
Introduction

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The MS-6375 ATX mainboard is a high-performance computer mainboard based on ALi® **ALiMAGiK 1** chipset and designed for the AMD® Athlon™ or Duron™ (PGA) processor for inexpensive business/personal desktop markets.

The **ALiMAGiK 1** chipset consists of the M1647 Super Northbridge and the M1535D+ Southbridge. M1647 provides a single chip DDR (Double Data Rate) solution for Socket A infrastructure. It interfaces with AMD's 66/100/133MHz double data rate S2K front side bus and its built-in memory controller supports PC1600/2100 DDR and 66/100/133 SDRAM. By using PC2100 DDR, the M1647 enables 2.1GB/second peak bandwidth between system memory and Northbridge. With support for AGP 1x/2x/4x, M1647 can boost system performance for 3D graphics.

The M1535D+ Southbridge integrates many advanced controllers or functions including AC-Link Host Controller, ACPI support, green function, 2-channel dedicated Ultra-100 IDE Master controller, 2 USB controller, Super I/O and Fast IR support etc.

The **ALiMAGiK 1** chipset provides flexibility for users to choose the best solution for specific cost/performance they request.

This chapter includes the following topics:

Mainboard Specifications	1-2
Mainboard Layout	1-5
Quick Components Guide	1-6
Key Features	1-7
MSI Special Features	1-8

Chapter 1

Mainboard Specification

CPU

- Support Socket A (Socket-462) for AMD® Athlon™ /Duron™ processor
- Support CPU frequency at:
 - Athlon™: 550MHz~1.2GHz @100/133MHz FSB
 - Duron™: 550 MHz~850MHz @ 100/133MHz FSB

Chipset

- ALi® M1647 chipset (528 BGA)
 - Optimum buffering architecture design for CPU to memory, AGP and PCI read/write operations
 - Support both S2K bus open-drain and push-pull mode
 - Support host bus frequency at 66, 100 or 133MHz double data rate
- ALi® M1535D+ chipset (352 BGA)
 - Provide a High Integration Bridge (with Audio, HSP mode, Super I/O & Fast IR) between PCI bus and Peripheral bus for desktop systems
 - Dual bus Master IDE Ultra DMA 33/66/100
 - Direct Sound AC97 Audio
 - AGP 1X/2X/4X Support
 - ACPI 1.0b

Clock Generator

- ICS clock generator
- Support 66/100/133MHz clocks

Main Memory

- Support four memory banks using two 168-pin SDRAM DIMMs and six memory banks using three 184-pin DDR DIMMs
- Support SDRAM at 66/100/133MHz & DDR at 200/266MHz
- Support 4, 16, 64, 128, 256, 512Mbit SDRAM/DDR
- Maximum memory size up to 3GB
- x-1-1-1-1-1-1-1 back-to-back page hit

Slots

- One AGP (Accelerated Graphics Port) PRO slot
 - AGP v2.0 specification compliant

- One CNR (Communication Network Riser) slot
- Five 32-bit Master PCI Bus slots
- Supports 3.3V/5V PCI bus Interface

On-Board IDE

- Support Ultra DMA Mode Transfers up to Mode 5 Timing (100Mbytes/sec)
- Support Command Queue IDE enhancement
- Can connect up to four IDE devices

Audio

- Chip integrated
 - Direct Sound AC97 Audio
- Creative CT5880 (optional)
 - 64 Voice WaveTable Synthesizer
 - Sound Library of over 4000 different sounds
 - Support SPDIF (AC3)
 - Support Microsoft Direct Sound, Direct Sound 3D, Direct Music, and A3DAPL.

