

# EX-300-96122

<b>MEASUREMENT</b> Box PC 198x126x72 mm	<b>CPU TYPE</b> FC-BGA	<b>CPU</b> ULV Celeron 400MHz
<b>CHIPSET</b> INTEL 82815E	<b>MEMORY</b> SODIMM 512MB	<b>I/O</b> USB/Serial/ LPT/CF I & II/ Mini PCI
<b>LAN</b> 10/100 BASE-T	<b>AUDIO</b> AC'97	<b>IDE</b> UltraDMA-33

## USER'S MANUAL

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## FCC Class A

This equipment has been tested and found to comply with limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference installations. This equipment generates, uses and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause interference to radio or television equipment reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: -Reorient or relocate the receiving antenna

-Move the equipment away from the receiver

-Plug the equipment into an outlet on a circuit different from that to which the receiver is connected

-Consult the dealer or an experienced radio/television technician for additional suggestions

*You are cautioned that any change or modifications to the equipment not expressly approve by the party responsible for compliance could void Your authority to operate such equipment.*

# Important Safety Instructions

- 1 Read these safety instructions carefully.
- 2 Keep this User's Manual for later reference.
- 3 Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.
- 4 For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.
- 5 Keep this equipment away from humidity.
- 6 Put this equipment on a reliable surface during installation. Dropping it or letting it fall may cause damage.
- 7 The openings on the enclosure are for air convection. Protect the equipment from overheating. **DO NOT COVER THE OPENINGS.**
- 8 Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
- 9 Position the power cord so that people cannot step on it. Do not place anything over the power cord.
- 10 All cautions and warnings on the equipment should be noted.
- 11 If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.
- 12 Never pour any liquid into an opening. This may cause fire or electrical shock.
- 13 Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
- 14 If one of the following situations arises, get the equipment checked by service personnel:
  - a. The power cord or plug is damaged.

- b. Liquid has penetrated into the equipment.
- c. The equipment has been exposed to moisture.
- d. The equipment does not work well, or you cannot get it to work according to the user's manual.
- e. The equipment has been dropped and damaged.
- f. The equipment has obvious signs of breakage.

DO NOT LEAVE THIS EQUIPMENT IN AN UNCONTROLLED ENVIRONMENT WHERE THE STORAGE TEMPERATURE IS BELOW -20° C (-4° F) OR ABOVE 60° C (140° F). THIS MAY DAMAGE THE EQUIPMENT.

The sound pressure level at the operator's position according to IEC 704-1:1982 is no more than 70dB(A).

## About this User's Manual

This User's Manual provides general information and installation instructions about the Box PC. This User's Manual is intended for experienced users and integrators with hardware knowledge of personal computers. If you are not sure about any description in this User's Manual, please consult your vendor before further handling.

## Ordering Information

EX-300-96122  
 EXPERT with EX-9i612VL  
 PAD-HPA-50A42U3  
 AC Power Adaptor 12V@4.2A

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## Introduction

Box PC is targeted at many different application fields. By adopting Box PC, you can pinpoint specific markets, such as Thin Client, KIOSK, information booth, GSM Server, environment-critical and space-critical applications.

Box PC is specially designed for 3.5" and 5.25" Miniboards. The modular design of the Box PC is prepared for any OEM projects. Modular Box PC can be easily modified to fit many different applications according to customers' requests.

### Compact-sized

The kernel of EX-300-96122 is EX-9i612, which is a 3.5" drive size embeded board. The whole system consumes only a few space.

### CRT SVGA

EX-300-96122 can support super 2D video performance and consumes minimal power.

### Advanced storage solution

EX-300-96122 comes with Compact Flash & Mini PCI slots, which offer a better, faster and more cost-effective expansibilities for various applications.

### Trustworthy

The onboard Watchdog Timer can invoke an NMI or system RESET when your application loses control over the system.

## Getting Started

This section will help you have your EX-300-96120 up and running smoothly. For further information, please refer to EX-9i612 Quick Installation Guide.

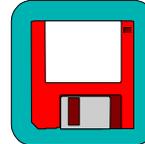
### PACKING LIST



EX-300-96122



IDE Cable w/SR  
PAD-HPA-501242U3  
Power Cord



1 x CD-ROM (driver)

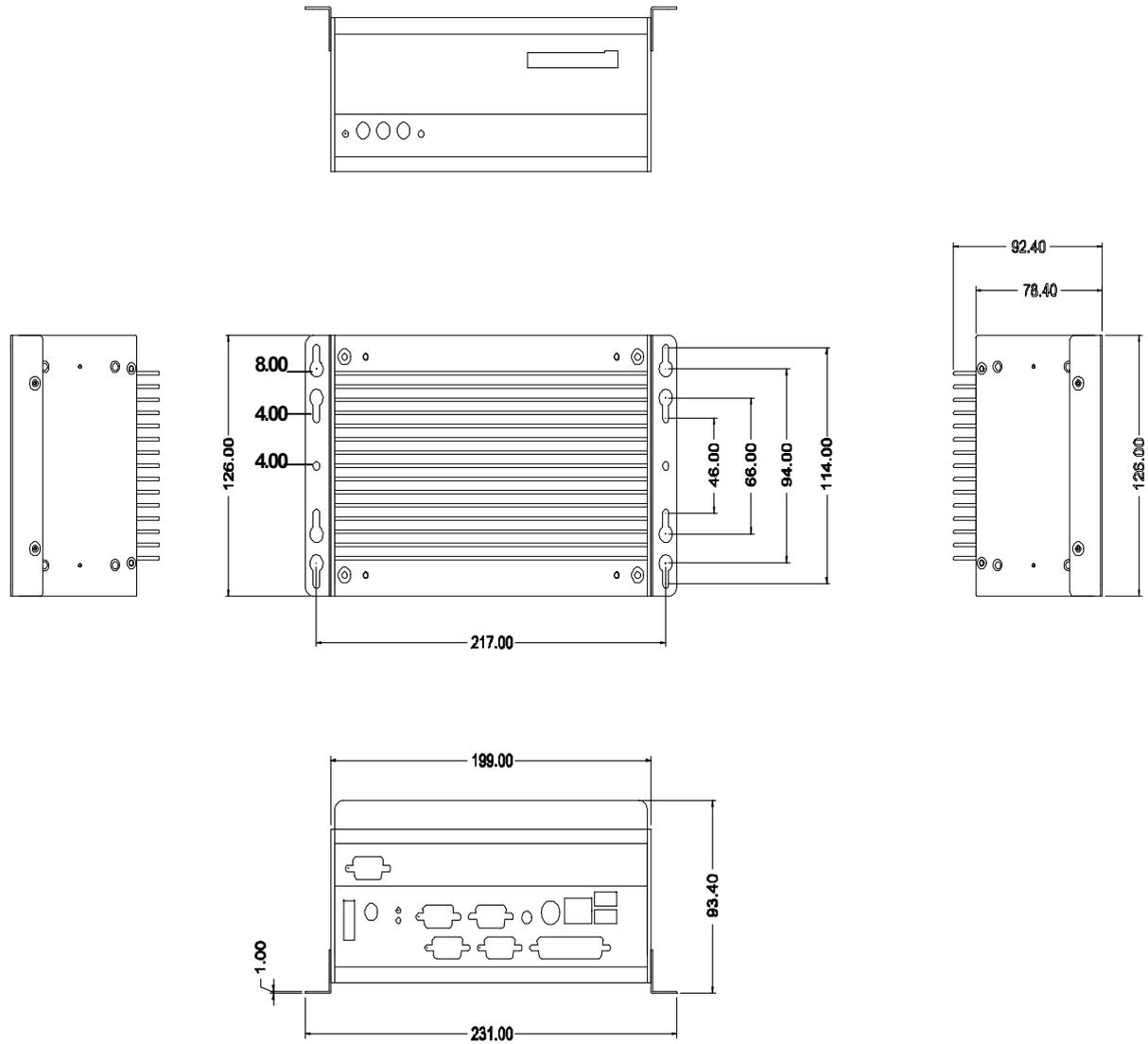


EX-9i612VL Quick Installation

Before up and running, please make sure the package contains all of above accessories.

