PLink-AI

AI Development Carrier Board

Y-C18

Datasheet

Version V1

Date 2026-01-19

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Y-C18 Document History

Version	Date	Description of Change	Hardware Version
V 1.0	2026-1-30	Create a document	V 1.0

Hardware Update History

Version	Date	Description of Change
V 1.0	2026-2-10	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-C18 is an interface carrier board compatible with the NVIDIA Jetson Orin NX/ORIN NANO series core modules. All components on the board are of wide-temperature industrial-grade models. The main interfaces are designed with electrostatic safety protection. It adopts a highly reliable power application solution, and the input power has overvoltage and reverse polarity protection functions. It features a rich array of external interfaces.

The Y-C18 carrier board is equipped with 2 M.2 Key M slots, which can accommodate hard drives of 2230 and 2280 sizes. It also has an onboard M.2 Key E slot that can be used to expand the wifi module.

2 Specifications

	Specific
Carrier Board	Y-C18
Module	NVIDIA Jetson ORIN NX/ORIN NANO Series Modules
Temperature	-25 ~ +60°C
Dimensions (L×W×H)	100x79x22.8mm (L/W Not Including I/O ports and mounting holes)
Weight	77g

Power Supply	Spec
Input Type	DC
Input Voltage	+9V ~ +19V

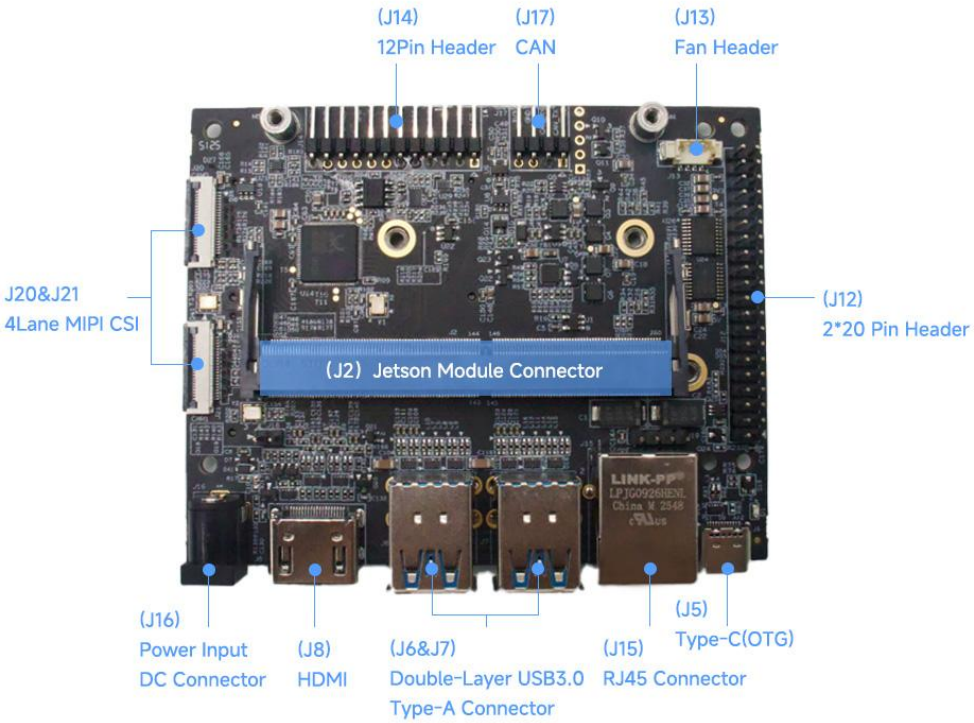
I/O Ports

Interface	Quantity	Interface	Quantity
USB3.0 Type-A	4	Type-C(OTG)	1
RJ45	1	HDMI	1
M.2 Key M Slot (2230/2280)	2	M.2 Key E Slot(2230)	1
4 Lane MIPI CSI	2	Power Jack	1
Fan Header	1		
40pin Expansion Header	6*GPIO/2*I2C/2*SPI/1*UART/I*I2S		

