Chapter 1

INTRODUCTION

The MS-6339 ATX TH1 mainboard is a high-performance computer mainboard based on Intel® 82850 chipset. The MS-6339 is optimized to support the Intel® Pentium® 4 processor for high-end business/personal desktop markets.

The Intel® Tehama chipset supports 64B cache line size and a 32-bit host addressing, allowing the processor to access the entire 4GB of the chipset's memory address space. It also provides 4x AGP data transfers and 2x/4x AGP Fast Writes capability. Including a 3.2GBs memory bus bandwidth and 3.2GBs system bus bandwidth.

The Intel® Tehama chipset features a dual channel Direct RDRAM memory operating in lock-step using RSL technology. It is a highly-flexible chipset which is designed to extend the basic graphics/multimedia PC platform up to the mainstream performance desktop platform.

The Intel® 82801BA (ICH2) chipset is a highly integrated multifunctional I/O Controller Hub that provides the interface to the PCI Bus and integrates many of the functions needed in today's PC platforms. It communicates with the host controller over a dedicated hub interface and provides added flexibility in designing cost-effective system solutions.

Mainboard Features

CPU
- Support Intel® Pentium® 4 processor
- Supports 1.4GHz or faster

Chipset
- Intel® Tehama chipset
  - Up to 2GB maximum memory (RAMBUS).
  - AGP Pro interface with 4x SBA/Data Transfer
- Intel® ICH2 chipset
  - AC'97 Controller Integrated
  - 2 Full IDE channels, up to ATA100
  - Low pin count interface for SIO
  - 4 USB Ports

Main Memory
- Supports four 184-pin gold-lead RIMM sockets
- Supports a maximum memory size of 2GB

Slots
- One AGP (Accelerated Graphics Port) Pro slot
  - support up to 4x mode
- One CNR (Communication Network Riser) slot
- Five 32-bit/33MHz Master PCI Bus slots
- Supports 3.3v/5v PCI bus Interface

On-Board IDE
- An IDE controller on the Intel® ICH2 Chipset provides IDE HDD/CD-ROM with PIO, Bus Master and Ultra DMA 100 operation modes
- Can connect up to four IDE devices

Integrated Super I/O Controller
- Winbond W83627HF-AW I/O controller
  - 1 floppy port supports 2 FDD with 360K, 720K, 1.2M, 1.44M and 2.88Mbytes
  - 2 serial port (COM A + COM B)
  - 1 parallel port supports SPP/EPP/ECP mode
  - 1 IrDA connector for SIR

Audio
- ICH2 chip integrated
- Creative CT5880 (optional)
  - 64 Voice WaveTable Synthesizer
  - Sound Library of over 4000 different sounds
  - Support SPDIF (AC3)
  - Support Microsoft Direct Sound, Direct Sound 3D, Direct Music, and A3DAPI

BIOS
- The mainboard BIOS provides "Plug & Play" BIOS which detects the peripheral devices and expansion cards of the board automatically.
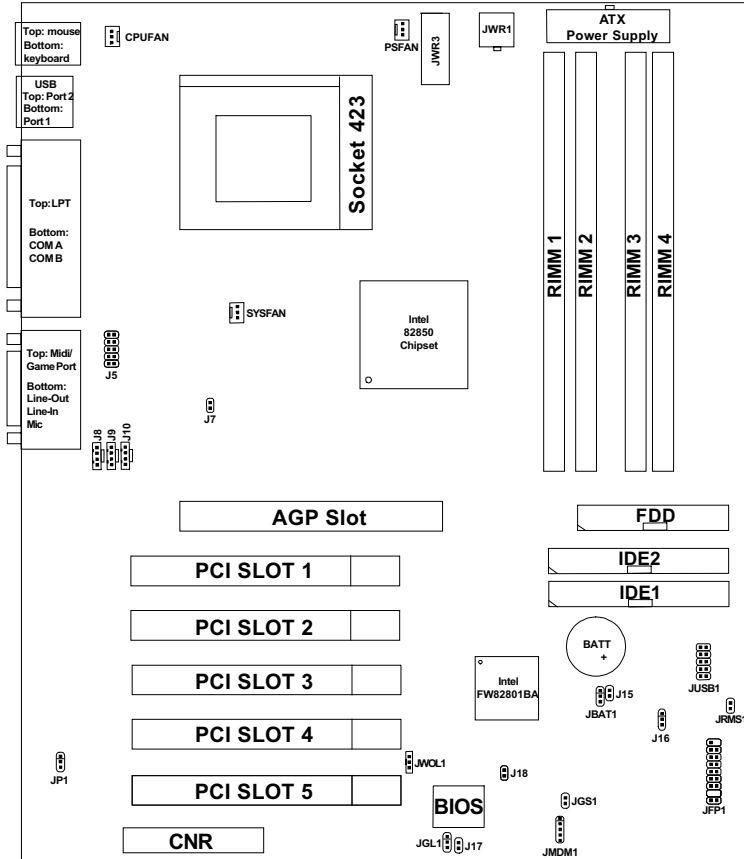- IDE drive auto configure, Advanced Power Management (APM) 1.2, ACPI 1.0, DMI 2.0, ECC/Parity support.

Dimension
- ATX Form Factor : 12inches(L) x 9.6inches(W) x 6 layers PCB

Mounting
- 12 mounting holes

Mainboard Layout


MS-6339 ATX TH1 Mainboard

Chapter 2

HARDWARE INSTALLATION

Central Processing Unit: CPU

The mainboard operates with **Intel® Pentium® 4 processor.** The mainboard uses a CPU socket called Socket 423 for easy CPU installation. The CPU should always have a Heat Sink and a cooling fan attached to prevent overheating.

● **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.
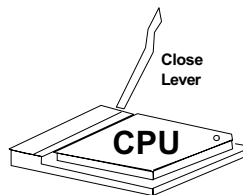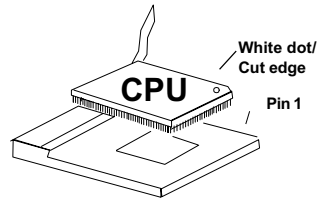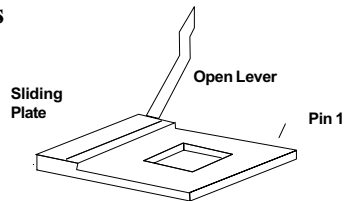
• CPU Core Speed Derivation Procedure

The mainboard CPU Bus Frequency can be set through BIOS setup.

If   CPU Clock   = 100MHz
           Core/Bus ratio   = 14
then   CPU core speed   = Host Clock x Core/Bus ratio
                          = 1.4GHz

• **Fan Power Connectors: CPUFAN/PSFAN/SYSFAN**

These connectors support 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 System Hardware Monitor chipset on-board, you must use a specially designed fan with speed sensor to take advantage of this function.
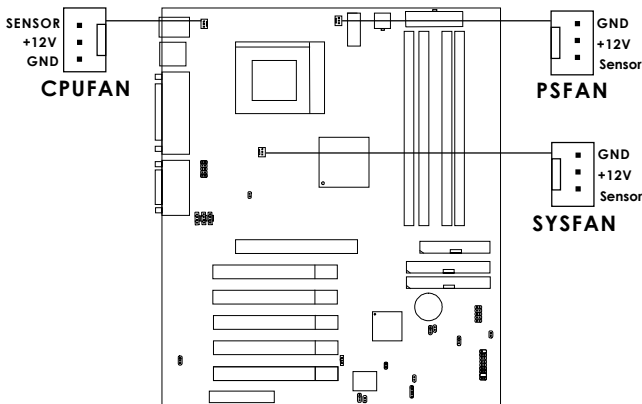
CPUFAN: Processor Fan
PSFAN: Power Supply Fan
SYSFAN: System Fan

For fans with fan speed sensor, every rotation of the fan will send out 2 pulses. System Hardware Monitor will count and report the fan rotation speed.

Note: Always consult vendor for proper CPU cooling fan.

Clear CMOS Jumper: JBAT1

A battery must be used to retain the mainboard configuration in CMOS RAM. Short 1-2 pins of JBAT1 to store the CMOS data.

JBAT1
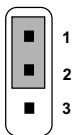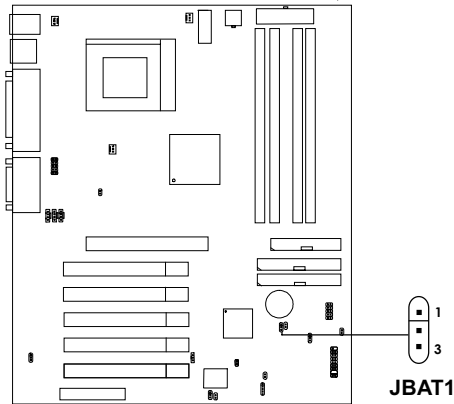
Keep Data
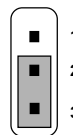
Clear Data

Note: You can clear CMOS by shorting 2-3 pin, while the system is off. Then, return to 1-2 pin position. Avoid clearing the CMOS while the system is on, it will damage the mainboard. Always unplug the power cord from the wall socket.

Memory Installation

• **Memory Bank Configuration**

The mainboard supports a maximum memory size of 2G. It provides four
184-pin RIMMs sockets. It supports 64 MB to 512 Mbytes RIMM memory
module.
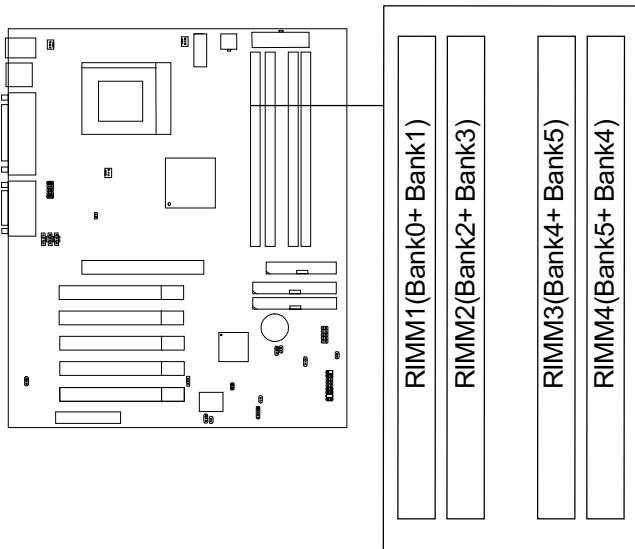
- **Memory Installation Procedures**

  A. How to install a RIMM Module

  1. The RIMM slot has 2 Notch Keys, so the RIMM memory module can only fit in one direction.

  2. Insert the RIMM memory module vertically into theRIMM slot. Then push it in.

NOTCH
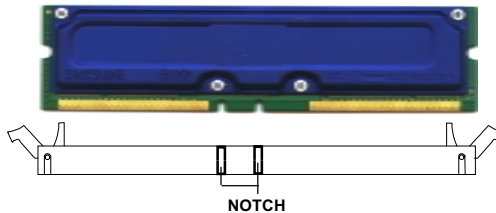
  3. The plastic clip at the side of the RIMM slot will automatically close.

