Chapter 1

INTRODUCTION

The MS-6386 ATX mainboard is a high-performance computer mainboard based on Intel® 815EP chipset. The MS-6386 is optimized to support the Intel® Pentium® III (FC-PGA) processor for high-end business/ personal desktop markets.

The Intel® 815EP chipset integrates a Display Cache SDRAM controller that supports a 32-bit 133MHz SDRAM array for enhanced integrated 3D graphics performance. 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® 815EP chipset implements the host address, control, and data bus interfaces within a single device. It takes advantage of the pipelined addressing capability of the processor to improve the overall system performance. In addition, the chipset also integrates a system memory controller that supports a 64-bit 100/133 MHz SDRAM array.

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 Socket370 for Intel® Celeron™/Pentium® III (FC-PGA) processor and Cyrix® III processor.
- Support 500MHz, 550MHz, 600MHz, 633MHz, 667MHz and faster

Chipset
- Intel® 815EP chipset. (544 BGA)
  - AGP 4x/2x universal slot
  - Support 66/100/133MHz FSB
- Intel® ICH2 chipset. (360 EBGA)
  - AC'97 Controller Integrated
  - 2 full IDE channels, up to ATA100
  - Integrated 10/100Mbit/sec Ethernet
  - Low pin count interface for Winbond SIO
  - 4USB ports

Main Memory
- Support three 168-pin DIMM sockets.
- Support a 32 to 512MB using 16/64/128/256Mbit technology.

Slots
- One CNR(Communication Network Riser).
- One AGP(Accelerated Graphics Port) 2x/4x slot.
- Three PCI 2.2 32-bit Master PCI Bus slots.
- Support 3.3v/5v PCI bus Interface.

On-Board IDE
- An IDE controller on the ICH2 chipset provides IDE HDD/CD-ROM with PIO, Bus Master and Ultra DMA66/100 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 ports (COMA + COMB)
  - 1 parallel port supports SPP/EPP/ECP mode
  - 4 USB ports (Rear * 2 / Front * 2)
  - 1 RJ45 Connector (optional)
  - 1 Line-In/Line-Out/Mic-In/Game port

Video
- GMCH chip integrated
- 2D/3D Graphics
- Intel® D.V.M Technology
- Flexible AGP In-Line Memor Module(AIMM) (optional)

Audio
- ICH2 chip integrated
- ADI 1881A
  - AC97 2.1 Compliant.
  - Support 2 Channel Audio

Network
- ICH2 Integrated LAN Controller
- Intel 82562 ET (optional)
  - ACPI and APM Supported (ET)
  - Wake-On-LAN and WFM 2.0 Supported (ET)
  - Backward Compatible software with 82557, 82558 and 82559 (ET)
  - Support Basic AOL functionality (EM)

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.
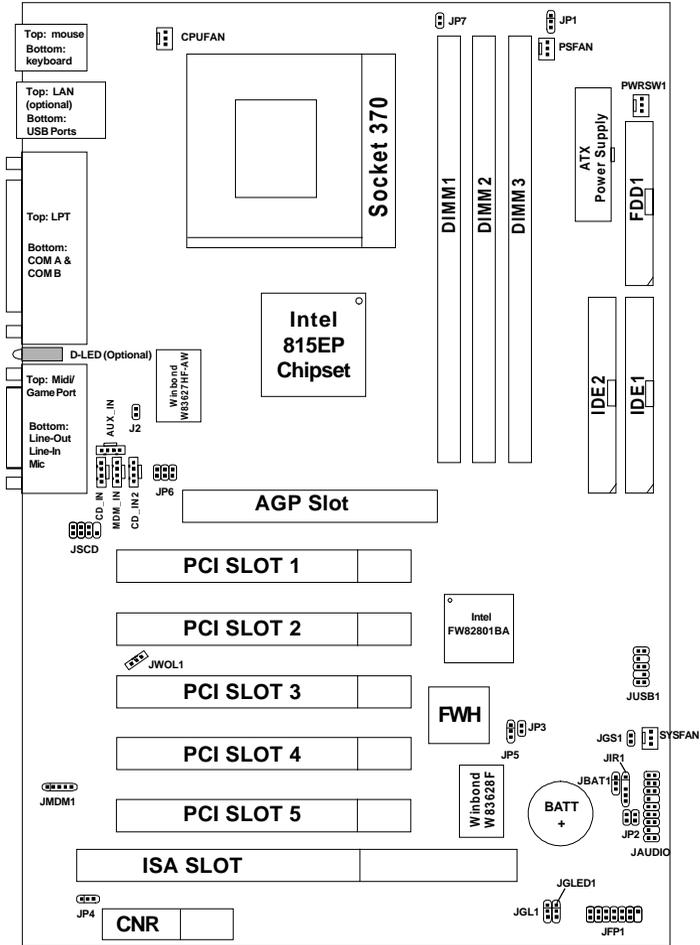
Dimension
- ATX Form Factor

Mounting
- 6 mounting holes.

Mainboard Layout

Top: mouse
Bottom: keyboard

Top: LAN (optional)
Bottom: USB Ports

Top: LPT
Bottom: COM A & COM B

D-LED (Optional)

Top: Midi/ Game Port
Bottom: Line-Out Line-In Mic

CPUFAN

Socket 370

Intel 815EP Chipset

Winbond W83627HF-AW

AUX_IN
J2
CD_IN
MDM_IN
CD_IN2
JP6
JSCD

JP7
JP1
PSFAN

DIMM1
DIMM2
DIMM3

ATX Power Supply

PWRSW1

FDD1

IDE2
IDE1

AGP Slot

PCI SLOT 1

PCI SLOT 2

Intel FW82801BA

JWOL1

PCI SLOT 3

FWH

JP3
JP5

JUSB1

JGS1 SYSFAN
JIR1
JBAT1

PCI SLOT 4

JMDM1

PCI SLOT 5

Winbond W83628F

BATT +

JP2
JAUDIO

ISA SLOT

JGLED1

JP4

CNR

JGL1
JFP1

MS-6386 ATX Mainboard

Chapter 2

HARDWARE INSTALLATION

Central Processing Unit: CPU

The mainboard operates with **Intel® Celeron™/Pentium® III (FC-PGA) or VIA® Cyrix® III 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.

● **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. Hold the CPU firmly, and then press the lever down to complete the installation.
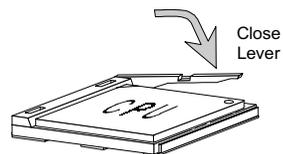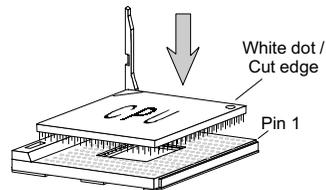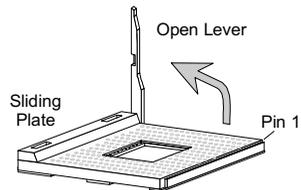
• CPU Core Speed Derivation Procedure

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

If   CPU Clock   = 100MHz
          Core/Bus ratio   = 7
then   CPU core speed   = Host Clock x Core/Bus ratio
                              = 700MHz

- **Fan Power Connectors: CPUFAN, SYSFAN & PSFAN**

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.
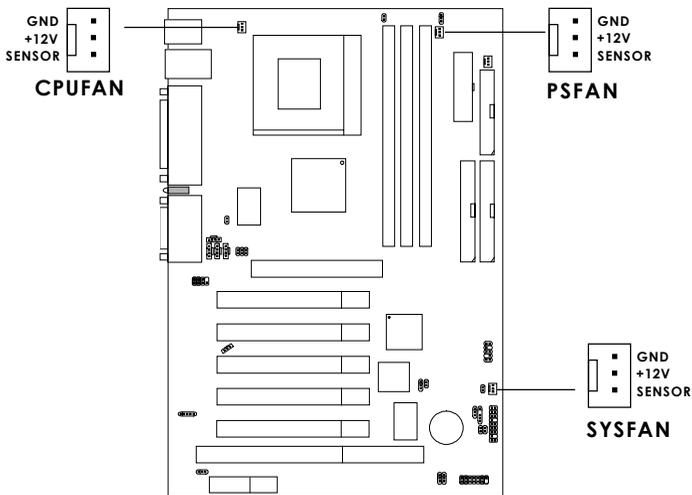

CPUFAN: Processor Fan
SYSFAN: System Fan
PSFAN: Power Supply Fan

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.

