VNXP-ORIN-NX

NVIDIA Jetson Orin NX, SBC and Processing Node

Key Features

- Jetson Orin NX 16GB with embedded Ampere GPU: 1024 CUDA cores, 32 Tensor cores
- Embedded 8-core NVIDIA Cortex ARM64 CPU, 2GHz
- 1TB NVMe SED (Self Encrypting Drive)
- Module power: configurable from 20W - 35W

Additional Orin NX Features

- Video Output: DisplayPort MST or HDMI
- Camera Serial Interface: MIPI CSI-2 with D-PHY 2.1 (20 Gbps), 8 lanes
- 2x Deep Learning Accelerator (DLA) v2 engines
- Vision Accelerator engine for 7-way VLIW Vision Processor v2
- Dedicated programmable audio processor
- 2x video encode (NVENC) and decode (NVDEC) with up to 4K-UHD encode resolution
- 16 GB LPDDR5, 128-bit, up to 102.4 GB/s
- CUDA® 12, OpenGL® 4.6, OpenGL ES 3.2, Vulkan™ 1.3

Connectivity / System Management

- Storage: NVMe SED, 480GB TLC or 160GB pSLC
- PCIe Gen4 x4 and x1 to rear connector
- 1000BASE-T Ethernet
- USB 3.2 and USB 2.0
- Serial Peripheral Interface (SPI) I/O
- Jetson Orin security features
- IPMI controller for system management
- WOLF BSP with Jetson Linux and JetPack SDK

Mechanical / Open Systems Architecture

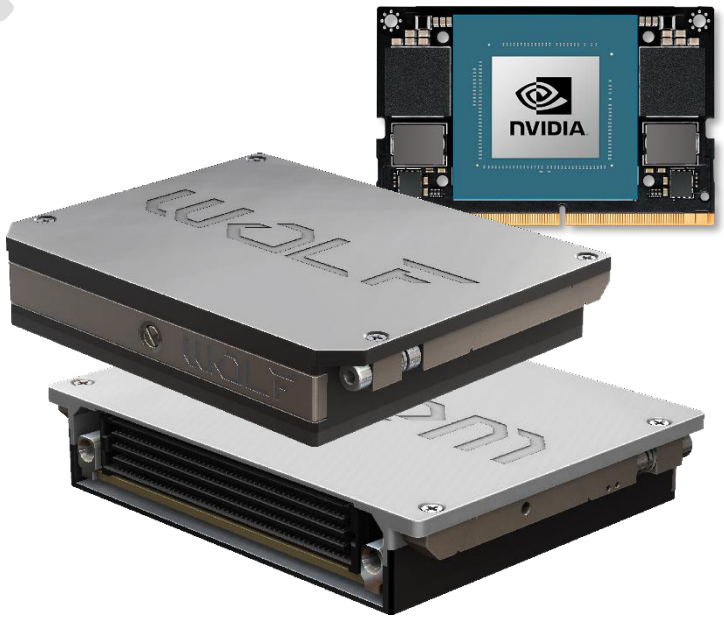
- High level of ruggedization:
  - ☐ Operating temperature: -40° to +85°C
  - ☐ Storage temperature: -55° to +105°C
  - ☐ Vibration: Random (12 grms, 5-2K Hz) and Sine (10g, 5 to 2KHz)
  - ☐ Shock: 40G peak
- Dimensions: 89mm length x78mm width x19mm
- Weight: TBD
- ANSI/VITA 90 VNX+ small form factor

Overview

The VNXP-ORIN-NX is an autonomous, secure compute node which provides advanced AI and HPC processing capabilities, PCIe Gen4, network data transfer, and cyber security features to ensure data is being protected. The small VNX+ form factor allows the technology to be deployed into extremely small spaces.

The NVIDIA® Jetson Orin™ NX includes an embedded Ampere GPU which provides the CUDA cores and Tensor cores for data processing, deep learning inference, machine vision, audio processing and video encoding/decoding. The 1024 CUDA cores run at up to 918MHz providing GPGPU processing, while the 32 Gen3 Tensor cores provide the underlying architecture required for an efficient inference engine which can achieve up to 100 TOPS (INT8, Sparse) of deep learning inference computing.

