



eBOX639-822-FL Series
Embedded System
User's Manual



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Safety Precautions

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

1. The **eBOX639-822-FL 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 **eBOX639-822-FL 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 **eBOX639-822-FL 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 protection 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 swabs 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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CHAPTER 1

INTRODUCTION

This chapter contains general information and detailed specifications of the **eBOX639-822-FL Series**. Chapter 1 includes the following sections:

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

1.1 General Description

The **eBOX639-822-FL Series** is an embedded system that supports socket type Intel[®] Pentium[®] M/Celeron[®] M processors to provide Windows[®] XP, Windows[®] CE embedded and Linux, suitable for the most durable operation. It features fanless design with full feature I/O, dual 32bit/33MHz PCI slot, high performance DDR2 DIMM max. up to 2GB, and enhanced system dependability by built-in Watchdog Timer.

➤ **Reliable and Stable Design**

The **eBOX639-822-FL 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 **eBOX639-822-FL Series** not only supports Windows[®] XP, but also supports embedded OS, such as Windows[®] XP embedded,

WinCE and Linux. For storage device, the **eBOX639-822-FL Series** supports one 2.5" SATA/IDE HDD drive bay.

1.2 System Specifications

1.2.1 CPU

- **CPU**
 - Intel[®] Pentium[®] M/Celeron[®] M processors
- **BIOS**
 - Phoenix-Award BIOS, 4Mbit with RPL/PXE LAN Boot ROM, SmartView and Customer CMOS Backup
- **System Memory**
 - Two 240-pin DDR2 DIMMs max. up to 2GB

1.2.2 I/O System

- **System I/O Outlet**
 - Three 9-pin D-Sub male connector, COM1~3
 - One 26-pin high-density D-Sub male connector for COM4~6
 - One 15-pin D-Sub female connector for VGA
 - One PS/2 connector for Keyboard
 - One PS/2 connector for Mouse
 - One AC'97 Audio for Line-in/Line-out
 - Two RJ-45 connectors for 10/100/1000Base-T Ethernet
 - Six USB ports 2.0 connectors
 - One 25-pin D-Sub (female) connector for Print Port
 - One V_{DC} Power Input connector

1.2.3 System Specification

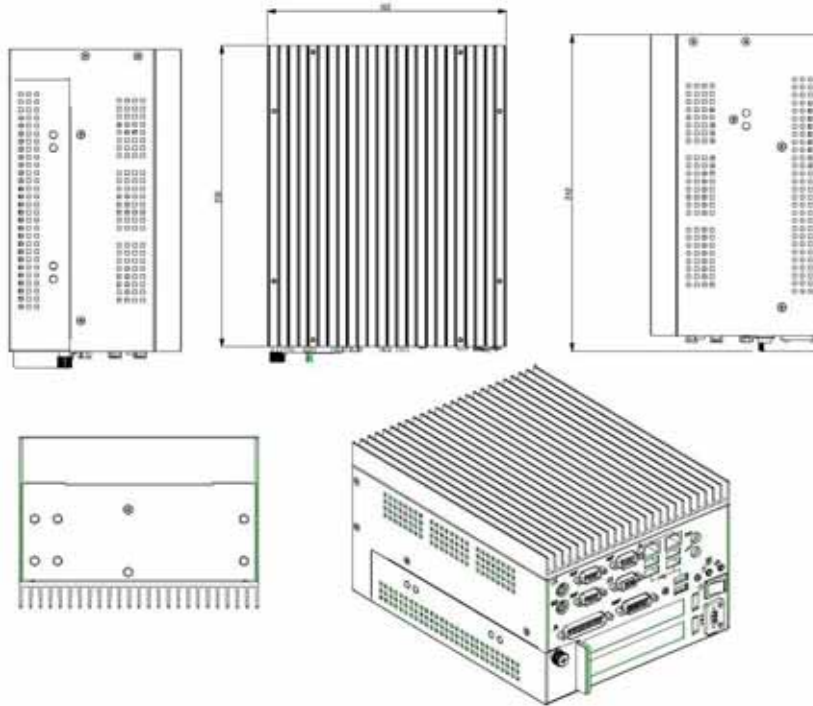
- **Watchdog Timer**
 - 255 levels as SMI and Reset from 0 ~ 255 seconds
- **Power Supply**
 - Input rating-- Vdc 15~28V (-10 ~ 70 degreeC)
 - Output rating-- 107W
 - Output voltage-- +5Vdc@9A, +12Vdc@3A, +3.3Vdc@6A, +5Vsb@1A, -10V@0.1A
- **Operation Temperature**
 - -10 ~ 50 (w/BGA CPU, W.T. HDD, DC P/S)
 - -10 ~ 45 (w/PGA CPU, W.T. HDD, DC P/S)
- **Storage Temperature**
 - -20 ~ 80
- **Humidity**
 - 10% ~ 90% RH (non-condensation)
- **Vibration Endurance**
 - 1Grms (5 ~ 500Hz, X, Y, Z directions) operation w/HDD
- **Dimensions**
 - 182mm (W) x 230mm(D) x 130.8mm (H)
- **EOS Support**
 - XPE, WinCE, Linux



