Chapter 1

INTRODUCTION

The Baby AL7 mainboard is a high-performance personal computer mainboard. This mainboard supports Intel®Pentium®processor and Pentium®processor with MMX™ technology, Cyrix®6x86/6x86L/6x86MX processors, and AMD®K5/K6 processors. The mainboard also supports five 32-bit PCI (Peripheral Component Interconnect) Local Bus standard slots.

The mainboard uses the highly integrated Aladdin®4+ chipset to support the PCI/ISA and Green standards, and to provide the Host/PCI bridge. The Aladdin®4+ chipset integrates all system control functions such as ACPI (Advanced Configuration and Power Interface). The ACPI provides more Energy Saving Features for the OSPM(OS Direct Power Management) function. The Aladdin®4+ chipset also improves the IDE transfer rate by supporting Ultra DMA/33 IDE that transfer data at the rate of 33MB/s.

The mainboard also supports the LM78 Hardware Monitor Controller which is an optional function. The LM78 function includes: CPU/chassis/power fan control, and system voltage detect.

1.1 Mainboard Features

CPU
- Socket 7 supports Intel® Pentium® processor /Pentium® processor with MMX™ technology .
- The Cyrix® 6x86/6x86L/6x86MX and AMD® K5/K6 processors are also supported.

Chipset
- Aladdin® 4+ M1531/M1543.

Cache Memory
- Supports 512K pipelined burst cache memory.

Main Memory
- Supports six memory banks of SDRAM or eight memory banks of FP/EDO using four 72-pin SIMM sockets and two 168-pin DIMM sockets (for unbuffered DIMM).
- Up to 1GB main memory.
- Supports EDO Hyper Page Mode DRAM, Standard Fast Page mode DRAM and SDRAM(Synchronous DRAM).

Slots
- Five 32-bit PCI Bus slots + three 16-bit ISA bus slots wherein one shared slot can be used as ISA or PCI.

On-Board IDE
- Supports Bus Master and Ultra DMA/33 IDE.
- Supports up to 4 IDE drives.

Remote Control
- Meets ACPI specifications (reserved for future BIOS)
- Power ON/OFF switch connector on board
- Soft Power-Off
- Modem Ring Wake-Up
- Alarm Wake-Up (reserved for future BIOS)

On-Board Peripherals
- On-Board Peripherals include:
  - 1 floppy port supports 2 FDD
  - 2 serial ports (COMA + COMB)
  - 1 parallel port supports ECP or EPP mode
  - USB Ports

Dimensions
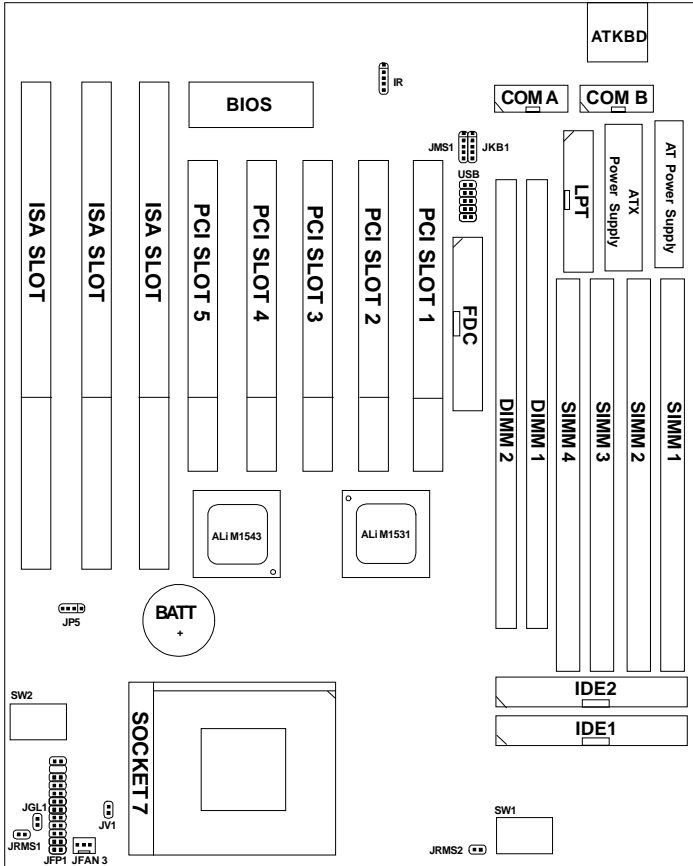- Baby AT form factor
- 25cm(L) x 22cm(W) x 4 layer PCB

Mounting
- 6 mounting holes

LM78 System Hardware Monitor (optional)
- CPU Rotation Speed Control
- CPU Fan Control (the fan will automatically stop when the system enters suspend mode)
- Chassis and Power Fan Control (reserved)
- System Voltage Detect
- Display Actual Current Voltage

1.2 Mainboard Layout

ATKBD

IR

BIOS

COM A   COM B

JMS1   JKB1

USB

ISA SLOT

ISA SLOT

ISA SLOT

PCI SLOT 5

PCI SLOT 4

PCI SLOT 3

PCI SLOT 2

PCI SLOT 1

FDC

LPT

ATX Power Supply

AT Power Supply

DIMM 2

DIMM 1

SIMM 4

SIMM 3

SIMM 2

SIMM 1

ALi M1543

ALi M1531

JP5

BATT
+

SW2

SOCKET 7

IDE2

IDE1

JGL1

JV1

JRMS1

JFP1   JFAN 3

SW1

JRMS2

MS-5164

Chapter 2

HARDWARE INSTALLATION

2.1 Central Processing Unit: CPU

The **Baby AL7** mainboard operates with **Intel® Pentium® Processor/ Pentium® Processor with MMX™ technology**, **Cyrix® 6x86/6x86L/ 6x86MX** and **AMD® K5/K6** processors**.** It could operate with 2.1V to 3.5V processors. The mainboard provides a 321-pin ZIF Socket 7 for easy CPU installation, a switch (SW1) to set the proper speed for the CPU and a switch (SW2) for setting the CPU voltage. The CPU should always have a cooling fan attached to prevent overheating.

2.1-1 CPU Installation Procedures

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

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.

