reComputer Industrial Reference Guide

Fanless compact PC

- Thermal reference design, wider temperature support -20 ~ 60°C with 0.7m/s airflow

Design for industrial interfaces

- 2* RJ45 GbE(1 for POE PSE 802.3 af); 1* RS 232/RS 422/RS 485; 4* DI/DO; 1* CAN; 3* USB3.2; 1* TPM2.0 (Module optional)

Hybrid connectivity

- Support 5G/4G/LTE/LoRaWAN® (Module optional) with 1* Nano SIM card slot

Flexible mounting

- Desk, DIN rail, Wall-mounting, VESA

Certifications

- RoHS CE FC UK CA

Introduction

reComputer Industrial-series includes compact edge computers built with NVIDIA advanced AI embedded systems: Nvidia Jetson Orin™ NX/Orin™ Nano/Xavier NX and Seeed carrier board. With rich extension modules, industrial peripherals, thermal management combined with decades of Seeed's hardware expertise, reComputer Industrial Jetson is ready to help you accelerate and scale the next-gen AI products emerging diverse AI scenarios.
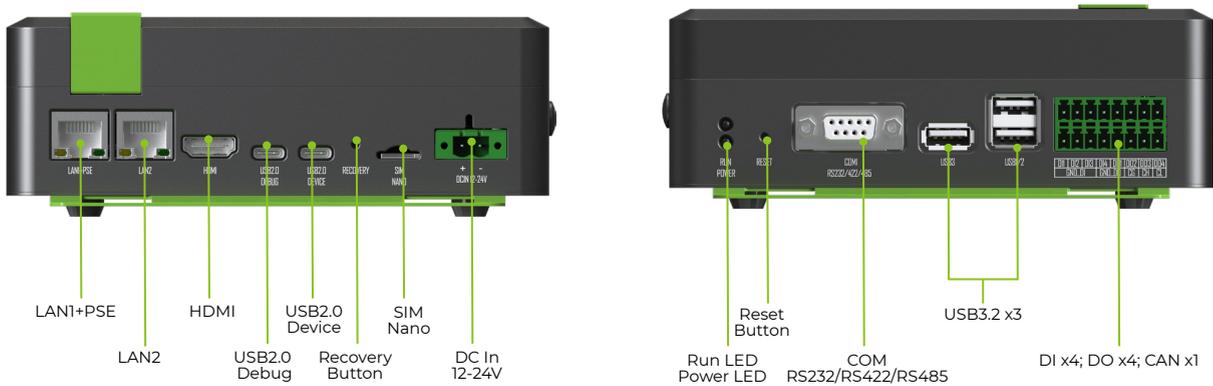
Packing List

- 1* reComputer Industrial
- 2* Mounting Bracket
- 1* DIN Rail Bracket
- 4* Bracket Screw
- 1* 16-Pin Terminal Block for DIO
- 1* 19V Power Adapter(without power cord)
- 1* 2-Pin Terminal Block Power Connector

Table of Contents

seeed studio

Hardware Overview

LAN1+PSE
HDMI
USB2.0 Device
SIM Nano
LAN2
USB2.0 Debug
Recovery Button
DC In 12-24V

Reset Button
USB3.2 x3
Run LED
Power LED
COM RS232/RS422/RS485
DI x4; DO x4; CAN x1

Specifications

Product Name	reComputer Industrial J4012	reComputer Industrial J4011	reComputer Industrial J3011	reComputer Industrial J3010	reComputer Industrial J2012	reComputer Industrial J2011
NVIDIA Jetson Module	**Orin NX 16GB**	**Orin NX 8GB**	**Orin Nano 8GB**	**Orin Nano 4GB**	**Xavier NX 16GB**	**Xavier NX 8GB**
Processor System — AI Performance	100TOPS	70TOPS	40TOPS	20TOPS	21TOPS	
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	384-core NVIDIA Volta™ GPU with 48 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		6-core NVIDIA Carmel ARM® v8.2 64-bit CPU, 6MB L2 + 4MB L3	
Memory	16GB 128-bit LPDDR5 102.4GB/s	8GB 128-bit LPDDR5 102.4GB/s	8GB 128-bit LPDDR5 68GB/s	4GB 64-bit LPDDR5 34GB/s	16GB 128-bit LPDDR4x 59.7GB/s	8GB 128-bit LPDDR4x 59.7GB/s
Video Encode	1* 4K60 (H.265) | 3* 4K30 (H.265) | 6x 1080p60 (H.265) | 12x 1080p30 (H.265)		1080p30 supported by 1-2 CPU cores		2*4K60 | 4*4K30 | 10*1080p60 | 22*1080p30 (H.265) 2*4K60 | 4*4K30 | 10*1080p60 | 20*108p30 (H.264)	
Video Decode	1* 8K30 (H.265) | 2* 4K60 (H.265) | 4* 4K30 (H.265) | 9* 1080p60 (H.265) | 18* 1080p30 (H.265)		1* 4K60 (H.265) | 2* 4K30 (H.265) | 5* 1080p60 (H.265) | 11* 1080p30 (H.265)		2*8K30 | 6*4K60 | 12*4K30 | 22*1080p60 | 44*1080p30 (H.265) 2*4K60 | 6*4K30 | 10*1080p60 | 22*1080p30 (H.264)	
Storage — eMMC	-	-	-	-	16GB eMMC 5.1	
Expansion	M.2 Key M PCIe Gen4.0 SSD (M.2 NVMe 2280 SSD 128GB included)					
I/O — Networking	1* LAN1 RJ45 GbE PoE(PSE 802.3 af 15 W); 1* LAN2 RJ45 GbE (10/100/1000Mbps)					
USB	3* USB3.2; 1* USB2.0 Type C (Device mode); 1* USB2.0 Type C For Debug UART & RP2040					
DI/DO	4*DI,4*DO,3*GND_DI,2*GND_DO,1*GND_ISO,1*CAN					
COM	1* DB9 (RS232/RS422/RS485)					
Display	1*HDMI 2.0 Type A					
SIM	1* Nano SIM card slot					
Expansion — Mini PCIe	Mini PCIe for 4G/LoRaWAN®(Module optional)					
Wi-Fi	Support SMD Wi-Fi/Bluetooth (Module optional)					
M.2 Key B	M.2 Key B support 4G/5G (Module optional)					
Fan	Fanless, passive heatsink; 1*Fan connectors(5V PWM)					
TPM	1* TPM 2.0 connector (Module optional)					
RTC	1* RTC socket ,1* RTC 2-pin					
Camera	2* CSI (2-lane 15pin)					
Power — Power Supply	DC 12V-24V Terminal block 2 pin					
Power Adapter	19V Power Adapter(without power cord)					
Mechanical — Dimensions (W x D x H)	159mm*155mm*57mm					
Weight	1.57kg					
Installation	Desk, DIN rail, wall-mounting, VESA					
Environment — Operating Temperature	-20 ~ 60°C with 0.7m/s					
Operating Humidity	95% @ 40 °C (non-condensing)					
Vibration	3 Grms @ 5 ~ 500 Hz, random, 1 hr/axis					
Shock	50G peak acceleration (11 msec)					
OS	Pre-installed Jetpack 5.1 (above) (provide Linux OS with board support package)					
Certification	FCC, CE, RoHS, UKCA					
Warranty	2 Years					

* LoRaWAN® is a mark used under license from the LoRa Alliance®.

