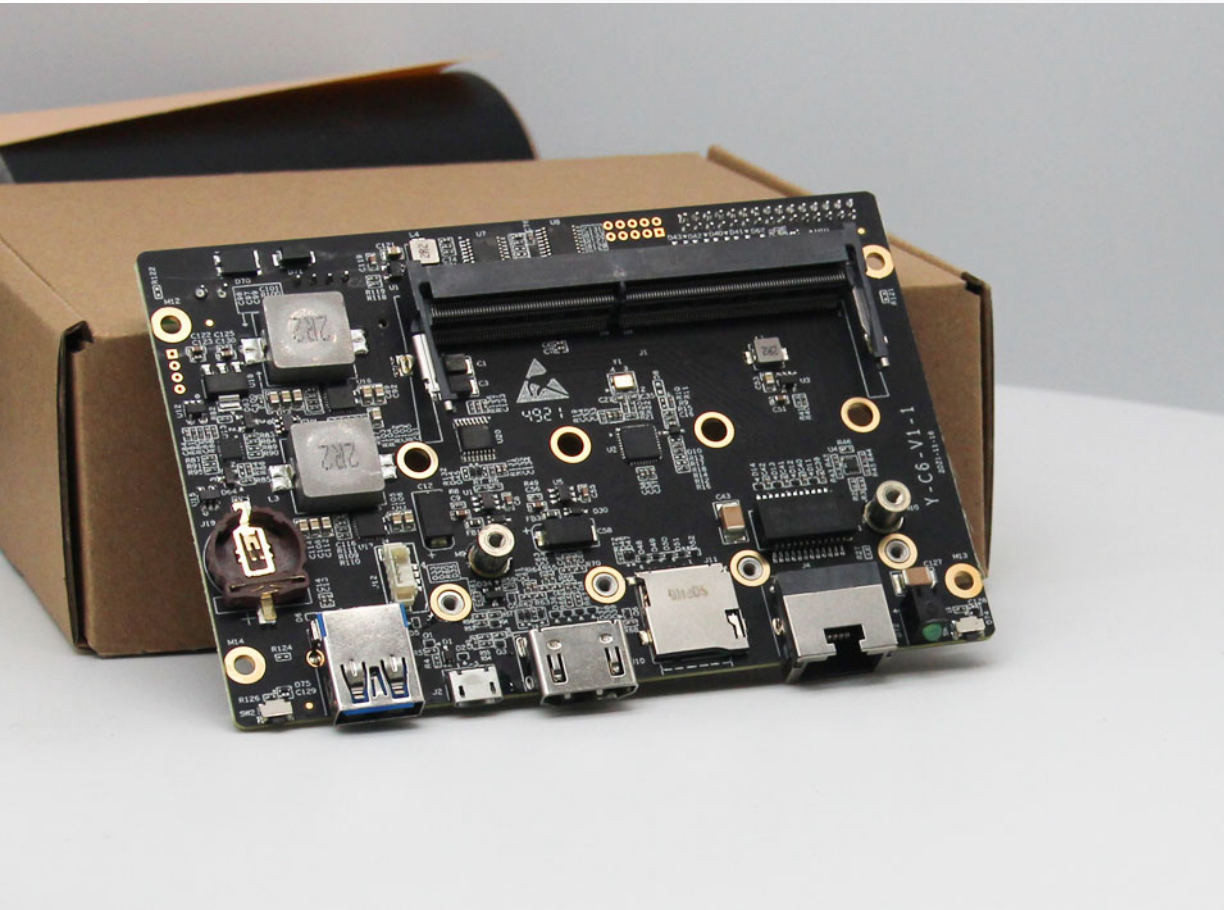




AI Development Carrier Board

Y-C6

Datasheet



Version V2.0

Date 2024-02-21

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Document History

Version	Date	Description of Change	Hardware Version
V 1.0	2021-04-25	Preliminary Release	V 1.0
V 1.1	2023-05-22	Added the GPIO mapping number and serial port device name of Jetpack5.*.	V 1.0
V 2.0	2023-11-17	Modify the product manual template; Added the description of interface test.	V 1.0

Hardware Update History

Version	Date	Description of Change
V 1.0	2021-4-25	Initial version



Electronic components and circuits are very sensitive to electrostatic discharge, although the company will design the main interface on the board card to do anti-static protection design, but it is difficult to do anti-static safety protection for all components and circuits. Therefore, it is recommended that you take ESD safety measures when handling any circuit board component.

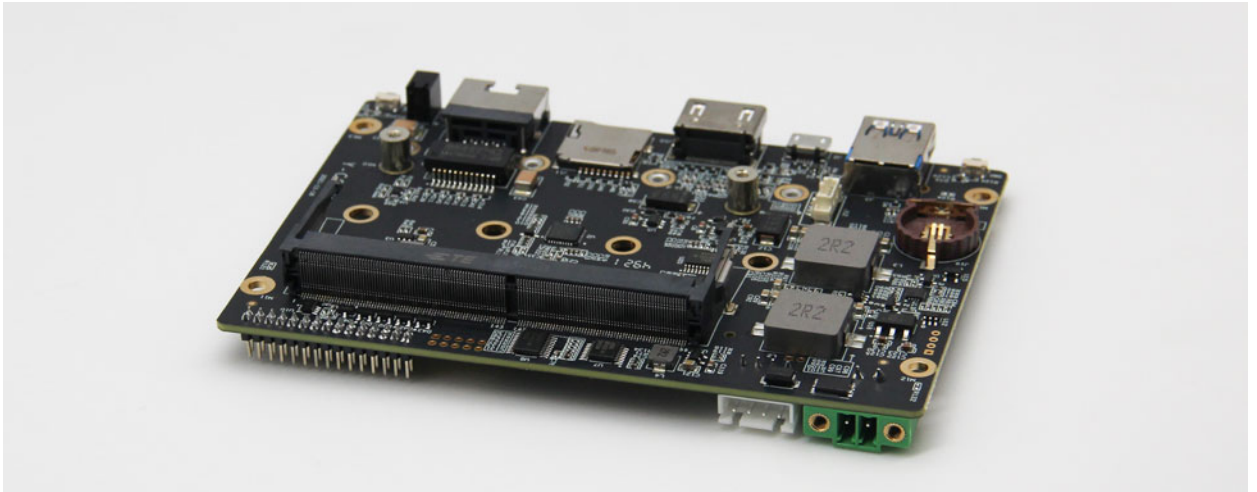
ESD safety measures include but are not limited to the following:

1. Put the card in an ESD bag during transportation or storage. Do not take out the card until installation and deployment.
2. Before touching the board, release the static electricity stored in the body: Wear a grounding wrist strap.
3. Operate circuit boards only in electrostatic discharge safe areas.
4. Avoid moving circuit boards in carpeted areas.
5. Avoid direct contact with electronic components on the board through edge contact.