If any of the above items is damaged or missing, contact your vendor immediately.

# Dimension



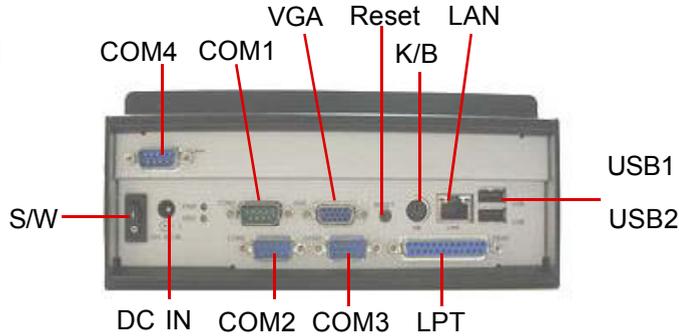
Unit : mm

# Overview

## Front Panel



## Rear Panel



### EX-300-96122

Intel Ultra Low Voltage Celeron / Low Power Pentium III CPU Box PC with CRT, Fast Ethernet, Audio, USB and Compact Flash Type I/II

Specification		
Model	EX-300-96122	
System	CPU	Intel Ultra Low Voltage Celeron 400Mhz CPU FSB100Mhz
	Cache	2nd level 256KByte
	Memory	1 x 144Pin SO-DIMM up to 512MB SDRAM
	Chipset	Intel 815E + Intel ICH2
	BIOS	Phoenix-AWARD PnP Flash BIOS
	Flash Disk	1 x Type II Compact Flash Disk Socket
	Watchdog Timer	127-level Reset
	Serial Port	3 x RS-232 ports (COM1/3/4)
		1 x RS-232/422/485 port (COM2)
	Parallel Port	SPP/EPP/ECP mode
	USB Port	4 x USB 1.1 compliant
	Expansion Bus	1 x 32bit/33Mhz Mini PCI socket
LAN	Intel 82562ET 10/100base-T	
Audio	Realtek ALC202A AC97 Codec, support Mic-in/Line-in/Line-out	
External I/O	Serial Port	3 x RS-232 ports (COM1/3/4)
		1 x RS-232/422/485 port (COM2)
	Parallel Port	1 x DB25
	USB Port	2 x USB1.1 compliant
	KB & Mouse	1 x PS/2 K/B and Mouse
	LAN	1 x RJ45
	Switch	1 x power ON/OFF, 1 x Reset
	Audio	Mic-in, Line-in, Line-out
	LED	1 x power
		1 x HDD
	Display	1 x DB15
	Flash Disk	1 x Type II Compact Flash Disk socket
HDD	1 x 2.5" HDD bay	
Display	Graphics Chipset	Intel 815E Graphics Engine up to 32MByte UMA Video RAM
	Graphics Interface	CRT support up to 1280 x 1024
Power Adaptor	AC Power Input	100 ~ 240V/ 50 ~ 60Hz 1.5A max.; 12V @ >3Am
	DC Power Output	+12Vdc + 5% @ 4.2A max., 50W
Mechanical & Environment	Operating Temperature	0 ~ 40° C
	Storage Temperature	-20 ~ 75° C
	Dimension (W x D x H)	199 x 126 x 92.4mm (7.8" x 5" x 3.6")
	Weight	2 kg (4.4 lb)
	Mounting	Wallmount or Desktop

## Hardware Installation

### Basic installation

1. Mini PCI
2. Memory module
3. Hard Disk Drive
4. Wall-mount kit

### Removing Top Cover

1. On the both sides, locate the two screws that secure the top cover to the chassis.
2. Use screw driver to remove the top cover screws. Keep the screws safely for later use.
3. Pull the top cover slightly upward the main unit until the side tabs are disengaged from chassis.
4. If you feel it's hard to pull up the top cover, just loose the screws that secure the main unit on each side a little bit. Then, you may pull up the top cover easily.



1



3



2



4

## Installing Mini PCI

1. Locate the Mini PCI Socket.

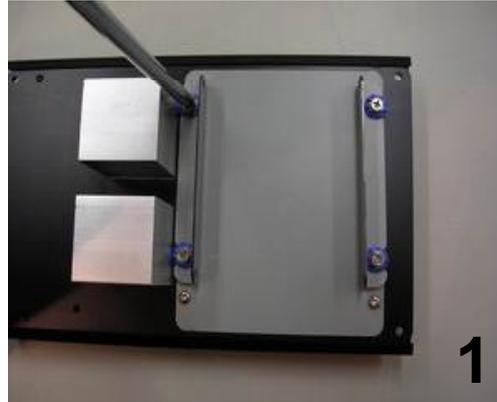


2. Insert and press the Mini PCI card down until it snaps on the latches.



## Installing Hard Disk Drive

1. EX-300-96122 uses the top cover to house Hard Disk Drive. Please locate 4 screws on the inner side of top cover to take apart HDD housing tab. Unscrews 4 screws on HDD housing tab.



2. Align the HDD housing tabs to your hard disk drive and secure them together with screws. Then, screws them back onto inner side of top cover.



Note: For easy installation, it's recommended to keep the connectors of HDD and mainboard on the same direction.

2

2. Locate the IDE connector on the main unit and connect the IDE cable.



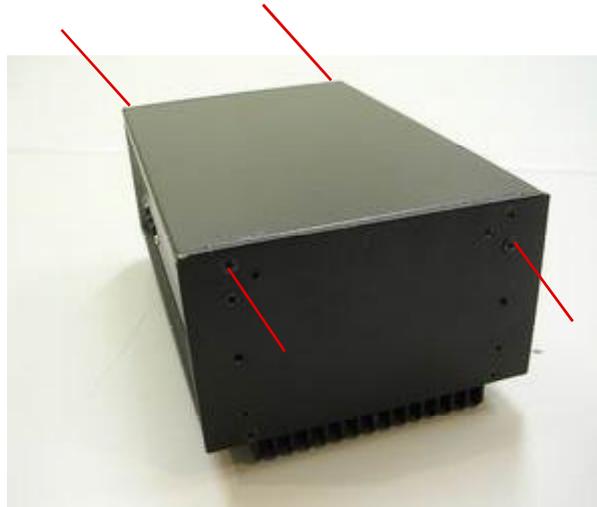
3. Connect the other end of IDE cable to the IDE connector on the drive.



## Installing Memory Module

1. Upside down the Box PC in order to access the bottom cover.

Unscrew 4 screws which secure the bottom cover.



2. Locate the 144-pin SODIMM sockets on the main board of the main unit. Align the SODIMM on the socket and let the notches on the SODIMM meet the break on socket. Firmly insert the DIMM into the socket until the retaining clips snap on and the SODIMM is properly positioned.