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

1.3 Dimensions

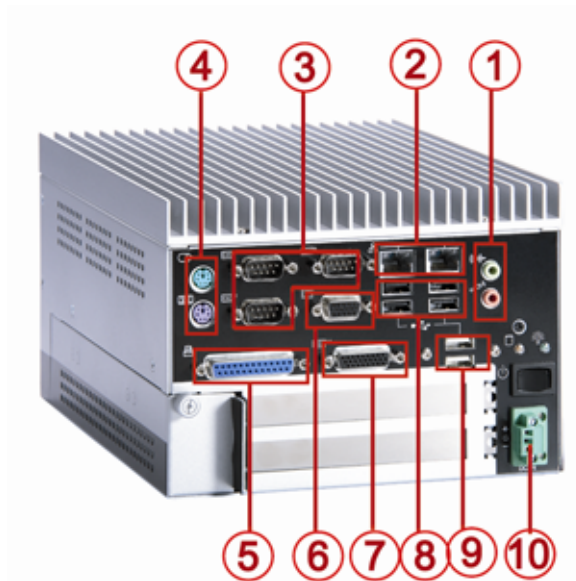
The following diagrams show you dimensions and outlines of the **eBOX639-822-FL Series**.



1.4 I/O Outlets

The following figures show you I/O outlets on front view of the eBOX639-822-FL Series.

- **Front View**



No	Connector	No	Connector
1	Audio Connectors	6	VGA Connector
2	RJ45 Connector for Ethernet	7	COM4-6 Connector
3	COM1-3 Connectors	8	USB 2.0 Connectors x 4
4	PS/2 Connector for KB/MS	9	USB 2.0 Connectors x 2
5	Print Port Connector	10	V _{DC} Power Input Connector

1.5 Packing List

The package bundled with your **eBOX639-822-FL Series** should contain the following items:

- eBOX639-822-FL Series System Unit x 1
- eBOX639-822-FL Series Quick Installation Guide x 1
- High-density D-sub 26-pin COM*3 cable
- AC/DC Power Cord x 1 (option)
- AC/DC Power Adapter x 1 (option)
- CD x 1 (For Driver and User's Manual)
- M3-12.5 Screws x 4
- M3-6 Screws x 4
- Wallmount Beacket (option)

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

CHAPTER 2

HARDWARE INSTALLATION

The **eBOX639-822-FL Series** is convenient for your various hardware configurations, such as CPU (Central Processing Unit), Memory Module, and HDD (Hard Disk Drive). The chapter 2 will show you how to install the hardware. It includes:

2.1 Installing the Processor

The **eBOX639-822-FL Series** support Socket 478 for Intel[®] Pentium[®] M Celeron[®] M processors with FSB 400 or 533 MHz. Please carefully follow up these steps below to install the CPU:

- Step 1** Turn off the system.
- Step 2** Unplug the power-cord.
- Step 3** Loosen screws on the top cover, and remove it from the chassis.



Step 4 Open the top cover from the chassis, and here is the top view of the inside.



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** Place the heat sink on the CPU, and lock it down.
- Step 8** 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 power-cord.

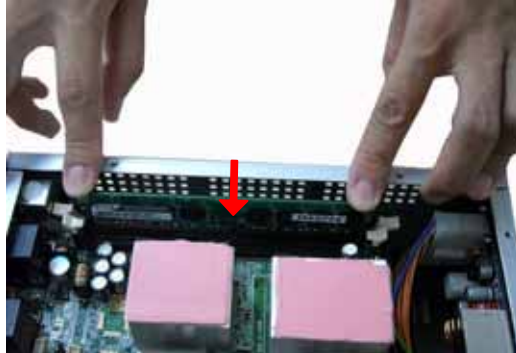
Step 3 Loosen screws on the top cover, and remove it from the chassis.



Step 4 Open the top cover from the chassis, and here is the top view of the inside. Locate the memory socket.



- Step 5** Please follow steps below to install the memory module:
- (1) Align the memory module with the socket that notches of memory module must match the socket keys for a correct installation.



- (2) Install the memory module into the socket and push it firmly down until it is fully seated. The socket latches are levered upwards and clipped on to the edges of the SO-DIMM.

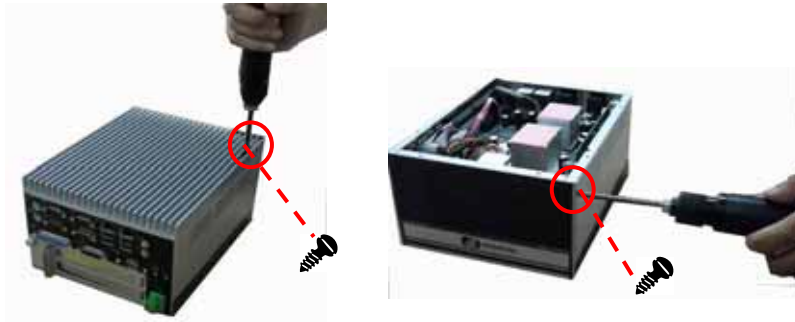


- Step 6** Put back the top cover to the chassis and fasten all screws.

