AXIOMTEK

eBOX832-831 Series

Embedded System

User's Manual

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Safety Precautions

Before getting started, please read the following important safety precautions.

1. The **eBOX832-831 Series** does not come equipped with an operating system. An operating system must be loaded first before installing any software into the computer.

2. Be sure to ground yourself to prevent static charge when installing the internal components. Use a grounding wrist strap and place all electronic components in any static-shielded devices. Most electronic components are sensitive to static electrical charge.

3. Disconnect the power cord from the **eBOX832-831 Series** before making any installation. Be sure both the system and the external devices are turned OFF. Sudden surge of power could ruin sensitive components. Make sure the **eBOX832-831 Series** is properly grounded.

4. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.

5. Turn OFF the system power before cleaning. Clean the system using a cloth only. Do not spray any liquid cleaner directly onto the screen.

6. Do not leave this equipment in an uncontrolled environment where the storage temperature is below -20℃ or above 60℃. It may damage the equipment.

7. Do not open the system's back cover. If opening the cover for maintenance is a must, only a trained technician is allowed to do so. Integrated circuits on computer boards are sensitive to static electricity. To avoid damaging chips from electrostatic discharge, observe the following precautions:

   ■ Before handling a board or integrated circuit, touch an unpainted portion of the system unit chassis for a few seconds. This will help to discharge any static electricity on your body.

   ■ When handling boards and components, wear a wrist-grounding strap, available from most electronic component stores.

Classification

1. Degree of production against electric shock: not classified
2. Degree of protection against the ingress of water: IPX0
3. Equipment not suitable for use in the presence of a flammable anesthetic mixture with air or with oxygen or nitrous oxide.
4. Mode of operation: Continuous
5. Type of protection against electric shock: Class I equipment

General Cleaning Tips

You may need the following precautions before you begin to clean the computer. When you clean any single part or component for the computer, please read and understand the details below fully.

When you need to clean the device, please rub it with a piece of dry cloth.

1. Be cautious of the tiny removable components when you use a vacuum cleaner to absorb the dirt on the floor.
2. Turn the system off before you start to clean up the component or computer.
3. Never drop the components inside the computer or get circuit board damp or wet.
4. Be cautious of all kinds of cleaning solvents or chemicals when you use it for the sake of cleaning. Some individuals may be allergic to the ingredients.
5. Try not to put any food, drink or cigarette around the computer.

Cleaning Tools:

Although many companies have created products to help improve the process of cleaning your computer and peripherals users can also use household items to clean their computers and peripherals. Below is a listing of items you may need or want to use while cleaning your computer or computer peripherals.

Keep in mind that some components in your computer may only be able to be cleaned using a product designed for cleaning that component, if this is the case it will be mentioned in the cleaning.

● 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, we still recommend you to rub it with a piece of cloth.

● Water or rubbing alcohol: You may moisten a piece of cloth a bit with some water or rubbing alcohol and rub it on the computer. Unknown solvents may be harmful to the plastics parts.

● 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.

● Cotton swabs: Cotton swaps moistened with rubbing alcohol or water are excellent tools for wiping hard to reach areas in your keyboard, mouse, and other locations.

● Foam swabs: Whenever possible it is better to use lint free swabs such as foam swabs.

Note *We strongly recommended that you should shut down the system before you start to clean any single components.*

Please follow the steps below:
1. Close all application programs
2. Close operating software
3. Turn off power switch
4. Remove all device
5. Pull out power cable

Scrap Computer Recycling

If the computer equipments need the maintenance or are beyond repair, we strongly recommended that you should inform us as soon as possible for the suitable solution. For the computers that are no longer useful or no longer work well, please contact us for recycling and we will make the proper arrangement.

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C h a p t e r   1
Introduction

This chapter contains general information and detailed specifications of the **eBOX832-831 Series**. Chapter 1 includes the following sections:

- **General Description**
- **System Specification**
- **Dimensions**
- **I/O Outlets**
- **Package List**

1.1   General Description

The **eBOX832-831 Series** is an embedded system that can support Socket M Intel$^®$ Celeron$^®$ M or Intel$^®$ Core^{TM} 2 Duo processors. The **eBOX832-831 Series** supports Windows$^®$ XP, Windows$^®$ XP embedded and Linux, suitable for the most endurable operation.

> ➢ **Reliable and Stable Design**

The **eBOX832-831 Series** adopts the advanced cooling system and the anti-vibration hard-drive bay, which makes it especially suitable for vibration environments, best for industrial automation, digital signage and gaming application.

> ➢ **Embedded O.S. Supported**

The **eBOX832-831 Series** not only supports Windows$^®$ XP, but also supports embedded OS, such as Windows$^®$ XP embedded, CE and Linux. For storage device, the **eBOX832-831 Series** supports 2.5" HDD.

1.2   System Specifications

1.2.1   Main CPU Board

● **CPU**

Model	Socket	CPU
eBOX832-831	Socket M	Intel$^®$ Core^{TM} 2 Duo/ Core^{TM} Duo/ Celeron$^®$ M

● **System Chipset**
  - Intel$^®$ 945GME + ICH7M

● **BIOS**
  - Phoenix-Award BIOS, 4Mbit with RPL/PXE LAN Boot ROM, SmartView and Customer CMOS Backup.

● **System Memory**
  - Two 240-pin DDR2 DIMM max. up to 4GB (The actual max. capacity will be less depending on system configuration.)

1.2.2   I/O System

● **Standard I/O**
  - Four serial ports with power, three RS-232 and one RS-232/422/485 jumper selectable
  - Six USB ports 2.0 compliant **(eBOX832-831 supports maximum current 500mA for each port and six ports total)**
  - Two 10/100/1000 Base-T Ethernet LAN
  - Two IEEE 1394a ports
  - Two PS/2 mouse and keyboard
  - One Mic-in, one Line-out
  - One VGA out
  - One PCIe x16 Slot

● **Ethernet**
  - Realtek RTL 8111B PCI-E Gigabit Ethernet
  - 2 channels of SATA-150 with IDE mode supported

1.2.3   System Specification

● **Disk Drive**

■ Supports one 2.5" SATA HDD

● **Power Supply**

■ 250W AC-DC

● **Power Input**

■ 100~240VAC, 50/60Hz, Max. 10A

● **Dimensions**

■ 300mm(W) x 104.5mm(H) x 210mm (D)

● **Operation Temperature**

■ 0℃-45℃; Relative Humidity: 10%-95%

NOTE *All specifications and images are subject to change without notice.*

1.3 Dimensions

The following diagrams show you dimensions and outlines of the
eBOX832-831 Series.
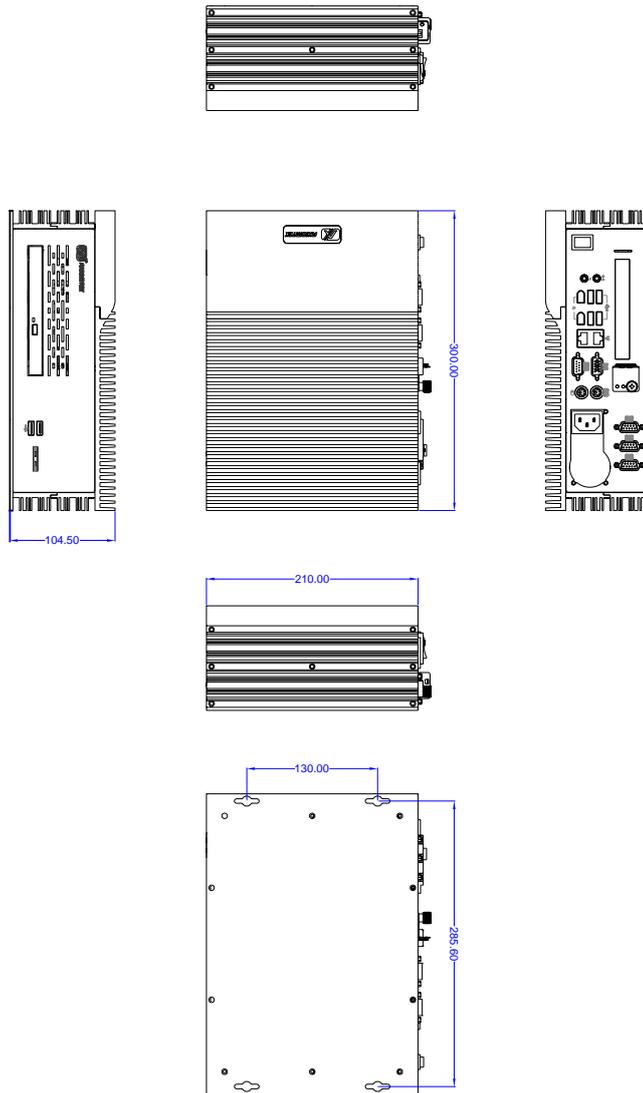
1.4 I/O Outlets

The following figures show you I/O outlets on front and rear panels of the **eBOX832-831 Series**.