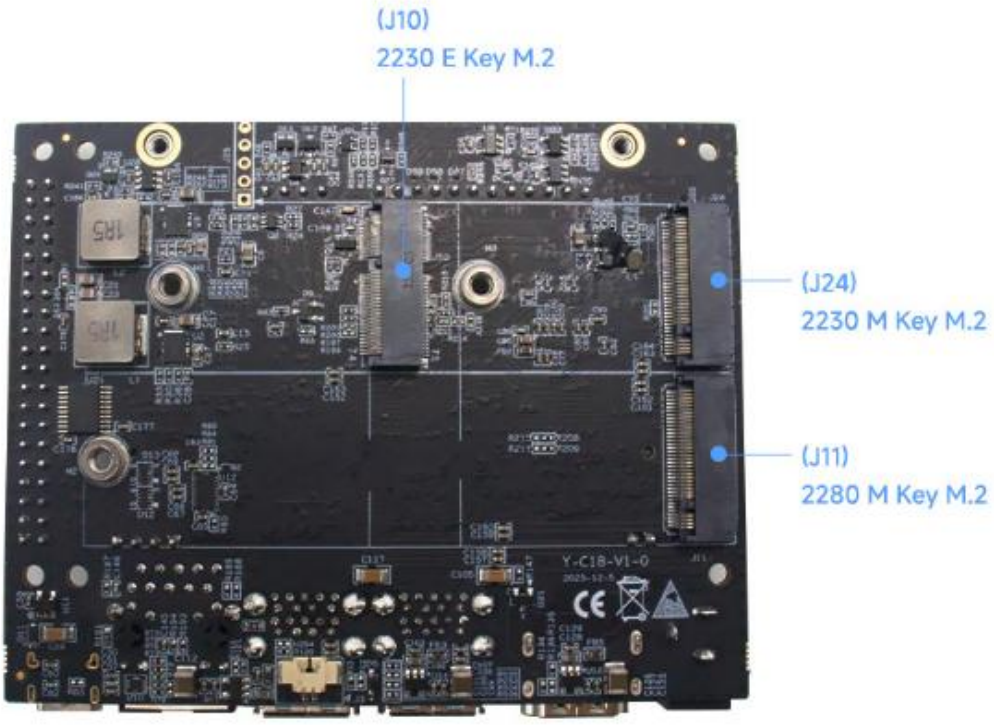
NVIDIA Jetson Series Modules Technical Specifications

Module	Jetson ORIN NX 16GB	Jetson ORIN NX 8GB	Jetson Orin Nano 8GB	Jetson Orin Nano 4GB
AI Performance	157 TOPS	117 TOPS	67 TOPS	34 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 - 40W		15W - 25W	10W - 25W

