ThinkSystem NVIDIA A2 16GB PCIe Gen4 Passive GPU
Product Guide

The NVIDIA A2 Tensor Core GPU provides entry-level inference with low power, a small footprint, and high performance for NVIDIA AI at the edge. Featuring a low-profile PCIe Gen4 card and a low 40-60W configurable thermal design power (TDP) capability, the A2 brings versatile inference acceleration to any server for deployment at scale.
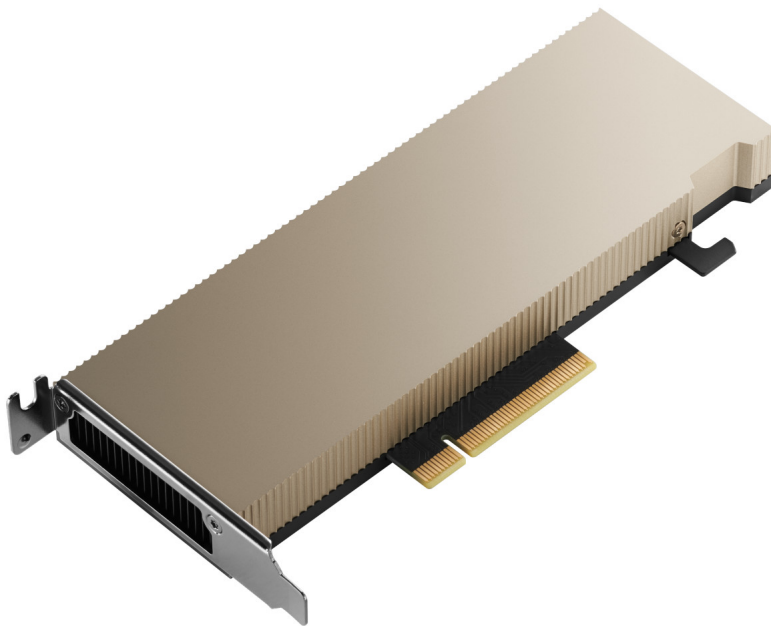

Figure 1. ThinkSystem NVIDIA A2 16GB PCIe Gen4 Passive GPU

Did you know?

AI inference is deployed to make consumer lives more convenient through real-time experiences, and enables them to gain insights on trillions of end-point sensors and cameras. Compared to CPU-only servers (dual-socket Intel Xeon Gold 6330N), the servers built with NVIDIA A2 Tensor Core GPU offer up to 20X more inference performance, instantly upgrading any server to handle modern AI.

Part number information

The following table shows the part numbers for the NVIDIA A2 GPU.

Table 1. Ordering information

Part number	Feature code	Description	NVIDIA part number	Controlled GPU status
4X67A81547	BQZT	ThinkSystem NVIDIA A2 16GB PCIe Gen4 Passive GPU w/o CEC	900-2G179-2720-101	No

The NVIDIA A2 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 NVIDIA A2 GPU with full-height (3U) adapter bracket attached
- Low profile bracket
- Documentation

GPUs without a CEC chip: The NVIDIA A2 GPU is offered without a CEC chip (look for "w/o CEC" in the name). The CEC is a secondary Hardware Root of Trust (RoT) module that provides an additional layer of security, which can be used by customers who have high regulatory requirements or high security standards. NVIDIA uses a multi-layered security model and hence the protection offered by the primary Root of Trust embedded in the GPU is expected to be sufficient for most customers. The CEC defeatured products still offer Secure Boot, Secure Firmware Update, Firmware Rollback Protection, and In-Band Firmware Update Disable. Specifically, without the CEC chip, the GPU does not support Key Revocation or Firmware Attestation. CEC and non-CEC GPUs of the same type of GPU can be mixed in field upgrades.

