Chapter 1

Introduction

The PCI 430 TX system board is a high-performance personal computer system board based on a 3.3v version of the Pentium™ micrprocessor--the P54C and P55C, K6 and M2 with MMX microprocessor. The system board supports the Peripheral Component Interconnect (PCI) Local Bus Standard and provide four 32-bit PCI bus master slots.

A cache subsystem can be configured for 256k or 512K cache memory to improve overall throughput.

The system board uses the highly integrated Intel 82439TX chipset to support the PCI/ISA and green standards, and to provide the Host/PCI bridge. The 82437AB chipset also support the ACPI soft power off and Modem Ring wake-up function, it also integrates all system control functions.

CHAPTER 1   INTRODUCTION

1.1 System Board Features

CPU
- Socket 7 supports Intel Pentium™ family -- P54C and P55C((MMX) 90MHz/100MHz/120Mhz/133MHz/150MHz/166MHz/200MHz/233MHz
- The Cyrix 6x86/M2 and AMD K5/K6 are also supported.

Chip Set
- Intel 82430TX

Cache Memory
- Supports Directed Map Organization,Write-Back cache policy.
- Supports 256K pipelined burst cache memory or 512K pipelined burst cache memory.

Main Memory
- Supports six memory banks using four 72-pin SIMM sockets and two 168-pin DIMM sockets.
- Up to 256 Mbytes main memory.
- Supports EDO Hyper Page Mode DRAM , Standard Fast Page mode DRAM and SDRAM.

Slots
- Four 32-bit Master PCI Bus slots and four 16-bit ISA bus slots. One shared slot that can be used as ISA or PCI.
- Support 3.3V PCI Add-On Card.

On-Board Peripherals
- On-Board Peripherals include:
    - 1 floppy port supports 2FDD
    - 2 serial ports (COMA + COMB)
    - 1 parallel port supports ECP or EPP mode
    - 2 PCI Bus Master IDE ports (up to four IDE HDD)
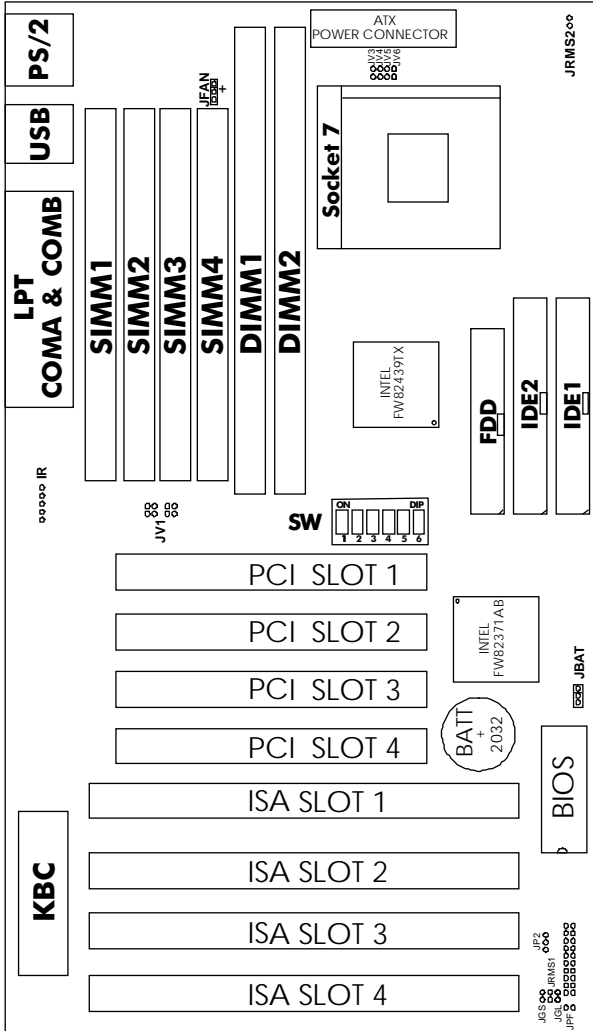   - 2 Channel USB port

CHAPTER 1   INTRODUCTION

Dimensions
- Standard ATX form factor
- 30cm(L) x 18.6cm(W) x 4 layer PCB

Mounting
- 6 mounting holes

CHAPTER 1   INTRODUCTION

## 1.3 System Board Layout

MS-5148

Chapter 2

Hardware Installation

### 2.1 Central Processing Unit: CPU

The **430 TX** motherboard operates with **Intel® P54C/P55C**, **Cyrix® 6x86/M2** and **AMD® 5K86/K6** processors**.** It could operates with 2.8V to 3.52V processors. The motherboard provides a 321-pin ZIF Socket 7 for easy CPU installation, a DIP switch (SW1) to set the proper speed for the CPU and a Jumper block (JV3 - JV7) for setting the CPU voltage. The CPU should always have a cooling fan attached to prevent overheating.

2.1-1 CPU Installation Procedure

1. Pull the lever sideways away from the socket then raise the lever up to a 90-degree angle.

Open Lever

Sliding Plate
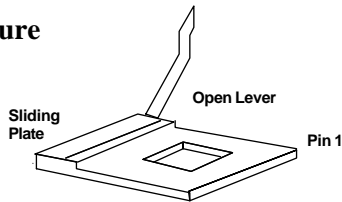
Pin 1

2. Locate Pin 1 in the socket and look for the white dot or cut edge in the CPU, match Pin 1 with the white dot/cut edge then insert the CPU. It should insert easily.

CPU

White dot/ Cut edge
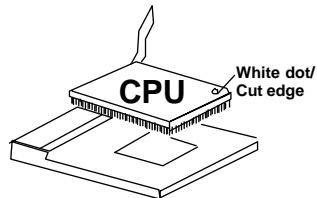
3. Press the lever down to complete the installation.

Close Lever

CPU
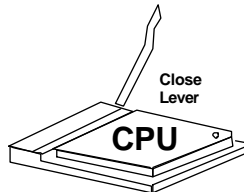
CHAPTER 2   HARDWARE INSTALLATION

2.1-2 CPU Core Speed Derivation Procedure

1. The 3 CPU clock frequencies that the system supports are 55MHz, 60MHz, 66MHz and 75MHz (To adjust SW1 pin 4, 5, and 6). See the following chart to set the different Host Clock Frequencies.

SW1			CPU
4	5	6	Clock
ON	ON	OFF	55MHz
ON	OFF	OFF	60MHz
OFF	OFF	OFF	66MHz
OFF	ON	OFF	75MHz

2. The DIP Switch SW1 (1,2, and 3) is used to set the Core/Bus (Fraction) ratio of the CPU. The actual core speed of the CPU is the Host Clock Frequency multiplied by the Core/Bus ratio. For example:

If	CPU Clock	=	66MHz
	Core/Bus ratio	=	3/2
then	CPU core speed	=	Host Clock x Core/Bus ratio
		=	66MHz x 3/2
		=	100MHz

SW1			CPU
1	2	3	Core/Bus Ratio
OFF	OFF	OFF	1.5 /3.5
ON	OFF	OFF	2
ON	ON	OFF	2.5/1.75
OFF	ON	OFF	3

3. The PCI Bus Clock is the CPU Clock Frequency divided by 2.

CHAPTER 2 HARDWARE INSTALLATION

2.1-3 CPU Voltage Setting: JV3 - JV7

The system board can autodetect whether the CPU is single or dual voltage.
To adjust the Jumper setting of the CPU's Vcore, just look at table below and
set accordingly.
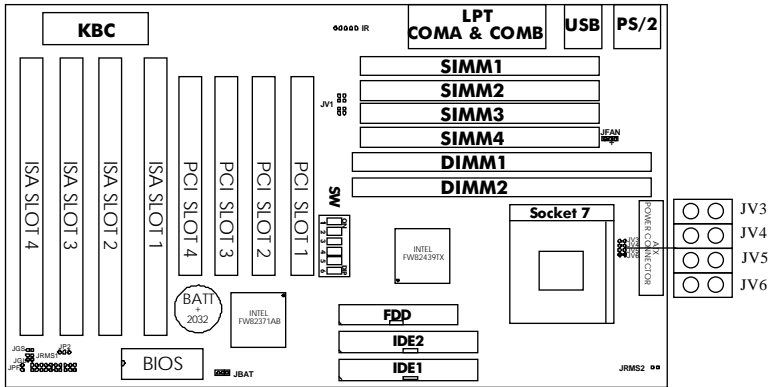
Single Voltage

V I/O	Vcore	JV3~JV7	
3.38	3.38		JV3 JV4 JV5 JV6
3.52	3.52		JV3 JV4 JV5 JV6

Dual Voltage

V I/O	Vcore	JV3~JV7	
3.3	2.8		JV3 JV4 JV5 JV6
3.3	2.9		JV3 JV4 JV5 JV6
3.3	3.2		JV3 JV4 JV5 JV6

CHAPTER 2   HARDWARE INSTALLATION
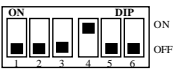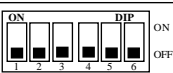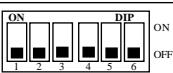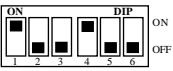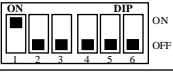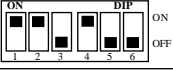
2.1-4 CPU Speed and Voltage Setting: SW1 & JV3-JV7

To adjust the speed and voltage of the CPU, you must know the specification of your CPU (*always ask the vendor for CPU specificaton*) then look at **Table 2.1 (Intel® P54C/P55C-MMX)**, **Table 2.2 (Cyrix® 6x86/M2)** and **Table 2.3 (AMD® 5K86/K6)** for proper setting.

Speed Setting
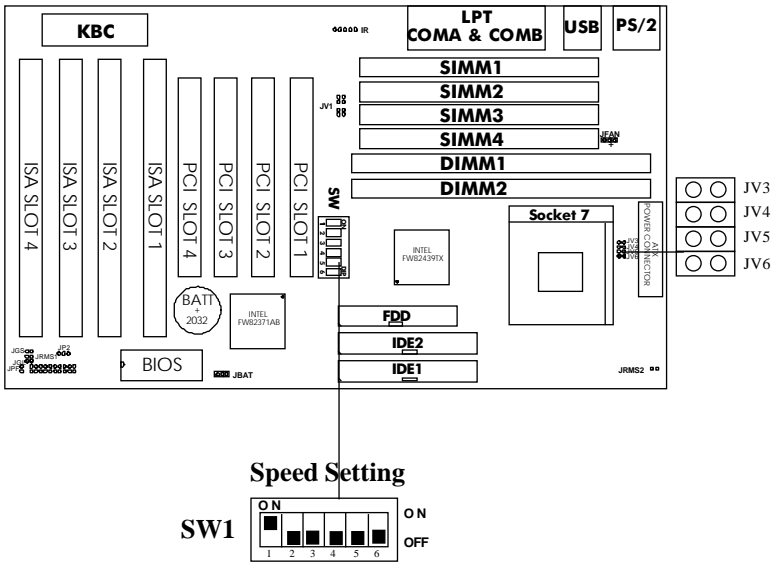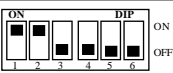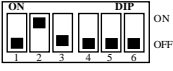
CHAPTER 2 HARDWARE INSTALLATION

Table 2.1 Intel® P54C PENTIUM CPU

CPU Type	CPU Voltage			CPU Speed
	VI/O	Vcore	JV3~JV7	SW1
P54C-90	3.38		JV3 JV4 JV5 JV6	ON DIP ON OFF 1 2 3 4 5 6
	3.52		JV3 JV4 JV5 JV6	
P54C-100	3.38		JV3 JV4 JV5 JV6	ON DIP ON OFF 1 2 3 4 5 6
P54C-120	3.38			ON DIP ON OFF 1 2 3 4 5 6
P54C-133	3.52			ON DIP ON OFF 1 2 3 4 5 6
P54C-150	3.52		JV3 JV4 JV5 JV6	ON DIP ON OFF 1 2 3 4 5 6
P54C-166	3.52			ON DIP ON OFF 1 2 3 4 5 6
P54C-200	3.52			ON DIP ON OFF 1 2 3 4 5 6

Intel® P55C PENTIUM (MMX) CPU
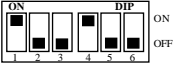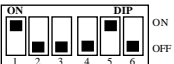
P55C-166				ON DIP ON OFF 1 2 3 4 5 6
P55C-200	3.3	2.8	JV3 JV4 JV5 JV6	ON DIP ON OFF 1 2 3 4 5 6
P55C-233				ON DIP ON OFF 1 2 3 4 5 6

Note: If you encounter a CPU with different Voltage, just go to page 2-3 and look for the proper voltage settings.
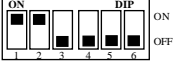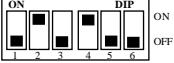
Table 2.2 Cyrix® 6x86 CPU

Cyrix® 6x86 CPU uses P to rate the speed of there processor base on Intel® CPU core speed , for example P150+ (120MHz) has 150MHz core speed of Intel® but has 120MHz core speed in Cyrix®. Cyrix® 6x86 CPU should always uses a more powerful fan (ask vendor for proper cooling fan).