- Front Panel

No.	Connector
❶	Power & HDD LED
❷	USB
❸	Optical Drive

- Rear Panel
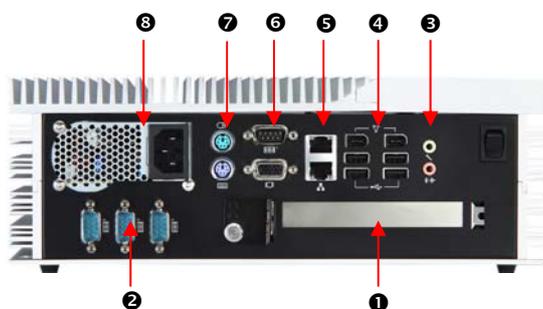
No.	Connector	No.	Connector
❶	PCIe x16 Slot	❺	RJ45
❷	COM2~4	❻	COM1 & VGA
❸	Mic-In & Line-Out	❼	PS/2
❹	1394a & USB	❽	AC Socket & Switch

1.5   Packing List

The package bundled with your **eBOX832-831 Series** should contain the following items:

- eBOX832-831 Series Unit x 1
- Power Cord x 1
- CD x 1 (For Driver and User's Manual)
- Quick Manual x 1
- M3-12.5 Screws x 4
- M3-6 Screws x 4

If you can not find this package or any items are missing, please contact AXIOMTEK distributors immediately.

C h a p t e r 2
Hardware Installation

The **eBOX832-831 Series** are convenient for your various hardware configurations, such as CPU (Central Processing Unit), HDD (Hard Disk Drive). The chapter 2 will show you how to install the hardware. It includes:

2.1   Installing the Processor

The **eBOX832-831 Series** supports Socket M (478-pin) for Intel$^{®}$ Core^{TM} 2 Duo/ Core^{TM} Duo/ Celeron$^{®}$ M CPUs. Please carefully follow up these steps below to install the CPU:

Step 1   Turn off the system.

Step 2   Unplug the AC power-cord.

Step 3   Loosen several screws each side as illustrated.

Step 4   Remove the cover from the chassis.

Step 5   Before installing your CPU, please check and confirm all jumpers are correctly set. Locate the socket on the board.

Step 6   Align pins of the CPU with pin holes of the socket. Be careful of the CPU's orientation that you need to align the arrow mark on the CPU with the arrow key on the socket. Place the CPU into the socket, and use a screwdriver to lock it onto the socket.
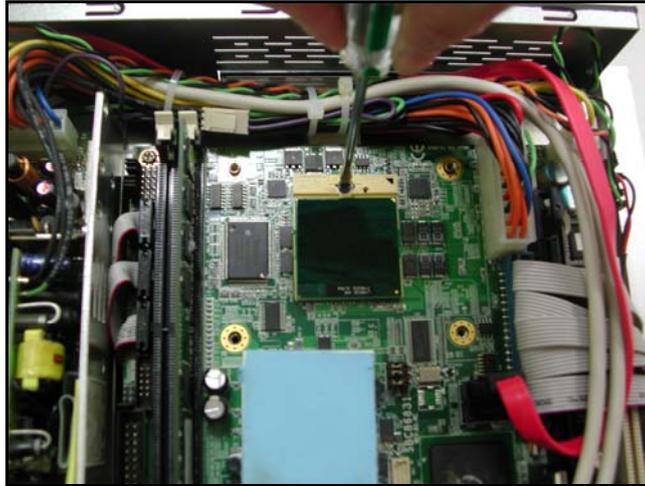
Step 7   If users frequently assemble and disassemble the heat sink, the tin plate in the middle might be damaged.

Step 8   The damaged tin plate is likely to make a problem of thermal dissipation to cause a system shutdown. Therefore, users might need to apply a layer of heat sink paste between the CPU and the tin plate of heat sink for better thermal dissipation.
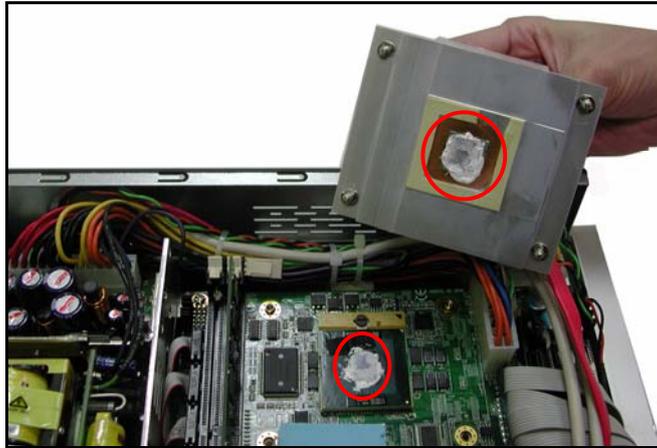
Step 9   Place the heat sink on the CPU, and use a screwdriver to lock it down.
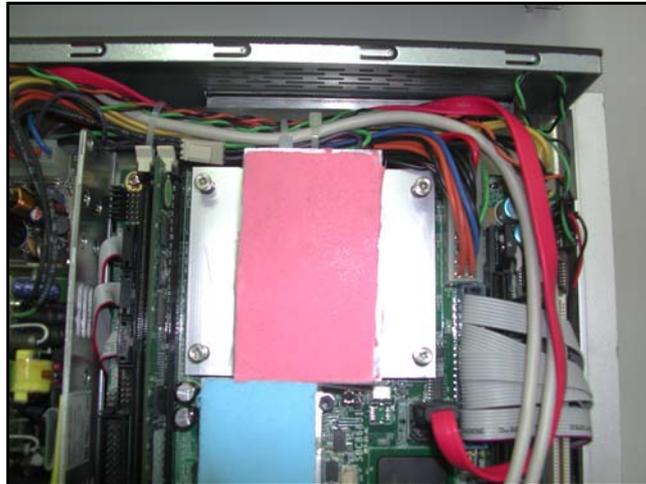
Step 10 Close the cover to the chassis, and fasten all screws.

2.2 Installing the Memory Module

Step 1   Turn off the system.

Step 2   Unplug the AC power-cord.

Step 3   Loosen seven screws marked as the illustration below to open side covers.

Step 4 Remove the top cover from the chassis.

Step 5 Install the Memory Module.

Step 6 Put back the top cover to the chassis, and fasten seven
screws marked as the illustration below to close side covers.
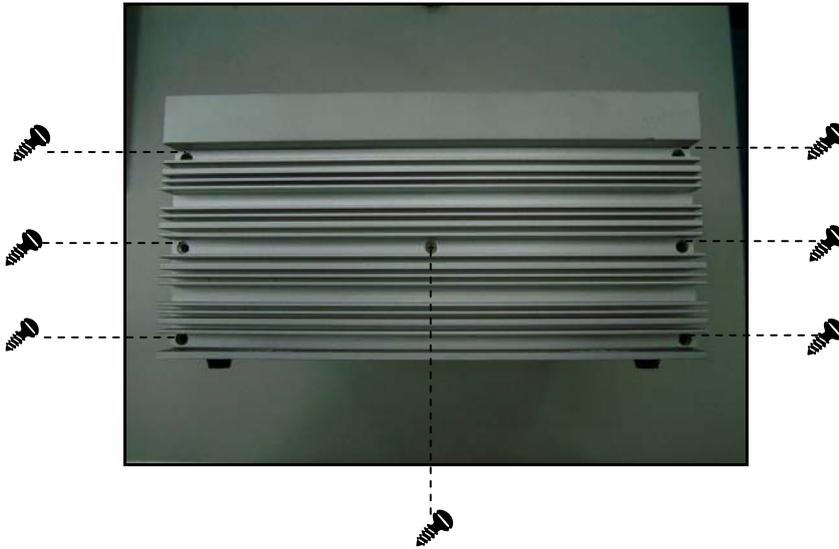
2.3 Installing the Hard Disk Drive

The **eBOX832-831 Series** offers a convenient drive bay module for users to install HDD. The system offers users one 2.5" Hard Disk Drive for installation. Please follow the steps:

Step 1 Turn off the system.

Step 2 Unplug the AC power-cord.

Step 3 Loosen ten screws marked as the illustration below to open the back cover.
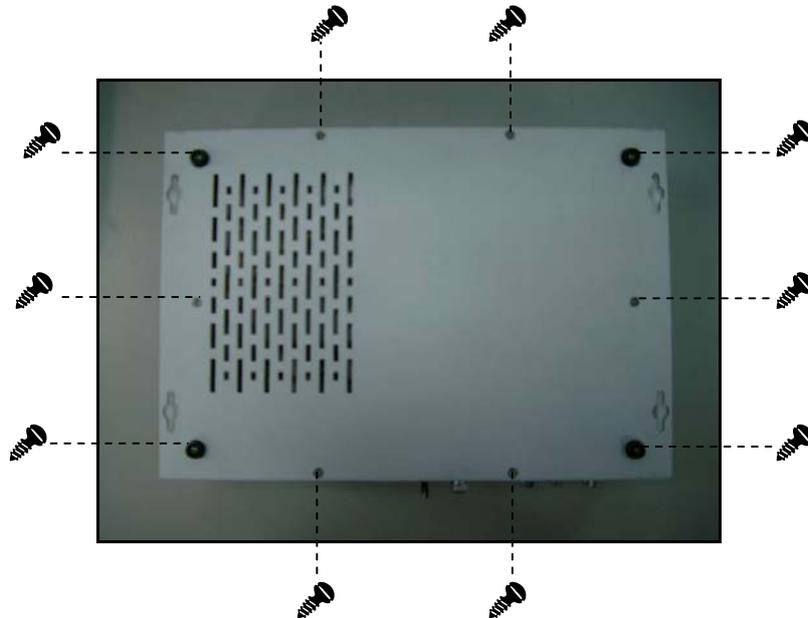
Step 4   Remove the back cover from the chassis.

