EX-96XX3A
(Human Machine Interface)
User Manual

"The Human Machine Interface is where people and technology meet."

Revision

Date	Version	Remark
Jul. 2012	**V1.0**	

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.

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Figures

Chapter 1 <u>   </u> <u>System</u>

1.1 Specifications

Specs	EX-96053A	EX-96083A	EX-96103A
CPU	Intel Atom Z510P 1.1 GHz FSB 400 MHz, Z530P 1.6 GHz FSB 533 MHz for option		
Chipset	Intel US15WP		
System Memory	1GB DDR2 400MHz DRAM built-in default		
Graphic	Intel GMA500 built-in US15W		
External I/O Port	4 x USB 2.0 Connectors 1 x RJ-45 LAN Connector 1 x DB-9 RS232 COM 3 1 x DB-9 RS232/422/485 COM 1 Default:RS-485 1 x 3 Pin DC Power Input Terminal Block		
Display Type	5.7" TFT-LCD	8" TFT-LCD	10.4" TFT-LCD
Max. Resolution	640x480	800x600	800x600
Maximum Colors	262K	262K	262K
Viewing Angle (Degree)	H:140/ V:100	H:130/V:120	H:130/V:110
Luminance (cd/m²)	400	400	250
Backlight Lifetime	40,000 hrs	40,000 hrs	20,000 hrs
Rating	Front Panel IP65		
Mounting	Panel/VESA 75x75 Mount		
Touch Screen Type	Resistive Type		
Storage	1 x 2.5" SATA HDD/m-SATA		
Wireless LAN	Wireless LAN Module via mini-PCIe (Optional) Antenna is built-in on the rear side (Internal Antenna)		
Power Supply	DC 9-32V		
Construction and Color	Plastic molding housing		
Dimensions (WxHxD)	204 x 149 x 65 mm	231 x 176 x 57 mm	270.5 x 212.5 x 57 mm
Operating Temperature	0~50℃		
Storage Temperature	-20~60℃		
Relative Humidity	10%~90%@ 40°C, (non-condensing)		
Certificate	CE/FCC Class A		

1.2 Dimensions
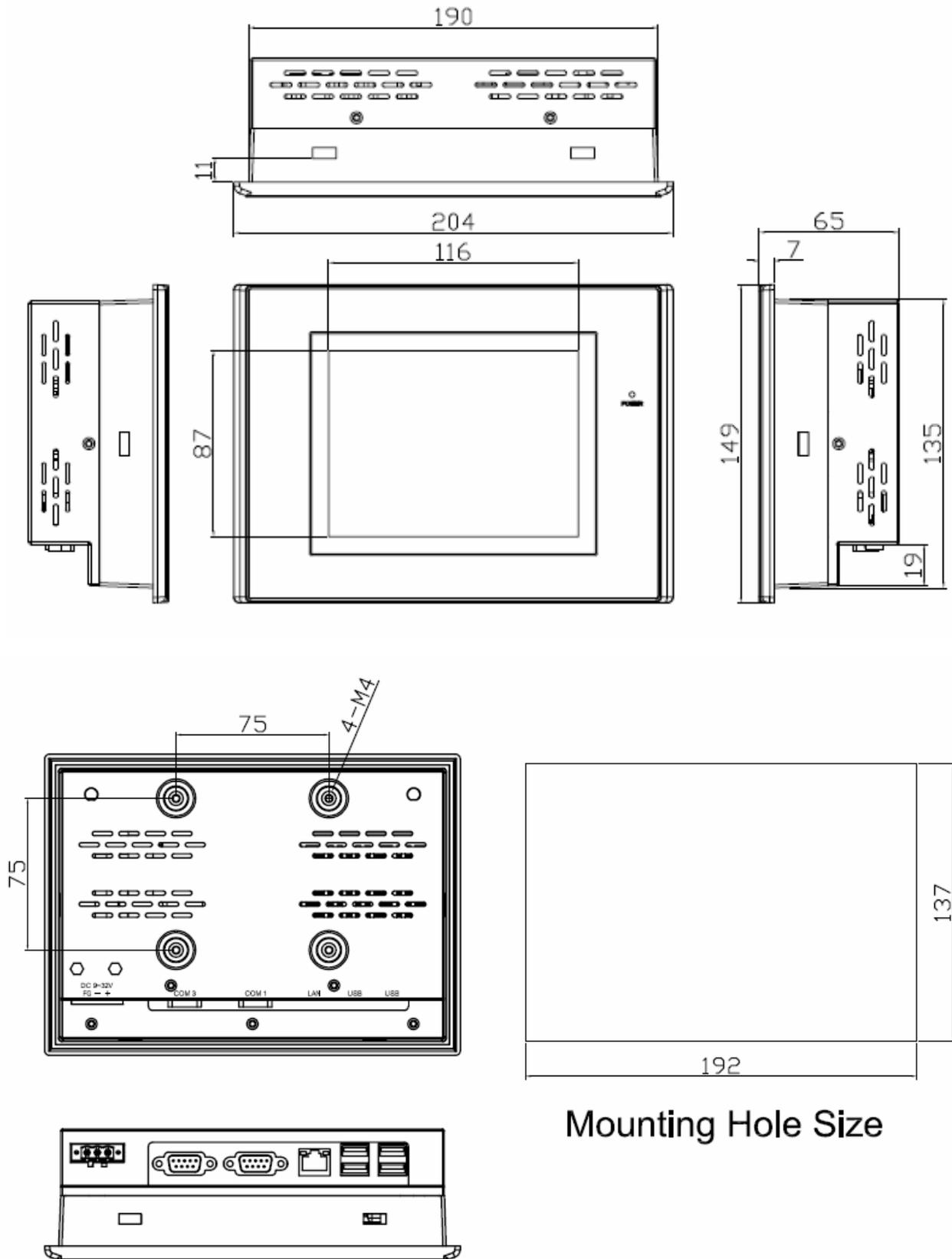
Figure 1.1: Dimensions of the EX-96053A
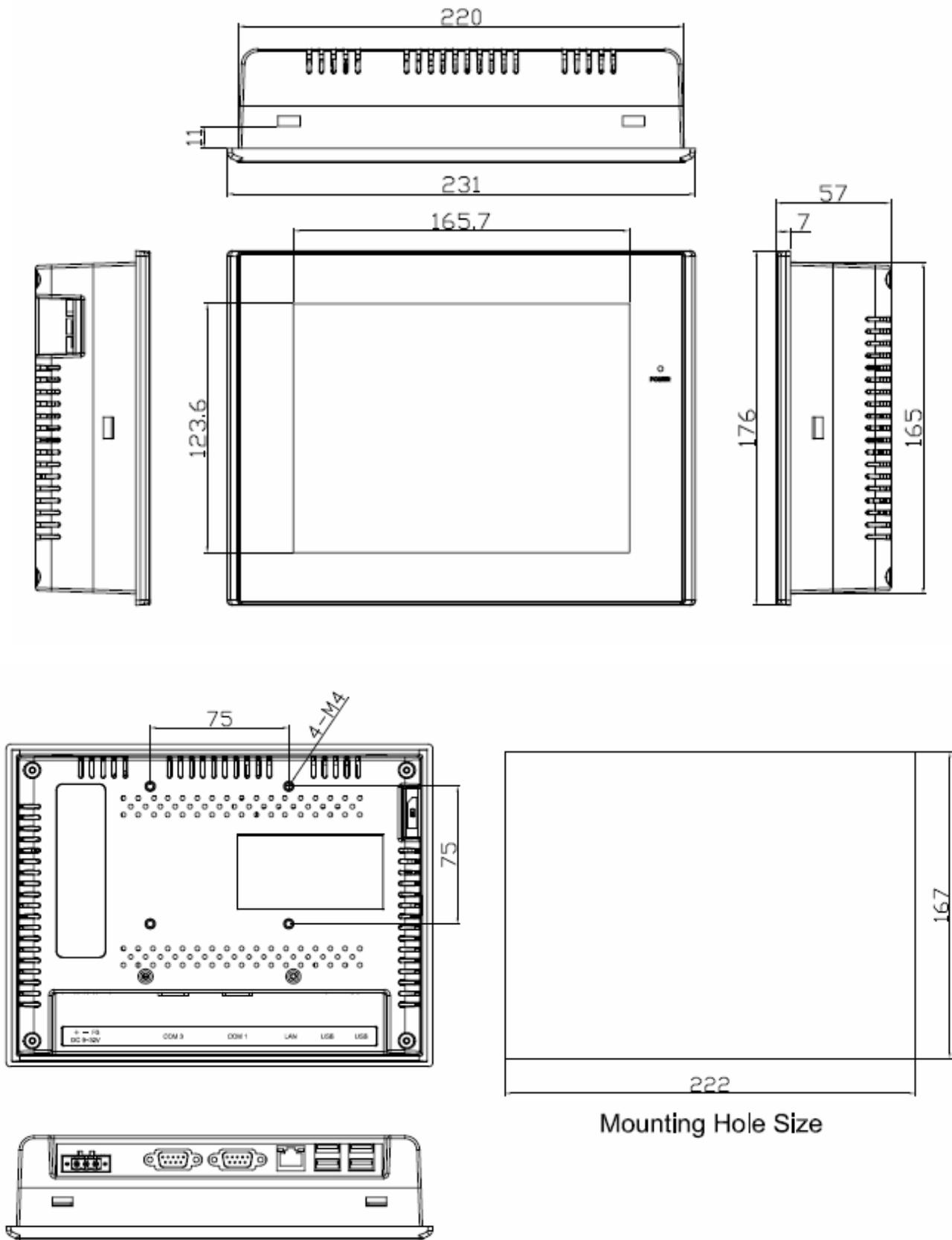
Figure 1.2: Dimensions of the EX-96083A

Figure 1.3: Dimensions of the EX-96103A
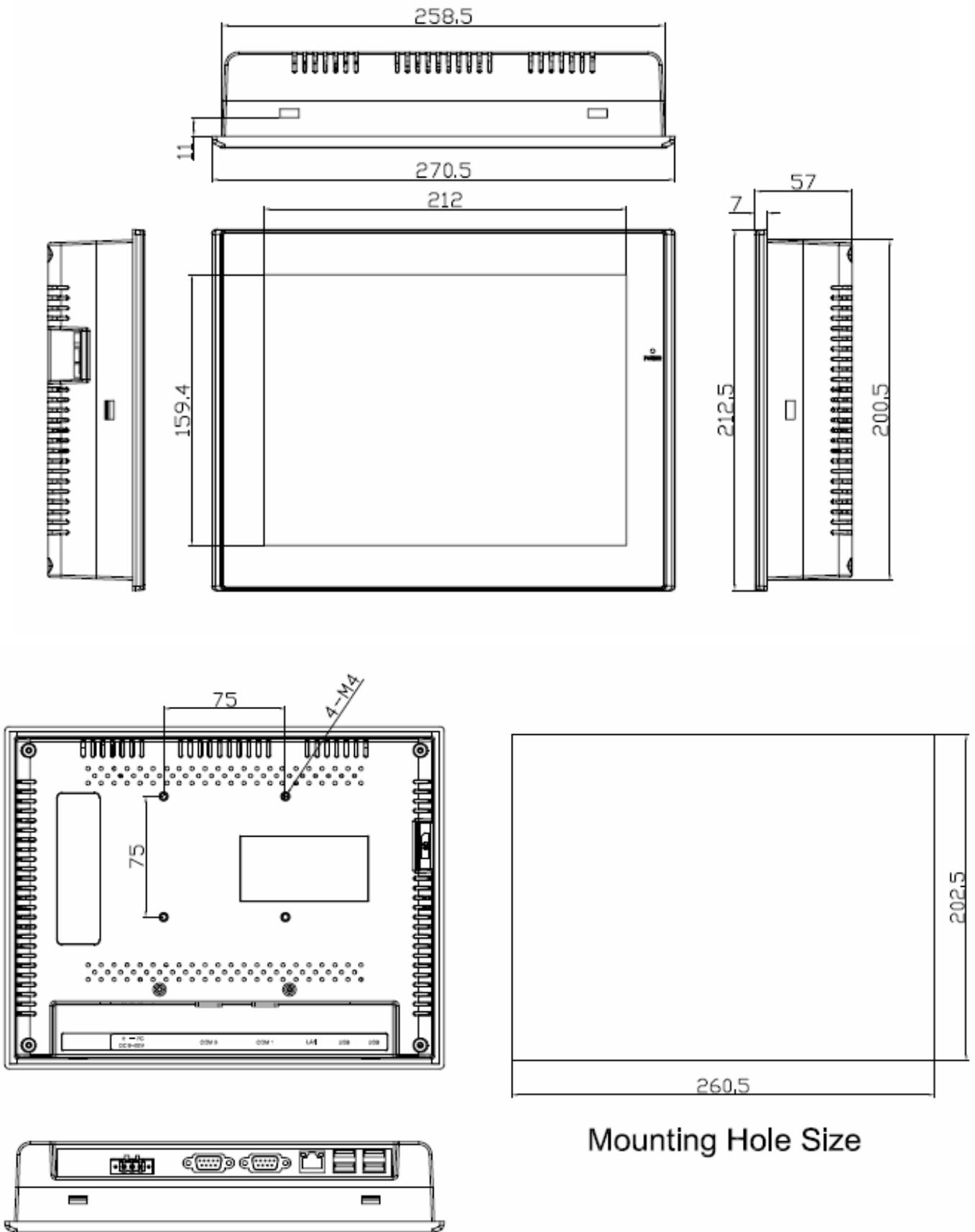
1.3 Brief Description of the EX-96XX3A

The EX-96053A/96083A/96103A is a fan-less design HMI, which comes with an 5.7-inch (luminance of 400 cd/m²)/8-inch (luminance of 400 cd/m²)/10.4-inch (luminance of 250 cd/m²) TFT LCD. It is powered by an Intel Atom Z510P Processor. The HMI Series also features two COM ports, four USB 2.0 ports, one 2.5" HDD, DC power of 9~32V, etc. It is ideal for use as a PC-based controller for Industrial Automation & Factory Automation.

Figure 1.4: Overview of EX-96053A

Figure 1.5: Overview of EX-96083A

Figure 1.6: Overview of EX-96103A

Chapter 2 Hardware
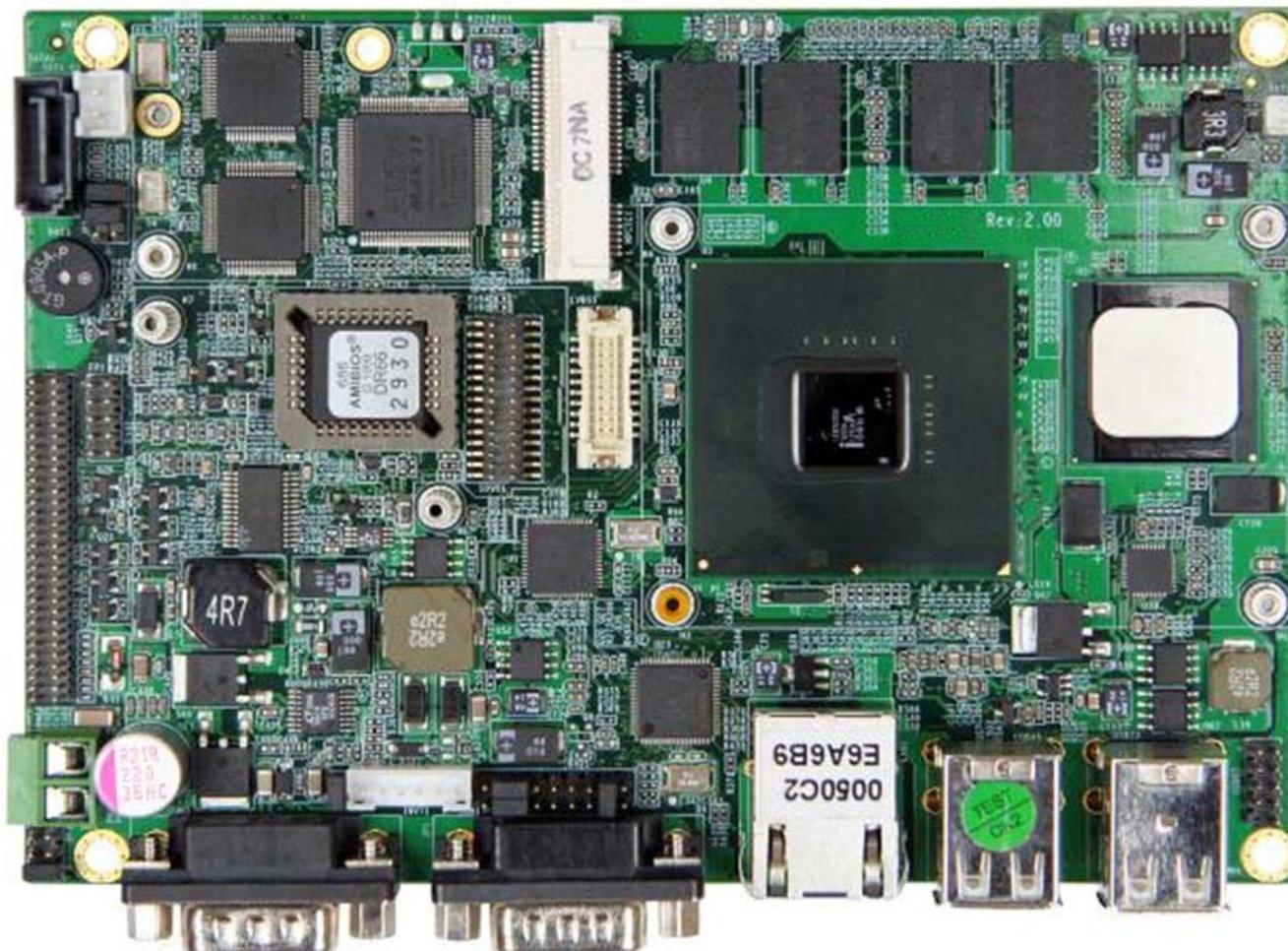
2.1 Mainboard

Figure 2.1: Mainboard Overview

Specifications	
Board Size	146mm x 102mm
CPU Support	Support Intel Atom Z530P, FSB 533 MHz (onboard), Support Intel Atom Z510P, FSB 400 MHz (option)
Chipset	Intel US15WP/PT
Memory Support	Onboard 1GB DDR2 533 MHz FSB

