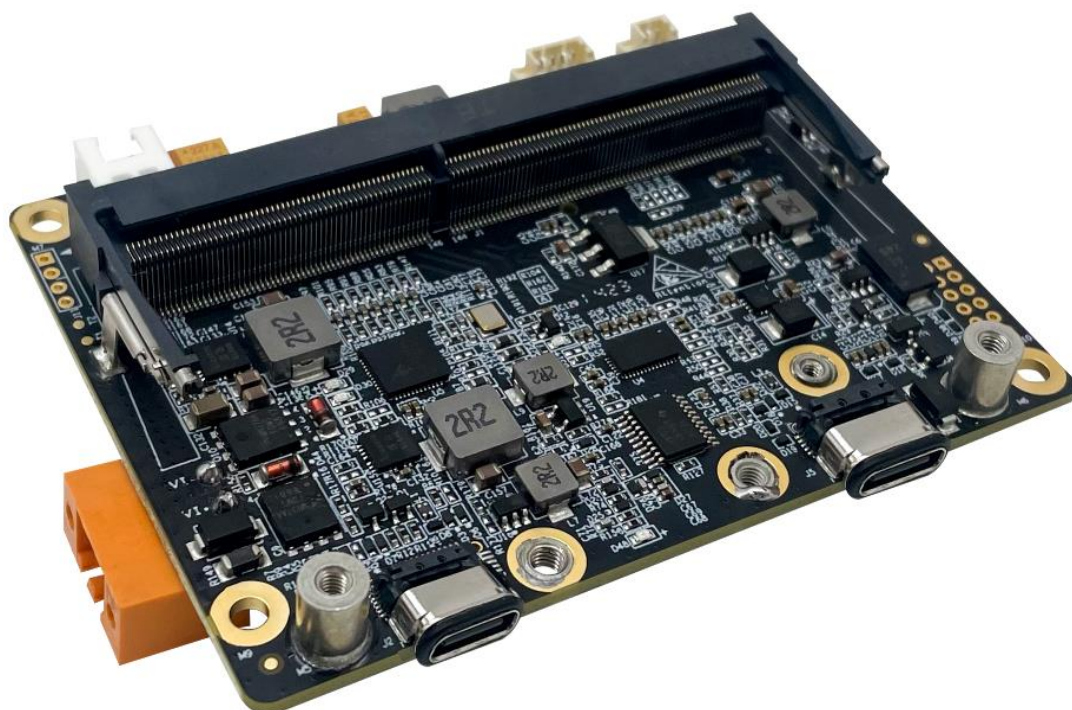


Y-C17 Carrier Board Datasheet



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Room 718, Financial Kemao Building, 15 Shangdi Xinx Road, Haidian District, Beijing



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Datasheet Updated History

Version	Date	Description of Change	Hardware Version
V1.0	2023-4-21	Create a document	V1.0

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Product Hardware Updated History

Version	Date	Description of Change
V1.0	2022-4-21	Initial version

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Electronic components and circuits are very sensitive to electrostatic discharge, although the company will do anti-static protection design on the main interface of the board when designing circuit board products, but it is difficult to do anti-static safety protection for all components and circuits. Therefore, it is recommended to follow esd safety precautions when handling any circuit board component. Esd protection measures include but are not limited to the following:

- During transportation or storage, place the card in an ESD bag and do not take it out until installation.
- Release the static electricity before touching the board. Wear a discharge grounding wrist strap.
- Operate the circuit board only in electrostatic discharge safety area.
- Avoid moving circuit boards in carpeted areas.
- Avoid direct contact with electronic components on the board by edge contact.

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Chapter 1. Introduction

Y-C17 is carrier board for Jetson Xavier NX, Jetson Orin NX/Orin Nano module. The whole board adopts wide temperature industrial models, the main interface is designed for electrostatic safety protection, and the power supply application scheme of high reliability is adopted. The input power supply has the function of overvoltage and reverse polarity protection, and has a rich external interface. It can carry hundreds of functional modules through MiniPCIe connector (including USB2.0 and PCIe X1 signals) to achieve further expansion of system functions. The M.2 B key slot of the Y-C17 carrier board can directly carry 4G/5G communication modules, and the carrier board has a Nano SIM card slot.

