APC-3296P

21.5” 6th Generation Intel® Core™ i5-6300U IP66K/IP69K Stainless Steel Panel PC

User Manual

Release Date	Revision
Aug. 2016	V1.0

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Revision History

Reversion	Date	Description
1.0	2016/08/15	Official Version

Warning!_____

This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instructions manual, it may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

Electric Shock Hazard – Do not operate the machine with its back cover removed. There are dangerous high voltages inside.

Caution

Risk of explosion if the battery is replaced with an incorrect type.
Batteries should be recycled where possible. Disposal of used batteries must be in accordance with local environmental regulations.

Disclaimer

This information in this document is subject to change without notice. In no event shall Aplex Technology Inc. be liable for damages of any kind, whether incidental or consequential, arising from either the use or misuse of information in this document or in any related materials.

Packing List

Accessories (as ticked) included in this package are:
☐ Adaptor ☐ Driver & manual CD disc ☐ Other._____(please specify)

Safety Precautions

Follow the messages below to prevent your systems from damage:

- Avoid your system from static electricity on all occasions.
- Prevent electric shock. Don‘t touch any components of this card when the card is power-on. Always disconnect power when the system is not in use.
- Disconnect power when you change any hardware devices. For instance, when you connect a jumper or install any cards, a surge of power may damage the electronic components or the whole system.

Table of Contents

Chapter 5 Touch Screen Installation

Figures

Chapter 1 Getting Started

1.1 Features

- 6th Generation Intel® Core™ i5-6300U
- Dual Channel DDR3L 204-pin SODIMM up to 16GB 1333/1600MHz
- Totally IP66/IP69K M12 Connector
- SUS304 Grade Stainless Steel Enclosure (SUS 316 optional)
- Full Flat Bezel and Fanless Design
- Projected Capacitive Touch
- 12V DC Power Input

1.2 Specifications

	APC-3296P
System	
CPU	Intel Core i5-6300U/Celeron 3955U (option)
Memory	2 x DDR3L 204-pin SODIMM up to 16GB 1333/1600MHz
IO Port	
USB	1 x M12 8-pin for 2 x USB 2.0 (1 x USB 3.0 for option)
Serial/Parallel	1 x M12 8-pin RS-232/422/485 for COM1 1 x M12 8-pin RS-232 for COM2
LAN	1 x M12 8-pin for LAN1
Power	1 x M12 3-pin DC power
Option	1 x LAN2 for option
Storage Space	
Storage	1 x 2.5" SATA HDD or SSD
Expansion	
Expansion Slot	1 x Full-size Mini PCIe (PCIe/USB/SATA) 1 x Full-size Mini PCIe (PCIe/USB) For option WLAN/BT Module and Antenna at system rear side
Display	
Display Type	21.5” color TFT LCD
Max. Resolution	1920 x 1080
Max. Color	16.7M
Luminance(cd/m²)	250

Contrast Ratio	3000: 1
Viewing angle	178(H) / 178(V)
Backlight Lifetime	30,000 hrs
Touch Screen – Projected Capacitive Touch	
Interface	USB
Light Transmission	Over 90%
Power	
Power Input	12V DC
Power Consumption	MAX: 32.5W
Mechanical	
Construction	Stainless Steel SUS304 (SUS316 for option)
IP Rating	Total IP66 & IP69K Design
Mounting	VESA Mount 100 x 100
Dimensions	571 x 362 x 55 mm
Net Weight	15 Kg
Environmental	
Operating temperature	0~45°C
Storage temperature	-30~70°C
Storage humidity	10 to 90% @ 40°C, non- condensing
Certification	CE / FCC Class A
Operating System Support	Windows 7 Professional for Embedded Systems, Windows 7 Ultimate for Embedded System, Windows Embedded 8.1 Pro, Windows Embedded 8.1 Industry pro Windows 10 IoT Enterprise

1.3 Dimensions

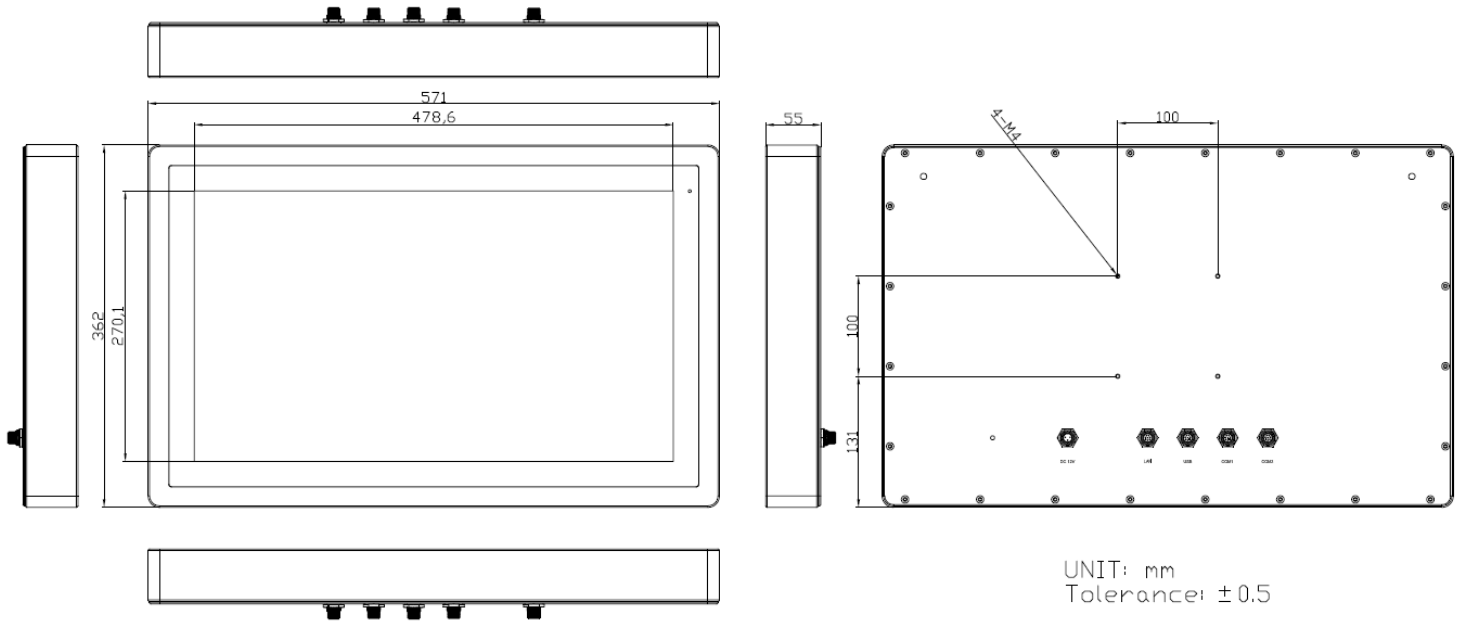


Figure 1.1: Dimensions of APC-3296P

1.4 Brief Description of APC-3296P

APC-3296P is a totally IP66/IP69K waterproof and fanless designed panel PC. It is powered by Intel® 6th Generation Core™ i5-6300U processor, and supports dual channel DDR3L 204-pin SODIMM up to 16GB 1333/1600MHz memory. The model comes with a 21.5” projected capacitive touch screen display with color TFT LCD of resolution 1920 x 1080 and 12V DC power input, and the model can be VESA 100 x 100 mounted. The construction of APC-3296P is SUS304 grade stainless steel chassis, and can be SUS316 grade stainless steel for option. The panel PC has a rich variety of functions and peripherals. Regarding the storage capability, APC-3296P provides 1 x 2.5” HDD space, allowing customers to easily access/backup the data.

Figure 1.2 Front View of APC-3296P

Figure 1.3 Rear View of APC-3296P

1.5 VESA Mounting

The APC-3296P is designed to be VESA mounted as shown in Picture. Just carefully place the unit through the hole and tighten the given screws from the rear to secure the mounting.

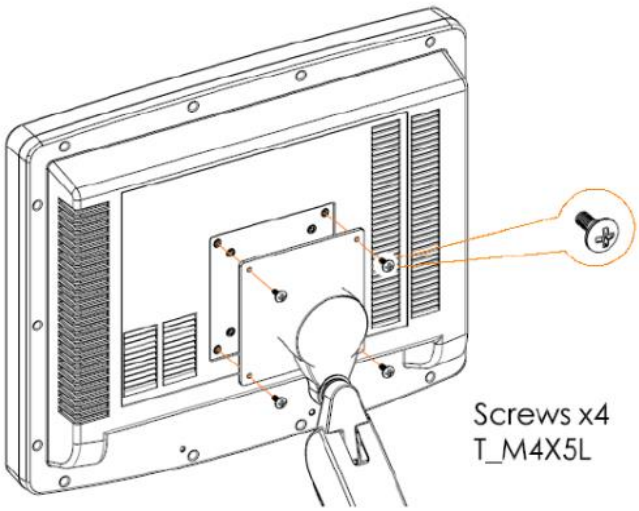


Figure 1.4: APC-3296P VESA Mounting

Chapter 2 Hardware

2.1 Motherboard Specifications

Specifications		
System	Processor	6th Generation Intel® CoreTM Processors, BGA 1356 Intel® CoreTM i7-6600U Processor, Dual Core, 4M Cache, 2.6GHz (3.4GHz), 15W Intel® CoreTM i5-6300U Processor, Dual Core, 3M Cache, 2.4GHz (3.0GHz), 15W Intel® CoreTM i3-6100U Processor, Dual Core, 3M Cache, 2.3GHz, 15W Intel® Celeron® Processor 3955U, Dual Core, 2M Cache, 2.0GHz, 15W
	Memory	Two 204-pin SODIMM up to 16GB Dual Channel DDR3L 1600MHz
	BIOS	Insyde SPI 128Mbit
Graphics	Controller	Intel® HD Graphics GT Series
	Features	OpenGL 5.0, DirectX 12, OpenCL 2.1 HW Decode: AVC/H.264, MPEG2, VC1/WMV9, JPEG/MJPEG, HEVC/ H265, VP8, VP9 HW Encode: AVC/H.264, MPEG2, JPEG, HEVC/H265, VP8, VP9
	Display	1 x LVDS/eDP (eDP available upon request) 1 x HDMI/DP (DP available upon request) 1 x DP++ LVDS: dual channel 48-bit, resolution up to 1920x1200 @ 60Hz DP: resolution up to 4096x2304 @ 60Hz HDMI: resolution up to 2560x1600 @ 60Hz or 4096x2160 @ 24Hz
	Triple Displays	LVDS + HDMI + DP++ LVDS + DP + DP++ (available upon request) eDP + HDMI + DP++ (available upon request) eDP + DP + DP ++ (available upon request)
Expansion	Interface	1 x PCIe x4 (Gen 3) 1 x SIM 1 x Full-size Mini PCIe (PCIe/USB/SATA) 1 x Full-size Mini PCIe (PCIe/USB)
Audio	Interface	Realtek ALC888S-VD2-GR
Ethernet	Controller	1 x Intel® I210AT PCIe (10/100/1000Mbps) 1 x Intel® I219LM PCIe with iAMT11.0 (10/100/1000Mbps) - (only Core i7/i5 supports iAMT)
Rear I/O	Ethernet	2 x GbE (RJ-45)

	USB	4 x USB 3.0
	Display	1 x HDMI/DP (DP available upon request) 1 x DP++
	Audio	1 x Line-out 1` x Mic-in
Internal I/O	Serial	2 x RS-232/422/485 (RS-232 w/ power) (2.0mm pitch) 2 x RS-232 (2.0mm pitch)
	USB	2 x USB 2.0 (2.0mm pitch) + 1 x Vertical USB 2.0 (type A) - (available upon request)
	Display	1 x LVDS LCD Panel Connector 1 x LCD/Inverter Power 1 x eDP LCD Panel Connector (available upon request)
	Audio	1 x S/PDIF
	SATA	2 x SATA 3.0 (up to 6Gb/s) 2 x SATA Power RAID 0/1/5
	DIO	1 x 8-bit DIO
	LPC	1 x LPC (supports LPC EXT-RS232/RS485 module)
	SMBus	1 x SMBus
WatchDog Timer	Output & Interval	System Reset, Programmable via Software from 1 to 255 Seconds
Security	TPM	Available Upon Request
Power	Type	Single 12V +/-10% DC (SU171)
	Connector	DC-in Jack Right Angle Connector (4-pin) (available upon request) Vertical Type Connector (4-pin) (available upon request)
	Consumption	SU171 Typical: 6600U:12V @ 0.98A (11.76Watt); 6300U:12V @ 0.95A (11.40Watt) Max: 6600U:12V @ 1.62A (19.44Watt); 6300U:12V @ 1.58A (18.96Watt)
	RTC Battery	Lithium 3V (210mAH)
OS Support	Microsoft /Linux	Windows 7 (/WES7) 32/64-bit Windows 8.1 (64-bit) Windows 10 IoT Enterprise 64-bit Debian 8 (with VESA graphic driver) CentOS 7 (with VESA graphic driver) Ubuntu 15.10 (Intel graphic driver available)
Environment	Temperature	Operating: 0 to 60°C Storage: -40 to 85°C

	Humidity	Operating: 5 to 90% RH Storage: 5 to 90% RH
	MTBF	SU171 : 357,691 hrs @ 25°C; 206,450 hrs @ 45°C ; 130,229 hrs @ 60°C Calculation model: Telcordia Issue 2, Method I Case 3 Environment: GB, GC – Ground Benign, Controlled
Mechanical	Dimensions	Mini-ITX Form Factor 170mm (6.7”) x 170mm (6.7”)
	Height	PCB: 1.6mm Top Side: TBD, Bottom Side: TBD

2.2 Features

- ### Watchdog Timer

The Watchdog Timer function allows your application to regularly “clear” the system at the set time interval. If the system hangs or fails to function, it will reset at the set time interval so that your system will continue to operate.

- ### DDR3L

DDR3L is a higher performance DDR3 SDRAM interface providing less voltage and higher speed successor. DDR3L SDRAM modules support 1600MHz for DDR modules. DDR3L delivers increased system bandwidth and improved performance to provide its higher bandwidth and its increase in performance at a lower power.

- ### Graphics

The integrated Intel® HD graphics engine delivers an excellent blend of graphics performance and features to meet business needs. It provides excellent video and 3D graphics with outstanding graphics responsiveness. These enhancements deliver the performance and compatibility needed for today’s and tomorrow’s business applications. Supports 1 LVDS/eDP, 1 HDMI/DP and 1 DP++ interface for triple display outputs.

● PCI Express

PCI Express is a high bandwidth I/O infrastructure that possesses the ability to scale speeds by forming multiple lanes.

● Serial ATA

Serial ATA is a storage interface that is compliant with SATA 1.0a specification. With speed of up to 6Gb/s (SATA 3.0), it improves hard drive performance faster than the standard parallel ATA whose data transfer rate is 100MB/s. The bandwidth of the SATA 3.0 will be limited by carrier board design.

● Gigabit LAN

Intel® I210AT PCI Express Gigabit Ethernet and Intel® I219LM with iAMT11.0 Gigabit Ethernet Phy controllers support up to 1Gbps data transmission.

● Wake-On-LAN

This feature allows the network to remotely wake up a Soft Power Down (Soft-Off) PC. It is supported via the onboard LAN port or via a PCIe LAN card that uses the PCIe PME (Power Management Event) signal. However, if your system is in the Suspend mode, you can poweron the system only through an IRQ or DMA interrupt.

Important:
The 5V_standby power source of your power supply must support ≥720mA.

● Wake-On-USB

This function allows you to use a USB keyboard or USB mouse to wake up a system from the S3 (STR - Suspend To RAM) state.

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.

● RTC Timer

The RTC installed on the system board allows your system to automatically power-on on the set date and time.

● ACPI STR

The system board is designed to meet the ACPI (Advanced Configuration and Power Interface) specification. ACPI has energy saving features that enables PCs to implement Power Management and Plug-and-Play with operating systems that support OS Direct Power Management. ACPI when enabled in the Power Management Setup will allow you to use the Suspend to RAM function.

With the Suspend to RAM function enabled, you can power-off the system at once by pressing the power button or selecting “Standby” when you shut down Windows® without having to go through the sometimes tiresome process of closing files, applications and operating system. This is because the system is capable of storing all programs and data files during the entire operating session into RAM (Random Access Memory) when it powers-off. The operating session will resume exactly where you left off the next time you power-on the system.

Important:
The 5V_standby power source of your power supply must support ≥720mA.

● Power Failure Recovery

When power returns after an AC power failure, you may choose to either power-on the system manually or let the system power-on automatically.

● USB

The system board supports the new USB 3.0. It is capable of running at a maximum transmission speed of up to 5 Gbit/s (625 MB/s) and is faster than USB 2.0 (480 Mbit/s, or 60 MB/s) and USB 1.1 (12Mb/s). USB 3.0 reduces the time required for data transmission, reduces power consumption, and is backward compatible with USB 2.0. It is a marked improvement in device transfer speeds between your computer and a wide range of simultaneously accessible external Plug and Play peripherals.

2.3 Hardware Installation

- **Board Layout**

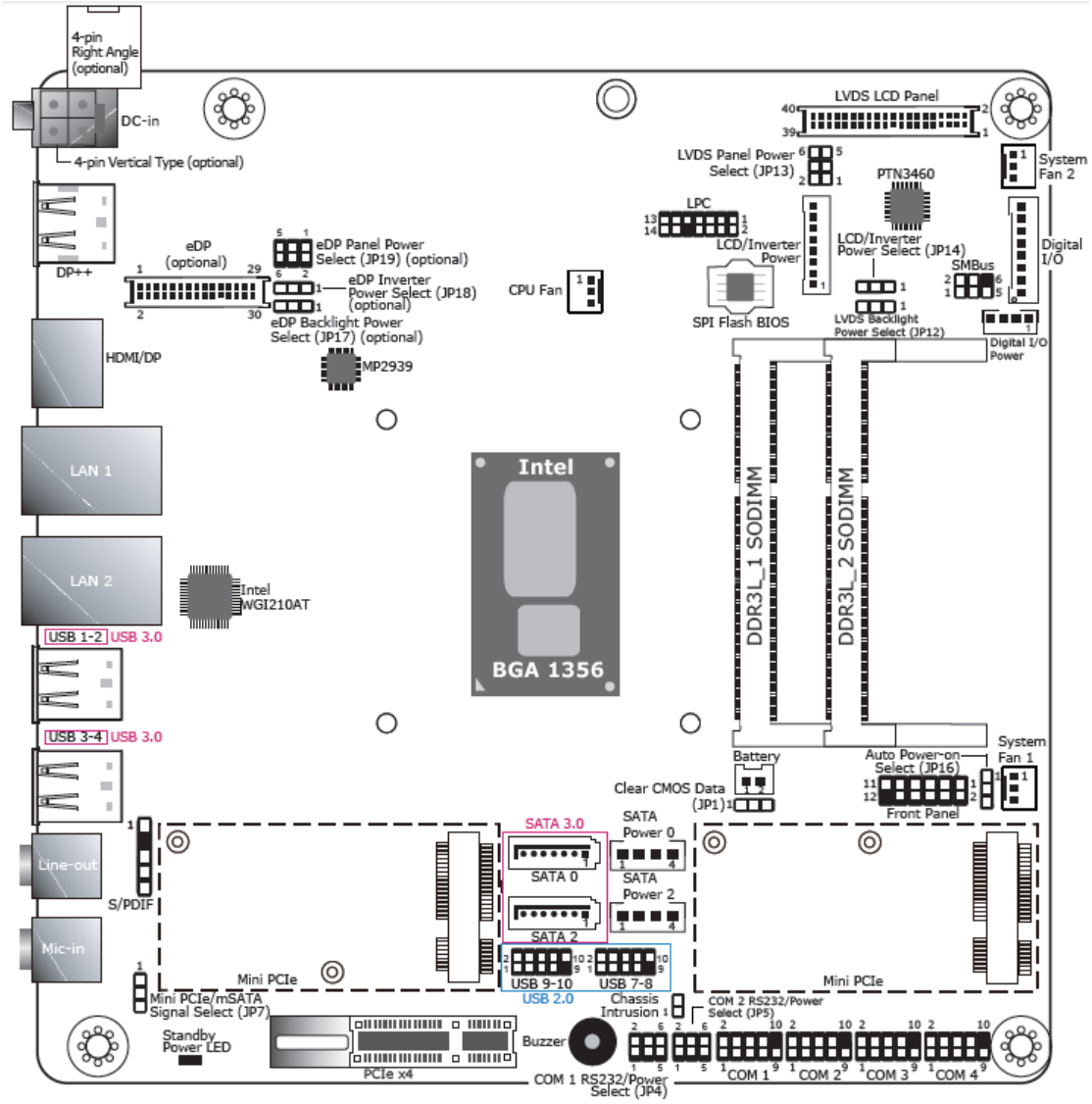


Figure 2.1: Motherboard SU171 Layout

- SU171: Single 12V +/-10% DC.
- The eDP connector is optional. Please contact your sales representative for more information.
- JP17, JP18 an JP19 will work when the eDP connector is populated on the system board.

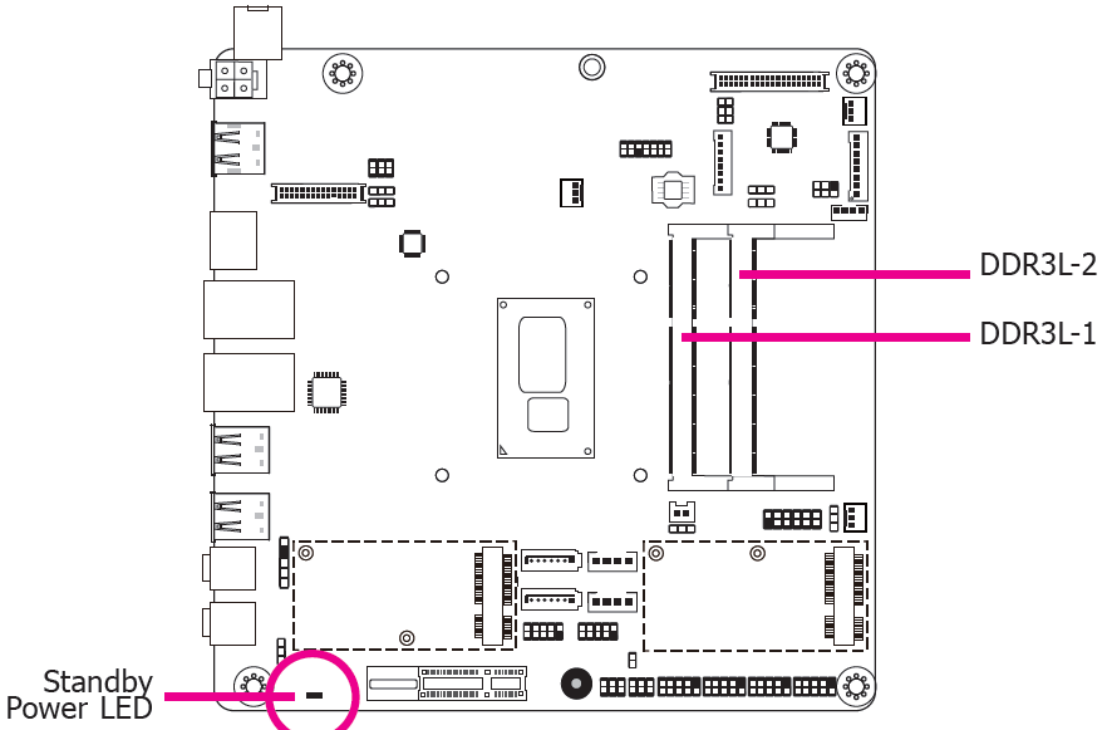
Important:

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.

• System Memory

Important:

When the Standby Power LED lights red, 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.



- **Memory Features**
- Two 204-pin DDR3L SODIMM sockets
- Supports 1600MHz DDR3L SDRAM
- Supports up to 16GB system memory
- Supports dual channel memory interface
- The system board supports the following memory interface.

• **Single Channel (SC)**

Data will be accessed in chunks of 64 bits (8B) from the memory channels.

• **Dual Channel (DC)**

Data will be accessed in chunks of 128 bits from the memory channels. Dual channel provides better system performance because it doubles the data transfer rate.

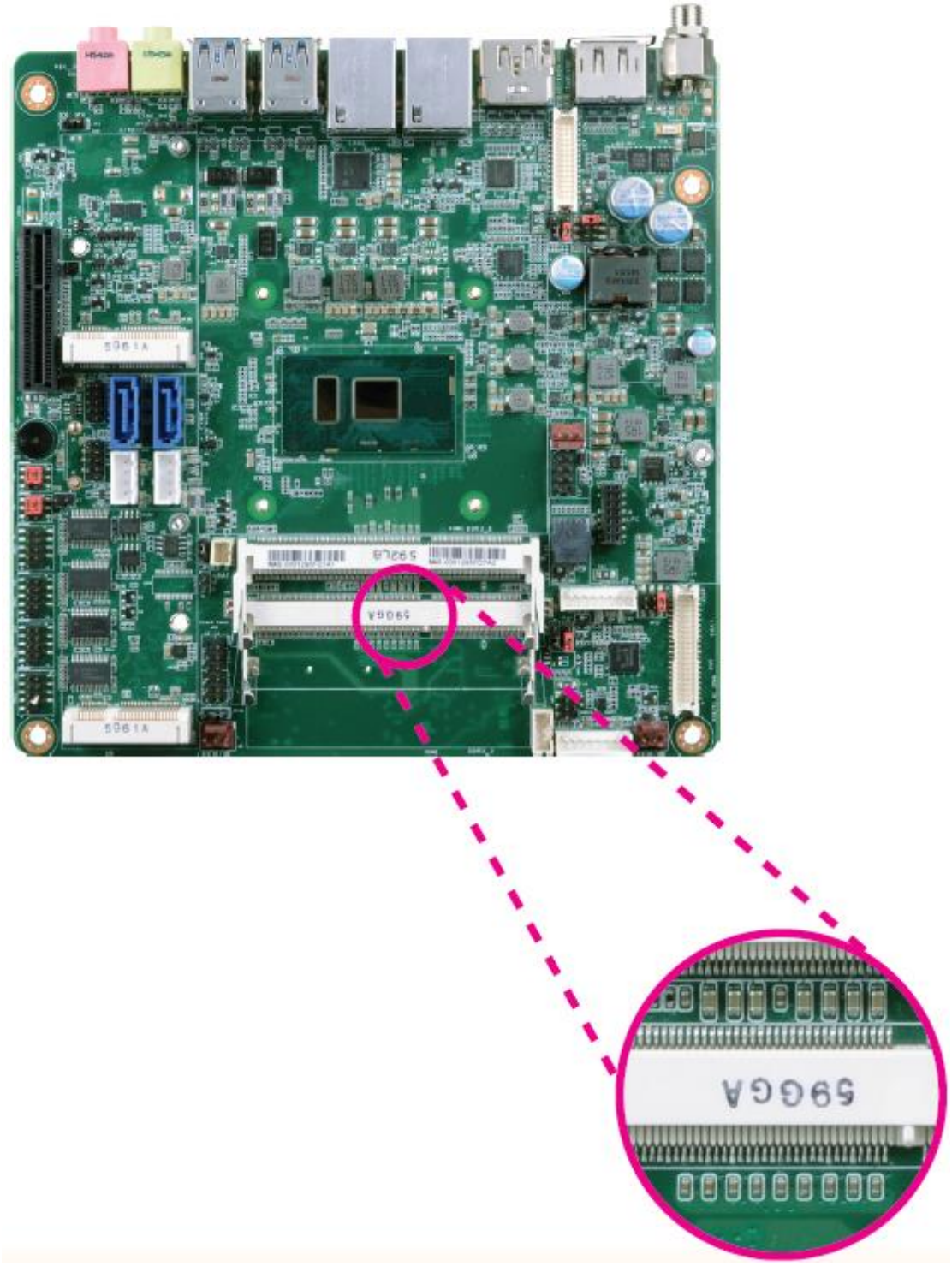
Single Channel	DIMMs are on the same channel. DIMMs in a channel can be identical or completely different. However, we highly recommend using identical DIMMs. Not all slots need to be populated.
Dual Channel	DIMMs of the same memory configuration are on different channels.

● Installing the DIMM Module

Note:

The system board used in the following illustrations may not resemble the actual board. These illustrations are for reference only.

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 SODIMM socket on the system board.
4. Note the key on the socket. The key ensures the module can be plugged into the socket in only one direction.

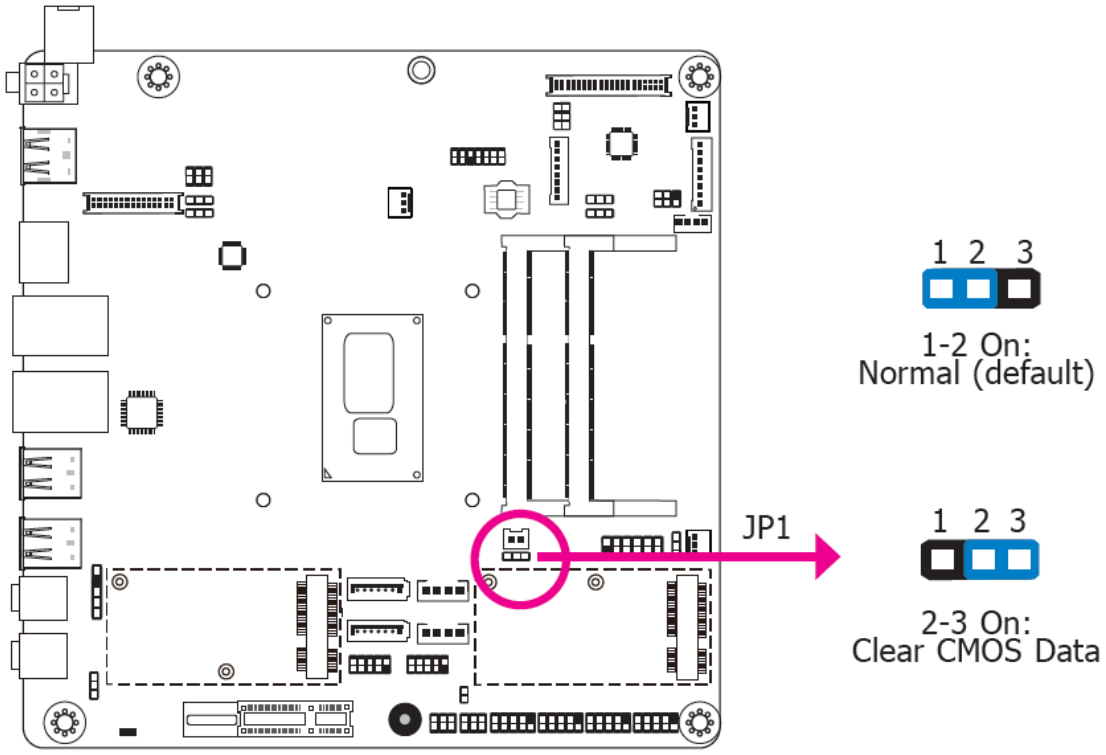


5. Grasping the module by its edges, align the module into the socket at an approximately 30 degrees angle. Apply firm even pressure to each end of the module until it slips down into the socket. The contact fingers on the edge of the module will almost completely disappear inside the socket.

6. Push down the module until the clips at each end of the socket lock into position. You will hear a distinctive “click”, indicating the module is correctly locked into position.

2.4 Jumper Settings

- **Clear CMOS Data**



If you encounter the following,

a) CMOS data becomes corrupted.

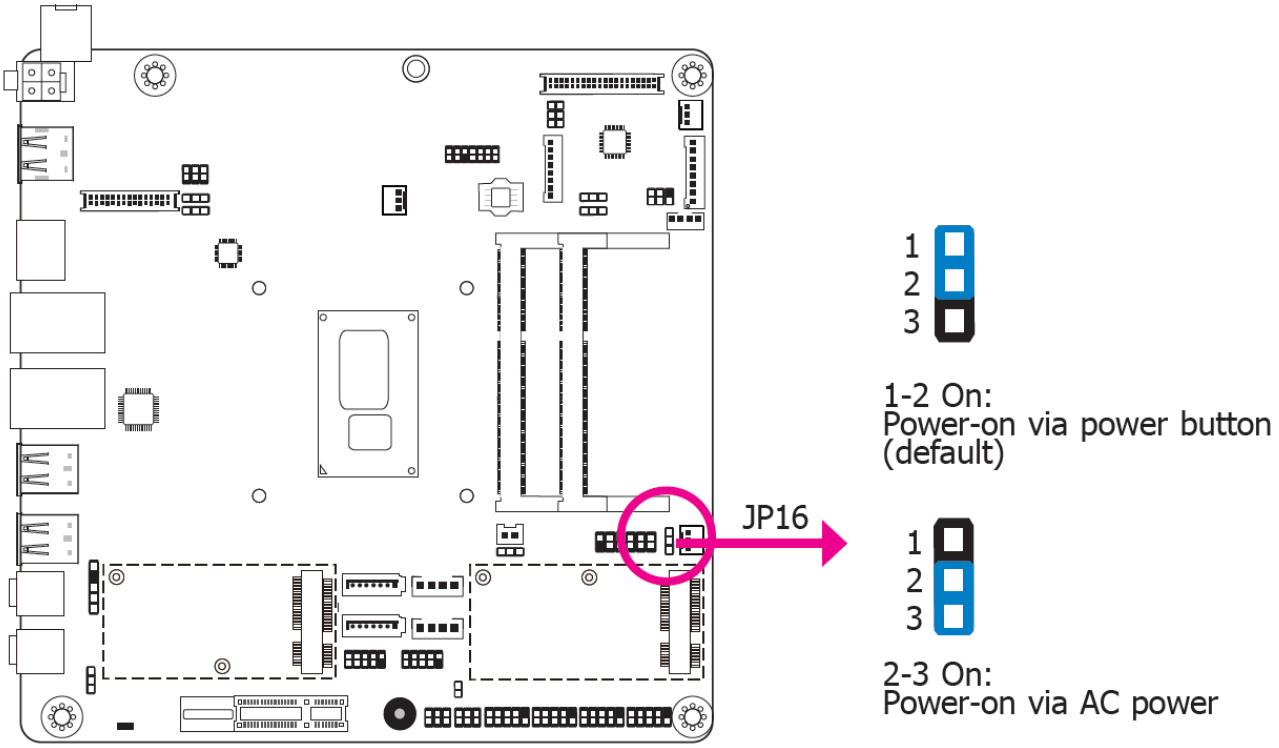
b) You forgot the supervisor or user password.

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 JP1 pins 2 and 3 to On. Wait for a few seconds and set JP1 back to its default setting, pins 1 and 2 On.
3. Now plug the power cord and power-on the system.

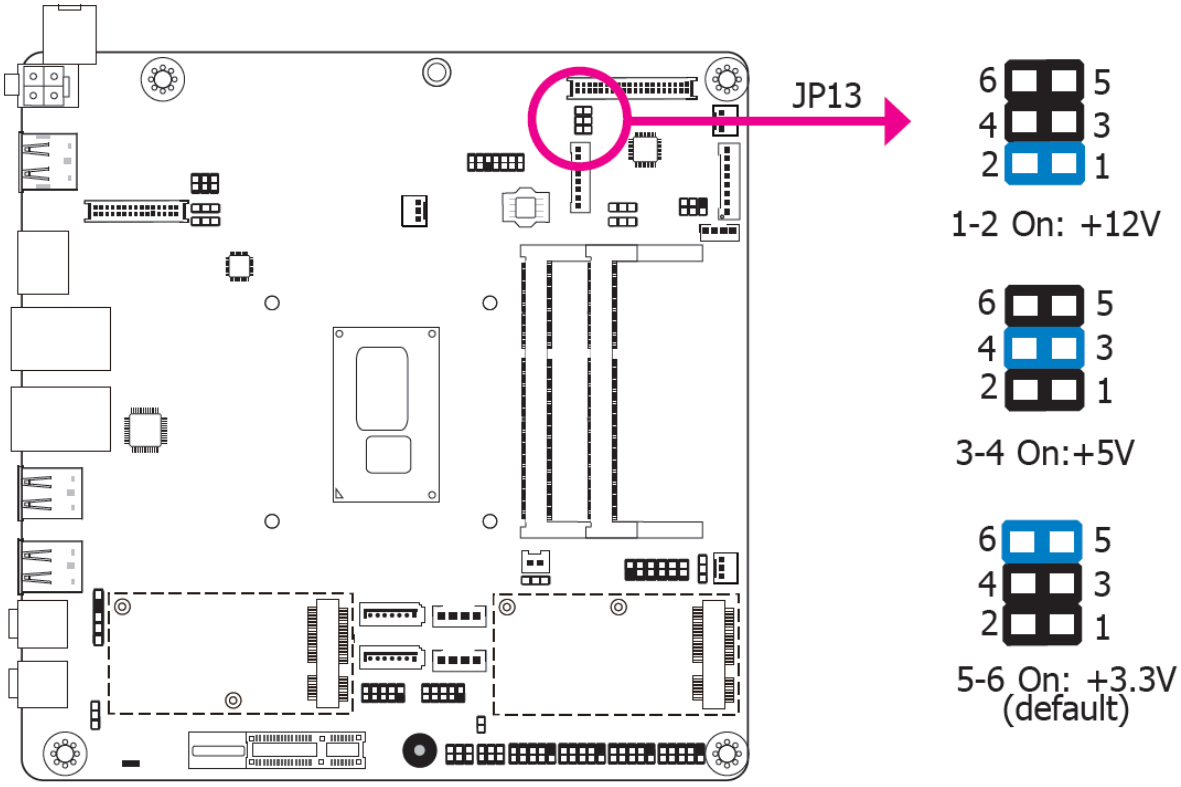
- **Auto Power-on Select**



JP16 is used to select the method of powering on the system. If you want the system to power-on whenever AC power comes in, set JP16 pins 2 and 3 to On. If you want to use the power button, set pins 1 and 2 to On.

When using the JP16 “Power On” feature to power the system back on after a power failure occurs, the system may not power on if the power lost is resumed within 5 seconds (power flicker).

- **LVDS Panel Power Select**

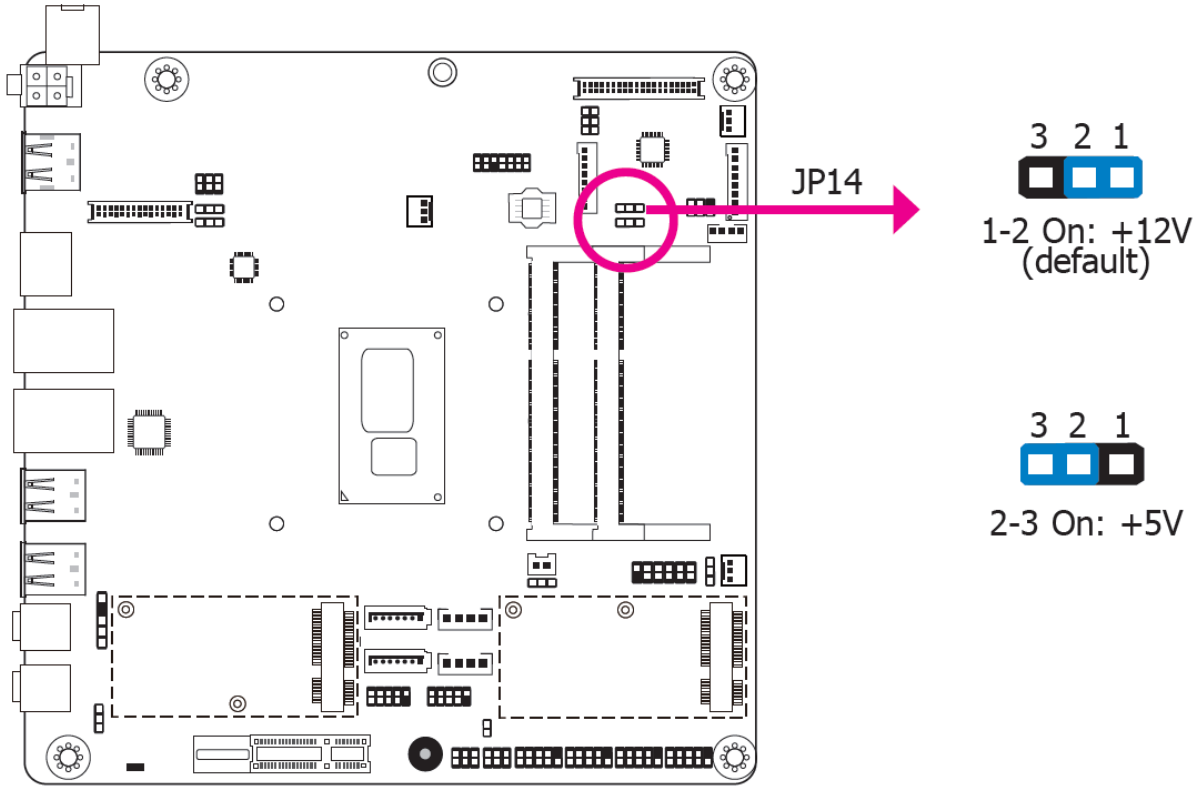


JP13 is used to select the power supplied with the LVDS LCD panel.

Important:

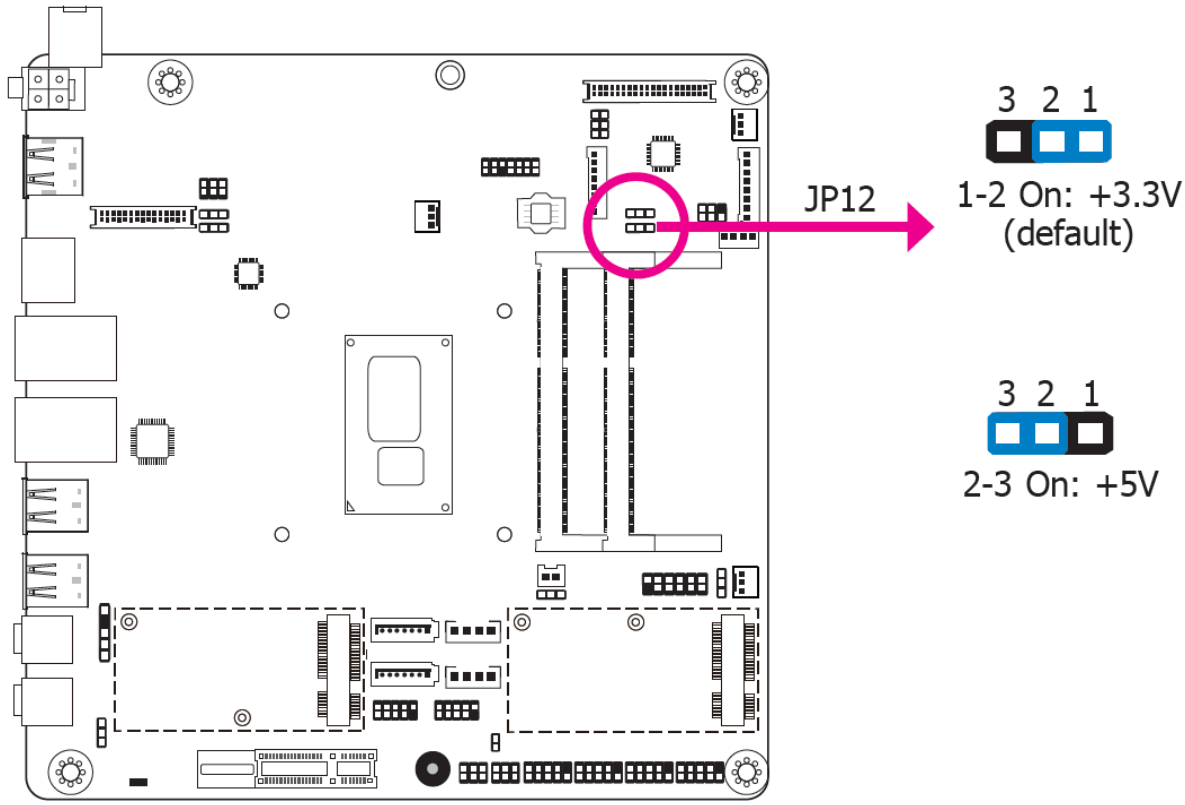
Before powering-on the system, make sure that the power settings of JP13 match the LCD panel's specification. Selecting the incorrect voltage will seriously damage the LCD panel.

- **LCD/Inverter Power Select**



JP14 is used to select the power level of the LCD/Inverter power connector.

