



EPIC19P User Manual

Issue 1.0

www.CoreIPC.com

Security Guidance

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- 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	Cores	Freq.	Memory	HDMI	VGA	LVDS	EDP	LAN	USB	PS2	LPT	COM /485	POWER
1	EPIC19P VER 1.0	J1900	4	2.0G	DDR3L	1	1	1	/	2	6	1	/	6 / 2	12V
2	EPIC19P-IO VER 1.0	/	/	/	/	/	/	/	/	/	4	/	/	6 / 2	/

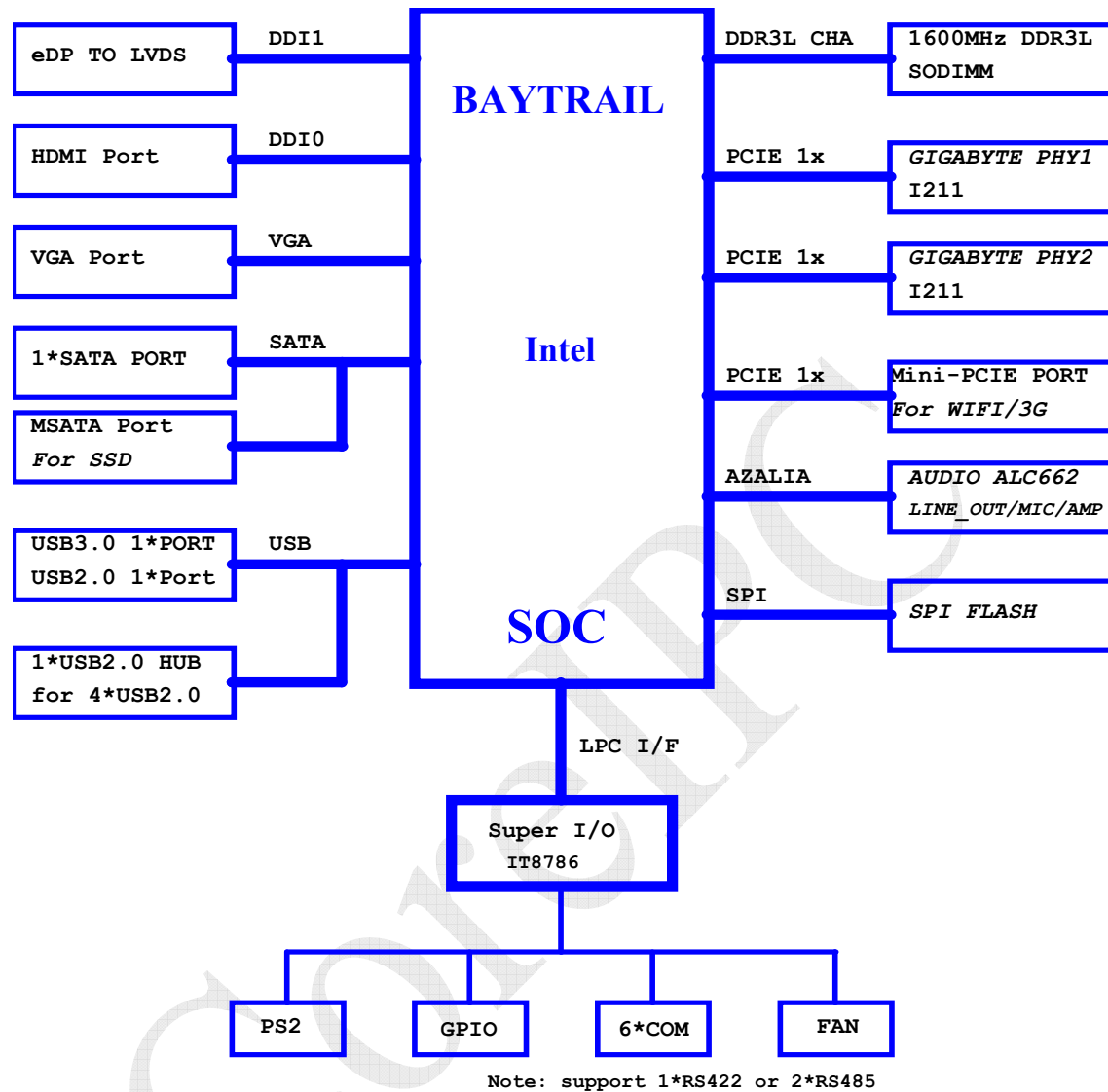
1. Product Description

EPIC19P is a CoreIPC 3.5-inch industrial motherboard supporting the Intel® Bay Trail-I/M/D processor series. It is suitable for industrial control, machine vision, medical equipment, financial equipment, cloud terminals, and other applications.

The main features of the EPIC19P motherboard are as follows:

- Integrated Intel® Celeron® J1900 2.0 GHz quad-core processor; compatible with the Bay Trail-I/M/D processor series;
- Supports single-channel DDR3L 1600/1333 MHz, 1.35 V memory, up to 8 GB;
- Supports VGA, HDMI, LVDS, or eDP display output;
- Supports up to 2 × Intel® I210/I211 Gigabit Ethernet ports;
- Supports 1 × Mini PCIe slot for Wi-Fi/4G and 1 × mSATA slot;
- Supports up to 6 USB ports;
- Provides 6 onboard RS232 serial ports, with support for up to 2 RS485 ports;
- Fanless cooling supports sealed system designs for improved dust and moisture resistance;
- Supports a wide operating temperature range of -20°C to 60°C;
- Supports AT/ATX power mode selection and 12 V DC power input.

