APC-3x93P_3X93R

(SBC-7106 – 15”)

User Manual

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Aplex Technology, Inc.
15F-1, No.186, Jian Yi Road, Zhonghe District, New Taipei City 235, Taiwan
Tel: 886-2-82262881 Fax: 886-2-82262883 E-mail: aplex@aplex.com.tw URL: www.aplex.com.tw

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.

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Chapter 1 Getting Started

1.1 Features

- Fanless and Low Power Consumption Stainless Steel Panel PC
- Intel® Atom™ Processor D2550 (1M Cache, 1.8GHz)
- Onboard 2GB DDR3, optional 4G
- 11~32V DC wide-ranging power input
- M12 I/O Connector
- Full Flat bezel Design, Total 6 sides IP65/ IP69K
- Projective capacitive touch/ Resistive Type

1.2 Specifications

	APC-3593P(R)
System	
CPU	Intel® Atom Processor D2550(1M Cache, 1.8GHz)
Motherboard	SBC-7106-D2550
System Chipset	Intel NM10 Express
System Memory	Onboard DDR3 2GB (Default), optional 4G
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
Membrane control	N/A
LAN	1 x M12 8pin for LAN
Power	1 x M12 3 pin DC power connector
Storage Space	
HDD	1 x 2.5” SATA HDD or SSD
Movable device	1 x Internal SD Card slot on board
Expansion	
On board expansion bus	1 x Mini PCIe half size slot
Display	
Display Type	15” TFT-LCD

Max. Resolution	1024x768
Max. Color	16M
Contrast Ratio	800 : 1
Luminance (cd/m²)	400
View angle(H°/V°)	160/145
Touch Screen (for APC-3X93P)	
Type	Projective Capacitive
Interface	USB
Light Transmission(%)	90%
Touch Screen (for APC-3X93R)	
Type	Resistive touch window
Interface	Default RS-232
Light Transmission(%)	80%
Power	
Power Input	11~32V DC
Power Consumption	Max:19.5W
Mechanical	
Construction	Stainless steel
IP Rating	Total IP65 6 sides / IP69 K
Mounting	VESA 75 x 75
Dimension (mm)	399 x 324 x 53
Net Weight (Kgs)	6.5KG
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	WES7 32bit, W7PES

1.3 Dimensions

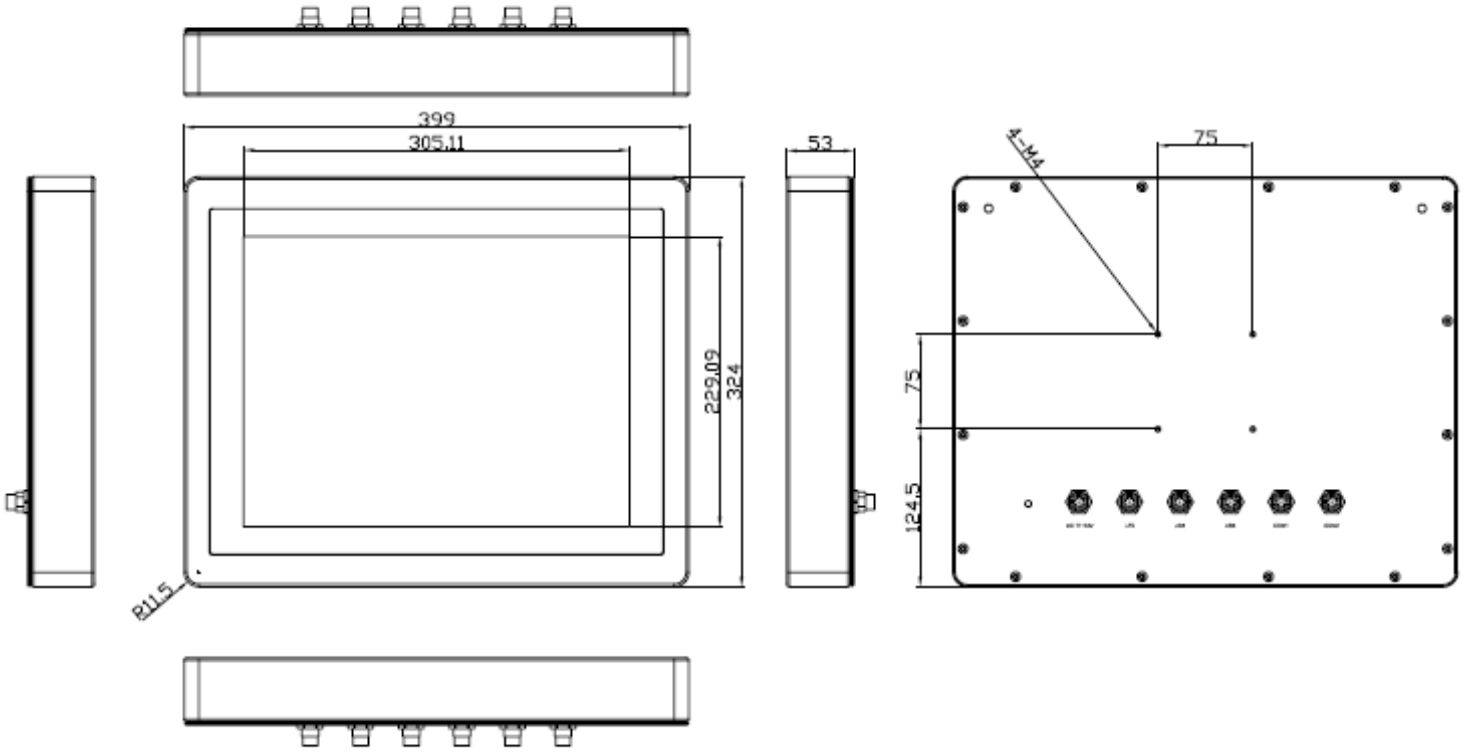


Figure 1.1: Dimensions of APC-3593P(R)

1.4 Brief Description of APC-3X93P/3X93R

APC-3x93P/3X93R 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/3X93R series has touch screen of projective capacitive type and resistive type window for option. The APC-3x93P/3X93R 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/3X93R 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/3X93R series supports OS such as Windows Embedded Standard 7, Windows 7 Pro for Embedded and so on.

Figure 1.4: Front View of APC-3x93P(R)

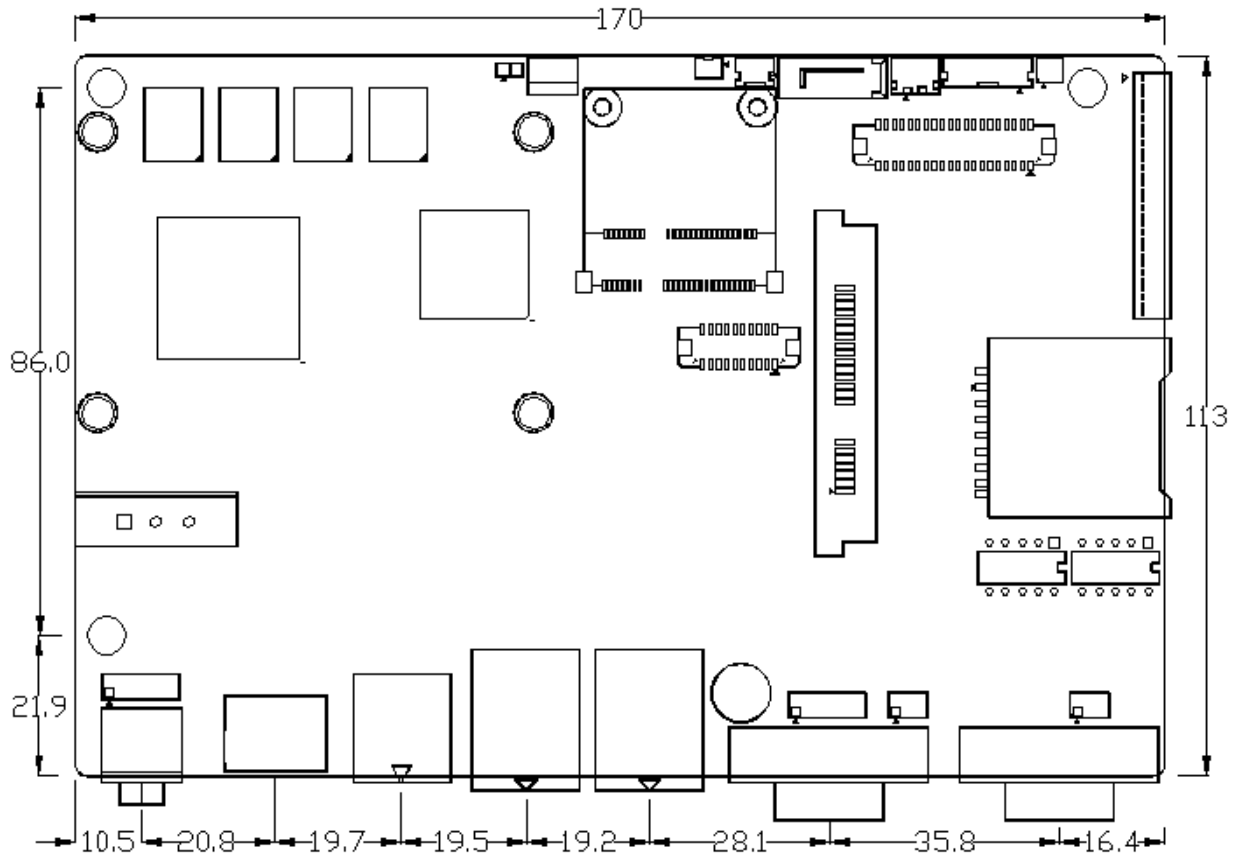
Figure 1.5: Rear View of APC-3x93P(R)

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 Introduction

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

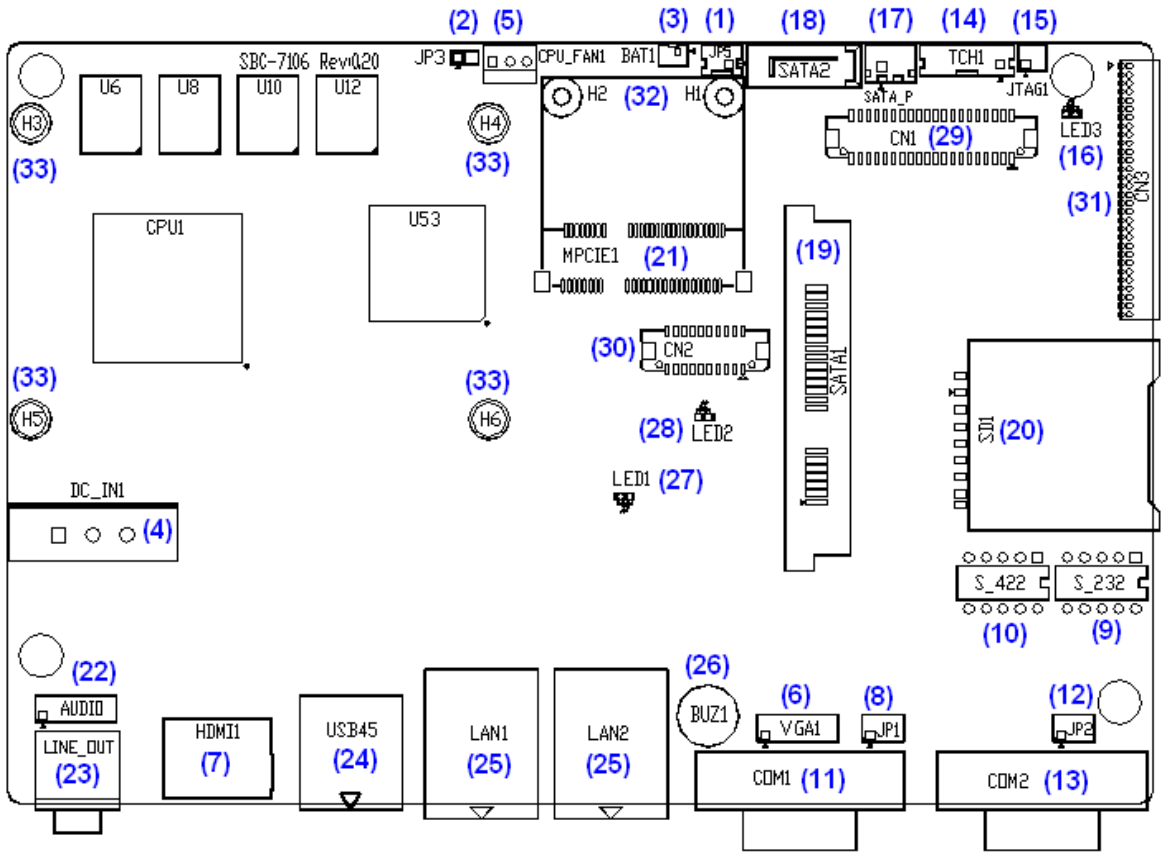


Figure 2.2: Jumpers and Connectors Location_ Board Top

Board Bottom

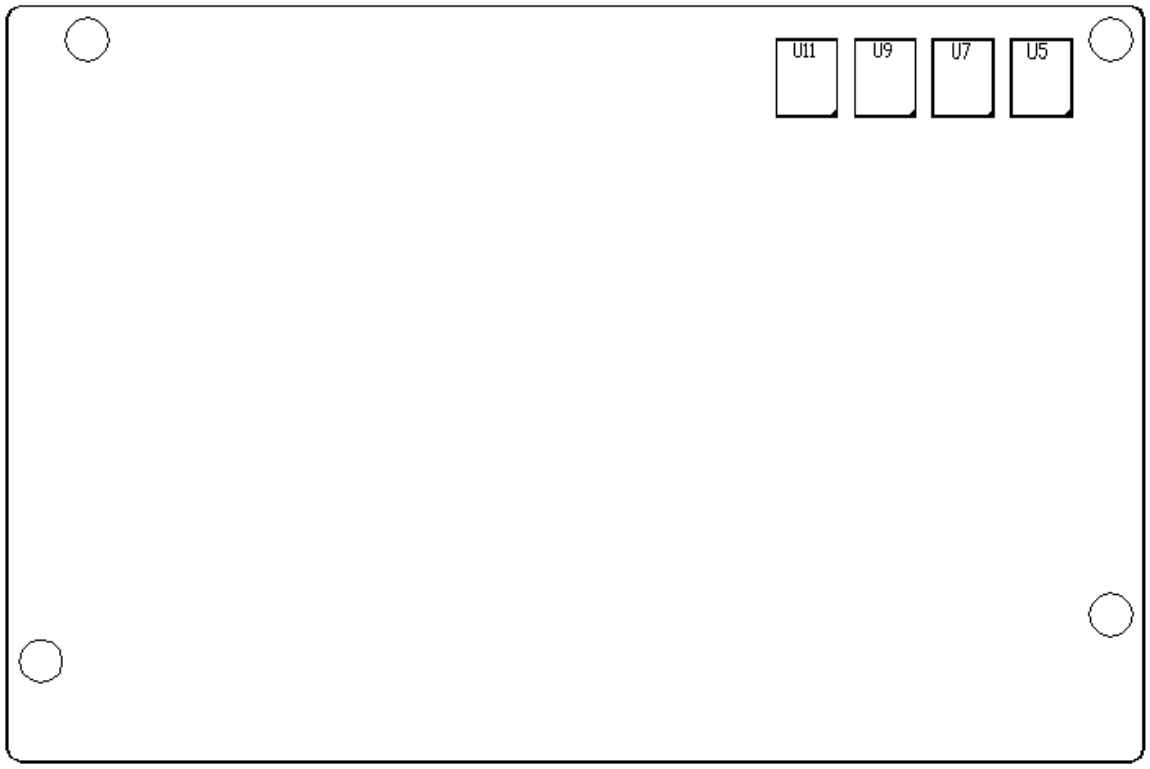


Figure 2.3: Jumpers and Connectors Location_ Board Bottom

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

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:

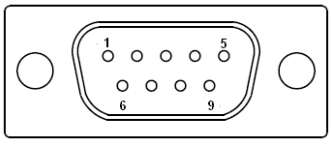
(Switch),COM1 setting, it provides selectable RS232 or RS422 or RS485 serial signal output.

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】	

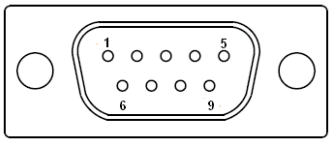
RS422 (option):	
Pin#	Signal Name
1	422_RX+
2	422_RX-
3	422_TX-
4	422_TX+
5	Ground
6	NC
7	NC
8	NC
9	NC
BIOS Setup： Advanced/W83627UHG Super IO Configuration/Serial Port 1 Configuration【RS-422】	

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】	

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	NA

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:

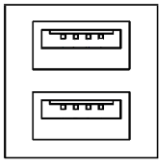
(SD card socket),Secure Digital Memory Card socket.

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.

15. USB45:

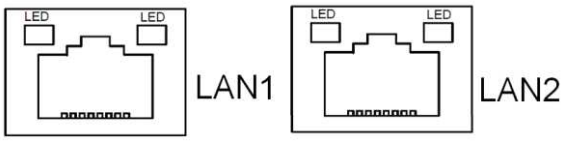
USB4/USB5：(Double stack USB type A), Rear USB connector, it provides up to 4 USB2.0 ports, High-speed USB 2.0 allows data transfers up to480 Mb/s ,support USB full-speed and low-speed signaling.



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.



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

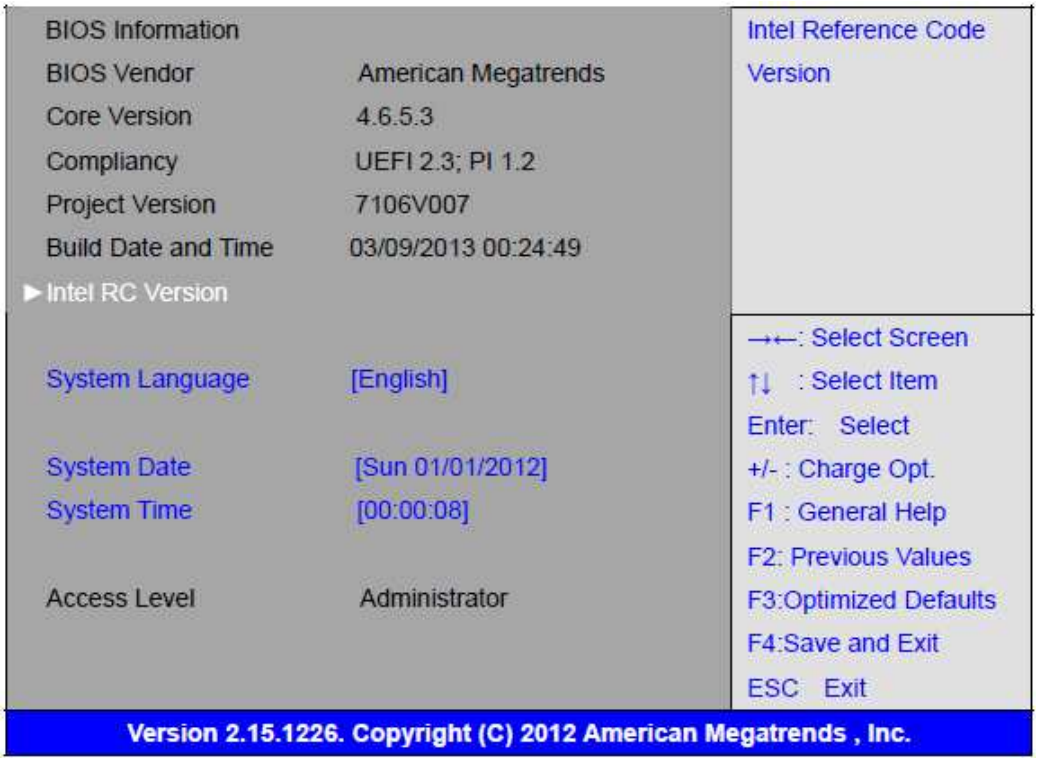
After CMOS discharge or BIOS flashing operation,.Press [Delete] key to enter CMOS Setup.