Pin Definitions

Front View
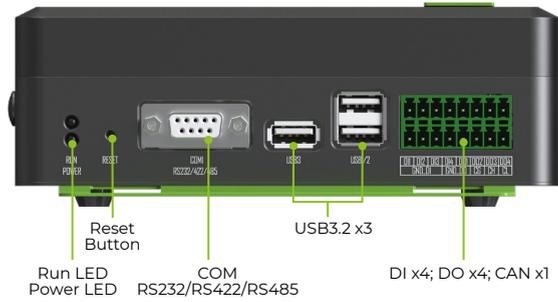
LED

LED Name	Descriptions	Status
RUN	Green, system operation indicator	Always on or blink after the system is running
POWER	Red, 3.3V Power Indicator	Always on after power on

RESET Button - SW1

Reset button: the reset button executes a hard reset on the system.

COM 232/422/485 - DB9 J1
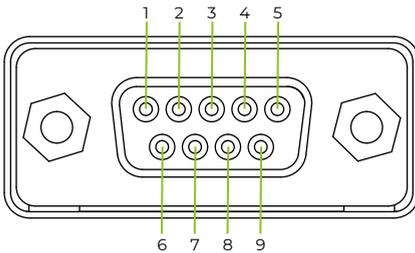
MODE	001	000/100	010/110
Pin #	RS232	RS422	RS485
1		TXD-	Data-
2	RXD	TXD+	Data+
3	TXD	RXD+	
4		RXD-	
5	GND	GND	GND
6			
7	RTS		
8	CTS		
9			
Note: 1. Default mode is RS485. 2. Toggle the switch(SW3) for mode switching after power off to avoid damage to the device. 3. RS232 comes with flow control.			

seeed studio

DIP Switches - SW3
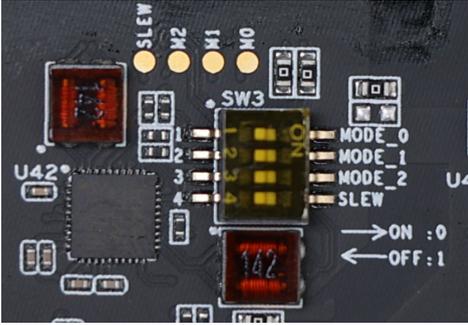
COM 232/422/485 Mode selection instructions

Toggle the dip switch(SW3) for switching the mode of COM RS232/RS422/RS485 (DB9 J1). The dip switch is on the back of the carrier board, refer to the carrier board instruction diagram for detailed location.

	MODE_0	MODE_1	MODE_2	Mode	Status
MODE_0 MODE_1 MODE_2	0	0	0	RS-422 Full Duplex	1T/1R RS-422
MODE_0 MODE_1 MODE_2	0	0	1	Pure RS-232	3T/5R RS-232
MODE_0 MODE_1 MODE_2	0	1	0	RS-485 Half Duplex	1T/1R RS-485 ,TX ENABLE Low Active
MODE_0 MODE_1 MODE_2	0	1	1	RS-485 Half Duplex	1T/1R RS-485 ,TX ENABLE High Active
MODE_0 MODE_1 MODE_2	1	0	0	RS-422 Full Duplex	1T/1R RS-422 with termination resistor
MODE_0 MODE_1 MODE_2	1	0	1	Pure RS-232	1T/1R RS-232 co-exists with RS485 application without the need for the bus switch IC (for special usage).
MODE_0 MODE_1 MODE_2	1	1	0	RS-485 Half Duplex	1T/1R RS-485 with termination resistor TX ENABLE Low Active
MODE_0 MODE_1 MODE_2	1	1	1	Low Power / Shutdown	All I/O pins are High Impedance

Slew rate control pin, Logical Low input will limit driver slew from either RS-232 to 1Mbps or RS-485 to 10Mbps. Internal pull high= 625KΩ.

|	Status	Note
SLEW	1	SLEW= Vcc This RS232/RS422/RS485 Multiprotocol Transceiver limits the communication rateas follows: RS-232: MaximumData Rate is 1.5Mbps RS-485/RS-422; MaximumData Rate is 10Mbps The actual Maximum Data Rate depends on the Jetson SO Mused
SLEW	0	SLEW = GND RS-232: Maximum Data Rate is 250Kbps RS-485/RS-422: Maximum Data Rate is 250kbps

USB3.1 TYPE-A x2 - J4

Pin #	Module Pin Name1	Usage/Description	Type/Dir2
USB 3.0 Type A (2)			
1	–	VBUS Supply	Power
2	USB1_D_N	USB 2.0 #2 Data from hub	Bidir
3	USB1_D_P		
4	–	Ground	Ground
5	USBSS_RX_N	USB 3.0 Receive #2 Data from hub	Input
6	USBSS_RX_P		
7	–	Ground	Ground
8	USBSS_TX_N	USB 3.0 Transmit #2 Data from hub	Output
9	USBSS_TX_P		
USB 3.0 Type A (1)			
10	–	VBUS Supply	Power
11	USB1_D_N	USB 2.0 Data #1 Data from hub	Bidir
12	USB1_D_P		
13	–	Ground	Ground
14	USBSS_RX_N	USB 3.0 Receive #1 Data from hub	Input
15	USBSS_RX_P		
16	–	Ground	Ground
17	USBSS_TX_N	USB 3.0 Transmit #1 Data from hub	Output
18	USBSS_TX_P		

Note:

1.The upper and lower USB ports share a current-limiting IC, with a total power supply capacity of 2.1A maximum output current (single can also be 2.1A). If over 2.1A, it will enter the over-current protection state.

2.The module pin names not directly connected to the USB connector pins but are routed to the input of the USB hub.

3.Orin NX module comes with 3 USB3.2, only one of which is used in reComputer and converted to 3 ways. (USB3.1 TYPE-A x2 - J4 and USB3.1 TYPE-A x1 -J3).

4.Only supports USB Host, not Device mode

5.Provide 5V 2.1A

6.Hot-swappable

USB3.1 TYPE-A x1 - J3

Pin #	Module Pin Name1	Usage/Description	Type/Dir2
USB 3.0 Type A (4)			
1	–	VBUS Supply	Power
2	USB1_D_N	USB 2.0 Data #3 Data from hub	Bidir
3	USB1_D_P		
4	–	Ground	Ground
5	USBSS_RX_N	USB 3.0 Receive #3 Data from hub	Input
6	USBSS_RX_P		
7	–	Ground	Ground
8	USBSS_TX_N	USB 3.0 Transmit #3 Data from hub	Output
9	USBSS_TX_P		

Note:

1.It has a total power supply capacity of 2.1A maximum output current. If over 2.1A, it will enter the over-current protection state.