- **Memory Population Rules**

1. Support only RIMM.

2. To operate properly, make sure that the RIMM banks are using the same type and equal size density memory.

3. Support FSB 100MHz: PC600/800 RIMM.

   Note: *PC700 will run at PC600 specification.*

4. Support up to 32 Direct Rambus Device.

5. Support ECC Single bit Correction and Multiple bit error detection (Setting in BIOS)

Case Connector: JFP1

The Power Switch, Reset Switch, Power LED, Speaker, HDD LED and
Keylock (reserved) are all connected to the JFP1 connector block.
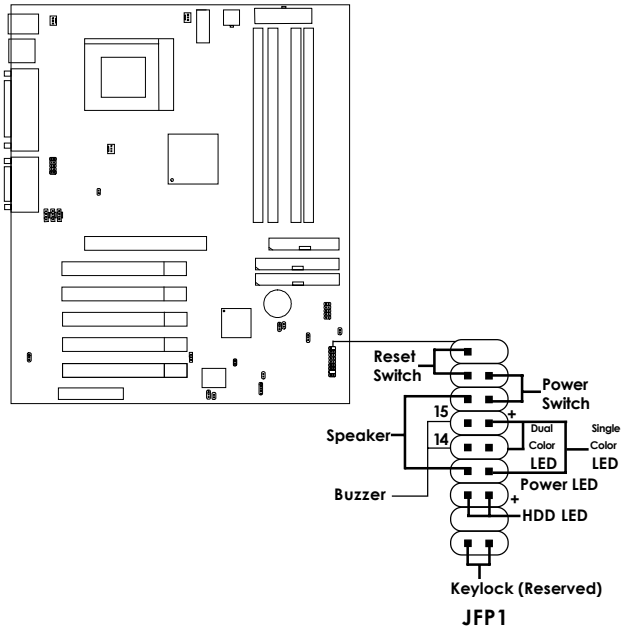
Power Switch

Connect to a 2-pin push button switch. This switch has the same feature with JRMS1.

Reset Switch

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

Power LED

The Power LED is lit while the system power is on. Connect the Power LED from the system case to this pin. There are two types of LED that you can use: 3-pin single color LED or 2-pin dual color LED (ACPI request).

> **a.** 3 pin single color LED connect to pin 4, 5, & 6. This LED will lit when the system is on.
> **b.** 2 pin dual color LED connect to pin 5 & 6.
>> **GREEN**Color: Indicate the system is in full on mode.
>> **ORANGE**Color: Indicate the system is in suspend mode.

Speaker

Speaker from the system case is connected to this pin.
If on-board Buzzer is available:
Short pin 14-15:   On-board Buzzer Enabled.
Open pin 14-15:   On-board Buzzer Disabled.

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.

Keylock (reserved)

Keylock allows you to disable the keyboard for security purposes. You can connect the keylock to this pin.

Floppy Disk Connector: FDD

The mainboard also provides a standard floppy disk connector FDD that supports 360K, 720K, 1.2M, 1.44M and 2.88M floppy disk types. This connector supports the provided floppy drive ribbon cables.

Hard Disk Connectors: IDE1 & IDE2

The mainboard has a 32-bit Enhanced PCI IDE and Ultra DMA/66 Controller that provides PIO mode 0~4, Bus Master, and Ultra DMA/33/66 function. It has 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. These connectors support the provided IDE hard disk cable.

Secondary IDE Connector

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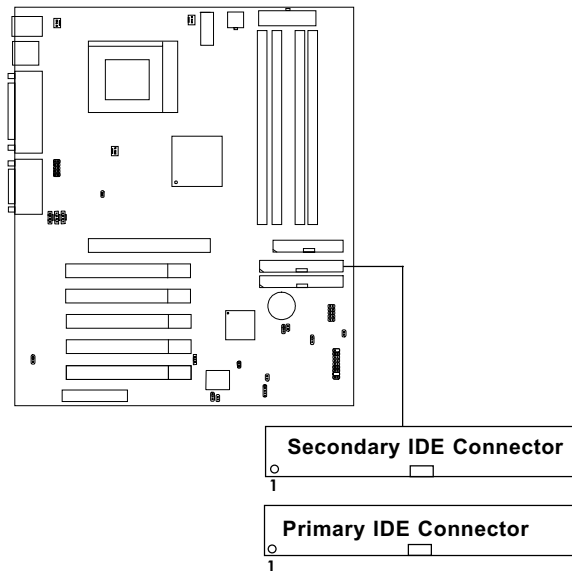
IDE1 (Primary IDE Connector)
The first hard drive should always be connected to IDE1. IDE1 can connect a Master and a Slave drive. You must configure second hard drive to Slave mode by setting the jumper accordingly.

IDE2 (Secondary IDE Connector)
IDE2 can also connect a Master and a Slave drive.

Power Supply

• ATX 20-pin Power Connector: JWR2
ATX 12V Power Connector: JWR1

These connectors support the power button on-board. Using the ATX power supply, functions such as Modem Ring Wake-Up and Soft Power Off are supported by this mainboard. These power connectors support instant power on function which means that system will boot up instantly when the power connector is inserted on the board. Refer to chapter 2-14 for pin definition.
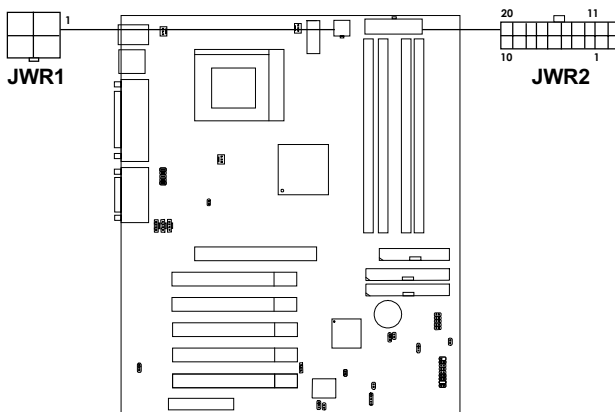
• **ATX 5V/3V Power Connector: JWR3 (optional)**

This mainboard supports an optional 5V/3V power supply connector. Refer to chapter 2-14 for pin definition.
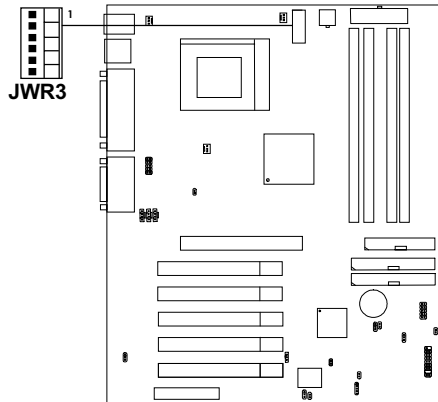
PIN DEFINITION TABLE

Pin definition for JWR2
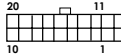
PIN	SIGNAL	PIN	SIGNAL
1	3.3V	11	3.3V
2	3.3V	12	-12V
3	GND	13	GND
4	5V	14	PS_ON
5	GND	15	GND
6	5V	16	GND
7	GND	17	GND
8	PW_OK	18	-5V
9	5V_SB	19	+5V
10	12V	20	+5V

Pin definition for JWR1

PIN	SIGNAL
1	GND
2	GND
3	12V
4	12V

Pin definition for JWR3

PIN	SIGNAL	PIN	SIGNAL
1	GND	4	3.3V
2	GND	5	3.3V
3	GND	6	5V

Warning: Since the mainboard has the instant power on function, make sure that all components are installed properly before inserting the power connector to ensure that no damage will be done.

• **Remote Power On/Off Switch: JRMS1**

Connect to a 2-pin push button switch. During OFF state, press once and
the system turns on. **During ON stage, push once and the system goes to
sleep mode: pushing it more than 4 seconds will change its status from ON
to OFF**. If you want to change the setup, you could go to the BIOS Power
Management Setup. This is only used for ATX type power supply.

JRMS1
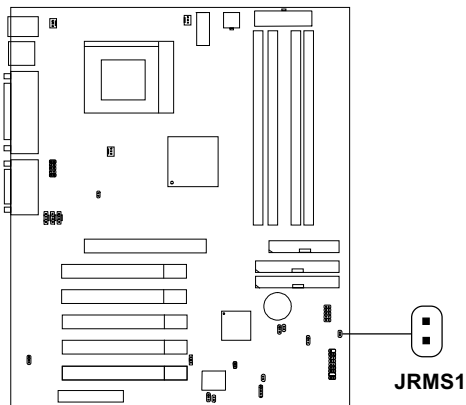
IrDA Infrared Module Connector: J5

The mainboard provides one infrared (IR) connector for IR modules. This connector is for optional wireless transmitting and receiving infrared module. You must configure the setting through the BIOS setup to use the IR function.

J5
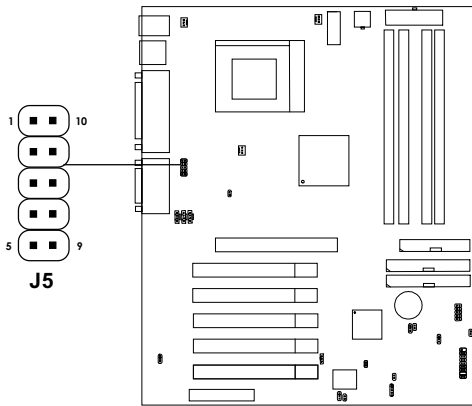
Pin	Signal	Pin	Signal
1	VCC	6	NC
2	NC	7	NC
3	IRRX	8	5VSB
4	GND	9	CIRRX
5	IRTX	10	NC

Serial Port Connectors: COM A and COM B

The mainboard provides two 9-pin male DIN connectors for serial port COM A & COM B. These port are 16550A high speed communication port that send/receive 16 bytes FIFOs. You can attach a mouse or a modem cable directly into this connector.
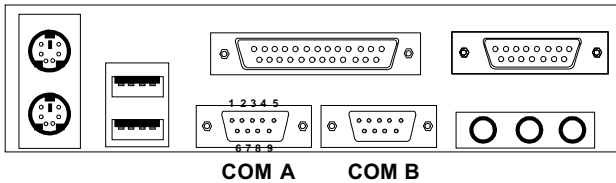
Serial Port (9-pin Male)

PIN DEFINITION

PIN	SIGNAL
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)

Parallel Port Connector: LPT1

The mainboard provides a 25 pin female centronic connector for LPT. A parallel port is a standard printer port that also supports Enhanced Parallel Port (EPP) and Extended capabilities Parallel Port (ECP). See connector and pin definition below:

Parallel Port (25-pin Female)

LPT 1
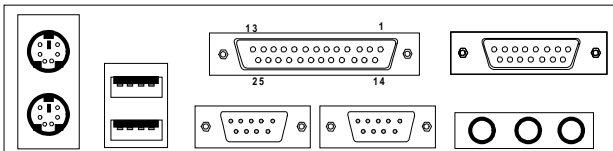
PIN DEFINITION

PIN	SIGNAL	PIN	SIGNAL
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		

Mouse Connector: JKBMS1

The mainboard provides a standard PS/2® mouse mini DIN connector for attaching a PS/2® mouse. You can plug a PS/2® mouse directly into this connector. The connector location and pin definition are shown below:
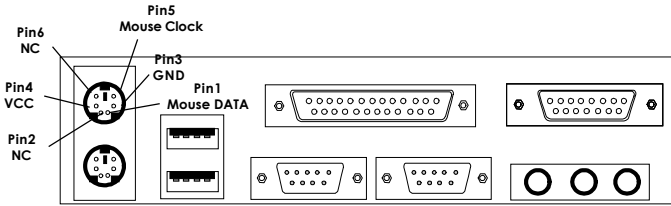
PS/2 Mouse (6-pin Female)

Keyboard Connector: JKBMS1

The mainboard provides a standard PS/2® keyboard mini DIN connector for attaching a keyboard. You can plug a keyboard cable directly to this connector.
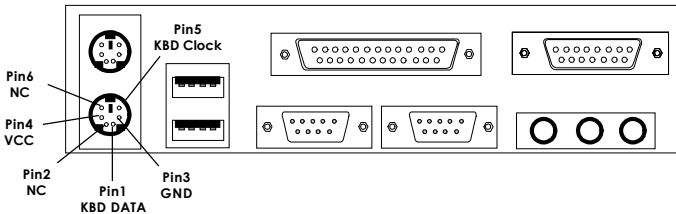
PS/2 Keyboard (6-pin Female)

Joystick/Midi Connectors

You can connect a joystick or game pad to this connector.

