

IPCTECH Motherboard User's Manual

QY-MB-1035G7-3.5

1. Models and Attentions

1.1 Models

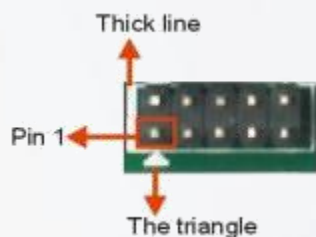
This manual is applied to following models:

Model	CPU	COM	LAN	HDMI	eDP/LVDS	USB	M.2KEY-M	M.2KEY-E	Mini-PCle	SATA3.0
QY-MB-1035G7-3.5	i3-1005G1	6	4	1	LVDS	8	PCIe4x/SATA	USB2.0+CNVi	PCIe+USB2.0	1
	i5-1035G1	6	4	1	LVDS	8	PCIe4x/SATA	USB2.0+CNVi	PCIe+USB2.0	1
	i7-1065G7	6	4	1	LVDS	8	PCIe4x/SATA	USB2.0+CNVi	PCIe+USB2.0	1

1.2 Attentions

- Notes under a table or figure indicate the difference of models, or alternative definition of specific pin of the header (jumper/connector).
- How to identify the first pin of a header or jumper

Usually, there is a thick line or a triangle near the header' s or jumper' s pin 1.



Square pad, which you can find on the back of the motherboard, is usually used for pin 1.



2. Specification

Model	QY-MB-1035G7-3.5			
Processor System	Processor	Intel® Core® Ice Lake Processor		
		i3-1005G1	i5-1035G1	i7-1065G7
	Clock Speed	1.20 GHz, up to 3.40 GHz	1.00 GHz, up to 3.60 GHz	1.30 GHz, up to 3.90 GHz
	Multi-Core	2	4	4
	TDP	15W		
	BIOS	AMI UEFI BIOS (Support Watchdog Timer)		
Memory	Slot Type	1, DDR4 Non-ECC SO-DIMM		
	Memory Type	DDR4 3200MHz		
	Max Memory	32GB		
	Channels	Single		
Display	Graphics	Intel® UHD Graphics		Intel® Iris® Plus Graphics
	HDMI	1, HDMI1.4, max 4096*2160@30Hz		
	eDP/LVDS	1, LVDS, max 1920*1200@60Hz		
		Notes: *: BOM Optional support eDP, max 4096*2160@30Hz		
	Multi-Display	Dual		
Audio	Codec	Realtek Audio HDA codec		
	Audio	1, Line-Out + MIC		
Storage	SATA	1, SATA Gen3 6Gbps		
	M.2 SSD	1, M.2 M-Key 2280, PCIe x4 GEN3 NVMe/SATA SSD Auto Detect		
Expansion Slot	M.2	1, M.2 E-Key 2230, PCIE+USB2.0+CNVi, default USB2.0 +CNVi, support Bluetooth +CNVi Module		
		Notes: *: PCIE signal colay with LAN4. (BOM selectable) *: USB2.0 signal for M.2_KEYE_WLAN1 colay with F_USB3.		
	Mini-PCle	1, Mini-PCle, PCIE/SATA+USB2.0, default PCIE +USB2.0 Support WiFi+4G		
		Notes: *: USB2.0 signal for MPCIE1 colay with F_USB3.		
	SIM Card	1, SIM Crad for Mini-PCle		