CPU Type	CPU Voltage			CPU Speed
	VI/O	Vcore	JV3~JV7	SW1
M1 P133+ (110MHz)	3.52			
M1 P150+ (120MHz)				
M1 P166+ (133MHz)	3.3	2.8		
M1 P200+ (150MHz)	3.52			

Cyrix® M2 (MMX) CPU
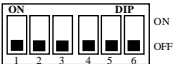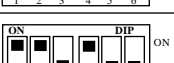
M2 P166+ (166MHz)	3.3	2.8		
M2 P180+ (180MHz)				
M2 P200+ (200MHz)				
M2 P225+ (225MHz)				

Note: We don't guarantee the performance of 75MHz Bus Clock.
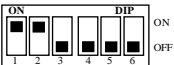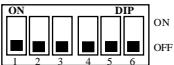
Table 2.3 AMD® 5K86 CPU

AMD® 5K86 CPU uses PR to rate the speed of there processor base on Intel® CPU core speed , for example PR133+ (100MHz) has 133MHz core speed of Intel® but has 100MHz core speed in AMD® 5K86 CPU.

CPU Type	CPU Voltage			CPU Speed
	VI/O	Vcore	JV3~JV7	SW1
PR90 (90MHz)	3.52		JV3 JV4 JV5 JV6	(switch setting)
PR100 (100MHz)				(switch setting)
PR120 (90MHz)				(switch setting)
PR133 (100MHz)				(switch setting)
PR150 (105MHz)				(switch setting)
PR166 (116.7MHz)				(switch setting)
PR200 (133MHz)	Reserved			

AMD® K6 (MMX) CPU

CPU Type	VI/O	Vcore	JV3~JV7	SW1
PR166 (166MHz)	3.3	2.9	JV3 JV4 JV5 JV6	(switch setting)
PR200 (200MHz)				(switch setting)
PR233 (233MHz)	3.3	3.2	JV3 JV4 JV5 JV6	(switch setting)

Note: If you encounter a CPU with different Voltage, just go to page 2-3 and look for the proper voltage settings.

2.1-5 CPU Fan Power Connector: JFAN

This connector supports CPU cooling fan with +12V. It supports both two and three pin head connector.   When connecting the wire to the connector, always take note that the red wire is the positive and should be connected to the +12V. If the system is in suspend mode, the fan will stop. You can change this setup on the **Power Management Setup** in the BIOS.

JFAN
Connector
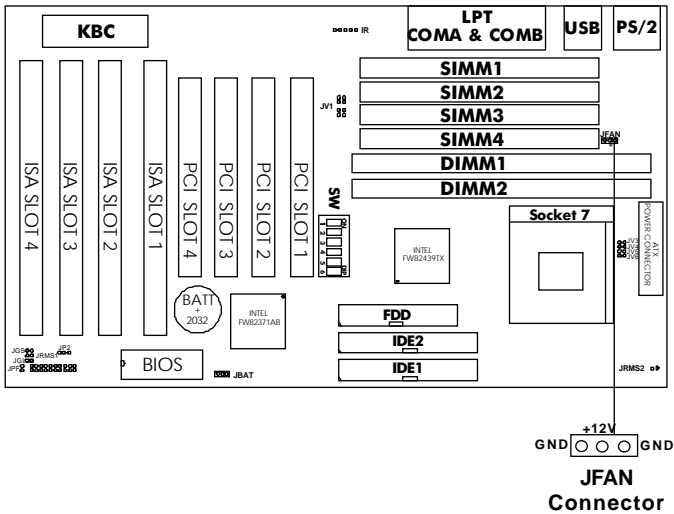
Recommended CPU cooling fan specification:
- Metallic Clip
- RPM 5000
- CFM 10
- +12V
- 52x52x10mm
- Ball Bearing

Note: *Always consult vendor for proper CPU cooling fan.*

2.2 Flash ROM Programming Voltage: JP2

This jumper is for setting the Voltage of the Flash ROM BIOS.

JP2

Voltage Setting

3	2	1

+12V

3	2	1

+5V
(default)
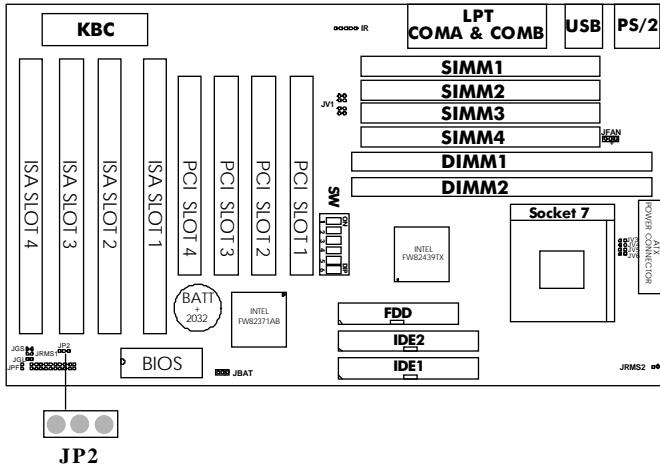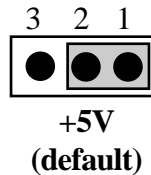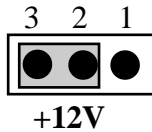
Note: a. If you use Winbond , SST Flash ROM short 1-2 pin.
   b. If you use Intel or MXIC Flash ROM short 1-2 pin, if you want to
      flash the ROM data, short 2-3 pin , then put it back to 1-2 pin.

CHAPTER 2   HARDWARE INSTALLATION

2.3 External Battery Connector: JBAT

A battery must be used to retain the system board configuration in CMOS RAM.   If you use the on-board battery you must short pins 1,2 of JBAT to keep the CMOS data.

JBAT
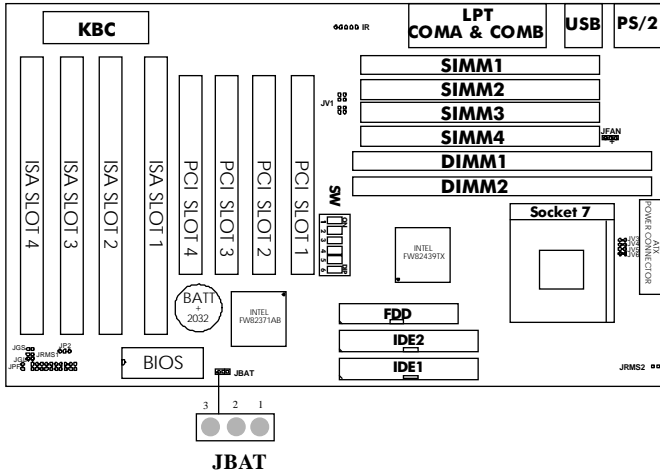
Keep Data

Clear Data

2.4 Power Saving Switch Connector: JGS/ Power Saving LED Connector: JGL

Attach a power saving switch to JGS. When the switch is pressed, the system immediately goes into suspend mode. Press any key and the system wakes up. JGL can be connected with LED to monitor the JGS.
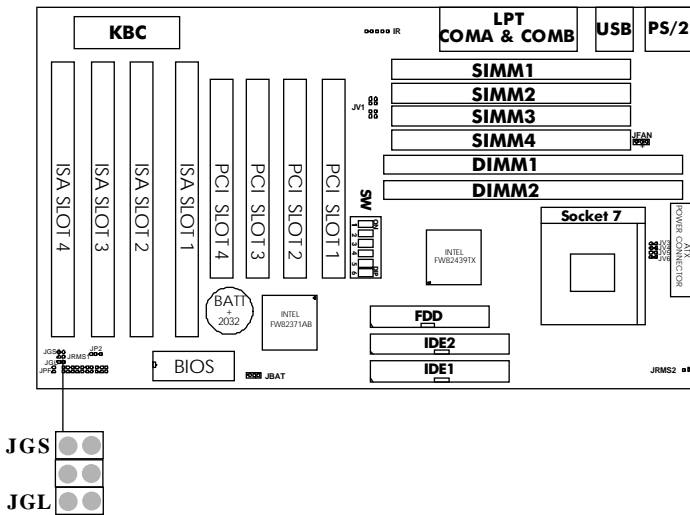
CHAPTER 2   HARDWARE INSTALLATION

2.5 Memory Installation

2.5-1   Memory Bank Configuration

The system board provides four 72-pin SIMMs (Single In-Line Memory Module) and two 168-pin DIMM(Double In-Line Memory) sockets, supports a maximum of 256MB of memory. You can use SIMM from 4MB, 8MB, 16MB, 32MB, 64MB or 128MB. And DIMM from 8MB, 16MB, 32MB, 64MB, 128MB, or 256MB. A Bank consist of 2 SIMM socket or One DIMM socket. It also consist of 2 RAS, each RAS supports memory up to 128MB.This board support 6 RAS.

| SIMM1(Bank 0) |
| SIMM2(Bank 0) |
| SIMM3(Bank 1) |
| SIMM4(Bank 1) |
| DIMM1(Bank 2) |
| DIMM2 (Bank 3) |

KBC

IR

LPT
COMA & COMB

USB

PS/2

ISA SLOT 4
ISA SLOT 3
ISA SLOT 2
ISA SLOT 1
PCI SLOT 4
PCI SLOT 3
PCI SLOT 2
PCI SLOT 1

JV1

SIMM1
SIMM2
SIMM3
SIMM4
JFAN
DIMM1
DIMM2

SW

INTEL
FW82439TX

Socket 7

ATX POWER CONNECTOR

BATT
+
2032

INTEL
FW82371AB

FDD
IDE2
IDE1

BIOS

JBAT

JGS
JG
JPF

JRMS
JB2

JRMS2
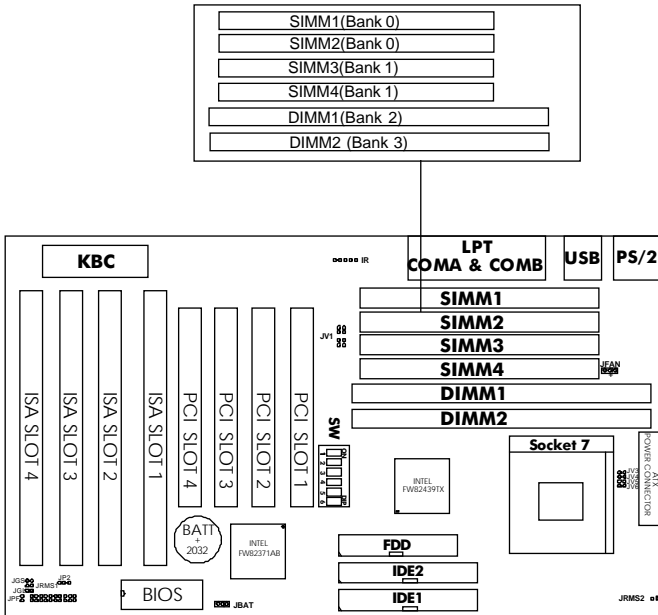
2.5-2 Memory Installation Procedures:

A. How to install a SIMM Module

Notched End

Single Sided SIMM

Double Sided SIMM
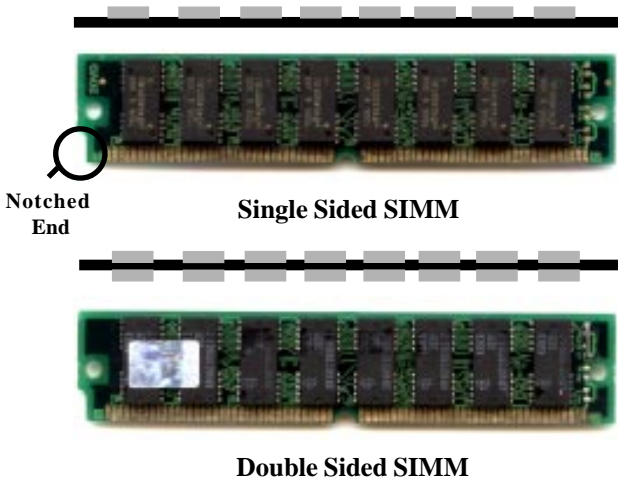
1. The SIMM slot has a "*Plastic Safety Tab*" and the SIMM memory module has a "Notched End", so the SIMM memory module can only fit in one direction.

2. Insert the SIMM memory modules into the socket at 45-degree angle, then push into a vertical position so that it will snap into place.

3. The Mounting Holes and Metal Clips should fit over the edge and hold the SIMM memory modules in place.
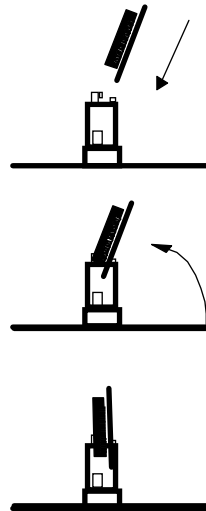
B. How to install a DIMM Module
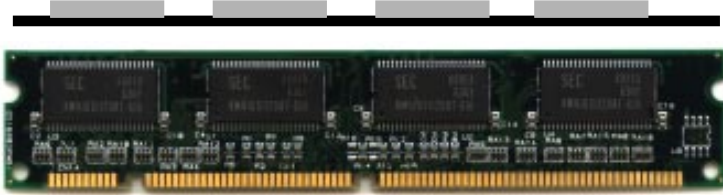
Single Sided DIMM
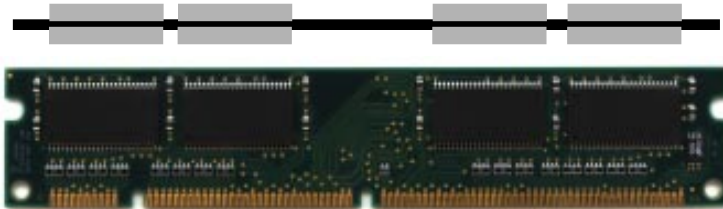
Double Sided DIMM

1. The DIMM slot has a two key mark "VOLT and DRAM" , so the DIMM memory module can only fit in one direction.

2. Insert the DIMM memory module vertically into the DIMM slot then push it in.
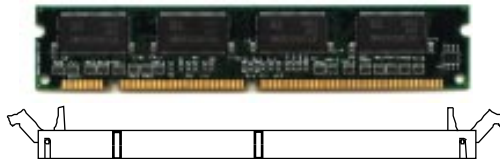
3. Close the plastic clip at the side of the DIMM slot.

Note: If you have installed SIMM and DIMM at the same time. You must use a 3.3 volt DIMM with 5 volt I/O signal tolerance or a full 5 volt DIMM module (EDO, FP or SDRAM). Look for JV1 to select the DIMM voltage.

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B.1 DIMM Power Voltage Selector : JV1
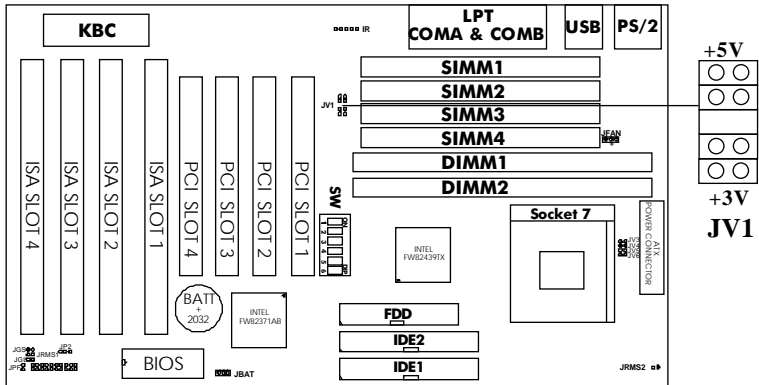
DIMM Voltage	JV1
5V	
3.3V	

SIMM Power Level : 5 Volts   DIMM Power Level : 3.3V or 5V

CHAPTER 2   HARDWARE INSTALLATION

2.5-3 Memory Population Rule

1. Make sure that the SIMM banks are using the same type and equal size density memory.

2. To operate properly at least two 72-pin SIMM module must be installed in the same bank or one 168-pin DIMM module must be installed.

3. Look at the table below:

S = Single Density   D = Double Density   N = None

BANK0	BANK1	BANK2	BANK3
S	S/D/N	S/D/N	S/N
D	S/D/N	S/D/N	N
N	S/D/N	S/D/N	D

4. Before using SIMM and DIMM modules, look at the chart next page.

5. Each RAS can not exceed 16 pcs of DRAM.

6. It is not recommended to mix 3V SDRAM with 5V EDO/FP, for it may cause unreliability.

6. If SDRAM and EDO/FPM are mixed in a system, then the configuration is limited to a maximum of four RAS(two RAS of x4 EDO/FPM and two RAS of x8 or x16 SDRAM). If only x8 or x16 EDO/FPM and SDRAM devices are used(i.e. not x4's), then five RAS can be supported.

7. If you use a 64M DRAM of SDRAM, then Bank0 can not be use.

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Table 2.5-1 Minimum (upgradeable) and Maximum Memory Size for each configuration for SIMM

DRAM Tech.	DRAM Density & Width	DRAM Addressing	Address Size		MB/SIMM	
			Row	Column	Single no. Side(S) pcs.	Double no. Side(D) pcs.
4M	1Mx4	SYMM	10	10	4MBx8	8MBx16
16M	1Mx16	SYMM	10	10	4MBx2	8MBx4
	1Mx16	ASYM	12	8	4MBx2	8MBx4
	2Mx8	ASYM	11	10	8MBx4	16MBx8
	4Mx4	SYMM	11	11	16MBx8	32MBx16
	4Mx4	ASYM	12	10	16MBx8	32MBx16
64M	2Mx32	ASYM	12	9	8MBx1	16MBx2
	4Mx16	SYMM	11	11	16MBx2	32MBx4
	4Mx16	ASYM	12	10	16MBx2	32MBx4
	8Mx8	ASYM	12	11	32MBx4	64MBx8
	16Mx4	SYMM	12	12	64MBx8	128MBx16

Table 2.5-2 Minimum (upgradeable) and Maximum Memory Size for each configuration for DIMM

DRAM Tech.	DRAM Density & Width	DRAM Addressing	Address Size		MB/DIMM	
			Row	Column	Single no. Side(S) pcs.	Double no. Side(D) pcs.
16M	1Mx16	ASYM	12	8	8MBx4	16MBx8
	2Mx8	ASYM	12	9	16MBx8	32MBx16
	4Mx4	ASYM	12	10	32MB	64MB
64M	2Mx32	ASYM	12	10	32MBx2	64MBx4
	2Mx32	ASYM	13	8	16MBx2	32MBx4
	4Mx16	ASYM	14	8	32MB	64MB
	8Mx8	ASYM	14	9	64MB	128MB
	16Mx4	ASYM	14	10	128MB	256MB

2.6 Case Connector: JFP

The Turbo LED, Hardware Reset, Key Lock, Power LED, Power Saving LED, Sleep Switch, Speaker and HDD LED all connected to the JFP connector block.
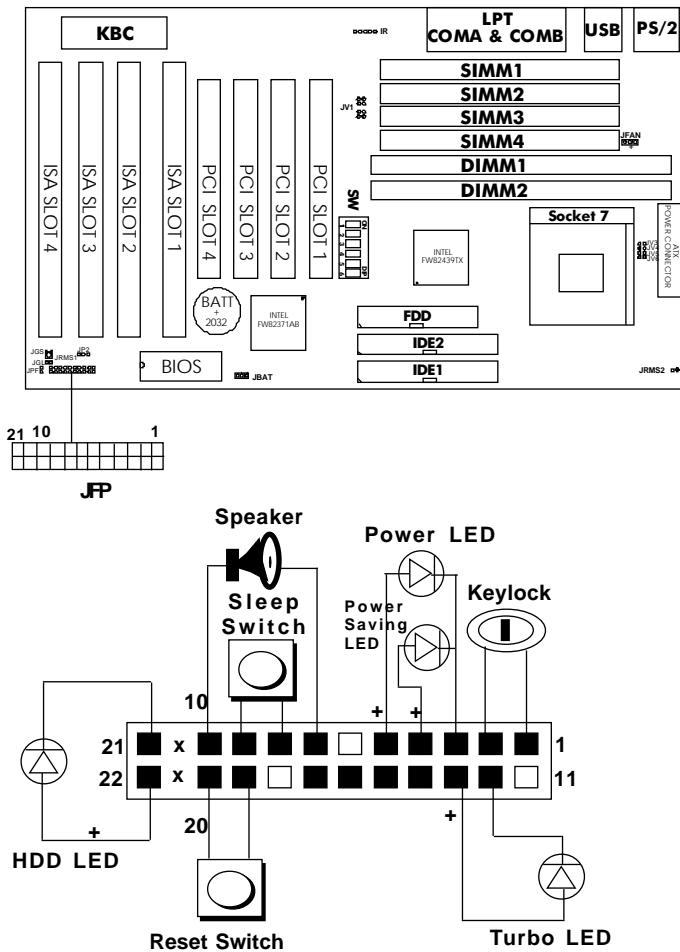
Figure 2.1

CHAPTER 2   HARDWARE INSTALLATION

2.6-1 Turbo LED

The Turbo LED are always ON. You can connect the Turbo LED from the system case to this pin. (See Figure 2.1)

2.6-2 Hardware Reset

Reset switch are use to reboot the system rather than turning the power ON/OFF, but avoid rebooting will the HDD LED is lit. You can connect the Reset switch form the system case to this pin. (See Figure 2.1)

2.6-3 Keylock

Keylock allows you to disabled the keyboard for security purposes. You can connect the keylock to this pin. (See Figure 2.1)

2.6-4 Power LED

The Power LED is always lit while the system power is on. You can connect the Power LED form the system case to this pin. (See Figure 2.1)

2.6-5 Suspend Switch

The Suspend Switch can be set in the BIOS Power Management Setup. When used as a Suspend Switch, this allows the user to suspend the system when not in use. (See Figure 2.1)

2.6-6 Speaker

Speaker from the system case are connected to this pin. (See Figure 2.1)

2.6-7 HDD LED

HDD LED shows the activity of a hard disk drive. Avoid tuning the power off while the HDD led is lit. You can connect the HDD LED from the system case to this pin. (See Figure 2.1).