3 External I/O Ports

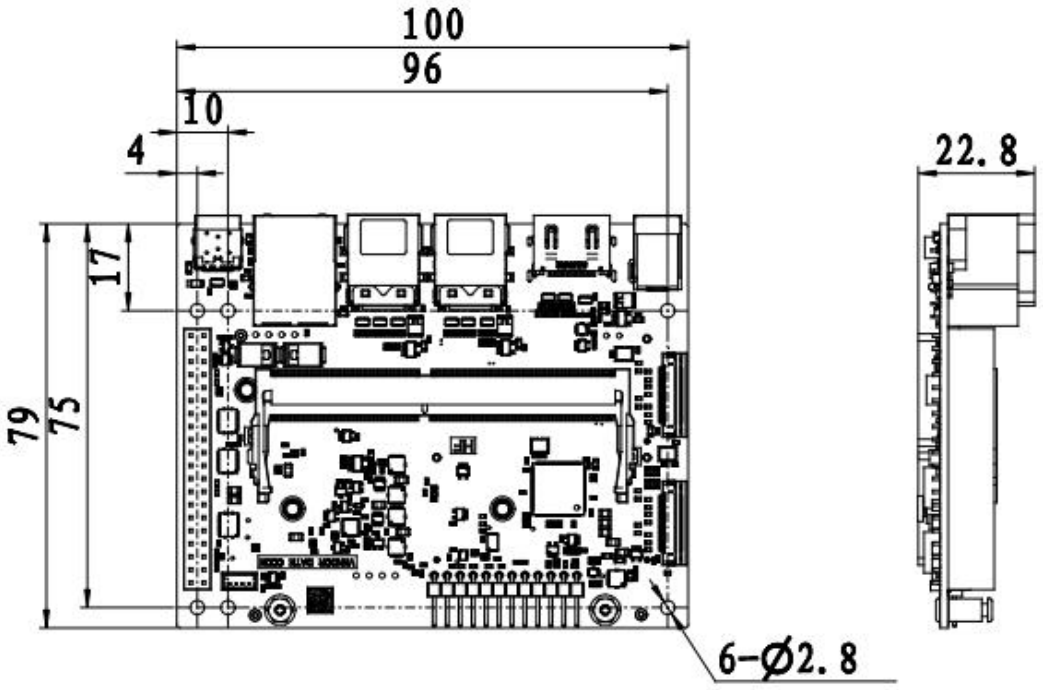


Sign	Function	Sign	Function
J2	Jetson Module Connector	J6/J7	Type A USB 3.0 (x2 stacked)
J13	FAN Header	J15	Ethernet Jack
J8	HDMI Connector	J16	Power Jack
J5	Type-C （only flash）	J12	2.54mm pitch, 2x20pin Header
J20/ J21	4 Lane MIPI CSI	J17	CAN
J14	12 pin Header		



Sign	Function	Sign	Function
J24	2230 M.2 M key Slot	J10	2230 M.2 E key Slot
J11	2280 M.2 M key Slot		

4 Dimension Figure



5 Y-C18 Connector Description

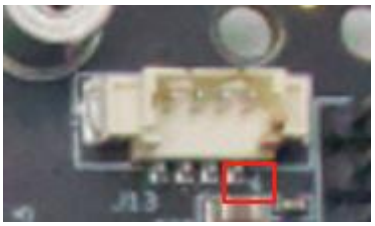
Jetson Module Connector（J2）		
Function	Connect the NVIDIA Jetson Orin NX / Orin Nano series modules	
Sign	J2	
Type/Model	2309413-1	
Explain	The pin definitions of this connector can be found in the pin definition description section of the NVIDIA Jetson series Orin NX core module data manual.	

USB Type-C（J5）		
Function	USB Type-C OTG Function Connector	
Sign	J5	
Type/Model	Type-C standard interface (used for burning the operating system)	
Explain	Refer to the standard definition	

Power Jack（J16）

Function	Board power supply connector	
Sign	J16	
Type/Model	DC-005-A250	
Explain	Supported input voltage range：DC 9V-19V	

FAN Header（J13）

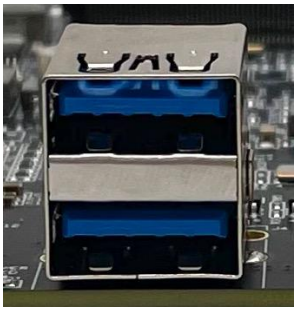
Function	Connect to external cooling system	
Sign	J13	
Type/Model	533980471	
Explain	Pin 1 position: The area marked by the red frame in the right image.	

Pin	Signal	Pin	Signal
1	GND	2	POWER (5V)
3	TACH	4	PWM

Double-layer USB 3.0 connector（J6）

Function	Double-layer USB 3.0 Type A connector
Sign	J6
Type/Model	Type-A standard USB 3.0 interface
Explain	

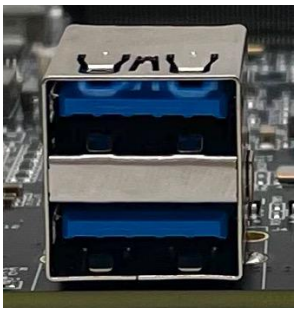
Pin	Signal	Pin	Signal
1	VBUS	2	USB2_D_N
3	USB2_D_N	4	GND
5	SSRX_N	6	SSRX_P
7	GND	8	SSTX_N
9	SSTX_P		



Double-layer USB 3.0 connector（J7）

Function	Double-layer USB 3.0 Type A connector
Sign	J7
Type/Model	Type-A standard USB 3.0 interface
Explain	

Pin	Signal	Pin	Signal
1	VBUS	2	USB2_D_N
3	USB2_D_N	4	GND
5	SSRX_N	6	SSRX_P
7	GND	8	SSTX_N
9	SSTX_P		



HDMI Connector（J8）

Function	Type A HDMI connector
Sign	J8
Type/Model	Type-A standard HDMI connector
Explain	

