

# **COM100-B**

## **COM Express Carrier Board User's Manual**

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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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## 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 COM100-B board
- One SATA data cable
- One SATA power cable
- One IO shield

## Optional Items

- SATA data cable
- SATA power cable
- I/O shield
- Power adapter (120W, 19V, Level 6)

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, 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

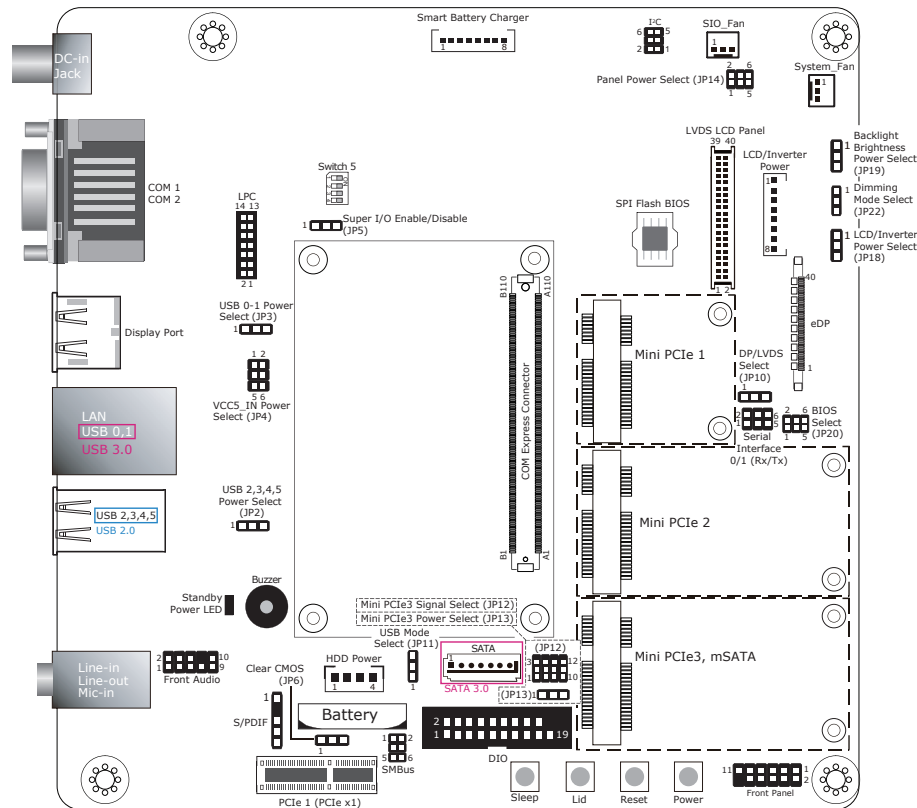
### Specifications

<b>Graphics</b>	<ul style="list-style-type: none"> <li>• Display ports               <ul style="list-style-type: none"> <li>- 1 DisplayPort</li> <li>- 1 24-bit single channel LVDS</li> </ul> </li> </ul>
<b>Audio</b>	<ul style="list-style-type: none"> <li>• Realtek ALC886 7.1-channel High Definition Audio</li> <li>• Audio outputs: Mic-in/Center+Subwoofer, Line-in/Surround and Line-out</li> <li>• S/PDIF audio interface</li> </ul>
<b>USB</b>	<ul style="list-style-type: none"> <li>• 2 USB 3.0 ports</li> <li>• 4 USB 2.0 ports</li> </ul>
<b>Storage</b>	<ul style="list-style-type: none"> <li>• 1 SATA 3.0 port with data transfer rate up to 6Gb/s</li> </ul>
<b>Digital I/O</b>	<ul style="list-style-type: none"> <li>• 8-bit Digital I/O connector               <ul style="list-style-type: none"> <li>- 4-bit GPI (General Purpose Input)</li> <li>- 4-bit GPO (General Purpose Output)</li> </ul> </li> </ul>
<b>Rear Panel IO Ports</b>	<ul style="list-style-type: none"> <li>• 5V~19V DC-in jack</li> <li>• 2 DB-9 RS232 serial ports</li> <li>• 1 DisplayPort</li> <li>• 1 RJ45 LAN port</li> <li>• 2 USB 3.0 ports</li> <li>• 4 USB 2.0 ports</li> <li>• Line-in/Surround, Line-out, and Mic-in/Center+Subwoofer jacks</li> </ul>
<b>I/O Connectors</b>	<ul style="list-style-type: none"> <li>• 1 serial interface for 2 serial ports (TX/RX)</li> <li>• 1 LVDS LCD panel connector</li> <li>• 1 LCD/inverter power connector</li> <li>• 1 8-bit Digital I/O connector</li> <li>• 1 front audio connector for line-out and mic-in jacks</li> <li>• 1 S/PDIF connector</li> <li>• 1 SATA 3.0 port</li> <li>• 1 SATA power connector</li> <li>• 1 Smart battery charger connector</li> <li>• 1 LPC connector</li> <li>• 1 I<sup>2</sup>C connectors</li> <li>• 1 SMBus connector</li> <li>• 1 front panel connector</li> <li>• 2 fan connectors</li> </ul>
<b>Expansion Slots</b>	<ul style="list-style-type: none"> <li>• 1 PCIe x1 slot (PCIe 2.0)</li> <li>• 3 Mini PCIe slots (PCIe 2.0)               <ul style="list-style-type: none"> <li>- 1 slot supports PCIe and USB signals for 3G module (full size)</li> <li>- 1 slot supports PCIe and USB signals (half size)</li> <li>- 1 slot supports PCIe or mSATA signal (full size)</li> </ul> </li> <li>• 1 SIM card socket</li> </ul>

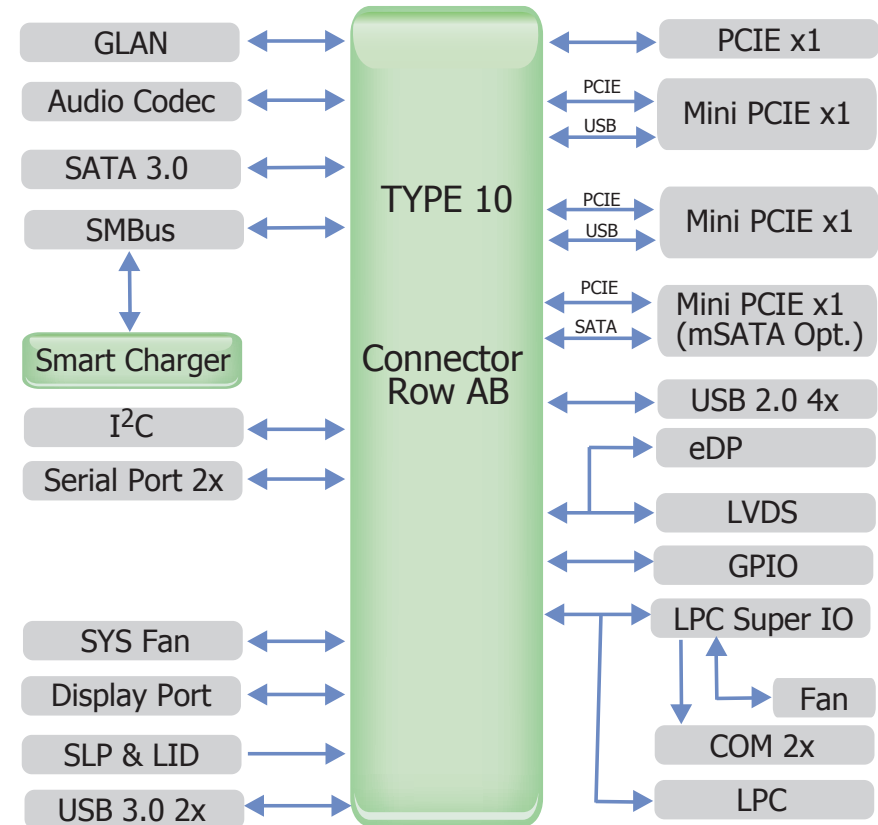
<b>Supported COM Express Module</b>	<ul style="list-style-type: none"> <li>• Mini form factor</li> </ul>
<b>Damage Free Intelligence</b>	<ul style="list-style-type: none"> <li>• Legacy Super I/O support (optional)               <ul style="list-style-type: none"> <li>- Monitors 5V/1.5V/12V/3.3V</li> <li>- Monitors SIO_Fan</li> </ul> </li> </ul>
<b>ROM Interface</b>	<ul style="list-style-type: none"> <li>• 1 SPI interface               <ul style="list-style-type: none"> <li>- Supports up to 64Mbit</li> </ul> </li> </ul>
<b>Temperature</b>	<ul style="list-style-type: none"> <li>• Operating: 0°C to 60°C</li> <li>• Storage: -20°C to 85°C</li> </ul>
<b>Humidity</b>	<ul style="list-style-type: none"> <li>• 10% to 90%</li> </ul>
<b>Power Output</b>	<ul style="list-style-type: none"> <li>• 12V, 5VSB, VCC_RTC (ATX Mode)</li> <li>• 12V, 5V, VCC_RTC (AT mode)</li> <li>• 12V, VCC_RTC (AT mode)</li> </ul>
<b>PCB</b>	<ul style="list-style-type: none"> <li>• Dimensions               <ul style="list-style-type: none"> <li>- Mini-ITX form factor</li> <li>- 170mm (6.7") x 170mm (6.7")</li> </ul> </li> <li>• Compliance               <ul style="list-style-type: none"> <li>- PICMG COM Express® R2.1, Type 10</li> </ul> </li> </ul>
<b>CERTIFICATION</b>	<ul style="list-style-type: none"> <li>• RoHS</li> </ul>