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.

3.3 Main Settings



System Time

Set the system time, the time format is :

Hour:	0 to 23
Minute:	0 to 59
Second	0 to 59

System Date

Set the system date, the date format is:

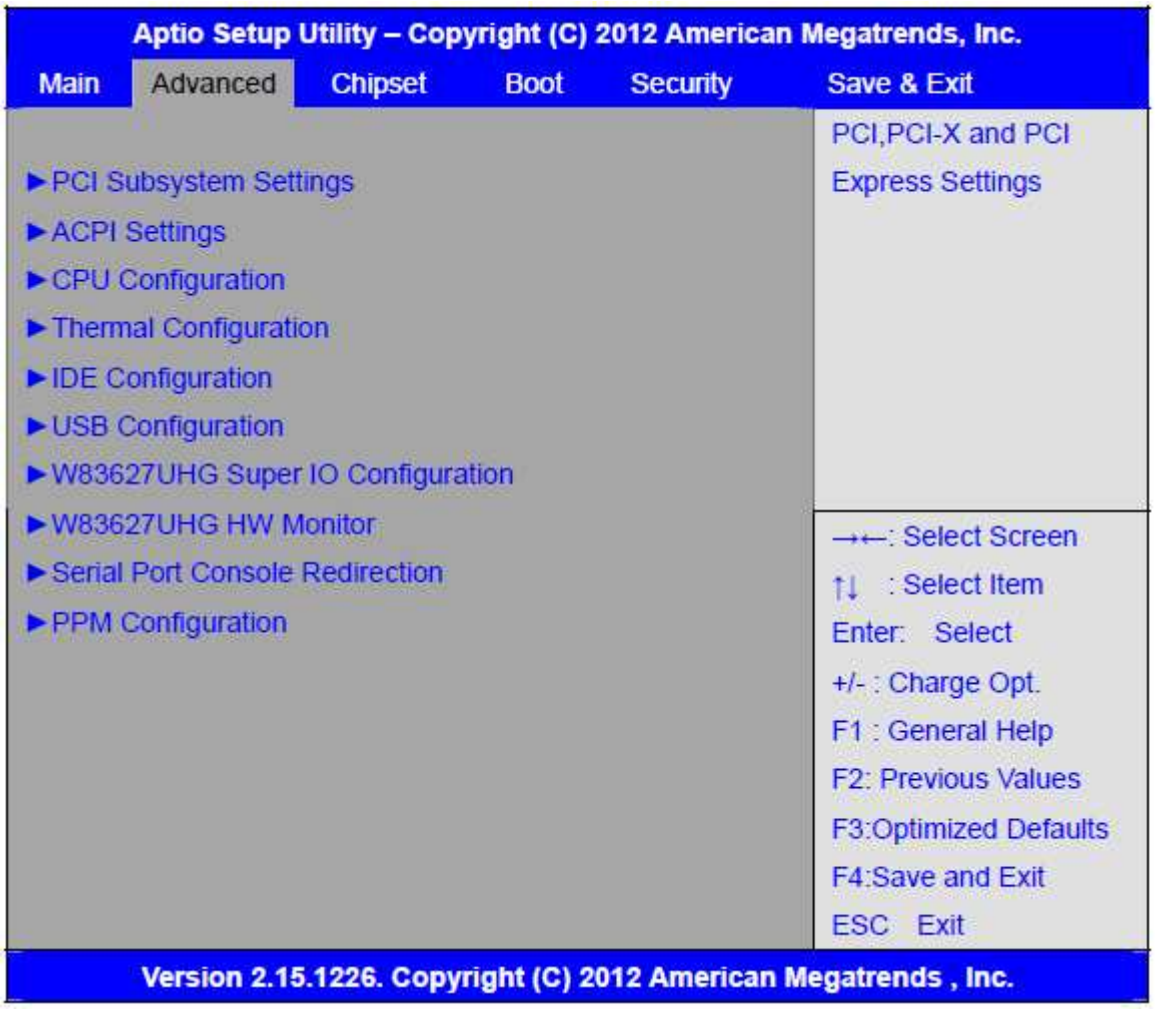
Day: Note that the 'Day' automatically changes when you set the date.

Month: 01 to 12

Date: 01 to 31

Year: 1998 to 2099

3.4 Advanced Settings



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	400 MHz
Ratio Status	16
Actual Ratio	16
System Bus Speed	400 MHz
Processor Stepping	30661
Microcode Revision	269
L1 Cache RAM	2 x 56k
L2 Cache RAM	2 x 512k
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	: +0.968V
+12V	: +12.302V
+3.3V	: +3.320V
+1.5V	: +1.528V

AVCC : +5.203V
VCC5V : +5.216V
VSB5 : +5.203V
VBAT : +3.334V

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]

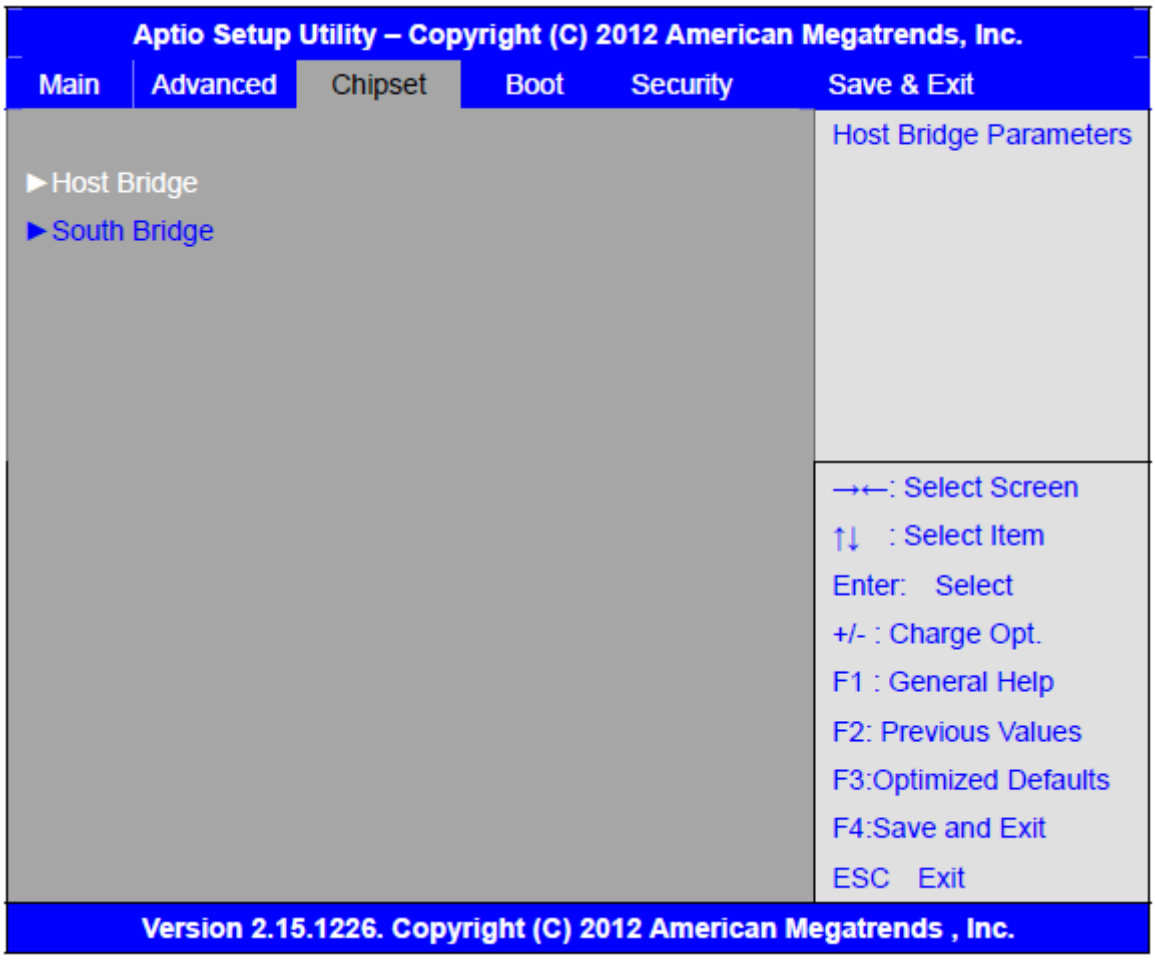
C-state POPDOWN

[Enabled]
[Disabled]

C-state POPUP

[Enabled]
[Disabled]

3.5 Chipset Settings



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

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

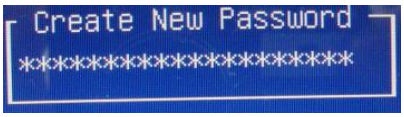
[Do not Launch]
[UEFI only]
[Legacy only]

Other PCI device ROM

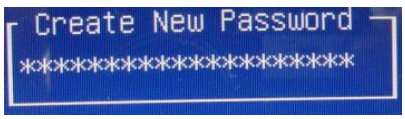
[UEFI OpROM]
[Legacy OpROM]

3.7 Security Settings

3.7.1 Administrator Password



3.7.2 User Password



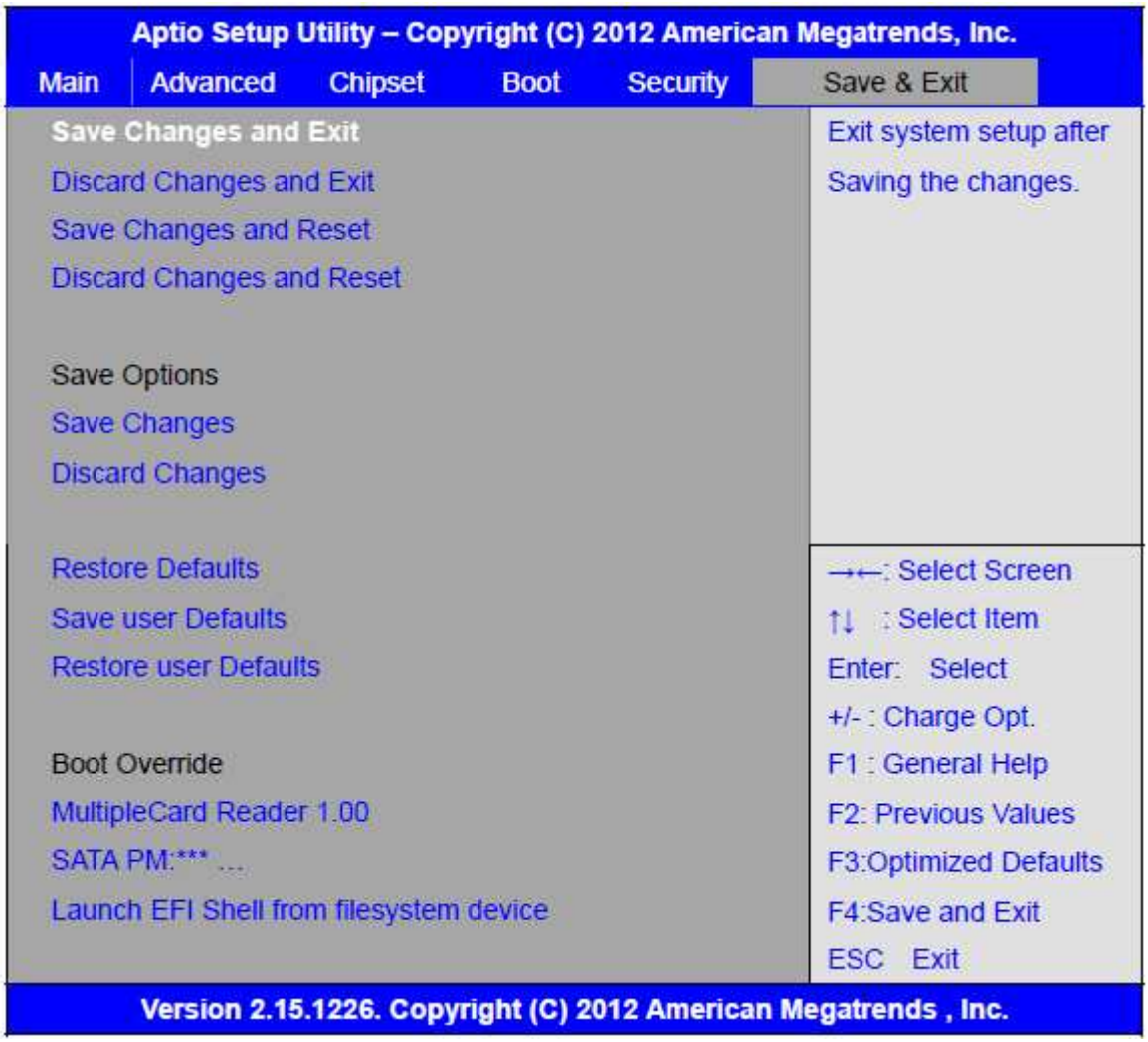
Type the password with up to 20 characters and then press ≺Enter≻ key. This will clear all previously typed CMOS passwords. You will be requested to confirm the password. Type the password again and press ≺Enter≻ key. You may press ≺Esc≻ key to abandon password entry operation.

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 Exit Settings



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]

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.

4.1 Intel Chipset Driver

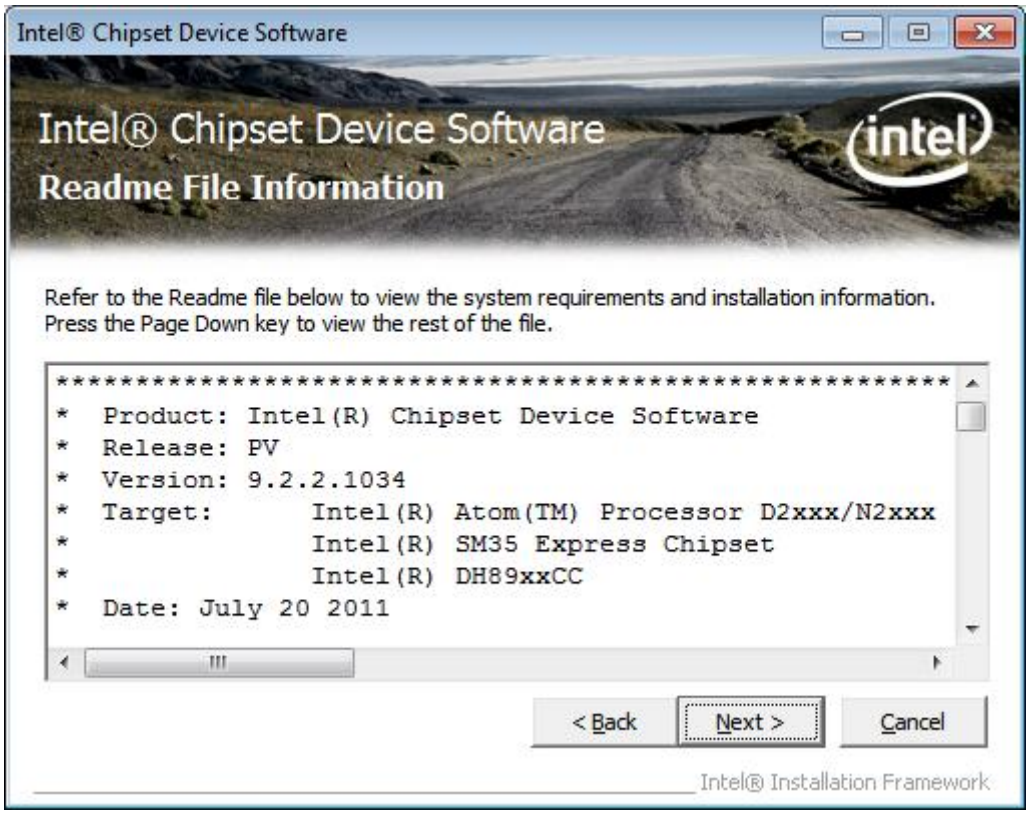
To install the Intel chipset driver, please follow the steps below.

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.