Step 5   These are HDD assembly parts:

- HDD Bracket x 1

- 2.5 inch HDD (SATA I/F)

- Screws x 4
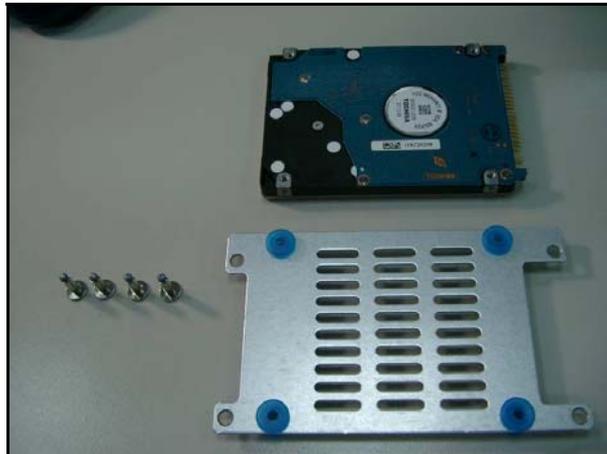
Step 6   Use these assembly parts to fix HDD with the bracket.

Step 7   Install the HDD inside the system.

Step 8   Plug the SATA and Power cables in HDD.

Step 9   Close the back cover to the chassis, and fasten all screws.
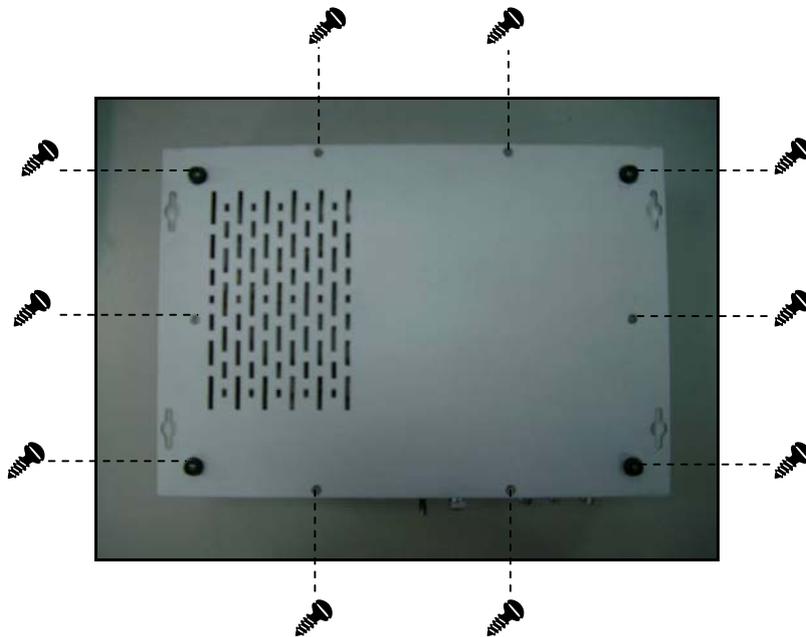
2.4　Installing the PCI Card

Step 1 Turn off the system.

Step 2 Unplug the AC power-cord.

Step 3 Loosen ten screws marked as the illustration below to open the back cover.
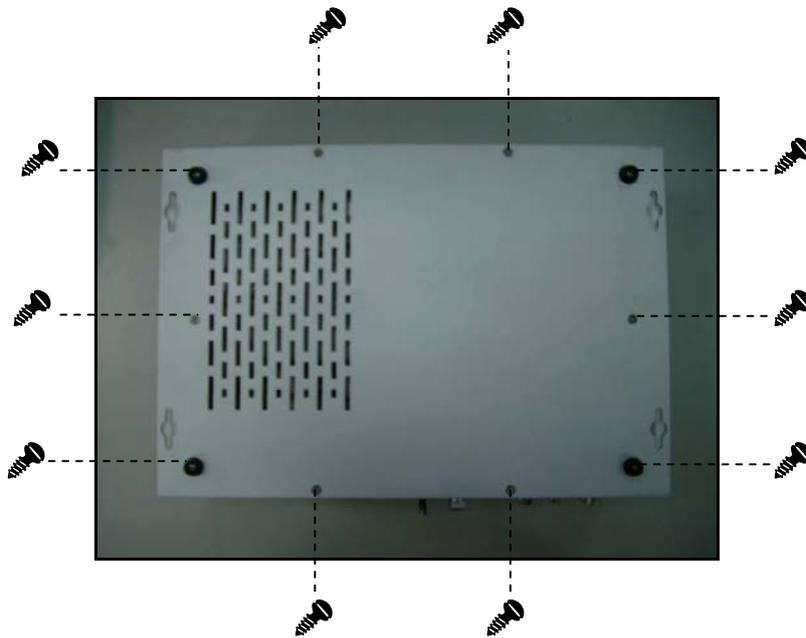
Step 4 Align the PCIe x16 for discrete graphic card or ADD2+ card with the slot on the left side, and the bracket with the slot on the rear panel.

Step 5 Press the PCIe x16 for discrete graphic card or ADD2+ card into the slot on the left side, and latch the bracket with the slot on the rear panel.

Step 6   Once the card is seated in the slot, screw the bracket onto the rear panel.
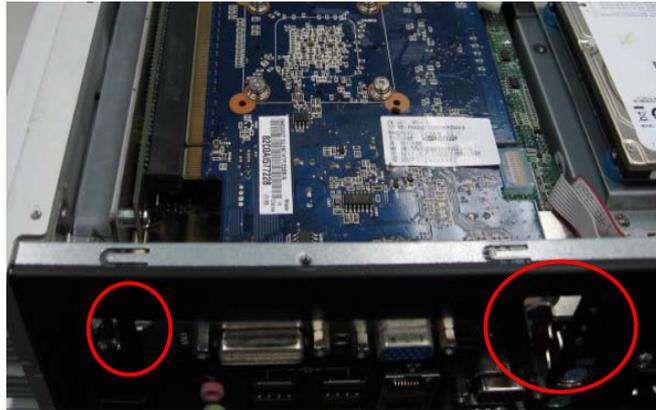
Step 7   Close the back cover to the chassis and fasten all screws.
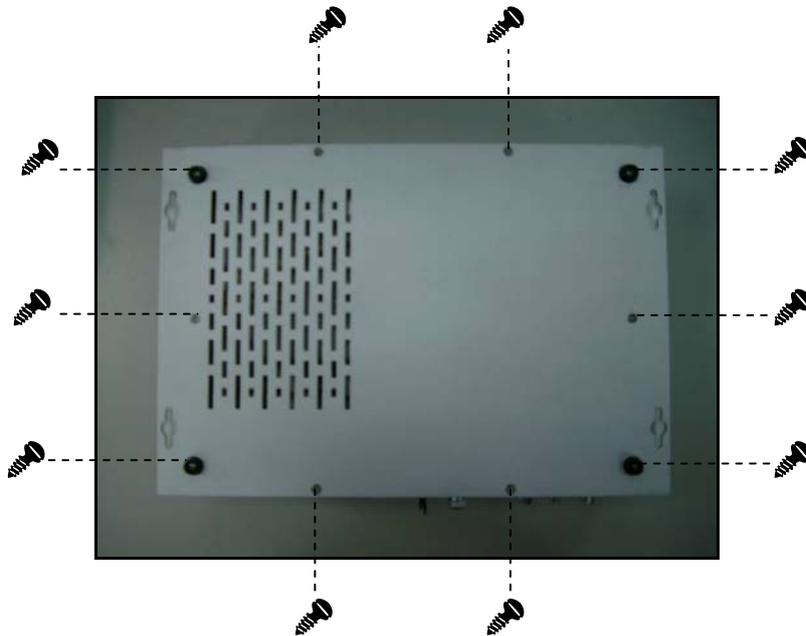
C h a p t e r 3
Award BIOS Utility

The Phoenix-Award BIOS provides users with a built-in Setup program to modify basic system configuration. All configured parameters are stored in a battery-backed-up RAM (CMOS RAM) to save the Setup information whenever the power is turned off.

3.1   Entering Setup

There are two ways to enter the Setup program. You may either turn ON the computer and press <Del> immediately, or press the <Del> and/or <Ctrl>, <Alt>, and <Esc> keys simultaneously when the following message appears at the bottom of the screen during POST (Power on Self Test).

