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This equipment has been tested and found to comply with the limits of a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. 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. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. However, there is no guarantee that interference will not occur in a particular installation.

Canadian Department of Communications Regulatory Statement

This digital apparatus does not exceed Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

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Chapter 1. Getting Started

1.1 Introduction to Your Motherboard

Thank you for choosing this motherboard! This motherboard is designed to take advantage of the latest industry technology to provide you with the ultimate solution in data processing. In the tradition of its predecessors, this motherboard continues a commitment to reliability and performance and strives for full compliance and compatibility with industry software and hardware standards.

1.2 PM650GX Features:

1. Contains on board I/O facilities, which include two serial ports, a VGA port, a parallel port, a PS/2 mouse port, a PS/2 keyboard port, audio ports, USB ports and a game port.
2. Contains on board IDE facilities for IDE devices such as hard disks and CD-ROM Drives.
3. Supports the Pentium 4[®] processor, a leading edge processor. Complies with PC Micro-ATX form factor specifications.
4. Supports popular operating systems such as Windows 95/98, Windows NT, Windows 2000, Windows ME, Windows XP, Novell, UNIX, LINUX and SCO UNIX.

Chapter 2. Mainboard Specifications

2.1 Hardware

CPU:

- Provides Socket-478.
- Supports Pentium 4[®] processor providing the new generation power for high-end workstations and servers.

Speed:

- Running at 400 MHz Front Side Bus frequency.
- Supports up to 2.4 GHz CPU core speeds.
- The 33MHz 32 bit PCI 2.2 compliant.
- The AGP 2.0 compliant interface supports 1x, 2x and 4x data transfer mode.

Chipset:

- Chipset – SiS 650GX/ SiS 961B.
- Chipset – Winbond W83697HF.

DRAM Memory:

- Supports 64MB/128MB/256MB/512MB/1GB DIMM modules.
- Supports DDR 200/266 (Double Data Rate) Synchronous DRAM.
- Max of 2 Double-Sided DIMMs (4 rows populated) with unbuffered (without ECC).
- The largest memory capacity is 2GB for unbuffered DIMMs.

PM650GX

Shadow RAM:

- Motherboard is equipped with a memory controller providing shadow RAM and support for ROM BIOS.

Green Functionality:

- Supports Phoenix-Award BIOS™ power management functionality.
- Wakes from power saving sleep mode with any keyboard or mouse activity.

BUS Slots:

- Contains 1 AGP slot.
- Contains 1 CNR slot (AMR Type).
- Contains 3 32-bit PCI bus slots.

Flash Memory:

- Supports flash memory functionality.
- Supports ESCD functionality.

Built in IDE Facilities:

- Supports four IDE hard disk drives.
- Supports PIO Mode 4, Master Mode, and high performance hard disk drives.
- Supports disk transfer rates up to 133 MB/second.
- Supports Ultra DMA 33, Ultra DMA 66, Ultra DMA 100 and Ultra DMA 133 Bus Master Modes.
- Supports IDE interface with CD-ROM.
- Supports high capacity hard disk drives.
- Supports LBA mode.

PM650GX

Hardware Monitor Function:

- Monitors CPU Fan Speed.
- Monitors Chasis Fan Speed.
- Monitors System Voltage.

Infrared:

- Support IrDA Version 1.0 SIR Protocol with Max.baud rate up to 115.2K bps.
- Support SHARP ASK-IR Protocol with Max. baud rate up to 57600 bps.
- Support Consumer IR with Wake-Up function.

AC'97 Sound Codec Onboard:

- AC-LINK protocol compliance.
- Compliant with AC'97 2.2 specification.
- 18-bit full duplex stereo ADC, DACs.
- SNR>95 Bb throughmixer and DAC.
- AC-3 playback required for PVD applications.

I/O facilities:

- One multi-mode Parallel Port capable of supporting the following specifications:
 1. Standard & Bidirection Parallel Port.
 2. Enhanced Parallel Port (EPP).
 3. Extended Capabilities Port (ECP).
 4. Normal
- Supports two serial ports, 16550 UART.
- Supports Infrared Data Transmission using IrDA.
- Supports PS/2 mouse and PS/2 keyboard.
- Supports 360KB, 1.2MB, 1.44MB, and 2.88MB floppy disk drives.

PM650GX

Universal Serial Bus:

- Supports two back panel Universal Serial Bus Ports and four front panel Universal Serial Bus Ports (optional).
- USB 1.1 compliance.

Dimensions (Micro-ATX form-factor):

- 21.8cm x 24.4cm (WxL)

2.2 BIOS

- Phoenix legal BIOS.
- Supports APM1.2.
- Supports USB legacy.
- Supports ACPI Power Management.

2.3 Software

Operating System:

Offers the highest performance for MS-DOS, Windows NT, Windows 2000, Windows 95/98, Windows ME, Windows XP, Novell, LINUX, UNIX, SCO UNIX etc.

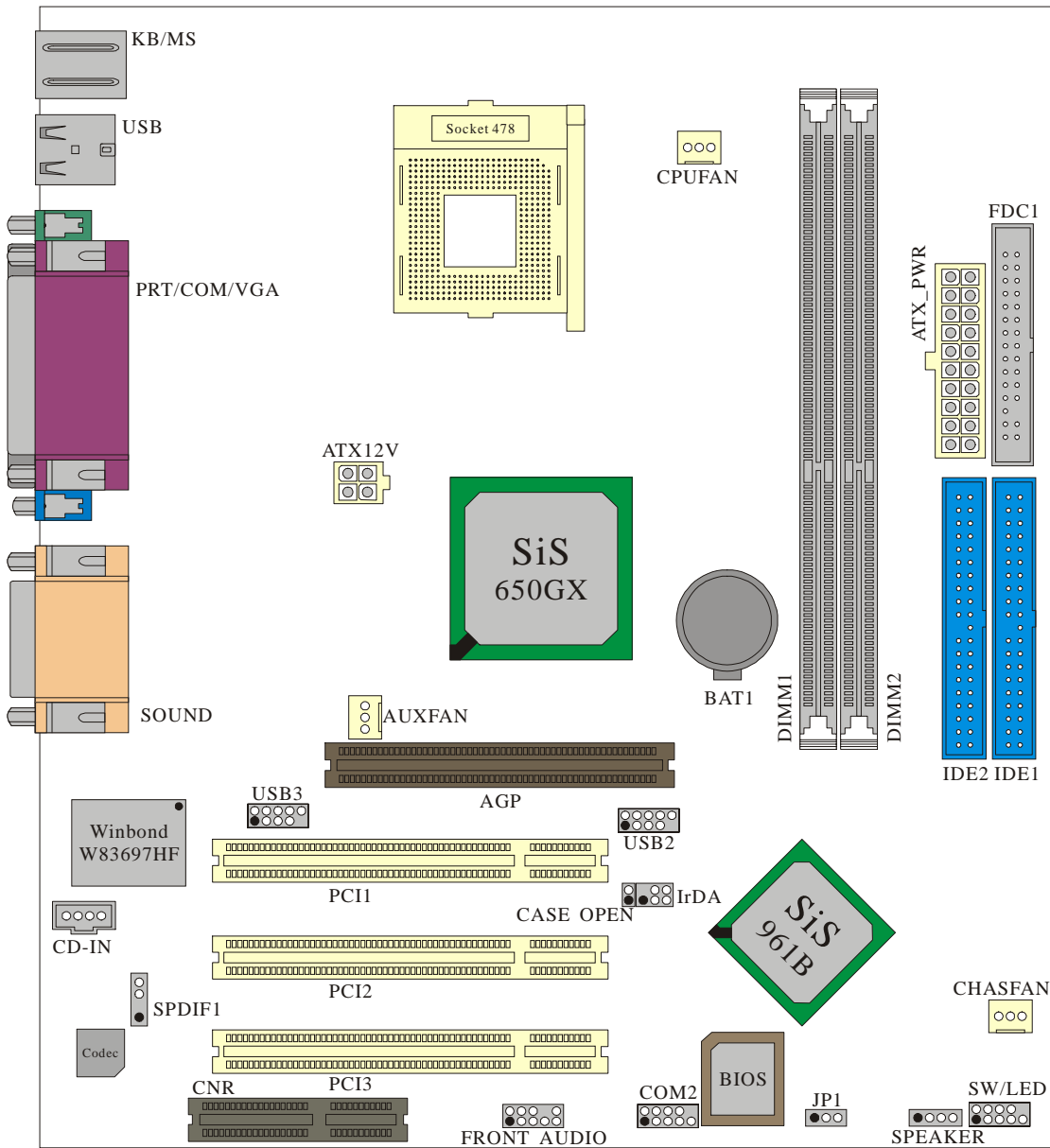
2.4. Package Contents

- HDD Cable.
- FDD Cable.
- USB2/USB3 Cable (Optional).
- Rear I/O Panel for Micro-ATX Case (Optional).
- Fully Setup Driver CD.

