Line Card

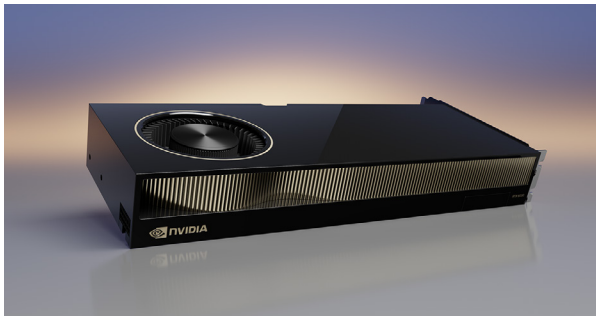
NVIDIA Professional Graphics Solutions

You need to do great things—create and collaborate from anywhere, on any device, without the distractions of slow performance, poor stability, or application incompatibility. With NVIDIA RTX™, you can unleash your vision and enjoy ultimate creative freedom.

NVIDIA RTX professional visualization products power a wide range of laptop, desktop, and data center solutions. Leverage the latest advancements in real-time ray tracing, AI, virtual reality (VR), and interactive, photorealistic rendering to develop revolutionary products, tell vivid visual stories, and design groundbreaking architecture like never before. Support for advanced features, frameworks, and SDKs across all of our products gives you the power to tackle the most challenging visual computing tasks, no matter the scale.

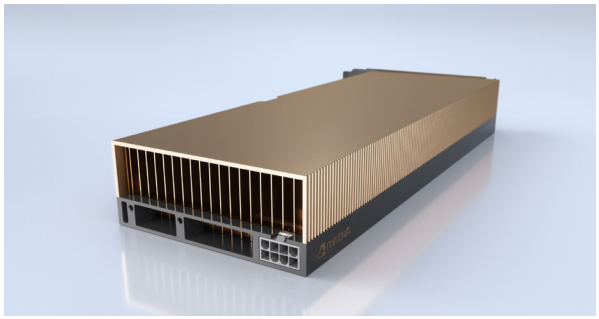
NVIDIA Professional Laptop GPUs

Professionals today increasingly need to work on complex workflows like VR, 8K video editing, and photorealistic rendering on the go. NVIDIA RTX laptop GPUs deliver world-class performance in a portable form factor combining the latest advancements in real-time ray tracing, advanced shading, and AI-based capabilities, so professionals can tackle demanding workflows from anywhere.



NVIDIA Desktop Workstation GPUs

NVIDIA RTX-powered desktop workstations are designed and built specifically to drive the most challenging workloads of artists, designers, and engineers. Large GPU memory boosts application performance to accelerate your workflows and tackle the heaviest of workloads. NVIDIA RTX workstation solutions deliver significant business impact for demanding industries like manufacturing, media and entertainment, and energy.



NVIDIA Data Center GPUs

Demand for visualization, rendering, data science, and simulation continues to grow as businesses tackle larger, more complex workloads. Scale up your visual compute infrastructure and tackle graphics-intensive workloads, complex designs, photorealistic renders, and augmented and virtual environments at the edge with NVIDIA GPUs. Optimized for reliability in enterprise data centers, NVIDIA GPUs feature both active and passive thermal solutions to fit into a variety of servers.

