



ITX810U User Manual

Issue 1.1

www.CoreIPC.com

Security Guidance

Copyright Statement

© 2026 CoreIPC. All rights reserved.

All trademarks and names mentioned in this user manual are the property of their respective registered companies.

Disclaimer

- This user manual is protected by copyright, and all content herein is the property of CoreIPC.
- CoreIPC reserves the right to modify the product specifications or related information mentioned in this user manual.
- Any modifications or changes to the product specifications or related information mentioned in this user manual will be made without prior notice.
- The contents of this user manual may not be reproduced, modified, reprinted, distributed, or published in any form without prior written permission from CoreIPC.

- To help you use the CoreIPC motherboard, please read the [User Manual] carefully.
- For product-related information, please be sure to read these safety instructions carefully.
- Identifying the Product Version
You can find the version of this motherboard labeled [Issue:X.X] on the motherboard itself. X.X represents a number; for example, a label reading [Issue1.0] indicates that the version of this motherboard is 1.0. Please note the product version when updating the motherboard's BIOS or drivers, or when referring to other technical documentation.

Basic Safety Tips

1. Before using this product, please be sure to read the product manual carefully.
2. Any cards not yet ready for installation should be stored in anti-static bags.
3. Before removing the board from the antistatic bag, place your hand on a grounded metal object for a moment (such as 10 seconds) to discharge any static electricity from your body and hands.
4. When handling circuit boards, you must wear anti-static gloves and make it a habit to touch only the edges.
5. To prevent electric shock or damage to the product, be sure to turn off the AC power before inserting, removing, or reconfiguring the board.
6. Before moving a board or the entire unit, you must first turn off the AC power.
7. For complete systems, be sure to turn off the AC power before adding or removing any boards.
8. Before connecting or disconnecting any device, you must first turn off the AC power.
9. To avoid unnecessary damage to the product caused by frequent power cycles, wait at least 30 seconds after turning it off before turning it back on.

Ordering Information

No.	Model	CPU Model	Core	Freq.	Memory	HDMI	VGA	LVDS	EDP	LAN	USB	PS2	LPT	COM /485	POWER
1	ITX810U-L16-10210U VER1.1	I5-10210U	4	1.6G	2*DDR4	1	1	1	/	1	9	/	1	6 / 2	12V
2	ITX810U-L26-8265U VER1.1	I5-8265U	4	1.6G	2*DDR4	1	1	1	/	2	9	/	1	6 / 2	12V
3	ITX810U-L26-10310U VER1.1	I5-10310U	4	1.6G	2*DDR4	1	1	1	/	2	9	/	1	6 / 2	12V
4	ITX810U-L26-10610U VER1.1	I7-10610U	4	1.8G	2*DDR4	1	1	1	/	2	9	/	1	6 / 2	12V
5	ITX810U-L26-10810U VER1.1	I7-10810U	6	1.1G	2*DDR4	1	1	1	/	2	9	/	1	6 / 2	12V

