AEx-P526

15” ATEX Certified Intel Atom D2550 Stainless Steel Panel PC

User Manual

Release Date	Revision
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Revision History

Reversion	Date	Description
1.0	2013/08/22	Official Version
1.1	2015/10/23	Add “1.1 Features”, ATEX LOGO at front page, Memory 4GB for option, Net Weight, Motherboard Introduction, Modify CPU Specifications to D2550, LCD Specifications, Power Input, EN60079,11 to EN60079-15, OS Support, Dimension Images, Product Images, Operating Temperature, storage space

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.

Disclaimer

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

Packing List

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

Safety Precautions

Follow the messages below and read these safety instructions carefully to prevent your systems from damage:

- Keep this user's manual for later reference.
- 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.
- Disconnect this equipment from any outlet before cleaning. Do not use liquid or spray detergents for cleaning. Use a damp cloth.
- For pluggable equipment, the power outlet must be installed near the equipment and must be easily accessible.
- Keep this equipment away from humidity.
- Put this equipment on a reliable surface during installation. Dropping it or letting it fall could cause damage.
- The openings on the enclosure are for air convection. Protect the equipment from overheating. Do not cover the openings.
- Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
- All cautions and warnings on the equipment should be noted.
- If the equipment is not used for a long time, disconnected it from the power source to avoid damage by transient over-voltage.
- Never pour any liquid into an opening. This could cause fire or electrical shock.
- Never open the equipment for safety reasons, only qualified service personnel should open the equipment.
- If any of the following situations arises, get the equipment checked by service personnel:
  - ☐ The power cord or plug is damaged.
  - ☐ Liquid has penetrated into the equipment.
  - ☐ The equipment has been exposed to moisture.
  - ☐ The equipment does not work well, or you cannot get it to work according to the user's manual.
  - ☐ The equipment has been dropped and damaged.
  - ☐ The equipment has obvious signs of breakage.
- Do not leave this equipment in an environment where the storage temperature is below -30°C or above 70°C. It may damage the equipment.

Table of Contents

Figures

Chapter 1 Getting Started

1.1 Features

- 15” LED Backlight TFT LCD
- Intel Atom D2550 Low Power Consumption Processor
- Onboard 2G DDR3, 4G for option
- 316 Stainless Steel Enclosure
- 5 Wire Resistive Touch
- IP65 Dustproof and Waterproof
- Wide Range DC 11~32V Power Input
- ATEX95n / EN60079-15 Certified

1.2 Specifications

System	
Processor	Intel Atom Processor D2550 (1M Cache, 1.8GHz)
System Chipset	Intel NM10 Express
System Memory	Onboard 2GB DDR3 800 MHz, 4GB for option
Outside I/O Ports	2 x USB 2.0 by 8-pin M12 connector 1 x GbE LAN RJ-45 by 8-pin M12 connector 1 x RS-232 by 8-pin M12 connector, COM2 1 x RS-232/422/485 by 8-pin M12 connector, COM1, default RS-232 1 x DC Power Input by 3-pin M12 connector
Storage	1 x 2.5” SATA2 HDD or SSD 1 x Internal SD slot
Onboard Expansion bus	1 x Mini PCIe half size
OS Support	Windows 7 Professional for Embedded Systems Windows 7 Ultimate for Embedded Systems Windows Embedded 8 Standard Windows Embedded 8 Pro Windows Embedded 8.1 Pro Windows Embedded 8.1 Industry Pro
Power	
Power Input	11~32V DC
Power Consumption	MAX: 24.3W
LCD	

Display Type	15” color TFT LCD
Resolution	1024 x 768
Color	16.7M
Contrast Ratio	700 : 1
Luminance (cd/m2)	400
Viewing Angle	160 (H) / 140 (V)
Backlight Lifetime	50,000 hrs
Touch Screen	
Type	Resistive Touch Screen
Interface	RS-232 Interface
Light Transmission	Over 80%
Mechanical	
Construction	316 Stainless Steel
Mounting	VESA Mount 75 x 75
IP Rating	Total IP65
Dimension	399 x 324 x 63 mm
Net Weight	6.9 Kg
Environmental	
Operating Temperature	-20~50 °C (optional -20~60°C)
Storage Temperature	-30~70 °C
Storage Temperature	10%~90%@ 40℃, non-condensing
Certificate	CE / FCC Class A / ATEX95-n / EN60079-15

1.3 Dimensions

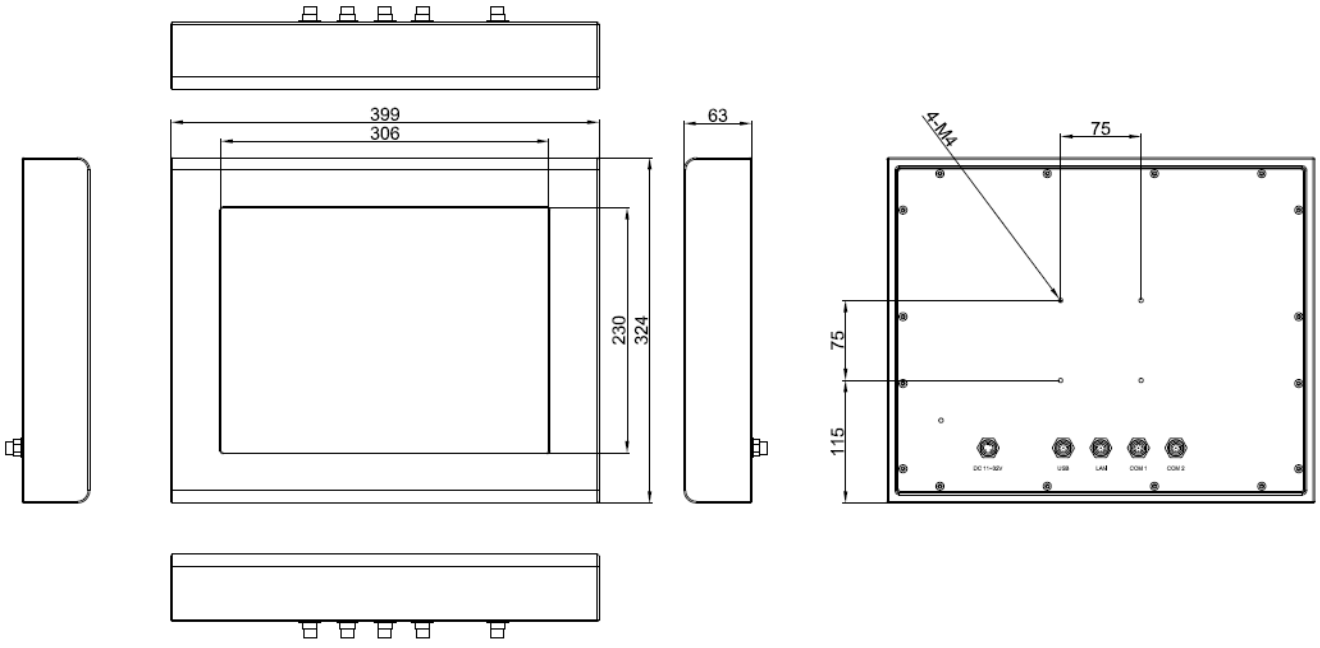


Figure 1.1: Dimensions of AEx-P526

1.4 Brief Description of AEx-P526

AEx-P526 implemented with ATEX95-n (EN-60079:15/13980/Equipment for Explosive Atmosphere), which is offered to European directives for controlling explosive environment, can be protected from hazardous/explosive environment not only chemical facilities, but also in petroleum, mining industry…etc.

The AEx-P526 comes with a 15-inch high-brightness TDT LCD and base on Intel Atom D2550 platform, space for one 2.5-inch HDD, resistive touch screen and 11~32V DC wide-ranging power input. Furthermore, the chassis is made of stainless steel 316 with an ultra slim profile with M12 connectors and total IP65 protection.

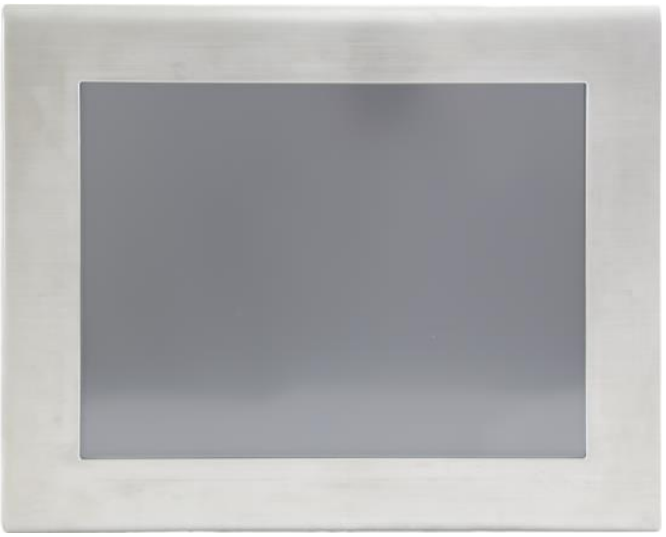


Figure 1.2: Front View of AEx-P526

Figure 1.3: Rear View of AEx-P526

Chapter 2 Hardware

2.1 Motherboard Introduction

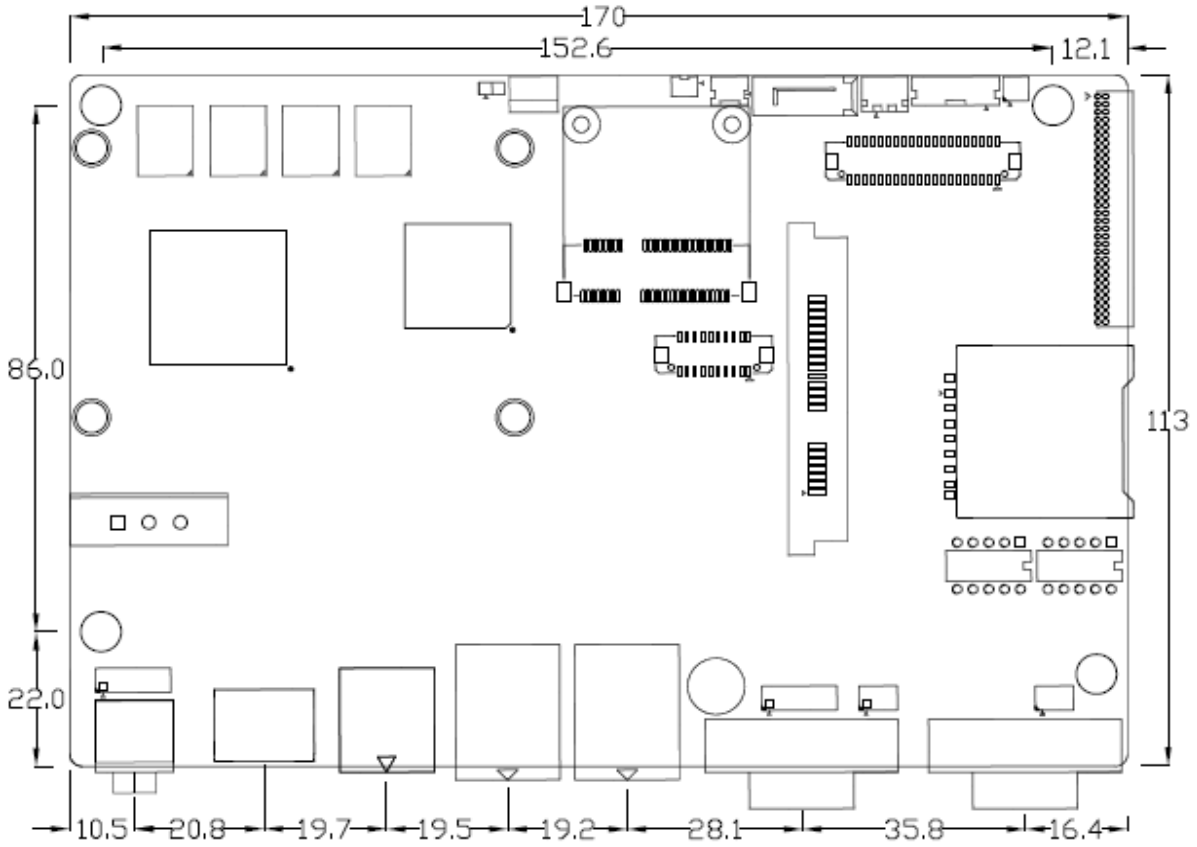
SBC-7106 is a 4" industrial motherboard developed on the basis of Intel Cedarview-M Processors and NM10, which provides abundant peripheral interfaces to meet the needs of different customers. Also, it features dual GbE ports, 3-COM ports and one Mini PCIE configuration, one VGA port, one HDMI port, 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 Specifications

Specifications	
Board Size	170mm x 113mm
CPU Support	Intel Atom N2600 /1.60GHz (2cores,3.5W, onboard） Intel Atom D2550 /1.86GHz(2cores,10W, option)
Chipset	Intel NM10 Express
Memory Support	Onboard 2GB DDRIII SDRAM (N2600) Onboard 4GB DDRIII SDRAM (D2550)
Graphics	Integrated Intel GMA 3600 (N2600) Integrated Intel GMA 3650 (D2550)
Display Mode	1 x CRT Port 1 x HDMI Port 1 x LVDS1 (18/24-bit single LVDS)
Support Resolution	Up to 1920 x1200 for CRT Up to 1920 x1200 for HDMI Up to 1366 x768 for LVDS1 (N2600) Up to 1440 x 900 for LVDS1 (D2550)
Dual Display	CRT+LVDS1 CRT+HDMI LVDS1+HDMI
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 for CN3 (USB2/USB3) 2 x USB 2.0 Pin header for CN1 (USB0/USB1) 1 x USB 2.0 for MPCIE1 (USB7)
Serial	1 x RS232/RS422/RS485 port, 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 for CN2 (COM3) 2 x UART for CN3 (COM5,COM6)
Digital I/O	8-bit digital I/O by Pin header (CN2) 4-bit digital Input 4-bit digital Output 4-bit digital I/O by Pin header (CN3) 2-bit digital Input 2-bit digital Output
Battery	Support CR2477 Li battery by 2-pin header
Audio	Support Audio via Realtek ALC662 HD audio codec Support Line-in, Line-out, MIC by 2x6-pin header
Keyboard /Mouse	1 x PS2 keyboard/mouse by 1x6 box pin header (CN3)
Expansion Bus	1 x mini-PCI-express slot 1 x PCI-express (CN3)
Touch Ctrl	1 x Touch ctrl header for TCH1 (COM4)
Power Management	Wide Range DC10V~30v input 1 x 3-pin power input connector
Switches and LED Indicators	1 x Power on/off switch (CN1) 1 x Reset switch (CN1) 1 x Power LED status (CN1) 1 x HDD LED status (CN1) 1 x Buzzer