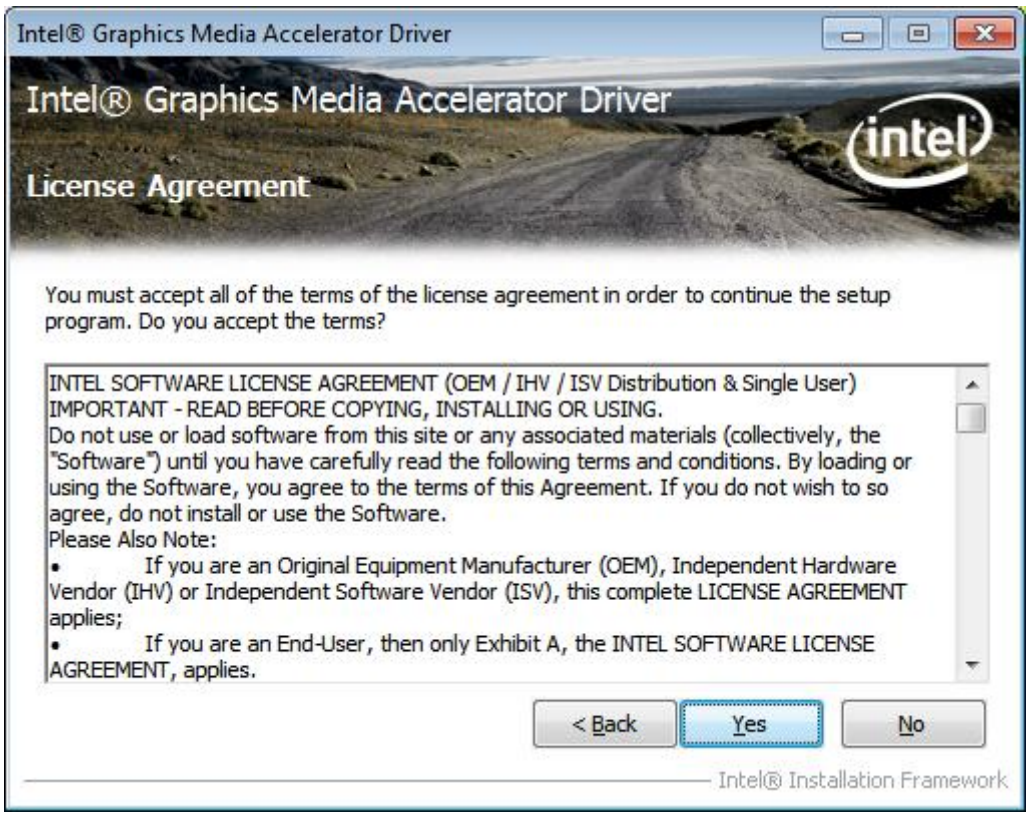
4.2 Intel Graphics Media Accelerator Driver

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

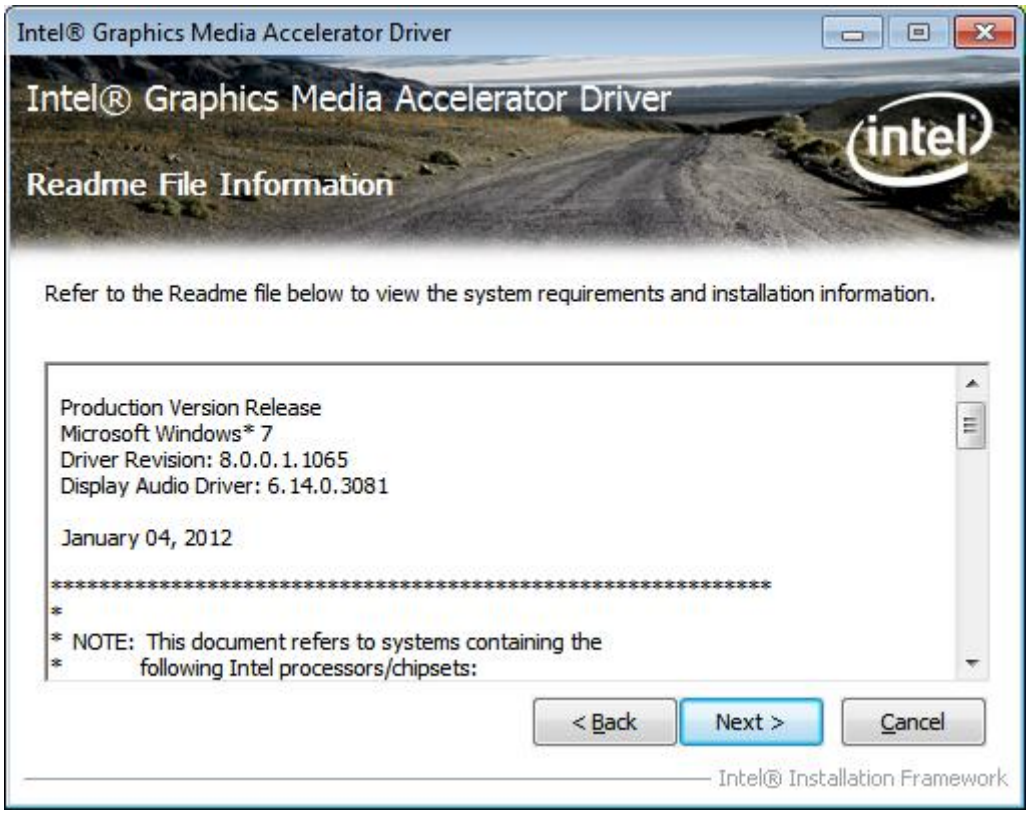
Step 1.Select **Intel(R) VGA Chipset Driver.**

Step 2. Tick Automatically run WinSAT and enable the Windows Aero desktop theme(if supported).

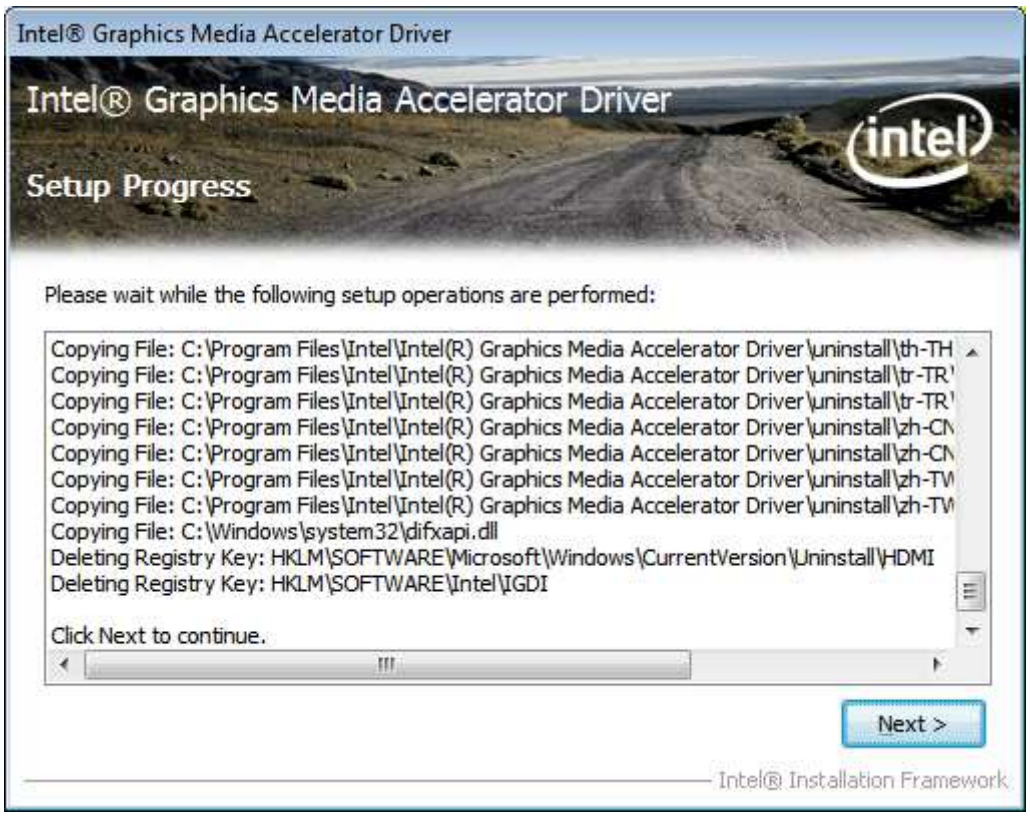
Step 3. Read license agreement. Click **Yes.**



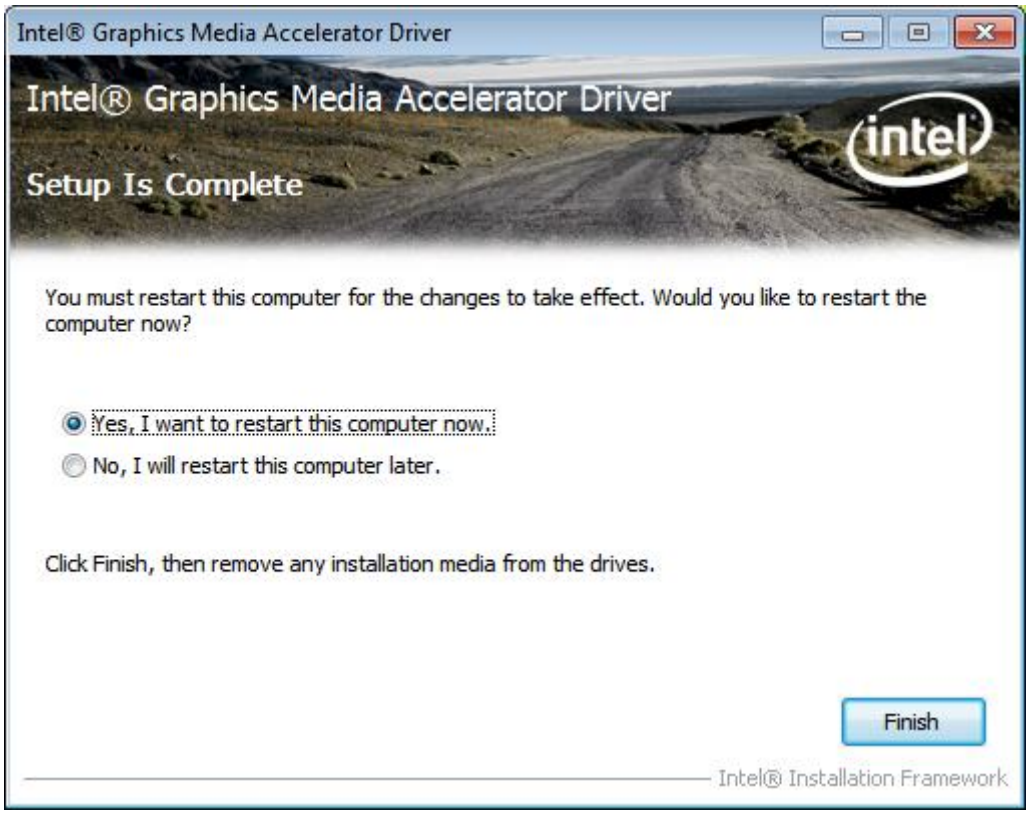
Step 4. Click **Next**.



Step 5. Click **Next.**



Step 6. Select **Yes, I want to restart this computer now.**



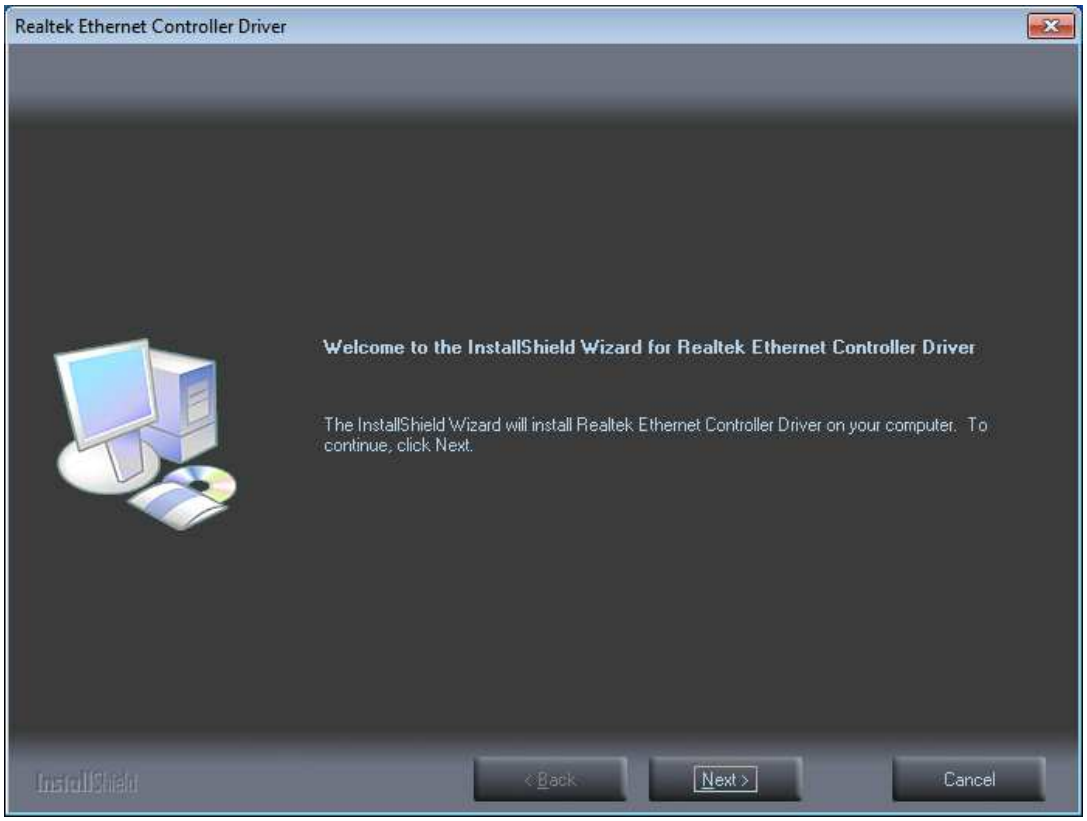
4.3 Intel (R) Network Adapter

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

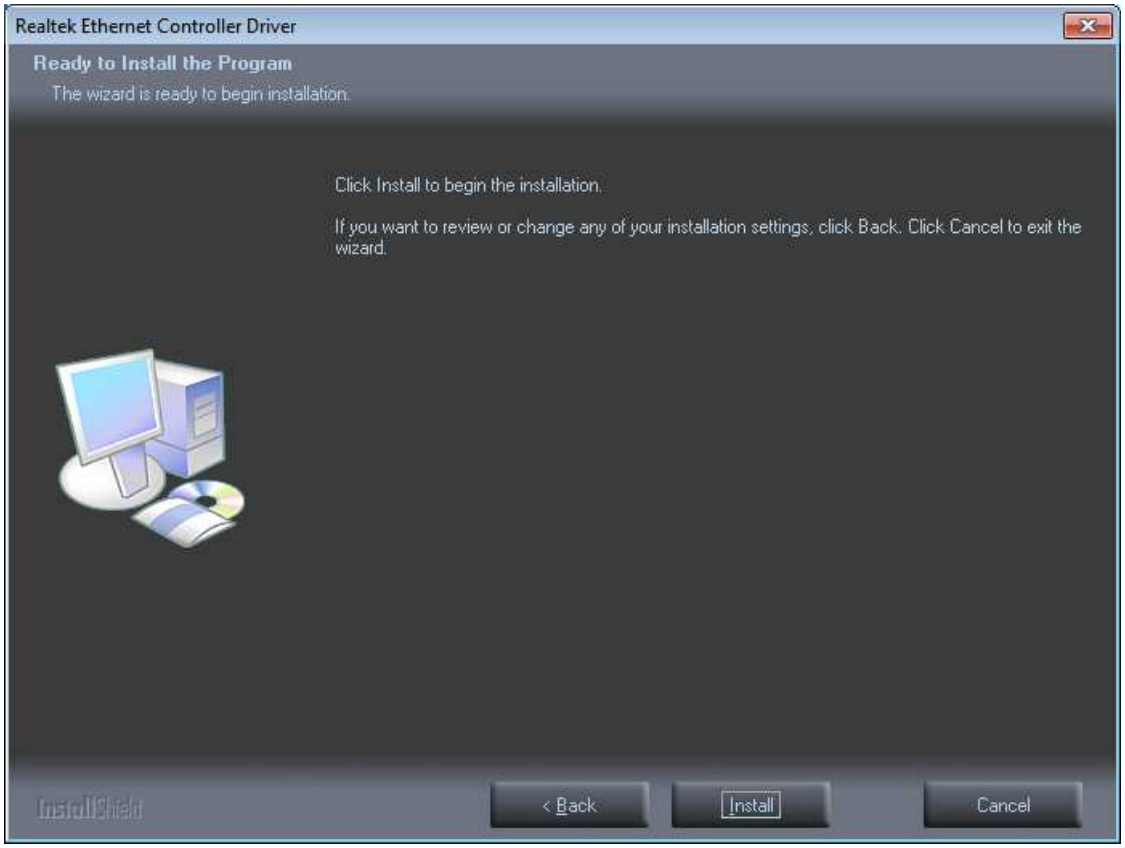
Step 1. Select **LAN Driver**.

Step 2. Select **15”**

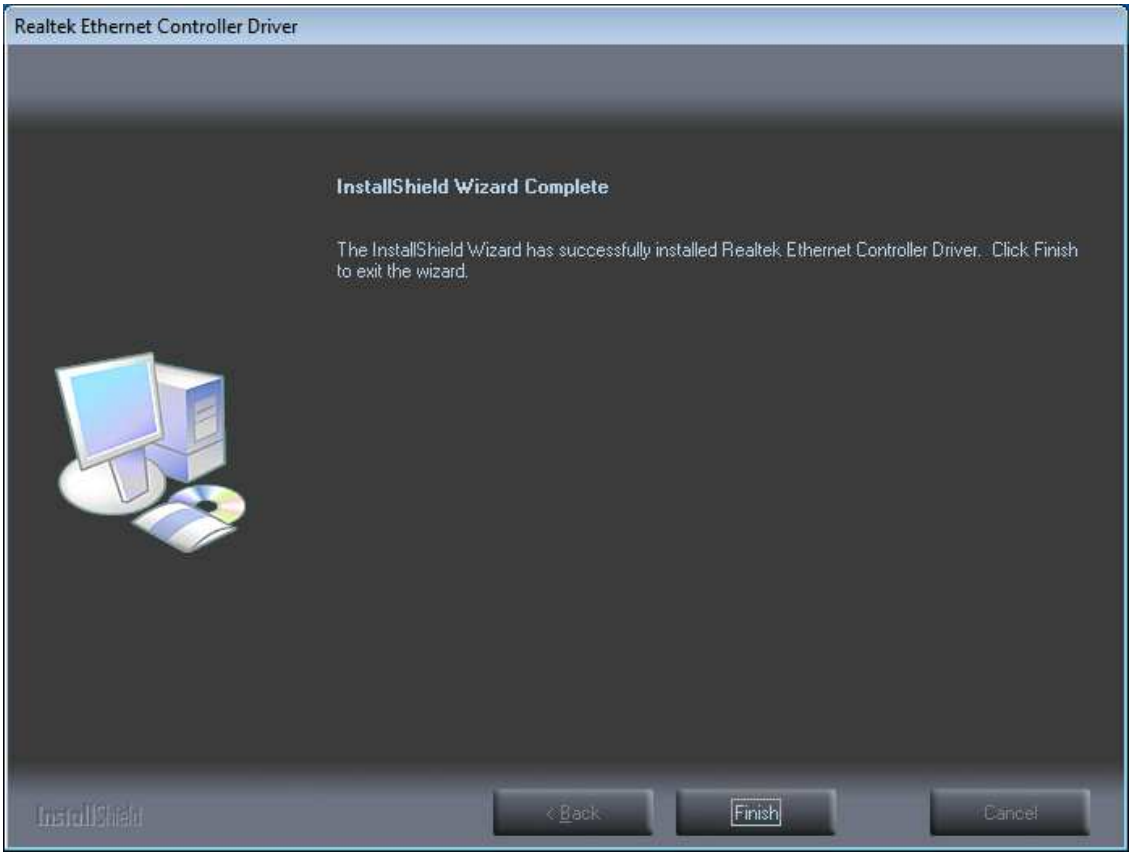
Step 3. Click **Next** to continue.



Step 4. Click **Install** to begin the installation.



Step 5. Click **Finish** to exist the wizard.

