

IPCTECH Motherboard User's Manual

QY-MB-Q270-ATX

1.Models and Attentions

1.1 Models

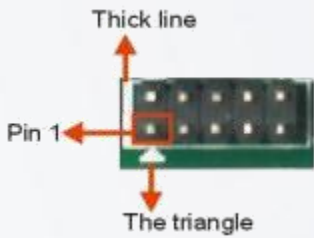
This manual is applied to following models:

Chipset	COM	LAN	USB	PCIe	PCI	DVI	HDMI	VGA	eDP	Mini-PCIE	M.2 KEY-M	SATA 3.0
Q270	6	2	13	2*8X 3*4X	2	1	1	1	1	PCIE+USB 2.0	PCIE 4X /SATA	4

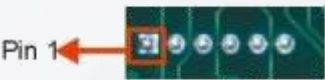
1.2 Attentions

- 1. Notes under a table or figure indicate the difference of models, or alternative definition of specific pin of the header (jumper/connector).
- 2. 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-Q270-ATX
CPU	Support Intel® 6/7/8/9th Generation Core / Pentium/ Celeron Desktop CPU, LGA1151 Support MAX CPU TDP: Octa-Core 95W
Chipset	Intel® Q270, TDP 6W
Dispaly^[1]	1 * DVI(DVI-D): up to 1920x1200@60Hz 1 * HDMI 1.4b (TYPE-A): up to 4096x2160@24Hz 1 * VGA (DB15/F /Header, default DB15/F): up to 1920*1200@60Hz 1 * eDP (Header): Support max resolution up to 1920x1200@60Hz
Memory^[2]	Support DDR4-2133/2400MHz, 4 * non-ECC U-DIMM Slot, Up to 64GB
Storage	Support RAID 0, 1, 5, 10 4 * SATA3.0 7P Connector 1 * M.2 KEY-M Slot (PCIE 4X NVMe/ SATA SSD Auto Detect, 2242/2280)
Ethernet	RJ45_USB1(RJ45): 1 * I219-V GBE LAN Chip (10/100/1000 Mbps, RJ45) RJ45_USB2(RJ45): 1 * I225-V GBE LAN Chip (10/100/1000 Mbps, RJ45)
Audio	Realtek Audio HDA Codec, 1 * Front Audio Header (Line-Out + MIC) 1 * Line-out + Line-in + MIC 3.5mm Jack
Expansion Slots	1 * PCI-E 16x Slot (PCI-E 3.0, PCIE 8X Signal, PCIE 16X Optional) ^[3] 1 * PCI-E 16x Slot (PCI-E 3.0, PCIE 8X Signal) ^[3] 3 * PCI-E 4x Slot (PCI-E 3.0, PCIE 4X Signal) 2 * PCI Slot 1 * PCI CLK 66MHz/33MHz Select Jumper 1 * Mini PCI-E Slot (PCIE+USB2.0, Support WIFI+4G/3G, with1 * SIM Card Slot)
COM	1 * RS232 (COM1, DB9/M) 3 * RS232 (COM2/5/6, Header) 1 * RS232/RS422/RS485 (COM3, Header) 1 * RS232/RS485 (COM4, Header)
USB	4 * USB3.0 (TYPE-A, Rear IO) 2 * USB3.0 (Header) 2 * USB2.0 (TYPE-A, Rear IO) 1 * USB2.0 (Vertical TYEP-A, Internal) 4 * USB2.0 (Header)

Other Ports	8 * GPIO 1 * PS/2 Connector (Keyboard & Mouse) 1 * Front Panel Header (HDD LED+PWR LED+PWR-ON+RESET) 1 * Port80 Debug Header 1 * SMBUS Header 2 * System FAN Header 1 * CPU FAN Header 1 * Case Open Header 1 * CMOS Clear Jumper 1 * AT or ATX Select Jumper
TPM	SLB9665, TPM2.0 (not onboard by default)
System	Windows 7/8.1/10, Linux
Temperature	Storage: -20~75°C Operating: 0~60°C
BIOS	AMI UEFI BIOS (Support Watchdog Timer)
Power Supply	ATX Standard (24P + 8P) 1 * ATX 8P CPU Power Input Connector 1 * ATX 24P Power Input Connector
Factory	ATX Standard (305mm * 244mm)