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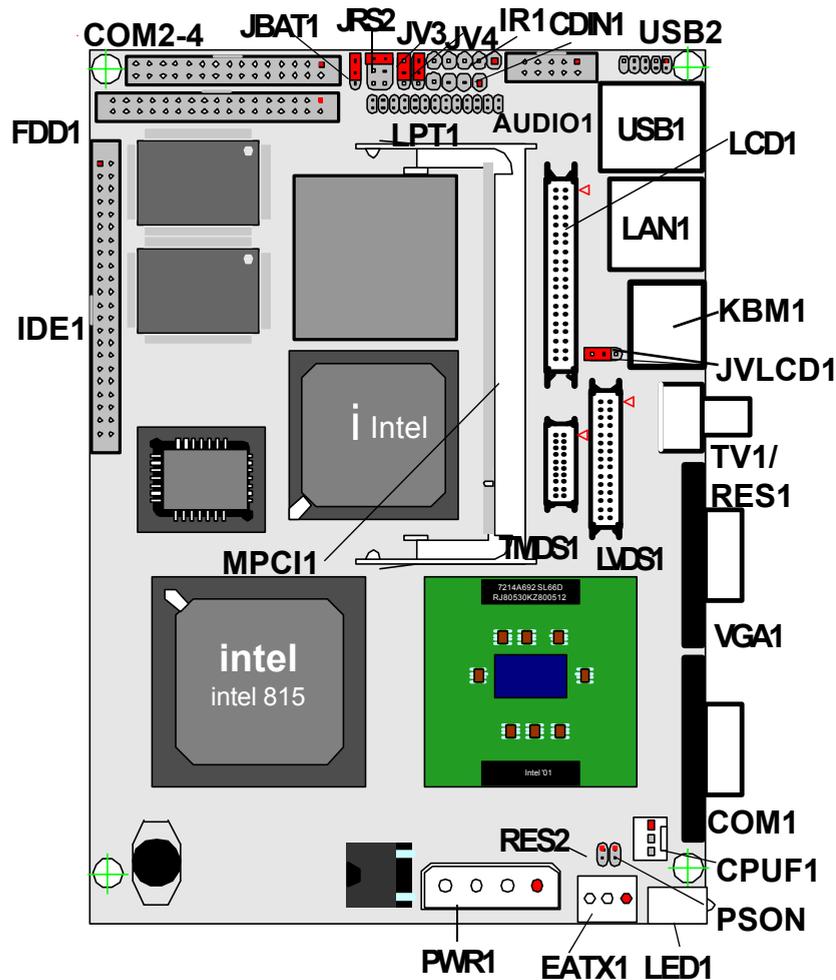
## Installing Wall-Mount Bracket

Locate the two screw holes on each side of Box PC, and match the screws on the wall-mount kit.

Screws onto the main unit.



## Box PC Kernel Information



Note: For further information, please refer to EX-9i612 User's Manual.

## System Resources

### Interrupt Request (IRQ)

IRQ Address	Description
0	System timer
1	Standard 101/102-Key or Microsoft Natural Keyboard
2	Programmable interrupt controller
3	Communications Port (COM2)
4	Communications Port (COM1)
5	IRQ Holder for PCI Steering
5	Realtek AC' 97 Audio
5	Intel(R) PRO/100 VE Network Connection
5	Intel(R) 82801BA/BAM USB Universal Host Controller - 2442
5	Intel(R) 82801BA/BAM SMBus Controller - 2443
6	Standard Floppy Disk Controller
7	Printer Port (LPT1)
8	System CMOS/real time clock
9	Intel(R) 82815 Graphics Controller
9	Intel(R) 82801BA/BAM USB Universal Host Controller - 2444
9	IRQ Holder for PCI Steering
10	Communications Port (COM3)
11	Communications Port (COM4)
12	PS/2 Compatible Mouse Port
13	Numeric data processor
14	Primary Ultra ATA Controller
14	Intel(R) 82801BA Ultra ATA Storage Controller - 244B
15	Secondary Ultra ATA Controller
15	Intel(R) 82801BA Ultra ATA Storage Controller - 244B

### Direct Memory Access (DMA)

DMA	Description
2	Standard Floppy Disk Controller
4	Direct memory access controller

## Ports Input/Output (IO)

I/O Address	Description	I/O Address	Description
0020 - 0021	Programmable interrupt controller	03F6 - 03F6	Intel(R) 82801BA Ultra ATA Storage Controller
0040 - 0043	System timer	03F6 - 03F6	Primary Ultra ATA Controller
0060 - 0060	Standard 101/102	03F7 - 03F7	Standard Floppy Disk Controller
0061 - 0061	System speaker	03F8 - 03FF	Communications Port (COM1)
0064 - 0064	Standard 101/102	0400 - 04BF	PCI bus
0070 - 0071	System CMOS/real time clock	04D0 - 04D1	PCI bus
0081 - 0083	Direct memory access controller	0500 - 050F	Intel(R) 82801BA/BAM SMBus Controller
0087 - 0087	Direct memory access controller	0778 - 077B	Printer Port (LPT1)
0089 - 008B	Direct memory access controller	0CF8 -0CFF	PCI bus
008F - 0091	Direct memory access controller	C000 - C03F	Intel(R) PRO/100 VE Network Connection
00A0 - 00A1	Programmable interrupt controller	C000 - CFFF	Intel(R) 82801BA PCI Bridge
00C0 - 00DF	Direct memory access controller	D000 - D01F	Intel(R) 82801BA/BAM USB Universal Host Controller
00F0 - 00FF	Numeric data processor	D800 - D81F	Intel(R) 82801BA/BAM USB Universal Host Controller
0170 - 0177	Intel(R) 82801BA Ultra ATA Storage Controller	DC00 - DCFF	Realtek AC? 7 Audio
0170 - 0177	Secondary Ultra ATA Controller	E000 - E03F	Realtek AC? 7 Audio
01F0 - 01F7	Intel(R) 82801BA Ultra ATA Storage Controller	F000 - F00F	Intel(R) 82801BA Ultra ATA Storage Controller
01F0 - 01F7	Primary Ultra ATA Controller	F000 - F007	Primary Ultra ATA Controller
02E8 - 02EF	Communications Port (COM4)	F008 - F00F	Secondary Ultra ATA Controller
02F8 - 02FF	Communications Port (COM2)		
0000 - 000F	Direct memory access controller		
0376 - 0376	Intel(R) 82801BA Ultra ATA Storage Controller		
0376 - 0376	Secondary Ultra ATA Controller		
0378 - 037F	Printer Port (LPT1)		
03B0 - 03BB	Intel(R) 82815 Graphics Controller		
03C0 - 03DF	Intel(R) 82815 Graphics Controller		
03E8 - 03EF	Communications Port (COM3)		
03F0 - 03F5	Standard Floppy Disk Controller		

## AWARD BIOS Setup

The EX-300-96120 uses the Award PCI/ISA BIOS for the system configuration. The Award BIOS setup program is designed to provide the maximum flexibility in configuring the system by offering various options which could be selected for end-user requirements. This chapter is written to assist you in the proper usage of these features.

To access AWARD PCI/ISA BIOS Setup program, press <Del> key. The Main Menu will be displayed at this time.



Once you enter the AwardBIOS™ CMOS Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from several setup functions and two exit choices. Use the arrow keys to select among the items and press <Enter> to accept and enter the sub-menu.

### Setup Items

The main menu includes the following main setup categories. Recall that some systems may not include all entries.

#### Standard CMOS Features

Use this menu for basic system configuration.

#### Advanced BIOS Features

Use this menu to set the Advanced Features available on your system.

#### Advanced Chipset Features

Use this menu to change the values in the chipset registers and optimize your system's performance.

#### Integrated Peripherals

Use this menu to specify your settings for integrated peripherals.

#### Power Management Setup

Use this menu to specify your settings for power management.

#### PnP / PCI Configuration

This entry appears if your system supports PnP / PCI.

#### PC Health Status

This entry helps you to monitor the status of PC.

#### Frequency/Voltage Control

Use this menu to specify your settings for frequency/voltage control.

#### Load Optimized Defaults

Use this menu to load the BIOS default values that are factory settings for optimal performance system operations. While Award has designed the custom BIOS to maximize performance, the factory has the right to change these defaults to meet their needs.

#### Set Password

Use this menu to set User and Supervisor Passwords.