1.1 Product Specifications

- 2 x Type-C connector
- 1 x Nano type SIM card connector
- 1 x full length MiniPCIe connector
- 1 x M.2 2230 M key slot
- 1 x M.2 3050 B key slot (Expandable 4G/5G communication module)
- 1 x 2 Lane MIPI camera interface FPC connector
- 1 x 3.3V RTC power supply port
- 1 x Fan control interface (5V)
- Automatic power on
- Anti-shedding power supply terminals
- Board size: 85mm * 63mm * 18mm
- Power input: DC +12V ~ +24V
- Working temperature: -40 ~ +85°C
- Weight: 45g

1.2 Order Information

Model	Functional Description
Y-C17	Equipped with NVIDIA Jetson Xavier NX, ORIN NX and ORIN Nano core module interface expansion board.

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/>

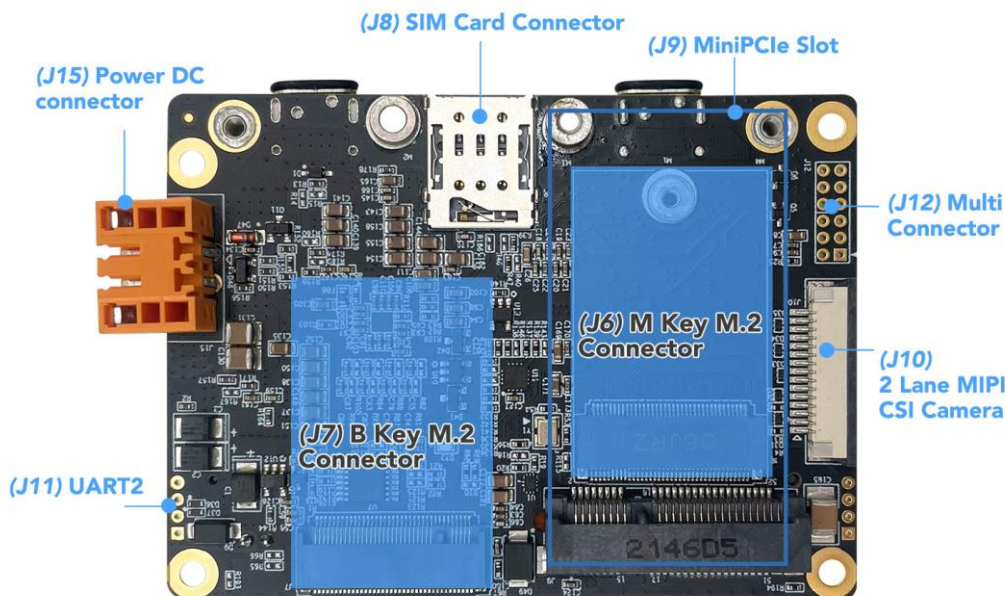
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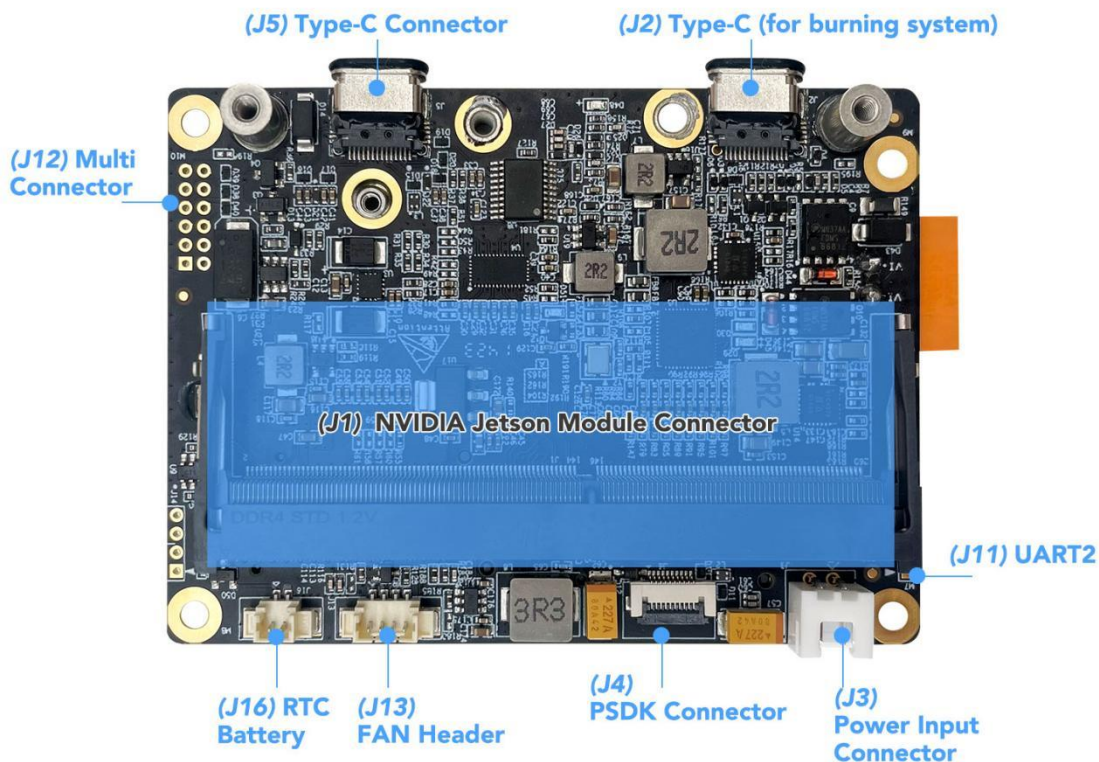
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Chapter2. External interface function and location