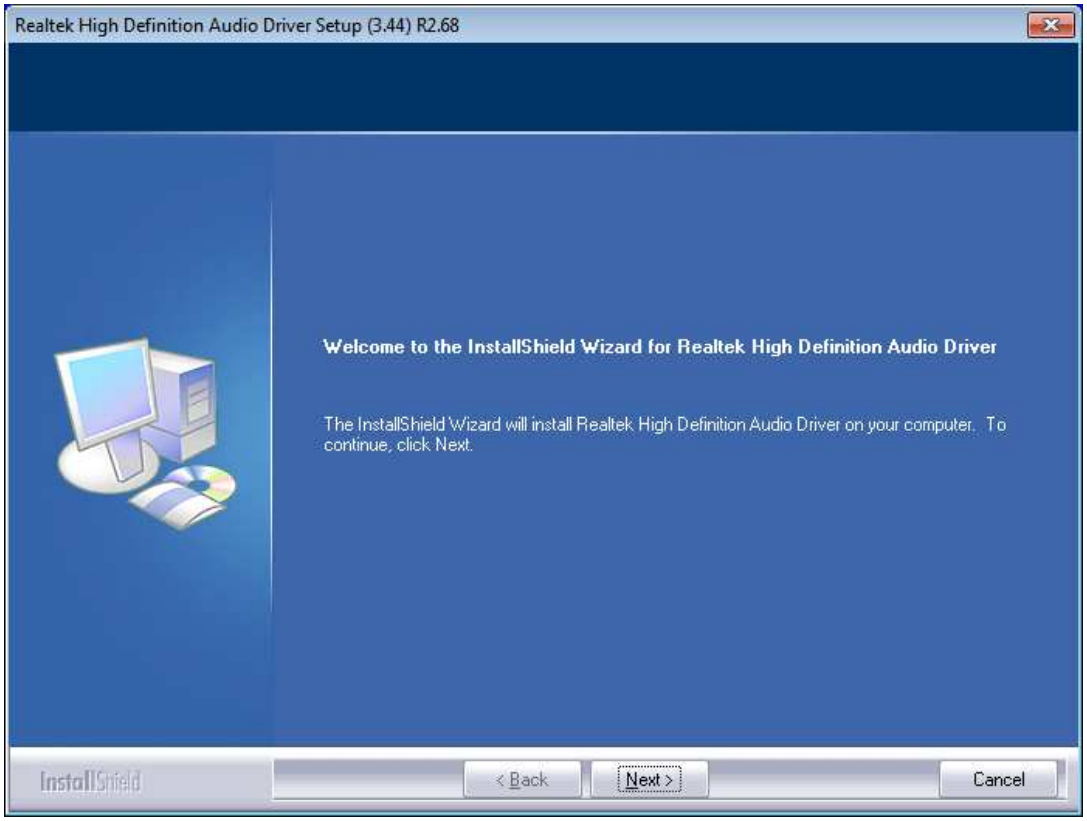


4.4 Realtek ALC662 HD Audio Codec Driver Installation

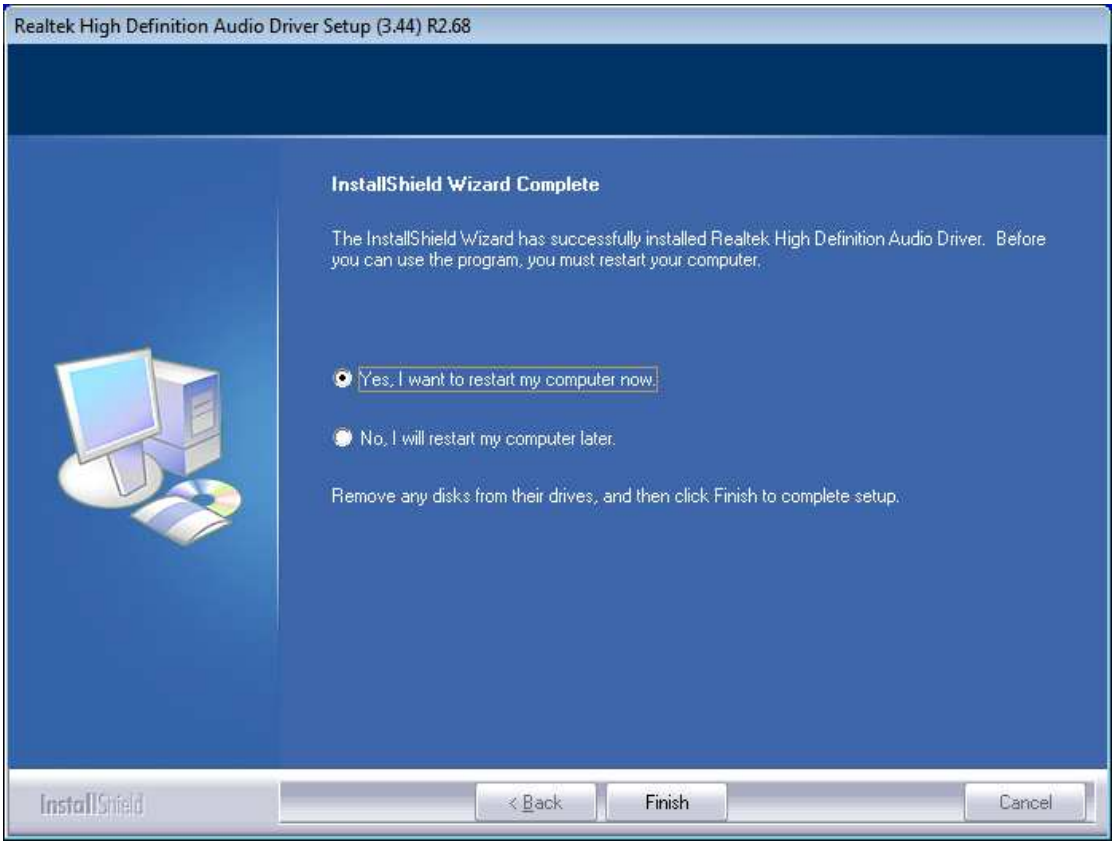
To install the Realtek ALC662 HD Audio Codec Driver, please follow the steps below.

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 work with different operating systems.

5.1 Windows 2000/2003/Vista/WIN7 Universal Driver Installation for PenMount 6000 Series

Before installing the Windows 2000/WIN7 driver software, you must have the Windows 2000/WIN 7 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.

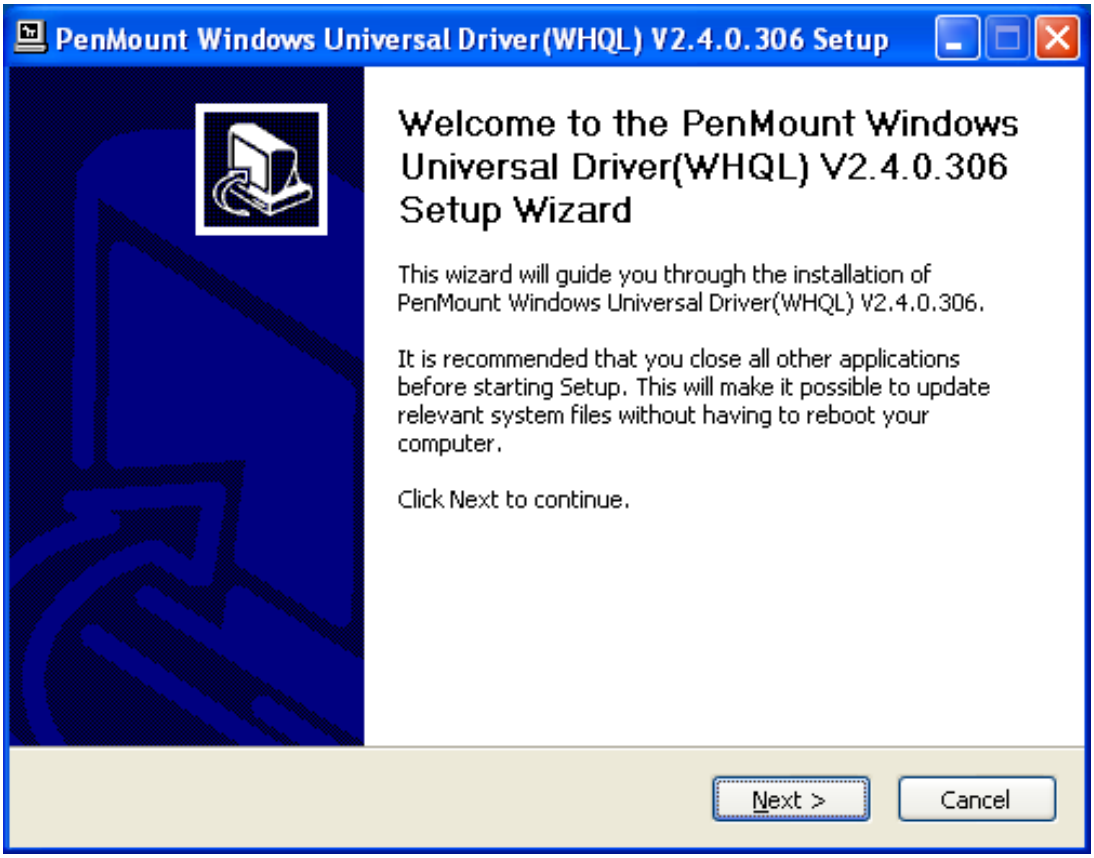
5.1.1 Installing Software(Resistive Touch)

If you have an older version of the PenMount Windows 2000/WIN7 driver installed in your system, please remove it first. Follow the steps below to install the PenMount DMC6000 Windows 2000/WIN7 driver.

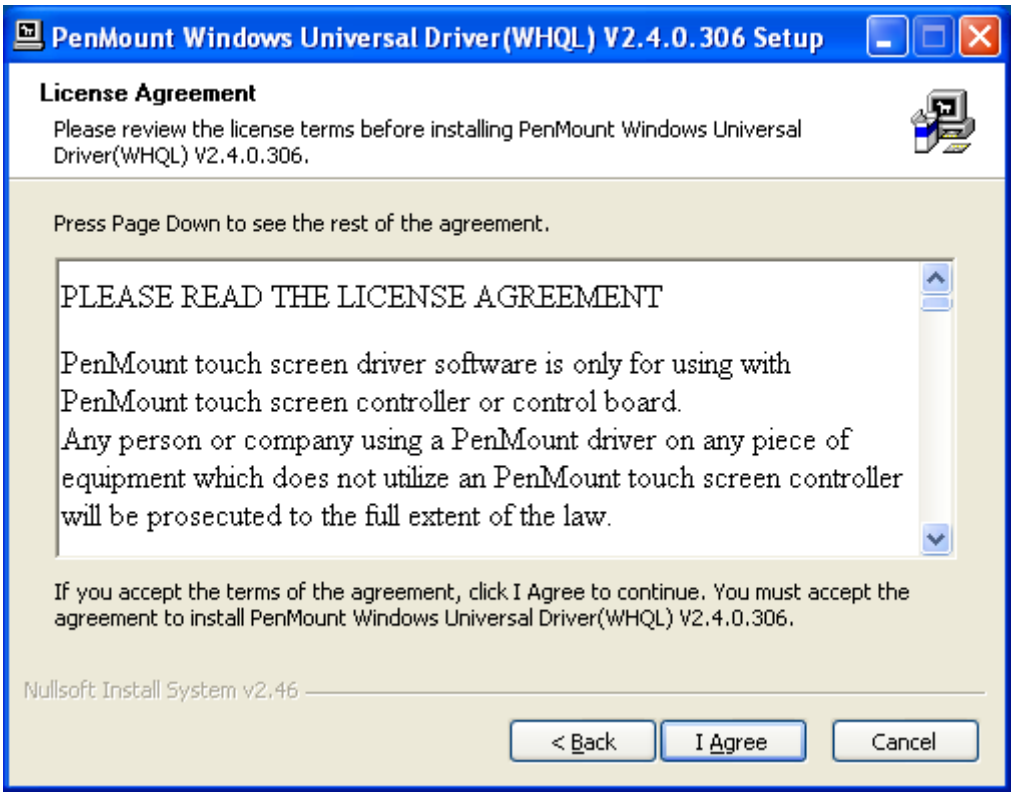
Step 1. Insert the product CD, the screen below would appear. Click touch panel driver.

Step 2. Select **Resistive Touch.**

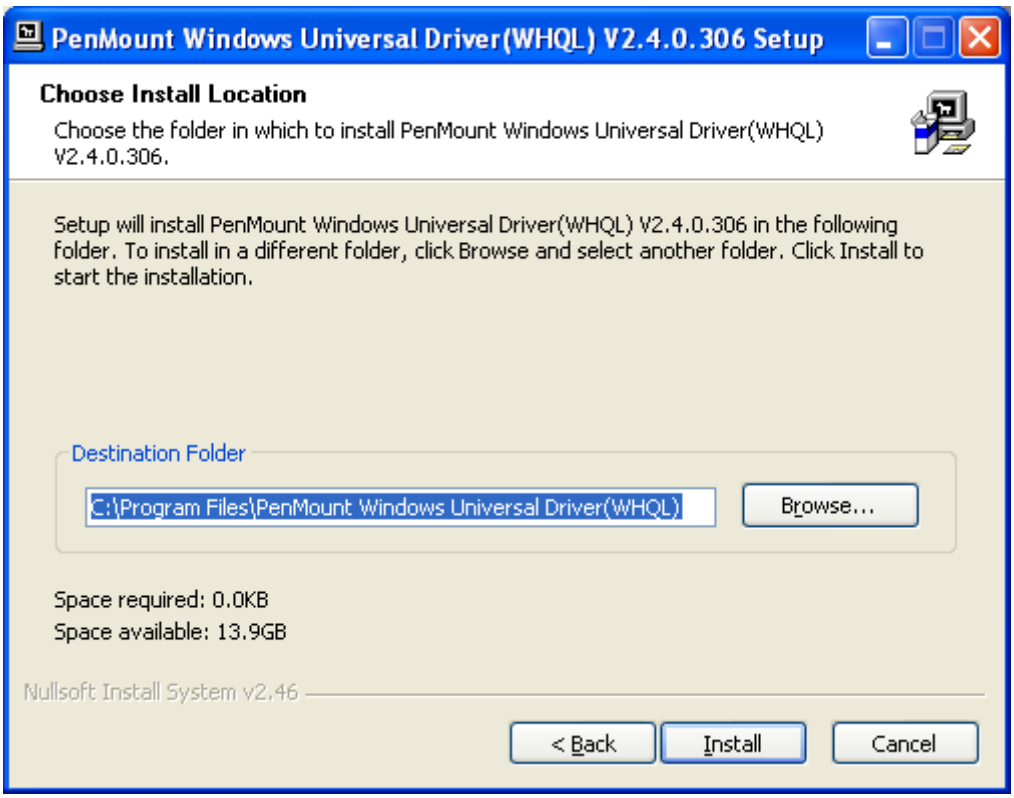
Step 3. Click **Next** to continue.



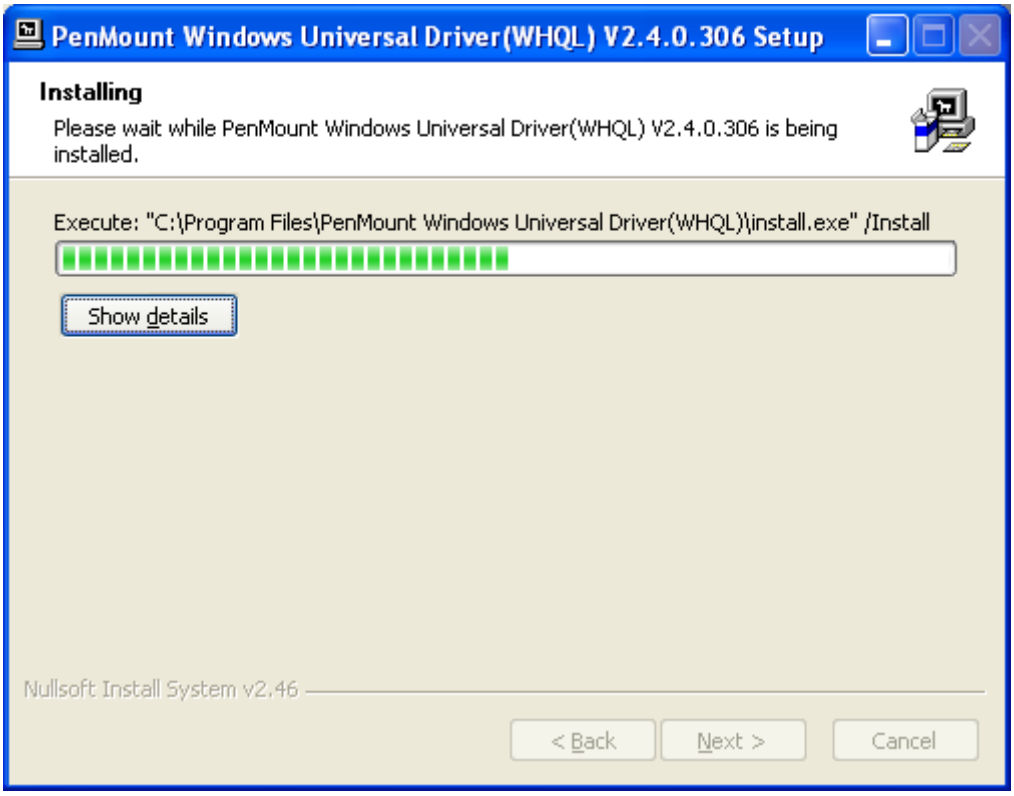
Step 4. Read the license agreement. Click **I Agree** to agree the license agreement.



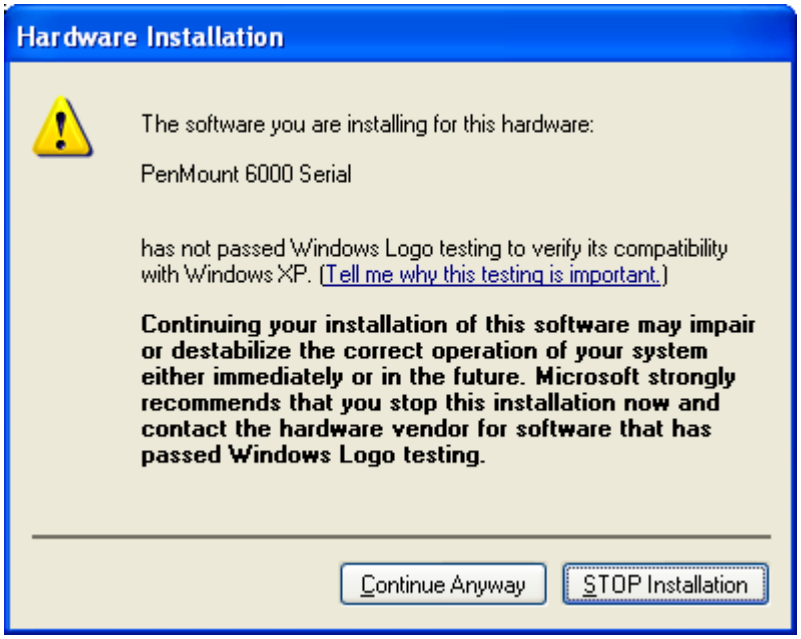
Step 5. Choose the folder in which to install PenMount Windows Universal Driver. Click **Install** to start the installation.



