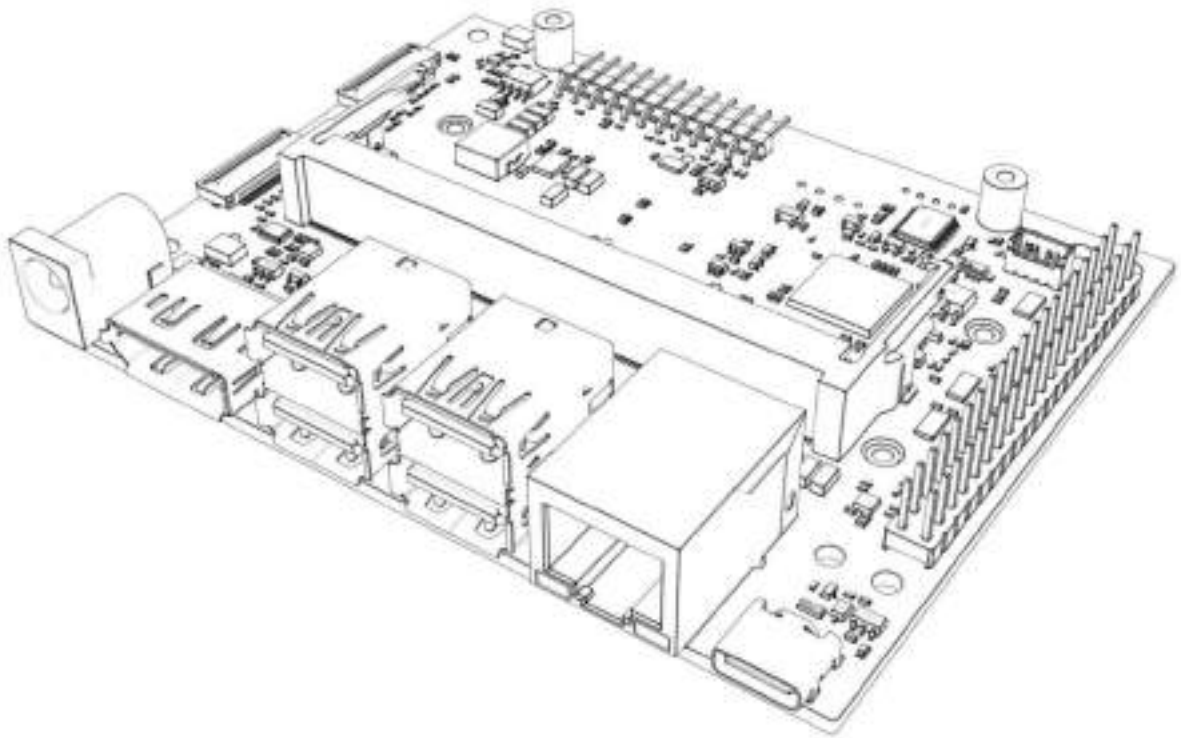


YC-N1902

Jetson Orin Nano/NX Carrier Board Specification V1.1



Product Use Precautions

- Use the interfaces and power cable harness as instructed to avoid damaging the cables or board.
- Before use, check the power cable harness for aging or damage. Replace it if either is found.
- Operate within the specified conditions, including voltage and temperature. The customer is responsible for losses caused by improper operation.
- Secure the board correctly and use screws that meet the requirements to avoid board damage.
- Disconnect power immediately if sparks, smoke, a burning smell or any other abnormality occurs after power-on.

Product Overview

YC-N1902 is a carrier board developed for Jetson Orin Nano and Orin NX modules. Based on the reference design, it fully supports the functions of the official developer kit, including full-speed USB 3.0 and Type-C interfaces.

Product Features

- Based on the original design, with the same interface functions; Developer Kit firmware can be flashed directly.
- Fully supports Orin Nano 4GB/8GB and Orin NX 8GB/16GB.
- High-quality 8-layer ENIG PCB, all-MLCC capacitors and gold-plated connectors.
- Supports NVMe SSDs and M.2 wireless network cards.

Revision History

Version	Date	Notes
V1.0	2024 Q3	Initial release of YC-N1902.
V1.1	2025 Q1	1. Fixed a GPIO issue that made pins 12, 35, 38 and 40 unavailable with the original device tree. 2. Added SUPER mode support for all Orin Nano/NX models.
V1.1.1	2025 Q2	Changed the DC input jack from DC5521 to DC5525.

