Chapter 1

INTRODUCTION

The MS-6319 ATX CA10 mainboard is a high-performance computer mainboard based on Intel® 820 chipset. The MS-6319 is designed for the Intel® Pentium™ III(FC-PGA) processor for high-end business/personal desktop markets.

The Intel® 820 chipset is the first generation chipset for the Intel® Pentium® III processor. An integrated centralized memory arbiter allocates memory bandwidth to multiple system agents to optimize system memory utilization. A new chipset component interconnect, the hub interface, is designed into the Intel 820 chipset to provide an efficient communication channel between the memory controller hub and I/O controller hub.

The Intel 820 chipset contains four core components: the Memory Controller Hub (MCH), the I/O Controller Hub (ICH), the Memory Translator Hub (MTH), and the Firmware Hub (FWH). The MCH integrates a 100MHz/133MHz CPU FSB, while the MTH integrates a 100MHz SDRAM controller and high-speed hub interface for communication with the ICH. The ICH integrates an Ultra ATA33/66(ICH) controller, USB host controller, LPC interface controller, FWH inteface conroller, PCI interface controller, AC'97 digital controller and a hub interface for communication with the MCH.

The Intel® 82802 Firmware Hub (FWH) component is part of the Intel® 820 chipset. The FWH is key to enabling future security and manageability infrastructure for the PC platform.

1.1 Mainboard Features

CPU
- Support Socket 370 for Intel® Pentium III(FC-PGA) processor.
- Support 550/600/650/667/700/733/800/866MHz or higher processor

Chipset
- Intel® 820 Camino chipset. (324 BGA)
    - AGP 4x/2x universal slot
    - Support 100/133MHz FSB
- Intel® ICH chipset. (241 BGA)
    - AC'97 Controller Integrated
    - 2 full IDE channels, up to ATA66
    - Low pin count interface for SIO
- Intel® MTH chipset. (241 BGA)

Clock Generator
- 100/133MHz clocks are supported.

Main Memory
- Supports three 168-pin DIMM sockets.
- Supports a maximum SDRAM memory size of 512MB or 1GB (32Mx4) registered DIMM only.

Slots
- One AMR (Audio Modem Riser)
- One AGP (Accelerated Graphics Port) slot.
    - AGP specification compliant
    - AGP 66/133/266MHz device support
- Five 32-bit Master PCI Bus slots and one 16-bit ISA slot(Optional)
    - wherein one PCI/ISA slot is shared.
- Supports 3.3v/5v PCI bus Interface.

On-Board IDE
- An IDE controller on the ICH chipset provides IDE HDD/CD-ROM with PIO, Bus Master and Ultra DMA33/66 operation modes.
- Can connect up to four IDE devices.

On-Board Peripherals
- On-Board Peripherals include:
    - 1 floppy port supports 2 FDD with 360K, 720K, 1.2M, 1.44M and 2.88Mbytes.
    - 2 serial port (COMA + 1 COMB)
    - 1 parallel port supports SPP/EPP/ECP mode
    - 2 USB ports
    - 1 IrDA connector for SIR.
    - 1 Game Port
    - 1 Audio Port (Line-In, Line-Out, Mic-In)

Audio
- ICH chip integrated
- AC'97 2.1 Compliant

BIOS
- The mainboard BIOS provides "Plug & Play" BIOS which detects the peripheral devices and expansion cards of the board automatically.
- The mainboard provides a Desktop Management Interface(DMI) function which records your mainboard specifications.
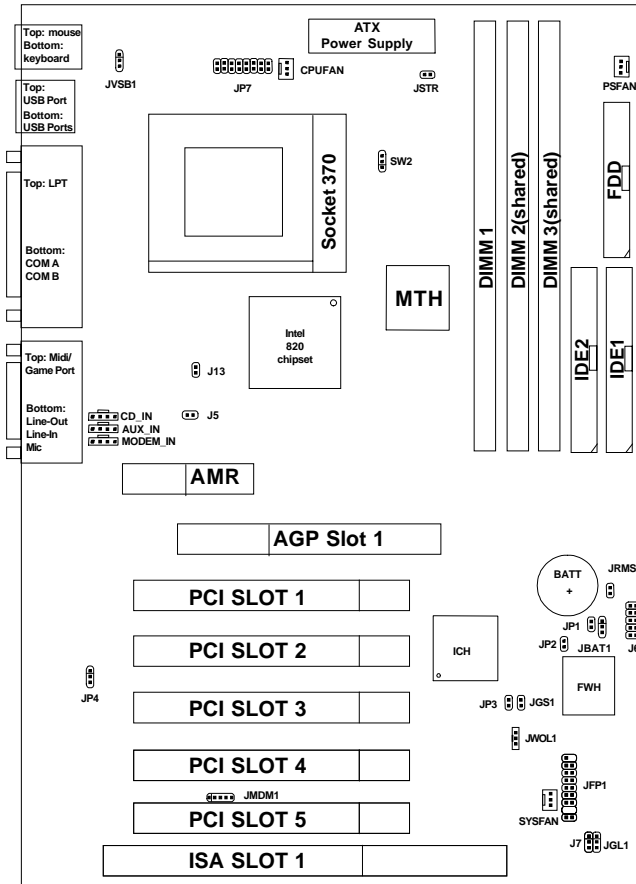- CPU Voltage setting through BIOS
- FWH Flash BIOS Protect

Dimension
- ATX Form Factor: 30.5cm x 21.7cm

Mounting
- 7 mounting holes.

1.2 Mainboard Layout

**MS-6319 ATX CA10 Mainboard**

Chapter 2

HARDWARE INSTALLATION

2.1 Central Processing Unit: CPU

The mainboard operates with **Intel® Pentium III Coppermine processor.** The mainboard uses a CPU socket called Socket 370 for easy CPU installation. The CPU should always have a Heat Sink and a cooling fan attached to prevent overheating.

2.1-1 CPU Installation Procedures

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

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

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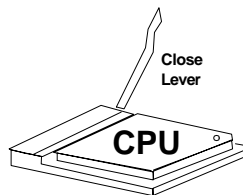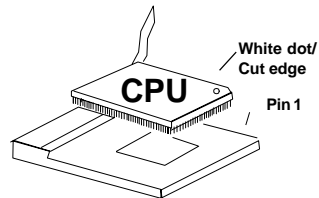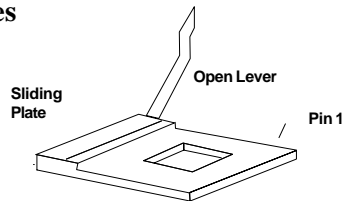
2.1-2 CPU Core Speed Derivation Procedure

The BIOS can be used to set the CPU Host Bus Frequency Clock.

If	CPU Clock	= 100MHz
	Core/Bus ratio	= 4
then	CPU core speed	= Host Clock x Core/Bus ratio
		= 100MHz x 4
		= 400MHz

2.1-3   Overclocking Jumper: SW2

Overclocking is operating a CPU/Processor beyond its specified frequency. SW2 jumper is used for overclocking.
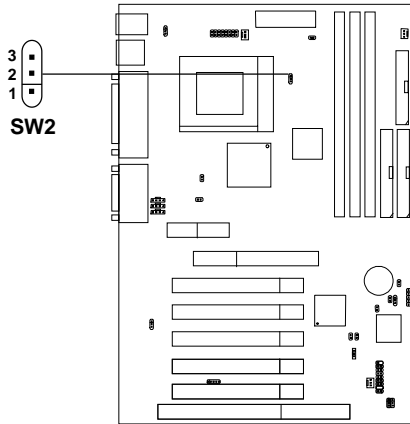
SW2	Function
3 2 1 Short	**Automatically detect Intel CPU Bus Frequency**
3 2 1 Short	**Automatically detect Cyrix CPU Bus Frequency**
3 2 1 Open	**Allows CPU overclocking.** **Set 100MHz to 133MHz**

Note: Intel Celeron Processor are basically a 66MHz FSB processor. Using Intel Celeron Processor on this mainboard will automatically change the 66MHz FSB into 100MHz FSB. However, not all Intel Celeron processor will run properly on this mainboard.

2.1-4 Processor Selector Jumper: JP7

This jumper must be short to support different kind of processor.

