ThinkSystem NVIDIA A800 PCIe 4.0 GPUs

Product Guide (withdrawn product)

The NVIDIA A800 Tensor Core GPU, for customers in China, Hong Kong and Macau, delivers outstanding acceleration and flexibility to power the highest-performing elastic data centers for AI, data analytics, and HPC applications. As the engine of the NVIDIA data center platform, A800 provide up to significantly higher performance over V100 GPUs and can efficiently scale up to thousands of GPUs, or be partitioned into seven isolated GPU instances to accelerate workloads of all sizes.

The A800 is offered in China, Hong Kong and Macau, however the A100 is not offered in these markets. The only difference between the A100 and A800 is the speed of the NVLink interface: The NVLink on the A100 operates at 600 GB/s, where as the NVLink on the A800 operates at 400 GB/s.

The third-generation Tensor Core technology supports a broad range of math precisions providing a unified workload accelerator for data analytics, AI training, AI inference, and HPC. Accelerating both scale-up and scale-out workloads on one platform enables elastic data centers that can dynamically adjust to shifting application workload demands. This simultaneously boosts throughput and drives down the cost of data centers.

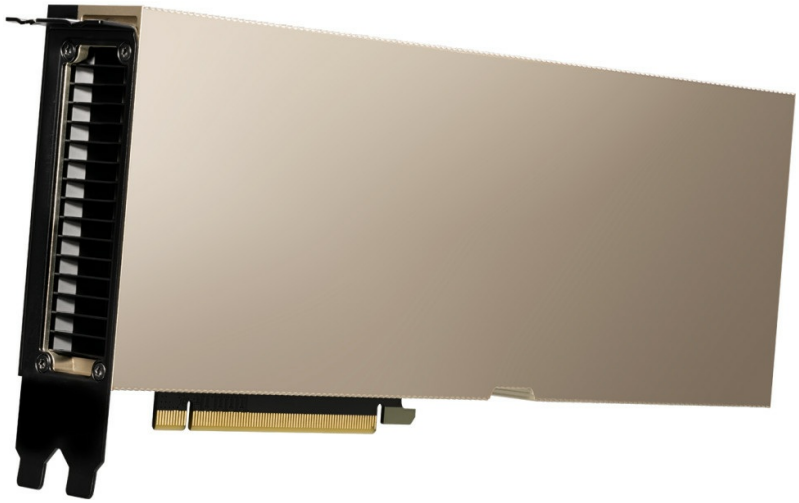


Figure 1. ThinkSystem NVIDIA A800 PCIe 4.0 GPU

Did you know?

The NVIDIA A800 is available in both double-wide PCIe adapter form factor and in SXM form factor. SXM is used in Lenovo's Neptune direct-water-cooled ThinkSystem SD650-N V2 server for the ultimate in GPU performance and heat management.

Part number information

The following table shows the part numbers for the A800 GPUs.

Withdrawn: The GPUs listed below are now withdrawn from marketing.

Table 1. Ordering information

Part number	Feature code	Description
PCIe double-wide adapters		
4X67A86324	BUGD	ThinkSystem NVIDIA A800 80GB PCIe Gen4 Passive GPU
NVLink bridge for PCIe adapters		
4X67A71309	BG3F	ThinkSystem NVIDIA Ampere NVLink 2-Slot Bridge
SXM modules		
None	BVZX	ThinkSystem NVIDIA HGX A800 80GB 500W 4-GPU Board

The PCIe option part numbers includes the following:

- One NVIDIA A800 GPU with full-height (3U) adapter bracket attached
- Documentation

The following figure shows the NVIDIA HGX A800 4-GPU Board in the water-cooled ThinkSystem SD650-N V2 server