Joystick/MIDI
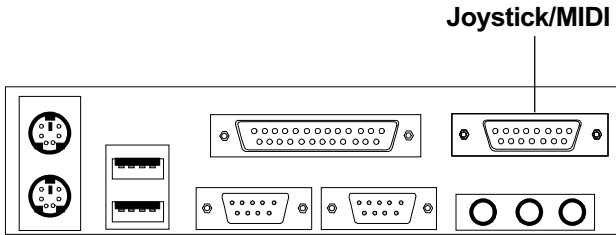
Audio Port Connectors

Line Out is a connector for Speakers or Headphones. **Line In** is used for external CD player, Tape player, or other audio devices. **Mic** is a connector for the microphones.

Line Out   Line In   Mic
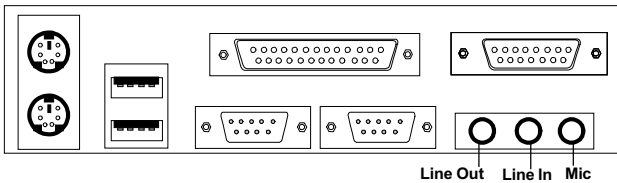
1/8" Stereo Audio Connectors

USB Connectors

The mainboard provides a **UHCI (Universal Host Controller Interface) Universal Serial Bus root** for attaching USB devices like: keyboard, mouse and other USB devices. You can plug the USB device directly to this connector.

USB Port 2

USB Port 1
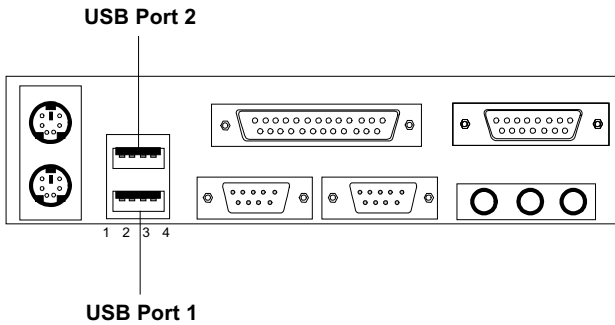
PIN	SIGNAL
1	VCC
2	-Data
3	+Data
4	GND

Wake-Up on LAN Connector: JWOL1

The JWOL1 connector is for used with LAN add-on cards that supports Wake Up on LAN function. To use this function, set the "Wake-Up on LAN" to enable at the BIOS Power Management Setup.

JWOL1
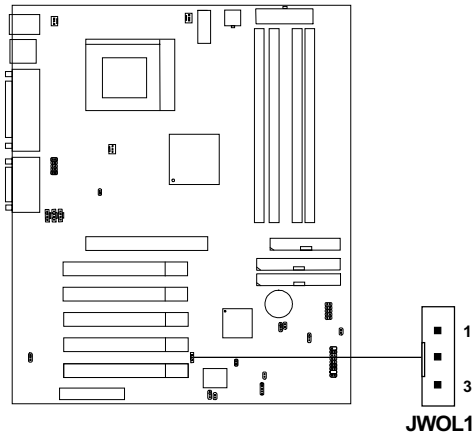
PIN	SIGNAL
1	5VSB
2	GND
3	MP_WAKEUP

Note: LAN wake-up signal is active "high".

Note: To be able to use this function, you need a power supply that provide enough power for this feature. (Power supply with 750mA 5V Stand-by)

Modem Wake Up Connector: JMDM1

The JMDM1 connector is for used with Modem add-on card that supports the Modem Wake Up function.

JMDM1
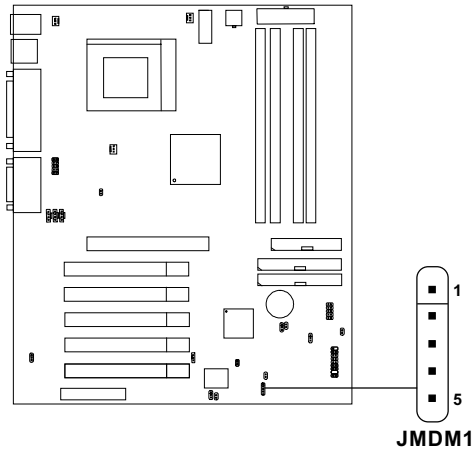
PIN	SIGNAL
1	NC
2	GND
3	MDM_WAKEUP
4	NC
5	5VSB
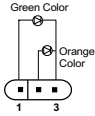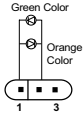
Note: Modem wake-up signal is active "low".

Note: To be able to use this function, you need a power supply that provide enough power for this feature. (Power supply with 750mA 5V Stand-by)

Power Saving LED Connector: JGL1

JGL1 can be connected with two-color LED. There are two types of LED that you can use: 3-pin LED or 2-pin LED (ACPI request). When the 2-pin LED is connected to JGL1, the light will turn green, when system is On. During sleep mode, the 2-pin LED will change color from Green to Orange. For 3-pin LED, when LED is connected to JGL1, this will light when the system is On and blinks when it is in suspend/sleep mode.

JGL1
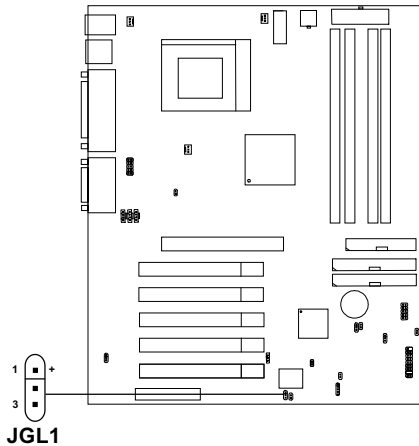
3-pin LED	2-pin LED
Green Color / Orange Color / 1 3	Green Color / Orange Color / 1 3
1-2 Single Color 1-3 Blink	1-2 Dual Color

Power Saving Switch Connector: JGS1

Attach a power saving switch to **JGS1**. When the switch is pressed, the system immediately goes into suspend mode. Press any key and the system wakes up.

JGS1
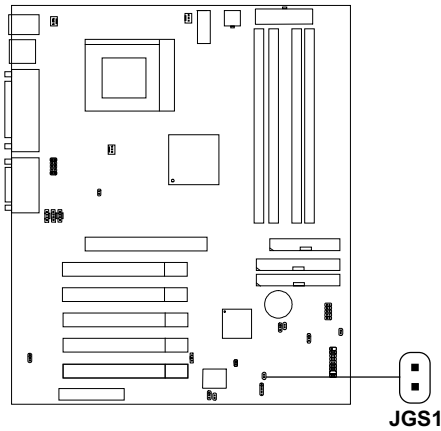
CD-In Connector: J8

This connector is for CD-ROM audio connector.
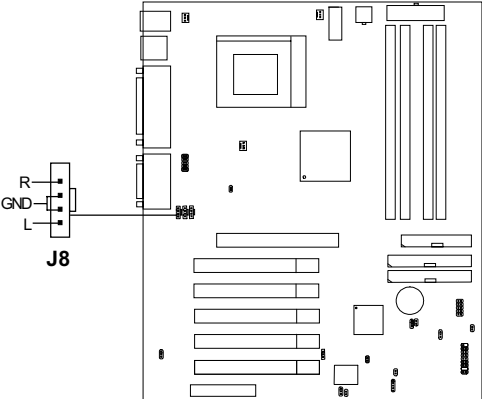
AUX Line In Connector： J9

This connector is used for DVD Add on Card with Line In connector.
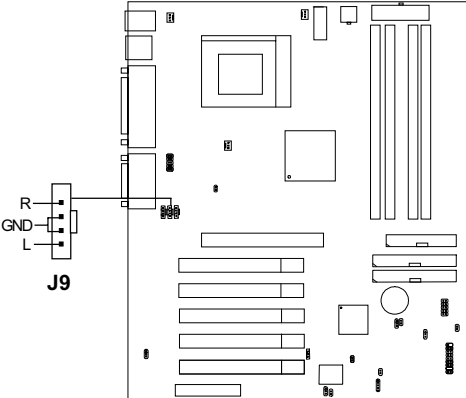
Modem-In: J10

The connector is for Modem with internal voice connector.

Mono_Out
GND
Phone_In

J10
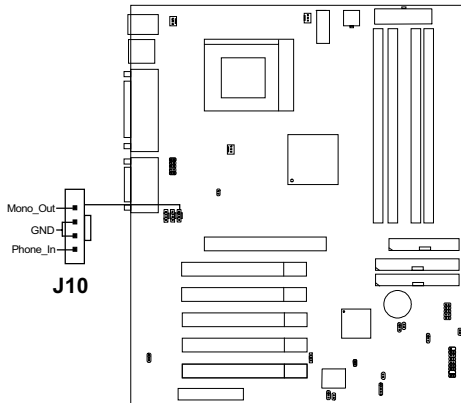
Mono_Out is connected to the Modem Speaker Out connector.
Phone_In is connected to the Modem Microphone In connector.

Onboard Audio Codec: JP1

This jumper is used to Enabled/Disabled the onboard Soft audio codec.

JP1
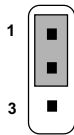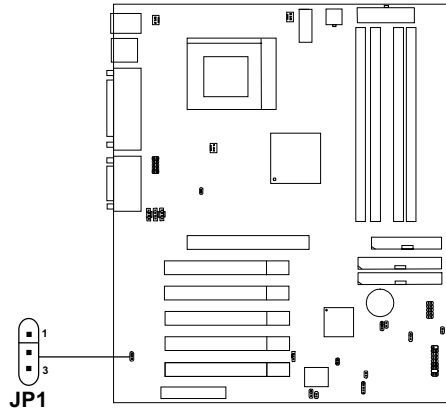
Enable Onboard
Audio Codec
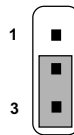
Disable Onboard
Audio Codec

Chassis Intrusion Switch Case： J7 & J15

These connectors are connected to 2-pin connector chassis switch. If the Chassis is open, the switch will be short. The system will record this status. To clear the warning, you must enter the BIOS settting and clear the status.
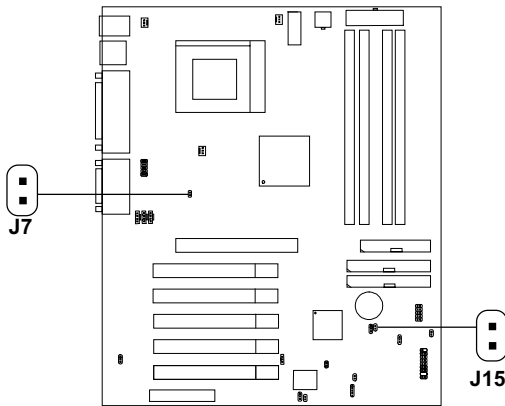
Clear BIOS Password: J18

This is used to clear the BIOS password. To clear the password, open pin and restart your computer.