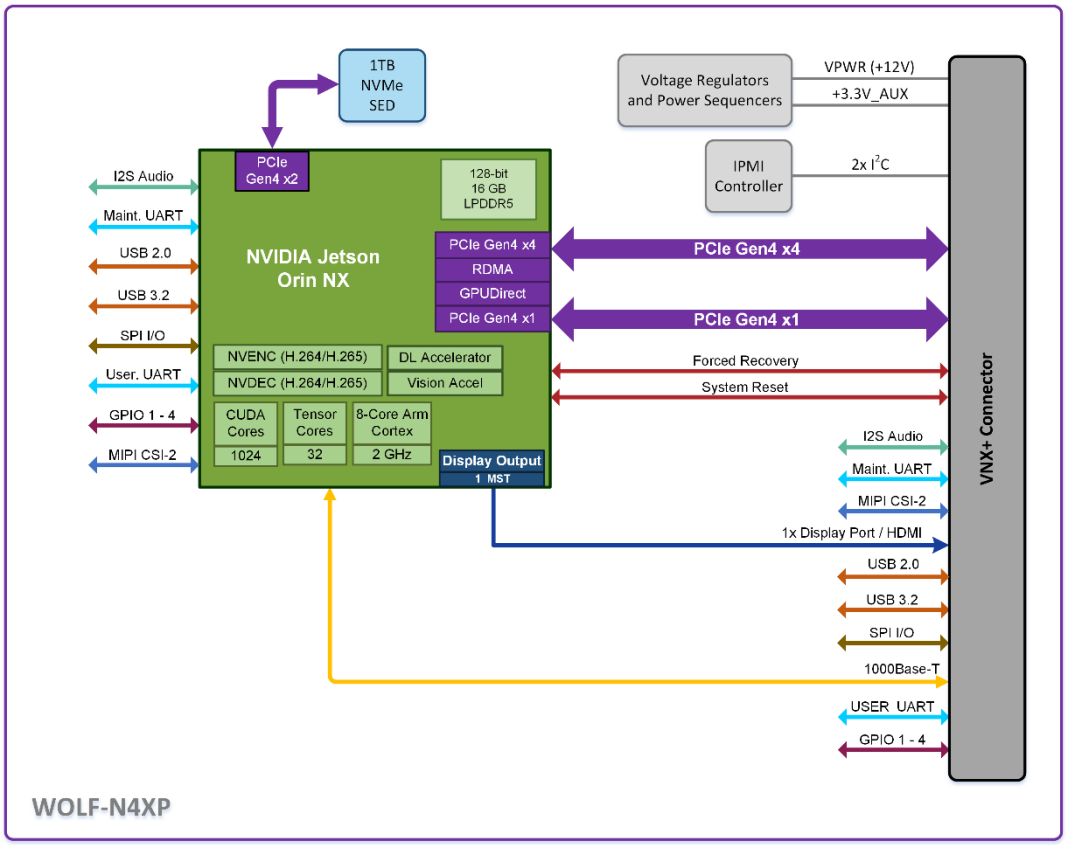
The integrated NVMe SED (Self Encrypting Drive) supports data encryption providing protection for sensitive information without significantly affecting read/write speeds to the drive.



This information is Preliminary and subject to change

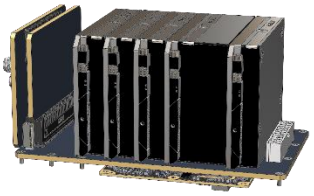
NVIDIA® JETSON ORIN NX™

The Orin NX is a compact system-on-module (SOM) that provides HPC and AI processing to the edge. The Orin NX combines the NVIDIA Ampere™ GPU architecture with 64-bit operating capacity, advanced multi-function video and image processing, and NVIDIA Deep Learning Accelerators.



VNX+ VITA 90

VNX+ is a new small-form-factor (SFF) VITA draft proposed standard based on the published VITA 74 VNX standard. The VNX standard defines a form factor intended for spaces that are too small for a VPX module, such as space and airborne applications, with 19mm height and 12mm height options as well as double-height 38mm options. The VNX+ standard expands on VNX introducing higher power capacities and new connectors. Innovative new chassis will also be required to house the new VNX+ modules.



This information is subject to change

Ordering Codes

The following table defines series of common order codes for the VNXP-ORIN-NX module. The asterisks denote characters of the part number that are defined based on common configuration options. Some configuration options for this module include:

- Display Interfaces
- Conformal Coatings
- Variant Locked
- Default Power Threshold

Ordering Number	Description
VNX+ with NVIDIA Jetson Orin NX	
N4XP33-F***-***VNXPvA0	VNX+, Orin NX, 1TB NVMe SED, 1x DisplayPort output
N4XP33-F***-***VNXPvA0	VNX+, Orin NX, 1TB NVMe SED, 1x HDMI output

* Contact Sales for the latest Ordering Numbers and available options.

Manufacturing and Quality Assurance

WOLF designs modules to pass the following environmental standards:

- MIL-STD-810 (United States Military Standard for Environmental Engineering Considerations and Laboratory Tests)
- MIL-HDBK-217 (Reliability Prediction of Electronic Equipment)
- RTCA DO-160 (Environmental Conditions and Test Procedures for Airborne Equipment) on request

WOLF complies with the following management systems:

- AS9100D: Quality Management System - Requirements for Aviation, Space and Defense Organizations (certified)
- ISO 9001:2015: Quality management systems (certified)
- AS5553: Counterfeit Electronic Parts; Avoidance, Detection, Mitigation, and Disposition (compliant)
- NIST SP 800-171: Protecting Controlled Unclassified Information in Nonfederal Systems (compliant)

Boards are manufactured to meet the following standards:

- IPC-A-610 CLASS 3 (Acceptability of Electronic Assemblies)
- IPC 6012 CLASS 3 (Qualification and Performance Specification for Rigid Printed Boards, Class 3 for High Reliability Electronic Products)
- IPC J-STD-001 (Requirements for Soldered Electrical and Electronic Assemblies)

Caveat: integrated third party modules may not meet the same

ITAR Free

This information is subject to change