3. Press the lever down to complete the installation.
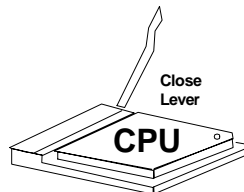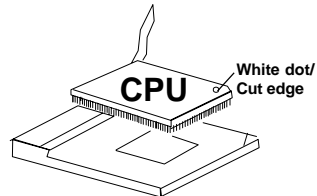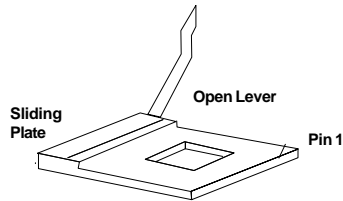
2.1-2 CPU Core Speed Derivation Procedure

1. The Switch SW1 (4 & 5) is used to adjust the CPU clock frequency.

SW1		CPU
4	**5**	**Clock**
ON	ON	60MHz
OFF	ON	66MHz
ON	OFF	75MHz
OFF	OFF	83.3MHz

2. The 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	ON	OFF	3
ON	ON	OFF	2.5
ON	OFF	OFF	2
OFF	OFF	OFF	1.5/3.5

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

2.1-3 CPU Voltage Setting: SW2

SW2

V I/O	Vcore	SW2
3.5	3.5	OFF ON ON ON ON
3.3	3.3	OFF ON ON OFF ON
3.3	3.2	OFF ON ON OFF OFF
3.3	2.9	OFF ON OFF OFF ON

ON-Short   OFF-Open

V I/O	Vcore	SW2
3.3	**2.8**	OFF ON OFF OFF OFF
3.3	**2.5**	OFF OFF ON OFF ON
3.3	**2.1**	OFF OFF OFF OFF ON

ON-Short   OFF-Open

a. CPU Single or Dual Voltage Setting: JV1

This jumper is used to set the CPU single or dual voltage.

JV1	CPU
	Dual Voltage CPU
	Single Voltage CPU

Note: If you're using a single voltage CPU, leave JV1 open. If you're using a dual voltage CPU, short the JV1.

JV1
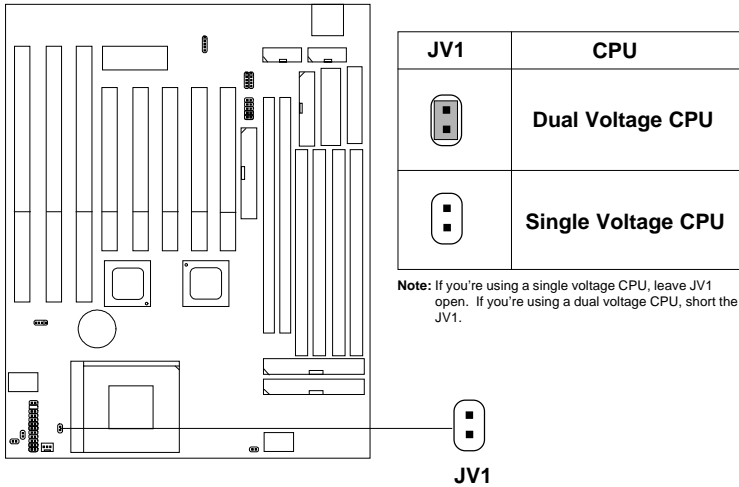
2.1-4 CPU Speed and Voltage Setting: SW1 & SW2

To set the proper speed and voltage of the CPU, you must know the specifi-
cations of your CPU (*always ask the vendor for CPU specifications*).
Then refer to **Table 2.1 (Intel® Pentium® Processor/Pentium® Processor
with MMX™ technology)**, **Table 2.2 (Cyrix® 6x86/6x86L/6x86MX
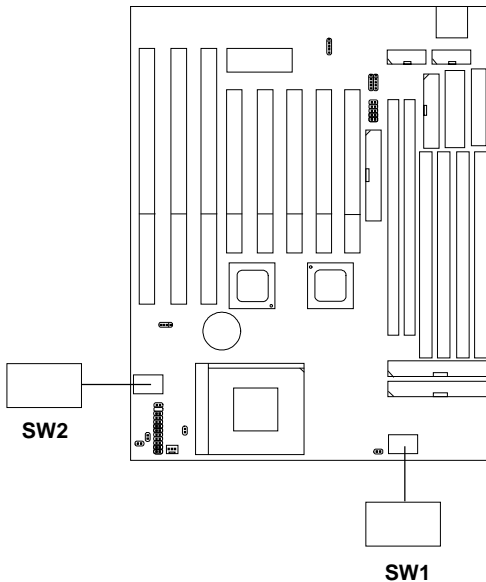processor)** and **Table 2.3 (AMD® K5/K6 processor)** for proper setting.

SW2

SW1

Table 2.1 Intel® Processor

a. Intel® Pentium® Processor

CPU Type	CPU Voltage				CPU Speed
	VI/O	Vcore	JV1	SW2	SW1
90 MHz	3.38			OFF ON ON OFF ON	OFF OFF OFF ON ON
	3.52			OFF ON ON ON ON	
100 MHz	3.38			OFF ON ON OFF ON	OFF OFF OFF OFF ON
120 MHz	3.38				ON OFF OFF ON ON
133 MHz	3.52				ON OFF OFF OFF ON
150 MHz	3.52			OFF ON ON ON ON	ON ON OFF ON ON
166 MHz	3.52				ON ON OFF OFF ON
200 MHz	3.52				OFF ON OFF OFF ON

b. Intel® Pentium® Processor with MMX™ Technology

CPU Type	VI/O	Vcore	JV1	SW2	SW1
166 MHz					ON ON OFF OFF ON
200 MHz	3.3	2.8		OFF ON OFF OFF OFF	OFF ON OFF OFF ON
233 MHz					OFF OFF OFF OFF ON

Note: If you encounter a CPU with different voltage, just go to **Section 2.1-3** and look for the proper voltage settings.

Table 2.2 Cyrix® Processor

Cyrix® 6x86 processor uses PR to rate the speed of their processors based on Intel® Pentium® processor core speed. For example, PR150 (120MHz) has 150MHz core speed of Intel®Pentium® processor, but it has120MHz core speed in Cyrix®processor. Cyrix® 6x86 processor should always uses a more powerful fan (ask vendor for proper cooling fan).

a. Cyrix® 6x86/6x86L processor

CPU Type	CPU Voltage				CPU Speed
	VI/O	Vcore	JV1	SW2	SW1
6x86 PR150	3.5		(jumper)	OFF ON ON ON ON	ON OFF OFF ON ON
6x86 PR166					ON ON OFF ON ON
6x86L PR166	3.3	2.8	(jumper)	OFF ON OFF OFF OFF	
6x86 PR200	3.5		(jumper)	OFF ON ON ON ON	ON OFF OFF ON OFF
6x86L PR200	3.3	2.8	(jumper)	OFF ON OFF OFF OFF	

b. Cyrix® 6x86MX Processor

CPU Type	CPU Voltage				CPU Speed
	VI/O	Vcore	JV1	SW2	SW1
PR166 (60 x 2.5)	3.3	2.9	▪▪	OFF ON OFF OFF ON	ON ON OFF ON ON
PR200 (66 x 2.5)					ON ON OFF OFF ON
PR233 (75 x 2.5)					ON ON OFF ON OFF
(66 x 3)					OFF ON OFF OFF ON
PR266 (75 x3)					OFF ON OFF ON OFF
(66 x 3.5)					OFF OFF OFF OFF ON

Note: If you encounter a CPU with different voltage, just go to **Section 2.1-3** and look for the proper voltage settings.