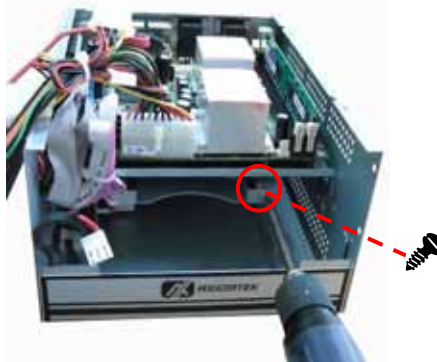
2.3 Installing the Hard Disk Drive

The **eBOX639-822-FL 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:

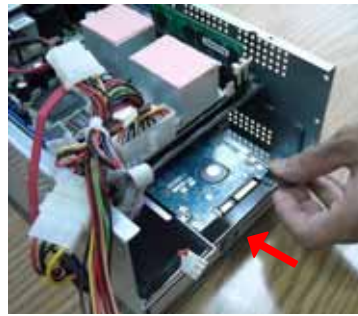
- Step 1** Turn off the system.
- Step 2** Unplug the power-cord.
- Step 3** Loosen screws to remove the top and side covers from the chassis.



- Step 4** Open the side cover and locate the Hard Disk Drive in the bottom side. You have to loosen screws of the bracket.



- Step 5** Use assembly parts to fix HDD with the bracket, and install the HDD. Next, plug the power cable in HDD.



- Step 6** Close the side cover to the chassis, and fasten all screws. Likewise, close the top cover.

2.4 Installing the PCI Card

- Step 1** Turn off the system.
- Step 2** Unplug the power-cord.
- Step 3** Turning leftward to loosen the button as marked; next, pull the lower left cover out.



- Step 4** You can locate the PCI slot from the side.



- Step 5** Align the PCI card with the slot, and press the card into the slot until it is firmly seated.



- Step 6** Close the side cover to the chassis and fasten the button.



MEMO

CHAPTER 3

PHOENIX-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 immediately, or press the 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).

TO ENTER SETUP PRESS DEL KEY

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 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 TO ENTER SETUP

3.2 Control Keys

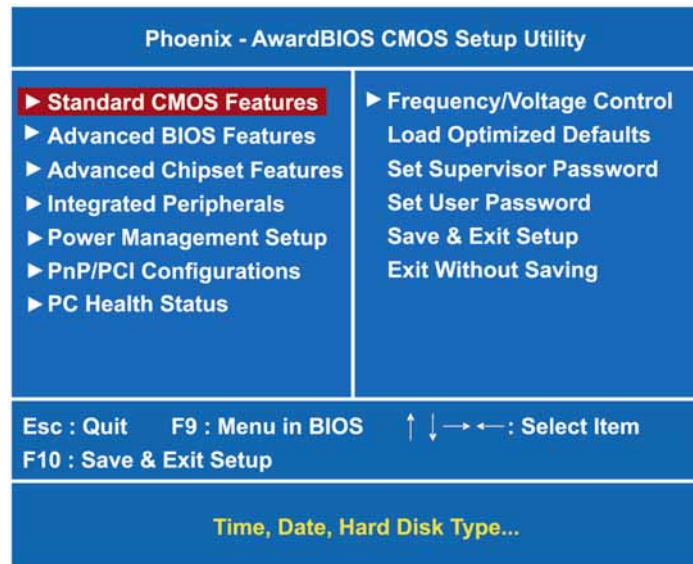
Up arrow	Move cursor to the previous item
Down arrow	Move cursor to the next item
Left arrow	Move cursor to the item on the left hand
Right arrow	Move to the item in the right hand
Esc key	Main Menu -- Quit and delete changes into CMOS Status Page Setup Menu and Option Page Setup Menu -- Exit current 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 will appear on the screen. The Main Menu allows you to select from ten setup functions and two exit choices. Use the arrow keys to select the setup function you intend to configure then press <Enter> to accept or enter its sub-menu.

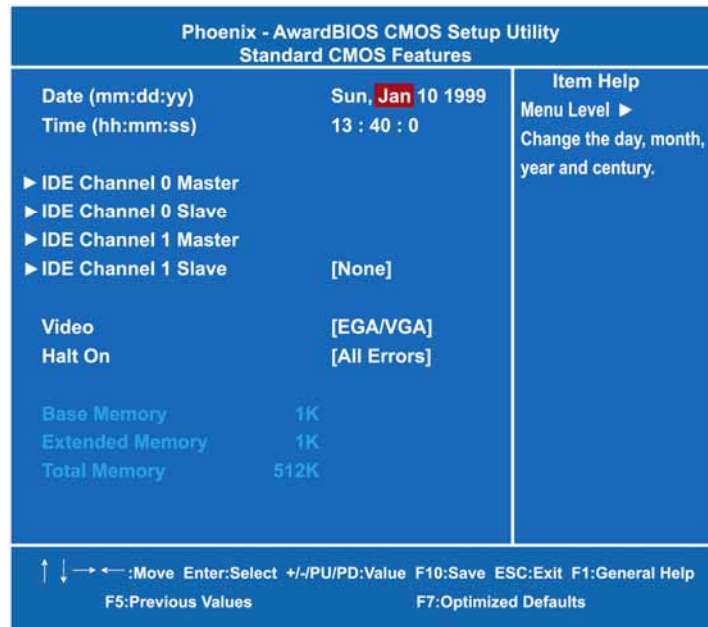


 **NOTE** *If you find that your computer cannot boot after making and saving system changes with Setup, the Award BIOS, via its built-in override feature, resets your system to the CMOS default settings.*

We strongly recommend that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both Award and your system manufacturer to provide the absolute maximum performance and reliability.