JP7
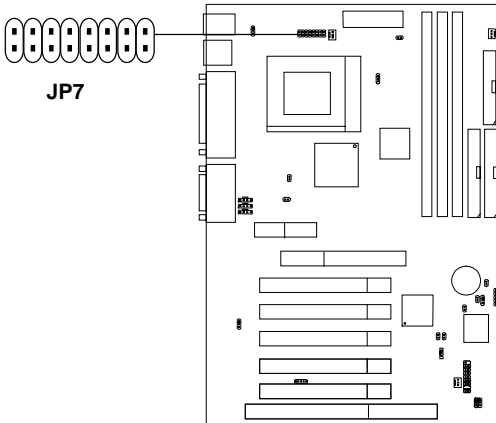
JP7	Function
 Short	**For Coppermine Processor or 1GHz Processor**
 Open	**For Cyrix or Celeron Processor**

Note: Intel Celeron Processor are basically a 66MHz FSB processor. Using Intel Celeron Processor on this mainboard will automatically change the 66MHz FSB into 100MHz FSB. However, not all Intel Celeron processor will run properly on this mainboard.

2.1-5 CPU Core/Bus Ratio strap to Safe Mode: JP3

This jumper is used to adjust the CPU core/ratio to safe mode.

JP3
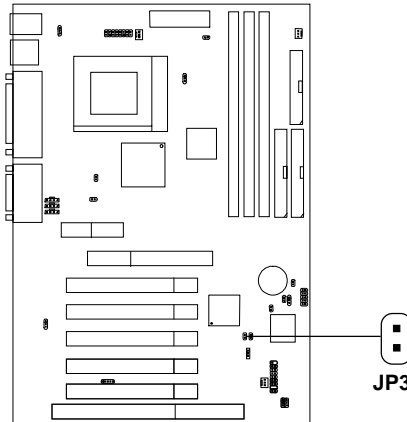
JP3	Function
Short	Safe Mode (Core/Bus Ratio by 2)
Open	Core/Bus Ratio in ICH Register (Default)

Warning: If CPU Core/Bus ratio is set too high, the system may hang. Short pin JP3, then restart the system until boot up. The CPU core/bus ratio will then be set to the default setting of 2. Properly shutdown the system, and remove the short on JP3.

2.1-6 Fan Power Connectors: PSFAN/CPUFAN/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 onboard, you must use a specially designed fan with speed sensor to take advantage of this function.
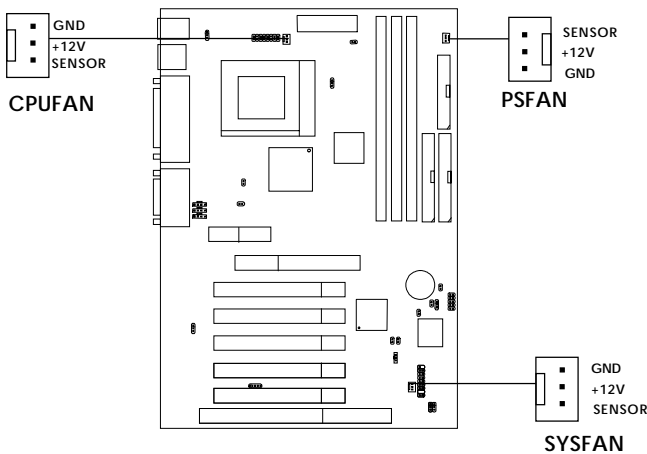
PSFAN: Power Supply Fan
CPUFAN: Processor Fan
SYSFAN: System Fan

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: 1. Always consult vendor for proper CPU cooling fan.
    2. CPU FAN supports the FAN control. You can install PC Alert utility. This will automatically control the CPU FAN Speed according to the actual CPU temperature.

2.2 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
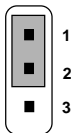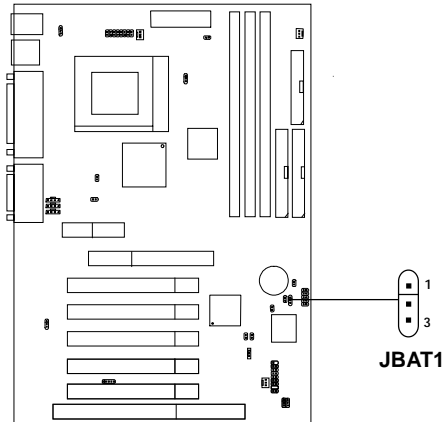
Keep Data
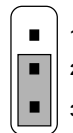
Clear Data

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.

2.3 Memory Installation

2.3-1 Memory Bank Configuration

The mainboard supports a maximum memory size of 512MB(16Mx8) or
Registered DIMM 1GB(32Mx4) : It provides three 168-pin DIMMs sockets.
DIMM 2 and DIMM 3 sockets are shared.
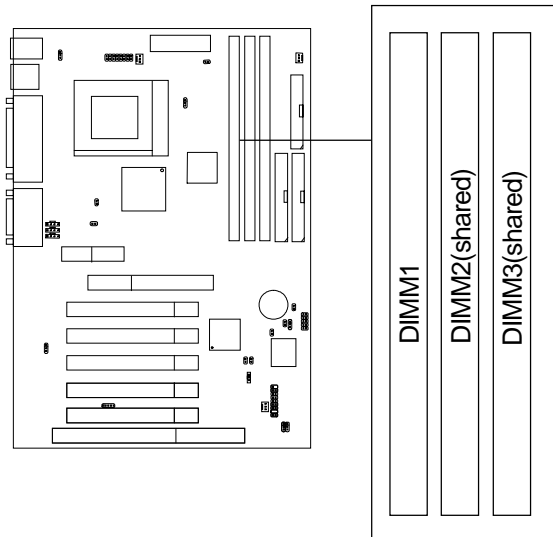
2.3-2   Memory Installation Procedures

A. How to install a DIMM Module
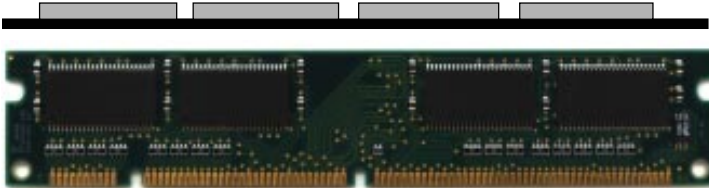
Single Sided DIMM
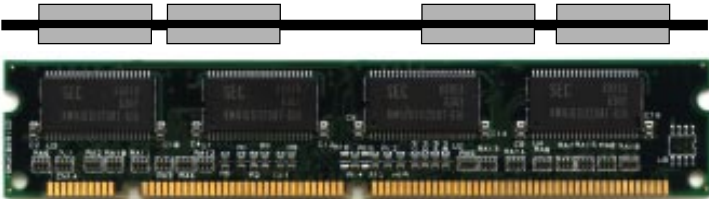
Double Sided DIMM

1. The DIMM slot has 2 Notch Keys "VOLT and DRAM", so the DIMM memory module can only fit in one direction.

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

DRAM   VOLT
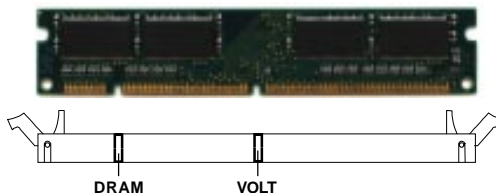
3. The plastic clip at the side of the DIMM slot will automatically close.

2.3-3   Memory Population Rules

1. Support only SDRAM DIMM w/o ECC function.

2. To operate properly, at least one DIMM module must be installed.

3. DIMM Slot configuration:

DIMM1	DIMM2	DIMM3
D/S	D/S	-
D/S	-	D/S
D/S	S	S

D: Double Sided Memory
S: Single Sided Memory

4. The DRAM addressing and the size supported by the mainboard is
    shown below:

Table 2.3-1 SDRAM Memory Addressing

DRAM Tech.	DRAM Density & Width	DRAM Addressing	Address Size		MB/DIMM	
			Row	Column	Single no. Side(S) pcs.	Double no. Side(D) pcs.
64MB	8Mx8	ASYM	12	9	64MBx8	128MBx16
64MB	4Mx16	ASYM	12	8	32MBx4	64MBx8
128MB	16Mx8	ASYM	12	10	128MBx8	256MBx16
128MB	32Mx4 (reg)	ASYM	12	11	256MBx16	512MBx32

5. When Populating the DIMM slot with mixed DRAM density & width.
    You should populate the largest DRAM Density & width into DIMM 1
    first, then DIMM 2. The smallest should always be populated to DIMM
    3.
    For example: If you had a DIMMs with 16Mx8 and 4Mx16 Density &
    Width. You should populate DIMM1 with 16Mx8, and populate DIMM2
    with 4Mx16. Note: This is not recommended, for this may cause system
    malfunction.

