# User's Manual

**An AMD Socket A Processor based AGP (8X) mainboard (200/266/333MHz)**

**Supports PC1600/PC2100/PC2700 Memory Modules (DDR Memory)**

<u>**TRADEMARK**</u>

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*These specifications are subject to change without notice.*

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*September 23, 2002*

# POST Port Frequently Asked Questions

Below is a list of some basic POST Codes, possible problems, and solutions.  For more detailed information about POST Codes,  refer to Appendix E in this manual.

| POST CODE | Problem | Solution |
|---|---|---|
| FFh or CFh | 1. BIOS chip inserted incorrectly<br>2. Incorrect BIOS update version<br>3. Mainboard problem<br>4. Add-on card inserted incorrectly. | 1. Reinsert the BIOS chip<br>2. Download the correct BIOS version update from the manufacturer's Web site.<br>3. Replace mainboard<br>4. Remove and replace the add-on card |
| C1h - C5h | 1. Memory module inserted incorrectly<br>2. Memory compatibility problem<br>3. Memory module damaged | 1. Reinsert memory module<br>2. Replace memory with correct type<br>3. Replace memory module |
| 2Dh | 1. Error occured in VGA BIOS<br>2. VGA card inserted incorrectly | 1. Replace VGA card<br>2. Reinsert the VGA card |
| 26h | Overclock error | Clear CMOS or press the insert key to power on the system |
| 07h - 12h | 1. Init keyboard controller error<br>2. RTC error | 1. Ensure that the keyboard and mouse are connected correctly.<br>2. Replace the RTC battery. |

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# Section 1
# INTRODUCTION

## Package Contents

### Contents

A. (1) Mainboard

B. (1) User's manual

C. (1) Floppy cable or Floppy round
   cable

D. (1) Hard drive cable or Hard drive
   round cable

E. (1) Driver and utility

### Optional Item

F. (1) USB2.0 cable

G. (1) Game port cable

H. (1) I/O Shield

I. (1) Bluetooth Module

J. (1) SPD650 card

K. (1) Serial ATA cable

# Overview
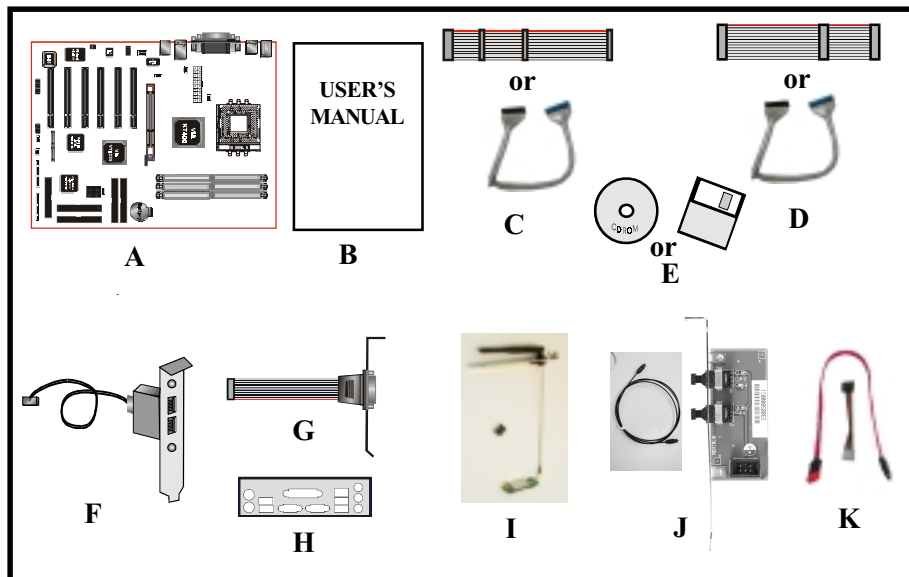
## AMD Duron™ & Athlon™ Processors

The AMD Athlon™ is a seventh-generation micro architecture with an integrated L2 cache, which is powerful enough to support the bandwidth requirements of a large range of applications, hardware, graphics, and memory technologies. These processors implement advanced design techniques such as:

- Socket A (PGA 462)
- 200/266/333MHz system interface based on the Alpha™ EV6 bus protocol.
- Three out-of-order, superscalar, pipelined Multimedia Units.
- Three out-of-order, superscaler, pipelined Integer Units.
- Fixed-sized internal instruction formats (MacroOPs).
- 72-entry Instruction Control Units.
- AMD enhanced 3DNow!™ technology
- L1 and L2 caches.
- Dynamic branch prediction.

Socket A is the name for AMD's new socketed interface designed to support both AMD Duron™ and AMD Athlon™ processors. This innovation is made possible by integrating the L2 cache memory on chip with the processor. Socket A will help enable smaller enclosures, and ultimately result in a wider variety of solutions in the market.

The AMD Duron™ & Athlon™ processors in the Socket A format continue to deliver the ultimate performance for cutting-edge applications. Both bring to desktop systems running industry-standard x86 software superscalar RISC performance. Being provided in the Socket A format they are the world's most powerful x86 processors. They easily deliver the highest integer, floating-point, and 3D multimedia performance for applications running on x86 platforms around.

The AMD Duron™ processor is derived from the AMD Athlon™ processor core. It features full-speed, on-chip cache memory, a 200/266/333MHz front side system bus, and enhanced 3DNow!™ technology. Although both processors are related, there are key differences. The AMD Athlon™ processor is targeted at the performance segment, and as such will have more cache memory and higher clock speeds.

## Accelerated Graphics Port (AGP or A.G.P.)

Typically, 3D graphics rendering requires a tremendous amount of memory, and demands ever increasing throughput speed as well.  As 3D products for the personal computer become more and more popular, these demands will only increase.  This will cause a rise in costs for both end users and manufacturers. Lowering these costs as well as improving performance is the primary motivation behind AGP.  By providing a massive increase in the bandwidth available between the video card and the processor, it will assist in relieving some of these pressures for quite sometime.

The board provides the AGP 3.0 interface.  The AGP interface can support external AGP slot (1.5V only) with AGP 8X/4X/2X and Fast Write Transactions. The AGP Interface Specification revision 3.0 enhances the functionality of the original AGP Interface Specification by allowing 8X data transfers (8 data samples per clock) and 1.5 volt (Power supply) operation. Supports Maximum AGP interface bandwidth 2.1GB/s. (**1.5 volt AGP Card supports only**).

## Ultra ATA/66/100/133

The board provides Ultra ATA/66/100/133 Bus Master IDE controller, that support Ultra ATA/66/100/133 protocols, perfect for such demanding applications as real-time video, multimedia, and high performance operating system.  A new IDE cable is required for Ultra ATA/66/100/133.  This cable is an 80 conductor cable; however the connectors are, of course, backwards compatible with ATA/33.

## Serial ATA (Optional)

The evolutionary serial ATA interface replaces the standard parallel ATA physical storage interface. The serial ATA specification provides scalability and allows future enhancements to the computing platform. Serial technology overcomes performance limits of parallel interface architecture, meeting the escalating need for faster data throughput in servers and storage devices.

Serial ATA is backward compatible with current software and runs on existing architecture without modification. The serial ATA interface cable requires lower voltages and uses smaller cable connectors, providing ease of installation. You can easily upgrade storage devices that are compatible with the serial ATA interface specification. Serial ATA supports all ATA and ATAPI devices, including high capacity removable devices, optical devices, tape storage devices, and zip drives.

Serial ATA is completely software compatible with parallel ATA, requiring no modification to your operating system.

## Hardware Monitoring

Hardware monitoring allows you to monitor various aspects of your systems operations and status. The features include CPU temperature, voltage and RPM of fan.

## Mainboard Form-Factor

The board is designed with ATX form factor - the new industry standard of chassis. ATX form factor is essentially a Baby-AT baseboard rotated 90 degrees within the chassis enclosure and a new mounting configuration for the power supply. With these changes the processor is relocated away from the expansion slots, allowing them all to hold full length add-in cards. ATX defines a double height aperture to the rear of the chassis which can be used to host a wide range of onboard I/O. Only the size and position of this aperture is defined, allowing PC manufacturers to add new I/O features (e.g.; TV input, TV output, joystick, modem, LAN, etc.) to systems. This will help systems integrators differentiate their products in the marketplace, and better meet your needs.

- Smaller size promotes a smaller system size.

- I/O shield does not need to be retooled in an ATX 2.01 or later. The mainboard should be used in an ATX 2.01 (or later) compliant case.

- A smaller power supply can be used. High integration on mainboard reduces the system cost.
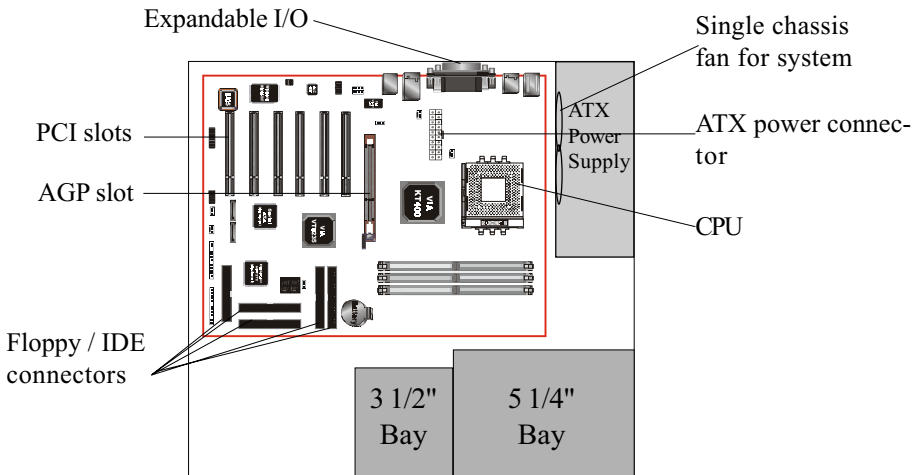


*Figure 2: Summary of ATX chassis features*

## I/O Shield Connector

The board is equipped with an I/O back panel.  Please use the appropriate I/O shield (figure 3).
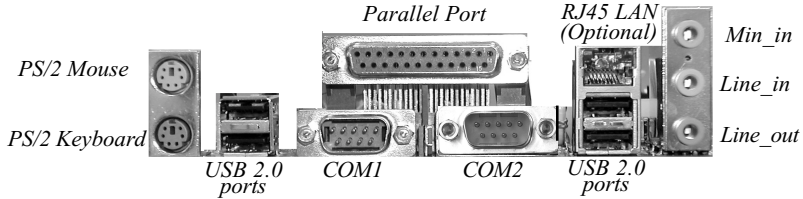


*Figure 3: I/O back panel layout*

## Power-On/Off (Remote)

The board has a single 20-pin connector for ATX power supplies. For ATX power supplies that support the **Remote On/Off** feature, this should be connected to the systems front panel for system Power On/Off button. The systems power On/Off button should be a momentary button that is normally open.

The board has been designed with "Soft Off" function. You can turn Off the system from one of two sources: The first is the  front panel Power On/Off button, and the other is the "Soft Off" function (coming from the M/B's onboard circuit controller) that can be controlled by the operating system such as Windows® 95/ 98/SE/ME or Windows®2000.
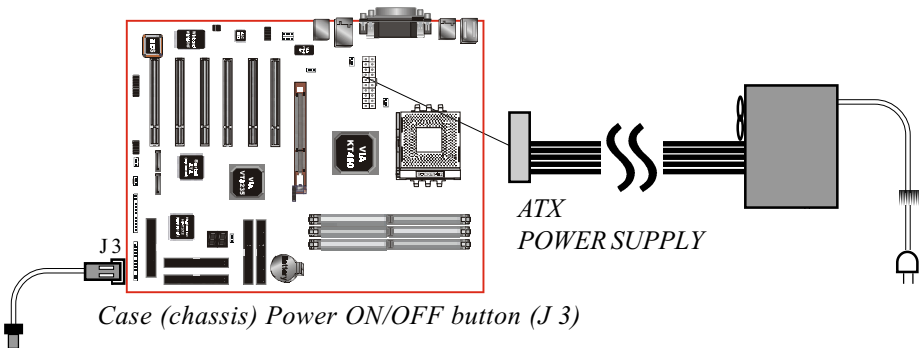


*Figure 4: Simple ATX Power ON/OFF Controller*

# System Block Diagram
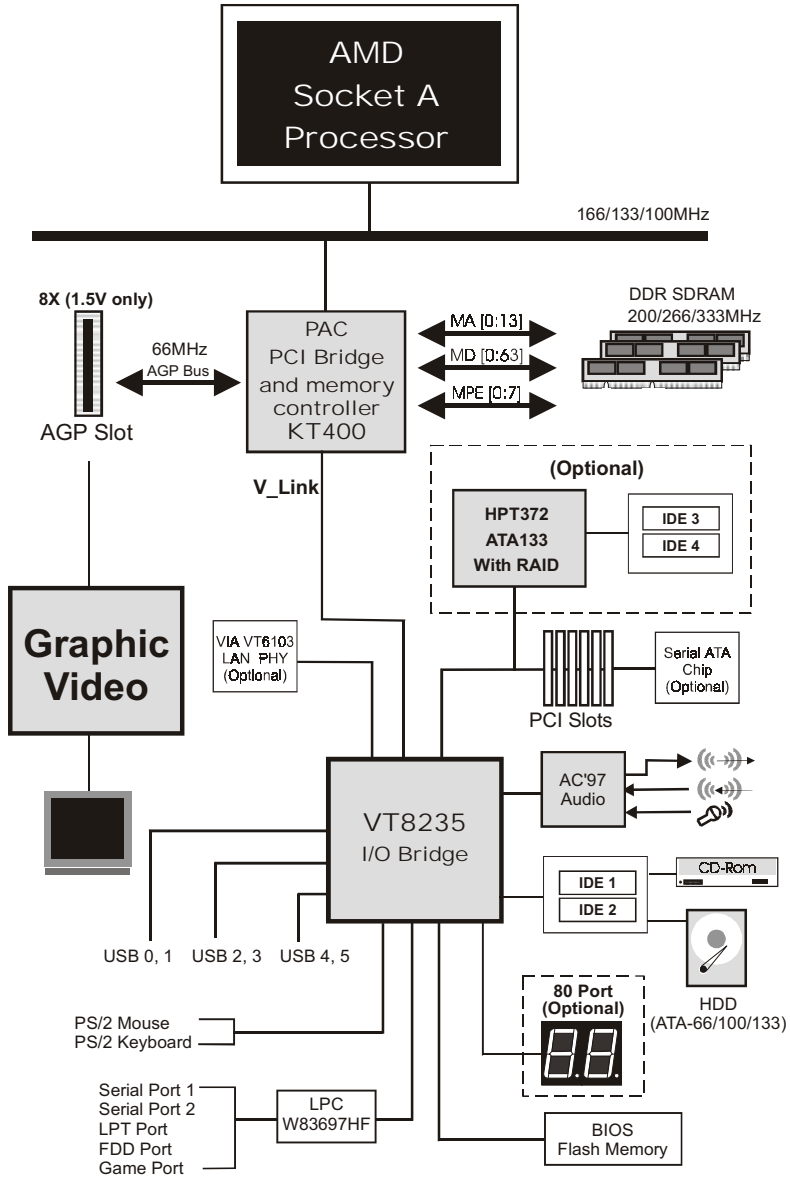


*Figure 5: System Block Diagram*

# Section 2
# FEATURES

## Mainboard Features

◆ **PROCESSOR**

- The Socket A compatible AMD Athlon™ XP processor 1500+ to 2600+, 600MHz to 1.4GHz AMD Athlon™ and AMD Duron™ Processor up to 1.3GHz