PM650GX

Chapter 3. Mainboard Configuration

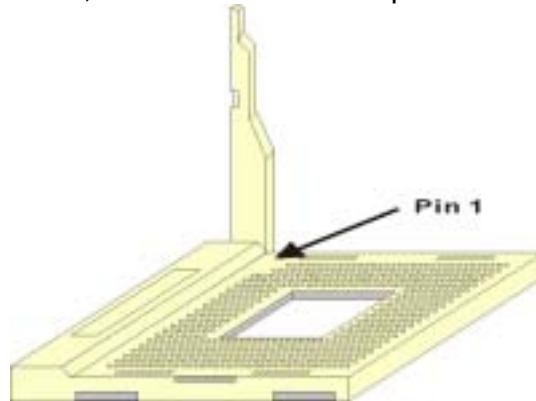
Layout of PM650GX



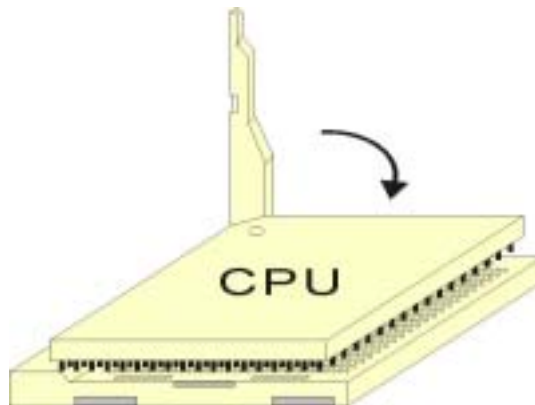
3.1 CPU Configuration

CPU Socket-478 Configuration Steps:

1. Please find the CPU socket on your motherboard and pull the lever sideways away from the socket, then raise the lever up to a 90-degree angle.



2. Find Pin-1 in the socket and look for the white dot or cut edge in the CPU. Match Pin-1 with the white dot/cut edge then insert the CPU.



3. Press the lever down. Then Put the CPU fan on the CPU socket and clasp it with the socket. When the CPU fan is fixed to the CPU socket, put the fan's power port into the CPUFAN. After finishing all these steps, the CPU is ready for use.

PM650GX

System Fan Header: CHASFAN

Pin No.	Assignment
1	Ground
2	+12V
3	Sense

North Bridge Chipset Fan Header: AUXFAN

Pin No.	Assignment
1	Ground
2	+12V
3	NC

4.1 Front Panel Indicator: SW/LED

Pin No.	Assignment	Function	Pin No.	Assignment	Function
1	HD LED (+)	Hard Drive LED	2	Power LED (+)	POWER
3	HD LED (-)		4	Power LED (-)	LED
5	Reset Control (-)	Reset Button	6	Power Button(+)	Power-on
7	Reset Control(+)		8	Power Button(-)	Button
9	NC	NC	10	NC	NC

HD LED (Hard Drive LED Connector)

This connector can be attached to an LED on the front panel of a computer case. The LED will flicker during disk activity. This disk activity only applies to those IDE drives directly attached to the system board.

RST (Reset Button)

This connector can be attached to a momentary SPST switch. This switch is usually open and when closed will cause the motherboard to reset and run the POST (Power On Self Test).

PWR-LED (Power LED Connector)

This connector can be attached to an LED on the front panel of a computer case. The LED will illuminate while the computer is powered on.

PWR ON (Power Button)

This connector can be attached to a front panel power switch. The switch must pull the Power Button pin to ground for at least 50 ms to signal the power supply to switch on or off. (The time required is due to internal debounce circuitry on the system board). At least two seconds must pass before the power supply will recognize another on/off signal.

4.2 SPEAKER (Speaker Connector)

PIN	Assignment	PIN	Assignment
1	PC_BEEP	3	Ground
2	NC	4	+5V

An offboard speaker can be installed on the motherboard as a manufacturing option. An offboard speaker can be connected to the motherboard at the front panel connector. The speaker (onboard or offboard) provides error beep code information during the Power On Self-Test when the computer cannot use the video interface. The speaker is not connected to the audio subsystem and does not receive output from the audio subsystem.

4.3 IrDA (Infrared Connector)

PIN	Assignment	PIN	Assignment
1	NC	4	GND
2	NC	5	IR_RX
3	PWR	6	IR_TX

This IrDA connector can be configured to support wireless infrared module, it is used to attach to an infrared sensing device. After the IrDA interface is configured, connectionless data transfer to and from portable devices such as laptops, PDAs is possible.

PM650GX

4.4 ATX 20-pin Power Connector: ATX_PWR

This ATX power supply uses 20-pin connector. During your configuration, please plug it into the right direction.

PIN	Assignment	PIN	Assignment
1	+3.3V	11	+3.3V
2	+3.3V	12	-12V
3	GND	13	GND
4	+5V	14	PS_ON
5	GND	15	GND
6	+5V	16	GND
7	GND	17	GND
8	PW_OK	18	-5V
9	5V_SB	19	+5V
10	+12V	20	+5V

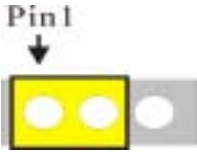
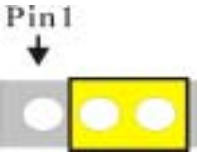
4.5 ATX 12V Power Connector: ATX12V

Pin	Assignment	Pin	Assignment
1	GND	3	+12V
2	GND	4	+12V

4.6 Front USB Headers: USB2/ USB3

Pin	Assignment	Pin	Assignment
1	+5V(fused)	2	+5V(fused)
3	DATA2/4-	4	DATA3/5-
5	DATA2/4+	6	DATA3/5+
7	GND	8	GND
9	NC	10	OVC

4.7 Clear CMOS Jumper: JP1

JP1	Assignment
	Pin 1-2 Close → Normal (default)
	Pin 2-3 Close → Clear CMOS



The following procedures are for resetting the BIOS password. It is important to follow these instructions closely.

1. Turn off your system and remove AC power line.
2. Set JP1 to OFF (2-3 Closed).
3. Wait several seconds.
4. Set JP1 to ON (1-2 closed).
5. Connect the AC power line and turn on your system.
6. Reset your desired password or clear CMOS data.

4.8 Case Open Warning function: CASE OPEN

If this function is set to “Enabled” in BIOS and the case is opened by others, the system will automatically show alert messages on the screen display when you power on your computer. On the contrary, if this function is set to “Disabled” in BIOS, the system will not show alert messages when you power on your computer even if the case is opened by others.

Case Open	Assignment
1	GND
2	Caseop-

4.9 Floppy Disk Connector: FDC

The motherboard provides a standard floppy disk connector (FDC) that supports 360K, 1.2M, 1.44M and 2.88M floppy disk types. This connector supports the provided floppy drive ribbon cables.

4.10 Hard Disk Connectors: IDE1/IDE2

This motherboard has a 32-bit Enhanced PCI IDE Controller that provides PIO Mode 0~4, Bus Master, and Ultra DMA / 33, Ultra DMA / 66, Ultra DMA / 100, Ultra DMA / 133 functionality. It has two HDD connectors IDE1 (primary) and IDE2 (secondary).

IDE1 (Primary IDE Connector)

The first hard drive should always be connected to IDE1. IDE1 can connect a Master and a Slave drive. You must configure the second hard drive on IDE1 to Slave mode by setting the jumper accordingly.

IDE2 (Secondary IDE Connector)

The IDE2 controller can also support a Master and a Slave drive. The configuration is similar to IDE1. The second drive on this controller must be set to slave mode.

4.11 Slots

The slots in this motherboard are designed to hold expansion cards and connect them to the system bus. Expansion slots are a means of adding or enhancing the motherboard's features and capabilities. With these efficient facilities, you can increase the motherboard's capabilities by adding hardware that performs tasks that are not part of the basic system.

AGP (Accelerated Graphics Port) Slot

This motherboard supports video cards for PCI slots but is also equipped with an Accelerated Graphics Port (AGP). An AGP card will take advantage of AGP technology for improved video efficiency and performance, especially with 3D graphics.

CNR (Communication Network Riser) Slot (AMR Type only)

The CNR specification is an open Industry Standard Architecture and that defines a hardware scalable riser card interface, which supports audio and modem only.

PCI (Peripheral Component Interconnect) Slots

This motherboard is equipped with 3 standard PCI slots. PCI stands for Peripheral Component Interconnect and is a bus standard for expansion cards, which has, for the most part, supplanted the older ISA bus standard. This PCI slot is designated as 32 bit.

5.1 S/PDIF (Sony/Philips Digital Interface) Connector: SPDIF

S/PDIF (Sony/Philips Digital Interface) is a newest audio transfer file format, which provides impressive quality through optical fiber and allows you to enjoy digital audio instead of analog audio. Normally there are one S/PDIF outputs as shown, one for RCA connector, the most common one used for consumer audio products, and the other for optical connector with better audio quality. Through a specific audio cable, you can connect the S/PDIF connector to other end of the S/PDIF audio module, which bears S/PDIF digital output.

