

IPCTECH Motherboard User's Manual

QY-MB-1165G7-3.5

1. Models and Attentions

1.1 Models

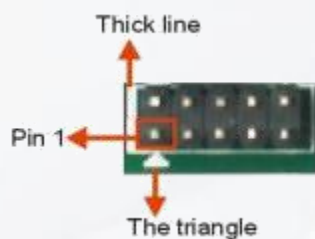
This manual is applied to following models:

Model	CPU	COM	LAN	USB	HDMI	LVDS /EDP	M.2 Key -M	M.2 Key -E	M.2 Key-B	SATA 3.0
QY-MB-1165G7-3.5	i7-1165G7	6	2	10	2	LVDS	SATA	WIFI+BT	5G+4G/3G	1
	i5-1135G7	6	2	10	2	LVDS	SATA	WIFI+BT	5G+4G/3G	1
	i3-1115G4	6	2	10	2	LVDS	SATA	WIFI+BT	5G+4G/3G	1
	6305E	6	2	10	2	LVDS	SATA	WIFI+BT	5G+4G/3G	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-1165G7-3.5			
CPU	CPU Model		Core™ (Premium-U)			Celeron® (Base- U)
			i7-1165G7	i5-1135G7	i3-1115G4	6305E
	Clock Speed	Base	TDP-down:1.20GHz TDP-up:2.80GHz	down: 900MHz up: 2.40GHz	down:1.70GHz up: 3.00GHz	1.80GHz
		Turbo	4.70GHz	4.20GHz	4.10GHz	/
	Multi-Core		Quad	Quad	Dual	Dual
	TDP		15W default, 12W/28W BIOS optional			15W
	Graphics		Intel® Iris® Xe Graphics		Intel® UHD Graphics	
			up to 96 EUs, 1.3Ghz	up to 80 EUs, 1.3Ghz	up to 48 EUs, 1.25Ghz	
Display			2 * HDMI(TYPE-A): max resolution up to 4096*2160@30Hz 1 * LVDS/eDP(Header): LVDS max resolution up to 1920*1200@60Hz(Default) or eDP max resolution up to 3840*2160@60Hz			
Memory			Support DDR4-3200 MHz, 2 * non-ECC SO-DIMM Slot, up to 64GB			
Storage			1 * SATA3.0 7P Connector (with 1 * SATA Power Header)			
Ethernet			2 * Intel® GBE LAN Chip (10/100/1000 Mbps, RJ45)			
Audio			AUDIO HDA Codec, 1 * Line-Out + MIC 2in1 3.5mm Jack (default CTIA, OMTP Standard Sel by BOM) 1 * Amplifier Header			
Expansion Slots			Support PCIe x4 Gen4 NVMe SSD			Support PCIe4 Gen3 NVMe SSD
			1 * M.2 (NGFF) Key-M Slot (PCIe x4 NVMe /SATA SSD, 2280) [1] 1 * M.2 (NGFF) Key-E Slot (PCIe+USB2.0, Support WIFI+BT, 2230) 1 * M.2 (NGFF) Key-B Slot (PCIe/USB3.0+USB2.0, Support 5G + 4G/3G, with 1* nano-SIM Card Slot, 3052)			
COM			3 * RS232 (COM1/2/3, Header, Full lanes) 2 * RS232/TTL (COM4/5, Header, 3 lanes) [2] 1 * RS232/RS485/TTL (COM6, Header, 3 lanes) [2]			
USB			6 * USB3.0(TYPE-A, Rear IO) 4 * USB2.0(Header, Internal)			

Other Ports	8 * GPIO Header 2 * GSPI Header 1 * Debug Header 1 * HDD LED Header 1 * System Reset Header 1 * Power LED Header 1 * Power Button Header 1 * CPU FAN Header 1 * CMOS Clear Jumper
System	Windows 10 64-bit, Linux
Temperature	Storage: -20~75°C Operating: 0~60°C
BIOS	AMI UEFI BIOS (Support Watchdog Timer)
Power Supply	DC 12V 1 * DC 12V Power Input Thread Connector ^[3]
Factor	3.5-inch Standard (146mm * 105mm)