- **LVDS Backlight Power Select**

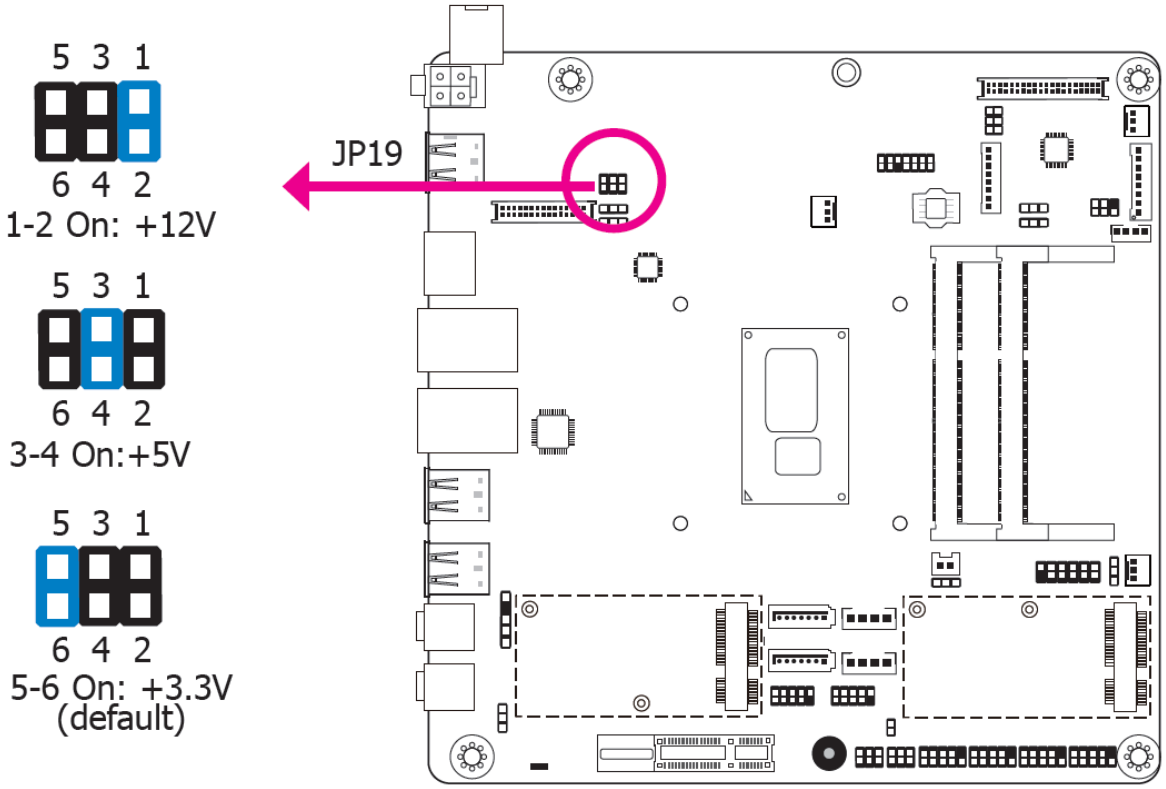


JP12 is used to select the power level of backlight control: +3.3V (default) or +5V.

Important:

Before powering-on the system, make sure that the power settings of JP12 match the power specification of backlight control. Selecting the incorrect voltage will seriously damage the backlight.

- **eDP Panel Power Select (optional)**

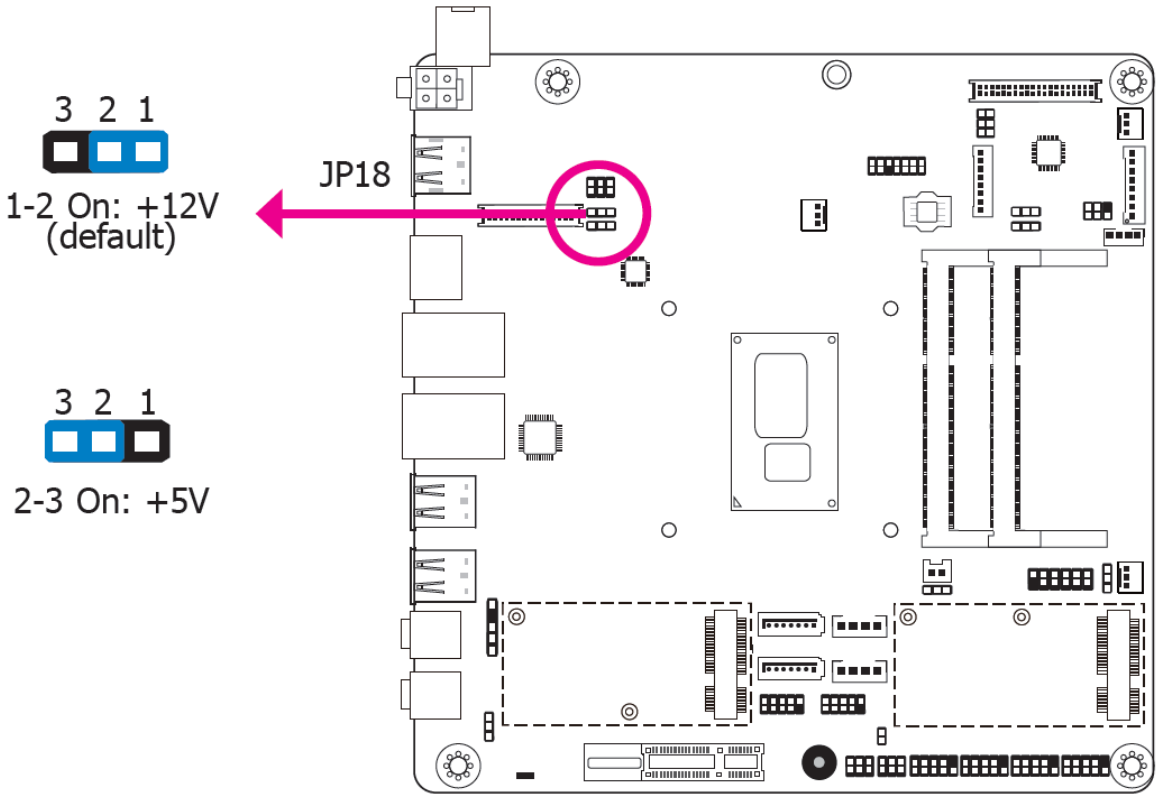


JP19 is used to select the power supplied with the eDP panel.

Important:

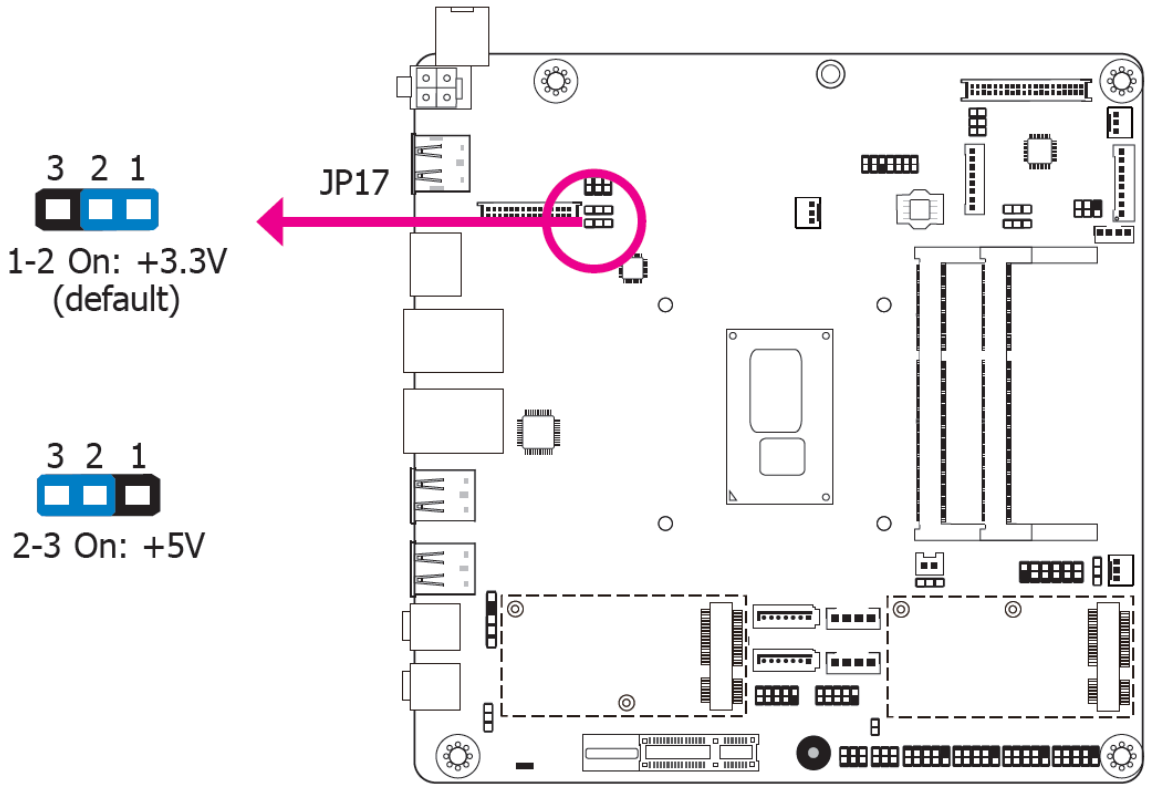
Before powering-on the system, make sure that the power settings of JP19 match the eDP panel's specification. Selecting the incorrect voltage will seriously damage the Edp panel.

- **eDP Inverter Power Select (optional)**



JP18 is used to select the power level of the eDP Inverter power supply.

- **eDP Backlight Power Select (optional)**

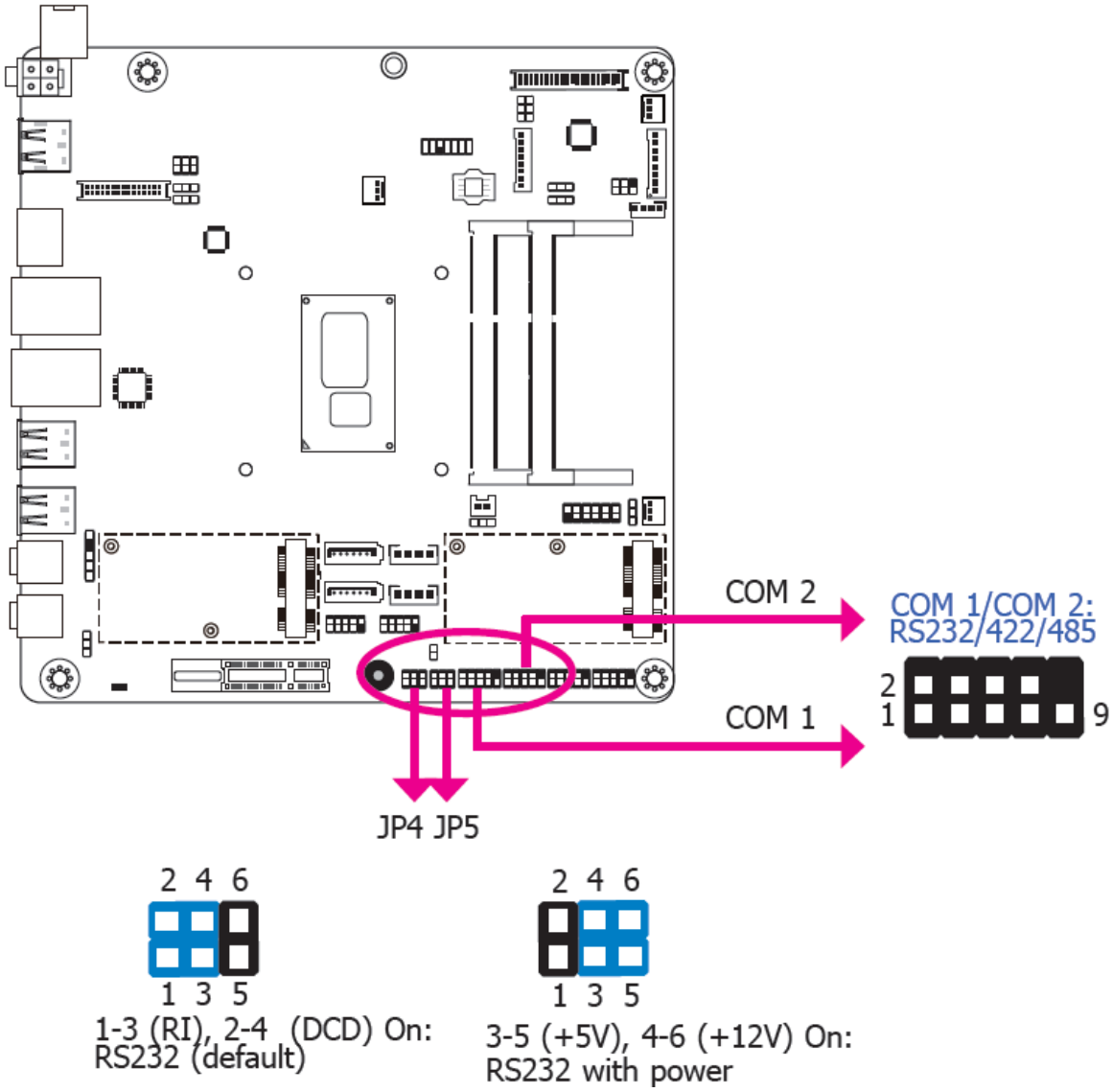


JP17 is used to select the power level of backlight control: +3.3V (default) or +5V.

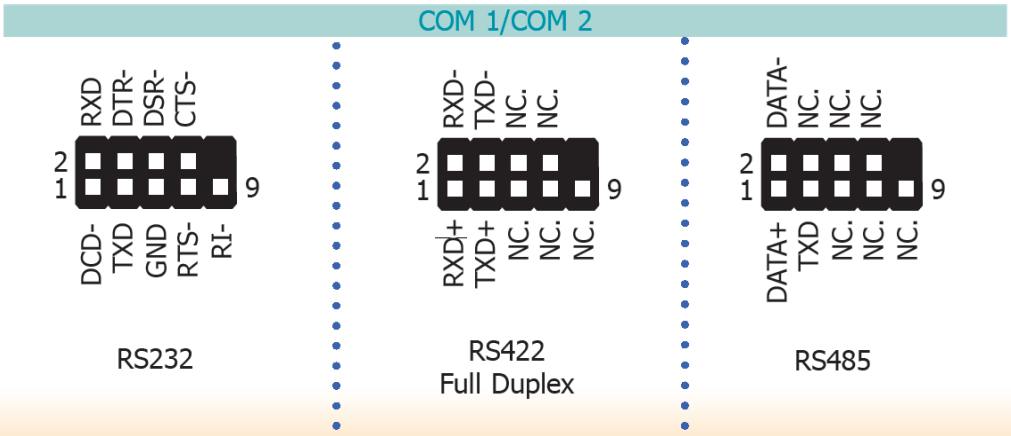
Important:

Before powering-on the system, make sure that the power settings of JP17 match the power specification of backlight control. Selecting the incorrect voltage will seriously damage the backlight.

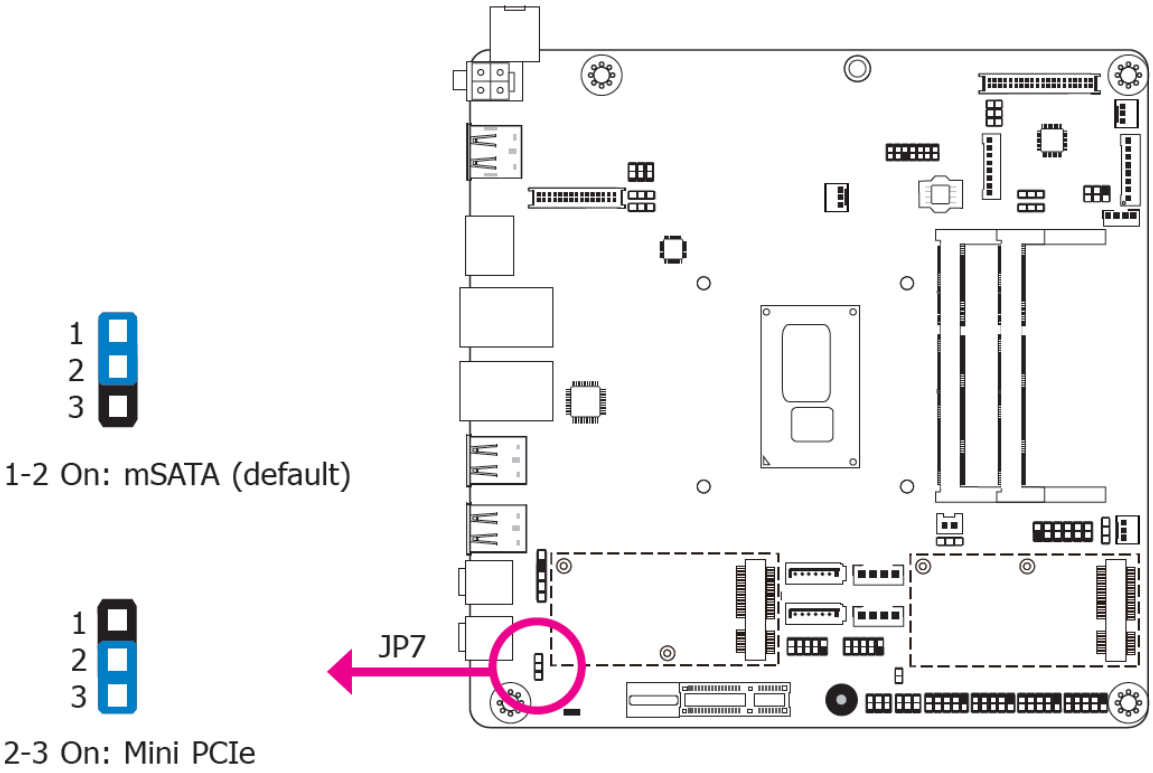
- **COM 1/COM 2 RS232/Power Select**



JP4 (for COM1) and JP5 (for COM 2) are designed to configure Serial COM ports to pure RS232 or RS232 with power.

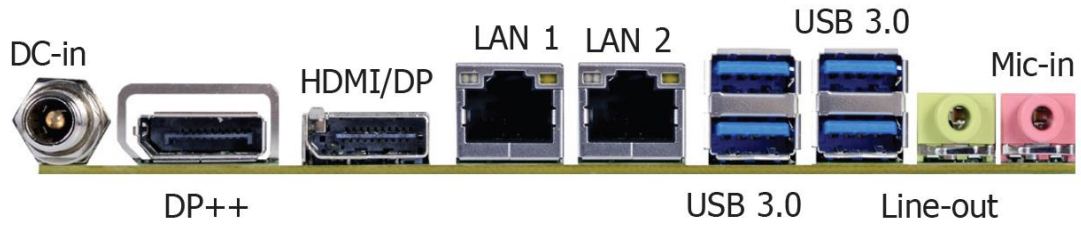


- **Mini PCIe/mSATA Signal Select**



JP7 is used to select the Mini PCIe signal: Mini PCIe or mSATA (default).

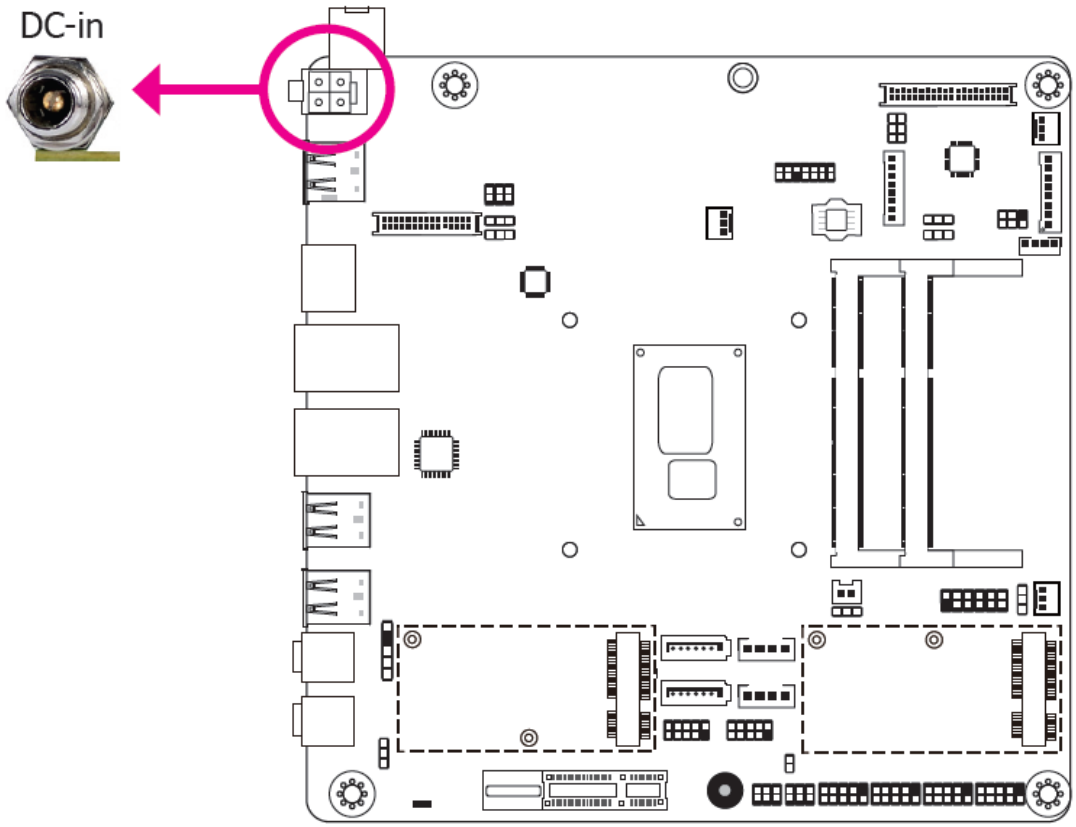
2.5 Rear Panel I/O Ports



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

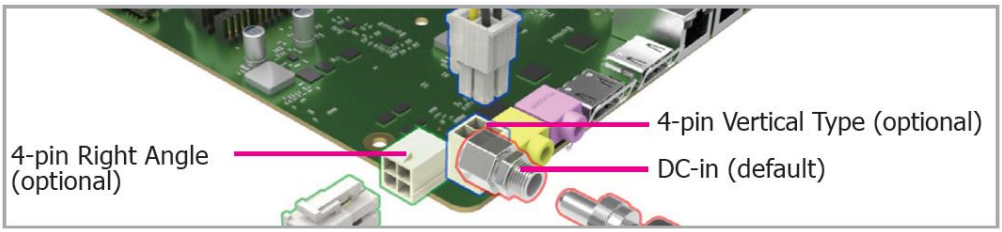
- 1 12V DC-in jack (default) - SU171
- 1 HDMI/DP port (DP available upon request)
- 1 DP++ port
- RJ45 LAN ports
- USB 3.0 ports
- 1 Line-out jack
- 1 Mic-in jack

- **12V DC-in (SU171)**



This jack is considered a low power solution. Connect a DC power cord to this jack. Using a voltage more than the recommended range may fail to boot the system or cause damage to the system board.

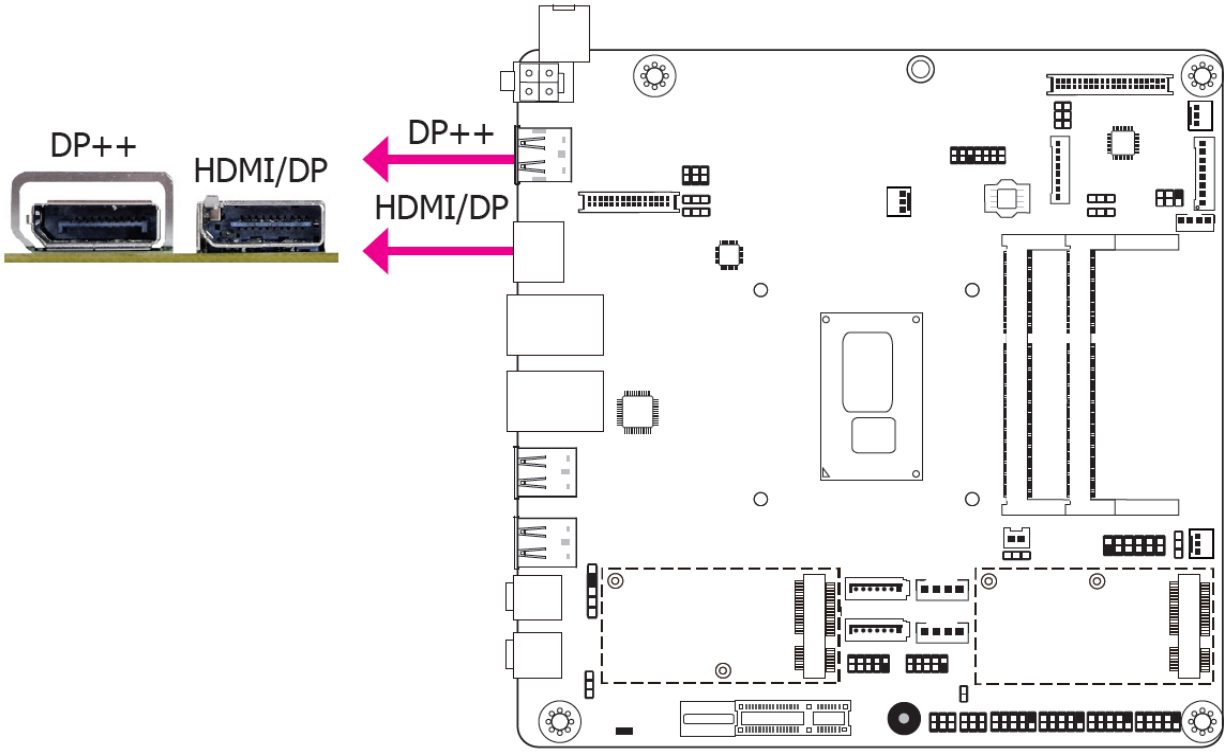
The DC-in jack on the system board co-lays with a 4-pin right angle connector (optional) or 4-pin vertical type connector (optional) as the photo displayed below.



• Graphics Interfaces

The display ports consist of the following:

- • 1 DP++ port
- • 1 HDMI/DP port



DP Port

The DP port 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.

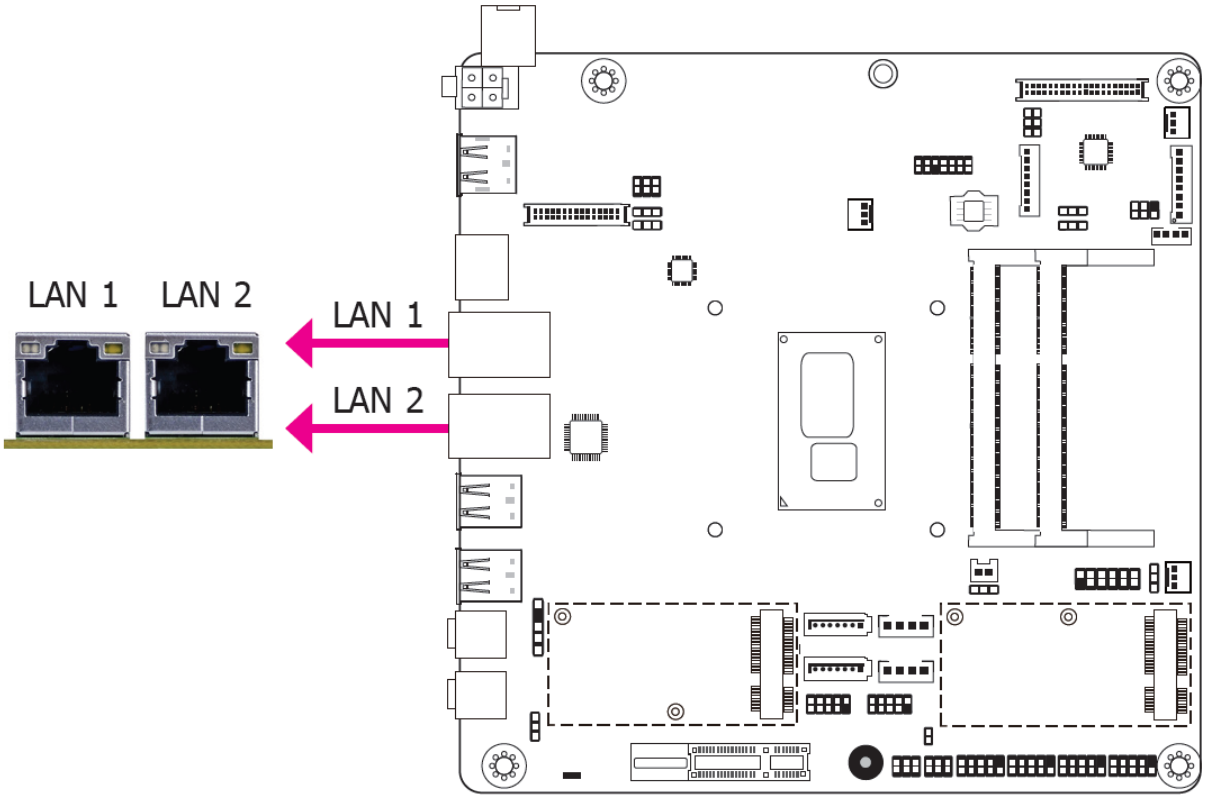
HDMI Port

The HDMI port which carries both digital audio and video signals is used to connect a LCD monitor or digital TV that has the HDMI port.

Driver Installation

Install the graphics driver. Refer to chapter 4 for more information.

- **RJ45 LAN Ports**



Features

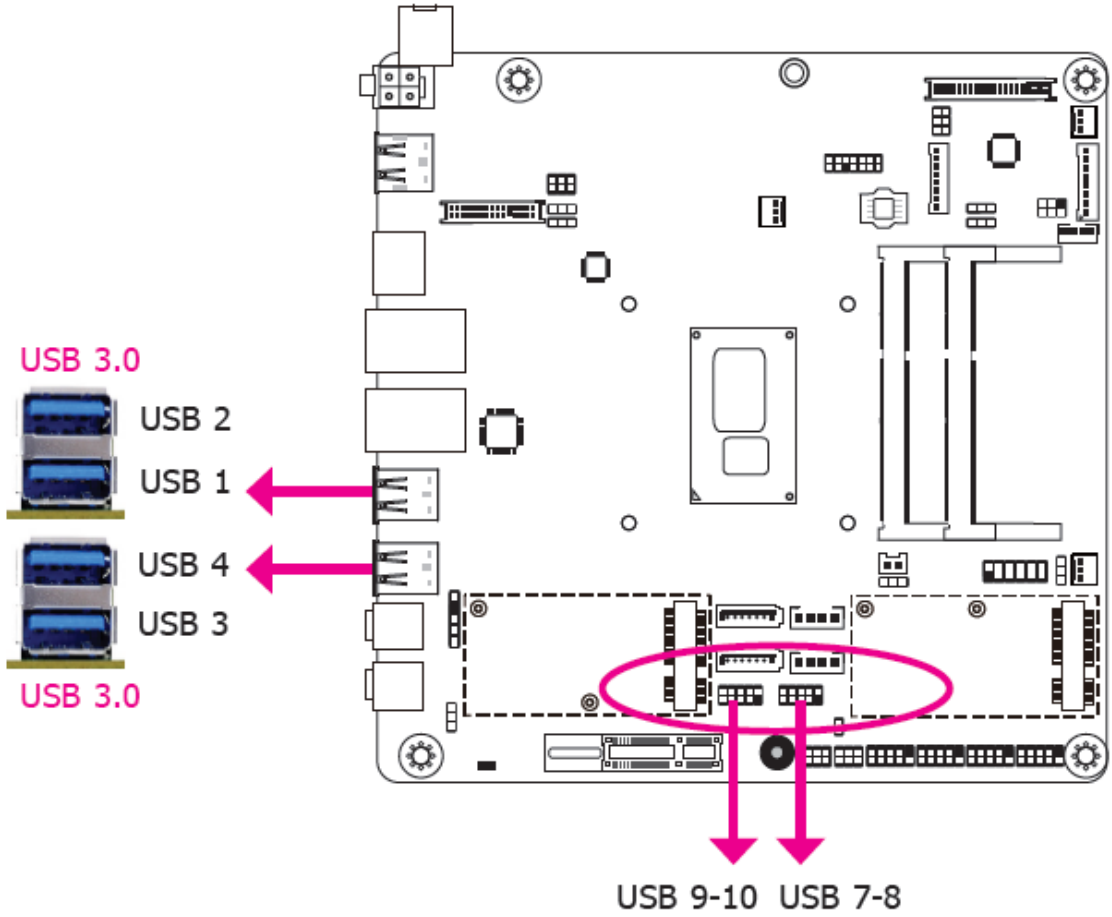
- Intel® I210AT PCIe (10/100/1000Mbps)
- Intel® I219LM PCIe with iAMT11.0 (10/100/1000Mbps) (only Core i7/i5 supports iAMT)

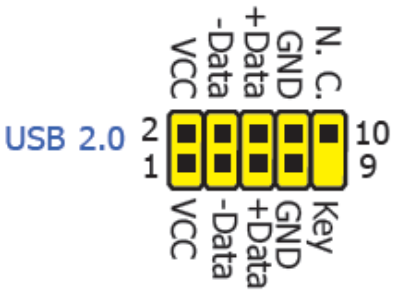
The LAN ports allow the system board to connect to a local area network by means of a network hub.

Driver Installation

Install the LAN drivers. Refer to chapter 4 for more information.

- **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 four onboard USB 3.0 ports (USB 1-2/3-4). The 10-pin connectors allow you to connect 4 additional USB 2.0 ports (USB 7-8/9-10). The additional USB ports 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.

BIOS Setting

Configure the onboard USB in the Advanced menu (“USB Configuration” submenu) of the BIOS. Refer to chapter 3 for more information.

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.

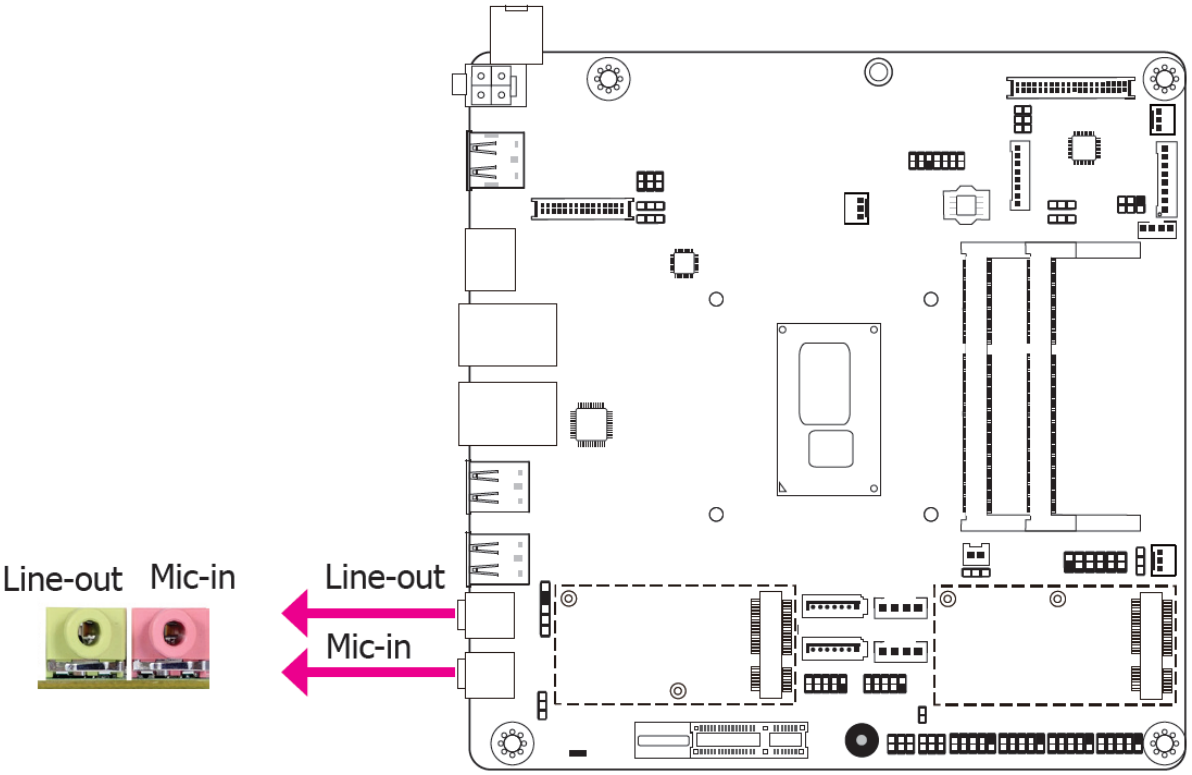
Wake-On-USB Keyboard/Mouse

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.

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

The system board is equipped with 2 audio jacks. A jack is a one-hole connecting interface for inserting a plug.

- Line-out Jack (Lime)
  This jack is used to connect a headphone or external speakers.
- Mic-in (Pink)
  This jack is used to connect an external microphone.

BIOS Setting

Configure the onboard USB in the Advanced menu (“Audio Configuration” submenu) of the BIOS. Refer to chapter 3 for more information.

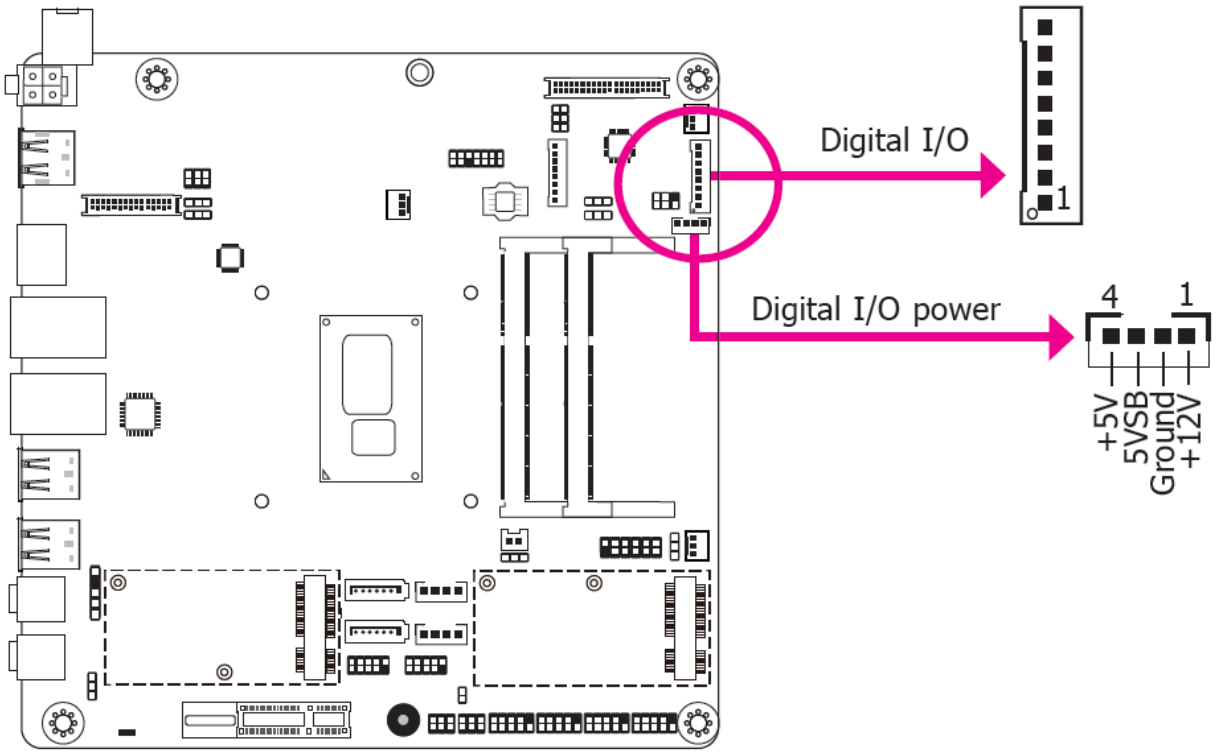
Driver Installation

Install the audio driver. Refer to the chapter 4 for more information.

2.6 I/O Connectors

- **Digital I/O Connector**

Digital I/O Power Connector

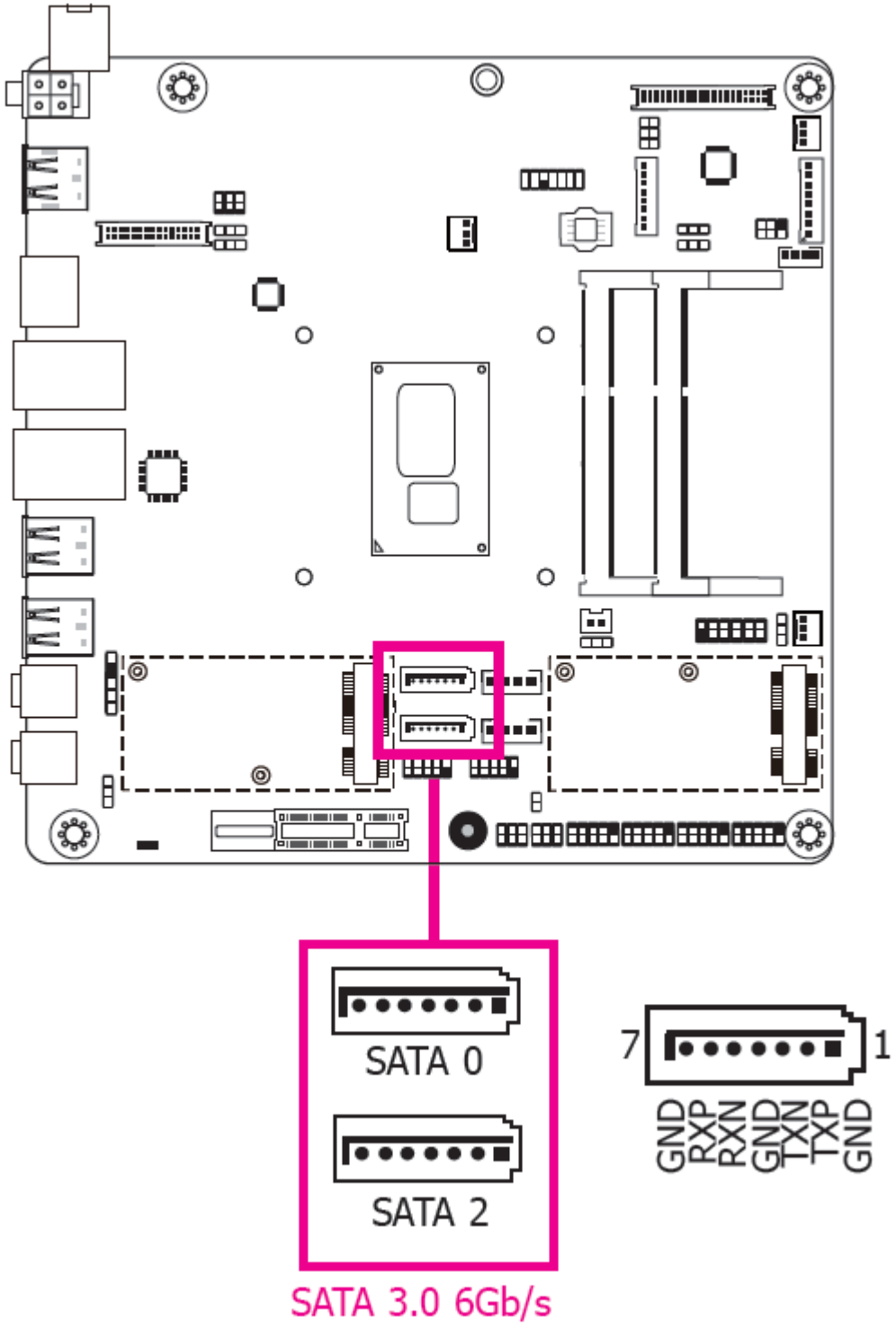


The 8-bit Digital I/O connector provides powering-on function to external devices that are connected to the connector.