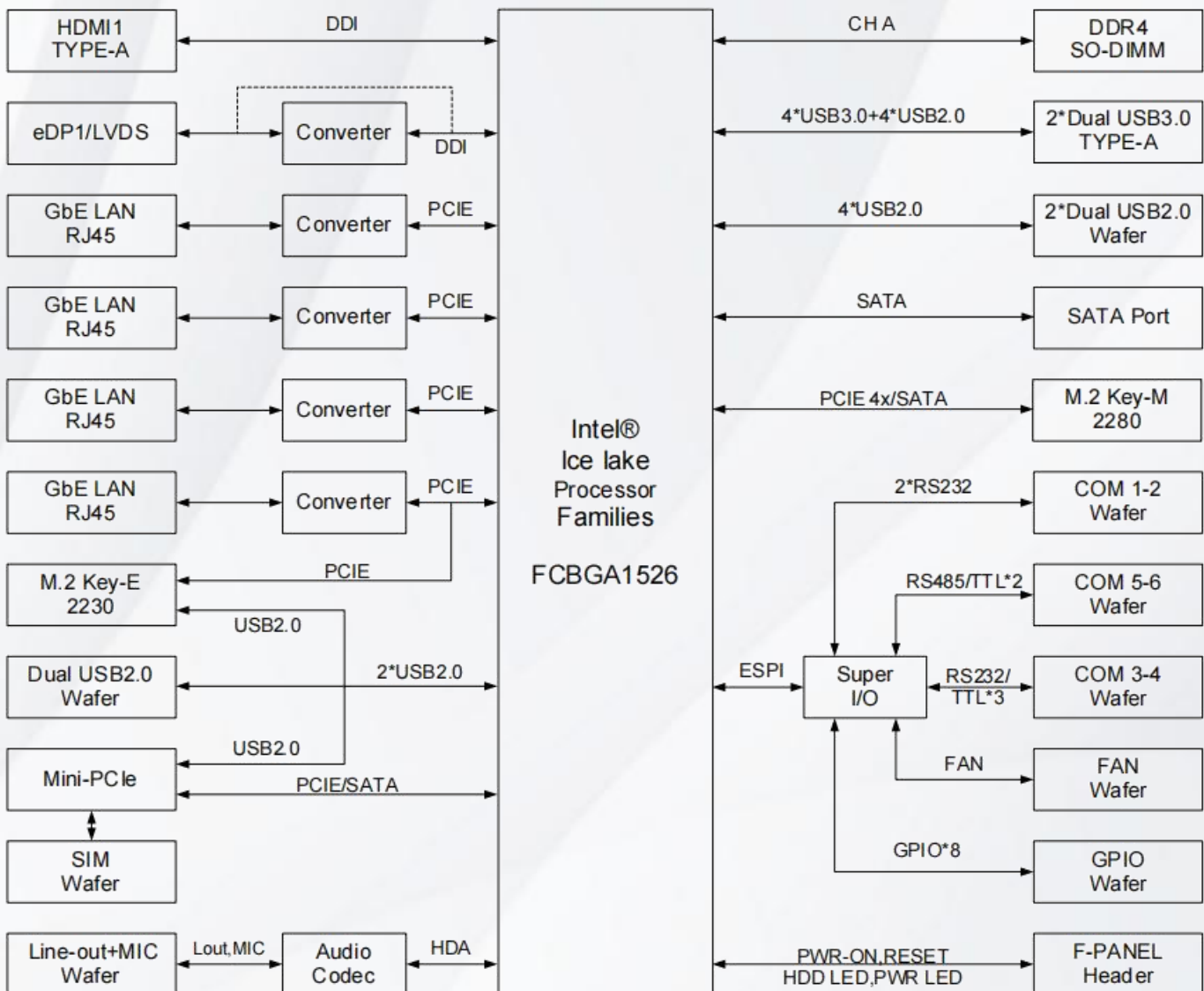
Ethernet	Chipset	4, Intel I210 GbE Ethernet Controller Notes: *: PCIE signal for LAN4 colay with M.2 KEYE WLAN1. (BOM selectable)
USB	USB3.0	4, USB3.2 GEN1 5Gbps
	USB2.0	4, USB2.0 Notes: *: USB2.0 signal for F USB3 colay with M.2 KEYE WLAN1 and MPCIE1.
I/O	Serials	2, RS232 full Lines, COM1-2, DCD/5V and RI/12V selected by resistors 2, TTL/RS232 2Lines, COM3-4, selected by BOM , default RS232 2, TTL/RS485 2Lines, COM5-6, selected by BOM, default RS485
	PANEL	1, PWR On +Reset +PWR_LED +HDD_LED
	Debug	1, ESPI
	FAN	1, CPU FAN
	AT/AX Select	1
	ME Flash	1
	Power On	1
	CMOS Clear	1
GPIO	GPIO	4* GPI, 4* GPO, non-isolated 5V (3.3V Optional)
Power	Power in	DC 12-24V Power Input 3P 5.08mm Terminal Block (12V Optional)
OS	OS Supported	Windows 10/11 64bit, Linux
Environment	Temperature	Operation: 0 ~ 60°C Storage: -20 ~ 75°C
	Humidity	5 ~ 95%, non-condensing
Mechanical	Dimension	3.5 inch, 146mm*105mm
	Height	PCB: 1.6mm, Top side: <16.4mm, Bot side: <4.0mm

