



**EX-93817/EX-93819 User Manual**

## REVISION HISTORY

Title	EX-93817/EX-93819 Flat Panel PC User Manual	
Revision Number	Description	Date of Issue
1.0	Initial release	October 2006

## ABOUT THIS MANUAL

This document covers the description and installation instructions for the EX-93817 and EX-93819 flat panel PC.

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## **PACKING LIST**

Before installing the Panel PC, please make sure that the following items have been shipped:

- ④ 1 x IDE HDD cable
- ④ 1 x SATA HDD cable
- ④ 1 x PS/2 cable
- ④ 1 x Screw kit
- ④ 1 x Jumper pack
- ④ 1 x Power cord
- ④ 1 x Power adapter
- ④ 1 x Panel mounting kit
- ④ 1 x Wall mounting kit
- ④ 1 x User Manual and Driver CD
- ④ 1 x Touch screen driver CD and touch pen (T-R model only)

If any of these items are missing or damaged, contact the distributor or sales representative immediately.

## **PRECAUTIONS**

### **SAFETY PRECAUTIONS**

1. Prior to installing, moving, and modifying the panel PC, make sure that the unit's power is turned off and the power cord is disconnected.
2. Do not apply voltage levels that exceed the specified voltage range. Doing so may cause fire or an electrical shock.
3. Electric shock can occur if the panel is opened. Do not drop or insert any objects into the ventilation openings of the panel PC.
4. Only qualified engineers from certified system integrators or VARs are allowed to make necessary functional modifications to the panel PC, e.g., adding a touch screen. TOPSCCC offers the customization service on a pre-order basis.
5. If considerable amount of dust, water, or fluids entered the panel PC, turn off the power supply immediately, unplug the power cord, and contact the vendor.
6. Explosions may occur with installations in environments where flammable

gases are present.

7. Fault-tolerant and failsafe designs should be implemented with the use of the series models on transportation vehicles, ships, safety/security devices, or medical devices not related to life-support functionalities. Users/integrators should take the responsibility for implementations with adequate levels of reliability and safety.
8. Preventive designs should be implemented so as to avoid the communications faults between the panel PC and the PC/workstation/terminals that controls it.

### **HANDLING PRECAUTIONS**

1. Do not drop the panel PC against a hard surface. Doing so may damage the display.
2. Do not strike or exert excessive force onto the touch panel.
3. Touching the touch panel using a sharp object may damage the LCD panel.
4. Avoid environments exposed to direct sunlight, dust, or chemical vapors.
5. The panel PC is actively cooled. In no circumstances should the panel PC operate with the openings obstructed by foreign objects. However, the ambient temperature of the installation site should be observed and controlled to avoid overheating the panel PC.
6. Condensation might form inside the panel PC chassis if exposed to sudden changes in temperature.
7. Carefully route the power cord so that people cannot step on it. Do not place anything over the power cord.
8. If the equipment should be left unused for an extended period of time, disconnect it from the power source to avoid damage by transient over-voltage.
9. If any of the following situations arises, get the equipment checked by service personnel:
  - The power cord or plug is damaged.
  - Liquid has penetrated into the equipment.
  - The equipment has been exposed to moisture.
  - The equipment does not work properly, or the user cannot get it to work according to the user manual.
  - The equipment has been dropped and damaged.



- The equipment shows obvious signs of breakage.



### **WARNING!**

Any changes or modifications made to the equipment that are not expressly approved by the relevant standards could void the authority to operate the equipment.

---

## **ADDITIONAL INFORMATION**

### **MAINTENANCE AND CLEANING**

Note the following precautions before beginning to clean the Panel PC.

When cleaning any single part or component of the computer, please read and understand the details below fully.

- ④ Except for the properly installed front LCD panel, never spray or squirt liquids directly onto any computer component. To clean the device, please rub it with a piece of dry and soft cloth or a slightly moistened cloth with the exterior casing.
- ④ The interior of the Panel PC does not require cleaning. Keep fluids away from the Panel PC and the interior of it.
- ④ Be cautious of the tiny removable components when using a vacuum cleaner to absorb the dirt on the floor.
- ④ Turn the system off before cleaning up the Panel PC.
- ④ Never drop any tiny objects through the openings of the Panel PC or get circuit board damp or wet.
- ④ Be cautious of all kinds of cleaning solvents or chemicals when using it for the sake of cleaning. Some individuals may be allergic to the ingredients.
- ④ Avoid any food, drink or cigarette around the Panel PC.

## CLEANING TOOLS

Although many companies have created products to help improve the process of cleaning the computer and peripherals, users can also use household items to clean their computers and peripherals. Below is a list of items to use while cleaning the computer or computer peripherals.

Please keep in mind that some components in the computer may only be cleaned using a product designed for cleaning that component, if this is the case it will be mentioned in the cleaning tips.

- ④ **Cloth** - A piece of cloth is the best tool to use when rubbing up a component. Although paper towels or tissues can be used on most hardware as well, it is recommended to rub it with a piece of cloth.
- ④ **Water or rubbing alcohol** – Moisten a piece of cloth a bit with some water or rubbing alcohol and rub it on the computer.
- ④ Unknown solvents may be harmful to the plastics parts.
- ④ **Vacuum cleaner** - Absorb the dust, dirt, hair, cigarette particles, and other particles out of a computer can be one of the best methods of cleaning a computer. Over time these items can restrict the airflow in a computer and cause circuitry to corrode.
- ④ **Cotton swabs** - Cotton swabs moistened with rubbing alcohol or water are excellent tools for wiping hard to reach areas in the keyboard, mouse, and other locations.
- ④ **Foam swabs** - Whenever possible it is better to use lint free swabs such as foam swabs.

## ESD PRECAUTIONS

Observe all conventional anti-ESD methods while handling the components contained within the LCD should the need arise for adding a functionality. The use of a grounded wrist strap and an anti-static work pad is recommended. Avoid dust and debris or other static-accumulating materials in the work area.





## MANUAL CONVENTIONS



### **WARNING!**

Warnings appear where overlooked details may cause damage to the equipment or result in personal injury. Warnings should be taken seriously. Warnings are easy to recognize. The word “warning” is written as **“WARNING,”** both capitalized and bold and is followed by text in italics. The italicized text is the warning message.



### **CAUTION!**

Cautionary messages should also be heeded to reduce the chance of losing data or damaging the system. Cautions are easy to recognize. The word “caution” is written as **“CAUTION,”** both capitalized and bold and is followed by text in italics. The italicized text is the cautionary message.



### **NOTE:**

These messages inform the reader of essential but non-critical information. These messages should be read carefully as any directions or instructions contained therein can avoid making mistakes. Notes are easy to recognize. The word “note” is written as **“NOTE,”** both capitalized and bold and is followed by text in italics. The italicized text is the cautionary message.

## **Lists**

**Bulleted Lists:** Bulleted lists are statements of non-sequential facts that can be read in any order. Each statement is preceded by a black square “ ” or bullets in other shapes.

**Numbered Lists:** Numbered lists describe sequential steps should be followed in order.



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**Chapter**

**1**

# **Introduction**

---

## 1.1 EX-93817/EX-93819 Flat Panel PC Overview

The EX-93817/EX-93819 flat panel PC is a flexible, multi-functional flat panel PC that can be applied in diverse operational environments and implemented in multi-faceted applications. The EX-93817/EX-93819 comes fully kitted with a high-performance motherboard and a host of other peripheral interface connectors. The EX-93817/EX-93819 is designed for ease of use and easy installation.

### 1.1.1 Model Variation

Eight TOPSCCC EX-938xx models are available. The models are listed in Table 1-1.

<b>EX-93817</b>	<b>CPU</b>	<b>LCD</b>	<b>Luminance</b>	<b>Touch screen</b>
<b>GS/LX-800</b>	AMD® Geode LX800	6.5"	400 cd/m <sup>2</sup>	No
<b>GS/LX-800/T-R</b>	AMD® Geode LX800	6.5"	400 cd/m <sup>2</sup>	Yes
<b>GHS/LX-800</b>	AMD® Geode LX800	6.5"	500 cd/m <sup>2</sup>	No
<b>GHS/LX-800/T-R</b>	AMD® Geode LX800	6.5"	500 cd/m <sup>2</sup>	Yes
<b>EX-93819</b>	<b>CPU</b>	<b>LCD</b>	<b>Luminance</b>	<b>Touch screen</b>
<b>GS/LX-800</b>	AMD® Geode LX800	8.4"	220 cd/m <sup>2</sup>	No
<b>GS/LX-800/T-R</b>	AMD® Geode LX800	8.4"	220 cd/m <sup>2</sup>	Yes
<b>GHS/LX-800</b>	AMD® Geode LX800	8.4"	450 cd/m <sup>2</sup>	No
<b>GHS/LX-800/T-R</b>	AMD® Geode LX800	8.4"	450 cd/m <sup>2</sup>	Yes

**Table 1-1: EX-93817 and EX-93819 Model Variation**

### 1.1.2 Applications

The EX-93817/EX-93819 flat panel PC is designed for rigorous industrial environments where it may be exposed to both heat and moisture. Its durability and strength also makes it an ideal choice for public access computers. Some possible applications include:

- ④ Automated manufacturing processes



- ④ Public information gathering point

### **1.1.3 Standard Features**

Some of the standard features of the EX-93817 and EX-93819 flat panel PC include:

- ④ Low power consumption and thermal distribution
- ④ AMD® Geode LX-800 processor
- ④ DDR 333/400 SO-DIMM memory support up to 1GB
- ④ Aluminum die-casting IP65 industrial panel
- ④ Dual 10/100Mbps Ethernet support
- ④ One CompactFlash® Type I/II socket support
- ④ Simplified installation process
- ④ RoHS compliance

## **1.2 External Overview**

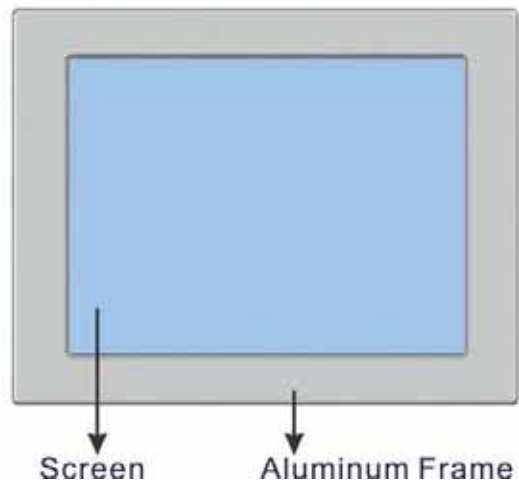
### **1.2.1 General Description**

The EX-93817/EX-93819 flat panel PC is a rectangular cubic structure that comprises of a screen, rear panel, top panel, bottom panel and two side panels (left and right). An aluminum frame surrounds the front screen. The rear panel provides screw holes for a wall-mounting bracket, and a DIN rail mounting bracket. The bottom panel provides access to external interface connectors that include LAN, USB 2.0, audio, VGA port, serial port, keyboard/mouse connectors and power switch.

### **1.2.2 Front Panel**

The front side of the EX-93817/EX-93819 is a flat panel TFT LCD screen surrounded by an aluminum frame.

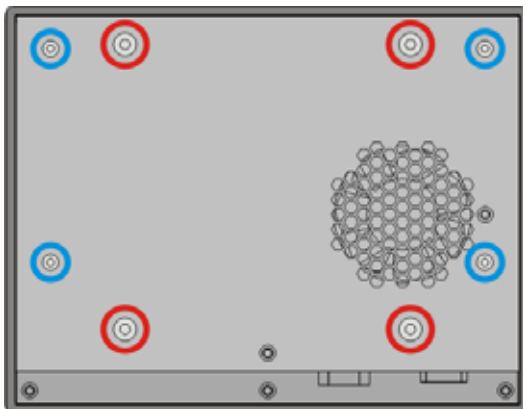




**Figure 1-1: EX-93817/EX-93819 Front View**

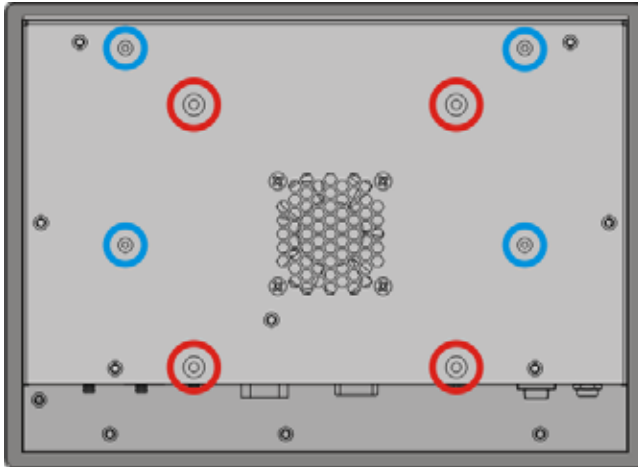
### **1.2.3 Rear Panel**

The rear panel provides access to a fan ventilation vent and retention screw holes that support the wall mounting (circled in red) and DIN rail mounting (circled in blue). Refer to **Figure 1-2** and **Figure 1-3**.



**Figure 1-2: EX-93817 Rear View**



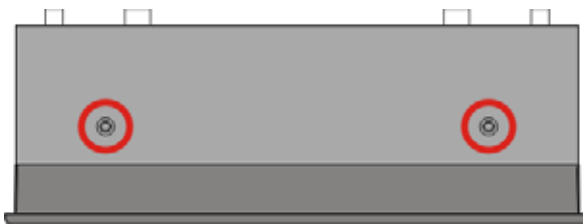


**Figure 1-3: EX-93819 Rear View**

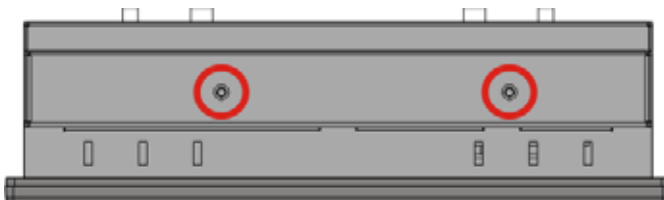
### 1.2.4 Top Panel

The top panel of EX-93817 provides access to two retention screw holes that support to secure the back cover to the chassis. The retention screw holes are circled in **Figure 1-4** below.

The top panel of EX-93819 provides access to two retention screw holes that support to secure the power module to the chassis. The retention screw holes are circled in **Figure 1-5** below.



**Figure 1-4: EX-93817 Top View**



**Figure 1-5: EX-93819 Top View**

## 1.2.5 Bottom Panel

The bottom panel of the EX-93817/EX-93819 has the following I/O interfaces (**Figure 1-6** and **Figure 1-7**):

- ④ 1 x Serial port (COM) connector
- ④ 1 x PS/2 keyboard/mouse connector
- ④ 1 x AC power adapter connector
- ④ 1 x VGA connector
- ④ 2 x RJ-45 10/100Mbps Ethernet connectors
- ④ 2 x USB 2.0 connectors
- ④ 1 x Power switch
- ④ Audio jacks

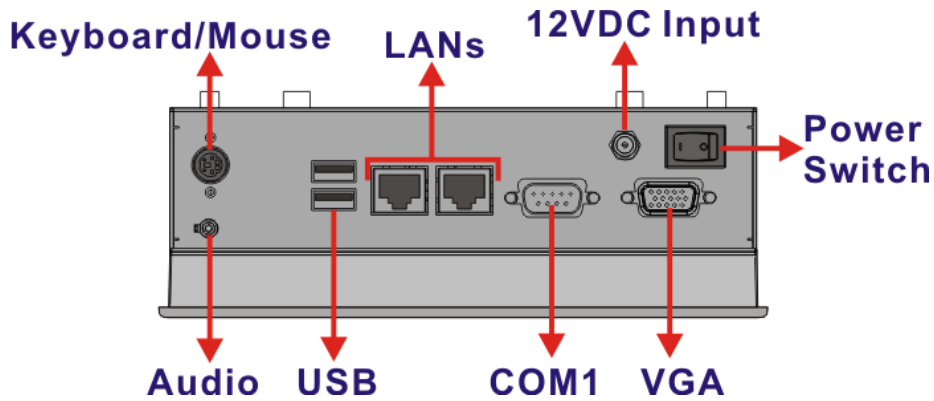


Figure 1-6: EX-93817 Bottom View

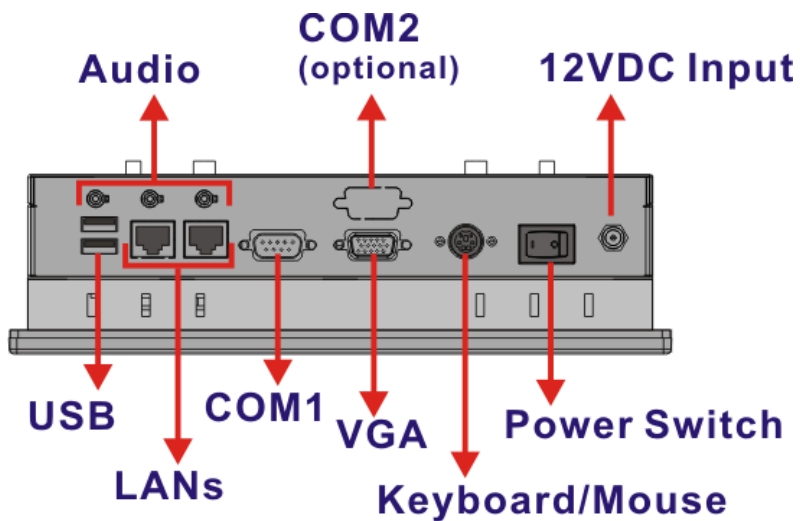


Figure 1-7: EX-93819 Bottom View

## 1.3 Internal Overview

The EX-93817/93819 internal components are configured in a two level format. The motherboard and 2.5" HDD are installed on a metal sheet that protects the rear of the TFT LCD screen. Below the metal sheet is a circuit board that is connected to the screen and the motherboard.

## 1.4 Specifications

### 1.4.1 Preinstalled Hardware Components

The EX-93817/EX-93819 flat panel PC has the following preinstalled components:

- ④ 1 x Motherboard
- ④ 1 x TFT LCD screen

The technical specifications for these components and the system are shown in the sections below.

### 1.4.2 System Specifications

The technical specifications for the EX-93817 and EX-93819 systems are listed in **Table 1-2**.

SPECIFICATION	EX-93817	EX-93819
Front Panel	Aluminum Front Panel	
Chassis	Heavy-duty Steel	
LCD Panel	6.5" TFT LCD	8.4" TFT LCD
Resolution	640 x 480 (VGA)	800 x 600 (SXGA)
Brightness	400 cd/m <sup>2</sup> 500 cd/m <sup>2</sup> (GHS models only)	220 cd/m <sup>2</sup> 450 cd/m <sup>2</sup> (GHS models only)
Contrast Ratio	550:1	500:1
Viewing Angle (H-V)	140/120	120/100

SPECIFICATION	EX-93817	EX-93819
<b>Backlight MTBF</b>	50,000 hrs	20,000 hrs
<b>Touch Screen</b>	Optional 4-wire resistive type touch screen	
<b>Drive Bay</b>	One 2.5" SATA/IDE HDD bay	
<b>I/O</b>	2 x USB 2.0 ports 1 x keyboard/mouse port 1 x VGA port 2 x LAN 1 x IDE 2 x SATA 1 x RS-232 1 x Audio jack	2 x USB 2.0 ports 1 x keyboard/mouse port 1 x VGA port 2 x LAN 1 x IDE 2 x SATA 2 x RS-232 (one for optional touch screen) 3 x Audio jacks
<b>Power</b>	60W AC adapter -Input: 90-264VAC @ 47-63 Hz -Output voltage: 12VDC	
<b>Mounting Feature</b>	Panel, Wall, Arm, Stand, Rack or Din	
<b>Color</b>	Silver (PANTONE PMS-8001)	
<b>Operating Temperature</b>	0~50°C	
<b>Relative Humidity</b>	5 ~ 95% @°C, non-condensing	
<b>Vibration</b>	5 - 17Hz, 0.1" double amplitude displacement. 17 - 640Hz, 1.5G acceleration, peak to peak.	
<b>Shock</b>	10G Acceleration, peak to peak (11ms)	
<b>Dimension (W x H x D)</b>	183 x 143 x 62.6 mm	244 x 178 x 67 mm
<b>Net/Gross Weight</b>	1.4/3.4 Kg	2.2/4.4 Kg
<b>Front Panel Protection</b>	IP65 compliant	
<b>Certificate</b>	Meets CB-60950-1/FCC/CCC-GB4943	

**Table 1-2: EX-93817/EX-93819 Specifications**



### 1.4.3 Motherboard Specifications

The EX-93817 and EX-93819 both come with a EXPERT-LX motherboard. The technical specifications of the motherboard are listed in **Table 1-3**.

Specification	EXPERT-LX
Form Factor	3.5" form factor
CPU	AMDâ Geode™ LX 800 500Mhz
Southbridge Chipset	AMDâ Geode™ CS5536
Display	CRT integrated in AMDâ Geode™ LX800
TTL/LVDS	18-bit single channel TFT LCD
Memory	Supports one 1GB DDR 333/400 200-pin SO-DIMM SDRAM module
BIOS	Award BIOS
SSD	Compact Flash (CF)
Super I/O	W83627EHG
Audio	AC'97 Codec Realtek ALC203
LAN	10/100 Base-T dual RTL8100C
COM	One RS-232 One RS-232/422/485
IDE	One 44-pin IDE connects to two Ultra ATA33/66/100 devices
SATA	Two SATA connectors with transfer rates up to 1.5Gb/sec
KB/MS	One on-board keyboard/mouse connector
Watchdog Timer	Software programmable 1-255 sec. by supper I/O
Fan connector	One CPU fan connector
Power Supply	+5V ± 5% AT/ATX power support



<b>Temperature</b>	0°C - 60°C
<b>Humidity (operating)</b>	5%~95% non-condensing
<b>Dimensions</b>	145mm x 102mm
<b>Weight (GW/NW)</b>	670g/230g

**Table 1-3: Motherboard Specifications**

## 1.4.4 Flat Panel Screen

### 1.4.4.1 EX-93817 Flat Panel Screen Specifications

The EX-93817 comes with a 6.5" TFT LCD monitor at the front of the flat panel PC (see **Figure 1-1**). The specifications for the LCD monitor are shown in **Table 1-4** below.