◆ **CHIPSET**

- VIA KT400 AGPset (KT400 + VT8235)

◆ **FRONT SIDE BUS**

- 200/266/333MHz

◆ **DRAM MODULE**

- 184-pin DDR DIMM x 3 for PC1600/2100/2700 Memory
- DRAM Size: 64MB to 3GB

◆ **EXPANSION SLOT**

- 32-bit PCI x 6
- 8X AGP x 1 (1.5V only)

◆ **ONBOARD I/O**

- Winbond W83697HF LPC I/O integrated with FDD, fast IR, power on function, and parallel, serial, and game ports

◆ **ONBOARD PCI / IDE**

- PCI Bus IDE Port with PIO/Ultra DMA-66/100/133 x 2 (up to 4 devices)
- Extra IDE Port by HPT372 with Ultra DMA-66/100/133 and IDE RAID x 2 (up to 4 devices) **(Optional)**

# Features

- ◆ **I/O CONNECTOR**
  - PS/2 mouse and keyboard
  - COM1, COM2, LPT (printer)
  - Line-in/out, MIC
  - Game port by extra cable
  - USB connector x 6 (two optional via mainboard front panel USB connector). USB supports USB 2.0 specification. The USB3 can support Bluetooth module.
  - RJ-45 jack (Optional)

- ◆ **Onboard LAN (Optional)**
  - Integrated 10/100MB fast Ethernet controller in chipset with external VIA VT6103 physical Layer by RJ-45 connector

- ◆ **Serial ATA (Optional)**
  - Up to two Serial ATA device
  - Replaces the parallel ATA interface, providing greater throughput.
  - Supports current operating systems and software.
  - Supports all ATA and ATAPI devices, including high capacity removable devices, optical devices, tape storage devices, and zip drives.

- ◆ **BIOS**
  - Award Plug & Play BIOS

- ◆ **Built-in AC 97 Digital Audio by Realtek ALC650 (6 channel)**
  - Compliant with AC97 2.2 specification
  - Six-channel, slot selectable DAC (Digital Analog Converter) output for multi-channel applications
  - Supports digital SPDIF function

- ◆ **EXTENDED FUNCTION**
  - Supports hardware monitoring function by W83697HF
  - Supports exclusive KBPO (KeyBoard Power On) function
  - Supports Wake-On-LAN function

- Supports STR (Suspend To RAM) power saving function

- Supports CPU clock and ratio settings via BIOS

- Supports CPU Vcore and Memory voltage via BIOS

- Supports "Magic Health" and "Easy Boot" Function

- Supports CPU Overheating Protection Function

- 80 Port onboard design with 7-segment LED display (Optional)

◆ **FORM FACTOR**

- 305 mm x 245 mm  ATX size

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# Section 3
# INSTALLATION
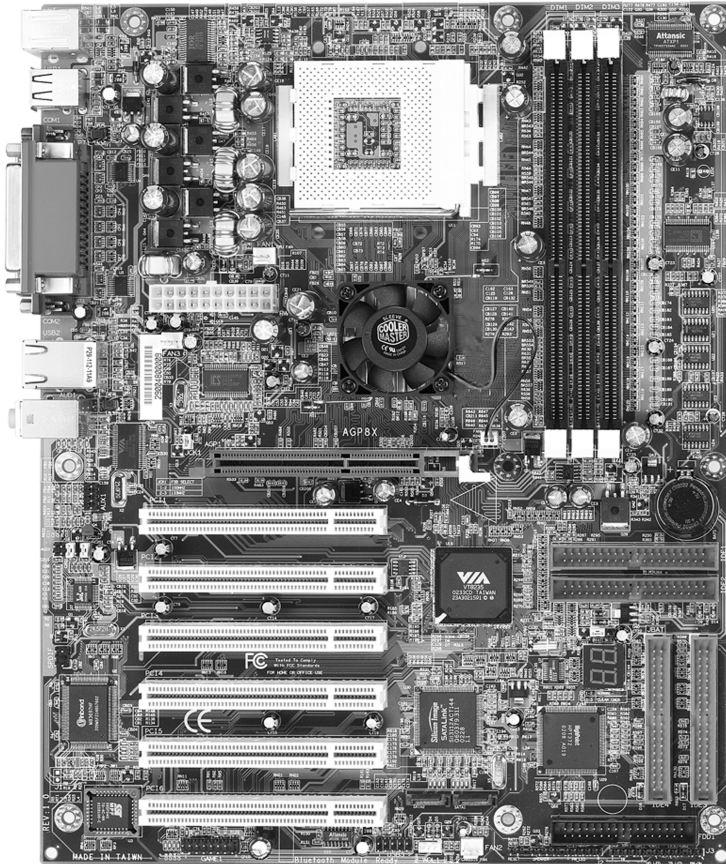
## Mainboard Layout
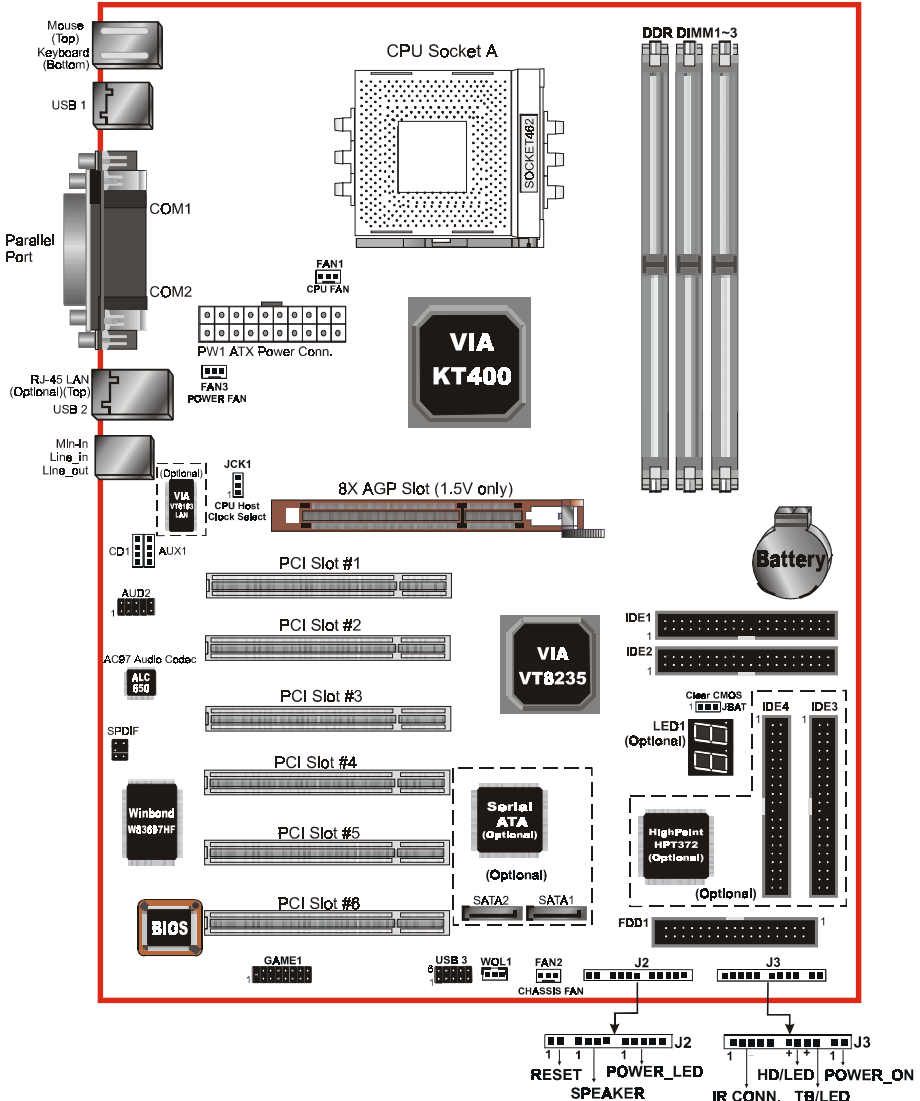
## Easy Installation Procedure

The following must be completed before powering on your new system:

**3-1.	CPU Installation**
**3-2.	Jumper Settings**
**3-3.	System Memory Configuration**
**3-4.	Device Connectors**
**3-5.	External Modem Ring-in Power ON and Keyboard Power ON Functions (KBPO)**
**3-6.	STR Function**
**3-7.	CPU Overheating Protection**

## Section 3-1
## CPU Installation

CPU Insertion: (use AMD Athlon™ as reference)
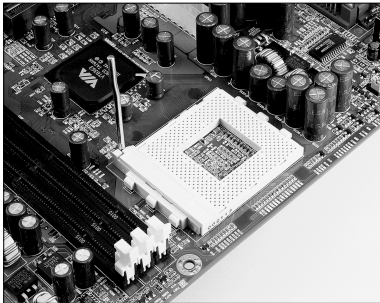


*Figure 1*

**Step 1**

Open the socket by raising the actuation lever.
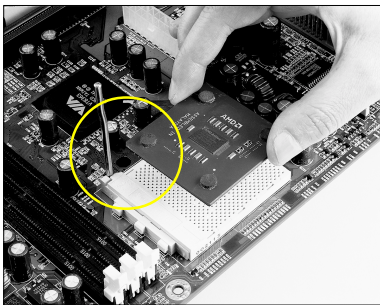


*Figure 2*

**Step 2**
Insert the processor.
Ensure proper pin 1 orientation by aligning the FC-PGA corner marking with the socket corner closest to the actuation arm tip. The pin field is keyed to prevent mis-oriented insertion.  Don't force processor into socket. If it does not go in easily, check for mis-orientation and debris.
Make sure the processor is fully inserted into the socket on all sides.

# Installation
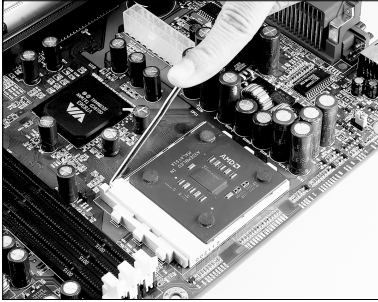


*Figure 3*

### Step 3

Close the socket by lowering and locking the actuation lever.

### Step 4

Thermal compound and qualified heatsink recommended by AMD are a  must to avoid CPU overheat damage.  For more information about installing your CPU, please refer to the AMD website article "Socket A AMD processor and Heatsink Installation Guide" http://www.amd.com/products/cpg/athlon/pdf/23986.pdf.
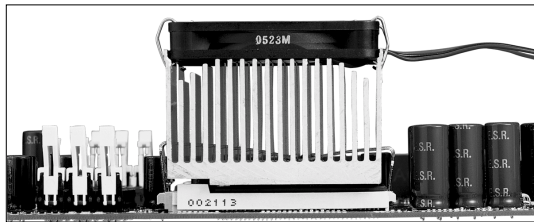


*Figure 4*

## Section 3-2
## Jumper Settings
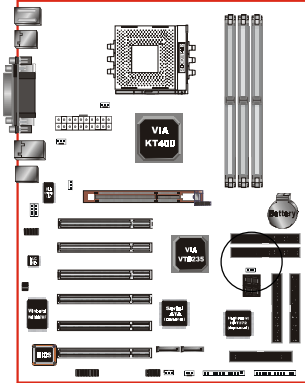
**JBAT**

CMOS Clear
1-2: Normal (Default)
2-3: Clear CMOS
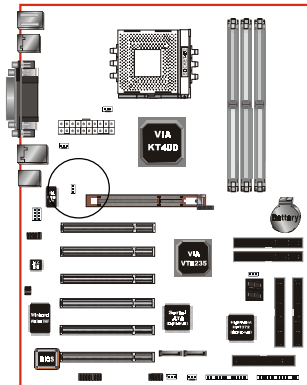
**JCK1**

CPU Host Clock Select
1-2: 100MHz (Default)
2-3: 133MHz

## Section 3-3
## System Memory Configuration

## Memory Layout

The mainboard accommodates three PC1600/2100/2700 184-pin DIMMs (Dual In-line Memory Modules):

- Supports up to 3.0GB of 200/266/333MHz DDR SDRAM

- Supports up to 1GB per DIMM with maximum memory size up to 3GB (refer to Table 1)

- Supports DDR 200/266/333 unbuffered 184-pin non-ECC DDR SDRAM DIMMs

- Supports configurations defined in the JEDEC DDR DIMM specification

**NOTE:** Use DDR SDRAM (Double-Data-Rate Synchronous DRAM) modules only.

Figure 5 and Table 1 show several possible memory configurations.