3.5 Standard CMOS Setup Menu

The items in Standard CMOS Setup Menu are divided into 10 categories. Each category includes no, one or more than one setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.



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

day	The day of week, from Sun to Sat, determined by the BIOS, is read only
date	The date, from 1 to 31 (or the maximum allowed in the month), can key in the numerical / function key
month	The month, Jan through Dec.
year	The year, depends on the year of BIOS

- Time**
 The time format is <hour> <minute> <second> accepting either functions key or numerical key. The time is calculated based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00.

- **IDE Channel 0/1 Master / IDE Channel 0/1 Slave**

The categories identify the types of one channel that have been installed in the computer. There are 45 predefined types and 2 users definable types are for Enhanced IDE BIOS. Type 1 to Type 45 is predefined. Type User is user-definable.

Press <PgUp>/<+> or <PgDn>/<-> to select a numbered hard disk type or type the number and press <Enter>. Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information within this category. If your hard disk drive type does not match or is not listed, you can use Type User to define your own drive type manually.

If you select Type User, related information is asked to be entered to the following items. Enter the information directly from the keyboard and press <Enter>. This information should be provided in the documentation from your hard disk vendor or the system manufacturer.

If the controller of HDD interface is ESDI, select "Type 1".

If the controller of HDD interface is SCSI, select "None".

If the controller of HDD interface is 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>.

- **Video**

Select the display adapter type for your system.

- **Halt On**

This field determines whether the system will halt if an error is detected during power up.

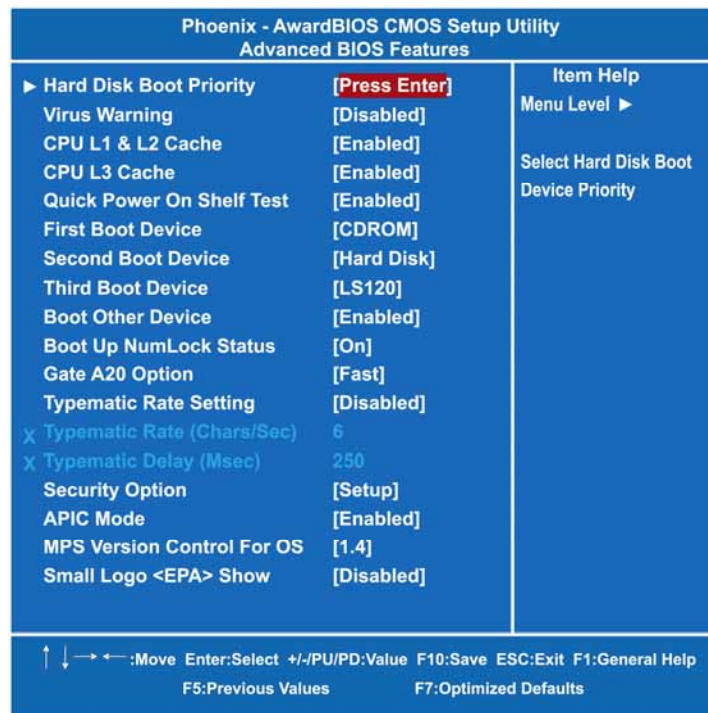
No errors	The system boot will halt on any error detected. (default)
All errors	Whenever the BIOS detect a non-fatal error, the system will stop and you will be prompted.
All, But Keyboard	The system boot will not stop for a keyboard error; it will stop for all other errors.

All, But Diskette	The system boot will not stop for a disk error; it will stop for all other errors.
All, But Disk/Key	The system boot will not stop for a keyboard or disk error; it will stop for all other errors.

