SYS86355VGGA-6C   User Manual

Revision: 1.0

Release date: April 27, 2020

Trademark:

Environmental Protection Announcement

Do not dispose this electronic device into the trash while discarding. To minimize pollution and ensure environment protection of mother earth, please recycle.

TABLE OF CONTENT

⚠️ CAUTION Environmental Safety Instruction

- Avoid the dusty, humidity and temperature extremes. Do not place the product in any area where it may become wet.

- 0 to 60 centigrade is the suitable temperature. (The figure comes from the request of the main chipset)

- Generally speaking, dramatic changes in temperature may lead to contact malfunction and crackles due to constant thermal expansion and contraction from the welding spots' that connect components and PCB.　Computer should go through an adaptive phase before it boots when it is moved from a cold environment to a warmer one to avoid condensation phenomenon. These water drops attached on PCB or the surface of the components can bring about phenomena as minor as computer instability resulted from corrosion and oxidation from components and PCB or as major as short circuit that can burn the components. Suggest starting the computer until the temperature goes up.

- The increasing temperature of the capacitor may decrease the life of computer. Using the close case may decrease the life of other device because the higher temperature in the inner of the case.

- Attention to the heat sink when you over-clocking. The higher temperature may decrease the life of the device and burned the capacitor.

USER'S NOTICE

Manual Revision Information

Reversion	Revision History	Date
4.0	Fourth Edition	April 27, 2020

Item Checklist

- ☑ Motherboard
- ☑ Cable(s)
- ☑ I/O Back panel shield
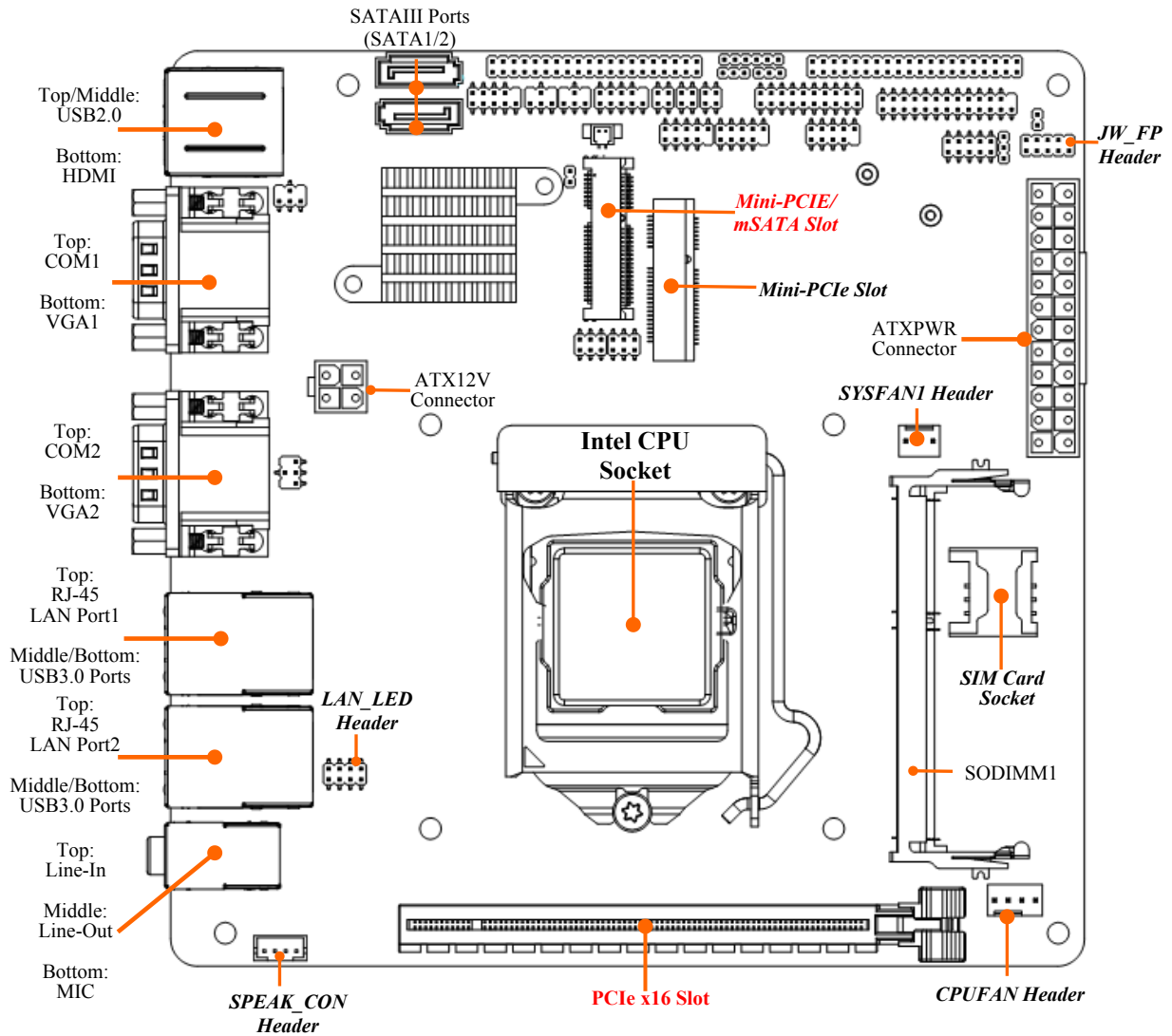
Chapter 1
Introduction of the Motherboard

1-1　Product Features

- Intel® LGA 1150 Socket Core i7/i5/i3/Pentium Processor

- Support 2 x DDR3 /DDR3L 1600/1333Mhz SO-DIMM up to 16GB

- 2 x Intel® i211AT Gigabit Ethernet

- 4 x USB3.0 (PCI-E to USB3.0), 8 x USB2.0

- 2 x SATA Ports, 1 x PCI-Ex16 Slot

- 1 x M-SATA (Co-lay Mini PCIe, Full size), 2 x Mini PCIe connector(Full size)

- 6 x RS232 serial port (COM1/COM2 support RS232/422/485)