Interfaces

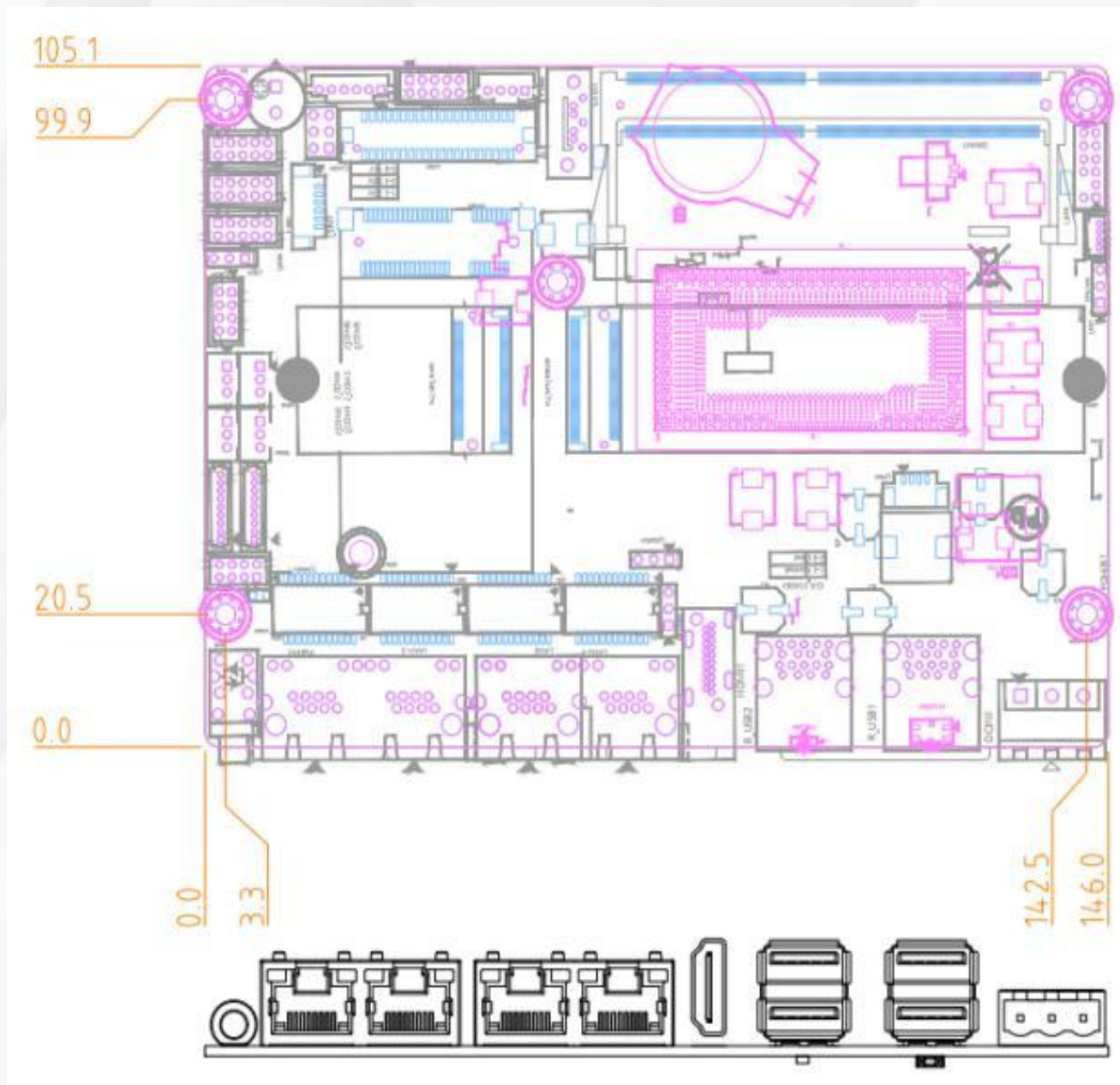
Model	QY-MB-1035G7-3.5	
Rear I/O	Power On	1, Button
	LAN	4, RJ45 8P8C
	HDMI	1, HDMI Type-A
	USB3.0	4, USB3.0 Type-A
	Power In	1, 3P 5.08mm Terminal Block
Internal I/O	Display	1, DF13, eDP/LVDS, with Backlight Control Wafer
	Audio	1, Wafer, Line-Out + MIC
	Storage	1, SATA 7P Port, with Power supply Wafer 1, M.2 M-Key 2280, PCIe x4 GEN3 NVMe/SATA SSD Auto Detect
	Expansion	1, M.2 E-Key 2230, USB2.0 + CNVi 1, Mini-PCIe, PCIE + USB2.0, with SIM Card Wafer
	USB2.0	4, Wafer
	Serial	2, Wafer, COM1-2 2, Wafer, COM3-4 2, Wafer, COM5-6
	GPIO	1, Wafer
	Front Panel	1, Wafer
	FAN	1, Wafer
Others	Debug	1, Wafer, ESPI
	Jumper	1, LVDS1 VDD Select 1, MPCIE1 PCIE or SATA Signal Select 1, AT or ATX mode 1, ME Flash
	RTC	1, Wafer
	Buzzer	1



