      |
| 7S020041WW  | SCX2                  | NVIDIA Omniverse Enterprise Subscription per GPU, INC, 1 Year  |
| 7S020040WW  | SCX1                  | NVIDIA Omniverse Enterprise Subscription per GPU, EDU, 1 Year  |
| 7S020043WW  | SCX4                  | NVIDIA Omniverse Enterprise Subscription per GPU, EDU, 3 Years |

## NVIDIA AI Enterprise Software

Lenovo offers the NVIDIA AI Enterprise (NVAIE) cloud-native enterprise software. NVIDIA AI Enterprise is an end-to-end, cloud-native suite of AI and data analytics software, optimized, certified, and supported by NVIDIA to run on VMware vSphere and bare-metal with NVIDIA-Certified Systems™. It includes key enabling technologies from NVIDIA for rapid deployment, management, and scaling of AI workloads in the modern hybrid cloud.

NVIDIA AI Enterprise is licensed on a per-GPU basis. NVIDIA AI Enterprise products can be purchased as either a perpetual license with support services, or as an annual or multi-year subscription.

- The perpetual license provides the right to use the NVIDIA AI Enterprise software indefinitely, with no expiration. NVIDIA AI Enterprise with perpetual licenses must be purchased in conjunction with one-year, three-year, or five-year support services. A one-year support service is also available for renewals.
- The subscription offerings are an affordable option to allow IT departments to better manage the flexibility of license volumes. NVIDIA AI Enterprise software products with subscription includes support services for the duration of the software's subscription license

The features of NVIDIA AI Enterprise Software are listed in the following table.

Table 10. Features of NVIDIA AI Enterprise Software (NVAIE)

| Features                 | Supported in NVIDIA AI Enterprise |
|--------------------------|-----------------------------------|
| Per GPU Licensing        | Yes                               |
| Compute Virtualization   | Supported                         |
| Windows Guest OS Support | No support                        |
| Linux Guest OS Support   | Supported                         |
| Maximum Displays         | 1                                 |
| Maximum Resolution       | 4096 x 2160 (4K)                  |

| Features  | Supported in NVIDIA AI Enterprise |
|---|-----------------------------------|
| OpenGL and Vulkan                               | In-situ Graphics only             |
| CUDA and OpenCL Support                         | Supported                         |
| ECC and Page Retirement                         | Supported                         |
| MIG GPU Support                                 | Supported                         |
| Multi-vGPU                                      | Supported                         |
| NVIDIA GPUDirect                                | Supported                         |
| Peer-to-Peer over NVLink                        | Supported                         |
| GPU Pass Through Support                        | Supported                         |
| Baremetal Support                               | Supported                         |
| AI and Data Science applications and Frameworks | Supported                         |
| Cloud Native ready                              | Supported                         |

Note: Maximum 10 concurrent VMs per product license

The following table lists the ordering part numbers and feature codes.

Table 11. NVIDIA AI Enterprise Software (NVAIE)

| Part number                        | Feature code<br>7S02CTO1WW | Description   |
|------------------------------------|----------------------------|---|
| AI Enterprise Perpetual License    |                            |   |
| 7S02001BWW                         | S6YY                       | NVIDIA AI Enterprise Perpetual License and Support per GPU, 5 Years         |
| 7S02001EWW                         | S6Z1                       | NVIDIA AI Enterprise Perpetual License and Support per GPU, EDU, 5 Years    |
| AI Enterprise Subscription License |                            |   |
| 7S02001FWW                         | S6Z2                       | NVIDIA AI Enterprise Subscription License and Support per GPU, 1 Year       |
| 7S02001GWW                         | S6Z3                       | NVIDIA AI Enterprise Subscription License and Support per GPU, 3 Years      |
| 7S02001HWW                         | S6Z4                       | NVIDIA AI Enterprise Subscription License and Support per GPU, 5 Years      |
| 7S02001JWW                         | S6Z5                       | NVIDIA AI Enterprise Subscription License and Support per GPU, EDU, 1 Year  |
| 7S02001KWW                         | S6Z6                       | NVIDIA AI Enterprise Subscription License and Support per GPU, EDU, 3 Years |
| 7S02001LWW                         | S6Z7                       | NVIDIA AI Enterprise Subscription License and Support per GPU, EDU, 5 Years |

Find more information in the [NVIDIA AI Enterprise Sizing Guide](#).