- 2 x CRT Ports (CRT2 support Dummy load function)

- Support SIM Card Socket, TPM Header

- 4 Phase CPU Power Support 84W CPU

- Integrated HD Audio CODEC with 6.0 CH

1-2 Specification

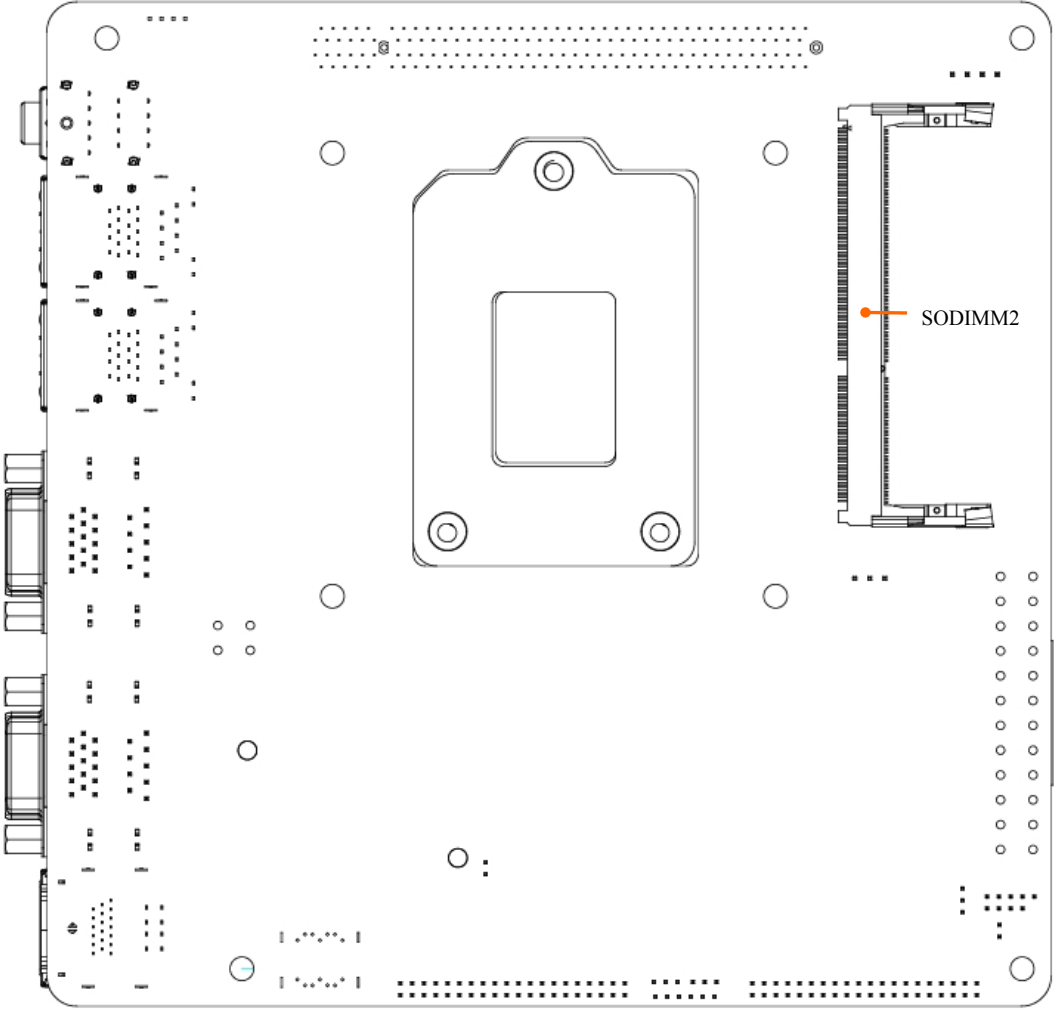| Spec	Description
CPU	● Intel® LGA 1150 Socket Core i7/i5/i3/Pentium Processor
Memory	● 2* DDR3/DDR3L 1600/1333MHz SO-DIMM slot up to 16GB
Expansion Slot	● 2* Full-size Mini PCIe slot (MINI_CARD Co-lay MSATA) ● 1 * PCIex16 Slot ● 1* SIM Card socket
Storage	● 2* SATA III 6G/s Connector ● 1* Full-size mSATA (MINI_CARD Co-lay mini-PCIE)
LAN Chip	● 2* Intel® i211AT GbE ● Support Fast Ethernet LAN function of providing 10/100/1000Mbps Ethernet data transfer rate
Audio Chip	● Realtek ALC662 HD Audio Codec integrated ● Audio driver and utility included
BIOS	● AMI 32MB Flash ROM
Rear I/O	● 1 * HDMI ● 2 * VGA ● 2* RS 232/422/485 serial ports (COM1/2) ● 2* RJ45, 10/100/1000 Mbps ● 4* USB3.0 & 2* USB2.0 ports ● 1* MIC, Line-in, Line-out port
Internal I/O	● 1* Front panel header ● 1* PS/2 header ● 6* USB 2.0 header ● 4* RS 232 Serial port header ● 1* TPM header ● 1* 8-bit GPIO (4* In and 4* Out) ● 1* SPEAK_CON amplifier header ● 1* LAN LED header ● 1* AT_ATX Mode header ● 1* CPU / Chassis Fan connectors