Features

The ThinkSystem NVIDIA A2 16GB PCIe Gen4 Passive GPU offers the following features:

- **Third-Generation Tensor Cores:** The third-generation Tensor Cores in A2 support integer math, down to INT4, and floating point math, up to FP32, to deliver high AI training and inference performance. The NVIDIA Ampere architecture also supports TF32 and NVIDIA's automatic mixed precision (AMP) capabilities.

- **Root Of Trust Security:** Providing security in edge deployments and end-points is critical for enterprise business operations. A2 offers secure boot through trusted code authentication and hardened rollback protections to protect against malicious malware attacks.

- **Second-Generation RT Cores:** A2 includes dedicated RT Cores for ray tracing that enable groundbreaking technologies at breakthrough speed. With up to 2X the throughput over the previous generation and the ability to concurrently run ray tracing with either shading or denoising capabilities.

- **Hardware Transcoding Performance:** Exponential growth in video applications demand real-time scalable performance, requiring the latest in hardware encode and decode capabilities. A2 GPUs

use dedicated hardware to fully accelerate video decoding and encoding for the most popular codecs, including H.265, H.264, VP9, and AV1 decode.

Technical specifications

The following table lists the specifications of the NVIDIA A2 PCIe GPU.

Table 2. A2 specifications

Feature	Specification
GPU Architecture	NVIDIA Ampere
NVIDIA RT Cores	10 RT Cores
Double-Precision Performance (FP64)	Not applicable
Single-Precision Performance (Tensor Float 32, TF32)	9 TFLOPS, 18 TFLOPS*
Half-Precision Performance	FP16: 18 TFLOPS, 36 TFLOPS*
Bfloat16	18 TFLOPS, 36 TFLOPS*
Integer Performance	INT8: 36 TOPS, 72 TOPS* INT4: 72 TOPS, 144 TOPS*
GPU Memory	16 GB GDDR6
Memory Bandwidth	200 GB/sec
ECC	Yes
Interconnect Bandwidth	Not applicable
System Interface	PCIe Gen 4, x8 lanes
Form Factor	PCIe low profile, single width
Multi-Instance GPU (MIG)	Not applicable
Max Power Consumption	40-60 W
Thermal Solution	Passive
Compute APIs	CUDA, DirectCompute, OpenCL, OpenACC

* With structural sparsity enabled

Server support

The following tables list the ThinkSystem servers that are compatible.

Table 3. Server support (Part 1 of 5)

Part Number	Description	AMD V3				2S Intel V3/V4						Multi Node V3			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)	SR630 V4 (7DG8 / 7DG9)	SR650 V4 (7DGC / 7DGD)	SR650a V4 (7DGC / 7DGD)	SD535 V3 (7DD8 / 7DD1)	SD530 V3 (7DDA / 7DD3)	SD550 V3 (7DD9 / 7DD2)	ST45 V3 (7DH4 / 7DH5)	ST50 V3 (7DF4 / 7DF3)	ST250 V3 (7DCF / 7DCE)	SR250 V3 (7DCM / 7DCL)
4X67A81547	ThinkSystem NVIDIA A2 16GB PCIe Gen4 Passive GPU w/o CEC	5	8	5	8	8	3	8	N	N	N	N	N	N	N	N	N	N

Table 4. Server support (Part 2 of 5)

Part Number	Description	4S 8S Intel V3/V4					GPU Rich							Edge					
		SR850 V3 (7D97 / 7D96)	SR860 V3 (7D94 / 7D93)	SR950 V3 (7DC5 / 7DC4)	SR850 V4 (7DJT / 7DJS)	SR860 V4 (7DJQ / 7DJN)	SR670 V2 (7Z22 / 7Z23)	SR675 V3 (7D9Q / 7D9R)	SR680a V3 (7DHE)	SR680a V3 B200 (7DM9)	SR685a V3 (7DHC)	SR780a V3 (7DJ5)	SR680a V4 (7DMK)	SE100 (7DGR)	SE350 (7Z46 / 7D1X)	SE350 V2 (7DA9)	SE360 V2 (7DAM)	SE450 (7D8T)	SE455 V3 (7DBY)
4X67A81547	ThinkSystem NVIDIA A2 16GB PCIe Gen4 Passive GPU w/o CEC	N	N	N	N	N	N	N	N	N	N	N	N	N	1	N	2	4	6

