



CM4 INDUSTRIAL

AN INDUSTRIAL EMBEDDED COMPUTER BASED ON RASPBERRY PI CM4

Shanghai EDA Technology Co.,Ltd
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Contents

1	Product Overview.....	5
1.1	Target Application.....	5
1.2	Specifications and Parameters	5
1.3	System Diagram.....	7
1.4	Functional Layout.....	7
1.5	Packing List.....	9
1.6	Order Code	9
2	Product Appearance and Structure.....	10
2.1	Product Appearance	10
2.2	Product Photo	12
2.3	Dimensions	13
2.4	Mount Dimensional Drawings	13
2.4.1	DIN Mount	13
2.4.2	Wall Mount.....	14
3	Interfaces and Connectors.....	14
3.1	Front Panel.....	14
3.1.1	Power Input	14
3.1.2	Gigabit Ethernet	15
3.1.3	100 Gigabit Ethernet	15
3.1.4	USB 2.0	16
3.1.5	HDMI	16
3.1.6	micro-SD Card Slot	16
3.1.7	SIM Card Slot.....	16
3.2	Rear Panel	16
3.2.1	Indicator Light.....	17
3.2.2	Buttons	17
3.2.3	ADC	17
3.2.4	RS232	18
3.2.5	RS485	18
3.2.6	Isolated DI	19
3.2.7	Relay	20
3.2.8	Antennas	20
4	Internal Interface	21
4.1	SPI Flash.....	21
4.2	RTC	21
4.3	Buzzer	21
4.4	MIPI DSI	22
4.5	MIPI CSI.....	22
4.5.1	CSI0	22
4.5.2	CSI1	23
4.6	FPC HDMI.....	24
4.7	40-PIN GPIO	25

4.8	mini-PCle.....	27
4.9	USB 2.0 Pin Header.....	28
4.10	UART Pin Header	28
4.11	2-PIN GPIO Pin Header.....	28
4.12	micro-USB.....	29
4.13	5V@1A Output	29
4.14	PoE Pin Header	29
4.15	Fan Pin Header	29
5	Wireless Communication	30
5.1	WiFi	30
5.2	Bluetooth	30
5.3	4G LTE	31
5.4	Antenna.....	31
5.4.1	4G LTE Antenna.....	31
5.4.2	WiFi / BT antenna	32
6	Electrical characteristics	32
6.1	Electrical Parameters.....	32
7	FAQ	32
7.1	Can micro SD card be used for system startup?.....	32
8	Product Change Record	32
8.1	V1.4.....	32
8.2	V1.3.....	33
8.3	V1.2.....	33
8.4	V1.1.....	33
9	About us	33
9.1	About EDATEC	33
9.2	Contact us	33

1 Product Overview

CM4 Industrial is an industrial embedded computer based on Raspberry Pi Compute Module 4. The system can be configured into 1GB/2GB/4GB/8GB RAM and 0GB/8GB/16GB/32GB eMMC according to different applications, which supports boot up from SD card.

It provides a variety of industrial communication interfaces and functions, such as multi-channel RS232, RS485, multi-channel high-precision ADC, isolated IO input, relay control, battery backup real-time clock and alarm buzzer. It also provides powerful communication capabilities, one Gigabit Ethernet interface with PoE function, one 10/100M network port, 4G/LTE module, certified 2.4/5.8G dual-band WiFi and Bluetooth, and supports external antennas.

CM4 Industrial can support 2 CSI interfaces, 1 DSI display interface and 1 HDMI cable interface. Other features include on-board 32Mb serial Flash for storing system data, wide power supply range, V1.4 version is 9~36V, V1.1~V1.3 version is 9~18V, and ESD protection for important interfaces.

1.1 Target Application

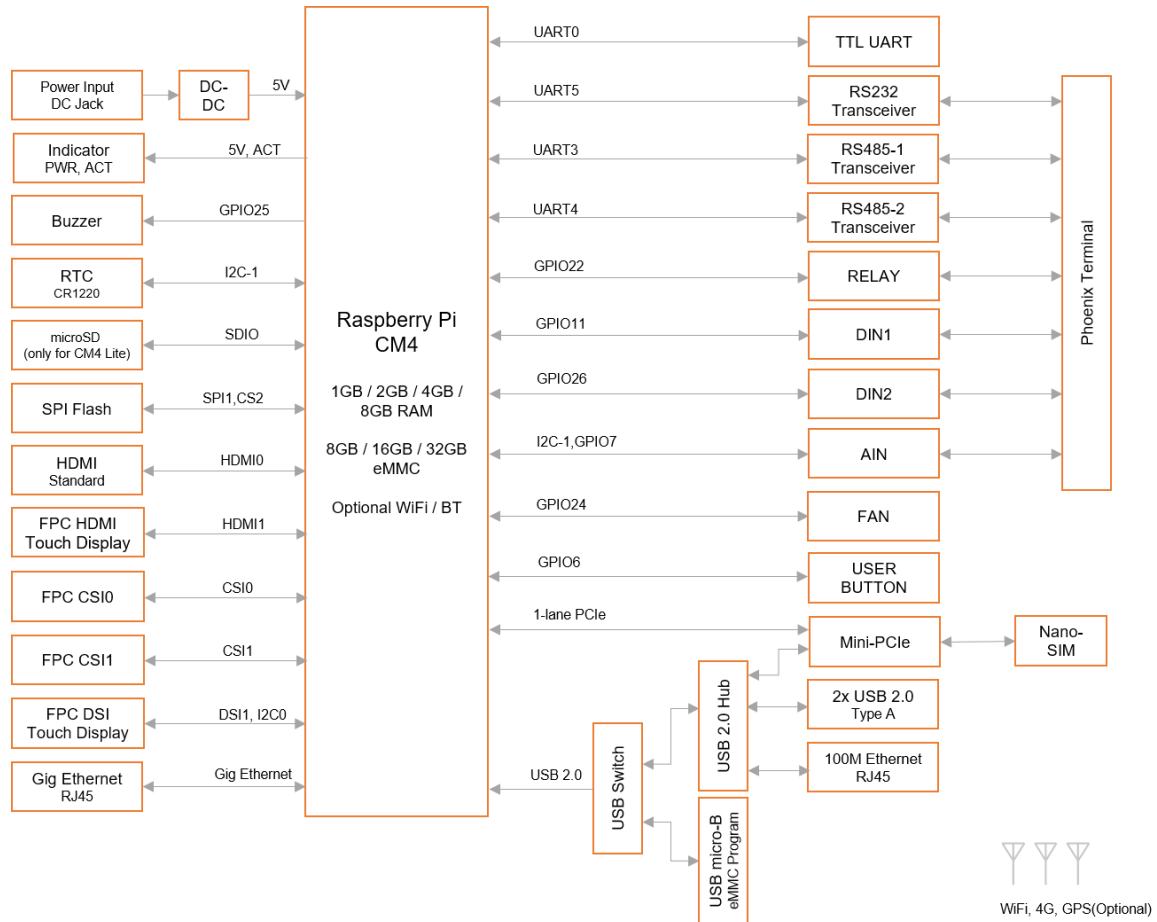
- IOT gateway
- Industrial control
- Advertising display
- Intelligent manufacture