<b>SPECIFICATION</b>	<b>GS Model</b>	<b>GHS Model</b>
Model	Toshiba-LTA065B0D0F	AUO-G065VN01
Size	6.5"	6.5"
Resolution	640 x 480 (VGA)	640 x 480 (VGA)
Active Area (mm)	132.48 x 99.36	132.5 x 99.4
Pixel Pitch (mm)	0.207	0.207
Mode	TN	TN
View Angel (H/V)	140/120	140/120
Brightness (cd/m <sup>2</sup> )	400	500
Contrast Ratio	550:1	500:1
Response Time	T <sub>ON</sub> =15ms, T <sub>OFF</sub> =25ms	25ms (at 25°C)
Power Consumption (W)	4.2	4.26
Supply Voltage (V)	3.3	3.3
Backlight	Sidelight (2 CCFLs)	2 CCFL (replaceable)



SPECIFICATION	GS Model	GHS Model
Outline Dimensions (mm)	153.0 x 118.0 x 11.0Max	153.0 x 118.0 x 10.7
Weight (g)	250	210

**Table 1-4: 6.5" TFT LCD Monitor Specifications**

#### 1.4.4.2 EX-93819 Flat Panel Screen Specifications

The EX-93819 comes with an 8.4" TFT LCD monitor at the front of the flat panel PC (see **Figure 1-1**). The specifications for the LCD monitor are shown in **Table 1-5** below.

SPECIFICATION	GS Model	GHS Model
Model	AUO-G084SN03	AUO-G084SN05
Size	8.4"	
Resolution	800 x 600 (SVGA)	
Active Area (mm)	170.4 x 127.8	
Pixel Pitch (mm)	0.213	
Mode	TN	
Number of Colors	262K	
Color Saturation (NTSC%)	45	
View Angel (H/V)	130/110	120/100
Brightness (cd/m <sup>2</sup> )	220	450
Contrast Ratio	500:1	
Response Time (ms) (at 25°C)	35	
Power Consumption (W)	3.3	5.8
Interface	1ch LVDS	
Supply Voltage (V)	3.3	
Backlight	1 CCFL	2 CCFL

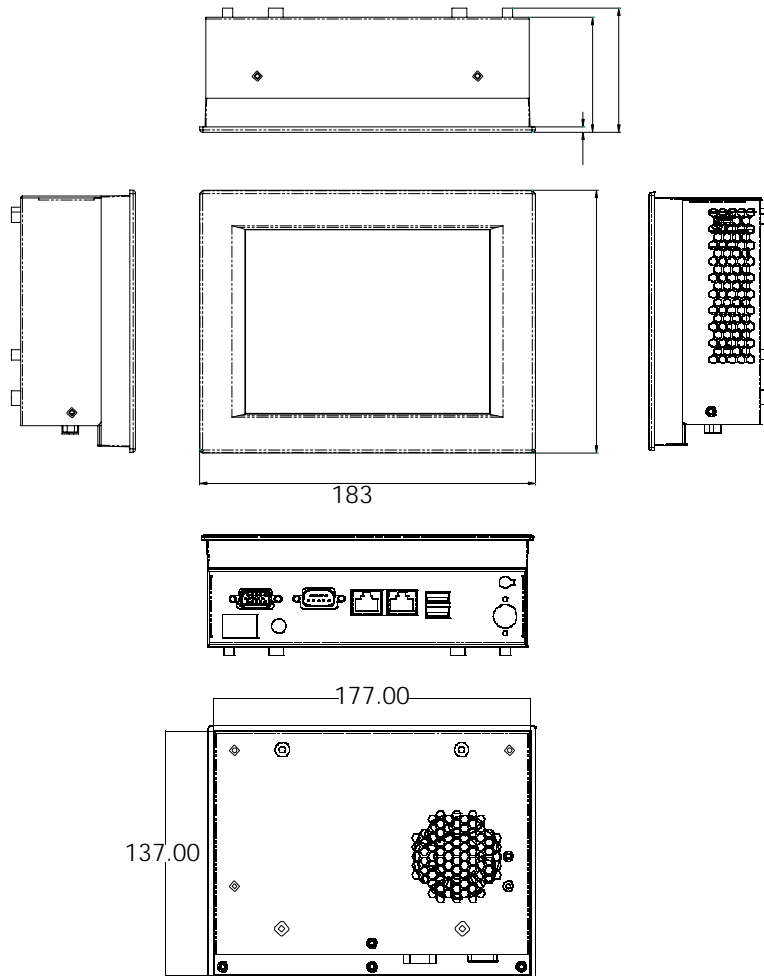
SPECIFICATION	GS Model	GHS Model
Outline Dimensions (mm)	203.0 x 142.5 x 5.7	203.0 x 142.5 x 8.0
Weight (g)	215	260

**Table 1-5: 8.4" TFT LCD Monitor Specifications**

## 1.5 Dimensions

### 1.5.1 EX-93817 Dimensions

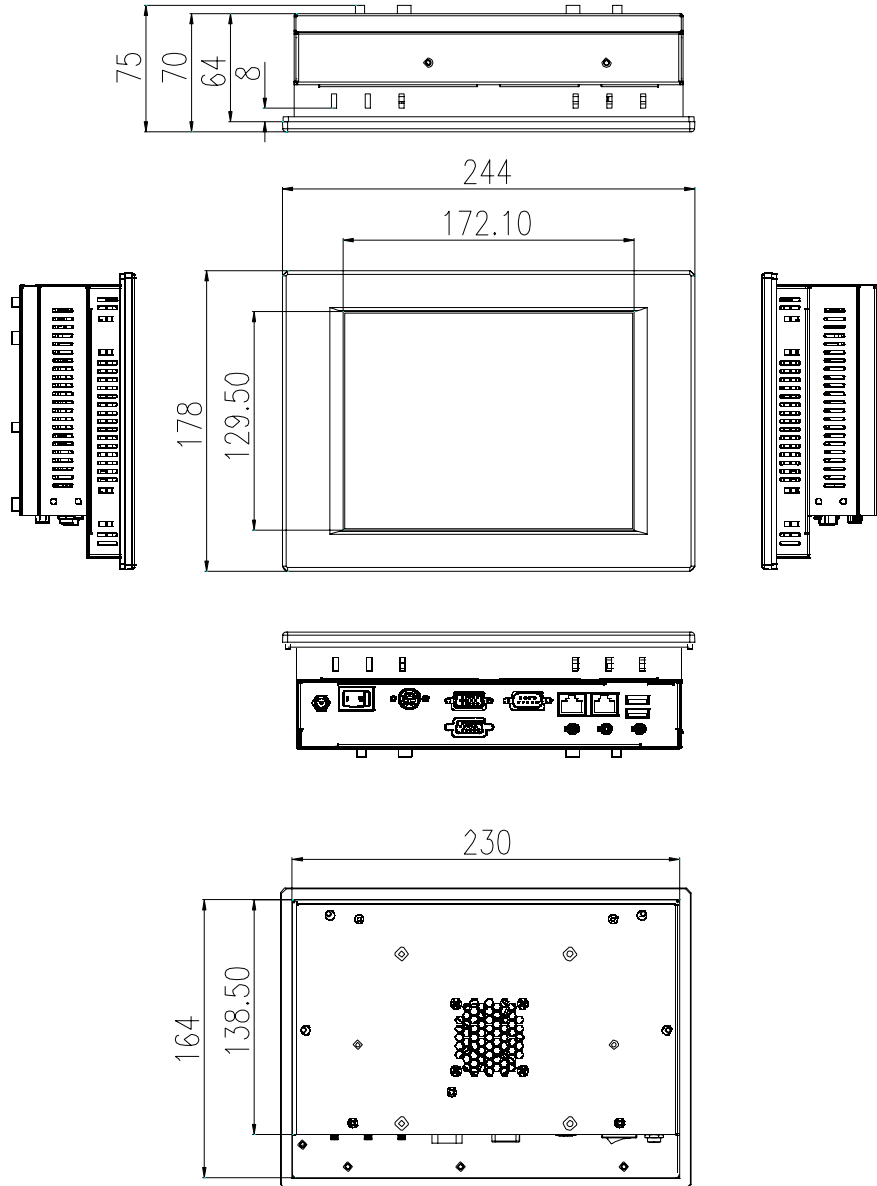
The dimensions of the EX-93817 flat panel PC are shown in **Figure 1-8** below.



**Figure 1-8: EX-93817 Dimensions (units in mm)**

## 1.5.2 EX-93819 Dimensions

The dimensions of the EX-93819 flat panel PC are shown in **Figure 1-9** below.



**Figure 1-9: EX-93819 Dimensions (units in mm)**

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Chapter

2

# **EXPERT-LX Motherboard**

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## 2.1 Introduction

The EX-93817 and EX-93819 flat screen PC both contain the EXPERT-LX motherboard. The motherboard is the heart of any computer and is responsible for transmitting, receiving and processing data as well as driving the different onboard devices. This chapter gives a brief introduction to the EXPERT-LX motherboard. For more complete details on the connectors and the different implementations of the EXPERT-LX, please refer to the EXPERT-LX user guide.

## 2.2 CPU Support

The EXPERT-LX series motherboards all come with a preinstalled AMD<sup>→</sup> Geode™ LX 800 500MHz CPU.

### 2.2.1 AMD<sup>→</sup> Geode™ LX 800 500MHz Specifications

The specifications for the 500MHz AMD<sup>→</sup> Geode™ LX 800 are listed below

- ④ x86/x87-compatible core
- ④ Processor frequency up to 500 MHz
- ④ 64K I/64K D L1 cache and 128K L2 cache
- ④ Split I/D cache/TLB (Translation Look-Aside Buffer)
- ④ 64-bit DDR Memory interface up to 400MHz (LX 800), up to 333MHz (LX 700)
- ④ Integrated FPU that supports the Intel MMX® and AMD 3DNow!™ Technology instruction sets
- ④ 9 GB/s internal GeodeLink™ Interface Unit (GLIU)
- ④ Security Block
  - 128-bit AES (CBC/ECB)
  - True Random Number Generator
- ④ High-resolution CRT and TFT outputs (simultaneous operation)
  - Support for High Definition (HD) and Standard Definition (SD) standards
  - Support 1920x1440 in CRT mode and 1600x1200 in TFT mode
- ④ VESA 1.1 and 2.0 VIP/VDA support
- ④ 0.13 micron process
- ④ 481-terminal PBGA (Plastic Ball Grid Array) with internal heatspreader





## 2.2.2 AMD<sup>™</sup> Geode<sup>™</sup> LX 800 500MHz Power Management

The power management for the 500MHz AMD<sup>™</sup> Geode<sup>™</sup> LX 800 is listed below:

- ④ 1.8W Typical (3.9W TDP) @ 500MHz
- ④ GeodeLink active hardware power management
- ④ Hardware support for standard ACPI software power management
- ④ I/O companion SUSP#/SUSPA# power controls
- ④ Lower power I/O
- ④ Wakeup on SMI/INTR

## 2.3 System Chipset

The EXPERT-LX series motherboards all have a preinstalled AMD<sup>™</sup> Geode<sup>™</sup> CS5536

system chipset. The system chipset features are listed below.

- ④ **GeodeLink<sup>™</sup> Interface Unit**
  - 64-bit, 66MHz operation
  - PCI VSM (Virtual System Module) that makes the interface transparent to applications software and BIOS
  - Programmable routing descriptors, use and activity monitors, and SSMI (Synchronous System Management Interrupt)
- ④ **ATA-6 Controller**
  - 100 MB/second IDE Controller in UDMA mode per the ATA-6 specification
  - 5V interface
- ④ **Flash Interface**
  - Multiplexed with IDE interface Connects to an array of industry standard NAND Flash and/or NOR Flash
- ④ **USB Controller**
  - 4 USB ports
  - Supports both USB 1.1 and USB 2.0
  - 3 host ports
  - 1 host/device
- ④ **Audio Codec 97 (AC97) Controller**
  - AC97 specification v2.3 compliant interface to multiple audio codecs: Serial In, Serial Out, Sync Out, Bit Clock In

- Legacy “PC Beep” support
- ④ **Diverse Device**
  - 82xx Legacy Devices
  - IR Communication Port
  - System Management Bus (SMB) Controller
  - LPC (Low Pin Count) Port
  - General Purpose I/Os (GPIOs)
  - 8 Multi-Function General Purpose Timers (MFGPTs)
  - Real-Time Clock (RTC) with CMOS RAM
  - Power Management Controller
  - ACPI v2.0 compliant

## 2.4 Graphics Support

The Geode LX processor’s Graphics Processor is a BitBLT/vector engine that supports pattern generation, source expansion, pattern/source transparency, 256 ternary raster operations, alpha blenders to support alpha- BLTs, incorporated BLT FIFOs, a GeodeLink interface and the ability to throttle BLTs according to video timing. New features added to the Graphics Processor include:

- ④ Command buffer interface
- ④ Hardware accelerated rotation BLTs
- ④ Color depth conversion
- ④ Paletized color
- ④ Full 8x8 color pattern buffer
- ④ Separate base addresses for all channels
- ④ Monochrome inversion

**Table 2-1: Geode LX Graphics Features** lists a complete list of Geode LX graphics features. For more details, please refer to the AMD website or the Geode LX series data book available from AMD.

Feature	AMD Geode™ LX Processor
Color Depth	8, 16, 32 bpp (A) RGB 4 and 8-bit indexed
ROPs	256 (2-src, dest and pattern)
BLT Buffers	FIFOs in Graphics Processor



BLT Splitting	Managed by hardware
Video Synchronized BLT/Vector	Throttle by VBLANK
Bresenham Lines	Yes
Patterned (stippled) Lines	Yes
Screen to Screen BLT	Yes
Screen to Screen BLT with mono expansion	Yes
Memory to Screen BLT	Yes (throttled rep movs writes)
Accelerated Text	No
Pattern Size (Mono)	8x8 pixels
Pattern Size (Color)	8x8 pixels
Monochrome Pattern	Yes (with inversion)
Dithered Pattern (4 color)	No
Color Pattern	8, 16, 32 bpp
Transparent Pattern	Monochrome
Solid Fill	Yes
Pattern Fill	Yes
Transparent Source	Monochrome
Color Key Source Transparency	Y with mask
Variable Source Stride	Yes
Variable Destination Stride	Yes
Destination Write Bursting	Yes
Selectable BLT Direction	Vertical and Horizontal
Alpha BLT	Yes (constant $\alpha$ , $\alpha/\text{pix}$ , or sep. $\alpha$ channel)
VGA Support	Decodes VGA Register
Pipeline Depth	Unlimited
Accelerated Rotation BLT	8, 16, 32 bpp
Color Depth Conversion	5:6:5, 1:5:5:5, 4:4:4:4, 8:8:8:8

**Table 2-1: Geode LX Graphics Features**

## 2.5 Ethernet Controller Specifications

### 2.5.1 Overview

The Realtek RTL8100C(L) is a highly integrated and cost-effective single-chip Fast

Ethernet controller. It is enhanced with an ACPI (Advanced Configuration Power Interface)

management function for PCI in order to provide efficient power management for advanced operating systems with OSPM (Operating System Directed Power Management).

The RTL8100C(L) also supports remote wake-up (including AMD Magic Packet™ and Microsoft® Wake-up frame) to increase cost-efficiency in network maintenance and management. It is an ideal solution for notebook/motherboard-embedded network designs.

## 2.5.2 Features

- ④ Integrates Fast Ethernet MAC, physical chip, and transceiver onto a single chip
- ④ 10Mbps and 100Mbps operation
- ④ Supports 10Mbps and 100Mbps N-way auto-negotiation
- ④ Supports 25MHz Crystal or 25MHz OSC as the internal clock source
- ④ Complies with PC99/PC2001 standards
- ④ Supports ACPI power management
- ④ Provides PCI bus master data transfer
- ④ Provides PCI memory space or I/O space mapped data transfer
- ④ Supports PCI clock speed of 16.75MHz-40MHz
- ④ Advanced power saving mode
- ④ Supports Wake-on-LAN and remote wake-up (AMD Magic Packet™, Link Change, and Microsoft® Wake-up frame)
- ④ Half/Full duplex capability
- ④ Supports Full Duplex Flow Control (IEEE 802.3x)
- ④ Provides interface to 93C46 EEPROM to store resource configuration and ID parameters
- ④ Provides PCI clock run pin
- ④ Provides LED pins for network operation status indication
- ④ 2.5/3.3V power supply with 5V tolerant I/Os

## 2.6 Peripheral Device Interfaces, Connectors, and Slots

The peripheral device connectors, interfaces and slots on the EXPERT-LX motherboard are listed in the sections below.



### 2.6.1 OEM Options

Many of the peripheral device connectors listed below are not connected to any devices. These connectors are reserved for OEM customizations. For a customized option, please contact the vendor, reseller or TOPSCCC sales representative.

### 2.6.2 Internal Slots

The slots listed below can all be found on the EXPERT-LX motherboard.

- ④ 1 x 200-pin DDR SO-DIMM socket
- ④ 1 x CFII slot

### 2.6.3 Internal Peripheral Device Connectors

The peripheral device connectors listed below are located on the EXPERT-LX

motherboard. Pinouts for these connectors can be found in **Appendix A**.

- ④ 1 x AT power connector
- ④ 1 x ATX power function connector
- ④ 1 x Audio connector
- ④ 1 x Battery connector
- ④ 1 x Compact Flash (CF) connector (solder side)
- ④ 1 x External LED connector
- ④ 1 x Fan connector
- ④ 1 x Floppy disk drive (FDD) connector
- ④ 1 x General purpose input/output (GPIO) connector
- ④ 1 x IDE Interface connectors (44-pin)
- ④ 1 x Inverter power connector
- ④ 1 x Keyboard/mouse connector
- ④ 1 x Parallel port connector
- ④ 1 x PC/104 slot
- ④ 1 x PC/104 power connector
- ④ 1 x Reset button connector
- ④ 1 x RS-232/422/485 serial port connector
- ④ 2 x SATA connectors
- ④ 1 x Suspend power input connector



- ④ 1 x TFT LCD LVDS interface connector
- ④ 1 x TFT LCD TFT interface connector
- ④ 1 x USB connector
- ④ 1 x SO-DIMM socket

#### **2.6.4 External Peripheral Device Connectors**

The peripheral device connectors listed below are located on the rear panel of the

EXPERT-LX motherboard. Pinouts for these connectors can be found in ***Appendix A***.

- ④ 2 x Ethernet connectors
- ④ 2 x USB connectors
- ④ 1 x Serial port connector
- ④ 1 x VGA connector



Chapter

3

# Installation and Configuration

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## 3.1 Installation Precautions

When installing the flat panel PC, please follow the precautions listed below:

- ④ **Power turned off:** When installing the flat panel PC, make sure the power is off. Failing to turn off the power may cause severe injury to the body and/or damage to the system.
- ④ **Certified Engineers:** Only certified engineers should install and modify onboard functionalities.
- ④ **Mounting:** The flat panel PC is a heavy device. When mounting the system onto a rack, panel, wall or arm please make sure that at least two people are assisting with the procedure.
- ④ **Anti-static Discharge:** If a user open the rear panel of the flat panel PC, to configure the jumpers or plug in added peripheral devices, ground themselves first and wear an anti-static wristband.

## 3.2 Preinstalled Components

The following components are all preinstalled.

- ④ Motherboard
- ④ TFT LCD screen
- ④ Power module
- ④ Power switch

Preinstalled OEM customizations may include the following.

- ④ Hard disk drive (HDD)
- ④ Resistive type touch screen

Installation of some of the components are described in **the following sections**.

## 3.3 Installation and Configuration Steps

The following installation steps must be followed.

**Step 1:**    Unpack the flat panel PC

**Step 2:**    Set the jumper settings



- Step 3:** Install HDD
- Step 4:** Install the SO-DIMM memory module
- Step 5:** Mount the flat panel PC
- Step 6:** Connect peripheral devices to the bottom panel of the flat panel PC
- Step 7:** Configure the system

## 3.4 Unpacking

To unpack the flat panel PC, follow the steps below:



### **WARNING!**

The front side LCD screen has a protective plastic cover stuck to the screen. Only remove the plastic cover after the flat panel PC has been properly installed. This ensures the screen is protected during the installation process.

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- Step 1:** Use box cutters, a knife or a sharp pair of scissors that seals the top side of the external (second) box.
- Step 2:** Open the external (second) box.
- Step 3:** Use box cutters, a knife or a sharp pair of scissors that seals the top side of the internal (first) box.
- Step 4:** Lift the monitor out of the boxes.
- Step 5:** Remove both polystyrene ends, one from each side.
- Step 6:** Pull the plastic cover off the flat panel PC.
- Step 7:** Make sure all the components listed in the packing list are present.

### 3.4.1 Packing List

The EX-93817/EX-93819 flat panel PC is shipped with the following components:

- ④ 1 x IDE HDD cable
- ④ 1 x SATA HDD cable
- ④ 1 x PS/2 cable
- ④ 1 x Screw kit
- ④ 1 x Jumper pack
- ④ 1 x Power cord
- ④ 1 x Power adapter
- ④ 1 x Panel mounting kit
- ④ 1 x Wall mounting kit
- ④ 1 x User Manual and Driver CD
- ④ 1 x Touch screen driver CD and touch pen (T-R model only)

If any of these items are missing or damaged, contact the distributor or sales representative immediately.

### 3.5 Jumper Settings



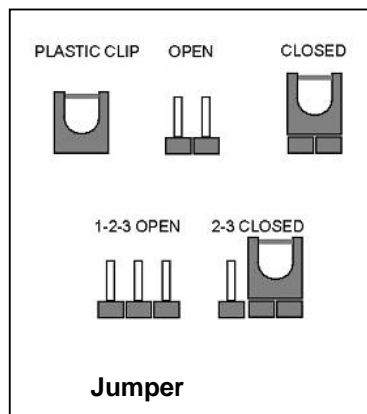
#### NOTE:

These jumper settings and the jumper locations are described in detail in the User Manual that came with the EXPERT-LX motherboard. Please refer to this manual for a more detailed understanding of the jumper settings.



#### NOTE:

A jumper is a metal bridge that is used to close an electrical circuit. It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To CLOSE/SHORT a jumper means connecting the pins of the jumper with the plastic clip and to OPEN a jumper means removing the plastic clip from a







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jumper.

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The EXPERT-LX comes with three jumpers. They are listed below.