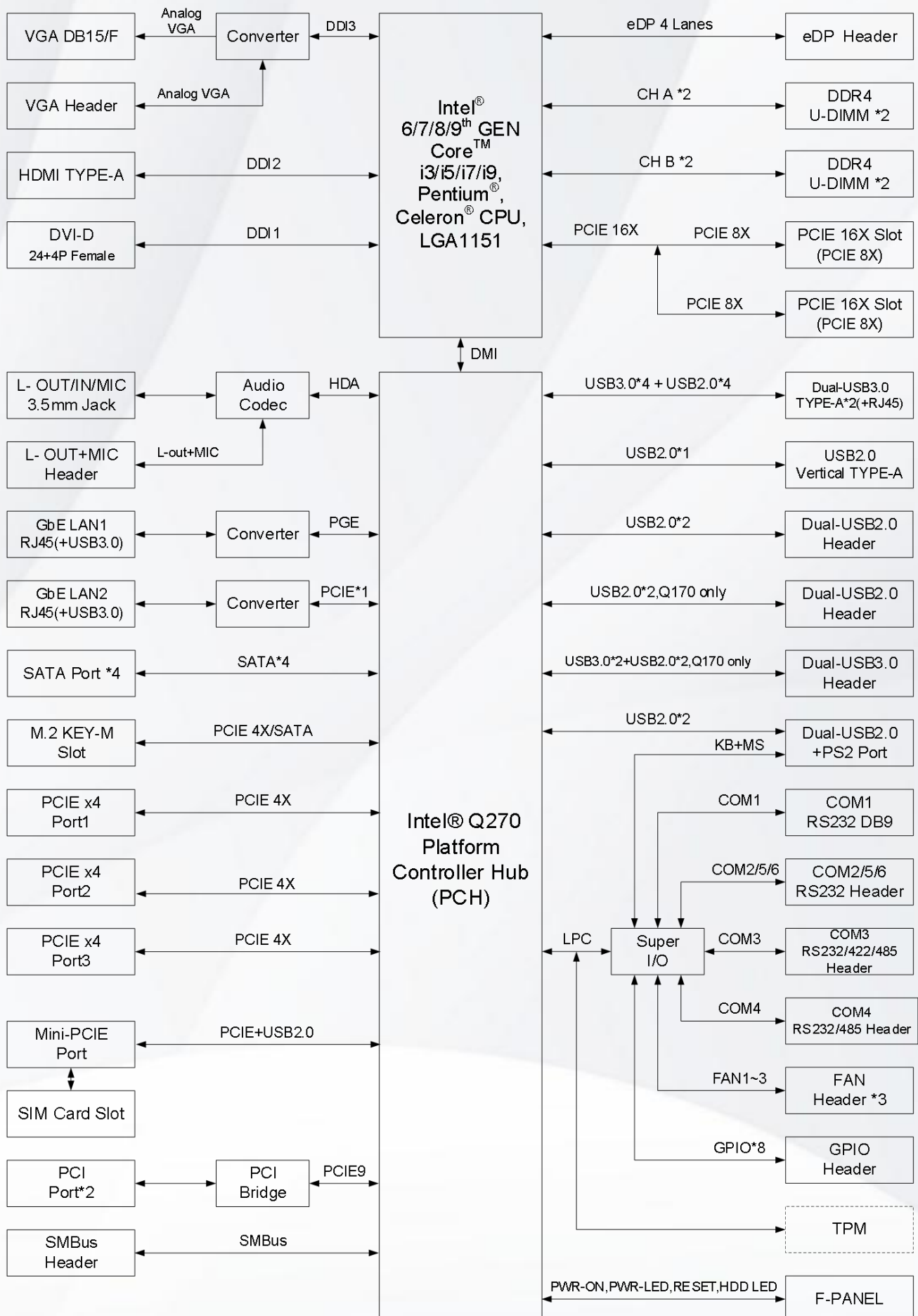
Notes:

[1]: Intel® Q270 supports three independent displays.

