

# IBOX-604-G2

## NVIDIA® Jetson Orin™ Lightweight AI Drone Computer



- NVIDIA® Jetson Orin™ NX SoM with 1024 CUDA Cores
- 10-60VDC Input Supports 3S-14S Lithium Battery
- 2 x GMSL-2 Cameras Support
- Lightweight Compact Design
- Built-in 3-axis Accelerometer

## Edge AI Application



### 2 x USB for GNSS or USB Peripherals

High-precision GNSS modules or other peripherals connection.



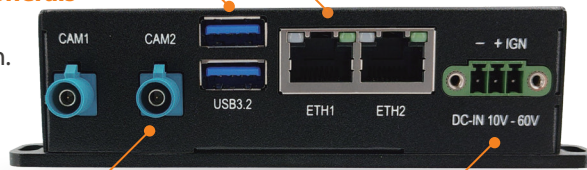
### 2 x Ethernet for High-speed Data Transmission

- 1 x 2.5GbE for the data transmission between the drone system
- 1 x GbE for high-resolution sensor or LiDAR connections



### 2 x GMSL-2 for Cameras

For quick-response, high-resolution video capture.



### CAN FD/RS-232/UART for Drone System Communication

Offers multiple interfaces for the drone control system communication.



### 10-60VDC for 3S-14S Battery System

Supports 11V~58VDC input voltage with a power protection mechanism.

## Specifications

### System

#### Module

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

#### Security

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

#### Watchdog

- Auto reset for unresponsive system

#### Sensor

- Built-in 3-axis accelerometer

### Internal Expansion

#### M.2

- 1 x M.2 3042/3052 Key B for WWAN w/ dual SIM support
- 1 x M.2 2230 Key E for Wi-Fi/BT

### Storage

#### Type

- 1 x M.2 2242 Key M for NVMe SSD

### Power

#### Power Input

- DC 10-60V (nominal power input DC 11V/22V/58V) via 3-pin terminal block

#### Power Protection

- OCP, OVP, surge protection, reversed polarity protection

#### Power Management

- Ignition detection, Smart Power Management

#### RTC Battery

- Built-in RTC coin cell battery

### Interface

#### Video

- 1 x HDMI® Type-A output

#### Audio

- 1 x HD audio output via HDMI®

#### Ethernet

- 1 x 2.5GbE (Intel® I226-IT) via RJ-45
- 1 x GbE (NVIDIA SoM) via RJ-45

#### Camera

- 2 x GMSL-2 via FAKRA

#### CAN

- 1 x CAN FD

#### USB

- 2 x USB 3.2

#### DIO

- 1 x DI, 1 x DO, I2C (optional SKU)

#### GPIO

- 1 x UART w/ 3.3VDC (connector shared with CAN FD)

#### COM

- 1 x RS-232/422/485

#### Mgmt. Port

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

### Software

#### Operating System

- NVIDIA® JetPack 6.2 or above (Jetson Linux and NVIDIA® development tools included)

### Certification / Compliance

- CE, FCC Class A, UKCA, IEC 62368-1

**Environmental**

**Operating Temp.**

- ONX16: -25°C ~ 50°C (-13°F ~ 122°F) with 0.6 m/s airflow
- ONX8/ON8: -25°C ~ 55°C (-13°F ~ 131°F) with 0.6 m/s airflow

\*Operating temperature varies by accessories installed.

\*\* SoM performance may vary with installation method at high operating temperatures.