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 supporting SPP/EPP/ECP mode
 - 6 USB ports (2 rear ports and 2 Front USB pin headers- 4 ports)
 - 1 IR connector for SIR/FIR
 - 1 Game/3 Audio ports

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

Chapter 1

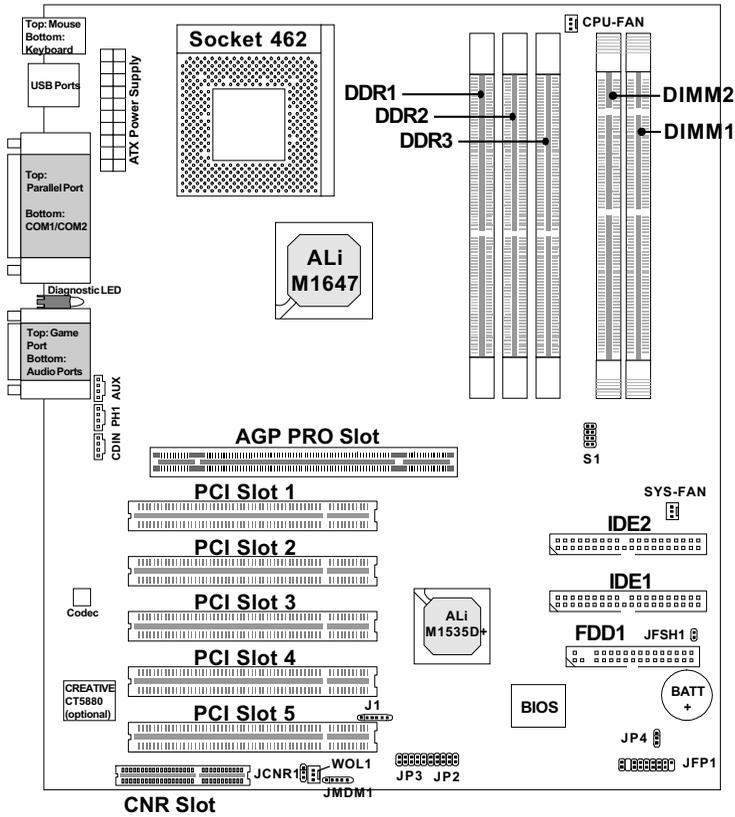
Dimension

- ATX Form Factor (30.5 cm X 25 cm)

Mounting

- 9 mounting holes

Mainboard Layout



MS-6375 ATX Mainboard

Chapter 1

Quick Components Guide

Component	Function	Reference
DIMM 1~2	Installing SDR SDRAM modules	See p. 2-4~2-5
DDR1~3	Installing DDR SDRAM modules	See p. 2-6
Socket 462	Installing CPU	See p. 2-2~2-3
CPU-FAN	Connecting to CPUFAN	See p. 2-19
SYS-FAN	Connecting to SYSTEM FAN	See p. 2-19
ATX Power Supply	Installing power supply	See p. 2-7
IDE1 & IDE2	Connecting to IDE hard disk drive	See p.2-14
FDD1	Connecting to floppy disk drive	See p.2-13
JP2 & JP3	Connecting to USB interfaces	See p. 2-13
PCI Slot 1~5	Installing expansion cards	See p. 2-26
AGP PRO Slot	Installing AGP cards	See p. 2-26
CNR Slot	Installing expansion cards	See p. 2-26
S1	Setting CPU & DRAM frequency	See p. 2-25
JMDM1	Connecting to modem module	See p. 2-17
WOL1	Connecting to LAN card	See p. 2-17
JFSH1	Locking/Unlocking BIOS Flash	See p. 2-23
JP4	Clearing CMOS data	See p. 2-22
JCNR1	Enabling onboard audio codec	See p. 2-24
JFP1	Connecting to case	See p. 2-15
J1	Connecting to IR module	See p. 2-19