SPDIF	Assignment
1	PWR
2	NC
3	SPD_OUT
4	GND

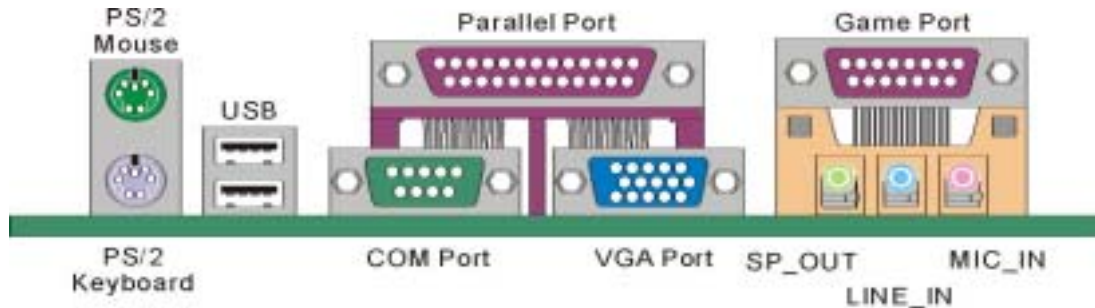
5.2 CD-ROM Audio-In Header: CD-IN

Pin No.	Assignment
1	Left Channel Input
2	Ground
3	Ground
4	Right Channel Input

5.3 Front Panel Audio Header: FRONT_AUDIO

Pin No.	Assignment	Pin No.	Assignment
1	FP_MIC	2	Ground
3	FP_VREF	4	+5V
5	SPOUT_R (From IC)	6	SPOUT_R (To Connector)
7	NC	8	NC
9	SPOUT_L (From IC)	10	SPOUT_L (To Connector)

Chapter 6: Back Panel Features



6.1 PS/2 Mouse / Keyboard Connector: KB/MS

The motherboard provides a standard PS/2 mouse / Keyboard mini DIN connector for attaching a PS/2 mouse. You can plug a PS/2 mouse / Keyboard directly into this connector. The connector location and pin definition are shown below:

PS/2 Mouse / Keyboard Connectors

Pin	Assignment
1	Data
2	No connect
3	Ground
4	+5 V (fused)
5	Clock
6	No connect

6.2 USB Connectors: USB

The motherboard provides a OHCI (Open Host Controller Interface) Universal Serial Bus Roots for attaching USB devices such as: keyboard, mouse and other USB devices. You can plug the USB devices directly into this connector.

USB Connector (the below one)

Pin	Assignment
1	+5 V (fused)
2	USBP0-
3	USBP0+
4	Ground

USB Connector (the above one)

Pin	Assignment
5	+5 V (fused)
6	USBP1-
7	USBP1+
8	Ground

6.3 Serial and Parallel Interface Ports

This system comes equipped with two serial ports and one parallel port. Both types of interface ports will be explained in this chapter.

The Serial Interface: COM/ COM2

The serial interface port is sometimes referred to as an RS-232 port or an asynchronous communication port. Mice, printers, modems and other peripheral devices can be connected to a serial port. The serial port can also be used to connect your computer with another computer system.

Parallel Interface Port: PRT

Unlike the serial ports, parallel interface port has been standardized and should not present any difficulty interfacing peripherals to your system. Sometimes called centronics port, the parallel port is almost exclusively used with printers. The parallel port on your system has a 25-pin, DB25 connector.

Video Graphics Array Connector: VGA

This motherboard has built in video facilities. Your monitor will attach directly to VGA Connector on the motherboard.

6.4 Game Port Connector: SOUND

This connector allows you to connect a joystick or game pad for playing computer games. Also, you may play or edit professional music by connecting MIDI devices.

6.5 Audio Port Connectors

1. **Speaker Out** is used to connect speakers or headphones for audio output.
2. **Line In** can be connected to the external CD player, Tape player or other audio devices for audio input.
3. **Mic In** is used to connect a microphone, which allows you to input sounds and voices.

Chapter 7: RAM Module Configuration

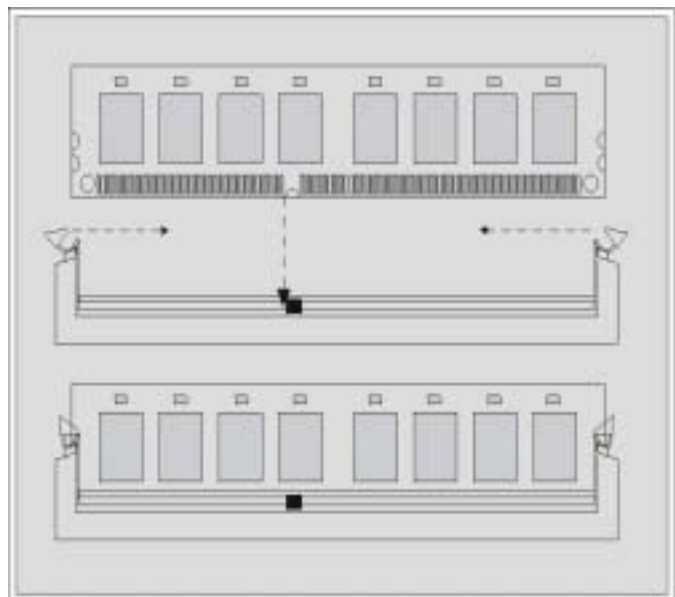
7.1 DDR DIMM

DDR SDRAM Access Time: 2.5V Unbuffered/ Registered DDR SDRAM PC 2100/ PC1600 Type required.

DDR SDRAM Type: 64MB/ 128MB/ 256MB/ 512MB/ 1GB DIMM Module (184 pin).

7.2 DIMM Module Configuration

1. The DIMM socket has a “Plastic Safety Tab” and the DIMM memory module has an asymmetrical notch”, so the DIMM memory module can only fit into the slot in one direction.
2. Push the tabs out. Insert the DIMM memory modules into the socket at a 90-degree angle. Then push down vertically so that it will fit into place.
3. The Mounting Holes and plastic tabs should fit over the edge and hold the DIMM memory modules in place.



Chapter 8: BIOS Setup

Introduction

This manual discussed Phoenix-Award™ Setup program built into the ROM BIOS. The Setup program allows users to modify the basic system configuration. This special information is then stored in battery-backed RAM so that it retains the Setup information when the power is turned off.

The Phoenix-Award BIOS™ installed in your computer system's ROM (Read Only Memory) is a custom version of an industry standard BIOS. This means that it supports Intel™ processors input/output system. The BIOS provides critical low-level support for standard devices such as disk drives and serial and parallel ports.

Adding important has customized the Phoenix-Award BIOS™, but nonstandard, features such as virus and password protection as well as special support for detailed fine-tuning of the chipset controlling the entire system.

The rest of this manual is intended to guide you through the process of configuring your system using Setup.



The figures in this chapter are for reference only; please refer to the screen on your computer..

Plug and Play Support

These PHOENIX-AWARD BIOS supports the Plug and Play Version 1.0A specification. ESCD (Extended System Configuration Data) write is supported.

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EPA Green PC Support

This PHOENIX-AWARD BIOS supports Version 1.03 of the EPA Green PC specification.

APM Support

These PHOENIX-AWARD BIOS supports Version 1.1&1.2 of the Advanced Power Management (APM) specification. Power management features are implemented via the System Management Interrupt (SMI). Sleep and Suspend power management modes are supported. Power to the hard disk drives and video monitors can be managed by this PHOENIX-AWARD BIOS.

PCI Bus Support

This PHOENIX-AWARD BIOS also supports Version 2.2 of the Intel PCI (Peripheral Component Interconnect) local bus specification.

DRAM Support

DDR (Double Data Rate) is supported.

Supported CPUs

This PHOENIX-AWARD BIOS supports the Pentium 4[®] CPUs.

Key Function

In general, you use the arrow keys to highlight items, press <Enter> to select, use the <PgUp> and <PgDn> keys to change entries, press <F1> for help and press <Esc> to quit. The following table provides more detail about how to navigate in the Setup program by using the keyboard.

