ThinkSystem NVIDIA RTX 4500 Ada 24GB PCIe Active GPU

Product Guide

Industries are embracing accelerated computing and AI to tackle powerful dynamics and unlock transformative possibilities. Generative AI is reshaping the way professionals create and innovate across various domains, from design and engineering to entertainment and healthcare.

The NVIDIA RTX™ 4500 Ada Generation, built on the ultra-efficient NVIDIA Ada Lovelace architecture, combines 60 third-generation RT Cores, 240 fourth- generation Tensor Cores, and 7,680 CUDA® cores with 24GB of graphics memory to deliver AI-powered graphics and real-time rendering. Discover new ways to create incredible workflow acceleration with RTX 4500.

Figure 1. ThinkSystem NVIDIA RTX 4500 Ada 24GB 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 4500 Ada GPU.

Table 1. Ordering information

Part number	Feature code	Description	Controlled GPU status
4X67A96491	C4RX	ThinkSystem NVIDIA RTX 4500 Ada 24GB PCIe Active GPU	No

The RTX 4500 Ada GPU is not Controlled which means the GPU is unrestricted and is available in all markets.

The PCIe option part numbers includes the following:

- One RTX 4500 Ada GPU with full-height (3U) adapter bracket attached
- Documentation

Features

NVIDIA RTX 4500 Ada Generation GPU offers high performance real-time ray tracing, AI-accelerated compute, and professional graphics rendering within an optimized power envelope. Building upon the major SM enhancements from the Ada Lovelace GPU, the NVIDIA Ada Lovelace architecture enhances ray tracing operations, tensor matrix operations, and concurrent executions of FP32 and INT32 operations.

The ThinkSystem NVIDIA RTX 4500 Ada 24GB PCIe Active GPU offers the following features:

- PCIe Gen4
- Four DisplayPort 1.4a connectors
- AV1 encode and decode support
- DisplayPort with audio
- 3D stereo support with stereo connector
- NVIDIA® GPUDirect® for Video support
- NVIDIA GPUDirect Remote Direct Memory Access (RDMA) support
- NVIDIA Quadro® Sync II1 compatibility
- NVIDIA RTX Experience™
- NVIDIA RTX Desktop Manager software
- NVIDIA RTX IO support
- HDCP 2.2 support
- NVIDIA Mosaic2 technology

Technical specifications

The following table lists the specifications of the NVIDIA RTX A4500 GPU.

Table 2. NVIDIA RTX A4500 specifications

Feature	Specification
GPU Architecture	NVIDIA Ada Lovelace Architecture
GPU Memory	24 GB GDDR6 with ECC
Memory Interface	192-bit
Memory Bandwidth	Up to 432 GB/s
ECC	Yes
NVIDIA CUDA Cores	7,680
NVIDIA Tensor Cores	240 fourth-generation Tensor Cores
NVIDIA RT Cores	60 third-generation RT Cores
Peak Single-Precision Performance	39.6 TFLOPS (peak)
Peak RT Core performance	91.6 TFLOPS (peak)
Peak Tensor Performance	634.0 TFLOPS (peak)
NVLink support	No
Host Interface	PCI Express 4.0 x 16
Power Consumption	210 W
Thermal Solution	Active cooling
Form Factor	4.4" (H) x 10.5" (L), FHFL, Dual Slot
Display Connectors	4x DisplayPort (DP) 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	2x encode, 2x decode (+AV1 encode and decode)
VR Ready	Yes
Graphics APIs	DirectX 12, Shader Model 6.7, OpenGL 4.6, Vulkan 1.3
Compute APIs	CUDA 12.2, DirectCompute, OpenCL 3.0

Server support

The following tables list the ThinkSystem servers that are compatible.

