APC-3x93P User Manual

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.

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

Figures

Chapter 1 <u>   System</u>

1.1 Specifications

	APC-3593P	APC-3793P
System		
CPU	Intel® Atom Processor D2550(1M Cache, 1.8GHz)	
System Chipset	Intel NM10 Express	
System Memory	Onboard 2GB DDR3 800 MHz	
IO Port		
USB	1 x M12 8 pin for USB 1/2 1 x M12 8 pin for USB 3/4	
Serial/Parallel	1 x M12 8pin for COM 1/RS-232/422/485 (Default RS-232) 1 x M12 8pin for COM 2/RS-232	
Audio	N/A	
Graph	N/A	
Digital I/O	N/A	
KB/MS	N/A	
Membrane control	N/A	
LAN	1 x M12 8pin for LAN 1	
Power	1 x M12 3 pin DC power connector	
Storage Space		
HDD	1 x 2.5" SATA HDD or SSD (by SATA 2 with 2.5" bracket design)	
Movable device	1 x Internal SD Card slot on board	
Expansion		
On board expansion bus	1 x Mini PCIe half size	
Display		
Display Type	15" TFT-LCD	17" TFT-LCD
Max. Resolution	1024x768	1280x1024
Max. Color	262K	16.7M
Luminance (cd/m²)	400	350
View angle(H°/V°)	160/145	170/170
Touch Screen		
Type	Projective Capacitive	
Interface	USB	
Light Transmission(%)	90%	
Touch Screen (option)		
Type	Resistive	

Interface	RS-232
Light Transmission(%)	80%

Power

Power Input	11~32V DC

Mechanical

Construction	Stainless steel	
IP Rating	Total IP65 6 sides	
Mounting	Panel mounting, VESA 75 x 75	
Dimension (mm)	399 x 324 x 53	432 x 358 x 56
Net Weight (Kgs)	7.0	8.5

Environmental

Operating temperature(°C)	0℃ to 50℃ (with HDD) -20~60 (with Industrial SSD or CF)
Storage temperature(°C)	-30~70℃
Storage humidity	10 to 90% @ 40°C, non- condensing
Certification	CE / FCC Class A
Operating System Support	Microsoft Windows 7 pro for embedded, Windows embedded standard 7

1.2 Dimensions
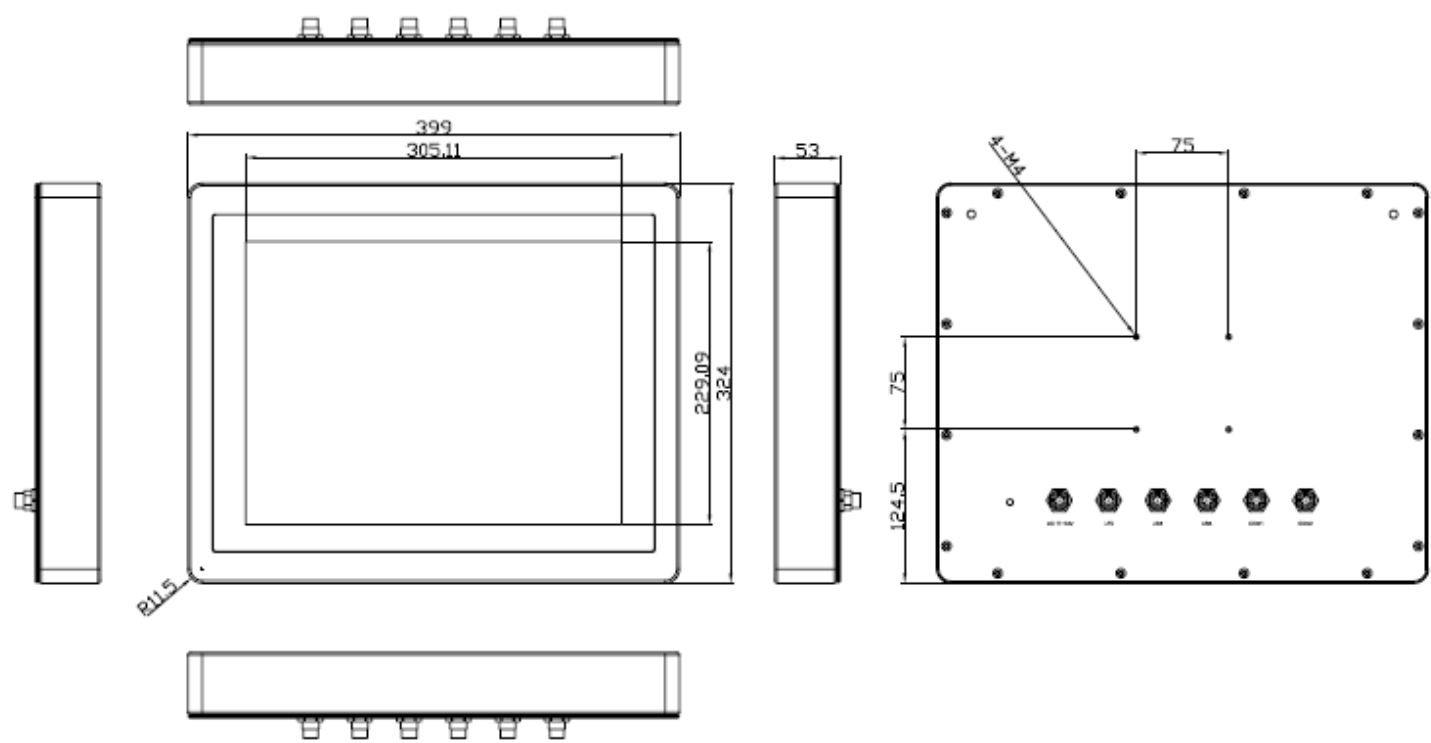
Figure 1.1: Dimensions of APC-3593P
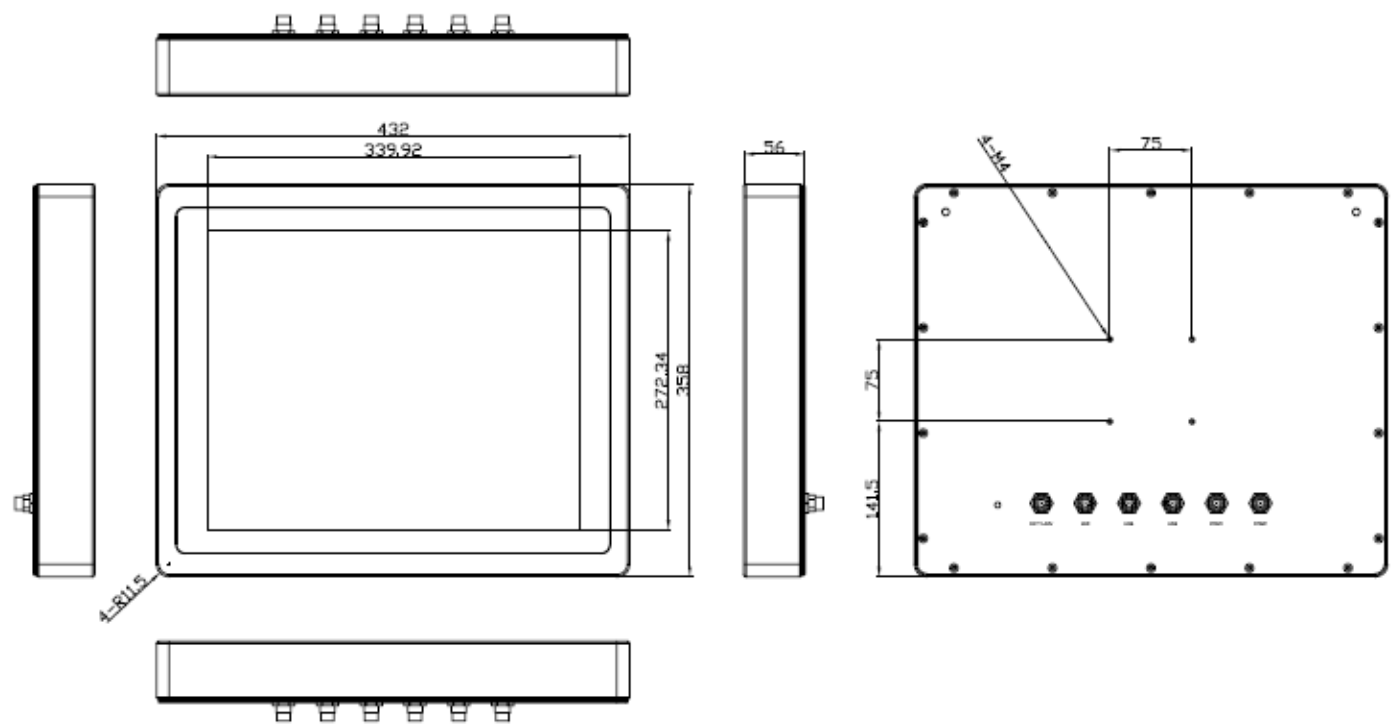
Figure 1.2: Dimensions of APC-3793P

1.3 Brief Description of APC-3x93P

APC-3X93P series comes with IP65 certificated and is powered by Intel Atom D2550 to provide low power consumption. The stainless steel chassis design makes it exceptionally suitable for strict hygiene regulations for food/chemical industry, medical, restaurant/kitchen applications, storage management and outdoor /information segment and so on. APC-3X93P series has touch screen of projective capacitive type and resistive type for option. The APC-3X93P series has advanced computing performance and lower power consumption thanks to well-equipped Intel Atom D2550 solution with 2G DDR3 on board. Regarding the storage capability, APC-3X93P series provides 1 x 2.5" SATA HDD, 1 x internal SD Slot and 1x internal mini-PCIe allowing customers to easily access/backup the data. APC-3X93P series supports OS such as Windows Embedded Standard 7, Windows 7 Pro for Embedded and so on.

Figure 1.3: Front View of APC-3x93P

Figure 1.4: Rear View of APC-3x93P

Chapter 2   Hardware

2.1 Mainboard

Specifications	
Board Size	170mm x 113mm
CPU Support	Intel Atom Processor D2550 (1M Cache, 1.8 GHz)
Chipset	Intel NM10 Express
Memory Support	Onboard 2GB DDRIII SDRAM
Graphics	Integrated Intel GMA 3600 (N2600)
Display Mode	1 x CRT Port 1 x LVDS1 (18/24-bit single LVDS)
Support Resolution	Up to 1920 x1200 for CRT Up to 1366 x768 for LVDS1 (N2600)
Dual Display	CRT+LVDS1
Super I/O	Winbond W83627UHG-E
BIOS	AMIBIOS
Storage	1 x SATA Connector (7P) 1 x SATA Connector (7P+15P) 1 x SD Socket (USB to SD)
Ethernet	2 x PCIe GbE LAN by Realtek RTL8111E
USB	2 x USB 2.0 (type A)stack ports (USB4/USB5) 2 x USB 2.0 Pin header via CN3 (USB2/USB3) 2 x USB 2.0 Pin header via CN1 (USB0/USB1) 1 x USB 2.0 for MPCIE1 (USB7) Mini-PCIe(USB7)

Serial	1 x RS-232/RS-422/RS-485, DB9 connector for external (COM1)
	    pin 9 w/5V/12V/Ring select
	1 x RS232 port, DB9 connector for external (COM2)
	    pin 9 w/5V/12V/Ring select
	1 x RS422/485 header via CN2 (COM3)
	2 x UART via CN3 (COM5,COM6)

Digital I/O	8-bit digital I/O Pin header via CN2

	4-bit digital Input 4-bit digital Output 4-bit digital I/O Pin header via CN3 2-bit digital Input 2-bit digital Output
Battery	Support CR2477 Li battery by 2-pin header
Audio	Realtek ALC662 HD audio codec Line-in, Line-out, MIC via 2x6-pin header Audio Line out in phone jack
Keyboard /Mouse	1 x PS2 keyboard/mouse 1x6 box pin header via CN3
Expansion Bus	1 x mini-PCI-express slot 1 x PCI-express via CN3
Touch Ctrl	1 x Touch control header for TCH1 (COM4)
Power Management	Wide Range DC 9~36V input 1 x 3-pin power input connector
Switches and LED Indicators	1 x Power on/off switch via CN1 1 x Reset switch via CN1 1 x Power LED status via CN1 1 x HDD LED status via CN1 1 x Buzzer
External I/O port	2 x COM Ports (COM1/COM2) 2 x USB 2.0 Ports (USB4/USB5) 2 x GbE LAN Ports 1 x Line out Audio phone jack
Watchdog Timer	Software programmable 1 – 255 second by Super I/O
Temperature	Operating: -20℃ to 70℃ Storage: -40℃ to 85℃
Humidity	5% - 95%, non-condensing, operating
Power Consumption	12V /0.95A (Intel Atom N2600 processor with 2GB DDR3 DRAM)
EMI/EMS	Meet CE/FCC class A

(units :mm)
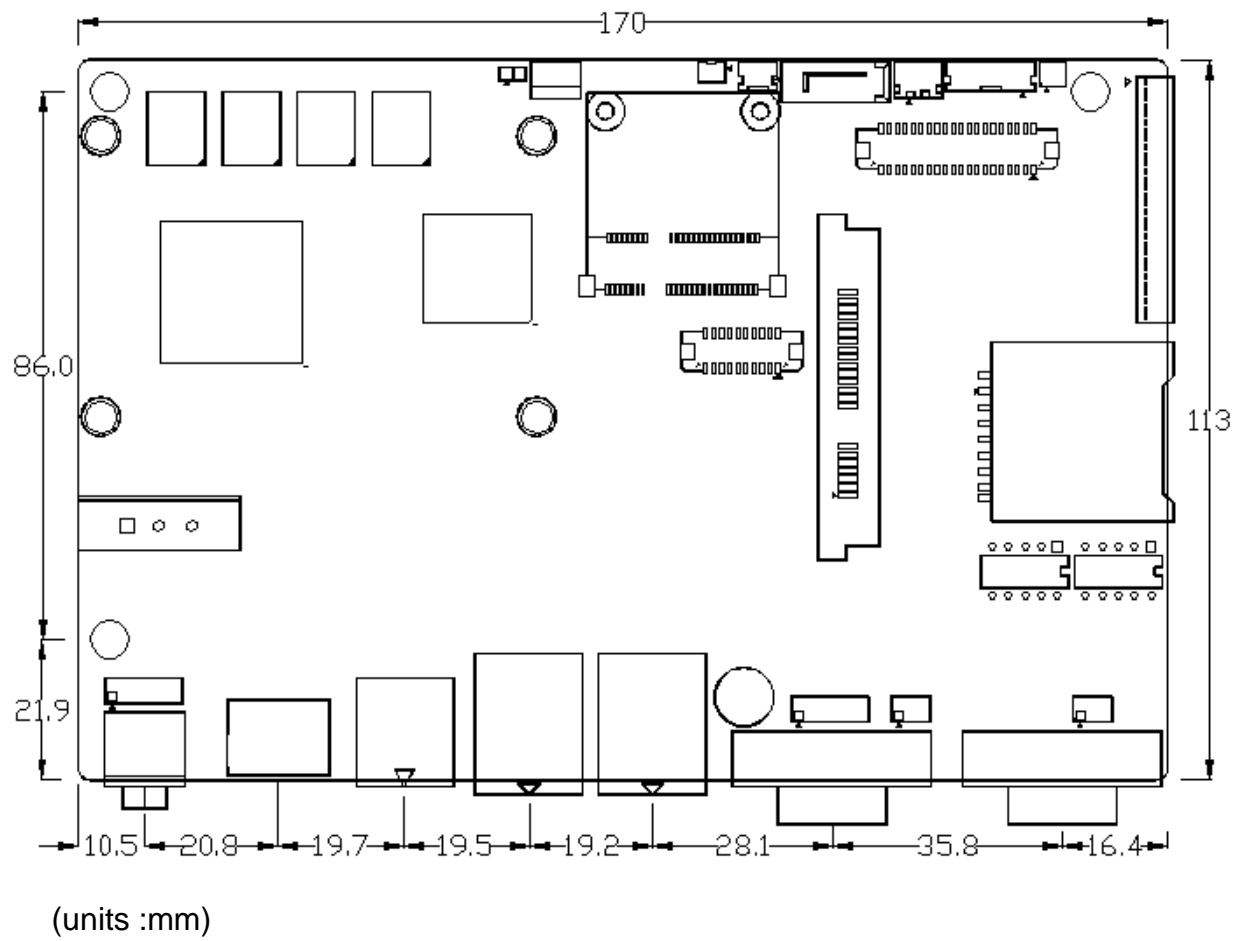
Figure 2.1: Mainboard Dimensions

2.2 Installations

SBC-7106 is a 4" industrial motherboard developed on the basis of Intel Cedarview-M Processors and NM10, which provides abundant peripheral interfaces to meet the needs of different customers. Also, it features dual GbE ports, 3-COM ports and one Mini PCIE configuration, one VGA port, one HDMI port, one LVDS interface. To satisfy the special needs of high-end customers, CN1 and CN2 and CN3 richer extension functions. The product is widely used in various sectors of industrial control.

2.2.1 Jumpers Setting and Connectors
Board Top
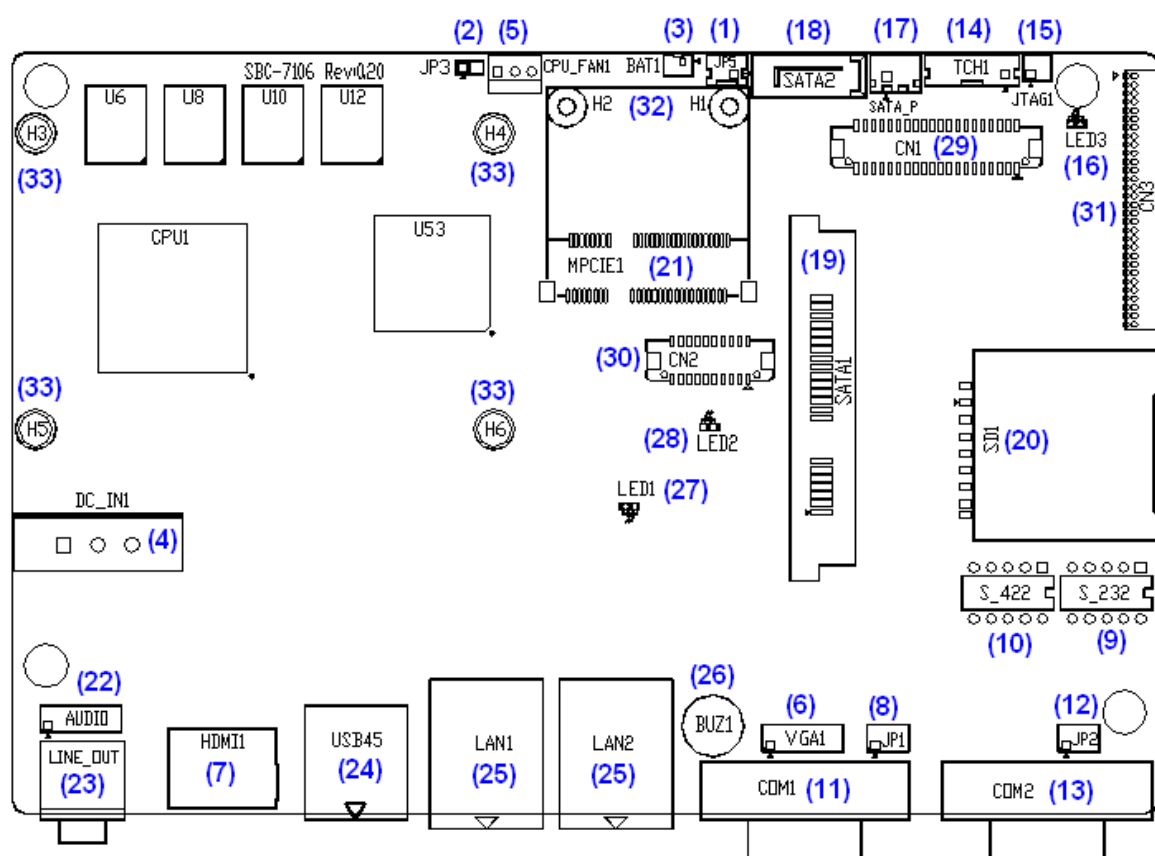
Figure 2.2: Jumpers and Connectors Location_ Board Top

Board Bottom
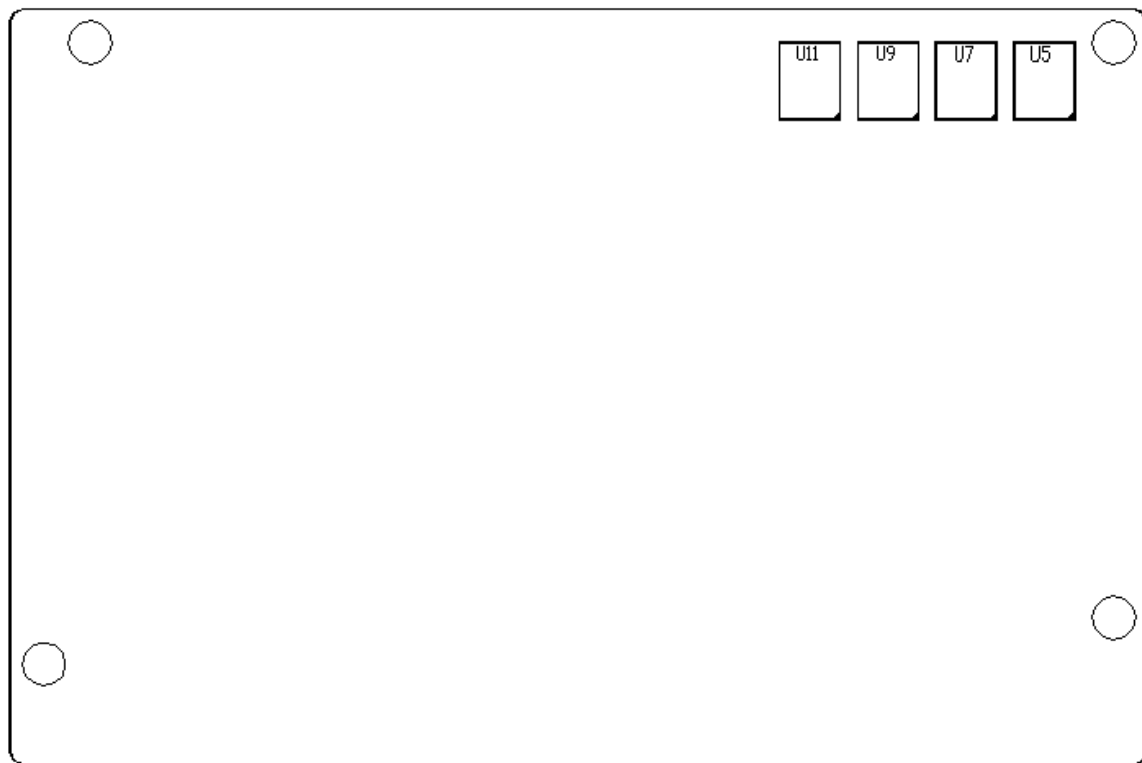
Figure 2.3: Jumpers and Connectors Location_ Board Bottom

2.3 Jumpers Setting and Connectors

1. JP5:

(2.0mm Pitch 1X2 box Pin Header),ATX Power and Auto Power on jumper setting.

