

IBOX-650P-T1

NVIDIA® Jetson AGX Orin™ 64GB Fanless Edge AI Computer



- NVIDIA® Jetson AGX Orin™ 64GB SoM with 2048 CUDA Cores
- 100/1000BASE-T1 Automotive Ethernet Support
- 4 x GMSL-2 Cameras Support
- 1 x 10GbE for High-Speed Data Transmission
- 2 x Ethernet with PoE Support
- Optional Backup Battery for Emergency

Edge AI Application



2 x CAN FD for Vehicle Connection
For data communication of vehicle equipment



2 x 2.5 GbE for IP Camera
For high-resolution image capture or LiDAR connections



Wide Range Power Input
9~60V DC Input with Smart Power Management



1 x 10GbE for High-Data Transmission
High-speed network for local-server connection or backbone network communication



2 x USB 3.2 for Camera / Sensor
High-speed data transfer rate for a variety of IoT devices connections or external storage applications



GMSL-2 for Vehicle Cameras Connection
4 x FAKRA connectors provide robust vehicle camera connections

1 x H-CMTD for Automotive
1 x 100/1000BASE-T1 for modern vehicle devices and the system integration

Specifications

System

Module

- NVIDIA® Jetson AGX Orin™ 64GB (2048 CUDA cores + 12-core ARM Cortex-A78AE CPU + 64 GB LPDDR5)
- NVIDIA® Jetson AGX Orin™ 32GB (1792 CUDA cores + 8-core ARM Cortex-A78AE CPU + 32 GB LPDDR5)

Network

- 1 x Marvell® T1, 1 x Marvell® Industrial 10GbE, 2 x Intel® 2.5GbE

Security

- Platform Security Controller (PSC), Security Engine (SE)

Watchdog

- The self-reset mechanism for unresponsive system

Interface

Video

- 1 x HDMI Type-A connector for video output

Audio

- 1 x HD Audio from the HDMI

Ethernet

- 1 x H-CMTD T1 connector, 3 x M12 X-coded connectors (Phoenix Contact®)

PoE

- 2 x IEEE 802.3at PoE PSE Class 4 (30 watts)

Camera

- 4 x GMSL-2 via FAKRA connectors

CAN

- 2 x CAN FD via M8 connector

USB

- 2 x USB Type-A connector for USB 3.2

Serial Port

- 1 x RS-232/422/485 via M12 connector

Mgmt. Port

- 1 x USB type-C for system recovery (device only)

Antennas

- 7 x Antenna holes

Internal Expansion

M.2

- 1 x M.2 3042/52 Key B supports WWAN w/ a Nano SIM
 - 1 x M.2 2230 Key E supports Wi-Fi/BT
- mPCIe**
- 1 x mPCIe Full-size (USB 2.0 supported)

Storage

Type

- 1 x Internal 64GB eMMC (Pre-installed system BSP)
- 1 x M.2 2280 Key M supports NVMe SSD

Power

Power Input

- DC 9V-60V for 12/24/48V via M12 K-coded connector (Phoenix Contact®)

Power Protection

- OCP, OVP, Surge Protection, and Reversed Polarity Protection

Power Management

- Supports Smart Power Management

RTC Battery

- High-capacity coin cell battery for RTC

Battery (UPS)

- Backup battery for system power backup

Software

Operating System

- NVIDIA® JetPack 5.1.3 above, including Jetson Linux, and NVIDIA® development tools

Environmental

Operating Temp.

- -25°C ~ 70°C (-13°F ~ 158°F), with SSD, ambient w/ air flow 0.6m/s (ONX8 model)

Storage Temp.

- -40°C ~ 80°C (-40°F ~ 176°F)

Relative Humidity

- 10% RH – 90% RH (non-condensing)

Vibration (with SSD)

- Random - IEC60068-2-64, random, 2.5G@5~500Hz, 1hr/axis
- MIL-STD-810H - Method 514.8, Procedure I, Category 4

Shock (with SSD)

- MIL-STD-810H - Method 516.8, Procedure I, trucks and semi-trailers=15G (11ms) with SSD

Certification / Standard

- CE, FCC Class A, UKCA, E-mark, EN50155, EN45545-2 (R25)

