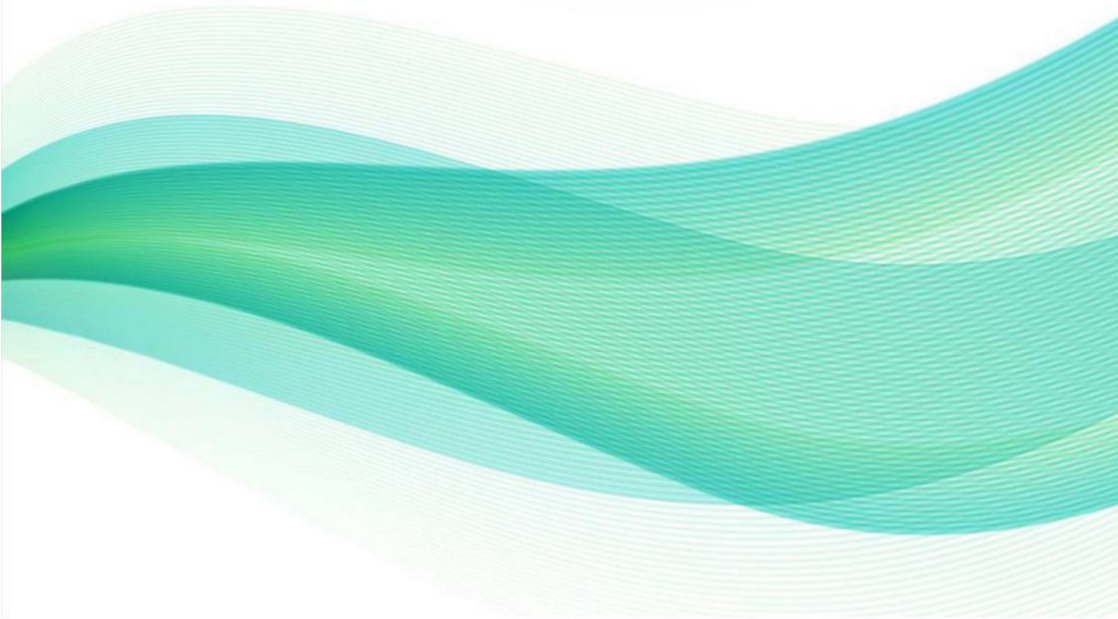
Industrial computer motherboard

YL-ALUEXP

USER' Manual V2.0



Statement

Except for the accessories listed with the product, the contents of this manual do not represent the company's commitment.

The company reserves the right to modify this manual without prior notice.

We are not responsible for any direct, indirect, intentional or unintentional damages or hidden dangers caused thereby.

Before ordering a product, please consult your dealer to learn in detail whether the product performance meets your needs.

Kind tips

1. Before using the product, be sure to read the product manual carefully.

2. For boards that are not ready for installation, they should be stored in anti-static protective bags.

3. Before taking a board out of the packaging bag, place your hands on a grounded metal object for a while to release static electricity from your body and hands.

4. When handling boards, wear anti-static gloves and develop the habit of only touching the edges.

5. When connecting the mainboard to the power supply, please confirm the power supply voltage.

6. To avoid electric shock or damage to the product, always turn off the switch before plugging in or reconfiguring the motherboard or board.

Unplug the AC power cord from the electrical outlet.

7. Before moving the board, unplug the AC power cord from the power socket.

8. Before you connect or disconnect any device, make sure all power cords have been unplugged.

9. To avoid unnecessary damage to the product due to frequent power on and off, wait at least 30 seconds before restarting the product after shutting down.

10. If any abnormal situation occurs during the use of the equipment, please seek professional help.

11. This is a Class A product. In a living environment, this product may cause radio interference. In this case, you may need to use

Users should take practical measures to deal with the interference.

Table of contents

Packing List

Thank you for purchasing our industrial control products. After opening the package, please check the packing list first.

Check the accessories. If you find any damage or any parts are missing, please contact your Dealer contact.