JP5	Mode
Open	ATX Power
Close	**Auto Power on (Default)**

2. BAT1 :

(1.25mm Pitch 1X2 box Pin Header) 3.0V Li battery is embedded to provide power for CMOS.

Pin#	Signal Name
Pin1	VBAT
PIN2	Ground

3. DC_IN1:

(5.08mm Pitch 1x3 Pin Connector),DC9V~36V System power input connector。

Pin#	Power Input
Pin1	DC+9V~32V
Pin2	Ground
Pin3	FG

4. VGA1:

(CRT 2.0mm Pitch 2X6 Pin Header), Video Graphic Array Port, Provide 2x6Pin cable to VGA Port.

Signal Name	Pin#	Pin#	Signal Name

CRT_RED	1	2	Ground
CRT_GREEN	3	4	Ground
CRT_BLUE	5	6	Ground
CRT_H_SYNC	7	8	CRT_DDCDATA
CRT_V_SYNC	9	10	CRT_DDCCLK
Ground	11	12	Ground

5. JP1:

(2.0mm Pitch 2x3 Pin Header),COM1 jumper setting, pin 1~6 are used to select signal out of pin 9 of COM1 port.

JP1 Pin#	Function
Close 1-2	**COM1 RI (Ring Indicator)** **(default)**
Close 3-4	COM1 Pin9=+5V (option)
Close 5-6	COM1 Pin9=+12V (option)

6. RS-232:

(Switch),COM1 jumper setting, it provides selectable RS232 or RS422 or RS485 serial signal output.

Function	S_232 Pin#
RS232 **(Default)**	**ON:** **Pin1, Pin2, Pin3, Pin4, Pin5**
RS422 (option)	OFF: Pin1, Pin2, Pin3, Pin4, Pin5
RS485 (option)	OFF: Pin1, Pin2, Pin3, Pin4, Pin5

7. RS-422:

(Switch),COM1 setting, it provides selectable RS232 or RS422 or RS485 serial signal output.

Function	RS_422 Pin#	
RS232 (Default)	**OFF:**	**Pin1, Pin2, Pin3, Pin4, Pin5**
RS422 (option)	ON:	Pin1, Pin2, Pin3, Pin4, Pin5
RS485 (option)	ON:	Pin1, Pin2, Pin3, Pin4, Pin5

Note: Must keep the setting with BIOS setting.

8. COM1:

(Type DB9),Rear serial port, standard DB9 Male serial port is provided to make a direct connection to serial devices. COM1 port is controlled by pins No.1~6 of JP1,select output Signal RI or 5V or 12V, For details, please refer to description of JP1 and S_232 and S_422 setting.
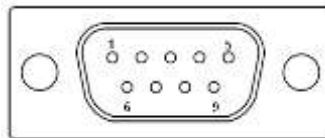
RS232 (Default):	
Pin#	Signal Name
1	DCD#　(Data Carrier Detect)
2	RXD (Received Data)
3	TXD (Transmit Data)
4	DTR (Data Terminal Ready)
5	Ground
6	DSR (Data Set Ready)
7	RTS (Request To Send)
8	CTS (Clear To Send)
9	**JP1 select Setting (RI/5V/12V)**
BIOS Setup： Advanced/W83627UHG Super IO Configuration/Serial Port 1 Configuration【RS-232】	

RS422 (option):	
Pin#	Signal Name
1	422_RX+
2	422_RX-
3	422_TX-

4	422_TX+
5	Ground
6	NC
7	NC
8	NC
9	NC

BIOS Setup：

Advanced/W83627UHG Super IO

Configuration/Serial Port 1 Configuration【RS-422】

RS485 (option):	
Pin#	Signal Name
1	NC
2	NC
3	485-
4	485+
5	Ground
6	NC
7	NC
8	NC
9	NC

BIOS Setup：

Advanced/W83627UHG Super IO

Configuration/Serial Port 1 Configuration【RS-485】

9. JP2:

(2.0mm Pitch 2x3 Pin Header), COM2 jumper setting, pin 1~6 are used to select signal out of pin 9 of COM2 port.

JP2 Pin#	Function
Close 1-2	**COM1 RI (Ring Indicator) (default)**
Close 3-4	COM1 Pin9=+5V (option)
Close 5-6	COM1 Pin9=+12V (option)

10. COM2:

(Type DB9), Rear serial port, standard DB9 Male serial port is provided to make a direct connection to serial devices.
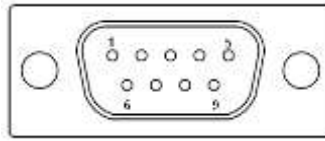
Pin#	Signal Name
1	DCD# (Data Carrier Detect)
2	RXD (Received Data)
3	TXD (Transmit Data)
4	DTR (Data Terminal Ready)
5	Ground
6	DSR (Data Set Ready)
7	RTS (Request To Send)
8	CTS (Clear To Send)
9	RI **(**Ring Indicator**)**

11. LED3:

LED STATUS. Green LED for Touch Power status.

12. SATA1:

(SATA 7Pin+15Pin), SATA Connectors, one SATA connectors are provided, with transfer speed up to 3.0Gb/s.

13. SD1:

(SD card socket),Secure Digital Memory Card socket.

14. LINE_OUT:

(Diameter 3.5mm Jack), HD Audio port, An onboard Realtek ALC662 codec is used to provide high quality audio I/O ports. Line Out can be connected to a headphone or amplifier.

Line out

15.   USB45:

USB4/USB5：(Double stack USB type A), Rear USB connector, it provides up to 4 USB2.0 ports, High-speed USB 2.0 allows data transfers up to480 Mb/s ,support USB full-speed and low-speed signaling.

USB4
USB5
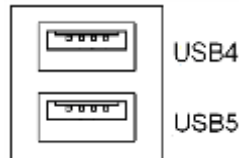
Each USB Type A Receptacle (2 Ports) Current limited value is 1.5A.
If the external USB device current exceeds 1.5A, please separate connectors into different Receptacle.

16.   LAN1/LAN2:

LAN1/LAN2: (RJ45 Connector), Rear LAN port, Two standard 10/100/1000M RJ-45 Ethernet ports are provided. Used Realtek RTL8111E chipset, LINK LED (green) and ACTIVE LED (yellow) respectively located at the left-hand and right-hand side of the Ethernet port indicate the activity and transmission state of LAN.

LAN1   LAN2
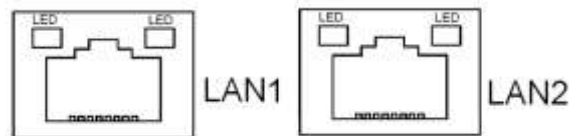
17.   BUZ1:

Onboard buzzer.

18.   LED1:

LED STATUS. Green LED for Motherboard Power status.

19.   LED2:

LED STATUS. Green LED for Motherboard Standby Power Good status.

20.   CN3:

(1.27mm Pitch 2X30 Pin Header), For expand output connector, It provides four GPIO, Two USB 2.0,one PS/2 mouse，one PS/2 keyboard,two uart,one PCIe x1,one SMbus.

Function	Signal Name	Pin#	Pin#	Signal Name	Function
	5V_S5_USB	1	2	5V_S5_USB	
	5V_S5_USB	3	4	5V_S5_USB	
	USB23_OC	5	6	CLKREQPSON_ATX-	
USB2	USB2_N	7	8	USB2_P	USB2
USB3	USB3_N	9	10	USB3_P	USB3
	Ground	11	12	Ground	
PS/2 MS	PS2_MSCLK	13	14	PS2_MSDATA	PS/2 MS
PS/2 KB	PS2_KBCLK	15	16	PS2_KBDATA	PS/2 KB
COM6 (UART)	COM6_RI	17	18	COM6_DCD-	COM6 (UART)
	COM6_TXD	19	20	COM6_RXD	
	COM6_DTR	21	22	RICOM6_RTS-	
	COM6_DSR	23	24	COM6_CTS-	
	Ground	25	26	Ground	
COM5 (UART)	COM5_RI	27	28	COM5_DCD-	COM5 (UART)
	COM5_TXD	29	30	COM5_RXD	
	COM5_DTR	31	32	DSRCOM5_RTS-	
	COM5_DSR	33	34	DTRCOM5_CTS-	
GPIO24	ICH_GPIO24	35	36	ICH_GPIO13	GPIO13
GPIO26	ICH_GPIO26	37	38	ICH_GPIO27	GPIO27
	Ground	39	40	Ground	
PCIE	PE1_TX_N0	41	42	PE1_TX_P0	PCIE
	PE1_RX_N0	43	44	PE1_RX_P0	
	Ground	45	46	Ground	
	CLK_100M_PE1_N	47	48	CLK_100M_PE1_P	
	PM_PCIE_WAKE	49	50	PLTRST_BUF-	
SMBUS	SMB_CLK_S5	51	52	SMB_DATA_S5	SMBUS
PCIE	PE1_CLKREQ	53	54	Ground	PCIE
	3P3V_S5	55	56	3P3V_S5	
	3P3V_S5	57	58	3P3V_S5	
12V	12V_S0	59	60	12V_S0	12V

Chapter 3   BIOS Setup

3.1   Operations after POST Screen

After CMOS discharge or BIOS flashing operation,.Press [Delete] key to enter CMOS Setup.
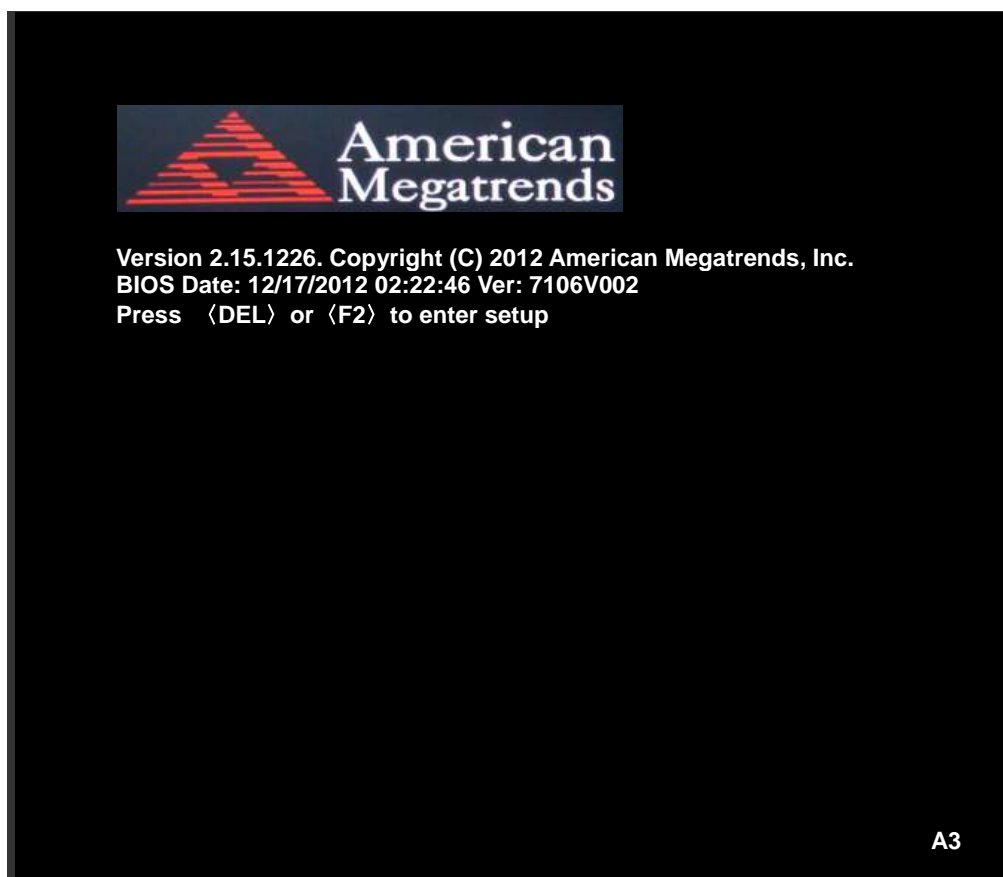
After optimizing and exiting CMOS Setup, the POST screen displayed for the first time is as follows and includes basic information on BIOS, CPU, memory, and storage devices.

3.2   BIOS SETUP UTILITY

Press [Delete] key to enter BIOS Setup utility during POST, and then a main menu containing system summary information will appear.

Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.					
Main	Advanced	Chipset	Boot	Security	Save & Exit

BIOS Information		Intel Reference Code
BIOS Vendor	American Megatrends	Version
Core Version	4.6.5.3	
Compliancy	UEFI 2.3; PI 1.2	
Project Version	7106V002	
Build Date and Time	12、17、2012 03:22:46	
►Intel RC Version		
		→←: Select Screen
System Language	[English]	↑↓ : Select Item
		Enter: Select
System Date	[Sun 01/01/2012]	+/- : Charge Opt.
System Time	[00:00:08]	F1 : General Help
		F2: Previous Values
Access Level	Administrator	F3:Optimized Defaults
		F4:Save and Exit
		ESC Exit

Version 2.15.1226. Copyright (C) 2012 American Megatrends , Inc.

3.3   Main Settings

BIOS Information		Intel Reference Code
BIOS Vendor	American Megatrends	Version
Core Version	4.6.5.3	
Compliancy	UEFI 2.3; PI 1.2	
Project Version	7106V002	
Build Date and Time	12、17、2012 03:22:46	
►Intel RC Version		
		→←: Select Screen
System Language	[English]	↑↓ : Select Item
		Enter: Select
System Date	[Sun 01/01/2012]	+/- : Charge Opt.
System Time	[00:00:08]	F1 : General Help
		F2: Previous Values
Access Level	Administrator	F3:Optimized Defaults
		F4:Save and Exit
		ESC Exit

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System Time:

Set the system time, the time format is:

<div align="center">

Hour :   0 to 23

Minute :   0 to 59

Second :   0 to 59

</div>

System Date:

Set the system date, the date format is:

Day: Note that the 'Day' automatically changes when you set the date.

Month: 01 to 12

Date: 01 to 31

Year: 1998 to 2099

3.4 Advanced Settings

Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.					
Main	Advanced	Chipset	Boot	Security	Save & Exit

▶PCI Subsystem Settings

▶ACPI Settings

▶CPU Configuration

▶Thermal Configuration

▶IDE Configuration

▶USB Configuration

▶W83627UHG Super IO Configuration

▶W83627UHG HW Monitor

▶Serial Port Console Redirection

▶PPM Configuration

PCI,PCI-X and PCI
Express Settings

→←: Select Screen

↑↓ : Select Item

Enter: Select

+/- : Charge Opt.

F1 : General Help

F2: Previous Values

F3:Optimized Defaults

F4:Save and Exit

ESC   Exit

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3.4.1 PCI Subsystem Settings

PCI Bus Driver Versio V2.05.02

PCI Common Settings:

PCI Latency Timer:

[32 PCI Bus Clocks]

[64 PCI Bus Clocks]

[96 PCI Bus Clocks]
[128 PCI Bus Clocks]
[160 PCI Bus Clocks]
[192 PCI Bus Clocks]
[224 PCI Bus Clocks]
[248 PCI Bus Clocks]

VGA Palette Snoop:

[Disabled]
[Enabled]

PERR# Generation:

[Disabled]
[Enabled]

SERR# Generation:

[Disabled]
[Enabled]

3.4.2 ACPI Settings

Enable ACPI Auto Conf:

[Disabled]
[Enabled]

Enable Hibernation:

[Enabled]
[Disabled]

ACPI Sleep State:

[Both S1 and S3 available for OS to choose from]
[Suspend Disabled]
[S1 only(CPU Stop Clock)]
[S3 only (Suspend to RAM)]

Lock Legacy Resources:

[Disabled]
[Enabled]

S3 Video Repost:

[Disabled]
[Enabled]

3.4.3 CPU Configuration

Processor Type	Intel(R) Atom(TM) CPU N2600
EMT64	Not Supported
Processor Speed	1600 MHz
System Bus Speed	400MHz
Ratio Status	16
Actual Ratio	16
System Bus Speed	400 MHz
Processor Stepping	30661
Microcode Revision	269
L1 Cache RAM	2x56 k
L2 Cache RAM	2x512 k
Processor Core	Dual
Hyper-Threading	Supported

Hyper-Threading:

[Enabled]
[Disabled]

Execute Disable Bit:

[Enabled]
[Disabled]

Limit CPUID Maximum:

[Disabled]
[Enabled]

3.4.4 Thermal Configuration

CPU Thermal Configuration
    DTS SMM

[Disabled]
[Enabled]

Platform Thermal Configuration
    Critical Trip Point   [POR]
    Active Trip Point Lo [55 C]
    Active Trip Point Hi [71C]
    Passive Trip Point [95]
    Passive TC1 Value   1
    Passive TC2 Value   5

Passive TSP Value   10

3.4.5 IDE Configuration

SATA Port0   Not Present
SATA Port1   Not Present

SATA Controller(S):

[Enabled]
[Disabled]

Configure SATA as:

[IDE]
[AHCI]

Misc Configuration for hard disk

3.4.6 USB Configuration

USB Configuration
USB Devices:
　　1 Drive ，1 keyboard
Legacy USB Support:

[Enabled]
[Disabled]

EHCI Hand-off:

[Disabled]
[Enabled]

USB hardware delays a
USB transfer time-out:

[20 sec]
[10 sec]
[5 sec]
[1 sec]

Device reset time-out:

[20 sec]
[10 sec]
[30 sec]
[40 sec]

Device power-up delay

[Auto]
[Manual]

Mass Storage Devices：
Multiplecard Reader 1

[Auto]
[Floppy]
[Forced FDD]
[Hard Disk]
[CD-ROM]

3.4.7 W83627UHG Super IO Configuration

W83627UHG Super IO ch W83627UHG

Serial Port 1 Configuration

UART Mode Selection：

[RS-232]
[RS-485]
[RS-422]

Serial Port 2 Configuration

Serial Port 3 Configuration

UART Mode Selection：

[RS-485]
[RS-422]

Serial Port 4 Configuration

Serial Port 5 Configuration

Serial Port 6 Configuration

Power Failure

[Keep last state]
[Always off]
[Always on]

3.4.8 W83627UHG HW Monitor

PC Health Status

System temperature1	:	+38
System Speed	:	N/A
VCORE	:	+0.968 V
+12V	:	+12.302 V
+3.3V	:	+3.320 V
+1.5V	:	+1.528 V
AVCC	:	+5.203 V
VCC5V	:	+5.216 V
VSB5	:	+5.203 V
VBAT	:	+3.334 V

3.4.9 Serial Port Console Redirection

COM0

Console Redirection

[Enabled]

[Disabled]

Console Redirection Settings

Serial Port for Out-of-Band Management/

Windows Emergency Management Services (EMS)

Console Redirection

[Disabled]

[Enabled]

Console Redirection Settings

3.4.10 PPM Configuration

PPM Configuration

EIST:

[Enabled]

[Disabled]

CPU C state Report

[Enabled]

[Disabled]

Enhanced C state

[Enabled]

[Disabled]

CPU Hard C4E

[Enabled]

[Disabled]

CPU C6 state

[Enabled]

[Disabled]

C4 Exit Timing
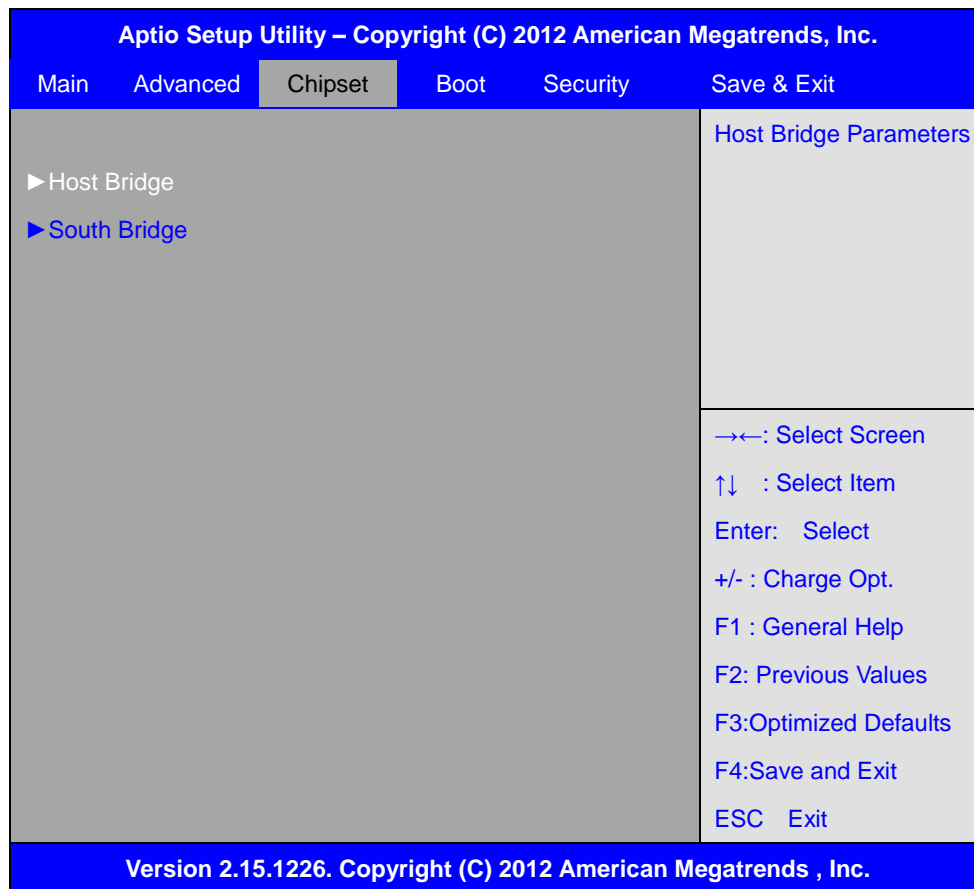
[Fast]