    Note: It is highly recommended to use DIMMs with the same Density &
    Width.

2.4 Case Connector: JFP1

The Keylock (reserved), Power Switch, Reset Switch, Power LED, Speaker, and HDD LED are all connected to the JFP1 connector block.
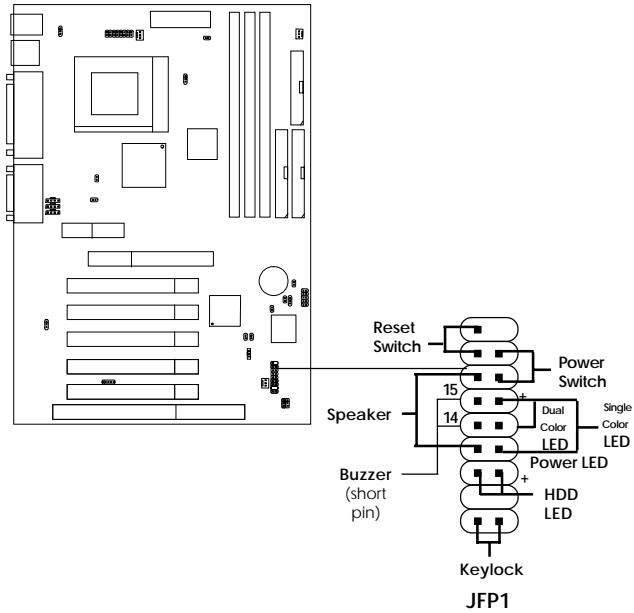
2.4-1 Power Switch
Connect to a 2-pin push button switch. This switch has the same feature with JRMS1.

2.4-2 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.

2.4-3 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.

2.4-4 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.

2.4-5 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.

2.5 Floppy Disk Connector: FDD1

The mainboard also provides a standard floppy disk connector FDD1 that supports 360K, 720K, 1.2M, 1.44M and 2.88M floppy disk types. This connector supports the provided floppy drive ribbon cables.
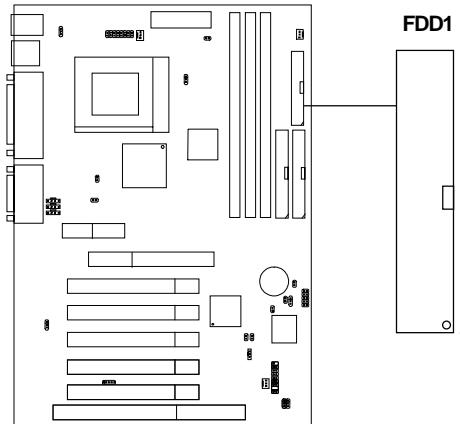
2.6 Hard Disk Connectors: IDE1 & IDE2

The mainboard has a 32-bit Enhanced PCI IDE and Ultra DMA/66 (ICH)/
Ultra DMA/33 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.
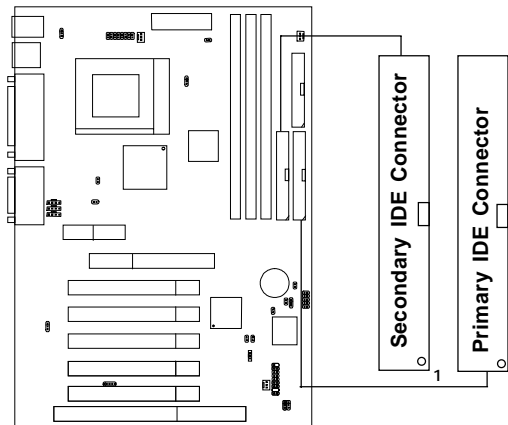
IDE1(Primary IDE Connector)

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.

2.7 Power Supply

2.7-1 ATX 20-pin Power Connector: JWR1

This connector supports 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. This power connector supports instant power on function which means that system will boot up instantly when the power connector is inserted on the board.
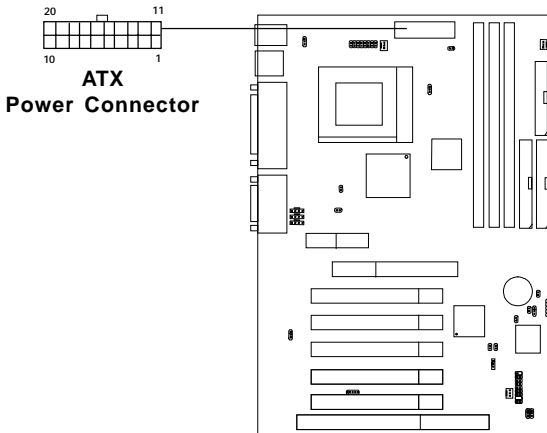
PIN DEFINITION

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

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.

2.7-2   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
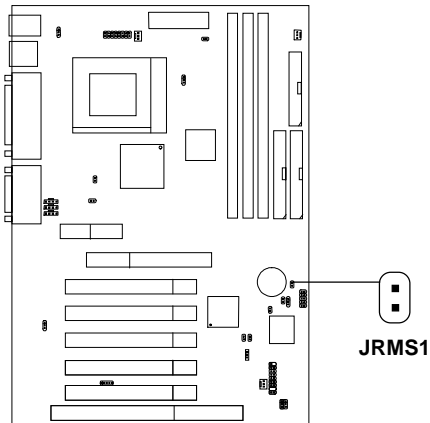
2.8 IrDA Infrared Module Connector: J6

The mainboard provides one 10-pin infrared (J6) 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. FIR and Consumer IR are reserved functions.
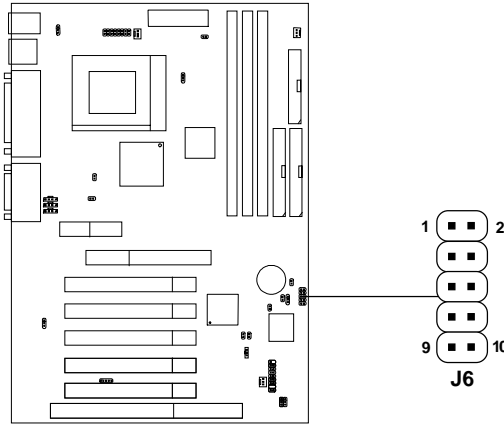
PIN	SIGNAL
1	**VCC**
2	**NC**
3	**NC**
4	**CIIRX**
5	**IRRX**
6	**5VSB**
7	**GND**
8	**NC**
9	**IRTX**
10	**NC**

2.9 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.

COM A   COM B
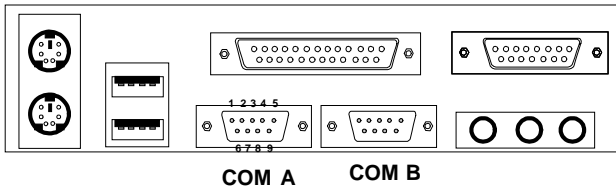
Serial Port (9-pin Male)

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)

2.10 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
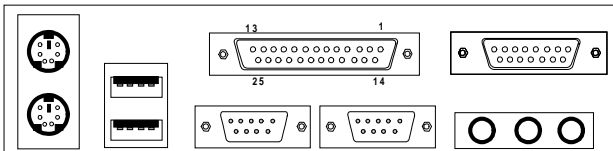
PIN DEFINITION

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		

2.11 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:
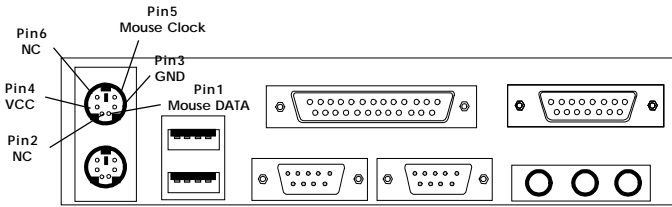
PS/2 Mouse (6-pin Female)

2.12 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.
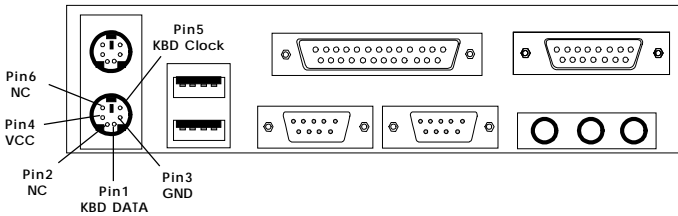
PS/2 Keyboard (6-pin Female)

2.13 Joystick/Midi Connectors

You can connect joystick or game pad to this connector.

