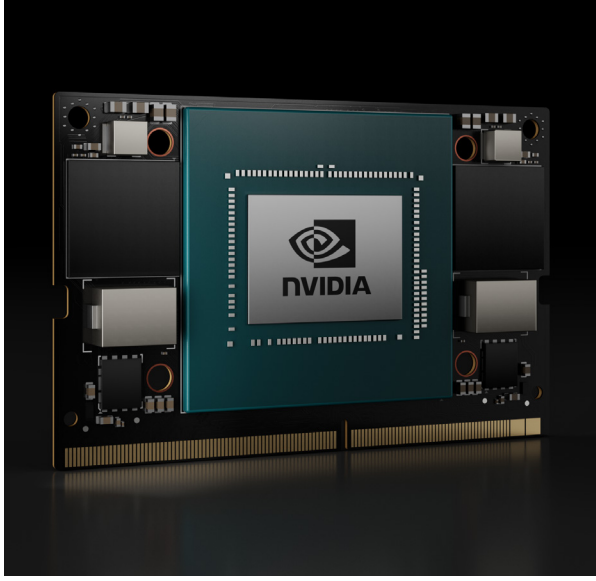
Datasheet

NVIDIA Jetson Orin NX Series

Orin performance. Nano size.



The Most Advanced AI Computer for Smaller, Lower-Power Autonomous Machines

NVIDIA® Jetson Orin™ NX series modules deliver up to 100 TOPS of AI performance in the smallest Jetson form-factor, with power configurable between 10W and 25W. This gives you 3X the performance of NVIDIA Jetson AGX Xavier™ and 5X the performance of Jetson Xavier™ NX, making it ideal for small form-factor, low-power products like drones and handheld devices.

These system-on-modules support multiple concurrent AI application pipelines with an NVIDIA Ampere architecture GPU, next-generation deep learning and vision accelerators, high-speed IO, and fast memory bandwidth. Now, you can develop solutions using your largest and most complex AI models to solve problems such as natural language understanding, 3D perception, and multi-sensor fusion.

Jetson runs the NVIDIA AI software stack and takes advantage of use case-specific application frameworks, including NVIDIA Isaac™ for robotics, DeepStream for vision AI, and Riva for conversational AI. You can also save significant time with NVIDIA Omniverse™ Replicator for synthetic data generation (SDG), and with NVIDIA TAO Toolkit for fine-tuning pretrained AI models from the NGC™ catalog.

Jetson ecosystem partners offer additional AI and system software, developer tools, and custom software development. They can also help with cameras and other sensors, as well as carrier boards and design services for your product.

Jetson Orin modules are unmatched in performance and efficiency for robots and other autonomous machines, giving you the flexibility to create the next generation of AI solutions with the latest NVIDIA GPU technology. Together with the world-standard NVIDIA AI software stack and an ecosystem of services and products, your road to market has never been faster.

Key Features

Jetson Orin NX 8GB

- 1024-core NVIDIA Ampere architecture GPU with 32 tensor cores
- 1x NVDLA v2.0
- 6-core Arm® Cortex®-A78AE v8.2 64-bit CPU
- 8GB 128-bit LPDDR5
- PVA v2.0

Power

- Voltage input 5V-20V
- Module Power: 10W-20W

Jetson Orin NX 16GB

- 1024-core NVIDIA Ampere architecture GPU with 32 tensor cores
- 2x NVDLA v2.0
- 8-core Arm® Cortex®-A78AE v8.2 64-bit CPU
- 16GB 128-bit LPDDR5
- PVA v2.0

Power

- Voltage input 5V-20V
- Module Power: 10W-25W

NVIDIA Jetson Orin NX Series Modules

Technical Specifications		
	Jetson Orin NX 8GB	**Jetson Orin NX 16GB**
AI Performance	70 TOPS (INT8)	100 TOPS (INT8)
GPU	NVIDIA Ampere architecture with 1024 NVIDIA CUDA® cores and 32 tensor cores	
GPU Max Frequency	765MHz	918GHz
CPU	6-core Arm® Cortex®-A78AE v8.2 64-bit CPU 1.5MB L2 + 4MB L3	8-core Arm® Cortex®-A78AE v8.2 64-bit CPU 2MB L2 + 4MB L3
CPU Max Frequency	2GHz	
Deep Learning Accelerator (DLA)	1x NVDLA v2.0	2x NVDLA v2.0
DLA Max Frequency	614MHz	
Vision Accelerator	PVA v2.0	
Memory	8GB 128-bit LPDDR5 102.4GB/s	16GB 128-bit LPDDR5 102.4GB/s
Storage	Supports external NVMe	
CSI Camera	Up to 4 cameras (8 via virtual channels*) 8 MIPI CSI-2 lanes D-PHY 1.2 (20Gbps)	
Video Encode	1x 4K60 | 3x 4K30 | 6x 1080p60 | 12x 1080p30 (H.265) H.264, AV1	
Video Decode	1x 8K30 | 2x 4K60 | 4x 4K30 | 9x 1080p60 | 18x 1080p30 (H.265) H.264, VP9, AV1	
UPHY	3 x1 + 1 x4 PCIe Gen 4 3x USB 3.2 Gen2	
Networking	1x GbE	
Display	1x 8K30 multi-mode DP 1.4a (+MST)/eDP 1.4a/HDMI 2.1	
Other I/O	3x USB 2.0 3x UART | 2x SPI | 4x I^2C | 1x CAN |DMIC | DSPK | 2x I2S | 15x GPIOs	
Power	10W-20W	10W-25W
Mechanical	69.6mm x 45mm 260-pin SO-DIMM connector	

* Virtual channel-related camera information for Jetson Orin NX is not final and subject to change.
Refer to the Software Features section of the latest NVIDIA Jetson Linux Developer Guide for a list of supported features.

Ready to Get Started?

To learn more about the Jetson Orin, visit:
www.nvidia.com/Jetson-Orin

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