[Default]

[Slow]

C-state POPDOWN

[Enabled]

[Disabled]

C-state POPUP

[Enabled]

[Disabled]

3.5   Chipset Settings

```
┌─────────────────────────────────────────────────────────────────────────────┐
│      Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.       │
├──────────┬──────────┬──────────┬──────────┬──────────┬────────────────────────┤
│   Main   │ Advanced │ Chipset  │   Boot   │ Security │     Save & Exit        │
├──────────┴──────────┴──────────┴──────────┴──────────┼────────────────────────┤
│                                                       │ Host Bridge Parameters │
│  ►Host Bridge                                         │                        │
│                                                       │                        │
│  ►South Bridge                                        │                        │
│                                                       │                        │
│                                                       │                        │
│                                                       │                        │
│                                                       ├────────────────────────┤
│                                                       │ →←: Select Screen      │
│                                                       │ ↑↓  : Select Item      │
│                                                       │ Enter:   Select        │
│                                                       │ +/- : Charge Opt.      │
│                                                       │ F1 : General Help      │
│                                                       │ F2: Previous Values    │
│                                                       │ F3:Optimized Defaults  │
│                                                       │ F4:Save and Exit       │
│                                                       │ ESC   Exit             │
├───────────────────────────────────────────────────────────────────────────────┤
│      Version 2.15.1226. Copyright (C) 2012 American Megatrends , Inc.          │
└───────────────────────────────────────────────────────────────────────────────┘
```

3.5.1   Host Bridge

►**Memory Frequency and Timing**

►**Intel IGD Configuration**

******* Memory Information *******

Memory Frequency   800 MHz(DDR3)

Tot al Memory   2048 MB

DIMM#0   Not Present

DIMM#1   2048 MB

Memory Frequency and Timing

MRC Fast Boot

[Enabled]

[Disabled]

Max TOLUD

[Dynamic]

[1GB]
[1.25GB]
[1.5GB]
[1.75GB]
[2GB]
[2.25GB]
[2.5GB]
[2.75GB]
[3GB]
[3.25GB]

Intel IGD Configuration

IGFX – Boot Type

[VBIOS Default]
[VGA]
[LVDS]
[VGA + LVDS]

LCD Panel Type

[VBIOS Default]
[640x480，18bit]
[800x480，18bit]
[800x600，18bit]
[1024x600，18bit]
[1024x768，18bit]
[1280x768，18bit]
[1280x800，18bit]
[1280x1024，18bit]
[1366x768，18bit]
[1024x768，24bit]
[1280x768，24bit]
[1280x800，24bit]
[1280x1024，24bit]

Panel Scaling

[Auto]
[Force Scaling]
[off]
[Maintain Aspect Ratio]

Active LFP

[LVDS]

[No LVDS]
[EDP]

IGD Clock Source

[External Clock]
[Internal Clock]

Fixed Graphics Memory

[128MB]
[256MB]

ALS Support

[Disabled]
[Enabled]

Back light Control

[DC]
[PWM]

Back light Logic

[Positive]
[Negative]

Back light Control Lev

[Auto]
[Disabled]
[Level 8]
[Level 1]
[Level 2]
[Level 3]
[Level 4]
[Level 5]
[Level 6]
[Level 7]
[Level 8]
[Level 9]
[Level 10]
[Level 11]
[Level 12]
[Level 13]
[Level 14]

[Level 15]

3.5.2 South Bridge

TPT Devices

PCI Express Root Port 0

PCI Express Root Port 1

PCI Express Root Port 2

PCI Express Root Port 3

DMI Link ASPM Control

[Enabled]

[Disabled]

PCI-Exp. High Priorit

[Disabled]

[Enabled]

High Precision Event Timer Configuration

High Precision Timer

[Enabled]

[Disabled]

SLP_S4 Assertion Widt

[1-2 Seconds]

[2-3 Seconds]

[3-4 Seconds]

[4-5 Seconds]

Restore AC Power Loss

[Last State]

[Power off]

[Power on]

3.6   Boot Settings

Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.				
Main	Advanced	Chipset	**Boot**	Security Save & Exit

Boot Configuration		Number of seconds to
Setup Prompt Timeout	1	Wait for setup
Bootup Numlock State	[On]	Activation key.
		65535(0xFFFF)means
Quiet Boot	[Disabled]	Indef inite waiting.
Fast Boot	[Enabled]	
Skip USB	[Disabled]	
Skip PS2	[Disabled]	
CSM16 Module Version	07.69	
Gatea20 Active	[Upon Request]	
Option ROM Messages	[Force BIOS]	
Interrupt 19 Capture	[Enabled]	
		→←: Select Screen
Driver Option Priorities		↑↓ : Select Item
Boot Option Priorities		Enter: Select
		+/- : Charge Opt.
Boot Option Priorities		F1 : General Help
Boot Option #1	[SATA PM: Hitachi…]	F2: Previous Values
Boot Option #2	[…]	F3:Optimized Defaults
Hard Drive BBS Priorities		F4:Save and Exit
►CSM Parameters		ESC Exit
Version 2.15.1226. Copyright (C) 2012 American Megatrends , Inc.		

Setup Prompt Timeout   [1]

Bootup Numlock State

                                                      [On]

                                                      [off]

Quiet Boot

[Disabled]
[Enabled]

Fast Boot

[Enabled]
[Disabled]

Skip VGA

[Enabled]
[Disabled]

Skip USB

[Disabled]
[Enabled]

Skip PS2

[Disabled]
[Enabled]

CSM16 Module Version   07.69

Gatea20 Active

[Upon Request]
[Always]

Option ROM Messages

[Force BIOS]
[Keep Current]

Interrupt 19 Capture

[Immediate]
[Postponed]

Boot Option #1
Boot Option #2
……

Sets the system boot order

Hard Drive BBS Priorities   [SATA PM:*** …]

Boot Option #1
SATA PM:***…
******

Disabled

CSM Parameters

Launch CSM

[Always]
[Never]

Boot option filter

[UEFI and Legacy]
[Legacy only]
[UEFI only]

Launch PXE OpROM poli

[Do not Launch]
[UEFI only]
[Legacy only]

Launch Storage OpROM

[Legacy only]
[Do not Launch]
[UEFI only]

Launch Video OpROM po

[Do not Launch]
[UEFI only]
[Legacy only]

Other PCI device ROM

[UEFI OpROM]
[Legacy OpROM]

3.7   Security Settings

Aptio Setup Utility – Copyright (C) 2012

American Megatrends, Inc.

| Main | Advanced | Chipset | Boot | Security | Save & Exit |

Password Description	Set Administrator Password
If ONLY the Administrator's password is set,	
Then this only limits access to Setup and is	
Only asked for when entering Setup.	
If ONLY the User's password is set, then this	
Is a power on password and must be entered to	
Is a power on password and must be entered to	
Boot or enter Setup. In Setup the User will	
Have Administrator rights.	→←: Select Screen
The password length must be	↑↓ : Select Item
In the following range:	Enter: Select
Minimum length 3	+/- : Charge Opt.
Maximum length 20	F1 : General Help
	F2: Previous Values
Administrator Password	F3:Optimized Defaults
User Password	F4:Save and Exit
	ESC Exit

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3.7.1 Administrator Password

3.7.2 User Password

Type the password with up to 20 characters and then press ≺Enter≻ key. This will clear all previously typed CMOS passwords. You will be requested to confirm the password. Type the password again and press ≺Enter≻ key. You may press ≺Esc≻ key to abandon password entry operation.

To clear the password, just press ≺Enter≻ key when password input window pops up. A confirmation message will be shown on the screen as to whether the password will be disabled. You will have direct access to BIOS setup without typing any password after system reboot once the   password is disabled.

Once the password feature is used, you will be requested to type the password each time you enter BIOS setup. This will prevent unauthorized persons from changing your system configurations.

Also, the feature is capable of requesting users to enter the password prior to system boot to control unauthorized access to your computer. Users may enable the feature in Security Option

of Advanced BIOS Features. If Security Option is set to System, you will be requested to enter the password before system boot and when entering BIOS setup; if Security Option is set to Setup, you will be requested for password for entering BIOS setup.

3.8   Save and Exist Settings

BIOS SETUP UTILITY						
Main	Advanced	PCIPnP	Boot	Security	Chipset	Exit

Advanced Chipset Settings

Configure North Bridge feature

WARNING: Setting wrong values in below sections

may cause system to malfunction

► North Bridge Configuration

► South Bridge Configuration

←   Select Screen
↑↓   Select Item
Enter Go to sub screen
F1   General Help
F10   Save and Exit
ESC   Exit

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Note: Due to limited address length of BIOS, only a portion of panel parameters are listed in BIOS Setup. If the connected panel is not included in the parameter list, display problem will occur. In this case, Please do not change BIOS setup.

3.8.1 North Bridge Configuration

BIOS SETUP UTILITY	
	Chipset
North Bridge Chipset Configuration	ENABLE: Allow

Memory Remap Feature [Enabled]		Remapping of
		Over lapped PCI Memory
PCI MMIO Allocation: 4Gb To 3072MB		Above the total
Memory Hole [Disabled]		Physical memory
Initate Graphic Adapter [PCI/IGD]		DISABLE: Do not allow
IGD Graphics Mode Select [Enabled ,64MB]		remapping of memory
IGD GTI Graphic smemory size [No VT mode,2MB]		
		← Select Screen
		↑↓ Select Item
PEG Port Configuration		+- Charge Field
		F1 General Help
► Video Function Configuration		F10 Save and Exit
		ESC Exit

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Memory Remap Feature:

> [**Enabled**]
>
> [Disabled]

Memory Hole:

> [**Disabled**]
>
> [15MB-16MB]

Initate Graphic Adapter:

Select which graphics controller to use as the primary boot device.

> [**IGD**]
>
> [PCI/IGD]

IGD Graphics Mode Select:

> [**Enabled, 64MB**]
>
> [Disabled]
>
> [Enabled, 32MB]
>
> [Enabled, 128MB]

Video Function Configuration:

```
┌─────────────────────────────────────────────────────────────────────────┐
│                          BIOS SETUP UTILITY                               │
│                                              ┌──────────┐                  │
│                                              │ Chipset  │                  │
├──────────────────────────────────────────┬──┴──────────┴─────────────────┤
│  Video Function Configuration            │        Options                 │
│                                          │                                │
│  DVMT  Mode  Select              [DVMT   │  Fixed Mode                    │
│  Mode]                                   │  DVMT Mode                     │
│                                          │                                │
│       DVMT/FIXED               Memory    │                                │
│  [256MB]                                 │                                │
│                                          │                                │
│                                          │                                │
│    Boot           Display      Device    │                                │
│  [VBIOS-Default]                         │                                │
│  Flat  Panel  Type          [1024x768    │                                │
│  18bit 1c]                               │  ←   Select Screen             │
│  Backlight        Control      Support   │  ↑↓   Select Item              │
│  [VBIOS-Default]                         │  +-    Charge option           │
│  Backlight Control Level     [Level 5]   │  F1    General Help            │
│  Backlight Control Mode      [DC]        │  F10   Save and Exit           │
│  Backlight         Image   Adaptation    │  ESC   Exit                    │
│  [VBIOS-Default]                         │                                │
│                                          │                                │
│                                          │                                │
│                                          │                                │
├──────────────────────────────────────────┴────────────────────────────────┤
│        V02.61 © Copyright 1985-2006 American Mega trends , Inc.            │
└─────────────────────────────────────────────────────────────────────────┘
```

DVMT Mode Select:

   [**DVMT Mode**]

   [FIXED Mode]

DVMT/FIXED Memory Size**:**

   [**256MB**]

   [128MB]

   [Maximum DVMT]

Boot Display Device:

   [**BIOS-Default**]

   [CRT]

   [LVDS]

   [CRT + LVDS]

Flat Panel Type:

   [1024x 768 18bit 1ch]

[640x480 18bit 1ch]
[800x600 18bit 1ch]
[1280x800 18bit 1ch]
[1366x768 18bit 1ch]
[1024x 768 24bit 2ch]
[1440x900 24bit 2ch]
[1600x900 24bit 2ch]
[1680x1050 24bit 2ch]
[1920x1080 24bit 2ch]

Backlight Control Support

[VBIOS-Default]
[Both BLC & BIA Disabled]
[BLC Enabled]

Backlight Control Control:

[Level5]
[Level0]
[Level1]
[Level2]
[Level3]
[Level4]
[Level6]
[Level7]

Note: Panel support PWM Function.

Backlight Control Mode:

[DC]
[PWM]

Backlight Image Adaptation:

[VBIOS-Default]
[BIA Disabled]
[BIA Enabled at Level1]
[BIA Enabled at Level2]
[BIA Enabled at Level3]
[BIA Enabled at Level4]
[BIA Enabled at Level5]

3.8.2 South Bridge Configuration:

```
          Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
    Main      Advanced      Chipset      Boot      Security      Save & Exit

   Save Changes and Exit                                Exit system setup after
   Discard Changes and Exit                             Saving the changes.
   Save Changes and Reset
   Discard Changes and Reset


   Save Options

   Save Changes
   Discard Changes


   Restore Defaults                                    →←: Select Screen
   Save user Defaults                                  ↑↓  : Select Item
   Restore user Defaults                               Enter:   Select
                                                       +/- : Charge Opt.
   Boot Override                                       F1 : General Help
   MultipleCard Reader 1.00                            F2: Previous Values
   SATA PM:*** …                                       F3:Optimized Defaults
   Launch EFI Shell from filesystem device             F4:Save and Exit
                                                       ESC   Exit

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```

Save Changes and Exit

    Save & Exit Setup save Configuration and exit ?

                                        [Yes]

                                        [No]

Discard Changes and Ext

    Exit Without Saving Quit without saving?

                                        [Yes]

                                        [No]

Save Changes and Reset

    Save & reset Save Configuration and reset?

                                        [Yes]

                                        [No]

Discard Changes and Reset

    Reset Without Saving Reset without saving?

                                        [Yes]

                                        [No]

Save Changes

    Save Setup Values Save configuration?

                                                                   [Yes]

                                                                   [No]

Discard Changes

    Load Previous Values Load Previous Values?

                                                                   [Yes]

                                                                   [No]

Restore Defaults

    Load Optimized Defaults Load optimized Defaults?

                                                                   [Yes]

                                                                   [No]

Save user Defaults

    Save Values as User Defaults Save configuration?

                                                                   [Yes]

                                                                   [No]

Restore user Defaults

    Restore User Defaults Restore User Defaults?

                                                                   [Yes]

                                                                   [No]

Launch EFI Shell from filesystem device

    WARNING Not Found

                                                                   [ok]

3.9   Exit Options
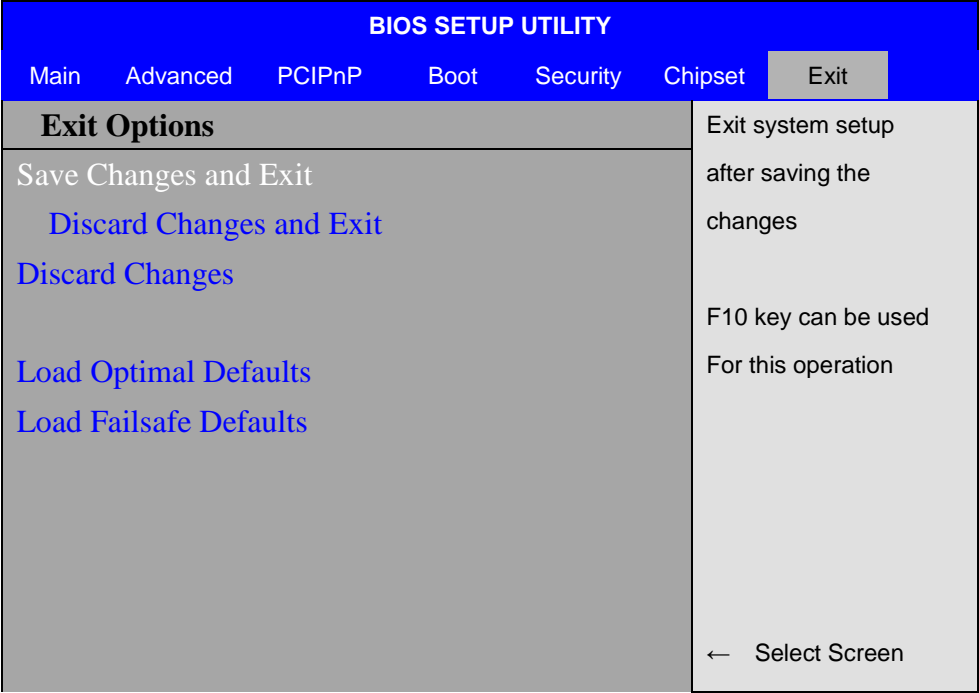
APC-3x93P User Manual