## Chapter 2 - Hardware Installation

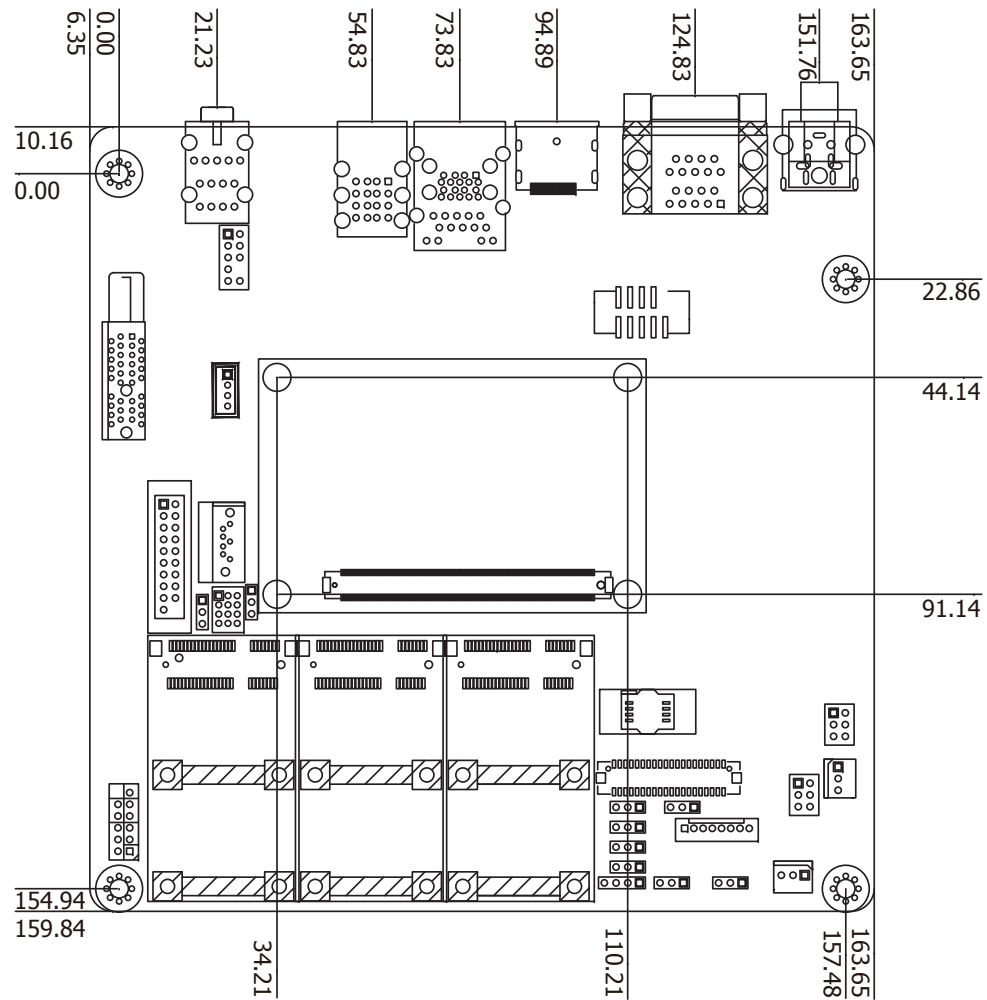
### Board Layout



### Block Diagram



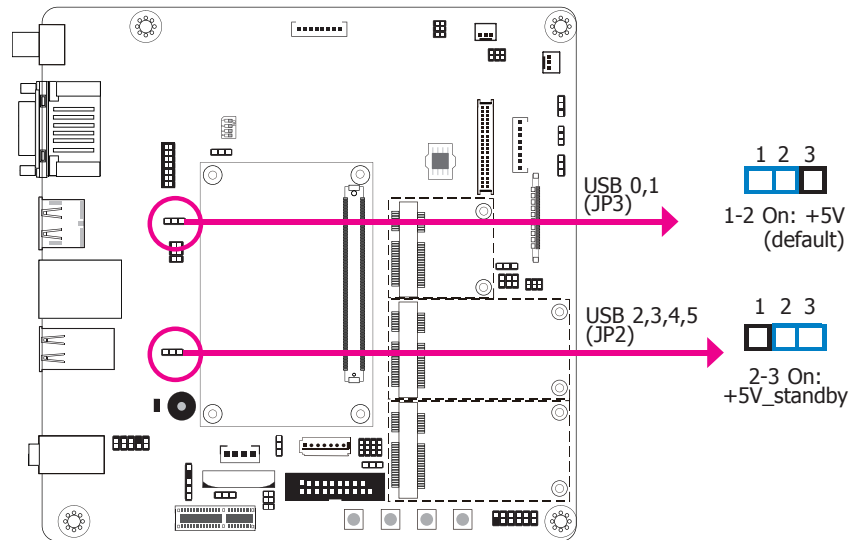
## Mechanical Drawing





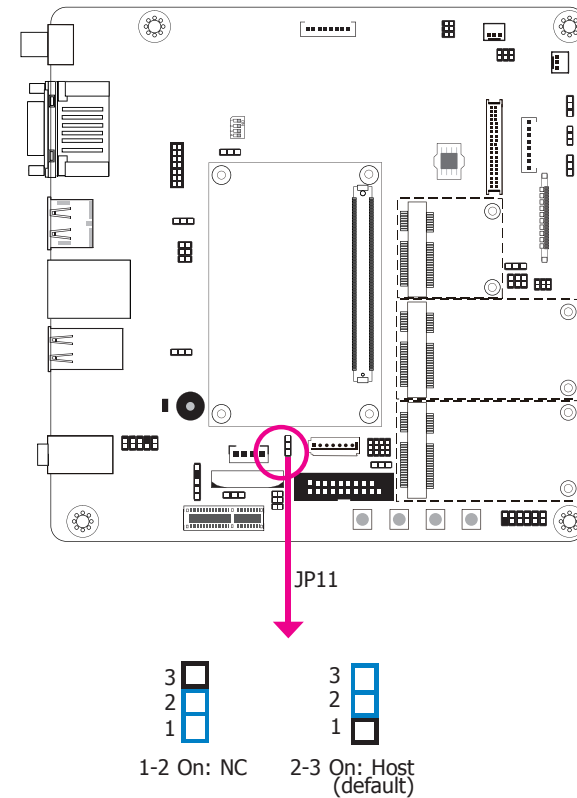
## Jumper Settings

### USB Power Select



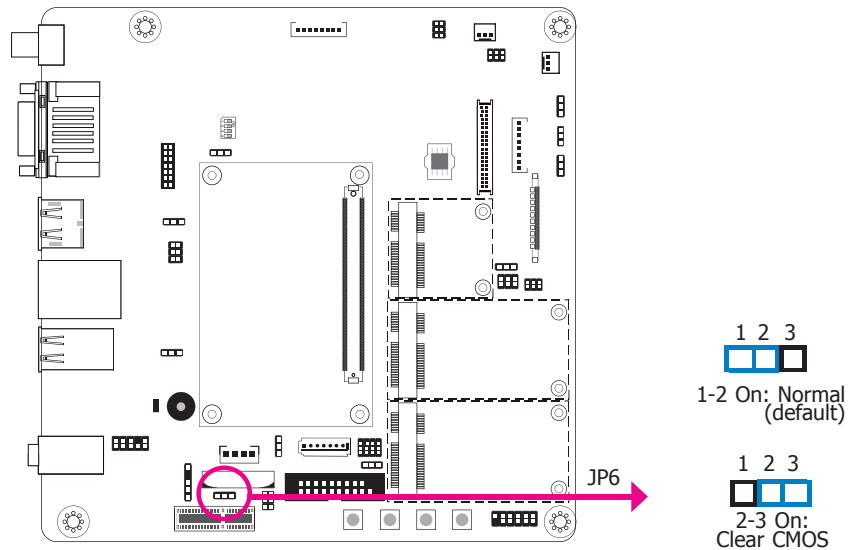
JP3 (for USB 0,1) and JP2 (for USB 2,3,4,5) are used to select the power of USB ports. Selecting +5V\_standby will allow you to use a USB keyboard to wake up the system.

### USB Mode Select



The JP11 is used to select the USB mode.

## Clear CMOS



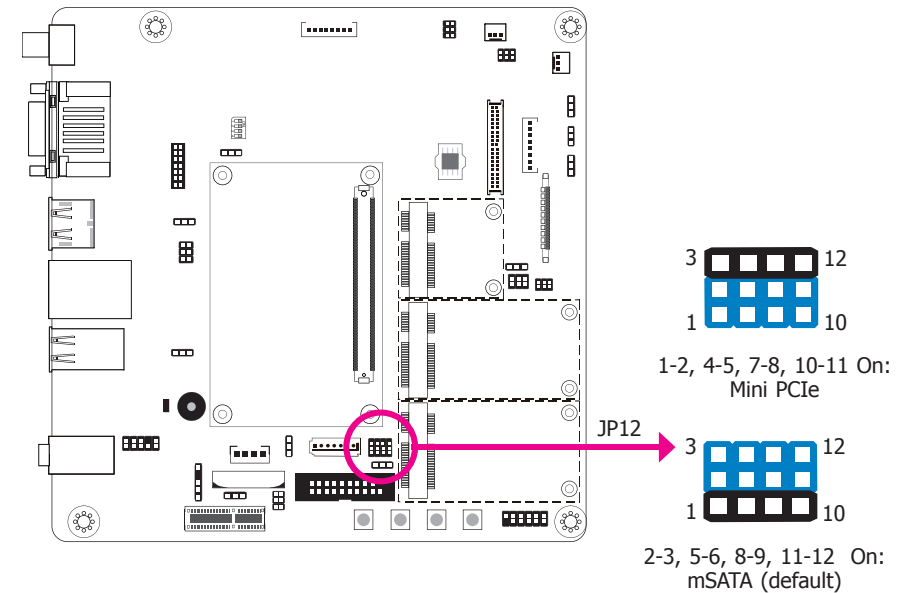
If you encounter the following situations, you can reconfigure the system with the default values stored in the ROM BIOS.

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

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

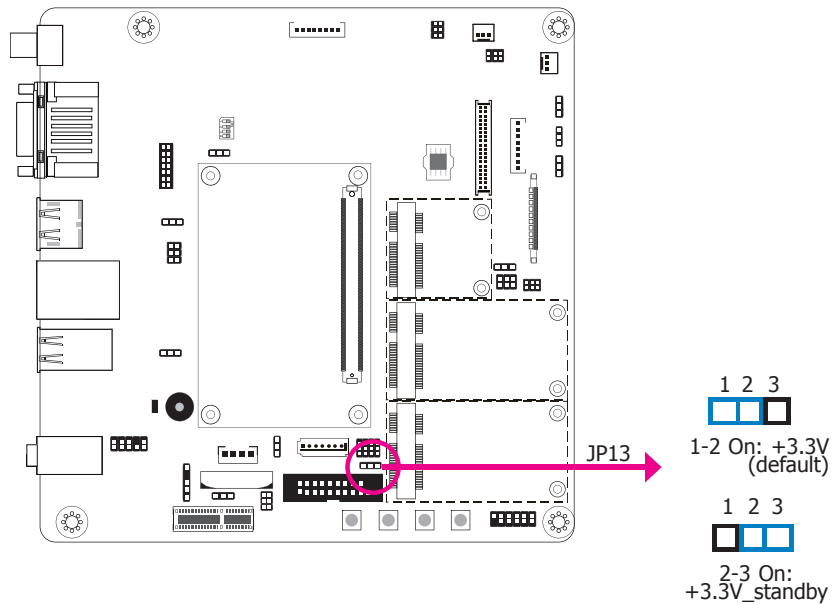
1. Power-off the system and unplug the power cord.
2. Set JP6 pins 2 and 3 to On. Wait for a few seconds and set JP6 back to its default setting, pins 1 and 2 On.
3. Now plug the power cord and power-on the system.

## Mini PCIe3 Signal Select



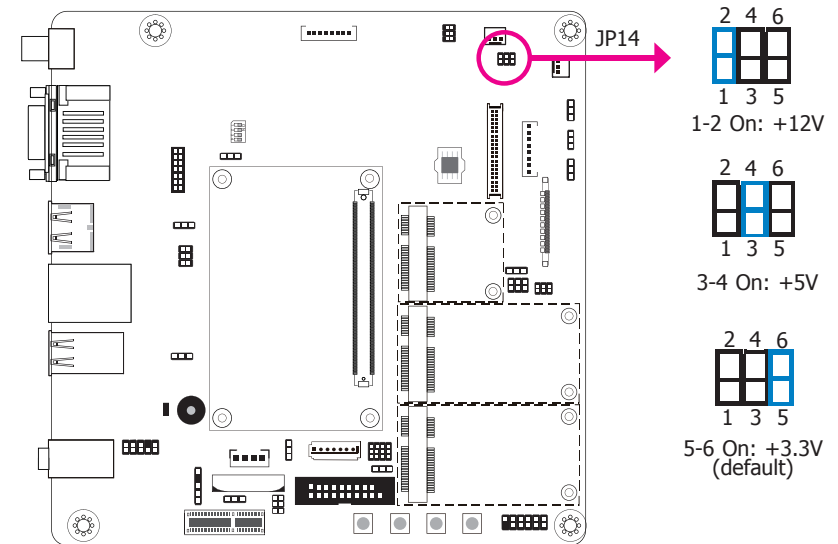
The JP12 is used to select the Mini PCIe signal.

## Mini PCIe3 Power Select



The JP13 is used to select the power supplied with the Mini PCIe.

## Panel Power Select

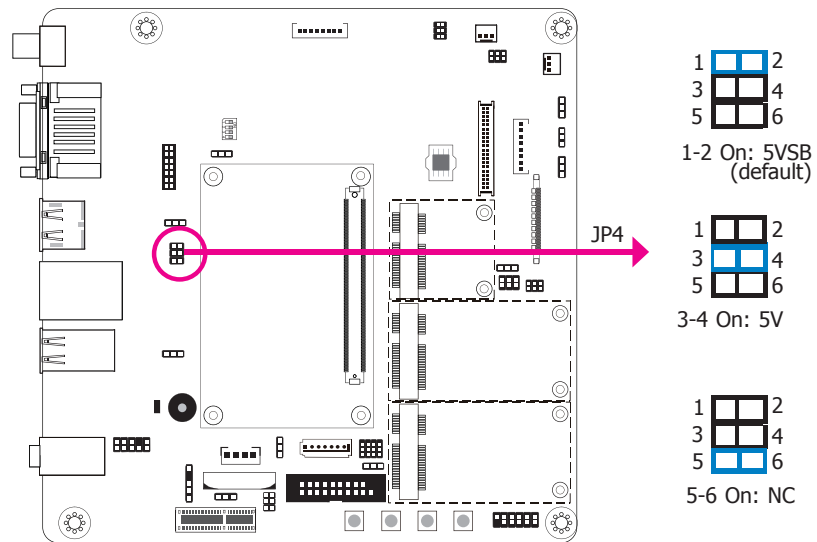


The JP14 is used to select the power supplied with the LCD panel.