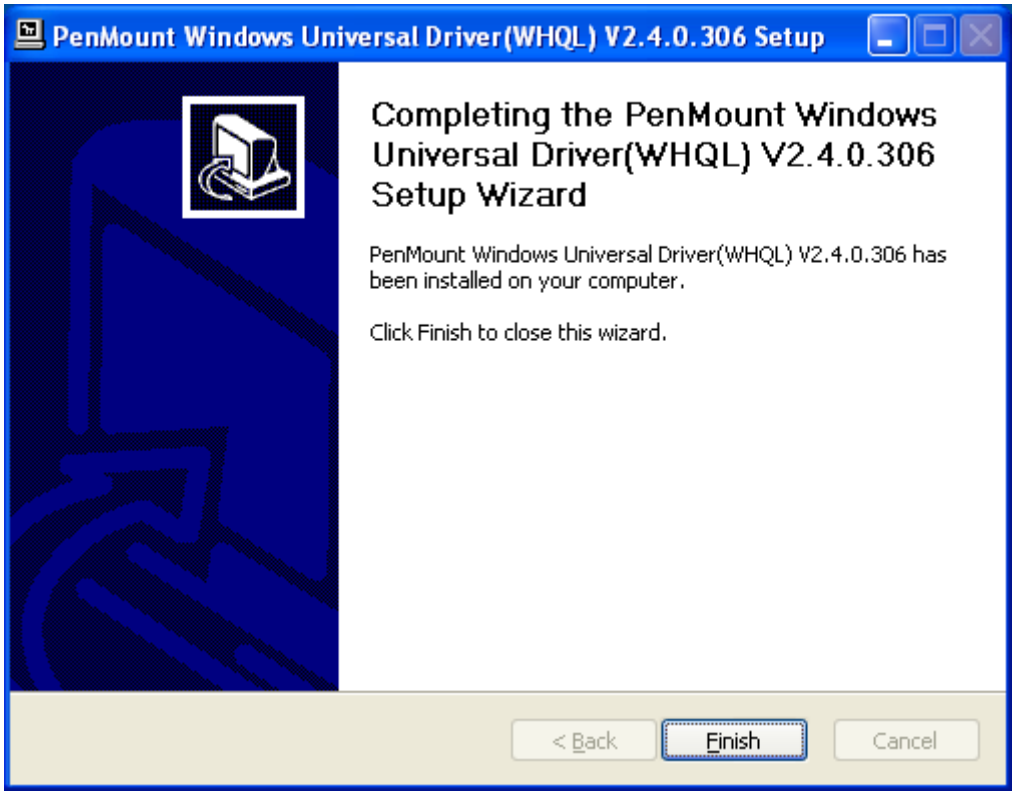
Step 6. Wait for installation. Then click **Next** to continue.



Step 7. Click **Continue Anyway**.



Step 8. Click **Finish** to complete installation.

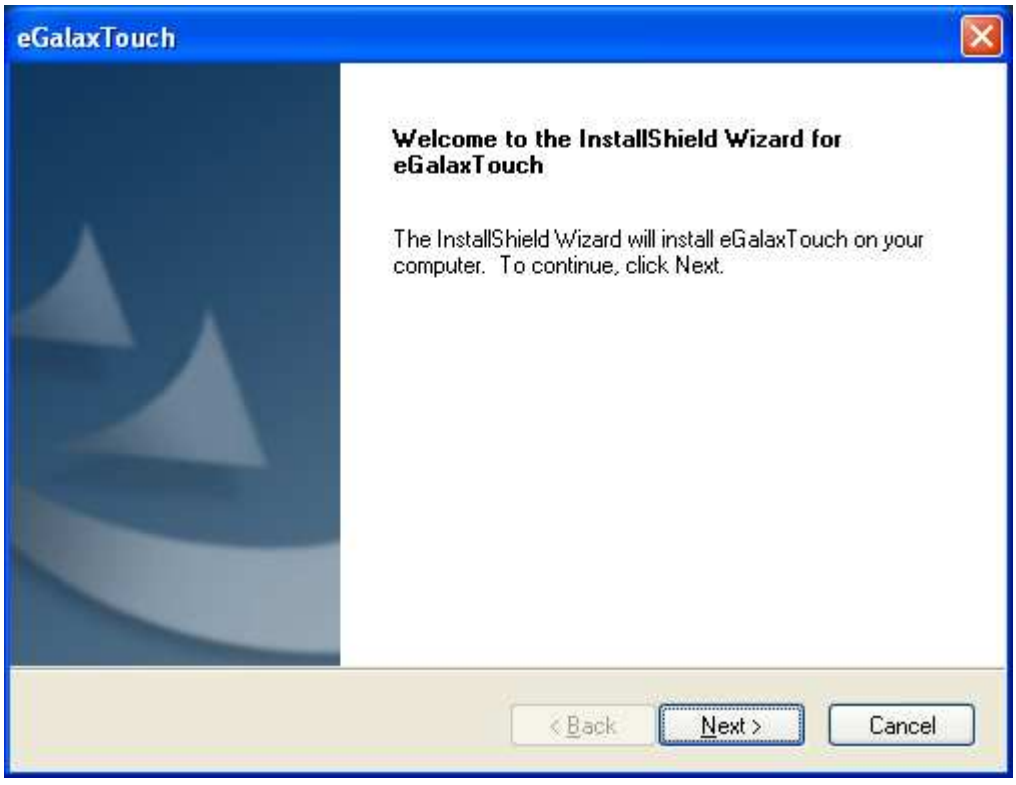


5.1.2 Installing Software (Projected Capacitive)

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

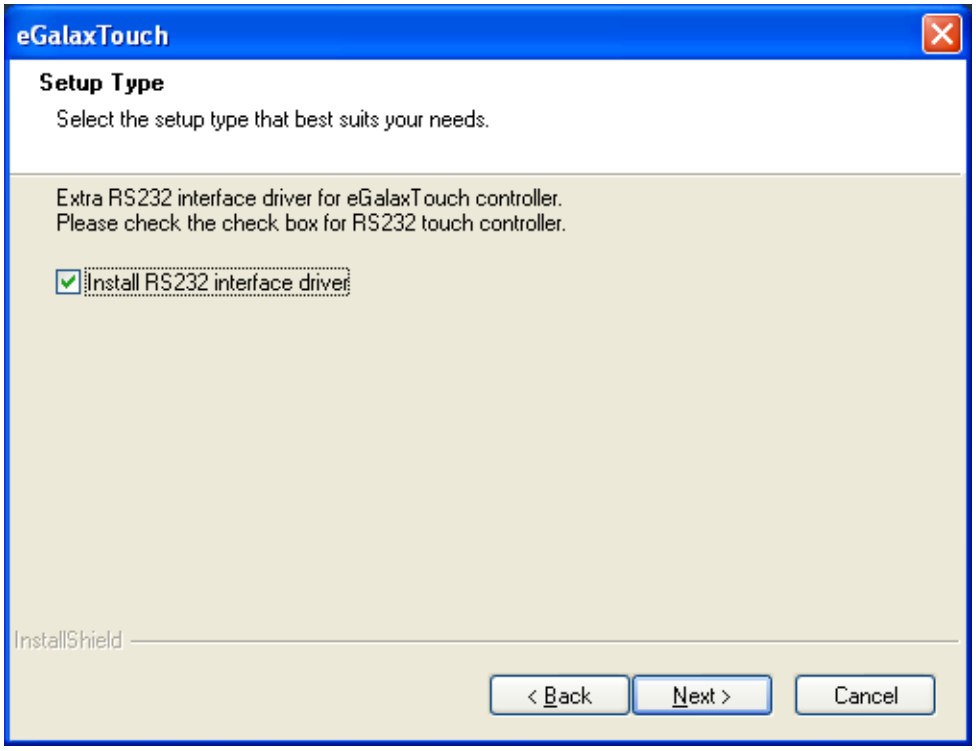
Step 2. Select **Projected Capacitive.**

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

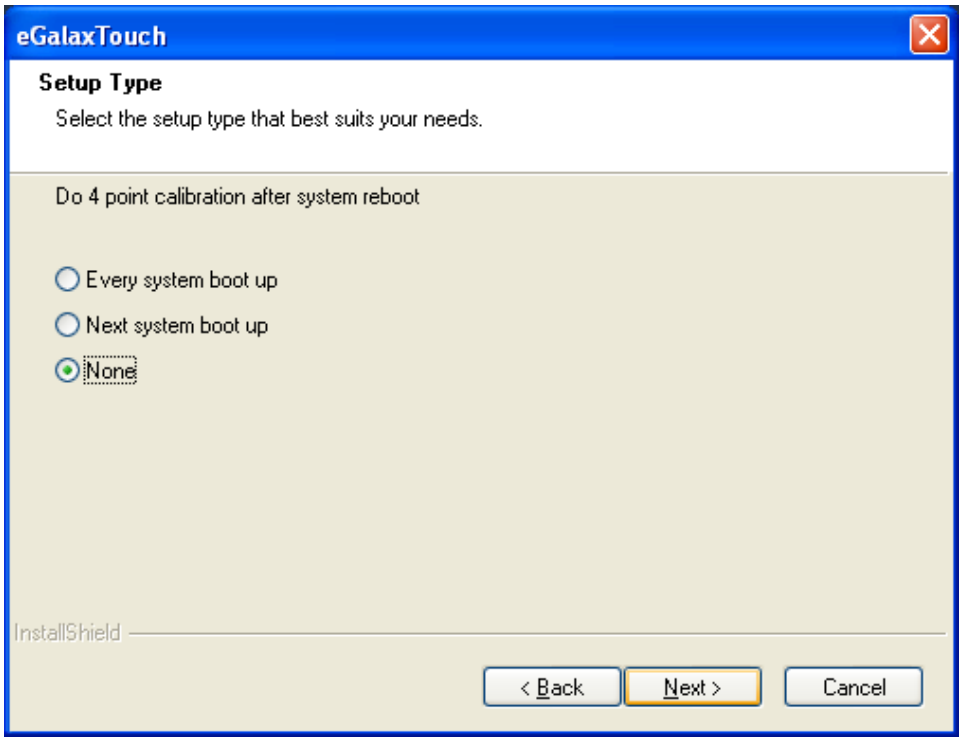


Step 4. Select **I accept the terms of the license agreement**. Click **Next.**

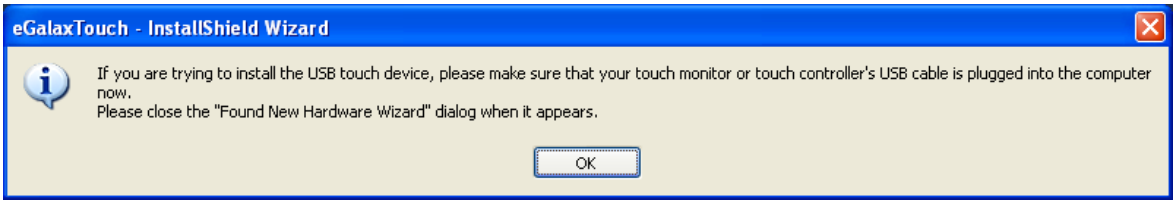
Step 5. Tick **Install RS232 interface driver**. Click **Next**.



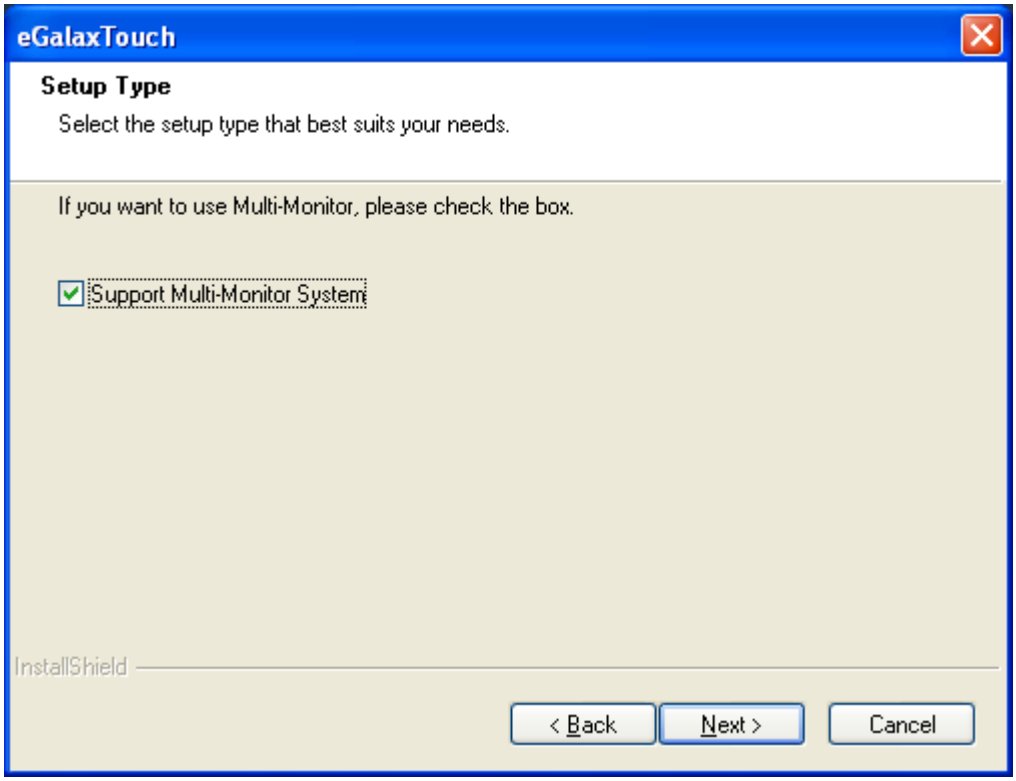
Step 6. Select **None**. Click **Next**.



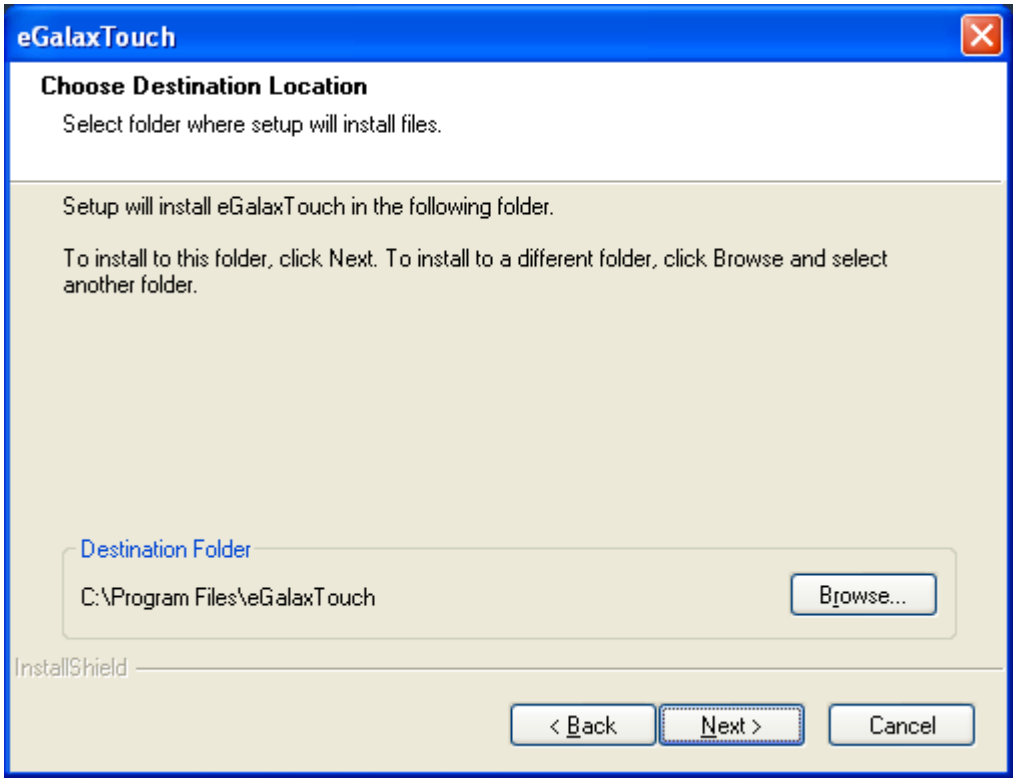
Step 7. Click **OK.**



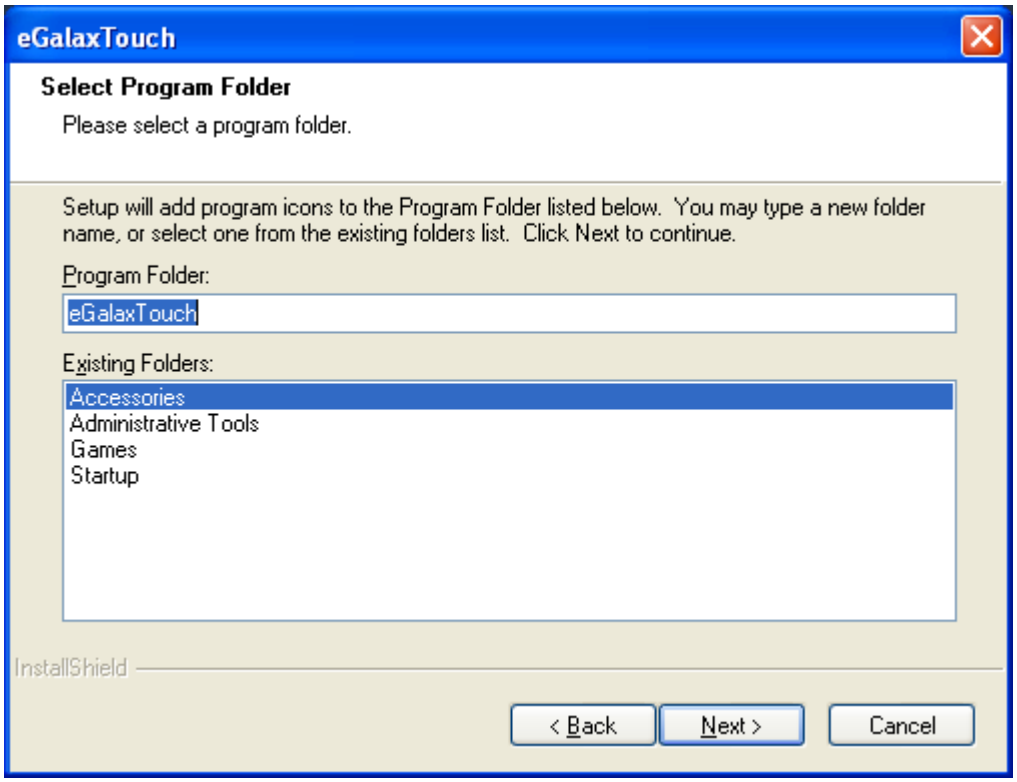
Step 8. Tick **Support Muti-Monitor System**. Click **Next.**