1.2 Specifications and Parameters

Function	Parameters
CPU	BCM2711 4 core, ARM Cortex-A72(ARM v8), 1.5GHz, 64bit CPU
Memory	1GB / 2GB / 4GB / 8GB option
eMMC	0GB / 8GB / 16GB / 32GB option
SD card	micro SD card, support CM4 Lite without eMMC
Extended storage	1x 32Mb Serial Flash
Ethernet	Dual net port, 1x Gigabit Ethernet, 1x 100 Mbps Ethernet
WiFi / Bluetooth	2.4G / 5.8G Dual band WiFi, bluetooth5.0
4G	1x 4G/LTE module(option), Full Netcom, supporting mobile, Unicom and telecom network standards.
HDMI	1x standard HDMI
HDMI FPC touch screen	1x FPC HDMI, support USB touch, PWM Dimming
DSI	1x DSI, support Raspberry Pi 7-inch official touch screen

Function	Parameters
Camera	2x CSI, Support official 5M/8M/12M cameras
USB Host	2x USB 2.0 Type A, 1x USB 2.0 integrated in Mini PCIe interface, 2x USB 2.0 Host Pin Header extend, 1x USB micro-B used for eMMC flash
RS485	2x RS485
RS232	1x RS232
Serial(TTL)	1x Serial(TTL), can be used in the default console of the system, and supports configuration as a standard serial port.
ADC channel	3x ADC IN Channel, 12bit ADC
Isolated IO	2x DI
No-isolated IO	1x DIO
Relay	1x double-pole double-throw relay
Mini PCIe	1-lane PCIe 2.0, Highest support 5Gbps, 1x USB 2.0 Host
40-Pin GPIO	Raspberry Pi 40-Pin GPIO HAT extend
Real time clock	1x RTC
Buzzer	1x buzzer
User button	1x user button
Fan	1x adjustable speed fan control interface
DC power supply output	5V@1A, can be used to support Raspberry Pi 7 inch official touch screen power supply.
LED indicator	red(power indicator), green(system state indicator)
Operation system	compatible with official Raspberry Pi OS, provides BSP software support package, and supports online installation and update of APT.
Power input	V1.4 version is 9V~36V DC, V1.1~V1.3 version is 9V~18V DC
Dimensions	170(length) x 120(wide) x 30(wide) mm
Case	Full Metal Shell, Support DIN guide rail installation
Antenna accessory	Support optional WiFi/BT external antenna, which has passed wireless authentication together with Raspberry Pi CM4, and optional 4G external antenna.
Working environment temperature	-25 ~ 50°C

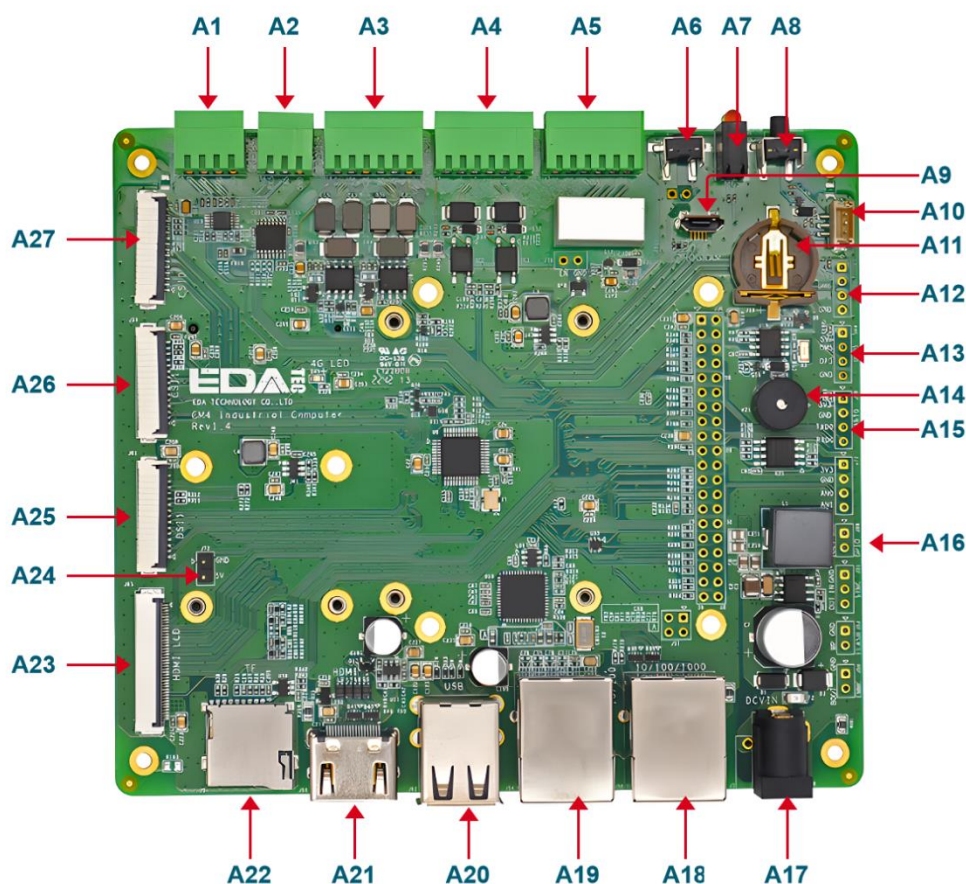
1.3 System Diagram



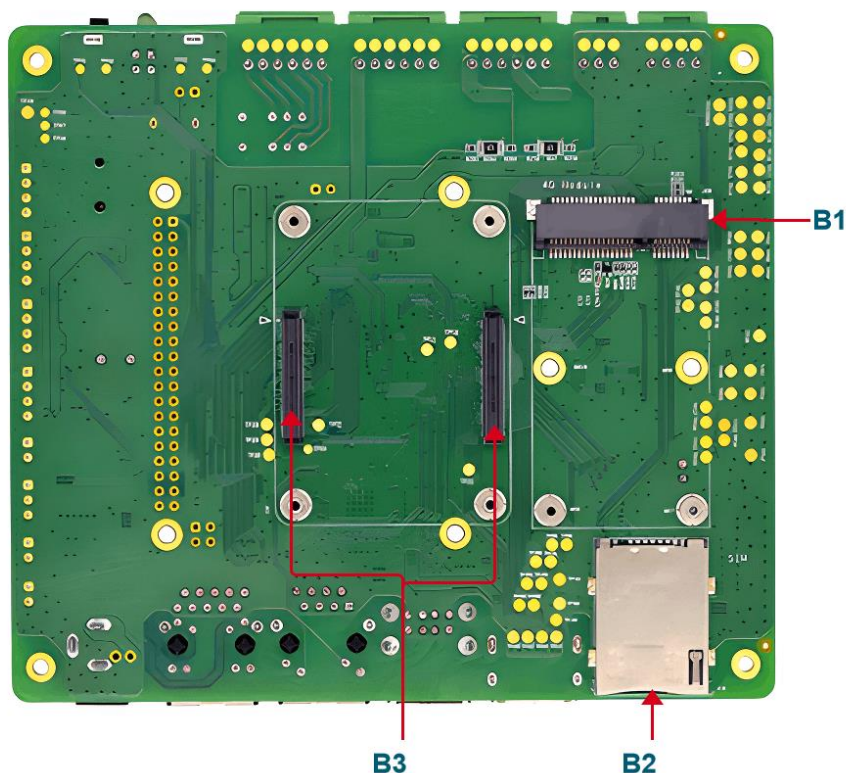
ED-CM4IND: EDATEC CM4 Industrial

Note: V1.4 version power input range is 9V~36V, V1.1~V1.3 version power input range is 9V~18V.

