

# 650BX

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## User Manual V1.1

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printed in Taiwan.

# Item Checklist

Before you begin installing your motherboard, please make sure that the following materials have been shipped:

This mainboard comes in a sturdy cardboard shipping carton, which should contain the following items:

- This Mainboard
- This User' s Manual
- CD Title Driver
- Cable Set

If you discover damaged or missing items, please contact your retailer.

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## 1.1 Specifications

### CPU

Slot 1 Platform for Pentium II up to 450Mhz  
Slot 1 Platform for SECC 2 Pentium III  
Support FC PGA Pentium III processor (Coppermine™ & Katmai™) via Slot-to-Socket Adapter

### Cache

Coppermine™ CPU On-Die 256KB Level 2 cache  
Katmai™ CPU discrete 512K Level 2 cache

### Front Side Bus

66 / 100 MHz

### Chipset

INTEL® 440BX™  
Winbond® 83977TF Super I/O Chip & W83781D Hardware Monitor Chip

### Memory

3 x DIMM from 8MB up to 768MB, support E.C.C. PC100 3.3V SDRAM

### Expansion Slots

4 x PCI Slot  
3 x ISA slot  
1 x AGP Slot

### On-board I/O Interface

2 x Serial Port with UART 16550 interface  
1 x IrDA port  
1xParallel Port (ECP/ EPP/SPP Support)  
2 x IDE Port. (Support Ultra DMA 33 )  
1xFDD Port(3 Mode, Up to 2.88MB)  
2xUSB connector (Support Hot-Plug Function)  
2xPS/2 Port for Keyboard & Mouse

### System BIOS

2MB EEPROM, Award BIOS with Enhanced ACPI Feature  
FDD, IDE device , SCSI device, LS120, ZIP drive, CD-ROM bootable

### Form Factor

ATX, 305 x 190 mm

### Feature

Temperature Sensor Controls Processor Heat source  
Alarm for processor Overheat  
Bundled Anti-virus software

**Driver**

Intel 440BX driver

**Application Software**

Bundled AntiVirus Software

DirectX 7

## **1.2 Unpacking the Mainboard**

This mainboard comes in a sturdy cardboard shipping carton, which should contain the following items:

- This Mainboard
- This User's Guide
- Utility Diskette
- CPU Retention Clip
- Cable Set

Follow the precautions below while unpacking the mainboard and do remember to leave the mainboard in its original package until you are ready to install it.

1. Before handling the mainboard, ground yourself by touching an unpainted portion of the system's metal chassis.
2. Remove the mainboard from its anti-static packaging and place it on a grounded surface, component side up.



## ***650BX User's Manual***

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3. Check the mainboard for damage. If any chip appears loose, press carefully to seat it firmly in its socket.
4. Remove the plastic cap on the top of battery before doing any installation.
5. Do not apply power if the mainboard appears damaged. In this case, contact your dealer immediately.

### **1.3 Electrostatic Discharge Precautions**

Make sure you ground yourself before handling the mainboard or other system components. Electrostatic discharge can easily damage the components. Note that you must take special precautions when handling the mainboard in dry or air-conditioned environments.

Take these precautions to protect your equipment from electrostatic discharge:

- Do not remove the anti-static packaging until you are ready to install the mainboard and other system components.
- Ground yourself before removing any system component from its protective anti-static packaging. To ground yourself, touch the expansion slot covers or other unpainted portions of the computer chassis.
- Frequently ground yourself while working, or use a grounding strap.
- Handle the mainboard by the edges and avoid touching its components.



## 1.4 Main Board Layout

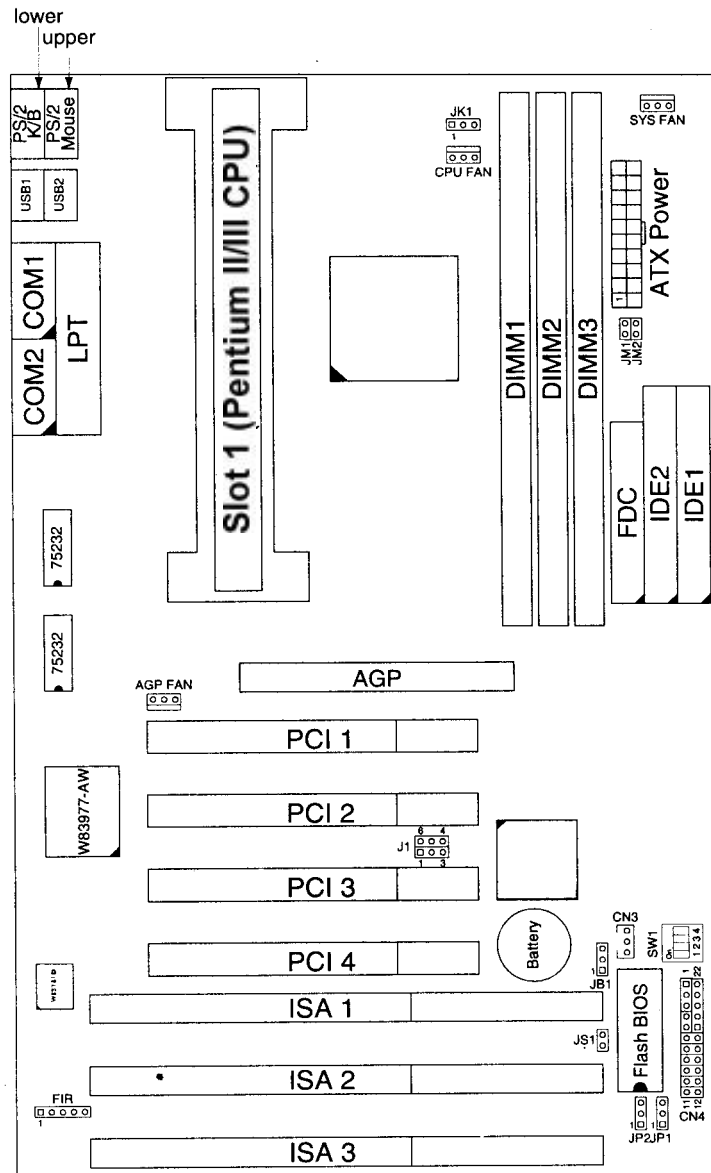


Figure1-1 Mainboard Default Settings

## Chapter 2

# HARDWARE SETUP

This chapter shows you how to do the hardware setup of this mainboard. Besides the proper procedures listed below, this section also discusses how to set the jumper switch settings and connectors on the board. Go to Chapter 3 for BIOS setup after completing the above procedures.

## 2.1 Memory Configuration

This mainboard uses three 168-pin 3.3V unbuffered type DIMMs (DIMM1, DIMM2, DIMM3) of 8MB/16MB/32MB/64MB/128/256MB to form a memory size between 8MB and 768MB, and also, this mainboard supports Fast Page Mode (FPM), Extended Data Output (EDO/3.3V), and Synchronous Dynamic Random Access Memory (SDRAM) DIMMs.