Key Features

- Microsoft® PC99 compliant
- D-LED™ - 4 LEDs embedded in the mainboard
- PC Alert™ III system hardware monitor
- CPU: Socket A for AMD® Duron™/Athlon™ Processor
- ATX Form Factor
- Clock: 66/100/133MHz
- Audio: Chip integrated -- Direct Sound AC97 Audio codec
- Memory: 3 DDR DIMMs + 2 SDR DIMMs
- LAN Wake up Function
- Modem (External/Internal) Ring Wake up Function
- I/O: 2 serial ports, 1 parallel port, 6 USB ports, 1 floppy port, 1 IrDA connector, 3 Audio/1 Game port
- Slot: 1 AGP PRO slot, 1 CNR slot, 5 PCI slots

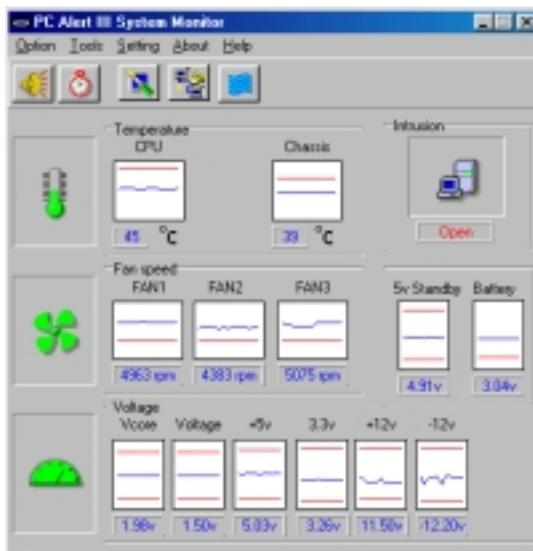
MSI Special Features

PC Alert™ III

The PC Alert™ III is an utility you can find in the CD-ROM disk. The utility is just like your PC doctor that can detect the following PC hardware status during real time operation:

- * monitor CPU & system temperatures
- * monitor fan speed(s)
- * monitor system voltage
- * monitor chassis intrusion

If one of the items above is abnormal, the program main screen will be immediately shown on the screen, with the abnormal item highlighted in red. This will continue to be shown, until user disables the warning.



Note: Items shown on PC Alert III vary depending on your system's status.



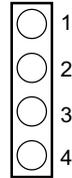
Features:

- Network Management
 - Monitoring & remote control
- Basic System Utilities
 - Scandisk & Defragment to maintain your HDD
- 3D Graphics Design
 - Enables a more friendly user interface
- Software Utilities
 - SoftCooler Optimized Cooling

Chapter 1

D-LED™

The D-LED™ uses graphic signal display to help users understand their system. Four LEDs embedded in the mainboard 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. This special feature is very useful for the overclocking users. These users can use the feature to detect if there are any problems or failures.



Diagnostic LED

● Red ○ Green

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.

	<p>Processor Initialization</p> <p>- This will show information regarding the processor (like brand name, system bus, etc...)</p>
	<p>Testing RTC (Real Time Clock)</p>
	<p>Initializing Video Interface</p> <p>- This will start detecting CPU clock, checking type of video onboard. Then, detect and initialize the video adapter.</p>
	<p>BIOS Sign On</p> <p>- This will start showing information about logo, processor brand name, etc....</p>
	<p>Testing Base and Extended Memory</p> <p>- Testing base memory from 240K to 640K and extended memory above 1MB using various patterns.</p>
	<p>Assign Resources to all ISA.</p>
	<p>Initializing Hard Drive Controller</p> <p>- This will initialize IDE drive and controller.</p>
	<p>Initializing Floppy Drive Controller</p> <p>- This will initializing Floppy Drive and controller.</p>
	<p>Boot Attempt</p> <p>- This will set low stack and boot via INT 19h.</p>
	<p>Operating System Booting</p>

Hardware Setup

2

This chapter provides you with the information about hardware setup procedures. While doing the installation, be careful in holding the components and follow the installation procedures. For some components, if you install in the wrong orientation, the components will not work properly.

Use a grounded wrist strap before handling computer components. Static electricity may damage the components.

