

IBOX-601-M12X

NVIDIA® Jetson Orin NX Fanless Edge AI Computer



- NVIDIA® Jetson Orin™ NX SoM with 1024 CUDA Cores
- 4 x GMSL Cameras Support
- 2 x Ethernet with M12 Connectors
- 1 x CAN FD for Vehicle Connection
- 9-60VDC Input with Built-in Smart Power Management
- -25~ 70°C Operating with Fanless Design
- Optional Backup Battery for Emergency

Edge AI Application



CAN FD

Enables In-Vehicle Networking



Wide Range Power Input

9~60V DC Input with Smart Power Management



2.5 GbE + GbE

M12 Connector for Robust Connection
Connect to PoE Switch or LiDAR



GMSL

Connect to GMSL cameras for real-time video capture



Dual USB 3.2

High Speed Connection for Cameras or Sensors

Specifications

System

Module

- NVIDIA® Jetson Orin™ NX 16GB - 100 TOPS (1024 CUDA cores + 8-core ARM Cortex-A78AE CPU + 16 GB LPDDR5)
- NVIDIA® Jetson Orin™ NX 8GB - 70 TOPS (1024 CUDA cores + 6-core ARM Cortex-A78AE CPU + 8 GB LPDDR5)

Network

- Intel® 2.5GbE, SoM Built-in GbE

Security

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

Interface

Ethernet

- 2 x M12 X-coded for 1 x 2.5GbE & 1 x GbE

USB

- 2 x USB 3.2 Type-A * Two ports share 10Gbps bandwidth

Video

- 1 x HDMI 2.1 output supports 4K resolution

Audio

- 1 x HD Audio from the HDMI

Serial Port

- 1 x DB-9 for RS-232/422/485

Camera Port

- 4 x FAKRA for GMSL-2 cameras

CAN Bus

- 1 x DB-9 for CAN FD

GPIO

- 1 x DB-9 for 4 x DI / 4 x DO

Mgmt. Port

- 1 x USB Type-C for system recovery (Device only)

SIM Card

- 1 x Nano SIM card slot

Antenna

- 5 x Pre-cut holes for external SMA antenna

Internal Expansion

M.2 Slot

- 1 x M.2 2230 Key E slot
- 1 x M.2 3042/52 Key B slot with nano SIM card slot

mPCIe Slot

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

Storage

Type

- 1 x M.2 2280 Key M slot supports NVMe SSD (Pre-installed system BSP)

Power

Supply Voltage

- 1 x M12 K-coded for DC-IN 9 ~ 60V
- Supports Smart Power Management, OCP and OVP

RTC Battery

- High-capacity coin cell battery for RTC

UPS (Option)

- Backup battery for system power backup

Software

Operating System / BSP

- NVIDIA® JetPack including Jetson Linux, NVIDIA® development tools

Environmental

Operating Temp.

- 25°C ~ 70°C (-13°F ~ 158°F), ambient w/ 0.6m/s airflow
- * Operating temp. varies by accessories installed.

Storage Temp.

- -40°C ~ 80°C (-40°F ~ 176°F)

Relative Humidity

- 10% RH – 90% RH (non-condensing)

Vibration

- Random - IEC60068-2-64, random, 2.5G@5~500Hz, 1hr/axis
- MIL-STD-810G - Method 514.6, Procedure I, Category 4

Shock

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

Certification / Standard

- CE, FCC Part-15 Class A, E-mark, EN50155, EN45545-2 (R25)