Mechanical

Construction

- Aluminum Alloy

Mounting

- Wall-mount

Weight

- 5.00 kg

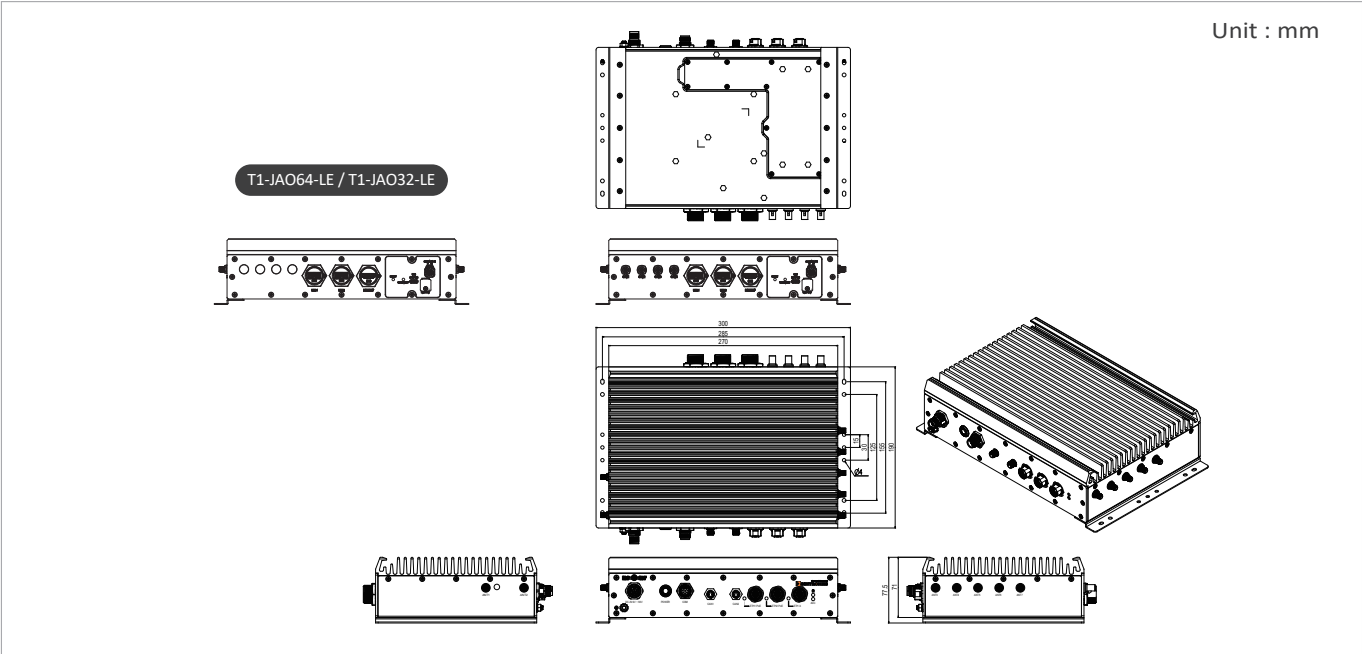
Dimensions

- 300 (L) x 190 (W) x 77.5 (H) mm (11.9 x 7.5 x 3.06 inch)

Ingress Protection

- IP40

Dimensions



Ordering Information

Model Number	IBOX-650P-T1-01-JAO64	NVIDIA® Jetson AGX Orin™ 64GB / 1 x T1 / 1 x 10GbE / 2 x PoE / 4 x GMSL-2
	IBOX-650P-T1-01-JAO32	NVIDIA® Jetson AGX Orin™ 32GB / 1 x T1 / 1 x 10GbE / 2 x PoE / 4 x GMSL-2
	IBOX-650P-T1-JAO64-LE	NVIDIA® Jetson AGX Orin™ 64GB / 1 x T1 / 1 x 10GbE / 2 x PoE
	IBOX-650P-T1-JAO32-LE	NVIDIA® Jetson AGX Orin™ 32GB / 1 x T1 / 1 x 10GbE / 2 x PoE
Description	NVIDIA® Jetson AGX Orin™ 64GB SoM w/ 1 x T1 / 1 x 10GbE / 2 x 2.5GbE / 2x PoE / 4 x GMSL-2 / 2 x CAN FD / DC 9-60V / Edge AI Computing	
State of Origin	Made in Taiwan	

* The system BSP is pre-installed in the internal 64GB eMMC.
Jetson Orin SoM Lifecycle is available through January 2032.

Optional Accessories

Storage	M.2 2280 NVMe SSD 240GB / 480GB / 960GB
Wi-Fi	M.2 2230 Wi-Fi Module
WWAN	M.2 3042/52 WWAN Modem
GNSS	mPCIe GPS Module
Battery (UPS)	BAT-2300v2 (Operating Temp. : -10°C ~ 60°C (-4°F ~ 140°F))
Power Adapter	150W 100-240VAC to 12VDC Power Adapter
Camera*	SINTRONES - VCM-1020G2 Series (Sony IMX390 2MP, 63.9°, GMSL-2, 63.9°/120°/186°)
	Stereolabs - ZED X Stereo
	e-con System - STURDeCAM25 / e-con System - STURDeCAM81
	oToBrite - otoCAM223 / oToBrite - otoCAM260

*BSP versions may vary depending on supported GMSL cameras.

All specifications are subject to change without notice.