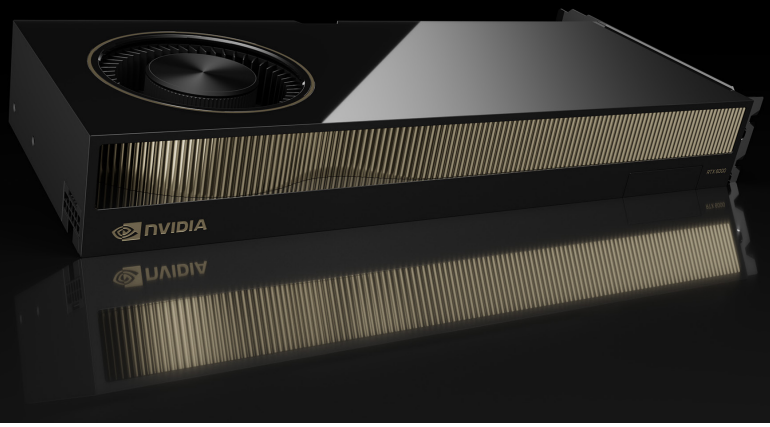
Datasheet

NVIDIA RTX 6000 Ada Generation

Performance for endless possibilities



Powering the Next Era of Innovation

The NVIDIA RTX™ 6000 Ada Generation is the ultimate workstation graphics card designed for professionals who demand maximum performance and reliability to deliver their best work and breakthrough innovations across industries. The RTX 6000 provides the unmatched performance and capabilities essential for high-end design, real-time rendering, AI, and high-performance compute workflows.

Built on the NVIDIA Ada Lovelace architecture, the RTX 6000 combines 142 third-generation RT Cores, 568 fourth-generation Tensor Cores, and 18,176 CUDA® cores with 48GB of error correction code (ECC) graphics memory. This all helps deliver the next generation of AI graphics and petaflop inferencing performance for unprecedented speed-up in rendering, AI, graphics, and compute workloads.

NVIDIA RTX professional graphics cards are 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. Get the peace of mind to focus on what matters with the premier visual computing solution for mission-critical business.

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PNY is committed to providing unsurpassed service and support to its valued channel partners. For over 25 years, PNY has built its success on a corporate culture that provides innovative, high-quality products and exceptional customer support.

PNY Part Number

Part Number	EAN Code	SPQ*	Box Content (per card)
VCNRTX6000ADA-PB (retail)	3536403392635	4	Quick Start Guide, 1x DP to HDMI, 1x power cable
VCNRTX6000ADA-SB (bulk)	3536403392680	5	1x power cable
VCNRTX6000ADA-BLK (bulk)	3536403392710	9	1x power cable

* Standard Packing Quantity

Key Features

- PCIe Gen 4
- 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 virtual GPU (vGPU) software support
- NVIDIA Quadro® Sync II[1] compatibility
- NVIDIA RTX Experience™
- NVIDIA RTX Desktop Manager software
- NVIDIA RTX IO support
- HDCP 2.2 support
- NVIDIA Mosaic[2] technology

Technical Specifications	
GPU memory	48 GB GDDR6
Memory interface	384-bit
Memory bandwidth	960 GB/s
Error correction code (ECC)	Yes
NVIDIA Ada Lovelace architecture-based CUDA Cores	18.176
NVIDIA third-generation Tensor Cores	568
NVIDIA second-generation RT Cores	142
Single-precision performance	91,1 TFLOPS[3]
RT Core performance	210,6 TFLOPS[3]
Tensor performance	1457,0 TFLOPS[4]
System interface	PCIe 4.0 x16
Power consumption	Total board power: 300 W
Thermal solution	Active
Form factor	11,176 cm H x 266,7 cm L, dual slot, full height
Display connectors	4x DisplayPort 1.4a[5]
Max simultaneous displays	> 4x 4096 x 2160 @ 120 Hz > 4x 5120 x 2880 @ 60 Hz > 2x 7680 x 4320 @ 60 Hz
Power connector	1x PCIe CEM5 16-pin
Encode/decode engines	3x encode, 3x decode (+AV1 encode and decode)
VR ready	Yes
vGPU software support[5]	> NVIDIA vPC/vApps > NVIDIA RTX Virtual Workstation
vGPU profiles supported	See the Virtual GPU Licensing Guide
Graphics APIs	DirectX 12, Shader Model 6.6, OpenGL 4.6[6], Vulkan 1.3[6]
Compute APIs	CUDA 11.6, OpenCL 3.0, DirectCompute
NVIDIA NVLink®	No

Ready to get started?