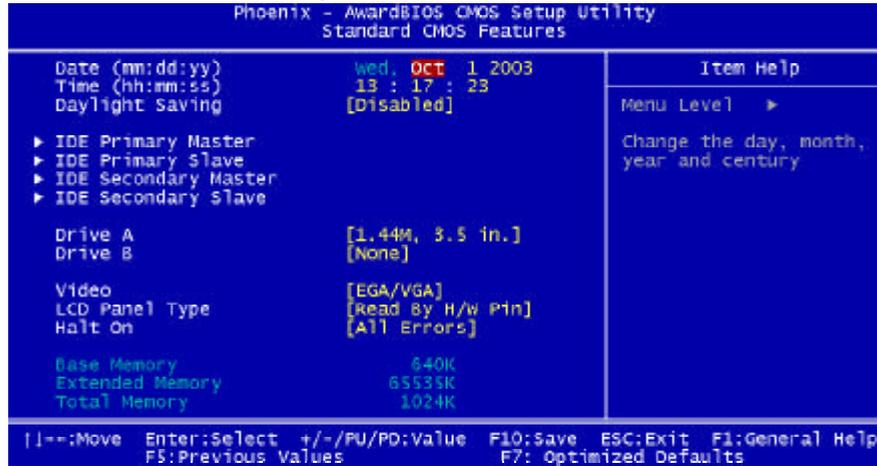
#### Save & Exit Setup

Save CMOS value changes to CMOS and exit setup.

#### Exit Without Save

Abandon all CMOS value changes and exit setup.

## Standard CMOS Setup



### Date

The BIOS determines the day of the week from the other date information; this field is for information only.

### Time

The time format is based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00. Press the « or ( key to move to the desired field. Press the PgUp or PgDn key to increment the setting, or type the desired value into the field.

### IDE Primary Master/Slave

### IDE Secondary Master/Slave

Options are in sub menu (see page 30)

### Drive A, B

Select the correct specifications for the diskette drive(s) installed in the computer.

<b>None</b> ;	No diskette drive installed
<b>360K</b> ;	5.25 in 5-1/4 inch PC-type standard drive
<b>1.2M</b> ;	5.25 in 5-1/4 inch AT-type high-density drive
<b>720K</b> ;	3.5 in 3-1/2 inch double-sided drive
<b>1.44M</b> ;	3.5 in 3-1/2 inch double-sided drive
<b>2.88M</b> ;	3.5 in 3-1/2 inch double-sided drive

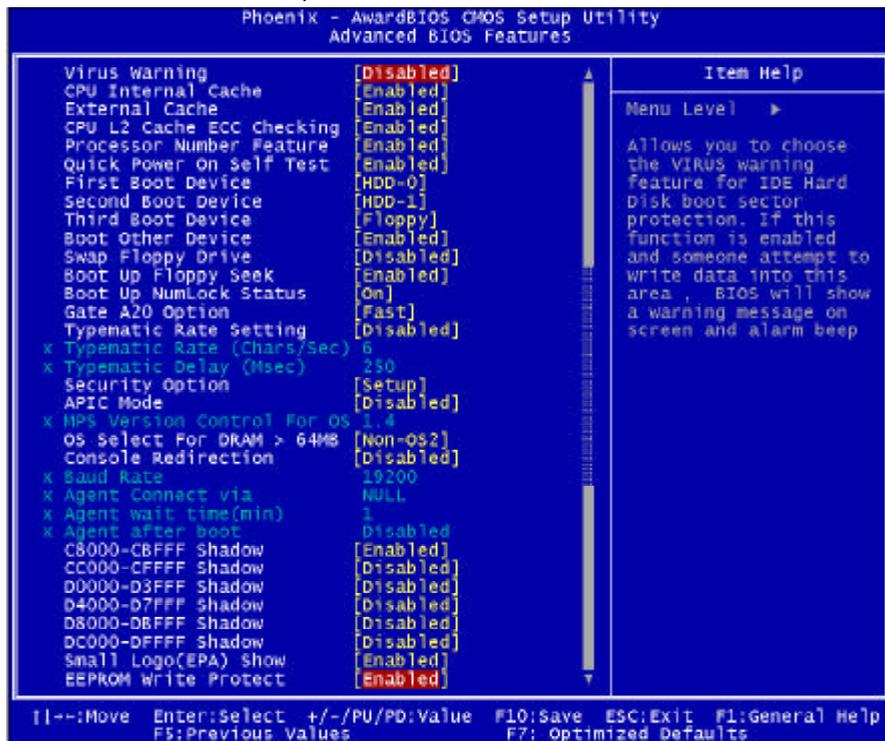
**Video** Select the type of primary video subsystem in your computer. The BIOS usually detects the correct video type automatically. The BIOS supports a secondary video subsystem, but you do not select it in Setup.

**LCD Panel Type** Select the type of LCD (optional)

**Halt On** During the power-on self-test (POST), the computer stops if the BIOS detects a hardware error. You can tell the BIOS to ignore certain errors during POST and continue the boot-up process. These are the selections:

No errors	POST does not stop for any errors.
All errors	If the BIOS detects any non-fatal error, POST stops and prompts you to take corrective action.
All, But Keyboard	POST does not stop for a keyboard error, but stops for all other errors.
All, But Diskette	POST does not stop for diskette drive errors, but stops for all other errors.
All, But Disk/Key	POST does not stop for a keyboard or disk error, but stops for all other errors.

## BIOS Features Setup



### Virus Warning

Allows you to choose the VIRUS Warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempt to write data into this area, BIOS will show a warning message on screen and beep.

**Enabled** Activates automatically when the system boots up causing a warning message to appear when anything attempts to access the boot sector or hard disk partition table.

**Disabled** No warning message will appear when anything attempts to access the boot sector or hard disk partition table.

### CPU Internal Cache/External Cache

These two categories speed up memory access. However, it depends on CPU/chipset design. Enabled : Enable cache, Disabled : Disable cache

### CPU L2 Cache ECC Checking

This item allows you to enable/disable CPU L2 Cache ECC checking. The choice: Enabled, Disabled.

### Processor Number Feature

This feature appears when a Pentium III processor is installed. It enables you enables you to control whether the Pentium III's serial number can be read by external programs. The choice : Enabled. Disabled

### Quick Power On Self Test

This category speeds up Power On Self Test (POST) after you power up the computer. If it is set to Enable, BIOS will shorten or skip some check items during POST. Enabled : Enable quick POST. Disabled : Normal POST

### First/Second/Third/Other Boot Device

The BIOS attempts to load the operating system from the devices in the sequence selected in these items. The choices are : Floppy, LS/ZIP, HDD, SCSI, CDROM, Disabled.

### Swap Floppy Drive

If the system has two floppy drives, you can swap the logical drive name assignments. The choice: Enabled/Disabled.

### Boot Up Floppy Seek

Seeks disk drives during boot up. Disabling speeds boot up. The choice: Enabled/Disabled.

### Boot Up NumLock Status

Select power on state for NumLock. The choice: Enabled/Disabled.

### Gate A20 Option

Select if chipset or keyboard controller should control GateA20.  
Normal A pin in the keyboard controller controls GateA20  
Fast Lets chipset control GateA20

### Typematic Rate Setting

Key strokes repeat at a rate determined by the keyboard controller. When enabled, the typematic rate and typematic delay can be selected. The choice: Enabled/Disabled.

### Security Option

Select whether the password is required every time the system boots or only when you enter setup.

**System** The system will not boot and access to Setup will be denied if the correct password is not 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 and just press <Enter>, it will disable security. Once the security is disabled, the system will boot and you can enter Setup freely.

### APIC Mode

Select

### OS Select For DRAM > 64MB

Select the operating system that is running with greater than 64MB of RAM on the system. The choice: Non-OS2, OS2.

### Console Redirection

Console Redirection capability allows a system with no keyboard and no video hardware to transmit video and keyboard data to a host system via the serial port.