<div align="center">TO ENTER SETUP PRESS DEL KEY</div>

If the message disappears before you respond and you still want to enter Setup, please restart the system to try it again. Turning the system power OFF and ON, pressing the "RESET" button on the system case or simultaneously pressing <Ctrl>, <Alt>, and <Del> keys can restart the system. If you do not press keys at the right time and the system doesn't boot, an error message will pop out to prompt you the following information:

PRESS <F1> TO CONTINUE, <CTRL-ALT-ESC> OR <DEL> TO ENTER SETUP

3.2   Control Keys

Up arrow	Move cursor to the previous item
Down arrow	Move cursor to the next item
Left arrow	Move cursor to the item on the left hand
Right arrow	Move to the item in the right hand
Esc key	Main Menu -- Quit and delete changes into CMOS Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu
PgUp/"+" key	Increase the numeric value or make changes
PgDn/"–" key	Decrease the numeric value or make changes
F1 key	General help, only for Status Page Setup Menu and Option Page Setup Menu
(Shift) F2 key	Change color from total 16 colors. F2 to select color forward, (Shift) F2 to select color backward
F3 key	Reserved
F4 key	Reserved
F5 key	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
F6 key	Load the default CMOS value from BIOS default table, only for Option Page Setup Menu
F7 key	Load the Setup default, only for Option Page Setup Menu
F8 key	Reserved
F9 key	Reserved
F10 key	Save all the CMOS changes, only for Main Menu

3.3   Getting Help

● **Main Menu**
  The online description of the highlighted setup function is displayed at the bottom of the screen.

● **Status Page Setup Menu/Option Page Setup Menu**
  Press <F1> to pop out a small Help window that provides the description of using appropriate keys and possible selections for highlighted items. Press <F1> or <Esc> to exit the Help Window.

3.4 The Main Menu

Once you enter the Award BIOS CMOS Setup Utility, the Main Menu appears on the screen. In the Main Menu, there are several Setup functions and a couple of Exit options for your selection. Use arrow keys to select the Setup Page you intend to configure then press <Enter> to accept or enter its sub-menu.

```
        Phoenix - AwardBIOS CMOS Setup Utility

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




  Esc : Quit    F9 : Menu in BIOS     ↑ ↓ → ← : Select Item
  F10 : Save & Exit Setup

              Time, Date, Hard Disk Type...
```

NOTE *If your computer can not boot after making and saving system changes with Setup, the Award BIOS will reset your system to the CMOS default settings via its built-in override feature.*

It is strongly recommended that you should avoid changing the chipset's defaults. Both Award and your system manufacturer have carefully set up these defaults that provide the best performance and reliability.

3.5   Standard CMOS Setup Menu

The Standard CMOS Setup Menu displays basic information about your system. Use arrow keys to highlight each item, and use <PgUp> or <PgDn> key to select the value you want in each item.

```
            Phoenix - AwardBIOS CMOS Setup Utility
                    Standard CMOS Features
                                                    Item Help
    Date (mm:dd:yy)           Mon, Nov 22 1999   Menu Level ▶
    Time (hh:mm:ss)           10 : 35 : 45
                                                 Change the day, month,
  ▶ IDE Channel 0 Master                         year and century.
  ▶ IDE Channel 0 Slave
  ▶ IDE Channel 1 Master
  ▶ IDE Channel 1 Slave       [None]

    Drive A                   [None]
    Drive B                   [None]

    Video                     [EGA/VGA]
    Halt On                   [All Errors]

    Base Memory               1K
    Extended Memory           1K
    Total Memory              512K

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

●   **Date**
    The date format is <day>, <date> <month> <year>. Press <F3> to show the calendar.

day	It is determined by the BIOS and read only, from Sunday to Saturday.
date	It can be keyed with the numerical/ function key, from 1 to 31.
month	It is from January to December.
year	It shows the current year of BIOS.

●   **Time**
    This item shows current time of your system with the format <hour> <minute> <second>. The time is calculated based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00.

● **IDE Channel Master/IDE Channel Slave**
These items identify the types of each IDE channel installed in the computer. There are 45 predefined types (Type 1 to Type 45) and 2 user's definable types (Type User) for Enhanced IDE BIOS. Press <PgUp>/<+> or <PgDn>/<−> to select a numbered hard disk type, or directly type the number and press <Enter>. Please be noted your drive's specifications must match the drive table. The hard disk will not work properly if you enter improper information. If your hard disk drive type does not match or is not listed, you can use Type User to manually define your own drive type.
If selecting Type User, you will be asked to enter related information in the following items. Directly key in the information and press <Enter>. This information should be provided in the documentation from your hard disk vendor or the system manufacturer.
If the HDD interface controller supports ESDI, select "Type 1".
If the HDD interface controller supports SCSI, select "None".
If the HDD interface controller supports CD-ROM, select "None".

CYLS.	number of cylinders	LANDZONE	landing zone
HEADS	number of heads	SECTORS	number of sectors
PRECOMP	write precom	MODE	HDD access mode

If there is no hard disk drive installed, select NONE and press <Enter>.

● **Dive A type/Drive B type**
The item identifies the types of floppy disk installed in the computer, as drive A or drive B.

None	No floppy drive installed
360K, 3.5 in	3.5 inch PC-type standard drive; 360Kb Mini ITXcity
1.2M, 3.5 in	3.5 inch AT-type high-density drive; 1.2MB Mini ITXcity
720K, 3.5 in	3.5 inch double-sided drive; 720Kb Mini ITXcity
1.44M, 3.5 in	3.5 inch double-sided drive; 1.44MB Mini ITXcity
2.88M, 3.5 in	3.5 inch double-sided drive; 2.88MB Mini ITXcity

● **Video**
Select the display adapter type for your system.

● **Halt On**
   This item determines whether the system will halt or not, if an error is detected while powering up.

No errors	The system booting will halt on any errors detected. (default)
All errors	Whenever BIOS detects a non-fatal error, the system will stop and you will be prompted.
All, But Keyboard	The system booting will not stop for a keyboard error; it will stop for other errors.
All, But Diskette	The system booting will not stop for a disk error; it will stop for other errors.
All, But Disk/Key	The system booting will not stop for a keyboard or disk error; it will stop for other errors.

Press <Esc> to return to the Main Menu page.

3.6 Advanced BIOS Features

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

```
            Phoenix - AwardBIOS CMOS Setup Utility
                     Advanced BIOS Features
  ► CPU Feature                 [Press Enter]      Item Help
  ► Hard Disk Boot Priority     [Press Enter]    Menu Level ►
    CPU L1 & L2 Cache           [Enabled]
    Hyper-Threading Technology  [Enabled]
    Quick Power On Shelf Test   [Enabled]
    First Boot Device           [CDROM]
    Second Boot Device          [Hard Disk]
    Third Boot Device           [LS120]
    Boot Other Device           [Enabled]
    Onboard Lan Boot ROM        [Disabled]
    Boot Up Floppy Seek         [Disabled]
    Boot Up NumLock Status      [On]
    Gate A20 Option             [Fast]
    Typematic Rate Setting      [Disabled]
  X Typematic Rate (Chars/Sec)  6
  X Typematic Delay (Msec)      250
    Security Option             [Setup]
    APIC Mode                   [Enabled]
    MPS Version Control for OS  [1.4]
    Small Logo <EPA> Show       [Disabled]

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

● **CPU Feature**

Scroll to this item and press <Enter> to view the CPU Feature sub menu.

```
            Phoenix - AwardBIOS CMOS Setup Utility
                         CPU Features

 Delay Prior to Thermal      [16 Min]          Item Help
 Thermal Management          [Thermal Monitor 1]  Menu Level ►►
 TM2 Bus Ratio               [ 0  X ]
 TM2 Bus VID                 [Auto V]
 C1E Function                [Auto]
 Execute Disable Bit         [Enabled]




 ↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help
              F5:Previous Values           F7:Optimized Defaults
```
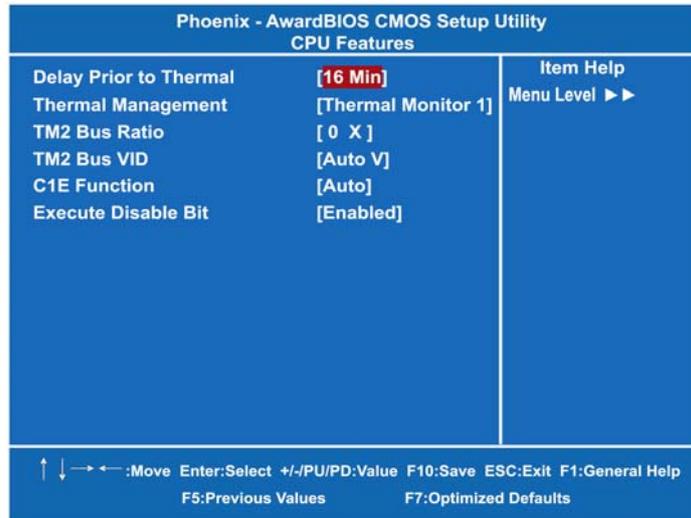
● **Hard Disk Boot Priority**
    Scroll to this item and press <Enter> to view the sub menu to decide the disk boot priority.

```
            Phoenix - AwardBIOS CMOS Setup Utility
                     Hard Disk Boot Priority

 1. Pri. Master   :                            Item Help
 2. Pri. Slave    :                          Menu Level ►
 3. Sec. Master   :
 4. Sec. Slave    :                          Use  <↑> or <↓> to select
 5. USBHDD0   :                              a device, then press <+>
 6. USBHDD1   :                              to move it up, or <-> to
 7. USBHDD2   :                              move it down the list.
 8. Bootable Add-in Cards                    Press <ESC> to exit this
                                             menu.




 ↑↓:Move     PU/PD/+/-:Change Priority     F10:Save       ESC:Exit
          F5:Previous Values        F7:Optimized Defaults
```

Press <Esc> to return to the Advanced BIOS Features page.

