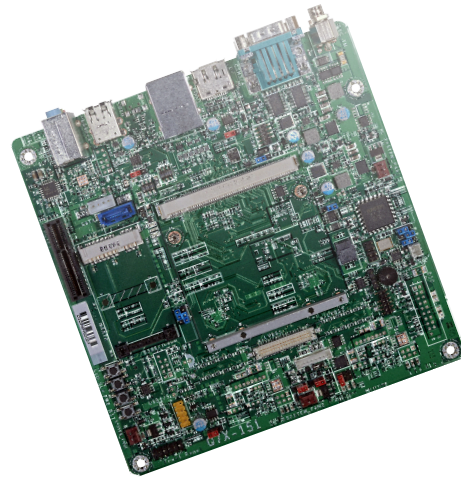


DFI



Q7X-151 (R.D1)

**Qseven Carrier Board
User's Manual**

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Changes after the publication's first release will be based on the product's revision. The website will always provide the most updated information.

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Trademarks

Product names or trademarks appearing in this manual are for identification purpose only and are the properties of the respective owners.

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.

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About this Manual

This manual can be downloaded from the website, or acquired as an electronic file included in the optional CD/DVD. The manual is subject to change and update without notice, and may be based on editions that do not resemble your actual products. Please visit our website or contact our sales representatives for the latest editions.

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 consequential 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 (R.D1) board
- One Serial ATA cable

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

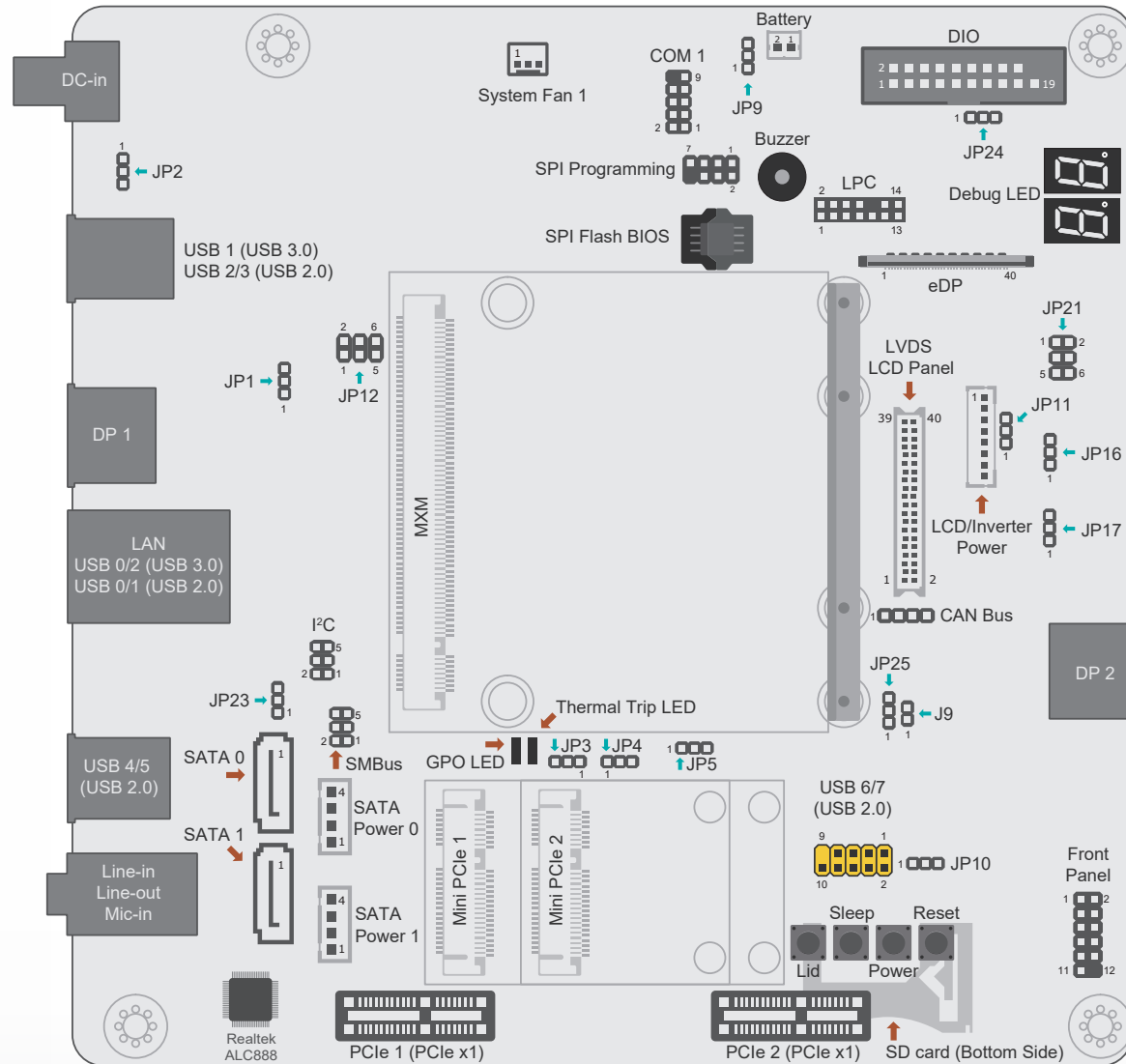
► Specifications

Graphics	<ul style="list-style-type: none"> • Display ports <ul style="list-style-type: none"> - 1 dual channel LVDS - 1 eDP port - 2 DP port
Audio	<ul style="list-style-type: none"> • Realtek ALC886 5.1-channel High Definition Audio • Audio outputs: Mic-in/Center+Subwoofer, Line-in/Surround and Line-out
USB	<ul style="list-style-type: none"> • 3 USB 3.0 and 8 USB 2.0 ports
Storage	<ul style="list-style-type: none"> • 2 SATA 3.0 port with data transfer rate up to 6Gb/s <ul style="list-style-type: none"> - SATA port provides adequate space for SATA DOM
Fron Pane I/O	<ul style="list-style-type: none"> • 1 DP port
Rear Panel I/O	<ul style="list-style-type: none"> • 1 12V DC-in jack • 2 DB-9 RS232 serial ports • 1 DP port • 1 RJ45 LAN port • 3 USB 3.0 port • 6 USB 2.0 type A ports • Mic-in/Center+Subwoofer, line-in/surround and line out jacks
I/O Connectors	<ul style="list-style-type: none"> • 1 connector for 2 external USB 2.0 ports • 2 UART ports <ul style="list-style-type: none"> - 1 supports TX/RX signal only (UART 2) • 1 eDP port • 1 LVDS LCD panel connector • 1 LCD/inverter power connector • 2 SATA power connector • 2 SATA 3.0 port • 1 LPC connector • 1 I²C connector • 1 SMBus connector • 1 CAN-bus connector • 1 front panel connector • 3 fan connectors

Expansion Slots	<ul style="list-style-type: none"> • 2 PCIe x1 slot • 2 Mini PCIe slot • 1 SDIO socket
WatchDog Timer	<ul style="list-style-type: none"> • Watchdog timeout programmable via software from 1 to 255 seconds
Damage Free Intelligence	<ul style="list-style-type: none"> • Monitors system temperature and overheat alarm • Monitors system fan speed and failure alarm
ROM Interface	<ul style="list-style-type: none"> • 1 SPI interface <ul style="list-style-type: none"> - Supports up to 64Mbit
Temperature	<ul style="list-style-type: none"> • Operating: 0°C to 60°C • Storage: -20°C to 85°C
Humidity	<ul style="list-style-type: none"> • 5% to 90%
Board to Board Connector	<ul style="list-style-type: none"> • One MXM connector • Support Qseven R2.1
Dimensions	<ul style="list-style-type: none"> • Mini-ITX form factor • 170mm (6.7") x 170mm (6.7")

