APC-3X19A

15”, 17”, and 19” 4th Gen. Intel Core i7/i5/i3 Panel PC

User Manual

Release Date	Revision
Oct. 2015	V1.0

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Revision History

Reversion	Date	Description
1.0	2015/10/06	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.

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.

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- 15”/17”/19” TFT LED Backlight LCD
- 4th Generation Intel Core i7/i5/i3 Panel PC
- Intel Q87
- 2 x DDR3 1066/1333/1600MHz SO-DIMM, up to 16GB System Memory
- Fanless Design
- Support 1 x PCIe x16
- Wide range DC 11~32V Power Input
- IP65 Compliant Front Panel

1.2 Specifications

	APC-3519A	APC-3719A	APC-3919A
System			
Processor	Socket LGA 1150, 4th Gen. intel Core i7/i5/i3 Intel Core i7-4770TE 2.3G 8M (TDP: 45W) Intel Core i5-4570TE 2.7G 4M(TDP: 35W) Intel Core i3-4330TE 2.4G 4M(TDP: 35W)		
System Chipset	Intel Q87		
System Memory	2 x 204-pin DDR3 SO-DIMM, up to 16GB 1066/1333/1600MHz		
Storage	2 x 2.5” SATA HDD Space, Easy Accessible, RAID 0.1		
OS Support	Windows 7 Professional for Embedded Systems Windows 7 Ultimate for Embedded Systems Windows Embedded 8.1 Pro Windows 8.1 Industry pro		
I/O Ports			
USB	4 x USB 3.0 Type A 2 x USB 2.0 Type A by cable (option)		
Serial/Parallel	3 x RS-232/422/485 DB-9, COM1, COM2, and COM3, Default RS-232		
Audio	1 x Mic-in, Line-out		
LAN	2 x GbE LAN RJ-45		
VGA	1 x VGA		
Power	1 x DC Power 3-pin Terminal Block Connector 1 x Rocker Switch for Power on/off		
Others	2 x LED Indication for Power and HDD 1 x 8-pin Terminal Block 3 in/3 out/VCC/GND (option) 1 x CF Slot (option)		

Expansion Slots			
Expansion Slots	1 x PCIe x16 slot 1 x mSATA or 1 x Mini-PCIe slot for WIFI/BT/3G/GPS (option)		
Power			
Power Input	11~32V DC		
Power Consumption	MAX: 45.1W	MAX: 48.5W	MAX: 51.2W
LCD			
Display Type	15” color TFT LCD	17” color TFT LCD	19” color TFT LCD
Max. Resolution	1024 x 768	1280 x 1024	1280 x 1024
Max. Color	16.7M	16.7M	16.7M
Contrast Ratio	800: 1	1000: 1	1000: 1
Luminance (cd/m2)	400	350	350
Viewing Angle	160 (H) / 140 (V)	170 (H) / 160 (V)	170 (H) / 160 (V)
Backlight Lifetime	50,000 hrs	30,000 hrs	50,000 hrs
Touch Screen(option)			
Type	Resistive Touch Screen/Projected Capacitive Touch Screen		
Interface	USB		
Light Transmission	Over 80%(Resistive) Over 90%(Projected Capacitive)		
Mechanical			
Front Bezel	Steel Black or Aluminum with Resistive Touch Aluminum with Projected Capacitive Touch (only Flat Bezel Designed)		
Rear Bezel	Steel Black		
Mounting	Panel Mount/VESA Mount 75 x 75		Panel Mount/VESA Mount 100 x 100
IP Rating	IP65 Compliant Front Panel		
Dimension	410 x 310 x 122.5mm	439 x 348 x 119.1mm	484 x 400 x 119mm
Net Weight	9.5Kg	10.8Kg	12.9Kg
Environmental			
Operating Temperature	0~50 °C		
Storage Temperature	-30~70 °C		
Storage Humidity	10%~90%@ 40℃, non-condensing		
Certificate	Meet CE / FCC Class A		

1.3 Dimentions

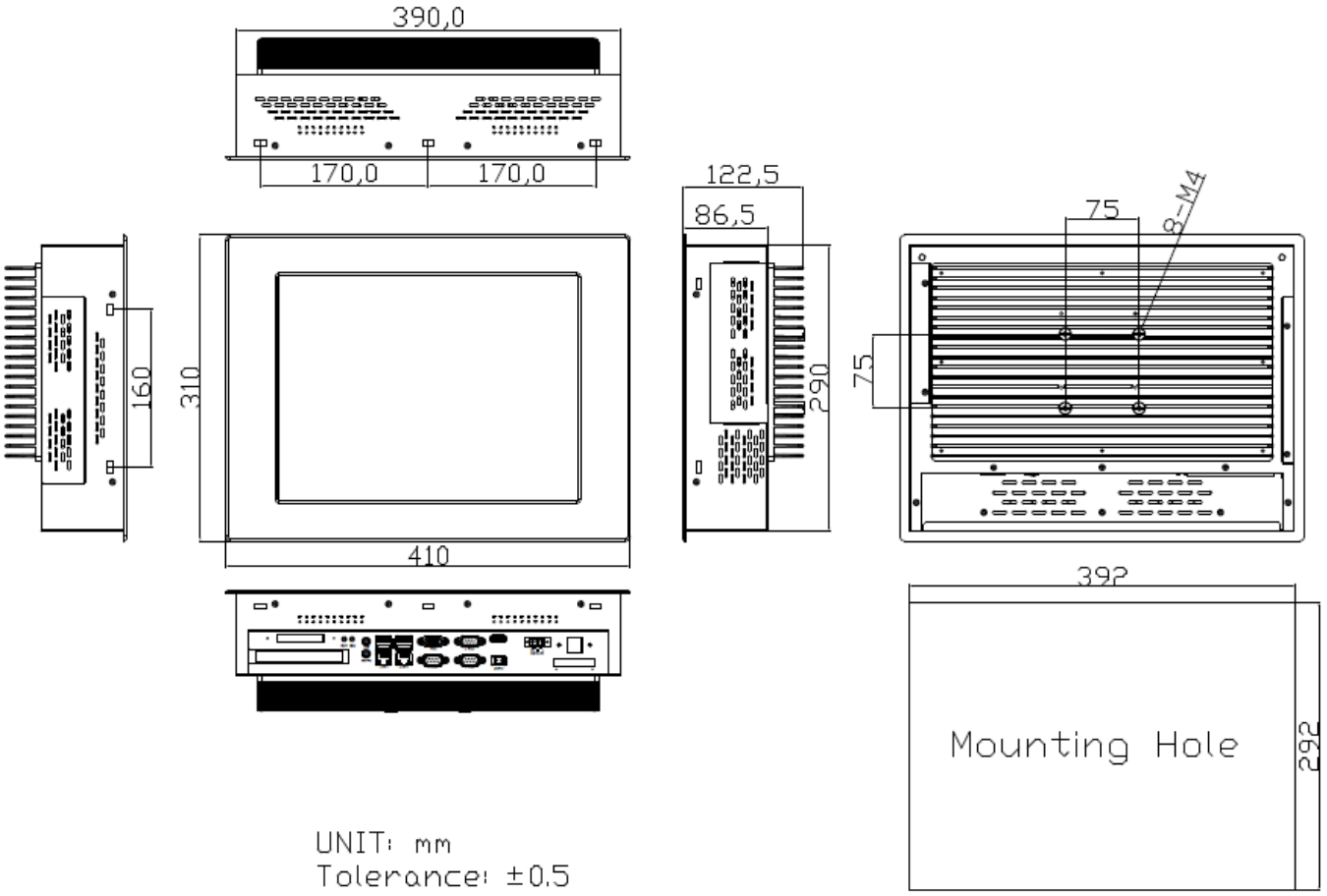


Figure 1.1: Dimensions of APC-3519A

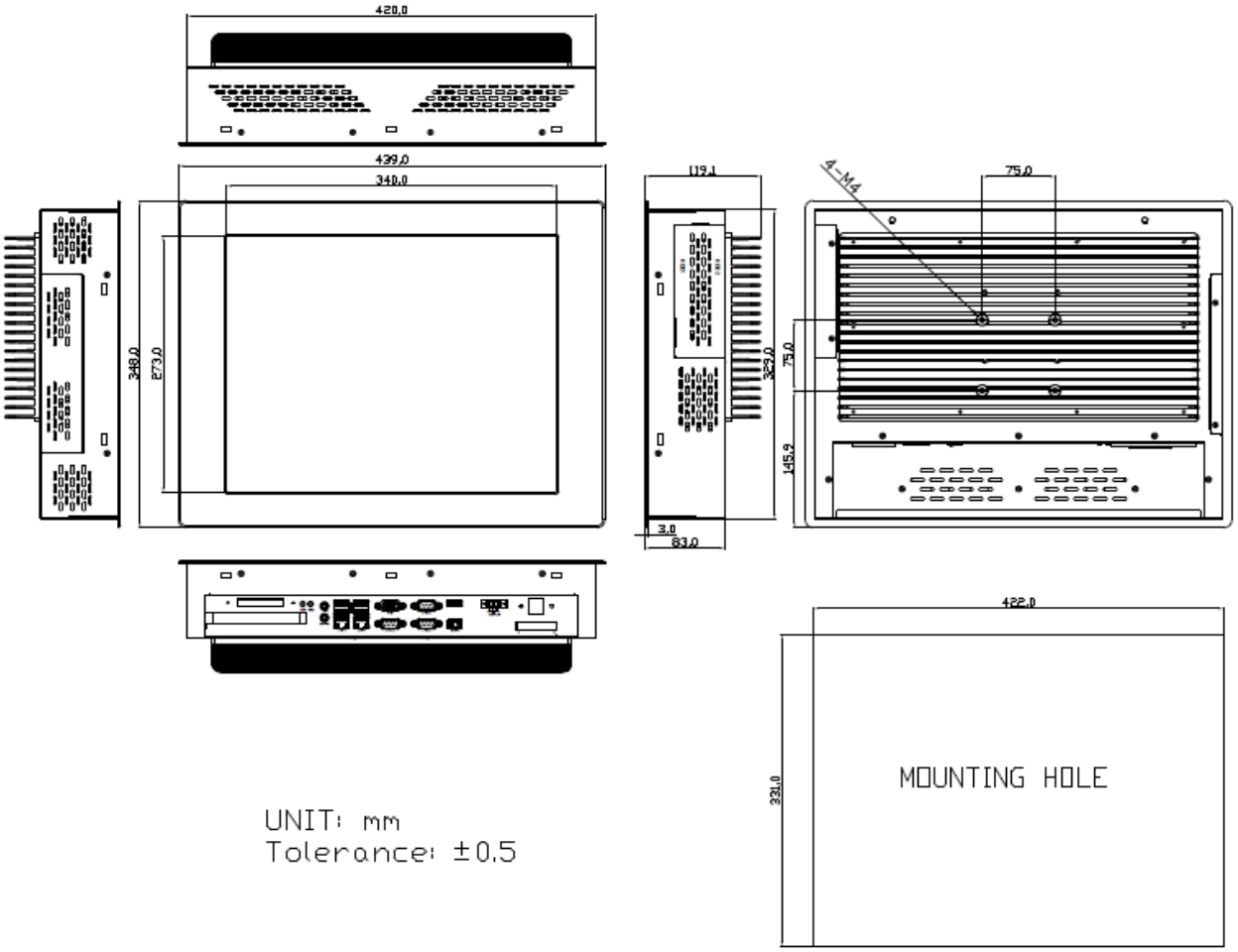


Figure 1.2: Dimensions of APC-3719A

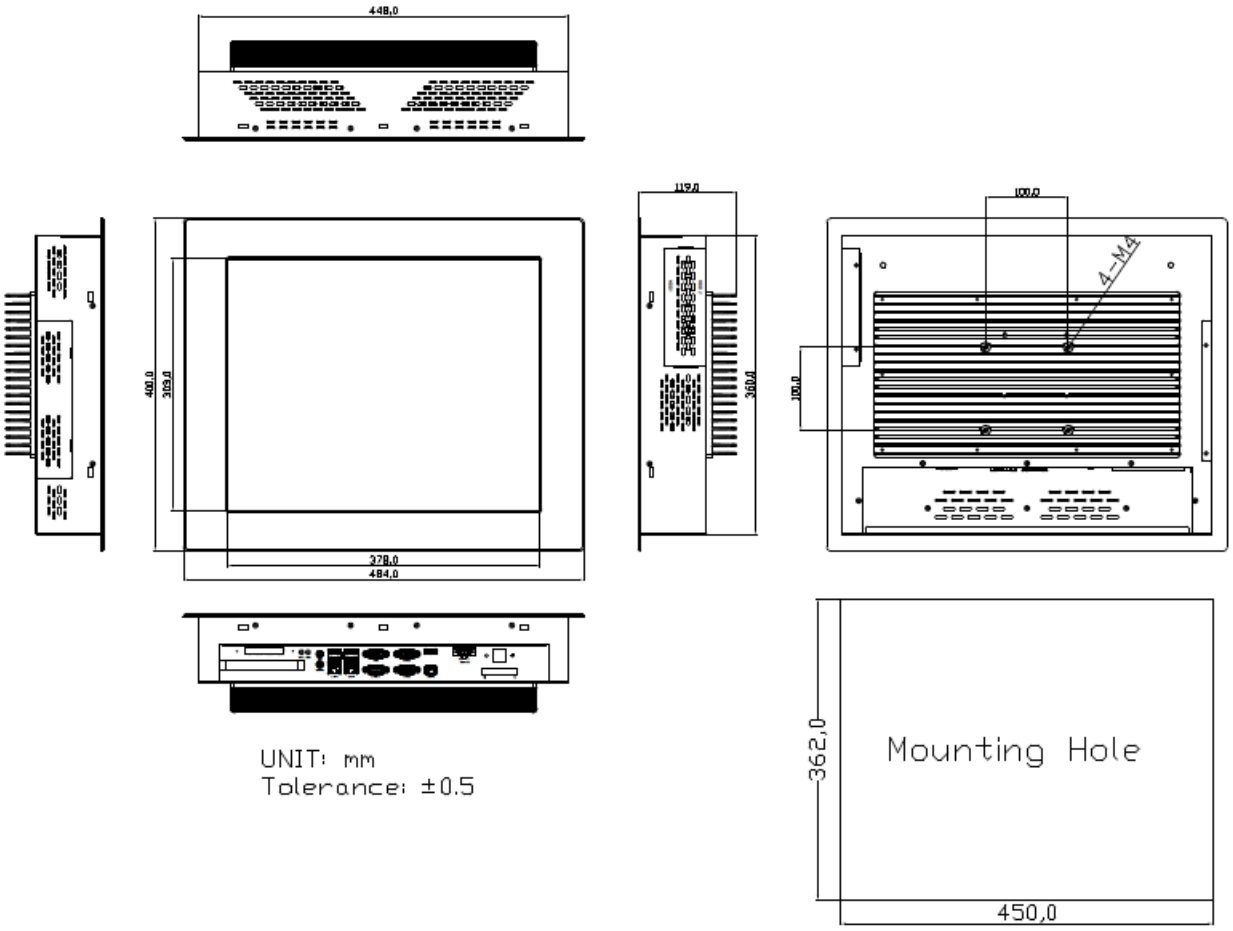


Figure 1.3: Dimensions of APC-3919A

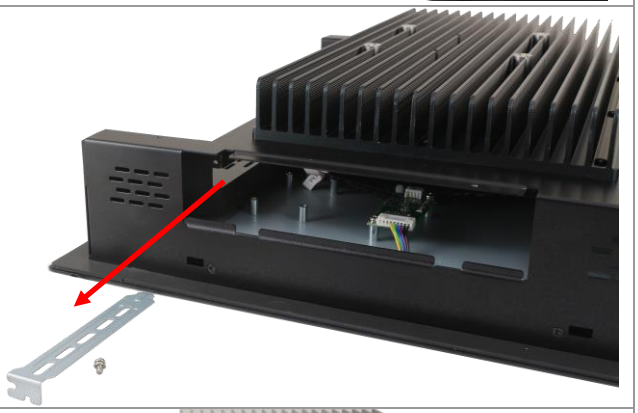
1.4 Brief Description of APC-3X19A

APC-3X19A series come with 15”, 17”, and 19” TFT LED Backlight LCD, IP65 compliant Front bezel, fanless designed, and powered by Intel 4th Generation Core i7/i5/i3 Processor and Intel Q87 Chipset. The model supports 2 x 204-pin DDR3 1066/1333/1600MHz up to 16GB system memory, comes with DC 11~32V wide-ranging power input, 4 x USB 3.0, 2 x USB 2.0 for option, 3 x RS-232 ports, 1 x Mic-in Line-out, 2 x LAN, 1 x VGA, 1 x DC power terminal block connector, 1 x rocker switch, and 2 x LED indication, and supports 1 x PCIe x16. Additionally, 1 x CF slot and 1 x 8-pin terminal block 3 in/3 out/VCC/GND are optional. APC-3X19A is steel black or aluminum with resistive, and it can be aluminum with Projected Capacitive Touch. It can be VESA 75 x 75 mounted for 15” and 17”, and VESA 100 x 100 mounted for 19”. The panel PC has a variety of functions and peripherals. Regarding the storage capability, APC-3X19A provides 2 x 2.5” easy accessible SATA HDD space with RAID 0.1, allowing customers to easily access/backup the data.

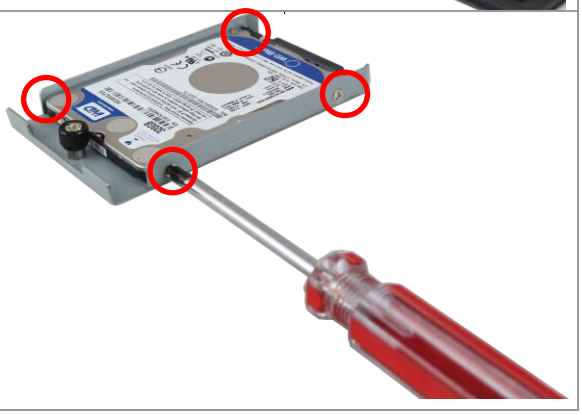
Figure 1.4 Front View of APC-3X19A

Figure 1.5: Rear View of APC-3X19A

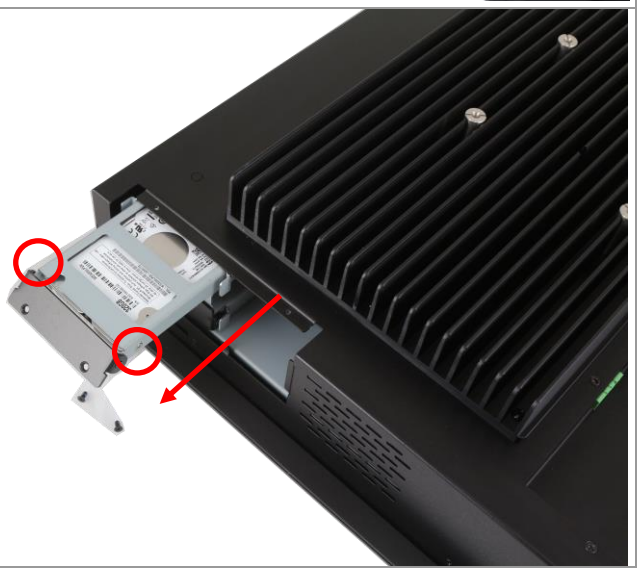
1.5 Installation of Riser Card

Step 1 There are two screws to deal with when enclosing or removing the chassis. Gently remove two screws.	
Step 2 In the picture, it shows there is one screw to deal with. Gently remove the screw.	
Step 3 Pull out the iron sheet.	
Step 4 You can replace the riser card on the iron sheet. Then Put it into the chassis.	
Step 5 This is how it looks after riser card is installed correctly.	

1.6 Installation of HDD/SSD – 15”

Step 1 There are two screws to deal with when enclosing or removing the chassis. Gently remove two screws.	
Step 2 Take off the chassis cover and you will see two HDD bracket. Both of them can be installed HDD/SSD through the same way. Remove the screw by hand. User screwdriver is also acceptable.	
Step 3 Pull the HDD bracket out carefully.	
Step 4 You can replace HDD or SSD by unscrewing the four screws as shown in the picture.	

1.7 Installation of HDD/SSD – 17” and 19”

Step 1 There are two screws to deal with when enclosing or removing the chassis. Gently remove two screws.	
Step 2 Take off the chassis cover and you will see two HDD bracket. Both of them can be installed HDD/SSD through the same way. Unscrew the screws	
Step 3 Pull the bracket out carefully. You can replace HDD or SSD by unscrewing the two screws as shown in the picture.	

1.8 Mounting of APC-3X19A

The APC-3X19A panel PC is designed to be panel-mounted as shown in Figure 1.6 just carefully place the unit through the hole and tighten the given screws from the rear to secure the mounting. And it also can be wall mounted as shown in the figure.

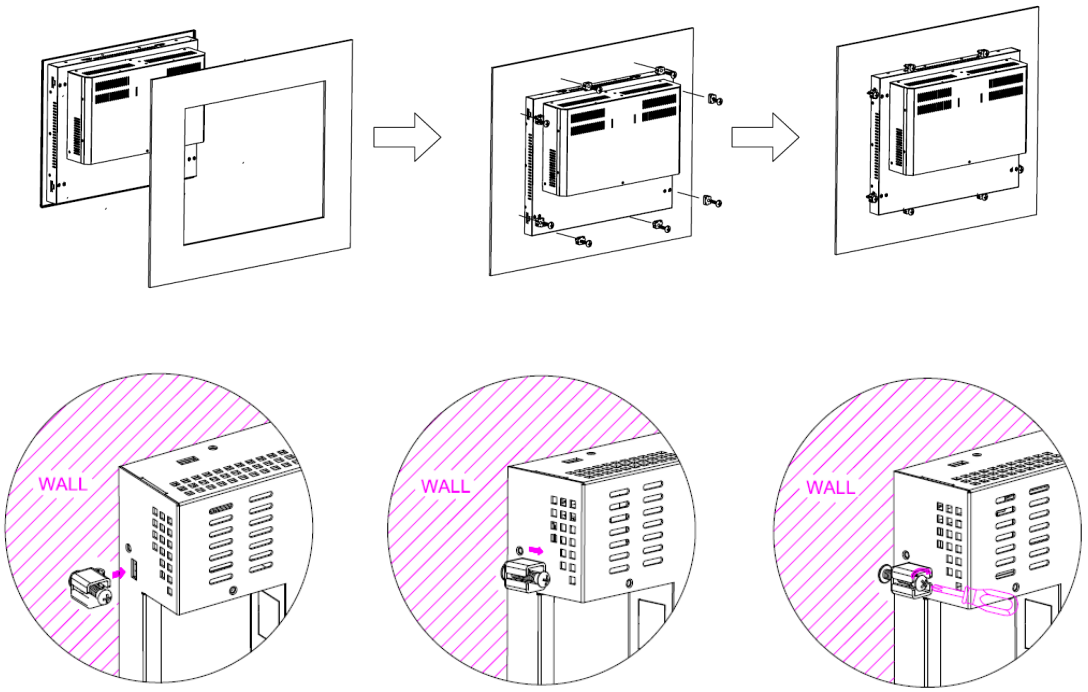


Figure 1.6: Panel Mounting and Wall Mounting of APC-3x19A

Chapter 2 Motherboard

2.1 Motherboard IMB-181-L Specifications

Form Factor	Dimensions	Mini-ITX(6.7-in x 6.7-in)
Processor System	CPU	Socket LGA1150 for Intel® Core i7/i5/i3/Celeron (Haswell)
	Core Number	(By CPU, Max 4)
	Max Speed	(By CPU)
	L3 Cache	(By CPU)
	Chipset	Q87
	BIOS	UEFI
Expansion Slot	PCI	0
	Mini-PCI3	1 (full size) shared with m-SATA
	mSATA	1 (shared with mini-PCIe)
	PCIe	1 (x16)
	CFast Card Socket	0
Memory	Technology	Dual Channel DDR3 1066/1333/1600 MHz SDRAM
	Max.	16GB
	Socket	2 x SO-DIMM
Graphics	Controller	Intel® HD Graphics (By CPU)
	VRAM	Shared Memory
	VGA	Supports max resolution 2048 x 1536
	LVDS	Yes
	HDMI	Supports HDMI 1.4a, max resolution 1920 x 1200
	DVI	No
	Display Port	No
	Multi Display	Yes (Three Display)
Ethernet	Ethernet	10/100/1000 Mbps
	Controller	GbE LAN1: Intel® I210, LAN2: Intel® I217LM (with v-Pro support)
	Connector	2 x RJ-45
SATA	Max Data Transfer Rate	SATA2 (3.0Gb/S), SATA3 (6.0Gb/S), Supports RAID 0/1/5/10
Rear I/O	VGA	1
	DVI	0
	HDMI	1
	Display Port	0
	Ethernet	2

	USB	4 x USB 3.0 compliant
	Audio	2 (Mic-in, Line-Out)
	Serial	3 (RS-232/422/485)
	PS/2	0
Internal Connector	USB	8 (4 x USB Header 2.54mm pitch)
	LVDS/Inverter	24 bit dual channel LVDS
	VGA	0
	Serial	4 (RS-232)
	SATA	4 x SATA3 (6.0Gb/s), Support RAID 0/1/5/10
	mPCIe	1 (shared)
	Parallel	0
	mSATA	1 (shared)
	IrDA	0
	GPIO 8-bit	4 x GPI + 4 x GPO
	SATA PWR Output Con	0
	Speaker Header	1
Watchdog Timer	Output	Output from super I/O to drag RESETCON#
	Interval	256 Segments, 0, 1, 2, ……255 Sec/Min
Power Requirements	Input PWR	ATX PWR (4 + 24)
	Power On	AT/ATX Supported -AT: Directly PWR on as power input ready -ATX: Press button to PWR on after power input ready
Environment	Temperature	0~60 °C

2.2 Motherboard Layout

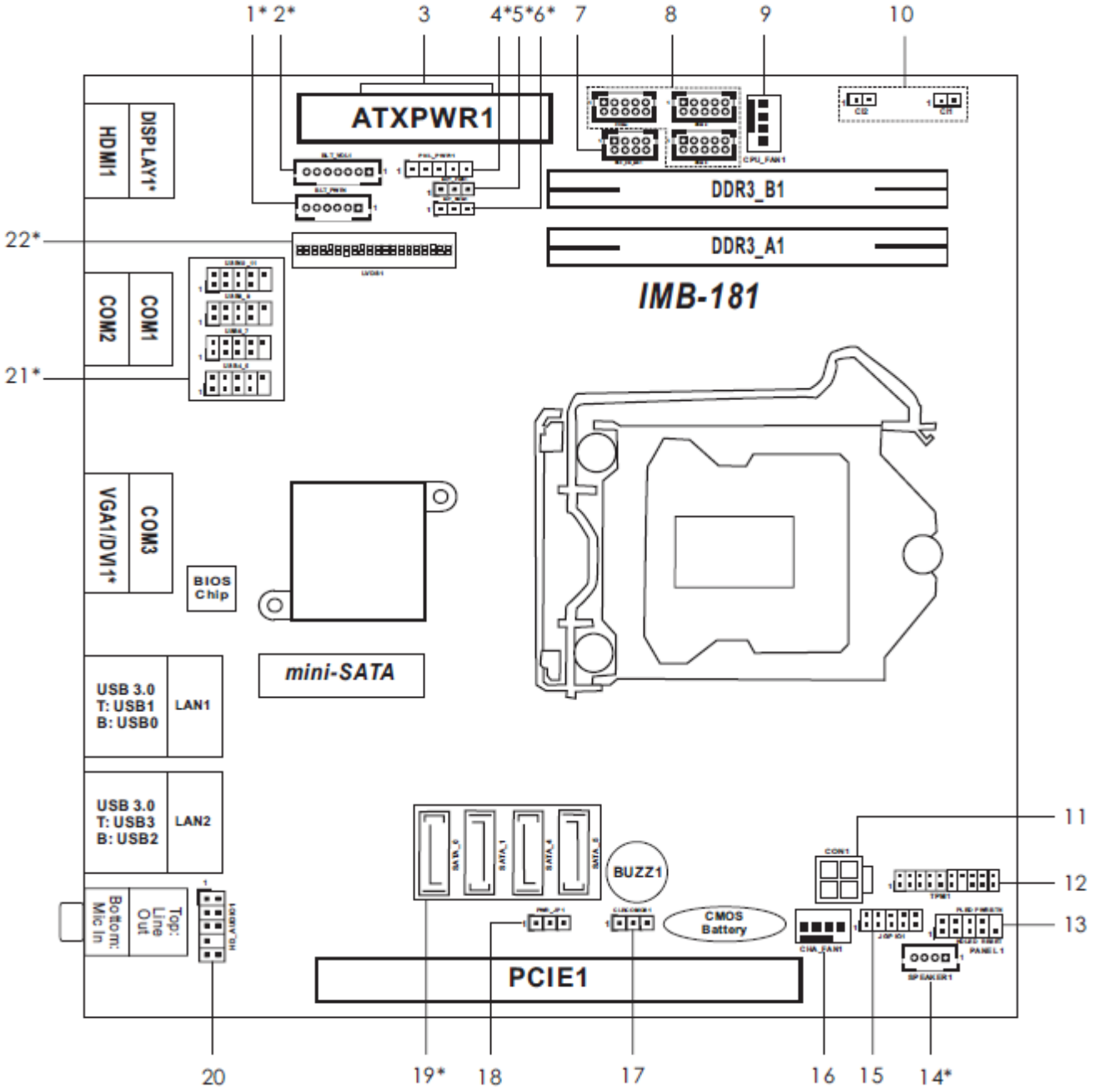


Figure 1.11: Motherboard IMB-181-L Layout

1*: Backlight Power Connector

2*: Backlight Volume Control

3 : 24-pin ATX Power Input Connector

4*: PNL_PWR1

5*: Backlight Power Selection

6*: BLT_PWM1

7 : PS2_KB_MS1

8 : RS-232 Port 4 Pint Headers

9 : 4-Pin Chassis FAN Connector (+12V)

10: Chassis Intrusion Headers

11: 4-pin ATX Power Input Connector

12: TPM Header

13: System Panel Header

14*: 3W Audio AMP Output Wafer

15: Digital Input/Output Pin Header

16: 4-Pin Chassis FAN Connector (+12V)

17: Clear CMOS Header

18: ATX/AT Mode Jumper

19*: SATA3 Connectors (SATA_0, SATA_1, SATA_4, SATA_5)

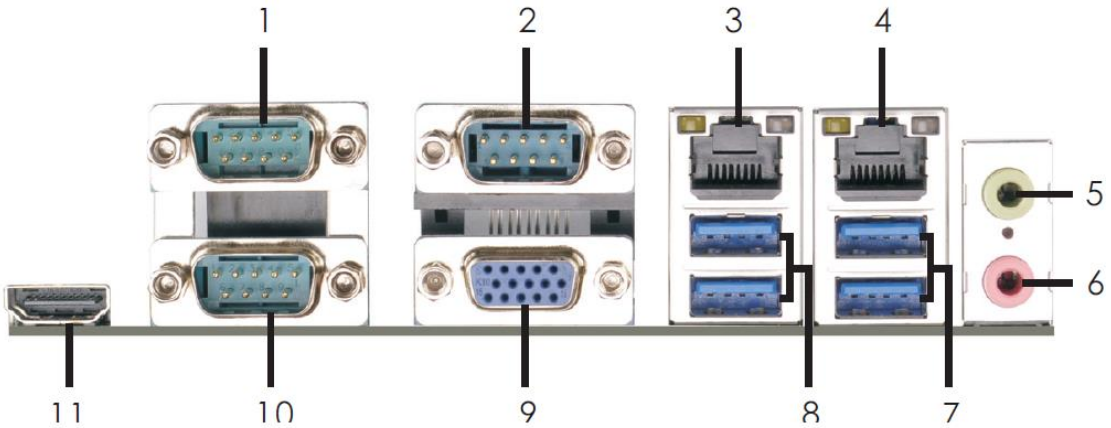
(SATA_5 (orange) is shared with mini-PCIe/mini-SATA slot)

20: Front Panel Audio Header

21*: USB 2.0 Connectors

22*: LVDS Panel Connector

2.3 I/O Panel



1. **COM Port (COM1)**
2. **COM Port (COM3)**
3. **LAN RJ-45 Port (LAN1)**
4. **LAN RJ-45 Port (LAN2)**
5. **Line out (Lime)**
6. **Microphone (Pink)**
7. **USB 3.0 Ports (USB_23)**
8. **USB 3.0 Ports (USB_01)**
9. **VGA Port (VGA1)**
10. **COM Port (COM2)**
11. **HDMI Port (HDMI1)**

*There are two LED next to the LAN port. Please refer to the table below for the LAN port LED indications.

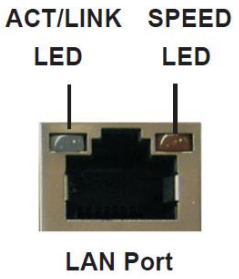
LAN Port LED Indications

Activity/Link LED

Status	Description
Off	No Link
Blinking	Data Activity
On	Link

SPEED LED

Status	Description
Off	10Mbps connection
Orange	100Mbps connection
Green	1Gbps Connection



2.4 Installation

This is a Mini-ITX form factor (6.7" x 6.7", 17.0 x 17.0 cm) motherboard. Before you install the motherboard, study the configuration of your chassis to ensure that the motherboard fits into it.

Make sure to unplug the power cord before installing or removing the motherboard. Failure to do so may cause physical injuries to you and damages to motherboard components.

2.4.1 Screw Holes

Place screws into the holes to secure the motherboard to the chassis.

Do not over-tighten the screws! Doing so may damage the motherboard.

2.4.2 Pre-installation precautions

Take note of the following precautions before you install motherboard components or change any motherboard settings.

1. Unplug the power cord from the wall socket before touching any component.
2. To avoid damaging the motherboard components due to static electricity, NEVER place your motherboard directly on the carpet or the like. Also remember to use a grounded wrist strap or touch a safety grounded object before you handle components.
3. Hold components by the edges and do not touch the ICs.
4. Whenever you uninstall any component, place it on a grounded antistatic pad or in the bag that comes with the component.

Before you install or remove any component, ensure that the power is switched off or the power cord is detached from the power supply.
Failure to do so may cause severe damage to the motherboard, peripherals, and/or components.

2.4.3 Installation of Memory Modules (SO-DIMM)

This motherboard provides two 204-pin DDR3 (Double Data Rate 3) SO-DIMM slots.

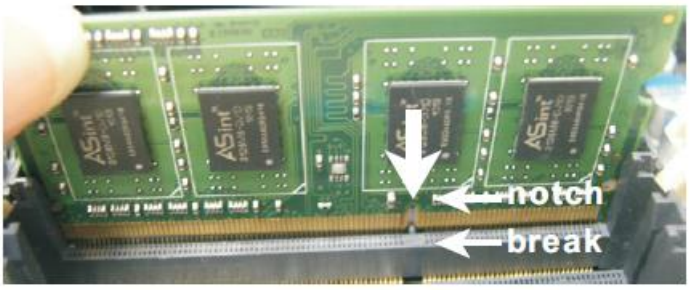
It is not allowed to install a DDR or DDR2 memory module into DDR3 slot; otherwise, this motherboard and SO-DIMM may be damaged.