*Note: This model can not support 4M \* 4 168-pin DIMM.*

## 2.2 Jumper Settings

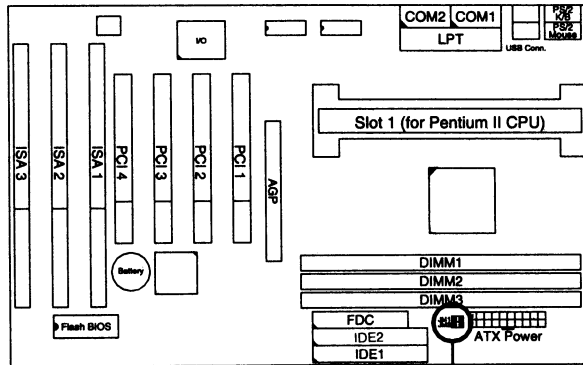
### SW1 - CPU Frequency Quick Setting

| Rate | DIP-Switch (SW1) |     |     |     | CPU Host Clock |                |
|------|------------------|-----|-----|-----|----------------|----------------|
|      | 1                | 2   | 3   | 4   | 66MHz JM1-ON   | 100MHz JM1-OFF |
| X3.0 | ON               | ON  | OFF | ON  | 200MHz         | 300MHz         |
| X3.5 | ON               | OFF | OFF | ON  | 233MHz         | 350MHz         |
| X4.0 | ON               | ON  | ON  | OFF | 266MHz         | 400MHz         |
| X4.5 | ON               | OFF | ON  | OFF | 300MHz         | 450MHz         |
| X5.0 | ON               | ON  | OFF | OFF | 333MHz         | 500MHz         |
| X5.5 | ON               | OFF | OFF | OFF | 366MHz         | 550MHz         |
| X6.0 | OFF              | ON  | ON  | ON  | 400MHz         | 600MHz         |
| X6.5 | OFF              | OFF | ON  | ON  | 433MHz         | 650MHz         |
| X7.0 | OFF              | ON  | OFF | ON  | 466MHz         | 700MHz         |
| X7.5 | OFF              | OFF | OFF | ON  | 500MHz         | 750MHz         |
| X8.0 | OFF              | ON  | ON  | OFF | 533MHz         | 800MHz         |

SW1 - CPU Clock Ratio Setting

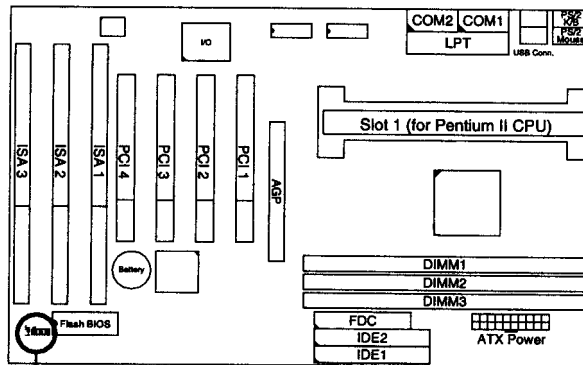
| Rate | SW1-Setting |
|------|-------------|
| X3.0 | ON          |
| X3.5 | ON          |
| X4.0 | ON          |
| X4.5 | ON          |
| X5.0 | ON          |
| X5.5 | ON          |
| X6.0 | ON          |
| X6.5 | ON          |
| X7.0 | ON          |
| X7.5 | ON          |
| X8.0 | ON          |

**JM1, JM2 - CPU Clock (66MHz or 100MHz)**



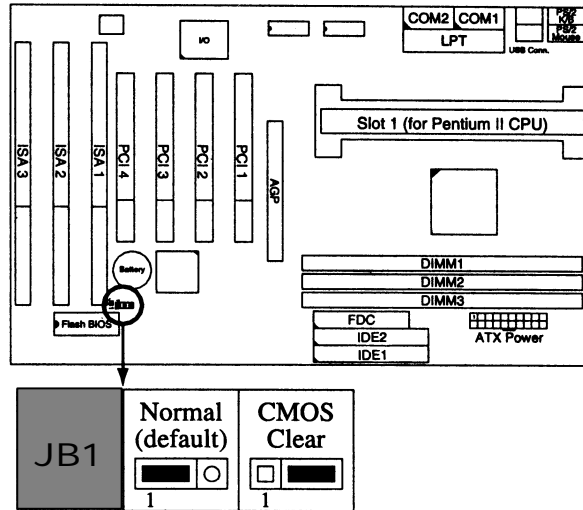
| CPU Clock        | JM1                                 | JM2                                 |
|------------------|-------------------------------------|-------------------------------------|
| 66MHz            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| 100MHz (default) | <input type="checkbox"/>            | <input type="checkbox"/>            |

**JP1 - ROM Programming Voltage Setting**



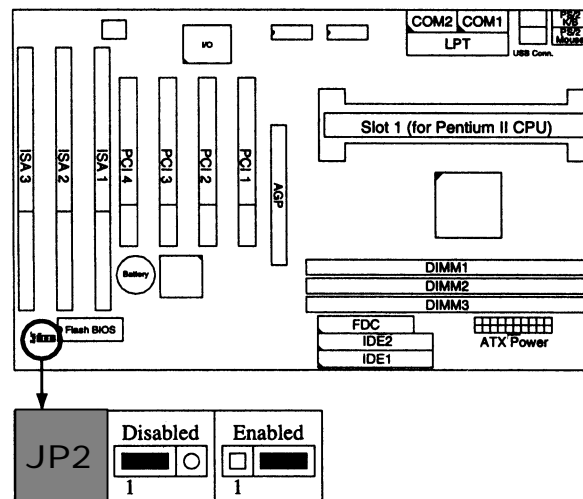
|     | 5V                                  | 12V                      |
|-----|-------------------------------------|--------------------------|
| JP1 | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

**JB1 - CMOS Clear**



**JP2 - AC SMI**

If the power is suddenly discontinued, the system will freeze. P2 is designed to turn the power back on by using the power supply when the power is returned.

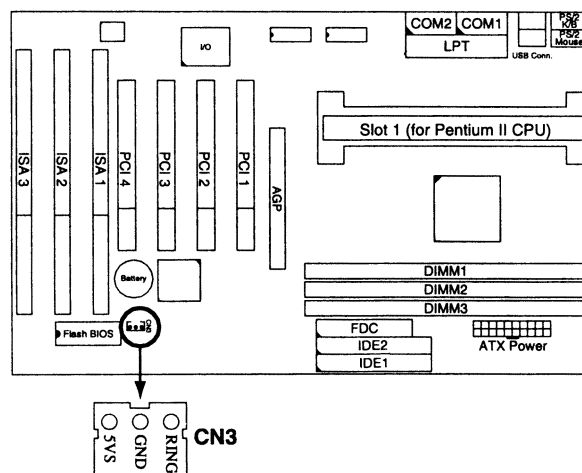


## 2.3 Connectors

This section describes some of the connectors on the mainboard.

*Note:* Before making any connections to the board, make sure that the power to the system is turned Off.

### CN3 – LAN Wake-Up Connector



### CN4 - System Panel Connectors

This connector contains: Keylock & Power Led Connector, Hard Disk Activity LED, Reset Switch, and Speaker Connector.

### HDD - Hard Disk Activity LED

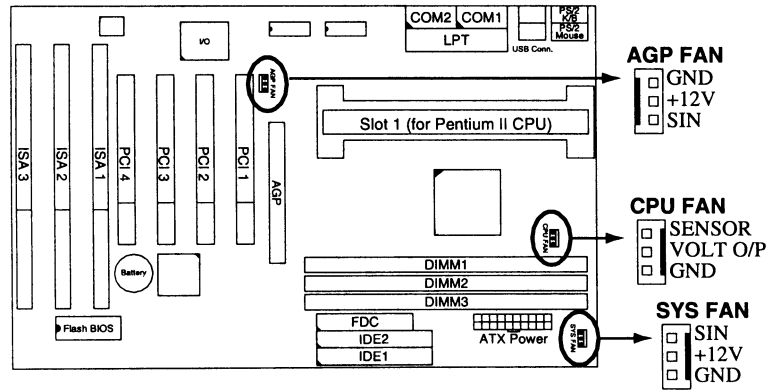
This connector connects to the hard disk activity indicator light on the case.

### RST - Reset Switch

The system board has a 2-pin connector for rebooting the computer without having to turn off the power switch. Rebooting this way prolongs the life of the system power supply.