1.4 Functional Layout



No.	Function	No.	Function
A1	2xADC	A15	Debug serial port
A2	RS232	A16	Customize GPIO Pin Header
A3	2xRS485	A17	DC power socket
A4	2xDIN	A18	Gigabit Ethernet RJ45 port
A5	2xrelay	A19	100 Gigabit Ethernet RJ45 port
A6	Reset button	A20	2xUSB 2.0
A7	Signal indicating LED	A21	HDMI Type A
A8	User key	A22	Micro SD slot
A9	Micro USB interface	A23	HDMI FPC interface
A10	Fan interface	A24	5V power output
A11	RTC battery socket	A25	DSI interface
A12	USB6 Pin Header	A26	CSI1 interface
A13	USB5 Pin Header	A27	CSI0 interface
A14	Buzzer		

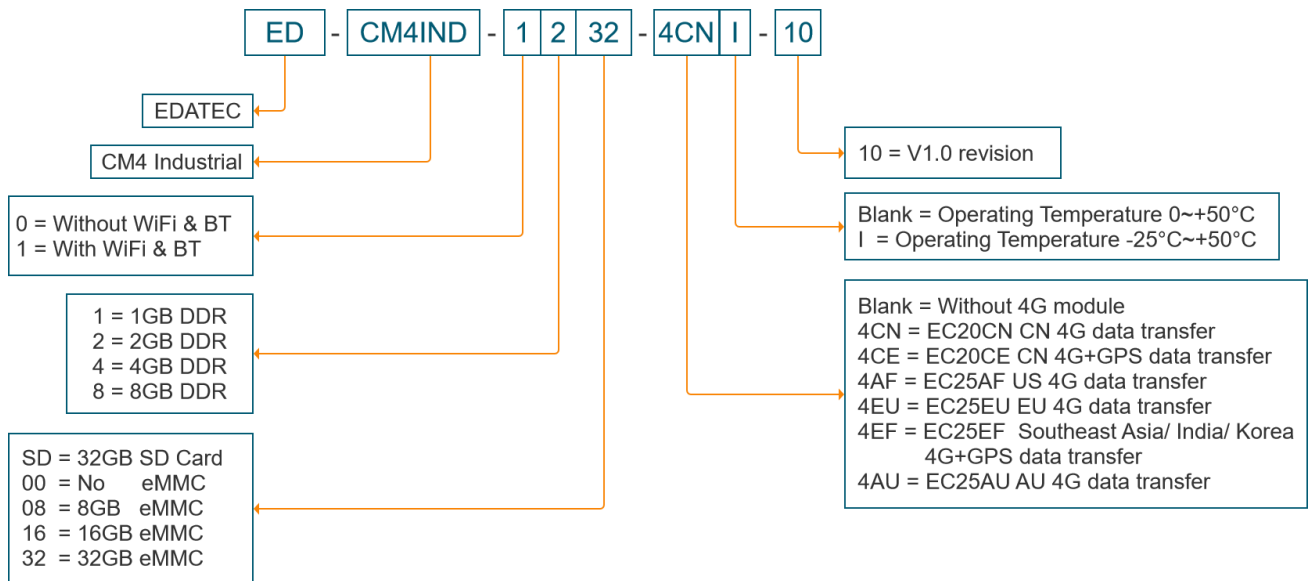


No.	Function	No.	Function
B1	mini PCIe interface	B3	CM4 socket
B2	Standard SIM slot		

1.5 Packing List

- 1x CM4 Industrial host computer
- [option WiFi/BT version] 1x 2.4GHz/5GHz WiFi/BT antenna
- [option 4G version] 1x 4G/LTE antenna

1.6 Order Code



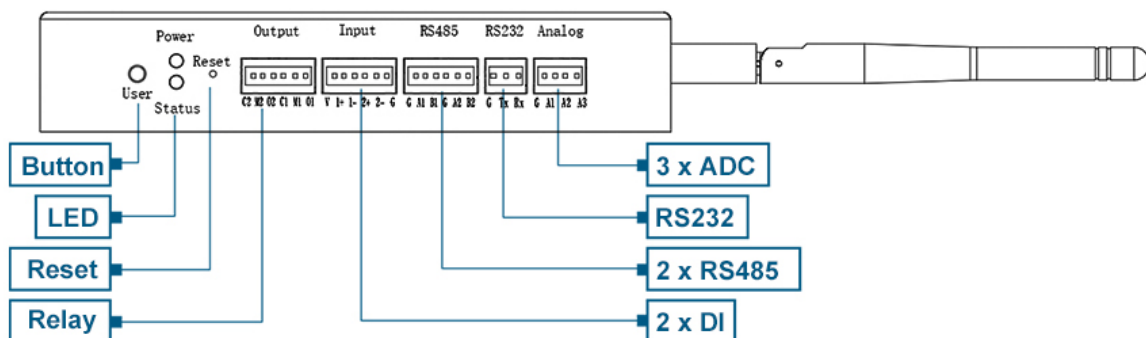
Example

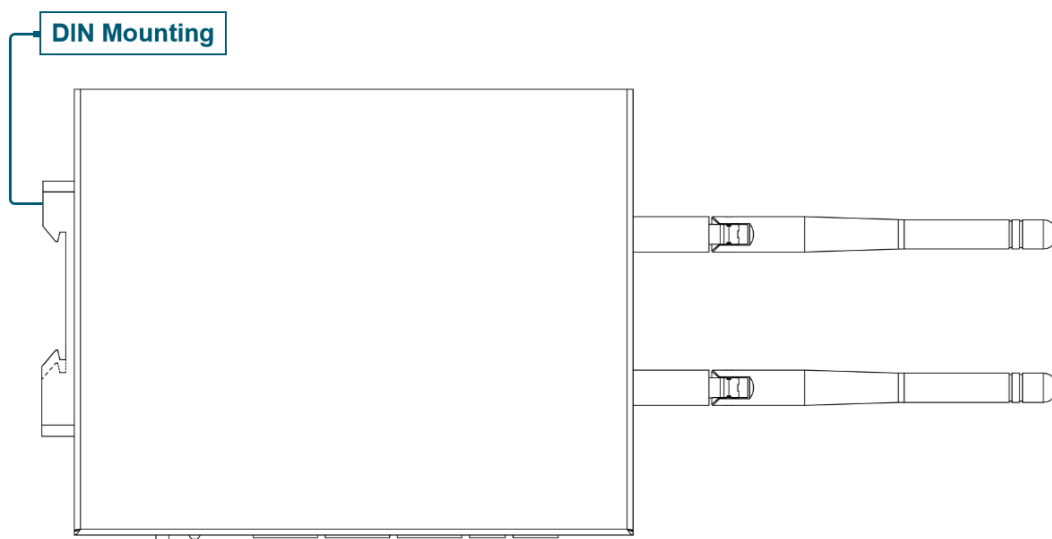
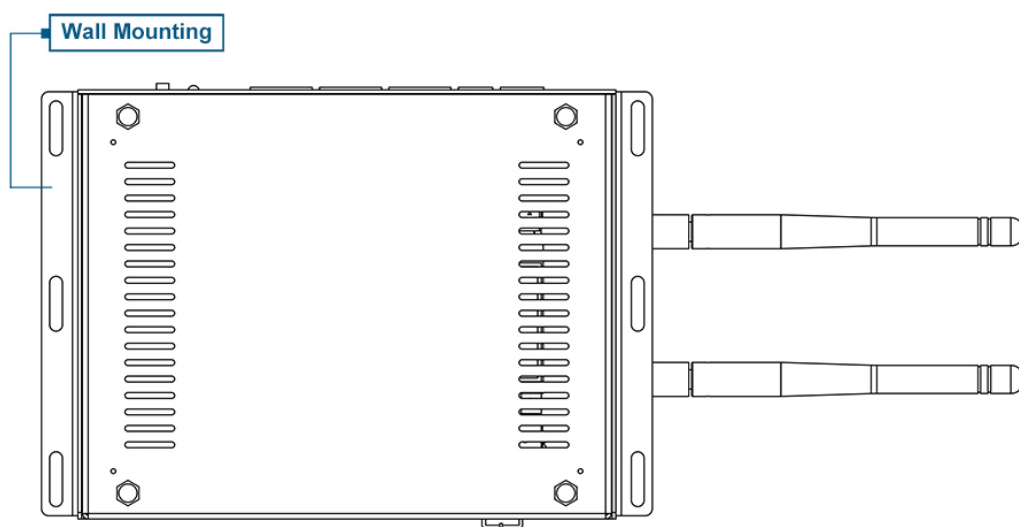
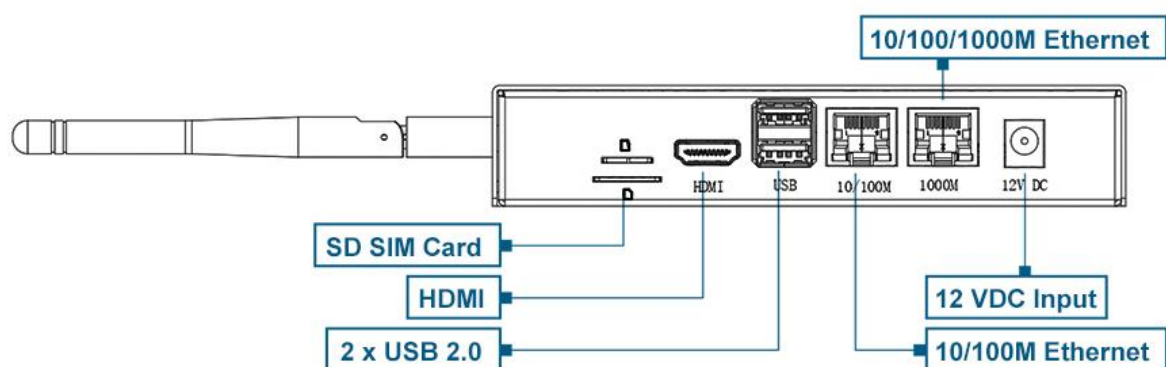
Part# : ED-CM4IND-1232-4CNI-10