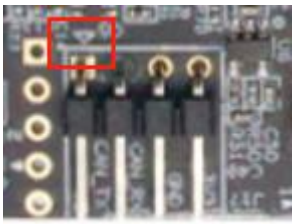
Pin	Signal	Pin	Signal
1	HDMI_TX2_P	2	GND
3	HDMI_TX2_N	4	HDMI_TX1_P
5	GND	6	HDMI_TX1_N
7	HDMI_TX0_P	8	GND
9	HDMI_TX0_N	10	HDMI_TXC_P
11	GND	12	HDMI_TXC_N
13	HDMI_CEC	14	NC
15	DDC_SCL	16	DDC_SDA
17	GND	18	VCC_HDMI
19	HDMI_HPD		

Multifunctional connector pins 4pin（J17）

Function	Multifunctional connector pins 4pin
Sign	J17
Type/Model	2541WR-04P
Explain	

Pin	Signal	Pin	Signal
1	CAN_TX	2	CAN_RX
3	GND	4	VCC_3V3

Pin 1 position: The area marked by the red frame in the right image.



Multifunctional connector pins 12pin（J14）

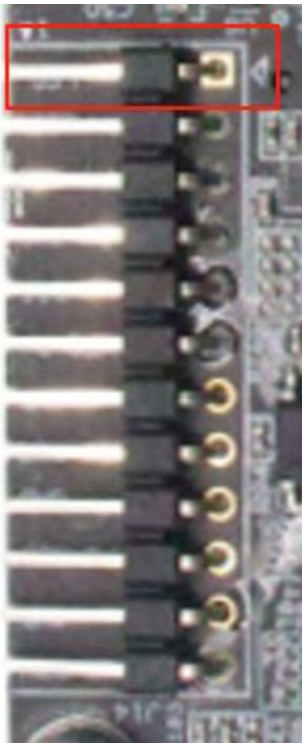
Function	Multifunctional connector pins 12pin
Sign	J14
Type/Model	2541WR-12P

Explain

Pin	Signal	Pin	Signal
1	PC_LED-_5V	2	VCC_5V
3	UART2_RX_3V3	4	UART2_TX_3V3
5	MCU_ACOK_3V3(DIS)	6	AUTO_ON
7	GND	8	RESET
9	GND	10	RECOVERY
11	GND	12	BTN

UART2 is the default serial port for kernel debugging, used to output C-BOOT, U-BOOT, and Linux kernel information. After the Linux kernel starts, it is used as the display control terminal serial port. The default serial port settings are: 115200, 8N1.
When BTN and GND are short-circuited: For a long time, directly shut down the device.
When RESET and GND are short-circuited: Restart the system
When DIS and AUTO_ON are short-circuited, the system will no longer automatically start up upon power-on. It is necessary to short-circuit BTN and GND before powering on.

Pin 1 position: The area marked by the red frame in the right image.



Ethernet Jack（J15）

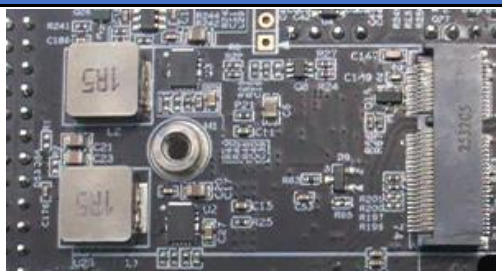
Function	10/100/1000Mbps Ethernet
Sign	J15
Type/Model	LPJG0926HENL

Explain

Pin	Signal	Pin	Signal
1	MD0+	2	MD0-
3	MD1+	4	GND
5	GND	6	MD1-
7	MD2+	8	MD2-
9	MD3+	10	MD3-
11	VC1	12	VC2
13	VC3	14	VC4