Table 3. Server support (Part 1 of 4)

Part Number	Description	AMD V3				2S Intel V3/V4				4S 8S Intel V3			Multi Node V3/V4				GPU Rich				
		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)	SR630 V4 (7DG8 / 7DG9)	SR850 V3 (7D97 / 7D96)	SR860 V3 (7D94 / 7D93)	SR950 V3 (7DC5 / 7DC4)	SD535 V3 (7DD8 / 7DD1)	SD530 V3 (7DDA / 7DD3)	SD550 V3 (7DD9 / 7DD2)	SD520 V4 (7DFZ / 7DFY)	SR670 V2 (7Z22 / 7Z23)	SR675 V3 (7D9Q / 7D9R)	SR680a V3 (7DHE)	SR685a V3 (7DHC)	SR780a V3 (7DJ5)
4X67A96491	ThinkSystem NVIDIA RTX 4500 Ada 24GB PCIe Active GPU	N	3	N	3	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

Table 4. Server support (Part 2 of 4)

Part Number	Description	1S V3			Edge					Super Computing						1S Intel V2			2S Intel V2		
		ST50 V3 (7DF4 / 7DF3)	ST250 V3 (7DCF / 7DCE)	SR250 V3 (7DCM / 7DCL)	SE350 (7Z46 / 7D1X)	SE350 V2 (7DA9)	SE360 V2 (7DAM)	SE450 (7D8T)	SE455 V3 (7DBY)	SC750 V4 (7DDJ)	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)
4X67A96491	ThinkSystem NVIDIA RTX 4500 Ada 24GB PCIe Active GPU	N	N	N	N	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)
4X67A96491	ThinkSystem NVIDIA RTX 4500 Ada 24GB PCIe Active GPU	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)

		2S Intel V1								Dense V1			
Part Number	Description	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)
4X67A96491	ThinkSystem NVIDIA RTX 4500 Ada 24GB PCIe Active GPU	N	N	N	N	N	N	N	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 4500 Ada 24GB PCIe Active GPU, 4X67A96491

Operating systems	SR655 V3	SR665 V3
Microsoft Windows 10	Y	Y
Microsoft Windows 11	Y	Y
Microsoft Windows Server 2019	Y	Y
Microsoft Windows Server 2022	Y	Y
Red Hat Enterprise Linux 8.8	Y	Y
Red Hat Enterprise Linux 8.9	Y	Y
Red Hat Enterprise Linux 9.2	Y	Y
Red Hat Enterprise Linux 9.3	Y	Y
SUSE Linux Enterprise Server 15 SP4	Y	Y
SUSE Linux Enterprise Server 15 SP5	Y	Y
Ubuntu 20.04.5 LTS	Y	Y
Ubuntu 22.04 LTS	Y	Y

NVIDIA GPU software

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

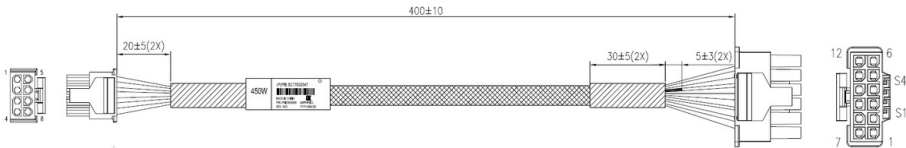- NVIDIA HPC Compiler Software

NVIDIA HPC Compiler Software

Table 8. 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
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 4500 Ada GPU option part number does 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 9. Auxiliary power cables for RTX 4500 Ada GPU

Auxiliary power cable needed with the SR655 V3, SR665 V3
400mm 16-pin (2x6+4) cable **Feature**: BRWK **SBB**: SBB7A66338 **Base**: SC17B33047 **FRU**: 03KM846 **Option**: SR655 V3: 4X67A86438, ThinkSystem SR655 V3 GPU Enablement Kit SR665 V3: 4X67A85856, ThinkSystem SR665 V3 GPU Full Length Thermal Option Kit * The option part numbers are for thermal kits and include other components needed to install the GPU. See the server product guide for details.

Regulatory approvals

The RTX 4500 Ada GPU has the following regulatory approvals:

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

Operating environment

The RTX 4500 Ada 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 4500 Ada product page:
  https://www.nvidia.com/en-us/design-visualization/rtx-4500/
- 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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