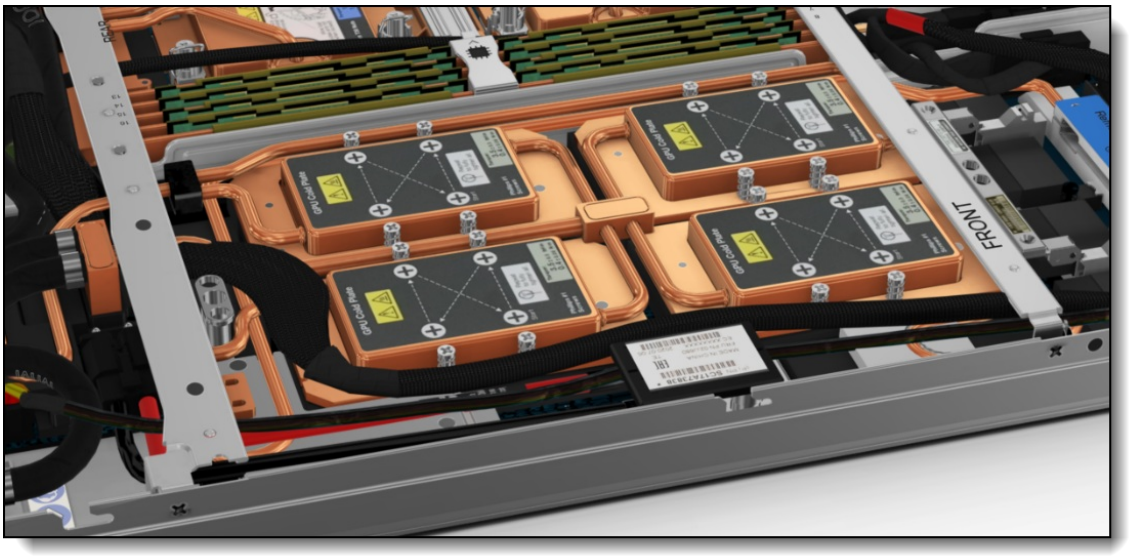


Figure 2. NVIDIA HGX A800 4-GPU Board in the water-cooled ThinkSystem SD650-N V2 server

Features

The ThinkSystem NVIDIA A800 PCIe 4.0 GPU delivers unprecedented acceleration—at every scale—to power the world's highest-performing elastic data centers for AI, data analytics, and high-performance computing (HPC) applications. The NVIDIA A800 GPU can efficiently scale up or be partitioned into seven isolated GPU instances with Multi-Instance GPU (MIG), providing a unified platform that enables elastic data centers to dynamically adjust to shifting workload demands.

NVIDIA A800 Tensor Core technology supports a broad range of math precisions, providing a single accelerator for every workload. The latest generation A800 80GB doubles GPU memory and debuts the world's fastest memory bandwidth at 2 terabytes per second (TB/s), speeding time to solution for the largest models and most massive datasets.

A800 is part of the complete NVIDIA data center solution that incorporates building blocks across hardware, networking, software, libraries, and optimized AI models and applications from the NVIDIA NGC™ catalog. Representing the most powerful end-to-end AI and HPC platform for data centers, it allows researchers to deliver real-world results and deploy solutions into production at scale.

- NVIDIA Ampere Architecture

  Whether using MIG to partition an A800 GPU into smaller instances or NVLink to connect multiple GPUs to speed large-scale workloads, A800 can readily handle different-sized acceleration needs, from the smallest job to the biggest multi-node workload. A800's versatility means IT managers can maximize the utility of every GPU in their data center, around the clock.

- Third-Generation Tensor Cores

  NVIDIA A800 delivers 312 teraFLOPS (TFLOPS) of deep learning performance. That's 20X the Tensor floating-point operations per second (FLOPS) for deep learning training and 20X the Tensor tera operations per second (TOPS) for deep learning inference compared to NVIDIA Volta GPUs.

- Next-Generation NVLink

  NVIDIA NVLink in A800 delivers higher throughput compared to the previous generation. When combined with NVIDIA NVSwitch, A800 GPUs can be interconnected at up to 400 gigabytes per second (GB/sec), unleashing the highest application performance possible on a single server. NVLink is available in SXM GPUs via HGX server boards and in PCIe GPUs via an NVLink Bridge for up to 2 GPUs.

- Multi-Instance GPU (MIG)

  An A800 GPU can be partitioned into as many as seven GPU instances, fully isolated at the hardware level with their own high-bandwidth memory, cache, and compute cores. MIG gives developers access to breakthrough acceleration for all their applications, and IT administrators can offer right-sized GPU acceleration for every job, optimizing utilization and expanding access to every user and application.

- High-Bandwidth Memory (HBM2E)

  With up to 80 GB of HBM2e, A800 delivers the world's fastest GPU memory bandwidth of over 2TB/s, as well as a DRAM utilization efficiency of 95%. A800 delivers 1.7X higher memory bandwidth over the previous generation.