J18
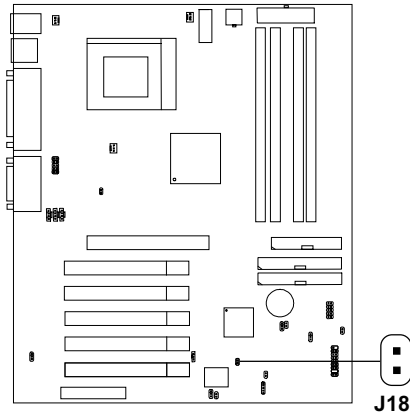
Normal   **Clear**

BIOS Flash Jumper: J17

This jumper is used to lock/unlock BIOS Flash. This jumper should be unlock when flashing/programming the BIOS.

J17
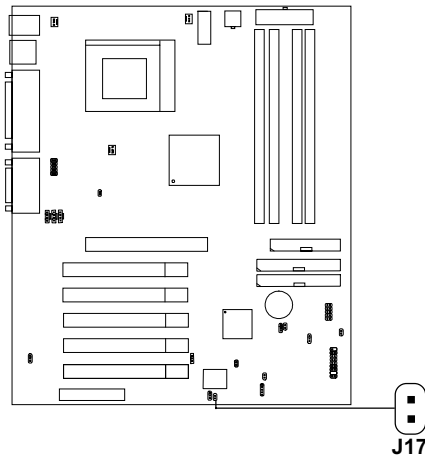
**BIOS Flash
Locked**

**BIOS Flash
Unlocked**

Case Speaker to Audio Speaker Jumper: J16

This jumper will enable the case speaker/buzzer to be transferred to the Audio speaker.

J16
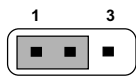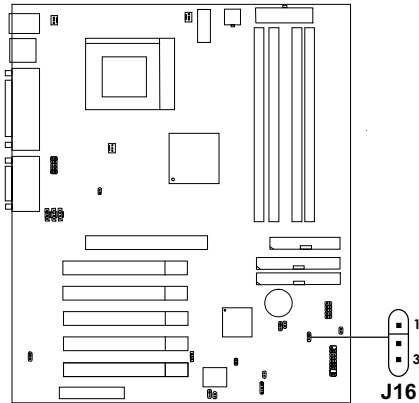
**Output to
Audio Speaker**
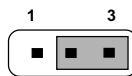
**Output to
Onboard Buzzer
(Default)**

USB Front Connector: JUSB1

The mainboard provides a **front Universal Serial Bus connector**. This is an optional USB connector for Front Panel.

JUSB1
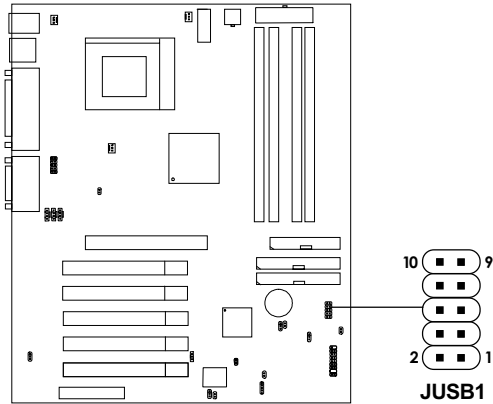
Pin	Description	Pin	Description
1	VCC	6	USBD2+
2	GND	7	GND
3	USBD3-	8	USBD2-
4	GND	9	GND
5	USBD3+	10	VCC

CNR (Communication Network Riser)

The Communication Network Riser specification is an open industry-standard specification that defines a hardware scalable Original Equipment Manufacturer (OEM) mainboard riser board and interface, which supports modem, audio and LAN.

CNR
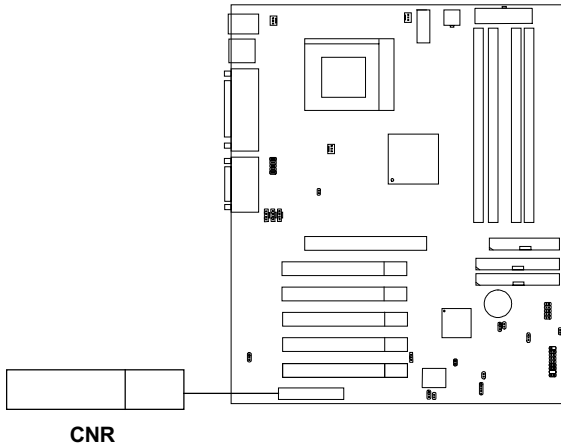
Chapter 3

AMI® BIOS USER'S GUIDE

The system configuration information and chipset register information is stored in the CMOS RAM. This information is retained by a battery when the power is off. Enter the BIOS setup (if needed) to modify this information.

The following pages will describe how to enter BIOS setup, and all about options.

Enter BIOS Setup

Enter the AMI® setup Program's Main Menu as follows:

1. Turn on or reboot the system. The following screen appears with
   a series of diagnostic check.

```
AMIBIOS (C) 1999 American Megatrends  Inc.
AGIOMS  VXXX  XXXXXX

Hit <DEL> if you want to run setup







(C) American Megatrends Inc.
61-XXXX-001169-00111111-071592-i82440FX-H
```

2. When the "Hit <DEL>" message appears, press <DEL> key to
   enter the BIOS setup screen.

3. After pressing <DEL> key, the BIOS setup screen will appear.

Note: *If you don't want to modify CMOS original setting, then don't press any
          key during the system boot.*

```
 ┌─────────────────────────────────────────────────────────┐
 │   AMIBIOS  HIFLEX  SETUP  UTILITIES  -  VERSION  1.30    │
 │    (C)  1999  American  Megatrends,  Inc.  All  Rights   │
 │                      Reserved                            │
 ├──────────────────────────────┬──────────────────────────┤
 │                              │                           │
 │  Standard  CMOS  Feature     │  Integrated  Peripherals  │
 │                              │                           │
 │  BIOS  Features  Setup       │  Hardware  Monitor  Setup │
 │                              │                           │
 │  Chipset  Features  Setup    │  Supervisor  Password     │
 │                              │                           │
 │  Power  Management  Setup    │  User  Password           │
 │                              │                           │
 │  PnP/PCI  Configuration      │  IDE  HDD  Auto  Detection │
 │                              │                           │
 │  Load  Setup  Defaults       │  Save  &  Exit  Setup     │
 │                              │                           │
 │  Load  BIOS  Defaults        │  Exit  Without  Saving    │
 │                              │                           │
 ├──────────────────────────────┴──────────────────────────┤
 │ Esc: Quit          ↑↓←→: Select Item   (Shift)F2: Change Color │
 │ FF5: Old Values   F7: Load Setup Defaults   F10: Save & Exit │
 ├─────────────────────────────────────────────────────────┤
 │            Time, Date, Hard Disk Type, ...              │
 └─────────────────────────────────────────────────────────┘
```

4. Use the <Up> and <Down> key to move the highlight scroll up or down.

5. Use the <ENTER> key to select the option.

6. To exit, press <ESC>. To save and exit, press <F10>.

Standard CMOS Setup

1. Press <ENTER> on "Standard CMOS Setup" of the main menu screen .

```
         AMIBIOS  SETUP  -  STANDARD  CMOS  SETUP
(C)1999  American  Megatrends,Inc.All  Rights  Reserved

Date (mm/dd/yyyy): Thu Oct 26, 2000
Time (hh/mm/ss):   19:22:43

             TYPE      SIZE CYLS HEAD PRECOMP LANDZ SECTOR  MODE
             --------------------------------------------------------

Pri Master : Auto
Pri Slave  : Auto
Sec Master : Auto
Sec Slave  : Auto
                                  Base Memory : 640 Kb
Floppy Drive A:    1.44MB 3 1/2   Other Memory: 384 Kb
Floppy Drive B:    Not Installed  Extended Memory: 511 Mb
                                  Total Memory: 512 Mb
Boot Sector Virus Protection Disabled

Detecting drive parameters:           ESC:Exit
Press ESC to Abort                    ↑↓:Select Item
                                      PU/PD/+/- : Modify
                                      (Shift) F2: Color
```

2. Use <Up> and <Down> to choose the item and <PgUp> and <PgDn> keys to modify the highlighted item.

3. After you have finished with the Standard CMOS Setup, press <ESC> to go back to the main menu.

BIOS Features Setup

1. Press <ENTER> on "BIOS Features Setup" of the main menu
   screen.

```
        AMIBIOS  SETUP  -  BIOS  FEATURES  SETUP
          (C) 1999 American Megatrends, Inc. All Rights Reserved

Quick Boot               :Enabled
Ist Boot Device          :Floppy
2nd Boot Device          :IDE-O
3rd Boot Device          :CD-ROM
Try Other Boot Devices   :Yes
BootUp Num-Lock          :On
Floppy Drive Swap        :Disabled
Floppy Drive Seek        :Disabled
Password Check           :Setup
L1 Cache                 :WriteBack
Cache Bus ECC            :Disabled
Video BIOS Cacheable     :Disabled

                                      ESC:Quit        ↑↓ ←→:Select Item
                                      F1 :Help          PU/PD/+/- : Modify
                                      F5 :Old Values (Shift)F2: Color
                                      F6 :Load BIOS Defaults
                                      F7 :Load Setup Defaults
```

2. Use <Up> and <Down> to choose the item and <PgUp> and
   <PgDn> keys to modify the highlighted item.

3. After you have finished with the BIOS Features Setup, press
   <ESC> to go back to the main menu.

Description of the item on screen follows:

Quick Boot
Set this option to Enabled to permit AMI® BIOS to boot within 5 seconds. This option replaces the old ABOVE 1 MB Memory Test option.

1st Boot Device/2nd Boot Device/3rd Boot Device
This option sets the sequence of boot drives.
The settings are:

IDE0	The system will boot from the first HDD.
IDE1	The system will boot from the Second HDD.
IDE2	The system will boot from the Third HDD.
IDE3	The system will boot from the Fourth HDD.
Floppy	The system will boot from Floppy.
SCSI	The system will boot from the SCSI.
Network	The system will boot from the Network drive.
CD-ROM	The system will boot from the CD-ROM.
ZIP A:/LS120	The system will boot from ZIP/LS120.
ATAPI ZIP C:	The system will boot from ZIP.
Disable	Disable this sequence.

Try other Boot Devices
This option sets the device boot, if all the Four Boot Devices failed.

Boot up Num Lock
When this option is set to Off, AMI® BIOS turns off the Num Lock key when the system is powered on. The end user can then use the arrow keys on both the numeric keypad and the keyboard. The settings are On or Off. The setup default and BIOS settings are On.

Floppy Drive Swap
Set this option to Enabled to specify that floppy drives A: and B: are swapped. The setting are Enabled and Disabled. The setup and BIOS default settings are Disabled.

Floppy Drive Seek

When this option is set to Enabled, AMI® BIOS performs a Seek command on floppy drive A: before booting the system. The settings are Enabled and Disabled. The setup and BIOS default settings are Disabled.

Password Check

This option specifies the type of AMI® BIOS password protection that is implemented. The default settings is Setup.

L1 Cache

Choosing Write Back allows it to write back the level 1 cache memory. The settings are Write Back or Write through or Disabled.

Cache Bus ECC

This option is for Pentium® 4 processor. During Enabled, this will affect the system performance. Disabled this option if you don't want to affect the system performance.

Video BIOS Cacheable

Select Enabled allows caching of the video BIOS, resulting in better system performance. However, if any program writes to this memory area, a system error may result. The settings are Enabled and Disabled.