**Important:**

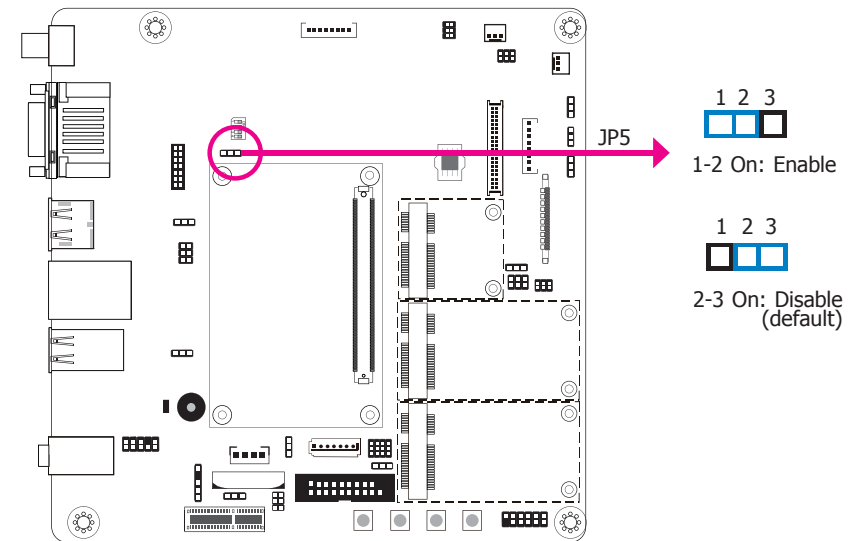
Before powering-on the system, make sure that the power settings of JP14 match the LCD panel's specification. Selecting the incorrect voltage will seriously damage the LCD panel.

## VCC5\_In Power Select



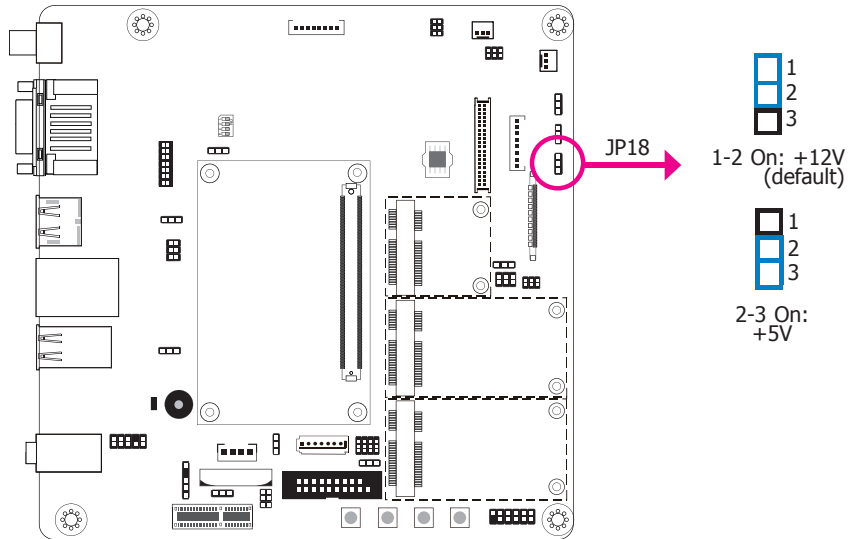
The JP4 is used to select the power of the COM Express connectors.

## Super I/O Enable/Disable



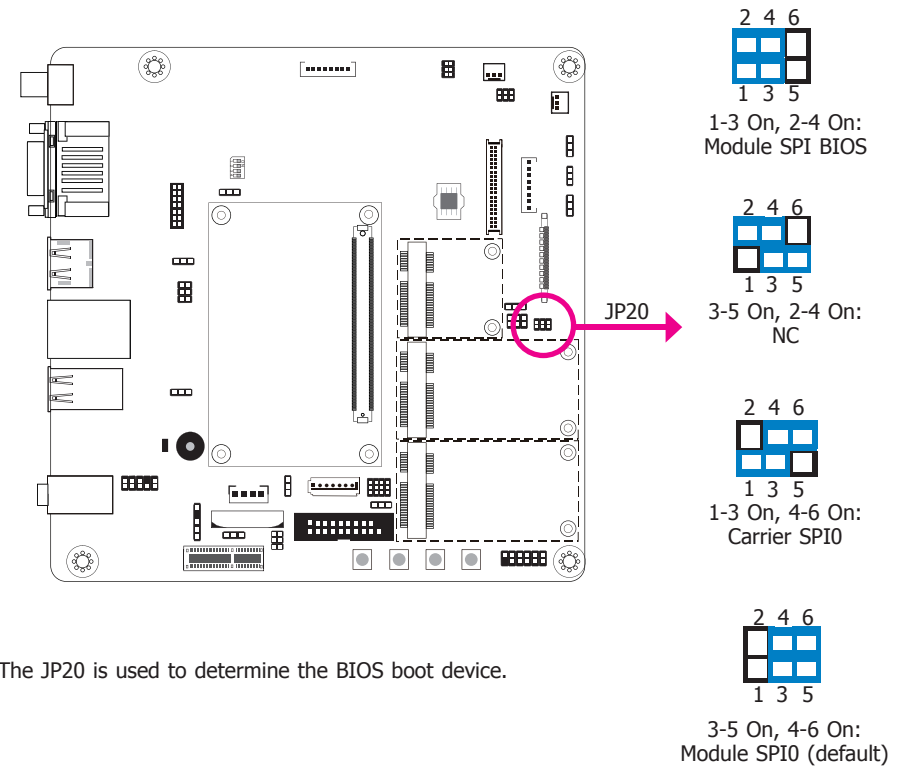
The JP5 is used to enable or disable the selection of Super I/O.

## LCD/Inverter Power Select



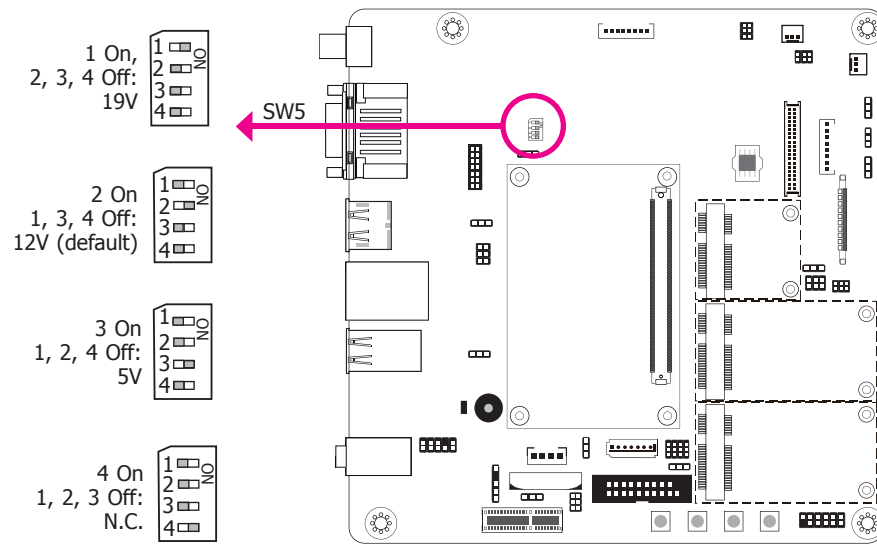
The JP18 is used to select the power level of LCD inverter connector.

## BIOS Select



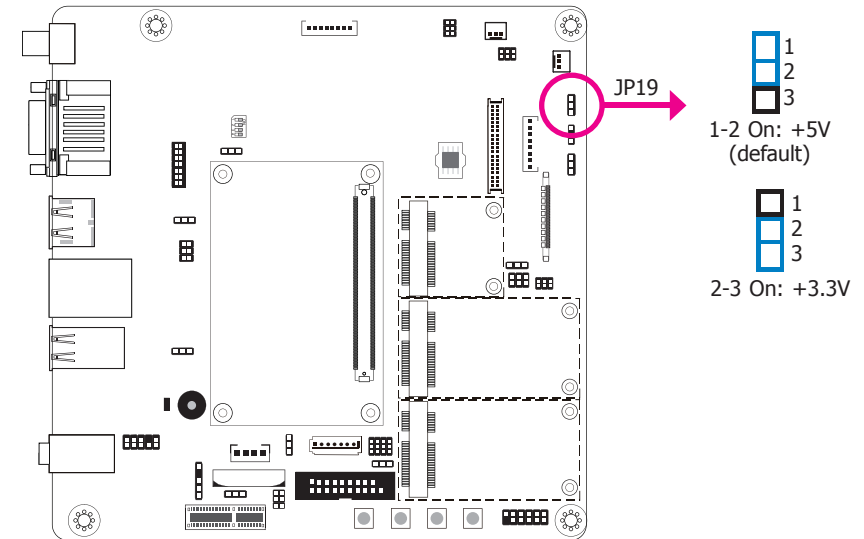
The JP20 is used to determine the BIOS boot device.

## DC-in Voltage Level



The Switch5 is used to select the voltage level of 5V~19V DC-in jack.

## Backlight Brightness Power Select



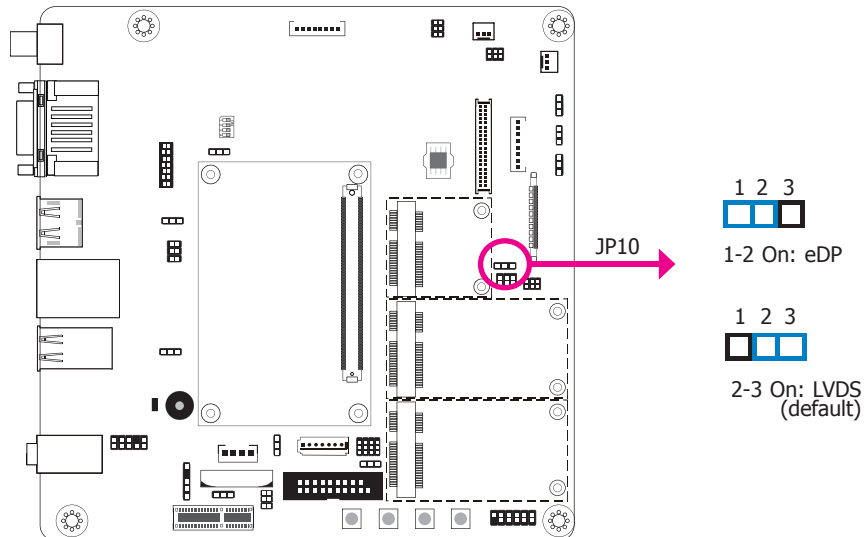
The JP19 is used to select the power level of backlight brightness control: +5V or +3.3V.