1-3 Main Board Diagram: Front
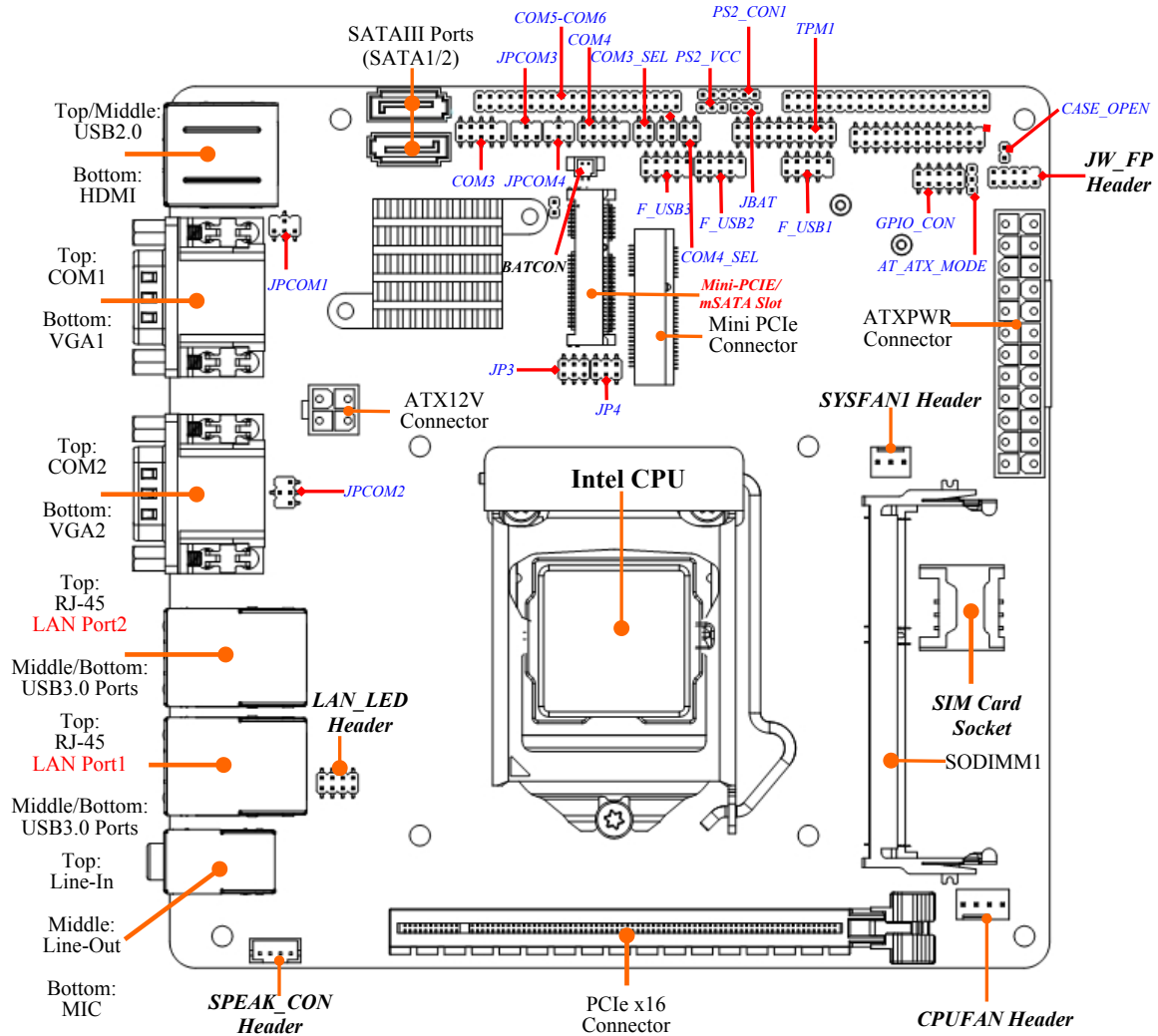
SATAIII Ports
(SATA1/2)

Top/Middle:
USB2.0

Bottom:
HDMI

Top:
COM1

Bottom:
VGA1

Top:
COM2

Bottom:
VGA2

Top:
RJ-45
LAN Port1

Middle/Bottom:
USB3.0 Ports

Top:
RJ-45
LAN Port2

Middle/Bottom:
USB3.0 Ports

Top:
Line-In

Middle:
Line-Out

Bottom:
MIC

JW_FP
Header

Mini-PCIE/
mSATA Slot

Mini-PCIe Slot

ATXPWR
Connector

ATX12V
Connector

SYSFAN1 Header

**Intel CPU
Socket**

*SIM Card
Socket*

SODIMM1

LAN_LED
Header

SPEAK_CON
Header

PCIe x16 Slot

CPUFAN Header

3

Main Board Diagram: Back

SODIMM2

Chapter 2
Hardware Installation
2-1 Location of Internal Jumper and Connector

SATAIII Ports
(SATA1/2)

COM5-COM6
COM4
JPCOM3   COM3_SEL   PS2_VCC

PS2_CON1
TPM1

Top/Middle:
USB2.0

Bottom:
HDMI

CASE_OPEN

JW_FP
Header

COM3   JPCOM4

F_USB3

JBAT

F_USB2   F_USB1

GPIO_CON

AT_ATX_MODE

BATCON

COM4_SEL

Mini-PCIE/
mSATA Slot

Mini PCIe
Connector

ATXPWR
Connector

Top:
COM1

Bottom:
VGA1

JPCOM1

JP3

JP4

Intel CPU

SYSFAN1 Header

Top:
COM2

Bottom:
VGA2

JPCOM2

ATX12V
Connector

Top:
RJ-45
LAN Port2

Middle/Bottom:
USB3.0 Ports

Top:
RJ-45
LAN Port1

Middle/Bottom:
USB3.0 Ports

Top:
Line-In

Middle:
Line-Out

Bottom:
MIC

LAN_LED
Header

SIM Card
Socket

SODIMM1

SPEAK_CON
Header

PCIe x16
Connector

CPUFAN Header

2-2 Internal Jumper and Connector Setting

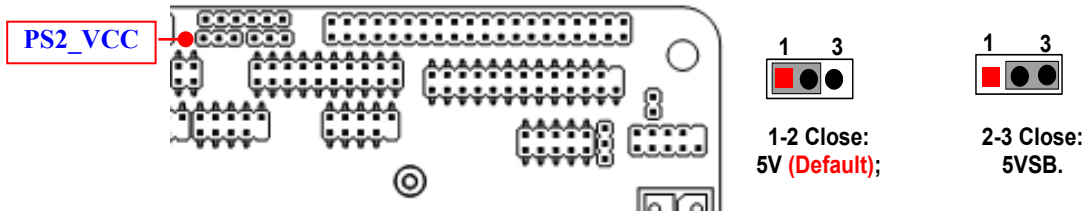## *(1) JPCOM1/3/4 (4-pin): COM1/3/4 Port Pin9 Function Select*