Product Specifications

Parameter	Specification
Input voltage	12V (9-19V supported)
Operating temperature	0°C to 45°C
Supported modules	Orin Nano 4GB/8GB Orin NX 8GB/16GB
Power connector	DC5525
Ethernet	1x Gigabit Ethernet (RJ45)
Wireless network card	1x M.2 Key E
Storage expansion	2x M.2 Key M (NVMe SSD)
Display	1x DP V1.2
USB	4x USB 3.2 (10Gbps)
USB-C	1x Type-C (USB 3.0)
Camera interface	2x CSI-22P
Other interfaces	Same as the original board
RTC battery	Supported
PoE power	Not supported

- The board supports 12V power (9-19V). Use a power supply with sufficient capacity for stable operation. Improve cooling when input voltage exceeds 15V under heavy load.

- Reverse-polarity protection is provided, but power must never be connected in reverse.

- The combined maximum output current of each USB port group is 2.5A. USB power is cut off if the system detects a current above 2.5A.

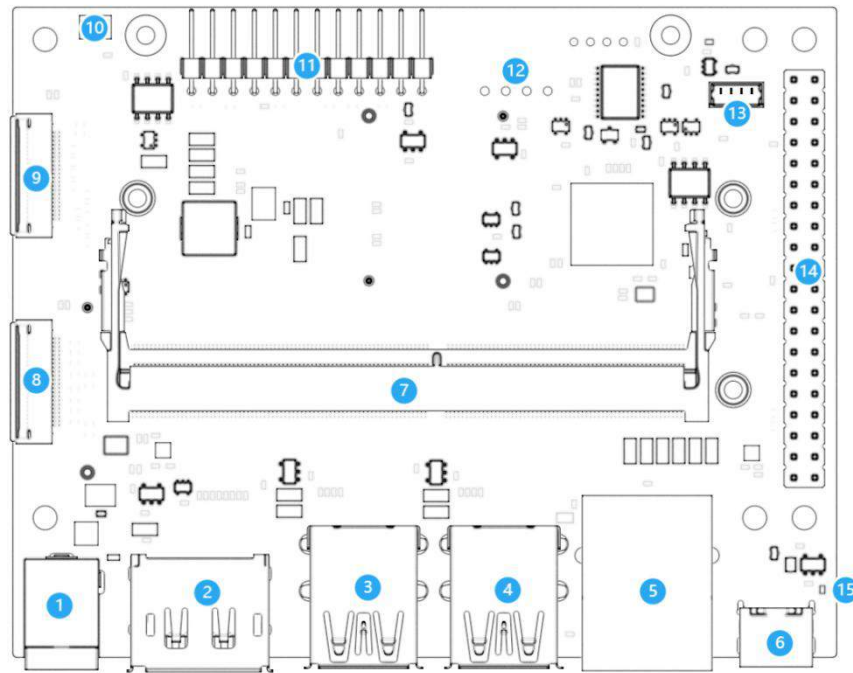
- The rear wireless-card and M.2 2230 interfaces use a symmetrical layout, unlike the original board.

- **Never insert or remove the module while the carrier board is powered. This will damage both the module and carrier board. The customer is responsible for losses caused by improper operation.**

