

IBOX-650P-M12X-IP65

NVIDIA® Jetson AGX Orin Fanless Intelligent Computer



- ARM® Cortex®-A78AE 12-core Processor (Jetson AGX Orin™ 64GB)
- 2048 NVIDIA CUDA® Core, 64 Tensor Cores
- 2 x CAN FD for Vehicle Applications
- 3 x M.2 Slots for Wi-Fi / WWAN / SSD Expansion
- IP65 Design for Harsh Environment
- GMSL Cameras Support
- Wide-range Power Input 9~60VDC with Smart Power Management
- Wide-range Operating Temperature -25°C~70°C

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



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



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



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



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



Specifications

System

Module

- NVIDIA® Jetson AGX Orin™ 64GB - 275 TOPS (2048 CUDA® cores GPU + 12-core Arm Cortex-A78AE CPU + 64 GB LPDDR5)
- NVIDIA® Jetson AGX Orin™ 32GB - 200 TOPS (1792 CUDA® cores GPU + 8-core Arm Cortex-A78AE CPU + 32 GB LPDDR5)

Network

- Marvell® Industrial 10GbE, Intel® Industrial 2.5GbE

Security

- Security Boot, Arm TrustZone

Interface

Ethernet

- 1 x 10GbE, 2 x 2.5GbE with / IEEE 802.3af PoE PSE Class 3 (15.4 watts) (3 x Phoenix Contact® M12 X-coded connectors)

USB

- 2 x USB 3.2 w/ M12 type connector

Video

- 1 x HDMI 2.1 output w/ M12 type connector

Audio

- 1 x HD Audio output from the HDMI

Serial Port

- 1 x RS-232/422/485 w/ M12 A-coded connector

CAN Bus

- 2 x CAN FD w/ M8 type connectors

Mgmt. Port

- 1 x USB Type-C for System Recovery (Device only)

Camera

- 4 x GMSL interface w/ FAKRA connectors

SIM Card

- 1 x Nano SIM card slot

Internal Expansion

M.2 Slot

- 1 x M.2 3042/52 Key B slot (USB3.0) with a Nano SIM Card Slot
- 1 x M.2 2230 Key E slot

* Thermal solution is required for M.2 5G Module

mPCIe Slot

- 1 x mPCIe Full size slot (USB.2.0 supported)

Storage

Type

- 1 x 64GB eMMC (Built-in within SoM)
- 1 x M.2 2280 Key M slot supports NVMe SSD

Power

Supply Voltage

- 1 x DC-IN 9~60V (1 x Phoenix Contact® M12 K-coded connector)

Power Protection

- OCP, OVP, Surge and Reversed Polarity Protection

Power Management

- Ignition Detection with Smart Power Management

Software

Operating System / BSP

- NVIDIA® JetPack including Jetson Linux, CUDA Toolkit, TensorRT, cuDNN

Environmental

Operating Temp.

- 25°C ~ 70°C w/0.6 m/s airflow (for barebone system)
- *Operating Temp. Varies by Accessories Installed.

Storage Temp.

- 40°C ~ 80°C

Relative Humidity

- 10% RH – 90% RH (non-condensing)

Vibration (with SSD)

- MIL-STD-810G, Method 514.6, Procedure I, Cat.4 (Operating)
- IEC60068-2-64, random, 2.5G@5~500Hz, 1hr/axis

Shock (with SSD)

- MIL-STD-810G, Method 516.6, Procedure I, Trucks and semi-trailers=15G (11ms) with SSD (Operating)

