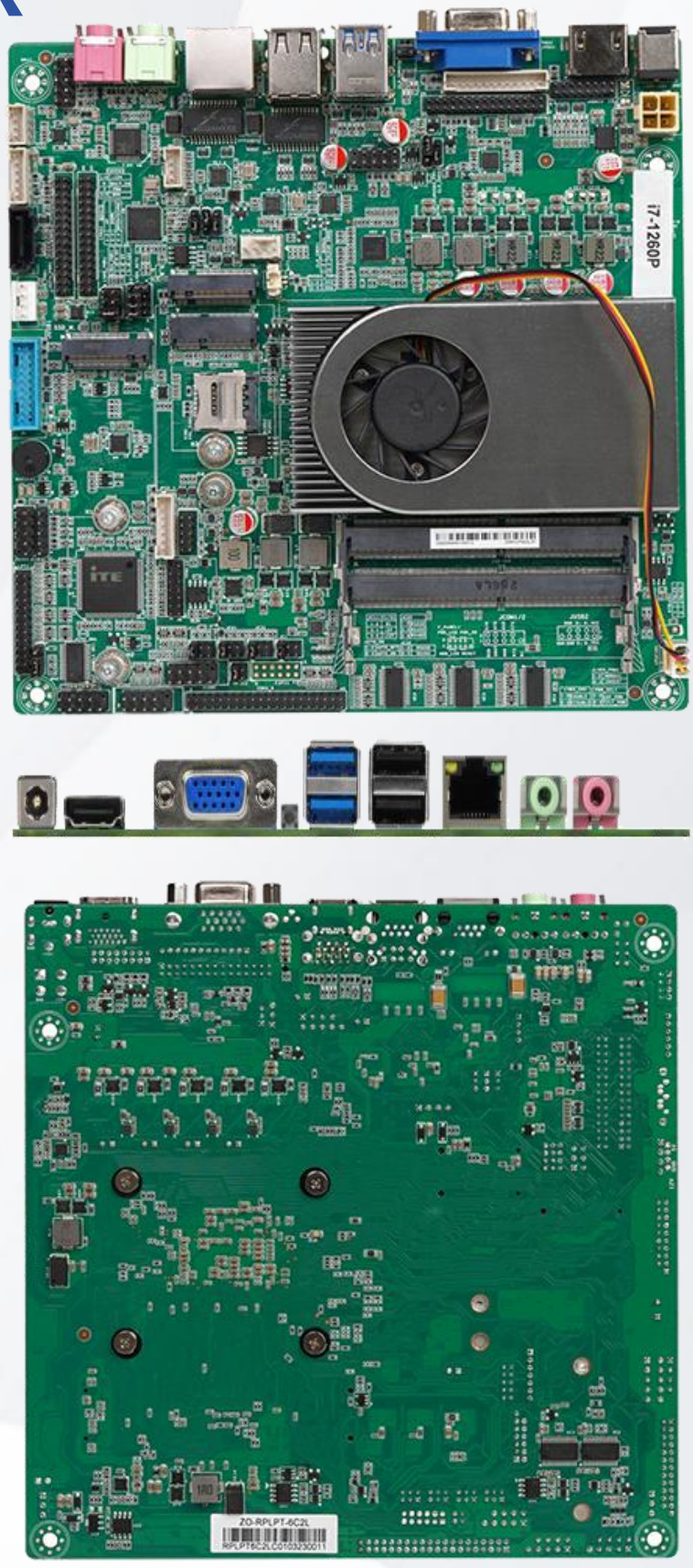
Mother Board

QY-MB-1235U-MITX



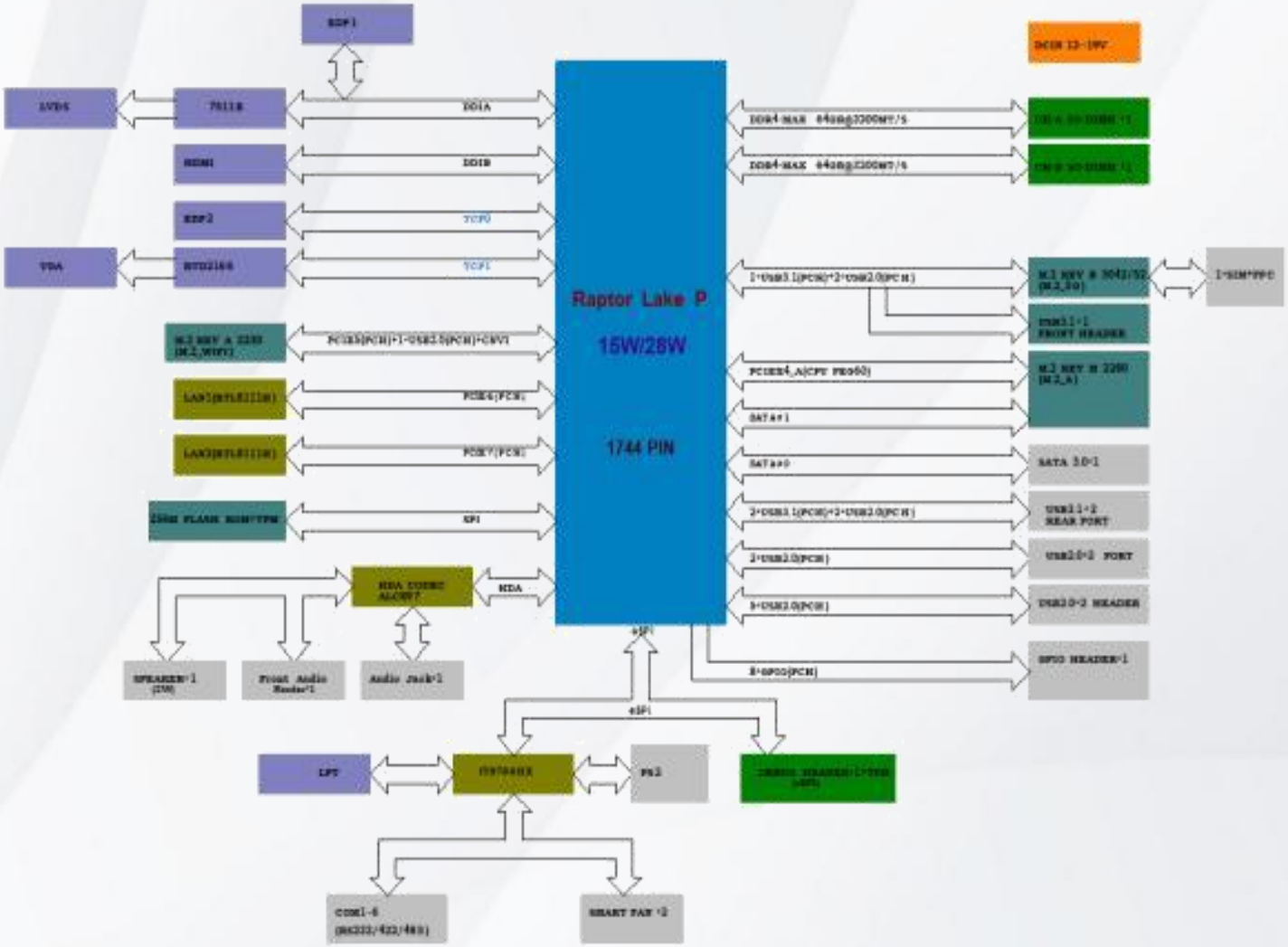
- Intel Core i5-1235U CPU
- 1*Realtek RTL8111H/8111G Gigabit Ethernet,
- 6 COM interfaces (COM1 supports TTL optional, COM2 supports RS232/422/485 optional, COM3 supports RS232/485 optional)
- 2*USB3.2 Gen1 (5Gbps)
  2*USB3.2 Gen2 (10Gbps optional 1*type-C)
  7*USB2.0 ports
- 1*HDMI,1*DP,1EDP2,1*EDP/LVDS
- 2*DDR IIII RAM slot, Up to 64GB
- 1* M.2 M Key slot (SATA/PCIEx4)
  1* SATA 3.0 Port
- 1*M.2 B Key, support 4G/5G module expansion (Optional 5G)
  1*M.2 E Key with Wifi6/Bluetooth module extension,1*SIM1 slot
- DC 12V power input
- Mini-ITX type board, 17*17 cm