M.2 Key E Slot（J10）

Function	M.2 Key E Slot
Sign	J10
Type /Model	E Key , 2230 / APCI0360-P002A

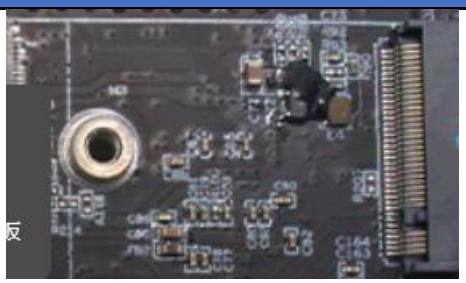


Explain

Pin	Signal	Pin	Signal	Pin	Signal
1	GND	2	3P3V	3	USB2_D_P
4	3P3V	5	ORIN_USB2_D_N	6	NC
7	GND	8	PCM_CLK/12S SCK	9	NC
10	PCM_SYNC/12S WS	11	NC	12	AP_PCM_IN/12S SD_IN
13	NC	14	AP_PCM_OUT/12S SD_OUT	15	NC
16	NC	17	NC	18	GND
19	NC	20	UART_WAKE#	21	NC
22	AP_UART_RXD	23	NC	24	NC
25	NC	26	NC	27	NC
28	NC	29	NC	30	NC
31	NC	32	AP_UART_TXD	33	GND
34	AP_UART_CTS	35	TX0_P	36	AP_UART_RTS
37	TX0_N	38	NC	39	GND
40	NC	41	RX0_P	42	VENDOR_DEFINED
43	RX0_N	44	NC	45	GND
46	NC	47	CLK_P	48	NC
49	CLK_N	50	SUSCLK_32KHZ	51	GND
52	PERST0#	53	CLKREQ_N_3V3	54	W_DISABLE2#
55	WAKE_N_3V3	56	W_DISABLE1#	57	GND
58	I2C_DATA	59	NC	60	I2C_CLK
61	NC	62	NC	63	GND
64	NC	65	NC	66	NC
67	NC	68	NC	69	GND
70	NC	71	NC	72	3P3V
73	NC	74	3P3V	75	GND
77	GND				

M.2 Key M Slot（J24）

Function	M.2 Key M Slot
Sign	J24
Type /Model	M Key , 2230/ APCI0107-P001A

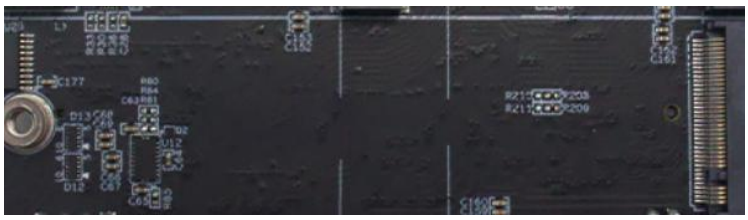


Explain

Pin	Signal	Pin	Signal	Pin	Signal
1	GND	2	VCC_3V3	3	GND
4	VCC_3V3	5	NC	6	NC
7	NC	8	NC	9	GND
10	NC	11	NC	12	VCC_3V3
13	NC	14	VCC_3V3	15	GND
16	VCC_3V3	17	NC	18	VCC_3V3
19	NC	20	NC	21	GND
22	NC	23	NC	24	NC
25	NC	26	NC	27	GND
28	NC	29	PCIE2_RX1_N	30	NC
31	PCIE2_RX1_P	32	NC	33	GND
34	NC	35	PCIE2_TX1_N	36	NC
37	PCIE2_TX1_P	38	NC	39	GND
40	I2C2_SCL_1V8	41	PCIE2_RX1_N	42	I2C2_SDA_1V8
43	PCIE2_RX1_P	44	M2_KEYM_ALERT_N_1V8	45	GND
46	NC	47	PCIE2_TX0_N	48	NC
49	PCIE2_TX0_P	50	PCIE2_RST_N_3V3	51	GND
52	PCIE2_CLKREQ_N_3V3	53	PCIE2_CLK_N	54	PCIE_WAKE_N_3V3
55	PCIE2_CLK_P	56	NC	57	GND
58	NC	59	NC	60	NC
61	NC	62	NC	63	NC
64	NC	65	NC	66	NC
67	NC	68	SUSCLK(32KHz)	69	NC
70	VCC_3V3	71	GND	72	VCC_3V3
73	GND	74	VCC_3V3	75	GND