YL-ALUEXP	1 piece
Wire	Some

YL-ALUEXP

Chapter 1

Product Introduction

Chapter 1 Product Introduction

1.1 Product Introduction

Motherboard with 12th generation Intel Core i5-1235U/i7-1255U processor, 2 SO-DIMM memory slots, support DDR5 4800MHz, single slot maximum 32GB, full board maximum 64GB. Support 2 DP interfaces; support 4 RJ45 (3*Intel I210+1*Inteli219LMÿ10/100/1000Mbps Ethernet port. Provides 2 COM ports, 1 MSATA; 4 USB3.2, 2 USB2.0 interfaces (on-board pins); 1 M.2 KEY-M (2280, supports NVME 1X/SATA protocol); 1 Mini-PCIE interface (supports 3G/4G/WIFI functions), provides two 2x 5 Pin 2.0mm GPIO pin interfaces, supports 16 It also has a watchdog reset function and supports 1~255 seconds system restart.

1.2 Hardware Specifications

model	YL-ALUEXP
processor	12th Generation Intel Core i5-1235U/i7-1255U with soldered board
Memory	2 SO-DIMM memory slots, support DDR5 4800MHz, single slot maximum 32GB, full board maximum 64GB
storage	1x MSATA
	1x M.2 KEY-M (2280, supports NVME 1X/SATA protocol)
show	Provides 2x DP display interfaces, supporting a maximum resolution of 7680x4320@60Hz
network	Onboard 4 Intel 10/100/1000Mb adaptive network cards, using 3x Intel 210 + 1x Intel 219LM network card chips
Serial Port	Provides 2 RS232 /422/485 COM ports
USB	4x USB3.2 (I/O interface), 2x USB2.0 (on-board pins)
Extensions	1x Mini-PCIE interface, support 3G/4G/WIFI function
GPIO	Provides 2 2x 5 Pin 2.0mm GPIO pin interfaces, supporting 16 customizable GPIOs
Watchdog	Watchdog function, supports 1~255 seconds system restart
power supply	DC 9~36V wide voltage power supply
Operating Environment	Working temperature: 0ÿ~60ÿ
	Storage temperature: -20~85ÿ
	Working humidity: 5%~95%, no condensation
YOU	Support Win10, Win11, Linux
size	162mm x 129mm

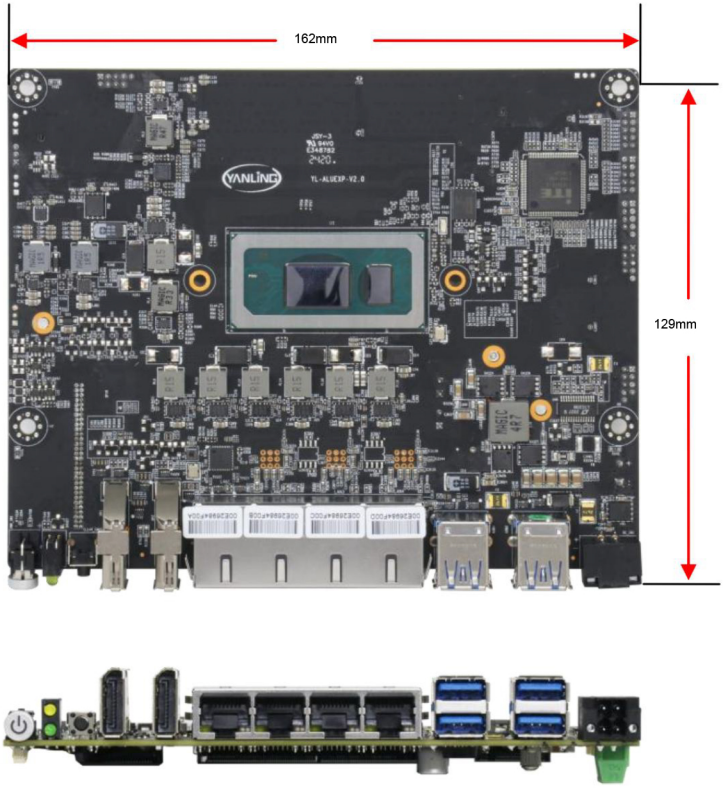
Chapter 2 Hardware Functions

2.1 Interface location and dimensions

The following figure shows the position and size of the front interface of the product. Be careful when installing the device.

If it is not installed correctly, it will not work properly.

Note: Please wear anti-static gloves when operating, as static electricity may damage the components.



2.2 Installation steps

Please follow the steps below to assemble your computer:

1. Refer to the user manual to adjust all jumpers on the motherboard correctly.

2. Install the CPU and CPU fan.

3. Install the memory.

4. Install other expansion cards.

5. Connect all signal lines, cables, panel control lines and power supplies.

6. Start the computer and complete the BIOS setup.

The key components of this motherboard are integrated circuits, which are easily damaged by static electricity.

