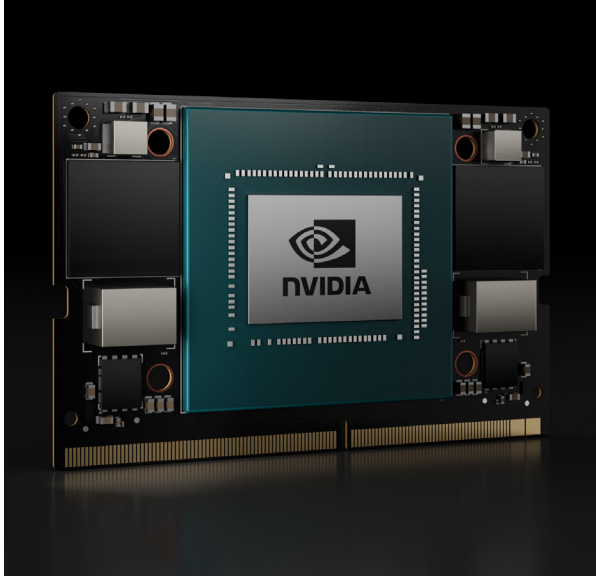
Datasheet

# 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 157 TOPS of AI performance in the smallest Jetson form-factor, with power configurable between 10W and 40W. This gives you 5X the performance of NVIDIA Jetson AGX Xavier™ and 7.5X 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, with available use-case-specific application frameworks, including NVIDIA Isaac™ for robotics, NVIDIA Metropolis™ for vision AI, and NVIDIA Holoscan™ for sensor processing. You can 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 (P3767)

- 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-40W

### Jetson Orin NX 16GB (P3767)

- 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-40W

## NVIDIA Jetson Orin NX Series Modules

| Technical Specifications | | |
|---|---|---|
| | **Jetson Orin NX 8GB** | **Jetson Orin NX 16GB** |
| **AI Performance** | 117 TOPS (INT8) | 157 TOPS (INT8) |
| **GPU** | NVIDIA Ampere architecture with 1024 NVIDIA CUDA® cores and 32 tensor cores | |
| **GPU Max Frequency** | 1173MHz | |
| **CPU** | 6-core Arm® Cortex®-A78AE v8.2 64-bit CPU<br>1.5MB L2 + 4MB L3 | 8-core Arm® Cortex®-A78AE v8.2 64-bit CPU<br>2MB L2 + 4MB L3 |
| **CPU Max Frequency** | 2GHz | |
| **Deep Learning Accelerator (DLA)** | 1x NVDLA v2.0 | 2x NVDLA v2.0 |
| **DLA Max Frequency** | 1.23GHz | |
| **Vision Accelerator** | PVA v2.0 | |
| **Memory** | 8GB 128-bit LPDDR5<br>102.4GB/s | 16GB 128-bit LPDDR5<br>102.4GB/s |
| **Storage** | Supports external NVMe | |
| **CSI Camera** | Up to 4 cameras (8 via virtual channels*)<br>8 MIPI CSI-2 lanes<br>D-PHY 1.2 (20Gbps) | |
| **Video Encode** | 1x 4K60 \| 3x 4K30 \| 6x 1080p60 \| 12x 1080p30 (H.265)<br>H.264, AV1 | |
| **Video Decode** | 1x 8K30 \| 2x 4K60 \| 4x 4K30 \| 9x 1080p60 \| 18x 1080p30 (H.265)<br>H.264, VP9, AV1 | |
| **UPHY** | 3 x1 + 1 x4 PCIe Gen 4<br>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<br>3x UART \| 2x SPI \| 4x $I^2C$ \| 1x CAN \|DMIC \| DSPK \| 2x I2S \| 15x GPIOs | |
| **Power** | 10W-40W | 10W-40W |
| **Mechanical** | 69.6mm x 45mm<br>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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