External I/O port	2 x COM Ports (COM1/COM2) 2 x USB 2.0 Ports (stack) 2 x RJ45 GbE LAN Ports 1 x HDMI Port 1 x Stack audio Jack (Line out)
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
TB-528CAN2	2 x CAN bus
	1 x SIM Card Socket
	1 x mini-PCI-express slot



(units :mm)

Figure 2.1: Motherboard Dimensions

2.2.1 Jumpers Setting and Connectors

Board Top

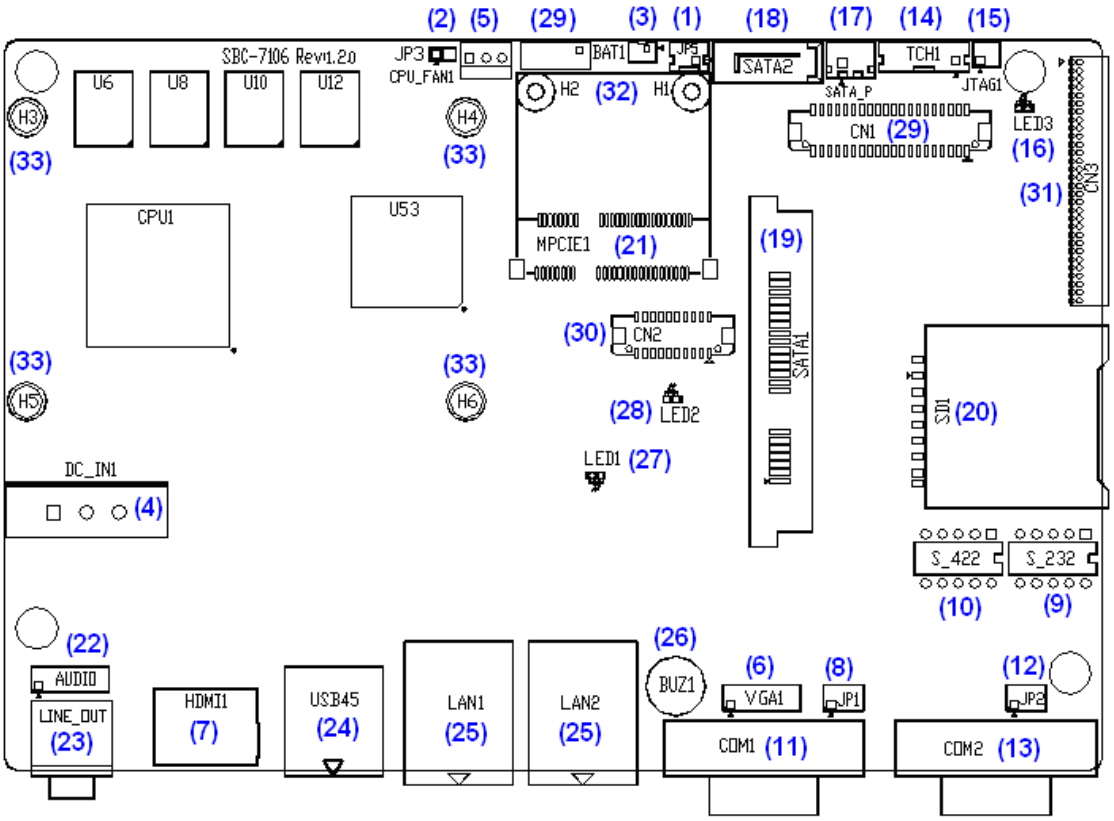


Figure 2.2: Jumpers and Connectors Location_ Board Top

Board Bottom

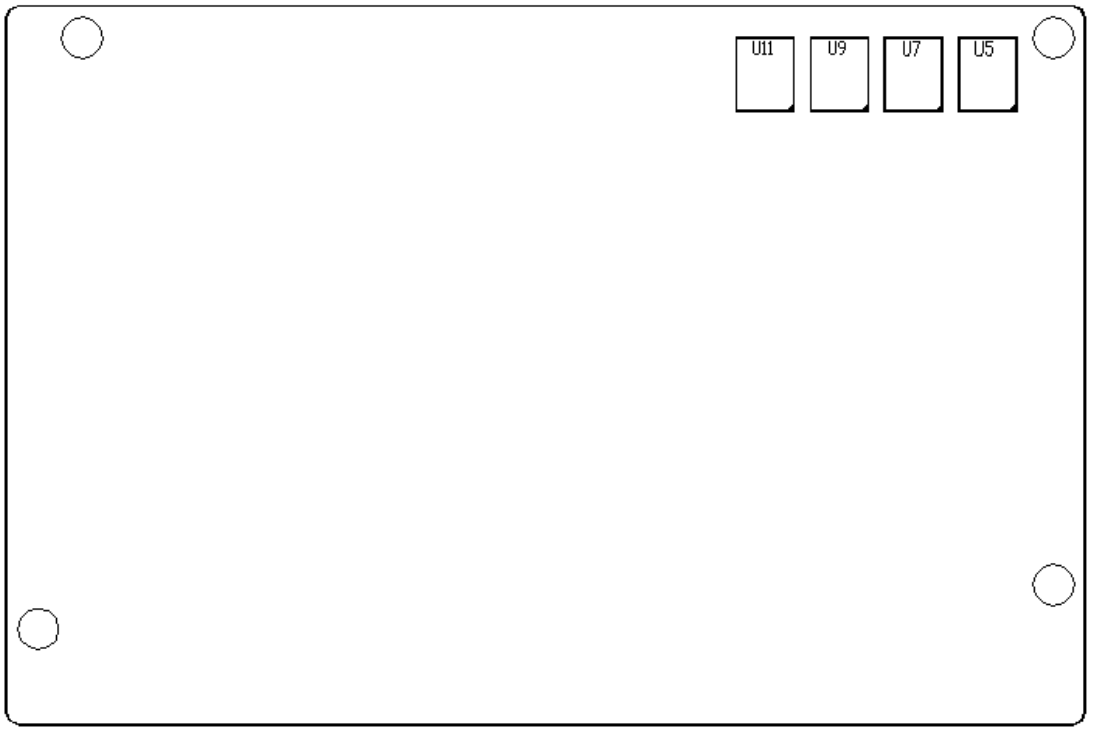


Figure 2.3: Jumpers and Connectors Location_ Board Bottom

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. JP3:

(2.0mm Pitch 1X2 Pin Header)CMOS clear jumper, CMOS clear operation will permanently reset old BIOS settings to factory defaults.

JP3	CMOS
Open	NORMAL (Default)
Close 1-2	Clear CMOS

Procedures of CMOS clear:

a) Turn off the system and unplug the power cord from the power outlet.
b) To clear the CMOS settings, use the jumper cap to close pins 1 and 2 for about 3 seconds then reinstall the jumper clip back to pins open.
c) Power on the system again.
d) When entering the POST screen, press the <F1> or <DEL> key to enter CMOS Setup Utility to load optimal defaults.
e) After the above operations, save changes and exit BIOS Setup.

Model	JP3
SBC-7106-N2600	No
SBC-7106-N2600-P	No
SBC-7106-D2550	Yes

3. 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

4. DC_IN1:

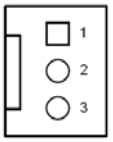
(5.08mm Pitch 1x3 Pin Connector),DC9V~32V System power input connector。

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

Model	DC_IN1
SBC-7106-N2600	180°Connector
SBC-7106-N2600-P	45°Connector
SBC-7106-D2550	45°Connector

5. CPU_FAN1:

(2.54mm Pitch 1x3 Pin Header), Fan connector, cooling fans can be connected directly for use. You may set the rotation condition of cooling fan in menu of BIOS CMOS Setup.



Pin#	Signal Name
1	Ground
2	VCC
3	Rotation detection

Note:

Output power of cooling fan must be limited under 5W.

Model	CPU_FAN1
SBC-7106-N2600	No
SBC-7106-N2600-P	No
SBC-7106-D2550	Yes

6. VGA1:

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

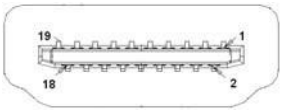
Signal Name	Pin#	Pin#	Signal Name
CRT_RED	1	2	Ground
CRT_GREEN	3	4	Ground
CRT_BLUE	5	6	VGA_EN
CRT_H_SYNC	7	8	CRT_DDCDATA
CRT_V_SYNC	9	10	CRT_DDCCLK
Ground	11	12	Ground

VGA hot plug setting for Windows XP：	
VGA1（Pin Header）	Function

Pin4-Pin6（Close）	VGA Simulation Disabled
Pin4-Pin6（Open）	VGA Simulation Enabled
use the 2.0mm jumper cap to close pin 4 and pin6	

7. HDMI1:

(HDMI 19P Connector) High Definition Multimedia Interface connector.



8. 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)

9. S_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**
RS422 (option)	OFF: Pin1, Pin2, Pin3, Pin4
RS485 (option)	OFF: Pin1, Pin2, Pin3, Pin4

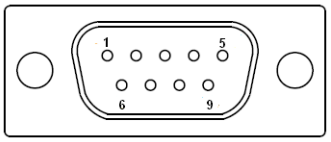
10. S_422:

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

Function	S_422 Pin#
RS232 (Default)	**OFF: Pin1, Pin2, Pin3, Pin4**
RS422 (option)	ON: Pin1, Pin2, Pin3, Pin4
RS485 (option)	ON: Pin1, Pin2, Pin3, Pin4

11. 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】	

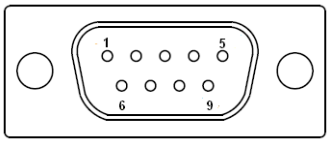
12. JP2:

(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	**COM2 RI (Ring Indicator) (default)**
Close 3-4	COM2 Pin9=+5V (option)
Close 5-6	COM2 Pin9=+12V (option)

13. 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**)**

14. TCH1:

(2.0mm Pitch 1x6 box Pin Header), internal Touch controller connector.

Pin#	Signal Name
1	SENSE
2	X+
3	X-
4	Y+
5	Y-
6	GND_EARCH

15. JTAG1(option):

(2.0mm Pitch 2x2 Pin Header), Touch eeprom program to write interface

Signal Name	Pin#		Signal Name
3.3V	1	2	C2D_BR
YC2CK_RST	3	4	Ground

16. LED3:

LED STATUS. Green LED for Touch Power status.

17. SATA_P:

(2.5mm Pitch 1x2 box Pin Header), Two onboard 5V output connectors are reserved to provide power for SATA devices.

Pin#	Signal Name
1	+DC5V
2	Ground

Note:

Output current of the connector must not be above 1A.

18. SATA2:

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

19. SATA1:

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

20. SD1:

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

21. MPCIE1:

(Socket 52Pin),mini PCIe socket, it is located at the top, it supports mini PCIe devices with USB2.0 and LPC and SMBUS and PCIe signal. MPCIe card size is 30x30mm.

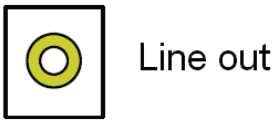
22. AUDIO:

(2.0mm Pitch 2X6 Pin Header), Front Audio, 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 In is used for the connection of external audio source via a Line in cable. MIC is the port for microphone input audio.

Signal Name	Pin#	Pin#	Signal Name
5V	1	2	GND_AUD
LINE-OUT-L	3	4	LINE-OUT-R
FRONT_JD	5	6	LINE1_JD
LINE-IN-L	7	8	LINE-IN-R
MIC-IN-L	9	10	MIC-IN-R
GND_AUD	11	12	MIC1_JD

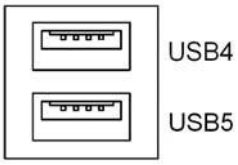
23. LINE_OUT:

(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.



24. 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.

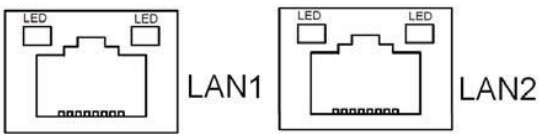


Each USB Type A Receptacle (2 Ports) Current limited value is 1.5A.

If the external USB device current exceeds 1.5A, please separate connectors into different Receptacle.

25. 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.



26. BUZ1:

Onboard buzzer.

27. LED1:

LED STATUS. Green LED for Motherboard Power status.

28. LED2:

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

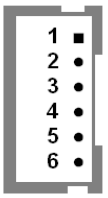
29. CN1:

(DF13-40P Connector),For expand output connector, It provides one 18/24bit single channel LVDS, one Backlight control, two USB ports, one power led, one HDD LED, on power on/off button, one RESET**.**

Function	Signal Name	Pin#		Signal Name	Function
LVDS	12V_S0	2	1	12V_S0	LVDS
	BKLT_EN_OUT	4	3	BKLT_CTRL	
	Ground	6	5	Ground	
	LVDS_VDD5	8	7	LVDS_VDD5	
	LVDS_VDD3	10	9	LVDS_VDD3	
	Ground	12	11	Ground	
	LA_DATAP0	14	13	LA_DATAN0	
	LA_DATAP1	16	15	LA_DATAN1	
	LA_DATAP2	18	17	LA_DATAN2	
	LA_DATAP3	20	19	LA_DATAN3	
	LA_CLKP	22	21	LA_CLKN	
	Ground	24	23	Ground	
	Ground	26	25	Ground	
USB1	USB1_P	28	27	USB1_N	USB1
USB0	USB0_P	30	29	USB0_N	USB0
	5V_USB01	32	31	5V_USB01	USB1
	5V_USB01	34	33	5V_USB01	
PWR LED	PWR_LED+	36	35	HDD_LED+	HDD LED
	Ground	38	37	Ground	
PWR ON/OFF	PWRBTN_ON-	40	39	FP_RST-	RESET

INVT1：

(2.0mm Pitch 1x6 Pin wafer connector), Backlight control connector for LVDS.



Pin#	Signal Name
1	+DC12V
2	+DC12V
3	Ground
4	Ground
5	BKLT_EN_OUT
6	BKLT_CTRL

Note:

Pin6 is backlight control signal, support DC or PWM mode, mode select at BIOS CMOS menu.

30. CN2:

(DF13-20P Connector), for expand output connector, it provides eight GPIO, one RS422 or RS485.