### Important:

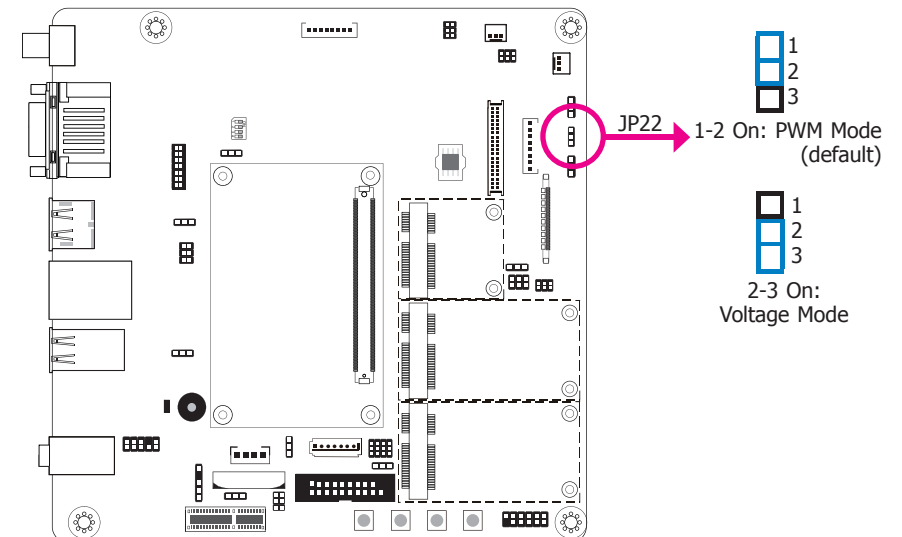
Before powering-on the system, make sure that the power settings of JP19 match the power specification of backlight control. Selecting the incorrect voltage will seriously damage the backlight.

## LVDS/eDP Signal Select



The JP10 is used to select the display signal between eDP and LVDS.

## Dimming Mode Select

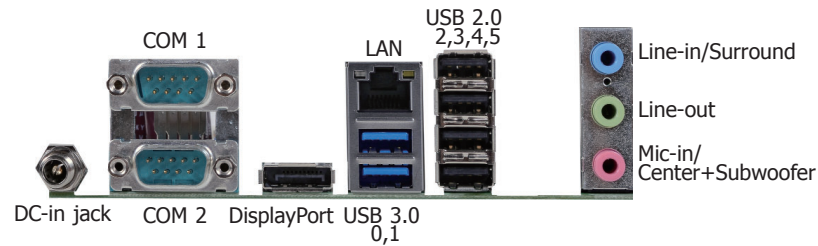


The JP22 allows you to select the mode for the lightness control of the LVDS panel.

**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.

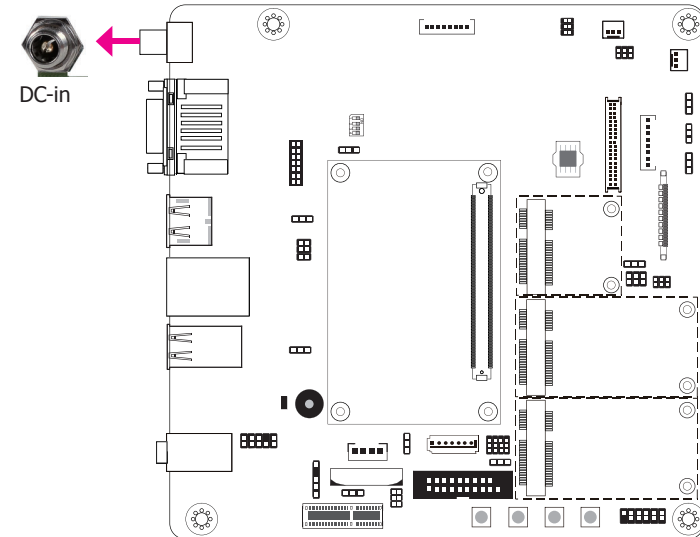
## Rear Panel I/O Ports



The rear panel I/O ports consist of the following:

- 1 5V~19V DC-in jack
- 2 Serial COM ports
- 1 DisplayPort
- 1 LAN port
- 2 USB 3.0 ports
- 4 USB 2.0 ports
- 1 Line-in/Surround jack
- 1 Line-out jack
- 1 Mic-in/Center+Subwoofer jack

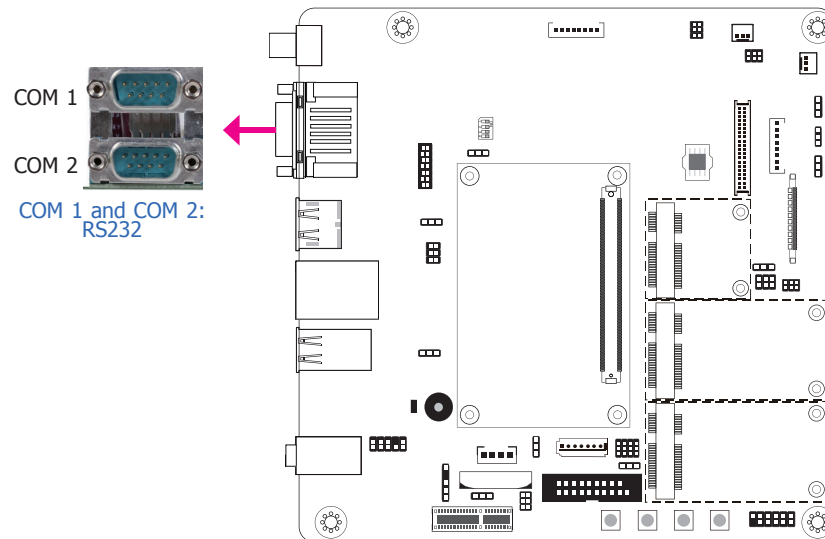
## 5V~19V DC-in



This jack provides maximum of 120W power and is considered a low power solution. Connect a DC power cord to this jack. Use a power adapter with 5~19V DC output voltage. Using a voltage higher than the recommended one may fail to boot the system or cause damage to the system board.

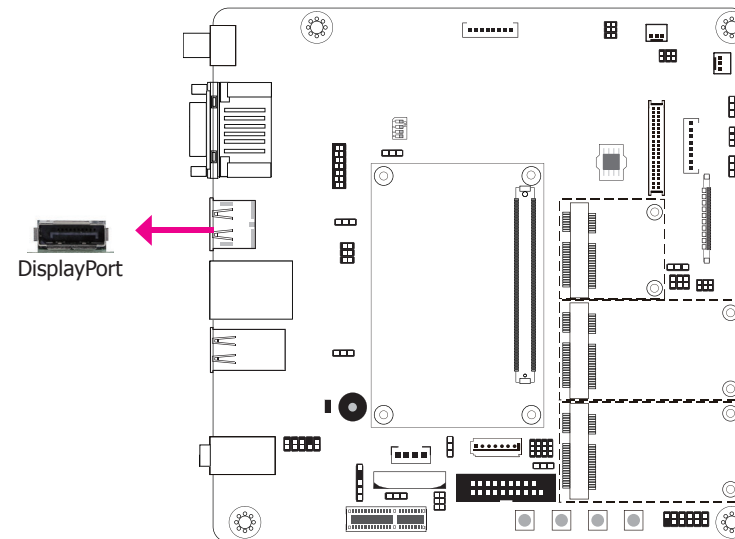


## Serial (COM) Ports



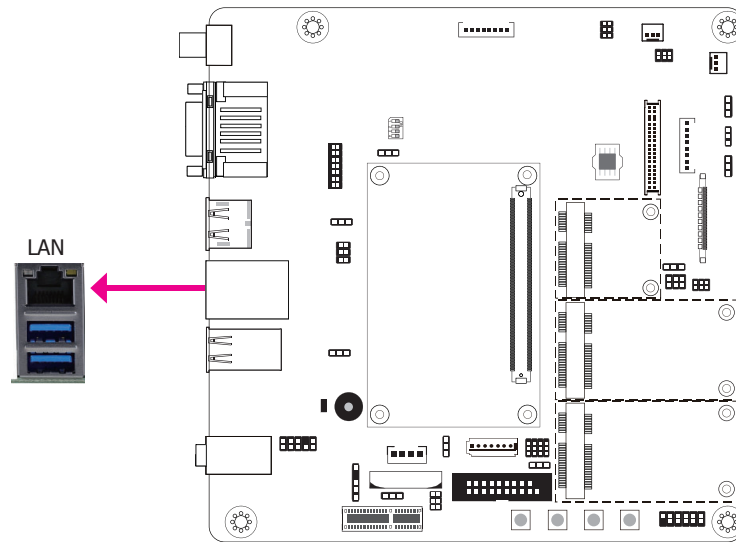
The serial COM ports are RS232 asynchronous communication ports with 16C550A-compatible UARTs that can be used with modems, serial printers, remote display terminals, and other serial devices.

## DisplayPort



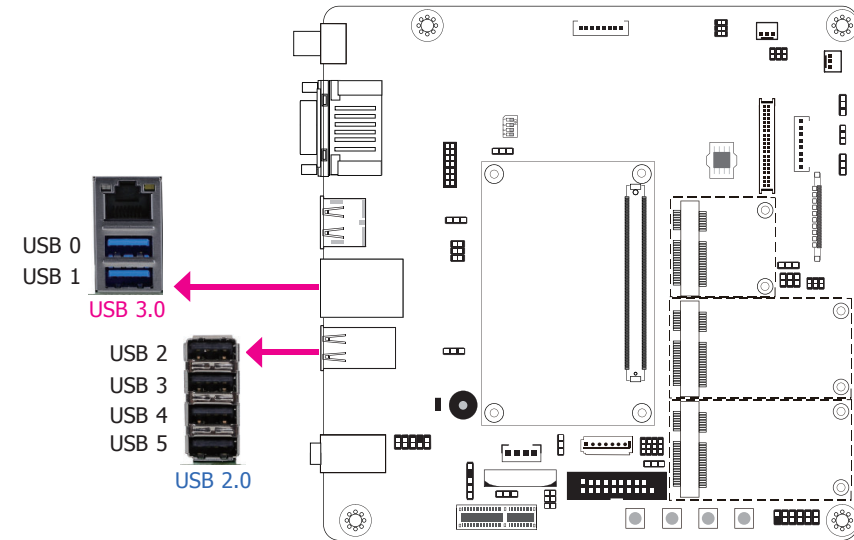
DisplayPort is a digital display interface used to connect a display device such as a computer monitor. It is used to transmit audio and video simultaneously. The interface, which is developed by VESA, delivers higher performance features than any other digital interface.

## 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.

## USB Ports



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 3.0/2.0/1.1 ports (USB 0,1) and four onboard USB 2.0/1.2 ports (USB 2,3,4,5).

### 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.

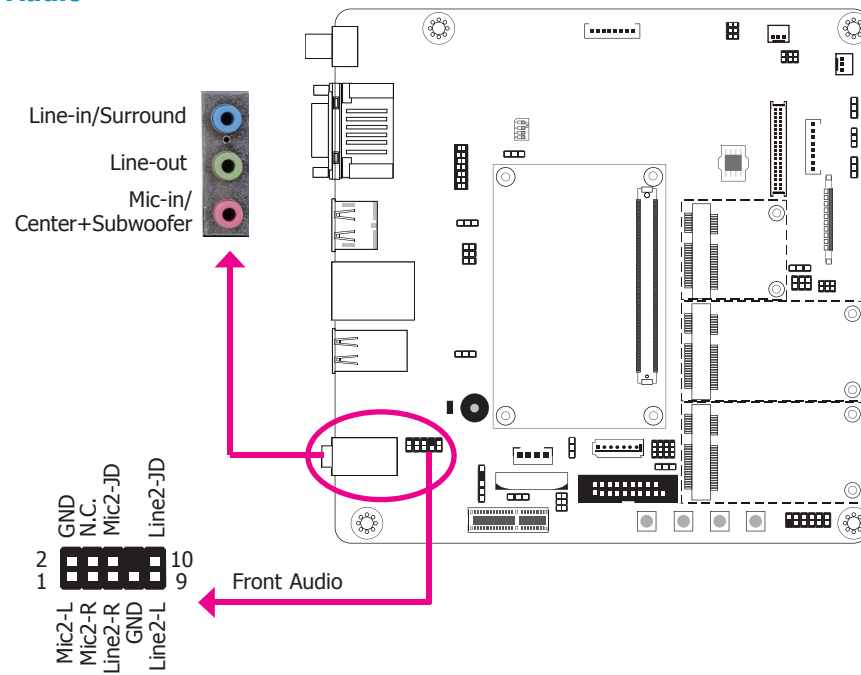
### Wake-On-USB Keyboard/Mouse

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**

JP3 (USB 0,1) and JP2 (USB 2,3,4,5) must be set to "2-3 On: +5V\_standby". Refer to "USB Power Select" in this chapter for more information.

## Audio



### 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 Jack (Pink)**  
This jack is used to connect to the center and subwoofer speakers of the audio system.