Digital I/O Connector

Pins	Function
1	DIO7
2	DIO6
3	DIO5
4	DIO4
5	DIO3
6	DIO2
7	DIO1
8	DIO0

- **SATA (Serial ATA) Connectors**



Features

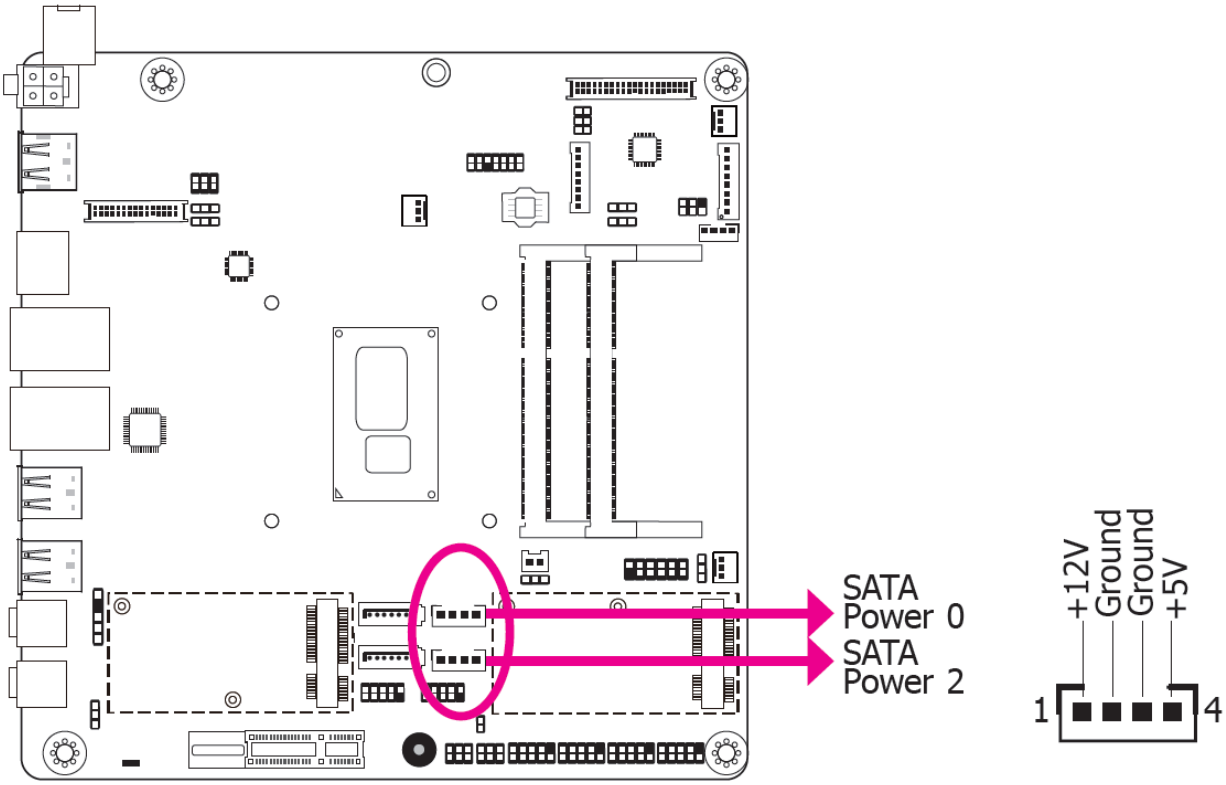
- Serial ATA 3.0 ports with data transfer rate up to 6Gb/s
- Integrated Advanced Host Controller Interface (AHCI) controller
- Supports RAID 0/1/5 (Core i only)

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

BIOS Setting

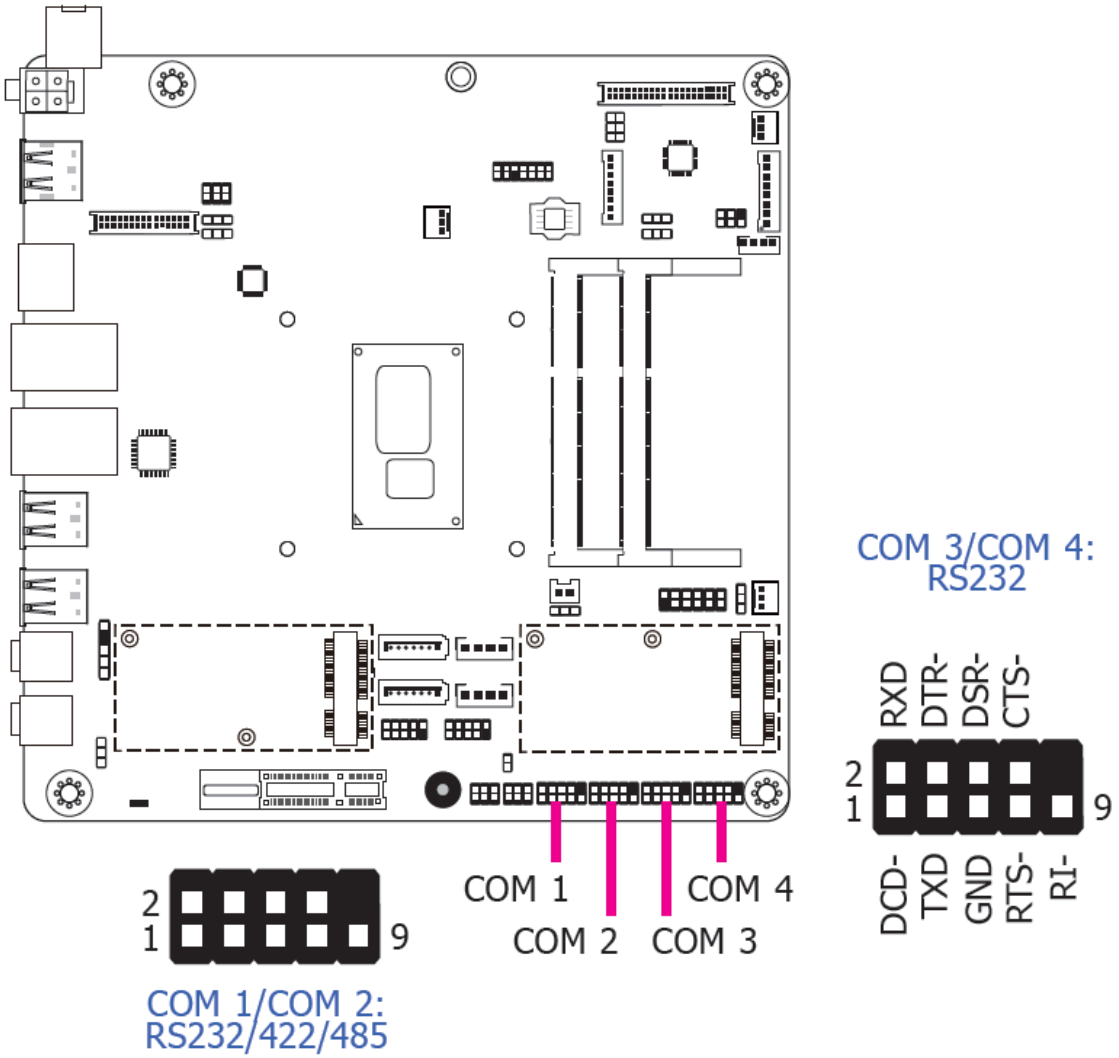
Configure the Serial ATA drives in the Advanced menu (“SATA Configuration” submenu) of the BIOS. Refer to chapter 3 for more information.

● SATA (Serial ATA) Power Connectors



These 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.

● COM (Serial) Ports



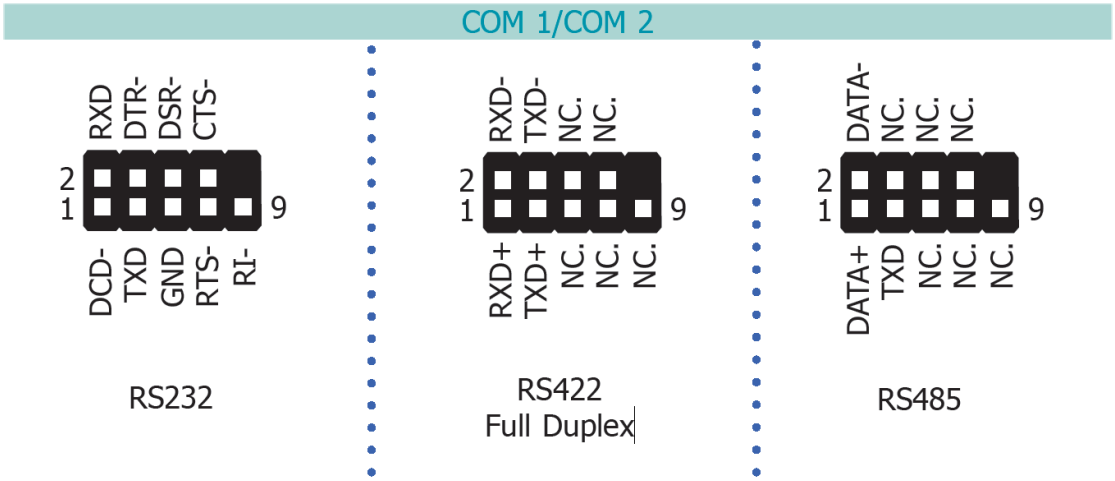
COM 3 and COM 4 are fixed at RS232.

The pin functions of COM 1 and COM 2 will vary according to BIOS' setting. JP4 (for COM1) and JP5 (for COM 2) are designed to configure Serial COM ports to pure RS232 or RS232 with power. Refer to "COM 1/COM 2 RS232/Power Select" in this chapter for more information.

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

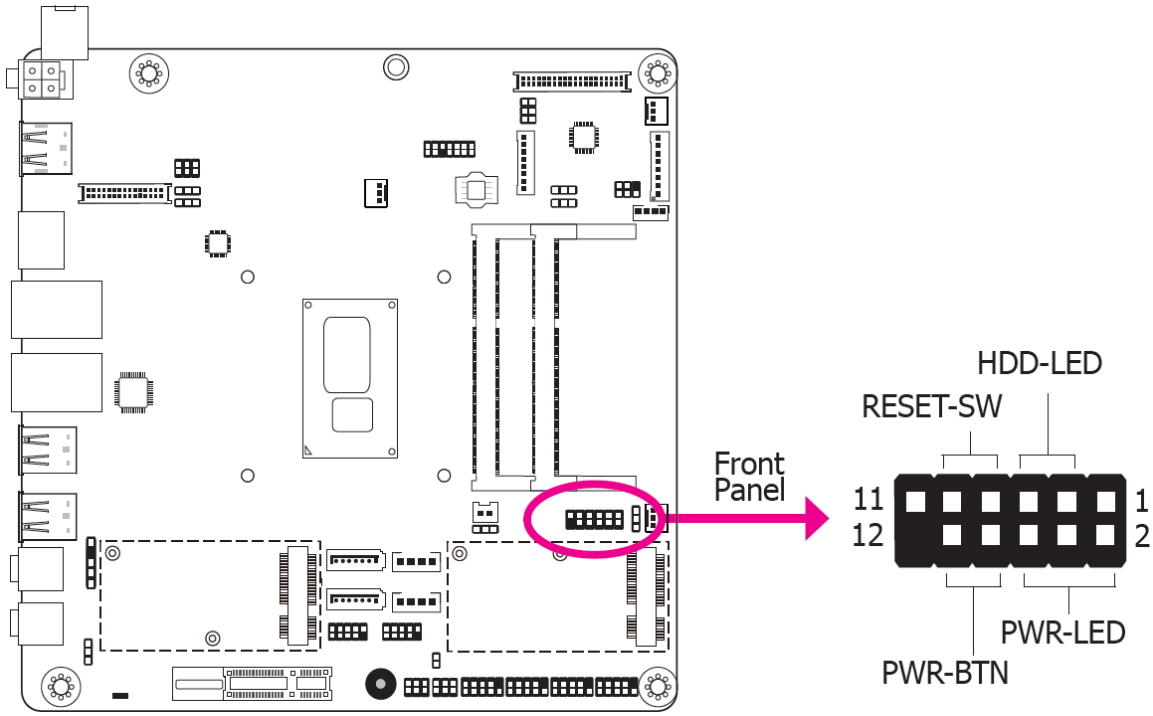
Your COM port may come mounted on a card-edge bracket. Install the card-edge bracket to an available slot at the rear of the system chassis then insert the serial port cable to the COM connector. Make sure the colored stripe on the ribbon cable is aligned with pin 1 of the COM connector.



BIOS Setting

Configure the serial COM ports in the Advanced menu ("SIO NUVOTON6106D" submenu) of the BIOS. Refer to the chapter 3 for more information.

● Front Panel Connector



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.

PWR-BTN - Power Switch

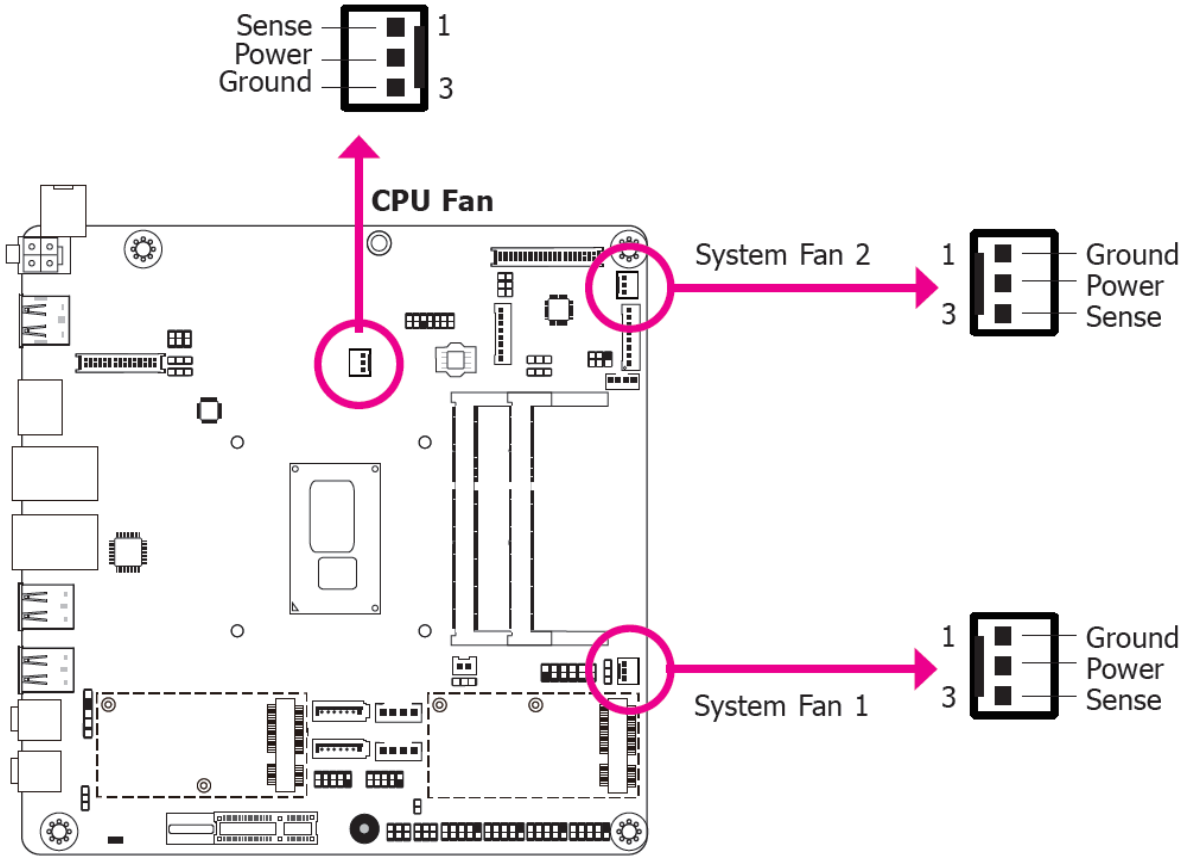
This switch is used to power on or off the system.

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.

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

• Cooling Fan Connectors



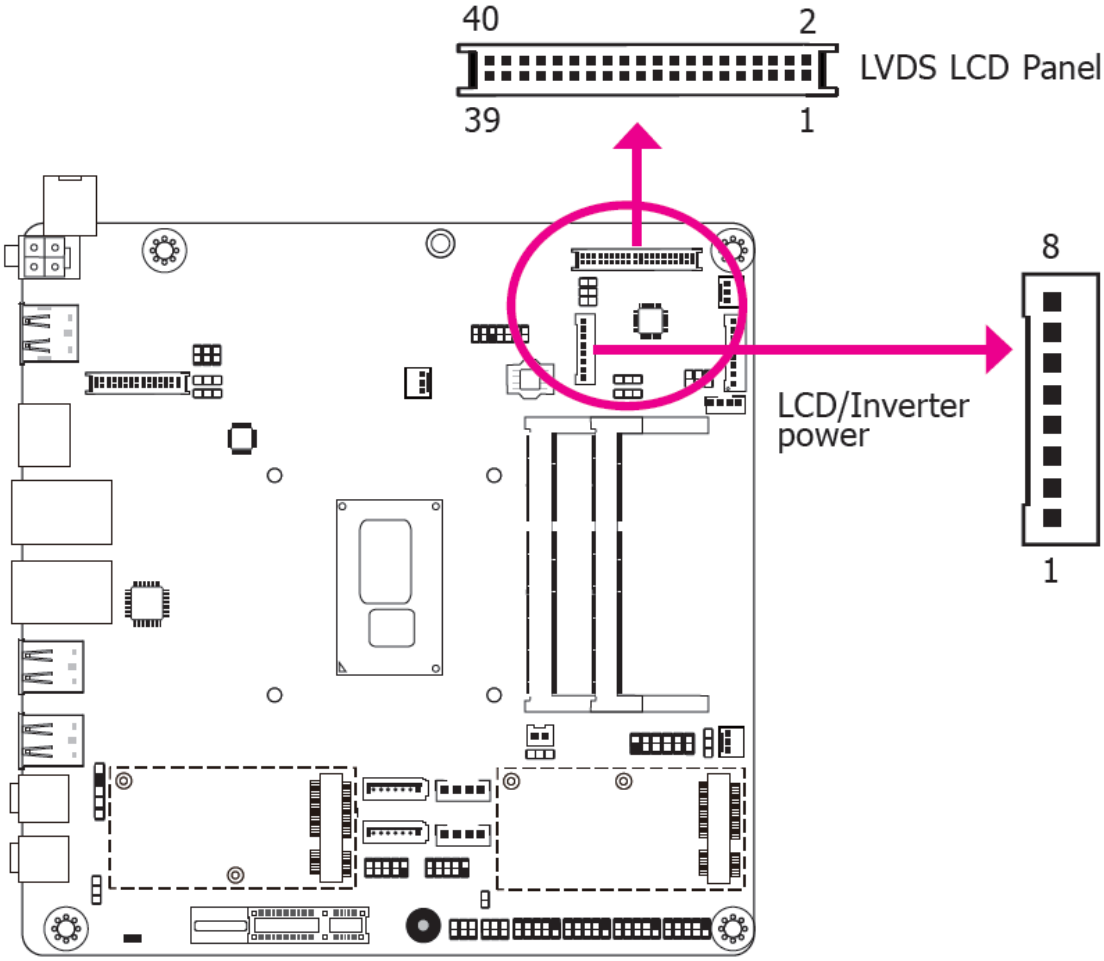
The fan connectors are used to connect cooling fans. The cooling fans will provide adequate airflow throughout the chassis to prevent overheating the CPU and system board components.

BIOS Setting

The Advanced menu ("SIO NUVOTON6106D" submenu) of the BIOS will display the current speed of the cooling fans. Refer to chapter 3 for more information.

- **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 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.

BIOS Setting

Configure the LCD panel in the Advanced Features submenu of the BIOS. Refer to chapter 3 for more information.

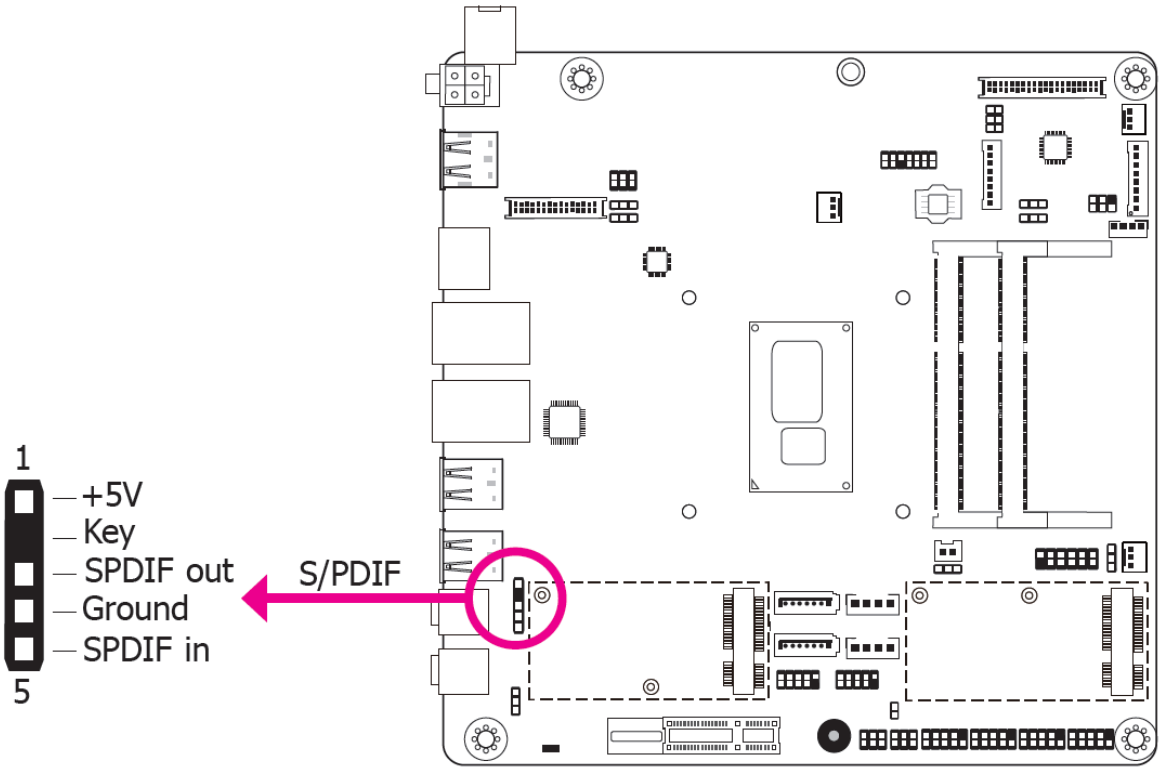
● LVDS LCD Panel Connector

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_DDCDTA	**36**	+3.3V
37	Panel Power	**38**	Panel Power
39	Panel Power	**40**	Panel Power

● LCD/Inverter Power Connector

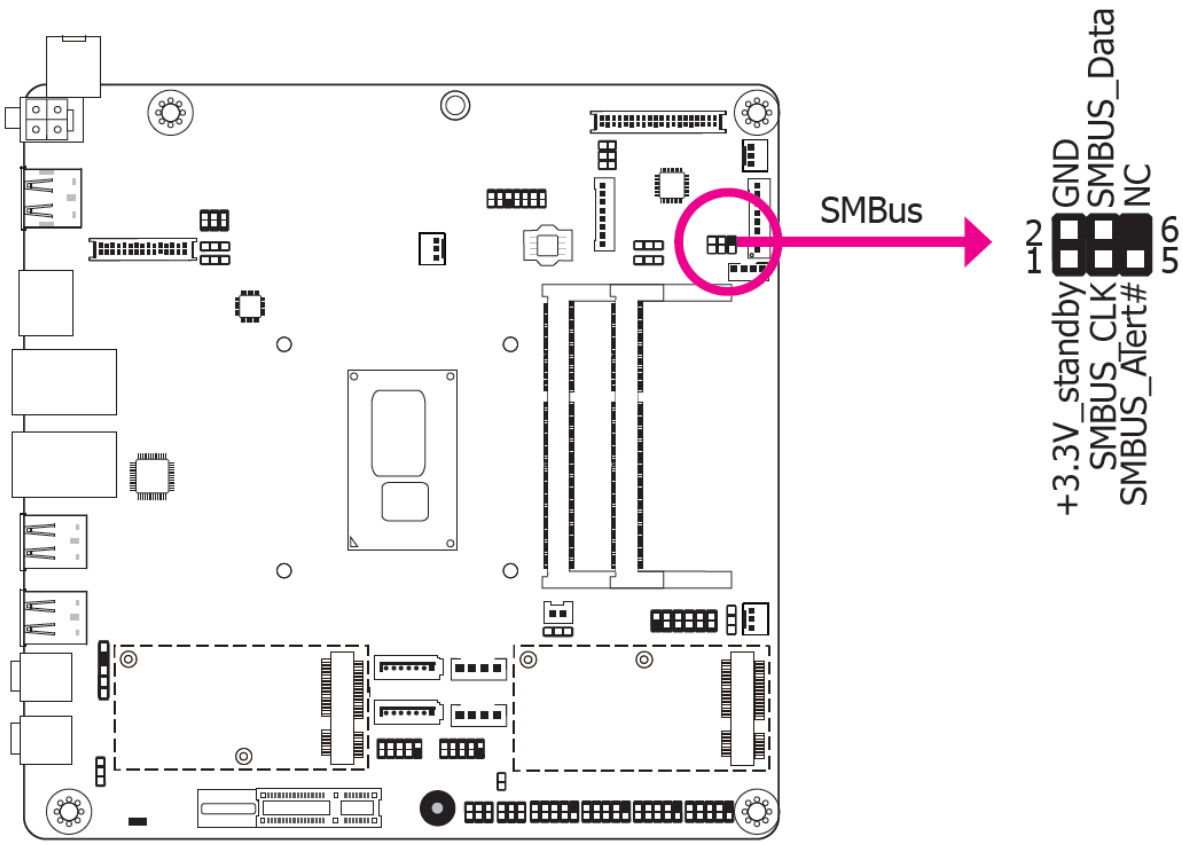
Pins	Function
1	GND
2	GND
3	Panel Inverter Brightness Voltage Control
4	Panel Power
5	+3.3V
6	Panel Backlight On/Off Control
7	LCD/Inverter Power
8	LCD/Inverter Power

- **S/PDIF Connector**



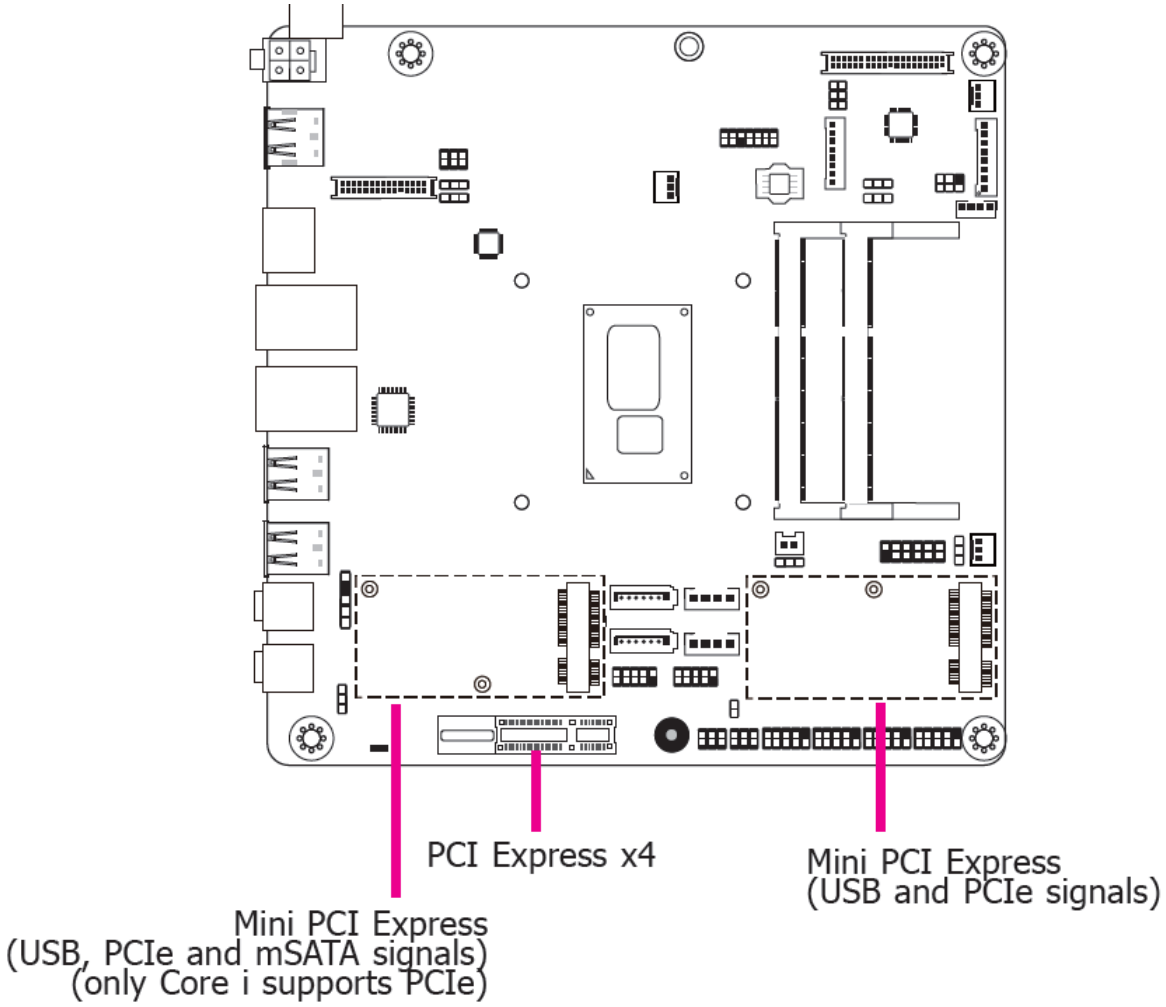
The S/PDIF connector is used to connect an external S/PDIF port. Your S/PDIF port may be mounted on a card-edge bracket. Install the card-edge bracket to an available slot at the rear of the system chassis then connect the audio cable to the S/PDIF connector. Make sure pin 1 of the audio cable is aligned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

- **SMBus Connector**



The SMBus (System Management Bus) connector is used to connect SMBus devices. 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.

- **Expansion Slots**



Mini PCI Express Slots

The Mini PCIe sockets are 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.

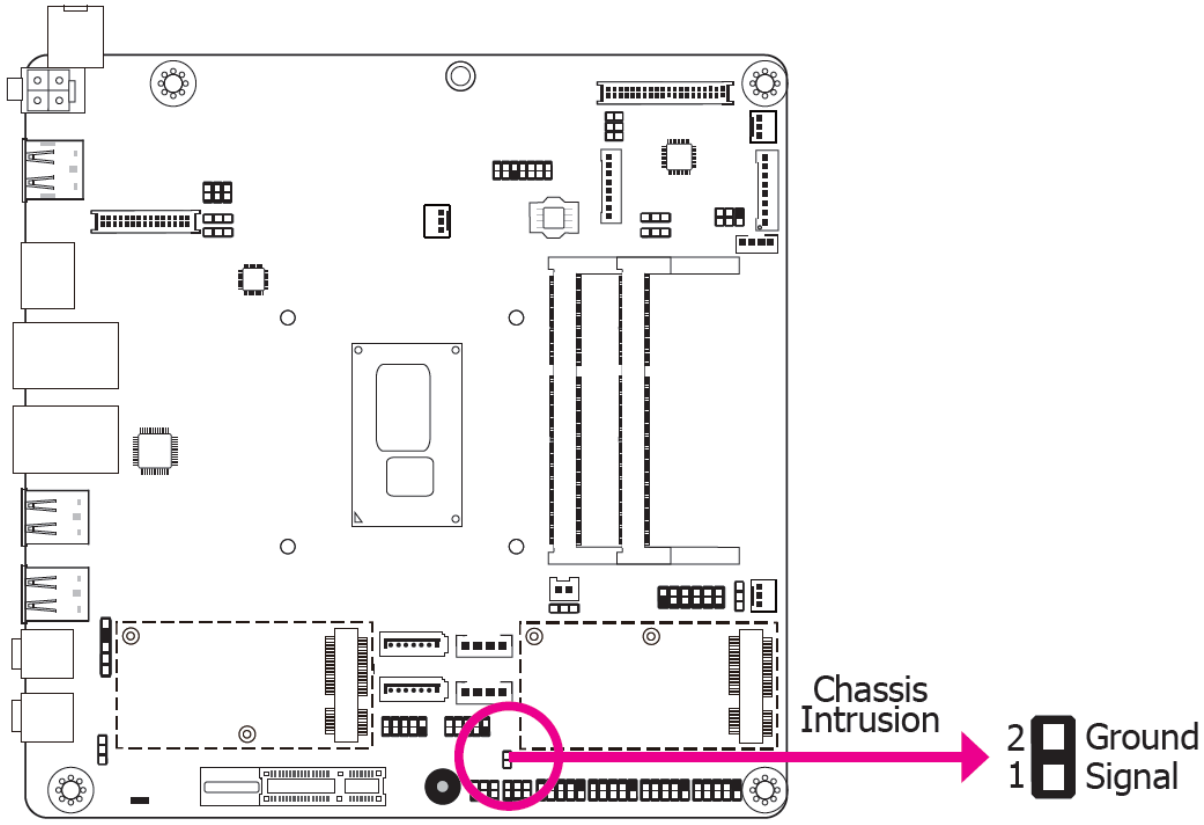
PCI Express x4 Slot

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

SIM Slot

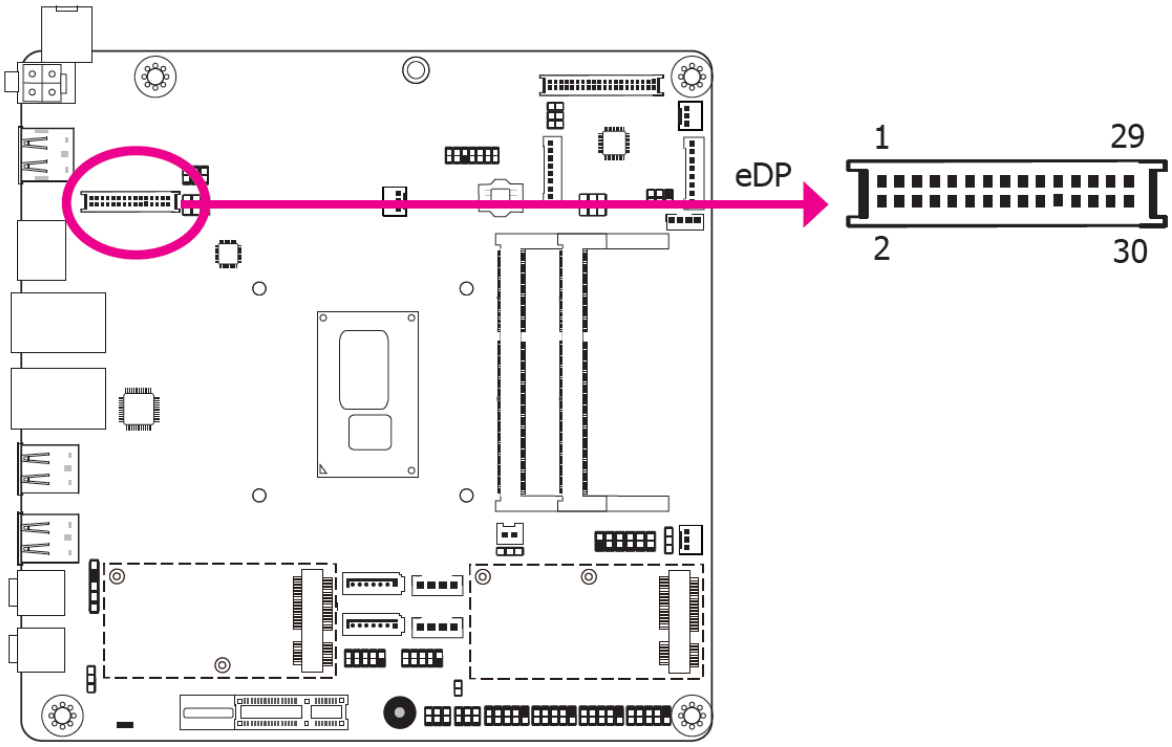
The SIM slot on the system board is used to insert a SIM card.

● Chassis Intrusion Connector



The board supports the chassis intrusion detection function. Connect the chassis intrusion sensor cable from the chassis to this connector. When the system's power is on and a chassis intrusion occurred, an alarm will sound. When the system's power is off and a chassis intrusion occurred, the alarm will sound only when the system restarts.

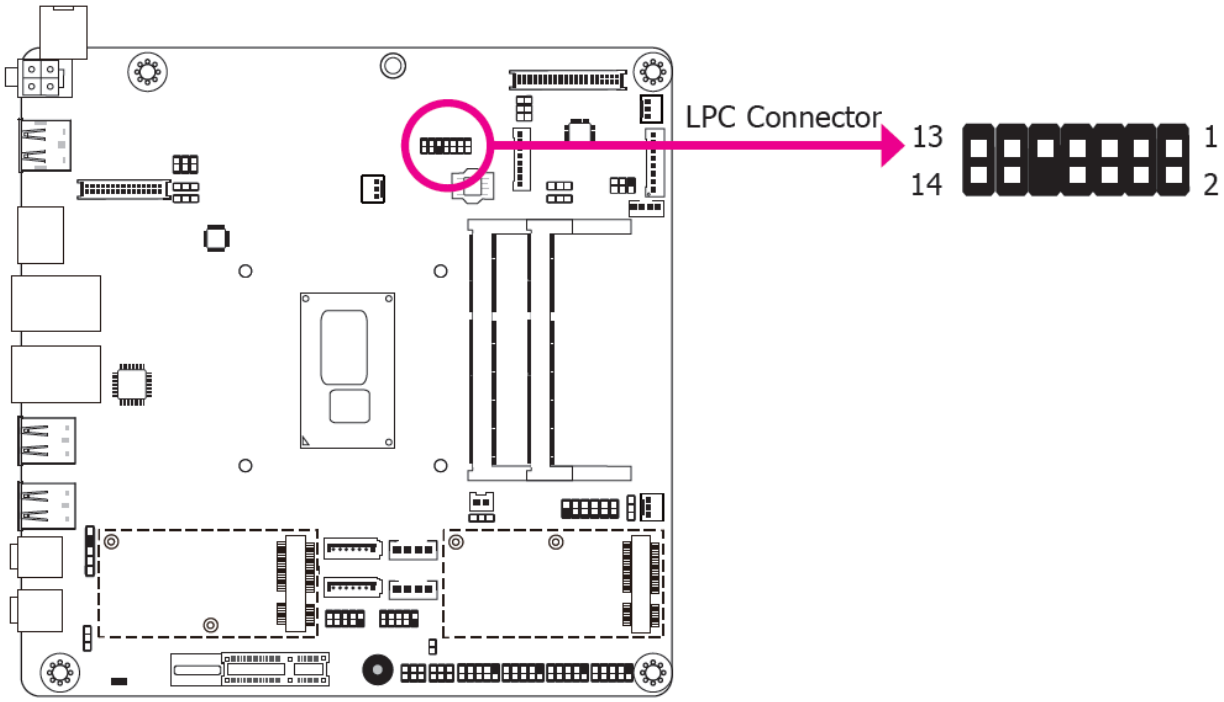
● eDP Connector (optional)



The eDP connector is an embedded displayport which has advanced power-saving features to connect a display device to transmit digital communication of audio and video signals. The table below indicates the pin fuctions of the eDP connector.

Pins	Function	Pins	Function
1	GND	**2**	GND
3	ML_Lane 0-	**4**	ML_Lane 3-
5	ML_Lane 0+	**6**	ML_Lane 3+
7	GND	**8**	N/C
9	ML_Lane 1-	**10**	GND
11	ML_Lane 1+	**12**	AUX-
13	GND	**14**	AUX+
15	ML_Lane 2-	**16**	GND
17	ML_Lane 2+	**18**	Got Plug
19	+V_LCD	**20**	+V_LCD
21	GND	**22**	GND
23	Panel Backlight On/Off Control	**24**	Panel Inverter Brightness Voltage Control
25	Inverter GND	**26**	Inverter GND
27	3V3	**28**	Inverter PWR
29	Inverter PWR	**30**	Inverter PWR

● 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'. The table below indicates the pin fuctions of the LPC connector.

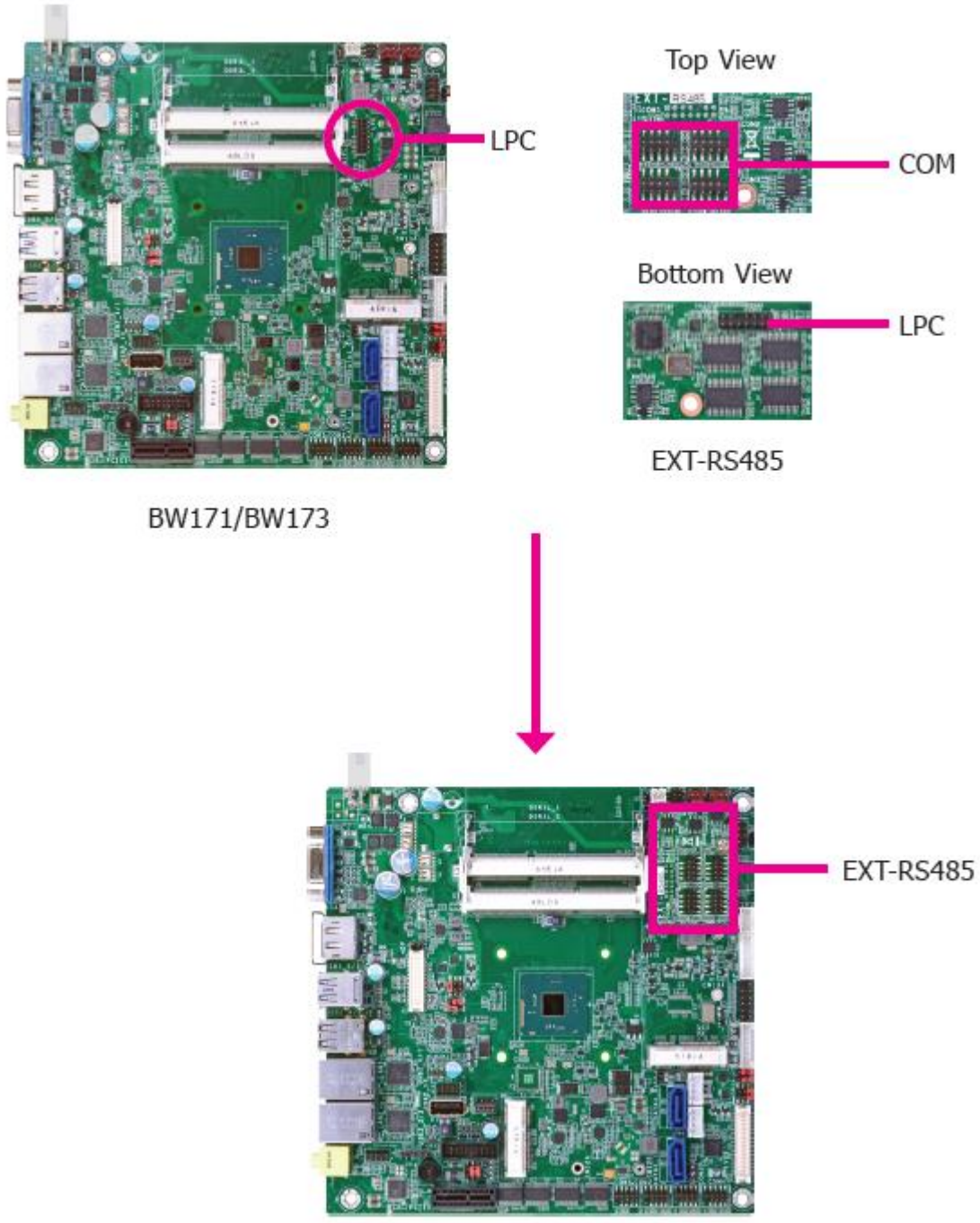
Pins	Pin Assignment	Pins	Pin Assignment
1	CLK_24M	**2**	LAD1
3	RST#	**4**	LAD0
5	FRAME#	**6**	VCC3
7	LAD3	**8**	GND
9	LAD2	**10**	-
11	SERIRQ	**12**	GND
13	5VSB	**14**	5V

Connecting the EXT-RS232/RS485 Card to SU171

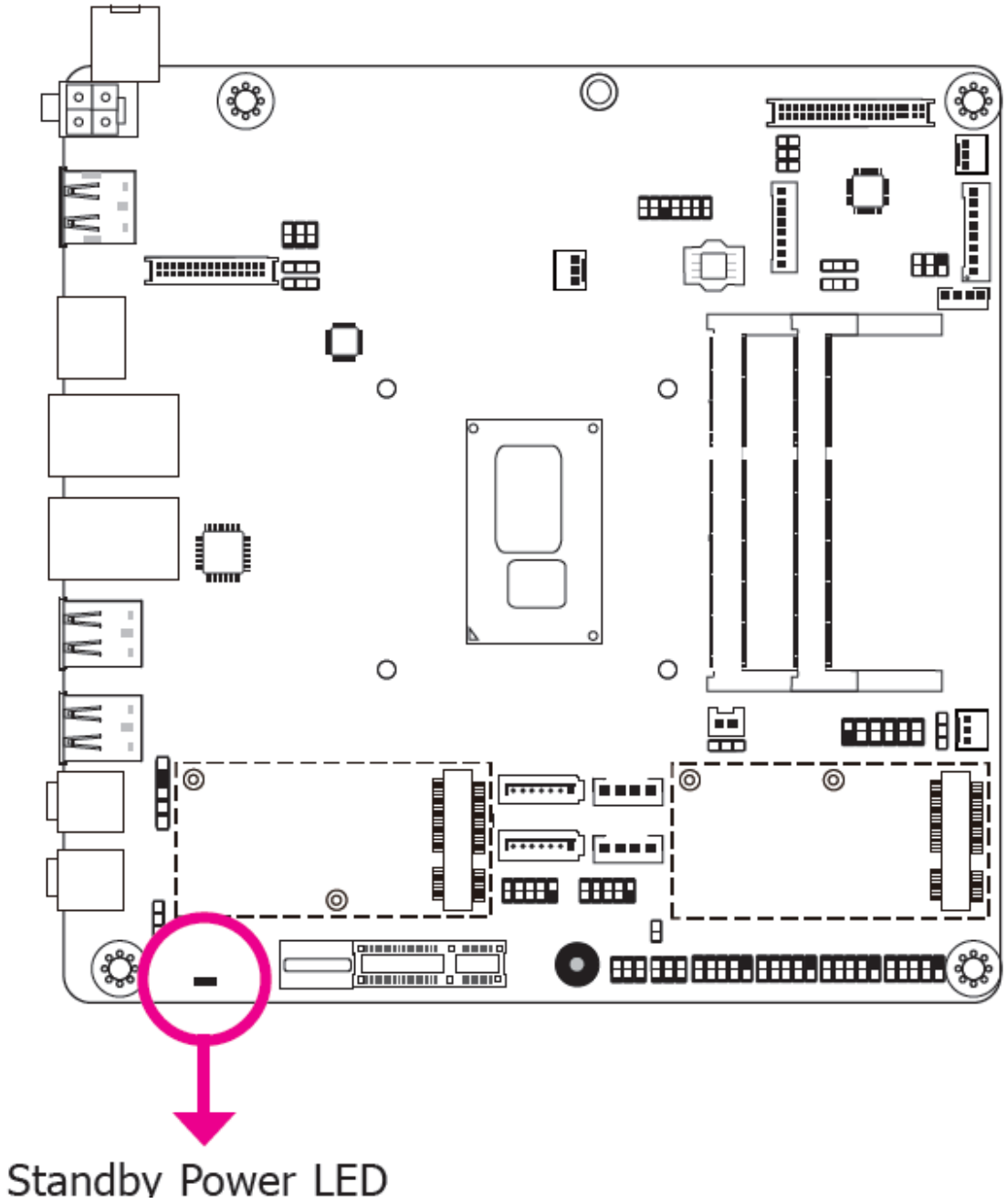
Note:

The system board used in the following illustrations may not resemble the actual one. These illustrations are for reference only.