Installing a SO-DIMM

Please make sure to disconnect power supply before adding or removing SO-DIMMs or the system components.

Step 1. Unlock a SO-DIMM slot by pressing the retaining clips outward.

Step 2. Align a SO-DIMM on the slot such that the notch on the SO-DIMM matches the break on the slot.



The SO-DIMM only fits in one correct orientation. It will cause permanent damage to the motherboard and the SO-DIMM if you force the SO-DIMM into the slot at incorrect orientation.

Step 3. Firmly insert the SO-DIMM into the slot until the retaining clips at both ends fully snap back in place and the SO-DIMM is properly seated.

2.4.4 Expansion Slots (PCI Express and mini-PCIe/mini-SATA Slots)

There is 1 PCI Express slot and 1 mini-PCIe/mini-SATA slot on this motherboard.

PCIE slots:

PCIE1 (PCIE x16 slot, Blue) is used for PCI Express x16 lane width graphics cards.

MINI_PCIE1 (mini-PCIe/mini-SATA slot) is used for PCI Express mini cards or mSATA cards.

Installing an expansion card

Step 1. Before installing the expansion card, please make sure that the power supply is switched off or the power cord is unplugged. Please read the documentation of the expansion card and make necessary hardware settings for the card before you start the installation.

Step 2. Remove the system unit cover (if your motherboard is already installed in a chassis).

Step 3. Remove the bracket facing the slot that you intend to use. Keep the screws for later use.

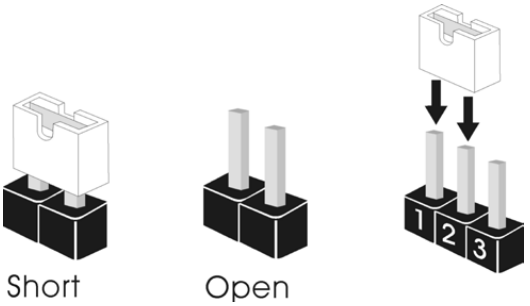
Step 4. Align the card connector with the slot and press firmly until the card is completely seated on the slot.

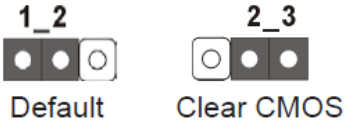
Step 5. Fasten the card to the chassis with screws.

Step 6. Replace the system cover.

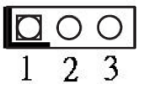
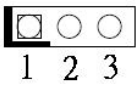
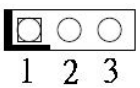
2.5 Jumpers Setup

The illustration shows how jumpers are setup. When the jumper cap is placed on pins, the jumper is “Short”. If no jumper cap is placed on pins, the jumper is “Open”. The illustration shows a 3-pin jumper whose pin1 and pin2 are “Short” when jumper cap is placed on these 2 pins.



Jumper	Setting	Description
Clear CMOS Jumper (3-pin CLRCMOS1) (see p.12, No. 17)		

Note: CLRCMOS1 allows you to clear the data in CMOS. To clear and reset the system parameters to default setup, please turn off the computer and unplug the power cord from the power supply. After waiting for 15 seconds, use a jumper cap to short pin2 and pin3 on CLRCMOS1 for 5 seconds. However, please do not clear the CMOS right after you update the BIOS. If you need to clear the CMOS when you just finish updating the BIOS, you must boot up the system first, and then shut it down before you do the clear-CMOS action. Please be noted that the password, date, time, user default profile and MAC address will be cleared only if the CMOS battery is removed.

Panel Power Selection (5-pin PNL_PWR1) (see p.12, No. 4)		1-2: LVDD: +3V 2-3: LVDD: +5V 4-5: LVDD: +12V
Backlight Power Selection (3-pin BKT _PWR1) (see p.12, No. 5)		1-2: +5V 2-3: +12V
ATX/AT Mode Selection (3-pin PWR_JP1) (see p.12, No. 18)		1-2: AT Mode 2-3: ATX Mode
BLT_PWM1 (3-pin BLT_PWM1) (see p.12, No. 6)		1-2: +3V Level 2-3: +5V Level

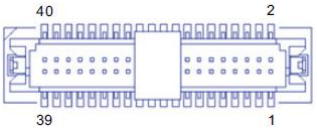
2.6 Onboard Header and Connectors

Onboard headers and connectors are NOT jumpers. Do NOT place jumper caps over these headers and connectors. Placing jumper caps over the headers and connectors will cause permanent damage of the motherboard!

LVDS Panel Connector

(40-pin LVDS1)

(see p.12, No. 22)



PIN	Signal Name	PIN	Signal Name
1	LVDD	2	LVDD
3	+3V	4	N/A
5	N/A	6	LVDS_A_DATA0#
7	LVDS_A_DATA0	8	GND1
9	LVDS_A_DATA1#	10	LVDS_A_DATA1
11	GND6	12	LVDS_A_DATA2#
13	LVDS_A_DATA2	14	GND2
15	LVDS_A_DATA3#	16	LVDS_A_DATA3
17	GND7	18	LVDS_A_CLK#
19	LVDS_A_CLK	20	GND3
21	LVDS_B_DATA0#	22	LVDS_B_DATA0
23	GND8	24	LVDS_B_DATA1#
25	LVDS_B_DATA1	26	GND4
27	LVDS_B_DATA2#	28	LVDS_B_DATA2
29	DPLVDD_EN	30	LVDS_B_DATA3#
31	LVDS_B_DATA3	32	GND5
33	LVDS_B_CLK#	34	LVDS_B_CLK
35	GND9	36	CON_LBKLT_EN_R
37	CON_LBKLT_CTR_R	38	LCD_BLT_VCC
39	LCD_BLT_VCC	40	LCD_BLT_VCC

Backlight Power Connector

(6-pin BLT_PWR1)

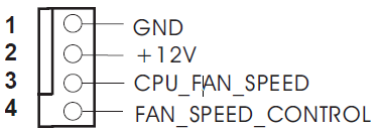
(see p.12, No. 1)

PIN	Signal Name
1	GND
2	GND
3	BL EN
4	BL CTL
5	LCD_BLT_VCC
6	LCD_BLT_VCC

Backlight Volume Control
(7-pin BLT_VOL1)
(see p.12, No. 2)

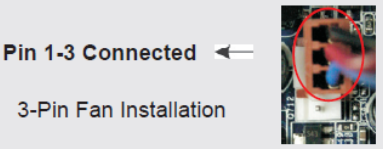
PIN	Signal Name
1	GPIO_VOL_UP
2	GPIO_VOL_DW
3	PWRDN
4	LVDS1 BLUP
5	LVDS1 BLDW
6	GND
7	GND

CPU Fan Connector
(4-pin CPU_FAN1)
(see p.12, No. 9)



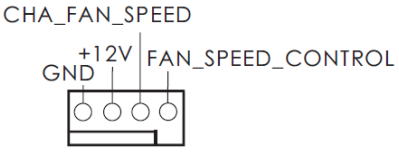
Please connect the CPU fan cable to the connector and match the black wire to the ground pin.

Though this motherboard provides 4-Pin CPU fan (Quiet Fan) support, the 3-Pin CPU fan still can work successfully even without the fan speed control function. If you plan to connect the 3-Pin CPU fan to the CPU fan connector on this motherboard, please connect it to Pin 1-3.



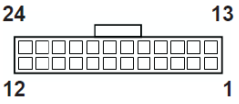
3-Pin Fan Installation

Chassis Fan Connector
(4-pin CHA_FAN1)
(see p.12, No. 16)



Please connect the fan cable to the fan connector and match the black wire to the ground pin.

ATX Power Input Connector
(24-pin ATXPWR1)
(see p.12. No. 3)

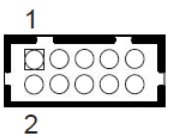


Please connect an ATX power supply to this connector.

Though this motherboard provides 24-pin ATX power connector, it can still work if you adopt a traditional 20-pin ATX power supply. To use the 20-pin ATX power supply, please plug your power supply along with Pin 1 and Pin 13.

20-Pin ATX Power Supply Installation

8: COM4, 5, 6 Headers (RS232)
(9-pin COM4/COM5/COM6: see p.12, No. 8)

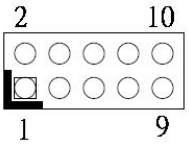


PIN	Signal Name	PIN	Signal Name
2	RRXD1	1	DDCD#1
4	DDTR#1	3	TTXD1
6	DDSR#1	5	GND
8	CCTS#1	7	RRTS#1
10	NC	9	COM PWR

Digital Input/Output Pin Header

(10-pin JGPIO1)

(see p.12, No. 15)

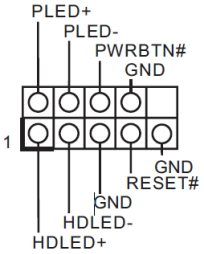


PIN	Signal Name	PIN	Signal Name
1	SIO_GP24	2	SIO_GP20
3	SIO_GP25	4	SIO_GP21
5	SIO_GP26	6	SIO_GP22
7	SIO_GP27	8	SIO_GP23
9	JGPIO_PWR1	10	GND

System Panel Header

(9-pin PANEL1)

(see p.12, No. 13)



This header accommodates several system front panel functions.

Connect the power switch, reset switch and system status indicator on the chassis to this header according to the pin assignments below. Note the positive and negative pins before connecting the cables.

PWRBTN (Power Switch):
Connect to the power switch on the chassis front panel. You may configure the way to turn off your system using the power switch.

RESET (Reset Switch):
Connect to the reset switch on the chassis front panel. Press the reset switch to restart the computer if the computer freezes and fails to perform a normal restart.

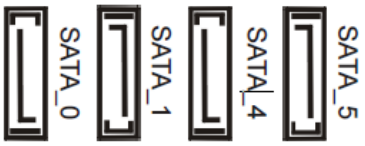
PLED (System Power LED):
Connect to the power status indicator on the chassis front panel. The LED is on when the system is operating. The LED keeps blinking when the system is in S1/S3 sleep state. The LED is off when the system is in S4 sleep state or powered off (S5).

HDLED (Hard Drive Activity LED):
Connect to the hard drive activity LED on the chassis front panel. The LED is on when the hard drive is reading or writing data.

The front panel design may differ by chassis. A front panel module mainly consists of power switch, reset switch, power LED, hard drive activity LED, speaker and etc. When connecting your chassis front panel module to this header, make sure the wire assignments and the pin assign-ments are matched correctly.

SATA3 Connectors

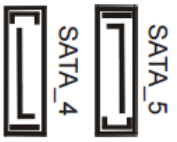
(SATA_0/SATA_1/SATA_4/SATA_5: see p.12, No. 19)



These four Serial ATA3 (SATA3) connectors support SATA data cables for internal storage devices. The current SATA3 interface allows up to 6.0 Gb/s data transfer rate. (SATA_5 (orange) is shared with mini-PCIe/mini-SATA slot.)

SATA2 Connectors

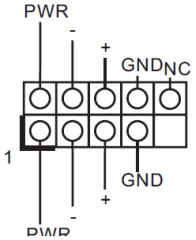
(SATA_4/SATA_5: see p.12, No. 19)



These two Serial ATA2 (SATA2) connectors support SATA data cables for internal storage devices. The current SATA2 interface allows up to 3.0 Gb/s data transfer rate. (SATA_5 (orange) is shared with mini-SATA slot.)

USB 2.0 Headers

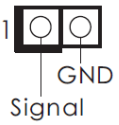
(9-pin USB4_5/USB6_7/USB8_9/USB10_11: see p.12, No. 21)



There are four USB 2.0 headers on this motherboard. Each USB 2.0 header can support two USB 2.0 ports.

Chassis Intrusion Headers

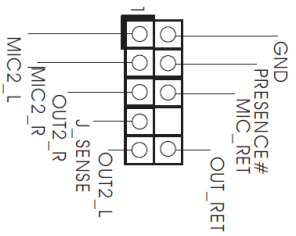
(2-pin CI1/CI2: see p.12, No. 10)



This motherboard supports CASE OPEN detection feature that detects if the chassis cover has been removed. This feature requires a chassis with chassis intrusion detection design.

CI1:
Close: Active case open
Open: Normal
CI2:
Close: Normal
Open: Active case open

Front Panel Audio Header
(9-pin HD_AUDIO1)
(see p.12 No. 20)



This is an interface for front panel audio cable that allows convenient connection and control of audio devices.

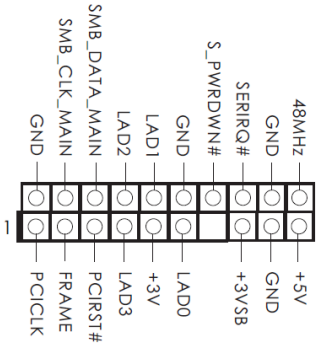
3W Audio Amp Output Wafer
(4-pin SPEAKER1)
(see p.12, No. 14)

PIN	Signal Name
1	SPK L-
2	SPK L+
3	SPK R+
4	SPK R-

ATX 12V Power Input Connector
(4-pin ATX12V1)
(see p.12, No. 11)

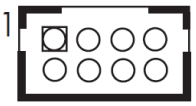
Please connect an ATX 12V power supply to this connector.

TPM Header
(19-pin TPM1)
(see p.12, No. 12)



This connector supports a Trusted Platform Module (TPM) system, which can securely store keys, digital certificates, passwords, and data. A TPM system also helps enhance network security, projects digital identities, and ensures platform integrity.

PS2_KB_MS1
(8-pin PS2_KB_MS1)
(see p.12, No. 7)



PIN	Signal Name
1	KBCLK
2	+5V
3	KBDATQA
4	+5V
5	MSDATA
6	GND
7	MSCLK
8	GND

Chapter 3 UEFI SETUP UTILITY

3.1 Introduction

This section explains how to use the UEFI SETUP UTILITY to configure your system. The UEFI chip on the motherboard stores the UEFI SETUP UTILITY. You may run the UEFI SETUP UTILITY when you start up the computer. Please press <F2> or <Del> during the Power-On-Self-Test (POST) to enter the UEFI SETUP UTILITY, otherwise, POST will continue with its test routines.

If you wish to enter the UEFI SETUP UTILITY after POST, restart the system by pressing <Ctl> + <Alt> + <Delete>, or by pressing the reset button on the system chassis. You may also restart by turning the system off and then back on.

Because the UEFI software is constantly being updated, the following UEFI setup screens and descriptions are for reference purpose only, and they may not exactly match what you see on your screen.

3.1.1 UEFI Menu Bars

The top of the screen has a menu bar with the following selections:

Main	To set up the system time/date information
Advanced	To set up the advanced UEFI features
H/W Monitor	To display current hardware status
Boot	To set up the default system device to locate and load the Operating System
Security	To set up the security features
Exit	To exit the current screen or the UEFI SETUP UTILITY

Use <←> key or <→> key to choose among the selections on the menu bar, and then press <Enter> to get into the sub screen. You can also use the mouse to click your required item.

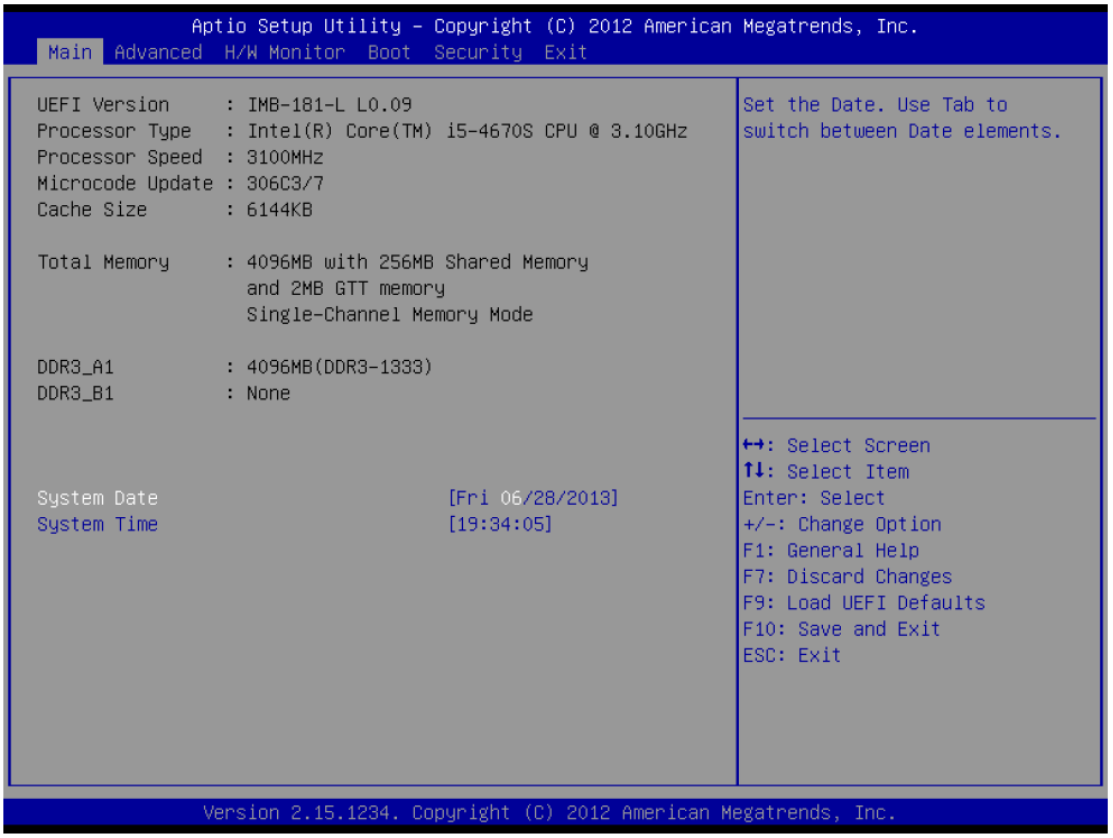
3.1.2 Navigation Keys

Please check the following table for the function description of each navigation key.

Navigation key(s)	Function Description
←/→	Moves cursor left or right to select Screen
↑ / ↓	Moves cursor up or down to select items
+ / -	To change option for the selected items
<Enter>	To bring up the selected screen
<F1>	To display the General Help Screen
<F7>	Discard changes
<F9>	To load optimal default values for all the settings
<F10>	To save changes and exit the UEFI SETUP UTILITY
<F12>	Print screen
<ESC>	To jump to the Exit Screen or exit the current screen

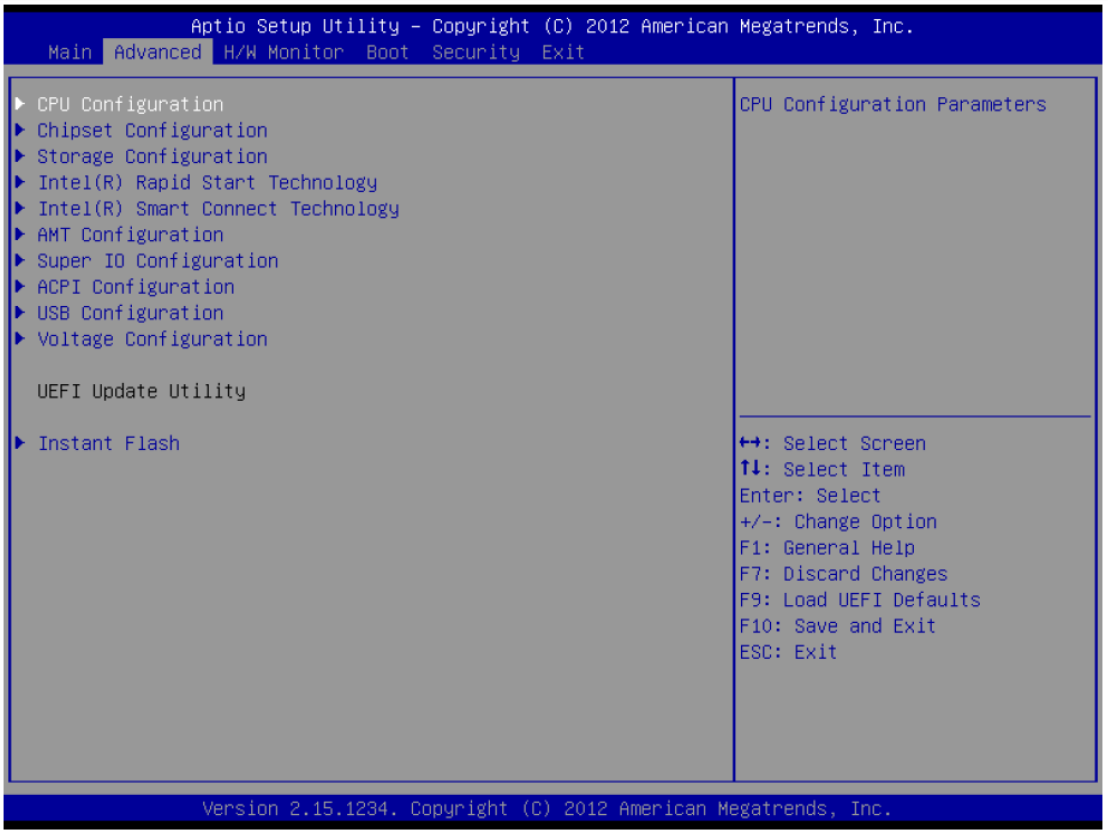
3.2 Main Screen

When you enter the UEFI SETUP UTILITY, the Main screen will appear and display the system overview.



3.3 Advanced Screen

In this section, you may set the configurations for the following items: CPU Configuration, Chipset Configuration, Storage Configuration, Intel(R) Rapid Start Technology, Intel(R) Smart Connect Technology, AMT Configuration, Super IO Configuration, ACPI Configuration, USB Configuration and Voltage Configuration.

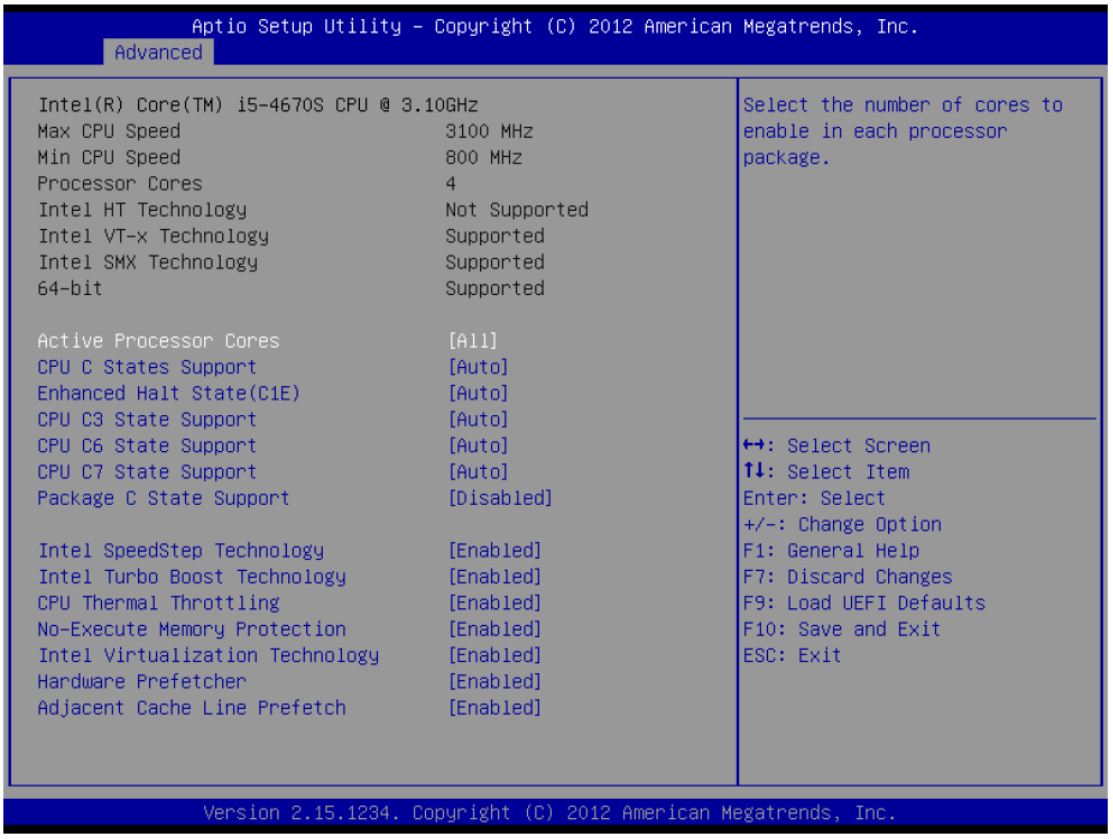


Setting wrong values in this section may cause the system to malfunction.

Instant Flash

Instant Flash is a UEFI flash utility embedded in Flash ROM. This convenient UEFI update tool allows you to update system UEFI without entering operating systems first like MS-DOS or Windows®. Just launch this tool and save the new UEFI file to your USB flash drive, floppy disk or hard drive, then you can update your UEFI only in a few clicks without preparing an additional floppy diskette or other complicated flash utility. Please be noted that the USB flash drive or hard drive must use FAT32/16/12 file system. If you execute Instant Flash utility, the utility will show the UEFI files and their respective information. Select the proper UEFI file to update your UEFI, and reboot your system after UEFI update process completes.

3.3.1 CPU Configuration



Intel Hyper Threading Technology

Intel Hyper Threading Technology allows multiple threads to run on each core, so that the overall performance on threaded software is improved.

Active Processor Cores

Select the number of cores to enable in each processor package.

CPU C States Support

Enable CPU C States Support for power saving. It is recommended to keep C3, C6 and C7 all enabled for better power saving.

Enhanced Halt State (C1E)

Enable Enhanced Halt State (C1E) for lower power consumption.

CPU C3 State Support

Enable C3 sleep state for lower power consumption.

CPU C6 State Support

Enable C6 deep sleep state for lower power consumption.

CPU C7 State Support

Enable C7 deep sleep state for lower power consumption.

Package C State Support

Enable CPU, PCIe, Memory, Graphics C State Support for power saving.

Intel SpeedStep Technology

Intel SpeedStep technology is Intel's new power saving technology. Processors can switch between multiple frequencies and voltage points to enable power saving. The default value is [Enabled]. Configuration options: [Enabled] and [Disabled]. If you install Windows® 7 / 8 and want to enable this function, please set this item to [Enabled]. This item will be hidden if the current CPU does not support Intel SpeedStep technology.

Please note that enabling this function may reduce CPU voltage and lead to system stability or compatibility issues with some power supplies. Please set this item to [Disabled] if above issues occur.

Intel Turbo Boost Technology

Use this item to enable or disable Intel Turbo Boost Mode Technology. Turbo Boost Mode allows processor cores to run faster than marked frequency in specific conditions. The default value is [Enabled].

CPU Thermal Throttling

You may select [Enabled] to enable CPU internal thermal control mechanism to keep the CPU from overheating.

No-Execute Memory Protection

No-Execution (NX) Memory Protection Technology is an enhancement to the IA-32 Intel Architecture. An IA-32 processor with "No Execute (NX) Memory Protection" can prevent data pages from being used by malicious software to execute codes. This option will be hidden if the current CPU does not support No-Excute Memory Protection.

Intel Virtualization Technology

When this option is set to [Enabled], a VMM (Virtual Machine Architecture) can utilize the additional hardware capabilities provided by Vanderpool Technology. This option will be hidden if the installed CPU does not support Intel Virtualization Technology.

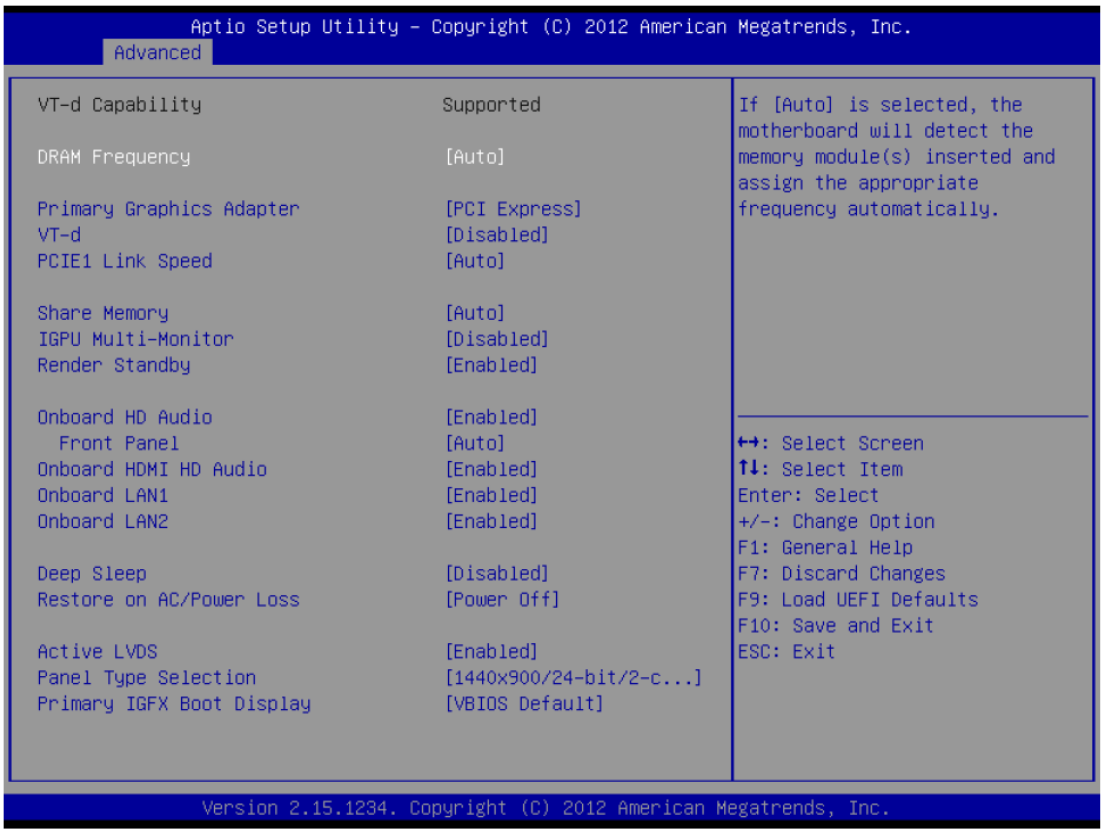
Hardware Prefetcher

Use this item to turn on/off the MLC streamer prefetcher.

Adjacent Cache Line Prefetch

Use this item to turn on/off prefetching of adjacent cache lines.

3.3.2 Chipset Configuration



DRAM Frequency

If [Auto] is selected, the motherboard will detect the memory module(s) inserted and assign the appropriate frequency automatically.

Primary Graphics Adapter

This allows you to select [Onboard] or [PCI Express] as the boot graphic adapter priority. The default value is [PCI Express].

VT-d

Use this to enable or disable Intel® VT-d technology (Intel® Virtualization Technology for Directed I/O). The default value of this feature is [Disabled].

PCIE1 Link Speed

Select the link speed for PCIE1.

Share Memory

Configure the size of memory that is allocated to the integrated graphics processor when the system boots up.

IGPU Multi-Monitor

Select disable to disable the integrated graphics when an external graphics card is installed. Select enable to keep the integrated graphics enabled at all times.

Render Standby

Use this to enable or disable Render Standby by Internal Graphics Device. The default value is [Enabled].

Onboard HD Audio

Select [Auto], [Enabled] or [Disabled] for the onboard HD Audio feature. If you select [Auto], the onboard HD Audio will be disabled when PCI Sound Card is plugged.

Front Panel

Select [Auto] or [Disabled] for the onboard HD Audio Front Panel.

Onboard HDMI HD Audio

This allows you to enable or disable the Onboard HDMI HD Audio feature.

Onboard LAN1

This allows you to enable or disable the Onboard LAN1 feature.

Onboard LAN2

This allows you to enable or disable the Onboard LAN2 feature.

Deep Sleep

Mobile platforms support Deep S4/S5 in DC only and desktop platforms support Deep S4/S5 in AC only. The default value is [Disabled].

Restore on AC/Power Loss

This allows you to set the power state after an unexpected AC/power loss. If [Power Off] is selected, the AC/power remains off when the power recovers. If [Power On] is selected, the AC/power resumes and the system starts to boot up when the power recovers.

Active LVDS

Use this to enable or disable the LVDS. The default value is [Enabled].

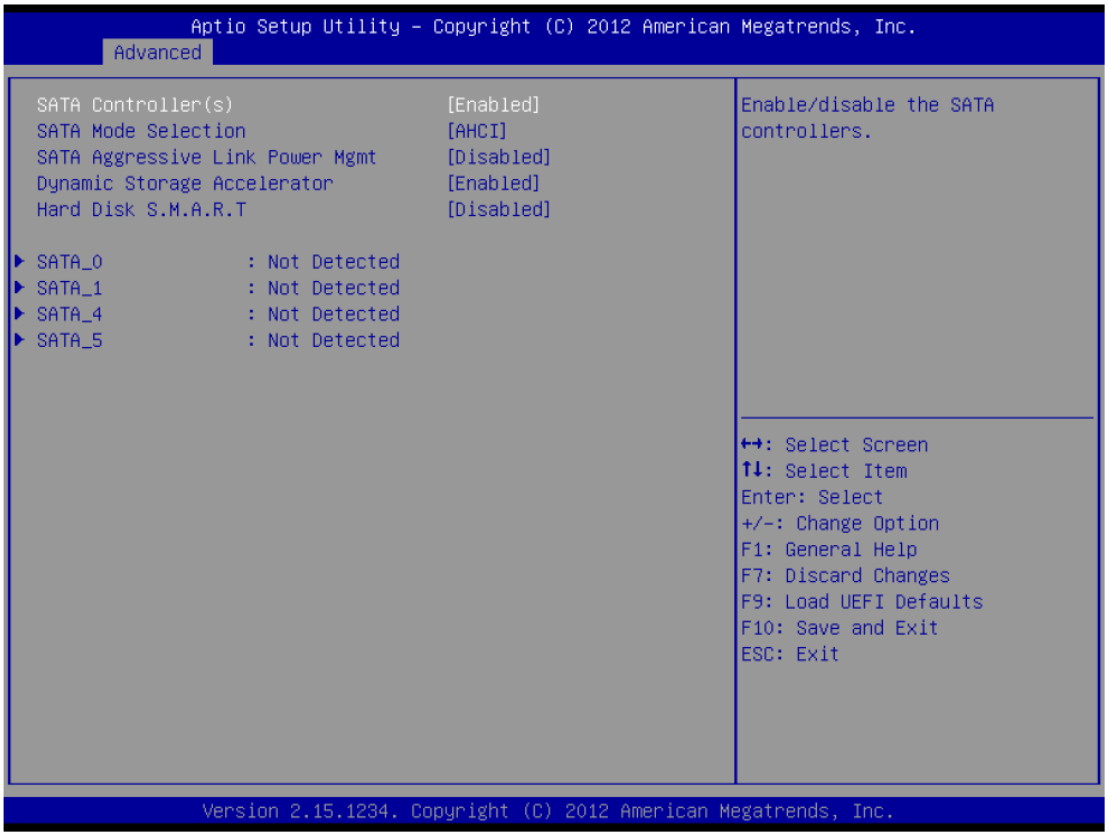
Panel Type Selection

Use this to select panel type.