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1 Introduction



Y-C6 is a low-cost, compact carrier board with NVIDIA® Jetson™ Xavier NX / TX2 NX / Nano / ORIN NX / ORIN NANO series core modules for compact deployment needs. For industrial deployment applications, the main interfaces are designed for electrostatic safety protection, and a high-reliability power supply application scheme is adopted. The input power supply has overvoltage and reverse polarity protection functions, and has a variety of external interfaces, All components on the board adopt wide-temperature models.

In order to facilitate the design of the shell structure, the important interface design of the Y-C6 carrier board is led out on one side, and the height limit design on the core module side is more convenient for fanless conduction heat dissipation design. Y-C6 carrier board can be equipped with hundreds of functional modules through two miniPCIe connectors (including USB2.0 and PCIe x1 signals) to achieve further expansion of system functions.

2 Specifications

	Specific
Carrier Board	Y-C6
Module	NVIDIA Jetson Xavier NX / TX2 NX / Jetson NANO / ORIN NX / ORIN NANO Series Modules
Temperature	-40 ~ +85°C
Dimensions (L×W×H)	120mm * 80mm * 18mm (Including I/O ports and mounting holes)
Weight	78g

Power Supply	Spec
Input Type	DC
Input Voltage	+9V ~ +24V

I/O Ports

Interface	Quantity	Interface	Quantity
USB3.0 Type-A	1	Micro USB	1
RJ45	1	HDMI	1
Recovery Button	1	LED	1
RTC Battery Holder	1	DC power Jack	1
miniPCIe Slot	2	Micro SD Card Slot	1
MIPI CSI	2	Nano SIM Card Slot	1
30pin Connector(J17)	1(2*UART\4*GPIO\1*I2C\1*CAN\2*USB2.0)		
10pin Connector(J16)	1(1*SPI\1*I2C)		

Note:

When used with the Jetson NANO module, the CAN bus interface function is not available, and a miniPCIe interface is not available.

The Micro SD card function is not available when used with the Jetson ORIN NX or ORIN NANO module.

The 10-PIN pin connector (J16) is not welded by default.

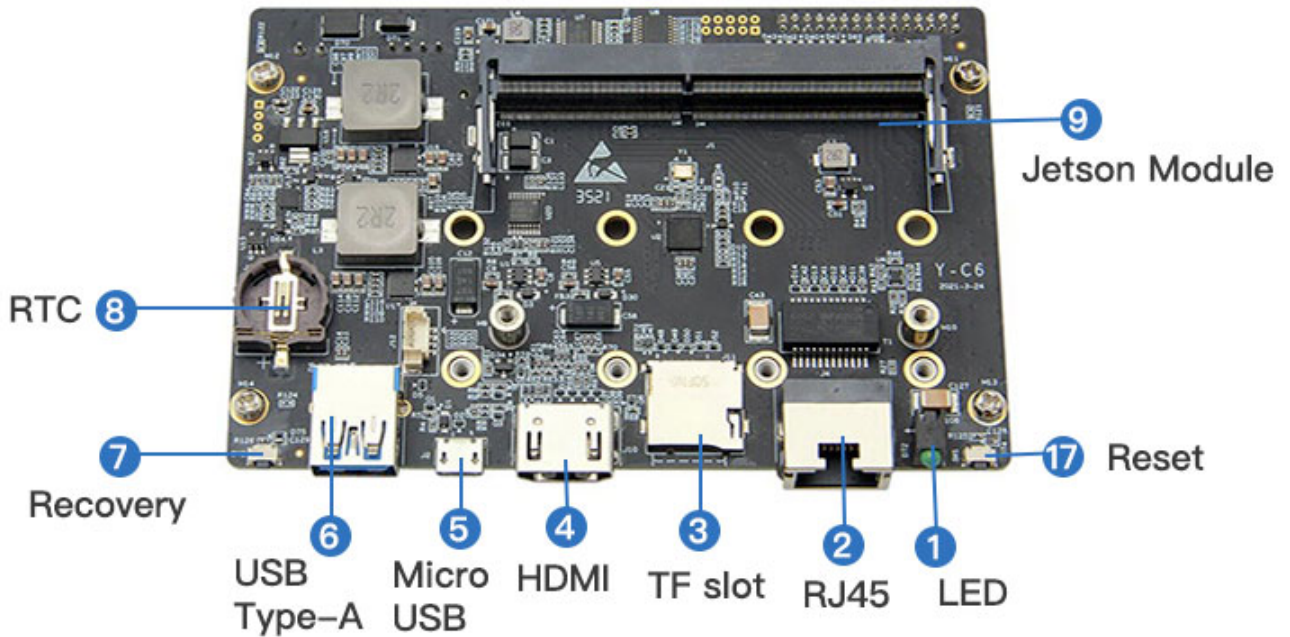
NVIDIA Jetson Series Modules

Technical Specifications

Module	TX2 NX	Jetson Nano	Xavier NX 16/8GB
AI Performance	1.33 TFLOPS	0.5 TFLOPS	21TOPS
GPU	256-core NVIDIA Pascal™ architecture GPU	NVIDIA Maxwell™ architecture with 128 NVIDIA Cuda® cores	384-core NVIDIA Volta™ architecture GPU with 48 Tensor Cores
CPU	Dual-core NVIDIA Denver™ 2 64-bit CPU and quad-core Arm® Cortex®-A57 MPCore processor	Quad-core ARM® Coretx®-A57 MPCore processor	6-core NVIDIA Carmel Arm®v8.2 64-bit CPU 6MB L2 + 4MB L3
Memory	4GB 128-bit LPDDR4 51.2GB/s	4GB 64-bit LPDDR4 1600MHz-25.6GB/s	16 / 8GB 128-bit LPDDR4x 59.7GB/s
Storage	16GB eMMC 5.1	16GB eMMC 5.1 Flash	16GB eMMC 5.1
Video Encode	1x 4K60 (H.265) 3x 4K30 (H.265) 4x 1080p60 (H.265)	250 MP/sec 1x 4K@30(HEVC) 2x 1080p@60(HEVC) 4x 1080p@30(HEVC)	2x 4K60 (H.265) 4x 4K30 (H.265) 10x 1080p60 (H.265) 22x 1080p30 (H.265)
Video Decode	2x 4K60 (H.265) 7x 1080p60 (H.265) 14x 1080p30 (H.265)	500 MP/sec 1x 4K @ 60 (HEVC) 2x 4K @ 30 (HEVC) 4x 1080p @ 60 (HEVC) 8x 1080p @ 30 (HEVC)	2x 8K30 (H.265) 6x 4K60 (H.265) 12x 4K30 (H.265) 22x 1080p60 (H.265) 44x 1080p30 (H.265)
Power	7.5W - 15W	5W – 10W	10W – 20W
Mechanical	69.6mm x 45mm 260-pin SO-DIMM connector		