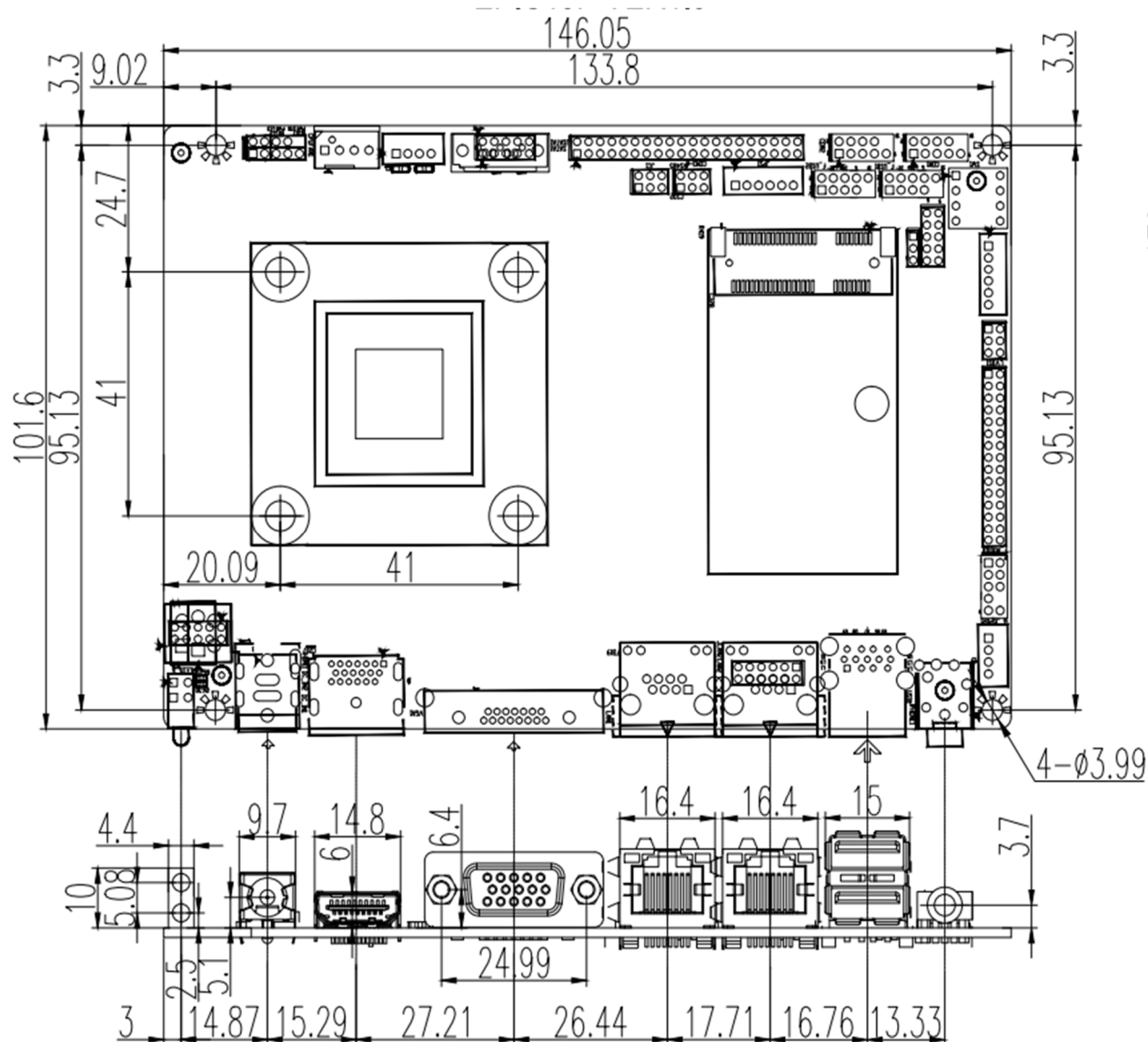
2. Motherboard Block Diagram



3. Motherboard Specifications

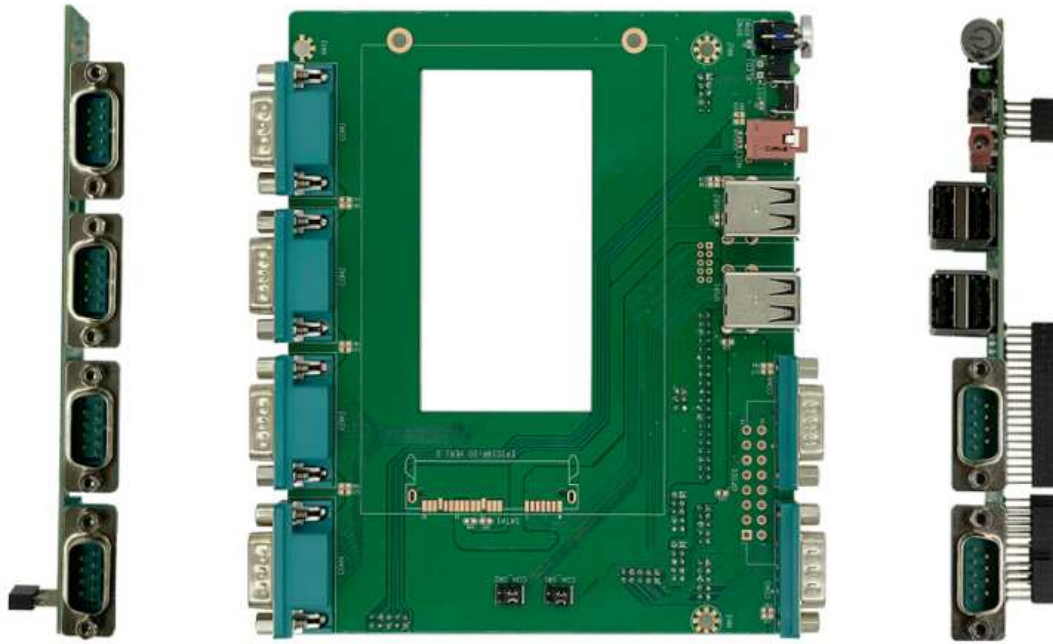
Product Model	EPIC19P VER1.0
Processor	Integrated Intel® Celeron® J1900 2.0 GHz quad-core processor; compatible with the Intel® Bay Trail-I/M/D processor series
Memory	1 × SO-DIMM slot; supports single-channel DDR3L 1600/1333 MHz, 1.35 V memory, up to 8 GB
Display	Integrated Intel® HD Graphics
	1 × VGA, 1 × HDMI 1.2, and 1 × LVDS interface (LVDS by default; eDP optional and must be confirmed before ordering)
	Supports synchronous or asynchronous dual-display output via VGA, HDMI, and LVDS
Network	2 × Intel® I211/I210 Gigabit Ethernet controllers with Wake-on-LAN and PXE boot support
	1 × Mini PCIe slot supporting half-size and full-size cards for Wi-Fi/4G modules
Storage	1 × SATA 2.0 interface
	1 × mSATA 2.0 slot
Audio	Onboard ALC662/ALC897/ALC262 6-channel HD audio codec supporting microphone input, line output, and a 3 W amplifier
Rear I/O Interfaces	1 × HDMI display port
	1 × VGA display port
	1 × USB 3.0 port and 1 × USB 2.0 port
	2 × RJ45 Gigabit Ethernet ports
	1 × line-out jack (green)
	1 × HDD/power indicator
	1 × 12 V DC power input connector
Onboard I/O Interfaces	1 × 2 × 15-pin LVDS header supporting dual-channel 24-bit output (LVDS by default; eDP optional and must be confirmed before ordering)
	1 × 1 × 6-pin panel backlight power connector
	4 × USB 2.0 ports via 2 × 5-pin headers
	1 × 2 × 5-pin front audio header
	1 × 1 × 4-pin amplifier header
	1 × 2 × 3-pin SIM header
	6 × COM ports (COM2/COM3 optionally support RS485)
	1 × 1 × 6-pin PS/2 header
	1 × 1 × 4-pin drive power connector