The EXT-RS232/RS485 card is connected to SU171 via the LPC connector. The photo below guides you how to connect the extension module to the motherboard.

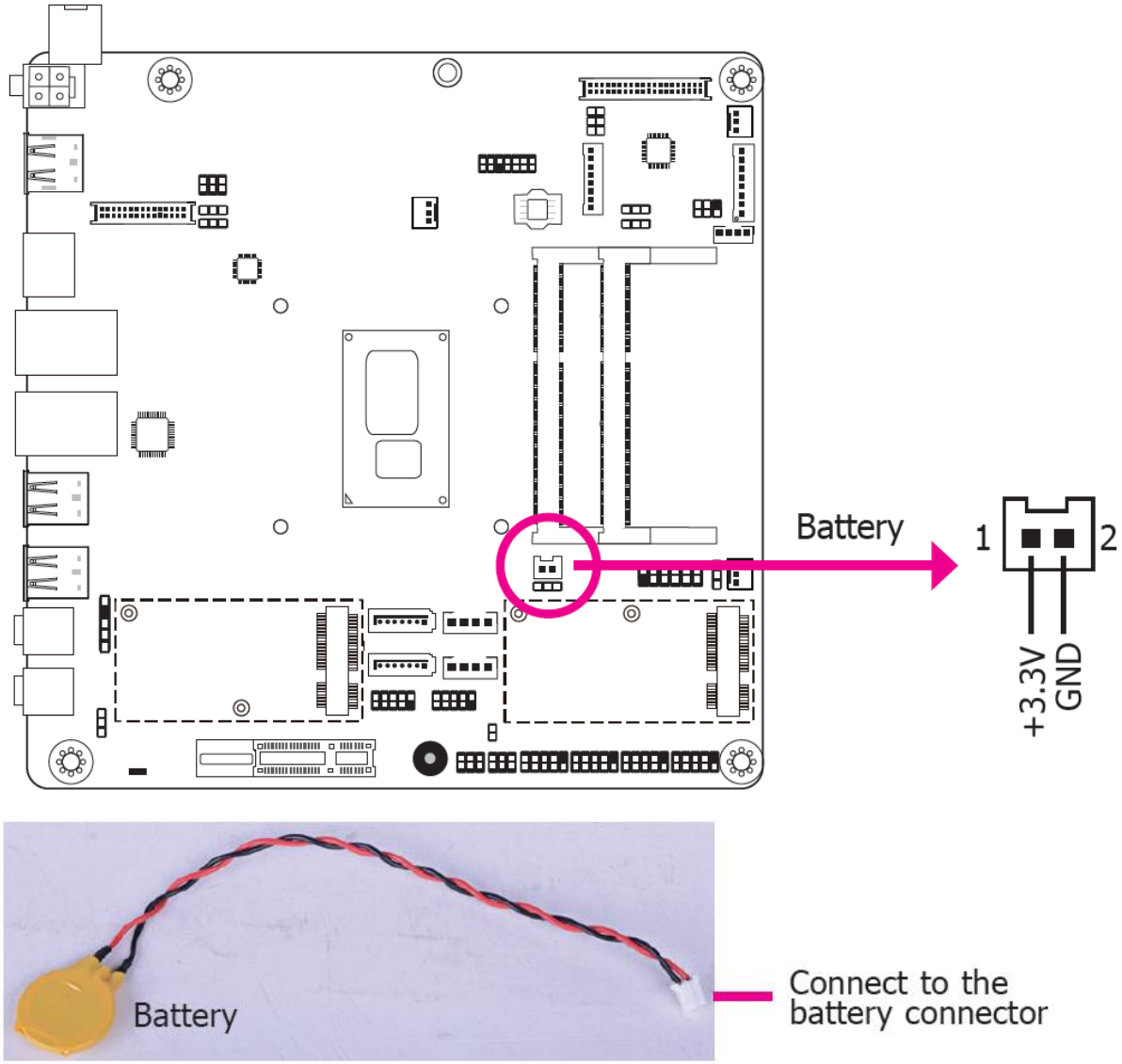


- **Standby Power LED**



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 and then unplug the power cord prior to installing any devices. Failure to do so will cause severe damage to the motherboard and components.

- **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 recommend by the manufacturer.
- Dispose of used batteries according to local ordinance.

Chapter 3 BIOS Setup

3.1 Overview

The BIOS is a program that takes care of the basic level of communication between the CPU and peripherals. It contains codes for various advanced features found in this system board. The BIOS allows you to configure the system and save the configuration in a battery-backed CMOS so that the data retains even when the power is off. In general, the information stored in the CMOS RAM of the EEPROM will stay unchanged unless a configuration change has been made such as a hard drive replaced or a device added.

It is possible that the CMOS battery will fail causing CMOS data loss. If this happens, you need to install a new CMOS battery and reconfigure the BIOS settings.

Note:

The BIOS is constantly updated to improve the performance of the system board; therefore the BIOS screens in this chapter may not appear the same as the actual one. These screens are for reference purpose only.

● Default Configuration

Most of the configuration settings are either predefined according to the Load Optimal Defaults settings which are stored in the BIOS or are automatically detected and configured without requiring any actions. There are a few settings that you may need to change depending on your system configuration.

● Entering the BIOS Setup Utility

The BIOS Setup Utility can only be operated from the keyboard and all commands are keyboard commands. The commands are available at the right side of each setup screen.

The BIOS Setup Utility does not require an operating system to run. After you power up the system, the BIOS message appears on the screen and the memory count begins. After the memory test, the message “Press DEL to run setup” will appear on the screen. If the message disappears before you respond, restart the system or press the “Reset” button. You may also restart the system by pressing the <Ctrl> <Alt> and <Del> keys simultaneously

.

● Legends

Keys	Function
Right and Left arrows	Moves the highlight left or right to select a menu.
Up and Down arrows	Moves the highlight up or down between submenu and fields.
<Esc>	Exit to the BIOS Setup Utility
+ (plus key)	Scrolls forward through the values or options of the highlighted field.
- (minus key)	Scrolls backward through the values or options of the highlighted field.
Tab	Select a field.
<Enter>	Press <Enter> to enter the highlighted submenu.

● Scroll Bar

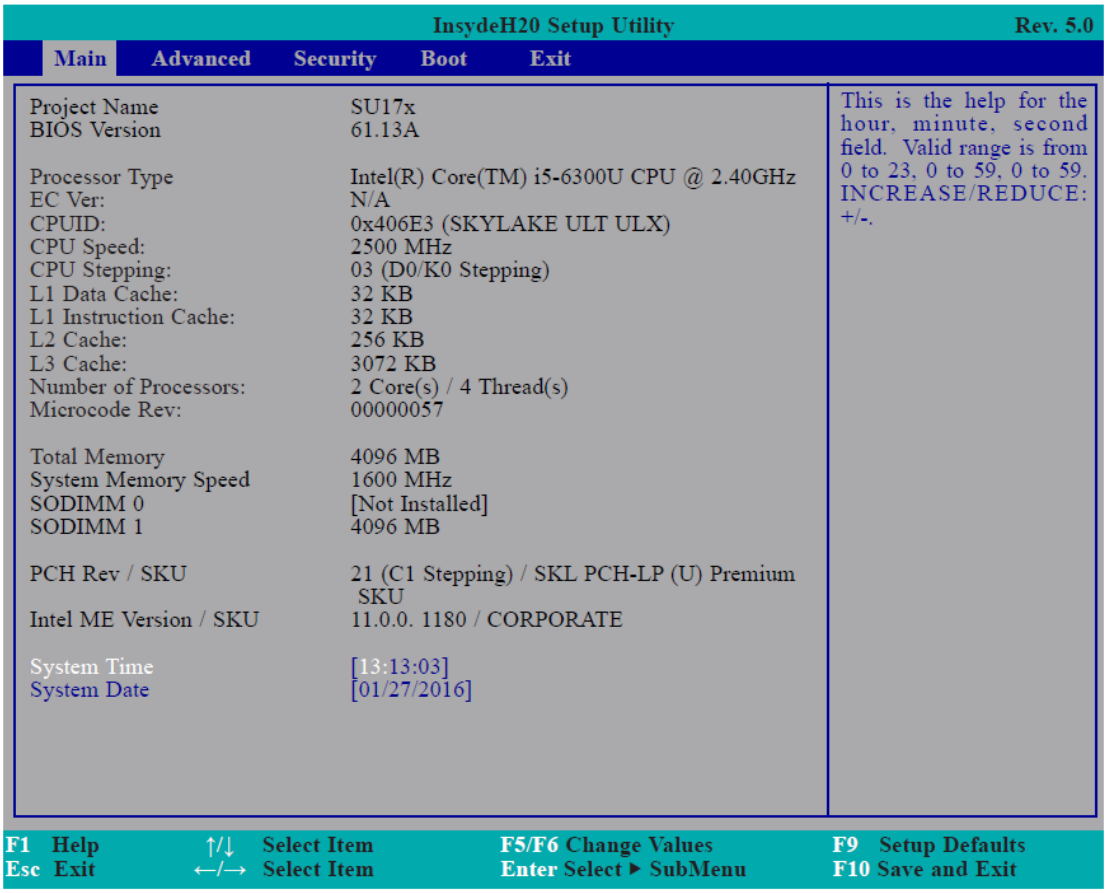
When a scroll bar appears to the right of the setup screen, it indicates that there are more available fields not shown on the screen. Use the up and down arrow keys to scroll through all the available fields.

● Submenu

When “ “ appears on the left of a particular field, it indicates that a submenu which contains additional options are available for that field. To display the submenu, move the highlight to that field and press <Enter>.

3.2 Main Menu

The Main menu is the first screen that you will see when you enter the BIOS Setup Utility.



System Time

The time format is <hour>, <minute>, <second>. The time is based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00. Hour displays hours from 00 to 23. Minute displays minutes from 00 to 59. Second displays seconds from 00 to 59.

System Date

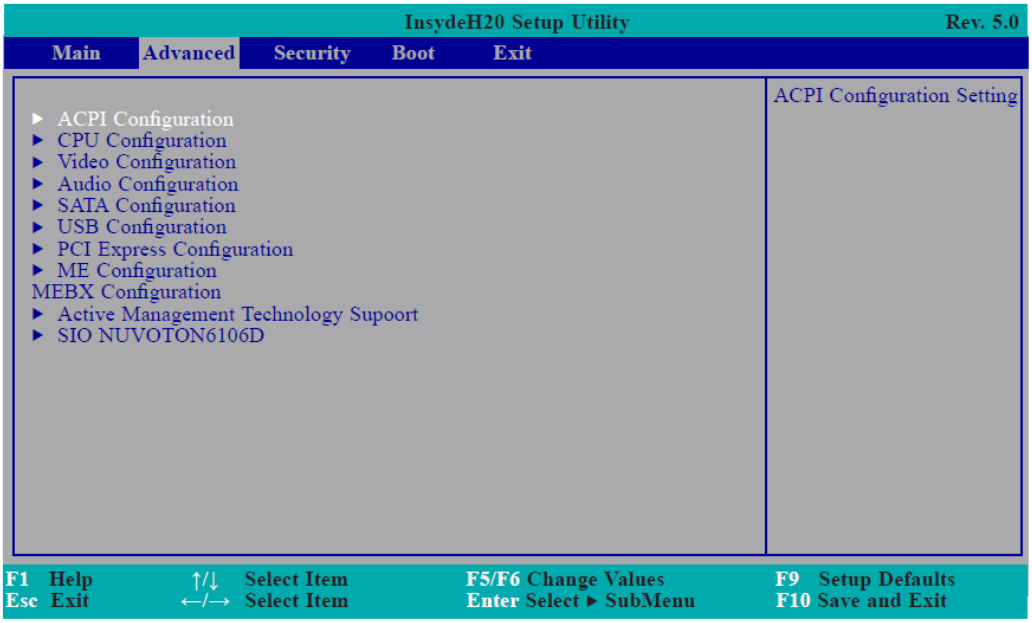
The date format is <day>, <month>, <date>, <year>. Day displays a day, from Sunday to Saturday. Month displays the month, from January to December. Date displays the date, from 1 to 31. Year displays the year, from 1980 to 2099.

3.3 Advanced

The Advanced menu allows you to configure your system for basic operation. Some entries are defaults required by the system board, while others, if enabled, will improve the performance of your system or let you set some features according to your preference.

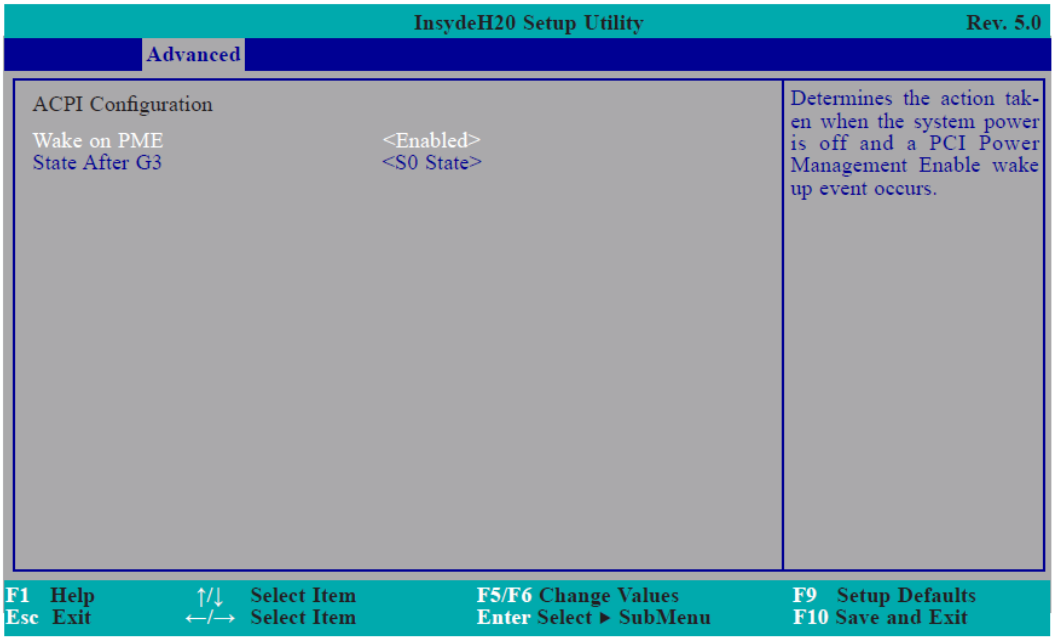
Important:

Setting incorrect field values may cause the system to malfunction.



- ## ACPI Settings

This section is used to configure the system ACPI parameters.



Wake on PME

Enable this field to use the PME signal to wake up the system.

State After G3

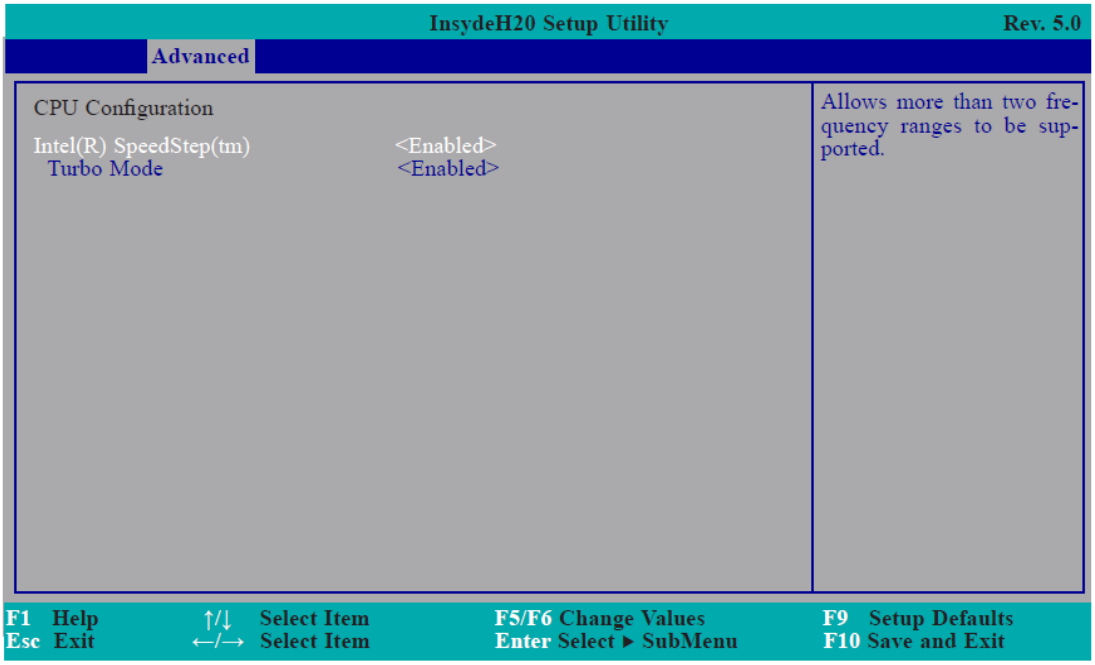
This field is to specify what state to go when power is re-applied after a power failue (G3 state).

S0 State The system working state.

S5 State The system shutdown state, except for trickle current to devices such as the power button.

● CPU Configuration

This section is used to configure the CPU



Intel(R) SpeedStep(tm)

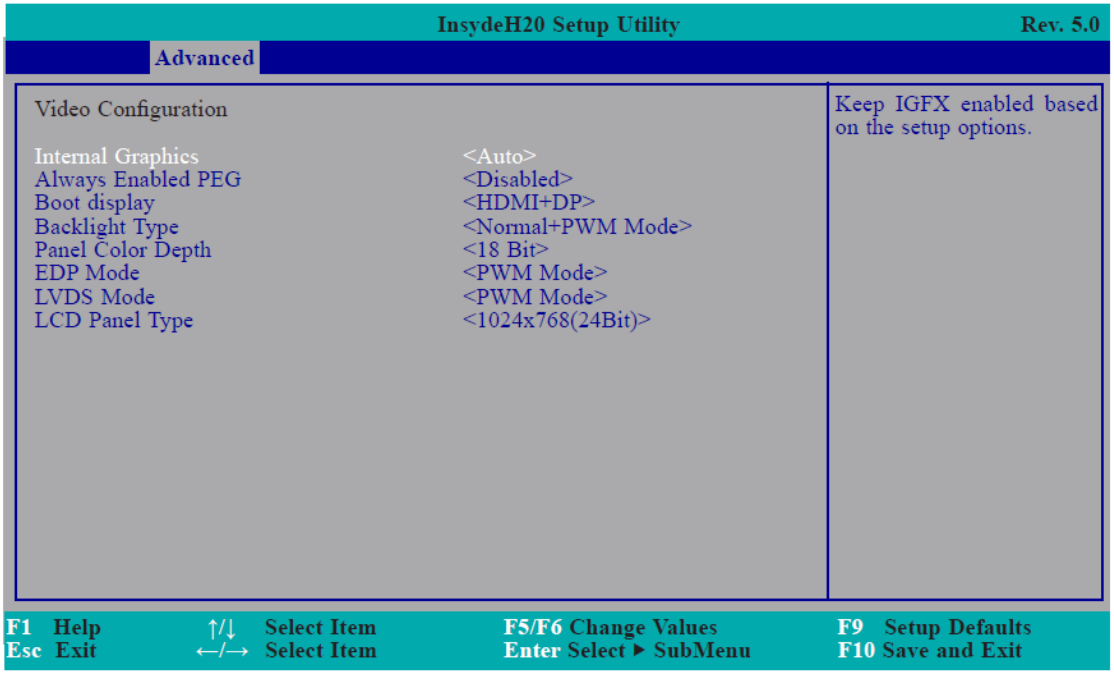
This field is used to enable or disable the Intel Enhanced SpeedStep Technology.

Turbo Mode

Enable or disable the turbo mode.

● Video Configuration

This section configures the video settings



Internal Graphics

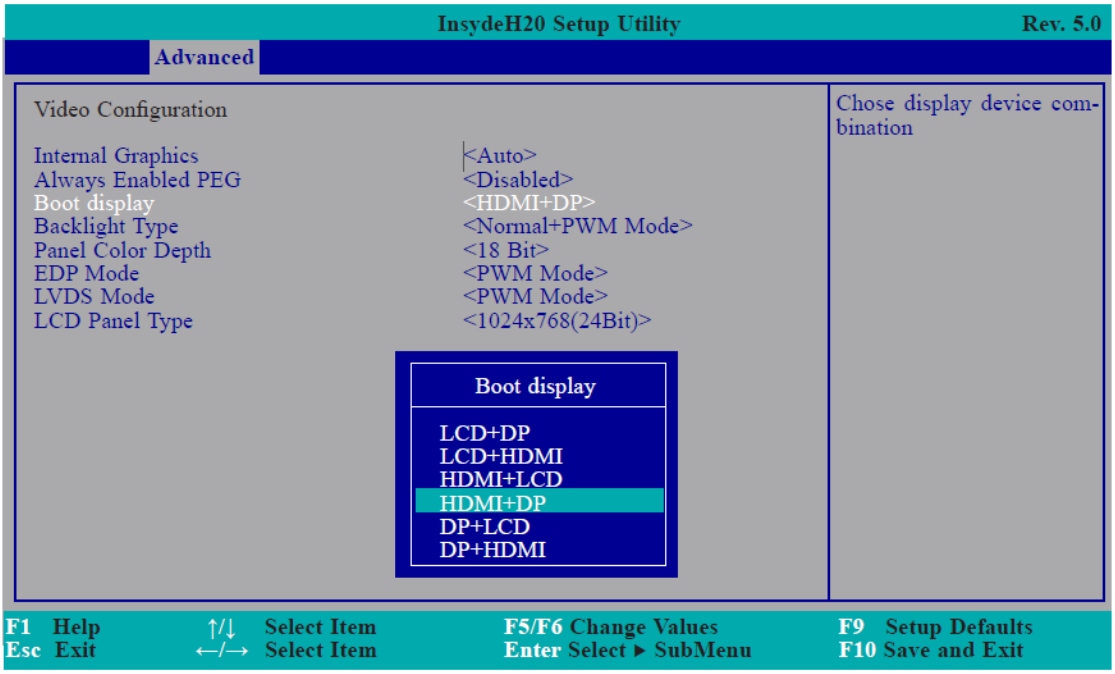
Keep IGFX enabled or disabled based on the setup options.

Always Enabled PEG

Enable or disable the PEG function.

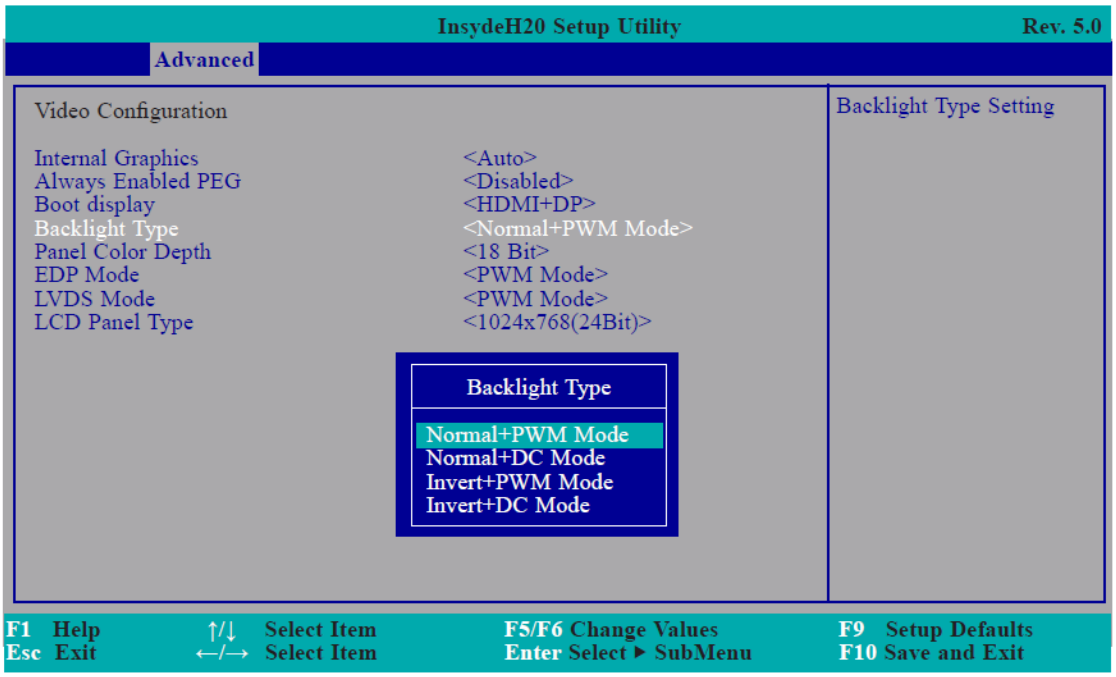
Boot display

Set the display device combination.



Backlight Type

Set the backlight type.



Panel Color Depth

Select the LFP panel color depth: 18 bit, 24 bit, 36 bit, and 48 bit.

EDP Mode

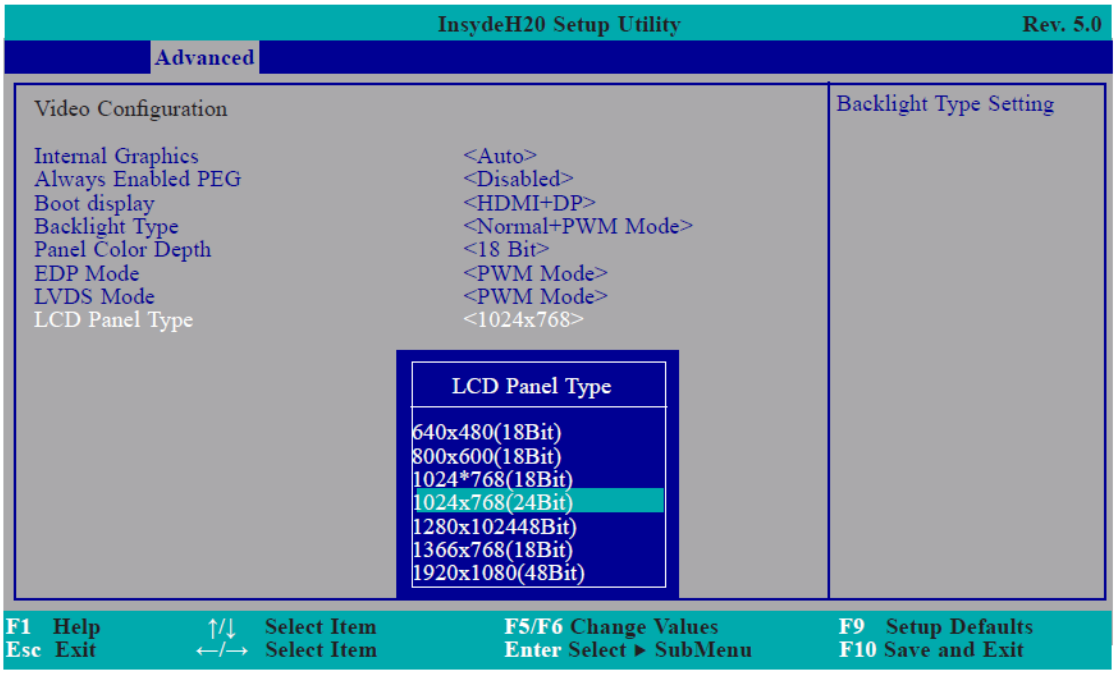
Select PTN3460 EDP mode is PWM mode or DC mode.

LVDS Mode

Select PTN3460 LVDS mode is PWM mode or DC mode.

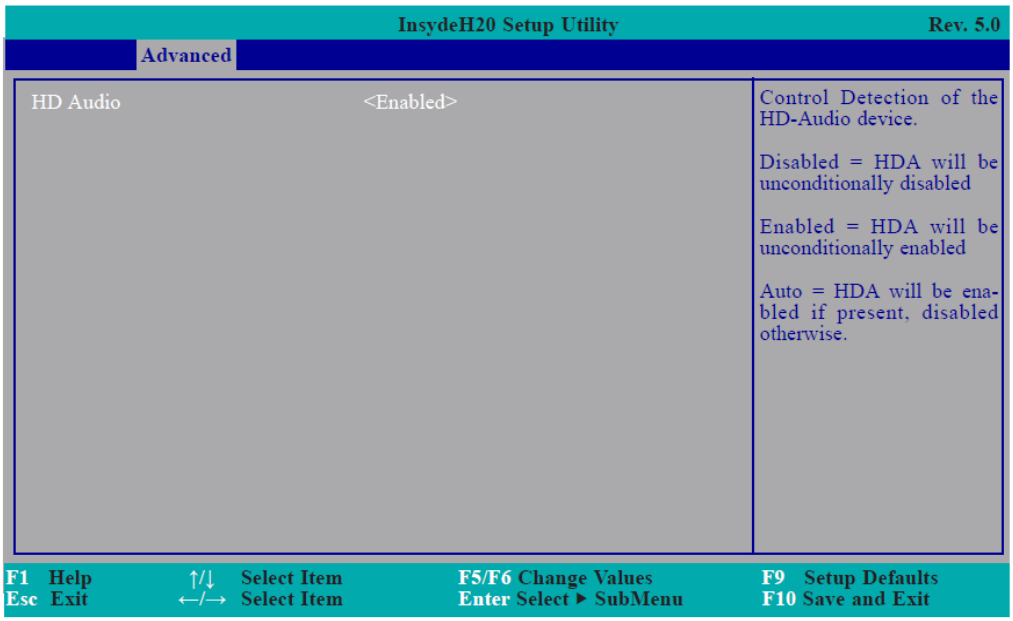
LCD Panel Type

Select the LCD panel type.



● Audio Configuration

This section is used to configure the audio settings.



HD Audio

Control the detection of the HD-Audio device.

Disabled

HDA will be unconditionally disabled.

Enabled

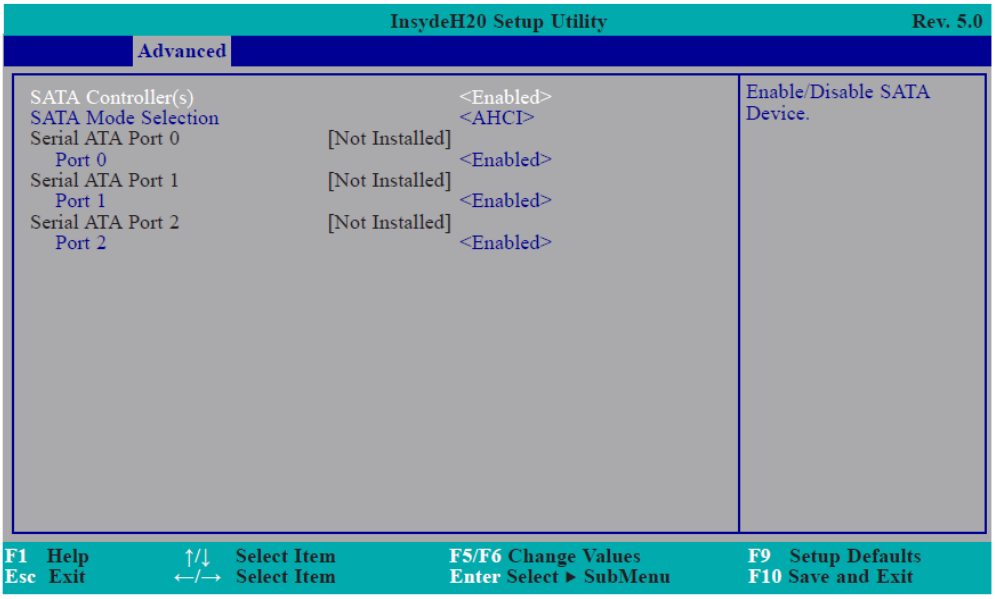
HDA will be unconditionally enabled.

Auto

HDA will be enabled if present, disabled otherwise.

● SATA Configuration

This section is designed to select the SATA controller and the type of hard disk drive which are insalled in your system unit.



SATA Controller(s)

This field is used to enable or disable Serial ATA devices.

SATA Mode Selection

The mode selection determines how the SATA controller(s) operates.

AHCI Mode

This option allows the Serial ATA devices to use AHCI (Advanced Host Controller Interface).

RAID Mode

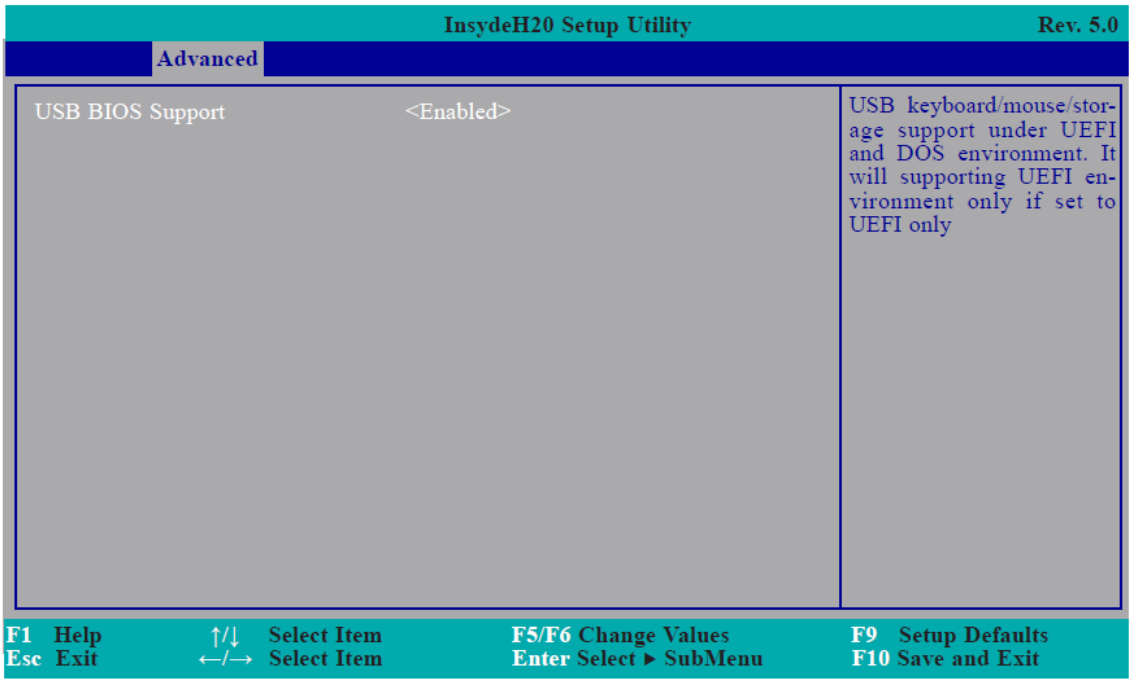
This option allows you to create RAID or Intel Matrix Storage configuration on Serial ATA devices.

Serial ATA Port 0, 1 and 2

This field is used to enable or disable the serial ATA port.

● USB Configuration

This section is used to configure the parameters of the USB device.



USB BIOS Support

Disabled

Disable USB keyboard/mouse/storage support.

Enabled

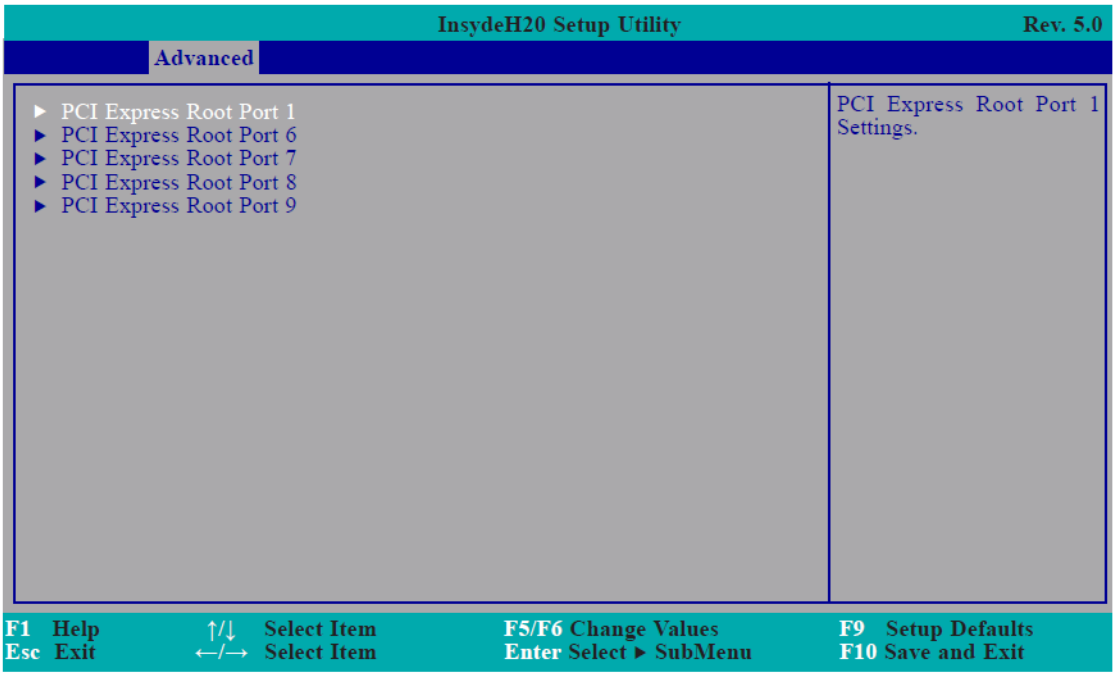
Enable USB keyboard/mouse/storage support under UEFI and DOS environment.

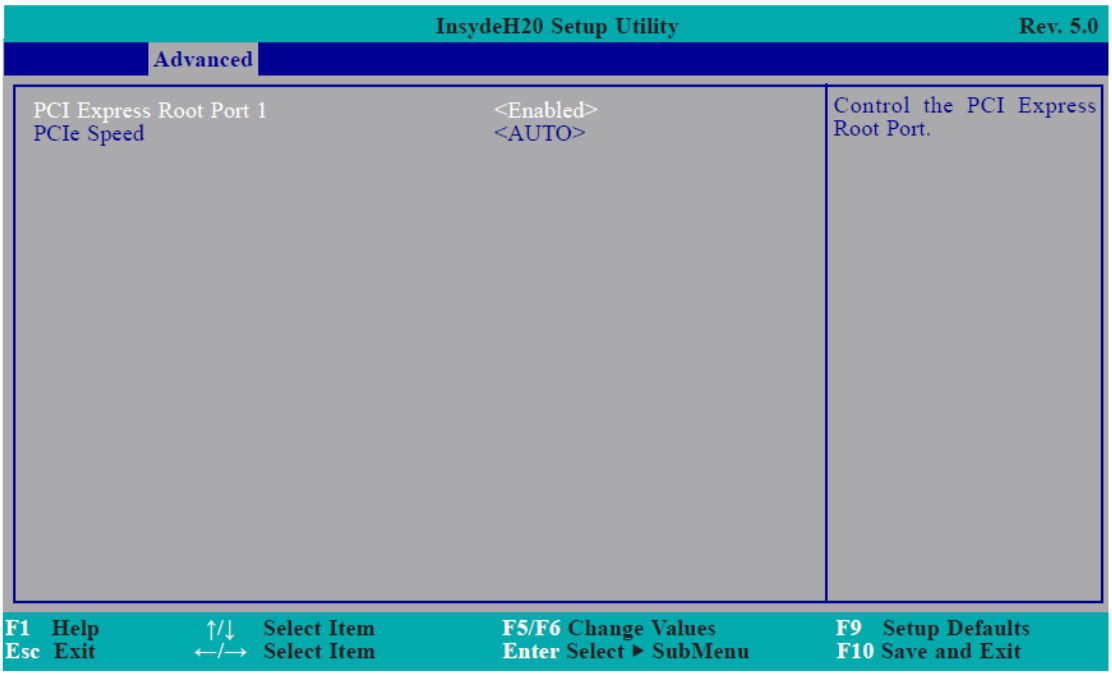
UEFI Only

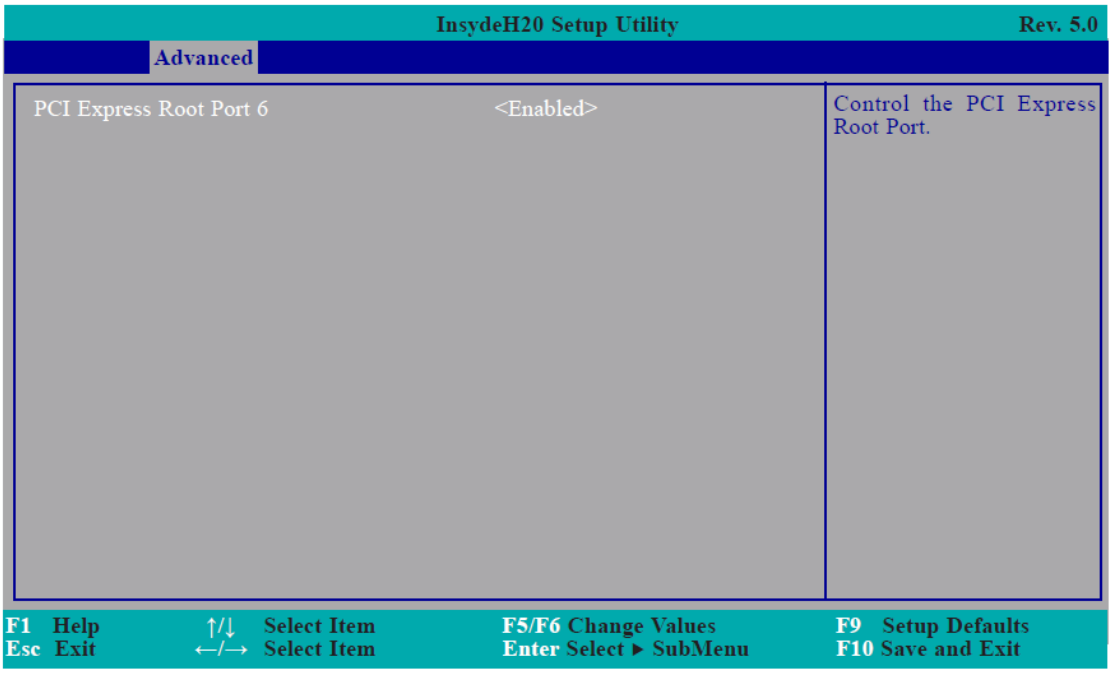
Enable USB keyboard/mouse/storage support only under UEFI environment.