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
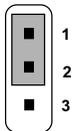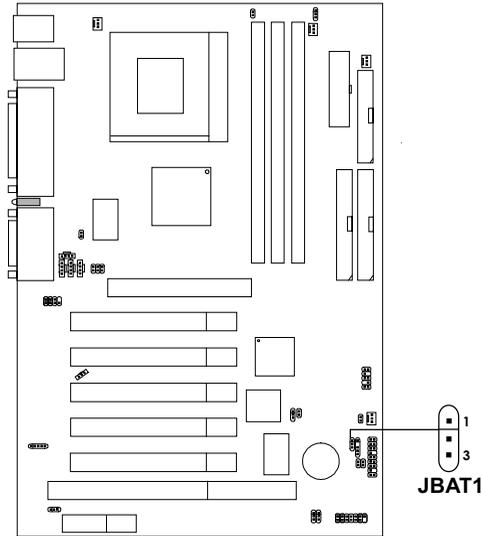
Keep Data
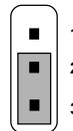
Clear Data

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 512MB for SDRAM : It provides three 168-pin **unbuffered** DIMMs (Double In-Line Memory Module) sockets. It supports 8 MB to 512 Mbytes DIMM memory module.
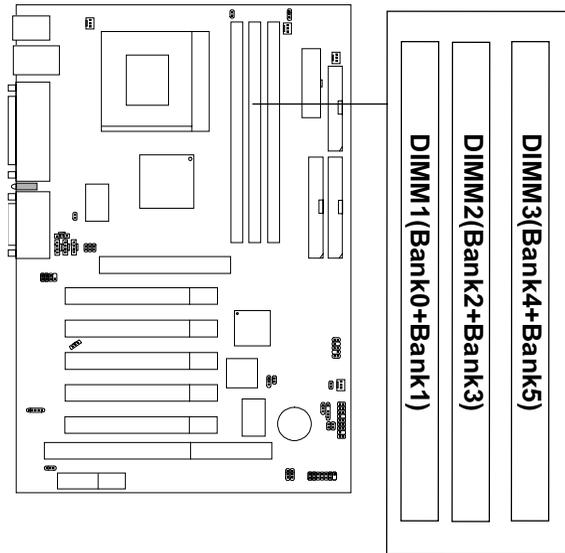
● **Memory Installation Procedures**

A. How to install a DIMM Module
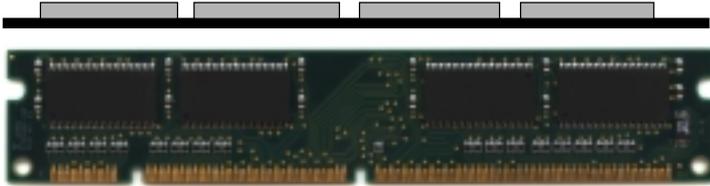
Single Sided DIMM

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.

● Memory Population Rules

1. Supports only SDRAM DIMM.

2. To operate properly, at least one 168-pin DIMM module must be installed.

3. This mainboard supports Table Free memory, so memory can be installed on DIMM1, DIMM 2 or DIMM 3 in any order.

4. Supports 3.3 volt DIMM.
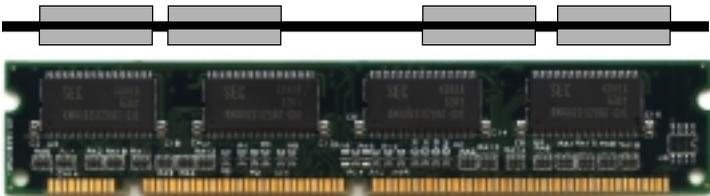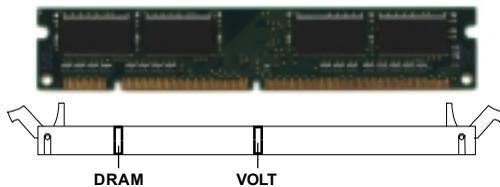
5. The DRAM addressing and the size supported by the mainboard is shown below:

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.
16M	1Mx16	ASYM	11	8	8MBx4	16MBx8
	2Mx8	ASYM	11	9	16MBx8	32MBx16
64M	2Mx32	ASYM	11	9	32MBx2	64MBx4
	2Mx32	ASYM	12	8	16MBx2	32MBx4
	4Mx16	ASYM	11	10	32MB	64MB
	4Mx16	ASYM	13	8	32MB	64MB
	8Mx8	ASYM	13	9	64MB	128MB
64M	2Mx32	ASYM	11	8	16MB	32MB
	4Mx16	ASYM	12	8	---	---
	8Mx8	ASYM	12	9	---	---

Case Connector: JFP1

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

JFP1
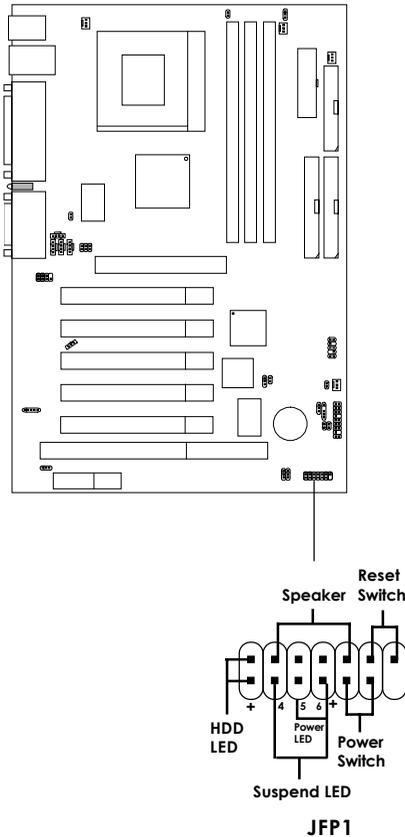
Power Switch
Connect to a 2-pin push button switch.

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

    a. 2-pin single color LED connects to pin 5 & 6. This LED will light up when the system is on and blink during the suspend mode.

    b. 2-pin dual color LED connects to pin 4 & 5.
        GREENColor: Indicate the system is in full on mode.
        ORANGEColor: Indicate the system is in suspend mod

    c. 3-pin dual color LED connects to pin 4, 5 & 6.
        GREENColor: Indicate the system is in full on mode.
        ORANGEColor: Indicate the system is in suspend mode.

Speaker
Speaker from the system case is connected to this pin.
If on-board Buzzer is available:

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.

Power Switch Connector: PWRSW1

The mainboard also provides a power switch connector PWRSW1 for a **3-pin power switch connector**. The connector has the same function as the power switch connector in **JFP1**.

5V-StandBy
GND
PWRSW (Power Switch)

PWRSW1
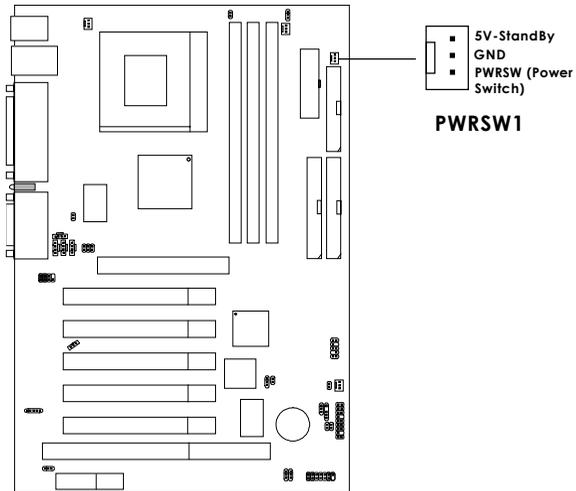
Floppy Disk Connector: FDD1

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.
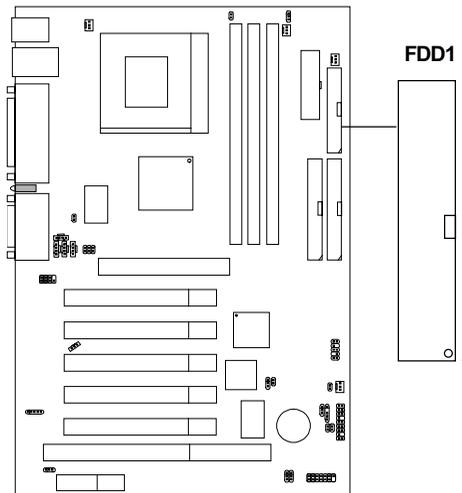
Hard Disk Connectors: IDE1 & IDE2

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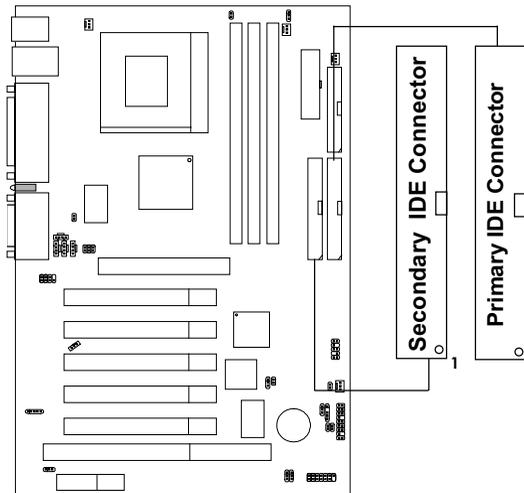
IDE1 (Primary IDE Connector)

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: 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.

**ATX
Power Connector**
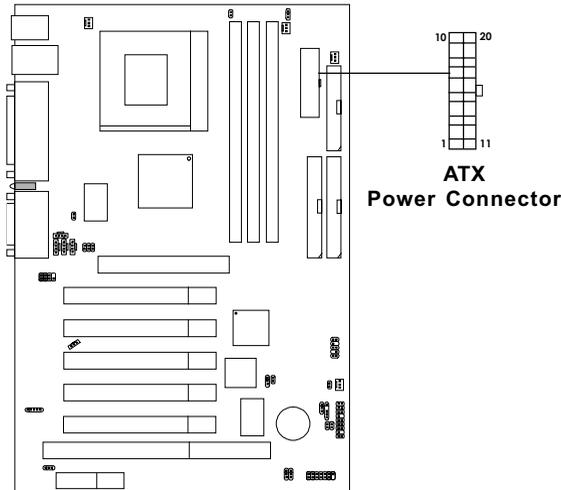
PIN DEFINITION

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

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.

