DFI®

Q7X-151

Qseven Carrier Board
User's Manual

A32510511

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FCC and DOC Statement on Class B

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

• Reorient or relocate the receiving antenna.
• Increase the separation between the equipment and the receiver.
• Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
• Consult the dealer or an experienced radio TV technician for help.

Notice:

1. The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
2. Shielded interface cables must be used in order to comply with the emission limits.

Table of Contents

About this Manual

An electronic file of this manual is included in the CD. To view the user's manual in the CD, insert the CD into a CD-ROM drive. The autorun screen (Main Board Utility CD) will appear. Click "User's Manual" on the main menu.

Warranty

1. Warranty does not cover damages or failures that arised from misuse of the product, inability to use the product, unauthorized replacement or alteration of components and product specifications.

2. The warranty is void if the product has been subjected to physical abuse, improper installation, modification, accidents or unauthorized repair of the product.

3. Unless otherwise instructed in this user's manual, the user may not, under any circumstances, attempt to perform service, adjustments or repairs on the product, whether in or out of warranty. It must be returned to the purchase point, factory or authorized service agency for all such work.

4. We will not be liable for any indirect, special, incidental or consequencial damages to the product that has been modified or altered.

Static Electricity Precautions

It is quite easy to inadvertently damage your PC, system board, components or devices even before installing them in your system unit. Static electrical discharge can damage computer components without causing any signs of physical damage. You must take extra care in handling them to ensure against electrostatic build-up.

1. To prevent electrostatic build-up, leave the system board in its anti-static bag until you are ready to install it.

2. Wear an antistatic wrist strap.

3. Do all preparation work on a static-free surface.

4. Hold the device only by its edges. Be careful not to touch any of the components, contacts or connections.

5. Avoid touching the pins or contacts on all modules and connectors. Hold modules or connectors by their ends.

> **Important:**
> Electrostatic discharge (ESD) can damage your processor, disk drive and other components. Perform the upgrade instruction procedures described at an ESD workstation only. If such a station is not available, you can provide some ESD protection by wearing an antistatic wrist strap and attaching it to a metal part of the system chassis. If a wrist strap is unavailable, establish and maintain contact with the system chassis throughout any procedures requiring ESD protection.

Safety Measures

To avoid damage to the system:
• Use the correct AC input voltage range.

To reduce the risk of electric shock:
• Unplug the power cord before removing the system chassis cover for installation or servicing. After installation or servicing, cover the system chassis before plugging the power cord.

About the Package

The package contains the following items. If any of these items are missing or damaged, please contact your dealer or sales representative for assistance.

- One Q7X-151 board
- One Serial ATA data with power cable
- One I/O shield
- One DVD
- One QR (Quick Reference)

Optional Items

- USB port cable
- I/O shield
- Power adapter (100W, 12V)

The board and accessories in the package may not come similar to the information listed above. This may differ in accordance with the sales region or models in which it was sold. For more information about the standard package in your region, please contact your dealer or sales representative.

Before Using the System Board

Before using the system board, prepare basic system components.

If you are installing the system board in a new system, you will need at least the following internal components.

- A CPU
- Memory module
- Storage devices such as hard disk drive, CD-ROM, etc.

You will also need external system peripherals you intend to use which will normally include at least a keyboard, a mouse and a video display monitor.

Chapter 1 - Introduction

Specifications (For BT700/BT701 Only)

| Graphics	• Display ports
	  - 1 dual channel LVDS
	  - 1 DP port

Audio	• Realtek ALC886 5.1-channel High Definition Audio • Audio outputs: Mic-in/Center+Subwoofer, Line-in/Surround and Line-out
USB	• 1 USB 3.0 and 6 USB 2.0 ports
Storage	• 1 SATA 3.0 port with data transfer rate up to 6Gb/s - SATA port provides adequate space for SATA DOM • 1 mSATA port
Rear Panel IO Ports	• 1 12V DC-in jack • 2 DB-9 RS232 serial ports • 1 DP port • 1 RJ45 LAN port • 1 USB 3.0 port • 2 USB 2.0 type A ports • Mic-in/Center+Subwoofer, Line-in/Surround and Line-out jacks
I/O Connectors	• 1 connector for 2 external USB 2.0/1.1 ports • 2 UART ports - 1 supports TX/RX signal only (UART 2) • 1 LVDS LCD panel connector • 1 LCD/inverter power connector • 1 Serial ATA connector • 1 Serial ATA power connector • 1 mSATA port • 1 LPC connector • 1 I^{2}C connector • 1 SMBus connector • 1 CAN-bus connector • 1 front panel connector • 3 fan connectors

Expansion Slots	• 1 PCIe x4 slot • 1 SDIO socket
WatchDog Timer	• Watchdog timeout programmable via software from 1 to 255 seconds
Damage Free Intelligence	• Monitors system temperature and overheat alarm • Monitors system fan speed and failure alarm
ROM Interface	• 1 SPI interface - Supports up to 64Mbit
Temperature	• Operating: 0°C to 60°C • Storage: -20°C to 85°C
Humidity	• 5% to 90%
Board to Board Connector	• One MXM connector
Dimensions	• Mini-ITX form factor • 170mm (6.7") x 170mm (6.7")

Chapter 2 - Hardware Installation

Board Layout
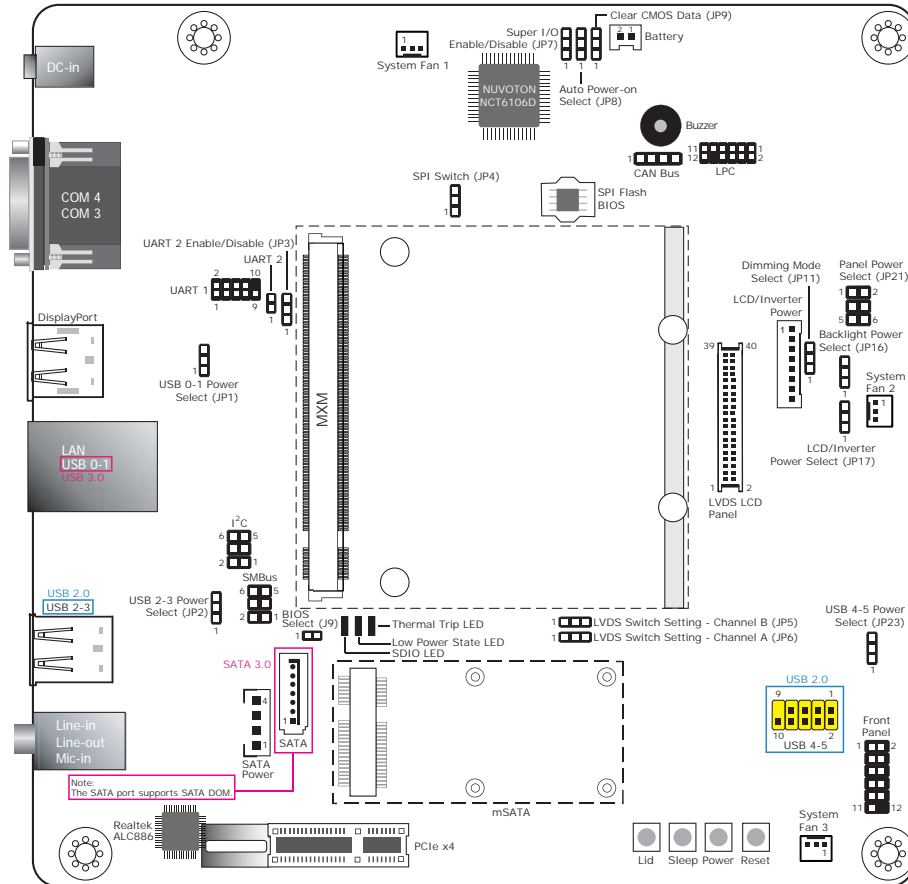
Block Diagram
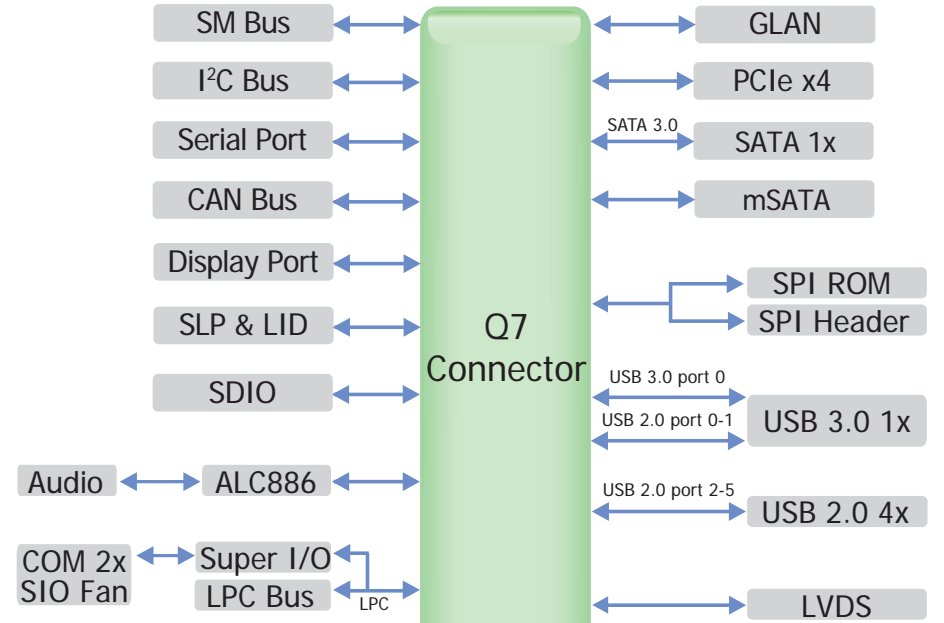
Mechanical Diagram
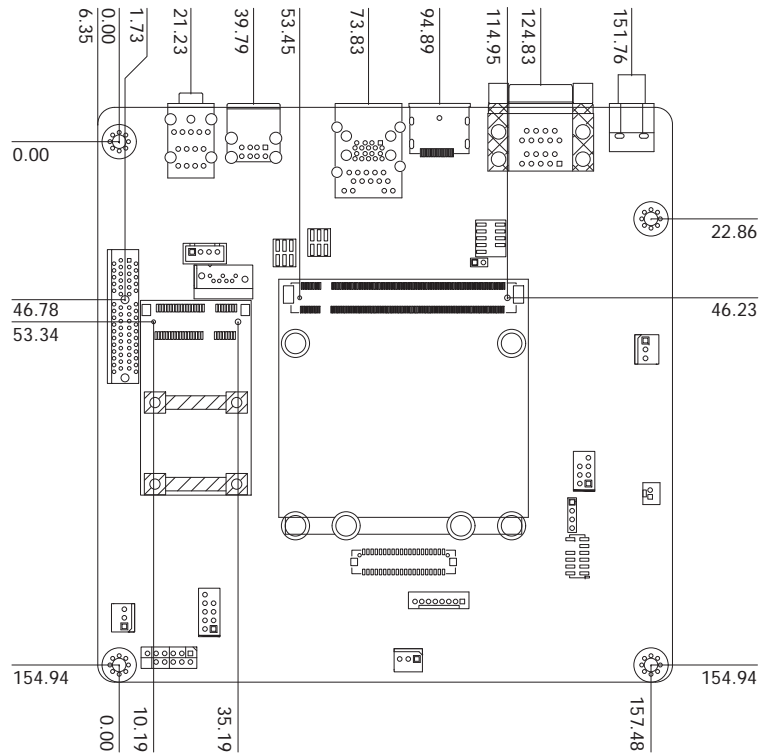
Jumper Settings

Clear CMOS Data

JP9

1-2 On: Normal (default)

