



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

Learn more at [www.nvidia.com/Jetson](http://www.nvidia.com/Jetson)

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