- ④ AT Power Select (JP1)
- ④ COM 2 mode setup (JP2)
- ④ Clear CMOS Memory (CN7)

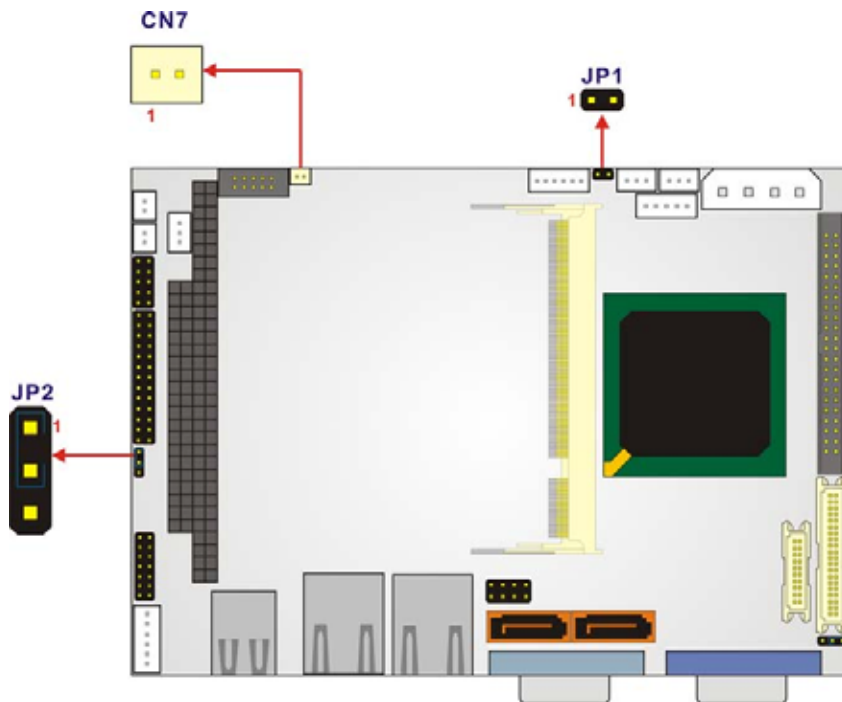
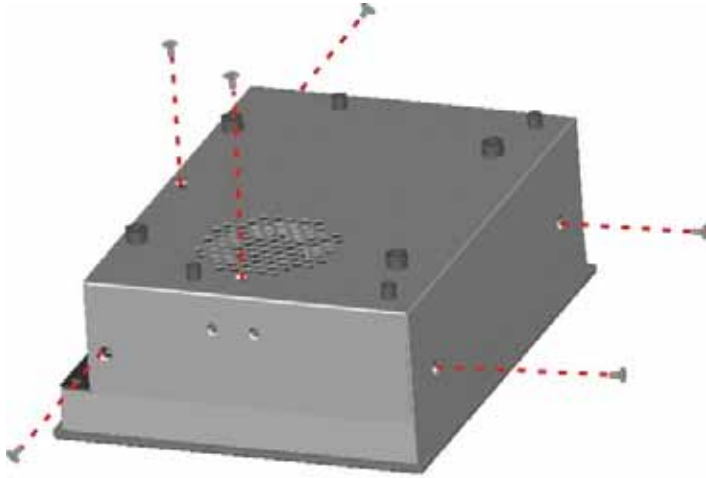


Figure 3-1: Jumper Locations

### 3.5.1 Remove the Back Cover

#### 3.5.1.1 EX-93817 Back Cover Removal

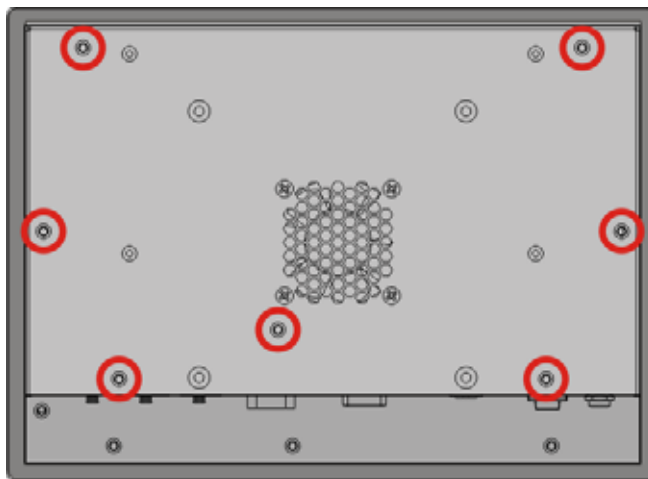
The back cover is secured to the chassis with six retention screws, two on the top panel, two on the rear panel, one on the right panel and one on the left panel (Figure 3-2). Remove the six retention screws and lift the cover off the EX-93817.



**Figure 3-2: EX-93817 Back Cover Retention Screws**

### **3.5.1.2 EX-93819 Back Cover Removal**

The back cover is secured to the chassis with seven retention screws on the rear panel (Figure 3-3). Remove the seven retention screws and lift the cover off the EX-93819.

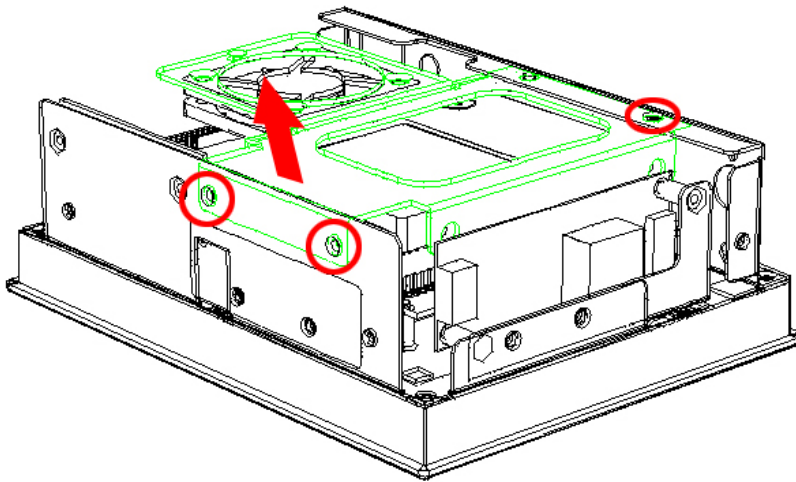


**Figure 3-3: EX-93819 Back Cover Retention Screws (Real Panel)**

## 3.5.2 Remove the Fan Bracket

### 3.5.2.1 EX-93817 HDD and Fan Bracket Removal

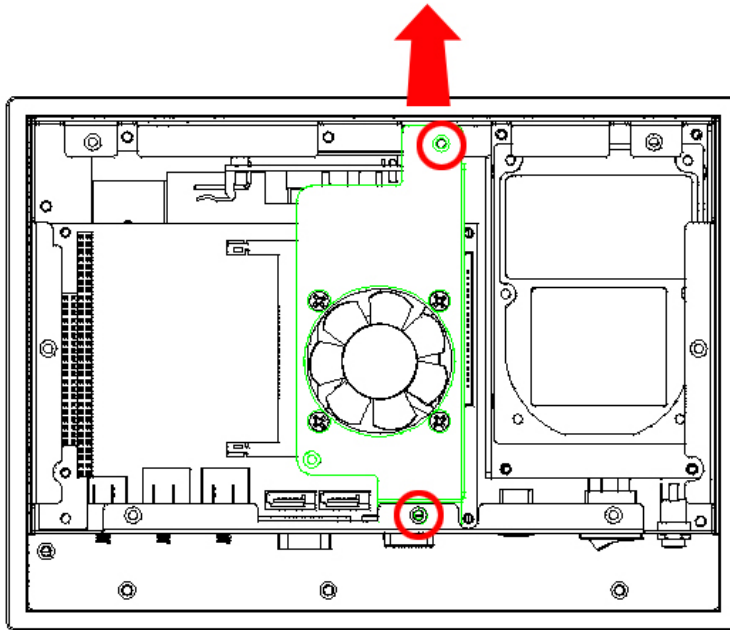
The HDD and fan bracket of the EX-93817 is secured to the chassis with three retention screws inside the chassis (**Figure 3-4**). Remove the three retention screws. Lift the HDD/fan bracket off the EX-93817 flat panel PC and disconnect the fan cable.



**Figure 3-4: EX-93817 HDD and Fan Bracket Removal**

### 3.5.2.2 EX-93819 Fan Bracket Removal

The fan bracket of the EX-93819 is secured to the chassis with two retention screws inside the rear panel (**Figure 3-5**). Remove the two retention screws. Lift the fan bracket off the EX-93819 flat panel PC and disconnect the fan cable.



**Figure 3-5: Fan Bracket Removal**

### 3.5.3 JP1: AT Power Select Jumper Settings

The AT/ATX Power Mode Select jumper specifies the systems power mode.

AT Power Select	Description	
Short	Use AT power	Default
Open	Use ATX power	

**Table 3-1: AT Power Select Jumper Settings**

### 3.5.4 CN7: Clear CMOS Setup



**NOTE:**

The battery connector (CN7) is used as the clear CMOS jumper on the motherboard.

If the motherboard fails to boot due to improper BIOS settings, use this jumper to clear the CMOS data and reset the system BIOS information. To do this, use the jumper cap to close pins 2 and 3 for a few seconds then reinstall the jumper clip back to pins 1 and 2.

If the “CMOS Settings Wrong” message displays during the boot up process, try to correct the fault by pressing the F1 to enter the CMOS Setup menu. Then do one of the following:

- ④ Enter the correct CMOS setting
- ④ Load Optimal Defaults
- ④ Load Failsafe Defaults.

After one of the above has been done, save the changes and exit the CMOS Setup menu.

Clear CMOS	Description	
Closed	Keep CMOS Setup	Default
Open	Clear CMOS Setup	

**Table 3-2: Clear CMOS Jumper Settings**

### 3.5.5 JP2: COM3 Setup Jumper Settings

The COM3 port can be configured as an RS-422 serial port or as an RS-485 serial port.

COM 2 Setup	Description	
Short Pin 1 ~ Pin 2	RS-422	
Short Pin 2 ~ Pin 3	RS-485	Default

**Table 3-3: COM3 Setup Jumper Settings**

## 3.6 HDD Installation

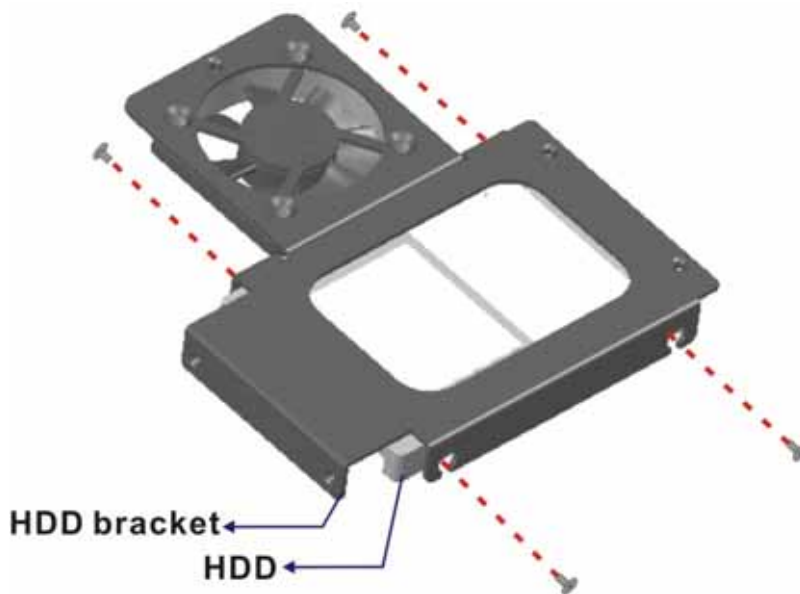
### 3.6.1 EX-93817 HDD Installation

To install the HDD into the EX-93817, please follow the steps below:

**Step 1:** Remove the back cover. See **Section 3.5.1.1** above.

**Step 2:** Remove HDD bracket from the platform. See **Section 3.5.2.1** above.

- Step 3:** Attach the HDD brackets to the HDD. To do this, align the four retention screw holes in the both sides of the HDD bracket with the retention screw holes on the sides of the HDD. Insert four retention screws into the HDD bracket (**Figure 3-6**).



**Figure 3-6: EX-93817 HDD Bracket Retention Screws**

- Step 4:** Connect the IDE/SATA cable from the IDE/SATA connector on the motherboard to the rear of HDD.
- Step 5:** Install the HDD into the EX-93817 by aligning the retention screw holes in the HDD brackets with the retention screw holes on the chassis. Insert the three retention screws.

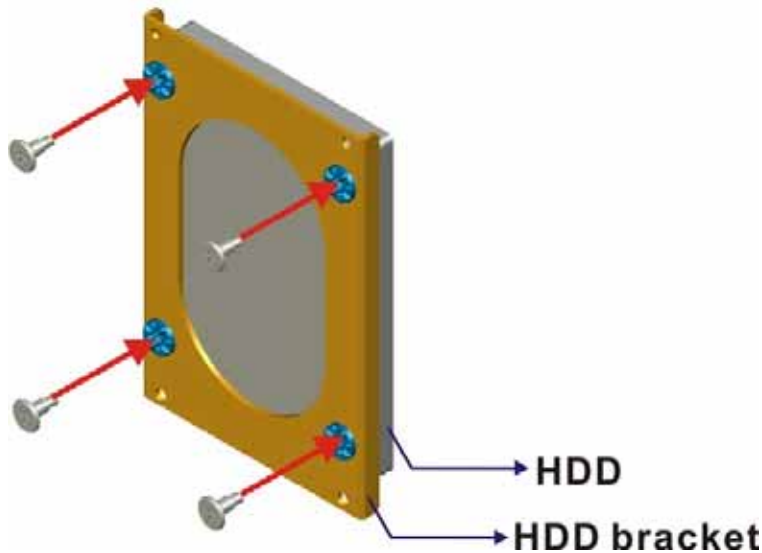
### 3.6.2 EX-93819 HDD Installation

To install the HDD into the EX-93819, please follow the steps below:

- Step 6:** Remove the back cover. See **Section 3.5.1.2** above.
- Step 7:** The HDD bracket is attached to the platform by four retention screws. Remove the four retention screws from the platform.
- Step 8:** Attach the HDD brackets to the HDD. To do this, align the four retention screw



holes in the base of the HDD bracket with the retention screw holes on the bottom of the HDD. Insert four retention screws into the HDD bracket from the bottom (**Figure 3-7**).



**Figure 3-7: EX-93819 HDD Bracket Retention Screws**

**Step 9:** Connect the IDE/SATA cable from the IDE/SATA connector on the motherboard to the rear of HDD.

**Step 10:** Install the HDD into the EX-93819 by aligning the retention screw holes in the base of the HDD brackets with the retention screw holes on the platform. Insert the four retention screws.

### 3.7 Memory Module Installation

The flat panel PC embedded motherboard has one 200-pin SO-DIMM socket. To install the SO-DIMM module, follow the instructions below.

**Step 1:** Remove the back cover. See **Section 3.5.1** above.

**Step 2:** Locate the SO-DIMM socket on the motherboard of the flat panel PC.

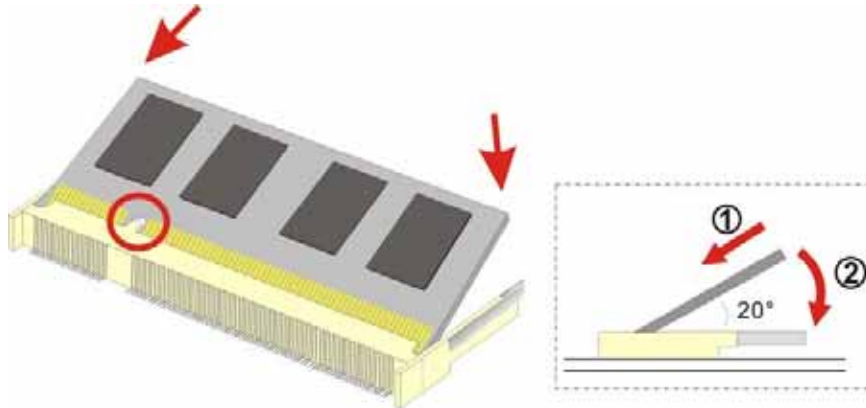
**Step 3:** Push the SO-DIMM chip into the socket at an angle. (See **Figure 3-8**)

**Step 4:** Gently pull the arms of the SO-DIMM socket out and push the rear of the



SO-DIMM module down. (See **Figure 3-8**)

**Step 5:** Release the arms on the SO-DIMM socket. They clip into place and secure the SO-DIMM module in the socket.



**Figure 3-8: SO-DIMM Module Installation**

### 3.8 Mounting the System



#### **WARNING!**

When mounting the flat panel PC onto an arm, onto the wall or onto a panel, it is better to have more than one person to help with the installation

~~to make sure the panel PC does not fall down and get damaged.~~

The five methods of mounting the EX-93817/EX-93819 are listed below.

- ④ Wall mounting
- ④ Panel mounting
- ④ Arm mounting
- ④ Rack mounting
- ④ DIN mounting

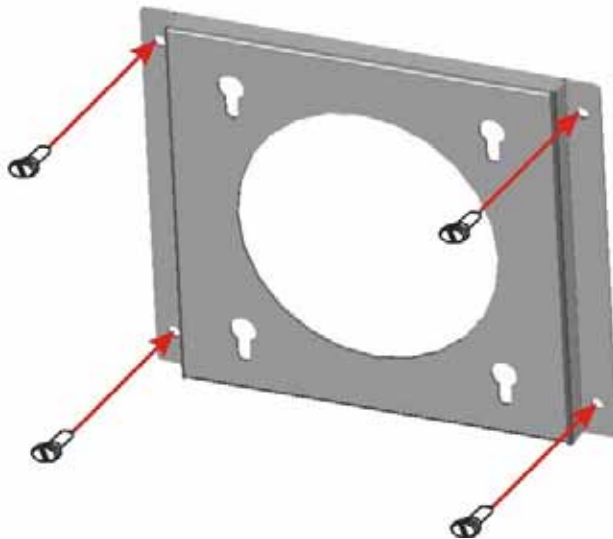
The four mounting methods are described below.



### 3.8.1 Wall Mounting

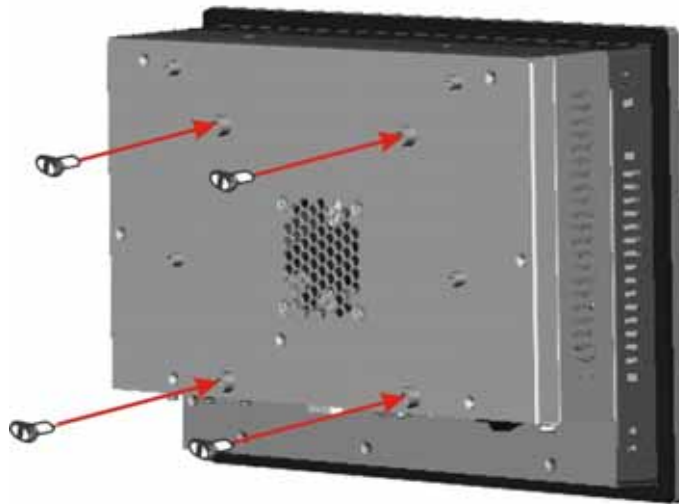
To mount the flat panel PC onto the wall, please follow the steps below.

- Step 1:** Select the location on the wall for the wall-mounting bracket.
- Step 2:** Carefully mark the locations of the four bracket screw holes on the wall.
- Step 3:** Drill four pilot holes at the marked locations on the wall for the bracket retention screws.
- Step 4:** Align the wall-mounting bracket screw holes with the pilot holes.
- Step 5:** Secure the mounting-bracket to the wall by inserting the retention screws into the four pilot holes and tightening them (**Figure 3-9**).



**Figure 3-9: Wall-mounting Bracket**

- Step 6:** Insert the four monitor mounting screws provided in the wall mounting kit into the four screw holes on the rear panel of the flat panel PC and tighten until the screw shank is secured against the rear panel (**Figure 3-10**).



**Figure 3-10: Chassis Support Screws**

- Step 7:** Align the mounting screws on the monitor rear panel with the mounting holes on the bracket.
- Step 8:** Carefully insert the screws through the holes and gently pull the monitor downwards until the monitor rests securely in the slotted holes (**Figure 3-11**). Ensure that all four of the mounting screws fit snugly into their respective slotted holes.

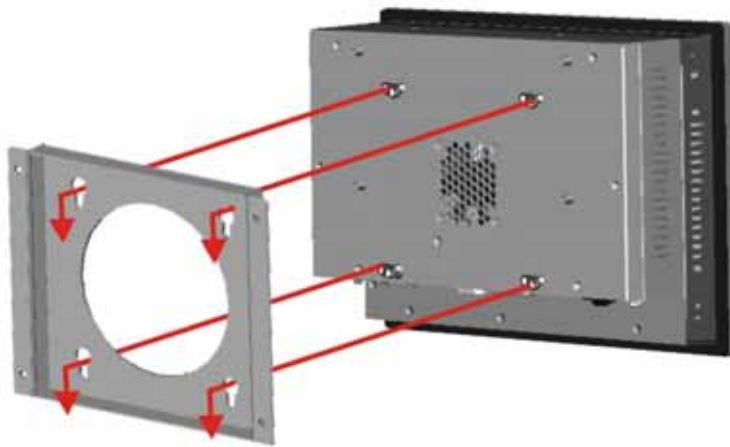


**NOTE:**

In the diagram below the bracket is already installed on the wall.

---





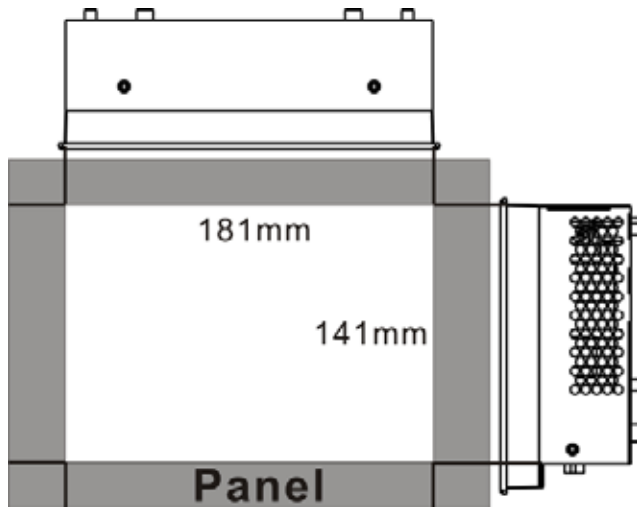
**Figure 3-11: Mount the Chassis**

## **3.8.2 Panel Mounting**

### **3.8.2.1 EX-93817 Panel Mounting**

To mount the EX-93817 flat panel PC into a panel, please follow the steps below.

- Step 1:** Select the position on the panel to mount the EX-93817.
- Step 2:** Cut out a section from the panel that corresponds to the rear panel dimensions of the EX-93817. Take care that the panel section that is cut out is smaller than the overall size of the metal frame that surrounds the EX-93817 but just large enough for the rear panel of the EX-93817 to fit through (**Figure 3-12**).