2.The module pin names not directly connected to the USB connector pins but are routed to the input of the USB hub.

3.Orin NX module comes with 3 USB3.2, only one of which is used in reComputer and converted to 3 ways(USB3.1 TYPE-A x2 - J4 and USB3.1 TYPE-A x1 -J3).

4.Only supports USB Host, not Device mode

5.Provide 5V 2.1A

6.Hot-swappable

seeed studio

# DI/DO - J2

4*DI,4*DO,3*GND_DI,2*GND_DO,1*GND_ISO,1*CAN

DI1	DI2	DI3	DI4	DO1	DO2	DO3	DO4
GND_DI		GND_DO		CG	CH	CL	
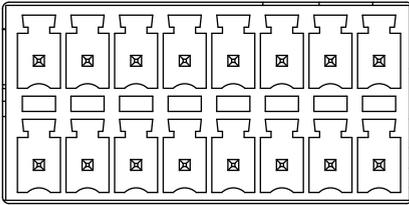
Pin #	Net Name	Note	Pin #	Net Name	Note
1	DI_12V_1	12V Digital Input, ground signal needs to be connected to GND_DI(Pin2/4/6)	2	GND_DI	The reference ground signal for the 12V Digital Input, which is also the return path for the DI.
3	DI_12V_2		4	GND_DI	
5	DI_12V_3		6	GND_DI	
7	DI_12V_4		8	GND_DO	The reference ground signal of the digital output, which is also the return path of the DO
9	DO_40V_1	Digital output, maximum withstand voltage 40V, ground signal needs to be connected to GND_DO(Pin8/10)	10	GND_DO	
11	DO_40V_2		12	GND_ISO	The reference ground signal for CAN
13	DO_40V_3		14	CAN_H_ISO	CAN bus with standard differential signals, ground signal needs to be connected to GND_ISO (Pin 12)
15	DO_40V_4		16	CAN_L_ISO	

Note:

1. The Controller Area Network (CAN) enables communication among devices.

CAN0_Low Differential CAN signal negative level

CAN0_High Differential CAN signal positive level

2. Support CAN FD : 5Mbps

3. There is a Terminating Resistor Switch. CAN_120R_EN=L to enable terminating resistor. This can be controlled by the GPIO, refer to the wiki for more information on how to operate it.

Back View

| LAN1+PSE | HDMI | USB2.0 Device | SIM Nano |
| LAN2 | USB2.0 Debug | Recovery Button | DC In 12-24V |
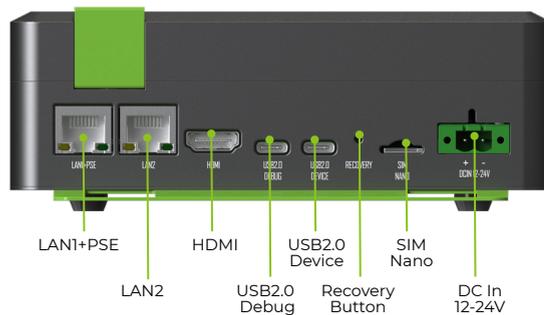
GbE connector

LAN LED connection speed color indicators:

	Active & Link (Right LED)	Speed (Left LED)
10/100/1000 Mbps	Yellow (Blinking)	Green

seeed studio

LAN1+PSE - J13

Pin #	Module Pin Name	Usage/Description	Type/Dir
1	GPE_MDI0_P	Gigabit Ethernet MDI 0+	Bidir
2	GPE_MDI0_N	Gigabit Ethernet MDI 0−	Bidir
3	GPE_MDI1_P	Gigabit Ethernet MDI 1+	Bidir
4	–	MCT	–
5	–	MCT	–
6	GPE_MDI1_N	Gigabit Ethernet MDI 1−	Bidir
7	GPE_MDI2_P	Gigabit Ethernet MDI 2+	Bidir
8	GPE_MDI2_N	Gigabit Ethernet MDI 2−	Bidir
9	GPE_MDI3_P	Gigabit Ethernet MDI 3+	Bidir
10	GPE_MDI3_N	Gigabit Ethernet MDI 3−	Bidir
11	POE_PSE+	Power-Over-Ethernet	Power
12	POE_PSE-		
13	POE_PSE+		
14	POE_PSE-		
15	–	Green LED Anode	Input
16	GBE_LED_LINK	Green LED Cathode. On for 1000Mbps link. Off for 10/100Mbps.	Output
17	–	Yellow LED Anode	Input
18	GBE_LED_ACT	Yellow LED Cathode. On indicates activity.	Output
19	–	Shield Ground	Ground
20			

Note:
1. GbE from NVIDIA® Jetson™ modules
2. PSE 802.3 af, 15W
3. Gigabit Ethernet (10/100/1000M)

LAN2 - J14

PIN	Net Name	PIN	Net Name
1	GND	2	TD1+
3	TD1-	4	TD2+
5	TD2-	6	TD3+
7	TD3-	8	TD4+
9	TD4-	10	NC
11	VDD_3V3_SYS	12	ETH_LED0
13	VDD_3V3_SYS	14	ETH_LED1

Note:
1. Gigabit Ethernet (10/100/1000M)
2. PCIe to Ethernet, using LAN7430-I/Y9X

HDMI Port - J16

Pin #	Module Pin Name	Usage/Description	Type/Dir
1	DP1_TXD0 (HDMI_TXD2)_P	HDMI Transmit Data 2+	Output
2	–	Ground	Ground
3	DP1_TXD0 (HDMI_TXD2)_N	HDMI Transmit Data 2–	Output
4	DP1_TXD1 (HDMI_TXD1)_P	HDMI Transmit Data 1+	Output
5	–	Ground	Ground
6	DP1_TXD1 (HDMI_TXD1)_N	HDMI Transmit Data 1–	Output
7	DP1_TXD2 (HDMI_TXD0)_P	HDMI Transmit Data 0+	Output
8	–	Ground	Ground
9	DP1_TXD2 (HDMI_TXD0)_N	HDMI Transmit Data 0–	Output
10	DP1_TXD3 (HDMI_TXC)_P	HDMI Transmit Clock+	Output
11	–	Ground	Ground
12	DP1_TXD3 (HDMI_TXC)_N	HDMI Transmit Clock–	Output
13	HDMI_CEC	HDMI CEC	Bidir
14	–	Unused	Unused
15	DP1_AUX_P (HDMI_DDC_SCL)	HDMI DDC Clock	Output /OD
16	DP1_AUX_N (HDMI_DDC_SDA)	HDMI DDC Data	Bidir/OD
17	–	Ground	Ground
18	–	HDMI 5V Power	Power
19	DP1_HPD (HDMI_HPD)	HDMI Hot Plug Detect	Input