IrDA Infrared Module Connector: JIR1

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.

JIR1
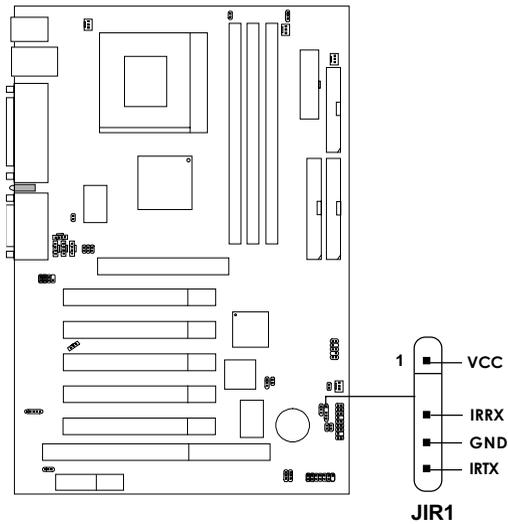
Serial Port Connectors: COM A and COM B

The mainboard has two 9-pin male DIN connectors for serial ports COM A and COM B. The ports are 16550A high speed communication ports that send/receive 16 bytes FIFOs. You can attach a mouse or a modem cable directly into the connectors.

COM A   **COM B**
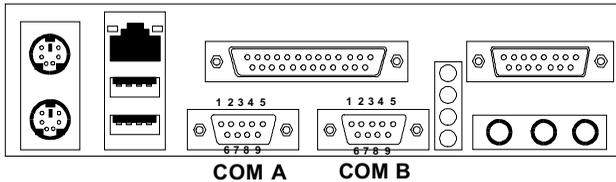
Serial Ports (9-pin Male)

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
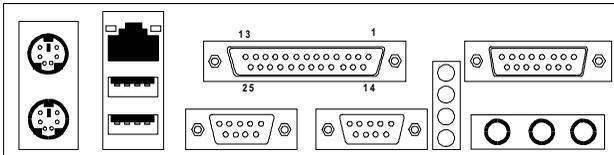
PIN DEFINITION

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:
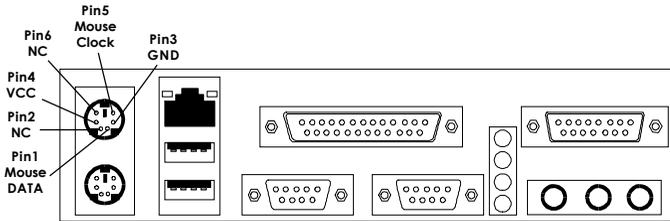
PS/2 Mouse (6-pin Female)

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.
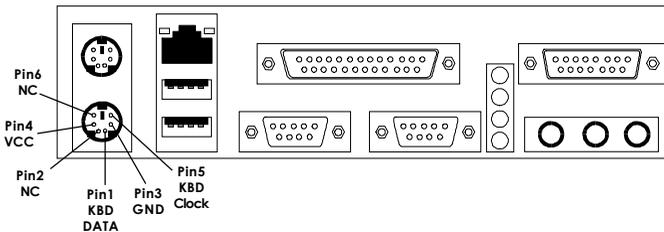
PS/2 Keyboard (6-pin Female)

Joystick/Midi Connectors

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

Joystick/MIDI
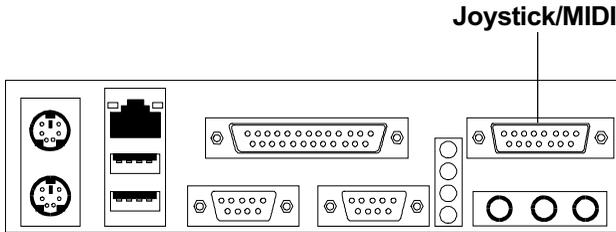
Audio Port Connectors

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
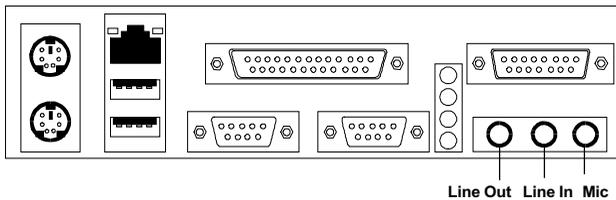
1/8" Stereo Audio Connectors

Note: If you choose to enable the Audio Multi-Channel, this will change the **Line In** to 3, 4 channel output and **MIC** to 5, 6 channel output (optional). To use this function, set the Audio Multi-Channel to enable located at the BIOS Integrated Peripherals or install the driver provided with this mainboard.

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 1

1 2 3 4

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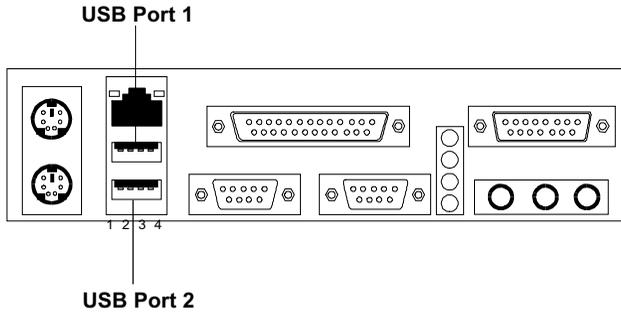
PIN	SIGNAL
1	VCC
2	-Data
3	+Data
4	GND

LAN Connector (Optional)

The mainboard provides an optional **RJ-45** LAN connector for your Network need.

RJ-45 LAN Jack (optional)
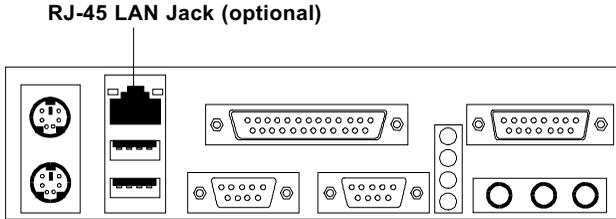
PIN	SIGNAL	DESCRIPTION
8	NC	Not Used
7	NC	Not Used
6	RDN	Receive Differential Pair
5	NC	Not Used
4	NC	Not Used
3	RDP	Receive Differential Pair
2	TDN	Transmit Differential Pair
1	TDP	Transmit Differential Pair

D-LED™ (Optional)

The mainboard integrates optional Diagnostics LEDs (D-LED™), which provide up to 16 combinations of signals to debug the system. The 4 LEDs can debug all problems that fail the system, such as VGA, RAM or other failures.

D-LED™ (optional)
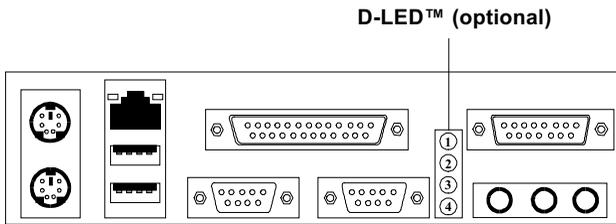
D-LED	Description
●●●● **1 2 3 4**	System Power ON - The D-LED will hang here if the processor is damaged or not installed properly.
○●●●	Early Chipset Initialization
●○●●	Memory Detection Test - Testing onboard memory size.　The D-LED will hang if the memory module is damaged or not installed properly.
○○●●	Decompressing BIOS image to RAM for fast booting.
●●○●	Initializing Keyboard Controller.
○●○●	Testing VGA BIOS - This will start writing VGA sign-on message to the screen.
●○○●	Processor Initialization - This will show information regarding the processor (like brand name, system bus, etc…)
○○○●	Testing RTC (Real Time Clock)
●●●○	Initializing Video Interface - This will start detecting CPU clock, checking type of video onboard.　Then, detect and initialize the video adapter.
○●●○	BIOS Sign On - This will start showing information about logo, processor brand name, etc….
●○●○	Testing Base and Extended Memory - Testing base memory from 240K to 640K and extended memory above 1MB using various patterns.
○○●○	Assign Resources to all ISA.
●●○○	Initializing Hard Drive Controller - This will initialize IDE drive and controller.
○●○○	Initializing Floppy Drive Controller - This will initializing Floppy Drive and controller.
●○○○	Boot Attempt - This will set low stack and boot via INT 19h.
○○○○	Operating System Booting

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.
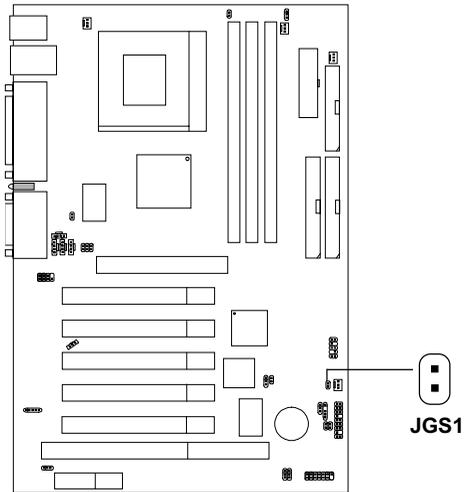
Power Saving LED Connectors: JGL1 & JGLED1