Table 5. Server support (Part 3 of 5)

Part Number	Description	Super Computing							1S Intel V2			2S Intel V2			AMD V1			
		SC750 V4 (7DDJ)	SC777 V4 (7DKA)	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)	SR635 (7Y98 / 7Y99)	SR655 (7Y00 / 7Z01)	SR645 (7D2Y / 7D2X)	SR665 (7D2W / 7D2V)
4X67A81547	ThinkSystem NVIDIA A2 16GB PCIe Gen4 Passive GPU w/o CEC	N	N	N	N	N	N	N	N	N	N	8	3	8	3	6	3	8

Table 6. Server support (Part 4 of 5)

Part Number	Description	Dense V2				4S V2		8S	4S V1			1S Intel V1			
		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)
4X67A81547	ThinkSystem NVIDIA A2 16GB PCIe Gen4 Passive GPU w/o CEC	N	N	N	N	2	8	N	N	N	N	N	N	N	N

Table 7. Server support (Part 5 of 5)

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)
4X67A81547	ThinkSystem NVIDIA A2 16GB PCIe Gen4 Passive GPU w/o CEC	N	N	N	N	N	2	5	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 8. Operating system support for ThinkSystem NVIDIA A2 16GB PCIe Gen4 Passive GPU, 4X67A81547 (Part 1 of 2)

Operating systems	SE360 V2	SE450	SE455 V3	SE350	SR630 V3 (4th Gen Xeon)	SR630 V3 (5th Gen Xeon)	SR635 V3	SR645 V3	SR650 V3 (4th Gen Xeon)	SR650 V3 (5th Gen Xeon)	SR655 V3	SR665 V3	ST650 V3 (4th Gen Xeon)	ST650 V3 (5th Gen Xeon)	SR630 V2	SR650 V2	SR670 V2	SR850 V2	SR860 V2	ST650 V2
Microsoft Windows 10	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N	N	N
Microsoft Windows 11	N	N	N	N	Y	N	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N	N	N
Microsoft Windows Server 2019	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y
Microsoft Windows Server 2022	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y
Microsoft Windows Server 2025	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	N	Y
Red Hat Enterprise Linux 7.8	N	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 7.9	N	Y	N	Y	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.0	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 8.1	N	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 8.2	N	N	N	Y	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.3	N	N	N	Y	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.4	N	Y	N	Y	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.5	N	Y	N	Y	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.6	Y	Y	Y	Y	Y	N	Y	Y	Y	N	Y	Y	Y	N	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.7	N	Y	N	Y	Y	N	Y	Y	Y	N	Y	Y	Y	N	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.8	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.9	N	N	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.0	Y	Y	Y	Y	Y	N	Y	Y	Y	N	Y	Y	Y	N	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.1	N	Y	N	Y	Y	N	Y	Y	Y	N	Y	Y	Y	N	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.3	N	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.4	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	N	Y
Red Hat Enterprise Linux 9.5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	N	Y
SUSE Linux Enterprise Server 15 SP1	N	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
SUSE Linux Enterprise Server 15 SP2	N	N	N	Y	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP3	N	N	N	Y	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP4	Y	Y	Y	Y	Y	N	Y	Y	Y	N	Y	Y	Y	N	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Ubuntu 18.04.5 LTS	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	N	N	Y
Ubuntu 18.04.6 LTS	N	Y	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Ubuntu 20.04.5 LTS	Y	Y	Y	Y	N	N	Y	Y	N	N	Y	Y	N	N	N	N	N	N	N	N
Ubuntu 20.04 LTS	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	N	N	N
Ubuntu 22.04.2 LTS	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