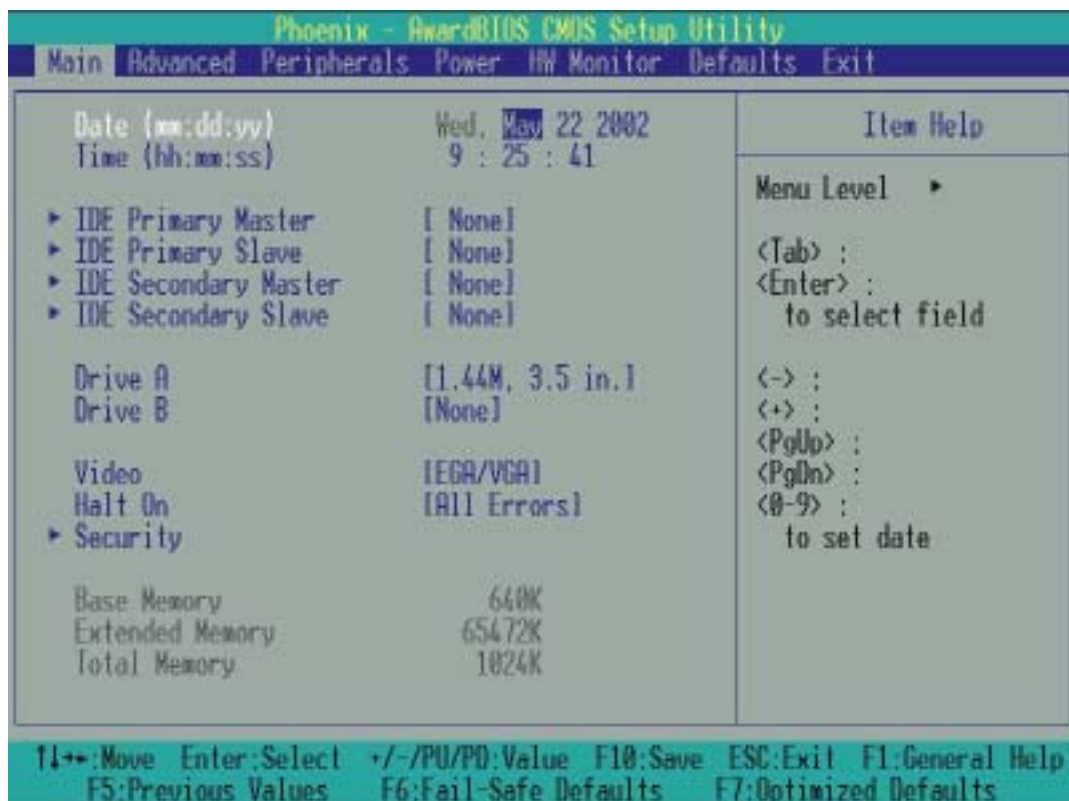
PM650GX

Keystroke	Function
Up arrow	Move to previous item
Down arrow	Move to next item
Left arrow	Move to the item on the left (menu bar)
Right arrow	Move to the item on the right (menu bar)
Esc	Main Menu: Quit without saving changes Submenus: Exit Current page to the next higher level menu
Move Enter	Move to the item you desired
PgUp key	Increase the numeric value or make changes
PgDn key	Decrease the numeric value or make changes
+ Key	Increase the numeric value or make changes
- Key	Decrease the numeric value or make changes
Esc key	Main Menu – Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu – Exit Current page and return to Main Menu
F1 key	General help on Setup navigation keys
F5 key	Load previous values from CMOS
F6 key	Load the fail-safe defaults from BIOS default table
F7 key	Load the optimized defaults
F10 key	Save all the CMOS changes and exit

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8.1 Main Menu

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



PM650GX

Main Menu Setup Selections

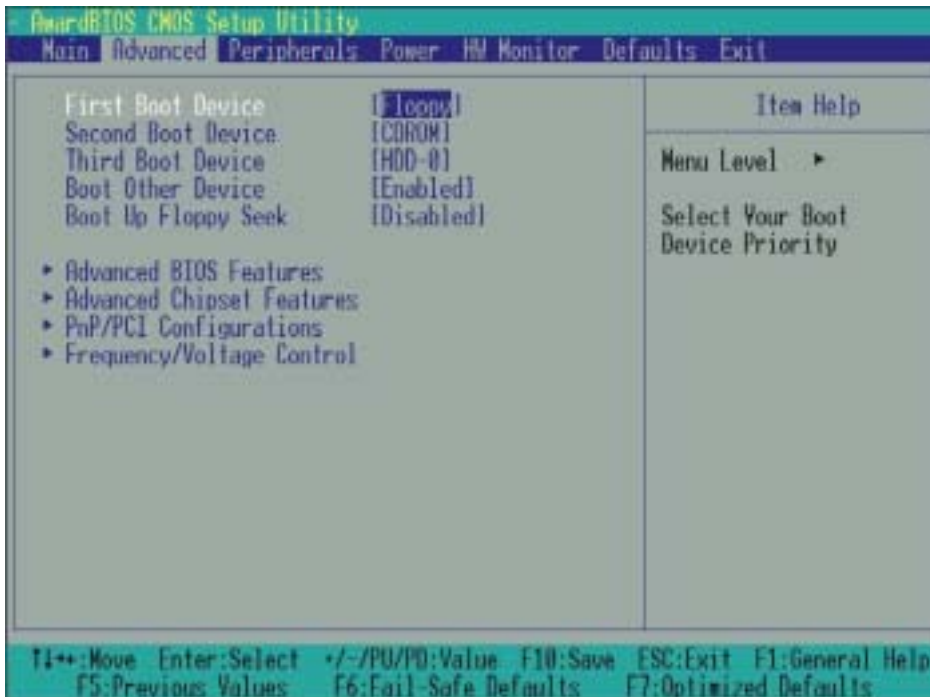
The table shown below are the selections, which you can make on this Main Menu setup.

Item	Options	Description
Date	mm dd yyyy	Set the system date. Note that the 'Day' automatically changes when you set the date.
Time	hh: mm: ss	Set the current time of the system.
IDE Primary Master	Options are in its sub menu.	Press <Enter> to enter the sub menu of detailed options.
IDE Primary Slave	Options are in its sub menu.	Press <Enter> to enter the sub menu of detailed options.
IDE Secondary Master	Options are in its sub menu.	Press <Enter> to enter the sub menu of detailed options.
IDE Secondary Slave	Options are in its sub menu.	Press <Enter> to enter the sub menu of detailed options.
Drive A Drive B	360K, 5.25 in 1.2M, 5.25 in 1.44M, 3.5 in 2.88M, 3.5 in None	Select the type of floppy disk drive installed in your system.
Video	EGA/VGA CGA 40 CGA 80 MONO	Select the default video device.
Halt On	All Errors No Errors All, but Keyboard All, but Diskette All, but Disk/ Key	Select the situation in which you want the BIOS to stop the POST process and notify you.

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Security	Options are in its sub menu.	Press <Enter> to enter the sub menu of detailed options.
Base Memory	N/A	Displays the amount of conventional memory detected during boot up.
Extended Memory	N/A	Displays the amount of extended memory detected during boot up.
Total Memory	N/A	Displays the total memory available in the system.

8.2 Advanced Features



Advanced Features

First/ Second/ Third/ Boot Other Device

These BIOS attempts to load the operating system from the devices in the sequence selected in these items.

The Choices: Floppy, LS120, HDD-0, SCSI, CDROM, HDD-1, HDD-2, HDD-3, ZIP100, USB-FDD, USB-ZIP, USB-CDROM, USB-HDD, LAN, Disabled.

Boot Up Floppy Seek

Enabling this option will test the floppy drives to determine whether if they have 40 or 80 tracks. Disabling this option reduces the time it takes to boot-up.

The Choices: Enabled, Disabled (default).

Advanced BIOS Features

Virus Warning

This option allows you to choose the VIRUS Warning feature that is used to protect the IDE Hard Disk boot sector. If this function is enabled and an attempt is made to write to the boot sector, BIOS will display a warning message on the screen and sound an alarm beep.

The Choices:

Disabled (default)	Virus protection is disabled.
Enabled	Virus protection is activated.

CPU L1 & L2 Cache

Depending on the CPU/chipset in use, you may be able to increase memory access time with this option.

The Choices:

Enabled (default)	Enable cache.
Disabled	Disable cache.

CPU L2 Cache ECC Checking

This item allows you to enable/disable CPU L2 Cache ECC Checking.

The Choices: Enabled (default), Disabled.

Quick Power On Self Test

Enabling this option will cause an abridged version of the Power On Self-Test (POST) to execute after you power up the computer.

The Choices:

Enabled (default)	Enable quick POST.
Disabled	Normal POST.

Swap Floppy Drive

This item allows you swap the logical drive name assignments.

The Choices: Disabled (default), Enabled.

Boot Up NumLock Status

Selects the NumLock state after power on.

The Choices:

On (default)	Numpad is number keys.
Off	Numpad is arrow keys.

Gate A20 Option

Select if chipset or keyboard controller should control Gate A20.

The Choices:

Normal (default)	A pin in the keyboard controller Controls Gate A20.
Fast	Lets chipset control Gate A20.

Typematic Rate Setting

When a key is held down, the keystroke will repeat at a rate determined by the keyboard controller. When enabled, the typematic rate and typematic delay can be configured.

The Choices:

Disabled (default)
Enabled

Typematic Rate (Chars/Sec)

Sets the rate at which a keystroke is repeated when you hold the key down.

The Choices: 6 (default), 8,10,12,15,20,24,30.

Typematic Delay (Msec)

Sets the delay time after the key is held down before it begins to repeat the keystroke.

The Choices: 250 (default), 500,750,1000.

OS Select For DRAM > 64MB

A choice other than Non-OS2 is only used for OS2 systems with memory exceeding 64MB.

The Choices: Non-OS2 (default), OS2.

HDD S.M.A.R.T. Capability

This HDD S.M.A.R.T. function is what we called "Self Monitoring Analysis and Reporting Technology". It can enable your PC to predict the future failure of storage drives in some cases.

The Choices: Disabled (default), Enabled.

Small LOGO (EPA) Show

This item allows you to show or hide the small LOGO of EPA.

The Choices: Disabled (default), Enabled.

Advanced Chipset Features

Advanced DRAM Control 1

This sub-menu is to let you control the DDR SDRAM. If you highlight the literal "Press Enter" next to the "Advanced DRAM Control 1" label and then press the enter key, it will take you a submenu with the following options:

System Performance

This item allows you to choice the system performance, which you want.

The Choices: Normal Mode (default), Safe Mode, Fast Mode, Turbo Mode, Ultra Mode.

