



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 use case-specific application frameworks are available, 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, and they give 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	
Max GPU Freq	765MHz	918MHz
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 Freq	2GHz	
DL 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 8K60 multi-mode DP 1.4a (+MST)/eDP 1.4a/HDMI 2.1	
Other I/O	3x USB 2.0 3x UART 2x SPI 4x I²C 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.

[Learn more](#)

Learn more at www.nvidia.com/jetson-orin

© 2022 NVIDIA Corporation. All rights reserved. NVIDIA, the NVIDIA logo, CUDA, Jetson, Jetson Xavier, NGC, NVIDIA Clara, NVIDIA Isaac, NVIDIA JetPack, and NVIDIA Jetson Orin NX are trademarks and/or registered trademarks of NVIDIA Corporation in the U.S. and other countries. ARM, AMBA and ARM Powered are registered trademarks of ARM Limited. Cortex, MPCore and Mali are trademarks of ARM Limited. All other brands or product names are the property of their respective holders. "ARM" is used to represent ARM Holdings plc; its operating company ARM Limited; and the regional subsidiaries ARM Inc.; ARM KK; ARM Korea Limited.; ARM Taiwan Limited; ARM France SAS; ARM Consulting (Shanghai) Co. Ltd.; ARM Germany GmbH; ARM Embedded Technologies Pvt. Ltd.; ARM Norway, AS and ARM Sweden AB. Other company and product names may be trademarks of the respective companies with which they are associated. APR22