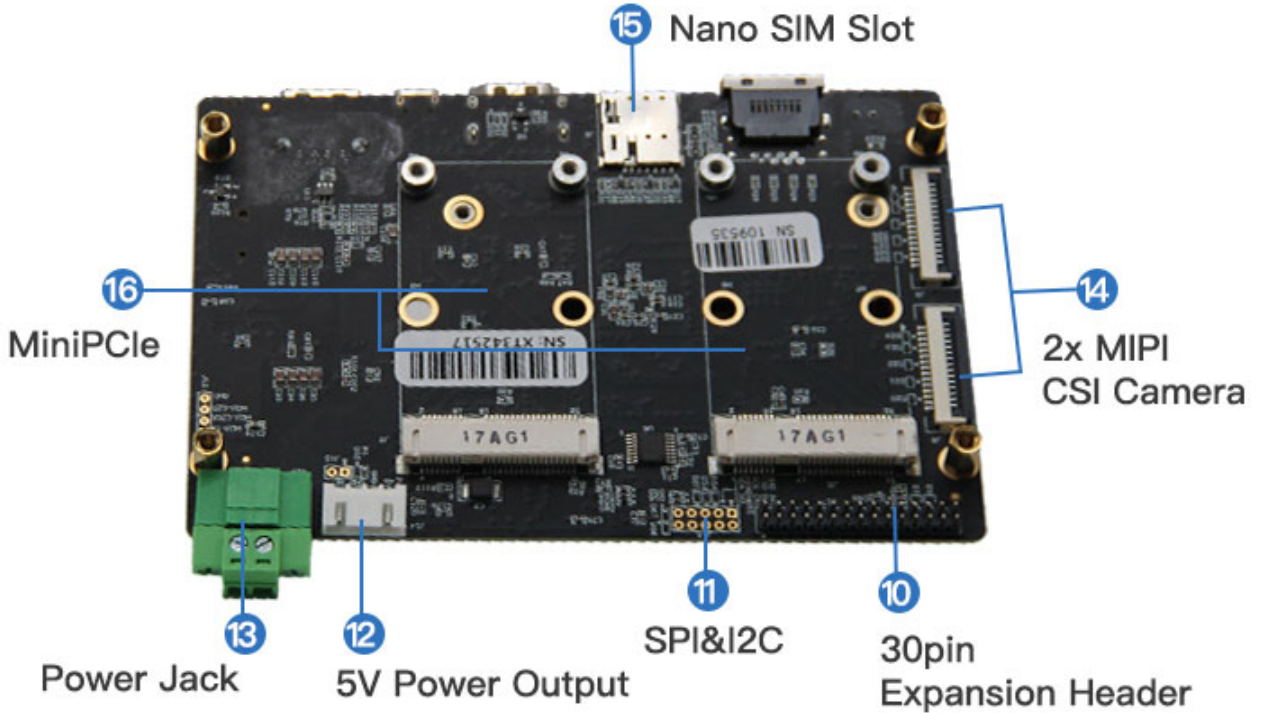
Module	Jetson ORIN NX 16GB	Jetson ORIN NX 8GB	Jetson Orin Nano 8GB	Jetson Orin Nano 4GB
AI Performance	100 TOPS	70 TOPS	40 TOPS	20 TOPS
GPU	1024-core NVIDIA Ampere architecture GPU with 32 Tensor Cores		1024-core NVIDIA Ampere architecture GPU with 32 Tensor Cores	512-core NVIDIA Ampere architecture GPU with 16 Tensor Cores
CPU	8-core Arm® Cortex®-A78AE v8.2 64-bit CPU 2MB L2 + 4MB L3	6-core Arm® Cortex®-A78AE v8.2 64-bit CPU 1.5MB L2 + 4MB L3	6-core Arm® Cortex®-A78AE v8.2 64-bit CPU 1.5MB L2 + 4MB L3	
Memory	16GB 128-bit LPDDR5 102.4GB/s	8GB 128-bit LPDDR5 102.4GB/s	8GB 128-bit LPDDR5 68 GB/s	4GB 64-bit LPDDR5 34 GB/s
Storage	Support external NVME			
Video Encode	1x 4K60 (H.265) 3x 4K30 (H.265) 6x 1080p60 (H.265) 12x 1080p30 (H.265)		1080p30 supported by 1-2 CPU cores	
Video Decode	1x 8K30 (H.265) 2x 4K60 (H.265) 4x 4K30 (H.265) 9x 1080p60 (H.265) 18x 1080p30 (H.265)		1x 4K60 (H.265) 2x 4K30 (H.265) 5x 1080p60 (H.265) 11x 1080p30 (H.265)	
Power	10W - 25W	10W - 20W	7W - 15W	7W - 10W