Before officially installing the motherboard, please make the following preparations:

1. Hold the motherboard by its edges, and try not to touch the pins of components or plugs and sockets.

2. When touching integrated circuit components (such as CPU, RAM, etc.), it is best to wear anti-static wrist strap/gloves.

3. Before installing the integrated circuit components, place them on an antistatic mat or in an antistatic bag.

4. After confirming that the power switch is in the off position, plug in the power plug.

2.3 Memory Installation

The motherboard provides 2x SODIMM memory slots, supports DDR5 4800, with a maximum of 32GB per slot and a maximum of 64GB for the entire board.

Before installing computer accessories

Following these safety guidelines can help protect your computer from potential damage and help ensure your personal safety.

1. Make sure your computer is not connected to a power source.

2. When touching integrated circuit components (such as RAM, etc.), it is best to wear an anti-static wrist strap/gloves.

2.4 Jumper function settings

Before installing the hardware, please set the corresponding jumpers according to your needs based on the following table.

Tip: How to identify the first pin of the jumper or interface? Observe the text mark next to the plug and socket. It will be marked with "1" or bold.

The line or triangle symbol indicates that the jumper has a pin next to it.

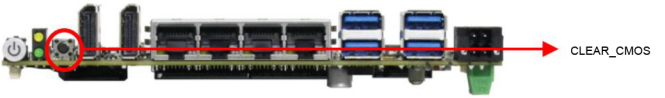
White arrow.

2.4.1 CMOS content clear/keep setting (CLEAR_CMOS)

CMOS is powered by an on-board button battery. Clearing CMOS will permanently delete the previous system settings and set them to the original (Factory setting) System settings.

Method 1: (1) Turn off the computer and disconnect the power supply;

(2) Press and hold the <CLEAR_CMOS> key for about 20 seconds.

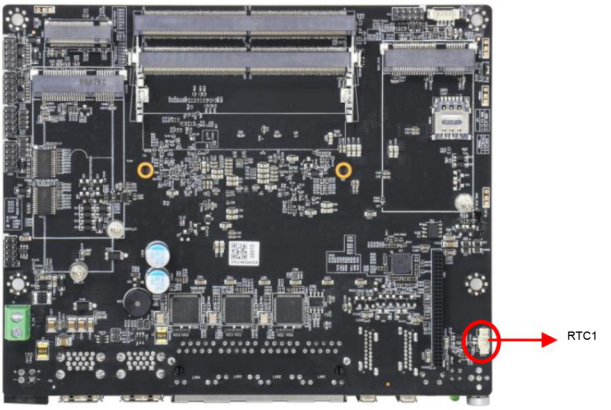


Method 2: (1) Turn off the computer and disconnect the power supply;

(2) Unplug the battery with wire at RTC1 for about 20 seconds, and then plug in the battery with wire;

(3) Start the computer, press the <Del> key to enter the BIOS setup, and press F3 to reload the optimal default values;

(4) Press F4 to save and exit the settings.

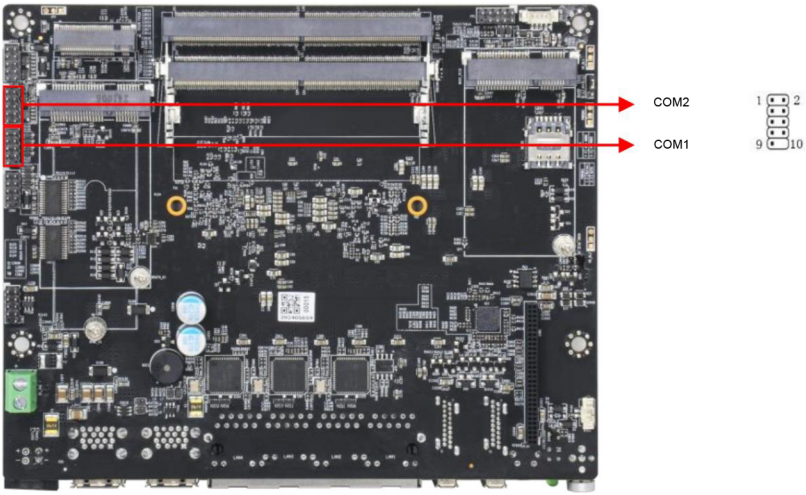


Please do not clear CMOS when the computer is powered on to avoid damaging the motherboard!