Operating systems	SE360 V2	SE450	SE455 V3	SE350	SR630 V3 (4th Gen Xeon)	SR630 V3 (5th Gen Xeon)	SR635 V3	SR645 V3	SR650 V3 (4th Gen Xeon)	SR650 V3 (5th Gen Xeon)	SR655 V3	SR665 V3	ST650 V3 (4th Gen Xeon)	ST650 V3 (5th Gen Xeon)	SR630 V2	SR650 V2	SR670 V2	SR850 V2	SR860 V2	ST650 V2
Ubuntu 22.04.3 LTS	N	N	N	N	N	Y	N	N	N	N	N	N	N	Y	N	N	N	N	N	N
Ubuntu 22.04.5 LTS	N	N	N	N	N	N	N	Y	N	N	N	Y	N	N	N	N	N	N	N	N
Ubuntu 22.04 LTS	Y	Y	N	Y	N	Y [1]	Y	Y	Y	Y [1]	Y	Y	Y	N	Y	Y	Y	Y	Y	Y
Ubuntu 24.04 LTS	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	N	Y
VMware vSphere Hypervisor (ESXi) 6.5	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 6.5 U1	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 6.5 U2	N	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 6.5 U3	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 6.7	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 6.7 U1	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 6.7 U2	N	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 6.7 U3	N	N	N	Y	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	N	N	Y
VMware vSphere Hypervisor (ESXi) 7.0	N	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 7.0 U1	N	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	N
VMware vSphere Hypervisor (ESXi) 7.0 U2	N	N	N	Y	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 7.0 U3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 8.0	N	Y	N	Y	Y	N	Y	Y	Y	N	Y	Y	N	N	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 8.0 U1	Y	Y	Y	Y	Y	N	Y	Y	Y	N	Y	Y	Y	N	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 8.0 U2	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y

[1] Ubuntu 22.04.3 LTS/Ubuntu 22.04.4 LTS

Table 9. Operating system support for ThinkSystem NVIDIA A2 16GB PCIe Gen4 Passive GPU, 4X67A81547 (Part 2 of 2)

Operating systems	SR635	SR645	SR655	SR665	SR630 (Xeon Gen 2)	SR650 (Xeon Gen 2)	SR630 (Xeon Gen 1)	SR650 (Xeon Gen 1)
Microsoft Windows 10	N	N	Y [2]	N	N	N	N	N
Microsoft Windows 11	N	N	Y [2]	N	N	N	N	N
Microsoft Windows Server 2019	Y	Y	Y	Y	Y	Y	Y	Y
Microsoft Windows Server 2022	Y	Y	Y	Y	Y	Y	Y	Y
Microsoft Windows Server 2025	N	Y	N	Y	N	N	N	N
Red Hat Enterprise Linux 7.8	Y [1]	Y [1]	Y [1]	Y [1]	Y	Y	Y	Y
Red Hat Enterprise Linux 7.9	Y [1]	Y [1]	Y [1]	Y [1]	Y	Y	Y	Y
Red Hat Enterprise Linux 8.0	Y [1]	N	Y [1]	N	Y	Y	Y	Y
Red Hat Enterprise Linux 8.1	Y [1]	Y [1]	Y [1]	Y [1]	Y	Y	Y	Y
Red Hat Enterprise Linux 8.2	Y [1]	Y [1]	Y [1]	Y [1]	Y	Y	Y	Y
Red Hat Enterprise Linux 8.3	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.4	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.5	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.6	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.7	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.8	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.9	Y	Y	Y	Y	Y	Y	N	N
Red Hat Enterprise Linux 9.0	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.1	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.2	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.3	Y	Y	Y	Y	Y	Y	N	N
Red Hat Enterprise Linux 9.4	Y	Y	Y	Y	N	N	N	N
Red Hat Enterprise Linux 9.5	Y	Y	Y	Y	N	N	N	N
SUSE Linux Enterprise Server 15 SP1	Y [1]	Y [1]	Y [1]	Y [1]	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP2	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP3	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP4	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP5	Y	Y	Y	Y	Y	Y	Y	Y
Ubuntu 18.04.5 LTS	N	N	N	N	N	N	N	N
Ubuntu 18.04.6 LTS	N	N	N	N	N	N	N	N
Ubuntu 20.04.5 LTS	N	N	N	N	N	N	N	N
Ubuntu 20.04 LTS	N	N	N	N	N	N	N	N
Ubuntu 22.04.2 LTS	N	N	N	N	N	N	N	N
Ubuntu 22.04.3 LTS	N	N	N	N	N	N	N	N
Ubuntu 22.04.5 LTS	N	N	N	N	N	N	N	N