```
                                              ↑↓   Select Item

                                              Enter Go to sub screen

                                              F1    General Help

                                              F10   Save and Exit

                                              ESC   Exit
```

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Save Changes and Exit:

Save configuration changes and exit setup?

(F10 key can be used for this operation)

[OK]

[Cancel]

Discard Changes and Exit:

Discard Changes and Exit setup?

(ESC key can be used for this operation)

[OK]

[Cancel]

Discard Changes:

Discard changes?

(F7 key can be used for this operation)

[OK]

[Cancel]

Load Optimized Defaults:

Load Optimized Defaults?

(F9 key can be used for this operation)

[OK]

[Cancel]

Load Fail-Safe Defaults:

Load Fail-Safe Defaults?

(F9 key can be used for this operation)

[OK]

[Cancel]

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 Installation instructions are given below.**

Important Note:
After installing your Windows operating system (Windows 7), you must install first the Intel Chipset Software Installation Utility before proceeding with the installation of drivers.

I

4.1 Intel Chipset Driver

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

Step 1. Select **Intel (R) Chipset NM10 Express** 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.
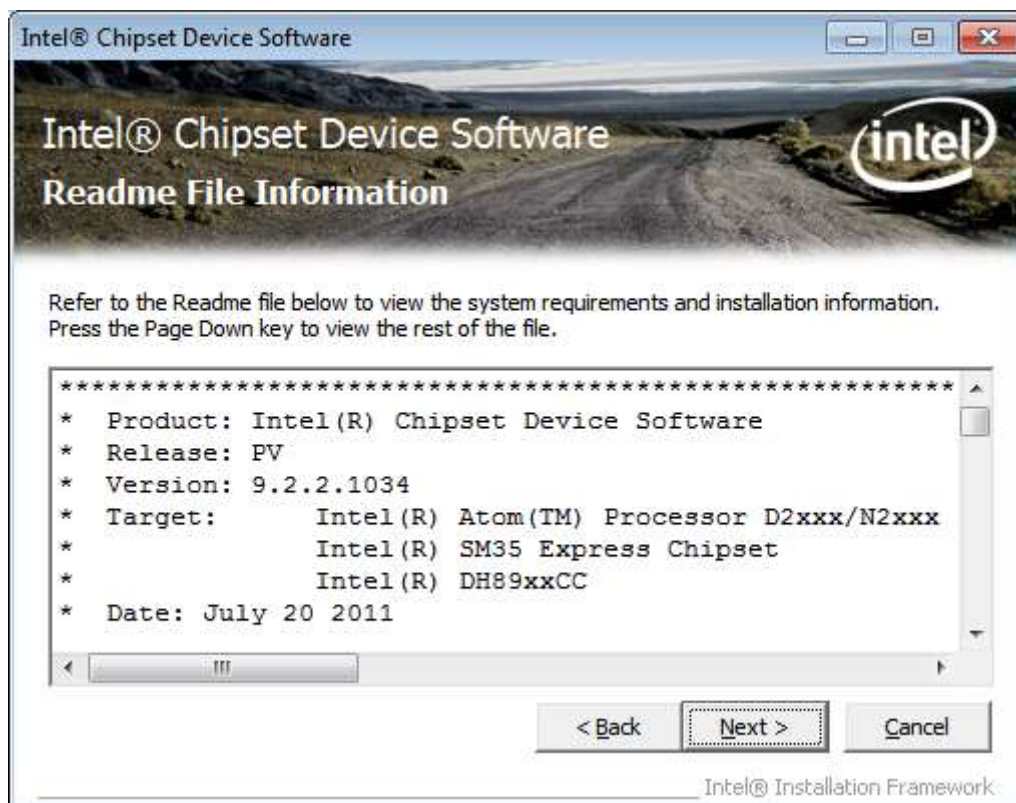
Step 5. Click **Next**.

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

4.2 Intel Graphics Media Accelerator 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. Tick Automatically run WinSAT and enable the Windows Aero desktop theme(if supported).
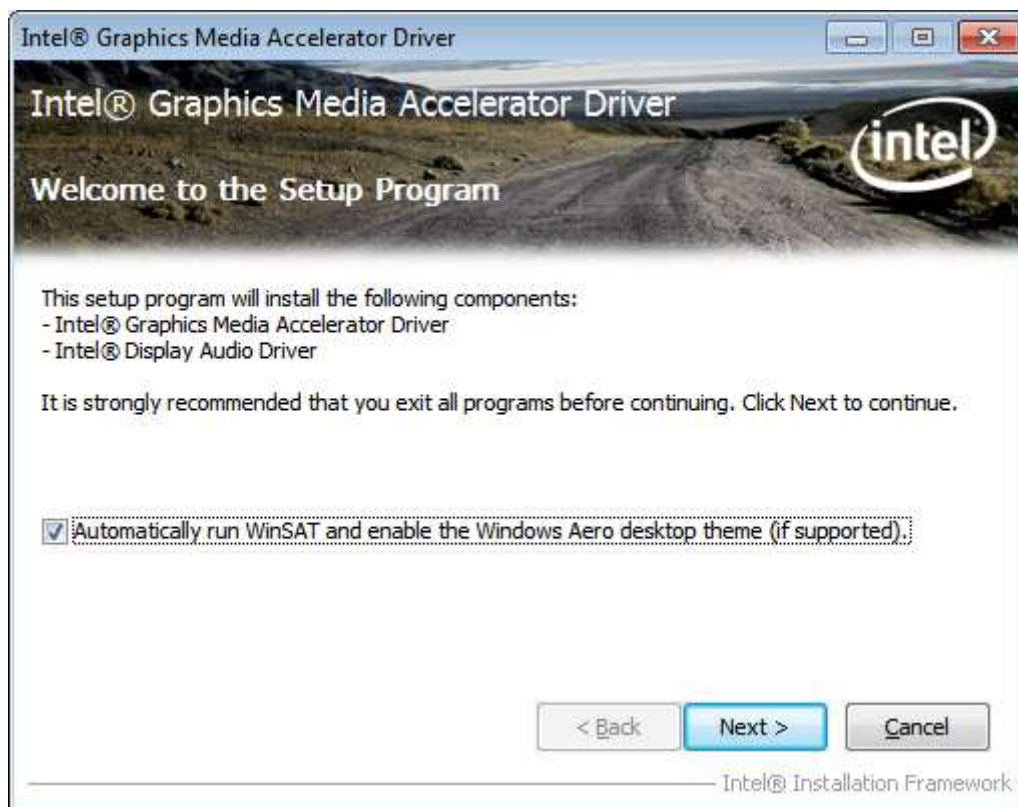
Step 3. Read license agreement.   Click **Yes.**

Step 4. Click **Next**.
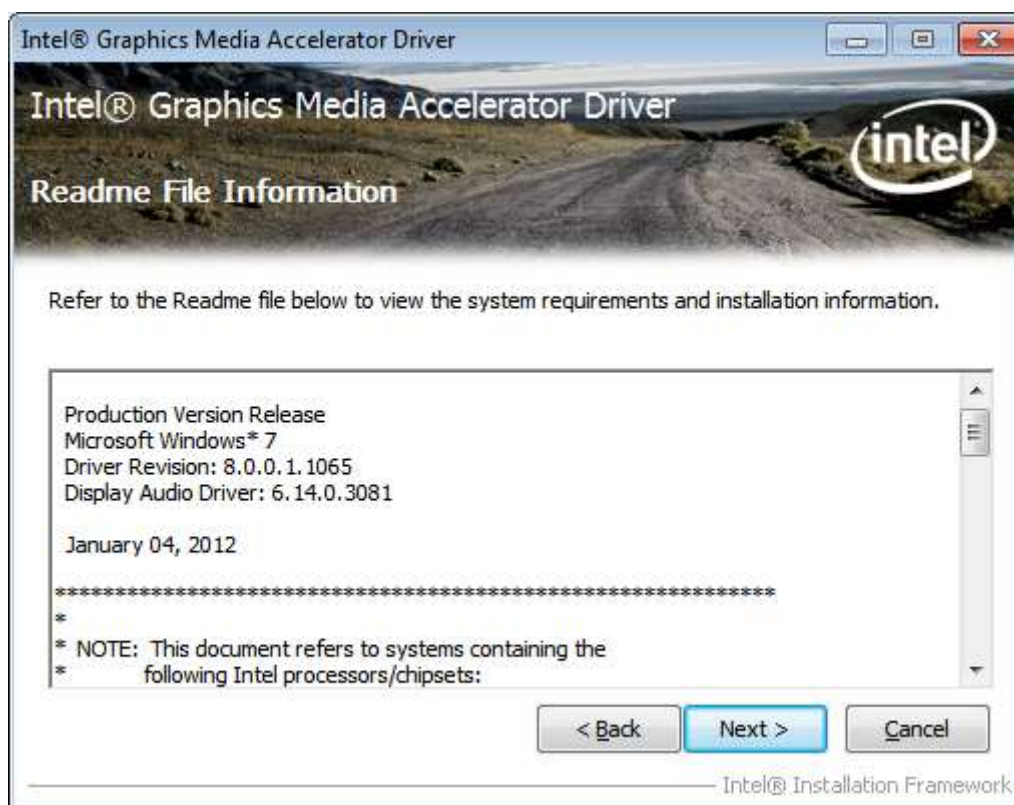
Step 5. Click **Next.**
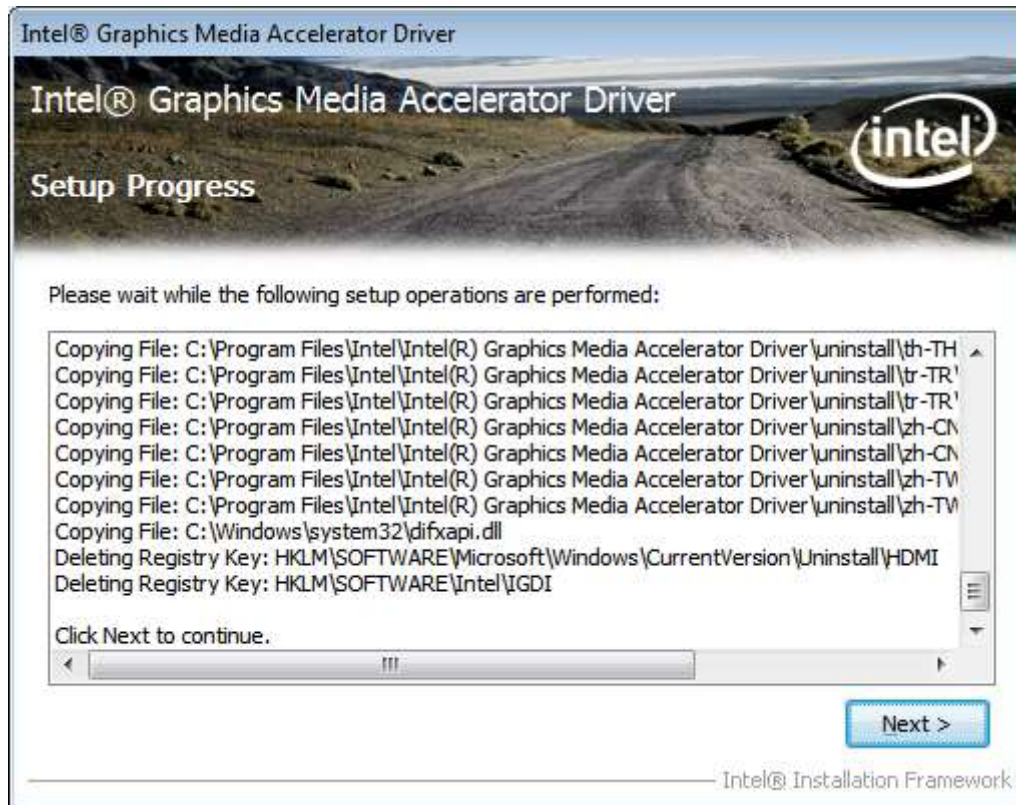
Step 6. Select **Yes, I want to restart this computer now.**
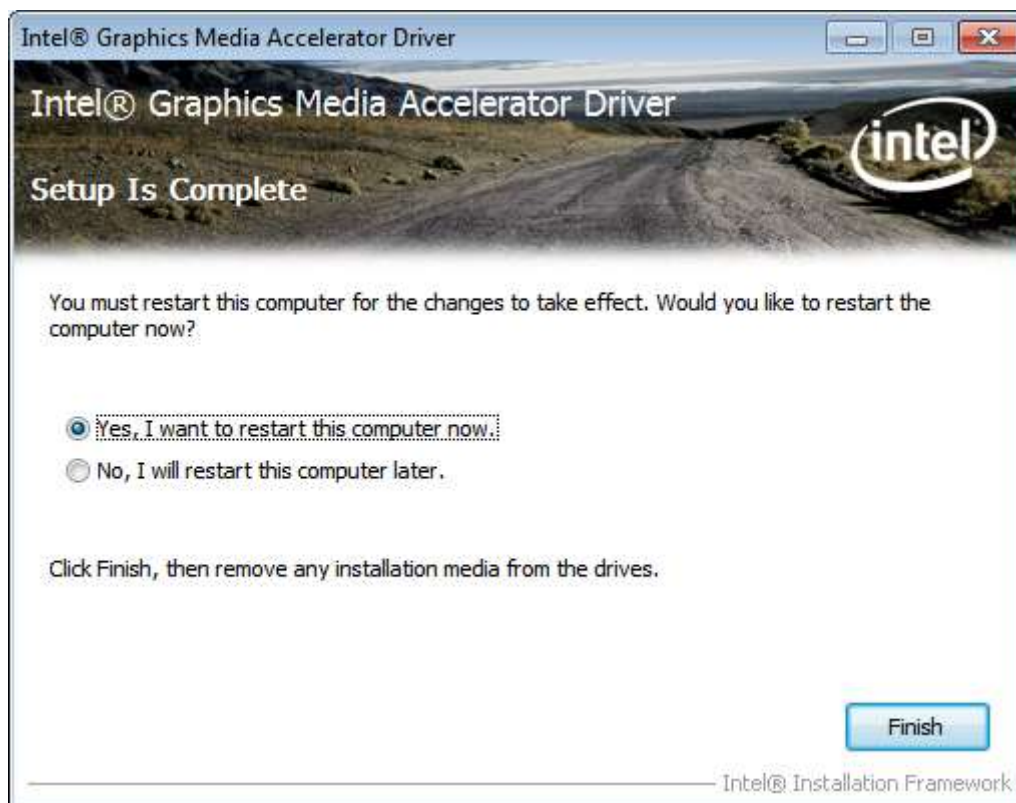
4.3 Intel (R) Network Adapter

To install the Intel (R) Network Adapter device driver, please follow the steps below.

Step 1. Select **Realtek RTL8111D Driver**.

Step 2. Click **Next** to continue.
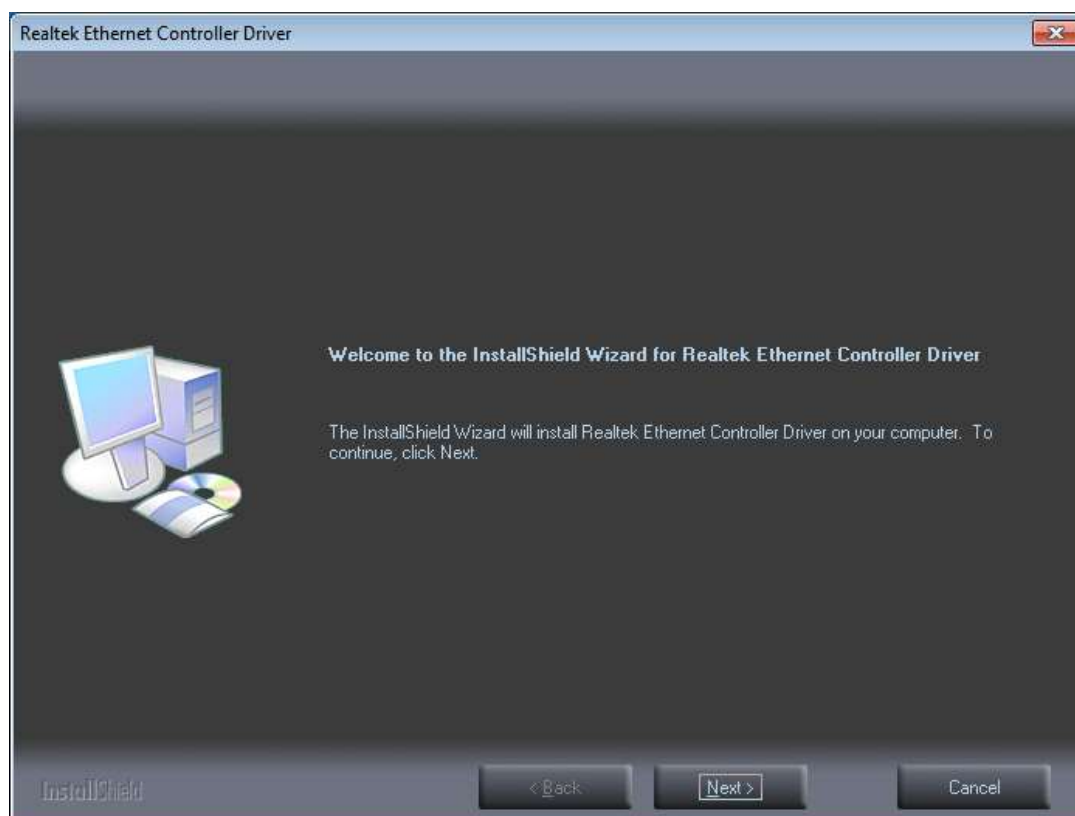
Step 3. Click **Install** to begin the installation.