*<Figure 5>*

| | |
|---|---|
| DDR DIMM 1 | Bank 0/1 ─┐ DDR |
| DDR DIMM 2 | Bank 2/3 ─ Synchronous |
| DDR DIMM 3 | Bank 4/5 ─┘ DRAM |
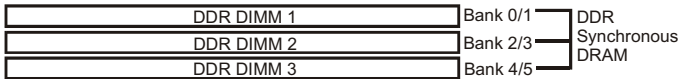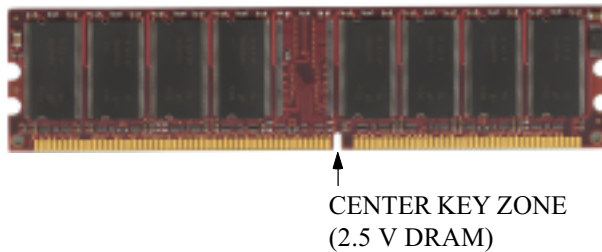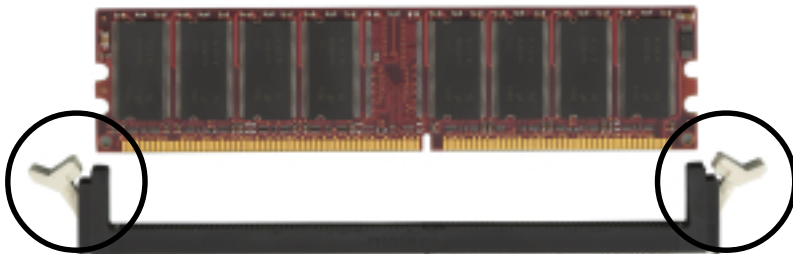
*<Table 1>*

| Total Memory | DDR DIMM 1 (Bank 0/1) | DDR DIMM 2 (Bank 2/3) | DDR DIMM 3 (Bank 4/5) |
|---|---|---|---|
| = 1GB Maximum | DDR SDRAM* 64MB, 128MB, 256MB, 512MB, 1GB* X 1 | None | None |
| = 2GB Maximum | DDR SDRAM* 64MB, 128MB, 256MB, 512MB, 1GB* X 1 | DDR SDRAM* 64MB, 128MB, 256MB, 512MB, 1GB* X 1 | None |
| = 3GB Maximum | DDR SDRAM* 64MB, 128MB, 256MB, 512MB, 1GB* X 1 | DDR SDRAM* 64MB, 128MB, 256MB, 512MB, 1GB* X 1 | DDR SDRAM* 64MB, 128MB, 256MB, 512MB, 1GB* X 1 |

 \* DDR SDRAM supports 64, 128, 256, 512MB and 1GB DIMM modules using 512Mb technology.

 **NOTES:**
- DO NOT MIX the unbuffered and registered DDR SDRAM on DIMM1, DIMM2 and DIMM 3 socket.
- **When the FSB is 333MHz, you must to use PC2700 Memory.**
- Using non-compliant memory with higher bus speeds (overclocking) may severely compromise the integrity of the system.

## DIMM Module Installation

Figure 6 displays the notch on the DDR DIMM memory module.

DIMMs have 184 pins and one notch that matches with the DDR DIMM socket. DIMM modules are installed by placing the chip firmly into the socket and pressing straight down as shown in figure 7 until the white clips close and the module fits tightly into the DIMM socket (figure 8).

CENTER KEY ZONE
(2.5 V DRAM)

*Figure 6 - DIMM notch*

*Figure 7  - DIMM module clips before installation*

*Figure 8 - DIMM module clip after installation*

To remove the DIMM module press down the white clips and the module is released from the socket.

## Section 3-4
## Device Connectors



*Figure 9 - I/O Ports*

PS/2 Mouse

PS/2 Keyboard

USB2.0 Ports    COM1    COM2    USB2.0 ports

Parallel Port

RJ45 LAN (Optional)

MIC-in

Line-in

Line-out



**FAN1 / FAN2 / FAN3:**

CPU/Chassis/Power Fan Power Connectors

FAN1:          FAN2:            FAN3:
CPU Fan        Chassis Fan      PW Fan

GND +12V Rotation     GND +12V Rotation     GND +12V NC

**WOL1:** WOL (Wake On LAN) Connector Reserved for an NIC (Network Interface Card) to wake the system from power saving mode.

PME
GND
+5V Standby

**IDE1/2:** Ultra DMA-66/100/133 Primary/ Secondary IDE Connector (Blue)

**IDE3/4:** Ultra DMA-66/100/133 & RAID Primary/Secondary IDE Connector (Red) (Optional) Supported by the HPT372 chipset

**FDD1:** Floppy Controller Connector (Black)

**PW1:** ATX Power Connector (20-pin power connector)

**GAME1:** Game Port Connector

**CD1:** CD Audio_IN Connector

CD_IN_Right
CD_Reference
1  CD_IN_Left

**AUX1:** Auxiliary Line_IN Connector

AUX_IN_Right
GND
1  AUX_IN_Left

# Installation

**AUD2**: Front Panel Audio Connector
When headphones are plugged into the front panel headphone jack, the rear panel audio output connectors are disabled.
If the front panel interface board is not connected to the front panel audio header, short pins 5 - 6 and 9 -10 on the front panel audio header. If these pins are not shorted, the rear panel audio connectors are inoperative.

**Settings**

*Pins (5-6) & (9-10) Short (default):* Only the Onboard Rear Audio Speaker can be used.

*Pins (5-6) & (9-10) Open:* Only Front Panel Audio Speaker can be used.

**SPDIF1:** Sony/Philips Digital InterFace
This connector is the digital link between the mainboard and your audio devices, such as CD player, sampler or DAT recorder. It allows the digital transmission of audio data in SPDIF format.

**USB3:** USB port header for two USB2.0 ports. The USB3 is used to connect bluetooth module for wireless connection.



```
        1      6
VCC  ■  ■
            ├── GND
-Data  ■  ■
+Data  ■  ■ ── +Data
            ── -Data
GND  ■  ■
            ── VCC
       5      10
```

USB port header pin descriptions.

| PIN# | Wire color | Signal Name | Comment |
|------|-----------|-------------|---------|
| 1 | Red | Vcc | Cable Power |
| 2 | White | -Data | Data |
| 3 | Green | +Data | Data |
| 4 | Black | Ground | Cable Ground |
| 5 | Black | Ground | Case Ground |
| 6 | Black | Ground | Case Ground |
| 7 | Black | Ground | Cable Ground |
| 8 | Green | +Data | Data |
| 9 | White | -Data | Data |
| 10 | Red | Vcc | Cable Power |

**CAUTION !**

Please make sure the USB cable has the same pin assignment. The different pin assignment may be caused damage of system.
If you need the USB cable, please contact our retailer.

**SATA1 / SATA2:** (Optional )

1.5Gbps serial ATA Connectors

SATA1 and SATA2 enable you to connect two serial ATA devices that conform to the Serial ATA specification.

Serial ATA supports all ATA and ATAPI devices, including high capacity removable devices, optical devices, tape storage devices, and zip devices.

# Installation



◆ **Power On/Off**

This is connected to the power button on the case. Using the Soft-Off by Pwr-BTTN feature, you can choose either Instant Off (turns system off immediately), or 4 sec delay (push the button for 4 seconds before the system turns off). When the system is in 4 sec delay mode, suspend mode is enabled by pushing the button momentarily.

◆ **Turbo LED indicator**

**J3**



◆ **IDE LED indicator**
LED on when onboard PCI IDE Hard disks are being accessed.

◆ **IR Connector**
1. VCC          4. GND
2. CIRRX       5. IRTX
3. IRRX

◆ **Power LED**
Power LED connector
1. Power LED(+) 4. NC
2. N/C          5. GND
3. GND

**J2**



◆ **Speaker**
Connect to the system's speaker for beeping
1. Speaker     3. GND
2. N/C         4. VCC

◆ **Reset**
Closed to restart system.

**LED1:** 80 Port Debug LED (Optional)

80 Port Debug 7-segment LED display (Refer to Appendix E for POST codes)

## Section 3-5
## External Modem Ring Power ON and
## Keyboard Power ON Functions (KBPO)

### Modem Ring Power ON Function

The I/O chipset provides the two serial ports with the External Modem Ring-in Power ON function. Once you connect an external modem to COM1 or COM2, the mainboard enables you to turn on the system through remote and host dial-up control.

### Keyboard Power ON Function

The mainboard features a keyboard power on function that enables you to turn on the power supply using a keypress. Follow these instructions to enable the Keyboard Power ON function .

**Step :** Use the Keyboard Power ON function (KBPO) to turn on the system by using password, or hot key combination as set in the BIOS IRQ/Event Activity Detect submenu of Power Management Setup menu. The BIOS default setting is keyboard <Ctrl> + <F1>. To power off the system, use the soft-OFF function under Windows 2000/98/95 (refer to Windows online help).

**NOTES:**

- Intel ATX version 2.0 specification recommends you use a power supply that supplies >=1.0 A in 5 VSB. However, this mainboard supports a 5 VSB standby power supply > = 0.1A (100mA).

- We recommend you use the power supply with 1.0 A in 5 VSB, which supports PCI 2.2 specification for remote power-on and wake-up functions.

## 3-6 STR (Suspend To RAM) Function

This mainboard supports the STR (Suspend To RAM) power management scheme by maintaining the appropriate power states in the DDR SDRAM interface signals. The power source to the DDR SDRAM must be kept active during STR (ACPI S3). Advanced Configuration Power Interface (ACPI) provides many Energy Saving Features for operating systems that support Instant ON and QuickStart™ function.

1. Use the STR functionality to save system power, you are recommended to confirm the following requirements:
   a. Install ACPI qualified add-on cards (such as AGP, LAN, and modem cards).
   b. In BIOS under Power Management Setup (refer to Section 4), select "ACPI Suspend Type: S3(STR)" and "USB Resume from S3: Enabled" (if you have a USB mouse or keyboard device).
   c. Install Windows® XP/2000/ME/98SE.
   d. Restart the system.
   e. Open the Control Panel Power Management application, and click the Advanced tab. In the Power buttons section, select "Stand By" from the drop-down lists.

2. To enable the STR function, click the START button and choose Shut Down. In the Shut Down Windows dialog box, select the Stand By option to enter STR mode.

   The following lists the differences between STR power saving mode and Green (or Suspend) mode:
   a. STR is the most advanced Power Management mode.
   b. STR cuts all the power supplied to peripherals except to memory - max. power saving.
   c. STR saves and keeps all on-screen data including any executed applications to DDR SDRAM.
   d. In STR mode, you must push the power button (connected to the onboard J3 pin), click your USB mouse buttons, or press your USB keyboard keys to wake up your system to the last display.

## 3-7 CPU Overheating Protection

This board has CPU Overheating Protection when the temperature of CPU is overheating. This board supports automatically shutdown (to remove power) circuit when the CPU has reached the temperature of approximately $110^{\circ}$C. Meanwhile the speaker will sustained beep and the system will not be to power on. This protection is designed by hardware, you don't need to do the BIOS setup.

To power on your system normally, we recommend you to confirm the following steps:

**Step1**: Unplug in the ATX power core (or turn off ATX power supply switch).

**Step2**: Please wait the beep to stop then plug in the ATX power core again (or turn on ATX power switch) to turn on your system.

> **Note**: **The CPU Overheating Protection will function only when CPU has thermal diode design.**

# Section 4
## AWARD BIOS SETUP

## Main Menu

Award's ROM BIOS provides a built-in Setup program which allows user to modify the basic system configuration and hardware parameters. The modified data is stored in a battery-backed CMOS, so that data will be retained even when the power is turned off. In general, the information saved in the CMOS RAM will stay unchanged unless there is a configuration change in the system, such as hard drive replacement or a device is added.

It is possible for the CMOS battery to fail causing CMOS data loss. If this happens you will need install a new CMOS battery and reconfigure your BIOS settings.

**To enter the Setup Program :**
Power on the computer and press the <Del> key during the POST (Power On Self Test). The BIOS CMOS SETUP UTILITY opens.

```
            Phoenix - AwardBIOS CMOS Setup Utility

   ▶ Standard CMOS Features        ▶ Frequency/Voltage Control

   ▶ Advanced BIOS Features           Load Fail-Safe Defaults

   ▶ Advanced Chipset Features        Load Optimized Defaults

   ▶ Integrated Peripherals           Set Supervisor Password

   ▶ Power Management Setup            Set User Password

   ▶ PnP/PCI Configurations            Save & Exit Setup

   ▶ PC Health Status                  Exit Without Saving

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

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

*Figure 1:  CMOS Setup Utility*

The main menu displays all the major selection items. Select the item you need to reconfigure.  The selection is made by moving the cursor (press any direction (arrow key ) to the item and pressing the 'Enter' key. An on-line help message is displayed at the bottom of the screen as the cursor is moved to various items which provides a better understanding of each function. When a selection is made, the menu of the selected item will appear so that the user can modify associated configuration parameters.

## 4-1 Standard CMOS Setup

Choose "STANDARD CMOS FEATURES" in the CMOS SETUP UTILITY Menu (Figure 2). Standard CMOS Features Setup allows the user  to configure system settings such as the current date and time, type of hard disk drive installed, floppy drive type, and display type. Memory size is auto-detected by the BIOS and displayed for your reference. When a field is highlighted (use direction keys to move the cursor and the <Enter> key to select), the entries in the field can be changed by pressing the <PgDn> or the <PgUp> key.

```
              Phoenix - AwardBIOS CMOS Setup Utility
                      Standard CMOS Features

      Date (mm:dd:yy)          Fri, Aug 30 2002        Item Help
      Time (hh:mm:ss)           3 : 34 : 29
                                                  Menu Level    ▶
    ▶ IDE Primary Master
    ▶ IDE Primary Slave                           Change the day, month,
    ▶ IDE Secondary Master                        year and century
    ▶ IDE Secondary Slave

      Drive A                  [1.44M, 3.5 in.]
      Drive B                  [None]

      Video                    [EGA/VGA]
      Halt On                  [All , But Keyboard]

      Base Memory                   640K
      Extended Memory              65472K
      Total Memory                  1024K


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

*Figure 2:  Standard CMOS Setup*

**Notes:**

- If the hard disk Primary Master/Slave and Secondary Master/Slave are set to Auto, then the hard disk size and model will be auto-detected.
- The "Halt On:" field is used to determine when to halt the system by the BIOS if an error occurs.
- Floppy 3 Mode support is a mode used to support a special 3.5-inch drive used in Japan.  This is a 3.5-inch disk that stores 1.2 MB. The default setting for this is disabled.

## 4-2 Advanced BIOS Features

Selecting the "ADVANCED BIOS FEATURES" option in the CMOS SETUP UTILITY menu allows users to change system related parameters in the displayed menu. This menu shows all  of the manufacturer's default values for the board.

