CoreIPC

ITX-J6412-10C User Manual

Issue 1.1

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Security Guidance

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- 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	ITX-J6412-10C VER1.1	J6412	4	2.0G	DDR4	1	1	1	/	2	8	/	1	10 / 8	12V
2	ITX-J6412-10C VER1.1	J6412	4	2.0G	DDR4	1	1	1	/	1	8	/	1	10 / 8	12V

1. Product Description

ITX-J6412-10C is CoreIPC ITX Series multi-serial-port industrial motherboard, supporting the Intel® Elkhart Lakefull series CPU. It is widely applicable to commercial displays, communication control, medical instruments, industrial control, financial equipment, cloud terminals, and other fields.

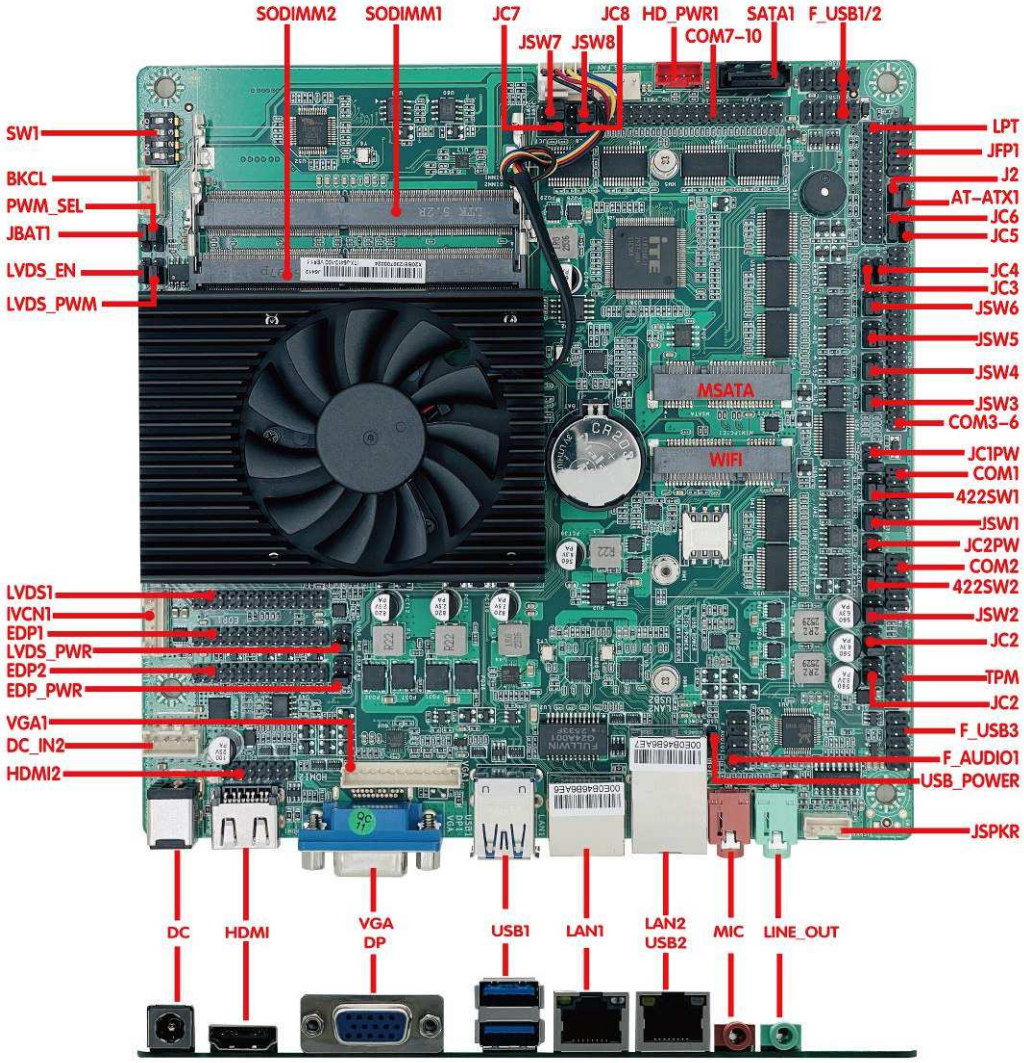
ITX-J6412-10C The main features of the motherboard are as follows:

- Integrated Intel®Celeron Elkhart Lake 2.0GHz quad-core processor, compatible with the Elkhart Lake series CPU；
- 2* SO-DIMM slot(s), dual-channel 3200MHz DDR4 Memory,up to 32GB;
- Supports VGA(orDP）、HDMI、LVDS or Edp synchronous / asynchronous triple-display output (dualeDP）；
- Supports 2×realtek Gigabit LAN ports;
- Supports 1×Mini-PCIe（WIFI/4G) and 1×MSATA;
- Supports 8×USB interfaces;
- Onboard 10×RS232 serial ports, supporting 8×RS485，2×RS422；
- Fanless cooling supports a sealed system design for dust and moisture resistance;
- Supports -20~60°C wide-temperature operation;
- Supports AT and ATX mode switching, 12V DC power input.

