

ThinkSystem NVIDIA RTX A4500 20GB PCIe Active GPU

Product Guide

The NVIDIA RTX™ A4500 GPU is a dual-slot, 10.5 inch PCI Express Gen4 graphics solution based on the state-of-the-art NVIDIA Ampere Architecture. It is an actively cooled product capable of 200 W maximum graphics power.

The NVIDIA RTX A4500 delivers hardware-accelerated ray tracing, revolutionary AI features, advanced shading, and powerful simulation capabilities to creative professionals. With a graphics memory footprint of 20 GB of GDDR6 memory, the A4500 GPU enables the most graphics-intensive applications run with the highest level of user experience, even with largest of data sets.



Figure 1. ThinkSystem NVIDIA RTX A4500 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 A4500 GPU.

Table 1. Ordering information

Part number	Feature code	Description
4X67A76726	BNFD	ThinkSystem NVIDIA RTX A4500 20GB PCIe Active GPU

The PCIe option part numbers includes the following:

- One RTX A4500 GPU with full-height (3U) adapter bracket attached
- Documentation

Features

The NVIDIA RTX™ A4500 combines high performance, enterprise reliability, and the latest RTX technology to help you achieve your best work in realtime. Built on the NVIDIA Ampere architecture, the RTX A4500 combines 56 second-generation RT Cores, 224 third-generation Tensor Cores, and 7,168 CUDA® cores with 20GB of graphics memory to supercharge rendering, AI, graphics, and compute tasks.

Connect two RTX A4500s with NVIDIA NVLink to scale memory and performance with multi-GPU configurations, allowing professionals to work with memory intensive tasks such as large models, ultra-high resolution rendering, and complex compute workloads.

NVIDIA RTX professional graphics cards are certified with a broad range of professional applications, tested by leading independent software vendors and workstation manufacturers, and backed by a global team of support specialists. Get the peace of mind needed to focus on what matters with the premier visual computing solution for mission-critical business

The ThinkSystem NVIDIA RTX A4500 20GB PCIe Active GPU offers the following features:

- PCI Express Gen 4
- Four DisplayPort 1.4a connectors
- AV1 decode support
- DisplayPort with audio
- 3D stereo support with stereo connector
- NVIDIA GPUDirect® for Video support
- NVIDIA Quadro® Sync II compatibility
- NVIDIA RTX Experience™
- NVIDIA RTX Desktop Manager software
- NVIDIA RTX IO support
- HDCP 2.2 support
- NVIDIA Mosaic technology
- NVIDIA NVLink 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 Ampere
GPU Memory	20 GB GDDR6
Memory Interface	300-bit
Memory Bandwidth	Up to 640 GB/s
ECC	Yes
NVIDIA CUDA Cores	7,168
NVIDIA Tensor Cores	224 third-generation Tensor Cores
NVIDIA RT Cores	56 second-generation RT Cores
Single-Precision Performance	23.7 TFLOPS (peak)
RT Core performance	46.2 TFLOPS (peak)
Tensor Performance	189.2 TFLOPS (peak)
NVLink support	Yes; 1x NVLink Bridge supported per pair of GPUs
Host Interface	PCI Express 4.0 x 16
Power Consumption	200 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	1x encode, 2x decode (+AV1 decode)
VR Ready	Yes
Graphics APIs	DirectX 12 Ultimate, Shader Model 6.6, OpenGL 4.6, Vulkan 1.3
Compute APIs	CUDA 11.6, 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	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)
4X67A76726	ThinkSystem NVIDIA RTX A4500 20GB 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)
4X67A76726	ThinkSystem NVIDIA RTX A4500 20GB PCIe Active GPU	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)
4X67A76726	ThinkSystem NVIDIA RTX A4500 20GB PCIe Active GPU	N	N	2	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)
4X67A76726	ThinkSystem NVIDIA RTX A4500 20GB 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 A4500 20GB PCIe Active GPU, 4X67A76726