Configuration : CM4 Industrial Computer V1.0 version
CM4102032 Compute Module with Wireless, 2GB DDR & 32GB eMMC
CN 4G Module with 1pcs 4G antenna
1pcs Raspberry Pi certified WiFi/Bluetooth Antenna
Metal Case
Operating Temperature: -25°C~+50°C

2 Product Appearance and Structure

2.1 Product Appearance



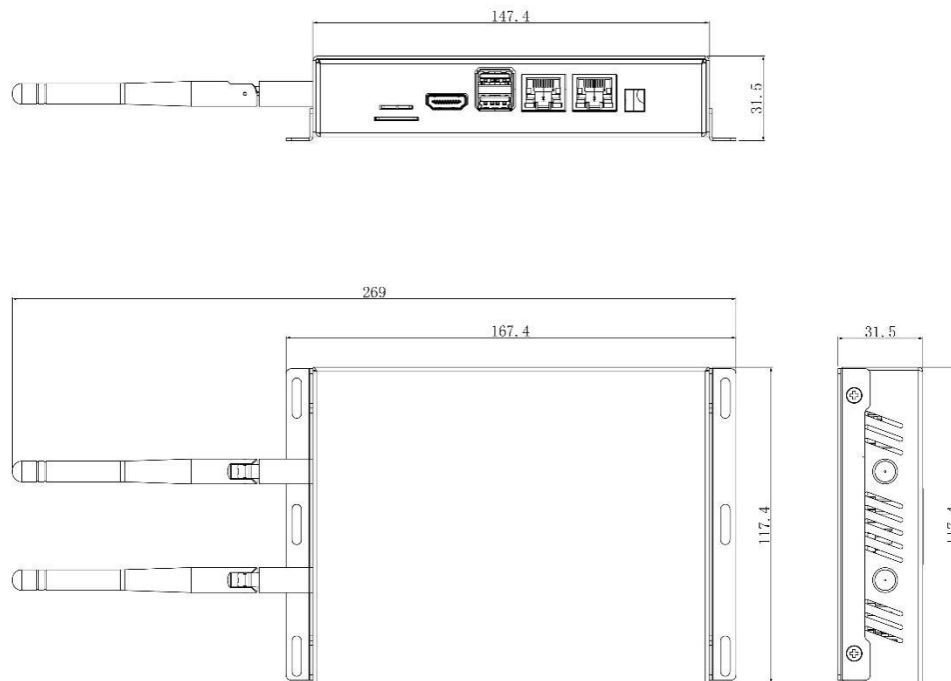


2.2 Product Photo



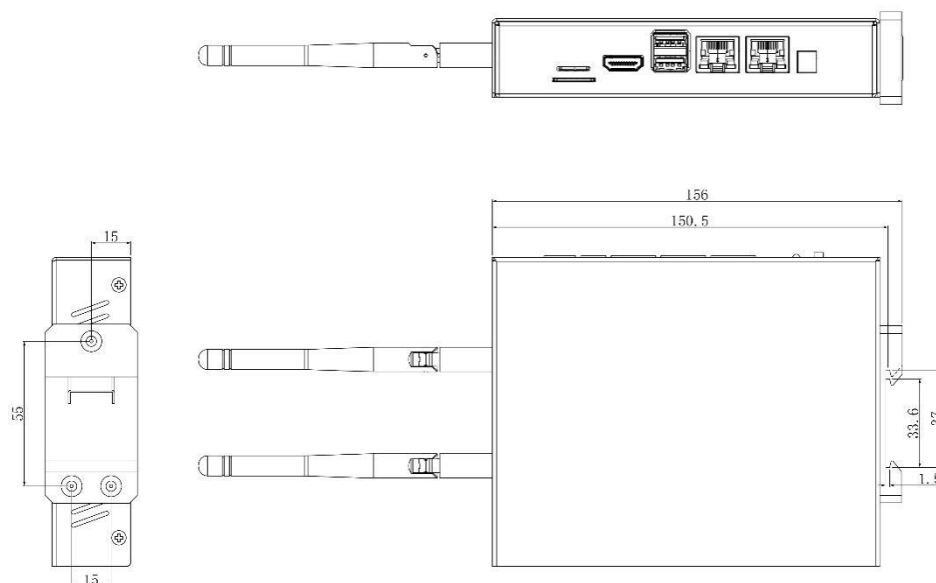
2.3 Dimensions

unit: mm, tolerance: $\pm 0.1\text{mm}$

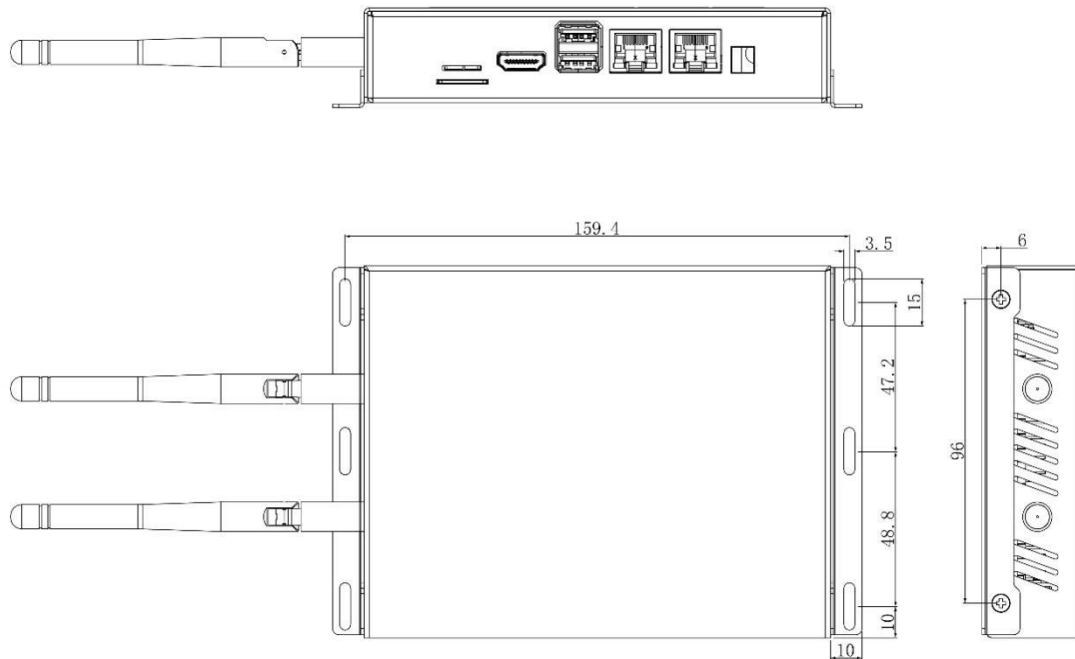


2.4 Mount Dimensional Drawings

2.4.1 DIN Mount

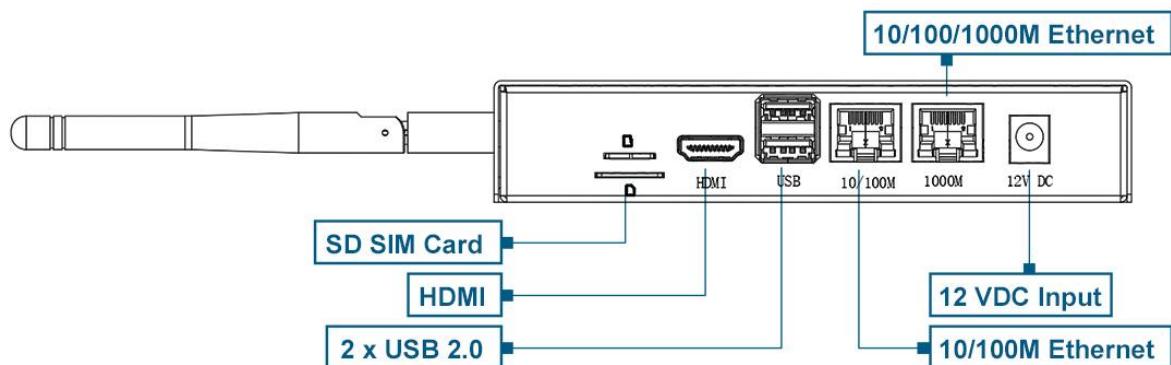


2.4.2 Wall Mount



3 Interfaces and Connectors

3.1 Front Panel



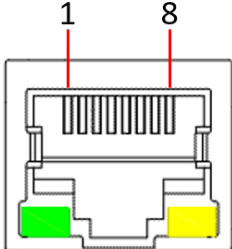
3.1.1 Power Input

The conventional input power supply of CM4 Industrial is 12V, and the input range of the hardware version of V1.4 is 9~36V, and the input range of the hardware version of V1.1~V1.3 is 9V~18V. The screen printing on the case is 12V DC, which is a standard 5.5*2.0 DC power socket with positive inside and negative outside.



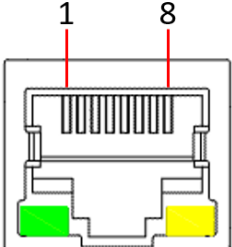
3.1.2 Gigabit Ethernet

There is an adaptive 10/100/1000Mbps Ethernet interface on CM4 Industrial, with the screen printing logo of 1000M, which is adjacent to the DC power supply socket. It is recommended to use Cat6 (Category 6) network cable for cooperation.