Primary IGFX Boot Display

Select the Video Device which will be activated during POST. This has no effect if external graphics present. Secondary boot display selection will appear based on your selection. VGA modes will be supported only on primary display. Configuration options: [VBIOS Default], [CRT], [DVI], [HDMI] and [LVDS]. The default value is [VBIOS Default].

3.3.3 Storage Configuration



SATA Controller(s)

Use this item to enable or disable the SATA Controller feature.

SATA Mode Selection

Use this to select SATA mode. Configuration options: [IDE Mode], [AHCI Mode] and [RAID Mode]. The default value is [AHCI Mode].

AHCI (Advanced Host Controller Interface) supports NCQ and other new features that will improve SATA disk performance but IDE mode does not have these advantages.

SATA Aggressive Link Power Management

Use this item to configure SATA Aggressive Link Power Management.

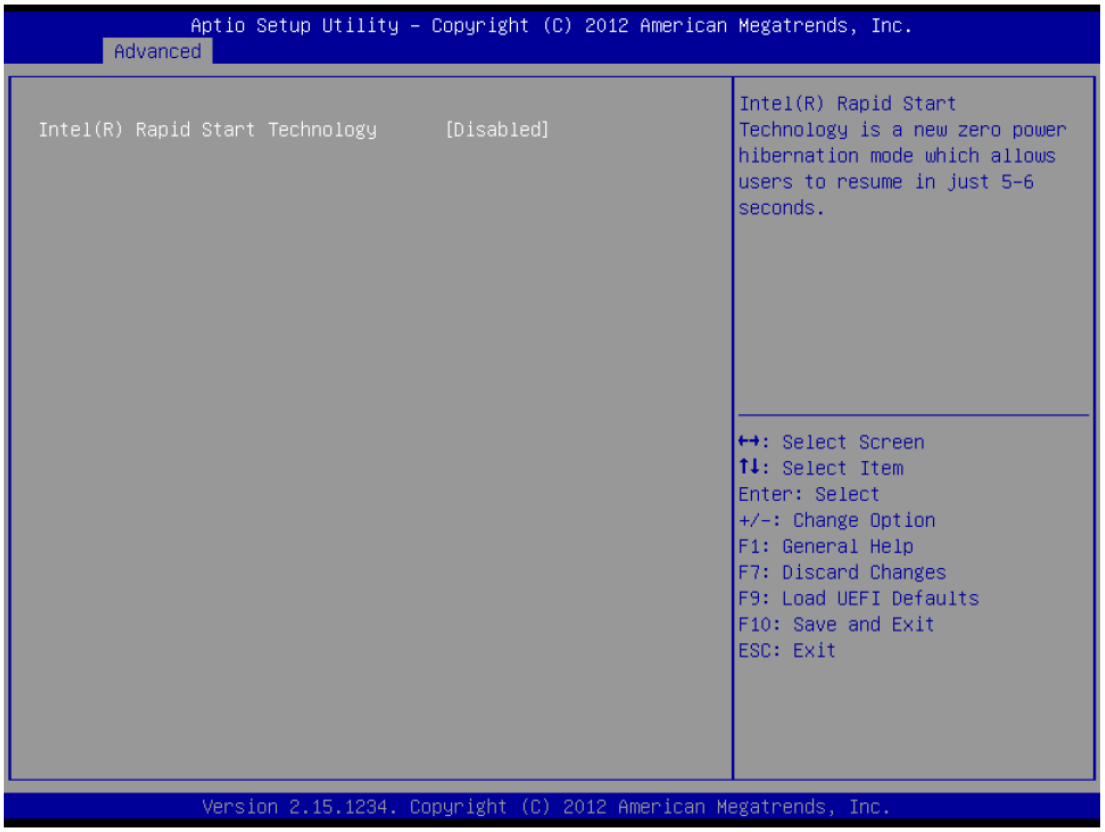
Dynamic Storage Accelerator

Keep this option enabled for higher HDD and SDD I/O performance, lower latency and increased system responsiveness.

Hard Disk S.M.A.R.T.

Use this item to enable or disable the S.M.A.R.T. (Self-Monitoring, Analysis, and Reporting Technology) feature. Configuration options: [Disabled] and [Enabled].

3.3.4 Intel® Rapid Start Technology



Intel(R) Rapid Start Technology

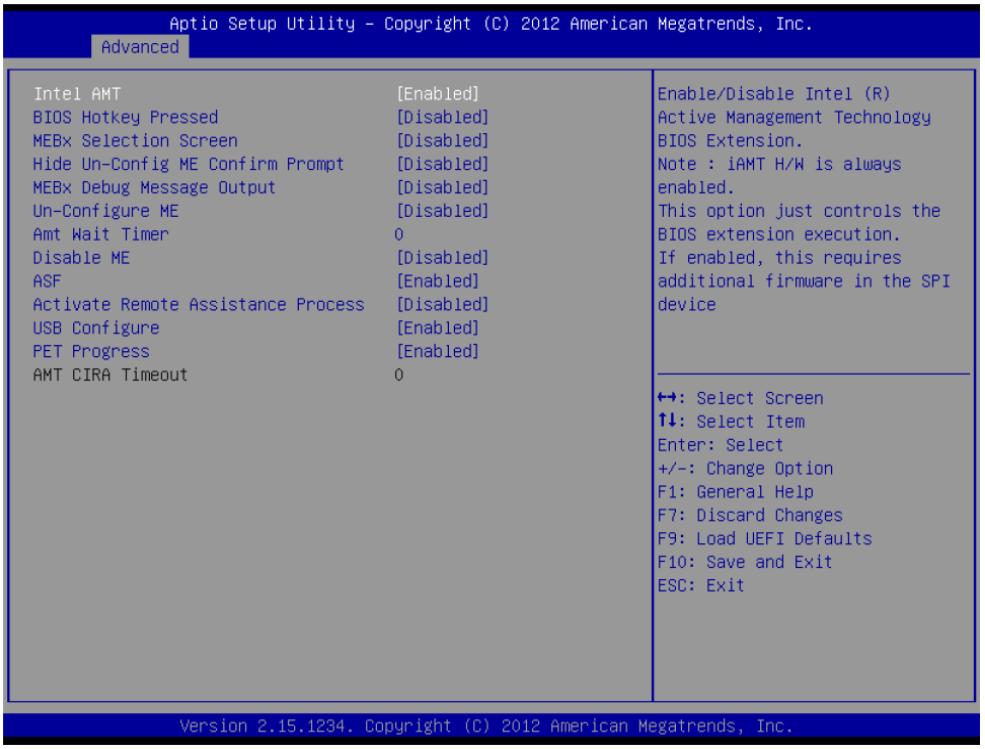
Use this item to enable or disable Intel(R) Rapid Start Technology. Intel(R) Rapid Start Technology is a new zero power hibernation mode which allows users to resume in just 5-6 seconds. The default is [Disabled].

3.3.5 Intel® Smart Connect Technology

Intel(R) Smart Connect Technology

Use this item to enable or disable Intel(R) Smart Connect Technology. Intel(R) Smart Connect Technology keeps your e-mail and social networks, such as Twitter, Facebook, etc. updated automatically while the computer is in sleep mode. The default is [Enabled].

3.3.6 AMT Technology



Intel AMT

Use this to enable or disable Intel(R) Active Management Technology BIOS Extension. The default is [Enabled].

BIOS Hotkey Pressed

Use this to enable or disable BIOS hotkey press. The default is [Disabled].

MEBx Selection Screen

Use this to enable or disable MEBx Selection Screen. The default is [Disabled].

Hide Un-Configure ME Confirmation

Hide Un-Configure ME without password confirmation prompt. The default is [Disabled].

MEBx Debug Message Output

Use this to enable or disable MEBx Debug Message Output. The default is [Disabled].

Un-Configure ME

Un-Configure ME without password. The default is [Disabled].

Amt Wait Timer

Set timer to wait before sending ASF_GET_BOOT_OPTIONS.

Disable ME

Set ME to Soft Temporary Disabled. The default is [Disabled].

ASF

Use this to enable or disable Alert Specification Format. The default is [Enabled].

Activate Remote Assistance Process

Trigger CIRA boot. The default is [Disabled].

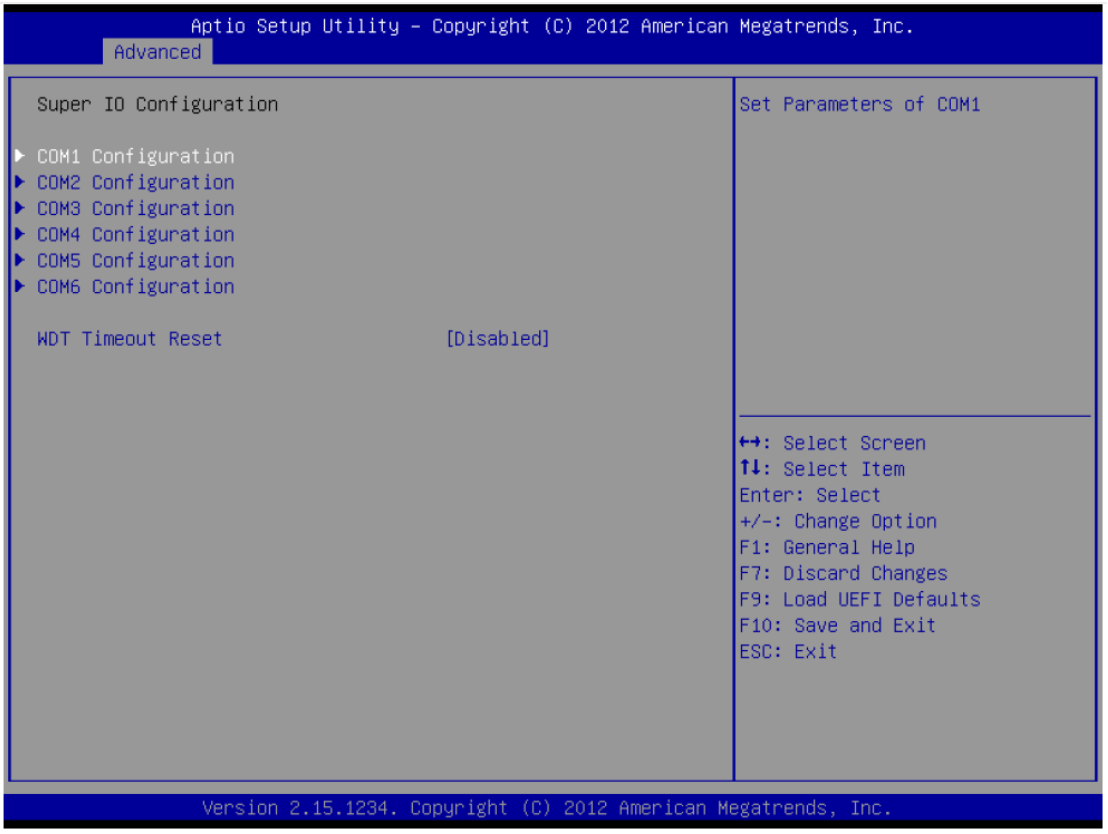
USB Configure

Use this to enable or disable USB Configure function. The default is [Enabled].

PET Progress

User can enable or disable PET Events progress to receive PET events or not. The default is [Enabled].

3.3.7 Super IO Configuration



COM1 Configuration

Use this to set parameters of COM1.

COM2 Configuration

Use this to set parameters of COM2.

COM3 Configuration

Use this to set parameters of COM3.

COM4 Configuration

Use this to set parameters of COM4.

COM5 Configuration

Use this to set parameters of COM5.

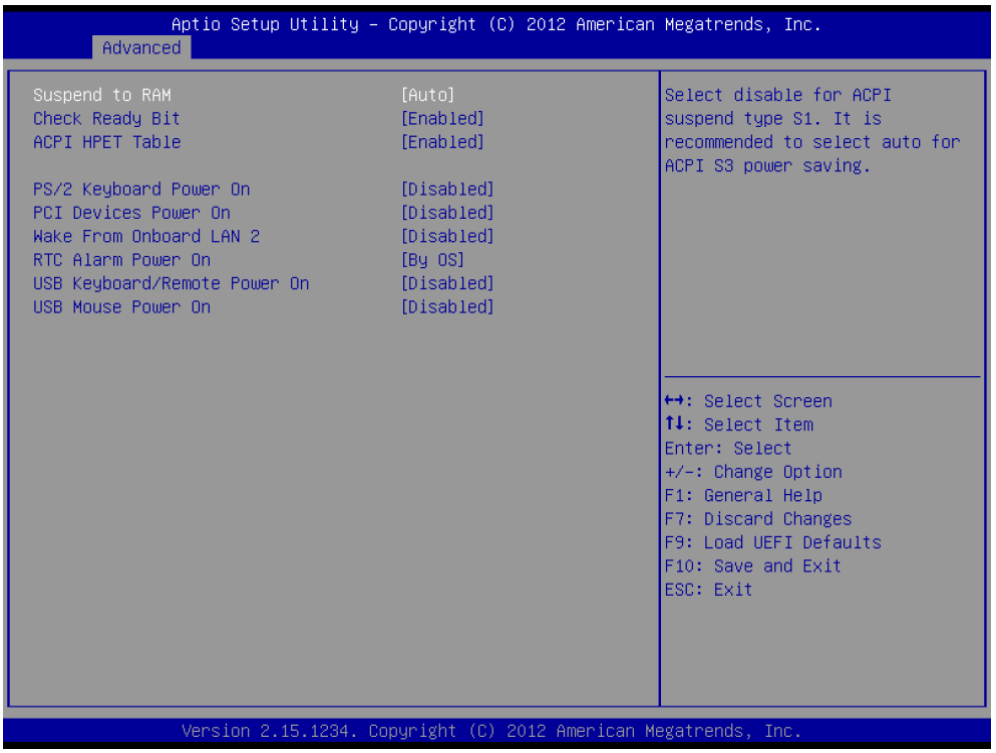
COM6 Configuration

Use this to set parameters of COM6.

WDT Timeout Reset

This allows users to enable/disable the Watch Dog Timer timeout to reset system. The default value is [Disabled].

3.3.8 ACPI Configuration



Suspend to RAM

Use this item to select whether to auto-detector disable the Suspend-to- RAM feature. Select [Auto] will enable this feature if the OS supports it.

Check Ready Bit

Use this item to enable or disable the feature Check Ready Bit.

ACPI HPET Table

Use this item to enable or disable ACPI HPET Table. The default value is [Enabled]. Please set this option to [Enabled] if you plan to use this motherboard to submit Windows® certification.

PS/2 Keyboard Power On

Use this item to enable or disable PS/2 keyboard to turn on the system from the power-soft-off mode.

PCI Devices Power On

Use this item to enable or disable PCI devices to turn on the system from the power-soft-off mode.

Wake From Onboard LAN 2

Use this item to enable or disable the Wake From Onboard LAN 2 feature.

RTC Alarm Power On

Use this item to enable or disable RTC (Real Time Clock) to power on the system.

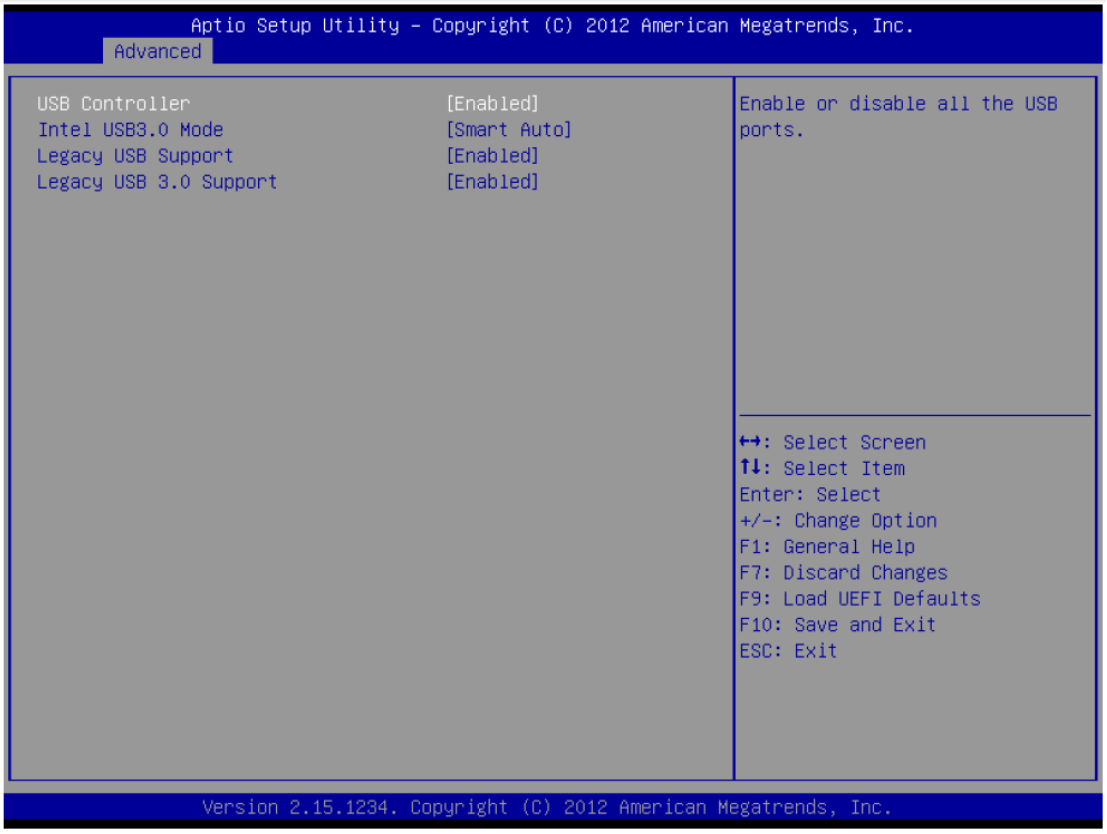
USB Keyboard/Remote Power On

Use this item to enable or disable USB Keyboard/Remote to power on the system.

USB Mouse Power On

Use this item to enable or disable USB Mouse to power on the system.

3.3.9 USB Configuration



USB Controller

Use this item to enable or disable the use of USB controller.

Intel USB 3.0 Mode

Use this item to enable or disable the use of Intel USB 3.0 mode.

Legacy USB Support

Use this option to select legacy support for USB devices. There are four configuration options: [Enabled], [Auto], [Disabled] and [UEFI Setup Only]. The default value is [Enabled]. Please refer to below descriptions for the details of these four options:

[Enabled] - Enables support for legacy USB.

[Auto] - Enables legacy support if USB devices are connected.

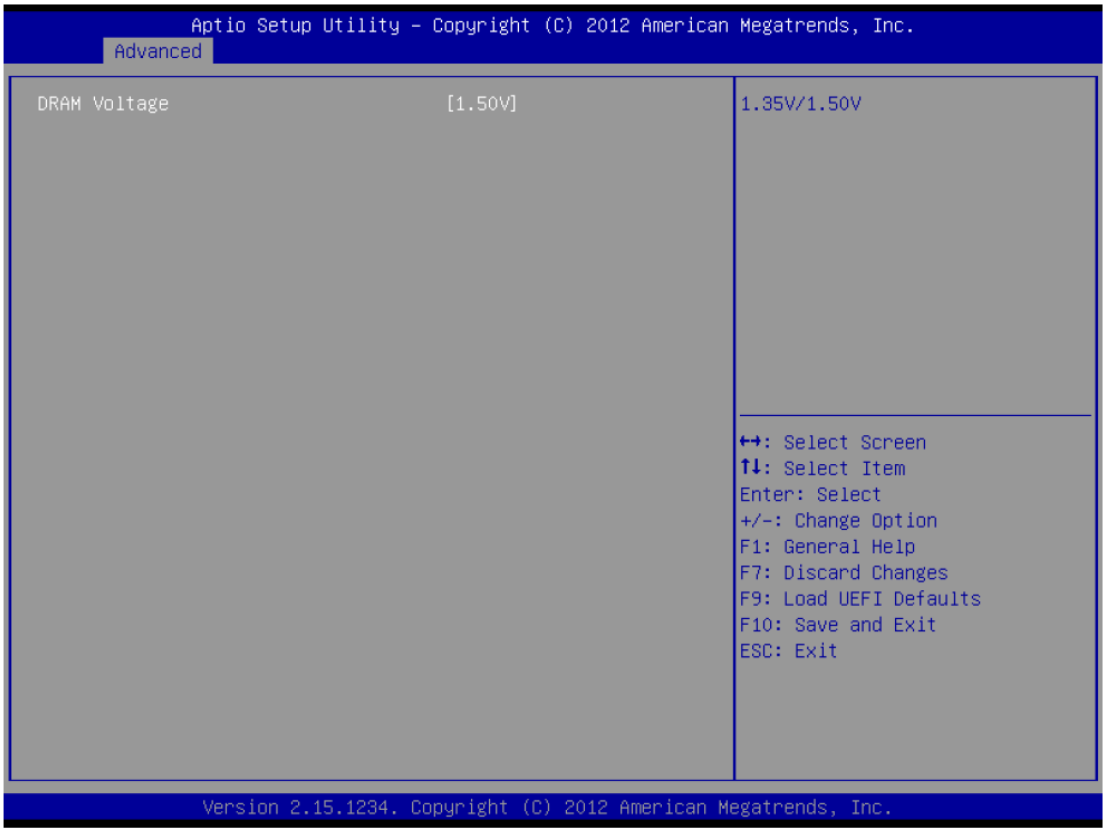
[Disabled] - USB devices are not allowed to use under legacy OS and UEFI setup when [Disabled] is selected. If you have USB compatibility issues, it is recommended to select [Disabled] to enter OS.

[UEFI Setup Only] - USB devices are allowed to use only under UEFI setup and Windows / Linux OS.

Legacy USB 3.0 Support

Use this option to enable or disable legacy support for USB 3.0 devices. The default value is [Enabled].

3.3.10 Voltage Configuration

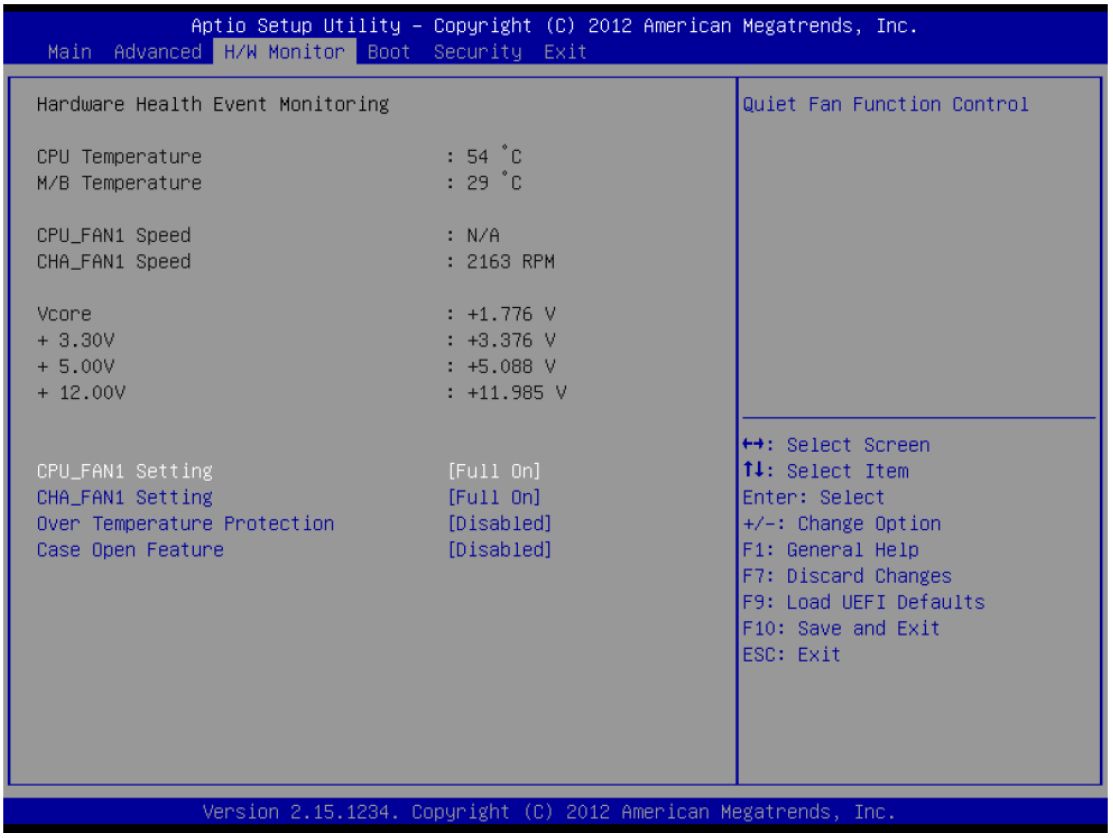


DRAM Voltage

Use this to select DRAM Voltage. The default value is [Auto].

3.4 Hardware Health Event Monitoring Screen

In this section, it allows you to monitor the status of the hardware on your system, including the parameters of the CPU temperature, motherboard temperature, CPU fan speed, chassis fan speed, and the critical voltage.



CPU_FAN1 Setting

This allows you to set CPU fan 1's speed. Configuration options: [Full On] and [Automatic Mode]. The default value is [Full On].

CHA_FAN1 Setting

This allows you to set chassis fan 1's speed. Configuration options: [Full On] and [Automatic Mode]. The default value is [Full On].

Over Temperature Protection

Use this to enable or disable Over Temperature Protection. The default value is [Enabled].

Case Open Feature

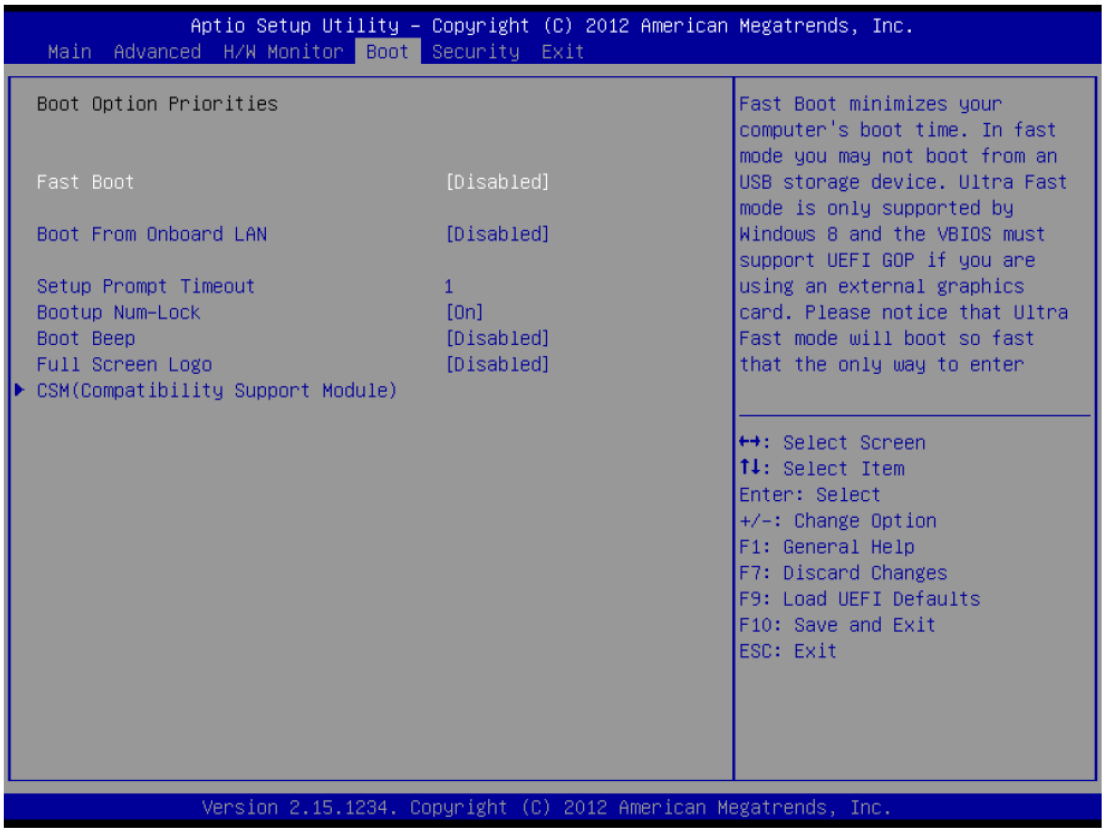
This allows you to enable or disable case open detection feature. The default is value [Disabled].

Clear Status

This option appears only when the case open has been detected. Use this option to keep or clear the record of previous chassis intrusion status.

3.5 Boot Screen

In this section, it will display the available devices on your system for you to configure the boot settings and the boot priority.



Fast Boot

Fast Boot minimizes your computer's boot time. There are three configuration options: [Disabled], [Fast] and [Ultra Fast]. The default value is [Disabled]. Please refer to below descriptions for the details of these three options:

[Disabled] - Disable Fast Boot.

[Fast] - The only restriction is you may not boot by using an USB flash drive.

[Ultra Fast] - There are a few restrictions.

1. Only supports Windows® 8 UEFI operating system.
2. You will not be able to enter BIOS Setup (Clear CMOS or run utility in Widows® to enter BIOS Setup).
3. If you are using an external graphics card, the VBIOS must support UEFI GOP in order to boot.

Boot From Onboard LAN

Use this item to enable or disable the Boot From Onboard LAN feature.

Setup Prompt Timeout

This shows the number of seconds to wait for setup activation key.

65535(0XFFFF) means indefinite waiting.

Bootup Num-Lock

If this item is set to [On], it will automatically activate the Numeric Lock function after boot-up.

Boot Beep

Select whether the Boot Beep should be turned on or off when the system boots up. Please note that a buzzer is needed.

Full Screen Logo

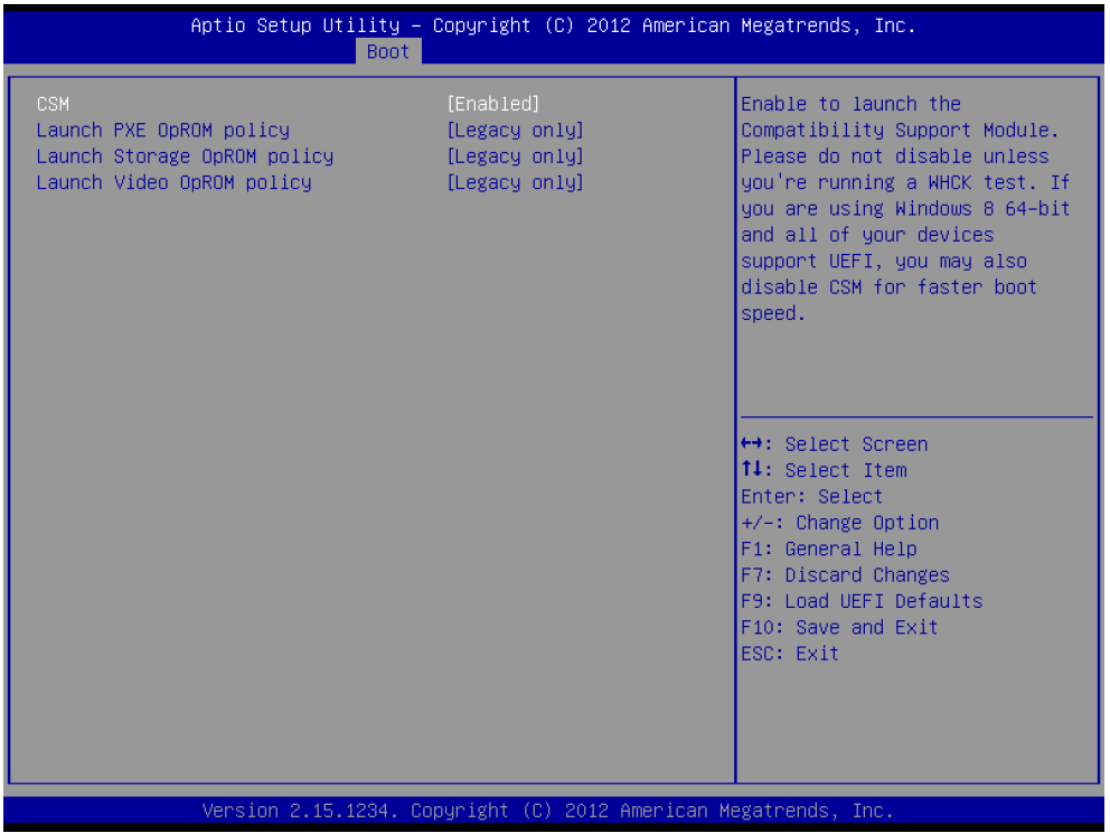
Use this item to enable or disable OEM Logo. The default value is [Enabled].

AddOn ROM Display

Use this option to adjust AddOn ROM Display. If you enable the option “Full Screen Logo” but you want to see the AddOn ROM information when the system boots, please select [Enabled]. Configuration options: [Enabled] and [Disabled]. The default value is [Enabled].

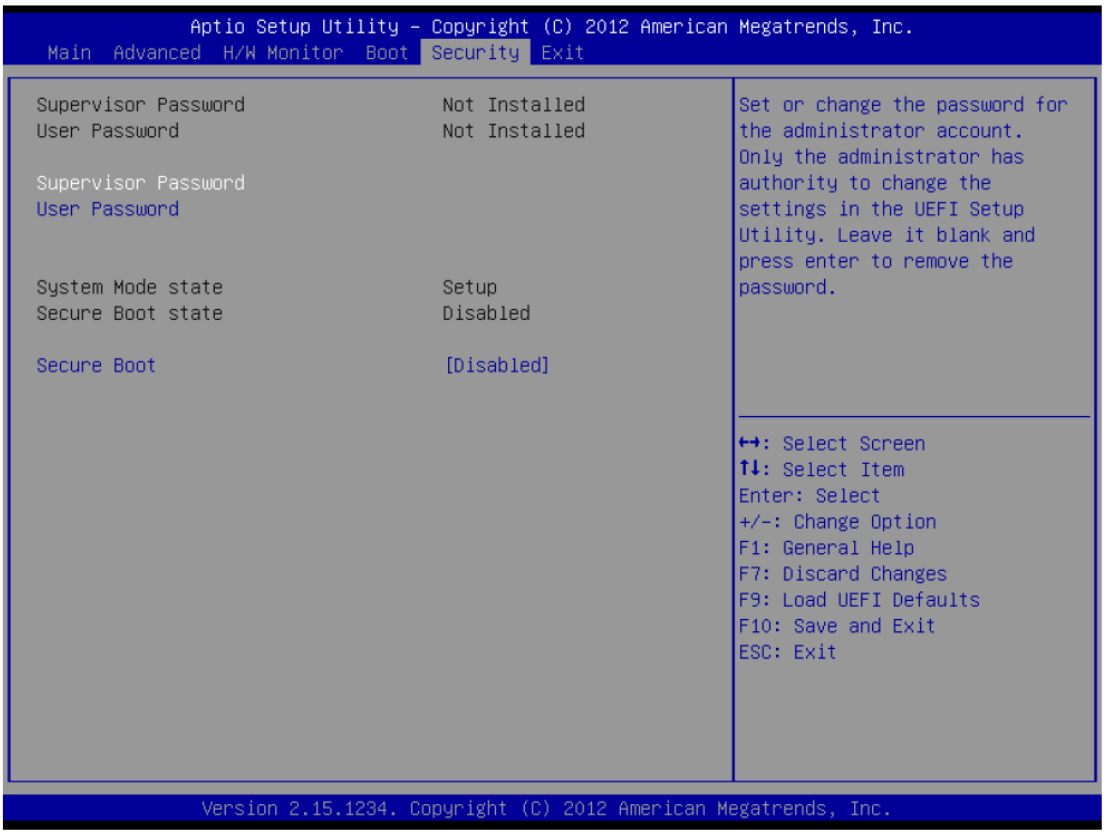
CSM

Please disable CSM when you enable Fast Boot option. The default value is [Enabled].



