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RUGGED SOLUTIONS



AIX-NX

EDGE AI MISSION COMPUTER
BASED ON NVIDIA® JETSON ORIN™ NX

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AIX-NX

Edge AI Mission Computer Based on NVIDIA® Jetson Orin™ NX

The **AIX-NX** Mission Computer is a rugged, MIL-Spec AI embedded system designed for mission-critical operations in extreme environments, featuring a compact, low-SWaP form factor. Based on NVIDIA® Jetson Orin™ NX module, it delivers up to 157 TOPS of AI performance with 1024 CUDA® cores, 32 Tensor Cores, dual NVDLA v2 accelerators, and 16 GB LPDDR5 memory.

This high-performance platform seamlessly integrates advanced AI, deep learning, graphics, and vision capabilities, enabling demanding applications such as autonomous navigation, EO/IR processing, hyperspectral sensor fusion, and 360° situational awareness.

Its I/O-rich architecture provides versatile connectivity through HD-SDI and NTSC/PAL analog video inputs, a 3G-SDI display output, a GbE port plus a 2.5GbE port, multiple USB interfaces, serial and discrete I/O channels, CAN Bus, audio I/O, and onboard NVMe SSD storage. Engineered to comply with MIL-STD and DO-160 standards and supporting fanless operation, the **AIX-NX** Mission Computer ensures reliable performance and data integrity in the most demanding vetronics, aerospace, naval, and ground defense applications.

- **SWaP-C² optimized**
- **Fanless design**
- **NVIDIA Jetson Orin™ NX module**
- **Multiple Video I/O (HD-SDI and PAL/NTSC Inputs + 3G-SDI Output)**
- **Embedded high speed NVME SSD**
- **MIL grade qualifications / in-vehicle power input tolerance**

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NVIDIA JETSON Orin™ NX





Technical Specifications

System	
Processor Module	NVIDIA® Jetson Orin™ NX (157 TOPS / 1024 CUDA® cores / 32 Tensor cores)
Memory	16 GB LPDDR5 128-bit
Video Inputs	1× HD-SDI input channel and 3× analog input channels (PAL/NTSC)
Video Outputs	1× 3G-SDI display output
Ethernet	1× 2.5 GbE LAN + 1 x GbE LAN interfaces
Serial	2× programmable RS-232/422/485 ports
USB	1× USB 3.2 on MIL USB-C connector 3× USB 2.0 on front panel mixed I/O
CAN Bus	1× CAN Bus channel
Audio	1× Audio IN (L/R) 1× Audio OUT (L/R)
I/O Expansion	3× discrete inputs • 3× discrete outputs • Remote ON/OFF • Maintenance RS-232 ports
Internal Storage	1× M.2 PCIe Gen4 ×4 (2242 slot, up to 1TB NVMe SSD)
Software	NVIDIA® JetPack SDK (based on Jetson Linux with Ubuntu desktop and Jetson AI Stack)

Power Section	
Power Input	28V nominal (12 - 36VDC continuous) • MIL-STD-704F / DO-160F / MIL-STD-1275D compliant
Power Consumption	40W (typical) / 65W (max)
Power Features	Over-voltage Over-current Input transient protection

Mechanical Features	
Dimensions (W x D x H)	146.3 × 166.5 × 84.5 mm
Weight	1.75 kg
Cooling	Fanless design - No external airflow required
Interfaces	2× 2M805 military-style mini circular connectors 1× USB-C military-style connector 5× HD-BNC waterproof connectors

Environmental Features (design to meet)

Parameter	Specification	Standard
Operating Temperature	-20 °C / +55 °C	RTCA/DO-160G S4 Cat. B1 / MIL-STD-810H 501.7-502.7
Storage Temperature	-40 °C / +80 °C	RTCA/DO-160G S4 Cat. B1 / MIL-STD-810H 501.7-502.7
Altitude	Up to 25 000 ft operational	RTCA/DO-160G S4 Cat. B1 / MIL-STD-810H 500.6
Humidity	Up to 95 %	RTCA/DO-160G S6 Cat. A / MIL-STD-810H 507.6
Shock	20 g 11 ms	RTCA/DO-160G S7 Cat. A / MIL-STD-810H 516.8
Crash Safety	40 g 11 ms	RTCA/DO-160G S7 Cat. B / MIL-STD-810H 516.8
Vibrations	Rotary wing - Cat. U (Curve G) Fixed wing - Cat. S (Curve M) Vehicle - Cat. 20 (wheeled)	RTCA/DO-160G S8 / MIL-STD-810H 514.8
Environmental Protection	IP65	EN 60529 / RTCA/DO-160G S10 Cat. W / MIL-STD-810H 506.6
Fungus Protection	Fully protected	MIL-STD-810H / RTCA/DO-160G
EMI / EMC	Compliant	MIL-STD-461G (Aircraft/Army) and RTCA/DO-160G

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