QY-MB-1235U-MITX

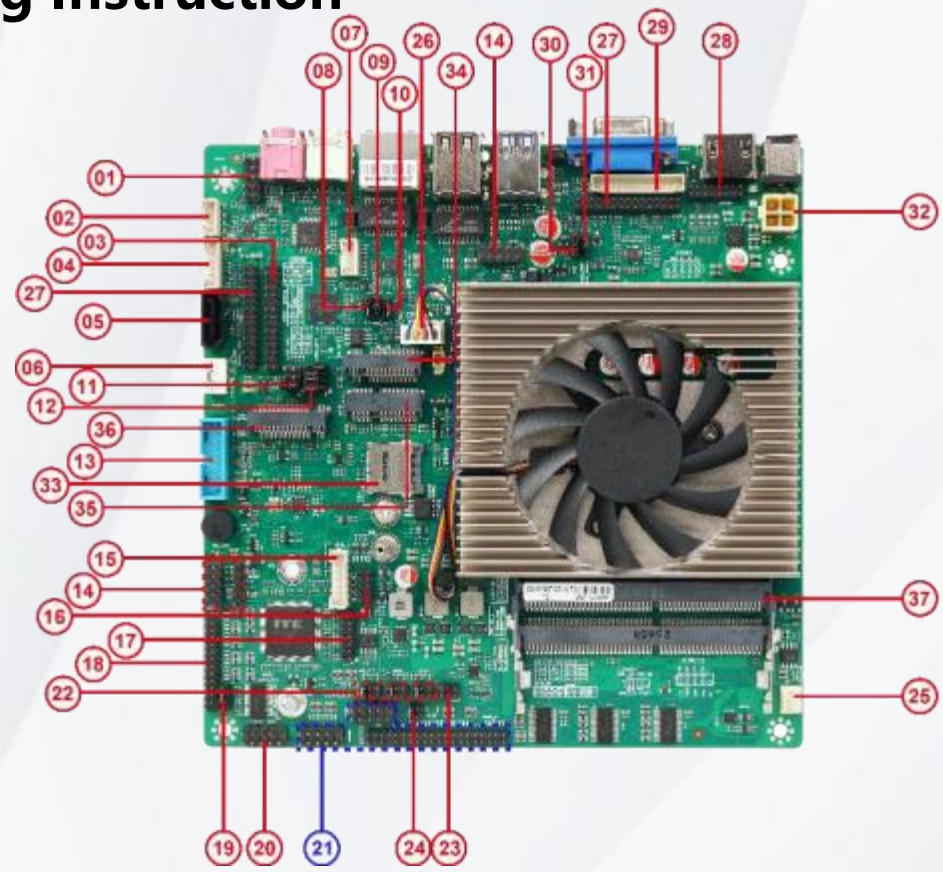
1. Specification:

Model	QY-MB-1235U-MITX
CPU	Intel Core i5-1235U 10 core, 12 total threads, 1.30 GHz to 4.40GHz, 12 MB cache
Display	Support four displays with synchronous and asynchronous : 1*HDMI 1*VGA 1*EDP2 1*EDP1/LVDS
Memory	2*SO-DIMM DDR4 3200MHz,up to 64GB
Storage	1*SATA 1*M.2 M Key
Expansion	1 x M.2 E Key slot (WIFI6 CNVi/Bluetooth) 1 x M.2 B Key slot (4G/5G optional)
Ethernet	1*Onboard Intel i219-V+ i210AT Gigabit LAN (Single/Dual Ethernet optional)
USB	2*USB3.2 Gen1 (5Gbps) 2*USB3.2 Gen2 (10Gbps optional 1*type-C) 7*USB2.0 ports
COM	5*RS-232, header type 1*RS-485 / 232, header type
Audio	Realtek HDA codec with MIC / Line-out and Amplifier 1*front Audio header (Line-out+MIC) 1*Line-out / MIC Jack 1*SPK
Other Ports	1*LPT header 1*Micro SIM card slot 1*CPU Fan header 1*front panel header 1*GPIO header 1*COMS clear jumper
System	Windows 10 / 11, Linux
Temperature	Storage: -20℃ ~ 75℃ Operating: 0℃ ~ 60℃
Power Input	DC/4Pin ATX 12V~19V wide voltage power supply