CAS Latency Setting

This item determines CAS Latency. When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing. Do not reset this field from the default value specified by the system designer.

The Choices: 2.5T (default), 2T, 3T.

DRAM Addr/ Cmd Rate

This item allows you select DRAM Addr/Cmd Rate

The Choices: Auto (default), 1T, 2T.

Lead-off Time Control

The default setting is 'Delay 1T'. When set to 'Delay 1T', memory background commands are issued 1 clock behind MA been issues.

The Choices: Delay 1T (default), Normal.

Prefetch Caching

This item allows you enable/disable Prefetch Caching.

The Choices: Disabled (default), Enabled.

System BIOS Cacheable

When enabled, accesses to system BIOS ROM addressed at F0000H-FFFFFH are cached, provided that the cache controller is enabled.

The Choices: Enabled, Disabled (default).

Video RAM 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.

The Choices: Enabled, Disabled (default).

Memory Hole at 15M-16M

When enabled, you can reserve an area of system memory for ISA adapter ROM. When this area is reserved, it cannot be cached. Refer to the user documentation of the peripheral you are installing for more information.

The Choices: Disabled (default), Enabled.

AGP Aperture Size

If you don't connected to AGP Card, this item allows you to setup the AGP Aperture Size.

The Choices: 64MB (default), 4MB, 8MB, 16MB, 32MB, 128MB
256MB.

Graphic Window WR Combin

When you connect to AGP Card, this item allows you enable/disable Graphic Window WR Combin.

The Choices: Enabled, Disabled (default).

AGP Share Memory Size

Select the size of the Accelerated Graphics Port (AGP) aperture. The aperture is a portion of the PCI memory address range dedicated for graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation.

The Choices: 32MB (default), 4MB, 8MB, 16MB, 64MB.

PnP/PCI Configurations

Reset Configuration Data

The system BIOS supports the PnP feature, which requires the system to record which resources are assigned and protects resources from conflict. Every peripheral device has a node, which is called ESCD. This node records which resources are assigned to it. The system needs to record and update ESCD to the memory locations. These locations (4K) are reserved in the system BIOS. If the Disabled (default) option is chosen, the system's ESCD will update only when the new configuration varies from the last one. If the Enabled option is chosen, the system is forced to update ESCDs and then is automatically set to the "Disabled" mode.

The above setting will be shown on the screen only if "Manual" is chosen for the Resources Controlled By function.
The Choices: Disabled (default), Enabled.

Resources Controlled By

By Choosing "Auto" (default) the system BIOS will detect the system resources and automatically assign the relative IRQ channel for each peripheral.

By Choosing "Manual", the user will need to assign IRQ for add-on cards. Be sure that there are no IRQ/DMA and I/O port conflicts.

IRQ Resources

This submenu will allow you to assign each system interrupt a type, depending on the type of device using the interrupt. When you press the "Press Enter" tag, you will be directed to a submenu that will allow you to configure the system interrupts. This is only configurable when "Resources Controlled By" is set to "Manual".

IRQ-3 assigned to: PCI device

IRQ-4	assigned to: PCI device
IRQ-5	assigned to: PCI device
IRQ-7	assigned to: PCI device
IRQ-9	assigned to: PCI device
IRQ-10	assigned to: PCI device
IRQ-11	assigned to: PCI device
IRQ-12	assigned to: PCI device
IRQ-14	assigned to: PCI device
IRQ-15	assigned to: PCI device

PCI / VGA Palette Snoop

Choose Disabled or Enabled. Some graphic controllers, which are not VGA compatible, take the output from a VGA controller and map it to their display as a way to provide boot information and VGA compatibility.

Disabled (default)	Disables the function.
Enabled	Enables the function.

PCI Latency Timer (CLK)

This item allows you to set up the PCI Latency Time (0-255) and when you select 32 PCI Clock it can make your PCI Speed fastest.

The Choices: 0-255, 32 (default)

PCI1/2/3 IRQ Assignment

This item allows you to assignment the PCI Slot's IRQ.

The Choices: Auto (default), 3, 4, 5, 7, 9, 10, 11, 12, 14, 15.

Frequency/Voltage Control

Set CPU Ratio

This item allows you to default/ manual the CPU Ratio.
The Choices: Default (default), Manual.

Spread Spectrum

This item allows you to enable/disable the Spread Spectrum function.
The Choices: Enabled (default), Disabled.

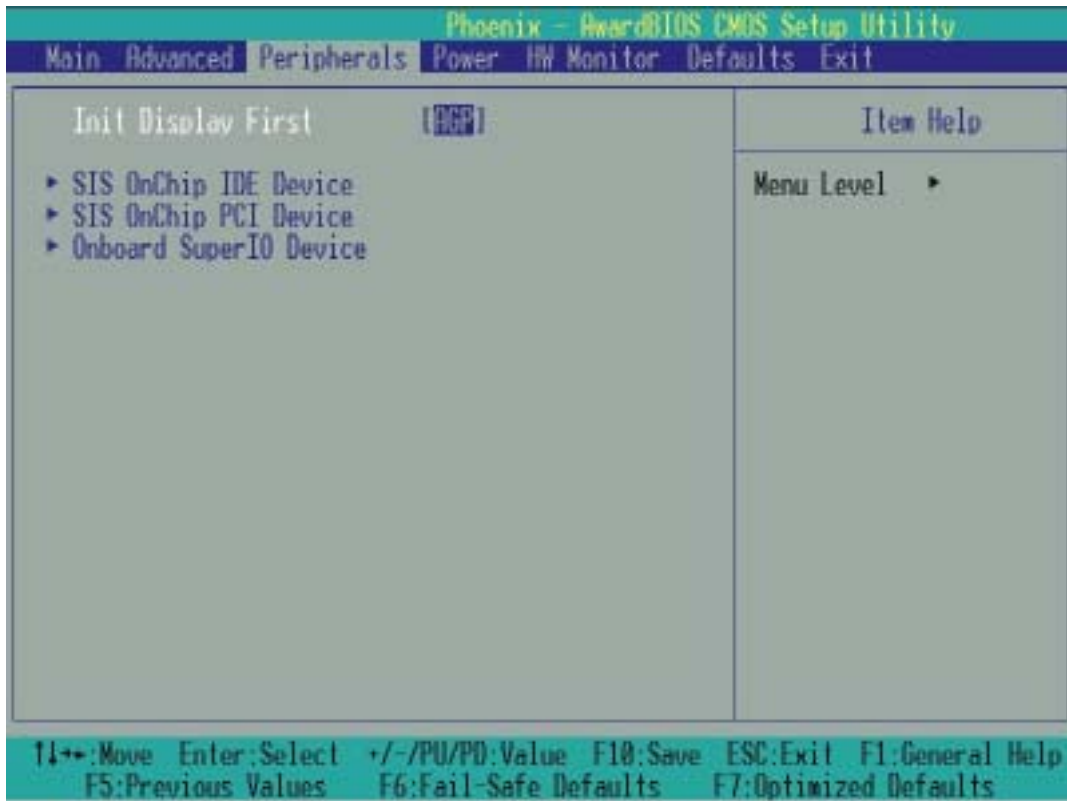
CPU:DRAM Clock Ratio

This item allows you to adjust your CPU: DRAM Clock Ratio.
The Choices: 1:1 (default), 3:4.

CPU Clock

This item allows you to select CPU Clock.
Default: 100.

8.3 Peripherals



Init Display First

With systems that have multiple video cards, this option determines whether the primary display uses a PCI Slot or an AGP Slot.

The Choices: AGP (default), PCI Slot.

SIS On Chip IDE Device

If you highlight the literal "Press Enter" next to the "SIS On chip IDE Device" label and then press the enter key, it will take you a submenu with the following options:

Internal PCI/IDE

This item allows you select Internal PCI/IDE.

The Choices: Both (default), Disabled, Primary, Secondary.

IDE Primary / Secondary /Master / Slave PIO

The IDE PIO (Programmed Input / Output)

Fields let you set a PIO mode (0-4) for each of the IDE devices that the onboard IDE interface supports. Modes 0 to 4 will increase performance progressively. In Auto mode, the system automatically determines the best mode for each device.

The Choices: Auto (default), Mode0, Mode1, Mode2, Mode3, Mode4.

Primary / Secondary /Master / Slave UltraDMA

Ultra DMA functionality can be implemented if it is supported by the IDE hard drives in your system. As well, your operating environment requires a DMA driver. If your hard drive and your system software both support Ultra DMA/100,DMA/133 select Auto to enable BIOS support.

The Choices: Auto (default), Disabled.

IDE Burst Mode

This item allows you enable/disable IDE Burst Mode.

The Choices: Enabled (default), Disabled.

IDE HDD Block Mode

Block mode is otherwise known as block transfer, multiple commands, or multiple sector read/write. Select the "Enabled" option if your IDE hard drive supports block mode (most new drives do). The system will automatically determine the optimal number of blocks to read and write per sector.

The Choices: Enabled (default), Disabled.

SIS OnChip PCI Device

If you highlight the literal "Press Enter" next to the "SIS OnChip PCI Device" label and then press the enter key, it will take you a submenu with the following options:

AC97 Audio

This option allows you to control the onboard AC97 audio.
The Choices: Auto (default), Disabled.

