

Datasheet

EEP-150N EDGE AI BOX

Compact, Scalable, and AI-Ready for the Edge



Introduction

Emplus EEP-150N is a compact, industrial-grade Edge AI system powered by the NVIDIA® Jetson™ Orin NX/Nano platform. It is purpose-built for AI surveillance, smart-city deployments, machine vision, and light industrial automation that require high-performance, reliable AI inference at the edge.

The EEP-150N delivers up to 157 TOPS of AI performance in a fanless palm-sized chassis, supporting Super Mode (MAXN) operation at 50°C ambient without throttling.

Featuring a rich industrial I/O suite — GbE, USB 3.2/2.0, HDMI, RS-232/422/485, CAN bus, and DIDO — the EEP-150N integrates seamlessly with cameras, sensors, PLCs, and existing NVR/automation systems. The platform runs NVIDIA® Linux L4T with optimized BSP, DeepStream, and EAS middleware, accelerating customer time-to-market for vertical AI applications.

Key Features

Processing

- NVIDIA® Jetson™ Orin NX / Orin Nano SOM
- Up to 157 TOPS AI performance (INT8)
- Super Mode (MAXN) 40W at 50°C without throttling

Interfaces

- 2 × GbE Ethernet ports
- 2 × USB 3.2 Gen1 + 2 × USB 2.0 Type A
- 1 × HDMI 1.4 (lockable)
- 2 × DB9 for RS232/422/485
- 1 × DB9 for CAN bus
- 1 × DB25 for DIDO (4 DI / 4 DO)
- Optional Wi-Fi 6 + BT 5.2; LTE expansion via M.2

Mechanical

- Fanless
- Dimension: 70 × 125 × 62.5 mm
- VESA / DIN-Rail / Wall mount options

Software & Ecosystem

- NVIDIA® JetPack 6.2 (Jetson Linux r36.x)
- NVIDIA® DeepStream SDK integration
- Emplus AI Service (EAS) middleware — REST API, MQTT, vector database
- Optional Real-time Linux + 3rd-party EtherCAT framework
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Technical Specification

Item	Specification		
Model	EEP-150N-X16	EEP-150N-X08	EEP-150N-N08
CPU Module	NVIDIA® Jetson™ Orin NX 16GB SOM	NVIDIA® Jetson™ Orin NX 8GB SOM	NVIDIA® Jetson™ Orin Nano 8GB SOM
CPU	8-core Arm® Cortex®-A78AE v8.2 64-bit Max. 2GHz	6-core Arm® Cortex®-A78AE v8.2 64-bit Max. 2GHz	6-core Arm® Cortex®- A78AE v8.2 64-bit Max. 1.5GHz
GPU	1024-core NVIDIA Ampere architecture GPU with 32 Tensor Cores Max. 918MHz	1024-core NVIDIA Ampere architecture GPU with 32 Tensor Cores, Max. 765MHz	1024-core NVIDIA Ampere architecture GPU with 32 Tensor Cores Max. 625MHz
RAM	16GB 256-bit LPDDR5	8GB 256-bit LPDDR5	8GB 256-bit LPDDR5
AI Performance	Up to 157TOPS	Up to 117TOPS	Up to 67TOPS
DL Accelerator	2x NVDLA v2	1x NVDLA v2	NA
Power	10W - 25W, 40W super mode	10W - 20W, 40W super mode	7W-15W, 25W super mode
Storage	M.2 2280 Gen3/4 reserved for NVME SSD, default 256GB		
Power Button	Press once: On/off Long press for 10 seconds: Force to power off:		
Reset Button	Press once: system reset (hole)		
Recovery Button	Long press then push power button(or reset): system will enter recovery mode Long press during operating: system will reset to factory default		
RTC	1 x CR2032 battery		
DIDO	4 x DI(Digital In), 4x DO(Digital Output), 3.3V		
Expansion on PCBA	1 x M.2 M key 2280 for NVME SSD for system image 1 x M.2 M key 2280 for secondary NVME SSD for data storage or LTE module (optional) 1 x M.2 E key 2230 socket for WiFi		
WiFi/BT	802.11a/b/g/n/ac/ax Wireless LAN 2T2R and BT 5.2		
I/O Interface	1x HDMI 1.4 output (Lockable) 2x USB 3.2 Type A & 2x USB 2.0 Type A 2x RJ45, Gigabit ethernet(10/100M/1000M) 2x DB9 for RS422/ RS485/ RS232 combo port 1x DB9 for CAN port 1 x DB25 GPIO (DIx4/ DOx4/ I2Cx1/ SPIx1 / UARTx1(TX/RX)) 1 x DC jack, lockable 1 x power button 1 x reset button (hole) 1 x recovery button (hole) 2 x LED (system/wireless connectivity) 1 x 3.5mm Audio Jack in/out 2x RP-SMA for Wi-Fi		
Power in	12-24V DC in		