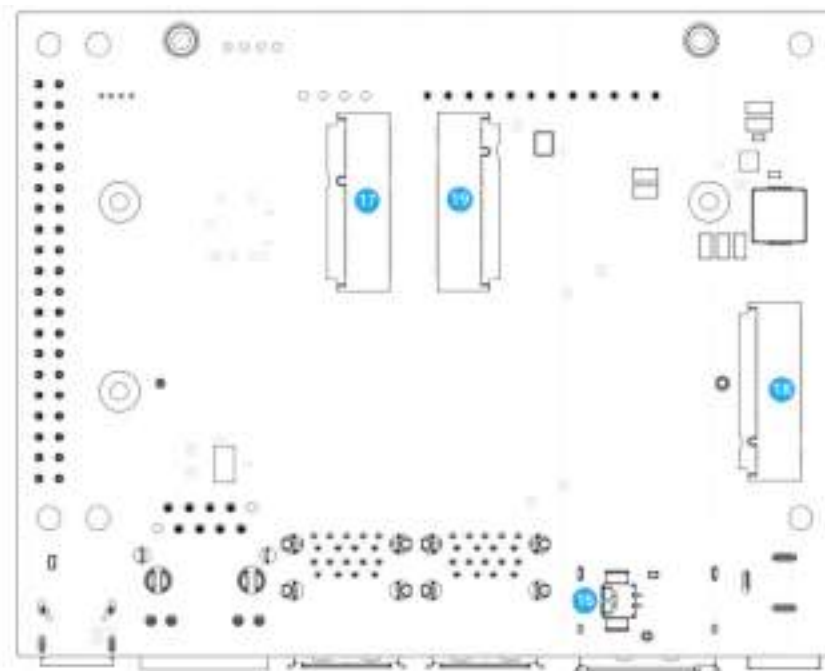
Feature Comparison

Feature	Original carrier board	YC-N1901 V1.3	YC-N1902 V1.1
Input voltage	19V	12V (9-19V)	12V (9-19V)
Power connector	DC5525	DC5521 (accepts DC5525 plugs)	DC5525
Ethernet	1x Gigabit RJ45	1x Gigabit RJ45	1x Gigabit RJ45
Wireless card	1x M.2 Key E	1x M.2 Key E	1x M.2 Key E
Storage	2x M.2 Key M	2x M.2 Key M	2x M.2 Key M
Display	1x DP V1.2	1x HDMI (1080P)	1x DP V1.2
USB	4x USB 3.0	3x USB 3.0 + 1x USB 2.0 (device tree changes required)	4x USB 3.0
USB-C	1x Type-C (USB 3.0)	1x Type-C (USB 2.0)	1x Type-C (USB 3.0)
Camera	2x CSI-22P	2x CSI-22P	2x CSI-22P
RTC battery	Not supported	Supported	Supported
Other interfaces		Same as original	Same as original
PoE power	Supported; components not soldered	Not supported	Not supported
SUPER mode	Orin Nano series only	Orin Nano series only	All Orin Nano/NX models

Interface Layout



- | | |
|--|--|
| 1 Power Jack | 9 Camera (#0) Connector (22p, 0.5 mm) |
| 2 DP Connector | 10 Power Button |
| 3 USB 3.0 Type A(x2 Stacked) | 11 Button Header (1x12, 2.54 mm) |
| 4 USB 3.0 Type A(x2 Stacked) | 12 CAN Bus Header (1x4, 2.54 mm) |
| 5 RJ45 Ethernet Socket | 13 Fan Header |
| 6 USB Type C | 14 40-pin Expansion Header(2x20, 2.54 mm) |
| 7 Jetson Orin Module Connector | 15 Power LED |
| 8 Camera (#1) Connector (22p, 0.5 mm) | |



- | | |
|--|-------------------------------------|
| 16 RTC Back-up Coin Cell Socket | 18 M.2 Key M Socket (4-lane) |
| 17 M.2 Key E Socket (75-pin) | 19 M.2 Key M Socket (2-lane) |

Function Details

- Power button (10): YC-N1902 adds a power button to the original carrier-board design, with the following functions:

While running: press once to open the shutdown screen; hold for 10 seconds to force shutdown.

While shut down: press once to power on.

- 40-pin header (14): the 5V output on the GPIO header has reverse-current protection and a maximum current of 0.8A. Overcurrent shuts off the output. Reference pin definitions are shown below; actual definitions depend on the module.

3.3V	1		2	5.0V
I2C1_SDA	3		4	5.0V
I2C1_SCL	5		6	GND
GPIO09	7		8	UART1_TXD
GND	9		10	UART1_RXD
UART1_RTS*	11		12	I2S0_SCLK
SPI1_SCK	13		14	GND
GPIO12	15		16	SPI1_CS1*
3.3V	17		18	SPI1_CS0*
SPI0_MOSI	19		20	GND
SPI0_MISO	21		22	SPI1_MISO
SPI0_SCK	23		24	SPI0_CS0*
GND	25		26	SPI0_CS1*
I2C0_SDA	27		28	I2C0_SCL
GPIO01	29		30	GND
GPIO11	31		32	GPIO07
GPIO13	33		34	GND
I2S0_FS	35		36	UART1_CTS*
SPI1_MOSI	37		38	I2S0_DIN
GND	39		40	I2S0_DOUT

Reference: <https://jetsonhacks.com/pinouts/>

- 12-pin button header (11): pin definitions are shown below.