## NVIDIA HPC Compiler Software

Table 12. NVIDIA HPC Compiler

| Part number                   | Feature code<br>7S09CTO6WW | Description                                   |
|-------------------------------|----------------------------|---|
| HPC Compiler Support Services |                            |   |
| 7S090014WW                    | S924                       | NVIDIA HPC Compiler Support Services, 1 Year  |
| 7S090015WW                    | S925                       | NVIDIA HPC Compiler Support Services, 3 Years |
| 7S09002GWW                    | S9UQ                       | NVIDIA HPC Compiler Support Services, 5 Years |

| Part number                           | Feature code<br>7S09CTO6WW | Description   |
|---------------------------------------|----------------------------|---|
| 7S090016WW                            | S926                       | NVIDIA HPC Compiler Support Services, EDU, 1 Year                               |
| 7S090017WW                            | S927                       | NVIDIA HPC Compiler Support Services, EDU, 3 Years                              |
| 7S09002HWW                            | S9UR                       | NVIDIA HPC Compiler Support Services, EDU, 5 Years                              |
| 7S090018WW                            | S928                       | NVIDIA HPC Compiler Support Services - Additional Contact, 1 Year               |
| 7S09002JWW                            | S9US                       | NVIDIA HPC Compiler Support Services - Additional Contact, 3 Years              |
| 7S09002KWW                            | S9UT                       | NVIDIA HPC Compiler Support Services - Additional Contact, 5 Years              |
| 7S090019WW                            | S929                       | NVIDIA HPC Compiler Support Services - Additional Contact, EDU, 1 Year          |
| 7S09002LWW                            | S9UU                       | NVIDIA HPC Compiler Support Services - Additional Contact, EDU, 3 Years         |
| 7S09002MWW                            | S9UV                       | NVIDIA HPC Compiler Support Services - Additional Contact, EDU, 5 Years         |
| HPC Compiler Premier Support Services |                            |   |
| 7S09001AWW                            | S92A                       | NVIDIA HPC Compiler Premier Support Services, 1 Year                            |
| 7S09002NWW                            | S9UW                       | NVIDIA HPC Compiler Premier Support Services, 3 Years                           |
| 7S09002PWW                            | S9UX                       | NVIDIA HPC Compiler Premier Support Services, 5 Years                           |
| 7S09001BWW                            | S92B                       | NVIDIA HPC Compiler Premier Support Services, EDU, 1 Year                       |
| 7S09002QWW                            | S9UY                       | NVIDIA HPC Compiler Premier Support Services, EDU, 3 Years                      |
| 7S09002RWW                            | S9UZ                       | NVIDIA HPC Compiler Premier Support Services, EDU, 5 Years                      |
| 7S09001CWW                            | S92C                       | NVIDIA HPC Compiler Premier Support Services - Additional Contact, 1 Year       |
| 7S09002SWW                            | S9V0                       | NVIDIA HPC Compiler Premier Support Services - Additional Contact, 3 Years      |
| 7S09002TWW                            | S9V1                       | NVIDIA HPC Compiler Premier Support Services - Additional Contact, 5 Years      |
| 7S09001DWW                            | S92D                       | NVIDIA HPC Compiler Premier Support Services - Additional Contact, EDU, 1 Year  |
| 7S09002UWW                            | S9V2                       | NVIDIA HPC Compiler Premier Support Services - Additional Contact, EDU, 3 Years |
| 7S09002VWW                            | S9V3                       | NVIDIA HPC Compiler Premier Support Services - Additional Contact, EDU, 5 Years |

## Auxiliary power cables

The RTX A6000 option part number does not ship with auxiliary power cables. For the SR650, the needed cable is part of ThinkSystem SR650 GPU Cable Kit, 4XH7A08794.

Table 13. Auxiliary power cables for RTX A6000 (click images to show larger versions)

|  |
|--|
| Auxiliary power cables needed with the SR665, SR650 V2, SR650 V3, SR655 V3, SR665 V3 |
|--|

**360mm 8pin (2x4) cable****Option\*:**

SR665: 4M17A80478 or  
4M17A11759

SR650 V2: 4H47A38666 or 4H47A80491

SR650 V3: 4X67A82883

SR655 V3: 4X67A86438

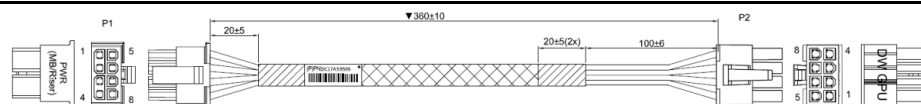
SR665 V3: 4X67A85856

**Feature:** BAD8

**SBB:** SBB7A49792 or SBB7A21691

**Base:** SC17A59596

**FRU:** 02YE420



\* The option part numbers are for thermal kits and include other components needed to install the GPU. See the [SR650 V2 product guide](#) for details.