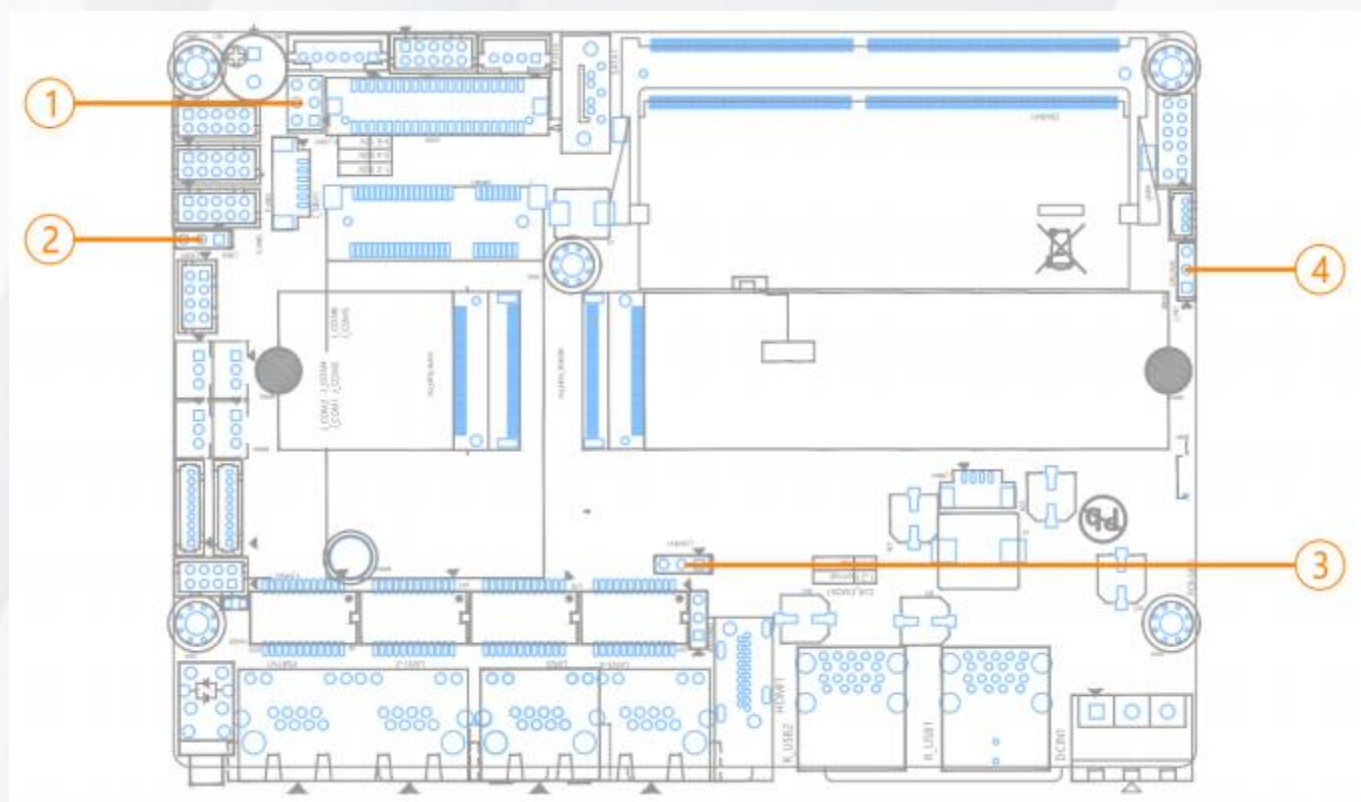
3. Block Diagram



4. Mechanical Drawing



5. Jumper



Headers / Wafers and Connectors

①	JC_LVDS1	LVDS1 VDD Select Jumper
②	J_SEL0	MPCIE1 PCIE or SATA Signal Select Jumper
③	J_AT/ATX1	AT or ATX mode Select Jumper
④	J_ME1	ME Flash Jumper