5 3 1
6 4 2
2-4 Closed:
RING (Default);

5 3 1
6 4 2
3-4 Closed:
5V;

5 3 1
6 4 2
4-6 Closed:
12V.
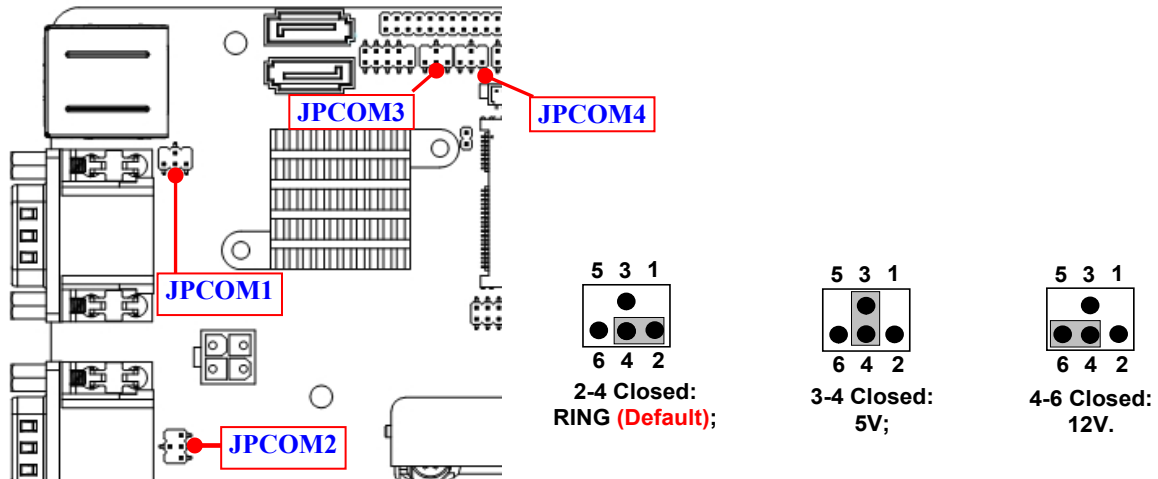
(2) JPCOM2 (4-pin): COM2 Port Pin9 Function Select

1 2
3 4
5 6
2-4 Closed:
RING (Default);

1 2
3 4
5 6
3-4 Closed:
5V;

1 2
3 4
5 6
4-6 Closed:
12V.
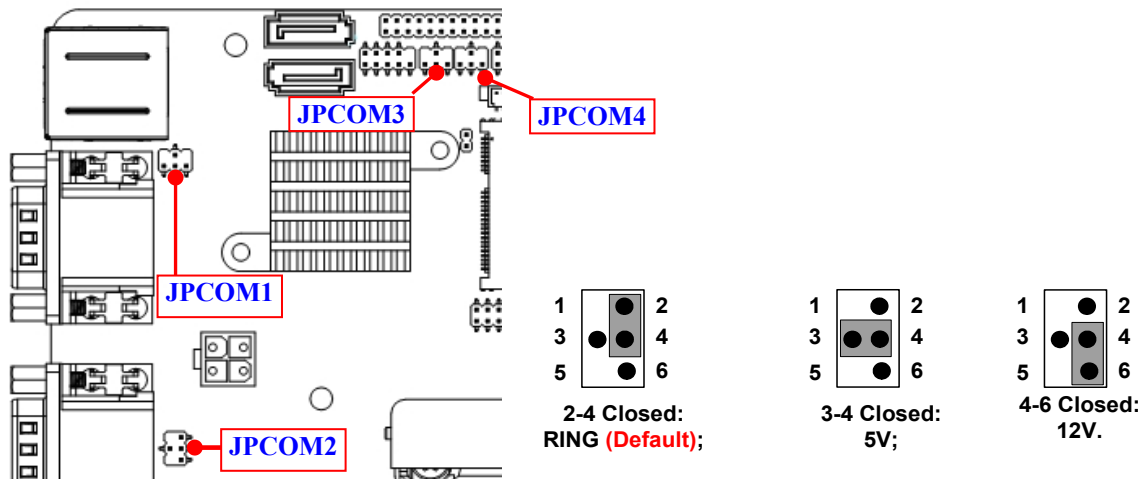
(3) PS2_VCC (3-pin): PS2_CON1 VCC 5V/5VSB Select

PS2_VCC →

```
1    3          1    3
```

1-2 Close: **2-3 Close:**
5V (Default);   **5VSB.**

(4) JBAT (3-pin): Clear CMOS Setting

JBAT

```
1    3          1    3
```

1-2 Close: **2-3 Close:**
5V (Default);   **5VSB.**
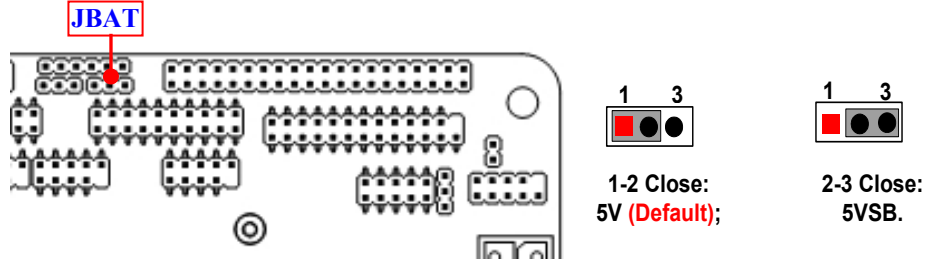
(5) AT_ATX_MODE (3-pin): AT_ATX_MODE Select

1-2 Close:
5V (Default);

2-3 Close:
5VSB.
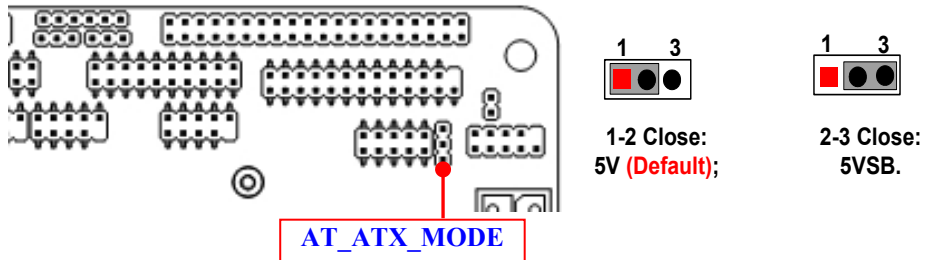
AT_ATX_MODE

ATX Mode Selected: Press power button to power on after power input ready;
AT Mode Selected: Directly power on as power input ready.