3 External I/O Ports



Y-C6 Front Ports

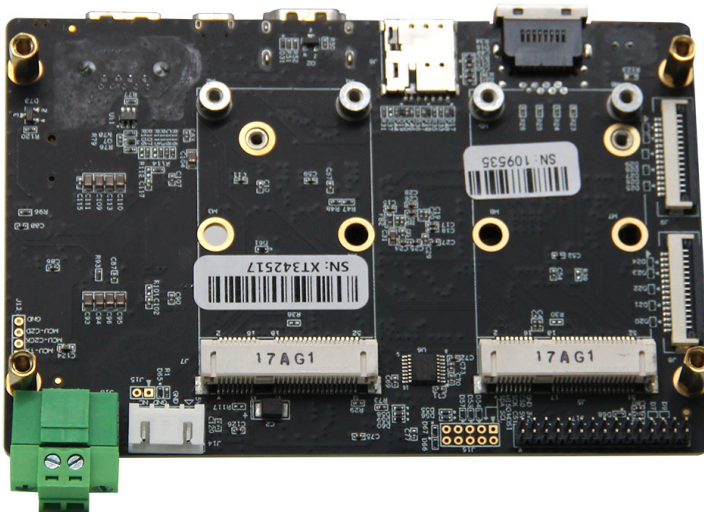
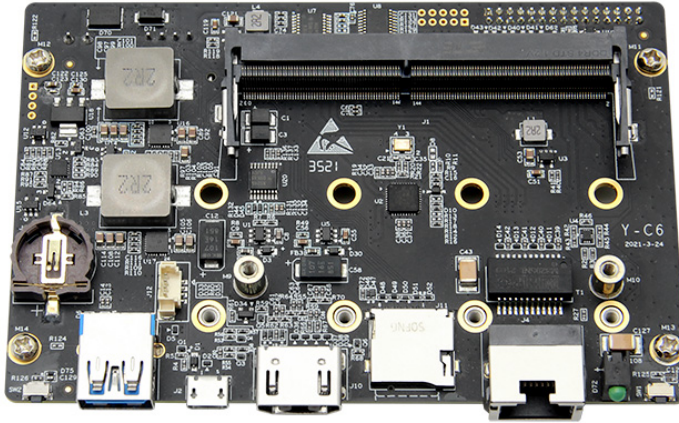
Sign	Function	Sign	Function
J1	Jetson module connector	J2	Micro USB connector
J3	USB3.0 Type A	J4	RJ45 Jack (10/100/1000Mbps Ethernet)
J10	Type A HDMI connector	J11	Micro SD Slot
J19	CR1220 RTC Battery Socket	D72	Core module operating status indicator
SW1	Reset Button	SW2	Recovery Button



Y-C6 Back Ports

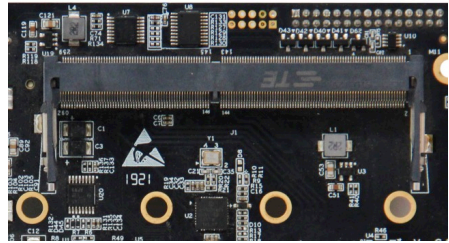
Sign	Function	Sign	Function
J5	miniPCIe Slot (Support 4G)	J6	Nano SIM Card Slot
J7	miniPCIe Slot	J18	Power Jack(+9V ~ +24V)
J16	Reserved SPI & I2C signal	J17	Multi-function pin (30 pin)
J14	5V power output	J8/J9	2 Lane MIPI CSI

4 All-Round Display

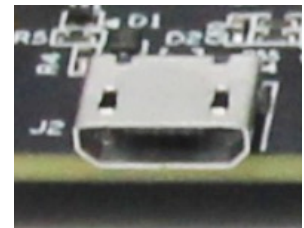


5 Connector Description

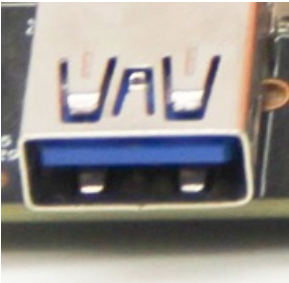
Jetson Module Connector (J1)	
Function	Connect NVIDIA Jetson Xavier NX / TX2 NX / Jetson Nano / Orin NX / Orin Nano Series Modules
Sign	J1
Type/Model	SO-DIMM Connector
Explain	For pin definitions of this connector, refer to the pin definition instructions in the NVIDIA Jetson Xavier NX / TX2 NX / Jetson Nano / Orin NX / Orin Nano series core module datasheet.



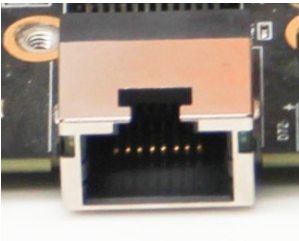
Micro USB 2.0 (J2)																	
Function	USB 2.0 Connector																
Sign	J2																
Type/Model	Type-B standard Micro USB 2.0 connector																
Pin definition	<table border="1"> <thead> <tr> <th>Pin</th> <th>Signal</th> <th>Pin</th> <th>Signal</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>VBUS</td> <td>2</td> <td>USB 2.0 D-</td> </tr> <tr> <td>3</td> <td>USB 2.0 D+</td> <td>4</td> <td>NC</td> </tr> <tr> <td>5</td> <td>GND</td> <td></td> <td></td> </tr> </tbody> </table> <p>Only support USB OTG mode.</p>	Pin	Signal	Pin	Signal	1	VBUS	2	USB 2.0 D-	3	USB 2.0 D+	4	NC	5	GND		
Pin	Signal	Pin	Signal														
1	VBUS	2	USB 2.0 D-														
3	USB 2.0 D+	4	NC														
5	GND																



USB 3.0 Connector (J3)				
Function	USB 3.0 Connector			
Sign	J3			
Type/Model	USB3.0 Type-A Connector			
Pin definition	Pin	Signal	Pin	Signal
	1	VBUS	2	USB 2.0 D-
	3	USB 2.0 D+	4	GND
	5	SSRX-	6	SSRX+
	7	GND	8	SSTX -
	9	SSTX+		

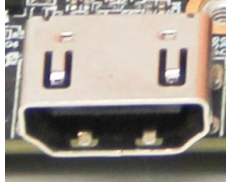


Ethernet Jack (J4)				
Function	10/100/1000 BASE-T Ethernet			
Sign	J4			
Type/Model	RJ45 Ethernet Connector			
Pin definition	Pin	Signal	Pin	Signal
	1	TP0+	2	TP0-
	3	TP1+	4	TP2+
	5	TP2-	6	TP1-
	7	TP3+	8	TP3-



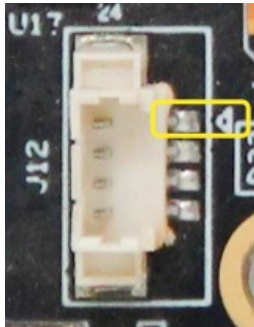
HDMI Connector (J10)

Function	HDMI Display Connector			
Sign	J10			
Type/Model	Type-A standard HDMI connector			
Pin definition	Pin	Signal	Pin	Signal
	1	TMDS Data2+	2	TMDS Data2 GND
	3	TMDS Data2-	4	TMDS Data1+
	5	TMDS Data1 GND	6	TMDS Data1-
	7	TMDS Data0+	8	TMDS Data0 GND
	9	TMDS Data0-	10	TMDS Clock+
	11	TMDS Clock GND	12	TMDS Clock-
	13	CEC	14	NC
	15	DDC clock	16	DDC data
	17	DDC GND	18	+5V
	19	Hot Plug Detect		




Fan Header (J12)

Function	4-pin fan header for 5V PWM fan			
Sign	J12			
Type/Model	Molex PicoBlade Header 53261-0471			
Pin definition	Pin	Signal	Pin	Signal
	1	GND	2	+5V
	3	TACH	4	PWM
	Pin 1 position: right picture identification.			