Pressing the [F1] key displays a help message for the selected item.

```
            Phoenix - AwardBIOS CMOS Setup Utility
                   Advanced BIOS Features
┌──────────────────────────────────────────────┬─────────────────────────┐
│   Virus Warning          [Disabled]        ▲ │        Item Help        │
│   CPU Internal Cache      [Enabled]          │                         │
│   External Cache          [Enabled]          │  Menu Level   ▶         │
│   CPU L2 Cache ECC Checking [Disabled]       │                         │
│   Athlon XP SSED instruction[Enabled]        │  Allows you to choose   │
│   MP Capable bit identify [Disabled]         │  the VIRUS warning      │
│   Quick Power On Self Test [Enabled]         │  feature for IDE Hard   │
│   ATA RAID or SCSI Card Boot[RAID]           │  Disk boot sector       │
│   First Boot Device       [Floppy]           │  protection. If this    │
│   Second Boot Device      [HDD-0]            │  function is enabled    │
│   Third Boot Device       [LS120]            │  and someone attempt to │
│   Boot Other Device       [Enabled]          │  write data into this   │
│   Swap Floppy Drive       [Disabled]         │  area ,  BIOS will show │
│   Boot Up Floppy Seek     [Disabled]         │  a warning message on   │
│   Boot Up NumLock Status  [On]               │  screen and alarm beep  │
│   Gate A20 Option         [Fast]             │                         │
│   Typematic Rate Setting  [Disabled]         │                         │
│ x Typematic Rate (Chars/Sec) 6               │                         │
│ x Typematic Delay (Msec)    250            ▼ │                         │
│   Security Option         [Setup]            │                         │
│   APIC Mode               [Enabled]          │                         │
│   MPS Version Control For OS[1.4]            │                         │
│   OS Select For DRAM > 64MB [Non-OS2]        │                         │
│   Video BIOS Shadow       [Enabled]          │                         │
│   Full Screen LOGO Show   [Enabled]        ▼ │                         │
├──────────────────────────────────────────────┴─────────────────────────┤
│ ↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help │
│   F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults │
└────────────────────────────────────────────────────────────────────────┘
```

*Figure 3:  BIOS Features Setup*

# BIOS

## Virus Warning

During and after system boot up, any attempt to write to the boot sector or partition table of the hard disk drive halts the system and an error message appears. You should then run an anti-virus program to locate the virus. Keep in mind that this feature protects only the boot sector, not the entire hard drive. The default is Disabled.

**Enabled**: Activates automatically when the system boots up causing a warning message to appear when anything attempts to access the boot sector.

**Disabled**:No warning message appears when anything attempts to access the boot sector.

> **Note:** Many disk diagnostic programs that access the boot sector table can trigger the virus warning message. If you plan to run such a program, we recommend that you first disable the virus warning.

## CPU Internal Cache

This controls the status of the processor's internal cache area.  The default is Enabled.

Options:  Enabled, Disabled.

## External Cache

This controls the status of the external (L2) cache area. The default is Enabled.

Options:  Enabled, Disabled.

## CPU L2 Cache ECC Checking

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

Options:  Enabled, Disabled.

## Athlon 4 SSED instruction

This item allows you to disable Athlon 4 new SSED instruction. The default is Enabled.

Options: Enabled, Disabled.

## MP Capable bit identify

This item allows you to identify Athlon MP Processor, if this function is Enabled. The default is Disabled.

Options: Enabled, Disabled.

### Quick Power On Self Test

This category speeds up the Power On Self Test (POST). The default is Enabled.
**Enabled**: This setting will shorten or skip of the items checked during POST.
**Disabled**: Normal POST.

### ATA RAID & SCSI Card Boot

Setup the boot up priority either form onboard ATA RAID connector or SCSI Card, if
you select SCSI as the first boot at the option below item. The default is RAID, SCSI.
Options: RAID, SCSI.

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

The BIOS attempts to load the operating system from the devices in the sequence
selected in these items.
Options: Floppy, LS120, HDD-0, SCSI, CDROM, HDD-1, HDD-2, HDD-3,
ZIP100, USB-FDD, USB-ZIP, USB-CDROM, USB-HDD, LAN, Disabled.

### Boot Other Device

When enabled, the system searches all other possible locations for an operating
system if it fails to find one in the devices specified under the first, second, and
third boot devices. The default is Enabled.
Options: Enabled, Disabled.

### Swap Floppy Drive

This will swap your physical drive letters A & B if you are using two floppy disks.
The default is Disabled.
**Enabled**: Floppy A & B will be swapped under the O/S.
**Disabled**:Floppy A & B will be not swapped.

### Boot Up Floppy Seek

If this item is enabled, it checks the size of the floppy disk drives at start-up time.
You don't need to enable this item unless you have a legacy diskette drive with
360K capacity.  The default is Disabled.
Options: Enabled, Disabled.

### Boot Up NumLock Status

This controls the state of the NumLock key when the system boots. The default is On.
**On**:   The keypad acts as a 10-key pad.
**Off**:  The keypad acts like cursor keys.

# BIOS

### Gate A20 Option

This refers to the way the system addresses memory above 1 MB (extended memory).  The default is Normal.

**Normal**:  The A20 signal is controlled by the keyboard controller or chipset hardware.

**Fast**:  The A20 signal is controlled by Port 92 or chipset specific method.

### Typematic Rate Setting

This determines the keystrokes repeat rate. The default is Disabled.

**Enabled**: Allows typematic rate and typematic delay programming.

**Disabled**:The typematic rate and typematic delay will be controlled by the keyboard controller in your system.

### Typematic Rate (Chars/Sec)

This is the number of characters that will be repeated by a keyboard press. The default is 6.

Options: 6 ~ 30 characters per second.

### Typematic Delay (msec)

This setting controls the time between the first and the second character displayed by typematic auto-repeat. The default is 250.

Options:   250/500/750/1000 msec.

### Security Option

This category allows you to limit access to the System and Setup, or just to Setup. The default is Setup.

**System**:  The system will not boot and the access to Setup will be denied if the correct password is not entered at the prompt.

**Setup**:  The system will boot; but the access to Setup will be denied if the incorrect password is not entered at the prompt.

### APIC Mode

This item allows you to enable APIC (Advanced Programmable Interrupt Controller) functionality. APIC is an Intel chip that provides symmetric multiprocessing (SMP) for its Pentium systems. The default is Disabled.

Options: Enabled, Disabled.

**MPS Version Control For OS**

Specifies the Multiprocessor Specification (MPS). Version 1.4 supports multiple PCI bus configurations by incorporating extended bus definitions. Enable this for Windows NT or Linux. For older operating systems, select Version 1.1. The default is 1.4.
Options: 1.1, 1.4.

**OS Select For DRAM > 64 MB**

Some operating systems require special handling. Use this option only if your system has greater than 64 MB of memory. The default is Non-OS2.

**OS2**:     Select this if you are running the OS/2 operating system with greater than 64 MB of RAM.

**Non-OS2**: Select this for all other operating systems and configurations.

**Video BIOS Shadow**

This option allows video BIOS to be copied into RAM. Video Shadowing will increase the video performance of your system.
Options: Enabled, Disabled.

**Full Screen LOGO Show**

This option allows you determine Full Screen LOGO display when POST.
Options: Enabled, Disabled.

## 4-3 Advanced Chipset Features

Choose the "ADVANCED CHIPSET FEATURES" option in the CMOS SETUP UTILITY menu to display following menu.

```
               Phoenix - AwardBIOS CMOS Setup Utility
                        Advanced Chipset Features

 ▶ DRAM Clock/Drive Control    [Press Enter]          Item Help
 ▶ AGP & P2P Bridge Control    [Press Enter]
 ▶ CPU & PCI Bus Control       [Press Enter]       Menu Level    ▶

   System BIOS Cacheable       [Disabled]
   Video RAM Cacheable         [Disabled]




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

*Figure 4:  Chipset Features Setup*

**System BIOS Cacheable**
This item allows the system to be cached in memory for faster execution. The default is Enabled.
Options: Disabled, Enabled.

**Video RAM Cacheable**
This option allows the CPU to cache read/writes of the video RAM. The default is Enabled.
Options: Disabled, Enabled.

# ▸ *DRAM Clock / Drive Control*

Scroll to DRAM Clock/Timing Control and press <Enter>. The following screen appears:

```
           Phoenix - AwardBIOS CMOS Setup Utility
                  DRAM Clock/Drive Control

   System Performance       [Normal]              Item Help
   DRAM Timing              [Auto By SPD]
 x DRAM CAS Latency          2.5            Menu Level  ▸▸
 x Bank Interleave           Disabled
 x Precharge to Active(Trp)  3T
 x Active to Precharge(Tras) 6T
 x Active to CMD(Trcd)       3T
   DRAM Burst Length        [4]
   DRAM Queue Depth         [4 level]
   DRAM Command Rate        [Auto]
   Write Recovery Time      [3T]
   DRAM tWTR                [3T]
   DCLKI Timing             [Auto]
   DCLKO Timing             [Auto]
```

**System Performance**
This item will help you to configure your system performance quickly and easily.
Options: Normal, Fast, Turbo, Ultra.

> *Note:* **If you select the higher performance, compatibility problem could be occurred.**

**DRAM Timing**
For setting DRAM Timing, By SPD is follow SDRAM Serial Presence Detect Specification.
Options: Manual, Auto by SPD.

**DRAM CAS Latency**
Enables you to select the CAS latency time. The value is set at the factory depending on the DRAM installed. Do not change the values in this field unless you change specifications of the installed DRAM and DRAM clock from DRAM Timing Selectable. The default is set by SPD (see 'DRAM Timing').
Options:  1.5, 2, 2.5, 3.

**Bank  Interleave**
The item allows you to set how many banks of  SDRAM support in your mainboard. Default is by SPD.
Options: 2 Bank, 4 Bank, Disabled.

## BIOS

### Precharge to Active (Trp)
This item refers to the number of cycles required to return data to its original location to close the bank or the number of cycles required to page memory before the next bank activate command can be issued. The default is by DRAM SPD.
Options: 3T, 2T.

### Active to Precharge (Tras)
This item specifies the number of clock cycles needed after a bank active command before a precharge can occur (sets the minimum RAS pulse width.). The default is by DRAM SPD.
Options: 6T, 5T.

### Active to CMD (Trcd)
This item sets the timing parameters for the system memory such as the CAS (Column Address Strobe) and RAS (Row Address Strobe). The default is by DRAM SPD.
Options: 3T, 2T, 4T, 5T.

### DRAM Burst Length
Options: 4, 8.

### DRAM Queue Depth
Options: 4 level, 2 level, 3 level.

### DRAM Command Rate
Setup the timing at each cycle.
Options: 1T Command, 2T Command, Auto.

### Write Recovery Time
Options: 2T , 3T.

### DRAM tWTR
TWTR Timing Control
Options: 1T , 3T.

### DCLKI/DCLKO Timing
Options: 0ns, 0.5ns, 1ns, 1.5ns, Auto.

## ▸ *AGP & P2P Bridge Control*

Scroll to AGP & P2P Bridge Control and press <Enter>. The following screen appears:

```
                 Phoenix - AwardBIOS CMOS Setup Utility
                         AGP & P2P Bridge Control

     AGP Aperture Size       [128M]                      Item Help
     AGP Mode                [4X]
     AGP Driving Control     [Auto]          Menu Level    ▸▸
   x AGP Driving Value        DA
     AGP Fast Write          [Disabled]
     AGP Master 1 WS Write   [Disabled]
     AGP Master 1 WS Read    [Disabled]
     DBI Output for AGP Trans. [Disabled]
```

**AGP Aperture Size (MB)**
This item defines the size of the aperture if you use an AGP graphics adapter. It refers to a section of the PCI memory address range used for graphics memory. The default is 128 MB.
Options: 4, 8, 16, 32, 64, 128, 256 MB.

**AGP Mode**
Chipset AGP Mode support.
Options: 1X, 2X, 4X.

**AGP Driving Control**
This item allows you to adjust the AGP driving force.  Choose Manual to key in a AGP Driving Value in the next selection.  This field is recommended to set in **Auto** for avoiding any error in your system.
Options: Auto, Manual.

**AGP Fast Write**
Selecting Enabled allows to use Fast Write Protocol for 4X AGP card.
Options: Enabled, Disabled.

**AGP Master 1 WS Write**
When Enabled, Writes to the AGP (Accelerated Graphics Port) are executed with one wait states.
Options: Enabled, Disabled.

## AGP Master 1 WS Read

When Enabled, Reads to the AGP (Accelerated Graphics Port) are executed with one wait states.

Options: Enabled, Disabled.

## DBI Output for AGP Trans.

Enables DBI output for AGP transactions.

Options: Enabled, Disabled.

## ▸ *CPU & PCI Bus Control*

Scroll to CPU & PCI Bus Control and press <Enter>. The following screen appears:

```
              Phoenix - AwardBIOS CMOS Setup Utility
                      CPU & PCI Bus Control

   PCI1 Master 0 WS Write    [Enabled]          Item Help
   PCI2 Master 0 WS Write    [Enabled]
   PCI1 Post Write           [Enabled]     Menu Level  ▸▸
   PCI2 Post Write           [Enabled]
   VLink 8X Support          [Enabled]
   PCI Delay Transaction     [Enabled]
```

## PCI1/2 Master 0 WS Write

When Enabled, Writes to the PCI bus are commanded with zero wait states.

Options: Enabled, Disabled.

## PCI1/2 Post Write

Enables CPU to PCI bus POST write.

Options: Enabled, Disabled.

## VLink 8X Support

Enables VLink 8X support.

Options: Enabled, Disabled.

## PCI Delay 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 2.2.

Options: Enabled, Disabled.

## 4-4 Integrated Peripherals

```
              Phoenix - AwardBIOS CMOS Setup Utility
                      Integrated Peripherals

     USB 2.0 Support            [Enabled]           │    Item Help
   ▶ VIA OnChip IDE Device      [Press Enter]       │
   ▶ VIA OnChip PCI Device      [Press Enter]       │ Menu Level    ▶
   ▶ SuperIO Device             [Press Enter]       │
     Init Display First         [PCI Slot]          │
     OnChip USB Controller      [All Enabled]       │
     USB Keyboard Support       [Disabled]          │
     USB Mouse Support          [Disabled]          │
     IDE HDD Block Mode         [Enabled]           │


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

*Figure 5:  Integrated Peripherals*

**Notes:**

- If you do not use the Onboard IDE connector, then you will need to set Onboard Primary PCI IDE: Disabled and Onboard Secondary PCI IDE: Disabled

- The Onboard PCI IDE cable should be equal to or less than 18 inches (45 cm.).

