



NVIDIA JETSON XAVIER NX

XAVIER PERFORMANCE. NANO SIZE.

The World's Smallest AI Supercomputer for Embedded and Edge Systems

The NVIDIA® Jetson Xavier™ NX brings supercomputer performance to the edge in a compact system-on-module (SOM) that is smaller than a credit card. The energy-efficient Jetson Xavier NX module delivers server-class performance—up to 14 TOPS at 10W or 21 TOPS at 15W. This unique combination of form-factor, performance, and power advantage opens the door for innovative edge devices in the fields of manufacturing, logistics, retail, service, agriculture, smart city and medical instruments.

The Jetson Xavier NX module benefits from new cloud-native support across the entire Jetson platform line-up, making it easier to build, manage, and deploy AI at the edge.

Pre-trained AI models from NVIDIA NGC together with the NVIDIA Transfer Learning Toolkit, provides a faster path to trained and optimized AI networks. Containerized deployment to Jetson devices also allows flexible and seamless updates.

NVIDIA JetPack™ SDK enables multi-modal AI application development for Jetson Xavier NX with accelerated libraries supporting all major AI frameworks, as well as computer vision, computer graphics, multimedia, and more. Together with the latest NVIDIA tools for application development and optimization, JetPack ensures fast time to market and reduced development costs.

Designed for ease of development and speed of deployment, Jetson is the most flexible and scalable platform to get to market and continuously update AI software over the lifetime of a product.

KEY FEATURES

Jetson Xavier NX module

- > 384-core NVIDIA Volta™ GPU with 48 Tensor Cores
- > 6-core NVIDIA Carmel ARM®v8.2 64-bit CPU
- > 2x NVDLA Engines
- > 7-Way VLIW Vision Processor
- > 8 GB 128-bit LPDDR4x
- > 16 GB eMMC 5.1
- > 10/100/1000 Base-T Ethernet

Power

- > Voltage Input: 5 V
- > Module Power: 10 W - 15 W

NVIDIA® JETSON XAVIER™ NX MODULE

TECHNICAL SPECIFICATIONS

AI Performance	21 TOPS (INT8)
GPU	NVIDIA Volta architecture with 384 NVIDIA CUDA® cores and 48 Tensor cores
Max GPU Freq	1100 MHz
CPU	6-core NVIDIA Carmel ARM®v8.2 64-bit CPU 6 MB L2 + 4 MB L3
CPU Max Freq	1.9 GHz
Memory	8 GB 128-bit LPDDR4x 51.2GB/s
Storage	16 GB eMMC 5.1
Power	10 W 15 W
PCIe	1 x1 (PCIe Gen3) + 1 x4 (PCIe Gen4), total 144 GT/s *
CSI Camera	Up to 6 cameras (24 via virtual channels) 14 lanes (3x4 or 6x2) MIPI CSI-2 D-PHY 1.2 (up to 30 Gbps)
Video Encode	2x464 MP/sec (H.265) 2x 4K @ 30 6x 1080p @ 60 14x 1080p @ 30 (H.265/H.264)
Video Decode	2x690 MP/sec (H.265) 2x 4K @ 60 4x 4K @ 30 12x 1080p @ 60 32x 1080p @ 30 (H.265) 2x 4K @ 30 6x 1080p @ 60 16x 1080p @ 30 (H.264)
Display	2 multi-mode DP 1.4/eDP 1.4/HDMI 2.0
DL Accelerator	2x NVDLA Engines
DLA Max Freq	1100 MHz
Vision Accelerator	7-Way VLIW Vision Processor
Networking	10/100/1000 Base-T Ethernet
USB	1xUSB 3.1 (10 Gbps) 3xUSB 2.0
Other IOs	1x SDIO / 2x SPI / 3x UART / 2x I2S / 4x I2C / 1x CAN / GPIOs
Mechanical	45 mm x 69.6 mm 260 pin SO-DIMM connector

* Refer to the Software Features section of the latest NVIDIA Jetson Linux Developer Guide for a list of supported features

Learn more at www.nvidia.com/Jetson

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NVIDIA JETSON XAVIER NX DEVELOPER KIT

TAKE SUPERCOMPUTER PERFORMANCE TO THE EDGE.