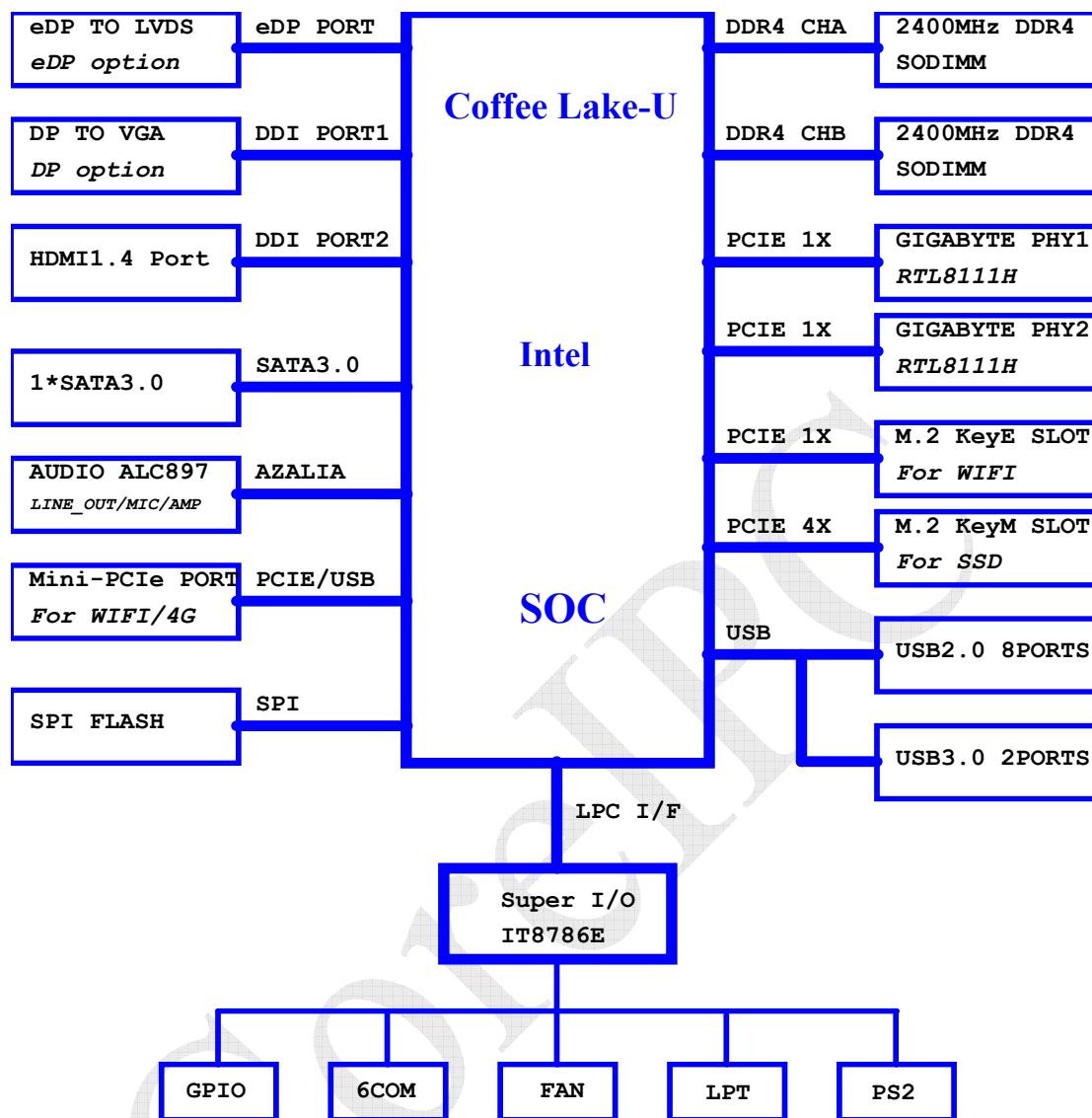
1. Product Description

ITX810U is a CoreIPC ITX series industrial motherboard supporting the complete range of Coffee Lake-U and Comet Lake-U processors. It is widely used in commercial displays, communication control systems, medical equipment, industrial automation, financial equipment, cloud terminals, and other industrial applications.

The main features of the ITX810U motherboard are as follows:

1. Supports Coffee Lake-U and Comet Lake-U Celeron®, Pentium®, and Core™ i3/i5/i7 processors.
2. Supports dual-channel DDR4 2400MHz 1.2V SO-DIMM memory, with a maximum capacity of 64GB.
3. Supports VGA/DP, HDMI, LVDS, or eDP interfaces for asynchronous triple display output.
4. Supports up to 2 × Realtek RTL8111H Gigabit Ethernet controllers.
5. Supports 1 × M.2 Key E interface (Wi-Fi) and 1 × M.2 Key M interface (2242/2280 SSD).
6. Supports 1 × Mini PCIe slot (mSATA supported by default; optional Wi-Fi/4G support).
7. Supports up to 9 USB ports.
8. Provides 6 × RS232 serial ports, supporting 2 × RS485 ports and optional 4 × RS485 ports.
9. Features dual-ball-bearing smart fan design to ensure long-term system stability.
10. Supports AT/ATX mode selection and 12V DC power input.