Function	Signal Name	Pin#		Signal Name	Function
5V	5V_S5	2	1	5V_S5	5V
SIO_GPIO61	GPIO_IN2	4	3	GPIO_IN1	SIO_GPIO60
SIO_GPIO63	GPIO_IN4	6	5	GPIO_IN3	SIO_GPIO62
	Ground	8	7	Ground	
SIO_GPIO21	GPIO_OUT2	10	9	GPIO_OUT1	SIO_GPIO20
SIO_GPIO23	GPIO_OUT4	12	11	GPIO_OUT3	SIO_GPIO22
	Ground	14	13	Ground	
485 or 422	485+_422TX+	16	15	485-_422TX-	485 or 422
RS422	422_RX+	18	17	422_RX-	RS422
5V	5V_S0	20	19	5V_S0	5V
COM3 BIOS Setup： Advanced/W83627UHG Super IO Configuration/Serial Port 3 Configuration【RS-422】 Advanced/W83627UHG Super IO Configuration/Serial Port 3 Configuration【RS-485】					

31. 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. connected to the TB-528 riser Card.

Function	Signal Name	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_AT	
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_RI	17	18	COM6_DCD-	

COM6 (UART)	COM6_TXD	19	20	COM6_RXD	COM6 (UART)
	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_PE	47	48	CLK_100M_PE1_	
	PM_PCIE_WAK	49	50	PLTRST_BUF-	
SMBUS	SMB_CLK_S5	51	52	SMB_DATA_S5	SMBUS
PCIE	PE1_CLKREQ	53	54	Ground	
	3P3V_S5	55	56	PWRBTN_ON-	
	3P3V_S5	57	58	3P3V_S5	
12V	12V_S0	59	60	12V_S0	12V

32. H3/H4/H5/H6:

CPU1 and U53 Heat Sink SCREW HOLES, Four screw holes for intel N2600 and NM10 Heat Sink assemble.

33. H1/H2:

MPCIE1 SCREW HOLES, H1and H2 for mini PCIE card (30mmx30mm) assemble.

Chapter 3 BIOS Setup

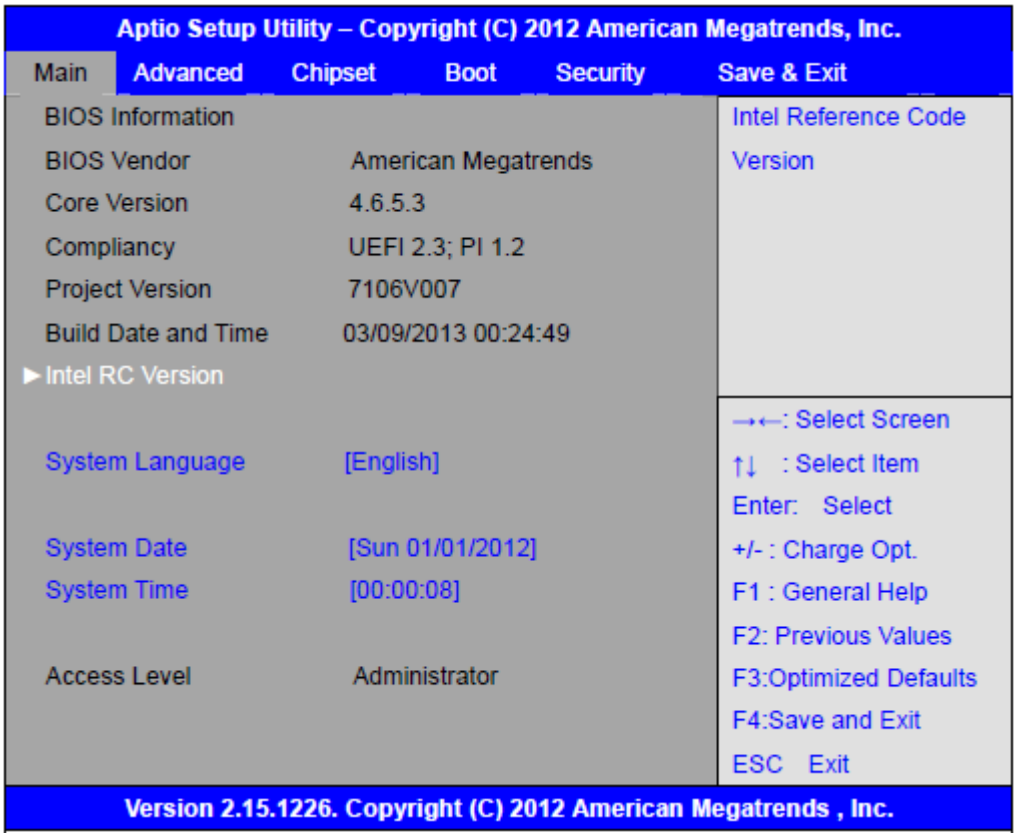
3.1 Operations after POST Screen

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

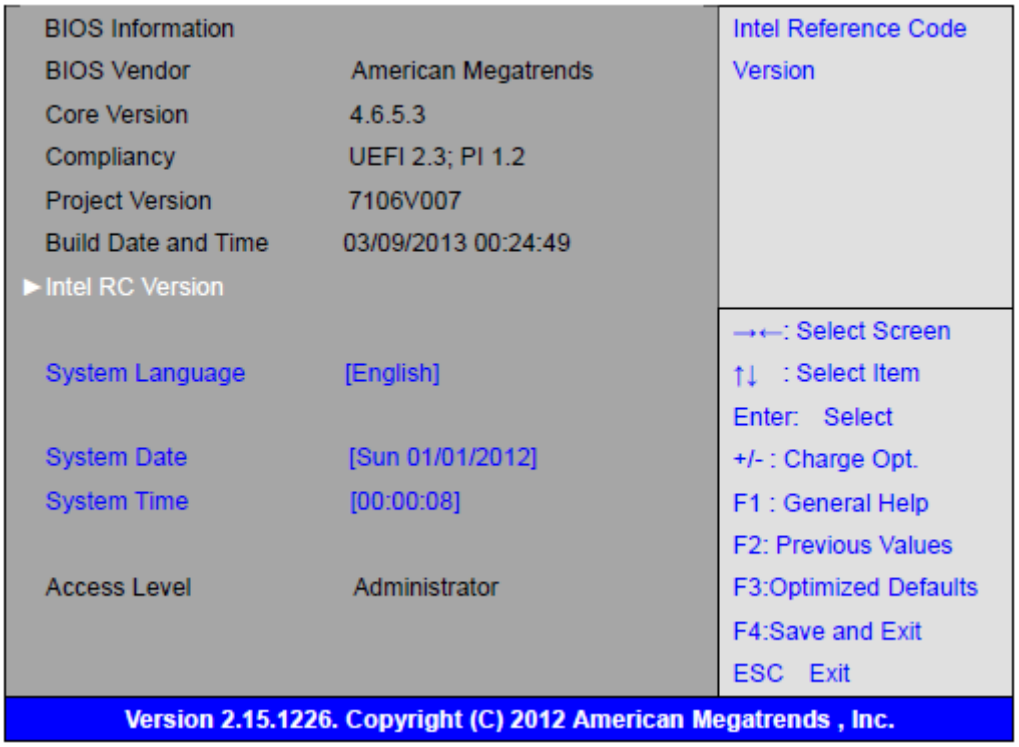
After optimizing and exiting CMOS Setup, the POST screen displayed for the first time is as follows and includes basic information on BIOS, CPU, memory, and storage devices.

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:

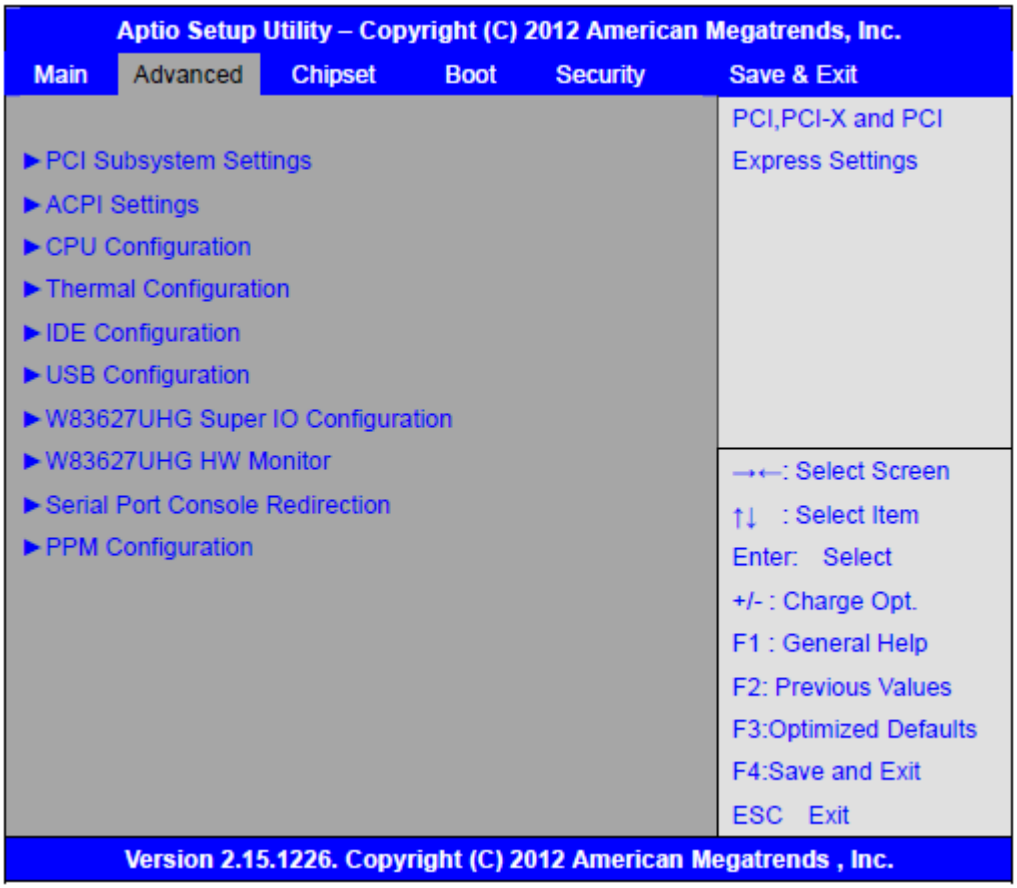
Day: Note that the 'Day' automatically changes when you set the date.

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	1600MHz
System Bus Speed	400MHz
Ratio Status	16
Actual Ratio	16
System Bus Speed	400MHz
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]

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

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]

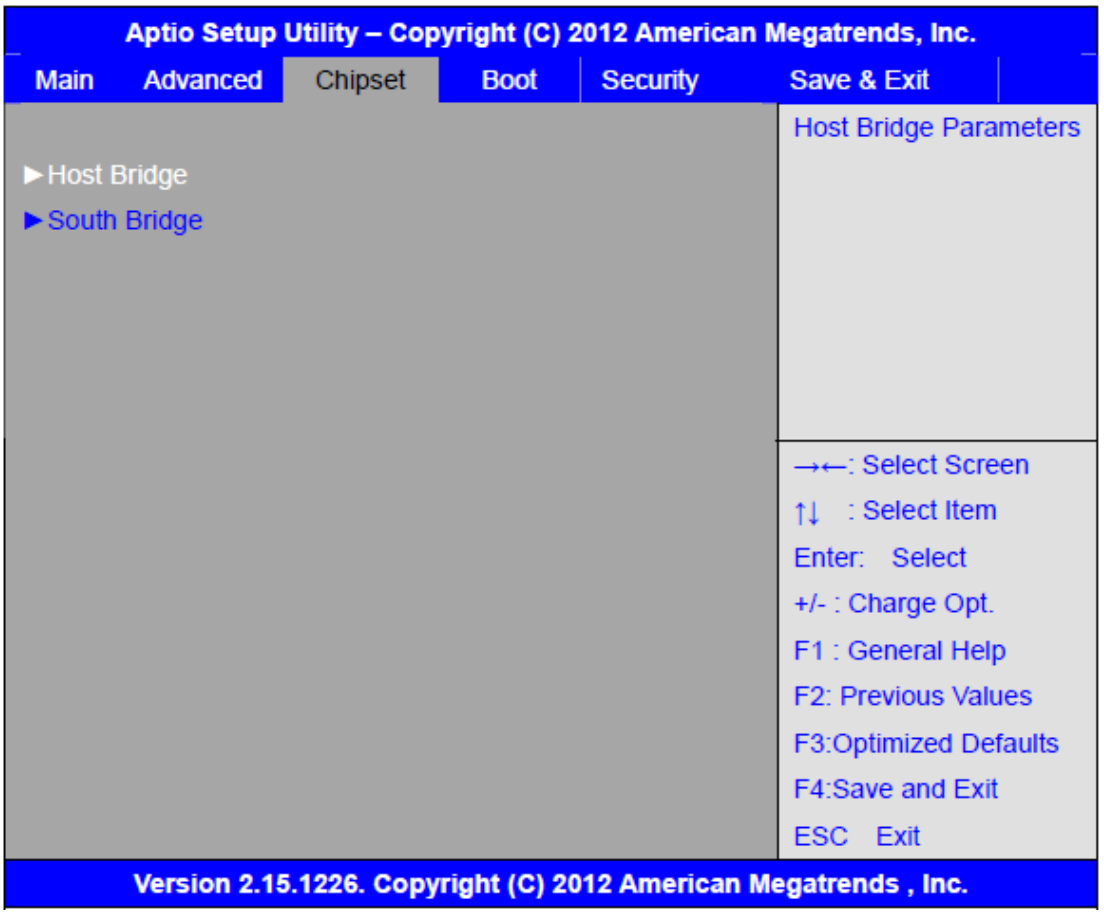
C-state POPDOWN

[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)
Total 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]

[HDMI]

[VGA + LVDS]

[VGA + HDMI]

[LVDS + HDMI]

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]

[1366x768，24bit]

Panel Scaling

[Auto]

[Force Scaling]

[off]

Active LFP	[Maintain Aspect Ratio]
IGD Clock Source	**[LVDS]** [No LVDS] [EDP]
Fixed Graphics Memory	**[External Clock]** [Internal Clock]
ALS Support	[128MB] [256MB]
Back light Control	**[Disabled]** [Enabled]
Back light Logic	**[DC]** [PWM]
Back light Control Lev	**[Positive]** [Negative]
	[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]