2.5 Serial port definition (COM1, COM2)

The motherboard supports 2 serial ports, COM1 and COM2 support three transmission modes: RS232/RS422/RS485.

Select the settings in BIOS according to your own needs. The default transmission mode is RS232.

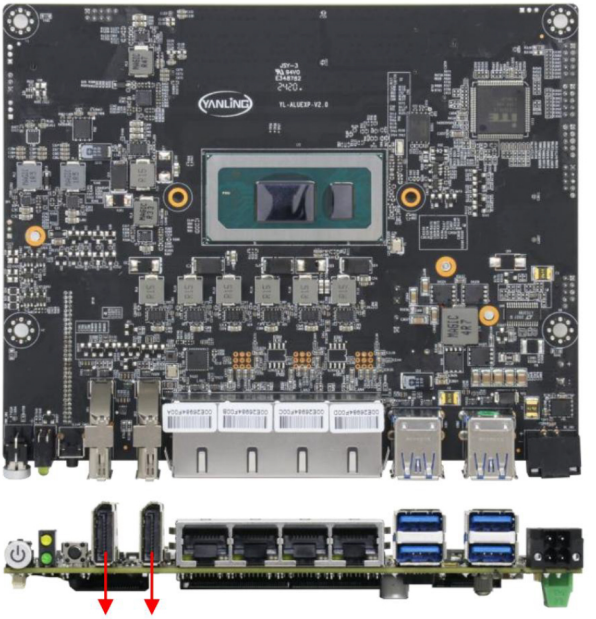


COM1-COM2 interface definition:

Pins	RS232	RS422	RS485
1	DCD	D-	TX-
2	RXD	D+	TX+
3	TXD	/	RX+
4	DTR	/	RX-
5	GND	GND	GND
6	DSR	/	/
7	RTS	/	/
8	CTS	/	/
9	RI	/	/

2.6 Display ports (DP1, DP2)

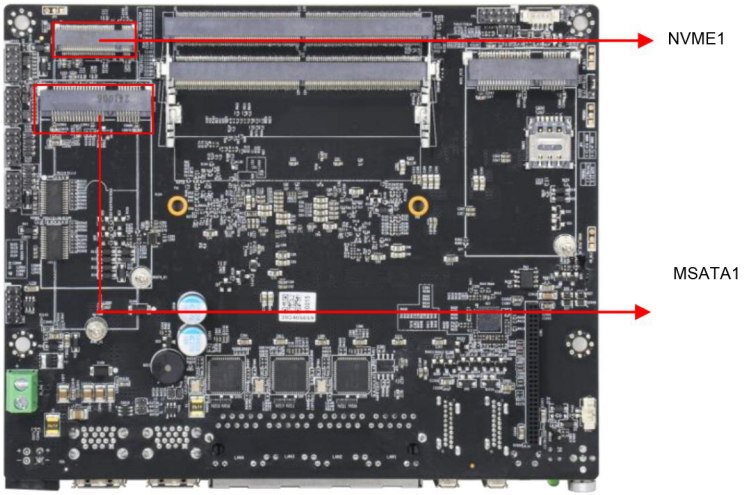
Provides 2 standard DP interfaces.



2.7 Storage Interface (MSATA1, NVME1)

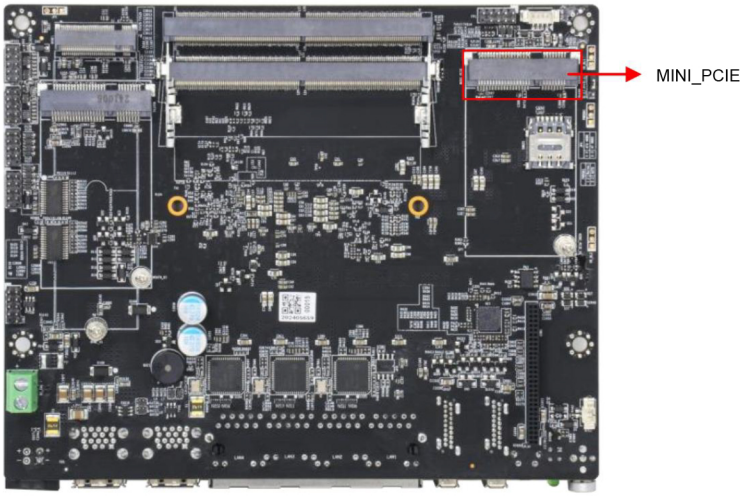
Provides 1 MSATA interface (MSATA1);