Table 2.3 AMD® Processor

AMD® K5/K6 processor uses PR to rate the speed of their processors based on Intel® Pentium® processor core speed . For example, PR133(100MHz) has 133MHz core speed of Intel® Pentium® processor but has 100MHz core speed in AMD® processor.

a. AMD® K5 Processor

CPU Type	CPU Voltage				CPU Speed
	VI/O	Vcore	JV1	SW2	SW1
PR90	3.52			OFF ON ON ON ON	OFF OFF OFF ON ON
PR100					OFF OFF OFF OFF ON
PR120					ON OFF OFF ON ON
PR133					ON OFF OFF OFF ON
PR150					ON ON OFF ON ON
PR166					ON ON OFF OFF ON

b. AMD® K6 Processor

PR166	3.3	2.9		OFF ON OFF OFF ON	ON ON OFF OFF ON
PR200					OFF ON OFF OFF ON
PR233	3.3	3.2		OFF ON ON OFF OFF	OFF OFF OFF OFF ON

Note: If you encounter a CPU with different voltage, just go to **Section 2.1-3** and look for the proper voltage settings.

2.1-5 CPU Fan Power Connector: JFAN3

This connector supports system cooling fan with +12V. It supports 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, the black wire is Ground and should be connected to GND. If your mainboard has LM78 chipset on-board, you can use a specially designed fan w/ speed sensor to take advantage of LM78's CPU fan control.
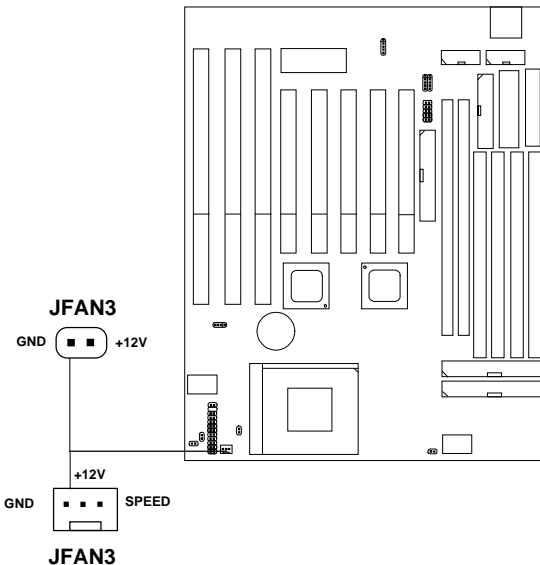
For fans with fan speed sensor, every rotation of the fan will send out 2 pulses. LM78 will count and report the fan rotation speed.

Note: Always consult vendor for proper CPU cooling fan.

2.6 Memory Installation

2.6-1 Memory Bank Configuration

The mainboard provides four 72-pin SIMMs (Single In-Line Memory Module) and two 168-pin DIMM(Double In-Line Memory) sockets. It supports five memory banks for a maximum of 1 GB memory.   You can use SIMM from 4MB, 8MB, 16MB, 32MB, 64MB to 128MB, and DIMM from 8MB, 16MB, 32MB, 64MB, 128MB, to 256MB.
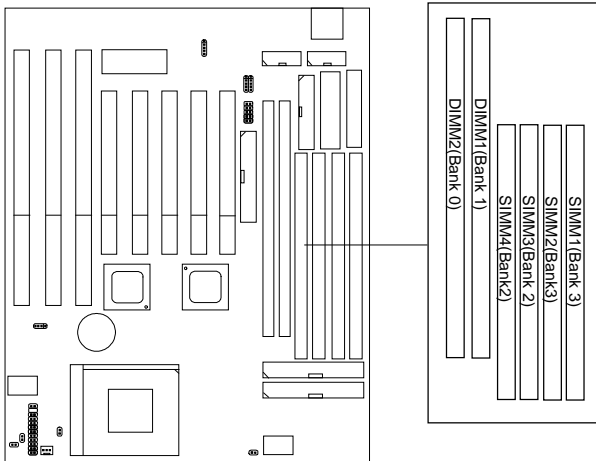
2.6-2 Memory Installation Procedures:

A. How to install SIMM Module

Notched End
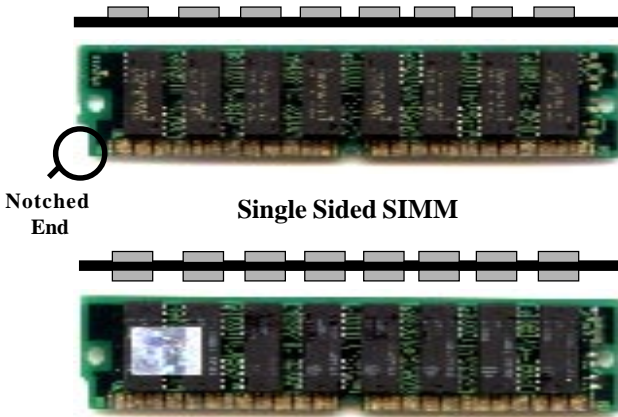
Single Sided SIMM

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.
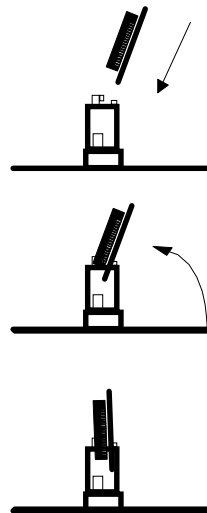
B. How to install DIMM Module
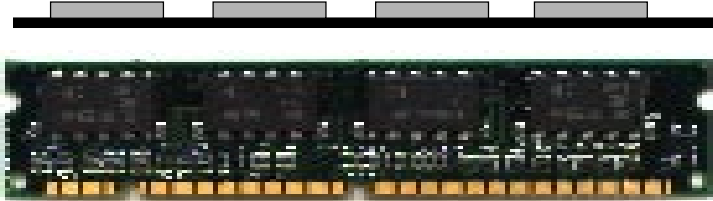
Single Sided DIMM
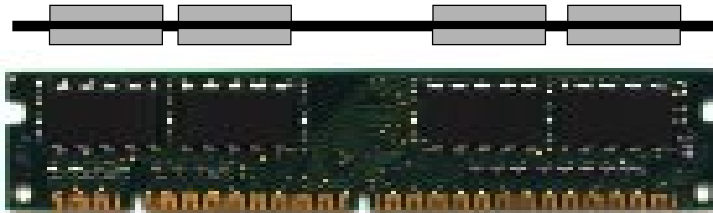
Double Sided DIMM