	1 × 2 × 5-pin front-panel switch and LED header
	1 × 2-pin 12 V DC power connector
Fan Interface	Fanless cooling design with 1 × 4-pin CPU fan header
GPIO	Supports 4 input/output GPIO channels
BIOS	64Mb Flash ROM
Watchdog	Supports hardware reset watchdog (256 levels, 0-255 seconds)
Operating System	Windows 7/Windows 10/Linux
Power Type	12 V DC ±5% power input
Operating Temperature	60°C~-20°C
Storage Temperature	-20°C~70°C
Operating Humidity	5%-95% relative humidity, non-condensing
Dimensions	146mm x 102mm



The figure above shows the I/O interface layout of the EPIC19P VER1.0 motherboard series.

Product Model	EPIC19P-IO VER1.0
Description	EPIC19P-IO VER1.0 is the companion I/O board for EPIC19P VER1.0. It supports 6 DB9 serial ports, including up to 2 optional RS485 ports, 4 USB 2.0 ports, and 1 microphone input.
Rear I/O Interfaces	6 × DB9 serial ports (COM2 and COM3 optionally support 2 RS485 ports)
	4 × standard USB 2.0 ports
	1 × microphone input
	1 × illuminated power button
	1 × HDD activity indicator
	1 × reset button



EPIC19P-IO VER1.0 I/O Board for EPIC19P VER1.0

4. Board Installation

Safety Precautions:

Before installing the motherboard, please read and follow the safety precautions below:

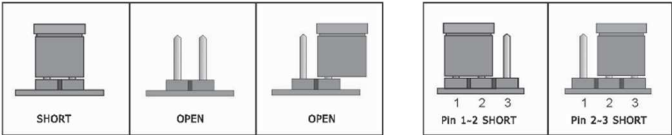
- Do not remove or damage the serial number label, distributor warranty label, or any other warranty-related labels on the motherboard before installation. Otherwise, it may affect the warranty validation.
- Before installing or removing the motherboard or any other hardware devices, make sure the power is turned off and the power cord is unplugged from the power outlet.
- When installing hardware devices into the motherboard connectors or slots, make sure the connectors are firmly and properly seated.
- When handling the motherboard, avoid touching the metal contacts or circuit areas to prevent short circuits.
- When handling the motherboard, CPU, or memory module, it is recommended to wear an anti-static wrist strap. If an anti-static wrist strap is not available, make sure your hands are dry and touch a grounded metal object first to discharge static electricity.
- Before installation, place the motherboard on an anti-static mat or inside an anti-static bag.
- Before unplugging the power connector from the motherboard, make sure the power supply is turned off.
- Before turning on the power, make sure the power supply voltage is set according to the local voltage standard.
- Before turning on the power, make sure all hardware cables and power cables are correctly connected.
- Do not allow screws to contact the circuits or components on the motherboard, as this may cause damage or malfunction.
- Make sure no screws or metal objects are left on the motherboard or inside the computer chassis.
- Do not place the computer system on an unstable surface.
- Do not place the computer system in a high-temperature environment.
- Turning on the power during installation may cause damage to the motherboard, other devices, or personal injury.
- If you are not familiar with the installation process, or if you encounter any technical problems while using this product, please consult qualified technical personnel.

5. Jumper Settings

Jumper Description

For a **2-pin header**, installing a jumper cap on the two pins will close the circuit, creating a short connection.

For a **3-pin header**, the jumper cap can be installed on **Pin 1–2** or **Pin 2–3** to close the corresponding circuit and create a short connection.



How to Identify Pin 1 of a Jumper?

- 1) Carefully check the motherboard. The pin marked with “1” or indicated by a thick white line is usually Pin 1.
- 2) Check the solder pads on the back side of the motherboard. In most cases, the square solder pad indicates Pin 1.

Clear CMOS Jumper:

The motherboard provides 1 × 1×3-pin Clear CMOS header JBAT1 for clearing or retaining CMOS settings.

Pin pitch: 2.54 mm

The CMOS is powered by the onboard button battery. Clearing the CMOS will permanently erase the previous system configuration and restore the system settings to the default factory values.

To clear the CMOS, follow the steps below:

- 1) Turn off the computer and disconnect the power supply.
- 2) Short Pin 2–3 of JBAT1 for approximately 5 seconds.
- 3) Power on the computer.
- 4) During startup, follow the on-screen prompt to enter BIOS Setup, then load the optimized default settings.
- 5) Save the settings and exit BIOS Setup.

Pin definition is shown below:

JBAT1 Definition:

Function	JBAT1 Setting
Normal operation	1-2Pin
Clear CMOS and restore all BIOS settings to factory defaults	2-3Pin

AT/ATX Power Mode Jumper

The motherboard provides **1 × 1×3-pin AT-ATX1 jumper** for selecting the power-on mode.

Pin pitch: 2.54 mm

The power-on behavior can be configured by the jumper setting.

AT-ATX1 Definition:

Function	AT-ATX1 Setting
Disable Auto Power-on	1-2Pin
Enable Auto Power-on	2-3Pin

6. Pin Definitions

6.1. The motherboard provides 2 × 2 × 5-pin standard COM headers with a 2.0 mm pitch.

The standard COM1 and COM2 pin definitions are as follows:

PIN	Signal Name	PIN	Signal Name
1	DCD (A)	2	RXD (B)
3	TXD	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	RI	10	NC

6.2. The motherboard provides 1 × 2 × 20-pin standard four-port serial header with a 2.0 mm pitch.

The COM3-COM6 pin definitions are as follows:

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. Jumper settings for COM2 and COM3 in RS232/RS485 modes

JC1 Settings:

Interface	Function	JC1 Setting	Definition
COM2	RS232	1-2Pin (Default)	
	RS485	3-4Pin	The RS485 signals are available on the JRS485 header: Pin 1 is COM A and Pin 2 is COM B.
COM3	RS422	5-6Pin	The RS422 signals are available on the JRS485 header. This function requires a hardware component change; consult the sales team in advance.