2. Motherboard Frame Diagram

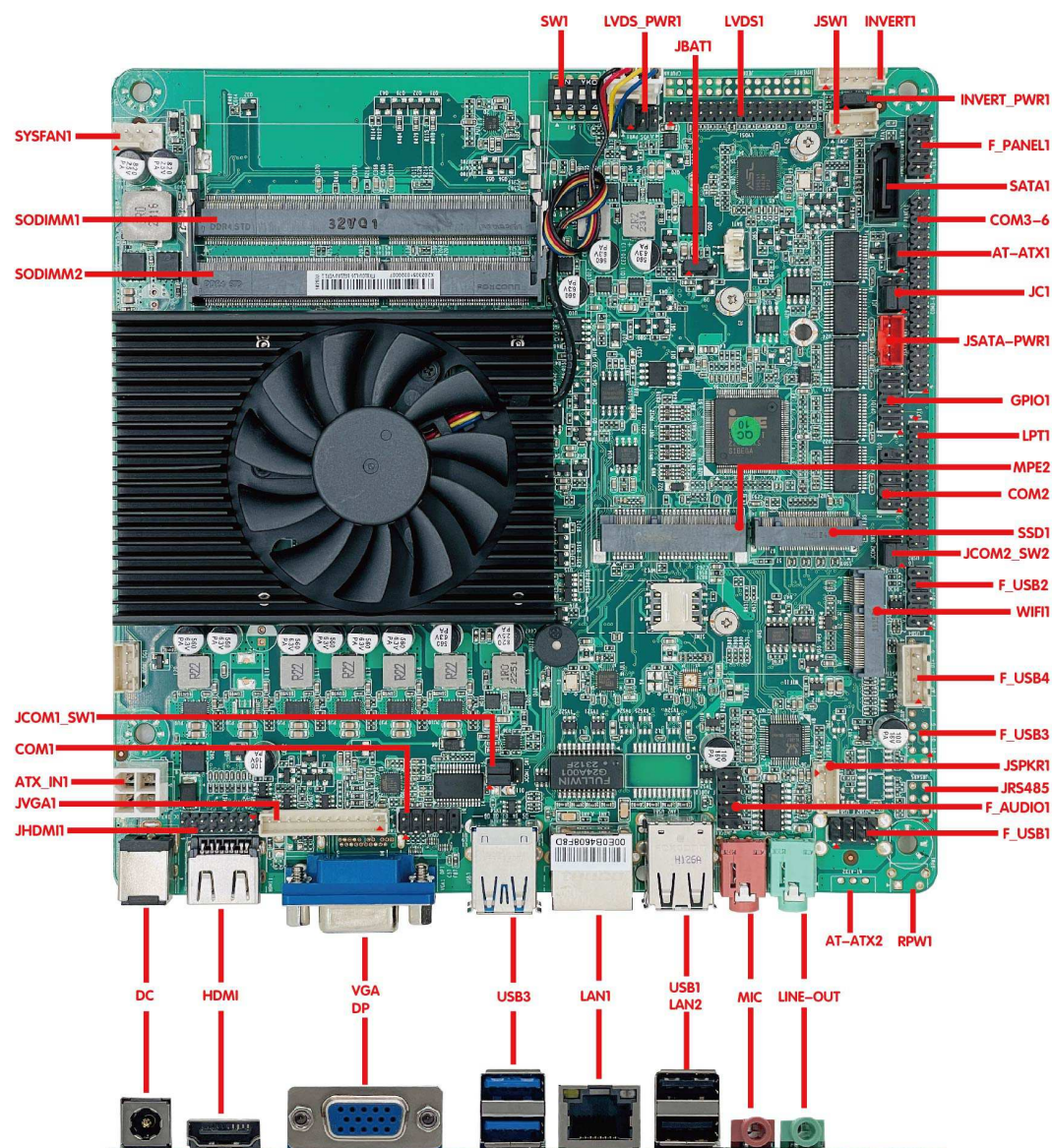


Note: support 6*RS232 or 1*RS422+2*485+3*232 or 4*485+2*232

3. Motherboard Detailed Specifications

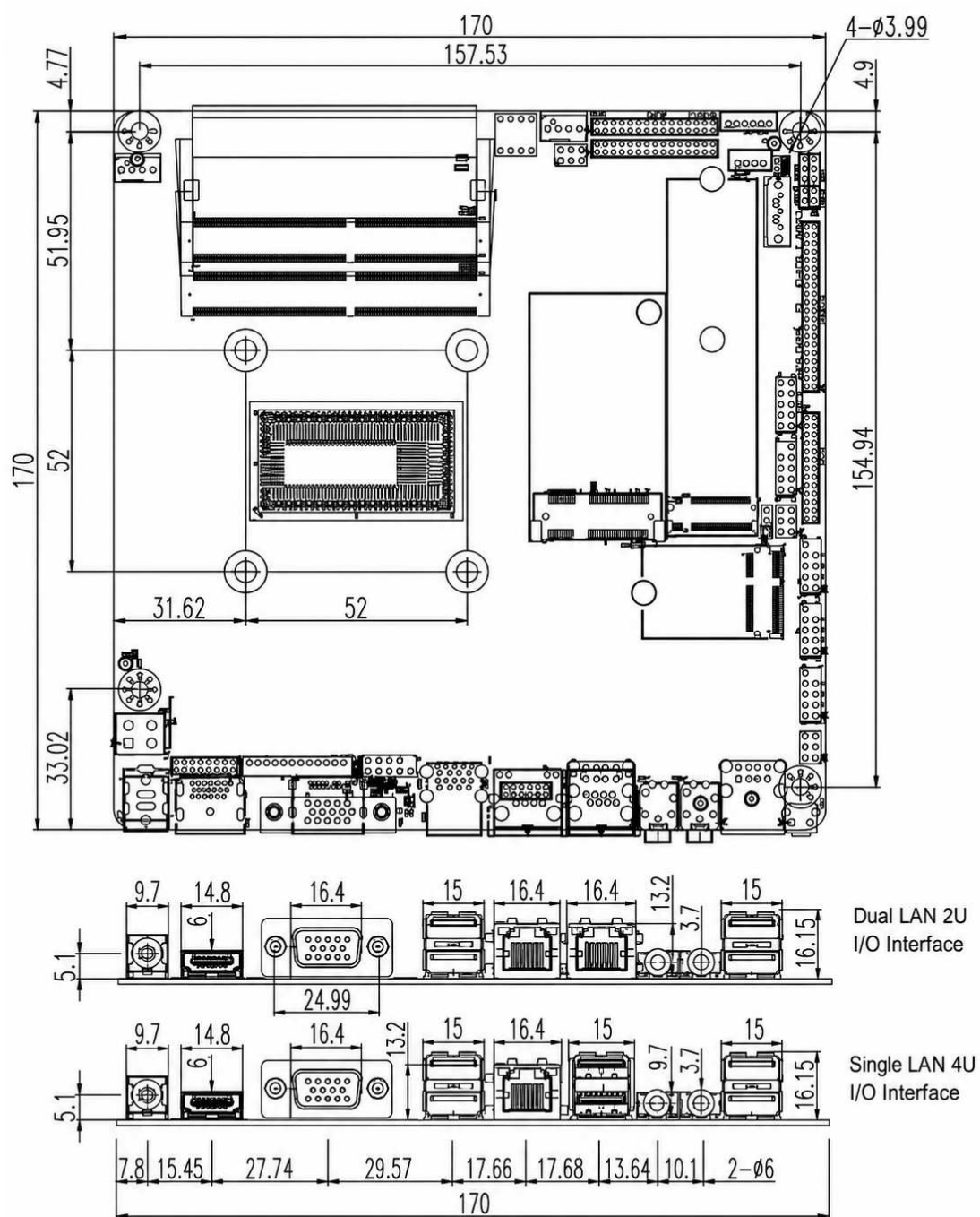
Item	Specification	
CPU	Intel®Core i5-8265U	Intel®Core i5-10210U
	Quad-core 1.6GHz (Up to 3.9GHz)	Quad-core 1.6GHz (Up to 4.2GHz)
	Intel® Coffee Lake-U or Comet Lake-U Pentium/Celeron/I3/I5/I7 series low power consumption processor.	
Memory	2* SO-DIMM memory slot, supports dual channel 2400MHz DDR4 memory, maximum support up to 64G memory.	
Display	Integrated Intel® UHD Graphics (subjects to specific CPU part number)	
	1* VGA or DP port (support 4K 60Hz) , 1*HDMI port (support 4K 30HZ)	
	1* LVDS or eDP port (either or, default use LVDS port)	
	Supports VGA/DP, HDMI and LVDS/eDP Synchronous/asynchronous triple display	
Network	2* Realtek RTL8111H Gigabit lan (1network can be chosen) , supports wake on lan/PXE	
Memory	1* SATA3.0 port	
	1* M.2 2280/2242 slot, supports M.2stat signal and M.2 Nvme signal self-adapt	
Audio	On board ALC897 7.1 channel high fidelity audio controller, supports MIC/Line-out, amplifier (support 2ohm 5W dual channel amplifier)	
Expansion Slot	1* Mini-PCIe slot (default MSATA and 4G module function, can choose to support WIFI and 4G module by changing related components)	
	1* M.2 port, support WIFI/Bluetooth	
Rear Panel I/O Ports	1* HDMI display port (support 4K 30HZ)	
	1* VGA display port (DP port optional, support 4K 60Hz, default VGA port)	
	4* USB2.0 port (default 2*USB2.0 standard port, F_USB1 can modify to USB2.0 standard port)	
	2* USB3.0 port	
	2* RJ-45 Gigabit lan port (the LAN2 and USB2.0 port are either optional)	
	1* Line out port (green), 1* MIC port (red)	
	1* clear CMOS switch (optional, default as NC)	
	1*power on/off selection switch (optional, default as NC)	
	1* 12V DC power input port	
Built in I/O port	1* JHDMI port 2*8Pin (Same signal as HDMI standard port, optional)	
	1* JVGA port 1*12Pin (same signal as DB15)	
	1* LVDS port 2*15pin, support dual channel 24bit (LVDS or eDP (LVDS by default))	
	1* Display backlight power supply connector 1*6pin	
	1* eDP connector 2*15pin (either option with LVDS connection)	
	4* USB 2.0 port 2*5Pin	