2.7 Serial Port Connectors: COMA & COMB

The system board has two serial ports COMA and COMB. These two ports are 16550A high speed communication ports that send/receive 16 bytes FIFOs. You can attach a mouse or a modem cable directly into these connectors.
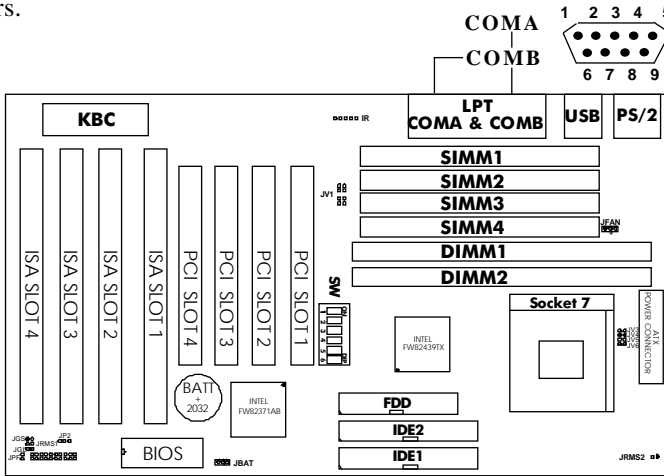
PIN   DEFINITION

Pin #	Definition
1	**DCD**(Data Carry Detect)
2	**SIN**(Serial In or Receive Data)
3	**SOUT**(Serial Out or Transmit Data)
4	**DTR**(Data Terminal Ready)
5	**GND**
6	**DSR**(Data Set Ready)
7	**RTS**(Request To Send)
8	**CTS**(Clear To Send)
9	**RI**(Ring Indicate)

CHAPTER 2 HARDWARE INSTALLATION

2.8 Parallel Port Connectors: LPT

The system board provides a connector for LPT. A parallel port is a standard printer port that also supports Enhanced Parallel Port(EPP) and Extended capabilities Parallel Port(ECP).
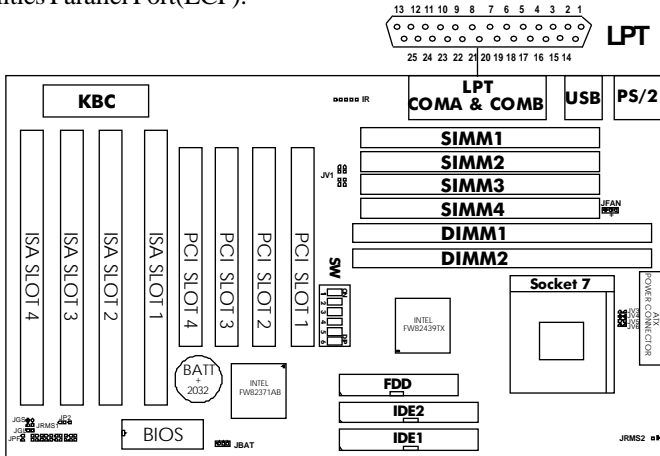
PIN DEFINITION

PIN #	DEFINITION	PIN #	DEFINITION
1	STROBE	14	AUTO FEED#
2	DATA0	15	ERR#
3	DATA1	16	INIT#
4	DATA2	17	SLIN#
5	DATA3	18	GND
6	DATA4	19	GND
7	DATA5	20	GND
8	DATA6	21	GND
9	DATA7	22	GND
10	ACK#	23	GND
11	BUSY	24	GND
12	PE	25	GND
13	SELECT		

2.9 Floppy Disk Connector: FDD

The system board also provides a standard floppy disk connector FDD that supports 360K, 720K, 1.2M, 1.44M and 2.88M floppy disk types. You can attach a floppy disk cable directly to this connector.
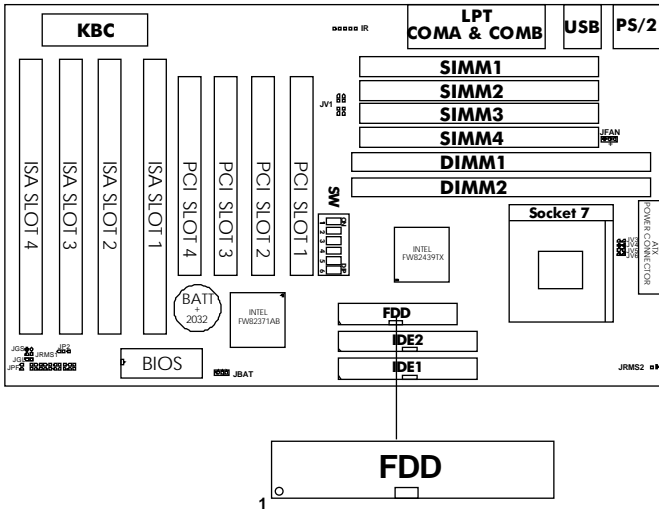
CHAPTER 2 HARDWARE INSTALLATION

2.10 Hard Disk Connector: IDE1 & IDE2

The system board has a 32-bit Enhanced PCI IDE Controller that provide PIO mode 4 Ultra DMA33 speed. It has two HDD connectors IDE1 (primary) and IDE2 (secondary). You can connect up to four hard disk drives, CD-ROM, 120MB Floopy (reserved for future BIOS) and other devices to IDE1 and IDE2.
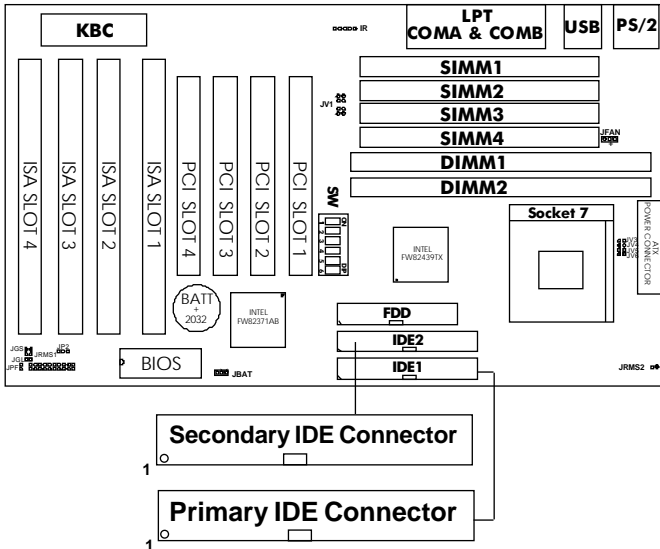
IDE1 (primary IDE connector)

The first hard disk should always be connected to IDE1. IDE1 can connect a Master and a Slave drive.

IDE2 (secondary IDE connector)

IDE2 can also connect a Master and a Slave drive.

CHAPTER 2   HARDWARE INSTALLATION

2.12 Power Supply

2.12-1   ATX 20-pin Power Connector: JWR12

This connector support the power button on board soft power off and modem ring wakeup. you neeed to use the **push button JRMS1 and JRMS2.**
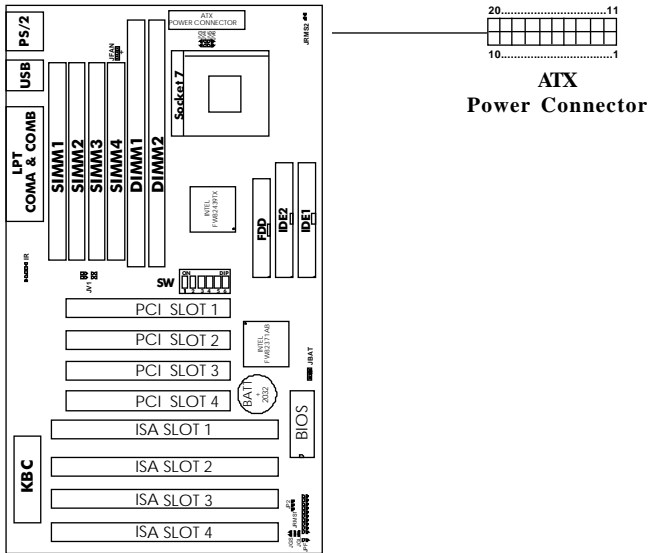
ATX Power Connector Pin Description

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

CHAPTER 2   HARDWARE INSTALLATION

2.12-2 Power On/Off Switch: JRMS1/JRMS2

Connect to a 2-pin push button switch. Every time the switch is shorted by pushing it once, the power supply will change its status from OFF to ON. **During ON stage push once and the system goes to sleep mode, push it more than 4 seconds will change its status from ON to OFF**. If you want to change the setup, you could go the BIOS setup and look for Power Management Setup.
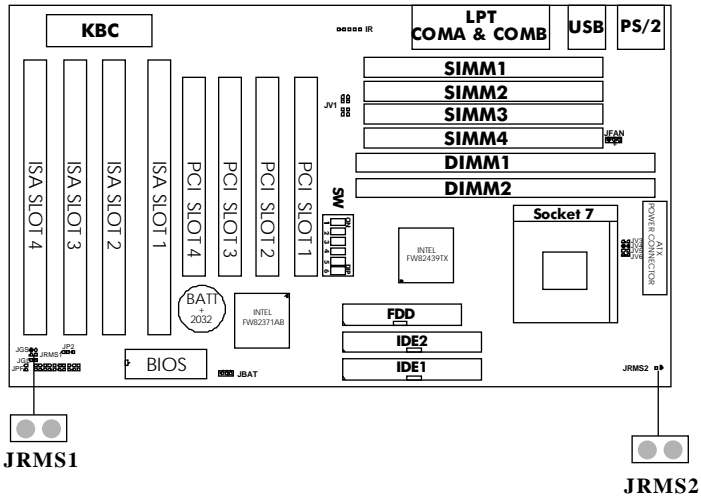
Note: The two switch provided by the board is just for your convenience, The two switch has the same feature.

2.13 Keyboard Connector: PSKBC
Mouse Connector: PSMSC

The system board provides a standard PS/2 style keyboard mini DIN connector for attaching a keyboard. You can plug a keyboard cable directly to this connector.