1. The DIMM slot has two keys marked "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.

DRAM   VOLT
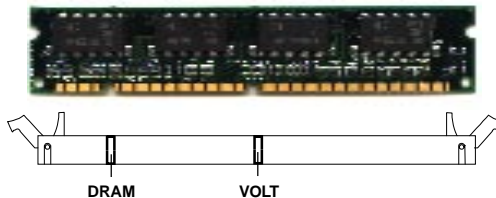
3. Close the plastic clip at the side of the DIMM slot.

2.6-3 Memory Population Rules

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. The system cannot operate with only one 72-pin SIMM module.

3. Each RAS cannot exceed 16 pcs of DRAM.

4. It is not recommended to mix SIMM with DIMM, for it may cause unreliability.

5. You can only use a 3.3V unbuffered DIMM.

Table 2.6-1   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 2.6-2   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

2.7 Case Connector: JFP1

The Turbo LED, Hardware Reset, Key Lock, Power LED, Power Saving
LED, Sleep Switch, Speaker and HDD LED are all grouped in JFP1
connector block for easy installation.
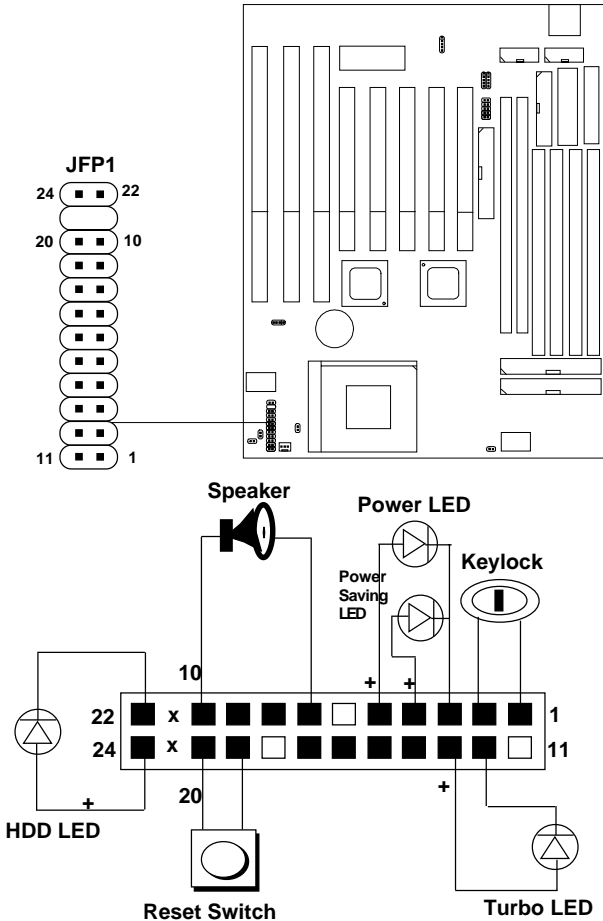
Figure 2.1

2.7-1 Turbo LED

This mainboard is always on Turbo speed. Connecting a Turbo LED will just lit the LED. (See Figure 2.1)

2.7-2 Hardware Reset

Reset switch is used to reboot the system rather than turning the power ON/ OFF. Avoid rebooting the system while the HDD LED is lit. You can connect the Reset switch from the system case to this pin. (See Figure 2.1)

2.7-3 Keylock

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

2.7-4 Power LED

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

2.7-5 Speaker

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

2.7-6 HDD LED

HDD LED shows the activity of a hard disk drive. Avoid turning 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).

2.8 Floppy Disk Connector: FDC

The mainboard also provides a standard floppy disk connector, FDC 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.

FDC
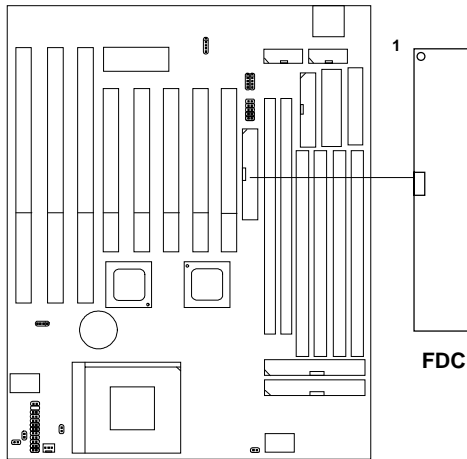
2.9 Hard Disk Connectors: IDE1 & IDE2

The mainboard has a 32-bit Enhanced PCI IDE Controller that provides
two HDD connectors IDE1 (Primary) and IDE2 (Secondary). You can
connect up to four hard disk drives, CD-ROM, 120MB Floppy (reserved for
future BIOS) and other devices to IDE1 and IDE2.
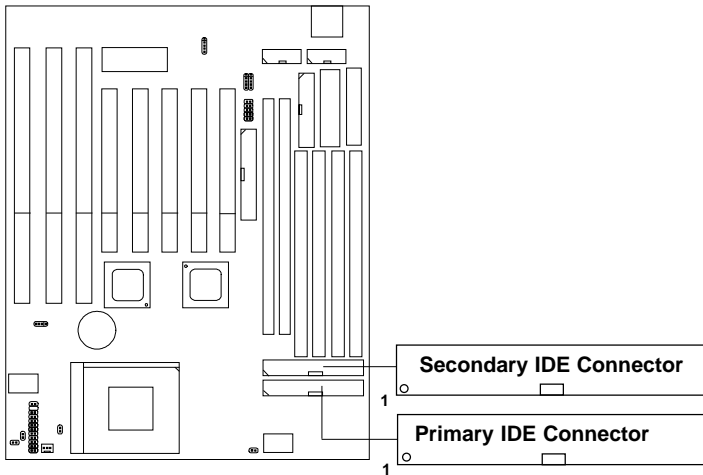
IDE1(Primary IDE Connector)

   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 connect a Master and a Slave drive.