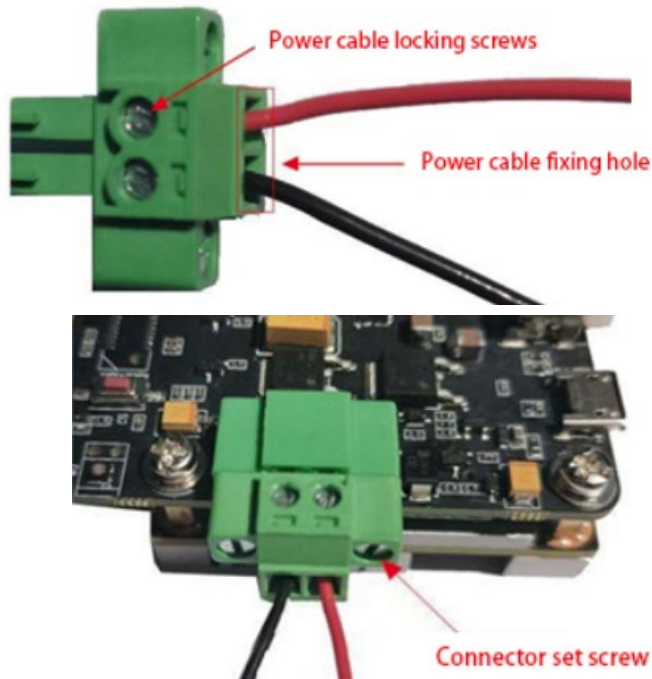



Power Jack (J18)


Function	Power supply input terminal (Female head)										
Sign	J18										
Type/Model	The 3.5mm power supply terminals										
Pin definition	<table border="1"> <thead> <tr> <th>Pin</th> <th>Signal</th> <th>Pin</th> <th>Signal</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>VCC(+)</td> <td>2</td> <td>GND(-)</td> </tr> </tbody> </table> <p>Input voltage range: +9V~+24V Pin 1 Position: right picture identification</p>	Pin	Signal		Pin	Signal	1	VCC(+)	2	GND(-)	
Pin	Signal	Pin	Signal								
1	VCC(+)	2	GND(-)								

Power cable connection step:

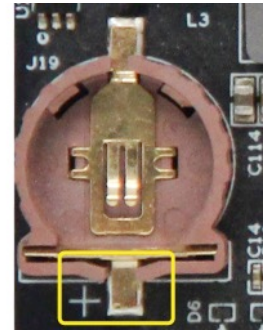
1. Loosen the power cable locking screw of the power terminal(male head) in the accessory bag;
2. Insert the cable into the cable fixing hole on the wiring terminal(male head);
3. Tighten the power cable locking screw of the power terminal(male)(pay attention to the polarity of the power cable);
4. Insert the male power terminal into the female power terminal on the board card;
5. Tighten the fastening screws on the power terminal connector.



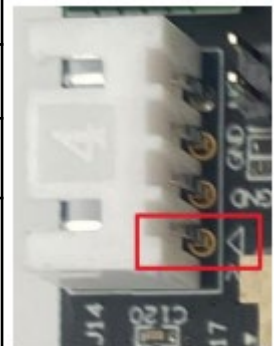
Micro SD Card Slot (J11)					
Function	Micro SD (TF) Card Slot				
Sign	J11				
Type/Model	Micro SD (TF)				
Pin definition	Pin	Signal	Pin	Signal	
	1	SDIO_DATA2	2	SDIO_DATA3	
	3	SDIO_CMD	4	SDIO_VCC	
	5	SDIO_CLK	6	GND	
	7	SDIO_DATA0	8	SDIO_DATA1	
	9	GND	10	SDIO_CD	

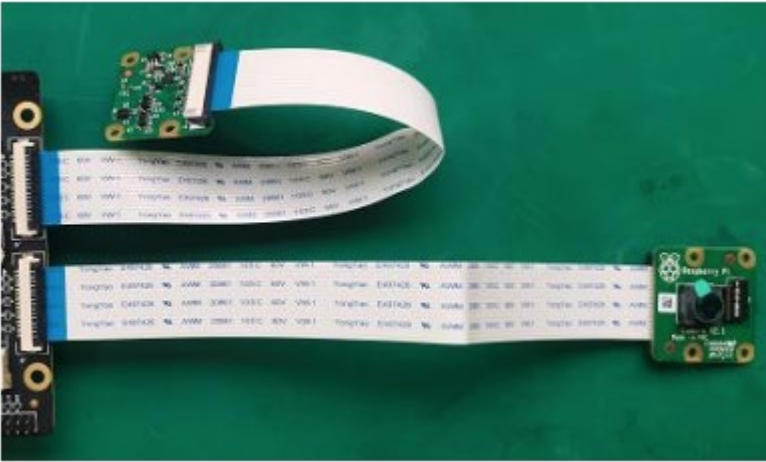
Nano SIM Card Slot (J6)					
Function	Nano SIM Card Slot				
Sign	J6				
Type/Model	Nano SIM				
Pin definition	Pin	Signal	Pin	Signal	
	C1	UIM_PWR	C2	UIM_RESET	
	C3	UIM_CLK	C5	GND	
	C6	UIM_VPP	C7	UIM_DATA	
	CD	VCC_3V3			

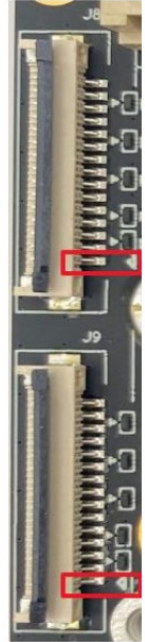
RTC Battery Socket (J19)				
Function	Provides power support for the core board clock circuit			
Sign	J19			
Type/Model	CR1220 button battery holder			
Pin definition	Pin	Signal	Pin	Signal
	1	VCC (3.3V)	2	GND
Pin 1 Position: right picture identification.				