3.6 Security Screen

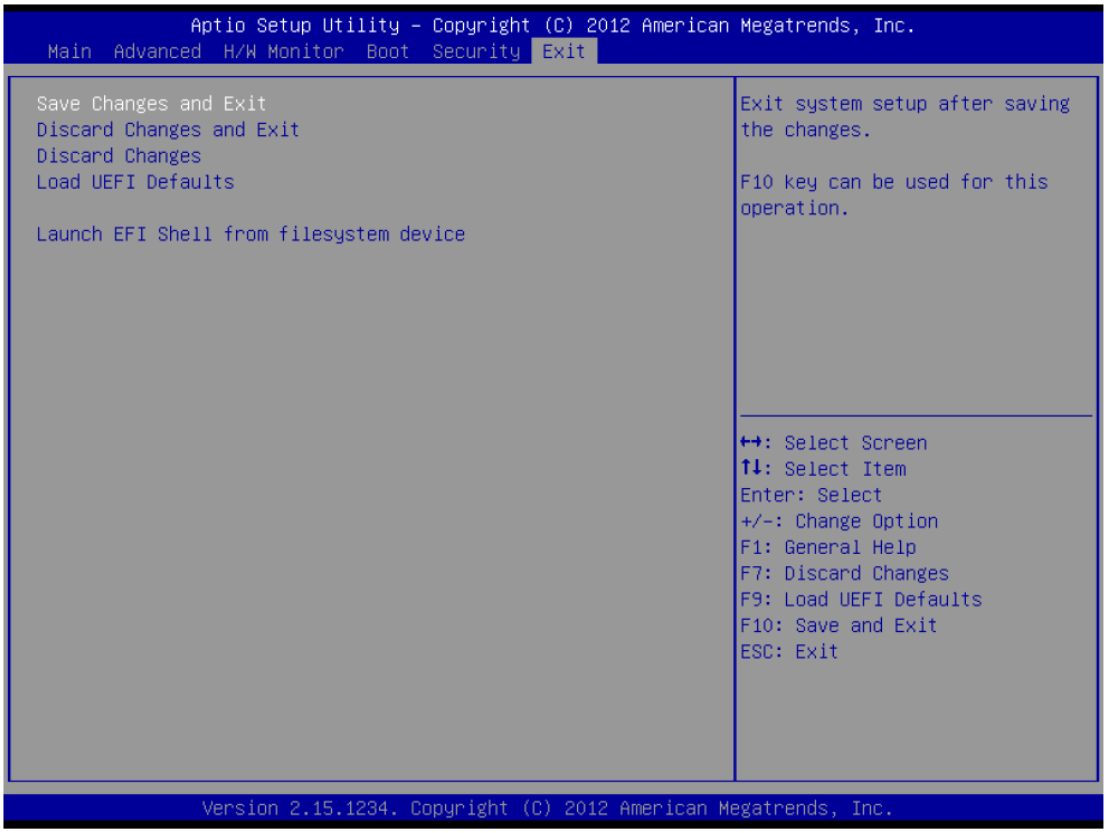
In this section, you may set, change or clear the supervisor/user password for the system.



Secure Boot

Use this to enable or disable Secure Boot. The default value is [Disabled].

3.7 Exit Screen



Save Changes and Exit

When you select this option, it will pop-out the following message, “Save configuration changes and exit setup?” Select [OK] to save the changes and exit the UEFI SETUP UTILITY.

Discard Changes and Exit

When you select this option, it will pop-out the following message, “Discard changes and exit setup?” Select [OK] to exit the UEFI SETUP UTILITY without saving any changes.

Discard Changes

When you select this option, it will pop-out the following message, “Discard changes?” Select [OK] to discard all changes.

Load UEFI Defaults

Load UEFI default values for all the setup questions. F9 key can be used for this operation.

Launch EFI Shell from filesystem device

Attempts to Launch EFI Shell application (Shell64.efi) from one of the available filesystem devices.

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 **IntelR Q87 Chipset, Intel® VGA Chipset,Intel I210 & I217LM LAN Driver, Realtek_Audio Driver, USB 3.0 Driver, Touch Panel Driver, Com Driver, Intel Trusted Execution Engine Driver, and SmatConnect 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 Intel Q87 Chipset Driver

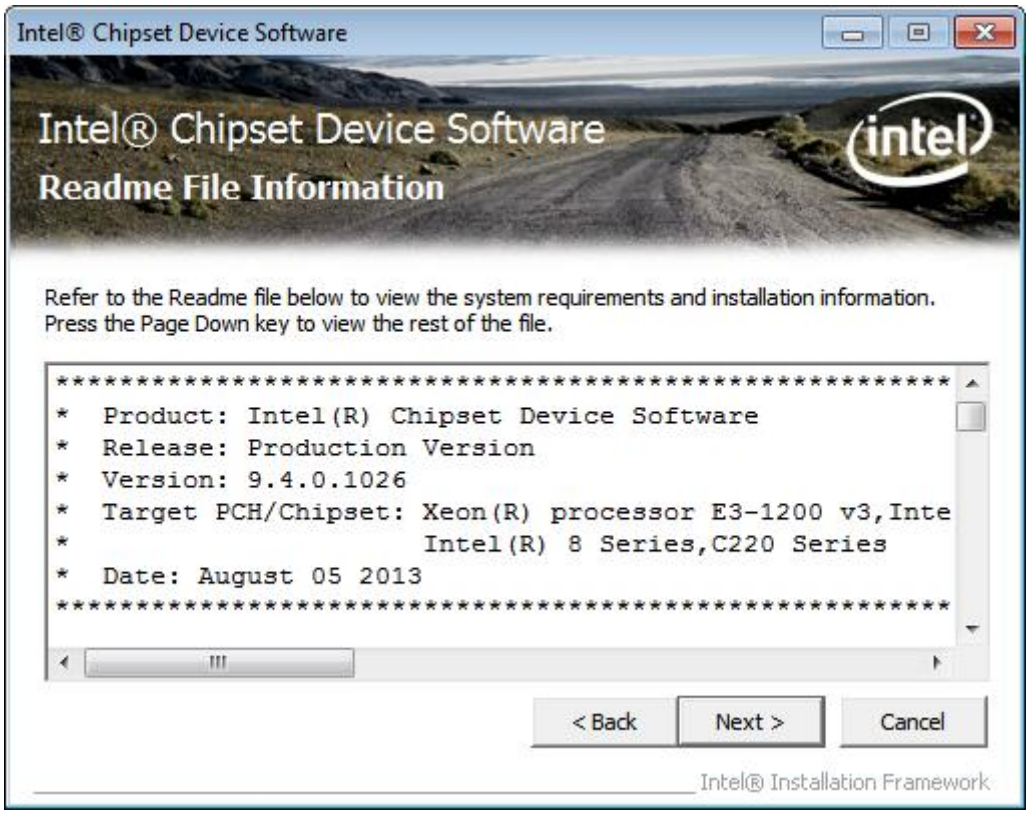
To install the Intel chipset driver, please follow the steps below.

Step 1. Select **Intel Q87 Chipset** from the list

Step 2. Click **Next** to setup program.

Step 3. Read the license agreement. Click **Yes** to accept all of the terms of the license agreement.

Step 4. Click **Next** to continue.



Step 5. Click **Next**.

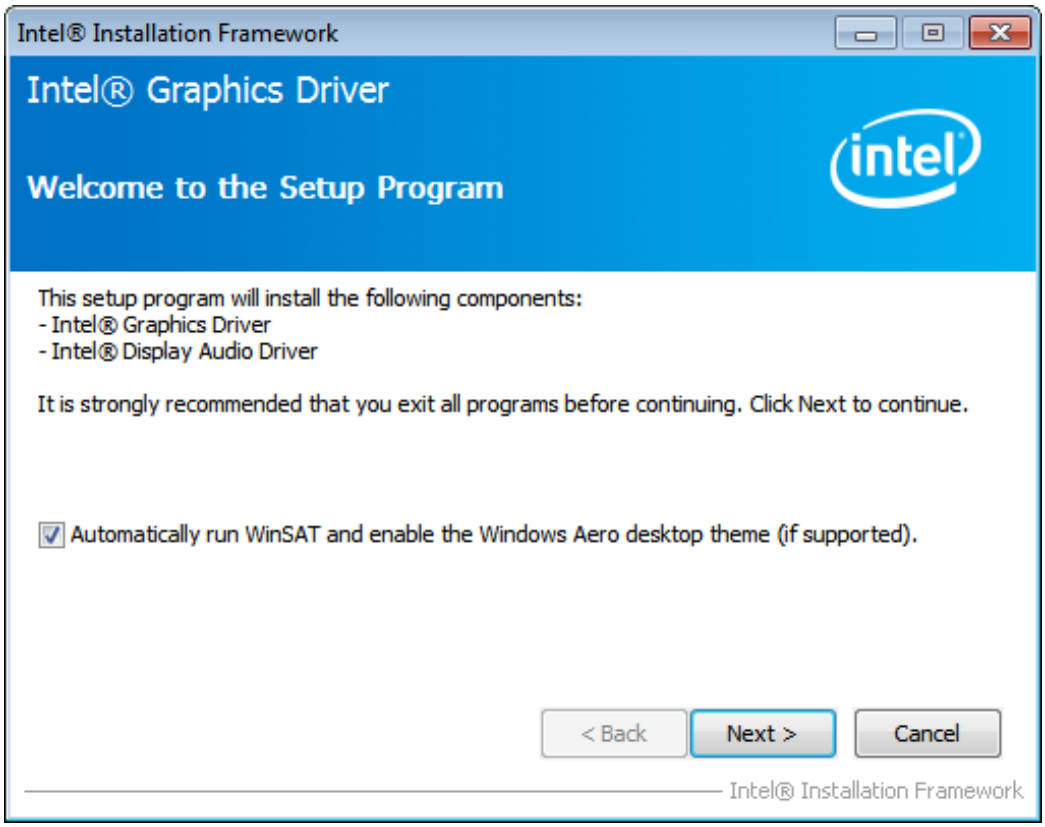
Step 6. Select **Yes, I want to restart this computer now**. Click **Finish**, then remove any installation media from the drives.

4.2 Intel® VGA Chipset Driver

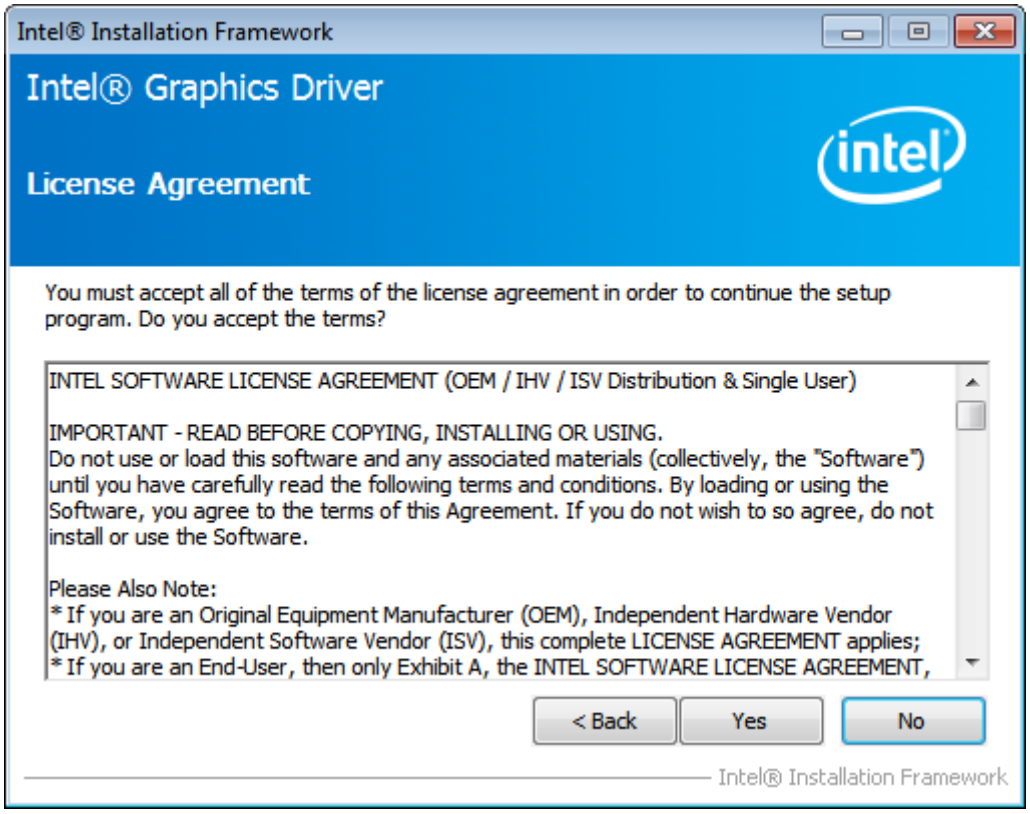
To install the VGA drivers, follow the steps below to proceed with the installation.

Step 1.Select **Intel(R) VGA Chipset Driver.**

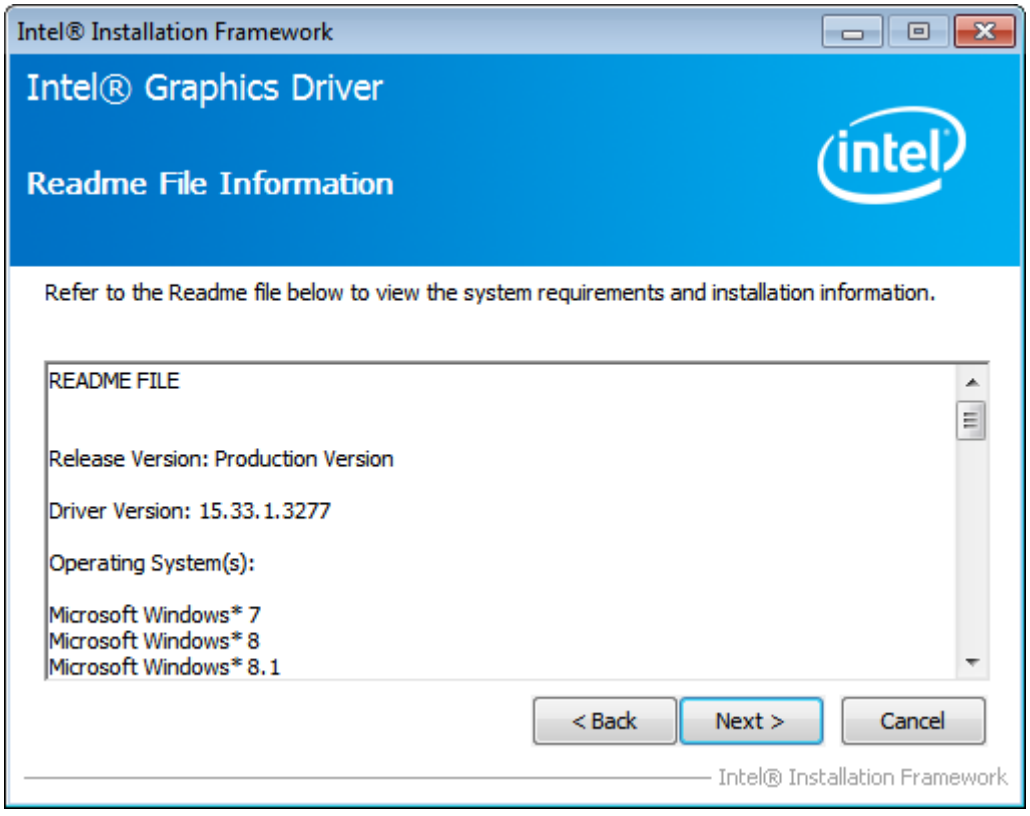
Step 2. Click **Next** to continue.



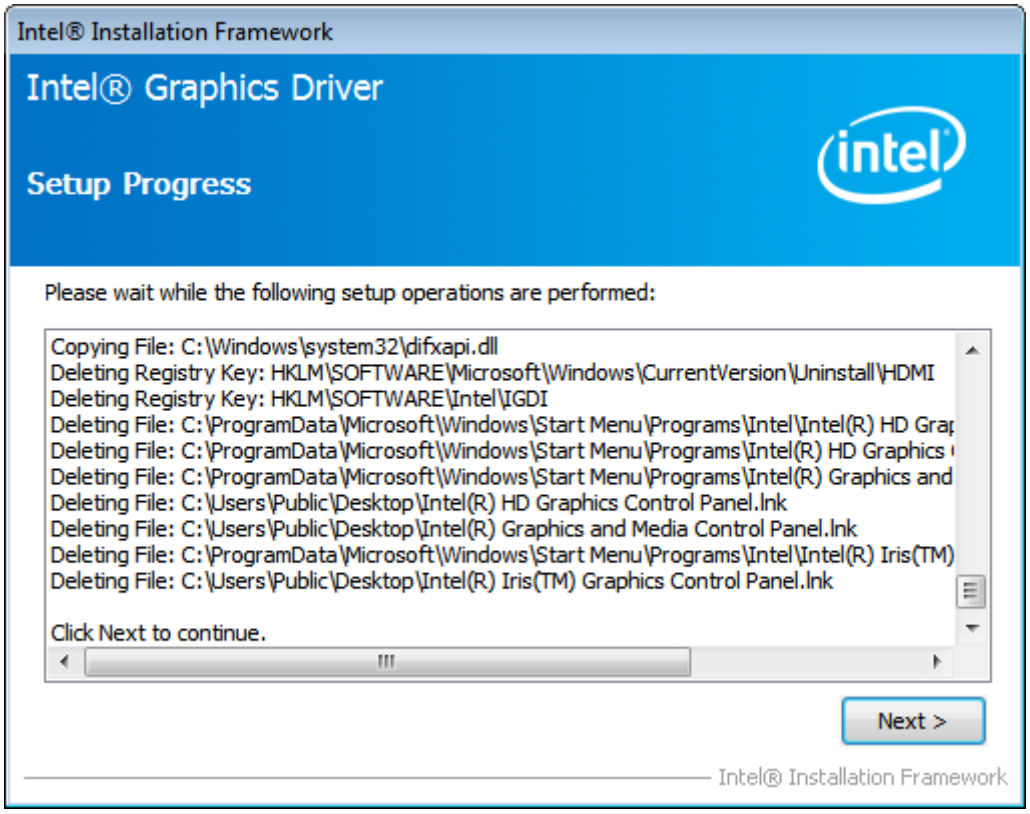
Step 3. Click **Yes.**



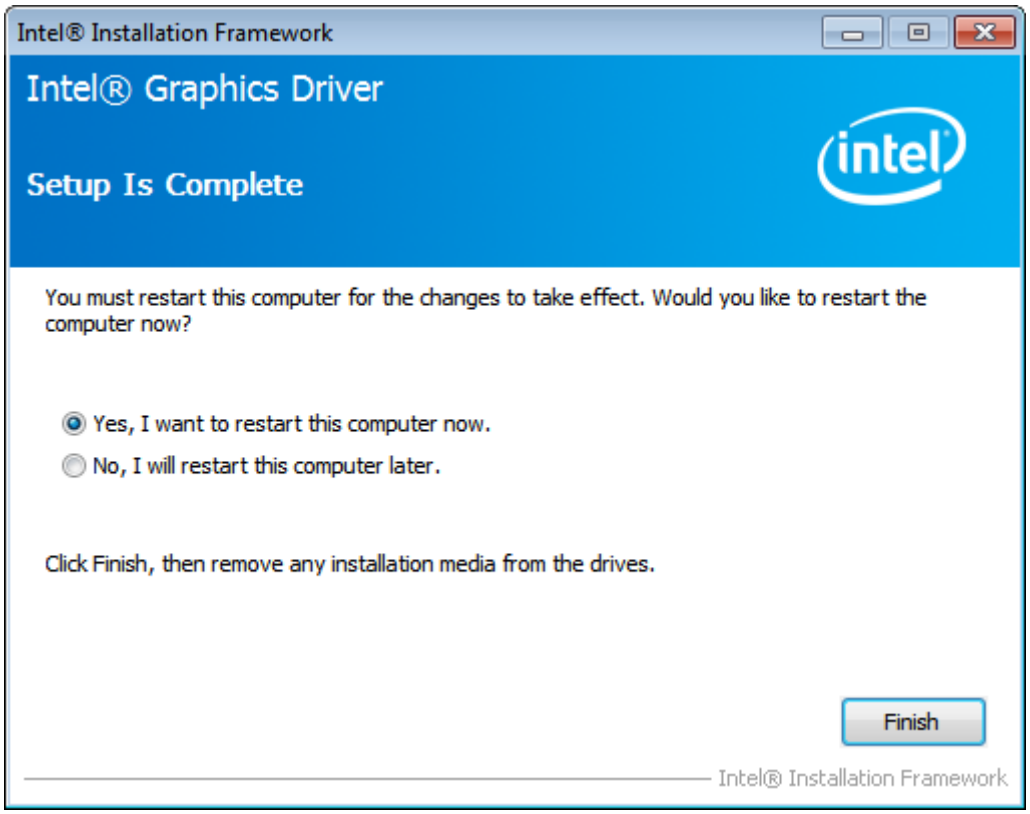
Step 4. Click **Next** to continue.



Step 5. Click **Next** to continue.



Step 6. Select **Yes, I want to restart this computer now,** and then click **Finish** to complete the indtallation.

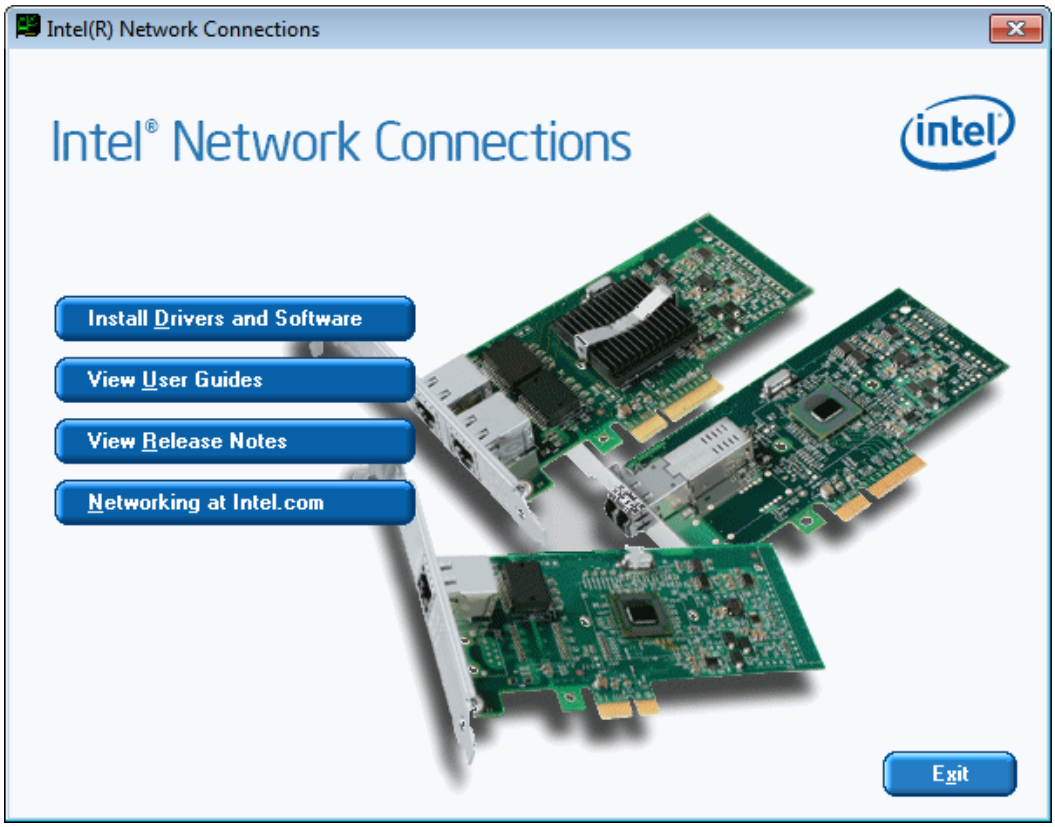


4.3 Intel I210 & I2127LM LAN Driver

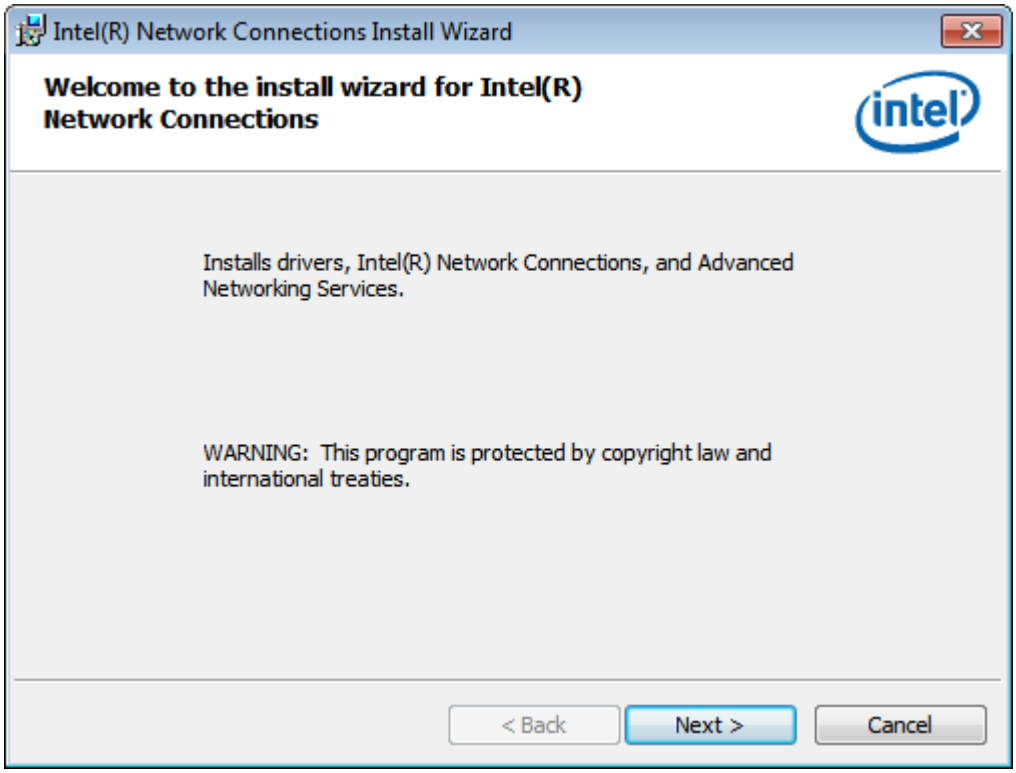
To install the Intel I210 & I217LM LAN Driver, please follow the steps below.

Step 1. Select **Intel I210 & I217LM LAN Driver** from the list**.**

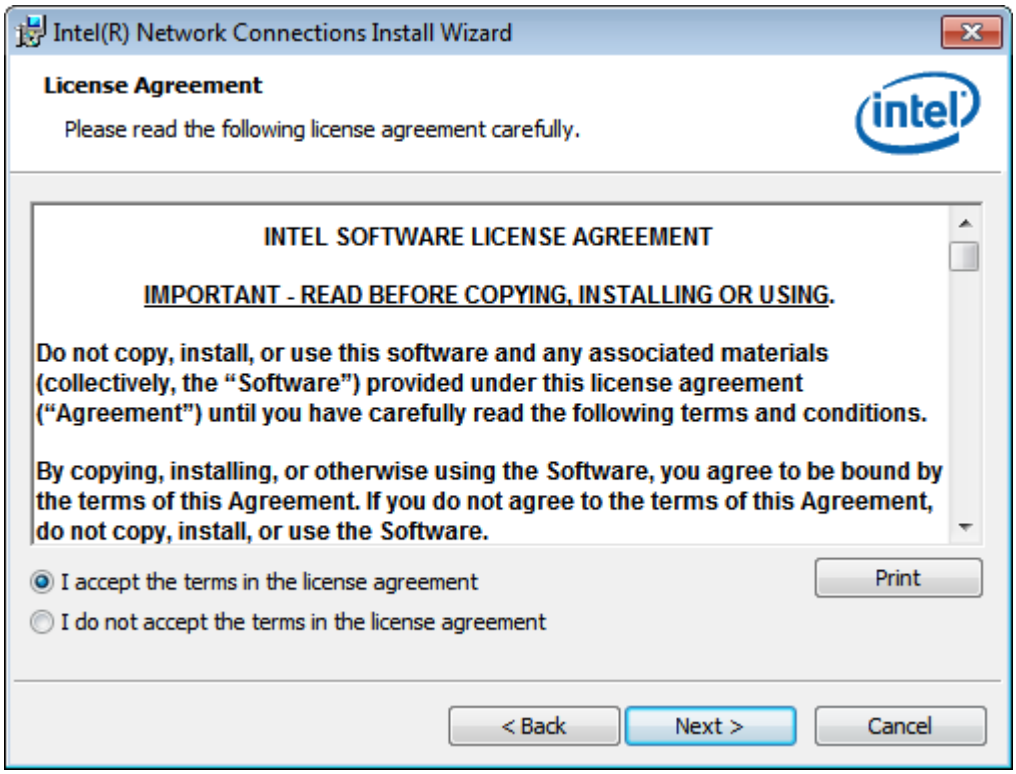
Step 2. Click **Install Drivers and Software** to continue.



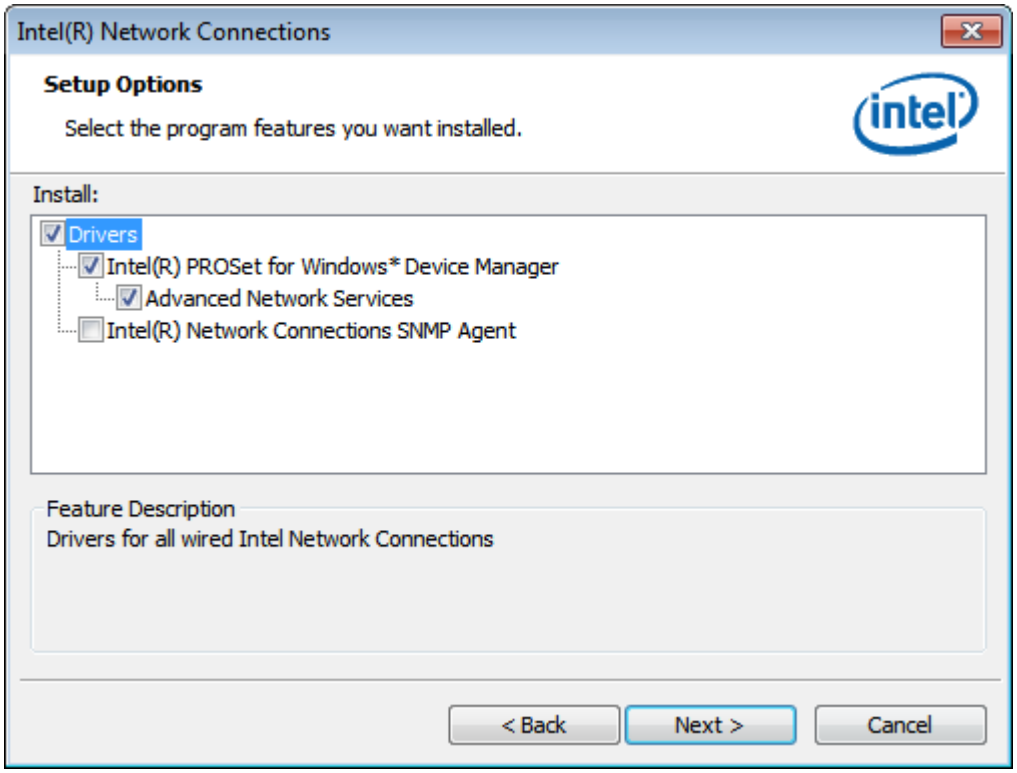
Step 3. Click **Next** to continue



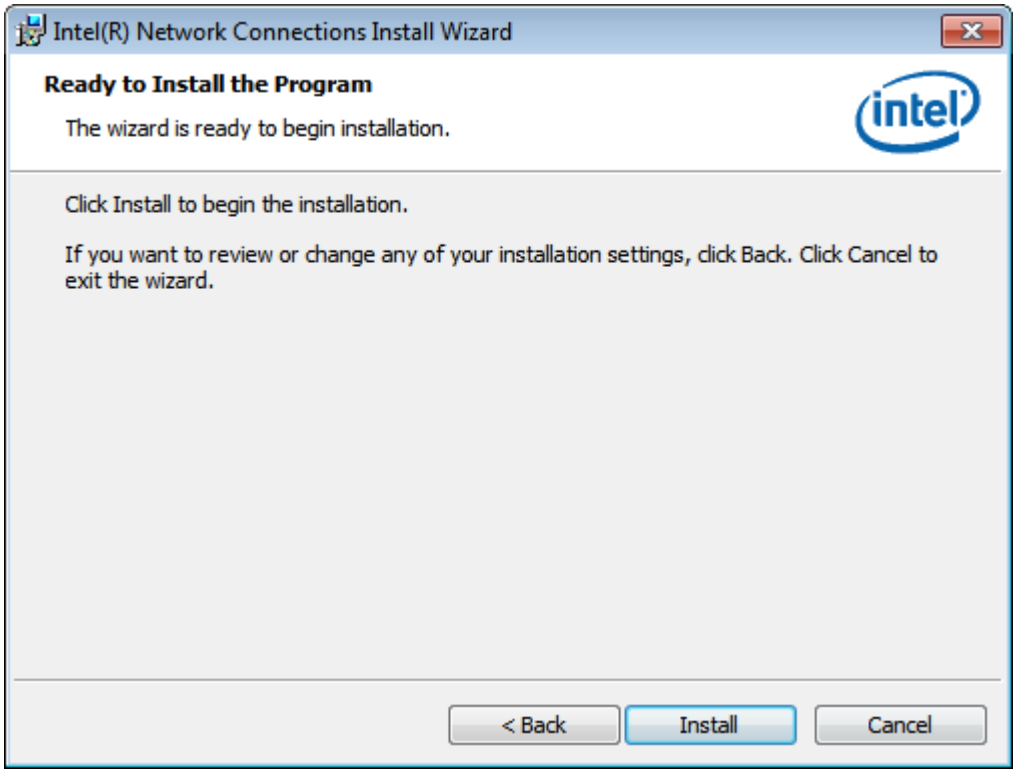
Step 4. Read the License Agreement, and select **I accept the terms in the license agreement.** Click **Next** to continue.