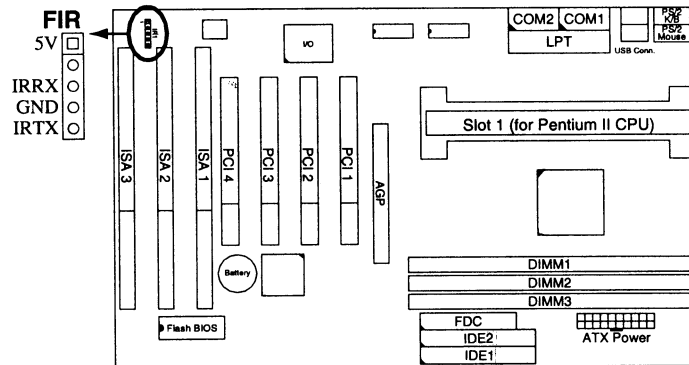


**FAN1 ~ 3 - CPU/AGP/System FAN Connectors**



**FIR - IR Connector**

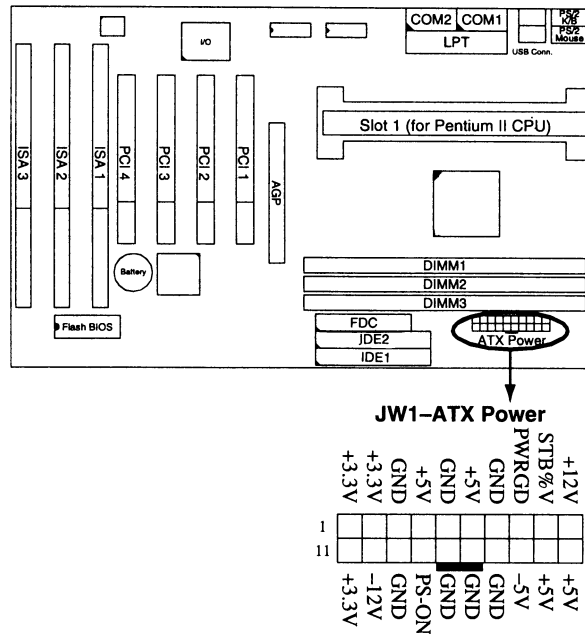
The system board provides a 6-pin infrared connector-FIR as an optional module for wireless transmitting and receiving.





### JW1 - ATX Power Supply Connector

The motherboard provides an ATX power supply connector. It is a twenty-pin male header connector. Plug the connector from the power directly onto the board connector while making sure the pin1 is in its position.



### External Connectors:

#### COM1/COM2 - Serial Port Connectors

This mainboard provides two 9 pin D-sub serial port connectors, COM1 and COM2.

#### LPT - Printer Connector

Connect this jumper to the printer.

#### FDD - Floppy Drive Connector

This mainboard has a 2 x 17-pin floppy drive connector.

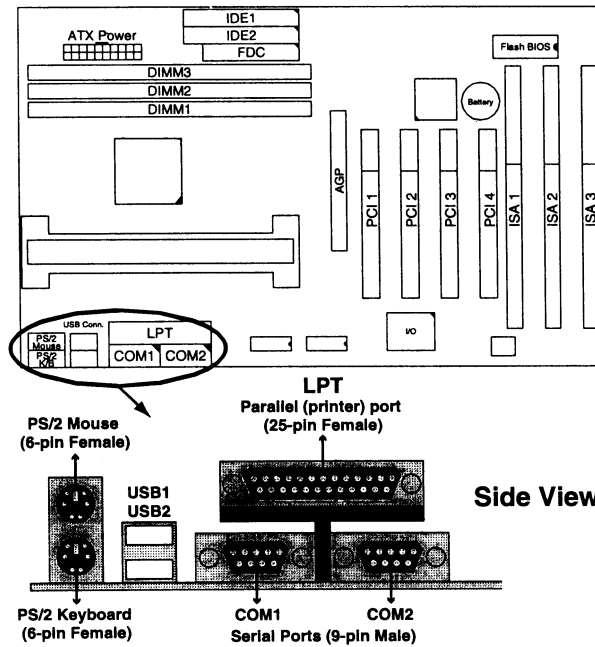
**USB1/USB2 - USB Connectors**

Attach the USB cables to these two 9-pin connectors to provide a connection between USB devices and the system.

**PS/2 Mouse**

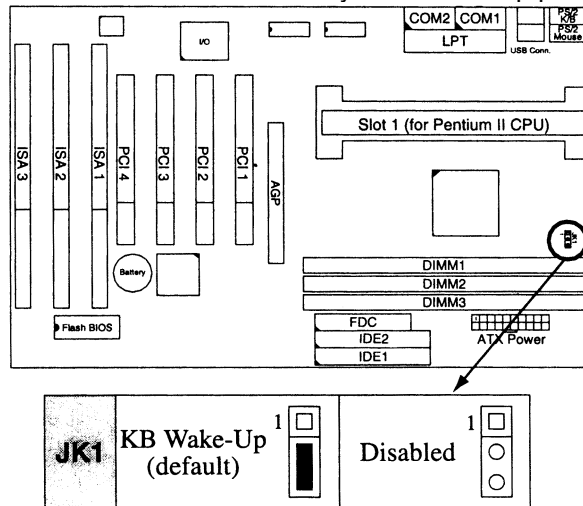
**PS/2 Keyboard**

A six-pin female PS/2 keyboard connector and a six-pin female PS/2 mouse connector are located at the rear of the board. Plug the keyboard/mouse jacks into these connectors.



### JK1 - Keyboard Wake-Up

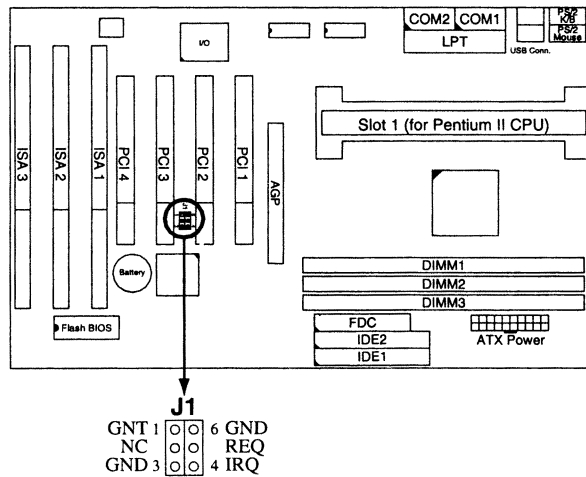
The default value for JK 1 is the Keyboard wake-up position.



Note: Refer to the BIOS setup for keyboard wake-up function.

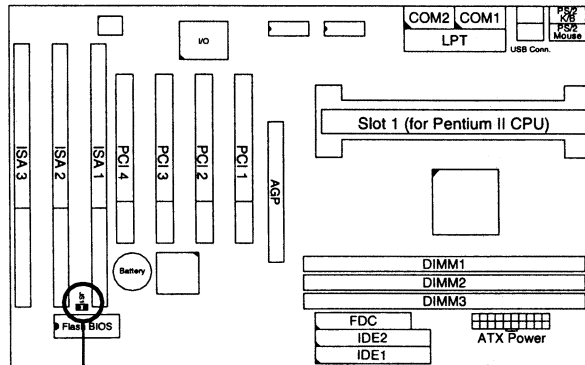
### J1 -SB-LINK

Uses Intel PC-PCI technology to deliver Sound Blaster 16 compatibility to PCI Sound Card, i.e., AWE64D, to enable users to play read mode DOS games.



### JS1 - Flash ROM Size

The default value for JS1 is OFF (1 M).



| Flash ROM              | JS1                                 |
|------------------------|-------------------------------------|
| Above 1M               | <input checked="" type="checkbox"/> |
| 1M Flash ROM (default) | <input type="checkbox"/>            |

## 2.4 CPU Installation

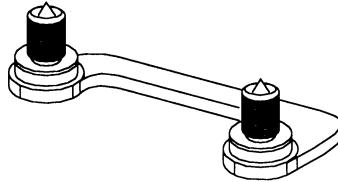
Follow the following steps in order to install your Intel Pentium II properly.

#### Step 1:

The heat sink may be different from various vendors so be sure you are in contact with heat sink vendors for attaching the heat sink on to the CPU.

#### Step 2:

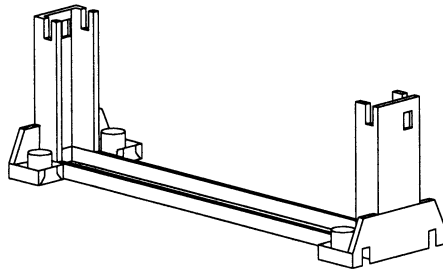
Install the 2 pairs of screws, which are shown in the following drawing, onto the mainboard under Slot1.



Two of the screws are right around Slot1 and the other pair of screws should be inserted opposite the first pair. The screws should be inserted from the bottom of the motherboard upward.

**Step 3:**

Retention clip is shown in the following figure:



Set the board according to the following diagram before installing the retention clip.