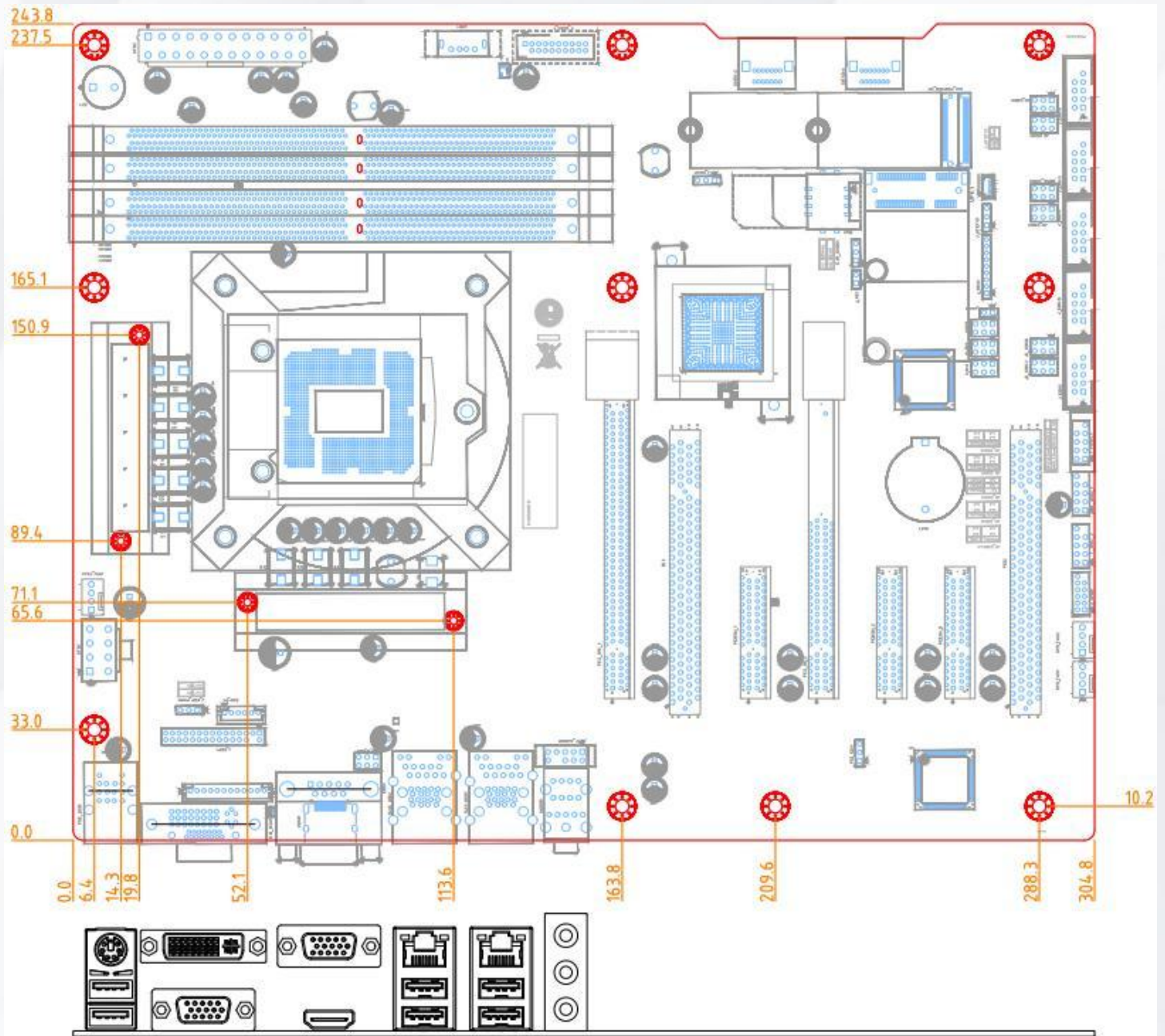
[2]: The maximum memory frequency depends on CPU.

[3]: PEIC 8X signal for PEG_X8_2 colay with PEG_X16_1, PEG_X8_2 and PEG_X16_1 support PEIC 8X by default. If not support PEG_X8_2, PEG_X16_1 support PCIE 16X. (resistor selectable)