### Video BIOS Shadow

Enabled this copies the video BIOS from ROM to RAM, effectively enhancing performance, and reducing the amount of upper memory available by 32KB (the C000~C7FFF area of memory between 640 KB and 1 MB is used).

### C8000-CBFFF Shadow

Enabling any of the C8000~CBFFF segments allows components to move their firmware into these upper memory segments. However your computer can lock-up doing so, because some devices don't like being shadowed at those particular 16 KB segments of upper memory.

### Small Logo(EPA) Show

[Enabled]: If you want to show your logo, please enable it.

[Disabled]:

When this item disabled, logo(EPA) will not show on screen.

### EEPROM Write Protect

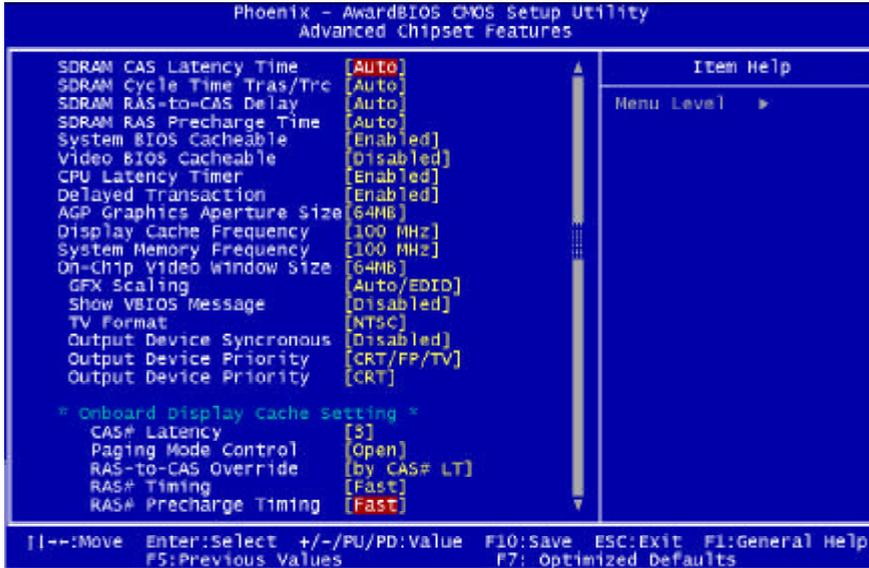
All the configuration data is stored in a type of nonvolatile memory chip called an EEPROM. When it's enabled, it disables all writes to the configuration EEPROM. This locks

your current configuration against accidental or unauthorized changes.

**Note** - In Windows 95, double click 'Computer' within Device Manager and select 'Memory'. This will tell you what segments (if any) are being shadowed. For DOS you can use MSD.EXE to see what segments are claimed.

CC000-CFFFF - D0000-D3FFF - D4000-D7FFF - D8000-DBFFF and  
DC000-DFFFF - Same as above.

## Chipset Features Setup



### DRAM Settings

The first chipset settings deal with CPU access to dynamic random access memory (DRAM). The default timings have been carefully chosen and should only be altered if data is being lost. Such a scenario might well occur if your system had mixed speed DRAM chips installed so that greater delays may be required to preserve the integrity of the data held in the slower memory chips.

#### SDRAM CAS Latency Time

When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing.

#### SDRAM Cycle Time Tras/Trc

Select the number of SCLKs for an access cycle

#### SDRAM RAS-to-CAS Delay

This field let's you insert a timing delay between the CAS and RAS strobe signals, used when DRAM is written to, read from, or refreshed. Fast gives faster performance; and Slow gives more stable performance. This field applies only when synchronous DRAM is installed in the system.

#### SDRAM RAS Precharge Time

If an insufficient number of cycles is allowed for the RAS to accumulate its charge before DRAM refresh, the refresh may be incomplete and the DRAM may fail to retain data. Fast gives faster performance; and Slow gives more stable performance. This field applies only when synchronous DRAM is installed in the 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.

#### Video BIOS Cacheable

Select Enabled allows caching of the video BIOS, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

#### CPU latency Timer

When enabled this item, the CPU cycle will only be deferred after it has been held in a "Snoop Stall" for 31 clocks and another ADS# has arrived. When disabled, the CPU cycle will be deferred immediately after the GMCH receives another ADS#.

#### Delayed Transaction

The chipset has an embedded 32-bit posted write buffer to support delay transactions cycles. Select Enabled to support compliance with PCI specification version 2.1

#### AGP Graphics Aperture Size

This field determines the effective size of the Graphic Aperture used for a particular GMCH configuration. It can be updated by the GMCH-specific BIOS configuration sequence before the PCI standard bus enumeration sequence takes place. If it is not updated then a default value will select an aperture of maximum size.

#### Display Cache Frequency

You can use this item to select the frequency of the display cache.

#### System Memory Frequency

You can use this item to select the operating frequency for the main system.

#### On-Chip Video Window Size

Select the on-chip video window size for VGA drives use.

## Onboard Display Cache Setting

Setting the onboard display cache timing

### CAS#Latency

Select the local memory clock periods

### Paging Mode Control

Select the paging mode control

### RAS-to-CAS Override

Select the display cache clock periods control

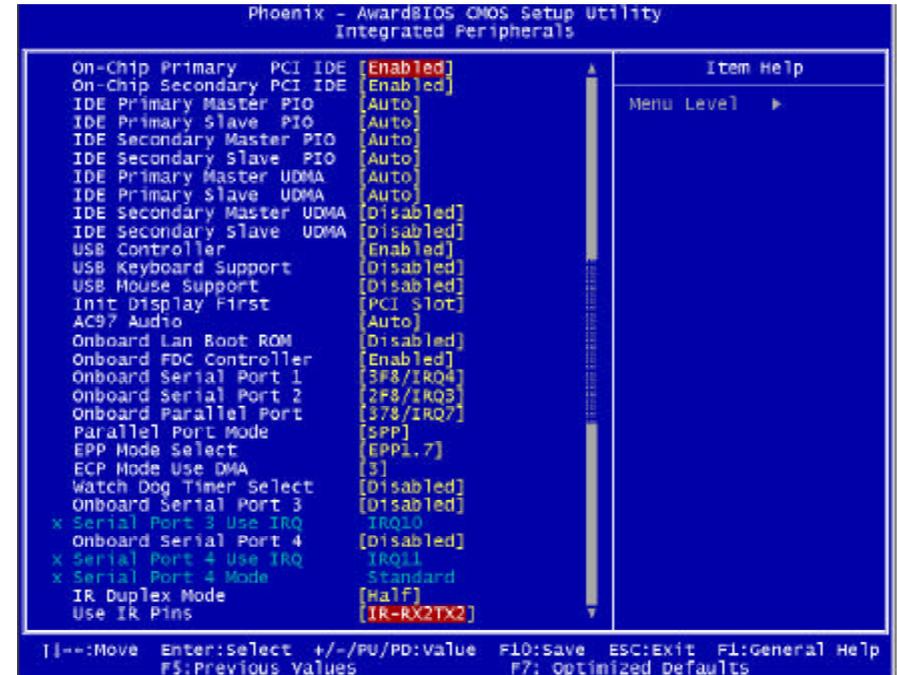
### RAS# Timing

This item controls RAS# active to Protegra, and refresh to RAS# active delay ( in local memory clocks).

### RAS# Precharge Timing

This item controls RAS# precharge ( in local memory clocks).

## Integrated Peripherals



### OnChip Primary/Secondary PCI IDE

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

### Primary & Secondary Master/Slave PIO

These four PIO fields let you set a PIO mode (0-4) for each of four IDE devices. When under "Auto" mode, the system automatically set the best mode for each device

### Primary & Secondary Master/Slave UDMA

When set to "Auto" mode, the system will detect if the hard drive supports

---

Ultra DMA mode.