Mechanical

Construction

- Aluminum alloy

Thermal Design

- Fanless passive cooling design

Mounting

- DIN-rail, Wall-mounting

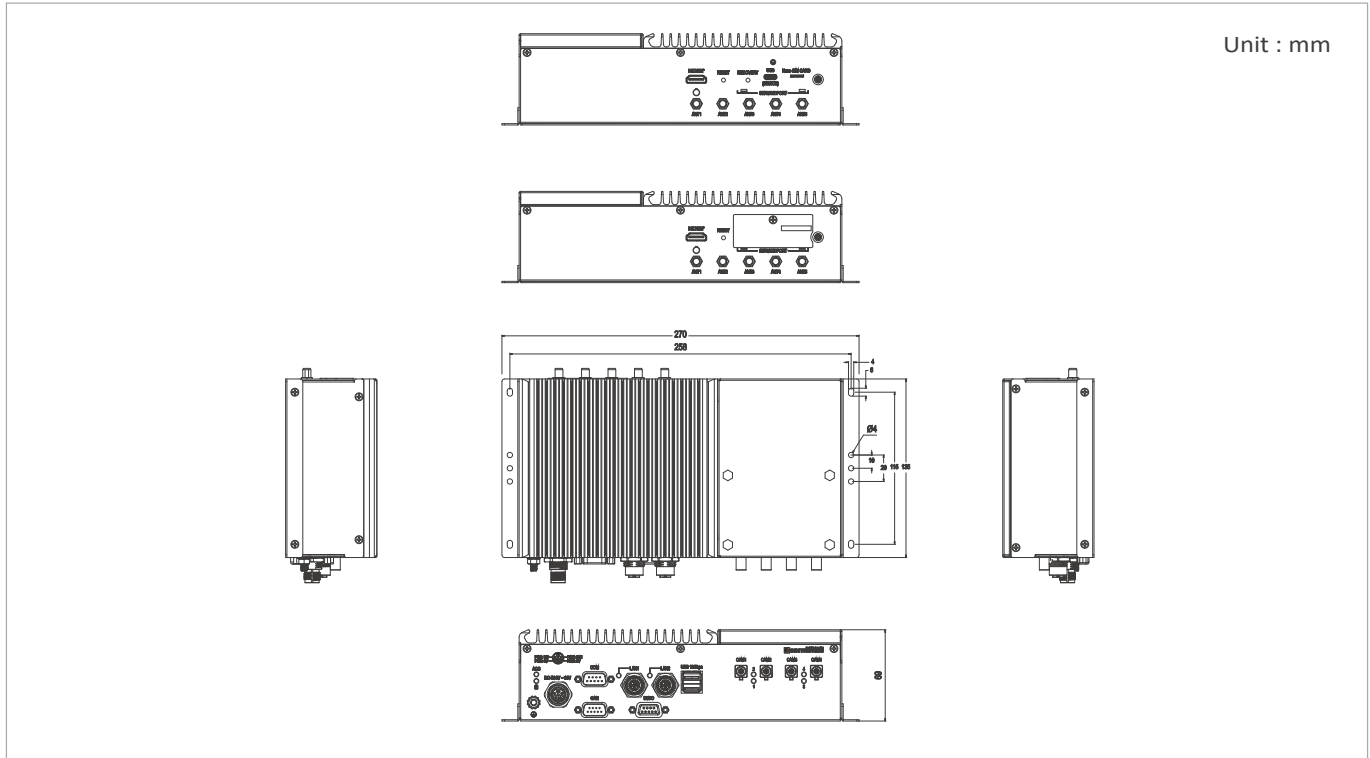
Weight

- 1870 g (TBC)

Dimensions

- 270.2 mm (L) x 270.2 mm (W) x 69 mm (H)

Dimensions



Ordering Information

Model Number	IBOX-601-M12X-00-ONX16-S05	NVIDIA® Jetson™ Orin NX 16GB / 480GB SSD / Model M12/ 4x FAKRA / 4-CH GMSL x1
	IBOX-601-M12X-00-ONX8-S05	NVIDIA® Jetson™ Orin NX 8GB / 480GB SSD / Model M12 / 4x FAKRA / 4-CH GMSL x1
	IBOX-601-M12X-01-ONX16-S1T	NVIDIA® Jetson™ Orin NX 16GB / 960GB SSD / Model M12 / 4x FAKRA / 2-CH GMSL x2
	IBOX-601-M12X-01-ONX16-S05	NVIDIA® Jetson™ Orin NX 16GB / 480GB SSD / Model M12 / 4x FAKRA / 2-CH GMSL x2
	IBOX-601-M12X-01-ONX8-S05	NVIDIA® Jetson™ Orin NX 8GB / 480GB SSD / Model M12 / 4x FAKRA / 2-CH GMSL x2
Description	NVIDIA® Jetson Orin NX SoM w / 2x LAN / 1x HDMI / 1x CAN bus / 4x GMSL DC 9-60V / Intelligent Computer	
State of Origin	Made in Taiwan	

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		
GPS	mPCIe GPS Module		
UPS	BAT-2300v2		
GMSL Camera	2MP 63.9°	Sony IMX390 2MP, 63.9°, GMSL-2	IBOX-601-M12X-00 IBOX-601-M12X-01 Supported
	2MP 73.0°	Sony IMX390 2MP, 73.0°, GMSL-2	
	2MP 120.6°	Sony IMX390 2MP, 120.6°, GMSL-2	
	2MP 186.0°	Sony IMX390 2MP, 186.0°, GMSL-2	
	5.3MP 30.0°	Sony IMX490 5.3MP, 30.0°, GMSL-2	IBOX-601-M12X-01 Supported

All specifications are subject to change without notice.