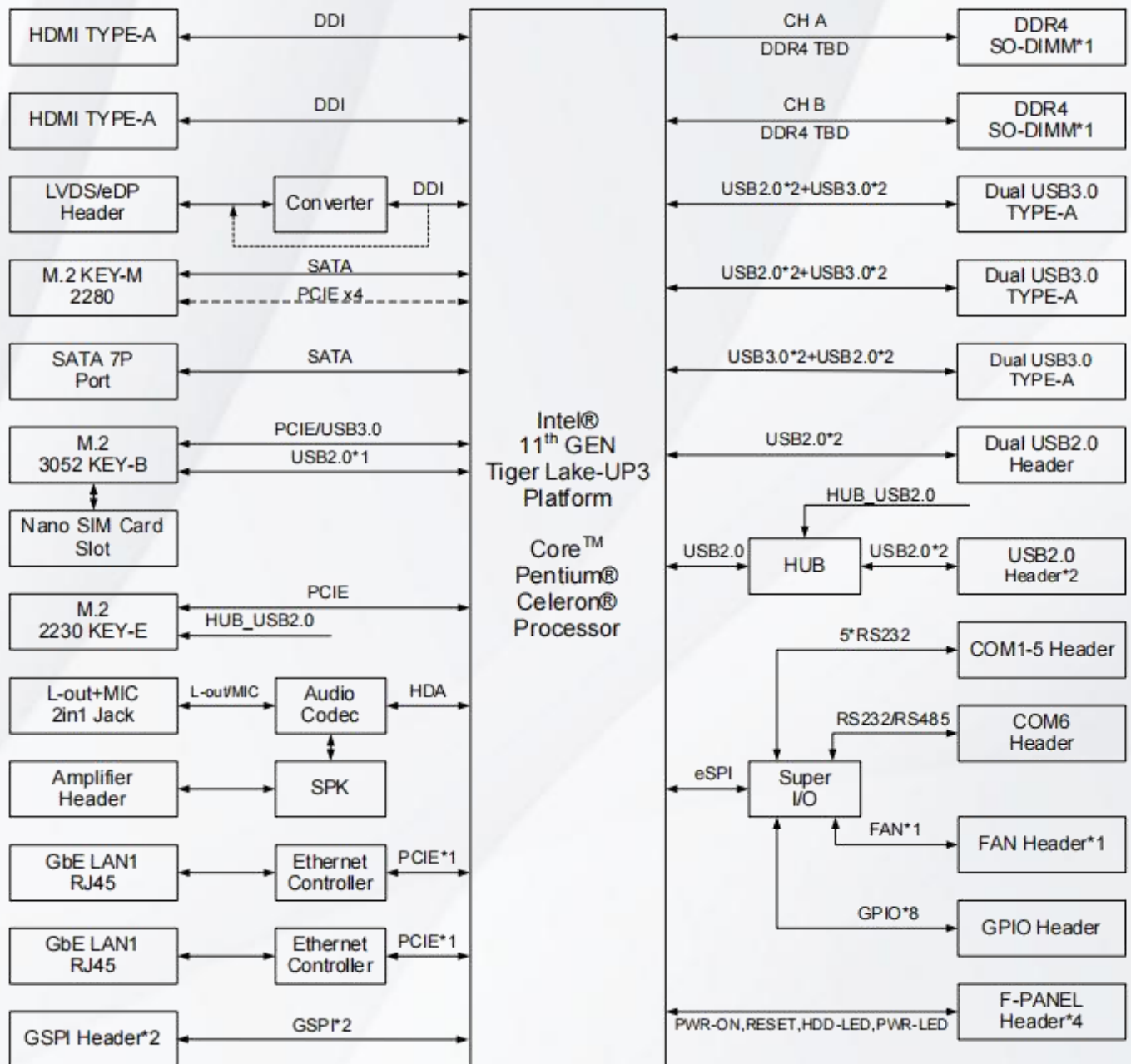
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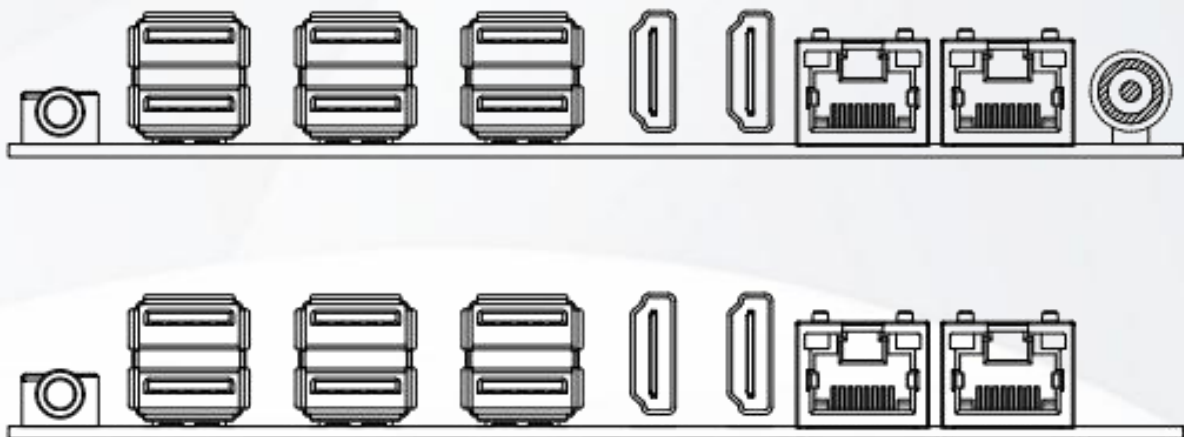
[1]: PCIe x4 NVMe /SATA SSD sel by res, support SATA SSD by default.