Joystick/MIDI
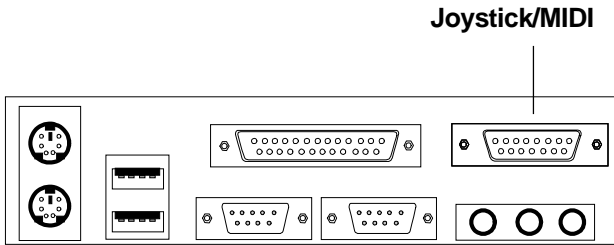
2.14 Audio Port Connectors

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

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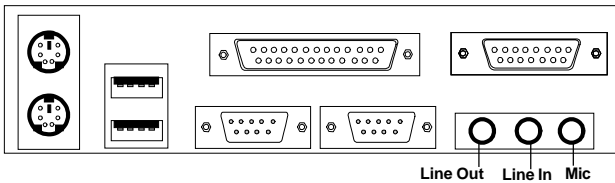
1/8" Stereo Audio Connectors

2.15 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

1 2 3 4

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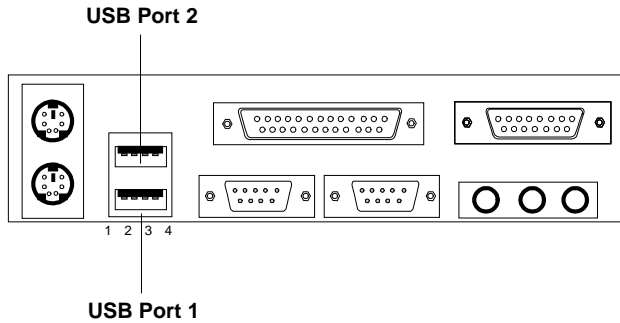
PIN	SIGNAL
1	VCC
2	-Data
3	+Data
4	GND

2.16 Wake-Up on LAN Connector: JWOL1

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

JWOL1
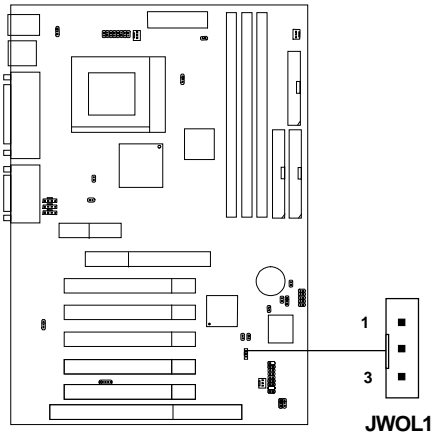
PIN	SIGNAL
1	5VSB
2	GND
3	MP_WAKEUP

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)

2.17 Modem Wake Up Connector: JMDM1

The JMDM1 connector is for use with Modem add-on card that supports the Modem Wake Up function.
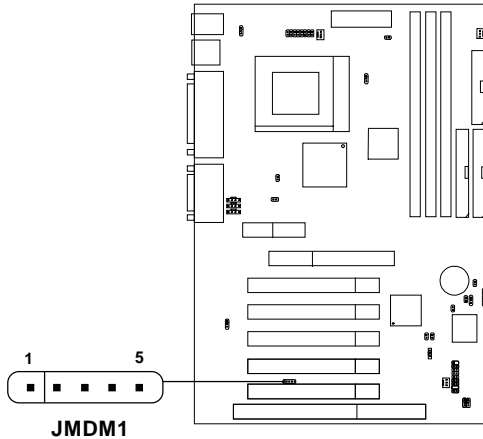
PIN	SIGNAL
1	NC
2	GND
3	MDM_WAKEUP
4	NC
5	5VSB

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)

2.18   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.
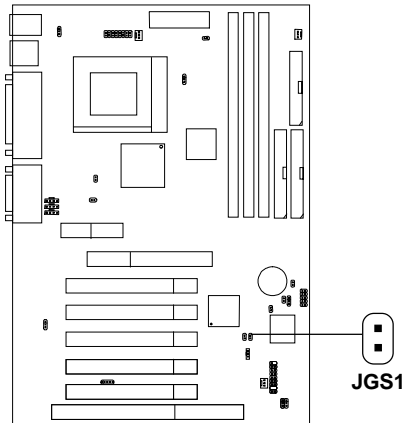
2.19 Power Saving LED Connector: JGL1

JGL1 can be connected with dual 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
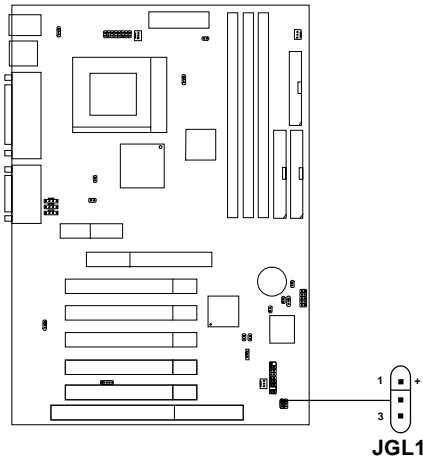
3-pin LED	2-pin LED
1-2 Single Color 1-3 Blink	1-2 Dual Color

2.20 Keyboard Power: JVSB1

The JVSB1 jumper is for setting keyboard power. This function should be set in the BIOS for the keyboard Wake-up function.
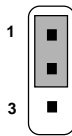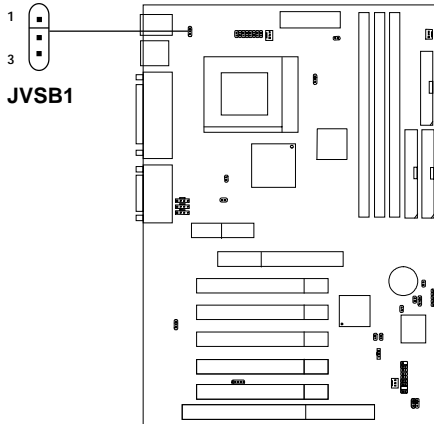
5V Standby
Enable keyboard
power on function
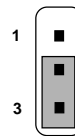
5V (default)
Disable keyboard
power on function

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)

2.21 Chassis Intrusion Switch Case: J5

This connector is connected to a 2-pin connector chassis switch. If the
Chassis is open, the switch will be open. The system will record this status.
To clear the warning, you must enter the BIOS settting and clear the status.

J5
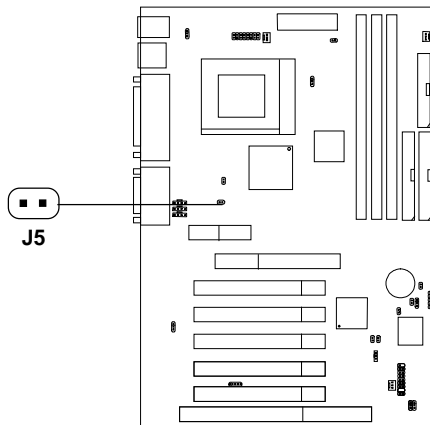
2.22 CD-In Connector: CD_IN

This connector is for CD-ROM audio connector.