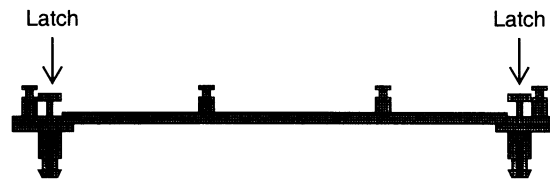
If installed incorrectly, you will not be able to insert the CPU into the retention clip and in this situation you might need to rotate the retention clip by 180°.

Tighten the 4 screws on the retention clip till the neck of the screws can not be seen from the bottom of the board

**Step 4:**

Pull the latches up on the base of the CPU supporter and insert it into the two holes directly to the left of the retention clip so that the larger hole is on the bottom.

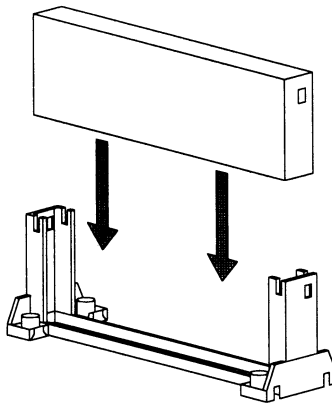
Press the base of the CPU supporter down in to the holes and lock the latches.



*Side View of CPU Supporter Base*

**Step 5:**

Flatten the two latches on the side of CPU. Insert the CPU into the retention clip. Lock the two latches to secure the CPU.



**Step 6:**

Insert the clip portion of the CPU supporter so that the heat sink can sit on the top of the whole CPU supporter.



*Top View of CPU Support Clip*

Notice that the base and the clip of CPU Supporter may be different from the figures shown here.

After completing all the settings before running the system, you need to push the ATX power button so that the system will work.

## Chapter 3 AWARD BIOS SETUP

---

The ROM chips of your mainboard are configured with a customized Basic Input/Output System (BIOS) from Award Software Inc. The BIOS is a set of permanently recorded program routines that give the system its fundamental operational characteristics. It also tests the computer and determines how the computer reacts to specific instructions that are part of programs.

The BIOS is made up of codes and programs that provide the device level control for the major I/O devices in the system. It contains a set of routines (called POST, for Power-On Self Test) that check out the system when you turn it on. The BIOS also includes CMOS Setup programs, so no disk-based setup program is required. CMOS RAM stores information for:

- the date and time
- the memory capacity of the mainboard
- the type of display adapter installed
- the number and type of disk drives installed.

The CMOS memory is maintained by a battery installed on the mainboard. By using the battery, all memory in CMOS can be retained when the system power switch is turned off.

Use the CMOS Setup program to modify the system parameters to reflect the options installed in your system and to customize your system as desired. For example, you should run the Setup program after you:

- replace the battery
- install another disk drive
- receive an error code at startup
- use your system after not having used it for a long time

- find the original setup missing.

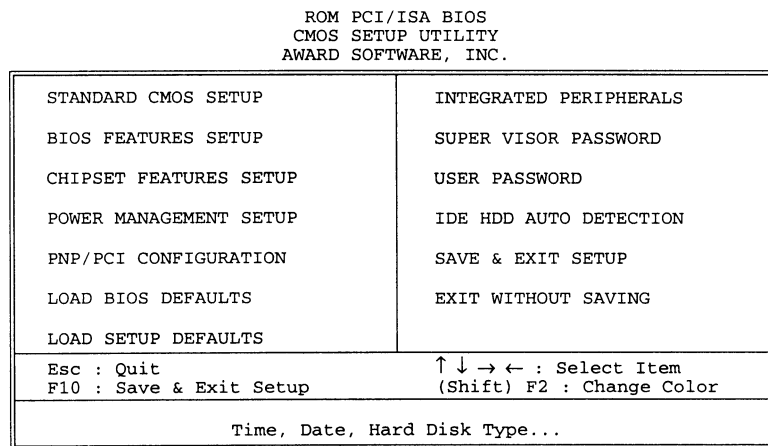
Run the CMOS Setup program after you turn on the system. On-screen instructions explain how to use the program.

### 3.1 Entering the CMOS Setup Program

1. Turn on or reboot the system. After a series of diagnostic checks, the following message will appear:

PRESS <DEL> TO ENTER SETUP

2. Press the <DEL> key and the main program screen appears as in figure 3-1.



*Figure 3-1. Main Program Screen*

3. Use one of the arrows on the keyboard to select an option and press <Enter>. Modify the system parameters to reflect the options installed in the system.
4. Return to the Main Menu anytime by press <ESC>.
5. In the Main Menu, "SAVE AND EXIT SETUP" saves the changes and reboots the system, and "EXIT WITHOUT SAVING" ignores the changes and exits the program.



### Standard CMOS Setup

Standard CMOS Setup records some basic system hardware configuration and sets the system clock and error handling. Use this option to change configuration values when changing the system hardware setup or when the data stored in the CMOS memory gets lost or damaged.

Run the Standard CMOS Setup as follows:

1. Choose "STANDARD CMOS SETUP" from the Main Menu and a screen depicted in Figure 3-2 appears.

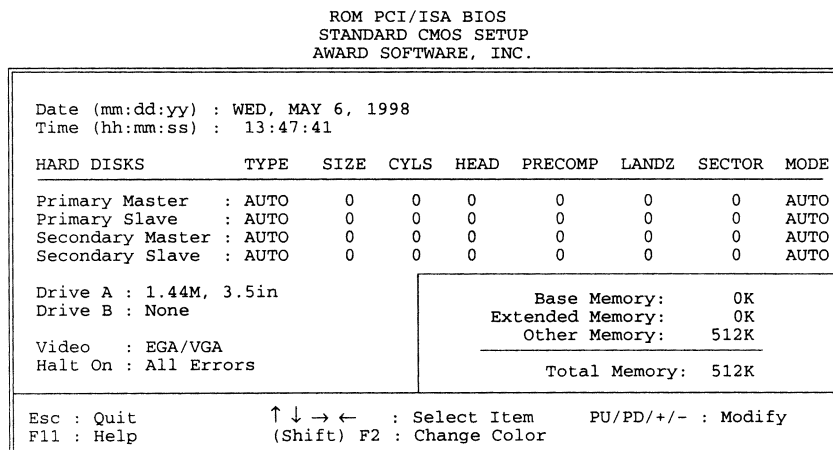


Figure 3-2. Standard CMOS Setup Screen

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp/PgDn/+/- keys.

A short description of screen options (Figure 3-2) follows:

|                                       |   |
|---------------------------------------|---|
| <b>Date (mm:dd:yy)</b>                | Set the current date.   |
| <b>Time (hh:mm:ss)</b>                | Set the current time.   |
| <b>Primary/Secondary Master/Slave</b> | This field records the specifications for all non-SCSI hard disk drives installed in the system. Refer to the respective documentation on how to install the drivers. |

|                  |   |
|------------------|---|
| <b>Drive A/B</b> | Set this field to the types of floppy disk drives installed in the systems. The choices are:<br>360KB, 5.25 in.;<br>72KB, 3.5 in.;<br>1.44MB, 3.5 in.; (default)<br>2.88MB, 3.5 in.; or<br>None.      |
| <b>Video</b>     | Set this field to the type of video display card installed in the system. The choices are: Monochrome;<br>CGA 40; *<br>VGA/EGA (default); or<br>CGA 80.   |
| <b>Halt On</b>   | Set this field to the type of errors that will cause the system to halt. The choices are:<br>All Errors (default);<br>No Errors;<br>All, But Keyboard;<br>All, But Diskette; or<br>All, But Disk/Key. |

3. Press <ESC> to return to the Main Menu when you finish setting up in the "STANDARD CMOS SETUP".

## BIOS Features Setup

BIOS Features Setup allows you to fine tune the system to improve performance or to record the system feature preferences.

Run the BIOS Features Setup as follows:

1. Choose "BIOS FEATURES SETUP" from the Main Menu, and a screen depicted in Figure 3-3 will appear.

```

ROM PCI/ISA BIOS
BIOS FEATURES SETUP
AWARD SOFTWARE, INC.
  