[2]: COM4/5/6 RS232/TTL sel by res, support RS232 by default. (COM4/5/6 must be used at the same mode)

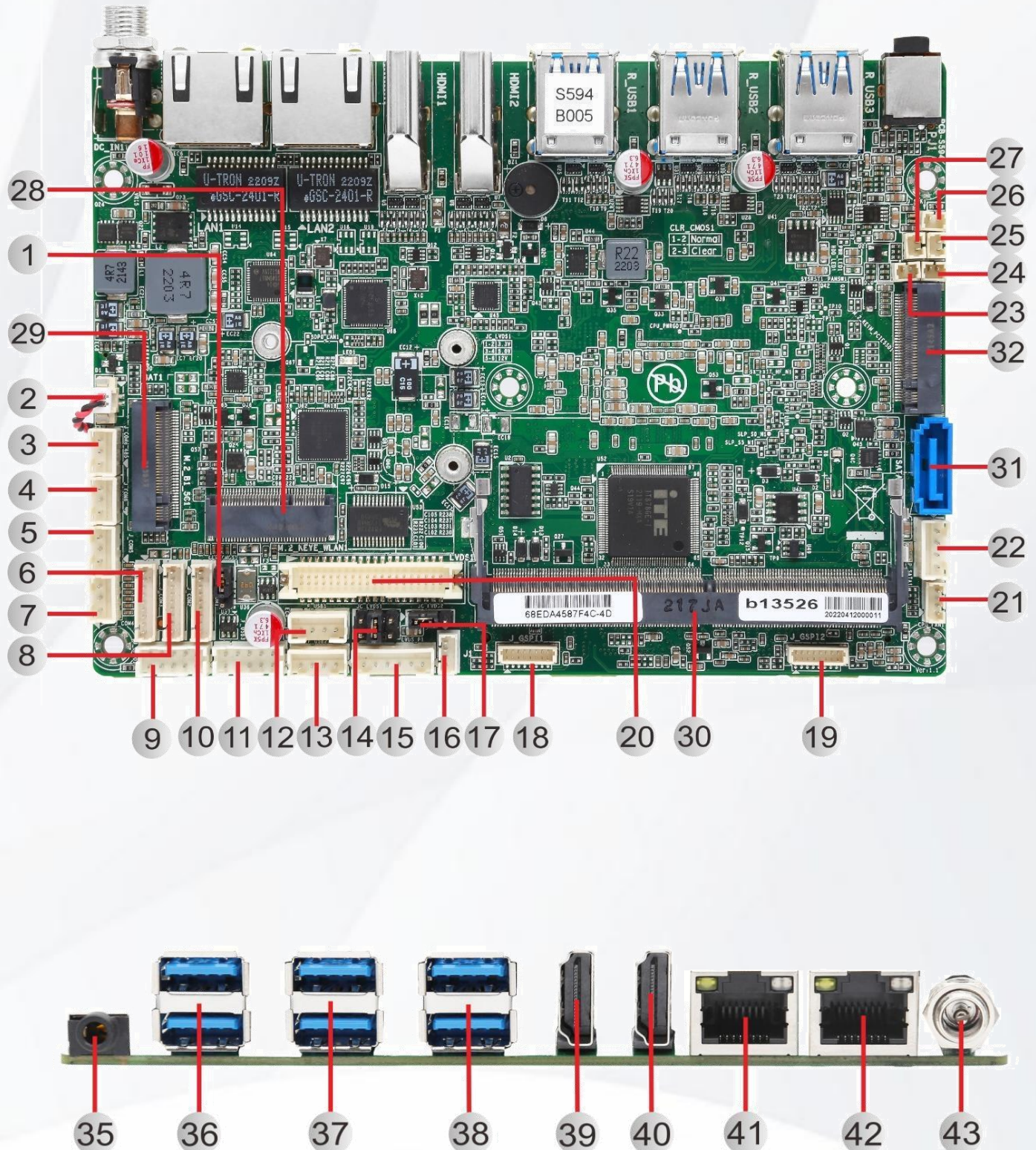
[3]: ATX 4P power input right angle connector optional