### Front Audio

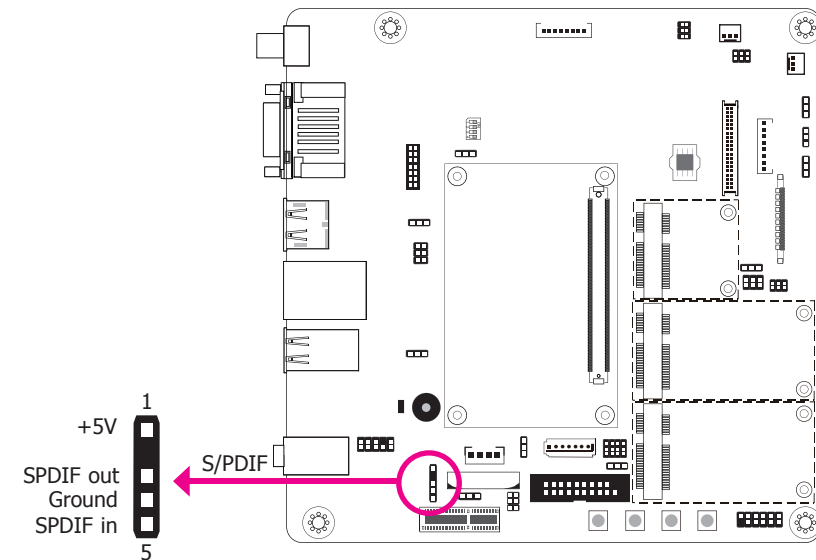
The front audio connector allows you to connect to the second line-out and mic-in jacks that are at the front panel of your system.

### Driver Installation

Install the audio driver. Refer to the chapter 3 for more information.

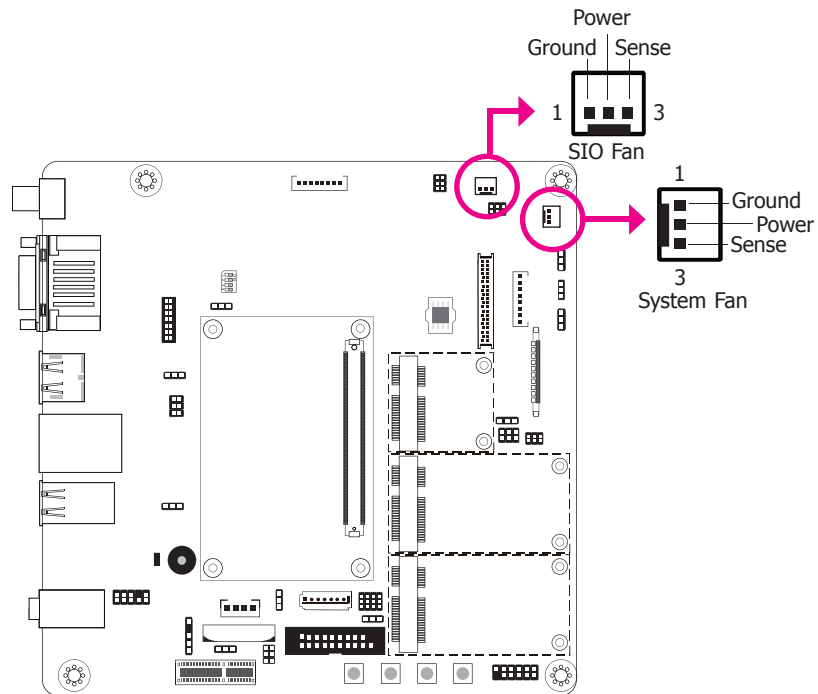
## I/O Connectors

### S/PDIF Connector



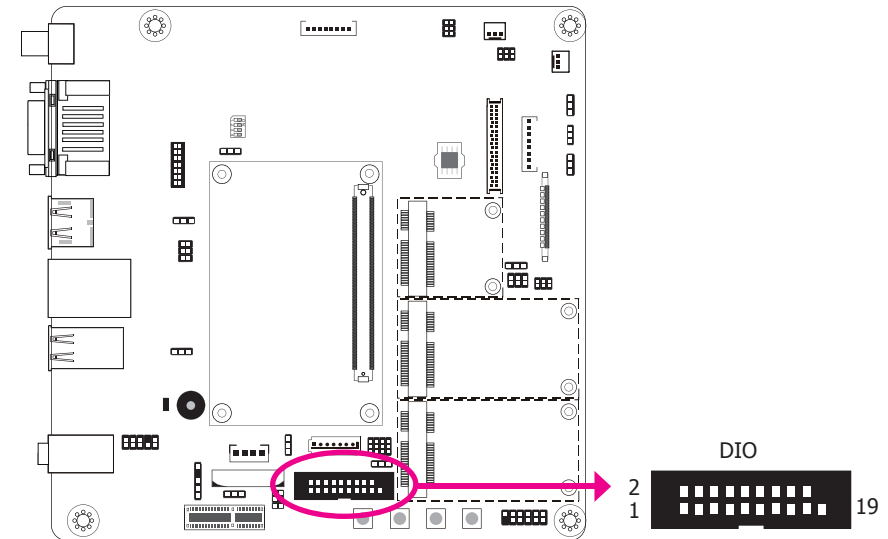
The S/PDIF connector is used to connect external S/PDIF port. Your S/PDIF port may be mounted on a card-edge bracket. Install the card-edge bracket to an available slot at the rear of the system chassis then connect the audio cable to the S/PDIF connector. Make sure pin 1 of the audio cable is aligned with pin 1 of the connector.

## Cooling Fan Connectors



The fan connectors are used to connect cooling fans. The cooling fans will provide adequate airflow throughout the chassis to prevent overheating the CPU and system board components.

## Digital I/O Connector

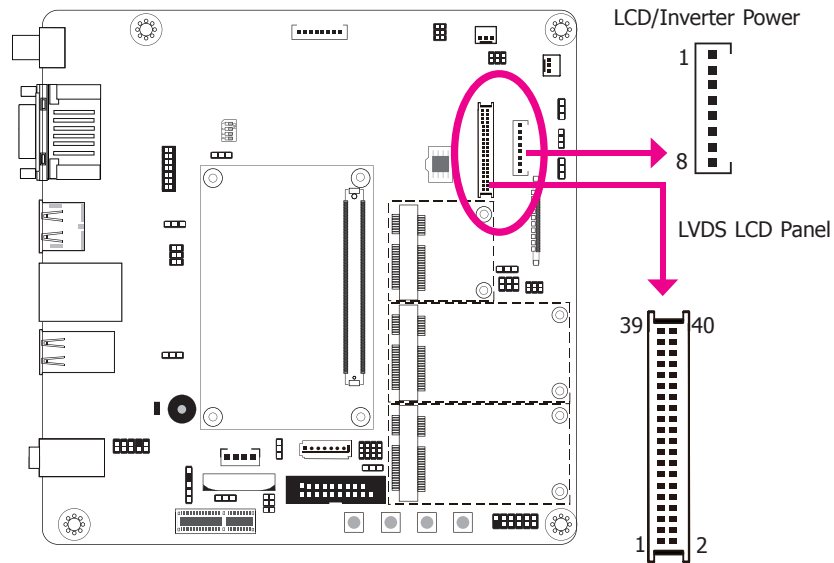


The 8-bit Digital I/O connector (4-bit GPI and 4-bit GPO) provides powering-on function to external devices that are connected to these connectors. The pin functions of the Digital I/O connector are listed below:

Pin	Pin Assignment	Pin	Pin Assignment
1	GND	2	+12V
3	GPO3	4	+12V
5	GPO2	6	GND
7	GPO1	8	+5V
9	GPO0	10	+5V
11	GPI3	12	GND
13	GPI2	14	+5V_Standby
15	GPI1	16	+5V_Standby
17	GPI0	18	GND
19	GND		

## LVDS LCD Panel Connector

## LCD/Inverter Power Connector



The system board allows you to connect a LCD Display Panel by means of the LVDS LCD panel connectors and the LCD/Inverter power connectors. 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.

## LVDS LCD Panel Connector

Pin	Function	Pin	Function
1	GND	2	GND
3	LVDS_Out3+ (Odd_3+)	4	NC
5	LVDS_Out3- (Odd_3-)	6	NC
7	GND	8	GND
9	LVDS_Out2+ (Odd_2+)	10	NC
11	LVDS_Out2- (Odd_2-)	12	NC
13	GND	14	GND
15	LVDS_Out1+ (Odd_1+)	16	NC
17	LVDS_Out1- (Odd_1-)	18	NC
19	GND	20	GND
21	LVDS_Out0+ (Odd_0+)	22	NC
23	LVDS_Out0- (Odd_0-)	24	NC
25	GND	26	GND
27	LVDS_CLK1+ (Odd_CLK+)	28	NC
29	LVDS_CLK1- (Odd_CLK-)	30	NC
31	GND	32	GND
33	DDC_CLK	34	NC
35	DDC_DATA	36	NC
37	Panel Power	38	Panel Power
39	Panel Power	40	Panel Power

## LCD/Inverter Power Connector

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
8	LCD/Inverter Power

**Note:**

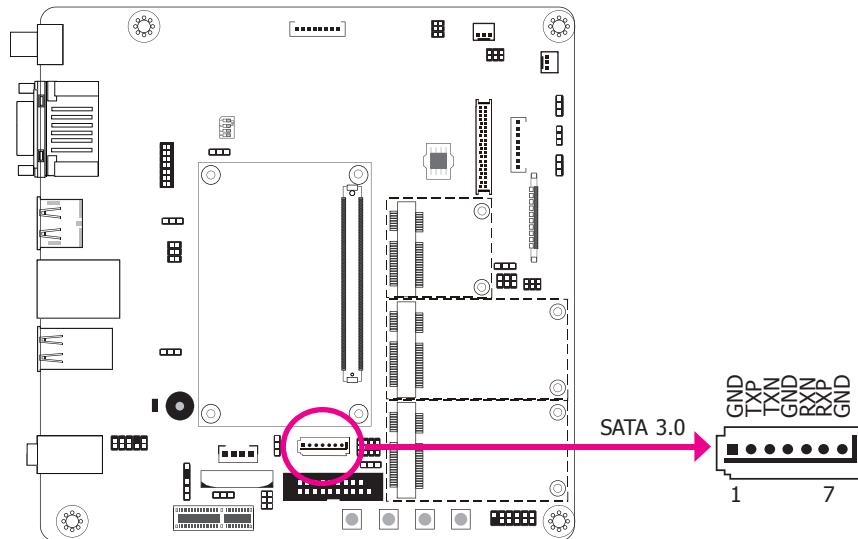
1. To switch output display signal between LVDS and eDP, use JP10. Please refer to the "LVDS/eDP Signal Select" of the "Jumper Settings" section for more information.