Chipset Features Setup

1. Press <ENTER> on "Chipset Features Setup" of the main menu screen.

```
        AMIBIOS  SETUP  -  CHIPSET  FEATURES  SETUP
        (C) 1999 American Megatrends, Inc. All Rights Reserved

CPU  Frequency  Ratio    :12.0X
USB  Function            :Enabled
USB  Keyboard  Support   :Disabled
Memory  Hole             :Disabled
Graphics  Aperture  Size :64MB
ICH  Decode  Select      :Subtractive
CPU  Bist  Enable        :Disabled
ICH  Delayed  Transaction :Disabled
ICH  DCB  Enable         :Disabled
VGA  Frame  Buffer  USWC :Disabled
PCI  Frame  Buffer  USWC :Disabled




                                       ESC:Quit      ↑↓ ←→:Select  Item
                                       F1 :Help       PU/PD/+/- : Modify
                                       F5 :Old Values (Shift)F2: Color
                                       F6 :Load BIOS Defaults
                                       F7 :Load Setup Defaults
```

2. Use <Up> and <Down> to choose the item and <PgUp> and <PgDn> keys to modify the highlighted item.

3. After you have finished with the Chipset Features Setup, press <ESC> to go back to the main menu.

Description of the item on screen follows:

CPU Frequency Ratio

This option enables you to set the CPU ratio.

USB Function

Set this option to Enabled or Disabled the on-chip USB controller.

USB Keyboard Support

Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard.

Memory Hole

This option allows the end user to specify the location of a memory hole. The cycle matching the selected memory hole will be passed to the ISA bus. If Enabled, the selected hole is not remapped.

Graphics Aperture Size

This option determines the effective size of the graphics aperture used in the particular PAC configuration. The AGP aperture is memory-mapped, while graphics data structure can reside in a graphics aperture. The aperture range should be programmed as not cacheable in the processor cache, accesses with the aperture range are forwarded to the main memory, then PAC will translate the original issued address via a translation table which is maintained on the main memory. The option allows the selection of an aperture size of 4MB, 8MB, 16MB, 32MB, 64MB, 128MB and 256MB.

ICH Decode Select

This option allows you to select the PCI decode timing of ICH.

CPU BIST Enable

This option allows you Enable or Disable the CPU Built-In Self
Test.

ICH Delayed Transaction

The chipset has an embedded 32-bit posted write buffer to support
delay transactions cycles. Select Enabled to support compliance with PCI
specification version 2.1.

ICH DCB Enable

This option allows you to Enable or Disable the ICH DMA
Collection Buffer for LPC I/F.

VGA Frame Buffer USWC

This option allows you to Enable or Disable the VGA frame buffer.

PCI Frame Buffer USWC

This option allows you to Enable or Disable the PCI frame buffer.

Power Management Setup

1. Press <ENTER> on "Power Management Setup" of the main menu screen.

```
        AMIBIOS  SETUP - POWER  MANAGEMENT  SETUP
          (C) 1999 American Megatrends, Inc. All Rights Reserved

IPCA Function            :Yes     Resume By Alarm          :Disabled
Sleep State              :S1/POS  Alarm Date               :15
Sleep State LED          :DualColor Alarm Hour             :12
Standby Time Out (Minute):Disabled Alarm Minute           :30
Keyboard & PS/2 Mouse    :Monitor Alarm Second             :30
FDC/LPT/COM Ports        :Monitor
SB & MSS Audio Ports     :Ignore
MIDI Ports               :Ignore
ADLIB Ports              :Ignore
Primary Master IDE       :Monitor
Primary Slave IDE        :Ignore
Secondary Master IDE     :Monitor
Secondary Slave IDE      :Ignore
System Thermal           :Ignore
Power Button Function    :On/Off
Restore on AC/Power Loss :Last State
Wake Up On Ring          :Disabled
Wake Up On Lan           :Disabled
Wake Up On PME           :Disabled
                                  ESC:Quit       ↑↓←→:Select  Item
                                  F1 :Help       PU/PD/+/- : Modify
                                  F5 :Old Values (Shift)F2: Color
                                  F6 :Load BIOS Defaults
                                  F7 :Load Setup Defaults
```

2. Use <Up> and <Down> to choose the item and <PgUp> and <PgDn> keys to modify the highlighted item.

3. After you have finished with the Power Management Setup, press <ESC> to go back to the main menu.

Description of the item on screen follows:

IPCA Function

This item allows you to Enabled/Disabled the Advanced Configuration and Power Management (ACPI). The settings are Enabled and Disabled.

Sleep State

This option allows you to set which Sleep State will be used.

S1/POS - Power on Suspend.

The S1 sleeping state is a low wake-up latency sleeping state. In this state, no system context is lost (CPU or chipset) and hardware maintains all system context.

S3/STR - Suspend to RAM.

The S3 state is a low wake-up latency sleeping state where all system context is lost except the system memory. CPU,cache, and chipset context are lost in this state. Hardware maintains memory context and restores some CPU and L2 configuration context.

Sleep State LED

This option determines which state the Power LED will use. The settings are Blinking, Dual and Single. During Blinking, the power LED will blink when the system enters the suspend mode. When the mode is in Dual, the power LED will change its color. In Single mode, the power LED will always remain lit.

Standby Time Out (Minute)

This option specifies the length of a period of system inactivity while in Standby state. When this length of time expires, the computer enters Suspend power state. The settings are Disabled, 1 min, 2 min, 4 min, 8 min, 10 min, 20 min, 30 min, 40 min, 50 min or 60 min.

Keyboard & PS/2 Mouse/
FDC/LPT/COM Ports/
SB & MSS Audio Ports/
MIDI Ports/
ADLIB Ports/
Primary Master IDE/Primary Slave IDE/Secondary Master IDE/Secondary Slave IDE/System Thermal

When set to Monitor, these options enabled event monitoring on the specified hardware interrupt request line. If set to Monitor and the computer is in a power saving state, AMI BIOS watches for activity on the specified IRQ line. The computer enters the full on power state if any activity occurs.

AMI BIOS reloads the Standby and Suspend time out timers if activity occurs on the specified IRQ line.

Power Button Function

During Suspend, if you push the switch once, the system goes into suspend mode and if you push it more than 4 seconds, the system will be turned off. During On/Off, the system will turn off once you push the switch.

Restore on AC/Power Loss

The settings are power on, power off or last state. During power on, after every AC power loss, the system will be turned on. During last status, after every AC power loss, whatever the system status, it will be the same when the AC power returns. During power off, after every AC power loss, the system will be turned off.

Wake Up On Ring/Wake Up On LAN

During Disabled, the system will ignore any incoming call from the modem/LAN. During Enabled, the system will boot up if there's an incoming call from the modem/LAN.

Note: If you have change the setting, you must let the system boot up until it goes to the operating system. Then, power off the system. This function will work the next time you power on.

Wake Up On PME

This option enables the system to comply with PCI specification version 2.2. PCI card should be present to enable power on or resume from the PME signal.

Resume By Alarm

This function is for setting the Date, Hour, Minute, and Second for your computer to boot up. During Disabled, you cannot use this function. During Enabled, Choose the Date, Hour, Minute, and Second:

Alarm Date   Select which day the system will boot up.
Alarm Hour   Select the hours for the system to boot up.
Alarm Minute   Select the minutes for the system to boot up.
Alarm Second   Select the seconds for the system to boot up.

Note: If you have change the setting, you must let the system boot up until it goes to the operating system. Then, power off the system. This function will work the next time you power on.

PNP/PCI Configuration

1. Press <ENTER> on "PNP/PCI Configuration" of the main menu screen.

```
         AMIBIOS  SETUP  -  PNP/PCI  CONFIGURATION
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Clear ESCD               :No
PCI VGA Palette Snoop    :Disabled
DMA Channel 0            :PnP
DMA Channel 1            :PnP
DMA Channel 3            :PnP
DMA Channel 5            :PnP
DMA Channel 6            :PnP
DMA Channel 7            :PnP
IRQ3                     :PCI/PnP
IRQ4                     :PCI/PnP
IRQ5                     :PCI/PnP
IRQ7                     :PCI/PnP
IRQ9                     :PCI/PnP
IRQ10                    :PCI/PnP
IRQ11                    :PCI/PnP
IRQ14                    :PCI/PnP
IRQ15                    :PCI/PnP

                                  ESC:Quit        ↑↓←→:Select Item
                                  F1 :Help        PU/PD/+/- : Modify
                                  F5 :Old Values (Shift)F2: Color
                                  F6 :Load BIOS Defaults
                                  F7 :Load Setup Defaults
```

2. Use <Up> and <Down> to choose the item and <PgUp> and <PgDn> keys to modify the highlighted item.

3. After you have finished with the PNP/PCI Configuration, press <ESC> to go back to the main menu.

Description of the item on screen follows:

Clear ESCD

During Yes, this will clear ESCD data on every boot.

PCI VGA Palette Snoop

When this option is set to Enabled, multiple VGA devices operating on different buses can handle data from the CPU on each set of palette registers on every video device. Bit 5 of the command register in the PCI device configuration space is the VGA Palette Snoop bit (0 is disabled). For example, if there are two VGA devices in the computer (one PCI and ISA) and the Bit settings are:

Disabled-Data read and written by the CPU is only directed to the PCI VGA device's palette registers.

Enabled - Data read and written by the CPU is directed to both the PCI VGA device's palette registers and the ISA VGA device palette registers, permitting the palette registers of both devices to be identical.

This option must be set to Enabled if an ISA adapter card requires VGA palette snooping. The settings are Enabled or Disabled.

DMA Channel 0/1/3/5/6/7

These options specify the bus that the specified DMA channel is used. These options allow you to reserve DMAs for legacy ISA adapter cards.

These options determine if AMI® BIOS should remove a DMA from the available DMAs passed to devices that are configurable by the system BIOS. The available DMA pool is determined by reading the ESCD NVRAM. If more DMAs must be removed from the pool, the end user can use these options to reserve the DMA by assigning an ISA/EISA setting to it.

IRQ3/IRQ4/IRQ5/RQ7/IRQ9/IRQ10/IRQ11/IRQ14/IRQ15

These options specify the bus that the specified IRQ line is used on. These options allow you to reserve IRQs for legacy ISA adapter cards.

These options determine if AMI® BIOS should remove an IRQ from the pool of available IRQs passed to devices that are configurable by the system BIOS. The available IRQ pool is determined by reading the ESCD NVRAM. If more IRQs must be removed from the pool, the end user can use these options to reserve the IRQ by assigning an ISA/EISA setting to it. Onboard I/O is configured by AMI® BIOS. All IRQs used by onboard I/O are configured as PCI/PnP. If all IRQs are set to ISA/EISA and IRQ14 and 15 are allocated to the onboard PCI IDE, IRQ9 will still be available for PCI and PnP devices, because at least one IRQ must be available for PCI and PnP devices. The settings are ISA/EISA or PCI/PnP. The Optimal and Fail-Safe default settings are IRQ3 through 7 are ISA/EISA. The Optimal and Fail-Safe default settings PCI/PnP.