3.5.1 South Bridge

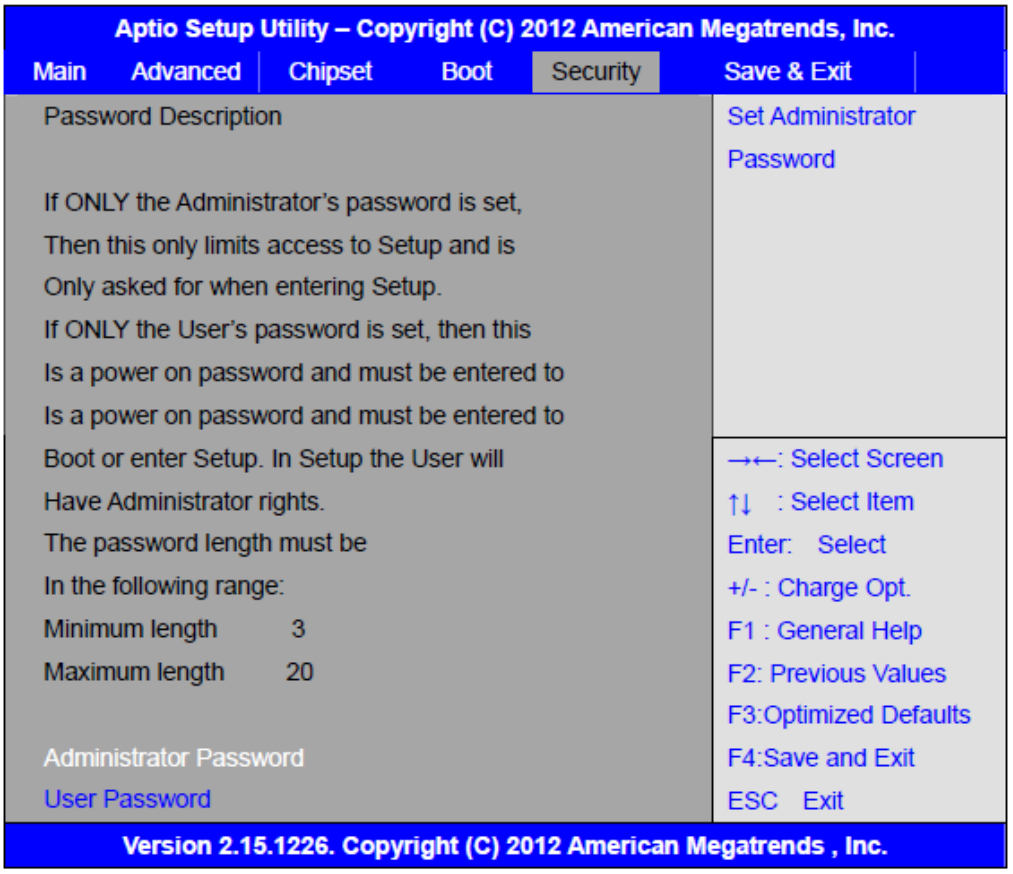
TPT Devices
PCI Express Root Port 0
PCI Express Root Port 1
PCI Express Root Port 2
PCI Express Root Port 3
DMI Link ASPM Control
[Enable]
[Disabled]
PCI-Exp. High Priorit
[Disabled]
[Enabled]
High Precision Event Timer Configuration
High Precision Timer
[Enabled]
[Disabled]
SLP_S4 Assertion Widt
[1-2 Seconds]
[2-3 Seconds]
[3-4 Seconds]
[4-5 Seconds]

3.6 Boot Settings

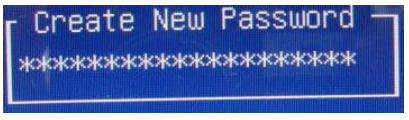
Setup Prompt Timeout [1]
Bootup Numlock State
[On]
[off]
Quiet Boot
[Disabled]
[Enabled]
Fast Boot
[Enabled]
[Disabled]
Skip VGA
[Enabled]
[Disabled]
Skip USB
[Disabled]
[Enabled]
Skip PS2
[Disabled]
[Enabled]
CSM16 Module Version 07.69
Gatea20 Active
[Upon Request]
[Always]
Option ROM Messages
[Force 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]

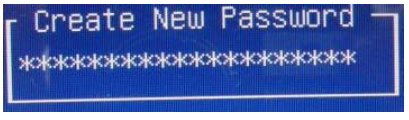
3.7 Security Settings



3.7.1 Administrator Password



3.7.2 User Password



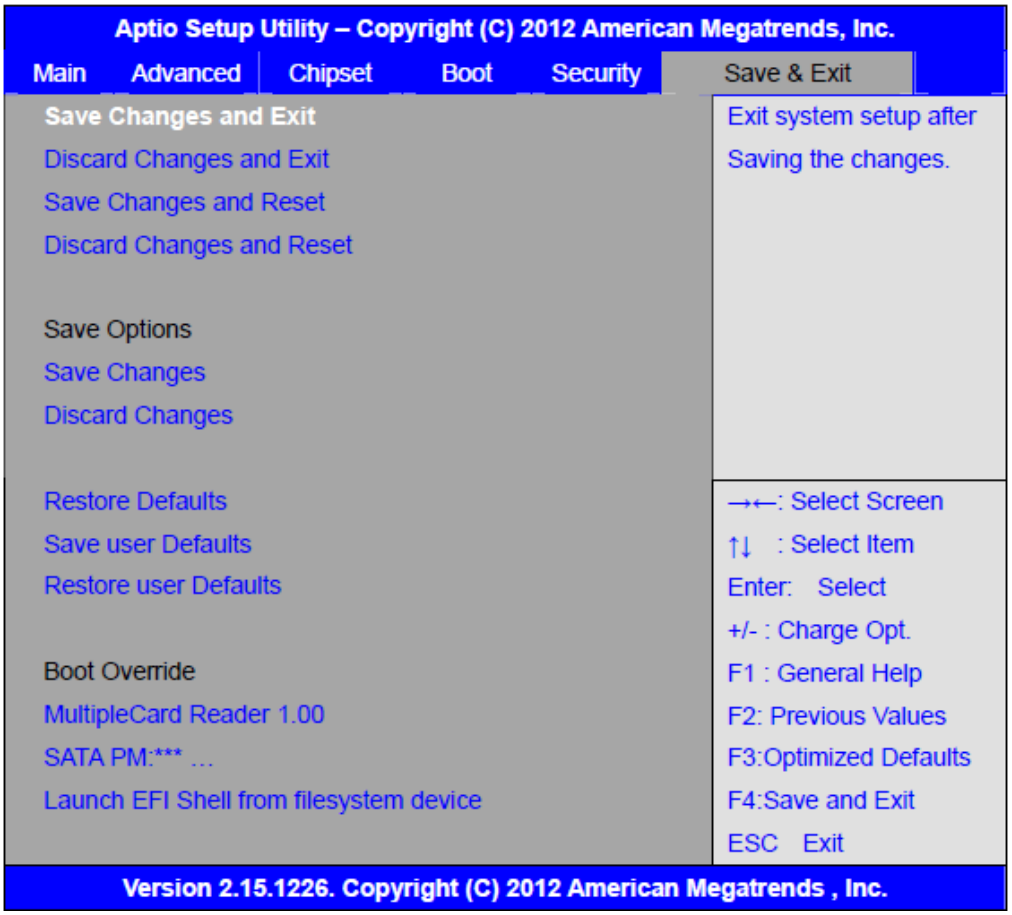
Type the password with up to 20 characters and then press <Enter> key. This will clear all previously typed CMOS passwords. You will be requested to confirm the password. Type the password again and press <Enter> key. You may press <Esc> key to abandon password entry operation.

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 & 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, 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**.

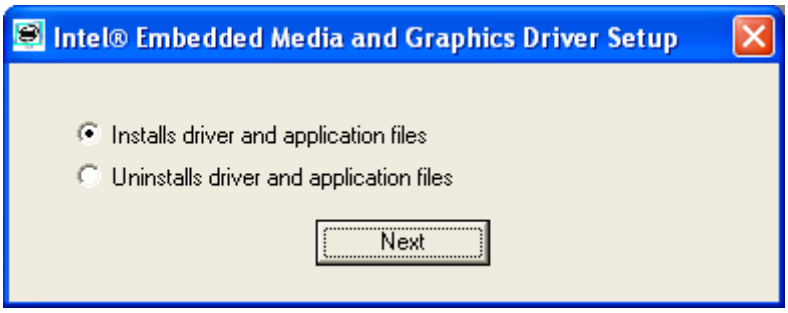
Step 6. Select **Yes, I want to restart this computer now**. Click **Finish**, then remove any installation media from the drives.

4.2 Intel Graphics Media Accelerator driver

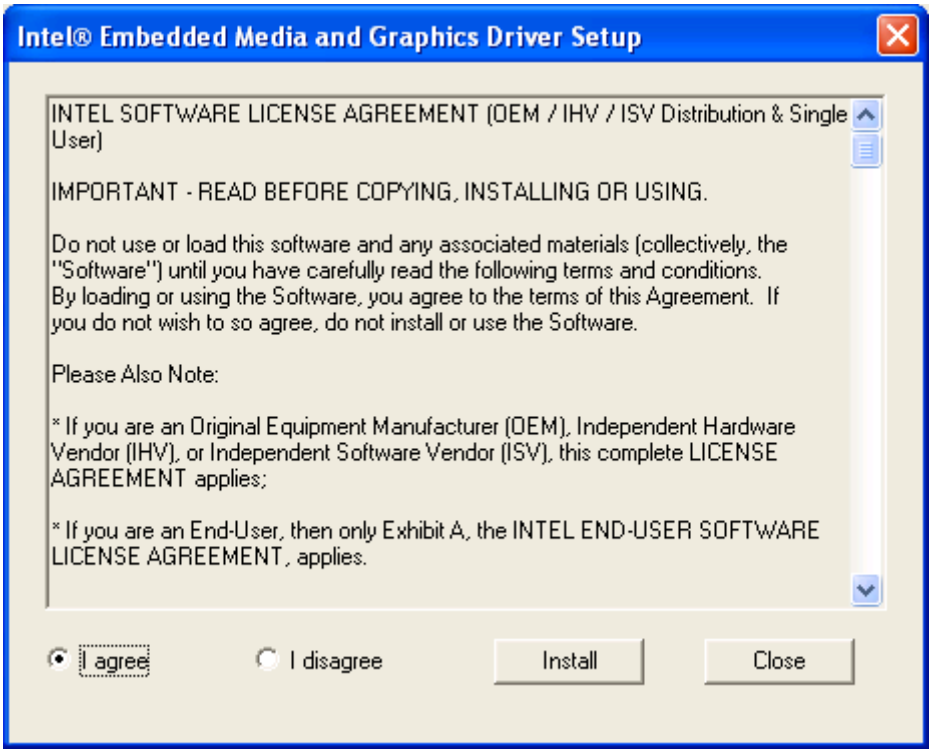
To install the VGA drivers, follow the steps below to proceed with the installation.

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

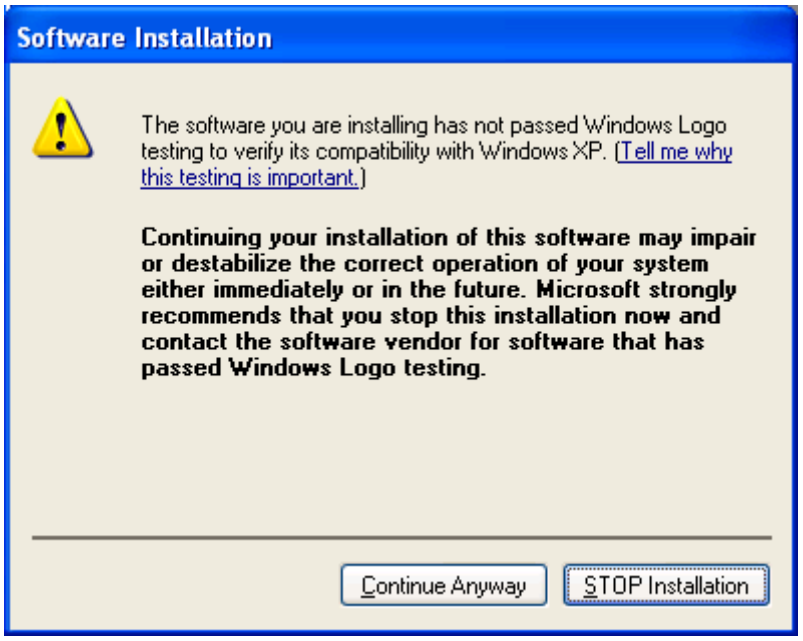
Step 2. Select **Installs driver and application files**. Click **Next**.



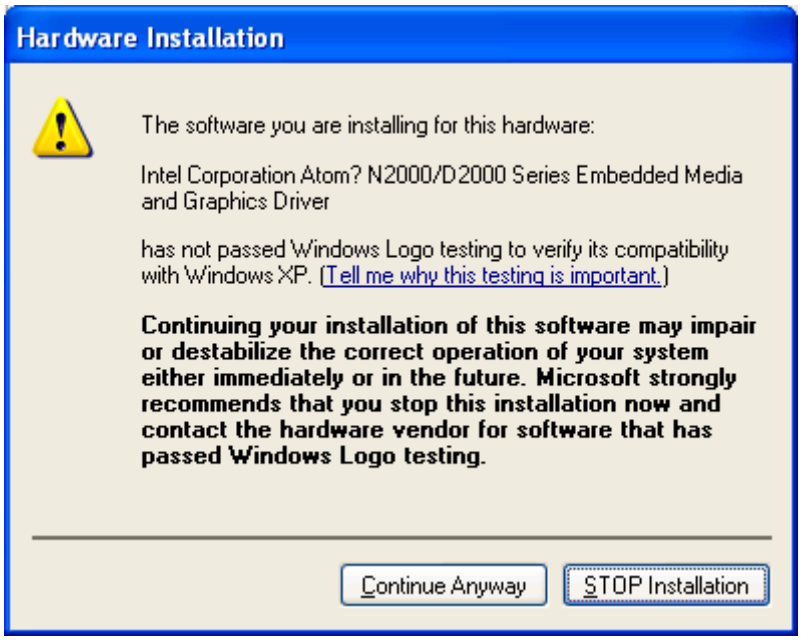
Step 3. Select **I agree.** Click **Install.**



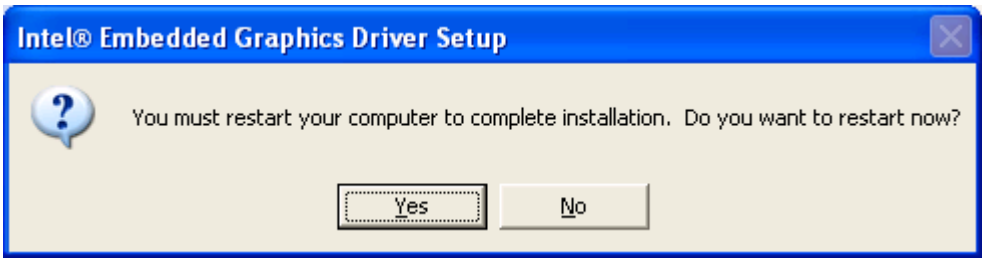
Step 4. Click **Continue Anyway**.



Step 5. Click **Continue Anyway**.



Step 6. Click **Yes** to restart your computer.