#### **USB Controller**

Select "Enable" if your system contains a Universal Serial Bus (USB) controller and you have USB peripherals.

#### **USB Keyboard Support**

Select "Enable" if your system contains a Universal Serial Bus (USB) controller and you have USB keyboard.

#### **Init Display First**

This item allows you to decide to activate whether PCI slot or on-chip VGA first

#### **AC97 Audio**

AC97 Audio selection.

#### **Onboard LAN Boot ROM**

The default setting is "Disabled" that to shorten the booting time.

#### **Onboard FDC Controller**

Select "Enabled" to activate the on-board FDD

Select "Disabled" to activate an add-on FDD

#### **Onboard Serial Port 1 & 2**

Select an address and corresponding interrupt for the first/second serial port.

The default value for the first serial port is "3F8/IRQ4" and the second serial port is "2F8/IRQ3".

#### **Onboard Parallel Port Port**

Select an address and corresponding interrupt for the parallel port.

#### **EPP Mode Select**

You can use this feature to choose which version of EPP to use. For better performance, use EPP 1.9. But if you are facing connection issues, try setting it to EPP 1.7. Most of the time, EPP 1.9 will work perfectly well.

#### **ECP Mode Use DMA**

By default, the parallel port uses DMA Channel 3 when it is in ECP mode. This works fine in most situations.

#### **Watch Dog Timer Select**

The system board supports the Watchdog Timer function allowing your application to regularly clear the system at the set time interval. If the system hangs or fails to function, it will reset at the set time interval so that your system will

continue to operate. You may set the time interval in 10s, 20s, 30s, 40s, 1 Min, 2 Min, 4 Min or Disabled.

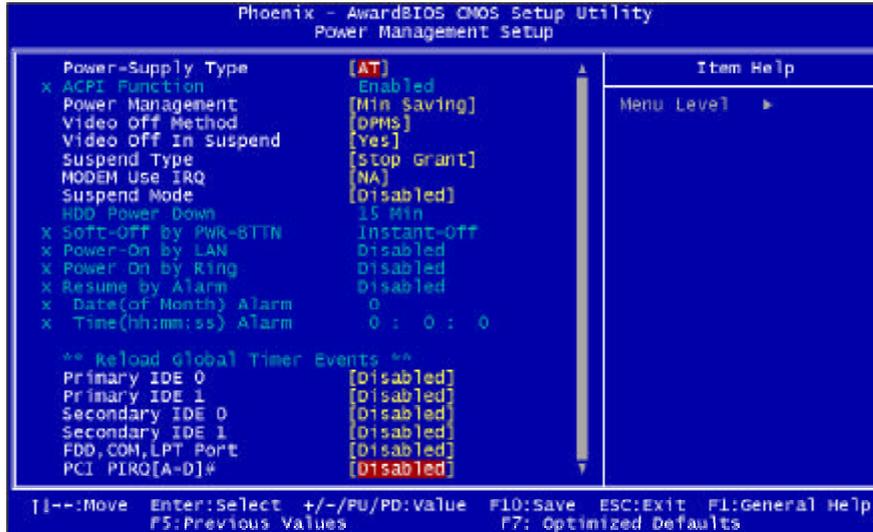
#### **IR2 Duplex Mode**

This item allows you to select the IR half/full duplex function.

#### **Use IR Pins**

This item allows you to select IR transmission routes, IR-Rx2Tx2, Rx2 and Tx2.

## Power Management Setup



### ACPI Function

Select Enabled only if your computer's operating system supports ACPI (the Advanced Configuration and Power Interface) specification. Currently, Windows 98 and Windows 2000 support ACPI.

### Power Management

There are 4 selections for Power Management, 3 of which have fixed mode :

- |                    |  |
|--------------------|--|
| Disabled (default) | No power management. Disables all four modes.  |
| Min. Power Saving  | Minimum power management. Doze Mode = 1 hr., Standby Mode = 1 hr., Suspend Mode = 1 hr.,                                   |
| Max. Power Saving  | Maximum power management -- ONLY AVAILABLE FOR SL CPU's.. Doze Mode = 1 min., Standby Mode = 1 min., Suspend Mode = 1 min. |
| User Defined       | Allows you to set each mode individually. When not disabled, each of the ranges are from 1 min. to 1 hr.                   |

### Video Off Method

This determines the manner in which the monitor is blanked.

V/H SYNC+Blank cause the system to turn off the vertical and horizontal synchronization signals and writes blanks to the screen.

Blank Screen This option only writes blanks to the screen.

DPMS Initial display power management signaling. HDD Power Down is always set independently

### Video Off In Suspend

Controls what causes the display to be switched off

Suspend -> Off Always On All Mode -> Off

### Suspend Type

S1 (POS) Power On suspend

All devices are powered up except for the clock synthesizer. The Host and PCI clocks are inactive and PIIX4 provides control signals and 32-kHz Suspend Clock (SUSCLK) to allow for DRAM refresh and to turn off the clock synthesizer. The only power consumed in the system is due to DRAM Refresh and leakage current of the powered devices. When the system resumes from POS, PIIX4 can optionally resume without resetting the system, can reset the processor only, or can reset the entire system. When no reset is performed, PIIX4 only needs to wait for the clock synthesizer and processor PLLs to lock before the system is resumed. This takes typically 20 ms.

S3 (STR) Suspend To RAM

Power is removed from most of the system components during STR, except the DRAM. Power is supplied to Suspend Refresh logic in the Host Controller, and RTC and Suspend Well logic in PIIX4. PIIX4 provides control signals and 32-kHz Suspend Clock (SUSCLK) to allow for DRAM refresh and to turn off the clock synthesizer and other power planes.

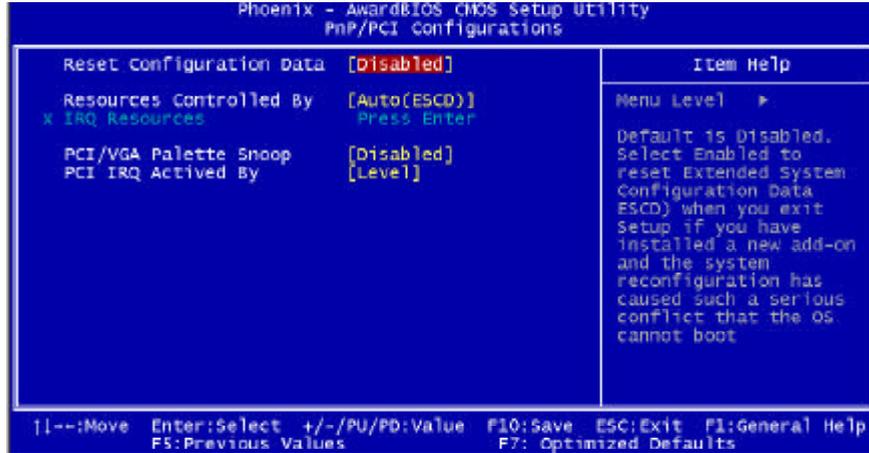
### Modem Use IRQ

Name the interrupt request (IRQ) assigned to the modem (if any) on your system. Activity of the selected IRQ always awakens the system.

### Suspend Mode

When the suspend mode has been enabled after the selected period of system inactivity, all devices except CPU will be shut down.

## PNP/PCI Configuration



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.

### Reset Configuration Data

Normally, you leave this field Disabled. Select Enabled to reset ESCD (Extended System Configuration Date) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system cannot boot.

### Resource Controlled By

The Award Play and Play BIOS can automatically configure all the boot and Plug-and-Play compatible devices. If you select Auto, all the interrupt request (IRQ) and DMA assignment fields disappear, as the BIOS automatically assigns them.