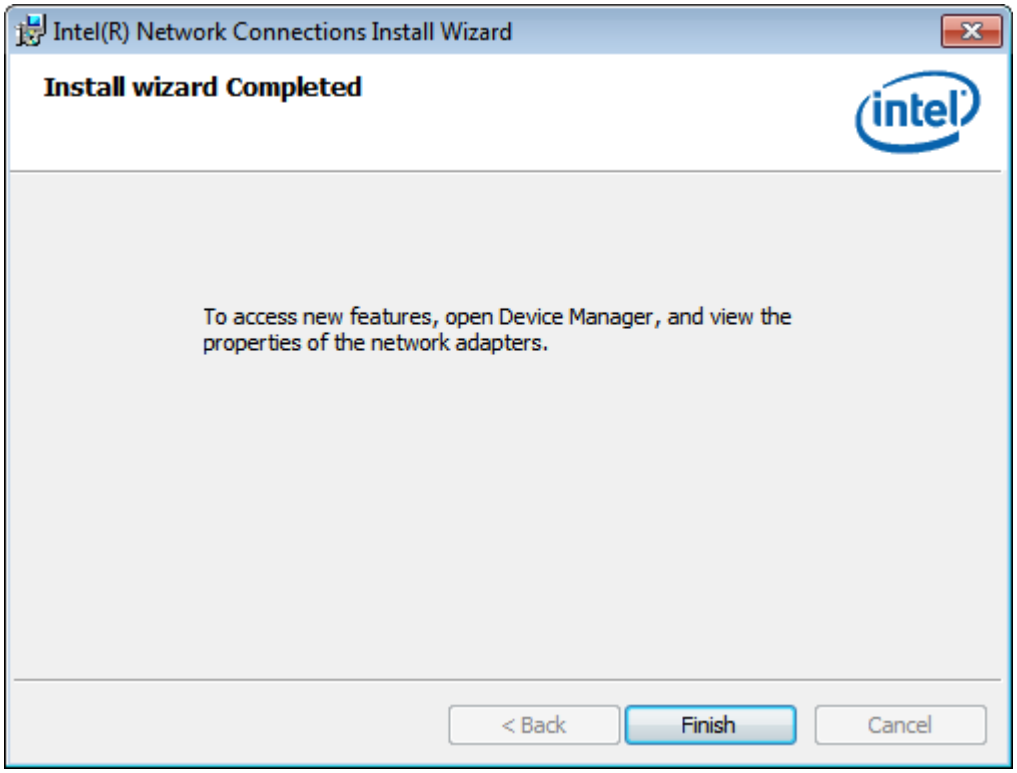
Step 5. Select the program features you want installed. Click **Next** to continue.



Step 6. Click **Install** to begin the installation.



Step 6. Click **Finish** to complete the installation.

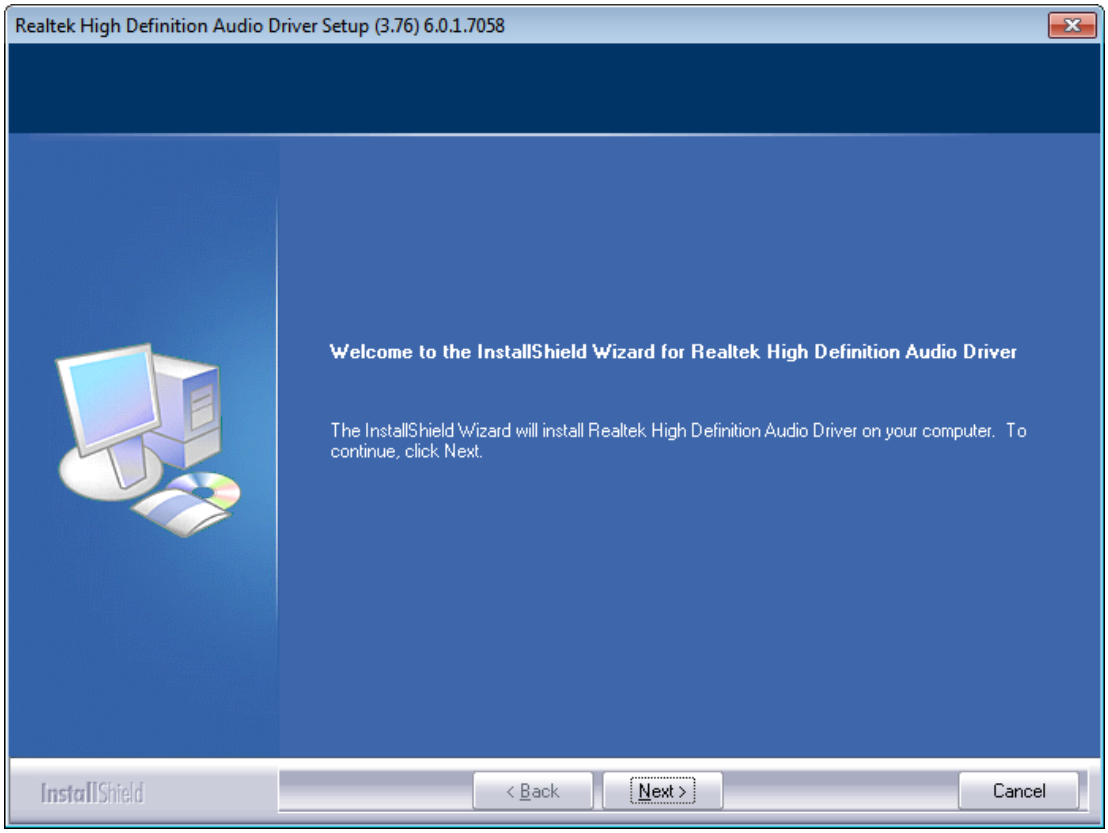


4.4 Realtek_Audio Driver

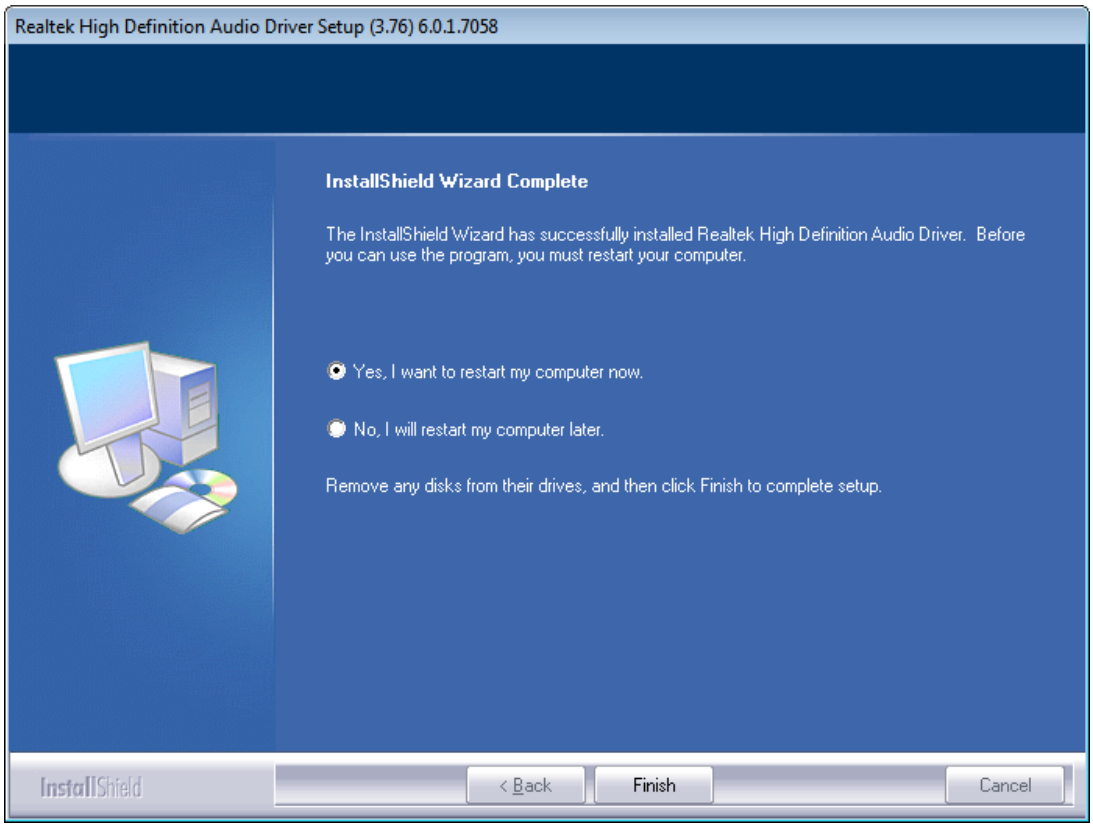
To install the Realtek_Audio Driver, please follow the steps below.

Step 1. Select **Realtek_Audio Driver** from the list

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



Step 3. Select **Yes, I want to restart my computer now.,** and then click **Finish** to complete installation.

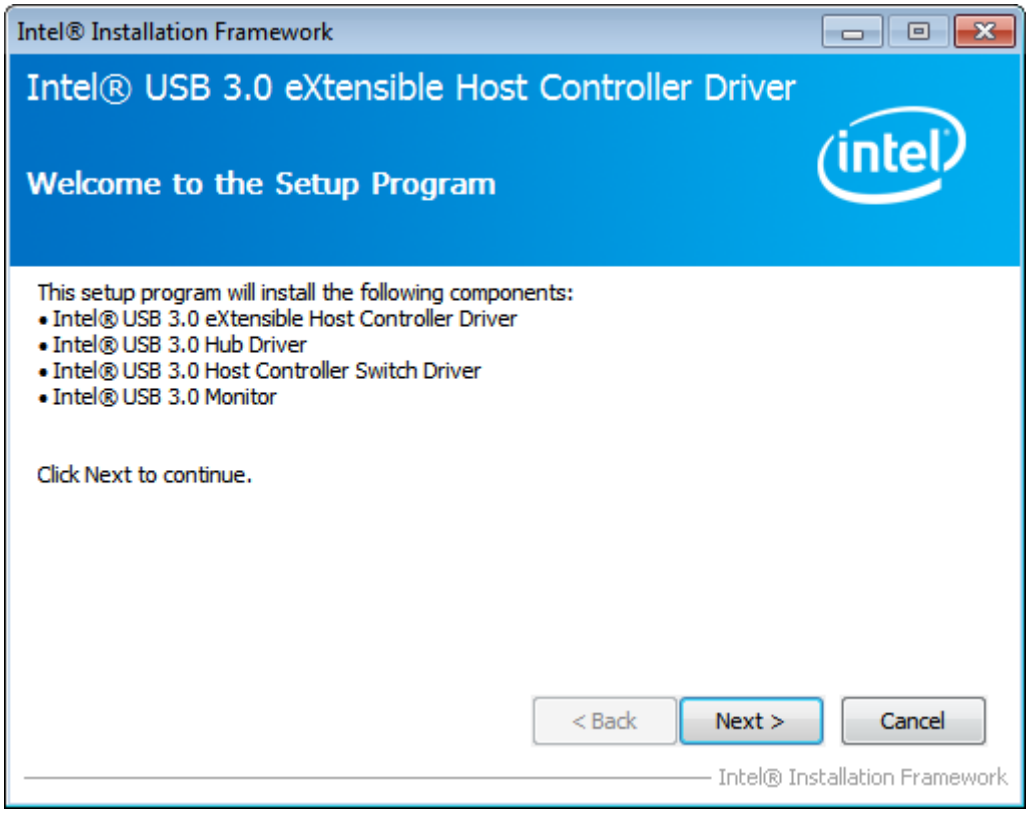


4.5 USB 3.0 Driver

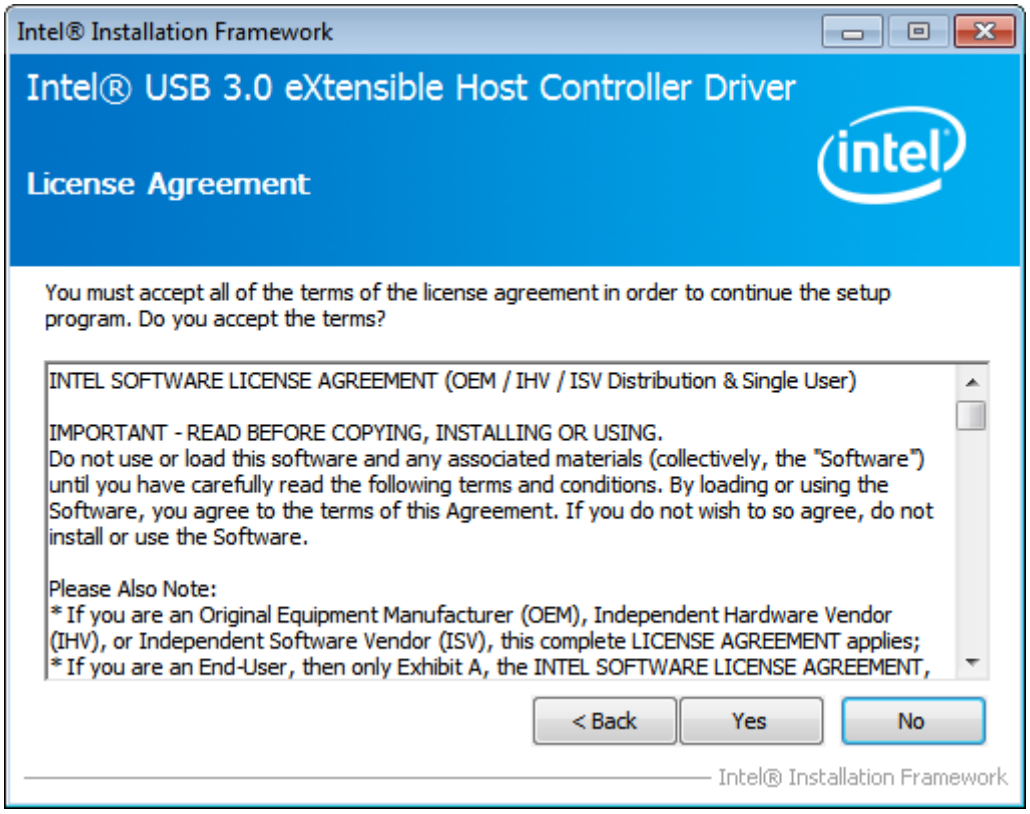
To install the USB 3.0 Driver, please follow the steps below.

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

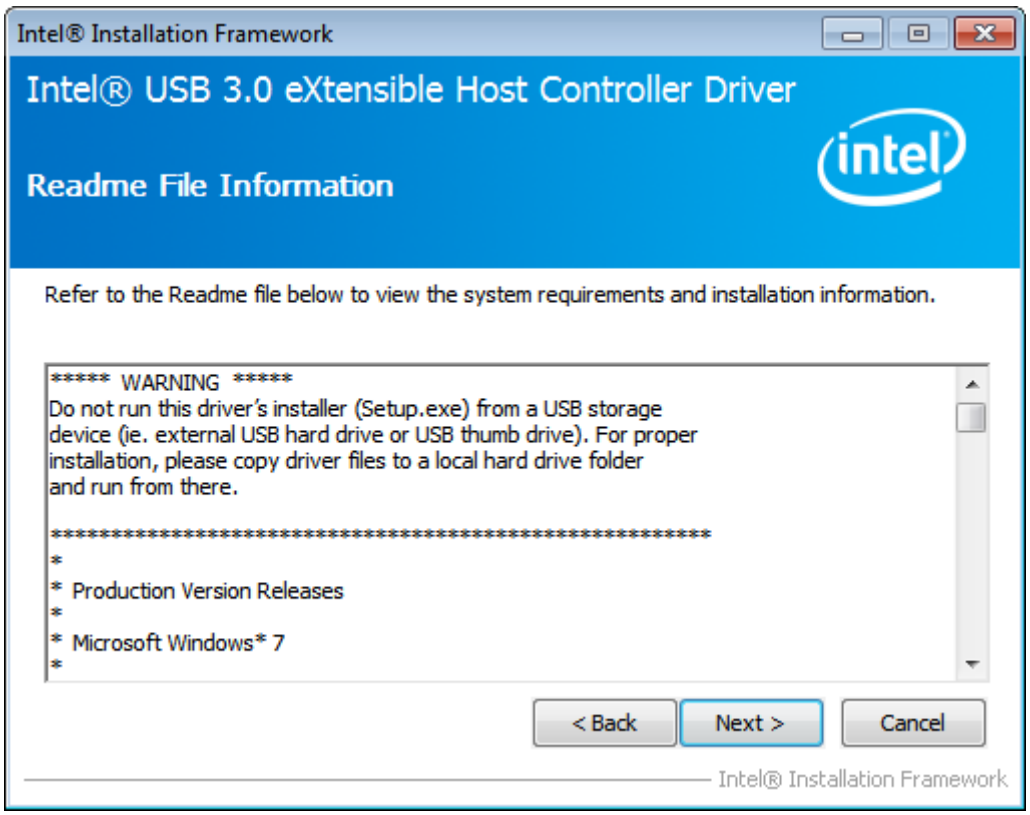
Step 2. Click **Next** to continue.



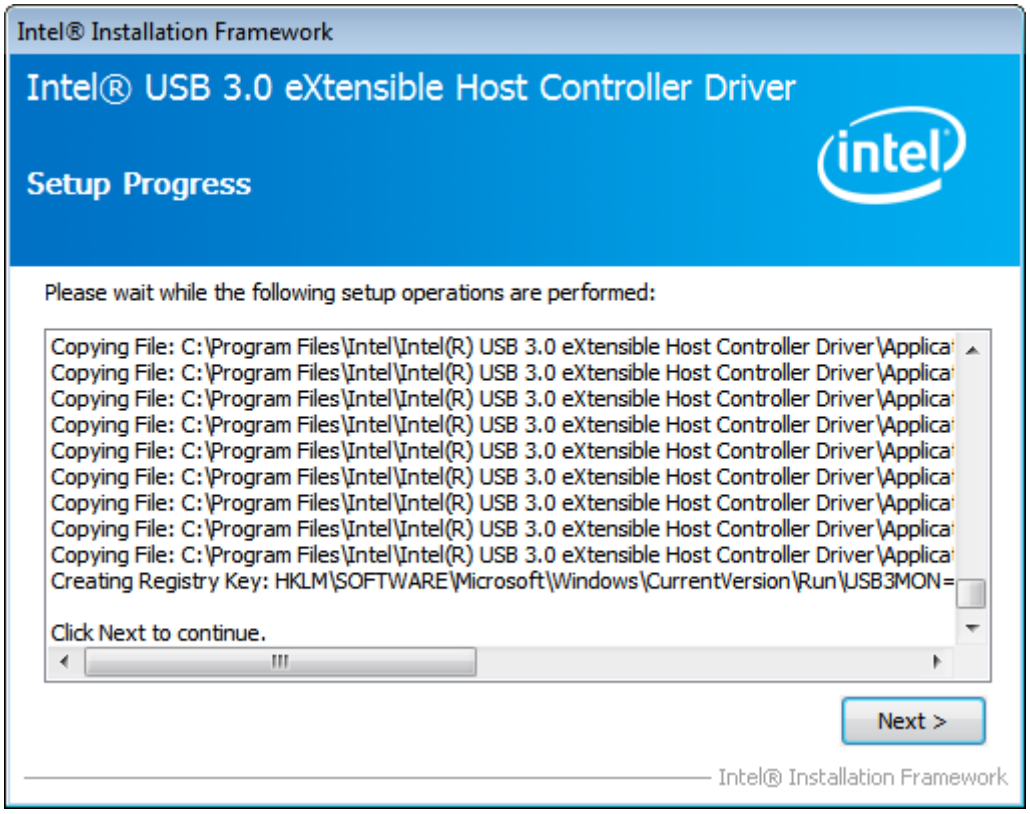
Step 3. Read the license agreement and click **Yes** to continue.



Step 4. Click **Next** to continue.



Step 5. Click **Next** to continue



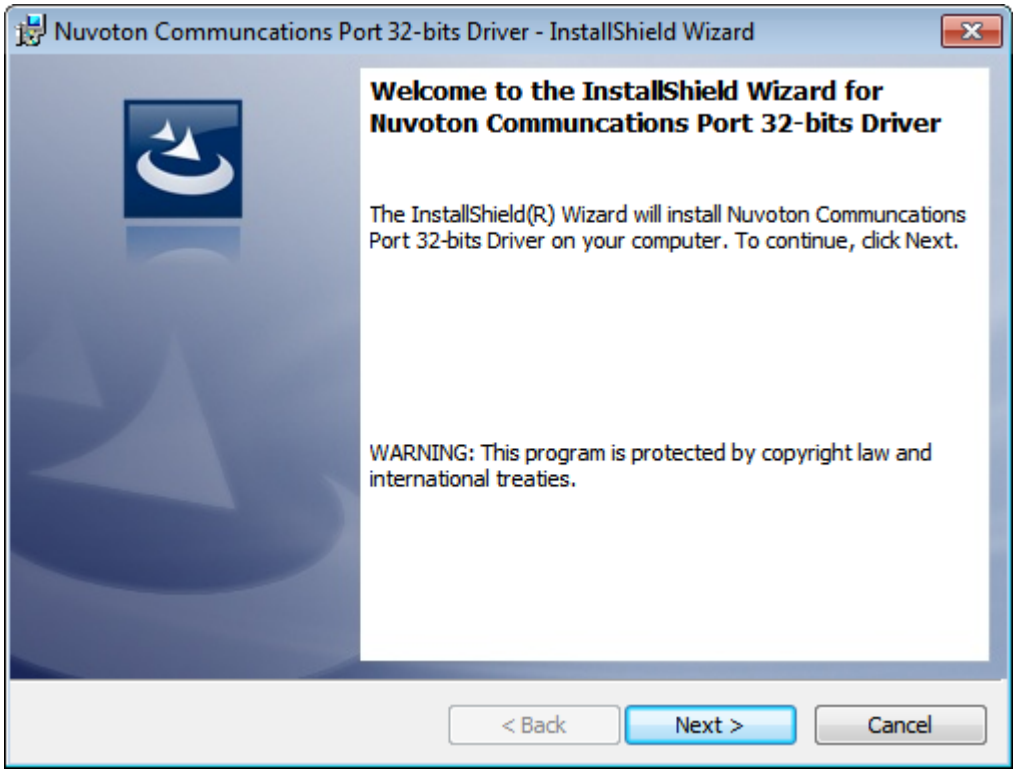
Step 6. Select **Yes, I want to restart this computer now.**, and then click **Finish** to complete the installation.

4.6 Com Driver

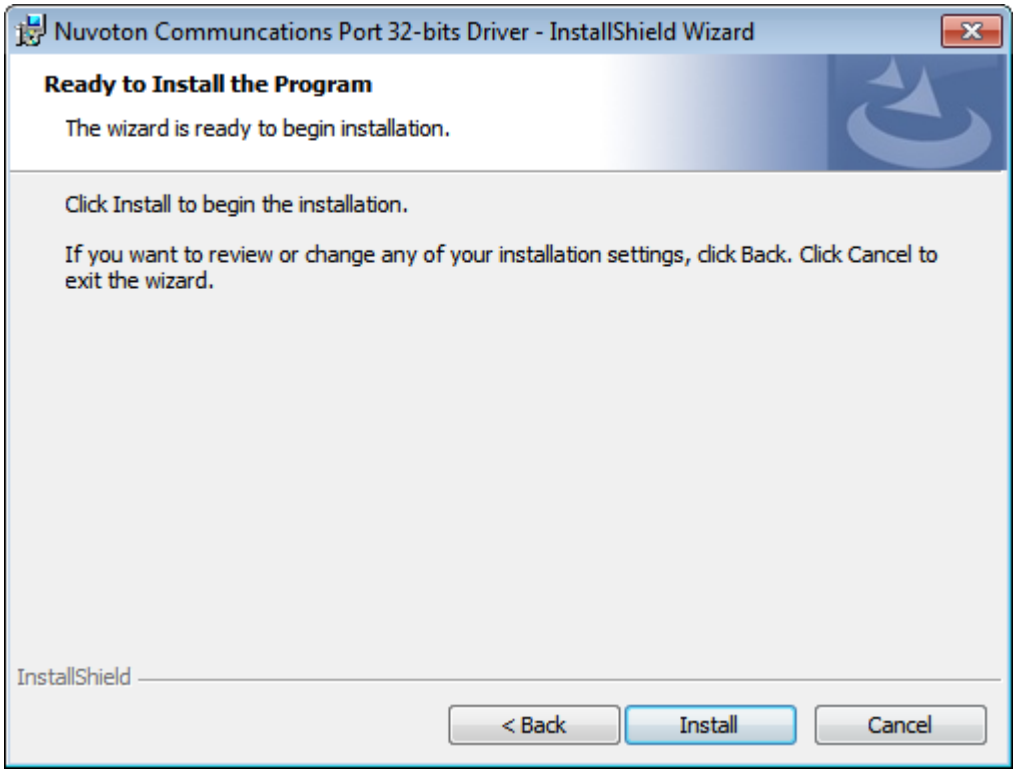
To install the Com Driver, please follow the steps below.

Step 1. Select **Com Driver** from the list.

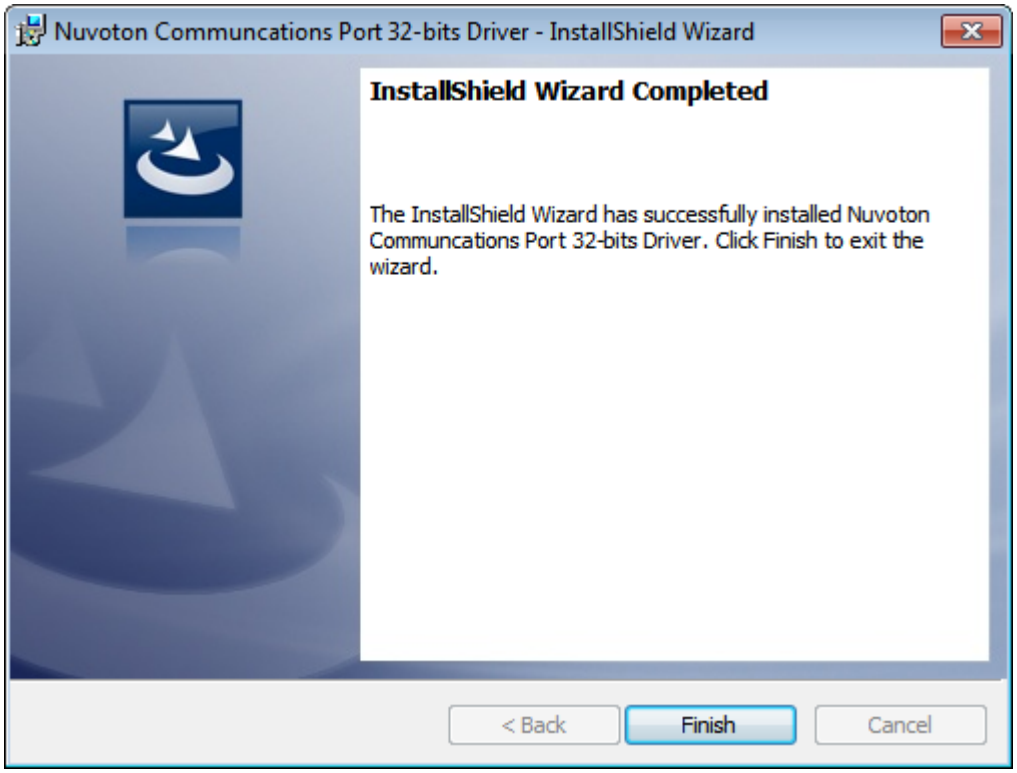
Step 2. Click **Next** to continue.



Step 3. Click **install** to begin the installation.



Step 4. Click **Finish** to complete the installation.

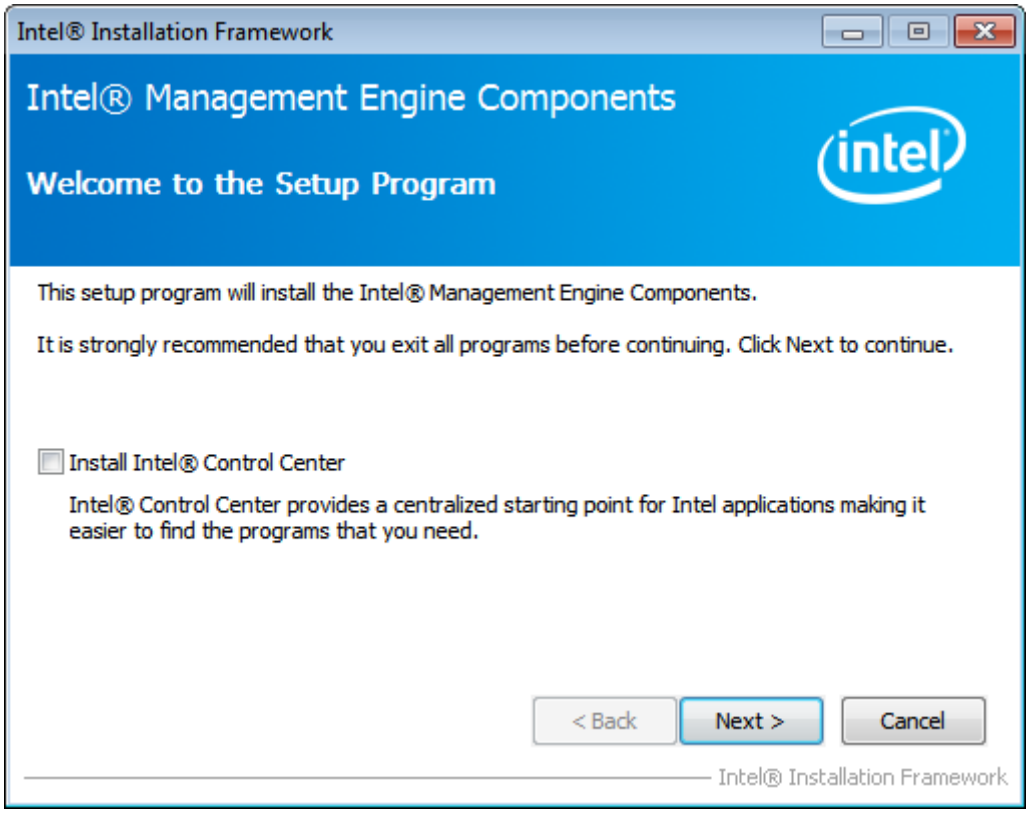


4.7 Intel Trusted Execution Engine Driver

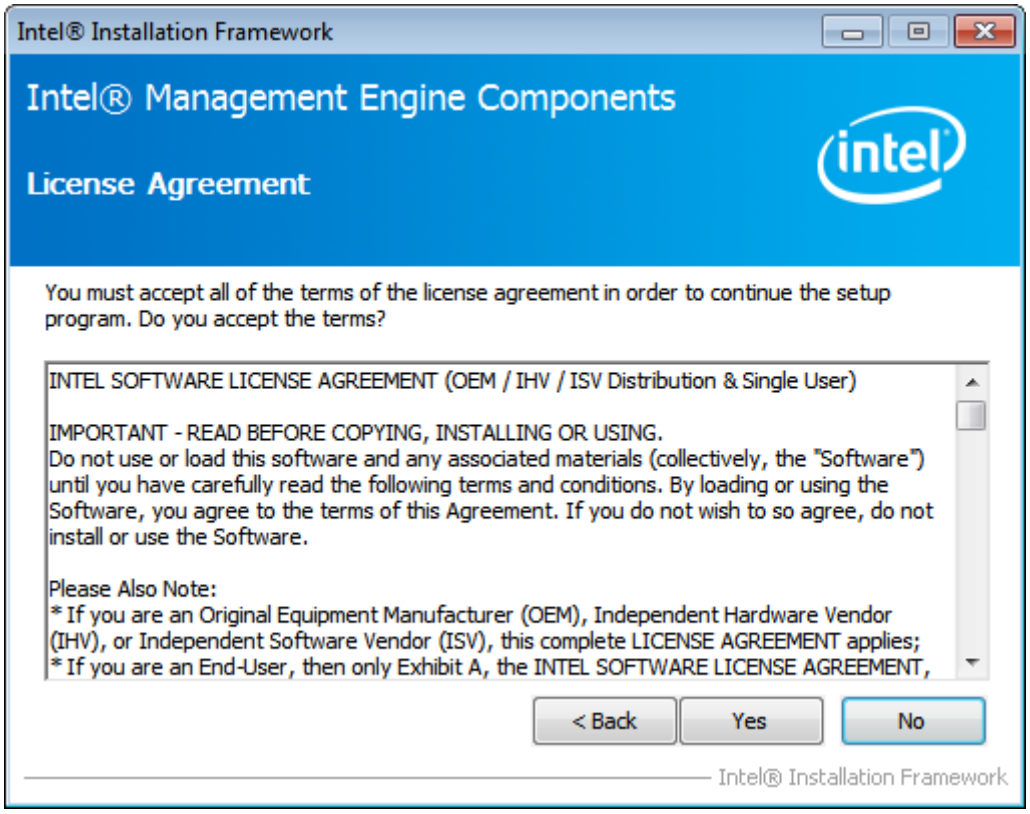
To install the Intel Trusted Execution Engine Driver, please follow the steps below.

Step 1. Select **Intel Trusted Execution Engine Driver** from the list.

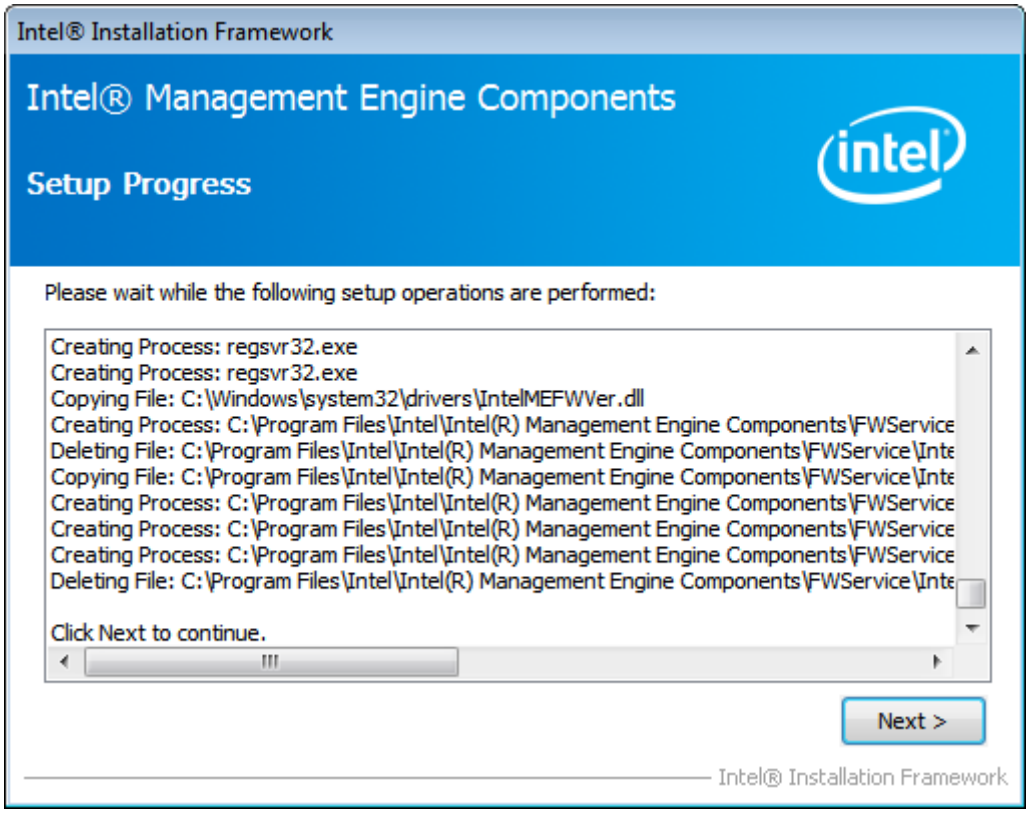
Step 2. Click **Next** to continue.