2.10   Parallel Port Connector: LPT

The mainboard 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).

LPT
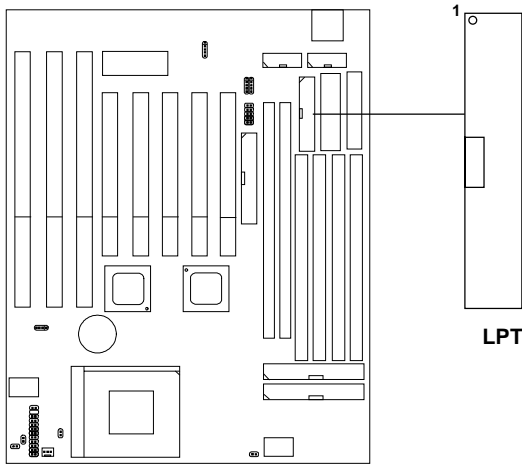
2.11 Serial Port Connectors: COM A & COM B

The mainboard has two serial ports COM A and COM B. These two ports are 16550A fully compatible high speed communication ports that send/ receive 16 bytes FIFOs. You can attach a mouse or a modem cable directly into these connectors.
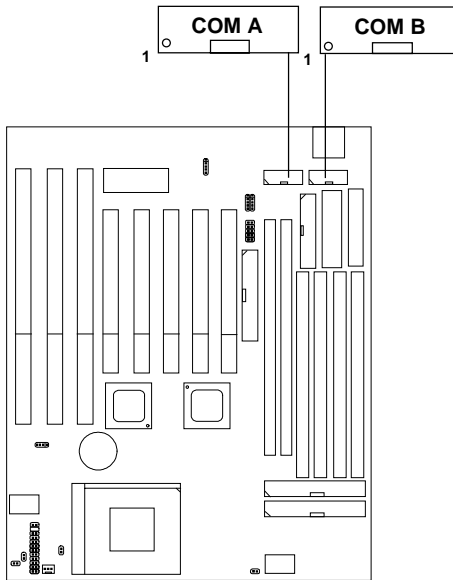
2.12 AT Power Supply Connector

This is a standard 12-pin AT® or PS/2® connector. Be sure to attach the
connectors with the two black wires at the center.
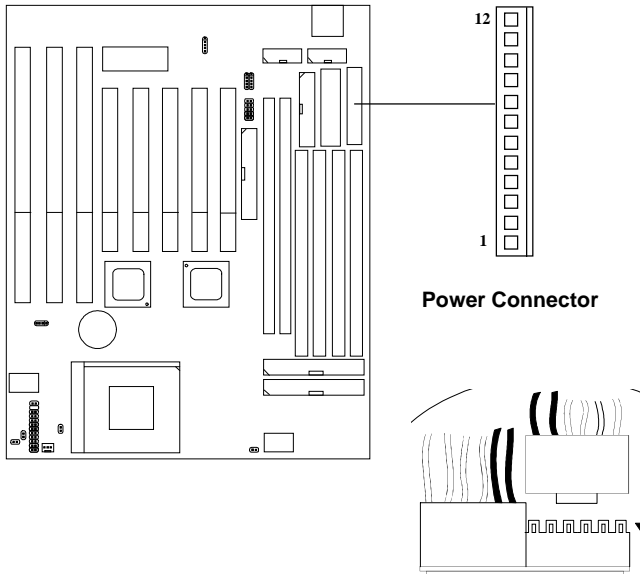
Power Connector

Pin	Description	Pin	Description
1	Power Good	7	Ground
2	+5V DC	8	Ground
3	+12V DC	9	-5V DC
4	-12V DC	10	+5V DC
5	Ground	11	+5V DC
6	Ground	12	+5V DC

2.13 ATX 20-pin Power Connector

This type of connector already supports the remote ON/OFF function.
However, you need to connect the **Remote Power ON/OFF switch
(JRMS1 or JRMS2)**.

**ATX
Power Connector**
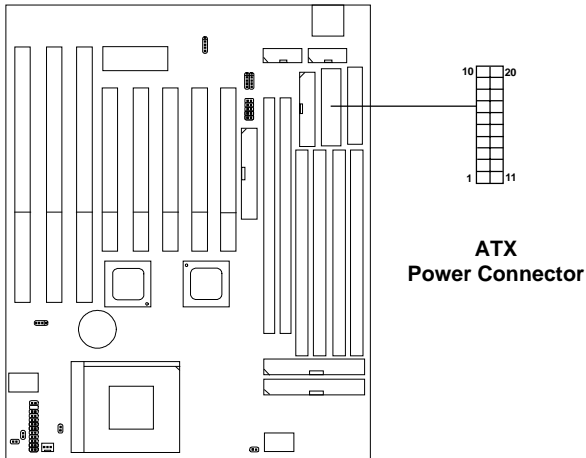
PIN DEFINITION

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

2.14 Remote Power On/Off Switch: JRMS1/JRMS2

Connect a 2-pin push button switch to JRMS1 or JRMS2. 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. This is used for ATX type power supply. You can program this through BIOS. Refer to Soft-Off by PWR-BTTN in BIOS.
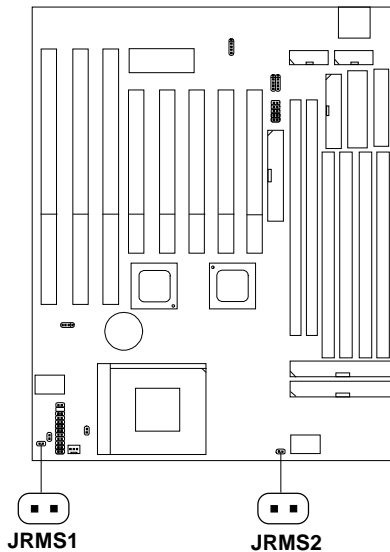
2.15 Keyboard Connector: ATKBC

The mainboard provides a standard AT® keyboard DIN connector for attaching a keyboard. You can plug a keyboard cable directly to this connector.