```

|                             |            |                          |                       |
|-----------------------------|------------|--------------------------|-----------------------|
| Virus Warning               | : Disabled | Video BIOS Shadow        | : Disabled            |
| CPU Internal Cache          | : Enabled  | C8000-CBFFF Shadow       | : Disabled            |
| External Cache              | : Enabled  | CC000-CFFFF Shadow       | : Disabled            |
| CPU L2 Cache ECC Checking   | : Enabled  | D0000-D3FFF Shadow       | : Disabled            |
| Quick Power on Self Test    | : Enabled  | D4000-D7FFF Shadow       | : Disabled            |
| Boot Sequence               | : A,C,SCSI | D8000-DBFFF Shadow       | : Disabled            |
| Swap Floppy Drive           | : Disabled | DC000-DFFFF Shadow       | : Disabled            |
| Boot Up Floppy Seek         | : Disabled |                          |                       |
| Boot Up NumLock Status      | : OFF      |                          |                       |
| Gate A20 Option             | : Normal   |                          |                       |
| Typematic Rate Setting      | : Disabled |                          |                       |
| Typematic Rate (Chars/Sec)  | : 6        |                          |                       |
| Typematic Delay (Msec)      | : 250      |                          |                       |
| Security Option             | : Setup    |                          |                       |
| PS/2 Mouse Function Control | : Enabled  | ESC : Quit               | ↑ ↓ → ← : Select Item |
| PCI/VGA Palette Snoop       | : Disabled | F1 : Help                | PU/PD/+/- : Modify    |
| OS Select For DRAM > 64MB   | : Non-OS2  | F5 : Old Values (Shift)  | F2 : Color            |
| Report NO FDD For WIN95     | : No       | F6 : Load BIOS Defaults  |                       |
|                             |            | F7 : Load Setup Defaults |                       |

Figure 3-3. BIOS Features Setup Screen

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp/PgDn/+/- keys. An explanation of the <F> keys follows:

|             |  |
|-------------|--|
| <F1>:       | "Help" gives options available for each item.  |
| Shift <F2>: | Changes color.   |
| <F5>:       | Resets the previous values. These values are the values with which the user started the current session. |
| <F6>:       | Loads all options with the BIOS default values.  |
| <F7>:       | Loads all options with the Setup default values.   |

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A short description of screen options (Figure 3-3) follows:

|                                 |  |
|---------------------------------|--|
| <b>Virus Warning</b>            | Choose Enabled or Disabled (default).<br>Enabled: Activates automatically when the system boots up causing a warning message to appear if there is anything attempts to access the boot sector or hard disk partition table.<br>Disabled: No warning message will appear when there is something attempts to access the boot sector or hard disk partition table |
| <b>CPU Internal Cache</b>       | Choose Enabled (default) or Disabled. This option allows the enabling or disabling of the CPU internal cache.  |
| <b>External Cache</b>           | Choose Enabled (default) or Disabled. This option allows the enabling or disabling of the external cache memory.   |
| <b>Quick Power On Self Test</b> | Choose Enabled (default) or Disabled. This option speeds up the Power On Self Test routine.  |
| <b>Boot Sequence</b>            | Choose "A, C, SCSI" (default), or others. This option determines which drive to engage first for the operating system.   |
| <b>Swap Floppy Drive</b>        | Choose Enabled or Disabled (default). This option swaps floppy drive assignments when enabled.   |
| <b>Boot Up Floppy Seek</b>      | Choose Enabled (default) or Disabled. In the POST mode, BIOS will detect the track numbers of the installed floppy disk driver. 40 tracks is for 360K type driver and 80 is for 720K, 1.2M, and 1.44M.   |

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|   |  |
|---|--|
| <b>Boot Up NumLock Status</b>                               | Choose On (default) or Off. This option activates the NumLock function at boot-up time.  |
| <b>Gate A20 Option</b>                                      | Choose Fast or Normal (default). This option allows the RAM to access the memory above 1MB by using the fast gate A20 line.        |
| <b>Typematic Rate Setting</b>                               | Choose Enabled or Disabled (default). Enable this option to adjust the keystroke repeat rate.                                      |
| <b>Typematic Rate (Chars/Sec)</b>                           | Range between 6 (default) and 30 characters per second. This option controls the speed of repeating keystrokes.                    |
| <b>Typematic Delay (Msec)</b>                               | Choose 250 (default), 500, 750, or 1000.<br>This option sets the time interval for displaying the first and the second characters. |
| <b>Security Option</b>                                      | Choose System or Setup'(default). This option is used to prevent unauthorized system boot-up or use of BIOS Setup.                 |
| <b>PS/2 Mouse Function Control</b>                          | Choose Enabled (default) or Disabled.  |
| <b>PCI/VGA Palette Snoop</b>                                | This option determines whether the MPEG ISA/VESA VGA Cards will work with PCI/VGA.   |
| <b>OS Select for DRAM &gt; 64MB Report No FDD for Win95</b> | Enable this option when using the OS/2 system and the memory is over 64MB. Use the default setting.                                |

|   |  |
|---|--|
| <b>Video BIOS Shadow</b>                | Enabled (default): maps the VGA BIOS to system RAM for greater performance.<br>Disabled: No mapping of the VGA BIOS to system RAM. |
| <b>C8000-CBFFF to DC000-DFFF Shadow</b> | These options are used to shadow other expansion cards' ROM. This function will reduce the memory capacity from 640MB to 1024MB.   |

3. Press <ESC> and follow the screen instructions to save or disregard the changes.

### Chipset Features Setup

Chipset Features Setup changes the values of the chipset registers. These registers control the system options. Modification other than the default value should first have chipset knowledge.

Run the Chipset Features Setup as follows:

1. Choose "CHIPSET FEATURES SETUR" from the Main Menu and a screen depicted in Figure 3-4 appears.

ROM PCI/ISA BIOS  
CHIPSET FEATURES SETUP  
AWARD SOFTWARE, INC.

|                                    |                                      |
|------------------------------------|--------------------------------------|
| Auto Configuration : Enabled       | CPU Host Clock : Disabled            |
| EDO DRAM Speed Selection : 60ns    | Spread Spectrum : Disabled           |
| EDO CASX# MA Wait State : Slow     | CPU Warning Temperature : Disabled*  |
| EDO RASX# Wait State : 2           | Current CPU1 Temperature : 0°C/32°F* |
| SDRAM RAS-to-CAS Delay : 3         | Current System Temp. : 0°C/32°F*     |
| SDRAM RAS Precharge Time : 3       | Current CPUFAN1 Speed : 4383 RPM*    |
| SDRAM CAS Latency Time : 3         | Current CPUFAN2 Speed : 0 RPM*       |
| DRAM Data Integrity Mode : Non-ECC | Current CPUFAN3 Speed : 0 RPM*       |
| System BIOS Cacheable : Disabled   | INO (V) : 2.03V IN1 (V) : 2.54V*     |
| Video BIOS Cacheable : Disabled    | IN2 (V) : 3.52V + 5 V : 5.10V*       |
| Video RAM Cacheable : Disabled     | +12 V : 12.22V -12 V : -12.54V*      |
| 8 Bit I/O Recovery Time : 1        | - 5 V : -5.25V*                      |
| 16 Bit I/O Recovery Time : 1       |                                      |
| Memory Hole At 15M-16M : Disabled  |                                      |
| Passive Release : Disabled         |                                      |
| Delay Transaction : Disabled       |                                      |
| AGP Aperture Size (MB) : 64        |                                      |
|                                    | ESC : Quit ↑ ↓ → ← : Select Item     |
|                                    | F1 : Help PU/PD/+/- : Modify         |
|                                    | F5 : Old Values (Shift)F2 : Color    |
|                                    | F6 : Load BIOS Defaults              |
|                                    | F7 : Load Setup Defaults             |

\*: These items are optional.

Figure 3-4. Chipset Features Setup Screen

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp/PgDn/+/- keys.