This chapter contains the following topics:

Central Processing Unit (CPU)	2-2
Memory Installation	2-5
Power Supply	2-8
Back Panel	2-9
Connectors	2-14
Jumpers	2-27
Slots	2-35

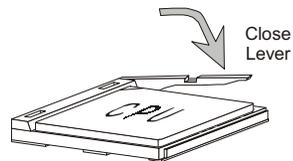
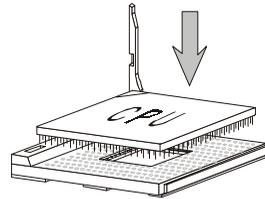
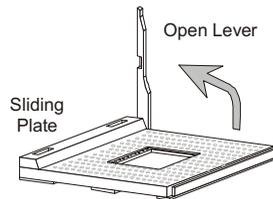
Chapter 2

Central Processing Unit: CPU

The mainboard supports AMD® Athlon™ and Duron™ processor. The mainboard uses a CPU socket called Socket A for easy CPU installation. Make sure the CPU has a Heat Sink and a cooling fan attached on the top to prevent overheating. If you do not find the Heat Sink and cooling fan, contact your dealer to purchase and install them before turning on the computer.

CPU Installation Procedures

1. Pull the lever sideways away from the socket. Then, raise the lever up to a 90-degree angle.
2. Align the pins on the CPU with the pin positions on the socket carefully and place the CPU on it.
3. Hold the CPU firmly, and then press the lever down to complete the installation.



WARNING!

Overheating will seriously damage the CPU and system, always make sure the cooling fan can work properly to protect the CPU from overheating.

CPU Core Speed Derivation Procedure

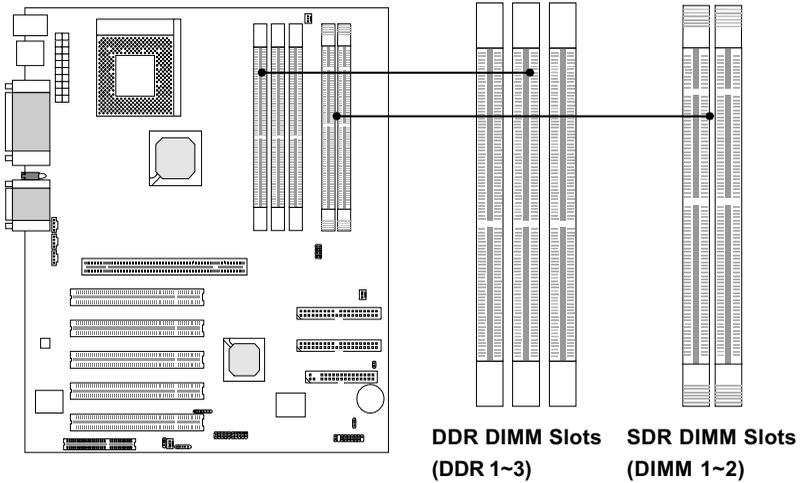
The mainboard allows you to set the CPU Host Bus Frequency Clock through the **S1** jumper.

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

Chapter 2

Memory Installation

The mainboard provides 3 sockets for 184-pin, 2.5V DDR DIMM with 6 memory banks and 2 sockets for 168-pin, 3.3V SDR DIMM with 4 memory banks. To operate properly, at least one DIMM module must be installed.