2-3 On: Clear CMOS Data
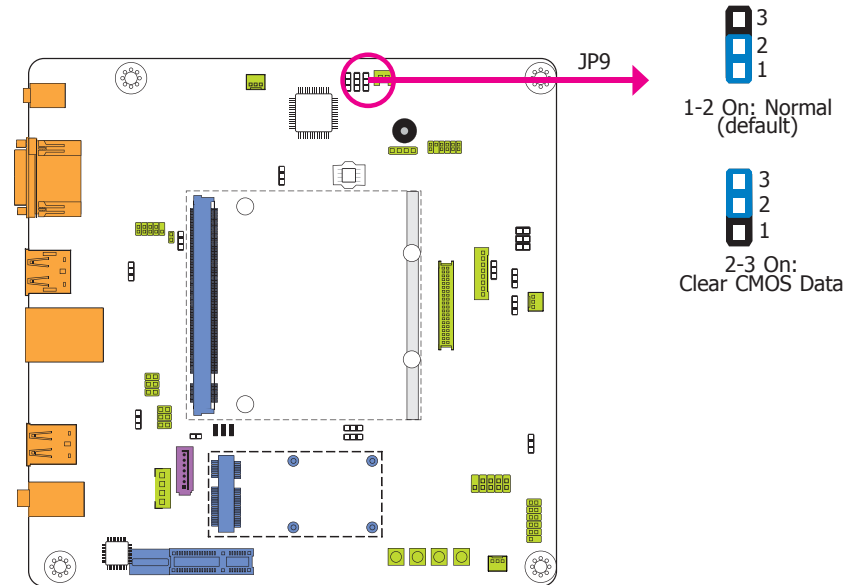
If you encounter the following situations,

a) CMOS data becomes corrupted.
b) You forgot the supervisor or user password.

you can reconfigure the system with the default values stored in the ROM BIOS.

To load the default values stored in the ROM BIOS, please follow the steps below:

1. Power-off the system and unplug the power cord.

2. Set JP9 pins 2 and 3 to On. Wait for a few seconds and set JP9 back to its default setting, pins 1 and 2 On.

3. Now plug the power cord and power-on the system.

USB Power Select

USB 0-1 (JP1)

```
3
2
1
```

1-2 On: +5V (default)

USB 2-3 (JP2)

```
3
2
1
```

USB 4-5 (JP23)
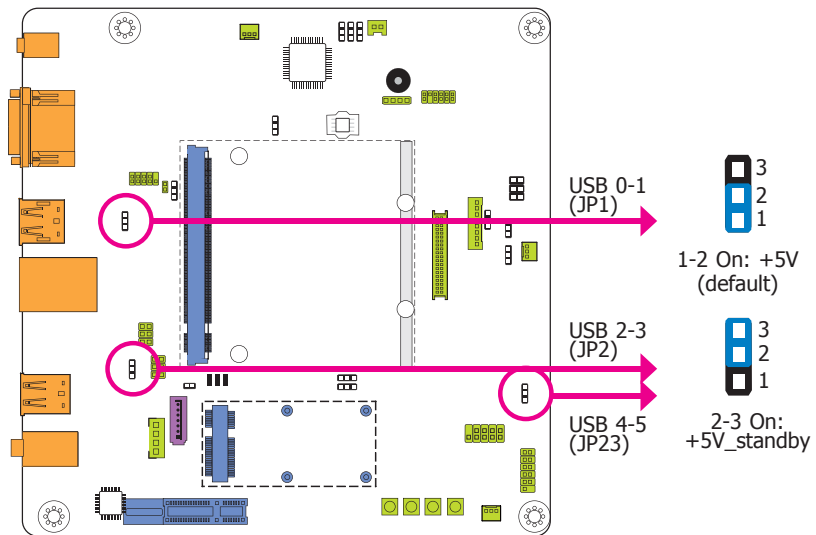
2-3 On: +5V_standby

JP1 (for USB 0-1), JP2 (for USB 2-3) and JP23 (for USB 4-5) are used to select the power of USB ports. Selecting +5V_standby will allow you to use a USB keyboard to wake up the system.

Important:
If you are using the Wake-On-USB Keyboard/Mouse function for 2 USB ports, the +5V_standby power source of your power supply must support ≥1.5A. For 3 or more USB ports, the +5V_standby power source of your power supply must support ≥2A.

LCD/Inverter Power Select

JP17

```
3
2
1
```

1-2 On: +12V

```
3
2
1
```

2-3 On: +5V (default)
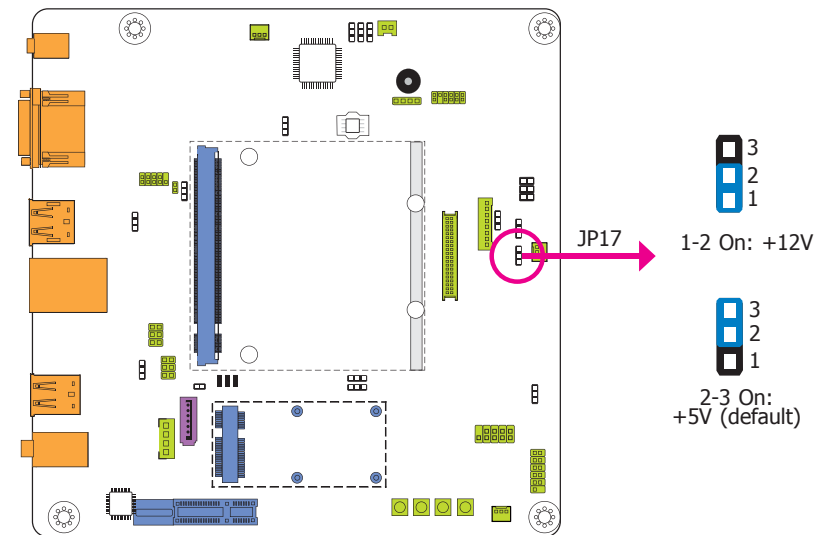
JP17 is designed to select the power level of the LCD/Inverter power connector.

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Panel Power Select

1-2 On: +12V

JP21

3-4 On:+5V

5-6 On: +3.3V (default)
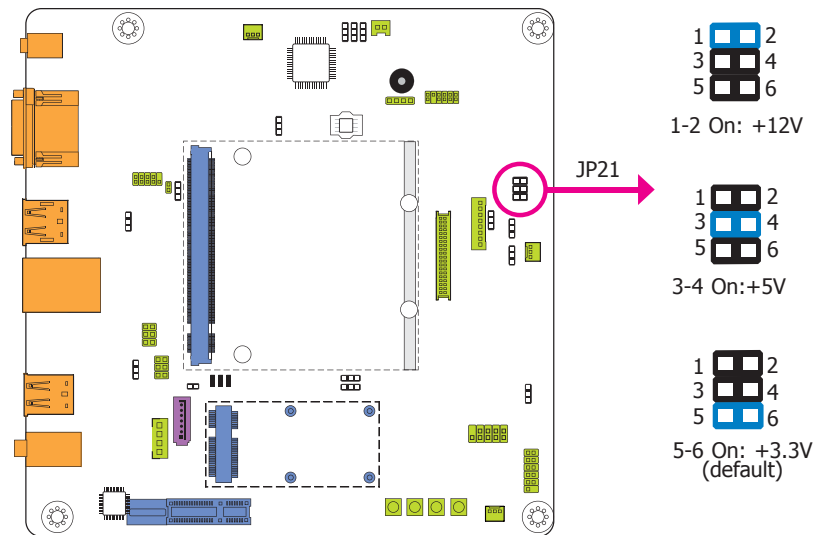
JP21 is used to select the power supplied with the LCD panel.

> **Important:**
> Before powering-on the system, make sure that the power settings of JP21 match the LCD panel's specification. Selecting the incorrect voltage will seriously damage the LCD panel.

Backlight Power Select

JP16

1-2 On: +3.3V (default)

2-3 On: +5V
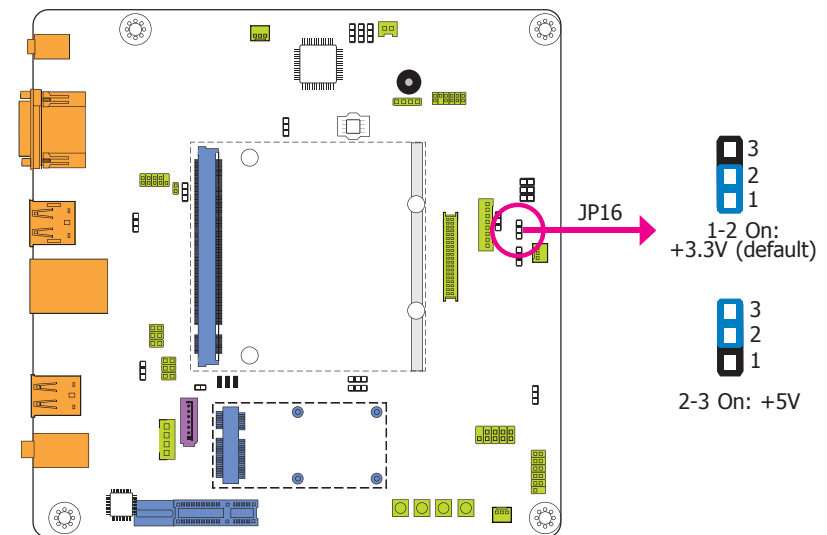
JP16 is used to select the backlight power control: +5V or +3.3V.

> **Important:**
> Before powering-on the system, make sure that the power settings of JP16 match the power specification of backlight control. Selecting the incorrect voltage will seriously damage the backlight.

Auto Power-on Select

JP8

3
2
1

1-2 On:
Power-on via Super I/O

3
2
1

2-3 On:
Power-on via Module
(default)
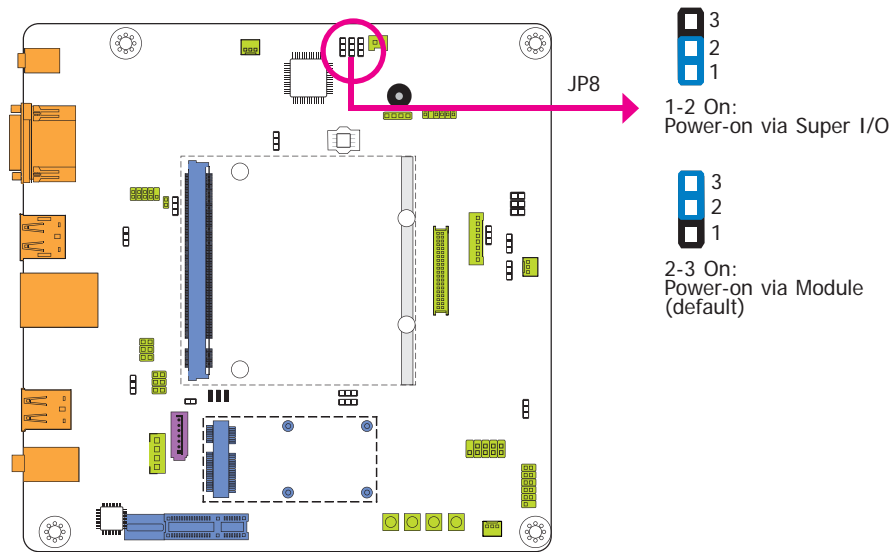
JP8 is used to select the method of powering on the system.