JGL1 can be connected with a LED. There are three types of LEDs that you can use: 3-pin dual color LED, 2-pin single color LED or 2-pin dual color LED (ACPI request). See page 2-9 (Power/Suspend LED) for more information.
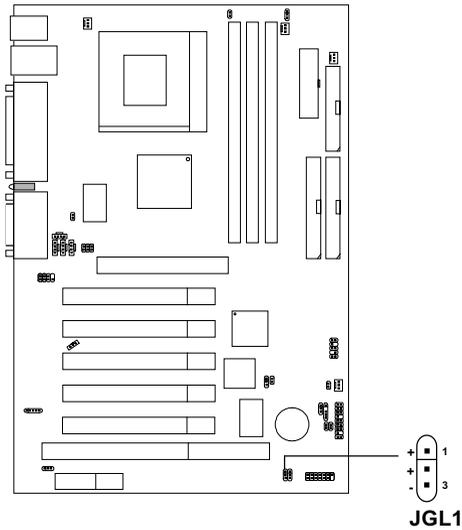
JGL1
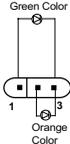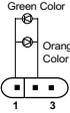
3-pin LED	2-pin LED
	  1-2 Dual Color

You can also connect an appropriate power saving LED to **JGLED1**. The only difference between JGL1 and JGLED1 is their pin definitions.

JGLED1
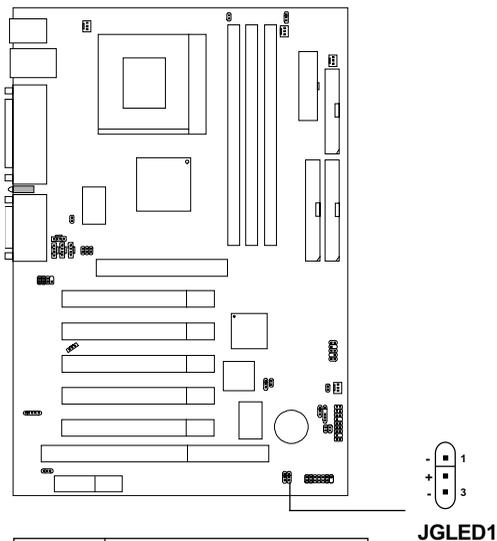
PIN	Description
1	PLED1 (Power LED)
2	5V Stand-by
3	PLED2 (Suspend LED)

3-pin LED
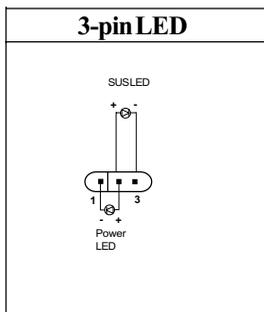
Wake-Up on LAN Connector: JWOL1

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.
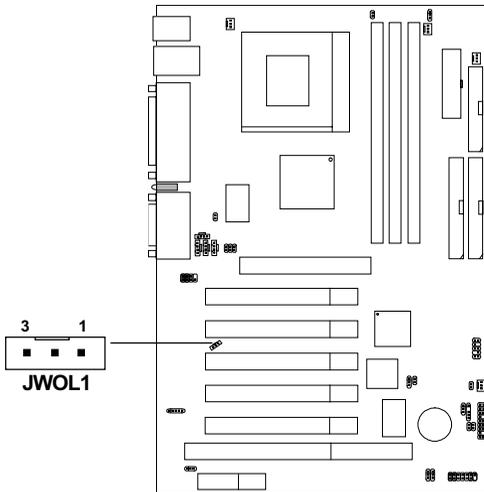
PIN	SIGNAL
1	5VSB
2	GND
3	MP_WAKEUP

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 use with Modem add-on card that supports the Modem Wake Up function. To use this function, you need to set the "Power On by Ring" to enable at the BIOS Power Management Setup.
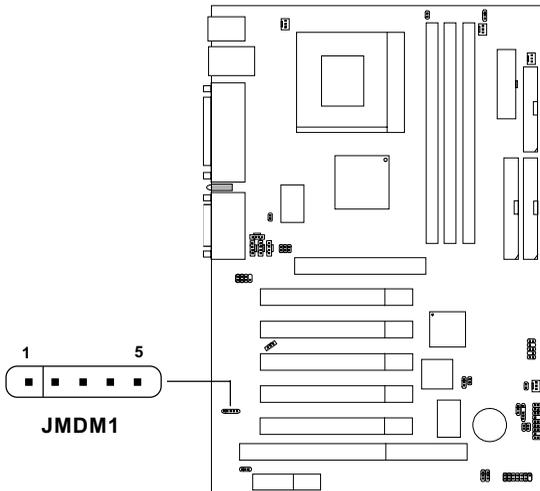
PIN	SIGNAL
1	NC
2	GND
3	MDM_WAKEUP
4	NC
5	5VSB

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)

Modem-In: MDM_IN

The connector is for Modem with internal voice connector.

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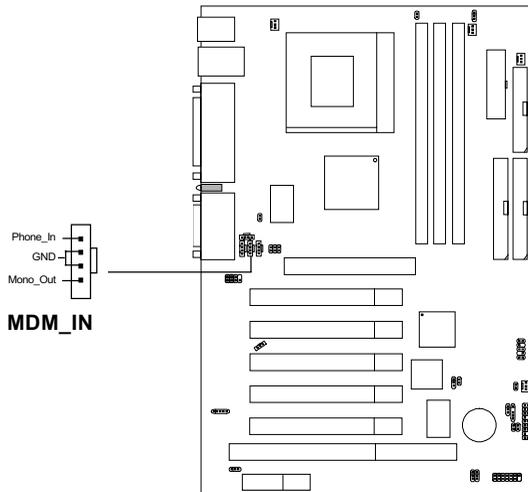
Mono_Out is connected to the Modem Speaker Out connector.
Phone_In is connected to the Modem Microphone In connector.

AUX Line In Connector: AUX_IN

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

AUX_IN
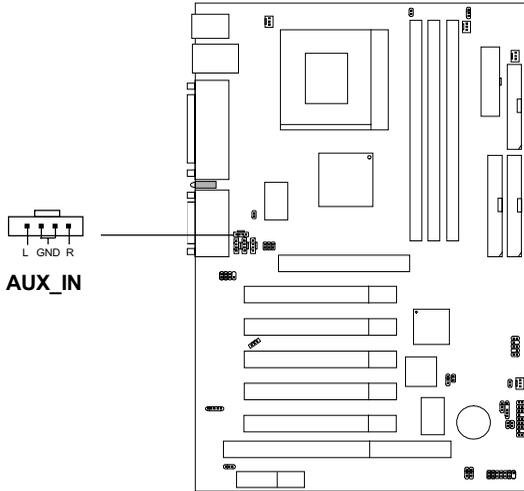
CD-In Connectors: CD_IN & CD_IN2

The connectors are for CD-ROM audio connectors.
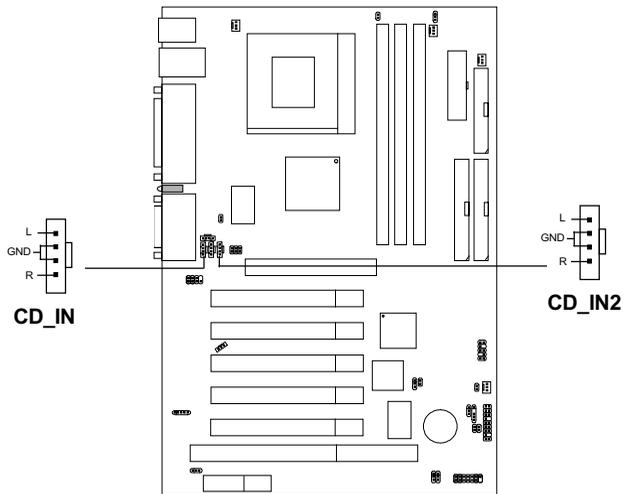
Slim CD-ROM Connector: JSCD

This connector is connected to a **slim** CD-ROM drive if any.
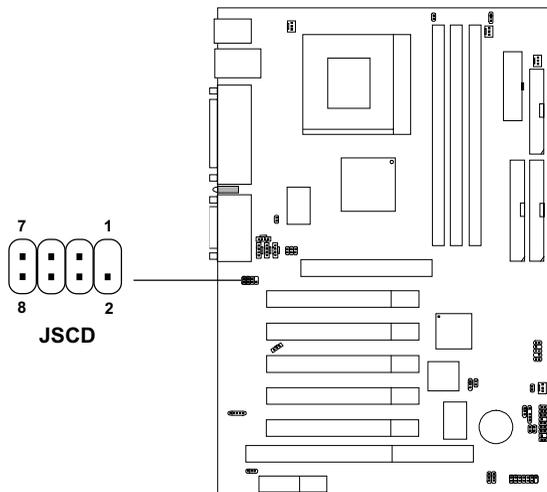
PIN	Description
1	NA
2	CDL
3	VCC
4	CDGND
5	GND
6	CDGND
7	VCC
8	CDR

Chassis Intrusion Switch Case: J2

This connector is 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.