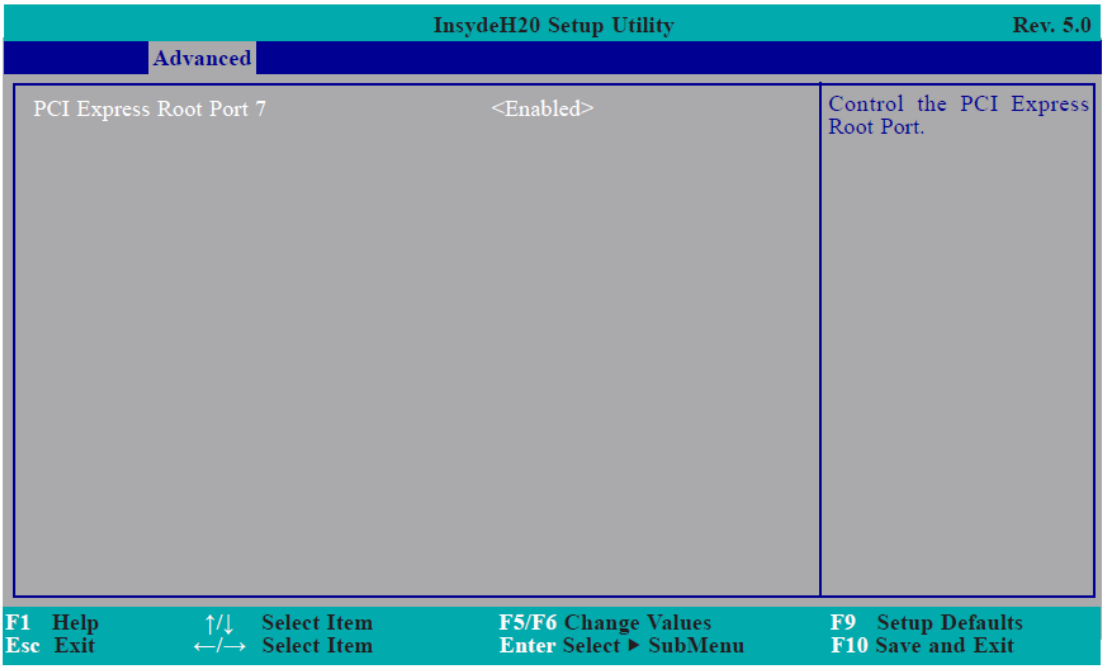
● PCI Express Configuration

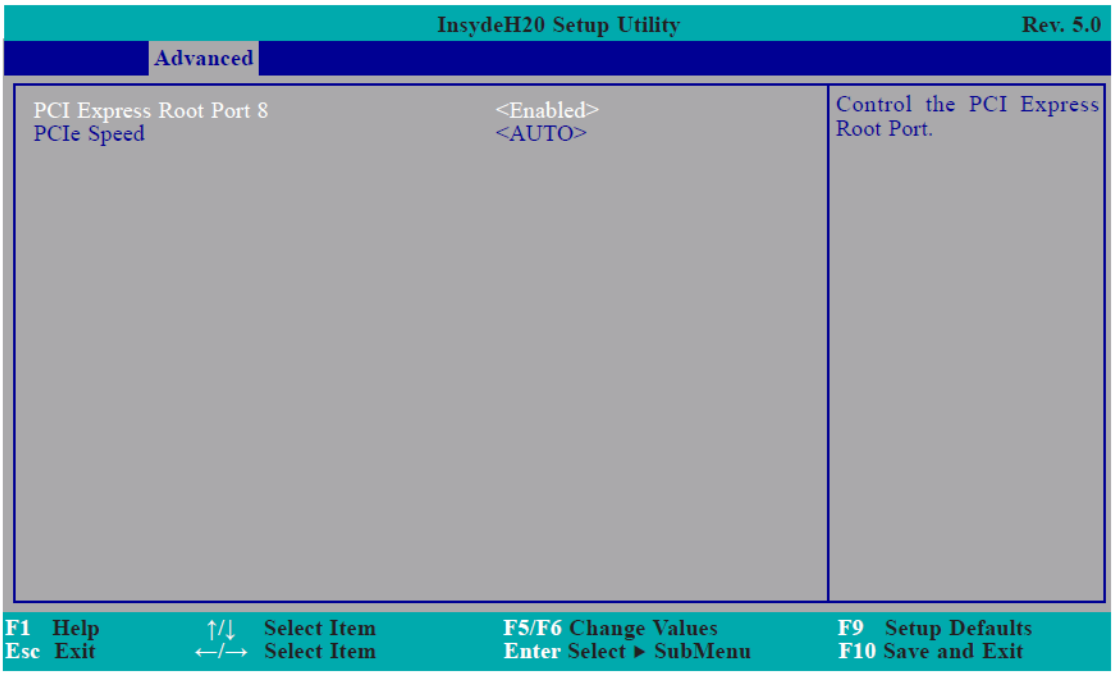
This section configures settings relevant to PCI Express root ports.

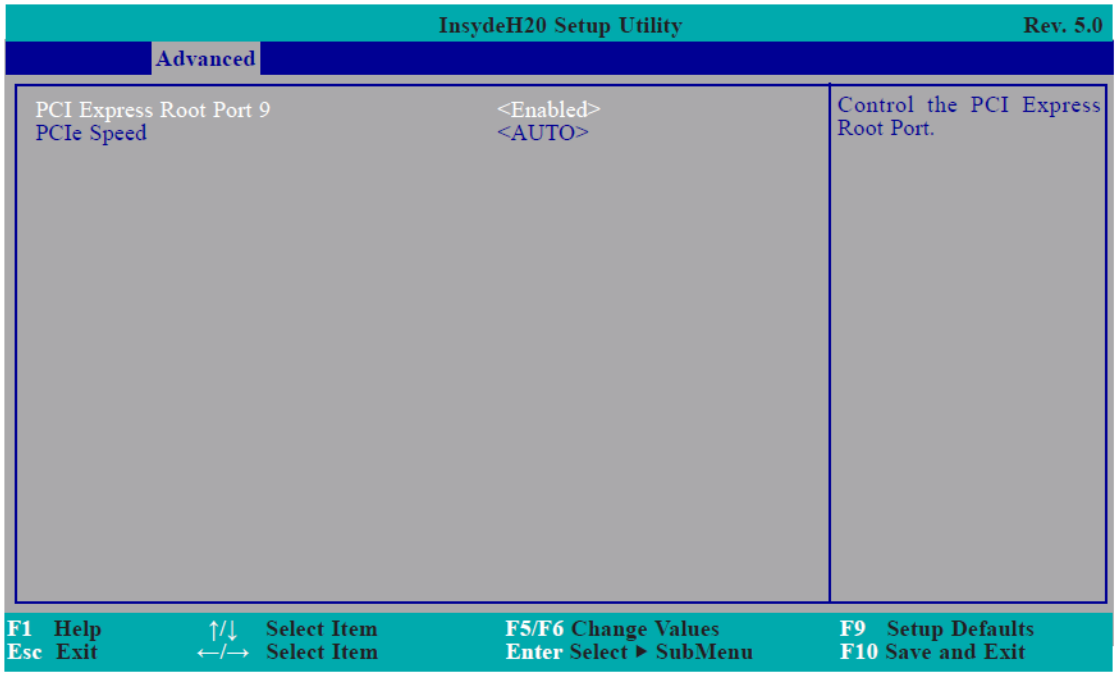





InsydeH20 Setup Utility
Rev. 5.0
Advanced
PCI Express Root Port 6
<Enabled>
Control the PCI Express Root Port.
F1 Help
Esc Exit
↑/↓ Select Item
←/→ Select Item
F5/F6 Change Values
Enter Select ▸ SubMenu
F9 Setup Defaults
F10 Save and Exit

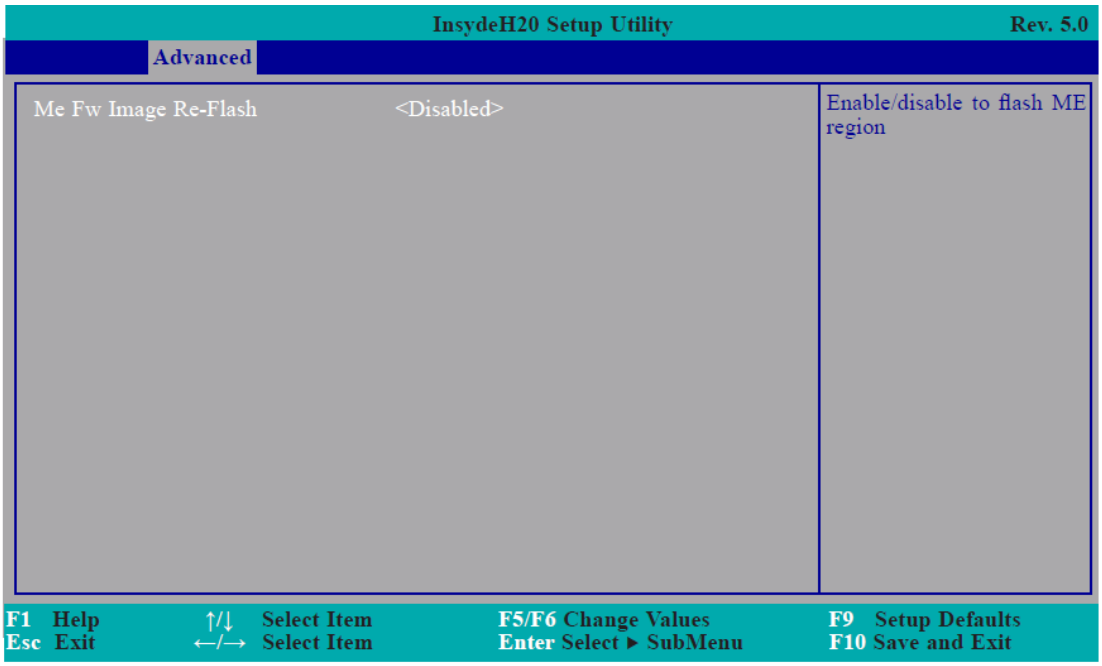

InsydeH20 Setup Utility
Rev. 5.0
Advanced
PCI Express Root Port 7
<Enabled>
Control the PCI Express Root Port.
F1 Help
Esc Exit
↑/↓ Select Item
←/→ Select Item
F5/F6 Change Values
Enter Select ▸ SubMenu
F9 Setup Defaults
F10 Save and Exit





- **ME Configuration**

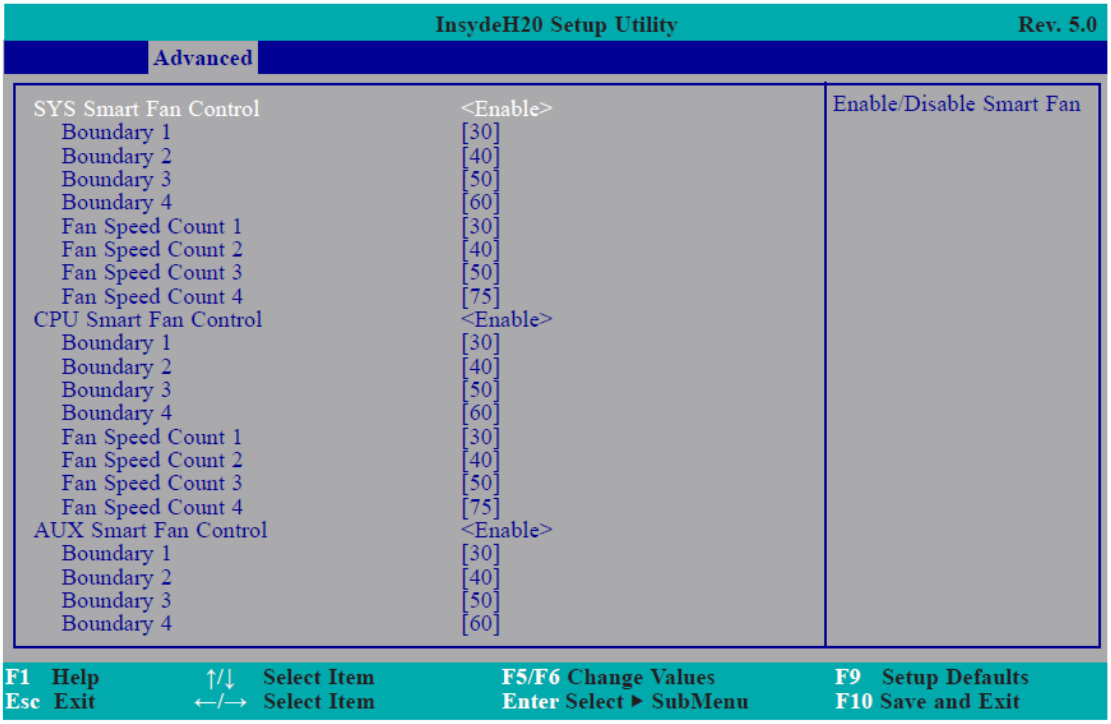
This section configures settings relevant to flash ME region.



Me Fw Image Re-Flash

This field is used to enable or disable the flash ME region.

- **SIO NUVOTON6106D**



SYS/CPU/AUX Smart Fan Control

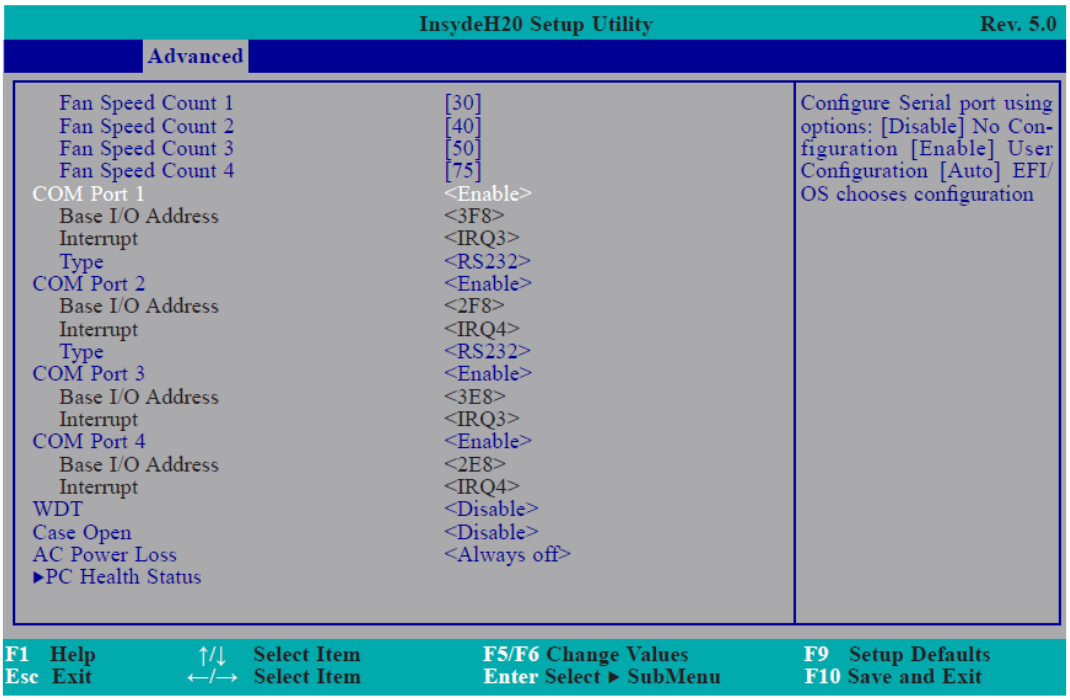
Enable or disable the system/CPU/AUX smart fan.

Boundary 1 to Boundary 4

Set the boundary temperature. The range is from 0-127oC.

Fan Speed Count 1 to Fan Speed Count 4

Set the fan speed. The range is from 0-100%.



Serial Port 1 to Serial Port 4

Configure the settings to use the serial port.

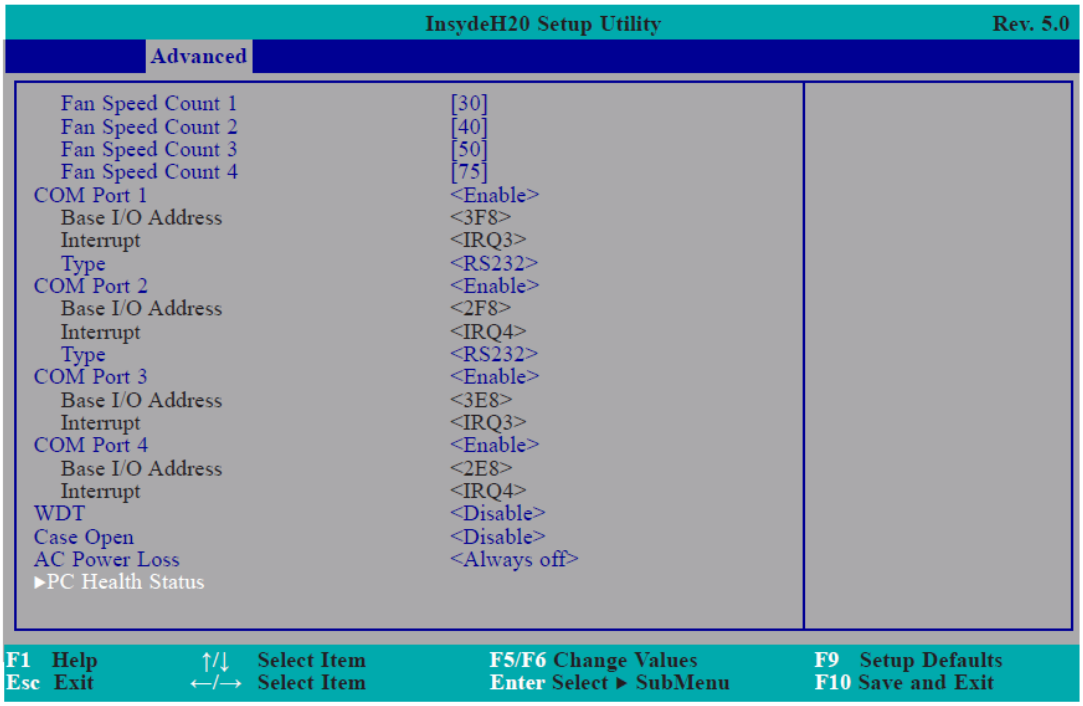
Disable No configuration

Enable User configuration

Auto EFI/OS chooses configuration

Type

Choose RS232/RS485 (Peer-to-Peer) for the serial port type.



WDT

Enable or disable the watchdog function.

Case Open

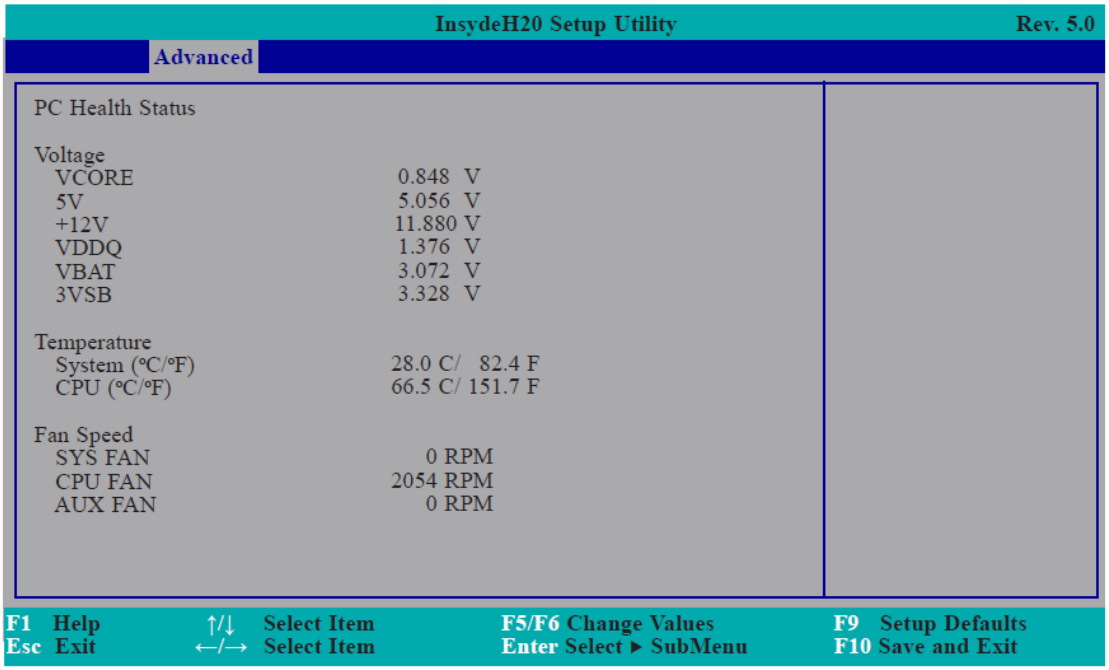
Enable or disable the case open.

AC Power Loss

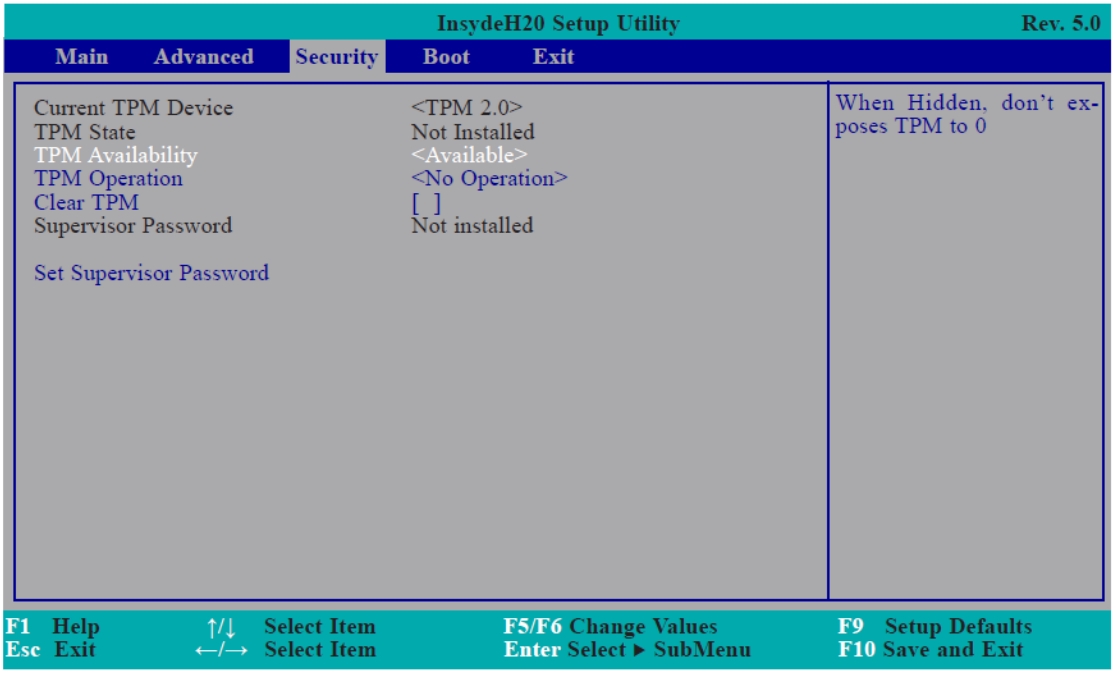
Set the AC power loss always off/on.

PC Health Status

This field only displays the PC health status.



3.4 Security



TPM Availability

Set the TPM availability.

TPM Operation

Enable or disable the storage and endorsement hierarchy. This option will automatically return to No-Operation.

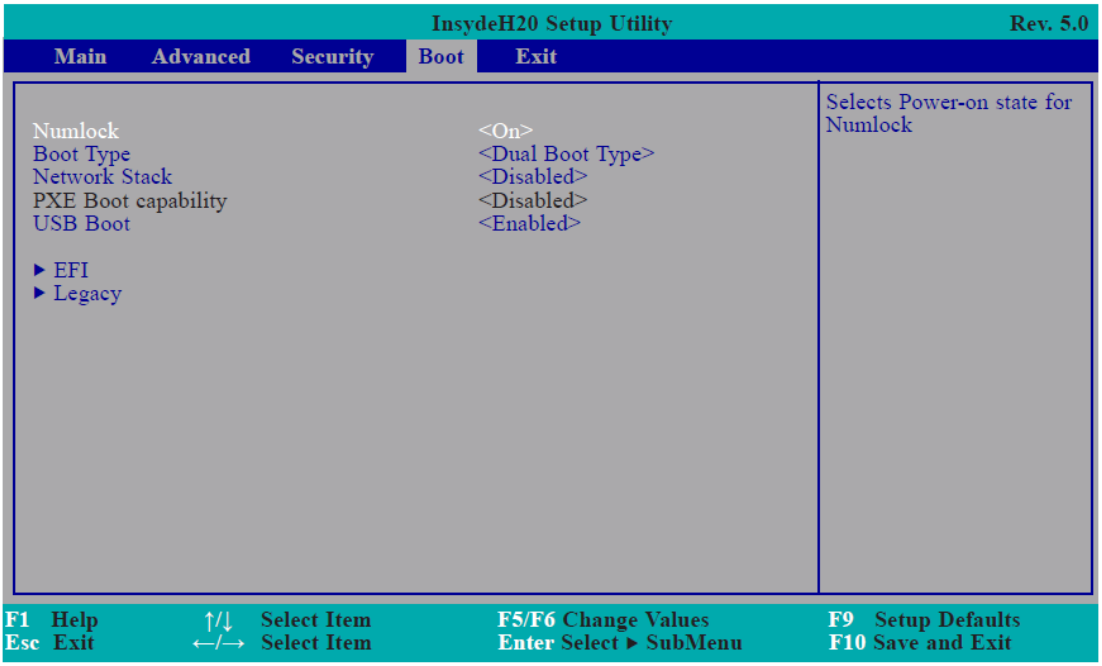
Clear TPM

Remove all TPM context associated with a specific owner.

Set Supervisor Password

Set the supervisor's password and the length of the password must be greater than one character.

3.5 Boot



Numlock

Select the power-on state for numlock.

Boot Type

Select the boot type. The options are Dual Boot Type, Legacy Boot Type or UEFI Boot Type.

Network Stack

Network stack support:

Windows 8 BitLocker Unlock.

UEFI IPv4/IPv6 PXE

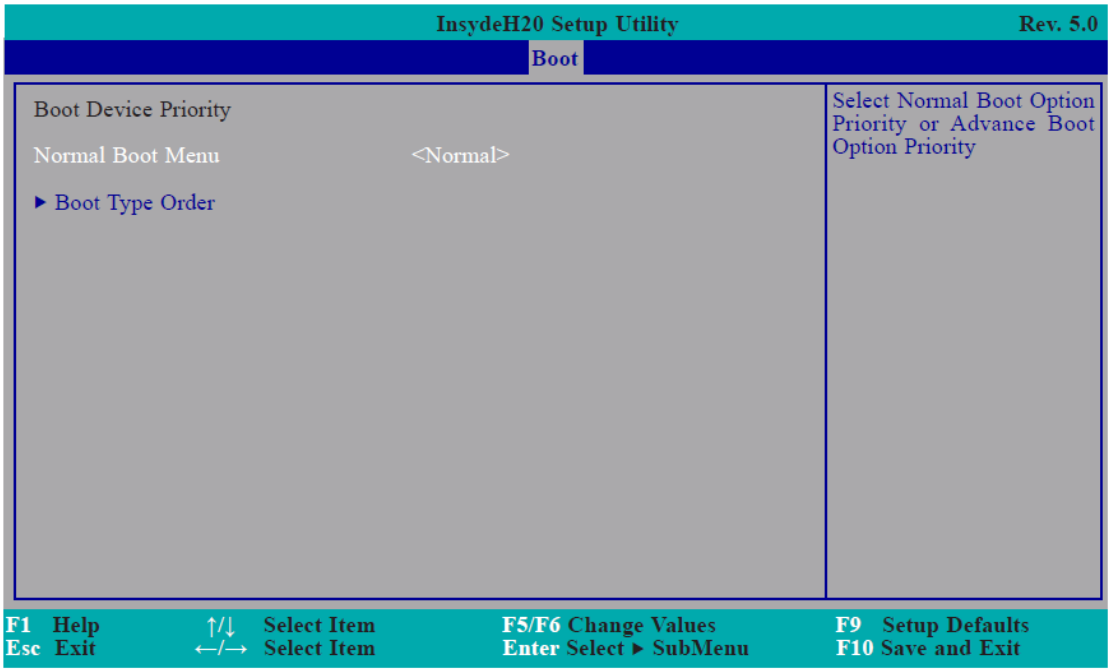
Legacy PXE OPROM

USB Boot

Enable or disable the booting for USB boot devices.

EFI

Set the EFI boot order.



Normal Boot Menu

Normal

Based on the boot normal priority, it determines the EFI device first or the legacy device first.

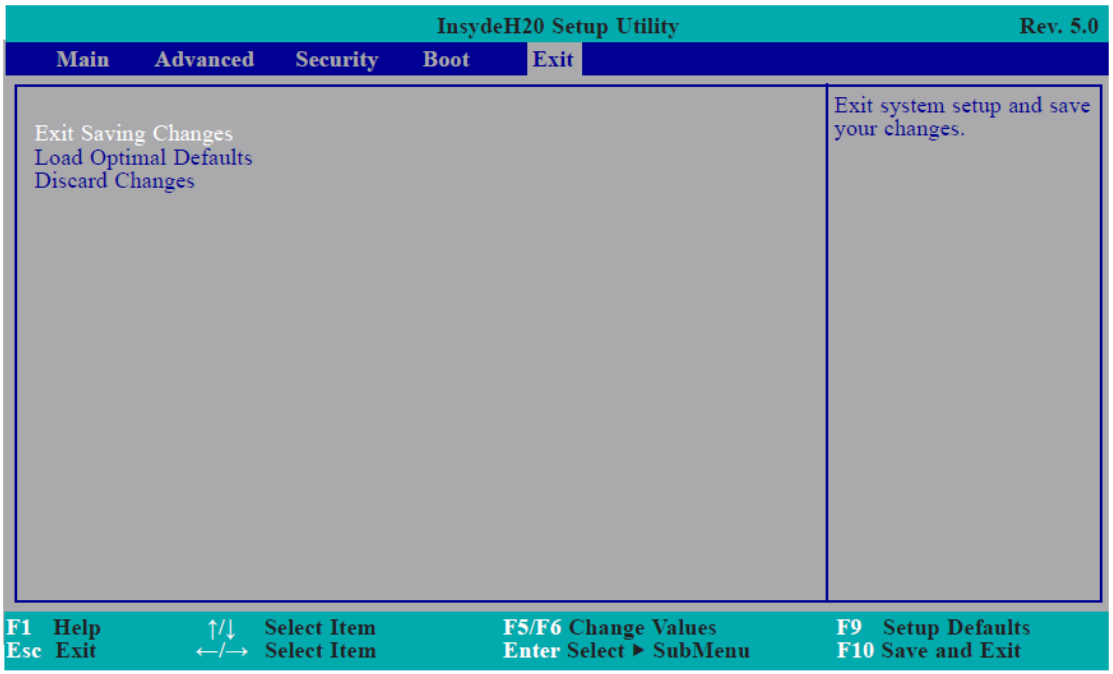
Advance

All boot devices follow the user's selection sequence.

Boot Type Order

Select the priority of boot type: Normal Boot or Advance Boot.

3.6 Exit



Exit Saving Changes

Select this field and then press <Enter> to exit the system setup and save your changes.

Load Optimal Defaults

Select this field and then press <Enter> to load optimal defaults.

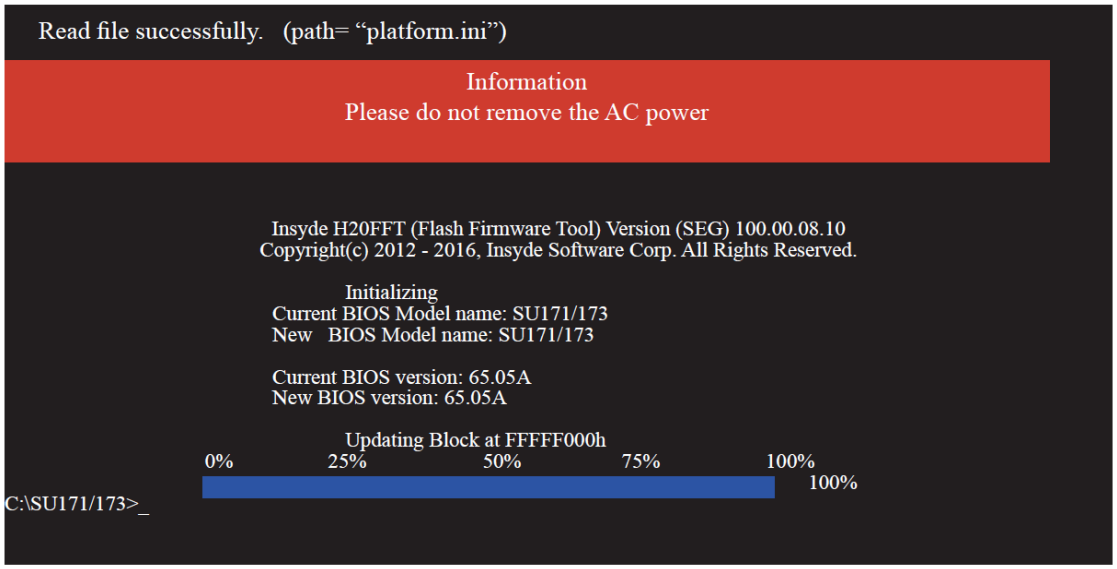
Discard Changes

Select this field and then press <Enter>to exit the system setup without saving your changes.

3.7 Updating the BIOS

To update the BIOS, you will need the new BIOS file and a flash utility. Please contact technical support or your sales representative for the files and specific instructions about how to update BIOS with the flash utility.

When you download the given BIOS file, you may find a BIOS flash utility attached with the BIOS file. This is the utility for performing BIOS updating procedure. For your convenience, we will also provide you with an auto-execution file in the BIOS file downloaded. This auto-execution file will bring you directly to the flash utility menu soon after system boots up and finishes running the boot files in your boot disk.



- **Notice: BIOS SPI ROM**

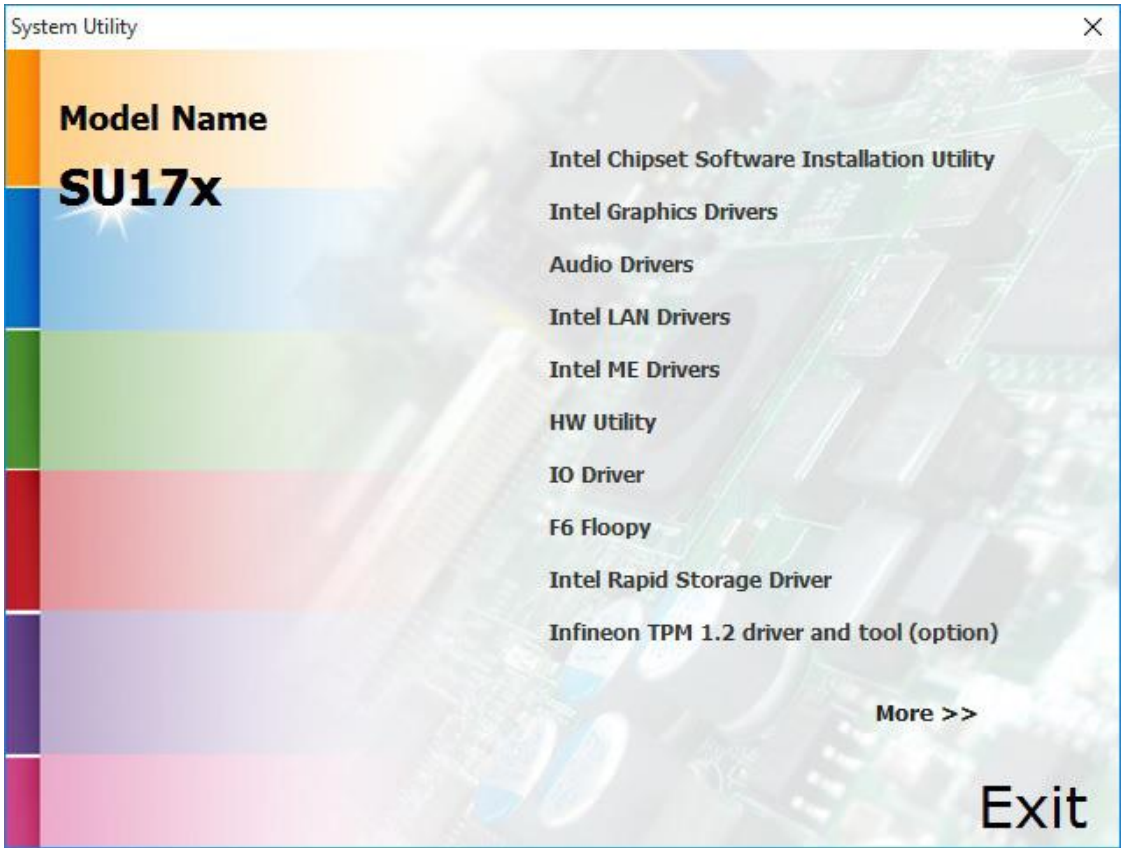
1. The Intel® Management Engine has already been integrated into this system board. Due to the safety concerns, the BIOS (SPI ROM) chip cannot be removed from this system board and used on another system board of the same model.
2. The BIOS (SPI ROM) on this system board must be the original equipment from the factory and cannot be used to replace one which has been utilized on other system board.
3. If you do not follow the methods above, the Intel® management Engine will not be updated and will cease to be effective.

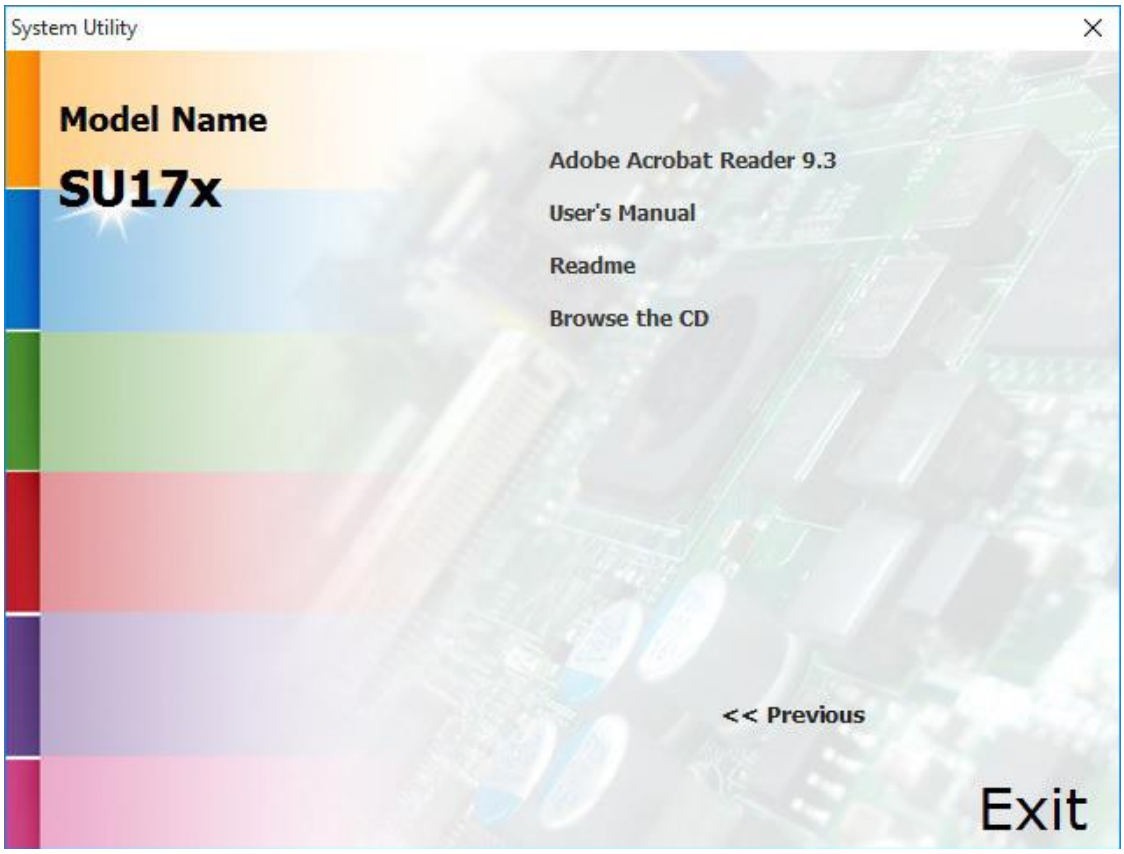
Note:

a) You can take advantage of flash tools to update the default configuration of the BIOS (SPI ROM) to the latest version anytime.

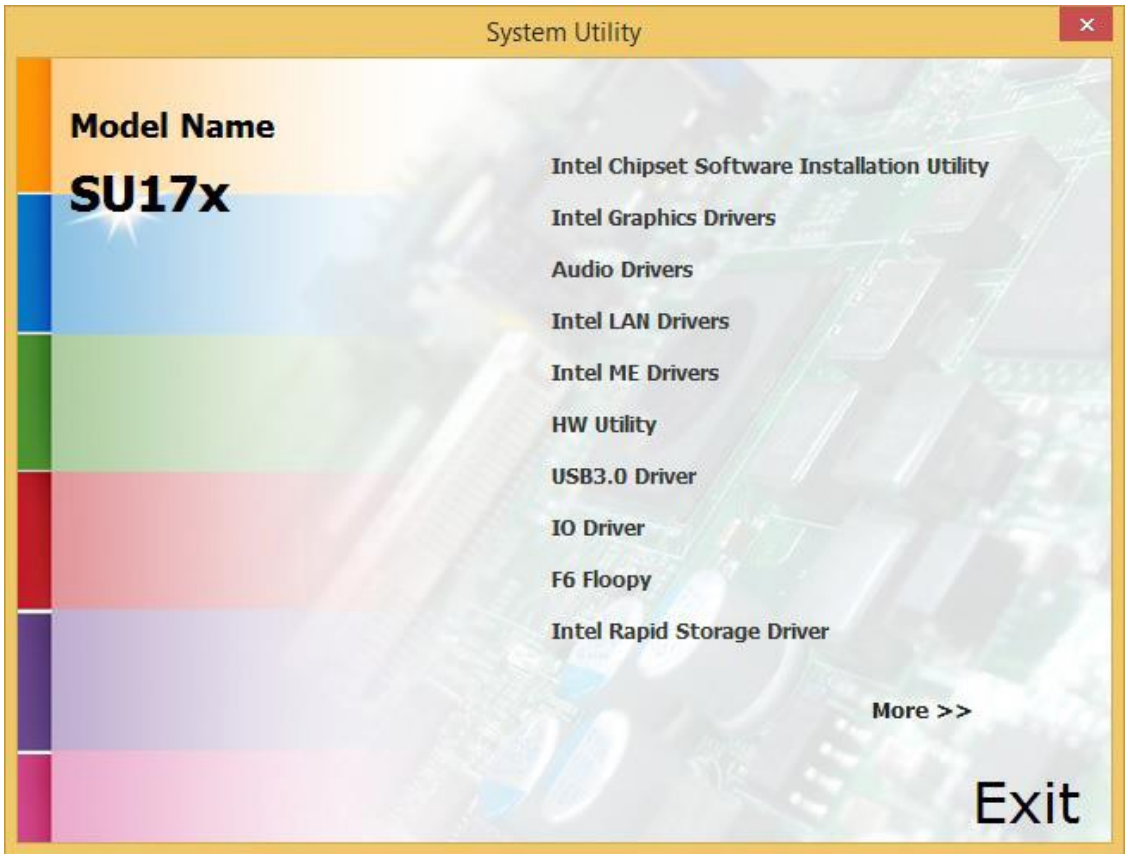
b) When the BIOS IC needs to be replaced, you have to populate it properly onto the system board after the EEPROM programmer has been burned and follow the technical person's instructions to confirm that the MAC address should be burned or not.