**USB 2.0 Support**

Enables the USB 2.0 support.

Options: Disabled, Enabled.

**Init Display First**

If two video cards are used (1 AGP and 1 PCI) this specifies which one will be  the primary display adapter. The default is PCI Slot.

Options: PCI Slot, AGP.

**Onchip USB Controller**

Enables the USB controller.

Options: All Disabled, All Enabled, 1&2 USB port, 2&3 USB port, 1&3 USB port, 1 USB port, 2 USB port, 3 USB port.

**USB Keyboard Support**

Your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard Device. The default is Disabled.

Options: Enabled, Disabled.

**USB Mouse Support**

Your system contains a Universal Serial Bus (USB) controller and you have a USB Mouse Device. The default is Disabled.

Options: Enabled, Disabled.

**IDE HDD Block Mode**

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

Options: Enabled, Disabled.

## ▸ *VIA OnChip IDE Device*

Scroll to VIA Onchip IDE Device and press <Enter>. The following screen appears:

```
            Phoenix - AwardBIOS CMOS Setup Utility
                      VIA OnChip IDE Device

    OnChip IDE Channel0      [Enabled]         Item Help
    OnChip IDE Channel1      [Enabled]
    IDE Prefetch Mode        [Enabled]      Menu Level    ▶▶
    Primary Master   PIO     [Auto]
    Primary Slave    PIO     [Auto]
    Secondary Master PIO     [Auto]
    Secondary Slave  PIO     [Auto]
    Primary Master   UDMA    [Auto]
    Primary Slave    UDMA    [Auto]
    Secondary Master UDMA    [Auto]
    Secondary Slave  UDMA    [Auto]
    CDROM UDMA Support       [Disabled]
```

**OnChip IDE Channel0/1**

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

Options: Enabled, Disabled.

**IDE  Prefetch Mode**
Selecting Enabled reduces latency between each drive read/write cycle, but may cause instability in IDE subsystems that cannot support such fast performance.  If you are getting disk drive errors, try setting this value to Disabled.  This field does not appear when the Internal PCI/IDE field, above, is Disabled.
Options: Enabled, Disabled.

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

**Primary/Secondary Master/Slave UDMA**
This allows you to select the mode of operation for the Ultra DMA-33/66/100/ 133 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver). If your hard drive and your system software both support Ultra DMA-33/66/100/133, select Auto to enable UDMA mode by BIOS or you can select mode by manual.
Options: Auto, Disabled.

**CDROM UDMA Support**
This allows you to select the mode of operation for the CDROM implementation is possible only if your CDROM drive supports it and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver).
Options: Enabled, Disabled.

# BIOS

## ▶ *VIA Onchip PCI Device*

Scroll to VIA Onchip PCI Device and press <Enter>. The following screen appears:

```
          Phoenix - AwardBIOS CMOS Setup Utility
                  VIA OnChip PCI Device

    VIA AC97 Audio          [Auto]              Item Help
    AC97 Speaker At POST    [Disabled]
    Game Port Address       [201]           Menu Level  ▶▶
    Midi Port Address       [Disabled]
  x Midi Port IRQ            10
    VIA OnChip LAN          [Enabled]
    Onboard Lan Boot ROM    [Disabled]
    High Point IDE RAID     [Auto]
    Sil 3112 Serial ATA     [Enabled]
    Serial ATA Mode         [RAID]
```

**VIA AC97 Audio**

This item allows you to enable or disable the chipset family to support AC97
Audio. The system default is Enabled.

Options: Auto, Disabled.

**AC97 Speaker At POST**

This item allows you to decide to enable or disable AC97 Speaker At POST
function. The default is Disabled.

Options: Enabled, Disabled.

**Game Port Address**

Select an address for the Game port.

Options: 201 (default), 209, Disabled.

**Midi Port Address**

Select an address for the Midi port.

Options: 290, 300, 330, Disabled (default).

**Midi Port IRQ**

Select an interrupt for the Midi port.

Options: 5, 10 (default).

**VIA Onchip LAN (Optional)**

Enables the onboard LAN feature. The default is Enabled.

Options: Enabled, Disabled.

**Onboard Lan Boot ROM (Optional)**

Enables and disables the onboard LAN Boot ROM.  The default is Disabled.

Options: Enabled, Disabled.

**High Point IDE RAID**

Enables the onboard PCI device High Point IDE RAID.

Options: Auto (default), Enabled, Disabled.

**Sil 3112 Serial ATA**

Enables the onboard Sil 3112 serial ATA feature.

Options: Enabled, Disabled.

**Serial ATA Mode**

This item allows to select Serial ATA mode.

Options: IDE, RAID.

▶ *Super IO Chip Setup*

Scroll to Super IO Chip Setup and press <Enter>. The following screen appears:

```
              Phoenix - AwardBIOS CMOS Setup Utility
                           SuperIO Device

     Onboard FDC Controller     [Enabled]            Item Help
     Onboard Serial Port 1      [3F8/IRQ4]
     Onboard Serial Port 2      [2F8/IRQ3]      Menu Level    ▶▶
     UART Mode Select           [Normal]
     RxD , TxD Active           [Hi,Lo]
     IR Transmission Delay      [Enabled]
     UR2 Duplex Mode            [Half]
     Use IR Pins                [IR-Rx2Tx2]
     Onboard Parallel Port      [378/IRQ7]
     Parallel Port Mode         [SPP]
     EPP Mode Select            [EPP1.7]
     ECP Mode Use DMA           [3]
```

**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 you install and-in FDC or the system has no floppy drive, select Disabled in this field.

Options: Enabled, Disabled.

**Onboard Serial Port 1/2**

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

Options: 3F8/IRQ4, 2E8/IRQ3, 3E8/IRQ4, 2F8/IRQ3, Disabled, Auto.

# BIOS

### UART Mode Select
This filed allows the users to configure what IR mode the 2nd serial port should use. The default is Normal.
Options: Normal, IrDA and ASKIR.

### RxD, TxD Active
This field configures the receive and transmit signals generated from the IR port. The default is Hi Lo (when UART Mode Select is not set to Normal).
Options: Hi Hi, Hi Lo, Lo Hi, and Lo Lo.

### IR Transmission delay
This item allows you to enabled/disable IR transmission delay.
Options: Enabled, Disabled.

### UR2 Duplex Mode
This item allows you to select IR half/full duplex function.
Options: Half, Full.

### Use IR Pins
This item allows you to select IR transmission routes, one is RxD2, TxD2 (COM Port) and the other is IR-Rx2Tx2.
Options:  IR-Rx2Tx2, RxD2, TxD2.

### Onboard Parallel Port
This field allows the user to configure the LPT port.
Options: 378/IRQ7, 278/IRQ5, 3BC/IRQ7, Disabled.

### Parallel Port Mode
This field allows the user to select the parallel port mode.
Options:  SPP, EPP, ECP, ECP+EPP.

### EPP Mode Select
This item allows you to determine the IR transfer mode of onboard I/O chip.
Options: EPP1.9, EPP1.7.

### ECP Mode USE DMA
This field allows the user to select DMA1 or DMA3 for the ECP mode.
Options: DMA1, DMA3.

## 4-5 Power Management Setup

Choose the "POWER MANAGEMENT SETUP" in the CMOS SETUP UTILITY to display the following screen. This menu allows the user to modify the power management parameters and IRQ signals. In general, these parameters should not be changed unless it's absolutely necessary.
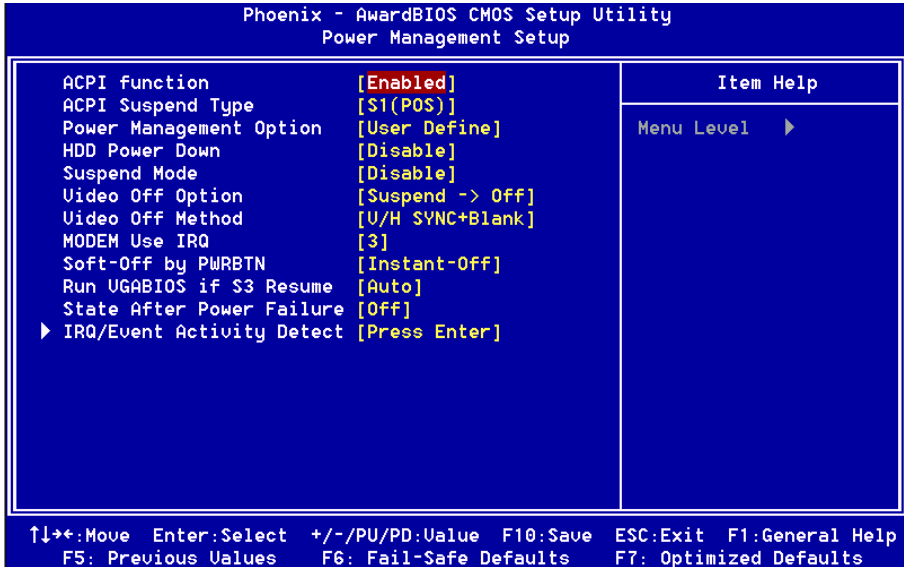
```
                  Phoenix - AwardBIOS CMOS Setup Utility
                          Power Management Setup

     ACPI function              [Enabled]              Item Help
     ACPI Suspend Type          [S1(POS)]
     Power Management Option    [User Define]     Menu Level    ▶
     HDD Power Down             [Disable]
     Suspend Mode               [Disable]
     Video Off Option           [Suspend -> Off]
     Video Off Method           [V/H SYNC+Blank]
     MODEM Use IRQ              [3]
     Soft-Off by PWRBTN         [Instant-Off]
     Run VGABIOS if S3 Resume   [Auto]
     State After Power Failure  [Off]
   ▶ IRQ/Event Activity Detect  [Press Enter]




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

*Figure 6:  Power Management*

**ACPI Function**
This option allows you to select ACPI Function.  The default is Enabled.
Options: Enabled, Disabled.

**ACPI Suspend Type**
This item allows you to select S1(POS) or S3(STR) function.
Options: S1(POS), S3(STR), S1&S3.

**Power Management Option**
Use this to select your Power Management selection. The default is User define.

**Max. saving**:   Maximum power savings. Inactivity period is 1 minute in each mode.

**Min. saving**:   Minimum power savings. Inactivity period is 1 hour in each mode.

# BIOS

**User define**:  Allows user to define PM Timers parameters to control power saving mode.

## HDD Power Down
When enabled and after the set time of system inactivity, the hard disk drive will be powered down while all other devices remain active.
Options: Enabled, 1Min ~ 15Min.

## Suspend Mode
enabled and after the set time of system inactivity, all devices except the CPU will be shut off.
Options: Enabled, 1 , 2, 4 ,6, 8, 10, 20, 30, 40Min and 1Hour .

## Video Off Option
When enabled, this feature allows the VGA adapter to operate in a power saving mode.
Always On: Monitor will remain on during power saving modes.
Suspend->Off: Monitor blanked when the systems enters the suspend mode.

## Video Off Method
This option allows you to select how the video will be disabled by the power management. The default is V/H Sync + Blank

V/H Sync + Blank:    System turns off vertical and horizontal synchronization ports and writes blanks to the video buffer.

DPMS  Support:    Select this option if your monitor supports the Display Power Management Signaling (DPMS) standard of the Video Electronics Standards Association (VESA). Use the software supplied for your video subsystem to select video power management values.

Blank Screen:    System only writes blanks to the video buffer.

## MODEM Use IRQ
Name the interrupt request (IRQ) line assigned to the modem (if any) on your system. Activity of the selected IRQ always awakens the system. Default is IRQ 3.
Options: N/A, 3, 4, 5, 7, 9, 10, 11

**Soft-Off by PWRBTN**

Pressing the power button for more than 4 seconds forces the system to enter the Soft-Off state when the system has "hung." The default is Instant-off.

Options: Delay 4 Sec, Instant-Off.

**Run VGABIOS if S3 Resume**

This determines whether or not to enable the system to run the VGA BIOS when resuming from S3(STR) or S1&S3.

Options: Auto, Yes, No.

**State After Power Failure**

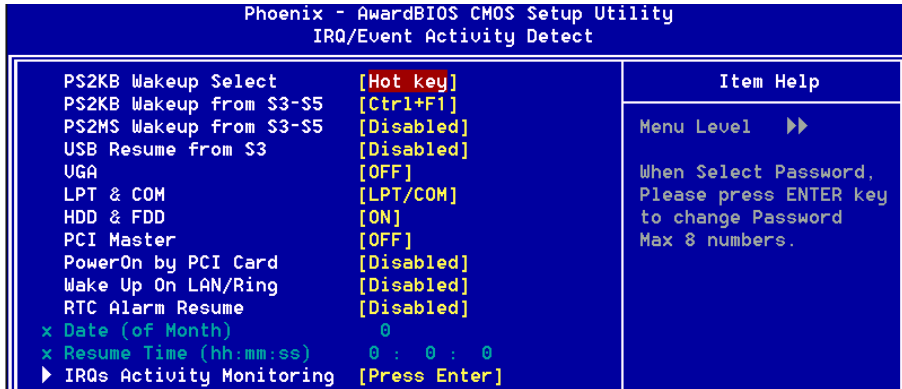The system will stay of or power on after a power interrupt. The default is Off.

Off: System always stay off after a power interrupt.

On: System always power on after a power interrupt.

Auto: Stay off or power on depend on system safe shutdown or power fail.

### ▸ *IRQ/Event Activity Detect*

Scroll to IRQ/Event Activity Detect and press <Enter>. The following screen appears:

```
              Phoenix - AwardBIOS CMOS Setup Utility
                     IRQ/Event Activity Detect
 ┌─────────────────────────────────────────┬───────────────────────┐
 │   PS2KB Wakeup Select      [Hot key]     │      Item Help        │
 │   PS2KB Wakeup from S3-S5  [Ctrl+F1]     │                       │
 │   PS2MS Wakeup from S3-S5  [Disabled]    │ Menu Level   ▶▶       │
 │   USB Resume from S3       [Disabled]    │                       │
 │   VGA                      [OFF]         │ When Select Password, │
 │   LPT & COM                [LPT/COM]     │ Please press ENTER key│
 │   HDD & FDD                [ON]          │ to change Password    │
 │   PCI Master               [OFF]         │ Max 8 numbers.        │
 │   PowerOn by PCI Card      [Disabled]    │                       │
 │   Wake Up On LAN/Ring      [Disabled]    │                       │
 │   RTC Alarm Resume         [Disabled]    │                       │
 │ x Date (of Month)               0        │                       │
 │ x Resume Time (hh:mm:ss)    0 :  0 :  0  │                       │
 │ ▶ IRQs Activity Monitoring [Press Enter] │                       │
 └─────────────────────────────────────────┴───────────────────────┘
```

# BIOS

### PS2KB Wakeup Select
This item allows you to select Hot Key or Password to wake-up the system by PS2 Keyboard.  When select Password, please press ENTER key to change password max 8 numbers.
Options: Hot key, Password.

### PS2KB Wakeup form S3-S5
This item allows you to set a Hot Key to wake-up the system by PS2 Keyboard.
Options: Disabled, Ctrl+F1, Ctrl+F2, Ctrl+F3, Ctrl+F4, Ctrl+F5, Ctrl+F6, Ctrl+F7, Ctrl+F8, Ctrl+F9, Ctrl+F10, Ctrl+F11, Ctrl+F12, Power, Wake, Any key.
Note: Power and Wake are Windows98 Keyboard button.

### PS2MS Wakeup form S3-S5
This item allows you to wake-up the system by PS2 Mouse.
Options: Enabled, Disabled.

### USB Resume from S3
This item allows you to wake-up the system by USB device when you save the computer power at S3.
Options: Enabled, Disabled.

### VGA
When set to On (default), any event occurring at a VGA port will awaken a system which has been powered down.

### LPT & COM
When set to *On* (default), any event occurring at a COM(serial)/LPT (printer) port will awaken a system which has been powered down.

### HDD & FDD
When set to *On* (default), any event occurring at a hard or floppy drive port will awaken a system which has been powered down.

### PCI Master
When set to *On* (default), any event occurring to the DMA controller will awaken a system which has been powered down.

**PowerOn by PCI Card**

An input signal form PME on the PCI card awakens the system from a soft off state.

**Wake Up On LAN/Ring**

When set to *Enabled*, any event occurring to the Modem Ring / LAN will awaken a system which has been powered down.

**RTC Alarm Resume**

When set to *Enable rtc alarm resume,* you could set the date (of month) and timer (hh:mm:ss),  any event occurring at will awaken a system which has been powered down.

## ▸ *IRQs Activity Monitoring*

Scroll to IRQs Activity Monitoring and press <Enter>. The following screen appears:

```
              Phoenix - AwardBIOS CMOS Setup Utility
                      IRQs Activity Monitoring

   Primary INTR        [ON]                      Item Help
   IRQ3  (COM 2)       [Enabled]
   IRQ4  (COM 1)       [Enabled]        Menu Level   ▶▶▶
   IRQ5  (LPT 2)       [Enabled]
   IRQ6  (Floppy Disk) [Enabled]
   IRQ7  (LPT 1)       [Enabled]
   IRQ8  (RTC Alarm)   [Disabled]
   IRQ9  (IRQ2 Redir)  [Disabled]
   IRQ10 (Reserved)    [Disabled]
   IRQ11 (Reserved)    [Disabled]
   IRQ12 (PS/2 Mouse)  [Enabled]
   IRQ13 (Coprocessor) [Enabled]
   IRQ14 (Hard Disk)   [Enabled]
   IRQ15 (Reserved)    [Disabled]
```

**Primary INTR**

When set to *On* (default), any event occurring at will awaken a system which has been powered down.

**IRQs 3-15**

Allows you to set system to monitor IRQs 3-15 for activity to awaken system form a power managerment mode.

## 4-6 PNP/PCI Configuration

The PNP/PCI configuration program is for the user to modify the PCI/ISA IRQ signals when various PCI/ISA cards are inserted in the PCI or ISA slots.
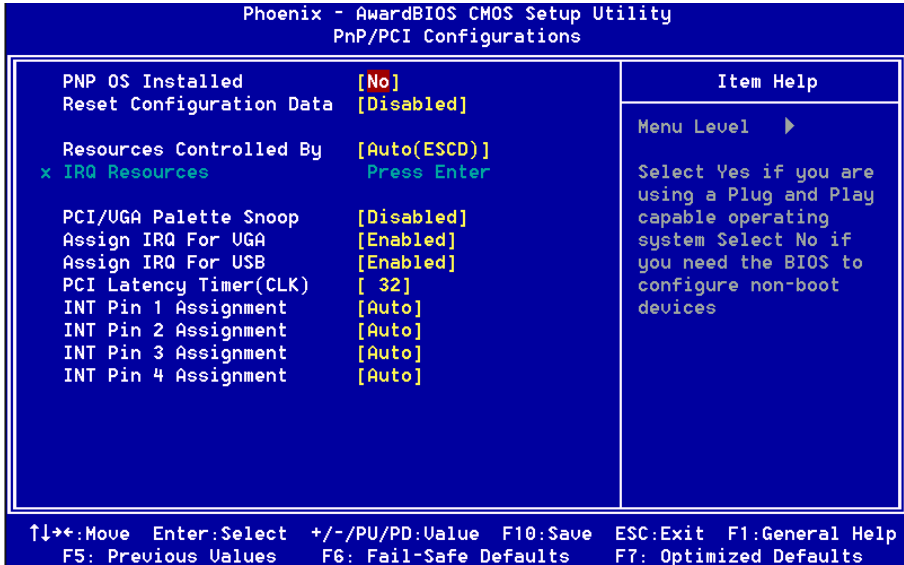**WARNING: Conflicting IRQ's may cause the system to not find certain devices.**



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

   PNP OS Installed          [No]                    Item Help
   Reset Configuration Data  [Disabled]
                                               Menu Level    ▶
   Resources Controlled By   [Auto(ESCD)]
 x IRQ Resources              Press Enter      Select Yes if you are
                                               using a Plug and Play
   PCI/VGA Palette Snoop     [Disabled]        capable operating
   Assign IRQ For VGA        [Enabled]         system Select No if
   Assign IRQ For USB        [Enabled]         you need the BIOS to
   PCI Latency Timer(CLK)    [ 32]             configure non-boot
   INT Pin 1 Assignment      [Auto]           devices
   INT Pin 2 Assignment      [Auto]
   INT Pin 3 Assignment      [Auto]
   INT Pin 4 Assignment      [Auto]




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

*Figure 7:  PNP/PCI Configuration Setup*

**PNP OS Installed**
Do you have a PNP OS installed on  your system. The default is No.
Options: Yes, No.

**Reset Configuration Data**
This setting allows you to clear ESCD data. The default is Disabled
**Disabled**:Normal Setting.
**Enabled**: If you have plugged in some Legacy cards to the system and they were recorded into ESCD (Extended System Configuration Data), you can set this field to Enabled in order to clear ESCD.

**Resources Controlled By**
Determines what controls system PNP/PCI resources. The default is Auto (ESCD).
**Manual**:  PNP Card's resources are controlled manually. The "IRQ Resources"

field becomes available and you can set which IRQ-X and DMA-X are assigned to PCI/ISA PNP or Legacy ISA Cards.

**Auto**: If your ISA card and PCI cards are all PNP cards, BIOS assigns the interrupt resource automatically.

## PCI/VGA Palette Snoop
This item is designed to overcome problems that can be caused by some nonstandard VGA cards. This board includes a built-in VGA system that does not require palette snooping so you must leave this item disabled.
Options: Enabled, Disabled.

## Assign IRQ For VGA
This item allows BIOS to assign whether IRQ is with VGA or not.  If you have not connect the VGA device.  Can release the IRQ for other device.  The default is Enabled.
Options: Enabled, Disabled.

## Assign IRQ For USB
This item allows BIOS to assign whether IRQ is with USB or not.  If you have not connect the USB device.  Can release the IRQ for other device.  The default is Enabled.
Options: Enabled, Disabled.

## PCI Latency Timer (CLK)
The latency timer defines the minimum amount of time, in PCI clock cycles, that the bus master can retain the ownership of the bus.
Options: 0-255.

## INT Pin1 to Pin4 Assignment
These settings allow the user to specify what IRQ will be assigned to PCI devices in the chosen slot.  The defaults are Auto.
Options: Auto,3,4,5,7,9,10,11,12,14 & 15.

### Interrupt requests are shared as shown below:

|  | INT A | INT B | INT C | INT D |
|---|---|---|---|---|
| PCI 1 | V |  |  |  |
| PCI 2 |  | V |  |  |
| PCI 3 |  |  | V |  |
| PCI 4 |  |  |  | V |
| PCI 5 |  |  | V |  |
| PCI 6 |  |  |  | V |
| AGP Slot | V |  |  |  |
| AC97/MC97 |  |  | V |  |
| Onboard USB1 | V |  |  |  |
| Onboard USB2 |  | V |  |  |
| Onboard USB3 |  |  | V |  |
| USB2.0 |  |  |  | V |
| Onboard LAN (Optional) | V |  |  |  |
| Serial ATA  (Optional) |  |  | V |  |
| RAID  (Optional) |  | V |  |  |

**IMPORTANT!**
If using PCI cards on shared slots, make sure that the drivers support "Shared IRQ" or that the cards don't need IRQ assignments. Conflicts will arise between the two PCI groups that will make the system unstable or cards inoperable.

## 4-7 PC Health Status

```
          Phoenix - AwardBIOS CMOS Setup Utility
                      PC Health Status

  Show PC Health in POST    [Enabled]          │    Item Help
  CPU Warning Temperature   [Disabled]         │
  Current System Temp.       33ºC/91ºF         │  Menu Level  ▶
  Current CPU Temperature    59ºC/138ºF        │
  Current CPU FAN Speed      0  RPM            │
  Current CHASSIS Speed      0  RPM            │
  Ucore                      1.75V             │
  Uagp                       1.50V             │
  + 5 U                      4.97V             │
  +12 U                      12.16V            │
  Uio                        3.30V             │
  UDIMM                      3.30V             │
  UBAT(U)                    3.48V             │
  5USB(U)                    4.89V             │
  Shutdown Temperature      [Disabled]         │

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

*Figure 8: PC Health Status*

**Show PC Health in POST**

When this function is enabled the PC Health information is displayed during the POST (Power On Self Test).

Options: Disabled, Enabled.

**CPU Warning Temperature**

Sets the temperature at which the computer will respond to an overheating CPU. The default is Disabled.

Options: Disabled, $50^{O}C/122^{O}F \sim 70^{O}C/158^{O}F$.

**Current System Temperature**

Displays the current system temperature.

**Current CPU Temperature**

Displays the current CPU temperature.

**Current CPU/Chassis/Power FAN Speed**

Displays the current speed of the CPU, chassis, and power fan speed in RPMs.

# BIOS

**Vcore**
The voltage level of the CPU(Vcore).

**Vagp**
The voltage level of Power supplied to AGP card.

**VDIMM**
The voltage level of the DRAM.

**+ 5V, +12V, VBAT(V), 5VSB(V)**
The voltage level of the switching power supply.

**Shutdown Temperature**
This is the temperature that the computer will turn off the power to combat the effects of an overheating system. (requires ACPI to be enabled in Power Management BIOS and ACPI compliant operating system.) The default is Disabled. Options available are 60$^{\circ}$C/140$^{\circ}$F to 75$^{\circ}$C/167$^{\circ}$F in increments of 5$^{\circ}$C.

## 4-8 Frequency/Voltage Control

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

   Current FSB Frequency     100MHz          Item Help
   Current DRAM Frequency    100MHz
   Auto Detect DIMM/PCI Clk  [Enabled]    Menu Level    ▶
   Spread Spectrum           [Disabled]
   CPU Clock                 [100]
   CPU Ratio                 [Auto]
   Watching-Dog Timer        [Disable]
   DRAM Type                 [By SPD]
   Next boot AGP/PCI = 66/33MHz
 ▶ Voltage Control           [Press Enter]




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

*Figure 9: Frequency/Voltage Control*

**Current CPU Frequency**
Diaplay the current CPU clock frequency information.

**Current DRAM Frequency**
Display the DRAM frequency information.

**Auto Detect DIMM/PCI Clk**
When enabled the mainboard automatically disables the clock source for a DIMM/
PCI slot which does not have a module in it, reducing EMI (ElectroMagnetic
Interference). The default is Enabled.
Options: Enabled, Disabled.

**Spread Spectrum**
If you enable spread spectrum, it can significantly reduce the EMI
(ElectroMagnetic Interference) generated by the system.
Options: Disabled, Enabeld.

# BIOS

## CPU Clock

Enables you to set the CPU front side bus speed. The default is 100 MHz. Enables you to adjust CPU clock 1MHz by step.  Pressing Enter displays the following screen:



Key in the DEC (decimalism) number for the CPU clock.

**Note: Overclocking failure will cause system No display problem.**
     **At this moment, please press "*Insert*" key to back to the initial or**
     **default setting to boot up your system.**

## CPU Ratio

Use this item to select a multiplier for the system frontside bus (FSB) frequency.
Options: Auto, x6 ~ x15.
The value of the multiplier must be set so that:

   Multiplier x Frontside Bus Frequency = CPU Clock Speed

For example, if you have a processor that is rated to run at 450 MHz and the system is running a frontside bus frequency of 100 MHz, you should select a multiplier of 4.5 so that:

   4.5 (Multiplier) x 100 MHz (frontside bus) = 450 MHz (CPU clock)

## Watching-Dog Timer

If you select enabled and overclock fail before POST code 26h, the system will reset automatically by default configuration.
Options: Enabled, Disabled.

## DRAM Type

This item allows you to select the DRAM type. The default is By SPD.
Options: By SPD, DDR200, DDR266, DDR333, DDR400.

▸ *Voltage Control*

Scroll to Voltage Control and press <Enter>. The following screen appears:

```
          Phoenix - AwardBIOS CMOS Setup Utility
                     Voltage Control

    Vcore Default Voltage     1.75V          Item Help
          Current Voltage    [Default]
           Adjust Voltage     1.75V       Menu Level ▶▶

    DIMM  Default Voltage     2.50 V
             Add Voltage    [+0.00 V]
             New Voltage      2.50V
```

**In the following items, "Default Voltage" indicates the original factory value, and "New Voltage" indicates the value that you assign.**

**CPU Vcore Voltage**

This item allows you to set the CPU Vcore voltage. The default is Default. Options: Default, 1.400V to +1.850V in 0.025V increments and 1.850V to +2.000V in 0.050V increments. We recommend that you leave this at the default value.