NVIDIA Professional Graphics Solutions

New		GPU Specifications						Performance				Display Technology						Virtual Reality		Options			
		NVIDIA CUDA® Processing Cores[1]	NVIDIA RT Cores	Tensor Cores	GPU Memory	Peak Memory Bandwidth	NVIDIA® NVLink®	Floating-Point Performance, Single Precision (TFLOPS, Peak)[2]	Accelerated Double Precision (TFLOPS, Peak)	AI TOPS[3]	Error-Correcting Code (ECC) Memory	Maximum Active Displays	DisplayPort 1.4[4]	HDMI via Adaptors, HDMI	NVIDIA SLI®[5]	High-Dynamic Range (HDR)[6]	NVIDIA Mosaic Technology	VR Ready[7]	Variable Rate Shading	GPUDirect® for Video	Graphics Synchronization with Sync II	3D Stereo	Encode.Decode[8]
Laptop GPUs																							
	NVIDIA RTX 5000 Ada Generation	9,728	76 (3rd Gen)	304 (4th Gen)	16GB	576 GB/s		42.6		681.8	•[9]	4*	Yes*	Yes*		•	•	•	•	•		•	•
	NVIDIA RTX 4000 Ada Generation	7,424	58 (3rd Gen)	232 (4th Gen)	12GB	432 GB/s		33.6		538.0	•[9]	4*	Yes*	Yes*		•	•	•	•	•		•	•
	NVIDIA RTX 3500 Ada Generation	5,120	40 (3rd Gen)	160 (4th Gen)	12GB	432 GB/s		23.0		368.6	•[9]	4*	Yes*	Yes*		•	•	•	•			•	•
	NVIDIA RTX 3000 Ada Generation	4,608	36 (3rd Gen)	144 (4th Gen)	8GB	256 GB/s		19.9		318.6	•[9]	4*	Yes*	Yes*		•	•	•	•			•	•
	NVIDIA RTX 2000 Ada Generation	3,072	24 (3rd Gen)	96 (4th Gen)	8GB	256 GB/s		14.5		231.6		4*	Yes*	Yes*		•	•	•	•			•	•
	NVIDIA RTX 1000 Ada Generation	2,560	20 (3rd Gen)	80 (4th Gen)	6GB	192 GB/s		12.1		193.0		4*	Yes*	Yes*		•	•	•	•			•	•
	NVIDIA RTX 500 Ada Generation	2,048	16 (3rd Gen)	64 (4th Gen)	4GB	128 GB/s		9.2		154.3		4*	Yes*	Yes*		•	•		•			•	•
	NVIDIA RTX A5500	7,424	58 (2nd Gen)	232 (3rd Gen)	16GB	512 GB/s		24.7		395.6	•[9]	4*	Yes*	Yes*		•	•	•[10]	•	•		•	•
	NVIDIA RTX A4500	5,888	46 (2nd Gen)	184 (3rd Gen)	16GB	512 GB/s		18.5		296.8	•[9]	4*	Yes*	Yes*		•	•	•	•	•		•	•
	NVIDIA RTX A3000 12GB	4,096	32 (2nd Gen)	128 (3rd Gen)	12GB	336 GB/s		14.1		226.1	•[9]	4*	Yes*	Yes*		•	•	•	•			•	•
	NVIDIA RTX A2000 8GB	2,560	20 (2nd Gen)	80 (3rd Gen)	8GB	224 GB/s		9.3		148.7		4*	Yes*	Yes*		•	•	•[10]	•			•	•
	NVIDIA RTX A1000 6GB	2,560	20 (2nd Gen)	80 (3rd Gen)	6GB	168 GB/s		9.3		149.3		4*	Yes*	Yes*		•	•	•[10]	•			•	•
	NVIDIA RTX A500	2,048	16 (2nd Gen)	64 (3rd Gen)	4GB	112 GB/s		7.0		120.4		4*	Yes*	Yes*								•	•
Desktop GPUs																							
	NVIDIA RTX 6000 Ada Generation	18,176	142 (3rd Gen)	568 (4th Gen)	48GB	960 GB/s		91.1		1,457.0	•[9]	4	4	4		•	•	•	•	•	•	•	•
	NVIDIA RTX 5000 Ada Generation	12,800	100 (3rd Gen)	400 (4th Gen)	32GB	576 GB/s		65.3		1,044.4	•[9]	4	4	4		•	•	•	•	•	•	•	•
	NVIDIA RTX 4500 Ada Generation	7,680	60 (3rd Gen)	240 (4th Gen)	24GB	432 GB/s		39.9		634.0	•[9]	4	4	4		•	•	•	•	•	•	•	•
	NVIDIA RTX 4000 Ada Generation	6,144	48 (3rd Gen)	192 (4th Gen)	20GB	360 GB/s		26.7		427.6	•[9]	4	4	4		•	•	•	•	•	•	•	•
	NVIDIA RTX 4000 SFF Ada Generation	6,144	48 (3rd Gen)	192 (4th Gen)	20GB	280 GB/s		19.2		306.8	•[9]	4	4	4		•	•	•	•	•	•	•	•
	NVIDIA RTX 2000 Ada Generation	2,816	22 (3rd Gen)	88 (4th Gen)	16GB	224 GB/s		12.0		191.9	•[9]	4	4	4		•	•[14]	•	•			•	•
	NVIDIA A800 40GB Active	6,912		432 (3rd Gen)	40 GB[11]	1,555 GB/s	•	19.5	9.7	1,247.4	•[12]				•								
	NVIDIA RTX A6000	10,752	84 (2nd Gen)	336 (3rd Gen)	48GB	768 GB/s	•	38.7		619.4	•[9]	4	4	4	•	•	•	•	•	•	•	•	•
	NVIDIA RTX A5500	10,240	80 (2nd Gen)	320 (3rd Gen)	24GB	768 GB/s	•	34.1		545.6	•[9]	4	4	4	•	•	•	•	•	•	•	•	•
	NVIDIA RTX A5000	8,192	64 (2nd Gen)	256 (3rd Gen)	24GB	768 GB/s	•	27.8		444.4	•[9]	4	4	4	•	•	•	•	•	•	•	•	•
	NVIDIA RTX A4500	7,168	56 (2nd Gen)	224 (3rd Gen)	20GB	640 GB/s	•	23.7		378.4	•[9]	4	4	4	•	•	•	•	•	•	•	•	•
	NVIDIA RTX A4000	6,144	48 (2nd Gen)	192 (3rd Gen)	16GB	448 GB/s		19.2		306.8	•[9]	4	4	4		•	•	•	•	•	•	•	•
	NVIDIA RTX A2000 12GB	3,328	26 (2nd Gen)	104 (3rd Gen)	12GB	288 GB/s		7.9		127.8	•[9]	4	4	4		•	•[14]	•	•			•	•
	NVIDIA RTX A1000	2,304	18 (2nd Gen)	72 (3rd Gen)	8GB	192 GB/s		6.7		107.8		4	4	4		•	•[14]		•			•	•
	NVIDIA RTX A400	768	6 (2nd Gen)	24 (3rd Gen)	4GB	96 GB/s		2.7		43.3		4	4	4		•	•[14]		•			•	•
	NVIDIA T1000 | NVIDIA T1000 8GB	896			4GB or 8GB	160 GB/s		2.5		10.0		4	4	4		•	•[14]					•	•
	NVIDIA T400 4GB	384			4GB	80 GB/s		1.0		4.4		4[13]	3	3		•	•[14]					•	•
Data Center GPUs																							
	NVIDIA L40S	18,176	142 (3rd Gen)	568 (4th Gen)	48GB	864 GB/s		91.6		1,466.0	•[9]	4	4	4	•	•	•	•	•	•	•	•	•
	NVIDIA L40	18,176	142 (3rd Gen)	568 (4th Gen)	48GB	864 GB/s		90.5		724.0	•[9]	4	4	4	•	•	•	•	•	•	•	•	•
	NVIDIA A40	10,752	84	336	48GB	696 GB/s	•	37.4		598.6	•[9]	4	3	3	•	•	•	•	•	•	•	•	•
	NVIDIA A10	9,216	72	288	24GB	600 GB/s		31.2		500.0	•[9]							•		•			•
	NVIDIA A16	4x 1,280	4x 10	4x 40	4x 16GB	4x 232 GB/s		4x 4.5		4x 71.8	•[9]									•			•