## (6) CASE_OPEN (2-pin): Case Open Message Display Function Select

CASE_OPEN

1-2 Open：
Normal (Default);
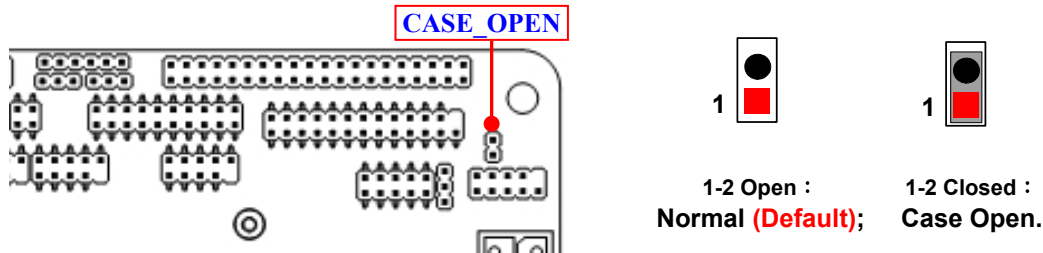
1-2 Closed：
Case Open.

Pin (1-2) Close: When Case Open function pin short to GND, the Case Open function was detected. When Used, needs to enter BIOS and enable 'Case Open Detect' function. In this case if your case is removed, next time when you restart your computer, a message will be displayed on screen to inform you of this.
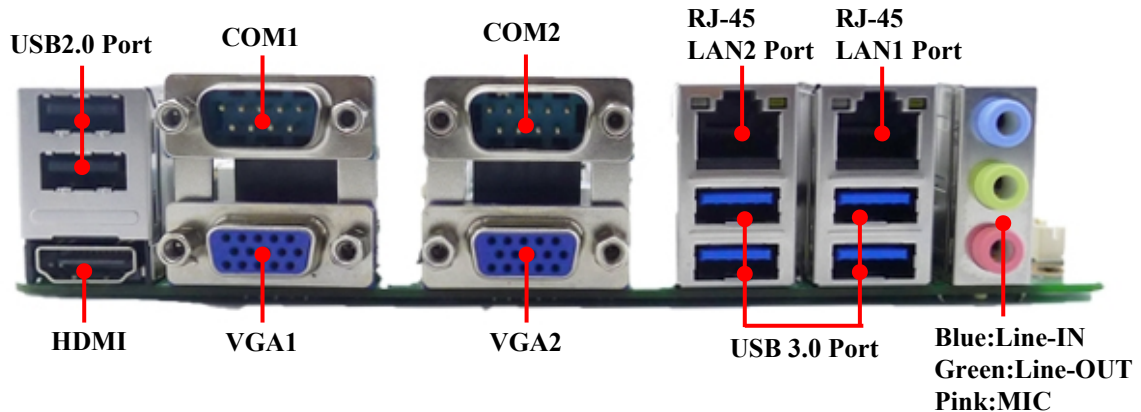
JP3 (6-pin) &JP4 (6-pin): MINI_CARD Slot Mini-PCIE/MSATA Function Select

JP3&JP4→MINI_CARD Function Select

(1-3) & (2-4) Closed: MINI_CARD functions as MSATA interface.

(3-5) & (4-6) Closed: MINI_CARD functions as Mini-PCIE Slot.
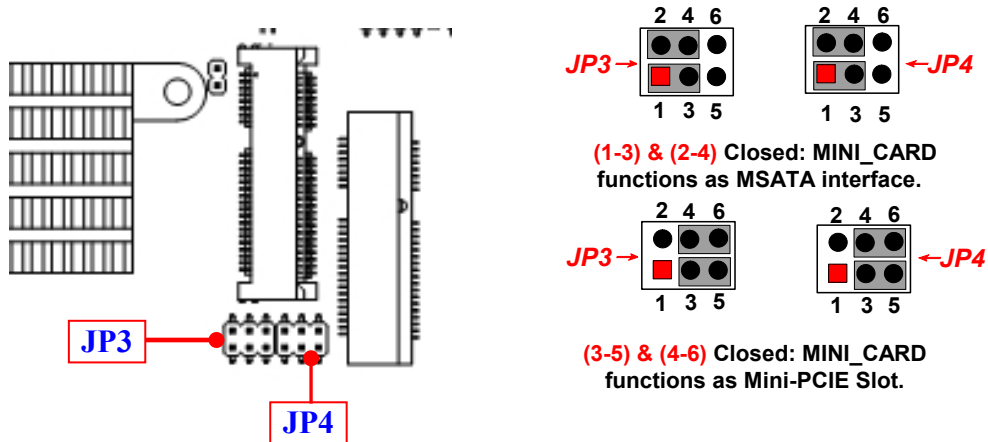
2-2-1 Connectors

(1) Rear I/O Connectors

| Icon	Name	Function
	USB 2.0 Port	To connect USB keyboard, mouse or other devices compatible with USB specification.
	HDMI Port	To connect display device that support HDMI specification.
	RS232/422/485 COM Port	Mainly for user to connect external MODEM or other devices that supports Serial Communications Interface.
	VGA Port	To connect display device that support VGA specification.
	RJ-45 LAN Port	This connector is standard RJ-45 LAN jack for Network connection.
	USB 3.0 Port	To connect USB keyboard, mouse or other devices compatible with USB specification. USB 3.0 ports supports up to 5Gbps data transfer rate.
	Audio Connectors	**BLUE :** Line-in Connector **GREEN :** Line-out Connector **PINK :** MIC Connector