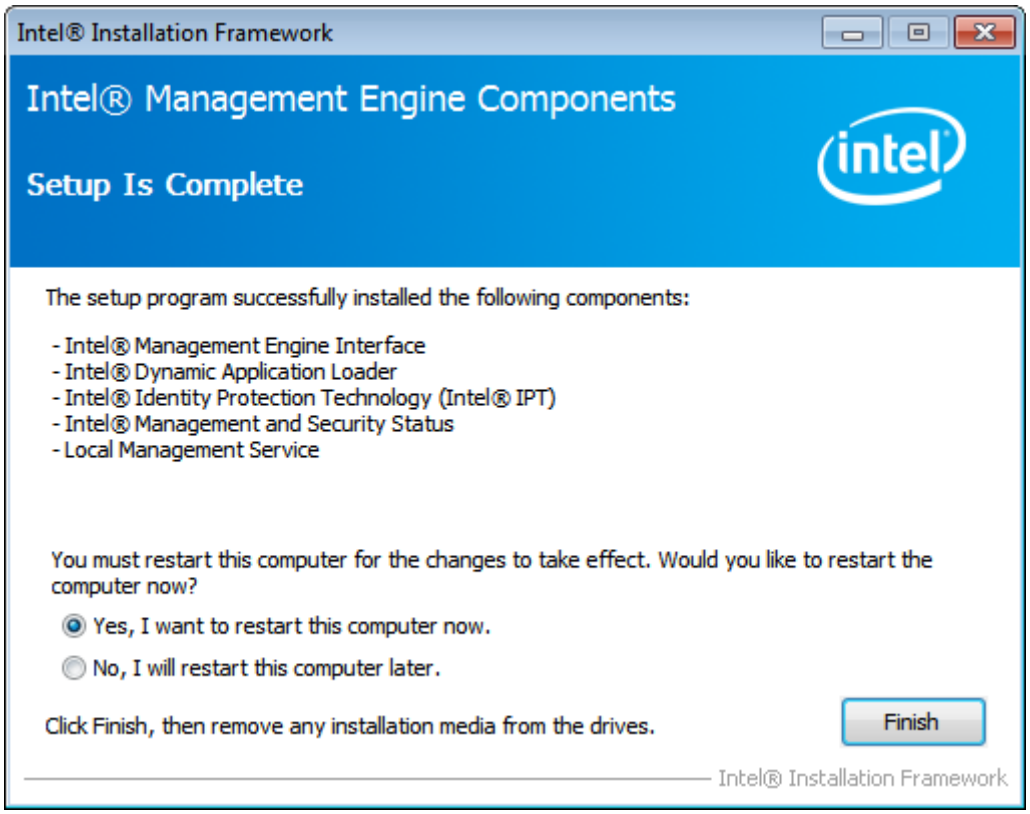
Step 3. Click **Yes** to continue.



Step 4. Click **Next** to continue**.**



Step 5. Select **Yes, I want to restart this computer now.** then click **Finish** to complete the installation.

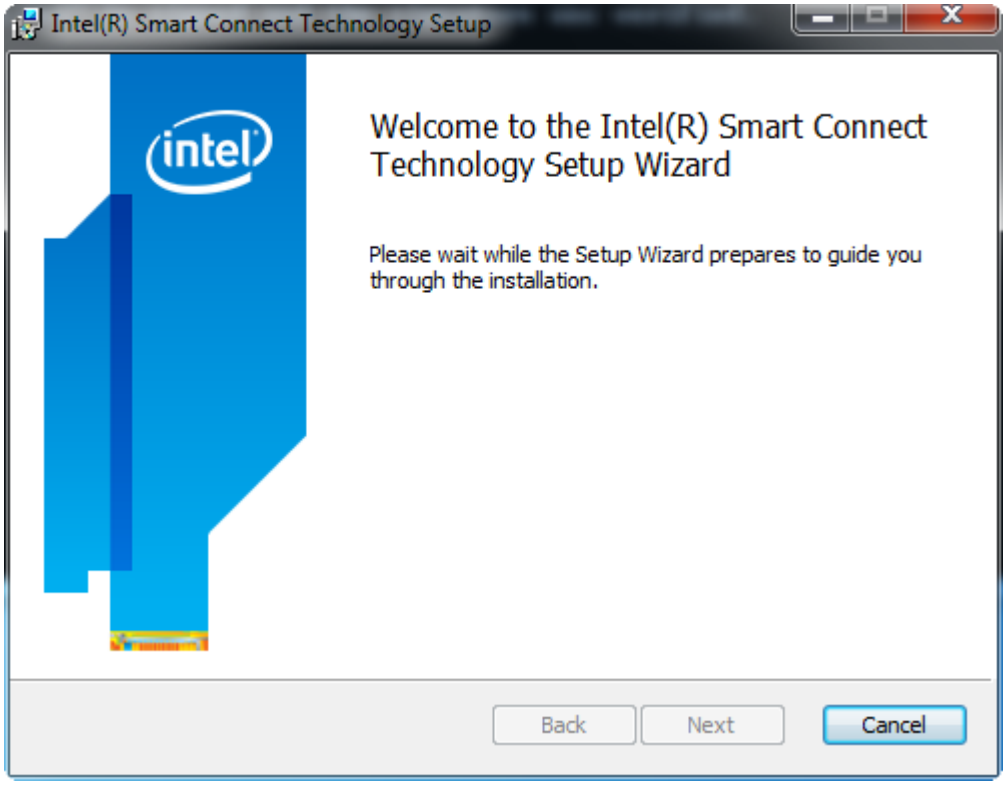


4.8 SmartConnect Driver

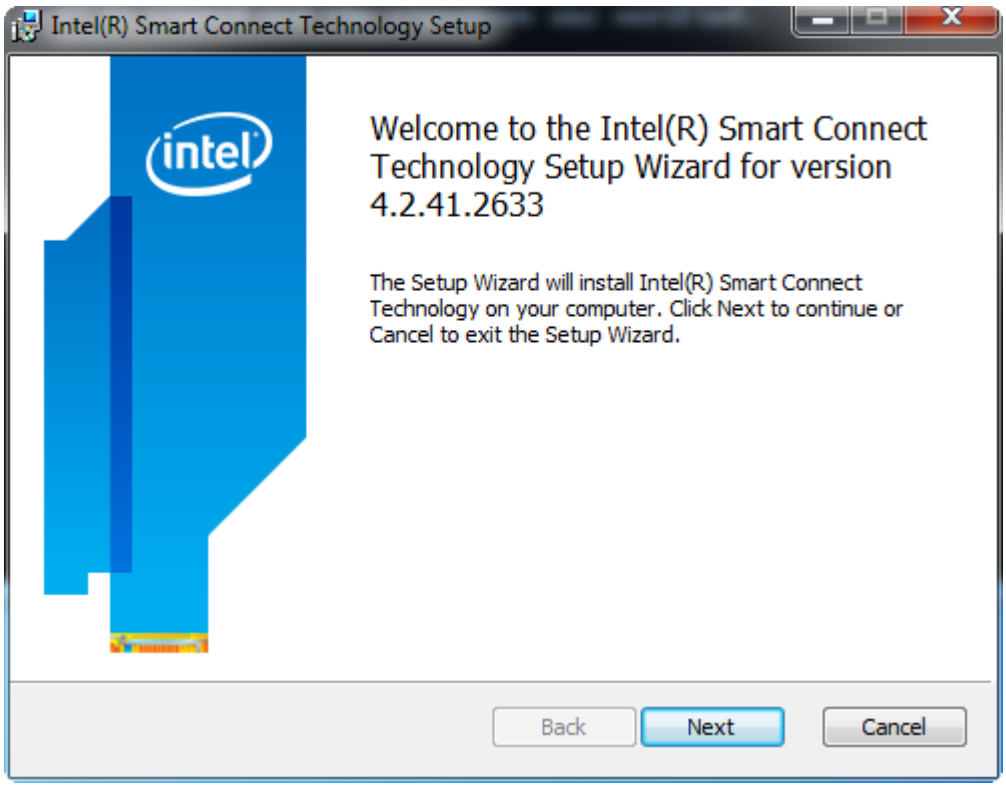
To install the SmartConnect Driver, please follow the steps below.

Step 1. Select **SmartConnect Driver** from the list.

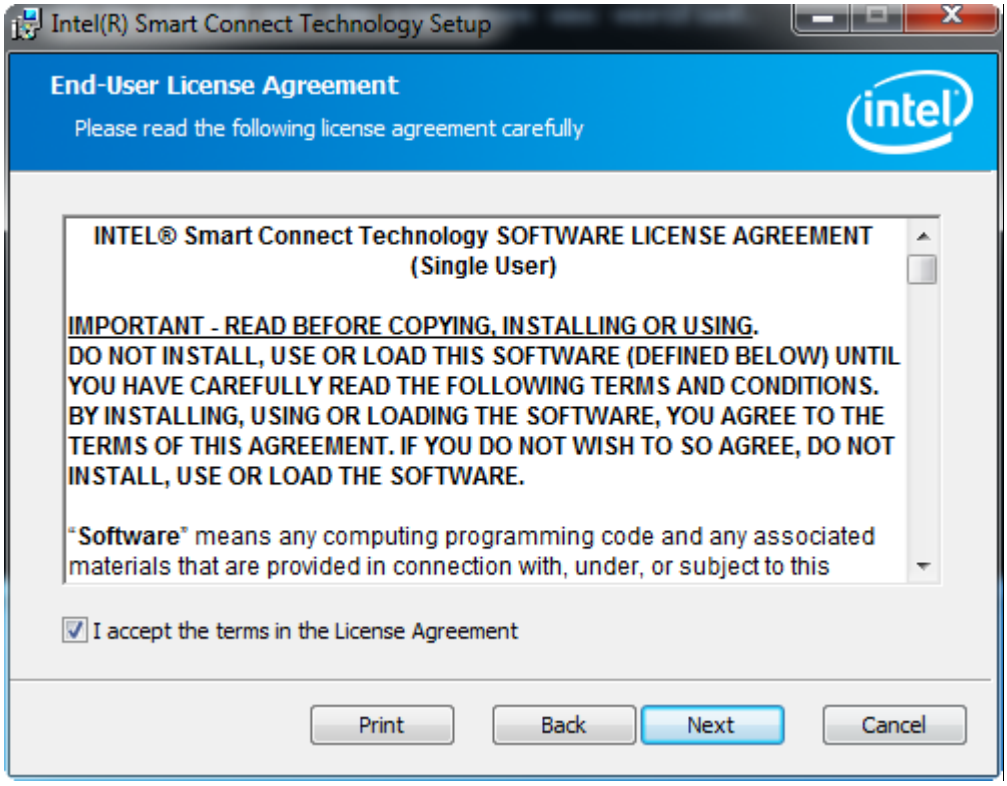
Step 2. Click **Next** to continue.



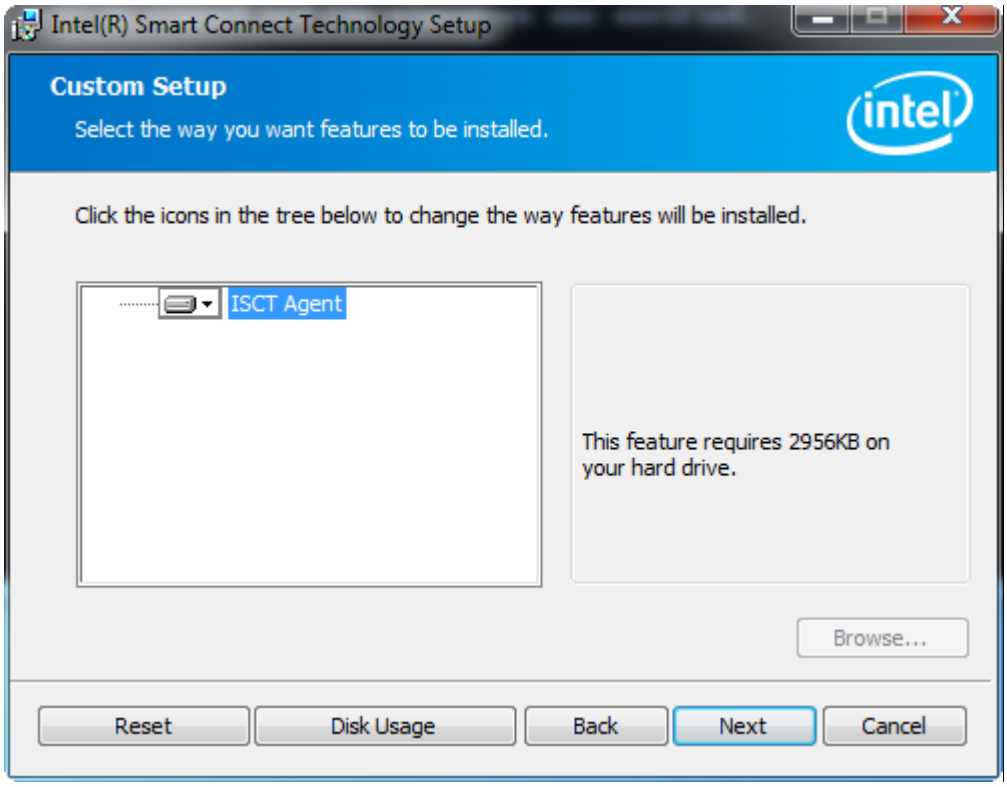
Step 2. Click **Next** to continue.



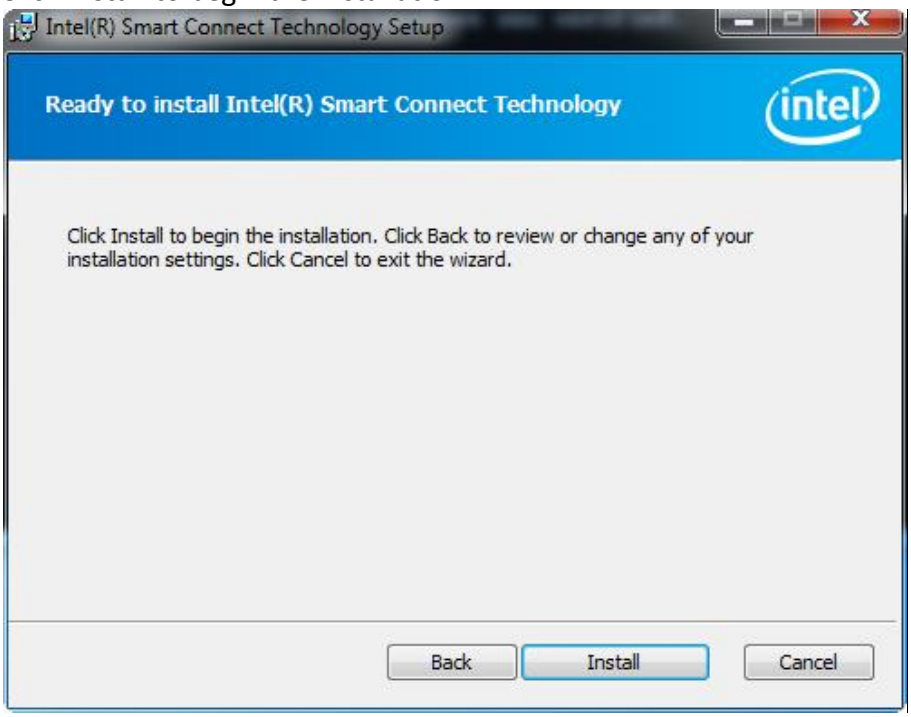
Step 3. Click **Next** to continue.



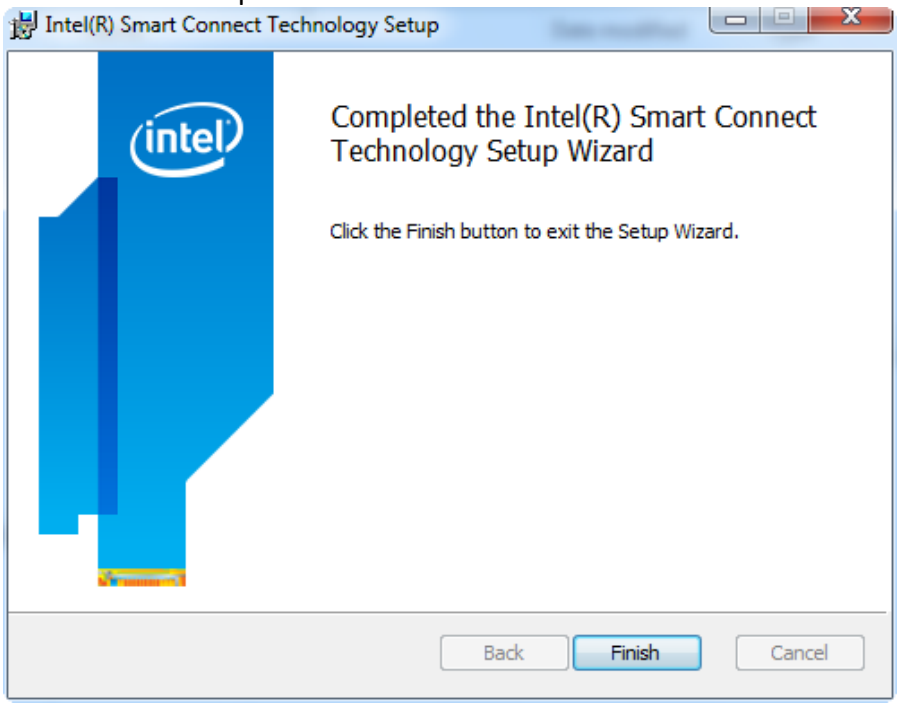
Step 4. Select the way you want features to be installed. Then click **Next** to continue.



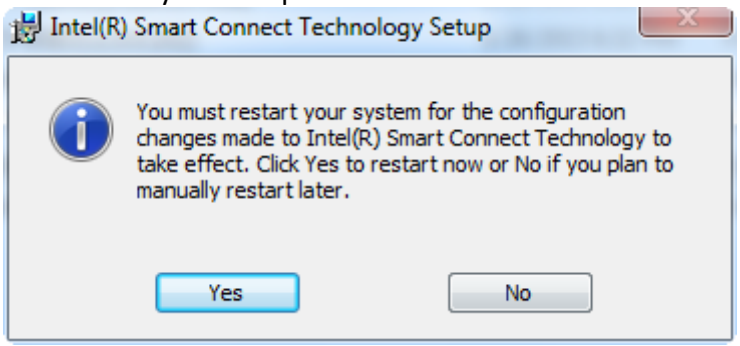
Step 5. Click **Install** to begin the installation.



Step 6. Click **Finish** to complete the installation.



Step 7. Click **Yes** to restart your computer now.



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 Universal Driver Installation for PenMount 6000 Series

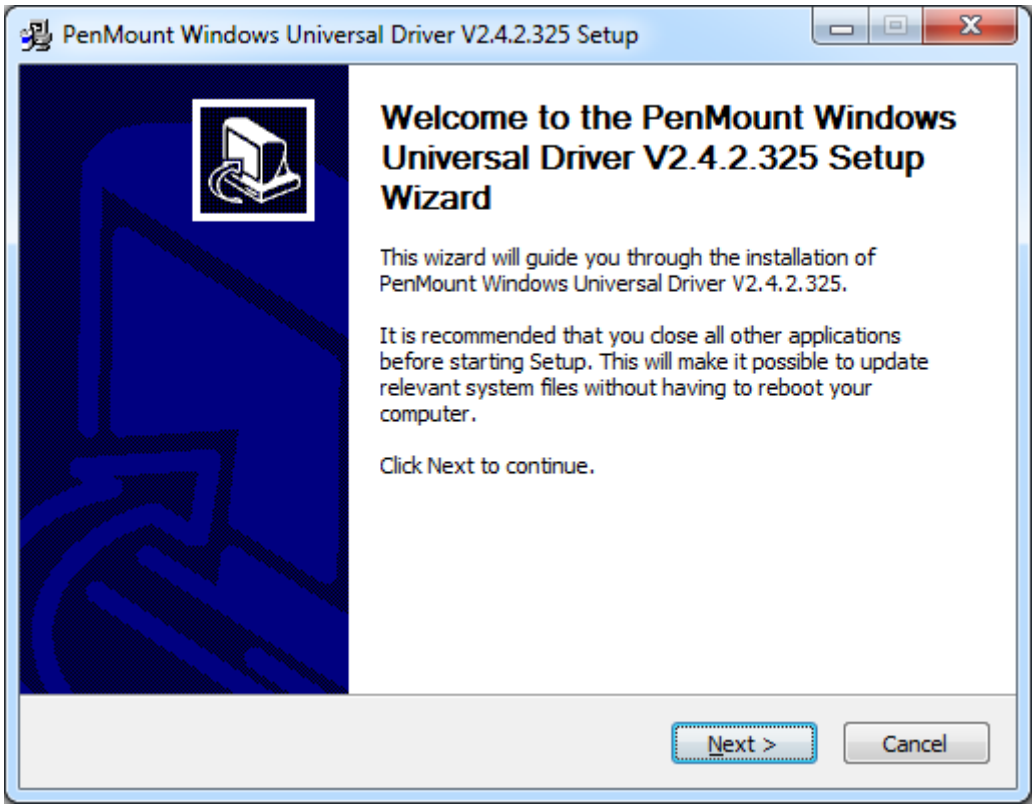
Before installing the Windows 7/8.1 driver software, you must have the Windows 7/8.1 system installed and running on your computer. You must also have one of the following PenMount 6000 series controller or control boards installed: PM6500, PM6300.

5.1.1 Installing Software(Resistive Touch)

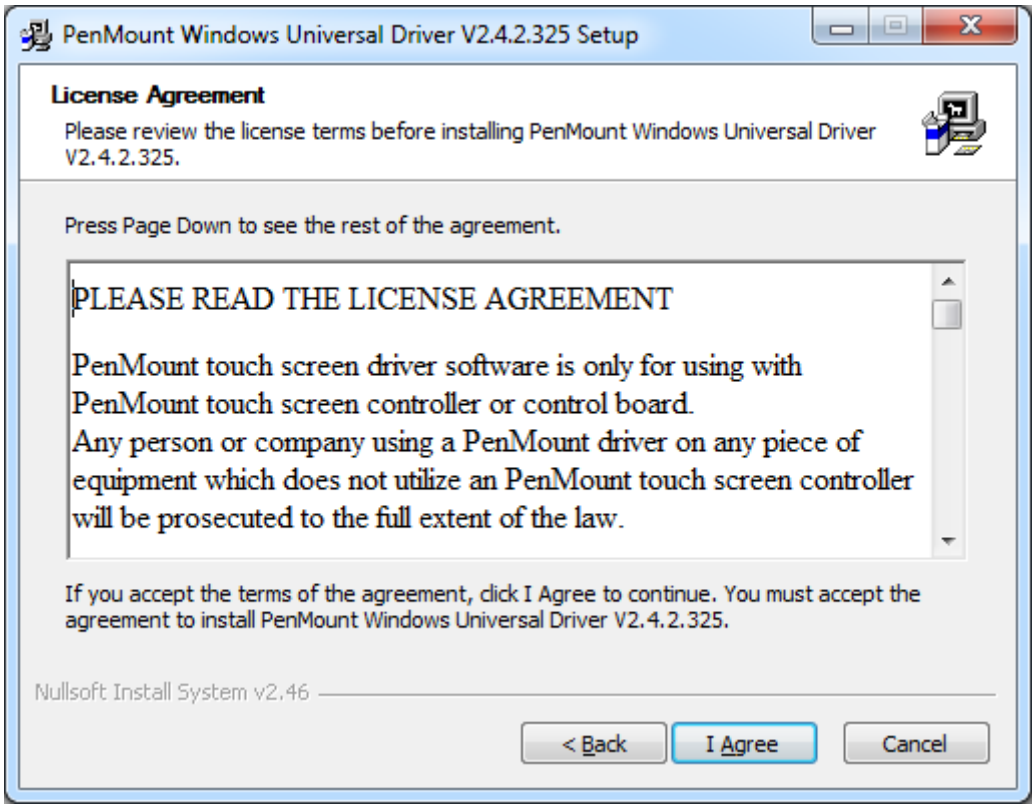
If you have an older version of the PenMount Windows 7 driver installed in your system, please remove it first. Follow the steps below to install the PenMount DMC6000 Windows 7 driver.

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

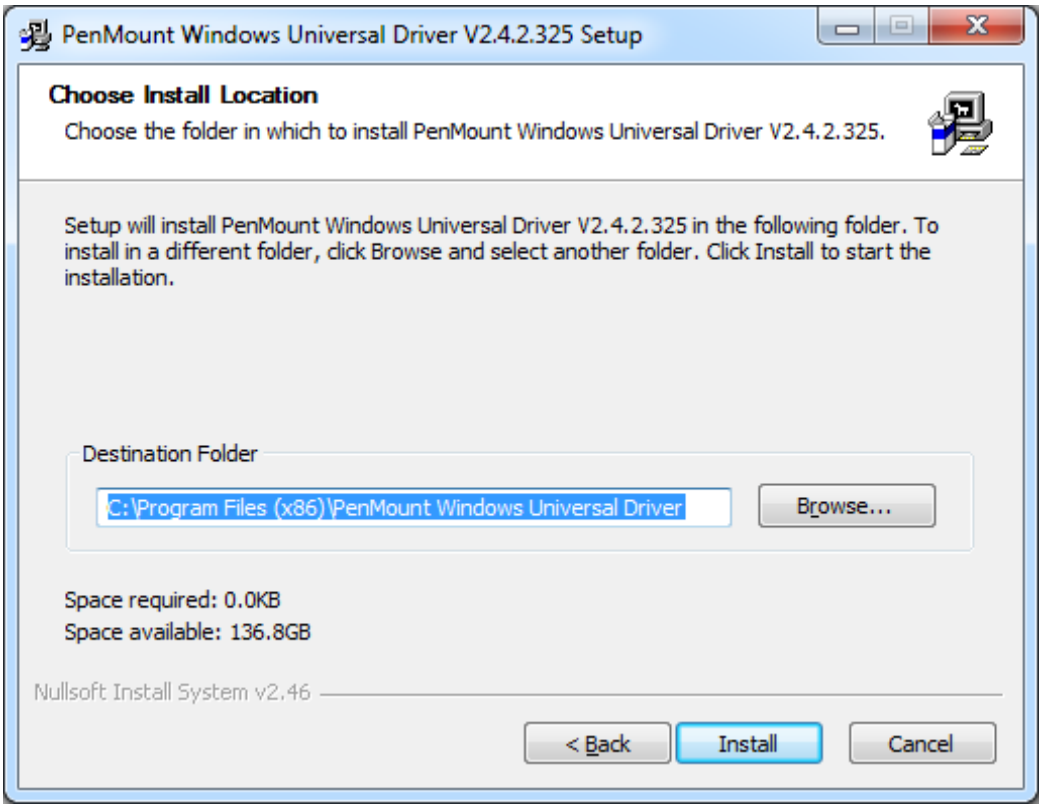
Step 2. Click **Next** to continue.



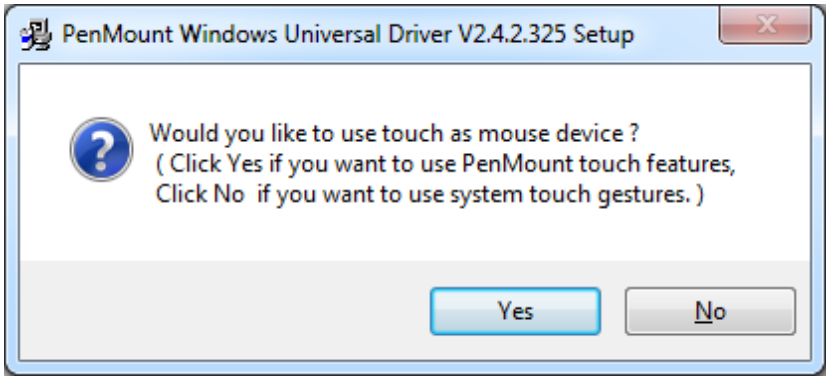
Step 3. Read the license agreement. Click **I Agree** to agree the license agreement.



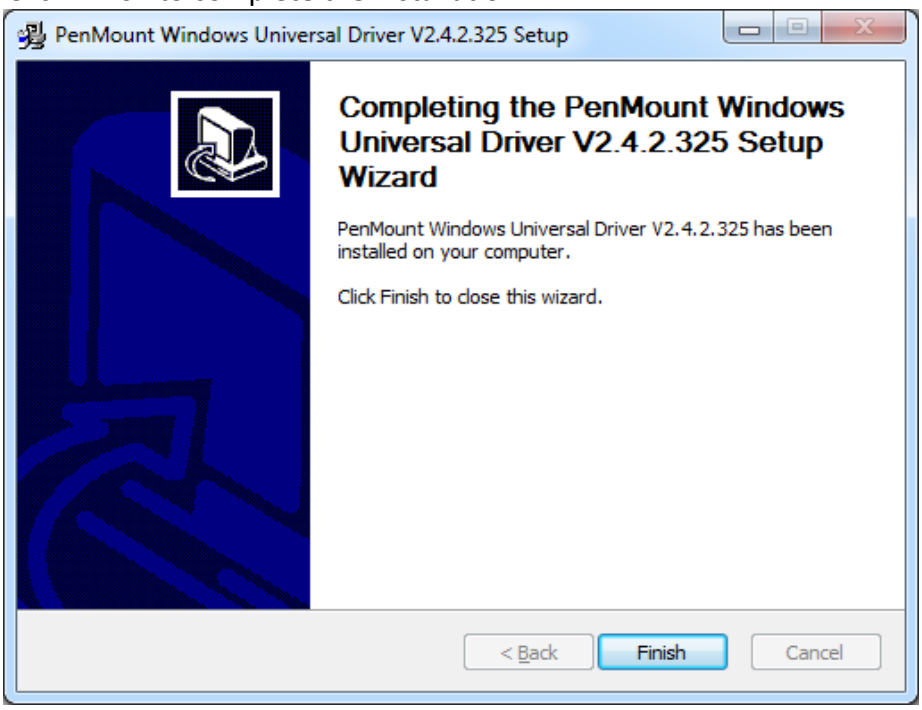
Step 4. Choose the folder in which to install PenMount Windows Universal Driver. Click **Install** to start the installation.



Step 5. Click **Yes** if you want to use penMount touch features, Click **No** if you want to use system touch gestures.



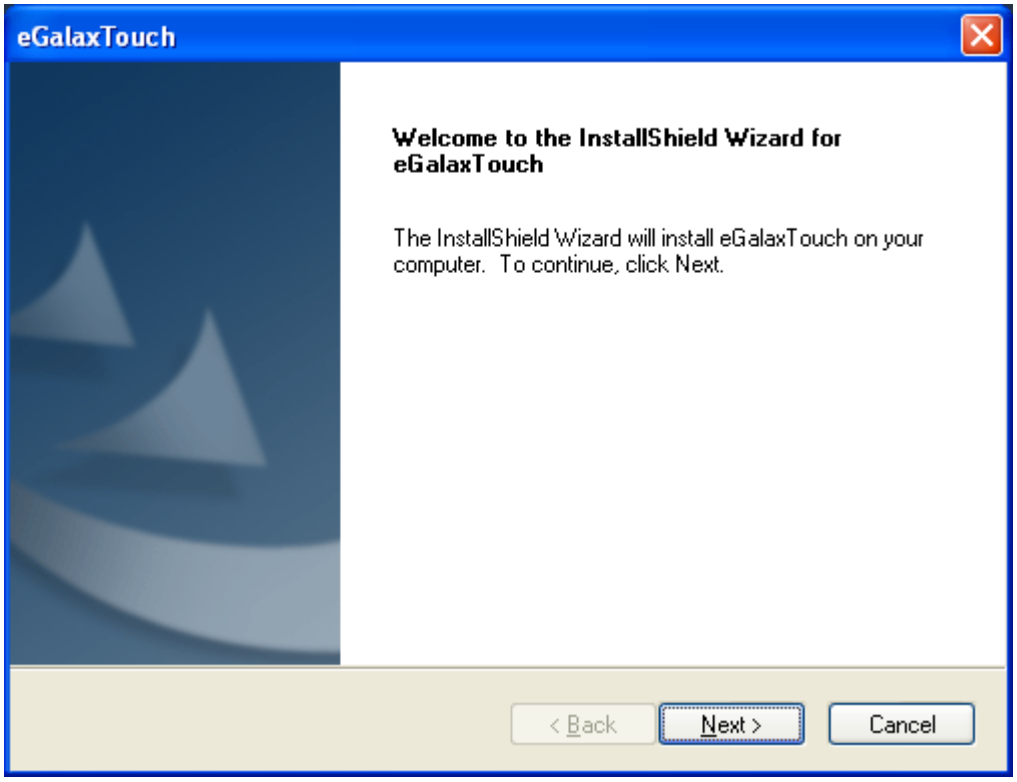
Step 6. Click **Finish** to complete the installation.