Super I/O Enable/Disable

JP7

3
2
1

1-2 On: Enable

3
2
1

2-3 On: Disable
(default)
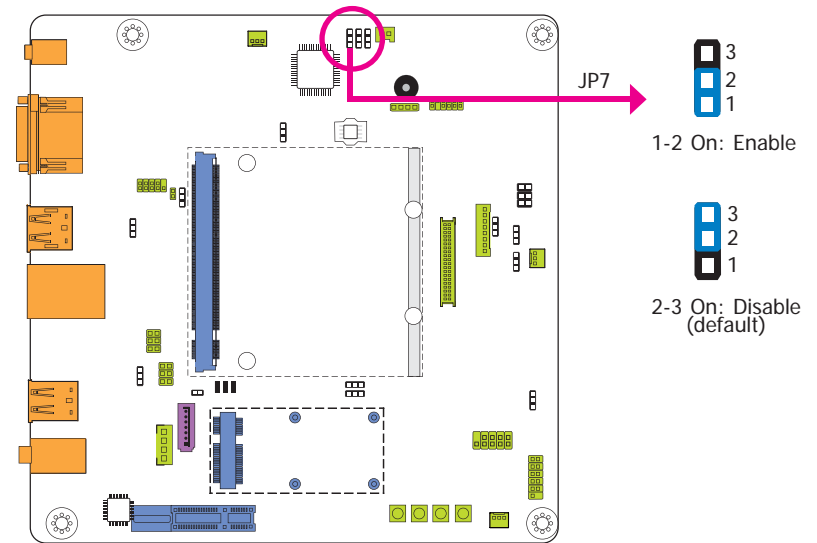
JP7 is used to enable or disable the super IO chip.

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BIOS Select

1 [ ] 2

1-2 On:
Boot from carrier board
SPI BIOS

1 [ ] 2

1-2 Off:
Boot from module
SPI BIOS

J9
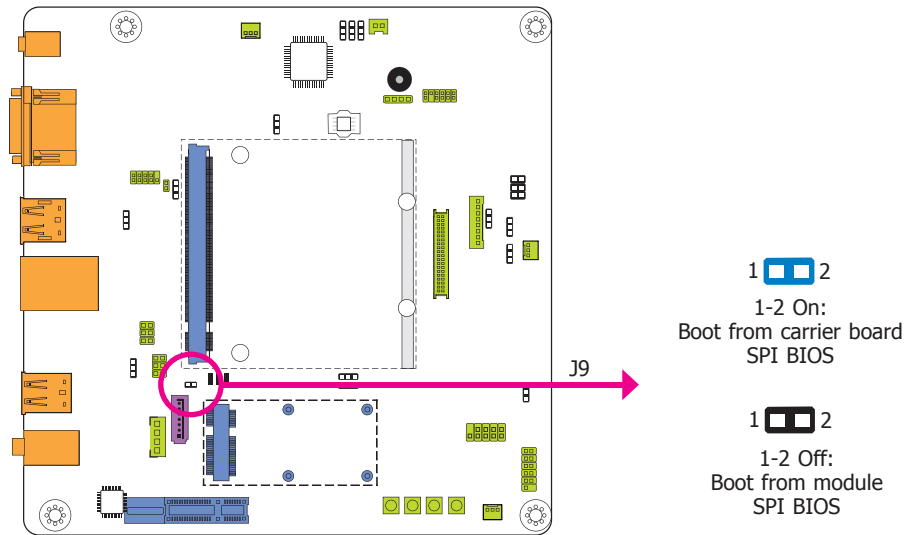
J9 is used to determine the BIOS boot device.

SPI Switch

JP4

3
2
1

1-2 On: Sensor

3
2
1

2-3 On: BIOS
(default)
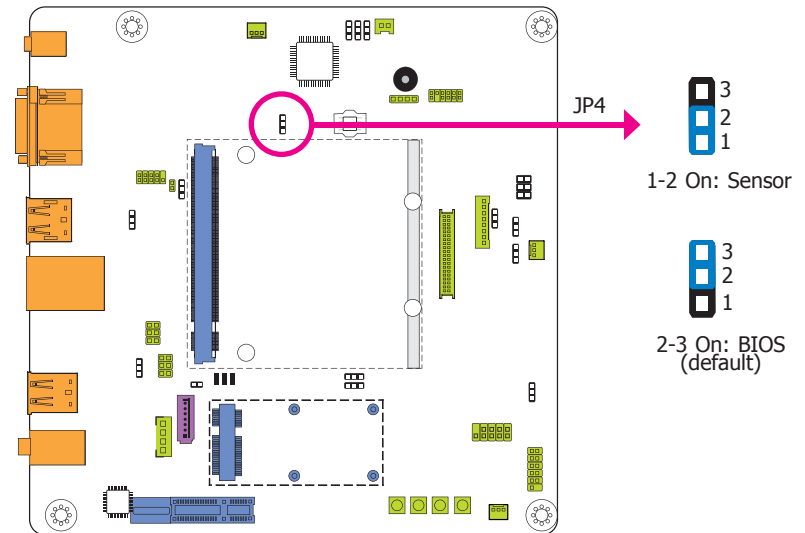
JP4 allows you to select the SPI signal from the carrier board SPI BIOS.

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UART 2 Enable/Disable

JP3

3
2
1

1-2 On: Enable
(default)

3
2
1

2-3 On: Disable
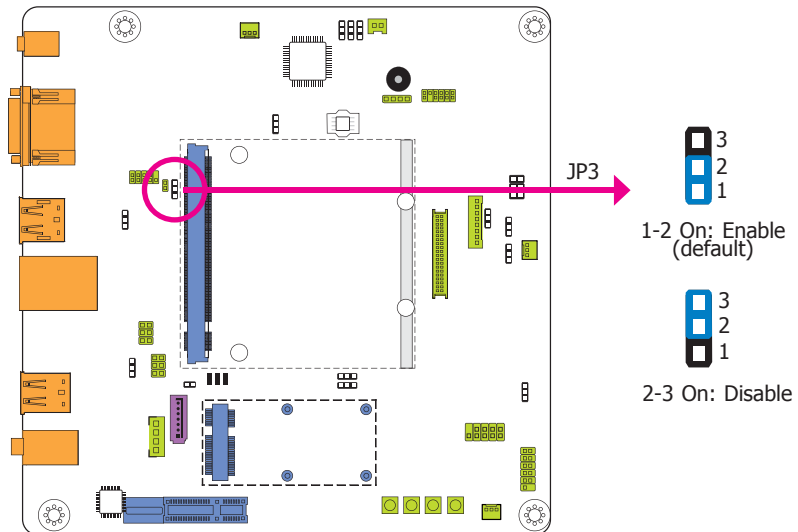
JP3 is used to enable or disable the UART 2 port.

Dimming Mode Select

JP11

3
2
1

1-2 On: PWM Mode
(default)

3
2
1
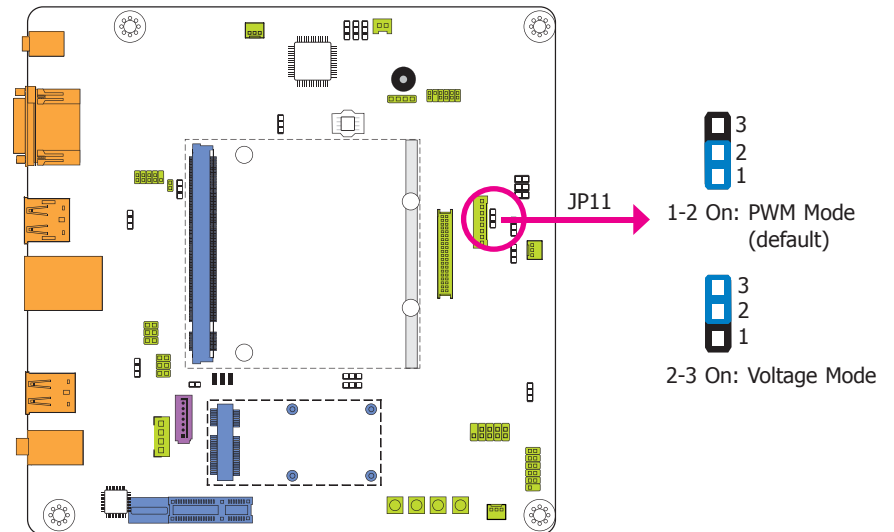
2-3 On: Voltage Mode

JP11 allows you to select the mode for the lightness control of the LVDS panel.

Important:
You need to refer to your panel's user guide to determine the type of mode (PWM or Voltage) most appropriate for your panel.

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LVDS Switch Setting

1 2 3

1-2 On: High

1 2 3

2-3 On: Low (default)

JP5 (Channel B)

JP6 (Channel A)

1 2 3

1-2 On: High (default)

1 2 3

2-3 On: Low
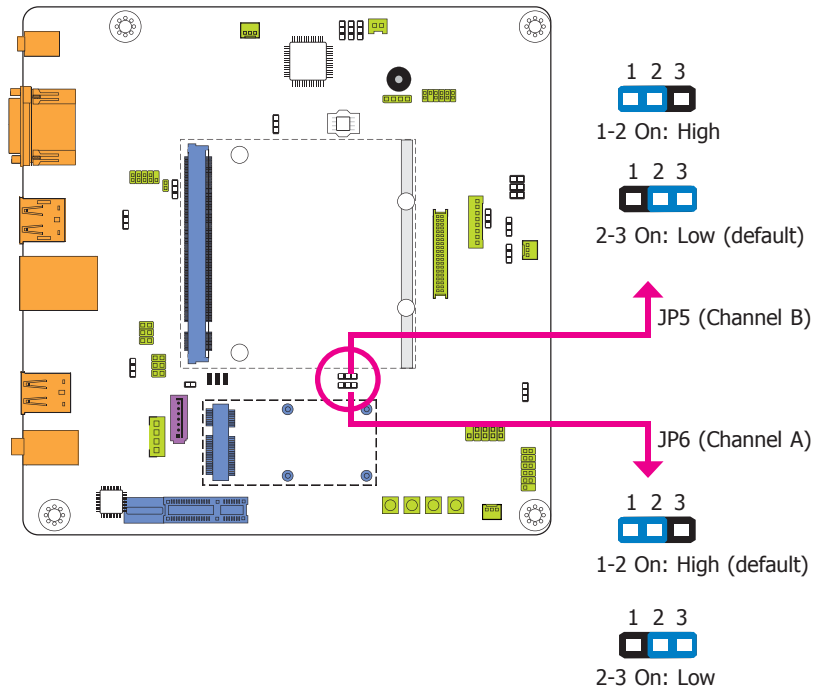
JP5 and JP6 are designed to select the signal for the LVDS panel.

Important:
You need to set JP5 and JP6 simultaneously.

Rear Panel I/O Ports

COM 4 LAN Line-in/Surround
USB 2.0 Line-out
DC-in DP Mic-in/
COM 3 USB 3.0 Center+Subwoofer
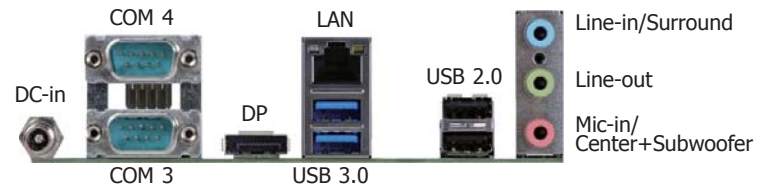
The rear panel I/O ports consist of the following:

• 1 12V DC-in jack
• 2 Serial (COM) ports
• 1 DP port
• 1 RJ45 LAN port
• 2 USB 3.0 ports
• 2 USB 2.0 type A ports
• Line-in/Surround jack
• Line-out jack
• Mic-in/Center+Subwoofer jack

12V DC-in

DC-in
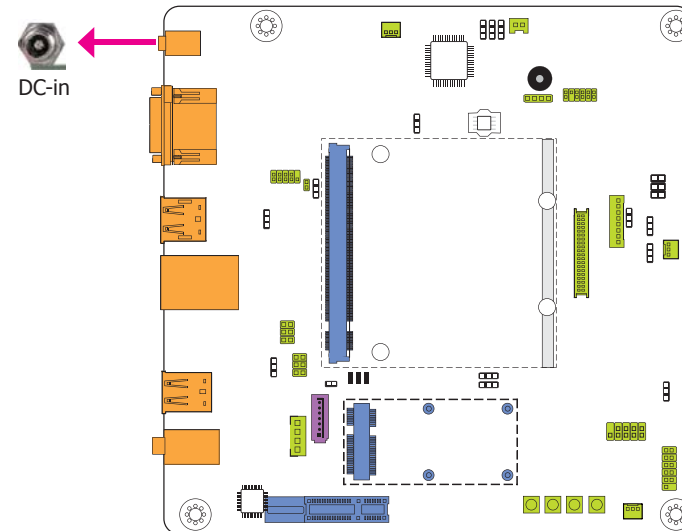
This jack provides maximum of 100W power and is considered a low power solution. Connect a DC power cord to this jack. Use a power adapter with 12V DC output voltage. Using a voltage higher than the recommended one may fail to boot the system or cause damage to the system board.