AC97 Modem

This option allows you to control the onboard AC97 modem.
The Choices: Auto (default), Disabled.

USB Controller

This option should be enabled if your system has a USB installed on the system board. You will need to disable this feature if you add a higher performance controller.
The Choices: Enabled (default), Disabled.

USB Keyboard Support

Enables support for USB attached keyboards.
The Choices: Disabled (default), Enabled.

Onboard Super IO Device

If you highlight the literal "Press Enter" next to the "Onboard Super IO Device" label and then press the enter key, it will take you a submenu with the following options:

Onboard FDC Controller

Select Enabled if your system has a floppy disk controller (FDC) installed on the system board and you wish to use it. If install and FDC or the system has no floppy drive, select Disabled in this field.
The Choices: Enabled (default), Disabled.

Onboard Serial Port 1

Select an address and corresponding interrupt for the first serial ports.

The Choices: Disabled, 3F8/IRQ4 (default), 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3, Auto.

Onboard Serial Port 2

Select an address and corresponding interrupt for the second serial ports.

The Choices: Disabled, 2F8/IRQ3 (default), 3F8/IRQ4, 3E8/IRQ4, 2E8/IRQ3, Auto.

UART Mode Select

This item allows you to determine which Infra Red (IR) function of onboard I/O chip.

The Choices: Normal (default), ASKIR, IrDA.

RxD, TxD Active

This item allows you to determine which Infrared (IR) function of onboard I/O chip.

The Choices: Hi / Lo (default), Hi / Hi, Lo / Hi, Lo / Lo.

IR Transmission Delay

This item allows you to enable/disable IR transmission delay.

The Choices: Enabled (default), Disabled.

UR2 Duplex Mode

Select the value required by the IR device connected to the IR port. Full-duplex mode permits simultaneous two-direction transmission. Half-duplex mode permits transmission in one direction only at a time.

The Choices: Half (default), Full.

Onboard Parallel Port

This item allows you to determine access onboard parallel port controller with which I/O Address.

The Choices: 378/IRQ7 (default), 278/IRQ5, 3BC/IRQ7, Disabled.

Parallel Port Mode

The default value is ECP.

The Choices: ECP (default). ECP means that using Parallel port as Extended Capabilities Port.

EPP Using Parallel Port as Enhanced Parallel Port.

SPP Using Parallel port as Standard Printer Port.

ECP+EPP Using Parallel port as ECP & EPP mode.

EPP Mode Select

Select EPP port type 1.7 or 1.9.

The Choices: EPP 1.9(default), EPP1.7.

ECP Mode Use DMA

Select a DMA Channel for the port.

The Choices: 3 (default), 1.

Game Port Address

Game Port I/O Address.

The Choices: 201 (default), 209, Disabled.

Midi Port Address

Midi Port Base I/O Address.

The Choices: 330 (default), 300, 290, Disabled.

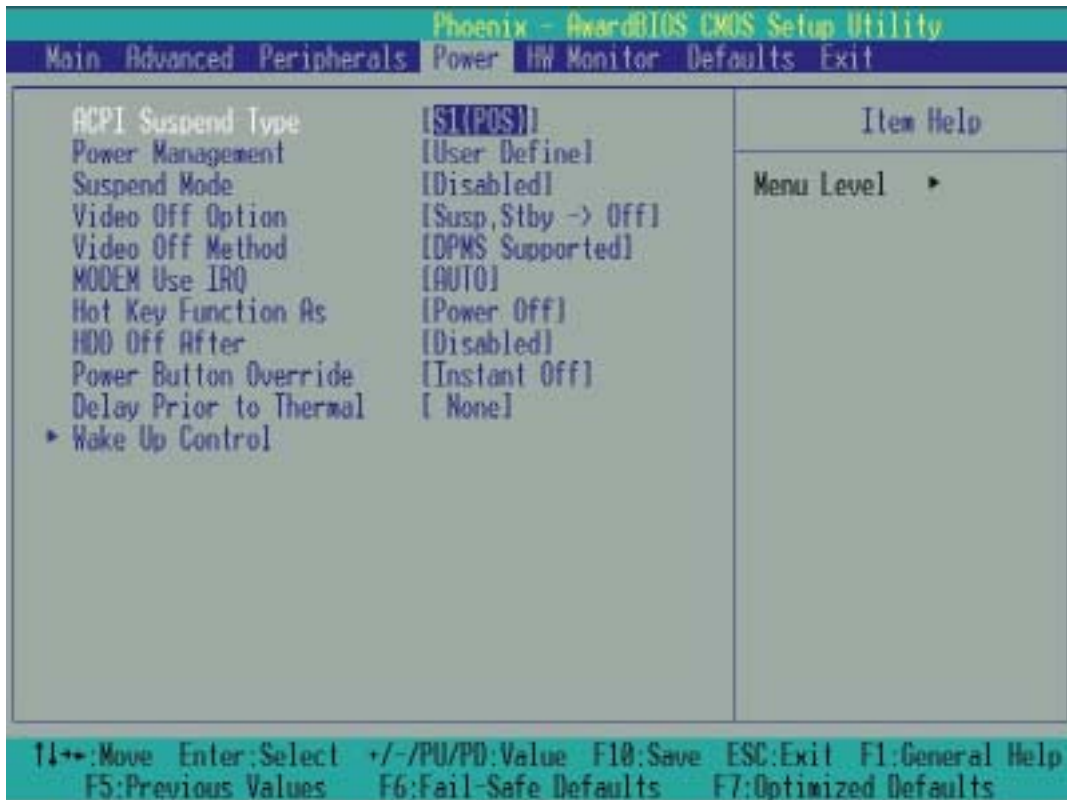
Midi Port IRQ

This determines the IRQ in which the Midi Port can use.

The Choices: 5 (default), 7.

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8.4 Power Menu



The Power Management Setup Menu allows you to configure your system to utilize energy conservation and power up/power down features.

ACPI Suspend Type

The item allows you to select the suspend type under the ACPI operating system.

The Choices:

S1 (POS) (default)	Power on Suspend
S3 (STR)	Suspend to RAM
S1 & S3	POS+STR

Power Management Option

This category allows you to select the type (or degree) of power saving and is directly related to the following modes:

There are three options of Power Management, three of which have fixed mode settings:

Min. Saving

Minimum power management.
Suspend Mode = 1 hr.

Max. Saving

Maximum power management only available for SI CPU's.
Suspend Mode = 1 min.

User Define (default)

Allow you to set each mode individually.
When not disabled, each of the ranges is from 1 min. to 1 hr.

Suspend Mode

The item allows you to select the suspend type under ACPI operating system.

The Choices: Disabled (default), 1 Min, 2 Min, 4 Min, 6 Min, 8 Min, 10 Min, 20 Min, 30 Min, 40 Min, 1 Hour.

Video Off Option

This field determines when to activate the video off feature for monitor power management.

The Choices: Susp,stby->Off (default), Always On, Suspend->Off, All Modes->Off.

Video Off Method

This option determines the manner in which the monitor is goes blank.

The Choices:

V/H SYNC+Blank

This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.

Blank Screen

This option only writes blanks to the video buffer.

DPMS Support (default)

Initial display power management signaling.

Modem Use IRQ

This determines the IRQ, which can be applied in MODEM use.

The Choices: Auto (default), 3, 4, 5, 7, 9, 10, 11.

Hot Key Function As

This item allows you select Hot Key Function As Power Off.

The Choices: Power Off (default), Disabled, Suspend.

HDD Off After

This item allows you to adjust the time for HDD Off.

The Choices: Disabled (default), 1Min ~ 15Min.

Power Button Override

When you select Enabled, pressing the power button for more than 4 seconds forces the system to enter the Soft-Off state when the system has "hung."

The Choices: Instant Off (default), Delay 4 Sec.

Delay Prior to Thermal

This item allows you adjust Prior to Thermal delay time
The Choices: None (default), 1/2/4/8/16/32/64 Min.

Wake Up Control

If you highlight the literal "Press Enter" next to the "Wake Up Control" label and then press the enter key, it will take you a submenu with the following options:

PWRON After PWR-Fail

This field determines the action the system will automatically take when power is restored to a system that had lost power previously without any subsequent manual intervention. There are 3 sources that provide current to the CMOS area that retains these Power-On instructions; the motherboard battery (3V), the Power Supply (5VSB), and the Power Supply (3.3V). While AC is not supplying power, the motherboard uses the motherboard battery (3V). If AC power is supplied and the Power Supply is not turned on, 5VSB from the Power Supply is used. When the Power Supply is eventually turned on 3.3V from the Power Supply will be used.

There are 3 options: "Former-Sts", "On", "Off".

- | | |
|------------------|--|
| " Off" (default) | Means always set CMOS to the "Off" status when AC power is lost. |
| " On" | Means always set CMOS to the "On" status when AC power is lost |
| " Former-Sts" | Means to maintain the last status of the CMOS when AC power is lost. |

For example: If set to "Former-Sts" and AC power is lost when system is live, then after AC power is restored, the system will automatically power on. If AC power is lost when system is not live, system will remain powered off.