JC3 Settings:

Interface	Function	JC3 Setting	Definition
COM3	RS232	1-2Pin (Default)	
	RS485	2-3Pin	The RS485 signals are available on the JRS485 header: Pin 3 is COM A and Pin 4

			is COM B.
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6.4. The motherboard provides 1 × 2 × 3-pin RS485 header with a 2.0 mm pitch. The JRS485 pin definition is as follows:

PIN	Signal Name	PIN	Signal Name
1	TXD+(A)	2	TXD-(B)
3	RXD+	4	RXD-
5	GND	6	GND

6.5. The motherboard provides 1 × 1 × 6-pin PS/2 keyboard/mouse header with a 2.0 mm pitch. The JPS1 pin definition is as follows:

PIN	Signal Name	PIN	Signal Name
1	+5V(standby)	2	KB_DT
3	KB_CK	4	MS_DT
5	MS_CK	6	GND

6.6. The motherboard provides 1 × 2 × 15-pin LVDS header with a 2.0 mm pitch. LVDS1 can be configured as an eDP interface through a hardware modification. The default configuration is LVDS. Contact the sales team before ordering if eDP is required.

The LVDS1 pin definition is as follows:

PIN	Signal Name	PIN	Signal Name
1	LCDVDD (LVDS/eDP panel voltage, configured by JLVDS_PWR1)	2	LCDVDD (LVDS/eDP panel voltage, configured by JLVDS_PWR1)
3	LCDVDD (LVDS/eDP panel voltage, configured by JLVDS_PWR1)	4	NC (eDP_HDP)
5	GND	6	GND
7	LVDS_A0- (eDP_TX0-)	8	LVDS_A0+ (eDP_TX0+)
9	LVDS_A1- (eDP_TX1-)	10	LVDS_A1+ (eDP_TX1+)
11	LVDS_A2- (eDP_AUX-)	12	LVDS_A2+ (eDP_AUX+)
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+

The motherboard provides 3.3 V, 5 V, and 12 V panel operating-voltage options, as well as 5 V and 12 V panel backlight power options.

Before using LVDS, verify the rated operating voltage required by the LCD panel. The selected LCD voltage must match the panel voltage for proper operation. Configure the settings as follows:

INVERT1 (LVDS/eDP Panel Backlight Power Connector) Definition:

PIN	Signal Name
1	12 V/5 V (configured by INVERT_PWR1)
2	12 V/5 V (configured by INVERT_PWR1)

3	Backlight Enable
4	Backlight Brightness Control
5	GND
6	GND

INVERT_PWR1 (LVDS/eDP Panel Backlight Power) Settings:

Interface	Function	INVERT_PWR1 Setting
LVDS1	12V (Default)	1-2Pin
	5V	2-3Pin

JLVDS_PWR1 (LVDS/eDP Panel Operating Voltage, LCDVDD) Settings:

Interface	Function	JLVDS_PWR1 Setting
LVDS1	3.3V (Default)	1-2Pin
	5V	3-4Pin
	12V	5-6pin

JSW1 (Panel Brightness Adjustment Connector) Definition:

PIN	Signal Name
1	BLU+ Brightness Increase
2	BLU- Brightness Decrease
3	Backlight Enable
4	GND

The motherboard provides 1 × SW1 DIP switch for setting the LVDS resolution. The detailed settings are shown below:

N o.	DIP Switch Setting	Resolution/ Bit Width	N o.	DIP Switch Setting	Resolution/ Bit Width	No .	DIP Switch Setting	Resolution/ Bit Width
1		800x600 Single-channel 6-bit	2		1024x768 Single-channel 6-bit	3		1280x768 Single-channel 6-bit
4		1280x800 Single-channel 6-bit	5		1280x960 Single-channel 6-bit	6		1280x1024 Dual-channel 8-bit
7		1366*768 Single-channel 6-bit	8		1366x768 Single-channel 8-bit	9		1440x900 Dual-channel 8-bit
10		1024*600 Single-channel	11		1920x1080 Dual-channel 6-bit	12		1920x1080 Dual-channel 8-bit 21.5-inch