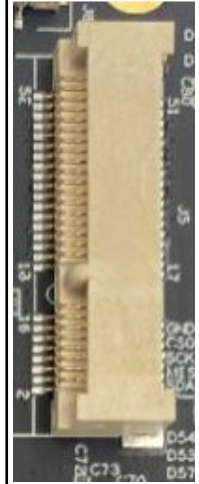
5V Power Supply Output (J14)				
Function	5V output, peripheral power connector			
Sign	J14			
Type/Model	XH-4AW(4 Pin, 2.54mm pitch)			
Pin definition	Pin	Signal	Pin	Signal
	1	5V	2	GND
	3	GND	4	NC
Pin 1 Position: right picture identification. This port provides a maximum 5V@3A power supply for peripherals.				



MIPI CSI (J8 & J9)																																									
Function	MIPI CSI Camera Connector																																								
Sign	J8 & J9																																								
Type/Model	15pin, 1.0mm pitch, Top cover, bottom contact FPC connector																																								
Pin definition	<table border="1"> <thead> <tr> <th>Pin</th> <th>Signal</th> <th>Pin</th> <th>Signal</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>VCC_3V3</td> <td>2</td> <td>I2C_SDA</td> </tr> <tr> <td>3</td> <td>I2C_SCL</td> <td>4</td> <td>MCLK_1V8</td> </tr> <tr> <td>5</td> <td>PWDN_1V8</td> <td>6</td> <td>GND</td> </tr> <tr> <td>7</td> <td>CSI_CLK_P</td> <td>8</td> <td>CSI_CLK_N</td> </tr> <tr> <td>9</td> <td>GND</td> <td>10</td> <td>CSI_D1_P</td> </tr> <tr> <td>11</td> <td>CSI_D1_N</td> <td>12</td> <td>GND</td> </tr> <tr> <td>13</td> <td>CSI_D0_P</td> <td>14</td> <td>CSI_D0_N</td> </tr> <tr> <td>15</td> <td>GND</td> <td></td> <td></td> </tr> </tbody> </table>	Pin	Signal	Pin	Signal	1	VCC_3V3	2	I2C_SDA	3	I2C_SCL	4	MCLK_1V8	5	PWDN_1V8	6	GND	7	CSI_CLK_P	8	CSI_CLK_N	9	GND	10	CSI_D1_P	11	CSI_D1_N	12	GND	13	CSI_D0_P	14	CSI_D0_N	15	GND						
	Pin	Signal	Pin	Signal																																					
	1	VCC_3V3	2	I2C_SDA																																					
	3	I2C_SCL	4	MCLK_1V8																																					
	5	PWDN_1V8	6	GND																																					
	7	CSI_CLK_P	8	CSI_CLK_N																																					
	9	GND	10	CSI_D1_P																																					
	11	CSI_D1_N	12	GND																																					
	13	CSI_D0_P	14	CSI_D0_N																																					
	15	GND																																							
Pin 1 Position: right picture identification.																																									
<p>Connection diagram with Raspberry Pi 2 generation MIPI camera.</p> 																																									



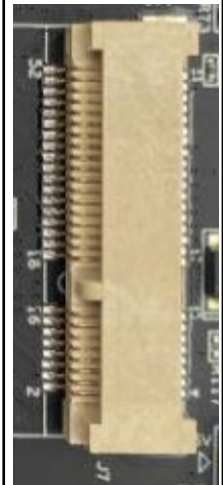
miniPCIe Slot (J5)																																																																																																													
Function	miniPCIe Slot																																																																																																												
Sign	J5																																																																																																												
Type/Model	5.6mm high, supports full-length and half-length expansion cards																																																																																																												
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J5 Connector + J6(SIM Card holder) supports 4G communication modules without SIM Card holder.																																																																																																													



miniPCIe Slot (J7)

Function	miniPCIe Slot
Sign	J7
Type/Model	5.6mm high, supports full-length and half-length expansion cards

Pin definition	引脚	信号	引脚	信号
	1	PCIE_WAKE	2	3.3V
	3	NC	4	GND
	5	NC	6	1.5V
	7	PCIE_CLKREQ	8	NC
	9	GND	10	NC
	11	PCIE_CLK_N	12	NC
	13	PCIE_CLK_P	14	NC
	15	GND	16	NC
	17	NC	18	GND
	19	NC	20	NC
	21	GND	22	PEIC_RST_N
	23	PCIE_RX_N	24	3.3V
	25	PCIE_RX_P	26	GND
	27	GND	28	1.5V
	29	GND	30	NC
	31	PCIE_TX_N	32	NC
	33	PCIE_TX_P	34	GND
	35	GND	36	USB2_D_N
	37	GND	38	USB2_D_P
	39	3.3V	40	GND
	41	3.3V	42	NC
	43	GND	44	NC
	45	NC	46	NC
	47	NC	48	1.5V
	49	NC	50	GND
	51	NC	52	3.3V



When the Jetson NANO module is installed, the PCIe signal at the J7 connector position is unavailable.

30-pin Extension Header (J17)

Function: Multi-function signal extension interface

Sign: J17

Type/Model: 30-pin(2.0mm pitch, 2*15)

Pin definition


Pin	Signal	Pin	Signal
1	3.3V	2	5V
3	GND	4	GND
5	UART0_TX (RS232)	6	UART0_RX (RS232)
7	UART1_TX (RS232)	8	UART1_RX (RS232)
9	GND	10	GND
11	CAN_L	12	CAN_H
13	UART2_TX (3.3V TTL)	14	UART2_RX (3.3V TTL)
15	GPO1	16	GPIO2
17	GPIO3	18	GPIO4
19	GND	20	GND
21	I2C1_SCL	22	I2C1_SDA
23	USB2_D3_P	24	USB2_D3_N
25	USB2_D4_P	26	USB2_D4_N
27	GND	28	GND
29	3.3V	30	5V

The UART0 and UART1 serial ports are all RS232 levels, **UART2 is 3.3V TTL level**. UART2 is the kernel debugging serial port, used to output c-boot, u-boot, and Linux kernel information. After the Linux kernel is started, UART2 is used as the serial port of the display and control terminal. The default serial port setting 115200bps, 8N1. The device file names mapped between UART0 and UART1 in Linux are shown in the following table.