2. Block Diagram



3. Marking Instruction



Item		Description
1	F_AUDIO	Front audio pins
2	SPEAKER1	Built-in power amplifier pin interface
3	LVDS1	LVDS display pins
4	INVCN1	LVDS booster board socket
5	SATA	SATA interface
6	SATA_PWR1	SATA power interface
7	BKCL1	LVDS brightness control switch and brightness adjustment control pins
8	LVDS_EN1	LVDS switch control jumper
9	PWM_SET1	LVDS backlight adjustment mode selection jumper (software/hardware)
10	LVDS_PWM	LVDS backlight inversion selection jumper (used to switch the adjustment direction of backlight brightness)
11	LVDS_PWR1	LVDS voltage control jumper
12	LVDS_SET	LVDS screen resolution control jumper
13	JUSB1	Built-in USB3.2 pins
14	JUSB2/JUSB3/JUSB4	Built-in USB2.0 pins
15	JPS2_1	Built-in PS2 keyboard and mouse socket
16	GPIO2	GPIO pins
17	TPM1	Built-in TPM pins
18	LPT	Built-in print port pins

19	AUTO_ON1	Power-on automatic startup jumper
20	F_PANEL	Motherboard switch pins
21	COM1/COM2/COM3_6	Built-in serial port pins
22	JC11/JC21/JC31	COM1_3 Pin9 voltage selection jumper
23	JC22	COM2 RS232/422/485 selection jumper
24	JC32	COM3 RS485/232 selection jumper
25	SYS_FAN	System cooling fan socket
26	CPU_FAN	CPU cooling fan socket
27	EDP1/EDP2	EDP display pins
28	HDMI1	Built-in HDMI interface
29	JVGA1	Built-in VGA display pins
30	JRUSB3_PWR1	USB3.2 interface live power selectable jumper cap
31	CLR_CMOS1	CMOS clear pins
32	ATX1	4PIN ATX power supply socket 19V
33	SIM1	Built-in SIM card slot
34	M2_4G	M.2 key B, supports 4G/5G module expansion
35	WIFI	M.2 key E supports Wifi6/Bluetooth module expansion
36	M.2 Key M	PCIEx4/SATAⅢ
37	SODIMM	2*SO-DIMM DDR4 memory slots

Rear I/O Ports

Item	Description
DC_IN	12~19V power supply socket
HDMI	High-definition digital signal output display
VGA	Signal output display
CLR_CMOS	CMOS clear button (press and hold for 4s when the computer is off and powered off to clear CMOS)
USB3.2	2*USB3.0 Gen 2 speed (10Gbps); Optional 1*USB3.2 + 1*Type-C*
USB2.0	*2*USB2.0 (optional 1*LAN2)
LAN1	*Link LED: Green is constantly on, indicating that the network is connected*
	Active LED: Orange flashes, indicating data transmission
LINE_OUT	Audio output
MIC_IN	Microphone input

4. Definition

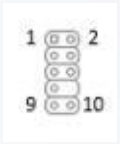
1. Built-in power amplifier interface: SPK

The motherboard provides 1 x 1*4Pin Speaker built-in amplifier pin connector (pitch: 2.00mm), and the pins are defined as follows:

Graphic	Pin	Definition
	1	AMP_OUT_R+
	2	AMP_OUT_R-
	3	AMP_OUT_L-
	4	AMP_OUT_L+

2.Front audio interface: F_AUDIO

The motherboard provides one x 2*5PIN (N8) front audio jack (pitch: 2.54mm), and the pinsare defined as follows:

Graphic	Pin	Definition	Pin	Definition
	1	MIC_L	2	GND
	3	MIC_R	4	NC
	5	LINE_OUT_R	6	MIC_JD
	7	GND	8	/
	9	LINE_OUT_L	10	Lin_JD

3. LVDS display pin interface: LVDS1

The motherboard provides one 2*15Pin LVDS pin connector (pitch: 2.0mm), and the brightness adjustment method is detailed in 1.2 (backlight adjustment bar of motherboard specifications). pins