● **CPU L1 & L2 Cache**
These two options speed up memory access. However, it depends on the CPU/chipset design. The default setting is *"Enabled"*. CPUs without built-in internal cache will not provide the "CPU Internal Cache" item on the menu.

Enabled	Enable cache
Disabled	Disable cache

● **Hyper-Threading Technology**
Use this item to enable or disable Hyper-Threading Technology, which makes a single physical processor perform multi-tasking function as two logical ones.

● **Quick Power On Self Test**
This option speeds up Power on Self Test (POST) after you turn on the system power. If set as Enabled, BIOS will shorten or skip some check items during POST. The default setting is "*Enabled*".

Enabled	Enable Quick POST
Disabled	Normal POST

● **First/Second/Third Boot Device**
These items let you select the 1st, 2nd, and 3rd devices that the system will search for during its boot-up sequence. The wide range of selection includes Floppy, LS120, Hard Disk, CDROM, ZIP100, USB-FDD, USB-ZIP, USB-CDROM, LAN and Disabled.

● **Onboard Lan Boot ROM**
Use this item to enable or disable the Boot ROM function of the onboard LAN chip when the system boots up.

● **Boot Other Device**
This item allows users to enable or disable the boot device not listed in the First/Second/Third boot devices option above. The default setting is "*Enabled*".

● **Boot Up Floppy Seek**
During POST, BIOS will determine the floppy disk drive type, 40 or 80 tracks. The 360Kb type is 40 tracks while 720Kb, 1.2MB and 1.44MB are all 80 tracks. The default value is *"Enabled"*.

Enabled	BIOS searches for floppy disk drive to determine if it is 40 or 80 tracks. Please be noted BIOS can not differentiate 720K, 1.2M or 1.44M drive type as they all are 80 tracks.
Disabled	BIOS will not search for the type of floppy disk drive by track number. There will be no warning message displayed if the installed drive is 360K.

● **Boot Up NumLock Status**
Set the the Num Lock status when the system is powered on.
The default value is *"On"*.

● **Gate A20 Option**
The default value is *"Fast"*.

Normal	The A20 signal is controlled by keyboard controller or chipset hardware.
Fast	Default: Fast. The A20 signal is controlled by Port 92 or chipset specific method.

● **Typematic Rate Setting**
This item determines the typematic rate of the keyboard. The default value is *"Disabled"*.

Enabled	Enable typematic rate and typematic delay programming.
Disabled	Disable typematic rate and typematic delay programming. The system BIOS will use default value of these 2 items, controlled by keyboard.

● **Typematic Rate (Chars/Sec)**
This option refers to character numbers typed per second by the keyboard. The default value is *"6"*.

6	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)**
This option defines how many milliseconds must elapse before a held-down key begins generating repeat characters. The default

value is *"250"*.

250	250 msec
500	500 msec
750	750 msec
1000	1000 msec

● **Security Option**
This item allows you to limit access to the system and Setup, or just to Setup. The default value is *"Setup"*.

System	If a wrong password is entered at the prompt, the system will not boot, the access to Setup will be denied, either.
Setup	If a wrong password is entered at the prompt, the system will boot, but the access to Setup will be denied.

NOTE *To disable the security, select PASSWORD SETTING at Main Menu and then you will be asked to enter a password. Do not type anything, just press <Enter> and it will disable the security. Once the security is disabled, the system will boot and you can enter Setup freely.*

● **APIC Mode**
Use this item to enable or disable APIC (Advanced Programmable Interrupt Controller) mode that provides symmetric multi-processing (SMP) for systems.

● **MPS Version Control For OS**
This item specifies the version of the Multiprocessor Specification (MPS). Version 1.4 has extended configuration tables to improve support for multiple PCI bus configurations and provide future expandability.

● **Small Logo <EPA> Show**
If enabled, the EPA logo will appear during system booting up; if disabled, the EPA logo will not appear.

Press <Esc> to return to the Main Menu page.

3.7 Advanced Chipset Features

Since the features in this section are related to the chipset on the CPU board and are completely optimized, you are not recommended to change the default settings in this setup table unless you are well oriented with the chipset features.

```
             Phoenix - AwardBIOS CMOS Setup Utility
                    Advanced Chipset Features
    DRAM Timing Selectable      [By SPD]          Item Help
    CAS Latency Time            [Auto]         Menu Level ▶
    DRAM RAS# to CAS# Delay     [Auto]
    DRAM RAS# Precharge         [Auto]
    Precharge delay <tRAS>      [Auto]
    System Memory Frequency     [Auto]
    SLP_S4# Assertion Width     [4 to 5 Sec.]
    System BIOS Cacheable       [Enabled]
    Video BIOS Cacheable        [Disabled]
 ▶  PCI Express Root Port Func  [Press Enter]

 ** VGA Setting **
    PEG/Onchip VGA Control      [Auto]
    PEG Force X1                [Disabled]
    On-Chip Frame Buffer Size   [ 8MB]
    DVMT Mode                   [DVMT]
    DVMT/FIXED Memory Size      [ 128MB]
    Boot Display                [CRT]
    Panel Scaling               [Off]
    Panel Type                  [800x600 18Bit]

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

● **DRAM Timing By SPD**
  Use this item to enable or disable the SDRAM timing, which can be defined by Serial Presence Detect.

● **CAS Latency Time**
  You can select CAS latency time to HCLKs 2, 3, or Auto. The board designer should have set up these values in accordance with the installed DRAM. Do not change these values unless you have to change the specifications of the installed DRAM or CPU.

● **DRAM RAS# to CAS# Delay**
  When DRAM is refreshed, both rows and columns are addressed separately. This field lets you insert a timing delay between the

CAS and RAS strobe signals, used when DRAM is written to, read from, or refreshed.

● **DRAM RAS# Precharge**
The precharge time is the number of cycles it takes for the RAS to accumulate its charge before DRAM refresh. If insufficient time is allowed, refresh may be incomplete and the DRAM may fail to retain data.

● **Precharge Delay <tRAS>**
The precharge time is the number of cycles it takes for DRAM to accumulate its charge before refresh.

● **System Memory Frequency**
This item helps you set main memory frequency. When using an external graphics card, it can be adjusted to enable the best performance for your system.

● **System BIOS Cacheable**
Selecting Enabled allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result. The default value is *"Disabled"*.

● **Video BIOS Cacheable**
This item allows you to change the Video BIOS location from ROM to RAM. Video Shadow will increase the video speed.

● **PCI Express Root Port Func**
Scroll to this item and press <Enter> to view the sub menu to decide the PCI Express Port.

```
          Phoenix - AwardBIOS CMOS Setup Utility
                 PCI Express Root Port Func

 PCI Express Port 1      [Auto]            Item Help
 PCI Express Port 2      [Auto]         Menu Level ►
 PCI Express Port 3      [Auto]
 PCI Express Port 4      [Auto]
 PCI Express Port 5      [Auto]
 PCI Express Port 6      [Auto]
 PCI-E Compliancy Mode   [ v1.0a]




