EX-93215/93515/93715/93915
Panel PC User Manual

Warning!

This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instructions manual, it may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

Electric Shock Hazard – Do not operate the machine with its back cover removed. There are dangerous high voltages inside.

Disclaimer

This information in this document is subject to change without notice. In no event shall TopsCCC 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.

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Chapter 1   System

1.1 Specifications

Specs	EX-93215	EX-93515	EX-93715	EX-93915
CPU	Socket 478 Intel® Core™ Duo, up to 2.33GHz			
Cache	2MB			
Chipset	Mobile Intel® 945GM Express + ICH7M			
Processor Side Bus Freq.	533MHz/667MHz FSB			
System Memory	DDR2 667/533 SDRAM DIMM x2 (w/o ECC function), Max. 4GB			
Display Size	12.1" 800x600 TFT LCD	15" 1024x768 TFT LCD	17" 1280x1024 TFT LCD	19" 1280x1024 TFT LCD
Maximum Colors	262K	16.2M	16.2M	16.2M
Viewing Angle (Degree)	55(left), 55(right), 35(up), 50(down)	60(left), 60(right), 40(up), 60(down)	70(left), 70(right), 63(up), 67(down)	80(left), 80(right), 75(up), 85(down)
Luminance (cd/m²)	300	350	300	420
Backlight Lifetime	50,000 Hours			
Rating	NEMA 4/IP65 certified Front Bezel			
Touch Screen Type	8-Wire Resistive (optional)			
Serial Port	1 x COM Port			
USB Port	4 x USB2.0 Port			
Serial ATA Parts	ICH7M Built-in SATA controller, supports 2 ports			
1394 Port	TI TSB43LV22(dual port)			
Storage	1 x 2.5" HDD or 1 x CF by TB-405 (Optional), 1 x Slim CD-ROM/DVD Combo			
Keyboard & Mouse	1 x PS/2 Keyboard and Mouse Connectors			
Digital I/O	4 in/4 out (optional)			
BIOS	Award 4Mbit BIOS, support ACPI Function			
Watchdog Timer	256 levels			
LAN	1 x 10/100 BaseT LAN, 1 x PCI Express Gigabit LAN			
VGA	1 x external VGA, 945GM built-in			
Expansion Slot	2 x PCI Expansion Slot			
IDE Interface	ICH7M built-in one channel Ultra DMA 33/66/100,CF			
Audio	ICH7M Built-in Audio controller + AC97 Codec ALC655 w/ 6 channels (Line-out, Line-in, Mic.)			
Power Supply	220W/ 0.8U ATX/AC			
Construction and Color	Steel Chassis and Beige			
Dimensions (WxHxD)	390 x 265 x 111	410 x 310 x 111	457 x 355 x 123	484 x 400 x 139.5
Operating Temperature	0~60 (32 ~140)			
Storage Temperature	-20 ~ 80 (-68 ~176)			
Relative Humidity	10%~90% (non-condensing)			
Vibration	5~17Hz, 0.1" double amplitude displacement			

	17~640Hz, 1.5G acceleration peak to peak
Shock	10G acceleration peak to peak (11 millimeters)

1.2 Dimensions
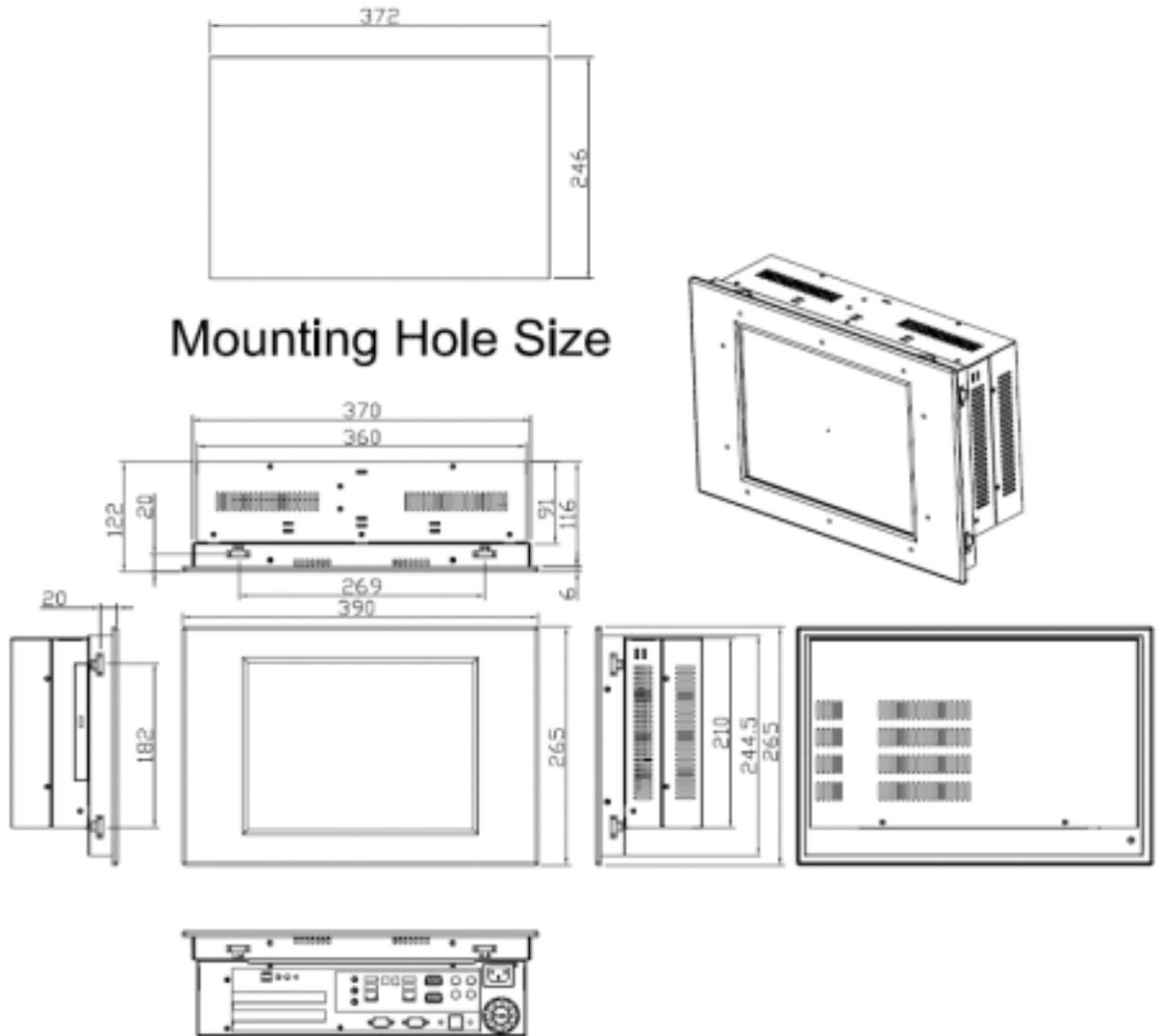
Figure 1.1: Dimensions of the EX-93215
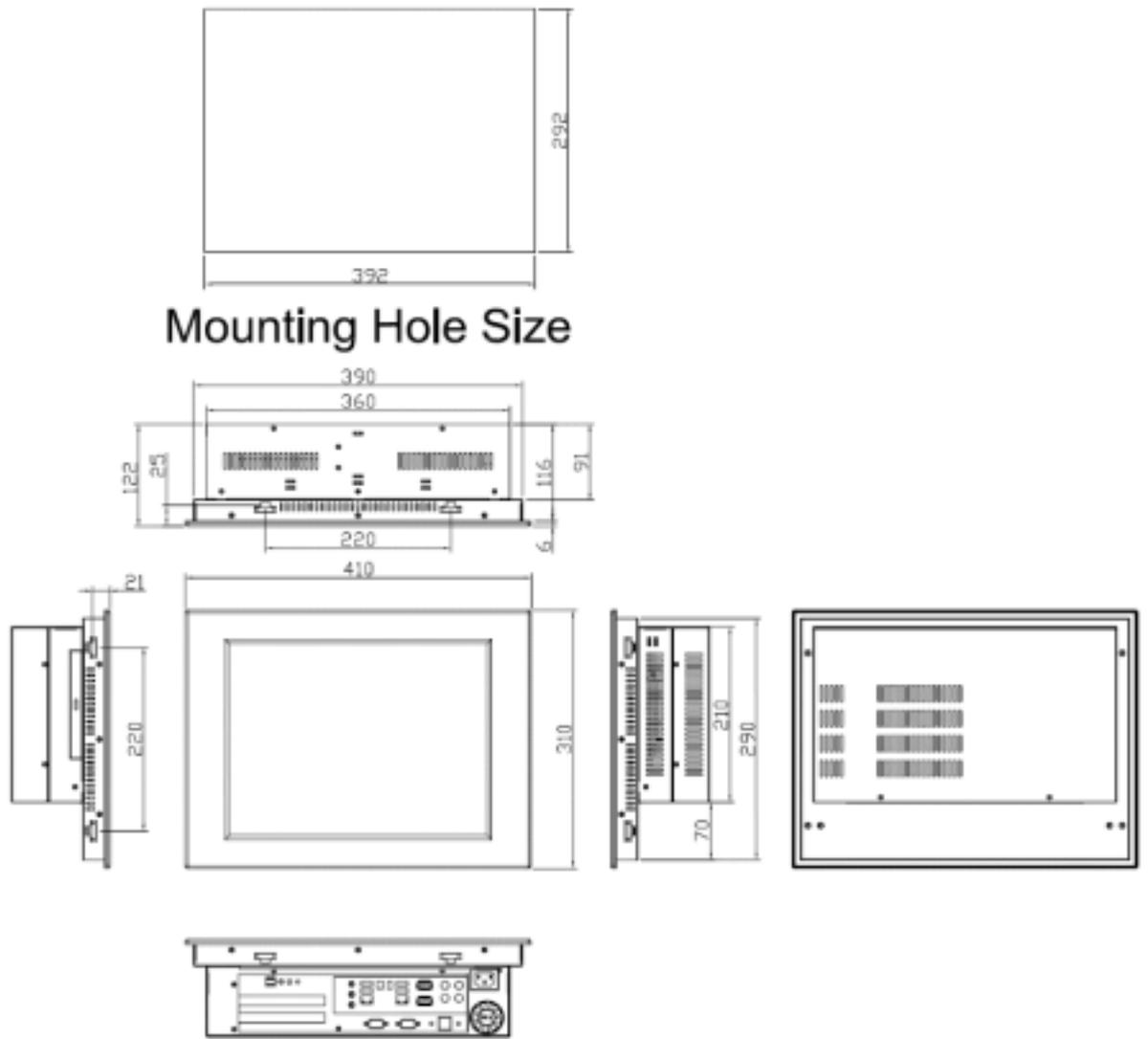
Mounting Hole Size

Figure 1.2: Dimensions of the EX-93515
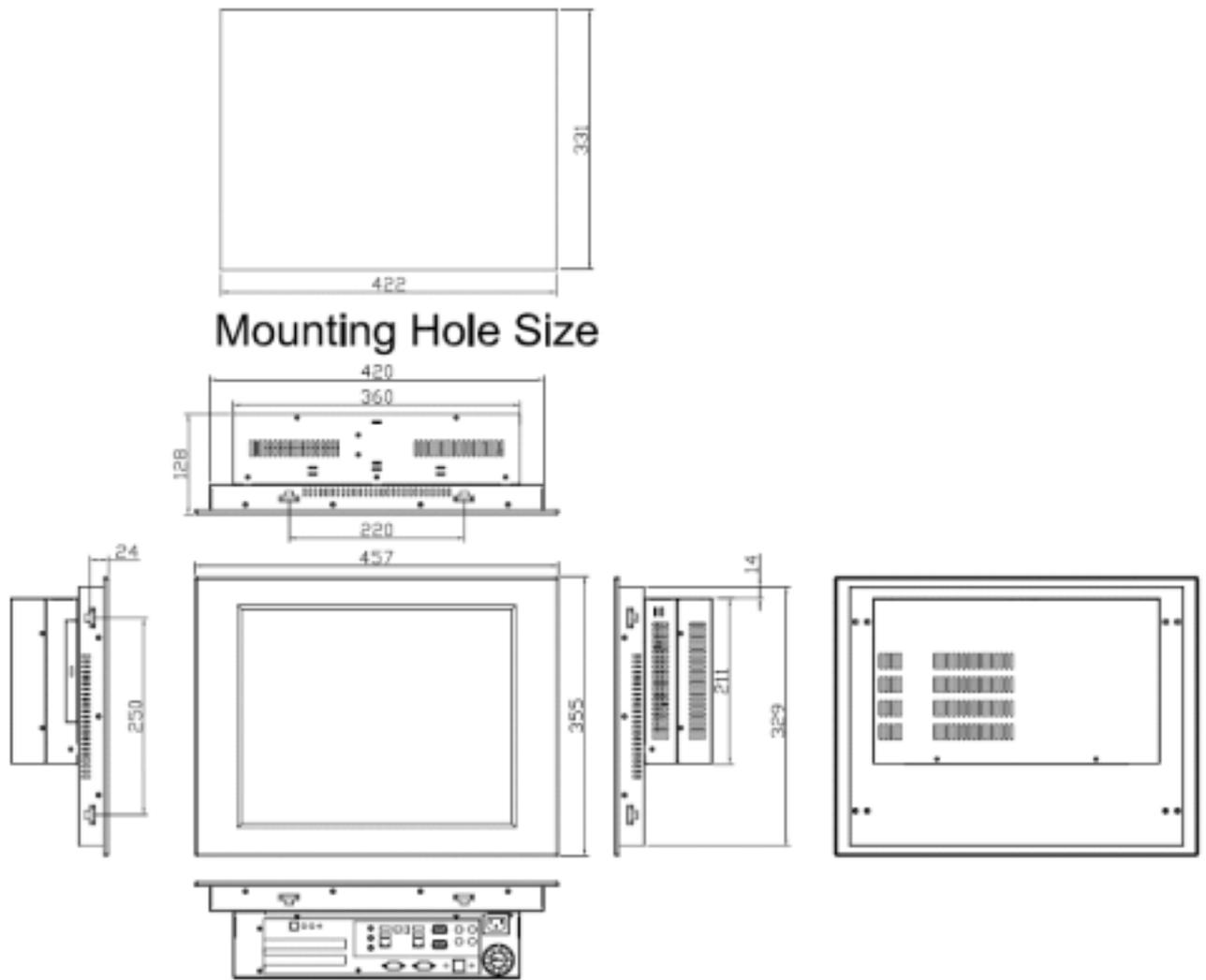
Mounting Hole Size