**Auxiliary power cables needed with the ST650 V2, ST650 V3****320mm power cable for slots 1-4**

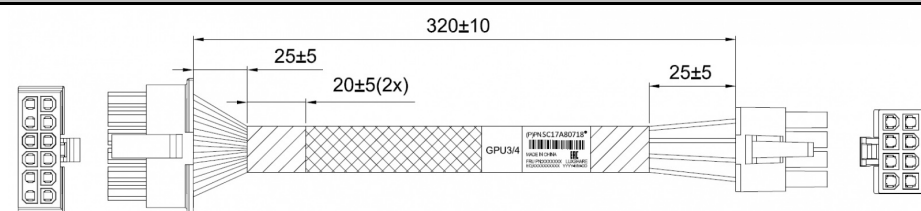
**Option:** 4Z57A60816\*

**Feature:** BE4Q

**SBB:** SBB7A29294

**Base:** SC17A80718

**FRU:** 02JJ693

**660mm power cable for slots 5-8**

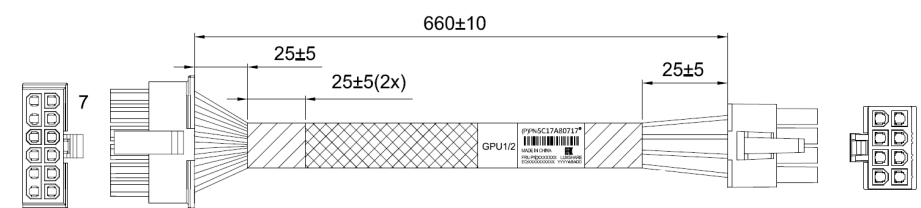
**Option:** 4Z57A60816\*

**Feature:** BE4R

**SBB:** SBB7A29293

**Base:** SC17A80717

**FRU:** 02JJ692



\* The option part number is for ThinkSystem ST650 V2/V3 RTX A6000 GPU Power Cable Kit and includes both the 320mm and 660mm cables needed to install the GPU. See the [ST650 V2 product guide](#) for details.

**Auxiliary power cables needed with the SR850 V3, SR860 V3****200mm power cable**

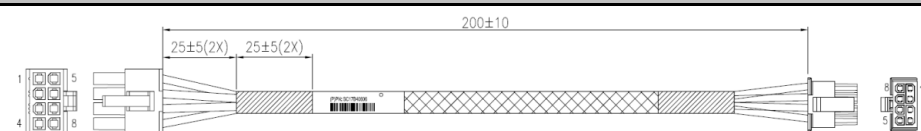
**Option:** 4X97A88017

**Feature:** BW29

**SBB:** SBB7A72760

**Base:** SC17B40606

**FRU:** 03LF917

**Auxiliary power cables needed with the SR650 (configure-to-order or field upgrade)****300mm 8pin (2x4) cable**

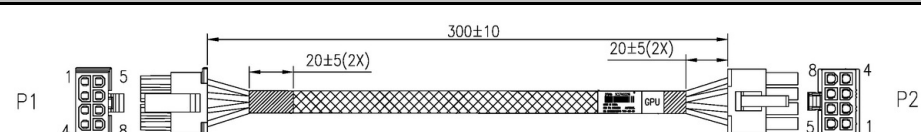
**Option:** 4XH7A08794,  
ThinkSystem SR650 GPU  
Cable Kit

**Feature:** AUSR

**SBB:** SBB7A00299

**Base:** SC17A02296

**FRU:** 01KN066



## Regulatory approvals

The RTX A6000 GPU has the following regulatory approvals:

- RCM
- BSMI
- CE
- FCC
- ICES
- KCC
- cUL, UL
- VCCI

## Operating environment

The RTX A6000 GPU has the following operating characteristics:

- Ambient temperature
  - Operational: 0°C to 50°C (-5°C to 55°C for short term\*)
  - Storage: -40°C to 75°C
- Relative humidity:
  - Operational: 5-85% (5-93% short term\*)
  - Storage: 5-95%

\* A period not more than 96 hours consecutive, not to exceed 15 days per year.

## Warranty

One year limited warranty. When installed in a Lenovo server, the GPU assumes the server's base warranty and any warranty upgrades.

## Related publications

For more information, refer to these documents:

- ThinkSystem and ThinkAgile GPU Summary:  
<https://lenovopress.lenovo.com/lp0768-thinksystem-thinkagile-gpu-summary>
- ServerProven compatibility:  
<https://serverproven.lenovo.com/>
- NVIDIA RTX A6000 product page:  
<https://www.nvidia.com/en-us/design-visualization/rtx-a6000/>
- NVIDIA Ampere Architecture page  
<https://www.nvidia.com/en-us/data-center/ampere-architecture/>

## Related product families

Product families related to this document are the following:

- [GPU adapters](#)

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