 ↑ ↓ → ← :Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help
           F5:Previous Values           F7:Optimized Defaults
```
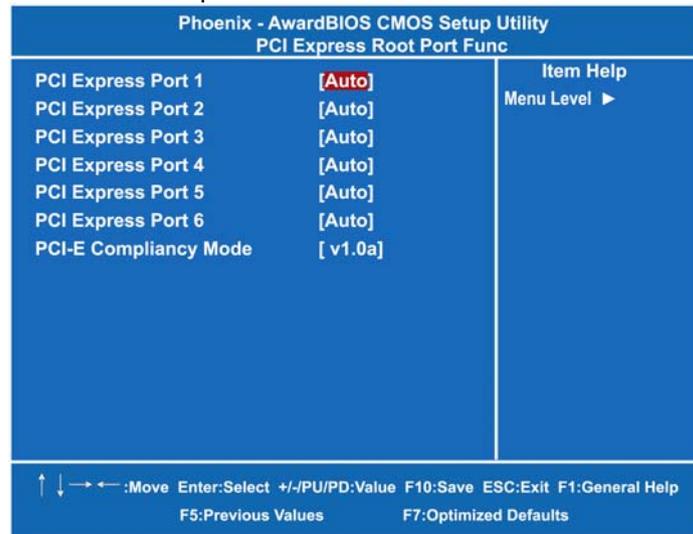
Press <Esc> to return to the Advanced Chipset Featurs page, and press it again, return to the Main Menu page.

*** **VGA Setting** ***

● **PEG/Onchip VGA Control**
This setting allows you to select whether to use the onchip graphics processor or the PCI Express card. When set to [Auto], the BIOS will check if a PCI Express graphics card is installed or not. If a PCI Express graphics card is detected, the board will boot up using that card. Otherwise, it is defaulted to the onchip graphics processor.
● **PEG Force X1**
This BIOS feature allows you to convert a PCI Express X16 slot into a PCI Express X1 slot. When this item is enabled, the PCI Express X16 slot will be forced to run in the PCI Express X1 mode. When this item is disabled, the PCI Express X16 slot will be allowed to run its normal PCI Express X16 mode.
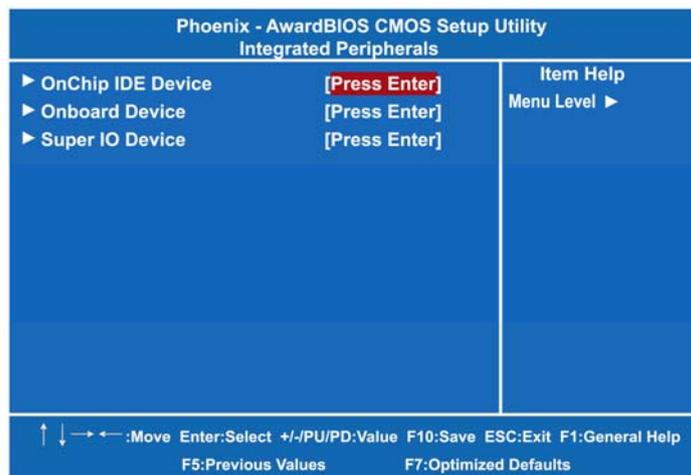● **On-Chip Frame Buffer Size**

Use this item to set the VGA frame buffer size.
● **DVMT Mode**
DVMT (Dynamic Video Memory Technology) helps you select the video mode.
● **DVMT/Fixed Memory Size**
DVMT (Dynamic Video Memory Technology) allows you to select a maximum size of dynamic amount usage of the video memory. The system would configure the video memory dependent on your application.
● **Boot Display**
This item is to select Display Device that the screen will be shown.
● **Panel Scaling**
This item shows the setting of panel scaling and operates the scaling function that the panel output can fit the screen resolution connected to the output port.

Press <Esc> to return to the Main Menu page.

3.8   Integrated Peripherals

This section allows you to configure your SuperIO Device, IDE Function and Onboard Device.

● **OnChip IDE Device**
Scroll to this item and press <Enter> to view the sub menu OnChip IDE Device.

➢ **IDE HDD Block Mode**
Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode (most new drives do), select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support.

➢ **IDE DMA transfer access**
Automatic data transfer between system memory and IDE device with minimum CPU intervention. This improves data throughput and frees CPU to perform other tasks.

➢ **On-Chip Primary/Secondary PCI IDE**
The integrated peripheral controller contains an IDE interface with support for two IDE channels. Select Enabled to activate each channel separately. The default value is *"Enabled"*.

NOTE *Choosing Disabled for these options will automatically remove the IDE Primary Master/*

> *Slave PIO and/or IDE Secondary Master/Slave*
> *PIO items on the menu.*

➢ **IDE Primary/Secondary Master/Slave PIO**
The four IDE PIO (Programmed Input/Output) fields let you set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 to 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.

➢ **IDE Primary/Secondary Master/Slave UDMA**
Select the mode of operation for the IDE drive. Ultra DMA-33/66/100/133 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver. If your hard drive and system software both support Ultra DMA-33/66/100/133, select Auto to enable UDMA mode by BIOS.

*** On-Chip Serial ATA Setting ***

➢ **On-Chip Serial ATA**
Use this item to enable or disable the built-in on-chip serial ATA.

➢ **SATA PORT Speed Settings**
Use this item to select SATA I or SATA II device support forcedly.

➢ **PATA IDE Mode**
Use this item to set the PATA IDE mode. When set to Primary, P1 and P3 are Secondary; on the other hand, when set to Secondary, P0 and P2 are Primary.

➢ **SATA Port**
If the "PATA IDE Mode" is Primary, it will show " P1, P3 is Secondary" which means SATA 2 and SATA 4 are Secondary. If the "PATA IDE Mode " is Secondary, it will show " P0, P2 is Primary " which means SATA 1 and SATA 3 are Primary.

Press <Esc> to return to the Integrated Peripherals page.

● **Onboard Device**

Scroll to this item and press <Enter> to view the sub menu Onboard Device.

```
         Phoenix - AwardBIOS CMOS Setup Utility
                    Onboard Device

  USB Controller              [Enabled]         Item Help
  USB 2.0 Controller          [Enabled]       Menu Level ► ►
  USB Keyboard Support        [Disabled]
  AC97 Audio Select           [Enabled]




 ↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
         F5:Previous Values           F7:Optimized Defaults
```
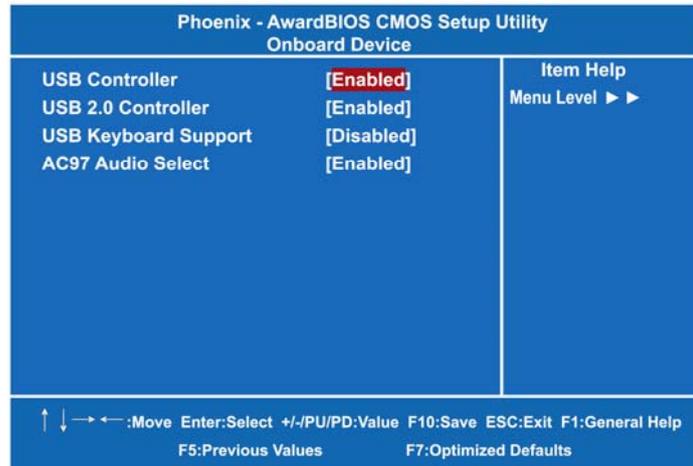
> **USB Controller**
> Enable this item if you are using the USB in the system. You should disable this item if a higher-level controller is added.
> **USB 2.0 Controller**
> Enable this item if you are using the EHCI (USB2.0) controller in the system.
> **USB Keyboard Support**
> Enable this item if the system has a Universal Serial Bus (USB) controller, and you have a USB keyboard.
> **AC'97 Audio Select**
> Use this item to enable or disable the onboard AC'97 Audio function.

Press <Esc> to return to the Integrated Peripherals page.

● **Super IO Device**

Scroll to this item and press <Enter> to view the sub menu Super IO Device.

```
          Phoenix - AwardBIOS CMOS Setup Utility
                      Super IO Device

  Onboard FDC Controller      [Enabled]         Item Help
  Onboard Serial Port 1       [3F8/IRQ4]     Menu Level  ▶▶
  Onboard Serial Port 2       [2F8/IRQ3]
  Onboard Serial Port 3       [3E8]
  Serial Port 3 Use IRQ       [IRQ10]
  Onboard Serial Port 4       [2E8]
  Serial Port 4 Use IRQ       [IRQ11]
  Onboard Parallel Port       [378/IRQ7]
  Parallel Port Mode          [SPP]
  EPP Mode Select             [EPP1.7]
  ECP Mode Use DMA            [3]
  PWRON After PWR-Fail        [OFF]


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

➢ **Onboard FDC Controller**
Select Enabled, if your system has a floppy disk controller (FDC) installed on the system board and you want to use it. If you install and-in FDC or the system has no floppy drive, select Disabled in this field. Options: "*Enabled*" and "*Disabled*".

➢ **Onboard Serial Port 1/2**
Select an address and corresponding interrupt for the serial port. Options are: *"3F8/IRQ4", "2F8/IRQ3", "3E8/IRQ4", "2E8/IRQ3", "Auto"* and *"Disabled".*

➢ **Onboard Serial Port 3**
This item assigns which I/O address to access onboard serial port 3.

➢ **Serial Port 3 Use IRQ**
This item selects a corresponding interrupt for the third serial port.

➢ **Onboard Serial Port 4**
This item assigns which I/O address to access onboard serial port 4.

➢ **Serial Port 4 Use IRQ**
This item selects a corresponding interrupt for the fourth serial port.

➢ **Onboard Paralellel Port**
This item allows you to determine the I/O address for onboard parallel port. Options are: *"378H/IRQ7"*, *"278H/IRQ5", "3BC/IRQ7"* and *"Disabled"*.

➢ **Parallel Port Mode**
Select an operating mode for the onboard parallel (printer) port. Select Normal unless your hardware and software require another mode in this field. Options are: *"SPP", "EPP", "ECP", "ECP+EPP"* and *"Normal"*.