2. Motherboard Specifications

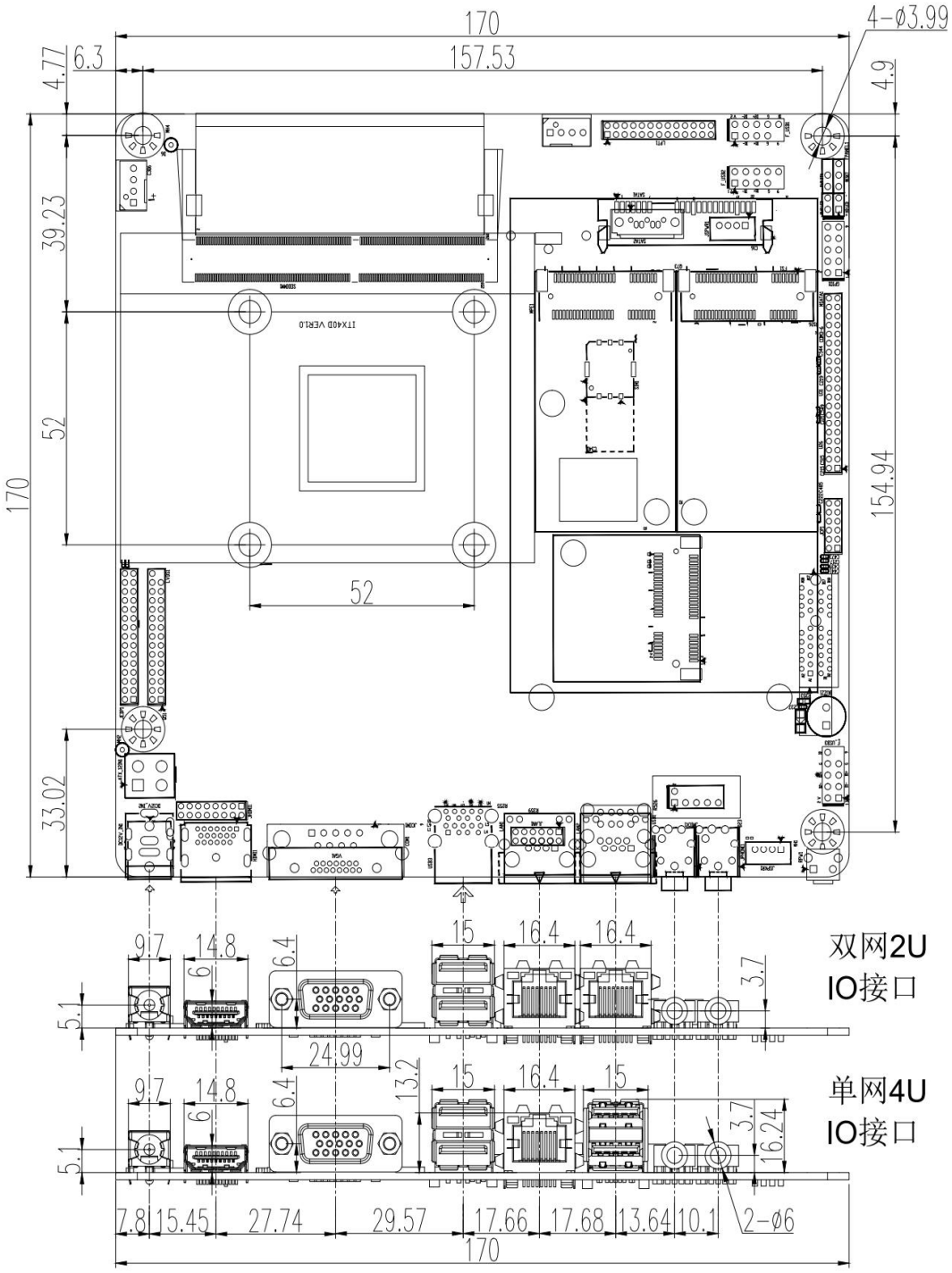
Item	Description
Processor	Integrated Intel®Celeron J6412 2.0GHz quad-core processor ,TDP 10W Compatible withIntel® Elkhart Lakefull seriesCPU
Memory	2* SO-DIMM slot(s), supports 3200MHz DDR4 Memory, up to 32GB
Display	Integrated Intel®UHD Graphics Gen10 integrated graphics
	1* VGA (orDP) port, 1*HDMI 2.0 port,1*LVDS or eDP interface (default:LVDS), with optional dualEDP DP supports 4K60HZ，HDM Isupports 4K60HZ
	Supports VGA、HDMI or EDP、LVDS or eDP synchronous / asynchronous triple-display output
Network	2* Realtek RTL8111H Gigabit Ethernet controllers, supporting Wake-on-LAN/PXE
Storage	1* 7pin SATA3.0 storage interface,transfer rate up to 6Gbps
	1* Msata storage interface, transfer rate up to 6 Gbps
Audio	Onboard ALC897 7.1-channel high-definition audio controller, supporting MIC/Line-out, amplifier output (2ohm,5Wstereo)
Expansion Slots	1* Mini-PCIe slot, supporting WIFI/4G module
Rear IO Interface	1* HDMI display port
	1* VGA display port (can be changed to aDPport)
	4* USB3.0 ports; the single-LAN version supports 4×USB3.0, while the dual-LAN version supports2×USB3.0
	2* RJ-45 Gigabit Ethernet ports (LAN2andUSB3.0 are mutually exclusive)
	1* Line out Interface (green)、1* MIC Interface(red)
	1* 12V DCDC power input connector
Onboard IO Interface	1* JHDMI interface 2*8Pin (optional)
	1* JVGA interface 1*12Pin (shares the same signals asDB15)
	1* LVDS interface 2*15pin,supports dual-channel 24bit(mutually exclusive withe DP; default)
	1* eDP1 interface 2*15pin (mutually exclusive with LVDS; optional)
	1* eDP2 interface 2*15pin (mutually exclusive with VGA; optional)
	1* panel backlight power connector 1*6Pin
	3* USB 2.0 header interfaces 2*5Pin (the single-LAN version can expand 4×USB2.0, the dual-LAN version can expand 6×USB2.0）
	1* front audio header 2*5pin
	1* amplifier connector 1*4pin
	10* COM interfaces (COM1~8 supports RS485，COM1/2 Gen 9P provides power on Pin 9, COM1/2 optionally supports RS422）