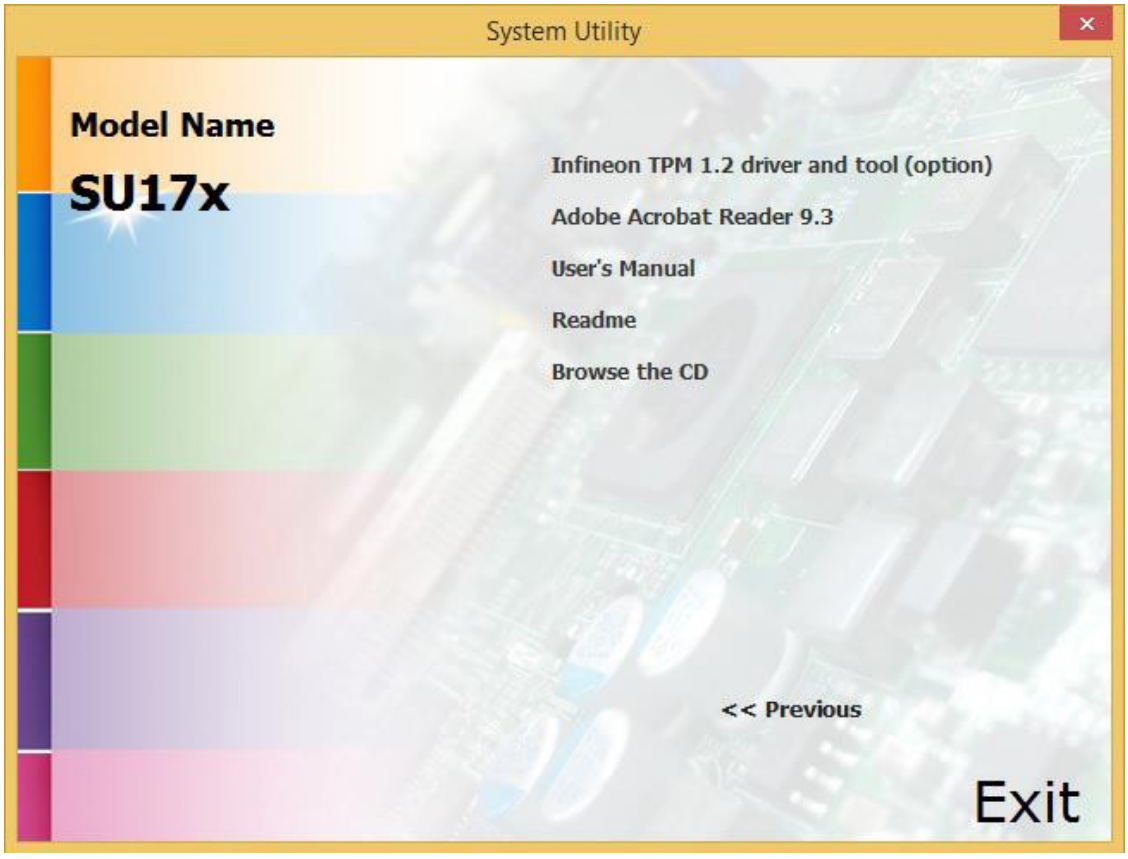
- **For Windows 10**


System Utility
Model Name
SU17x
Intel Chipset Software Installation Utility
Intel Graphics Drivers
Audio Drivers
Intel LAN Drivers
Intel ME Drivers
HW Utility
IO Driver
F6 Floopy
Intel Rapid Storage Driver
Infineon TPM 1.2 driver and tool (option)
More >>
Exit

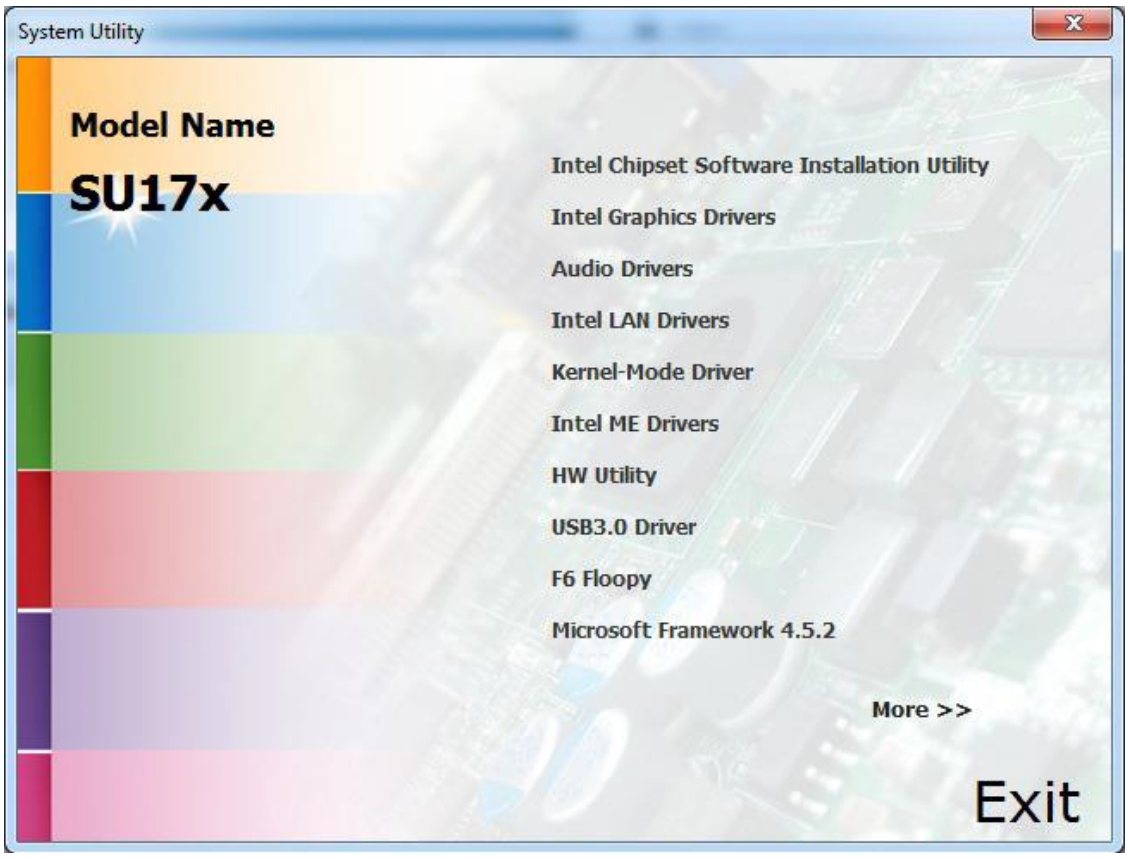

System Utility
Model Name
SU17x
Adobe Acrobat Reader 9.3
User's Manual
Readme
Browse the CD
<< Previous
Exit

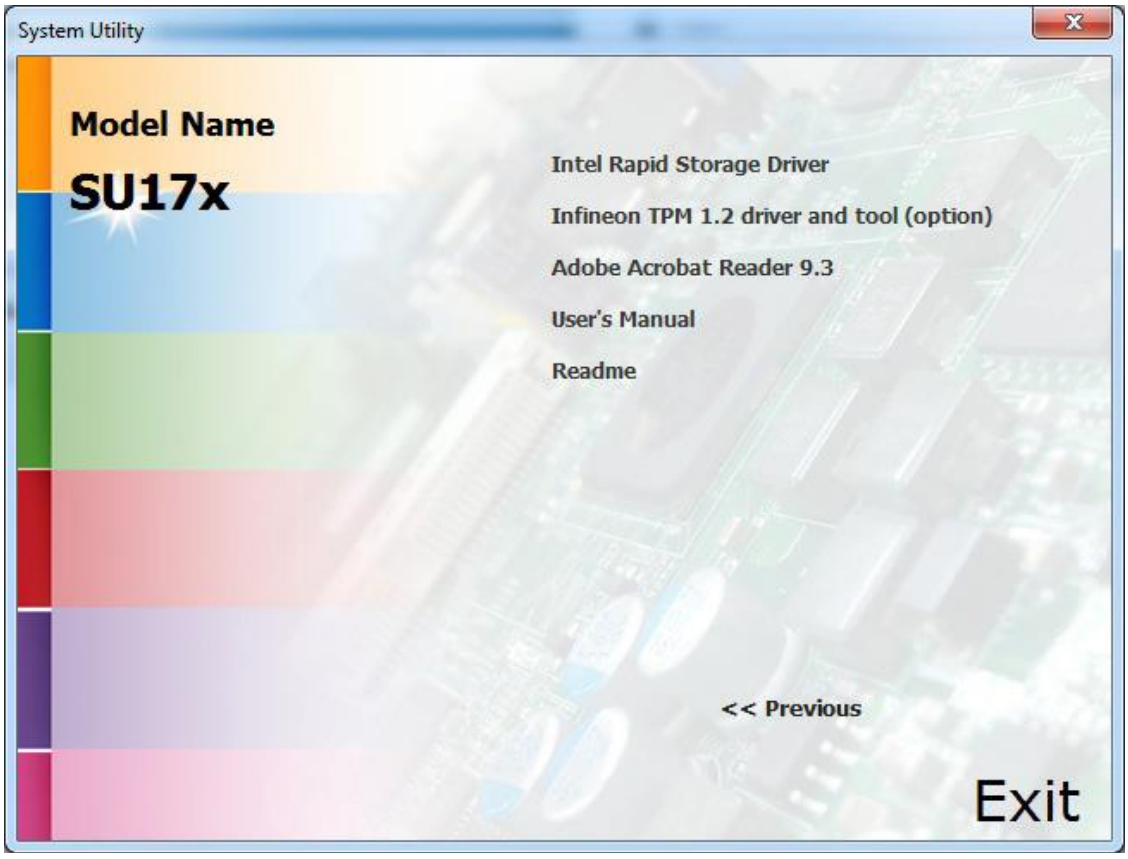
- **For Windows 8**





- **For Windows 7**





Chapter 4 Installation of Drivers

This chapter describes the installation procedures for software and drivers under the windows 7. The software and drivers are included with the motherboard. The contents include **Intel chipset driver, VGA driver, LAN drivers, Audio driver, USB 3.0 Driver, Framework_4.5.2 Driver, Intel Management Engine Driver, and IO Driver Installation instructions are given below.**

Important Note:
After installing your Windows operating system, you must install first the Intel Chipset Software Installation Utility before proceeding with the installation of drivers.

4.1 Intal(R) AtomTM SoC Chipset

To install the Intel(R) AtomTM SoC Chipset, please follow the steps below.

Step 1. Select **Intel(R) AtomTM SoC Chipset** from the list

Step 2. Setup is ready to install the utility. Click **Next.**

Step 3. Read the license agreement then click **Yes.**

Step 4. Go through the readme document for more installation tips then click **Next.**

Step 5. Click **Finish** to exit setup.

4.2 Intel(R) VGA Chipset

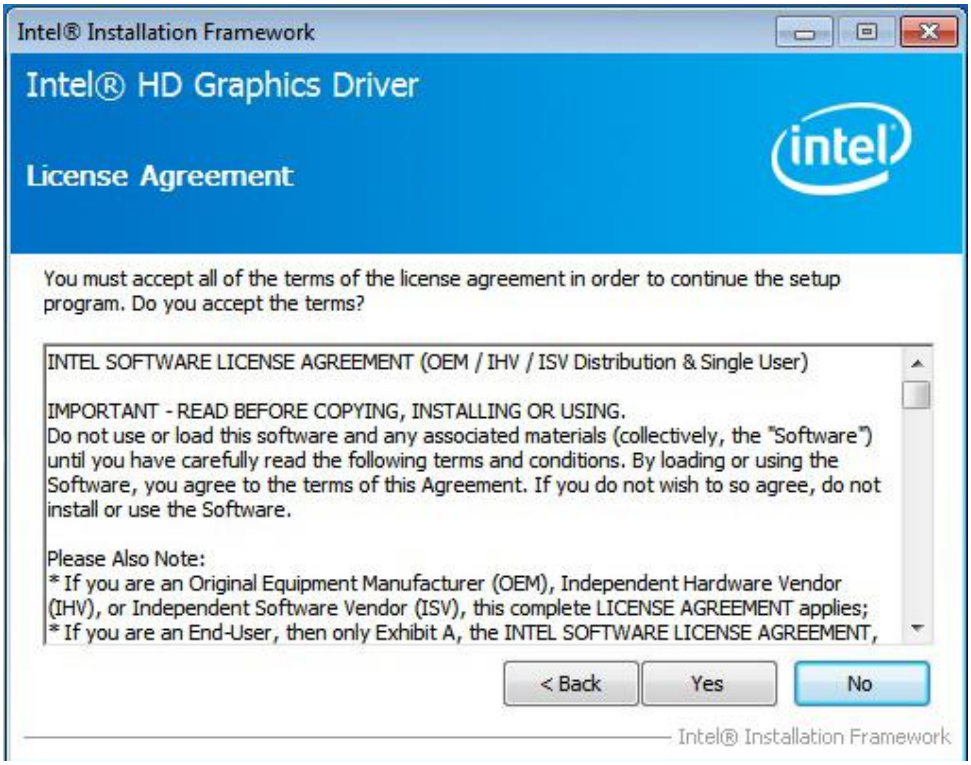
To install the Intel(R) VGA Chipset, please follow the steps below.

Step 1. Select **Intel(R) VGA Chipset** from the list

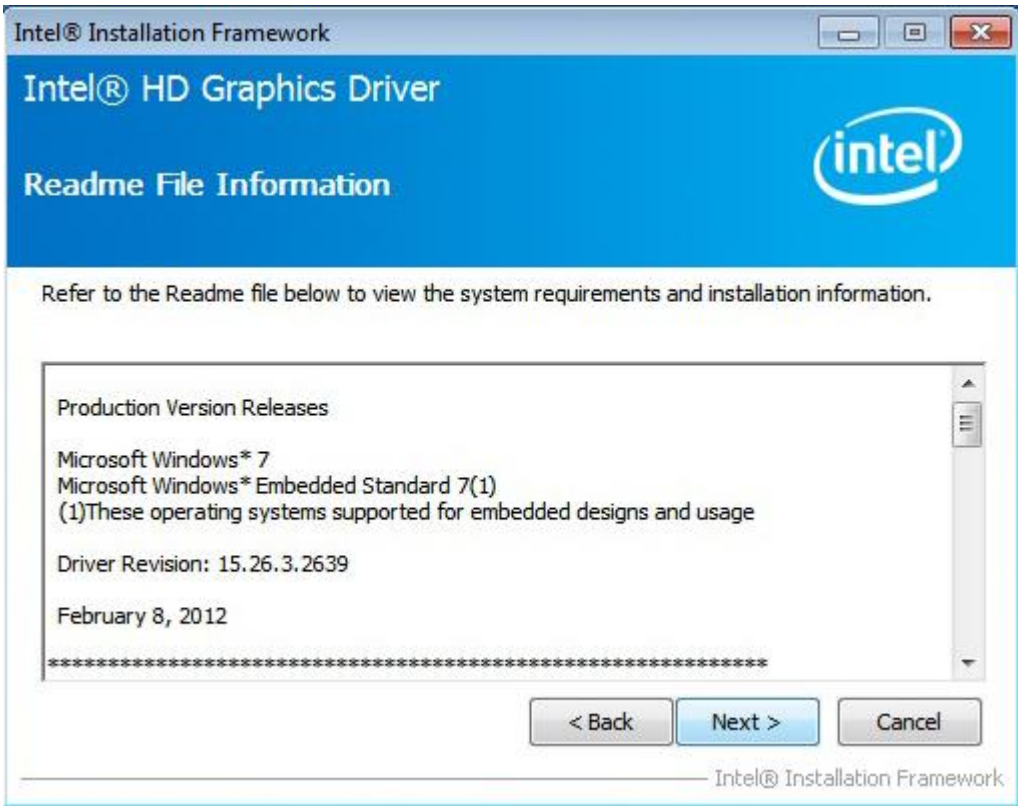
Step 2. Setup is now ready to install the graphics driver. Click **Next.**

By default, the "Automatically run WinSAT and enable the Windows Aero desktop theme" is enabled. With this enabled, after installing the graphics driver and the system rebooted, the screen will turn blank for 1 to 2 minutes (while WinSAT is running) before the Windows Vista desktop appears. The "blank screen" period is the time Windows is testing the graphics performance.

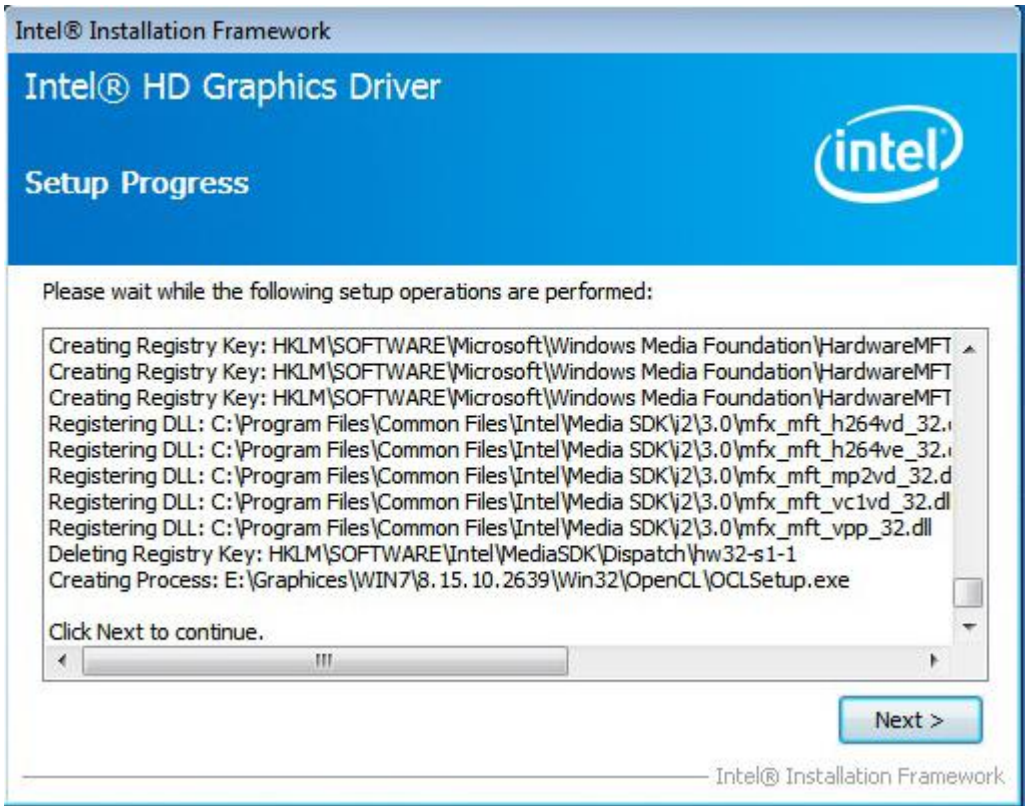
Step 3. Read the license agreement then click **Yes.**



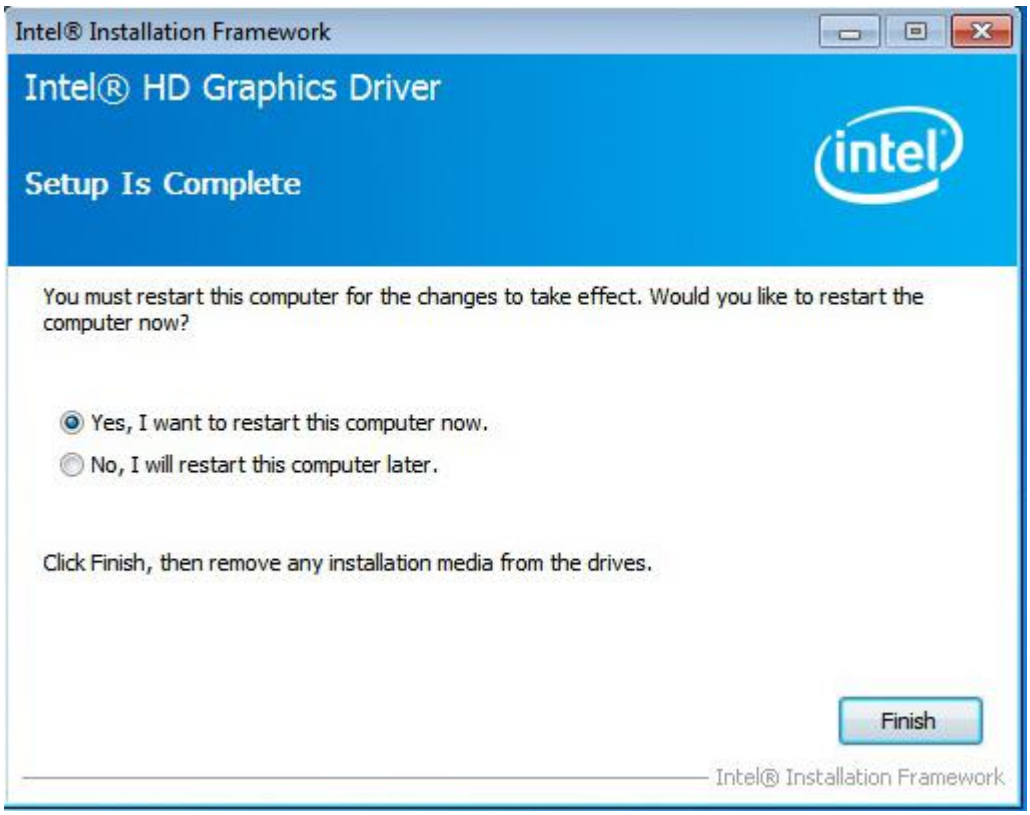
Step 4. Go through the readme document for system requirements and installation tips then click **Next.**



Step 5. Setup is now installing the driver. Click **Next** to continue.



Step 6. Click **Yes, I want to restart this computer now**. then click **Finish.** Restarting the system will allow the new software installation to take effert.

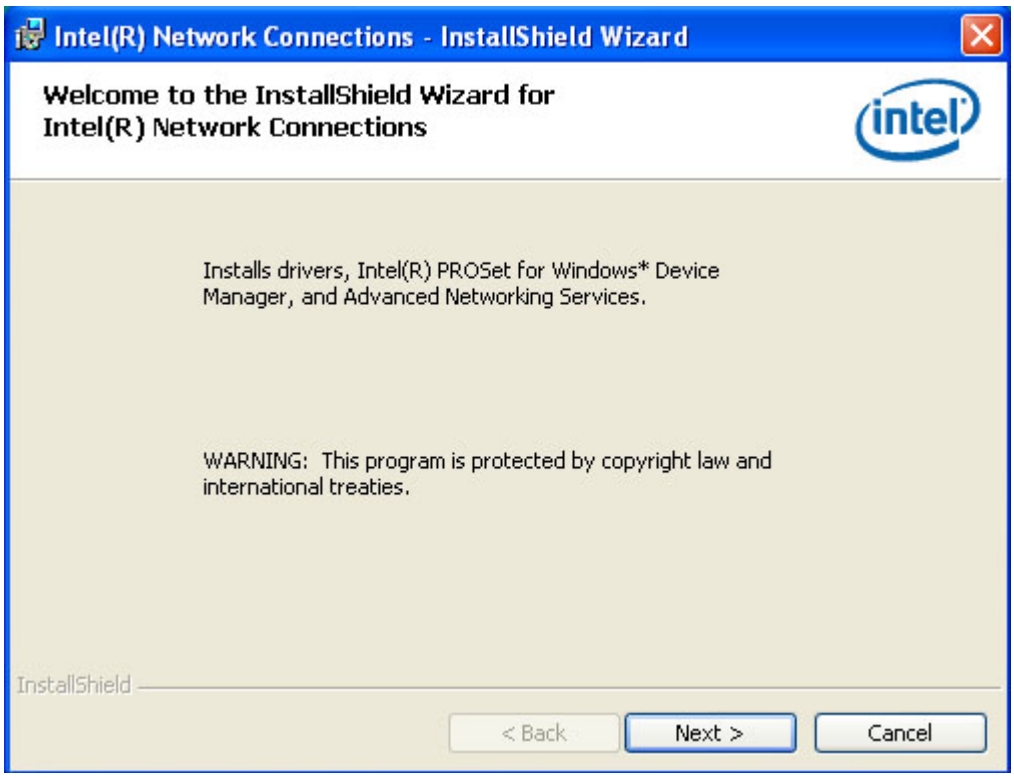


4.3 Intel(R) LAN Driver

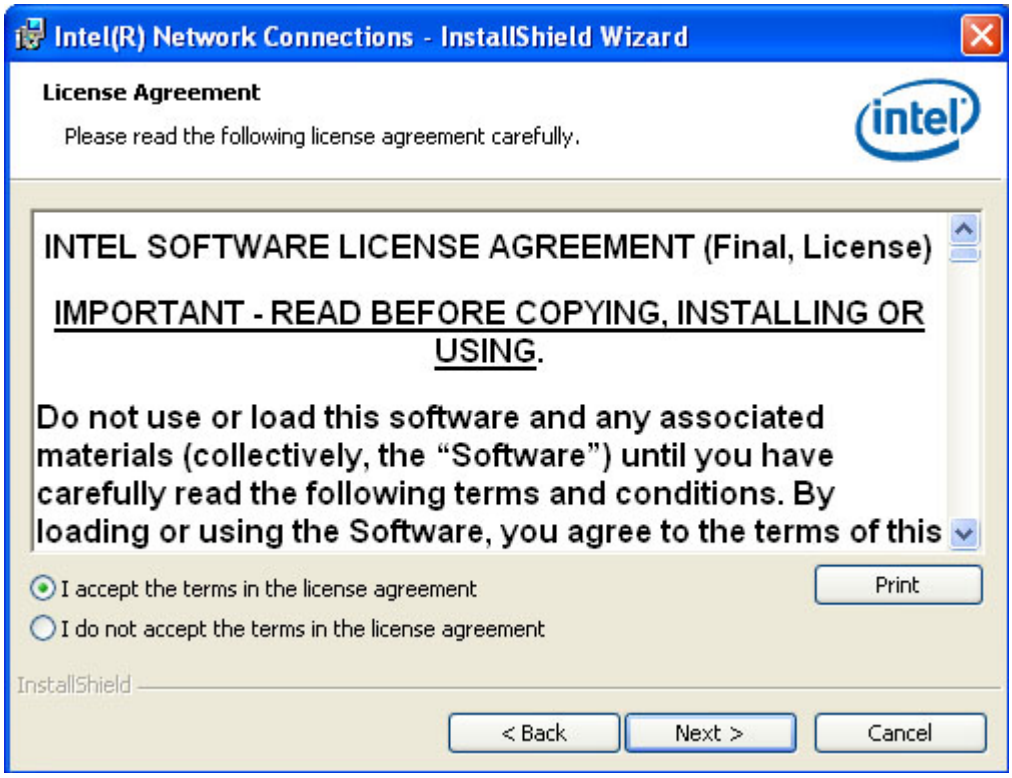
To install the Intel(R) LAN Driver, please follow the steps below.

Step 1. Select **Intel(R) I210AT&I219LM LAN Driver** from the list

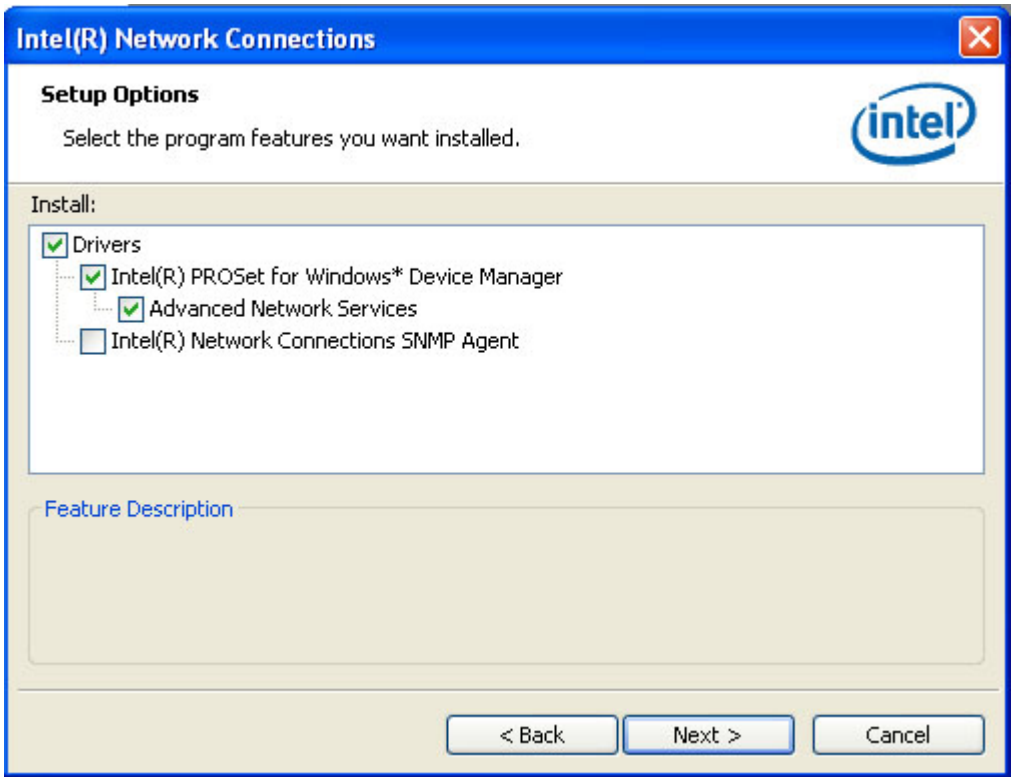
Step 2. Setup is ready to install the driver. Click **Next.**



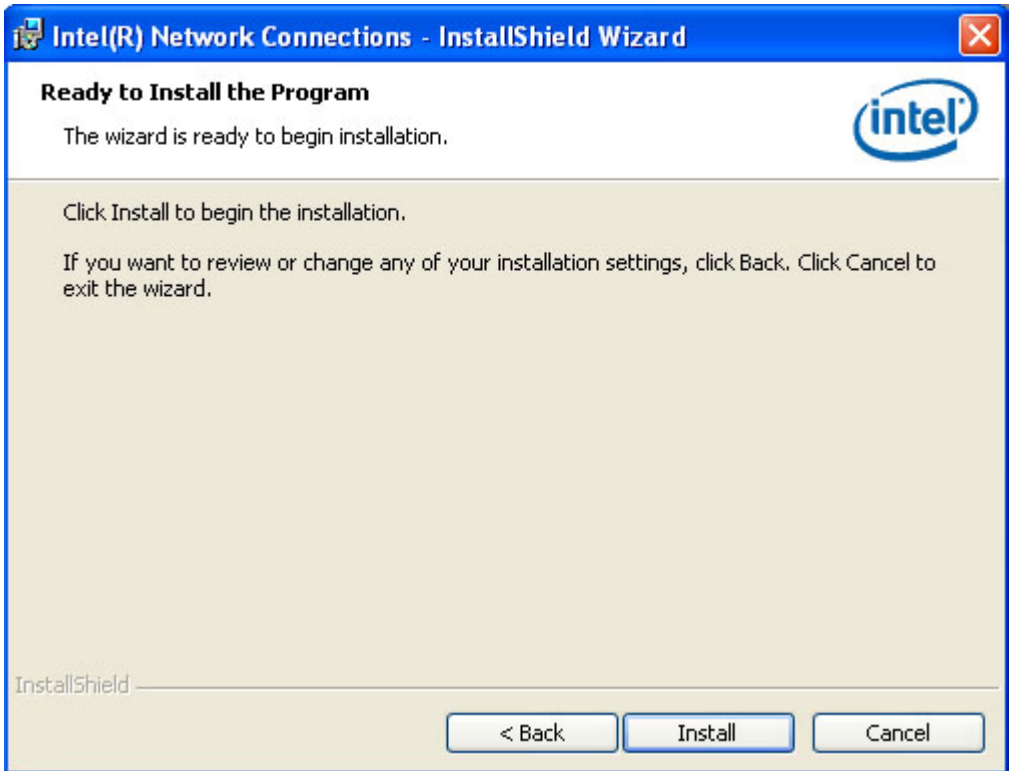
Step 3. Click **I accept the terms in the license agreement** then click **Next.**



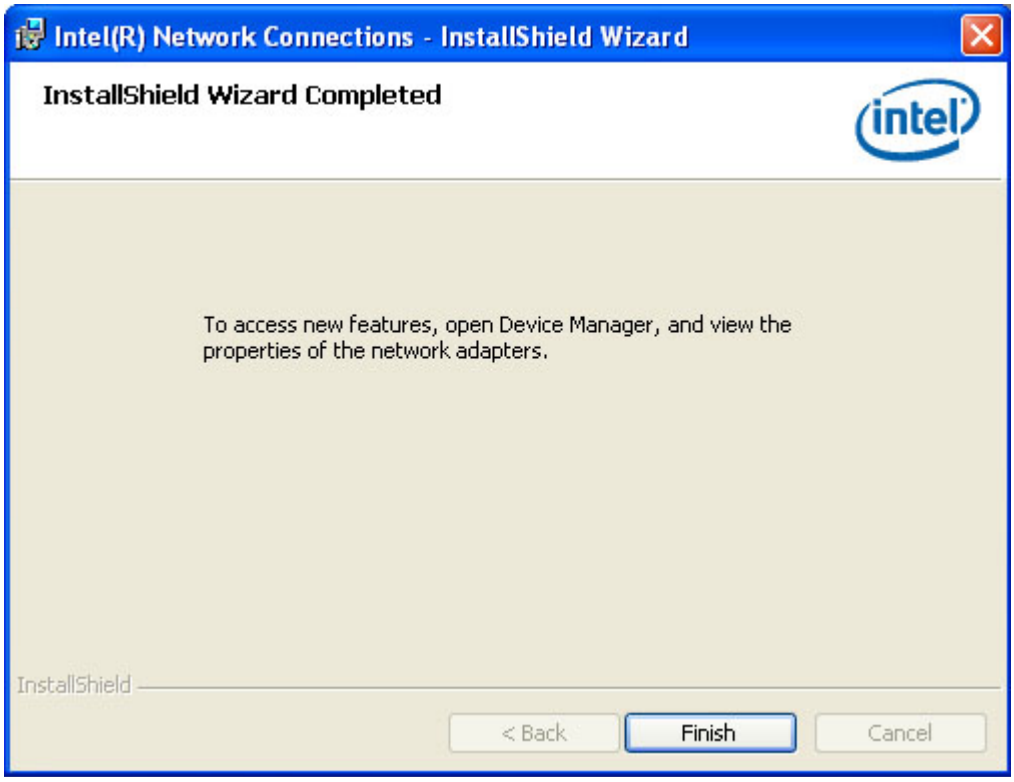
Step 4. Select the program features you want installed then click **Next.**



Step 5. Click **Install** to begin the installation.



Step 6. After completing installation, click **Finish.**

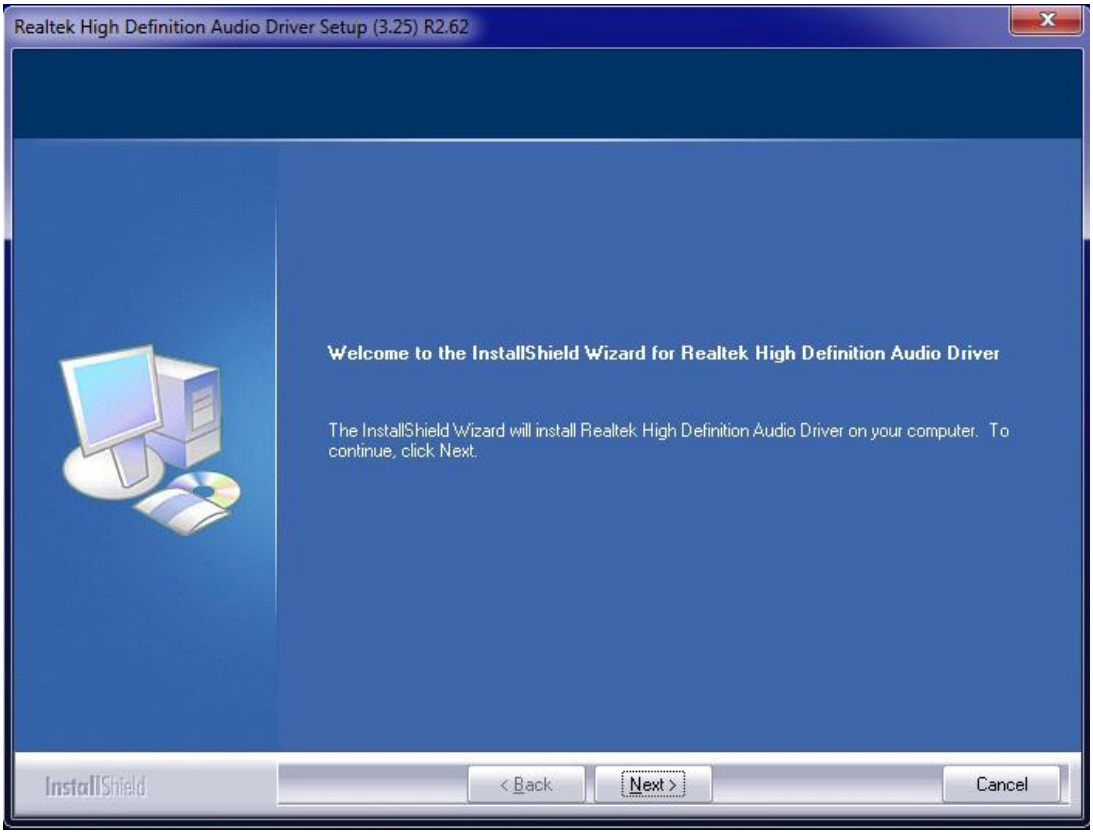


4.4 Audio Driver

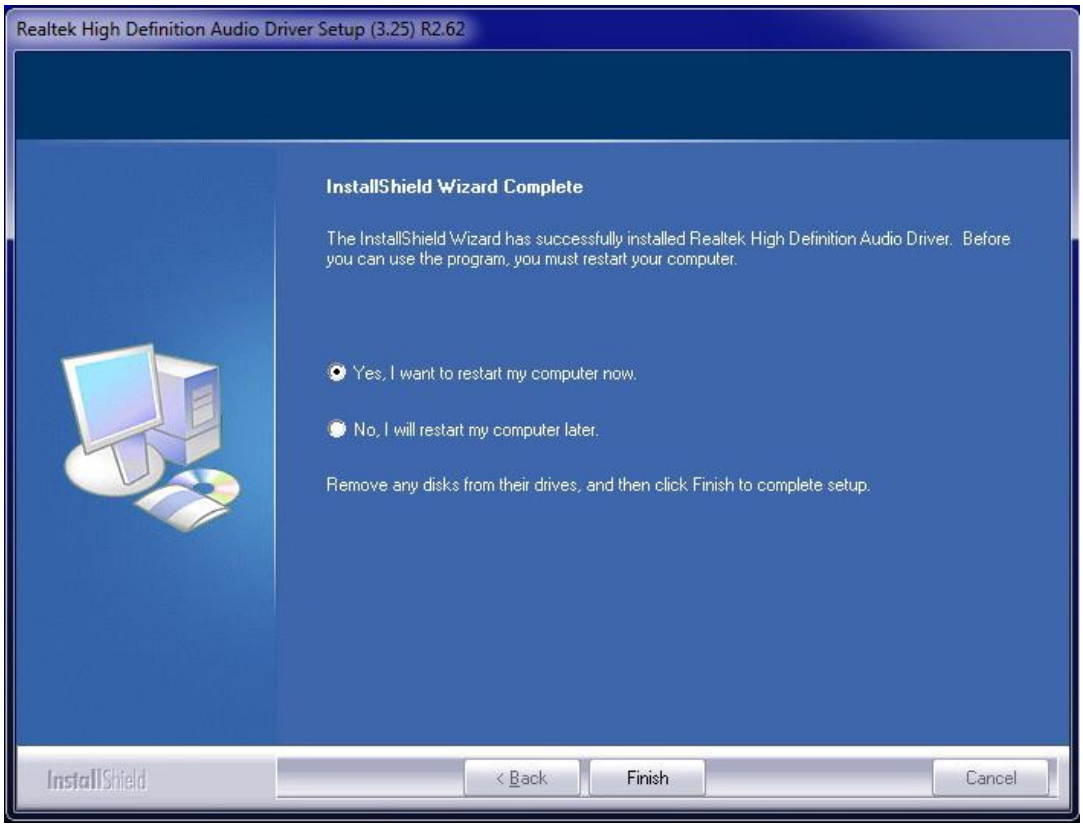
To install the Audio Driver, please follow the steps below.

Step 1. Select **Realtek ALC888S HD Audio Driver** from the list

Step 2. Setup is ready to install the driver. Click **Next.**



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.

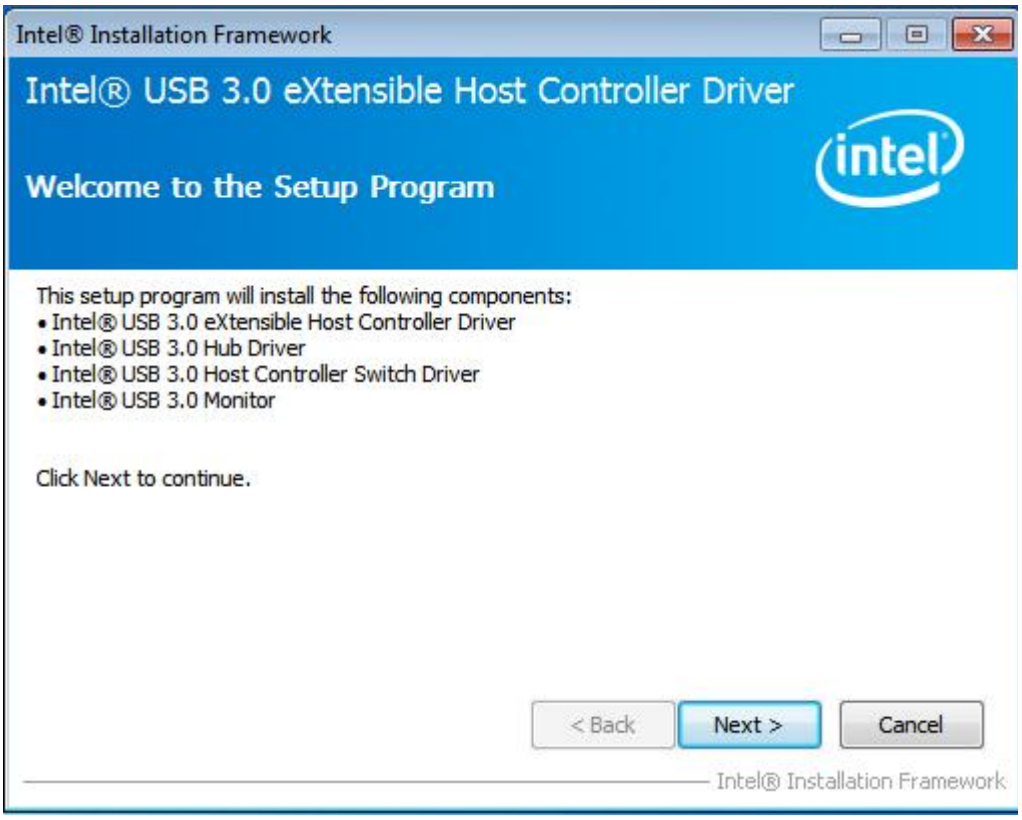


4.5 Intel USB 3.0 Driver (For Windows 7 and Windows 8)

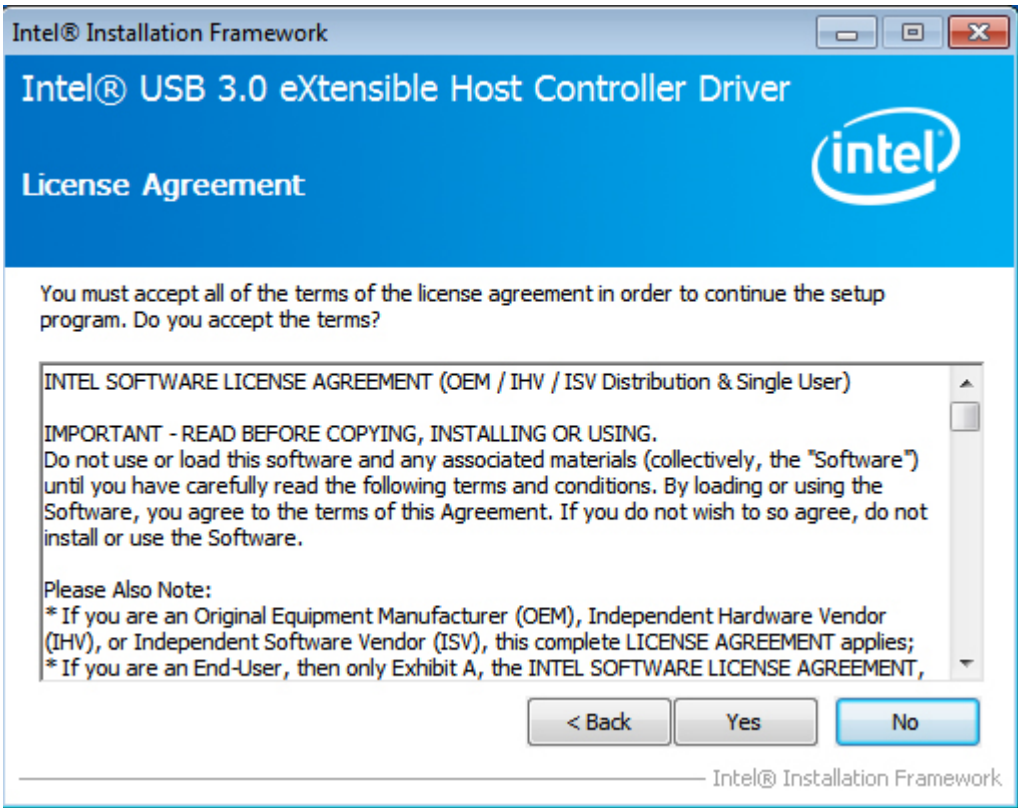
To install the Intel USB 3.0 Driver, please follow the steps below.