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Serial (COM) Ports

COM 4

COM 3

COM 3/COM 4:
RS232
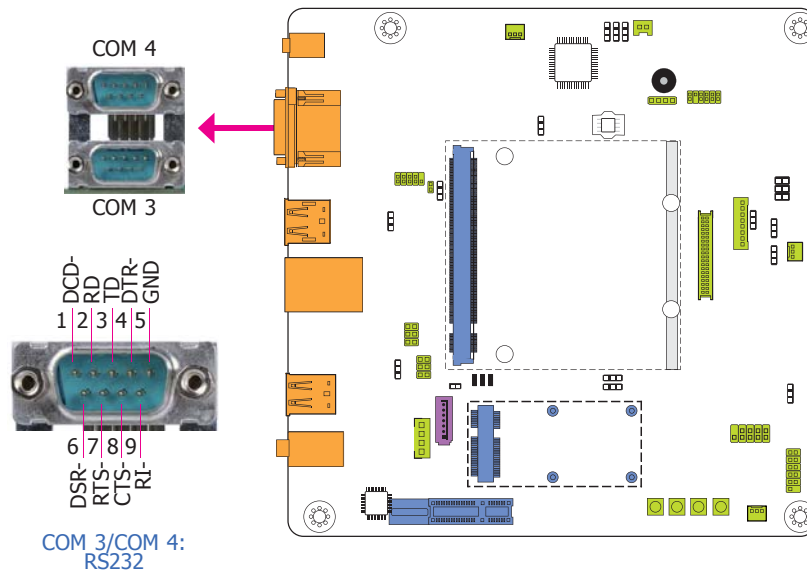
COM 3 and COM 4 are fixed at RS232.

The serial ports are asynchronous communication ports with 16C550A-compatible UARTs that can be used with modems, serial printers, remote display terminals, and other serial devices.

Connecting External Serial Ports

Your COM port may come mounted on a card-edge bracket. Install the card-edge bracket to an available slot at the rear of the system chassis then insert the serial port cable to the COM connector. Make sure the colored stripe on the ribbon cable is aligned with pin 1 of the COM connector.

DisplayPort
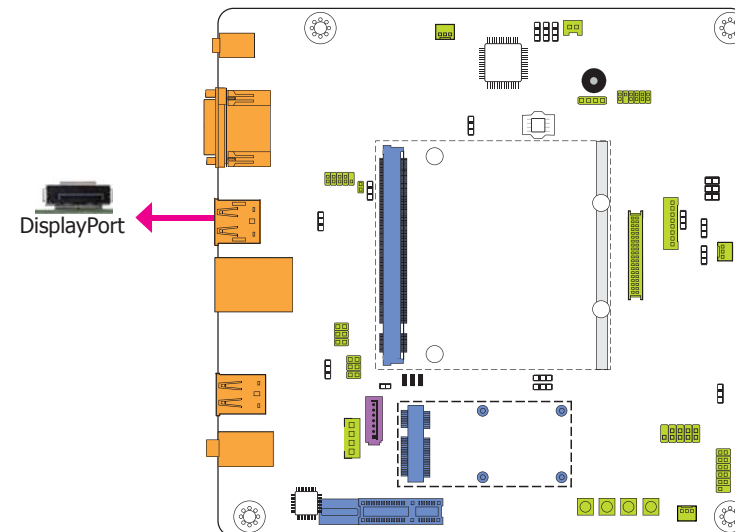
DisplayPort

DisplayPort is a digital display interface used to connect a display device such as a computer monitor. It is used to transmit audio and video simultaneously. The interface, which is developed by VESA, delivers higher performance features than any other digital interface.

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RJ45 LAN Port

LAN
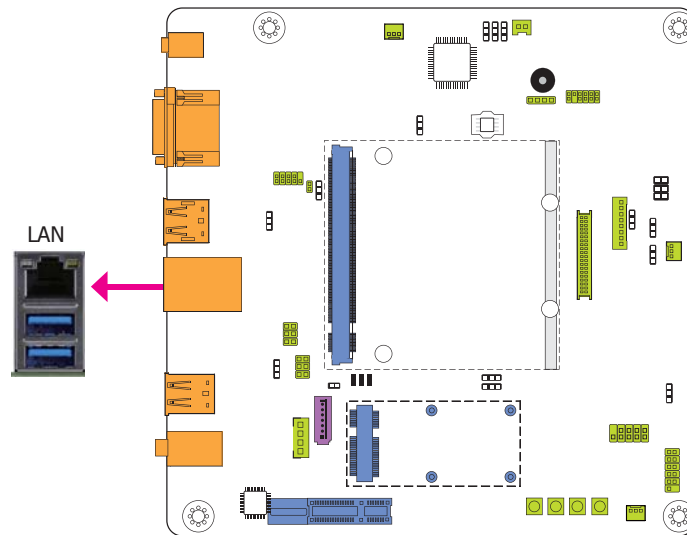
The onboard RJ45 LAN port allows the system board to connect to a local area network by means of a network hub.

USB Ports

USB 1
USB 0

USB 3.0

USB 3
USB 2

USB 2.0

USB 4-5
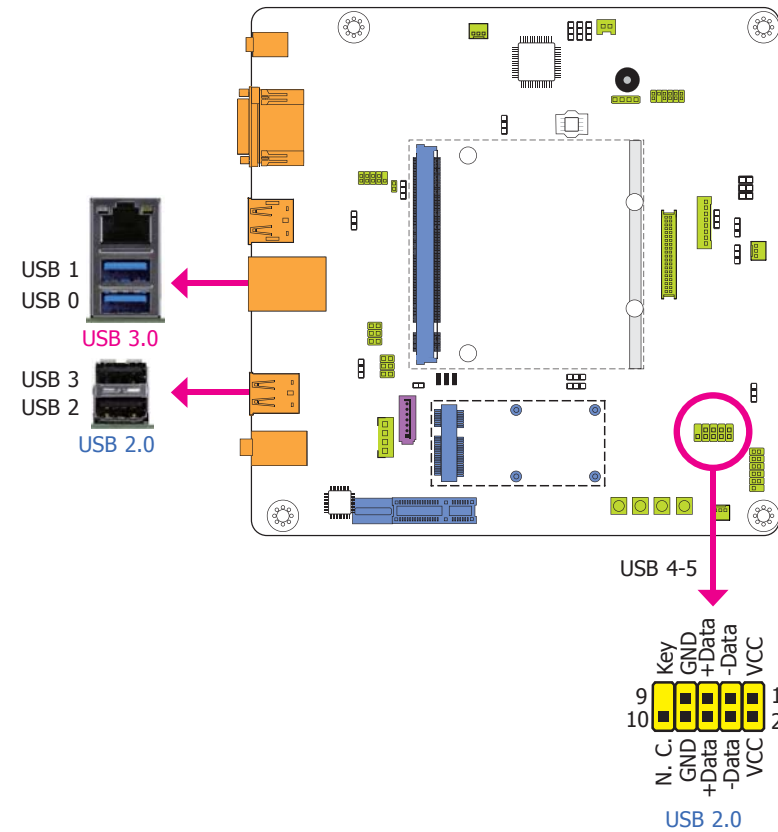
USB 2.0

The USB device allows data exchange between your computer and a wide range of simultaneously accessible external Plug and Play peripherals.

The system board is equipped with two onboard USB 3.0 ports (USB 0-1) and two onboard USB 2.0 type A ports (USB 2-3). The 10-pin connector allows you to connect 2 additional USB 2.0/1.1 ports (USB 4-5). The additional USB port may be mounted on a card-edge bracket. Install the card-edge bracket to an available slot at the rear of the system chassis and then insert the USB port cables to a connector.

Driver Installation

You may need to install the proper drivers in your operating system to use the USB device. Refer to your operating system's manual or documentation for more information.

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Wake-On-USB Keyboard/Mouse

The Wake-On-USB Keyboard/Mouse function allows you to use a USB keyboard or USB mouse to wake up a system from the S3 (STR - Suspend To RAM) state. To use this function:

- • **Jumper Setting**

JP1 (for USB 0-1), JP2 (for USB 2-3) and JP23 (for USB 4-5) must be set to "2-3 On: +5V_standby". Refer to "USB Power Select" in this chapter for more information.

> **Important:**
> If you are using the Wake-On-USB Keyboard/Mouse function for 2 USB ports, the +5V_standby power source of your power supply must support ≥1.5A. For 3 or more USB ports, the +5V_standby power source of your power supply must support ≥2A.

Audio

Rear Audio
Line-in/Surround
Line-out
Mic-in/
Center+Subwoofer
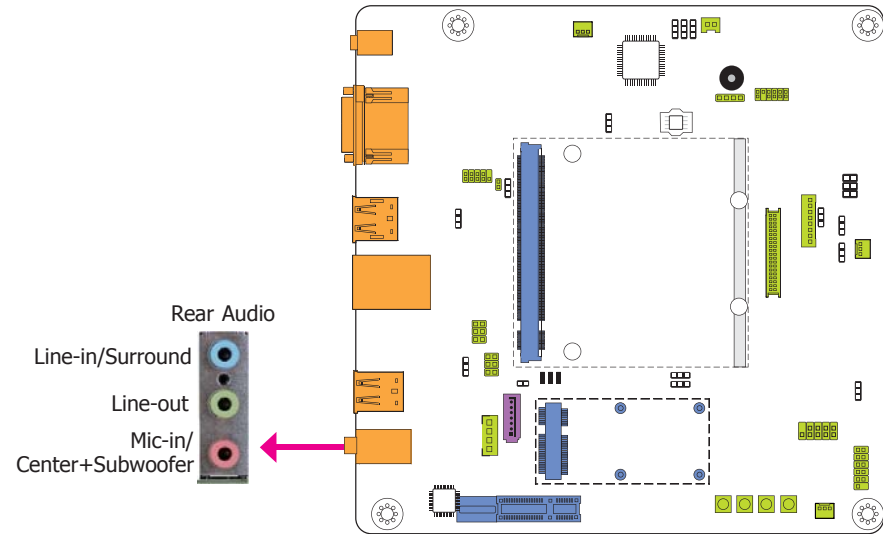
Rear Audio

The system board is equipped with 3 audio jacks. A jack is a one-hole connecting interface for inserting a plug.

• Line-in/Surround Jack (Light Blue)
This jack is used to connect any audio devices such as Hi-fi set, CD player, tape player, AM/FM radio tuner, synthesizer, etc.

• Line-out Jack (Lime)
This jack is used to connect a headphone or external speakers.

• Mic-in/Center+Subwoofer (Pink)
This jack is used to connect to the center and subwoofer speakers of the audio system.

