APC-3X91A
Panel PC User Manual

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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:
☐ AC power cable ☐ Driver & manual CD disc ☐ Other._____(please specify)

Safety Precautions

Follow the messages below to prevent your systems from damage:

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

Table of Contents

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Chapter 1 System

1.1 Specifications

Specs	APC-3591A	APC-3791A	APC-3991A
CPU	Intel Socket P processor support up to Intel P8400 2.26GHz without fan		
Chipset	Intel GM45 + ICH9M		
System Memory	1 x 204 Pin 800MHz DDR3 SODIMM slot, up to 4GB		
Display Size	15” 1024x768	17” 1280x1024	19” 1280x1024
Maximum Colors	262K	16.7M	16.2M
Viewing Angle (Degree)	H:160 / V:145	H:170 / V:160	H:170 / V:160
Luminance (cd/m²)	400	350	350
Backlight Lifetime	50,000 Hours		
Rating	IP65		
Touch Screen Type	Resistive Touch Screen (option)		
Outside I/O port	2 x USB2.0 connectors 1 x GbE RJ45 LAN connector 1 x DB-9 RS-232 (COM1) 1 x DB-9 RS-422/485 (COM3), default RS-485 1 x DC Power Input		
Extension	None		
Storage	1 x 2.5" SATA HDD 1 x Internal CF Slot		
OS Support	Windows XP Professional, XP Embedded, Windows 7 Pro for Embedded, Windows Embedded Standard 7		
Power Supply	11~32V DC		
Construction	Stainless steel		
Dimensions (WxHxD)	410 x 310 x 87.8 mm	439 x 348 x 93.3 mm	484 x 400 x 94.3 mm
Mounting	VESA 100x100/200x100 Mount	VESA 75x75 Mount	VESA 100x100 Mount
Operating Temperature	-10~50℃		
Storage Temperature	-20~60℃		
Relative Humidity	10%~90%@ 40℃, non-condensing		
Certificate	CE / FCC Class A		

1.2 Dimensions

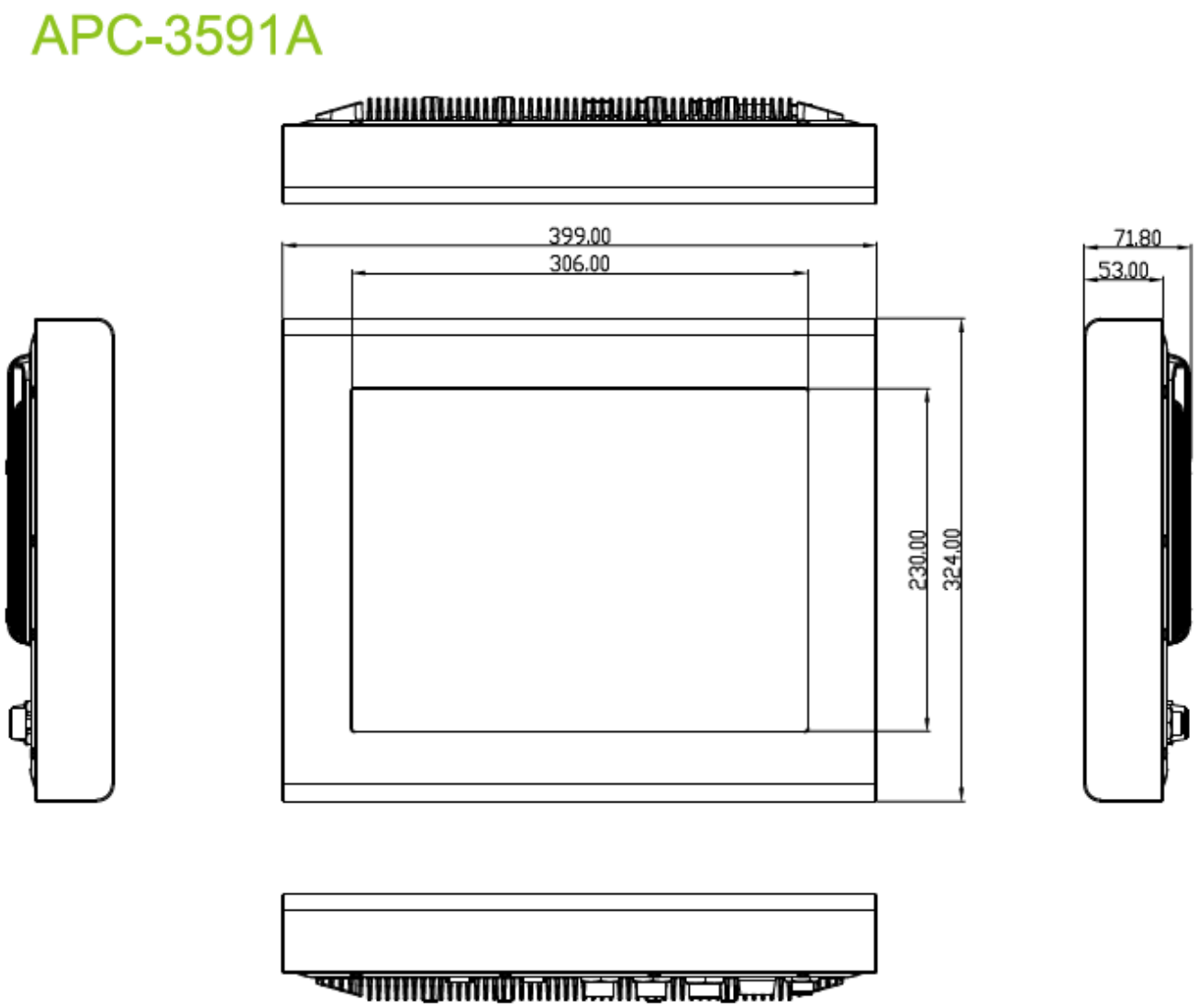


Figure 1.1: Dimensions of APC-3591A

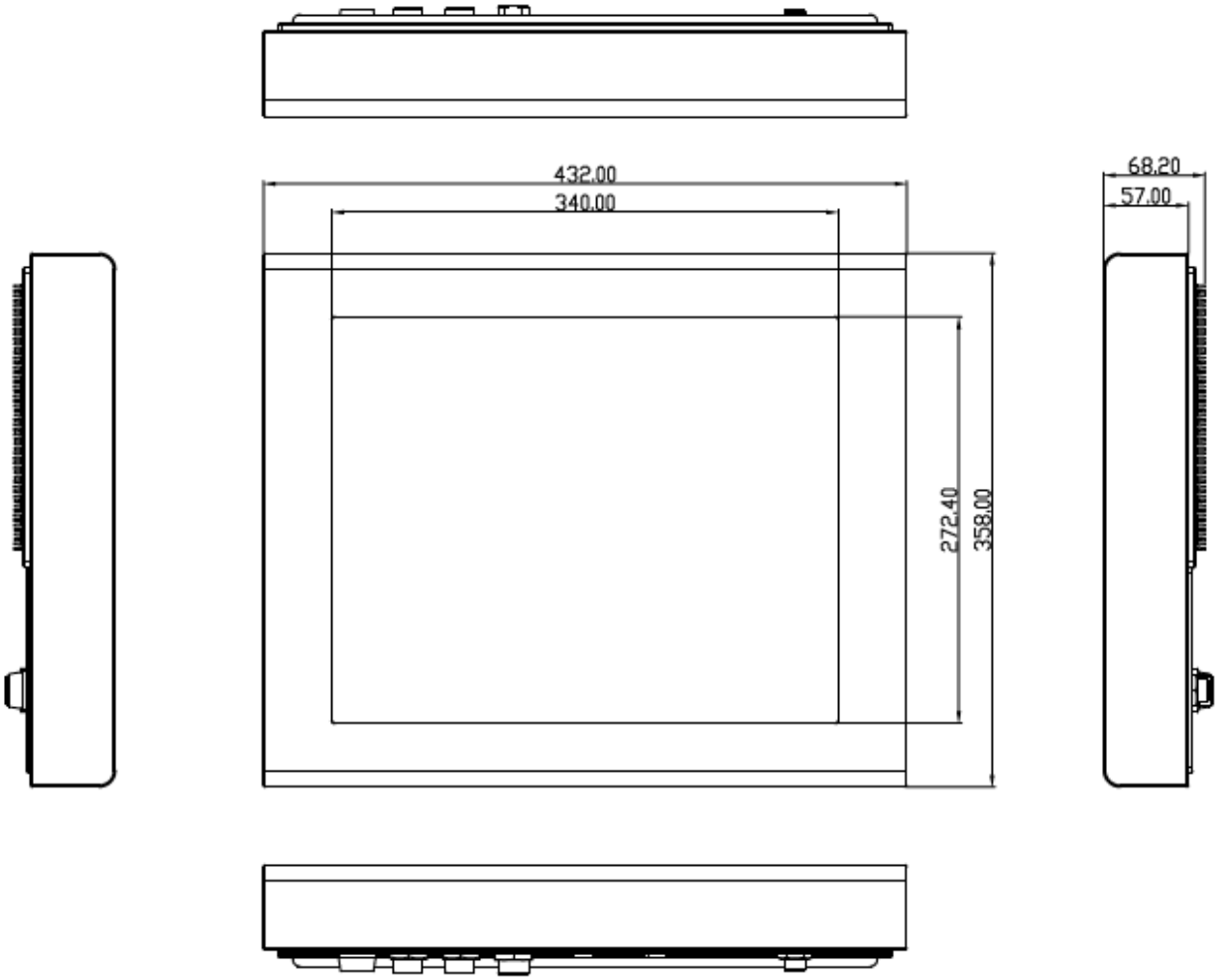


Figure 1.2: Dimensions of APC-3791A

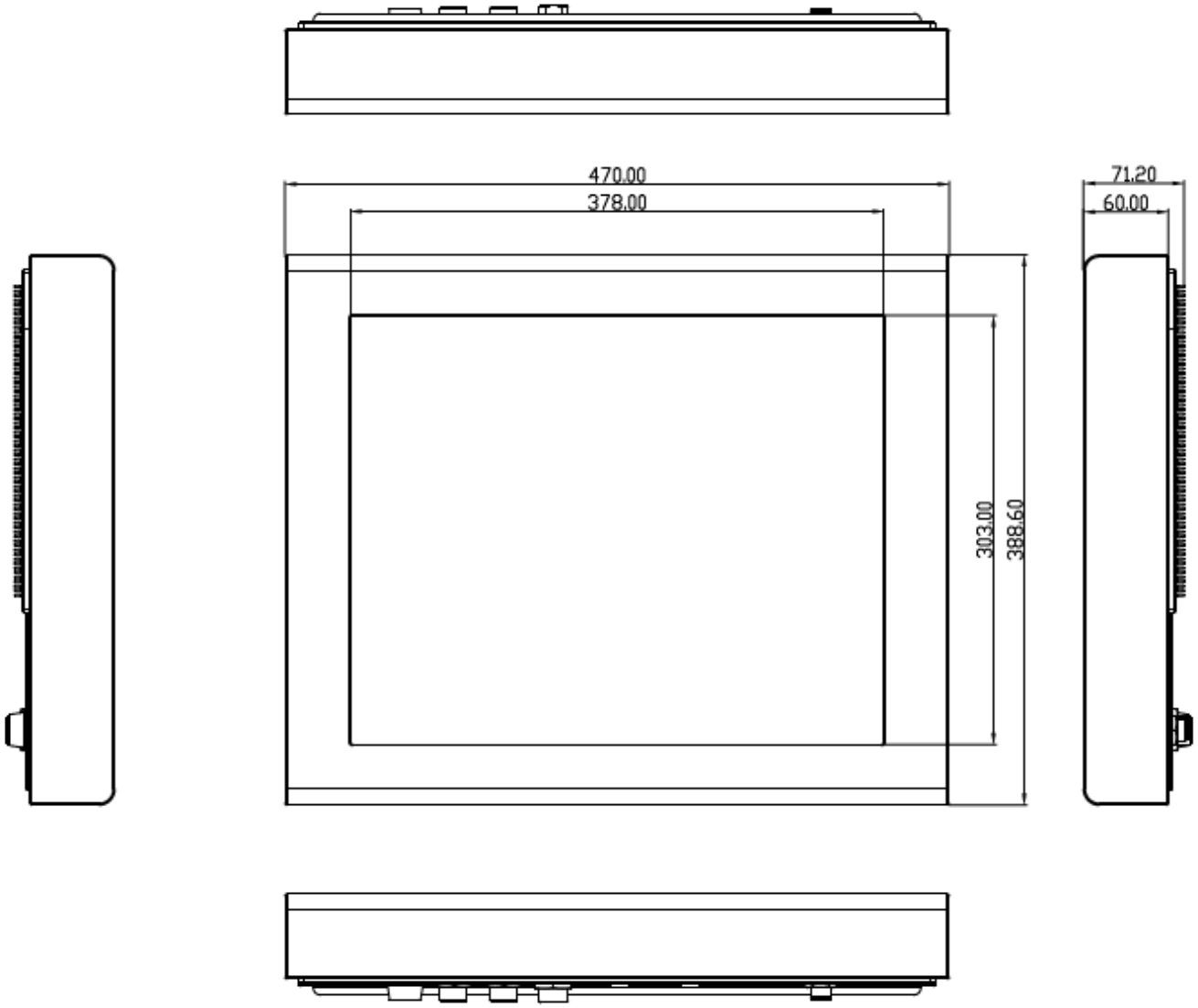


Figure 1.3: Dimensions of APC-3991A

1.3 Brief Description of the APC-3X91A

The APC-3591A/3791A/3991A is a stainless steel and VESA-mount industrial Panel PC, which comes with a 15-inch (luminance of 400 cd/m²)/17-inch (luminance of 350 cd/m²)/19-inch (luminance of 350 cd/m²) TFT LCD. It is powered by an Intel Socket P Core 2 Duo Processor, up to Intel P8400 2.26GHz processor. The industrial panel PC also features two COM ports, two USB 2.0 ports, one 2.5" HDD, one internal CF slot, and 11~32V DC, etc. It is ideal for use as a PC-based controller for Industrial Automation & Factory Automation

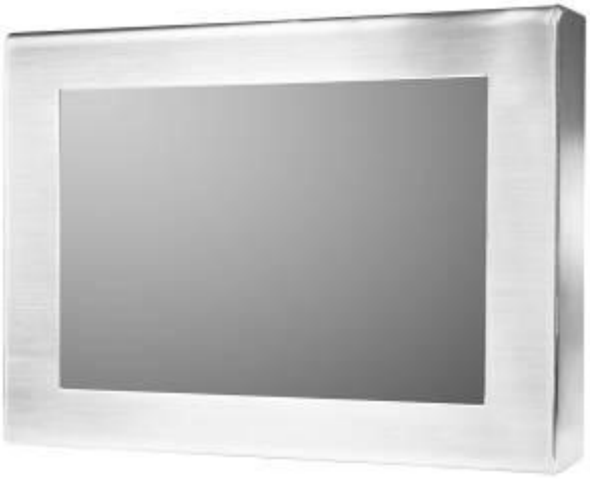


Figure 1.4: Front View of APC-3X91A

APC-3591A **APC-3791A/3991A**

Figure 1.5: Rear View of APC-3X91A

Chapter 2 Hardware

2.1 Mainboard

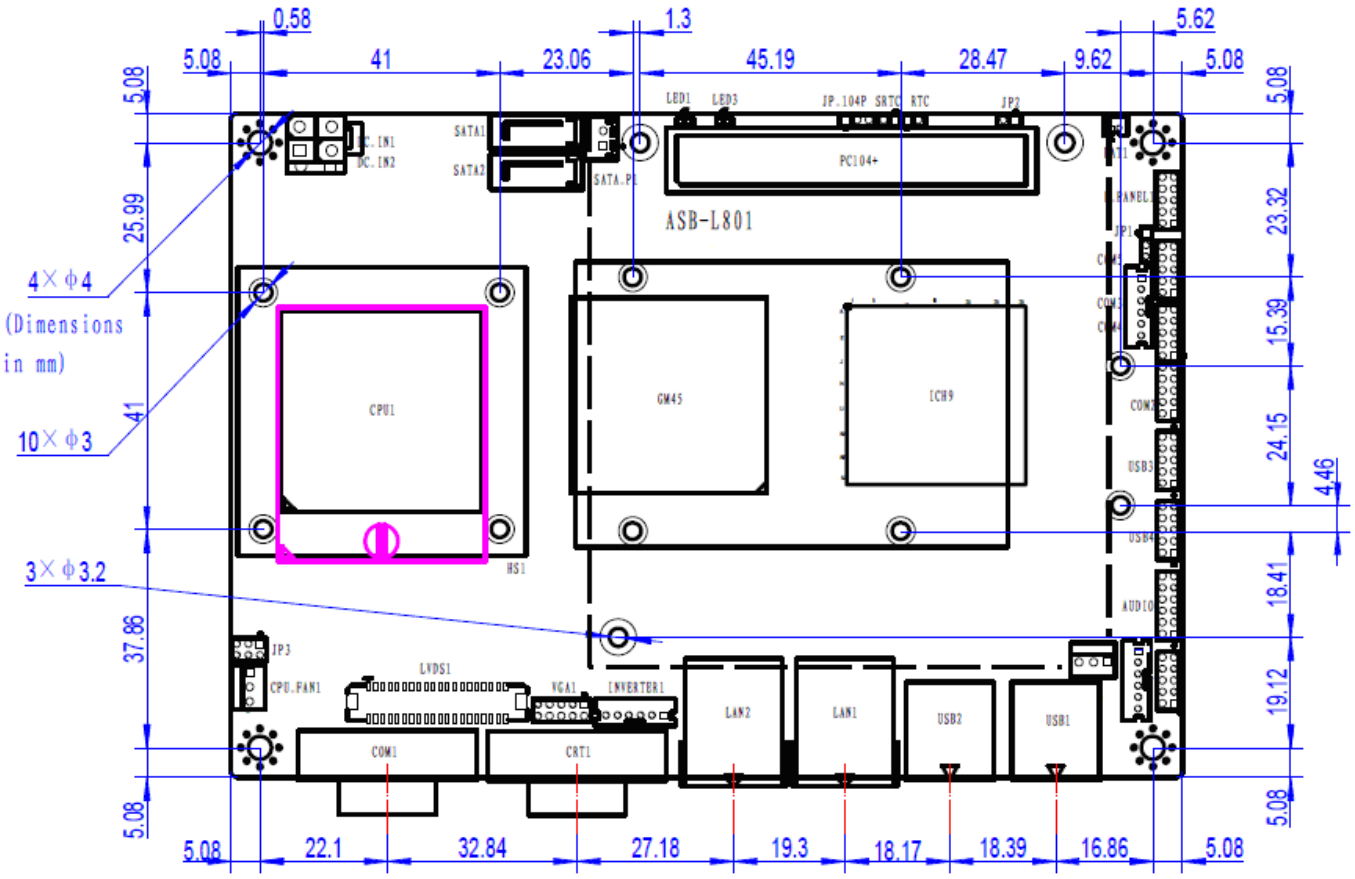


Figure 2.1: Mainboard Dimensions

2.2 Installations

ASB-L801 is a 4" industrial Embedded motherboard developed on the basis of Intel GM45+ ICH9M, which provides abundant peripheral interfaces to meet the needs of different customers. Also, it features dual 1000M LAN port, 5-COM port and dual Mini PCIE configuration. To satisfy the special needs of high-end customers, PC104+ port (capable of adjusting IO voltage) richer extension functions. Due to its compact size, the product is widely used in various sectors of industrial control..

2.2.1 Jumpers Setting and Connectors

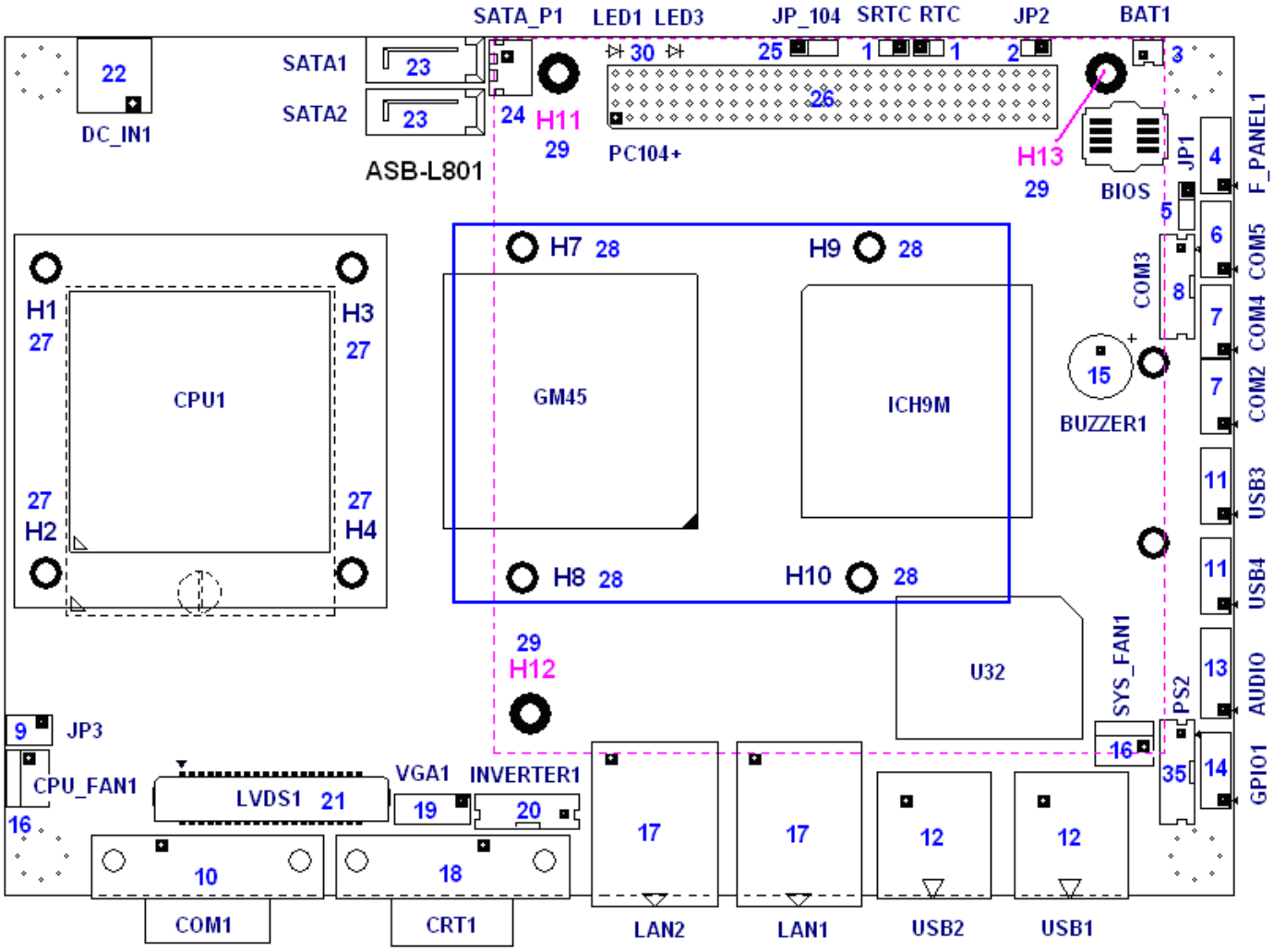


Figure 2.2: Jumpers and Connectors Location_ Board Top

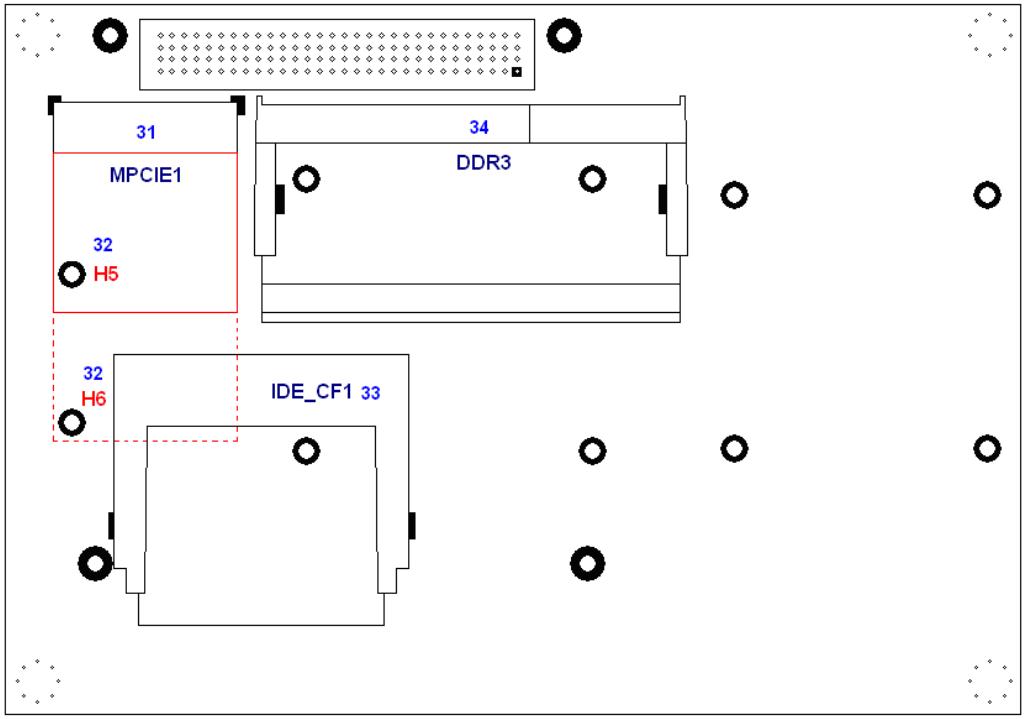


Figure 2.3: Jumpers and Connectors Location_ Board Bottom

2.3 Jumpers Setting and Connectors

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

RTC/SRTC	CMOS
OPEN	NORMAL (default)
CLOSE 1-2	Clear CMOS

Procedures of CMOS clear:

5.4.1.1 Turn off the system and unplug the power cord from the power outlet.

5.4.1.2 To clear the CMOS settings, use the jumper cap to close pins1 and 2 for about 3 seconds then reinstall the jumper clip back to pins open.