M.2 Key M Slot（J11）

Function	M.2 Key M Slot
Sign	J11
Type /Model	M Key , 2280/ APCI0107-P001A



Explain

Pin	Signal	Pin	Signal	Pin	Signal
1	GND	2	VCC_3V3	3	GND
4	VCC_3V3	5	PCIE0_RX3_N	6	NC
7	PCIE0_RX3_P	8	NC	9	GND
10	NC	11	PCIE0_TX3_N	12	VCC_3V3
13	PCIE0_TX3_P	14	VCC_3V3	15	GND
16	VCC_3V3	17	PCIE0_RX2_N	18	VCC_3V3
19	PCIE0_RX2_P	20	NC	21	GND
22	NC	23	PCIE0_TX2_N	24	NC
25	PCIE0_TX2_P	26	NC	27	GND
28	NC	29	PCIE0_RX1_N	30	NC
31	PCIE0_RX1_P	32	NC	33	GND
34	NC	35	PCIE0_TX1_N	36	NC
37	PCIE0_TX1_P	38	NC	39	GND
40	I2C2_SCL_1V8	41	PCIE0_RX0_N	42	I2C2_SDA_1V8
43	PCIE0_RX0_P	44	M2_KEYM_M0_ALERT_N_1V8	45	GND
46	NC	47	PCIE0_TX0_N	48	NC
49	PCIE0_TX0_P	50	PCIE0_RST_N_3V3	51	GND
52	PCIE0_CLKREQ_N_3V3	53	PCIE2_CLK_N	54	PCIE_WAKE_N_3V3
55	PCIE0_CLK_P	56	NC	57	GND
58	NC	59	NC	60	NC
61	NC	62	NC	63	NC
64	NC	65	NC	66	NC
67	NC	68	SUSCLK(32KHz)	69	NC
70	VCC_3V3	71	GND	72	VCC_3V3
73	GND	74	VCC_3V3	75	GND

MIPI CSI Connector（J20）

Function	4 Lane MIPI CSI Camera Connector
Sign	J20
Type /Model	X05A20L22T
Explain	

Pin	Signal	Pin	Signal
1	VCC_3V3	2	CAM0_I2C_SDA_3V3
3	CAM0_I2C_SCL_3V3	4	GND
5	CAM0_MCLK_1V8	6	CAM0_PWDN_3V3
7	GND	8	CSI0_D1_P
9	CSI0_D1_N	10	GND
11	CSI0_D0_P	12	CSI0_D0_N
13	GND	14	CSI1_CLK_P
15	CSI1_CLK_N	16	GND
17	CSI1_D1_P	18	CSI1_D1_N
19	GND	20	CSI1_D0_P
21	CSI1_D0_N	22	GND

Pin 1 position: The area marked by the red frame in the right image.

MIPI CSI Connector（J21）

Function	4 Lane MIPI CSI Camera Connector
Sign	J21
Type /Model	X05A20L22T

Explain

Pin	Signal	Pin	Signal
1	VCC_3V3	2	CAM1_I2C_SDA_3V3
3	CAM1_I2C_SCL_3V3	4	GND
5	CAM1_MCLK_1V8	6	CAM1_PWDN_3V3
7	GND	8	CSI3_D1_P
9	CSI3_D1_N	10	GND
11	CSI3_D0_P	12	CSI3_D0_N
13	GND	14	CSI2_CLK_P
15	CSI2_CLK_N	16	GND
17	CSI2_D1_P	18	CSI2_D1_N
19	GND	20	CSI2_D0_P
21	CSI2_D0_N	22	GND

Pin 1 position: The area marked by the red frame in the right image.

2.54mm pitch, 2x20pin Header（J12）

Function	Multifunctional signal expansion interface
Sign	J12
Type/Model	2.54mm pitch, 2*20-pin dual-row straight-pin arrangement

Explain

Pin	Signal	Pin	Signal
1	3.3V	2	5V
3	I2C1_SDA	4	5V
5	I2C1_SCL	6	GND
7	GPIO09	8	UART1_TX
9	GND	10	UART1_RX
11	UART1_RTS	12	I2S0_SCLK
13	SPI1_SCK	14	GND
15	GPIO12	16	SPI1_CS1_N
17	3.3V	18	SPI1_CS0_N
19	SPI0_MOSI	20	GND
21	SPI0_MISO	22	SPI1_MISO
23	SPI0_SCK	24	SPI0_CS0_N
25	GND	26	SPI0_CS1_N
27	I2C0_SDA	28	I2C0_SCL
29	GPIO01	30	GND
31	GPIO11	32	GPIO07
33	GPIO13	34	GND
35	I2S0_LRCK	36	UART1_CTS
37	SPI1_MOSI	38	I2S0_DIN
39	GND	40	I2S0_DOUT

UART1 serial port is a TTL serial port.
Device Name:

	UART1
ORIN NX	/dev/ttyTHS1
ORIN NANO	/dev/ttyTHS1

Pin 1 position: The area marked by the red frame in the right image.