J2
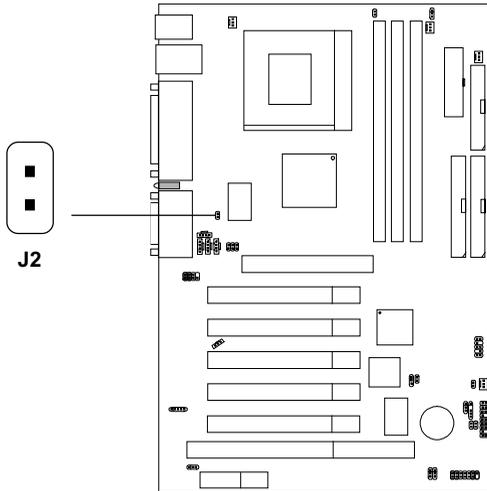
BIOS Flash Jumper: JP3

This jumper is used to lock or unlock the boot block area on BIOS. When unlocked, the BIOS boot block area can be updated. When locked, the BIOS boot block area can not be updated.

JP3
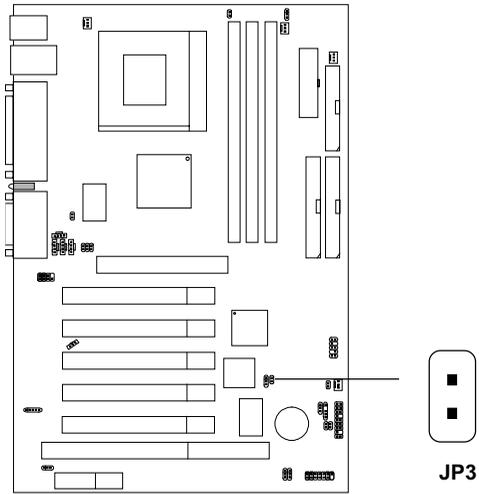
**BIOS Flash
Locked**

**BIOS Flash
Unlocked**

Keyboard Power: JP1

This jumper is for setting the keyboard power. This function should be set in the BIOS for the keyboard and PS/2 mouse Wake-up function.

JP1

5V Standby (default)
Enable keyboard
power on function

5V
Disable keyboard
power on function
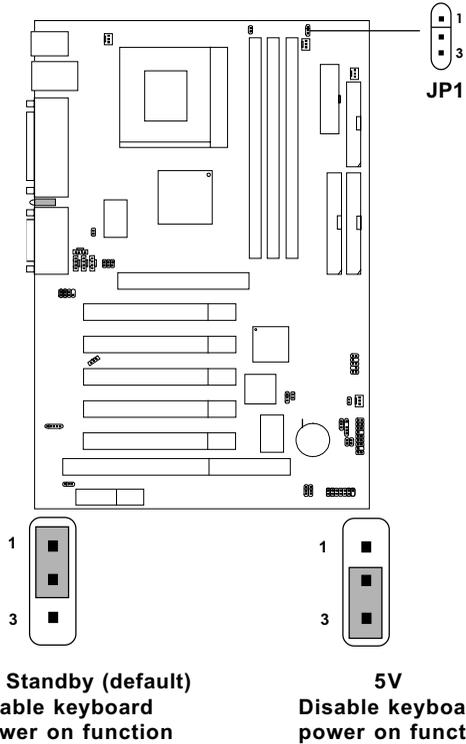
Note: To use this function, you need a power supply that provides enough power for this feature. (Power supply with 750mA 5V Stand-by)

CPU Termination Voltage Jumper: JP7

The JP7 jumper is used to select the appropriate CPU termination voltage for Celeron™/Coppermine™ (FC-PGA) processor.
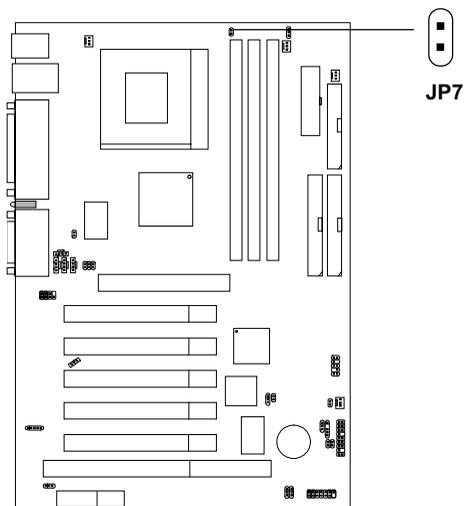
JP7	Function
	For Coppermine
	For Celeron

USB Front Connector: JUSB1

The mainboard provides a **front Universal Serial Bus connector**. This is an optional USB connector for Front Panel.
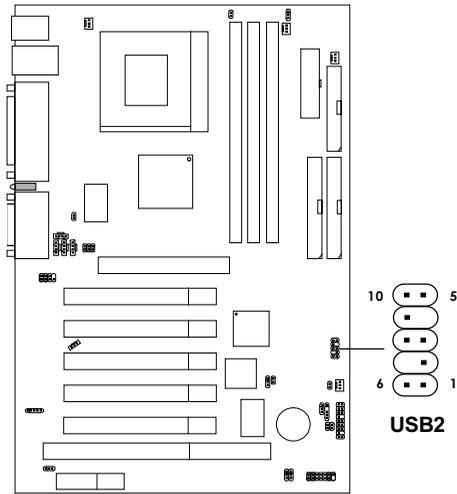
USB2

Pin	Description	Pin	Description
1	VCC	6	GND
2	USB2-	7	NA
3	USB2+	8	USB3+
4	NA	9	USB3-
5	GND	10	VCC

JP5 (Reserved)

This jumper is for manufacturer test setting only. Default setting short 1-2 pin.

JP5
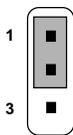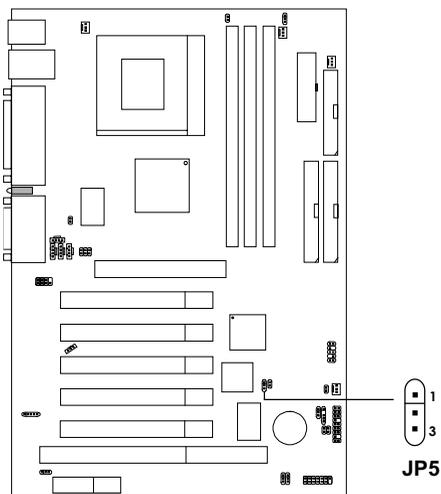
Default

Onboard LAN: JP6 (Optional)

This jumper is used to Enable or Disable the onboard LAN.
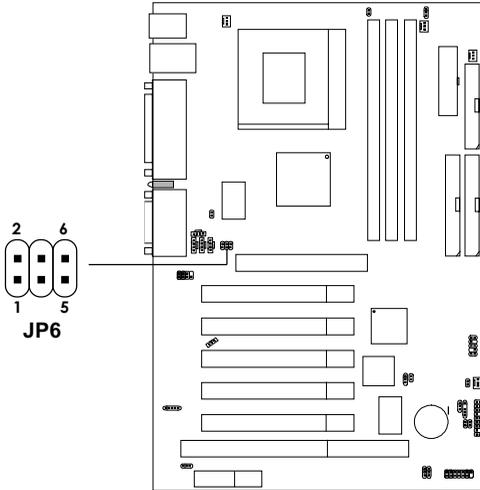
JP6	Function
	Enable onboard LAN
	Disable onboard LAN

Onboard Audio Codec Jumper: JP4

The jumper is used to enable or disable the onboard software audio codec. In Auto Mode, the system will use the onboard codec as the PRIMARY audio adapter and the installed CNR card as the SECONDARY one. But some types of CNR cards cannot be set to the secondary one, then the onboard audio codec must be disabled to resolve the system conflict.

JP4
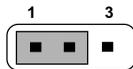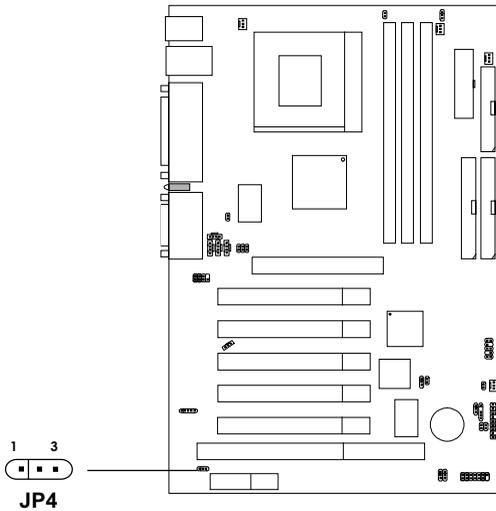
Auto Mode (Default)
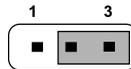
Disable onboard audio codec

Audio Enabled Jumper: JP2

This jumper must be always short in order to make the audio subsystem function; otherwise, the audio subsystem doesn't work and sound cannot be heard.