Operating systems	SR635	SR645	SR655	SR665	SR630 (Xeon Gen 2)	SR650 (Xeon Gen 2)	SR630 (Xeon Gen 1)	SR650 (Xeon Gen 1)
Ubuntu 22.04 LTS	Y	Y	Y	Y	Y	Y	Y	Y
Ubuntu 24.04 LTS	Y	Y	Y	Y	N	N	N	N
VMware vSphere Hypervisor (ESXi) 6.5	N	N	N	N	N	N	Y	Y
VMware vSphere Hypervisor (ESXi) 6.5 U1	N	N	N	N	N	N	Y	Y
VMware vSphere Hypervisor (ESXi) 6.5 U2	N	N	N	N	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 6.5 U3	Y [1]	N	Y [1]	N	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 6.7	N	N	N	N	N	N	Y	Y
VMware vSphere Hypervisor (ESXi) 6.7 U1	N	N	N	N	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 6.7 U2	N	N	N	N	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 6.7 U3	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 7.0	Y [1]	Y [1]	Y [1]	Y [1]	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 7.0 U1	Y [1]	Y	Y [1]	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 7.0 U2	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 7.0 U3	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 8.0	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 8.0 U1	Y	Y	Y	Y	N	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 8.0 U2	Y	Y	Y	Y	Y	Y	Y	Y

[1] The OS is not supported with EPYC 7003 processors.

[2] ISG will not sell/preload this OS, but compatibility and cert only.

NVIDIA GPU software

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

- NVIDIA vGPU Software (vApps, vPC, RTX vWS)
- 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. For each perpetual license, customers are also required to purchase a 5-year SUMS support contract. Without this contract, the perpetual license cannot be ordered.

- **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 10. NVIDIA vGPU Software

Part number	Feature code 7S02CTO1WW	NVIDIA part number	Description
NVIDIA vApps offerings			
7S020004WW	B1MQ	711-VAP002+P3CMI12	NVIDIA vApps Subscription License 1 Year, 1 CCU
7S020005WW	B1MR	711-VAP002+P3CMI36	NVIDIA vApps Subscription License 3 Years, 1 CCU
7S02003DWW	S832	711-VAP002+P3CMI48	NVIDIA vApps Subscription License 4 Years, 1 CCU
7S02003EWW	S833	711-VAP002+P3CMI60	NVIDIA vApps Subscription License 5 Years, 1 CCU
7S020046WW	SDHB	711-VAP001+P3CMI00	NVIDIA vApps Perpetual License, 1 CCU
7S020003WW	B1MP	712-VAP003+P3CMI60	NVIDIA vApps SUMS ONLY 5Yr, 1 CCU
NVIDIA vPC offerings			
7S02000AWW	B1MW	711-VPC022+P3CMI12	NVIDIA vPC Subscription License 1 Year, 1 CCU
7S02000BWW	B1MX	711-VPC022+P3CMI36	NVIDIA vPC Subscription License 3 Years, 1 CCU
7S02003FWW	S834	711-VPC022+P3CMI48	NVIDIA vPC Subscription License 4 Years, 1 CCU
7S02003GWW	S835	711-VPC022+P3CMI60	NVIDIA vPC Subscription License 5 Years, 1 CCU
7S020047WW	SDHC	711-VPC021+P3CMI00	NVIDIA vPC Perpetual License, 1 CCU
7S020009WW	B1MV	712-VPC003+P3CMI60	NVIDIA vPC SUMS 5Yr ONLY, 1 CCU