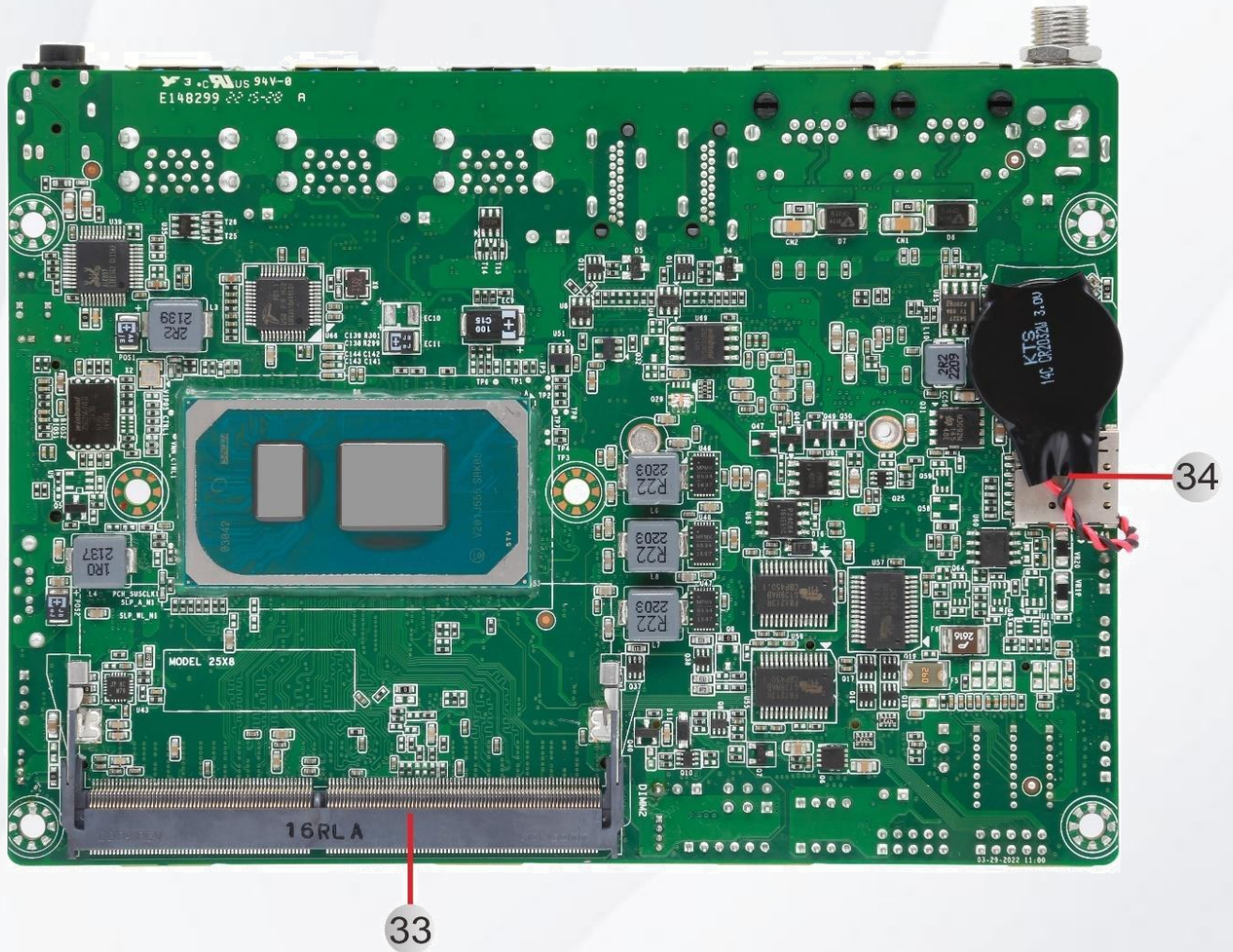
3. Block Diagram





4. Jumper/ Headers and Connectors





Jumpers / Headers and Connectors

1	CLR_CMOS1	CMOS Clear Jumper
2	BAT1	CMOS Battery Header
3	J_COM6_485	COM6 RS485 Header
4	J_COM6	COM6 RS232 Header
5	J_COM5	COM5 Header
6	J_COM3	COM3 Header
7	J_COM4	COM4 Header
8	J_COM2	COM2 Header
9	J_GPIO1	GPIO Header
10	J_COM1	COM1 Header
11	F_USB3	Front USB2.0 Header3
12	F_USB1	Front USB2.0 Header1
13	F_USB2	Front USB2.0 Header2
14	JC_LVDS1	eDP/LVDS VDD Select Jumper
15	LVDS_P1	eDP/LVDS Backlight Control Header
16	J1	Debug Header

17	JC_LVDS2	eDP/LVDS Backlight PWM /CCFL Select Jumper
18	J_GSPI1	GSPI Right Angel Header1
19	J_GSPI2	GSPI Right Angel Header2
20	LVDS1	eDP/LVDS Signal Header
21	CPU_FAN1	CPU FAN Header
22	P_SATA1	SATA Power Header
23	SYSRST1	System Reset Header
24	PANSW1	Power Button Header
25	PWR_LED1	Power LED Header
26	J_SPK1	Amplifier Header
27	HDD_LED1	HDD LED Header
28	M.2_KEYE_WLAN1	M.2 (NGFF) Key-E Slot (PCIE+USB2.0, Support WIFI+BT, 2230)
29	M.2_B1_5G1	M.2 (NGFF) Key-B Slot (PCIE/USB3.0 + USB2.0, Support 5G + 4G/3G, 3052)
30	DIMM1	DDR4 SO-DIMM Slot1
31	SATA1	SATA3.0 7P Connector
32	M.2_KEYM_PCIESSD1	M.2 (NGFF) Key-M Slot (PCle x4 NVMe /SATA SSD, SATA SSD by default, 2280)
33	DIMM2	DDR4 SO-DIMM Slot2
34	SIM1	Nano SIM Card Slot
35	PJ1	Line-Out + MIC 2in1 3.5mm Jack
36	R_USB3	Dual USB3.0 TYPE-A Connector3