Figure 1.3: Dimensions of the EX-93715

Mounting hole size
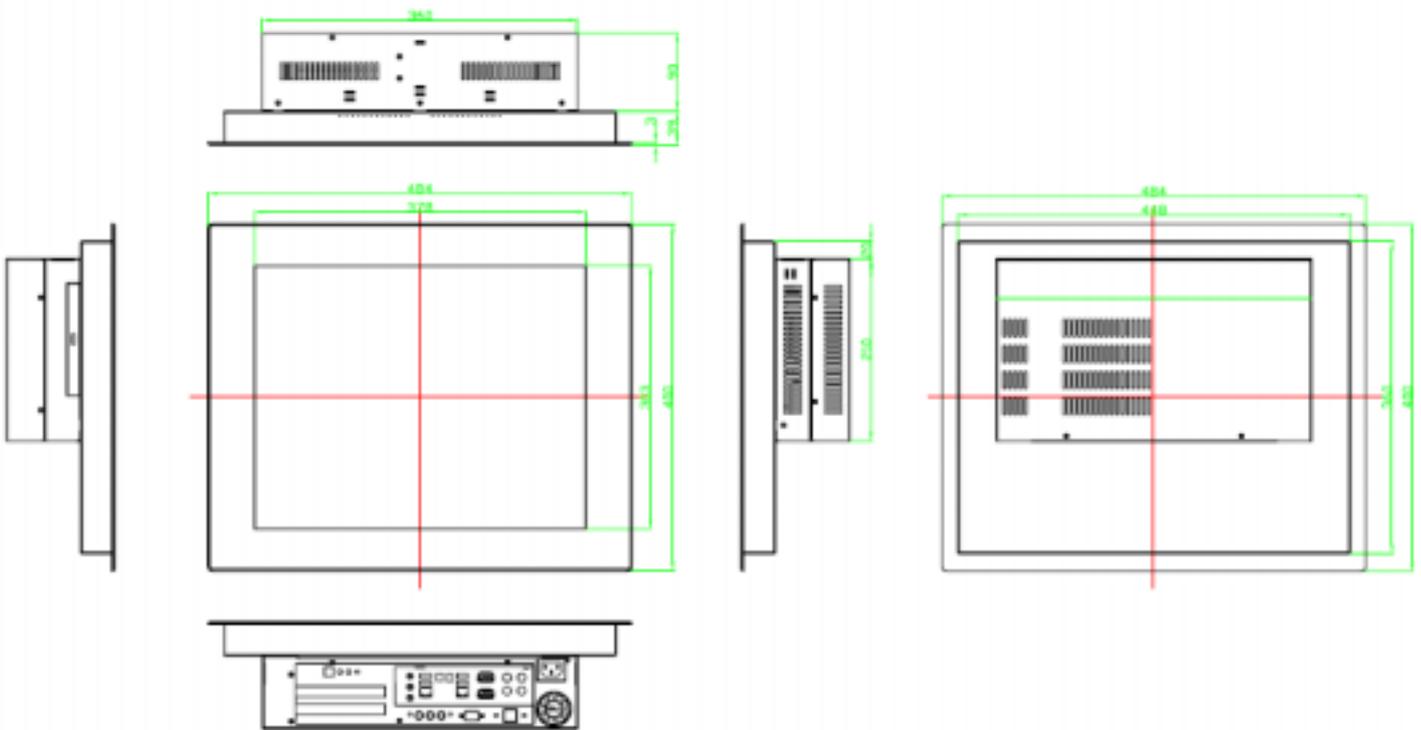
Figure 1.4: Dimensions of the EX-93915

1.3 Installation of CD-ROM & HDD

There are 8 screws to deal with when enclosing or removing the chassis.
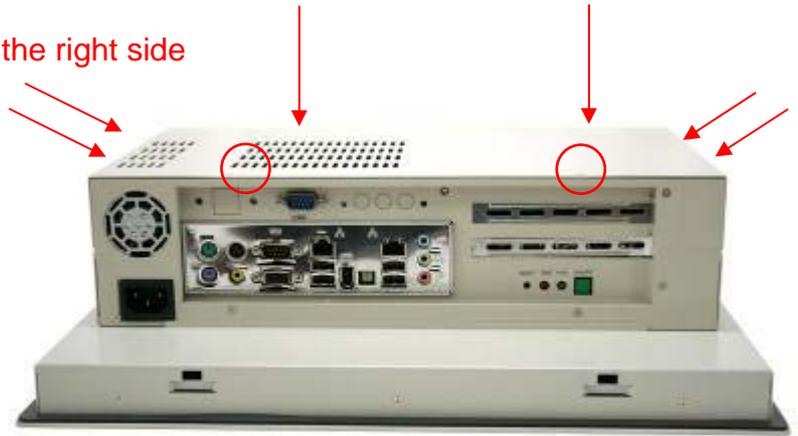
Shown in the picture are the four screws (as circled in red) that tighten or loosen the bracket where the CD-ROM is placed underneath. On top of the bracket is where the HDD is placed. To remove the CD-ROM, the HDD has to be removed first.

CD-ROM
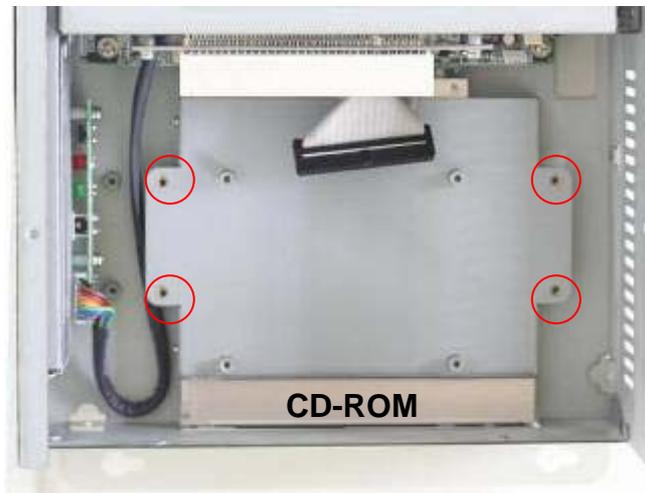
Now slide the HDD into the bracket as shown in the picture. After that, connect the HDD to the 44-pin black IDE by means of the cable, making sure the red stripe of the cable is connected to the pin 1 of the connector of the HDD

The red circles shown in the picture are the screws that put the CD-ROM in place. The arrows shown are where the HDD, which is just placed on top of the CD-ROM, is tightened.
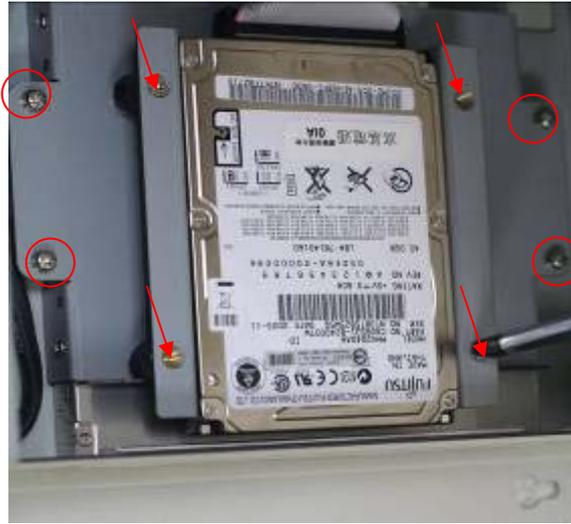
1.4 Installation of PCI Addon

Shown in the picture are the two PCI expansion slots as circled. They can be inserted with any addon for expanded functions.

Now slide the addon into the PCI slot, making sure the golden part faces the slot. When both parts that are interfaced together come into the right contact, slightly push the addon into the rail of the slot. This shows the addon is already completely connected.
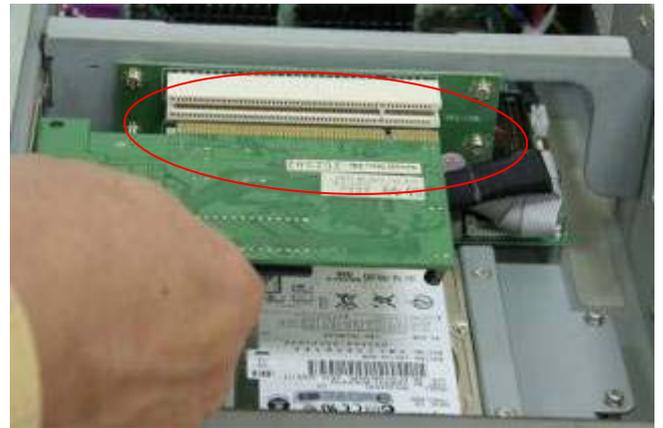
After sliding the addon into the PCI expansion slot, get the two screws as circled tightened to finish the connection.

To finish the job, just fasten the 8 screws as shown in the picture.

Both of 2 at the right side
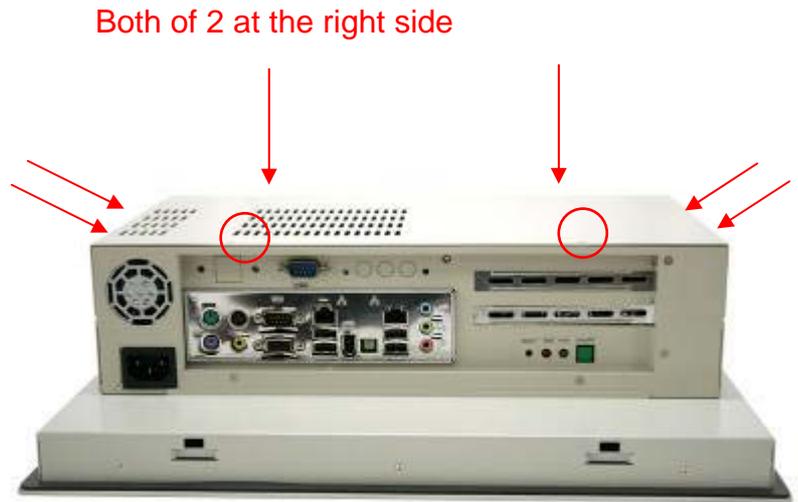
1.5 Brief Description of the EX-93215/93515/93715/93915

The EX-93215/93515/93715/93915 is a rugged, compact and panel-mount industrial PC, which comes with a 12-inch (luminance of 300 cd/m²)/15-inch (luminance of 350 cd/m²)/17-inch (luminance of 300 cd/m²)/19-inch (luminance of 420 cd/m²) TFT LCD. It is powered by an Intel® Core™ Duo, up to 2.33GHz processor. The industrial panel PC also features two PCI expansion slots, one COM port, four USB 2.0 ports, one 2.5" HDD, one slim CD-ROM/DVD Combo, Universal AC power of 100~240V, etc. It is ideal for use as a PC-based controller for Automotive, Logistic Process, Materials Handling, and Kiosk applications.
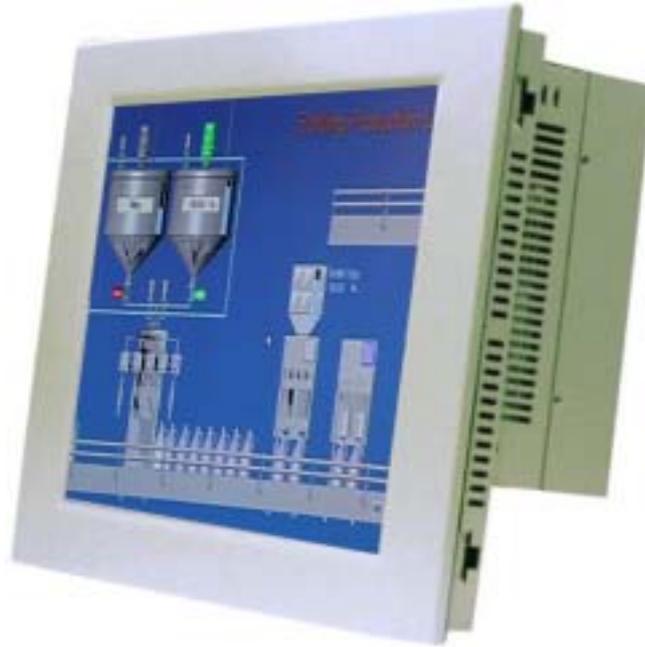
Figure 1.5: Front View of EX-93215/93515/93715/93915
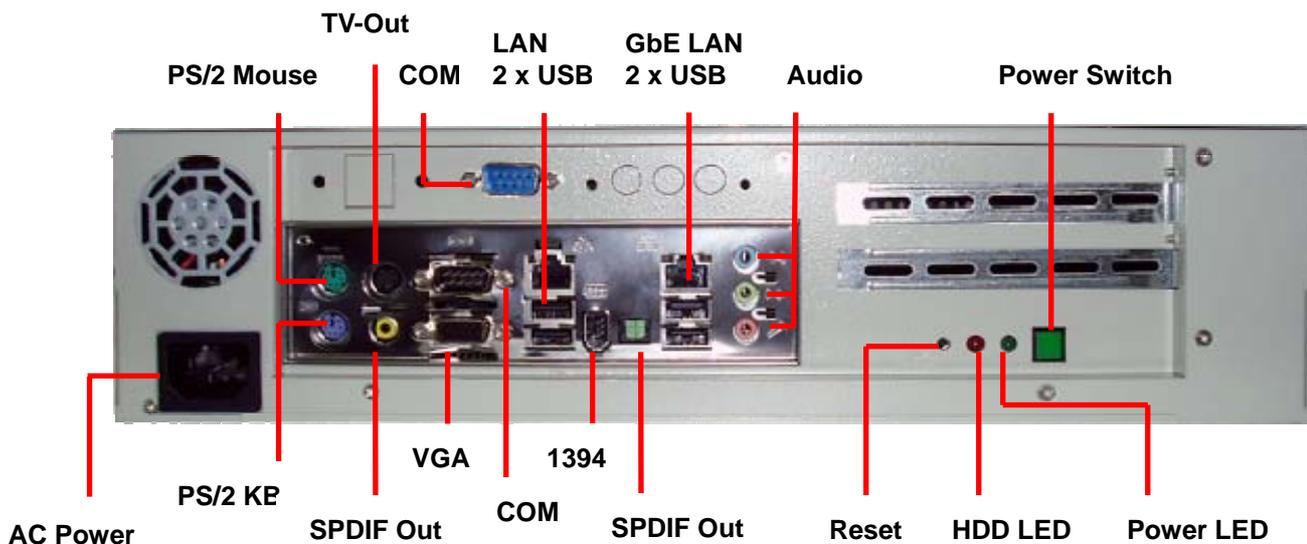
Figure 1.6: Rear View of EX-93215/93515/93715/93915

1.6 Panel Mounting of the EX-93215/93515/93715/93915

The EX-93215/93515/93715/93915 panel PC is designed to be panel-mounted as shown in Figure 1.6. Just carefully place the unit through the hole and tighten the given 8 screws from the rear to secure the mounting.
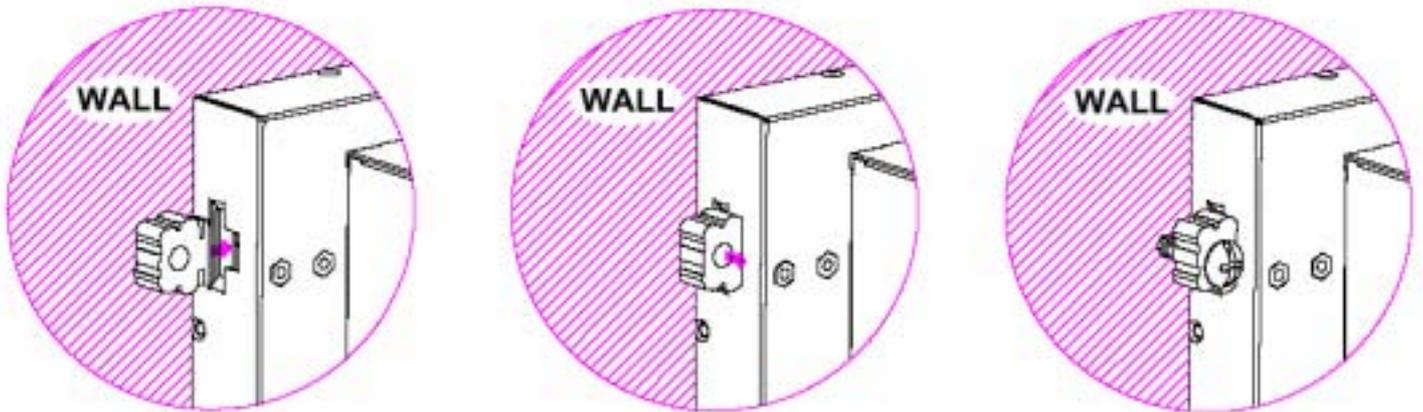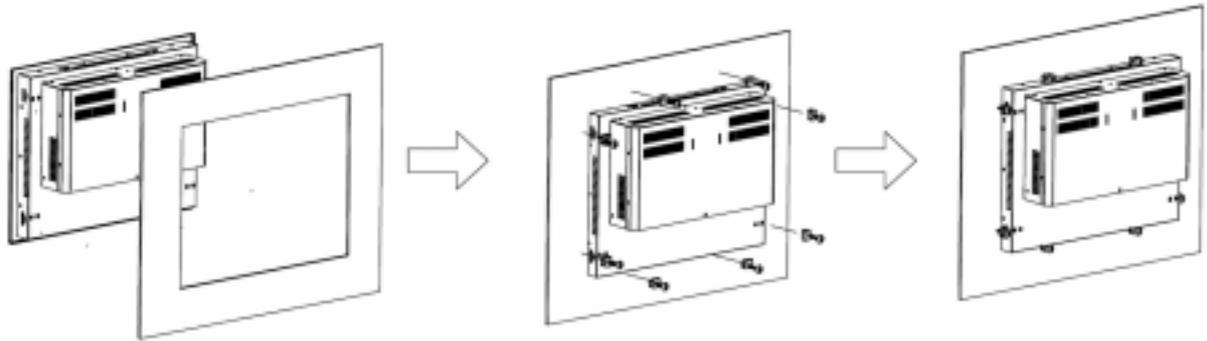
Figure 1.6: Panel mounting of the EX-93215/93515/93715/93915