**DIMM Voltage**

This item allows you to set the DIMM slot voltage. The default is +0.00V. Options: +0.00V to +0.70V in 0.10V increments. We recommend that you leave this at the default value.

## 4-9 Defaults Menu

Selecting "Defaults" from the main menu shows you two options which are described below

**Load Fail-Safe Defaults**

When you press <Enter> on this item you get a confirmation dialog box:

> Load Fail-Safe Defaults (Y/N) ?  N

Pressing 'Y' loads the BIOS default values for the most stable, minimal-performance system operations.

**Load Optimized Defaults**

When you press <Enter> on this item you get a confirmation dialog box:

> Load Optimized Defaults (Y/N) ?  N

Pressing 'Y' loads the default values that are factory settings for optimal performance system operations.

## 4-10 Supervisor/User Password Setting

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

**supervisor password :** can enter and change the options of the setup menus.

**user password**      : just can only enter but do not have the right to change the options of the setup menus. When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

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

Type the password, up to eight characters in length, and press <Enter>.  The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password.  Type the password again and press <Enter>.  You may also press <Esc> to abort the selection and not enter a password. To disable a password, just press <Enter> when you are prompted to enter the password.  A message will confirm the password will be disabled.  Once the password is disabled, the system will boot and you can enter Setup freely.

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

When a password has been enabled, you will be prompted to enter it every time you try to enter Setup.  This prevents an unauthorized person from changing any part of your system configuration.

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

You determine when the password is required within the BIOS Features Setup Menu and its Security option.  If the Security option is set to "System", the password will be required both at boot and at entry to Setup.  If set to "Setup", prompting only occurs when trying to enter Setup.

## 4-11 Exiting BIOS

### Save  & Exit Setup

Pressing <Enter> on this item asks for confirmation:

**Save to CMOS and EXIT (Y/N)?**  Y

Pressing "Y" stores the selections made in the menus in CMOS – a special section of memory that stays on after you turn your system off.  The next time you boot your computer, the BIOS configures your system according to the Setup selections stored in CMOS. After saving the values the system is restarted again.


### Exit Without Saving

Pressing <Enter> on this item asks for confirmation:

**Quit without saving (Y/N)?**  Y

This allows you to exit Setup without storing in CMOS any change.  The previous selections remain in effect.  This exits the Setup utility and restarts your computer.

# Section 5
# Driver Installation

## Easy Driver Installation

**VIA KT400 SERIES**

    VIA SERVICE PACK 4IN1 DRIVER

    ALC201A/650 AC'97 AUDIO DRIVER

    VIA 8235 USB 2.0 DRIVER

(Optional) ◄ —   VIA 6103 LAN DRIVER

    IDE BUS MASTER (FOR PERFORMANCE ONLY)

    VIA USB FILTER DRIVER

    SILICON IMAGE DRIVER

(Optional) ◄ —   HPT 370(A)/372 DRIVER (Please Install the Driver from 3.5 Floppy)

    HPT 370(A)/372 RAID ADMINISTRATOR

                   ACROBAT READER

            CD EXPLORER    EXIT

### Insert the bundled CD-disk.

**Step 1 :** Click **"VIA SERVICE PACK 4IN1 DRIVER"**. Install all components recommended.

**Step 2 :** Click **"ALC201A/650 AC'97 AUDIO DRIVER"** to install Audio driver.

**Step 3 :** Click **"VIA 8235 USB 2.0 DRIVER"** to install USB Driver.

**Step 4 :** Click **"VIA 6103 LAN DRIVER "** to install LAN driver. (Optional)

**Step 5 :** Click **"VIA IDE BUS MASTER"** to install BusMaster PCI IDE driver. (For performance only).

**Step 6 :** Click **"VIA USB FILTER DRIVER"** to install USB filter driver for Winsdows 98/2000. (Please refer to README.TXT file).

**Step 7 :** Click **"SILICON IMAGE DRIVER"** to install serial ATA driver. (Optional)

**Note:** If your board equipped with a HPT370(A)/372 device, please install the driver from 3.5 floppy. (Optional)

         The **"HPT 370(A)/372 RAID ADMINISTRATOR"** item is for install Raid Administrator. (Optional)

## ALC650 Configuration Setup (6 Channel)

◆ To enable ALC650 Function



*<Figure 1>*

1. Right-click **Sound Effect** button in the tool bar display currently selected Titles. Select **Sound Manager**.



**Sound Effect:**

*<Figure 2>*

2. Click **Sound Effect** button and select **Environment** from the drop-down menu.

**Equalizer:**

*&lt;Figure 3&gt;*

3. Click **Equalizer** and setup the value of dB.



**Speak Configutation:**

*&lt;Figure 4&gt;*

4. Click **Line in** and **Mic in** buttons to enable 6 channel function as this is required for the ALC650.

**Speak Configutation:**

*<Figure 5>*

5. The selected screen appears.



**Speaker Test:**

*<Figure 6>*

6. Click **Speaker Test** button and click on the speakers directly which show on the screen to test it.

**General:**



*<Figure 7>*

7. General Information for user reference.

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# Appendix A

## A-1 Avance® Media Player User's Guide

### Avance® Media Player Platform



### Functional Descriptions

**A. Playback Windows Display**

Playback windows displays the following mode information:

1. Playback Time Display

2. Voice Cancellation Mode Display

3. Pitch Mode Display

4. Surround Sound Mode Display

**B. Playback Function Controls**

There are 8 selectable functions for the playback:

1. Volume control          High/Low Adjustment Bar.

2. Pitch control          4-step High/Low Adjustment Bar.

| | |
|---|---|
| 3. Repeat mode | Choice of Repeat, All Repeat, Random or No Repeat Mode. |
| 4. Mute | Mute On/Off Mode select. |
| 5. Voice cancellation | Voice Cancellation On/Off Mode select for Karaoke. |
| 6. Surround mode | A total of 26 Surround Sound mode select as shown in the table below. |

| Surround mode | Surround mode |
|---|---|
| Generic | Stone corridor |
| Padded | Alley |
| Room | Forrest |
| Bathroom | City |
| Living room | Mountain |
| Stone | Quarry |
| Auditorium | Plain |
| Concert | Parking lot |
| Cave | Sewer pipe |
| Arena | Under water |
| Hangar | Drug |
| Carpet | Dizzy |
| Hallway | Psychological |

| | |
|---|---|
| 7. Skin change | Media Player Skin Type select. |
| 8. Open | Open file formats including MP3, CDA, MDI, WAV & WMA support. |

**C. Playback Controls**

The playback controls include "Play", "Pause", "Stop", "Previous", "Backward", "Forward", & "Next".

**D. Seeking bar**

Display Animated Playback Status

**E. Title/Play List Windows**

Display Currently Selected Title(s)

**F. Title/Play List Edit Controls**

There title/play list controls include "Add", "Del", "Clear", "Load", & "Store".

1. Add                    Add to the Title/Play List.

2. Del                    Remove form the Title/Play List.

3. Clear                  Clear the Title/Play Lost.

4. Load                   Load Title/Play List.

5. Store                  Save Title/Play List.

**G. Title/Play List Scroll bar**

Scroll Up/Down the Title/Play List.

**H. Recording Function Controls**

The recording function controls include "Input", "Save:, "New", "Rec", "Stop", & "Play".

1. Input                  Input soruce select.

2. Save                   Save to file.

3. New                    Open new file & select format includes Sampling Rate, Sampling bit, Mono or Stereo.

4. Rec                    Start Rec.

5. Stop                   Stop Rec.

6. Play                   Playback Rec file.

**I. REC/Playback Time Display**

Displays REC/Playback Time.

**J. Platform Display Panel Controls**

The platform display panel control include "Minimize" & "Close".

1. Minimize               Minimize Platform Display Panel.

2. Close                  Close/Exit Platform Display Panel.

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# Appendix B

## B-1 Update Your System BIOS

Download the xxxxx.EXE file corresponding to your model form the our website to an empty directory on your hard disk or floppy. Run the downloaded xxxxx.EXE file and it will self extract. Copy these extracted files to a bootable DOS floppy disk.

Note: The DOS floppy disk should contain NO device drivers or other programs.

1. Type "A:\AWDFLASH and press <Enter> Key.

2. You will see the following setup on screen.

3. Please key in the xxxxx.bin BIOS file name.



4. If you want to save the previous BIOS data to the diskette, please key in [Y], otherwise please key in [N].

5. Key in File Name to save previous BIOS to file.



6. Are you sure to program (y/n), please key in [Y] to start the programming.



7. The programming is finished.

# Appendix C

## C-1  EEPROM BIOS Remover

Do not remove the BIOS chip, unless instructed by a technician and only with a PLCC IC extractor tool.



The BIOS socket may be damaged if using an improper method to replace the BIOS chip.

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# Appendix D

## D-1 GHOST 7 Quick User's Guide (Optional)

Installation is very easy. You only need to copy the **Ghost7** folder or **Ghost.exe** to your hard disk.

### Main Menu



### Description of Menu

**Ghost** clones and backs up **Disk** and **Partition.**



In which **Disk** indicates hard disk options
**Partition** indicates partition options
**Check** indicates check options

# Appendix

## Disk

### There are 3 hard disk functions:

1. Disk To Disk (disk cloning)
2. Disk To Image (disk backup)
3. Disk From Image (restore backup)

### Important!

1. To use this function, the system must have at least 2 disks. Press the **Tab** key to move the cursor.
2. When restoring to a destination disk, all data in that disk will be completely destroyed**.**

### Disk To Disk (Disk Cloning)

1. Select the location of the **Source drive**.
2. Select the location of the **Destination drive**.

Select local source drive by clicking on the drive number

| Drive | Size(Mb) | Primary | Cylinders | Heads | Sectors |
|-------|----------|---------|-----------|-------|---------|
| 1 | 8691 | 2 | 1108 | 255 | 63 |
| 2 | 2014 | 1 | 1023 | 64 | 63 |
| 3 | 94 | 4 | 94 | 64 | 32 |

Back

3. When cloning a disk or restoring the backup, set the required partition size as shown in the following figure.



4. Click OK to display the following confirmation screen. Select **Yes** to start.



## Disk To Image (Disk Backup)

1. Select the location of the Source drive.
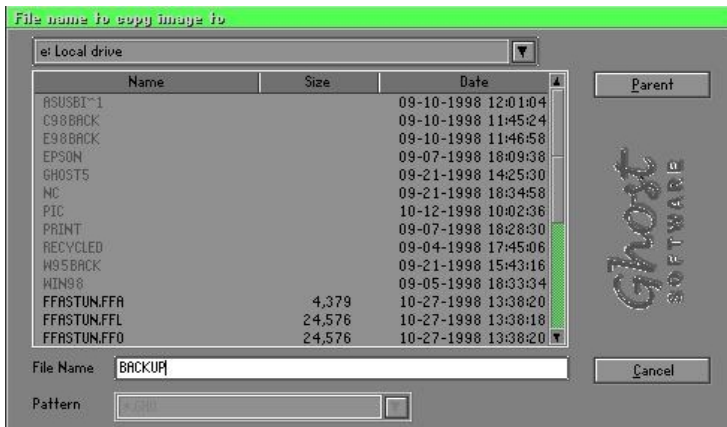
2. Select the location for storing the backup file.



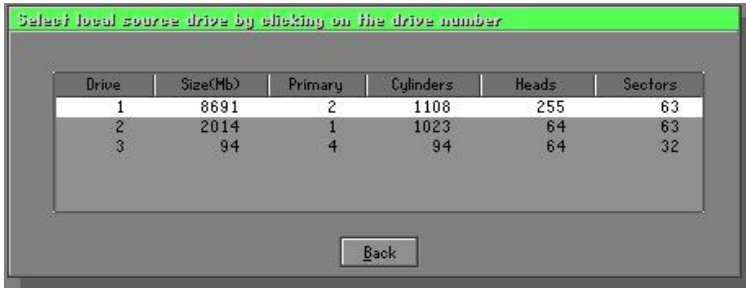3. Click **OK** to display the following confirmation screen. Select **Yes** to start.
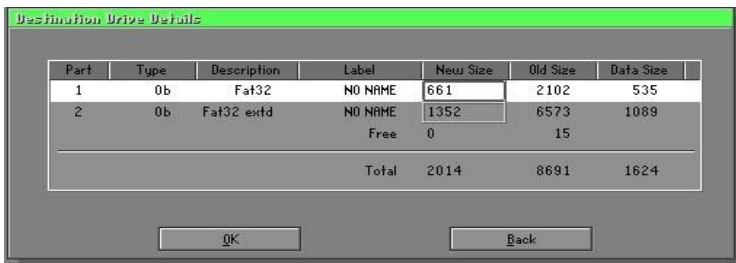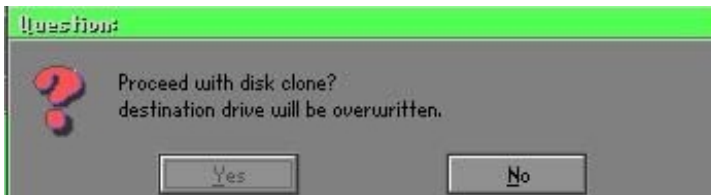


## Disk From Image (Restore Backup)

1. Select the Restoring file.

2. Select the **Destination drive** of the disk to be restored.
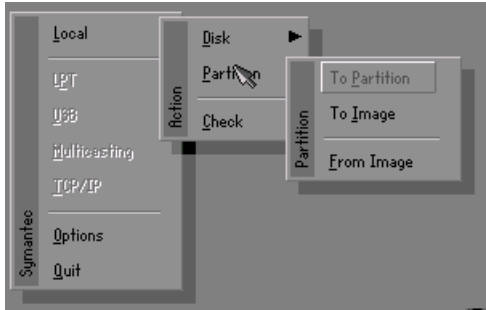


3. When restoring disk backup, set the required partition size as shown in the following figure.



4. Click **OK** to display the following confirmation screen. Select **Yes** to start.

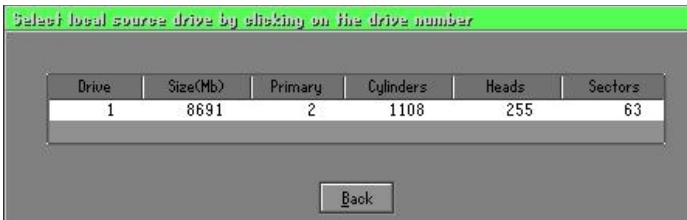**Partition**



There are 3 partition functions:

**1. Partition To Partition** (partition cloning)

**2. Partition To Image** (partition backup)

**3. Partition From Image** (restore partition)

### Partition To Partition (Partition Cloning)

The basic unit for partition cloning is a "partition".  Refer to "disk cloning" for the operating method.
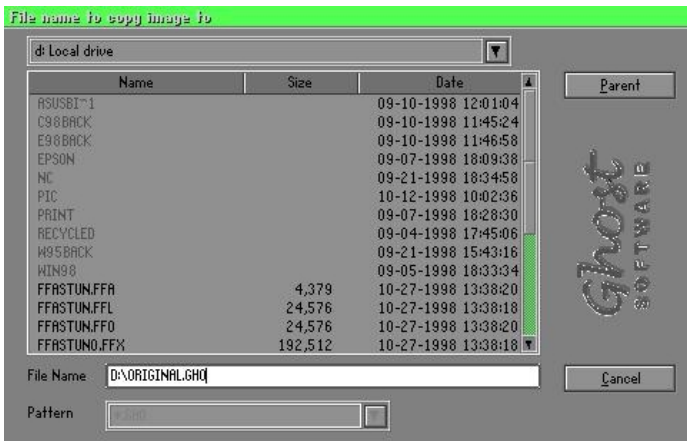
### Partition To Image (Partition Backup)
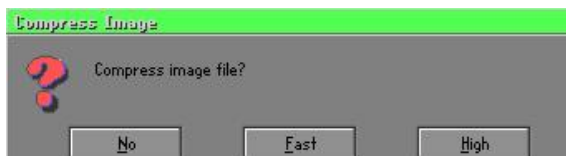
1. Select the disk to be backed up.