Part number	Feature code 7S02CTO1WW	NVIDIA part number	Description
NVIDIA RTX vWS offerings			
7S02000GWW	B1N2	711-DWS022+P3CMI12	NVIDIA RTX vWS Subsc Lic 1Yr 1 CCU
7S02000HWW	B1N3	711-DWS022+P3CMI36	NVIDIA RTX vWS Subscription License 3 Years, 1 CCU
7S02000XWW	S6YJ	711-DWS022+P3CMI48	NVIDIA RTX vWS Subscription License 4 Years, 1 CCU
7S02000YWW	S6YK	711-DWS022+P3CMI60	NVIDIA RTX vWS Subscription License 5 Years, 1 CCU
7S02000MWW	B1N7	711-DWS022+P3EDI12	NVIDIA RTX vWS EDU Subscription License 1 Year, 1 CCU
7S02000NWW	B1N8	711-DWS022+P3EDI36	NVIDIA RTX vWS EDU Subscription License 3 Years, 1 CCU
7S02003BWW	S830	711-DWS022+P3EDI48	NVIDIA RTX vWS EDU Subscription License 4 Years, 1 CCU
7S02003CWW	S831	711-DWS022+P3EDI60	NVIDIA RTX vWS EDU Subscription License 5 Years, 1 CCU
7S020048WW	SDHD	711-DWS021+P3CMI00	NVIDIA RTX vWS Perpetual License, 1 CCU
7S02000FWW	B1N1	712-DWS003+P3CMI60	NVIDIA RTX vWS SUMS ONLY 5Yr, 1 CCU
7S020049WW	SDHE	711-DWS021+P3EDI00	NVIDIA RTX vWS EDU Perpetual License, 1 CCU
7S02000LWW	B1N6	712-DWS003+P3EDI60	NVIDIA RTX vWS EDU SUMS ONLY 5Y, 1CCU
NVIDIA RTX vWS Support & Services			
7S020015WW	S6YS	712-DWSA24+P3CMI12	24X7 Support Services for NVIDIA RTX vWS Production SUMS, 1CCU, 1 Year
7S02005CWW	SDZB	712-DWSA24+P3CMI60	24X7 Support Services for NVIDIA RTX vWS Production SUMS 1CCU 5 Years
7S020016WW	S6YT	712-DWSA24+P3EDI12	24X7 Support Services for NVIDIA RTX vWS Production SUMS, 1CCU, EDU, 1 Year
7S02005DWW	SDZC	712-DWSA24+P3EDI60	24X7 Support Services for NVIDIA RTX vWS Production SUMS 1CCU EDU 5 Years
7S02005EWW	SDZD	712-DWSB24+P3CMI12	24X7 Support Services for NVIDIA RTX vWS SUMS 4 CCU 1 Year
7S020017WW	S6YU	712-DWSD24+P3CMI12	24X7 Support Services for NVIDIA RTX vWS Subscription License, 1CCU, 1 Year

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 RTX 6000 Ada GPUs for desktop environments.
- Data Center Solutions: Deployment with Lenovo OVX nodes or NVIDIA-Certified Servers equipped with L40, or L40S 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 11. NVIDIA Omniverse Software (OVE)