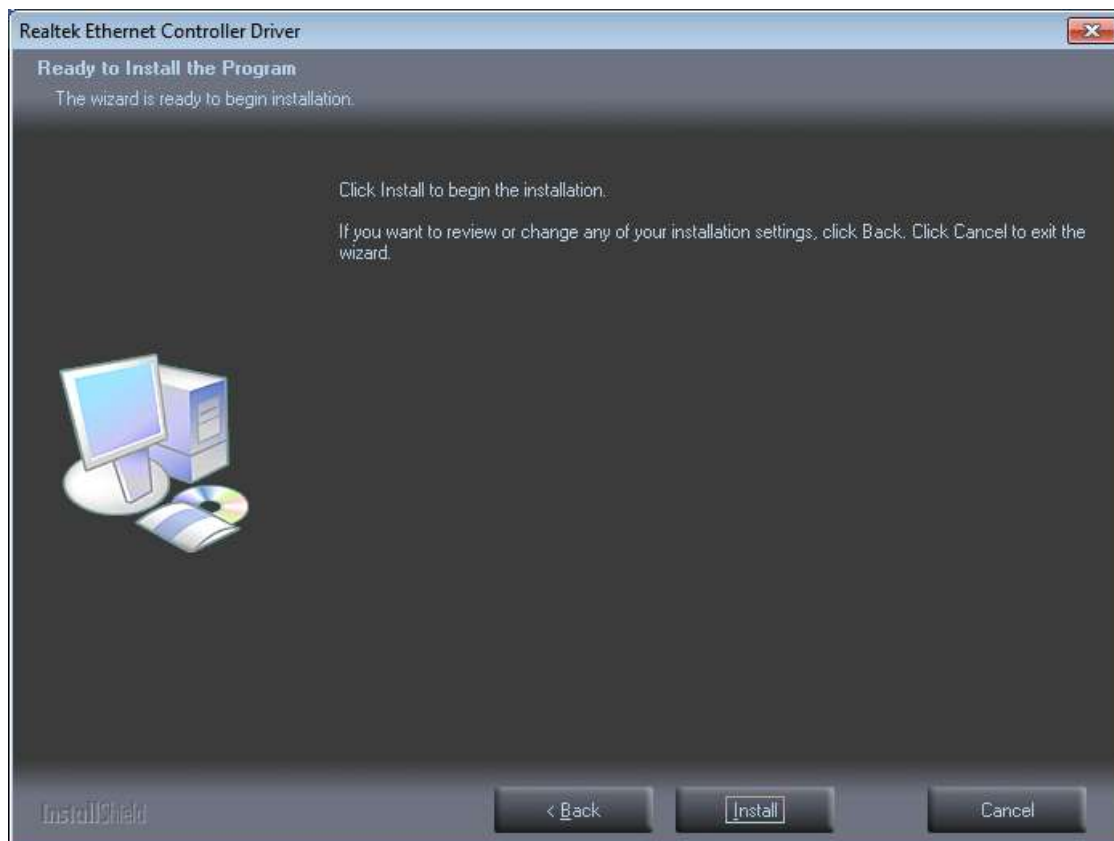
Step 4. Click **Finish** to exist the wizard.
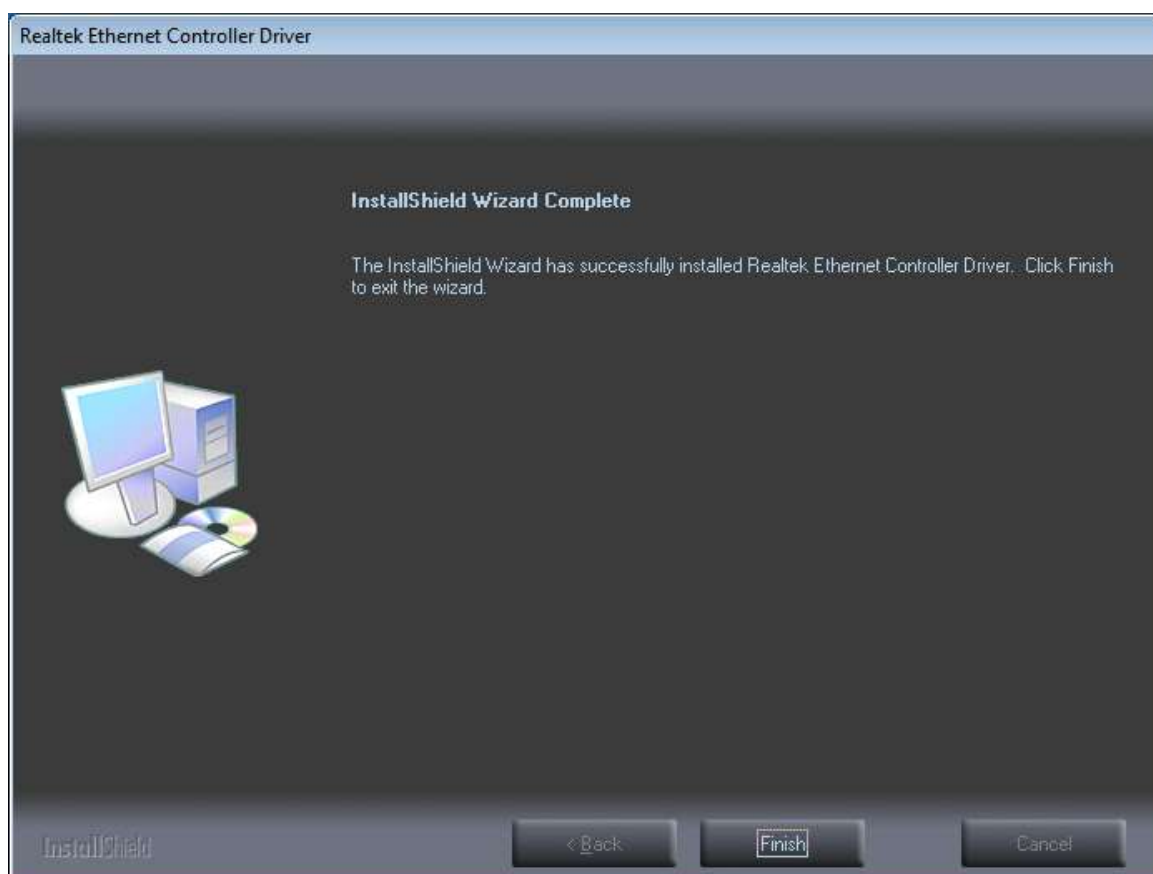
4.4 Realtek ALC662 HD Audio Codec Driver Installation

To install the Realtek ALC662 HD Audio Codec Driver, please follow the steps below.

Step 1. Select **Realtek AL662 Audio Codec Driver** from the list

Step 2. Click **Next** to continue.
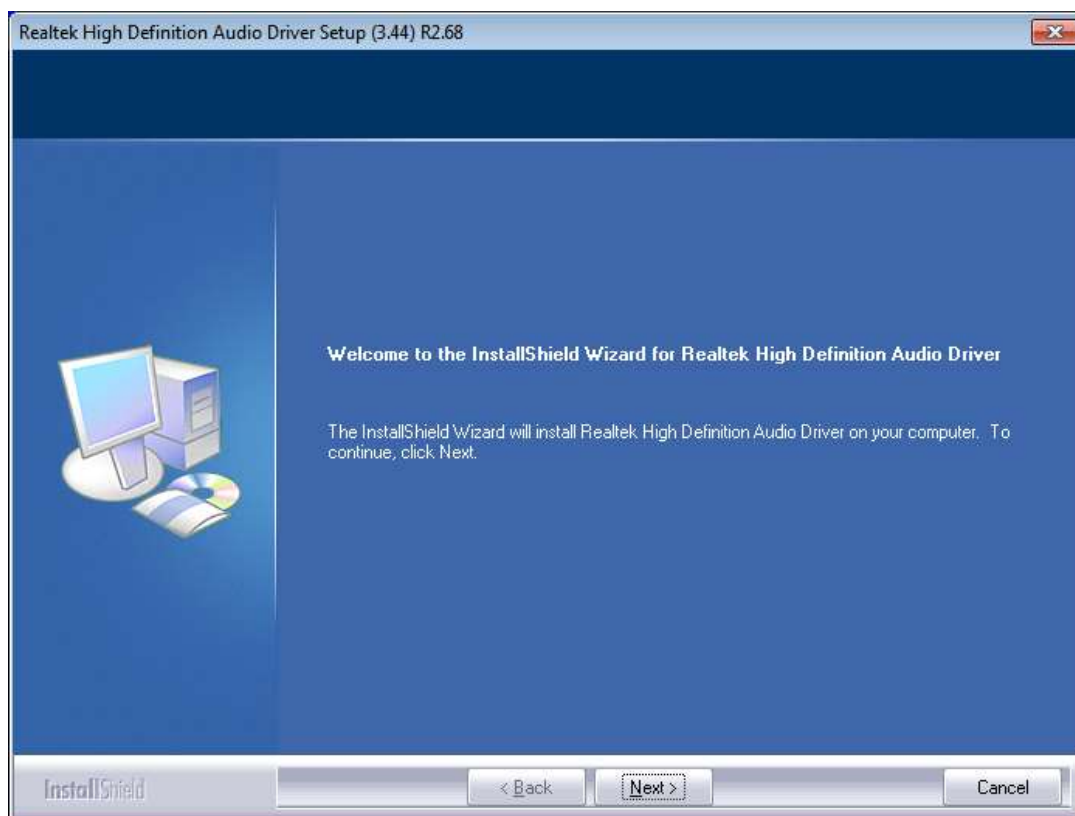
Step 3. Click **Yes, I want to restart my computer now**. Click **Finish** to complete the installation.
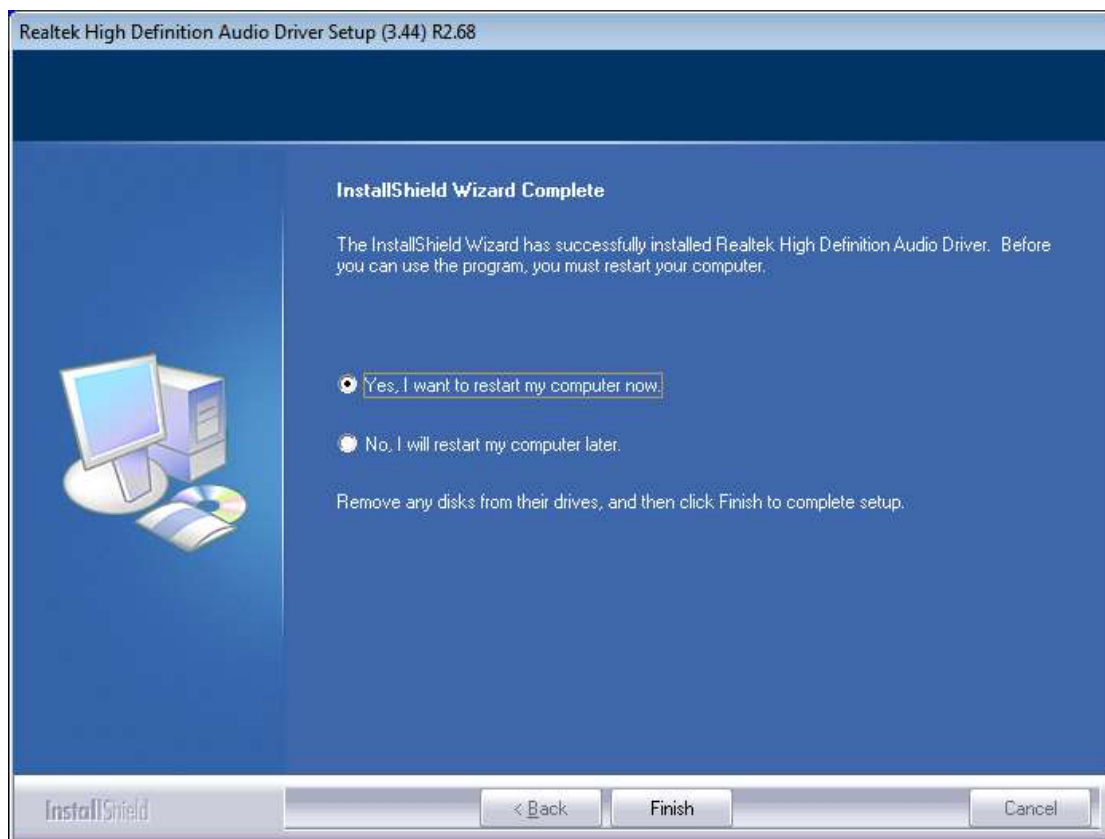
Chapter 5   Touch Screen Installation

This chapter describes how to install drivers and other software that will allow your Touch Screen Controller Board to work with different operating systems.

5.1 Introduction to Touch Screen Controller Board

15" projected capacitive touch panel control board is a touch screen control board designed for USB interface and specific for touch screens. It is designed with USB interface features with multiple devices supporting function. It is designed for Projected Capacitive Touch Panel (PCAP) application; through glass touch sensing is ready for products that require a complete flat surface. It also can drive the touch panel to get two fingers touch function that based on the Windows 7 support.

Figure 5.1: Bird's Eye View of Control Board

5.2 Windows 2000/XP/2003/Vista Universal Driver Installation

Before installing the Windows 2000/XP driver software, you must have the Windows 2000/XP system installed and running on your computer.

5.2.1 Installing Software (projective capacitive)

If you have an older version of the driver installed in your system, please remove it first. Follow the steps below to install the driver. Please make sure your USB controller device had plugged in advance. When the system first detects the controller board, a screen appears that shows "Unknown Device". Do not use this hardware wizard. Press Cancel.

Step 1. Insert the product CD, the screen below would appear. Click touch panel driver.

Step 2. Click **Next** to continue.
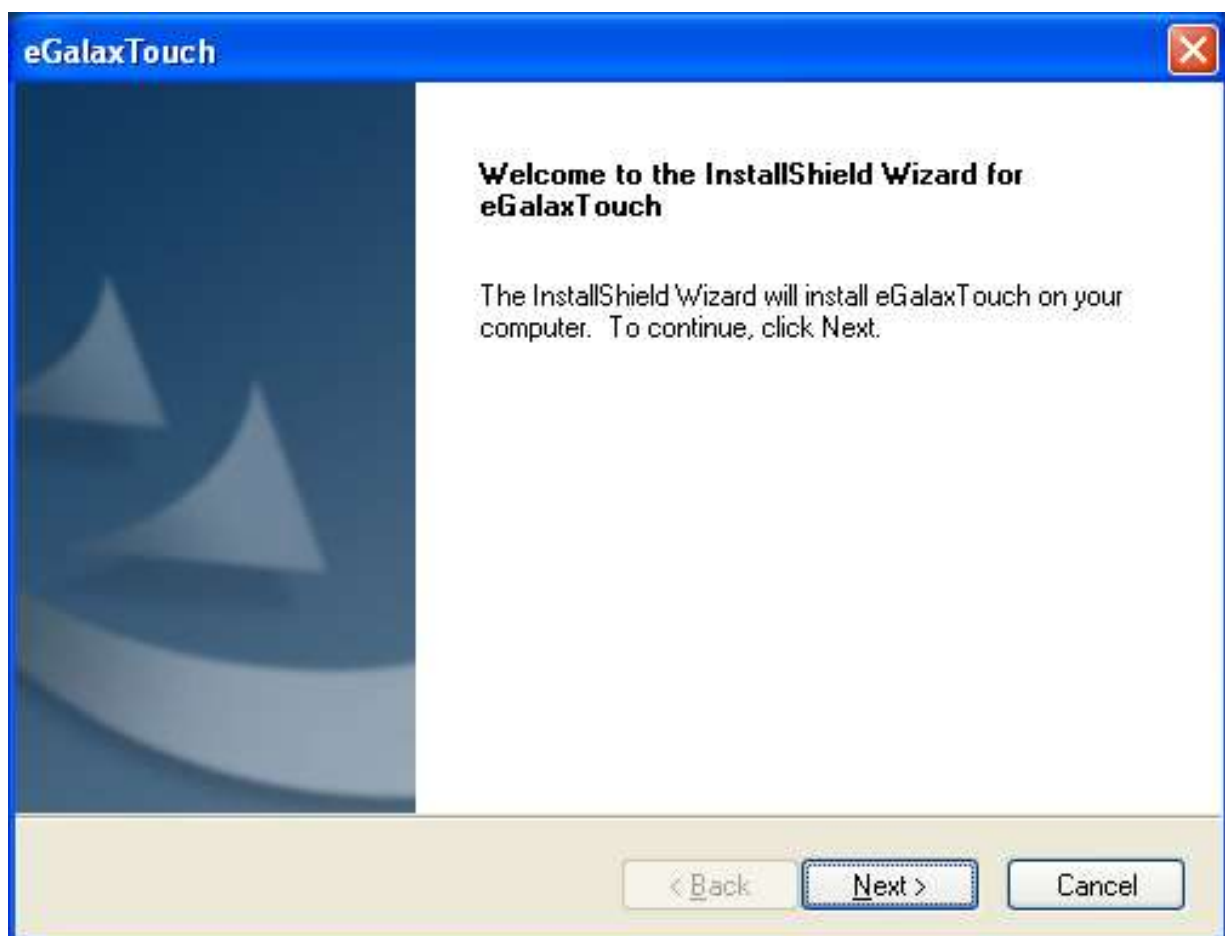
Step 3. Select **I accept the terms of the license agreement**.   Click **Next.**
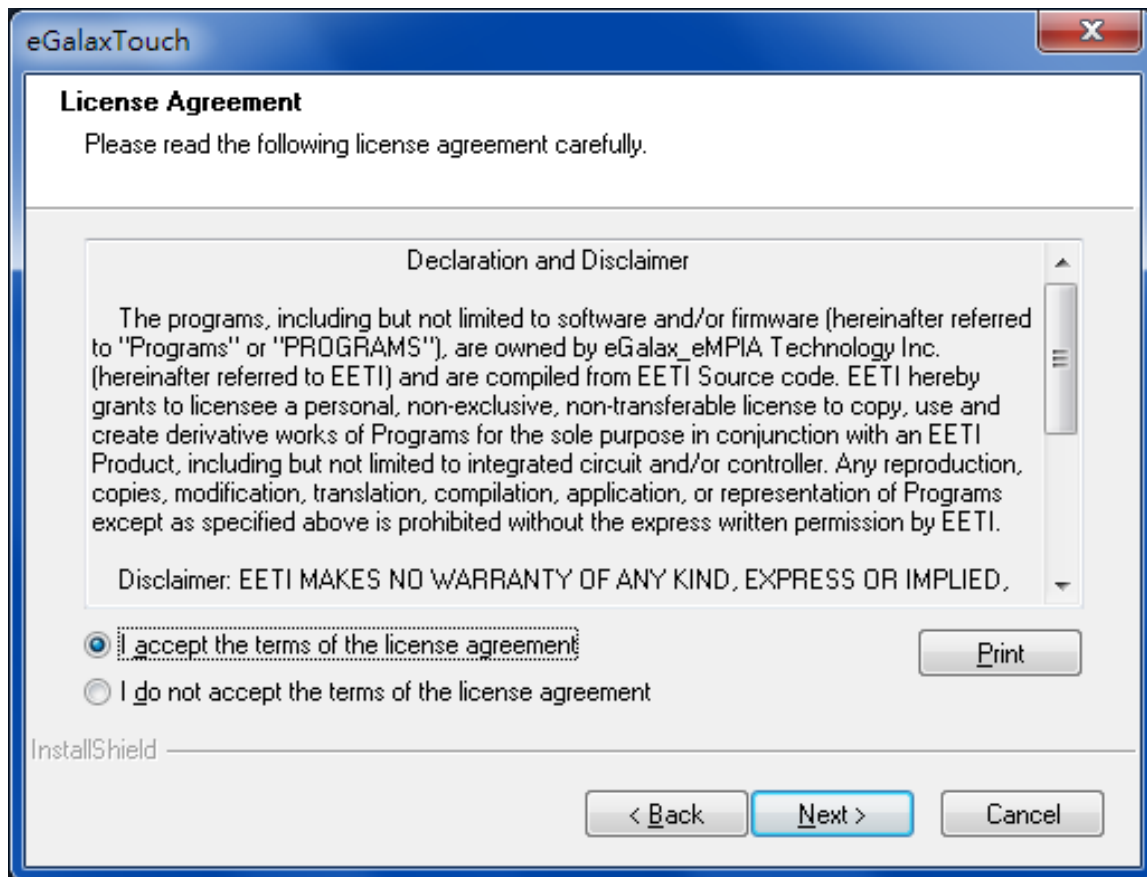
Step 4. Tick **Install RS232 interface driver**.   Click **Next**.