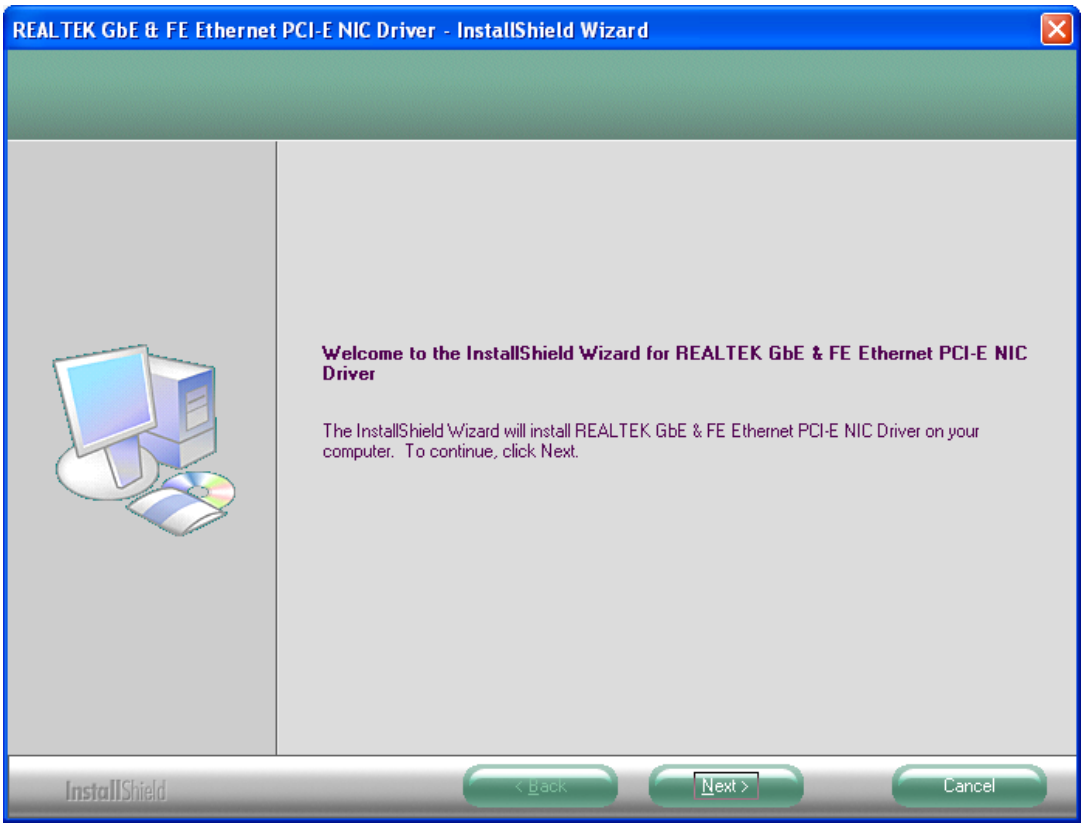


4.3 Intel (R) Network Adapter

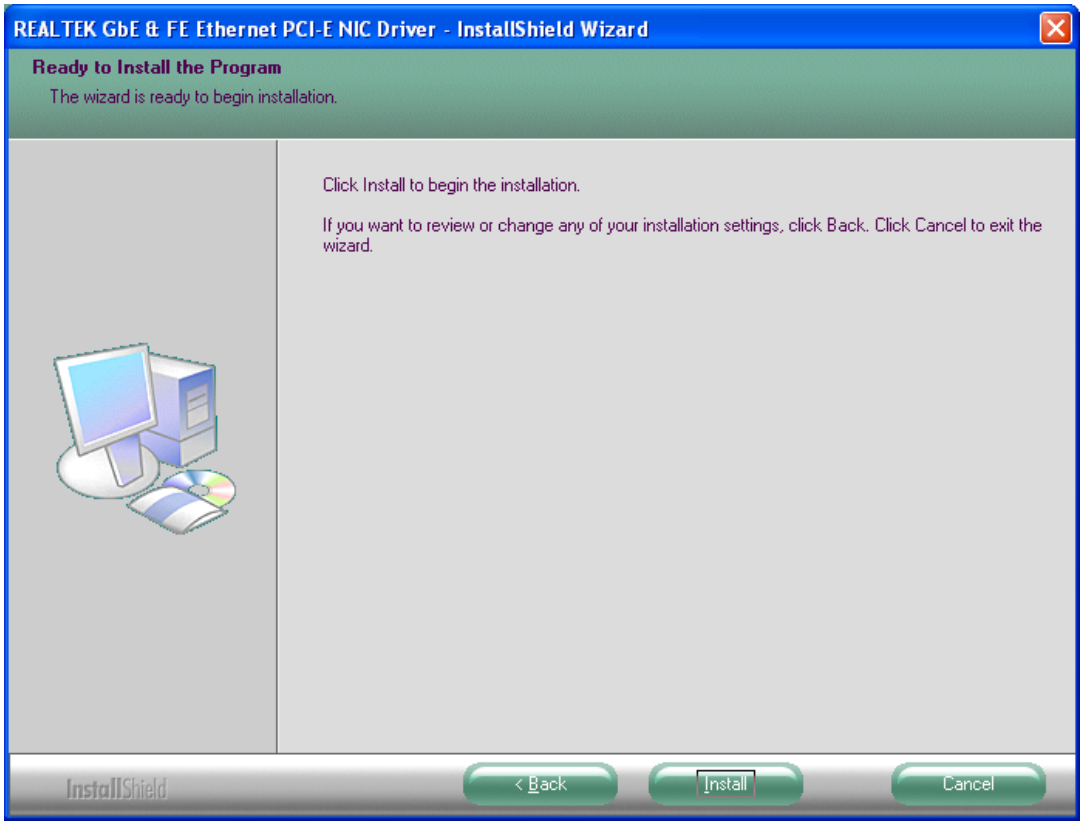
To install the Intel (R) Network Adapter device driver, please follow the steps below.

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

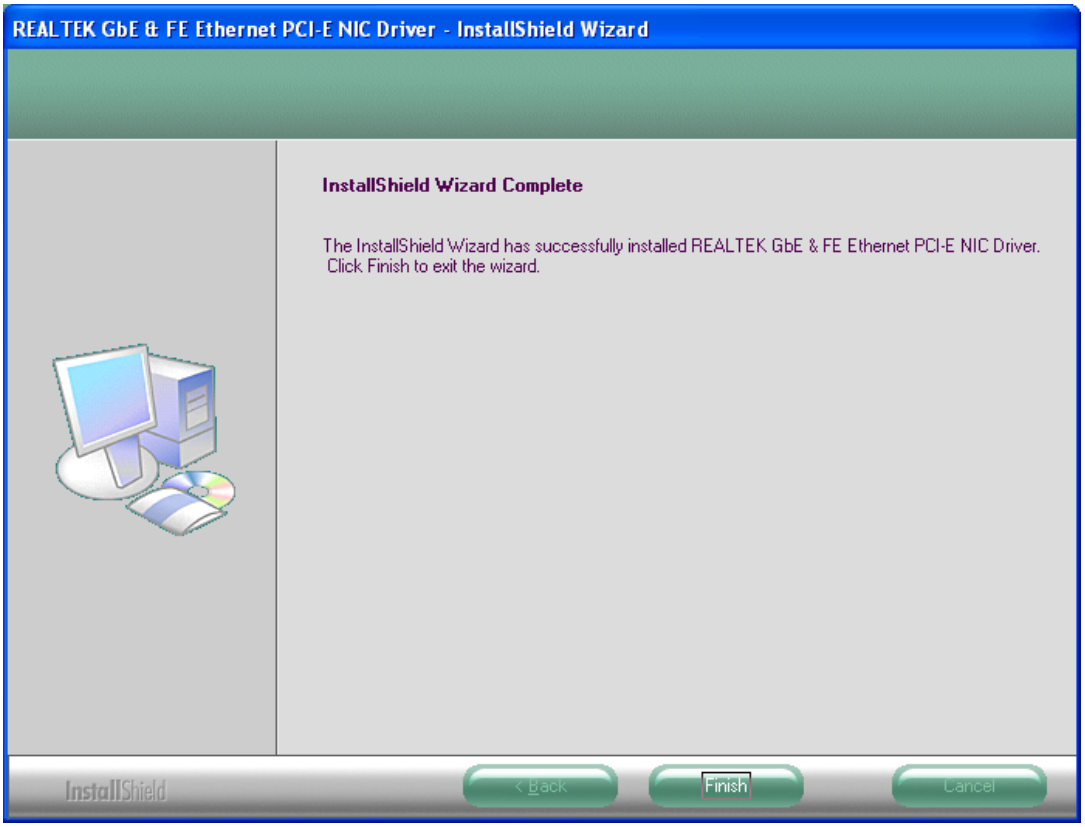
Step 2. Click **Next** to continue.



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



Step 4. Click **Finish** to exist the wizard.

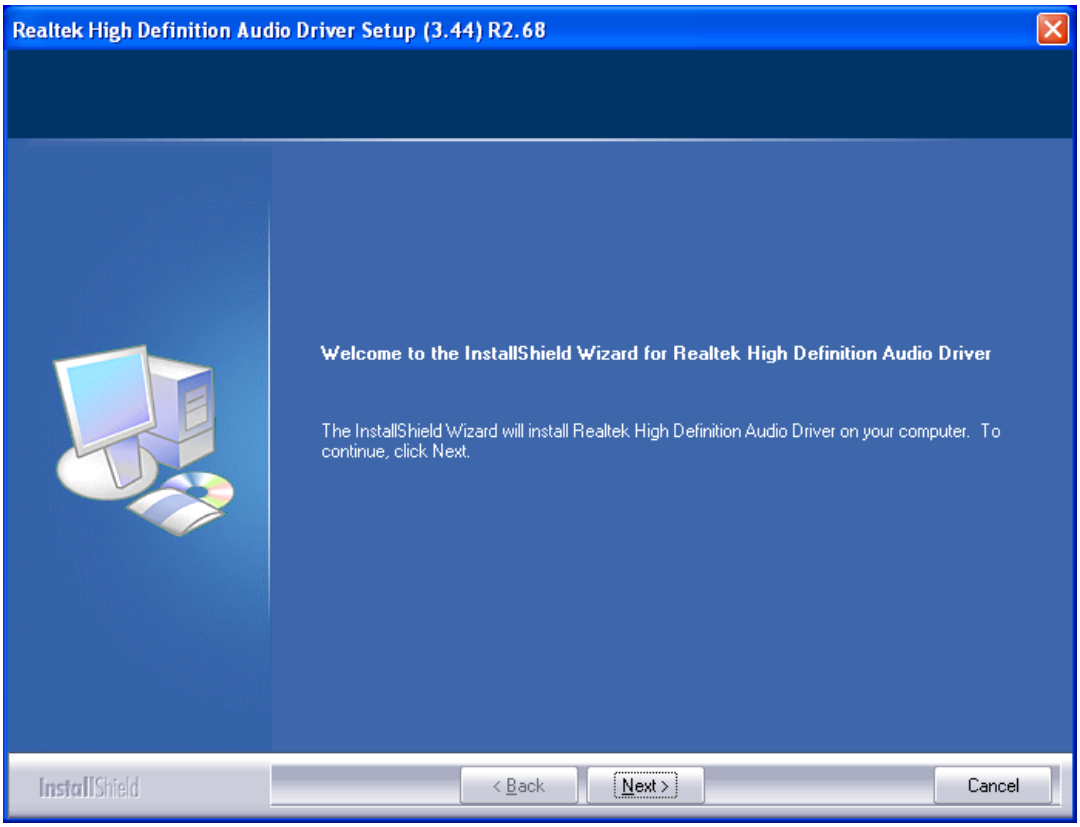


4.4 Realtek ALC662 HD Audio Codec Driver Installation

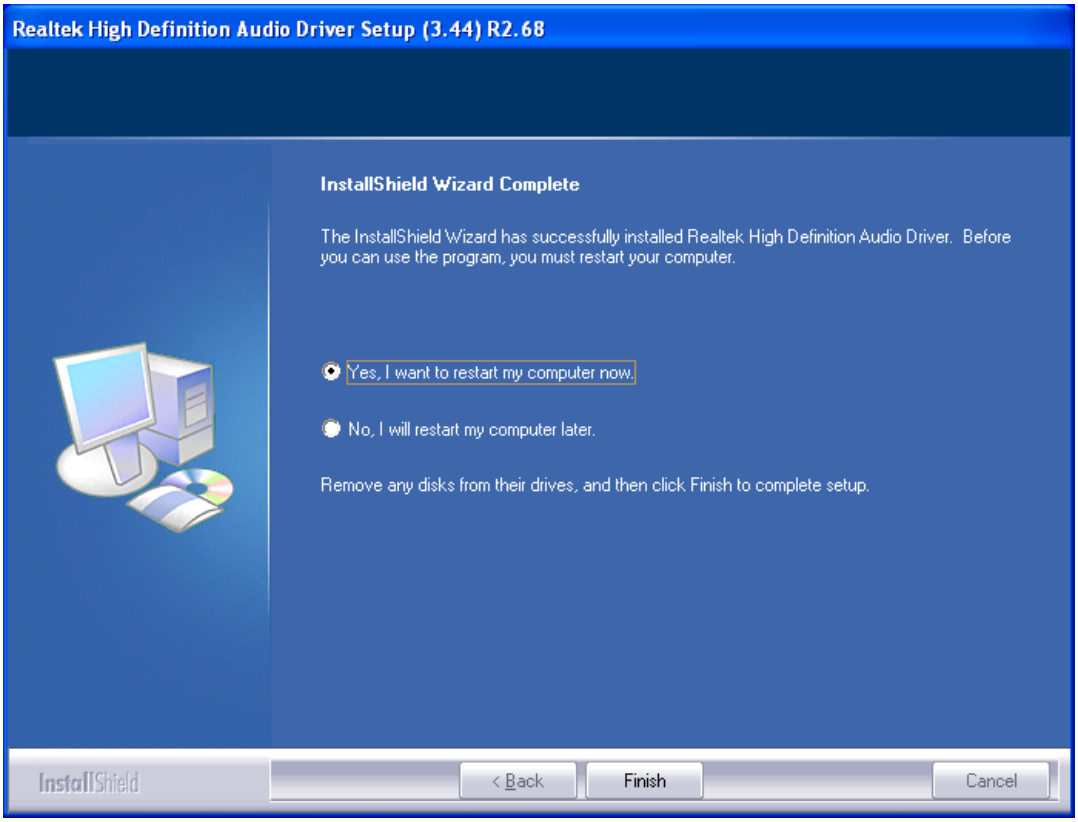
To install the Realtek ALC662 HD Audio Codec Driver, please follow the steps below.

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 work with different operating systems.