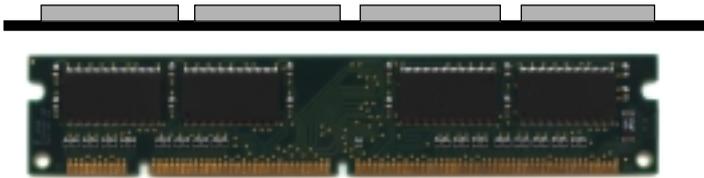


The SDRAM Addressing & Size

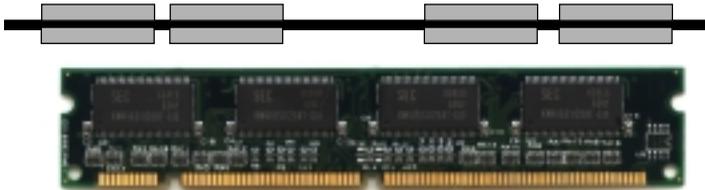
DRAM Tech.	DRAM Density & Width	DRAM Addressing	Address Size		MB/DIMM	
			Row	Column	Single no. Side(S) pcs.	Double no. Side(D) pcs.
16M	1Mx16	ASYM	11	8	8MBx4	16MBx8
	2Mx8	ASYM	11	9	16MBx8	32MBx16
	4Mx4	ASYM	11	10	32MB	64MB
64M	2Mx32	ASYM	11	9	32MBx2	64MBx4
	2Mx32	ASYM	12	8	16MBx2	32MBx4
	4Mx16	ASYM	11	10	32MB	64MB
	4Mx16	ASYM	13	8	32MB	64MB
	8Mx8	ASYM	13	9	64MB	128MB
64M	16Mx4	ASYM	13	10	128MB	256MB
	2Mx32	ASYM	12	8	16MB	32MB
	4Mx16	ASYM	13	8	32MB	64MB
	8Mx8	ASYM	13	9	64MB	128MB
	16Mx4	ASYM	13	10	128MB	256MB

SDR Module Installation Procedures

You can install single sided or double sided 168-pin DIMMs into SDR DIMM slots according to your needs.

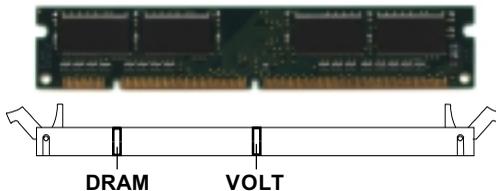


Single Sided DIMM



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 SDR DIMM slot. Then push it in.

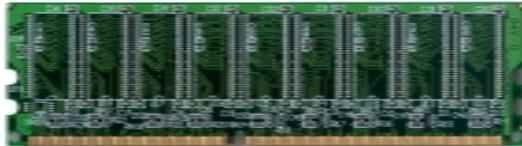


3. The plastic clips at sides of the DIMM slot will automatically close.

Chapter 2

DDR Module Installation Procedures

You can also install single sided or double sided 184-pin DDR DIMM modules into DDR DIMM slots to meet your needs. Different from the SDR DIMM, the DDR DIMM has only one notch on the center of module. The number of pins on either side of the breaks are different. The module will only fit in the right orientation.

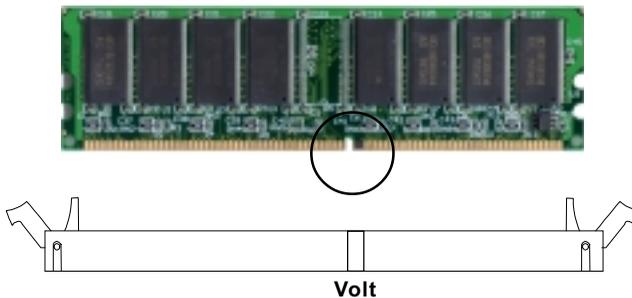


Single Sided DIMM



Double Sided DIMM

1. Insert the DIMM module vertically into the DDR DIMM slot. Make sure the notch is on the right orientation.
2. The plastic clips at sides of the DIMM slot will automatically close.