Graphics	Integrated Intel GMA 500
Super I/O	Winbond W83627UHG
BIOS	AMIBIOS
LVDS	1 x 18/24 bit LVDS output connector
SDVO	1 x SDVO Pin header for internal (Expansion: SDVO to CRT,SDVO to LVDS,SDVO to HDMI/DVI)
Storage	1 x SATA Connector 1 x mSATA Connector
Network	1 x RJ-45 1000Mbps LAN Intel 82574L
USB	4 x USB 2.0 stack port for external 2 x USB 2.0 Pin header for internal
Serial	1 x RS232 port, DB9 connector for external (COM3), pin 9 w/5V/12V/Ring select 1 x RS232/422/485 select header for internal (COM1)
Battery	Support CR2477 Li battery by 2-pin header
Audio	Support Audio via Realtek ALC662 HD audio decoder Support Line-in, Line-out, MIC by J2 pin header
Expansion Bus	1 x mini-PCI-express slot (full size) Support USB 2.0 Device
Expansion Ports (J2)	1 x USB 2.0 Pin header for internal 2 x RS232 header for internal (COM2,COM4) 1 x SD Card 1 x PS/2 KB/MS pin header 1 x Audio 8 x GPIO
Power Management	DC9V~32V input 1 x 2-pin power input connector
Front I/O	by 2x5-pin header Power on/off switch Reset switch Power LED status HDD LED status WLAN LED status
Watchdog Timer	Software programmable 1 – 255 second by Super I/O

External I/O port	2 x COM Port (COM1,COM3) 4 x USB 2.0 Ports (stack) 1 x RJ45 GbE Port
Temperature	Operating: -25℃–70℃ Storage: -40℃–80℃
Humidity	5% - 95%, non-condensing, operating
Power Consumption	12V /2.00A (Intel Z530P/1.6GHz processor)
EMI/EMS	Meet CE/FCC class A

2.2 Jumpers and Connectors Location
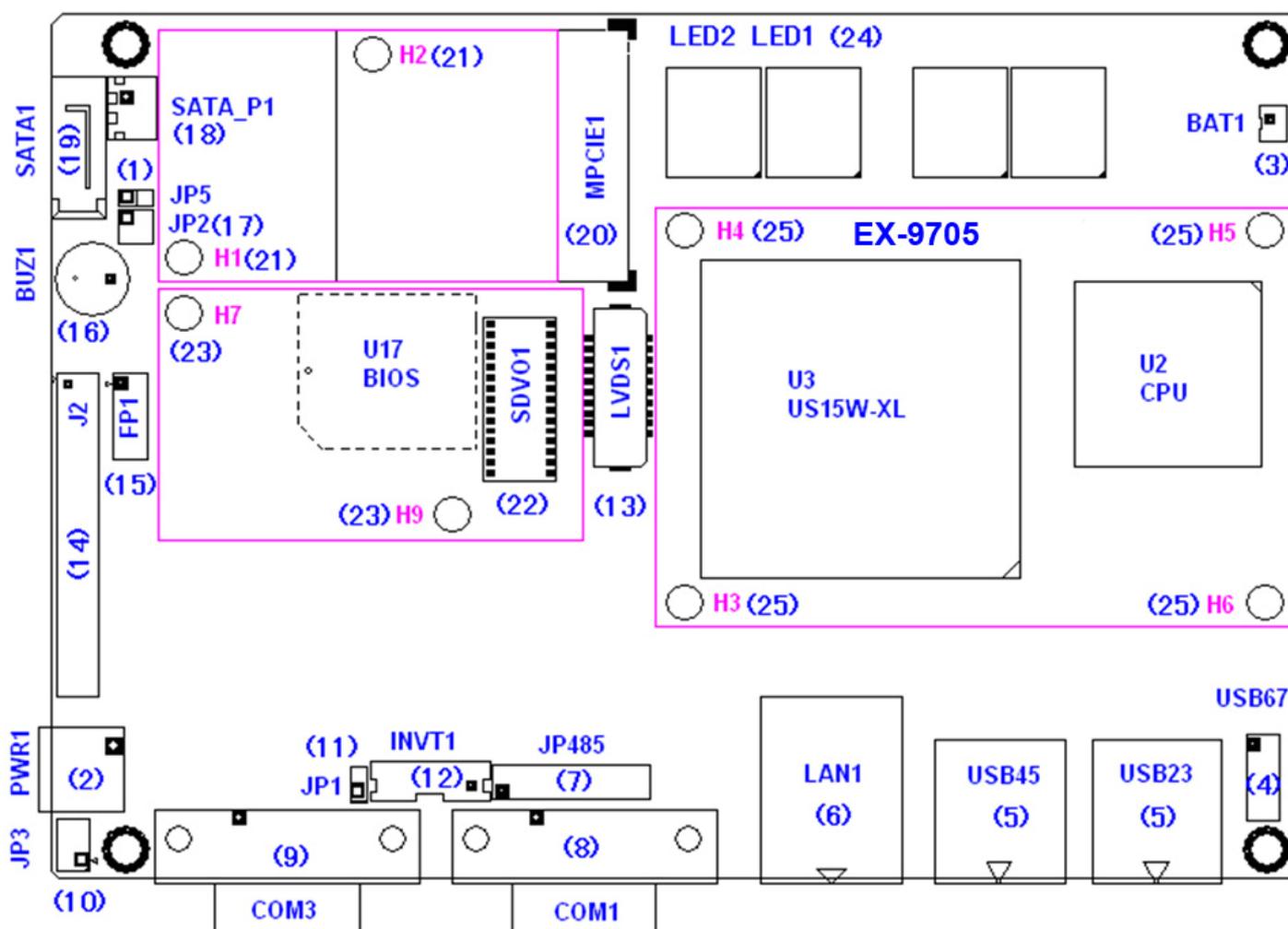
Figure 2.2: Board Top
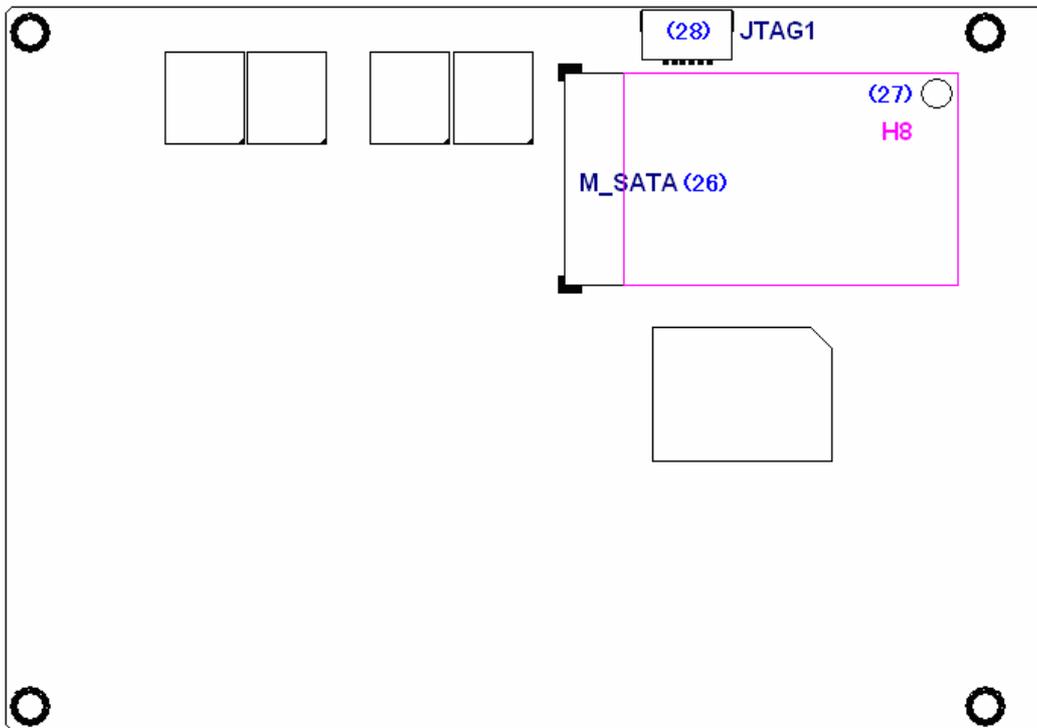
Figure 2.3: Board Bottom

2.3 Jumpers Setting and Connectors

1. **JP5:** (2.0mm Pitch 1X2 Pin Header), ATX Power and AT Power setting jumper.

JP5	Mode
Open	ATX Power Mode
Close	**AT Power Mode**

2. **PWR1:** (5.0mm 1x2 Pin Connector),DC9V~30V System power input connector
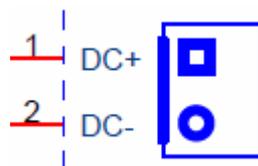
Pin#	Signal Name
1	+DC9V~DC30V
2	Ground

Note:

Make sure that the voltage of power supply is DC9V~30V before power on, or it may cause boot up failure and even system damage.

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. USB67: (2.0mm Pitch 2x5 Pin Header) ,Front USB connector, it provides two USB ports via a dedicated USB cable, speed up to 480Mb/s.

USB6 and USB7 can only be used for internal device attachment as USB 2.0 Specification, Can not support USB1.1 and USB 1.0 Specification.

Signal Name	Pin#	Pin#	Signal Name
+5V	1	2	+5V
USB6_N	3	4	USB7_N
USB6_P	5	6	USB7_P
Ground	7	8	Ground
NC	9	10	Ground

Note:

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

5. USB23/USB45: (Double stack USB type A), Rear USB connector, it provides up to 4 USB2.0 ports, speed up to 480Mb/s.
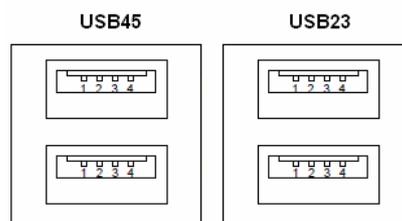
6. LAN1: (RJ45 Connector), Rear LAN port,1 standard 10/100/1000M RJ-45 Ethernet ports are provided. Used Intel 82574L chipset ,LINK LED (green) and ACTIVE LED (Orange) respectively located at the left-hand and right-hand side of the Ethernet port indicate the activity and transmission state of LAN.
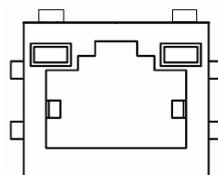
7. **JP485:** (2.0mm Pitch 2x9 Pin Header),COM1 setting jumper, pin 1~18 are used to select signal out of COM1 port of RS232 or RS422 or RS485 mode.

COM1 Mode	JP485 Setting	
RS232 (default)	1-3 (Close) 2-4 (Close) 7-9 (Close) 8-10 (Close) 13-14 (Close)	JP485 Jumper for RS232
RS422	3-5 (Close) 4-6 (Close) 9-11 (Close) 10-12 (Close) 17-18 (Close)	JP485 Jumper for RS422
RS485	3-5 (Close) 4-6 (Close) 15-16 (Close)	JP485 Jumper for RS485

8. **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.1~18 of **JP485**,select output Signal RS232 or RS422 or RS485, For details, please refer to description of JP485.
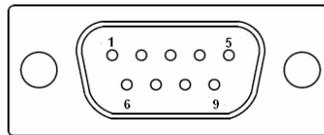
Pin #	Signal Name		
	RS232	RS422	RS485
1	DCD# (Data Carrier Detect)	422_TX-	485_D-
2	RXD (Received Data)	422_RX-	NC
3	TXD (Transmit Data)	422_RX+	NC
4	DTR (Data Terminal Ready)	422_TX+	485_D+
5	Ground	Ground	Ground
6	DSR (Data Set Ready)	NC	NC
7	RTS (Request To Send)	NC	NC
8	CTS (Clear To Send)	NC	NC
9	RI (Ring Indicator)	NC	NC
please refer to description of JP485			

9. **COM3:** **(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.
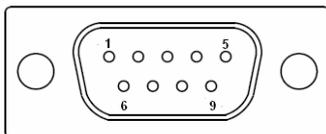
Pin#	Signal Name
1	DCD# (Data Carrier Detect)
2	RXD (Received Data)
3	TXD (Transmit Data)
4	DTR (Data Terminal Ready)
5	Ground
6	DSR (Data Set Ready)
7	RTS (Request To Send)
8	CTS (Clear To Send)
9	JP3 Setting: **Pin1-2 : RI (**Ring Indicator**) (default)** Pin3-4 : 5V Standby power **(**option**)** Pin5-6: 12V Standby power (option)

10. **JP3:** (2.0mm Pitch 2x3 Pin Header),COM1 setting jumper, pin 1~6 are used to select signal out of pin 9 of COM3 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)	

11. **JP1:** (2.0mm Pitch 1x2 Pin Header), Backlight Control jumper setting for LVDS1.

Signal Name	JP1
PWM	Open
DC voltage Mode	Close

Note:

Please check first your LVDS panel backlight control by DC voltage Mode or PWM?
Panel backlight control by Level 5V.

12. INVT1: (2.0mm Pitch 1x6 box Pin Header), Backlight control connector for LVDS1.

Pin#	Signal Name
1	DC+12V
2	DC+12V
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.

13. LVDS1: For 18/24 bit LVDS output connector, Fully supported by Intel US15W 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
VCC	2	1	VCC
Ground	4	3	Ground
LA_DATAP0	6	5	LA_DATAN0
LA_DATAP1	8	7	LA_DATAN1
LA_DATAP2	10	9	LA_DATAN2
LA_DATAP3	12	11	LA_DATAN3
LA_CLKP	14	13	LA_CLKN
Ground	16	15	Ground
BKLT_EN_OUT	18	17	BKLT_CTRL
12V	20	19	12V

14. J2: (1.27 x 2.54mm Pitch 2x30 Pin Header), Can be connected to one USB 2.0 Port
and one PS/2 Keyboard port and one Mouse port and one Audio port and one SD bus
and five GPIO and one SMB bus and two RS232 Ports.

·USB1:

Expansion USB connector, it provides two USB ports via a dedicated USB cable, speed up to 480Mb/s.

·**AUDIO:**

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.

·**PS/2:**

Expansion PS/2 keyboard and mouse, the port can be connected to PS/2 keyboard and mouse via a dedicated cable for direct used.

·**SD BUS:**

Expansion SD bus.

·**GPIO:**

8 GPIO, General-purpose input/output port, it provides a group of self-programming interfaces to customers for flexible use.

·**RS232(COM2,COM4):**

Expansion serial ports are provided to make a direct connection to serial devices.

Function	Signal Name	Pin#	Pin#	Signal Name	Function
USB1	5V_USB	1	2	5V_USB	USB1
	USB1_N	3	4	USB1_P	
	Ground	5	6	Ground	
PS/2 MS	MS_CLK	7	8	KB_CLK	PS/2 KB
	MS_DATA	9	10	KB_DATA	
	5V_F_AUDIO	11	12	GND_AUD	
Audio	LINE_OUT_L	13	14	LINE_OUT_R	Audio
	LINE_IN_L	15	16	LINE_IN_R	
	MIC_IN_L	17	18	MIC_IN_R	
	Ground	19	20	Ground	
SD bus	SD0_D2	21	22	SD0_D3	SD bus
	SD0_CMD	23	24	SD0_CLK	
	SD0_D0	25	26	SD0_D1	
	SD0_CD-	27	28	SD0_WP	
	3P3V_SDISK	29	30	3P3V_SDISK	
GPIO	EXT_GPIO6	31	32	EXT_GPIO9	GPIO
	EXT_GPIO2	33	34	EXT_GPIOSUS0	

	EXT_GPIO3	35	36	EXT_GPIO8	
	EXT_GPIO1	37	38	EXT_GPIO4	
RS232 (COM2)	Ground	39	40	Ground	RS232 (COM2)
	DSR2-	41	42	DCD2-	
	RTS2-	43	44	RXD2	
	CTS2-	45	46	TXD2	
	RI2-	47	48	DTR2-	
RS232 (COM4)	5V_S0	49	50	5V_S0	RS232 (COM4)
	DSR4-	51	52	DCD4-	
	RTS4-	53	54	RXD4	
	CTS4-	55	56	TXD4	
	RI4-	57	58	DTR4-	
	Ground	59	60	Ground	

15. FP1: (2.0mm Pitch 2X5 Pin Header), Front panel connector.

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

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:

WAN LED, They are used to connect WAN LED.

Note:

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

16. **BUZ1:** onboard buzzer.

17. **JP2:** (2.0mm Pitch 2x2 Pin Header), mSATA/SATA1 Devices Master or slave jumper setting. While using mSATA/SATA1 devices at the same time, one of the devices must be set as Master.

JP2	Devices Master
1~2 on 3~4 off	mSATA Master
1~2 off 3~**4 on**	SATA1 Master

18. **SATA_P1:** (2.5mm Pitch 1x2 box Pin Header),an onboard 5V output connector is 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.

19. **SATA1:** (SATA 7P),,SATA Connectors, one SATA connectors are provided, with transfer speed up to 3.0Gb/s.

20. **MPCIE1**: (50.95mmx30mm Socket 52Pin),mini PCIE socket, it is located at the top, it supports mini PCI-E devices with USB2.0, SMBUS and PCI-E signal.