Accessory	19V/3.4A, 65W power adapter with power cord; or; 19V/4.5A 90W power adapter with power cord for full I/O load operation (optional)
Fan	Fan-less
Mounting	VESA mounting, DIN-Rail and wall mounting
Dimension	170 x 125 x 62.5 mm
Weight	TBD
Operating Temperature	-20°C to 70°C with 0.7m/s airflow, at 10W -20°C to 60°C with 0.7m/s airflow, at 25W -20°C to 50°C with 0.7m/s airflow, at 40W (Industrial grade SSD is required to support high temperature operation)
Storage Temperature	-40°C ~ +85°C
Storage Humidity	5%~95% @ 40° C (non-condensing)

I/O Ports

Front Panel

- +12~24V DC in, with lockable jack
- 1 x HDMI (lockable)
- 2 x USB3.2 and 2 x USB2.0 type A
- 2 x GbE Ethernet ports
- 1x audio jack
- 2 x LEDs(system and WiFi)
- 1 x reset, 1 x power button



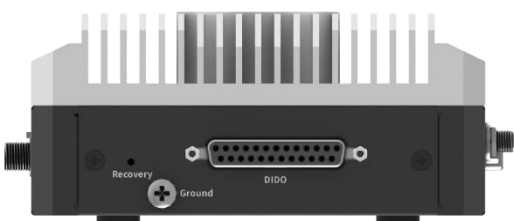
Back Panel

- 2 x DB9 type RS232/422/485 combo port
- 1 x DB9 type CAN port
- 2 x RP-SMA connectors for WiFi

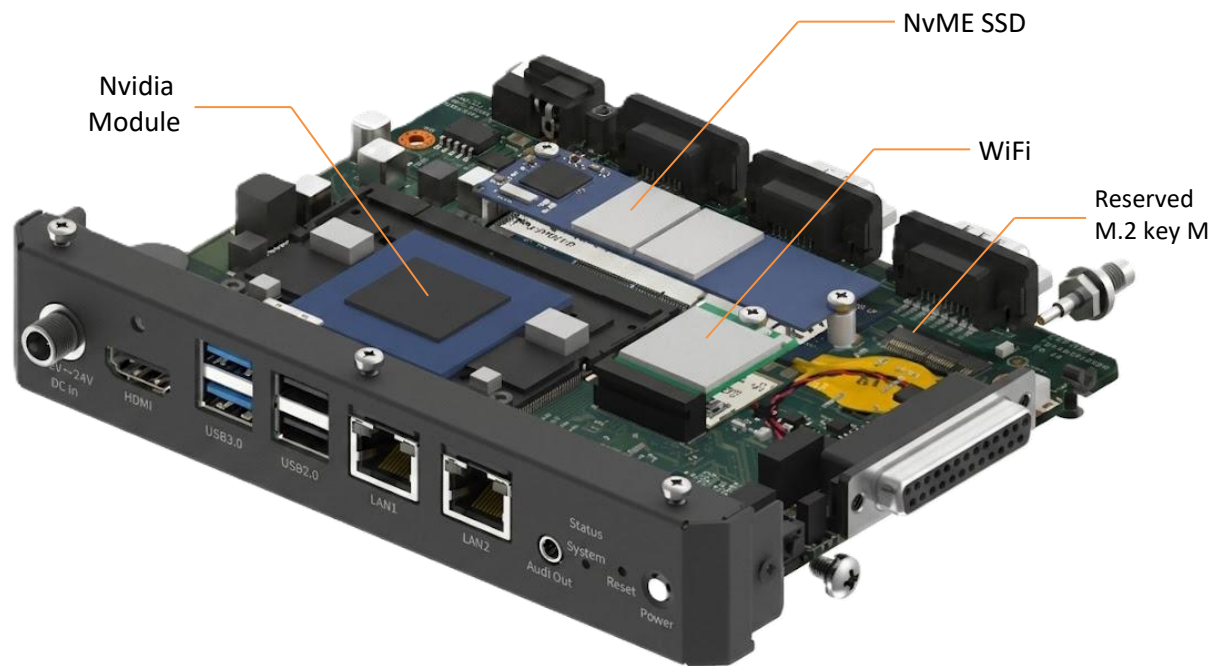


Side Panel

- 1 x recovery button
- 1 x ground skew
- 1 x DB25 type 25-pin self-definition GPIO & DIDO(Digital In/Digital Out)



Internal View



Mounting Scenarios



Accessory



HDMI Cable Lockable



Power Adapter



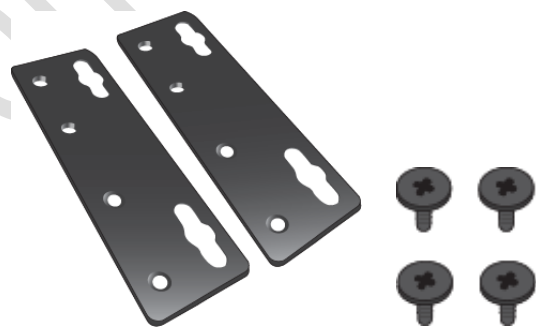
VESA Mount Kit



2.4/5GHz Dual Band 2dBi Wi-Fi Antennas (optional)