6. Definition of Jumpers

6.1 LVDS1 VDD Select: Jumper, 3*2P, 2.54mm (Mark No.1, JC_LVDS1)

Graphic	Setting	Function
	1-2(Default)	VCC3.3
	3-4	VCC5
	5-6	VCC12

6.2 MPCIE1 PCIE or SATA Signal Select: Jumper, 3*1P, 2.54mm (Mark No.2, J_SEL0)

Graphic	Setting	Function
	1-2 (Default)	PCIE
	2-3	SATA

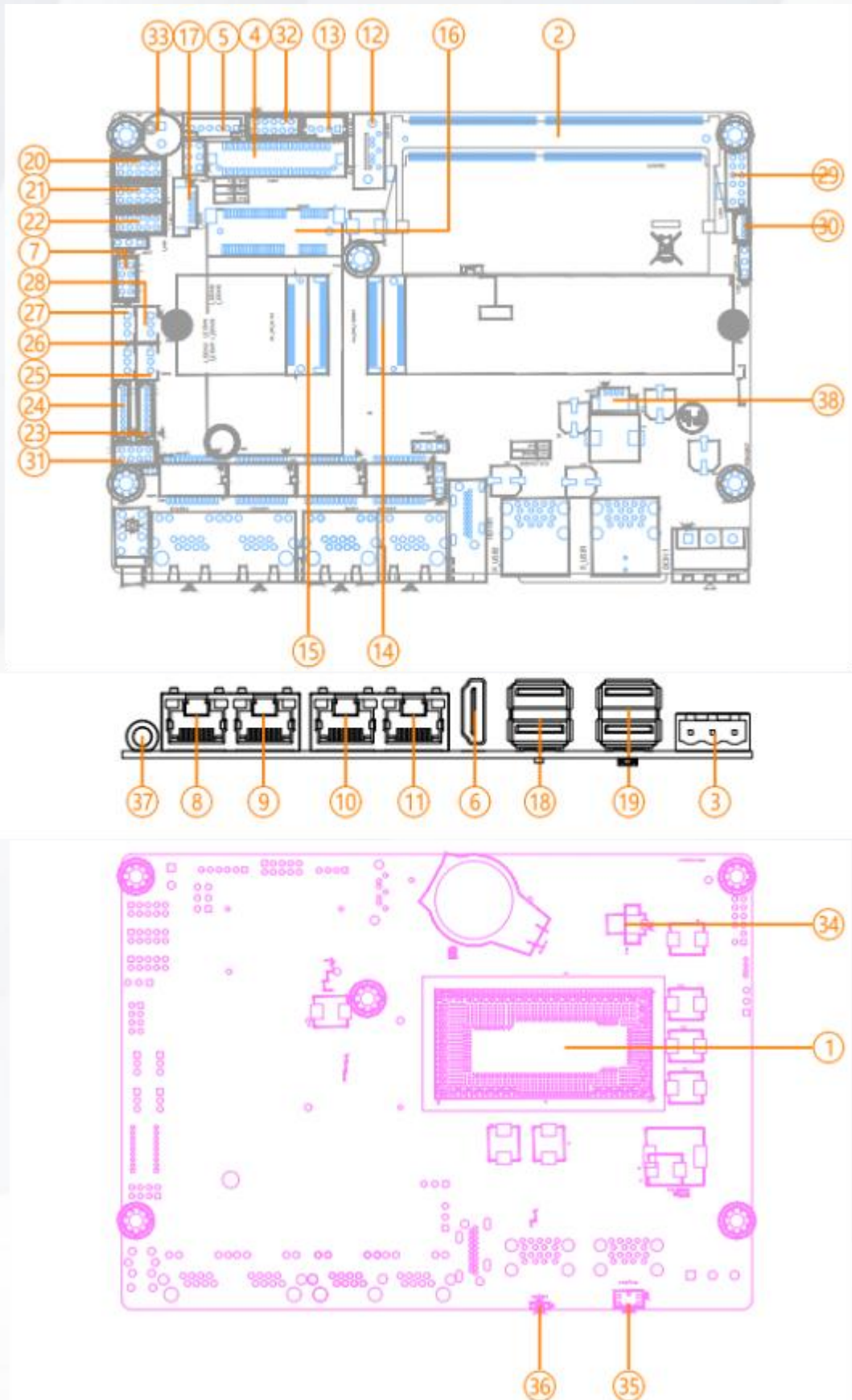
6.3 AT or ATX mode Select: Jumper, 3*2P, 2.54mm (Mark No.3, J_AT/ATX1)