Integrated Peripherals

1. Press <ENTER> on "Integrated Peripherals" of the main menu screen.

```
          AMIBIOS  SETUP  -  INTEGRATED  PERIPHERALS
          (C) 1999 American Megatrends, Inc. All Rights Reserved

Floppy  Controller      :Auto
Serial Port A           :Auto
Serial Port B           :Auto
 Serial Port B Mode     :Normal
  IR Duplex Mode        :Half Duplex
  IR Pin Select         :IRRX/IRTX
CIR Port                :Disabled
 CIR IRQ Select         :10
OnBoard Parallel Port   :Auto
 Port Mode              :ECP
 EPP Version            :N/A
 Port IRQ               :Auto
 Port DMA Channel       :Auto
OnBoard Midi Port       :300
 Midi IRQ Select        :9
OnBoard Game Port       :200
On-Chip IDE             :Both
AC97 Audio Controller   :Auto
AC97 Modem Controller   :Auto

                                    ESC:Quit        ↑↓←→:Select Item
                                    F1 :Help        PU/PD/+/- : Modify
                                    F5 :Old Values (Shift)F2: Color
                                    F6 :Load BIOS Defaults
                                    F7 :Load Setup Defaults
```

2. Use <up> and <down> to choose the item and <PgUp> and <PgDn> keys to modify the highlighted item.

3. After you have finished with the Integrated Peripherals, press <ESC> to go back to the main menu.

Description of the item on screen follows:

Floppy Controller
Set this option to Auto for the BIOS to automatically detect the device

Serial Port A/Serial Port B
Choose Auto, for the BIOS to automatically detect the device.

If the ISA add-on card has				Onboard Serial port to be set at			
COM1 (I/O:3F8H)	COM2 (I/O:3F8H)	COM3 (I/O:3E8H)	COM4 (I/O:2E8H)	PORT1	IRQ ASSIGNED	PORT2	IRQ ASSIGNED
✓	✓	✓	✓	DISABLED	X	DISABLED	X
✓	✓	X	X	COM3	4	COM4	3
X	X	✓	✓	COM1	4	COM2	3
✓	X	X	✓	COM2	3	COM3	4
X	✓	✓	X	COM1	4	COM4	3
✓	✓	✓	X	COM4	3	DISABLED	X
✓	✓	X	✓	COM3	4	DISABLED	X
✓	X	✓	✓	COM2	3	DISABLED	X
X	✓	✓	✓	COM1	4	DISABLED	X
X	X	X	X	COM1	4	COM2	3
✓	X	X	X	COM2	3	COM3	4
X	✓	X	X	COM1	4	COM3	4
X	X	✓	X	COM1	4	COM2	3
X	X	X	✓	COM1	4	COM2	3

Note: *If the onboard serial port interrupt and ISA add-on card interrupt are in conflict, the serial port will not work properly. Please disable one of the devices.*

Serial Port B Mode
        Choosing Normal will set the Serial Port B for normal use, not for IR device. Choosing IrDA or Ask IR will set it for use with IR device using these protocols.

IR Duplex Mode
        Can be set as either Half or Full duplex.

IR Pin Select
        Set this option to IRRX/IRTX when using an internal IR device which is connected to J5 connector.

Onboard CIR Port
        Setting Enabled, the system support consumer IR and your device have to be connected to J5 connector.

CIR IRQ Select
        Select IRQ 3, 4, 9, 10 or 11 to support CIR Interrupt.

Onboard Parallel Port

Choose Auto, the BIOS automatically assigned onboard parallel port to the available parallel port or disabled.

If the ISA add-on card has			Onboard parallel port to be set as	
LPT1 I/O:378H	LPT2 I/O:278H	LPT3 I/O:3BCH	PORT ASSIGNED	IRQ ASSIGNED
✓	✓	✓	Disabled	X
✓	✓	X	LPT3	5
✓	X	✓	LPT2	5
X	✓	✓	LPT1	7
✓	X	X	LPT2	5
X	✓	X	LPT1	7
X	X	✓	LPT1	7
X	X	X	LPT1	7

Note: *If the onboard parallel port interrupt and ISA add-on card interrupt are in conflict, the parallel port will not work properly. Please disable one of the devices.*

Port Mode

This option allows user to choose the operating mode of the onbaord parallel port. The settings are Normal, SPP/EPP or ECP mode.

EPP Version

This option is for setting which EPP version will be used. The settings are 1.7 and 1.9.

Port IRQ

If the onboard parallel mode is not on auto mode, the user can select the interrupt line for onboard parallel port. We suggest that the user select the interrupt for the onboard parallel port as shown below:

Onboard parallel port set at	Parallel Port IRQ
LPT1(378H)	7
LPT2(278H)	5
LPT3(3BCH)	5

Port DMA Channel

This option allows user to choose port DMA channel 1 to 3 for the onboard parallel port on ECP mode.

OnBoard MIDI Port

Choose 290H, 292H, 300H, 330H to support MIDI devices.

MIDI IRQ Select

Choose 5, 7, 9, 10 to support MIDI device interrupt.

OnBoard Game Port

Choose 200H, 208H to support Joystick device.

Note: If Hardware Audio is onboard, the three items above in the peripheral setup will not be shown.

On-Chip IDE

Set this option to enable or disable on-chip IDE controller.

AC97 Audio/AC'97 Modem Controller

Set this option to Auto for the BIOS to automatically detect the AC97 audio and modem controller.

Hardware Monitor Setup

The Hardware Monitor Setup is used to set the CPU speed and monitor the current CPU Temperature, CPU Fan speed, Chassis Fan Speed, Power fan speed, Vcore, etc. This is only available if there is Hardware Monitor onboard.

   1. Press <ENTER> on "Hardware Monitor Setup" of the main menu screen.

```
            AMIBIOS  SETUP  -  HARDWARE  MONITOR  SETUP
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-==System Hardware Monitor==-
   Chassis Intrusion    :Disabled
   CPU Temperature      :40°C/104°F
   System Temperature   :32°C/89°F
   CPU Fan Speed        :0 RPM
   System Fan Speed     :0 RPM
   Power Fan Speed      :4354 RPM
   CPU VID              :1.75V
   Vcore                :1.648 V
   1.8V                 :1.824 V
   Vio                  :3.312 V
   + 5.0V               :5.223 V
   + 12.0V              :11.376 V
   - 12.0V              :-11.497 V
   - 5.0V               :-4.926 V
   Battery              :3.136 V
   +5V SB               :5.090 V

                                    ESC:Quit        ↑↓←→:Select Item
                                    F1 :Help         PU/PD/+/- : Modify
                                    F5 :Old Values (Shift)F2: Color
                                    F6 :Load BIOS Defaults
                                    F7 :Load Setup Defaults
```

2. Use <Up> and <Down> to choose the item and <PgUp> and <PgDn> keys to modify the highlighted item.

3. After you have finished with the Hardware Monitor Setup, press <ESC> to go back to the main menu.

Description of the item on screen follows:

Chassis Intrusion

Set this option to Enabled, Reset, or Disabled the chassis intrusion detector. During Enabled, any intrusion on the system chassis will be recorded. The next time you turn on the system, it will show a warning message. To be able to clear those warning, choose reset. Afte clearing the message it will go back to Enabled.

CPU Temperature/System Temperature/CPU Fan Speed/ System Fan Speed/Power Fan Speed/CPU VID/Vcore/1.8V/Vio/ +5V/+12V/-12V/-5V/Battery/5VSB

This will show the CPU/Fan/System voltage chart and Fan speed.

Supervisor/User Password

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 "Supervisor/User Password" in the Main Menu and press <Enter>. The following message appears:

   "Enter New Supervisor/User Password:"

2. The first time you run this option, enter your password up to 6 characters only and press <Enter>. The screen will 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:

   "Retype New Supervisor/User Password:"

4. Enter exactly the same password you just typed in to confirm the password and press <Enter>.

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

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

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

IDE HDD Auto Detection

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

```
        AMIBIOS  SETUP  -  STANDARD  CMOS  SETUP
(C)1999  American  Megatrends,Inc.All  Rights  Reserved

Date (mm/dd/yyyy): Fri Jul 21, 2000
Time (hh/mm/ss):   01:01:34

            TYPE      SIZE CYLS HEAD PRECOMP LANDZ SECTOR MODE
            --------------------------------------------------------
Pri Master :
Pri Slave  :
Sec Master :
Sec Slave  :
                                    Base Memory : 0 KB
Floppy Drive A:    Not Installed    Other Memory: 384 Kb
Floppy Drive B:    Not Installed    Extended Memory : 0 Mb
                                    Total Memory : 1 Mb
Boot Sector Virus Protection Disabled

Detecting drive parameters:              ESC:Exit
Press ESC to Abort                       ↑↓:Select Item
                                         PU/PD/+/- : Modify
                                         (Shift) F2: Color
```

Chapter 4

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.

Entering Setup

Power on the computer and press <Del> immediately to 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

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 <Esc>.

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 twelve setup functions and two exit choices. Use arrow keys to select among the items and press <Enter> to accept or enter the sub-menu.

```
       CMOS Setup Utility - Copyright(C) 1984-2000 Award Software

 ┌─────────────────────────────────────────────────────────────────┐
 │ Standard CMOS Features     │ Frequency/Voltage Control            │
 │                            │                                      │
 │ Advanced BIOS Features     │ Load Fail-Safe Defaults              │
 │                            │                                      │
 │ Advanced Chipset Features  │ Load Optimized Defaults              │
 │                            │                                      │
 │ Integrated Peripherals     │ Set Supervisor Password              │
 │                            │                                      │
 │ Power Management Setup      │ Set User Password                   │
 │                            │                                      │
 │ PnP/PCI Configurations     │ Save & Exit Setup                    │
 │                            │                                      │
 │ PC Health Status           │ Exit Without Saving                  │
 ├────────────────────────────┴──────────────────────────────────────┤
 │  Esc : Quit                 ↑↓→←   : Select Item                   │
 │  F10 : Save & Exit Setup                                           │
 ├───────────────────────────────────────────────────────────────────┤
 │            Time, Date, Hard Disk Type...                          │
 │                                                                   │
 └───────────────────────────────────────────────────────────────────┘
```

Standard CMOS Setup

Use this Menu for basic system configurations.

Advanced BIOS Features

Use this menu to set the Advanced Features available on your system.

Advanced Chipset Features

Use this menu to change the values in the chipset registers and optimize your system's performance.

Integrated Peripherals

Use this menu to specify your settings for integrated peripherals.

Power Management Setup

Use this menu to specify your settings for power management.

PnP/PCI Configuration

This entry appears if your system supports PnP/PCI.

PC Health Status

This entry shows your PC health status.

Frequency/Voltage Control

Use this menu to specify your settings for frequency/voltage control.

Load Fail-Safe Defaults

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

Load Optimized Defaults

Use this menu to load the BIOS default values that are factory settings for optimal performance system operations.

Supervisor/User Password

Use this menu to set User and Supervisor Passwords.

Save & Exit Setup

Save CMOS value changes to CMOS and exit setup.

Exit Without Saving

Abandon all CMOS value changes and exit setup.

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.