	Pin ID	Pin Name
	1	TRD0+
	2	TRD0-
	3	TRD1+
	4	TRD2+
	5	TRD2-
	6	TRD1-
	7	TRD3+
	8	TRD3-

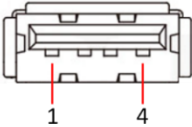
3.1.3 100 Gigabit Ethernet

CM4 Industrial also has an adaptive 10/100Mbps Ethernet interface, with the screen printing logo of 10/100M, which is adjacent to the USB Type-A double-layer socket and is extended by USB 2.0.

	Pin ID	Pin Name
	1	Tx+
	2	Tx-
	3	Rx+
	4	-
	5	-
	6	Rx-
	7	-
	8	-

3.1.4 USB 2.0

There are two USB 2.0 Type A interfaces on CM4 Industrial, which can transmit data up to 480 Mbit/s..

	Pin ID	Pin Name
	1	5V
	2	D-
	3	D+
	4	GND

3.1.5 HDMI

CM4 Industrial has a standard HDMI Type A interface, which can be directly connected to the HDMI display.

3.1.6 micro-SD Card Slot

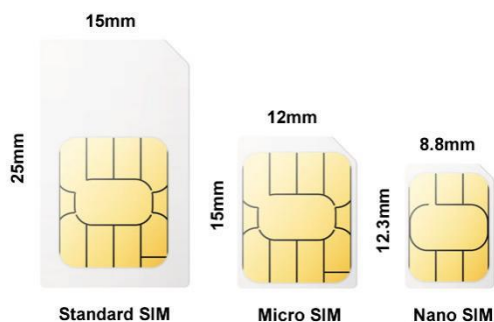
There is a micro SD card slot on CM4 Industrial for use with CM4 Lite.

WARN: Only when you choose CM4 Lite (without eMMC) core module, you need to use the micro SD card for main file system storage. If you choose CM4 module with eMMC, this micro SD card slot is not available, and it shares an MMC port with eMMC.

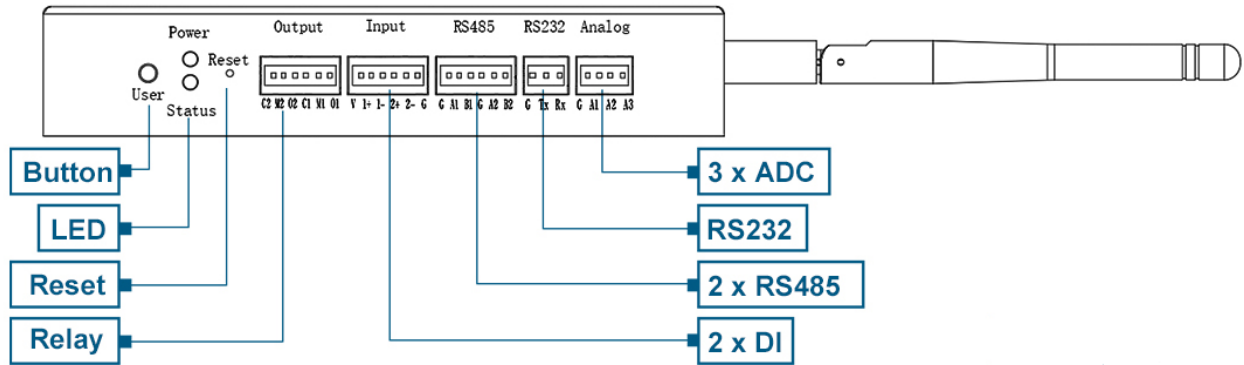
3.1.7 SIM Card Slot

CM4 Industrial supports 4G LTE, and it uses standard SIM card.