The definition is as follows:

Graphic	Pin	Definition	Pin	Definition
	1	VCC	2	VCC
	3	VCC	4	GND
	5	GND	6	GND
	7	LVDS_A_DATA0-	8	LVDS_A_DATA0+
	9	LVDS_A_DATA1-	10	LVDS_A_DATA1+
	11	LVDS_A_DATA2-	12	LVDS_A_DATA2+

	13	GND	14	GND
	15	LVDS_A_CLK-	16	LVDS_A_CLK+
	17	LVDS_A_DATA3-	18	LVDS_A_DATA3+
	19	LVDS_B_DATA0-	20	LVDS_B_DATA0+
	21	LVDS_B_DATA1-	22	LVDS_B_DATA1+
	23	LVDS_B_DATA2-	24	LVDS_B_DATA2+
	25	GND	26	GND
	27	LVDS_B_CLK-	28	LVDS_B_CLK+
	29	LVDS_B_DATA3-	30	LVDS_B_DATA3+

4. LVDS Booster Board Socket: INVCN1

The motherboard provides 1 x 1*6pin LVDS booster board pin connector (pitch: 2.00mm), and the pins are defined as follows:

Graphic	Pin	Definition	Pin	Definition
	1	+12V	2	+12V
	3	BKLEN backlight switch	4	BKLEN backlight brightness
	5	GND	6	GND

5. SATA interface: SATA

The motherboard provides 1 x 1*7pin SATA socket with the pins defined as follows:

Graphic	Pin	Definition	Pin	Definition
	1	GND	2	TX+
	3	TX-	4	GND
	5	RX-	6	RX+
	7	GND	/	/

6. SATA power interface: SATA_PWR1

The motherboard provides 1*4pin SATA_PWR pins (2.54mm pitch) with the following pins defined:

Graphic	Pin	Definition
	1	+5V
	2	GND
	3	GND
	4	+12V

1*4pin SATA PWR pins (pitch 2.00mm) are optional, and the pins are defined as follows:

Graphic	Pin	Definition
	1	+5V
	2	GND
	3	GND
	4	+12V

7. LVDS brightness control switch and brightness adjustment control pin: BKCL1

The motherboard provides 1 x 1*4pin pin connector (pitch: 2.54mm). The pins are defined as follows:

Graphic	Pin	Definition
	1-2	UP
	2-3	DOWN
	2-4	OPEN/CLOSE

8. LVDS switch control skip pin: LVDS_EN1

The motherboard provides 1 x 1*3pin LVDS switch selector jump pin (pitch: 2.00mm), and the pins are defined as follows:

Graphic	Pin	Definition
	1-2	Enable
	2-3 (Default)	Disable

9. LVDS backlight adjustment method selection skip pin (hardware/software): PWM_SET1

The motherboard provides 1*3pin PWM_SEL1 jumping pin (pitch: 2.00mm) with the following pins defined:

Graphic	Pin	Definition
	1-2	EDP PWM (Soft)
	2-3 (Default)	7511 PWM (Hart)

10. LVDS backlight inverts to select skipping pin: LVDS_PWM

The motherboard provides 1 x 1*3pin JLVDS_PWM jumping pin (pitch: 2.00mm), and the pins are defined as follows: (used to switch the direction of backlight and dimming)

Graphic	Pin	Definition
	1-2 (Default)	NORMAL
	2-3	INVERT

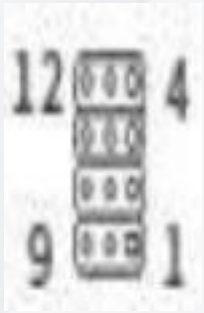
11. LVDS screen voltage control interface: LVDS_PWR1

The motherboard provides 1 x 2*3pin LVDS voltage control pin connector (pitch: 2.54mm). The pins are defined as follows:

Graphic	Pin	Definition
	1-2	+3.3V
	3-4	+5V
	5-6	+12V

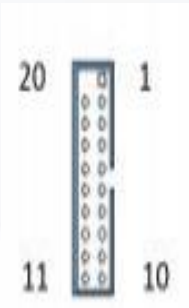
12. LVDS screen resolution control jumping stitch: LVDS_SET