2.54mm pitch, 2x20pin Header（J12）

Explain

I2C Device Name:

	i2c0	i2c1
ORIN NX	/dev/i2c-1	/dev/i2c-7
ORIN NANO	/dev/i2c-1	/dev/i2c-7

The GPIO mapping numbers that are derived are shown in the following table. The high voltage level of the GPIO is 3.3V.

	GPIO09	GPIO12	GPIO01
ORIN NX	PAC.06 (gpiochip0, 144)	PN.01 (gpiochip0,85)	PQ.05 (gpiochip0, 105)
ORIN NANO	PAC.06 (gpiochip0, 144)	PN.01 (gpiochip0,85)	PQ.05 (gpiochip0, 105)

	GPIO11	GPIO13	GPIO07
ORIN NX	PQ.06 (gpiochip0, 106)	PH.00 (gpiochip0,43)	PG.06 (gpiochip0, 41)
ORIN NANO	PQ.06 (gpiochip0, 106)	PH.00 (gpiochip0,43)	PG.06 (gpiochip0, 41)

Explanation of GPIO device numbers:
Take GPIO09 as an example: gpiochip0,144 is the number obtained through gpiofind query, and will be used later for testing GPIO with the gpiod tool.

6 Ordering Information

Order Type	Function
Y-C18	The interface expansion carrier board for the core modules of NVIDIA® Jetson™ ORIN NX/ORIN NANO series.

E-commerce Platform

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

7 Recovery Mode

The Jetson core module can operate in normal mode and Recovery mode. In Recovery mode, operations such as file system update, kernel update, Bootloader/UEFI update, and BCT update can be performed.

The steps to enter Recovery mode are as follows:

Turn off the system power supply.

Connect the Type-C cable between the Type-C port (J5) of Y-C18 and the USB port of the Jetson development host.

Short-circuit the 10th and 11th pins of J14, then supply power to the system.

The system enters Recovery mode. At this point, you can perform subsequent operations.

8 Method of Application

- Make sure that the voltages of all external systems have been turned off.
- Install the Jetson core module onto the J2 high-speed connector. During the installation process, pay attention to the alignment between the connectors and apply even force. After the module is installed in place, install the core module fixing screws.
- Install the necessary external cables. (Such as the display cable connected to the HDMI display, the power input cable for powering the system, the USB cable linking the keyboard and mouse, the camera, the MiniPCIe function expansion module...)
- Connect the power cable to the power source. Before powering on, be sure to ensure that the cooling device on the core module has been installed.
- For systems without a protective casing, after powering on the system, avoid moving the hardware system and strictly prohibit touching the circuit board and any electronic components on it with your body.

9 GPIO Test

The Y-C18 is equipped with the Jetson module and comes with 6 GPIO ports. It can output 3.3V voltage programmatically. Please note that the input voltage should not exceed 3.3V.

When using the Orin Nano module, with L4T 36.4.4, for example, GPIO 09:

- The content following the "#" symbol in the following commands is a comment and does not need to be included when executing the commands.

- sudo apt update
- sudo apt install gpiod
- sudo gpiofind "PAC.06" #Here, it will return its group and number.
  #This is the measurement output method
- sudo gpioset --mode=wait /dev/gpiochip0 144=1
  #Measure the voltage between this pin and GND using a multimeter, and it should be 3.3V.
  #This is the measurement of the input method.
- sudo gpioget gpiochip0 144
  #After connecting this GPIO pin to 3.3V, the return value becomes 1.
  #After connecting this GPIO pin to GND, the return value becomes 0, which indicates that it is correct.

10 CAN Test

- When the Y-C18 is equipped with the Jetson Orin Nano module, it comes with a standard one CAN signal. CANH and CANL are short-circuited. The test command is as follows:

  sudo apt-get install busybox can-utils

#Write the specified value into the register

#The addresses of the registers that need to be written into by different modules, as well as the values to be written, are all different. Please refer to the relevant link at the end of this section for details.