BIOS Setting

Refer to the module's BIOS for more information.

I/O Connectors

Front Panel Connector
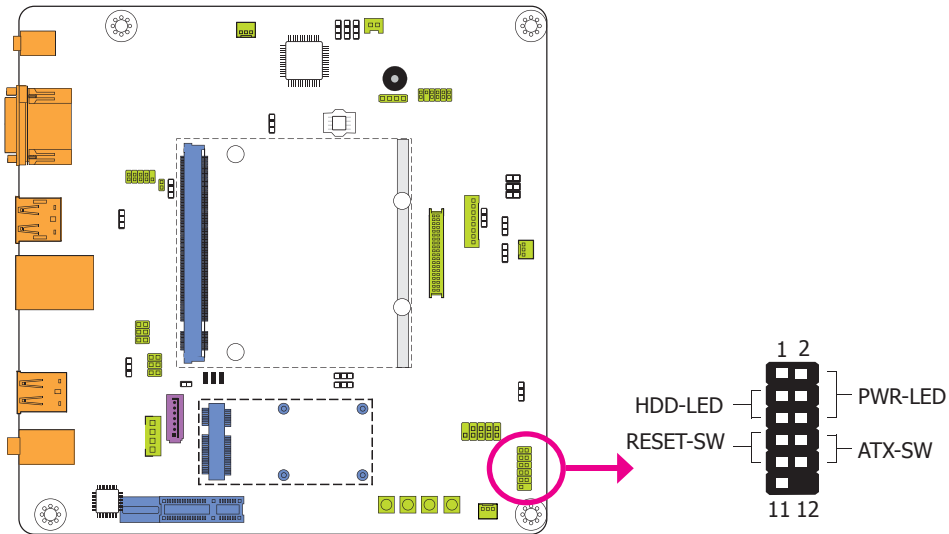
	Pin	Pin Assignment		Pin	Pin Assignment
N.C.	1	N.C.	PWR-LED	2	LED Power
HDD-LED	3	HDD Power		4	LED Power
	5	Signal		6	Signal
RESET-SW	7	Ground	ATX-SW	8	Signal
	9	RST Signal		10	Ground
N.C.	11	N.C.	Key	12	Key

HDD-LED - HDD LED

This LED will light when the hard drive is being accessed.

RESET SW - Reset Switch

This switch allows you to reboot without having to power off the system.

ATX-SW - ATX Power Switch

This switch is used to power on or off the system.

PWR-LED - Power/Standby LED

When the system's power is on, this LED will light. When the system is in the S1 (POS - Power On Suspend) state, it will blink every second. When the system is in the S3 (STR - Suspend To RAM) state, it will blink every 4 seconds.

Cooling Fan Connectors

System Fan 1

Ground
Power
Sense

1   3

System Fan 2

1

Ground
Power
Sense

3

System Fan 3

3   1

Sense   Ground
Power
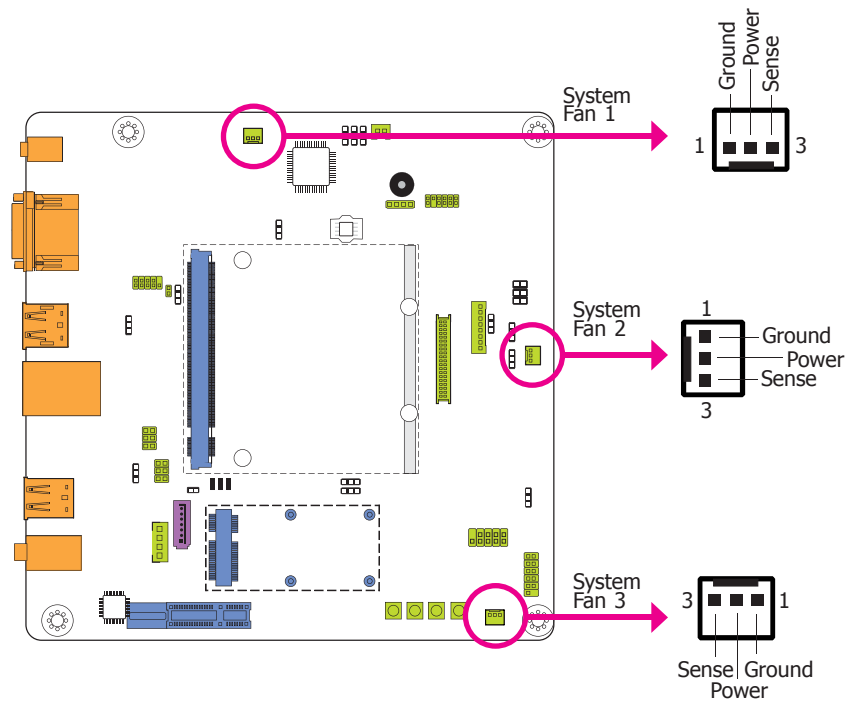
These fan connectors are used to connect a cooling fan. The cooling fan will provide adequate airflow throughout the chassis to prevent overheating the system board components.

CAN-Bus Connector

CAN-Bus

1

CAN_TX
GND
CAN_RX
NC
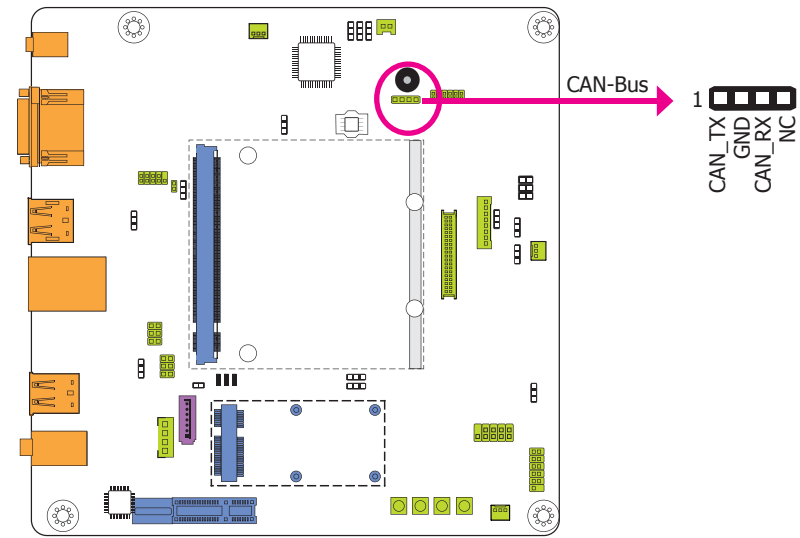
The CAN controller performs communication in accordance with the BOSCH CAN Protocol Version 2.0B Active1 (standard format and extended format). The bit rate can be programmed to a maximum of 1Mbit/s. To connect the CAN controller module to the CAN bus, it is necessary to add transceiver hardware.

When communicating in a CAN network, individual message objects are configured. The message objects and the identifier masks for the receive filter for the received messages are stored in the message RAM.

Controller Area Network (CAN or CAN-bus) is a message based protocol designed specifically for automotive applications but now is also used in other areas such as industrial automation and medical equipment.

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LVDS LCD Panel Connector

LCD/Inverter Power Connector

LCD/Inverter power
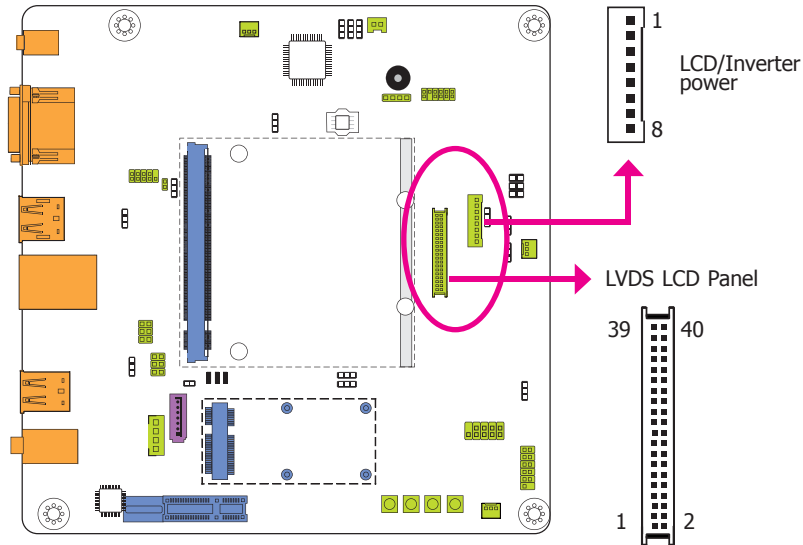
LVDS LCD Panel

The system board allows you to connect a LCD Display Panel by means of the LVDS LCD panel connector and the LCD/Inverter power connector. These connectors transmit video signals and power from the system board to the LCD Display Panel.

Refer to the right side for the pin functions of these connectors.

Jumper Settings

Refer to the "Jumper Settings" section in this chapter for settings relevant to the LCD panel.

Note:
DFI board's LVDS connector: Hirose DF13-40DP-1.25V(91)/40P/1.25mm; cable side connector: Hirose DF13-40DS-1.25C.

LVDS LCD Panel Connector

Pins	Function	Pins	Function
1	GND	2	GND
3	LVDS_Out3+	4	LVDS_Out7+
5	LVDS_Out3-	6	LVDS_Out7-
7	GND	8	GND
9	LVDS_Out2+	10	LVDS_Out6+
11	LVDS_Out2-	12	LVDS_Out6-
13	GND	14	GND
15	LVDS_Out1+	16	LVDS_Out5+
17	LVDS_Out1-	18	LVDS_Out5-
19	GND	20	GND
21	LVDS_Out0+	22	LVDS_Out4+
23	LVDS_Out0-	24	LVDS_Out4-
25	GND	26	GND
27	LVDS_CLK1+	28	LVDS_CLK2+
29	LVDS_CLK1-	30	LVDS_CLK2-
31	GND	32	GND
33	LVDS_DDCCLK	34	N.C.
35	LVDS_DDCDAA	36	+3.3V
37	Panel Power	38	Panel Power
39	Panel Power	40	Panel Power

LCD/Inverter Power Connector

Pins	Function
1	GND
2	GND
3	Panel Inverter Brightness Voltage Control
4	Panel Power
5	+3.3V
6	Panel Backlight On/Off Control
7	LCD/Inverter Power
8	LCD/Inverter Power

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SATA (Serial ATA) Connector

7 GND
RXP
RXN
GND
TXN
TXP
1 GND

SATA 3.0 6Gb/s
(The SATA port provides adequate
space for SATA DOM.)
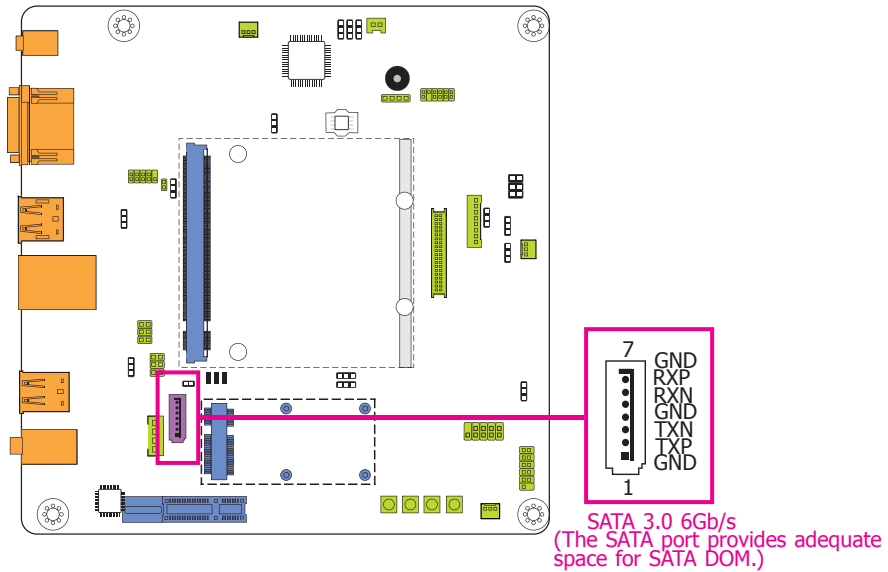
The Serial ATA connector is used to connect the Serial ATA device. Connect one end of the Serial ATA cable to a SATA connector and the other end to your Serial ATA device.