5.4.1.3 Power on the system again.

5.4.1.4 When entering the POST screen, press the <F1> or <DEL> key to enter CMOS Setup Utility to load optimal defaults.

5.4.1.5 After the above operations, save changes and exit BIOS Setup.

2. JP2: (2.0mm Pitch 1X2 Pin Header), ATX Power and AT Power setting jumper.

JP2	Mode
Open	ATX Power Mode
Close	**Auto Power on**

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. F_PANEL: (2.0mm Pitch 2X5 Pin Header), Front panel connector.

Signal Name	Pin#	Pin#	Signal Name
HD LED+	1	2	POWER LED+
Ground	3	4	Ground
Ground	5	6	SW+
RESET+	7	8	Ground
SPK+	9	10	SPK-

Pin1-3: **HDD LED**, They are used to connect hard disk activity LED. The LED blinks when the hard disk is reading or writing data.

Pin2-4: **POWER LED**, They are used to connect power LED. When the system is powered on or under S0/S1 state, the LED is normally on; when the system is under S4/S5 state, the LED is off.

Pin5-6: **POWER on/off Button**, They are used to connect power switch button. The two pins are disconnected under normal condition. You may short them temporarily to realize system startup & shutdown or awaken the system from sleep state.

Pin7-8: **RESET Button**, They are used to connect reset button. The two pins are dis-
connected under normal condition. You may short them temporarily to realize
system reset.

Pin9-10: **BUZZER**, They are used to connect an external buzzer.

Note:

When connecting LEDs and buzzer, pay special attention to the signal pola-
rity. Make sure that the connector pins have a one-to-one correspondence with chassis wiring, or it may cause boot up failure.

5. JP1: (2.0mm Pitch 1x3 Pin Header) COM5 setting jumper, pin 1~3 are used to select signal out of pin 10 of COM5 port.

JP1 Pin#	Function
Close 1-2	**COM5 Pin10=+5V (default)**
Close 2-3	COM5 Pin10=+12V (option)

6. COM5: (2.0mm Pitch 2X5 Pin Header), COM5 Port, standard RS232 ports are provided. They can be used directly via COM cable connection.

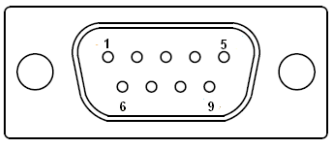
Signal Name	Pin#	Pin#	Signal Name
DCD	1	2	RXD
TXD	3	4	DTR
Ground	5	6	DSR
RTS	7	8	CTS
RI	9	**10**	Jp1 Setting: **Pin1-2 : 5V (default)** Pin2-3:12V (option)

7. COM2/COM4: (2.0mm Pitch 2X5 Pin Header),COM2 COM4 Port, up to 2 standard RS232 ports are provided. They can be used directly via COM cable connection.

Signal Name	Pin#	Pin#	Signal Name
DCD	1	2	RXD
TXD	3	4	DTR

Ground	5	6	DSR
RTS	7	8	CTS
RI	9	10	NC

8. COM3: (2.0mm Pitch 1x6 box Pin Header),it provides selectable RS422/RS485 serial signal output from BIOS configuration.

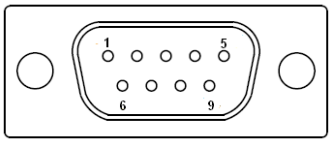


RS422 Type (option)		RS485 Type **(default)**	
Signal Name	Pin#	Pin#	Signal Name
422RX-	1	1	NC
422RX+	2	2	NC
422TX-	3	3	485-
422TX+	4	4	485+
Ground	5	5	Ground
+5V	6	6	+5V
NC	7	7	NC
NC	8	8	NC
NC	9	9	NC

9. JP3: (2.0mm Pitch 2x3 Pin Header),COM1 setting jumper, pin 1~6 are used to select signal out of pin 9 of COM1 port.

JP3 Pin#	Function
Close 1-2	**RI (Ring Indicator) (default)**
Close 3-4	COM1 Pin9=+5V (option)
Close 5-6	COM1 Pin9=+12V (option)

10. COM1: (Type DB9), Rear serial port, standard DB9 serial port is provided to make a direct connection to serial devices. COM1 port is controlled by pins No.1~6 of **JP3**,select output Signal RI or 5V or 12v, For details, please refer to description of JP3.



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 Setting: **Pin1-2 : RI (**Ring Indicator**)** **(default)** Pin3-4 : 5V Standby power **(**option**)** Pin5-6:12V Standby power (option)

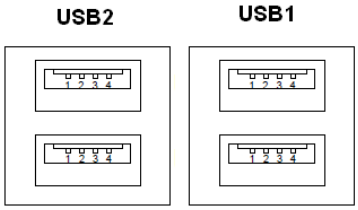
11. USB3/USB4: (2.0mm Pitch 2X5 Pin Header) ,Front USB connector, it provides 4 USB ports via a dedicated USB cable, speed up to 480Mb/s.

Signal Name	Pin#	Pin#	Signal Name
VCC(+5V)	1	2	VCC(+5V)
USB_DB-	3	4	USB_DA-
USB_DB+	5	6	USB_DA+
Ground	7	8	Ground
NC	9	10	Ground

Note:

Before connection, make sure that pinout of the USB Cable is in accordance with that of the said tables. Any inconformity may cause system down and even hardware damages.

12. USB1/2: (Double stack USB type A), Rear USB connector, it provides up to 4 USB2.0 ports, speed up to 480Mb/s.



13. 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
VCC(+5V)	1	2	Ground
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
Ground	11	12	MIC1_JD

14. GPIO1: (2.0mm Pitch 2x5 Pin Header),General-purpose input/output port, it provides a group of self-programming interfaces to customers for flexible use.

Signal Name	Pin#	Pin#	Signal Name
Ground	1	2	GPIO18_OUT1
GPIO20_OUT2	3	4	GPIO33_OUT3
GPIO34_OUT4	5	6	GPIO18_IN1
GPIO20_IN2	7	8	GPIO33_IN3
GPIO34_IN4	9	10	+5V

15. BZ: onboard buzzer.

16. CPU_FAN/SYS_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.

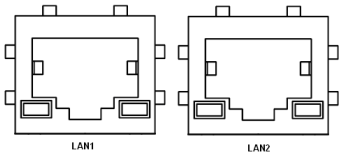
Pin#	Signal Name
1	Ground
2	VCC
3	Rotation detection

Note:

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

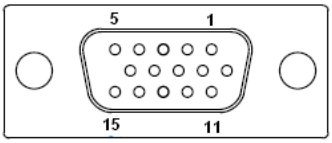
17. LAN1/2: (RJ45 Connector), Rear LAN port,2 standard 10/100/1000M RJ-45

Ethernet ports are provided. Used Intel 82574L 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.



18. CRT1: (CRT Connector DB15),Video Graphic Array Port, provide high-quality

video output. **They cannot work at the same time for CRT and VGA1**.



19. VGA1: (CRT 2.0mm Pitch 2X5 Pin Header), Video Graphic Array Port, Provide

2x5Pin cable to VGA Port, **they cannot work at the same time for CRT and VGA1**.

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

20. INVERTER1: (2.0mm Pitch 1x6 box Pin Header), Backlight control connector for LVDS1.

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

Note:

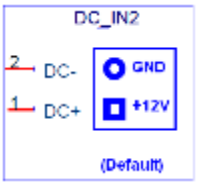
Pin6 is backlight control signal, support DC or PWM mode, mode select at BIOS CMOS menu.

21. LVDS1: For 18/24 bit LVDS output connector, Fully supported by Intel GM45 chipset, the interface features dual channel 18/24-bit output. Model name of the interface connector is Hirose DF13-40DP-1.25V.

Signal Name	Pin#	Pin#	Signal Name
VDD5	2	1	VDD5
Ground	4	3	Ground
VDD33	6	5	VDD33
LB_D0_N	8	7	LA_D0_N
LB_D0_P	10	9	LA_D0_P
Ground	12	11	Ground
LB_D1_N	14	13	LA_D1_N
LA_D1_P	16	15	LA_D1_P
Ground	18	17	Ground

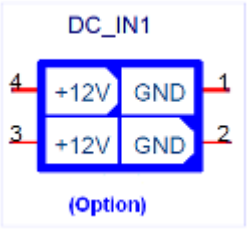
LB_D2_N	20	19	LA_D2_N
LB_D2_P	22	21	LA_D2_P
Ground	24	23	Ground
LB_CLK_N	26	25	LA_CLK_N
LB_CLK_P	28	27	LA_CLK_P
Ground	30	29	Ground
DS_DDC_DATA	32	31	LVDS_DOC_CLK
Ground	34	33	Ground
LB_D3_N	36	35	LA_D3_N
LB_D3_P	38	37	LA_D3_P
NC	40	39	NC

22. DC_IN2: (5.0mm 1x2 Pin Connector),DC12V System power input connector。



Pin#	Signal Name
1	+12V
2	Ground

DC_IN1: (2x2 box Pin Connector),DC12V System power input connector。



Pin#	Signal Name
1	Ground
2	Ground
3	+12V
4	+12V

Note:

Make sure that the voltage of power supply is DC(12±5%)V before power on, or it may cause boot up failure and even system damage.

23. SATA1/2: (SATA 7P),SATA1,SATA2 SATA Connectors, Two SATA connectors are provided, with transfer speed up to 3.0Gb/s.

24. SATA_P1: (2.5mm Pitch 1x2 box Pin Header),an onboard 5V output connector is reserved to provide power for IDE/SATA devices.

Pin#	Signal Name
1	+DC5V
2	Ground

Note:

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

25. JP_104P: (2.0mm Pitch 1X3 Pin Header) PC104+ port voltage selection jumper, select voltage for PCI-104 Plus device. **The default for this jumper is "all open", meaning the user must select the voltage to be used.**

JVCCIO	PC104+ VCCIO Voltage
all Open	**Default**
CLOSE 1-2	+3.3V PCI Card
CLOSE 2-3	+5V PCI Card

26. PC104+: (4x30 Pin), PC104 plus connector, it conforms to standard PC104+ specification. Can expand support four PCI devices.

27. H1/H2/H3/H4: CPU FAN SCREW HOLES, Four screw holes for fixed CPU Cooler assemble.

28. H7/H8/H9/H10: GM45+ICH9M Heat Sink SCREW HOLES, Four screw holes for intel GM45 and ICH9M Heat Sink assemble.

29. H11/H12/H13: PC104+ CARD SCREW HOLES, Three screw holes for PC104+ card assemble.

30. LED1/LED3: LED STATUS. LED1:Motherboard Standby Power Good status。LED3: Motherboard CPU Power Good status.

31. MPCIE1: (30mmx30mm Socket 52Pin),mini PCIE socket, it is located at the bottom, it supports mini PCI-E devices with USB2.0, SMBUS and PCI-E signal.

32. H5/H6: MPCIE1 SCREW HOLES, H5 for mini PCIE card (30mmx30mm Socket 52 Pin)
assemble. H6 Reserve.

33. IDE_CF1: (CF Card socket), it is located at the bottom of the board and serves as an insert interface for Type I and Type II Compact Flash card. The operating voltage of CF card can be set as 3.3V or 5V. **The default setting of the product is 3.3V.**

34. DDR3: (SO-DIMM 204Pin socket), DDRIII memory socket, the socket is located at the bottom of the board and supports 204Pin 1.5V DDRIII 800/1066MHz FSB SO-DIMM memory module up to 4GB.

35. PS2: (2.0mm Pitch 1X6 box Pin Header), PS/2 keyboard and mouse port, the port can be connected to PS/2 keyboard or mouse via a dedicated cable for direct used.

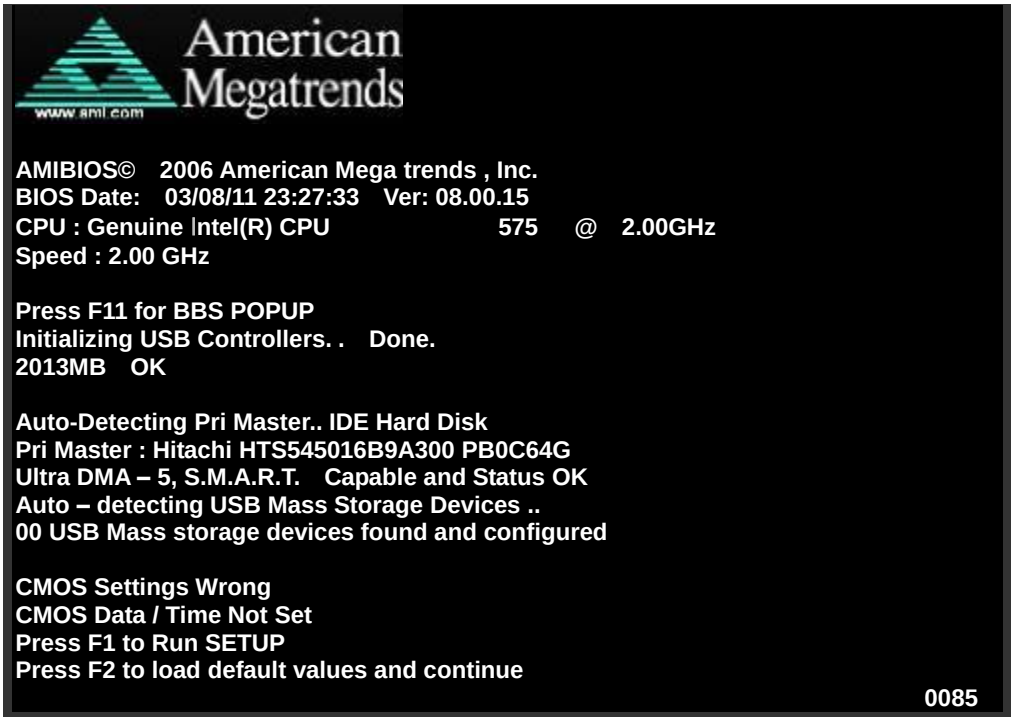
Pin#	Signal Name
1	KBDATA

2	MSDATA
3	Ground
4	+5V
5	KBCLK
6	MSCLK

3 BIOS Setup Description

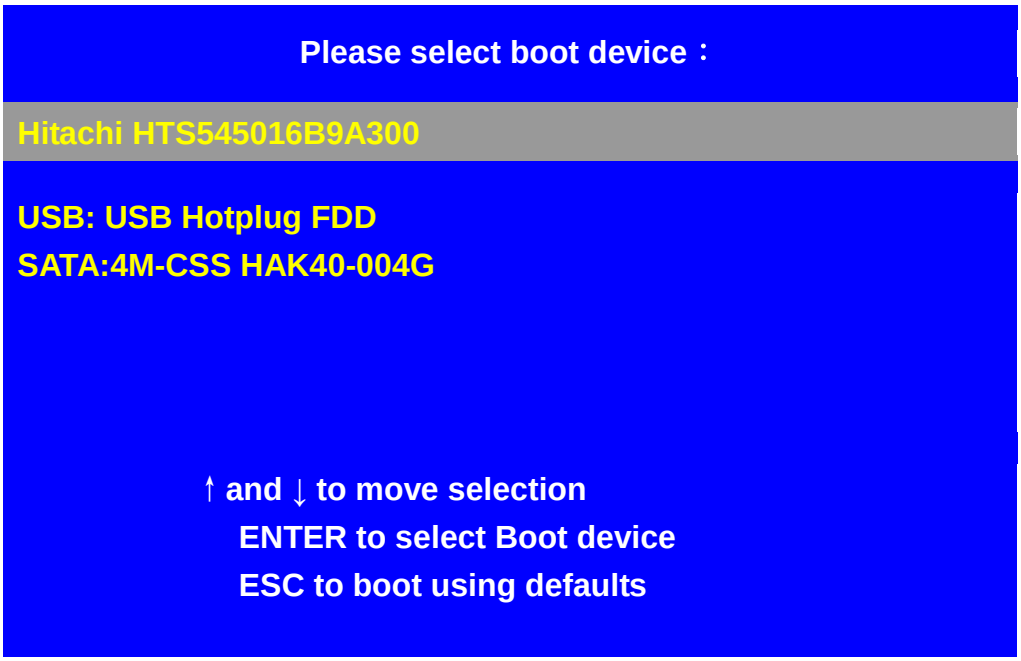
3.1 Operations after POST Screen

After CMOS discharge or BIOS flashing operation, the system will display the following screen for your further operation. Press F2 key to continue or F1 key to enter CMOS Setup.



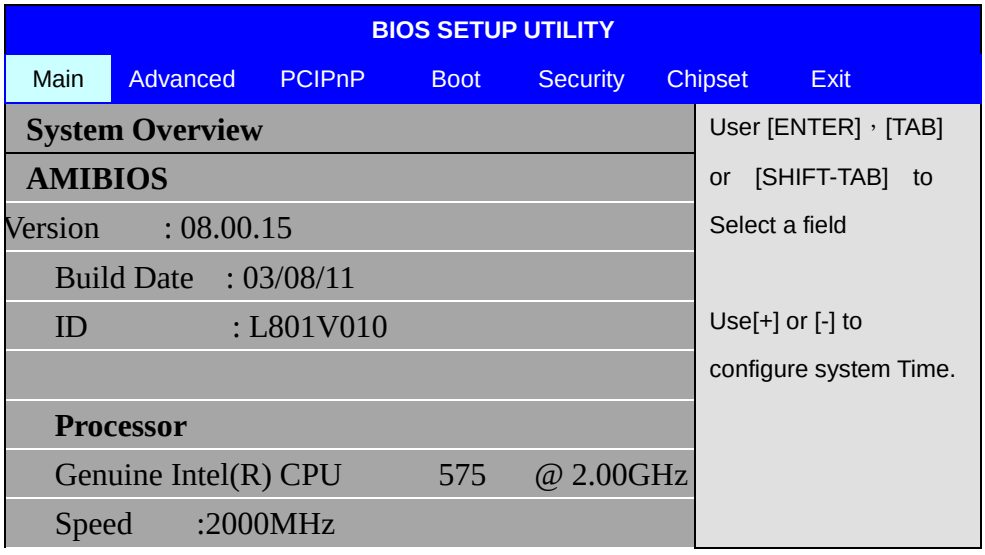
After optimizing and exiting CMOS Setup, the POST screen displayed for the first time is as follows and includes basic information on BIOS, CPU, memory, and storage devices.

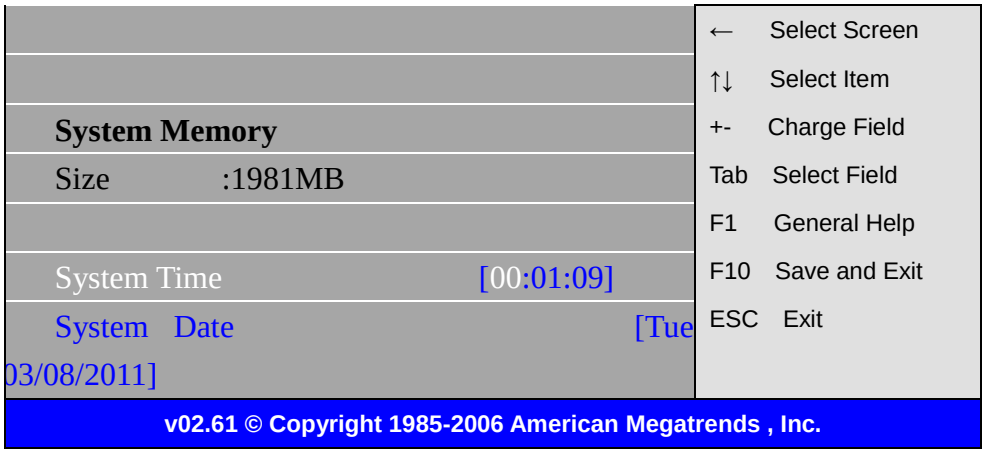
Press **F11** key to enter Boot Menu during POST, as shown by the following figure.