	1* LPT Interface
	1* 4pin ATX power connector
	1* storage-device power connector
	1* front-panel switch and indicator header 2*5Pin
fan connector	1*4pin CPU fan connector, with a reserved 1*4pins ystem fan connector
GPIO	LPT header can be configured as GPIO; contact us for details
BIOS	128Mb Flash ROM
Watchdog	supports hardware reset (256 levels, 0~255seconds)
Operating System	Windows 10/Windows 11/Linux
Power Input	Uses DC 12Vpower input
Operating Temperature	60℃～-20℃
Storage Temperature	-20℃～70℃
Operating Humidity	5%-95%RH, non-condensing
Dimensions	170mm x 170mm



The image can be enlarged for viewing.

Note: The image above shows the ITX-J6412-10C VER1.0 front view. Images of other models may differ.



The above is ITX-J6412-10C V1.0 of the IO interface layout drawing

3. 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.

Memory Installation

This motherboard provides **1 × 260-pin DDR4 SO-DIMM memory slot**.

Before installing the memory module, please note the following:

1) Make sure the memory module you purchased is compatible with the specifications supported by this motherboard.
2) Before installing or removing the memory module, make sure the computer power is

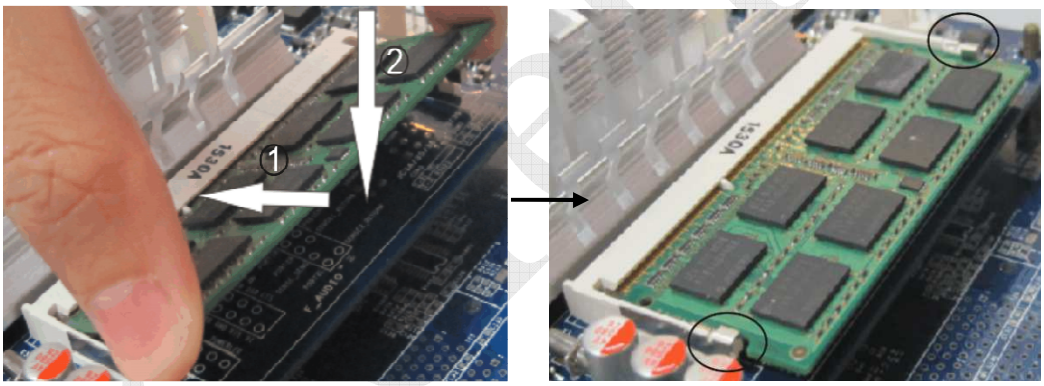
turned off to prevent damage.

3) The memory module is designed with a foolproof notch. If the insertion direction is incorrect, the module cannot be inserted. In this case, please change the insertion direction immediately.

Memory Installation Steps:

1) Before installing or removing the memory module, turn off the power and unplug the AC power cord.
2) Carefully hold the memory module by both edges. Do not touch the metal contacts.
3) Align the gold fingers of the memory module with the memory slot. Make sure the notch on the memory module matches the key in the slot.
4) Insert the memory module into the slot at an angle of approximately 30 degrees, then gently press it down until you hear a “click” sound. This indicates that the memory module has been properly installed and is ready for use.
   Note: Do not apply excessive force when pressing down the memory module to avoid damage.
5) To remove the memory module, push the retaining clips on both sides of the DIMM slot outward at the same time, then remove the memory module carefully.

Note: The installation diagram is for reference only.

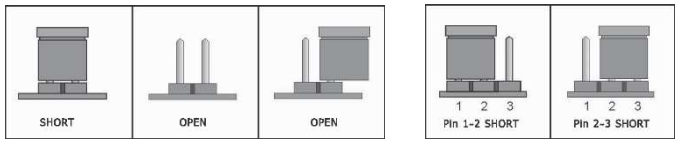


4. Jumper Settings

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	Pin 1–2 shorted
Clear CMOS and restore all BIOS settings to factory defaults	Pin 2–3 shorted

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

LVDS_ENJumper: The motherboard provides 1×1*3PIN of the LVDS_EN jumper (pin pitch::2.0 mm), Short1-2Pin disconnect LVDS not detected LVDS display, some LVDS panels require Pin5Pin to be connected to GND.

LVDS_EN definition:

Interface	Function	LVDS_ENSetting
LVDS1	not detected LVDS; some LVDS panels require Pin5Pin connected to GND for detection.	1-2Pin
	LVDS panel chip always present	2-3Pin

5. Pin Definitions

5.1. The motherboard supports10 serial ports, of which COM1、COM2 supports RS232/RS485/RS422. COM3/COM4/COM5/COM6/COM7/COM8 supports RS232/RS485；

The motherboard supports 2×2*5Pin standard JCOM header ports (pin pitch:2.54mm)，JCOM1、JCOM2 standard pin definition:

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

COM1 and COM2 Inaddition to supporting RS232, it also supports RS485/RS422，

COM1 and COM2 of the RS485/RS422 selection jumper settings:

Interface	Function	JSW1 Setting	JC1 Setting	Definition
COM1	RS232	1-3Pin ,2-4Pin (default)	1-2Pin (default)	COM1Gen2PINis(RXD) COM1Gen3PINis (TXD）
	RS485	3-5Pin ,4-6Pin	3-4Pin	COM1Gen1PINis (A） COM1Gen2PINis (B）

Interface	Function	JSW1 Setting	JC1 Setting	422SW1	Definition
COM1	RS422	3-5Pin ,4-6Pin	5-6Pin	3-5Pin，4-6Pin	COM1Gen1PINis(RX) COM1Gen2PINis (TX） COM1Gen3PINis(RX) COM1Gen4PINis (TX）

Interface	Function	JSW2 Setting	JC2 Setting	Definition
COM2	RS232	1-3Pin ,2-4Pin (default)	1-2Pin (default)	COM2Gen2PINis(RXD) COM2Gen3PINis (TXD）
	RS485	3-5Pin ,4-6Pin	3-4Pin	COM2Gen1PINis (A） COM2Gen2PINis (B）

Interface	Function	JSW2 Setting	JC2 Setting	422SW2	Definition
COM2	RS422	3-5Pin ,4-6Pin	5-6Pin	3-5Pin，4-6Pin	COM2Gen1PINis(RX) COM2Gen2PINis (TX） COM2Gen3PINis(RX) COM2Gen4PINis (TX）