IRQ [3-7, 9-15], NMI

This item allows you enable/disable IRQ [3-7,9-15] NMI.
The Choices: Enabled, Disabled (default).

IRQ 8 Break Suspend

This item allows you enable/disable IRQ8 Break Suspend.
The Choices: Disabled (default), Enabled.

RING Wake Up

This item allows you to control the RING Wake Up.
The Choices: Disabled (default), Enabled.

PCI PME Wake Up

This item allows you to control the PCIPME Wake Up.
The Choices: Disabled (default), Disabled.

USB Wake Up

This item allows you to select USB devices to awaken the system from suspend mode.
The Choices: Disabled (default), Enabled.

PS2 KB Wake Up from S3/S4/S5

When "Enabled", you can use PS2KB devices to awaken the system from S3 Mode (Suspend to RAM), S4 Mode (Suspend to Disk) and S5 Mode (Shutdown).
The Choices: Disabled (default), Enabled.

PS2 MS Wake Up from S3/S4/S5

When "Enabled", you can use PS2MS devices to awaken the system from S3 Mode (Suspend to RAM), S4 Mode (Suspend to Disk) and S5 Mode (Shutdown).
The Choices: Disabled (default), Enabled.

RTC Wake Up

When "Enabled", you can set the date and time at which the RTC (real-time clock) alarm awakens the system from Suspend mode.
The Choices: Enabled, Disabled (default).

Month Alarm

Select a month (1-12) or NA if you want the alarm active during all months.

Day of Month Alarm

Select a date in the month. Select 0 if you prefer to set a weekly alarm.

Time (hh:mm:ss) Alarm

Set the time you want the alarm to go off on the days when it is activated.

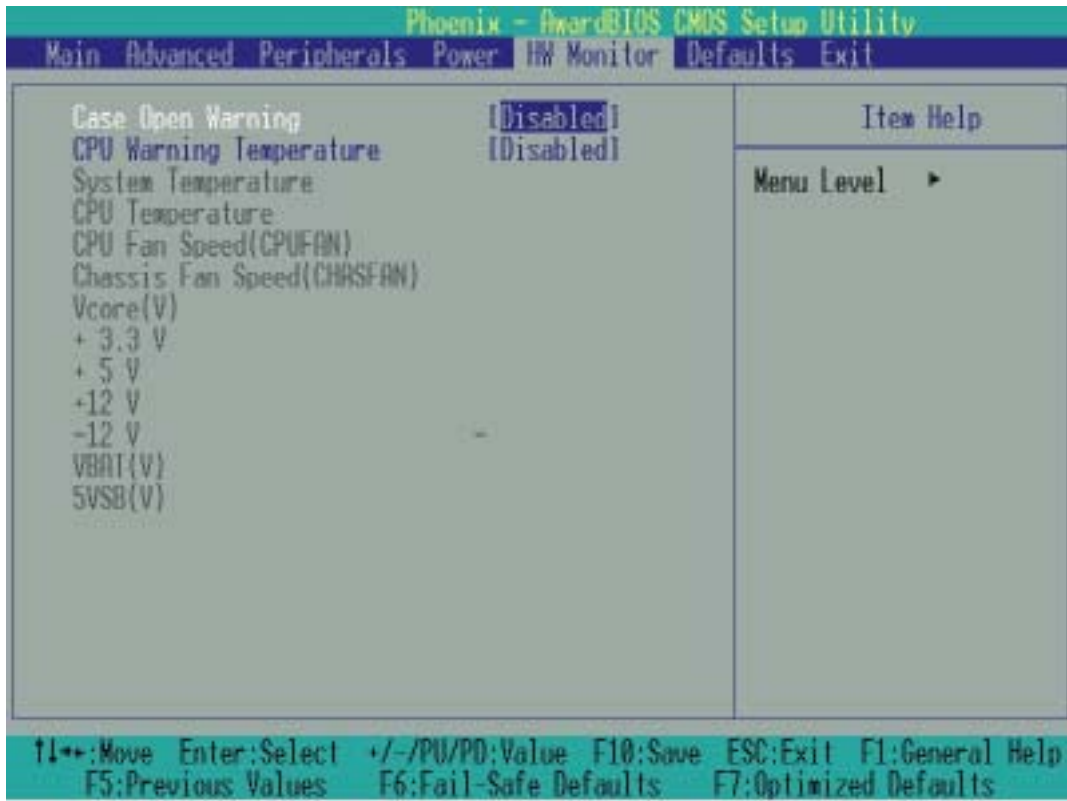
Reload Global Timer Events

The events can prevent the system from entering a power saving mode or can awaken the system from such a mode. In effect, the system remains alert for anything, which occurs to a device, which is configured as Enabled; even the system is in a power down mode.

Primary/ Secondary IDE**FDD, COM, LPT Port****PCI PIRQ [A-D]#**

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8.5 HW Monitoring



Case Open Warning

If this function is set to “Enabled” and the case is opened by others, the system will automatically show alert messages on the screen display when you power on your computer. On the contrary, if this function is set to “Disabled”, the system will not show alert messages when you power on your computer even if the case is opened by others.

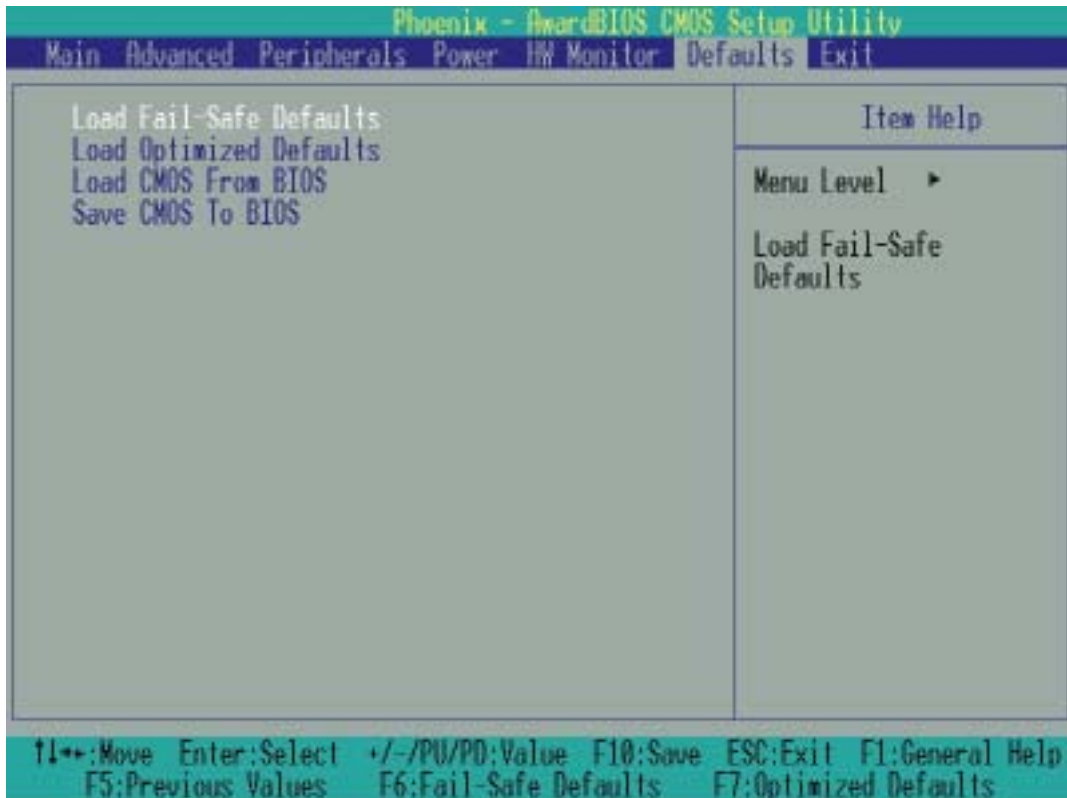
The Choices: Disabled (default), Enabled.

CPU Warning Temperature

This item allows you to set the over temperature limit of your CPU. When the CPU temperature is higher than this setting, the warning mechanism will be activated.

The Choices: Disabled (default), Enabled.

8.6 Defaults



Load Fail-Safe Defaults

Use this menu to load the BIOS default values for the minimal/stable performance for your system to operate.

Load Optimized Defaults

This selection allows you to reload the BIOS when the system is having problems particularly with the boot sequence. These configurations are factory settings optimized for this system. A confirmation message will be displayed before defaults are set.

