NVIDIA JETSON AGX XAVIER INDUSTRIAL

Designed to Perform.
Built to Last.

Powering AI Embedded and Functional Safety Applications

NVIDIA® Jetson AGX Xavier™ Industrial delivers the highest performance for AI embedded industrial and functional safety applications in a power-efficient, rugged system-on-module. It's form-factor and pin-compatible with Jetson AGX Xavier, and has up to 20X the performance and 4X the memory of NVIDIA® Jetson™ TX2i. This lets you bring the latest AI models to your most demanding use cases.

Extended temperature, shock, and vibration specifications—plus new functional safety capabilities—make this Jetson module ideal for industrial-grade AI products. The module also includes hardware-verified secure boot, hardware-accelerated cryptography, support for encrypted storage and memory, and other security features to protect customer software.

NVIDIA JetPack™ SDK includes libraries, samples, and tools to accelerate the entire AI pipeline, and pretrained models from the NGC™ catalog are performance-optimized and ready to be fine-tuned with customer datasets. Support for cloud-native technologies enables seamless model and software updates throughout the module's 10-year operating lifetime.

The Jetson Safety Extension Package is available on request, with supporting software and documentation for customers who want to create IEC 61508 compliant products. A Safety design guide is also available with recommendations, guidelines, and ISO-13849 Cat. 2/3 PLd architecture examples as point of reference for customer safety designs.

Ease of development and speed of deployment—combined with form-factor, performance, and power advantage—make Jetson AGX Xavier Industrial the ideal rugged and safety-ready AI product platform.

Key Features

Module

> 512-core NVIDIA Volta™ GPU with 64 Tensor cores
> (2x) NVDLA
> 8-core NVIDIA Carmel Arm®v8.2 64-bit CPU
> 32GB 256-bit LPDDR4x (ECC Support)
> 64GB eMMC 5.1
> (2x) 7-way VLIW vision accelerator processor

Power

> Voltage input 5V, 9V~20V
> Module Power: 20W - 40W

Environment

> Operating temperature: -40°C to 85°C measured on the TTP surface
> Storage temperature: -40°C to 85°C
> Non-operational humidity: 95% RH, -10°C to 65°C
> Operational vibration: 5G RMS 10 to 500Hz, 3-axis, FCT (random/sinusoidal)
> Non-operational vibration: 3G RMS 10 to 1000Hz, 3-axis, FCT (random)
> Operational shock: 50G, half sine, 11ms
> Non-operational shock:140G, half sine, 2ms

NVIDIA Jetson AGX Xavier Industrial

TECHNICAL SPECIFICATIONS

AI Performance	**30 TOPS (INT8)**
GPU	**NVIDIA Volta architecture** **with 512 NVIDIA® CUDA® cores and 64 Tensor cores**
Max GPU Freq	**1.21 GHz**
CPU	**8-core NVIDIA Carmel Arm®v8.2 64-bit CPU** **8MB L2 + 4MB L3**
CPU Max Freq	**2.03 GHz**
DL Accelerator	**2x NVDLA**
Vision Accelerator	**2x 7-Way VLIW vision processor**
Safety Cluster Engine	**2x ARM® Cortex®-R5 in lockstep**
Memory	**32GB 256-bit LPDDR4x (ECC Support)** **136.5 GB/s**
Storage	**64GB eMMC 5.1**
Power	**20W ❘ 40W**
PCIe	**1 x8 + 1 x4 + 1 x2 + 2 x1** **(PCIe Gen4, Root port and Endpoint)**
CSI Camera	**Up to 6 cameras (36 via virtual channels)** **16 lanes MIPI CSI-2** **D-PHY 1.2 (up to 40Gbps) ❘ C-PHY 1.1 (up to 62Gbps)**
Video Encode	**2x4K60 ❘ 6x4K30 ❘ 12x1080p60 ❘ 24x1080p30 (H.265&H.264)** **1x4K60 ❘ 2x4K30 ❘ 6x1080p60 ❘ 14x1080p30 (VP9)**
Video Decode	**2x8K30 ❘ 4x4K60 ❘ 8x4K30 ❘ 18x1080p60 ❘ 36x1080p30 (H.265)** **2x4K60 ❘ 6x4K30 ❘ 12x1080p60 ❘ 24x1080p30 (H.264&VP9)**
Display	**3 multi-mode DP 1.4/eDP 1.4/HDMI 2.0 a/b**
Networking	**10/100/1000 Base-T Ethernet**
USB	**3x USB 3.1 and 4x USB 2.0**
Other IOs	**5xUART/3xSPI/3xI2S/5xI2C/2xCAN/DMIC & DSPK/GPIOs**
Mechanical	**100mm x 87mm** **699-pin connector** **Integrated Thermal Transfer Plate**

Learn more at **www.nvidia.com/Jetson**