- Structural Sparsity

  AI networks have millions to billions of parameters. Not all of these parameters are needed for accurate predictions, and some can be converted to zeros, making the models "sparse" without compromising accuracy. Tensor Cores in A800 can provide up to 2X higher performance for sparse models. While the sparsity feature more readily benefits AI inference, it can also improve the performance of model training.

Technical specifications

The following table lists the NVIDIA A800 GPU specifications.

Table 2. A800 specifications

Feature	A800 80GB PCIe	A800 80GB SXM 4-GPU board (per GPU)
GPU Architecture	NVIDIA Ampere	
NVIDIA Tensor Cores	512 third-generation Tensor Cores per GPU	
NVIDIA CUDA Cores	8192 FP32 CUDA Cores per GPU	
Double-Precision Performance	FP64: 9.7 TFLOPS FP64 Tensor Core: 19.5 TFLOPS	
Single-Precision Performance	FP32: 19.5 TFLOPS Tensor Float 32 (TF32): 156 TFLOPS, 312 TFLOPS*	
Half-Precision Performance	312 TFLOPS, 624 TFLOPS*	
Bfloat16	312 TFLOPS, 624 TFLOPS*	
Integer Performance	INT8: 624 TOPS, 1,248 TOPS* INT4: 1,248 TOPS, 2,496 TOPS*	
GPU Memory	80 GB HBM2	
Memory Bandwidth	1,935 GB/s	2,039 GB/s
ECC	Yes	
Interconnect Bandwidth	NVLink: 400 GB/s PCIe: 64 GB/s	NVLink: 400 GB/s PCIe: 64 GB/s
System Interface	PCIe Gen 4, x16 lanes	
Form Factor	PCIe full height/length, double width	4x SXM4 modules
Multi-Instance GPU (MIG)	Up to 7 GPU instances, 10GB each	
Max Power Consumption	300 W	500W
Thermal Solution	Passive	Water cooled
Compute APIs	CUDA, DirectCompute, OpenCL, OpenACC	

* With structural sparsity enabled

Server support

The following tables list the ThinkSystem servers that are compatible.

NVLink server support: The NVLink Ampere bridge is supported with additional NVIDIA A-series GPUs. As a result, there are additional servers listed as supporting the bridge that don't support the A800 GPU.

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)	ST50 V3 (7DF4 / 7DF3)	ST250 V3 (7DCF / 7DCE)	SR250 V3 (7DCM / 7DCL)
4X67A86324	ThinkSystem NVIDIA A800 80GB PCIe Gen4 Passive GPU	N	N	N	N	N	N	3	2	4	N	N	N	N	8	8	N	N	N	N	N
4X67A71309	ThinkSystem NVIDIA Ampere NVLink 2-Slot Bridge	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	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)
4X67A86324	ThinkSystem NVIDIA A800 80GB PCIe Gen4 Passive GPU	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	3
4X67A71309	ThinkSystem NVIDIA Ampere NVLink 2-Slot Bridge	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

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)
4X67A86324	ThinkSystem NVIDIA A800 80GB PCIe Gen4 Passive GPU	N	N	N	N	3	N	N	N	N	N	4	N	N	N	N	N	N	N	N
4X67A71309	ThinkSystem NVIDIA Ampere NVLink 2-Slot Bridge	N	N	N	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)
4X67A86324	ThinkSystem NVIDIA A800 80GB PCIe Gen4 Passive GPU	N	N	N	N	N	N	2	N	N	N	N	N
4X67A71309	ThinkSystem NVIDIA Ampere NVLink 2-Slot Bridge	N	N	N	N	N	N	N	N	N	N	N	N

Operating system support

The following tables list the supported operating systems.

Tip: These tables are automatically generated based on data from Lenovo ServerProven.

Table 7. Operating system support for ThinkSystem NVIDIA A800 80GB PCIe Gen4 Passive GPU w/o CEC generic, 4X67A86324