**Storage Temp.**

- -40°C ~ 80°C (-40°F ~ 176°F)

**Relative Humidity**

- 10% RH ~ 90% RH (non-condensing)

**Vibration (with SSD)**

- MIL-STD-810H, Method 514.8, Procedure I, Cat.4 (Operating)
- IEC60068-2-64, random, 2.5G@5~500Hz, 1hr/axis

**Shock (with SSD)**

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

**Mechanical**

**Construction**

- Aluminum Alloy

**Antenna**

- 3 x SMA connector mounting hole

**Mounting**

- Wall mounting

**Net Weight**

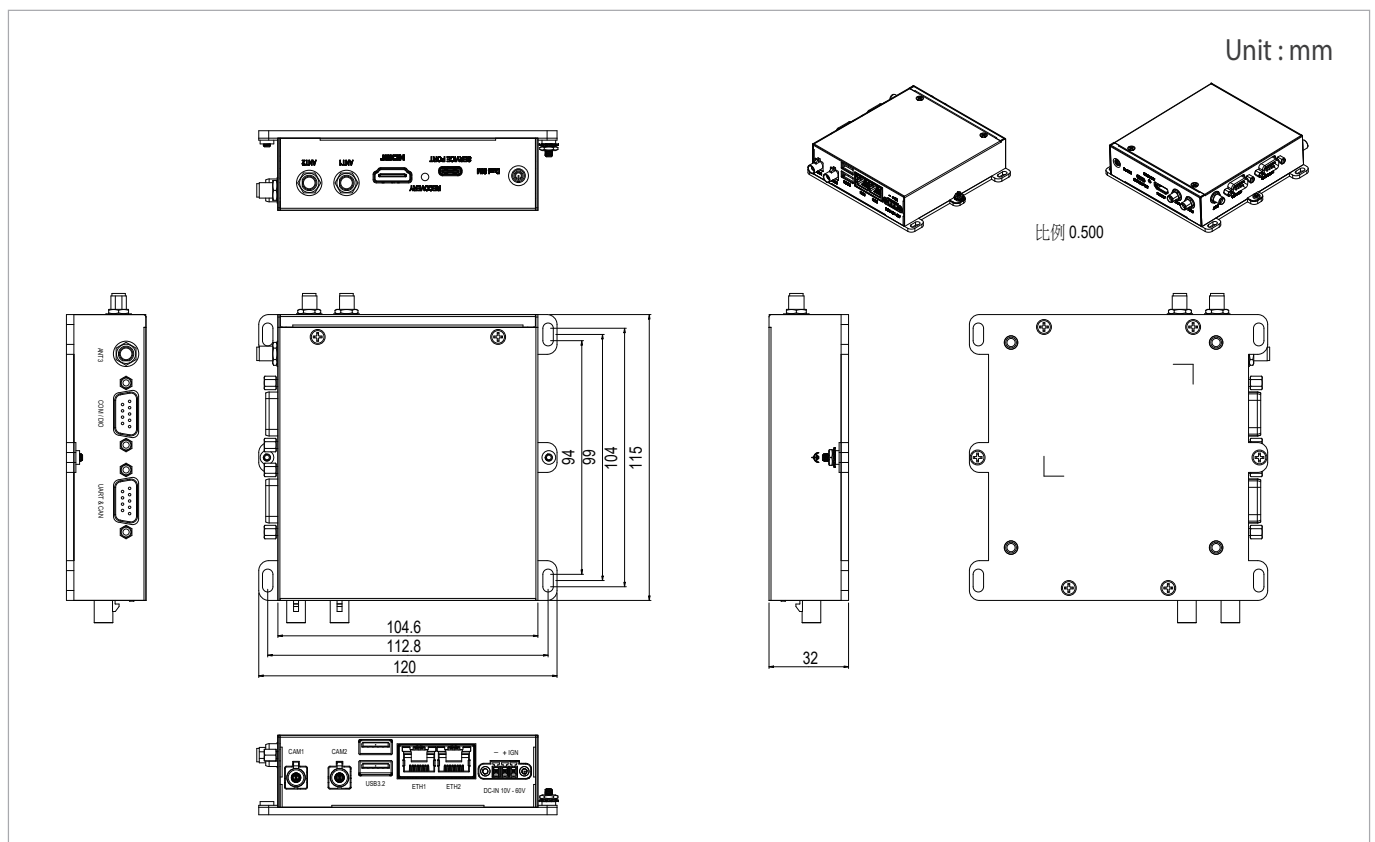
- < 339 g (Excluding enclosure)

\*Included enclosure (1 x SoM, 2 x DB-9 cable)

**Dimensions (L x W x H)**

- 120 x 115 x 32 mm (4.73 x 4.53 x 1.26 in.)