21. **H1/H2**: MPCIE1 SCREW HOLES, H1 for mini PCIE card (50.95mmx30mm Socket 52 Pin)

assemble. H2 Reserve**.**

22. **SDVO1**: (1.27 x 2.54mm Pitch 2x15 Pin Header), SDVO bus, connect SDVO to VGA card or SDVO to LVDS card or SDVO to HDMI card or SDVO to DVI Card。
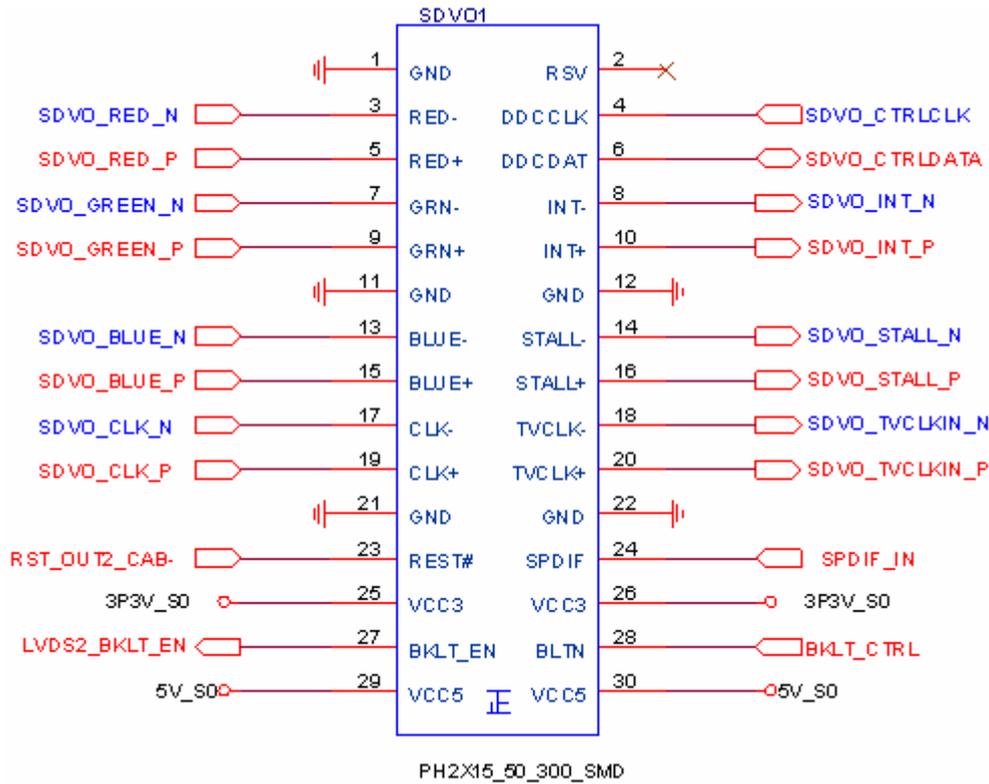
□ **EX-9515   R1.00 (option):**

EX-9705 SDVO1 connected Card, Support SDVO to CRT display and HDMI TV display

EX9515 Location
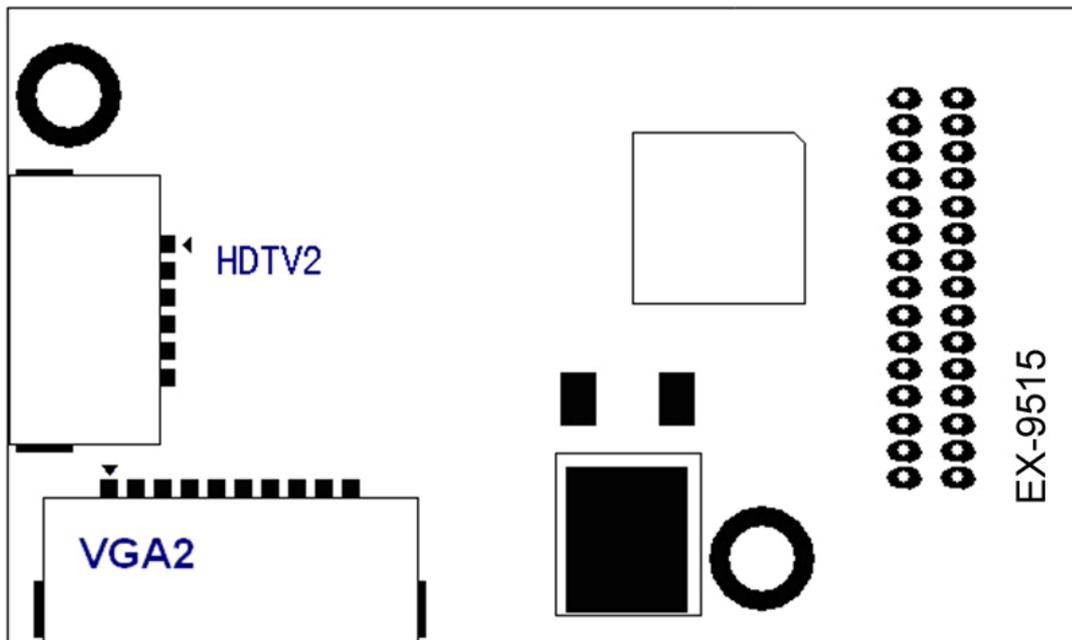
VGA2 Port Signal Name:
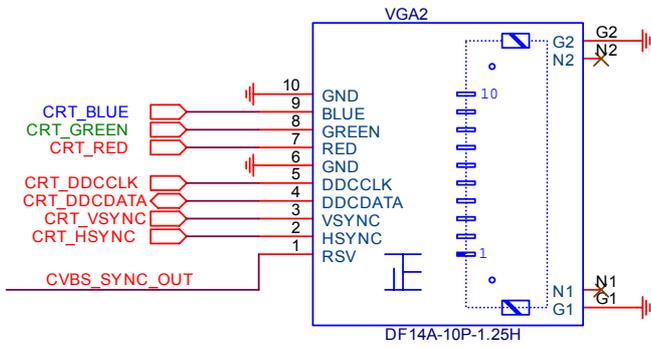
HDTV2 Port Signal Name:
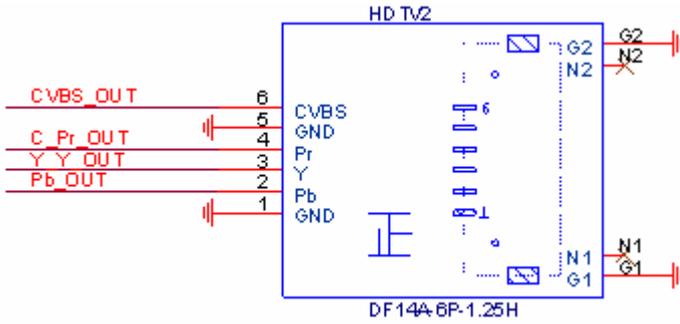
□ **EX-9516 R1.00 (option):**

EX-9705 SDVO1 connected Card, Support dual channel 18/24 bit LVDS output connector.
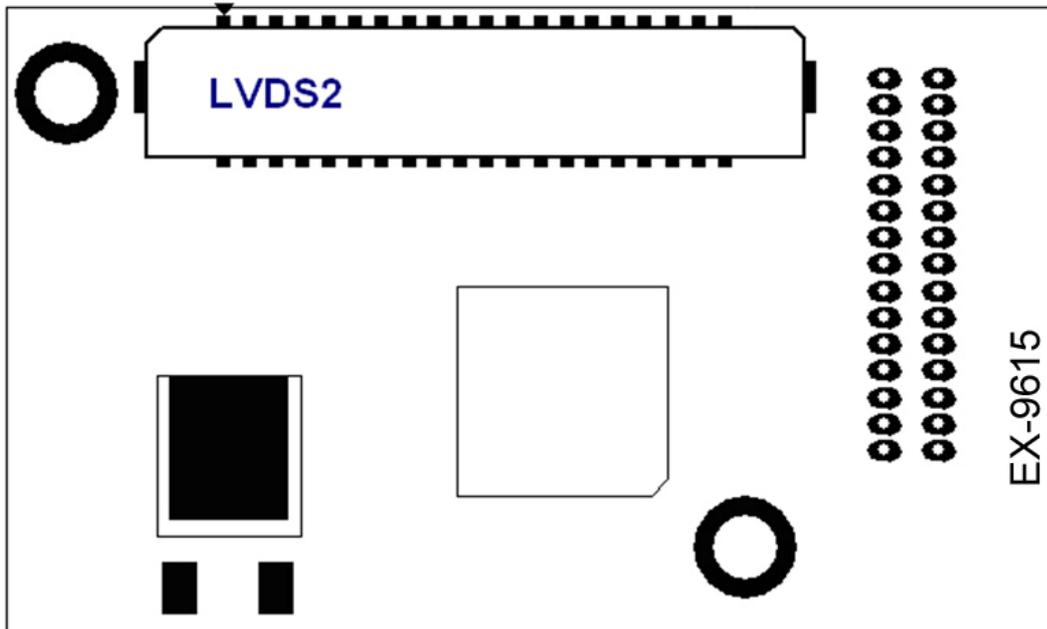
LVDS2 Port Signal Name:

LVDS2

DF13-40DP-1.25V
Aplex, 10.07.29

Left pins		Right pins	
LVDS2_VDD5	2 VCC5	1 VCC5	LVDS2_VDD5
	4 GND	3 GND	
LVDS2_VDD33	6 VCC3	5 VCC3	LVDS2_VDD33
2LB_D0_N	8 B_D0-	7 A_D0-	2LA_D0_N
2LB_D0_P	10 B_D0+	9 A_D0+	2LA_D0_P
	12 GND	11 GND	
2LB_D1_N	14 B_D1-	13 A_D1-	2LA_D1_N
2LB_D1_P	16 B_D1+	15 A_D1+	2LA_D1_P
	18 GND	17 GND	
2LB_D2_N	20 B_D2-	19 A_D2-	2LA_D2_N
2LB_D2_P	22 B_D2+	21 A_D2+	2LA_D2_P
	24 GND	23 GND	
2LB_CLKN	26 B_CLK-	25 A_CLK-	2LA_CLKN
2LB_CLKP	28 B_CLK+	27 A_CLK+	2LA_CLKP
	30 GND	29 GND	
2LDDC_DATA	32 DDC_DATA	31 DDC_CLK	2LDDC_CLK
	34 GND	33 GND	
2LB_D3_N	36 B_D3-	35 A_D3-	2LA_D3_N
2LB_D3_P	38 B_D3+	37 A_D3+	2LA_D3_P
	40 RSV	39 RSV	

G1 N1 G2 N2

LVDS2 Backlight control connector for INVERTER1.

23. **H7/H9**:   SDVO CARD SCREW HOLES, two screw holes for SDVO card assemble.

24. **LED1/LED2**:   LED STATUS.   LED1:Motherboard Standby Power Good status。LED2: Motherboard CPU Power Good status.

25. **H3/H4/H5/H6**:   Intel Atom Z530P(or Z510P) CPU+ US15W Heat Sink SCREW HOLES, Four screw holes for intel CPU and US15W Heat Sink assemble.

26. **M_SATA**： (50.95mmx30mm Socket 52Pin), mSATA socket, it is located at the bottom, it supports mini PCI-E devices with USB2.0, B2 mSATA bus for flash disk signal.

27. **H8**:   mSATA CARD SCREW HOLES, one screw holes for mSATA card assemble.

28. **JTAG1:**   Reserve**.**

Chapter 3   BIOS Setup

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 Delete key to enter CMOS Setup.

```
              American
              Megatrends
         www.ami.com

AMIBIOS©   2006 American Mega trends , Inc.
BIOS Date:   07/16/11 09:56:32   Ver: 08.00.15
CPU : Intel(R) Atom(TM) CPU          Z510    @   1.10GHz
Speed : 600M Hz

Press F11 for BBS POPUP
Initializing USB Controllers. .   Done.
1019MB   OK



Press delete to Run SETUP


                                                0085
```

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.

```
              American
              Megatrends
         www.ami.com

AMIBIOS©   2006 American Mega trends , Inc.
BIOS Date:   07/16/11 09:56:32   Ver: 08.00.15
CPU : Intel(R) Atom(TM) CPU          Z510    @   1.10GHz
Speed : 600M Hz

Press F11 for BBS POPUP
Initializing USB Controllers. .   Done.
1019MB   OK



Press delete to Run SETUP


                                                0085
```

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

```
                    Please select boot device：
```

Network: IBA GE Slot 0100 v1353

↑ and ↓ to move selection

ENTER to select Boot device

ESC to boot using defaults
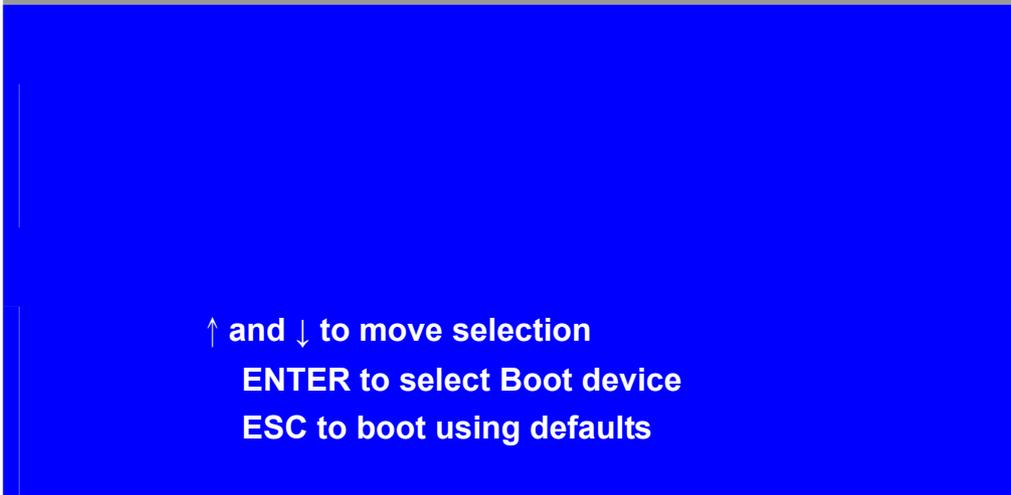
3.2   BIOS SETUP UTILITY

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

BIOS SETUP UTILITY						
Main	Advanced	PCIPnP	Boot	Security	Chipset	Exit

System Overview	User [ENTER], [TAB]
AMIBIOS	or [SHIFT-TAB] to
Version : 08.00.15	Select a field
Build Date : 07/16/11	
ID : 9705M005	Use[+] or [-] to
	configure system Time.
Processor	
Intel(R) Atom(TM) CPU Z510 @ 1.10GHz	
Speed :600MHz	
Count :1	← Select Screen
	↑↓ Select Item
System Memory	+- Charge Field
Size :1019MB	Tab Select Field
	F1 General Help
System Time [00:00:18]	F10 Save and Exit
System Date [Wed 07/16/2011]	ESC Exit
CMC LO-Module:0D2.023x, Hi-Module:0d2.016x	

3.3   System Overview

BIOS SETUP UTILITY						
Main	Advanced	PCIPnP	Boot	Security	Chipset	Exit

System Overview

AMIBIOS

Version   : 08.00.15

Build Date   : 07/16/11

ID   : 9705M005

Processor

Intel(R)   Atom(TM) CPU   Z510   @ 1.10GHz

Speed   :600MHz

Count   :1

System Memory

Size   :1019MB

System Time   [00:02:28]

System Date   [Wed   07/16/2011]

CMC LO-Module:0D2.023x, Hi-Module:0d2.016x

User [ENTER]，[TAB] or [SHIFT-TAB] to Select a field

Use[+] or [-] to configure system Time.

←   Select Screen
↑↓   Select Item
+-   Charge Field
Tab   Select Field
F1   General Help
F10   Save and Exit
ESC   Exit

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

```
                        BIOS SETUP UTILITY
   Main    Advanced    PCIPnP    Boot    Security    Chipset    Exit

   Advanced Settings                              Configure CPU
     WARNING:  Setting  wrong  values  In  below
   sections
                 may cause system to malfunction.

   ► CPU Configuration
   ► IDE Configuration
   ► Super IO Configuration
   ► ACPI Configuration
   ► MPS Configuration                    ←        Select Screen
   ► PCI Express Configuration            ↑↓       Select Item
   ► Smbios Configuration                 Enter    Charge Field
   ► USB Configuration                    F1        General Help
                                          F10      Save and Exit
                                          ESC       Exit

        V02.61 © Copyright 1985-2006 American Mega trends , Inc.
```

3.4.1 CPU Configuration

```
                        BIOS SETUP UTILITY
        Advanced

   Configure advanced CPU settings            This should be enabled
   Module Version: 3F.0D                      In order to enable or
   Manufacturer : Intel                       Disable the Hardware
   Intel(R) Atom(TM) CPU   Z510   @ 1.10GHz   Prefetcher Disable
   Frequency        :600MHz                   Feature.
   FSB Speed      : 400MHz
   Cache L1        :24 KB
   Cache L2        :512 KB
   Ratio Actual Value :6

   Hardware Prefetcher            [Enabled]   ←    Select Screen
```

Adjacent Cache Line Prefetch	[Enabled]
Max CPUID Value Limit	[Disabled]
Intel (R) Virtualization Tech	[Enabled]
Execute-Disable Bit Capability	[Enabled]
Hyper Threading Technology	[Enabled]
Intel(R) SpeedStep (tm) tech	[Disabled]
Intel(R) C-SATAE tech	[Disabled]

↑↓   Select Item
+-   Charge Field
F1   General Help
F10   Save and Exit
ESC   Exit

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Hardware Prefetcher:

[Enabled]

[Disabled]

Adjacent Cache Line Prefetch:

[Enabled]

[Disabled]

Max CPUID Value Limit:

[Disabled]

[Enabled]

Execute-Disable Bit Capability:

[Enabled]

[Disabled]

Hyper Threading Technology:

[Enabled]

[Disabled]

Intel(R) SpeedStep (tm) tech:

[Disabled]

[Enabled]

Intel(R) C-SATAE tech:

[Disabled]

[Enabled]

3.4.2 IDE Configuration

BIOS SETUP UTILITY

Advanced

IDE Configuration		Options
ATA/IDE Configuration	[Compatible]	Disabled
		Compatible
► Primary IDE Master	: [Not Detected]	
► Primary IDE Slaver	: [Not Detected]	← Select Screen
		↑↓ Select Item
Hard Disk Write Protect	[Disabled]	+- Charge Field
IDE Detect Time Out (Sec)	[35]	F1 General Help
ATA(PI) 80Pin Cable Detection	[Host & Device]	F10 Save and Exit
		ESC Exit

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ATA/IDE Configuration:

> **[Compatible]**
> [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

BIOS SETUP UTILITY
Advanced

Configure Win627UHG Super IO Chipset		Allow BIOS to Select
Serial Port1 Address	[3F8]	Serial Port Base
Serial Port1 Mode	[RS-232]	Address.
Serial Port2 Address	[2F8]	
Serial Port3 Address	[3E8]	
Serial Port3 IRQ	[IRQ4]	
Serial Port4 Address	[2E8]	
Serial Port4 IRQ	[IRQ3]	

←   Select Screen
↑↓   Select Item
+-   Charge Field
F1   General Help
F10   Save and Exit
ESC   Exit

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Serial Port1 Mode:

COM1 Options: **[RS232]**
[RS485]
[RS232]   for RS232 Mode
[RS485]   for RS485/RS422 Mode

3.4.4 ACPI Configuration

ACPI Setting:

[Advanced ACPI Configuration]

ACPI Version Features:

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

ACPI APIC support:

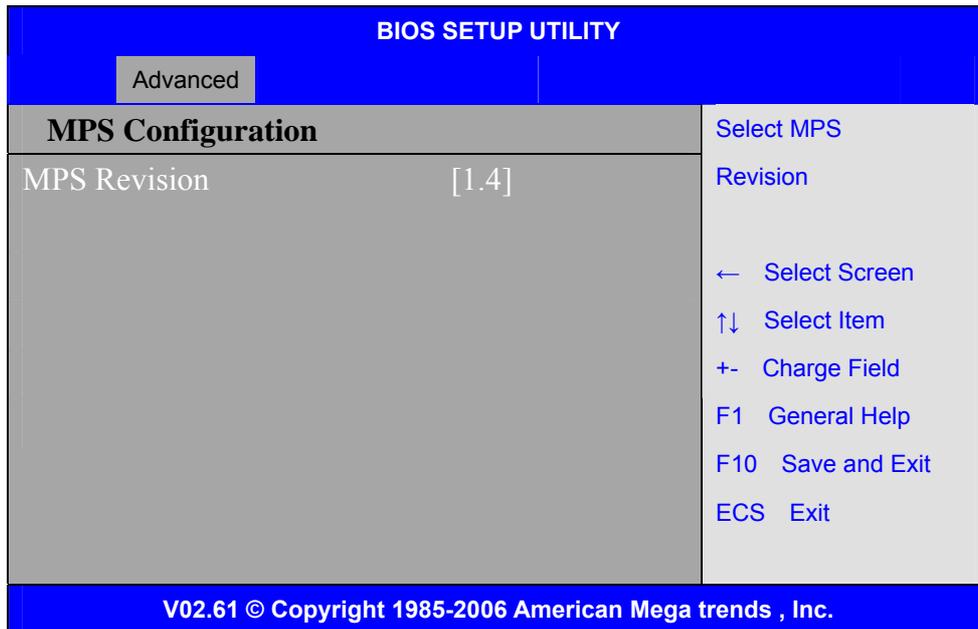**[Enabled]**
[Disabled]

AMI OEMB table:

[Enabled]
[Disabled]

Headless mode:

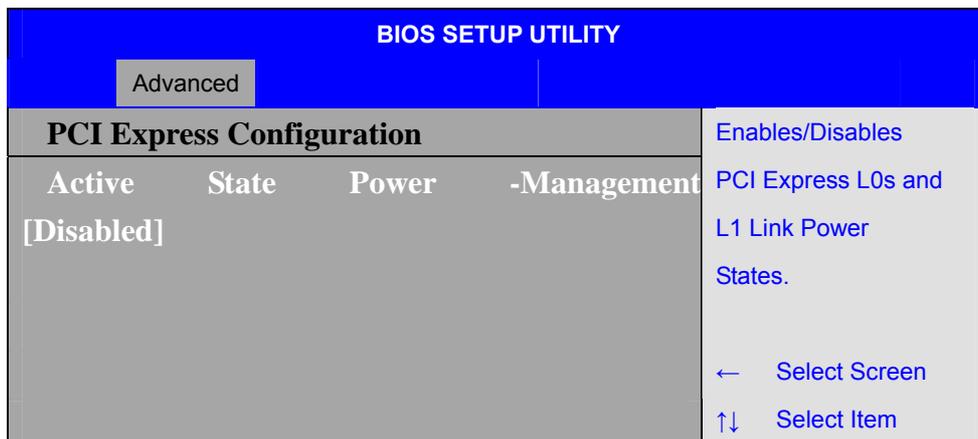**[Disabled]**

[Enabled]

[Chipset ACPI Configuration]:

    APIC ACPI SCI IRQ:

[Disabled]

[Enabled]

USB Device Wakeup From S3/S4:

[Disabled]

[Enabled]

3.4.5 MPS Configuration

BIOS SETUP UTILITY		
Advanced		
MPS Configuration		Select MPS
MPS Revision	[1.4]	Revision
		← Select Screen
		↑↓ Select Item
		+- Charge Field
		F1 General Help
		F10 Save and Exit
		ECS Exit
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MPS Revision:

[1.4]

[1.1]

3.4.6 PCI Express Configuration

BIOS SETUP UTILITY		
Advanced		
PCI Express Configuration		Enables/Disables
Active State Power -Management		PCI Express L0s and
[Disabled]		L1 Link Power
		States.
		← Select Screen
		↑↓ Select Item

```
                                              +-    Charge Field
                                              F1    General Help
                                              F10   Save and Exit
                                              ESC   Exit

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```

Active State Power Management:

[Disabled]

[Enabled]

3.4.7 Smbios Configuration

```
                         BIOS SETUP UTILITY
        Advanced

        Smbios Configuration                          SMBIOS SMI Wrapper

    Smbios Smi Support              [Enabled]         Support for PnP Func
                                                      50h-54h


                                                      ←     Select Screen
                                                      ↑↓    Select Item
                                                      +-    Charge Field
                                                      F1    General Help
                                                      F10   Save and Exit
                                                      ESC   Exit

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```
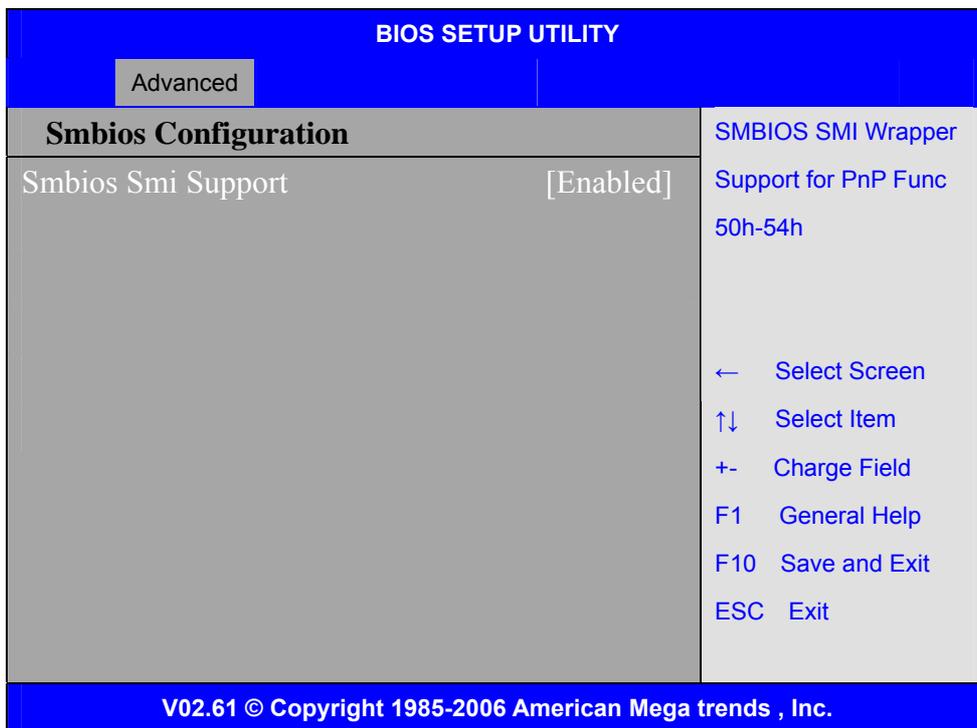
Smbios Smi Support:

[Enabled]

[Disabled]

3.4.8 USB Configuration

```
                         BIOS SETUP UTILITY
        Advanced

        USB Configuration                             Enables support for
    Module Version – 2.24.3-13.4                      legacy USB.AUTO
```

```
USB Devices Enabled :
    1Keyboard


Legacy USB Support               [Enabled]
USB2.0 Controller Mode           [HiSpeed]
BIOS EHCI Hand-Off                [Enabled]
```

option disables legacy support if no USB devices are connected

←   Select Screen
↑↓   Select Item
+-   Charge Field
F1   General Help
F10 Save and Exit
ESC Exit

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Legacy USB Support:

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

USB2.0 Controller Mode:

> **[HiSpeed]**
> [FullSpeed]

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.**

BIOS SETUP UTILITY						
Main	Advanced	PCIPNP	Boot	Security	Chipset	Exit

Advanced PCI/PnP Settings

WARNING: Setting   wrong   values   In   below   sections

> may cause system to malfunction.

Clear NURAM during System Boot.
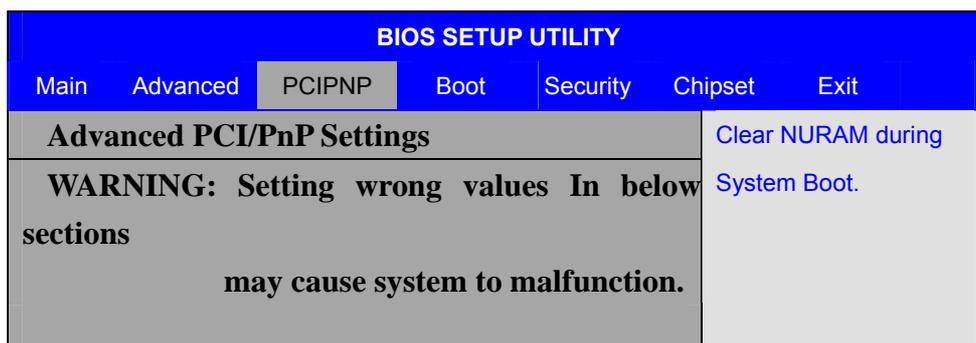
Clear NVRAM	[No]	
Plug & Play O/S	[No]	
PCI Latency Timer	[64]	
Allocate IRQ to PCI VGA	[Yes]	
Palette Snooping	[Disabled]	
PCI IDE BusMaster	[Disabled]	
OffBoard PCI/ISA IDE Card	[Auto]	

IRQ3
[Available]
IRQ4
[Available]
IRQ5
[Available]
IRQ7
[Available]
IRQ9
[Available]
IRQ10
[Available]
IRQ11
[Available]

←   Select Screen
↑↓   Select Item
+-   Charge Field
F1   General Help
F10   Save and Exit
ESC   Exit

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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]

3.6 Boot Settings

BIOS SETUP UTILITY						
Main	Advanced	PCIPnP	Boot	Security	Chipset	Exit

Boot Settings

► Boot Setting Configuration

► Boot Device Priority

► Hard Disk Drives

Configure Settings
During System Boot

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

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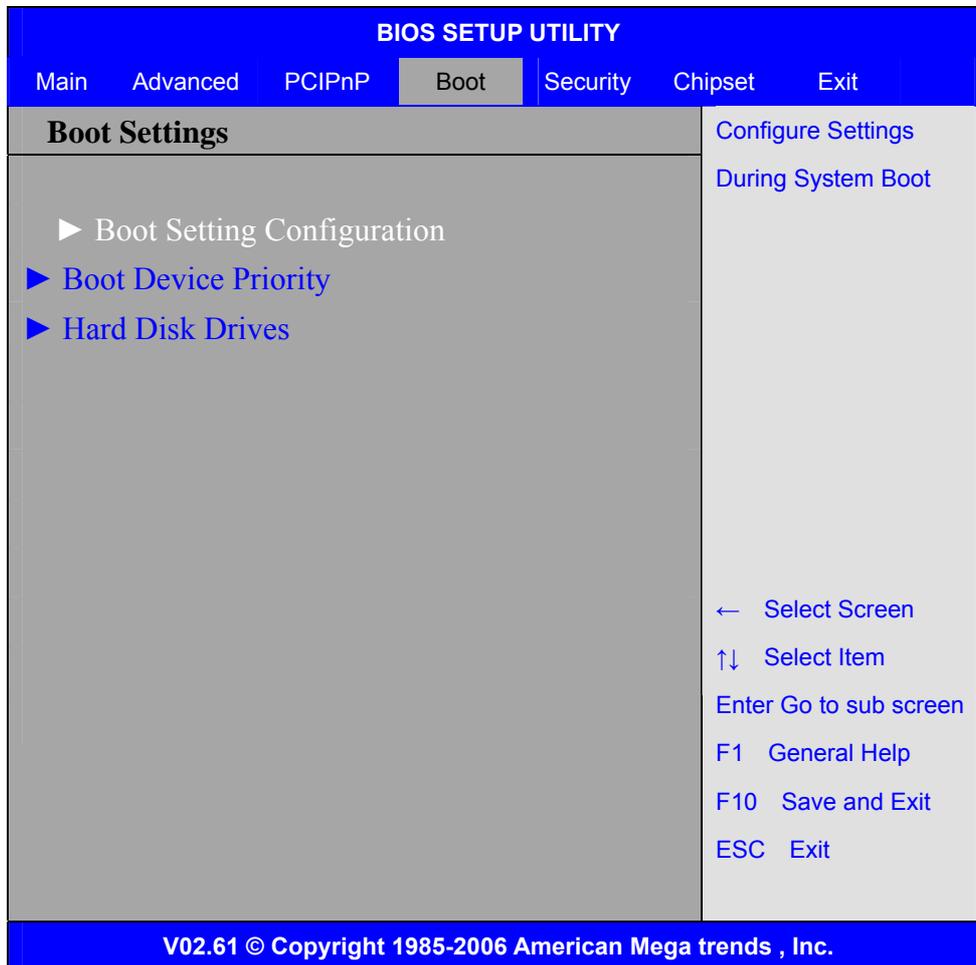
Boot Setting Configuration:

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]

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

BIOS SETUP UTILITY						
Main	Advanced	PCIPnP	Boot	Security	Chipset	Exit

Security Settings	Install or Change the password.
Supervisor Password :Not Installed	
User Password :Not Installed	
Change Supervisor Password	

Change User Password

Boot Sector Virus Protection   [Disabled]

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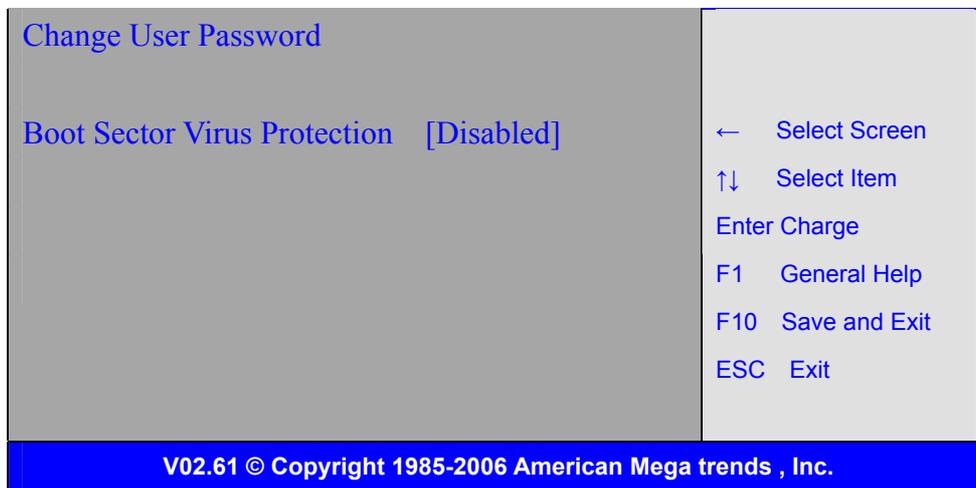
Change Supervisor Password:

     Install or Change the password.

Change User Password:

     Install or Change the password.

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

BIOS SETUP UTILITY						
Main	Advanced	PCIPnP	Boot	Security	Chipset	Exit

Advanced Chipset Settings

WARNING: Setting wrong values in below sections

may cause system to malfunction

► North Bridge Configuration

► South Bridge Configuration

Configure North Bridge feature

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

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

3.8.1 North Bridge Configuration

BIOS SETUP UTILITY	
	Chipset

North Bridge Chipset Configuration

Primary   Graphics   Adapter [PCIe/IGD]

Integrated   Graphics   Mode   Selec [Enabled ,4MB]

► Boot Display Configuration

Select which graphics
Controller to use as
The primary boot
device

←   Select Screen
↑↓   Select Item
+-   Charge Field
F1   General Help
F10   Save and Exit
ESC   Exit

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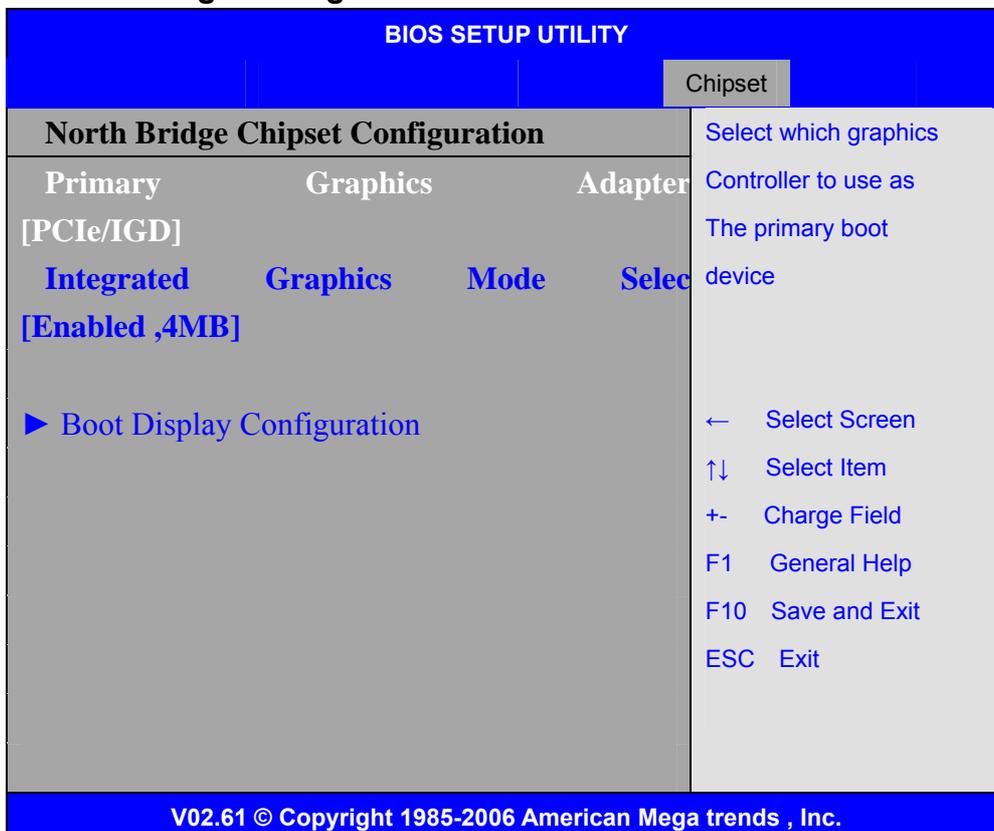
Primary Graphics Adapter:

[**PCIe/IGD**]

[IGD]

Integrated Graphics Mode Selec:

[**Enabled ,4MB**]

[Enabled ,1MB]

[Enabled ,8MB]

[Disabled]

Boot Display Configuration:

BIOS SETUP UTILITY		
	Chipset	
Boot Display Configuration		Options
Boot Display Device	[Auto]	Auto
Local Flat Panel Scaling	[Auto]	Integrated LVDS
Flat Panel Type	[1024x768	External DVI/HDMI
18bit]		External TV
Panel Brightness Control	[Level 9]	External CRT
DPST	Control	External LVDS
[VBIOS-Default]		
TV	Standard	
[VBIOS-Default]		
		← Select Screen
		↑↓ Select Item
		+- Charge option
		F1 General Help
		F10 Save and Exit
		ESC Exit
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Boot Display Device:

[**Auto**]

[Integrated LVDS]

[External DVI/HDMI]

[External TV]

[External CRT]

[External LVDS]

Flat Panel Type:

[1024x 768 18bit]
[640x480 18bit]
[800x600 18bit]
[800x480 18bit]
[1024x600 18bit]
[1280x768 18bit]
[1280x800 18bit]
[1024x768 24bit]
[1366x768 18bit]

Panel Backlight Control:

[Level9]
[Level0]
[Level1]
[Level2]
[Level3]
[Level4]
[Level6]
[Level7]
[Level8]
[Level9]
[Level10]
[Level11]
[Level12]
[Level13]
[Level14]
[Level15]
[Level16]

Note: Panel support PWM Function.