CMOS Setup Utility - Copyright(C) 1984-2000 Award Software
Standard CMOS Setup

```
Date(mm:dd:yy):        Fri, Feb 28,1999
Time(hh:mm:ss):        00:00:00                    Item Help


IDE  Primary Master    Press Enter 2557MB    Menu Level   >
IDE  Primary Slave     Press Enter None
IDE  Secondary Master  Press Enter None
IDE  Secondary Slave   Press Enter None


Drive A                1.44M,  3.5in.
Drive B                None


Video                  EGA/VGA
Halt On                All  Errors


Based Memory           640K
Extended  Memory       64512K
Total  Memory          65536K


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

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

Press PgUp/<+> or PgDn/<-> to select Manual, None, Auto type. 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 Manual to define your own drive type manually.

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

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".

Access Mode	The settings are Auto, Normal, Large,LBA.
Cylinder	number of cylinders
Head	number of heads
Precomp	write precom
Landing Zone	landing zone
Sector	number of sectors

Advanced BIOS Features

CMOS Setup Utility - Copyright(C) 1984-2000 Award Software
Advanced BIOS Features

```
Virus  Warning               Disabled
BIOS Flash Write Control      Disabled           Item Help
CPU L1 & L2 Cache             Enabled
Quick Power On Self Test      Disabled
First  Boot Device            Floppy        Menu Level  >
Second  Boot Device           HDD-0
Third  Boot Device            LS120
Boot Other Device             Enabled
Swap Floppy Drive             Disabled
Boot Up Floppy Seek           Enabled
Boot Up Numlock Status        On
Gate A20 Option               Fast
Typematic Rate Setting        Disabled
Typematic  Rate  (Chars/Sec)  6
Typematic Delay (Msec)        250
Security  Option              Setup
OS Select for DRAM > 64MB     Non-OS2
HDD S.M.A.R.T. Capability     Disabled
Report No FDD for Win 95      No
```

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

Virus Warning

Allows you to choose the VIRUS Warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempt to write data into this area, BIOS will show a warning message on screen and alarm beep.

Disable(default)   No warning message to appear when anything attempts to access the boot sector or hard disk partition table.

Enable   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.

BIOS Flash Write Control

This option allows you to Enabled or Disabled the BIOS flash write control.

CPU L1 & L2 Internal Cache

Cache memory is additional memory that is much faster than the conventional DRAM (system memory). When the CPU requests data, the system transfers the requested data from the main DRAM into cache memory, for even faster access by the CPU.

Enabled (default) Enable cache
Disabled   Disable cache
Note: The internal cache is built in the processor.

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 (default) Enable quick POST
Disabled   Normal POST

First/Second/Third Boot Device/Other Boot Device

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

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 760K, 1.2M and 1.44M are all 80 tracks.

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.

Typematic Rate Setting

Key strokes repeat at a rate determined by the keyboard controller.
When enabled, the typematic rate and typematic delay can be selected.
The settings are Enabled and Disabled.

Typematic Rate (Chars/Sec)

Sets the number of times a second to repeat a key stroke when you
hold the key down. The settings are 6, 8, 10, 12, 15, 20, 24 and 30.

Typematic Delay (Msec)

Sets the delay time after the key is held down before it begins to
repeat the keystroke   The settings are 250, 500, 750 and 1000.

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.

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®.

HDD S.M.A.R.T Capability

This item allows you to Enabled or Disabled the HDD S.M.A.R.T (Self-Monitoring Analysis and Reporting Technology) Capability. The default setting is Disabled.

Report No FDD For Win 95

Whether report no FDD for Win 95 or not. The settings are: Yes, No.

Advanced Chipset Features

The Advanced 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 "ADVANCED CHIPSET FEATURES" from the Main Menu and the following screen will appear.

```
CMOS Setup Utility - Copyright(C) 1984-2000 Award Software
                  Advanced Chipset Features

┌─────────────────────────────────────┬─────────────────────────┐
│ RDRAM Bus Frequency       Auto       │                         │
│ DRAM Data Integrity Mode  Non-ECC    │        Item Help        │
│ System BIOS Cacheable     Disabled   │                         │
│ Video BIOS Cacheable      Disabled   │                         │
│ Memory Hole at 15M-16M    Disabled   │ Menu Level   >          │
│ Delayed  Transaction      Enabled    │                         │
│ AGP Aperture Size (MB)    64         │                         │
│                                      │                         │
│                                      │                         │
│                                      │                         │
│                                      │                         │
│                                      │                         │
│                                      │                         │
│                                      │                         │
├──────────────────────────────────────┴─────────────────────────┤
│ ↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help │
│    F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults │
└─────────────────────────────────────────────────────────────────┘
```

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

RDRAM Bus Frequency

This will show the RDRAM Bus Frequency during boot-up. The settings are Auto, 400MHz and 300MHz.

DRAM Data Integrity Mode

This option allows you to select the Parity or ECC (Error-Checking and Correcting), according to the type of installed DRAM.

System BIOS Cacheable

Selecting *Enabled* allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result. The settings are: Enabled and Disabled.

Video BIOS Cacheable

Select Enabled allows caching of the video BIOS , resulting in better system performance. However, if any program writes to this memory area, a system error may result. The settings are: Enabled and Disabled.

Memory Hole At 15M-16M

You can reserve this area of system memory for ISA adapter ROM. When this area is reserved, it cannot be cached. The user information of peripherals that need to use this area of system memory usually discusses their memory requirements. The settings are: Enabled and Disabled.

Delayed Transaction

The chipset has an embedded 32-bit posted write buffer to support delay transactions cycles. Select *Enabled* to support compliance with PCI specification version 2.1. The settings are Enabled and Disabled.

AGP Aperture Size (MB)

This option determines the effective size of the graphics aperture used in the particular PAC configuration. The AGP aperture is memory-mapped, while graphics data structure can reside in a graphics aperture. The aperture range should be programmed as not cacheable in the processor cache, accesses with the aperture range are forwaded to the main memory, then PAC will translate the original issued address via a translation table that is maintained on the main memory. The option allows the selection of an aperture size of 4MB, 8MB, 16MB, 32MB, 64MB, 128MB and 256MB.

Integrated Peripherals

CMOS Setup Utility - Copyright(C) 1984-2000 Award Software
Integrated Peripherals

```
┌──────────────────────────────────────────┬─────────────────────────┐
│ OnChip Primary PCI IDE      Enabled       │                         │
│ OnChip Secondary PCI IDE    Enabled       │        Item Help        │
│ IDE Primary Master PIO      Auto          │                         │
│ IDE Primary Slave PIO       Auto          ├─────────────────────────┤
│ IDE Secondary Master PIO    Auto          │                         │
│ IDE Secondary Slave PIO     Auto          │ Menu Level   >          │
│ IDE Primary Master UDMA     Auto          │                         │
│ IDE Primary Slave UDMA      Auto          │                         │
│ IDE Secondary Master UDMA   Auto          │                         │
│ IDE Secondary Slave UDMA    Auto          │                         │
│ USB Controller              Enabled       │                         │
│ USB Keyboard Support        Disabled      │                         │
│ Init Display First          AGP           │                         │
│ AC97 Audio                  Auto          │                         │
│ AC97 Modem                  Auto          │                         │
│ IDE HDD Block Mode          Enabled       │                         │
│ Power On Function           Button Only   │                         │
│ KB Power On Password        Disabled      │                         │
│ KB Power On Password        Enter         │                         │
│ Hot Key Power On            Ctrl-F1       │                         │
│ Onboard FDC Controller      Enabled       │                         │
│ Onboard Serial Port 1       3F8/IRQ4      │                         │
│ Onboard Serial Port 2       2F8/IRQ3      │                         │
│                                           │                         │
├──────────────────────────────────────────┴─────────────────────────┤
│ ↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help│
│    F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults    │
└─────────────────────────────────────────────────────────────────────┘
```

```
┌──────────────────────────────────────────┬─────────────────────────┐
│ UART Mode Select            Normal        │                         │
│ RxD, TxD Active             Hi, Lo        │                         │
│ IR Transmition Delay        Enabled       │                         │
│ UR2 Duplex Mode             Half          │                         │
│ USE IR Pins                 IR-Rx2Tx2     │                         │
│ Onboard Parallel Port       378/IRQ7      │                         │
│ Parallel Port Mode          SPP           │                         │
│ EPP Mode Select             EPP 1.7       │                         │
│ ECP Mode use UDMA           3             │                         │
│ PWRON After PWR-Fail        Off           │                         │
│ Game Port Address           201           │                         │
│ Midi Port Address           330           │                         │
│ Midi Port IRQ               10            │                         │
│ Power Status LED            Blinking      │                         │
└──────────────────────────────────────────┴─────────────────────────┘
```

OnChip Primary/Secondary PCI IDE

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

IDE Primary/Secondary Master/Slave PIO

The four IDE PIO (Programmed Input/Output) fields let you set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device. The settings are: Auto, Mode 0, Mode 1, Mode 2, Mode 3, Mode 4.

IDE Primary/Secondary Master/Slave UDMA

Ultra DMA/33 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver). If your hard drive and your system software both support Ultra DMA/33, Ultra DMA/66 select Auto to enable BIOS support. The settings are Auto and Disabled.

USB Controller

Select *Enabled* if your system contains a Universal Serial Bus (USB) controller and you have USB peripherals. The settings are Enabled and Disabled.

USB Keyboard Support

Select *Enabled* if your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard. The settings are Enabled and Disabled.

Init Display First

Initialize the AGP video display before initializing any other display device on the system. Thus the AGP display becomes the primary display. The settings are PCI slot and AGP.

AC97 Audio

This item allows you to decide to Enable/Disable the 850 chipset family to support AC97 Audio.

AC97 Modem

This item allows you to Enabled or Disabled the AC97 Modem.

IDE HDD Block Mode

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

Power On Function

This function allows you to select the item to power on the system. The settings are Button Only, Mouse Left, Mouse Right, Password, Hotkey Power On and Keyboard 98.

KB Power on Password

Normally, this item is unselectable. To Enabled this function choose the "Password" setting in the Power On Function. This will allow you to input the password for the KB Power On.

Onboard FDC Controller

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

Onboard Serial Port 1/Port 2

Select an address and corresponding interrupt for the first and second serial ports. The settings are: 3F8/IRQ4, 2E8/IRQ3, 3E8/IRQ4, 2F8/IRQ3, Disabled, Auto.

UART Mode Select

This item allows you to determine which InfraRed(IR) function of the onboard I/O chip, this functions uses.

RxD, TxD Active

This item allows you to determine the active of RxD, TxD. The settings are "Hi,Hi", "Lo,Lo", "Lo,Hi" and "Hi,Lo".

IR Transmission Delay

This item allows you to Enabled/Disabled the IR transmission delay. The settings are Enabled or Disabled.

UR2 Duplex Mode

This item allows you to select the IR half.full duplex function. The settings are Half and Full.

Use IR Pins

Consult your IR peripheral documentation to select the correct setting pf the TxD and RxD signals.

Onboard Parallel Port

Select a logical LPT port address and corresponding interrupt for the physical parallel port.

Onboard Parallel Mode

To operate the onboard parallel port as Standard Parallel Port only, choose "SPP." To operate the onboard parallel port in the EPP modes simultaneously, choose "EPP." 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, 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.

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

PWRON After PWR-FAIL

This option will determine how the system will power on after a power failure.

Game Port Address/Midi Port Address

This will determine which Address the Game Port/Midi Port will use.

Midi Port IRQ

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

Power Status LED

This item determines which state the Power LED will use. The settings are Blinking (default), Dual, and Single. During blinking, the power LED will blink when the system enters the suspend mode. When the mode is in Dual, the power LED will change its color. Choose the single and the power LED will always remain lit.

Power Management Setup

   The Power Management Setup allows you to configure you system
to most effectively save energy while operating in a manner consistent with
your own style of computer use.

CMOS Setup Utility - Copyright(C) 1984-2000 Award Software
Power Management Setup

```
ACPI Suspend Type          S1(POS)
Power Management           User Define            Item Help
Video Off Method          DPMS
Video Off In Suspend      Yes
Suspend Type              Stop Grant          Menu Level   >
Modem Use IRQ             3
Suspend Mode              Disabled
HDD Power Down            Disabled
Soft-Off by PWR-BTTN      Instant-Off
Wake-Up by PCI Card       Enabled
Power On by Ring          Enabled
Wake-Up on LAN            Enabled
CPU Thermal-Throtting     50%
Resume By Alarm           Disabled
Date(of Month) Alarm      0
Date(hh:mm:ss)            0 0 0