COM1&COM2 Gen9PIN voltage-selection jumper (pin pitch:2.0mm)，JC1PW&JC2PW Setting:

Interface	Function	JC1PW Setting	Interface	Function	JC2PW Setting

COM1	RI	1-2Pin (default)	COM2	RI	1-2Pin (default)
	5V	3-4Pin		5V	3-4Pin
	12V	5-6Pin		12V	5-6Pin

5.2. The motherboard provides 2×2*20Pin standard 4 serial-port header (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

COM7-10Definition:

PIN	Signal Name	PIN	Signal Name
1	COM7_DCD	2	COM7_RXD
3	COM7_TXD	4	COM7_DTR
5	GND	6	COM7_DSR
7	COM7_RTS	8	COM7_CTS
9	COM7-RI	10	NC
11	COM8_DCD	12	COM8_RXD
13	COM8_TXD	14	COM8_DTR
15	GND	16	COM8_DSR
17	COM8_RTS	18	COM8_CTS
19	COM8-RI	20	NC
21	COM9_DCD	22	COM9_RXD
23	COM9_TXD	24	COM9_DTR
25	GND	26	COM9_DSR
27	COM9_RTS	28	COM5_CTS
29	COM9-RI	30	NC
31	COM10_DCD	32	COM10_RXD
33	COM10_TXD	34	COM10_DTR
35	GND	36	COM10_DSR
37	COM10_RTS	38	COM10_CTS
39	COM10-RI	40	NC

5.3. COM3、COM4、COM5、COM6、COM7、COM8 of the RS232 and RS485

selection jumpers：

Interface	Function	JSW3 Setting	JC3 Setting	Definition
COM3	RS232	1-3Pin ,2-4Pin (default)	1-2Pin (default)	COM3Gen2PINis(RXD) COM3Gen3PINis (TXD）
	RS485	3-5Pin ,4-6Pin	3-4Pin	COM3Gen1PINis (A） COM3Gen2PINis (B）
Interface	**Function**	**JSW4Setting**	**JC4Setting**	**Definition**
COM4	RS232	1-3Pin ,2-4Pin (default)	1-2Pin (default)	COM4Gen2PINis(RXD) COM4Gen3PINis (TXD）
	RS485	3-5Pin ,4-6Pin	3-4Pin	COM4Gen1PINis (A） COM4Gen2PINis (B）
Interface	**Function**	**JSW5Setting**	**JC5Setting**	**Definition**
COM5	RS232	1-3Pin ,2-4Pin (default)	1-2Pin (default)	COM5Gen2PINis(RXD) COM5Gen3PINis (TXD）
	RS485	3-5Pin ,4-6Pin	3-4Pin	COM5Gen1PINis (A） COM5Gen2PINis (B）
Interface	**Function**	**JSW6Setting**	**JC6Setting**	**Definition**
COM6	RS232	1-3Pin ,2-4Pin (default)	1-2Pin (default)	COM6Gen2PINis(RXD) COM6Gen3PINis (TXD）
	RS485	3-5Pin ,4-6Pin	3-4Pin	COM6Gen1PINis (A） COM6Gen2PINis (B）
Interface	**Function**	**JSW7Setting**	**JC7Setting**	**Definition**
COM7	RS232	1-3Pin ,2-4Pin (default)	1-2Pin (default)	COM7Gen2PINis(RXD) COM7Gen3PINis (TXD）
	RS485	3-5Pin ,4-6Pin	3-4Pin	COM7Gen1PINis (A） COM7Gen2PINis (B）
Interface	**Function**	**JSW8Setting**	**JC8Setting**	**Definition**
COM8	RS232	1-3Pin ,2-4Pin (default)	1-2Pin (default)	COM8Gen2PINis(RXD) COM8Gen3PINis (TXD）
	RS485	3-5Pin ,4-6Pin	3-4Pin	COM8Gen1PINis (A） COM8Gen2PINis (B）

5.4. The motherboard provides 1×2*13pin Printport, LPT pin definition is as follows:

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

The motherboard includes one J2 header that controls LPT voltage at 3.3V or 5V.
J2definition:

Interface	Function	J2Setting
LPT	5V	1-2Pin
	3.3V	2-3Pin

5.5. The motherboard includes 1×1*12pin small white connector VGA1 (pin pitch:2.0mm), and VGA interface shares the same signals. 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

5.6. The motherboard provides 1×2*8pin JHDMI interface (pin pitch:2.0mm），JHDMI 1pin definition is as follows：

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

5.7. The motherboard provides 2×2*1 5Pin eDP header interface (pin pitch:2.0mm），EDP1 and EDP 2pin definition is as follows:

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_PWMBacklight Brightness Control	26	BKLT_EN(Backlight Enable)
27	GND	28	GND
29	INVERT_PWR(Backlight Power)	30	INVERT_PWR(Backlight Power)

Note:JEDP1 and LVDS1 display functions are mutually exclusive; JEDP2 and VGA are

mutually exclusive.