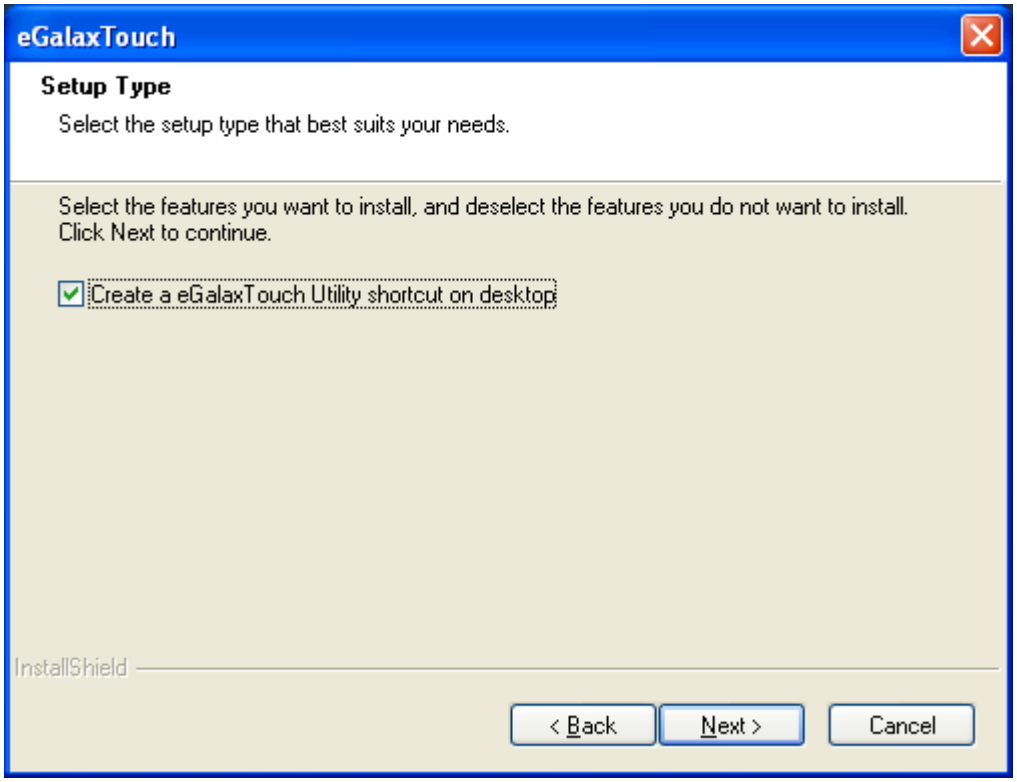
Step 9. Go to **C:\Program Files\eGalaxTouch**. Click **Next**.



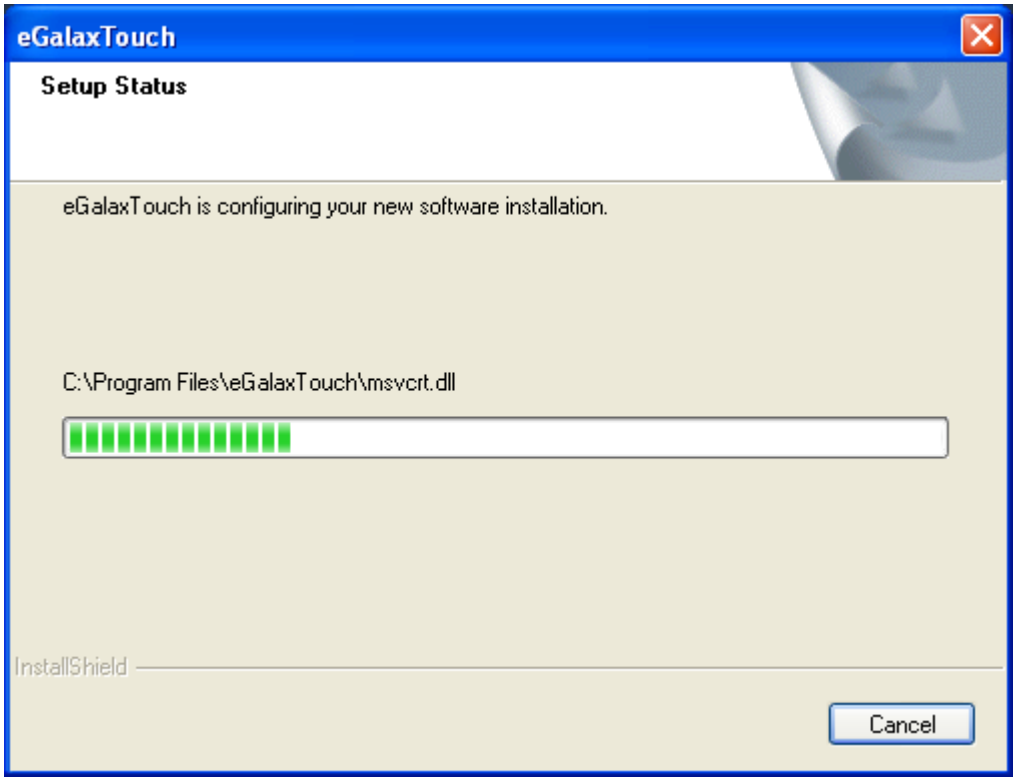
Step 10. Click **Next.**



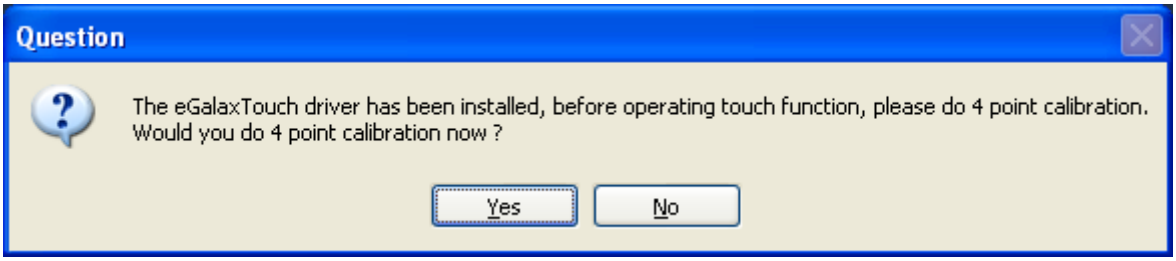
Step 11. Tick **Create a eGalaxTouch Utility shortcut on desktop**. Click **Next**.



Step 12. Wait for installation.



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



5.2 Software Functions

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.

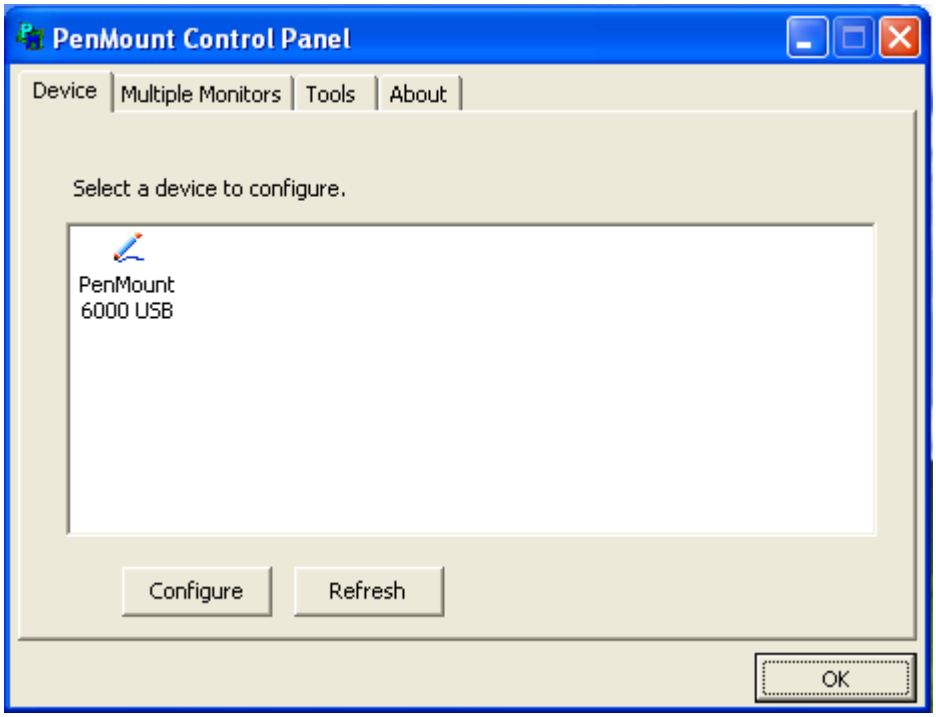
1. After installation, click the PenMount Monitor icon “PM” in the menu bar.
2. When the PenMount Control Panel appears, select a device to “Calibrate.”

PenMount Control Panel(Resistive Touch)

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.

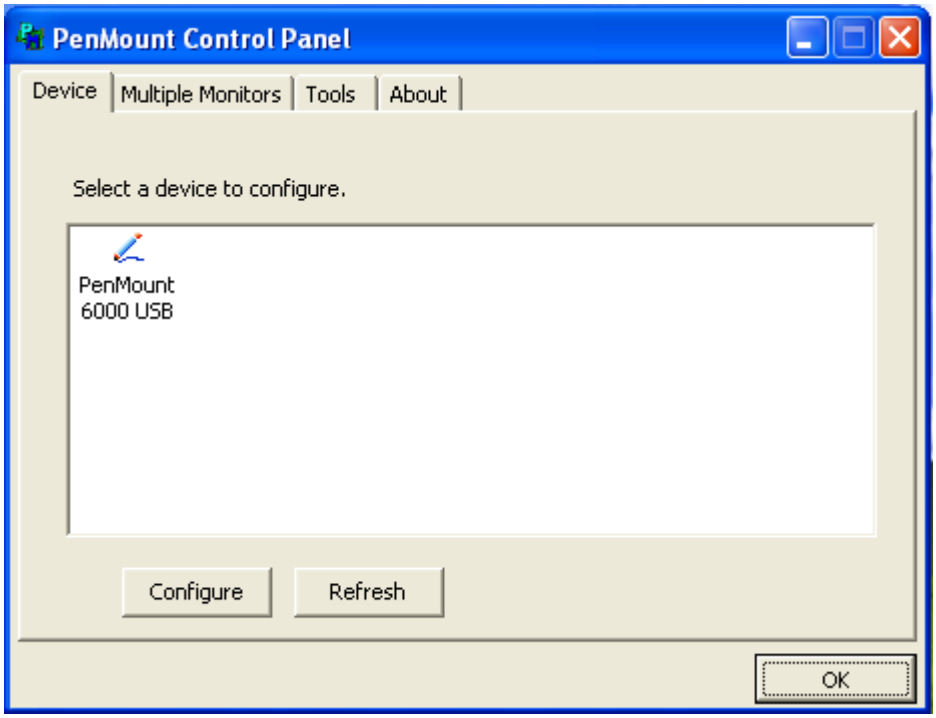


Calibrate

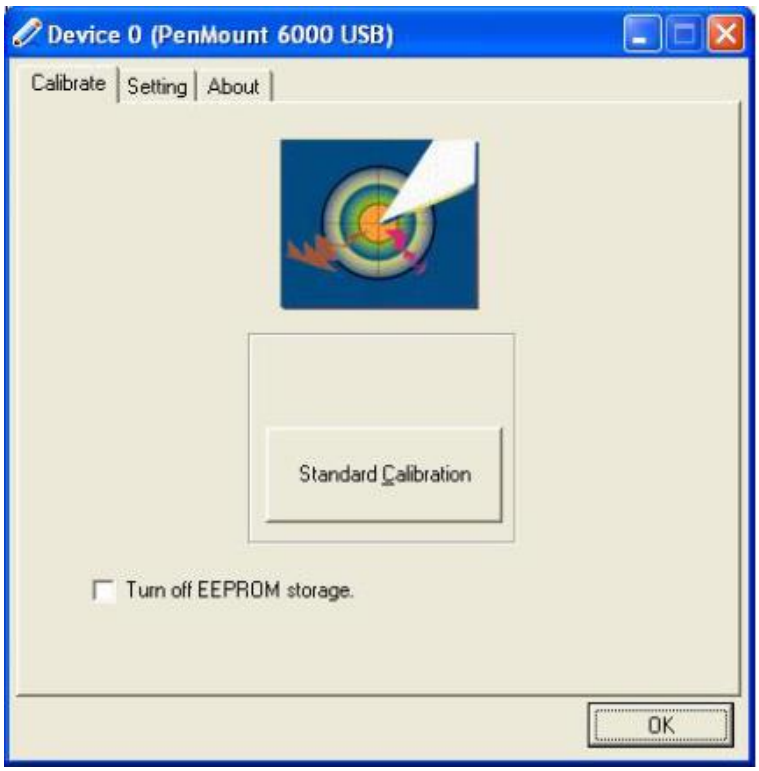
This function offers two ways to calibrate your touch screen. ‘Standard Calibration’ adjusts most touch screens. ‘Advanced Calibration’ adjusts aging touch screens.

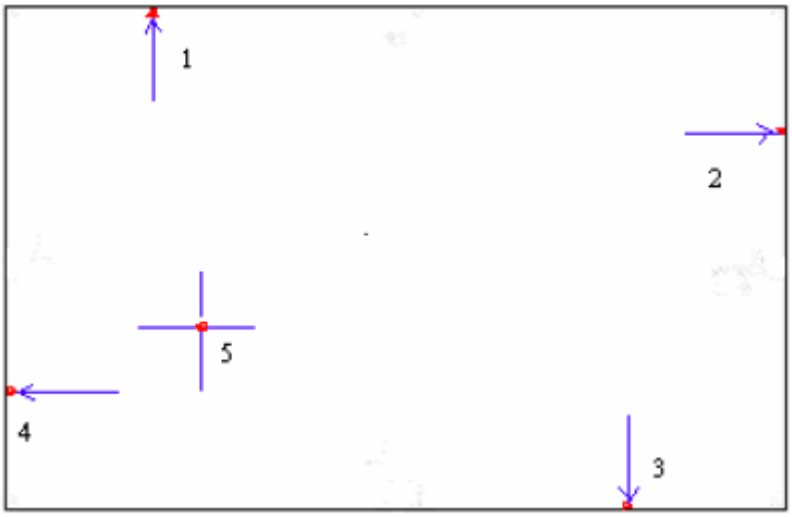
Standard Calibration	**Click this button and arrows appear pointing to red squares. Use your finger or stylus to touch the red squares in sequence. After the fifth red point calibration is complete. To skip, press 'ESC'.**
Advanced Calibration	**Advanced Calibration uses 4, 9, 16 or 25 points to effectively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



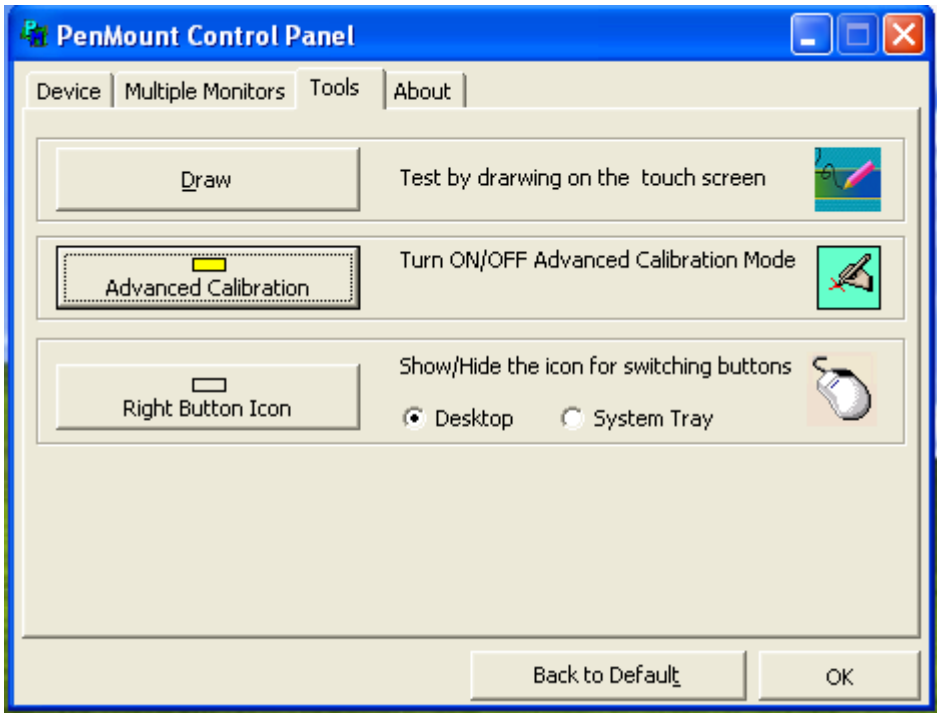
Step 2. Click “Standard Calibration” to start calibration procedure



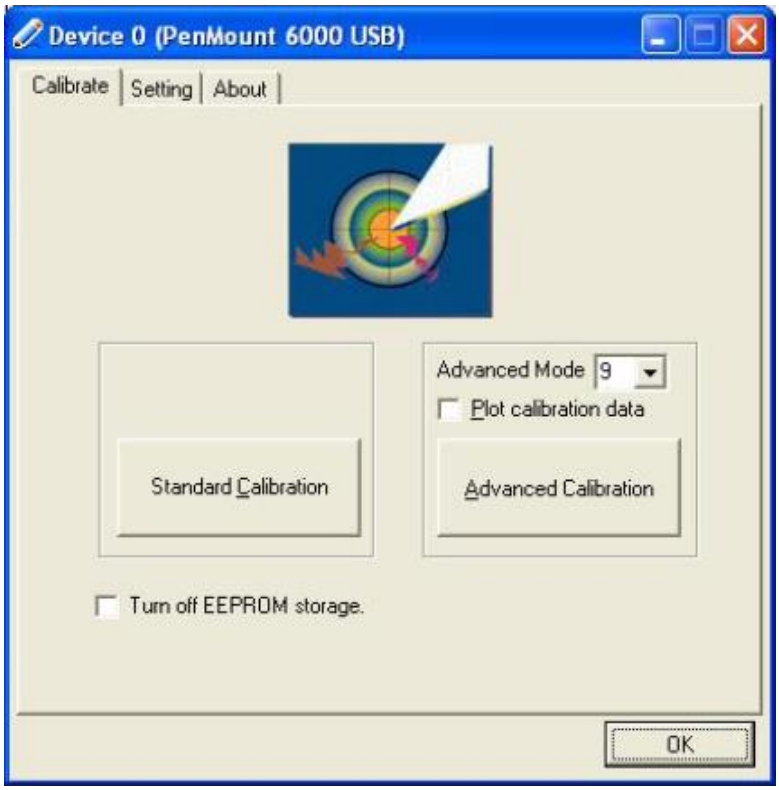


NOTE: The older the touch screen, the more Advanced Mode calibration points you need for an accurate calibration. Use a stylus during Advanced Calibration for greater accuracy. Please follow the step as below:

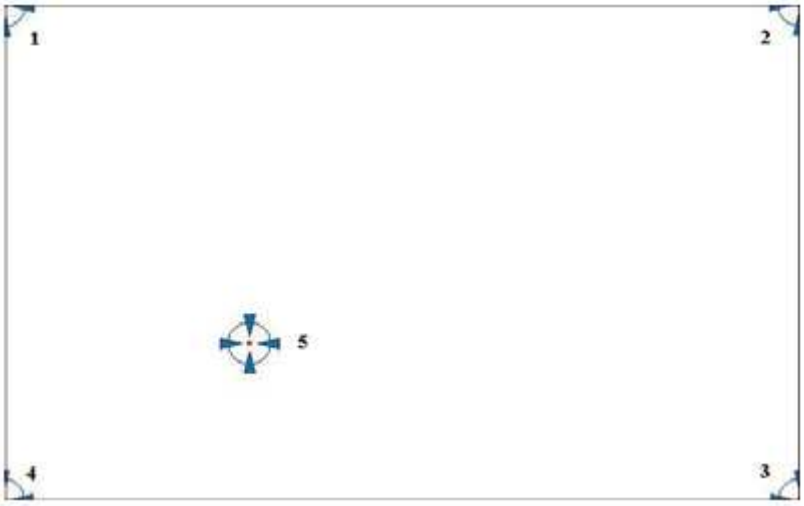
Step 3. Come back to “PenMount Control Panel” and select **Tools** then click **Advanced Calibration**.