DPST Control:

[VBIOS-Default]
[DPST Disabled]
[DPST Enabled at Level]
[DPST Enabled at Leve2]
[DPST Enabled at Leve3
[DPST Enabled at Leve4]

[DPST Enabled at Leve5]

TV Standard:

        [VBIOS-Default]
        [NTSC]
        [PAL]
        [SECAM]
        [SMPTE240M]
        [ITU-R television]
        [SMPTE295M]
        [SMPTE296M]
        [CEA 7702]
        [CEA 7703]

3.8.2 South Bridge Configuration:

BIOS SETUP UTILITY	Chipset
South Bridge Chipset Configuration	Number of UCHI
USB Functions [8 USB Ports]	Ports in system
USB2.0 Controller [Enabled]	ECHI ONLY is
USB Client Controller [Disabled]	Automatically
SDIO Controller [Enabled]	Assed.
Audio Controller Codec [Auto]	
Reserved Page Route [LPC]	← Select Screen
Serial IRQ Mode [Quiet]	↑↓ Select Item
	+- Charge Field
PCIE Ports Configuration	F1 General Help
PCIE Port 0 [Auto]	F10 Save and Exit
PCIE Port 1 [Auto]	ESC Exit
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USB Functions:

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

USB 2.0 Controller:

[**Enabled**]

[Disabled]

USB Client Controller:

[**Disabled**]

[Enabled]

SDIO Controller:

[**Enabled**]

[Disabled]

Audio Controller Codec:

[**Auto**]

[Azalia]

[Disabled]

Reserved Page Route:

[**LPC**]

[PCI]

PCIE Ports Configuration:

PCIE Port 0:

[**Auto**]

[Enabled]

[Disabled]

PCIE Port 1:

[**Auto**]

[Enabled]

[Disabled]

[Enabled]

[Disabled]

3.9   Exit Options

BIOS SETUP UTILITY						
Main	Advanced	PCIPnP	Boot	Security	Chipset	Exit

Exit Options	Exit system setup
Save Changes and Exit	after saving the
Discard Changes and Exit	changes

Discard Changes

Load Optimal Defaults
Load Failsafe Defaults

F10 key can be used
For this operation

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

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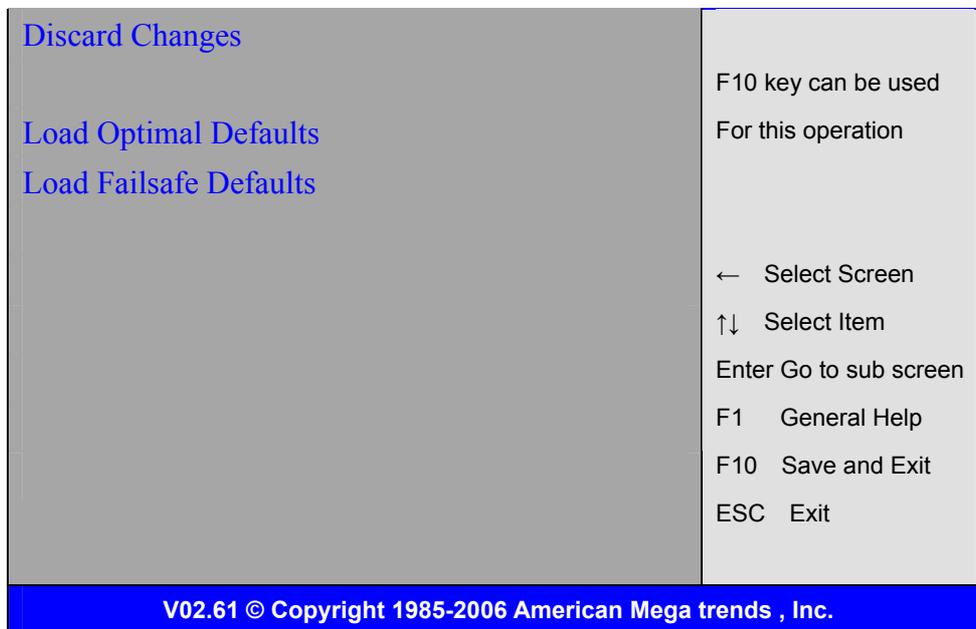
Save Changes and Exit:

Save configuration changes and exit setup?

(F10 key can be used for this operation)

[OK]

[Cancel]

Discard Changes and Exit:

Discard Changes and Exit setup?

(ESC key can be used for this operation)

[OK]

[Cancel]

Discard Changes:

Discard changes?

(F7 key can be used for this operation)

[OK]

[Cancel]

Load Optimized Defaults:

Load Optimized Defaults?

(F9 key can be used for this operation)

[OK]

[Cancel]

Load FailSafe Defaults:

Load FailSafe Defaults?

(F9 key can be used for this operation)

[OK]

[Cancel]

3.10 EX9515 BIOS SETUP (option)

BIOS SETUP UTILITY						
Main	Advanced	PCIPnP	Boot	Security	Chipset	Exit

System Overview

AMIBIOS

Version   : 08.00.15

Build Date   : 03/07/11

ID   : EX9515M003

Processor

Intel(R) Atom(TM) CPU Z530 @ 1.60GHz

Speed   :800MHz

Count   :1

System Memory

Size   :1019MB

System Time   [00:02:29]

System Date   [Wed 03/07/2011]

CMC LO-Module:0D2.023x, Hi-Module:0d2.016x

User [ENTER]，[TAB] or [SHIFT-TAB] to Select a field

Use[+] or [-] to configure system Time.

← Select Screen

↑↓ Select Item

+- Charge Field

Tab Select Field

F1 General Help

F10 Save and Exit

ESC Exit

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Boot Display Configuration:

BIOS SETUP UTILITY	
	Chipset

Boot Display Configuration

Boot Display Device   [External CRT]

Local Flat Panel Scaling   [Auto]

Flat Panel Type   [1024x768 18bit]

　Panel Brightness Control   [Level 9]

Options

Auto

Integrated LVDS

External DVI/HDMI

External TV

External CRT

```
DPST                                    Control
[VBIOS-Default]
TV                                      Standard    ←   Select Screen
[VBIOS-Default]                                     ↑↓  Select Item
                                                    +-  Charge option
                                                    F1   General Help
                                                    F10  Save and Exit
                                                    ESC  Exit

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```

Boot Display Device:

> [Auto]
> [Integrated LVDS]
> [External DVI/HDMI]
> [External TV]
> [External CRT]

Flat Panel Type:

> [1024x 768 18bit]
> [640x480 18bit]
> [800x600 18bit]
> [1280x768 18bit]
> [1280x800 18bit]
> [1024x 768 24bit]

Panel Backlight Control:

> [Level9]
> [Level0]
> [Level1]
> [Level2]
> [Level3]
> [Level4]
> [Level6]
> [Level7]
> [Level8]
> [Level9]
> [Level10]
> [Level11]

[Level12]

[Level13]

[Level14]

[Level15]

[Level16]

DPST Control:

[VBIOS-Default]

[DPST Disabled]

[DPST Enabled at Level]

[DPST Enabled at Leve2]

[DPST Enabled at Leve3]

[DPST Enabled at Leve4]

[DPST Enabled at Leve5]

TV Standard:

[VBIOS-Default]

[NTSC]

[PAL]

[SECAM]

[SMPTE240M]

[ITU-R television]

[SMPTE295M]

[SMPTE296M]

[CEA 7702]

[CEA 7703]

3.11   EX-9516 BIOS SETUP (option)

BIOS SETUP UTILITY						
Main	Advanced	PCIPnP	Boot	Security	Chipset	Exit

System Overview	User [ENTER]，[TAB]
AMIBIOS	or [SHIFT-TAB] to
Version : 08.00.15	Select a field
Build Date : 01/28/11	
ID : EX9516001	Use[+] or [-] to
	configure system Time.
Processor	
Intel(R) Atom(TM) CPU Z530 @ 1.60GHz	
Speed :800MHz	← Select Screen

```
Count      :1

  System Memory
Size            :1019MB


System Time                              [00:02:29]
System   Date                                    [Wed
01/28/2011]
CMC LO-Module:0D2.023x, Hi-Module:0d2.016x
```

↑↓	Select Item
+-	Charge Field
Tab	Select Field
F1	General Help
F10	Save and Exit
ESC	Exit

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Boot Display Configuration:

```
                      BIOS SETUP UTILITY
                                          Chipset

   Boot Display Configuration                      Options
 Boot Display Device            [Auto]      Auto
 Local Flat Panel Scaling       [Auto]      External LVDS
 Flat  Panel  Type              [1024x768
 18bit 1ch ]
    Panel Brightness Control     [Level 9]
 DPST                          Control
 [VBIOS-Default]
 TV                           Standard      ←    Select Screen
 [VBIOS-Default]                            ↑↓   Select Item
                                            +-   Charge option
                                            F1   General Help
                                            F10  Save and Exit
                                            ESC  Exit
```

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Boot Display Device:

> **[Auto]**
>
> [External LVDS]

Flat Panel Type:

> **[1024x 768 18bit 1ch]**
>
> [1280x 1024 24bit 2ch]

[1400x 1050 24bit 2ch]
[1600x 1200 24bit 2ch]

Panel Backlight Control:

[Level9]
[Level0]
[Level1]
[Level2]
[Level3]
[Level4]
[Level6]
[Level7]
[Level8]
[Level9]
[Level10]
[Level11]
[Level12]
[Level13]
[Level14]
[Level15]
[Level16]

DPST Control:

[VBIOS-Default]
[DPST Disabled]
[DPST Enabled at Level]
[DPST Enabled at Leve2]
[DPST Enabled at Leve3
[DPST Enabled at Leve4]
[DPST Enabled at Leve5]

TV Standard:

[VBIOS-Default]
[NTSC]
[PAL]
[SECAM]
[SMPTE240M]
[ITU-R television]
[SMPTE295M]
[SMPTE296M]
[CEA 7702]
[CEA 7703]

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.

I

4.1 Intel Chipset Driver

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

Step 1: Select Chipset from the list

Follow the step-by-step installation process to install the LMS_SQL driver.

Intel® Chipset Device Software

Intel® Chipset Device Software

Setup Progress

Please wait while the following setup operations are performed:

```
Installing Driver: Intel(R) SCH Family USB Universal Host Controller - 8114
Version: 8.8.0.1001
Installing Driver: Intel(R) SCH Family USB Universal Host Controller - 8115
Version: 8.8.0.1001
Installing Driver: Intel(R) SCH Family USB Universal Host Controller - 8116
Version: 8.8.0.1001
Installing Driver: Intel(R) SCH Family USB2 Enhanced Host Controller - 8117
Version: 8.8.0.1001
Click Next to continue.
```

Next

Intel® Installation Framework

Intel® Chipset Device Software

Intel® Chipset Device Software

Setup Is Complete

You must restart this computer for the changes to take effect. Would you like to restart the computer now?

◉ Yes, I want to restart this computer now.

○ No, I will restart this computer later.

Click Finish, then remove any installation media from the drives.

Finish

Intel® Installation Framework

Click Finish, When the installation process is complete, the Setup Complete screen appears. See as picture.

4.2 Intel Graphics Media Accelerator Driver

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

1. Click Intel(R) US15WP Chipset Family Graphics Driver.

Follow the step-by-step installation process to install the Graphics Media Accelerator driver.
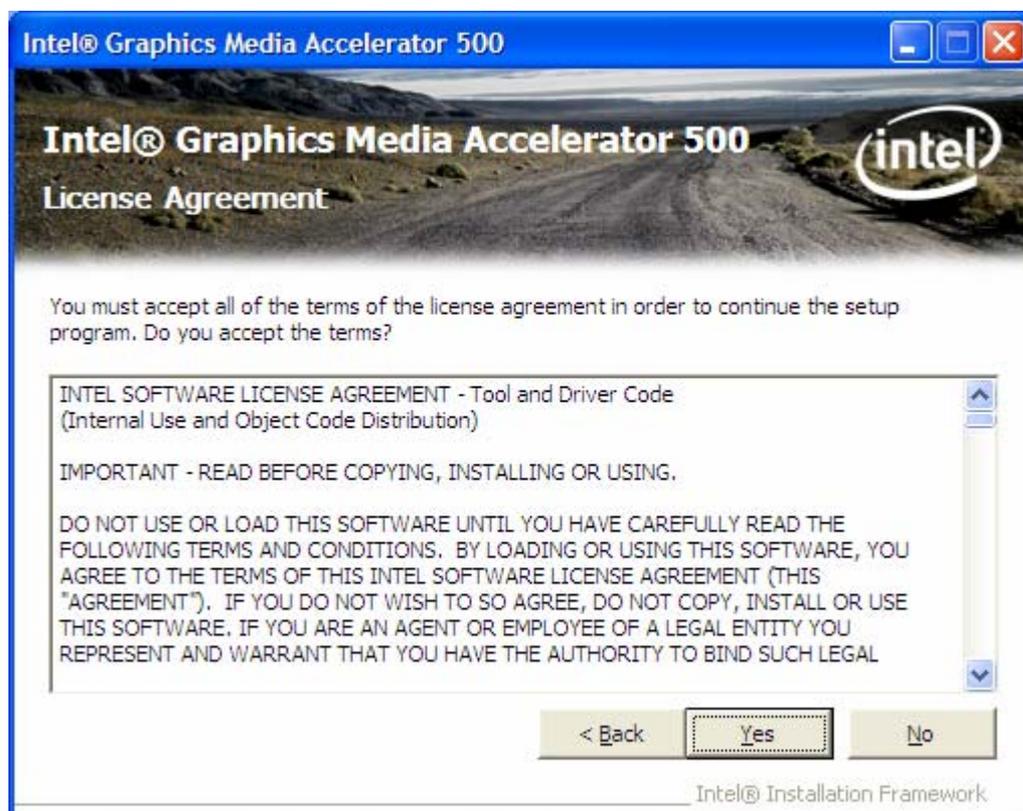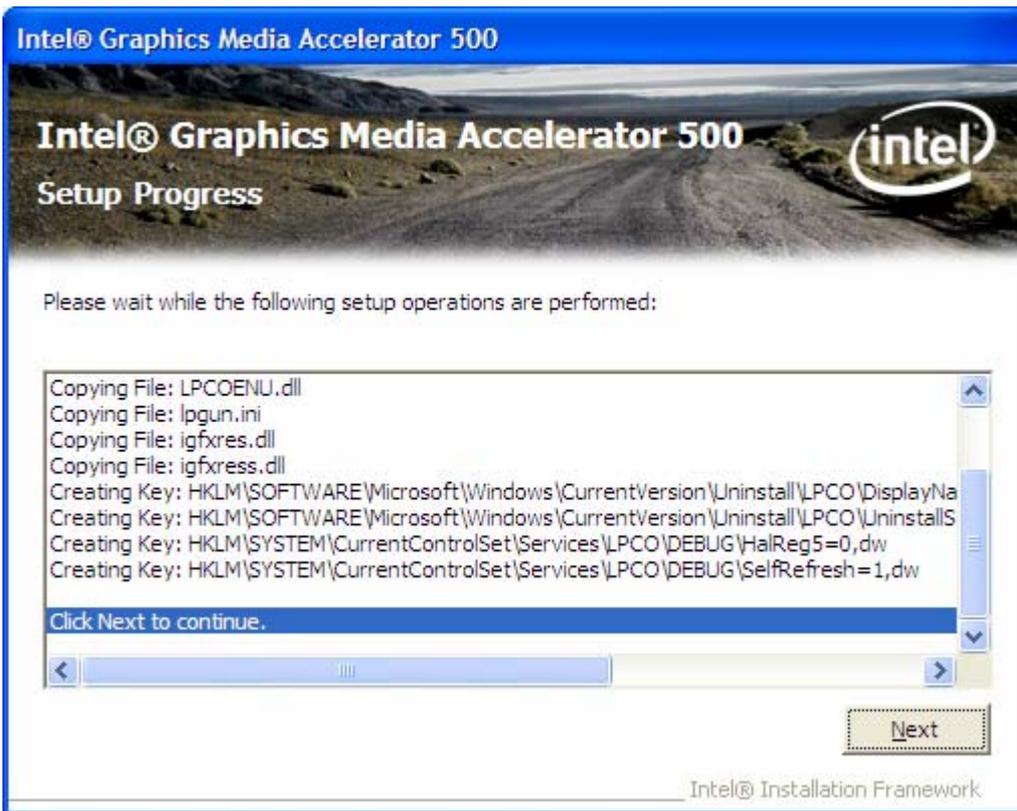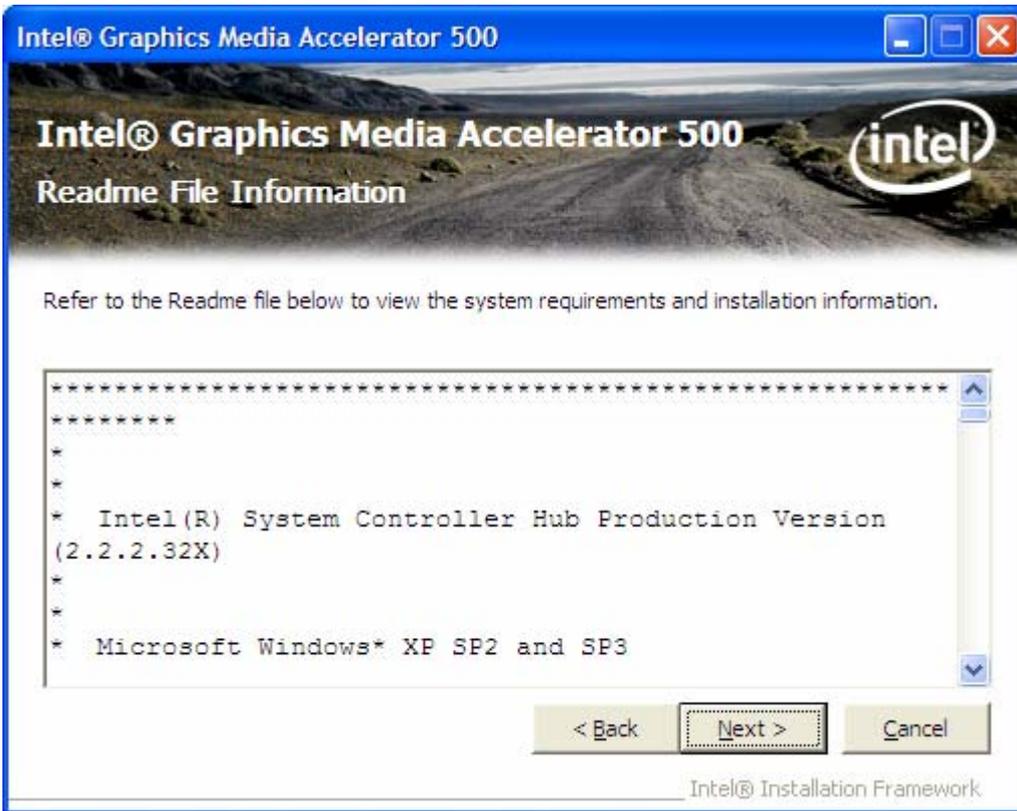
Click FINISH; A Driver Installation Complete.

4.3 Intel 82574L Gbe LAN Device Driver

To install the Intel R 82574L Gbe Gigabit LAN connect device driver, please follow the steps below.
Select LAN from the list

Follow the step-by-step installation process to install the LAN driver.
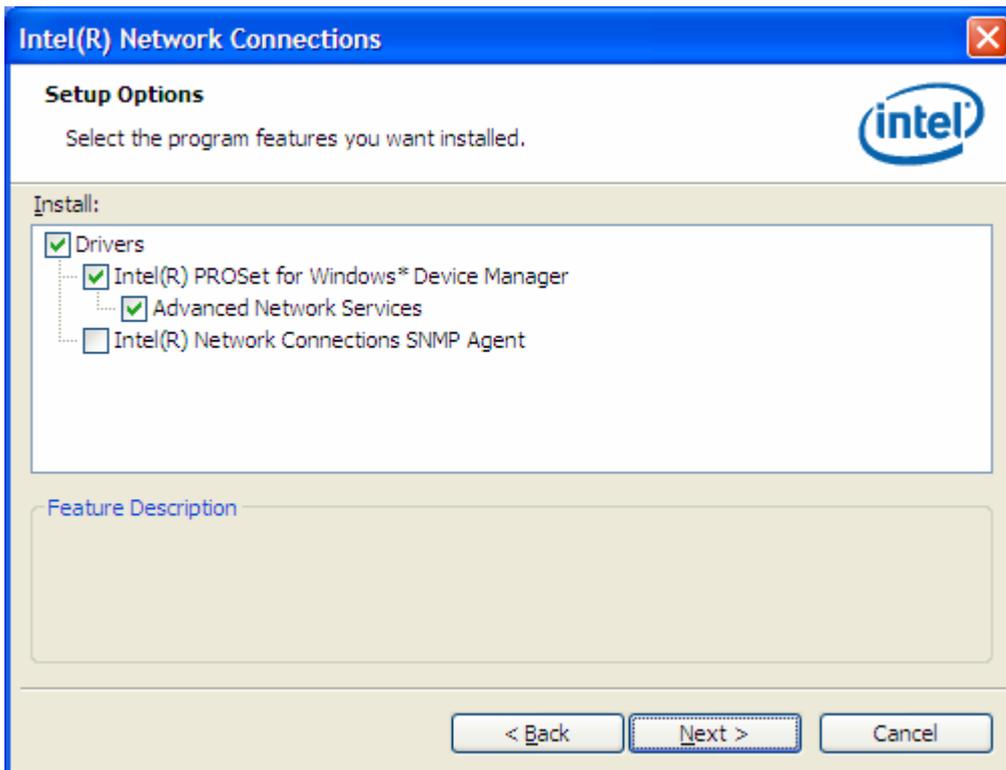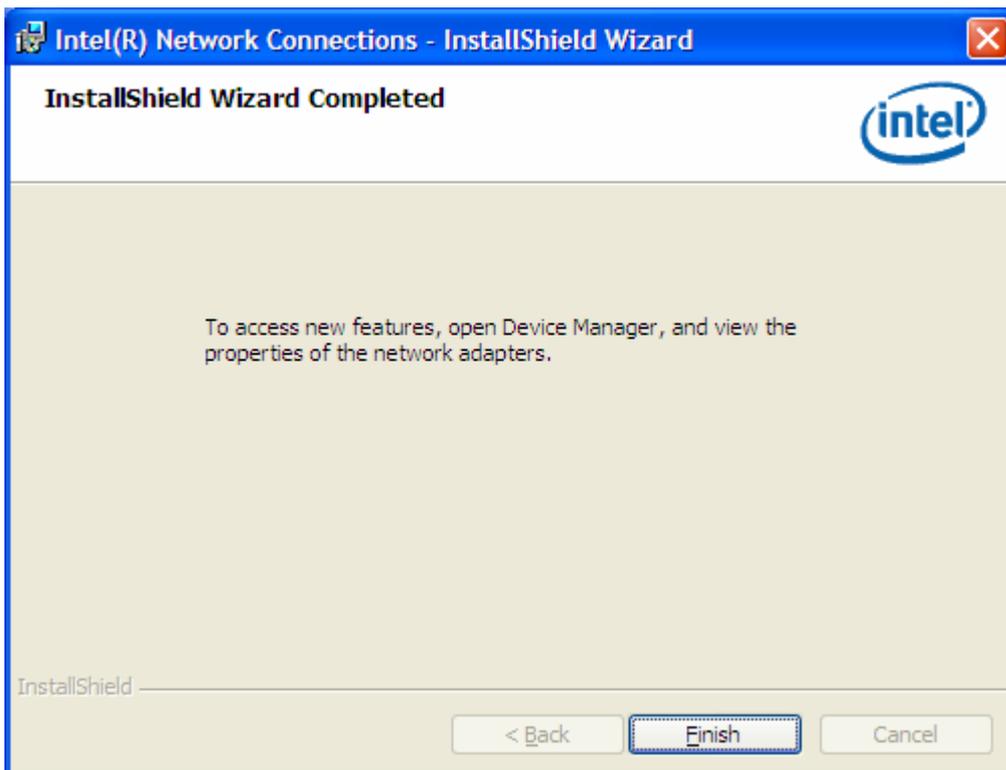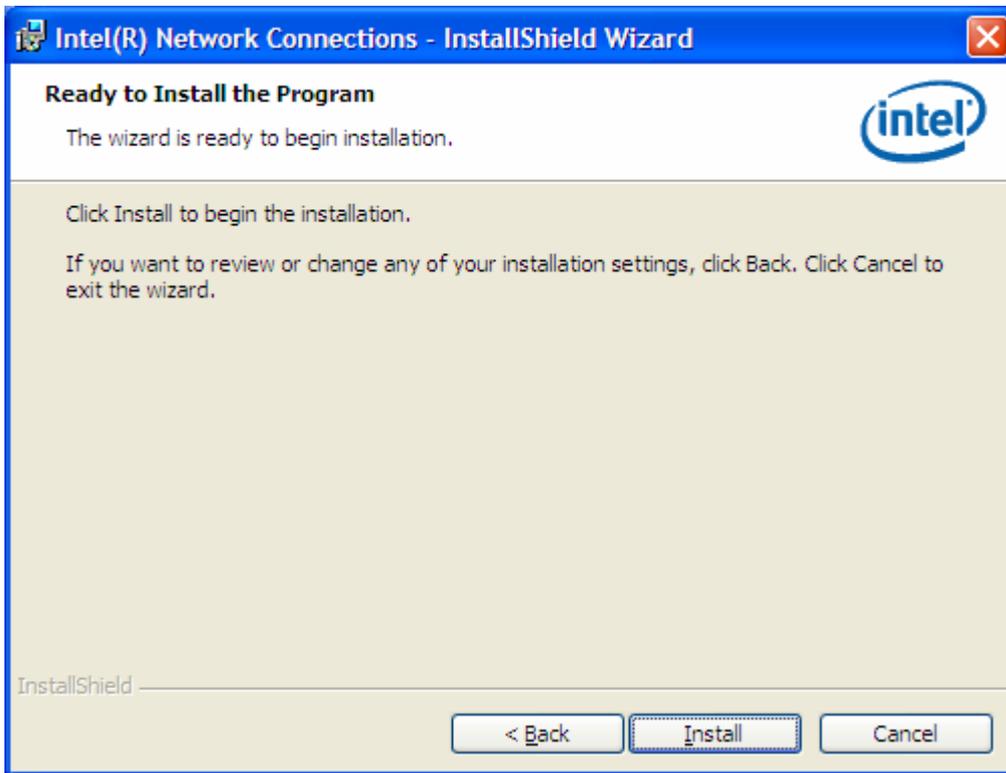
Click FINISH; A Driver Installation Complete.

4.4 Realtek HD Audio Driver Installation

To install the Realtek High Definition (HD) Audio driver, please follow the steps below.

Select Audio from the list

Follow the step-by-step installation process to install the Realtek HD Audio driver.
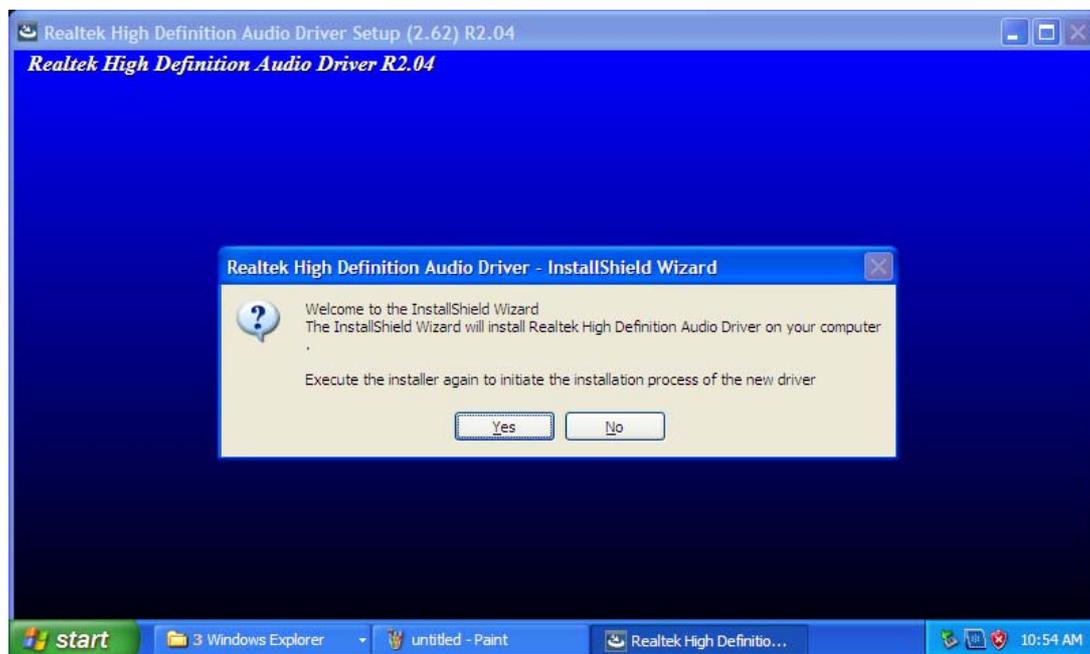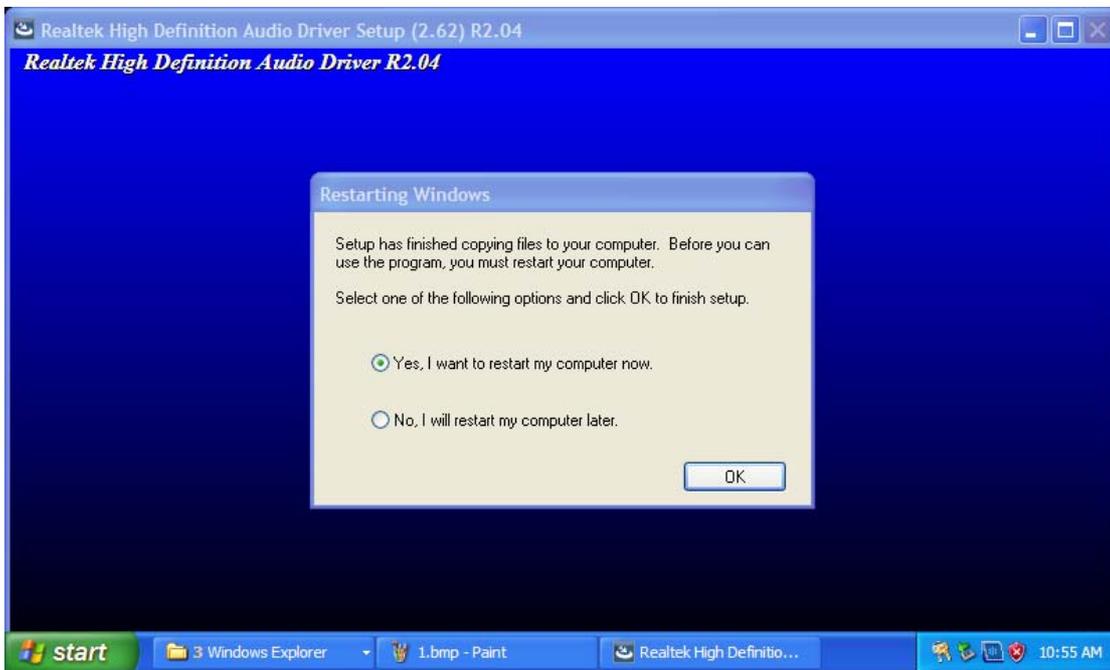
Click FINISH;   A Driver Installation Complete.

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.

1. Please make sure your PenMount 6000 device had plugged in advance. If your device uses RS232 interface, please plugged in before the machine is turned on. When the system first detects the controller board, a screen appears that shows "Unknown Device". Do not use this hardware wizard. Press Cancel.

2. Insert the product CD install **setup.exe.** the screen below would appear. Click touch panel driver