The size differences between standard SIM and Micro SIM and Nano SIM cards are as follows:



3.2 Rear Panel



3.2.1 Indicator Light

CM4 Industrial has two indicator lights, the red LED is the power indicator light and the green LED is the status indicator light.

3.2.2 Buttons

CM4 Industrial has two buttons, namely a reset button and a user button.

3.2.2.1 Reset Button

The Reset button is a hidden button, and the screen printing on the shell is reset. The reset button is connected with the RUN_PG pin of the CM4 chip. When the pin is high, it means that CM4 has started, and when the pin is pulled low, it will reset the CM4 module. Pressing the reset button will pull the RUN_PG pin low, thus resetting the CM4 Industrial equipment.

3.2.2.2 User Button

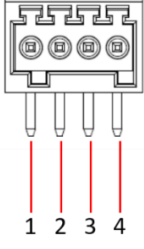
User-defined buttons are screen-printed on the shell as user, which is connected to the GPIO6 pin of CM4 chip. By default, it is at high level, and when the button is pressed, the pin is at low level.

User-defined key pin definition:

#	Signal	CM4 Pinout
1	User Button	GPIO6

3.2.3 ADC

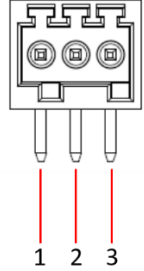
CM4 Industrial has three ADC interfaces, the interface is J39, and communicates with the ADC acquisition chip through i2c-1 bus.

	Pin ID	Pin Name
	1	GND
	2	ADC1
	3	ADC2
	4	ADC3

The terminal specification model is 2EDGR-2.5-4P/15EDGRC-2.5-04P-14-00AH, the spacing between terminals is 2.5mm.

3.2.4 RS232

CM4 Industrial has a serial port with RS232 level, the interface name is J34, the CM4 serial port UART5 is used, and the corresponding device file is /dev/ttyAMA3.

	Pin ID	Pin Name
	1	GND
	2	TXD
	3	RXD

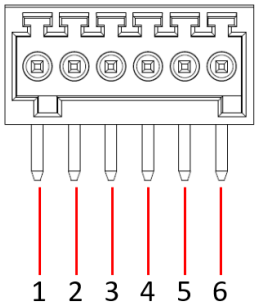
The terminal specification model is 2EDGR-2.5-3P/15EDGRC-2.5-03P-14-00AH, the spacing between terminals is 2.5mm.

RS232 corresponds to the serial port UART5 of CM4, and the corresponding pin names are as follows:

#	Signal	CM4 Pinout
1	TXD5	UART5_TX / GPIO12
2	RXD5	UART4_RX / GPIO13

3.2.5 RS485

CM4 Industrial has two RS485 channels, and the interface is named J16.

	Pin ID	Pin Name
	1	GND
	2	485-1_A
	3	485-1_B
	4	GND
	5	485-2_A
	6	485-2_B

The terminal specification model is 2EDGR-2.5-6P/15EDGRC-2.5-06P-14-00AH, the spacing between terminals is 2.5mm.

RS485-1 corresponds to the serial port UART4 of CM4, and the corresponding device file is /dev/ttyAMA2.

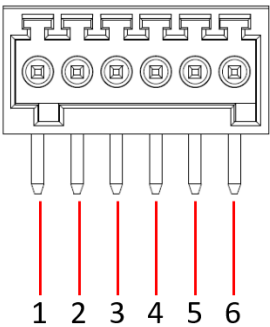
#	Signal	CM4 Pinout
1	TXD4	UART4_TX / GPIO8
2	RXD4	UART4_RX / GPIO9

RS485-2 corresponds to the serial port UART3 of CM4, and the corresponding device file is /dev/ttyAMA1.

#	Signal	CM4 Pinout
1	TXD3	UART3_TX / GPIO4
2	RXD3	UART3_RX / GPIO5

3.2.6 Isolated DI

CM4 Industrial has two isolated digital input detection interfaces named J48.

	Pin ID	Pin Name
	1	12VIN
	2	DIN1+
	3	DIN1-
	4	DIN2+
	5	DIN2-
	6	GND

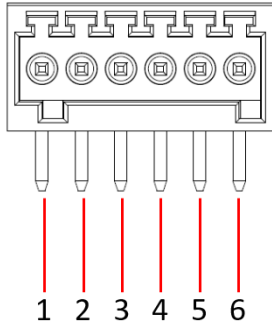
The terminal specification model is 2EDGR-2.5-6P/15EDGRC-2.5-06P-14-00AH, the spacing between terminals is 2.5mm.

Two channels of DIN are connected to GPIO of CM4 after optical coupler isolation, and the corresponding pins are as follows:

#	Signal	CM4 Pinout
1	DIN1	GPIO11
2	DIN2	GPIO26

3.2.7 Relay

CM4 Industrial has a double-pole double-throw relay on board, and the interface is named J47. The closing and bouncing of the relay is controlled by the output level of the pin pin of GPIO22. By default, it is normally closed, COM1 and NC1 are on, and COM2 and NC2 are on. When GPIO22 is high, the relay is on, COM1 and NO1 are on, and COM2 and NO2 are on.

	Pin ID	Pin Name
	1	NC2
	2	COM2
	3	NO2
	4	NC1
	5	COM1
	6	NO1

The terminal specification model is 2EDGR-2.5-6P/15EDGRC-2.5-06P-14-00AH, the spacing between terminals is 2.5mm.

Relay control pin definition:

#	Signal	CM4 Pinout
1	RELAY	GPIO22

3.2.8 Antennas

There are two standard SMA head antenna interfaces on the side of CM4 Industrial shell, which correspond to 4G antenna and WiFi/BT antenna respectively.



4 Internal Interface

4.1 SPI Flash

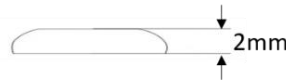
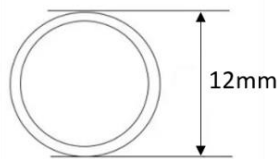
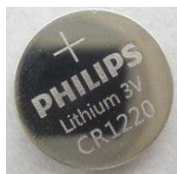
CM4 Industrial is for customers to store data.

SPI Flash is mounted on the spi-1 bus of CM4.

Spi-1 bus pin definition:

#	Signal	CM4 Pinout
1	SPI_CS	GPIO16
2	SPI_SCK	GPIO21
3	SPI_MISO	GPIO19
4	SPI_MOSI	GPIO20

4.2 RTC



CM4 Industrial is integrated with RTC. For the version sold in China, we will install CR1220 button cell (RTC backup power supply) by default when shipping. In this way, the system can be guaranteed to have an uninterrupted and reliable clock, which is not affected by factors such as equipment power down. RTC clock chip is mounted on i2c-1 bus, and the device address is 0x51.

I2c-1 bus pin definition:

#	Signal	CM4 Pinout
1	SDA1	GPIO2
2	SCL1	GPIO3

WARN: Because logistics transportation does not support packaging with batteries, the factory equipment is not pre-installed with CR1220 batteries. Before using RTC, you should prepare a CR1220 button cell to install it.

4.3 Buzzer

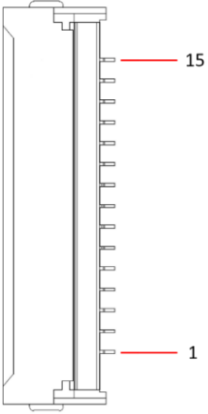
CM4 Industrial is equipped with a buzzer, which can be turned on and off through GPIO.