R GNDL
CD_IN
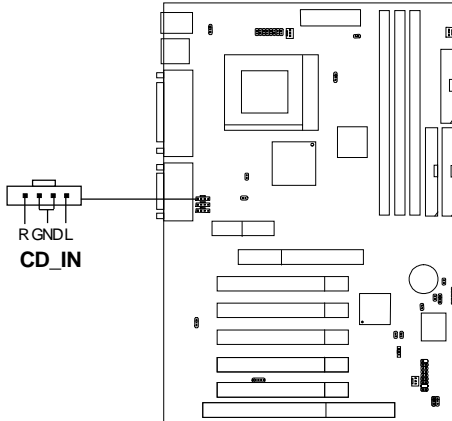
2.23 AUX Line In Connector: AUX_IN

This connector is used for DVD Add on Card with Line In connector.

R GND L
AUX_IN
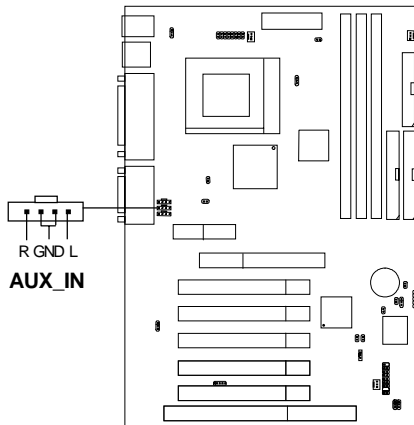
2.24 Modem-In: MODEM_IN

The connector is for Modem with internal voice connector.

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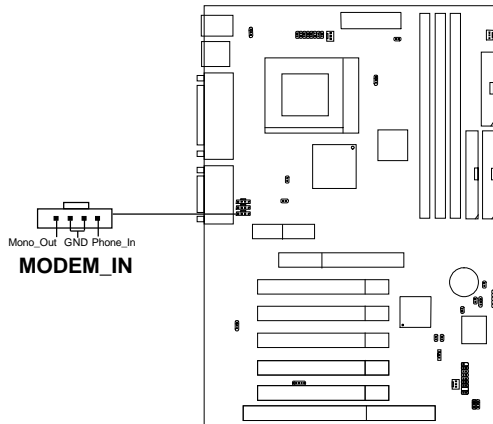
Mono_Out is connected to the Modem Speaker Out connector.
Phone_In is connected to the Modem Microphone In connector.

2.25 System Error Reset Jumper: JP2

This jumper is used to Enabled/Disabled the reboot function.

JP2
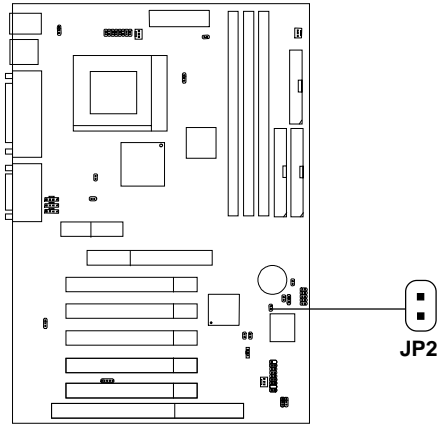
No Reboot
(default)

Reboot
(7 sec automatic restart)

2.26 Speaker Output Select Jumper: J7

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

J7
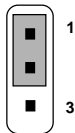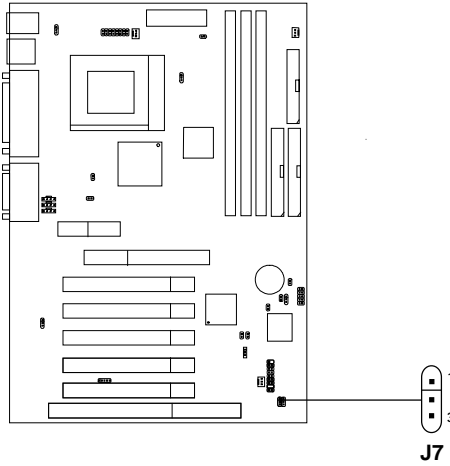
Output to Audio Chip
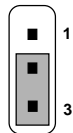
Output to Onboard Buzzer (default)

2.27 TOP TECH III: J13

This is used to check the AGP card or chipset temperature. The J13 is a 2-pin connector which can be inserted with a 20cm length thermistor. It is located near the chipset heatsink that monitors the chipset temperature. The BIOS setup for "Ultra Temperature Showing" should be set to enabled.

20CM length Thermistor

J13
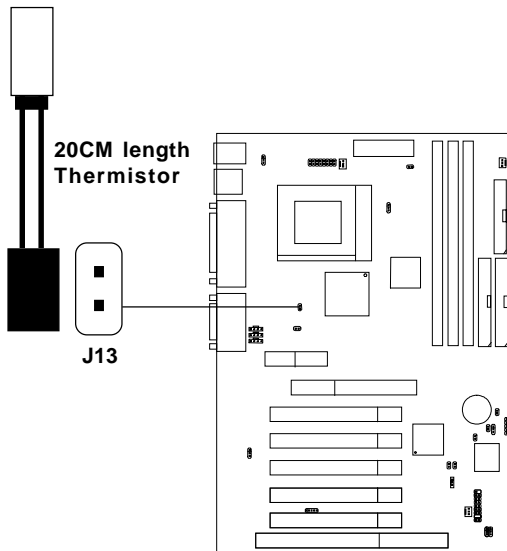
2.28 Suspend To RAM: JSTR

This jumper is used to enable support for STR (Suspend to RAM). The power supply should be have more than 750mA 5V Standby or up to be able to enable the STR support.
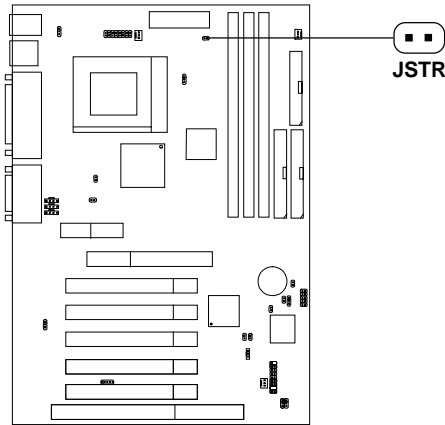
JSTR

JSTR	Function
Short	Enabled STR
Open	Disabled STR

> **Note:** Add-on VGA card must support ACPI mode, for this function to work.

2.29 Onboard Software Audio Jumper: JP4 (reserved)

This jumper is used to enabled/disabled Onboard Software audio, for enabling AMC97 on AMR slot.

JP4
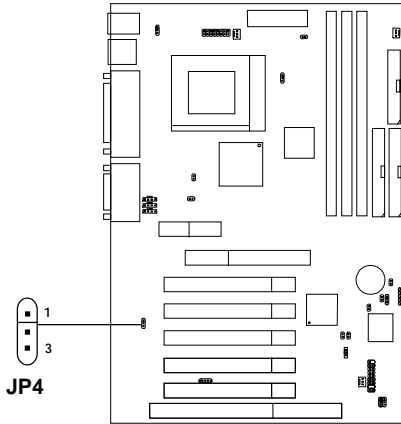
JP4	Function
	Enabled Onboard Audio
	Enabled AMC97 on AMR(Audio Modem Riser) Card

Note: Short pin 2-3 on JP4, to be able to use AMR card.

2.30 FWH Boot Block Protect: JP1

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

JP1
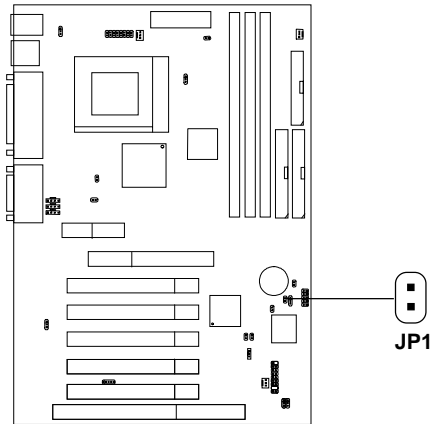
**BIOS Flash
Unlocked**

**BIOS Flash
Locked**

Note: This jumper will not exist, if the motherboard had a self building BIOS function. The self building BIOS function is a feature where if the BIOS is infected with a virus will enabled the BIOS to automatically program the BIOS.