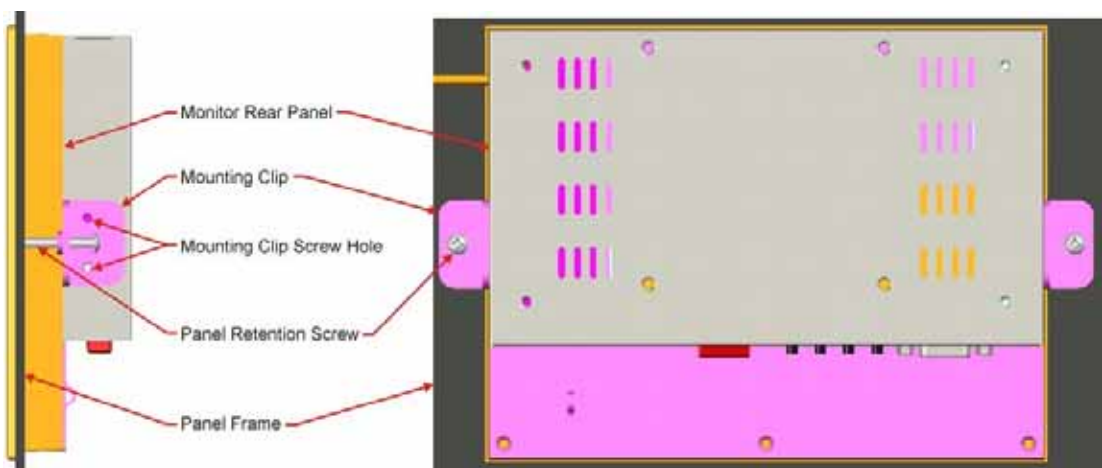


**Figure 3-12: EX-93817 Panel Opening**

**Step 3:** Slide the EX-93817 through the hole until the aluminum frame is flush against the panel.

**Step 4:** Secure the panel mounting clips to either side of the monitor using the retention screws supplied in the mounting kit pack (**Figure 3-13**).

**Step 5:** Tighten the panel retention screws that pass through the panel mounting clips until the plastic caps at the front of all the screws are firmly secured to the panel (**Figure 3-13**).



**Figure 3-13: EX-93817 Panel Mounting**

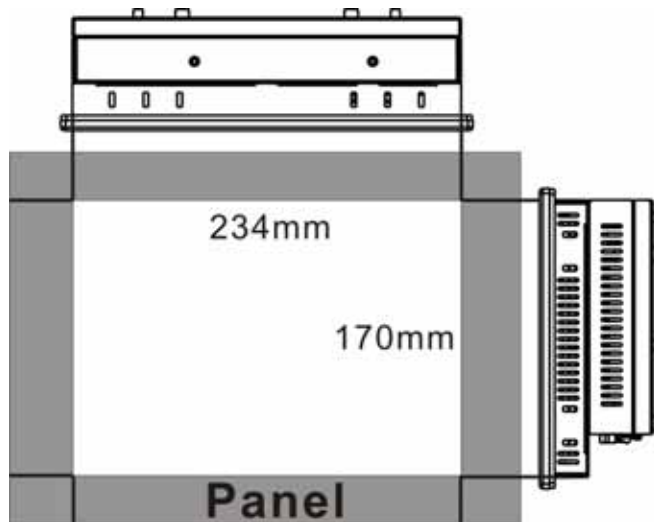




### 3.8.2.2 EX-93819 Panel Mounting

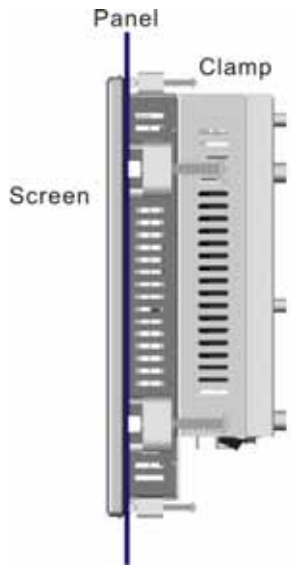
To mount the EX-93819 flat panel PC into a panel, please follow the steps below.

- Step 1:** Select the position on the panel to mount the EX-93819.
- Step 2:** Cut out a section from the panel that corresponds to the rear panel dimensions of the EX-93819. Take care that the panel section that is cut out is smaller than the overall size of the metal frame that surrounds the EX-93819 but just large enough for the rear panel of the EX-93819 to fit through (**Figure 3-14**).



**Figure 3-14: EX-93819 Panel Opening**

- Step 3:** Slide the EX-93819 through the hole until the aluminum frame is flush against the panel.
- Step 4:** Insert the panel mounting clamps into the pre-formed holes along the edges of the chassis, behind the aluminum frame. There are a total of 8 panel mounting clamps.
- Step 5:** Tighten the screws that pass through the panel mounting clamps until the plastic caps at the front of all the screws are firmly secured to the panel (**Figure 3-15**).



**Figure 3-15: Tighten the Panel Mounting Clamp Screws**

### 3.8.3 Arm Mounting

The EX-93817/EX-93819 is VESA (Video Electronics Standards Association) compliant and can be mounted on an arm with a 100mm interface pad. To mount the EX-93817//EX-93819 on an arm, please follow the steps below.

**Step 1:** The arm is a separately purchased item. Please correctly mount the arm onto the surface it uses as a base. To do this, refer to the installation documentation that came with the mounting arm.



#### **NOTE:**

When purchasing the arm please ensure that it is VESA compliant and that the arm has a 100mm interface pad. If the mounting arm is not VESA compliant it cannot be used to support the EX-93817/EX-93819 flat panel PC.

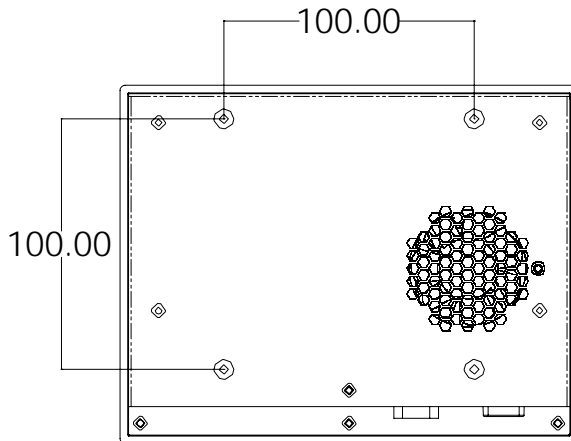
---

**Step 2:** Once the mounting arm has been firmly attached to the surface, lift the flat panel PC onto the interface pad of the mounting arm.

**Step 3:** Align the retention screw holes on the mounting arm interface with those in the



flat panel PC. The flat panel PC arm mount retention screw holes are shown in **Figure 3-16**.



**Figure 3-16: Arm Mounting Retention Screw Holes**

**Step 4:** Secure the flat panel PC to the interface pad by inserting four retention screws through the bottom of the mounting arm interface pad and into the flat panel PC.

### 3.8.4 Cabinet and Rack Installation

The EX-93817/EX-93819 flat panel PC can be installed into a cabinet or rack. The installation procedures are similar to the panel mounting installation. To do this, please follow the steps below:



**NOTE:**

When purchasing the cabinet/rack installation bracket, make sure it is compatible with both the EX-93817/EX-93819 flat panel PC and the rack/cabinet into which the EX-93817/EX-93819 is installed.

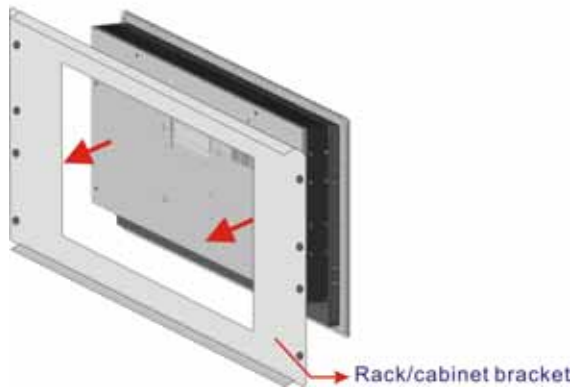
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#### 3.8.4.1 EX-93817 Cabinet and Rack Installation

**Step 1:** Slide the rear chassis of the EX-93817 flat panel PC through the rack/cabinet



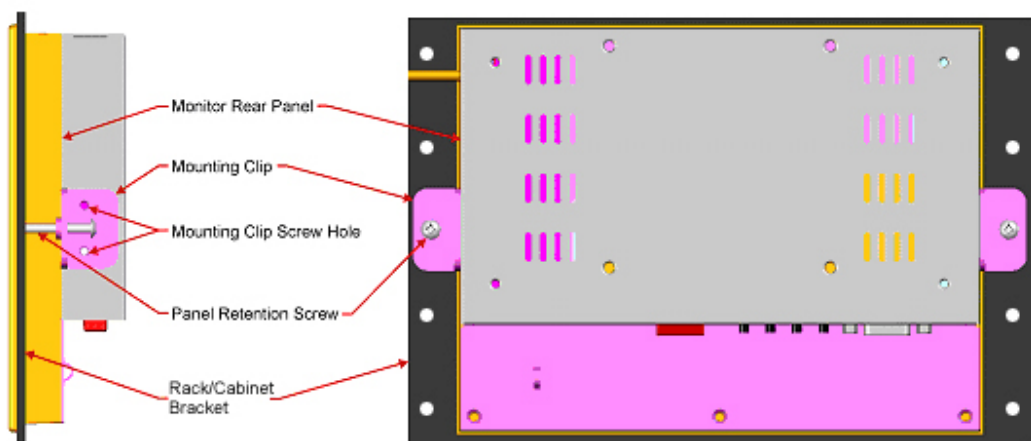
bracket until the aluminum frame is flush against the front of the bracket (**Figure 3-17**).



**Figure 3-17: The Rack/Cabinet Bracket**

**Step 2:** Secure the mounting clips to either side of the flat panel PC using the retention screws supplied in the mounting kit pack (**Figure 3-18**).

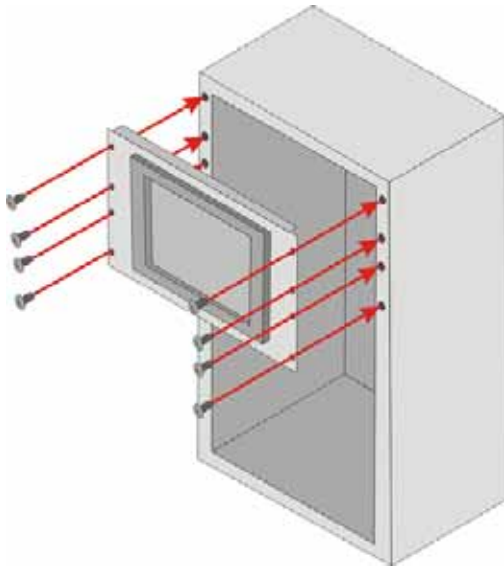
**Step 3:** Tighten the panel retention screws that pass through the mounting clips until the plastic caps at the front of all the screws are firmly secured to the rack/cabinet bracket (**Figure 3-18**).



**Figure 3-18: EX-93817 Rack and Cabinet Mounting**

**Step 4:** Slide the EX-93819 flat panel PC with the attached rack/cabinet bracket into a rack or cabinet (**Figure 3-19**).



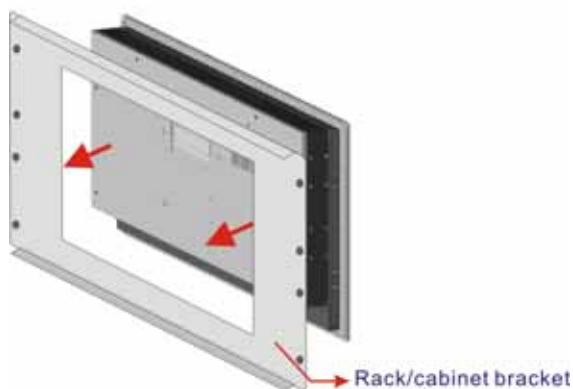


**Figure 3-19: Install into a Rack/Cabinet**

**Step 5:** Once the EX-93819 flat panel PC with the attached rack/cabinet bracket has been properly inserted into the rack or cabinet, secure the front of the rack/cabinet bracket to the front of the rack or cabinet (**Figure 3-19**).

#### **3.8.4.2 EX-93819 Cabinet and Rack Installation**

**Step 1:** Slide the rear chassis of the EX-93819 flat panel PC through the rack/cabinet bracket until the aluminum frame is flush against the front of the bracket (**Figure 3-20**).

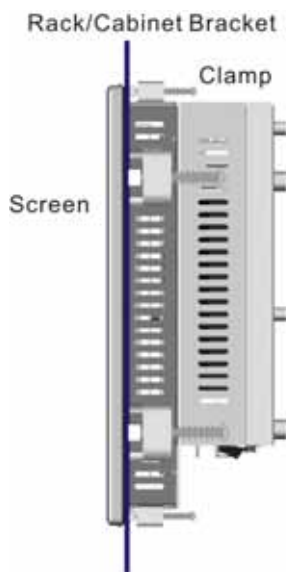


**Figure 3-20: The Rack/Cabinet Bracket**



**Step 2:** Insert the rack mounting clamps into the pre-formed holes along the edges of the EX-93819, behind the metal frame. Refer to the mounting kit packing list for the required number of mounting clamps.

**Step 3:** Tighten the screws that pass through the rack mounting clamps until the plastic caps at the front of all the screws are firmly secured to the bracket (**Figure 3-21**).



**Figure 3-21: Secure the Rack/Cabinet Bracket**

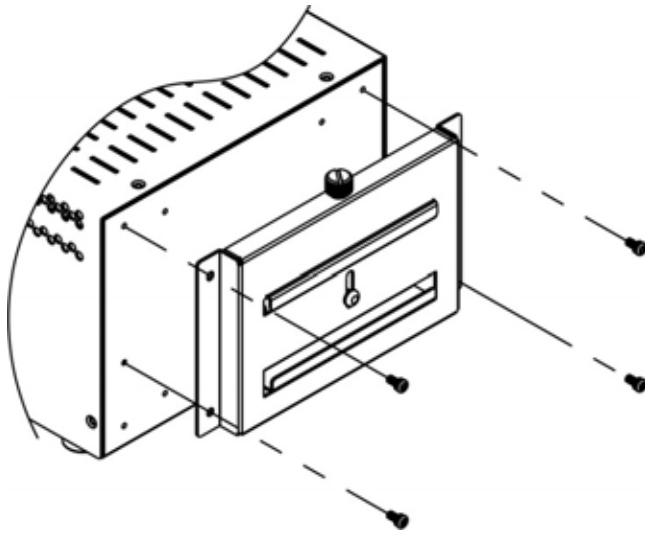
**Step 4:** Follow the Step 4 and Step 5 of the EX-93817 Cabinet and Rack Installation procedures to complete the whole installation process.

### 3.8.5 DIN Mounting

To mount the EX-93817/EX-93819 flat panel PC onto a DIN rail, please follow the steps below.

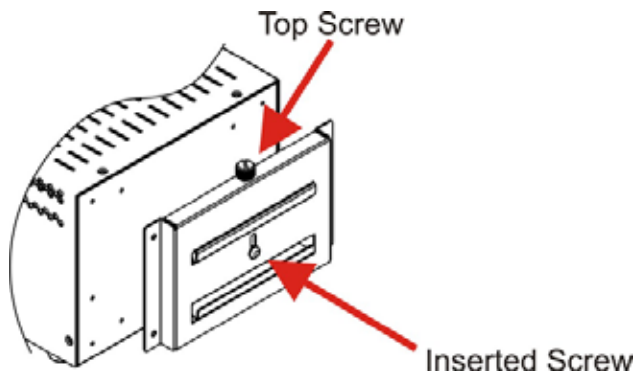
**Step 1:** Attach the DIN rail mounting bracket to the rear of the panel PC. Secure the bracket to the panel PC with the supplied retention screws (**Figure 3-22**).





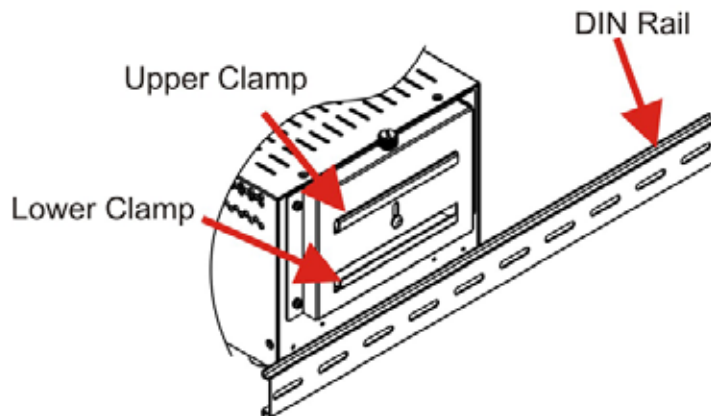
**Figure 3-22: DIN Rail Mounting Bracket**

**Step 2:** Make sure the inserted screw in the center of the bracket is at the lowest position of the elongated hole (**Figure 3-23**).



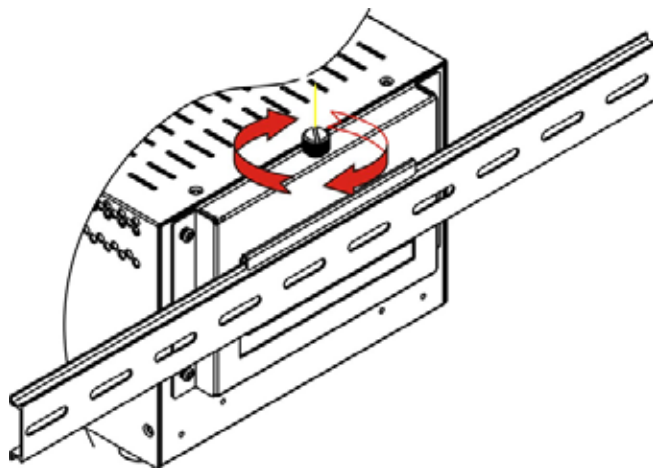
**Figure 3-23: Screw Locations**

**Step 3:** Place the DIN rail flush against the back of the mounting bracket making sure the edges of the rail are between the upper and lower clamps (**Figure 3-24**).



**Figure 3-24: Mounting the DIN RAIL**

- Step 4:** Secure the DIN rail to the mounting bracket by turning the top screw clockwise. This draws the lower clamp up and secures the monitor to the DIN rail (**Figure 3-25**).



**Figure 3-25: Secure the Assembly to the DIN Rail**

## 3.9 Rear Panel Connectors

### 3.9.1 LCD Panel Connection

To connect the EX-93817/EX-93819 flat panel PC to a second monitor, a conventional CRT VGA monitor connector is located on the bottom panel. This panel is a 15-pin, female D-SUB connector.



### 3.9.2 Ethernet Connection

The two rear panel RJ-45 connectors can be connected to an external LAN and provide Internet connectivity to the flat panel PC.

### 3.9.3 USB Connection

The rear panel USB connectors provide easier and quicker access to external USB devices. The rear panel USB connector is a standard connector and can easily be connected to other USB devices.

### 3.9.4 Keyboard and Mouse Connection

One PS/2 connector on the bottom panel facilitates the connection of a mouse and a keyboard. To connect either device, plug the PS/2 connector at the end of the keyboard or mouse cable into the corresponding PS/2 connector on the external peripheral interface panel.

## 3.10 System Maintenance

If the components of the EX-93817/EX-93819 fail they must be replaced. Please contact the system reseller or vendor to purchase the replacement parts. Replacement instructions for the above listed components are described below.



#### **NOTE:**

A user cannot replace a motherboard. If the motherboard fails it must be shipped back to TOPSCCC to be replaced. Please contact the system vendor, reseller or an TOPSCCC sales person directly.

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**Chapter**

**4**

# **Gasket Replacement**

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## 4.1 Gasket Replacement

A gasket used for a long time may gradually lose its ability to protect the monitor from fluids and vapors; scratches or dirt may also accumulate. It is recommended that the gasket be replaced yearly.



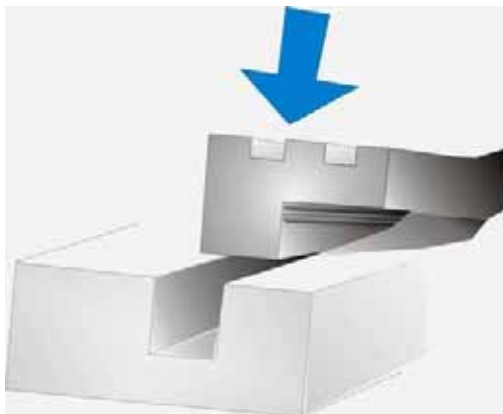
### NOTE:

If the monitor is mounted vertically, first remove it and place it on a flat, level surface with the display screen facing down before changing the gasket.

---

**Step 1:** Remove the old gasket from the sides of the monitor.

**Step 2:** Attach the new gasket to the monitor. Make sure the gasket fits precisely into the groove along the edges of the monitor's front panel (**Figure 4-1**).



**Figure 4-1: Gasket Replacement**



### NOTE:

Compliance with the IP65 standard depends on correct installation of the gasket. Be sure to check that the gasket is properly installed after changing it.

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Chapter

5

# AMI BIOS Setup

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## 5.1 Introduction

A licensed copy of Phoenix Award BIOS is preprogrammed into the ROM BIOS. The BIOS setup program allows users to modify the basic system configuration.

This

chapter describes how to access the BIOS setup program and the configuration options that may be changed.

### 5.1.1 Starting Setup

The Phoenix Award BIOS is activated when the computer is turned on. The setup program can be activated in one of two ways.

1. Press the **DELETE** key as soon as the system is turned on or
2. Press the **DELETE** key when the “**Press Del to enter SETUP**” message appears on the screen.

If the message disappears, restart the computer and try again.

### 5.1.2 Using Setup

Use the arrow keys to highlight items, press **ENTER** to select, use the **PAGEUP** and **PAGEDOWN** keys to change entries, press **F1** for help and press **Esc** to quit. Navigation keys are shown below.