	UART0	UART1
Xavier NX	/dev/ttyTHS1	/dev/ttyTHS0
TX2 NX	/dev/ttyTHS1	/dev/ttyTHS2
Jetson Nano	/dev/ttyTHS2	/dev/ttyTHS1
Orin NX	/dev/ttyTHS1	/dev/ttyTHS0
Orin Nano	/dev/ttyTHS1	/dev/ttyTHS0



Pin definition	I2C1 device file names mapped in the system are shown in the following table:					
		Xavier NX	TX2 NX	Nano	Orin NX & Orin Nano	
	I2C1	/dev/i2c-8	/dev/i2c-1	/dev/i2c-1	/dev/i2c-7	
	The resulting GPIO mapping numbers are shown in the following table. GPIO high level voltage is 3.3V. Among them, GPO1 can only be used as an output, providing a current that can directly light the LED lamp bead.					
		L4T version	GPO1	GPIO2	GPIO3	GPIO4
	Xavier NX	<= L4T 32.*	436	422	268	393
		>L4T 32.*	453 (PS.04)	441 (PQ.06)	321 (PCC.04)	419 (PN.01)
	TX2 NX		396	306	338	269
	Jetson Nano		216	200	194	38
	Orin NX		492 (PAC.06)	454 (PQ.06)	433 (PN.01)	391 (PH.00)
Orin Nano		492 (PAC.06)	454 (PQ.06)	433 (PN.01)	391 (PH.00)	
Description:						
Take the Xavier NX module, GPO1, as an example, if the system version is L4T 32.*, run this command:						
\$ echo 436 > /sys/class/gpio/export						
After GPIO is enabled, the corresponding file name is generated: gpio436;						
Then system version is later then L4T 32.*, run this command:						
\$ echo 453 > /sys/class/gpio/export						
After GPIO is enabled the corresponding file name is generated: PS.04.						

SPI & I2C Signal Extension Header (J16)																																			
Function	SPI & I2C Signal Extension Header																																		
Sign	J16																																		
Type/Model	10-pin(2.0mm pitch, 2*5)																																		
Pin definition	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Pin</th> <th>Signal</th> <th>Pin</th> <th>Signal</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>GND</td> <td>2</td> <td>VCC_3V3</td> </tr> <tr> <td>3</td> <td>SPI0_CS0_3V3</td> <td>4</td> <td>VCC_5V</td> </tr> <tr> <td>5</td> <td>SPI0_SCK_3V3</td> <td>6</td> <td>SPI0_CS1_3V3</td> </tr> <tr> <td>7</td> <td>SPI0_MISO_3V3</td> <td>8</td> <td>SPI0_MOSI_3V3</td> </tr> <tr> <td>9</td> <td>I2C0_SDA</td> <td>10</td> <td>I2C0_SCL</td> </tr> </tbody> </table> <p>I2C0 device file names mapped in the system are shown in the following table:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>Xavier NX</th> <th>TX2 NX</th> <th>Nano</th> <th>Orin NX & Orin Nano</th> </tr> </thead> <tbody> <tr> <td>I2C0</td> <td>/dev/i2c-1</td> <td>/dev/i2c-0</td> <td>/dev/i2c-0</td> <td>/dev/i2c-1</td> </tr> </tbody> </table> <p>Pin 1 Position: right picture identification.</p>	Pin	Signal	Pin	Signal	1	GND	2	VCC_3V3	3	SPI0_CS0_3V3	4	VCC_5V	5	SPI0_SCK_3V3	6	SPI0_CS1_3V3	7	SPI0_MISO_3V3	8	SPI0_MOSI_3V3	9	I2C0_SDA	10	I2C0_SCL		Xavier NX	TX2 NX	Nano	Orin NX & Orin Nano	I2C0	/dev/i2c-1	/dev/i2c-0	/dev/i2c-0	/dev/i2c-1
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	Xavier NX	TX2 NX	Nano	Orin NX & Orin Nano																															
I2C0	/dev/i2c-1	/dev/i2c-0	/dev/i2c-0	/dev/i2c-1																															
																																			

6 Ordering Information

Order Type	Function
Y-C6	NVIDIA® Jetson™ Xavier NX / TX2 NX / Jetson Nano / Orin NX / Orin Nano core module is equipped with miniaturized carrier board

E-commerce Platform

Taobao Store Address: <https://shop333807435.taobao.com/>

Jingdong Store Address: <https://mall.jd.com/index-11467104.html?from=pc>

Ali International Station Address: <https://plink-ai.en.alibaba.com/>

7 Recovery Mode

Jetson core module can work in normal mode and Recovery mode. In Recovery mode, it can perform file system update, kernel update, Bootloader/UEFI update, BCT update and other operations.

To enter the Recovery mode, perform the following steps:

Power off the system.

Use a Micro-USB cable to connect the Micro-USB port (J2) of the Y-C6 to the Jetson development host USB port.

The Jetson development host should be Ubuntu18.04 or Ubuntu20.04 based on X86 architecture.

Press the Recovery key (SW2) to power the system. Hold down the Recovery key (SW2) for more than 3 seconds, and then release the Recovery key (SW2).

When the system enters Recovery mode, you can perform subsequent operations.

8 Method of Application

- Make sure all external system voltages are off.
- Install the Jetson core module onto the J1 high-speed connector. Ensure that the connectors are aligned with even force. After the module is installed in place, install the core module fixing screws.
- Install necessary external cables. (such as: the display line connected to the HDMI display, the power input line for the system power supply, the USB cable connecting the keyboard and mouse...)
- [Follow the power input interface \(J18\) instructions](#), Connect the power cable to the power supply.(Make sure that the heat dissipation device on the core module is installed before power-on)
- For a system without a protective cover, do not move the hardware system after the system is powered on. Do not touch the circuit board or any electronic components on the circuit board with your body.

9 GPIO Test

Y-C6 leads to the 4-way GPIO of the Jetson core modules. Programmable output voltage 3.3V, please note that the input voltage does not exceed 3.3V.

Take the Xavier NX 8GB module, L4T35.3.1, GPIO1 as an example:

The content after the '#' in the following command is a comment and does not need to be added when executing the command.