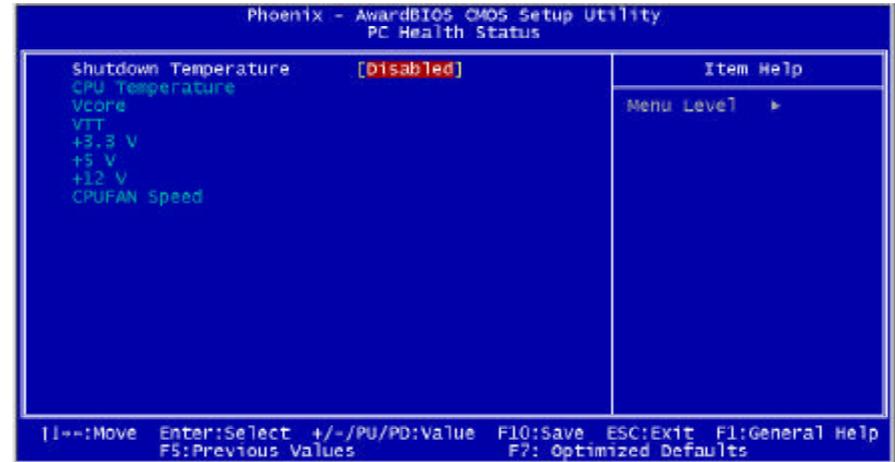
### PCI/VGA Palette Snoop

Normally this option is always Disabled! Nonstandard VGA display adapters such as overlay cards or MPEG video cards may not show colors properly. Setting Enabled should correct this problem. If this field set Enabled, any I/O access on the ISA bus to the VGA card's palette registers will be reflected on the PCI bus. This will allow overlay cards to adapt to the changing palette colors.

### PCI IRQ Activated by

[Level]

## PC Health Status

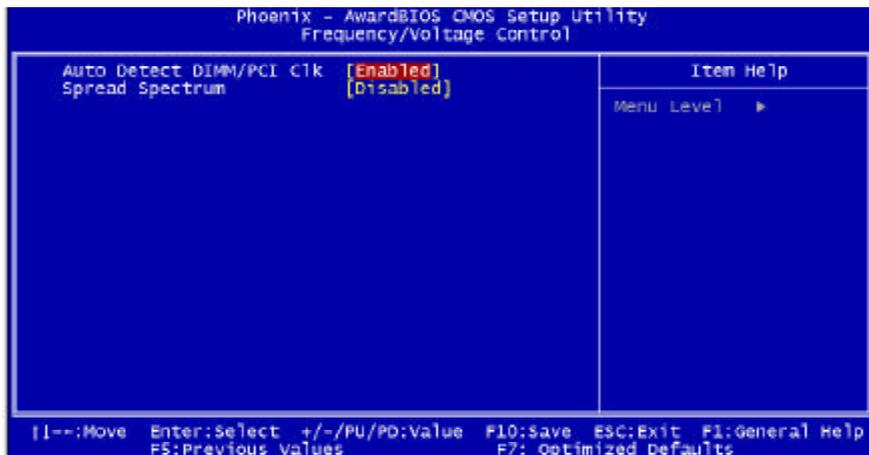


This section describes CPU temperature for the system.

### Shutdown Temperature

This item allows you to set up the CPU shutdown Temperature. This item only effective under Windows 98 ACPI mode.

## Frequency/Voltage Control



This section describes Frequency and Voltage control for the system.

### Auto Detect DIMM/PCI CLK

When enabled, this item will auto detect if the DIMM and PCI socket have devices and will send clock signal to DIMM and PCI devices. When disabled, it will send the clock signal to all DIMM and PCI socket.

### Spread Spectrum

This item allows you to enable/disable the spread spectrum modulate.

## POST Codes

The following codes are not displayed on the screen. They can only be viewed on the LED display of a so called POST card. The codes are listed in the same order as the according functions are executed at PC startup. If you have access to a POST Card reader, you can watch the system perform each test by the value that's displayed. If the system hangs (if there's a problem) the last value displayed will give you a good idea where and what went wrong, or what's bad on the system board.

CODE	DESCRIPTION OF CHECK
CFh	Test CMOS R/W functionality.
C0h	Early chipset initialization: -Disable shadow RAM -Disable L2 cache (socket 7 or below) -Program basic chipset registers
C1h	Detect memory -Auto-detection of DRAM size, type and ECC. -Auto-detection of L2 cache (socket 7 or below)
C3h	Expand compressed BIOS code to DRAM
C5h	Call chipset hook to copy BIOS back to E000 & F000 shadow RAM.
0h1	Expand the Xgroup codes locating in physical address 1000:0
02h	Reserved
03h	Initial Superio_Early_Init switch.
04h	Reserved
05h	1. Blank out screen 2. Clear CMOS error flag
06h	Reserved
07h	1. Clear 8042 interface 2. Initialize 8042 self-test
08h	1. Test special keyboard controller for Winbond 977 series Super I/O chips. 2. Enable keyboard interface.
09h	Reserved

0Ah	<ol style="list-style-type: none"> <li>1. Disable PS/2 mouse interface (optional).</li> <li>2. Auto detect ports for keyboard &amp; mouse followed by a port &amp; interface swap (optional).</li> <li>3. Reset keyboard for Winbond 977 series Super I/O chips.</li> </ol>	1Eh	Reserved
		1Fh	Load keyboard matrix (notebook platform)
0Bh	Reserved	20h	Reserved
0Ch	Reserved	21h	HPM initialization (notebook platform)
0Dh	Reserved	22h	Reserved
0Eh	Test F000h segment shadow to see whether it is R/W-able or not. If test fails, keep beeping the speaker.	23h	<ol style="list-style-type: none"> <li>1. Check validity of RTC value: e.g. a value of 5Ah is an invalid value for RTC minute.</li> <li>2. Load CMOS settings into BIOS stack. If CMOS checksum fails, use default value instead.</li> </ol>
0Fh	Reserved	24h	Prepare BIOS resource map for PCI & PnP use. If ESCD is valid, take into consideration of the ESCD's legacy information.
10h	Auto detect flash type to load appropriate flash R/W codes into the run time area in F000 for ESCD & DMI support.	25h	<p>Early PCI Initialization:</p> <ul style="list-style-type: none"> <li>-Enumerate PCI bus number.</li> <li>-Assign memory &amp; I/O resource</li> <li>-Search for a valid VGA device &amp; VGA BIOS, and put it into C000:0</li> </ul>
11h	Reserved	26h	<ol style="list-style-type: none"> <li>1. If Early_Init_Onboard_Generator is not defined Onboard clock generator initialization. Disable respective clock resource to empty PCI &amp; DIMM slots.</li> <li>2. Init onboard PWM</li> <li>3. Init onboard H/W monitor devices</li> </ol>
12h	Use walking 1's algorithm to check out interface in CMOS circuitry. Also set real-time clock power status, and then check for override.	27h	Initialize INT 09 buffer
13h	Reserved	28h	Reserved
14h	Program chipset default values into chipset. Chipset default values are MODBINable by OEM customers.	29h	<ol style="list-style-type: none"> <li>1. Program CPU internal MTRR (P6 &amp; PII) for 0-640K memory address.</li> <li>2. Initialize the APIC for Pentium class CPU.</li> <li>3. Program early chipset according to CMOS setup. Example: onboard IDE controller.</li> <li>4. Measure CPU speed.</li> </ol>
15h	Reserved	2Ah	Reserved
16h	Initial onboard clock generator if Early_Init_Onboard_Generator is defined. See also POST 26h.	2Bh	Invoke Video BIOS
17h	Reserved	2Ch	Reserved
18h	Detect CPU information including brand, SMI type (Cyrix or Intel) and CPU level (586 or 686).	2Dh	<ol style="list-style-type: none"> <li>1. Initialize double-byte language font (Optional)</li> <li>2. Put information on screen display, including Award title,</li> </ol>
19h	Reserved		
1Ah	Reserved		
1Bh	Initial interrupts vector table. If no special specified, all H/W interrupts are directed to SPURIOUS_INT_HDLR & S/W interrupts to SPURIOUS_soft_HDLR.		
1Ch	Reserved		
1Dh	Initial EARLY_PM_INIT switch.		