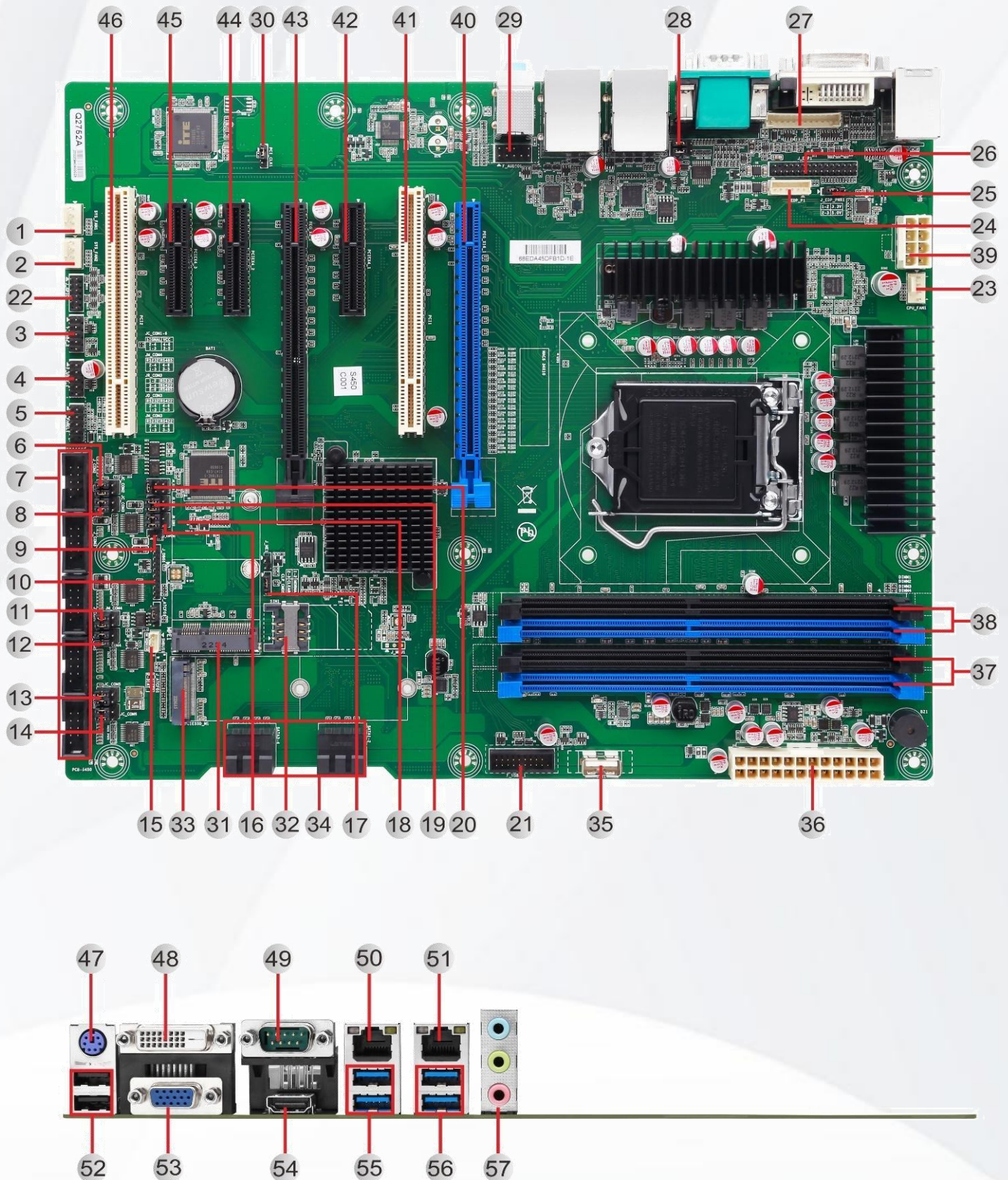
3.Functional Block Diagram

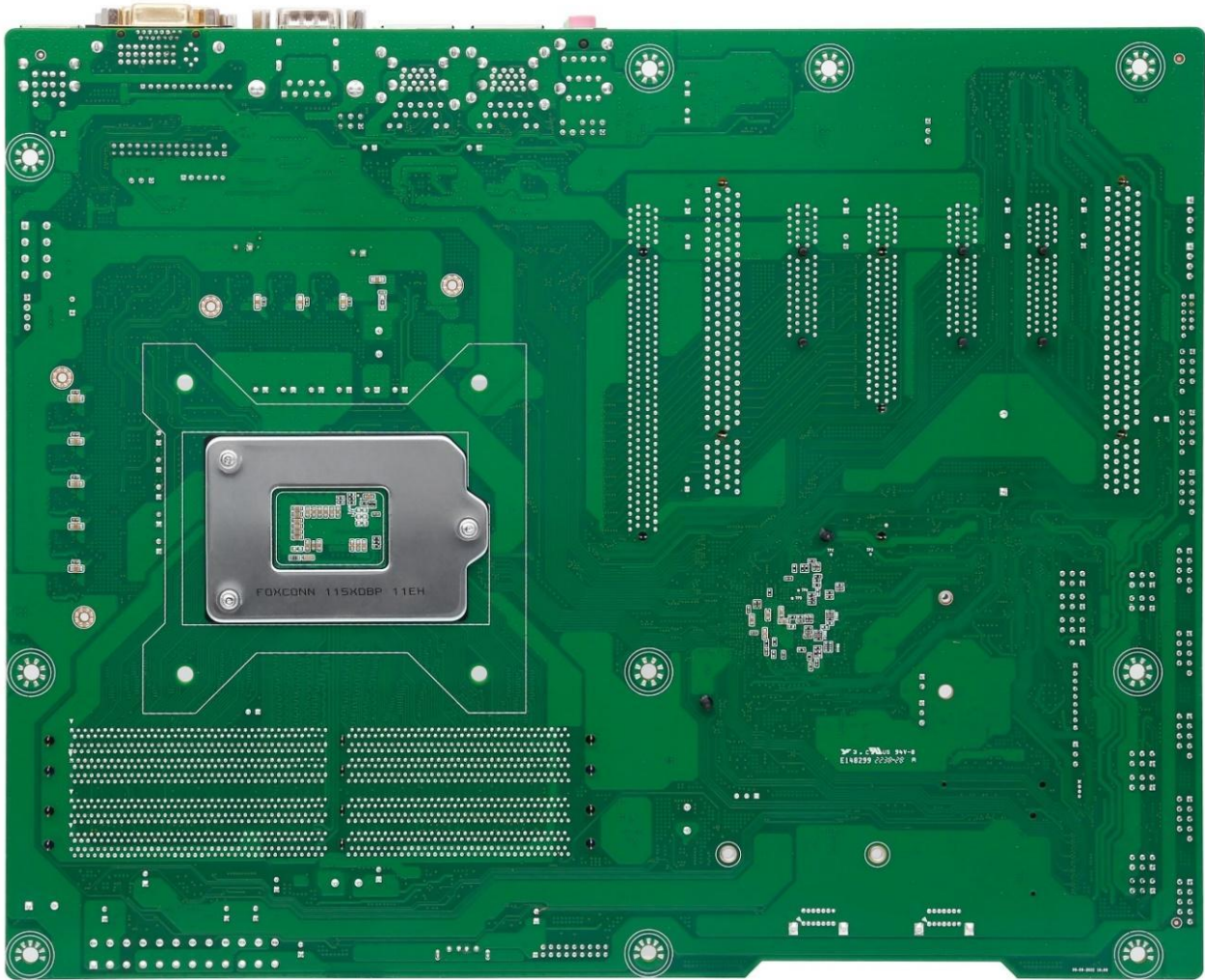


4.Mechanical Drawing



5. Jumpers / Headers and Connectors





Jumpers / Headers and Connectors

1	SYS_FAN1	System FAN Header1
2	SYS_FAN2	System FAN Header2
3	F-USB2_2	Front USB2.0 Header2
4	F-USB2_1	Front USB2.0 Header1
5	F_PANEL1	Front Panel Header
6	JC-COM2	COM2 DCD/RI Select Jumper
7	J-COM2/3/4/5/6	COM2/3/4/5/6 Header
8	JC-COM3	COM3 DCD/RI Select Jumper
9	J-COPEN1	Case Open Header
10	J-DBG1	Port80 Debug Header
11	JM-COM4	COM4 RS232/RS485 Select Jumper
12	JC-COM4	COM4 DCD/RI Select Jumper
13	JC-COM5	COM5 DCD/RI Select Jumper
14	JC-COM6	COM6 DCD/RI Select Jumper
15	J-SMB1	SMBUS Header

16	JC_COM3	COM3 RS232/422/485 Select Jumper3
17	CLR_CMOS 1	CMOS Clear Jumper
18	J_ATCFG1	AT or ATX Select Jumper
19	JD_COM3	COM3 RS232/422/485 Select Jumper2
20	JR_COM3	COM3 RS232/422/485 Select Jumper1
21	F_USB3_1	Front USB3.0 Header
22	J_GPIO1	GPIO Header
23	CPU_FAN1	CPU FAN Header
24	J1	EDP Backlight Control Header
25	J_EDP_PWR1	EDP VDD Select Jumper
26	J_EDP1	EDP Signal Header
27	J_VGA1	VGA Signal Header
28	JC_COM1	COM1 DCD/RI Select Jumper
29	F_AUDIO1	Front Audio Header (Line-Out + MIC)
30	PCI_CLK1	PCI CLK 66MHz/33MHz Select Jumper
31	MPE1	Mini PCI-E Slot (PCIE+USB2.0, Support WIFI+4G/3G)
32	SIM1	SIM Card Slot
33	M.2_PCISSD_M1	M.2 KEY-M Slot (PCIE 4X NVMe/ SATA SSD, 2242/2280, Auto Detect)
34	SATA1/2/3/4	SATA3.0 7P Right Angle Connector1/2/3/4
35	USB1	USB2.0 Internal Vertical TYPE-A Connector