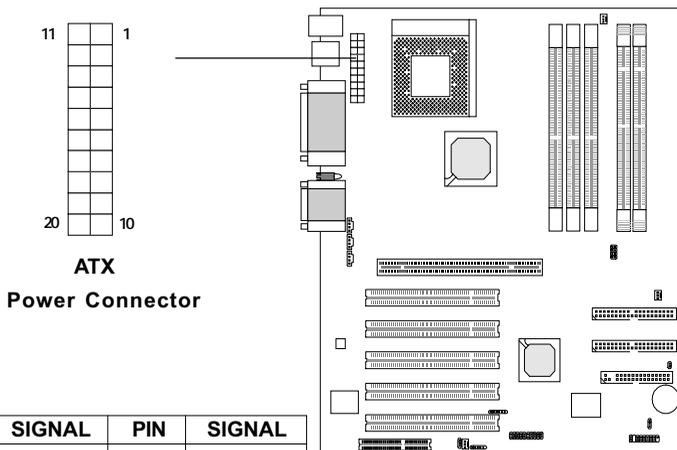


Power Supply

The mainboard supports ATX power supply for the power system. Before inserting the power supply connector, always make sure that all components are installed properly to ensure that no damage will be caused.

ATX 20-Pin Power Supply

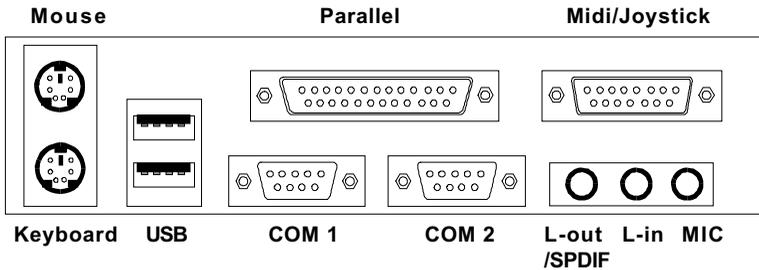
This connector allows you to connect to an ATX power supply. To connect to the ATX power supply, make sure the plugs of the power supply is inserted in the proper orientation and the pins are aligned. Then push down the power supply firmly into the connector.



Chapter 2

Back Panel

The Back Panel provides the following connectors:



Mouse Connector

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.

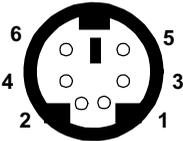
Pin Definition

The diagram shows a PS/2 Mouse (6-pin Female) connector with pins numbered 1 through 6. Pin 1 is at the bottom right, pin 2 at the bottom left, pin 3 at the right, pin 4 at the left, pin 5 at the top right, and pin 6 at the top left.

PIN	SIGNAL	DESCRIPTION
1	Mouse DATA	Mouse DATA
2	NC	No connection
3	GND	Ground
4	VCC	+5V
5	Mouse Clock	Mouse clock
6	NC	No connection

Keyboard Connector

The mainboard provides a standard PS/2® keyboard mini DIN connector for attaching a PS/2® keyboard. You can plug a PS/2® keyboard directly into this connector.



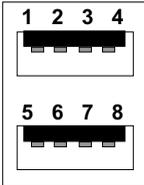
PS/2 Keyboard (6-pin Female)

Pin Definition

PIN	SIGNAL	DESCRIPTION
1	Keyboard DATA	Keyboard DATA
2	NC	No connection
3	GND	Ground
4	VCC	+5V
5	Keyboard Clock	Keyboard clock
6	NC	No connection

USB Connectors

The mainboard provides a UHCI (Universal Host Controller Interface) Universal Serial Bus root for attaching USB devices such as keyboard, mouse or other USB-compatible devices. You can plug the USB device directly into this connector.



USB Ports

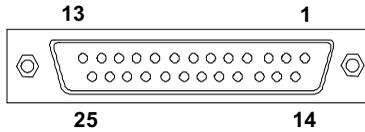
USB Port Description

PIN	SIGNAL	DESCRIPTION
1	VCC	+5V
2	-Data 0	Negative Data Channel 0
3	+Data0	Positive Data Channel 0
4	GND	Ground
5	VCC	+5V
6	+Data 1	Positive Data Channel 1
7	-Data 1	Negative Data Channel 1
8	GND	Ground

Chapter 2

Parallel Port Connector

The mainboard provides a 25-pin female centronic connector for LPT. A parallel port is a standard printer port that supports Enhanced Parallel Port (EPP) and Extended Capabilities Parallel Port (ECP) mode.