	CPU type, CPU speed, full screen logo.	48h	Reserved
2Eh	Reserved	49h	1. Calculate total memory by testing the last double word of each 64K page. 2. Program write allocation for AMD K5 CPU.
2Fh	Reserved		
30h	Reserved	4Ah	Reserved
31h	Reserved	4Bh	Reserved
32h	Reserved	4Ch	Reserved
33h	Reset keyboard if Early_Reset_KB is defined e.g. Winbond 977 series Super I/O chips. See also POST 63h.	4Dh	Reserved
34h	Reserved	4Eh	1. Program MTRR of M1 CPU 2. Initialize L2 cache for P6 class CPU & program CPU with proper cacheable range. 3. Initialize the APIC for P6 class CPU. 4. On MP platform, adjust the cacheable range to smaller one in case the cacheable ranges between each CPU are not identical.
35h	Test DMA Channel 0		
36h	Reserved		
37h	Test DMA Channel 1.		
38h	Reserved	4Fh	Reserved
39h	Test DMA page registers.	50h	Initialize USB Keyboard & Mouse.
3Ah	Reserved	51h	Reserved
3Bh	Reserved	52h	Test all memory (clear all extended memory to 0)
3Ch	Test 8254	53h	Clear password according to H/W jumper (Optional)
3Dh	Reserved	54h	Reserved
3Eh	Test 8259 interrupt mask bits for channel 1.	55h	Display number of processors (multi-processor platform)
3Fh	Reserved	56h	Reserved
40h	Test 8259 interrupt mask bits for channel 2.	57h	1. Display PnP logo 2. Early ISA PnP initialization -Assign CSN to every ISA PnP device.
41h	Reserved		
42h	Reserved		
43h	Test 8259 functionality.	58h	Reserved
44h	Reserved	59h	Initialize the combined Trend Anti-Virus code.
45h	Reserved	5Ah	Reserved
46h	Reserved	5Bh	(Optional Feature) Show message for entering AWDFLASH.EXE from FDD (optional)
47h	Initialize EISA slot		

5Ch	Reserved	73h	(Reserved)
5Dh	1. Initialize Init_Onboard_Super_IO 2. Initialize Init_Onboard_AUDIO.	74h	Reserved
5Eh	Reserved	75h	Detect & install all IDE devices: HDD, LS120, ZIP, CDROM? .
5Fh	Reserved	76h	(Optional Feature) Enter AWDFLASH.EXE if: -AWDFLASH.EXE is found in floppy drive. -ALT+F2 is pressed.
60h	Okay to enter Setup utility; i.e. not until this POST stage can users enter the CMOS setup utility.	77h	Detect serial ports & parallel ports.
61h	Reserved	78h	Reserved
62h	Reserved	79h	Reserved
63h	Reset keyboard if Early_Reset_KB is not defined.	7Ah	Detect & install co-processor
64h	Reserved	7Bh	Reserved
65h	Initialize PS/2 Mouse	7Ch	Init HDD write protect.
66h	Reserved	7Dh	Reserved
67h	Prepare memory size information for function call: INT 15h ax=E820h	7Eh	Reserved
68h	Reserved	7Fh	Switch back to text mode if full screen logo is supported. - If errors occur, report errors & wait for keys - If no errors occur or F1 key is pressed to continue : wClear EPA or customization logo.
69h	Turn on L2 cache	80h	Reserved
6Ah	Reserved	81h	Reserved
6Bh	Program chipset registers according to items described in Setup & Auto-configuration table.		
6Ch	Reserved		
6Dh	1. Assign resources to all ISA PnP devices. 2. Auto assign ports to onboard COM ports if the corresponding item in Setup is set to "AUTO".		
6Eh	Reserved		
6Fh	1. Initialize floppy controller 2. Set up floppy related fields in 40:hardware.		
70h	Reserved		
71h	Reserved		
72h	Reserved		
			<b>E8POST.ASM starts</b>
		82h	1. Call chipset power management hook. 2. Recover the text font used by EPA logo (not for full screen logo) 3. If password is set, ask for password.
		83h	Save all data in stack back to CMOS
		84h	Initialize ISA PnP boot devices
		85h	1. USB final Initialization 2. Switch screen back to text mode

---

86h	Reserved
87h	NET PC: Build SYSID Structure.
88h	Reserved
89h	<ol style="list-style-type: none"><li>1. Assign IRQs to PCI devices</li><li>2. Set up ACPI table at top of the memory.</li></ol>
8Ah	Reserved
8Bh	<ol style="list-style-type: none"><li>1. Invoke all ISA adapter ROMs</li><li>2. Invoke all PCI ROMs (except VGA)</li></ol>
8Ch	Reserved
8Dh	<ol style="list-style-type: none"><li>1. Enable/Disable Parity Check according to CMOS setup</li><li>2. APM Initialization</li></ol>
8Eh	Reserved
8Fh	Clear noise of IRQs
90h	Reserved
91h	Reserved
92h	Reserved
93h	Read HDD boot sector information for Trend Anti-Virus code
94h	<ol style="list-style-type: none"><li>1. Enable L2 cache</li><li>2. Program Daylight Saving</li><li>3. Program boot up speed</li><li>4. Chipset final initialization.</li><li>5. Power management final initialization</li><li>6. Clear screen &amp; display summary table</li><li>7. Program K6 write allocation</li><li>8. Program P6 class write combining</li></ol>
95h	Update keyboard LED & typematic rate
96h	<ol style="list-style-type: none"><li>1. Build MP table</li><li>2. Build &amp; update ESCD</li><li>3. Set CMOS century to 20h or 19h</li><li>4. Load CMOS time into DOS timer tick</li><li>5. Build MSIRQ routing table.</li></ol>
FFh	Boot attempt (INT 19h)

## Howto : Flash the BIOS

What do you need:

To flash your BIOS you'll need

- 1) a xxxxx.bin file that is a file image of the new BIOS
- 2) AWDFLASH.EXE a utility that can write the data-file into the BIOS chip.

The procedure:

Create a new, clean DOS (6 or higher) bootable floppy with "format a: /s".

Copy flash utility and the BIOS image file to this disk.

Turn your computer off. Insert the floppy you just created and boot the computer. As it boots up, hit the [DEL] key to enter the CMOS setup. Go to "LOAD SETUP (or BIOS) DEFAULTS," and then save and exit the setup program. Continue to boot with the floppy disk.

Type "AWDFLASH" to execute the flash utility. When prompted, enter the name of the new BIOS image and begin the flash procedure. Note: If you reboot now, you may not be able to boot again.

After the flash utility is complete, reboot the system.

## Warranty

This product is warranted to be in good working order for a period of one year from the date of purchase. Should this product fail to be in good working order at any time during this period, we will, at our option, replace or repair it at no additional charge except as set forth in the following terms. This warranty does not apply to products damaged by misuse, modifications, accident or disaster.

Vendor assumes no liability for any damages, lost profits, lost savings or any other incidental or consequential damage resulting from the use, misuse of, or inability to use this product. Vendor will not be liable for any claim made by any other related party.

Return authorization must be obtained from the vendor before returned merchandise will be accepted. Authorization can be obtained by calling or faxing the vendor and requesting a Return Merchandise Authorization (RMA) number. Returned goods should always be accompanied by a clear problem description.