Chapter 2   Hardware
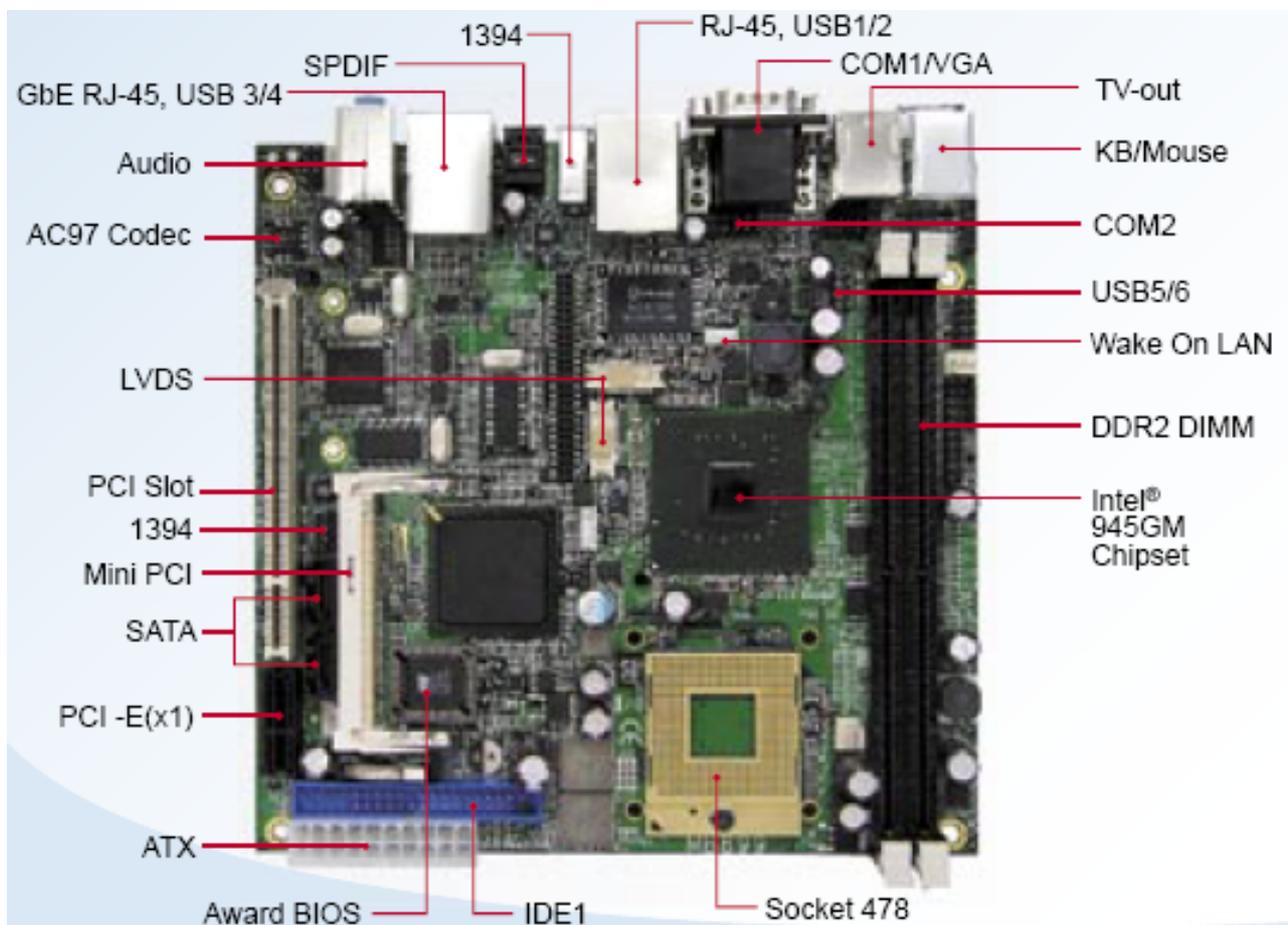
2.1 Mainboard

Figure 2.1: Mainboard Overview

2.2 Installations

This section provides information on how to use the jumpers and connectors on the mainboard in order to set up a workable system.

2.2.1 Installing the CPU

The mainboard supports a Socket 478MT (Napa) processor socket for Intel® Core^{TM} 2 Duo , Intel® Core^{TM} Duo and Intel® Core^{TM} Solo mobile processors.

The processor socket comes with a screw to secure the processor. As shown in the left picture below, loosen the screw first before inserting the processor. Place the processor into the socket by making sure the notch on the corner of the CPU corresponds with the notch on the inside of the socket. Once the processor has slide into the socket, fasten the screw. Refer to the figures below.
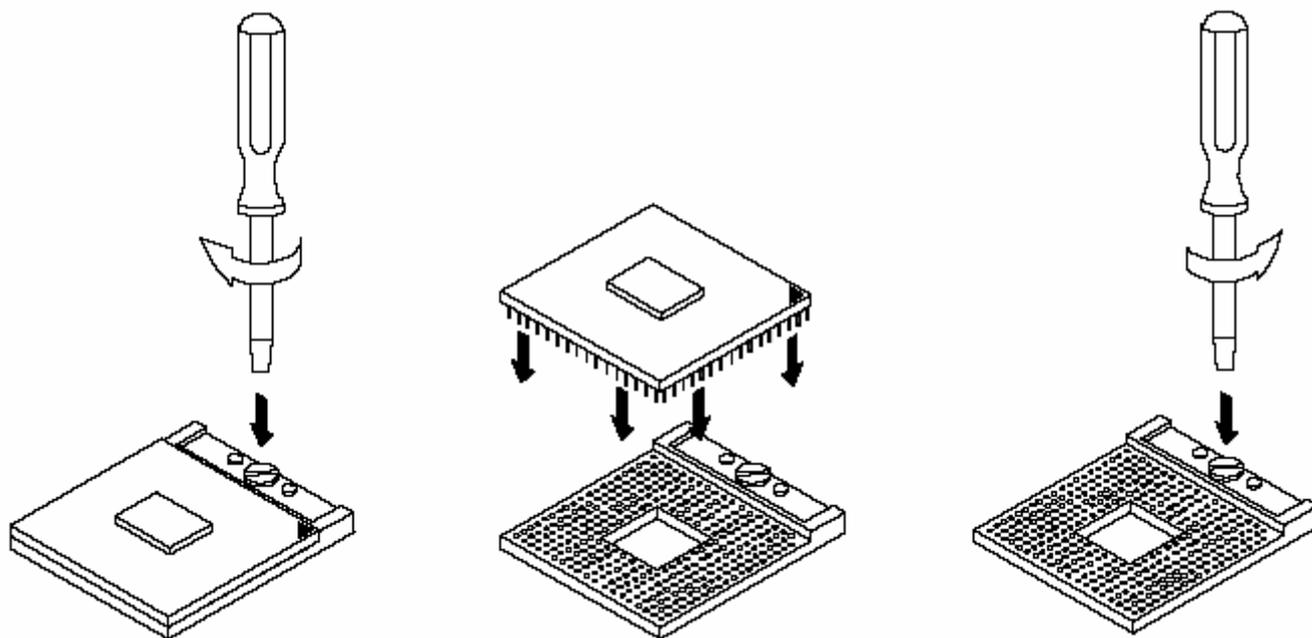
Figure 2.2: Installation of CPU

Note:
Ensure that the CPU heat sink and the CPU top surface are in total contact to avoid CPU overheating problem that would cause your system to hang or be unstable.

2.2.2 Installing the Memory

The mainboard supports two DDR2 memory socket for a maximum total memory of 4GB in DDR2 memory type.

Installing and Removing Memory Modules

To install the DDR2 modules, locate the memory slot on the board and perform the following steps:

1. Hold the DDR2 module so that the key of the DDR2 module align with those on the memory slot.
2. Gently push the DDR2 module in an upright position until the clips of the slot close to hold the DDR2 module in place when the DDR2 module touches the bottom of the slot.
3. To remove the DDR2 module, press the clips with both hands.
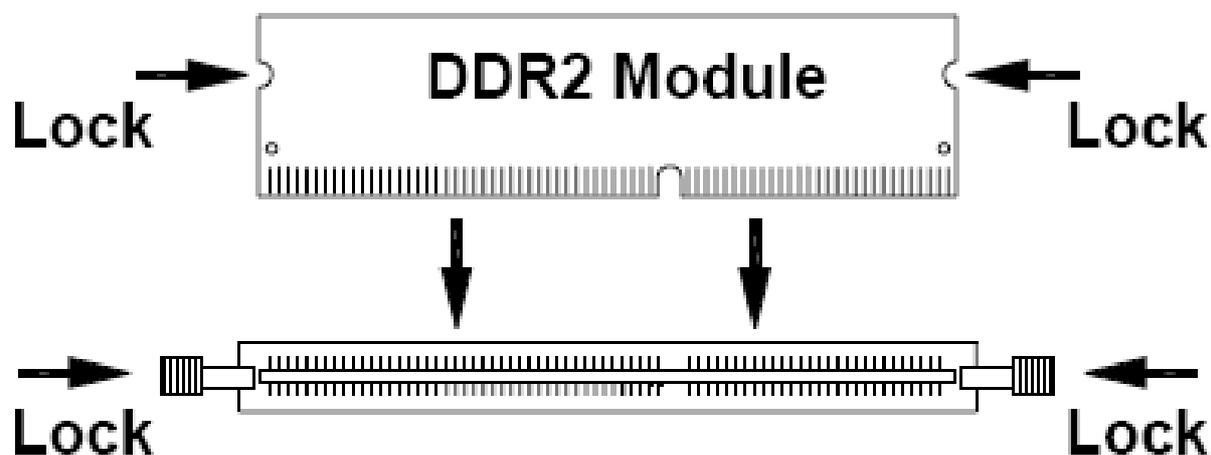
Figure 2.3: Installation of Memory Module

2.2.3 Installing the Jumpers

Jumpers are used on EX9899 to select various settings and features according to your needs and applications. Contact your supplier if you have doubts about the best configuration for your needs. The following lists the connectors on EX9899 and their respective functions.

Jumper Locations on Mainboard

JP2: CPU FSB Selection (reserved)

JP5: LCD Panel Power Selection

JP6: 1394 EPROM Write Selection

JP7: Clear CMOS Setting

JP8: Compact Flash Slave/Master Selection

IMPORTANT NOTE: *When the system boots without the CRT being connected, there will be no image on screen when you insert the CRT/VGA cable. To show the image on screen, the hotkey must be pressed.*
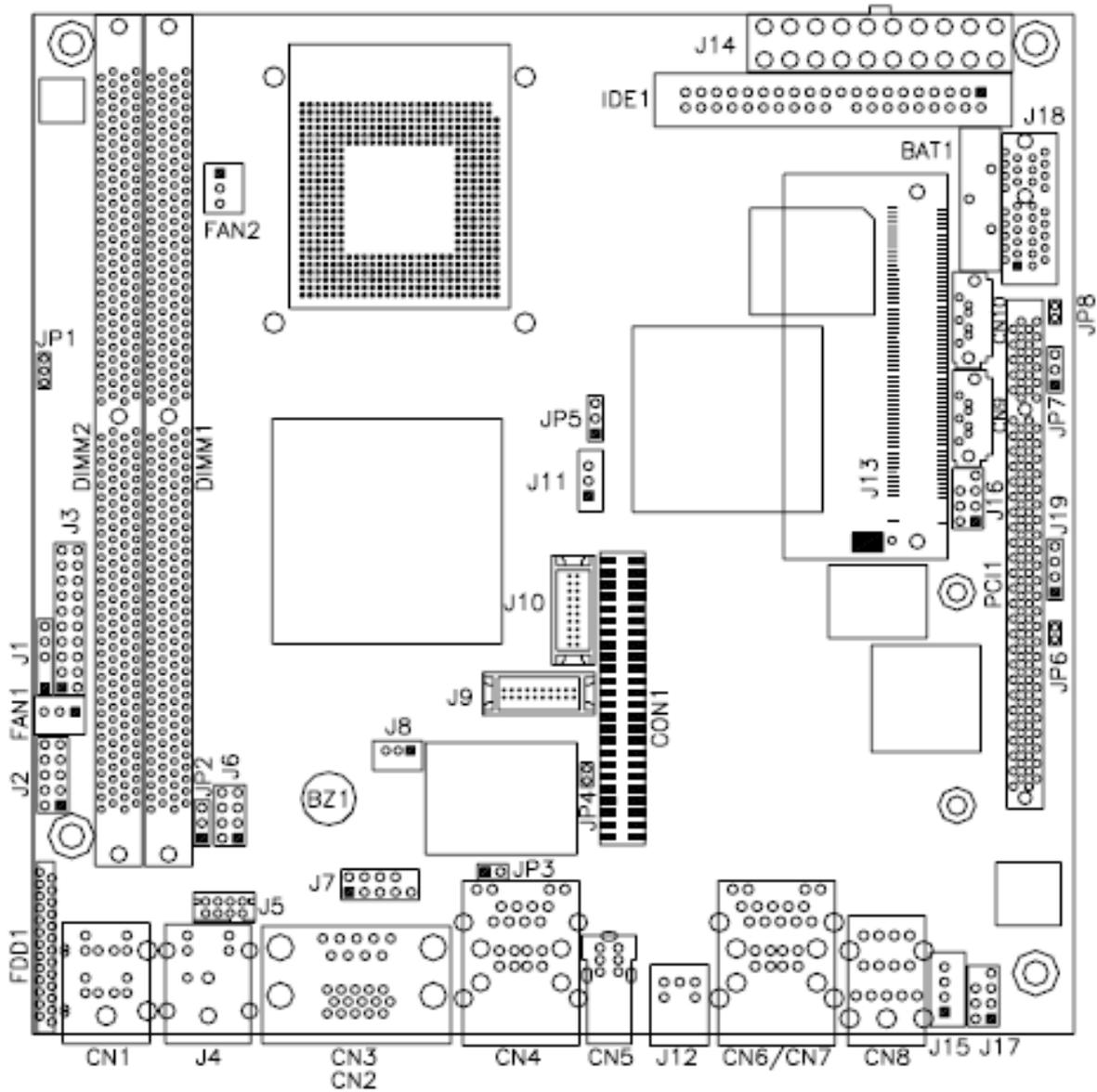
Figure 2.4: Location of Jumpers

JP2: CPU FSB Selection(reserved)
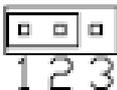
JP2	CPU FSB
1 2 3	533MHz
1 2 3	667MHz
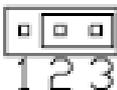
JP5: LCD Panel Power Selection
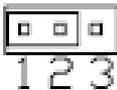
JP3	LCD Panel Power
1 2 3	3.3V
1 2 3	5V
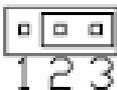
JP6: 1394 EPROM Write Selection

JP6	1394 EPROM
Short	For EPROM Write
Open	Normal

JP7: Clear CMOS Setting
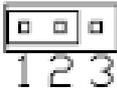
JP4	Setting
1 2 3	Normal
1 2 3	Clear CMOS
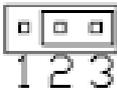
JP8: CompactFlash Slave/Master Selection

JP8	CF Setting
Short	Master
Open	Slave

2.2.4 Connectors on the Mainboard

The connectors on mainboard allows you to connect external devices such as keyboard, floppy disk drives, hard disk drives, printers, etc. The following table lists the connectors on EX9899 and their respective functions.