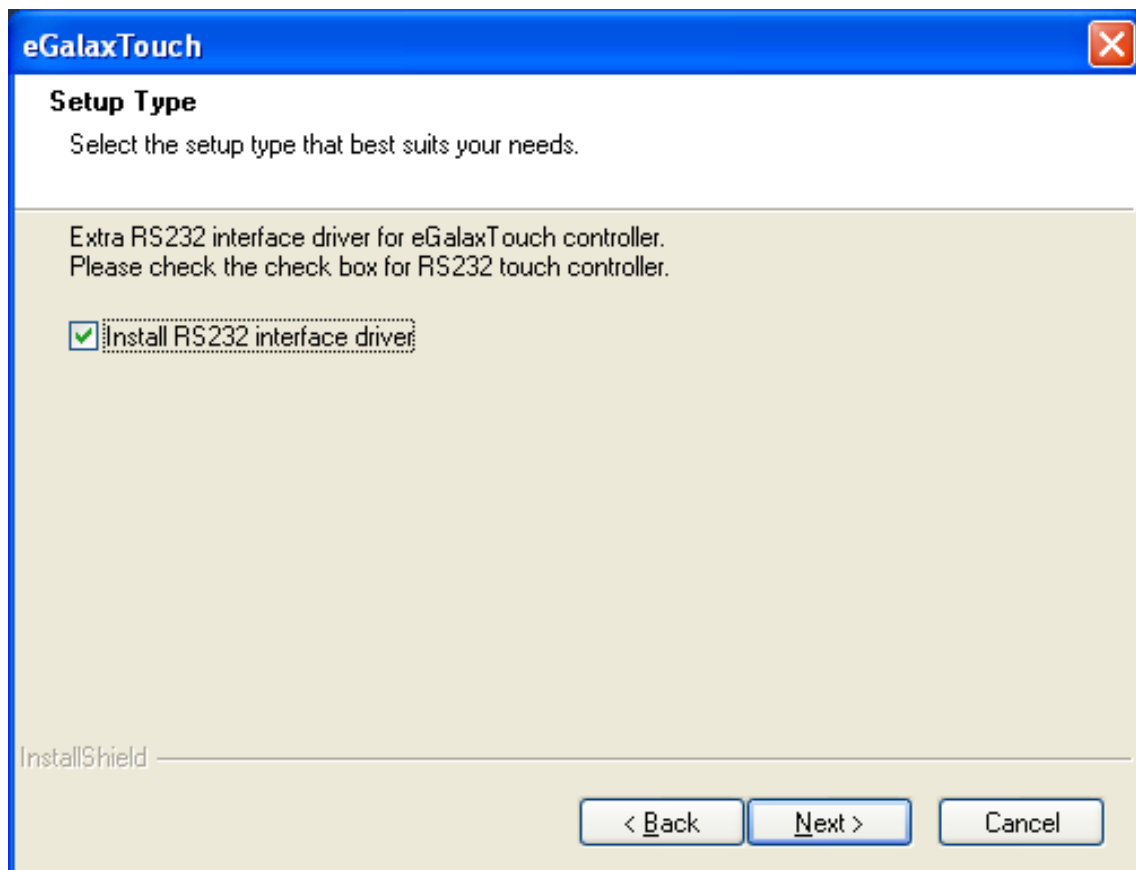
Step 5. Select **None**.　Click **Next**.
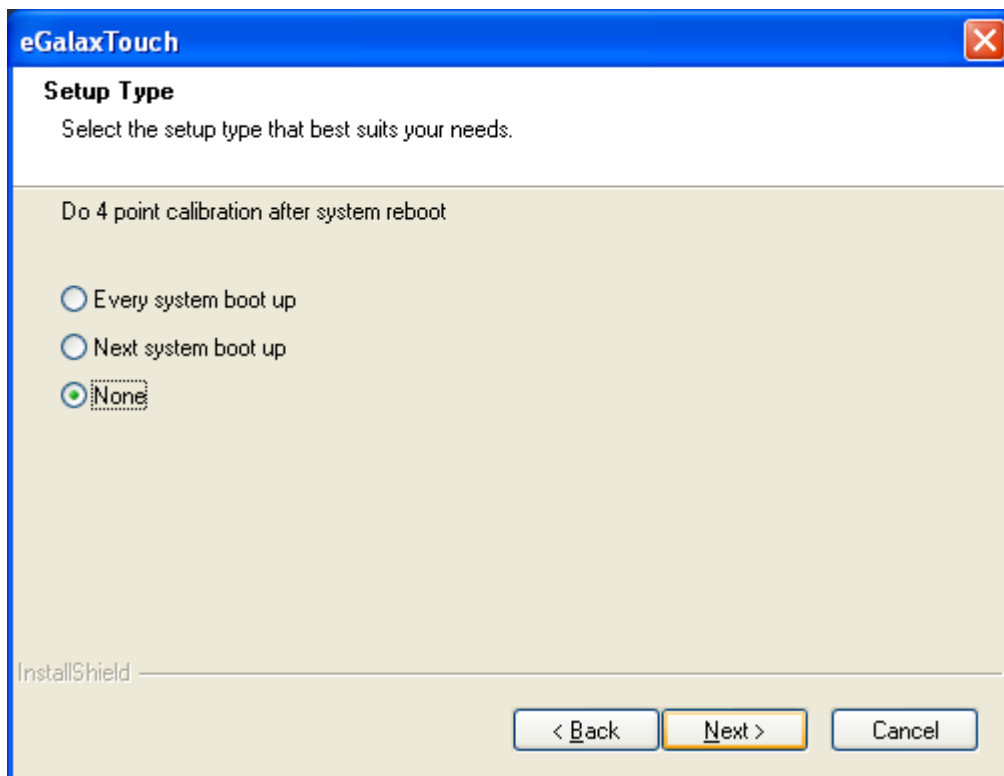
Step 6. Click **OK.**
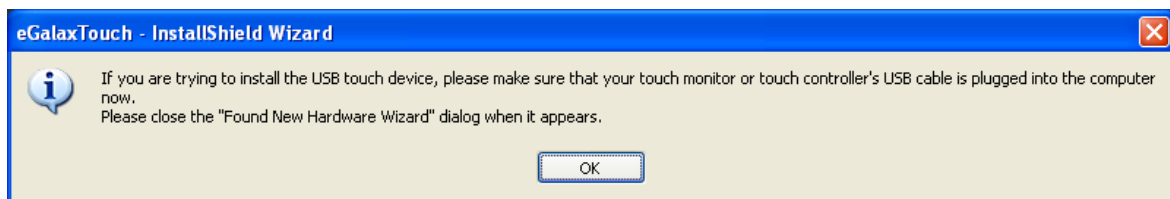
Step 7. Tick **Support Muti-Monitor System**.　Click **Next.**
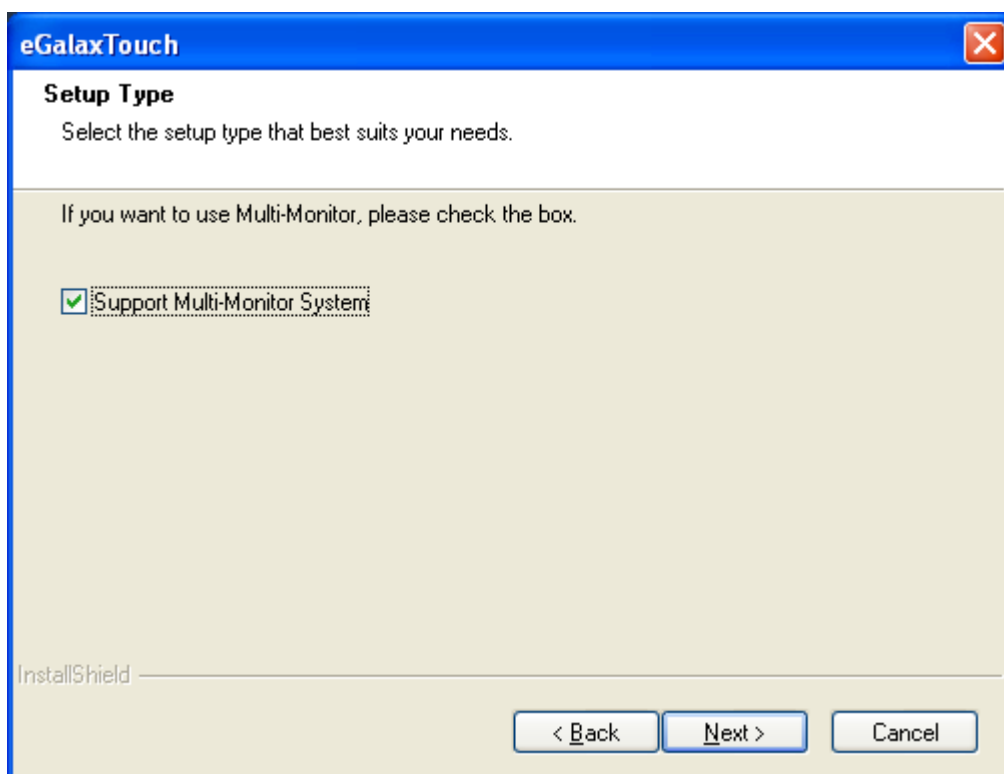
Step 8. Go to **C:\Program Files\eGalaxTouch**.   Click **Next**.

eGalaxTouch

Choose Destination Location
Select folder where setup will install files.

Setup will install eGalaxTouch in the following folder.

To install to this folder, click Next. To install to a different folder, click Browse and select another folder.

Destination Folder

C:\Program Files\eGalaxTouch   Browse...

InstallShield

< Back   Next >   Cancel

Step 9. Click **Next.**

eGalaxTouch

Select Program Folder
Please select a program folder.

Setup will add program icons to the Program Folder listed below. You may type a new folder name, or select one from the existing folders list. Click Next to continue.

Program Folder:

eGalaxTouch

Existing Folders:

Accessories
Administrative Tools
Games
Startup

InstallShield

< Back   Next >   Cancel

Step 10. Tick **Create a eGalaxTouch Utility shortcut on desktop**.　Click **Next**.
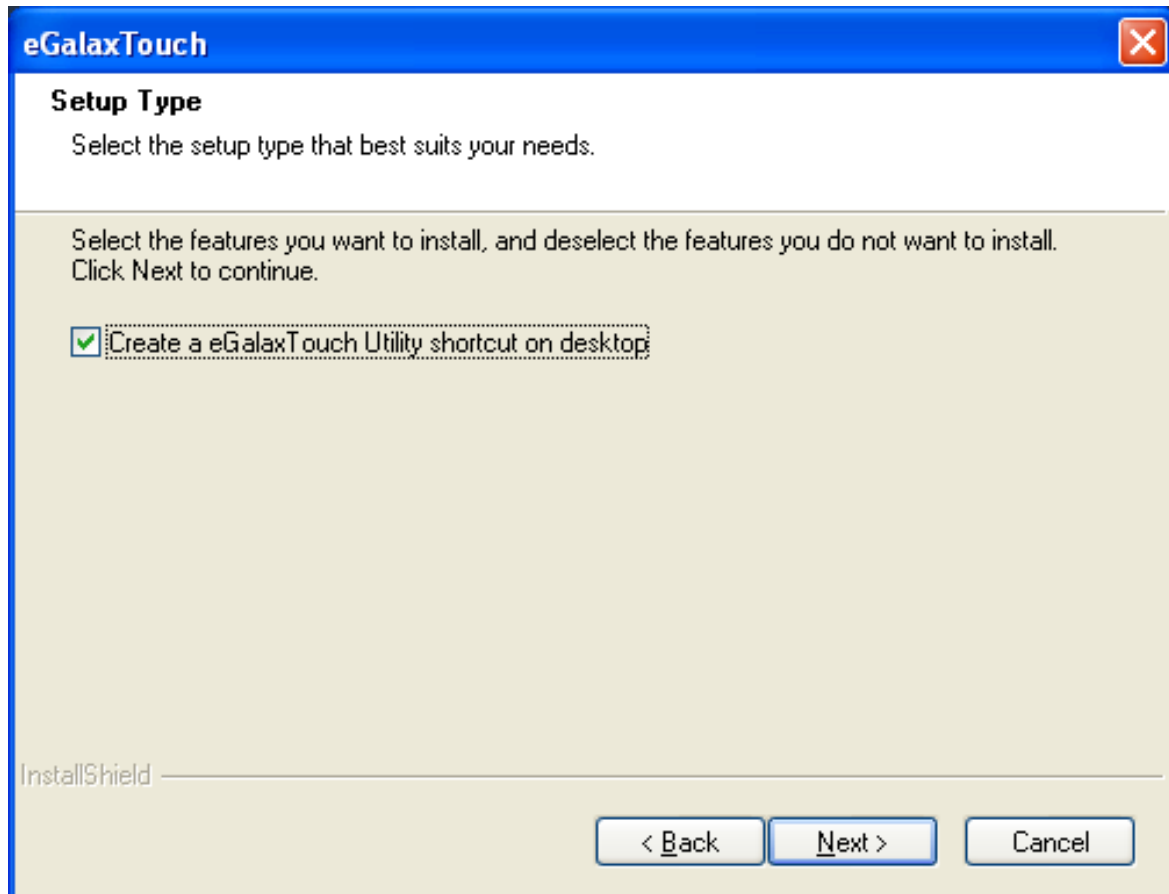
Step 11. Wait for installation.
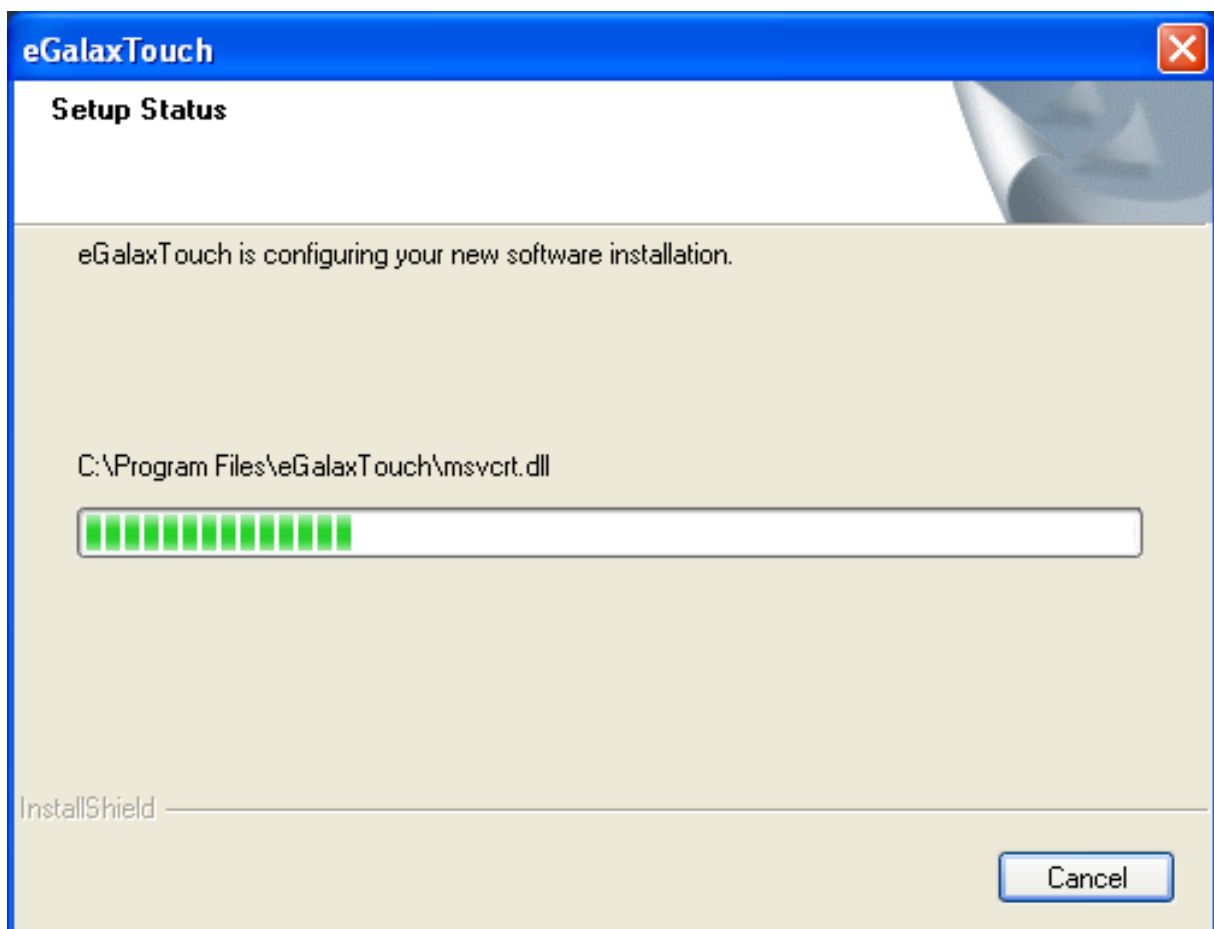
Step 12. Click **Yes** to do 4 point calibration.
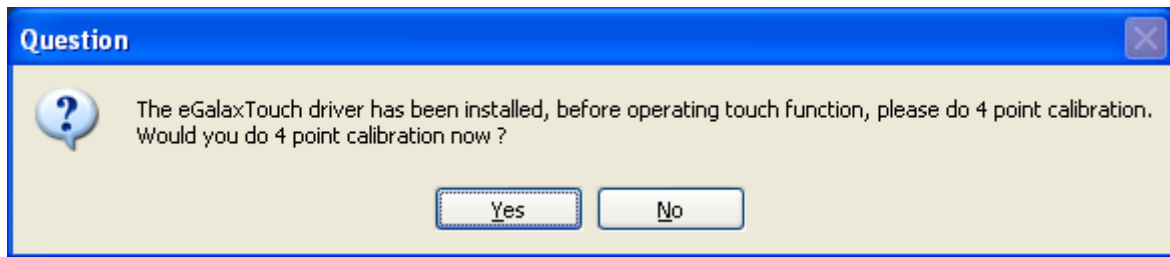
5.3 Software Functions

General

In this window, you can see there is USB Controller.   Click **OK** to continue.
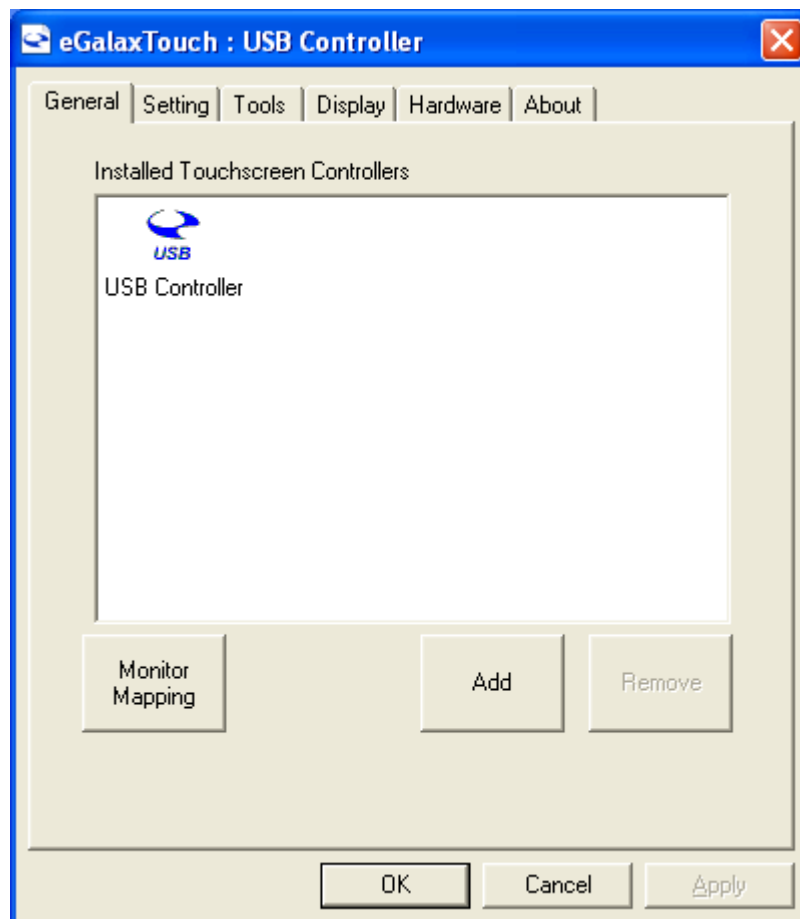
Monitor Mapping
   to adjust touch panel
Add
   to search for device

Setting
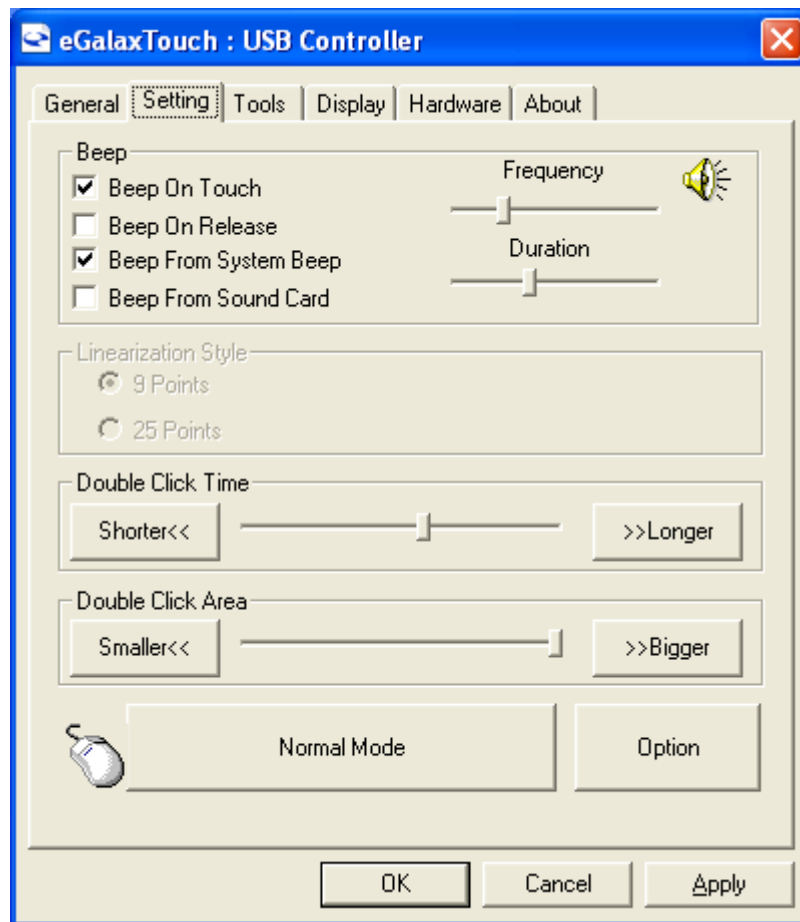
Beep
    Beep On Touch
    Beep On Release
    Beep From System Beep
    Beep From Sound Card

Linearization Style
    9 points
    25 points

Double Click Time
    Shorter
    Longer

Double Click Area
    Smaller
    Bigger

Normal mode
    Simulate the mouse mode
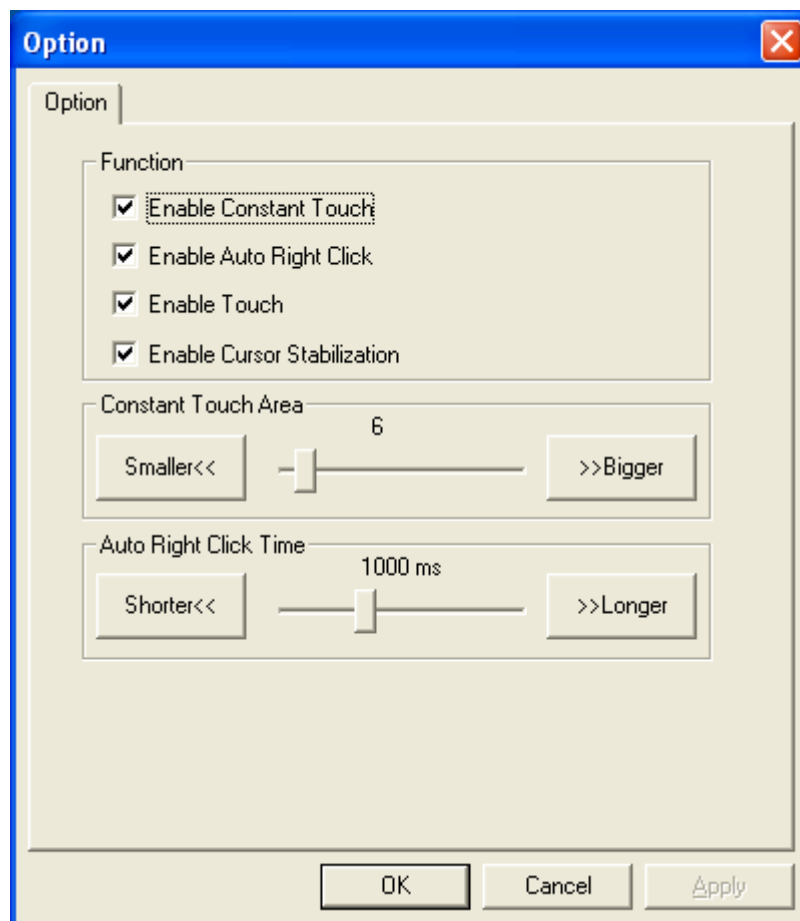
Option

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.
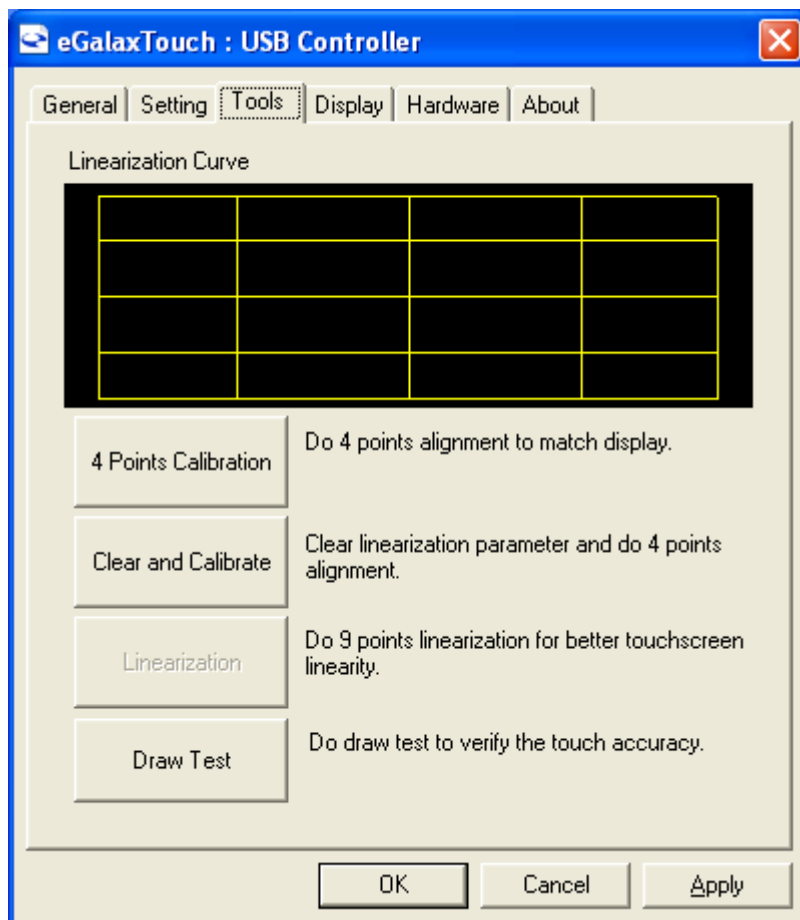
4 Points Calibration
Do 4 points alignment to match display.

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.
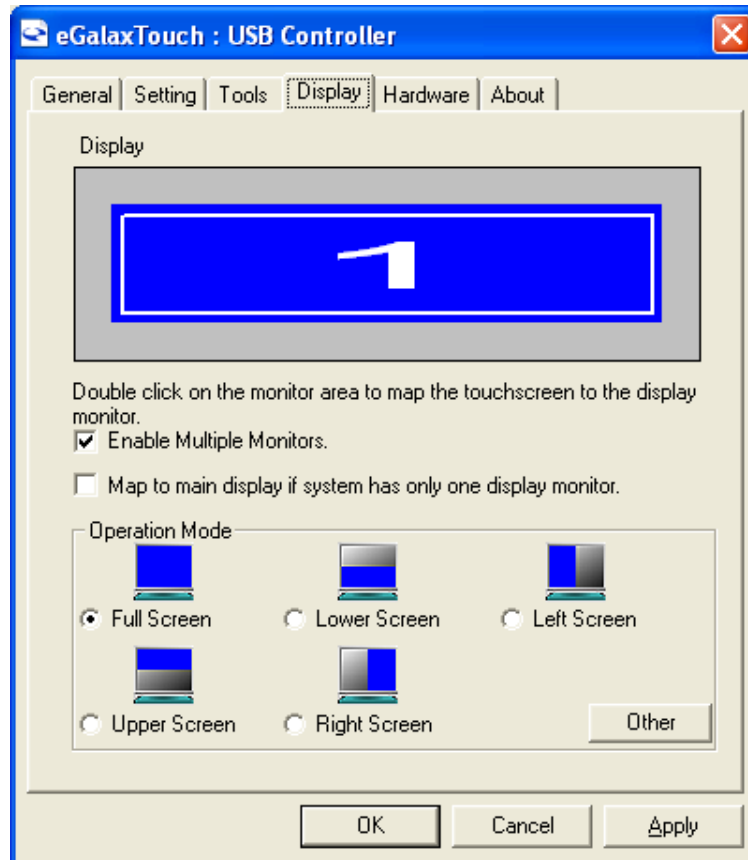
Enable Multiple Monitors.

Map to main display if system has only one display monitor