A short description of screen options (Figure 3-4) follows:

|                                 |   |
|---------------------------------|---|
| <b>Auto Configuration</b>       | Choose Enabled (default) or Disabled. Auto Configuration selects predetermined optimal values of chipset parameters. When this option is disabled, chipset parameters revert to setup information store in CMOS. Many fields in this screen are not available when Auto Configuration is Enabled. |
| <b>EDO DRAM Speed Selection</b> | Choose 60ns (default) or 50ns. The DRAM timing is controlled by the DRAM Timing Registers. The timings programmed into this register are dependent on the system design. Slower rates may be required in certain system designs to support loose layouts or slower memory.                        |
| <b>EDO CASX# MA Wait State</b>  | Choose 1 or 2 (default). This option allows user to select the timing control type of EDO DRAM CAS MA (Memory Address Bus).   |
| <b>SDRAM RAS-to-CAS Delay</b>   | Choose 2 or 3 (default). This sets the relative delay between the row and column address strobes from DRAM (EDO).   |
| <b>SDRAM RAS Precharge Time</b> | Choose 3 (default) or 4. This item defines the length of time for Row Address Strobe from DRAM (EDO) is allowed to precharge.   |
| <b>SDRAM CAS Latency Time</b>   | Use the default setting. The number of clock cycles of CAS latency depends on the DRAM timing when synchronous DRAM is installed. Do not reset this item Which is specified by the system designer.   |





|                                 |   |
|---------------------------------|---|
| <b>DRAM Data Integrity Mode</b> | Choose Non-ECC (default) or ECC. Select parity or ECC (Error Correcting Code), according to the type of installed DRAM.   |
| <b>System BIOS Cacheable</b>    | Choose Enabled or Disabled (default). Select <i>Enabled</i> allows caching of the system BIOS ROM at F000h-FFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result   |
| <b>Video BIOS Cacheable</b>     | Choose Enabled or Disabled (default). Select <i>Enabled</i> allows caching of the video BIOS ROM at C000h-C7FFFh, resulting in better video performance. However, if any program writes to this memory area, a system error may result  |
| <b>8 Bit I/O Recovery Time</b>  | Choose NA or 1 to 4 CPU clocks (default is 1). The recovery time is the length of time, measured in CPU clocks, which the system will delay after the completion of an input/output request. This delay takes place because the CPU is operating so much faster than the input/output bus that the CPU must be delayed to allow for the completion of the I/O. This option allows you to determine the recovery time for 8 bit I/O. |
| <b>16 Bit I/O Recover Time</b>  | Choose NA or 1 to 4 CPU clocks (default is 1). This option allows you to determine the recovery time for 16 bit I/O.  |
| <b>Memory Hole At 15M-16M</b>   | Choose Enabled or Disabled (default). Some interface cards will map their ROM address to this area. If this occurs, you should select Enabled, otherwise use Disabled.  |



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|                                |   |
|--------------------------------|---|
| <b>Passive Release</b>         | Choose Enabled (default) or Disabled. When <i>Enabled</i> is chosen, CPU to PCI bus accesses are allowed during the passive release.  |
| <b>Delay Transaction</b>       | Choose Enabled or Disabled (default). The chipset has an embedded 32-bit posted write buffer to support delay transactions cycles. Select <i>Enabled</i> to support compliance with PCI specification version 2.1.  |
| <b>AGP Aperture Size</b>       | Choose 4M, 8M, 16M, 32M, 64M, 128M or 256M. Select the size of Accelerated Graphics Port (AGP) aperture. The aperture is a portion of the PCI memory address range dedicated for graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation. |
| <b>Spread Spectrum</b>         | Choose Enabled or Disabled (default).   |
| <b>CPU Host Clock</b>          | Choose Disabled (default), 50MHz, 66MHz, 75MHz, 83MHz for 66MHz CPU.<br>Choose Disabled (default), 100MHz, 103MHz, 112MHz, 133MHz for 100MHz CPU.   |
| <b>CPU Warning Temperature</b> | Choose Disabled (default), <b>50 /122</b> ,<br>53 /127 , 56 /133 , 60 /140 ,<br>63 /145 , 66 /151 , 70 /158 .   |

3. Press <ESC> and follow the screen instructions to save or disregard your settings.

### Power Management Setup

Power Management Setup sets the system instructions power saving functions.

1. Choose "POWER MANAGEMENT SETUP" from the Main Menu and a screen depicted in Figure 3-5 will appear.

| ROM PCI/ISA BIOS<br>POWER MANAGEMENT SETUP<br>AWARD SOFTWARE, INC. |  |
|--|--|
| Power Management : Disabled  | ** Reload Global Timer Events **           |
| PM Control by APM : No   | IRQ [3-7, 9-15], NMI : Disabled            |
| Video Off Method : Blank Screen                                    | Primary IDE0 : Disabled                    |
| Video Off After : NA   | Primary IDE1 : Disabled                    |
| Modem Use IRQ : NA   | Secondary IDE0 : Disabled                  |
| Doze Mode : Disabled   | Secondary IDE1 : Disabled                  |
| Standby Mode : Disabled  | Floppy Disk : Disabled                     |
| Suspend Mode : Disabled  | Serial Port : Disabled                     |
| HDD Power Down : Disabled  | Parallel Port : Disabled                   |
| Throttle Duty Cycle : 12.5%  |  |
| VGA Active Moniotr : Disabled                                      |  |
| Soft-Off by PWR-BTTN : Instant-Off                                 |  |
| Resume by Ring : Disabled  |  |
| Resume by Alarm : Disabled   |  |
| IRQ8 Break Suspend : Disabled                                      |  |
|  | ESC : Quit           ↑ ↓ → ← : Select Item |
|  | F1 : Help            PU/PD/+/- : Modify    |
|  | F5 : Old Values (Shift) F2 : Color         |
|  | F6 : Load BIOS Default                     |
|  | F7 : Load Setup Defaults                   |

Figure 3-5. Power Management Setup Screen

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp/PgDn/+/- keys.

A short description of screen options (Figure 3-5) follows:

|                         |  |
|-------------------------|--|
| <b>Power Management</b> | This option allows user to select the type (or degree) of power saving and which is directly related to the following modes:<br>1. Doze Mode,<br>2. Suspend Mode<br>3. HDD Power Down<br>There are 4 selections for this option which is described in the following table: |
|-------------------------|--|

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|                    |   |
|--------------------|---|
| Disabled (default) | No power management. All modes are disabled.  |
| Min. Power Saving  | Doze Mode – 1 hr.<br>Standby Mode – 1 hr.<br>Suspend Mode – 1 hr.<br>HDD Power Down – 15min.  |
| Max. Power Saving  | It is only available for SL CPU.<br>Doze Mode – 1 min.<br>Standby Mode – 1 min.<br>Suspend Mode – 1 min.<br>HDD Power Down – 1 min.   |
| User Defined       | Allows user to set each mode individually. The range for this option is from 1 minute to hour, except the range for HDD Power Down which ranges from 1 min. to 15 min. plus Disabled. |

|                          |  |
|--------------------------|--|
| <b>PM Control by APM</b> | Choose Yes (default) or No. Choose Yes if the operating system has APM functions, choose No otherwise.   |
| <b>Video Off Method</b>  | Choose Blank, DPMS (default), or V/H Sync+Blank.<br>V/H SYNC+Blank: This option causes the system to turn off the vertical and horizontal synchronization ports, and, write blanks to the video buffer.<br>Blank Screen: This option only writes blanks to the video buffer.<br>DPMS: Select this option only if your monitor supports the Display Power Management Signaling (DPMS) standard. |

|                            |  |
|----------------------------|--|
| <b>Video Off After</b>     | Choose NA (default), Enabled, Suspend, Standby, or Doze. When enabled, this option allows the VGA adapter to operate in a power saving mode.<br>NA: Monitor will remain on during power saving modes.<br>Suspend: Monitor blanked when the system enters the Suspend mode.<br>Standby: Monitor blanked when the system enters the Standby mode.<br>Doze: Monitor blanked when the system enters and power saving mode. |
| <b>Modem Use IRQ</b>       | Choose 3, 4, 5, 7, 9, 10, 11, or NA (default). This option determines the IRQ in which the MODEM can be used.  |
| <b>Doze Mode</b>           | This option sets the CPU speed down to 33 MHz to conserve power.   |
| <b>Standby Mode</b>        | Standby Mode turns off the VGA monitor, choose a mode for the different timers.  |
| <b>Suspend Mode</b>        | Suspend Mode turns off the CPU, thus saving the energy of the systems.   |
| <b>HDD Power Down</b>      | When the set time has elapsed, the BIOS sends a command to the HDD to power down and this function has no effect on SCSI devices.  |
| <b>Throttle Duty Cycle</b> | Choose the duty cycle time: 12.5%, 25%, 37.5%, 50%, 62.5%, 75%, or 87.5%, and Disabled (default). The bigger of the percentage, the more saving power it gets.   |
| <b>VGA Active Monitor</b>  | Choose Enabled or Disabled (default). When <i>Enabled</i> , any video activity restarts the global timer for Standby mode.   |