5.1 Windows 7 Universal Driver Installation for PenMount 6000 Series

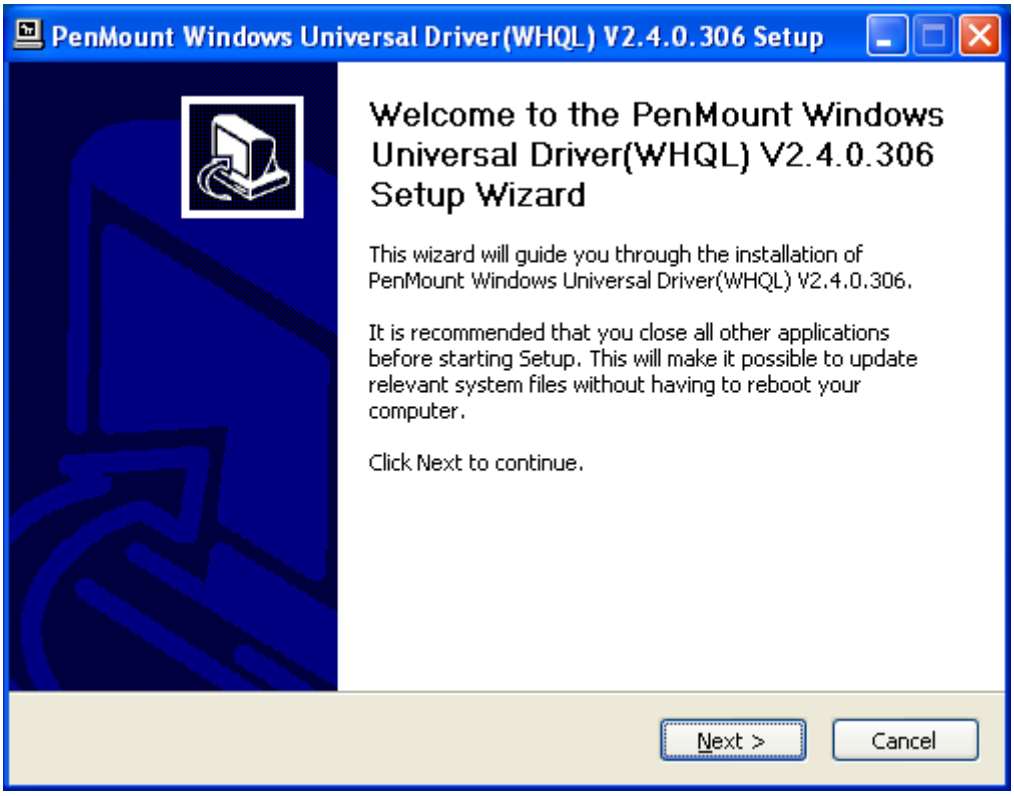
Before installing the Windows 7 driver software, you must have the Windows 7 system installed and running on your computer. You must also have one of the following PenMount 6000 series controller or control boards installed: PM6500, PM6300.

5.1.1 Installing Software

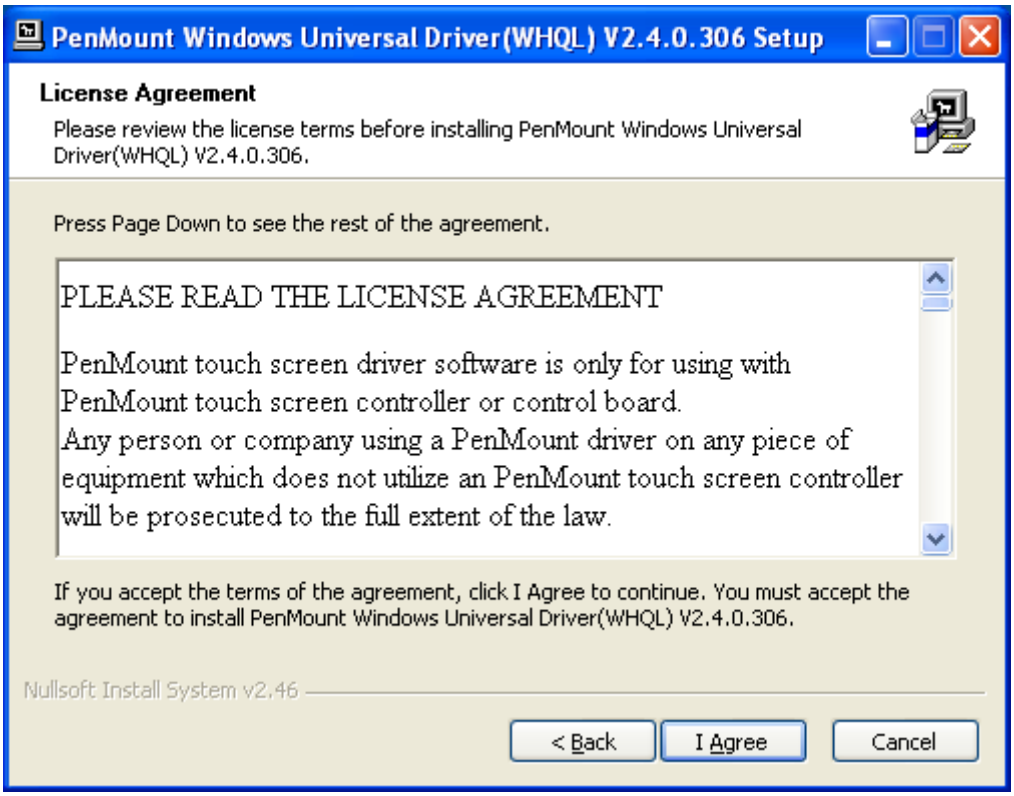
If you have an older version of the PenMount Windows 7 driver installed in your system, please remove it first. Follow the steps below to install the PenMount DMC6000 Windows 7 driver.

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

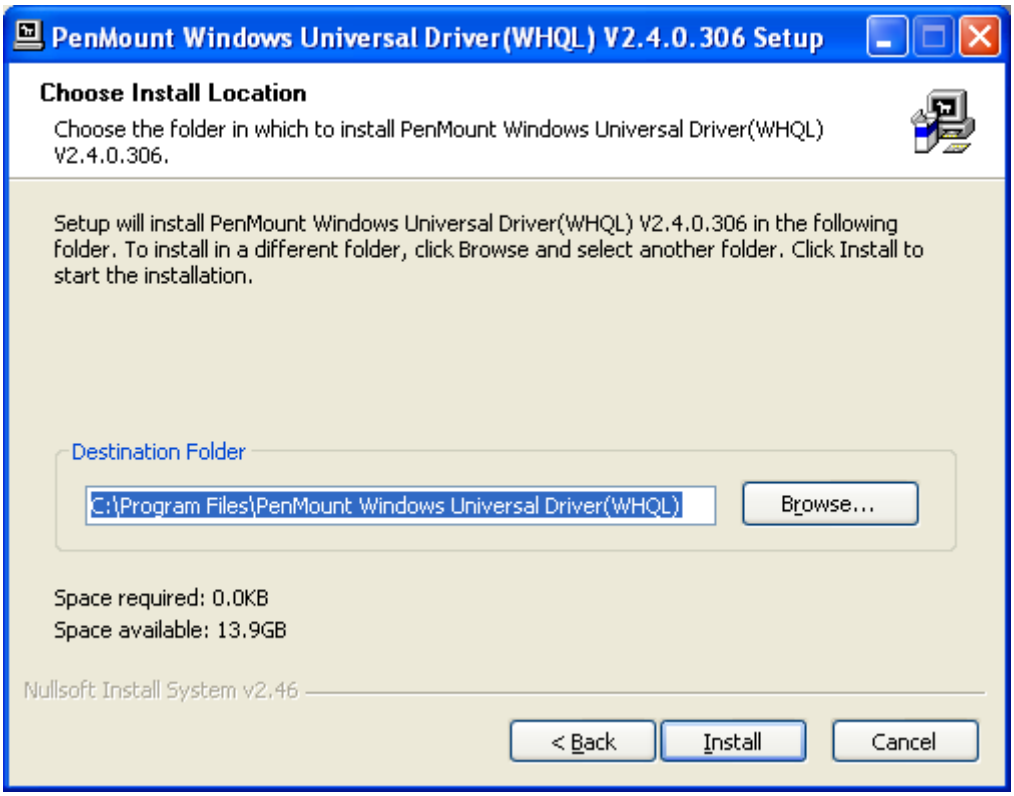
Step 2. Click **Next** to continue.



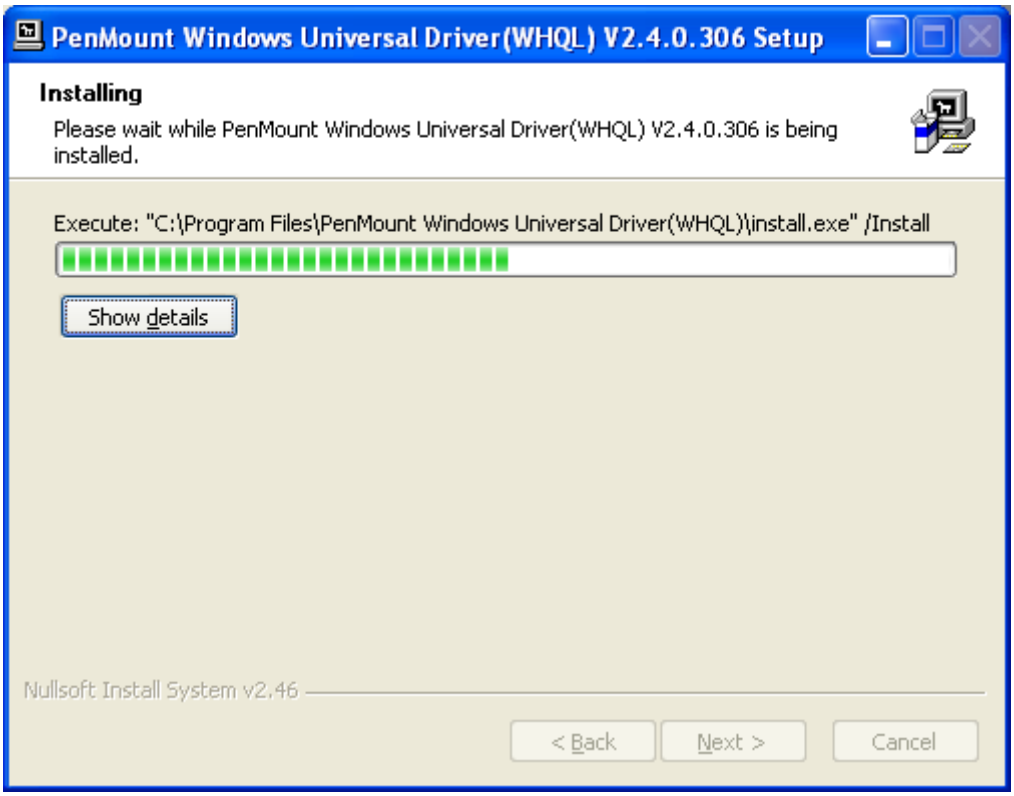
Step 3. Read the license agreement. Click **I Agree** to agree the license agreement.



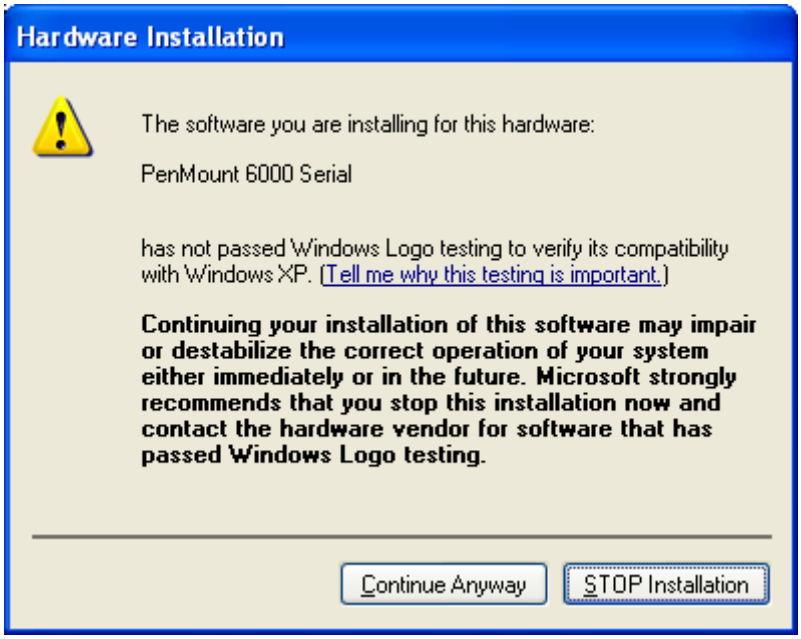
Step 4. Choose the folder in which to install PenMount Windows Universal Driver. Click **Install** to start the installation.



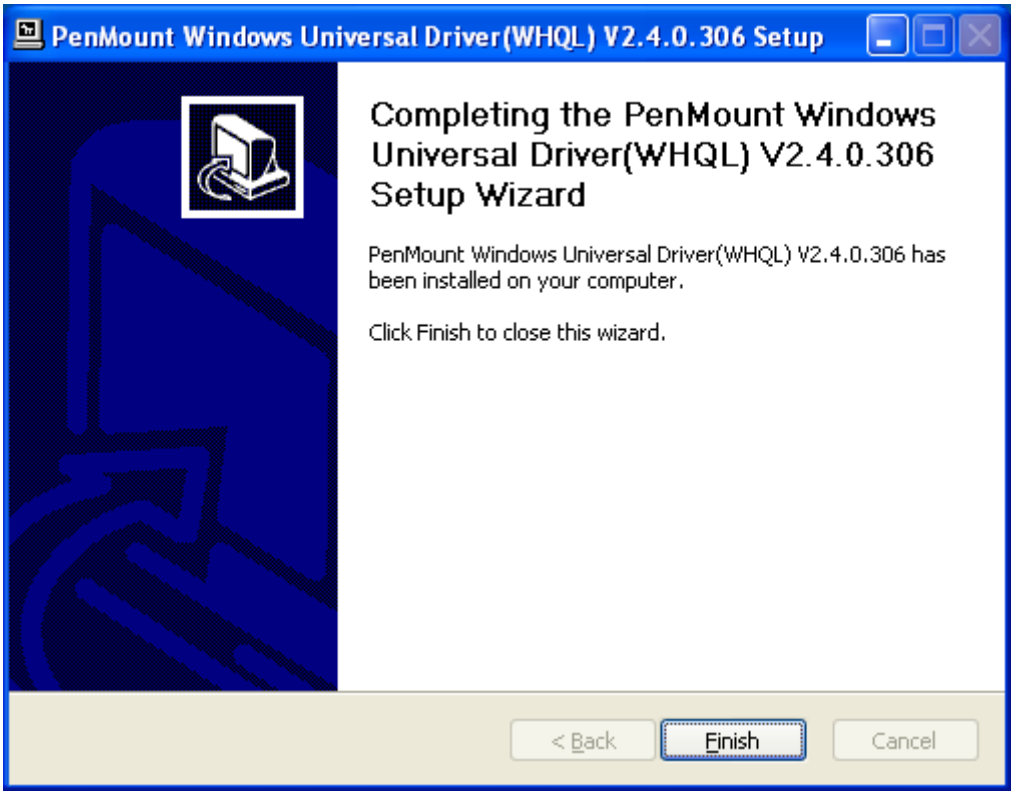
Step 5. Wait for installation. Then click **Next** to continue.