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

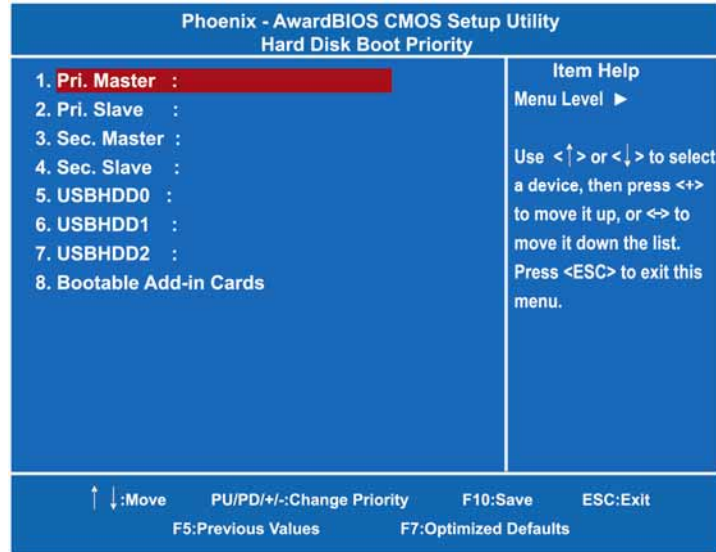
3.6 Advanced BIOS Features

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



- **Hard Disk Boot Priority**

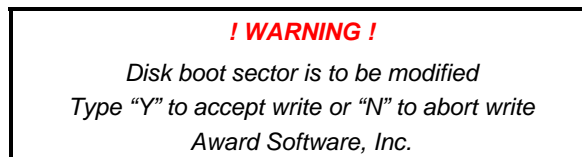
Scroll to this item and press <Enter> to view the sub menu to decide the disk boot priority.



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

- **Virus Warning**

This option flashes on the screen. During and after the system boot up, any attempt to write to the boot sector or partition table of the hard disk drive will halt the system with the following message. You can run an anti-virus program to locate the problem. The default setting is "Disabled".



Enabled	It automatically activates while the system boots up and a warning message appears for an attempt to access the boot sector or hard disk partition table.
Disabled	No warning message will appear for attempts to access the boot sector or hard disk partition table.



NOTE This function is only available with DOS and other operating systems that do not trap INT13.

- **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 with no built-in internal cache will not provide the "CPU Internal Cache" item on the menu.

Enabled	Enable cache
Disabled	Disable cache

- **CPU L3 Cache**

Use this item to enable L3 cache only for the CPUs with such a function.

- **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 allow the selection of 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*, *ZIP100*, *HDD0~3*, *SCSI*, and *CDROM*.

- **Boot Other Device**

This item allows the user to enable/disable the boot device not listed on the First/Second/Third boot devices option above. The default setting is "Enabled".

- **Boot Up NumLock Status**

Selects power on state for NumLock. 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 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 and the default is controlled by keyboard.

- **Typematic Rate (Chars/Sec)**

This option refers to the number of characters the keyboard can type per second. 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 sets the display time interval from the first to the second character when holding a key. 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	The system will not boot and access to Setup will be denied if the incorrect password is entered at the prompt.
Setup	The system will boot, but access to Setup will be denied if the correct password is not entered at the prompt.



NOTE To disable security, select **PASSWORD SETTING** at Main Menu and then you will be asked to enter password. Do not type anything, just press <Enter> and it will disable 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	[By SPD]	Item Help Menu Level ▶
CAS Latency Time	[Auto]	
DRAM RAS# to CAS# Delay	[Auto]	
DRAM RAS# Precharge	[Auto]	
Precharge delay <tRAS>	[Auto]	
System BIOS Cacheable	[Enabled]	
Video BIOS Cacheable	[Disabled]	
Memory Hole At 15M-16M	[Disabled]	
** VGA Setting **		
PEG Force X1	[Disabled]	
On-Chip Frame Buffer Size	[8MB]	
DVMT Mode	[DVMT]	
DVMT/FIXED Memory Size	[128MB]	
Boot Display	[CRT+LFP]	
Panel Scaling	[Auto]	
Panel Type	[1024 x 768 48Bit]	
↑ ↓ → ← :Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F7:Optimized Defaults		

- **DRAM Timing Selectable**

Use this item to increase the timing of the memory. This is related to the cooling of memory.

- **CAS Latency Time**

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

- **DRAM RAS# to CAS# Delay**

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 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.
- **Memory Hole At 15M-16M**
Enabling this feature reserves 15MB to 16MB memory address space to ISA expansion cards that specifically require this setting. This makes the memory from 15MB and up unavailable to the system. Expansion cards can only access memory up to 16MB.

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

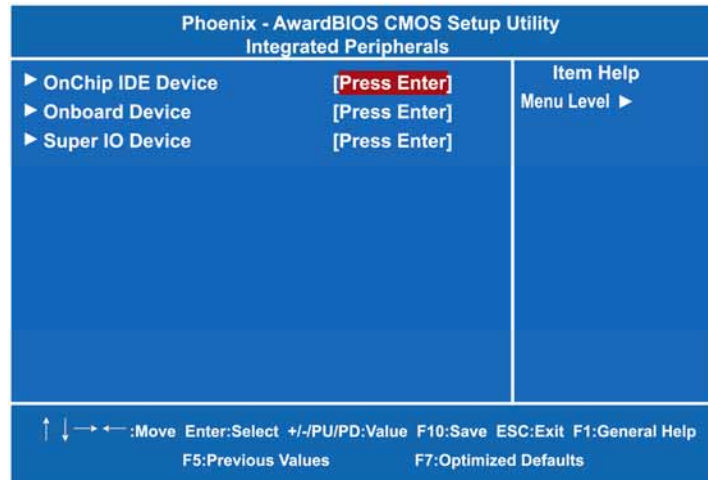
- **PEG Force X1**
This BIOS feature allows you to convert a PCI Express X16 slot into a PCI Express X1 slot. When this item is enabled, the PCI Express X16 slot will be forced to run in the PCI Express X1 mode. When this item is disabled, the PCI Express X16 slot will be allowed to run its normal PCI 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.