Buzzer control pin definition:

#	Signal	CM4 Pinout
1	BEEP	GPIO25

4.4 MIPI DSI

CM4 Industrial has a MIPI DSI interface, which corresponds to the DSI1 display output of CM4. The interface name is J61, and the screen printing is DSI1. Please use a single-sided FPC cable with a distance of 15pin 1mm 1 mm to connect it, which can be used with the official 7-inch touch screen of Raspberry Pi.

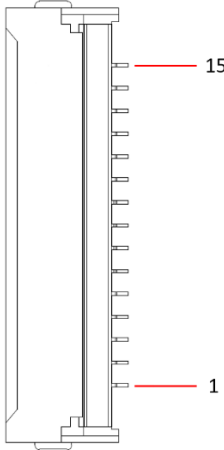
	Pin ID	Pin Name
	1	GND
	2	DSI1_D0_N
	3	DSI1_D0_P
	4	GND
	5	DSI1_D1_N
	6	DSI1_D1_P
	7	GND
	8	DSI1_CLK_N
	9	DSI1_CLK_P
	10	GND
	11	SCL0
	12	SDA0
	13	GND
	14	3V3
	15	3V3

4.5 MIPI CSI

CM4 Industrial has two MIPI CSI camera interfaces, all of which use FPC connectors. The screen printing names are CSI1 and CSI0 respectively. It supports Raspberry Pi's official 5m-8m pixel camera module. Please use a single-sided FPC connector with a spacing of 15pin 1mm to connect.

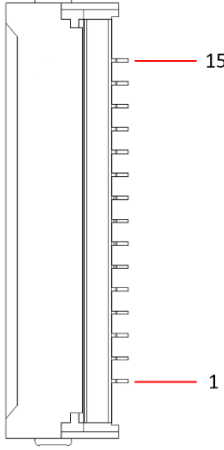
4.5.1 CSI0

The corresponding definition of CSI0 interface pins is as follows.

	Pin ID	Pin Name
	1	GND
	2	CAM0_D0_N
	3	CAM0_D0_P
	4	GND
	5	CAM0_D1_N
	6	CAM0_D1_P
	7	GND
	8	CAM0_CLK_N
	9	CAM0_CLK_P
	10	GND
	11	CAM_GPIO
	12	无
	13	ID_SC
	14	ID_SD
	15	3V3

4.5.2 CSI1

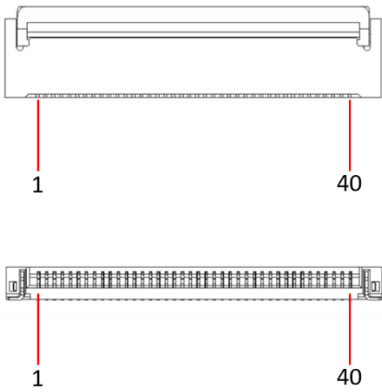
The corresponding definition of CSI1 interface pins is as follows.

	Pin ID	Pin Name
	1	GND
	2	CAM1_D0_N
	3	CAM1_D0_P
	4	GND
	5	CAM1_D1_N
	6	CAM1_D1_P
	7	GND
	8	CAM1_CLK_N
	9	CAM1_CLK_P
	10	GND
	11	CAM_GPIO
	12	NC
	13	SCL0
	14	SDA0
	15	3V3

4.6 FPC HDMI

CM4 Industrial has an HDMI interface in the form of 1 FPC, the interface is J65, the screen printing name is HDMI LCD, and USB 2.0 touch screen signal and PWM brightness level signal are reserved on it, which can be connected to an HDMI touch screen. Please use 40pin 0.5mm spacing single-sided FPC cable to connect.

The corresponding definitions of FPC HDMI interface pins are as follows.

	Pin ID	Pin Name	Pin ID	Pin Name
	1	Y+	21	GND
	2	X+	22	HDMI1_CLKP
	3	Y-	23	HDMI1_CLKN
	4	X-	24	GND
	5	GND	25	BACKLIGHT_PWM
	6	USB_DP	26	GND
	7	USB_DM	27	GND
	8	GND	28	GND
	9	HDMI1_HPD	29	GND
	10	HDMI1_SCL	30	GND
	11	HDMI1_SDA	31	GND
	12	GND	32	LCD_PWR_EN
	13	HDM1_TX2P	33	GND
	14	HDMI1_TX2N	34	GND
	15	GND	35	GND
	16	HDM1_TX1P	36	GND
	17	HDM1_TX1N	37	GND
	18	GND	38	GND
	19	HDM1_TX0P	39	GND
	20	HDMI1_TX0N	40	5V

4.7 40-PIN GPIO

CM4 Industrial provides 40-PIN GPIO, which is compatible with Raspberry Pi HAT and supports various extension accessories of standard Raspberry Pi. You can extend more isolated IO, serial port, POE support and so on through this 40-PIN.

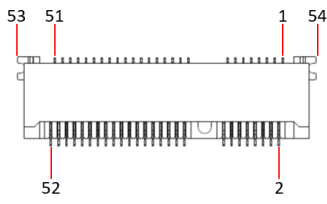
Pin	Name	I/O	Pin Definitions	Pin Configuration Function
1	3V3	O	3.3V	
2	5V	I/O	5V	
3	PIN3	I/O	GPIO2	I2C1_SDA
4	5V	I/O	5V	
5	PIN5	I/O	GPIO3	I2C1_SCL
6	GND		GND	
7	PIN7	I/O	GPIO4	TXD3
8	PIN8	I/O	GPIO14	TXD0
9	GND		GND	
10	PIN10	I/O	GPIO15	RXD0
11	PIN11	I/O	GPIO17	GPIO17
12	PIN12	I/O	GPIO18	BACKLIGHT_PWM
13	PIN13	I/O	GPIO27	GPIO27
14	GND		GND	
15	PIN15	I/O	GPIO22	RELAY
16	PIN16	I/O	GPIO23	LCD_PWR_EN
17	3V3	O	3.3V	
18	PIN18	I/O	GPIO24	FAN_EN
19	PIN19	I/O	GPIO10	RST_4G

Pin	Name	I/O	Pin Definitions	Pin Configuration Function
20	GND		GND	
21	PIN21	I/O	GPIO9	RXD4
22	PIN22	I/O	GPIO25	BEEP
23	PIN23	I/O	GPIO11	DIN1
24	PIN24	I/O	GPIO8	TXD4
25	GND		GND	
26	PIN26	I/O	GPIO7	ADC_INT
27	PIN27	I/O	GPIO0	ID_SD
28	PIN28	I/O	GPIO1	ID_SC
29	PIN29	I/O	GPIO5	RXD3
30	GND		GND	
31	PIN31	I/O	GPIO6	USER BUTTON
32	PIN32	I/O	GPIO12	TXD5
33	PIN33	I/O	GPIO13	RXD5
34	GND		GND	
35	PIN35	I/O	GPIO19	SPI_MISO
36	PIN36	I/O	GPIO16	SPI_CS
37	PIN37	I/O	GPIO26	DIN2
38	PIN38	I/O	GPIO20	SPI_MOSI
39	GND		GND	
40	PIN40	I/O	GPIO21	SPI_SCK

NOTE: Some GPIO pins on the 40-PIN GPIO have been configured for other functions on board, so please pay attention when using them.

4.8 mini-PCle

There is a Mini PCIe expansion interface on CM4 Industrial, which can expand some peripheral modules, such as 4G, 5G, NPU, etc. It has a 1-lane PCIe Gen2 with a speed of 5Gbps and a USB 2.0 Host interface.