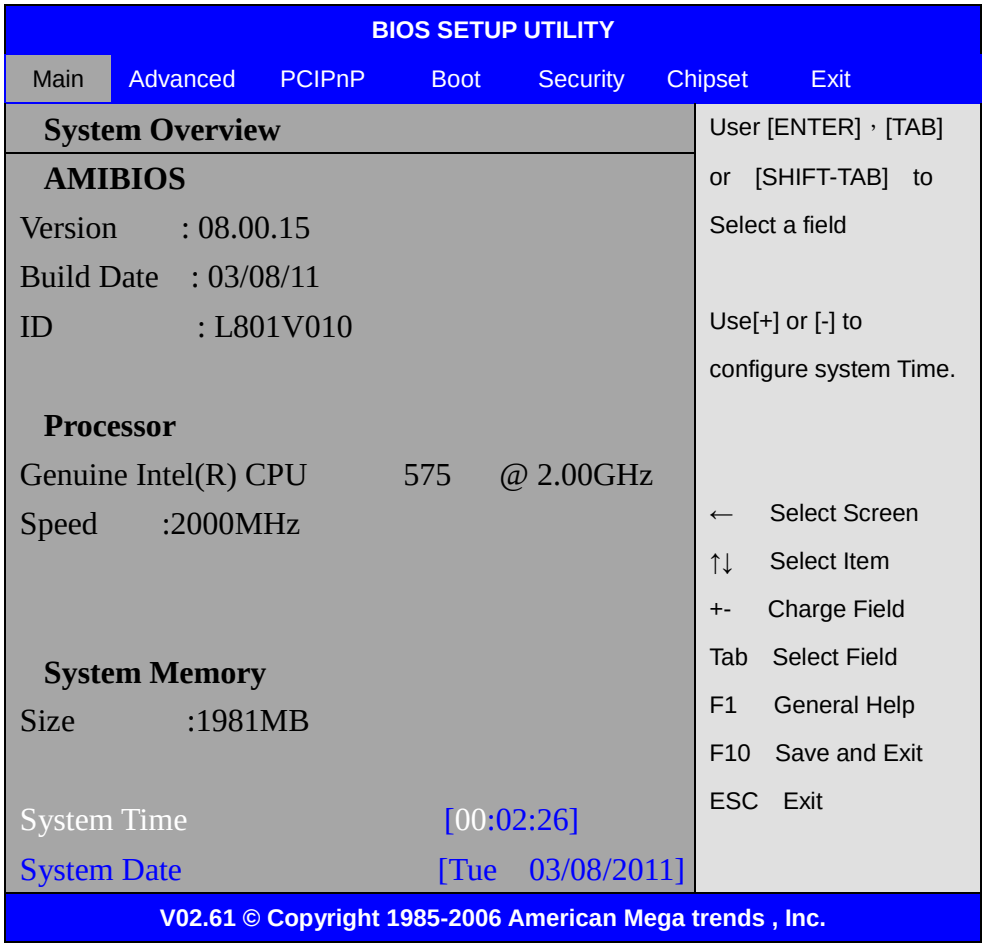
3.2 BIOS SETUP UTILITY

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





3.3 System Overview



System Time:

Set the system time, the time format is:

Hour : 0 to 23

Minute : 0 to 59

Second : 0 to 59

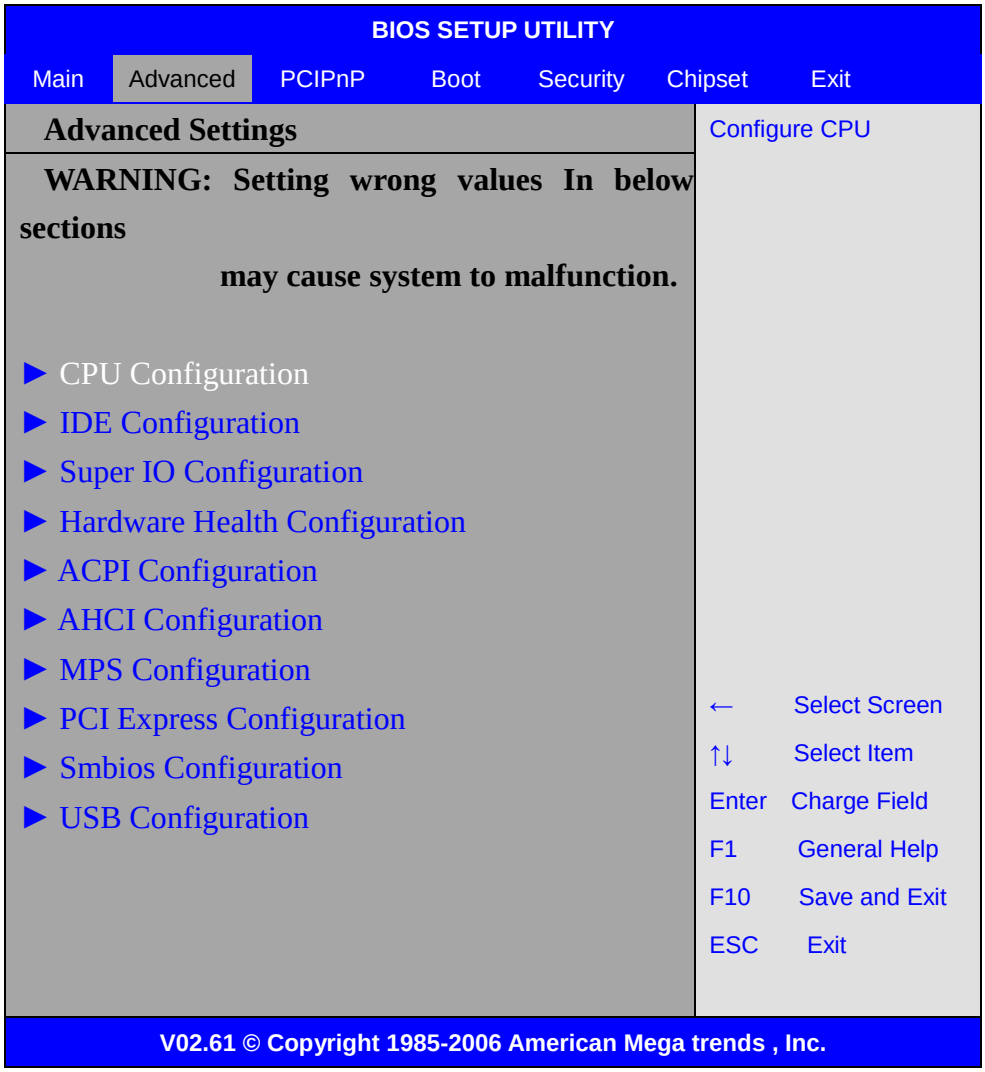
System Date:

Set the system date, the date format is:

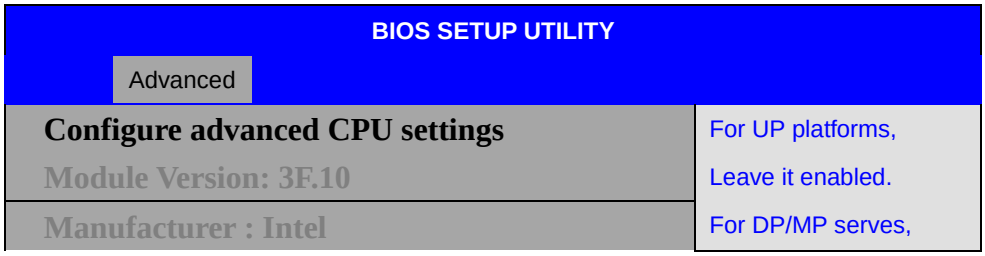
Day: Note that the 'Day' automatically changes when you set the date.

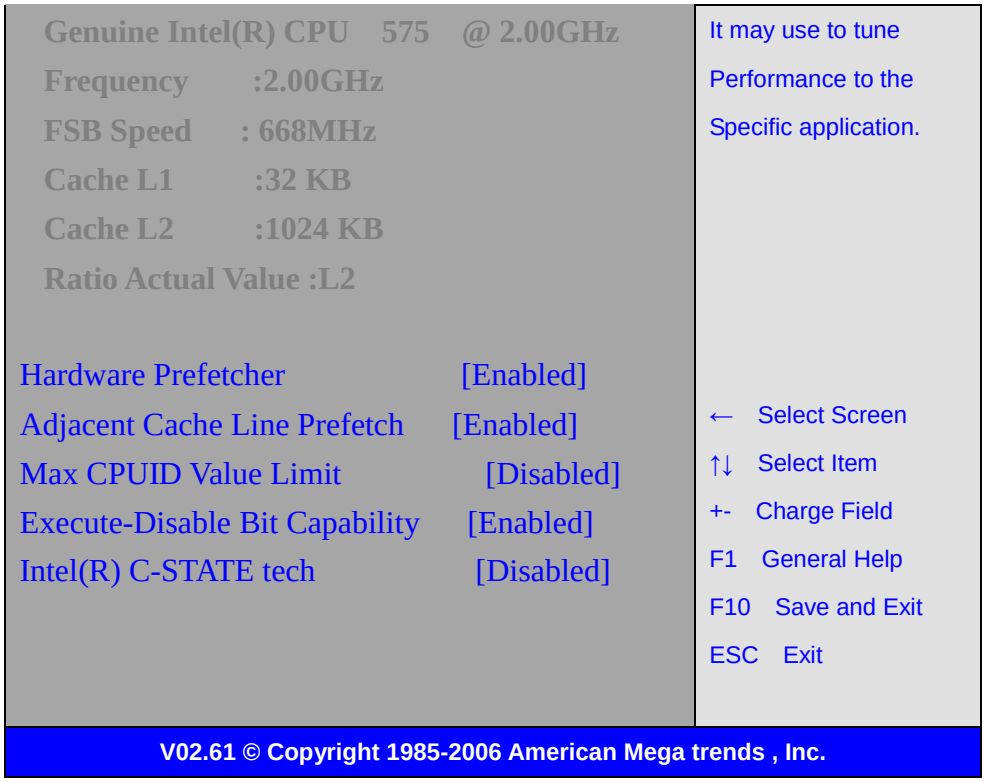
Month: 01 to 12
Date: 01 to 31
Year: 2009 to 2099

3.4 Advanced Settings



3.4.1 CPU Configuration





Hardware Prefetcher:

[Enabled]

[Disabled]

Adjacent Cache Line Prefetch:

[Enabled]

[Disabled]

Max CPUID Value Limit:

[Enabled]

[Disabled]

Execute-Disable Bit Capability:

[Disabled]

[Enabled]

Intel(R) C-STATE tech:

[Disabled]

[Enabled]

3.4.2 IDE Configuration

SATA#1 Configuration:

[Compatible]
[Disabled]
[Enhanced]

Configure SATA as:

[IDE]
[AHCI]

SATA#2 Configuration:

[Enhanced]
[Disabled]

Hard Disk Write Protect:

[Disabled]

[Enabled]

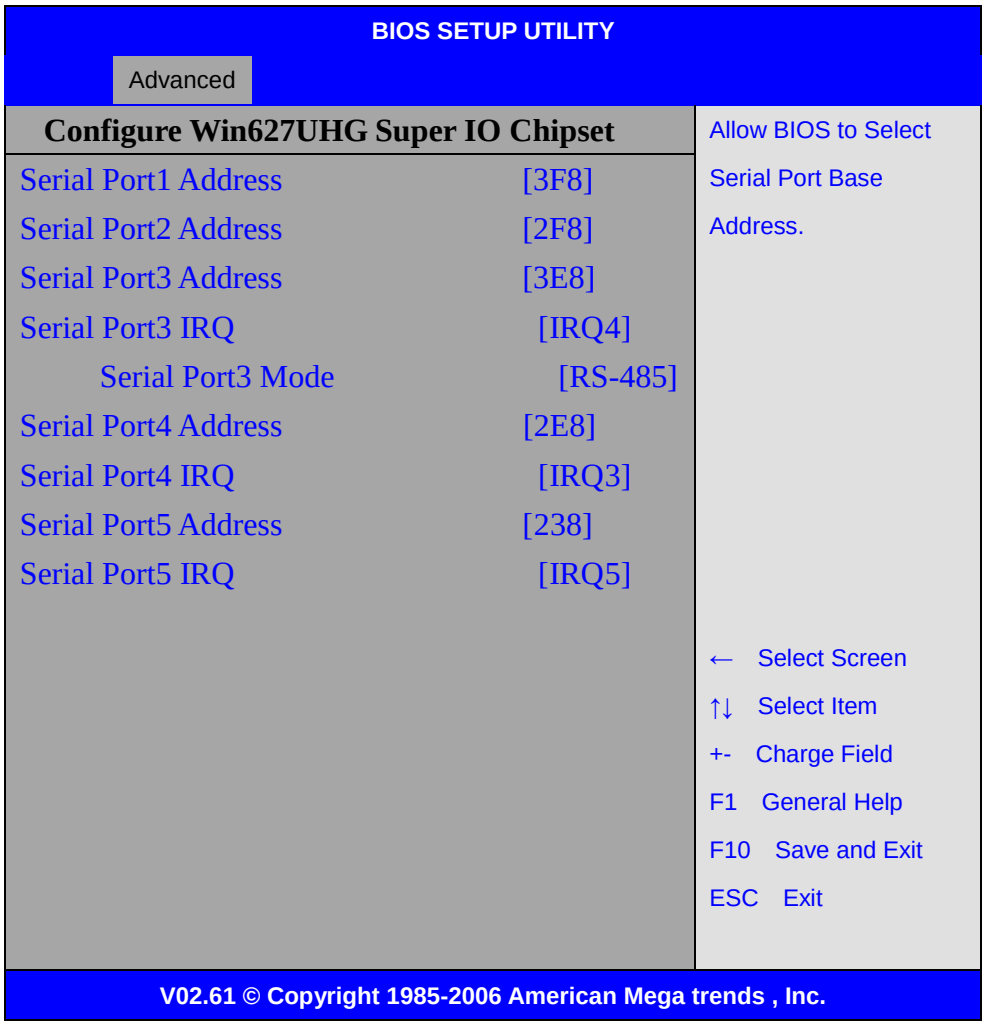
IDE Detect Time Out :

[35]
[0]
[5,10,15,20,25,30]

ATA(PI) 80Pin Cable Detection:

[Host & Device]
[Host]
[Device]

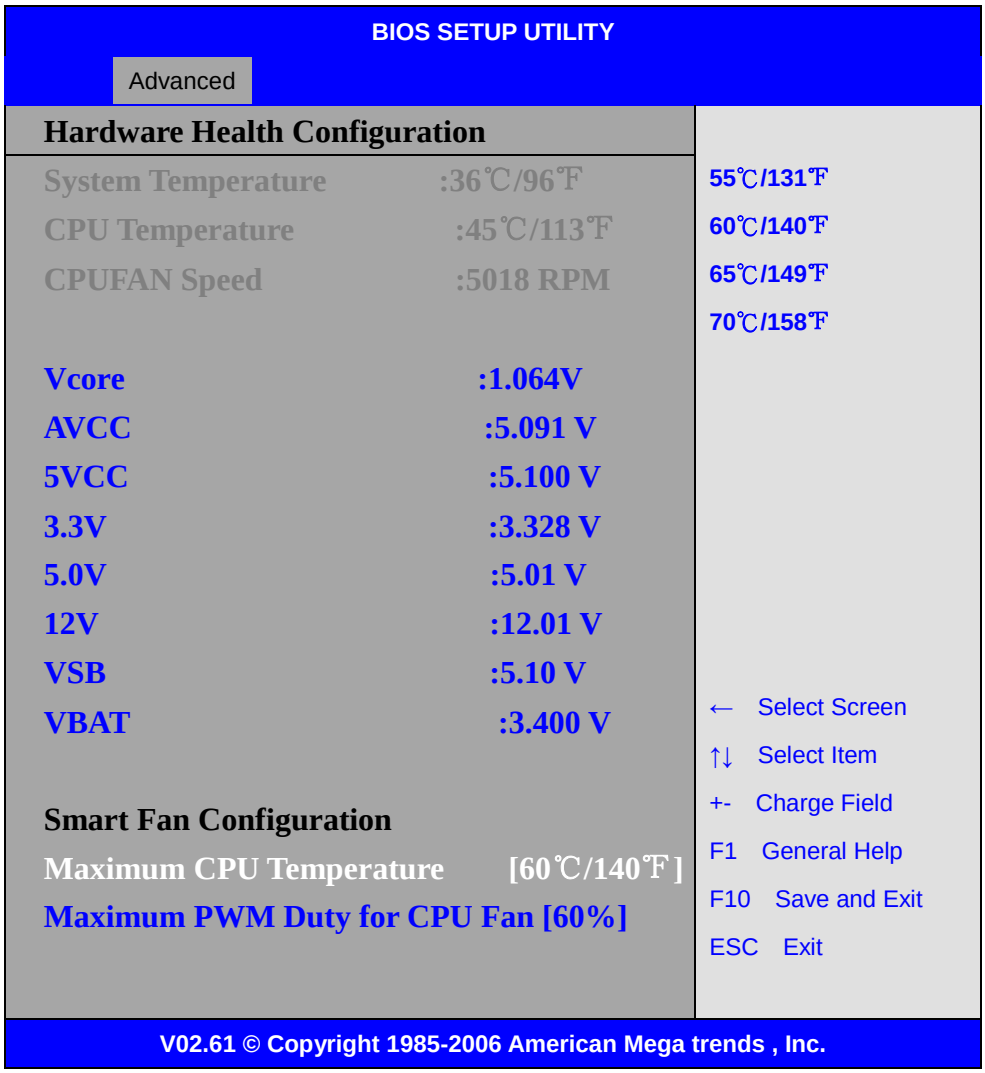
3.4.3 Super IO Configuration



Serial Port3 Mode:

COM3 Options: **[RS485]**
[RS422]
[RS422] for RS422 Mode
[RS485] for RS485 Mode

3.4.4 Hardware Health Configuration



System Temperature:

Show you the current system temperature.

CPU Temperature:

Show you the current CPU temperature.

CPUFAN Speed:

Show you the current CPU Fan operating speed.

Maximum CPU Temperature:

[60℃/140℉]

[55℃/131℉]

[65℃/149℉]

[70℃/158℉]

Minimum PWM Duty for CPU Fan:

[60%]
[50%]
[70%]
[80%]

3.4.5 ACPI Configuration

ACPI Setting:

[Advanced ACPI Configuration]

ACPI Version Features:

[ACPI V1.0]
[ACPI V2.0]
[ACPI V3.0]

ACPI APIC support:

[Enabled]
[Disabled]

AMI OEMB table:

[Enabled]
[Disabled]

Headless mode:

[Disabled]
[Enabled]

[Chipset ACPI Configuration]:

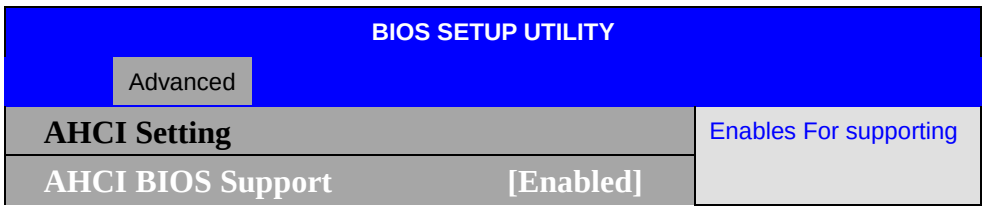
APIC ACPI SCI IRQ:

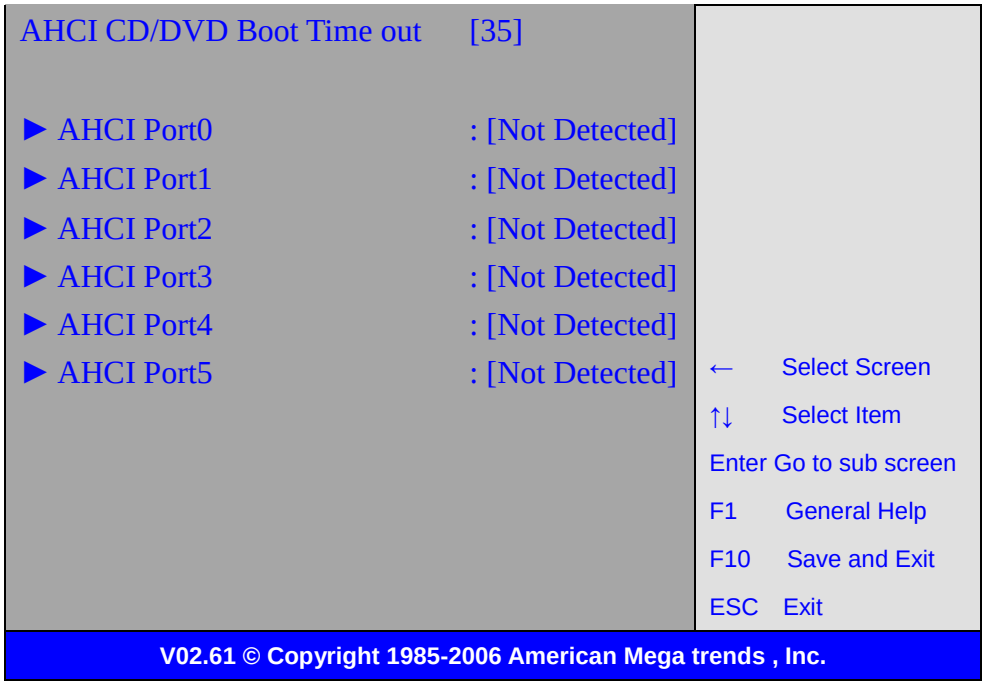
[Disabled]
[Enabled]

High Performance Event Timer:

[Disabled]
[Enabled]

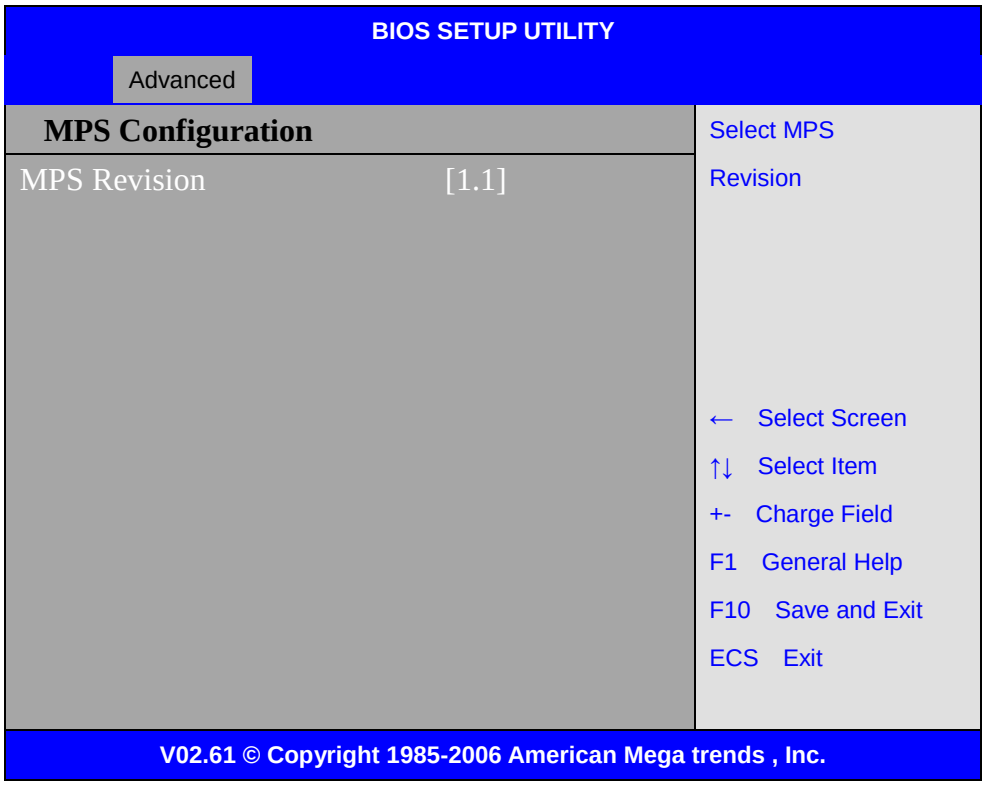
3.4.6 AHCI Configuration





While entering setup, BIOS auto detects the presence of IDE devices. This displays the status of auto detecting of IDE devices

3.4.7 MPS Configuration

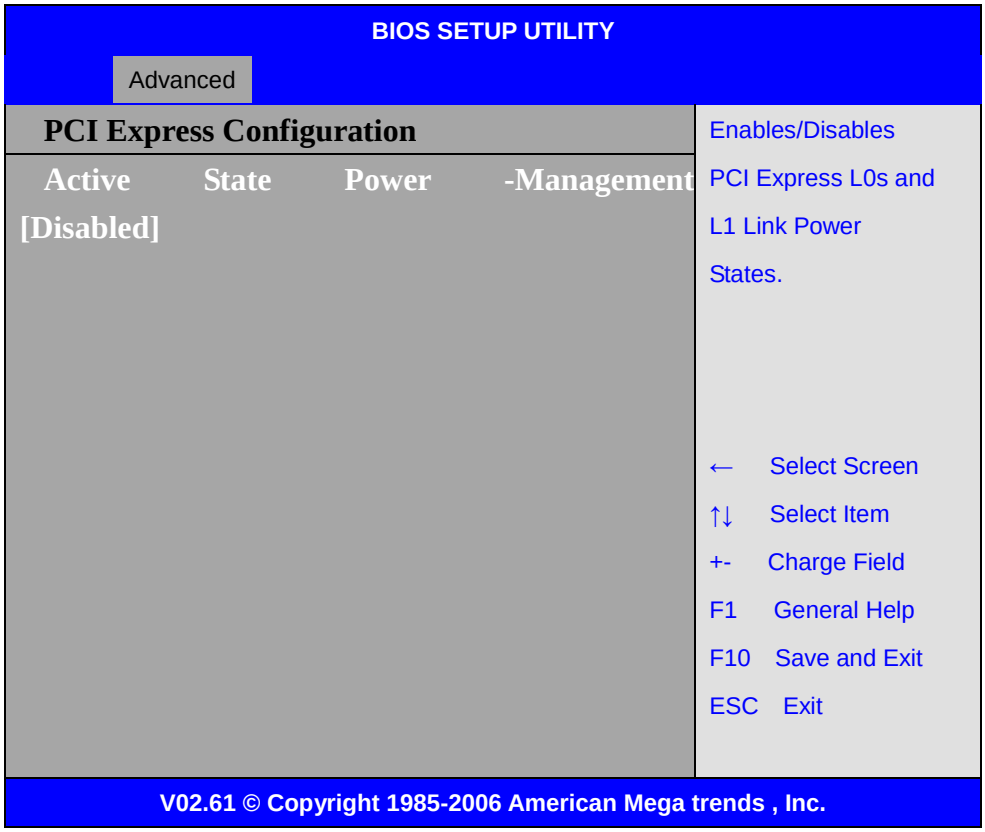


MPS Revision:

[1.1]

[1.4]

3.4.8 PCI Express Configuration

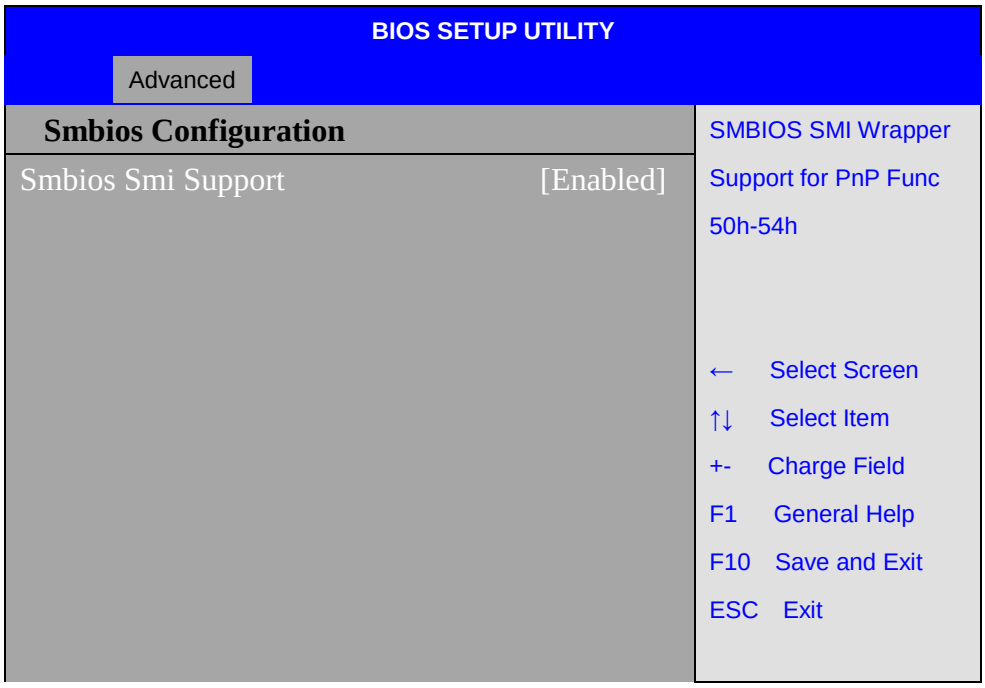


Active State Power Management:

[Disabled]

[Enabled]

3.4.9 Smbios Configuration

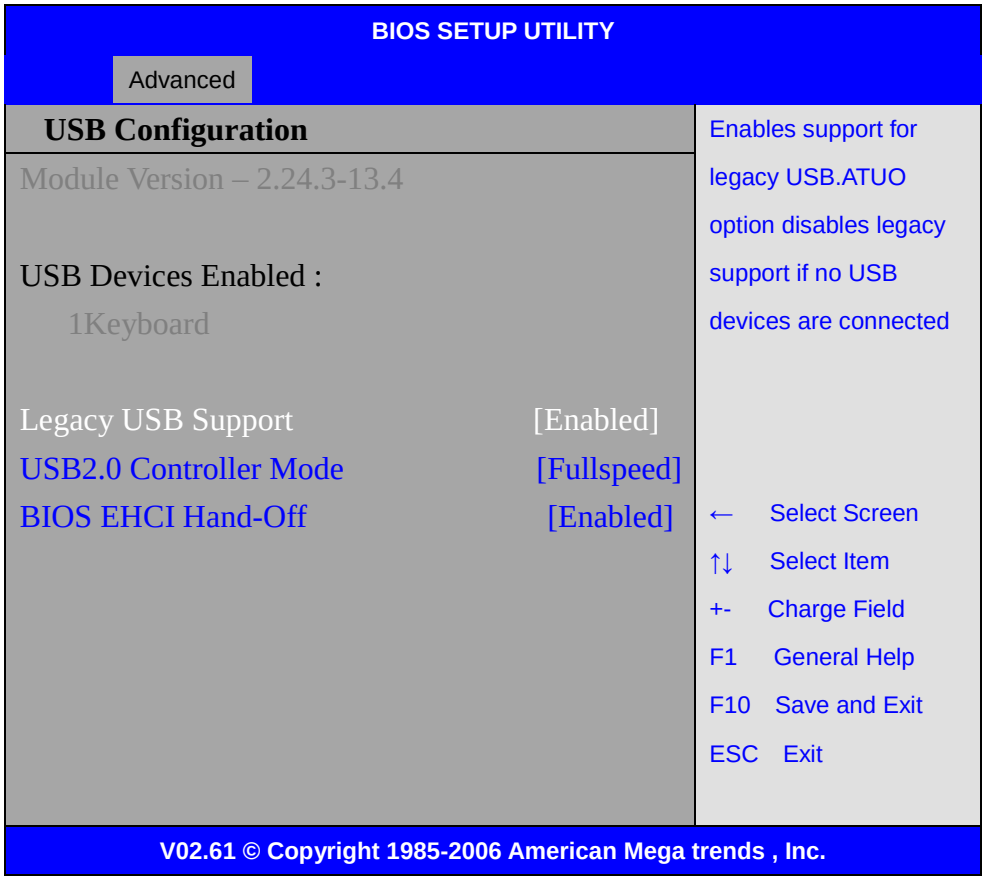


Smbios Smi Support:

[Enabled]

[Disabled]

3.4.10 USB Configuration



Legacy USB Support:

[Enabled]

[Disabled]

USB2.0 Controller Mode:

[FullSpeed]

[HiSpeed]

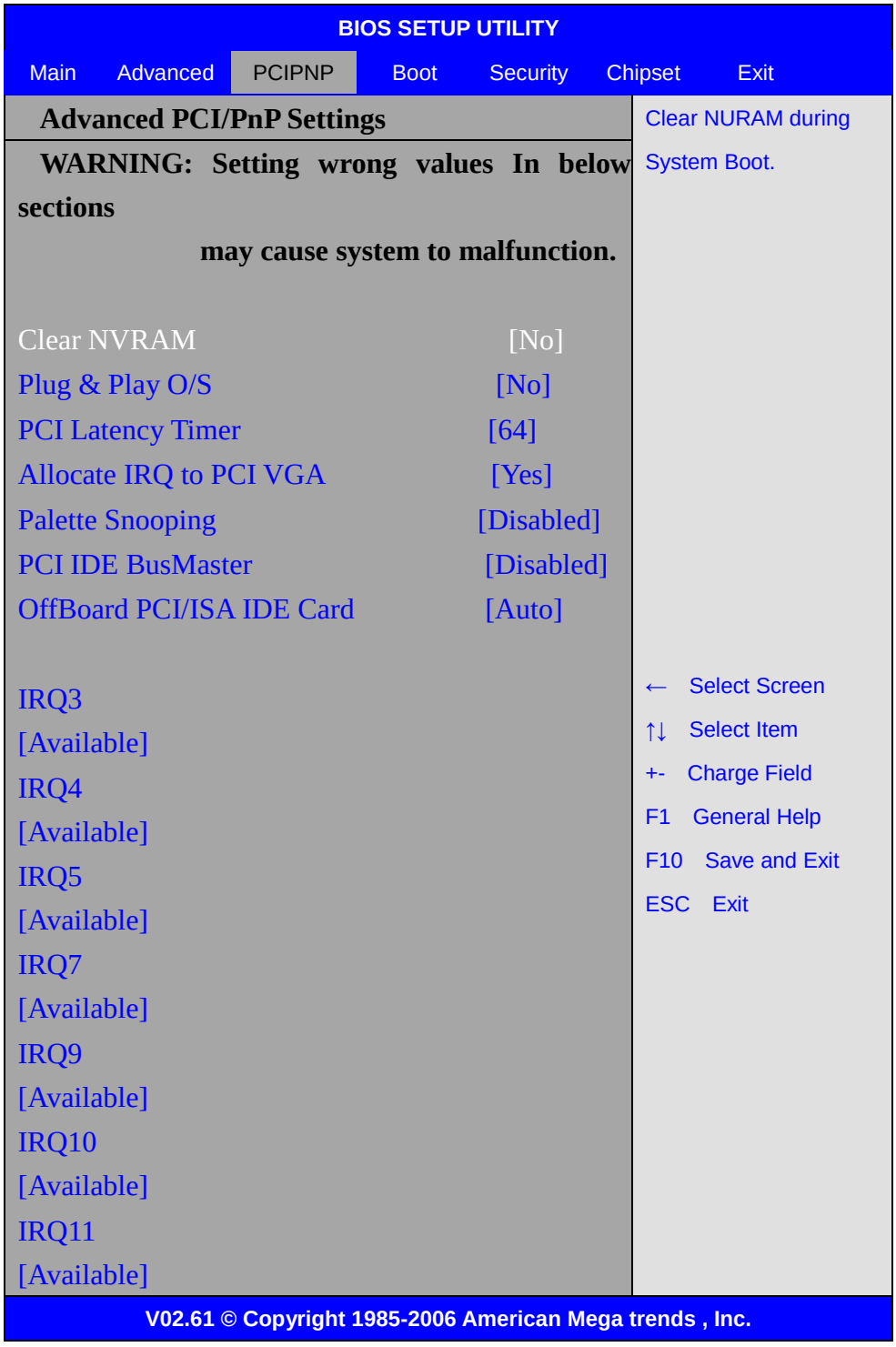
BIOS EHCI Hand-Off:

[Enabled]

[Disabled]

3.5 Advanced PCI/PnP Settings

This part describes configurations to be made on PCI bus system. PCI, namely Personal Computer Interconnect, is a computer bus that allows I/O device to operate nearly as fast as CPU in its own way. Some technical terms will be mentioned here. **We recommend that non-professional users not make changes from factory default settings.**



Clear NVRAM:

[No]

[Yes]

Plug & Play OS:

[**No**]

[Yes]

PCI Latency Timer:

[**64**]

[32]

[96]

[128]

[160]

[192]

[224]

[248]

Allocate IRQ to PCI VGA:

[Yes]

[No]

Palette Snooping:

[Disabled]

[Enabled]

PCI IDE BusMaster:

[Disabled]

[Enabled]

OffBoard PCI/ISA IDE Card:

Some PCI IDE cards may require this to be set to the PCI slot number that is holding the card. Auto:Works for most PCI IDE Cards.

[Auto]

[PCI Slot1]

[PCI Slot2]

[PCI Slot3]

[PCI Slot4]

[PCI Slot5]

[PCI Slot6]

IRQ3/4/5/7/9/10/11/14/15:

[Available]

[Reserved]

Available: Specified IRQ is available to be used by PCI/PnP devices.

Reserved: Specified IRQ is reserved for use by legacy ISA devices.

DMA Channel 0/1/3/5/6/7:

[Available]

[Reserved]

Available: Specified DMA is available to be used by PCI/PnP devices.

Reserved: Specified DMA is reserved for use by legacy ISA devices.

Reserved Memory Size:

Size of memory block to reserve for legacy ISA devices.

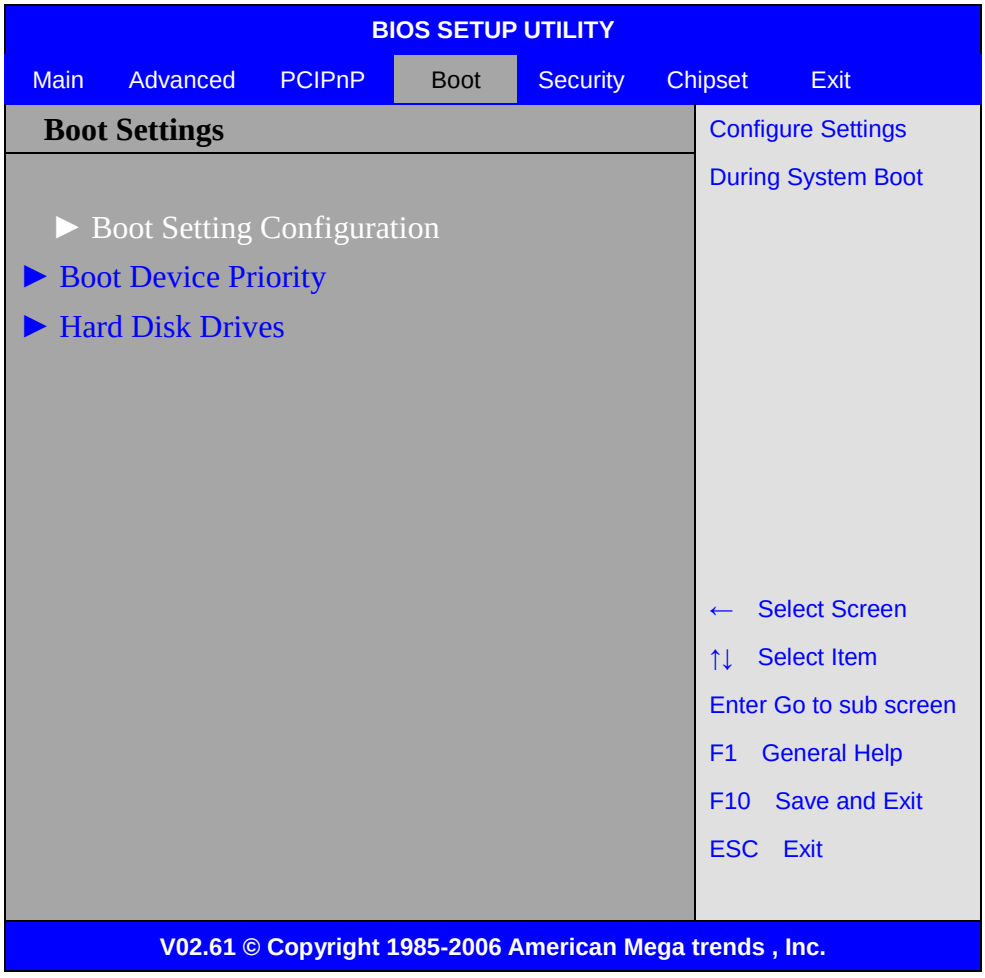
[Disabled]

[16k]

[32k]

[64k]

3.6 Boot Settings



Boot Setting Configuration：

Configure Settings during System Boot.

Quick Boot:

[**Enabled**]

[Disabled]

Allows BIOS to skip certain tests while booting .This will decrease the time needed to boot the system.

Quiet Boot:

[Disabled]

[Enabled]

Disabled: Displays normal POST messages.

Enabled: Displays OEM logo instead of POST messages.

AddOn ROM Display Mode:

Set display mode for Option ROM.

[**Force BIOS**]

[Keep Current]

Bootup Num－Lock:

Select Power-on state for Numlock.

[**On]**

[Off]

PS/2 Mouse Support:

Select support for PS/2 Mouse.

[**Auto**]

[Enabled]

[Disabled]

Wait For ‘F1’ If Error:

Wait for F1 key to be pressed if error occurs.

[**Enabled**]

[Disabled]

Hit ‘DEL’Messgae Display :

Displays “press” DEL to run Setup in POST.

[**Enabled**]

[Disabled]

Interrupt 19 Capture:

Enabled: Allows option ROMs to trap interrupt 19.

[Disabled]

[Enabled]

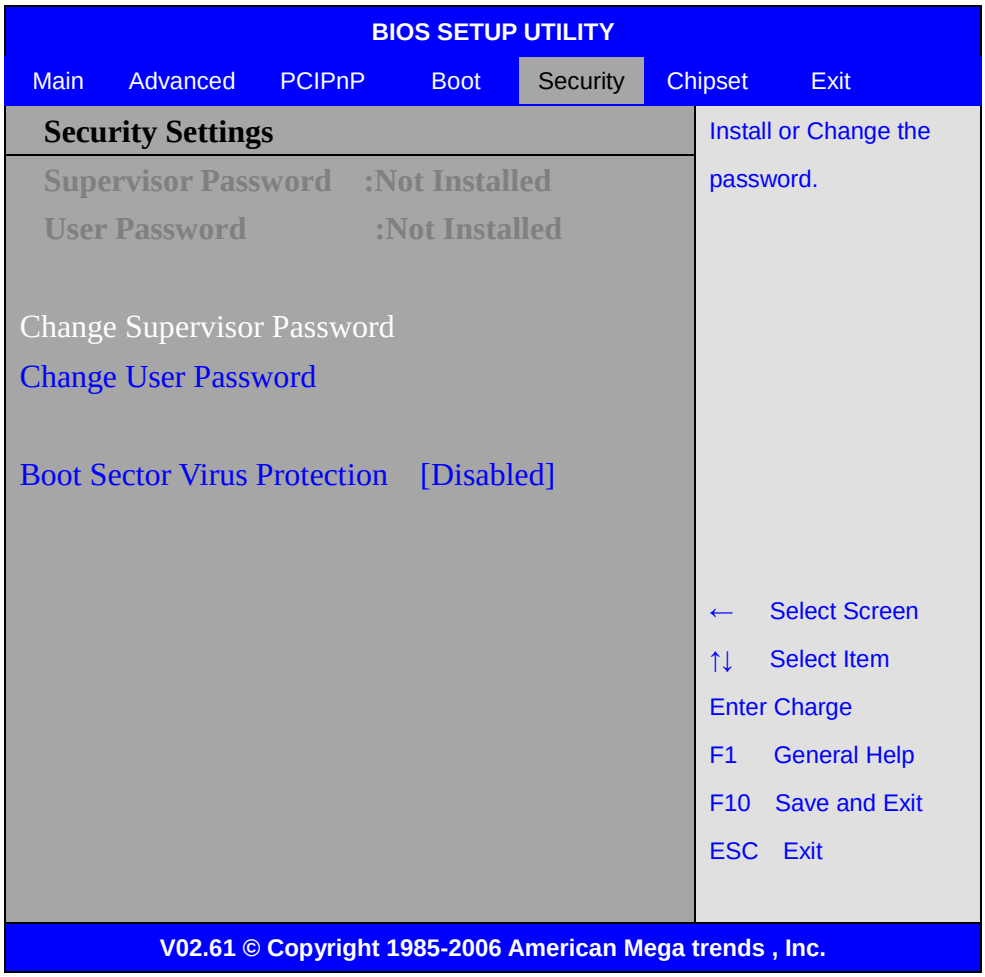
Boot Device Priority:

Specifies the Boot Device Priority sequence.

Hard Disk Devices :

Specifies the Boot Device Priority sequence from available Hard Drives.

3.7 Security Settings



Change Supervisor Password:

Install or Change the password.

Change User Password:

Install or Change the password.

Password Check:

[Setup]

[Always]

Setup: Check password while invoking setup.

Always: Check password while invoking setup a well as on each boot.

Boot Sector Virus Protection:

[Disabled]

[Enabled]

Enabled / Disabled Boot Sector Virus Protection.

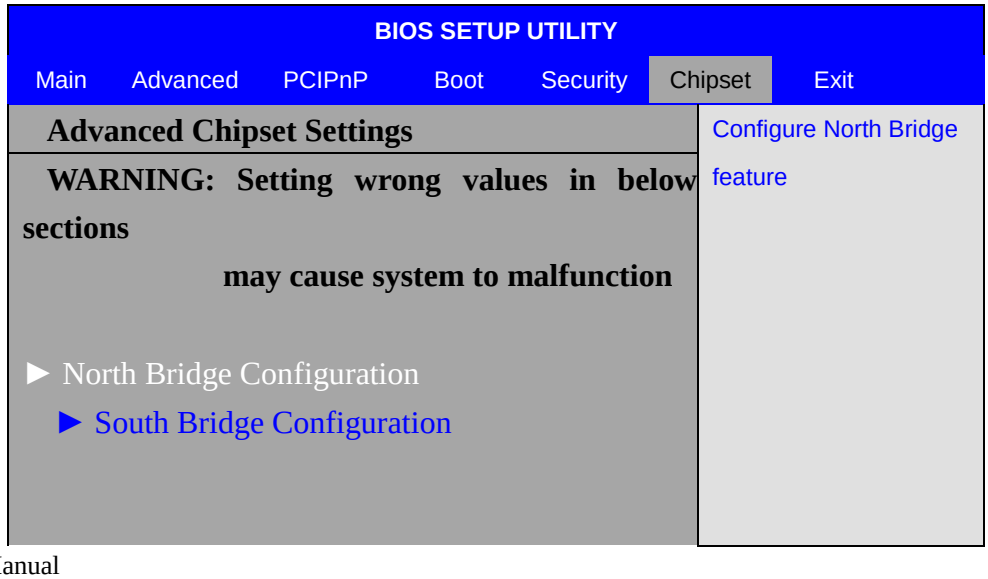
Type the password with up to 6 characters and then press ⋖Enter⋗ key. This will clear all previously typed CMOS passwords. You will be requested to confirm the password. Type the password again and press ⋖Enter⋗ key. You may press ⋖Esc⋗ key to abandon password entry operation.

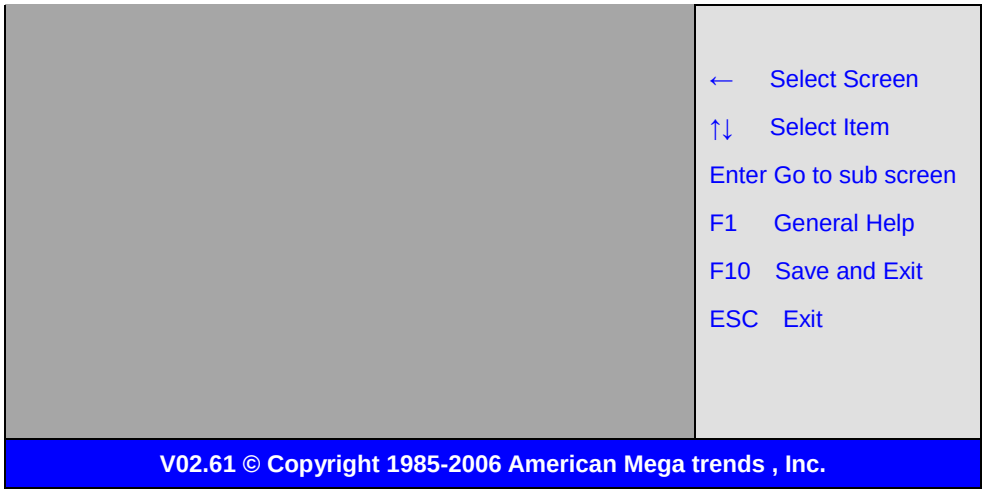
To clear the password, just press ⋖Enter⋗ key when password input window pops up. A confirmation message will be shown on the screen as to whether the password will be disabled. You will have direct access to BIOS setup without typing any password after system reboot once the password is disabled.

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.