Key	Function
Up arrow	Move to the item above
Down arrow	Move to the item below
Left arrow	Move to the item on the left hand side
Right arrow	Move to the item on the right hand side
+ / Page up	Increase the numeric value or make changes
- / Page down	Decrease the numeric value or make changes
Esc	Main Menu – Quit and do not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu
F1	General help, only for Status Page Setup Menu and Option Page Setup Menu
F2	Item help



F5	Previous values for the page menu items
F6	Fail-safe defaults for the current page menu items
F7	Optimized defaults for the current page menu items
F9	Menu in BIOS
F10	Save changes and Exit BIOS

**Table 5-1: BIOS Navigation Keys**

### **5.1.3 Getting Help**

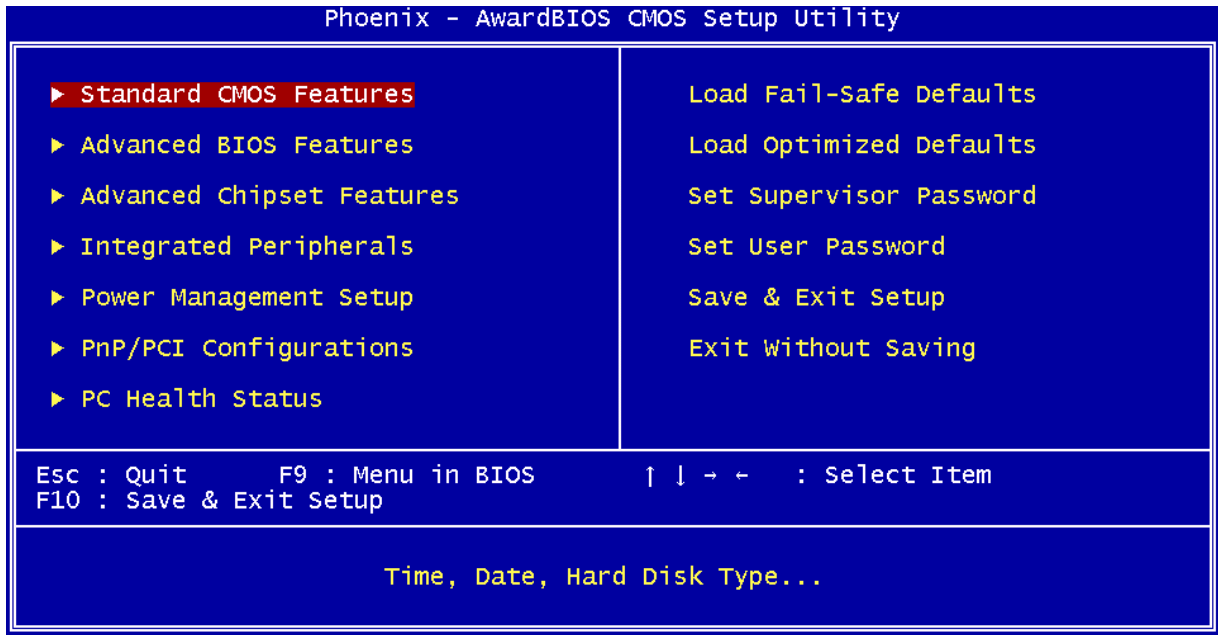
When **F1** is pressed a small help window describing the appropriate keys to use and the possible selections for the highlighted item appears. To exit the Help Window press **Esc** or the **F1** key again.

### **5.1.4 Unable to Reboot After Configuration Changes**

If the system cannot be booted after changes are made, restore the CMOS defaults. The CPU card should come with a restore CMOS settings jumper. Refer to **Section 3.5.4** for more information.

### **5.1.5 Main BIOS Menu**

Once the BIOS opens, the main menu (**BIOS Menu 1**) appears.



#### BIOS Menu 1: Award BIOS CMOS Setup Utility



#### NOTE:

The following sections will completely describe the menus listed below and the configuration options available to users.

The following menu options are seen in BIOS Menu 1.

- ④ **Standard CMOS Features:** Changes the basic system configuration.
- ④ **Advanced BIOS Features:** Changes the advanced system settings.
- ④ **Advanced Chipset Features:** Changes the chipset configuration features.
- ④ **Integrated Peripherals:** Changes the settings for integrated peripherals.
- ④ **Power Management Setup:** Configures power saving options.
- ④ **PnP/PCI Configurations:** Changes the advanced PCI/PnP settings.
- ④ **PC Health Status:** Monitors essential system parameters.

The following user configurable options are also available in **BIOS Menu 1:**



### ↳ **Load Fail-Safe Defaults**

Use the **Load Fail-Safe Defaults** option to load failsafe default values for each BIOS

parameter in the setup menus. Press **F6** for this operation on any page.

### ↳ **Load Optimized Defaults**

Use the **Load Optimized Defaults** option to load optimal default values for each BIOS parameter in the setup menus. Press **F7** for this operation on any page.

### ↳ **Set Supervisor Password**

Use the **Set Supervisor Password** option to set the supervisor password. By default, no supervisor password is set. To install a supervisor password, select this field and enter the password. After this option is selected, a red dialogue box appears with “**Enter Password:** ”. Type the password and press **ENTER**. Retype the original password into the

“**Confirm Password:** ” dialogue box and press **ENTER**. To disable the password, simply press **ENTER** in the “**Enter Password:** ” dialogue box, then press any key in the

“**Password Disabled !!!**” dialogue box.

### ↳ **Set User Password**

Use the **Set User Password** option to set the user password. By default no user password is set. To install a user password, select this field and enter the password. After this option is selected, a red dialogue box appears with “**Enter Password:** ”. Type the password and press **ENTER**. Retype the original password into the “**Confirm Password:** ” dialogue box and press **ENTER**. To disable the password, simply press **ENTER** in the “**Enter Password:** ” dialogue box, then press any key in the “**Password Disabled !!!**” dialogue box.

### ↳ **Save & Exit Setup**

Use the **Save & Exit Setup** option to save any configuration changes made and exit the BIOS menus.

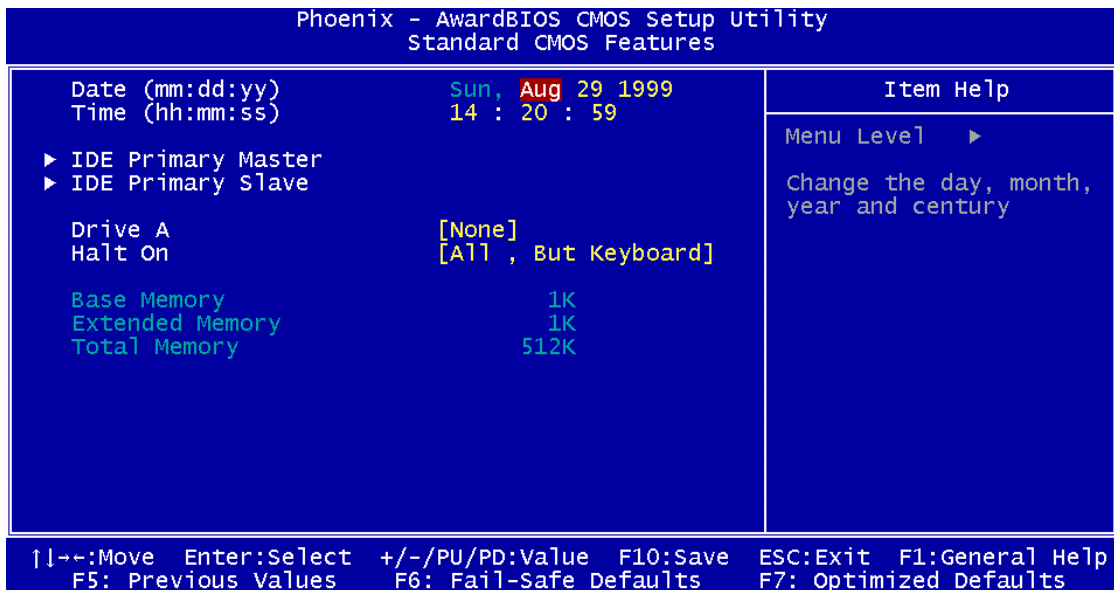
### ↳ **Exit Without Saving**



Use the **Exit Without Saving** option to exit the BIOS menus without saving any configuration changes.

## 5.2 Standard CMOS Features

Use the Standard CMOS Features BIOS menu (**BIOS Menu 2**) to set basic BIOS configuration options.



### BIOS Menu 2: Standard CMOS Features

#### 🔗 Date [Day mm:dd:yyyy]

Use the **Date** option to set the system date.

#### 🔗 Time [hh/mm/ss]

Use the **Time** option to set the system time.

#### 🔗 IDE Master and IDE Slave

When entering setup, BIOS auto detects the presence of IDE devices. The **Standard CMOS Features** menu shows the status of the auto detected IDE devices. The following IDE devices are detected and shown in the **Standard CMOS Features** menu:

- ④ IDE Primary Master



- ④ IDE Primary Slave
- ④ IDE Secondary Master
- ④ IDE Secondary Slave

IDE device configurations are changed or set in the IDE Configuration menu. If an IDE device is detected, and one of the above listed two BIOS configuration options is selected, the IDE configuration options shown in **Section 5.2.1** appear.

#### ☞ Drive A [None]

Use the **Drive A/B** configuration to specify the floppy drive type installed in the system. The floppy drive configuration options are:

- ④ None
- ④ 360K, 5.25 in.
- ④ 1.2M, 5.25 in.
- ④ 720K, 3.5 in.
- ④ 1.44M, 3.5in (Default)
- ④ 2.88M, 3.5 in.

#### ☞ Halt On [All, But Keyboard]

Use the **Halt On** option to specify what errors detected during the power up process stop the system.

- |   |                                    |                                                                                      |
|---|------------------------------------|--------------------------------------------------------------------------------------|
| ☞ | <b>All Errors</b>                  | Whenever BIOS detects a non-fatal error the system is stopped and the user prompted. |
| ☞ | <b>No Errors</b>                   | The system boot is not stopped for any errors that may be detected.                  |
| ☞ | <b>All, But Keyboard</b> (Default) | The system boot does not stop for a keyboard error; it stops for all other errors.   |
| ☞ | <b>All, But Diskette</b>           | The system boot does not stop for a disk error; it stops for all other errors.       |
| ☞ | <b>All, But Disk/Key</b>           | The system boot does not stop for a keyboard                                         |

or a disk error; it stops for all other errors.

#### 🔗 **Base Memory:**

The **Base Memory** is NOT user configurable. The POST determines the amount of base (or conventional) memory installed in the system. The value of the base memory is typically 512K for systems with 512K memory installed, or 640K for systems with 640K or more memory installed.

#### 🔗 **Extended Memory**

The **Extended Memory** is NOT user configurable. The BIOS determines how much extended memory is present during the POST. This is the amount of memory above 1MB located in the memory address map of the CPU.

#### 🔗 **Total Memory**

The **Total Memory** is NOT user configurable.

### **5.2.1 IDE Primary Master/Slave**

Use the IDE Primary Master/Slave menu to set or change the master/slave IDE configurations.

#### 🔗 **IDE HDD Auto-Detection [Press Enter]**

Use the **IDE HDD Auto-Detection** option to enable BIOS to automatically detect the IDE settings. Select **IDE HDD Auto-Detection** and press **ENTER**. BIOS automatically detects the HDD type. Do not set this option manually.

#### 🔗 **IDE Primary Master [Auto]**

Use the **IDE Primary Master** option to activate or deactivate the following drive channels:

- ④ Channel 0 Master
- ④ Channel 0 Slave
- ④ Channel 1 Master
- ④ Channel 1 Slave









#### 🔗 **Cylinder**

The **Cylinder** specification indicates how many cylinders (tracks) are on the HDD installed in the system.

#### 🔗 **Head**

The **Head** specification indicates how many logical heads are on the HDD installed in the system.

#### 🔗 **Precomp**

The **Precomp** specification indicates on what track the write precompensation begins.

#### 🔗 **Landing Zone**

The **Landing Zone** specification indicates where the disk head will park itself after the system powers off.

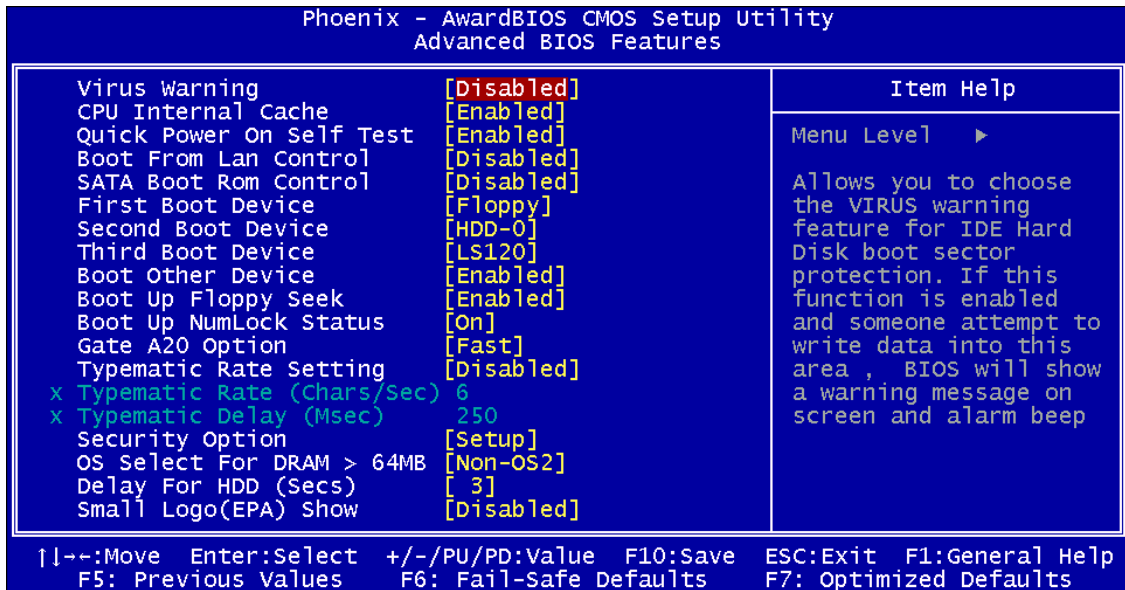
#### 🔗 **Sector**

The **Sector** specification indicates how many logical sectors the HDD has been divided into.

### 5.3 Advanced BIOS Features

Use the **Advanced BIOS Features** menu (**BIOS Menu 3**) to configure the CPU and peripheral device configuration options.





### BIOS Menu 3: Advanced BIOS Features

#### ☞ Virus Warning [Disabled]



#### NOTE:

Many disk diagnostic programs can cause the above warning message to appear when the program attempts to access the boot sector table. If you are running such a program, it is recommended that the virus protection function be disabled beforehand.

Use the **Virus Warning** option to enable BIOS to monitor the boot sector and partition table of the HDD for any attempted modification. If a modification attempt is made, the BIOS halts the system and an error message appears. If necessary, an anti-virus program can then be run to locate and remove the virus before any damage is done.



#### Enabled

Activates automatically when the system boots up

causing warning message to appear when a anything

attempts to access the boot sector or HDD partition table.



#### Disabled (Default)

No warning message appears when there is an attempt



to access the boot sector or HDD partition table.

#### CPU Internal Cache [Enabled]

Use the **CPU Internal Cache** option to en

able or disable  
the internal  
CPU cache.

**Disabled** The intern

**Enabled** (Default) The intern

al CPU cache is

#### Quick Power On Self Test [Enabled]

Use the **Quick Power On Self Test** option t  
turned on. If enabled, BIOS shortens or skips

o speed up the  
POST after the  
computer is

**Disabled** Normal POST

some POST  
check items.

**Enabled** (Default) Quick POST o

ccurs after the

#### Boot From LAN Control [Disabled]

Use the **BOOT From LAN Control**  
option t  
remote system.

o enable the  
system to be  
booted from a

**Disabled** (Default) The syste  
through t

**Enabled** The syst

through the LAN.

em connect to  
LAN  
.

#### SATA Boot ROM Control [Disabled]

Use the **SATA Boot ROM Control** option t

o configure  
SATA IDE use  
in DOS mode.

**Disabled** (Default) Disables S

**Enabled** Enables SA

IDE use in

## 🔗 **Boot Device**

Use the **Boot Device** options to select the order of the devices the system boots from.

There are three boot device configuration options:

- ④ **First Boot Device** [Default: HDD-0]
- ④ **Second Boot Device** [Default: CDROM]
- ④ **Third Boot Device** [Default: SCSI]

Using the default values, the system first looks for a HDD to boot from. If it cannot find an HDD, it boots from a CD-ROM. If both The HDD and the CD-ROM are unavailable, the system boots from a SCSI drive.

Boot Device configuration options are:

- ④ Floppy
- ④ LS120
- ④ HDD-0
- ④ SCSI
- ④ CDROM
- ④ HDD-1
- ④ HDD-2
- ④ HDD-3
- ④ ZIP100
- ④ USB-FDD
- ④ USB-ZIP
- ④ USB-CDROM
- ④ USB-HDD
- ④ LAN
- ④ Disabled

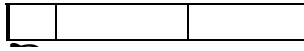
## 🔗 **Boot Other Device [Enabled]**

Use the **Boot Other Device** option to determine whether the system uses a second or third boot device if the first boot device is not found.

🔗 **Disabled**  
boot

The system does not look for second and third

devices if the first one is not found.



The system looks for second and third boot devices if the first one is not found.

### ❏ **Boot Up Floppy Seek [Disabled]**

Use the **Boot Up Floppy Seek** option to enable the BIOS to determine if the floppy disk drive installed has 40 or 80 tracks during the POST. 360K, 760K, 1.2M and 1.44M FDDs all have 80 tracks while

360K FDDs have 40 tracks while

❏ **Disabled** (Default) BIOS does not check the track number. Note that BIOS cannot tell the difference between floppy disk drive installed if the floppy disk drive has 40 tracks.

k  
s

❏ **Enabled** BIOS searches for floppy disk drives with 40 tracks. Note that BIOS cannot tell the difference between floppy disk drives as they all have 80 tracks.

3  
6

### ❏ **Boot Up Numlock Status [On]**

Use the **Boot Up Numlock Status** option to specify the default state of the numeric keypad.

to specify the default state of the numeric keypad.

❏ **Off** The keys on the numeric keypad are disabled.  
❏ **On** (Default) Activates the keyboard numeric keypad.

e

### ❏ **Gate A20 Option [Fast]**

Use the **Gate A20 Option** option to set if the keyboard controller or the chipset controls the Gate A20 switching.

to specify the keyboard controller or the chipset controls the Gate A20 switching.

❏ **Normal** The keyboard controller controls the Gate A20 switching.

❏ **Fast** (Default) The chipset controls the Gate A20 switching.

e





## Typematic Rate Setting [Disabled]

Use the **Typematic Rate Setting** configuration option to specify if only one character is allowed to appear on the screen if a key is continuously held down. When this option is enabled, the BIOS reports as before, but if the key has been continuously held down, it begins to report that the key has been accelerated. This option accelerates cursor movement with the arrow keys.

on option to specify if only one character is

continuously held down. When this option is

n waits a moment, and, if the key is still held

- Disabled (Default) Disables the typematic rate setting.
- Enabled Enables the typematic rate setting.

p

## Typematic Rate (Chars/sec) [6]

The **Typematic Rate** option can only be configured if the **Typematic Rate Setting** is enabled. Use the **Typematic Rate** option to specify the rate keys are accelerated.

- 6 (Default) 6 characters per second
- 8 8 characters per second
- 10 10 characters per second
- 12 12 characters per second
- 15 15 characters per second
- 20 20 characters per second
- 24 24 characters per second
- 30 30 characters per second

## Typematic Delay (Msec) [250]

The **Typematic Rate** option can only be configured if the **Typematic Rate Setting** is enabled. Use the **Typematic Delay** option to specify the delay time between when a key is first pressed and when the acceleration begins.

- 250 (Default) 250 milliseconds



<input type="checkbox"/>		500 milliseconds
<input checked="" type="checkbox"/>	500	
<input type="checkbox"/>	750	750 milliseconds
<input type="checkbox"/>		1000 milliseconds

### Security Option [Setup]

Use the **Security Option** to limit access to both the system and Setup, or just Setup.

<input checked="" type="checkbox"/>	<b>Setup</b>	(Default)	The system will not boot if the correct password is not entered at the prompt.
<input checked="" type="checkbox"/>	<b>System</b>		The system will not boot if the correct password is not entered at the prompt.



### NOTE:

To disable security, select the password setting in the Main Menu. When asked to enter a password, don't type anything, press **ENTER** and the security is disabled. Once the security is disabled, the system boots and Setup can be accessed.

### OS Select For DRAM > 64MB [Non-OS2]

Use the **OS Select For DRAM > 64MB** option to specify the operating system.

<input checked="" type="checkbox"/>	<b>Enabled</b>		Specifies the operating system.
<input checked="" type="checkbox"/>	<b>Disabled</b>	(Default)	Select the operating system.

### Video BIOS Shadow [Enabled]

Use the **Video Bios Shadow** option to enable video BIOS to be copied to RAM.



**Disabled** Video BIOS is not copied to RAM.

**Enabled** (Default) Video BIOS is copied to RAM.

#### **Delay for HDD (secs) [3]**

Use the **Delay for HDD** option to specify the period of time the system should wait before the HDD is identified. If selected, the user is asked to enter a number between 0 and 15. The number specified is the number of seconds the system waits before the HDD is identified.

#### **Small Logo (EPA) Show [Disabled]**

Use the **Small Logo (EPA) Show** option. Agency (EPA) logo appears during the system boot-up process may be delayed.

to specify if the Environmental Protection

Agency (EPA) logo appears during the system boot-up process. If enabled, the

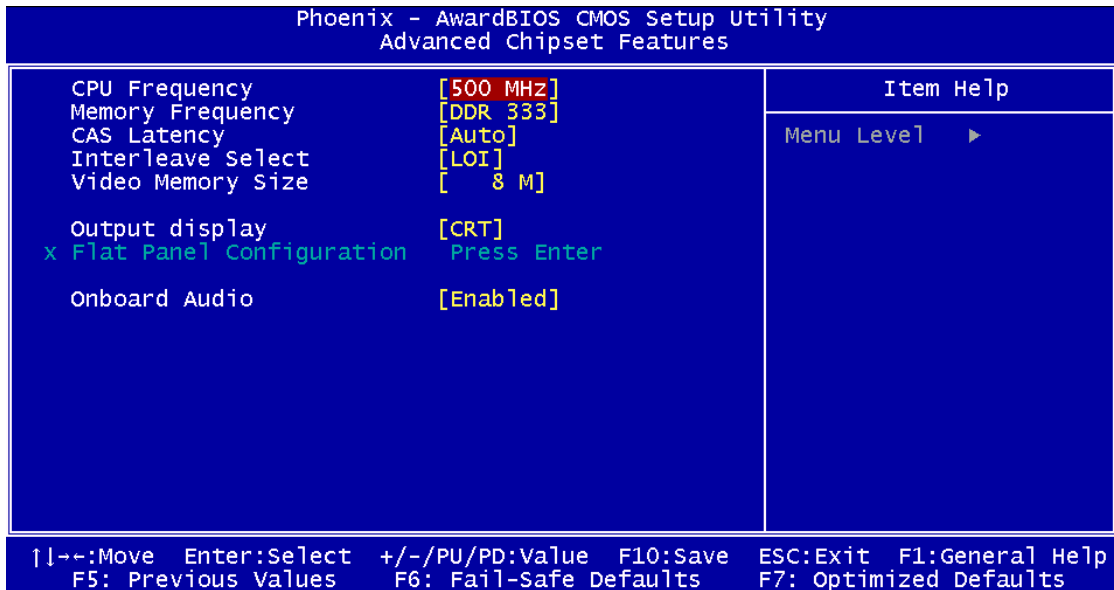
**Disabled** (Default) EPA logo does not appear.

**Enabled** EPA logo appears during the system boot-up process.

a

## 5.4 Advanced Chipset Features

Use the Advanced Chipset Features menu (**BIOS Menu 4**) to change chipset configuration options.