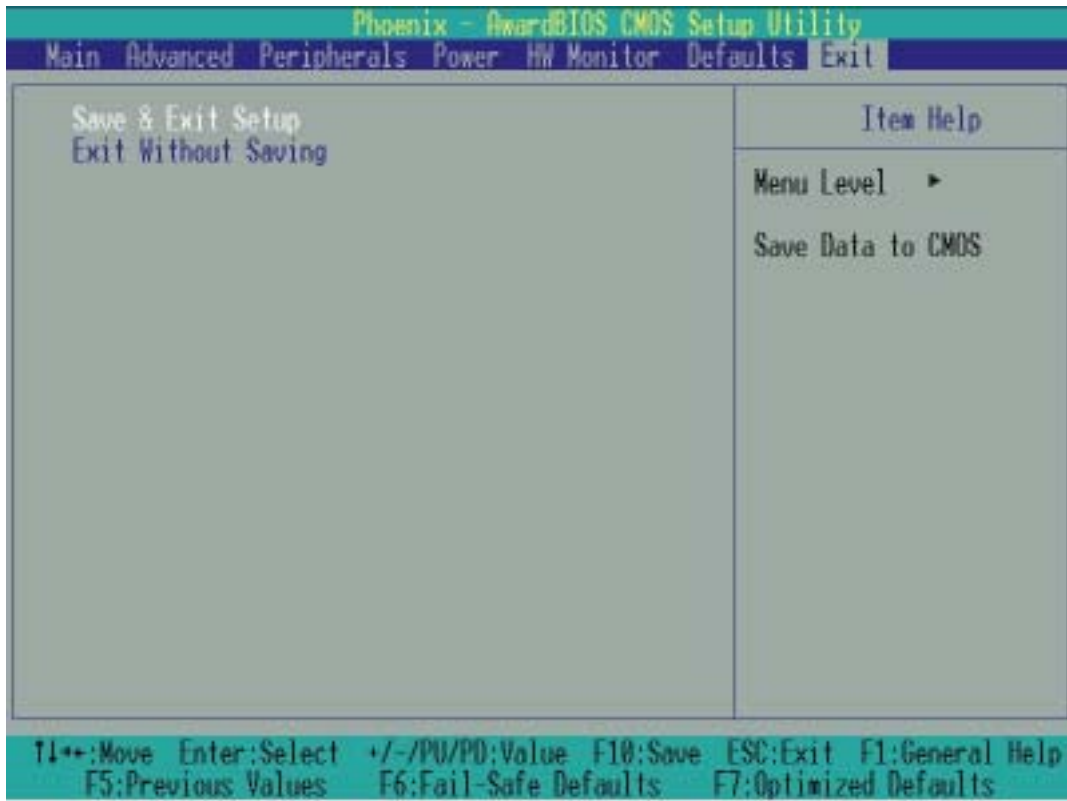
Load CMOS From BIOS

With this function, you can load defaults from flash ROM for battery less or power shortage.

Save CMOS To BIOS

With this function, you can save defaults to flash ROM to battery less or power shortage.

8.7 Exit Menu



Save & Exit Setup

Save all configuration changes to CMOS (memory) and exit setup. Confirmation message will be displayed before proceeding.

Exit Without Saving

Abandon all changes made during the current session and exit setup. Confirmation message will be displayed before proceeding.

Chapter 9: Software Setup

9.1 Software List

Category	Platform	Location in CD
SiS AGP Driver	Windows 95/98/2000/XP/ NT4	\\SiS650\Driver\ SiS\SiS65X_64X\ SiS_AGP\V1.09f
SiS Onboard VGA Driver		\\SiS650\Driver\ SiS\SiS65X_64X\ SiS_VGA\V2.07a
SiS Onboard Audio Driver		\\SiS650\Driver\ SiS\SiS65X_64X\ SiS_Audio\V1.05
SiS IDE Busmaster Driver		\\SiS650\Driver\ SiS\SiS65X_64X\ SiS_IDE\V1.01.06

9.2 Software Installation

You can simply put Driver CD into CD-ROM drive and the Installation Utility will auto-run or you can launch the Driver CD Installation Utility manually. The steps shown below are for reference:

1. Once the Driver CD auto-runs, you will see the screen at first, there are three buttons optional.



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2. Click **INSTALL PRODUCTS** on the first picture, then you can see the screen like the picture below.

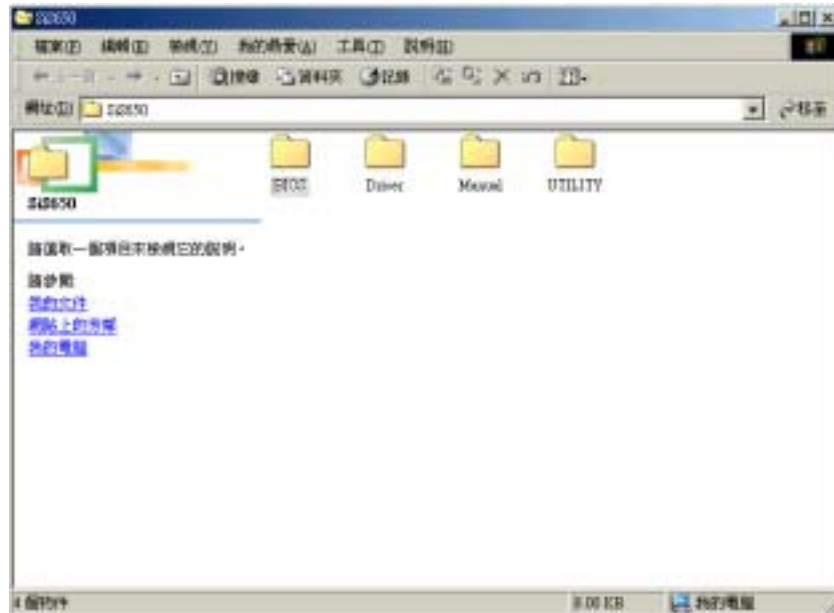


3. Click **DRIVER INSTALL** on the second picture, you can choose to install the drivers of AGP, VGA, AUDIO, and IDE busmaster. Click the driver you need to install.



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6. Clicking the third button **BROWSE CONTENTS**, we can browse all the files in the Drive CD.



7. You can click **EXIT** to finish using the Drive CD.



Chapter 10: Troubleshooting

Problem 1:

No power to the system at all. Power light does not illuminate, fan inside power supply does not turn on. Indicator light on keyboard does not turn on.

Causes:

1. Power cable is unplugged.
2. Defective power cable.
3. Power supply failure.
4. Faulty wall outlet; circuitbreaker or fuse blown.

Solutions:

1. Make sure power cable is securely plugged in.
2. Replace cable.
3. Contact technical support.
4. Use different sockets, repair outlet, reset circuit breaker or replace fuse.

Problem 2:

System inoperative. Keyboard lights are on, power indicator lights are lit, and hard drive is spinning.

Causes:

Memory DIMM is partially dislodged from the slot on the motherboard.

Solutions:

Using even pressure on both ends of the DIMM, press down firmly until the module snaps into place.

Problem 3:

System does not boot from hard disk drive, can be booted from CD-ROM drive.

Causes:

1. Connector between hard drive and system board unplugged.
2. Damaged hard disk or disk controller.
3. Hard disk directory or FAT is scrambled.

Solutions:

1. Check cable running from disk to disk controller board. Make sure both ends are securely plugged in; check the drive type in the standard CMOS setup.
2. Contact technical support.
3. Backing up the hard drive is extremely important. All hard disks are capable of breaking down at any time.

Problem 4:

System only boots from CD-ROM. Hard disk can be read and applications can be used but booting from hard disk is impossible.

Causes:

Hard Disk boot program has been destroyed.

Solutions:

Back up data and applications files. Reformat the hard drive. Re-install applications and data using backup disks.

Problem 5:

Error message reading "SECTOR NOT FOUND" or other error messages not allowing certain data to be retrieved.

Causes:

A number of causes could be behind this.

Solutions:

Back up any salvageable data. Then low-level format, partition, and high level format the hard drive. Re-install all saved data when completed.

Problem 6:

Screen message says "Invalid Configuration" or "CMOS Failure."

Causes:

Incorrect information entered into the configuration (setup) program.

Solutions:

Review system's equipment. Make sure correct information is in setup.

Problem 7:

The Screen is blank.

Causes:

No power to monitor.

Solutions:

Check the power connectors to monitor and to system.

Problem 8:

No screen.**Causes:**

1. Memory problem.
2. Computer virus.

Solutions:

1. Reboot computer. Reinstall memory; make sure that all memory modules are installed in correct sockets.
2. Use anti-virus programs to detect and clean viruses.

Problem 9:

Screen goes blank periodically.**Causes:**

Screen saver is enabled.

Solutions:

Disable screen saver.

Problem 10:

Keyboard failure.**Causes:**

Keyboard is disconnected.

Solutions:

Reconnect keyboard. Check keys again, if no improvement replace keyboard.

Problem 11:

No color on screen.**Causes:**

1. Faulty Monitor.
2. CMOS incorrectly set up.

Solutions:

1. If possible, connect monitor to another system.
2. Call technical support.

Problem 12:

The screen shows "C: drive failure."**Causes:**

Hard drive cable not connected properly.

Solutions:

Check hard drives cable.

Problem 13:

Cannot boot system after installing second hard drive.**Causes:**

1. Master/slave jumpers not set correctly.
2. Hard drives not compatible / different manufacturers.

Solutions:

1. Set master/slave jumpers correctly.
2. Run SETUP program and select correct drive types. Call drive manufacturers for compatibility with other drives.

Problem 14:

Missing operating system on hard drive.**Causes:**

CMOS setup has been changed.

Solutions:

Run setup and select correct drive type.

Problem 15:

Certain keys do not function.**Causes:**

Keys jammed or defective.

Solutions:

Replace keyboard.