JP2
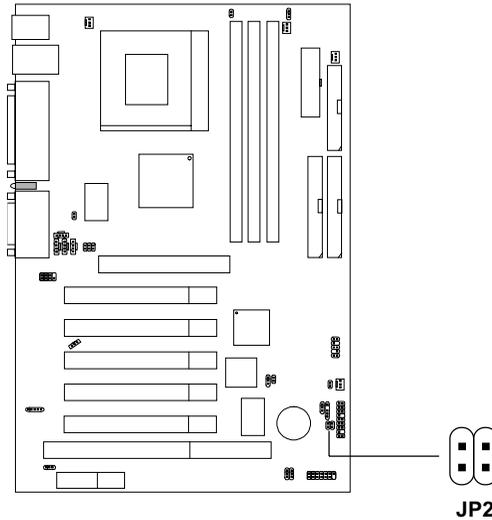
Always short the jumper

Note: However, to use the optional speaker connected to **JAUDIO** pin1~8, DO NOT short **JP2**.

Front Panel Audio Connector: JAUDIO

You can connect an optional Front Panel audio connector to this connector.

JAUDIO
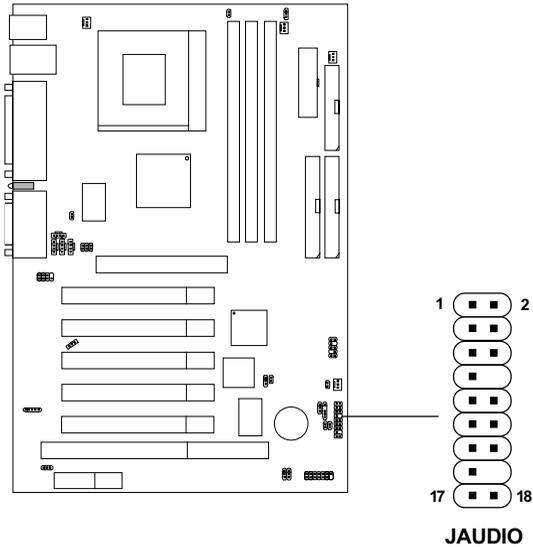
PIN	Description	PIN	Description
1	Active Line Out (R)	2	Active Line Out (L)
3	GND (ALO)	4	GND (ALO)
5	GND (+12)	6	GND (+12)
7	+12V (1A)	8	(Cut)
9	MIC	10	GND (MIC)
11	Front Line Out (R)	12	Line Next (R)
13	Front Line Out (L)	14	Line Next (L)
15	GND (FLO)	16	(Cut)
17	Line In (R)	18	Line In (L)

Note: To use the optional speaker connected to pin1~8, you must **open JP2.**

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 audio, modem and LAN cards. However, if the optional LAN function is integrated on the board, CNR slot **supports audio and modem only**.

CNR
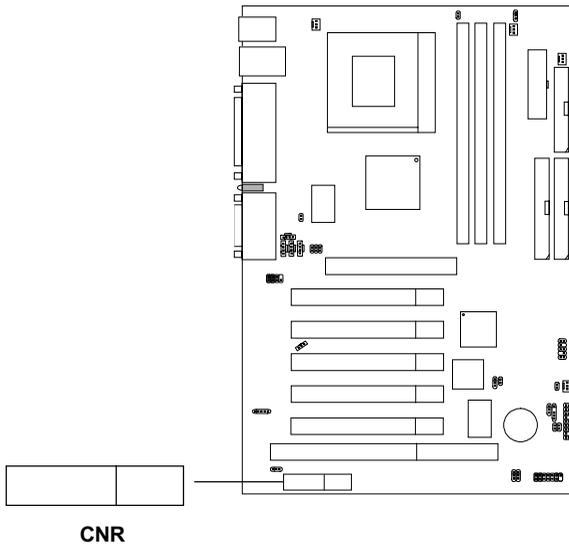
PCI Interrupt Request Routing

The IRQ, abbreviation of interrupt request line and pronounced I-R-Q, are hardware lines over which devices can send interrupt signals to the microprocessor. The "AGP/PCI/USB/LAN/AC97" IRQ pins are typically connected to the PCI bus INTA#-INTD# pins as follows:

	Order 1	Order 2	Order 3	Order 4
AGP	INT A#	INT B#		
PCI Slot 1	INT A#	INT B#	INT C#	INT D#
PCI Slot 2	INT B#	INT C#	INT D#	INT A#
PCI Slot 3	INT C#	INT D#	INT A#	INT B#
PCI Slot 4	INT D#	INT A#	INT B#	INT C#
PCI Slot 5	INT A#	INT B#	INT C#	INT D#
USB-1	INT D#			
USB-2	INT H#			
LAN (Optional)	INT E#			
AC97	INT B#			

AGP & PCI Slot 1 & PCI Slot 5 shared.

PCI Slot 2 & AC97 shared.

PCI Slot 4 & USB-1 shared.

PCI Slot 1~5: Bus Master

Chapter 3

AWARD® BIOS SETUP

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

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 message below appears briefly on 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 BIOS Setup utility.

> 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 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 on 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) 1984-2001 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   F9 : Menu in BIOS   ↑↓→←   : Select Item
F10 : Save & Exit Setup

              Time, Date, Hard Disk Type...
```

Standard CMOS Features
   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 Configurations
>   This entry appears if your system supports PnP/PCI.

PC Health Status (Optional)
>   This entry shows your PC health status. This is only available if there is Hardware Monitor onboard.

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.

Set 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 Features

The items in Standard CMOS Setup Menu are divided into 10 categories. Each category includes none, 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) 1984-2001 Award Software
Standard CMOS Features

```
┌─────────────────────────────────────────────┬──────────────────────────┐
│ Date(mm:dd:yy):        Mon, Feb 5 2001       │                          │
│ Time(hh:mm:ss):        00:00:00              │      Item Help           │
│                                              │                          │
│                                              ├──────────────────────────┤
│ ▶ IDE Primary Master                         │ Menu Level  >            │
│ ▶ IDE Primary Slave                          │                          │
│ ▶ IDE Secondary Master                       │ Change the day, month,   │
│ ▶ IDE Secondary Slave                        │ year and century         │
│                                              │                          │
│ Drive A               1.44M, 3.5 in.         │                          │
│ Drive B               None                   │                          │
│                                              │                          │
│ Video                 EGA/VGA                │                          │
│ Halt On               All,But Keyboard       │                          │
│                                              │                          │
│ Based Memory             640K                │                          │
│ Extended Memory        64512K                │                          │
│ Total Memory            5536K                │                          │
├──────────────────────────────────────────────┴─────────────────────────┤
│ ↑↓→← 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, CHS, Large, LBA
Capacity	The formatted size of the storage device
Cylinder	Number of cylinders
Head	Number of heads
Precomp	Write precompensation
Landing Zone	Cylinder location of the landing zone

      Sector   Number of sectors

Drive A/B

This item allows you to set the type of floppy dirves installed. Available options are None, 360K, 5.25 in., 1.2M, 5.25 in., 720K, 3.5 in., 1.44M, 3.5 in., 2.88M, 3.5 in.. The default value for Floppy Drive A is 1.44M, 3.5 in, and for Floppy Drive B is None.

Video

The item sets the type of video adapter used for the primary monitor of the system . Available options are EGA/VGA , CGA 40, CGA 80 and MONO. Default value is EGA/VGA.

Halt On

The item determines whether the system will stop if an error is detected at boot. Available options are:

All Errors	The system stops when any error is detected.
No Errors	The system doesn't stop for any detected error.
All, But Keyboard	The system doesn't stop for a keyboard error.
All, But Diskette	The system doesn't stop for a disk error.
All, But Disk/Key	The system doesn't stop for either a disk or a keyboard error.