		6-bit			15.6-inch			
1 3		1920x1080 80 Dual-channel 8-bit 42-inch	14		1280x1024 4 Dual-channel 8-bit	15		1280x800 Single-channel 8-bit
1 6		1024x768 8 Single-channel 8-bit	17			18		

6.7. The motherboard provides 1 × 2 × 5-pin front audio header with a 2.0 mm pitch. The F_AUDIO1 pin definition is as follows:

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

6.8. The motherboard provides 1 × 1 × 4-pin amplifier header with a 2.0 mm pitch. The JSPKR1 pin definition is as follows:

PIN	Signal Name	PIN	Signal Name
1	SPKL-	2	SPKL+
3	SPKR-	4	SPKR+

6.9. The motherboard provides 2 × 2 × 5-pin USB 2.0 headers with a 2.0 mm pitch, supporting 4 USB 2.0 ports.

The F_USB1 and F_USB2 pin definitions are as follows:

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

6.10. The motherboard provides 1 × 1 × 4-pin smart fan header. The CPUFAN1 pin definition is as follows:

PIN	Signal Name
1	GND
2	+12V
3	DET
4	PWM

Note: DET is the fan speed pulse output; PWM controls the fan speed.

6.11. The motherboard provides 1 × 1 × 4-pin red SATA drive power connector with a 2.0 mm pitch. The JSPWR1 pin definition is as follows:

PIN	Signal Name
1	+12V
2	GND
3	GND
4	+5V

Make sure Pin 1 of JSPWR1 is correctly identified; an incorrect connection may damage the drive. Use the power cable supplied by CoreIPC.

6.12. The motherboard provides 1 × 2 × 5-pin SATA header with a 2.0 mm pitch for connection to the I/O board.

The JSATA1 pin definition is as follows:

PIN	Signal Name	PIN	Signal Name
1	SATA_TXP1	2	+5V
3	SATA_TXN1	4	+5V
5	GND	6	GND
7	SATA_RXN1	8	GND
9	SATA_RXP1	10	+12V

6.13. The motherboard provides 1 × 2 × 5-pin F_PANEL1 header with a 2.0 mm pitch.

The chassis power switch, reset switch, HDD LED, and power LED can be connected to this header. The F_PANEL1 pin definition is as follows:

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	

6.14. The motherboard provides 1 × 2 × 5-pin GPIO header with a 2.0 mm pitch. The GPIO1 pin definition is as follows:

PIN	Signal Name	PIN	Signal Name
1	GND	2	+5V
3	GPO1	4	GPI1
5	GPO2	6	GPI2
7	GPO3	8	GPI3
9	GPO4	10	GPI4

6.15. The motherboard provides 1 × 2 × 3-pin SIM header with a 2.0 mm pitch for installing a 4G SIM card.

The JSIM1 pin definition is as follows:

PIN	Signal Name	PIN	Signal Name
1	CLK	2	VCC_SIM
3	DATA	4	Reset#
5	GND	6	VPP_SIM

6.16. The motherboard provides an optional 1 × 2 × 5-pin power input header with a 2.0 mm pitch for connection to the I/O board.

The PH_12DC1 pin definition is as follows:

PIN	Signal Name	PIN	Signal Name
1	+12V	2	+12V
3	+12V	4	+12V
5	+12V	6	GND
7	GND	8	GND
9	GND	10	GND

6.17. The motherboard provides an optional 1 × 1 × 2-pin locking Phoenix power connector with a 5.5 mm pitch for motherboard power input.

The ADP_12IN1 pin definition is as follows:

PIN	Signal Name
1	GND
2	+12V