BIOS Setting

Refer to the module's BIOS for more information.

SATA (Serial ATA) Power Connector

SATA
Power

+5V — 4
Ground
Ground
+12V — 1
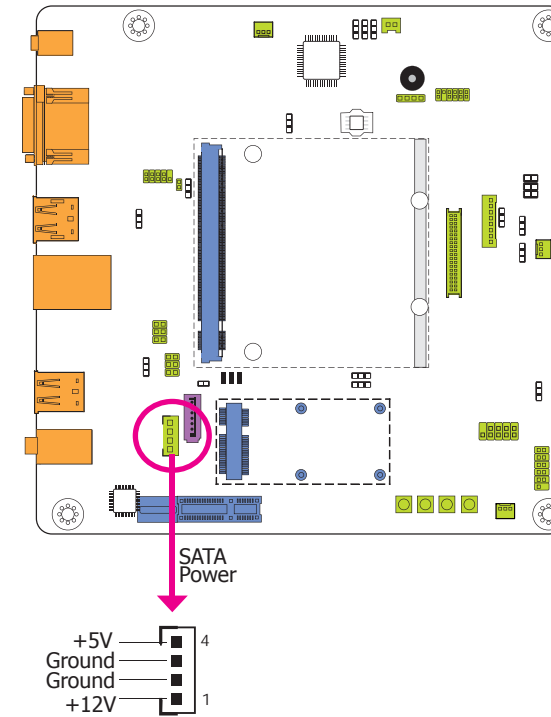
The SATA power connector supplies power to the SATA drive. Connect one end of the provided power cable to the SATA power connector and the other end to your storage device.

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LPC Debug connector

LPC

| 11 | 1 |
| 12 | 2 |
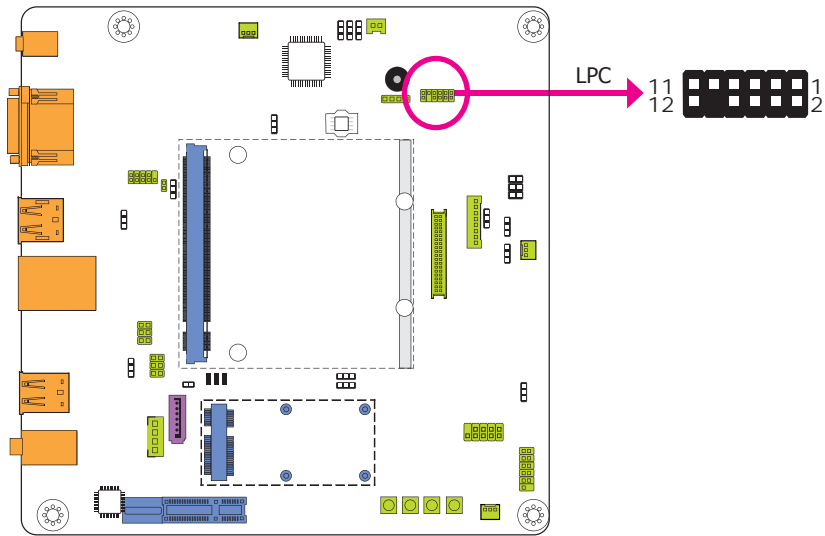
The LPC connector is used for the debug function and its pin functions are listed below.

Pins	Pin Assignment	Pins	Pin Assignment
1	CLK	2	LAD1
3	RST#	4	LAD0
5	FRAME#	6	VCC_+3V
7	LAD3	8	GND
9	LAD2	10	NC
11	SERIRQ	12	CLK_48MHz

SMBus Connector

6 5

NC	SMB_ALERT
SMB_DATA	SMB_CLK
GND	+3.3V_Standby

2 1
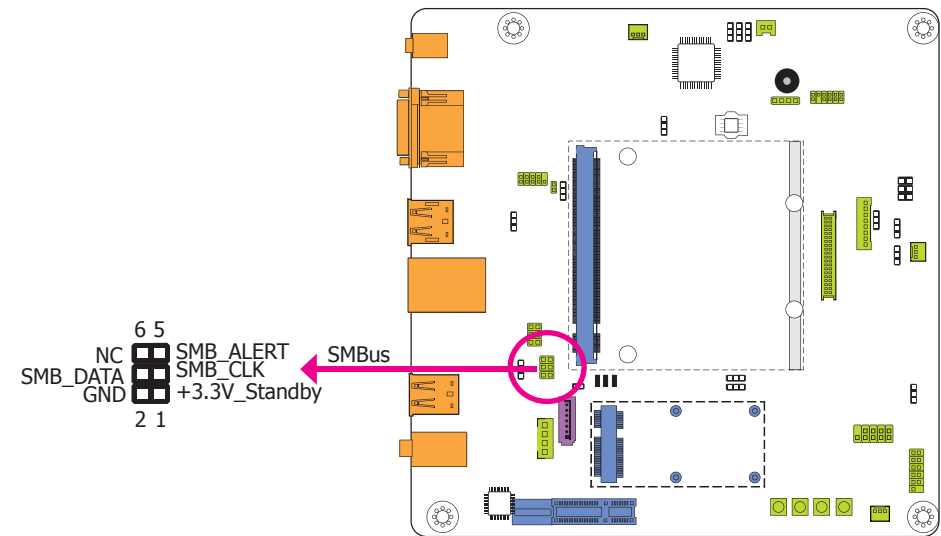
SMBus

The SMBus (System Management Bus) connectors are used to connect the SMBus device. It is a multiple device bus that allows multiple chips to connect to the same bus and enable each one to act as a master by initiating data transfer.

23

I²C Connector


```
      6 5
  NC  ▢▢  NC
I²C_DATA ▢▢ I²C_Clock      I²C
  GND ▢▢ +3.3V
      2 1
```
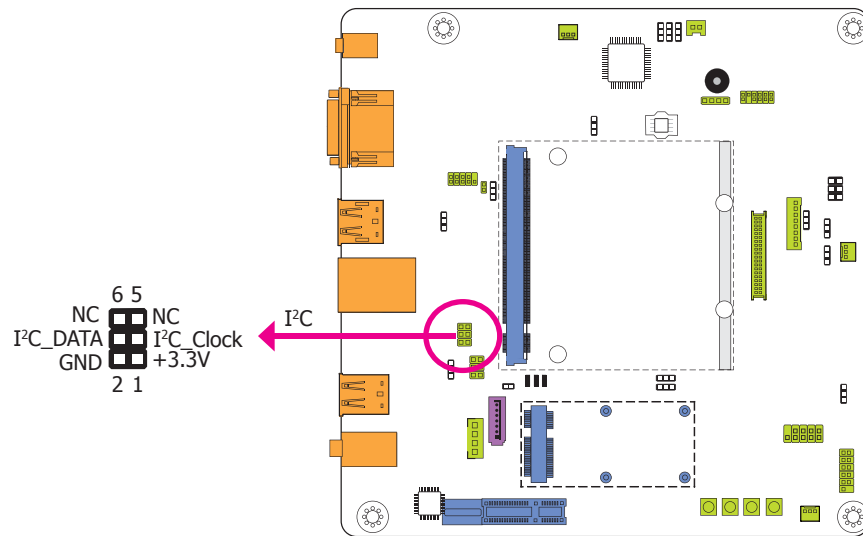
The 1-channel I²C bus interface conforms to the version 2.1 I²C bus specification. It operates as a master or slave device and supports a multi-master bus.

UART Ports


```
2 ▦ 10     UART 1
1    9

MFG_NC2_RX ▢  UART 2
MFG_NC1_TX ▢
          1
```
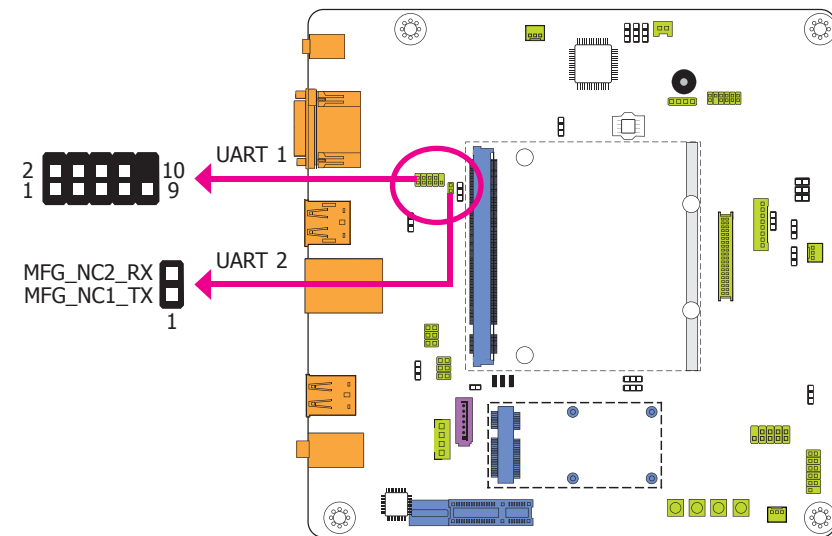
The UART (Universal Asynchronous Receiver/Transmitter) port is the hardware component that transmits and receives the data of the serial communications. UART 2 port is the serial interface supporting TX/RX signal only to connect a simple UART for firmware and boot loader implementations.

UART 1			
Pins	Pin Assignment	Pins	Pin Assignment
1	NC	2	UART_RX
3	UART0_TX	4	NC
5	GND	6	NC
7	UART0_RTS-	8	UART0_CTS-
9	NC		

24

Expansion Slots

TOP

mSATA

PCIe x4

Bottom

SDIO
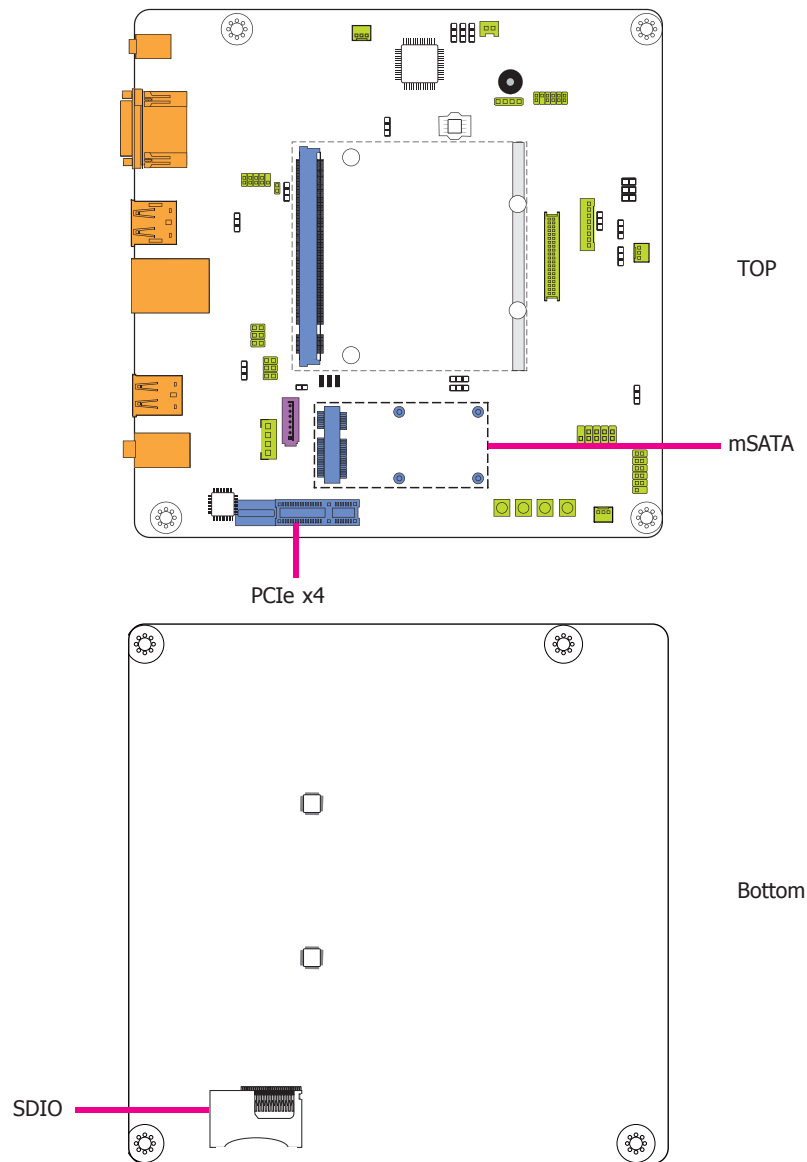
mSATA Port

The Mini PCIe socket is used to install a Mini PCIe card. Mini PCIe card is a small form factor PCI card with the same signal protocol, electrical definitions, and configuration definitions as the conventional PCI.