2. DFI board's LVDS connector

P/N: 346-714000-204G

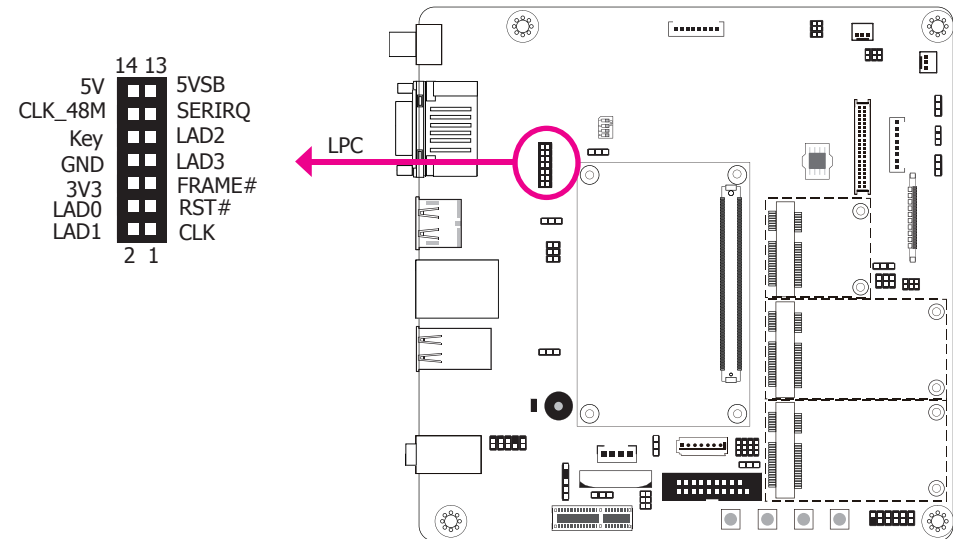
Description: WTB HEADER 40P, 1.25mm, M, H=4.8mm, 180D, SMT, BEIGE, 712-76-40GWE0 (PRINEX) RoHS

## SATA (Serial ATA) Connector



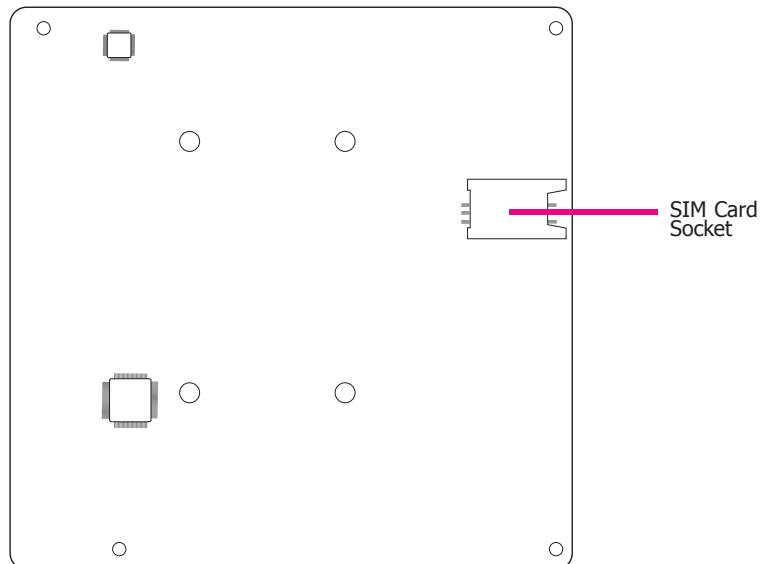
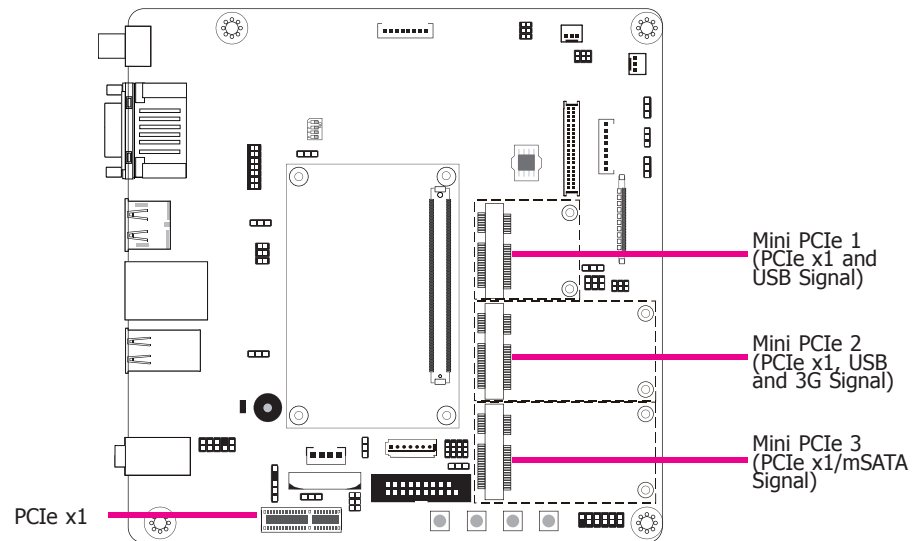
The Serial ATA connector is used to connect Serial ATA device. Connect one end of the Serial ATA cable to a SATA connector and the other end to your Serial ATA device.

## LPC connector



The Low Pin Count Interface was defined by Intel® Corporation to facilitate the industry's transition towards legacy free systems. It allows the integration of low-bandwidth legacy I/O components within the system, which are typically provided by a Super I/O controller. Furthermore, it can be used to interface firmware hubs, Trusted Platform Module (TPM) devices and embedded controller solutions. Data transfer on the LPC bus is implemented over a 4 bit serialized data interface, which uses a 33MHz LPC bus clock. For more information about LPC bus refer to the Intel® Low Pin Count Interface Specification Revision 1.1'.

## Expansion Slots



### Mini PCIe Slot

The Mini PCIe socket is used to install a 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.

Mini PCIe 2 supports 3G signal and can be used with the SIM card socket on the back side for broadband access via 3G networks.

Mini PCIe 3 supports both PCIe and mSATA signals and can be switched between these two with jumper JP12.

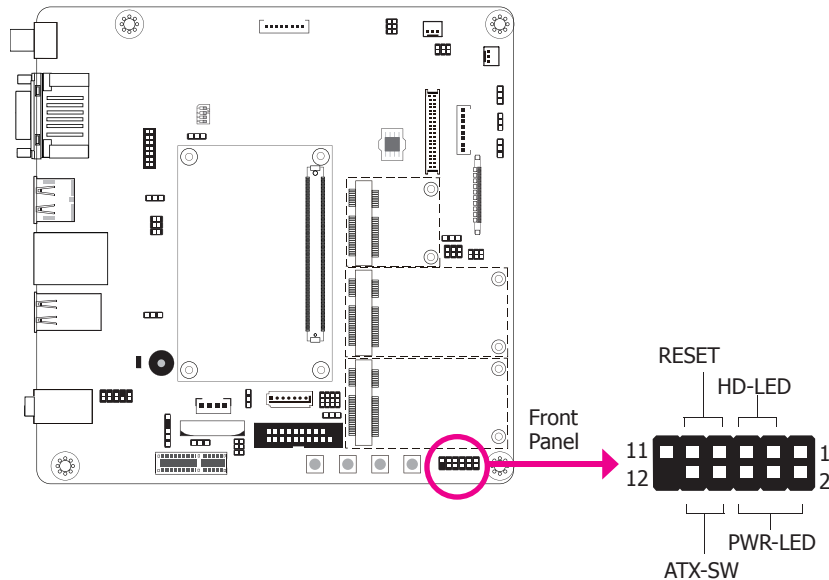
### PCI Express x1 Slot

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

### SIM Card Socket

The SIM slot on the system board can be used with Mini PCIe 2 that allows for 3G connectivity.

## Front Panel Connector



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

### HD-LED - HDD LED

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

### RESET - Reset Switch

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

### ATX-SW - ATX Power Switch

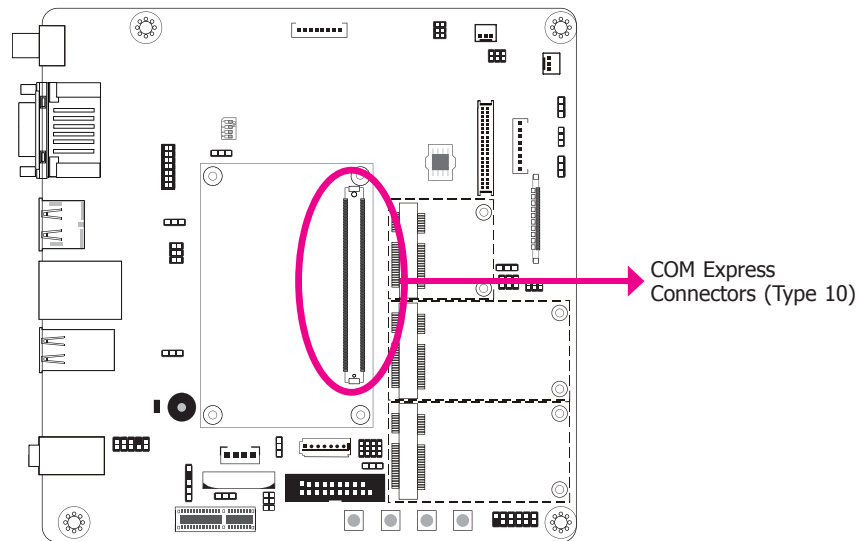
This switch is used to power on or off the system.

### 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.



## COM Express Connector



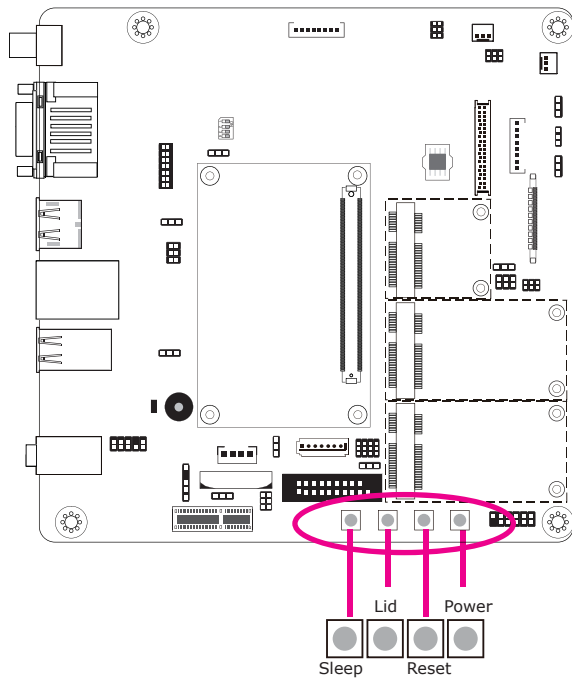
The COM Express connectors are used to interface the carrier board with a COM Express board. Refer to the following pages for the pin functions of these connectors.

Pin	Row A	Row B	Row C	Row D
1	GND(FIXED)	GND(FIXED)	GND(FIXED)	GND(FIXED)
2	GBE0 MDI3-	GBE0_ACT#	GND	GND
3	GBE0 MDI3+	LPC_FRAME#	USB_SSRX0-	USB_SSTX0-
4	GBE0_LINK100#	LPC_AD0	USB_SSRX0+	USB_SSTX0+
5	GBE0_LINK1000#	LPC_AD1	GND	GND
6	GBE0 MDI2-	LPC_AD2	USB_SSRX1-	USB_SSTX1-
7	GBE0 MDI2+	LPC_AD3	USB_SSRX1+	USB_SSTX1+
8	GBE0_LINK#	LPC_DRQ0#	GND	GND
9	GBE0 MDI1-	LPC_DRQ1#	USB_SSRX2-	USB_SSTX2-
10	GBE0 MDI1+	LPC_CLK	USB_SSRX2+	USB_SSTX2+
11	GND(FIXED)	GND(FIXED)	GND(FIXED)	GND(FIXED)
12	GBE0 MDI0-	PWRBTN#	USB_SSRX3-	USB_SSTX3-
13	GBE0 MDI0+	SMB_CLK	USB_SSRX3+	USB_SSTX3+
14	GBE0_CTREF	SMB_DAT	GND	GND
15	SUS_S3#	SMB_ALERT#	DDI1_PAIR6+	DDI1_CTRLCLK_AUX+
16	SATA0_TX+	SATA1_TX+	DDI1_PAIR6-	DDI1_CTRLCLK_AUX-
17	SATA0_TX-	SATA1_TX-	RSVD <sup>19</sup>	RSVD <sup>19</sup>
18	SUS_S4#	SUS_STAT#	RSVD <sup>19</sup>	RSVD <sup>19</sup>
19	SATA0_RX+	SATA1_RX+	PCIE_RX6+	PCIE_TX6+
20	SATA0_RX-	SATA1_RX-	PCIE_RX6-	PCIE_TX6-
21	GND(FIXED)	GND(FIXED)	GND(FIXED)	GND(FIXED)
22	SATA2_TX+	SATA3_TX+	PCIE_RX7+	PCIE_TX7+
23	SATA2_TX-	SATA3_TX-	PCIE_RX7-	PCIE_TX7-
24	SUS_S5#	PWR_OK	DDI1_HP	RSVD <sup>19</sup>
25	SATA2_RX+	SATA3_RX+	DDI1_PAIR4+	RSVD <sup>19</sup>
26	SATA2_RX-	SATA3_RX-	DDI1_PAIR4-	DDI1_PAIR0+
27	BATLOW#	WDT	RSVD <sup>19</sup>	DDI1_PAIR0-
28	(S)ATA_ACT#	AC/HDA_SDIN2	RSVD <sup>19</sup>	RSVD <sup>19</sup>
29	AC/HDA_SYNC	AC/HDA_SDIN1	DDI1_PAIR5+	DDI1_PAIR1+
30	AC/HDA_RST#	AC/HDA_SDIN0	DDI1_PAIR5-	DDI1_PAIR1-
31	GND(FIXED)	GND(FIXED)	GND(FIXED)	GND(FIXED)
32	AC/HDA_BITCLK	SPKR	DDI2_CTRLCLK_AUX+	DDI1_PAIR2+
33	AC/HDA_SDOOUT	I2C_CLK	DDI2_CTRLCLK_AUX-	DDI1_PAIR2-
34	BIOS_DIS0#	I2C_DAT	DDI2_DDC_AUX_SEL	DDI1_DDC_AUX_SEL
35	THRMTRIP#	THRM#	RSVD <sup>19</sup>	RSVD <sup>19</sup>
36	USB6-	USB7-	DDI3_CTRLCLK_AUX+	DDI1_PAIR3+
37	USB6+	USB7+	DDI3_CTRLCLK_AUX-	DDI1_PAIR3-
38	USB_6_7_OC#	USB_4_5_OC#	DDI3_DDC_AUX_SEL	RSVD <sup>19</sup>
39	USB4-	USB5-	DDI3_PAIR0+	DDI2_PAIR0+
40	USB4+	USB5+	DDI3_PAIR0-	DDI2_PAIR0-
41	GND(FIXED)	GND(FIXED)	GND(FIXED)	GND(FIXED)