#### BIOS Menu 4: Advanced Chipset Features

##### 🔍 CPU Frequency [500MHz]

Use the **CPU Frequency** option to set the CPU frequency. The **CPU Frequency** options are:

- ④ Auto
- ④ 200MHz
- ④ 333MHz
- ④ 400MHz
- ④ 433MHz
- ④ 500MHz (Default)

##### 🔍 Memory Frequency [333MHz]

Use the **Memory Frequency** option to set the frequency of the installed DRAM modules. The **Memory Frequency** options are:

- ④ 200MHz
- ④ 266MHz
- ④ 333MHz (Default)
- ④ 400MHz

### ☞ CAS Latency [Auto]

Use the **CAS Latency Time** option to set the Column Address Strobe (CAS) delay time.

The **CAS Latency Time** options are:

- ④ Auto (Default)
- ④ 1.5 nanoseconds
- ④ 2.0 nanoseconds
- ④ 2.5 nanoseconds
- ④ 3.0 nanoseconds
- ④ 3.5 nanoseconds

### ☞ Interleave Select [LOI]

Use the **Interleave Select** option to speci

fy how the  
cache  
memory is  
interleaved.

☞ **LOI** (Default) Low order

☞ **HOI** High order

interleaving

### ☞ Video Memory Size [8M]

Use the **Video Memory Size** option to determine how much memory is allocated to the video graphics device. The **Video Memory Size** options are:

- ④ None
- ④ 8M (Default)
- ④ 16M
- ④ 32M
- ④ 64M
- ④ 128M
- ④ 254M

### ☞ Output Display [Panel & CRT]

Use the **Output Display** configuration to specify the display devices the system is connected to. The **Output Display** options are:

- ④ Flat Panel



- ④ CRT
- ④ Panel & CRT (Default)

#### Flat Panel Configuration [Press Enter]

Use the Flat Panel Configuration option to open the Flat Panel Configuration menu. The Flat Panel Configuration options are shown in Section 5.4.1.

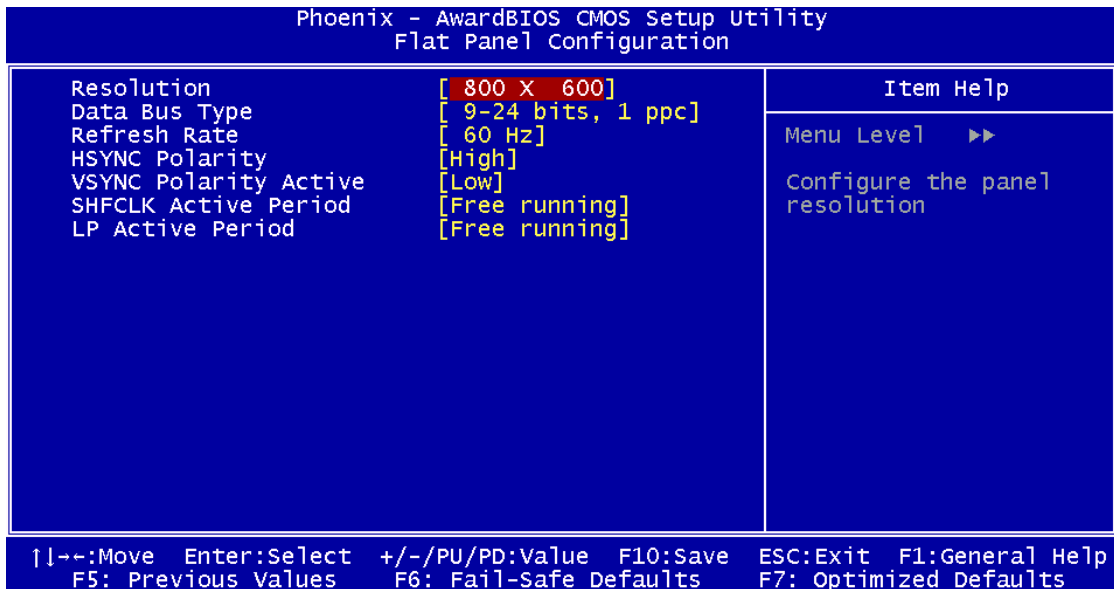
#### OnBoard Audio [Enabled]

Use the **OnBoard Audio** option to enable or disable the onboard codec.

- Disabled The onboard codec is disabled.
- Enabled (Default) The onboard codec is enabled.

### 5.4.1 Flat Panel Configuration

Use the **Flat Panel Configuration** menu (**BIOS Menu 5**) to set the configuration settings for the flat panel screen connected to the system.



#### BIOS Menu 5: Flat Panel Configuration

### 🔗 **Resolution [800 x 600]**

The **Resolution** option can only be configured if the **Flat Panel Type** option is not set to **Auto**. Use the **Resolution** option to set the resolution of the flat panel screen connected to the system. The **Resolution** options are:

- ④ 320 x 240
- ④ 640 x 480
- ④ 800 x 600 (Default)
- ④ 1024 x 768
- ④ 1152 x 864
- ④ 1280 x 1024
- ④ 1600 x 1200

### 🔗 **Data Bus Type [9 – 24 bits, 1 ppc]**

The **Data Bus Type** option can only be configured if the **Flat Panel Type** option is not set to **Auto**. Use the **Data Bus Type** option to set the bus type and the data bus width used to transfer data between the system and the flat panel screen connected to the system. The **Data Bus Type** options are:

- ④ 9-24 bits, 1 ppc (Default)
- ④ 18, 24 bits, 2 ppc

### 🔗 **Refresh Rate [60Hz]**

The **Refresh Rate** option can only be configured if the **Flat Panel Type** option is not set to **Auto**. Use the **Refresh Rate** option to set the screen refresh rate required by the panel connected to the system. Check the documentation that came with the panel before setting this option. The **Refresh Rate** options are:

- ④ 60Hz (Default)
- ④ 70Hz
- ④ 72Hz
- ④ 75Hz
- ④ 85Hz
- ④ 90Hz
- ④ 100Hz

#### 🔍 **HSYNC Polarity [High]**

The **HSYNC Polarity** option can only be configured if the **Flat Panel Type** option is not set to **Auto**. Use the **HSYNC Polarity** option to set the polarity of the HSYNC signal to the panel. The **HSYNC Polarity** options are:

- ④ High
- ④ Low (Default)

#### 🔍 **VSYNC Polarity Active [Low]**

The **VGSYNC Polarity Active** option can only be configured if the **Flat Panel Type** option is not set to **Auto**. Use the **VGSYNC Polarity Active** option to set the polarity of the

VSYNC signal to the panel. The **VGSYNC Polarity Active** options are:

- ④ High
- ④ Low (Default)

#### 🔍 **SHFCLK Active Period [Free Running]**

Use the **SHFCLK Active Period** option to set the SHFCLK. The **SHFCLK Active Period** options are:

- ④ Active Only
- ④ Free running (Default)

#### 🔍 **LP Active Period [Free Running]**

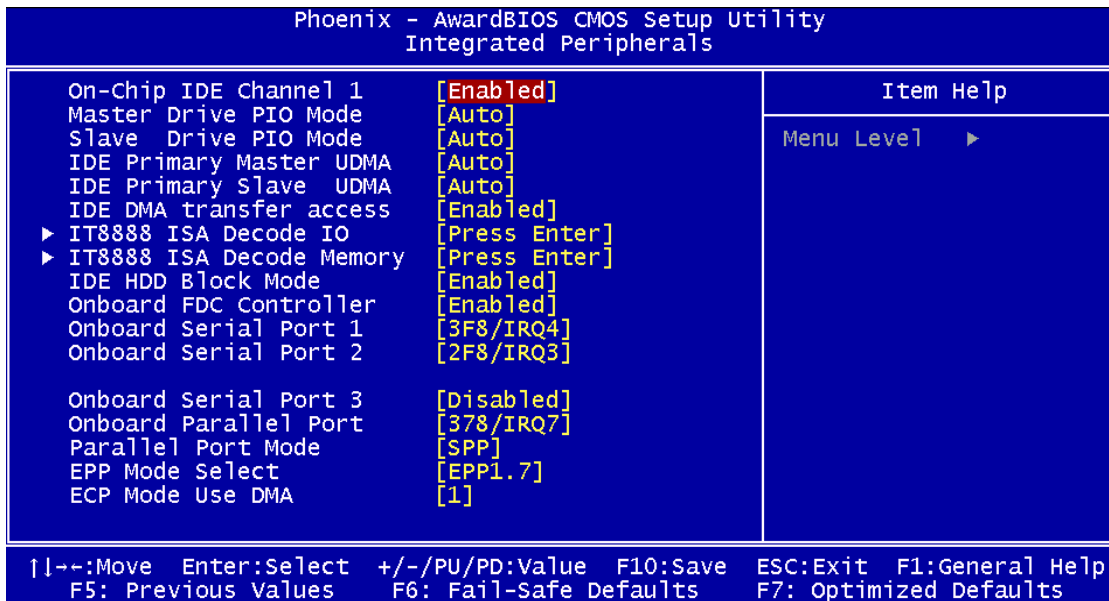
Use the **LP Active Period** option to set the LDE/MOD signal to the panel. The **LP Active Period** options are:

- ④ Active Only
- ④ Free running (Default)

## 5.5 Integrated Peripherals

Use the Integrated Peripherals menu (BIOS Menu 6) to change the configuration options for the attached peripheral devices.





## BIOS Menu 6: Integrated Peripherals

### On-Chip IDE Channel 1 [Enabled]

Use the **On-Chip IDE Channel 1** option to specify if the system uses the integrated primary IDE channel or not.

specify if the system uses the integrated

- Disabled The primary I
- Enabled (Default) The primary I

D

### Drive PIO Mode [Auto]

Use the **Drive PIO Mode** options below to select the Programmed Input/Output (PIO)

mode for the following HDDs:

- ④ Master Drive PIO Mode
- ④ Slave Drive PIO Mode

**Auto** (Default) The computer selects the correct mode.

**Mode 0** PIO mode 0 selected with a maximum transfer rate of 3.3MBps.

**Mode 1** PIO mode 1 selected with a maximum transfer rate of 5.2MBps.

- ❏ **Mode 2**                      PIO mode 2 selected with a maximum transfer rate of 8.3MBps.
- ❏ **Mode 3**                      PIO mode 3 selected with a maximum transfer rate of 11.1MBps.
- ❏ **Mode 4**                      PIO mode 4 selected with a maximum transfer rate of 16.6MBps.
- ❏ **Mode 5**                      PIO mode 5 selected with a maximum transfer rate of 22.2MBps.

#### ❏ **IDE UDMA [Auto]**

Use the **IDE UDMA** option below to select the Ultra DMA (UDMA) mode for the following HDDs:

- ④ IDE Primary Master UDMA
- ④ IDE Primary Slave UDMA

- ❏ **Auto**                      (Default)      The computer selects the correct UDMA.
- ❏ **Disabled**                      The UDMA for the HDD device is disabled.

#### ❏ **IT8888 ISA Decode IO**

Use the IT8888 ISA Decode IO menu (**BIOS Menu 7**) to set the IO memory range for the onboard ISA. See **Section 5.5.1**.

#### ❏ **IT8888 ISA Decode Memory**

Use the **IT8888 ISA Decode Memory (BIOS Menu 8)** to set the resources for the onboard ISA bus. See **Section 5.5.2**.

#### ❏ **IDE HDD Block Mode [Enabled]**

If the drive connected to the system supports block mode, use the **IDE HDD Block Mode** option to enable the system to detect the optimal number of block read/writes per sector the system IDE drive can support. Block mode is also called block transfer, multiple commands, or multiple sector read/write.



❏ **Disabled** Block mode is not supported.

❏ **Enabled** (Default) Block mode is supported.

#### ❏ **Onboard FDC Controller [Disabled]**

Use the **Onboard FDC Controller** option controller. If the system is not connected to a floppy disk or uses an adapter for the FDD, this option can be disabled.

to enable or disable the onboard floppy disk or uses an adapter for the FDD,

❏ **Disabled** (Default) The FDD con

❏ **Enabled** The FDD con t

#### ❏ **Onboard Serial Port 1 [3F8/IRQ4]**

Use the **Onboard Serial Port 1** option to select the I/O address and IRQ for the onboard serial port 1. The serial port can be disabled or the I/O address and the IRQ can be automatically selected by the BIOS. The **Onboard Serial Port 1** options are:

- ④ Disabled
- ④ 3F8/IRQ4 (Default)
- ④ 2F8/IRQ3
- ④ 3E8/IRQ4
- ④ 2E8/IRQ3
- ④ Auto

#### ❏ **Onboard Serial Port 2 [2F8/IRQ3]**

Use the **Onboard Serial Port 2** option to select the I/O address and IRQ for the onboard serial port 2. The serial port can be disabled or the I/O address and the IRQ can be automatically selected by the BIOS. The **Onboard Serial Port 2** options are:

- ④ Disabled
- ④ 3F8/IRQ4
- ④ 2F8/IRQ3 (Default)
- ④ 3E8/IRQ4
- ④ 2E8/IRQ3





- ④ Auto

#### 🔍 **Onboard Serial Port 3 [Disabled]**

Use the **Onboard Serial Port 3** option to select the I/O address and IRQ for the onboard serial port 2. The serial port can be disabled or the I/O address and the IRQ can be automatically selected by the BIOS. The **Onboard Serial Port 3** options are:

- ④ Disabled (Default)
- ④ 3F8/IRQ4
- ④ 2F8/IRQ3
- ④ 3E8/IRQ4
- ④ 2E8/IRQ3
- ④ Auto

#### 🔍 **Onboard Parallel Port [378/IRQ7]**

Use the **Onboard Parallel Port** option to specify a logical LPT port address and corresponding interrupt for the physical parallel port. The **Onboard Parallel Port** options are:

- ④ Disabled
- ④ 378/IRQ7 (Default)
- ④ 278/IRQ5
- ④ 3BC/IRQ7

#### 🔍 **Parallel Port Mode [SPP]**

Use the **Parallel Port Mode** option to select parallel port operation mode.

🔍 **SPP** (Default) The parallel port operates in the standard parallel port (SPP) mode. This parallel port mode works with most parallel port devices but is slow.

🔍 **EPP** The parallel port operates in the enhanced parallel port mode (EPP). The EPP mode supports bi-directional communication between the system and the parallel



port device and the transmission rates between the two are much faster than the SPP mode.

### ❏ **ECP**

The parallel port operates in the extended capabilities port (ECP) mode. The ECP mode supports bi-directional communication between the system and the parallel port device and the transmission rates between the two are much faster than the SPP mode.

### ❏ **ECP+EPP**

The parallel port is compatible with both ECP and EPP devices.

### ❏ **Normal**

## ❏ **EPP Mode Select [EPP1.7]**

The **EPP Mode Select** option is only available in EPP mode. Use the **EPP Mode Select** option to select the parallel port mode standard.

le if the **Parallel Port Mode** option is set to

to select the parallel port mode standard for

❏ **EPP1.9** EPP 1.9 is selected as the

❏ **EPP1.7** (Default) EPP 1.7 is selected as the

lected as the

## ❏ **ECP Mode Use DMA [1]**

The **ECP Mode Use DMA** option is only available in ECP mode. Use the **ECP Mode Use DMA** option to specify the DMA channel that the parallel port must use in the ECP mode.

lable if the **Parallel Port Mode** option is set

**MA** option to specify the DMA

❏ **1** (Default) The parallel port uses DMA channel 1.

❏ **3** The parallel port uses DMA channel 3.

prt uses



## 5.5.1 IT8888 ISA Decode IO



### NOTE:

Five PCI-104 devices can be stacked onto the EXPERT-LX motherboard. If these devices are stacked onto the board, the ISA bus space should be enabled. If no PCI-104 devices are being used, disable all the buses. Disabling these buses frees up system resources that can be allocated to other system applications.

Use the IT8888 ISA Decode IO menu (**BIOS Menu 7**) to set the IO memory range for the onboard ISA.

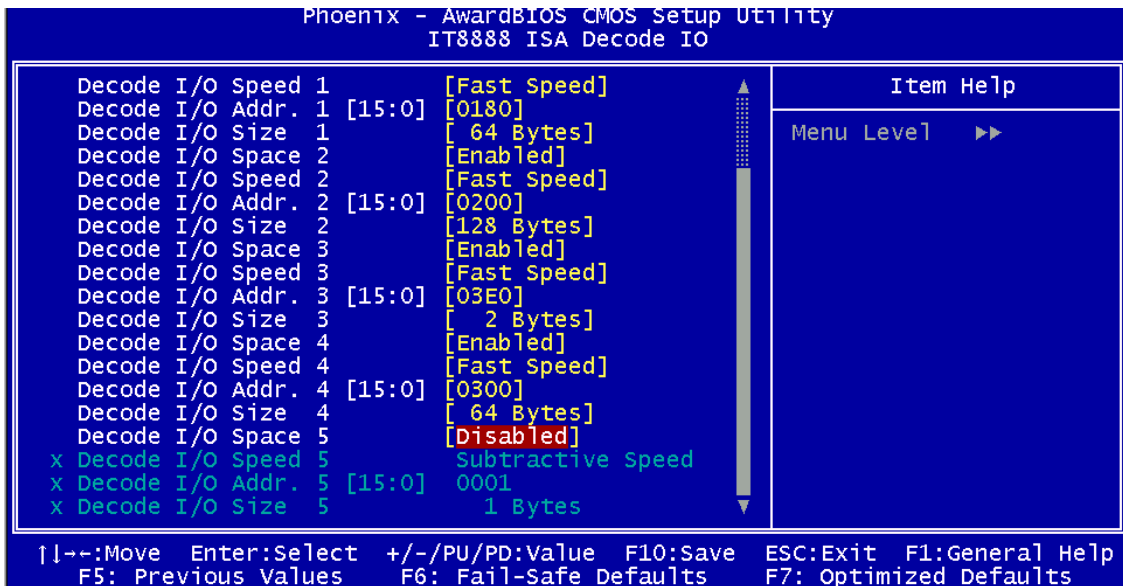
```
Phoenix - AwardBIOS CMOS Setup Utility
IT8888 ISA Decode IO

Decode I/O Space 0      [Enabled]
Decode I/O Speed 0     [Fast Speed]
Decode I/O Addr. 0 [15:0] [0100]
Decode I/O Size 0      [ 64 Bytes]
Decode I/O Space 1     [Enabled]
Decode I/O Speed 1     [Fast Speed]
Decode I/O Addr. 1 [15:0] [0180]
Decode I/O Size 1      [ 64 Bytes]
Decode I/O Space 2     [Enabled]
Decode I/O Speed 2     [Fast Speed]
Decode I/O Addr. 2 [15:0] [0200]
Decode I/O Size 2      [128 Bytes]
Decode I/O Space 3     [Enabled]
Decode I/O Speed 3     [Fast Speed]
Decode I/O Addr. 3 [15:0] [03E0]
Decode I/O Size 3      [ 2 Bytes]
Decode I/O Space 4     [Enabled]
Decode I/O Speed 4     [Fast Speed]
Decode I/O Addr. 4 [15:0] [0300]

Item Help
Menu Level >>>

↑↓←→:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help
F5: Previous Values  F6: Fail-Safe Defaults  F7: Optimized Defaults
```





### BIOS Menu 7: IT8888 ISA Decode IO

The IT8888 ISA Decode IO menu has the following common options:

- ④ Decode I/O Space N
- ④ Decode I/O Speed N
- ④ Decode I/O Addr. N [15:0]
- ④ Decode I/O Size N

Where N is an integer in the set [1, 2, 3, 4, 5] and represents a set for the PCI-104 devices that are attached to the system.

#### 🔍 Decode IO Space N [Enabled]

Use the **Decode IO Space N** option to allocate system resources to the Nth ISA bridge and to enable the Nth PCI-104 to function correctly.

Use the **Decode IO Space N** option to allocate system resources to the Nth ISA bridge and to enable the Nth PCI-104 to function correctly.

🔍 **Disabled**      The Nth IO resources are not allocated to the Nth ISA bus.

Use the **Decode IO Space N** option to allocate system resources to the Nth ISA bridge and to enable the Nth PCI-104 to function correctly.

🔍 **Enabled** (Default)      The Nth IO resources are allocated to the Nth ISA bus.

Use the **Decode IO Space N** option to allocate system resources to the Nth ISA bridge and to enable the Nth PCI-104 to function correctly.



#### 🔗 **Decode IO Speed N [Fast Speed]**

Use the **Decode IO Speed N** option to specify the speed of the Nth ISA bus. The following options are available:

- ④ Fast Speed
- ④ Middle Speed
- ④ Slow Speed
- ④ Subtractive Speed

#### 🔗 **Decode IO Address N 0:15 [xx]**

Use the **Decode IO Address N 0:15** option to allocate an address to the ISA bus. The address may range from **0001** to **FFFF**.

#### 🔗 **Decode IO Size N [Fast Speed]**

Use the **Decode IO Size N** option to specify the size of the ISA bus. The following options are available:

- ④ 1 Byte
- ④ 2 Bytes
- ④ 4 Bytes
- ④ 8 Bytes
- ④ 16 Bytes
- ④ 32 Bytes
- ④ 64 Bytes
- ④ 128 Bytes



## 5.5.2 IT8888 ISA Decode Memory



### NOTE:

Five PCI-104 devices can be stacked onto the EXPERT-LX motherboard. If these devices are stacked onto the board, the ISA memory should be enabled. If no PCI-104 devices are being used, disable all the memory allocations for these buses. Disabling the memory allocations frees up system resources that can be allocated to other system applications.

Use the IT8888 ISA Decode Memory (**BIOS Menu 8**) to set the resources for the onboard ISA bus.

```
Phoenix - AwardBIOS CMOS Setup Utility
IT8888 ISA Decode Memory

Decode Memory Space 0      [Enabled]
Decode Memory Speed 0     [Fast Speed]
Decode Memory Addr. 0     [D00]
Decode Memory Size 0      [ 64 KB]
Decode Memory Space 1     [Disabled]
x Decode Memory Speed 1   Subtractive Speed
x Decode Memory Addr. 1   000
x Decode Memory Size 1   16 KB
Decode Memory Space 2     [Disabled]
x Decode Memory Speed 2   Subtractive Speed
x Decode Memory Addr. 2   000
x Decode Memory Size 2   16 KB
Decode Memory Space 3     [Disabled]
x Decode Memory Speed 3   Subtractive Speed
x Decode Memory Addr. 3   000
x Decode Memory Size 3   16 KB

Item Help
Menu Level  ►►

| |←→:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help
F5: Previous Values  F6: Fail-Safe Defaults  F7: Optimized Defaults
```

### BIOS Menu 8: IT8888 ISA Decode Memory

The IT8888 ISA Decode IO menu has the following common options:

- ④ Decode Memory Space N
- ④ Decode Memory Speed N
- ④ Decode Memory Addr. N [15:0]
- ④ Decode Memory Size N

Where N is an integer in the set [1, 2, 3, 4, 5] and represents a memory set for the PCI-104 devices that are attached to the system.

#### ☞ Decode Memory Space N [Enabled]

Use the **Decode IO Memory N** option to allocate memory resources to the ISA bridge and to enable the PCI-104 to function correctly.

ate memory resources to the ISA bridge and

##### ☞ Disabled

The Nth memory resource

is reallocated to other applications.