*** Check with OEM manufacturer for specific display topology.**

1. CUDA parallel processing cores cannot be compared between GPU generations due to several important architectural differences that exist between streaming multiprocessor designs.
2. Peak rates are based on GPU Boost clock.
3. For Ada-based GPUs, AI TOPS is based on FP8 with sparsity. AI TOPS for Ampere and Turing-based GPUs are based on INT8 with sparsity.
4. Feature support varies by system-level implementation. Check with your workstation OEM vendor for system specific configurations.
5. SLI functionality is provided via NVLink.
6. Supported adaptors are required for HDMI.
7. Supports multi-view rendering (MVR) feature.
8. For more details on GPU-specific video encode/decode format support, refer to: https://developer.nvidia.com/video-encode-and-decode-gpu-support-matrix-new
9. Ensures data integrity and reliability by eliminating soft errors on direct random-access memory (DRAM) only.
10. Support for configuration at 60W TGP and above. NVIDIA RTX A1000 and RTX A2000 8GB Laptop GPUs. VR-Ready at 60W TGP and above.
11. NVIDIA A800 uses HMB2 as its primary memory type.
12. Ensures data integrity and reliability by eliminating soft errors on both GPU cache and on-board DRAM.
13. NVIDIA T400 4GB desktop GPUs can drive four displays via multi-stream transport (MST).
14. This Mosaic setup does not offer framelock synchronization or display overlap functionality.

For more information on NVIDIA professional graphics solutions, visit: **www.nvidia.com/en-us/design-visualization/rtx/**

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