Operating systems	SR650 V3 (4th Gen Xeon)	SR650 V3 (5th Gen Xeon)	SR655 V3	SR665 V3	SR850 V3	SR860 V3	ST650 V3	SR655
Microsoft Windows 10	Y	Y	Y	Y	N	N	N	N
Microsoft Windows 11	Y	Y	Y	Y	N	N	N	N
Microsoft Windows Server 2019	Y	Y	Y	Y	Y ¹	Y ¹	Y	N
Microsoft Windows Server 2022	Y	Y	Y	Y	Y	Y	Y	N
Red Hat Enterprise Linux 8.2	N	N	N	N	N	N	N	Y ²
Red Hat Enterprise Linux 8.3	N	N	N	N	N	N	N	Y
Red Hat Enterprise Linux 8.4	N	N	N	N	N	N	N	Y
Red Hat Enterprise Linux 8.5	N	N	N	N	N	N	N	Y
Red Hat Enterprise Linux 8.6	Y	N	Y	Y	Y	Y	Y	N
Red Hat Enterprise Linux 8.7	Y	N	Y	Y	Y	Y	Y	N
Red Hat Enterprise Linux 8.8	Y	Y	Y	Y	Y	Y	Y	N
Red Hat Enterprise Linux 9.0	Y	N	Y	Y	Y	Y	Y	N
Red Hat Enterprise Linux 9.1	Y	N	Y	Y	Y	Y	Y	N
Red Hat Enterprise Linux 9.2	Y	Y	Y	Y	Y	Y	Y	N
SUSE Linux Enterprise Server 15 SP4	Y	N	Y	Y	Y	Y	Y	N
SUSE Linux Enterprise Server 15 SP5	Y	Y	Y	Y	Y	Y	Y	N
Ubuntu 20.04.5 LTS	N	N	Y	Y	Y	Y	N	N
Ubuntu 22.04 LTS	Y	N	Y	Y	Y	Y	Y	N

¹ For limitation, please refer [Support Tip TT1591](#)

² The OS is not supported with EPYC 7003 processors.

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 A4500 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 A4500 (click images to show larger versions)

Auxiliary power cables needed with the SR650 V3, SR655 V3, SR665 V3	
<p>460mm 8pin (2x4) cable Feature: BMJL SBB: SBB7A44786 Base: SC17A95307 FRU: 03HA318 Option*: SR655 V3: 4X97A86165, ThinkSystem SR665 V3/SR655 V3 DW GPU Cable Option Kit SR665 V3: 4X97A86165, ThinkSystem SR665 V3/SR655 V3 DW GPU Cable Option Kit SR650 V3: 4X97A82948, ThinkSystem SR650 V3 DW GPU Cable Kit</p> <p>* Additional components may be required to install the GPU. See the respective server product guide for details.</p>	
Auxiliary power cables needed with the ST650 V3	
<p>320mm power cable for slots 1-4 Option: 4Z57A82608* Feature: BPM1 SBB: SBB7A54334 Base: SC17B30731 FRU: 03HC099</p>	
<p>660mm power cable for slots 5-8 Option: 4Z57A82608* Feature: BPM2 SBB: SBB7A54333 Base: SC17B30729 FRU: 03HC098</p> <p>* The option part number is for ThinkSystem ST650 V2/V3 RTX A4500 GPU Power Cable Kit and includes both the 320mm and 660mm cables needed to install the GPU. See the ST650 V3 product guide for details.</p>	
Auxiliary power cables needed with the SR850 V3, SR860 V3	
<p>200mm power cable Feature: BW27 SBB: SBB7A72758 Base: SC17B40605 FRU: 03LF916 Option: 4X97A88015, ThinkSystem SR850 V3/SR860 V3 A4500 GPU Power Cable Option Kit</p>	
Auxiliary power cables supplied with the SR655	

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

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

* The option part number is for ThinkSystem SR655 GPU Cable Kit and includes both the 350mm and 250mm cables. See the [SR655 product guide](#) for details.

Regulatory approvals

The RTX A4500 GPU has the following regulatory approvals:

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

Operating environment

The RTX A4500 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 A4500 product page:
<https://www.nvidia.com/en-us/design-visualization/rtx-a4500/>
- 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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