COM1/COM2 (9-pin Block): RS232/422/485 Serial Port

RS422 RX(B) — 4
RS422 RX(A) — 3
RS422 TX(A) — 2
RS422 TX(B) — 1

For RS422 Mode

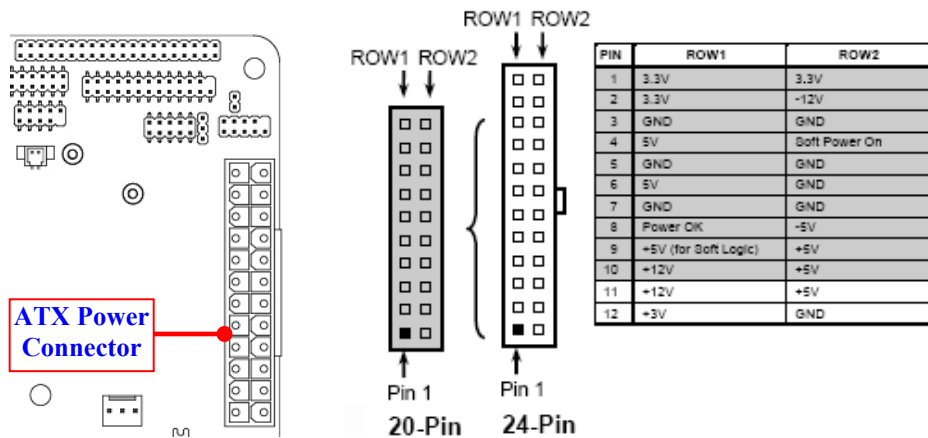RS485 D+(A) — 2
RS485 D-(B) — 1
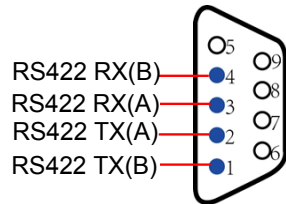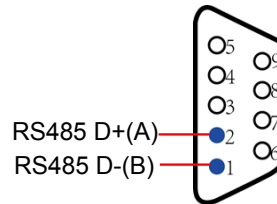
For RS485 Mode

COM1/COM2 port can function as RS232/422/485 serial port. In normal settings COM1/2 functions as RS232 port. With compatible COM cable COM1/2 can function as RS422 or RS 485 port.

User also needs to go to BIOS to set '**Transmission Mode Select**' for COM1/ COM2 (refer to Page 26) at first, before using specialized cable to connect different pins of this port.
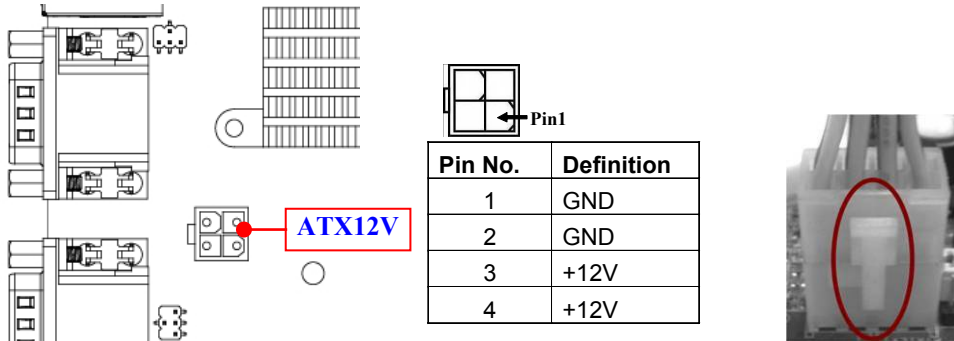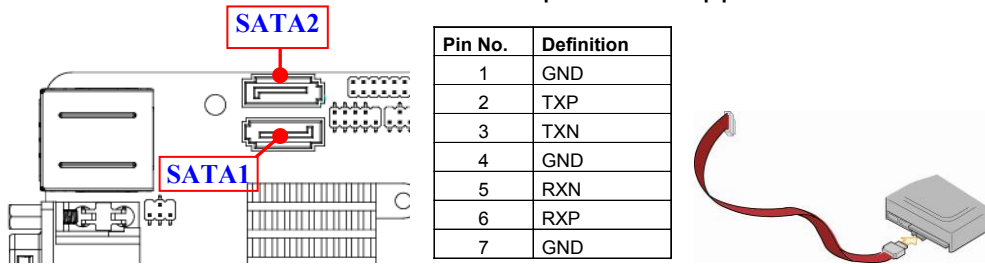
ATXPWR (24-pin block): Main Power Connector

PIN	ROW1	ROW2
1	3.3V	3.3V
2	3.3V	-12V
3	GND	GND
4	5V	Soft Power On
5	GND	GND
6	5V	GND
7	GND	GND
8	Power OK	-5V
9	+5V (for Soft Logic)	+5V
10	+12V	+5V
11	+12V	+5V
12	+3V	GND