Step 1. Select **USB 3.0 Driver** from the list

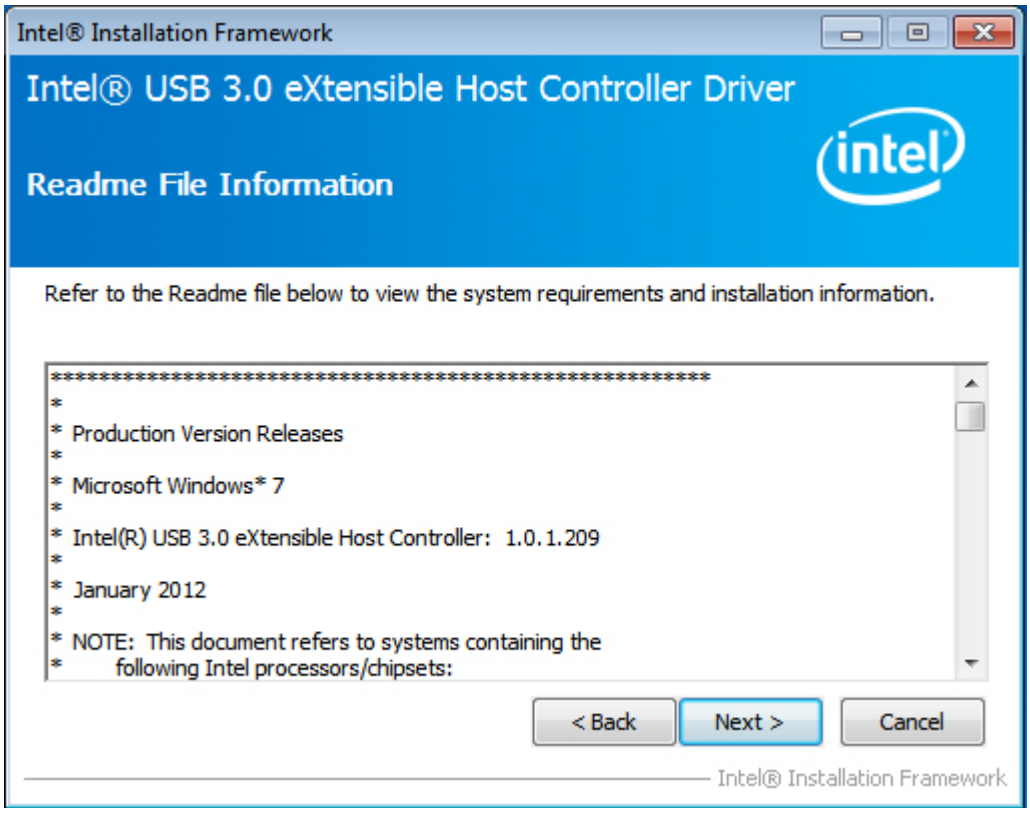
Step 2. Setup is ready to install the driver. Click **Next.**



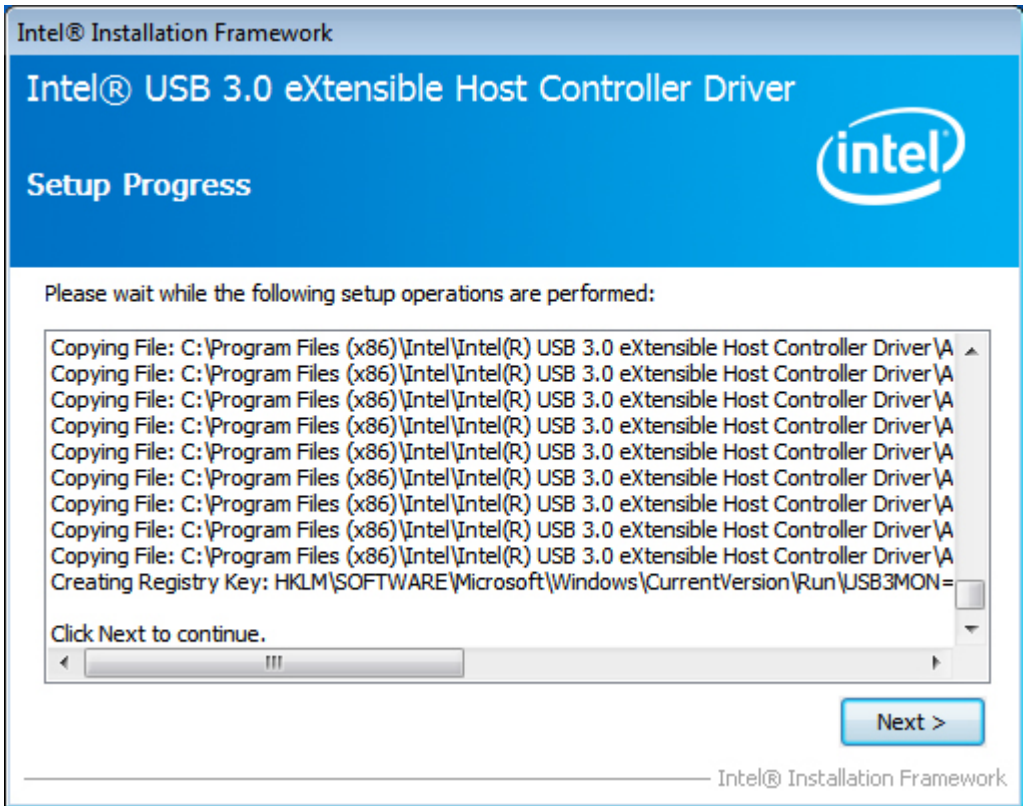
Step 3. Read the license agreement then click **Yes.**



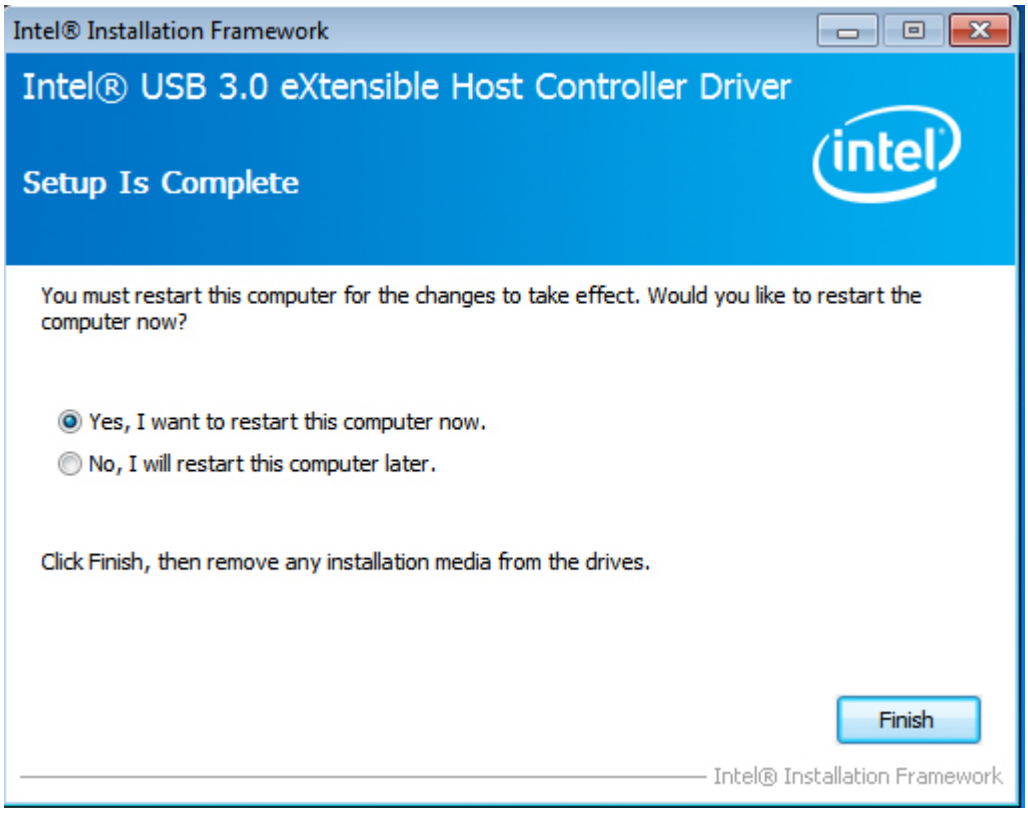
Step 4. Go through the readme document for more installation tips then click **Next.**



Step 5. Setup is currently installing the driver. After installation has completed, click **Next.**



Step 6. After completing installation, click **Finish.**



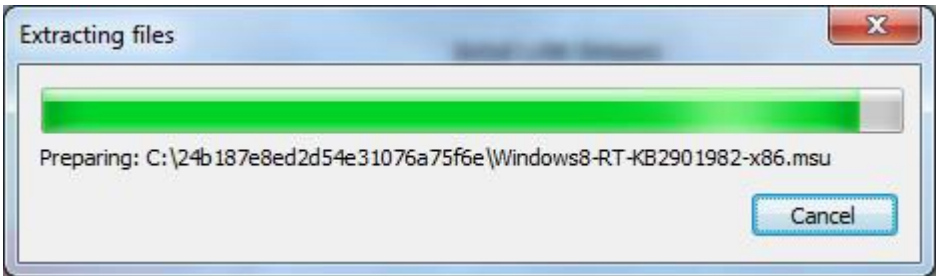
4.6 Framework 4.5.2 (For Windows 7)

Note: Before installing Microsoft Framework 4.5.2, make sure you have updated your Windows 7 operating system to Service Pack 3.

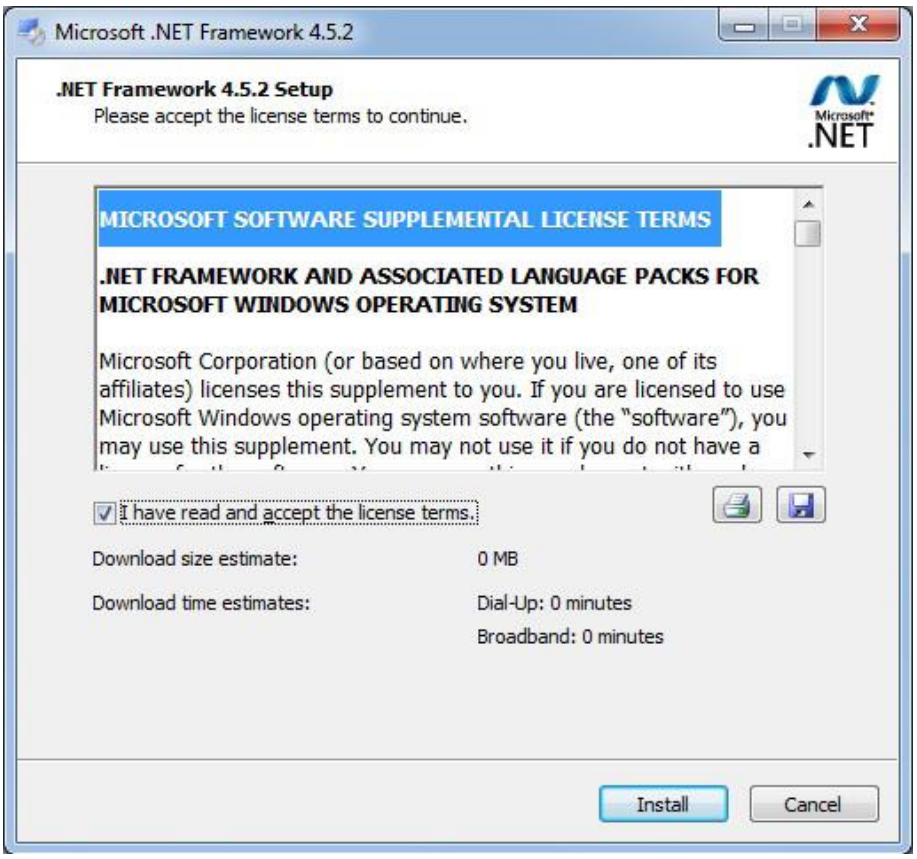
To install the Framework 4.5.2 Driver, please follow the steps below.

Step 1. Select **Framework_4.5.2** from the list

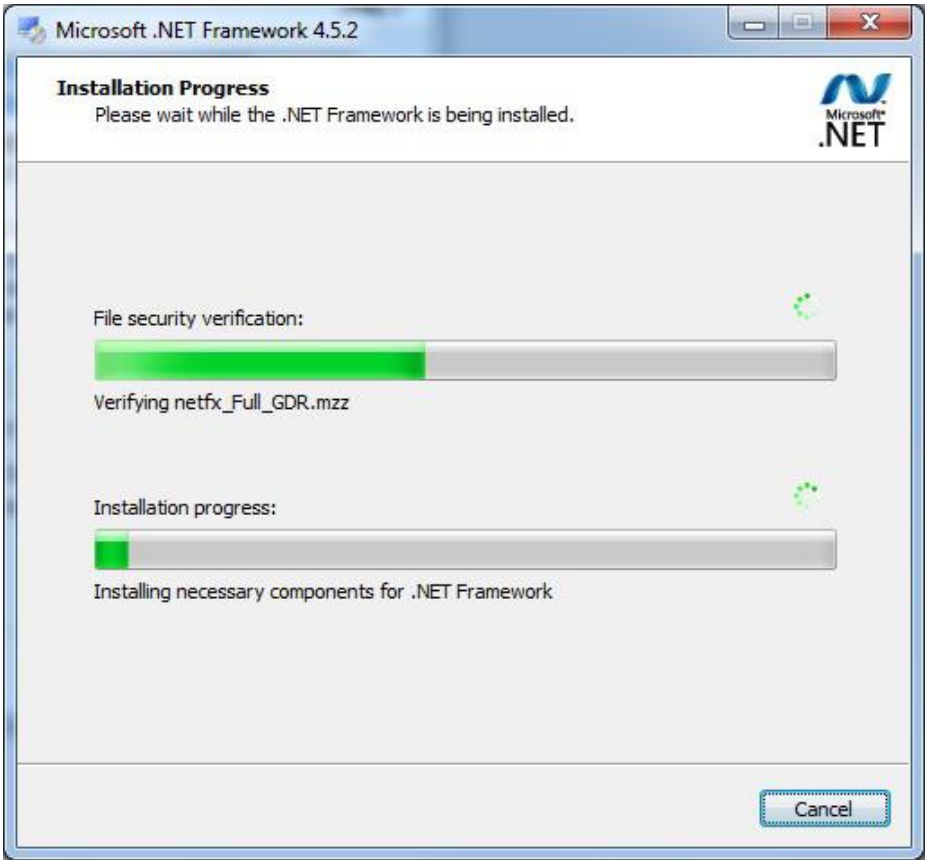
Step 2. Setup is now extracting files.



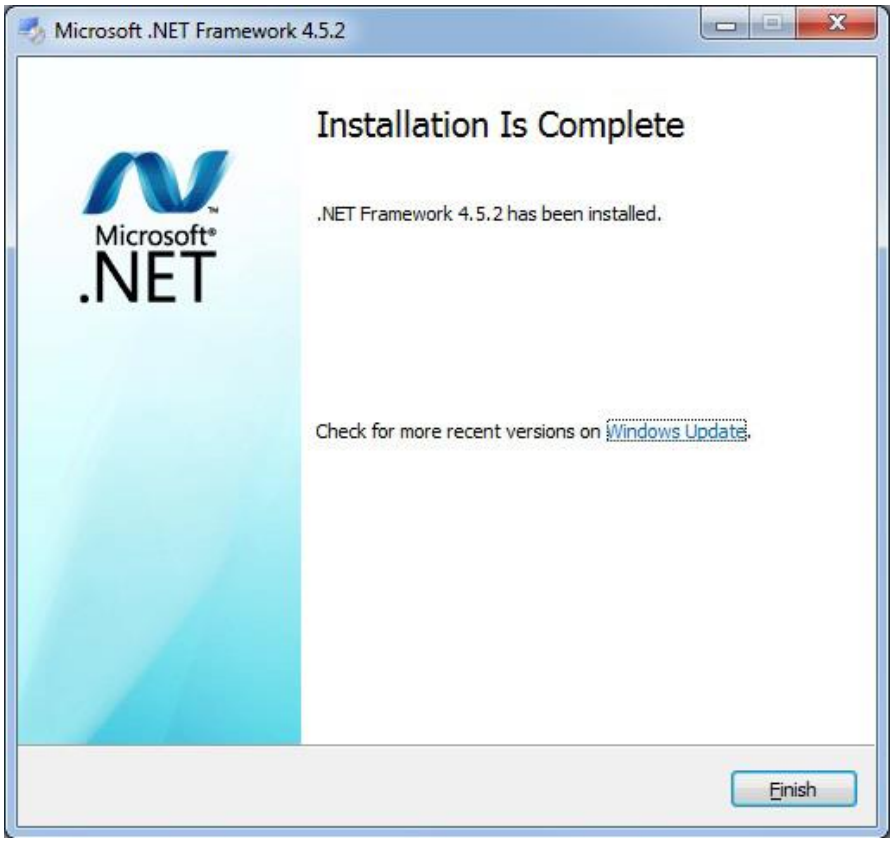
Step 3. Read the license agreement carefully. Click **I have read and accept the terms of the License Agreement** then click **Install.**



Step 4. Setup is now installing the driver.



Step 5. Click **Finish.**

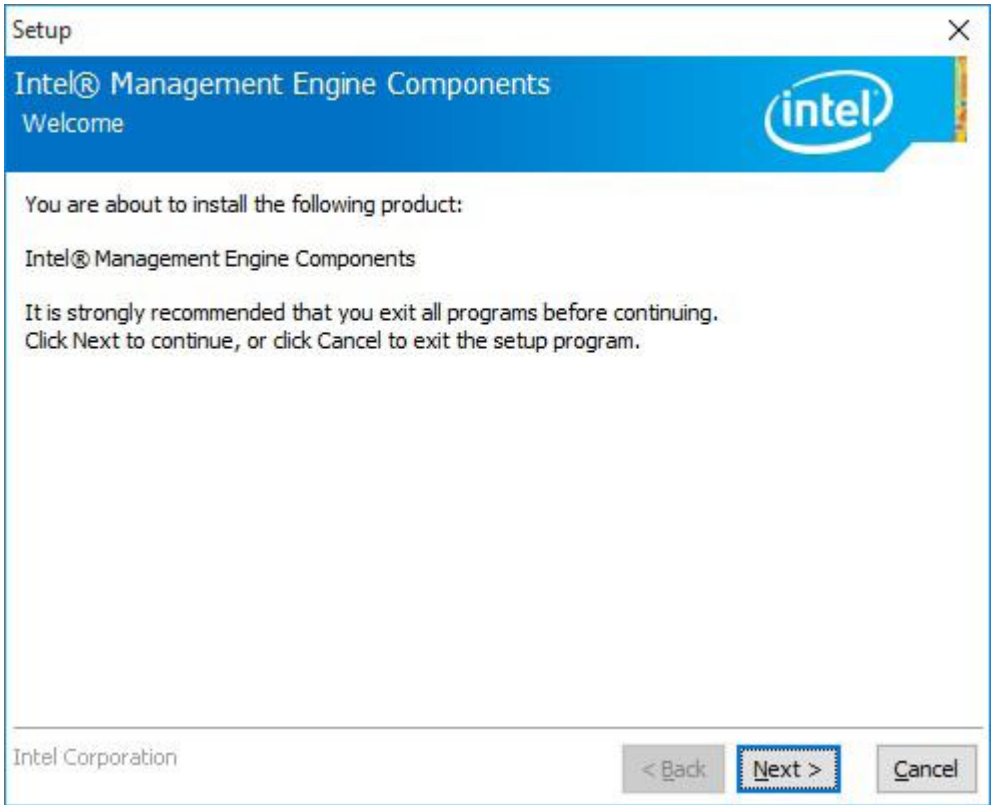


4.7 Intel Management Engine Driver

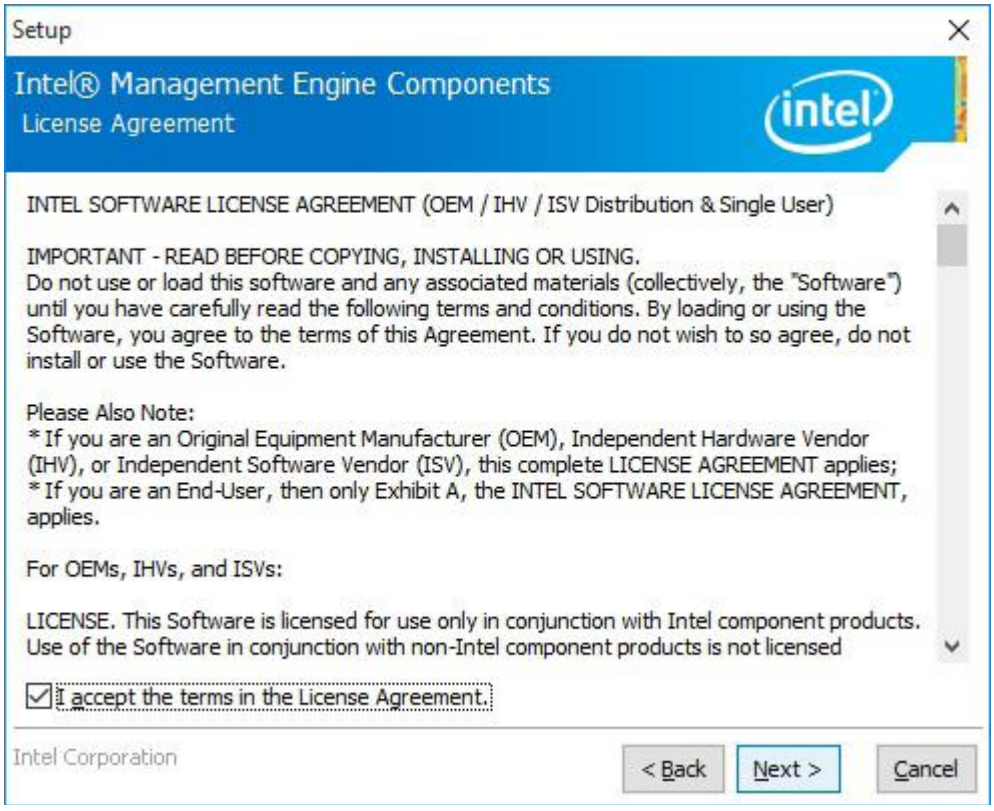
To install the Intel Management Engine Driver, please follow the steps below.

Step 1. Select **Intel Management Engine Drivers** from the list

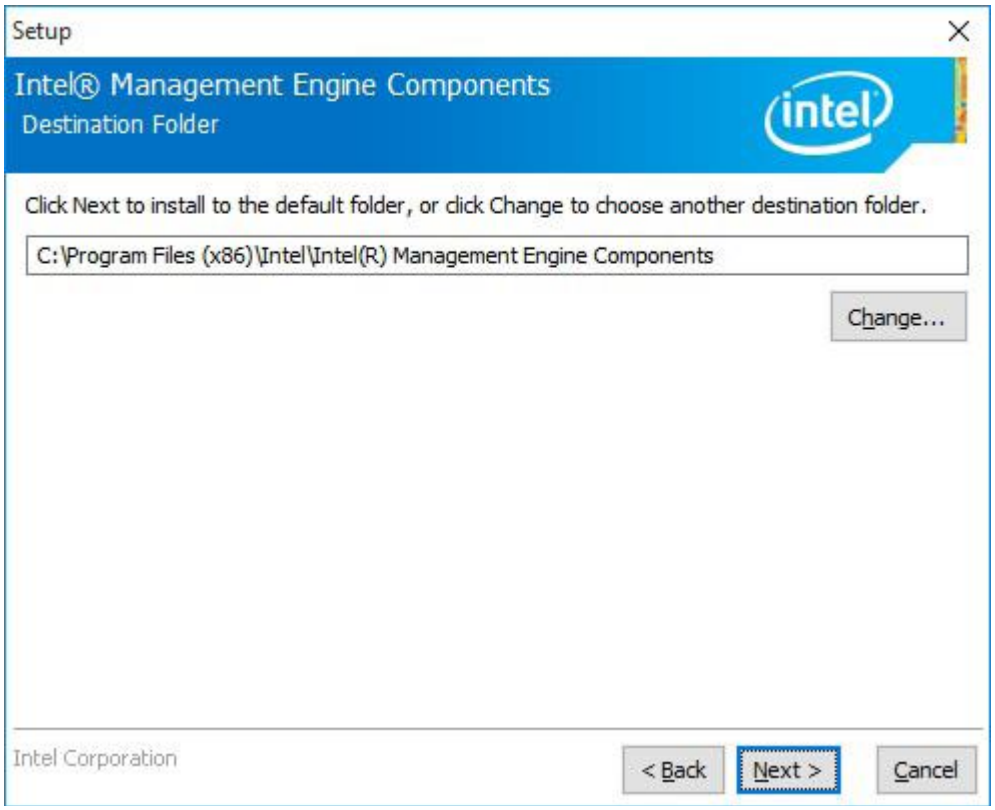
Step 2. Setup is ready to install the driver. Click **Next.**



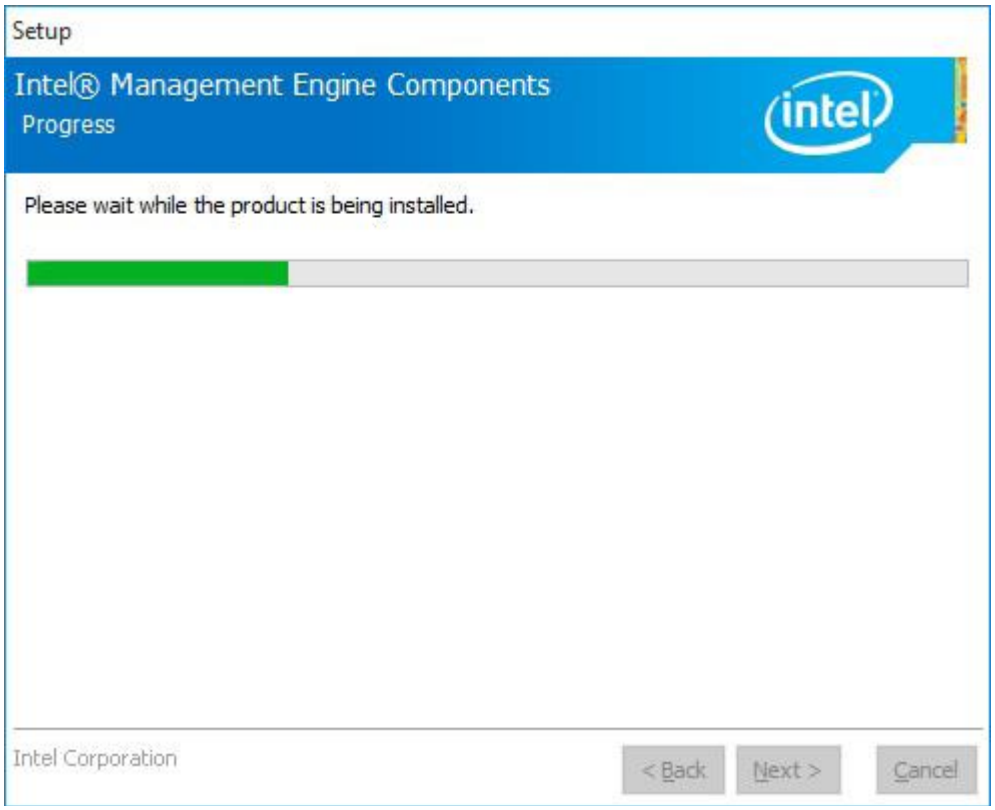
Step 3. Read the license agreement then click **Next.**



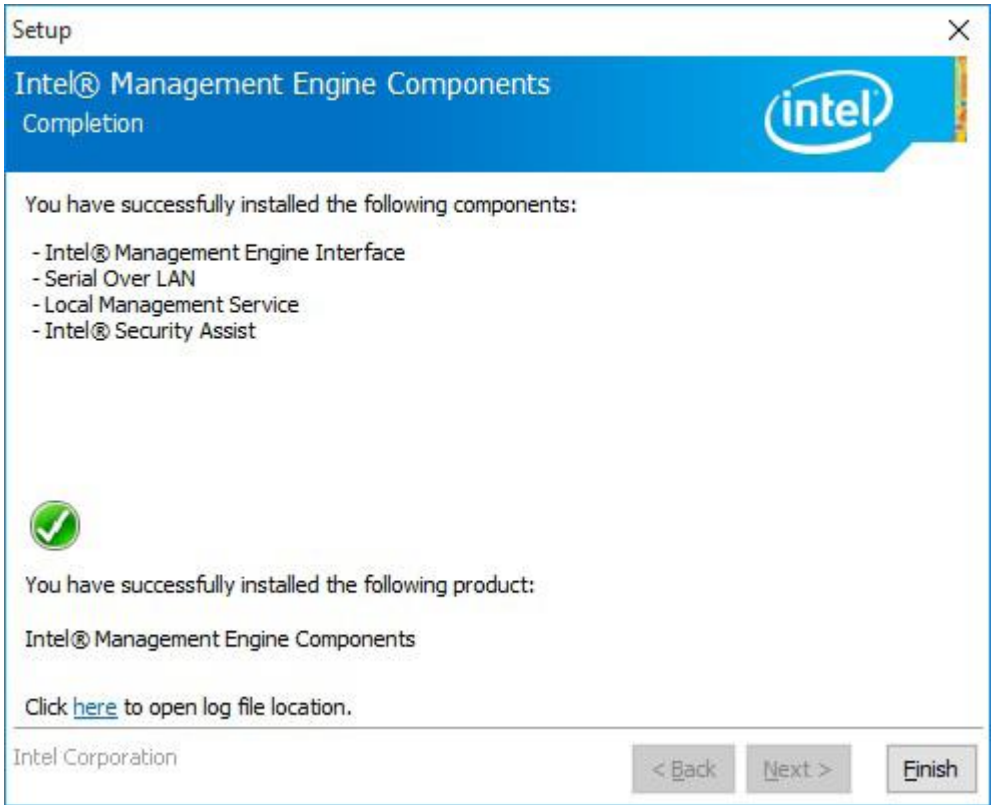
Step 4. Setup is currently installing the driver. After installation has complete, click **Next.**



Step 5. Please wait while the product is being installed.



Step 6. After completing installation, click **Finish.**

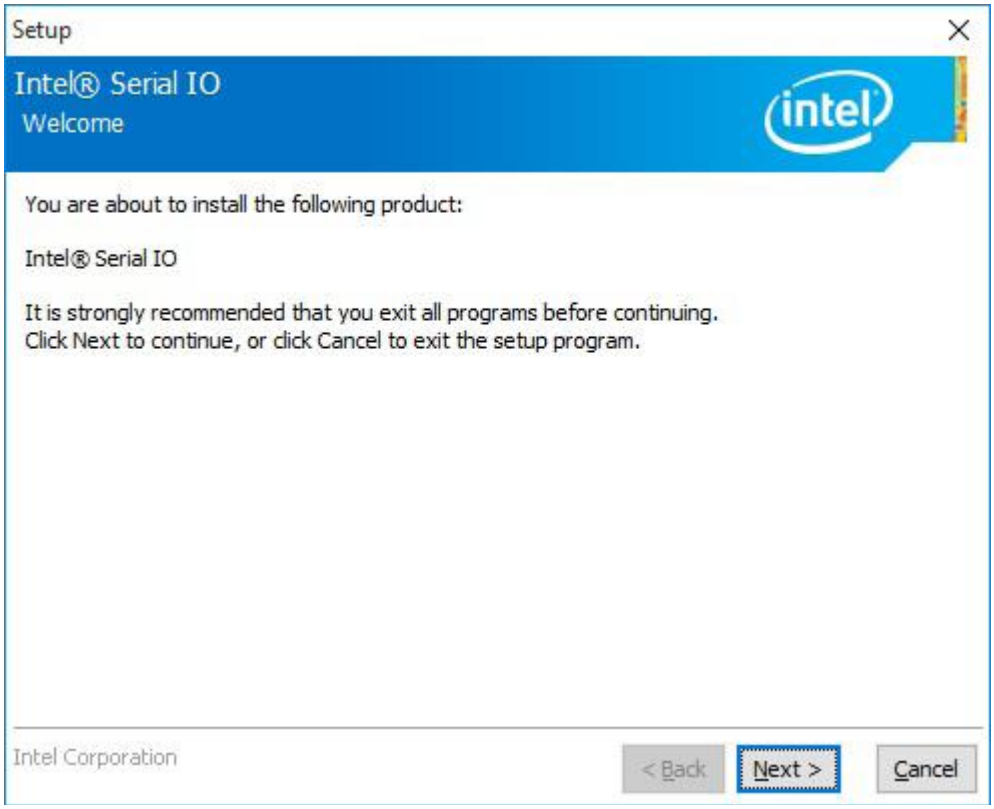


4.8 IO Driver (For Windows 8 and Windows 10)

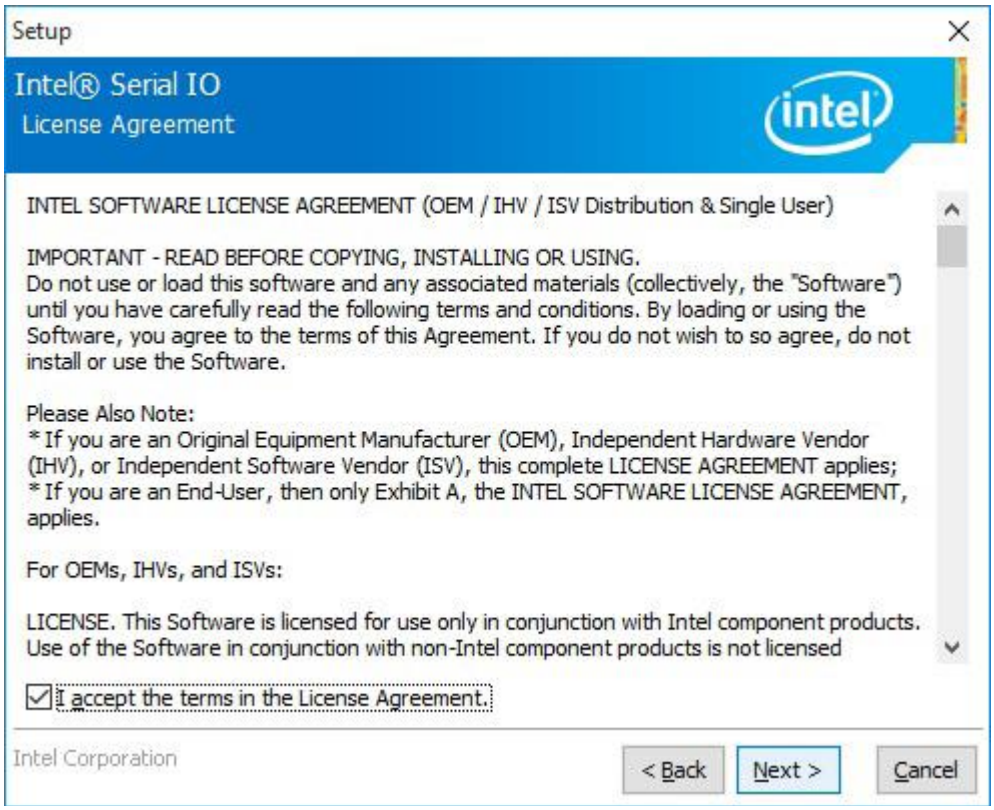
To install the IO Driver, please follow the steps below.

Step 1. Select **IO Driver (For Windows 8&10)** from the list

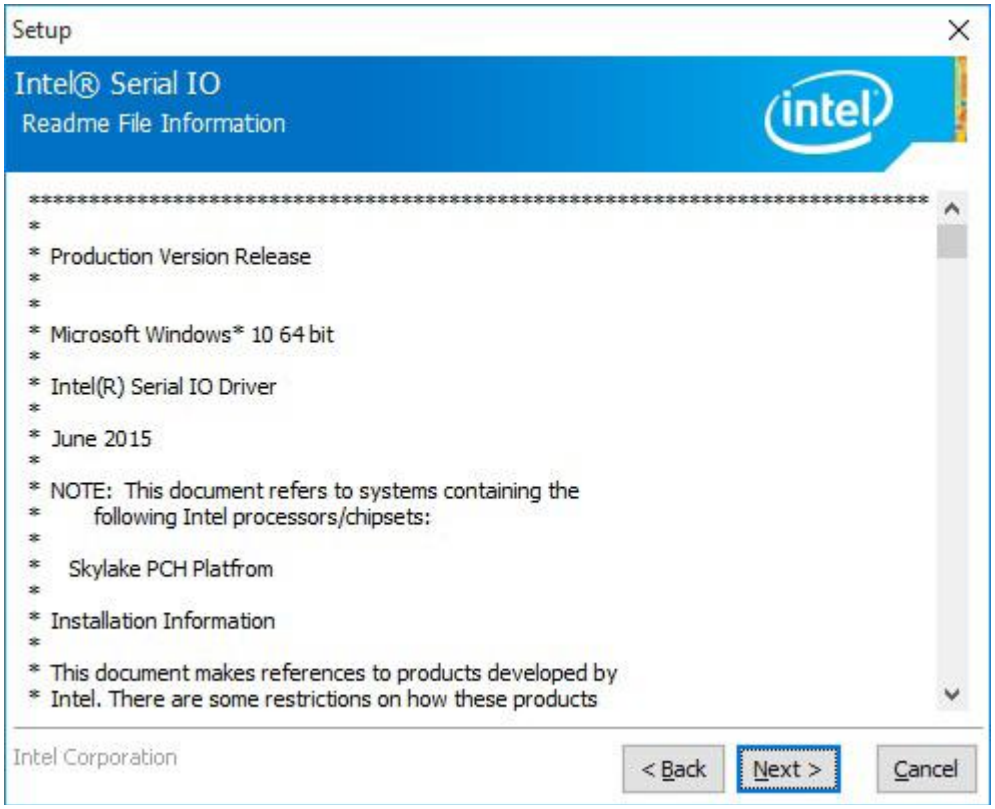
Step 2. Setup is ready to install the driver. Click **Next.**



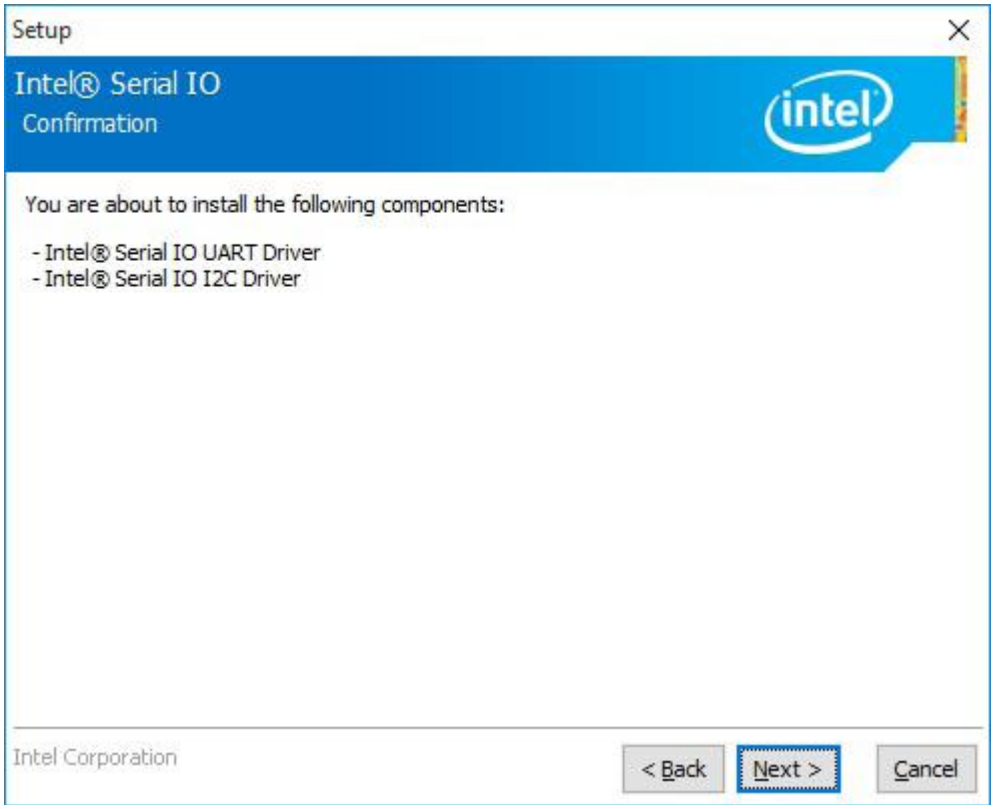
Step 3. Read the license agreement carefully. Click **I accept the terms in the License Agreement** then click **Next.**



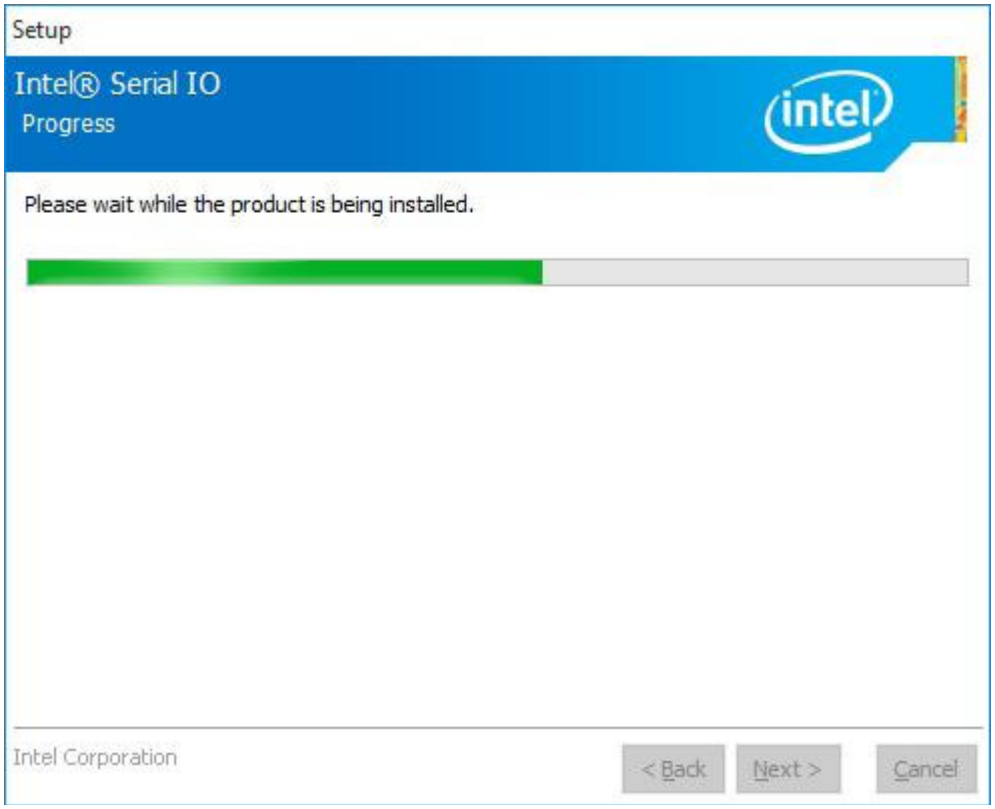
Step 4. Read the file information then click **Next.**



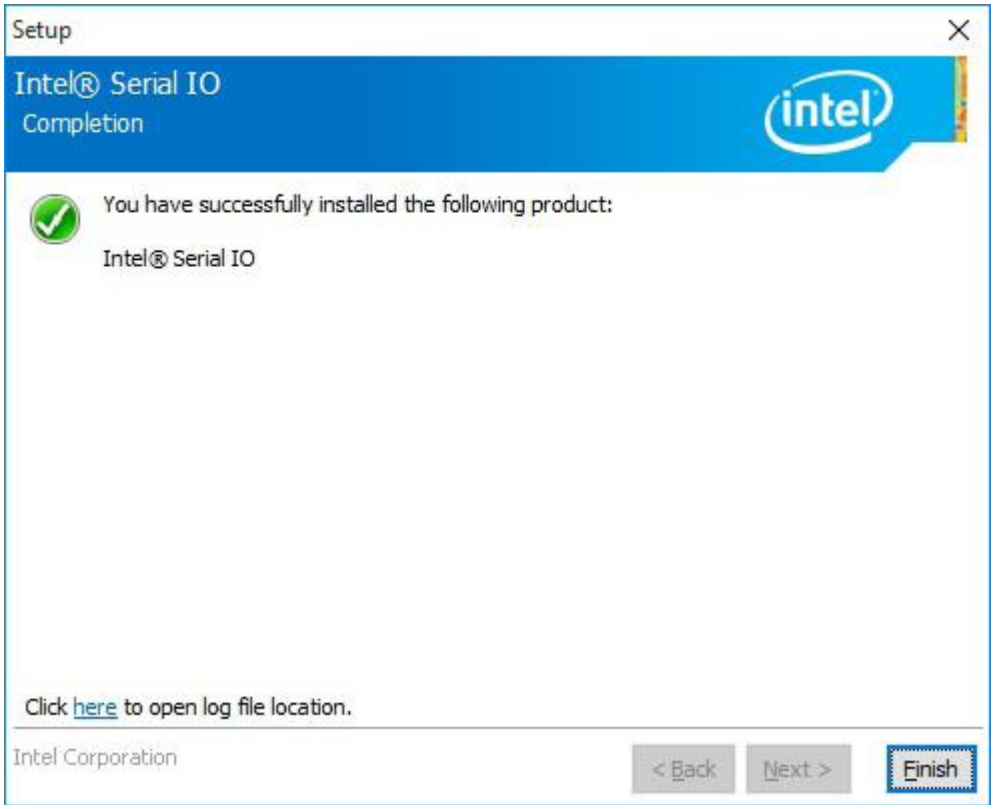
Step 5. Setup is ready to install the driver. Click **Next.**



Step 6. Setup is now installing the driver.