36	ATX2	ATX 24P Power Input Connector
37	DIMM3/4	DDR4 CHB DIMM Slot3/4
38	DIMM1/2	DDR4 CHA DIMM Slot1/2
39	ATX1	ATX 8P CPU Power Input Connector
40	PEG_X16_1	PCI-E 16x Slot (Support PCIE 8x by default)
41	PCI1	PCI Slot1
42	PCIEX4_1	PCI-E 4x Slot
43	PEG_X8_2	PCI-E 16x Slot (Support PCIE 8x by default)
44	PCIEX4_2	PCI-E 4x Slot
45	PCIEX4_3	PCI-E 4x Slot
46	PCI2	PCI Slot2
47	USB_KBMS1(KBMS)	PS/2 Connector (Keyboard & Mouse)
48	DVI_VGA1(DVI)	DVI-D 24+4P/F Connector
49	COM1	COM1 DB9/M Connector
50	RJ45_USB2(RJ45)	LAN2 RJ45 Connector
51	RJ45_USB1(RJ45)	LAN1 RJ45 Connector
52	USB_KBMS1(USB)	Dual USB2.0 TYPE-A Connector
53	DVI_VGA1(VGA)	VGA DB15/F Connector
54	HDMI1	HDMI TYPE-A Connector
55	RJ45_USB2(USB)	Dual USB3.0 TYPE-A Connector2
56	RJ45_USB1(USB)	Dual USB3.0 TYPE-A Connector1
57	AUDIO1	Line-out + Line-in + MIC 3.5mm Jack



6. Definition of Jumpers / Headers and Connectors

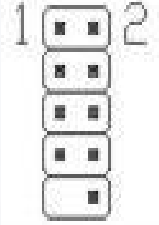
1) SYS_FAN1 (System FAN Header1 4*1 Pin 2.54mm)

Graphic	Pin	Definition	Pin	Definition
	1	GND	3	FAN Speed Detection2
	2	+ 12V	4	FAN Speed Control2

2) SYS_FAN2 (System FAN Header2 4*1 Pin 2.54mm)

Graphic	Pin	Definition	Pin	Definition
	1	GND	3	FAN Speed Detection4
	2	+ 12V	4	FAN Speed Control4

3) F_USB2_2 ^[1] (Front USB2.0 Header2 5*2 Pin 2.54mm)

Graphic	Pin	Definition	Pin	Definition
	1	+ 5V	2	+ 5V
	3	USB2_11-	4	USB2_12-
	5	USB2_11+	6	USB2_12+
	7	GND	8	GND
			10	N/C

Notes:

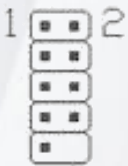
[1]: PCH H110 not support F_USB2_2 by default.