Graphic	Setting	Function
	1-2 (Default)	ATX MODE
	2-3	AT MODE

6.4 ME Flash: Jumper, 3*1P, 2.54mm (Mark No.4, J_ME1)

Graphic	Setting	Function
	1-2 (Default)	ME Protect
	2-3	ME Programmable

7. Headers / Wafers and Connectors



Headers / Wafers and Connectors

①	U1	CPU
②	DIMM1	DDR4 SO-DIMM Slot
③	DCIN1	DC 12-24V Power Input 3P 5.08mm Terminal Block
④	LVDS1	eDP/LVDS Signal DF13 Connector
⑤	LVDS_P1	eDP/LVDS Backlight Control Wafer
⑥	HDMI1	HDMI TYPE-A Connector
⑦	J_AUD1	Front Audio Wafer
⑧	LAN1	GbE LAN RJ45 Connector1
⑨	LAN2	GbE LAN RJ45 Connector2
⑩	LAN3	GbE LAN RJ45 Connector3
⑪	LAN4	GbE LAN RJ45 Connector4
⑫	SATA1	SATA3.0 7P Connector
⑬	P_SATA1	SATA Power Wafer
⑭	M.2_KEYM_PCIESSD1	M.2 Key-M Slot (PCIe x4/SATA, Support PCIe x4 NVMe/ SATA SSD, Auto Detected, 2280)
⑮	M.2_KEYE_WLAN1	M.2 Key-E Slot (PCIe+USB2.0+CNVi, Support Wifi +BlueTooth +CNVi, 2230)
⑯	MPCIE1	Mini-PCIe Slot (PCIe/SATA+USB2.0, Support WIFI+4G/SATA)
⑰	J_SIM1	SIM Card Wafer
⑱	R_USB2	Dual USB3.0 TYPE-A Connector
⑲	R_USB1	Dual USB3.0 TYPE-A Connector
⑳	F_USB1	Front Dual USB2.0 Wafer
㉑	F_USB2	Front Dual USB2.0 Wafer
㉒	F_USB3	Front Dual USB2.0 Wafer
㉓	J_COM1	COM1 Wafer
㉔	J_COM2	COM2 Wafer
㉕	J_COM3	COM3 Wafer
㉖	J_COM4	COM4 Wafer
㉗	J_COM6	COM6 Wafer
㉘	J_COM5	COM5 Wafer
㉙	J_ESPI1	ESPI Wafer

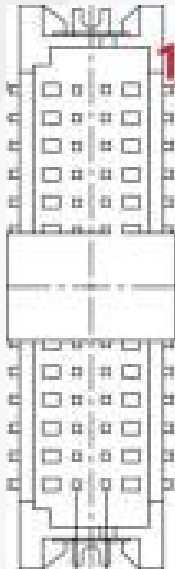
③0	CPU_FAN1	CPU FAN Wafer
③1	F_PANEL1	Front Panel Wafer
③2	J_GPIO1	Front GPIO Wafer
③3	BZ1	Buzzer
③4	BAT1	CMOS Battery Wafer
③5	CMOS_CLR1	CMOS Clear Button
③6	HDD_LED1	HDD LED
③7	PSBTN1	Power On Button
③8	J_PRM1	Power Debug Wafer

8. Definition of Connectors

8.1 DC 12-24V Power Input: Terminal Block, 3*1P, 5.08mm (Mark No.3, DCIN1)

Graphic	Pin	Definition	Pin	Definition
	1	GND_EARTH	3	VCC_IN
	2	GND		

8.2 eDP/LVDS Signal: DF13, 20*2P, 1.25mm (Mark No.4, LVDS1)

Graphic	Pin	Definition	Pin	Definition
	1	VDD_PANEL [1]	2	VDD_PANEL [1]
	3	LVDS_PRSENT	4	GND
	5	VDD_PANEL [1]	6	VDD_PANEL [1]
	7	LVDS_A_DATA0-	8	LVDS_B_DATA0- /EDP1_TX0- [2]
	9	LVDS_A_DATA0+	10	LVDS_B_DATA0+ /EDP1_TX0+ [2]
	11	GND	12	GND
	13	LVDS_A_DATA1-	14	LVDS_B_DATA1- /EDP1_TX1- [2]
	15	LVDS_A_DATA1+	16	LVDS_B_DATA1+ /EDP1_TX1+ [2]
	17	GND	18	GND
	19	LVDS_A_DATA2-	20	LVDS_B_DATA2- /EDP1_AUX-
	21	LVDS_A_DATA2+	22	LVDS_B_DATA2+ /EDP1_AUX+
	23	GND	24	GND
	25	LVDS_A_CLK-	26	LVDS_B_CLK- /EDP1_TX3- [2]
	27	LVDS_A_CLK+	28	LVDS_B_CLK+ /EDP1_TX3+ [2]
	29	GND	30	GND
	31	N/C	32	EDP1_HPD_C
	33	GND	34	GND
	35	LVDS_A_DATA3-	36	LVDS_B_DATA3- /EDP1_TX2- [2]
	37	LVDS_A_DATA3+	38	LVDS_B_DATA3+ /EDP1_TX2+ [2]
	39	N/C	40	GND

Notes:

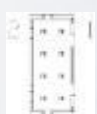
[1]: Panel Power VDD is 3.3V by default, 5V or 12V is selectable by "eDP/LVDS VDD Select Jumper" . (JV_LVDS1).

[2]: It supports LVDS by default and can support eDP if specified. (BOM selectable).