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|  |   |
|--|---|
| <b>Soft-Off by PWR-BTTN</b>  | Choose Delay 4 Sec or Instant Off (default). This item allows user to set the Off function of power button by software control.<br>Delay 4sec-Off:                    The system will not be powered off after 4 seconds when turns off the system. |
| <b>Resume by Ring</b>  | When this item is set to <i>Enabled</i> , any event, occurring to the Modem Ring, will awaken a system which as been powered down.  |
| <b>Resume by Alarm</b>   | When this item is set to <i>Enabled</i> , user can set the date (of month) and time (hh:mm:ss) for the system to be powered back on.  |
| <b>IRQ8 Break Suspend</b>  | Choose Enabled or Disabled (default). Turning On or Off monitoring IRQ8 so that it does not awaken the system from Suspend mode.  |
| <b>IRQ[3-7, 9-15], NMI;<br/>Primary IDE0;<br/>Primary IDE1;<br/>Secondary IDE0;<br/>Secondary IDE1;<br/>Floppy Disk;<br/>Serial Port</b> | Choose Disabled (disabled) or Enabled. When these items set to <i>Enabled</i> , an event occurring on each device listed on the left column restarts the global time for Standby mode.  |

3. Press <ESC> and follow the screen instructions to save or disregard your settings.

### PnP/PCI Configuration Setup

PnP/PCI Configuration Setup configures the PCI bus slots. Run the PnP/PCI Configuration Setup as follows:

1. Choose "PNP/PCI CONFIGURATION SETUP" from the Main Menu and a screen depicted in Figure 3-6 will appear.

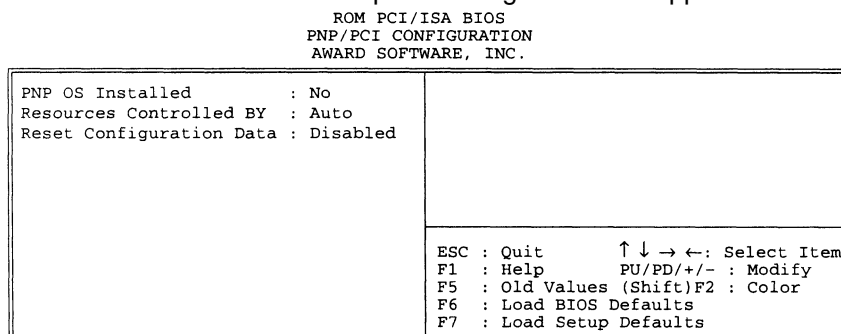


Figure 3-6. PnP/PCI Configuration Setup Screen

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp/PgDn/+/- keys.

A short description of screen options (Figure 3-6) follows:

|                                |  |
|--------------------------------|--|
| <b>PnP OS Installed</b>        | Choose Yes (default) or No. Select Yes if the system operating environment is Plug and-Play aware, i.e., Win95.  |
| <b>Resources Controlled By</b> | Choose Auto (default) or Manual. The Award Plug & Play BIOS has the capacity to configure all of the boot, and, Plug-and Play compatible devices automatically. However, this capability means absolutely nothing unless you are using a Plug & Play operating system such as Win95. |



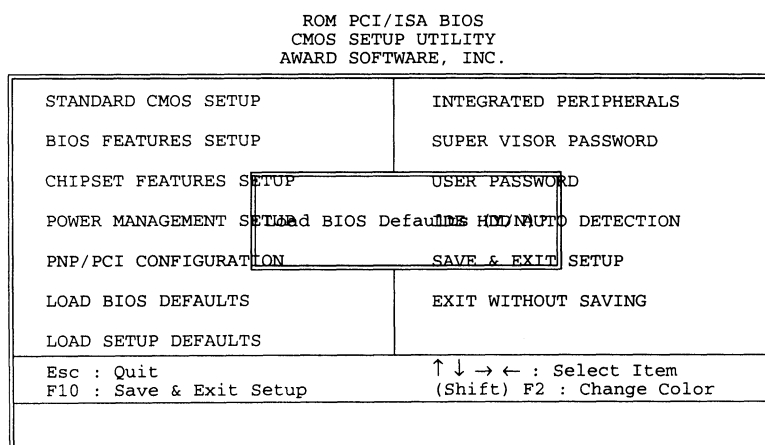
|                                 |  |
|---------------------------------|--|
| <b>Reset Configuration Data</b> | Choose Enabled or Disabled (default). Select <i>Enabled</i> to reset Extended System Configuration Data (ESCD) when there is a serious conflict whereby the system can not be rebooted which is caused by the system reconfiguration of the new add-on card. |
|---------------------------------|--|

3. Press <ESC> and follow the screen instructions to save or disregard your settings.

### Load BIOS Defaults

Load BIOS Defaults option allows you to load the troubleshooting default values permanently stored in the BIOS ROM. These default settings are non-optimal and disable all high performance features.

To load these default settings, highlight Load BIOS Defaults on the main screen and then press the <Enter> key, The system displays a confirmation message on the screen (see the figure below.) Press the <Y> key and then the <Enter> key to confirm. Press the <N> followed by the <Enter> key to abort. This features does not affect the fields on the Standard CMOS Setup screen.

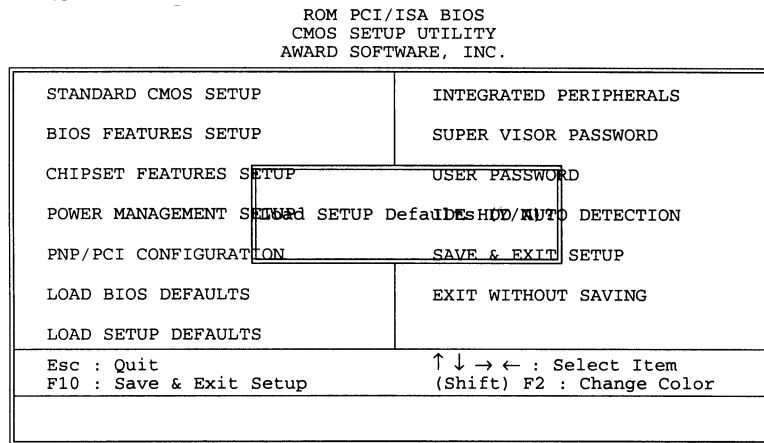


### Load Setup Defaults

Load Setup Defaults option loads the default system values to the system configuration fields. If the CMOS is corrupted, the defaults are loaded automatically. Choose this option, and the following message will appear:

Load Setup Defaults (Y/N)? N

To use the Setup defaults, change the prompt to "Y" and press <Enter>.



### Integrated Peripherals Setup

1. Choose "INTEGRATED PERIPHERALS SETUP" from the Main Menu, and a screen depicted in Figure 3-7 will appear.

ROM PCI/ISA BIOS  
INTEGRATED PERIPHERALS  
AWARD SOFTWARE, INC.

|                                     |   |
|-------------------------------------|---|
| IDE HDD Block Mode : Enabled        | Onboard FDD Controller : Enabled        |
| IDE Primary Master PIO : Auto       | Onboard Serial Port 1 : 3F8/IRQ4        |
| IDE Primary Slave PIO : Auto        | Onboard Serial Port 2 : 2F8/IRQ3        |
| IDE Secondary Master PIO : Auto     | Onboard Parallel Port : 378/IRQ7        |
| IDE Secondary Slave PIO : Auto      | UART Mode Select : Normal               |
| IDE Primary Master UDMA : Auto      |   |
| IDE Primary Slave UDMA : Auto       |   |
| IDE Secondary Master UDMA : Auto    |   |
| IDE Secondary Slave UDMA : Auto     |   |
| On-Chip Primary PCI IDE : Enabled   |   |
| On-Chip Secondary PCI IDE : Enabled | ESC : Quit           ↑↓→←: Select Item  |
| USB Keyboard Support : Disabled     | F1 : Help            PU/PD/+/- : Modify |
| Init Display First : PCI Slot       | F5 : Old Values (Shift)F2 : Color       |
| POWER ON Function : Mouse Left      | F6 : Load BIOS Default                  |
|                                     | F7 : Load Setup Defaults                |

Figure 3-7. Integrated Peripherals Setup Screen

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp/PgDn/+/- keys.