It also provides a standard PS/2 style mouse mini DIN connector for attaching a PS/2 style mouse. You can plug a PS/2 style mouse directly into this connector. The connector location and pin definition as shown below:
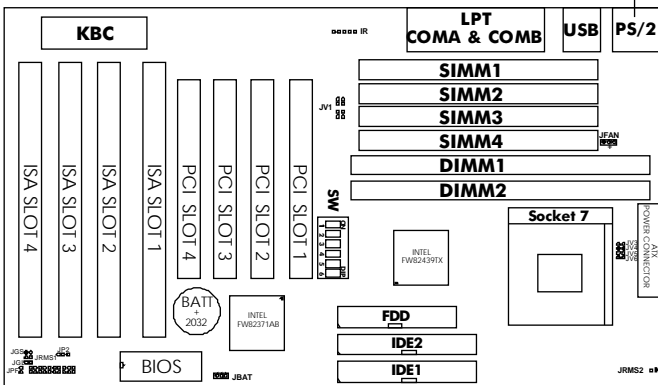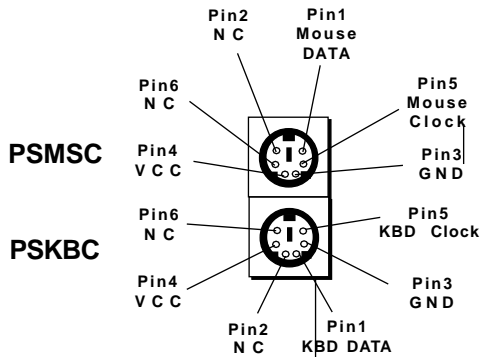
2.14 USB Connector: USB

The system board provide a **USB(Universal Serial Bus)** connector for attaching a keyboard, mose or etc. You can plug it directly to this connectro.
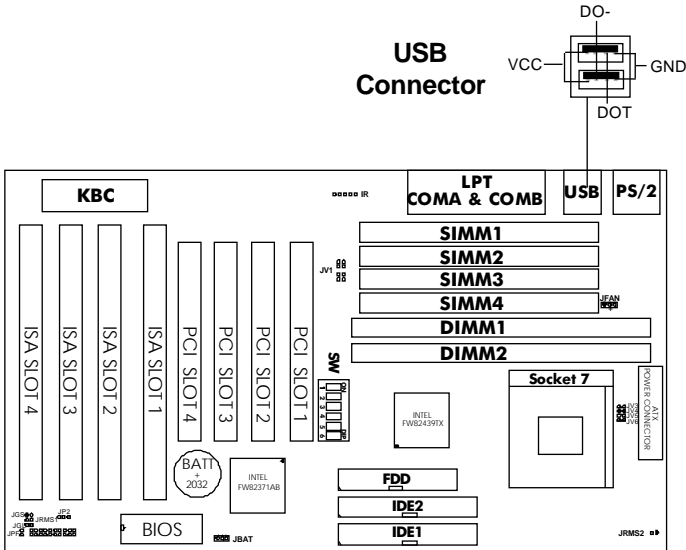
2.15 IrDA Infrared Module Connector: IR

The system board provides a 5-pin infrared connector(IR) for IR module. This connector is for optional wireless transmitting and receiving infrared module. You must configure the setting through BIOS setup.
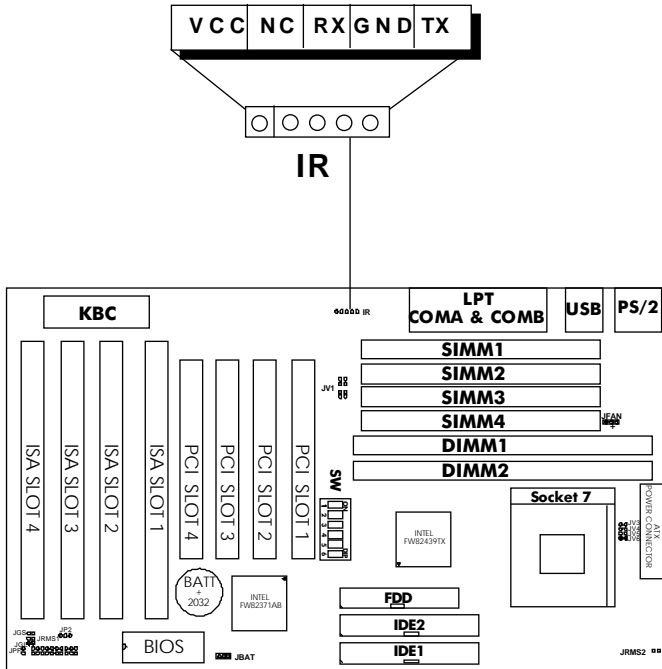
Chapter 3

AWARD BIOS SETUP

Award's BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This type of information is stored in battery -backed RAM (CMOS RAM), so that it retains the Setup information when the power is turned off.

CHAPTER 3   AWARD BIOS SETUP

3.1 Entering Setup

Power on the computer and press <Del> immediately will allow you to enter Setup. The other way to enter Setup is to power on the computer, when the below message appears briefly at the bottom of the screen during the POST (Power On Self Test), press <Del> key or simultaneously press <Ctrl>, <Alt>, and <Esc> keys.

TO ENTER SETUP BEFORE BOOT PRESS <CTRL-ALT-ESC> OR <DEL> KEY

If the message disappears before you respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the "RESET" button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will again be asked to,

PRESS <F1> TO CONTINUE, <CTRL-ALT-ESC> OR <DEL> TO ENTER SETUP

3.2 Getting Help

Main Menu

The on-line description of the highlighted setup function is displayed at the bottom of the screen.

Status Page Setup Menu/Option Page Setup Menu

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window press <F1> or <Esc>.

CHAPTER 3   AWARD BIOS SETUP

3.3 The Main Menu

Once you enter Award BIOS CMOS Setup Utility, the Main Menu (Figure 1) will appear on the screen. The Main Menu allows you to select from ten setup functions and two exit choices. Use arrow keys to select among the items and press <Enter> to accept or enter the sub-menu.

Figure 1 Main Menu

```
        ROM  PCI/ISA  BIOS  (2A59IM4A)
            CMOS  SETUP  UTILITY
          AWARD  SOFTWARE,  INC.
 ┌─────────────────────────────────────────────────────┐
 │                           │                          │
 │  STANDARD  CMOS  SETUP    │  INTEGRATED  PERIPHERALS │
 │                           │                          │
 │  BIOS  FEATURES  SETUP    │  SUPERVISOR  PASSWORD    │
 │                           │                          │
 │  CHIPSET  FEATURES  SETUP │  USER  PASSWORD          │
 │                           │                          │
 │  POWER  MANAGEMENT  SETUP │  IDE  HDD  AUTO  DETECTION│
 │                           │                          │
 │  PNP/PCI  CONFIGURATION   │  SAVE  &  EXIT  SETUP    │
 │                           │                          │
 │  LOAD  SETUP  DEFAULTS    │  EXIT  WITHOUT  SAVING   │
 │                           │                          │
 │                                                      │
 ├─────────────────────────────────────────────────────┤
 │  Esc : Quit           ↑↓→←   : Select Item           │
 │  F10 : Save & Exit Setup (Shift)F2 : Change Color    │
 ├─────────────────────────────────────────────────────┤
 │                                                      │
 │        Time, Date, Hard Disk Type...                 │
 │                                                      │
 │                                                      │
 └─────────────────────────────────────────────────────┘
```

CHAPTER 3   AWARD BIOS SETUP

Standard CMOS Setup

This setup page includes all the items in a standard compatible BIOS.

BIOS Features Setup

This setup page includes all the items of Award special enhanced features.

Chipset Features Setup

This setup page includes all the items of chipset special features.

Power Management Setup

This category determines the power consumption for system after setting the specified items. Default value is Disable.

PCI Configuration Setup

This category specifies the value (in units of PCI bus clocks) of the latency timer for this PCI bus master and the IRQ level for PCI device.

Supervisor Password/User Password

Change set or disable password. This function allows the user access to the system and setup or just setup.

Load Setup Defaults

Chipset defaults indicates the values required by the system for the maximum performance.

CHAPTER 3   AWARD BIOS SETUP

IDE HDD Auto Detection

Automatically configure hard disk parameters.

Save & Exit Setup

Save CMOS value changes to CMOS and exit setup.

Exit Without Save

Abandon all CMOS value changes and exit setup.

CHAPTER 3   AWARD BIOS SETUP

3.4 Standard CMOS Setup

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

Figure 2 Standard CMOS Setup Menu (Support Enhanced IDE)

```
                ROM  PCI/ISA  BIOS  (2A59IM4A)
                     STANDARD  CMOS  SETUP
                     AWARD  SOFTWARE,  INC.

  Date(mm:dd:yy): Fri, Feb 28,1997
  Time(hh:mm:ss): 00:00:00

    HARD DISKS      TYPE SIZE CYLS HEADS PRECOMP LANDZONE  SECTOR MODE
  Primary Master:   Auto  0    0    0      0        0        0   AUTO
  Primary Slave :   Auto  0    0    0      0        0        0   AUTO
  Secondary Master : Auto 0    0    0      0        0        0   AUTO
  Secondary Slave  : Auto 0    0    0      0        0        0   AUTO


  Drive A : 1.44M,3.5in.    Base Memory:            640K
  Drive B : None            Extended Base Memory:15360K
                            Other Memory:           384K
  Video   : EGA/VGA
  Halt On : All, but Keyboard Total Memory:        16384K


  ESC : Quit      ↑↓→←  : Select Item   PU/PD/+/- : Modify
  F1  : Help      (Shift)F2 : Change Color
```

CHAPTER 3   AWARD BIOS SETUP

Date

The date format is <day><month> <date> <year>.

Day	Day of the week, from Sun to Sat, determine. By BIOS, read only
month	The month Jan. through Dec.
date	The date from 1 to 31 can be keyed by numeric func- tion keys
year	The year, depends on the year of the BIOS

Time

The time format is <hour> <minute> <second>. Which accepts both function key or numerical key.

PrimaryMaster/PrimarySlave
SecondaryMaster/Secondary Slave

The categories identify the types of 2 channels that have been installed in the computer. There are 45 pre-defined types and 4 user defin-able types are for Enhanced IDE BIOS. Type 1 to Type 45 are pre-defined. Type User is user-definable.

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

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

CHAPTER 3   AWARD BIOS SETUP

If the controller of HDD interface is ESDI, the selection shall be
"Type 1".
If the controller of HDD interface is SCSI, the selection shall be
"None".
If the controller of HDD interface is CD-ROM, the selection shall be
"None".

CYLS.	number of cylinders
HEADS	number of heads
PRECOMP	write precom
LANDZONE	landing zone
SECTORS	number of sectors
MODE HDD	access mode

CHAPTER 3   AWARD BIOS SETUP

3.5 BIOS Features Setup

```
                ROM PCI/ISA BIOS (2A59IM4A)
                     BIOS FEATURES SETUP
                    AWARD SOFTWARE, INC.
┌────────────────────────────────────────────────────────────────────────┐
│ Virus Warning        : Disabled    Video BIOS Shadow      :Enabled       │
│ CPU Internal Cache   : Enabled     C8000-CBFFF Shadow     :Disabled      │
│ External Cache       : Enabled     CC000-CFFFF Shadow     :Disabled      │
│ Quick power on Self Test: Disabled D0000-D3FFF Shadow     :Disabled      │
│ Boot Sequence        : A,C,SCSI    D4000-D7FFF Shadow     :Disabled      │
│ Swap Floppy Drive    : Disabled    D8000-DBFFF Shadow     :Disabled      │
│ Boot up  Floppy Seek : Enabled     DC000-DFFFF Shadow     :Disabled      │
│ Boot up NumLock status : On                                             │
│ Boot up System Speed : High                                             │
│ Typematic Rate Setting : Disabled                                       │
│ Typematic Rate(char/sec):  6                                           │
│ Typematic Delay(Msec) : 250                                            │
│ Security Option      : Setup                                           │
│ PCI/VGA palette snoop : Disabled                                       │
│ OS select for DRAM>64MB:  Non-OS2                                      │
│                                                                         │
│                                    Esc : Quit   ↑↓→←: Select item       │
│                                    F1 : Help      PU/PD/+/- : modify     │
│                                    F5 : Old Value(Shift) F2 : Color      │
│                                    F6 : Load BIOS Defaults               │
│                                    F7 : Load Setup Defaults              │
└────────────────────────────────────────────────────────────────────────┘
```

Virus Warning

This category flashes on the screen.   During and after the system boots up, any attempt to write to the boot sector or partition table of the hard disk drive will halt the system and the following error message will appear, in the mean time, you can run an antivirus program to locate the problem.