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Back



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2.1 Functional Connector

Connector	Description
J1	High-speed connector for connecting the core modules of the Jetson series
J2	Type-C interface for system burning and OTG function output
J3	Power output interface
J4	PSDK Signal Connector
J5	Type-C interface
J6	2230 M key M.2 connector (PCIe x4)
J7	3050 B key M.2 connector (USB3.0+USB2.0)
J8	Nano SIM socket
J9	Mini PCIe slot (PCIe x1 + USB2.0)
J10	2 lane MIPI CSI connector
J11	Debugging serial port UART2
J12	12 pin connector (including 3v, 5v power supply, 4 GPIO, 1 I ² C)
J13	5V Fan connector
J15	Power supply DC connector
J16	RTC Power connector

2.2 LED indicator light

LED	Description
D51	Carrier board power indicator light
D48	Carrier board power supply status indicator light

Chapter 3. Installation and Use

3.1 Installation effect drawing

3.2 Method of use

- a) Ensure that all external system voltages are turned off
- b) Install the Jetson core module to the J1 high speed connector. Please pay attention to the alignment between the connectors and apply even force during the installation. Install the core module fixing screw after the module is installed in place.
- c) Install necessary external cables. (For example: display cable connected to HDMI display, power input cable for system power, USB cable connecting keyboard and mouse, camera, MiniPCIe function expansion module...)
- d) Power on the DC12-24V power supply (Ensure that the heat dissipation device on the core module is installed before power-on).
- e) For the 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 directly with your body.

Chapter 4. Interface Definition Description

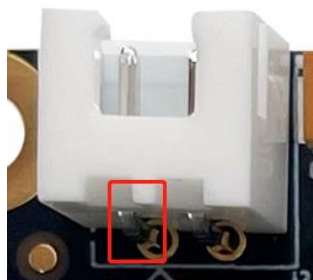
4.1 Core Module Connector (J1)

Function	Connect to NVIDIA Jetson series Xavier NX, Orin NX / Orin Nano module	
Location	J1	
Model	2309413-1	
Pin Descriptions	For the pin definition of this connector, see the pin definition instructions in the NVIDIA Jetson Series Orin NX Core Module Data Book.	

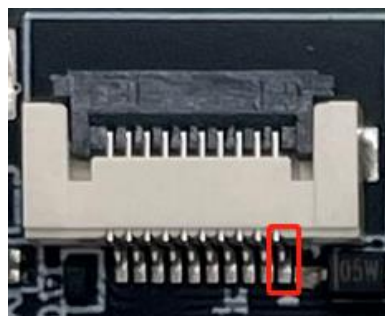
4.2 Type-C Connector (J2)

Function	Type-C interface for system burning and OTG function output	
Location	J2	
Model	Standard Type-C male connector	
Pin Descriptions		