Step 6. Click **Continue Anyway**.



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



5.2 Software Functions

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

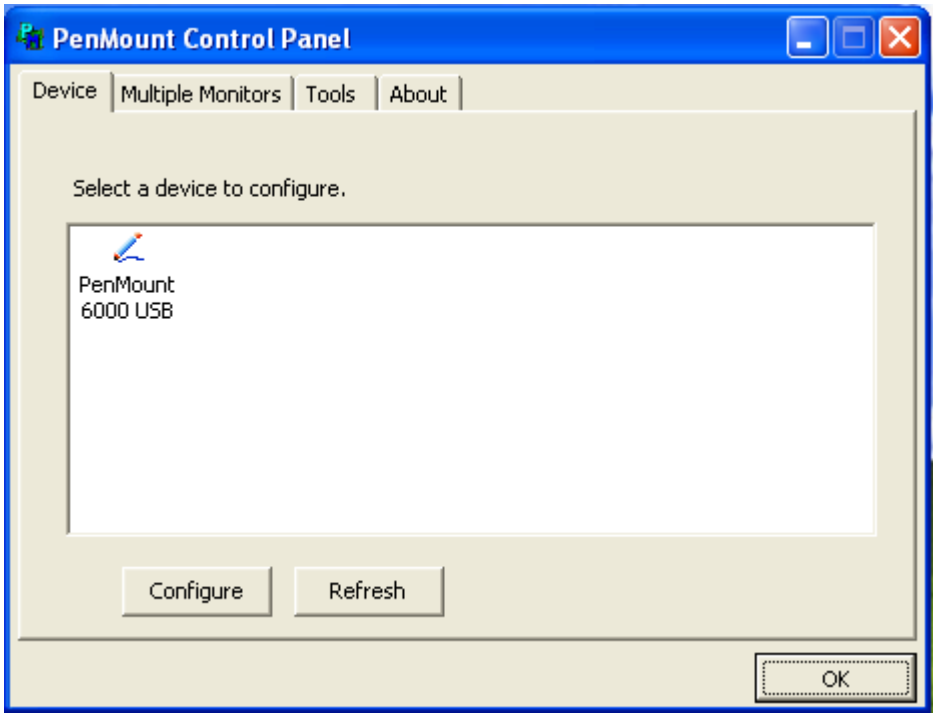
1. After installation, click the PenMount Monitor icon “PM” in the menu bar.
2. When the PenMount Control Panel appears, select a device to “Calibrate.”

PenMount Control Panel

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

Device

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



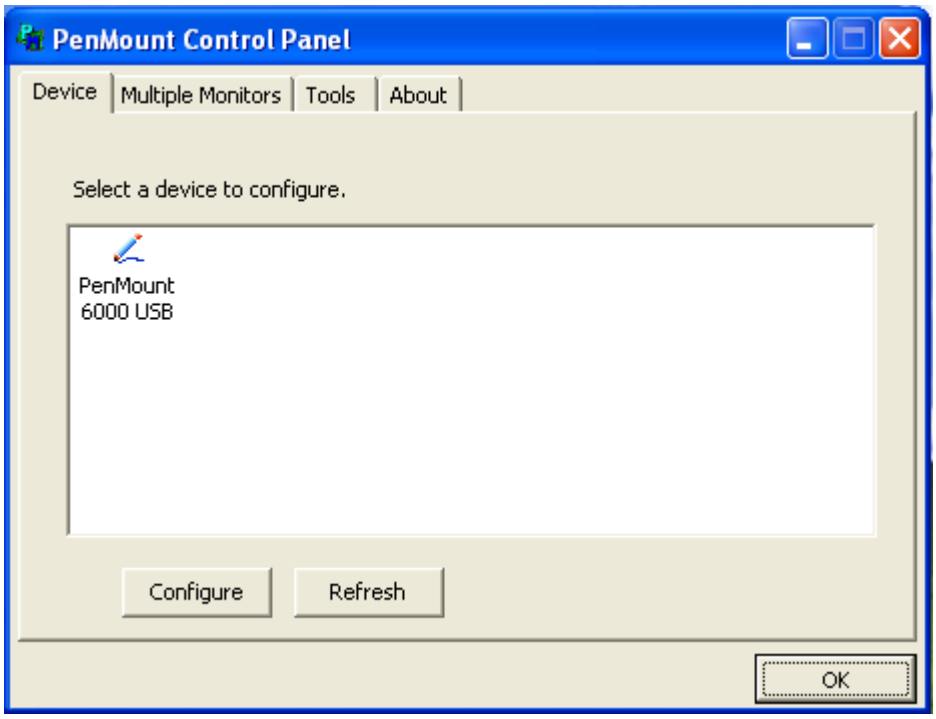
Calibrate

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

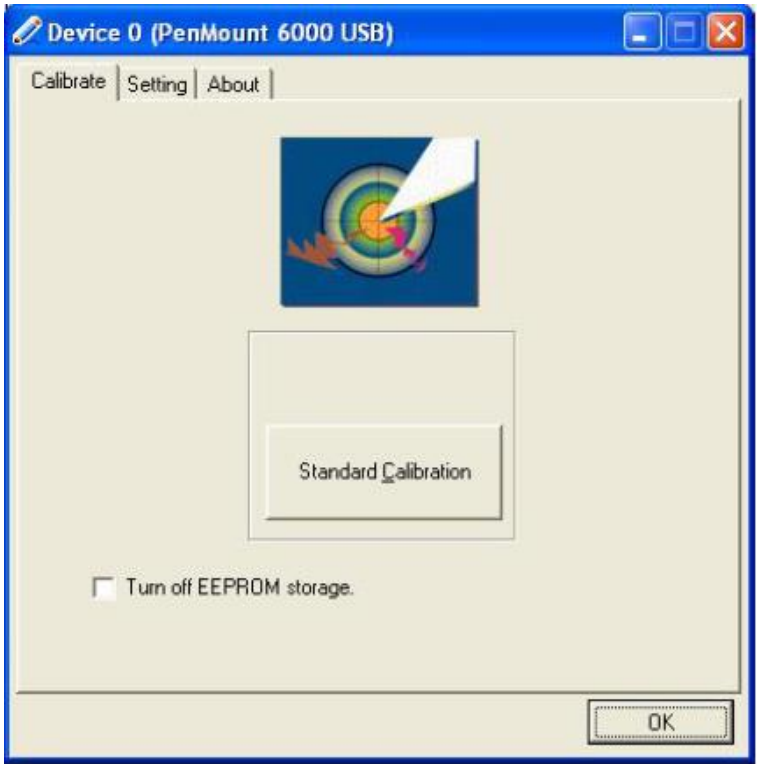
Standard Calibration	**Click this button and arrows appear pointing to red squares. Use your finger or stylus to touch the red squares in sequence. After the fifth red point calibration is complete. To skip, press ‘ESC’.**

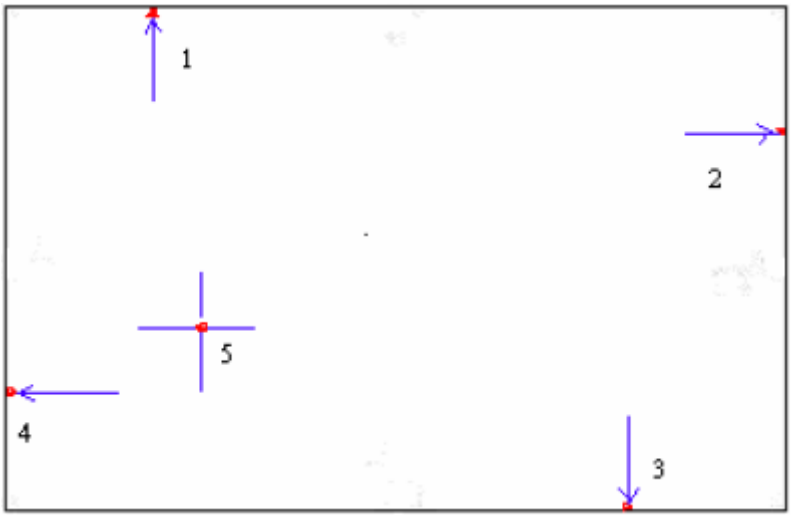
Advanced Calibration	**Advanced Calibration uses 4, 9, 16 or 25 points to effectively calibrate touch panel linearity of aged touch screens. Click this button and touch the red squares in sequence with a stylus. To skip, press ESC'.**
Command Calibration	**Command call calibration function. Use command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



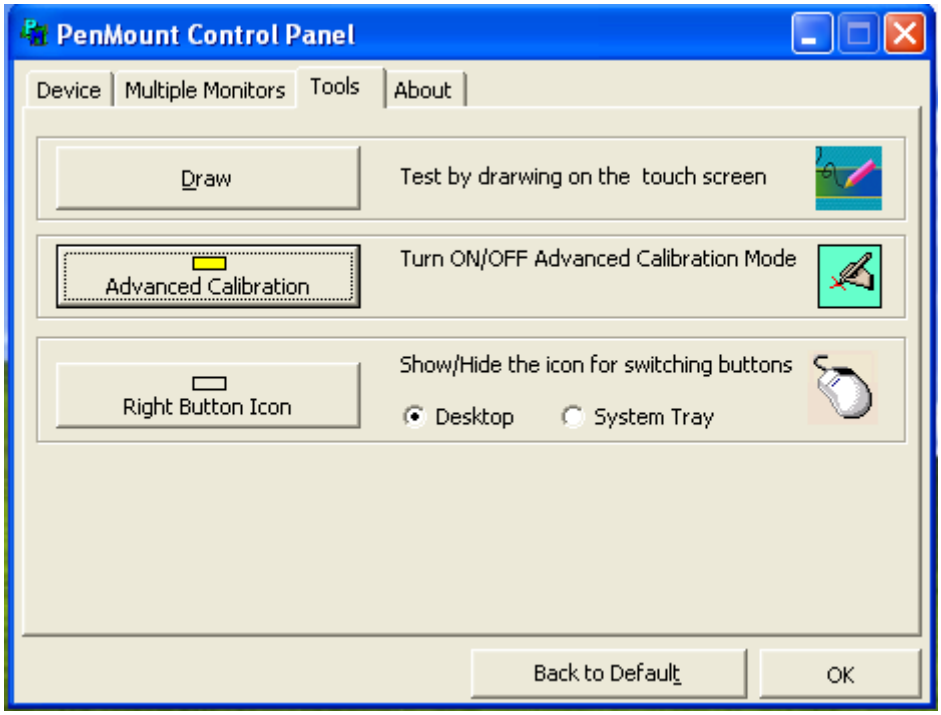
Step 2. Click “Standard Calibration” to start calibration procedure



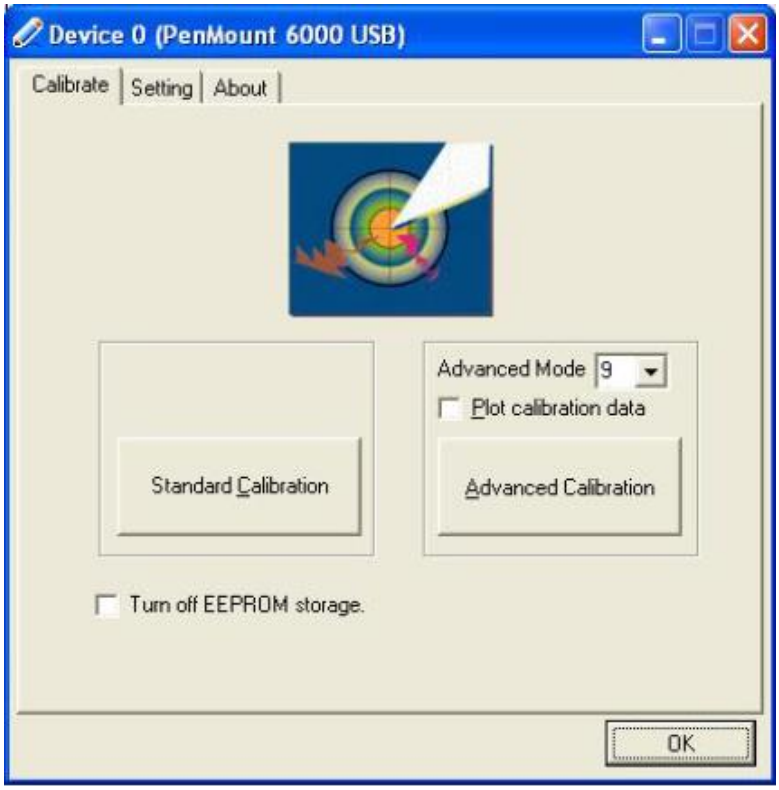


NOTE: The older the touch screen, the more Advanced Mode calibration points you need for an accurate calibration. Use a stylus during Advanced Calibration for greater accuracy. Please follow the step as below:

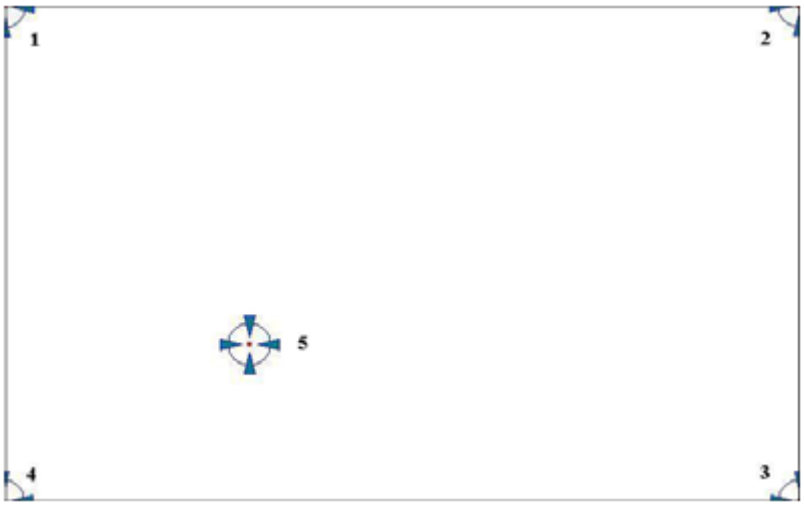
Step 3. Come back to “PenMount Control Panel” and select **Tools** then click **Advanced Calibration**.