> **!WARNING!**
> Disk boot Sector is to be modified
> Type "Y" to accept write or "N" to abort write
> Award Software, Inc.

Disabled (default)	No warning message to appear when anything attempts to access the boot sector or hard disk partition table.
Enabled	Activates automatically when the system boots up causing a warning message to appear when anything attempts to access the boot sector of hard disk partition table.

Note: *This function is available only for DOS and other OS that do not trap INT13.*

CPU Internal Cache

The default value is Enabled. If your CPU without Internal Cache then this item "CPU Internal Cache" will not be show.

Enabled (default)	Enable cache
Disabled	Disable cache

Note: The external cache is built-in the processor.

CPU External Cache

Choose Enabled or Disabled. This option enables the level 2 cache memory.

Quick Power On Self Test

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

Enabled	Enable quick POST
Disabled (default)	Normal POST

CHAPTER 3   AWARD BIOS SETUP

Boot Sequence

This category determines which drive the computer searches first for the disk operating system (i.e., DOS). The settings are A,C,SCSI/C,A,SCSI/C,CD-ROM,A/CD-ROM,C,A/D,A,SCSI/E,A,SCSI/F,A,SCSI/SCSI,A,C/SCSI,C,A/C only. Default value is A,C,SCSI.

Swap Floppy Drive

Switches the floppy disk drives between being designated as A and B. Default is Disabled.

Boot Up Floppy Seek

During POST, BIOS will determine if the floppy disk drive installed is 40 or 80 tracks. 360K type is 40 tracks while 720K, 1.2M and 1.44M are all 80 tracks.

Enabled(default)	BIOS searches for floppy disk drive to deter mine if it is 40 or 80 tracks. Note that BIOS can not tell from 720K, 1.2M or 1.44M drive type as they are all 80 tracks.
Disabled	BIOS will not search for the type of floppy disk drive by track number. Note that there will not be any warning message if the drive installed is 360K.

Boot Up NumLock Status

The default value is On.

On (default)	Keypad is number keys
Off	Keypad is arrow keys

CHAPTER 3   AWARD BIOS SETUP

Boot Up System Speed

It selects the default system speed - the speed that the system will run at immediately after power up.

High (default)   Set the speed to high
Low   Set the speed to low

Gate A20 Option

Normal   The A20 signal is controlled by keyboard
                            controller or chipset hardware.
Fast(default)   Default : Fast. The A20 signal is controlled by
                            Port 92 or chipset specific method.

Typematic Rate Setting

This determines the typematic rate.

Enabled   Enable typematic rate and typematic delay
                            programming
Disabled(default)   Disable typematic rate and typematic delay
                            programming. The system BIOS will use default
                            value of this 2 items and the default is control
                            led by keyboard.

Typematic Rate (Chars/Sec)

6 (default)   6 characters per second
8   8 characters per second
10   10 characters per second
12   12 characters per second
15   15 characters per second
20   20 characters per second
24   24 characters per second
30   30 characters per second

CHAPTER 3   AWARD BIOS SETUP

Typematic Delay

Choose the length of delay from the time you press a key and the character repeating.   (Units are mil-secs)

Security Option

This category allows you to limit access to the system and Setup, or just to Setup.

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

Setup(default)   The system will boot, but access to Setup will be denied if the correct password is not entered at the prompt.

Note: To disable security, select PASSWORD SETTING at Main Menu and then you will be asked to enter password. Do not type anything and just press <Enter>, it will disable security. Once the security is disabled, the system will boot and you can enter Setup freely.

PCI VGA Palette Snooping

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

However, the color information coming from the VGA controller is drawn from the palette table inside the VGA controller to generate the proper colors, and the graphic controller needs to know what is in the palette of the VGA controller. To do this, the non-VGA graphic controller watches for the Write access to the VGA palette and registers the snoop data. In PCI based systems, where the VGA controller is on the PCI bus and a non-VGA graphic controller is on an ISA bus, the Write Access to the palette will not show up on the ISA bus if the PCI VGA controller responds to the Writes.

In this case, the PCI VGA controller should not respond to the Write, it should only snoop the data and permit the access to be forwarded to the ISA bus. The non-VGA ISA graphic controller can then snoop the data on the ISA bus. Unless you have the above situation, you should disable this option.

Disabled (default)	Disables the function
Enabled	Enables the function

OS Selection for DRAM > 64MB

Allows OS2 to be used with > 64 MB of DRAM. Settings are Non-OS/2 (default) and OS2. Set to OS/2 if using more than 64MB and running OS/2.

Video BIOS Shadow

Determines whether video BIOS will be copied to RAM for faster execution. Video shadow will increase the video performance.

Enabled (default)	Video shadow is enabled
Disabled	Video shadow is disabled

C8000 - CFFFF Shadow/E8000 - EFFFF Shadow

Determines whether the optional RAM will be copied to RAM for faster execution.

Enabled	Optional shadow is enabled
Disabled (default)	Optional shadow is disabled

Note: For C8000-DFFFF option-ROM on PCI BIOS , BIOS will automati cally enable the shadow RAM. User does not have to select the item.

CHAPTER 3   AWARD BIOS SETUP

3.6 Chipset Features Setup

The Chipset Features Setup option is used to change the values of the chipset registers. These registers control most of the system options in the computer.

Choose the "CHIPSET FEATURES SETUP" from the Main Menu and the following screen will appear.

```
           ROM  PCI/ISA  BIOS(2A59IM4A)
              CMOS  SETUP  UTILITY
             CHIPSET  FEATURES  SETUP

 ┌─────────────────────────────────────────────────────────────────┐
 │ Auto Configuration      :Enabled                                  │
 │ DRAM Timing             :70ns                                     │
 │ DRAM Leadoff Timing     :10/6/4                                   │
 │ DRAM Read Burst (EDO/FP) :x333/x444                               │
 │ DRAM Write Burst Timing :x333                                     │
 │ Fast EDO Lead odd       :Disabled                                 │
 │ Refresh RAS# Assertion  :3                                        │
 │ Fast RAS to CAS Delay   :3                                        │
 │ DRAM Page IDLE Timer    :2                                        │
 │ DRAM Enhanced Paging    :Enabled                                  │
 │ Fast MA to RAS# Delay   :2 Clks                                   │
 │ SDRAM (CAS Lat/RAS-to-CAS):3/3                                    │
 │ SDRAM Speculative Read  :Disabled                                 │
 │ System BIOS Cacheable   :Disabled                                 │
 │ Video BIOS Cacheable    :Disabled ┌─────────────────────────────┐│
 │ 8 Bit I/O Recovery Time :1        │Esc : Quit   ↑↓→←: Select item││
 │ 16 Bit I/O Recovery Time :2       │F1 : Help     PU/PD/+/- : modify││
 │ Memory Hole at 15M-16M  :Disabled │F5 : Old Value(Shift) F2 : Color││
 │ PCI 2.1 compliance      :Disabled │F6 : Load BIOS Defaults       ││
 │                                   │F7 : Load Setup Defaults      ││
 └─────────────────────────────────────────────────────────────────┘
```

Note: Change these settings only if you are familiar with the chipset.

CHAPTER 3   AWARD BIOS SETUP

Auto Configuration

Choosing Enabled (default) will automatically configure chipset features using default settings. Choose Disable to customize setup.

DRAM Timing

Sets the DRAM speed at 70ns (default) or 60ns. It will set the speed of the EDO/FP DRAM.

DRAM Leadoff Timing

To be able to change the setting, Auto configuration must be disable. if the Bus Clock is 75MHz set it to 11/7/4, and if the Bus Clock is 66/60/55 MHz set it to 10/6/4. Default setting is 10/6/4.

DRAM Read Burst (EDO/FP)

Under Autoconfig the BIOS will identify which type of DRAM is being used. Choose the setting accordingly. To customize use this option which sets the Read Burst time for accessing the DRAM. The timing used depends on the type of DRAM and access time being used. The settings are x222/x333, x333/x444, or x444/x444.

Note: If the user chooses DRAM Read Burst (EDO/FP): x333/x444 it   signi-
fies that:
a. 60ns EDO with 75 MHz Bus Clock is set at x333, if the Bus Clock is
66/60/55 MHz then it is set at x222.
b. 60ns FP with 75 MHz is set at x444, if the Bus Clock is 66/60/55
then it is set at x333.
c. 70ns EDO and FP DRAM must increase the burst time. So you
must set x222 to x333 and x333 to x444.

CHAPTER 3   AWARD BIOS SETUP

DRAM Write Burst Timing

This option chooses the Write Burst Timing for accessing DRAM. See: DRAM Read Burst Option. Choose x222/x333/x444.

Fast EDO Lead Off

Under Autoconfig the BIOS will identify which type of DRAM is being used. Choose the setting accordingly. To customize use this option. Choose Enable or Disable. If the system is using EDO DRAM choose enable, but if the system is using both EDO and FP DRAM choose Disable.

Refresh RAS# Assertion

The settings are 4 Clks or 5 Clks. Using 60 ns DRAM at 75 Mhz Bus Clock must be set to 5 Clks, while 66/60/55 Mhz Bus Clock must be set to 4 Clks. But if you use 70 ns DRAM, it must be set to 5 Clks.

Fast RAS to CAS Delay

The settings are 2 or 3. 2 RAS to CAS delay is set to 2 clock, while 3 RAS to CAS delay is set to 3 clock. The clock is dependent with the DRAM Timing and Bus Clock.

DRAM Page IDLE Timer

The settings are 2 Clks, 4 Clks, 6Clks, or 8 Clks. Default settings is 2 Clks.

DRAM Enhanced Paging

Choose Enable(default) or Disable.

CHAPTER 3   AWARD BIOS SETUP

Fast MA to RAS# Delay

The settings are 1 Clks or 2 Clks(default). During 1T One bus Clock is allowed, while 2T Two Bus Clock is allowed. MA address setup time to RAS assertion. This is also dependent on DRAM Timing.

SDRAM (CAS Lat/RAS-to-CAS)

The settings are 3/3 or 2/2. This option is for SDRAM CAS latency Time and RAS# to CAS# delay time. The default setting is 3/3.

SDRAM Speculative Read

The settings are enable or disable. If you only use One Bank for SDRAM and there's no EDO or FP mix together, the setting is Enable. If there two bank use by SDRAM it will automatically be set to disable. The default setting is enable.

System BIOS Cacheable

By choosing Disabled (default) the system BIOS will be shadowed into DRAM only. Enabled will have the system BIOS shadowed and cacheable.

Video RAM Cacheable

Same as system BIOS Cacheable

> 8-bit I/O recovery time: 1/2/3/4/5/6/7/NA
> 16-bit I/O recovery time: 1/2/3/NA

Choose the recovery time for 8-bit and 16-bit I/O cycles   respectively.

Note: NA is not available and so the recovery time of 3.5 SYSCLK is inserted.

CHAPTER 3   AWARD BIOS SETUP

Memory Hole At 15M-16M

Choosing Enabled will enable a memory hole in the DRAM space. The CPU cycle matching the enabled hole will be passed on to the PCI. PCI cycles matching an enabled hole are ignored. Disabled (default) will disable this function.

Note: A selected (Enabled) hole is not remapped.

PCI 2.1 Compliance

The Settings are Enable or Disable. During Enable those PCI Soft with PCI 2.1 compliance will perform better, but some PCI card does not meet PCI 2.1 compliance. The default setting is Disabled.