A short description of screen options (Figure 3-7) follows:

|   |   |
|---|---|
| <b>IDE HDD Block Mode</b>                     | Choose Enabled (default) or Disabled. This option allows the hard disk controller to use the fast block mode to transfer data to and from your hard disk drive (HDD). Enabled: IDE controller uses block mode. Disabled: IDE controller uses standard mode.   |
| <b>IDE Primary/Secondary Master Slave PIO</b> | Four IDE PIO (Programmed Input/Output) fields let you set the PIO mode (0-4) for each of the 4 IDE devices which the onboard IDE interface supports. All 4 modes (0-4) provide a successively increased performance. In Auto mode, the system determines the best mode for each device automatically. |

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|   |   |
|---|---|
| <p><b>IDE<br/>Primary/Secondary<br/>Master/Slave UDMA</b></p> | <p>Ultra DMA/33 implementation is available only if your IDE hard drive supports this function, and, the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver). If both hard drive and the system software support Ultra DMA/33, then select <i>Auto</i> to enable BIOS support.</p>   |
| <p><b>On-Chip<br/>Primary/Secondary<br/>PCI<br/>IDE</b></p>   | <p>The integrated peripheral controller contains an IDE interface with support for two IDE channels. Select <i>Enabled</i> to activate each channel separately.</p>   |
| <p><b>USB Keyboard<br/>Support</b></p>                        | <p>Choose <i>Enabled</i> or <i>Disabled</i> (default). You need to set this item to <i>Enabled</i> when USB keyboard is used.</p>   |
| <p><b>Init Display First</b></p>                              | <p>Choose <i>PCI</i> (default) or <i>AGP</i>.<br/> <i>PCI:</i> PCI VGA is the Master and AGP is the Slave when there are more than one VGA Cards.<br/> <i>AGP:</i> AGP is the Master while PCI is the slave.</p>  |
| <p><b>Power On Function</b></p>                               | <p>Choose <i>Password</i>, <i>Hot Key</i>, or <i>Button Only</i>. This option allows user to select which way to power on your computer, however, when using this option, the current of the Keyboard is better not over 5mA, and, the Power Standby Mode should be over 100mA.<br/> <i>Note: If you forget the password you set before, reset the CMOS data by shorting pin2-3 of JB1.</i></p> |
| <p><b>Onboard FDD<br/>Controller</b></p>                      | <p>Choose <i>Enabled</i> (default) or <i>Disabled</i>. Disable this function when adding a higher performance controller.</p>   |

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|   |  |
|---|--|
| <b>Onboard Serial Port1/Port2</b><br><br>access | Choose Auto (default), 3F8/IRQ4 , 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3, or Disabled.<br><br>This item allows user to determine onboard serial port1/port2 controller with I/O address. Do no set port 1 & 2 to the same value except for Disabled. |
| <b>Parallel Port Mode</b>                       | Choose SPP (default), ECP/EPP, ECP, EPP/SPP. This item is used to select an operating mode for the onboard parallel (printer) port. Make sure that both hardware and software support EPP or ECP mode before selecting these 2 choices.    |
| <b>UART Mode Select</b>                         | Choose Normal (default), ASKIR, or HPSIR. This option allows user to determine which Infra Red (IR) function of onboard I/O chip.  |

---

3. Press <ESC> and follow the screen instructions to save or disregard your settings.

## **Password Setting**

This option allows the user to set the system password. To set the password:

1. Choose "Password Setting" in the Main Menu and press <Enter>. The following message appears:  
"Enter Password:"
2. When running this option for the first time, enter the password (up to 8 characters) and press <Enter>. For security, the screen will not display the entered characters.
3. After entering the password, the following message appears prompting for the confirmation of the password:  
"Confirm Password:"
4. Enter the same password again to confirm the password and press <Enter>.
5. Move the cursor to Save & Exit to save the password.
6. To delete the password entered before, choose the "Password Setting" and press <Enter>. This will delete the old password.
7. Move the cursor to Save & Exit to save the option, otherwise the old password will still be stored when you turn on the machine the next time.
8. Press <ESC> to exit to the Main Menu.

**Note:** *If you forget or lose the password, the only way to access the system is to clear the CMOS RAM by shorting J7 across pin2 and 3. All setup information will be lost and you will need to run the BIOS setup program again.*

### IDE HDD Auto Detection

IDE HDD Auto Detection detects the parameters of an IDE hard disk drive and automatically enters them to the Standard CMOS Setup Screen.

After selecting this option, the screen prompts for a selection of a specific hard disk for Primary Master after you select this option. Enter 'Y' to confirm the acceptance of the hard disk detected by the BIOS. Press <Enter> to check next hard disk. This function checks up to four hard disks. User can press the <ESC> after the <Enter> to skip this function to return to the Main Menu.

### HDD Low Level Format

|  |  |          |      |     |     |     |     |     |          |      |   |   |   |   |   |
|--|--|----------|------|-----|-----|-----|-----|-----|----------|------|---|---|---|---|---|
| <p>Hard Disk Low-Level-Format</p> <p>SELECT DRIVE<br/>BAD TRACK LIST<br/>PREFORMAT</p> <hr/> <p>Current select Drive Is : C</p> <p>Drive: C Cylinder: 0 Head: 0</p>                                      | <p>BAD TRACKS TABLE</p> <p>NO. CYLS HEAD</p> <table border="1"><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table> |          |      |     |     |     |     |     |          |      |   |   |   |   |   |
|  |  |          |      |     |     |     |     |     |          |      |   |   |   |   |   |
| <table><tr><td>Drive C:</td><td>40Mb</td><td>977</td><td>5</td><td>17</td><td>300</td><td>977</td></tr><tr><td>Drive D:</td><td>None</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr></table> |  | Drive C: | 40Mb | 977 | 5   | 17  | 300 | 977 | Drive D: | None | 0 | 0 | 0 | 0 | 0 |
| Drive C:   | 40Mb   | 977      | 5    | 17  | 300 | 977 |     |     |          |      |   |   |   |   |   |
| Drive D:   | None   | 0        | 0    | 0   | 0   | 0   |     |     |          |      |   |   |   |   |   |
| <p>Up/Down-Select Item      Enter-Accept      ESC-Exit/Abort<br/>Copyright (c) Award Software, Inc. 1992 Rights Reserved</p>   |  |          |      |     |     |     |     |     |          |      |   |   |   |   |   |

### Save & Exit Setup

Save & Exit Setup saves all modifications specified into the CMOS memory. Highlight this option on the Main Menu and the following message will appear:

SAVE to CMOS and EXIT (Y/N)? Y

Press <Enter> key to save the configuration changes.

**Exit Without Saving**

Exit Without Saving exits the Setup utility without saving the modifications specified. Highlight this option on the Main Menu and the following message will appear:

Quit Without Saving (Y/N)? N

To quit without saving, change the prompt to "Y" and press <Enter> key to exit.



## Chapter 4

# SOFTWARE DRIVER INSTALLATION

The CD came with the package is free of charge, including all our products' drivers Please run the "setup.exe" to install software in the following roots:

### **Mainboard Driver for Intel Chips**

- Award PIIX4 INF update for Window 95
- Bus Master IDE drivers for OS2
- Bus Master IDE.drivers for Windows 95
- Bus Master IDE drivers for Windows NT
- Intel PIIX4 INF update for Windows 95

### **Others**

- VGA Drivers for Intel i740 chips
- BIOS Update Utility
- System Monitor
- SuperVB Antivirus Utility