CN1: PS/2 Keyboard and PS/2 Mouse Connectors

CN2, CN3: COM1 and VGA Connector

CN4: 10/100 RJ-45 and USB1/2 Ports

CN5: 1394 Connector

J12: SPDIF Out Connector

CN6,CN7: GbE RJ-45 and USB3/4 Ports

CN8: Audio Connector

CN9, CN10: Serial ATA Connectors

FAN1: System Fan Power Connector

FAN2: CPU Fan Power Connector

IDE1: IDE Connector

FDD1: Floppy Drive Connector

J14: ATX Power Supply Connector

J1: IrDA Connector

J2: Digital I/O

J3: System Function Connector

J4: TV-OUT (S-VIDEO & Composite) Connector

J5: TV-OUT (Y,Pr,Pb) Connector

J6: USB5/6 Port Pin Header

J7: COM2 Serial Port

J8: Wake On LAN Connector

J9, J10: LVDS Connectors (1st channel, 2nd channel)

J11: LCD Backlight Connector

J13: Mini PCI Connector

U36: Mini PCI- E(x1) Connector

J15: Speaker Connector

J16: 1394 Connector

J17: Front Audio Connector

J18: PCI-E(x1) Slot

J19: CD-In Pin Header

J20: Compact Flash Connector

PCI1: PCI Slot (supports 2 Master)

CON1: SDVO Port Connector

Headers and Connectors on EX9899 Daughter Cards
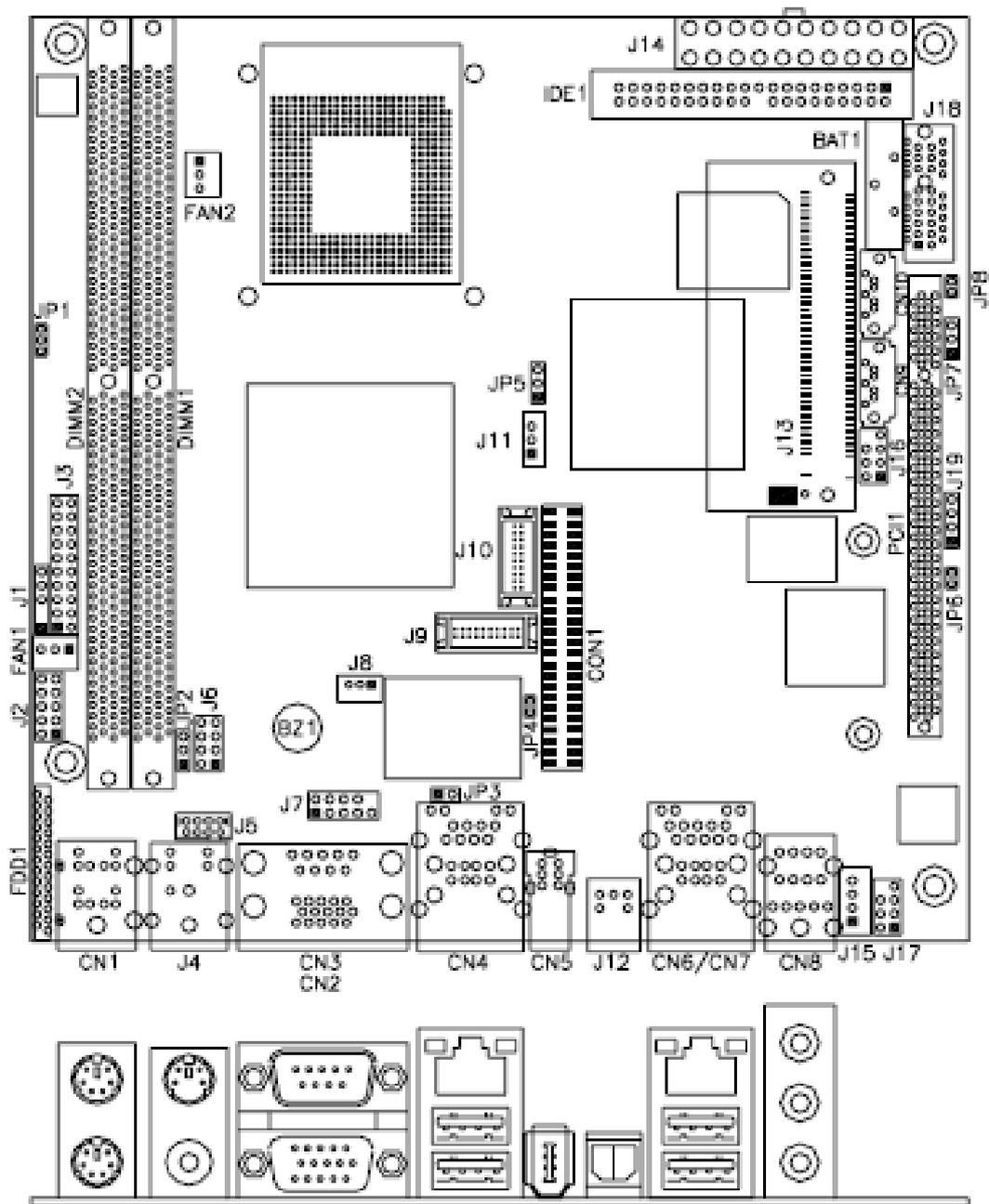
Figure 2.5: Location of Connectors

CN1: PS/2 Keyboard and PS/2 Mouse Connectors
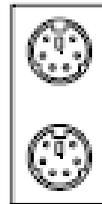
PS/2 Mouse

PS/2 Keyboard

Signal Name	Keyboard	Mouse	Signal Name
Keyboard data	1	1	Mouse data
N.C.	2	2	N.C.
GND	3	3	GND
5V	4	4	5V
Keyboard clock	5	5	Mouse clock
N.C.	6	6	N.C.

CN2, CN3: COM1 and VGA Connector
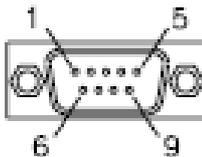
Signal Name	Pin #	Pin #	Signal Name
DCD	1	6	DSR
RXD	2	7	RTS
TXD	3	8	CTS
DTR	4	9	RI
GND	5	10	Not Used
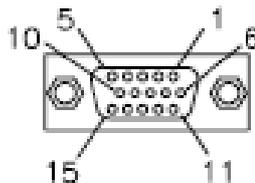
Signal Name	Pin #	Pin #	Signal Name
Red	1	2	Green
Blue	3	4	N.C.
GND	5	6	GND
GND	7	8	GND
N.C.	9	10	GND
N.C.	11	12	N.C.
HSYNC	13	14	VSYNC
NC	15		
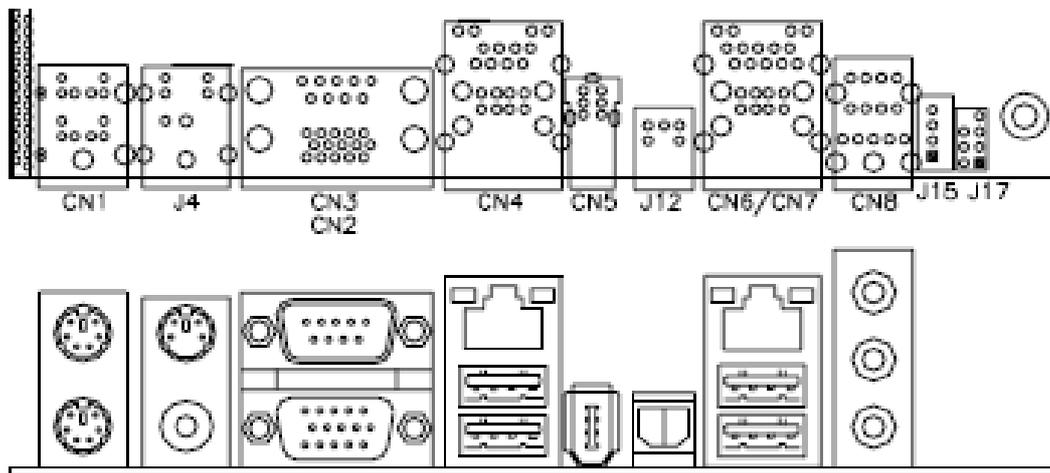
CN4: 10/100 RJ-45 and USB1/2 Ports

CN5: 1394 Connector

J12: SPDIF Out Connector

CN6: GbE RJ-45 and USB3/4 Ports

CN8: Audio Connector
The audio connector, from top to bottom, is composed of Line in, Line out and Microphone jacks.

CN9, CN10: Serial ATA Connectors

FAN1: System Fan Power Connector
FAN1 is a 3-pin header for system fans. The fan must be a 12V (500mA).
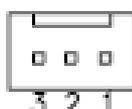
Pin #	Signal Name
1	Ground
2	+12V
3	Rotation detection

FAN2: CPU Fan Power Connector
FAN2 is a 3-pin header for the CPU fan. The fan must be a 12V fan.
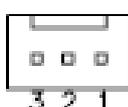
Pin #	Signal Name
1	Ground
2	+12V
3	Rotation detection

IDE1: IDE Connector
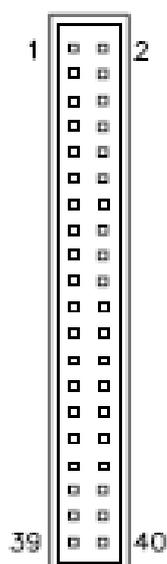
Signal Name	Pin #	Pin #	Signal Name
Reset IDE	1	2	Ground
Host data 7	3	4	Host data 8
Host data 6	5	6	Host data 9
Host data 5	7	8	Host data 10
Host data 4	9	10	Host data 11
Host data 3	11	12	Host data 12
Host data 2	13	14	Host data 13
Host data 1	15	16	Host data 14
Host data 0	17	18	Host data 15
Ground	19	20	Protect pin
DRQ0	21	22	Ground
Host IOW	23	24	Ground
Host IOR	25	26	Ground
IOCHRDY	27	28	Host ALE
DACK0	29	30	Ground
IRQ14	31	32	No connect
Address 1	33	34	No connect
Address 0	35	36	Address 2
Chip select 0	37	38	Chip select 1
Activity	39	40	Ground

FDD1: Floppy Drive Connector

FDD1 is a slim 26-pin connector and will support up to 2.88MB FDD.
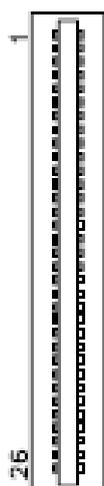
Signal Name	Pin #	Pin #	Signal Name
VCC	1	2	INDEX
VCC	3	4	DRV_SEL
VCC	5	6	DSK_CH
NC	7	8	NC
NC	9	10	MOTOR
DINST	11	12	DIR
NC	13	14	STEP
GND	15	16	WDATA
GND	17	18	WGATE
GND	19	20	TRACK
NC	21	22	WPROT
GND	23	24	RDATA
GND	25	26	SIDE

J14: ATX Power Supply Connector
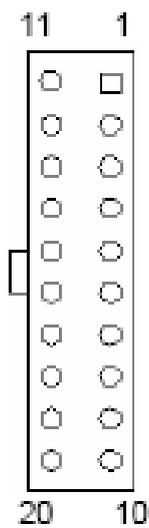
Signal Name	Pin #	Pin #	Signal Name
3.3V	11	1	3.3V
-12V	12	2	3.3V
Ground	13	3	Ground
PS-ON	14	4	+5V
Ground	15	5	Ground
Ground	16	6	+5V
Ground	17	7	Ground
-5V	18	8	Power good
+5V	19	9	5VSB
+5V	20	10	+12V

J1: IrDA Connector
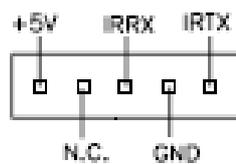
Pin #	Signal Name
1	+5V
2	No connect
3	Ir RX
4	Ground
5	Ir TX

J2: Digital I/O
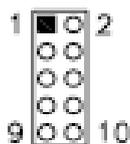
Signal Name	Pin	Pin	Signal Name
GND	1	2	VCC
OUT3	3	4	OUT1
OUT2	5	6	OUT0
IN3	7	8	IN1
IN2	9	10	IN0

J3: System Function Connector

J3 provides connectors for system indicators that provide light indication of the computer activities and switches to change the computer status. J3 is a 20-pin header that provides interfaces for the following functions.

Hard Disk Drive LED 10 □ □ 20 Reset Switch
Not Defined □ □ ATX Power On Switch
Not Defined □ □
□ □
□ □ Power LED
Speaker □ □
1 □ □ 11
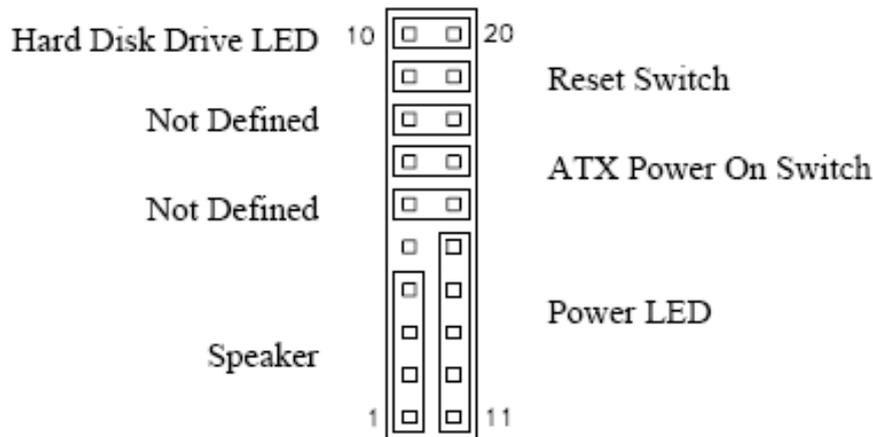
Speaker: Pins 1 - 4

This connector provides an interface to a speaker for audio tone generation. An 8-ohm speaker is recommended.
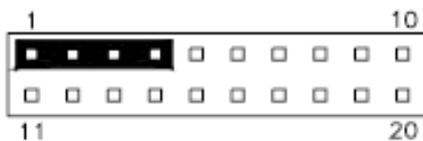
Pin #	Signal Name
1	Speaker out
2	No connect
3	Ground
4	+5V

Power LED: Pins 11 - 15
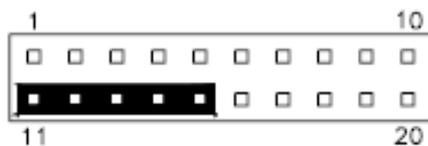
Pin #	Signal Name
11	Power LED
12	No connect
13	Ground
14	No connect
15	Ground

ATX Power ON Switch: Pins 7 and 17

This 2-pin connector is an "ATX Power Supply On/Off Switch" on the system that connects to the power switch on the case. When pressed, the power switch will force the system to power on. When pressed again, it will force the system to power off.
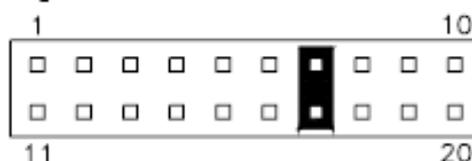
Reset Switch: Pins 9 and 19

The reset switch allows the user to reset the system without turning the main power switch off and then on again. Orientation is not required when making a connection to this header.
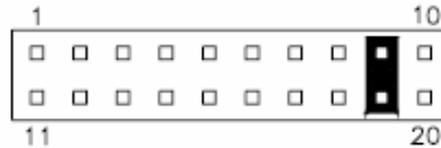
Hard Disk Drive LED Connector: Pins 10 and 20

This connector connects to the hard drive activity LED on control panel. This LED will flash when the HDD is being accessed.
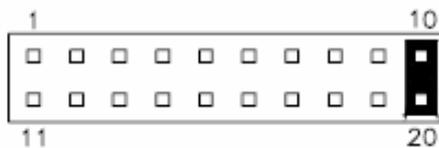
Pin #	Signal Name
10	HDD Active
20	5V

J4: TV-OUT (S-VIDEO & Composite) Connector

J5: TV-OUT (Y,Pr,Pb) Connector

The pin assignments of the TV out connector are as follows:

Signal Name	Pin	Pin	Signal Name
NC	1	2	NC
SL/Y	3	4	Ground
SC/Pr	5	6	Ground
CVBS/Pb	7	8	Ground

CVBS : Composite signal
Pb : Component Chrominance (Pb) analog signal

SL : S-Video Luminance analog signal
Y : Component Luminance (Y) analog signal

SC : S-Video Chrominance analog signal
Pr : Component Chrominance (Pr) analog signal

J6: USB5/6 Port Pin Header
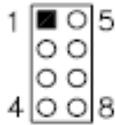
Signal Name	Pin	Pin	Signal Name
Vcc	1	5	Ground
D-	2	6	D+
D+	3	7	D-
Ground	4	8	Vcc

J7: COM2 Serial Port
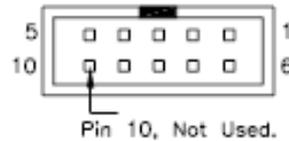
Pin 10, Not Used.