**Reload Global Timer Events**
Primary IDE 0              Disabled
Primary IDE 1              Disabled
Secondary IDE 0           Disabled
Secondary IDE 1           Disabled
FDD, COM, LPT Port        Disabled
PCI PIRQ[A-D]#            Disabled
```

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

ACPI Suspend Type

This item will set which ACPI suspend type will be used.

S1 (POS)

The S1 sleeping state is low wake-up latency sleeping state. In this state, no system context is lost (CPU or chipset) and hardware maintains all system context.

S3 (STR)

The S3 state is a low wake-up latency sleeping state where all system context is lost except system memory. CPU, cache, and chipset context are lost in this state. Hardware maintains memory context and restores some CPU and L2 configuration context.

Power Management

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

      1.   Suspend Mode

      2.   HDD Power Down

There are three selections for Power Management, two of which have fixed mode settings.

Min. Power Saving	Minimum power management. Suspend Mode = 1 hr., and HDD Power Down = 15 min.
Max. Power Saving	Maximum power management — Suspend Mode = 1 min., and HDD Power Down = 1 min.
User Defined (default)	Allows you to set each mode individually. When not disabled, each of the ranges are from 1 min. to 1 hr. except for HDD Power Down which ranges from 1 min. to 15 min. and disable.

Video Off Method

This determines the manner in which the monitor is blanked.

V/H SYNC+Blank	This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.
Blank Screen	This option only writes blanks to the video buffer.
DPMS (default)	Initial display power management signaling.

Video Off In Suspend

This determines the manner in which the monitor is blanked.
The settings are Yes and No.

Suspend Type

Select the Suspend Type. The settings are: PWRON Suspend, Stop Grant.

Modem Use IRQ

This determines the IRQ in which the MODEM can use.
The settings are 3, 4, 5, 7, 9, 10, 11and NA.

Suspend Mode

When enabled and after the set time of system inactivity, all devices except the CPU will be shut off. The settings are 1/2/4/8/12/20/30/40 Min, 1 Hour and Disabled.

HDD Power Down

When enabled and after the set time of system inactivity, the hard disk drive will be powered down while all other devices remain active.
The settings are: 1/2/3/4/5/6/7/8/9/10/11/12/13/14/15Min and Disabled.

Soft-Off by PWR-BTTN

Pressing the power button for more than 4 seconds forces the system to enter the Soft-Off state. The settings are Delay 4 Sec and Instant-Off.

Wake-Up by PCI Card

This will enable the system to wake up through PCI Card peripheral.
The settings are Enabled and Disabled.

Power On by Ring

During Disabled, the system will ignore any incoming call from the modem. During Enabled, the system will boot up if there's an incoming call from the modem.

Wake-Up on LAN

To use this function, you need a LAN add-on card which support power on functions. It should also support the wake-up on LAN jumper (JWOL1).

Enabled	Wake up on LAN supported.
Disabled	Wake up on LAN not supported.

CPU Thermal-Throttling

Select the CPU THRM-Throttling rate. The settings are: 12.5%, 25.0%, 37.5%, 50.0%, 62.5%, 75.0%, 87.5%.

Resume by Alarm

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

Date(of month) Alarm	You can choose which month the system will boot up. Set to 0, to boot every day.
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.

Reload Global Timer Events

Reload Global Timer events are I/O events whose occurrence can prevent the system from entering a power saving mode or can awaken the system from such a mode. In effect, the system remains alert for anything which occurs to a device which is configured as *Enabled* , even when the system is in a power down mode.

> **Primary IDE 0**
> **Primary IDE 1**
> **Secondary IDE 0**
> **Secondary IDE 1**
> **FDD, COM, LPT Port**
> **PCI PIRQ[A-D] #**

PnP/PCI Configuration Setup

This section describes configuring the PCI bus system. PCI, or **P**ersonal **C**omputer **I**nterconnect, is a system which allows I/O devices to operate at speeds nearing the speed the CPU itself uses when communicating with its own special components. This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.

CMOS Setup Utility - Copyright(C) 1984-2000 Award Software
PnP/PCI Configuration Setup

```
┌─────────────────────────────────────────────┬──────────────────────────┐
│ Reset Configuration Data    Disabled         │                          │
│                                              │        Item Help         │
│ Resources Controlled By     Auto (ESCD)      │                          │
│ IRQ Resources               Press Enter      ├──────────────────────────┤
│                                              │ Menu Level  >            │
│ PCI/VGA Palette Snoop       Disabled         │                          │
│                                              │                          │
│                                              │                          │
│                                              │                          │
│                                              │                          │
│                                              │                          │
│                                              │                          │
│                                              │                          │
│                                              │                          │
│                                              │                          │
├──────────────────────────────────────────────┴──────────────────────────┤
│ ↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help │
│    F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults        │
└──────────────────────────────────────────────────────────────────────────┘
```

Reset Configuration Data

Normally, you leave this field to Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system can not boot.
The settings are Enabled and Disabled .

Resource Controlled By

The Award Plug and Play BIOS has the capacity to automatically configure all of the boot and Plug and Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as Windows®95/98. If you set this field to "manual" choose specific resources by going into each of the sub menu that follows this field (a sub menu is preceded by a "➢"). The settings are Auto (ESCD) and Manual.

IRQ Resources

When resources are controlled manually, assign each system interrupt a type, depending on the type of device using the interrupt.

PCI/VGA Palette Snoop

Leave this field at *Disabled*. The settings are Enabled and Disabled.

PC Health Status

This section shows the Status of your CPU, Fan, Warning for overall system status.

```
            CMOS Setup Utility - Copyright(C) 1984-2000 Award Software
                              PC Health Status
 ┌────────────────────────────────────────────┬──────────────────────────┐
 │ Chassis  Intrusion Detect     Disabled      │                          │
 │ CPU Warning Temperature       Disabled      │         Item Help        │
 │ Current  System Temp          39°C/102°F    │                          │
 │ Current  CPU Temperature      66°C/150°F    │                          │
 │ Current  CPU FAN              5532RPM        ├──────────────────────────┤
 │ Current  SYS Fan              0RPM          │ Menu Level   >           │
 │ Current  PWR Fan              0RPM          │                          │
 │ Vcore                         1.65V         │                          │
 │ +1.88V                        1.88V         │                          │
 │ Vio                           3.24V         │                          │
 │ +5V                           4.89V         │                          │
 │ +12V                          11.79V        │                          │
 │ -12V                          -12.19V       │                          │
 │ -5V                           -4.53V        │                          │
 │ VBAT(V)                       3.10V         │                          │
 │ 5VSB(V)                       5.37V         │                          │
 │ Shutdown  Temperature         Disabled      │                          │
 │                                             │                          │
 │                                             │                          │
 │                                             │                          │
 │                                             │                          │
 ├─────────────────────────────────────────────┴──────────────────────────┤
 │ ↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help │
 │    F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults        │
 └─────────────────────────────────────────────────────────────────────────┘
```

Chassis Intrusion Detect

Set this option to Enabled, Reset, or Disabled the chassis intrusion detector. During Enabled, any intrusion on the system chassis will be recorded. The next time you turn on the system, it will show a warning message. To be able to clear those warning, choose reset. After clearing the message it will go back to Enabled.

CPU Warning Temperature

Select the combination of lower and upper limits for the CPU temperature. If the CPU temperature extends beyond either limit, any warning mechanism programmed into your system will be activated.

Current System Temp/Current CPU Temperature/Current CPU Fan (optional)/SYS Fan (optional)/PWR Fan/Vcore/ +1.88V/Vio/+5V/+12V/-12V/-5V/VBAT(V)/5VSB(V)

This will show the CPU/FAN/System voltage chart and FAN Speed.

Shutdown Temperature

This option is for setting the Shutdown temperature level for the processor. When the processor reach the temperature you set, this will shutdown the system.

Frequency/Voltage Control

This section is for setting CPU Frequency/Voltage Control.

CMOS Setup Utility - Copyright(C) 1984-2000 Award Software
Frequency/Voltage Control

```
┌─────────────────────────────────────────────┬──────────────────────────┐
│ CPU Clock Ratio            x8                 │                          │
│                                               │        Item Help         │
│                                               ├──────────────────────────┤
│                                               │ Menu Level   >           │
│                                               │                          │
│                                               │                          │
│                                               │                          │
│                                               │                          │
│                                               │                          │
│                                               │                          │
│                                               │                          │
│                                               │                          │
│                                               │                          │
├───────────────────────────────────────────────┴────────────────────────┤
│ ↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help │
│    F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults        │
└─────────────────────────────────────────────────────────────────────────┘
```

CPU Clock Ratio

The CPU Clock Ratio provides flexibility for overclockers from x8 to x23.

Note: Most of the Pentium® 4 processor doesn't support clock ratio adjustment. Always consult your reseller for further instructions.

Load Fail-Safe/Optimized Defaults

Load Fail-Safe Defaults
When you press <Enter> on this item, you get a confirmation dialog box
with a message similar to:

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

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

Load Optimized Defaults
When you press <Enter> on this item, you get a confirmation dialog box
with a message similar to:

    Load Optimized Defaults (Y/N) ? N

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

Set Supervisor/User Password

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

Supervisor password: Can enter and change the options of the setup menus.

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

ENTER PASSWORD:

Type the password, up to eight characters in length, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

To disable a password, just press <Enter> when you are prompted to enter the password. A message will confirm the password will be disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

PASSWORD DISABLED.

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

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

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

Chapter 5

CREATIVE AUDIO DRIVER (OPTIONAL)

Creative CT5880

The Creative® CT5880 digital controller provides the next generation of audio performance to the PC market.

Features

- SoundScape WaveTable Synthesizer.
- Full DOS Game Compatibility.
- PCI Bus Master for fast DMA.
- Fully Compliant with PC97 Power Management Specification.

System Requirements

This section describes system requirements for the Audio Driver installation and Usage.

Computer	Intel® Pentium® 4 processor or higher
Operating system	DOS 5.0 or higher, Windows® 95, Windows® 98, Windows® NT 3.51 or 4.0
CD-ROM	Double Speed or Higher
Chipset	Creative® CT5880

Audio Driver Setup

Insert the CD-title into your CD-ROM drive. This CD will auto-run.
This will display installation for Microsoft Direct X 7.0a, Creative PCI
128 Sound Driver and Intel Inf Update. Please make sure that you
have finished the installation for Intel Inf Update before proceeding
to install the Audio Driver. To install the audio driver, click on the
button for automatic installation.

Windows® 95/98

If you start Windows® 95/98, this will automatically detect this
hardware onboard "PCI Multimedia Audio Device" and "Gameport
Joystick". You need to click "Next", then "Finish". Do not click on
the "Cancel". The driver need these ID.

Audio Driver Installation Procedure:

Step 1: Insert the provided CD_ROM disk into the CD-ROM drive.
Step 2: Look for the CD_ROM drive, double click on the CD_ROM
              icon. This will show the setup screen.
Step 3: Click on "Creative PCI 128 Sound Driver"sound drivers
              icon.
Step 4: This will copy the audio drivers into the hard drive.
Step 5: A message will appear stating you must restart the
              Windows® 95/98 system, select **yes** to restart.

Windows® NT 4.0

Audio Driver Installation Procedure:

Step 1: Insert the provided CD_ROM disk into the CD-ROM drive.
Step 2: Look for the CD_ROM drive, double click on the CD_ROM icon. This will show the setup screen.
Step 3: Click on "Creative PCI 128 Sound Driver" icon.
Step 4: This will copy the audio drivers into the hard drive.
Step 5: A message will appear stating you must restart the Windows® NT 4.0 system, select **yes** to restart.