CHAPTER 3   AWARD BIOS SETUP

3.7 Power Management Setup

The Power Management Setup will appear on your screen like this:

```
            ROM  PCI/ISA  BIOS  (2A59IM4A)
               POWER  MANAGEMENT  SETUP
                 AWARD  SOFTWARE,  INC.
 ┌───────────────────────────────────────────────────────────────┐
 │                                                                 │
 │ Power Management     : User Define** Reload Global Timer Events **│
 │ PM Control by APM    : Yes      IRQ [3-7,9-15],NMI  : Enabled   │
 │ Video Off Method     : DPMS     Primary IDE 0       : Enabled   │
 │ Video Off After      : Standby  Primary IDE 1       : Disabled  │
 │ Doze Mode            : Disabled Secondary IDE 0     : Disabled  │
 │ Standby Mode         : Disabled Secondary IDE 1     : Disabled  │
 │ Suspend Mode         : Disabled Floppy Disk         : Enabled   │
 │ HDD Power Down       : Disabled Serial Port         : Enabled   │
 │ Throttle Duty Cycle  : 62.5%    Parallel Port       : Enabled   │
 │ ZZ Active in Suspend : Disabled                                 │
 │ VGA Active Monitor   : Enabled                                  │
 │ Soft-Off by PWR-BTTN : Delay 4sec                               │
 │ CPUFAN Off In Suspend : Enabled                                 │
 │ Resume by Ring       : Disabled                                 │
 │ Resume by Alarm      : Disalbed                                 │
 │ Date(of Month) Alarm : 5                                        │
 │ Time(hh:mm:ss) Alarm : 11:00:00                                 │
 │                                 ───────────────────────────────│
 │                                 Esc : Quit    ↑↓→← : Select item│
 │ ** Break Event From Suspend **  F1 : Help    PU/PD/+/- : modify │
 │ IRQ 8  Clock Event    : Disabled F5 : Old Value(Shift) F2 : Color│
 │                                 F6 : Load BIOS Defaults         │
 │                                 F7 : Load Setup Defaults        │
 └───────────────────────────────────────────────────────────────┘
```

Power Management

This category determines the power consumption for system after selecting below items. Default value is Disable. The following pages tell you the options of each item & describe the meanings of each options.

CHAPTER 3   AWARD BIOS SETUP

Power Management

Disable	Global Power Management will be disabled.
User Define	Users can configure their own power management.
Min Saving	Pre-defined timer values are used such that all timers are in their MAX value.
Max Saving	Pre-defined timer values are used such that all timers MIN value.

PM Control by APM

No	System BIOS will ignore APM when power managing the system.
Yes	System BIOS will wait for APM's prompt before it enter any PM mode

Note : Enable this for OS with APM like Windows 95, Windows NT, etc.

Video Off Method

Blank Screen	The system BIOS will only blanks off the screen when disabling video.
V/H SYN C+Blank	In addition to (1), BIOS will also turn off the V-SYNC & H-SYNC signals from VGA card to monitor.
DPMS	This function is enabled only for VGA card supporting DPMS.

Note: Green monitors detect the V/H SYNC signals to turn off its electron gun.

CHAPTER 3   AWARD BIOS SETUP

Video Off After

The settings are N/A, Standby, Doze, or Suspend. This option is for choosing the setting in which the monitor will turn off.

N/A	Always turn on.
Doze	During Doze Mode the monitor will turn off.
Standby	During Standby mode the monitor will turn off.
Suspend	During Suspend mode the monitor will turn off.

The default setting is Standby.

Doze Mode

Disable	System will never enter DOZE mode.
1 Min/2 Min/	Defines the continuous idle time before the
4 Min/6 Min/	system entering DOZE mode.
8 Min/10 Min/	
20 Min/30 Min/	If any item defined in the options of "Power
40 Min/1 Hr	Down and Resume events" is enabled & active, DOZE timer will be reloaded. When the system have entered Doze mode, any of the items enabled in "Wake Up Events in Doze and Standby" will trigger the system to wake up.

Standby Mode

Disable	System will never enter STANDBY mode.
1 Min/2 Min/	Defines the continuous idle time before the
4 Min/6 Min/	system entering STANDBY mode.
8 Min/10 Min/	
20 Min/30 Min/	If any item defined in the options of "Power
40 Min/1 Hr	Down and Resume events" is enabled & active, STANDBY timer will be reloaded. When the system has entered Standby mode , any of the items that are enabled in "Wake Up Events of Doze and Standby" will trigger the system to wake up.

CHAPTER 3   AWARD BIOS SETUP

Suspend   Mode

Disable	System will never enter SUSPEND mode.
1 Min/2 Min/	Defines the continuous idle time before the
4 Min/6 Min/	system entering SUSPEND mode.
8 Min/10 Min/	
20 Min/30 Min/	If any item defined in the options of "Power
40 Min/1 Hr	Down & Resume Events" is enabled & active,
	SUSPEND timer will be reloaded. When the
	system has entered SUSPEND mode, any of the
	items enabled in the "Power Down & Resume
	Events" will trigger the system to wake up.

HDD Power Down

Disable	HDD's motor will not shut off.
1 Min/2 Min/	Defines the continuous HDD idle time before
3 Min/4 Min/	the HDD enters the power saving mode (motor
5 Min/6 Min/	off). BIOS will turn off the HDD's motor when
7 Min/8 Min/	time is out.
9 Min/10 Min/	
11 Min/12 Min/	
13 Min/14 Min/	
15 Min	

Throttle Duty Cycle

This option will determine how much power will be use by the CPU , if the system goes into suspend mode.

ZZ Active in Suspend

During Enabled, if the system goes into suspend mode the PB SRAM power will be turn off, and during Disabled the PB SRAM will not be turn off. The settings are Enabled or Disabled.

CHAPTER 3   AWARD BIOS SETUP

VGA Active Monitor

During Enabled, if there's no activities with the monitor screen the system will go into Power Saving Mode. And during Disabled, the system will go into Power Saving Mode, whether the monitor screen had activities or not. The settings are Disabled and Enabled.

Soft-Off by PWR-BTTN

The settings are Delay 4 sec or Instant-off. During Delay 4 sec. If you push the switch one time the system goes into suspend mode and if you push it more than 4 second the system turn off. And during instant-off, the system will turn off once you push the switch.

CPUFAN Off In Suspend

During Enabled, if the system goes into suspend the CPU fan stop. And during Disabled if the system goes into suspend mode the CPU fan will not stop.

Resume by Ring

This function is ring wake up system, from system OFF to ON. During Disabled the system will not turn on form modem ring wake up . And during Enabled the system will boot up if there's an incoming call in the modem.

Note: If you have change the setting, you must let the system boot up until it goes to the operating system, before this function will work.

CHAPTER 3   AWARD BIOS SETUP

Resume by Alarm

This function is for setting date and time for your computer to boot up. During Disabled you can not use this function. And during Enabled choose the Date and Time Alarm:

Date(of month) Alarm	You can choose which month the system will boot up.
Time(hh:mm:ss) Alarm	You can choose what hour, minute and second the system will boot up.

Note: If you have change the setting, you must let the system boot up until it goes to the operating system, before this function will work.

IRQ 8 Clock Event

IRQ[3-7,9-15], NMI	**: Enabled**
Primary IDE 0	**: Enabled**
Primary IDE 1	**: Disabled**
Secondary IDE 0	**: Disabled**
Secondary IDE 1	**: Disabled**
Floopy Disk	**: Enabled**
Serial Port	**: Enabled**
Parallel Port	**: Enabled**

During Enabled, if any interrupt event happened the system will turn on form the suspend mode. And during Disabled, the system will not monitor any interrupt event.

CHAPTER 3   AWARD BIOS SETUP

3.8 PNP/PCI Configuration Setup

You can manually configure the PCI Device's IRQ. The following pages tell you the options of each item & describe the meanings of each options.

```
            ROM  PCI/ISA  BIOS  (2A69HM4D)
            PNP/PCI  CONFIGURATION  SETUP
               AWARD  SOFTWARE,  INC.

┌─────────────────────────────────────────────────────────────────┐
│ PnP OS Installed       :No      │ PCI IDE IRQ Map To   : PCI-Auto │
│ Resources Controlled By :Auto   │  Primary IDE INT#    : A        │
│ Reset Configuration Data :Disabled│ Secondary IDE INT#  : B        │
│                                 │                                 │
│ IRQ-3 assigned to      :Legacy ISA │ Assign IRQ for VGA  : Disabled │
│ IRQ-4 assigned to      :Legacy ISA │                               │
│ IRQ-5 assigned to      :PCI/ISA PnP │ Used MEM base addr  : C800    │
│ IRQ-7 assigned to      :PCI/ISA PnP │ Used MEM Length     : 8K      │
│ IRQ-9 assigned to      :PCI/ISA PnP │                               │
│ IRQ-10assigned to      :PCI/ISA PnP │                               │
│ IRQ-11assigned to      :PCI/ISA PnP │                               │
│ IRQ-12assigned to      :PCI/ISA PnP │                               │
│ IRQ-14assigned to      :PCI/ISA PnP │                               │
│ IRQ-15assigned to      :PCI/ISA PnP │                               │
│ DMA-0assigned to       :PCI/ISA PnP │                               │
│ DMA-1assigned to       :PCI/ISA PnP │ Esc : Quit    ↑↓→←: Select item│
│ DMA-3assigned to       :PCI/ISA PnP │ F1 : Help     PU/PD/+/- : modify│
│ DMA-5assigned to       :PCI/ISA PnP │ F5 : Old Value(Shift) F2 : Color│
│ DMA-6assigned to       :PCI/ISA PnP │ F6 : Load BIOS Defaults        │
│ DMA-7assigned to       :PCI/ISA PnP │ F7 : Load Setup Defaults       │
└─────────────────────────────────────────────────────────────────┘
```

PnP OS Installed

When set to YES, BIOS will only initialize the PnP cards used for booting (VGA, IDE, SCSI). The rest of the cards will be initialized by the PnP operating system like Windows 95. When set to NO, BIOS will initialize all the PnP cards. So, for non-PnP operating system (DOS, Netware), this option must set to NO.

CHAPTER 3   AWARD BIOS SETUP

Resources Controlled By

By Choosing "Auto" the system BIOS will detect the system re-
source and automatically assign the relative IRQ and DMA Channel for each
peripheral.

By Choosing "Manual"(default), the user will need to assign IRQ &
DMA for add-on cards. Be sure that there is no conflict IRQ/DMA and I/O
ports.

Note: when choosing "Auto" you must be sure that all of the system add-
on cards are PnP type.

Reset Configuration Data

The system BIOS supports the PnP feature so the system needs to
record which resource is assigned and protect resources from conflict.
Every peripheral device has a node which is called ESCD. This node records
which resources are assigned to it. The system needs to record and update
ESCD to the memory locations. These locations (4K) are reserved at the
system BIOS.

If Disabled (default) is chosen the system's ESCD will update only
when the new configuration varies from the last one.

If Enabled is chosen the system will be forced to update ESCDs if the
system configuration has changed and then auto set this option to the
"Disabled" mode.

```
IRQ-3   assigned to : Legacy  ISA
IRQ-4   assigned to : Legacy  ISA
IRQ-5   assigned to : PCI/ISA  PnP
IRQ-7   assigned to : Legacy  ISA
IRQ-9   assigned to : PCI/ISA  PnP
IRQ-10 assigned to : PCI/ISA  PnP
IRQ-11 assigned to : PCI/ISA  PnP
IRQ-12 assigned to : PCI/ISA  PnP
IRQ-14 assigned to : PCI/ISA  PnP
```

CHAPTER 3   AWARD BIOS SETUP

IRQ-15 assigned to : PCI/ISA PnP
DMA-0 assigned to : PCI/ISA PnP
DMA-1 assigned to : PCI/ISA PnP
DMA-3 assigned to : PCI/ISA PnP
DMA-5 assigned to : PCI/ISA PnP
DMA-6 assigned to : PCI/ISA PnP
DMA-7 assigned to : PCI/ISA PnP

The above settings will be shown on the screen only if "Manual" is chosen for the *Resources Controlled By* function.