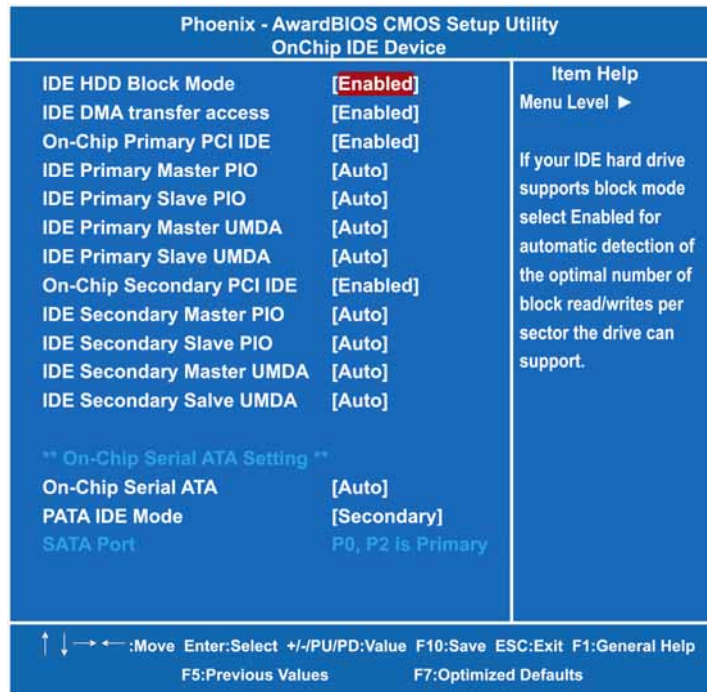
3.8 Integrated Peripherals

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 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 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 your system software both support Ultra DMA-33/66/100/133, select Auto to enable UDMA mode by BIOS.

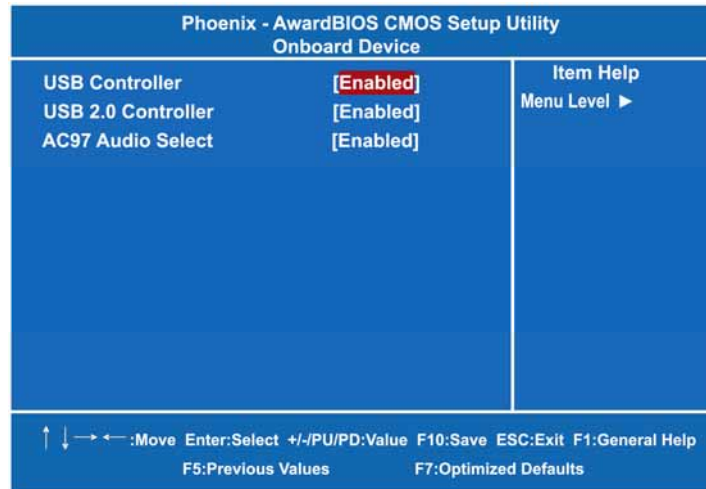
***** On-Chip Serial ATA Setting *****

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



- > **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.
- > **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		Item Help
Super IO Device		
Onboard Serial Port 1	[3F8/IRQ4]	Menu Level ▶
Onboard Serial Port 2	[2F8/IRQ3]	
Onboard Serial Port 3	[3E8/IRQ4]	
Onboard Serial Port 4	[2E8/IRQ3]	
Onboard Serial Port 5	[3F0/IRQ4]	
Onboard Serial Port 6	[2E0/IRQ3]	
Onboard Parallel Port	[378/IRQ7]	
Parallel Port Mode	[Standard]	
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

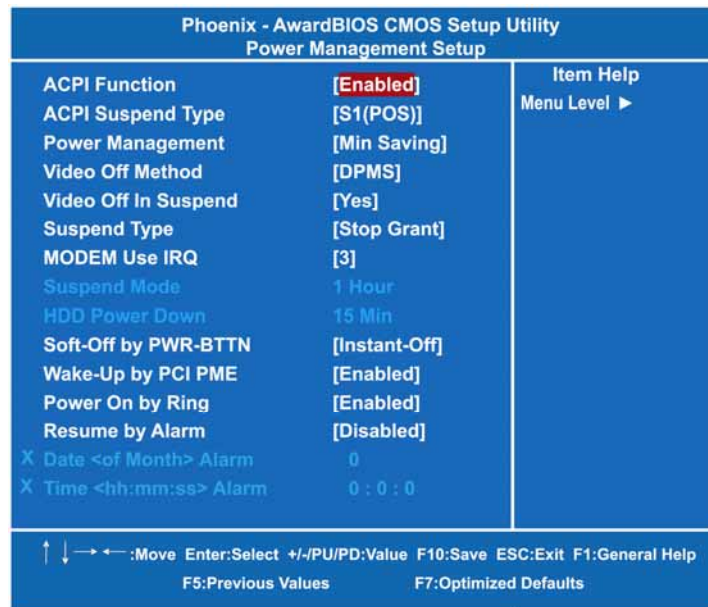
- **Onboard Serial Port 1/2/3/4/5/6**
Select an address and corresponding interrupt for the serial port. Options: *3F8/IRQ4, 2E8/IRQ3, 3E8/IRQ4, 2E8/IRQ3, 3F0/IRQ4, 2E0/IRQ3, Disabled.*
- **Onboard Parallel Port**
This item allows you to determine access onboard parallel port controller with which I/O address. The options available are *378H/IRQ7, 278H/IRQ5, 3BC/IRQ7, Disabled.*
- **Parallel Port Mode**
Select an operating mode for the onboard parallel (printer) port. Select Normal unless your hardware and software require one of the other modes offered in this field. The options available are *EPP1.9, ECP, SPP, ECPEPP1.7, EPP1.7.*
- **EPP Mode Select**
Select EPP port type 1.7 or 1.9.
- **ECP Mode Use DMA**
Select a DMA channel for the parallel port for use during 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 page.