AT® Keyboard Connector
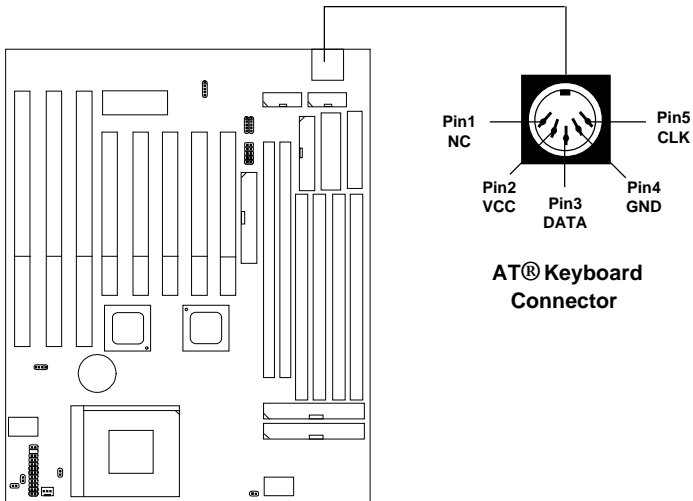
2.16 Mouse Connector: JMS1

The mainboard provides a 5-pin connector for PS/2® mouse cable (optional). You can plug a PS/2® mouse to PS/2® mouse cable. The connector location is shown below.

JMS1
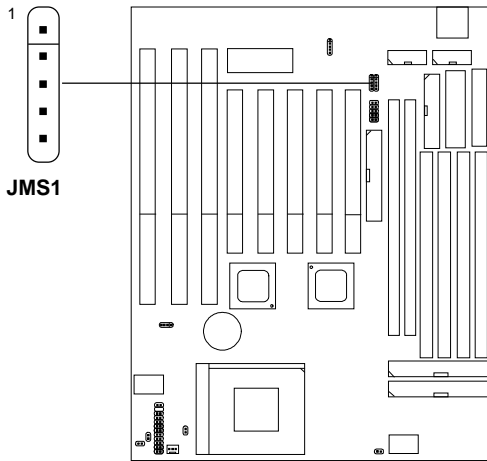
Pin 1	VCC
Pin 2	-
Pin 3	GND
Pin 4	CLK
Pin 5	DATA

2.17 Keyboard Connector: JKB1

The mainboard provides a 5-pin connector for PS/2® keybaord cable (optional). You can plug a PS/2® keyboard to PS/2® keyboard cable. The connector location is shown below.

JKB1
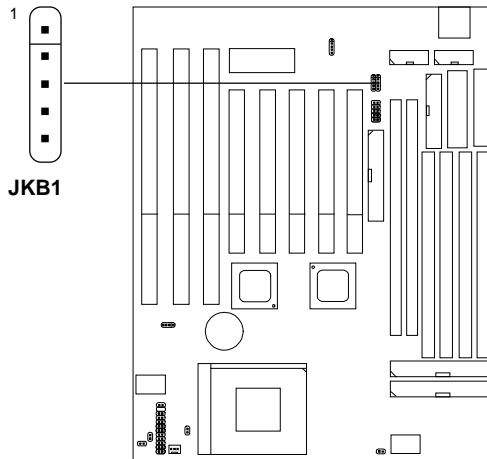
Pin 1	VCC
Pin 2	-
Pin 3	GND
Pin 4	CLK
Pin 5	DATA

2.18   External Battery Connector: JP5

A battery must be used to retain the mainboard configuration in CMOS RAM.   If you use the on-board battery, you must short 2-3 pins of JP5 to keep the CMOS data.
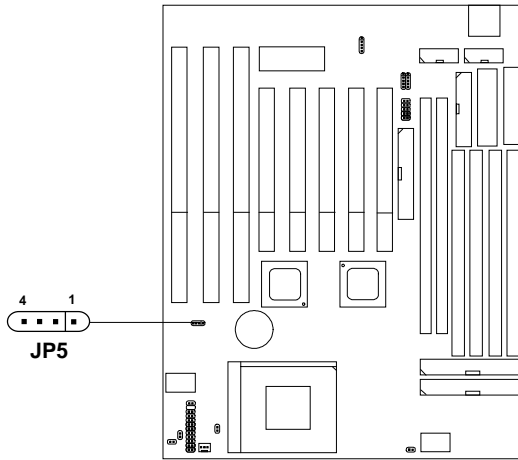
JP5	Function
4 1 ■ ▨ ▨ ▨ ■	**Keep Data**
4 1 ▨ ▨ ■ ■	**Clear Data** (Short for 10 second)

Note: You can clear CMOS by shorting 3-4 pin for 10 second, while the system is off. Then, return to 2-3 pin position. To be able to clear the CMOS, You need to unplug the system, because the chipset with 3V standby that is provide by the power supply 5V stanby. There is always a 3V Standby power, so you need to unplug the system.

2.19 Infrared Module Connector: IR

The mainboard provides a 5-pin infrared connector(IR) for IR module.
This connector is for optional wireless transmitting and receiving infrared
module. If you want to use this function, you must configure the setting
through BIOS setup.
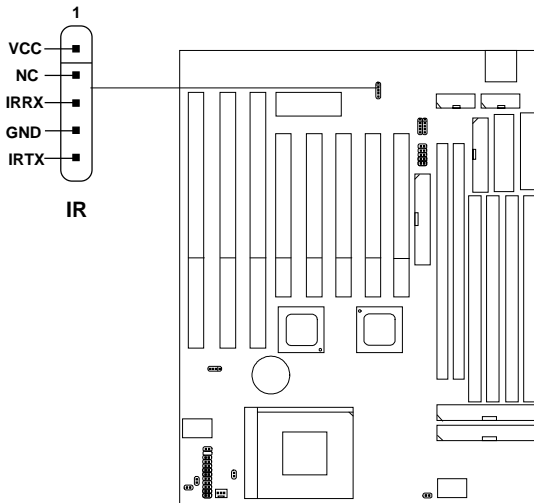
2.20 USB Connector: USB

Connect a USB cable to support USB device, such as keyboard and mouse.

VCC	GND
DO-	GND
DO+	D1+
GND	D1-
GND	VCC

USB
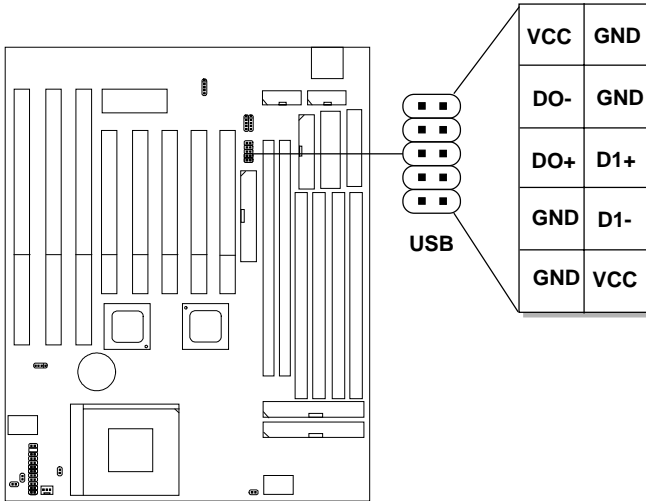
Chapter 3

AWARD® BIOS SETUP

Award® 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.