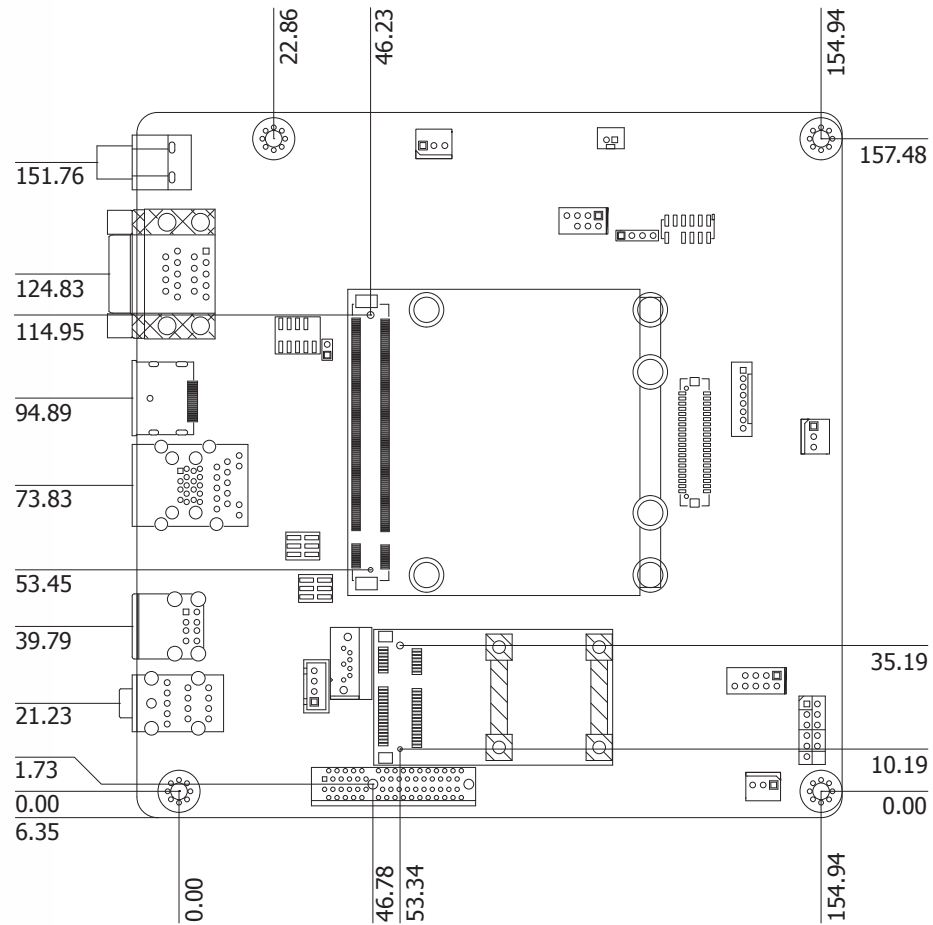
Chapter 2 - Hardware Installation

► Board Layout



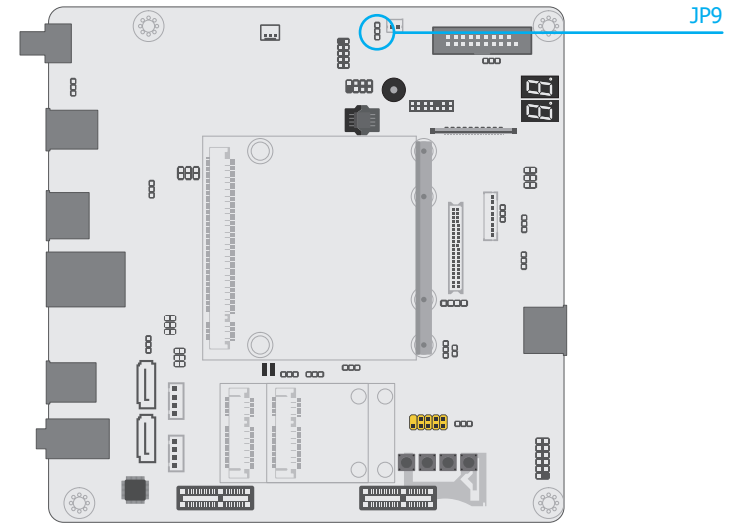
Important: Electrostatic discharge (ESD) can damage your board, processor, disk drives, add-in boards, and other components. Perform installation procedures at an ESD workstation only. If such a station is not available, you can provide some ESD protection by wearing an antistatic wrist strap and attaching 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.

► Mechanical Diagram



► Jumper Settings

Clear CMOS



If any anomaly of the followings is encountered —

- a) CMOS data is corrupted;
- b) you forgot the supervisor or user password;
- c) failure to start the system due to BIOS mis-configuration

— it is suggested that the system be reconfigured with 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. Put a jumper cap on JP9's pin 2 and pin 3. Wait for a few seconds and set JP9 back to its default setting, i.e. jumper cap on pin 1 and pin 2.
3. Plug the power cord and power-on the system.

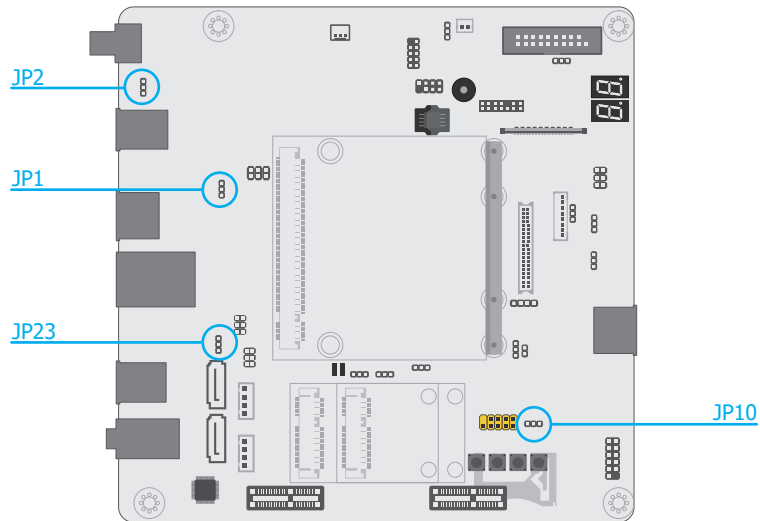


▲ 1-2 On: Normal (default)

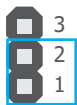


▲ 2-3 On: Clear CMOS

► Jumper Settings
USB Power Select



JP1 (for rear I/O USB 0/1), JP2 (for rear I/O USB 2/3), JP23 (for rear I/O USB 4/5), and JP10 (for internal I/O USB 6/7) are for selecting the power of USB ports. To enable Wake-on-USB function, please select +5V_standby.



▲ 1-2 On: +5V (default)



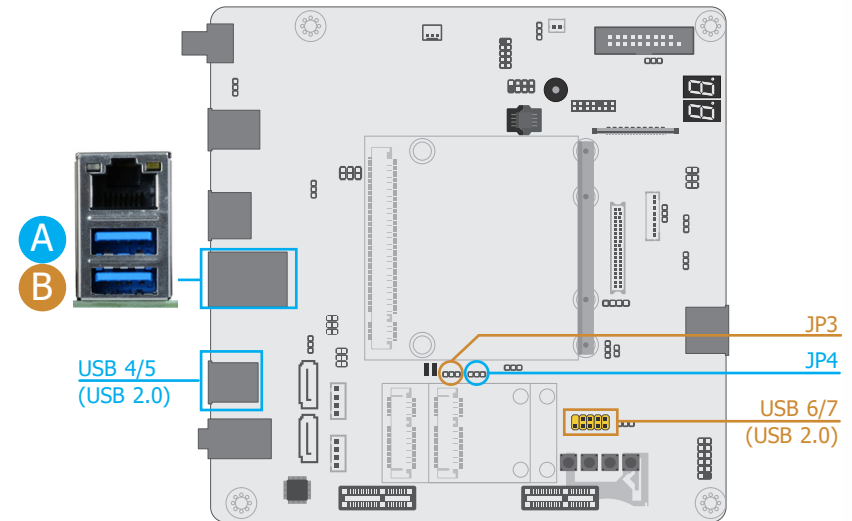
▲ 2-3 On: +5V_standby



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.

► Jumper Settings
USB Signal Select



Each of the two USB 3.0 rear channels (A and B) can act as a single USB 3.0 port without additional USB 2.0 ports, or as a single USB 2.0 port with two additional USB 2.0 ports enabled. The two configurations can be switched via jumper settings (JP3 & JP4) as listed and illustrated below.

JP4	USB 4/5 (USB 2.0)	Rear Port A
1-2 On	Enabled	USB 2.0
2-3 On (default)	Disabled	USB 3.0

JP3	USB 6/7 (USB 2.0)	Rear Port B
1-2 On	Enabled	USB 2.0
2-3 On (default)	Disabled	USB 3.0



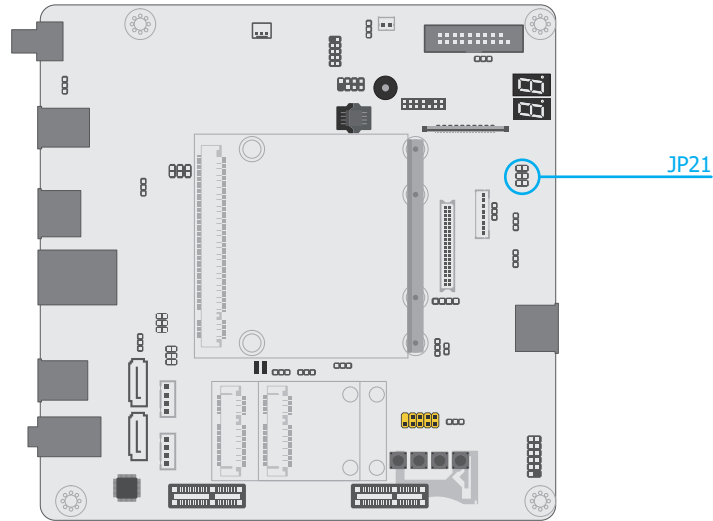
▲ 1-2 On: Three USB 2.0 physical ports



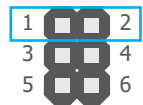
▲ 2-3 On: One USB 3.0 (default)

► Jumper Settings

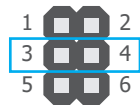
Panel Power Select



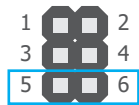
JP21 is for selecting the power voltage supplied to the LCD panel.



▲ 1-2 On: +12



▲ 3-4 On: +5V



▲ 5-6 On: +3.3V (default)

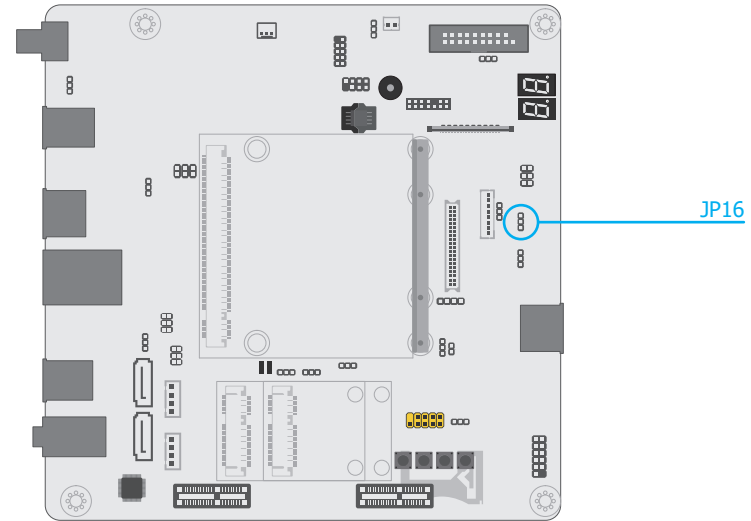


Important:

Before powering on the system, make sure that the power setting of JP21 matches the LCD panel's specification. Supplying an incorrect voltage to the panel may result in serious damage.