4.3 Power output interface (J3)

Function	Power output interface											
Location	J3											
Model	XH-2AW											
Pin Descriptions	<table><tr><th>Pin</th><th>Signal</th></tr><tr><td>1</td><td>VIN</td></tr></table>	Pin	Signal	1		VIN	<table><tr><th>Pin</th><th>Signal</th></tr><tr><td>2</td><td>GND</td></tr></table>	Pin	Signal	2	GND	
Pin	Signal											
1	VIN											
Pin	Signal											
2	GND											

4.4 PSDK Signal Connector (J4)

Function	PSDK connector is used to connect the USB2.0+UART of DJI UAV extension				
Location	J4				
Model	FPC_0R5MM_10P				
Pin Descriptions	PSDK pin definition as below:				
	Pin	Signal	Pin	Signal	
	1	5V	2	GND	
	3	GND	4	GND	
	5	UART1_TX_3V3	6	UART1_RX_3V3	
	7	GND	8	USB2_D1_N	
	9	USB2_D1_P	10	GND	

4.5 Type-C Connector (J5)

Function	Type-C interface	
Location	J5	
Model	Type-C standard interface	
Pin Descriptions		

4.6 M Key M.2Extension Interface (J6)

Function	M Key M.2 slot	
Location	J6	
Model	M Key ,2230 SMTSO2005CTJ	

Pin Descriptions

Standard M.2 Key M interface

Pin	Signal	Pin	Signal
1	GND	2	3.3V
3	GND	4	3.3V
5	PER3_N	6	NC
7	PER3_P	8	NC
9	GND	10	LED
11	PET3_N	12	3.3V
13	PET3_P	14	3.3V
15	GND	16	3.3V
17	PER2_N	18	3.3V
19	PER2_P	20	NC
21	GND	22	NC
23	PET2_N	24	NC
25	PET2_P	26	NC
27	GND	28	NC
29	PER1_N	30	NC
31	PER1_P	32	NC
33	GND	34	NC
35	PET1_N	36	NC
37	PET1_P	38	NC
39	GND	40	SMB_CLK
41	PER0_N	42	SMB_DATA
43	PER0_P	44	ALERT
45	GND	46	NC
47	PET0_N	48	NC
49	PET0_P	50	PERST#
51	GND	52	CLKREQ#
53	REFCLK_N	54	PEWAKE#
55	REFCLK_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	3.3V
71	GND	72	3.3V
73	GND	74	3.3V
75	GND		



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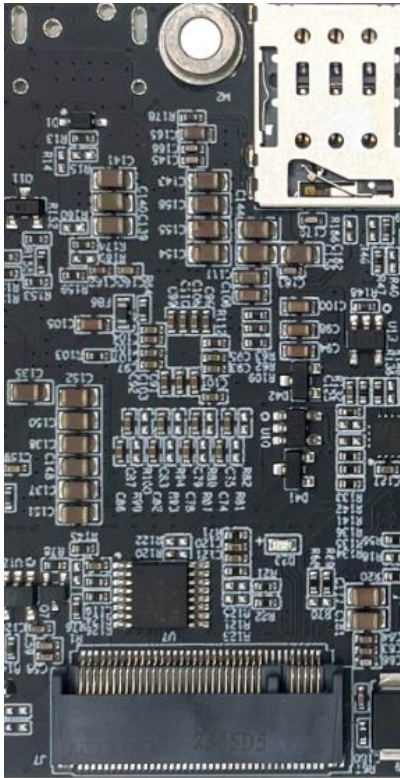
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4.7 B key M.2 Connector extension interface (J7)

Function	B Key M.2 slot	
Location	J7	
Model	B Key, 3050 size	
Pin Descriptions	The standard M.2 Key B port is used to connect 4G/5G communication modules The J5 connector uses PCIe signals. Please contact us for detailed signal definition.	