	(for single network the main board default as two 2*5Pin and one 1*4pin; for dual network the main board default as three 2*5Pin and one 1*4pin)
	1 * front audio port 2*5pin
	1 * amplifier port 1*4pin (supports 2ohm 5w 2ch)
	6* COM port (COM1/COM2/COM3/COM4 support RS485, default as 2x485; COM3 can optional support RS422)
	1 * LPT port
	1 * hard disk power supply port 1*4Pin
	1 * 4pin ATX power port
	1 * front panel on/off button and indicator port 2*5Pin
Fan Connector	1*4pin CPU fan port, 1*4pin system intelligent fan port
GPIO	Support 4 input/output GPIO
BIOS	64Mb Flash ROM
Watch dog	Supports firmware reset function (256 grade, 0~255 seconds)
Operation system	Windows 10/Windows 11/Linux
Power Supply	Use DC 12V power supply
Operating temperature	60℃~-10℃
Storage temperature	-20℃~70℃
Operation Humidity	5%-95% Relative humidity, non-condensing
Dimensions	170mm x 170mm



The image can be enlarged for viewing, and the first pin of all rows is marked with a red triangle.

Note: This is top view of ITX810U-L26 VER1.1, other models might be something different.



This figure is ITX810U VER1.1 IO port structure drawing

4. Motherboard installation

Safety Precautions

- Before installation, do not remove or damage the serial number label, distributor warranty sticker, or other identification labels on the motherboard. Otherwise, the warranty period may not be properly verified.
- Before installing or removing the motherboard or any other hardware devices, make sure the power is turned off and disconnect the power cord from the power outlet.
- When installing other hardware devices into the motherboard connectors, ensure that all connectors are properly aligned and securely connected.
- When handling the motherboard, avoid touching the metal contacts or exposed conductive parts to prevent short circuits.
- When handling the motherboard, CPU, or memory modules, it is recommended to wear an anti-static wrist strap. If an anti-static wrist strap is unavailable, make sure your hands are dry and touch a grounded metal object first to discharge static electricity.
- Before installation, place the motherboard in an anti-static mat or anti-static bag.
- Before disconnecting any power connector from the motherboard, make sure the power supply is switched off.
- Before turning on the system, make sure the power supply voltage is set to the correct local voltage standard.
- Before powering on the system, ensure that all hardware cables and power cables are properly connected.
- Do not allow screws to come into contact with the motherboard traces or components to avoid damage or malfunction.
- Make sure no screws or metal objects are left on the motherboard or inside the chassis.
- Do not place the computer system on an unstable surface.
- Do not place the computer system in an environment with excessively high temperatures.
- Turning on the power during installation may cause damage to the motherboard, other devices, or personal injury.
- If you are unfamiliar with hardware installation procedures or encounter any technical issues while using this product, consult qualified technical personnel.

Memory installation

The motherboard provides two 260-pin DDR4 SO-DIMM memory slot.

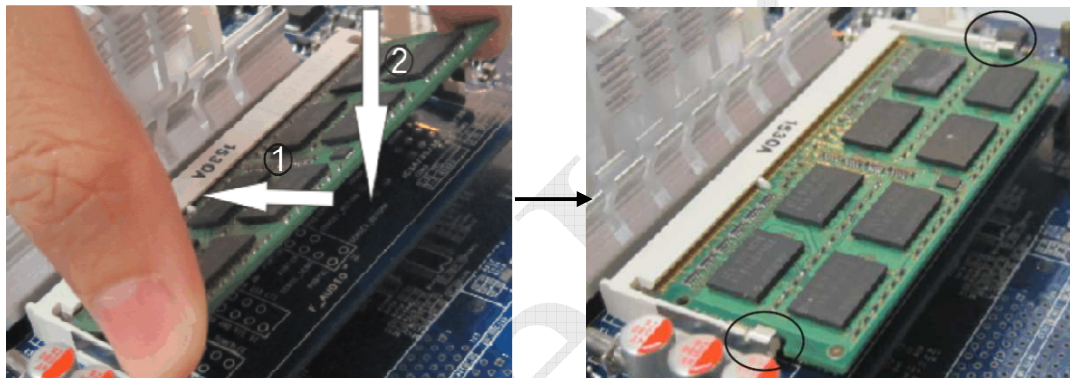
Before you begin installing the memory, please note the following information:

- 1) Please first confirm that the memory you purchased is compatible with the specifications supported by this motherboard.
- 2) Before installing or removing memory, please ensure that the computer is powered off to avoid damage.
- 3) The memory module is designed with a foolproof marking. If you insert it in the wrong direction, the memory module will not be able to be inserted. In this case, please change the insertion direction immediately.

Install memory:

- 1) Please turn off the power and unplug the AC power cord before installing or removing the memory.
- 2) Hold the memory module carefully at both ends, being careful not to touch the metal contacts.
- 3) Align the gold fingers of the memory module with the memory slot, making sure the gold finger recesses align with the protruding points of the slot.
- 4) Insert the memory module at a 30-degree angle into the memory slot, then press it down until you hear a "click" sound. This indicates that the memory is successfully installed and ready to use. (Note: Do not press the memory module down too hard to avoid damaging it.)
- 5) To remove the memory module, push the latches on both ends of the DIMM slot outwards simultaneously, and then remove the memory module.