1 M.2 KEY-M (NVME1: 2280, supports NVME 1X/SATA protocol).

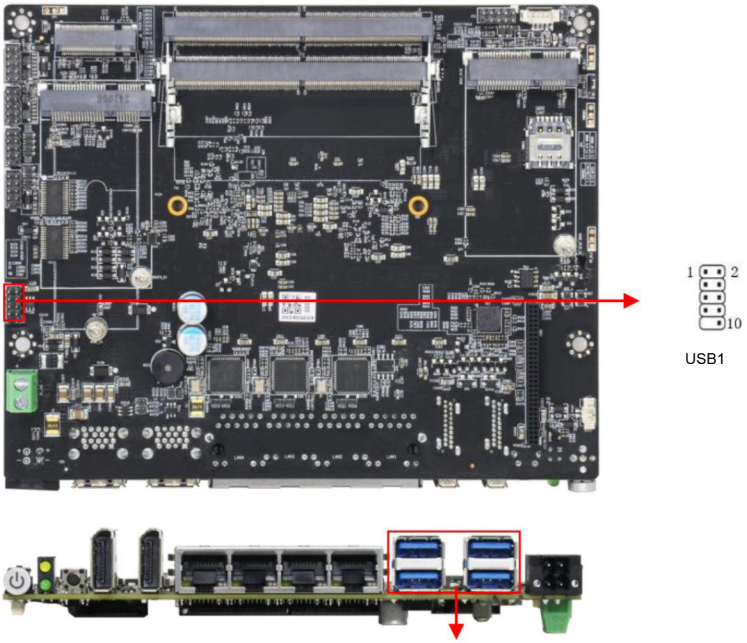


2.8 Expansion Interface (MINI_PCIE)

Provides 1 MINI_PCIE interface, supports 3G/4G/WIFI functions



2.9 USB(USB1、USB2、USB3)



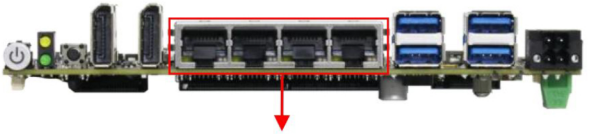
It provides 4 standard USB3.2 and 2 USB2.0 (pictured above). USB2.0 is 2 2x 5 Pin headers, with the definitions as follows.

USB1 pin definition:

Signal name	Pins	Pins	Signal name
VCC5	1	2	VCC5
DATA-	3	4	DATA-
DATA+	5	6	DATA+
GND	7	8	GND
	9	10	GND

3.0 network (LAN1, LAN2, LAN3, LAN4)

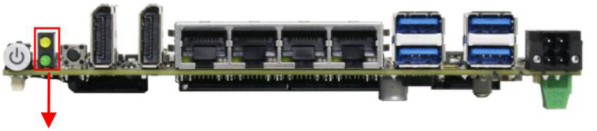
The board has 4 Intel 10/100/1000Mb adaptive network cards, using 3x Intel i210AT + 1x Intel i219LM network card chips.



LAN1ÿLAN2ÿLAN3ÿLAN4

interface	Network card chip
LAN1	Intel i219LM
LAN2	Intel i210AT
LAN3	Intel i210AT
LAN4	Intel i210AT