Operating systems	SR650 V3 (4th Gen Xeon)	SR650 V3 (5th Gen Xeon)	SR675 V3	SR850 V3	SR860 V3	SR650 V2	SR670 V2	SR860 V2	SR665	SR650 (Xeon Gen 2)
Microsoft Windows 10	N	Y	N	N	N	N	N	N	N	N
Microsoft Windows 11	N	Y	N	N	N	N	N	N	N	N
Microsoft Windows Server 2019	Y	Y	Y	Y [1]	Y [1]	Y	Y	Y	Y [2]	Y
Microsoft Windows Server 2022	Y	Y	Y	Y	Y	Y	Y	Y	Y [2]	Y
Red Hat Enterprise Linux 8.3	N	N	N	N	N	Y	Y	Y	Y [2]	Y
Red Hat Enterprise Linux 8.4	N	N	N	N	N	Y	Y	Y	Y [2]	Y
Red Hat Enterprise Linux 8.5	N	N	N	N	N	Y	Y	Y	Y [2]	Y
Red Hat Enterprise Linux 8.6	Y	N	Y	Y	Y	Y	Y	Y	Y [2]	Y
Red Hat Enterprise Linux 8.7	Y	N	Y	Y	Y	Y	Y	Y	Y [2]	Y
Red Hat Enterprise Linux 8.8	Y	Y	N	Y	Y	Y	Y	Y	Y [2]	Y
Red Hat Enterprise Linux 9.0	Y	N	Y	Y	Y	Y	Y	Y	Y [2]	Y
Red Hat Enterprise Linux 9.1	Y	N	Y	Y	Y	Y	Y	Y	Y [2]	Y
Red Hat Enterprise Linux 9.2	Y	Y	N	Y	Y	Y	Y	Y	Y [2]	Y
SUSE Linux Enterprise Server 15 SP3	N	N	N	N	N	Y	Y	Y	Y [2]	Y
SUSE Linux Enterprise Server 15 SP4	Y	N	Y	Y	Y	Y	Y	Y	Y [2]	Y
SUSE Linux Enterprise Server 15 SP5	Y	Y	N	Y	Y	Y	Y	Y	Y [2]	Y
Ubuntu 18.04.5 LTS	N	N	N	N	N	Y	Y	N	N	N
Ubuntu 20.04 LTS	N	N	N	N	N	Y	N	N	N	N
Ubuntu 20.04.5 LTS	N	N	Y	Y	Y	N	N	N	N	N
Ubuntu 22.04 LTS	Y	N	Y	Y	Y	Y	Y	Y	Y [2]	Y
VMware vSphere Hypervisor (ESXi) 7.0 U3	Y	Y	Y	Y	Y	Y	Y	Y	Y [2]	Y
VMware vSphere Hypervisor (ESXi) 8.0	Y	N	N	N	N	Y	Y	Y	Y [2]	Y
VMware vSphere Hypervisor (ESXi) 8.0 U1	Y	N	Y	Y	Y	Y	Y	Y	Y [2]	Y
VMware vSphere Hypervisor (ESXi) 8.0 U2	Y	Y	Y	Y	Y	Y	Y	Y	Y [2]	Y

[1] For limitation, please refer Support Tip TT1591

[2] HW is not supported with EPYC 7002 processors.

NVIDIA GPU software

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

NVIDIA vGPU Software (vApps, vPC, RTX vWS, and vCS)

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.

- **Virtual Compute Server (vCS)**

  NVIDIA Virtual Compute Server (vCS) enables data centers running on Red Hat Enterprise Linux, Red Hat Virtualization, and other supported KVM-based hypervisors to accelerate server virtualization with the latest NVIDIA data center GPUs, so that the most compute-intensive workloads, such as artificial intelligence, deep learning, and data science, can be run in a virtual machine (VM) powered by NVIDIA vGPU technology.

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 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		
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
NVIDIA RTX vWS		
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 vCS		
7S02000ZWW	S6YL	NVIDIA Virtual Compute Server Subscription, 1 GPU (Max 10 CC VMs), 1 Year
7S020010WW	S6YM	NVIDIA Virtual Compute Server Subscription, 1 GPU (Max 10 CC VMs), 3 Years
7S020011WW	S6YN	NVIDIA Virtual Compute Server Subscription, 1 GPU (Max 10 CC VMs), 5 Years
7S020012WW	S6YP	NVIDIA Virtual Compute Server Subscription, 1 GPU (Max 10 CC VMs), EDU, 1 Year
7S020013WW	S6YQ	NVIDIA Virtual Compute Server Subscription, 1 GPU (Max 10 CC VMs), EDU, 3 Years
7S020014WW	S6YR	NVIDIA Virtual Compute Server Subscription, 1 GPU (Max 10 CC VMs), EDU, 5 Years