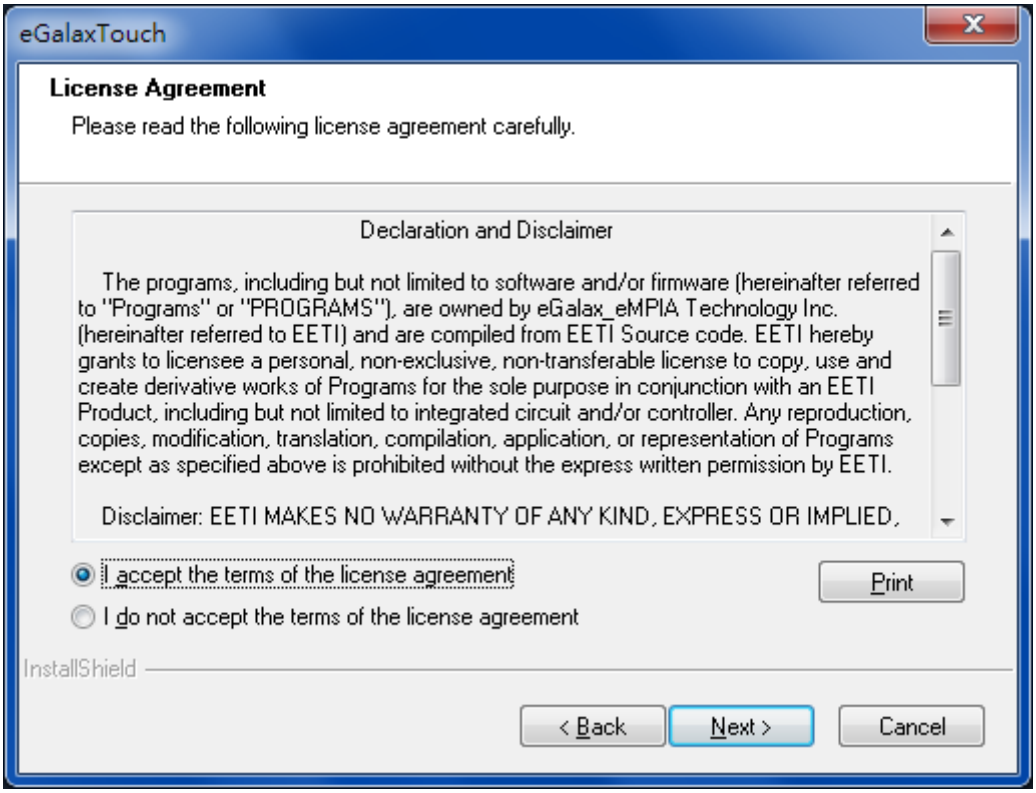
5.1.2 Installing Software(Projected Capacitive)

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

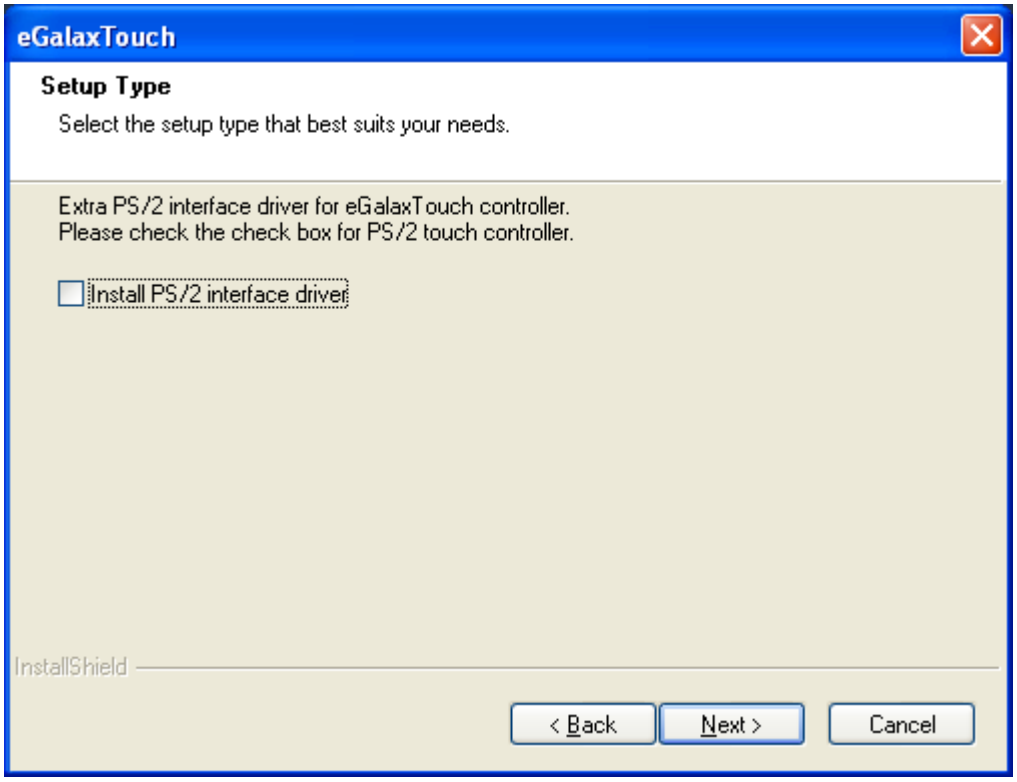
Step 2. Click **Next** to continue.



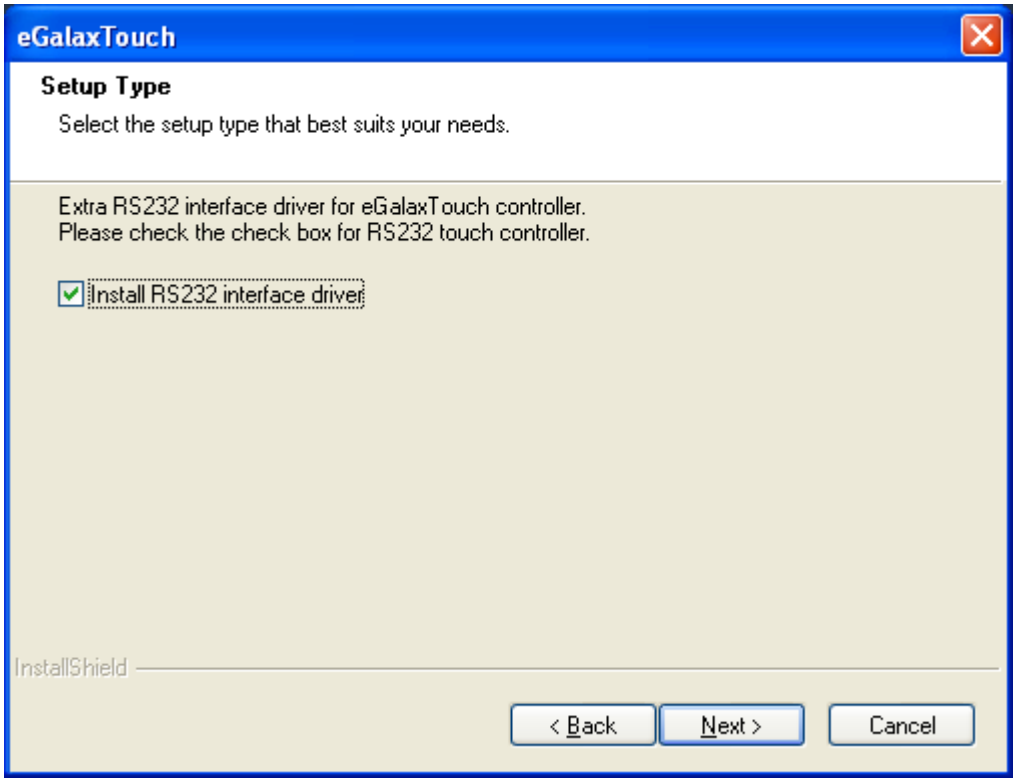
Step 3. Select **I accept the terms of the license agreement**. Click **Next.**



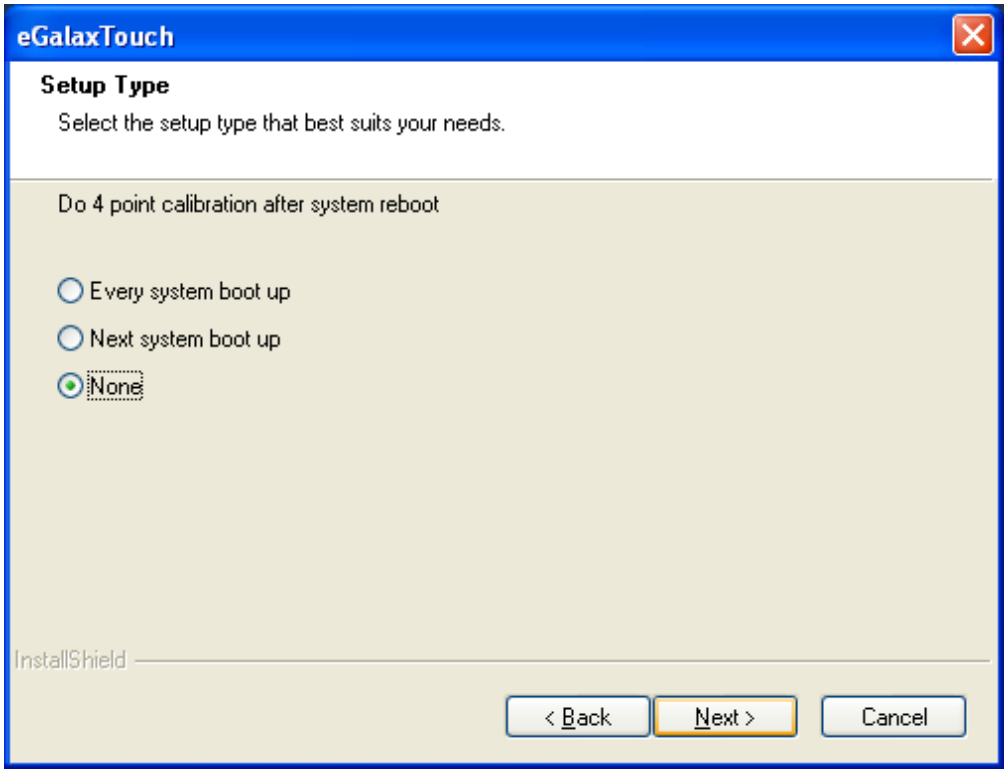
Step.4. Click **Next** to continue.



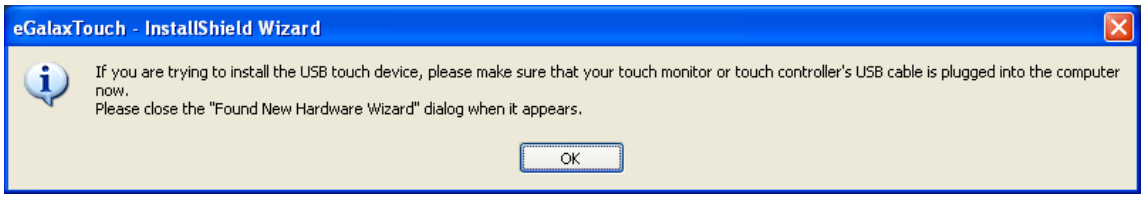
Step 5. Click **Install RS232 interface driver**. Then click **Next** to continue.



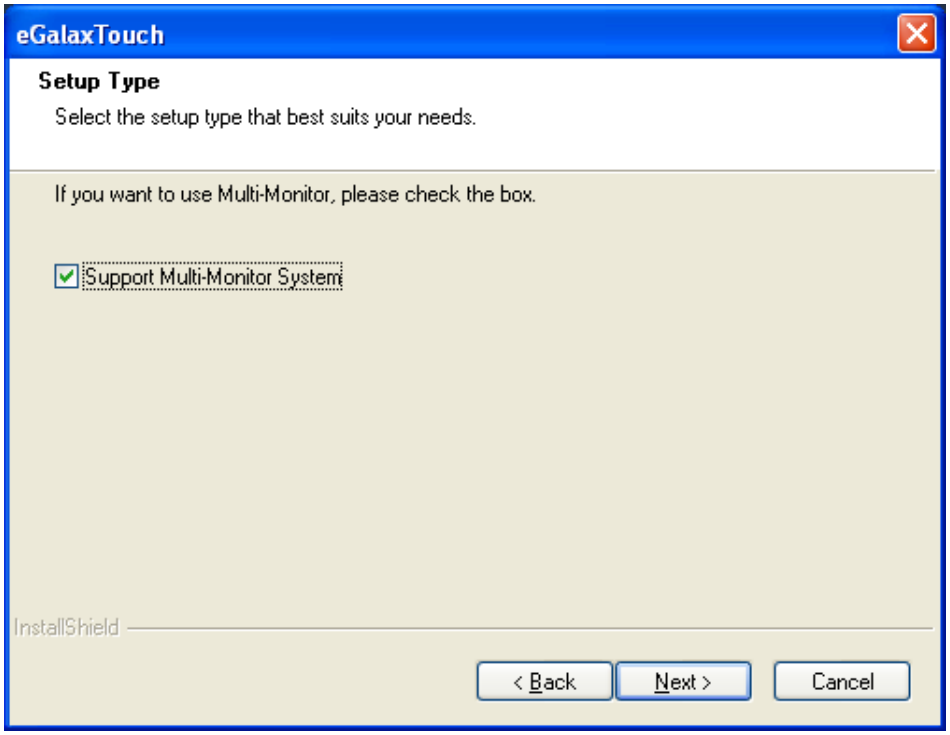
Step 6. Select **None**. Click **Next**.



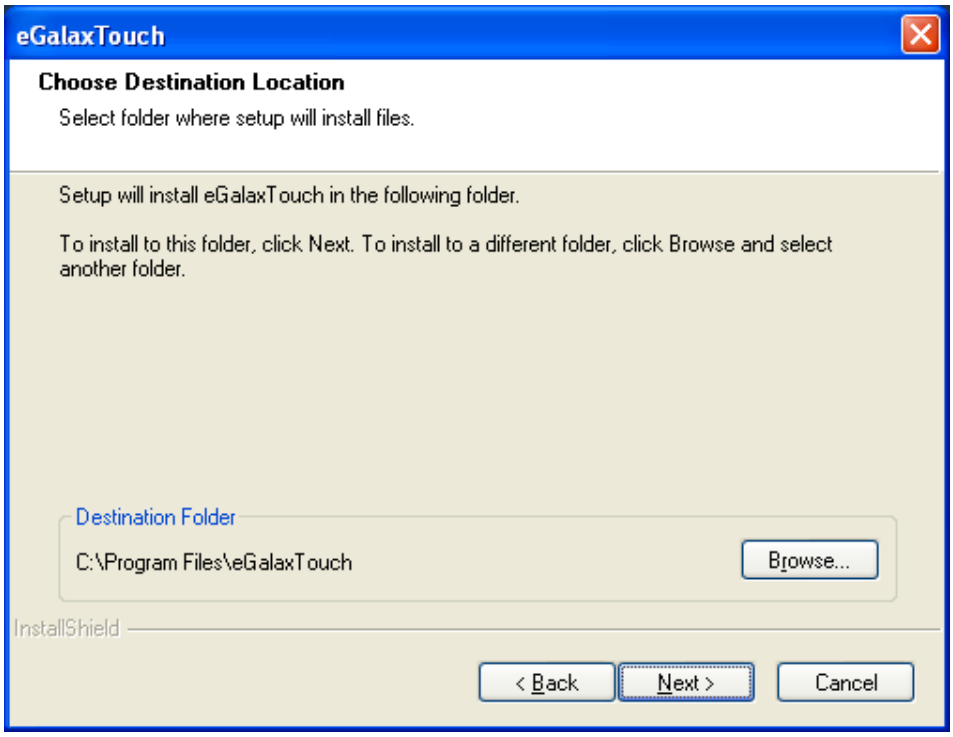
Step 7. Click **OK** to continue.



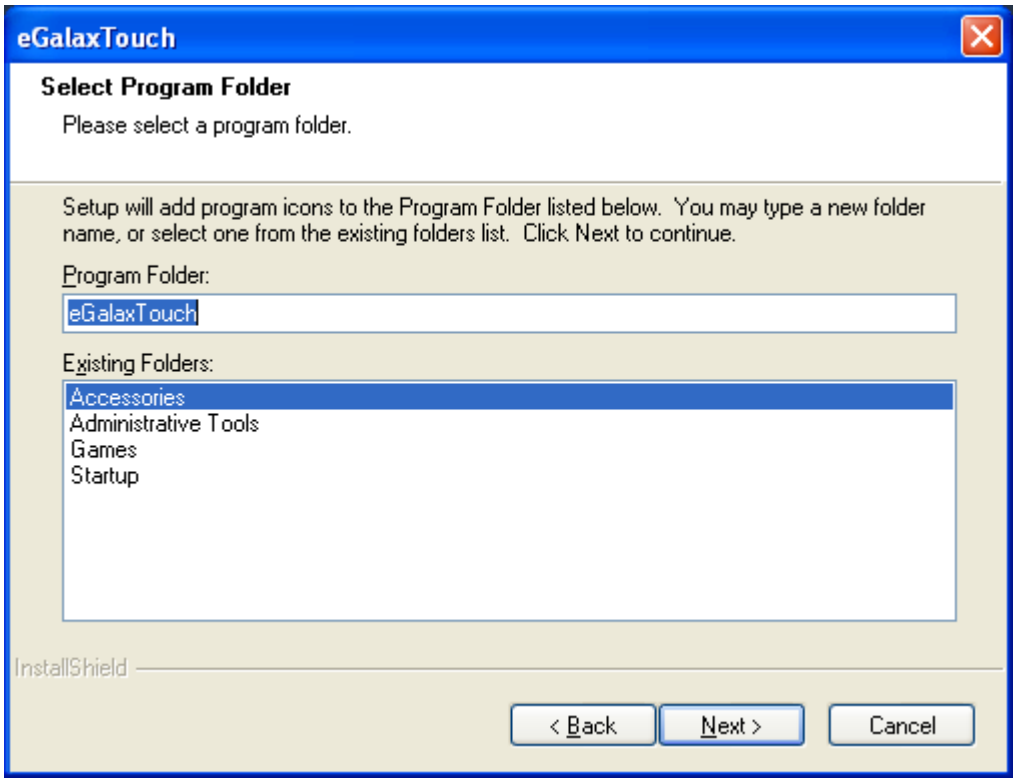
Step 8. Click **Support Muti-Monitor System**. Click **Next.**



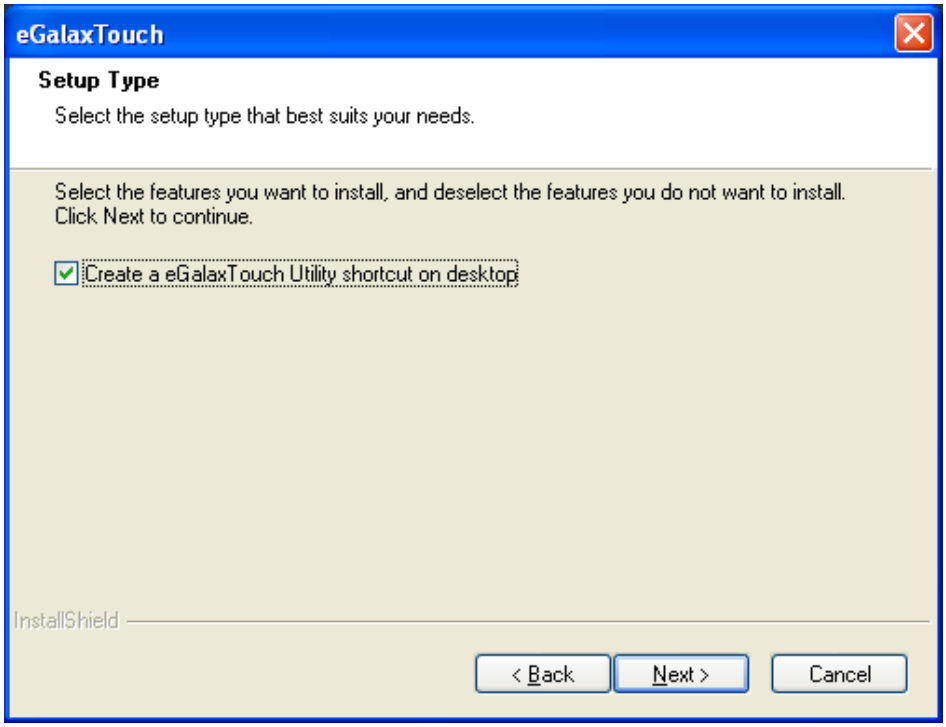
Step 9. Go to **C:\Program Files\eGalaxTouch**. Click **Next**.



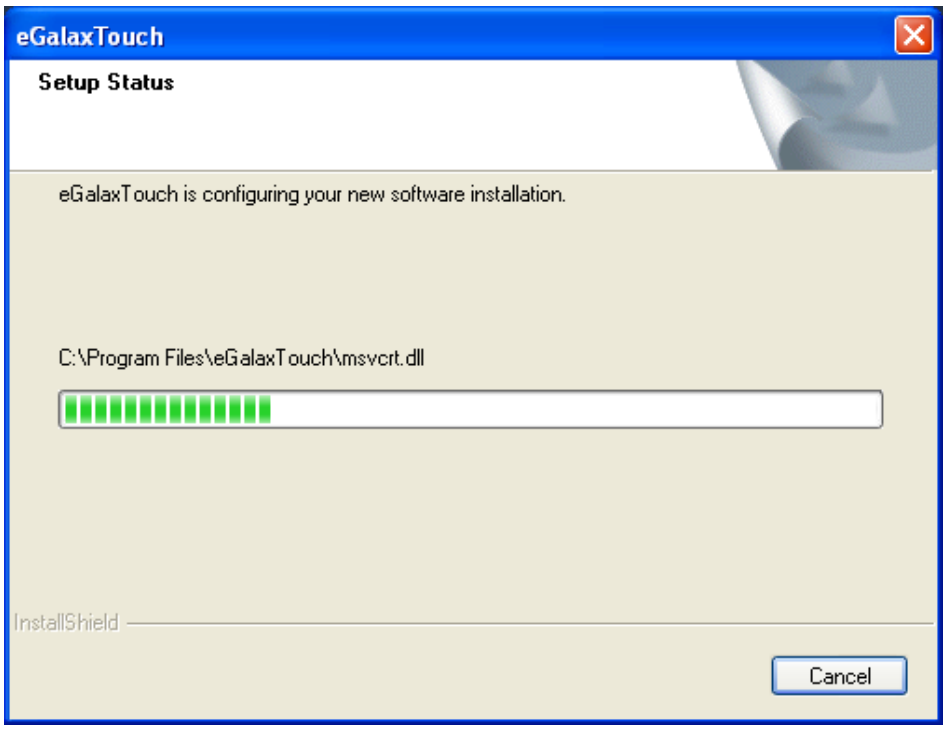
Step 10. Click **Next.**



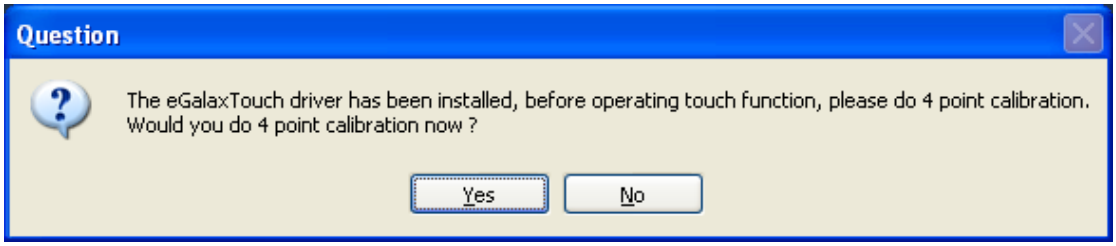
Step 11. Click **Create a eGalaxTouch Utility shortcut on desktop**. Click **Next**.



Step 12. Wait for installation.



Step 13. Click **Yes** to do 4 point calibration.



5.2 Software Functions(Resistive Touch)

5.2.1 Software Functions(Resistive Touch)

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.

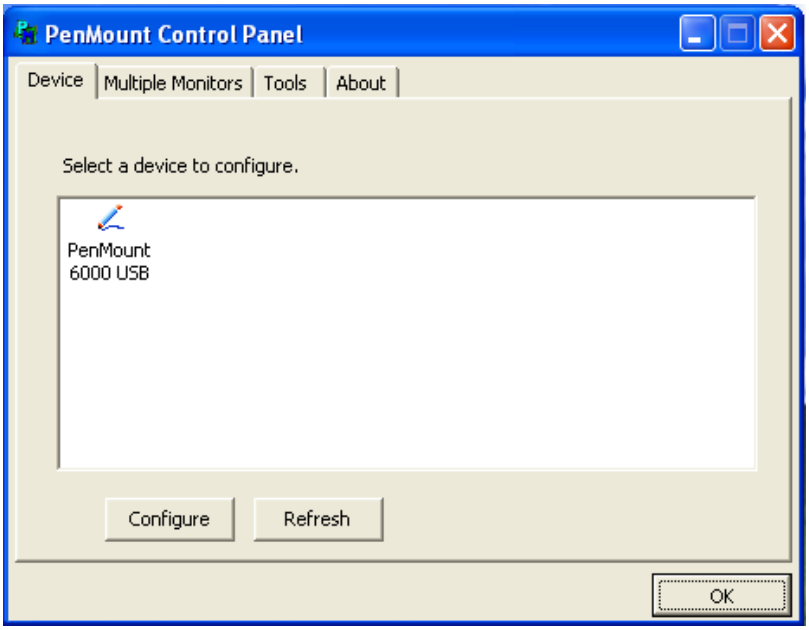
1. After installation, click the PenMount Monitor icon “PM” in the menu bar.
2. When the PenMount Control Panel appears, select a device to “Calibrate.”

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.

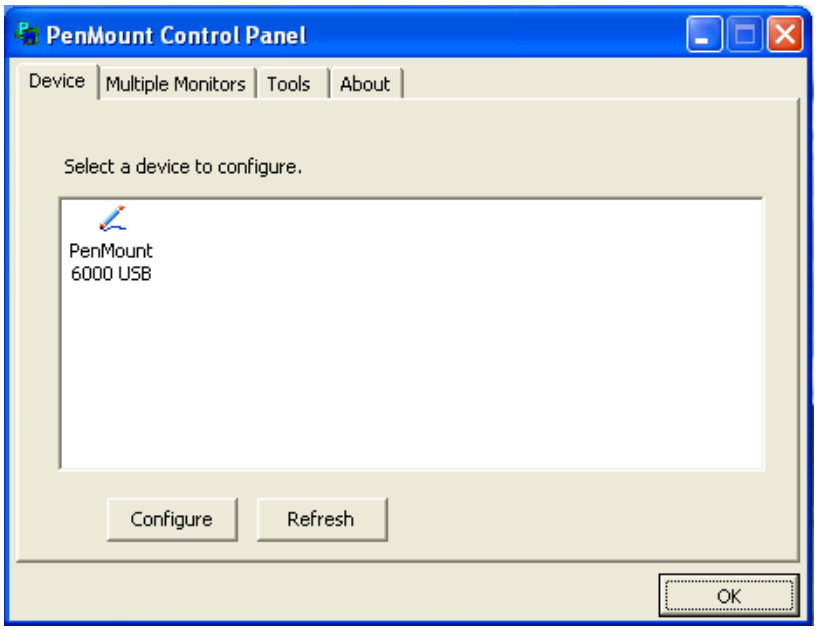


Calibrate

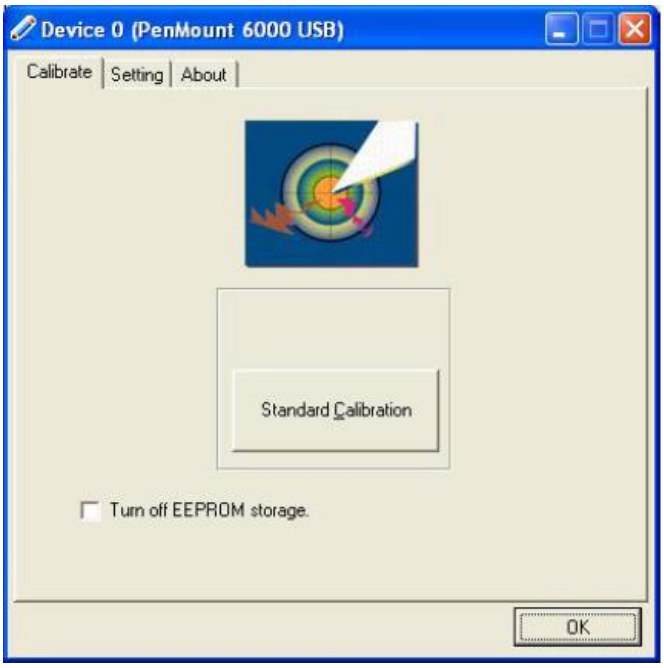
This function offers two ways to calibrate your touch screen. ‘Standard Calibration’ adjusts most touch screens. ‘Advanced Calibration’ adjusts aging touch screens.

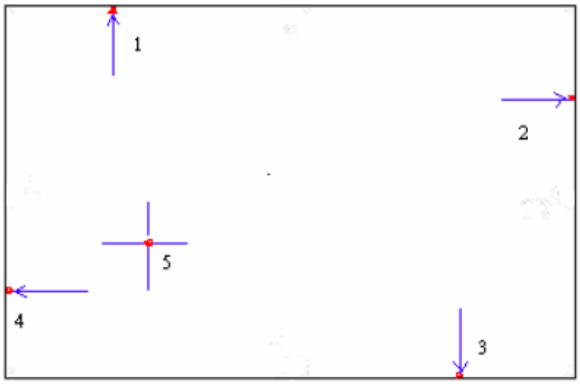
Standard Calibration	**Click this button and arrows appear pointing to red squares. Use your finger or stylus to touch the red squares in sequence. After the fifth red point calibration is complete. To skip, press ‘ESC’.**
Advanced Calibration	**Advanced Calibration uses 4, 9, 16 or 25 points to effectively 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.



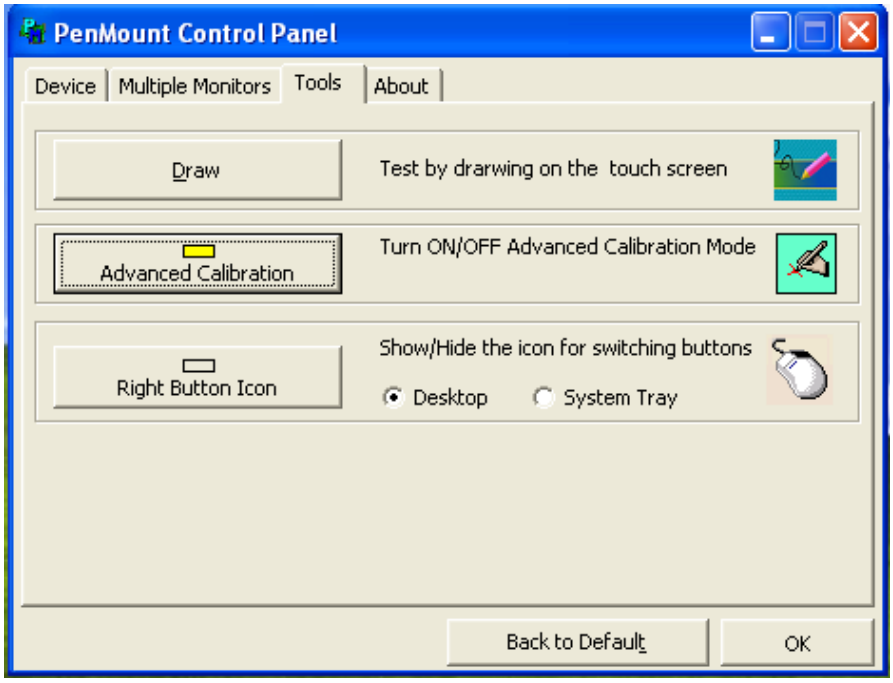
Step 2. Click “**Standard Calibration**” to start calibration procedure



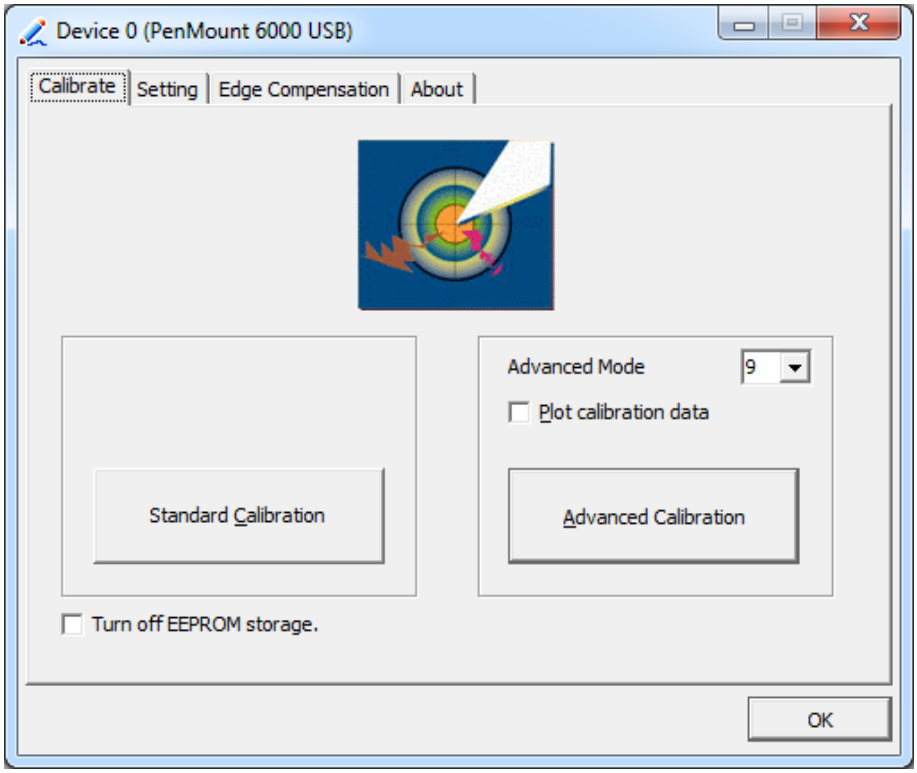


NOTE: The older the touch screen, the more Advanced Mode calibration points you need for an accurate calibration. Use a stylus during Advanced Calibration for greater accuracy. Please follow the step as below:

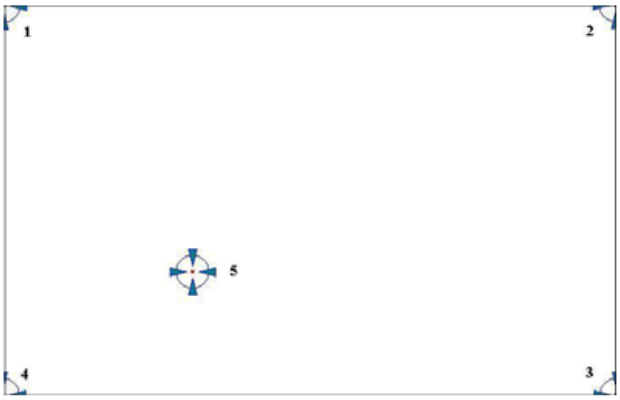
Step 3. Come back to "PenMount Control Panel" and select **Tools** then click **Advanced Calibration**.



Step 4. Select **Device** to calibrate, then you can start to do **Advanced Calibration**.



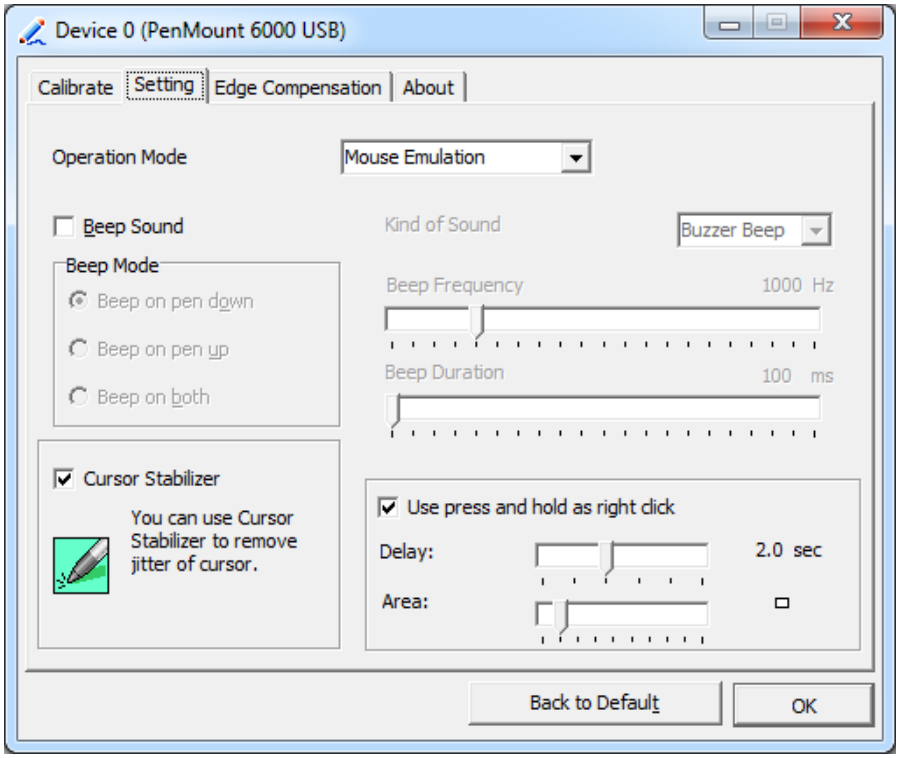
NOTE: Recommend to use a stylus during Advanced Calibration for greater accuracy.