- sudo busybox devmem 0x0c303018 w 0xc458
- sudo busybox devmem 0x0c303010 w 0xc400
- sudo modprobe can #Load the CAN bus subsystem support module
- sudo modprobe can_raw #Load the original CAN protocol module
- sudo modprobe mttcan#Loading CAN interface support
- sudo ip link set can0 type can bitrate 500000 loopback on #Set the baud rate of CAN0 to 500 kbps.
- sudo ip link set up can0 #Open CAN0
- candump can0 & #Set CAN0 to receive mode
- cansend can0 123#abcdabcd

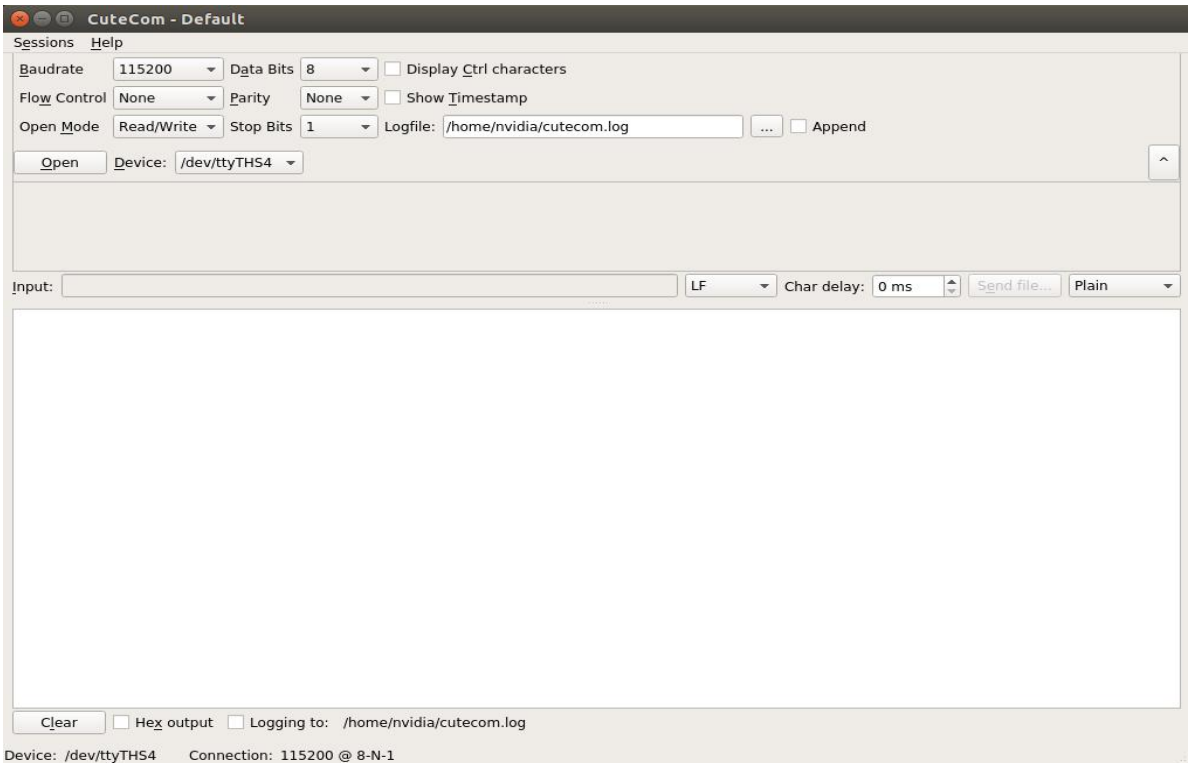
  #Open another terminal and send data through CAN0. After sending, there will be data echoed back at the receiving end of CAN0.

  Please refer to the link for the values of different module registers:

  Controller Area Network (CAN) — Jetson Linux Developer Guide documentation (nvidia.com)

11 Serial Port Test

- When Y-C18 is paired with the Jetson module, it is standardly equipped with 1 3.3V TTL serial port, which can be used for self-testing of a single serial port as well as connection testing of two serial ports.
  The operation instructions are 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.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)