To learn more about RTX 6000 ADA Generation visit www.pny.eu

1 Quadro Sync II card sold separately. I 2 Windows 10/11 and Linux. I 3 Peak rates based on GPU Boost Clock. I 4 Effective FP8 teraFLOPS (TFLOPS) using the new sparsity feature. I 5 Display ports are on by default for RTX 6000. Display ports are not active when using vGPU software. vGPU software support is coming in vGPU 15.1 release. I 6 Product is based on a published Khronos specification and is expected to pass the Khronos conformance testing process when available. Current conformance status can be found at www.khronos.org/conformance

1 Overview

Here below you can find a selection of the mostly requested information from the board specification. If you need more detailed information please contact your sales representative to get the full board specification document. Certifications (CE, Reach, Rohs, UL, CB, etc.) related to the NVIDIA RTX 6000 Ada Generation can be downloaded in the PNY Partner Hub.

1.1 Attachments

The following files are attached to this board specification

- NVIDIA RTX 6000 Ada Generation 3D STEP file (stp)
- NVIDIA RTX 6000 Ada Generation 2D Drawing
- Long and Short/Straight board extenders 2D Drawing
- Power Guidelines for Workstation Products
- Logistic Sheets

1.2 Product Weight

- Weight: TBD grams (excluding bracket and extenders)
- Bracket with screws: 20 grams
- Long offset extender: 48 grams
- Straight extender: 32 grams

1.3 Customs

- Country of origin: China (NV Serial number starting 132/142) or Taiwan (NV Serial number startig 156/165)
- ECCN: EAR99
- Commodity/Customs-Tariff-No: 8471800000 (HST 847180)
- AL number: No

1.4 Thermal Specifications

Parameter	Value	Unit
Total graphics power (TGP)	300	W
Maximum fan inlet	45	°C
GPU target temperature	85	°C
GPU maximum operating temperature	91	°C
GPU slowdown temperature (50% clock slowdown)	100	°C
GPU shutdown temperature	105	°C

1.5 Acoustic Specifications

Test Condition	Specification
Idle	20 dBA maximum
TDP room	34 dBA maximum
TDP maximum	47 dBA maximum

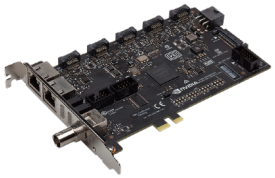
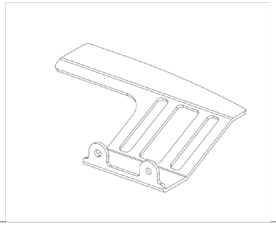
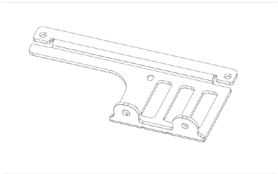
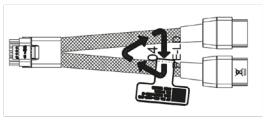
1.6 Environmental and Reliability Specifications

Specification	Description
Ambient operating temperature	0 °C to 45 °C
Storage temperature	-40 °C to 75 °C
Operating humidity	5% to 95% relative humidity
Storage humidity	5% to 95% relative humidity
Mean time between failures (MTBF)	Uncontrolled environment:[1] TBD hours at 35 °C Controlled environment:[2] TBD hours at 35 °C

[1] Some environmental stress with limited maintenance

[2] No environmental stress with optimum operation and maintenance

2 Optional accessories and spare parts

	Product	Description
	**NVIDIA Quadro SYNC II** VCQPQUADROSYNC2-PB EAN: 3536403352240	NVIDIA® Quadro® Sync solutions enable the creation of dazzling ultra-high resolution, perfectly synchronized displays to meet the visualization and presentation needs across industries.
	**NVIDIA 3D Stereo Bracket** QSP-STEREOQ4000-PB EAN: 3536403339159	3-pin mini DIN stereo connector bracket for 3D stereo applications that require active sychronization with a projector or 3D glasses.
	**Long Offset Extender** QSP-LONGEXT105FF50 EAN: 3536403390013	Long offset extender for Ampere and Ada Lovelace 10.5” Dual slot cards.
	**Short/Straight Extender** QSP-SHORTEXT105FF50 EAN: 3536403390020	Short/Straight extender for Ampere and Ada Lovelace 10.5” Dual slot cards.
	**Power Cable** CEM5 16-pin to 2x PCIE 8-pin QSP-PWSUP16PPCIE300W EAN: 3536403393403	Power cable CEM5 16-pin to 2x PCIE 8-pin 300W max power consumption
	**DP to HDMI 2.0 Adapter** QSP-DPHDMIV2 EAN: 3536403365837	Display Adapter DP to HDMI 2.0 up to 4096x2160 @ 60 Hz