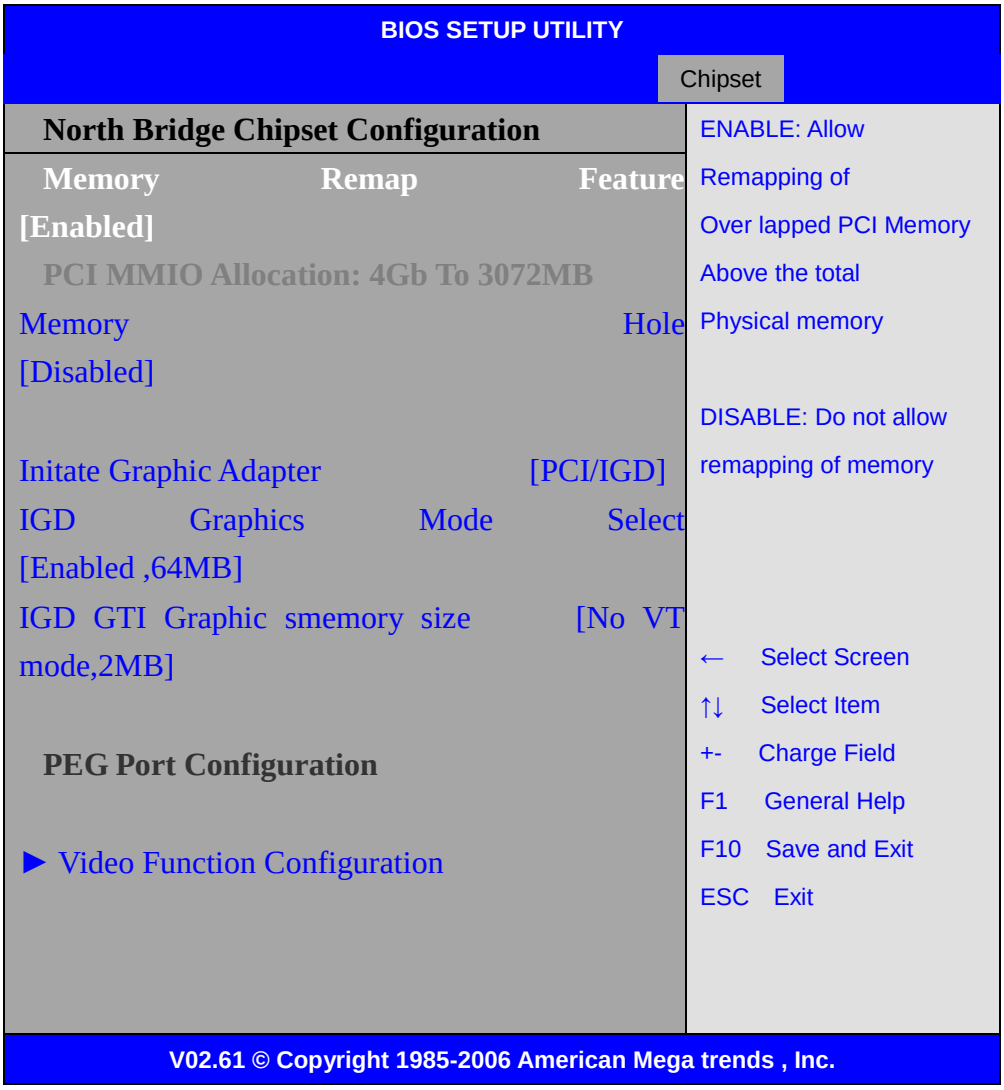
3.8 Advanced Chipset Settings





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

3.8.1 North Bridge Configuration



Memory Remap Feature:

[**Enabled**]
[Disabled]

Memory Hole:

[Disabled]
[15MB-16MB]

Initate Graphic Adapter:

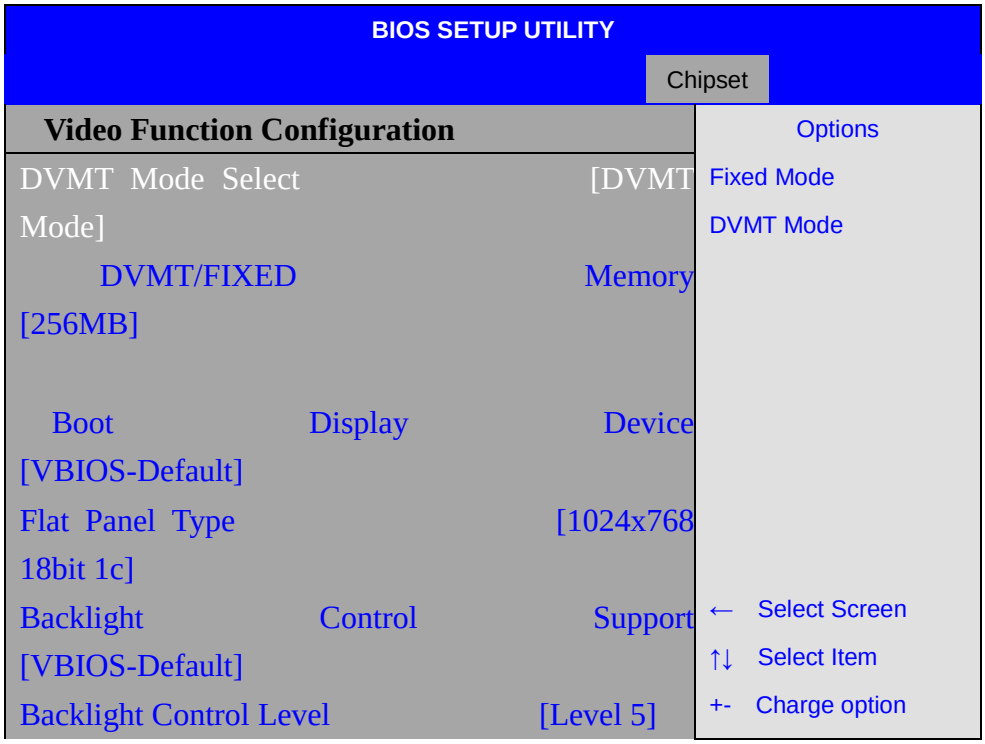
Select which graphics controller to use as the primary boot device.

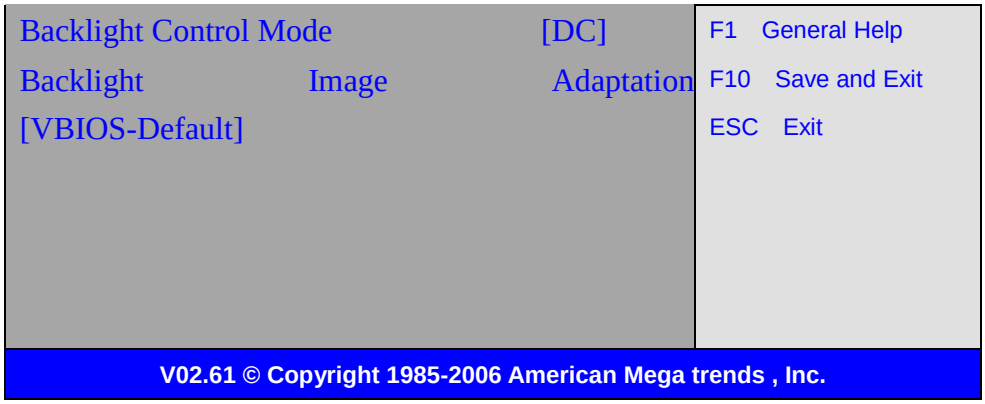
[**IGD**]
[PCI/IGD]

IGD Graphics Mode Select:

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

Video Function Configuration:





DVMT Mode Select:

[**DVMT Mode**]
[FIXED Mode]

DVMT/FIXED Memory Size**:**

[**256MB**]
[128MB]
[Maximum DVMT]

Boot Display Device:

[**BIOS-Default**]
[CRT]
[LVDS]
[CRT + LVDS]

Flat Panel Type:

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

Backlight Control Support

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

Backlight Control Control:

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

Note: Panel support PWM Function.

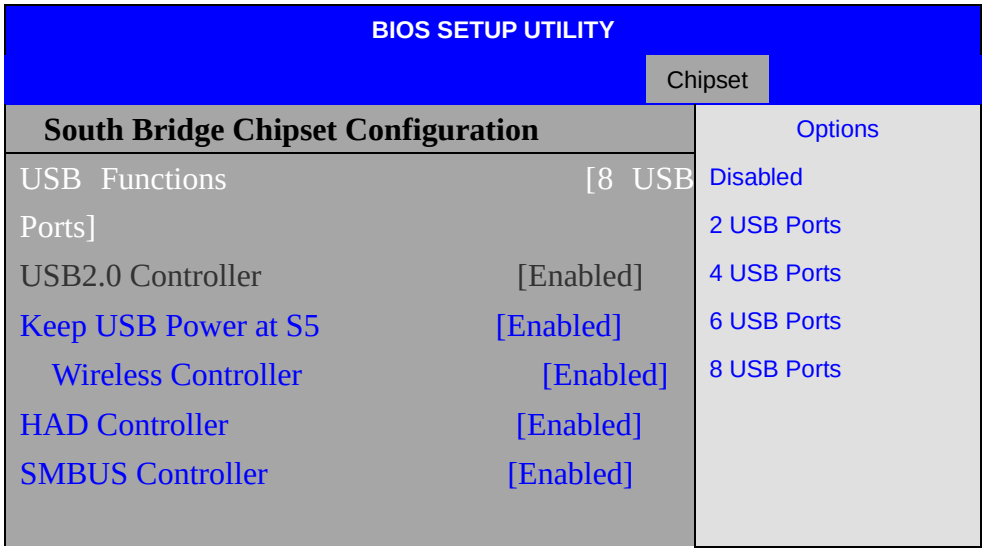
Backlight Control Mode:

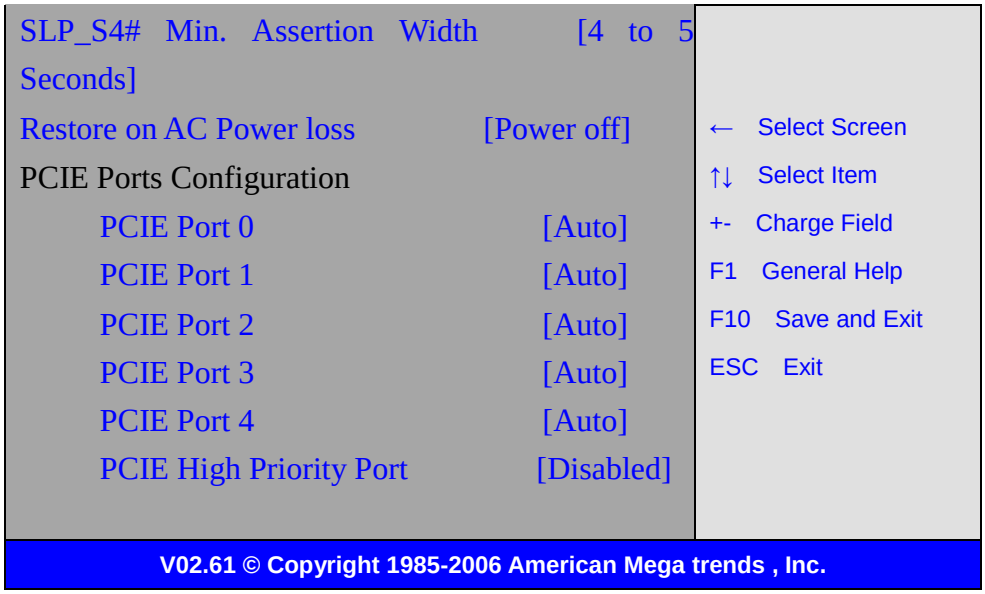
[DC]
[PWM]

Backlight Image Adaptation:

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

3.8.2 South Bridge Configuration:





USB Functions:

[8 USB Ports]
[Disabled]，
[2 USB Ports]
[4 USB Ports]
[6 USB Ports]

USB 2.0 Controller:

[**Enabled**]

Keep USB Power at S5:

[Enabled]
[Disabled]

Wireless Controller

[Enabled]
[Disabled]

HDA Controller:

[**Enabled**]
[Disabled]

SMBUS Controller:

[**Enabled**]
[Disabled]

SLP_S4# Min. Assertion Width:

[1 to 2 Seconds]

[4 to 5 Seconds]
[3 to 4 Seconds]
[2 to 3 Seconds]

Restore on AC Power Loss:

[Power Off]
[Power On]
[Last Status]

PCIE Ports Configuration:

PCIE Port 0:

[Auto]
[Enabled]
[Disabled]

PCIE Port 1:

[Auto]
[Enabled]
[Disabled]

PCIE Port 2:

[Auto]
[Enabled]
[Disabled]

PCIE Port 3:

[Auto]
[Enabled]
[Disabled]

PCIE Port 4:

[Auto]
[Enabled]
[Disabled]

PCIE High priority Port:

[Disabled]
[Port 0~Port5]

PCIE Port 0 IOxAPIC Enabled:

[Disabled]
[Enabled]

PCIE Port 1 IOxAPIC Enabled:

[Disabled]

[Enabled]

PCIE Port 2 IOxAPIC Enabled:

[Disabled]

[Enabled]

PCIE Port3 IOxAPIC Enabled:

[Disabled]

[Enabled]

PCIE Port4 IOxAPIC Enabled:

[Disabled]

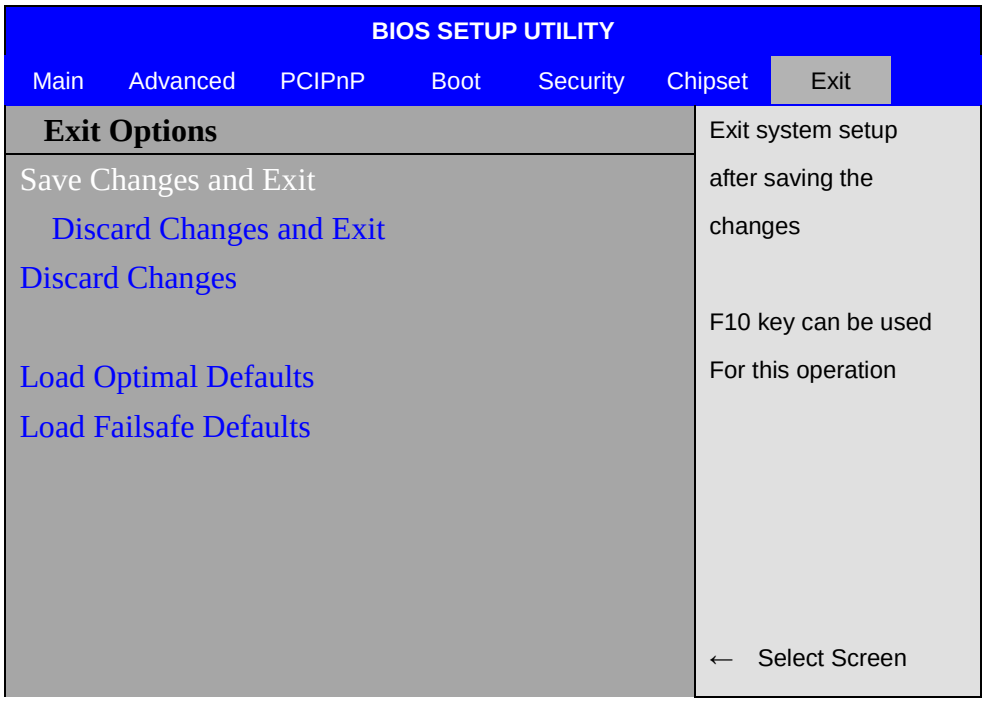
[Enabled]

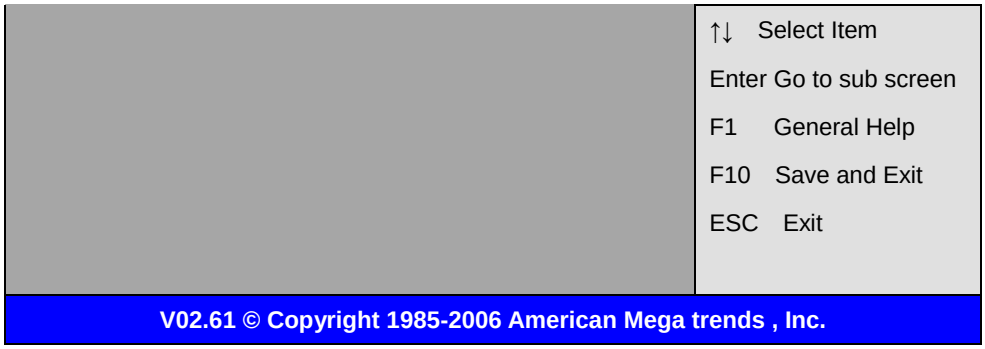
PCIE Port5 IOxAPIC Enabled:

[Disabled]

[Enabled]

3.9 Exit Options





Save Changes and Exit:

Save configuration changes and exit setup?

(F10 key can be used for this operation)

[OK]

[Cancel]

Discard Changes and Exit:

Discard Changes and Exit setup?

(ESC key can be used for this operation)

[OK]

[Cancel]

Discard Changes:

Discard changes?

(F7 key can be used for this operation)

[OK]

[Cancel]

Load Optimized Defaults:

Load Optimized Defaults?

(F9 key can be used for this operation)

[OK]

[Cancel]

Load Fail-Safe Defaults:

Load Fail-Safe Defaults?

(F9 key can be used for this operation)

[OK]

[Cancel]

Chapter 4 Installation of Drivers

This chapter describes the installation procedures for software and drivers under the windows XP. 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 XP), 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. Access **Industrial Panel PC**. Select **Intel GM45/ICH9M Chipset Driver** 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**.

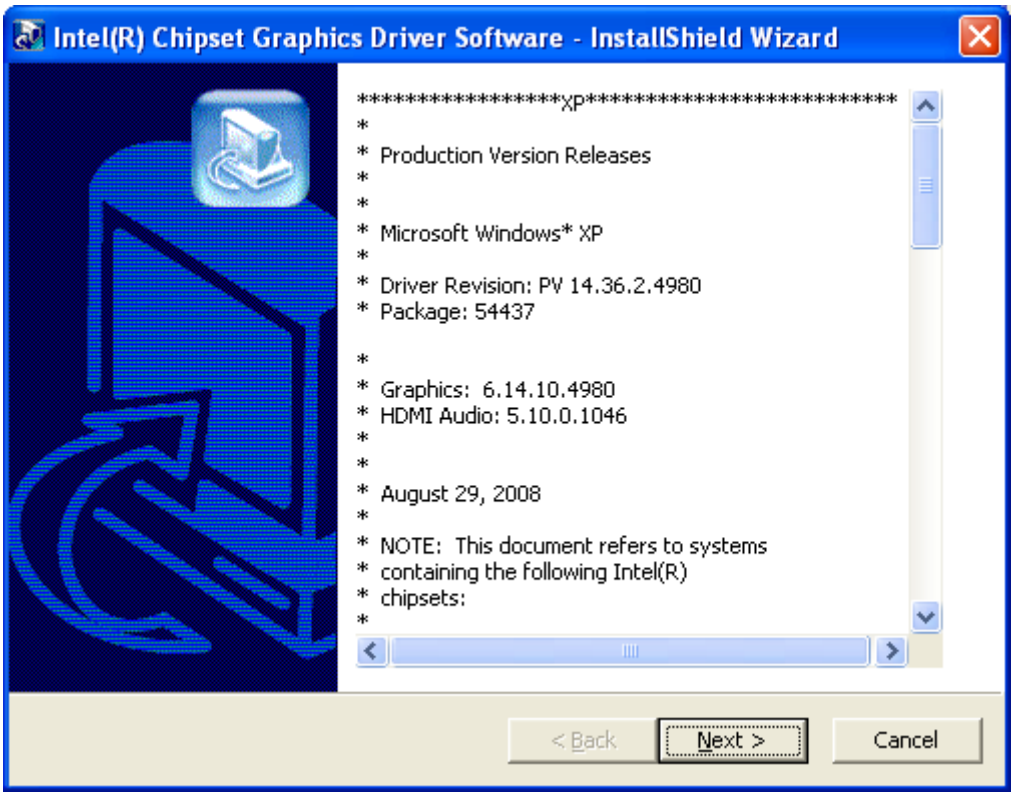
Step 6. Select **Yes, I want to restart this computer now**. Click **Finish**, then remove any installation media from the drives.

4.2 Intel Graphics Media Accelerator driver

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

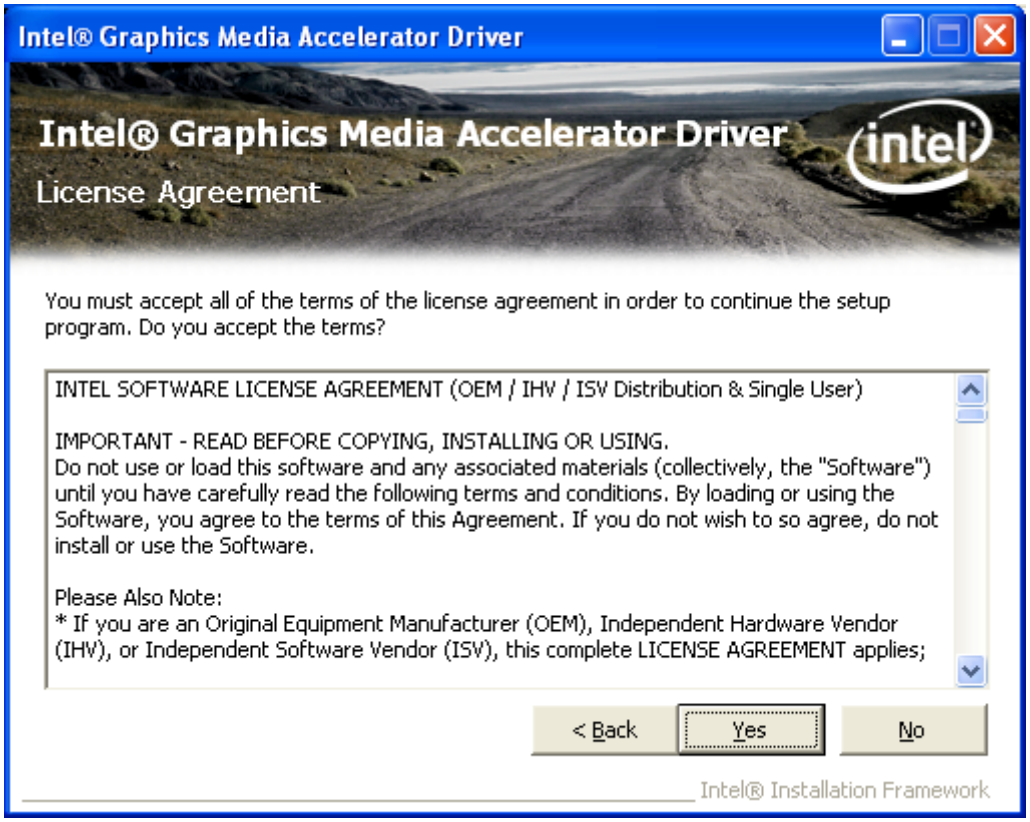
Step 1.Select **Intel(R) VGA Chipset Driver.**

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

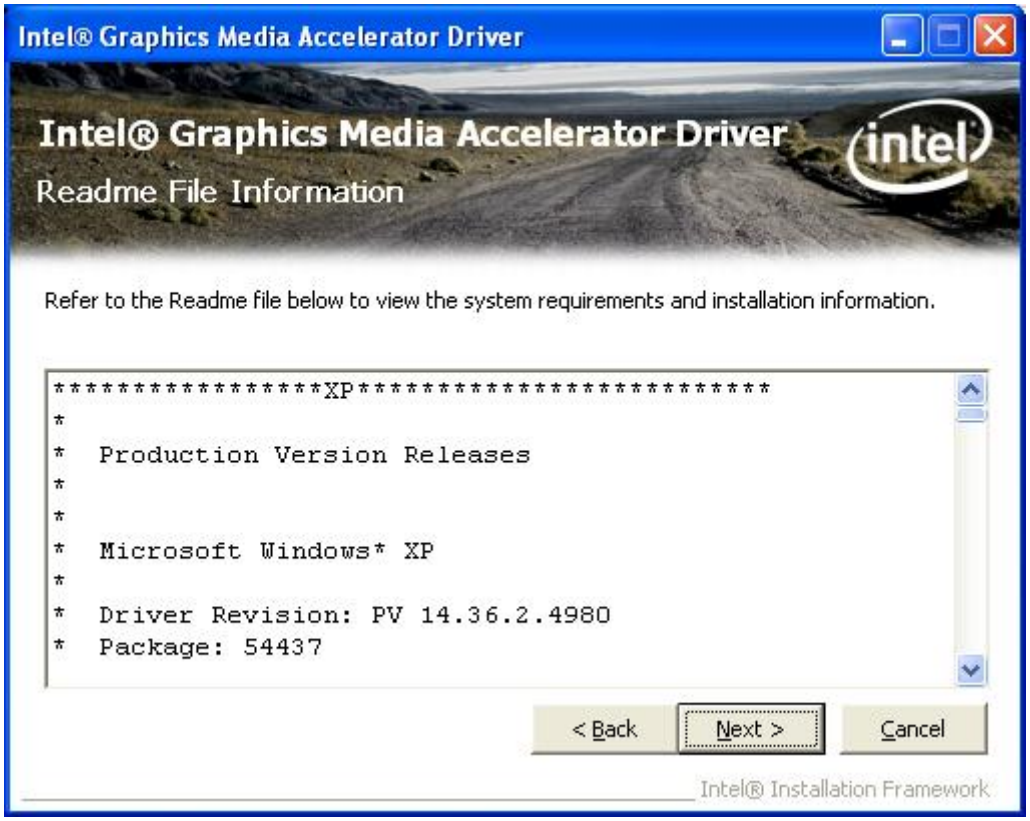


Step 3. Click **Next** to continue setup program.