Certification / Standard

- CE, FCC Class A, E-Mark, ECE R118, EN50155*, EN45545-2 (R25) *On going

Mechanical

Construction

- Aluminum Alloy

Ingress Protection

- IP65

Thermal Design

- Fanless Passive Cooling

Mounting

- Wall-mount

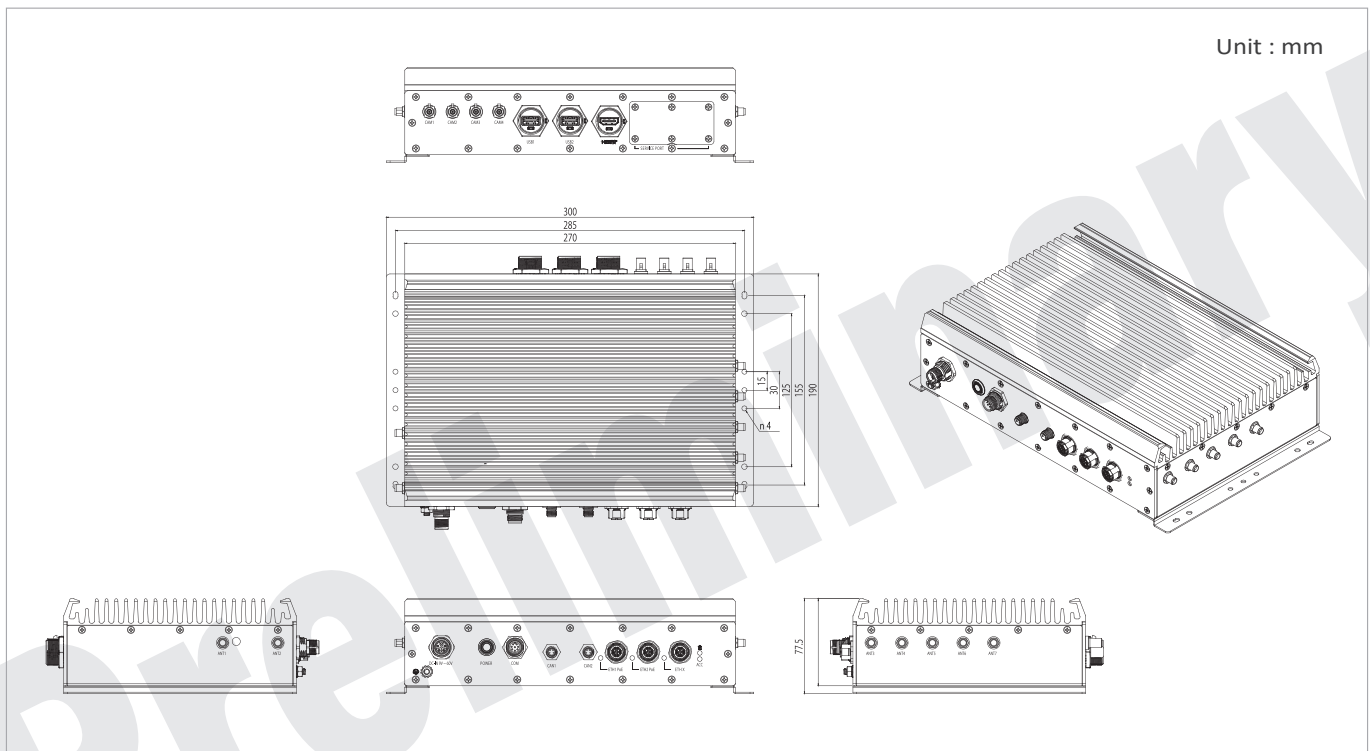
Weight

- 5100 g

Dimensions

- 300 (L) x 190 (W) x 77.5 (H) mm

Dimensions



Ordering Information

Model Number	IBOX-650P-M12X-IP65-JAO64-S1T	NVIDIA Jetson AGX Orin 64GB / SSD 960GB / GMSL / IP65 / Model M12X
	IBOX-650P-M12X-IP65-JAO64-S05	NVIDIA Jetson AGX Orin 64GB / SSD 480GB / GMSL / IP65 / Model M12X
	IBOX-650P-M12X-IP65-JAO32-S05	NVIDIA Jetson AGX Orin 32GB / SSD 480GB / GMSL / IP65 / Model M12X
	IBOX-650P-M12X-IP65-JAO64*	NVIDIA Jetson AGX Orin 64GB / GMSL / IP65 / Model M12X
	IBOX-650P-M12X-IP65-JAO32*	NVIDIA Jetson AGX Orin 32GB / GMSL / IP65 / Model M12X
Description	NVIDIA® Jetson AGX Orin™ w/ 1x 10GbE / 2x 2.5GbE / 1x HDMI / 2x CAN FD/ DC 9-60V/ Intelligent Computer	
State of Origin	Made in Taiwan	

* Without an external NVMe SSD, the Jetpack will be pre-installed in the internal 64GB eMMC
Jetson Orin SoM Lifecycle is available through January 2030.

Optional Accessories

Wi-Fi	M.2 2230 Wi-Fi Module
WWAN Modem	M.2 3042/52 WWAN Modem
GNSS	mPCIe GPS Module

All specifications are subject to change without notice.