3.1 Entering Setup

Power on the computer and press <Del> or <Ctrl><Alt><Esc> keys immediately to allow you to enter Setup.

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>.

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.

```
            ROM  PCI/ISA  BIOS  (2A59IM4C)
                 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...                    │
 └─────────────────────────────────────────────────────────┘
```

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.

PNP/PCI Configuration Setup

This category specifies the IRQ level for PCI and ISA devices.

Load Setup Defaults

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

Integrated Peripherals

Change, set or disable onboard I/O, IRQ, DMA assignment.

Supervisor Password/User Password

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

IDE HDD Auto Detection

Automatically configure hard disk parameters.

Save & Exit Setup

Save CMOS value changes to CMOS and exit setup.

Exit Without Saving

Abandon all CMOS value changes and exit setup.

3.4 Standard CMOS Setup

The items in Standard CMOS Setup Menu are divided into 11 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.

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

 ┌──────────────────────────────────────────────────────────────────┐
 │ Date(mm:dd:yy):  Wed,  October  08,1997                           │
 │ 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      │
 │ Floppy 3 Mode Support: Disabled 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                          │
 └──────────────────────────────────────────────────────────────────┘
```

Date

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

Day	Day of the week, from Sun to Sat, determined by BIOS. Read-only.
month	The month from Jan. through Dec.
date	The date from 1 to 31, can be keyed by numeric function keys.
year	The year, depends on the year of the BIOS

Time

The time format is <hour> <minute> <second>.

PrimaryMaster/PrimarySlave
SecondaryMaster/Secondary Slave

These categories identify the types of 2 channels that have been installed in the computer. There are 45 pre-defined types and 4 user definable types 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.

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

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 NumLock status  : On          │ DC000-DFFFF Shadow       :Disabled    │
│ Gate A20 Option         : Fast        │                                       │
│ Security Option         : Setup       │                                       │
│ PS/2 mouse function ctrl.: Enabled    │                                       │
│ PCI/VGA palette snoop   : Disabled    │                                       │
│ OS select for DRAM>64MB : Non-OS2     │                                       │
│ Report No FDD For WIN 95 : Yes        │                                       │
│                                       ├──────────────────────────────────────┤
│                                       │ Esc : Quit    ↑↓→←: Select item       │
│                                       │ F1 : Help PU/PD/+/- : modify          │
│                                       │ F5 : Old Value(Shift) F2 : Color      │
│                                       │ F7 : Load Setup Defaults              │
│                                       │                                       │
└──────────────────────────────────────┴──────────────────────────────────────┘
```

Virus Warning

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. For the meantime, you can run an anti-virus 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 is without Internal Cache, then this item "CPU Internal Cache" will not be shown.

Enabled (default) Enable cache
Disabled Disable cache

Note: The internal cache is built in the processor.

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 this is set to Enabled, BIOS will shorten or skip some check items during POST.

Enabled Enable quick POST
Disabled (default) Normal POST

Boot Sequence

This category determines which drive the computer searches first for the disk operating system (ex. DOS). The settings are A,C,SCSI/LS/ZIP,C/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 NumLock Status

The default value is On.

On (default)   Keypad is numeric keys.
Off   Keypad is arrow keys.

Gate A20 Option

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

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.

PS/2® Mouse Function Control

When enabled, allows you to release IRQ12 for using the PS/2® mouse. The options are: Enabled(default) or Disabled.

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®.

Report No FDD For WIN 95

When set to yes, BIOS will not report any IRQ for FDD when FDD is disabled in Windows® 95. This function is only used when you are testing SCT for Windows® 95 Logo.

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 ROM will be copied to RAM for faster execution.