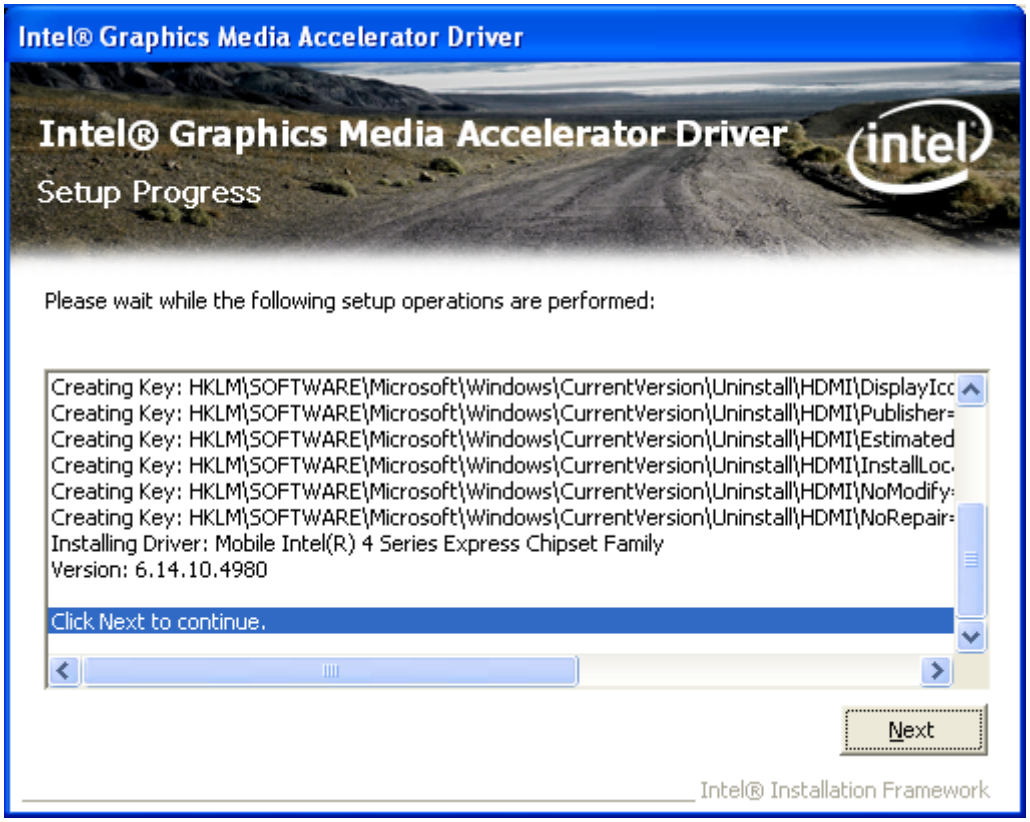
Step 4. Read the license agreement. Click **Yes** to accept all of the terms of the license agreement.



Step 5. Click **Next.**



Step 6. Click **Next** to continue.



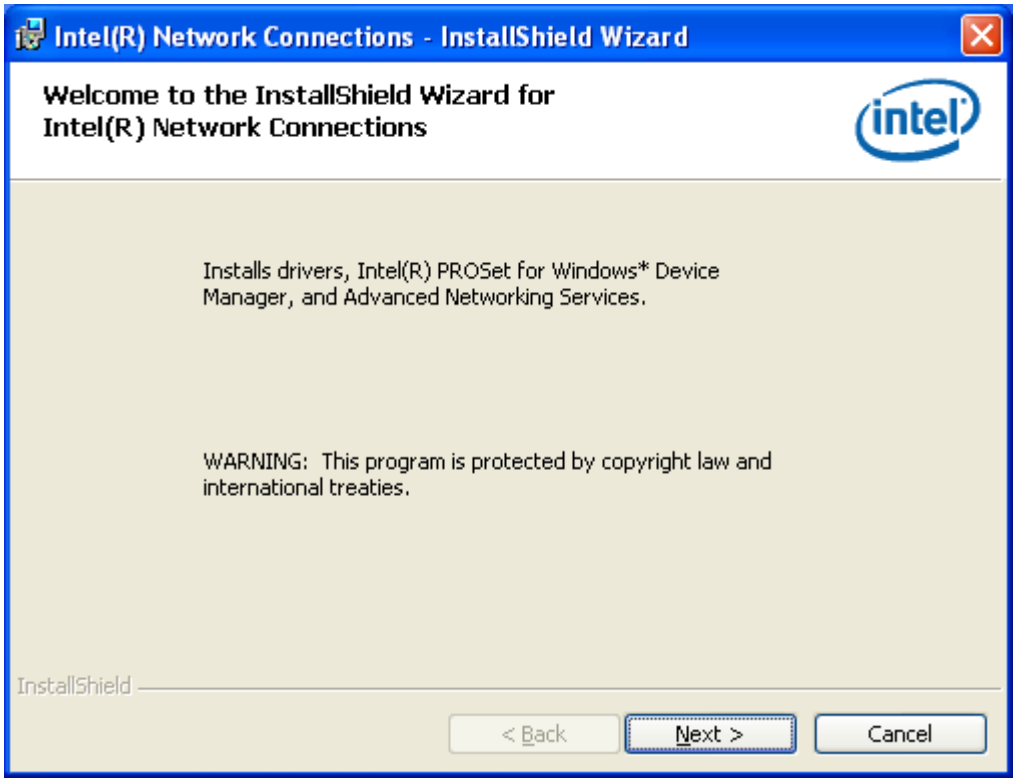
Step 7. Select **Yes, I want to restart this computer now**. Click **Finish** to complete installation.

4.3 Intel (R) Network Adapter

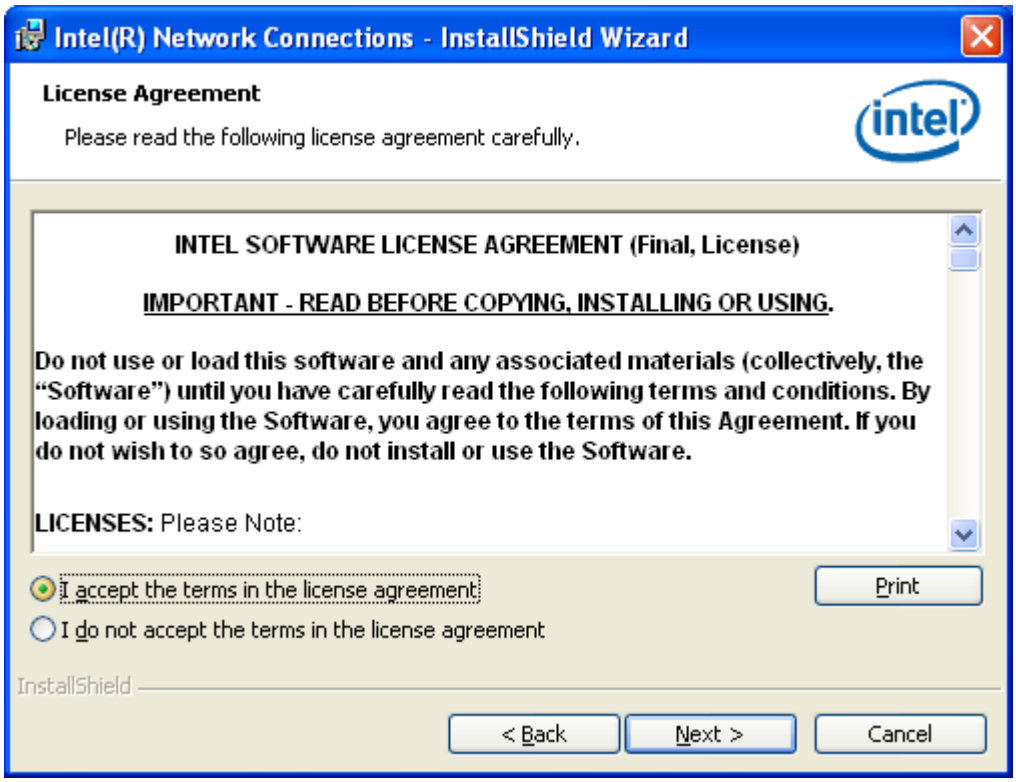
To install the Intel (R) Network Adapter device driver, please follow the steps below.

Step 1. Select **Intel (R) Network Adapter**.

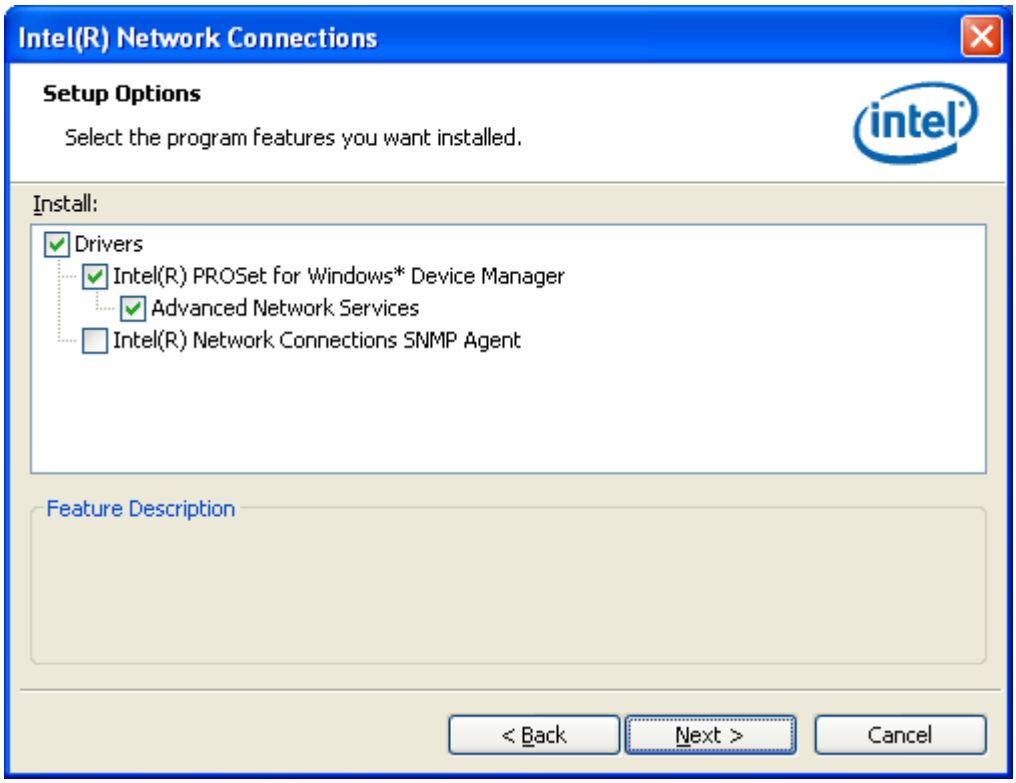
Step 2. Click **Next** to continue.



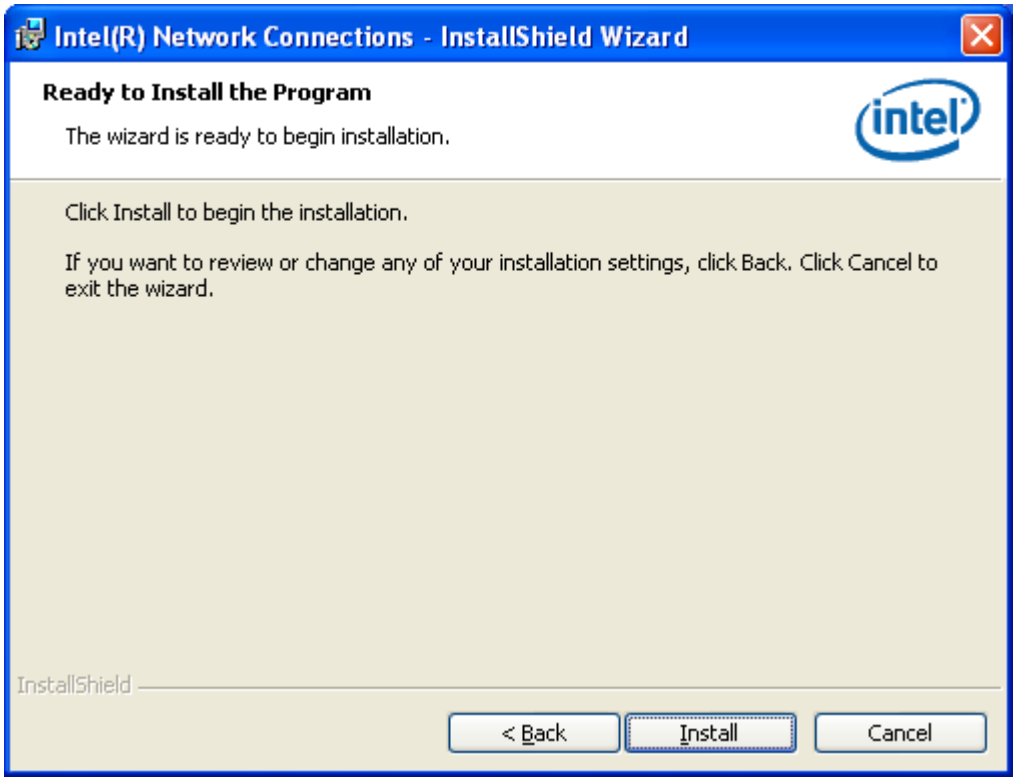
Step 3. Read the license agreement. Select **I accept the terms in the license agreement** then click **Next** to continue.



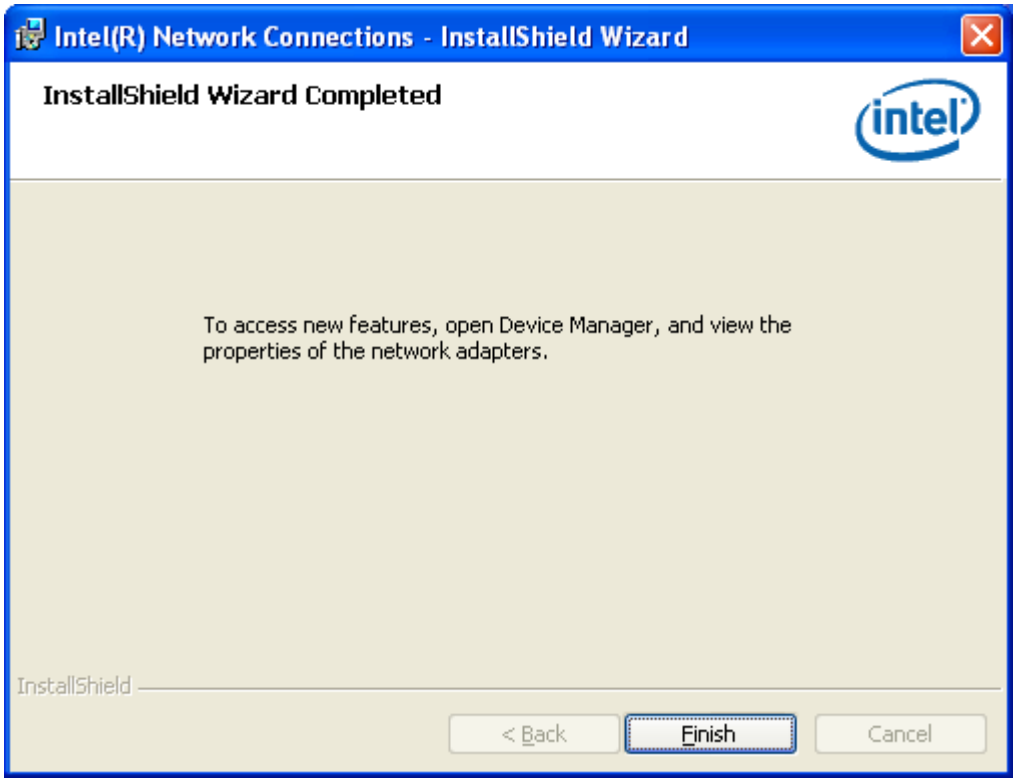
Step 4. Select **Drivers, Intel(R) PROSet for Windows* Device Manager, Advanced Network Services**. Click **Next** to continue.



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



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

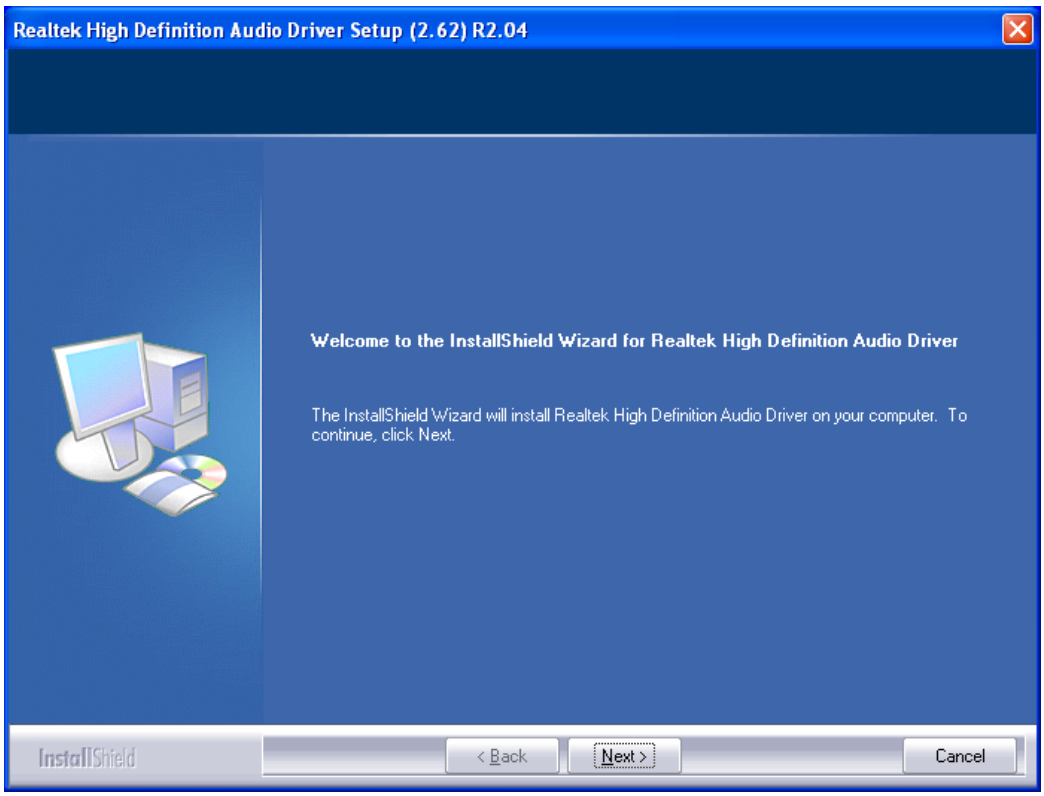


4.4 Realtek ALC662 HD Audio Codec Driver Installation

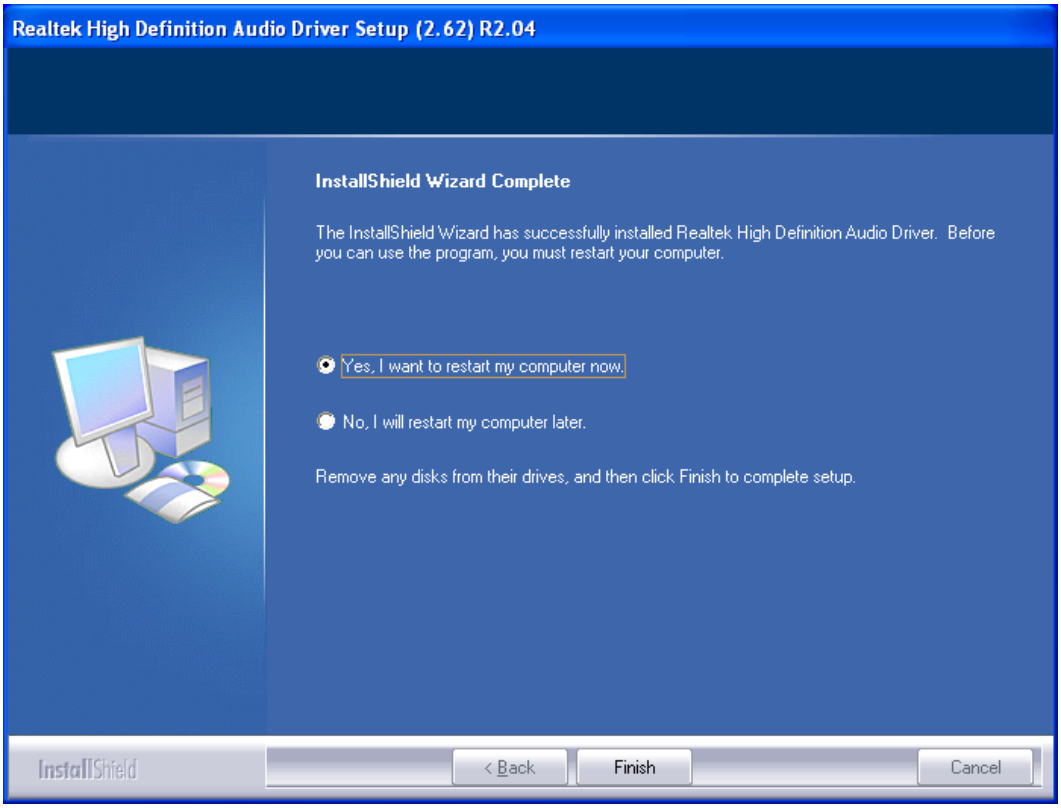
To install the Realtek ALC662 HD Audio Codec Driver, please follow the steps below.

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 PenMount 6000 Controller Board to work with different operating systems.

NOTE: PenMount USB drivers support up to 15 USB controllers.

5.1 Introduction to Touch Screen Controller Board

PenMount 6300 USB control board is a touch screen control board designed for USB interface and specific for 4, 5, 8-wire touch screens. It is designed with USB interface features with multiple devices supporting function. PenMount 6300 control board using PenMount 6000 controller that has been designed for those who may like and all-in-one solution with 10-bit A/D converter built-in to make the total printed circuit board denser, circuit diagram also designed for 12-bit ADC for optional. There are two connectors on this board, one connector is for 4, 5, 8-wire touch screen cable (optional), and another is for 4-pin USB A type cable (optional).