The installation diagram below is for reference only:

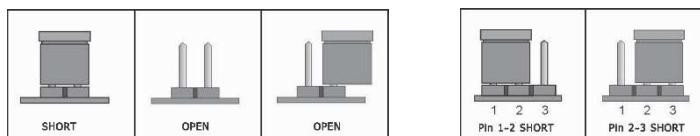


5. Jumper settings

Jumper Description

2-pin connector: Inserting the jumper cap into both pins will close (short circuit) it.

3-pin connector: A jumper cap can be inserted into pins 1-2 or pins 2-3 to close (short circuit).



How do I identify the position of pin 1 of a jumper?

- 1) Please carefully inspect the motherboard. Any pin marked "1" or with a thick white line is pin 1.
- 2) When examining the pads on the backplate, square pads are typically for pin 1.

Clear CMOS Jumper: The motherboard provides one 1*3PIN JBAT1 connector: CMOS content clear/retain settings (pin pitch: 2.54 mm). The CMOS is powered by a coin cell battery on the board. Clearing the CMOS will permanently erase the previous system configuration and set it to the original (factory settings) system settings. The steps are:

- 1) Shut down the computer and disconnect the power;
- 2) Short the JBAT1 2-3 pins for about 5 seconds;
- 3) Turn on the computer;
- 4) Press the key prompted on the screen during startup to enter the BIOS settings and reload the optimal default values;
- 5) Save and exit the settings.

The pin definitions are as follows:

JBAT1 definition:

Functions	JBAT1 settings
Normal working status	1-2Pin
Clear CMOS contents; restore all BIOS settings to factory defaults.	2-3Pin

Power-on function jumper: The motherboard provides one 1*3 AT-ATX1 jumper (pin pitch: 2.54 mm), which can be used to control whether the power is on or off.

AT-ATX1 Definition:

Functions	AT-ATX1 settings
Turn off the call auto-start function	1-2Pin
Enable call auto-start function	2-3Pin

6. Pin definitions

6.1. The motherboard supports six COM ports. COM1 and COM2 support RS232/RS485, COM3 supports RS232/RS485/RS422, COM4 supports RS232/RS485, and COM5 and COM6 support RS232.

The motherboard provides two 2 × 5-pin standard COM headers (2.54 mm pitch). The standard pin definitions of COM1 and COM2 are as follows:

Pin	Signal name	Pin	Signal name
1	DCD (A)	2	RXD (B)
3	TXD	4	DTR
5	GND (also grounded at 485)	6	DSR
7	RTS	8	CTS
9	RI	10	NC

Attention: When supporting RS485, please connect the GND of the 5th PIN to the device end together.

COM1 and COM2 support RS232 as well as RS485. Jumper for COM1 and COM2 RS232 or RS485 setting:

JCOM1_SW1 and JC1 setting:

Port	Function	JCOM1_SW1 setting	JC1 setting	Definition
COM1	RS232	1-3Pin,2-4Pin (default)	1-3Pin (default)	COM1 PIN2 is (RXD) COM1 PIN3 is (TXD)
	RS485	3-5Pin ,4-6Pin	3-5Pin	COM1 PIN1 is (A) COM1 PIN2 is (B)

JCOM2_SW2 and JC1 setting:

Port	Function	JCOM2_SW2 setting	JC1 setting	Definition
COM2	RS232	1-3Pin ,2-4Pin (default)	2-4Pin (default)	COM2 PIN2 is (RXD) COM2 PIN3 is (TXD)
	RS485	3-5Pin ,4-6Pin	4-6Pin	COM2 PIN1 is (A) COM2 PIN2 is (B)

6.2. It provides a 2*20Pin standard 4-pin serial port (pin pitch: 2.0mm)

COM3-6 definition:

Pin	Signal name	Pin	Signal name
1	COM3_DCD	2	COM3_RXD
3	COM3_TXD	4	COM3_DTR
5	GND	6	COM3_DSR
7	COM3_RTS	8	COM3_CTS
9	COM3-RI	10	NC
11	COM4_DCD	12	COM4_RXD
13	COM4_TXD	14	COM4_DTR
15	GND	16	COM4_DSR
17	COM4_RTS	18	COM4_CTS
19	COM4-RI	20	NC
21	COM5_DCD	22	COM5_RXD
23	COM5_TXD	24	COM5_DTR
25	GND	26	COM5_DSR
27	COM5_RTS	28	COM5_CTS
29	COM5-RI	30	NC
31	COM6_DCD	32	COM6_RXD
33	COM6_TXD	34	COM6_DTR
35	GND	36	COM6_DSR
37	COM6_RTS	38	COM6_CTS
39	COM6-RI	40	NC