➢ **EPP Mode Select**
Select EPP port type 1.7 or 1.9.

➢ **ECP Mode Use DMA**
Select a DMA channel for the parallel port while using the ECP mode.

➢ **PWRON After PWR-Fail**
This item enables your computer to automatically restart or return to its operating status.

Press <Esc> to return to the Integrated Peripherals page, and press it again to the Main Menu.

3.9   Power Management Setup

The Power Management Setup allows you to save energy of your system effectively. It will shut down the hard disk and turn OFF video display after a period of inactivity.

```
          Phoenix - AwardBIOS CMOS Setup Utility
                 Power Management Setup
  ──────────────────────────────────────────────────────────
  ► PCI Express PM Function    [Press Enter]      Item Help
    ACPI Function              [Enabled]        Menu Level ►
    ACPI Suspend Type          [S1(POS)]
    Power Management           [Min Saving]
    Video Off Method           [DPMS]
    Video Off In Suspend       [Yes]
    Suspend Type               [Stop Grant]
    MODEM Use IRQ              [3]
    Suspend Mode               1 Hour
    HDD Power Down             15 Min
    Soft-Off by PWR-BTTN       [Instant-Off]
    Power On by Ring           [Enabled]
    Resume by Alarm            [Disabled]
  X Date <of Month> Alarm        0
  X Time <hh:mm:ss> Alarm        0 : 0 : 0

    ** Reload Global Timer Events **
    Primary IDE 0              [Disabled]
    Primary IDE 1              [Disabled]
    Secondary IDE 0            [Disabled]
    Secondary IDE 1            [Disabled]
    FDD, COM, LPT Port         [Disabled]
    PCI PIRQ[A-D]#             [Disabled]
  ──────────────────────────────────────────────────────────
  ↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help
           F5:Previous Values         F7:Optimized Defaults
```

● **PCI Express PM Func**
Scroll to this item and press <Enter> to view the sub menu PCI Express PM Function.
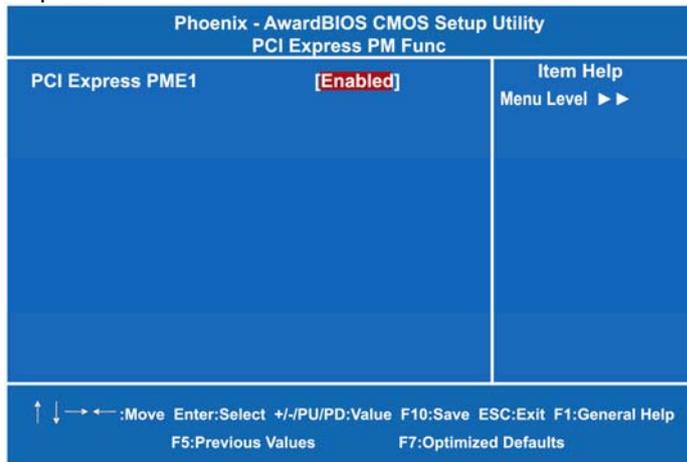
Press <Esc> to return to the Advanced Chipset Featurs page.

● **ACPI Function**
This item allows you to enable/disable the Advanced Configuration and Power Management (ACPI). The function is always defaulted in the "*Enabled*" mode.

● **ACPI Suspend Type**
This item specifies the power saving modes for ACPI function. If your operating system supports ACPI, such as Windows 98SE, Windows ME and Windows 2000, you can choose to enter the Standby mode in S1 (POS) or S3 (STR) fashion through the setting of this field. Options are:
[S1 (POS)] The S1 sleep mode is a low power state. In this state, no system context is lost (CPU or chipset) and hardware maintains all system contexts.
[S3 (STR)] The S3 sleep mode is a lower power state where the information of system configuration and open applications/files is saved to main memory that remains powered while most other hardware components turn off to save energy. The information stored in memory will be used

to restore the system when a "wake up" event occurs.

- **Power Management**
  This option allows you to select the type (or degree) of power saving for Doze, Standby, and Suspend modes. The table below describes each power management mode:

Max Saving	It is maximum power savings, only available for SL CPUs. The inactivity period is 1 minute in each mode.
User Define	It sets each mode. Select time-out periods in the PM Timers section.
Min Saving	It is minimum power savings. The inactivity period is 1 hour in each mode (except the hard drive).
Disabled	Default value

- **Video Off Method**
  This setting determines the manner in which the monitor is blanked.

V/H SYNC+Blank	It turns OFF vertical and horizontal synchronization ports and writes blanks to the video buffer.
DPMS	Select this option if your monitor supports the Display Power Management Signaling (DPMS) standard of the Video Electronics Standards Association (VESA). Use the supplied software for your video subsystem to select video power management values.
Blank Screen	The System only writes blanks to the video buffer.

- **Video Off In Suspend**
  This item defines if the video is powered down when the system is put into suspend mode.

- **Suspend Type**
  If this item is set to the default Stop Grant, the CPU will go into Idle Mode during power saving mode.

- **Moden Use IRQ**
  If you want an incoming call on a modem to automatically resume the system from a powersaving mode, use this item to specify the interrupt request line (IRQ) used by the modem. You might have to connect the fax/modem to the board Wake On Modem connector for working this feature.

- **Suspend Mode**
  After the selected period of system inactivity (1 minute to 1 hour), all devices except the CPU shut off. The default value is *"Disabled"*.

Disabled	System will never enter SUSPEND mode
1/2/4/6/8/10/20/30/40 Min/1 Hr	Defines the continuous idle time before the system entering SUSPEND mode. If any item defined in (J) is enabled & active, SUSPEND timer will be reloaded

● **HDD Power Down**
   If HDD activity is not detected for the length of time specified in this field, the hard disk drive will be powered down while all other devices remain active.

● **Soft-Off by PWR-BTTN**
   This option only works with systems using an ATX power supply. It also allows users to define which type of soft power OFF sequence the system will follow. The default value is *"Instant-Off"*.

Instant-Off	This option follows the conventional manner of system performance when turning the power to OFF. Instant-Off is a software power OFF sequence requiring the power supply button is switched to OFF.
Delay 4 Sec.	Upon the system's turning OFF through the power switch, this option will delay the complete system power OFF sequence approximately 4 seconds. Within this delay period, the system will temporarily enter into the Suspend Mode enabling you to restart the system at once.

● **Power On by Ring**
   This option allows the system to resume or wake up upon detecting any ring signals coming from an installed modem. The default value is "Enabled".

● **Resume by Alarm**
   If enable this item, the system can automatically resume after a fixed time in accordance with the system's RTC (realtime clock).

** Reload Global Timer Events **
Global Timer (power management) events can prevent the system from entering a power saving mode or can awaken the system from such a mode.
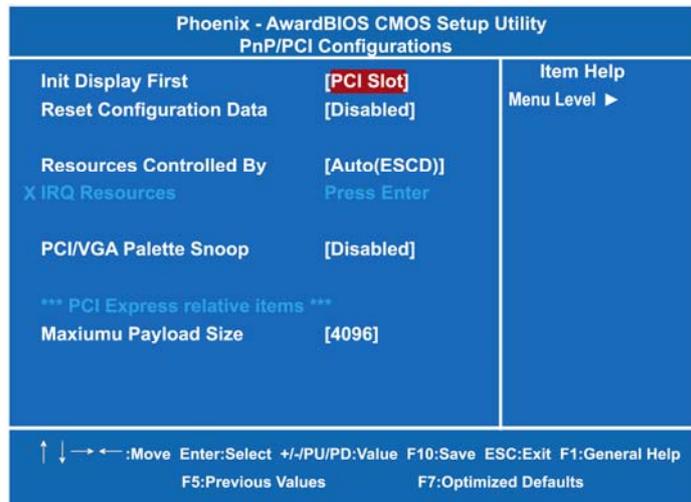
● **Primary/Secondary IDE 0/1**
   Use this item to configure the IDE devices monitored by the system.

- **FDD, COM, LPT Port**
  Use this item to configure the FDD, COM and LPT ports monitored by the system.

- **PCI PIRQ[A-D]#**
  This item can be used to detect PCI device activities; if no activity, the system will enter the sleep mode.

Press <Esc> to return to the Main Menu page.