2.31 AMR (Audio Modem Riser)

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

AMR
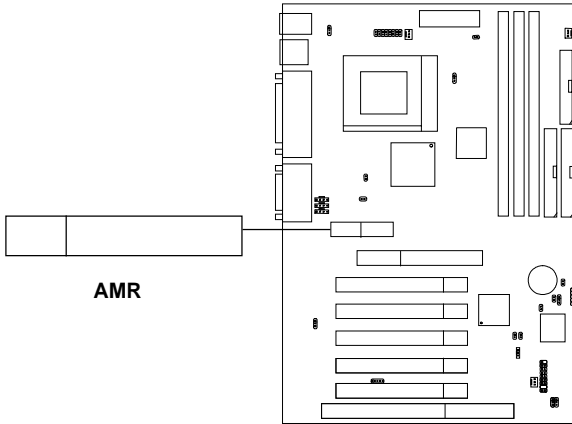
Chapter 3

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.

3.1 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 1.22   │
 │   (C) 1999 American Megatrends, Inc. All Rights    │
 │                     Reserved                       │
 ├──────────────────────────────────────────────────┤
 │                Standard  CMOS  Setup               │
 │                Advanced  CMOS  Setup               │
 │             Advanced  Chipset  Setup               │
 │             Power  Management  Setup               │
 │            PCI/Plug  and  Play  Setup              │
 │                  Peripheral  Setup                 │
 │             Hardware  Monitor  Setup               │
 │             Auto-Detect  Hard  Disks               │
 │              Change  User  Password                │
 │            Change  Supervisor  Password            │
 │    Auto  Configuration  with  Optimal  Settings    │
 │   Auto  Configuration  with  Fail  Safe  Settings  │
 │              Save  Settings  and  Exit             │
 │                Exit  without  Saving               │
 ├──────────────────────────────────────────────────┤
 │                                                    │
 │   Standard CMOS setup for changing time, hard disk type, etc.  │
 └──────────────────────────────────────────────────┘
```

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>.

7. Section 3.2 to 3.8 will explain the option in more details.

3.2 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):      WED April 26, 2000
    Time (hh/mm/ss):        17:09:25

    Floppy Drive A:         1.44 MB 3 1/2
    Floppy Drive B:         Not Installed
                                                LBA   Blk   PIO   32Bit
                 Type  Size  Cyln  Head  WPcom Sec  Mode  Mode  Mode  Mode
    Pri Master :Auto                            ON    ON    AUTO  ON
    Pri Slave  :Auto                            ON    ON    AUTO  ON
    Sec Master :Auto                            ON    ON    AUTO  ON
    Sec Slave  :Auto                            ON    ON    AUTO  ON

    Boot Sector Virus Protection  Disabled


    Month  : Jan-Dec               ESC:Exit       :Sel
    Day    : 01-31                  PgUp/PgDn:Modify
    Year   : 1901-9999             F2/F3: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.

3.3 Advanced CMOS Setup

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

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

Quick Boot                    Enabled       Available  Options:
1st Boot Device               Floppy        Disabled
2nd Boot Device               IDE 0         Enabled
3rd Boot Device               CD-ROM
4th Boot Device               Disabled
Try Other Boot Devices        Yes
Initial Display Mode          BIOS
Floppy Access Control         Read-Write
S.M.A.R.T. For Hard Disk      Disabled
BootUp Num-Lock               On
BIOS Flash Protection         Enabled
Floppy Drive Swap             Disabled
Floppy Drive Seek             Disabled
PS/2 Mouse Support            Enabled
Primary Display               VGA/EGA
Password Check                Setup
Boot to OS/2 > 64M            No
CPU Serial Number             Enabled
L1 Cache                      Reserved
L2 Cache                      Write Back
Cache Bus ECC                 Enabled
System BIOS Cacheable         Disabled
C000, 32k Shadow              Disabled
C800, 16k Shadow              Disabled
CC00, 16k Shadow              Disabled
D000, 16k Shadow              Disabled
D400, 16k Shadow              Disabled     ESC:Exit        :Sel
D800, 16k Shadow              Disabled     PgUp/PgDn:Modify
DC00, 16k Shadow              Disabled     F2/F3: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 Advanced CMOS 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. The Optimal default setting is Enabled. The Fail-Safe default setting is Disabled.

1st Boot Device/2nd Boot Device/3rd Boot Device/4th 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.
ZIP A:/LS120	The system will boot from ZIP, LS120.
ATAPI ZIP C	The system will boot from ZIP (ATAPI2).
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.
Disable	Disable this sequence.

Try other Boot Devices

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

Initial Display Mode

This option sets the Initial diplay mode.

Floppy Access Control

This option sets the Floppy to Read-only or Read-Write.

S.M.A.R.T. for Hard Disks

This option sets the SMART Function for the hard disk. The hard disk need to have SMART function for this feature to work.

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 optimal default and Fail-Safe default settings are On.

BIOS Flash Protection

This item is used to protect BIOS from flashing. During Enabled,BIOS can be flash. During Disabled, you will be unable to flash the BIOS.
Note: If jumper JP1 is onboard. The BIOS will not display this item.

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 Optimal and Fail-Safe 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 Optimal and Fail-Safe default settings are Disabled.

PS/2® Mouse Support

When this option is set to Enabled, AMI® BIOS supports a PS/2® mouse. The settings are Enabled and Disabled. The Optimal and Fail-Safe default settings are Enabled.

Primary Display

This option configures the primary display subsytem in the computer. The settings are Mono(monochrome), 40CGA, 80CGA or VGA/EGA. The optimal and Fail-Safe default settings are VGA/EGA.

Password Check

This option specifies the type of AMI® BIOS password protection that is implemented. The Optimal and Fail-Safe default settings are Setup.

Boot To OS/2® > 64MB

Set this option to Enabled to permit the BIOS to run properly, if OS/2® is to be used with > 64MB of DRAM. The settings are Enabled or Disabled. The Optimal and Fail-safe default settings are Disabled.

CPU Serial Number

This option is for Pentium III processor. During Enabled, this will check the CPU Serial number. Disabled this option if you don't want the system to know the Serial number.

L1 Cache

The default value is Write Back.
Write Back(default)   Write Back cache.
Disabled   Disabled cache.

L2 Cache

Choose Write Back or Write through or Disabled. This item default setting is Write Back the level 2 cache memory.

Cache Bus ECC

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

System BIOS Cacheable

AMI® BIOS always copies the system BIOS from ROM to RAM for faster execution. Set this option to Enabled to permit the contents of the F0000h RAM memory segment to be written to and read from cache memory. The settings are Enabled or Disabled. The Optimal default setting is Enabled. The Fail-Safe default setting is Disabled.

C000, 32K Shadow

These options specify how the contents of the video ROM are handled. The settings are:

Disabled - the Video ROM is not copied to RAM.

Cached -   the contents of the video ROM from C0000h - C7FFFh are not only copied from ROM to RAM; it can also be written to or read from cache memory.

Shadow -   the Contents of the video ROM from C0000h - C7FFFh are copied(shadowed) from ROM to RAM for faster execution.

The Optimal and Fail-Safe default setting is Cached.

C8000, 16k Shadow/CC00, 16k Shadow/D000, 16k Shadow/ D400, 16k Shadow/D800, 16k Shadow/DC00, 16k Shadow

These options specify how the contents of the adaptor ROM named in the option title are handled. The ROM area that is not used by ISA adapter careds will be allocated to PCI adapter cards. The settings are:

Disabled-   The specified ROM is not copied to RAM.

Cache-   The contents of the ROM area are not only copied from ROM to RAM for faster execution,it can also be written to or read from cache memory.

Shadow-   The contents of the ROM area are copied from ROM to RAM for faster execution.

The Optional and Fail-Safe default settings are Disabled.

3.4 Advanced Chipset Setup

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

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

 SDRAM CAS Latency              3 sclks      Available  Options:
 Memory Hole                    Disabled     Disabled
 ICH Delayed  Transaction       Enabled      Enabled
 ICH DCB Enable                 Disabled
 Graphics  Aperture  Size       64MB
 ClkGen for PCI Slot            Enabled
 USB  Function                  Enabled
 USB KB/Mouse  Legacy  Support  Disabled




                                             ESC:Exit      :Sel
                                             PgUp/PgDn:Modify
                                             F2/F3: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 Advanced Chipset Setup, press <ESC> to go back to the main menu.

Description of the item on screen follows:

SDRAM CAS Latency
This option determines the CAS latency time parameter of SDRAM. The settings are 2 clks or 3 clks or Auto. The setting Auto is determined by SPD. It is recommended that this be set to 3.

Memory Hole
This option allows the end user to specify the location of a memory hole(15MB-16MB). The cycle matching the selected memory hole will be passed to the ISA bus.

ICH Delayed Transaction
Select Enabled to comply with PCI specification version 2.1, if some PCI cards can't work properly. The setting is Disabled.

ICH DCB Enabled
Select Enabled to set properly the LPC DMA device and PC/PCI DMA device collection buffer to Enabled. The system performance will be better. The default setting is Disabled.

Graphics Aperture Size
This option determines the effective size of the graphics aperture used in the particular MCM 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 MCM 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.

ClkGen for PCI Slot

Select Enabled to allow PCI clock to be turned off where there is no PCI cards buffered in the PCI slots, when PCI slot is not installed. If you don't want to turn off clock, this item is set Disabled.

USB Function

Set this option to Enabled or Disabled the on-chip USB controller. The Optional and Fail-Safe default setting are Disabled.

USB Keybd/Mouse Legacy Support

Set this option to Enabled or Disabled USB keyboard/mouse legacy support. The Optional and Fail-Safe default settings are Disabled.

3.5 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

Compliance With O/S              Yes          Available  Options:
ACPI Sleep Type                  S1/POS       Disabled
Power  Management/APM            Enabled      Enabled
Green PC Monitor  Power State    Stand By
Video  Power  Down  Mode         Suspend
Hard Disk power Down Mode        Stand By
Suspend Time Out (Minute)        Disabled
Power  Button  Function          On/Off
Reset  Button  Control           Enabled
Green PC LED  Status             Dual Color
FAN Duty When Suspend            Stop
Restore on AC/Power Loss         Last State
Resume By Ring                   Disabled
Resume By LAN                    Disabled
Resume By PME# Function          Disabled
Resume On RTC Alarm              Disabled
RTC Alarm Date                   15
RTC Alarm Hour                   12
RTC Alarm Minute                 30
RTC Alarm Second                 30
CPU Critical  Temperature        Disabled
Throttle Slow Clock Ratio        50.0%
     --- System Power Event ---
Keyboard & PS/2 Mouse Access     Monitor
FDC/LPT/COM Ports Access         Monitor
SB & MSS Audio Ports Access      Ignore
MIDI Ports Access                Ignore
ADLIB Ports Access               Ignore
Primary Master IDE Access        Monitor
Primary Slave IDE Access         Ignore
Secondary Master IDE Access      Monitor
Secondary Slave IDE Access       Ignore
PIRQ[A] IRQ Active               Ignore
PIRQ[B] IRQ Active               Ignore
PIRQ[C] IRQ Active               Ignore       ESC:Exit        :Sel
PIRQ[D] IRQ Active               Ignore       PgUp/PgDn:Modify
                                              F2/F3: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 Power Management Setup, press <ESC> to go back to the main menu.

Description of the item on screen follows:

Compliance With O/S

Set this option to Yes, if the operating system supports ACPI. The setting is No, the operating system supports APM.

ACPI Sleep Type

The settings are S1/POS or S3/STR.The default setting is S1/POS.
S1/POS(Power On Suspend)
The S1/POS state is low power saving state. In this state, the system context will maintain all CPU, chipset and memory power.
S3/STR(Suspend to RAM)
The S3/STR state is system off and only maintains memory power.

Power Management/APM

Set this option to Enabled to enable the chipset's power management features and APM(Advanced Power Management). The settings are Enabled. The Optimal and Fail-Safe default settings are Disabled.

Green PC Monitor Power State

This option specifies the power state that the green PC-compliant video monitor enters when AMI® BIOS places it in a power savings state after the specified period of display inactivity has expired. The settings are Off, Standby, Suspend. The Optional and Fail-Safe default settings are Standby.

Video Power Down Mode

This option specifies the power conserving state that the VESA VGA video subsystem enters after the specified period of display inactivity has expired. The settings are Disabled, Standby or Suspend. The Optinal and Fail-Safe default settings are Standby.

Hard Disk Power Down Mode

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

Suspend TimeOut (Minute)

This option specifies the length of a period of system inactivity. When this length of time expires, the computer enters power conserving state (see the previous page). The settings are Disabled, 1 min, 2 min, 3 min, 4 min, 5 min, 6 min, 7 min, 8 min, 9 min, 10 min, 11 min, 12 min, 13 min, 14 min or 15 min. The Optimal and Fail-Safe default settings are Disabled.

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.

Reset Button Control

During Enabled, if system goes into suspend mode, pushing the Reset Button will not resume system. During Disabled, you can resume system at any time. The purposeof this is to prevent the use of Reset Button.

Green PC LED Status

This item determines which state the Green PC LED will use. The settings are Blinking or No Changed or Dual color. During Dual Color, the Green PC LED will change its color in suspend mode. During Blinking, the Green PC LED will blink in suspend mode.During No Changed, the Green PC LED will always remain lit.

FAN Duty When Suspend

When system support Hardware monitor Function, you can choose stop , 25%, 50%, 75%, or Full on to control all of FANs when system goes into suspend mode.

When system contains no Hardware monitor Function, you only can choose stop or Full on.

Restore on AC/Power Loss

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

Resume 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.

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.

Resume by LAN

During Disabled, the system will ignore any incoming signal from the LAN network card. During Enabled, the system will boot up if there's an incoming signal from the LAN network card.

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.

Resume by PME# Function
        The setting is Enabled to comply with PCI specification version 2.2.
PCI card need to present support to power on or resume from the PME#
signal.

Resume On RTC 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:

    RTC Alarm Date   Choose which day the system will boot up.
    RTC Alarm Hour   Choose which hour the system will boot up.
    RTC Alarm Minute   Choose which minute the system will boot up.
    RTC Alarm Second   Choose which 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. Then, power off the system. This
        function will work the next time you power on.

CPU Critical Temperature
        This option is for setting the CPU temperature that would be critical
enough, so that it would use the Thermal Slow Clock Ratio to cool down the
CPU.

Throttle Slow Clock Ratio
        This option sepcifies the speed at which the system clock runs in
power saving states. The settings are expressed as a ratio between the
normal CPU clock speed and the CPU clock speed when the computer is in
the power-conserving state.

Keyboard&PS/2 Mouse Access/ FDC/LPT/COM Ports Access/ SB & MSS Audio Ports Access/ MIDI Ports Access/ ADLIB Ports Access/ Primary Master/Slave IDE Access / Secondary Master/Slave IDE Access/ PIRQ[A/B/C/D] IRQ Active

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 timeout timers if activity occurs on the specified IRQ line.

3.6 PCI/Plug and Play Setup

1. Press <ENTER> on "PCI/Plug and Play Setup" of the main menu screen.