2. Select the first partition to be backed up.  This is usually where the operating system and programs are stored.



3. Select the path and file name to store the backup file.



4. Is the file compressed? There are 3 options:

   (1) No: do not compress data during backup

   (2) Fast: Small volume compression

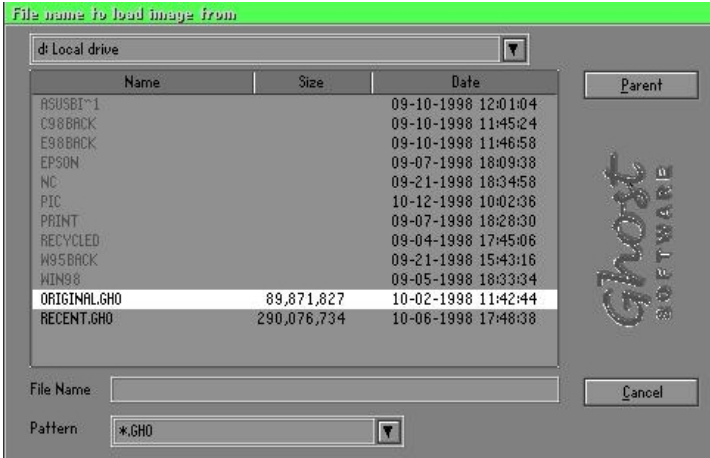   (3) High: high ratio compression.  File can be compressed to its minimum, but requiring longer execution time.

5.  Select Yes to start performing backup.



## Partition From Image (Restore Partition)

1.  Select the backup file to be restored.



2.  Select the source partition.
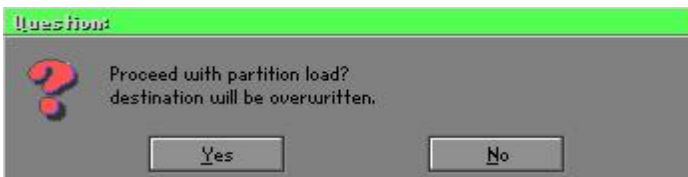
3. Select the disk to be restored.



4. Select the partition to be restored.



5. Select Yes to start restoring.



### Check

This function is to check possible error caused by defective FAT or track during backup or restoring.

## How to Reinstall Windows in 2 Minutes

**This chapter guides you how to setup your computer properly and, if necessary, reinstall Windows** in 2 minutes. **Ghost** provides different methods to complete this task. The following two sections explain how to create an emergency **Recover Floppy** and **Recover CD**:

### Emergency Recover Floppy

Divide a hard disk into two partitions. The first partition is to store the operating system and application programs. The second partition is to back up the operating system and data. The size of the partition can be determined according to the backup requirements. For example, the **Windows** operating system needs 200MB of hard disk space, Plus complete **Office** programs require 360MB. The remaining space can be used to store data.

After installing **Windows,** use **Ghost** to create a backup area for the system and to store the file (Image file) in drive D. The file is named **Original.gho**. Then, create a recover floppy disk containing:

- ◆ Bootable files (Command.com, Io.sys, and MSDOS.SYS )
- ◆ Config.sys (configuration setup file)
- ◆ Autoexec.bat (auto-execution batch file)
- ◆ Ghost.exe (Ghost execution file)

There are two ways to create the content of the recover floppy for restoring:

(1) To load **Windows** automatically after booting, store the **Autoexec. bat** file with a command line:

Ghost.exe clone, mode=pload, src=d:\original.gho:2,dst=1:1 -fx -sure -rb

Command Description: Runs the restore function automatically with the Image File. Stored in drive D. After execution, it will exit Ghost and boots the system.

Refer to the [Introducing Ghosts Functions] for details.

(2) After booting, the screen displays the Menu. Select Backup or Restore: Since the user may install other applications in the future, he/she may alter **Autoexec.bat** file to back up or restore the user-defined Image file as follows:

☞ **Backup**
Back up Windows and application programs as a file (Recent. gho). Command is:

Ghost –clone,mode=pdump,src=1:1,dst=d:\Recent.gho -fx -sure -rb

☞ **Restore**
Restore types include **[General Windows]** and **[Windows and Application Programs].** If you select **[General Windows],** the system is restored to the general **Windows** operation condition. The command is:

Ghost.exe -clone,mode=pload,src=d:\Original.gho,dst=1:1 -fx -sure -rb

If you select **[Windows and Application Programs],** the latest backup file (Recent.gho) is restored, skipping the installation and setup of application programs.

For description of related parameters, refer to **[Introducing Ghosts Functions]**.

For more information about menu design, refer to Config.sys and Autoexec.bat under /Menu in the CD. You can also create a backup CD containing Ghost.exe and these two files.

## Recover CD

The following is a simple guide to create a recover CD:

1.  First, create a recover floppy disk contains the following with any copy program such as "Easy CD Create" (Note 2) :

    Bootable files (Command.com and Io.sys and MSDOS.SYS)

    Config.sys (Configuration setup file)

    Autoexec.bat (Auto-execution batch file)

    Mscdex.exe (CD-Rom execution file)

    Ghost.exe (Ghost execution file)

    Oakcdrom.sys (ATAPI CD-ROM compatible driver)

    The content of Config.sys is:
    DEVICE=Oakcdrom.sys /d:idecd001

    The content of Autoexec.bat includes:
    MSCDEX.EXE /D:IDECD001 /L:Z
    Ghost.exe clone,mode=load,src=z:\original.gho,dst=1 -sure -rb

2.  Write the backup image file (original.gho) of the entire hard disk or partition into the recover CD. Use the Recover CD to boot up the system and restore the backup files automatically.

For description of related parameters, refer to **[Introducing Ghosts Functions]**.

Note: For more details about copy the creation program and method to create a recover CD, please refer to the releated software and its associated operating manual.

Note: Ghost may be executed in interactive or in batch mode. Most of the Ghost switches are used to assist in batch mode operation. To list switches, type ghost.exe -h.

# Appendix E

## E-1  POST CODES (Optional)

| POST (hex) | DESCRIPTION |
|---|---|
| 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 | 1. Disable PS/2 mouse interface (optional). |
| | 2. Auto detect ports for keyboard & mouse followed by a port & interface swap (optional). |
| | 3. Reset keyboard for Winbond 977 series Super I/O chips. |
| 0B-0Dh | Reserved |

| | |
|---|---|
| 0Eh | Test F000h segment shadow to see whether it is R/W-able or not. If test fails, keep beeping the speaker. |
| 0Fh | Reserved |
| 10h | Auto detect flash type to load appropriate flash R/W codes into the run time area in F000 for ESCD & DMI support. |
| 11h | Reserved |
| 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. |
| 13h | Reserved |
| 14h | Program chipset default values into chipset. Chipset default values are MODBINable by OEM customers. |
| 15h | Reserved |
| 16h | Initial Early_Init_Onboard_Generator switch. |
| 17h | Reserved |
| 18h | Detect CPU information including brand, SMI type (Cyrix or Intel) and CPU level (586 or 686). |
| 19-1Ah | 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. |
| 1Eh | Reserved |
| 1Fh | Load keyboard matrix (notebook platform) |
| 20h | Reserved |
| 21h | HPM initialization (notebook platform) |
| 22h | Reserved |
| 23h | 1. Check validity of RTC value: e.g. a value of 5Ah is an invalid value for RTC minute. 2. Load CMOS settings into BIOS stack. If CMOS checksum fails, use default value instead. 3. Prepare BIOS resource map for PCI & PnP use. If ESCD is valid, take into consideration of the ESCD's legacy information. |

|          | 4. Onboard clock generator initialization.  Disable respective clock resource to empty PCI & DIMM slots. |
|----------|---------------------------------------------------------------------------------------------------------|
|          | 5. Early PCI initialization:<br>-Enumerate PCI bus number<br>-Assign memory & I/O resource<br>-Search for a valid VGA device & VGA BIOS, and put it into C000:0. |
| 24-26h   | Reserved |
| 27h      | Initialize INT 09 buffer |
| 28h      | Reserved |
| 29h      | 1. Program CPU internal MTRR (P6 & PII) for 0-640K memory address. |
|          | 2. Initialize the APIC for Pentium class CPU. |
|          | 3. Program early chipset according to CMOS setup. Example: onboard IDE controller. |
|          | 4. Measure CPU speed. |
|          | 5. Invoke video BIOS. |
| 2A-2Ch   | Reserved |
| 2Dh      | 1. Initialize multi-language |
|          | 2. Put information on screen display, including Award title, CPU type, CPU speed …. |
| 2E-32h   | Reserved |
| 33h      | Reset keyboard except Winbond 977 series Super I/O chips. |
| 34-3Bh   | Reserved |
| 3Ch      | Test 8254 |
| 3Dh      | Reserved |
| 3Eh      | Test 8259 interrupt mask bits for channel 1. |
| 3Fh      | Reserved |
| 40h      | Test 8259 interrupt mask bits for channel 2. |
| 41h      | Reserved |
| 42h      | Reserved |
| 43h      | Test 8259 functionality. |
| 44h      | Reserved |
| 45-46h   | Reserved |
| 47h      | Initialize EISA slot |

| | |
|---|---|
| 48h | Reserved |
| 49h | 1. Calculate total memory by testing the last double word of each 64K page. |
| | 2. Program writes allocation for AMD K5 CPU. |
| 4A-4Dh | 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. |
| 4Fh | Reserved |
| 50h | Initialize USB |
| 51h | Reserved |
| 52h | Test all memory (clear all extended memory to 0) |
| 53-54h | Reserved |
| 55h | Display number of processors (multi-processor platform) |
| 56h | Reserved |
| 57h | 1. Display PnP logo |
| | 2. Early ISA PnP initialization |
| | -Assign CSN to every ISA PnP device. |
| 58h | Reserved |
| 59h | Initialize the combined Trend Anti-Virus code. |
| 5Ah | Reserved |
| 5Bh | (Optional Feature) Show message for entering AWDFLASH. EXE from FDD (optional) |
| 5Ch | Reserved |
| 5Dh | 1. Initialize Init_Onboard_Super_IO switch. |
| | 2. Initialize Init_Onbaord_AUDIO switch. |
| 5E-5Fh | Reserved |
| 60h | Okay to enter Setup utility; i.e. not until this POST stage can users enter the CMOS setup utility. |
| 61-64h | Reserved |
| 65h | Initialize PS/2 Mouse |

| | |
|---|---|
| 66h | Reserved |
| 67h | Prepare memory size information for function call: INT 15h ax=E820h |
| 68h | Reserved |
| 69h | Turn on L2 cache |
| 6Ah | 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. |
| 70-72h | Reserved |
| 73h | (Optional Feature) Enter AWDFLASH.EXE if : -AWDFLASH is found in floppy drive. -ALT+F2 is pressed |
| 74h | Reserved |
| 75h | Detect & install all IDE devices: HDD, LS120, ZIP, CDROM….. |
| 76h | Reserved |
| 77h | Detect serial ports & parallel ports. |
| 78h | Reserved |
| 79h | Reserved |
| 7Ah | Detect & install co-processor |
| 7B-7Eh | Reserved |
| 7Fh | 1. 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: ⬩ Clear EPA or customization logo. |
| 80h | Reserved |
| 81h | Reserved |
| 82h | 1. Call chipset power management hook. 2. Recover the text fond 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. | NET PC: Build SYSID structure |
|        | 3. | Switch screen back to text mode |
|        | 4. | Set up ACPI table at top of memory. |
|        | 5. | Invoke ISA adapter ROMs |
|        | 6. | Assign IRQs to PCI devices |
|        | 7. | Initialize APM |
|        | 8. | Clear noise of IRQs. |
| 86-92h | | Reserved |
| 93h    | | Read HDD boot sector information for Trend Anti-Virus code |
| 94h    | 1. | Enable L2 cache |
|        | 2. | Program boot up speed |
|        | 3. | Chipset final initialization. |
|        | 4. | Power management final initialization |
|        | 5. | Clear screen & display summary table |
|        | 6. | Program K6 write allocation |
|        | 7. | Program P6 class write combining |
| 95h    | 1. | Program daylight saving |
|        | 2. | Update keyboard LED & typematic rate |
| 96h    | 1. | Build MP table |
|        | 2. | Build & update ESCD |
|        | 3. | Set CMOS century to 20h or 19h |
|        | 4. | Load CMOS time into DOS timer tick |
|        | 5. | Build MSIRQ routing table. |
| FFh    | | Boot attempt (INT 19h) |