Note:
1. Connect 4K resolution HDMI display, can work in 4K mode, 3840 * 2160
2. Support hot-swapped

USB2.0 Debug - J18

Pin #	Net Name	Usage/Description	Type/Dir Default
A4/B9	Type C_UART_5V	Power Supply	Power
A9/B4			
A5	DAT_CC1_2	–	–
B5	DAT_CC2_2	–	–
A7	Type C_USB_DN	USB 2.0 #0 Data	Bidir
B7			
A6	Type C_USB_DP		
B6			
A8	–	–	–
B8	–	–	–
A1/B12	–	Ground	Ground
A12/B1	–		Ground

Note:
1. Print serial port information for debugging: Pin3 and Pin4 of J8 without jumper caps, at this time USB_MUX_SEL=1, Type C connects to the USB signal of the core board, it is USB to UART mode, at this time Type C prints the serial debug information of the core board.
2. Burning firmware to the RP2040: Pin3 and Pin4 of J8 with jumper cap, at this time USB_MUX_SEL=0, Type C connects to the USB signal of RP2040, which is the burn-in interface of RP2040, set RP2040 into burn-in mode, which can update the firmware of RP2040 (update method: after connecting Pin5 Pin6 of J8 with jumper cap, then connect Pin7 Pin8 to reset RP2040 and make it enter into burn-in mode)

USB2.0 Device - J19

Pin #	Net Name	Usage/Description	Type/Dir Default
A4/B9	USB0_VBUS_DET*	VBUS Supply	Power
A9/B4			
A5	DAT_CC1_1	–	–
B5	DAT_CC2_1	–	–
A7	USB0_AP_N	USB 2.0 #0 Data	Bidir
B7			
A6	USB0_AP_P		
B6			
A8	–	–	–
B8	–	–	–
A1/B12	–	Ground	Ground
A12/B1	–		Ground

Note:
1. The computer can recognize the board information: USB 2.0 Device interface on the core board, which can use Type C cable for data communication.
2. Burning image to Jetson: While the board is powered up, press the RECOVERY button SW2 to enter the recovery mode, which allows you to burn in the system of the core board.

RECOVERY Button - SW2

Recovery button: FORCE_RECOVERY, press the RECOVERY button SW2 to enter the recovery mode, which allows you to burn in the system of the core board.
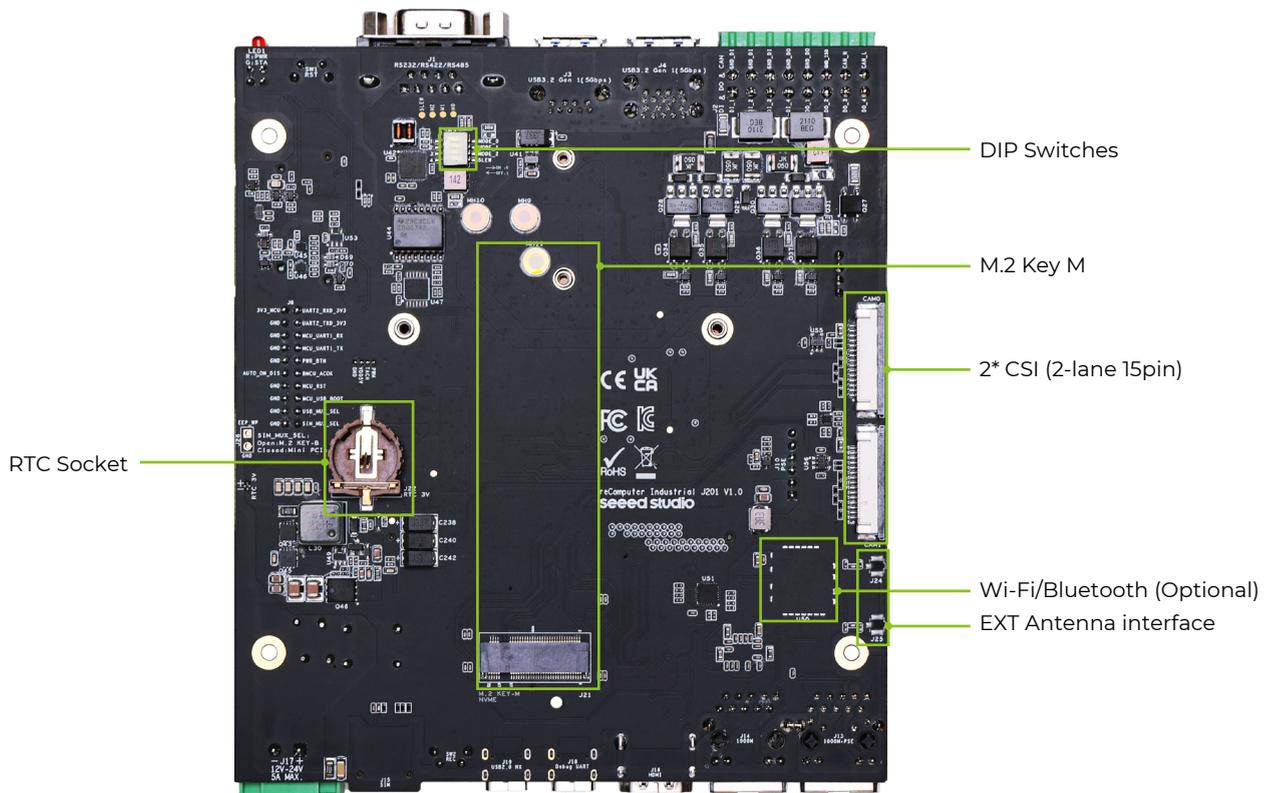
Nano SIM Card Slot - J15

PIN	Net Name	PIN	Net Name
C1	SIM_CLK	C2	SIM_DIO
C3	SIM_RST	C4	NC
C5	VDD_SIM	C6	GND
C7	SIM_DETECT	G1,G2,G3,G4	GND_SHD

Note：
1. SIM card identification: When using M.2 module, you need to connect SIM card signal to M.2 holder, at this time, you need to set SIM_MUX_SEL to high level, i.e. Pin1 Pin2 jumper cap of J8 is disconnected.
2. M.2 Key B and Mini PCIe cannot be used at the same time.
3. The insertion status of SIM card can be detected by the signal SIM_DETECT_1V8, which is high when SIM card is inserted and low when it is pulled out.

DC In - J17

12V-24V, 5A current limit.
After plugging in the power supply, the power LED lights up.