► Jumper Settings

Backlight Power Select



JP16 is for selecting the backlight power voltage — +5V or +3.3V.



▲ 1-2 On: +3.3V (default)



▲ 2-3 On: +5V

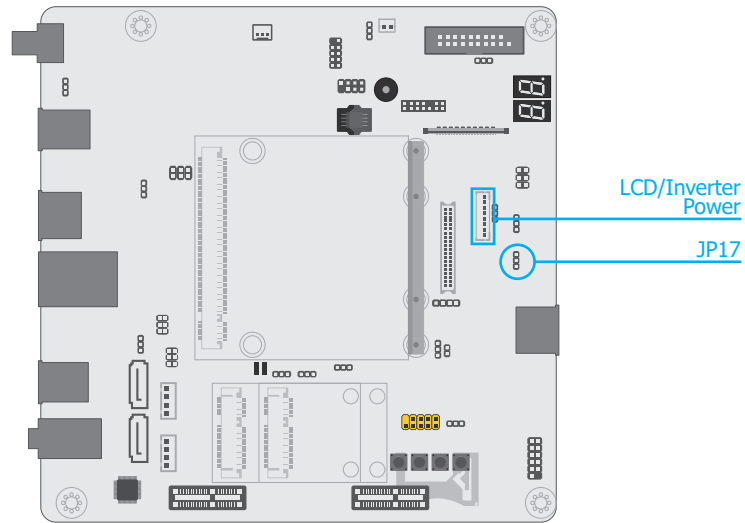


Important:

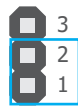
Before powering on the system, make sure that the power setting of JP16 matches the specification of the backlight control. Supplying an incorrect voltage to the panel backlight may result in serious damage.

▶ Jumper Settings

LCD/Inverter Power Select



JP17 is for selecting the power voltage of the LCD/Inverter power.



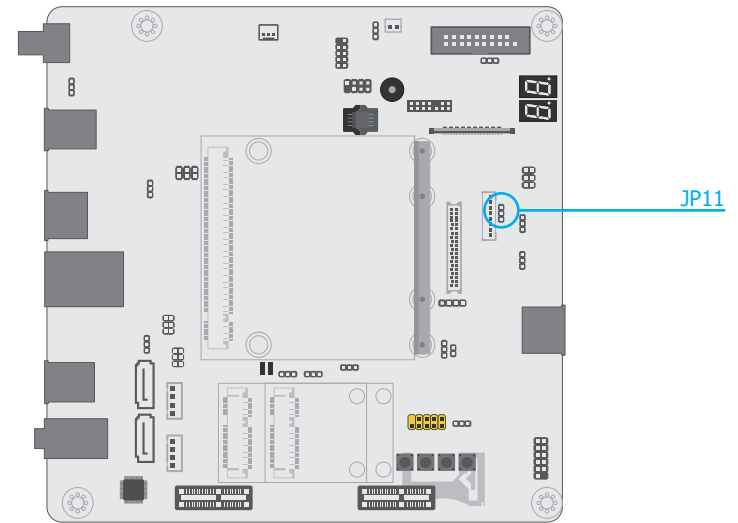
▲ 1-2 On: +12V



▲ 2-3 On: +5V (default)

▶ Jumper Settings

Dimming Mode Select



JP11 is for selecting the mode for lightness control of the LVDS panel — PWM Mode or Voltage Mode.



▲ 1-2 On: PWM Mode (default)



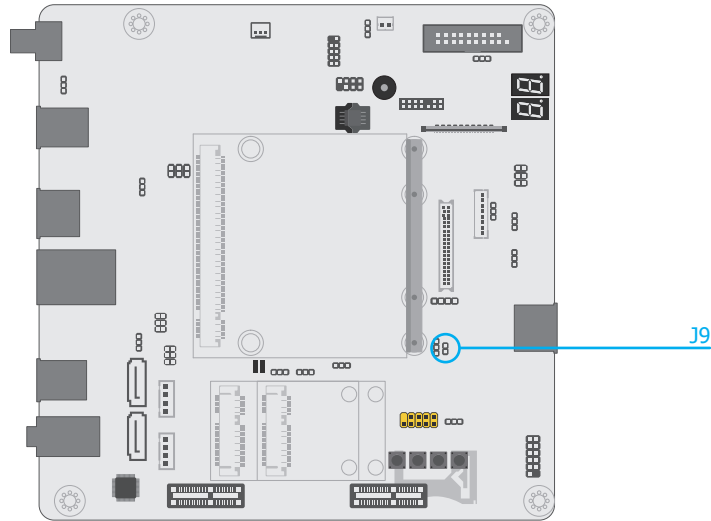
▲ 2-3 On: Voltage Mode



Important:

Please make sure the mode (PWM or Voltage) is configured according to the mode of your panel.

► Jumper Settings
BIOS Boot Select



J9 is for selecting the BIOS boot source — carrier board or Qseven module.

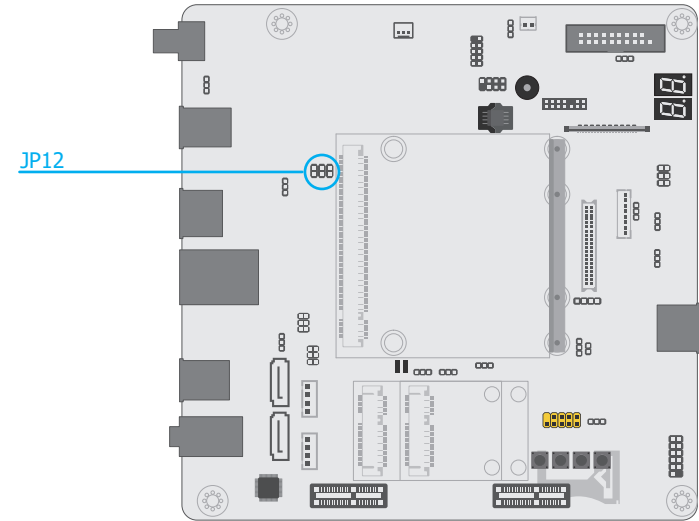


▲ 1-2 On: Boot from Carrier Board SPI BIOS



▲ 1-2 Off: Boot from Module SPI BIOS

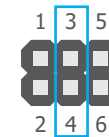
► Jumper Settings
ATX/AT Power Select



JP12 is for selecting the ATX/AT power — 5V, 5V_standby, or N.C.



▲ 1-2 On: 5V

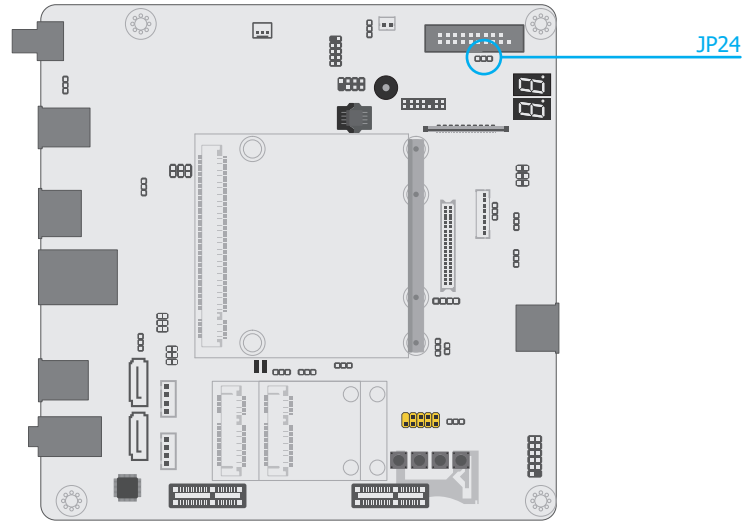


▲ 3-4 On: 5VSB



▲ 5-6 On: N.C.

► Jumper Settings
LPC/GPIO Switch



JP24 is for switching between LPC or GPIO (DIO) signals.

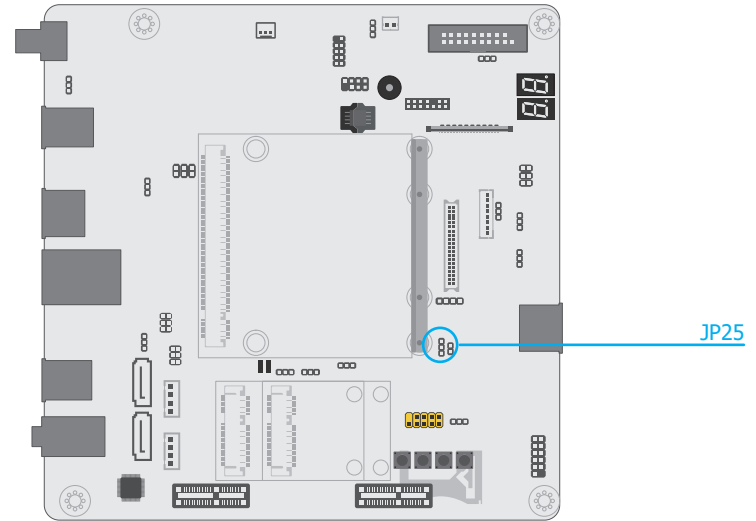


▲ 1-2 On: GPIO



▲ 2-3 On: LPC (default)

► Jumper Settings
High/low Switch for MXM Pin 27



JP25 is for switching between high and low voltage of the battery low/General Purpose Input (GPI) pin (pin 27) of the MXM connector.