Pin Function	
Power LED-	①
Power LED+	②
UART2_RXD	③
UART2_TXD	④
Latch Set	⑤
Latch Set Button	⑥
GND	⑦
System Reset*	⑧
GND	⑨
Force Recovery	⑩
GND	⑪
Power Button	⑫

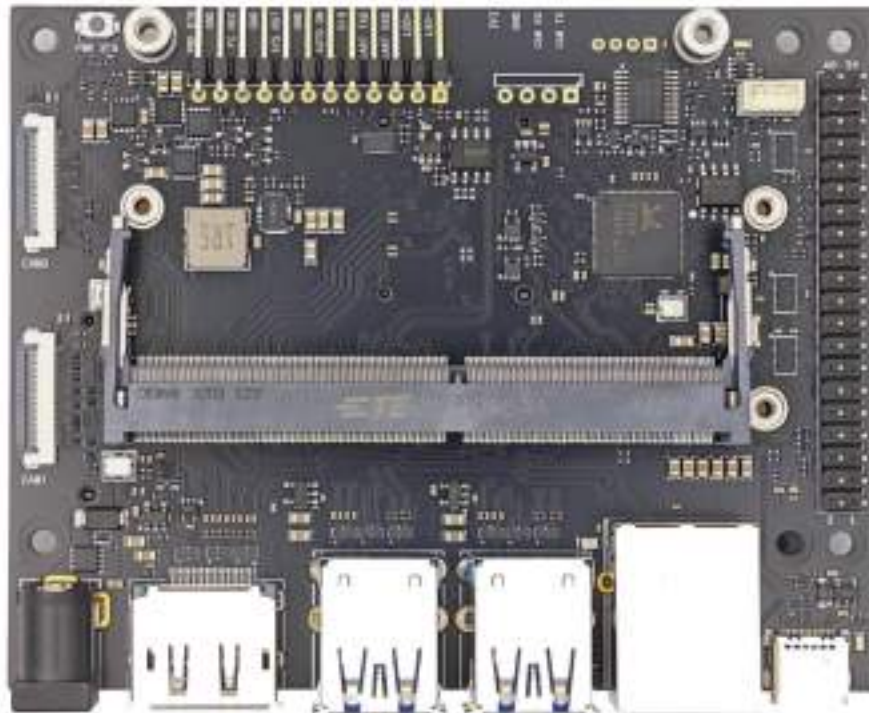
- RTC battery connector (16): YC-N1902 adds an RTC battery connector, model MX1.25-2P, to the original carrier-board design. Check battery polarity before connection. Reverse connection is prohibited.

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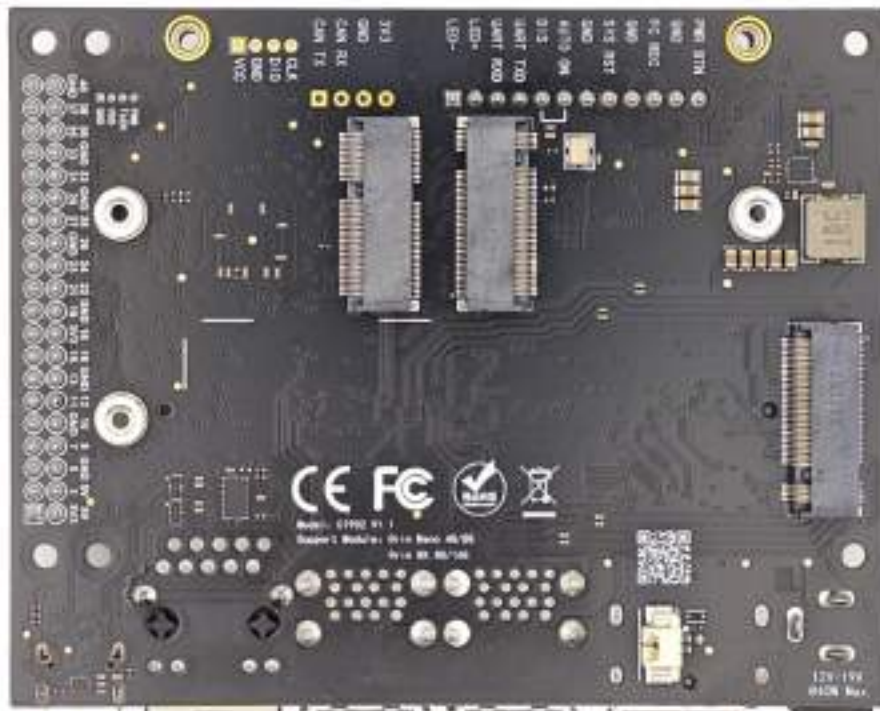


After connecting the battery, configure the RTC to enable it. See Application Note AN003 for details.