Pin	Row A	Row B	Row C	Row D
42	USB2-	USB3-	DDI3_PAIR1+	DDI2_PAIR1+
43	USB2+	USB3+	DDI3_PAIR1-	DDI2_PAIR1-
44	USB_2_3_OC#	USB_0_1_OC#	DDI3_HPD	DDI2_HPD
45	USB0-	USB1-	RSVD <sup>19</sup>	RSVD <sup>19</sup>
46	USB0+	USB1+	DDI3_PAIR2+	DDI2_PAIR2+
47	VCC_RTC	EXCD1_PERST#	DDI3_PAIR2-	DDI2_PAIR2-
48	EXCD0_PERST#	EXCD1_CPPE#	RSVD <sup>19</sup>	RSVD <sup>19</sup>
49	EXCD0_CPPE#	SYS_RESET#	DDI3_PAIR3+	DDI2_PAIR3+
50	LPC_SERIRQ	CB_RESET#	DDI3_PAIR3-	DDI2_PAIR3-
51	GND(FIXED)	GND(FIXED)	GND(FIXED)	GND(FIXED)
52	PCIE_TX5+	PCIE_RX5+	PEG_RX0+	PEG_TX0+
53	PCIE_TX5-	PCIE_RX5-	PEG_RX0-	PEG_TX0-
54	GPI0	GPO1	TYPE0#	PEG_LANE_RV#
55	PCIE_TX4+	PCIE_RX4+	PEG_RX1+	PEG_TX1+
56	PCIE_TX4-	PCIE_RX4-	PEG_RX1-	PEG_TX1-
57	GND	GPO2	TYPE2#	
58	PCIE_TX3+	PCIE_RX3+	PEG_RX2+	PEG_TX2+
59	PCIE_TX3-	PCIE_RX3-	PEG_RX2-	PEG_TX2-
60	GND(FIXED)	GND(FIXED)	GND(FIXED)	GND(FIXED)
61	PCIE_TX2+	PCIE_RX2+	PEG_RX3+	PEG_TX3+
62	PCIE_TX2-	PCIE_RX2-	PEG_RX3-	PEG_TX3-
63	GPI1	GPO3	RSVD <sup>19</sup>	RSVD <sup>19</sup>
64	PCIE_TX1+	PCIE_RX1+	RSVD <sup>19</sup>	RSVD <sup>19</sup>
65	PCIE_TX1-	PCIE_RX1-	PEG_RX4+	PEG_TX4+
66	GND	WAKE0#	PEG_RX4-	PEG_TX4-
67	GPI2	WAKE1#	RSVD <sup>19</sup>	GND
68	PCIE_TX0+	PCIE_RX0+	PEG_RX5+	PEG_TX5+
69	PCIE_TX0-	PCIE_RX0-	PEG_RX5-	PEG_TX5-
70	GND(FIXED)	GND(FIXED)	GND(FIXED)	GND(FIXED)
71	LVDS_A0+	LVDS_B0+	PEG_RX6+	PEG_TX6+
72	LVDS_A0-	LVDS_B0-	PEG_RX6-	PEG_TX6-
73	LVDS_A1+	LVDS_B1+	GND	GND
74	LVDS_A1-	LVDS_B1-	PEG_RX7+	PEG_TX7+
75	LVDS_A2+	LVDS_B2+	PEG_RX7-	PEG_TX7-
76	LVDS_A2-	LVDS_B2-	GND	GND
77	LVDS_VDD_EN	LVDS_B3+	RSVD <sup>19</sup>	RSVD <sup>19</sup>
78	LVDS_A3+	LVDS_B3-	PEG_RX8+	PEG_TX8+
79	LVDS_A3-	LVDS_BKLT_EN	PEG_RX8-	PEG_TX8-
80	GND(FIXED)	GND(FIXED)	GND(FIXED)	GND(FIXED)
81	LVDS_A_CK+	LVDS_B_CK+	PEG_RX9+	PEG_TX9+
82	LVDS_A_CK-	LVDS_B_CK-	PEG_RX9-	PEG_TX9-
83	LVDS_I2C_CK	LVDS_BKLT_CTRL	RSVD <sup>19</sup>	RSVD <sup>19</sup>
84	LVDS_I2C_DAT	VCC_5V_SBY	GND	GND
85	GPI3	VCC_5V_SBY	PEG_RX10+	PEG_TX10+
86	RSVD <sup>19</sup>	VCC_5V_SBY	PEG_RX10-	PEG_TX10-
87	eDP_HPD	VCC_5V_SBY	GND	GND
88	PCIE_CLK_REF+	BIOS_DIS1#	PEG_RX11+	PEG_TX11+
89	PCIE_CLK_REF-	VGA_RED	PEG_RX11-	PEG_TX11-
90	GND(FIXED)	GND(FIXED)	GND(FIXED)	GND(FIXED)

Pin	Row A	Row B	Row C	Row D
91	SPI_POWER	VGA_GRN	PEG_RX12+	PEG_TX12+
92	SPI_MISO	VGA_BLU	PEG_RX12-	PEG_TX12-
93	GPO0	VGA_HSYNC	GND	GND
94	SPI_CLK	VGA_VSYNC	PEG_RX13+	PEG_TX13+
95	SPI_MOSI	VGA_I2C_CK	PEG_RX13-	PEG_TX13-
96	TPM_PP	VGA_I2C_DAT	GND	GND
97	TYPE10#	SPI_CS#	RSVD <sup>19</sup>	RSVD <sup>19</sup>
98	SER0_TX	RSVD <sup>19</sup>	PEG_RX14+	PEG_TX14+
99	SER0_RX	RSVD <sup>19</sup>	PEG_RX14-	PEG_TX14-
100	GND(FIXED)	GND(FIXED)	GND(FIXED)	GND(FIXED)
101	SER1_TX	FAN_PWMOUT	PEG_RX15+	PEG_TX15+
102	SER1_RX	FAN_TACHIN	PEG_RX15-	PEG_TX15-
103	LID#	SLEEP#	GND	GND
104	VCC_12V	VCC_12V	VCC_12V	VCC_12V
105	VCC_12V	VCC_12V	VCC_12V	VCC_12V
106	VCC_12V	VCC_12V	VCC_12V	VCC_12V
107	VCC_12V	VCC_12V	VCC_12V	VCC_12V
108	VCC_12V	VCC_12V	VCC_12V	VCC_12V
109	VCC_12V	VCC_12V	VCC_12V	VCC_12V
110	GND(FIXED)	GND(FIXED)	GND(FIXED)	GND(FIXED)

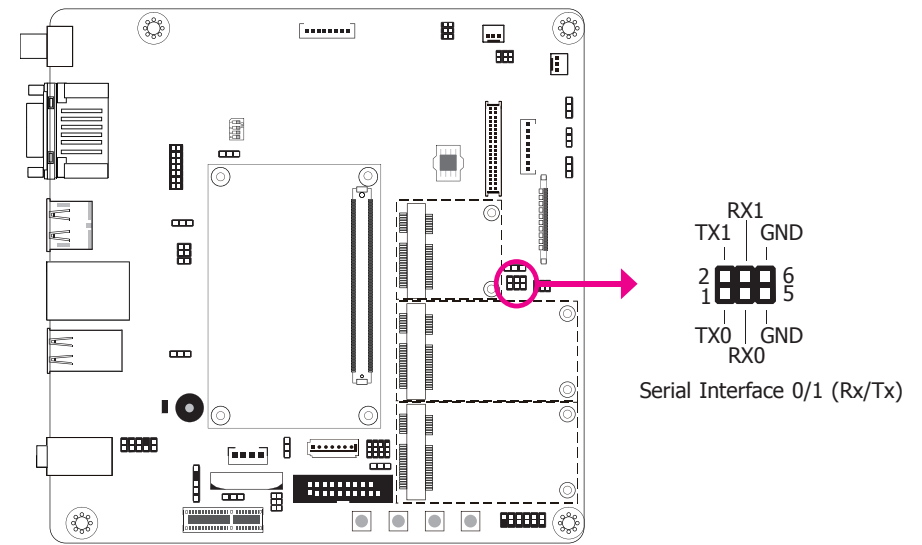
## Switches

**Note:**

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

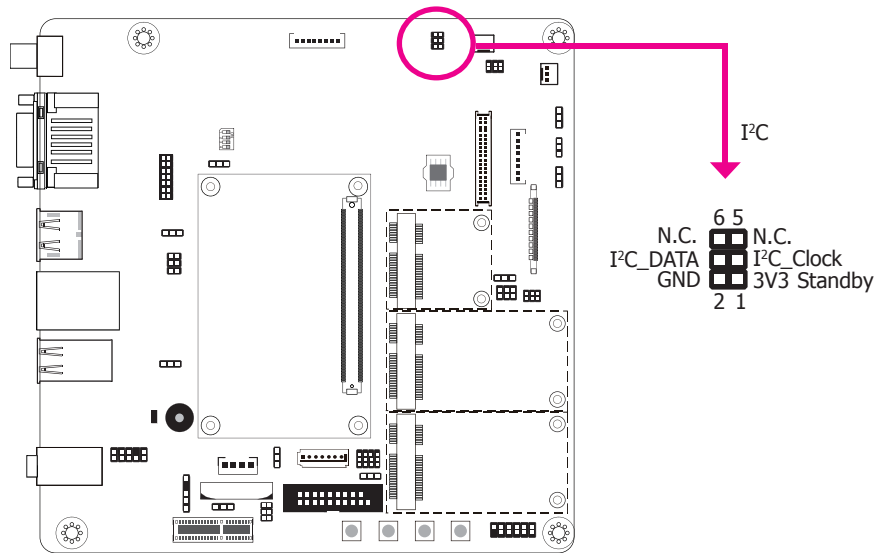
- Lid: it is used to turn the LVDS on or off.
- Sleep: it is used to set the system to "sleep" or "wake-up" mode.