4) F_USB2_1 (Front USB2.0 Header1 5*2 Pin 2.54mm)

Graphic	Pin	Definition	Pin	Definition
	1	+ 5V	2	+ 5V
	3	USB2_9-	4	USB2_10-
	5	USB2_9+	6	USB2_10+
	7	GND	8	GND
			10	N/C



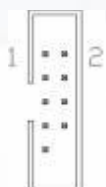
5) F_PANEL1 (Front Panel Header 5*2 Pin 2.54mm)

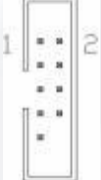
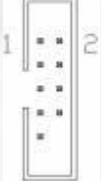
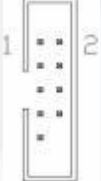
Graphic	Pin	Definition	Pin	Definition
	1	HD LED+	2	Power LED+
	3	HD LED-	4	Power LED-
	5	RESET-	6	Power+
	7	RESET+	8	Power-
	9	N/C		

6) JC_COM2 (COM2 DCD/RI Select Jumper 3*2 Pin 2.54mm)

Graphic	Setting	Function
	1-3, 2-4(Default)	COM2_PIN1: DCD COM2_PIN8: RI
	3-5, 4-6	COM2_PIN1: + 5V COM2_PIN8: + 12V

7) J_COM2/3/4/5/6 (COM2/3/4/5/6 Header 5*2 Pin 2.54mm)

Graphic	Pin	Definition	Pin	Definition
 J_COM2	1	COM2_PIN1 ^[1]	2	COM2_DSR
	3	COM2_RXD	4	COM2_RTS
	5	COM2_TXD	6	COM2_CTS
	7	COM2_DTR	8	COM2_PIN8 ^[1]
	9	GND		
 J_COM3	1	COM3_PIN1 ^{[2] [3]}	2	COM3_DSR
	3	COM3_PIN3 ^[3]	4	COM3_RTS
	5	COM3_PIN5 ^[3]	6	COM3_CTS
	7	COM3_PIN7 ^[3]	8	COM3_PIN8 ^{[2] [3]}
	9	GND		

 J COM4	1	COM4_PIN1 ^[4] ^[5]	2	COM4_DSR
	3	COM4_PIN3 ^[4]	4	COM4_RTS
	5	COM4_TXD	6	COM4_CTS
	7	COM4_DTR	8	COM4_PIN8 ^[5]
	9	GND		
 J COM5	1	COM5_PIN1 ^[6]	2	COM5_DSR
	3	COM5_RXD	4	COM5_RTS
	5	COM5_TXD	6	COM5_CTS
	7	COM5_DTR	8	COM5_PIN8 ^[6]
	9	GND		
 J COM6	1	COM6_PIN1 ^[7]	2	COM6_DSR
	3	COM6_RXD	4	COM6_RTS
	5	COM6_TXD	6	COM6_CTS
	7	COM6_DTR	8	COM6_PIN8 ^[7]
	9	GND		

Notes:

[1]: PIN1 of COM2 can be DCD (default) /5V and Pin8 of COM2 can be RI (Default) / 12V, selectable by “COM2 DCD/RI Select Jumper” . (JC_COM2, Location 6)

[2]: PIN1 of COM3 can be DCD (default) /5V and Pin8 of COM3 can be RI(Default) / 12V, selectable by “COM3 DCD/RI Select Jumper” . (JC_COM3, Location 8)

[3]: COM3 can be RS232 (default) / RS422 / RS485 by selecting JR_COM3, JD_COM3, JM_COM3 Jumper, check Location 16/19/20 for detail.

[4]: COM4 can be RS232 (default) / RS485 selecting by “COM4 RS232/RS485 Select Jumper” . (JM_COM4, Location 11).