PCI Express x4 Slot

Install PCI Express cards such as network cards or other cards that comply to the PCI Express specifications into the PCI Express x4 slot.

SDIO Slot

This expansion port is used to insert a Secure Digital Input/Output (SDIO) or Multimedia Card (MMC) device. Aside from storing data files, an SDIO card is also capable of storing powerful software applications.

Switches

Sleep Reset

Lid Power
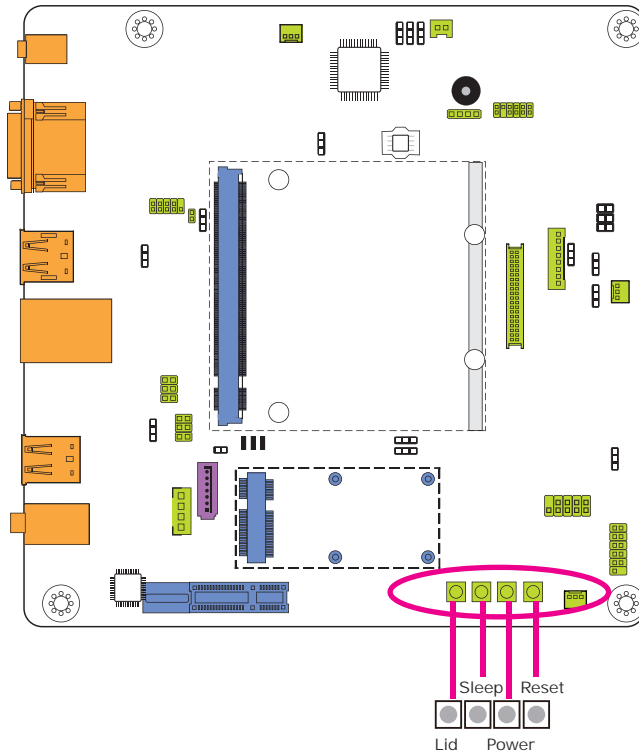
> **Note:**
> The Sleep and Lid functions are supported only when your operating system supports ACPI.

• Lid: it is used to turn the LVDS on or off.

• Sleep: it is used to set the system to "sleep" or "wake-up" mode.

LEDs

SDIO LED Thermal Trip LED
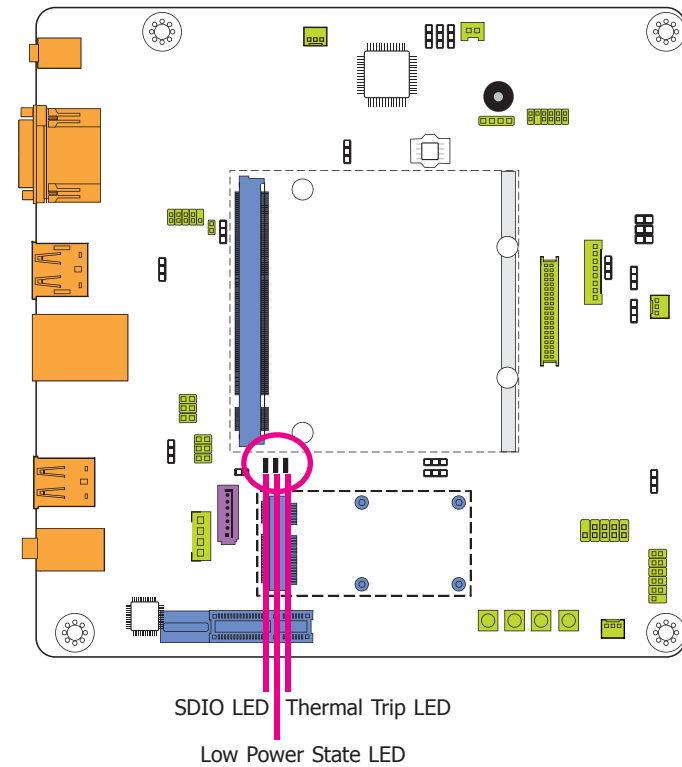
Low Power State LED

Thermal Trip LED

This LED will light to indicate that the processor is on an overheating status.

Low Power State LED

This LED will light red when the system is in the standby mode. It indicates that the system will be entering a low power state soon.

SDIO LED

This LED will light when the SIOD card is installed into the SDIO slot.

Battery

Battery

2 [■ ■] 1

+3.3V
GND
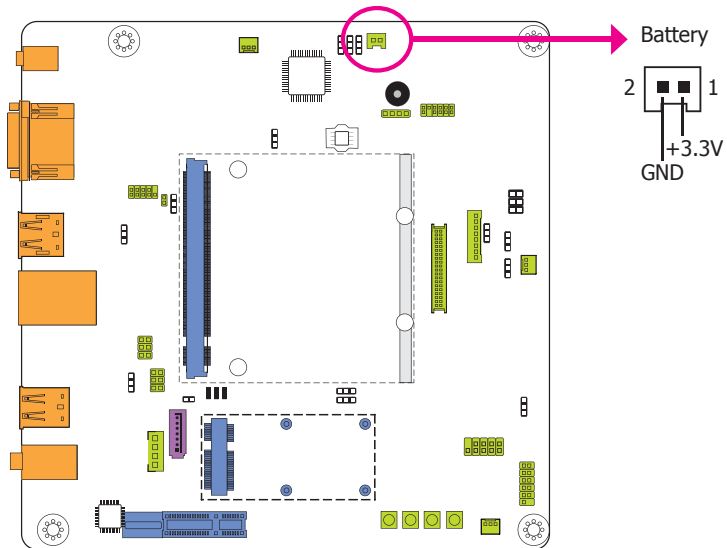
Battery

Connect to the
battery connector

The lithium ion battery powers the real-time clock and CMOS memory. It is an auxiliary source of power when the main power is shut off.

Safety Measures

• Danger of explosion if battery incorrectly replaced.

• Replace only with the same or equivalent type recommend by the manufacturer.

• Dispose of used batteries according to local ordinance.

MXM Connector

MXM
Connector
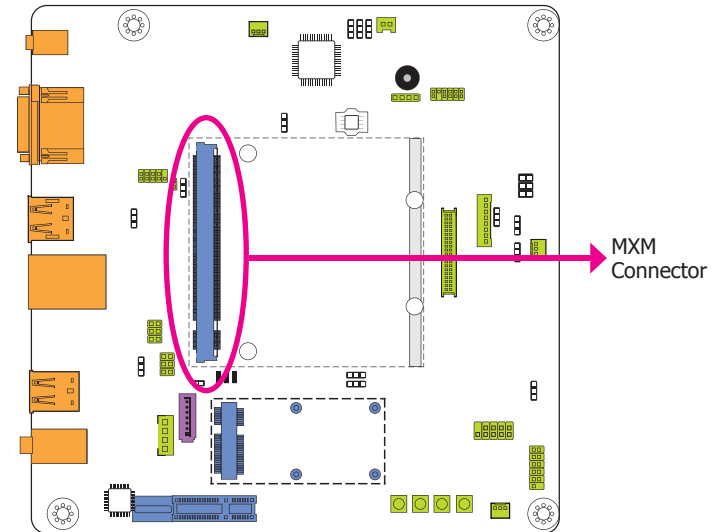
The MXM connector is used to interface the carrier board with a Qseven board. Refer to the tables in the following page for the pin functions of the MXM connector.