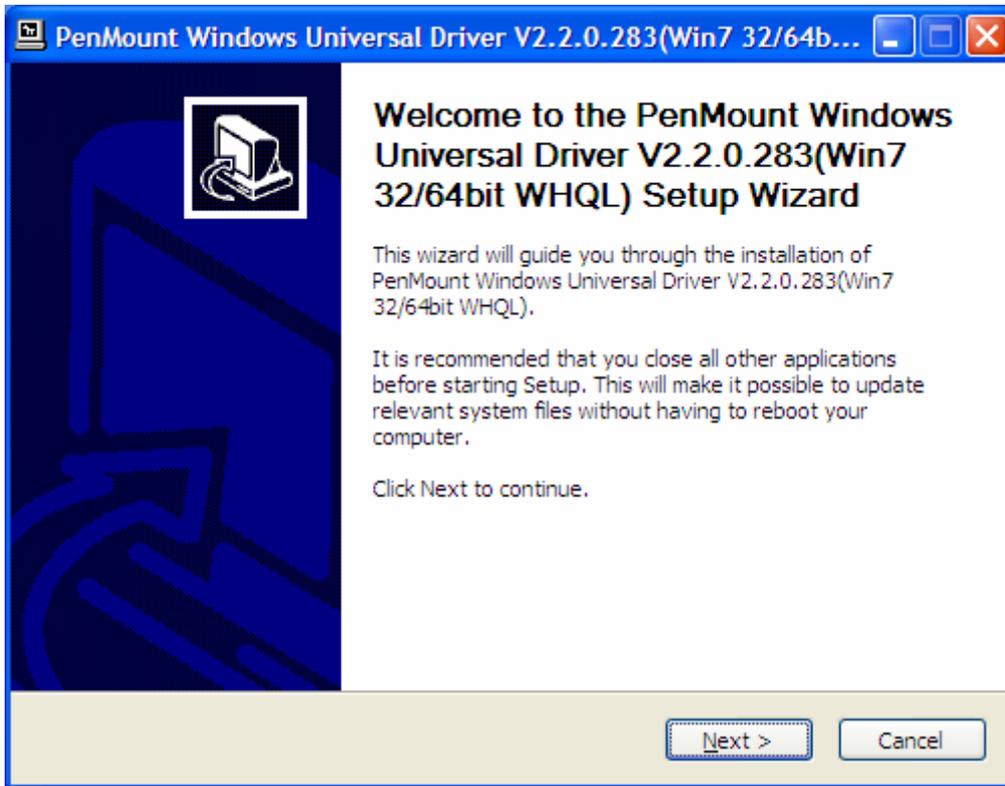
3. A License Agreement appears. Click "**Next**"
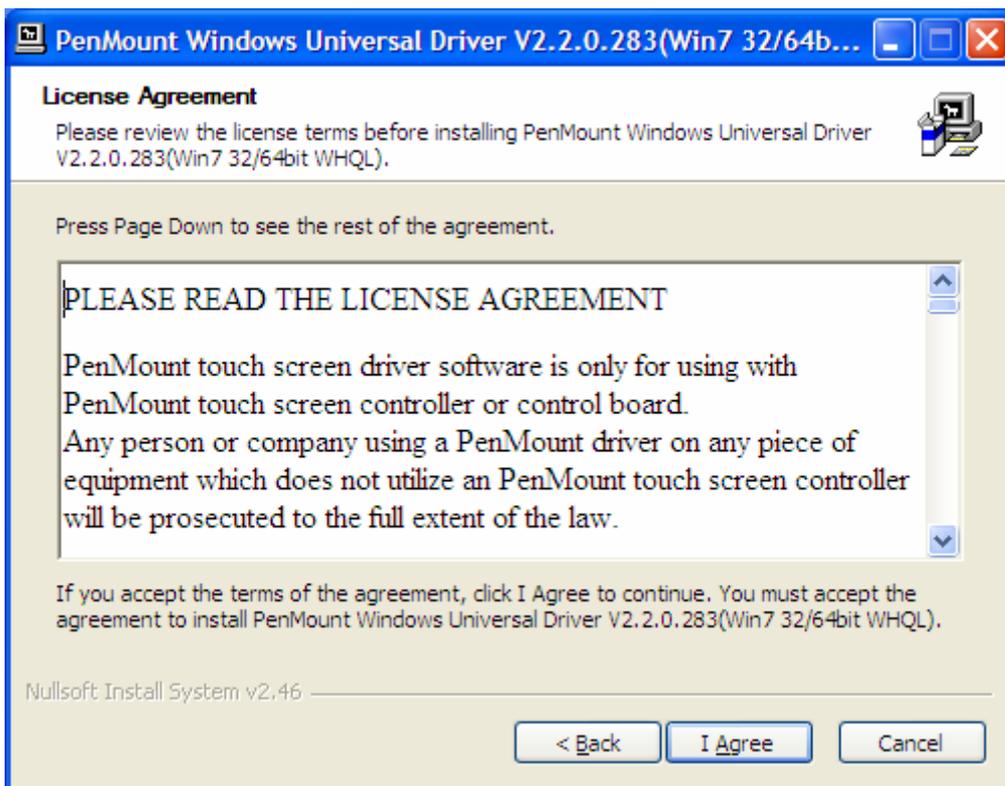
4. Ready to Install the Program. Click "**I Agree**"
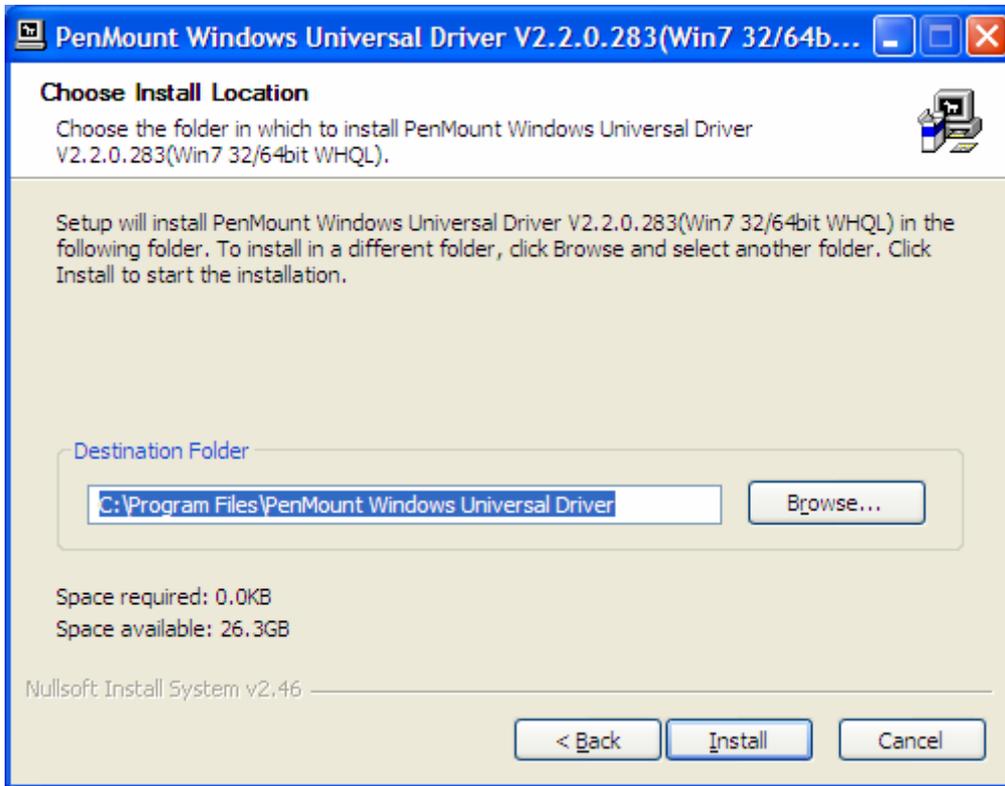
5. Installing
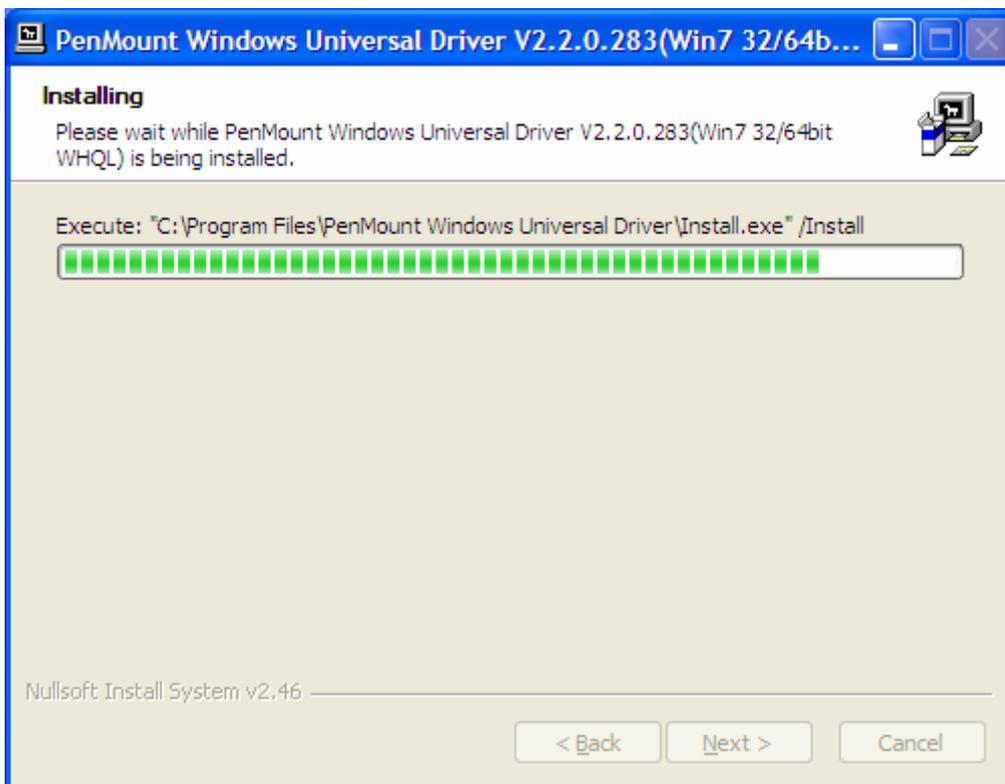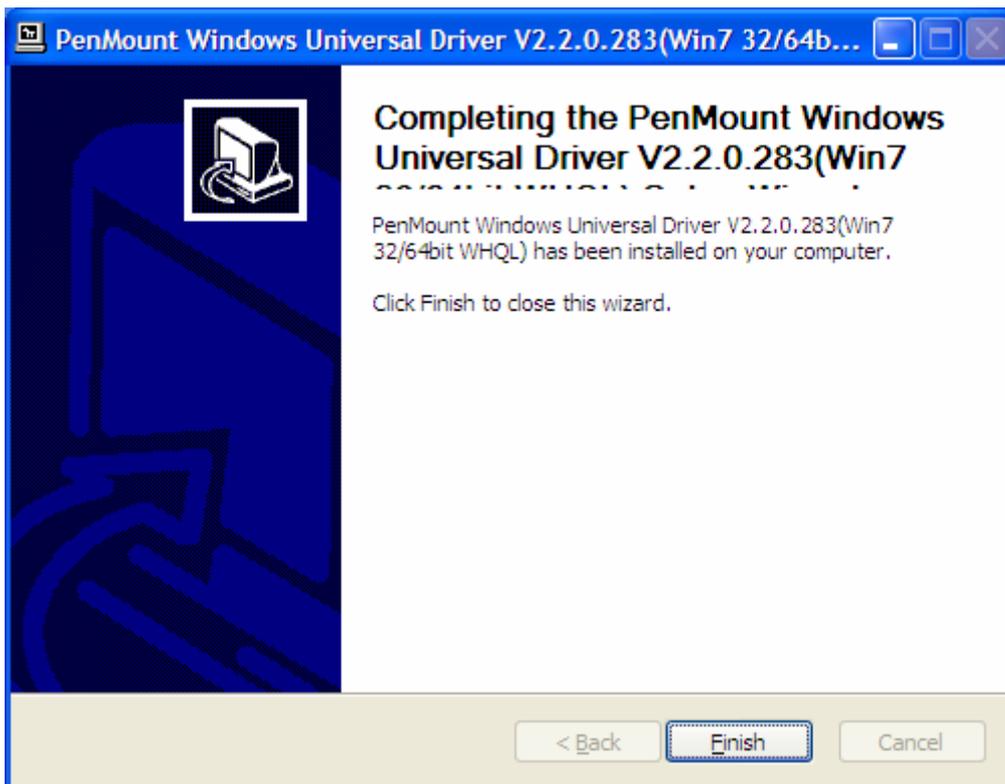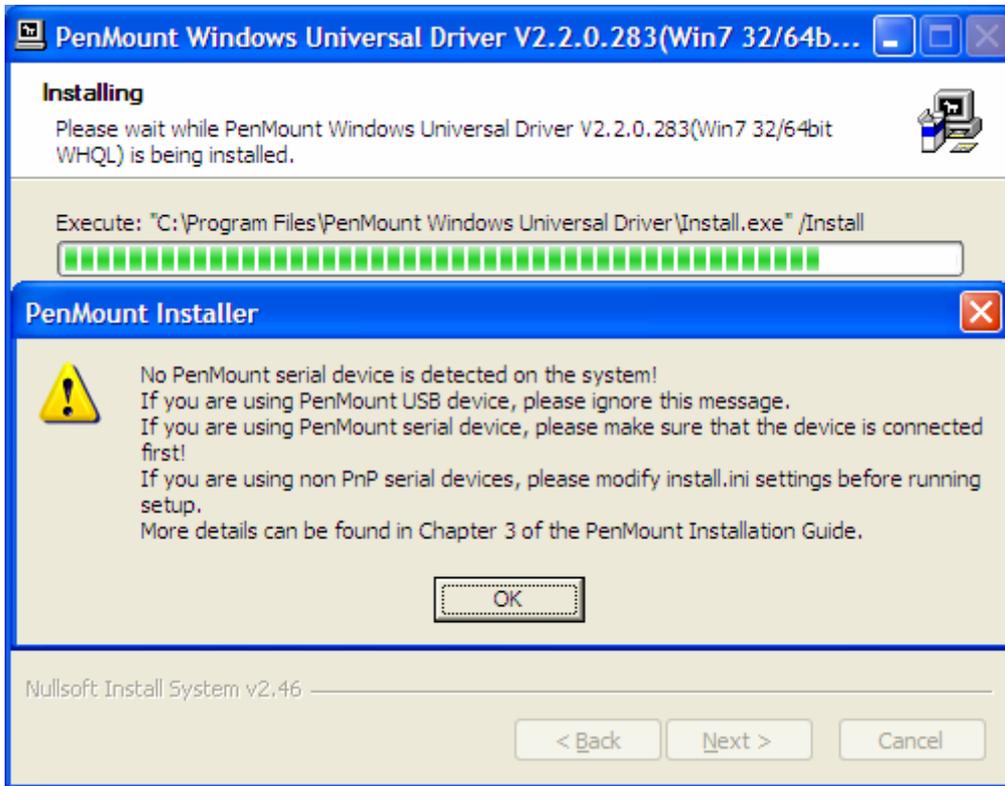
6. The "Install Shield Wizard Completed" appears. Click "**Finish**".

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.
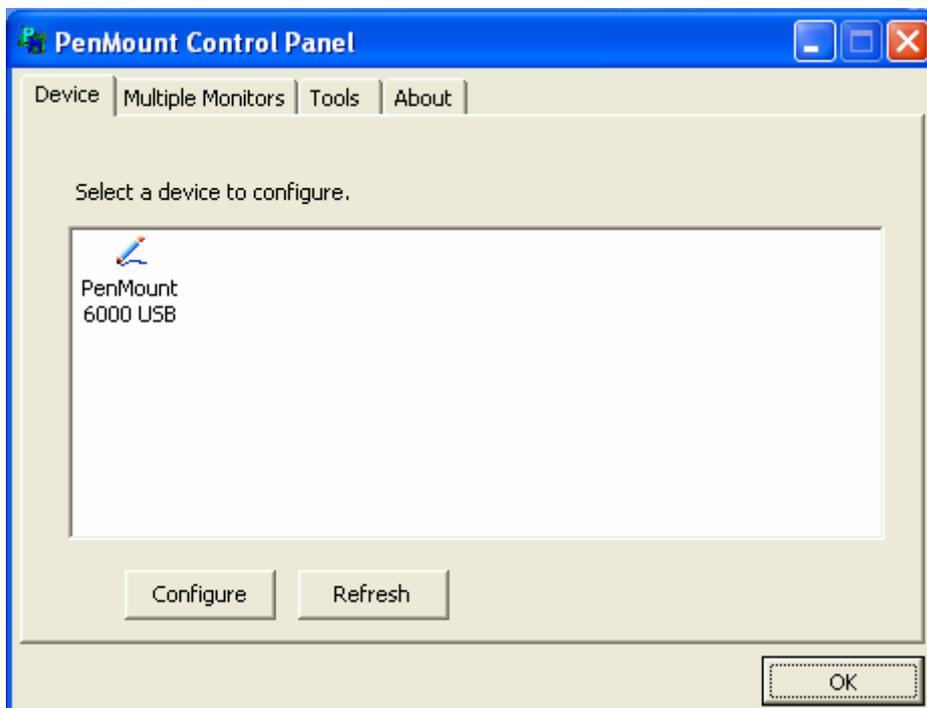
Calibrate

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

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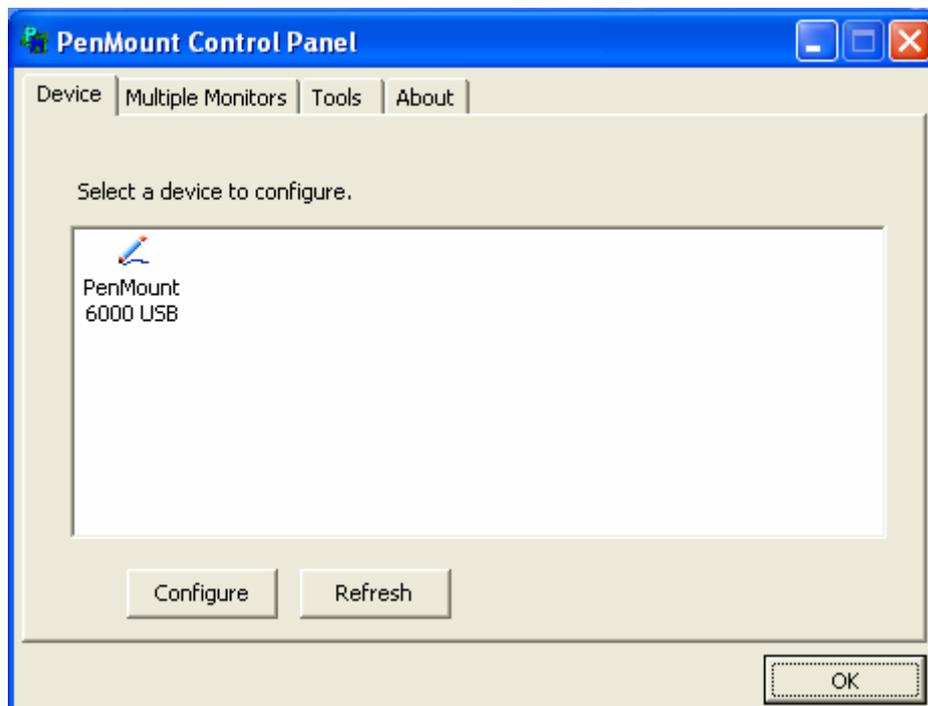
2.Click "Standard Calibration" to start calibration procedure
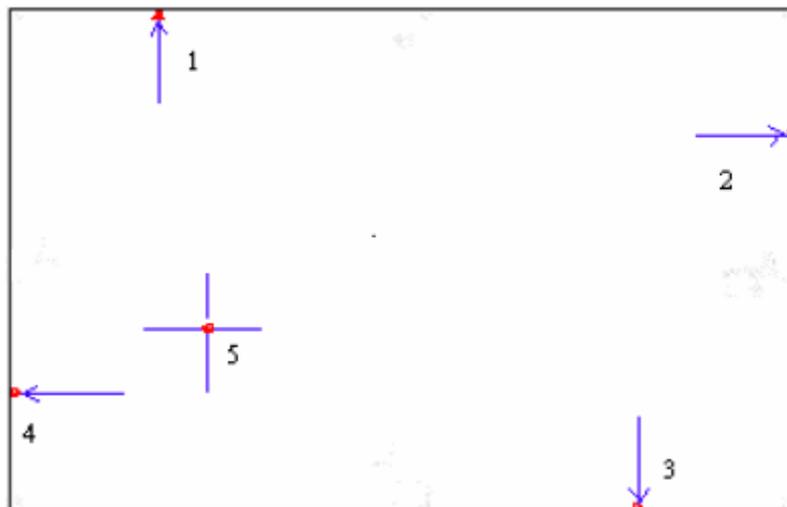
NOTE: The older the touch screen, the more Advanced Mode calibration points you need for an accurate calibration. Use a stylus during Advanced Calibration for greater accuracy. Please follow the step as below:

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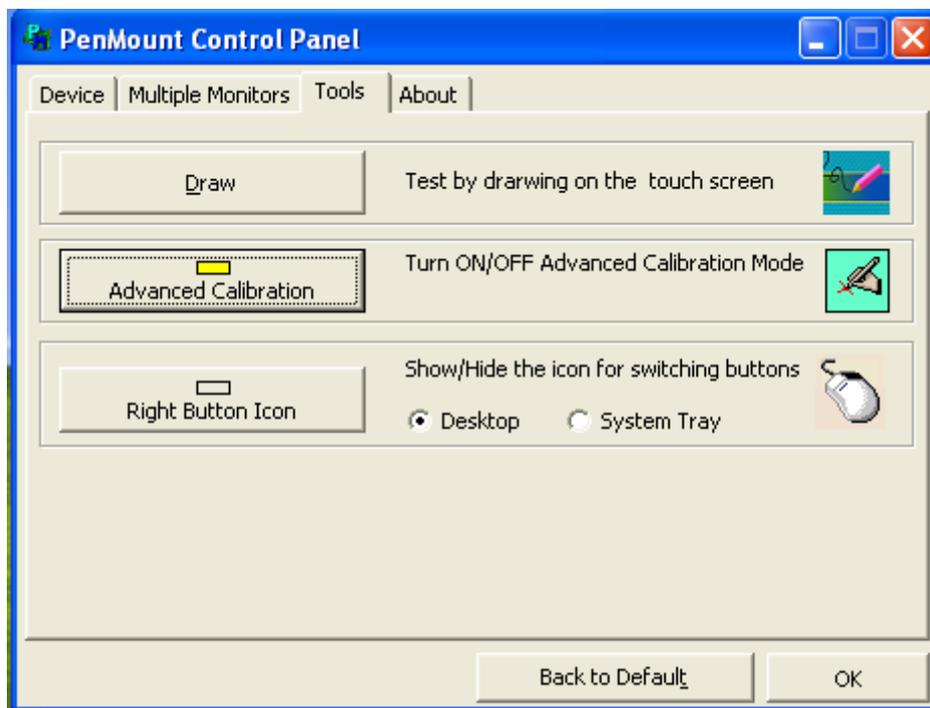
Select "**Device**" to calibrate, then you can start to do "Advanced Calibration".
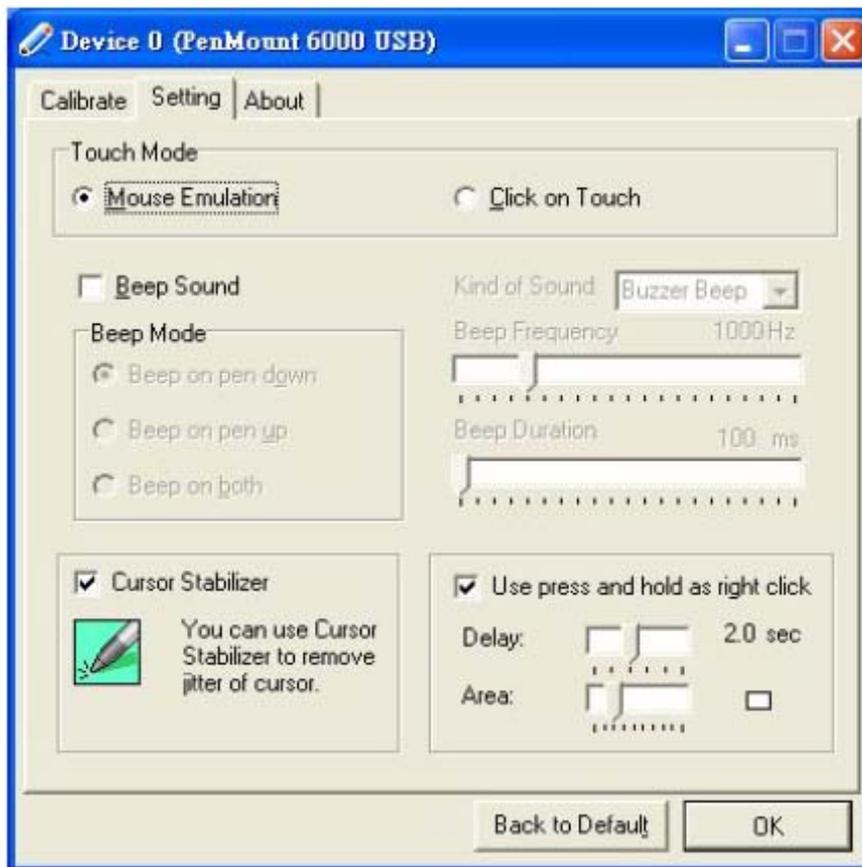

NOTE: Recommend to use a stylus during Advanced Calibration for greater accuracy.
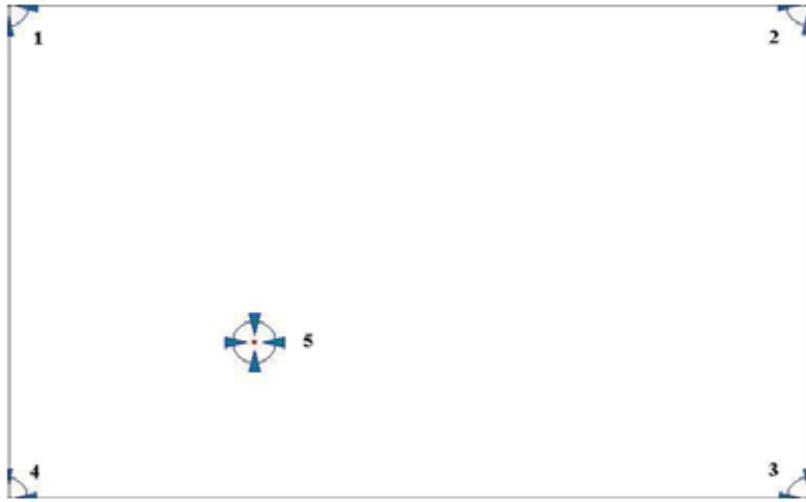
Plot Calibration Data	Check this function and a touch panel linearity comparison graph appears when you have finished Advanced Calibration. The blue lines show linearity before calibration and black lines show linearity after calibration.
Turn off EEPROM storage	The function disable for calibration data 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.
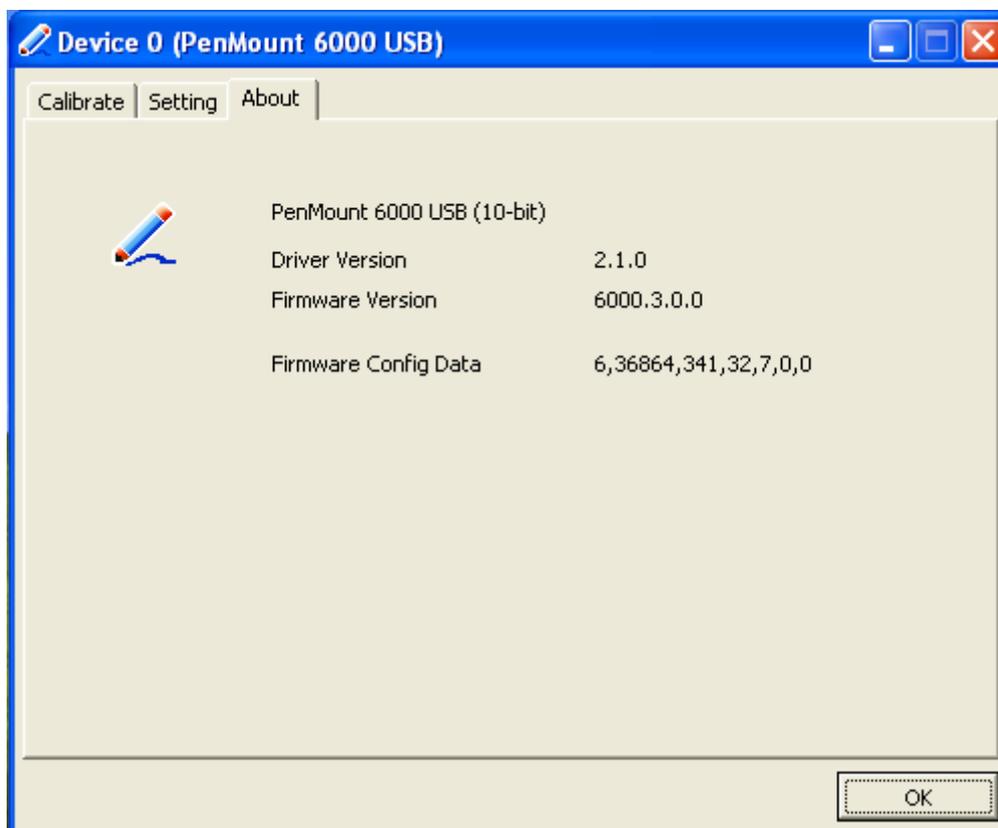
Multiple Monitors

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:**

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

2. When the mapping screen message appears, click "**OK"**
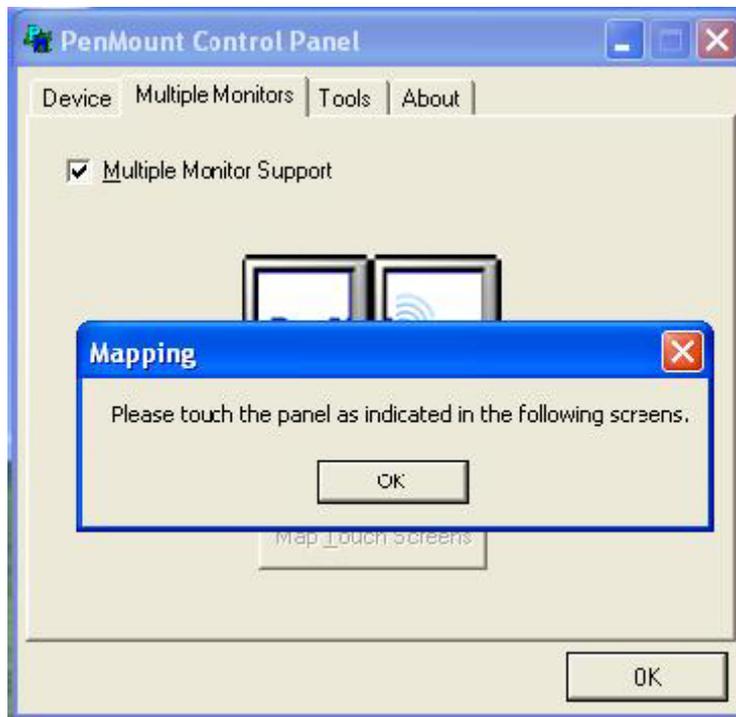
3. Touch each screen as it displays **"Please touch this monitor. Press 'S' to skip"** Following this sequence and touching each screen is called **mapping the touch screens**.
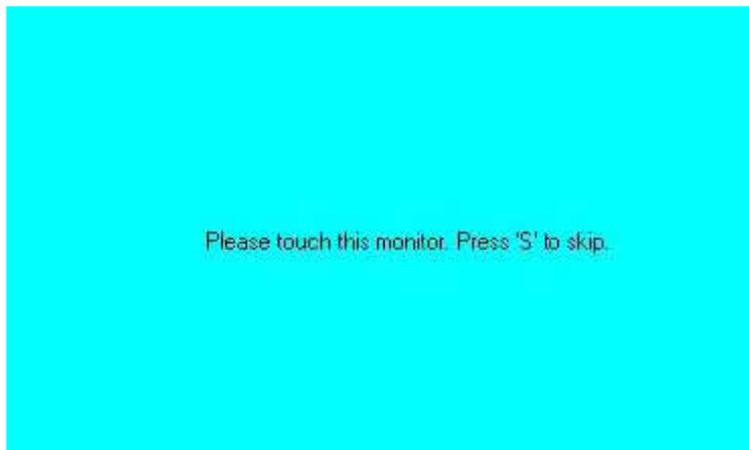

4. After the setting procedure is finished, maybe you need to calibrate for each panel and controller

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.**
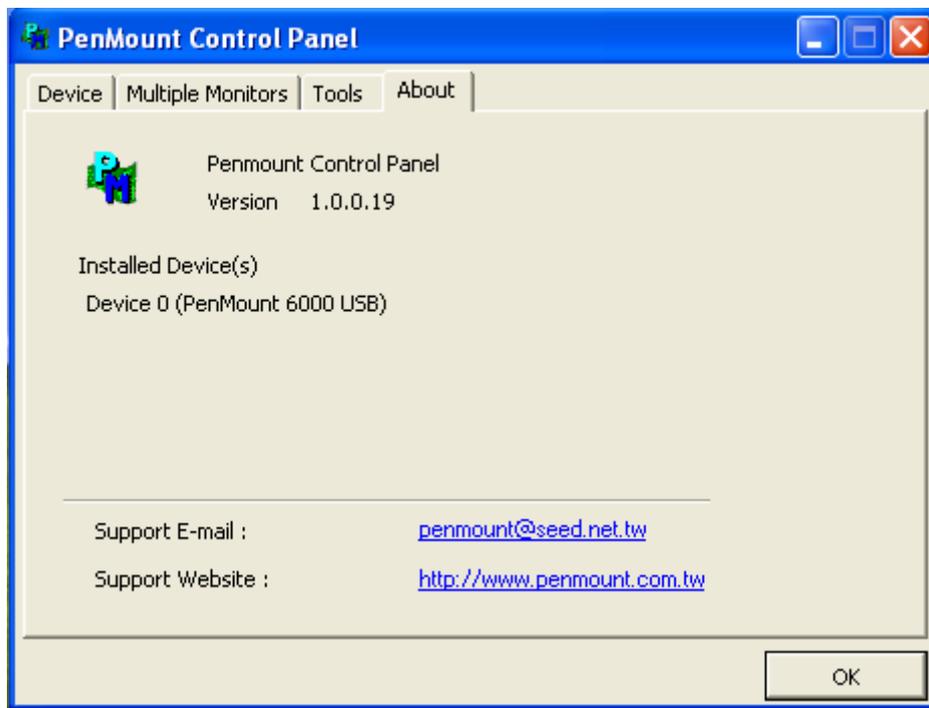
Tools

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).**
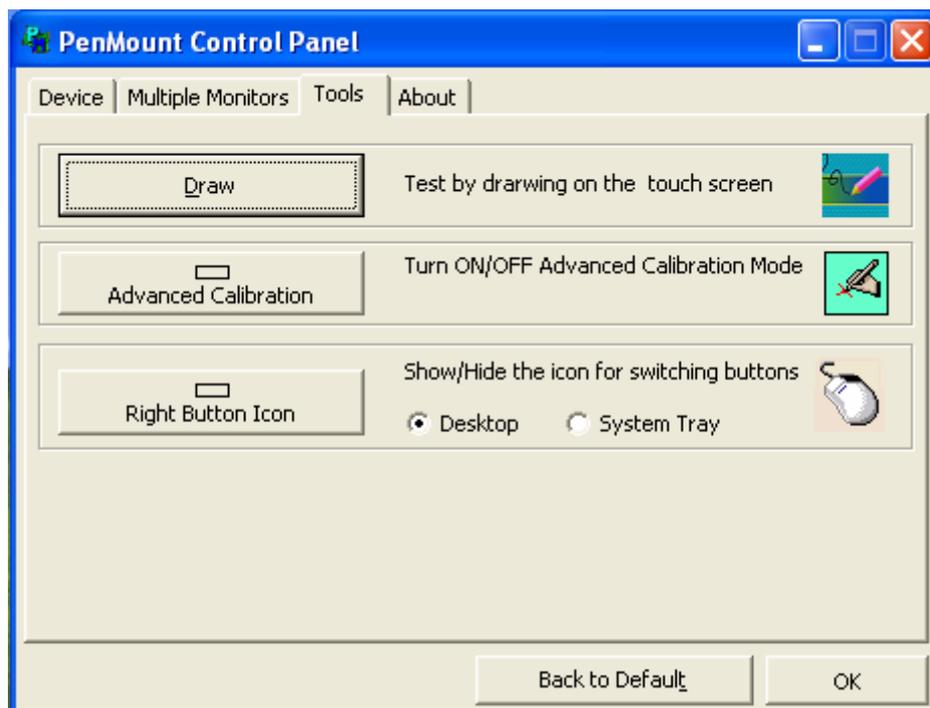
About
You can see how many devices of PenMount controller that are plugged to your system

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.