[5]: PIN1 of COM4 can be DCD (default) /5V and Pin8 of COM4 can be RI(Default) / 12V, selectable by “COM4 DCD/RI Select Jumper” . (JC_COM4, Location 12)

[6]: PIN1 of COM5 can be DCD (default) /5V and Pin8 of COM5 can be RI(Default) / 12V, selectable by “COM5 DCD/RI Select Jumper” . (JC_COM5, Location 13)

[7]: PIN1 of COM6 can be DCD (default) /5V and Pin8 of COM6 can be RI(Default) / 12V, selectable by “COM6 DCD/RI Select Jumper” . (JC_COM6, Location 14)

8) JC_COM3 (COM3 DCD/RI Select Jumper 3*2 Pin 2.54mm)

Graphic	Setting	Function
	1-3, 2-4(Default)	COM3_PIN1:DCD COM3_PIN8: RI
	3-5, 4-6	COM3_PIN1:+5V COM3_PIN8: +12V

9) J_COPEN1 (Case Open Header 2*1 Pin 2.54mm)

Graphic	Setting	Function
	1-2: Connected	Active Case Open
	1-2: Open	Normal

10) J_DBG1 (Port80 Debug Header 9*1 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	LFRAME	6	GND
	2	LAD3	7	RST
	3	LAD2	8	CLK
	4	LAD1	9	+ 3.3V
	5	LAD0		

11) JM_COM4 (COM4 RS232/RS485 Select Jumper 3*2 Pin 2.54mm)

Graphic	Setting	Function
	1-3, 2-4(Default)	RS232 (COM4_PIN1: DCD COM4_PIN3: RXD)
	3-5, 4-6	RS485 (COM4_PIN1: RS485- COM4_PIN3: RS485+)

**12) JC_COM4 (COM4 DCD/RI Select Jumper 3*2 Pin 2.54 mm)**

Graphic	Setting	Function
	1-3, 2-4(Default)	COM4_PIN1:DCD COM4_PIN8: RI
	3-5, 4-6	COM4_PIN1:+5V COM4_PIN8: + 12V

13) JC_COM5 (COM5 DCD/RI Select Jumper 3*2 Pin 2.54 mm)

Graphic	Setting	Function
	1-3, 2-4(Default)	COM5_PIN1: DCD COM5_PIN8: RI
	3-5, 4-6	COM5_PIN1:+5V COM5_PIN8: + 12V

14) JC_COM6 (COM6 DCD/RI Select Jumper 3*2 Pin 2.54 mm)

Graphic	Setting	Function
	1-3, 2-4(Default)	COM6_PIN1:DCD COM6_PIN8: RI
	3-5, 4-6	COM6_PIN1:+5V COM6_PIN8: + 12V

15)J_SMB1 (SMBUS Header 4*1 Pin 1.25mm)

Graphic	Pin	Definition	Pin	Definition
	1	+ 3.3V	3	SMB_SCL
	2	SMB_SDA	4	GND



16) 19)20) JM/JD/JR_COM3 (COM3 RS232/422/485 Select Jumpers 3*2 Pin 2.54mm)

Graphic	Setting	Function
 JR_COM3	JR_COM3 (1-2, Default) JD_COM3 (1-3, 2-4, Default) JM_COM3 (1-3, 2-4, Default)	COM3: RS232 (COM3_PIN1: DCD COM3_PIN3: RXD COM3_PIN5: TXD COM3_PIN7: DTR)
 JD_COM3	JR_COM3 (5-6) JD_COM3 (3-5, 4-6) JM_COM3 (3-5, 4-6)	COM3: RS422 (COM3_PIN1: RS422_TX- COM3_PIN3: RS422_TX+ COM3_PIN5: RS422_RX- COM3_PIN7: RS422_RX+)
 JM_COM3	JR_COM3 (3-4) JD_COM3 (3-5, 4-6) JM_COM3 (No Effect)	COM3: RS485 (COM3_PIN1: RS485- COM3_PIN3: RS485+)

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

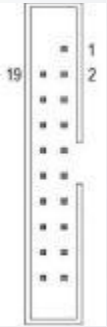
Graphic	Setting	Function
	1-2 (Default)	Normal
	2-3	Clear CMOS

18) J_ATCFG1 (AT or ATX Select Jumper 3*1 Pin 2.54mm)

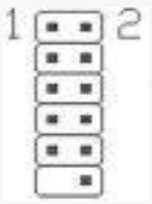
Graphic	Setting	Function
	1-2 (Default)	ATX Mode
	2-3	AT Mode



21) F_USB3_1^[1] (Front USB3.0 Header 10*2 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
			1	+ 5V
	19	+ 5V	2	USB3_RXD5-
	18	USB3_RXD6-	3	USB3_RXD5+
	17	USB3_RXD6+	4	GND
	16	GND	5	USB3_TXD5-
	15	USB3_TXD6-	6	USB3_TXD5+
	14	USB3_TXD6+	7	GND
	13	GND	8	USB2_13-
	12	USB2_14-	9	USB2_13+
	11	USB2_14+	10	N/C

22) J_GPIO1 (GPIO Header 6*2 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	SIO_GPI80 (0xA07 Bit0, H [1])	2	SIO_GPI81 (0xA07 Bit1, H)
	3	SIO_GPI82 (0xA07 Bit2, H)	4	SIO_GPI83 (0xA07 Bit3, H)
	5	GND	6	SIO_GPO84 (0xA07 Bit4, H)
	7	SIO_GPO85 (0xA07 Bit5, H)	8	SIO_GPO86 (0xA07 Bit6, H)
	9	SIO_GPO87 (0xA07 Bit7, H)	10	+ 5V [2]
			12	N/C

Notes:

[1]: " H" or "L" means the default voltage is High or Low level.