ATX Power Connector

Pin 1 — 20-Pin
Pin 1 — 24-Pin

ATX12V (4-pin block): ATX12V Type Power Connector

Pin No.	Definition
1	GND
2	GND
3	+12V
4	+12V

Pin1

ATX12V
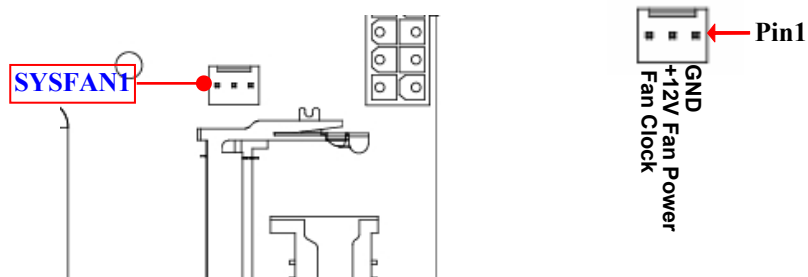
SATA1/2 (7-pin Block): SATAIII Port connector
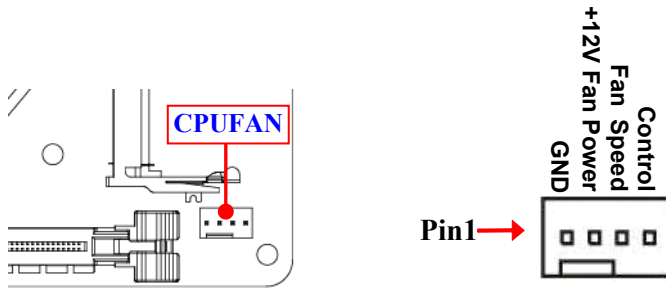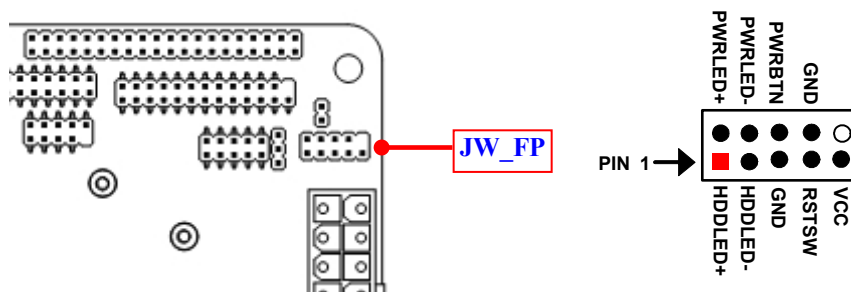The board comes with SATA1 & SATA2 port that supports 6GB/s transfer rate.

SATA2

SATA1

Pin No.	Definition
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND

SYSFAN1 (3-pin): System Fan Header

SYSFAN1

Pin1

GND
+12V Fan Power
Fan Clock

CPUFAN (4-pin): CPUFAN Header

Control
Fan Speed
+12V Fan Power
GND

Pin1 →

2-2-2 Headers

(1) JW_FP (9-pin): Front Panel Header

JW_FP

PIN 1 →

PWRLED+
PWRLED-
PWRBTN
GND
VCC
RSTSW
GND
HDDLED-
HDDLED+

(2) PS2_CON1 (6-pin): PS/2 Keyboard & Mouse Header

PS2_CON1

KB CLK
GND
KB_DATA
MS_DATA
VCC
MS CLK

Pin1 →
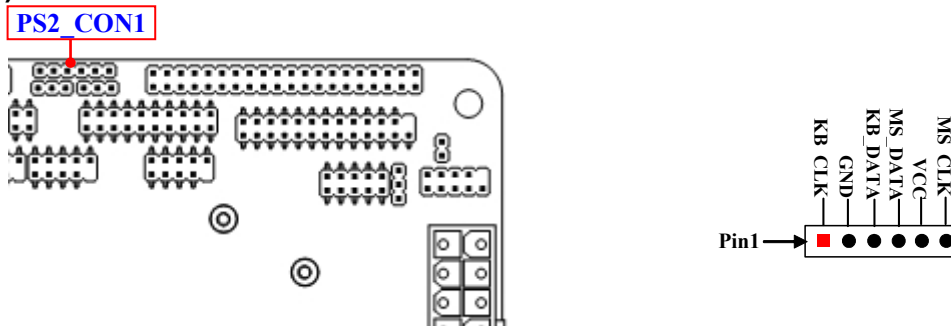
(3) LAN_LED (8-pin): LANLED Header

LAN2_100- LAN1_100- 3VSB
3VSB   3VSB   3VSB ← Pin1

LAN2_1G-   LAN1_1G-   LAN1_ACT-
LAN2_ACT- LAN2_ACT-

5

LAN_LED
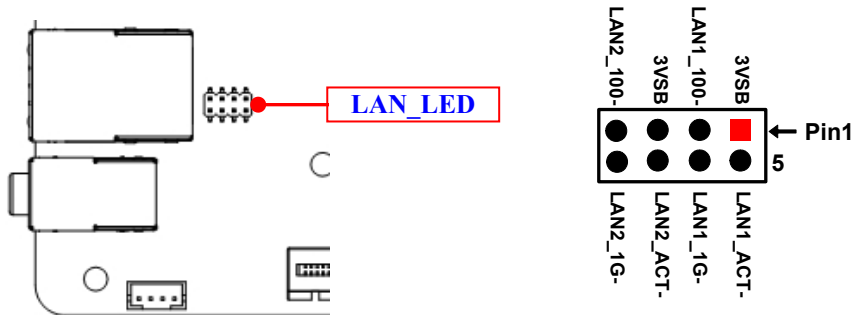
(4) SPEAK_CON (4-pin): 3W Amplifier Header

Pin1

SPEAK_CON

Pin No.	Definition
1	L-
2	L+
3	R+
4	R-
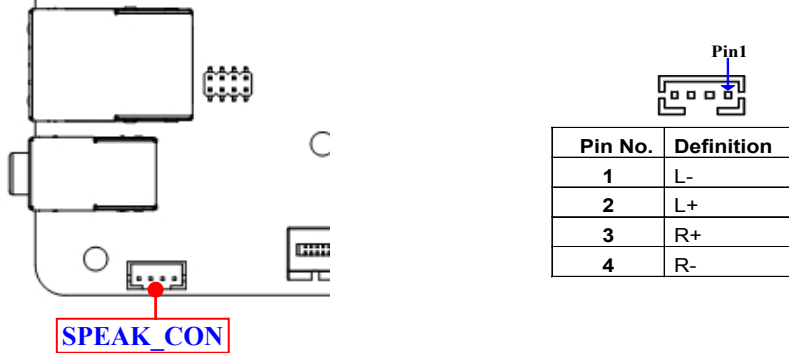
(5) F_USB1/2/3 (9-pin): USB 2.0 Port Header