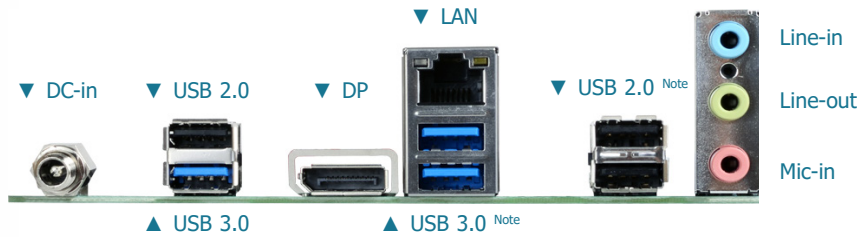
▲ 1-2 On: High (3.3V, default)



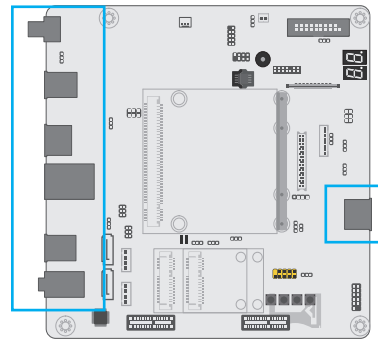
▲ 2-3 On: Low

► Panel I/O Ports

Rear panel I/O ports

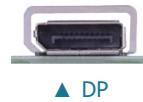


- 1 12V DC-in jack
- 3 USB 3.0 ports
- 3 USB 2.0 type A ports
- 1 DP port
- 1 RJ45 LAN port
- 1 Line-in/Surround jack
- 1 Line-out jack
- 1 Mic-in/Center+Subwoofer jack



Front panel I/O port

- 1 DP port

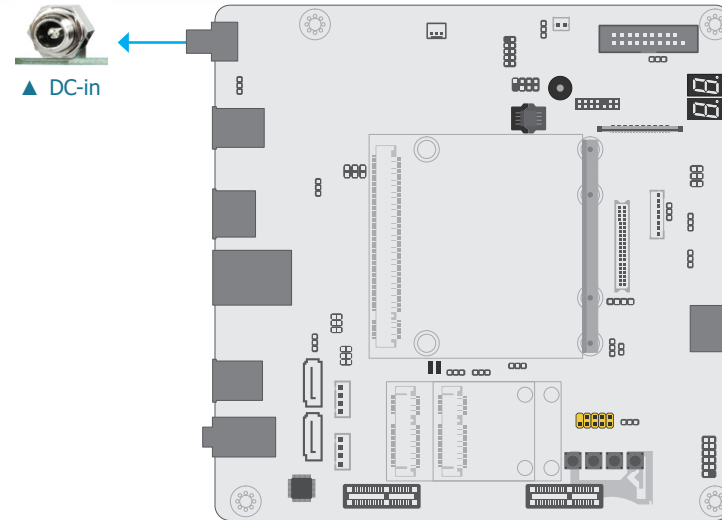


Note:

The two USB 3.0 rear ports under the LAN port can act 1) as a single USB 3.0 port with additional USB 2.0 ports disabled, or 2) as a single USB 2.0 port with two additional USB 2.0 ports enabled. Please refer to Jumper Settings of JP3 and JP4 previously in this chapter for more information.

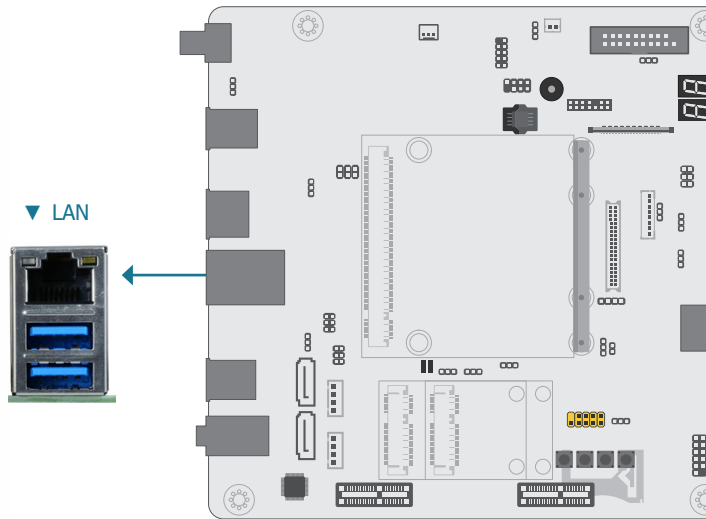
► Panel I/O Ports

12V DC-in



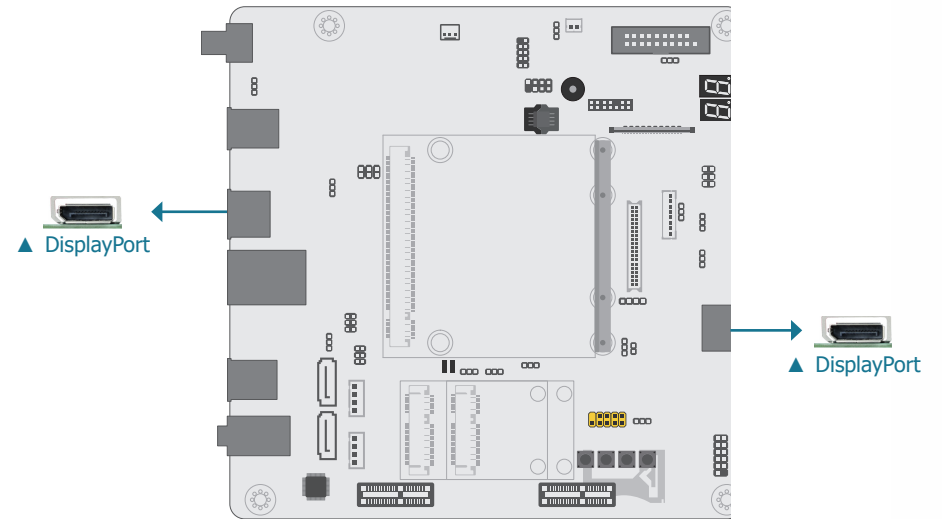
This jack provides maximum of 100W power and is considered a low power solution. Connect a DC power cord to this jack. Use a power adapter with 12V DC output voltage. Using a voltage higher than the recommended one may fail to boot the system or cause damage to the system board.

▶ Panel I/O Ports
RJ45 LAN Port



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

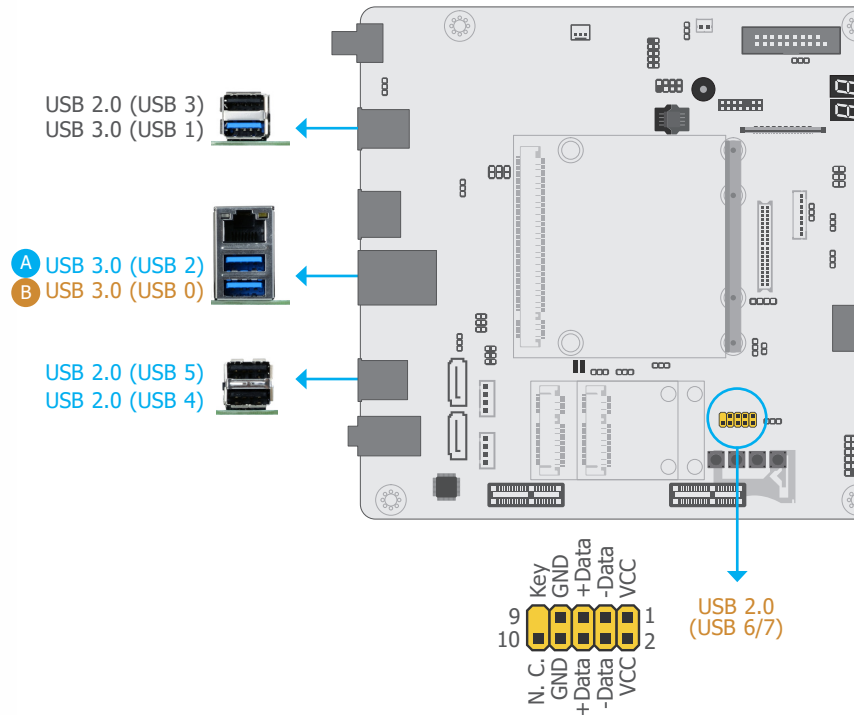
▶ Panel I/O Ports
DisplayPort



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.

► Panel I/O Ports

USB Ports



USB 2.0 / USB 3.0 signal switch

According to the maximum number of USB 2.0 and USB 3.0 ports supported by different Qseven modules, this carrier board is designed with two numbers of USB ports configurable as listed below.

JP4	USB 4/5 (USB 2.0)	Rear Port A	JP3	USB 6/7 (USB 2.0)	Rear Port B
1-2 On	Enabled	USB 2.0	1-2 On	Enabled	USB 2.0
2-3 On (default)	Disabled	USB 3.0	2-3 On (default)	Disabled	USB 3.0

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 Settings

USB power and USB 2.0 / USB 3.0 signal switch are configured via jumper settings as previously instructed in this chapter.

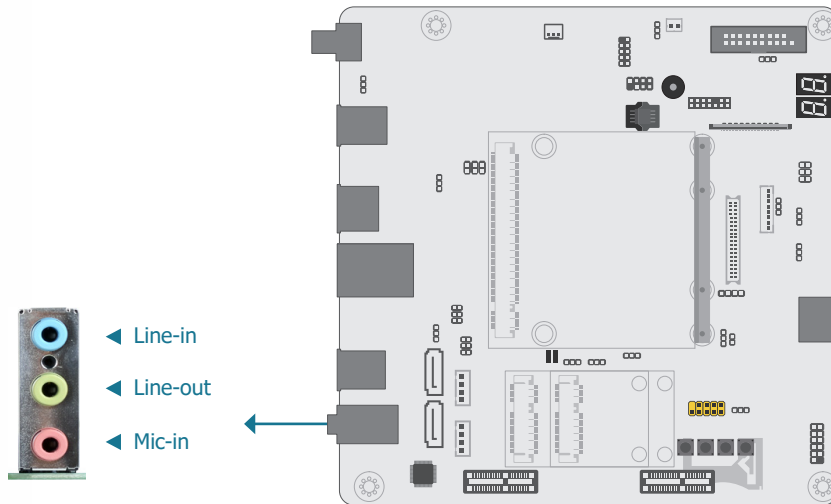
Driver Installation

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.