```
Please touch the point
        ⊕
```
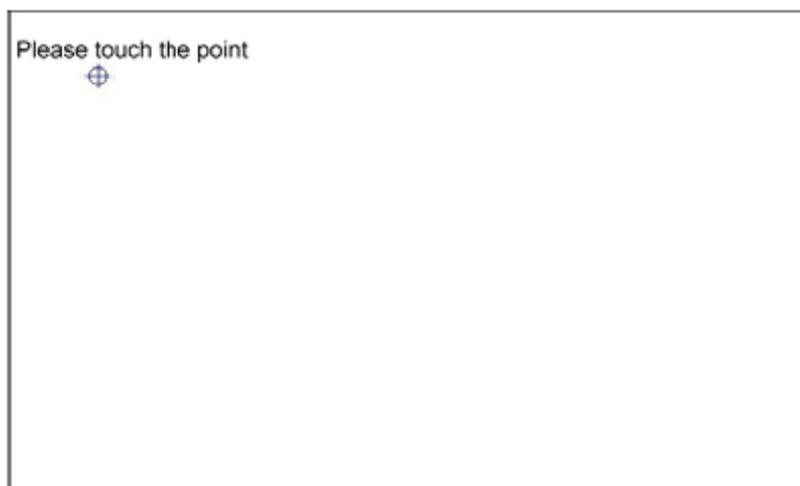
NOTE: The Rotate function is disabled if you use Monitor Mapping