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.



- **ACPI Function**
This item allows you to enable/disable the Advanced Configuration and Power Management (ACPI). The function is always Enabled.
- **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 context.

[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 of power Management. The options available are APM, ACPI.

- **Video Off Method**

This setting determines the manner in which the monitor is blanked.

V/H SYNC+Blank	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 software supplied for your video subsystem to select video power management values.
Blank Screen	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.

- **Modem 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 the user 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 systems perform when power is turned OFF. Instant-Off is a soft power OFF sequence requiring only the switching of the power supply button to OFF
Delay 4 Sec.	Upon turning OFF system from the power switch, this option will delay the complete system power OFF sequence by approximately 4 seconds. Within this delay period, system will temporarily enter into Suspend Mode enabling you to restart the system at once.

- **Wake-Up by PCI PME**

If enable this item, when the PCI LAN card receives an incoming call, it will send PME signals out. And then, the system can automatically resume rebooting.

- **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".

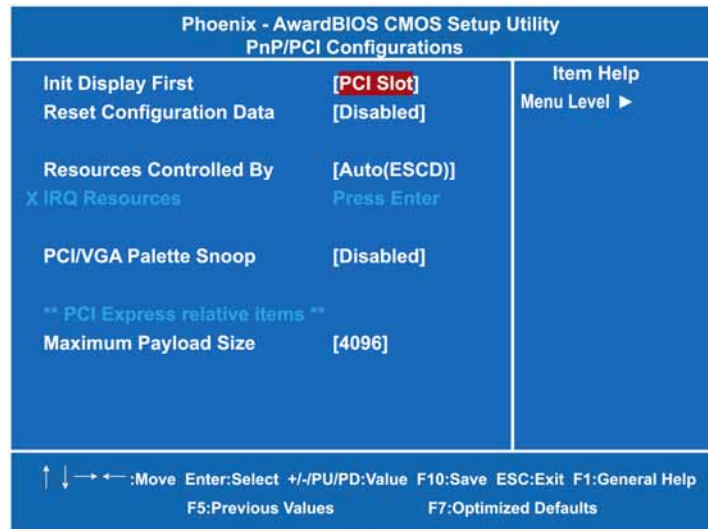
- **Resume by Alarm**

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

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.



- Init Display First**
 This item allows you to decide whether PCI Slot 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 are: "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 ****

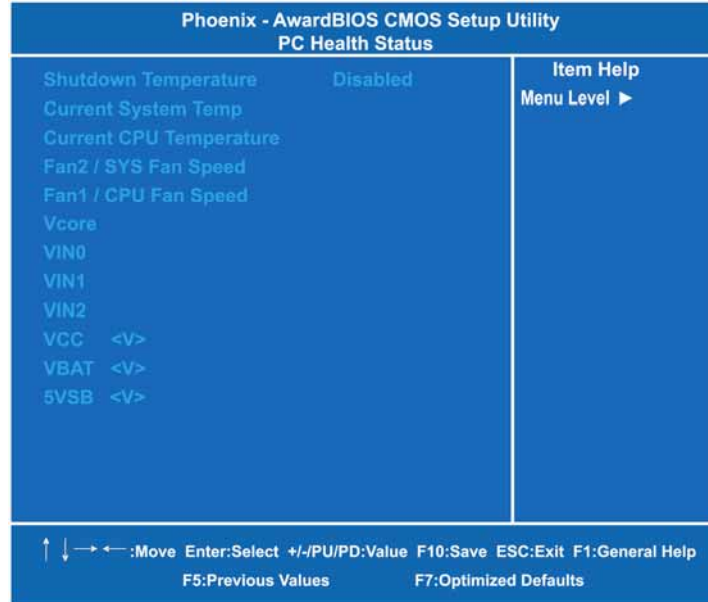
- **Maximum Payload Size**

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 monitoring that lets you monitor those parameters for critical voltages, temperatures and fan speed of the board.