COM2

Signal Name	Pin #	Pin #	Signal Name
DCD, Data carrier detect	1	6	DSR, Data set ready
RXD, Receive data	2	7	RTS, Request to send
TXD, Transmit data	3	8	CTS, Clear to send
DTR, Data terminal ready	4	9	RI, Ring indicator
GND, ground	5	10	Not Used

J8: Wake On LAN Connector

J8 is a 3-pin header for the Wake On LAN function. Wake On LAN will function properly only with an ATX power supply with 5VSB that has 200mA.
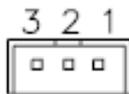
Pin #	Signal Name
1	+5VSB
2	Ground
3	-PME

J9, J10: LVDS Connectors (1st channel, 2nd channel)

The LVDS connectors on board consist of the first channel (J9) and second channel (J10) and supports 18-bit or 36-bit.
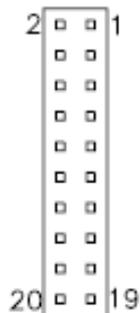
Signal Name	Pin #	Pin #	Signal Name
TX0-	2	1	TX0+
Ground	4	3	Ground
TX1-	6	5	TX1+
5V/3.3V	8	7	Ground
NA	10	9	NA
TX2-	12	11	TX2+
Ground	14	13	Ground
TXC-	16	15	TXC+
5V/3.3V	18	17	ENABKL
+12V	20	19	+12V

J11: LCD Backlight Connector

Pin #	Signal Name
1	+12V
2	Backlight Enable
3	Ground

J13: Mini PCI Connector

U36: Mini PCI- E(x1) Connector (bottom side)

J15: Speaker Connector

The J15 connector supports 2W/8ohm stereo audio power amplifier.

Pin #	Signal Name
1	Audio L
2	Ground
3	Ground
4	Audio R

J16: 1394 Connector
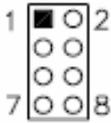
Signal Name	Pin	Pin	Signal Name
TPA+	1	2	TPB+
TPA-	3	4	TPB-
+12V	5	6	NC
GND	7	8	NC

J17: Front Audio Connector
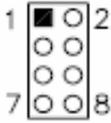
Signal Name	Pin	Pin	Signal Name
Rear Audio R	1	2	Rear Audio L
Front Audio R	3	4	Front Audio L
Mic In	5	6	VREF Out
Ground	7	8	

REMARKS: To use the front audio connector, the jumpers on pin 1-3 and pin 2-4 must be removed.

J18: PCI-E(x1) Slot

J19: CD-In Pin Header
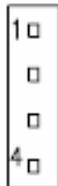
Pin #	Signal Name
1	CD Audio R
2	Ground
3	Ground
4	CD Audio L

J20: Compact Flash Connector

PCI1: PCI Slot (supports 2 Master)

CON1: SDVO Port Connector

Signal Name	Pin #	Pin #	Signal Name
+12V	A1	B1	+12V
+12V	A2	B2	+12V
+5V	A3	B3	+5V
3.3V	A4	B4	3.3V
RESET	A5	B5	GND
GND	A6	B6	GND
SDVOC_CLK+	A7	B7	SDVOC_CLK-
SDVOC_Blue+	A8	B8	SDVOC_Blue-
GND	A9	B9	GND
SDVOC_Green+	A10	B10	SDVOC_Green-
SDVOC_Red+	A11	B11	SDVOC_Red-
GND	A12	B12	GND
SDVO TVClkIn+	A13	B13	SDVO TVClkIn-
SDVOB Int+	A14	B14	SDVOB Int-
GND	A15	B15	GND
SDVO CtrlData	A16	B16	SDVO CtrlClk
SDVOB Clk+	A17	B17	SDVOB Clk-
GND	A18	B18	GND
SDVOB Blue+	A19	B19	SDVOB Blue-
SDVOB Green+	A20	B20	SDVOB Green-
GND	A21	B21	GND
SDVOB Red+	A22	B22	SDVOB Red-
SDVO Stall+	A23	B23	SDVO Stall-
GND	A24	B24	GND

Headers and Connectors on MB899 Daughter Cards

ID390 – JP4 LCD Panel Power Selection
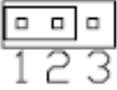
JP4	Voltage
1 2 3	3.3V
1 2 3	5V

ID390 – J1 LCD Backlight Setting
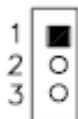
Pin #	Signal Name
1	+12V
2	Backlight Enable
3	Ground

ID390 – J3 and J2 1st/2nd LVDS Channel Connectors
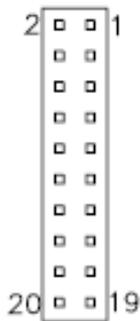
Signal Name	Pin #	Pin #	Signal Name
TX0-	2	1	TX0+
Ground	4	3	Ground
TX1-	6	5	TX1+
5V/3.3V	8	7	Ground
TX3-	10	9	TX3+
TX2-	12	11	TX2+
Ground	14	13	Ground
TXC-	16	15	TXC+
5V/3.3V	18	17	ENABKL
+12V	20	19	+12V
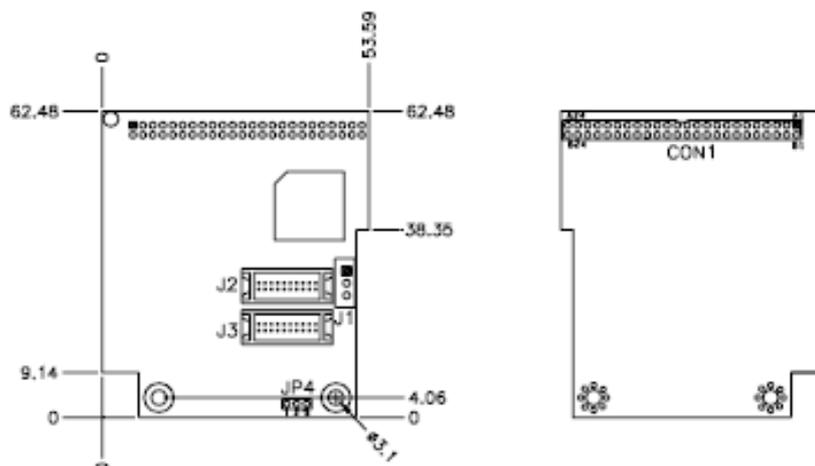
ID390C – J4 VGA Connector
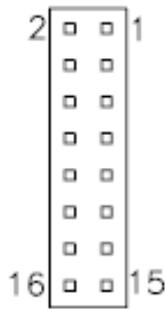
Signal Name	Pin #	Pin #	Signal Name
+5V	2	1	RED
Ground	4	3	GREEN
N.C.	6	5	BLUE
SDA	8	7	N.C.
HSYNC	10	9	Ground
VSYNC	12	11	Ground
SCL	14	13	Ground
N.C.	16	15	Ground
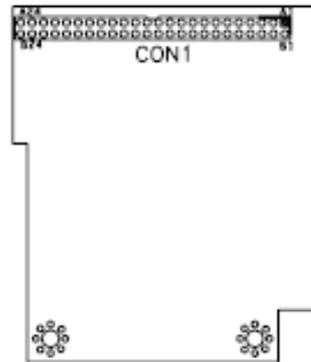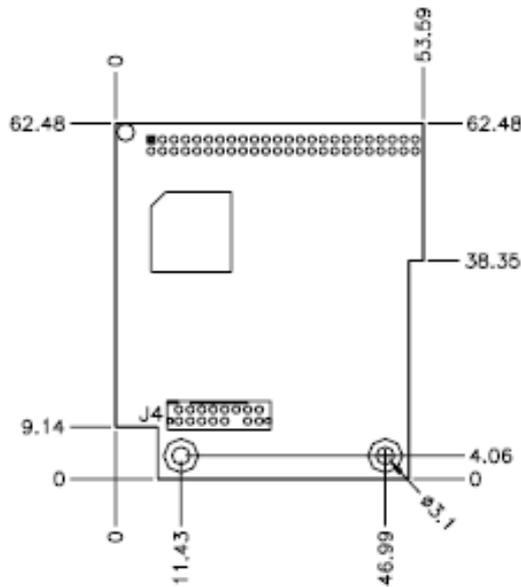
ID391 – J2 DVI Connector
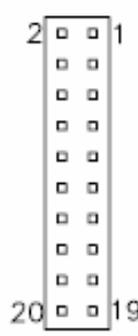
Signal Name	Pin #	Pin #	Signal Name
TDC1-	2	1	TDC1+
Ground	4	3	Ground
TLC-	6	5	TLC+
+5V	8	7	Ground
NC	10	9	HPDET
TDC2-	12	11	TDC2+
Ground	14	13	Ground
TDC0-	16	15	TDC0+
NC	18	17	NC
DDC_SC	20	19	DDC_SD
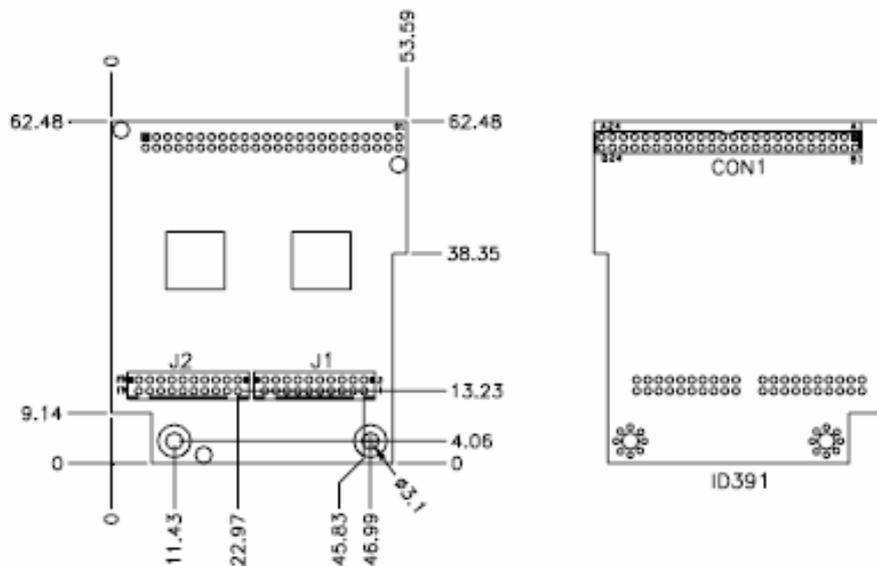
ID391D – J1, J2 1st/2nd DVI Connectors
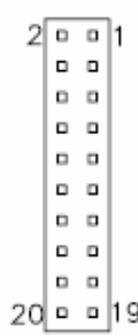
Signal Name	Pin #	Pin #	Signal Name
TDC1-	2	1	TDC1+
Ground	4	3	Ground
TLC-	6	5	TLC+
+5V	8	7	Ground
NC	10	9	HPDET
TDC2-	12	11	TDC2+
Ground	14	13	Ground
TDC0-	16	15	TDC0+
NC	18	17	NC
DDC_SC	20	19	DDC_SD

Remarks: When using dual DVI, the first DVI video output is through J1. After setting the drivers in Windows, then the second DVI output (via J2) will function. ID391D and ID391 are different since the latter (ID391) has video output via J2. The pin assignments of J1 and J2 are the same.

Chapter 3   BIOS Setup

3.1 BIOS Setup

This chapter describes the different settings available in the Award BIOS that comes with the board. The topics covered in this chapter are as follows:

    BIOS Introduction
    BIOS Setup
    Standard CMOS Setup
    Advanced BIOS Features
    Advanced Chipset Features
    Integrated Peripherals
    Power Management Setup
    PNP/PCI Configurations
    PC Health Status
    Frequency/Voltage Control
    Load Fail-Safe Defaults
    Load Optimized Defaults
    Set Supervisor/User Password
    Save & Exit Setup
    Exit Without Saving

BIOS Introduction

The Award BIOS (Basic Input/Output System) installed in your computer system's ROM supports Intel processors. The BIOS provides critical low-level support for standards devices, such as disk drives, serial ports and parallel ports. It also adds virus and password protection as well as special support for fine-tuning the chipset controlling the entire system.

BIOS Setup

The Award BIOS provides a Setup utility program for specifying the system configurations and settings. The BIOS ROM of the system stores the Setup utility. When you on the computer, the Award BIOS is immediately activated. Pressing the **<Del>** key immediately allows you to enter the Setup utility. If you are a little bit late to press the **<Del>** key, **POST** (Power On Self Test) will continue with its test routines, thus preventing you from invoking the Setup. If you still wish to enter Setup, restart the system by the pressing the "Reset" button or simultaneously pressing the **<Ctrl>**, **<Alt>** and **<Del>** keys. You can also restart by turning the system off and back on again. The following message will appear on the

screen:

Press <DEL> to Enter Setup

In general, you press the arrow keys to highlight items, **<Enter>** to select, the **<PgUp>** and **<PgDn>** keys to change entries, **<F1>** for help and **<Esc>** to quit.

When you enter the Setup utility, the Main Menu screen will appear on the screen. The Main Menu allows you to select from various Setup functions and exit choices.

```
           Phoenix - AwardBIOS CMOS Setup Utility
┌─────────────────────────────────┬──────────────────────────────────┐
│  Standard CMOS Features         │  Frequency/Voltage Control       │
│  Advanced BIOS Features         │  Load Fail-Safe Defaults         │
│  Advanced Chipset Features      │  Load Optimized Defaults         │
│  Integrated Peripherals         │  Set Supervisor Password         │
│  Power Management Setup         │  Set User Password               │
│  PnP/PCI Configurations         │  Save & Exit Setup               │
│  PC Health Status               │  Exit Without Saving             │
├─────────────────────────────────┼──────────────────────────────────┤
│  ESC : Quit                     │  ↑ ↓ → ← : Select Item           │
│  F10 : Save & Exit Setup        │                                  │
├─────────────────────────────────┴──────────────────────────────────┤
│               Time, Date, Hard Disk Type…                           │
└─────────────────────────────────────────────────────────────────────┘
```

The section below the Setup items of the Main Menu displays the control keys for this menu. At the bottom of the Main Menu just below the control key section there is another section displaying information on the currently-highlighted item in the list.

Note: *If the system cannot boot after making and saving system changes with Setup, the Award BIOS supports an override to the CMOS settings that reset your system to its default.*

Warning: *It is strongly recommended that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both Award and your system manufacturer to provide the absolute maximum performance and reliability. Changing the defaults could cause the system to become unstable and crash in some cases.*

Standard CMOS Setup

"Standard CMOS Setup" choice allows you to record some basic hardware configurations in your computer system and set the system clock and error handling. If the motherboard is already installed in a working system, you will not need to select this option. You will need to run the Standard CMOS option; however, if you change your system hardware configurations, the onboard battery fails, or the configuration stored in the CMOS memory was lost or damaged.

```
                 Phoenix - AwardBIOS CMOS Setup Utility
                         Standard CMOS Features

 Date (mm:dd:yy)         Wed, Apr 28, 2004    |      Item Help
 Time (hh:mm:ss)         00 : 00 : 00         | Menu Level  >
                                              |
 IDE Primary Master      None                 | Change the day, month,
 IDE Primary Slave       None                 | Year and century
 IDE Secondary Master    None                 |
 IDE Secondary Slave     None                 |
                                              |
 Drive A                 1.44M, 3.5 in.       |
 Drive B                 None                 |
                                              |
 Video                   EGA/VGA              |
 Halt On                 All Errors           |
                                              |
 Base Memory             640K                 |
 Extended Memory         129024K              |
 Total Memory            130048K              |
```

At the bottom of the menu are the control keys for use on this menu. If you need any help in each item field, you can press the **<F1>** key. It will display the relevant information to help you. The memory display at the lower right-hand side of the menu is read-only. It will adjust automatically according to the memory changed. The following describes each item of this menu:

Date

The date format is:

      Day: **Sun to Sat**
      Month: **1 to 12**
      Date: **1 to 31**
      Year: **1999 to 2099**

To set the date, highlight the "Date" field and use the PageUp/PageDown or +/- keys to set the current

time.