##### ☞ Enabled (Default)

The Nth memory resources are allocated to the ISA bus.

#### ☞ Decode Memory Speed N [Fast Speed]

Use the **Decode Memory Speed N** option to specify the memory speed of the ISA bus. The following options are available:

- ④ Fast Speed
- ④ Middle Speed
- ④ Slow Speed
- ④ Subtractive Speed

#### ☞ Decode Memory Address N [xx]

Use the **Decode Memory Address N** option to allocate an address to the memory of the ISA bus. The address may range from **0001** to **FFFF**.

#### ☞ Decode Memory Size N [xx]

Use the **Decode Memory Size N** option to specify the memory size of the ISA bus. The following options are available:

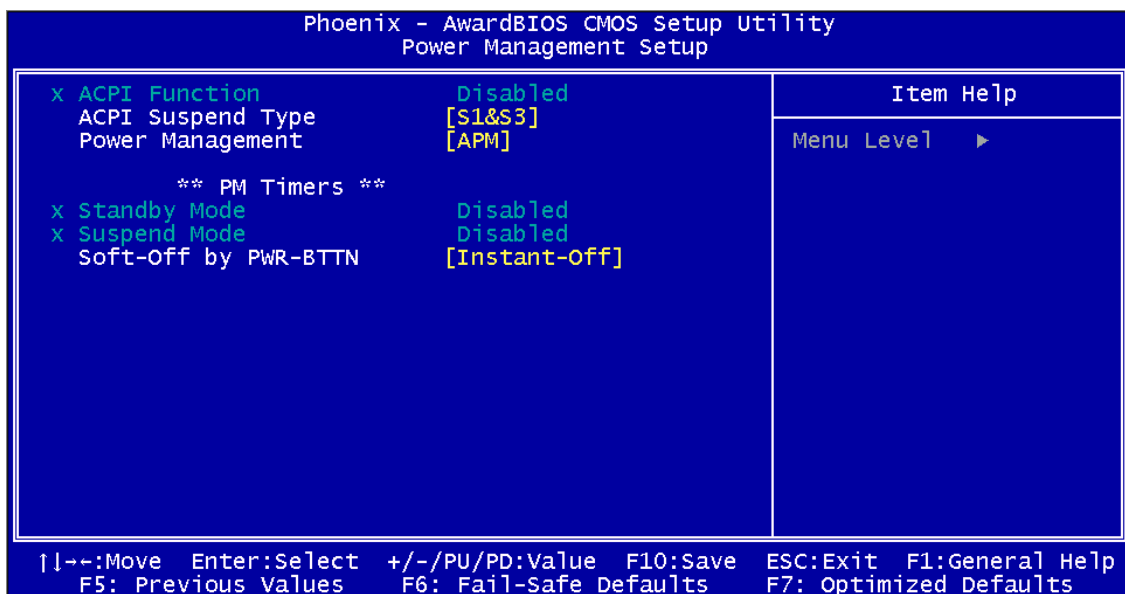
- ④ 16 KB
- ④ 32 KB
- ④ 64 KB
- ④ 128 KB



- ④ 256 KB
- ④ 512 KB
- ④ 1 MB
- ④ 2 MB

## 5.6 Power Management Setup

Use the **Power Management Setup** menu (**BIOS Menu 9**) to set the BIOS power management and saving features.



### BIOS Menu 9: Power Management Setup

#### ACPI Function [Disabled]

Use the **ACPI Function** to enable the ACPI (Advanced Configuration and Power Interface) function.

Advanced Configuration and Power Interface)

**Disabled** ACPI function dis

**Enabled** (Default) ACPI function en

a

## ❏ ACPI Suspend Type [S1(POS)]

Use the **ACPI Suspend Type** BIOS option to specify the sleep state the system enters when not being used.

to specify the sleep state the system enters

❏ **S1 (POS)** (Default) System app

refreshed, the

system is running in a low power mode.

❏ **S3 (STR)** System app

slow refresh mode.

ars off. The CPU has no power. RAM is

❏ **S1 & S3** Both suspend

modes are

## ❏ Power Management [ACPI]

Use the **Power Management** option to set the power management type used by the system.

the power management type used by the

❏ **Disabled** All power ma

user config alarm settings

management

❏ **Legacy** Standby and

suspend modes can be set

❏ **APM** (Default) Advanced po

wer management (APM) is

❏ **ACPI** Advanced C

activated.

onfiguration and

## ❏ x Standby Mode [Disabled]

The **Standby Mode** option can only be selected if the **Power Management** option is set to Legacy. The **Standby Mode** specifies the amount of time the system can be inactive before the system enters standby mode. The **Standby Mode** options are:

- ④ Disabled (Default)





- ④ 1 Sec
- ④ 5 Sec
- ④ 10 Sec
- ④ 15 Sec
- ④ 30 Sec
- ④ 45 Sec
- ④ 1 Min
- ④ 5 Min
- ④ 10 Min
- ④ 15 Min
- ④ 30 Min
- ④ 45 Min
- ④ 60 Min
- ④ 90 Min
- ④ 120 Min

#### 🔍 x Suspend Mode [Disabled]

The **Suspend Mode** option can only be selected if the **Power Management** option is set to Legacy. The **Suspend Mode** specifies the amount of time the system can be inactive before the system enters suspend mode. The **Suspend Mode** options are:

- ④ Disabled (Default)
- ④ 1 Sec
- ④ 5 Sec
- ④ 10 Sec
- ④ 15 Sec
- ④ 30 Sec
- ④ 45 Sec
- ④ 1 Min
- ④ 5 Min
- ④ 10 Min
- ④ 15 Min
- ④ 30 Min
- ④ 45 Min
- ④ 60 Min

- ④ 90 Min
- ④ 120 Min

### ☞ Soft-Off by PWR-BTTN [Instant-Off]

Use the **Soft-Off by PWR-BTTN** option to enabled the system to enter a very low-power-usage state when the power butto

n to enabled the system to enter a very

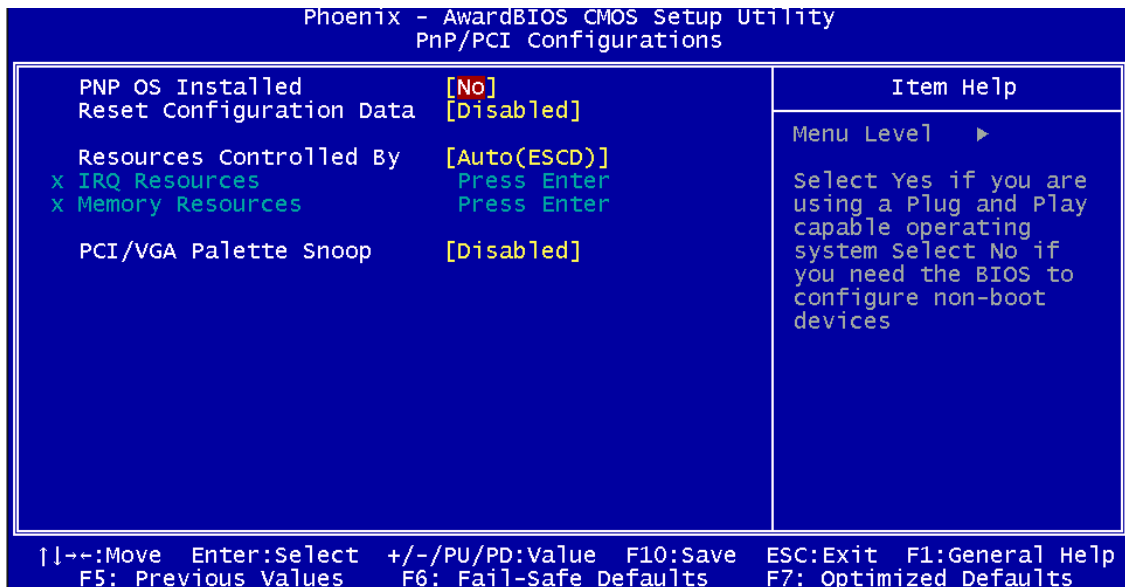
☞ **Instant-Off** (Default) When the immediately

☞ **Delay 4-sec** To shutdown down longer than four seconds otherwise the system

enters a low power usage state.

## 5.7 PnP/PCI Configurations

Use the PnP/PCI Configurations menu (**BIOS Menu 10**) to set the plug and play, and PCI options.



**BIOS Menu 10: PnP/PCI Configurations**



### PNP OS Installed [No]

The **PNP OS Installed** option determines whether the system are configured by the operating system.

whether the Plug and Play devices connected to

**No** (Default) If the operating specifications, BIOS

s  
t

**Yes** Set this option if the

configures all the devices in the system.

operating systems. The operating system changes the

interrupt, I/O, and DMA settings.

### Reset Configuration Data [Disabled]

Use the **Reset Configuration Data** option to reset the Extended System Configuration Data (ESCD) when exiting setup if booting problems occur.

to reset the Extended System Configuration

**Disabled** (Default) ESCD will not be

blems occur after a new address

**Enabled** ESCD will be

reconfigured

### Resources Controlled By [Auto (ESCD)]

Use the **Resources Controlled By** option to either manually configure all the boot and plug and play devices, or allow BIOS to configure these devices automatically. If BIOS is allowed to configure the devices automatically IRQs, DMA and memory base address fields cannot be set manually.

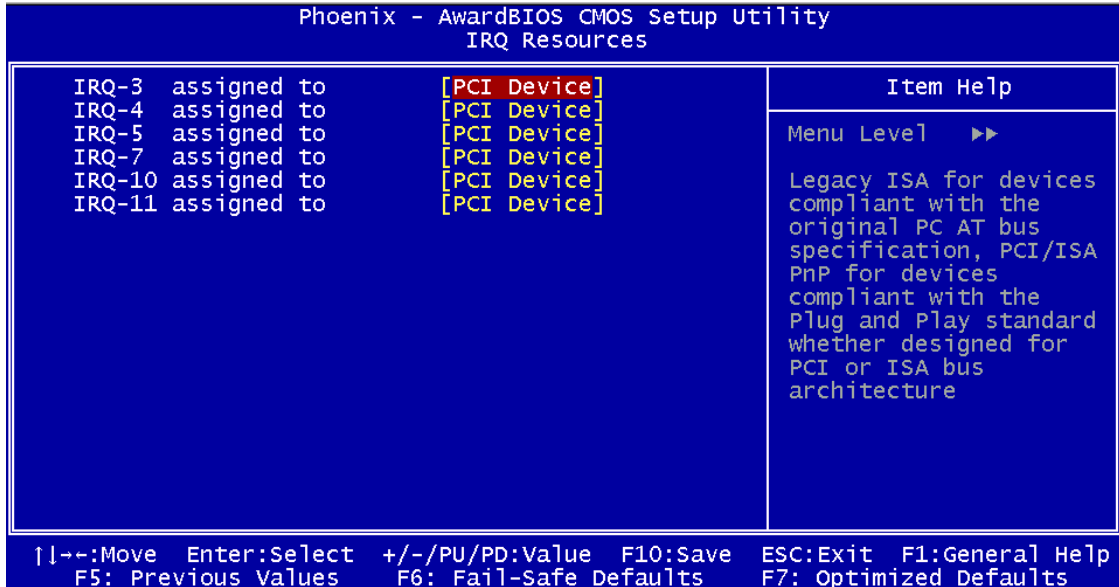
**Auto(ESCD)** (Default) BIOS automatically configures plug and play devices as well as boot devices.

**Manual** Manually configure the plug and play devices and any other boot devices.

## ❏ x IRQ Resources [Press Enter]

The IRQ Resources option (BIOS Menu 11) can only be selected if the Resources

Controlled By option is set to Manual.



## BIOS Menu 11: IRQ Resources

The **IRQ Resources** menu has the following options:

- ④ IRQ-3 assigned to
- ④ IRQ-4 assigned to
- ④ IRQ-5 assigned to
- ④ IRQ-7 assigned to
- ④ IRQ-10 assigned to
- ④ IRQ-11 assigned to

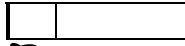
The above options all have the following default options.



**PCI Device** (Default)

The IRQ is assigned to legacy ISA for devices compliant with the original PC AT bus specification, PCI/ISA PNP for devices compliant with the Plug and Play standard whether designed for PCI or ISA bus architecture.

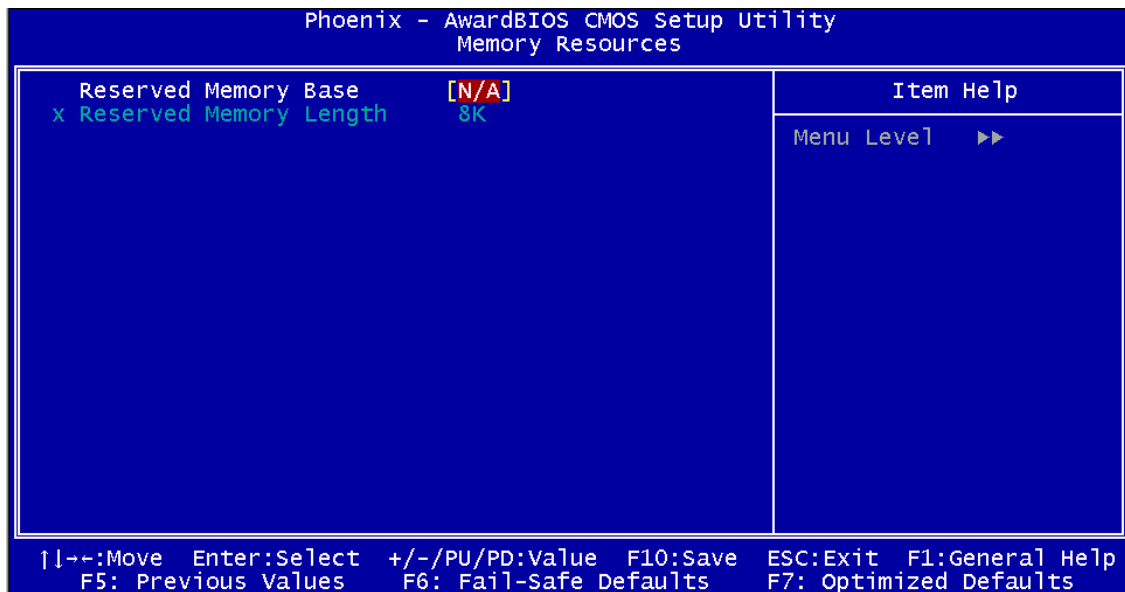




The IRQ is reserved by BIOS.

### 🔗 x Memory Resources [Press Enter]

The Memory Resources menu (**BIOS Menu 12**) can only be accessed if the Resources Controlled By option is set to Manual. Use Memory Resources to select a base address and the length for the memory area used by a peripheral that requires high memory.



### BIOS Menu 12: Memory Resources

The menu has two configurable options:

- ④ Reserved Memory Base
- ④ Reserved Memory Length

### 🔗 Reserved Memory Base [N/A]

The **Reserved Memory Base** option specifies the base address for the peripheral device.

The **Reserved Memory Base** options are:

- ④ N/A (Default)
- ④ C800
- ④ CC00
- ④ D000

- ④ D400
- ④ D800
- ④ DC00

### ❏ x Reserved Memory Length [8K]

The **Reserved Memory Length** option can only be accessed if the **Reserved Memory Base** option is not set to **N/A**. The **Reserved Memory Length** specifies the amount of memory reserved for the peripheral device. The **Reserved Memory Length** options:

- ④ 8K (Default)
- ④ 16K
- ④ 32K
- ④ 64K

### ❏ PCI/VGA Palette Snoop [Disabled]

Use the **PCI/VGA Palette Snoop** option to enable some special VGA cards, high-end hardware are allowed to look at the VGA palette on the what colors are in use. This option is needed unless a video device specifically requires the

able the system to determine whether or not

MPEG decoders and other similar devices

video card so these devices can determine

GA

❏ **Disabled** (Default) Does not palette on t

❏ **Enabled** Allows the ( the graphics card.

GA

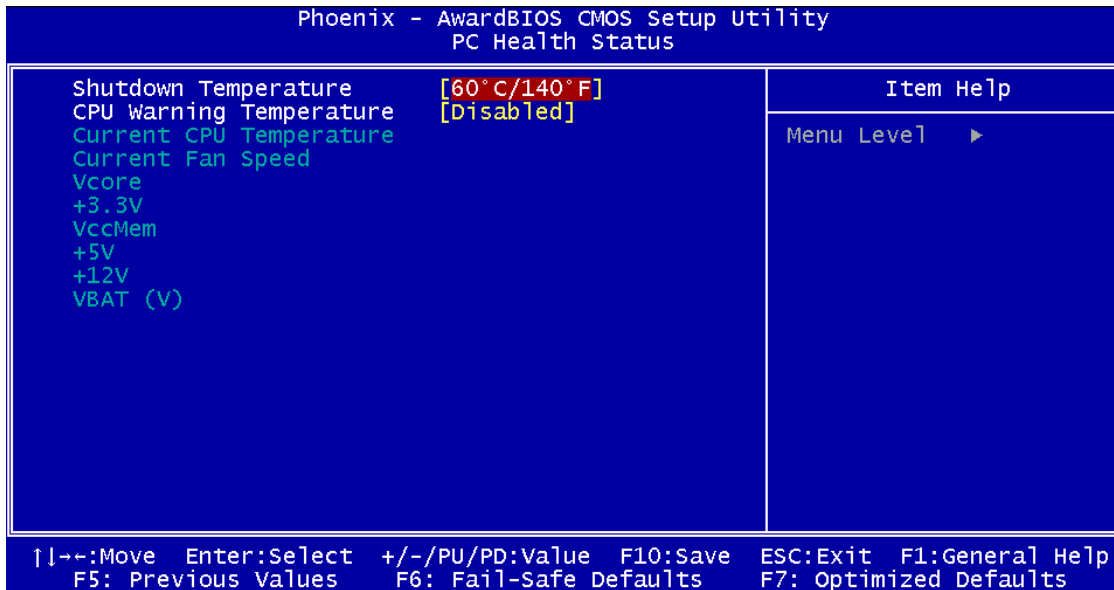
on

## 5.8 PC Health Status

The **PC Health Status** menu (**BIOS Menu 13**) has no user configurable options, but shows system operating parameters that are essential to the stable operation of the system.







### BIOS Menu 13: PC Health Status

The following system parameters are monitored by the **PC Health Status** menu.

#### ☞ Shutdown Temperature

Use the Shutdown Temperature option to set the temperature when the system should automatically shutdown.

#### ☞ CPU Warning Temperature [Disabled]

Use the CPU Warning Temperature option to set the CPU temperature that would automatically generate a warning.

- ☞ Disabled (Default) No warning
- ☞ Enabled When the CPU reaches ew warning is issued

#### ☞ System Temperature

The following temperatures are monitored:

- ④ Current CPU Temperature

## 🔍 System Fan

The following system fans are monitored:

- ④ Current System Fan

## 🔍 Voltages

The following voltages are monitored:

- ④ Vcore
- ④ +3.3 V
- ④ VccMem
- ④ +5 V
- ④ +12 V
- ④ VBAT(V)

**Appendix**

**A**

# **Interface Connectors**

---

## A.1 Peripheral Interface Connectors

The EX-93817/EX-93819 flat panel PC motherboard, the EXPERT-LX, comes with a number of peripheral interface connectors and configuration jumpers listed in **Chapter 2**. The pinouts for these connectors are listed below:

PIN NO.	DESCRIPTION
1	+12V
2	GND
3	GND
4	+5V

**Table A-1: AT Power Connector Pinouts**

PIN NO.	DESCRIPTION
1	+5V_SB
2	NC (v1.10)
3	PS_ON

**Table A-2: ATX Power Connector Pinouts**

PIN NO.	DESCRIPTION
1	PWRBTN#
2	GND

**Table A-3: ATX Power Button Connector Pinouts**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	Line Out Right	2	Line In Right
3	GND	4	GND
5	Line Out Left	6	Line In Left
7	GND	8	GND
9	MIC In	10	N/C

**Table A-4: Audio Connector Pinouts**



PIN NO.	DESCRIPTION
1	GROUND
2	DATA 3

**Table A-5: Battery Connector Pinouts**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GROUND	26	VCC-IN CHECK1
2	DATA 3	27	DATA 11
3	DATA 4	28	DATA 12
4	DATA 5	29	DATA 13
5	DATA 6	30	DATA 14
6	DATA 7	31	DATA 15
7	HDC_CS0#	32	HDC_CS1
8	N/C	33	N/C
9	GROUND	34	IOR#
10	N/C	35	IOW#
11	N/C	36	VCC_COM
12	N/C	37	IRQ15
13	VCC_COM	38	VCC_COM
14	N/C	39	CSEL
15	N/C	40	N/C
16	N/C	41	HDD_RESET
17	N/C	42	IORDY
18	SA2	43	SDREQ
19	SA1	44	SDACK#
20	SA0	45	HDD_ACTIVE#
21	DATA 0	46	66DET
22	DATA 1	47	DATA 8
23	DATA 2	48	DATA 9
24	N/C	49	DATA 10
25	VCC-IN CHECK2	50	GROUND

**Table A-6: Compact Flash Connector Pinouts**

PIN NO.	DESCRIPTION
1	Fan Speed Detect
2	+5V
3	GND

**Table A-7: Fan Connector Pinouts**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+5V	14	STEP#
2	INDEX#	15	GND
3	+5V	16	WDATA#
4	DSA#	17	GND
5	+5V	18	WGATE#
6	DSKCHG#	19	GND
7	NC	20	TRACK0#
8	NC	21	GND
9	NC	22	WP#
10	MOTO0#	23	GND
11	NC	24	RDATA#
12	DIR#	25	GND
13	NC	26	HEAD#

**Table A-8: FDD Connector Pinouts**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	5V
3	GPO0	4	GPO1
5	GPO2	6	GPO3
7	GPI0	8	GPI1
9	GPI2	10	GPI3

**Table A-9: GPIO Connector Pinouts**





PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	RESET#	2	GROUND
3	DATA 7	4	DATA 8
5	DATA 6	6	DATA 9
7	DATA 5	8	DATA 10
9	DATA 4	10	DATA 11
11	DATA 3	12	DATA 12
13	DATA 2	14	DATA 13
15	DATA 1	16	DATA 14
17	DATA 0	18	DATA 15
19	GROUND	20	N/C
21	IDE DRQ	22	GROUND
23	IOW#	24	GROUND
25	IOR#	26	GROUND
27	IDE CHRDY	28	GROUND
29	IDE DACK	30	GROUND–DEFAULT
31	INTERRUPT	32	N/C
33	SA1	34	N/C
35	SA0	36	SA2
37	HDC CS0#	38	HDC CS1#
39	HDD ACTIVE#	40	GROUND
41	VCC	42	VCC
43	GROUND	44	N/C