```
        AMIBIOS  SETUP  -  PCI/PLUG  AND  PLAY  SETUP
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 Plug and Play Aware O/S          No        Available  Options:
 Clear NVRAM                      No        Enabled
 PCI Latency Timer (PCI Clocks)   64        Disabled
 Primary Graphics Adapter         AGP
 PCI VGA Palette Snoop            Disabled
 offBoard PCI IDE Card            Auto
 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
 Reserved Memory Size             Disabled
 Reserved Memory Address          C8000
                                             ESC:Exit       :Sel
                                             PgUp/PgDn:Modify
                                             F2/F3: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 PCI/Plug and Play Setup, press <ESC> to go back to the main menu.

Description of the item on screen follows:

Plug and Play Aware O/S
Set this option to Yes if the operating system in this computer is aware of and follows the Plug and Play specification. Currently, Windows is PnP-aware. The settings are Yes or No. The Optimal and Fail-Safe default settings No.

Clear NVRAM on Every Boot
During Yes, this will clear NVRAM data on every boot.

PCI Latency Timer (PCI Clocks)
This option specifies the latency timings (in PCI clocks) for all PCI devices on the PCI bus. The settings are 32, 64, 96, 128, 160, 192, 224 or 248. The Optimal and Fail-Safe default settings are 64.

Primary Graphics Adapter
This option is for selecting which VGA card is to be your primary display graphics adapter.

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. The Optimal and Fail-Safe default settings are Disabled.