3.10 PnP/PCI Configuration Setup

This section describes configuring the PCI bus system. PCI, or Personal Computer Interconnect, is a system which allows I/O devices to operate at speeds nearing the speed the CPU itself uses when communicating with its own special components. This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.

```
        Phoenix - AwardBIOS CMOS Setup Utility
                  PnP/PCI Configurations

  Init Display First          [PCI Slot]         Item Help
  Reset Configuration Data    [Disabled]         Menu Level ▶

  Resources Controlled By     [Auto(ESCD)]
 X IRQ Resources               Press Enter

  PCI/VGA Palette Snoop       [Disabled]

 *** PCI Express relative items ***
  Maxiumu Payload Size        [4096]


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

- **Init Display First**
  This item allows you to decide whether PCI Slot or AGP to be the first primary display card.

- **Reset Configuration Data**
  Normally, you leave this item Disabled. Select Enabled to reset

Extended System Configuration Data (ESCD) when you exit Setup or if installing a new add-on cause the system reconfiguration a serious conflict that the operating system can not boot. Options: *Enabled, Disabled*.

● **Resources Controlled By**
The Award Plug and Play BIOS can automatically configure all boot and Plug and Play-compatible devices. If you select Auto, all interrupt request (IRQ), DMA assignment, and Used DMA fields disappear, as the BIOS automatically assigns them. The default value is *"Manual"*.

● **IRQ Resources**
When resources are controlled manually, assign each system interrupt to one of the following types in accordance with the type of devices using the interrupt:

1. Legacy ISA Devices compliant with the original PC AT bus specification, requiring a specific interrupt (such as IRQ4 for serial port 1).
2. PCI/ISA PnP Devices compliant with the Plug and Play standard, whether designed for PCI or ISA bus architecture.

The default value is "*PCI/ISA PnP*".

● **PCI/VGA Palette Snoop**
Some non-standard VGA display cards may not show colors properly. This item allows you to set whether MPEG ISA/VESA VGA Cards can work with PCI/VGA or not. When enabled, a PCI/VGA can work with a MPEG ISA/VESA VGA card; when disabled, a PCI/VGA cannot work with a MPEG ISA/VESA Card.

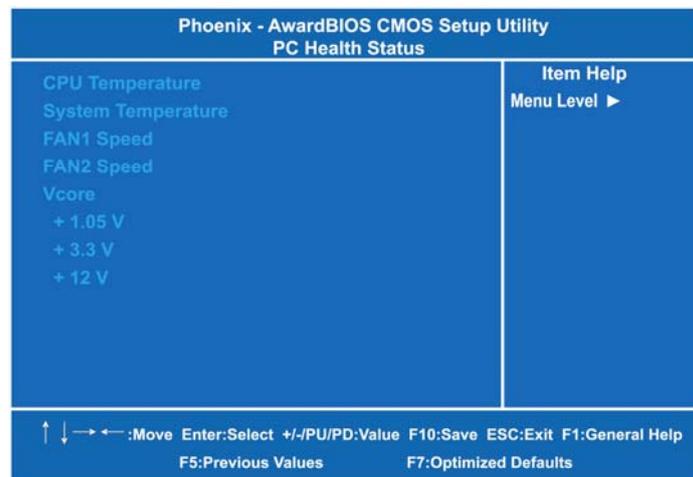**** PCI Express relative items ****

● **Maximum Payload Size**
When using DDR SDRAM and Buffer size selection, another consideration in designing a payload memory is the size of the buffer for data storage. Maximum Payload Size defines the maximum TLP (Transaction Layer Packet) data payload size for the device.

Press <Esc> to return to the Main Menu page.

3.11 PC Health Status

This section supports hardware monitering that lets you monitor those parameters for critical voltages, temperatures and fan speed of the board.
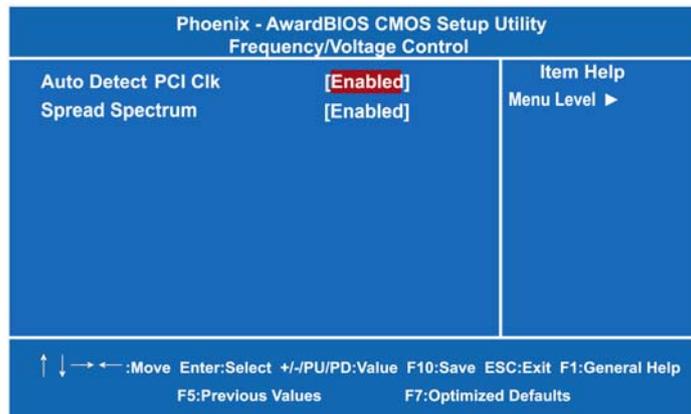
```
         Phoenix - AwardBIOS CMOS Setup Utility
                    PC Health Status

CPU Temperature                          Item Help
System Temperature                      Menu Level ▶
FAN1 Speed
FAN2 Speed
Vcore
 + 1.05 V
 + 3.3 V
 + 12 V




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

- ● **CPU Temperature**
  The current system CPU temperature will be automatically detected by the system.

- ● **SYSTEM Temperature**
  Show you the current system1 temperature.

- ● **FAN1 Speed**
  Show you the current system fan1 temperature.

- ● **FAN2 Speed**
  Show you the current system fan2 temperature.

- ● **Vcore +3.3V/+5V/+12V/VBAT(V)/5VSB**
  Show you the voltage +1.05V/+3.3V/+12V.

Press <Esc> to return to the Main Menu page.

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3.12 Frequency/Voltage Control

This section is to control the CPU frequency and Supply Voltage, DIMM OverVoltage and AGP voltage.

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

  Auto Detect PCI Clk        [Enabled]          Item Help
  Spread Spectrum            [Enabled]        Menu Level ►




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

● **Auto Detect PCI Clk**
   The item enables or disables the auto detection of the PCI clock.

● **Spread Spectrum**
   This item is to adjust extreme values of the pulse for EMI test.

Press <Esc> to return to the Main Menu page.

48   Award BIOS Utility

3.13 Load Optimized Defaults

This option allows you to load the default values to your system configuration. These default settings are optimal and enable all high performance features.
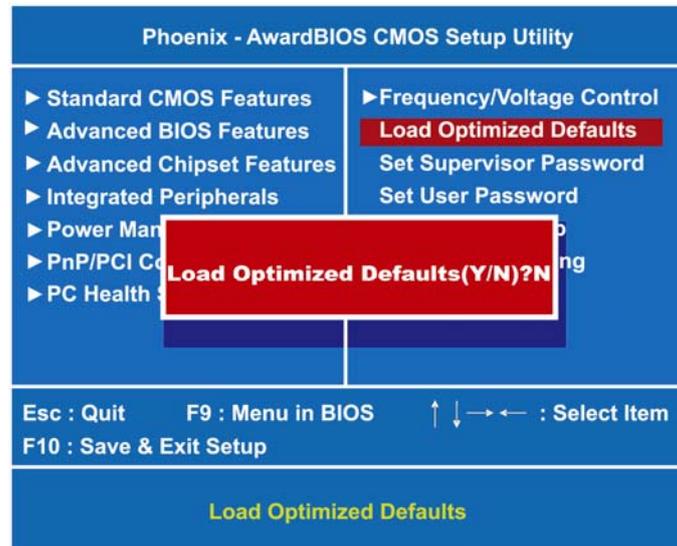
To load SETUP defaults value to CMOS SRAM, enter "Y". If not, enter "N".

3.14 Set Supervisor/User Password

You can set either supervisor or user password, or both of then. The differences between are:

1. **Supervisor password:** can enter and change the options of the setup menus.
2. **User password:** just can enter but do not have the right to change the options of the setup menus.

When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

<div align="center">**ENTER PASSWORD:**</div>

Type the password with eight characters at most, and press <Enter>. The password typed will now clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

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

<div align="center">**PASSWORD DISABLED**.</div>

When a password is enabled, you have to type it every time you enter Setup. This prevents any unauthorized person from changing your system configuration.

Additionally when a password is enabled, you can also require the BIOS to request a password every time the system reboots. This would prevent unauthorized use of your computer.

You determine when the password is required within the BIOS Features Setup Menu and its Security option. If the Security option is set to "System", the password is required during boot up and entry into Setup. If set as "Setup", prompting will only occur prior to entering Setup.

3.15 Save & Exit Setup

This allows you to determine whether or not to accept the modifications. Typing "Y" quits the setup utility and saves all changes into the CMOS memory. Typing "N" brigs you back to Setup utility.
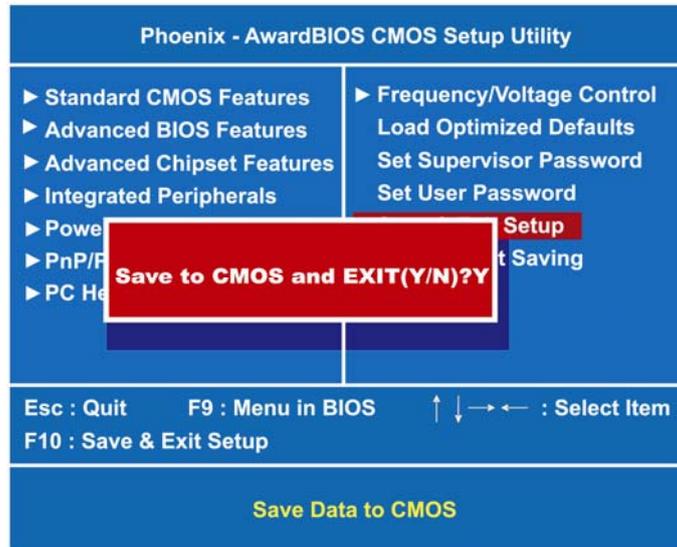
3.16 Exit Without Saving

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