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

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

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   Passive Release       :Enabled  │
 │ AT Bus Clock           :CLK2/4    ISA Line Buffer       :Enabled  │
 │ DRAM Write WS          :x-2-2-2   Delay Transaction     :Disabled │
 │ Page Mode Read WS      :x-3-3-3                                    │
 │ RAS Precharge Period   :3T        Hit/Miss Check Point  :T2end    │
 │ RAS-To-CAS Delay Time  :3T                                        │
 │ EDO Read WS            :x-2-2-2                                    │
 │ DRAM Speculative Read  :Disabled                                  │
 │ SDRAM CAS Latency      :3                                         │
 │ SDRAM Access Timing    :3-4-7                                     │
 │ SDRAM Speculative Read :Disabled                                 │
 │ Pipelined Function     :Enabled                                   │
 │ DRAM Refresh Period    :60 us                                     │
 │ DRAM Data Integrity Mode :Disabled                               │
 │ Memory Hole At 15-16M  :Disabled                                 │
 │ Primary Frame Buffer   :2 MB      ┌─────────────────────────────┐ │
 │ VGA Frame Buffer       :Enabled   Esc : Quit    ↑↓→←: Select item│
 │ Data Merge             :Enabled   F1 : Help PU/PD/+/- : modify    │
 │ Byte Merge             :Disabled  F5 : Old Value(Shift) F2 : Color│
 │ Fast Back-to-Back      :Disabled  F7 : Load Setup Defaults        │
 └─────────────────────────────────────────────────────────────────┘
```

Note: Change these settings only, if you're familiar with the chipset.

Auto Configuration

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

AT Bus Clock

Leave on default setting of CLK 2/4.

DRAM Write WS

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

Page Mode Read WS

This option chooses the Write Burst Timing for accessing FP mode. Choose x222/x333.

RAS Precharge Period

Leave on default setting of 3T.

Ras-to CAS Delay Time

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.

EDO Read WS

This option chooses the Write Burst Timing for accessing EDO. Choose x222/x333.

DRAM Speculative Read

Leave on default setting of Disabled.

SDRAM CAS Latency

The settings are 3 or 2. This option is for SDRAM CAS latency time. The default setting is 3.

SDRAM Access Timing
Leave on the default setting of 3-4-7.

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

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.

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 │ **  External Switch **  │
│ PM Control by APM     :Yes         │ Power Button        :Power Off │
│ Modem Use IRQ         :3           │                         │
│ Video Off Option      :Suspend->off│                         │
│ Video Off Method      :DPMS Support│                         │
│                                    │                         │
│    ** PM Monitor **                │                         │
│ HDD Power Down        :Disable     │                         │
│ Doze Mode             :Disable     │                         │
│ Standby Mode          :Disable     │                         │
│ Suspend Mode          :Disable     │                         │
│                                    │                         │
│    ** Standby Events **            │                         │
│ Primary HDD           :Disabled    │                         │
│ Floppy                :Disabled    │                         │
│ Serial Ports          :Enabled     │                         │
│ Keyboard              :Enabled     ├─────────────────────────┤
│ Parallel Ports        :Disabled    │ Esc : Quit    ↑↓→←: Select item │
│                                    │ F1 : Help PU/PD/+/- : modify │
│                                    │ F5 : Old Value(Shift) F2 : Color │
│                                    │ 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 meaning of each options.

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 are in their 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 O.S. with APM like Windows®95, Windows®NT, etc.

MODEM Use IRQ

This indicates which IRQ no. will be used by the MODEM (if there is a MODEM). The settings are 3, 4, 5, 7, 9, 10, or N/A.

Video Off Option

The settings are "Susp, Stby->Off" , "Suspend->Off" (default setting), "Always on", and "All modes-> off".

Video Off Method

Blank Screen	The system BIOS will only blank 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.

HDD Power Down

This option specifies the power conserving state that the hard disk drive enters after the specified period of hard drive inactivity has expired. The settings are Disabled, Standby or Suspend. The Optimal and Fail-Safe default settings are Disabled.

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 enters DOZE mode.
8 Min/10 Min/ If any item defined in the options of "Power
20 Min/30 Min/ Down and Resume events" is enabled & active,
40 Min/50 Min DOZE timer will be reloaded. When the system
1 Hr 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 enters STANDBY mode.
8 Min/10 Min/ If any item defined in the options of "Power
20 Min/30 Min/ Down and Resume events" is enabled & active,
40 Min/50 Min STANDBY timer will be reloaded. When the
1 Hr 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.

Suspend   Mode

Disable	System will never enter SUSPEND mode.
1 Min/2 Min/ **4 Min/6 Min/** **8 Min/10 Min/** **20 Min/30 Min/** **40 Min/50 Min** **1 Hr**	Defines the continuous idle time before the system enters SUSPEND mode. If any item defined in the options of "Power 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.

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 meaning of each options.

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

┌─────────────────────────────────┬───────────────────────────────┐
│ PnP OS Installed       :Yes     │ PCI IDE 2nd Channel   : Disabled│
│ Resources Controlled By :Manual │ PCI IRQ Actived By    : Level   │
│ Reset Configuration Data :Disabled│ PCI IDE IRQ Map To    : ISA    │
│                                 │                               │
│ IRQ-3 assigned to     :PCI/ISA PnP│                             │
│ IRQ-4 assigned to     :PCI/ISA PnP│ Assign IRQ for VGA    : Enabled│
│ IRQ-5 assigned to     :PCI/ISA PnP│                             │
│ IRQ-7 assigned to     :PCI/ISA PnP│                             │
│ 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│ F7 : Load Setup Defaults       │
│ DMA-7assigned to      :PCI/ISA PnP│                               │
└─────────────────────────────────┴───────────────────────────────┘
```

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.

Resources Controlled By

By Choosing "Auto", the system BIOS will detect the system resources 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 for 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 features 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 the system's ESCD. Then, this option will be auto-set to Disable.

IRQ-3	assigned to	: PCI/ISA PnP
IRQ-4	assigned to	: PCI/ISA PnP
IRQ-5	assigned to	: PCI/ISA PnP
IRQ-7	assigned to	: PCI/ISA PnP
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

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 2nd Channel
The settings are Enabled and Disabled. Leave on the default setting of Disabled.

PCI IRQ Activated By
This sets the method by which the PCI bus recognizes that an IRQ service is being requested by a device. Under all circumstances, you should retain the default configuration unless advised otherwise by your system's manufacturer. The settings are Level(default) and Edge.

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.

Assign IRQ for VGA

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

3.10 Integrated Peripherals

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

```
┌─────────────────────────────────────────────────────────────────────────┐
│ On-Chip IDE Controller   :Enabled                                          │
│ On-Chip Secondary IDE    :Enabled    Onboard FDC Controller   :Enabled     │
│ IDE Primary Master PIO   :Auto       Onboard Serial Port 1    :3F8/IRQ4    │
│ IDE Primary Slave PIO    :Auto                                             │
│ IDE Secondary Master PIO :Auto       Onboard Serial Port 2    :2F8/IRQ3    │
│ IDE Secondary Slave PIO  :Auto       UR2 Mode                 :Normal      │
│ IDE Primary Master UDMA  :Auto                                             │
│ IDE Primary Slave UDMA   :Auto       Onboard Parallel Port    :378/IRQ7    │
│ IDE Secondary Master UDMA:Auto       Parallel Port Mode       :SPP         │
│ IDE Secondary Slave UDMA :Auto                                            │
│ IDE HDD Block Mode       :Enabled                                          │
│ On-Chip USB Controller   :Disabled                                        │
│                                                                            │
│ RING POWER ON Controller :Disabled                                        │
│ RTC POWER ON Controller  :Disabled  ────────────────────────────────────  │
│                                      Esc : Quit    ↑↓→←: Select item       │
│                                      F1 : Help PU/PD/+/- : modify          │
│                                      F5 : Old Value(Shift) F2 : Color      │
│                                      F7 : Load Setup Defaults              │
│                                                                            │
└─────────────────────────────────────────────────────────────────────────┘
```

On-Chip IDE Controller
    Enabled/Disabled

On-Chip Secondary IDE
    Enabled/Disabled   The system provides for an 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 installs 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.

IDE Primary Master PIO
    Auto/Mode0/Mode1-4

IDE Primary Slave PIO
    Auto/Mode0/Mode1-4

IDE Secondary Master PIO
    Auto/Mode0/Mode1-4

IDE Secondary Slave PIO
    Auto/Mode0/Mode1-4

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

Note: Some IDE HDD cannot 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).

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

On-chip USB Controller

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

Onboard FDC 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)

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	COM 1 uses IRQ4
2F8/IRQ3	COM 2 uses IRQ3
3E8/IRQ4	COM 3 uses IRQ4
2E8/IRQ3	COM 4 uses IRQ3

Note: Because the ISA Bus Interrupt accepts low to high edge trigger, the interrupt request line cannot 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.

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 simultane-ously. 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, the following message will be displayed on the screen: "EPP Mode Select." At this time either EPP 1.7 spec. or EPP 1.9 spec. can be chosen.

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 exactly the same password you just typed in 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 the next time you turn on your machine.

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. 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]
```