Carrier board

M.2 Key B
Mini PCIe

Control and UART Header

FAN Header

2-Pin RTC Connect

260Pin SODIMM Connector

TPM Header

DIP Switches

M.2 Key M

2* CSI (2-lane 15pin)

RTC Socket

Wi-Fi/Bluetooth (Optional)

EXT Antenna interface
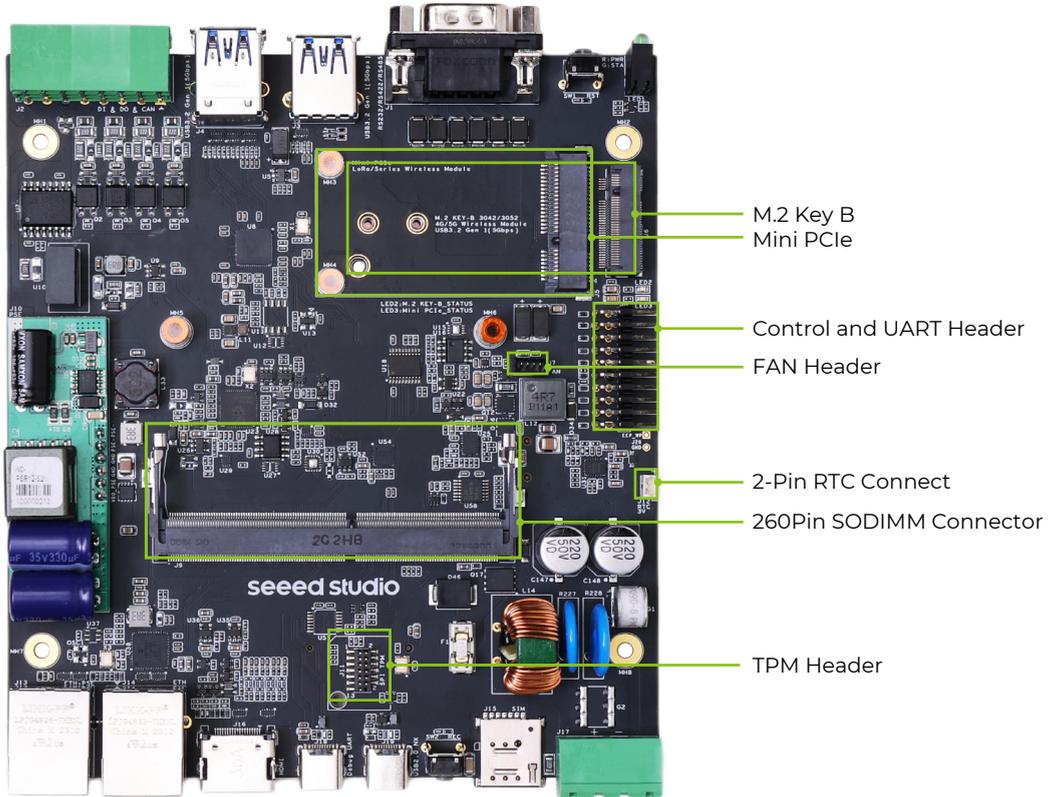
Mini PCIe - J5

PIN	Net Name	PIN	Net Name
1	PCIe_WAKE_3V3	2	VDD_3V3_SYS
3	NC	4	GND
5	NC	6	NC
7	NC	8	PCIe_USIM_PWR
9	GND	10	PCIe_USIM_DATA
11	UART0_TXD_3V3	12	PCIe_USIM_CLK
13	UART0_RXD_3V3	14	PCIe_USIM_RST
15	GND	16	NC
17	NC	18	GND
19	PCIe_1PPS_3V3	20	W_DISABLE1#_3V3
21	GND	22	M2B_PCIe_Reset
23	UART0_RTS_3V3	24	VDD_3V3_SYS
25	UART0_CTS_3V3	26	GND
27	GND	28	NC
29	GND	30	I2C1_SCL
31	PCIe_GPIO1_3V3	32	I2C1_SDA
33	PCIe_GPIO2_3V3	34	GND
35	GND	36	M2B_PCIe_HSD4_N
37	GND	38	M2B_PCIe_HSD4_P
39	VDD_3V3_SYS	40	GND
41	VDD_3V3_SYS	42	LED_WWAN
43	GND	44	NC
45	SPI1_SCK_3V3	46	NC
47	SPI1_MISO_3V3	48	NC
49	SPI1_MOSI_3V3	50	GND
51	SPI1_CS0_3V3	52	VDD_3V3_SYS

Note：

1. Support 4G,Lora.

2. When using Mini PCIe 4G module, you need to set SIM_MUX_SEL to low level (Pin1 Pin2 jumper cap of J8 is connected), when using LoRa module, you need to disconnect SIM card signal, at this time you need to set SIM_MUX_SEL to high level(Pin1 Pin2 jumper cap of J8 is disconnected).

3. Can be used as UART, IIC, GPIO.4. M.2 Key B(J6) and Mini PCIe(J5) cannot be used at the same time

4. M.2 Key B(J6) and Mini PCIe (J5c) an not be used at the same time

M.2 Key B - J6

PIN	Net Name	PIN	Net Name
1	NC	2	VDD_3V3_SYS
3	GND	4	VDD_3V3_SYS
5	GND	6	M2B_POWER_OFF
7	M2B_PCIe_HSD4_P	8	W_DISABLE1#_3V3
9	M2B_PCIe_HSD4_N	10	M2B_STATUS_LED
11	GND	12	
13		14	
15		16	
17		18	
19		20	I2S1_SCLK
21	NC	22	I2S1_SDOUT
23	M2B_WOWWAN#_1V8	24	I2S1_SDIN
25	M2B_DPR_1V8	26	W_DISABLE2#
27	GND	28	I2S1_LRCK
29	M2B_SSRX4_N	30	M2B_USIM_RST
31	M2B_SSRX4_P	32	M2B_USIM_CLK
33	GND	34	M2B_USIM_DATA
35	M2B_SSTX4_N	36	M2B_USIM_PWR
37	M2B_SSTX4_P	38	M.2_WLAN_Tx_EN_1V8
39	GND	40	NC
41	NC	42	NC
43	NC	44	NC
45	GND	46	NC
47	NC	48	NC
49	NC	50	NC
51	GND	52	NC
53	NC	54	NC
55	NC	56	NC
57	GND	58	NC
59		60	LAA_n79_Tx_EN_1V8
61		62	UART0_TXD
63		64	UART0_RXD
65		66	SIM_DETECT_1V8
67	Device_Reset	68	M2B_SUSCLK_32KHZ
69	NC	70	VDD_3V3_SYS
71	GND	72	VDD_3V3_SYS
73	GND	74	VDD_3V3_SYS
75	NC	76	GND
77	GND		

Note：

1. Support 4G、5G

2. When using M.2 module, you need to set SIM_MUX_SEL to high level, i.e. Pin1 Pin2 jumper cap of J8 is disconnected.

3. Support UART, IIS, GPIO

4. LED2 is the M.2 status indicator, indicating whether M.2 is turned on and off normally, M2B_STATUS_LED

5.M.2 Key B(J6) and Mini PCIe(J5) cannot be used at the same time.