**Dimensions**



**Ordering Information**

Model Number	IBOX-604-G2-ONX16	NVIDIA® Jetson Orin™ NX 16GB / 2 x GMSL-2 / 1 x CAN FD / 1 x UART
	IBOX-604-G2-ONX8	NVIDIA® Jetson Orin™ NX 8GB / 2 x GMSL-2 / 1 x CAN FD / 1 x UART
	IBOX-604-G2-ON8	NVIDIA® Jetson Orin™ Nano 8GB / 2 x GMSL-2 / 1 x CAN FD / 1 x UART
Description	NVIDIA® Jetson Orin™ NX SoM w/ 2 x GMSL / 1 x CAN FD / 1 x UART Lightweight 10-60VDC AI Drone Computer	
State of Origin	Made in Taiwan	

**Optional Accessories**

Storage	M.2 2242 Key M NVMe SSD -40°C ~ 85°C
Wi-Fi (for option SKU)	M.2 2230 Key A-E Wi-Fi module, -40°C ~ 85°C
WWAN	M.2 3042/3052 Key B WWAN module, -40°C ~ 85°C
GNSS	M.2 2242 Key B / M.2 2230 Key A-E GNSS module, -40°C ~ 85°C
Power Adapter	AC/DC 100-240V/12V 60W C14 DC plug power adapter

## Supported Camera List

Brand	Camera Part Number	IBOX-601-M12X-00 IBOX-601-G2-00	IBOX-601-M12X-01 IBOX-601-G2-01	IBOX-602P-IP66-01
oToBrite	oToCAM264ISP Series (2MP, Sony IMX390)	V (4)	V (4)	V (2)
oToBrite	oToCAM260ISP Series (5.36MP, Sony IMX490)	V (4)	V (4)	V (2)
oToBrite	oToCAM223 Series (2.95MP, Sony ISX031)	V (4)	V (4)	V (2)
e-con Systems	STURDeCAM25 (2MP, Omsemi AR0234CS)	-	V (4)	V (2)
e-con Systems	STURDeCAM31 (3MP, Sony ISX031)	-	V (4)	V (2)
e-con Systems	STURDeCAM81 (8MP, Omsemi AR0821)	-	V (4)	V (2)
StereoLabs	ZED X Stereo (Dual 2MP)	Tested	V (2)	V (2)*
StereoLabs	ZED X One 4K (8.2MP)	-	V (4)	V (2)

Brand	Camera Part Number	IBOX-604-G2	IBOX-650P-IP66-01	IBOX-650P-T1-01
oToBrite	oToCAM264ISP Series (2MP, Sony IMX390)	V (2)	V (4)	V (4)
oToBrite	oToCAM260ISP Series (5.36MP, Sony IMX490)	-	V (4)	V (4)
oToBrite	oToCAM223 Series (2.95MP, Sony ISX031)	V (2)	V (4)	V (4)
e-con Systems	STURDeCAM25 (2MP, Omsemi AR0234CS)	V (2)	V (4)	V (4)
e-con Systems	STURDeCAM31 (3MP, Sony ISX031)	V (2)	V (4)	V (4)
e-con Systems	STURDeCAM81 (8MP, Omsemi AR0821)	V (2)	V (4)	V (4)
StereoLabs	ZED X Stereo (Dual 2MP)	V (1)	V (2)	V (2)
StereoLabs	ZED X One 4K (8.2MP)	V (2)	V (4)	V (4)

V: Supported  
(n): Maximum number of camera connections