37	R_USB2	Dual USB3.0 TYPE-A Connector2
38	R_USB1	Dual USB3.0 TYPE-A Connector1
39	HDMI2	HDMI Upright TYPE-A Connector2
40	HDMI1	HDMI Upright TYPE-A Connector1
41	LAN2	GBE LAN RJ45 Connector2
42	LAN1	GBE LAN RJ45 Connector1
43	DC_IN (ATX1)	DC 12V Power Input Thread Connector (ATX 4P Power Input Right Angle Connector Optional)

6. Definition of Jumpers /Headers and Connectors

1) CLR_CMOS1 (CMOS Clear Jumper 3*1 Pin 2.54mm)

Graphic	Setting	Function
	1-2(Default)	Normal
	2-3	Clear CMOS

3) J_COM6_485 (COM6 RS485 Header 3*1 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	COM6_RS485+	3	GND
	2	COM6_RS485-		

4) J_COM6 (COM6 RS232 Header 3*1 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	COM6_RXD ^[1]	3	GND
	2	COM6_TXD ^[1]		

Notes:

[1] : COM4/5/6 RS232/TTL sel by res, support RS232 by default. (COM4/5/6 must be used at the same mode)

[2]

5) J_COM5 (COM5 Header 3*1 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	COM5_RXD ^[1]	3	GND
	2	COM5_TXD ^[1]		

Notes:

[1] : COM4/5/6 RS232/TTL sel by res, support RS232 by default. (COM4/5/6 must be used at the same mode)

6) J_COM3 (COM3 Header 9*1 Pin 1.25mm)

Graphic	Pin	Definition	Pin	Definition
	1	COM3_PIN1 ^[1]	6	COM3_CTS#
	2	COM3_DSR#	7	COM3_DTR#
	3	COM3_RXD	8	COM3_PIN9 ^[2]
	4	COM3_RTS#	9	GND
	5	COM3_TXD		

Notes:

[1] COM3_PIN1 can be DCD#/5V/12V SEL by RES, support DCD# by default.