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



23) CPU_FAN1 (CPU FAN Header 4*1 Pin 2.54mm)

Graphic	Pin	Definition	Pin	Definition
	1	GND	3	FAN Speed Detection1
	2	+ 12V	4	FAN Speed Control1

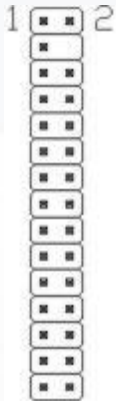
24) J1 (EDP Backlight Control Header 6*1 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	GND	4	EDP_BKL_EN
	2	GND	5	+ 12V
	3	EDP_BKL_CTL	6	+ 12V

25) J_EDP_PWR1 (EDP VDD Select Jumper 3*1 Pin 2.54mm)

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

26) J_EDP1 (EDP Signal Header 15*2 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	VDD_PANEL ^[1]	2	VDD_PANEL ^[1]
	3	VDD_PANEL ^[1]		
	5	HPD_DPD	6	GND
	7	N/C	8	N/C
	9	N/C	10	N/C
	11	N/C	12	N/C
	13	GND	14	GND

	15	N/C	16	N/C
	17	EDP_TX3-	18	EDP_TX3+
	19	EDP_TX0-	20	EDP_TX0+
	21	EDP_TX1-	22	EDP_TX1+
	23	EDP_TX2-	24	EDP_TX2+
	25	GND	26	GND

Notes:

[1]: Panel Power VDD can be 3.3V (default) /5V selectable by “ EDP VDD Select Jumper” (J_EDP_PWR1, Location 25)

27) J_VGA1 (VGA Signal Header 12*1 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	GND	7	CRT_G
	2	CRT_VS	8	GND
	3	CRT_HS	9	CRT_B
	4	GND	10	GND
	5	CRT_R	11	CRT_SDA
	6	GND	12	CRT_SCL

28) JC_COM1 (COM1 DCD/RI Select Jumper 3*2 Pin 2.54mm)

Graphic	Setting	Function
	1-3, 2-4(Default)	COM1_PIN1: DCD COM1_PIN9: RI
	3-5, 4-6	COM1_PIN1: + 5V COM1_PIN9: + 12V

29) F_AUDIO1 (Front Audio Header (Line-Out + MIC) 5*2 Pin 2.54mm)

Graphic	Pin	Definition	Pin	Definition
	1	MIC_IN2_L	2	GND
	3	MIC_IN2_R	4	+ 3.3V
	5	LINE_OUT2_R	6	MIC2_RET
	7	GND		
	9	LINE_OUT2_L	10	LINE_OUT2_RET



30) PCI_CLK1 (PCI CLK 66MHz/33MHz Select Jumper 3*1 Pin 2.54mm)

Graphic	Setting	Function
	1-2 (Default)	PCI CLK is 66MHz
	2-3	PCI CLK is 33MHz

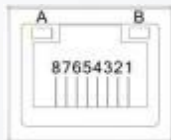
49) COM1 (COM1 DB9/M Connector)

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

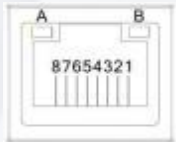
Notes:

[1]: PIN1 of COM1 can be DCD (default) /5V and Pin9 of COM1 can be RI(Default) / 12V, selectable by "COM1 DCD/RI Select Jumper" . (JC_COM1, Location 28)

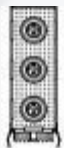
50) RJ45_USB2(RJ45) (LAN2 RJ45 Connector 8Pin)

Graphic	Pin	Definition		Pin	Definition	
	1	MDI0_2+		5	MDI2_2-	
	2	MDI0_2-		6	MDI1_2-	
	3	MDI1_2+		7	MDI3_2+	
	4	MDI2_2+		8	MDI3_2-	
	A	Speed LED	1000M: Turn Orange	B	Active LED	ACT: Twinkling Yellow
			100M: Turn Green			Only LINK: Lights On
			10M: Lights Off			Stop: Lights Off

51) RJ45_USB1(RJ45) (LAN1 RJ45 Connector 8Pin)

Graphic	Pin	Definition		Pin	Definition	
	1	MDI0_1+		5	MDI2_1-	
	2	MDI0_1-		6	MDI1_1-	
	3	MDI1_1+		7	MDI3_1+	
	4	MDI2_1+		8	MDI3_1-	
	A	Speed LED	1000M: Turn Orange 100M: Turn Green 10M: Lights Off	B	Active LED	ACT: Twinkling Yellow Only LINK: Lights On Stop: Lights Off

57) AUDIO1 (Line-Out + MIC + Line-In 3.5mm Jack)

Graphic	Setting	Function
	Blue	Line-In
	Green	Line-Out
	Pink	MIC-In

[END]