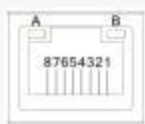
8.3 eDP/LVDS Backlight Control: Wafer, 6*1P, 2.0mm (Mark No.5, LVDS_P1)

Graphic	Pin	Definition	Pin	Definition
	1	GND	4	LVDS_BKLT_EN
	2	GND	5	VCC12
	3	LVDS_BKLT_CTL	6	VCC12

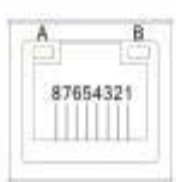
8.4 Front Audio: Wafer 4*2P, 2.00mm (Mark No.7, J_AUD1)

Graphic	Pin	Definition	Pin	Definition
	1	Line out_R	2	MIC_R
	3	GND	4	GND
	5	GND	6	GND
	7	Line out_L	8	MIC_L

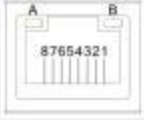
8.5 GbE LAN: RJ45, 8P (Mark No.8, LAN1)

Graphic	Pin	Definition		Pin	Definition	
	1	MDI0+		5	MDI2-	
	2	MDI0-		6	MDI1-	
	3	MDI1+		7	MDI3+	
	4	MDI2+		8	MDI3-	
	A	Active LED	ACT: Twinkling Green	B	Speed LED	1000M: Turn Yellow
			Only LINK: Lights On			100M: Turn Green
			Stop: Lights Off			10M: Lights Off

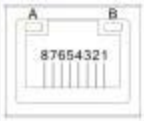
8.6 GbE LAN: RJ45, 8P (Mark No.9, LAN2)

Graphic	Pin	Definition		Pin	Definition		
	1	MDI0+		5	MDI2-		
	2	MDI0-		6	MDI1-		
	3	MDI1+		7	MDI3+		
	4	MDI2+		8	MDI3-		
	A	Active LED	ACT:Twinkling Green		B	Speed LED	1000M: Turn Yellow
			Only LINK: Lights On				100M: Turn Green
			Stop: Lights Off				10M: Lights Off

8.7 GbE LAN: RJ45, 8P (Mark No.10, LAN3)

Graphic	Pin	Definition		Pin	Definition	
	1	MDI0+		5	MDI2-	
	2	MDI0-		6	MDI1-	
	3	MDI1+		7	MDI3+	
	4	MDI2+		8	MDI3-	
	A	Active LED	ACT: Twinkling Green	B	Speed LED	1000M: Turn Yellow
			Only LINK: Lights On			100M: Turn Green
			Stop: Lights Off			10M: Lights Off

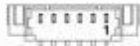
8.8 GbE LAN: RJ45, 8P (Mark No.11, LAN4)

Graphic	Pin	Definition		Pin	Definition	
	1	MDI0+		5	MDI2-	
	2	MDI0-		6	MDI1-	
	3	MDI1+		7	MDI3+	
	4	MDI2+		8	MDI3-	
	A	Active LED	ACT: Twinkling Green	B	Speed LED	1000M: Turn Yellow
			Only LINK: Lights On			100M: Turn Green
			Stop: Lights Off			10M: Lights Off

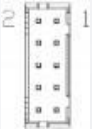
8.9 SATA Power: Wafer, 4*1P, 2.00mm (Mark No.13, P_SATA1)

Graphic	Pin	Definition	Pin	Definition
	1	VCC12	3	GND
	2	GND	4	VCC5

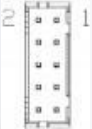
8.10 SIM Card: Wafer, 6*1P, 1.25mm (Mark No.17, J_SIM1)

Graphic	Pin	Definition	Pin	Definition
	1	UIM_PWR	4	UIM_CLK
	2	UIM_DATA	5	UIM_RST
	3	GND	6	UIM_VPP

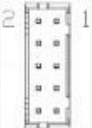
8.11 Front Dual USB2.0: Wafer, 5*2P, 2.00mm (Mark No.20, F_USB1)

Graphic	Pin	Definition	Pin	Definition
	1	VCC5	2	VCC5
	3	USB2.0_1-	4	USB2.0_2-
	5	USB2.0_1+	6	USB2.0_2+
	7	GND	8	GND
	9	GND	10	GND

8.12 Front Dual USB2.0: Wafer, 5*2P, 2.00mm (Mark No.21, F_USB2)

Graphic	Pin	Definition	Pin	Definition
	1	VCC5	2	VCC5
	3	USB2.0_1-	4	USB2.0_2-
	5	USB2.0_1+	6	USB2.0_2+
	7	GND	8	GND
	9	GND	10	GND

8.13 Front Dual USB2.0: Wafer, 5*2P, 2.00mm (Mark No.22, F_USB3)

Graphic	Pin	Definition	Pin	Definition
	1	VCC5	2	VCC5
	3	USB2.0_1-	4	USB2.0_2-
	5	USB2.0_1+	6	USB2.0_2+
	7	GND	8	GND
	9	GND	10	GND

8.14 COM1: Wafer, 9*1P, 1.25mm (Mark No.23, J_COM1)

Graphic	Pin	Definition	Pin	Definition
	1	DCD/VCC5 [1]	6	CTS
	2	DSR	7	DTR
	3	RXD	8	RI/VCC12 [2]
	4	RTS	9	GND
	5	TXD		

Notes:

[1]: PIN1 can be DCD#/5V SEL by RES, support DCD# by default.