6.M.2 Key B 3042/3052

FAN - J7

Pin #	Module Pin Name	Usage/Description	Type/Dir Default
1	–	Ground	Ground
2	–	Main 5.0V Supply	Power
3	FAN_TACH	Fan Tachometer signal	Input, 5V
4	FAN_PWM	Fan Pulse Width Modulation signal	Output, 5V
Note: 1. Whether the fan is self-starting or starts only when it reaches the temperature can be set by yourself 2. Connect 4Pin 5V fan, fan speed can be controlled, and the speed can be detected			

Control and UART Header - J8

PIN	Net Name	PIN	Net Name
1	GND	2	SIM_MUX_SEL
3	GND	4	USB_MUX_SEL
5	GND	6	MCU_USB_BOOT
7	GND	8	MCU_RST
9	AUTO_ON_DIS	10	BMCU_ACOK
11	GND	12	PWR_BTN*
13	GND	14	MCU_UART1_TX
15	GND	16	MCU_UART1_RX
17	GND	18	UART2_TXD_3V3
19	3V3_MCU	20	UART2_RXD_3V3

TPM - J11

PIN	Net Name	PIN	Net Name
1	VDD_TPM	2	SPI0_IRQ_LS
3	SPI0_RST_LS	4	NC
5	NC	6	NC
7	VDD_TPM	8	GND
9	SPI0_CS0_LS	10	SPI0_SCK_LS
11	SPI0_MISO_LS	12	PI0_MOSI_LS
13	NC		
Note: Support SPI interface TPM module			

RTC

RTC Socket - J22

Pin #	Module Pin Name	Usage/Description	Type/Dir Default
1	–	Ground	Ground
2	PMIC_BBAT	RTC Back-up battery power	Power
Note: Support 3V Coin Cell Battery, CR1220			

seeed studio

RTC Connect - J12

Pin #	Module Pin Name	Usage/Description	Type/Dir Default
1	–	Ground	Ground
2	PMIC_BBAT	RTC Back-up battery power	Power
Note: Support 3V Coin Cell Battery, 2-pin 1.25MM			

USB to Wi-Fi/Bluetooth - U50

PIN	Net Name	PIN	Net Name
1	GND	2	RF_S0
3	RF_S1	4	GND
5	NC	6	NC
7	NC	8	NC
9	NC	10	HST_WAKE_BT
11	VDD_3V3_SYS	12	USB2_AP_N
13	USB2_AP_P	14	GND
15	NC	16	WL_DIS#
17	BT_DIS#	18	NC
19	HST_WAKE_WL	20	NC
21	NC	22	NC
Note: Support SMD WiFi/Bluetooth , test with RTL8723DU (module not included)			

Wi-Fi/Bluetooth Module (Optional)

The Wi-Fi/Bluetooth module BL-M8723DU1 is not included and is optional.

Module Name	BL-M8723DU1
Chip Name	RTL8723DU
Host Interface	USB2.0
IEEE Standards	WiFi: IEEE 802.11b/g/n
	BT: Compatible with Bluetooth v2.1, v4.2 Systems
Operating Frequencies	2.4GHz~2.4835GHz
Modulation	WiFi:
	802.11b: CCK, DQPSK, DBPSK
	802.11g: 64-QAM,16-QAM, QPSK, BPSK
	802.11n: 64-QAM,16-QAM, QPSK, BPSK
	BT:
	8DPSK, π/4 DQPSK, GFSK
Working Mode	Infrastructure, Ad-Hoc
Wireless Data Rate	WIFI:
	802.11b: 1, 2 ,5.5,11
	802.11g: 6,9,12,18,24,36,48,54
	802.11n: MCS0~7, HT20 reach up to72.2Mbps, HT40 reach up to150Mbps
	BT:
	1 Mbps for Basic Rate
	2,3 Mbps for Enhanced Data Rate

For more detailed information about the modules BL-M8723DU1, please refer to its product specification.

EXT Antenna interface for Wi-Fi/Bluetooth(Optional) - J24, J25

This is the antenna interface for Wi-Fi/Bluetooth, the interface is not included and is optional. Please select the antenna according to the operating frequency of the Wi-Fi/Bluetooth module.

Camera Connector

CSI10 - J20

Pin #	Module Pin Name	Usage/Description	Type/Dir
1	–	Ground	Ground
2	CSI0_D0_N	CSI 0 Data 0	Input
3	CSI0_D0_P		
4	–	Ground	Ground
5	CSI0_D1_N	CSI 0 Data 1	Input
6	CSI0_D1_P		
7	–	Ground	Ground
8	CSI0_CLK_N	CSI 0 Clock	Input
9	CSI0_CLK_P		
10	–	Ground	Ground
11	CAM0_PWDN	Camera #0 Power-down	Output, 1.8V
12	CAM0_MCLK	Camera #0 Master Clock	Output, 1.8V
13	CAM0_I2C_SCL	Camera I2C. 2.2kΩ pull-ups on module	Output, 3.3V
14	CAM0_I2C_SDA		Bidir, 3.3V
15	–	+3.3V	Power
Note: CSI （2-lane 15pin）			

CSI12 - J23

Pin #	Module Pin Name	Usage/Description	Type/Dir
1	–	Ground	Ground
2	CSI2_D0_N	CSI 2 Data 0	Input
3	CSI2_D0_P		
4	–	Ground	Ground
5	CSI2_D1_N	CSI 2 Data 1	Input
6	CSI2_D1_P		
7	–	Ground	Ground
8	CSI2_CLK_N	CSI 2 Clock	Input
9	CSI2_CLK_P		
10	–	Ground	Ground
11	CAM1_PWDN	Camera #1 Power-down	Output, 1.8V
12	CAM1_MCLK	Camera #1 Master Clock	Output, 1.8V
13	CAM_I2C_SCL	Camera I2C. 2.2kΩ pull-ups on module. 1.6kΩ pull-ups on the carrier board. The module CAM_I2C pins connect to an I2C mux.	Output, 3.3V
14	CAM_I2C_SDA	The camera connector #2 receives the I2C from the mux (2nd output). The I2C signals on the camera side of the mux have 47kΩ pull-ups.	Bidir, 3.3V
15	–	+3.3V	Power
Note: CSI （2-lane 15pin）			