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 three onboard USB 3.0 ports (USB 0/1/2) and three onboard USB 2.0 type A ports (USB 3/4/5). The 10-pin internal headers allow for 2 additional USB 2.0 ports (USB 6/7).

The internal USB pin headers may be connected to 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.

▶ Panel I/O Ports**Audio****Rear Audio**

The system board is equipped with 3 rear audio jacks (Line-in, Line-out, and Mic-in) as introduced below.

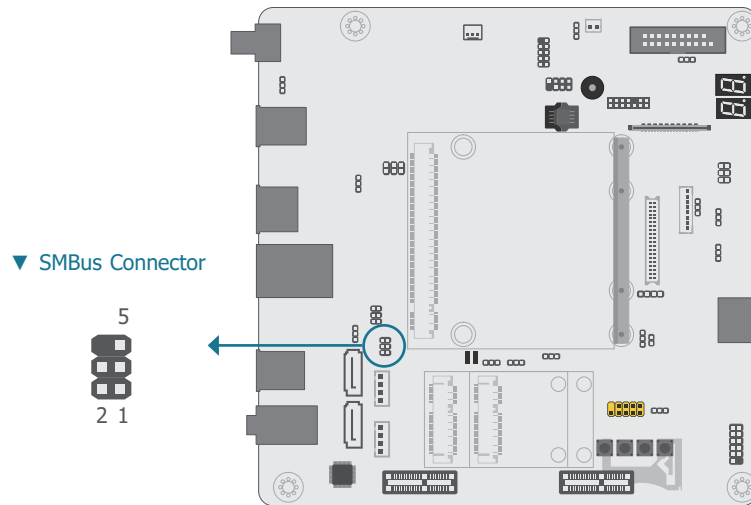
- Line-in Jack (Light Blue)
This jack is used to connect any audio devices such as Hi-fi set, CD player, tape player, AM/FM radio tuner, synthesizer, etc.
- Line-out Jack (Lime)
This jack is used to connect a headphone or external speakers.
- Mic-in Jack (Pink)
This jack is used to connect an external microphone.

BIOS Setting

Please refer to the manuals of a compatible Qseven module mounted on the carrier board for more information on BIOS settings.

► Internal I/O Connectors

SMBus Connector

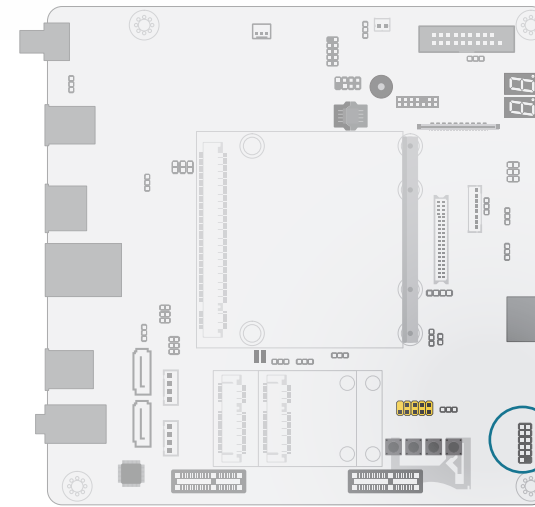


The SMBus (System Management Bus) connector is used to connect the SMBus device. It is a multiple device bus that allows multiple chips to connect to the same bus and enable each one to act as a master by initiating data transfer.

▼ SMBus Pin Assignment

Pin	Assignment	Pin	Assignment
1	3V3SB	2	GND
3	SMBus_Clock	4	SMBus_DATA
5	SMBus_Alert	6	---

Front Panel



▼ Front Panel Pin Assignment

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

HDD-LED - Hard Disk Drive LED

Lighting of the LED indicates that the hard drive is being accessed.

RESET - Reset Switch

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

PWR-LED - Power/Standby LED

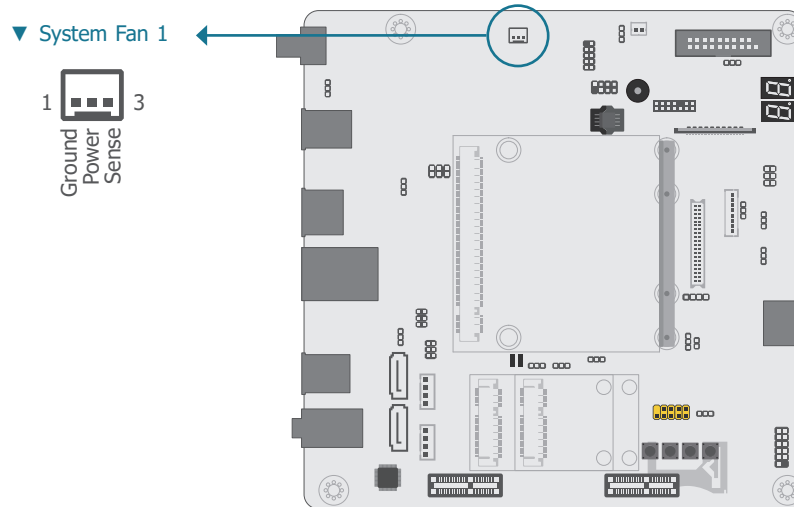
When the system's power is on, this LED will light up. When the system is in the S1 (POS - Power On Suspend) state, it will blink at 1-second intervals. When the system is in the S3 (STR - Suspend To RAM) state, it will blink at 4-second intervals.

ATX-SW - ATX Power Switch

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

► Internal I/O Connectors

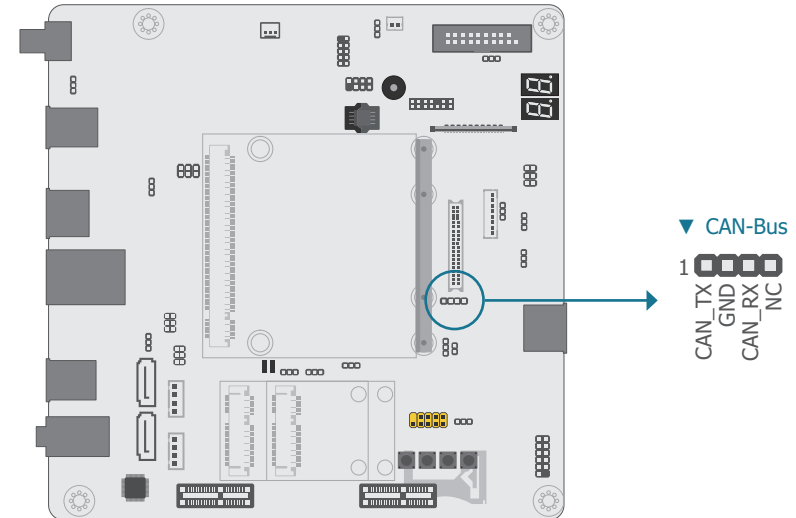
Cooling Fan Connector



This 3-pin fan connector is for connection to a cooling fan. The cooling fan will provide adequate airflow throughout the chassis to prevent overheating the system board components.

► Internal I/O Connectors

CAN-Bus Connector



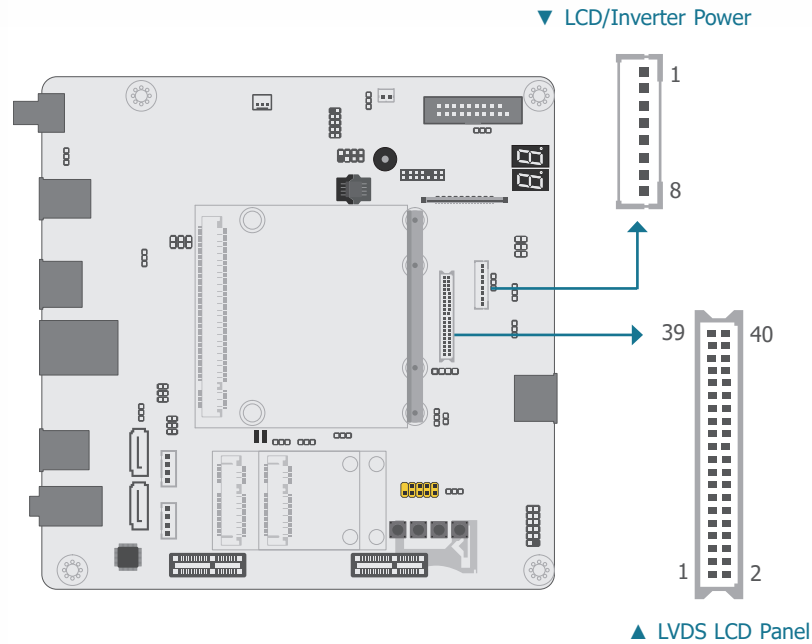
The CAN controller performs communication in accordance with the BOSCH CAN Protocol Version 2.0B Active1 (standard format and extended format). The bit rate can be programmed to a maximum of 1Mbit/s. To connect the CAN controller module to the CAN bus, it is necessary to add transceiver hardware.

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 originally designed for automotive applications, and is now widely used in other areas such as industrial automation, medical equipment and etc.

▶ Internal I/O Connectors

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 previously in this chapter to set up LCD panel relevant jumpers — Panel Power Select, Backlight Power Select, LCD/Inverter Power Select, and Dimming Mode Select.