Time

The time format is: **Hour: 00 to 23**

                    Minute: 00 to 59

                    Second: 00 to 59

To set the time, highlight the "Time" field and use the <PgUp>/<PgDn> or +/- keys to set the current time.

IDE Primary HDDs/IDE Secondary HDDs

The onboard PCI IDE connectors provide Primary and Secondary channels for connecting up to four IDE hard disks or other IDE devices. Each channel can support up to two hard disks; the first is the "Master" while the second, the "Slave".

Press **<Enter>** to configure the hard disk. The selections include Auto, Manual, and None. Select "Manual" to define the drive information manually. You will be asked to enter the following items:

CYLS: Number of cylinders

HEAD: Number of read/write heads

PRECOMP: Write precompensation

LANDING ZONE: Landing zone

SECTOR: Number of sectors

The Access Mode selections are as follows:

              CHS   (HD<528MB)

              LBA   (HD>528MB and supports Logical Block Addressing)

              Large   (for MS-DOS only)

              Auto

Remarks: The mainboard supports two serial ATA ports and are represented in this setting as IDE channel 0.

Drive A /Drive B

These fields identify the types of floppy disk drive A or drive B that has been installed in the computer. The available specifications are:

360KB	1.2MB	720KB	1.44MB	2.88MB
5.25 in	5.25 in	3.5 in	3.5 in	3.5 in

Video

This field selects the type of video display card installed in your system. You can choose the following video display cards:

EGA/VGA   for EGA, VGA, SEGA, SVGA
Or PGA monitor adapters (default)

CGA 40   Power up in 40 column mode

CGA 80   Power up in 80 column mode

MONO   for Hercules or MDA adapters

Halt On

This field determines whether or not the system will halt if an error is detected during power up.

No errors   The system boot will not be halted for any error
that may be detected.

All erros   Whenever the BIOS detects a non-fatal error, the
system will stop and you will be prompted.

All, but Keyboard   The system boot will not be halted for a keyboard
Error; it will stop for all other errors.

All, but Diskette   The system boot will not be halted for a disk error; it
will stop for all other errors.

All, but Disk/Key   The system boot will not be halted for a keyboard or
disk error; it will stip for all others.

Advanced BIOS Features

This section allows you to configure and improve your system and allows you to set up some system features according to your preference.

```
            Phoenix - AwardBIOS CMOS Setup Utility
                    Advanced BIOS Features
┌──────────────────────────────────────────┬─────────────────────┐
│ CPU Feature                  Press Enter   │      ITEM HELP      │
│ Hard Disk Boot Priority      Press Enter   │                     │
│ Virus Warning                Disabled      │ Menu Level  >       │
│ CPU L1 and L2 Cache          Enabled       │                     │
│ Quick Power On Self Test     Enabled       │                     │
│ First Boot Device            Floppy        │                     │
│ Second Boot Device           Hard Disk     │                     │
│ Third Boot Device            CDROM         │                     │
│ Boot Other Device            Enabled       │                     │
│ Swap Floppy Drive            Disabled      │                     │
│ Boot Up Floppy Seek          Disabled      │                     │
│ Boot Up NumLock Status       On            │                     │
│ Gate A20 Option              Fast          │                     │
│ Typematic Rate Setting       Disabled      │                     │
│ Typematic Rate (Chars/Sec)   6             │                     │
│ Typematic Delay (Msec)       250           │                     │
│ Security Option              Setup         │                     │
│ APIC Mode                    Enabled       │                     │
│ MPS Version Control for OS   1.4           │                     │
│ OS Select For DRAM>64MB      Non-OS2       │                     │
│ Report No FDD For WIN 95     Yes           │                     │
│ Small Logo (EPA) Show        Enabled       │                     │
└──────────────────────────────────────────┴─────────────────────┘
```

CPU Feature
Press Enter to configure the settings relevant to CPU Feature. Hard Disk Boot Priority
With the field, there is the option to choose, aside from the hard disks connected, "Bootable add-in Cards" which refers to other external devices.

Virus Warning
If this option is enabled, an alarm message will be displayed when trying to write on the boot sector or on the partition table on the disk, which is typical of the virus.

CPU L1 and L2 Cache
Cache memory is additional memory that is faster than conventional DRAM (system memory). CPUs from 486-type on up contain internal cache memory,and most, but not all, modern PCs have additional (external) cache memory. When the CPU requests data, the system transfers the requested data from the main DRAM into cache memory, for even faster access by the CPU. These allow you to enable (speed up memory access) or disable the cache function.

Quick Power On Self Test

When enabled, this field speeds up the Power On Self Test (POST) after the system is turned on. If it is set to Enabled, BIOS will skip some items.

First/Second/Third Boot Device

These fields determine the drive that the system searches first for an operating system. The options available include Floppy, LS120, Hard Disk, CDROM, ZIP100, USB-Floppy, USB-ZIP, USB-CDROM, LAN and Disable.

Boot Other Device

These fields allow the system to search for an OS from other devices other than the ones selected in the First/Second/Third Boot Device.

Swap Floppy Drive

This item allows you to determine whether or not to enable Swap Floppy Drive. When enabled, the BIOS swaps floppy drive assignments so that Drive A becomes Drive B, and Drive B becomes Drive A. By default, this field is set to Disabled.

Boot Up Floppy Seek

This feature controls whether the BIOS checks for a floppy drive while booting up. If it cannot detect one (either due to improper configuration or its absence), it will flash an error message.

Boot Up NumLock Status

This allows you to activate the NumLock function after you power up the system.

Gate A20 Option

This field allows you to select how Gate A20 is worked. Gate A20 is a device used to address memory above 1 MB.

Typematic Rate Setting

When disabled, continually holding down a key on your keyboard will generate only one instance. When enabled, you can set the two typematic controls listed next. By default, this field is set to Disabled.

Typematic Rate (Chars/Sec)

When the typematic rate is enabled, the system registers repeated keystrokes speeds. Settings are from 6 to 30 characters per second.

Typematic Delay (Msec)

When the typematic rate is enabled, this item allows you to set the time interval for displaying the first and second characters. By default, this item is set to 250msec.

Security Option

This field allows you to limit access to the System and Setup. The default value is Setup. When you select System, the system prompts for the User Password every time you boot up. When you select Setup, the system always boots up and prompts for the Supervisor Password only when the Setup utility is called up.

APIC Mode

APIC stands for Advanced Programmable Interrupt Controller. The default setting is Enabled.

MPS Version Control for OS

This option is specifies the MPS (Multiprocessor Specification) version for your operating system. MPS version 1.4 added extended configuration tables to improve support for multiple PCI bus configurations and improve future expandability. The default setting is 1.4.

OS Select for DRAM > 64MB

This option allows the system to access greater than 64MB of DRAMmemory when used with OS/2 that depends on certain BIOS calls to access memory. The default setting is Non-OS/2.

Report No FDD For WIN 95

If you are using Windows 95/98 without a floppy disk drive, select Enabled to release IRQ6. This is required to pass Windows 95/98's SCT test. You should also disable the Onboard FDC Controller in the Integrated Peripherals screen when there's no floppy drive in the system. If you set this feature to Disabled, the BIOS will not report the missing floppy drive to Win95/98.

Small Logo (EPA) Show

The EPA logo appears at the right side of the monitor screen when the system is boot up. The default setting is Enabled.

Advanced Chipset Features

This Setup menu controls the configuration of the chipset.

```
              Phoenix - AwardBIOS CMOS Setup Utility
                    Advanced Chipset Features

 DRAM Timing Selectable      By SPD              ITEM HELP
 CAS Latency Time            4                Menu Level  >
 DRAM RAS# to CAS# Delay     4
 DRAM RAS# Precharge         4
 Precharge delay (tRAS)      12
 System Memory Frequency     533MHZ
 SLP_S4# Assertion Width     1 to 2 Sec
 System BIOS Cacheable       Enabled
 Video BIOS Cacheable        Disabled
 Memory Hole at 15M-16M      Disabled
 PCI Express Root Port Func  Press Enter



 ** On-Chip VGA Setting **
 PEG/On Chip VGA Control     Auto
 On-Chip Frame Buffer Size   8MB
 DVMT Mode                   DVMT
 DVMT/FIXED memory Size      128MB
 SDVO Device Setting
 SDVO LVDS Protocol          1CH SPWG, 24bit
 SDVO Panel Number           1024x768
 Boot Display                Auto
 Panel Scaling               Auto
 Panel Number                1024x768 18 bit SC
 Onboard PCI-E LAN           Enable
 LAN PXE Option ROM          All Disable
```

DRAM Timing Selectable
This option refers to the method by which the DRAM timing is selected. The default is *By SPD*.

CAS Latency Time
You can configure CAS latency time in HCLKs as 2 or 2.5 or 3. The system board designer should set the values in this field, depending on the DRAM installed. Do not change the values in this field unless you change specifications of the installed DRAM or the installed CPU.

DRAM RAS# to CAS# Delay
This option allows you to insert a delay between the RAS (Row Address Strobe) and CAS (Column Address Strobe) signals. This delay occurs when the SDRAM is written to, read from or refreshed. Reducing the delay improves the performance of the SDRAM.

DRAM RAS# Precharge

This option sets the number of cycles required for the RAS to accumulate its charge before the SDRAM refreshes. The default setting for the Active to Precharge Delay is *4*.

Precharge Delay (tRAS)

The default setting for the Precharge Delay is *12*.

System Memory Frequency

The default setting is *533MHz*.

SLP_S4# Assertion Width

The default setting is *1 to 2 Sec*.

System BIOS Cacheable

The setting of *Enabled* allows caching of the system BIOS ROM at F000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

Video BIOS Cacheable

The Setting *Enabled* allows caching of the video BIOS ROM at C0000h-F7FFFh, resulting in better video performance. However, if any program writes to this memory area, a system error may result.

Memory Hole At 15M-16M

In order to improve performance, certain space in memory can be reserved for ISA cards. This memory must be mapped into the memory space below 16 MB. The choices are *Enabled* and *Disabled*.

On-Chip VGA Setting

The fields under the On-Chip VGA Setting and their default settings are:
    PEG/On Chip VGA Control: Auto
    On-Chip Frame Buffer Size: 8MB
    DVMT Mode: DVTM
    DVMT/Fixed Memory Size: 128MB
    SDVO Device Setting: (LVDS, DVI, Dual DVI, CRT)
    Remarks: Set to LVDS for ID390, Set to CRT to ID390C, Set to DVI for ID391/ID392/ID391D/ID392D
    SDVO LVDS Protocol: 1Ch SPWG, 24bit
    SDVO Panel Number: 1024x768
    Boot Display: Auto
    Panel Scaling: Auto
    Panel Number: 1024x768 18 bit SC

Panel Scaling

The default setting is *Auto*. The options available include *On* and *Off*.

Panel Number

These fields allow you to select the LCD Panel type. The default values for these ports are:

640x480	18bit	SC
800x480	18bit	SC
800x600	18bit	SC
1024x768	18bit	SC
1280x1024	18bit	DC
1280x768	18bit	SC
1400x1050	18bit	DC
1600x1200	18bit	DC

Onboard PCI-E LAN

By default, this setting is enabled.

LAN PXE Option ROM

By default, this setting is disabled. Other selections include ICH6 Integrated LAN and Marvell PCI-E LAN.

Integrated Peripherals

This section sets configurations for your hard disk and other integrated peripherals. The first screen shows three main items for user to select. Once an item selected, a submenu appears. Details follow.

```
              Phoenix - AwardBIOS CMOS Setup Utility
                      Integrated Peripherals
┌────────────────────────────────────────────────────────────────────┐
│  OnChip IDE Device         Press Enter          ITEM HELP            │
│  Onboard Device            Press Enter    ┌──────────────────────────│
│  SuperIO Device            Press Enter    │ Menu Level  >            │
│                                           │                          │
└────────────────────────────────────────────────────────────────────┘
```

```
              Phoenix - AwardBIOS CMOS Setup Utility
                      OnChip IDE Device
┌────────────────────────────────────────────────────────────────────┐
│  IDE HDD Block Mode            Enabled          ITEM HELP            │
│  On-chip Primary PCI IDE       Enabled    ┌──────────────────────────│
│  IDE Primary Master PIO        Auto       │ Menu Level  >            │
│  IDE Primary Slave   PIO       Auto       │                          │
│  IDE Primary Master UDMA       Auto       │                          │
│  IDE Primary Slave   UDMA      Auto       │                          │
│  On-Chip Secondary PCI IDE     Enabled    │                          │
│  IDE Secondary Master PIO      Auto       │                          │
│  IDE Secondary Slave   PIO     Auto       │                          │
│  IDE Secondary Master UDMA     Auto       │                          │
│  IDE Secondary Slave   UDMA    Auto       │                          │
│                                           │                          │
│  *** On-Chip Serial ATA Setting ***       │                          │
│  On-Chip Serial ATA            Auto       │                          │
│  PATA IDE Mode                 Secondary  │                          │
│  SATA port                     P0, P2 is Primary                     │
└────────────────────────────────────────────────────────────────────┘
```

```
              Phoenix - AwardBIOS CMOS Setup Utility
                      Onboard Device
┌────────────────────────────────────────────────────────────────────┐
│  USB Controller               Enabled           ITEM HELP            │
│  USB 2.0 Controller           Enabled     ┌──────────────────────────│
│  USB Keyboard Support         Disabled    │ Menu Level  >            │
│  AC97 Audio Select            Auto        │                          │
│                                           │                          │
└────────────────────────────────────────────────────────────────────┘
```

```
              Phoenix - AwardBIOS CMOS Setup Utility
                          SuperIO Device
┌─────────────────────────────────────────────────────────────────────┐
│  POWER ON Function          BUTTON ONLY     │      ITEM HELP          │
│  KB Power ON Password       Enter           │                         │
│  Hot Key power ON           Ctrl-F1         │                         │
│  Onboard FDC Controller     Enabled         │                         │
│  Onboard Serial Port 1      3F8/IRQ4        │   Menu Level  >         │
│  Onboard Serial Port 2      2F8/IRQ3        │                         │
│  UART Mode Select           Normal          │                         │
│  RxD , TxD Active           Hi, Lo          │                         │
│  IR Transmission Delay      Disabled        │                         │
│  UR2 Duplex Mode            Half            │                         │
│  Use IR Pins                IR-Rx2Tx2       │                         │
│  PWRON After PWR-Fail       Off             │                         │
│                                             │                         │
└─────────────────────────────────────────────────────────────────────┘
```

IDE HDD Block Mode

This field allows your hard disk controller to use the fast block mode to transfer data to and from your hard disk drive.

On-chip Primary PCI IDE Enabled

This field, by default, is enabled

OnChip Primary/Secondary PCI IDE

The integrated peripheral controller contains an IDE interface with support for two IDE channels. Select *Enabled* to activate each channel separately.

IDE Primary/Secondary Master/Slave PIO

These fields allow your system hard disk controller to work faster. Rather than have the BIOS issue a series of commands that transfer to or from the disk drive, PIO (Programmed Input/Output) allows the BIOS to communicate with the controller and CPU directly.

The system supports five modes, numbered from 0 (default) to 4, which primarily differ in timing. When Auto is selected, the BIOS will select the best available mode.

IDE Primary/Secondary Master/Slave UDMA

These fields allow your system to improve disk I/O throughput to 33Mb/sec with the Ultra DMA/33 feature. The options are *Auto* and *Disabled*.

On-Chip Serial ATA Setting

The fields under the SATA setting includes On-Chip Serial ATA (Auto), PATA IDE Mode (Secondary) and SATA Port (PO, P2 is Primary).

USB Controller

The options for this field are *Enabled* and *Disabled*. By default, this field is set to **Enabled**.