　Full Screen

　Lower Screen

　Left Screen

　Upper Screen

　Right Screen
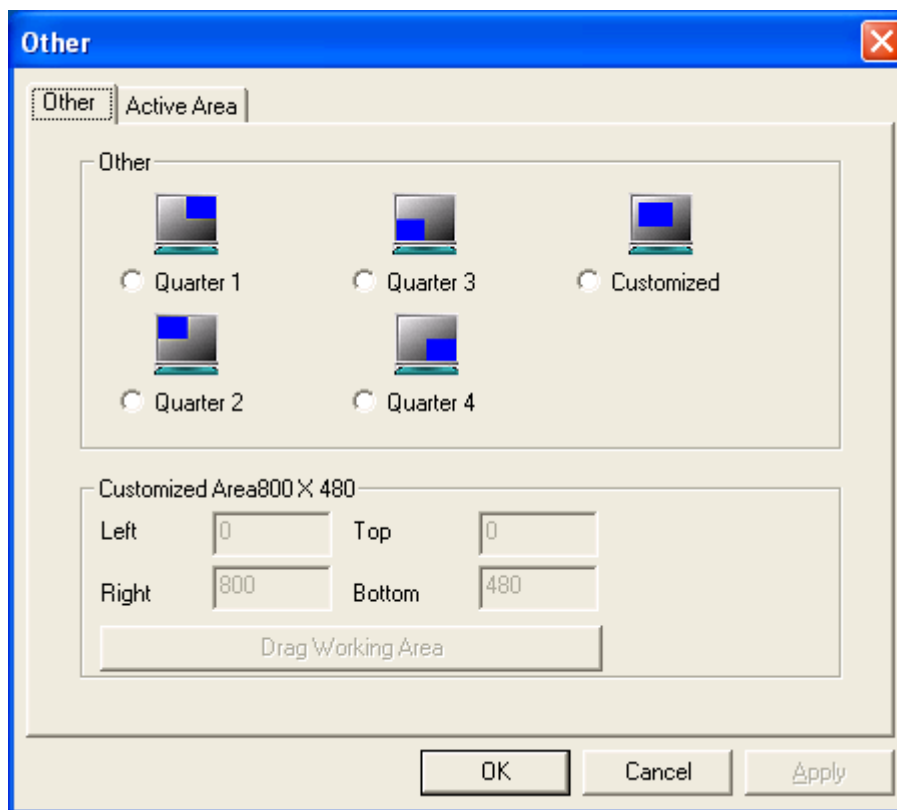
Other

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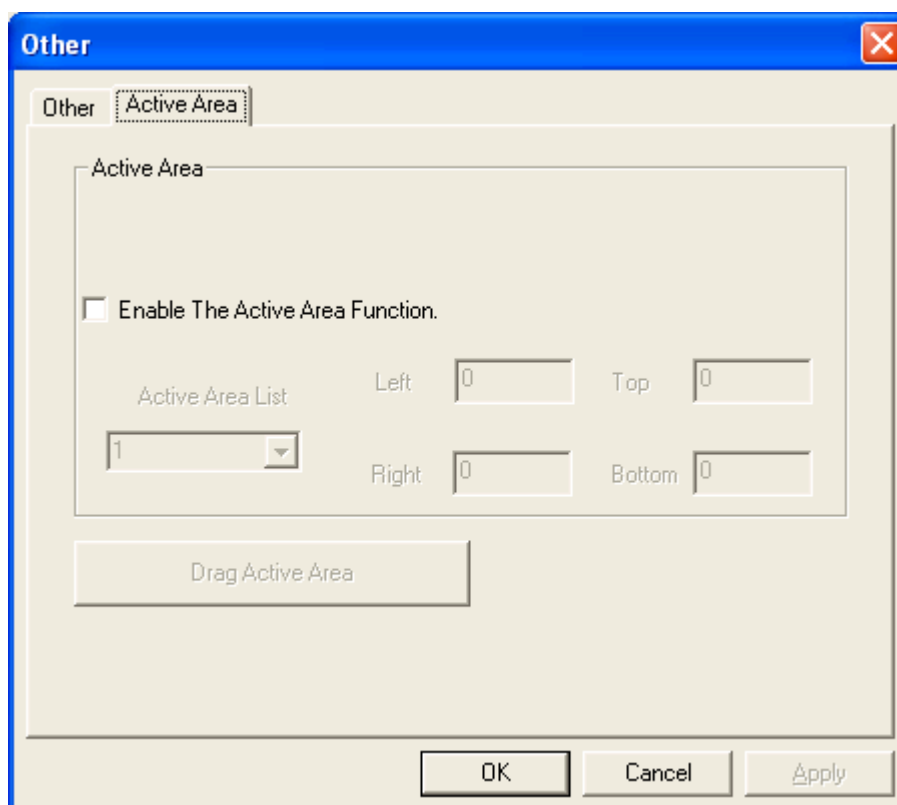
Active Area

   Drag active area to enable Active Area Function.

Hardware
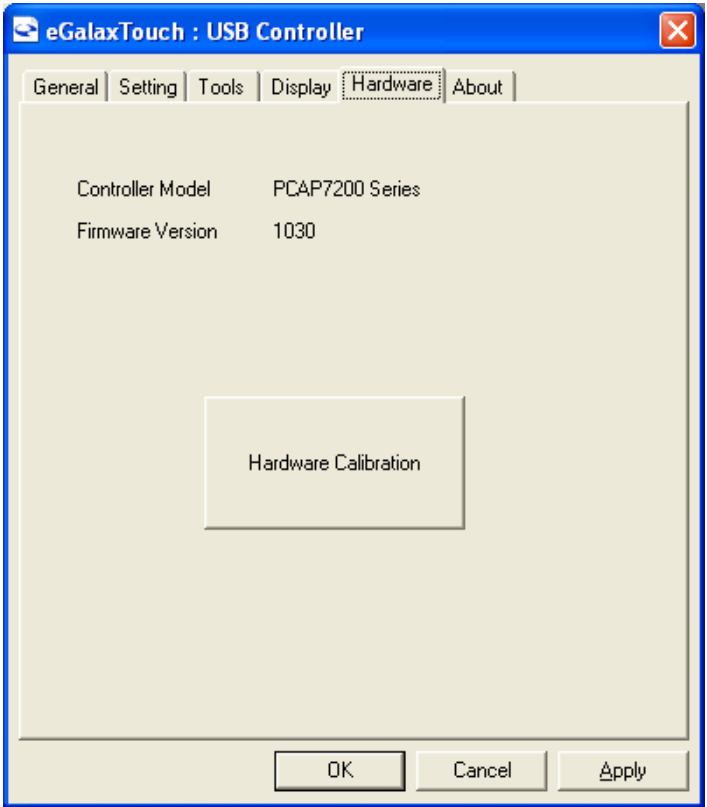
Saturn Hardware Configuration
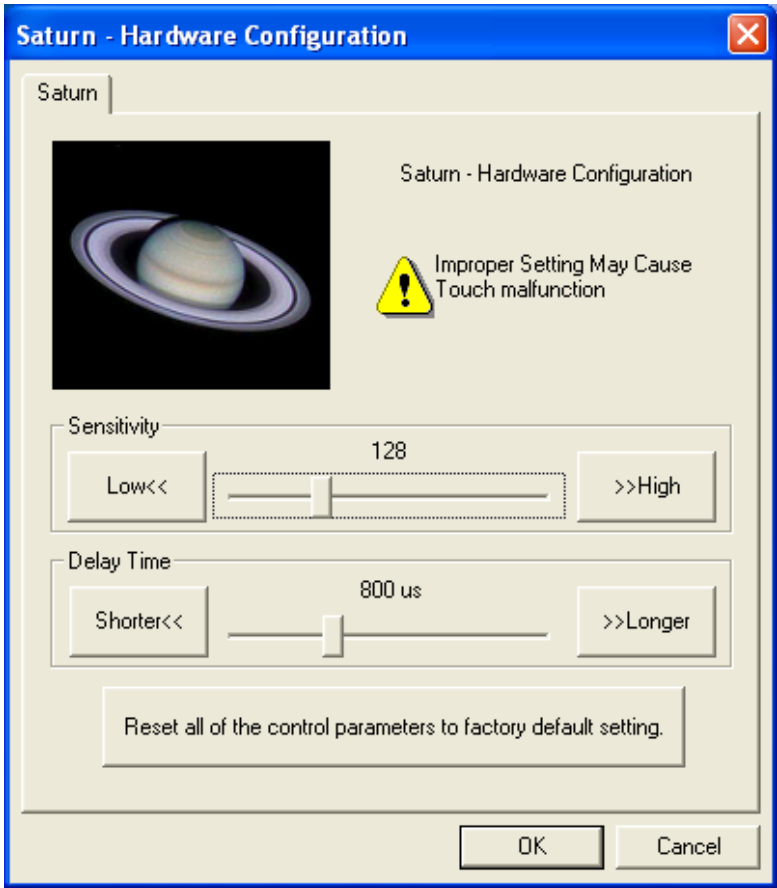
About

To display information about eGalaxTouch and its version.

5.2.2 Installing Software (Resistive Type)

If you have an older version of the PenMount Windows 2000/XP driver installed in your system, please remove it first. Follow the steps below to install the PenMount DMC6000 Windows 2000/XP driver.

Step 1. Insert the product CD, the screen below would appear. Click touch panel driver.

Step 2. Click **Next** to continue.
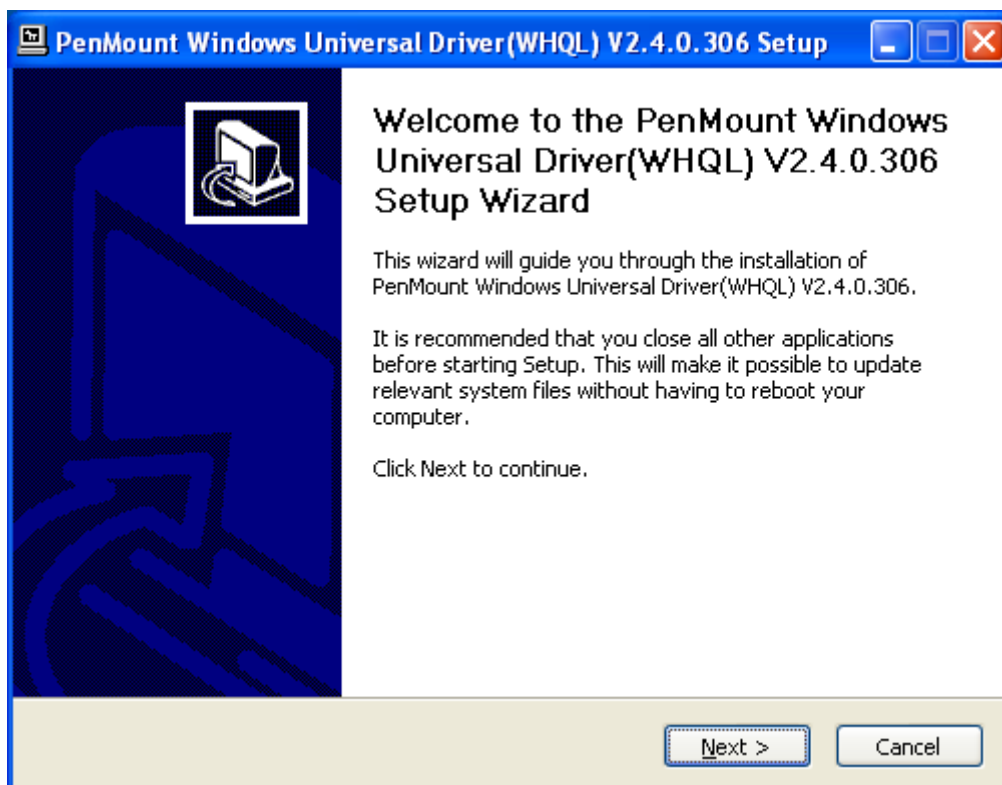
Step 3. Read the license agreement.   Click **I Agree** to agree the license agreement.
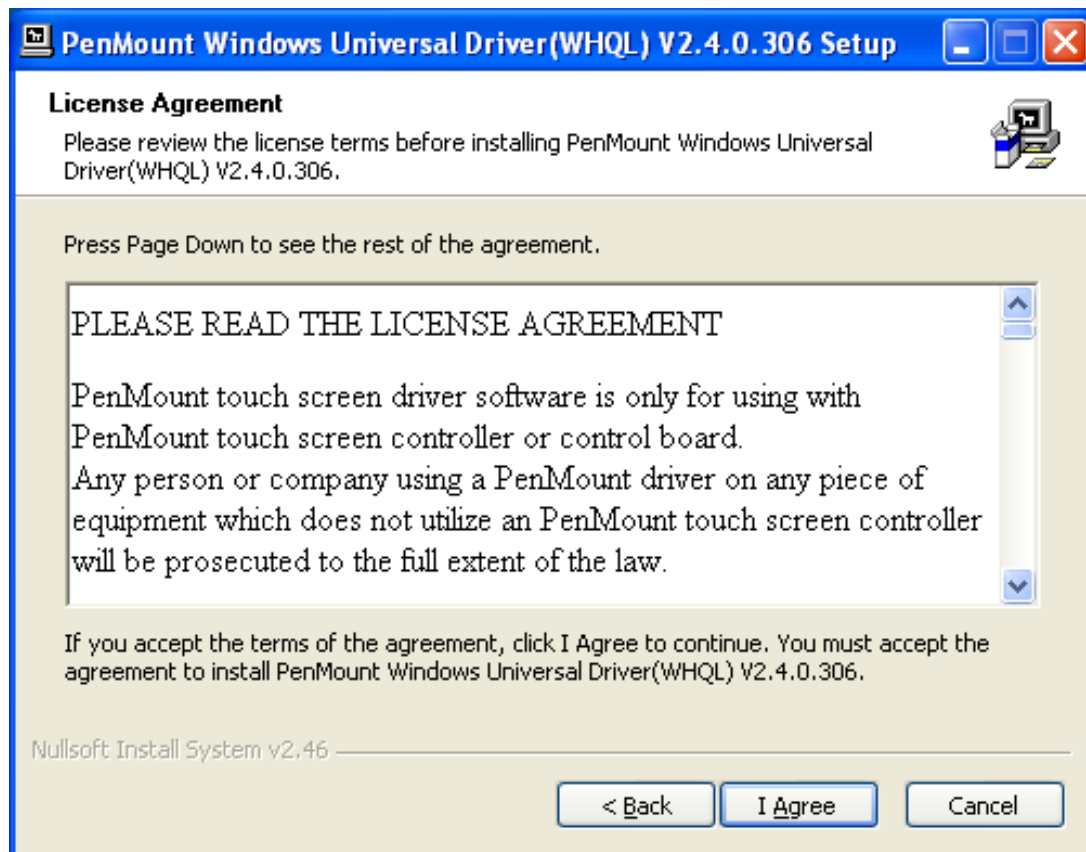
Step 4. Choose the folder in which to install PenMount Windows Universal Driver.   Click **Install** to start the installation.
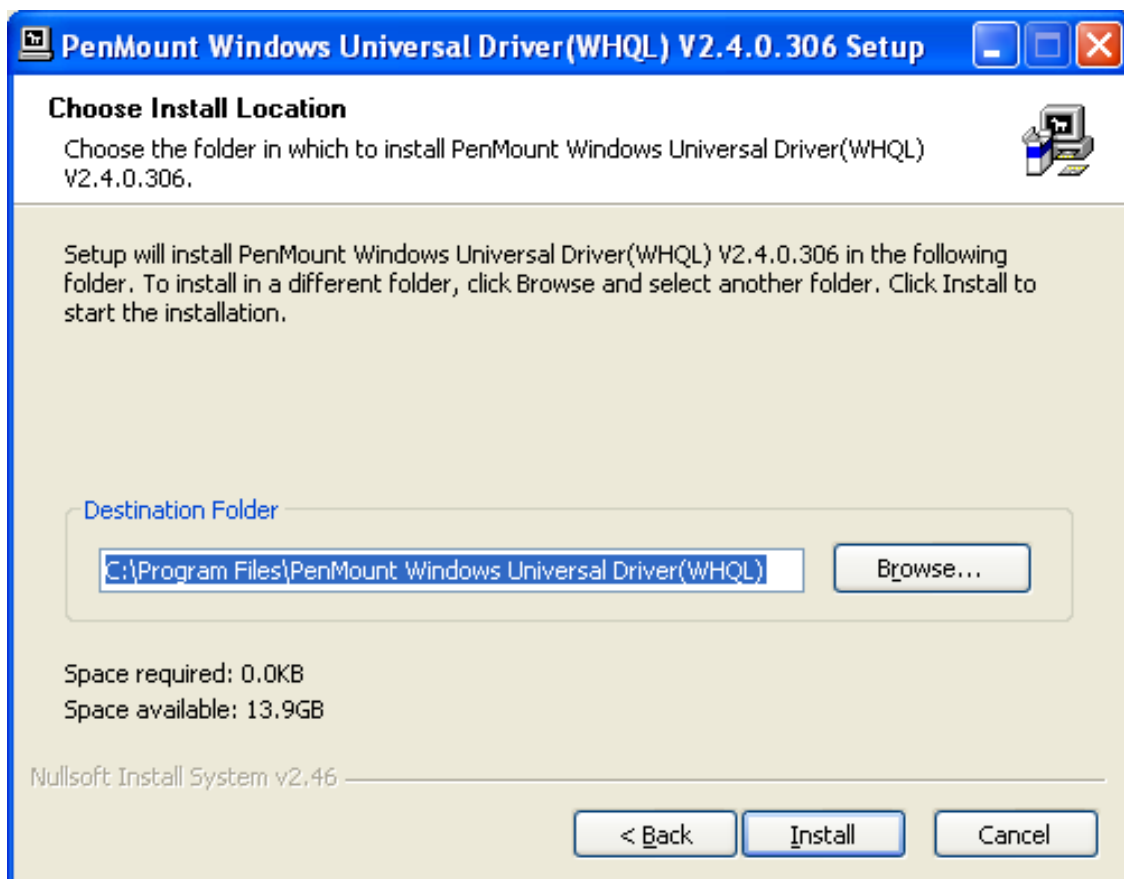
Step 5. Wait for installation.　Then click **Next** to continue.
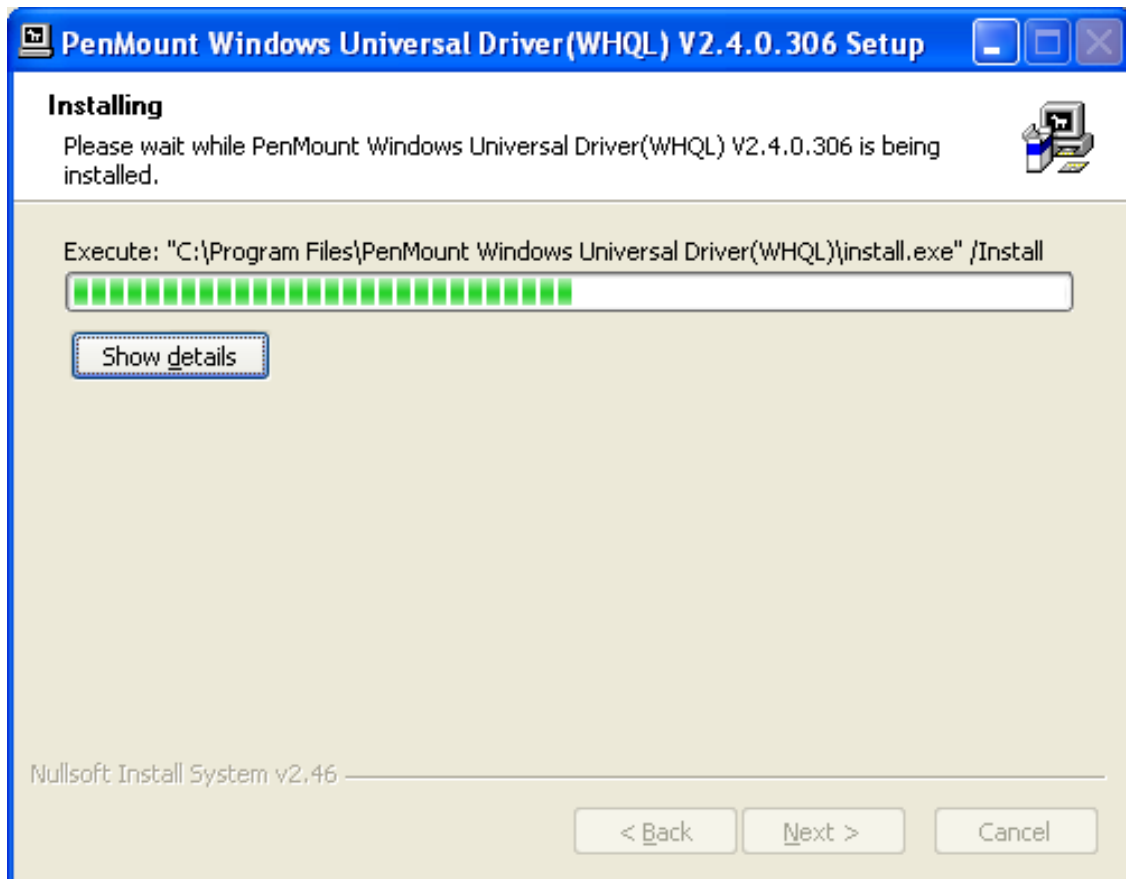
Step 6. Click **Continue Anyway**.
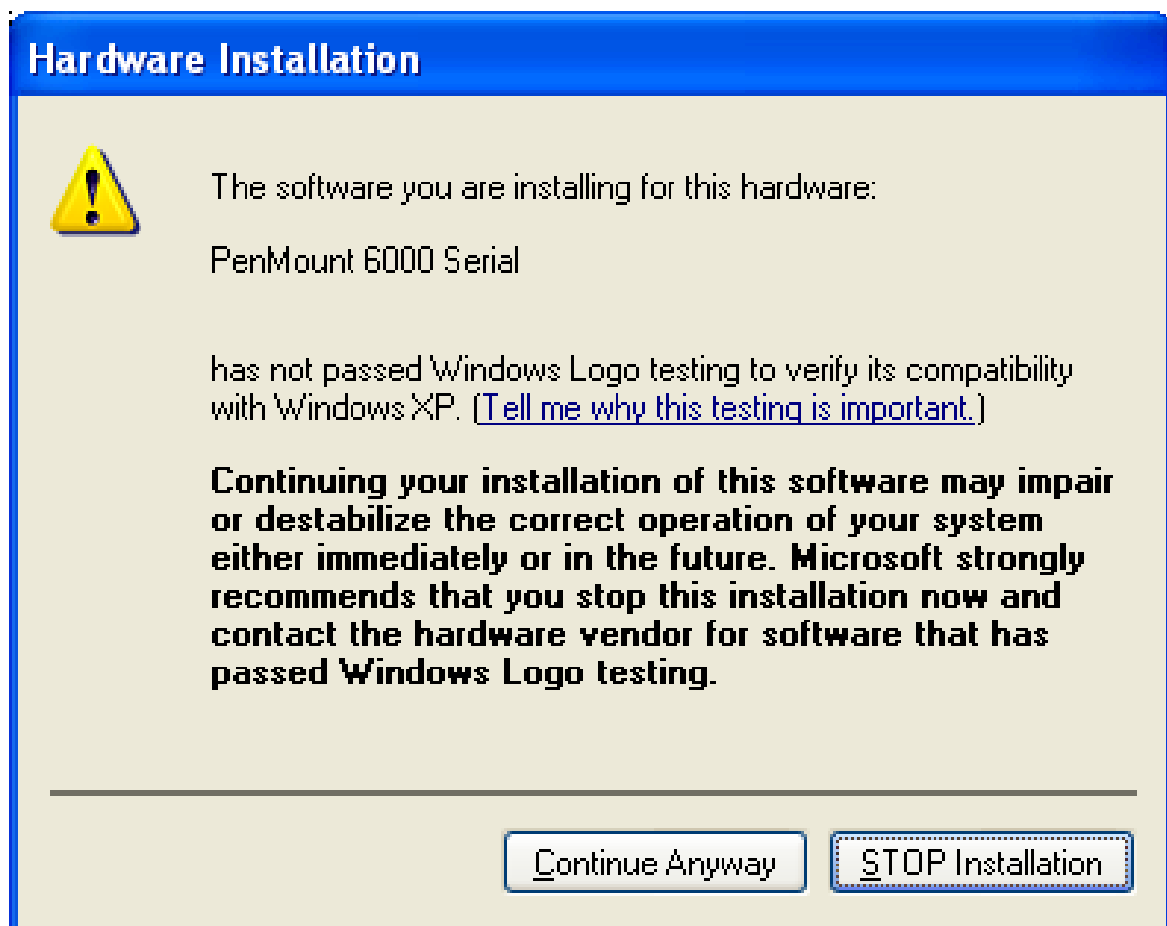
Step 7. Click **Finish** to complete installation.
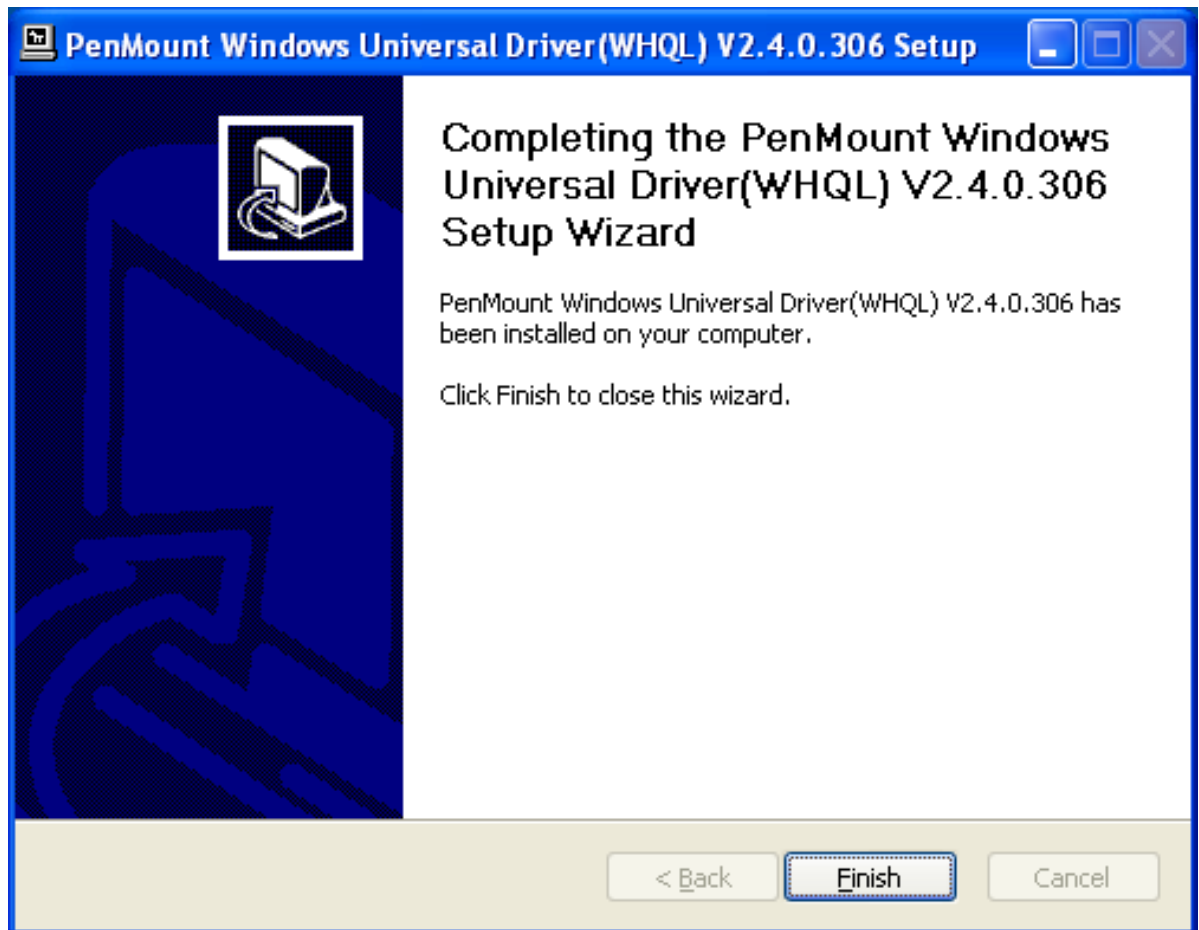
5.3 Software Functions

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.
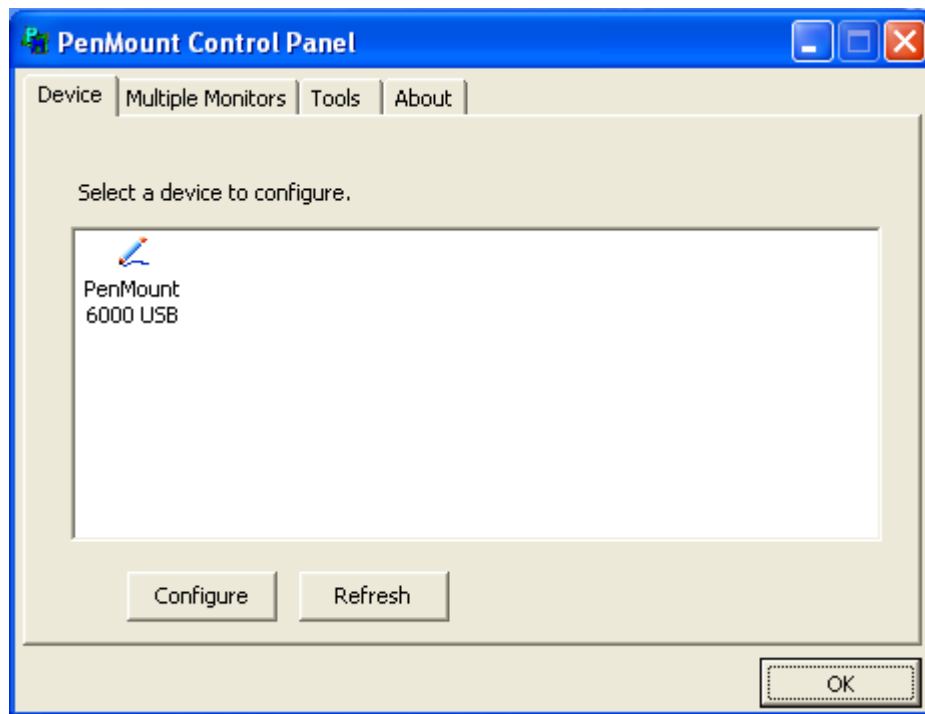
Calibrate

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'.**

Command Calibration	**Command call calibration function. Use command mode call calibration function, this can uses Standard, 4, 9, 16 or 25 points to calibrate** E.g. Please run ms-dos prompt or command prompt c:\Program Files\PenMount Universa Driver\Dmcctrl.exe -calibration 0 (Standard Calibration) Dmcctrl.exe - calibration ($) 0= Standard Calibration 4=Advanced Calibration 4 9=Advanced Calibration 9 16=Advanced Calibration 16 25=Advanced Calibration 25

Step 1. Please select a device then click "Configure". You can also double click the device too.
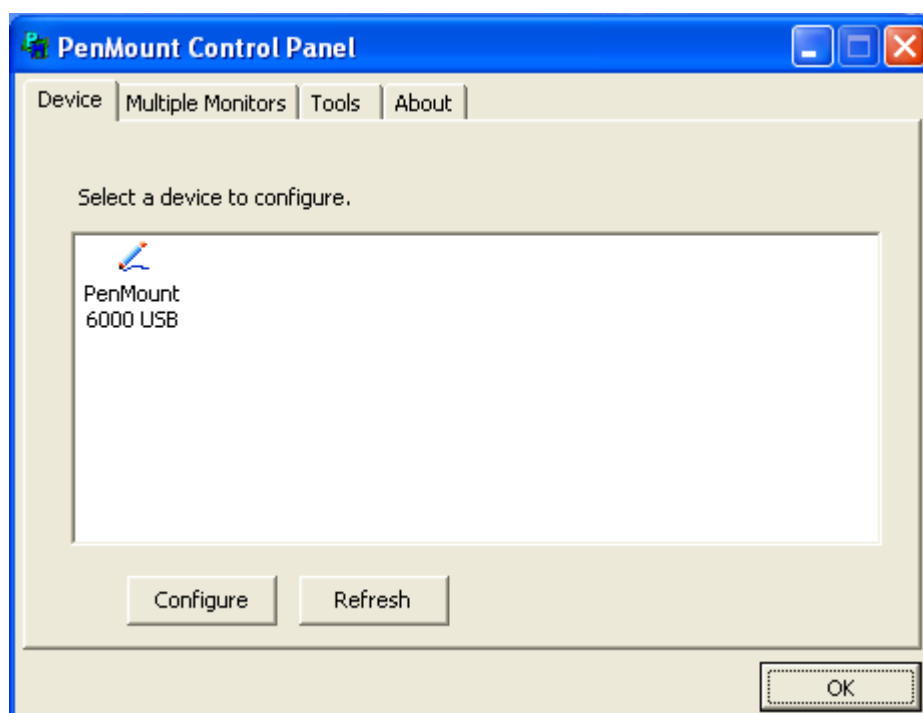
Step 2. Click "Standard Calibration" to start calibration procedure
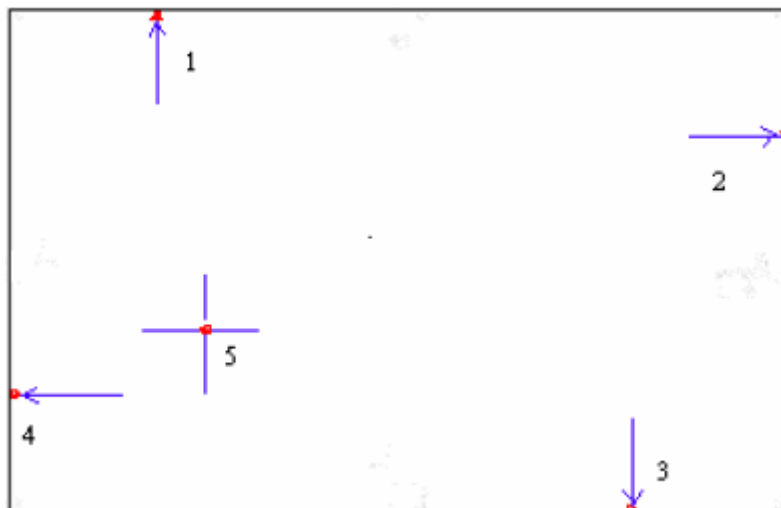