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



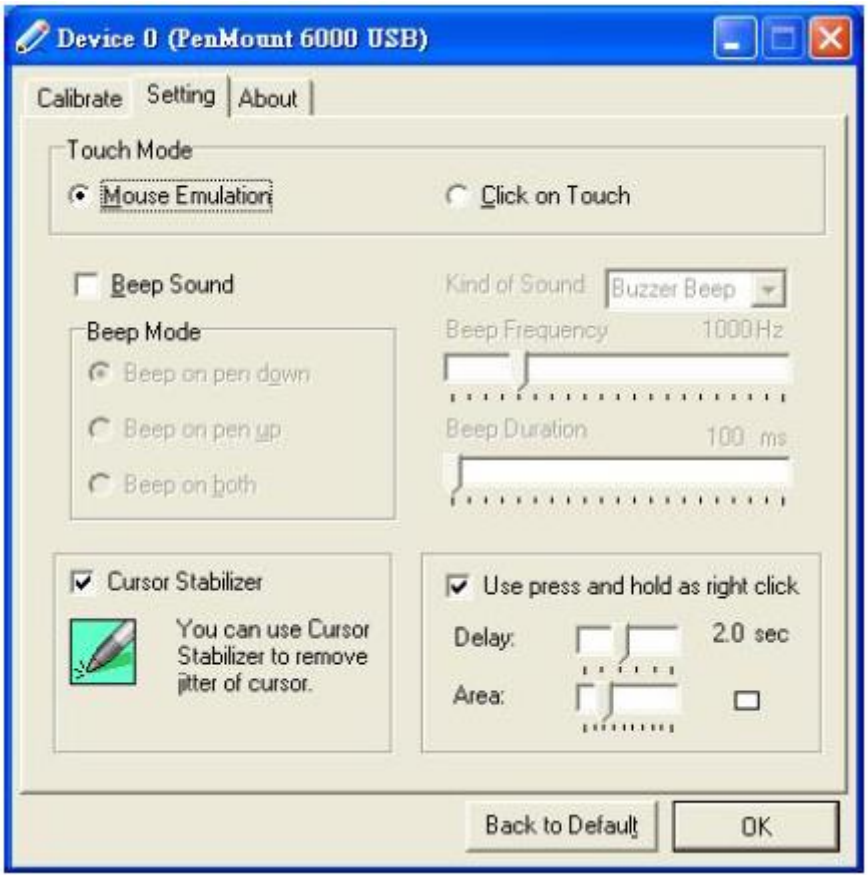
NOTE: Recommend to use a stylus during Advanced Calibration for greater accuracy.



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.**

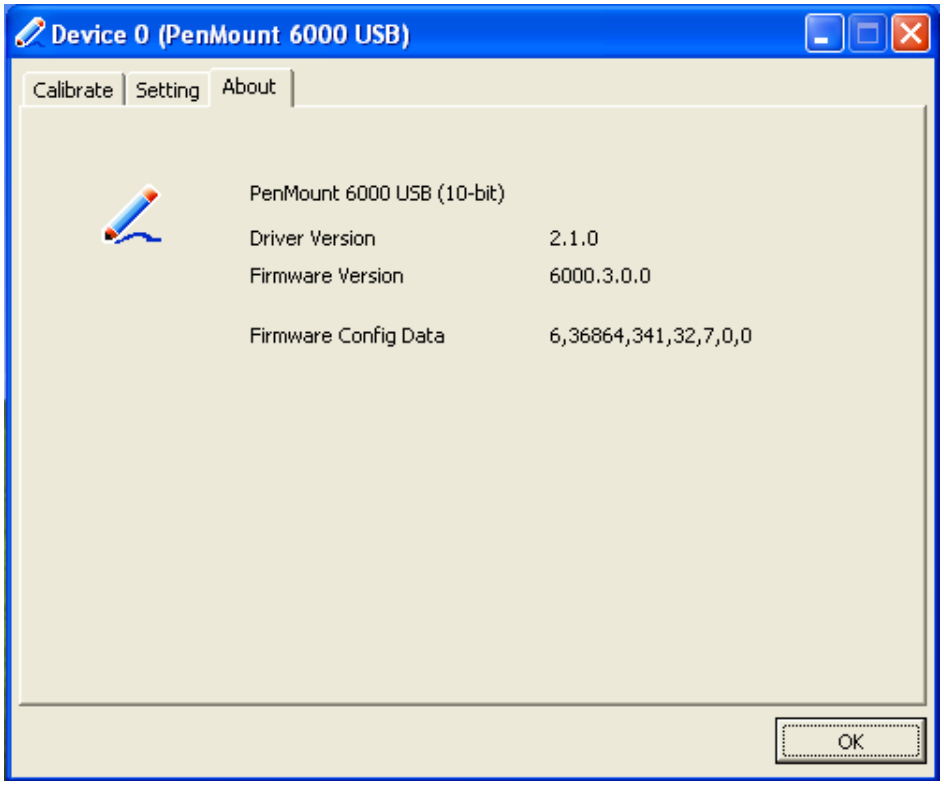
Setting

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 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.**



About

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



Multiple Monitors

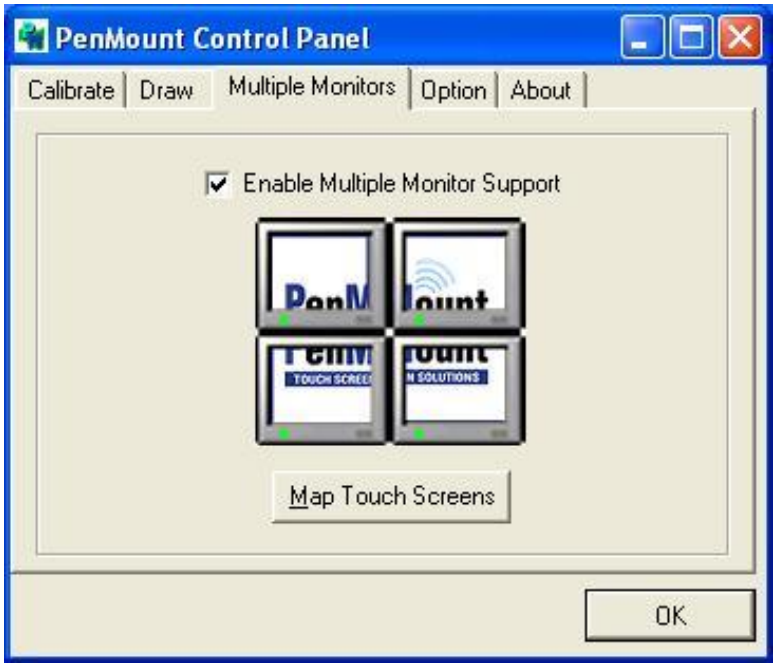
Multiple Monitors support from two to six touch screen displays for one system. The PenMount drivers for Windows 2000/WIN 7 support Multiple Monitors. This function supports from two to six touch screen displays for one system. Each monitor requires its own PenMount touch screen control board, either 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

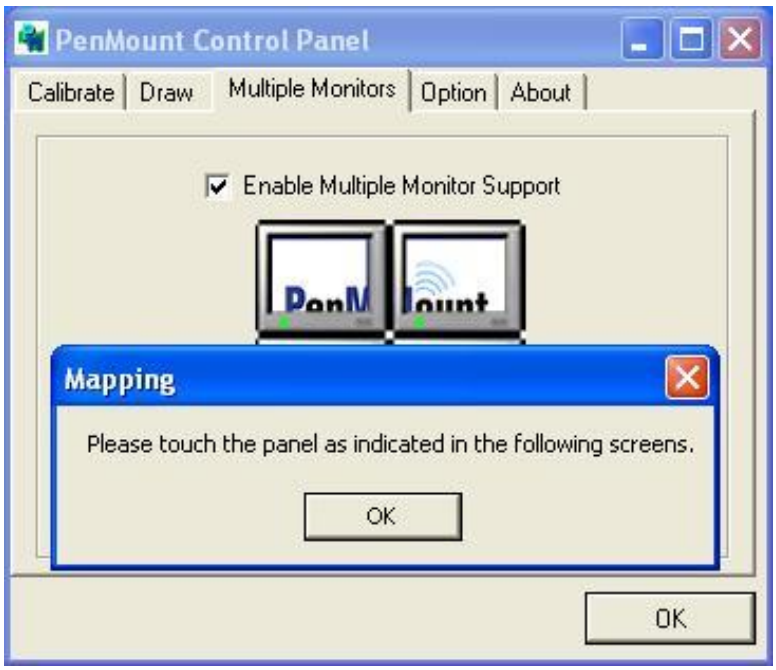
NOTE: The Multiple Monitor function is for use with multiple displays only. Do not use this function if you have only one touch screen display. Please note once you turn on this function the rotating function is disabled.

Enable the multiple display function as follows:

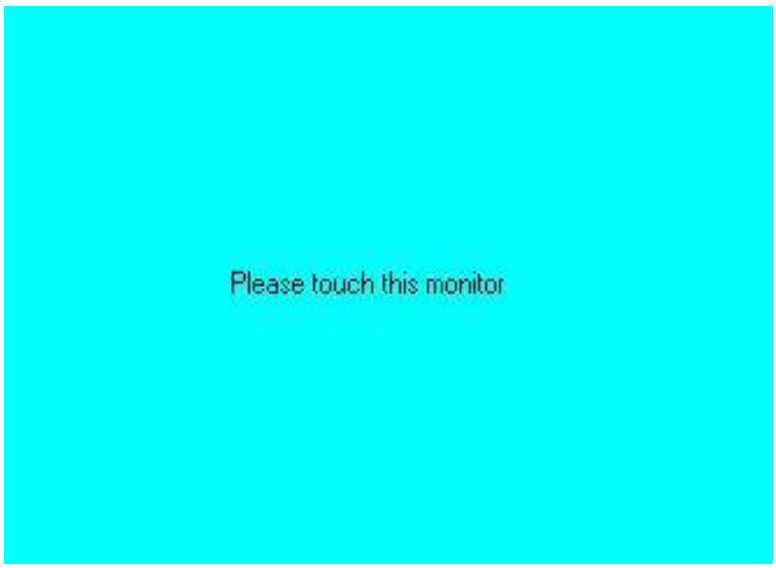
1. Check the **Enable Multiple Monitor Support** box; then click **Map Touch Screens** to assign touch controllers to displays.



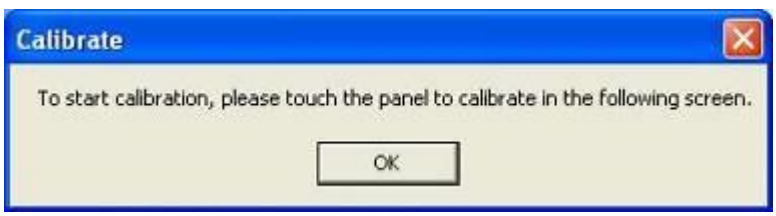
2. When the mapping screen message appears, click **OK.**



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.

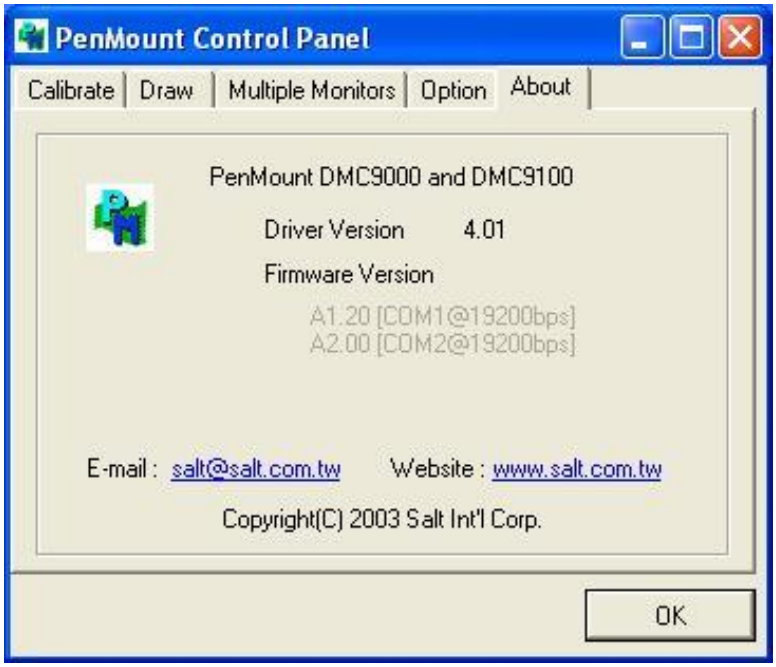
NOTES: 1. If you use a single VGA output for multiple monitors, please do not use the **Multiple Monitor** function. Just follow the regular procedure for calibration on each of your desktop monitors.

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

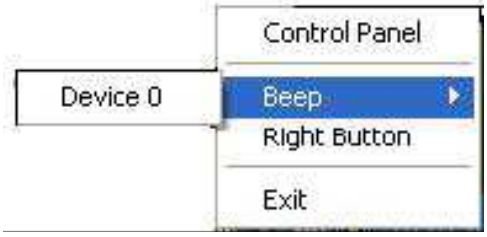
This panel displays information about the PenMount controller and this driver version.



PenMount Monitor Menu Icon

The PenMount monitor icon (PM) appears in the menu bar of Windows 2000/WIN7 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.**

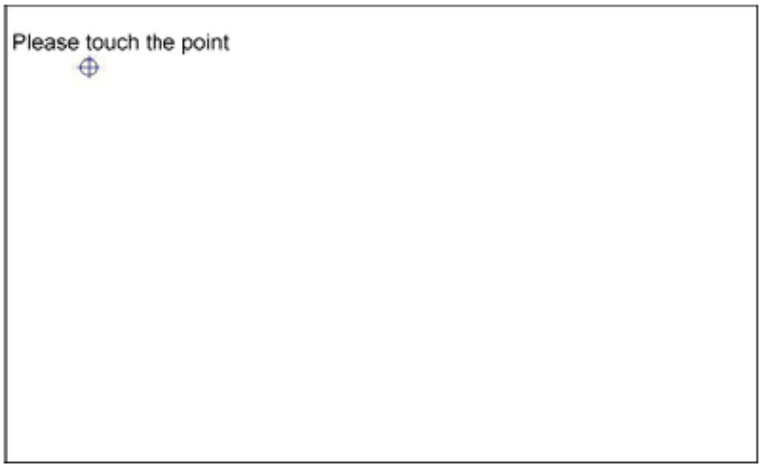
PenMount Rotating Functions

The PenMount driver for Windows 2000/WIN7 supports several display rotating software packages. Windows Me/2000/WIN7 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.

