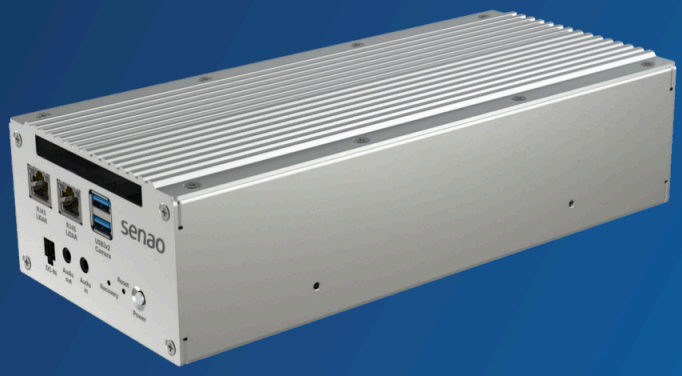
Purpose-built high performance edge AI box for Physical AI

EEP-500T

The EEP-500T platform delivers exceptional AI compute performance with optimized power efficiency, enabling reliable autonomous operation under demanding conditions. Its architecture is engineered to support real-time perception, inference, and control workloads within a compact and deployment-ready system.



SOM
NVIDIA® Jetson AGX Thor™ T5000 SOM

AI Boost
Up to 2070 TFLOPS AI performance (FP4 Sparse)

Performance
Optimized for high-throughput perception, inference, and control workloads

Networking
Rich I/O for robotic use case: 5 x 2.5GbE, 4 x USB 3.2, 1 x HDMI® + 2 x DP1.4a, 2 x RJ45 for CAN, wafer for serial/DIDO

Wireless
Optional LTE / 5G connectivity

Vision
Optional GMSL camera interface

Thermal
Integrated VC (Vapor Chamber) for CPU heat dissipation

Cooling
Active cooling (FAN-integrated) for sustained high-performance operation

Software
ROS and NVIDIA® Isaac platform

Real-Time
EtherCAT® support with Real-time Linux, and 3rd-party EtherCAT framework integration

Technical Specifications

Edge AI Box	
Model Name	EEP-500T Series
Model Number	EEP-500T
Electrical Specifications	
CPU Module	NVIDIA® Jetson AGX Thor™ T5000
CPU	14-core Arm® Neoverse®-V3AE 64-bit CPU
GPU	2560-core NVIDIA® Blackwell architecture GPU with 96 5th-gen Tensor Cores
RAM	128 GB 256-bit LPDDR5X
AI Performance	Up to 2070 TFLOPS (FP4 Sparse)
DL Accelerator	NA
SOM Power Consumption	130W
Storage	Default 1 TB M.2 2280 NVMe SSD (PCIe Gen4.0 x 4)
TPM	TPM2.0
WiFi/BT	802.11a/b/g/n/ac/ax 2.4/5/6 GHz Wireless LAN 2T2R with BT 5.2
Cellular	(Optional) LTE/5G support
Power Button	Press once: On/off Long press for 10 seconds: Force to power off
Reset Button	Press once: system reset (hole)
Recovery Button	Press and hold, then push reset button to enter recovery mode
RTC	1 x CR2032 RTC Battery
DIDO	4 x DI(Digital In), 8 x DO(Digital Output), 3.3V
Interfaces	
Expansion on PCBA (Internal)	1 x M.2 M key 2280 for NVMe SSD for system image 1 x M.2 E key 2230 socket for Wi-Fi 1 x M.2 B key 2280 for LTE/5G 1 x B2B connector reserved for GMSL
HDMI	1 x HDMI® 1.4 output (Lockable) 2 x DP1.4a
USB	4 x USB3.2 Gen1 (5 Gbps) Type A & 1 x USB2.0 Type C
Ethernet	5 x RJ45, 2.5GbE Ethernet

Technical Specifications

Edge AI Box	
Model Name	EEP-500T Series
Model Number	EEP-500T
CAN	2 x RJ45 for 2 x CAN Bus
Serial	1 x wafer for RS232/422/485
DIDO	1 x wafer, 4 x DI, 8 x DO
SIM	Optional 1 x nano/4FF SIM slot
DC	1 x Micro-fit 4-pin
Power Button	1 x power button
Reset Button	1 x keyhole
Recovery Button	1 x keyhole
LED	2 x LED (system/wireless connectivity)
Audio	2 x 3.5 mm audio jacks for in & out
Antenna Connector	N/A (antenna connectors on the wireless modules)
Fan	Fan-integrated
Environmental & Physical	
Power in	18–56V DC in
Operating Temperature	-20–50°C with fan
Storage Temperature	-40–85°C
Storage Humidity	5–95% RH at 40°C, non-condensing
Dimensions & Weight	
Dimension	253 x 113 x 60 mm
Weights	Weight: Approx. 5.29 lb (2.4 kg) Length: 9.96 in (253 mm) Width: 4.45 in (113 mm) Height: 2.36 in (60 mm)
Package Contents	Power adapter 54V/4.44A 240W Power cord Wall mount kit

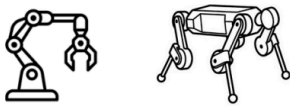
Technical Specifications

Edge AI Box	
Model Name	EEP-500T Series
Model Number	EEP-500T
Compliance	
Certification	Certification pending
Software	
NVIDIA® SDK	NVIDIA® JetPack 7.2.1
OS	NVIDIA® L4T r39.2
EtherCAT	Real-time Linux supported & 3rd party EtherCAT framework integration

Hardware Overview

EEP-500T (Edge AI Box)

Software Stack



Robotic System	AI Surveillance	AMR	ADAS/DMS
Sim-to-Real Domain Calibration VLA Generative Task Orchestration Full-Body Motion & Safety Logic	Natural Language Video Search Real-Time VLM for Scene Description AI-Driven Behavioral & Predictive Threat	Navigation & Fleet Apps Custom SLAM & Localization WMS / Factory Integration Route Execution & Logic	Advanced Driver Assistant System(ADAS), Driver Monitoring Systems (DMS) & Fleet Management Remote Tracking & Safety Apps, Vehicle Diagnostics Software
Optimized ROS 2 & Real-Time Kernel Bridges EtherCAT Data Gateway API	AI Vision/Models, Object detection AI Search Database RESTful API, MQTT	Sensor fusion interfaces Path planning Odometry & APIs	Telematics & Vision CAN / CAN FD Stacks Telemetry Parsing Video Encoders
OS: Nvidia L4T Nvidia AI SDK · CUDA · TensorRT · Isaac ROS			
BSP: Bootloader, Secure Boot, Drivers (Ethernet, CAN FD, PCIe, and all board ICs) Linux-RT (PREEMPT_RT) Kernel			
Emplus Edge AI Hardware			

Customer | Emplus | Nvidia

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