- `sudo su`
- `echo 388 > /sys/class/gpio/export # Enable GPIO (Or initialize GPIO)`
- `echo out > /sys/class/gpio/gpio388/direction`

#Set the GPIO input and output directions to out or in.

- `echo 1 > /sys/class/gpio/gpio388/value`
Set the GPIO output high/low level to 1 for high and 0 for low.

#The preceding absolute path name is based on the actual path name generated after GPIO is enabled.

When set to the input state, you can only read values. When set to the output state, you can read and write values.

- `cat /sys/class/gpio/gpio388/value #Get GPIO value.`

The output state can be measured using a multimeter to measure the voltage between the specific lead heel GND.

10 CAN Test

Y-C6 with Jetson module comes standard with one CAN. If you need to connect an external CAN device to test, connect the **CAN_H** of the device to the **CAN_H** of the device under test and the **CAN_L** to the **CAN_L** of the device under test. The test command is as follows:

- `sudo apt-get install busybox can-utils`
- `#Writes the specified value to a register`
- `sudo busybox devmem 0x0c303020 w 0x458`
- `sudo busybox devmem 0x0c303018 w 0x400`
- `sudo busybox devmem 0x0c303010 w 0x458`
- `sudo busybox devmem 0x0c303008 w 0x400`
- `sudo modprobe can` # Load the CAN bus subsystem support module
- `sudo modprobe can_raw` #Load the original CAN protocol module.
- `sudo modprobe mttcan` # Load CAN interface support
- `sudo ip link set can0 type can bitrate 500000`
Set CAN0 bit rate to 500k bps
- `sudo ip link set can1 type can bitrate 500000`
Set CAN1 bit rate to 500k bps
- `sudo ip link set up can0` #Open CAN0
- `sudo ip link set up can1` #Open CAN1
- `candump can0` #Set CAN0 to receive
- `cansend can1 1F223344#1122334455667788`
Open another terminal to send data through CAN1. After sending, there will be data echo at the receiving end of CAN0.

See links for different module register values :

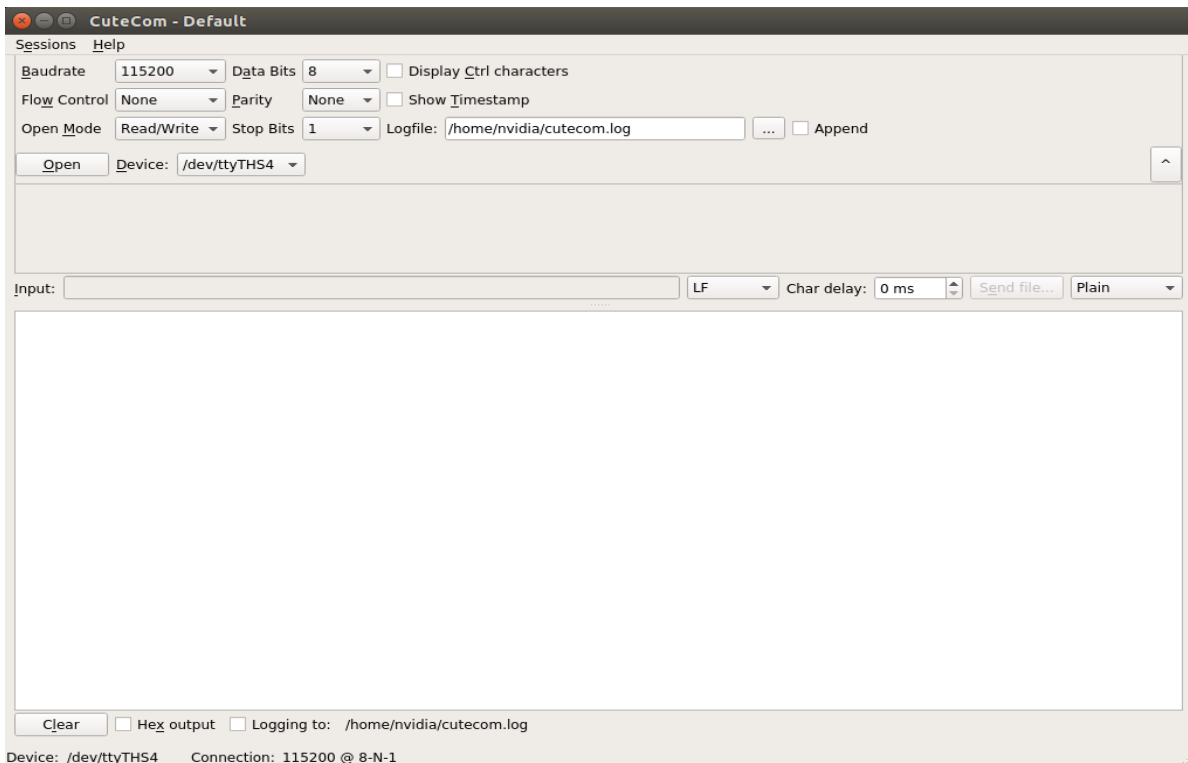
[Controller Area Network \(CAN\) — Jetson Linux Developer Guide documentation](#)
([nvidia.com](#))

11 Serial Port Test

Y-C6 is equipped with two RS232 serial ports as standard when it is paired with Jetson module, which can be used for self-collecting test of a single serial port and interconnection test of two serial ports. The command is as follows:

- `sudo apt-get install cutecom` #Install the serial port test tool
- `sudo cutecom` # For a single-serial port test, you only need to open one cutecom interface on each terminal. For a two-serial port connection test, use two terminals and open two cutecom interfaces.
- When testing a single serial port, connect the RX of a single serial port to the TX. When the two serial ports are connected, the RX of UART1 is connected to the TX of UART2, and the TX of UART1 is connected to the RX of UART2.

The interface of the serial port test tool cutecom is as follows:



12 Special Instructions

- Initial system username: **nvidia** , password: **nvidia** , no password su. If root permissions are required, use sudo to grant permissions, or use sudo su to access the root user.
- The pre-installed system is pure by default and does not contain Jetpack software. You can use the following command to install the software. Do not replace or modify the default software source before installation:
 - `sudo apt-get update`
 - `sudo apt-get install nvidia-jetpack`
- It can also be installed over the network using SDKmanager software.
- For more information please refer to [:Jetson wiki \(plink-ai.com\)](https://wiki.plink-ai.com/jetson)