USB 2.0 Controller

The options for this field are *Enabled* and *Disabled*. By default, this field is set to **Enabled**. In order to use USB 2.0, necessary OS drivers must be installed first. ***Please update your system to Windows 2000 SP4 or Windows XP SP2.***

USB Keyboard Support

The options for this field are *Enabled* and *Disabled*. By default, this field is set to **Disabled**.

AC97 Audio Select

This field, by default, is set to *Auto*.

Power ON Function

This field is related to how the system is powered on – such as with the use of conventional power button, keyboard or hot keys. The default is ***BUTTON ONLY***.

KB Power ON Password

This field allows users to set the password when keyboard power on is the mode of the Power ON function.

Hot Key Power ON

This field sets certain keys, also known as hot keys, on the keyboard that can be used as a 'switch' to power on the system.

Onboard FDC Controller

Select *Enabled* if your system has a floppy disk controller (FDC) installed on the motherboard and you wish to use it. If you install an add-in FDC or the system has no floppy drive, select Disabled in this field. This option allows you to select the onboard FDD port.

Onboard Serial Port

These fields allow you to select the onboard serial ports and their addresses. The default values for these ports are:

    Serial Port 1   3F8/IRQ4
    Serial Port 2   2F8/IRQ3

UART Mode Select

This field determines the UART 2 mode in your computer. The default value is *Normal*. Other options include *IrDA* and *ASKIR*.

PWRON After PWR-Fail

This field sets the system power status whether *on or off* when power returns to the system from a power failure situation.

Power Management Setup

		ITEM HELP
ACPI Function	Enabled	
ACPI Suspend	S1(POS)	Menu Level >
RUN VGABIOS if S3 Resume	Auto	
Power Management	User Define	
Video Off Method	DPMS	
Video Off In Suspend	Yes	
Suspend Type	Stop Grant	
Modem Use IRQ	3	
Suspend Mode	Disabled	
HDD Power Down	Disabled	
Soft-Off by PWR-BTTN	Instant-Off	
Wake-Up by PCI Card	Disabled	
Power On by Ring	Disabled	
Resume by Alarm	Disabled	
Date (of Month) Alarm	0	
Time (hh:mm:ss) Alarm	0 : 0 : 0	
** Reload Global Timer Events **		
Primary IDE 0	Disabled	
Primary IDE 1	Disabled	
Secondary IDE 0	Disabled	
Secondary IDE 1	Disabled	
FDD, COM, LPT Port	Disabled	
PCI PIRQ[A-D] #	Disabled	

ACPI Function

Enable this function to support ACPI (Advance Configuration and Power Interface).

ACPI Suspend

The default setting of the ACPI Suspend mode is *S1(POS)*.

RUN VGABIOS if S3 Resume

The default setting of this field is *Auto*.

Power Management

This field allows you to select the type of power saving management modes. There are four selections for Power Management.

Min. Power Saving	Minimum power management
Max. Power Saving	Maximum power management.
User Define	Each of the ranges is from 1 min. to 1hr. Except for HDD Power Down which ranges from 1 min. to 15 min.

Video Off Method

This field defines the Video Off features. There are three options.

V/H SYNC + Blank	Default setting, blank the screen and turn off vertical and horizontal scanning.
DPMS	Allows BIOS to control the video display.
Blank Screen	Writes blanks to the video buffer.

Video Off In Suspend

When enabled, the video is off in suspend mode. The default setting is *Yes*.

Suspend Type

The default setting for the Suspend Type field is *Stop Grant*.

Modem Use IRQ

This field sets the IRQ used by the Modem. By default, the setting is *3*.

Suspend Mode

When enabled, and after the set time of system inactivity, all devices except the CPU will be shut off.

HDD Power Down

When enabled, and after the set time of system inactivity, the hard disk drive will be powered down while all other devices remain active.

Soft-Off by PWRBTN

This field defines the power-off mode when using an ATX power supply. The *Instant Off* mode allows powering off immediately upon pressing the power button. In the *Delay 4 Sec* mode, the system powers off when the power button is pressed for more than four seconds or enters the suspend mode when pressed for less than 4 seconds.

Wake up by PCI Card

By default, this field is disabled.

Power On by Ring

This field enables or disables the power on of the system through the modem connected to the serial port or LAN.

Resume by Alarm

This field enables or disables the resumption of the system operation. When enabled, the user is allowed to set the *Date* and *Time*.

Reload Global Timer Events

The HDD, FDD, COM, LPT Ports, and PCI PIRQ are I/O events that can prevent the system from entering a power saving mode or can awaken the system from such a mode. When an I/O device wants to gain the attention of the operating system, it signals this by causing an IRQ to occur. When the operating system is ready to respond to the request, it interrupts itself and performs the service.

PNP/PCI Configurations

This option configures the PCI bus system. All PCI bus systems on the system use INT#, thus all installed PCI cards must be set to this value.

```
                  Phoenix - AwardBIOS CMOS Setup Utility
                        PnP/PCI Configurations
┌─────────────────────────────────────────────────────────────────────┐
│ Init Display First          PCI Slot          │      ITEM HELP        │
│ Reset Configuration Data    Disabled          │                       │
│                                               │   Menu Level          │
│ Resources Controlled By     Auto (ESCD)       │                       │
│ IRQ Resources               Press Enter       │   Select Yes if you are│
│                                               │   using a Plug and Play│
│ PCI/VGA Palette Snoop       Disabled          │   capable operating   │
│ INT Pin 1 Assignment        Auto              │   system Select No if  │
│ INT Pin 2 Assignment        Auto              │   you need the BIOS to │
│ INT Pin 3 Assignment        Auto              │   configure non-boot   │
│ INT Pin 4 Assignment        Auto              │   devices              │
│ INT Pin 5 Assignment        Auto              │                       │
│ INT Pin 6 Assignment        Auto              │                       │
│ INT Pin 7 Assignment        Auto              │                       │
│ INT Pin 8 Assignment        Auto              │                       │
│                                               │                       │
│ **PCI Express relative items**                │                       │
│ Maximum Payload Size        4096              │                       │
└─────────────────────────────────────────────────────────────────────┘
```

Init Display First

The default setting is *PCI Card*.

Reset Configuration Data

This field allows you to determine whether to reset the configuration data or not. The default value is *Disabled.*

Resources Controlled by

This PnP BIOS can configure all of the boot and compatible devices with the use of a PnP operating system such as Windows 95.

PCI/VGA Palette Snoop

Some non-standard VGA display cards may not show colors properly. This field allows you to set whether or not MPEG ISA/VESA VGA cards can work with PCI/VGA. When this field is enabled, a PCI/VGA can work with an MPEG ISA/VESA VGA card. When this field is disabled, a PCI/VGA cannot work with an MPEG ISA/VESA card.

Maximum Payload Size

The default setting of the PCI Express Maximum Payload Size is 4096.

PC Health Status

This section shows the parameters in determining the PC Health Status. These parameters include temperatures, fan speeds and voltages.

```
              Phoenix - AwardBIOS CMOS Setup Utility
                        PC Health Status
┌─────────────────────────────────────────────┬──────────────────────┐
│ Shutdown Temperature         Disabled        │      ITEM HELP       │
│ CPU Warning Temperature      Disabled        │                      │
│ Current System Temp          45°C/113°F      │   Menu Level  >      │
│ Current CPU Temp             45°C/113°F      │                      │
│ System FAN Speed             5400 RPM        │                      │
│ CPU FAN Speed                5400 RPM        │                      │
│ Vcore(V)                     1.02 V          │                      │
│ 12 V                         1.32 V          │                      │
│ 1.8V                         1.8V            │                      │
│ -5V                          -5.02V          │                      │
│ +5V                          5.25 V          │                      │
│ -12V                         -12.59          │                      │
│  3.3V                        3.37V           │                      │
│ VBAT (V)                     3.21 V          │                      │
│ 5VSB(V)                      5.67 V          │                      │
│ Smart Fan2 Temperature       Disabled        │                      │
│ Smart Fan2 Tolerance Value   5               │                      │
└─────────────────────────────────────────────┴──────────────────────┘
```

CPU Warning Temperature

This field allows the user to set the temperature so that when the temperature is reached, the system sounds a warning. This function can help prevent damage to the system that is caused by overheating.

Temperatures/Voltages

These fields are the parameters of the hardware monitoring function feature of the motherboard. The values are read-only values as monitored by the system and show the PC health status.

Shutdown Temperature

This field allows the user to set the temperature by which the system automatically shuts down once the threshold temperature is reached. This function can help prevent damage to the system that is caused by overheating.

Smart Fan2 Temperature

This field enables or disables the smart fan feature. At a certain temperature, the fan starts turning. Once the temperature drops to a certain level, it stops turning again.

Smart Fan Tolerance Value

The default value is 5.

Frequency/Voltage Control

This section shows the user how to configure the processor frequency.

```
            Phoenix - AwardBIOS CMOS Setup Utility
                  Frequency/Voltage Control
```

Auto Detect PCI Clk	Disabled	ITEM HELP
Spread Spectrum Modulated	Disabled	Menu Level >

Auto Detect PCI Clk

This field enables or disables the auto detection of the PCI clock.

Spread Spectrum Modulated

This field sets the value of the spread spectrum. The default setting is *Disabled*. This field is for CE testing use only.

Load Fail-Safe Defaults

This option allows you to load the troubleshooting default values permanently stored in the BIOS ROM. These default settings are non-optimal and disable all high-performance features.

Load Optimized Defaults

This option allows you to load the default values to your system configuration. These default settings are optimal and enable all high performance features.

Set Supervisor Password

These two options set the system password. Supervisor Password sets a password that will be used to protect the system and Setup utility. User Password sets a password that will be used exclusively on the system. To specify a password, highlight the type you want and press <Enter>. The Enter Password: message prompts on the screen. Type the password, up to eight characters in length, and press <Enter>. The system confirms your password by asking you to type it again. After setting a password, the screen automatically returns to the main screen.

To disable a password, just press the <Enter> key when you are prompted to enter the password. A message will confirm the password to be disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

Save & Exit Setup

This option allows you to determine whether or not to accept the modifications. If you type "Y", you will quit the setup utility and save all changes into the CMOS memory. If you type "N", you will return to Setup utility.

Exit Without Saving

Select this option to exit the Setup utility without saving the changes you have made in this session. Typing "Y" will quit the Setup utility without saving the modifications. Typing "N" will return you to Setup utility.

Chapter 4 _____ Installation of Drivers

This chapter describes the installation procedures for software and drivers under the Windows 98SE, Windows ME, Windows 2000 and Windows XP. The software and drivers are included with the motherboard. The contents include **Intel Chipset Software Installation Utility, VGA Drivers Installation, AC97 Codec Audio Driver Installation,** and **Intel PRO LAN Drivers Installation.**

Important Note:

After installing your Windows operating system (Windows 98SE/ME/2000/XP), you must install first the Intel Chipset Software Installation Utility before proceeding with the installation of drivers.

I

4.1 Intel Chipset Software Installation Utility

The Intel Chipset Drivers should be installed first before the software drivers to enable Plug & Play INF support for Intel chipset components.

Follow the instructions below to complete the installation under Windows 2000/XP.

1. Insert the CD that comes with the board. Click *Intel Chipsets* and then *Intel(R) I945GMChipset Drivers*.

2. Click *Intel(R) Chipset Software Installation Utility.*

3. When the Welcome screen appears, click Next to continue.

4. Click Yes to accept the software license agreement and proceed with the installation process.
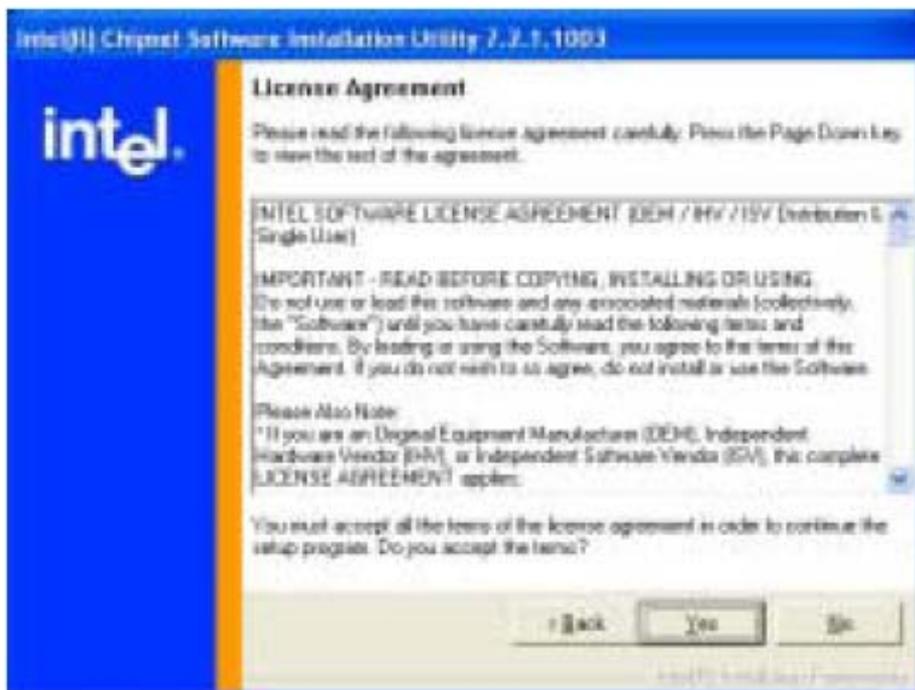
5. On Readme Information screen, click Next to continue the installation.

6. The Setup process is now complete. Click Finish to restart the computer and for changes to take effect. When the computer has restarted, the system will be able to find some devices. Restart your computer when prompted.

4.2 VGA Driver Installation

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

1. Insert the CD that comes with the motherboard. Click *Intel Chipsets* and then *Intel(R) I945GM Chipset Drivers*.

2. Click *Intel(R) I945GM Chipset Family Graphics Driver.*

3. When the Welcome screen appears, click Next to continue.
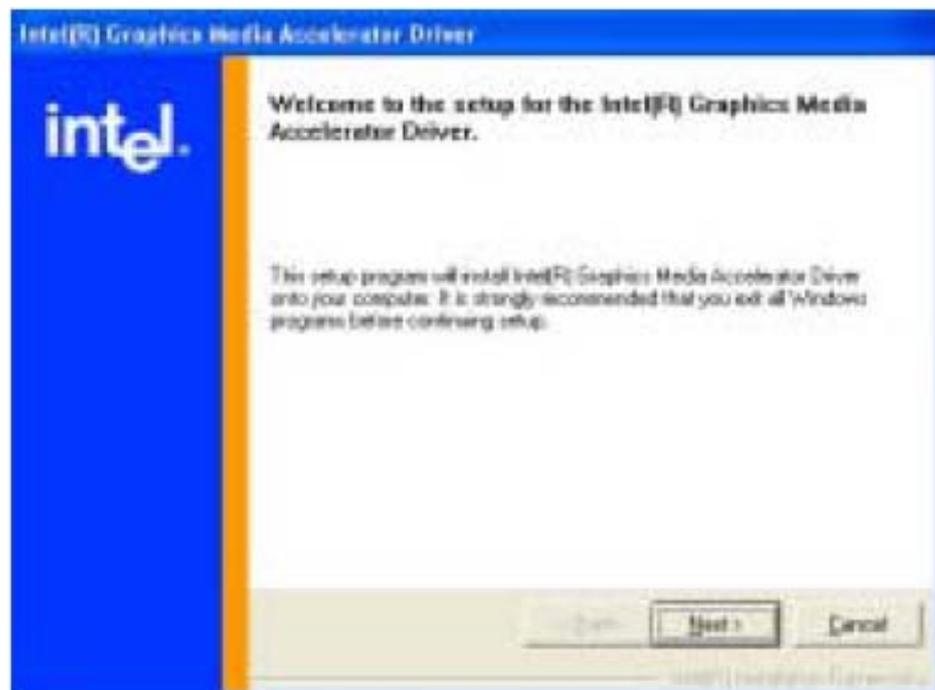
4. Click Yes to to agree with the license agreement and continue the installation.

5. Restart the computer as promted and for changes to take effect.

IMPORTANT NOTE:
When you have restarted the computer, your computer screen will be
blank. At this point, press CTRL-ALT-F1 simultaneously, if you are
using CRT monitor. If you are using LVDS LCD panel, press
CTRL-ALT-F3. If you are using DVI monitor, press CTRL-ALT-F4.