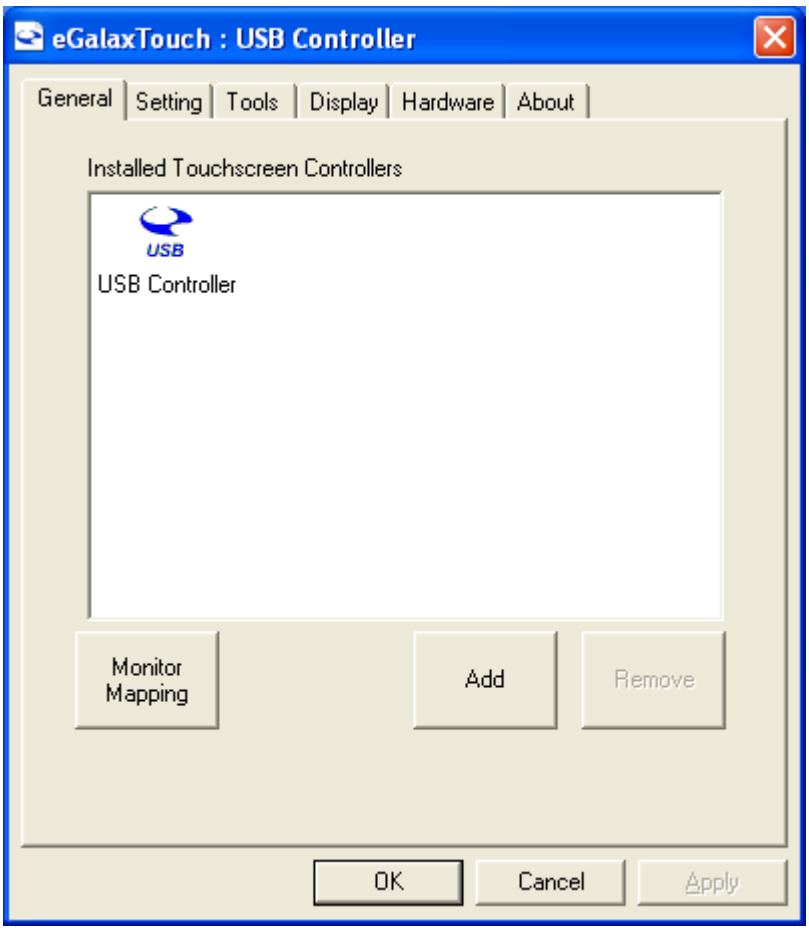


NOTE: The Rotate function is disabled if you use Monitor Mapping

5.2.2 Software Functions(Projected Capacitive)

General

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



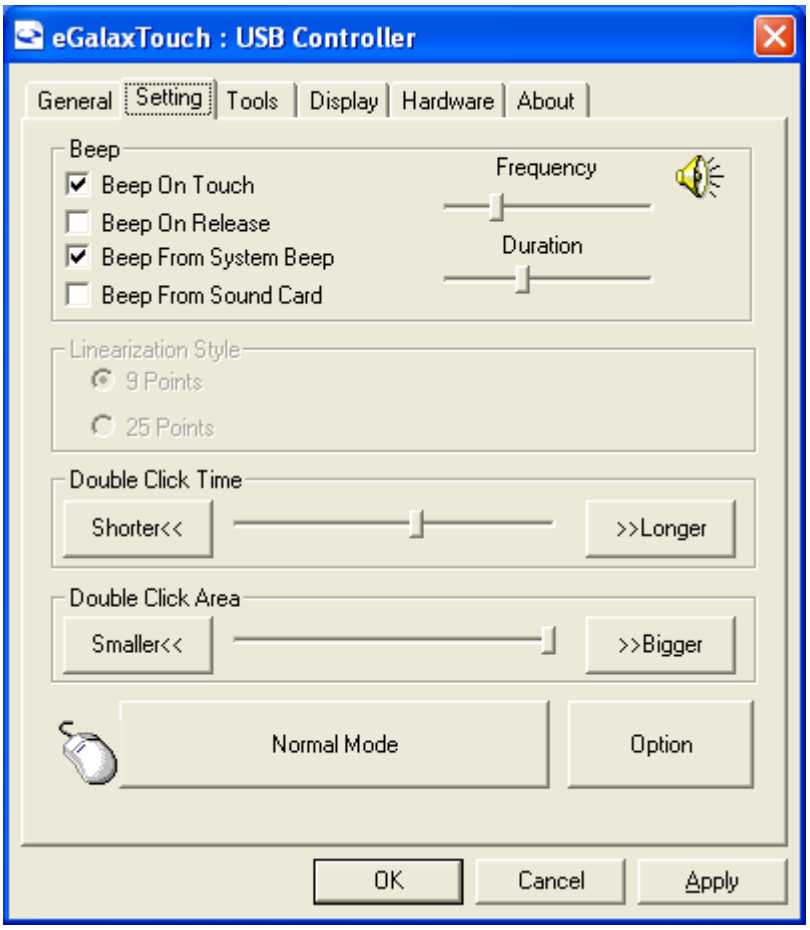
Monitor Mapping

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

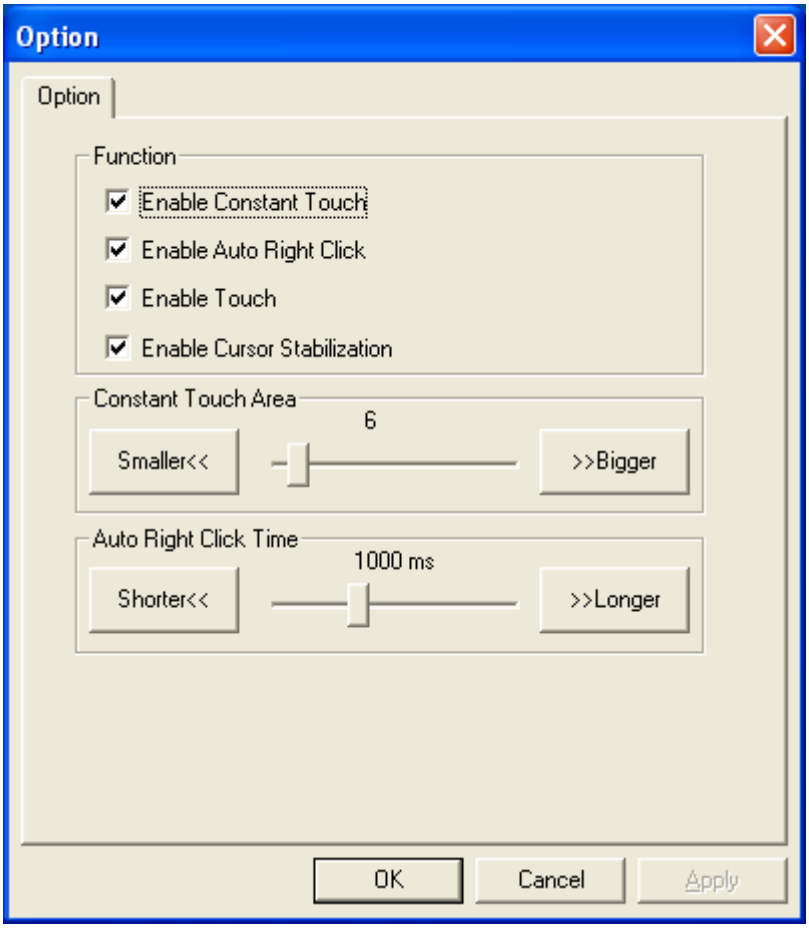
Double Click Area

Smaller

Bigger

Normal mode

Simulate the mouse mode



Option

Function

Enable Constant Touch

Enable Auto Right Click

Enable Touch

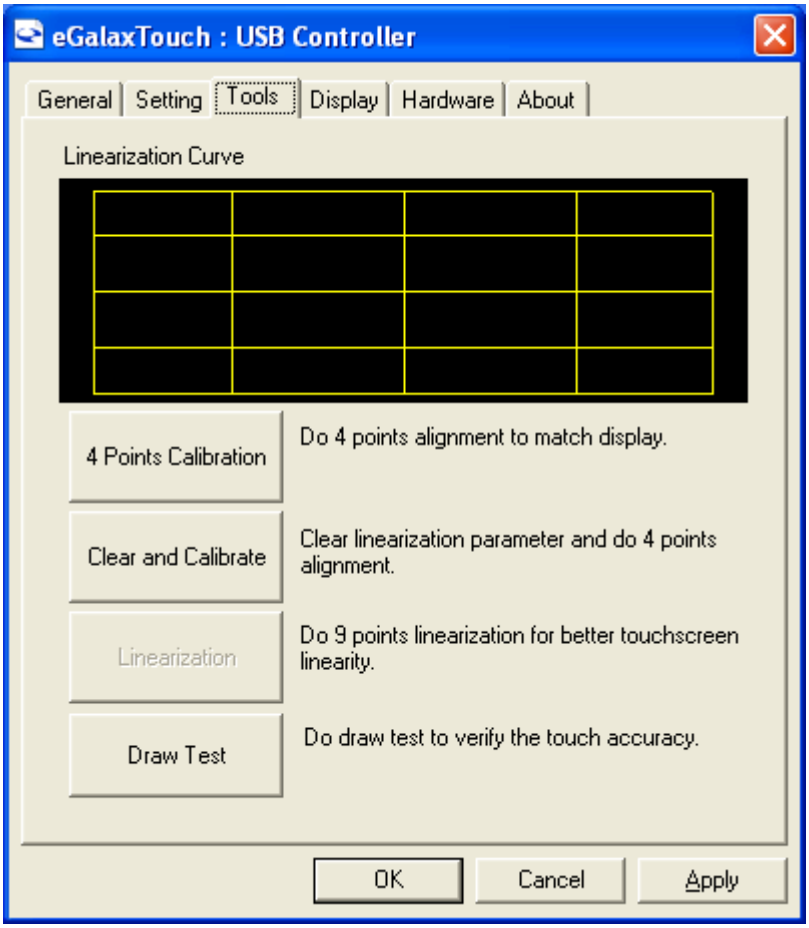
Enable Cursor Stabilization

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

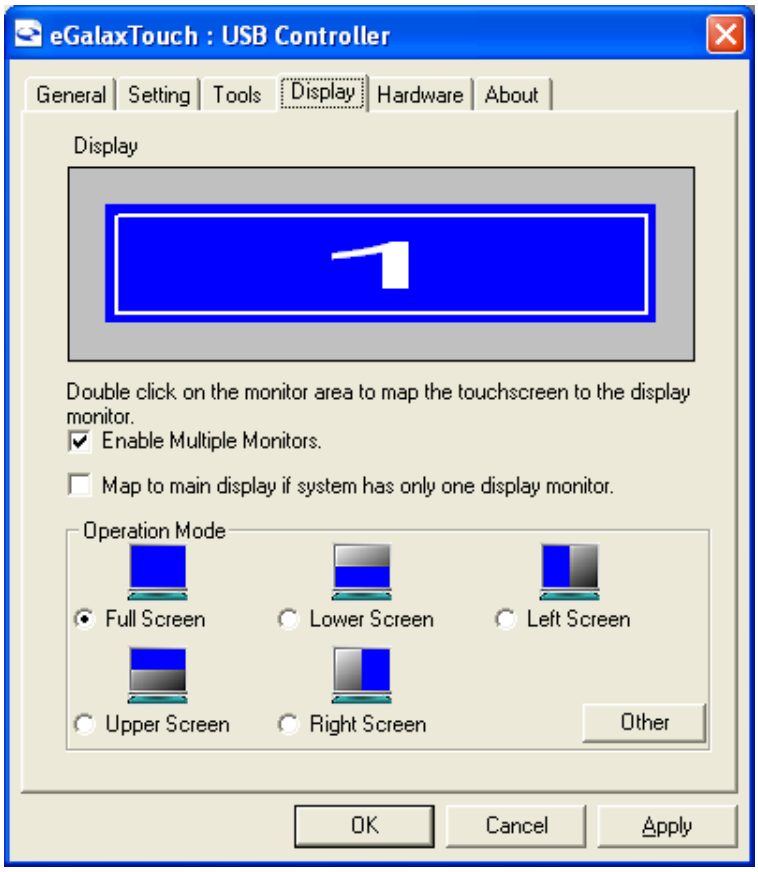
Do 9 points linearization for better touchscreen linearity.

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

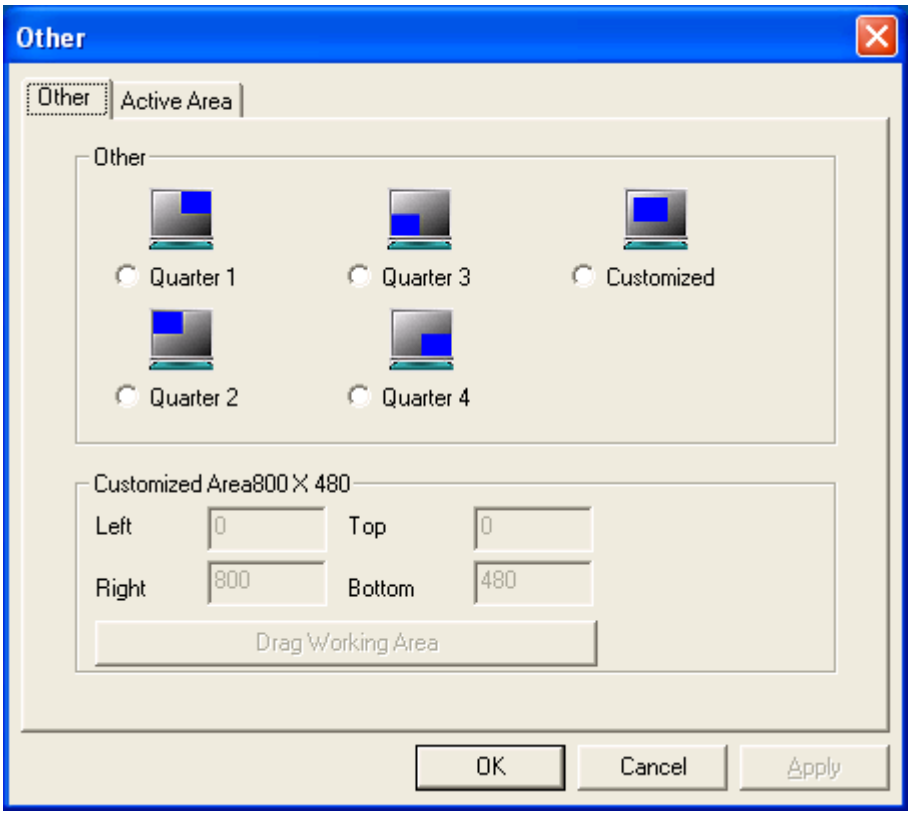
Full Screen

Lower Screen

Left Screen

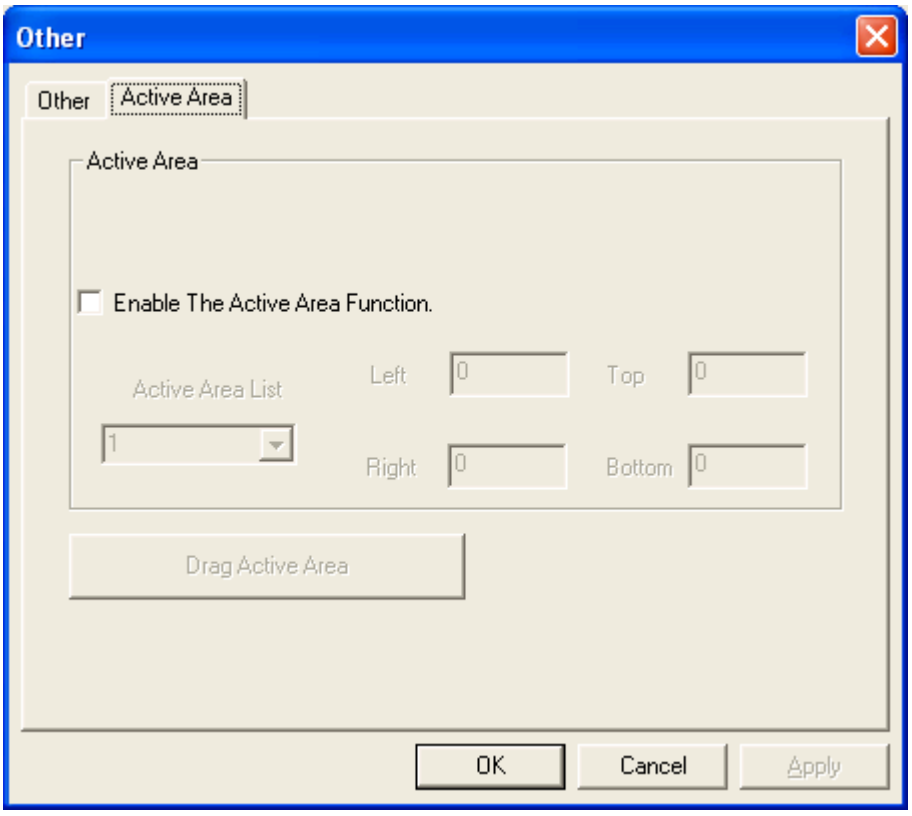
Upper Screen

Right Screen



Other

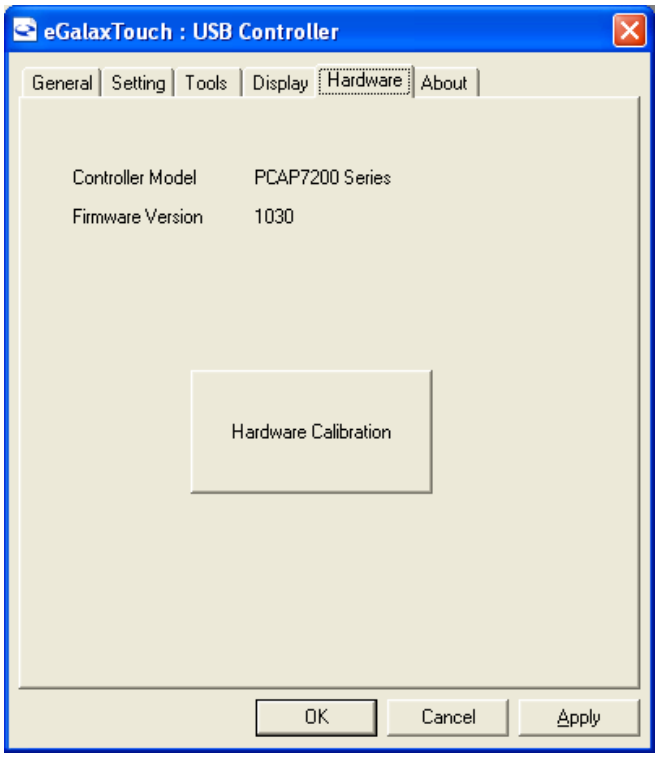
Other mode of display. Quarter1~4 and Customized area.



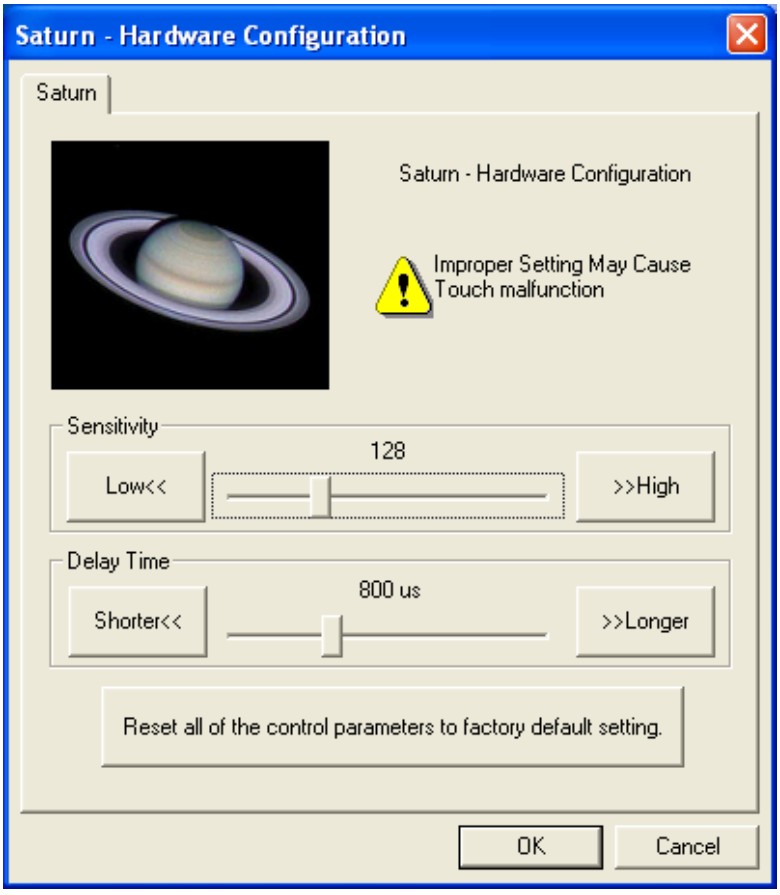
Active Area

Drag active area to enable Active Area Function.

Hardware



Saturn Hardware Configuration



About

To display information about eGalaxTouch and its version.