3.1 Indicator light (LED2)

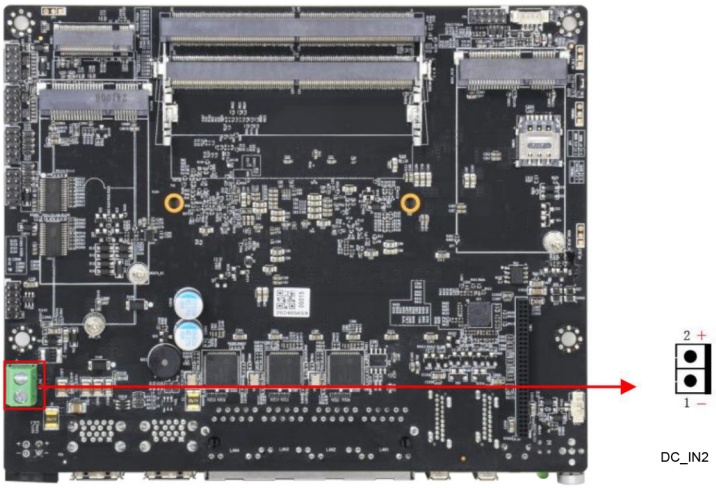


Yellow (upper): LAN1 status indicator

Green (lower): Hard disk indicator

3.2 Power input, interface definition (DC_IN1, DC_IN2)

DC_IN1



DC_IN2

DC_IN1 Interface Definition

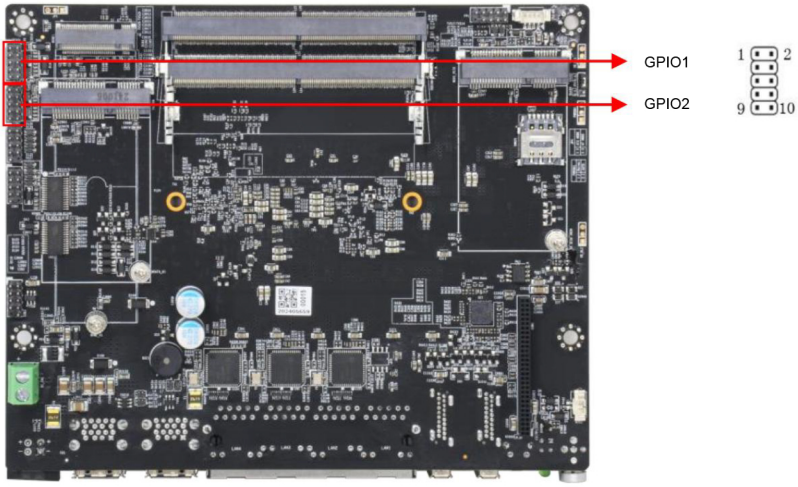
Signal name	Pins	Pins	Signal name
GND	1	2	+12V
GND	3	4	+12V

DC_IN2 Interface Definition

Signal name	Pins	Pins	Signal name
GND	1	2	+12V

3.3 Programmable input and output ports (GPIO1, GPIO2)

The motherboard provides 16-bit GPIO programmable control input and output interface, GPIO1 and GPIO2 are 2*5PIN 2.0mm pins



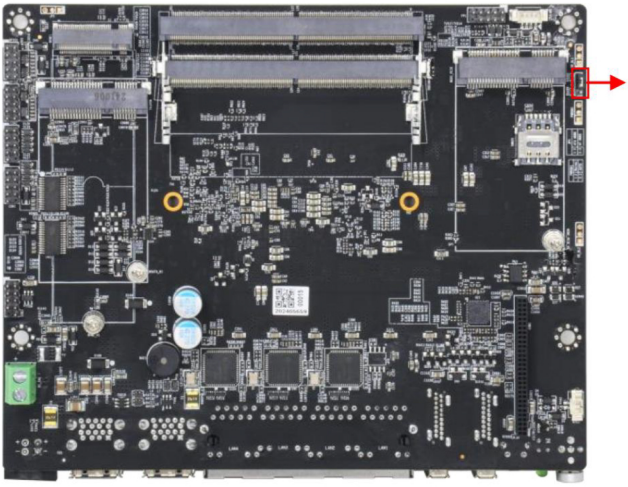
GPIO1 definition:

Signal name	Pins	Pins	Signal name
5V	1	2	GND
GPIO1	3	4	GPIO2
GPIO3	5	6	GPIO4
GPIO5	7	8	GPIO6
GPIO7	9	10	GPIO8

GPIO2 definition:

Signal name	Pins	Pins	Signal name
5V	1	2	GND
GPIO1	3	4	GPIO2
GPIO3	5	6	GPIO4
GPIO5	7	8	GPIO6
GPIO7	9	10	GPIO8