M.2 Key M - J21

Pin #	Module Pin Name	Usage/Description	Pin #	Module Pin Name	Usage/Description
1	–	Ground	2	–	Main 3.3V Supply
3			4		
5	PCIE0_RX3_N	PCIe IF #0 Lane 3 Receive	6	–	Unused
7	PCIE0_RX3_P		8		
9	–	Ground	10		
11	PCIE0_TX3_N	PCIe IF #0 Lane 3 Transmit	12	–	Main 3.3V Supply
13	PCIE0_TX3_P		14		
15	–	Ground	16		
17	PCIE0_RX2_N	PCIe IF #0 Lane 2 Receive	18	–	Unused
19	PCIE0_RX2_P		20		
21	–	Ground	22		
23	PCIE0_TX2_N	PCIe IF #0 Lane 2 Transmit	24		
25	PCIE0_TX2_P		26		
27	–	Ground	28		
29	PCIE0_RX1_N	PCIe IF #0 Lane 1 Receive	30		
31	PCIE0_RX1_P		32		
33	–	Ground	34		
35	PCIE0_TX1_N	PCIe IF #0 Lane 1 Transmit	36		
37	PCIE0_TX1_P		38		
39	–	Ground	40	I2C2_SCL	General I2C #2 (optional)
41	PCIE0_RX0_N	PCIe IF #0 Lane 0 Receive	42	I2C2_SDA	
43	PCIE0_RX0_P		44	SDMMC_DAT1	M.2 Key M Alert
45	–	Ground	46	–	Unused
47	PCIE0_TX0_N	PCIe IF #0 Lane 0 Transmit	48		
49	PCIE0_TX0_P		50	PEX0_RST*	PCIe IF #0 Reset
51	–	Ground	52	PEX0_ CLKREQ*	PCIe IF #0 Clock Request
53	PCIE0_CLK_N	PCIe IF #0 Reference Clock	54	PEX_WAKE*	PCIe Wake (Level Shifted from 3.3V to 1.8V)
55	PCIE0_CLK_P		56	–	Unused
57	–	Ground	58		
59	–	Unused (Key)	60	–	Unused (Key)
61			62		
63			64		
65			66		
67	–	Unused	68	–	32KHz Suspend Clock
69			70		
71	–	Ground	72	–	Main 3.3V Supply
73			74		
75					
Note: Support PCIe Gen4.0 SSD					