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 Pin Assignment

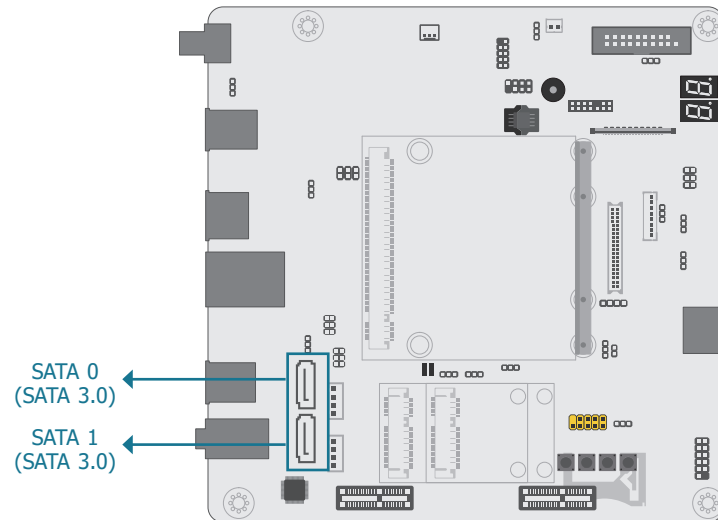
Pin	Function	Pin	Function
1	GND	2	GND
3	LVDS_Out3+	4	LVDS_Out7+
5	LVDS_Out3-	6	LVDS_Out7-
7	GND	8	GND
9	LVDS_Out2+	10	LVDS_Out6+
11	LVDS_Out2-	12	LVDS_Out6-
13	GND	14	GND
15	LVDS_Out1+	16	LVDS_Out5+
17	LVDS_Out1-	18	LVDS_Out5-
19	GND	20	GND
21	LVDS_Out0+	22	LVDS_Out4+
23	LVDS_Out0-	24	LVDS_Out4-
25	GND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

▼ LCD/Inverter Power Pin Assignment

Pin	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: 12V/5V (default)
8	LCD/Inverter Power: 12V/5V (default)

► Internal I/O Connectors

SATA (Serial ATA) Connectors



▲ SATA 3.0 Pin Assignment

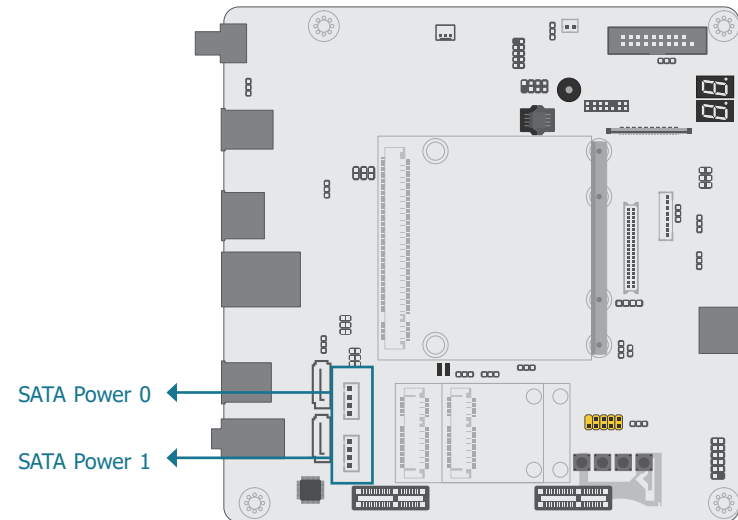
The Serial ATA (SATA) connectors are used to connect the Serial ATA device. SATA 3.0 is supported by the two SATA ports and provides data rate up to 6Gb/s. Connect one end of the Serial ATA cable to a SATA connector and the other end to your Serial ATA device.

BIOS Setting

Please refer to the manuals of a compatible Qseven module mounted on the carrier board for more information on BIOS settings.

► Internal I/O Connectors

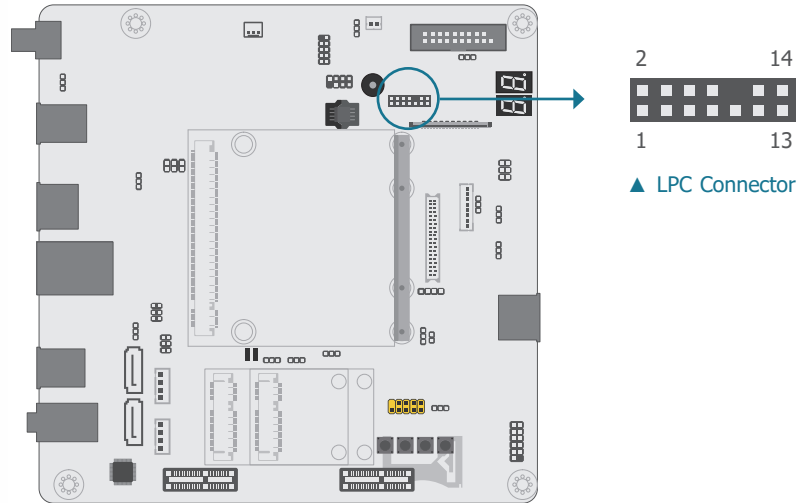
SATA (Serial ATA) Power Connectors



▲ SATA Power Pin Assignment

The SATA power connectors supply 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.

▶ Internal I/O Connectors
LPC Debug connector

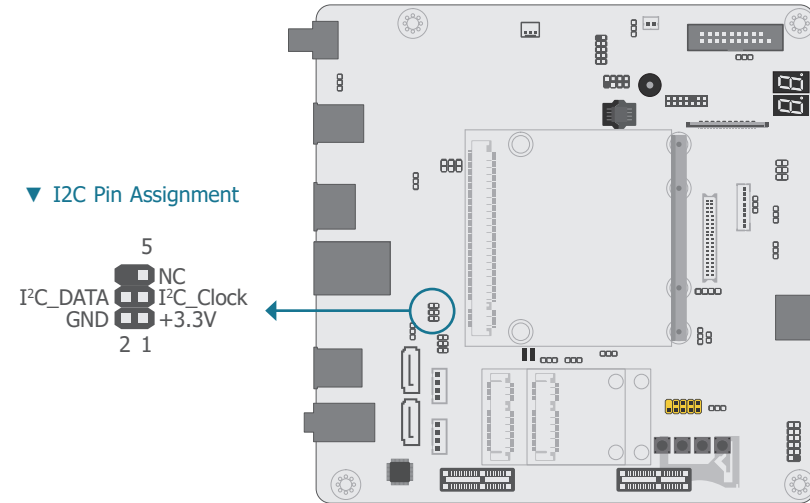


The LPC connector is used for the debug function and its pin functions are listed below.

▼ LPC Pin Assignment

Pin	Assignment	Pin	Assignment
1	L_CLK	2	L_LAD1
3	L_RST#	4	L_LAD0
5	L_FRAME#	6	3.3V
7	L_LAD3	8	GND
9	L_LAD2	10	---
11	INT_SERIRQ	12	DEBUG_48M_CLK
13	5VSB	14	5V

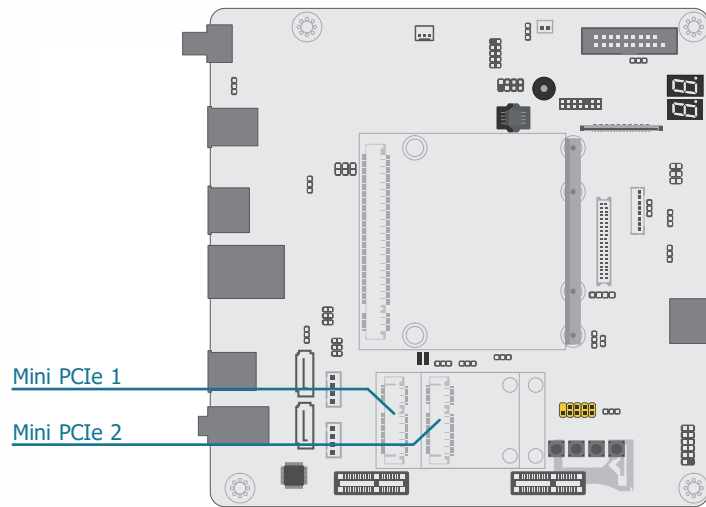
▶ Internal I/O Connectors
I²C Connector



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.

► Internal I/O Connectors

Expansion Slots



Top View

PCI Express x1 Slot

Install PCI Express cards such as network cards or other cards that comply to the PCI Express specifications into the PCI Express x1 slot.

Mini PCIe Socket

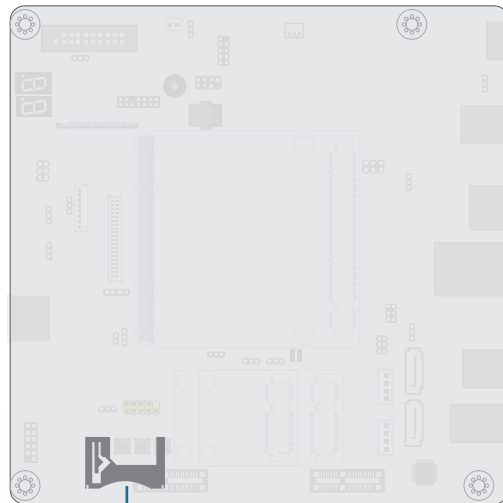
The Mini PCIe socket is used to install a half-sized 52-pin Mini PCIe card. Mini PCIe card is a small form factor PCIe card with the same signal protocol, electrical definitions, and configuration definitions as the conventional PCIe.

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, a SDIO card is also capable of storing powerful software applications.