Figure 5.1: Bird's Eye View of Control Board

5.2 Windows 2000/XP/2003/Vista Universal Driver Installation for PenMount 6000 Series

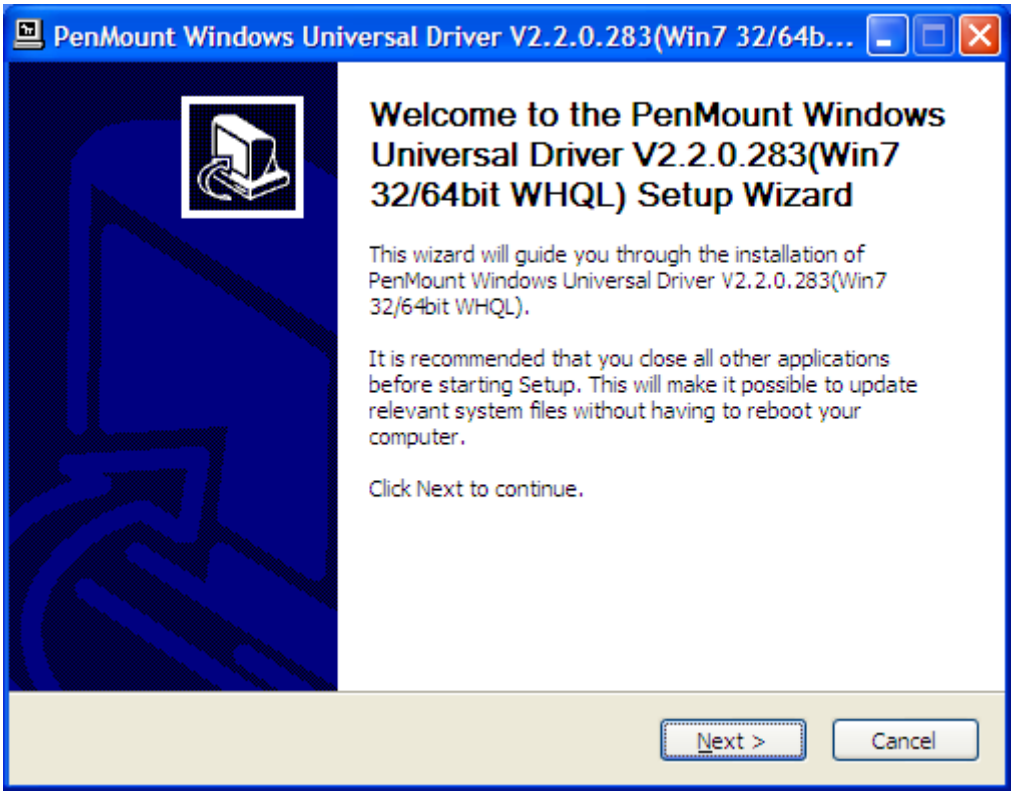
Before installing the Windows 2000/XP driver software, you must have the Windows 2000/XP system installed and running on your computer. You must also have one of the following PenMount 6000 series controller or control boards installed: PM6500, PM6300.

5.2.1 Installing Software

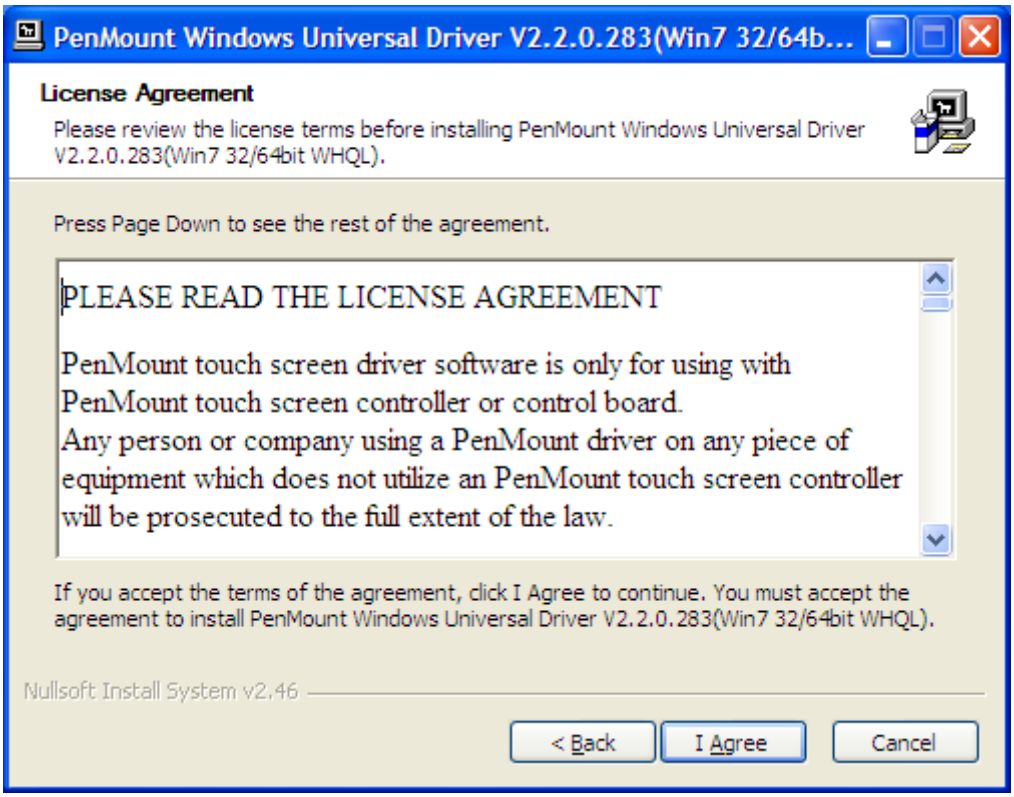
If you have an older version of the PenMount Windows 2000/XP driver installed in your system, please remove it first. Follow the steps below to install the PenMount DMC6000 Windows 2000/XP driver.

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

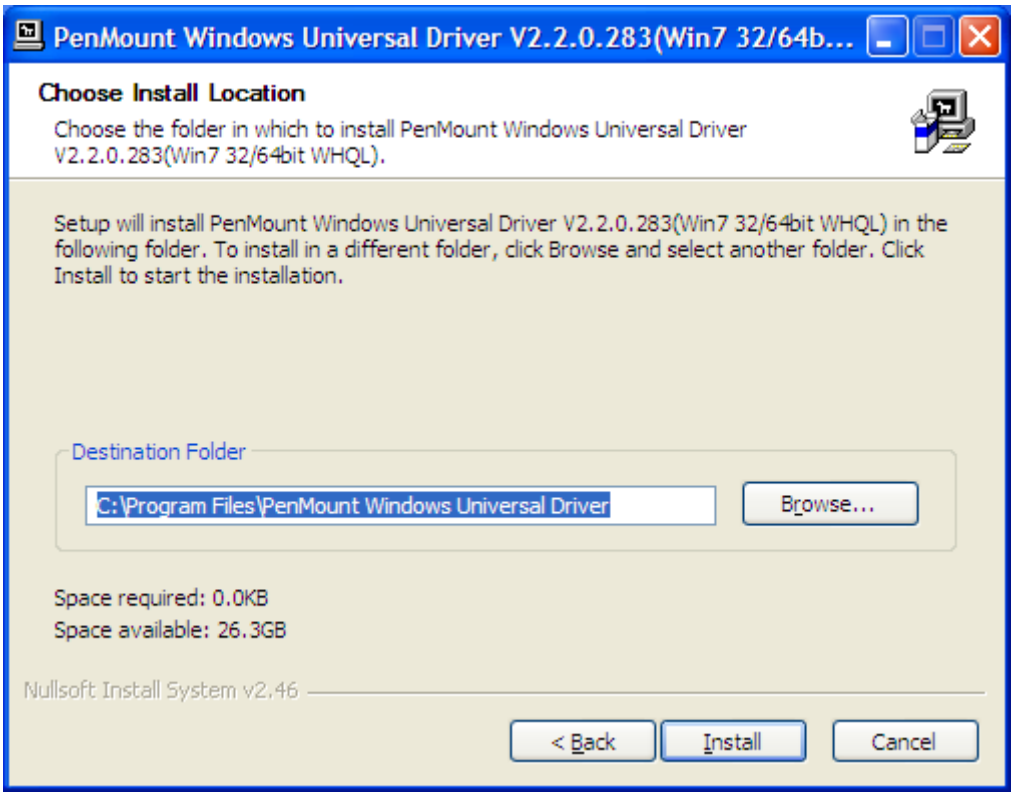
Step 2. Click **Next** to continue.



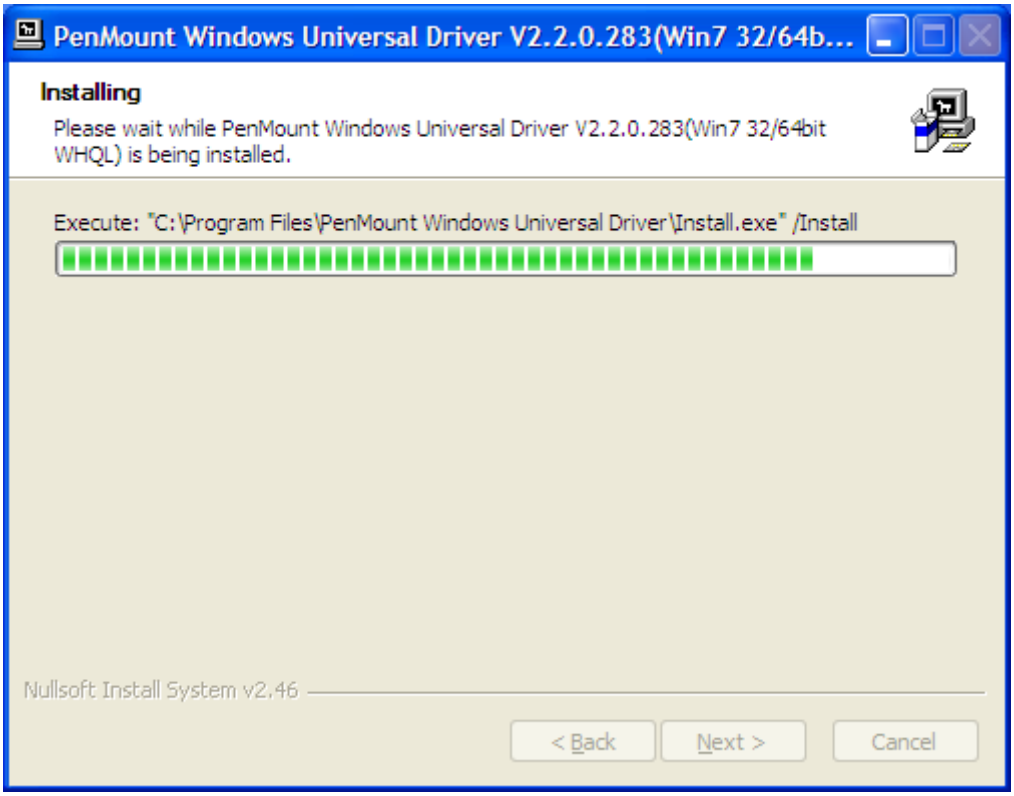
Step 3. Read the license agreement. Click **I Agree** to agree the license agreement.



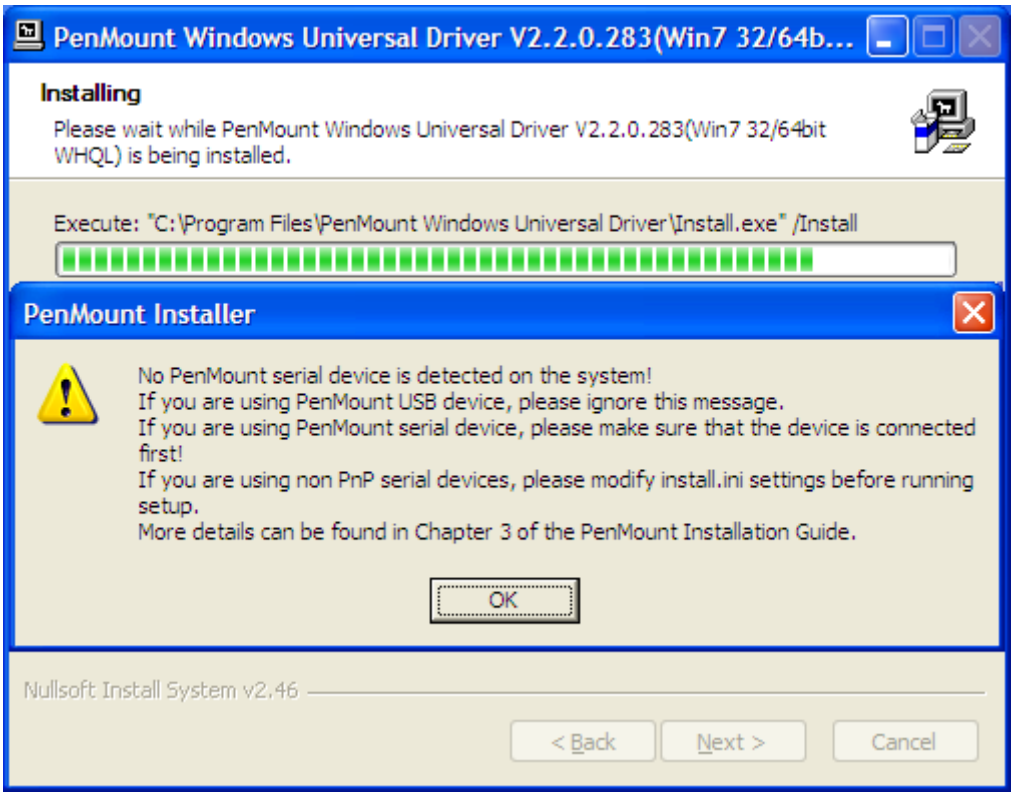
Step 4. Choose the folder in which to install PenMount Windows Universal Driver. Click **Install** to start the installation.



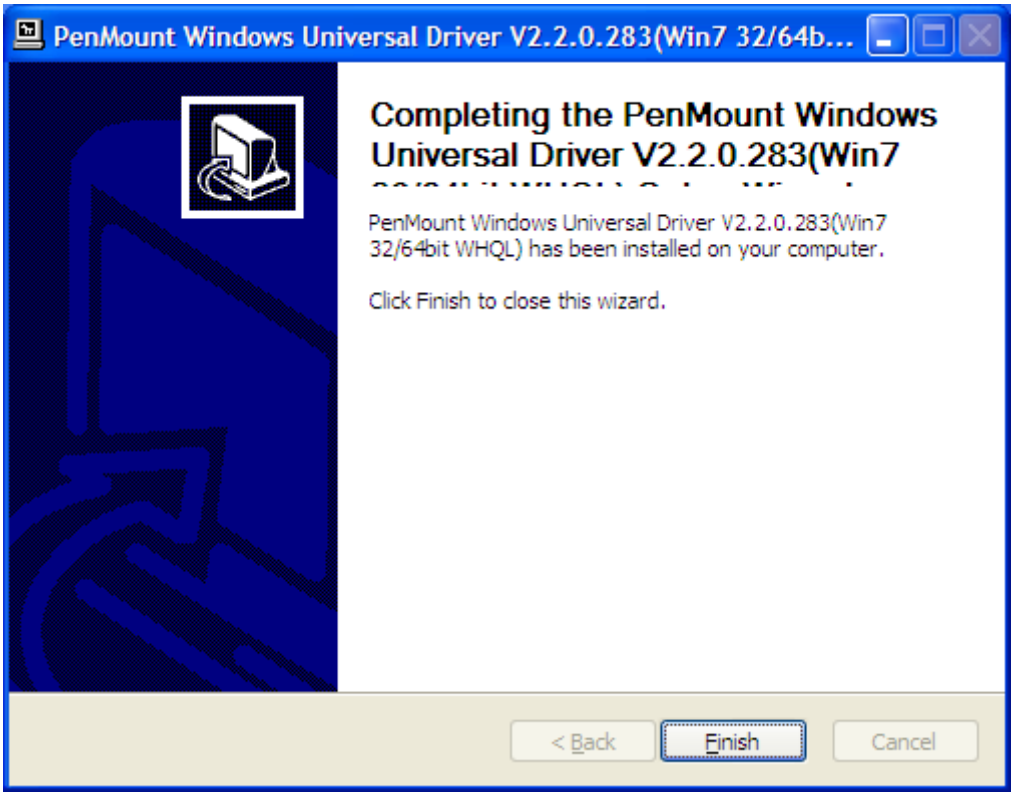
Step 5. Wait for installation. Then click **Next** to continue.



Step 6. Click **OK**.



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



5.2.2 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.

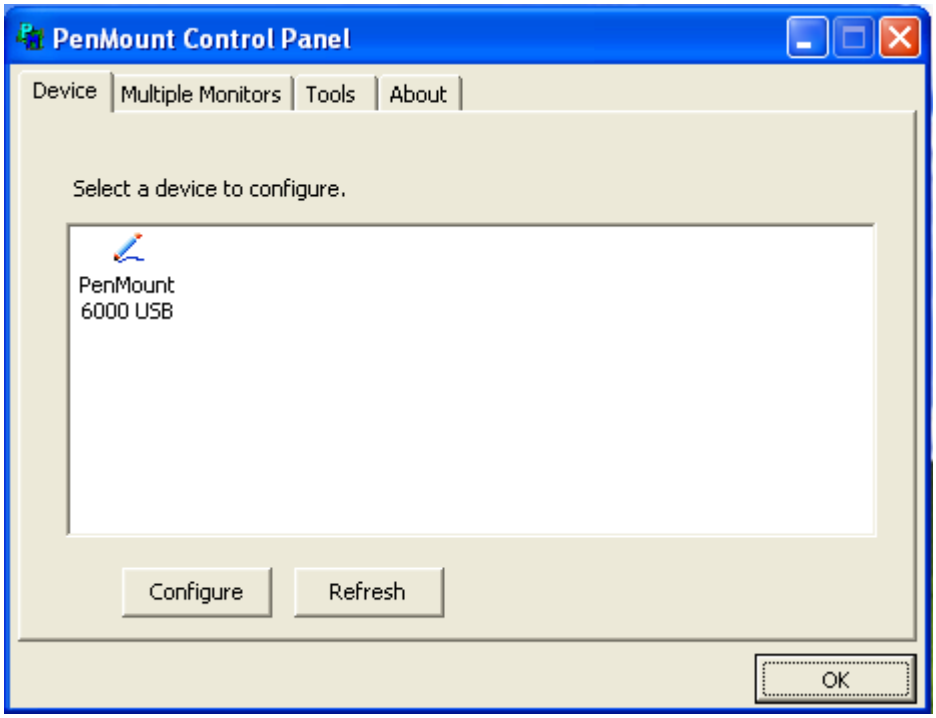
1. After installation, click the PenMount Monitor icon “PM” in the menu bar.
2. When the PenMount Control Panel appears, select a device to “Calibrate.”

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.



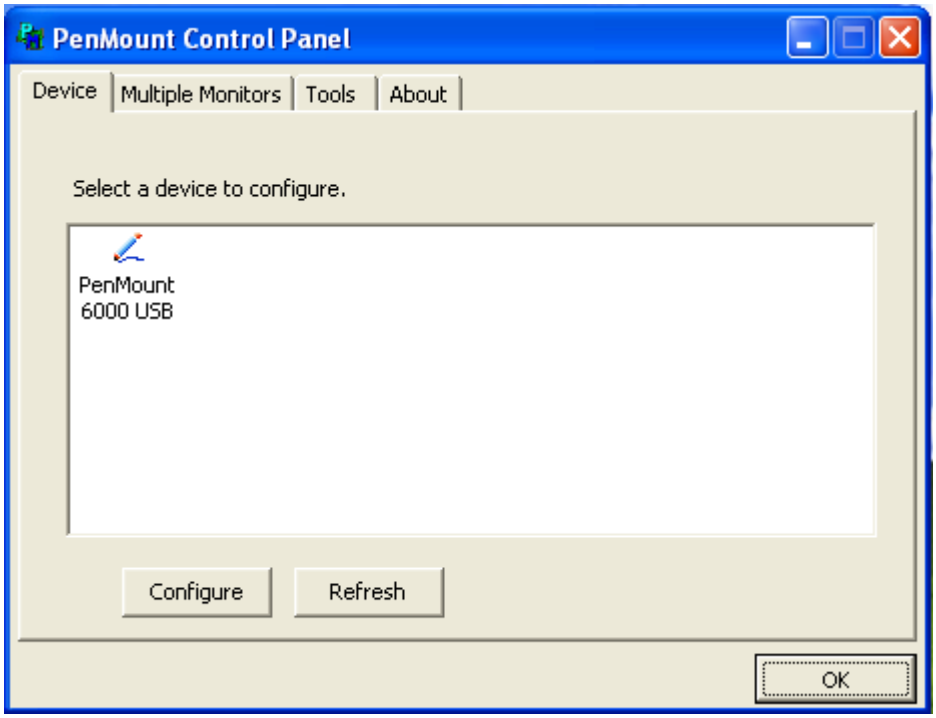
Calibrate

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

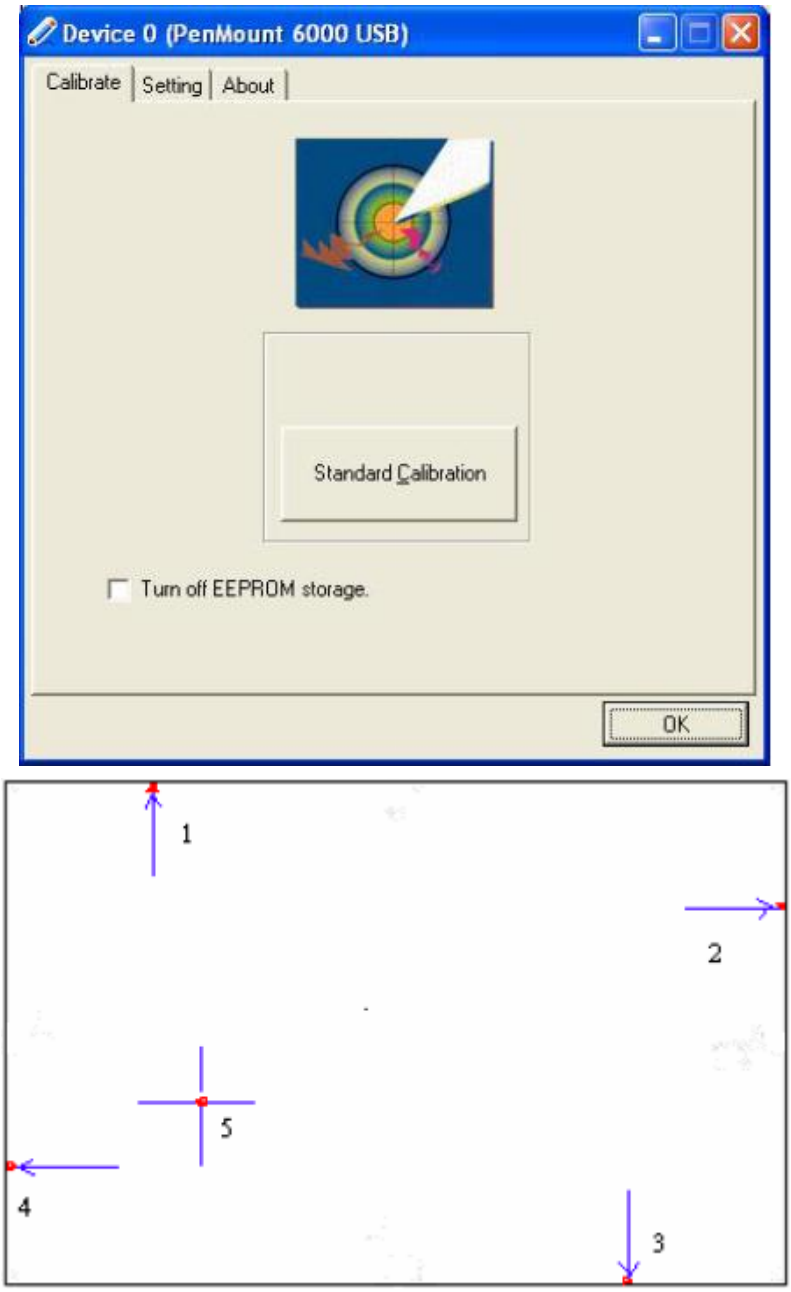
Standard Calibration	**Click this button and arrows appear pointing to red squares. Use your finger or stylus to touch the red squares in sequence. After the fifth red point calibration is complete. To skip, press ‘ESC’.**

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.