Accessories Information

Please kindly know that the accessories below are not included in the package. We provide the information here to help you choose the appropriate accessories.
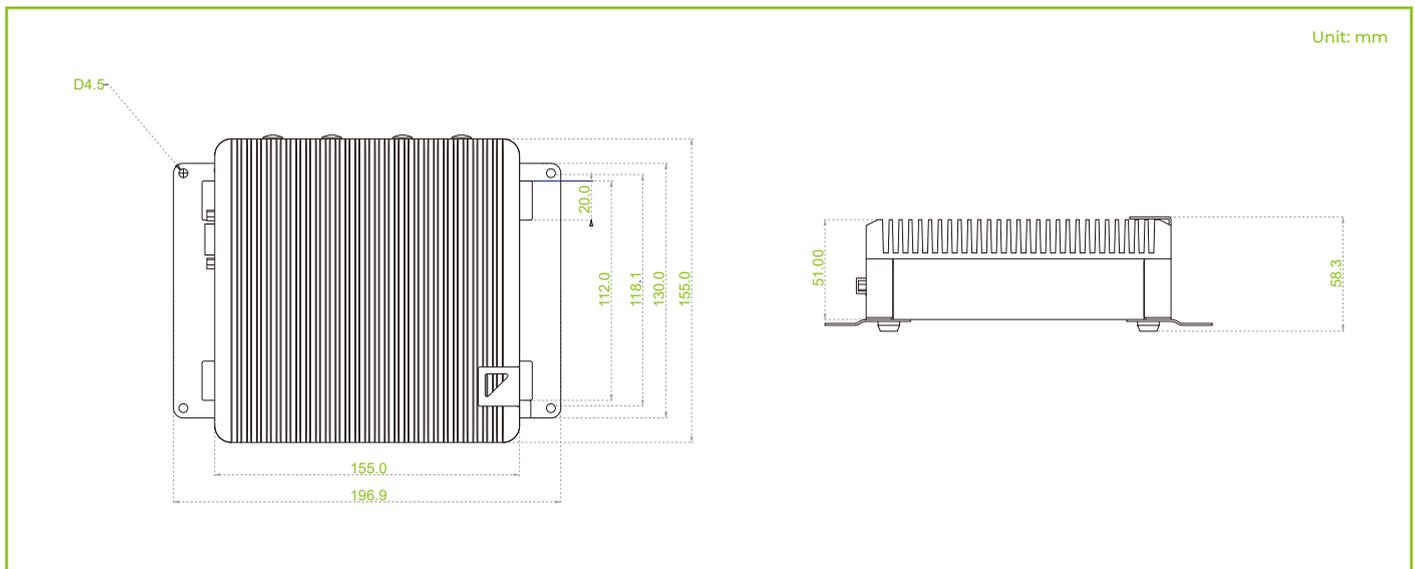
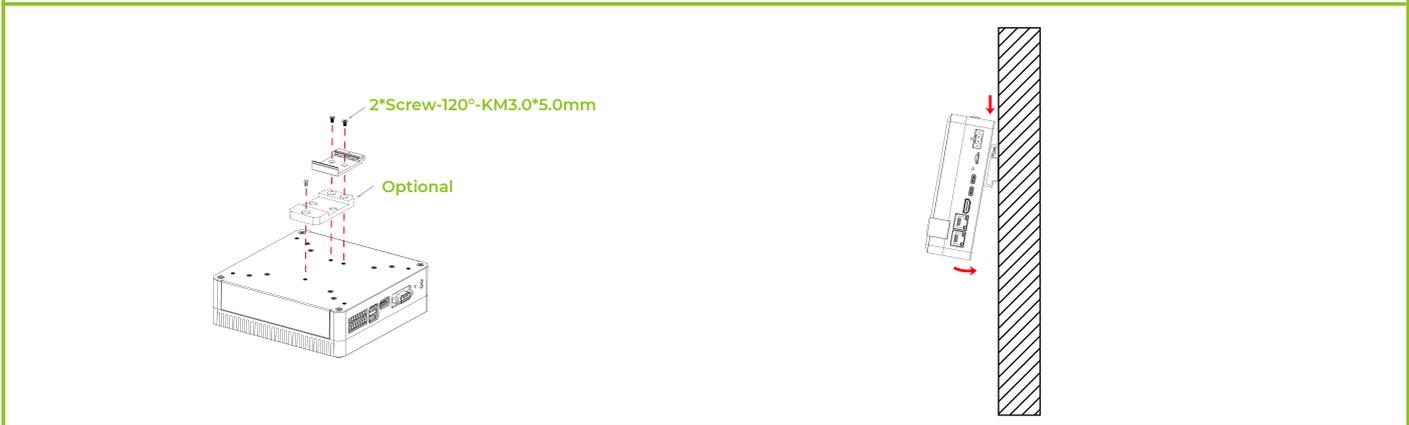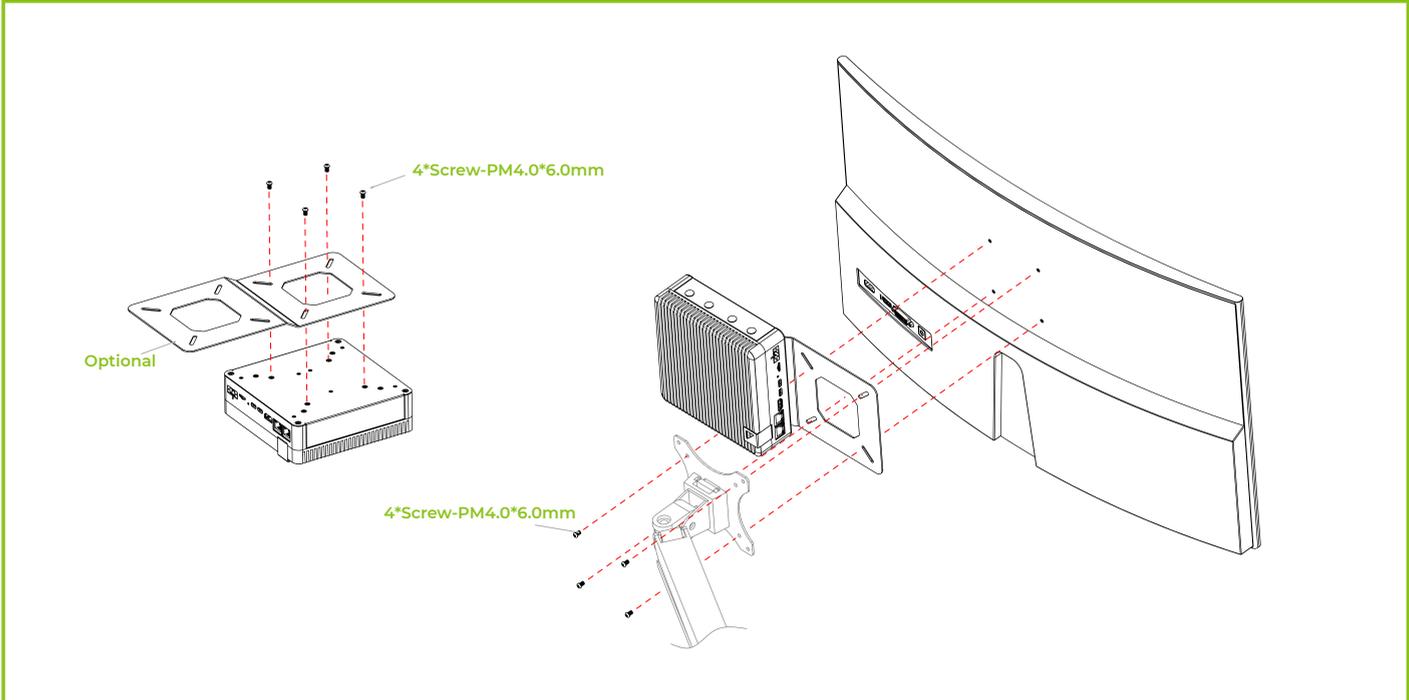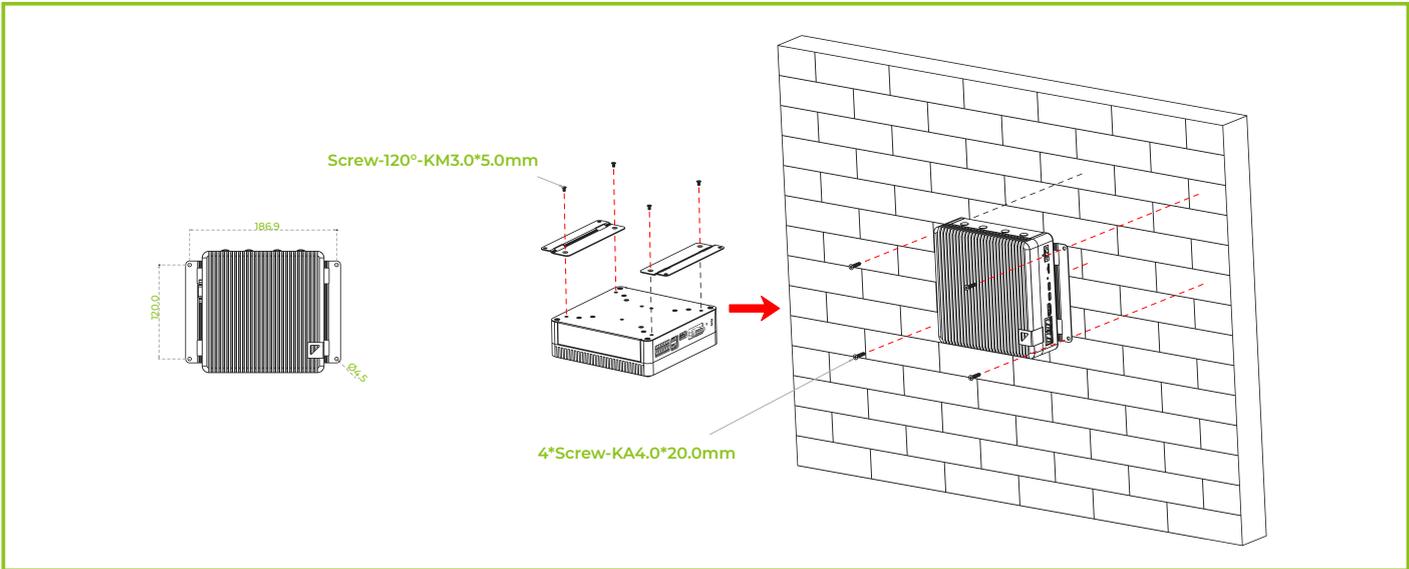| Type	Product Name
4G	EC25EUXGA-MINIPCIE; EC20CEHCLG-MINIPCIE
5G	SIM8202G-M2
LoRaWAN	WM1303 LoRaWAN Gateway Module Without SX1262(SPI) - EU868
TPM	TPM2.0 Module with infineon SLB9670
Wi-Fi/Bluetooth	BL-M8723DU1

Pre-installed OS

Pre-installed Jetpack 5.1 (above) (provide Linux OS with board support package). reComputer Industrial comes with M.2 NVMe 2280 SSD 128G with OS pre-installed in the SSD.
If you need to reflash the image, please refer to our wiki for details.

Dimensions

Flexible mounting

Screw-120°-KM3.0*5.0mm

186.9

120.0

Φ4.5

4*Screw-KA4.0*20.0mm

4*Screw-PM4.0*6.0mm

Optional

4*Screw-PM4.0*6.0mm

2*Screw-120°-KM3.0*5.0mm

Optional

seeed studio

Certifications

More information

Please check our wiki to learn more about this device and if you have any questions, feel free to reach out to our Forum and Discord community.

Scan for more information

Wiki   Forum   Discord

If you need any customized services, please contact us at https://www.seeedstudio.com/odm