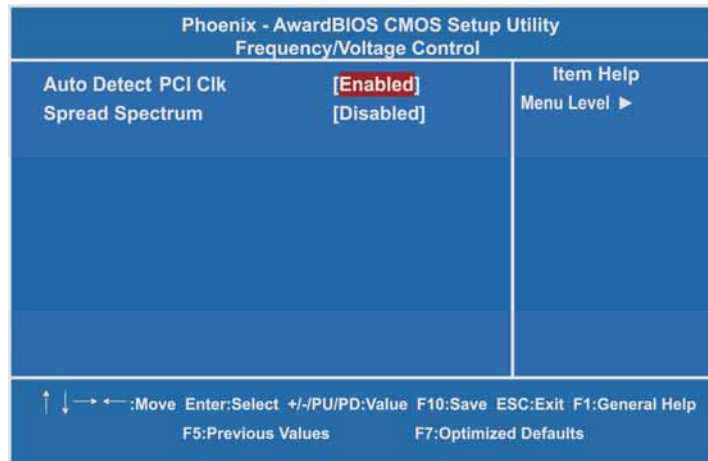
- **Shutdown Temperature**
It helps you set the maximum temperature they system can reach before powering down.
- **Current SYSTEM Temperature**
Show you the current system temperature.
- **Current CPU Temperature**
These read-only fields reflect the functions of the hardware thermal sensor that monitors the chip blocks and system temperatures to ensure the system is stable.
- **Fan2 / SYS FAN Speed**
Show you the current system fan temperature.
- **Fan1 / CPU FAN Speed**
These optional and read-only items show current speeds in RPM (Revolution Per Minute) for the CPU fan and chassis fan as

monitored by the hardware monitoring IC.

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

3.12 Frequency/Voltage Control

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

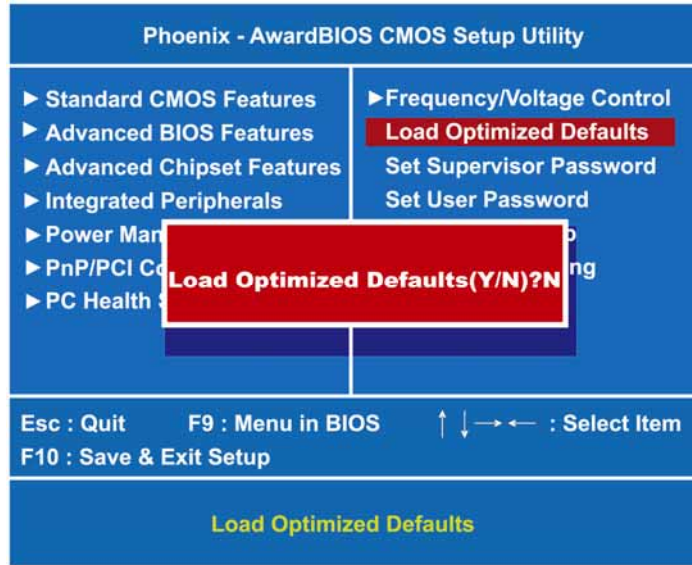


- **Auto Detect PCI Clk**
The enabled item can automatically disable the clock source for a PCI slot which does not have a module in it, reducing EMI (ElectroMagnetic Interference).
- **Spread Spectrum**
If spread spectrum is enabled, EMI (ElectroMagnetic Interference) generated by the system can be significantly reduced.

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

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 a supervisor or user password, or both of them. The differences between them are:

1. **Supervisor password:** You can enter and change the options on the setup menu.
2. **User password:** You can just enter, but have no right to change the options on the setup menu.

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

ENTER PASSWORD

Type a maximum eight-character password, and press <Enter>. This typed password will clear previously entered password from the CMOS memory. You will be asked to confirm this password. Type this password again and press <Enter>. You may also press <Esc> to abort this selection and not enter a password.

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

PASSWORD DISABLED

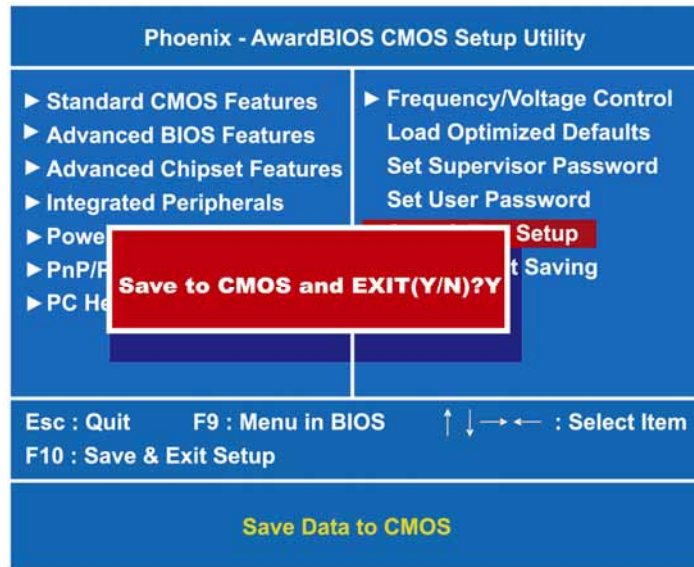
When a password is enabled, you have to type it every time you enter the Setup. It prevents any unauthorized persons from changing your system configuration.

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 decide when the password is required for the BIOS Features Setup Menu and its Security option. If the Security option is set to "System", the password is required during booting up and entry into the Setup; if it is set as "Setup", a prompt will only appear before entering the 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" brings 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.