OffBoard PCI IDE Card

This option specifies if an off board PCI IDE controller adapter card is installed in the computer. You must specify the PCI expansion slot on the mainboard where the offboard PCI IDE controller is installed. If an offboard PCI IDE controller is used, the onboard IDE controller is automatically disabled. The settings are Auto(AMI® BIOS automatically determines where the offboard PCI IDE controller adaper card is installed), Slot1, Slot2, Slot3 or Slot4. The Optimal and Fail-Safe settings are Auto.

If an off board PCI IDE controller adapter card is installed in the computer, you must also set the Offboard PCI IDE Primary IRQ and Offboard PCI IDE Secondary IRQ options.

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.

Reserved Memory Size

This option specifies the size of the memory area reserved for legacy ISA adapter cards. The settings are Disabled, 16K, 32K or 64K.The Optimal and Fail-Safe default settings are Disabled.

Reserved Memory Address

This option specifies the beginning address(in hex) of the reserved memory area. The specified ROM memory area is reserved for use by legacy ISA adapter cards.

3.7 Peripheral Setup

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

```
              AMIBIOS  SETUP  -  PERIPHERAL  SETUP
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Onboard FDC                      Auto        Available  Options:
Onboard Serial Port A            Auto        Auto
Onboard Serial Port B            Auto        Disabled
  Serial Port B Mode             Normal      Enabled
   IR Duplex Mode                N/A
   IR Pin Select                 N/A
Onboard CIR Port                 Disabled
  CIR IRQ Select                 10
Onboard Parallel Port            Auto
  Parallel Port Mode             ECP
  EPP Version                    N/A
  Parallel Port IRQ              Auto
  Parallel Port DMA Channel      Auto
Onboard Midi Port                290
  Midi IRQ Select                9
Onboard Game Port                200
Keyboard PowerOn Function        Disabled
Specific Key for Power On        N/A
Mouse PowerOn Function           Disabled
OnBoard IDE                      Both
OnBoard Audio                    Enabled     ESC:Exit       :Sel
OnBoard AC'97 Modem              Disabled    PgUp/PgDn:Modify
                                             F2/F3: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 Peripheral Setup, press <ESC> to go back to the main menu.

Description of the item on screen follows:
Onboard FDC
Choose Auto, for the BIOS to automatically detect the device

If the ISA add-on card has	Onboard FDC to be set at
FDC exist	Disabled
none FDC exist	Enabled

Choose Enabled, Enabling onboard FDC.
Choose Disabled, Disabling onboard FDC.
The Optimal and Fail-Safe default settings are Auto.

Onboard Serial Port A/Onboard Serial Port B
Choose 3F8, 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 PortB 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 IR1 connector.

Onboard CIR Port

Setting Enabled, the system support consumer IR and your device have to be connected to J6 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 onflict, the parallel port will not work properly. Please disable one of the devices.*

Parallel Port Mode

This option allows user to choose the operating mode of the onboard parallel port. The settings are Normal, Bi-Direct/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.

Parallel 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

Parallel Port DMA Channel

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

Onboard Midi Port

Choose 290H, 292H, 300H, 330H, support MIDI device.

MIDI IRQ Select

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

Onboard GAME Port

Choose 200H, 208H, support Joystick device

Keyboard Power on Function

This function allows you to Enabled or Disabled the Keyboard Power On. The default setting is Disabled.

Specific Key for Power On

If keyboard power on function is enabled, choose specific key. This options allows you to use Keyboard to power on the system.

Note: The specific Key enables you to input specific password to power on the system. The maximum character for the password is 5.

Mouse Power on Function

This function allows you to set to Disabled ,Left-button or Right-button Mouse Power on. This options allows you to use mouse to power on the system. The default setting is Disabled.

Onboard IDE

Set this option to enable or disable on board IDE controller.

Onboard Audio/Onboard AC'97 Modem

This item allows you to decide to enable/disable the Intel 820 chipset family to support AC97 Audio/Modem. The settings are Enabled, Disabled.

3.8 Hardware Monitor Setup (optional)

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.

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

```
        AMIBIOS  SETUP  -  HARDWARE  MONITOR  SETUP
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CPU Ratio Selection            3.0X          Available  Options:
CPU Host Clock(Mhz)            100           Manual
CLKGEN Spread Spectrum         Enabled       Auto
CPU Voltage(V)                 Auto
 -=Post Showing=-
 CPU Fan Showing               Enabled
 Chassis Fan Showing           Disabled
 Power Fan Showing             Disabled
 CPU Temperature Showing       Enabled
 System Temperature Showing    Enabled
 Ultra Temperature Showing     Disabled
 Vcore Showing                 Enabled
 Vtt Showing                   Enabled
 Vio Showing                   Enabled
 +5.000V Showing               Enabled
 -5.000V Showing               Enabled
 +12.000V Showing              Enabled
 -12.000V Showing              Enabled
 Battery Showing               Enabled
 5VSB Showing                  Enabled      ESC:Exit        :Sel
-= System Hardware Monitor =-               PgUp/PgDn:Modify
  Chassis Intrusion            Disabled     F2/F3:Color
  Current CPU Temperature       39°C/102°F
```

```
  Current System Temperature    35°C/95°F
  Current Ultra Temperature     Not Present
  Current CPU Fan Speed         0 RPM
  Current Chassis Fan Speed     0 RPM
  Current Power Fan Speed       4218 RPM
  CPU VID                       1.80V
  Vcore                         1.600V
  Vtt                           1.456V
  Vio                           3.232V
  +5,000V                       5.113V
  +12,000V                      11.619V
  -12,000V                      -11.989V
  -5,000V                       -5.077V
  Battery                       3.152V
  +5V SB                        4.775V
```

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 PCI/Plug and Play Setup, press <ESC> to go back to the main menu.

Description of the item on screen follows:

CPU Ratio Selection
Check your processor and set this function accordingly. You can set the CPU Ratio accordingly. CPU ratio are: 3, 3.5, 4, 4.5, 5, 5.5, 6, 6.5, 7, 7.5, or 8.

CPU Host Clock (Mhz)
Check your processor and set this function accordingly. If you set this to Manual, you can set the CPU Host Clock accordingly.
CPU Frequencies are: 66.8, 79, 85, 87.5, 90, 92.5, 100, 110, 115, 120, 124, 129, 133, 138.

ClkGen Spread Spectrum
This item allows you to select the clock generator Spread Spectrum function. When overclocking the processor, always set this item to Disabled. The default setting is Enabled.

CPU Voltage(V)
Check your processor and set this function accordingly.

Note: If your mainboard does not have a Hardware Monitor onboard, this item will not appear on your BIOS.

Post Showing
Items under the Post Showing: when set to Enabled will allow you to check and show their current status at POST.

Note: If your mainboard does not have a Hardware Monitor onboard, this item will not appear on your BIOS.

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, this will turn back to Enabled. During Disabled, there won't be any chassis intrusion detection.

Note: If your mainboard does not have a Hardware Monitor onboard, this item will not appear on your BIOS.

Chapter 4

ICH AUDIO DRIVER

1. Overview

The ICH AC' 97 digital controller provides the next generation of audio performance to the PC market.

1.1 Features

- PCI Bus Master for fast DMA.
- Fully Compliant with PC97 Power Management Specification.

1.2 System Requirements

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

Computer	Intel® Coppermine processor or higher
Operating system	Windows® 95/98, Windows® NT 3.51 or 4.0.
CD-ROM	Double Speed or Higher
Chipset	ICH

2. Audio Driver Setup & Usage Procedures

Insert the CD-title into your CD-ROM drive. This CD will auto-run.
This will display installation for VGA driver and sound driver, Intel®
810/820 INF Update (only for Windows® 95/98) and Trend PC-cillin
98. Just click the button for automatic installation for audio driver.

2.1 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.

2.1-1 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 "ADI SoundMax 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 Win-
dows® 95/98 system, select **yes** to restart.

 Note: A. It is recommended that you restart your computer after
every installation of a new driver to prevent any
technical problems.

2.2 Windows® NT 4.0

2.2-1 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 "ADI SoundMax 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 Win-
              dows® NT system, select **yes** to restart.

Note: It is recommended that you restart your computer after every
         installation of a new driver to prevent any technical problems.