Legacy is the term which signifies that a resource is assigned to the ISA Bus and provides for non PnP ISA add-on card. PCI/ISA PnP signifies that a resource is assigned to the PCI Bus or provides for ISA PnP add-on cards and peripherals.

PCI IDE IRQ Map To

PCI-Auto: This setting is for off-board PCI IDE card and is fully compatible with PCI specifications.

PCI-Slot 1-4:   This setting is used if off-board PCI IDE card is not fully compatible with PCI specifications. You must specify which PCI slot the PCI IDE Card is installed in.

ISA: This setting is used if the off-board PCI IDE card uses an edge trigger and IRQ routes directly to the ISA Bus.

Note: The user will need to disable the on-board on-chipset PCI IDE controller when installing off-board PCI IDE add-on cards. (See the INTEGRATED PERIPHERALS SETUP) These two options choose the primary and secondary IDE Channel interrupts when the user installs off-board PCI IDE add-on cards.

CHAPTER 3   AWARD BIOS SETUP

Assign IRQ for VGA

Lets the user choose which IRQ to assign for VGA use.

Used MEM base addr

Lets the user choose the Legacy ISA addr. The settings are NA#, C800, CC00, D000, D400, D800 OR DC00.

Used MEM Length

Choose 8K, 16K, 32K, or 64K.

CHAPTER 3   AWARD BIOS SETUP

3.9 Load BIOS/Setup Defaults

This Main Menu item loads the default system values. If the CMOS is corrupted the defaults are loaded automatically. Choose this item and the following message appears:

" Load Setup Defaults (Y / N) ? N "

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

Note: The Setup defaults can be customized to increase performance. However the BIOS defaults can always be used as a back up if there is some problem with the system board operation.

CHAPTER 3   AWARD BIOS SETUP

3.10 Integrated Peripherals

```
            ROM  PCI/ISA  BIOS  (2A69HM4D)
               INTEGRATED  PERIPHERALS
               AWARD  SOFTWARE,  INC.
```

```
┌─────────────────────────────────┬──────────────────────────────────┐
│ IDE HDD Block Mode     : Enabled │ Onboard Parallel Mode    :ECP/EPP │
│ IDE Primary Master PIO  : Auto   │ ECP Mode Use DMA         :3       │
│ IDE Primary Slave PIO   : Auto   │ Parallel Port EPP Type   :EPP1    │
│ IDE Secondary Master PIO : Auto  │                                   │
│ IDE Secondary Slave PIO  : Auto  │                                   │
│ 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 Primary PCI IDE : Enabled│                                   │
│ USB Keyboard Controller :Disabled│                                   │
│                                  │                                   │
│ Onboard FDD controller  : Enabled│                                   │
│ Onboard Serial Port 1   : 3F8/IRQ4│ Esc : Quit    ↑↓→← : Select item │
│ Onboard Serial Port 2   : 2F8/IRQ3│ F1 : Help      PU/PD/+/- : modify │
│ UART  2  Mode           : ASKIR  │ F5 : Old Value(Shift) F2 : Color  │
│ IR Function Duplex      : Half   │ F6 : Load BIOS Defaults            │
│ RxD , TxD Active        : Hi , Hi│ F7 : Load Setup Defaults           │
│ Onboard Parallel Port   : 378H/IRQ7│                                 │
└─────────────────────────────────┴──────────────────────────────────┘
```

IDE HDD Block Mode

Enabled/Disabled   Enabled allows the Block mode access for the IDE HDD.

IDE Primary Master PIO

Auto/Mode0/Mode1-4

IDE Primary Slave PIO

Auto/Mode0/Mode1-4

3-31

CHAPTER 3   AWARD BIOS SETUP

IDE Secondary Master PIO

    Auto/Mode0/Mode1-4

IDE Secondary Slave PIO

    Auto/Mode0/Mode1-4

    For these 4 IDE option choose "Auto" to have the system BIOS auto detect the IDE HDD operation mode for PIO access.

Note: Some IDE HDD can not operate at the responding HDD's mode. When the user has selected "Auto" and the system BIOS has accepted the HDD response mode the user may degrade the HDD's operation mode. Ex: IF the HDD reported it can operate in mode 4 but it is not operating properly the user will have to manually change the operation mode to mode 3.

    Choosing Mode 1-4 will have the system ignore the HDD's reported operation mode and use the selected mode instead.

Note: According to ATA specs. Mode 4 transfer rate is > Mode 3 > Mode 2 > Mode 1 > Mode 0. If the user's HDD can operate at Mode 3 the user can also select a slower Mode (i.e. Mode 0-2) but not a faster Mode (ie Mode 4).

On-Chip Primary PCI IDE

    Enabled/Disabled

CHAPTER 3   AWARD BIOS SETUP

On-Chip Secondary PCI IDE

    Enabled/Disabled   The system provides for a On-Board On-Chipset PCI IDE controller that supports Dual Channel IDE (Primary and Secondary). A maximum of 4 IDE devices can be supported. If the user install the Off-Board PCI IDE controller (i.e. add-on cards), the user must choose which channels will be disabled. This will depend on which channel will be used for the Off-Board PCI IDE add-on card.

PCI Slot IDE 2nd Channel

    Enabled/Disabled   Choosing Enabled will allow the system to access the 2nd IDE channel without a device driver. If the Off-Board PCI IDE add-on card is installed the 2nd IDE channel will need to be used.

Onboard FDD Controller

    Enabled/Disabled   The system has an on-board Super I/O chip with a FDD controller that supports 2 FDDs for 360K/720K/1.2M/1.44M/2.8M.Choose "Enabled" to use the on-board FDD controller for accessing the FDD. Otherwise choose "Disabled" to use the off-board FDD controller.

Onboard Serial Port 1

    Disabled/(3F8/IRQ4)/(2F8/IRQ3)/ (3E8/IRQ4)/(2E8/IRQ3)

CHAPTER 3   AWARD BIOS SETUP

Onboard Serial Port 2

Disabled/(3F8/IRQ4)/(2F8/IRQ3)/(3E8/IRQ4)/(2E8/IRQ3)

The system has an On-board Super I/O chipset with 2 serial ports. The On-board serial ports can be selected as:

Disabled	
3F8/IRQ4	COMM1 uses IRQ4
2F8/IRQ3	COMM2 uses IRQ3
3E8/IRQ4	COMM3 uses IRQ4
2E8/IRQ3	COMM4 uses IRQ4

Note: Because the ISA Bus Interrupt accepts low to high edge trigger, the interrupt request line can not be shared by multiple sources. If an off-board ISA add-on card with a serial port is installed the user may have to disable the on-board serial port because it will conflict with IRQ request line for the off-board serial port.

UART 2 MODE

Standard/ASKIR/ HPSIR(i.e. IRDA) The system's built-in IR (Infra Red) is on the on-board Super I/O chipset and is shares serial port 2 with UART 2. Only one option can be selected for serial port 2, either the IR or UART. Selecting the IR mode will prompt the following message:

IR Function Duplex

Half/Full Users can choose between operating the IR in Half duplex or Full duplex mode. Half duplex designates one IR as a receiver and one as a transmitter simultaneously. Full duplex mode designates that the two IRs receive and transmit data together simultaneously.

RxD , TxD Active

Hi-Hi/Hi-Lo/ **Lo-Hi/Lo-Lo**	The user can choose between the preceding RxD (Receive Data), TxD (Transmit Data) activity levels.

Onboard Parallel Port

Disabled/ **(3BCH/IRQ7)/** **(278H/IRQ5)/** **(378H/IRQ5)**	There is a built-in parallel port on the on-board Super I/O chipset that provides Standard, ECP, and EPP features. It has the following options:

Disable
3BCH/IRQ7   Line Printer port 0
278H/IRQ5   Line Printer port 2
378H/IRQ5   Line Printer port 1

Onboard Parallel Mode

SPP : Standard Parallel Port
EPP : Enhanced Parallel Port
ECP : Extended Capability Port

SPP/(EPP/SPP)/ **ECP(ECP/EPP)**	To operate the onboard parallel port as Standard Parallel Port only choose "SPP." To operate the onboard parallel port in the ECP and SPP modes simultaneously choose "ECP/SPP." By choosing "ECP" the onboard parallel port will operate in ECP mode only. Choosing "ECP/EPP" will allow the onboard parallel port to support both the ECP and EPP modes simultaneously. The ECP mode has to use the DMA channel so choose the onboard parallel port with the ECP feature. After selecting it the following message

will appear: "ECP Mode Use DMA" At this time the user can choose between DMA channels 3 or 1. The onboard parallel port is EPP Spec. compliant so after the user chooses the onboard parallel port with the EPP function and the following message will be displayed on the screen: "Parallel Port EPP Type." At this time either EPP 1.7 spec. or EPP 1.9 spec. can be chosen.

USB Controller

Enabled/Disabled   Choosing Enabled, will enable on board USB port.

CHAPTER 3   AWARD BIOS SETUP

3.11 Supervisor/User Password Setting

This Main Menu item lets you configure the system so that a password is required each time the system boots or an attempt is made to enter the Setup program. Supervisor Password allows you to change all CMOS settings but the User Password setting doesn't have this function. The way to set up the passwords for both Supervisor and User are as follow:

1. Choose "Change Password" in the Main Menu and press <Enter>. The following message appears:

"Enter Password:"

2. The first time you run this option, enter your password up to only 8 characters and press <Enter>. The screen does not display the entered characters. For no password just press <Enter>.

3. After you enter the password, the following message appears prompting you to confirm the password:

"Confirm Password:"

4. Enter exact the same password you just typed again to confirm the password and press <Enter>.

5. Move the cursor to Save & Exit Setup to save the password.

6. If you need to delete the password you entered before, choose the Supervisor Password and press <Enter>. It will delete the password that you had before.

7. Move the cursor to Save & Exit Setup to save the option you did, otherwise the old password will still be there when you turn on your machine next time.

CHAPTER 3   AWARD BIOS SETUP

3.12 IDE HDD Auto Detection

You can use this utility to automatically detect the characteristics of most hard drives.

When you enter this utility, the screen asks you to select a specific hard disk for Primary Master. If you accept a hard disk detected by the BIOS, you can enter "Y" to confirm and then press <Enter> to check next hard disk. This function allows you to check four hard disks and you may press the <Esc> after the <Enter> to skip this function and go back to the Main Menu.

```
                    ROM  ISA  BIOS
                 CMOS  SETUP  UTILITY
                 AWARD  SOFTWARE,  INC.

  HARD DISKS      TYPE SIZE  CYLS HEADS  PRECOMP  LANDZONE   SECTOR MODE
 Primary  Master:  Auto  0    0    0       0         0         0   AUTO
 Primary  Slave :  Auto  0    0    0       0         0         0   AUTO
 Secondary  Master : Auto 0   0    0       0         0         0   AUTO
 Secondary  Slave  : Auto 0   0    0       0         0         0   AUTO


           Select Primary Master    Option (N=Skip) : N

      OPTIONS   SIZE     CYLS   HEAD    PRECOMP  LANDZ SECTOR MODE

         2      2112     1023    64        0      4094   63    LBA
         1      2113     4095    16      65535    4094   63    NORMAL
         3      2113     2047    32      65535    4094   63    LARGE



                          [ESC: Skip]
```