PCIE1 (PCIe x1)

PCIE2 (PCIe x1)



Bottom View

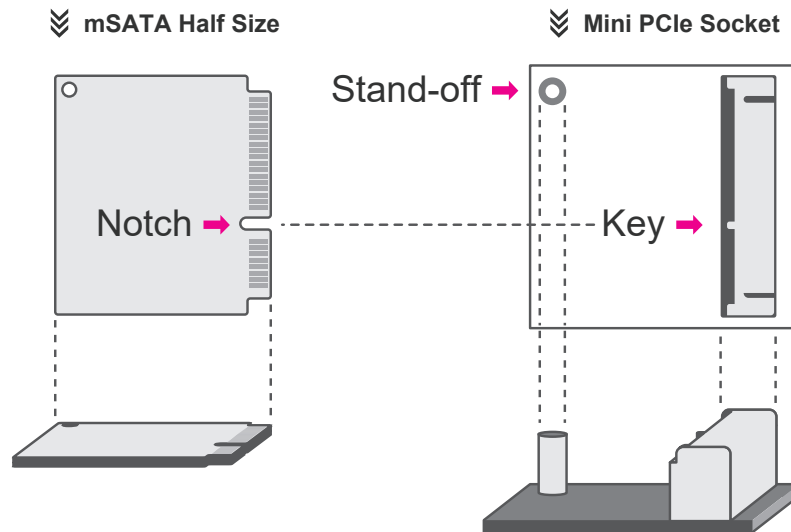
SDIO

► Internal I/O Connectors ► Expansion Slots

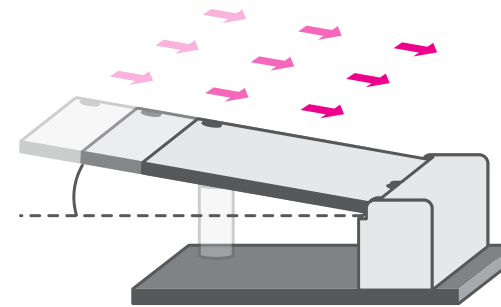
Installing the Mini PCIe card

Before installing the Mini PCIe module into the Mini PCIe socket, please make sure that the following safety cautions are well-attended.

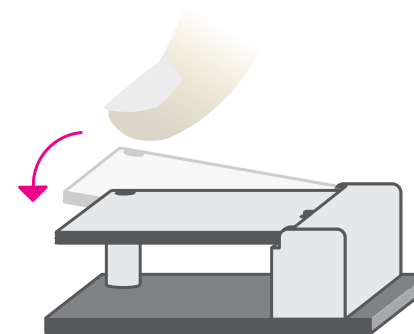
1. Make sure the PC and all other peripheral devices connected to it has been powered down.
2. Disconnect all power cords and cables.
3. Locate the Mini PCIe socket on the system board
4. Make sure the notch on card is aligned to the key on the socket.



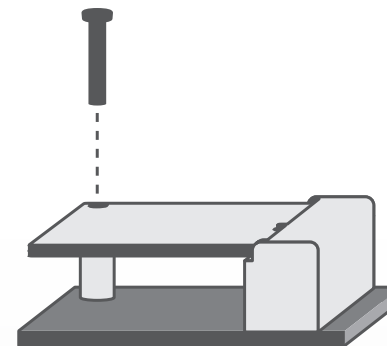
Please follow the steps below to install the card into the socket.



Step 1:
Insert the card into the socket at an angle while making sure the notch and key are perfectly aligned.



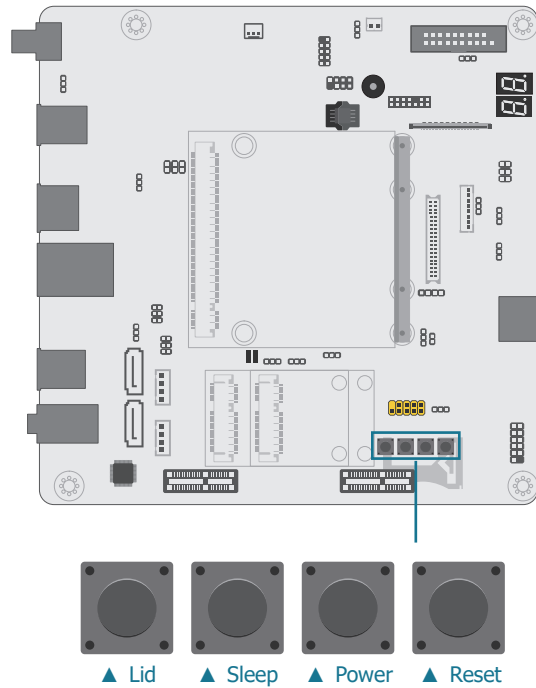
Step 2:
Press the end of the card far from the socket down until against the stand-off.



Step 3:
Screw tight the card onto the stand-off with a screw driver and a stand-off screw until the gap between the card and the stand-off closes up. The card should be lying parallel to the board when it's correctly mounted.

Internal I/O Connectors

Switches



- Lid — turn the LVDS panel on or off
- Sleep — set the system to “sleep” or “wake-up” mode
- Power — power on or off the system
- Reset — reset the system

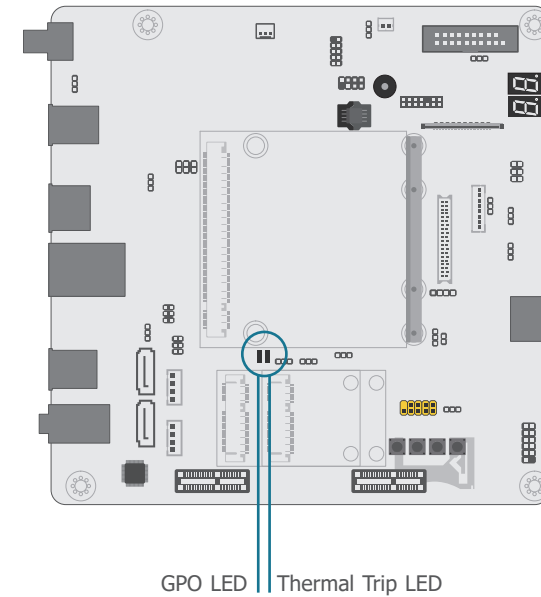


Note:

The Sleep and Lid functions are supported only when your operating system supports ACPI.

Internal I/O Connectors

LEDs



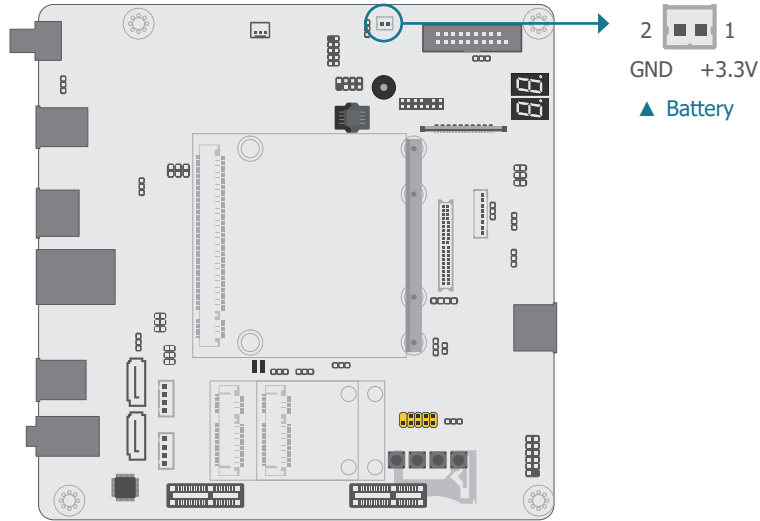
Thermal Trip LED

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

GPO LED

This LED will light red when the General Purpose Output (GPO) signal (pin 19 of the MXM connector) is active. The function of the GPO signal is dependent on the design of the Qseven module. Please refer to the pin definition of the Qseven module for more information.

► Internal I/O Connectors
Battery

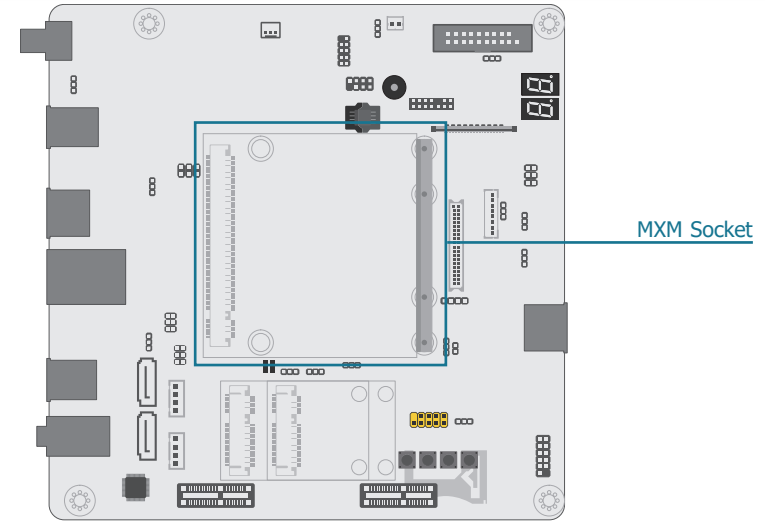


The lithium ion battery addendum supplies power to the real-time clock and CMOS memory as an auxiliary source of power when the main power is shut off.

Safety Measures

- There exists explosion hazard if the battery is incorrectly installed.
- Replace only with the same or equivalent type recommended by the manufacturer.
- Dispose of used batteries according to local ordinances.

► Internal I/O Connectors
MXM Connector



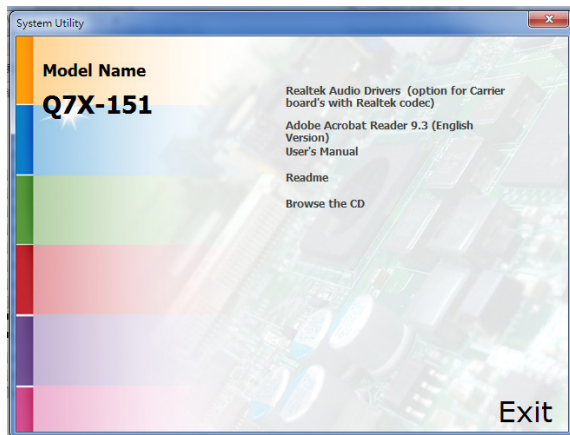
The MXM connector is used to interface the carrier board with a Qseven R2.1 compatible module. Refer to the table in the following page for the pin functions of the MXM connector.