Part number	Feature 7S02CTO1WW	NVIDIA part number	Description
7S02003ZWW	SCX0	721-OV7006+P3CMI12	NVIDIA Omniverse Enterprise Subscription per GPU, 1 Year
7S020042WW	SCX3	721-OV7006+P3CMI36	NVIDIA Omniverse Enterprise Subscription per GPU, 3 Years
7S020044WW	SD5T	721-OV7006+P3CMI60	NVIDIA Omniverse Enterprise Subscription per GPU, 5 Year
7S020041WW	SCX2	721-OV7006+P3INI12	NVIDIA Omniverse Enterprise Subscription per GPU, INC, 1 Year
7S020040WW	SCX1	721-OV7006+P3EDI12	NVIDIA Omniverse Enterprise Subscription per GPU, EDU, 1 Year
7S020043WW	SCX4	721-OV7006+P3EDI36	NVIDIA Omniverse Enterprise Subscription per GPU, EDU, 3 Years
7S020045WW	SD5U	721-OV7006+P3EDI60	NVIDIA Omniverse Enterprise Subscription per GPU EDU, 5 Year

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 12. 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 13. NVIDIA AI Enterprise Software (NVAIE)

Part number	Feature code 7S02CTO1WW	NVIDIA part number	Description
AI Enterprise Perpetual License			
7S02001BWW	S6YY	731-AI7004+P3CMI60	NVIDIA AI Enterprise Perpetual License and Support per GPU Socket, 5 Years
7S02001EWW	S6Z1	731-AI7004+P3EDI60	NVIDIA AI Enterprise Perpetual License and Support per GPU Socket, EDU, 5 Years
AI Enterprise Subscription License			
7S02001FWW	S6Z2	731-AI7003+P3CMI12	NVIDIA AI Enterprise Subscription License and Support per GPU Socket, 1 Year
7S02001GWW	S6Z3	731-AI7003+P3CMI36	NVIDIA AI Enterprise Subscription License and Support per GPU Socket, 3 Years

Part number	Feature code 7S02CTO1WW	NVIDIA part number	Description
7S02001HWW	S6Z4	731-AI7003+P3CMI60	NVIDIA AI Enterprise Subscription License and Support per GPU Socket, 5 Years
7S02001JWW	S6Z5	731-AI7003+P3EDI12	NVIDIA AI Enterprise Subscription License and Support per GPU Socket, EDU, 1 Year
7S02001KWW	S6Z6	731-AI7003+P3EDI36	NVIDIA AI Enterprise Subscription License and Support per GPU Socket, EDU, 3 Years
7S02001LWW	S6Z7	731-AI7003+P3EDI60	NVIDIA AI Enterprise Subscription License and Support per GPU Socket, EDU, 5 Years
AI Enterprise Support Services			
7S02001MWW	S6Z8	731-AI7007+P3CMI12	24X7 Support Services for NVIDIA Enterprise AI per GPU Socket, 1 Year
7S02001NWW	S6Z9	731-AI7007+P3CMI36	24X7 Support Services for NVIDIA Enterprise AI per GPU Socket, 3 Years
7S02001PWW	S6ZA	731-AI7007+P3CMI60	24X7 Support Services for NVIDIA Enterprise AI per GPU Socket, 5 Years
7S02001QWW	S6ZB	731-AI7007+P3EDI12	24X7 Support Services for NVIDIA Enterprise AI per GPU Socket, EDU, 1 Year
7S02001RWW	S6ZC	731-AI7007+P3EDI36	24X7 Support Services for NVIDIA Enterprise AI per GPU Socket, EDU, 3 Years
7S02001SWW	S6ZD	731-AI7007+P3EDI60	24X7 Support Services for NVIDIA Enterprise AI per GPU Socket, EDU, 5 Years

Find more information in the NVIDIA AI Enterprise Sizing Guide.

NVIDIA HPC Compiler Software

Table 14. 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

Part number	Feature code 7S09CTO6WW	Description
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 NVIDIA A2 does not require an auxiliary power cable.

Regulatory approvals

The NVIDIA A2 GPU has the following regulatory approvals:

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

Operating environment

The NVIDIA A2 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 A2 product page:
https://www.nvidia.com/en-us/data-center/products/a2/
- 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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