3.4 Hardware incoming call power-on pin (JP4)



JP4 definition:

set up	AUTO-SEL1
1-2	ATX MODE
2-3	AT MODE

3.5 Switch (PWR_SW1)

PWR_SW1 is a switch with power indicator light

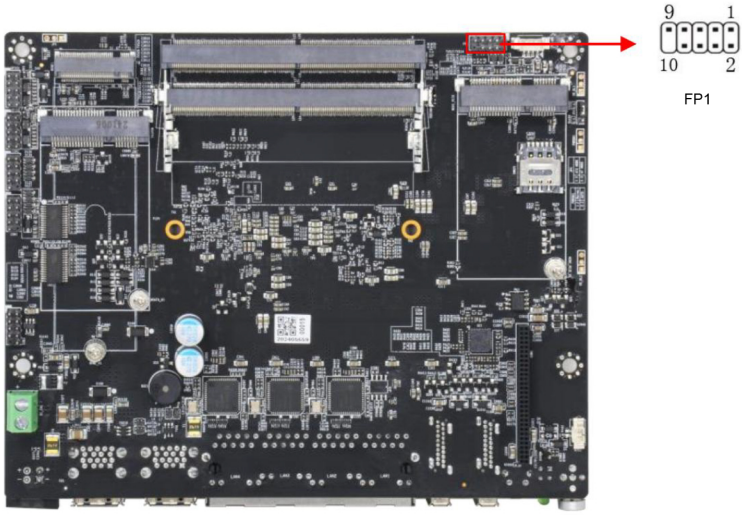
PWR_SW1

PWR_SW1

set up	JSW1
1	PWR-BTN
2	GND

3.6 Panel interface (FP1)

FP1 is 2x 5PIN 2.0mm spacing motherboard front panel pin

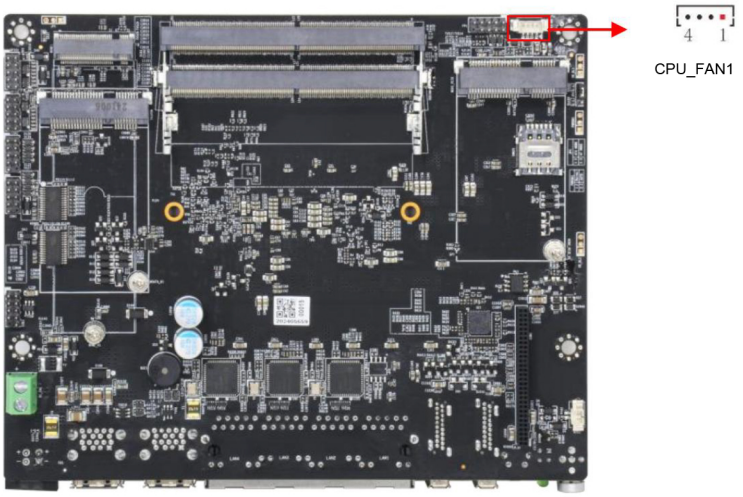


FP1 signal definition:

Signal name	Pin Pin		Signal name
HDD LED+	1	2	PWR LED+
HDD LED-	3	4	PWR LED-
Reset	5	6	PWRSW
GND	7	8	GND
NC	9	10	NC

3.7 Fan connector (CPU_FAN1)

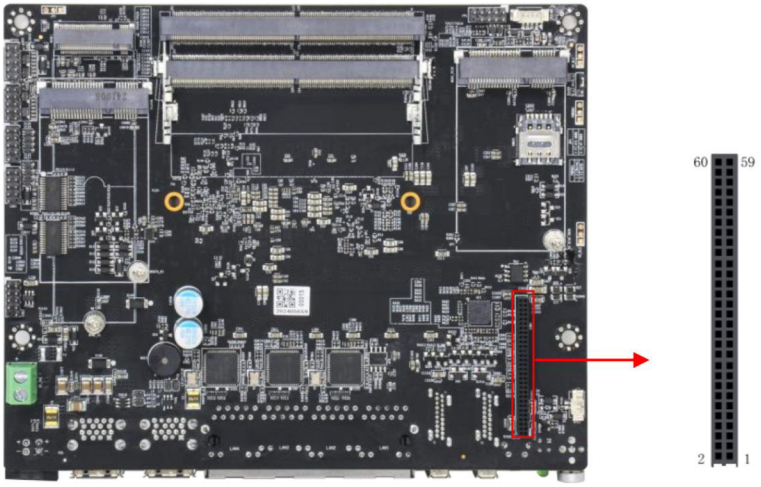
Cooling fan interface CPU_FAN1



FAN Interface Definition

Pins	Function	Function	Pins
1	GND	+12V	2
3	Speed Count	Speed control	4

3.8 Expansion card interface (CON1)



CON1