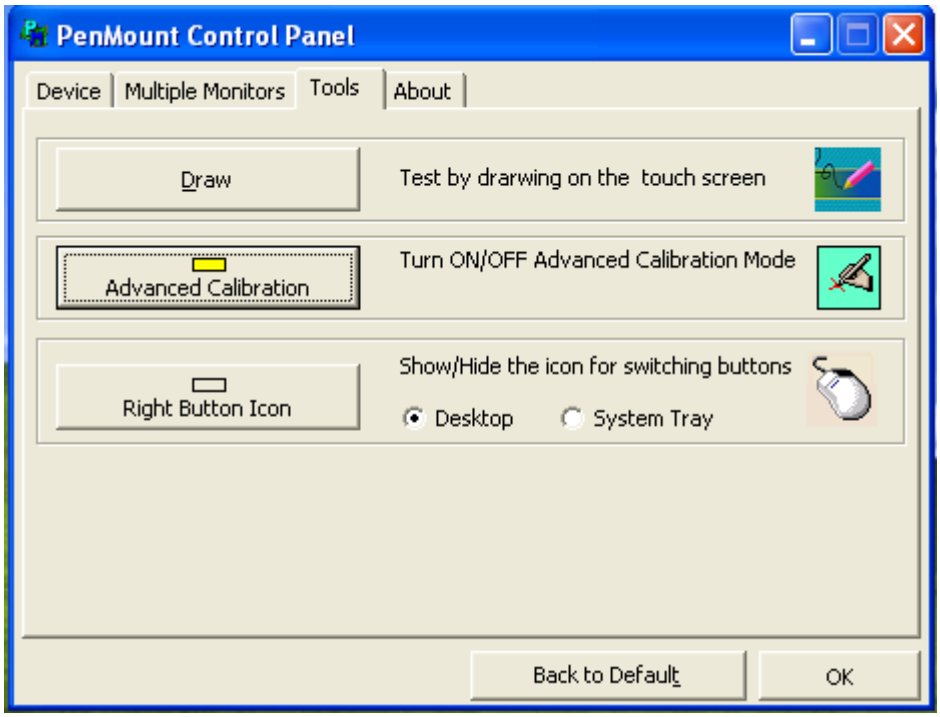


Step 2. Click “Standard Calibration” to start calibration procedure

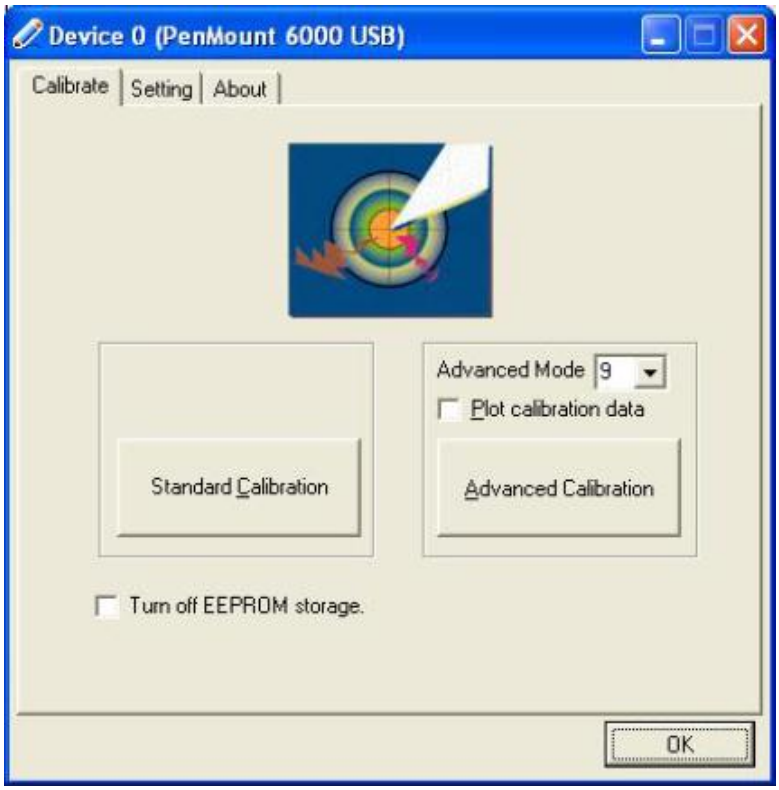


NOTE: The older the touch screen, the more Advanced Mode calibration points you need for an accurate calibration. Use a stylus during Advanced Calibration for greater accuracy. Please follow the step as below:

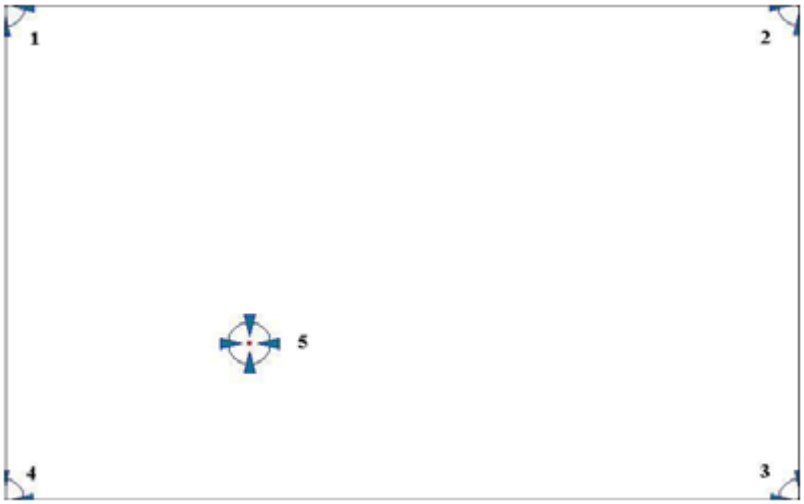
Step 3. Come back to “PenMount Control Panel” and select **Tools** then click **Advanced Calibration**.



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



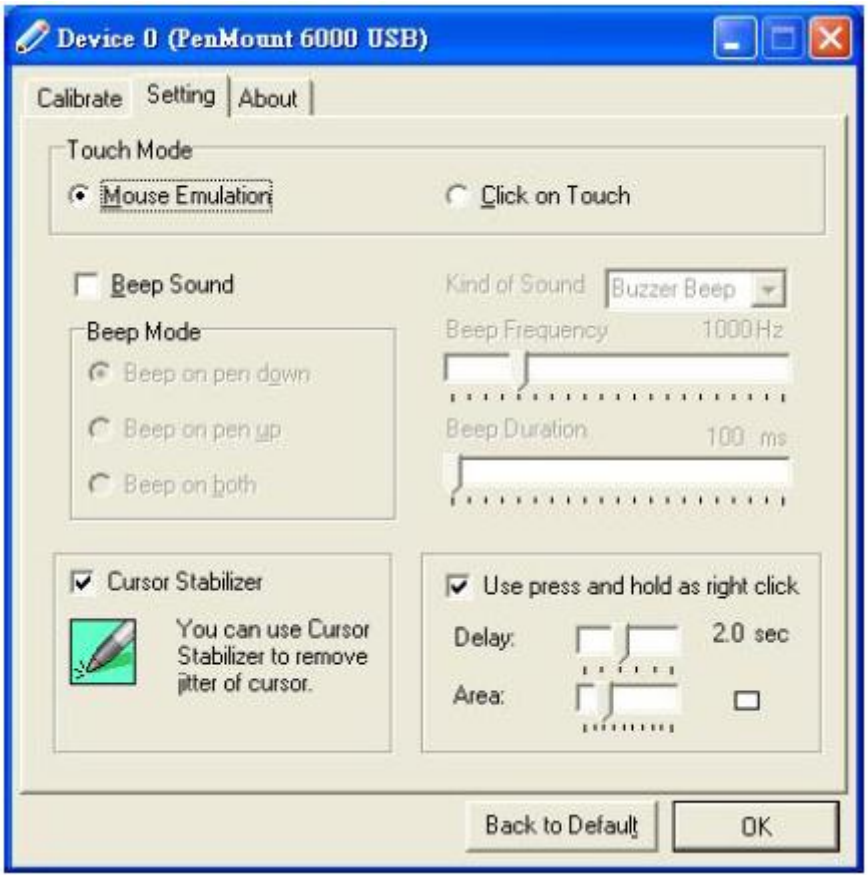
NOTE: Recommend to use a stylus during Advanced Calibration for greater accuracy.



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**

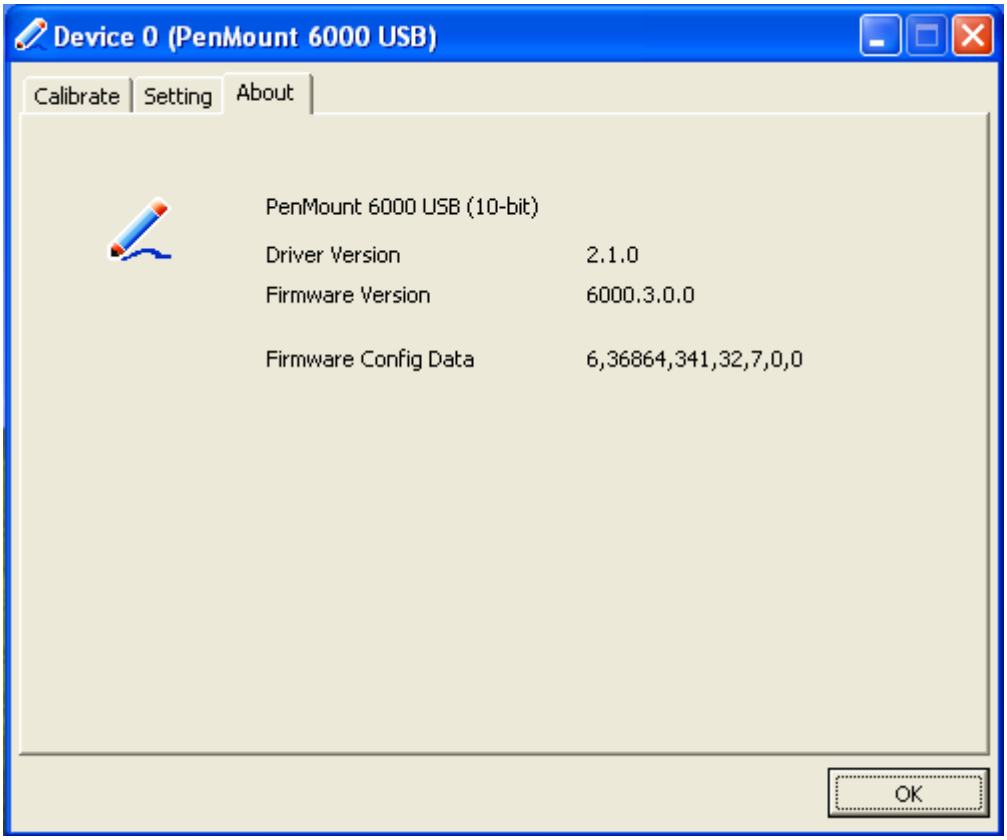
Setting

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 disabled**
Beep Sound	**Enable Beep Sound – turns beep function on and off** **Beep on Pen Down – beep occurs when pen comes down** **Beep on Pen Up – beep occurs when pen is lifted up** **Beep on both – beep occurs when comes down and lifted up** **Beep Frequency – modifies sound frequency** **Beep Duration – modifies sound duration**
Cursor Stabilizer	**Enable the function support to prevent cursor shake.**
Use press and hold as right click	**You can set the time out and area for you need**



About

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



Multiple Monitors

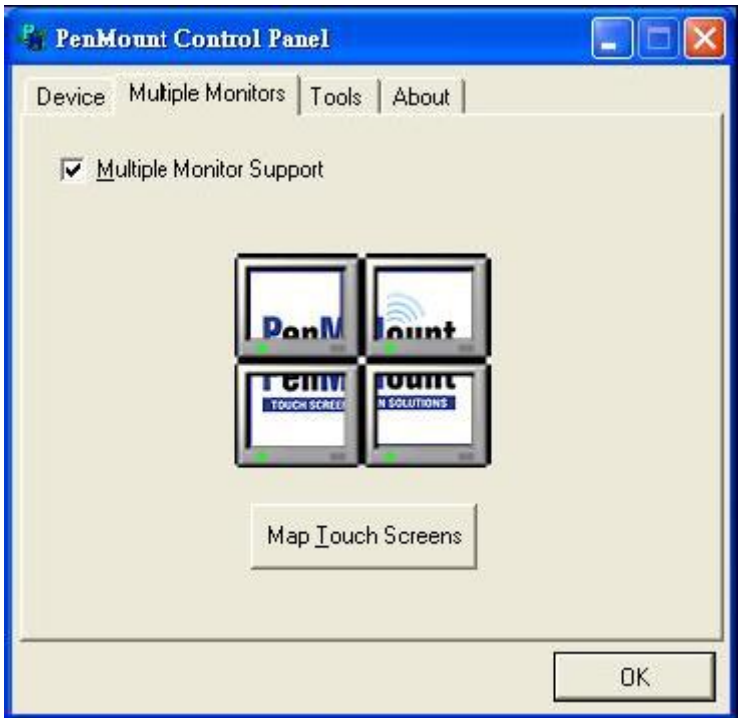
Multiple Monitors supports from two to six touch screen displays for one system. The PenMount drivers for Windows 2000/XP support Multiple Monitors. This function supports from two to six touch screen displays for one system. Each monitor requires its own PenMount touch screen control board, either installed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

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

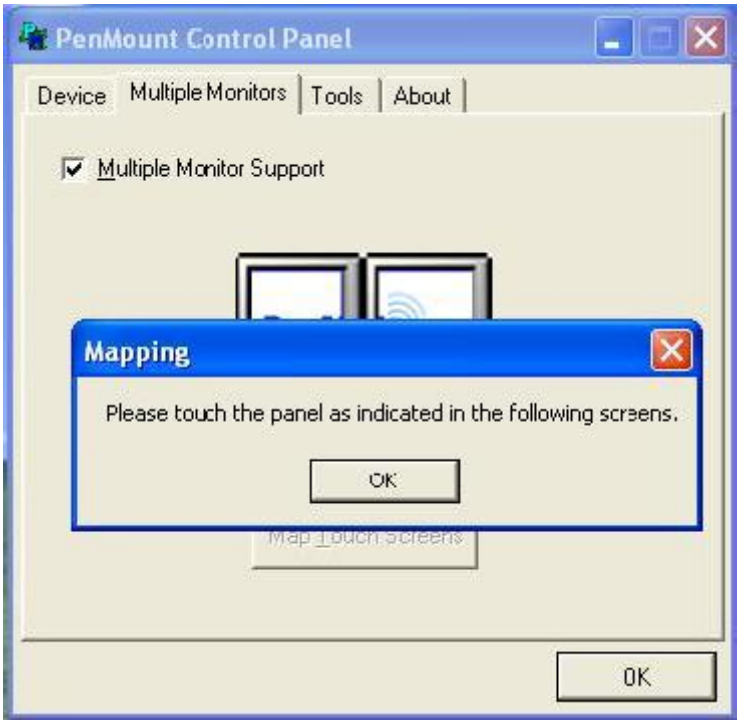
NOTE: The Multiple Monitors function is for use with multiple displays only. Do not use this function if you have only one touch screen display. Please note once you turn on this function the Rotating function is disabled.

Enable the multiple display function as follows:

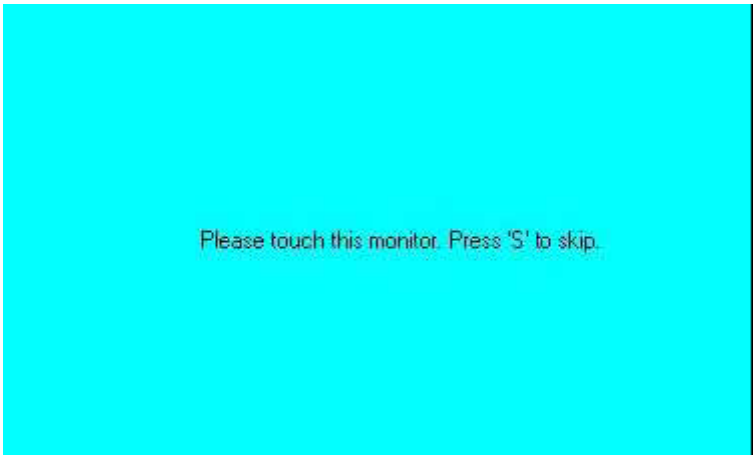
Step 1. Check the **Multiple Monitor Support** box; then click **Map Touch Screens** to assign touch controllers to displays.



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



Step 3. Touch each screen as it displays **Please touch this monitor. Press 'S' to skip.** Following this sequence and touching each screen is called **mapping the touch screens**.



Step 4. After the setting procedure is finished, maybe you need to calibrate for each panel and controller

NOTES:

1. If you used a single VGA output for multiple monitors, please do not use the **Multiple Monitors** 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 Monitors function.

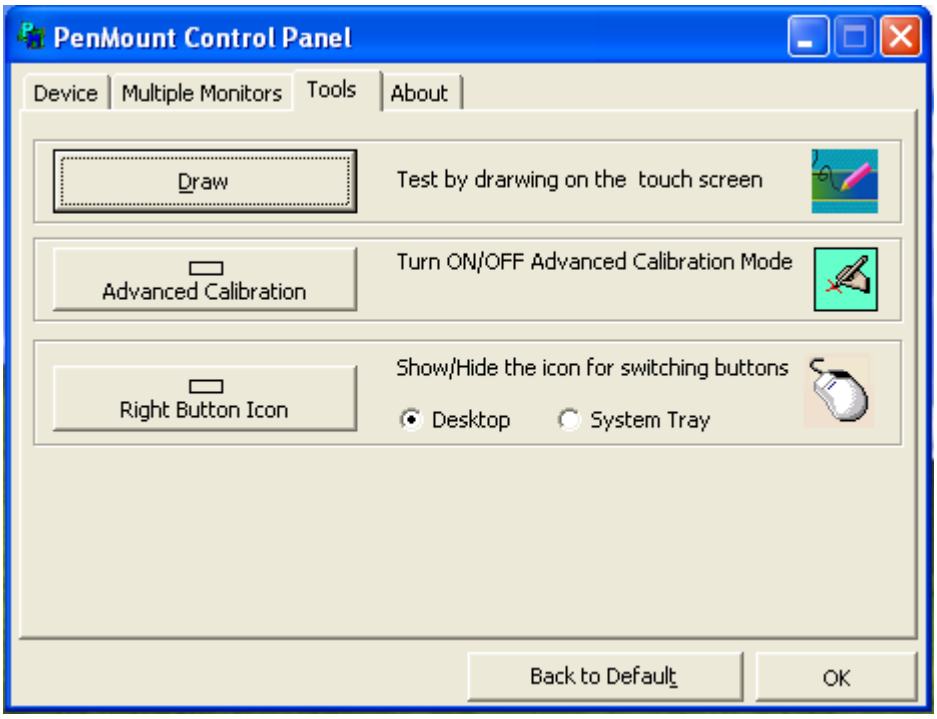
3. If you change the resolution of display or screen address, you have to redo **Map Touch Screens** so

the system understands where the displays are.

4. If you more monitor mapping one touch screen, **Please press 'S' to skip mapping step.**

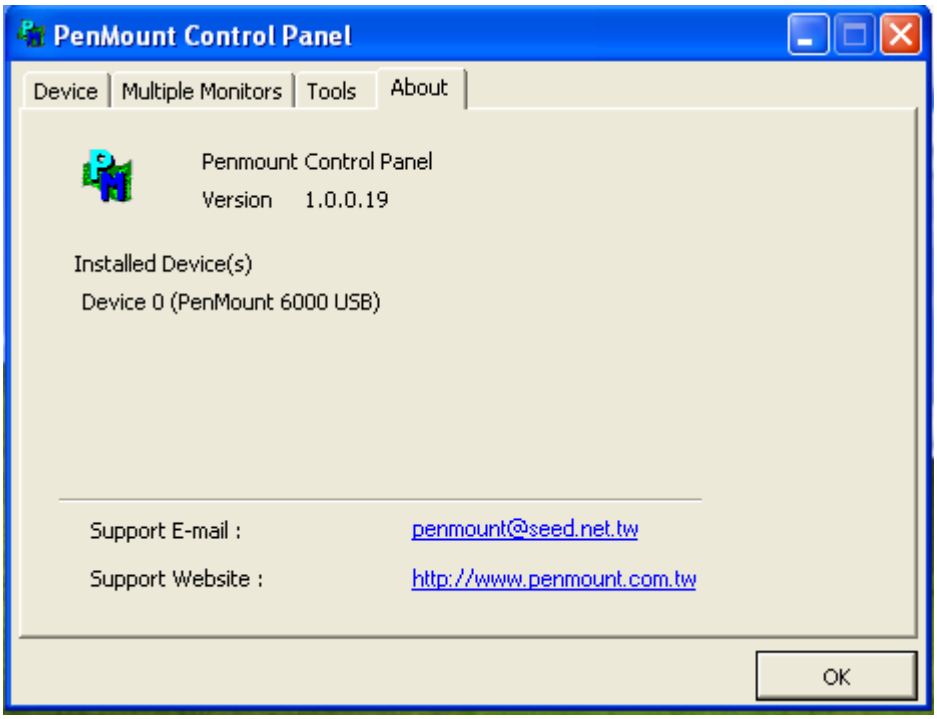
Tools

Draw	**Tests or demonstrates the PenMount touch screen operation.**
Advanced Calibration	**Enable Advanced Calibration function**
Right Button Icon	**Enable right button function. The icon can show on Desktop or System Tray (menu bar).**



About

You can see how many devices of PenMount controller that are plugged to your system



PenMount Monitor Menu Icon

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

PenMount Monitor has the following function

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

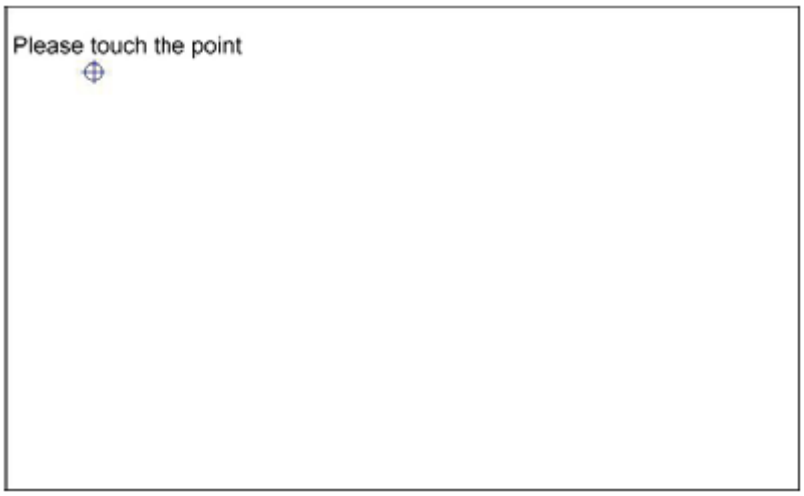
PenMount Rotating Functions

The PenMount driver for Windows 2000/XP supports several display rotating software packages. Windows Me/2000/XP support display rotating software packages such as:

- Portrait's Pivot Screen Rotation Software
- ATI Display Driver Rotate Function
- nVidia Display Driver Rotate Function
- SMI Display Driver Rotate Function
- Intel 845G/GE Display Driver Rotate Function

Configuring the Rotate Function

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



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