Advanced BIOS Features

CMOS Setup Utility - Copyright(C) 1984-2001 Award Software
Advanced BIOS Features

```
 Anti-Virus Protection        Disabled          │        Item Help
 CPU Internal Cache           Enabled            │
 External Cache               Enabled            │
 CPU L2 Cache ECC Checking    Enabled            ├──────────────────────
 Processor Number Feature     Enabled            │ Menu Level   >
 Quick Power On Self Test     Enabled            │
 First Boot Device            Floppy             │ Allows you to choose
 Second Boot Device           HDD-0              │ the VIRUS warning
 Third Boot Device            LS120              │ feature for IDE Hard
 Fourth Boot Device           Disabled           │ Disk boot sector
 Swap Floppy Drive            Disabled           │ protection.  If this
 Boot Up Floppy Seek          Enabled            │ function is enabled
 Boot Up Numlock Status       ON                 │ and someone attempt to
 Gate A20 Option              Fast               │ write data into this
 Typematic Rate Setting       Disabled           │ area, BIOS will show
x Typematic Rate (Chars/Sec)  6                  │ a warning message on
x Typematic Delay (Msec)      250                │ screen and alarm beep.
 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

Anti-Virus Protection

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.

Disabled (default) — No warning message appears when any attempts to access the boot sector or hard disk partition table occur.

Enabled — Activates automatically when the system boots up causing a warning message to appear when anything attempts to access the boot sector of hard disk partition table.

CPU Internal Cache

The default value is Enabled.

Enabled (default)   Enable CPU internal cache
Disabled   Disable CPU internal cache

Note: The internal (L1) cache is built in the processor.

External Cache

Choose Enabled or Disabled. This option can enable the CPU level 2 cache memory.

CPU L2 Cache ECC Checking

Choose Enabled or Disabled. This option enables the level 2 cache memory ECC (Error Check Correction) feature.

Processor Number Feature

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

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/Fourth 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, CDROM, HDD-1/HDD-2/HDD-3, ZIP100, LAN and Disabled.

Swap Floppy Drive

     Switches the floppy disk drives between drive A and B. Default is Disabled.

Boot Up Floppy Seek

     If set to Enabled, BIOS will check and determine if the floppy disk drive installed is 40 or 80 tracks during POST. 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

     A20 refers to the first 64KB of extended memory.

       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 resulting in faster system performance.

Typematic Rate Setting

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

Typematic Rate (Chars/Sec)

     Sets the number of times to repeat a key stroke in a second 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 A password prompt appears every time when the compuer is powered on or when end users try to run Setup. 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 password prompt appears only when end users try to run Setup. Access to Setup will be denied if the correct password is not entered at the prompt.

OS Select For DRAM > 64MB

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

HDD S.M.A.R.T. Capability

This allows you to activate the S.M.A.R.T. (Self-Monitoring Analysis & Reporting Technology) capability for the hard disks. S.M.A.R.T. is an utility that monitors your disk status to predict hard disk failure. This gives you an opportunity to move data from a hard disk that is going to fail to a safe place before it becomes offline. Settings are Enabled and Disabled (default).

Report No FDD For WIN 95

This specifies whether to report no FDD for Windows® 95 or not. The settings are Yes and 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) 1984-2001 Award Software
                        Advanced Chipset Features
┌─────────────────────────────────────────┬──────────────────────────┐
│ SDRAM CAS Latency Time       3           │                          │
│ SDRAM Cycle Time Tras/Trc    7/9         │        Item Help         │
│ SDRAM RAS-to-CAS Delay       3           │                          │
│ SDRAM RAS Precharge Time     3           ├──────────────────────────┤
│ System BIOS Cacheable        Disabled    │                          │
│ Video BIOS Cacheable         Disabled    │ Menu Level   >           │
│ Memory Hole at 15M-16M       Disabled    │                          │
│ CPU Latency Timer            Enabled     │                          │
│ Delayed Transaction          Enabled     │                          │
│ AGP Graphics Aperture Size   64MB        │                          │
│ System Memory Frequency      Auto        │                          │
│                                          │                          │
│                                          │                          │
│                                          │                          │
│                                          │                          │
│                                          │                          │
│                                          │                          │
│                                          │                          │
│                                          │                          │
├──────────────────────────────────────────┴──────────────────────────┤
│ ↑↓→← 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.

SDRAM CAS Latency Time

Controls the time delay (in clock cycles) before SDRAM starts a read command after receiving it. The settings are 2, 3 and Auto (default).

SDRAM Cycle Time Tras/Trc

Selects the number of SCLKs for an access cycle. The settings are 5/7 and 7/9. The default setting is 7/9.

SDRAM RAS-to-CAS Delay

This field lets you insert a timing delay between the CAS and RAS strobe signals, used when DRAM is written to, read from, or refreshed. *2* gives faster performance and *3* gives more stable performance. This field applies only when synchronous DRAM is installed in the system.
The settings are 2 and 3.

SDRAM RAS Precharge Time

If an insufficient number of cycles is allowed for the RAS to accumulate its charge before DRAM refresh, the refresh may be incomplete and the DRAM may fail to retain data. *2* gives faster performance; and *3* gives more stable performance. This field applies only when synchronous DRAM is installed in the system. The settings are 2 and 3.

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

Selecting 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

In order to improve performance, certain space in memory can be reserved for ISA cards. This memory must be mapped into the memory space below 16MB. When this area is reserved, it cannot be cached. The settings are Enabled and Disabled.

CPU Latency Timer

When set to Enabled, a deferrable CPU cycle will only be deferred after it has been in a Snoop Stall for 31clocks and another ADS# has arrived. During Disabled, a deferrable CPU cycle will be deferred immediately after the GMCH receives another ADS#.

Delayed Transaction

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

AGP 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 that is maintained on the main memory. The option allows the selection of an aperture size of 32MB and 64MB.

System Memory Frequency

Selects the system memory frequency. The settings are 100 MHz, 133 MHz and Auto.

Integrated Peripherals

CMOS Setup Utility - Copyright(C) 1984-2001 Award Software
Integrated Peripherals

```
On-Chip Primary PCI IDE      Enabled
On-Chip Secondary PCI IDE    Enabled           Item Help
IDE Primary Master PIO       Auto
IDE Primary Slave PIO        Auto
IDE Secondary Master PIO     Auto        Menu Level   >
IDE Secondary Slave PIO      Auto
IDE Primary Master UDMA      Auto
IDE Primary Slave UDMA       Auto
IDE Secondary Master UDMA    Auto
IDE Secondary Slave UDMA     Auto
USB Controller               Enabled
USB Keyboard Support         Disabled
USB Mouse Support            Disabled
Init Display First           PCI Slot
AC97 Audio                   Auto
AC97 Modem                   Auto
IDE HDD Block Mode           Enabled
POWER ON Function            BUTTON ONLY
KB Power ON Password         Enter
```

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

```
Hot Key Power ON             Ctrl-F1
Onboard FDC Controller       Enabled
Onboard Serial Port 1        3F8/IRQ4
Onboard Serial Port 2        2F8/IRQ3
UART Mode Select             Normal
RxD, TxD Active              Hi, Lo
IR Transmission Delay        Enabled
UR2 Duplex Mode              Half
USE IR Pins                  IR-Rx2Tx2
Onboard Parallel Port        378/IRQ7
Parallel Port Mode           ECP
EPP Mode Select              EPP1.7
ECP Mode Use DMA             3
PWRON After PWR-Fail         Off
Game Port Address            201
Midi Port Address            330
Midi Port IRQ                10
Power Status Led             Single
```

On-Chip 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 and Mode 4.

IDE Primary/Secondary Master/Slave UDMA

Ultra DMA 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 and Ultra DMA/100, 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 your system has USB peripherals. The settings are Enabled and Disabled.

USB Keyboard/Mouse Support

Select *Enabled* if your system contains a Universal Serial Bus (USB) controller and you want to use the USB keyboard/mouse while entering the BIOS setup utility or in DOS system without installing any USB keyboard/mouse driver. The settings are Enabled and Disabled.

Init Display First

This item allows you to decide whether to activate the VGA card on PCI Slot or the AGP card on AGP Slot first. The settings are PCI Slot and AGP.

AC97 Audio

This item allows you to decide to enable/disable the 815 chipset family to support AC97 Audio. The settings are Auto and Disabled.

AC97 Modem

This item allows you to decide to enable/disable the 815EP chipset family to support AC97 Modem. The settings are Auto and Disabled.

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, Hot KEY and Keyboard 98.

KB Power ON Password

If **POWER ON Function** is set to Password, then you can set a password in this field for the PS/2 keyboard to power on the system.

Hot Key Power ON

If **POWER ON Function** is set to Hot Key, then you can specify a hot key combination in the field for the PS/2 keyboard to power on the system. Settings are Ctrl-F1 through Ctrl-F12.

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 1/2

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

UART Mode Select

This item allows you to determine which InfraRed (IR) function of the onboard I/O chip is used. Settings are Normal (default), IrDA and ASKIR.

RxD, TxD Active

The item determines the active of RxD, TxD. Settings are "Hi, Lo" (default), "Hi, Hi", "Lo, Hi" and "Lo, Lo".

IR Transmission Delay

This enables or disables IR transmission delay feature. Settings are Enabled and Disabled. Default is Enabled.

UR2 Duplex Mode

This specifies a duplex value for the IR device connected to the IR connector. Full-Duplex mode permits simultaneous two-direction transmission. Half-Duplex mode permits transmission in one direction only at a time. Settings are Half and Full. Default is Half .

USE IR Pins

Consult your IR peripheral documentation to select the correcting of the TxD and RxD signals. Settings are "IR-Rx2Tx2" and "RxD2, TxD2".

Onboard Parallel Port

Disabled
"3BC/IRQ7"/
"278/IRQ5"/
"378/IRQ7"

There is a built-in parallel port on the on-board Super I/O chipset that provides Standard, ECP, and EPP features. It has the following address/IRQ options:

Disabled		
3BC/IRQ7	Line Printer port 0
278/IRQ5	Line Printer port 2
378/IRQ7	Line Printer port 1

Parallel Port Mode

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

SPP/EPP/ECP/ **ECP+EPP**	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 users can choose DMA channel 1 or 3 for ECP mode in the **ECP Mode Use DMA** field. The onboard parallel port is EPP Spec. compliant, so after the user sets the onboard parallel port to EPP mode, users can select either EPP 1.7 spec. or EPP 1.9 spec. in the **EPP Mode Select** field.

PWRON After PWR-Fail

This option will determine how the system will respond after a power failure or interrupt. Settings are:

Off (default) Leaves the computer in the power off state.

On Reboots the computer.

Former-Sts Restores the system to the status before power failure or interrupt occurs.

Game Port Address/Midi Port Address/Midi Port IRQ

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

Power Status LED

This item determines how the system uses Power LED to indicate the suspend/sleep state. Settings are Blinking, Dual, and Single. Blinking makes the power LED blink when the system enters the suspend mode. Dual makes the power LED change its color during suspend mode. Choose Single and the power LED will always remain lit without changing its color.

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) 1984-2001 Award Software
Power Management Setup