The NVIDIA® Jetson Xavier™ NX developer kit includes a power-efficient, compact Jetson Xavier NX module for AI edge devices. It benefits from new cloud-native support and accelerates the NVIDIA software stack in as little as 10 W with more than 10X the performance of its widely adopted predecessor, Jetson TX2. The capability to develop and test power-efficient, small form-factor solutions with accurate, multi-modal AI inference opens the door for new breakthrough products.

Developers can now take advantage of cloud-native support to transform the experience of developing and deploying AI software to edge devices. Pre-trained AI models from NVIDIA NGC, together with the NVIDIA Transfer Learning Toolkit, provide a faster path to inference with optimized AI networks, while containerized deployment to Jetson devices allows flexible and seamless updates.

The developer kit is supported by the entire NVIDIA software stack, including accelerated SDKs and the latest NVIDIA tools for application development and optimization. When combined with Jetson Xavier NX, this powerful stack helps you create innovative solutions for manufacturing, logistics, retail, service, agriculture, smart city, healthcare and life sciences, and more.

Ease of development and speed of deployment—together with a unique combination of form-factor, performance, and power advantage—make Jetson Xavier NX the most flexible and scalable platform to get to market fast and continuously update over the lifetime of a product.



KEY FEATURES

Jetson Xavier NX module

- > 384-core NVIDIA Volta™ GPU with 48 Tensor Cores
- > 6-core NVIDIA Carmel ARM®v8.2 64-bit CPU
- > 2x NVDLA Engines
- > 7-way VLIW Vision Processor
- > 8 GB 128-bit LPDDR4x
- > 10/100/1000 Base-T Ethernet

Power Options

- > DC jack (9 V~19 V)

I/O

- > 4x USB 3.1 Gen2 Type A
- > USB 2.0 Micro-B

- > HDMI/DisplayPort
- > M.2 Key E (WiFi/BT included)
- > M.2. Key M (NVMe)
- > Gigabit Ethernet
- > 40-pin header (GPIOs, I2C, I2S, SPI, UART)
- > 2x MIPI-CSI camera connector
- > Fan connector

Kit Contents

- > NVIDIA Jetson Xavier NX module and reference carrier board
- > Quick Start Guide and Support Guide
- > Power adapter: AC power brick and power cord

NVIDIA JETSON XAVIER NX DEVELOPER KIT

TECHNICAL SPECIFICATIONS

DEVELOPER KIT

GPU	NVIDIA Volta architecture with 384 NVIDIA CUDA® cores and 48 Tensor Cores
CPU	6-core NVIDIA Carmel ARM®v8.2 64-bit CPU 6 MB L2 + 4 MB L3
DL Accelerator	2x NVDLA Engines
Vision Accelerator	7-Way VLIW Vision Processor
Memory	8 GB 128-bit LPDDR4x 51.2GB/s
Storage	microSD (card not included)
Video Encode	2x 4Kp30 6x 1080p60 14x 1080p30 (H.265/H.264)
Video Decode	2x 4Kp60 4x 4Kp30 12x 1080p60 32x 1080p30 (H.265) 2x 4Kp30 6x 1080p60 16x 1080p30 (H.264)
Camera	2x MIPI CSI-2 D-PHY lanes
Connectivity	Gigabit Ethernet, M.2 Key E (WiFi/BT included), M.2 Key M (NVMe)
Display	HDMI and DP
USB	4x USB 3.1, USB 2.0 Micro-B
Others	GPIOs, I²C, I²S, SPI, UART
Mechanical	103 mm x 90.5 mm x 31 mm



Learn more at www.nvidia.com/JetsonXavierNX

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