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 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)
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 7S02CTO1WW**	**Description**
AI Enterprise Perpetual License		
7S020019WW	S6YW	NVIDIA AI Enterprise Perpetual License and Support per GPU, 1 Year
7S02001AWW	S6YX	NVIDIA AI Enterprise Perpetual License and Support per GPU, 3 Years
7S02001BWW	S6YY	NVIDIA AI Enterprise Perpetual License and Support per GPU, 5 Years
7S02001CWW	S6YZ	NVIDIA AI Enterprise Perpetual License and Support per GPU, EDU, 1 Year
7S02001DWW	S6Z0	NVIDIA AI Enterprise Perpetual License and Support per GPU, EDU, 3 Years

Part number	Feature code 7S02CTO1WW	Description
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 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
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

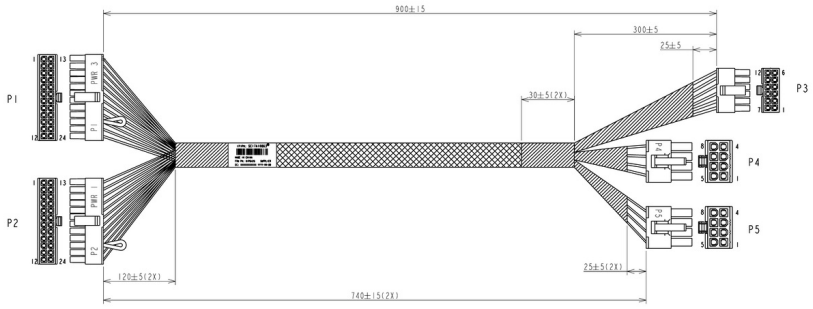
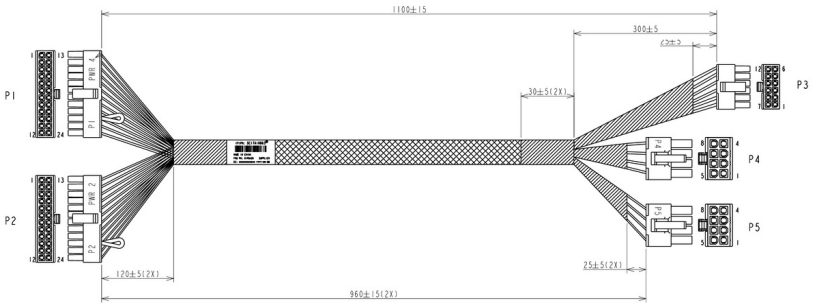
Part number	Feature code 7S09CTO6WW	Description
7S09001DWW	S92D	NVIDIA HPC Compiler Premier Support Services - Additional Contact, EDU, 1 Year
7S09002UWW	S9V2	NVIDIA HPC Compiler Premier Support Services - Additional Contact, EDU, 3 Years
7S09002VWW	S9V3	NVIDIA HPC Compiler Premier Support Services - Additional Contact, EDU, 5 Years

Auxiliary power cables

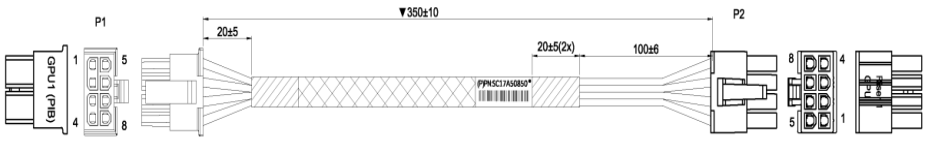
The power cables needed for the NVIDIA A800 GPU are included with the supported servers.

The PCIe adapter option part number do not ship with auxiliary power cables. Cables are server-specific due to length requirements. For CTO orders, auxiliary power cables are derived by the configurator. For field upgrades, cables will need to be ordered separately as listed in the table below.

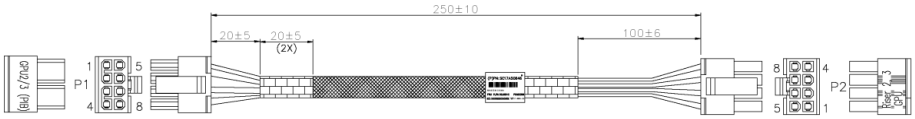
Table 13. Auxiliary power cables for A800 (click images to show larger versions)