Product Photos



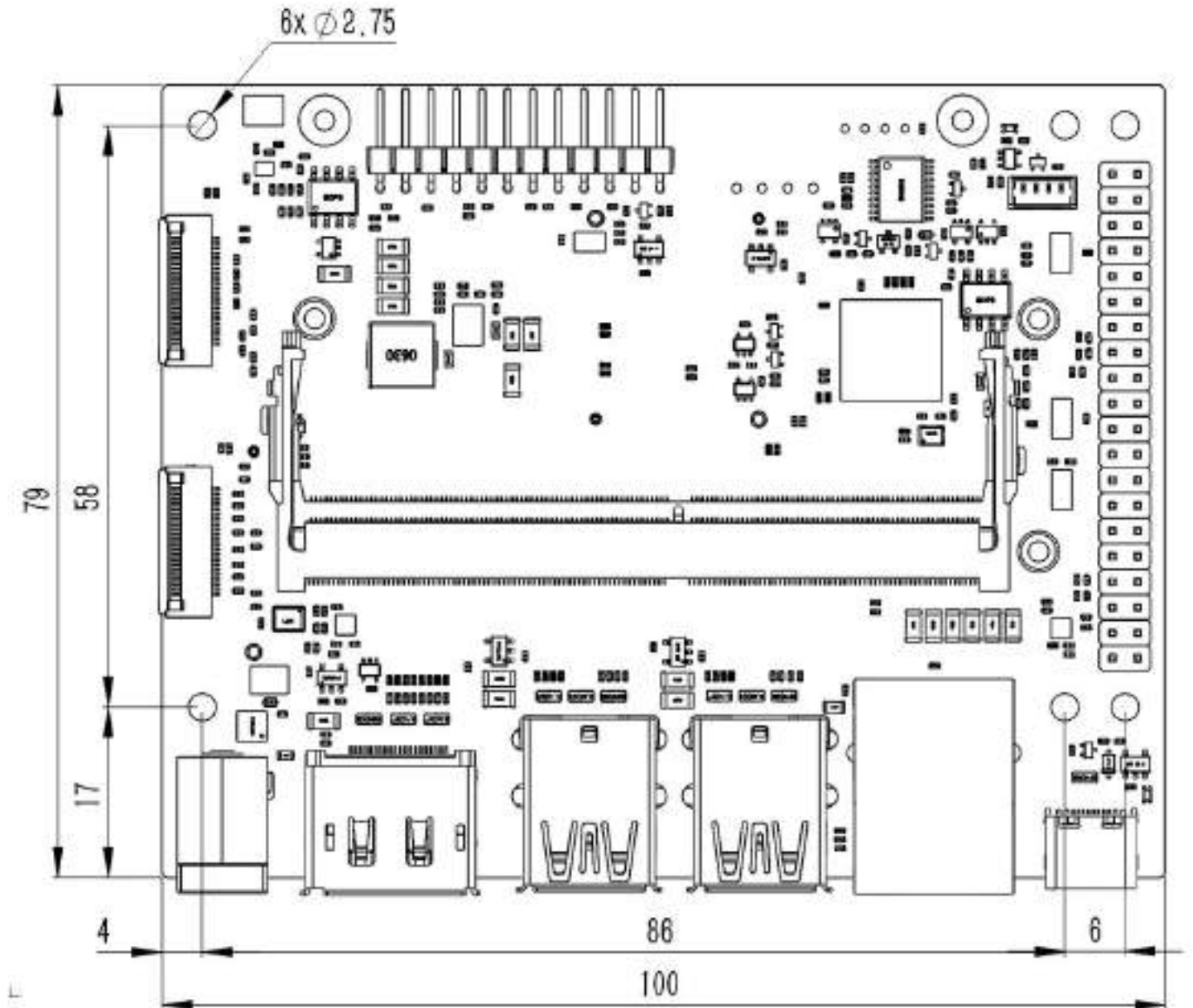
Front



Rear

Product Dimensions

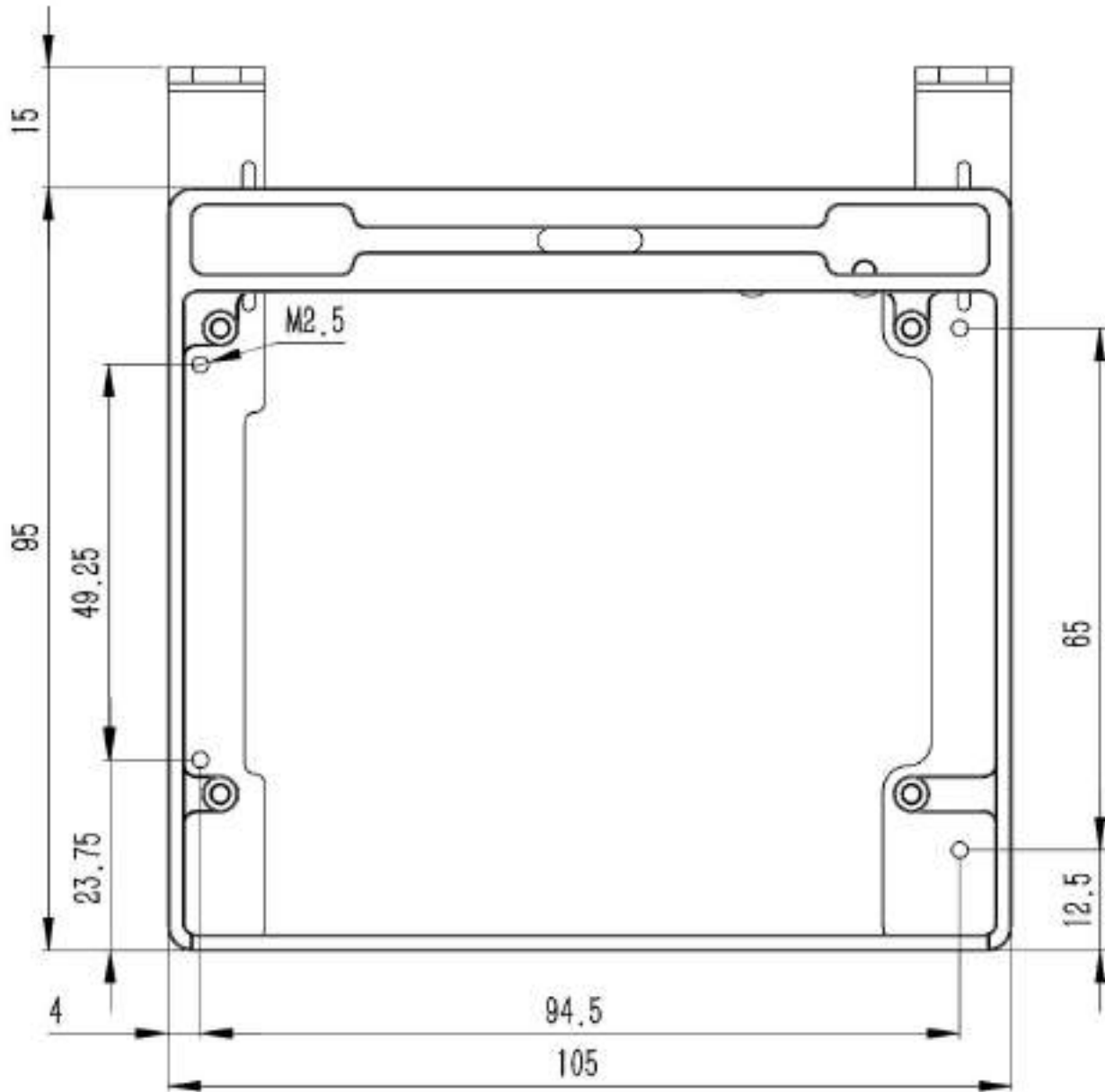
Units: mm



Mounting point	Recommended screw	Notes
Carrier board holes	M2.5 screw	Maximum mounting screw diameter: 5mm
Module	M2.5 x 4 low-profile screw	
SSD / wireless card	M2.5 x 4 low-profile screw	Low-profile screws recommended

Aluminum Base Bracket Mounting Holes

Units: mm



Development Resources

- Jetson Developer Guide
- Jetson Download Center
- Documentation Downloads
- [Nvidia Jetson Github](#)
- SDK Manager Download