6.3. COM3 can support RS232, RS485 and RS422; COM4 can support RS232 and RS485.

The RS485 and RS422 of COM3 and COM4 can only be supported by adjusting the hardware. Please connect the functions to the JRS485 pin position:

Port	Function	Remark
COM3	RS232	
	RS485	RS485 function of COM3 is on JRS485 pin, pin1 is COM A, pin 2 is COM B.
	RS422	RS422 function of COM3 is on JRS485 pin
Port	Function	Remark
COM4	RS232	
	RS485	RS485 function of COM4 is on JRS485pin, pin 3 is COM A, pin 4 is COM B.

COM3 and COM4 support RS232 by default. If you need to support RS485 and RS422, please contact our sales to adjust the hardware.

The RS485/RS422 of COM3 and COM4 wiring pins (pin pitch 2.54mm). JRS485 pin definition:

Pin	Signal name	Pin	Signal name
1	TXD+(A3)	2	TXD-(B3)
3	RXD+(A4)	4	RXD-(B4)
5	+5V	6	GND

COM3 and COM4 support RS232 by default. If you need to support RS485 and RS422, please contact our sales to adjust the hardware.

6.4. It provides a 2*13pin Print port LPT1 on main board (pin pitch 2.0mm), LPT1 pin definition:

Pin	Signal name	Pin	Signal name
1	STB-	2	AFD-
3	PD0	4	ERR-
5	PD1	6	INIT-
7	PD2	8	SLIN-
9	PD3	10	GND
11	PD4	12	GND
13	PD5	14	GND
15	PD6	16	GND
17	PD7	18	GND
19	ACK-	20	GND
21	BUSY	22	GND
23	PE	24	GND
25	SLCT	26	NC

6.5. It provides a 2*15Pin LVDS pin port (pin pitch: 2.0mm). LVDS1 pin definition:

Pin	Signal name	Pin	Signal name
1	LCDVDD	2	LCDVDD
3	LCDVDD	4	NC
5	GND	6	GND
7	LVDS_A0-	8	LVDS_A0+
9	LVDS_A1-	10	LVDS_A1+
11	LVDS_A2-	12	LVDS_A2+
13	GND	14	GND
15	LVDSA_CLK-	16	LVDSA_CLK+
17	LVDS_A3-	18	LVDS_A3+
19	LVDS_B0-	20	LVDS_B0+
21	LVDS_B1-	22	LVDS_B1+
23	LVDS_B2-	24	LVDS_B2+
25	GND	26	GND

27	LVDSB_CLK-	28	LVDSB_CLK+
29	LVDS_B3-	30	LVDS_B3+

This board provides three screen operating voltage options: 3.3V, 5V, and 12V, as well as 5V and 12V screen backlight power supply voltage options.

Before using LVDS, please first understand the rated voltage required for the screen to operate. The LCD display can only be displayed when the selected LCD voltage matches the voltage of the LCD screen. The setting method is as follows:

INVERT1 (backlight power supply port) definition:

Pin	Signal name
1	12V/5V (INVERT_PWR1 setup)
2	12V/5V (INVERT_PWR1 setup)
3	enable
4	PWMI
5	GND
6	GND

INVERT_PWR1 (screen backlight power supply) setting:

Port	Function	INVERT_PWR1 setting
LVDS1	12V (default)	1-2Pin
	5V	2-3Pin

JLVDS_PWR1 (screen operation voltage) setting:

Port	Function	INVERT_PWR1 setting
LVDS1	3.3V (default)	1-2Pin
	5V	3-4Pin
	12V	5-6pin

JSW1(screen brightness control port) definition:

Pin	Signal name
1	BLU+ brightness increase
2	BLU- brightness decrease
3	enable
4	GND

It is equipped with one SW1 dial switch to set the resolution of LVDS. The detailed settings are as follows:

No.	DIP Switch Setting	Resolution / Bit Depth	No.	DIP Switch Setting	Resolution / Bit Depth	No.	DIP Switch Setting	Resolution / Bit Depth
1		800x600 Single 6	2		1024x768 Single 6	3		1280x768 Single 6
4		1280x800 Single 6	5		1280x960 Single 6	6		1280x1024 Dual 8
7		1366*768 Single 6	8		1366x768 Single 8	9		1440x900 Dual 8
10		1024*600 Single 6	11		1920x1080 Dual 6 15.6 inch	12		1920x1080 Dual 8 21.5 inch
13		1920x1080 Dual 8 42 inch	14		1280x1024 Dual 8	15		1280x800 Single 8
16		1024x768 Single 8	17			18		