```
  IPCA Function             Enabled
  ACPI Suspend Type         S1(POS)              Item Help
  Power Management          User Define
  Video Off Method          DPMS
  Video Off In Suspend      Yes            Menu Level  >
  Suspend Type              Stop Grant
  Modem Use IRQ             3
  Suspend Mode             Disabled
  HDD Power Down           Disabled
  Soft-Off by PWR-BTTN     Delay 4 Sec.
  Wake Up by PCI card      Enabled
  Power On by Ring         Enabled
  Wake-Up On LAN           Enabled
  USB KB Wake-Up From S3   Disabled
  CPU Thermal-Throtting    50.0%
  Resume by Alarm          Disabled
x Date(of Month) Alarm     0
x Time(hh:mm:ss) Alarm     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
```

IPCA Function

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

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 chip set) and hardware maintains all system context.

S3 (STR)

The S3 state is a low wake-up latency sleeping sate where all system context is lost expect 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 Saving	Minimum power management. Suspend Mode = 1hr., and HDD Power Down = 15 min.
Max Saving	Maximum power management — Suspend Mode = 1 min., and HDD Power Down = 1 min.
User Define (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/HSYNC+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 whether the monitor is blanked during the suspend mode. The settings are Yes and No.

Suspend Type

Selects the Suspend Type. The settings are PwrOn Suspend and Stop Grant.

Modem Use IRQ

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

Suspend Mode

After the set time (specified in the field) 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

After the set time (specified in the field) 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 if any activity on the card is detected. 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.

USB KB Wake-Up From S3

This item enables or disables the activity of an USB keyboard to wake up the system during S3/STR suspend state. The settings are Enabled and Disabled (default).

CPU Thermal-Throttling

Select the CPU THRM-Throttling rate. The settings are 12.5%, 25.0%, 37.5%, 50.0%, 62.5%, 75.0% and 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. To boot every day, set to 0.
Time(hh:mm:ss) Alarm	You can choose which hour, minute and second the system will boot up.

Note: If you have changed the setting, you must let the system boot up until it goes to the operating system before this function can 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) 1984-2001 Award Software
PnP/PCI Configurations

```
 PNP OS Installed              No
 Reset Configuration Data      Disabled              Item Help

 Resources Controlled By       Auto(ESCD)
x IRQ Resources                Press Enter    Menu Level  >
x DMA Resources                Press Enter
                                              Select Yes if you are
 PCI/VGA Palette Snoop         Disabled       using a Plug and Play
 INT Pin 1 Assignment          Auto           capable operating
 INT Pin 2 Assignment          Auto           system Select No if
 INT Pin 3 Assignment          Auto           you need the BIOS to
 INT Pin 4 Assignment          Auto           configure non-boot devices




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

PNP OS Installed

When set to YES, BIOS will only initialize the PnP cards used for booting (VGA, IDE, SCSI). The rest of the cards will be initialized by the PnP operating system like Windows® 95 or 98. When set to NO, BIOS will initialize all the PnP cards. So, select *Yes* if the operating system is Plug & Play aware.

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. The settings are PCI/ISA PnP and Legacy ISA.

DMA Resources

This sub-menu can let you assign each DMA channel a type, depending on the type of device using the DMA channel. The settings are PCI/ISA PnP and Legacy ISA.

PCI/VGA Palette Snoop

Leave this field at *Disabled*. The settings are Enabled and Disabled. When *Enabled*, multiple VGA devices operating on different buses (such as PCI bus and ISA bus) can handle data from 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). The setting must be set to Enabled if any ISA adapter card installed in the system requires VGA palette snooping.

INT Pin 1/2/3/4 Assignment
      The items let you assign an IRQ line to INT Pin#1~4 separately. Selecting Auto allows BIOS to determine the best IRQ for each INT Pin.

PC Health Status (optional)

This section shows the Status of you CPU, Fan, Warning for overall system status. This is only available if there is Hardware Monitor onboard.

CMOS Setup Utility - Copyright(C) 1984-2001 Award Software
PC Health Status

```
CPU Warning Temperature      Disabled
Current System Temp.         39°C/102°F        Item Help
Current CPU Temperature      66°C/150°C
Current System Fan           0RPM
Current Power Fan            0RPM
Current CPU Fan              5532RPM       Menu Level  >
Vcore                        1.96V
VTT                          1.48V
3.3V                         3.24V
+5V                          4.89V
+12V                         11.79V
-12V                         -12.19V
-5V                          -4.53V
VBAT(V)                      3.10V
5VSB(V)                      5.37V
Chassis Intrusion Detect     Disabled
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

CPU Warning Temperature

During Enabled, this will warn the user when the CPU temperature reaches a specific temperature specified in the field.

Current System Temp/Current CPU Temperature/Current System Fan (optional)/Current Power Fan/CPU Fan/Vcore/ VTT/3.3V/+5V/+12V/-12V/-5V/VBAT(V)/5VSB(V)

This will display the CPU/FAN/System temperatures, voltage status and FAN speeds.

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 on the screen. To clear the warning message, choose Reset in the field. After clearing the message it will go back to Enabled.

Shutdown Temperature

This option is for setting the Shutdown temperature level for the processor. When the processor reaches the temperature you set, the system will shutdown. The settings are Disabled, 80°C/176°F, 85°C/185°F and 90°C/ 194°F.

Frequency/Voltage Control

This section is for setting CPU Frequency/Voltage Control.

```
             CMOS Setup Utility - Copyright(C) 1984-2001 Award Software
                              Frequency/Voltage Control
   ┌─────────────────────────────────────────────┬───────────────────────┐
   │  Auto Detect DIMM/PCI Clk      Enabled       │                       │
   │  Spread Spectrum               Enabled       │      Item Help        │
   │  CPU HOST/PCI Clock/PC133      Default       │                       │
   │  CPU Clock Ratio               Auto          ├───────────────────────┤
   │                                              │  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
```

Auto Detect DIMM/PCI Clk

This item allows you to enable/disable the feature of auto detecting the clock frequency of the installed DRAM DIMMs and PCI bus. The settings are Enabled and Disabled.

Spread Spectrum

This item allows you to enable/disable the Spread Spectrum feature. When overclocking the processor, always set it to Disabled.

CPU HOST/PCI Clock/PC133

This item allows you to slightly adjust the CPU FSB (Front Side Bus) and PCI clock frequency and determine whether PC133 SDRAM is installed or not. Settings are Default, 67/33Mhz/No, 70/35Mhz/No, 75/37Mhz/No, 80/40Mhz/No, 83/41Mhz/No, 100/33Mhz/No, 103/34Mhz/No, 105/35Mhz/No,

110/37Mhz/No, 115/38Mhz/No, 134/33Mhz/Yes, 137/34Mhz/Yes, 140/35Mhz/Yes, 145/36Mhz/Yes, 150/37Mhz/Yes and 160/40Mhz/Yes.

CPU Clock Ratio

This item allows you to select the CPU ratio (multiplier). Settings are Auto, x 3.5, x 4, x 4.5, x 5, x 5.5, x 6, x 6.5, x 7, x 7.5 and x 8.

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 4

ADI 1881A AUDIO DRIVER

ADI 1881A

ADI 1881A is a general-purpose 18-bit stereo, full duplex, audio codec that conforms to the analog component specification of AC'97.

Features

- High performance 3D technology
- Energy saving power down modes
- 18-bit full duplex stereo ADC, DACs
- AC-Link protocol compliance
- Six analog line-level inputs
- SNR > 95 dB through Mixer and DAC

System Requirements

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

Computer	Intel® Pentium® II/III or Coppermine processor or higher
Operating system	DOS 5.0 or higher, Windows® 95, Windows® 98, Windows® NT 3.51 or 4.0, or OS/2®
CD-ROM	Double Speed or Higher
Chipset	ADI 1881A

Audio Driver Setup

Insert the CD-title into your CD-ROM drive. This CD will auto-run. This will display installation for Microsoft DirectX7.0a, Creative Audio PCI Sound Drivers and Intel® chipset. Please make sure that you have finished the installation for Intel® Chipset Drivers 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 "ADI1881A 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.

Note: You must install Audio Driver before installing USB support.

● **Windows® NT 4.0**

Audio Driver Installation Procedure:

Step 1: Click **Start** menu and select **Control Panel** from **Settings** group.
Step 2: Select **Multimedia** icon.
Step 3: Click on the **Devices** tab.
Step 4: Click **Add**.
Step 5: Double click on **Unlisted or Updated Driver** in the list.
Step 6: Insert the **CD-ROM Disk** into the CD-ROM Drive.
Step 7: When the Install from Disk dialog box appears, look for your CD-ROM drive :**Sound\\ADI\\Driver\\NT4**
Step 8: Click **OK**.
Step 9: Click **OK**.
Step 10: A message will appear stating that the drivers were succesfully installed. Click OK. You must now restart Windows® NT 4.0.