EDP_PWR1(panel operating voltage) setting:

Interface	Function	INVERT_PWR1 Setting
EDP1/ EDP2	3.3V (default)	1-2Pin
	5V	3-4Pin
	12V	5-6pin

The motherboard provides1×2*15Pin LVDS header interface (pin pitch:2.0mm），

(If the display is abnormal, check whether LVDS Gen5Pin is connected to GND)

LVDS1pin definition is as follows:

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 3.3V、5V、12V three panel operating voltage options，and 5V and 12V panel backlight power options voltage options；

Before using LVDS，confirm its required operating voltage，When the selected LCD voltage matches the LCD panel voltage，LCD the panel will display correctly. Configure as follows:

(If the display is abnormal, check whether LVDS Gen 5Pin is connected to GND)

IVCN1(backlight power connector, pin pitch2.00mm) Definition:

PIN	Signal Name
1	default12V(5Vrequires hardware modification)
2	default12V(5Vrequires hardware modification)
3	Backlight Enable
4	Backlight Brightness Control
5	GND
6	GND

JLVDS_PWR(panel operating voltage) setting:

Interface	Function	LVDS_PWRSetting

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

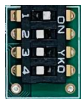
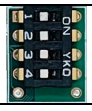
PWM-SEL(manual panel-brightness adjustment enable jumper) definition:

Function	AT-ATX1Setting
Disable manual backlight brightness adjustmentfunction	1-2Pin
Enablemanual backlight brightness adjustmentfunction	2-3Pin

BKCL(manual panel-brightness adjustment Interface, used together with the PWM_SEL jumper) Definition:

PIN	Signal Name
1	BLU+ Brightness Up
2	Backlight Enable
3	BLU- Brightness Down
4	GND

5.8. The motherboard includes 1×SW1DIP switchfor setting LVDS resolution. 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 Single6	2		1024x768 Single6	3		1280x768 Single6
4		1280x800 Single6	5		1280x960 Single6	6		1280x1024 Dual8
7		1366*768 Single6	8		1366x768 Single8	9		1440x900 Dual8
10		1024*600 Single6	11		1920x1080 Dual6 15.6in.	12		1920x1080 Dual8 21.5in
13		1920x1080 Dual8 42in	14		1280x1024 Dual8	15		1280x800 Single8
16		1024x768 Single8	17			18		

5.9. The motherboard provides 3× 2*5pin header-style USB2.0 interface (pin pitch:2.54mm)
whereF_USB3 and USB2 is mutually exclusive; on dual-LAN motherboards, F_USB3 is functional.

F_USB1、F_USB2、F_USB 3pin definition is 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

5.10. The motherboard includes one USB_POWER header supporting USB1 and USB2 power delivery while the system is off.
definition:

Function	USB_POWERSetting
OS Powered when the OS is running (default)	1-2Pin
Power available after shutdown; supports 5V power	2-3Pin

5.11. This board provides 2×1*4Pin fan connectors. CPUFAN1、SYSFAN1pin definition is as follows:

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

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

5.12. The motherboard provides 1×2*5PIN(pin pitch:2.54mm） front audio header.
F_AUDIO 1pin 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

5.13. The motherboard includes 1×1*4PIN(pin pitch:2.0mm） amplifier connector (supports 2ohm,5Wstereo).JSPKRpin definition is as follows:

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

5.14. This board provides 1×1*4Pin red SATA storage-device power connector (pin pitch:2.0mm），HD_PWR1pin definition is as follows:

PIN	Signal Name
1	+12V
2	GND

3	GND
4	+5V

Please verify JSPWR1 Pin1 Pin position; an incorrect connection may damage the drive.Use only the power cable supplied by CoreIPC.

5.15. This board provides 1×2*5Pin of the JFP1 interface (pin pitch:2.54mm）
The chassis power switch, reset switch, HDD LED, and power LED can be connected to this header.JFP1pin 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	