[2]: PIN8 can be RI#/12V SEL by RES, support RI# by default.

8.15 COM2: Wafer, 9*1P, 1.25mm (Mark No.24, J_COM2)

Graphic	Pin	Definition	Pin	Definition
	1	DCD/VCC5 [1]	6	CTS
	2	DSR	7	DTR
	3	RXD	8	RI/VCC12 [2]
	4	RTS	9	GND
	5	TXD		

Notes:

[1]: PIN1 can be DCD#/5V SEL by RES, support DCD# by default.

[2]: PIN8 can be RI#/12V SEL by RES, support RI# by default.

8.16 COM3: Wafer, 3*1P, 2.00mm (Mark No.25, J_COM3)

Graphic	Pin	Definition	Pin	Definition
	1	RXD	3	GND
	2	TXD		

8.17 COM4: Wafer, 3*1P, 2.00mm (Mark No.26, J_COM4)

Graphic	Pin	Definition	Pin	Definition
	1	TTL/RS232_RXD	3	GND
	2	TTL/RS232_TXD		

8.18 COM6: Wafer, 3*1P, 2.00mm (Mark No.27, J_COM6)

Graphic	Pin	Definition	Pin	Definition
	1	TTL/ RS485+	3	GND
	2	TTL/ RS485-		

8.19 COM5: Wafer, 3*1P, 2.00mm (Mark No.28, J_COM5)

Graphic	Pin	Definition	Pin	Definition
	1	TTL_RXD/ RS485+	3	GND
	2	TTL_TXD/ RS485-		

8.20 ESPI: Wafer, 6*2P, 2.00mm (Mark No.29, J_ESPI1)

Graphic	Pin	Definition	Pin	Definition
	1	ESPI_IO0	2	VCC3.3
	3	ESPI_IO1		
	5	ESPI_IO2	6	ESPI_CLK
	7	ESPI_IO3	8	GND
	9	ESPI_CS0-	10	VCC3.3
	11	ESPI_ALERT0_N	12	PLTRST_N [1]

Notes:

[1] : Signal on this Pin is PLT_RST_N by default, ESPI_RST0_N is available if specified. (resistor selectable).

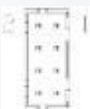
8.21 CPU FAN: Wafer 4*1P, 1.25mm (Mark No.30, CPU_FAN1)

Graphic	Pin	Definition	Pin	Definition
	1	GND	3	FAN Speed Detection
	2	VCC12 [1]	4	FAN Speed Control

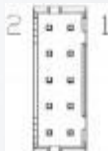
Notes:

[1] : Power on this Pin is 12V by default, 12V is available if specified. (resistor selectable)

8.22 Front Panel: Wafer, 4*2P, 2.00mm (Mark No.31, F_PANEL1)

Graphic	Pin	Definition	Pin	Definition
	1	PWR_LED+	2	HDD_LED+
	3	PWR_LED-	4	HDD_LED-
	5	PWR+	6	RESET-
	7	PWR-	8	RESET+

8.23 Front GPIO: Wafer, 5*2P, 2.00mm (Mark No.32, J_GPIO1)

Graphic	Pin	Definition	Pin	Definition
	1	SIO_GPI71 (0xA06 Bit1, H [1])	2	SIO_GPI70 (0xA06 Bit0, H [1])
	3	SIO_GPI73 (0xA06 Bit3, H [1])	4	SIO_GPI72 (0xA06 Bit2, H [1])
	5	SIO_GPO75 (0xA06 Bit5, H [1])	6	SIO_GPO74 (0xA06 Bit4, H [1])
	7	SIO_GPO77 (0xA06 Bit7, H [1])	8	SIO_GPO76 (0xA06 Bit6, H [1])
	9	GND	10	+5V [2]

Notes:

[1]: "H" or "L" means the default voltage is High or Low level (5V GPIO).

[2]: Power on this Pin is 5V by default, 3.3V is available if specified. (resistor selectable)

8.24 CMOS Battery: Wafer, 2*1P, 1.25mm (Mark No.34, BAT1)

Graphic	Pin	Definition	Pin	Definition
	1	VCC_BAT	2	GND

8.25 Power Debug: Wafer, 4*1P, 1.25mm (Mark No.38, J_PRM1)

Graphic	Pin	Definition	Pin	Definition
	1	GND	3	VCCIN_SCL
	2	VCCIN_PE	4	VCCIN_SDA

[END]