FP_USB1

FP_USB2

FP_USB3

-DATA GND NC
+DATA VCC
VCC

Pin 1 →

VCC   GND
-DATA +DATA
+DATA -DATA
VCC
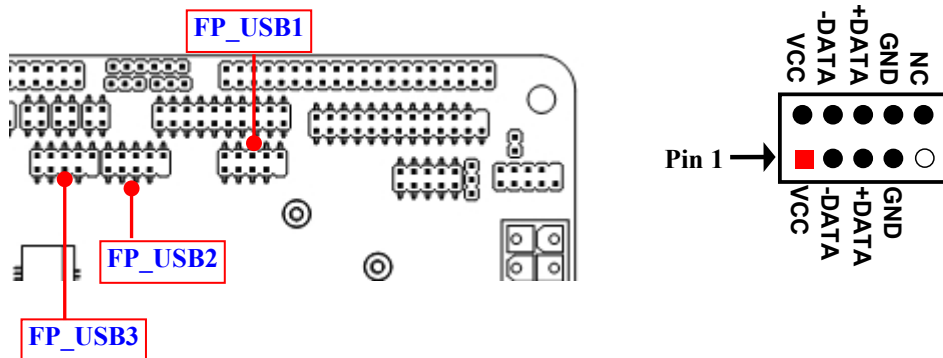
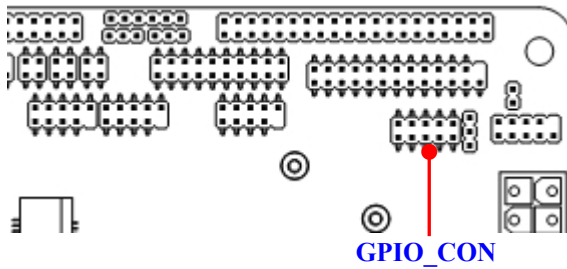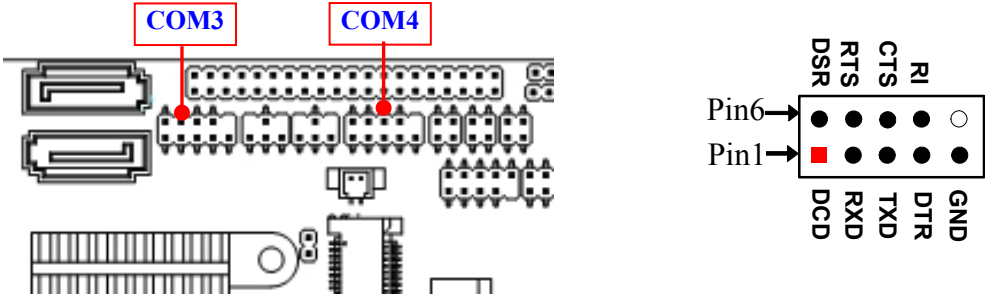## (6) TPM1 (20-pin): TPM Header
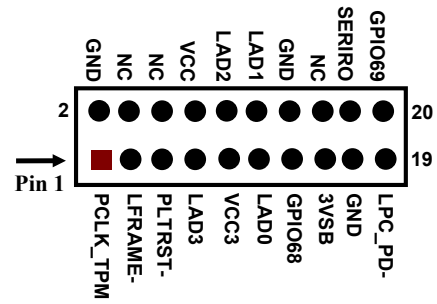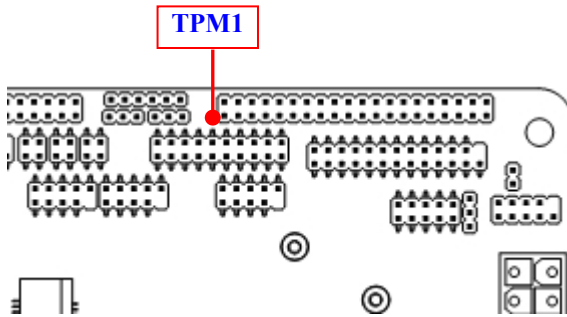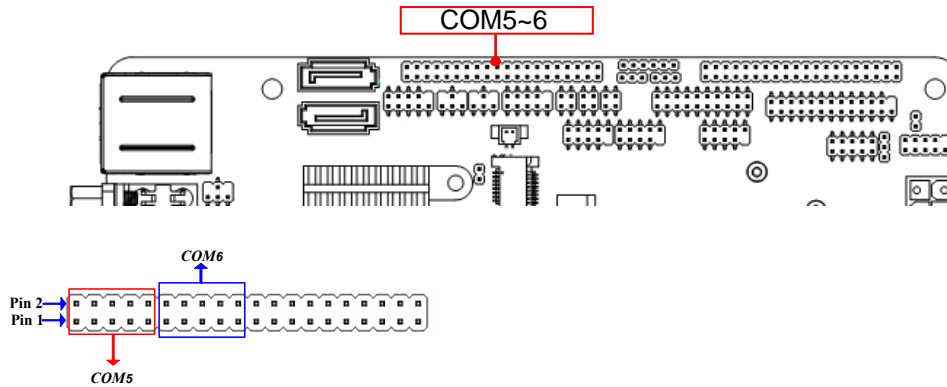

(7) GPIO_CON (10-pin): 8-bit GPIO Header
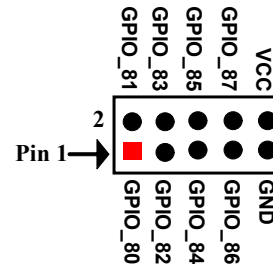
(8) COM3/4 (9-Pin): RS232 Serial Port Header

(9)   COM5-COM6 (20-Pin): RS232 Serial Port Header Block

COM5-COM8	Pin NO.	RS232	Pin NO.	RS232
COM5	*Pin 1*	*DCD5*	*Pin 2*	*DSR5*
	Pin3	SIN5	Pin 4	RTS5
	Pin 5	SOUT5	Pin 6	CTS5
	Pin 7	DTR5	Pin 8	RI5
	Pin 9	GND	Pin 10	NC
COM6	*Pin 11*	*DCD6*	*Pin 12*	*DSR6*
	Pin 13	SIN6	Pin 14	RTS6
	Pin 15	SOUT6	Pin 16	CTS6
	Pin 17	DTR6	Pin 18	RI6
	Pin 19	GND	Pin 20	NC