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



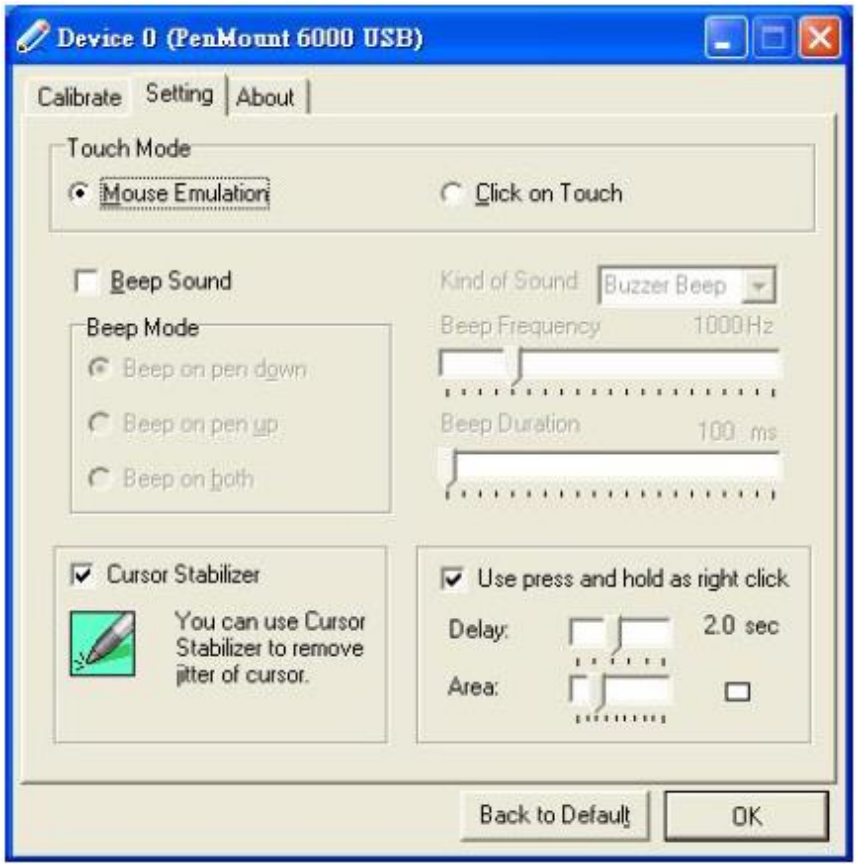
NOTE: Recommend to use a stylus during Advanced Calibration for greater accuracy.



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**

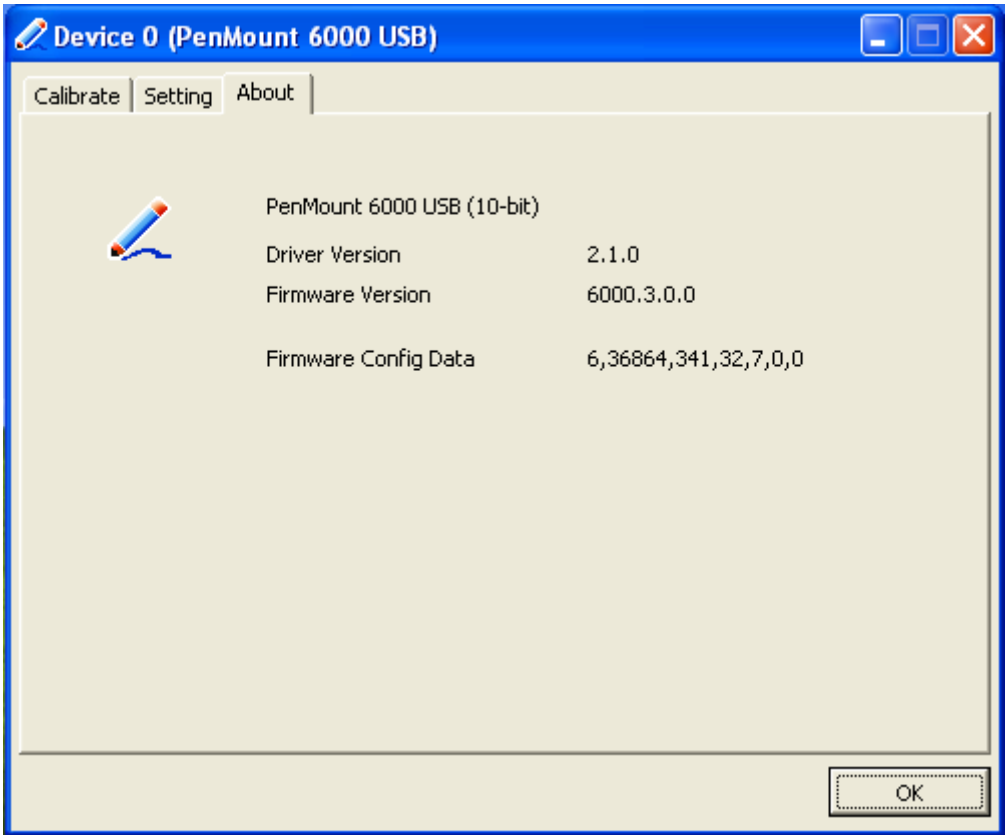
Setting

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 disbled**
Beep Sound	**Enabled 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

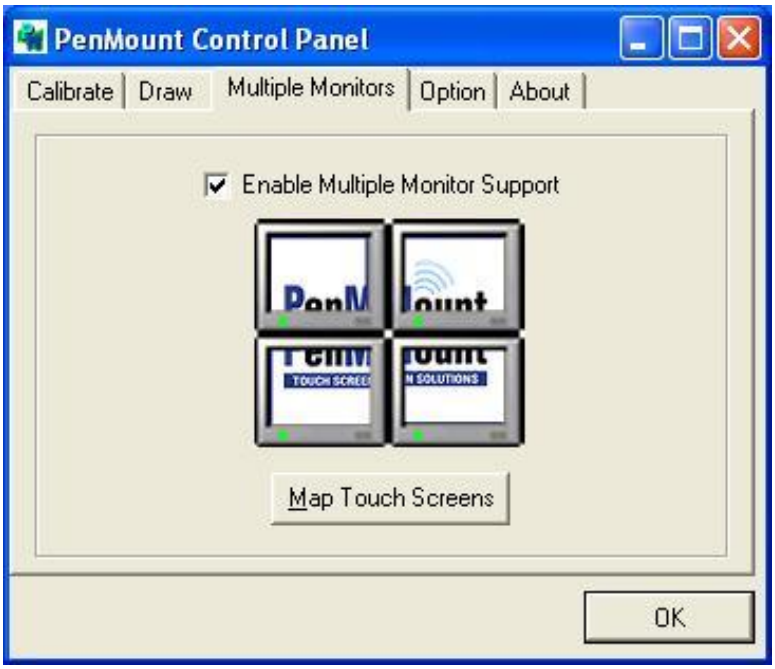
Multiple Monitors support from two to six touch screen displays for one system.
The PenMount drivers for Windows 2000/XP support Multiple Monitors. This function supports from two to six touch screen displays for one system. Each monitor requires its own PenMount touch screen control board, either installed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

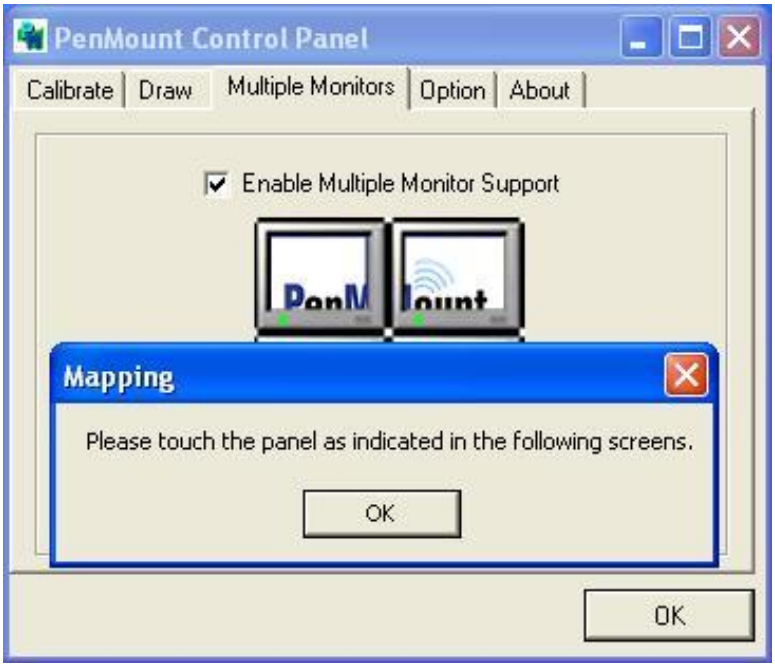
NOTE: The Multiple Monitor function is for use with multiple displays only. Do not use this function if you have only one touch screen display. Please note once you turn on this function the rotating function is disabled.

Enable the multiple display function as follows:

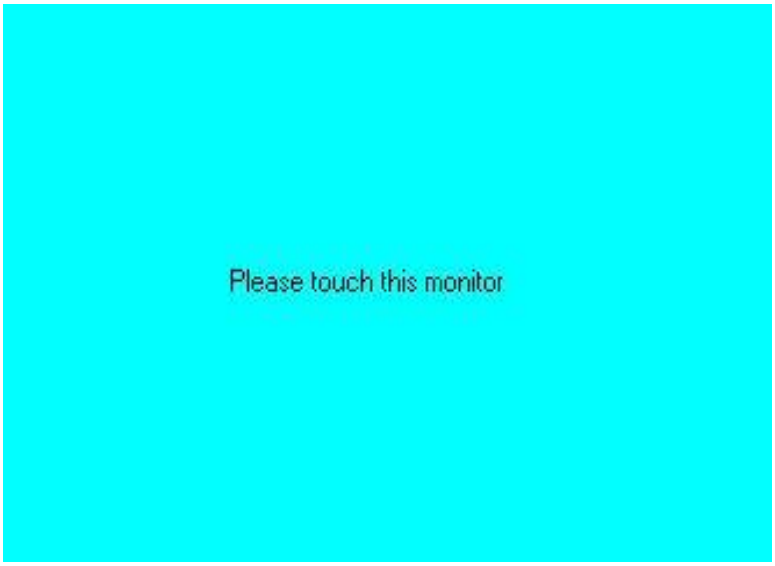
1. Check the **Enable Multiple Monitor Support** box; then click **Map Touch Screens** to assign touch controllers to displays.



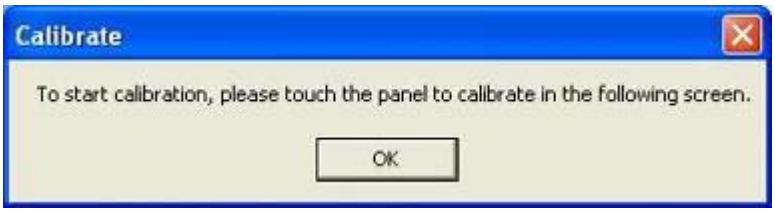
2. When the mapping screen message appears, click OK.



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.



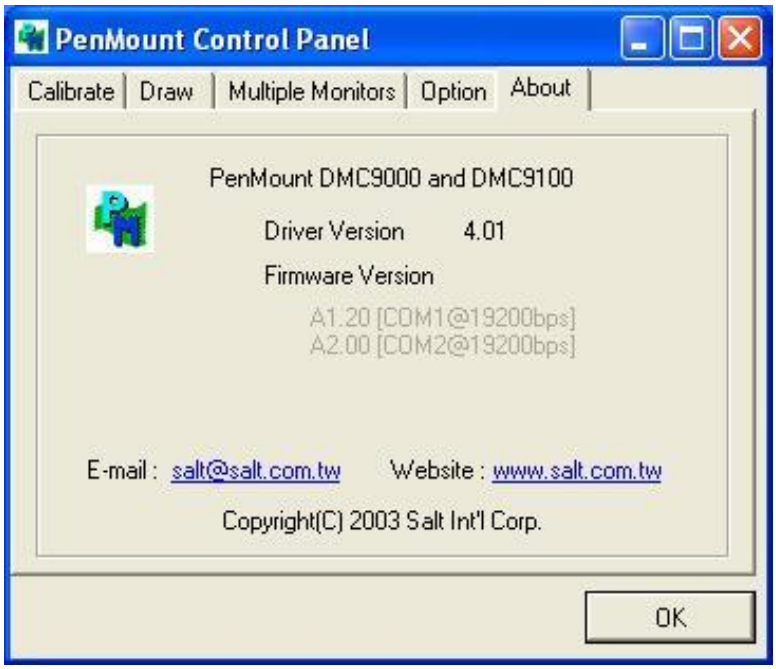
6. “Touch this screen to start its calibration” appears on one of the screens. Touch the screen.
7. “Touch the red square” messages appear. Touch the red squares in sequence.
8. Continue calibration for each monitor by clicking **Standard Calibration** and touching the red squares.

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

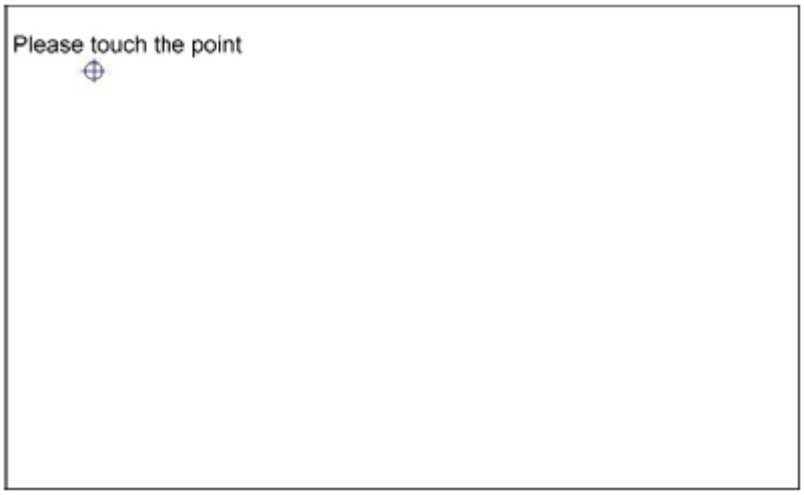
The PenMount monitor icon (PM) appears in the menu bar of Windows 2000/XP system when you turn on PenMount Monitor in PenMount Utilities.

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 or the screen. Click this icon to switch between Right and Left Button function.** 
Exit	**Exits the PenMount Monitor function.**

Configuring the Rotate Function

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



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