DIN Rail Mount Kit (optional)

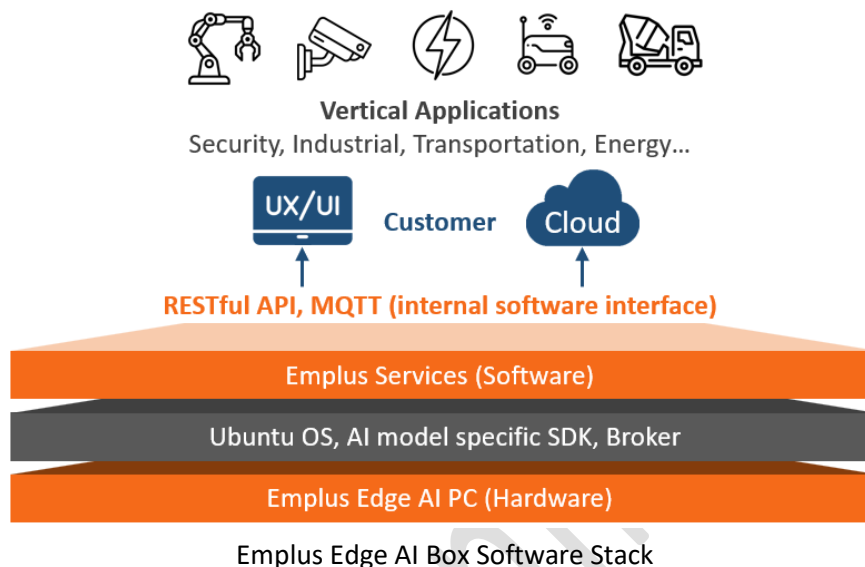


Wall Mount Kit (optional)

Software Architecture

The Emplus Edge AI Box is delivered with a validated NVIDIA® software stack, enabling application-layer development from day one. Kernel, drivers, JetPack, and core SDK components are pre-integrated and verified up to the OS level to ensure system stability and deployment readiness out of the box.

Designed for SIs, ISVs, and robotics developers, the platform provides a production-ready Jetson Linux environment with minimized integration overhead and accelerated development cycles. To support specialized edge AI deployments, the platform delivers vertical-specific OS-level integration and system validation across key domains:



Robotics Systems

- Real-Time Execution: ROS 2 compatibility optimization running on a JetPack PREEMPT_RT kernel
- Bus Communication: Low-latency EtherCAT driver integrated
- System Capabilities: Real-time OS infrastructure designed to support deterministic motion and vision data synchronization
- Integration Value: Reduced low-level BSP engineering effort, allowing developers to focus directly on motion-control application deployment.

AI Vision Infrastructure

- Pipeline Optimization: Foundation for NVIDIA DeepStream-based video analytics, enabling multi-stream video decoding and low-latency inference pipelines.
- EAS Middleware: The Emplus AI Service (EAS) turnkey runtime environment, providing the underlying OS architecture and communication interfaces (REST/MQTT) to support local YOLO inference and vector database deployment.
- Deployment Readiness: A reliable, foundational architecture for building scalable AI surveillance applications.

Emplus delivers an out-of-the-box edge AI middleware that streamlines development and accelerates time-to-market. By unifying model management infrastructure and vector pipeline interfaces into a stable runtime, it provides a highly reliable OS-level platform for developers to build and scale their own domain-specific AI solutions.

Ordering Information

Part No.	Description
CPU	SODIMM
5731A0000018	Nvidia Jetson Orin NX 16GB
5731A0000017	Nvidia Jetson Orin NX 8GB
5731A0000016	Nvidia Jetson Orin Nano 8GB
Storage	M.2 Key M (1st)
7114A0622000	SSD 256GB PCIe Gen3x4
7114A0576000	SSD 2TB PCIe Gen4x4
Extension	M.2 Key M (2nd)
7114A0622000	SSD 256GB PCIe Gen3x4
7114A0576000	SSD 2TB PCIe Gen4x4
Wi-Fi Kits	M.2 Key E
5731A0000008	MODULE WLAN/BT AW-XB547NF, with RF cables
7102A1412000	2.4/5GHz dual band 2dBi antennas (2pcs), black 136mm
Mounting Kits	
6301A7980000	VESA mount kit with screws
6301A7670000	DIN rail kit with screws
6301A7970000	Wall mount kit (2 pcs) with screws
Adapter	
7003A0051000	AC CORD 600mm V44VS331612060N2 US
7101A0675000	ADAPTER 65W DC19V/3.42A AC100~240V 5.5D