[2] COM3_PIN9 can be RI#/5V SEL by RES, support RI# by default.

7) J_COM4 (COM4 Header 3*1 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	COM4_RXD ^[1]	3	GND
	2	COM4_TXD ^[1]		

Notes:

[1]: COM4/5/6 RS232/TTL sel by res, support RS232 by default. (COM4/5/6 must be used at the same mode)

8) J_COM2 (COM2 Header 9*1 Pin 1.25mm)

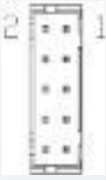
Graphic	Pin	Definition	Pin	Definition
	1	COM2_PIN1 ^[1]	6	COM2_CTS#
	2	COM2_DSR#	7	COM2_DTR#
	3	COM2_RXD	8	COM2_PIN9 ^[2]
	4	COM2_RTS#	9	GND
	5	COM2_TXD		

Notes:

[1]: COM2_PIN1 can be DCD#/5V/12V SEL by RES, support DCD# by default.

[2]: COM2_PIN9 can be RI#/5V SEL by RES, support RI# by default.

9) J_GPIO1 (GPIO Header 5*2 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	2	SIO_GPI70 (0xA06 Bit0, H ^[1])	1	SIO_GPI71 (0xA06 Bit1, H ^[1])
	4	SIO_GPI72 (0xA06 Bit2, H ^[1])	3	SIO_GPI73 (0xA06 Bit3, H ^[1])
	6	SIO_GPO74 (0xA06 Bit4, H ^[1])	5	SIO_GPO75 (0xA06 Bit5, H ^[1])
	8	SIO_GPO76 (0xA06 Bit6, H ^[1])	7	SIO_GPO77 (0xA06 Bit7, H ^[1])
	10	+3.3V ^[2]	9	GND

Notes:

[1]: "H" or "L" means the default voltage is High or Low level (3.3V GPIO. Power of this Pin depends on Pin10).

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

10) J_COM1 (COM1 Header 9*1 Pin 1.25mm)

Graphic	Pin	Definition	Pin	Definition
	1	COM1_PIN1 ^[1]	6	COM1_CTS#
	2	COM1_DSR#	7	COM1_DTR#
	3	COM1_RXD	8	COM1_PIN9 ^[2]
	4	COM1_RTS#	9	GND
	5	COM1_TXD		

Notes:

[1]: COM1_PIN1 can be DCD#/5V/12V SEL by RES, support DCD# by default.

[2]: COM1_PIN9 can be RI#/5V SEL by RES, support RI# by default.

11) F_USB3 (Front USB2.0 Header3 5*2 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	2	+ 5V	1	+ 5V
	4	USB2_8-	3	USB2_9-
	6	USB2_8+	5	USB2_9+
	8	GND	7	GND
	10	N/C	9	GND

12) F_USB1 (Front USB2.0 Header1 4*1 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	+ 5V	3	HUB_USB_0+
	2	HUB_USB_0-	4	GND

13) F_USB2 (Front USB2.0 Header2 4*1 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	+ 5V	3	HUB_USB_1+
	2	HUB_USB_1-	4	GND

14) JC_LVDS1 (eDP/LVDS VDD Select Jumper 3*2 Pin 2.54mm)

Graphic	Setting	Function
	1-2(Default)	+ 3.3V
	3-4	+ 5V
	5-6	+ 12V

15) LVDS_P1 (eDP/LVDS Backlight Control Header 6*1 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	GND	4	EDP/LVDS_BKLT_EN
	2	GND	5	+ 12V
	3	EDP/LVDS_BKLT_CTL ^[1]	6	+ 12V

Notes:

[1] : This signal is selected by "eDP/LVDS Backlight PWM /CCFL Select Jumper" . (JC_LVDS2, Location 17)

16) J1 (Debug Header 4*1 Pin 1.25mm)

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

17) JC_LVDS2 (eDP/LVDS Backlight PWM /CCFL Select Jumper 3*1 Pin 2.54mm)