4.8 SIM card connector (J8)

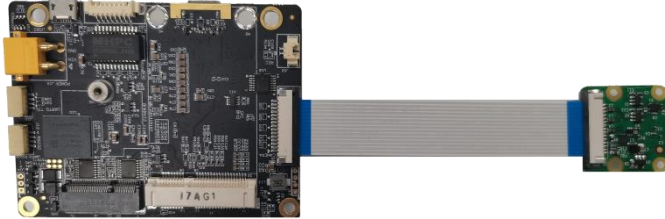
Function	Nano type SIM slot	
Location	J8	
Model	Self-ejecting Nano SIM slot	
Pin Descriptions		

4.9 Mini PCI Connector (J9)

Function	Mini PCI Connector			
Location	J9			
Model	5.6mm full length mini PCIe connector			
Pin Descriptions	Pin	Signal	Pin	Signal
	1	WAKE	2	3.3V
	3	NC	4	GND
	5	NC	6	1.5V
	7	PEIC1_CLKREQ	8	NC
	9	GND	10	NC
	11	PEIC1_REFCLK_N	12	NC
	13	PEIC1_REFCLK_P	14	NC
	15	GND	16	NC
	17	NC	18	GND
	19	NC	20	WI_DISABL E
	21	PEIC_CARD_SEL	22	PEIC1_REST
	23	PERN	24	3.3V
	25	PERP	26	GND
	27	GND	28	1.5V
	29	GND	30	NC
	31	PETN	32	NC
	33	PETP	34	GND
	35	GND	36	USB2_D_N
	37	GND	38	USB2_D_P
	39	VCC_3V3_PCIE	40	GND
	41	VCC_3V3_PCIE	42	NC
	43	PEIC_SEL	44	NC
	45	NC	46	NC
	47	NC	48	1.5V
	49	NC	50	GND
	51	NC	52	3.3V
	The J9 connector contains USB2.0 and PCIe x1 signals			



4.10 MIPI CSI Connector (J10)

Function	2 Lane Mipi CSI Camera Connector			
Location	J10			
Model	15pin, 1.0mm spacing, upper cover, lower contact FPC connector			
Pin Descriptions	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		
	Position of pin 1: in the red box on the right side of the picture.			
Connection diagram with Raspberry PI 2 with MIPI camera, note that use the same plane line connection				
				
				

4.11 Debug serial port UART2 pin (J11)

Function	Debugging serial port UART2			
Location	J11			
Model	2.0mm spacing 1*4pin single row straight pins			
Pin Descriptions	Pin	Signal	Pin	Signal
	1	1V8	2	UART_TX_1V8
	3	UART_RX_1V8	4	GDN
	Position of pin 1: in the red box on the right side of the picture.			



4.12 Multifunctional expansion connector (J12)

Function	Multifunctional expansion connector interface			
Location	J12			
Model	2.0mm spacing 2*6pin double row straight pins			
Pin Descriptions	Pin	Signal	Pin	Signal
	1	VCC_5V	2	VCC_3V3
	3	GND	4	GND
	5	GPIO01_3V3	6	GPIO03_3V3
	7	GPIO02_3V3	8	GPIO04_3V3
	9	GND	10	GND
	11	I2C1_SCL_3V3	12	I2C1_SDA_3V3
Position of pin 1: in the red box on the right side of the picture.				



4.13 Fan interface connector (J13)

Function	Connect the external heat dissipation fan			
Location	J16			
Model	Molex PicoBlade Header 53261-0471			
Pin Descriptions	Pin	Signal	Pin	Signal
	1	GND	2	+5V
	3	TACH	4	PWM
Position of pin 1: in the red box on the right side of the picture.				



4.14 Power supply DC connector (J15)

Function	Power input terminal												
Location	J18												
Model													
Pin Descriptions	<table><tr><th>Pin</th><th>Signal</th><th>Pin</th><th>Signal</th></tr><tr><td>1</td><td>VCC (+)</td><td>2</td><td>GND (-)</td></tr></table> Position of pin 1: in the red box on the right side of the picture. Input voltage range: +12V to +24V.					Pin	Signal	Pin	Signal	1	VCC (+)	2	GND (-)
Pin	Signal	Pin	Signal										
1	VCC (+)	2	GND (-)										

4.15 RTC Battery input connector (J16)

Function	Provide power support for the core board clock circuit										
Location	J16										
Model	Molex PicoBlade Header 53398-0271										
Pin Descriptions	<table><thead><tr><th>Pin</th><th>Signal</th><th>Pin</th><th>Signal</th></tr></thead><tbody><tr><td>1</td><td>VCC (3.3V)</td><td>2</td><td>GND</td></tr></tbody></table> Position of pin 1: in the red box on the right side of the picture.				Pin	Signal	Pin	Signal	1	VCC (3.3V)	2
Pin	Signal	Pin	Signal								
1	VCC (3.3V)	2	GND								