4.3 AC97 Codec Audio driver Installation

Follow the steps below to install the Realtek AC97 Codec Audio Drivers.

1. Insert the CD that comes with the motherboard. Click **Intel Chipsets** and then **Intel(R) I945GMChipset Drivers**.

2. Click **Realtek AC'97 Codec Audio Driver.**

3. Click **Finish** to restart the computer and for changes to take effect.

4.4 LAN Driver Installation

Follow the steps below to complete the installation of the Intel PRO LAN drivers.

1. Insert the CD that comes with the motherboard. Click *Intel Chipsets* and then *Intel(R) I945GMChipset Drivers*, then *Intel(R) PRO LAN Network Drivers*.

2. Click *Install Base Software* to continue.

3. When prompted, please to restart the computer for new settings to take effect.

Follow the steps below to install the **Marvell Gigabit LAN** drivers.

1. Insert the CD that comes with the motherboard. Click *LAN Card* andthen *Marvell LAN Controller Driver*.

2. Click Next when the InstallShield Wizard welcome screen appears.

3. Click Next to agree with the license agreement.

4. Click Next when the Readme Information screen appears to proceed with the drives installation process.

5. When the Installation is complete, click Finish for the changes to take effect.

Chapter 5   Touch Screen Installation

This chapter describes how to install drivers and other software that will allow your PenMount 5000 Controller Board (USB) to work with different operating systems.

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

5.1 Introduction to Touch Screen Controller Board

The control board is configured for use with the USB interface. It connects to the touch screen, power supply and computer system's USB port, and supports 4-, 5- and 8-wire touch screens. The control board has some advanced functions, such as PnP and non-PnP mode adjustable baud rate, thus making easy for customers to select different touch screens without changing the control board. The size of the board is 25 by 60mm, and it has two connectors and one dipswitch on-board.

Figure 5.1: Bird's Eye View of Control Board

5.2 Windows Me/2000/XP USB Driver Installation for 5000 Boards

Before installing the Windows Me/2000/XP USB driver software, you must have the Windows Me/2000/XP system installed and running on your computer. You must also have one of the following PenMount USB controller boards installed: 5184 or 51A5. Contents of the PenMount Windows Me/2000/XP USB driver folder are listed below.

Setup.exe
PenMount 98.inf
PenMount.inf
Pm_lower.sys
Pm_upper.sys

If you have an older version of the PenMount Windows Me/2000/XP USB driver installed in your

system, please remove it first. Follow the steps below to install the PenMount Windows Me/2000/XP USB driver.

5.2.1 Insert the TopsCCC product cd install **setup.exe.** the screen below would appear.

Click touch panel driver

IMPORTANT!   Before installing the driver software you *must* plug the board into a USB port.

5.2.2 The screen displays 'InstallShield Wizard' to install the PenMount Windows Me/2000/XP driver. Click 'Next' to begin installing the PenMount USB driver to system.

5.2.3 The license agreement appears. Click 'Next'.

5.2.4 The next screen shows 'Ready to Install the Program'. Click 'Install'.
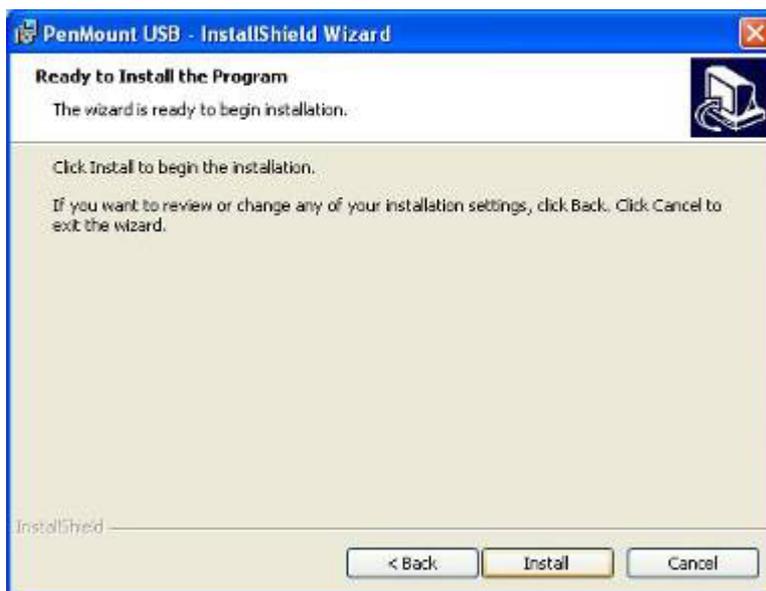
5.2.5 The 'InstallShield Wizard completed' screen appears. Click 'Finish'.

5.2.6 A message box appears stating the driver does not have an MS Logo. Select 'Continue Anyway' to finish the installation. The PenMount USB driver is now completely installed.
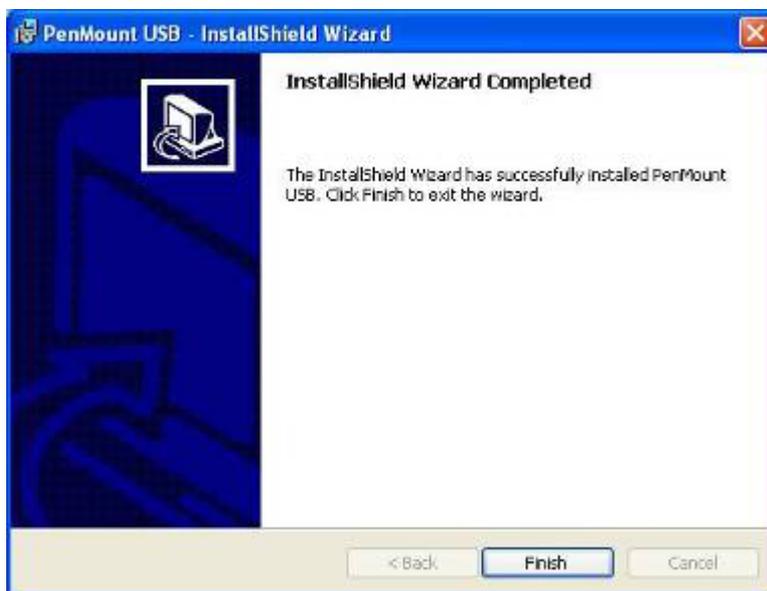
Configuring the PenMount Windows Me/2000/XP USB Driver

Upon rebooting, the computer automatically finds the new 5000 USB controller board. The touch screen is connected but not calibrated. Follow the procedures below to carry out calibration.

5.2.6.1 After installation, click the PenMount Monitor icon "PM" in the menu bar.

5.2.6.2 When the PenMount Control Panel appears, click "Calibrate."

PenMount Control Panel

The functions of the PenMount Control Panel are **Calibrate**, **Draw**, and **About**, which are explained in the following sections.

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'.**

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.
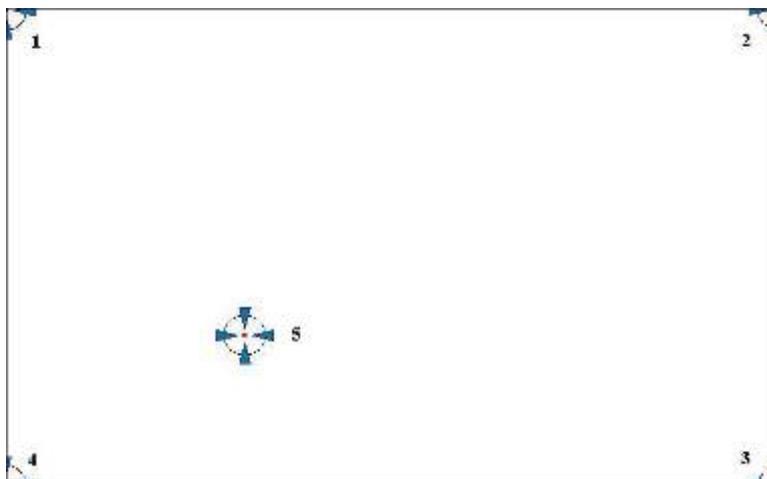
Plot Calibration Data **Check this function and a touch panel linearity comparison graph appears when you have finished Advanced Calibration. The blue lines show linearity before calibration and black lines show linearity after calibration.**
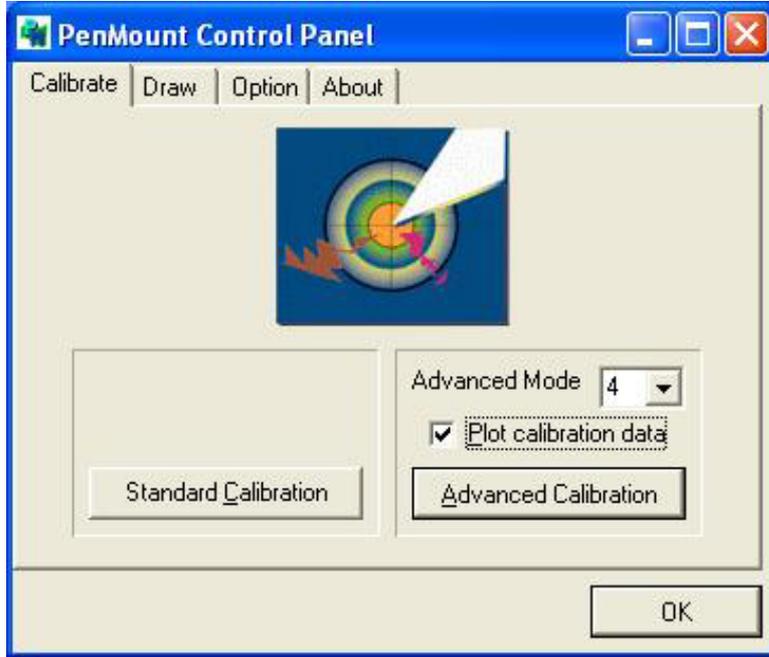
Draw

Tests or demonstrates the PenMount touch screen operation. The display shows touch location. Click **Draw** to start.
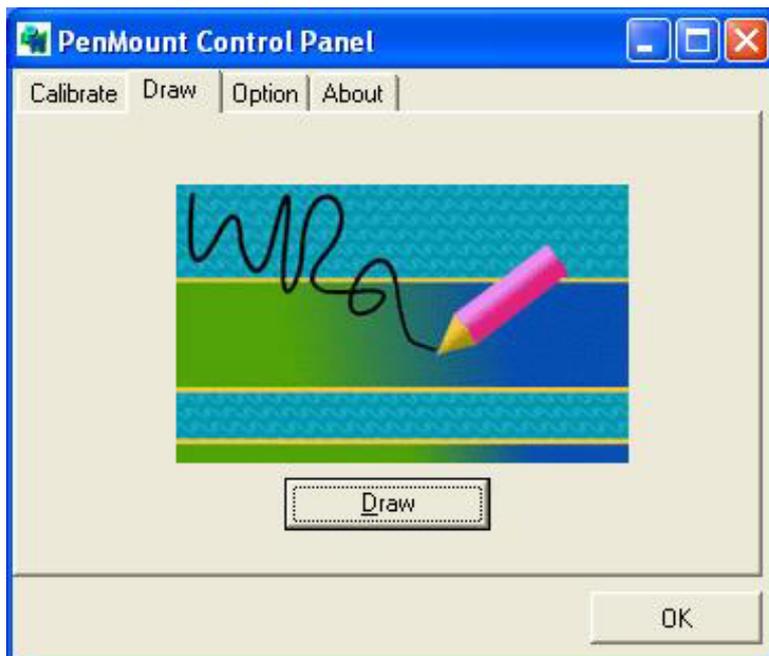
Touch the screen with your finger or a stylus and the drawing screen registers touch activity such **left**, **right**, **up**, **down**, **pen up**, and **pen down**.
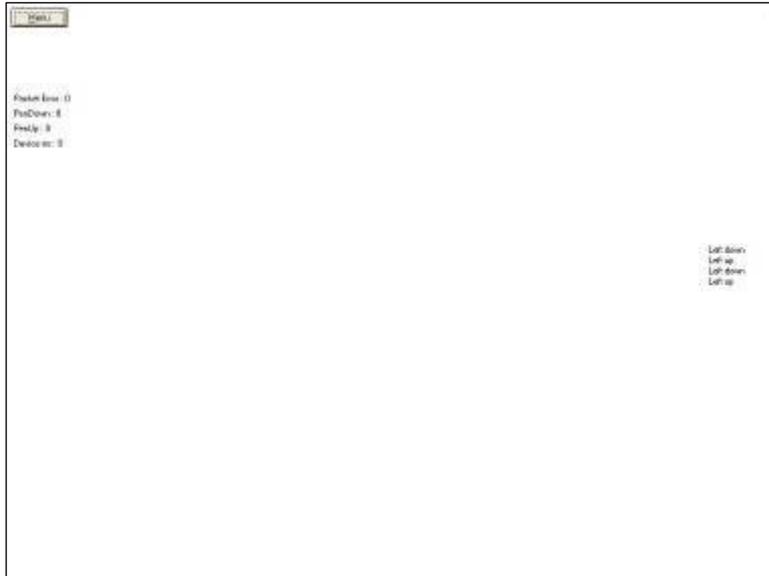
Click Clear Screen to clear the drawing.

Options

This panel function supports two modes—Operation Mode and Beep Sound Mode—which allow configuration for specific touch screen applications, such as point-of-sales (POS) terminals.

Operation Mode **This mode enables and disables the mouse's ability to drag on-screen icons—useful for configuring POS terminals.**

Stream Mode **– Select this mode and the mouse functions as normal and allows dragging of icons.**

Point Mode **– Select this mode and the mouse only provides a click function, and dragging is disabled.**

eep Sound Mode *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 of Pen Down/Up **– beep occurs on both**

Beep Frequency **– modifies sound frequency**

Beep Duration **– modifies sound duration**

About

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

PenMount Monitor Menu Icon

The PenMount monitor icon (PM) appears in the menu bar of Windows Me/2000/XP system after the Windows Me/2000/XP USB driver is installed.

PenMount Monitor has the following functions.

Beep	**Turns touch screen beep on or off.**
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 Me/2000/XP supports several display rotating software packages. Please see Chapter 5 for more information. The PenMount drivers for Windows 95, Windows 98/Me, Windows 2000/XP, as well as Windows 98 USB and 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 blue point by PenMount USB.

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

5.3 Uninstall the PenMount Windows Me/2000/XP USB driver

1. Exit the PenMount monitor (PM) in the menu bar.

2. Remove the PenMount USB driver from "Start/Control Panel/Add/Remove Programs. Select 'PenMount USB' and click 'Remove'.
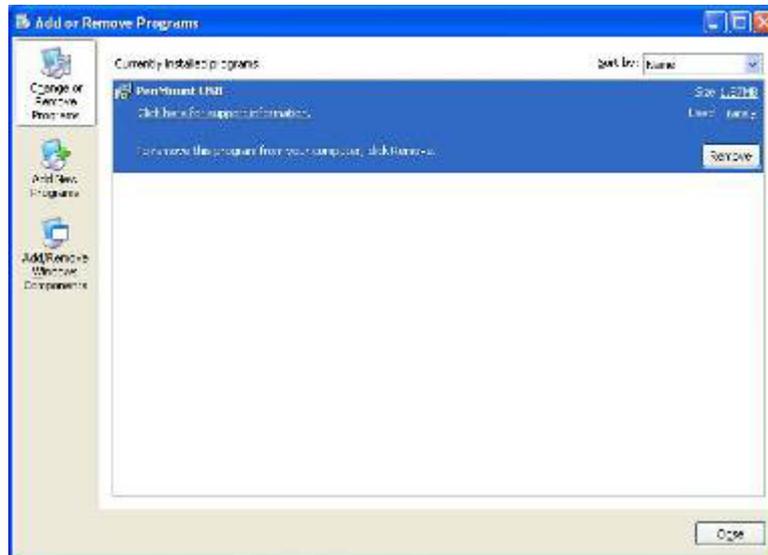
3. Click 'Yes' to confirm removal of the driver and the PenMount Windows 98 USB driver is completely removed from the system.