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| Pin	Q7 R2.0 Signal	BT700 Signal	Pin	Q7 R2.0 Signal	BT700 Signal
1	GND	GND	2	GND	GND
3	GBE_MDI3-	GBE_MDI3-	4	GBE_MDI2-	GBE_MDI2-
5	GBE_MDI3+	GBE_MDI3+	6	GBE_MDI2+	GBE_MDI2+
7	GBE_LINK100#	GBE_LINK100#	8	GBE_LINK1000#	GBE_LINK1000#
9	GBE_MDI1-	GBE_MDI1-	10	GBE_MDI0-	GBE_MDI0-
11	GBE_MDI1+	GBE_MDI1+	12	GBE_MDI0+	GBE_MDI0+
13	GBE_LINK#	NC	14	GBE_ACT#	GBE_ACT#
15	GBE_CTREF	NC	16	SUS_S5#	SUS_S4#
17	WAKE#	WAKE#	18	SUS_S3#	SUS_S3#
19	SUS_STAT#	SUS_STAT#	20	PWRBTN#	PWRBTN#
21	SLP_BTN#	SLP_BTN#	22	LID_BTN#	LID_BTN#
23	GND	GND	24	GND	GND
	KEY	KEY		KEY	KEY
25	GND	GND	26	PWGIN	PWGIN
27	BATLOW#	BATLOW#	28	RSTBTN#	RSTBTN#
29	SATA0_TX+	SATA0_TX+	30	SATA1_TX+	SATA1_TX+
31	SATA0_TX-	SATA0_TX-	32	SATA1_TX-	SATA1_TX-
33	SATA_ACT#	SATA_ACT#	34	GND	GND
35	SATA0_RX+	SATA0_RX+	36	SATA1_RX+	SATA1_RX+
37	SATA0_RX-	SATA0_RX-	38	SATA1_RX-	SATA1_RX-
39	GND	GND	40	GND	GND
41	BIOS_DISABLE# / BOOT_ALT#	BIOS_DISABLE#	42	SDIO_CLK#	SDIO_CLK#
43	SDIO_CD#	SDIO_CD#	44	SDIO_LED	NC
45	SDIO_CMD	SDIO_CMD	46	SDIO_WP	SDIO_WP
47	SDIO_PWR#	SDIO_PWR#	48	SDIO_DAT1	SDIO_DAT1
49	SDIO_DAT0	SDIO_DAT0	50	SDIO_DAT3	SDIO_DAT3
51	SDIO_DAT2	SDIO_DAT2	52	SDIO_DAT5	NC
53	SDIO_DAT4	NC	54	SDIO_DAT7	NC
55	SDIO_DAT6	NC	56	RSVD	NC
57	GND	GND	58	GND	GND
59	HDA_SYNC / I2S_WS	HDA_SYNC	60	SMB_CLK / GP1_I2C_CLK	SMB_CLK
61	HDA_RST# / I2S_RST#	HDA_RST#	62	SMB_DAT / GP1_I2C_DAT	SMB_DAT
63	HDA_BITCLK / I2S_CLK	HDA_BITCLK	64	SMB_ALERT#	SMB_ALERT#
65	HDA_SDI / I2S_SDI	HDA_SDI	66	GP0_I2C_CLK	GP0_I2C_CLK
67	HDA_SDO / I2S_SDO	HDA_SDO	68	GP0_I2C_DAT	GP0_I2C_DAT
69	THRM#	THRM#	70	WDTRIG#	WDTRIG#
71	THRMTRIP#	THRMTRIP#	72	WDOUT	WDOUT
73	GND	GND	74	GND	GND
75	USB_P7- / USB_SSTX0-	USB_SSTX0-	76	USB_P6- / USB_SSRX0-	USB_SSRX0-
77	USB_P7+ / USB_SSTX0+	USB_SSTX0+	78	USB_P6+ / USB_SSRX0+	USB_SSRX0+
79	USB_6_7_OC#	USB_6_7_OC#	80	USB_4_5_OC#	USB_4_5_OC#
81	USB_P5- / USB_SSTX1-	USB_P5-	82	USB_P4- / USB_SSRX1-	USB_P4-
83	USB_P5+ / USB_SSTX1+	USB_P5+	84	USB_P4+ / USB_SSRX1+	USB_P4+
85	USB_2_3_OC#	USB_2_3_OC#	86	USB_0_1_OC#	USB_0_1_OC#
87	USB_P3-	USB_P3-	88	USB_P2-	USB_P2-
89	USB_P3+	USB_P3+	90	USB_P2+	USB_P2+
91	USB_CC	NC	92	USB_ID	NC
93	USB_P1-	USB_P1-	94	USB_P0-	USB_P0-
95	USB_P1+	USB_P1+	96	USB_P0+	USB_P0+
97	GND	GND	98	GND	GND
99	eDP0_TX0+ / LVDS_A0+	LVDS_A0+	100	eDP1_TX0+ / LVDS_B0+	LVDS_B0+
101	eDP0_TX0- / LVDS_A0-	LVDS_A0-	102	eDP1_TX0- / LVDS_B0-	LVDS_B0-
103	eDP0_TX1+ / LVDS_A1+	LVDS_A1+	104	eDP1_TX1+ / LVDS_B1+	LVDS_B1+
105	eDP0_TX1- / LVDS_A1-	LVDS_A1-	106	eDP1_TX1- / LVDS_B1-	LVDS_B1-
107	eDP0_TX2+ / LVDS_A2+	LVDS_A2+	108	eDP1_TX2+ / LVDS_B2+	LVDS_B2+
109	eDP0_TX2- / LVDS_A2-	LVDS_A2-	110	eDP1_TX2- / LVDS_B2-	LVDS_B2-
111	LVDS_PPEN	LVDS_PPEN	112	LVDS_BLEN	LVDS_BLEN
113	eDP0_TX3+ / LVDS_A3+	LVDS_A3+	114	eDP1_TX3+ / LVDS_B3+	LVDS_B3+
115	eDP0_TX3- / LVDS_A3-	LVDS_A3-	116	eDP1_TX3- / LVDS_B3-	LVDS_B3-

Pin	Q7 R2.0 Signal	BT700 Signal	Pin	Q7 R2.0 Signal	BT700 Signal
117	GND	GND	118	GND	GND
119	eDP0_AUX+ / LVDS_A_CLK+	LVDS_A_CLK+	120	eDP1_AUX+ / LVDS_B_CLK+	LVDS_B_CLK+
121	eDP0_AUX- / LVDS_A_CLK-	LVDS_A_CLK-	122	eDP1_AUX- / LVDS_B_CLK-	LVDS_B_CLK-
123	LVDS_BLT_CTRL /GP_PWM_OUT0	LVDS_BLT_CTRL	124	GP_1-Wire_Bus	GP_1-Wire_Bus
125	GP2_I2C_DAT / LVDS_DID_DAT	LVDS_DID_DAT	126	eDP0_HPD# / LVDS_BLC_DAT	NC
127	GP2_I2C_CLK / LVDS_DID_CLK	LVDS_DID_CLK	128	eDP1_HPD# / LVDS_BLC_CLK	NC
129	CAN0_TX	NC	130	CAN0_RX	NC
131	DP_LANE3+ / TMDS_CLK+	DP_LANE3+	132	RSVD (Differential Pair)	NC
133	DP_LANE3- / TMDS_CLK-	DP_LANE3-	134	RSVD (Differential Pair)	NC
135	GND	GND	136	GND	GND
137	DP_LANE1+ / TMDS_LANE1+	DP_LANE1+	138	DP_AUX+	DP_AUX+
139	DP_LANE1- / TMDS_LANE1-	DP_LANE1-	140	DP_AUX-	DP_AUX-
141	GND	GND	142	GND	GND
143	DP_LANE2+ / TMDS_LANE0+	DP_LANE2+	144	RSVD (Differential Pair)	NC
145	DP_LANE2- / TMDS_LANE0-	DP_LANE2-	146	RSVD (Differential Pair)	NC
147	GND	GND	148	GND	GND
149	DP_LANE0+ / TMDS_LANE2+	DP_LANE0+	150	HDMI_CTRL_DAT	HDMI_CTRL_DAT
151	DP_LANE0- / TMDS_LANE2-	DP_LANE0-	152	HDMI_CTRL_CLK	HDMI_CTRL_CLK
153	DP_HDMI_HPD#	DP_HDMI_HPD#	154	RSVD	NC
155	PCIE_CLK_REF+	PCIE_CLK_REF+	156	PCIE_WAKE#	PCIE_WAKE#
157	PCIE_CLK_REF-	PCIE_CLK_REF-	158	PCIE_RST#	PCIE_RST#
159	GND	GND	160	GND	GND
161	PCIE3_TX+	NC	162	PCIE3_RX+	NC
163	PCIE3_TX-	NC	164	PCIE3_RX-	NC
165	GND	GND	166	GND	GND
167	PCIE2_TX+	PCIE2_TX+	168	PCIE2_RX+	PCIE2_RX+
169	PCIE2_TX-	PCIE2_TX-	170	PCIE2_RX-	PCIE2_RX-
171	UART0_TX	UART0_TX	172	UART0_RTS#	UART0_RTS#
173	PCIE1_TX+	PCIE1_TX+	174	PCIE1_RX+	PCIE1_RX+
175	PCIE1_TX-	PCIE1_TX-	176	PCIE1_RX-	PCIE1_RX-
177	UART0_RX	UART0_RX	178	UART0_CTS#	UART0_CTS#
179	PCIE0_TX+	PCIE0_TX+	180	PCIE0_RX+	PCIE0_RX+
181	PCIE0_TX-	PCIE0_TX-	182	PCIE0_RX-	PCIE0_RX-
183	GND	GND	184	GND	GND
185	LPC_AD0 / GPIO0	LPC_AD0	186	LPC_AD1 / GPIO1	LPC_AD1
187	LPC_AD2 / GPIO2	LPC_AD2	188	LPC_AD3 / GPIO3	LPC_AD3
189	LPC_CLK / GPIO4	LPC_CLK	190	LPC_FRAME# / GPIO5	LPC_FRAME#
191	SERIRQ / GPIO6	SERIRQ	192	LPC_LDRQ# / GPIO7	NC
193	VCC_RTC	VCC_RTC	194	SPKR / GP_PWM_OUT2	SPKR
195	FAN_TACHOIN / GP_TIMER_IN	FAN_TACHOIN	196	FAN_PWMOUT / GP_PWM_OUT1	FAN_PWMOUT
197	GND	GND	198	GND	GND
199	SPI_MOSI	SPI_MOSI	200	SPI_CS0#	SPI_CS0#
201	SPI_MISO	SPI_MISO	202	SPI_CS1#	NC
203	SPI_SCK	SPI_SCK	204	MFG_NC4	NC
205	VCC_5V_SB	VCC_5V_SB	206	VCC_5V_SB	VCC_5V_SB
207	MFG_NC0	NC	208	MFG_NC2	UART1_RX
209	MFG_NC1	UART1_TX	210	MFG_NC3	NC
211	VCC	VCC	212	VCC	VCC
213	VCC	VCC	214	VCC	VCC
215	VCC	VCC	216	VCC	VCC
217	VCC	VCC	218	VCC	VCC
219	VCC	VCC	220	VCC	VCC
221	VCC	VCC	222	VCC	VCC
223	VCC	VCC	224	VCC	VCC
225	VCC	VCC	226	VCC	VCC
227	VCC	VCC	228	VCC	VCC
229	VCC	VCC	230	VCC	VCC

Chapter 3 - Supported Software

The CD that came with the system board contains drivers, utilities and software applications required to enhance the performance of the system board.

Insert the CD into a CD-ROM drive. The autorun screen (Mainboard Utility CD) will appear. If after inserting the CD, "Autorun" did not automatically start (which is, the Mainboard Utility CD screen did not appear), please go directly to the root directory of the CD and double-click "Setup".
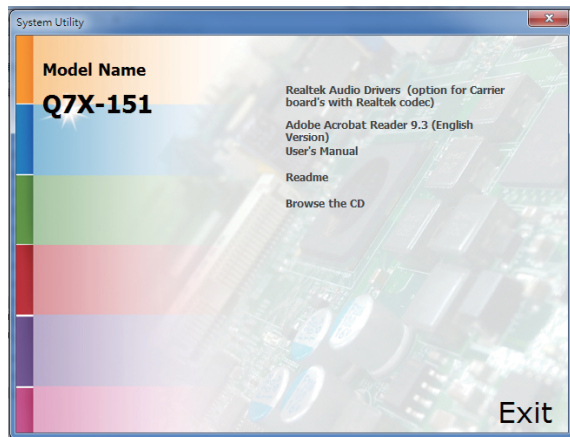
Realtek Audio Drivers

To install the driver, click "Realtek Audio Drivers" on the main menu.

1. Setup is now ready to install the audio driver. Click Next.

2. Follow the remainder of the steps on the screen; clicking "Next" each time you finish a step.

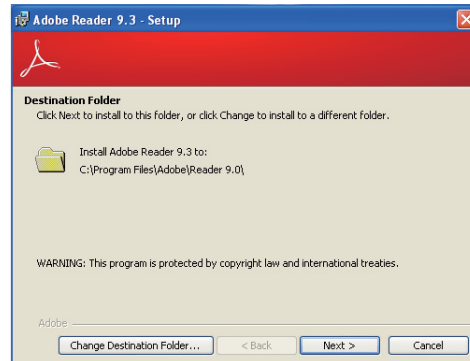3. Click "Yes, I want to restart my computer now" then click Finish.

   Restarting the system will allow the new software installation to take effect.
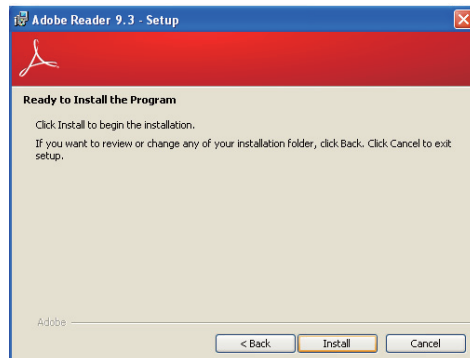
Adobe Acrobat Reader 9.3

To install the reader, click "Adobe Acrobat Reader 9.3" on the main menu.

1. Click Next to install or click
   Change Destination Folder to
   select another folder.

2. Click Install to begin installation.

3. Click Finish to exit installation.

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