Graphic	Setting	Function
	1-2	Controlled by PWM#
	2-3 (Default)	Controlled by PWM

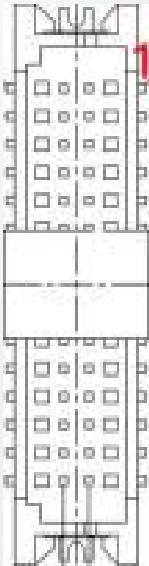
18) J_GSPI1 (GSPI Header1 8*1 Pin 1.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	PCH_SPI0_INT	5	PCH_SPI0_CS0
	2	PCH_SPI0_CLK	6	PCH_SPI0_CS1
	3	PCH_SPI0_MOSI	7	GND
	4	PCH_SPI0_MISO		+ 3.3V

19) J_GSPI2 (GSPI Header2 8*1 Pin 1.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	PCH_SPI1_INT	5	PCH_SPI1_CS0
	2	PCH_SPI1_CLK	6	PCH_SPI1_CS1
	3	PCH_SPI1_MOSI	7	GND
	4	PCH_SPI1_MISO	8	+ 3.3V

20) LVDS1 (LVDS Signal Header 20*2 Pin 1.25mm)

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

Notes:

[1]: Panel Power VDD is 3.3V by default, 5V or 12V is selectable by "eDP/LVDS VDD Select Jumper" . (JC_LVDS1, Location 14).

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

21) CPU_FAN1 (CPU FAN Header 4*1 Pin 1.25mm)

Graphic	Pin	Definition	Pin	Definition
	1	GND	3	FAN Speed Detection
	2	+ 12V ^[1]	4	FAN Speed Control

Notes:

[1]: Power on this Pin is 12V by default, 5V is available if specified. (resistor selectable)

22) P_SATA1 (SATA Power Header 4*1 Pin 2.00mm)

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

23) SYSRST1 (System Reset Header 2*1 Pin 1.25mm)

Graphic	Pin	Definition	Pin	Definition
	1	SYS_RESET-	2	SYS_RESET+

24) PANSW1 (Power Button Header 2*1 Pin 1.25mm)

Graphic	Pin	Definition	Pin	Definition
	1	POWER-	2	POWER+

25) PWR_LED1 (Power LED Header 2*1 Pin 1.25mm)

Graphic	Pin	Definition	Pin	Definition
	1	+ 3.3V	2	GND

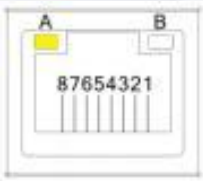
26) J_SPK1 (Amplifier Header 2*1 Pin 1.25mm)

Graphic	Pin	Definition	Pin	Definition
	1	SPK0+	2	SPK0-

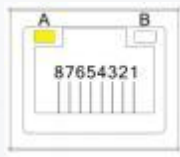
27) HDD_LED1 (HDD LED Header 2*1 Pin 1.25mm)

Graphic	Pin	Definition	Pin	Definition
	1	+ 3.3V	2	HDD_LED#

41) LAN2 (GBE LAN RJ45 Connector2 8Pin)

Graphic	Pin	Definition	Pin	Definition
	1	XMDI0_1+	5	XMDI2_1-
	2	XMDI0_1-	6	XMDI1_1-
	3	XMDI1_1+	7	XMDI3_1+
	4	XMDI2_1+	8	XMDI3_1-
	A	Active LED	B	Speed LED
		ACT: Twinkling Yellow Stop: Lights Off		1000M: Turn Yellow 100M: Turn Green 10M: Lights Off

42) LAN1 (GBE LAN RJ45 Connector1 8Pin)

Graphic	Pin	Definition	Pin	Definition
	1	XMDI0_2+	5	XMDI2_2-
	2	XMDI0_2-	6	XMDI1_2-
	3	XMDI1_2+	7	XMDI3_2+
	4	XMDI2_2+	8	XMDI3_2-
	A	Active LED	B	Speed LED
		ACT: Twinkling Yellow Stop: Lights Off		1000M: Turn Yellow 100M: Turn Green 10M: Lights Off

43) ATX1 (DC12VATX 4P Power Input Right Angle Connector)

Graphic	Pin	Definition	Pin	Definition
	1	GND	3	DC_IN
	2	GND	4	DC_IN

[END]