The motherboard provides 1 x 3*4pin LVDS_SET1 screen resolution adjustment jumping pin (pitch: 2.0mm), and the pins are defined as follows:

Graphic	J4	PIN				LVDS corresponds to resolution
	0000	8-4	7-3	6-2	5-1	Single6 1024*600
	0001	8-4	7-3	6-2	9-5	Single6 1024*768
	0010	8-4	7-3	10-6	5-1	Single6 800*600
	0011	8-4	7-3	10-6	9-5	Single6 1280*768
	0100	8-4	11-7	6-2	5-1	Dual 6 1920*1080
	0101	8-4	11-7	6-2	9-5	Single6 1366*768
	0110	8-4	11-7	10-6	5-1	Single8 800*600
	0111	8-4	11-7	10-6	9-5	Single8 1024*768
	1000	12-8	7-3	6-2	5-1	Single8 1280*768
	1001	12-8	7-3	6-2	9-5	Single8 1280*800
	1010	12-8	7-3	10-6	5-1	Dual 8 1600*900
	1011	12-8	7-3	10-6	9-5	Single8 1366*768
	1100	12-8	11-7	6-2	5-1	Single6 1280*800
	1101	12-8	11-7	6-2	9-5	Dual 8 1280*1024
	1110	12-8	11-7	10-6	5-1	Dual 8 1440*900
	1111	12-8	11-7	10-6	9-5	Dual 8 1920*1080

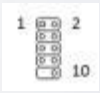
13.Built-in USB3.2 Gen1 interface: J_USB1

The motherboard provides 1 x 2*10Pin(N20) USB3.2 Gen1 pin port (pitch: 2.00mm), and the pins are defined as follows: (When 5G is selected, this port is USB2.0 signal)

Graphic	Pin	Definition	Pin	Definition
	1	VCC	20	NO PIN
	2	USB3_RN4 RX1-	19	VCC
	3	USB3_RP4 RX1+	18	USB3_RN3 RX2-
	4	GND	17	USB3_RP3 RX2+
	5	USB3_TN4 TX1-	16	GND
	6	USB3_TP4 TX1+	15	USB3_TN3 TX2-
	7	GND	14	USB3_TP3 TX2+
	8	USB2_TN4 D1-	13	GND
	9	USB2_TP4 D1+	12	USB2_TN3 D2-
	10	NC	11	USB2_TP3 D2+

14. Built-in USB pins: JUSB2/JUSB2/JUSB3

The motherboard provides 2 x 2*5pin and 1 x 1*5pin built-in USB port (pitch: 2.54mm), and the pins are defined as follows:

Graphic	Pin	Definition	Pin	Definition
	1	VCC +5V	2	VCC +5V
	3	USB1 Date-	4	USB2 Date-
	5	USB1 Date+	6	USB2 Date+
	7	GND	8	GND
	9	/	10	OC

Graphic	Pin	Definition
	1	+5V
	2	Date-
	3	Date+
	4	GND
	5	GND

15. Built-in PS2 keyboard and mouse interface: JPS2_1

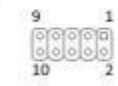
The most common mouse interface, which is a dedicated interface for the mouse and keyboard, is a 6-pin circular interface. However, the mouse only uses 4 of the pins to transmit data and power, and the remaining 2 are empty.

The motherboard provides one x 1*7PIN (N8)PS/2 socket (pitch: 2.00mm), and the pins are defined as follows:

Graphic	Pin	Definition	Pin	Definition
	1	KB_DATA	2	KB_CLK
	3	GND	4	MS_DATA
	5	MS_CLK	6	GND
	7	+V5S	8	/

16. GPIO Pin: GPIO2

The motherboard provides 1 x 2*5pin GPIO pin (pitch: 2.00mm), and the pins are defined as follows:

Graphic	Pin	Definition	Pin	Definition
	1	GPI1	2	GPO5
	3	GPI2	4	GPO6
	5	GPI3	6	GPO7
	7	GPI4	8	GPO8
	9	GND	10	+5V