► Internal I/O Connectors ► MXM Connector

Pin Q7 R2.1 Signal	Pin Q7 R2.1 Signal	Pin Q7 R2.1 Signal	Pin Q7 R2.1 Signal	Pin Q7 R2.1 Signal	Pin Q7 R2.1 Signal
1 GND	2 GND	95 USB_P1+	96 USB_P0+	191 SERIRQ/ GPIO6	192 LPC_LDRQ#/ GPIO7
3 GBE_MDI3-	4 GBE_MDI2-	97 GND	98 GND	193 VCC_RTC	194 SPKR/GP_PWM_OUT2
5 GBE_MDI3+	6 GBE_MDI2+	99 eDP0_TX0+ / LVDS_A0+	100 eDP1_TX0+ / LVDS_B0+	195 FAN_TACHOIN/ GP_TIMER_IN	196 FAN_PWMOUT/ GP_PWM_OUT1
7 GBE_LINK100#	8 GBE_LED_1000-	101 eDP0_TX0- / LVDS_A0-	102 eDP1_TX0- / LVDS_B0-	197 GND	198 GND
9 GBE_MDI1-	10 GBE_MDI0-	103 eDP0_TX1+ / LVDS_A1+	104 eDP1_TX1+ / LVDS_B1+	199 SPI_MOSI	200 SPI_CS0#
11 GBE_MDI1+	12 GBE_MDI0+	105 eDP0_TX1- / LVDS_A1-	106 eDP1_TX1- / LVDS_B1-	201 SPI_MISO	202 SPI_CS1#
13 GBE_LINK#	14 GBE_ACT#	107 eDP0_TX2+ / LVDS_A2+	108 eDP1_TX2+ / LVDS_B2+	203 SPI_SCK	204 MFG_NC4
15 GBE_CTREF	16 SUS_S5#	109 eDP0_TX2- / LVDS_A2-	110 eDP1_TX2- / LVDS_B2-	205 VCC_5V_SB	206 VCC_5V_SB
17 WAKE#	18 SUS_S3#	111 LVDS_PPEN	112 LVDS_BLEN	207 MFG_NC0	208 MFG_NC2
19 GPO0	20 PWRBTN#	113 eDP0_TX3+ / LVDS_A3+	114 eDP1_TX3+ / LVDS_B3+	209 MFG_NC1	210 MFG_NC3
21 SLP_BTN# /GPII1	22 LID_BTN# /GPIIO	115 eDP0_TX3- / LVDS_A3-	116 eDP1_TX3- / LVDS_B3-	211 NC	212 NC
23 GND	24 GND	117 GND	118 GND	213 NC	214 NC
- KEY	- KEY	119 eDP0_AUX+ / LVDS_A_CLK+	120 eDP1_AUX+ / LVDS_B_CLK+	215 NC	216 NC
25 GND	26 PWGIN	121 eDP0_AUX- / LVDS_A_CLK-	122 eDP1_AUX- / LVDS_B_CLK-	217 NC	218 NC
27 BATLOW# /GPII2	28 RSTBTN#	123 LVDS_BLT_CTRL /GP_PWM_OUT0	124 GP_1-Wire_Bus /HDMI_CEC	219 VCC	220 VCC
29 SATA0_TX+	30 SATA1_TX+	125 GP2_I2C_DAT / LVDS_DID_DAT	126 eDP0_HPD# / LVDS_BLC_DAT	221 VCC	222 VCC
31 SATA0_TX-	32 SATA1_TX-	127 GP2_I2C_CLK / LVDS_DID_CLK	128 eDP1_HPD# / LVDS_BLC_CLK	223 VCC	224 VCC
33 SATA_ACT#	34 GND	129 CAN0_TX	130 CAN0_RX	225 VCC	226 VCC
35 SATA0_RX+	36 SATA1_RX+	131 DP_LANE3+ / TMDS_CLK+	132 USB_SSTX1-	227 VCC	228 VCC
37 SATA0_RX-	38 SATA1_RX-	133 DP_LANE3- / TMDS_CLK-	134 USB_SSTX1+	229 VCC	230 VCC
39 GND	40 GND	135 GND	136 GND		
41 BIOS_DISABLE# / BOOT_ALT#	42 SDIO_CLK#	137 DP_LANE1+ / TMDS_LANE1+	138 DP_AUX+		
43 SDIO_CD#	44 RSVD	139 DP_LANE1- / TMDS_LANE1-	140 DP_AUX-		
45 SDIO_CMD	46 SDIO_WP	141 GND	142 GND		
47 SDIO_PWR#	48 SDIO_DAT1	143 DP_LANE2+ / TMDS_LANE0+	144 USB_SSRX1-		
49 SDIO_DAT0	50 SDIO_DAT3	145 DP_LANE2- / TMDS_LANE0-	146 USB_SSRX1+		
51 SDIO_DAT2	52 RSVD	147 GND	148 GND		
53 RSVD	54 RSVD	149 DP_LANE0+ / TMDS_LANE2+	150 HDMI_CTRL_DAT		
55 RSVD	56 USB_OTG_PEN	151 DP_LANE0- / TMDS_LANE2-	152 HDMI_CTRL_CLK		
57 GND	58 GND	153 HDMI_HPD#	154 DP_HPD#		
59 HDA_SYNC / I2S_WS	60 SMB_CLK / GP1_I2C_CLK	155 PCIE_CLK_REF+	156 PCIE_WAKE#		
61 HDA_RST# / I2S_RST#	62 SMB_DAT / GP1_I2C_DAT	157 PCIE_CLK_REF-	158 PCIE_RST#		
63 HDA_BITCLK / I2S_CLK	64 SMB_ALERT#	159 GND	160 GND		
65 HDA_SDI / I2S_SDI	66 GP0_I2C_CLK	161 PCIE3_TX+	162 PCIE3_RX+		
67 HDA_SDO / I2S_SDO	68 GP0_I2C_DAT	163 PCIE3_TX-	164 PCIE3_RX-		
69 THRM#	70 WDTRIG#	165 GND	166 GND		
71 THRMTRIP#	72 WDOUT	167 PCIE2_TX+	168 PCIE2_RX+		
73 GND	74 GND	169 PCIE2_TX-	170 PCIE2_RX-		
75 USB_P7- / USB_SSTX0-	76 USB_P6- / USB_SSRX0-	171 UART0_TX	172 UART0_RTS#		
77 USB_P7+ / USB_SSTX0+	78 USB_P6+ / USB_SSRX0+	173 PCIE1_TX+	174 PCIE1_RX+		
79 USB_6_7_OC#	80 USB_4_5_OC#	175 PCIE1_TX-	176 PCIE1_RX-		
81 USB_P5- / USB_SSTX2-	82 USB_P4- / USB_SSRX2-	177 UART0_RX	178 UART0_CTS#		
83 USB_P5+ / USB_SSTX2+	84 USB_P4+ / USB_SSRX2+	179 PCIE0_TX+	180 PCIE0_RX+		
85 USB_2_3_OC#	86 USB_0_1_OC#	181 PCIE0_TX-	182 PCIE0_RX-		
87 USB_P3-	88 USB_P2-	183 GND	184 GND		
89 USB_P3+	90 USB_P2+	185 LPC_AD0 / GPIO0	186 LPC_AD1 / GPIO1		
91 USB_VBUS	92 USB_ID	187 LPC_AD2 / GPIO2	188 LPC_AD3 / GPIO3		
93 USB_P1-	94 USB_P0-	189 LPC_CLK / GPIO4	190 LPC_FRAME# / GPIO5		

Chapter 3 - Supported Software

Install drivers, utilities and software applications that are required to facilitate and enhance the performance of the system board. You may acquire the software from your sales representatives, from an optional DVD included in the shipment, or from the website download page at <https://www.dfi.com/DownloadCenter>.



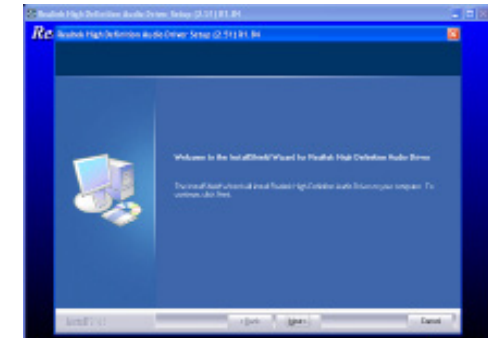
Note:

This step can be ignored if the applications are downloaded standalone files.

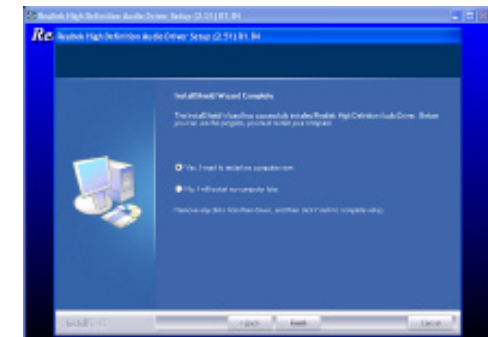
► Realtek Audio Drivers

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.



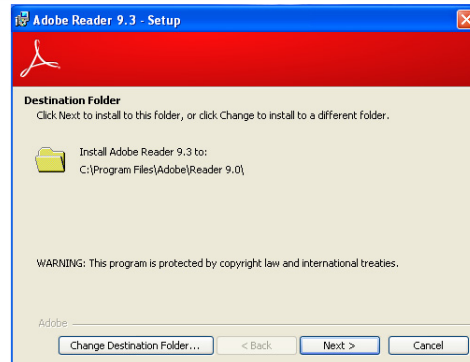
3. Click "Yes, I want to restart my computer now" then click Finish. Restarting the system will allow the new software installation to take effect.



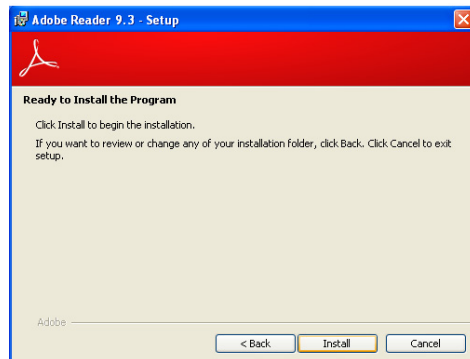
► Adobe Acrobat Reader 9.3

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.