## Serial Interface Connector



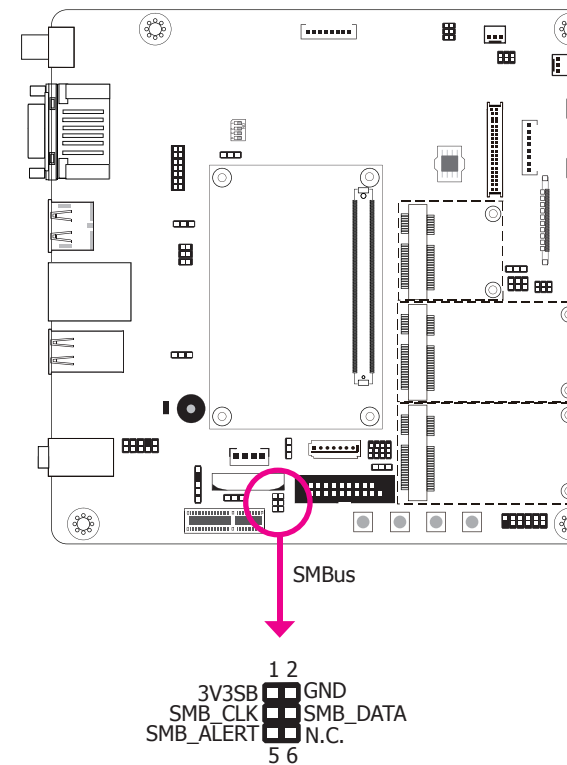
The serial interface connector is used for 2 serial ports supported by Tx and Rx signals.

## I<sup>2</sup>C Connector



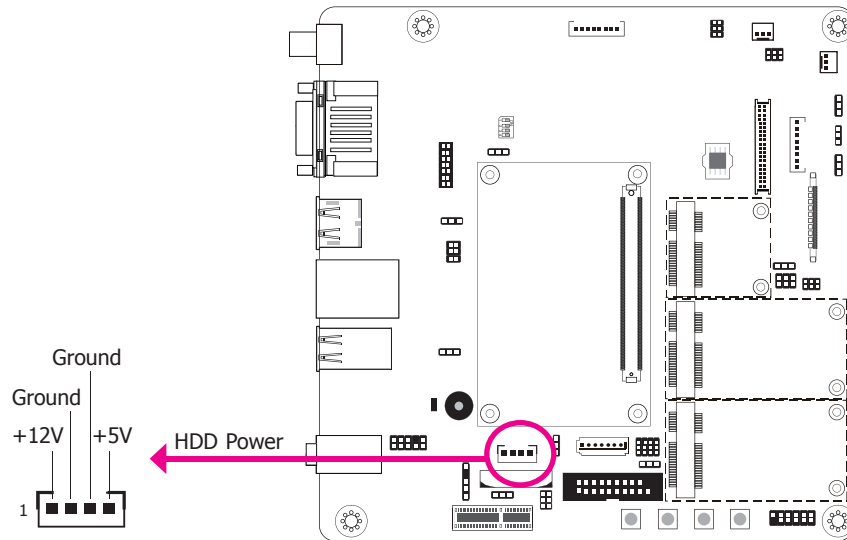
The 1-channel I<sup>2</sup>C bus interface conforms to the version 2.1 I<sup>2</sup>C bus specification. It operates as a master or slave device and supports a multi-master bus.

## SMBus Connector



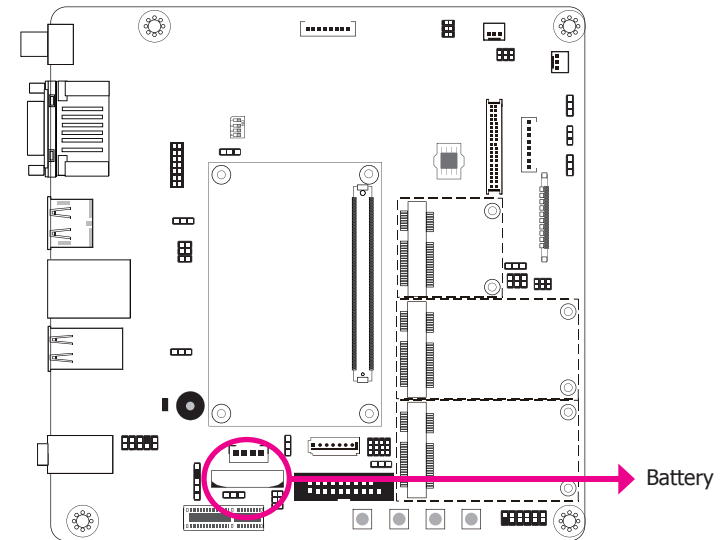
The SMBus (System Management Bus) connector is used to connect the SMBus device. It is a multiple device bus that allows multiple chips to connect to the same bus and enable each one to act as a master by initiating data transfer.

## HDD Power Connector



The HDD power connector supplies power to the SATA drive. Connect one end of the provided power cable to the HDD power connector and the other end to your storage device.

## Battery

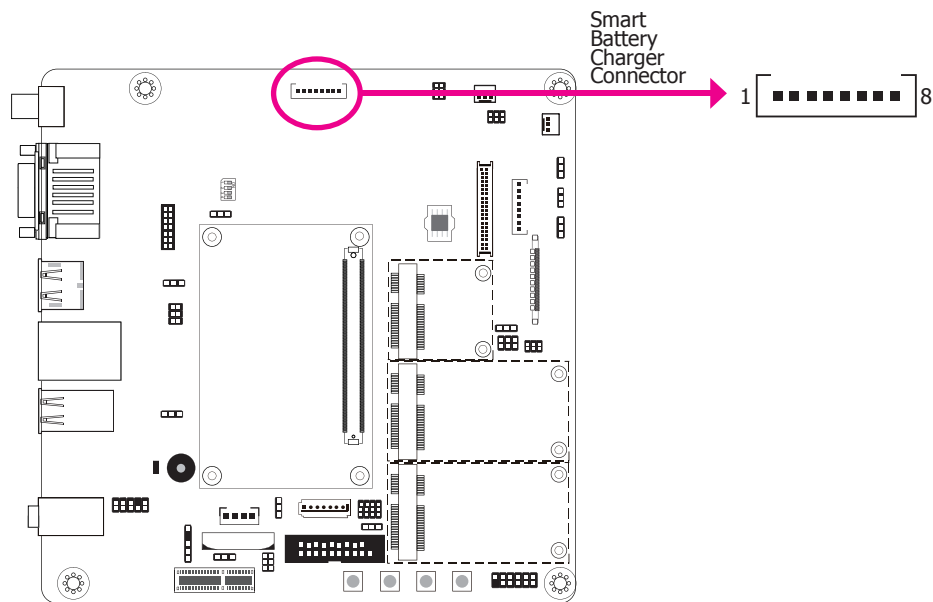


The lithium ion battery powers the real-time clock and CMOS memory. It is an auxiliary source of power when the main power is shut off.

### Safety Measures

- Danger of explosion if battery incorrectly replaced.
- Replace only with the same or equivalent type recommended by the manufacturer.
- Dispose of used batteries according to local ordinance.

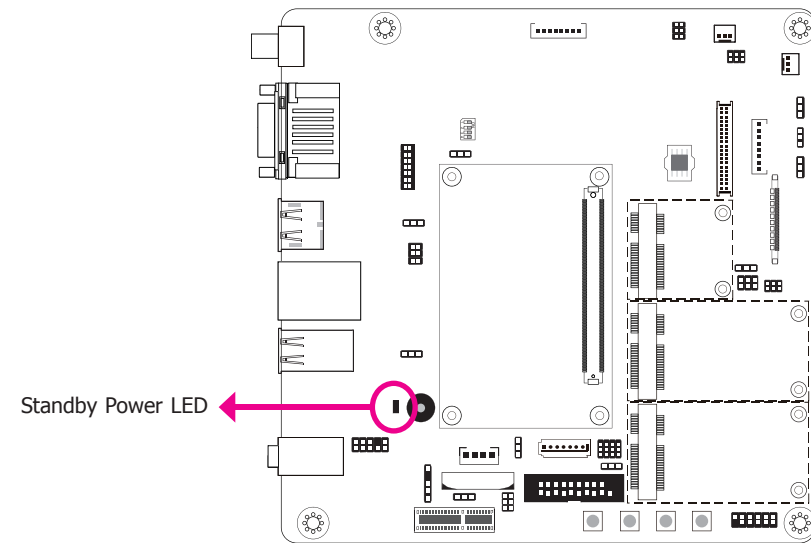
## Smart Battery Charger Connector



The smart battery charger connector is used for the function of power management and determines the accurate battery capacity in the system operation. The function of each pin is listed below:

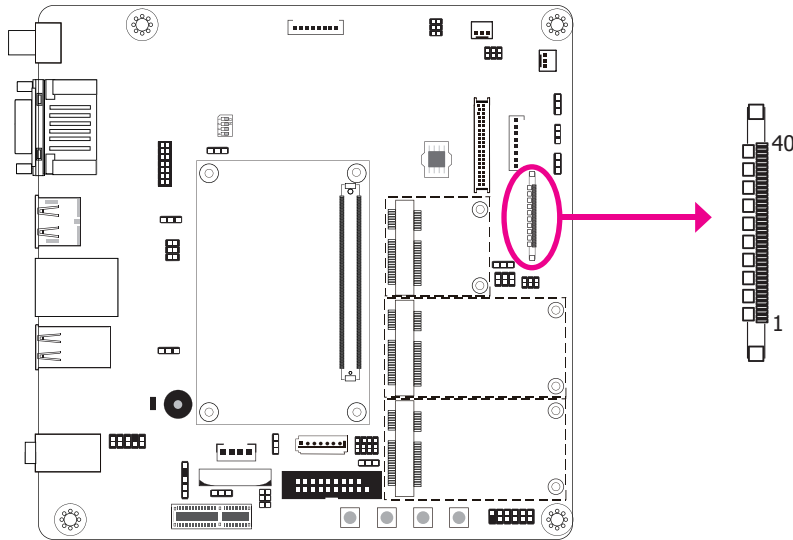
Pin	Function
1	V+
2	V+
3	N.C.
4	SMB_CLK
5	SMB_DATA
6	N.C.
7	V- (GND)
8	V- (GND)

## Standby Power LED



This LED will lit red when the system is in the standby mode. It indicates that there is power on the system board. Power-off the PC then unplug the power cord prior to installing any devices. Failure to do so will cause severe damage to the motherboard and components.

## eDP (Embedded DisplayPort) Connector



The eDP is a variation of the DisplayPort interface. It has the advantages of power and space saving and high-speed transmission. These advantages make it suitable for providing internal connectivity for embedded displays. The following table shows the function of the connector pins.

Pins	Function	Pins	Function
1	N.C.	21	eDP Panel PWR
2	GND	22	N.C.
3	eDP_Lane_3-	23	GND
4	eDP_Lane_3+	24	GND
5	GND	25	GND
6	eDP_Lane_2-	26	GND
7	eDP_Lane_2+	27	eDP Hot Plug
8	GND	28	eDP GND
9	eDP_Lane_1-	29	eDP GND
10	eDP_Lane_1+	30	eDP GND
11	GND	31	eDP GND
12	eDP_Lane_0-	32	Panel Backlight On/Off Control
13	eDP_Lane_0+	33	Panel Inverter Brightness Voltage Control
14	GND	34	N.C.
15	eDP_AUX+	35	N.C.
16	eDP_AUX-	36	Inverter PWR
17	GND	37	Inverter PWR
18	eDP Panel PWR	38	Inverter PWR
19	eDP Panel PWR	39	Inverter PWR
20	eDP Panel PWR	40	N.C.


**Note:**

To switch output display signal between LVDS and eDP, use JP10. Please refer to the "LVDS/eDP Signal Select" of "Jumper Settings" section for more information.

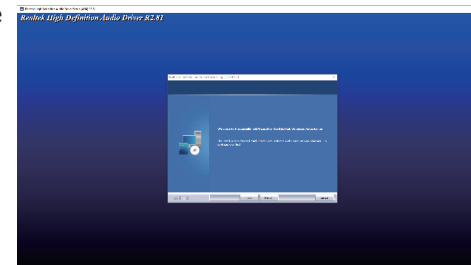
## Chapter 3 - Supported Software

Please download drivers, utilities and software applications required to enhance the performance of the system board at <https://www.dfi.com/product/index/240#download>.

### Audio Driver

To install the driver, download "COM100-B Audio Driver" zip file at our website.

1. Setup is ready to install the driver. Click "Next".



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

Restarting the system will allow the new software installation to take effect.