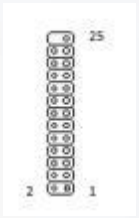
17. Built-in TPM pins: TPM

The motherboard provides one 2*7pin TPM connector (2.00mm pitch), and the pins are defined as follows:

Graphic	Pin	Definition	Pin	Definition
	1	VCC	2	S_SPI_TPM_IRQ#
	3	S_PLTRST#	4	S_SPI_TPM_CS2#
	5	F2_SPI_CS1#_R	6	F_BOIS_WP#_R
	7	+3V_SPI	8	GND
	9	F_SPI_CSO#_R	10	T_SPI_CLK
	11	T_SPI_MISO	12	T_SPI_MOSI
	13	F_SPI_HOLD#_R	14	NC

18. Built-in print port: LPT1

The motherboard provides 1 x 2*13Pin built-in print pin (pin pitch: 2.00mm), and the pins are defined as follows:

Graphic	Pin	Definition	Pin	Definition
	1	STB	2	AFD
	3	PD0	4	LPT_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	LPT_ACK	20	GND
	21	LPT_BUSY	22	GND
	23	LPT_PE	24	GND
	25	LPT_SLCT	26	NC

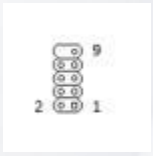
19. Skip stitch when powered on: AUTO_ON1

The motherboard provides 1 x 1*3pin auto-power-on jumping pin (pitch: 2.54mm), which is defined as follows:

Graphic	Pin	Definition
	1-2 (Default)	NORMAL
	2-3	AUTO_ON

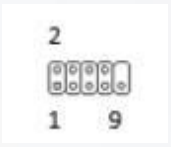
20. Front panel switch pins: F_PANEL

The motherboard provides a 2*5Pin F-PANEL port (pitch: 2.54mm), and the pins are defined as follows: (HDD indicator is not supported in this version)

Graphic	Pin	Definition	Pin	Definition
	1	HDDLED+(HDD Light+)	2	PWR LED +
	3	HDDLED-(HDD Light-)	4	PWR LED -
	5	GND	6	POWER-SW (Switch)
	7	RESET-SW (Reset)	8	GND
	9	GND	10	/

21. Built-in serial port: COM1, COM2, COM3-6

The motherboard provides 1 x 2*20PIN 4-in-1 COM port (pitch: 2.00mm), which can be understood as 4 x 2*5Pin ordinary COM pin ports combined together. and 2 x normal COM pins (pitch: 2.54mm) 2*5Pin, the pins are defined as follows:

Graphic	Pin	Definition	Pin	Definition
	1	DCD	2	RXD
	3	TXD	4	DTR
	5	GND	6	DSR
	7	RTS	8	CTS
	9	RI	10	NC

22. COM1_3's Pin9 voltage selection jumper: JC11/21/31

The motherboard provides 3 2*3Pin COMX voltage selection jumpers (pin pitch: 2.00mm), and the pin definitions are as follows:

Graphic	Pin	Definition
	1-2 (Default)	RI
	3-4	+5V
	5-6	+12V

23. RS232/422/485 for COM2 selects skip stitches: JC22

The motherboard provides 1 x 2*3Pin COM2 RS232/485 selectable jumping pin (pitch: 2.00mm), and the pins are defined as follows:

(1) When J22 jumps to 3-4, COM2 outputs RS422 signal, and COM2 has no RS232 function.

(2) When J22 jumps to 5-6, COM2 outputs RS485 signal, and COM2 has no RS232 function.

Graphic	Pin	Definition
	1-2 (Default)	RS232
	3-4	RS422
	5-6	RS485

When COM2 switches to RS232/422/485 via JC22, the PIN pin on the original COM is defined as follows

COM2	RS232	RS422	RS485
PIN-1	DCD	TX-	RTX-
PIN-2	RXD	TX+	RTX+
PIN-3	SOUT	RX+	NA
PIN-4	DTR	RX-	NA
JC22	1-2	3-4	5-6

24. RS485/232 for COM3 Select Skip Step: JC32

The motherboard provides 1 x 2*2Pin RS232/485 selectable jumping pin (pitch 2.00mm), the pins are defined as follows:

(1) When JC32 jumps to 3-4, COM3 outputs RS485 signal, and COM3 has no RS232 function.