NOTE: The older the touch screen, the more Advanced Mode calibration points you need for an accurate calibration. Use a stylus during Advanced Calibration for greater accuracy. Please follow the step as below:

Step 3. Come back to "PenMount Control Panel" and select **Tools** then click **Advanced Calibration**.
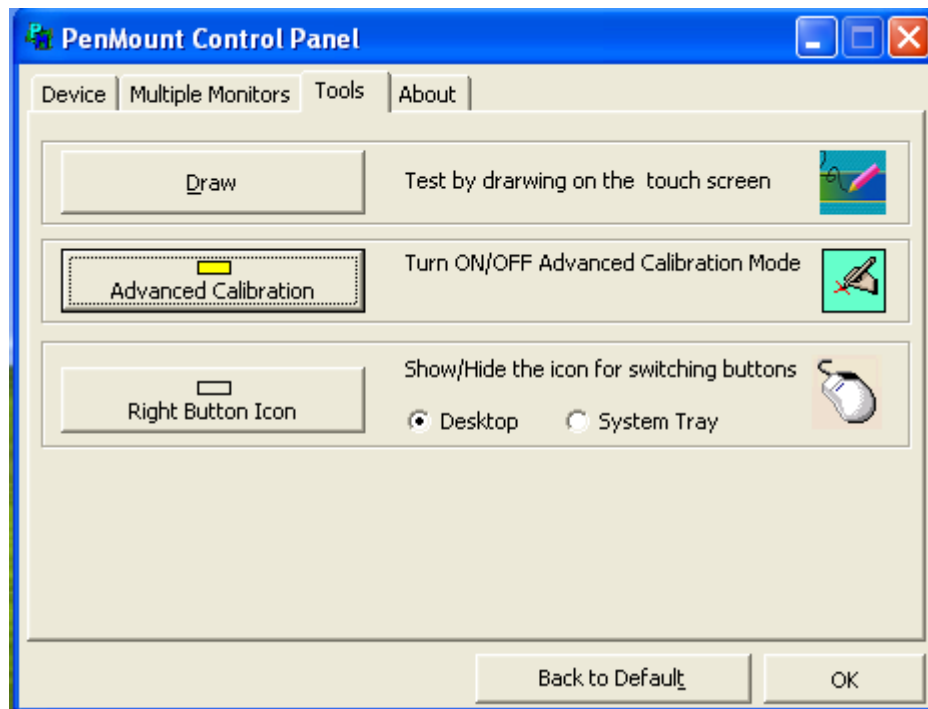
Step 4. Select **Device** to calibrate, then you can start to do **Advanced Calibration**.

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 the mouse only provides a click function, and dragging is disabled
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
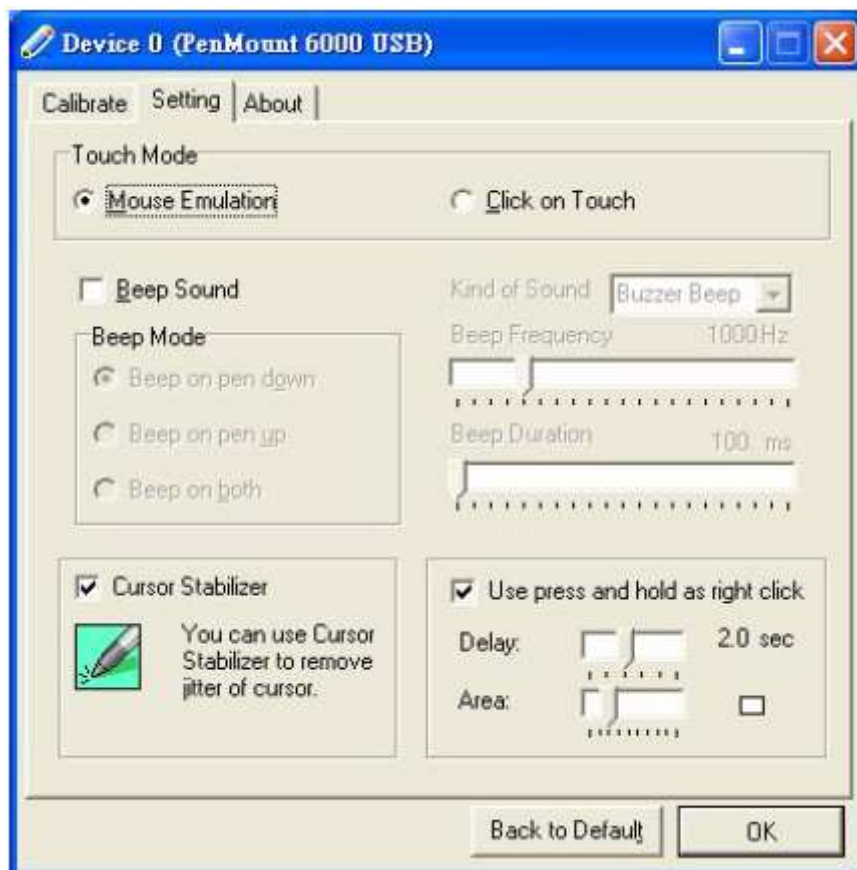
About

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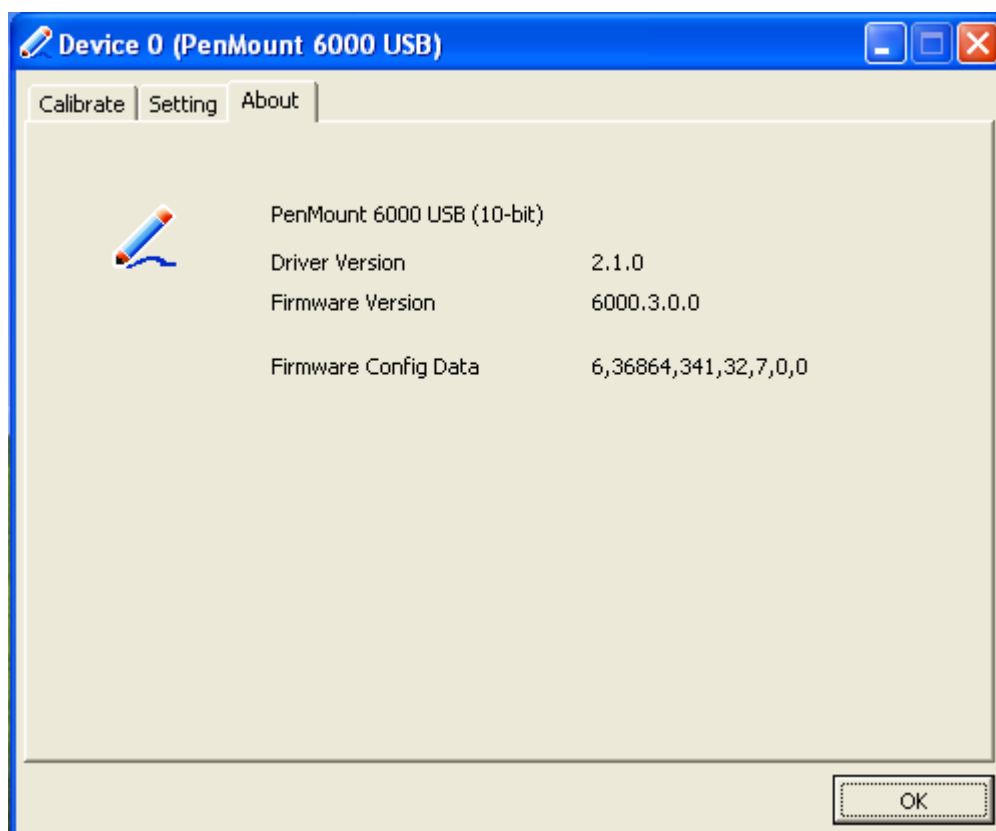
Multiple Monitors

Multiple Monitors support from two to six touch screen displays for one system.
The PenMount drivers for Windows 2000/XP 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 RS-232 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.
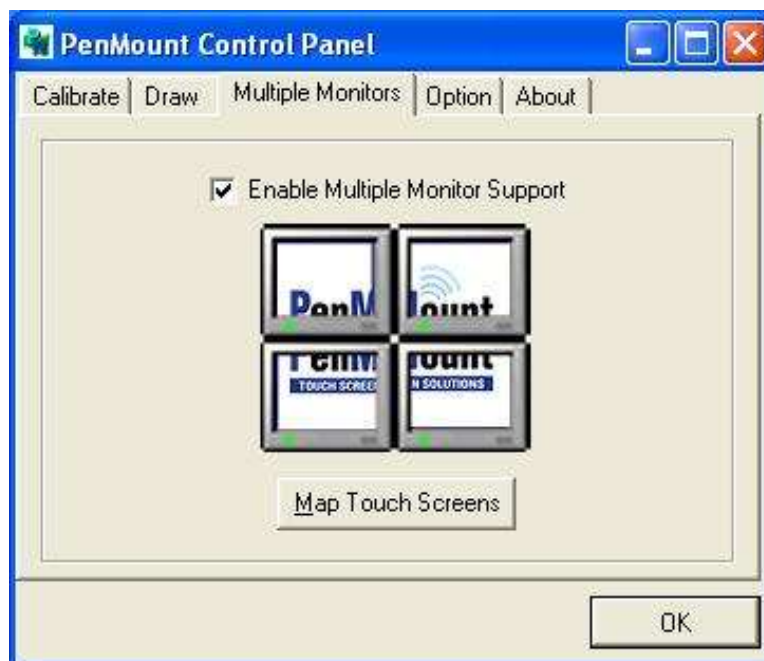
2. When the mapping screen message appears, click OK.
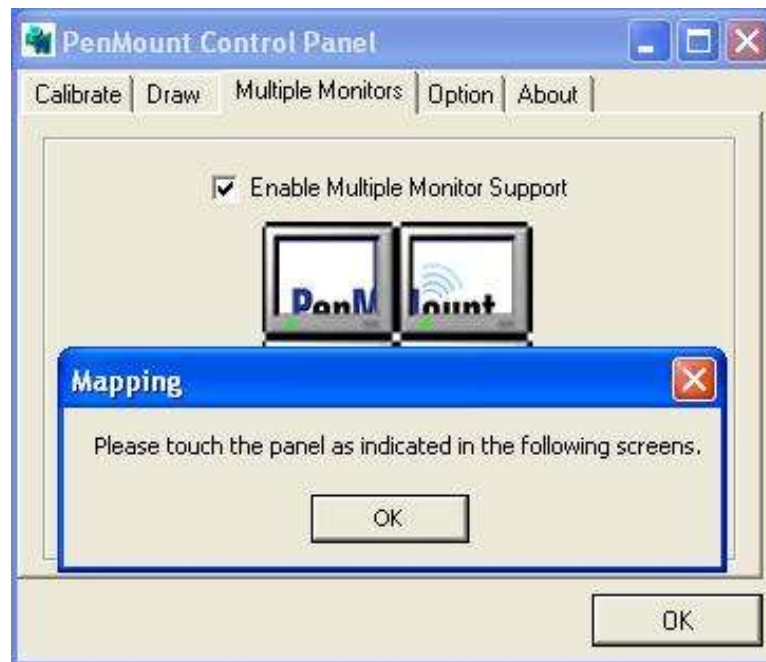
3. Touch each screen as it displays "Please touch this monitor". Following this sequence and touching each screen is called **mapping the touch screens**.

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.
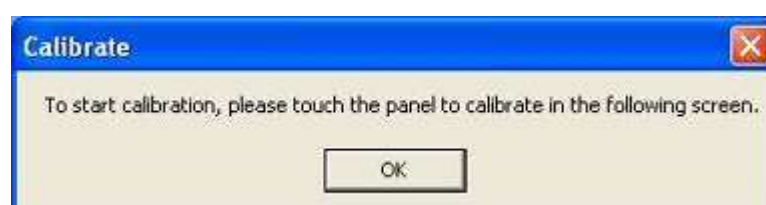
6. "Touch this screen to start its calibration" appears on one of the screens. Touch the screen.

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.
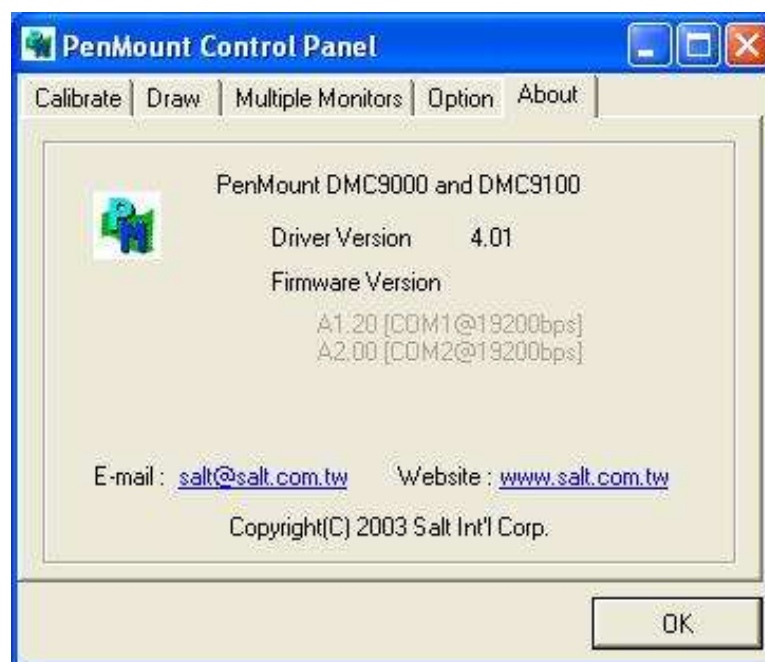
PenMount Monitor Menu Icon

The PenMount monitor icon (PM) appears in the menu bar of Windows 2000/XP 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.

PenMount Rotating Functions

The PenMount driver for Windows 2000/XP supports several display rotating software packages.

Windows Me/2000/XP support display rotating software packages such as:

- Portrait's Pivot Screen Rotation Software
- ATI Display Driver Rotate Function
- nVidia Display Driver Rotate Function
- SMI Display Driver Rotate Function
- Intel 845G/GE Display Driver Rotate 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.
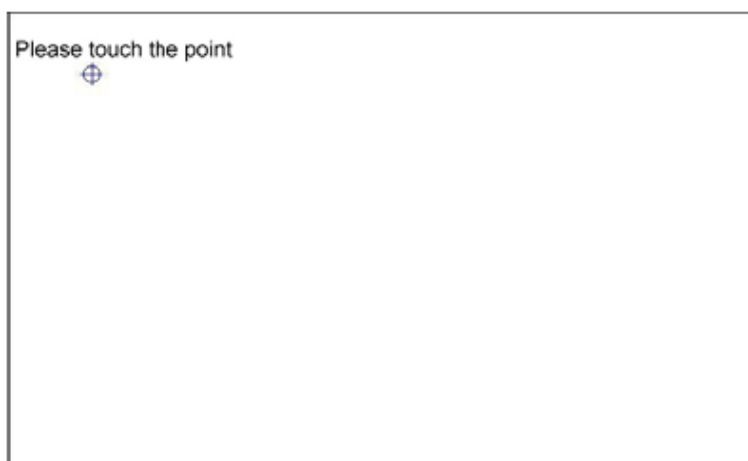
NOTE: The Rotate function is disabled if you use Monitor Mapping