**Table A-10: Secondary IDE Connector Pinouts**

PIN NO.	DESCRIPTION
1	ADJ (Def: GND)
2	GND
3	12V
4	GND
5	BL_EN

**Table A-11: Inverter Power Connector Pinouts**

PIN NO.	DESCRIPTION
1	+5V
2	MS DATA
3	MS CLK
4	KB DATA
5	KB CLK
6	GND

**Table A-12: Keyboard/Mouse Connector Pinouts**

PIN NO.	DESCRIPTION
1	+5V
2	GND
3	Power LED+
4	Power LED-
5	HDD LED+
6	HDD LED-

**Table A-13: LED Connector Pinouts**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	STB#	2	AFD#
3	PD0	4	ERR#
5	PD1	6	INIT#
7	PD2	8	SLIN#
9	PD3	10	GND
11	PD4	12	GND
13	PD5	14	GND
15	PD6	16	GND
17	PD7	18	GND
19	ACK#	20	GND
21	BUSY	22	GND
23	PE	24	GND
25	SLCT	26	N/C



**Table A-14: Parallel Port Connector Pinouts**

PIN NO.	DESCRIPTION
1	-5V
2	GND
3	-12V

**Table A-15: PC/104 Power Input Connector Pinouts**

Pin No.	Column A	Column B	Column C	Column D
1	IOCHK-	GROUND	GROUND	GROUND
2	SD7	RSTDRV	SBHE-	MCS16-
3	SD6	+5V	SA23	IOCS16-
4	SD5	IRQ9	SA22	IRQ10
5	SD4	-5V	SA21	IRQ11
6	SD3	DREQ2	SA20	IRQ12
7	SD2	-12V	SA19	IRQ15
8	SD1	ZWS-	SA18	IRQ14
9	SD0	+12V	SA17	DACK0-
10	IOCHRDY	GROUND	MEMR-	DREQ0
11	AEN	SMEMW-	MEMW-	DACK5-
12	SA19	SMEMR-	SD8	DRREQ5
13	SA18	IOW-	SD9	DACK6-
14	SA17	IOR-	SD10	DREQ6
15	SA16	DACK3-	SD11	DACK7-
16	SA15	DREQ3	SD12	DREQ7
17	SA14	DACK1-	SD13	+5V
18	SA13	DREQ1	SD14	MASTER-
19	SA12	REFRESH-	SD15	GROUND
20	SA11	ISACLK	NC	GROUND
21	SA10	IRQ7		

22	SA9	IRQ6		
23	SA8	IRQ5		
24	SA7	IRQ4		
25	SA6	IRQ3		
26	SA5	DACK2-		
27	SA4	TC		
28	SA3	BALE		
29	SA2	+5V		
30	SA1	ISA_OSC		
31	SA0	GROUND		
32	GROUND	GROUND		

**Table A-16: PC/104 Slot Connector Pinouts**

PIN NO.	DESCRIPTION
1	NC
2	GND
3	12V
4	GND
5	EN_BL

**Table A-17: Reset Button Connector Pinouts**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	DCD#	2	DSR#
3	RXD	4	RTS#
5	TXD	6	CTS#
7	DTR#	8	RI #/Vout
9	GND	10	GND
11	TxD485+	12	TxD485-
13	RxD485+	14	RxD485-

**Table A-18: RS-232/422/485 Serial Port Connector Pinouts**



PIN NO.	DESCRIPTION
1	GND
2	TX+
3	TX-
4	GND
5	RX-
6	RX+
7	GND

**Table A-19: SATA Drive Connector Pinouts**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	GND
3	D0+	4	D0-
5	D1+	6	D1-
7	D2+	8	D2-
9	CLK+	10	CLK-
11	NC	12	NC
13	GND	14	GND
15	NC	16	NC
17	LCD_Vcc	18	LCD_Vcc
19	LCD_Vcc	20	LCD_Vcc

**Table A-20: TFT LCD LVDS Port Connector Pinouts**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	LCD_Vcc	2	LCD_Vcc
3	GND	4	GND
5	LCD_Vcc	6	LCD_Vcc
7	NC	8	GND
9	B0	10	B1
11	B2	12	B3
13	B4	14	B5
15	B6	16	B7
17	G0	18	G1



19	G2	20	G3
21	G4	22	G5
23	G6	24	G7
25	R0	26	R1
26	R2	28	R3
29	R4	30	R5
31	R6	32	R7
33	GND	34	GND
35	CLK	36	VSYNC
37	LCD_EN	38	HSYNC
39	NC	40	DISP_EN

**Table A-21: TFT LCD TTL Port Connector Pinouts**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC	2	GND
3	DATAN-	4	DATA1M-
5	DATAN+	6	DATAM+
7	GND	8	VCC

**Table A-22: USB Port Connector Pinouts**



Appendix

**B**

# **BIOS Configuration Options**

---

## B.1 BIOS Configuration Options

Below is a list of BIOS configuration options described in **Chapter 5**.

Load Fail-Safe Defaults .....	71
Load Optimized Defaults.....	71
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Set User Password .....	71
Save & Exit Setup .....	71
Exit Without Saving .....	71
Date [Day mm:dd:yyyy].....	72
Time [hh/mm/ss] .....	72
IDE Master and IDE Slave .....	72
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Halt On [All, But Keyboard] .....	73
Base Memory: .....	74
Extended Memory .....	74
Total Memory.....	74
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IDE Primary Master [Auto] .....	74
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Capacity .....	75
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Landing Zone .....	76
Sector.....	76
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Quick Power On Self Test [Enabled] .....	78
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**Appendix**

**C**

# **Software Drivers**

---

## C.1 Introduction

The touch panel controller enables analog resistive touch panels for four-wire, five-wire & eight-wire models. The controller directly communicates with the PC system through the touch panel communications interface. The controller design is superior in sensitivity, accuracy, and friendly operation. The touch panel driver emulates the left mouse button and the right mouse button functions.

The touch panel driver supports the following operating systems:

- ④ Microsoft Windows versions:
  - Microsoft Windows 95
  - Microsoft Windows 98
  - Microsoft Windows ME
  - Microsoft Windows 2000
  - Microsoft Windows NT
  - Microsoft Windows XP
  - Microsoft Windows XP Tablet PC Edition
- ④ Microsoft Windows CE versions:
  - Microsoft Windows CE 2.12
  - Microsoft Windows CE 3.0
  - Microsoft Windows CE. NET
- ④ Linux
- ④ IMac
- ④ DOS.

Driver installation is described below.

## C.2 Driver Installation

To install the touch panel software driver, please follow the steps below.

**Step 3:** Insert the driver CD that came with the EX-93817/EX-93819 into the CD drive.

**Step 4:** Once the CD drive is installed, the screen in **Figure C-1** appears.



**Figure C-1: Driver CD Pop Up Screen**

**Step 5:** Select the operating system installed on the system from the menu on the left side of the screen.



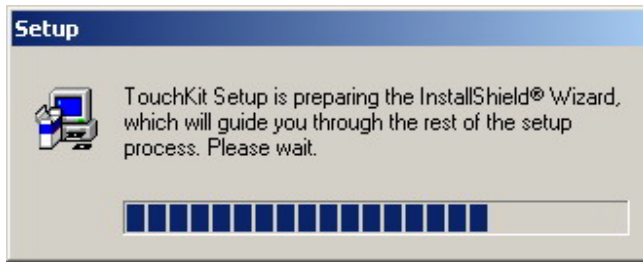
**NOTE:**

The following description is for driver installation using a Windows 2000

OS. If a different OS is installed, please refer to the driver user manual for the relevant OS. The driver user manuals can be accessed by selecting “**User Manual**” from the menu on the left side of the “**Driver CD Pop Up Screen**”.

---

**Step 6:** Once the OS system is selected, the touch kit setup will prepare the install shield wizard (**Figure C-2**).



**Figure C-2: Install Shield Wizard Preparation**

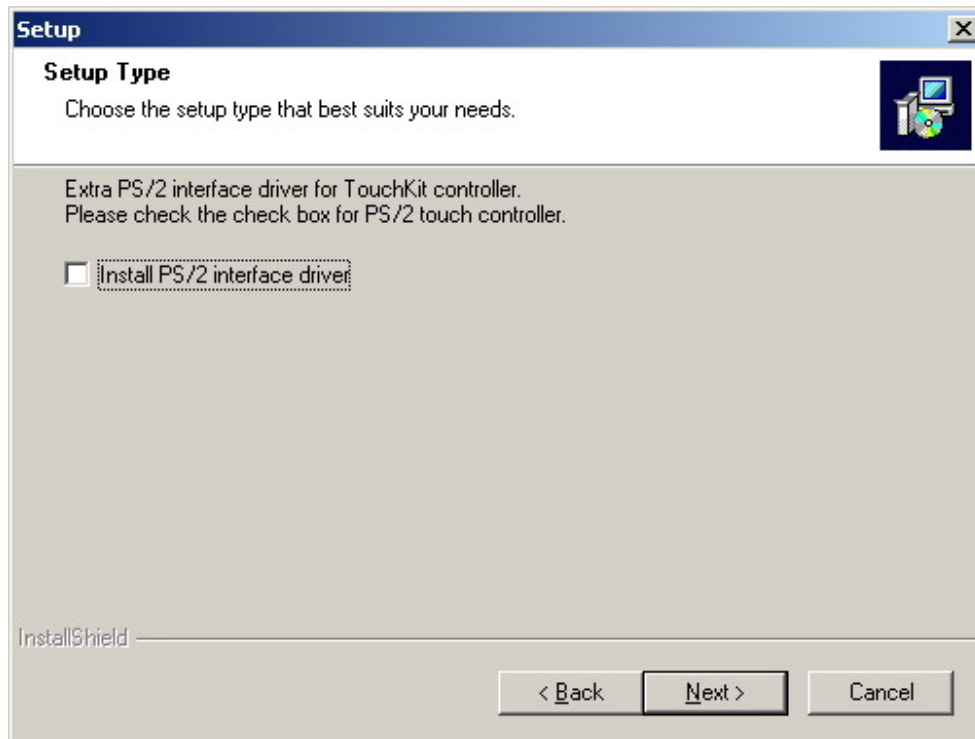
**Step 7:** After the Install Shield Wizard is ready, a welcome screen appears (**Figure C-3**).



**Figure C-3: Welcome Screen**

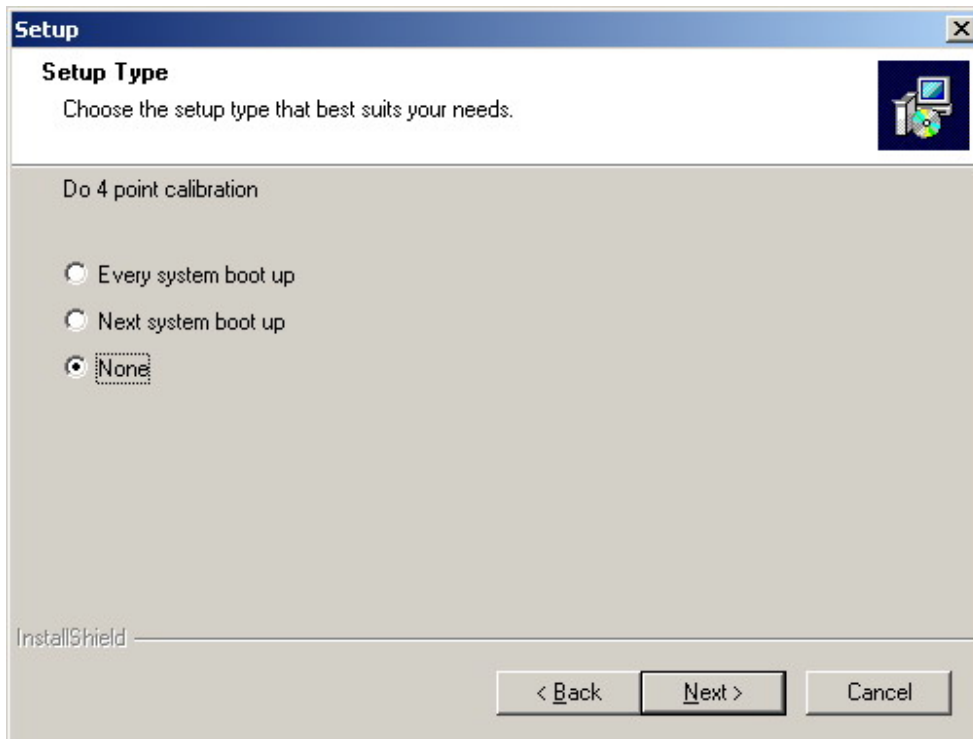
**Step 8:** To continue the installation process click **NEXT**.

**Step 9:** An Install PS/2 interface driver screen appears (**Figure C-4**). It is not necessary to install the PS/2 interface driver. To continue click **NEXT**.



**Figure C-4: Install PS/2 Interface Driver**

**Step 10:** Four point calibration options are then selected. Four point calibrations can be done every time a user boots up, during the next time the system boots or never. Select if and when a four-point calibration should be done. Click **NEXT** to continue.



**Figure C-5: Install PS/2 Interface Driver**

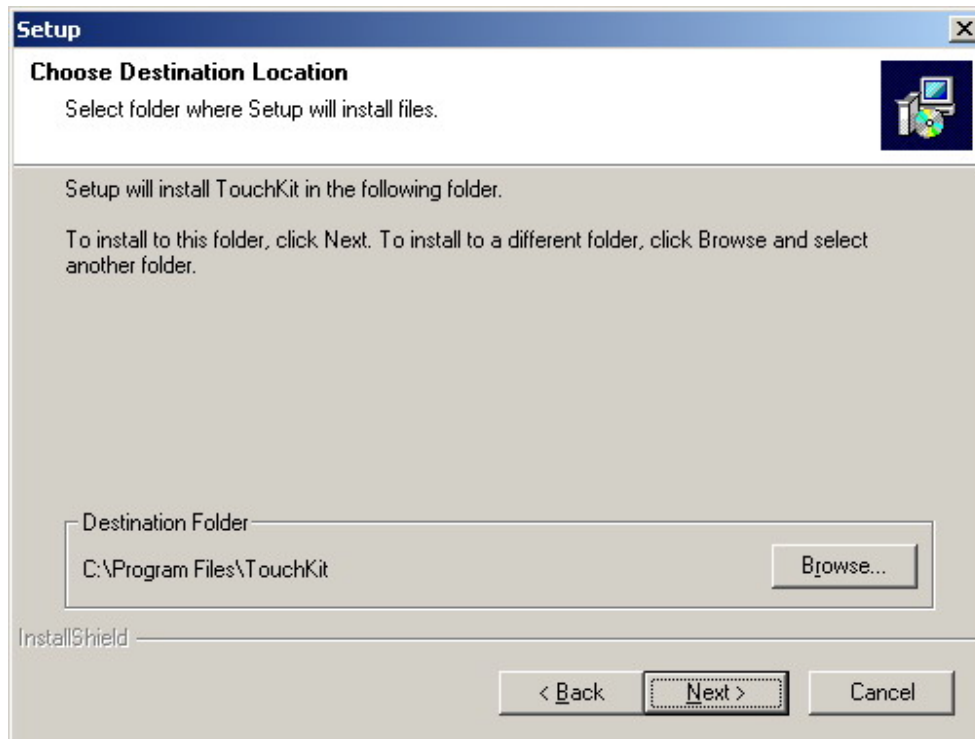
**Step 11:** The user is then prompted to ensure the touch monitor or the USB for the touch controller is plugged into the system (**Figure C-6**). Once the touch controller is plugged into the system, click **“OK”**.



**Figure C-6: Touch Monitor/USB Touch Controller Confirmation**

**Step 12:** The user is then prompted to select a file directory in which the touch kit controller is installed (**Figure C-7**). The default directory is “C:\Program Files\TouchKit.” If a different folder must be used, select browse and then select the folder. Once the folder is selected, click **NEXT** to continue.

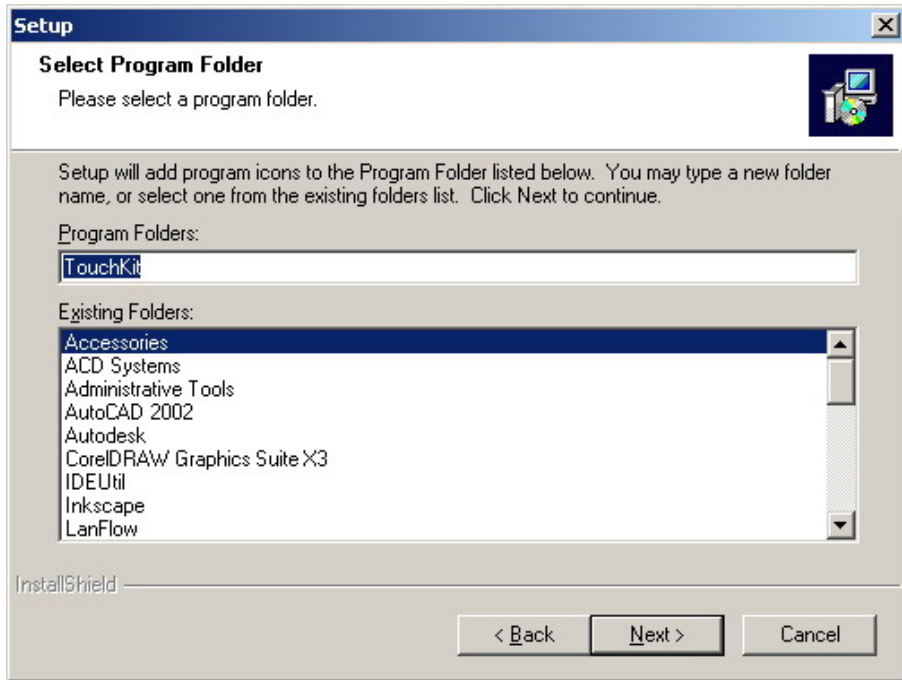




**Figure C-7: Controller Installation Directory**

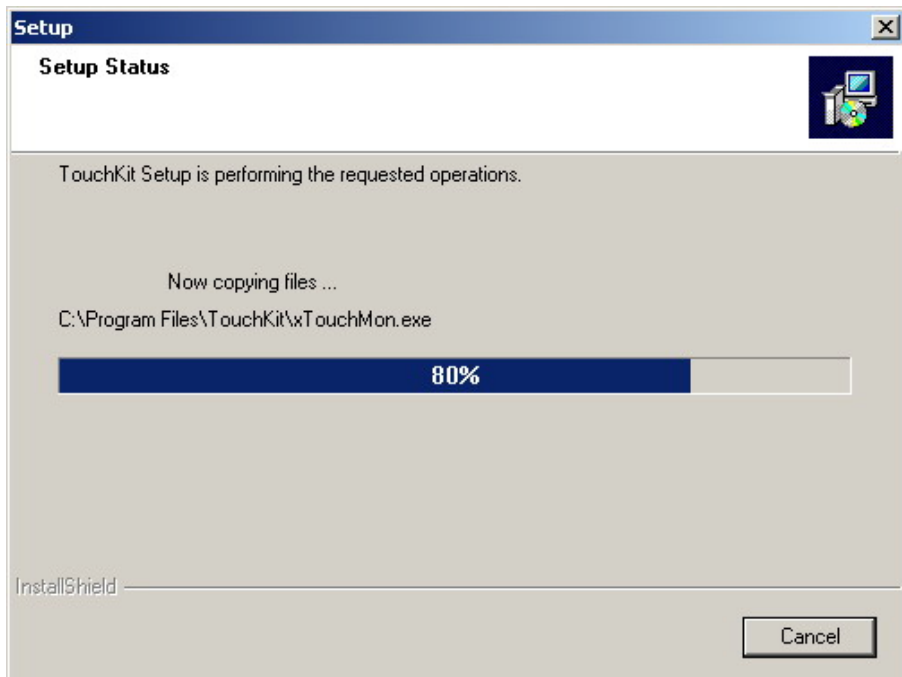
**Step 13:** The user is then prompted to select a file directory in which the program icons are saved (**Figure C-8**). The default folder is "TouchKit." If a different folder must be used, select a folder from the list shown. Once the folder is selected, click **NEXT** to continue.





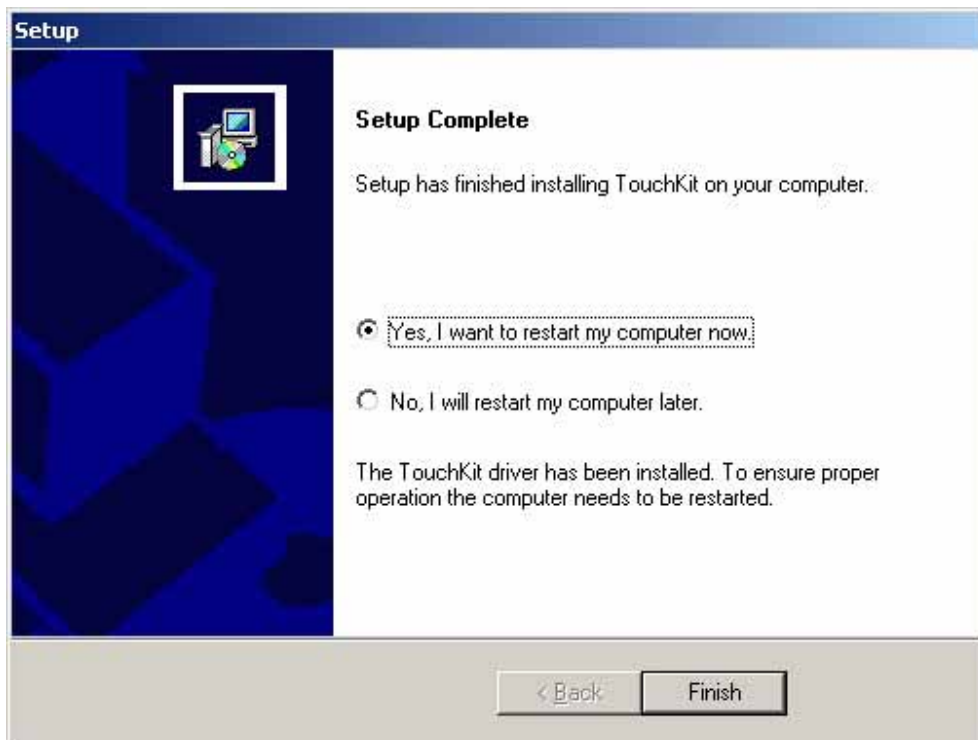
**Figure C-8: Program Icon Directory**

**Step 14:** The program then starts installing (**Figure C-9**).



**Figure C-9: Installing**

**Step 15:** Once the program is finished installing, the user is prompted to restart the computer now or to restart the computer later (**Figure C-10**). Select when the computer should be restarted and click **“FINISH”** to complete the driver installation procedure.



**Figure C-10: Installation Complete**

### **C.3 Touch Panel Driver Configuration**

To configure the touch panel driver options, refer to the TouchKit user manual located on the driver installation CD.

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