Pin ID	Pin Name	Pin ID	Pin Name	Pin ID	Pin Name
1	NC	21	GND	41	3V3
2	3V3	22	GPIO10 / PCIE_nRST	42	LED_WWAN
3	NC	23	PCIE_RXN	43	GND
4	GND	24	3V3	44	NC
5	NC	25	PCIE_RXP	45	NC
6	NC	26	GND	46	NC
7	PCIE_CLK_nREQ	27	GND	47	NC
8	USIM_VDD	28	NC	48	NC
9	GND	29	GND	49	NC
10	USIM_DATA	30	NC	50	GND
11	GND	31	PCIE_TXN	51	NC
12	USIM_CLK	32	NC	52	3V3
13	PCIE_CLKP	33	PCIE_TXP	53	GND
14	USIM_RST	34	GND	54	GND
15	GND	35	GND		
16	NC	36	USB_DM		
17	NC	37	GND		
18	GND	38	USB_DP		
19	NC	39	3V3		
20	NC	40	GND		

CM4 Industrial's mini PCIe interface also has a USB interface and a 4G module reset pin. The USB interface is obtained through the expansion of USB Hub.

4G module reset pin definition:

#	Signal	CM4 Pinout
1	RST_4G	GPIO10

4.9 USB 2.0 Pin Header

There are also two USB 2.0 Host on CM4 Industrial, J44 and J63, which are led out by 1x4 2.54mm Pin Header. Customers can expand USB Device devices according to their own applications.

Pin ID	Pin Name
1	5V
2	D-
3	D+
4	GND

4.10 UART Pin Header

CM4 Industrial also has a 1-way UART Pin Header, the interface is J58, the screen-printed name is UART0, it is a TTL level serial port, and it is led out by 1x4 2.54mm Pin Header. Corresponding to UART0 on BCM2711, this serial port is used as debugging serial port by default.

Pin ID	Pin Name
1	3.3V
2	GND
3	TXD0
4	RXD0

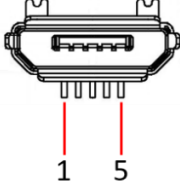
4.11 2-PIN GPIO Pin Header

CM4 Industrial leads out a path of GPIO through 1x2.54 mm pin header, which is directly connected to GPIO27 on cm4. The interface is J68, and customers can freely configure it according to different purposes.

Pin ID	Pin Name
1	GND
2	GPIO27

4.12 micro-USB

The micro-USB interface is J73, with the screen name of "USB PROGRAM", which is close to the battery socket of RTC, and is mainly used to burn eMMC of CM4 core board.

	Pin ID	Pin Name
	1	5V
	2	D-
	3	D+
	4	NC
	5	GND

4.13 5V@1A Output

Power output interface J72, on the front of PCBA, near DSI1 FPC connector, provides 5V@1A DC output. Screen printing is marked with 5V, GND. It can be used to supply power to Raspberry Pi 7-inch official touch screen, and can also be used for other loads.

Pin ID	Pin Name
1	5V
2	GND

4.14 PoE Pin Header

The gigabit network port of CM4 Industrial supports POE power supply, and the POE power supply terminal is led out through 1x2.54 mm Pinheader, which needs to be equipped with the official POE HAT module to realize PoE power supply for CM4 Industrial equipment.

Pin definition of POE Pin Header is as follows

Pin ID	Pin Name
1	VC1-
2	VC1+
3	VC2-
4	VC2+

4.15 Fan Pin Header

CM4 Industrial has a fan control interface J67.

J67 pin is defined as follows:

Pin ID	Pin Name
1	5V (no pull up)
2	5V (with pull up)
3	FAN_EN
4	GND
5	GND

FAN_EN is connected to GPIO24 of CM4 through an N-channel MOS transistor, and the fan and speed can be controlled by controlling GPIO24.

5 Wireless Communication

5.1 WiFi

CM4 Industrial supports 2.4G/5G dual-band WiFi.

2.4G band

Parameter	Feature
frequency range	802.11b/g/n(HT20): 2412-2472MHz 802.11n(HT40): 2422-2462MHz
modulation system	802.11b:DSSS 802.11g/n:OFDM
Frequency Step	5M

5G band

Parameter	Feature
frequency range	802.11a/n/ac: 5150-5350MHz 5470-5725MHz 5725-5850MHz
modulation system	BPSK
Frequency Step	5M

5.2 Bluetooth

CM4 Industrial supports Bluetooth 5.0.

Parameter	Feature
frequency range	2402-2480MHz
modulation system	GFSK,DPSK
Frequency Step	2M

5.3 4G LTE

CM4 Industrial has a mini PCIe slot for 4G LTE module connection. It can support a wide range of frequency bands through different 4G module variants.

#	4G Module	Support Country	Supported Frequency Band
1	EC20-CE	China / India	LTE FDD: B1/B3 LTE TDD: B38/B39/B40/B41 TDSCDMA: B34/B39 WCDMA: B1 CDMA 1x/EVDO: BC0 GSM: 900/1800MH
2	EC25-AFX	North America	LTE-FDD: B2/B4/B5/B12/B13/B14/B66/B71 LTE-TDD: / WCDMA: B2/B4/B5 GSM/EDGE: /
3	EC25-AUX	Latin America / Australia / New Zealand	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B28 LTE-TDD: B40 WCDMA: B1/B2/B4/B5/B8 GSM/EDGE: B2/B3/B5/B8
4	EC25-EUX	EMEA / Thailand	LTE-FDD: B1/B3/B7/B8/B20/B28A LTE-TDD: B38/B40/B41 WCDMA: B1/B8 GSM/EDGE: B3/B8

5.4 Antenna

5.4.1 4G LTE Antenna

Parameter	Feature
Antenna type	External antenna
frequency band	LTE-FDD, LTE-TDD
frequency range	698-894MHz, 1710-2200MHz, 2496-2690MHz
antenna gain	2 dBi
impedance	50 OHM

5.4.2 WiFi / BT antenna

Parameter	Feature
Antenna type	External antenna
frequency band	2400-2500MHz, 5150-5850 MHz
antenna gain	2 dBi
impedance	50 OHM

6 Electrical characteristics

6.1 Electrical Parameters

Parameters	Minimum	Typical	Max	Unit
V1.4 system power input	9	12	36	V
Working temperature	-25	25	50	°C
Storage temperature	-25	25	50	°C
Working environment humidity	20		90	%
Relay AC load			125V 0.5A	
Relay DC load			30V 3A	

NOTE: The maximum power input of V1.1~V1.3 system is 18V.

7 FAQ

7.1 Can micro SD card be used for system startup?

The micro SD card slot is only used with CM4 Lite for primary file system storage. If you choose CM4 module with eMMC, this micro SD card slot is not available because it shares an MMC interface with eMMC.

8 Product Change Record

8.1 V1.4

- Change the power chip, adjust the power input range to 9V~36V, and optimize part of the circuit

8.2 V1.3

- Optimize part of circuit design.

8.3 V1.2

- Modify relay package and optimize part of circuit design.

8.4 V1.1

- Optimize part of circuit design and circuit board design.

9 About us

9.1 About EDATEC

EDATEC, located in Shanghai, is one of Raspberry Pi's global design partners. Our vision is to provide hardware solutions for Internet of Things, industrial control, automation, green energy and artificial intelligence based on Raspberry Pi technology platform.

We provide standard hardware solutions, customized design and manufacturing services to speed up the development and time to market of electronic products.

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