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.**

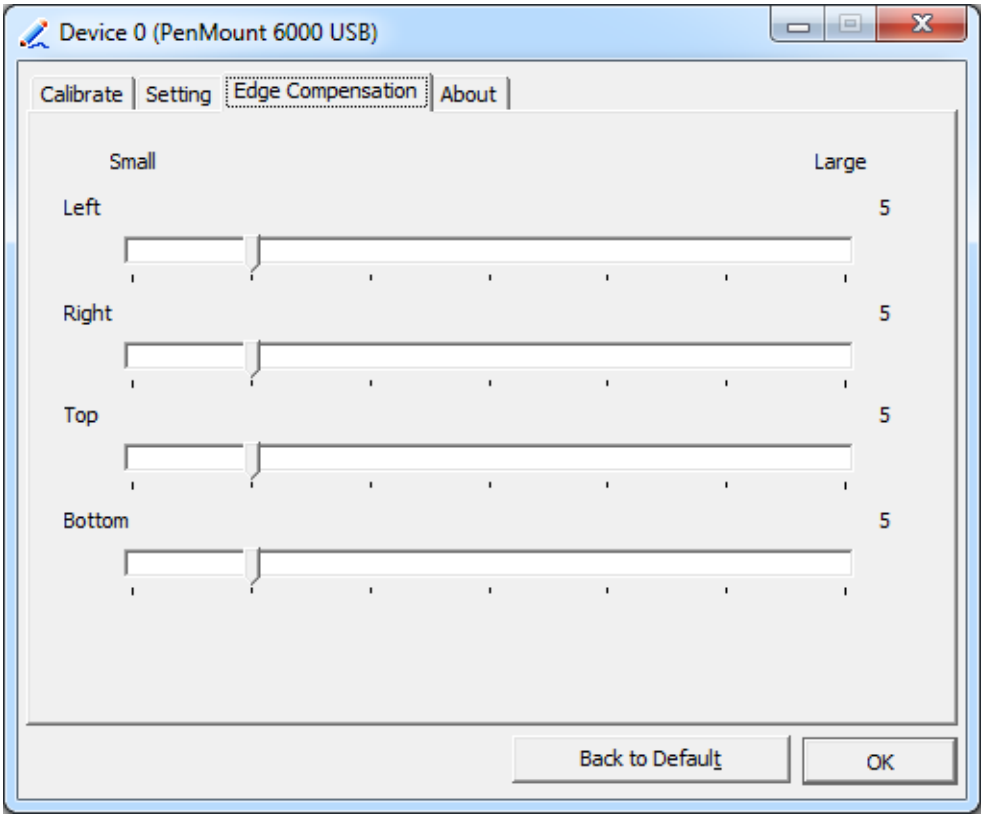
Setting

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.**



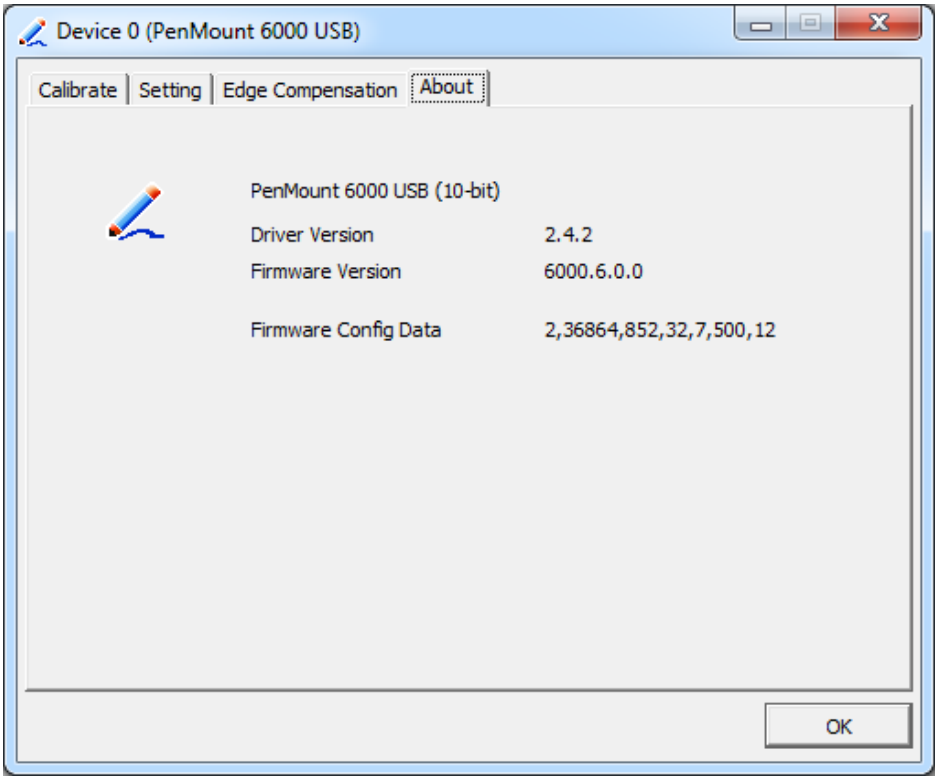
Edge Compensation

You can use Edge Compensation to calibrate more subtly.



About

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



Multiple Monitors

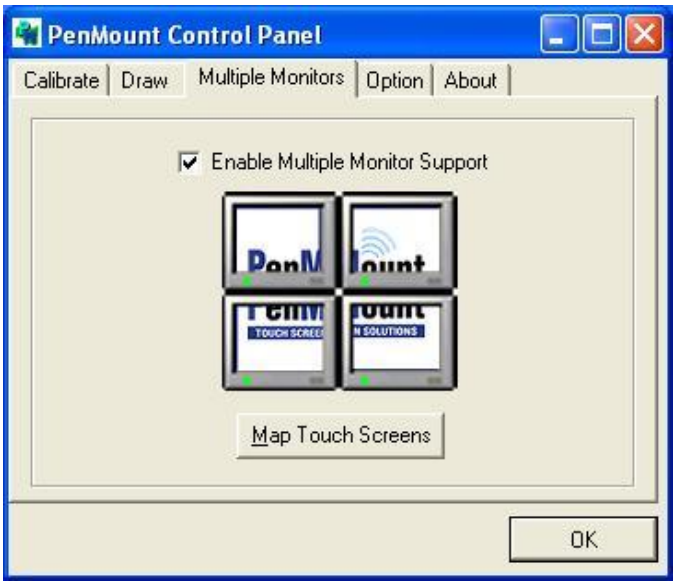
Multiple Monitors support from two to six touch screen displays for one system. The PenMount drivers for Windows 7/8.1 support Multiple Monitors. This function supports from two to six touch screen displays for one system. Each monitor requires its own PenMount touch screen control board, either installed 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

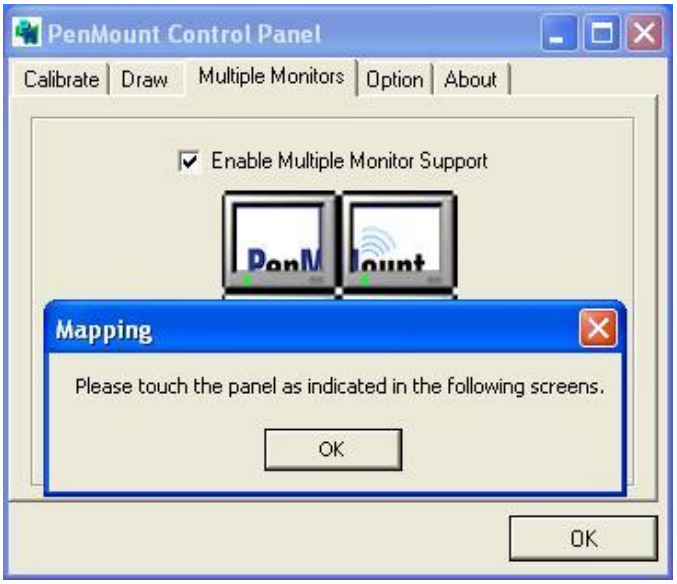
NOTE: The Multiple Monitor function is for use with multiple displays only. Do not use this function if you have only one touch screen display. Please note once you turn on this function the rotating function is disabled.

Enable the multiple display function as follows:

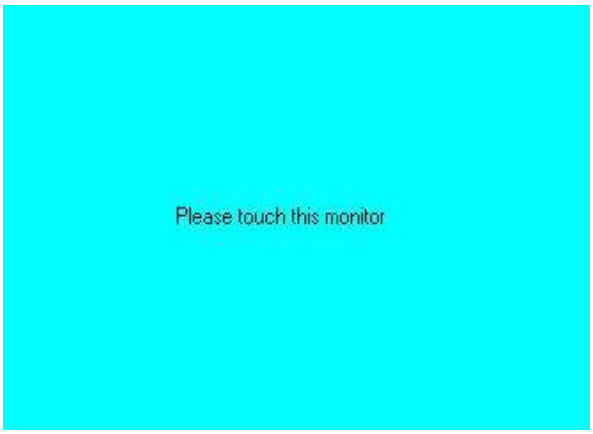
1. Check the **Enable Multiple Monitor Support** box; then click **Map Touch Screens** to assign touch controllers to displays.



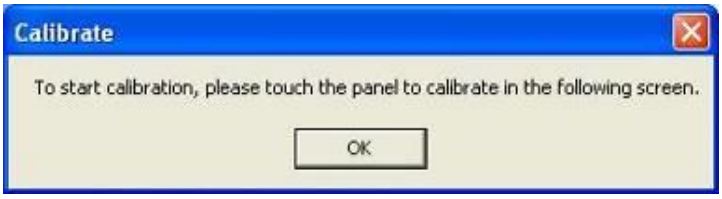
2. When the mapping screen message appears, click **OK.**



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.**



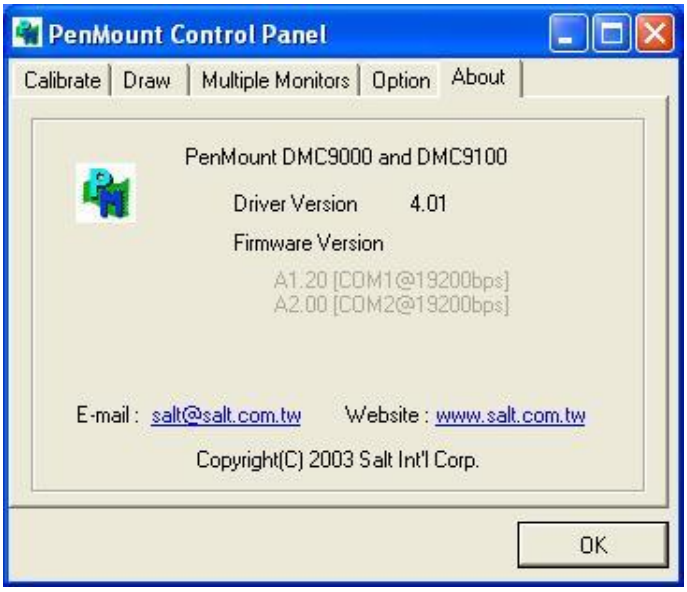
6. “Touch this screen to start its calibration” appears on one of the screens. Touch the screen.
7. “Touch the red square” messages appear. Touch the red squares in sequence.
8. Continue calibration for each monitor by clicking **Standard Calibration** and touching the red squares.

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

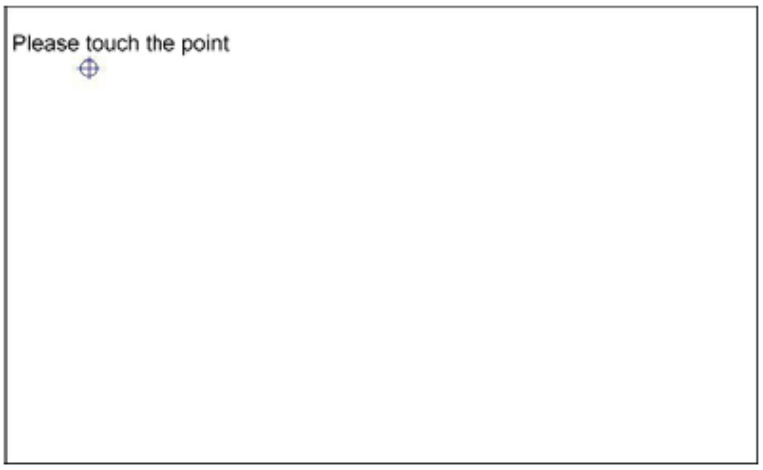
The PenMount monitor icon (PM) appears in the menu bar of Windows 7/8.1 system when you turn on PenMount Monitor in PenMount Utilities.

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 unctions.**
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.

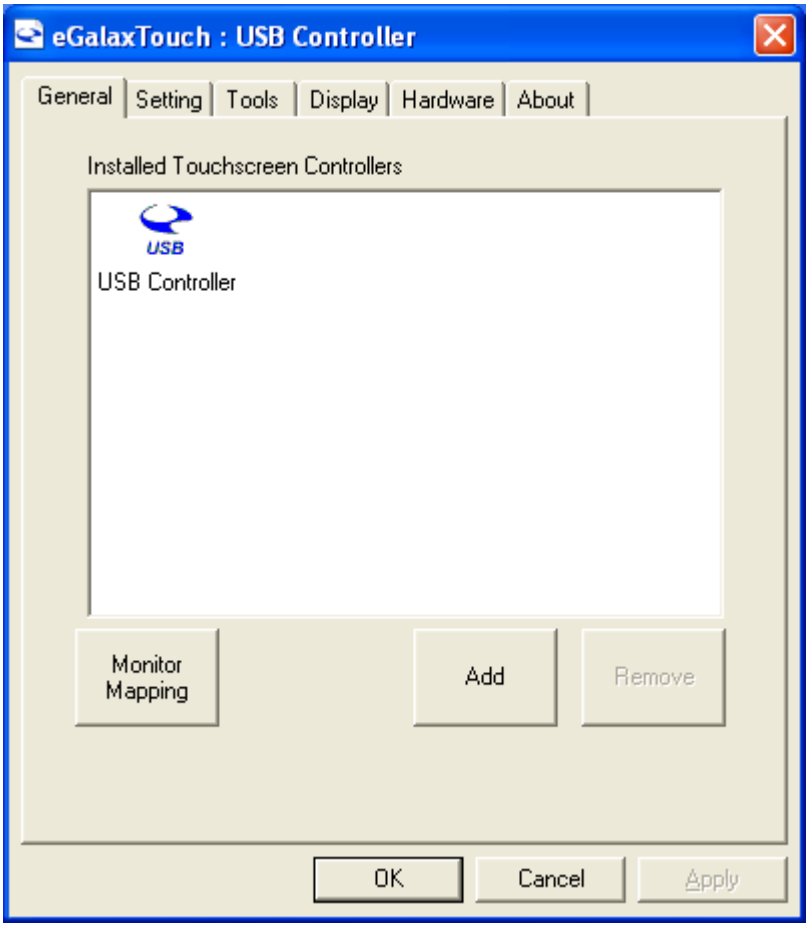


NOTE: The Rotate function is disabled if you use Monitor Mapping

5.2.2 Software Functions(Projected Capacitive)

General

In this window, you can see there is USB Controller. Click **OK** to continue.



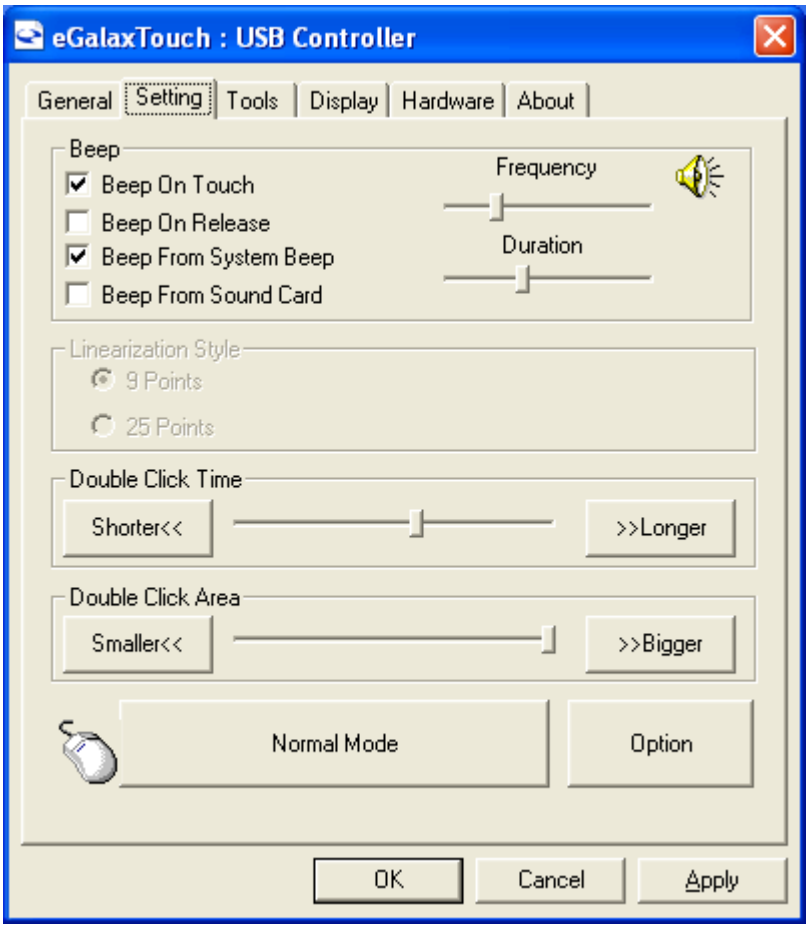
Monitor Mapping

to adjust touch panel

Add

to search for device

Setting



Beep

Beep On Touch

Beep On Release

Beep From System Beep

Beep From Sound Card

Linearization Style

9 points

25 points

Double Click Time

Shorter

Longer

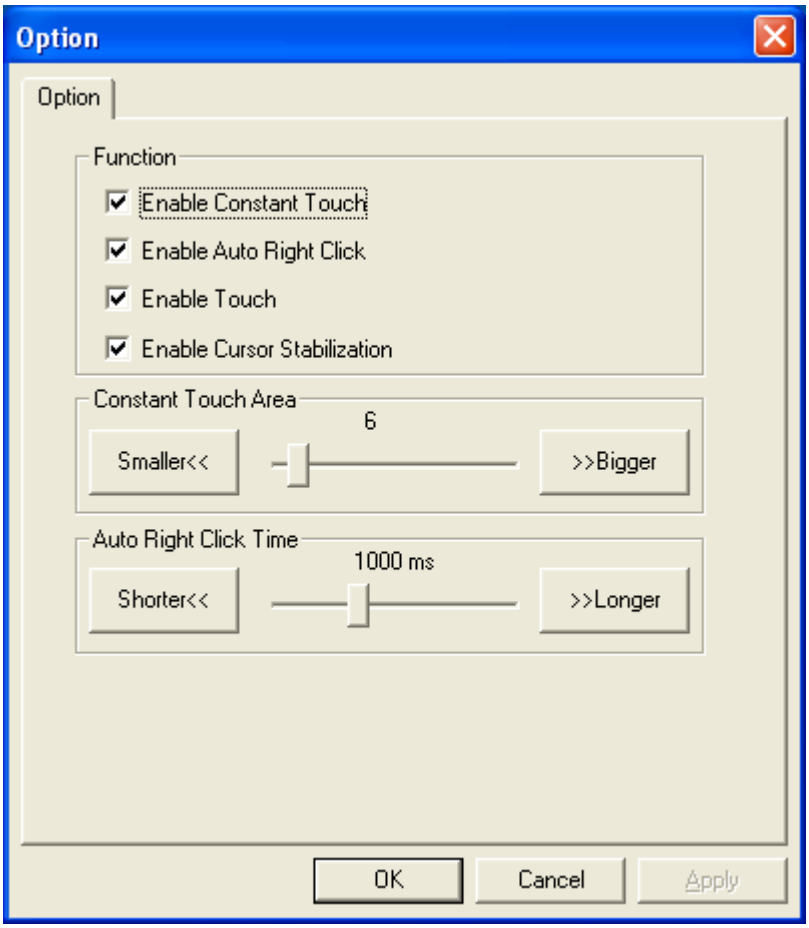
Double Click Area

Smaller

Bigger

Normal mode

Simulate the mouse mode



Option

Function

Enable Constant Touch

Enable Auto Right Click

Enable Touch

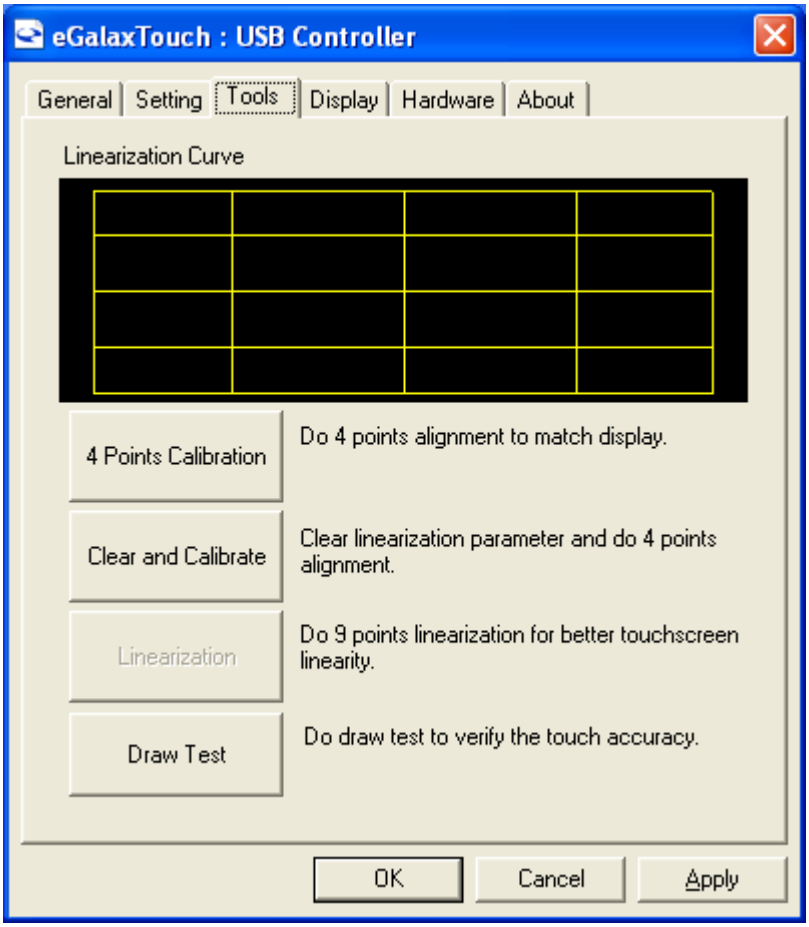
Enable Cursor Stabilization

Constant Touch Area

Auto Right Click Time

Tools

Click **OK** to continue the settings.



4 Points Calibration

Do 4 points alignment to match display.

Clear and Calibrate

Clear linearization parameter and do 4 points alignment.

Linearization

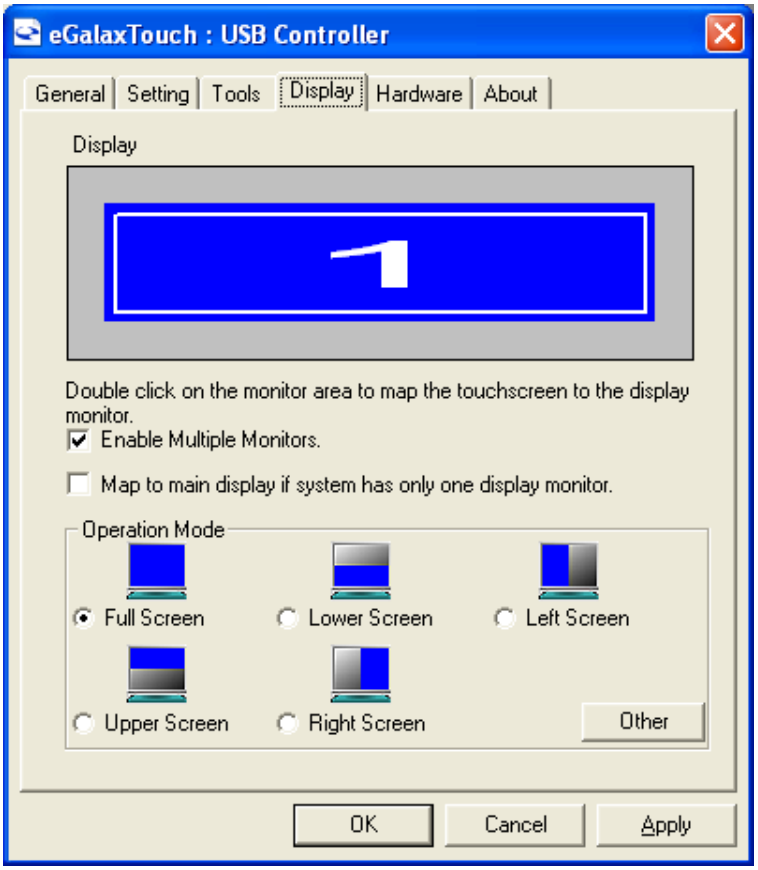
Do 9 points linearization for better touchscreen linearity.

Draw Test

Do draw test to verify the touch accuracy.

Display

In this window, it shows the mode of display.



Enable Multiple Monitors.

Map to main display if system has only one display monitor

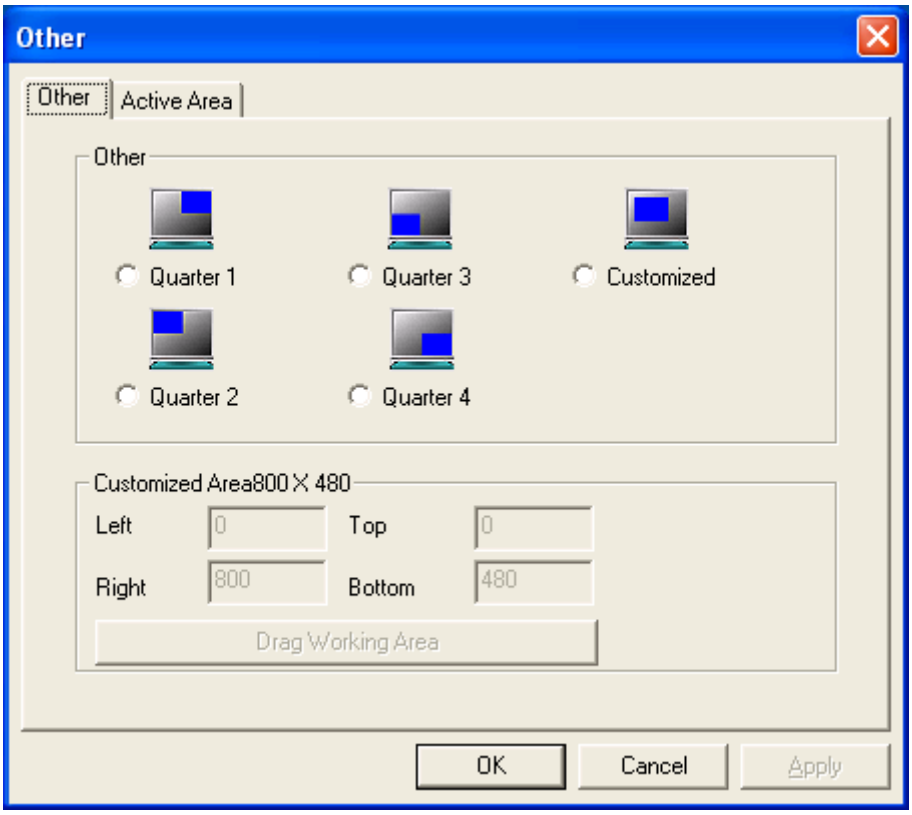
Full Screen

Lower Screen

Left Screen

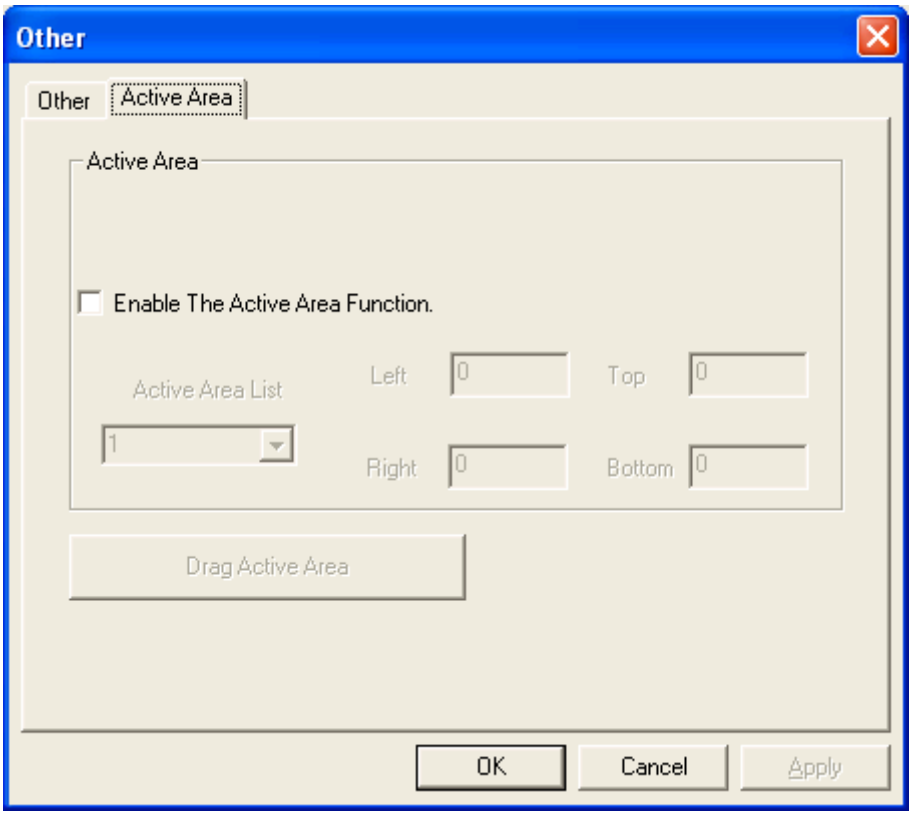
Upper Screen

Right Screen



Other

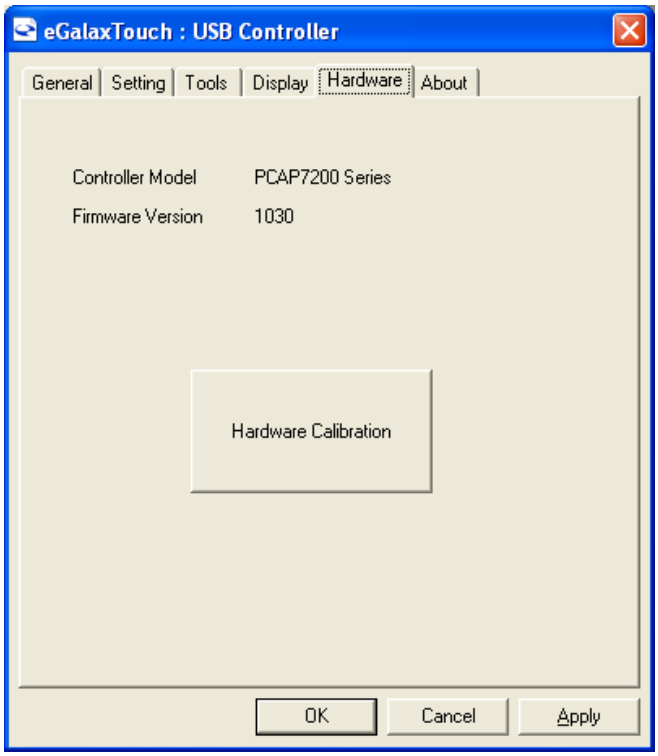
Other mode of display. Quarter1~4 and Customized area.



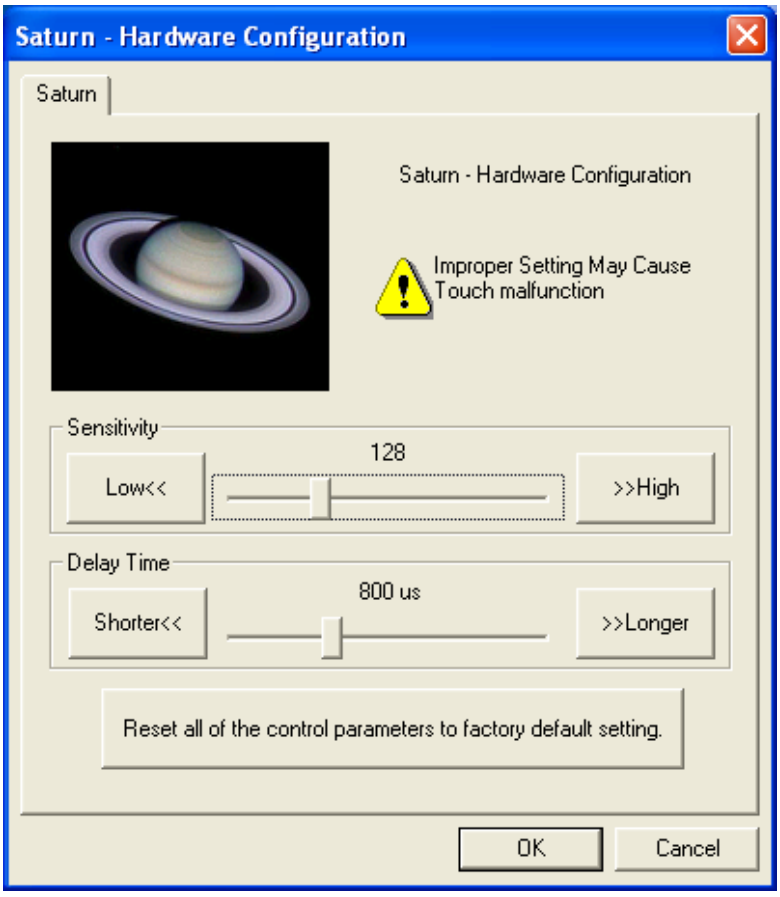
Active Area

Drag active area to enable Active Area Function.

Hardware



Saturn Hardware Configuration



About

To display information about eGalaxTouch and its version.