6.6. It provides a 2*15Pin eDP pin port (pin pitch: 2.0mm). JEDP1 pin definition:

Pin	Signal name	Pin	Signal name
1	PVDD	2	PVDD
3	NC	4	NC
5	EDP_TX0+	6	EDP_TX0-
7	GND	8	GND
9	EDP_TX1+	10	EDP_TX1-
11	GND	12	GND
13	EDP_TX2+	14	EDP_TX2-
15	GND	16	GND
17	EDP_TX3+	18	EDP_TX3-
19	GND	20	GND
21	EDP_AUX+	22	EDP_AUX-
23	GND	24	HPD_DET
25	BKLT_PWM	26	BKLT_EN
27	GND	28	GND
29	INVERT_PWR	30	INVERT_PWR

6.7. It is equipped a 1*12pin white socket JVGA1 (pin pitch 2.0mm). It shared the same signal with VGA1 port. JVGA1 definition:

Pin	Signal name	Pin	Signal name
1	NC	2	VSYNC
3	HSYNC	4	GND
5	R	6	GND
7	G	8	GND
9	B	10	GND
11	DDC_SDA	12	DDC_SCL

6.8. It provides a 2*8pin JHDMI port (pin pitch: 2.0mm), JHDMI1 pin definition:

Pin	Signal name	Pin	Signal name
1	TMDS Data2+	2	SCL
3	TMDS Data2-	4	SDA
5	TMDS Data1+	6	NC
7	TMDS Data1-	8	Hot Plug Detect
9	TMDS Data0+	10	+5V Power
11	TMDS Data0-	12	GND
13	TMDS Clock+	14	GND
15	TMDS Clock-	16	GND

6.9. It is equipped with a 1*4PIN (pin pitch: 2.0mm) amplifier port (support 2ohm 5w 2ch), JSPKR1 pin definition:

Pin	Signal name	Pin	Signal name
1	SPKL-	2	SPKL+
3	SPKR-	4	SPKR+

6.10. It provides a 2*5PIN (pin pitch: 2.54mm) front audio port, F_AUDIO1 pin definition:

Pin	Signal name	Pin	Signal name
1	MIC-L	2	GND
3	MIC-R	4	NC
5	Line out-R	6	Sense Return1
7	GND	8	NC
9	Line OUT-L	10	Sense Return2

6.11. It provides 2 2*5pin and a 2*4Pin pin type USB2.0 port (pin pitch: 2.54mm)

F_USB1、F_USB2、F_USB3 pin definition:

Pin	Signal name	Pin	Signal name
1	+5V	2	+5V
3	Data0-	4	Data1-

5	Data0+	6	Data1+
7	GND	8	GND
9		10	GND (F_USB1 NC)

Note: The F-USB3 and USB1 are either options, and only the main boards that support dual network ports which can support USB2.0 by F_USB3.

The F-USB1 and USB2 are either options, defaulting at F-USB1.

6.12. It provides a 1*4Pin red SATA hard disk power port (pin pitch: 2.0mm), JSATA_PWR1 pin definition:

Pin	Signal name
1	+12V
2	GND
3	GND
4	+5V

Please make sure to confirm the first pin position of JSATA-PWR1, otherwise it will burn the hard disk. When using, it is necessary to use the power cord provided by our company as standard.

6.13. It provides 2 1*4Pin fan port, CPUFAN1、SYSFAN1 pin definition:

Pin	Signal name
1	GND
2	+12V
3	DET
4	PWM

Note: DET refers to fan speed pulse output; PWM refers to fan speed PWM control

6.14. It provides a 2*5Pin FPANEL1 port (pin-pitch: 2.54mm)

The power switch, reset switch, hard disk indicator light, and power indicator light can be connected to this pin. FPANEL1 pin definition:

Pin	Signal name	Pin	Signal name
1	HDDLED+	2	PWRLED+
3	HDDLED-	4	PWRLED-
5	GND	6	PWRBTN#
7	RESETBTN#	8	GND
9	NC	10	

The power switch, reset switch, hard disk indicator light, and power indicator light of the chassis can be connected to this interface.

6.15. It provides a 2*5 Pin GPIO pin (pin pitch: 2.54mm), GPIO1 pin definition:

Pin	Signal name	Pin	Signal name
1	GND	2	+5V
3	GPO1 /0xA02/bit6	4	GPI1 /0xA00/bit0
5	GPO2 /0xA02/bit7	6	GPI2 /0xA01/bit3
7	GPO3 /0xA04/bit6	8	GPI3 /0xA05/bit0
9	GPO4 /0xA04/bit7	10	GPI4 /0xA05/bit1

6.16. It provides a 2*2 Pin ATX power port, this is the main board power supply port. ATX_IN1 pin definition:

Pin	Signal name
1	GND
2	GND
3	12V
4	12V