Graphic	Pin	Definition
	1-2	RS232
	3-4	RS485

When COM3 switches to RS232/485 via JC32, the PIN pin on the original COM is defined as follows

COM3	RS232	RS485
PIN-1	DCD	RTX-
PIN-2	RXD	RTX+
PIN-3	SOUT	NA
PIN-4	DTR	NA
JC32	1-2	3-4

25. System cooling fan power socket: SYS_FAN

The motherboard provides one x 1*3pin (CFAN) and one x 1*4pin (SYSFAN) cooling fan connector (pitch: 2.54mm), and the pins are defined as follows:

Graphic	Pin	Definition
	1	GND
	2	+12V
	3	Sense

26. CPU Cooling Fan Power Outlet: CPU_FAN

The motherboard provides one 1*3pin system cooling fan connector (pitch: 2.54mm), and the pins are defined as follows:

Graphic	Pin	Definition	
	1	Ground	Ground
	2	+12V	+12V
	3	Sense	Sense
	4	/	Control

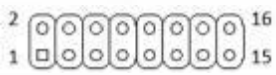
27. EDP display pin interface: EDP1, EDP2

The motherboard provides two 2*15 pin EDP jacks (pitch: 2.0mm), and the brightness adjustment method is detailed in 1.2 (backlight adjustment bar of motherboard specifications). The pins are defined as follows:

Graphic	Pin	Definition	Pin	Definition
	1	VCC_EDP	2	VCC_EDP
	3	GND	4	GND
	5	TX0_DP	6	TX0_DN
	7	GND	8	GND
	9	TX1_DP	10	TX1_DN
	11	GND	12	GND
	13	TX2_DP	14	TX2_DN
	15	GND	16	GND
	17	TX3_DP	18	TX3_DN
	19	GND	20	GND
	21	AUX_DP	22	AUX_DN
	23	GND	24	HPD_EDP
	25	EDP_BKLT_CTL	26	EDP_BKLT_EN
	27	GND	28	GND
	29	BLPWR	30	BLPWR

28. Built-in HDMI interface: HDMI

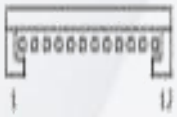
The motherboard provides 1 x 2*8 pin HDMI pin connector (pitch: 2.0mm). The pins are defined as follows:

Graphic	Definition	Pin	Pin	Definition
	HDMI_TXD2_P	1	2	HDMI_DDC_CLK_R-
	HDMI_TXD2_N	3	4	HDMI_DDC_DATA_R
	HDMI_TXD1_P	5	6	NC
	HDMI_TXD1_N	7	8	HPD_CONN

	HDMI_TXD0_P	9	10	+5V_HDMI
	HDMI_TXD0_N	11	12	GND
	HDMI_TXC0P	13	14	GND
	HDMI_TXC0N	15	16	GND

29. Built-in VGA display interface: JVGA1

The motherboard provides one x 1*12 pin VGA pin connector (pitch: 2.00mm), and the pins are defined as follows:

Graphic	Pin	Definition	Pin	Definition
	1	GND	7	VGA_GRN (green)
	2	VGA_VSYNC (Field Synchronization)	8	GND
	3	VGA_HSYNC (row synchronization)	9	VGA_BLUE (blue)
	4	GND	10	GND
	5	VGA_RED (red)	11	VGA_5VDDA (data)
	6	GND	12	VGA_5VDDCLK(clock)

30. USB3.2 interface with live optional jump cap: JRUSB3_PWR1

The motherboard provides 1 x 1*3pin USB3.2 port with a live optional jump cap (pitch: 2.54mm), and the jump pin is defined as follows:

Graphic	Pin	Definition
	1-2	5VS (Default) system electric
	2-3	5VA(Standby Electromechanical)

31. CMOS Clear Pins: CLR_CMOS1

The motherboard provides 1 x 1*3pin CMOS clear pin (pitch: 2.00mm), and the jump pin is defined as follows:

Graphic	Pin	Definition
	1-2 (Default)	NORMAL
	2-3	Clear_CMOS

【END】