Step 7. Click **Finish.**



Chapter 5 Touch Screen Installation

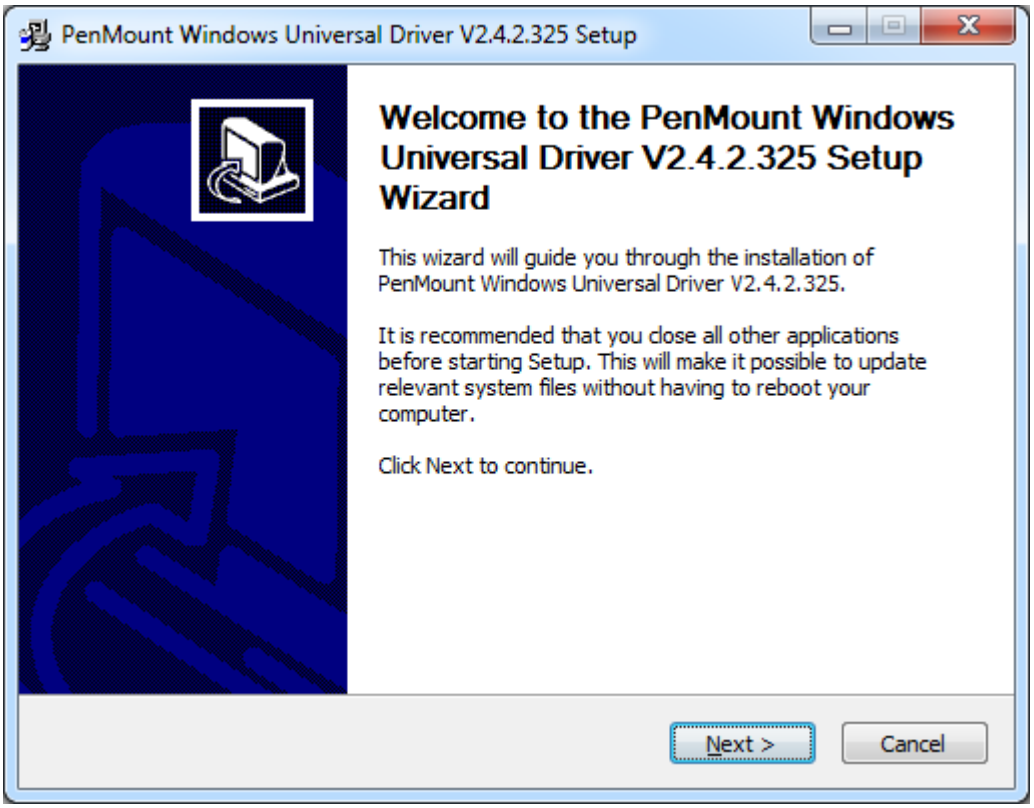
This chapter describes how to install drivers and other software that will allow your touch screen work with different operating systems.

5.1 Windows 7/8.1/10 Universal Driver Installation for PenMount 6000 Series

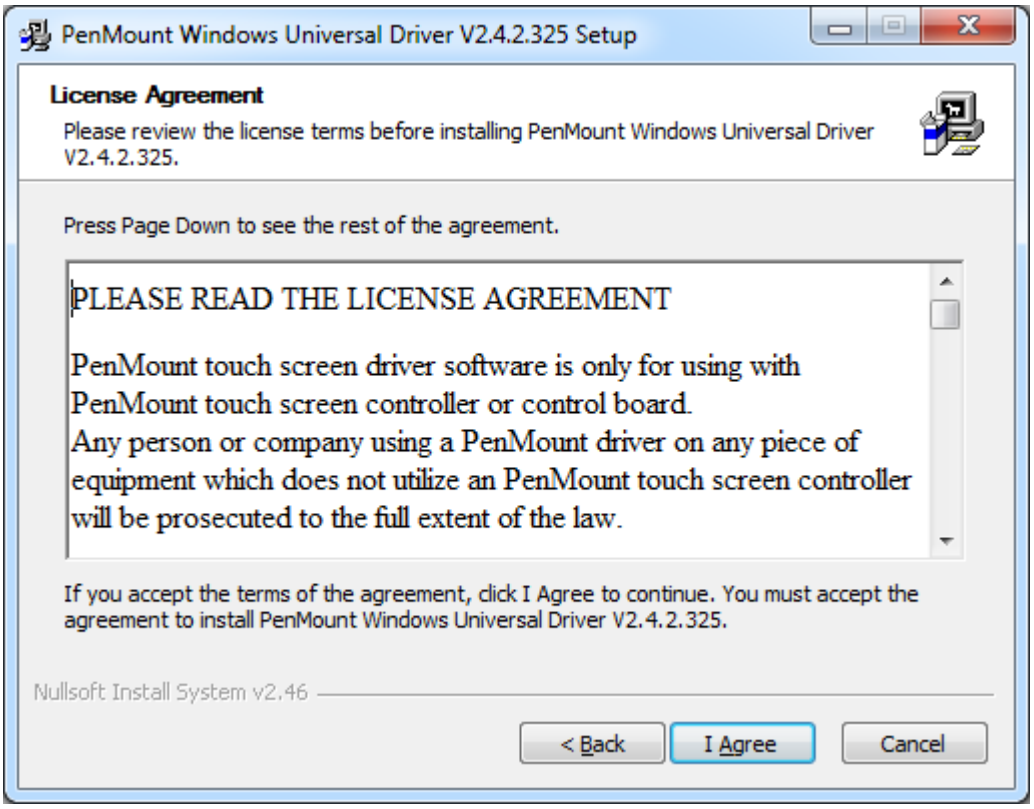
- **Installing Software**

Step 1. Insert the product CD, the screen below would appear. Click **Touch Panel Driver.**

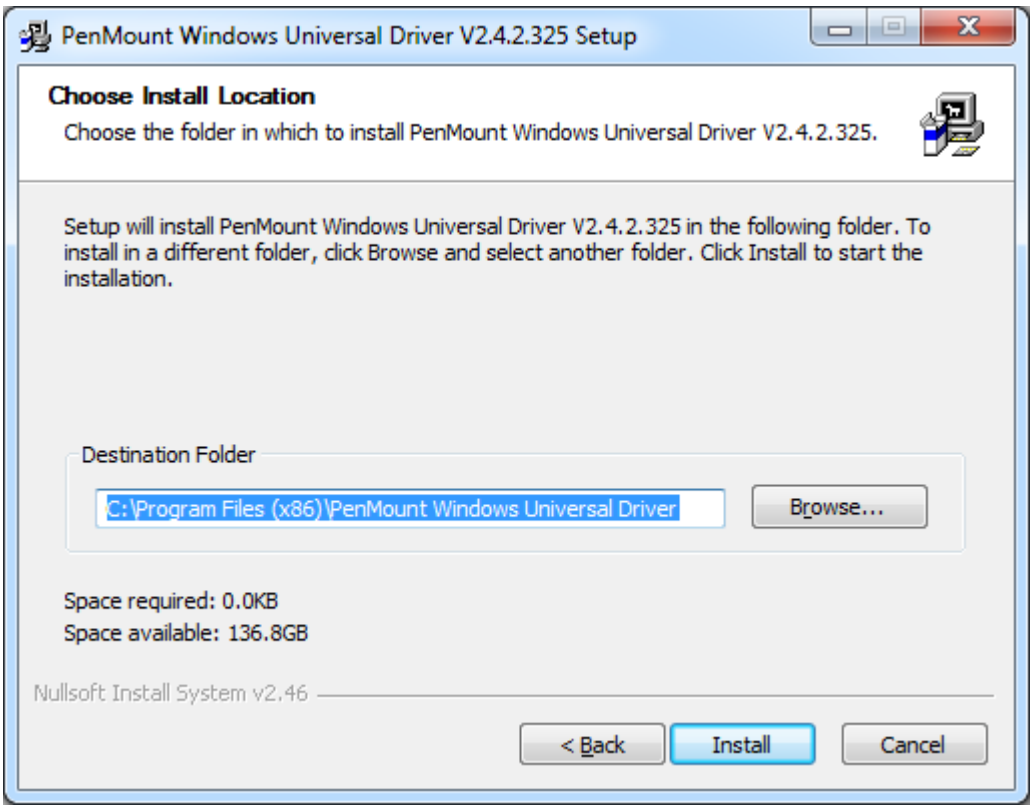
Step 2. Click **Next** to continue.



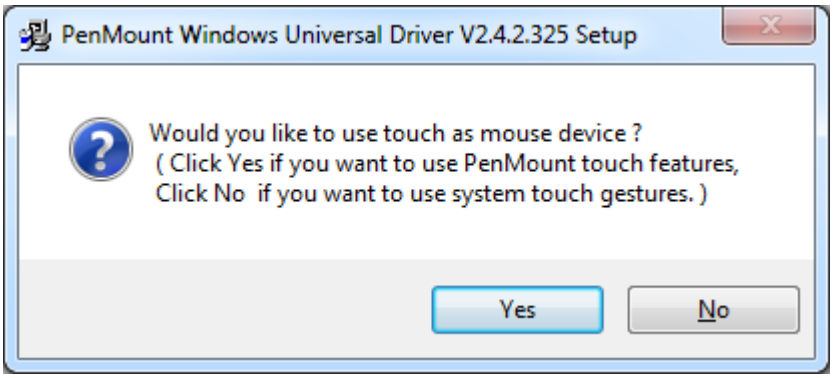
Step 3. Read the license agreement. Click **I Agree** to agree the license agreement.



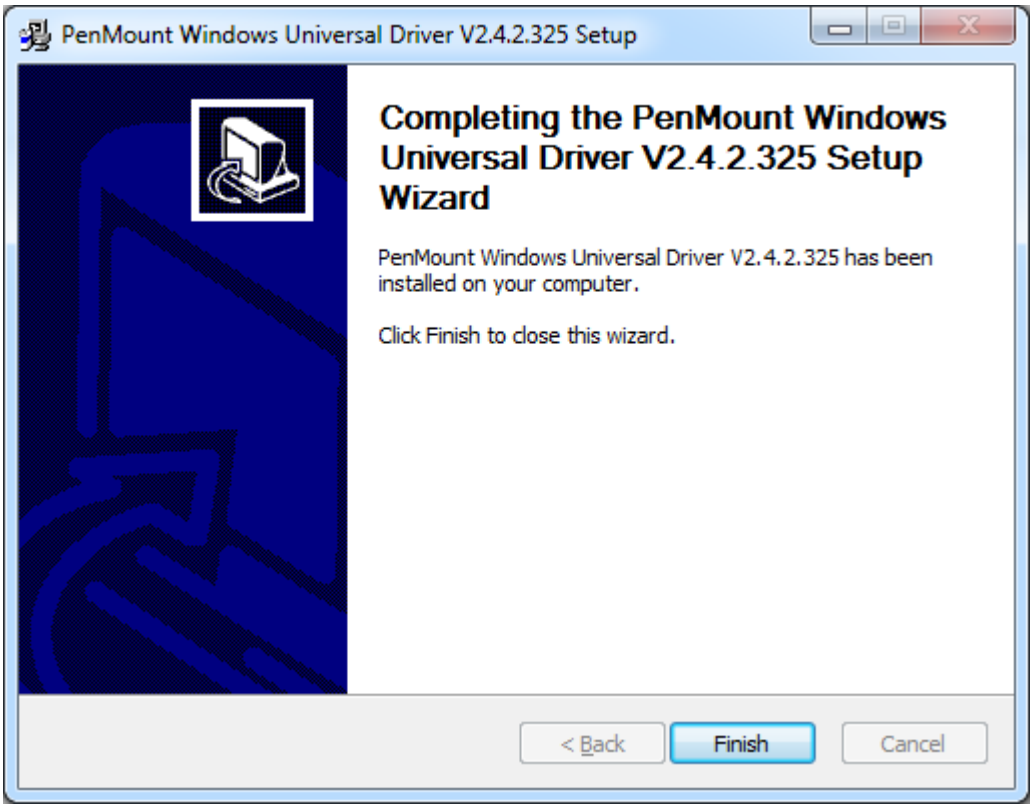
Step 4. Choose the folder in which to install PenMount Windows Universal Driver. Click **Install** to start the installation.



Step 5. Click **Yes** to continue.



Step 7. Click **Finish** to complete installation.



5.2 Software Functions

Upon rebooting, the computer automatically finds the new 6000 controller board. The touch screen is connected but not calibrated. Follow the procedures below to carry out calibration.

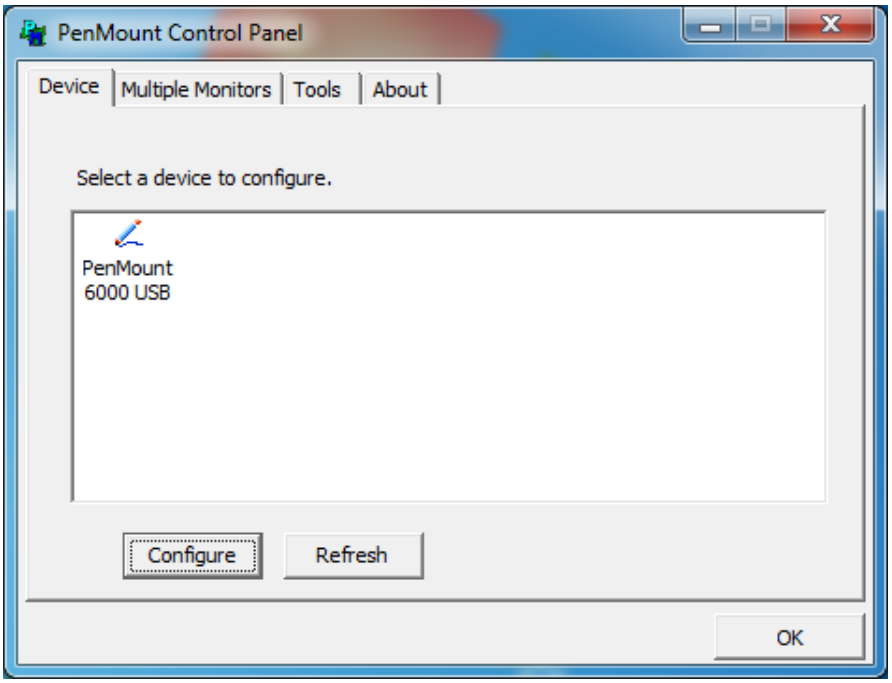
1. After installation, click the PenMount Monitor icon “PM” in the menu bar.
2. When the PenMount Control Panel appears, select a device to “Calibrate.”

PenMount Control Panel

The functions of the PenMount Control Panel are **Device, Multiple Monitors** ,**Tools** and **About**, which are explained in the following sections.

Device

In this window, you can find out that how many devices be detected on your system.



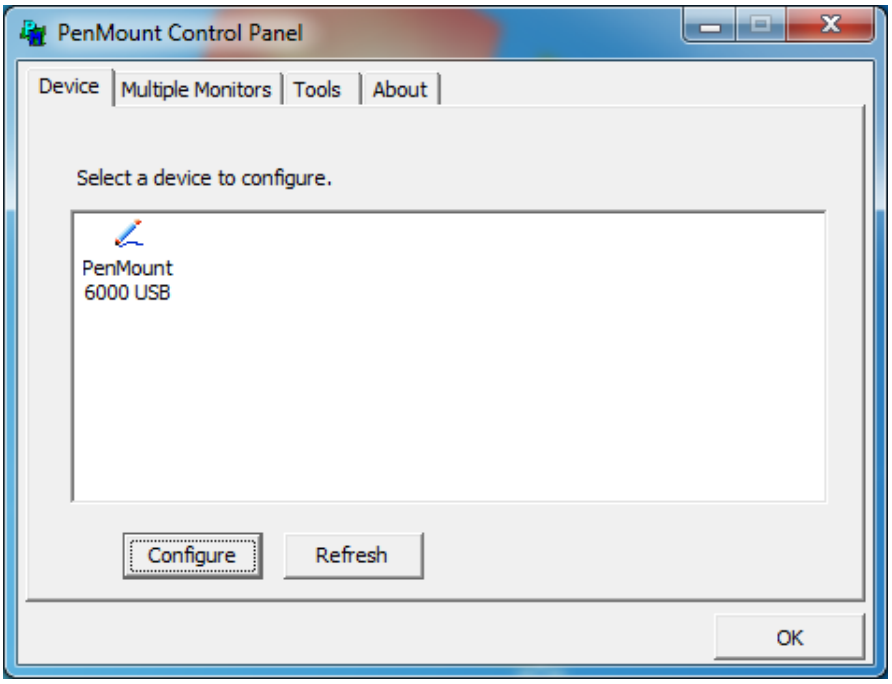
Calibrate

This function offers two ways to calibrate your touch screen. ‘Standard Calibration’ adjusts most touch screens. ‘Advanced Calibration’ adjusts aging touch screens.

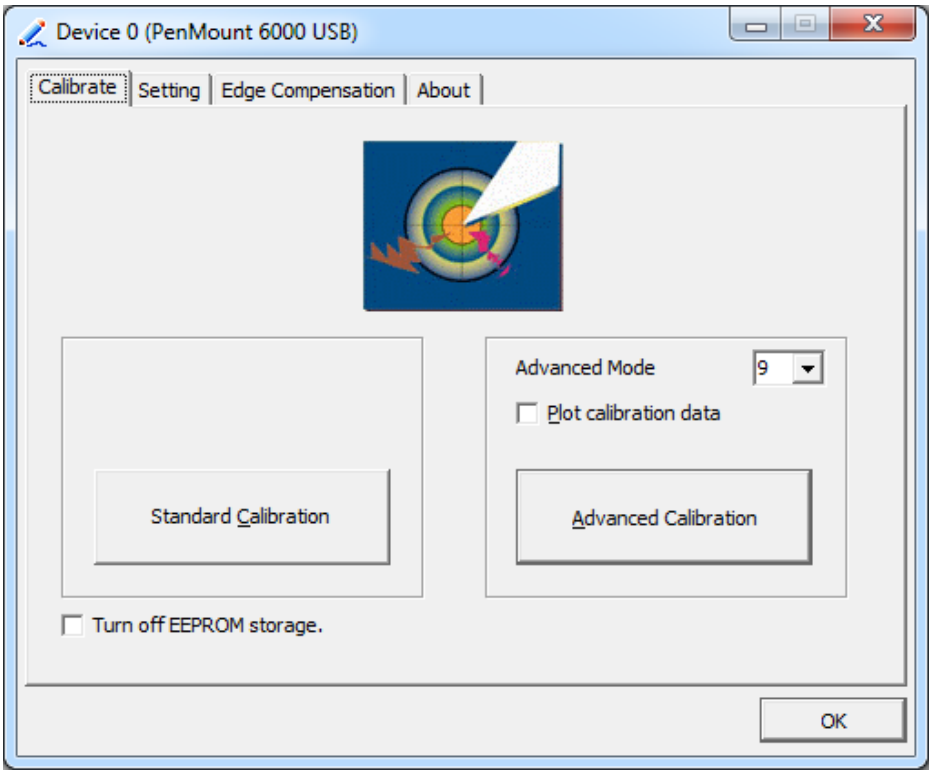
Standard Calibration	**Click this button and arrows appear pointing to red squares. Use your finger or stylus to touch the red squares in sequence. After the fifth red point calibration is complete. To skip, press ‘ESC’.**

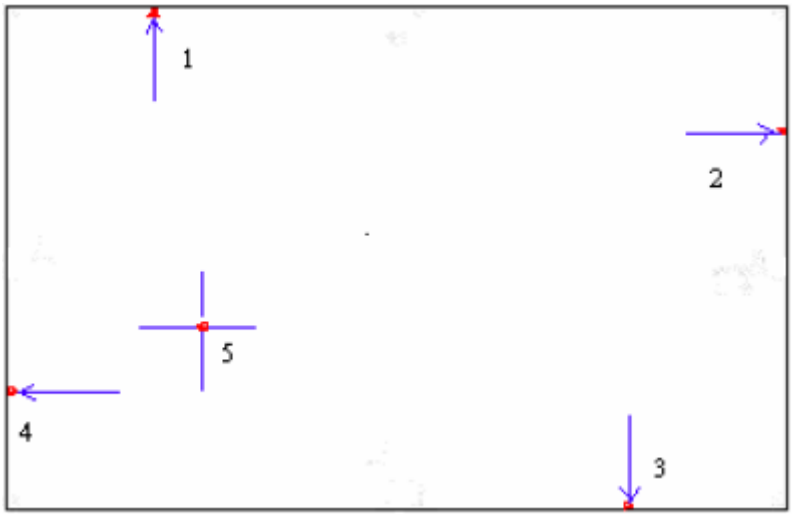
Advanced Calibration	**Advanced Calibration uses 4, 9, 16 or 25 points to effectively calibrate touch panel linearity of aged touch screens. Click this button and touch the red squares in sequence with a stylus. To skip, press ESC'.**

Step 1. Please select a device then click "Configure". You can also double click the device too.



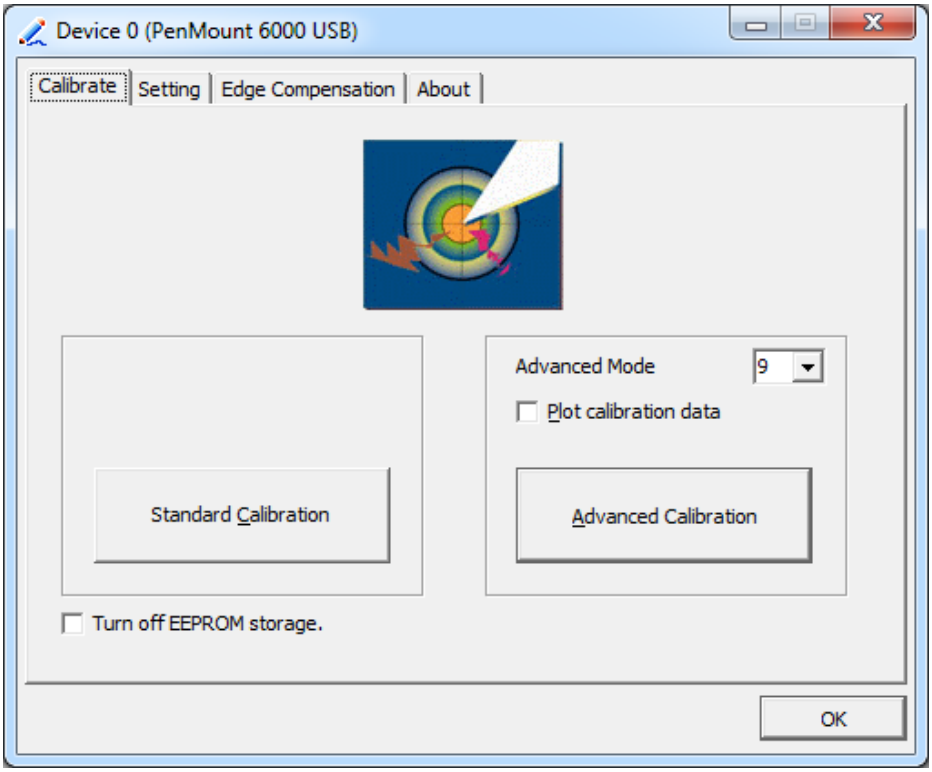
Step 2. Click "**Standard Calibration**" to start calibration procedure.



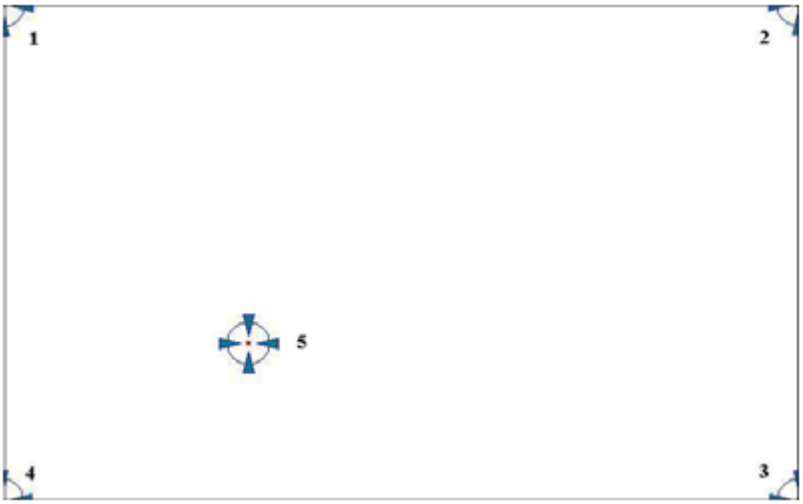


NOTE: The older the touch screen, the more Advanced Mode calibration points you need for an accurate calibration. Use a stylus during Advanced Calibration for greater accuracy. Please follow the step as below:

Step 3. Select **Device** to calibrate, then you can start to do **Advanced Calibration.**

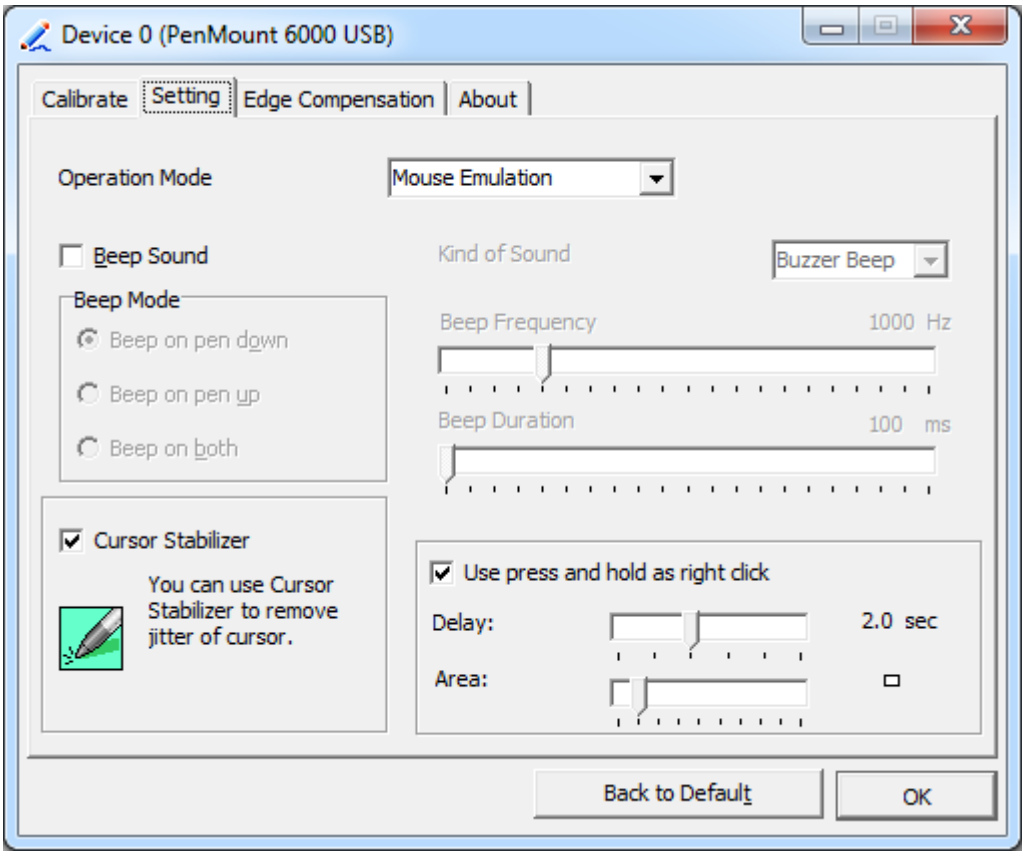


NOTE: Recommend to use a stylus during Advanced Calibration for greater accuracy.



Plot Calibration Data	**Check this function and a touch panel linearity comparison graph appears when you have finished Advanced Calibration. The blue lines show linearity before calibration and black lines show linearity after calibration.**
Turn off EEPROM storage	**The function disable for calibration data to write in Controller. The default setting is Enable.**

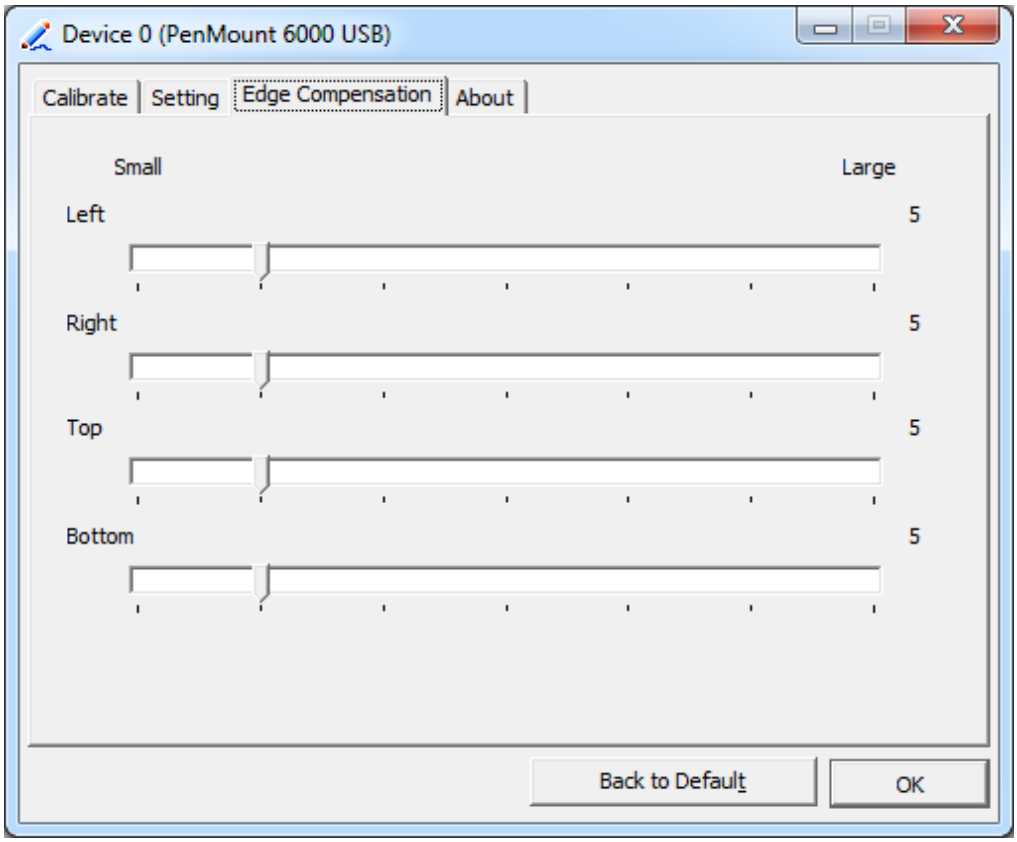
Setting



Touch Mode	**This mode enables and disables the mouse's ability to drag on-screen icons – useful for configuring POS terminals.** **Mouse Emulation – Select this mode and the mouse functions as normal and allows dragging of icons.** **Click on Touch – Select this mode and mouse only provides a click function, and dragging is disables.**
Beep Sound	**Enable Beep Sound – turns beep function on and off** **Beep on Pen Down – beep occurs when pen comes down** **Beep on Pen Up – beep occurs when pen is lifted up** **Beep on both – beep occurs when comes down and lifted up** **Beep Frequency – modifies sound frequency** **Beep Duration – modifies sound duration**
Cursor Stabilizer	**Enable the function support to prevent cursor shake.**
Use press and hold as right click	**You can set the time out and area for you need.**

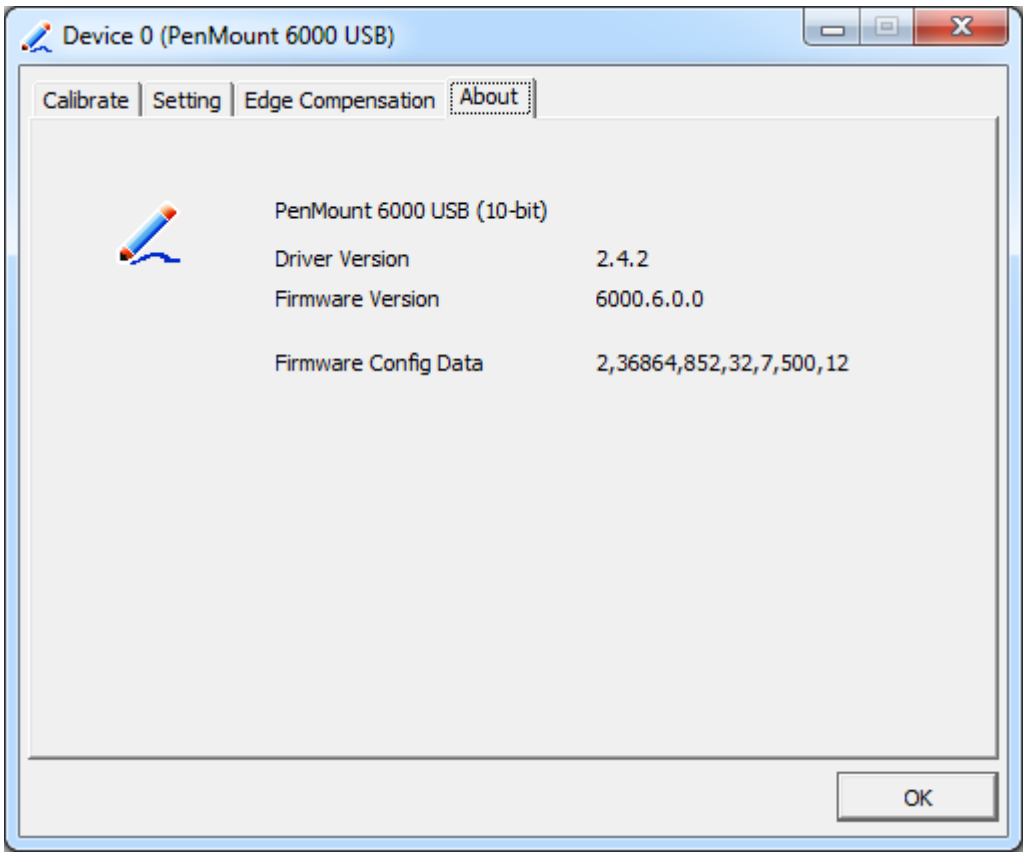
Edge Compensation

You can use Edge Compensation to calibrate more subtly.



About

This panel displays information about the PenMount controller and driver version.



Multiple Monitors

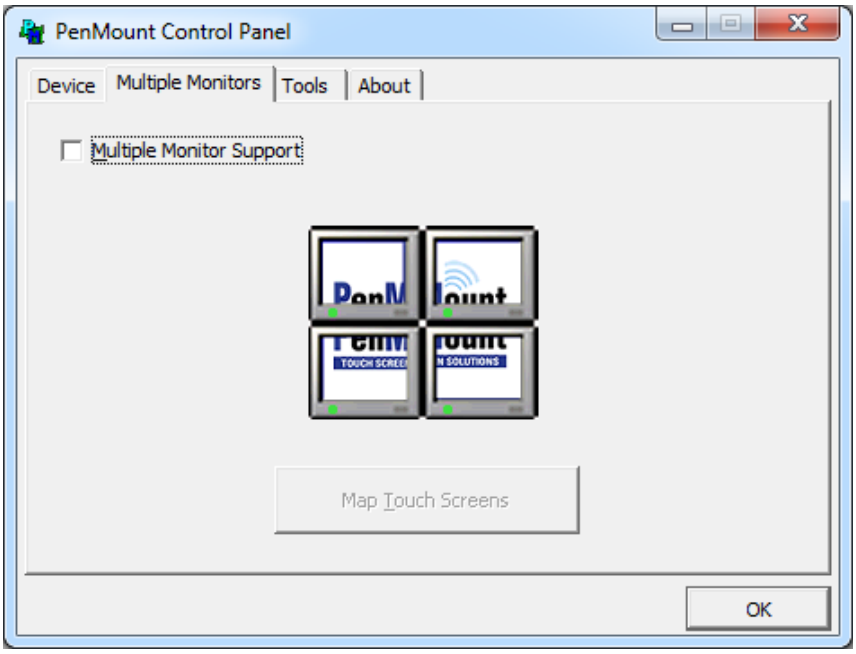
Multiple Monitors support from two to six touch screen displays for one system. The PenMount drivers for Windows 7/8.1/10 support Multiple Monitors. This function supports from two to six touch screen displays for one system. Each monitor requires its own PenMount touch screen control board, either installed inside the display or in a central unit. The PenMount control boards must be connected to the computer COM ports via the USB interface. Driver installation procedures are the same as for a single monitor. Multiple Monitors support the following modes:

Windows Extends Monitor Function
Matrox DualHead Multi-Screen Function
nVidia nView Function

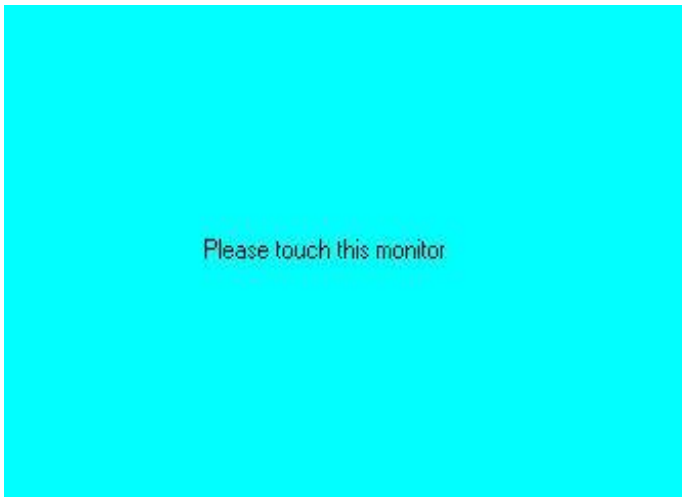
NOTE: The Multiple Monitor function is for use with multiple displays only. Do not use this function if you have only one touch screen display. Please note once you turn on this function the rotating function is disabled.

Enable the multiple display function as follows:

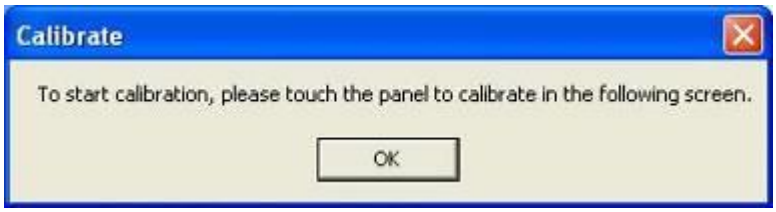
1. Check the **Enable Multiple Monitor Support** box; then click **Map Touch Screens** to assign touch controllers to displays.



2. When the mapping screen message appears, click **OK.**
3. Touch each screen as it displays “Please touch this monitor”. Following this sequence and touching each screen is called **mapping the touch screens.**



4. Touching all screens completes the mapping and the desktop reappears on the monitors.
5. Select a display and execute the “Calibration” function. A message to start calibration appears. Click **OK.**



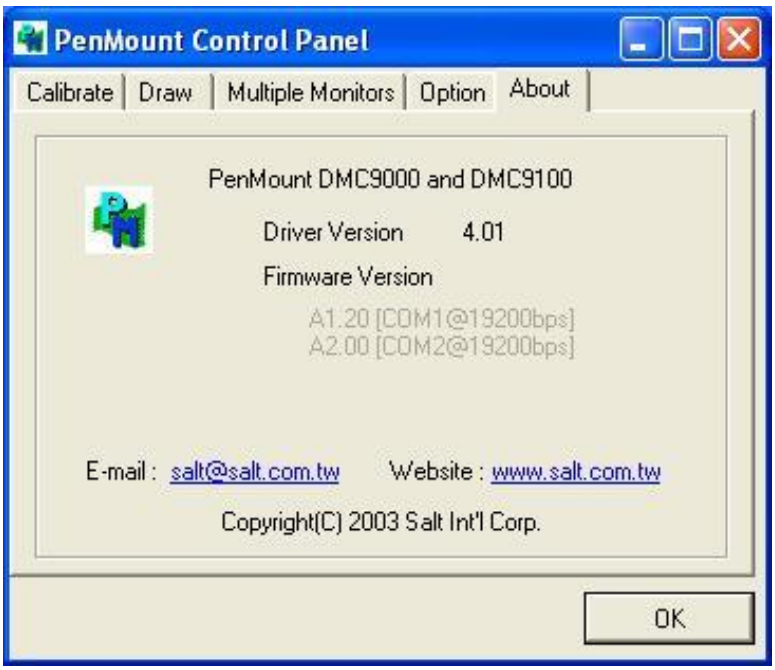
6. "Touch this screen to start its calibration" appears on one of the screens. Touch the screen.
7. "Touch the red square" messages appear. Touch the red squares in sequence.
8. Continue calibration for each monitor by clicking **Standard Calibration** and touching the red squares.

NOTES:

1. If you use a single VGA output for multiple monitors, please do not use the **Multiple Monitor** function. Just follow the regular procedure for calibration on each of your desktop monitors.
2. The Rotating function is disabled if you use the Multiple Monitor function.
3. If you change the resolution of display or screen address, you have to redo **Map Touch Screens,** so the system understands where the displays are.

About

This panel displays information about the PenMount controller and this driver version.



PenMount Monitor Menu Icon

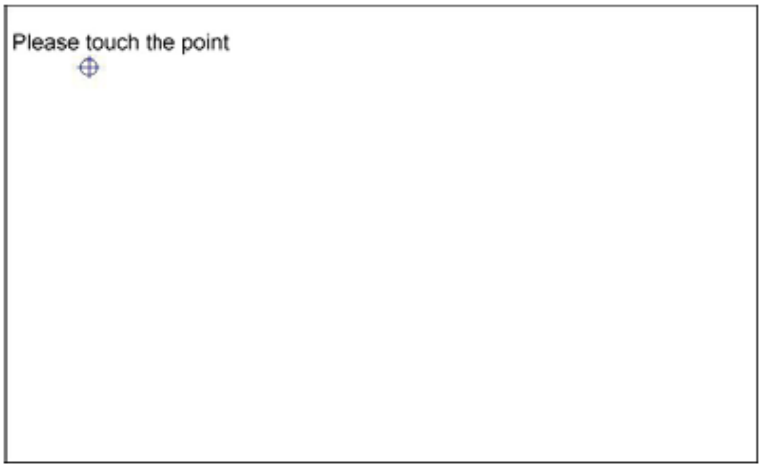
The PenMount monitor icon (PM) appears in the menu bar of Windows 7/8.1/10 system when you turn on PenMount Monitor in PenMount Utilities.

PenMount Monitor has the following function

Control Panel	**Open Control Panel Windows**
Beep	**Setting Beep function for each device**
Right Button	**When you select this function, a mouse icon appears in the right-bottom of the screen.**  **Click this icon to switch between Right and Left Button functions.**
Exit	**Exits the PenMount Monitor function.**

Configuring the Rotate Function

1. Install the rotation software package.
2. Choose the rotate function (0°, 90°, 180°, 270°) in the 3rd party software. The calibration screen appears automatically. Touch this point and rotation is mapped.



NOTE: The Rotate function is disabled if you use Monitor Mapping