Auxiliary power cables supplied with the SR670 (configure-to-order)	
900mm SR670 Cage 1 power cable **Feature**: B3Y3 **SBB**: SBB7A10375 **Base**: SC17A10876 **FRU**: 01PG448 Notes: ● Feature & SBB also include PCIe data cable ● Cable also supplies power to the riser	
1100mm SR670 Cage 2 power cable **Feature**: B3Y2 **SBB**: SBB7A10374 **Base**: SC17A10863 **FRU**: 01PG426 Notes: ● Feature & SBB also include PCIe data cable ● Cable also supplies power to the riser	
Auxiliary power cables for the SR655	

350mm 8pin (2x4) cable
Server support: SR655 (Riser 1 or Riser 2)
Option: 4X97A59853, ThinkSystem SR655 GPU Cable Kit
Feature: B5T5
SBB: SBB7A14640
Base: SC17A50848
FRU: 02JK011

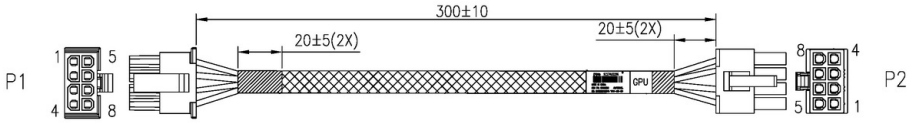


250mm 8pin (2x4) cable
Server support: SR655 (Riser 3)
Option: 4X97A59853, ThinkSystem SR655 GPU Cable Kit
Feature: B5TS
SBB: SBB7A10974
Base: SC17A50844
FRU: 02JK010



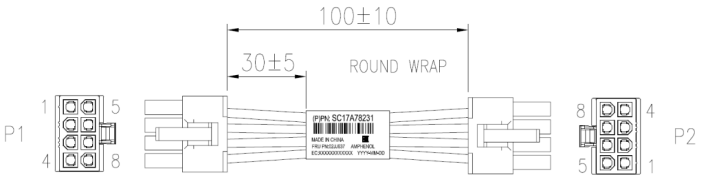
Auxiliary power cable needed with the SR650

300mm 8pin (2x4) cable
Option: 4XH7A08794, ThinkSystem SR650 GPU Cable Kit
Feature: AUSR
SBB: SBB7A00299
Base: SC17A02296
FRU: 01KN066



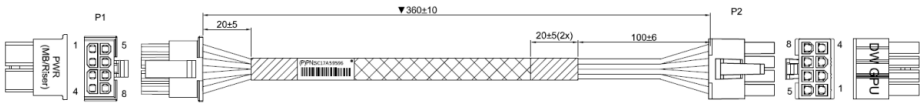
Auxiliary power cable needed with the SR860 V2

100mm 8pin (2x4) cable
Option: 4X97A76342, GPU Riser to GPU Power Cable, 190mm
Feature: BAX5
SBB: SBB7A17004
Base: SC17A78231
FRU: 02JJ637



Auxiliary power cable needed with the SR650 V3, SR655 V3, SR665 V3, SR650 V2, or SR665

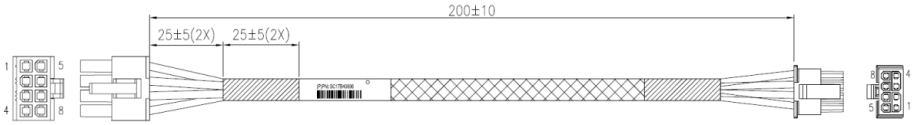
360mm 8pin (2x4) cable
Option part numbers*:
SR650 V3: 4X67A82883
SR655 V3: 4X67A86438
SR665 V3: 4X67A85856
SR650 V2: 4H47A38666 or 4H47A80491
SR665: 4M17A80478 or 4M17A11759
Feature: BAD8
SBB: SBB7A49792 or SBB7A21691
Base: SC17A95312 or SC17A59596
FRU: 03HA297 or 02YE420



* The option part numbers are for thermal kits and include other components needed to install the GPU. See the server product guide for details.

Auxiliary power cable needed with the SR850 V3 or SR860 V3

200mm 8pin (2x4) cable
Option: 4X97A88017, ThinkSystem SR850 V3/SR860 V3 A100/A6000/MI210 GPU Power Cable Option Kit
Feature: BTPB
SBB: SBB7A72760
Base: SC17B40606
FRU: 03LF917



Regulatory approvals

The NVIDIA A800 GPU has the following regulatory approvals:

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

Operating environment

The NVIDIA A800 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 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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