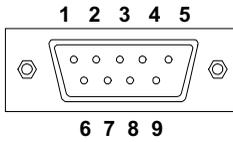


Pin Definition

PIN	SIGNAL	DESCRIPTION
1	STROBE	Strobe
2	DATA0	Data0
3	DATA1	Data1
4	DATA2	Data2
5	DATA3	Data3
6	DATA4	Data4
7	DATA5	Data5
8	DATA6	Data6
9	DATA7	Data7
10	ACK#	Acknowledge
11	BUSY	Busy
12	FE	Paper End
13	SELECT	Select
14	AUTO FEED#	Automatic Feed
15	ERR#	Error
16	INIT#	Initialize Printer
17	SLIN#	Select In
18	GND	Ground
19	GND	Ground
20	GND	Ground
21	GND	Ground
22	GND	Ground
23	GND	Ground
24	GND	Ground
25	GND	Ground1

Serial Port Connector: COM 1 & COM 2

The mainboard has two 9-pin male DIN connectors for serial port COM 1 and COM 2. You can attach a serial mouse or other serial devices.



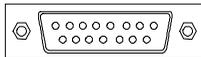
9-Pin Male DIN Connectors

Pin Definition

PIN	SIGNAL	DESCRIPTION
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	Ground
6	DSR	Data Set Ready
7	RTS	Request To Send
8	CTS	Clear To Send
9	RI	Ring Indicate

Joystick/Midi Connectors

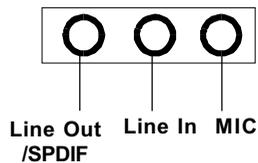
You can connect a joystick or game pad to this connector.



Chapter 2

Audio Port Connectors

Line Out is to connect speakers or headphones. But the **Line Out** jack can also be used as a **SPDIF** (Sony & Philips Digital Interface Format) jack and connect to a Dolby AC3 receiver for digital audio output from CD player or DVD drive. **Line In** is a connector for external CD player, Tape player or other audio devices. **Mic** is used to connect to a microphone.

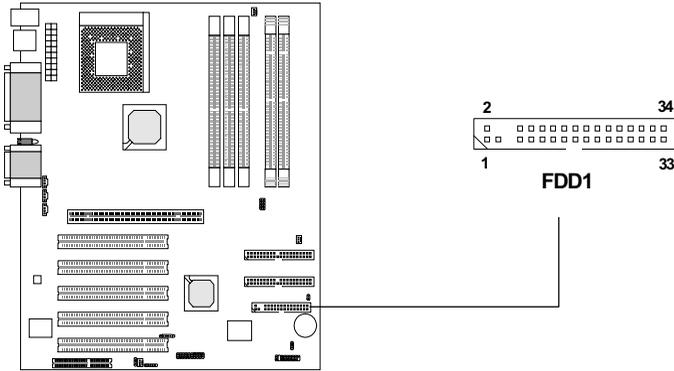


Connectors

The mainboard provides connectors to connect to FDD, IDE HDD, case, modem, LAN, USB Ports, IR module and CPU/System FAN.

Floppy Disk Drive Connector: FDD1

The mainboard provides a standard floppy disk drive connector that supports 360K, 720K, 1.2M, 1.44M and 2.88M floppy disk types.



USB Front Panel Connectors: JP2 (USB2) & JP3 (USB3)

The mainboard provides two Front USB (Universal Serial Bus) pin headers that allow you to connect two optional USB ports for Front Panel.



Pin Definition

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

Chapter 2

Hard Disk Connectors: IDE1 & IDE2

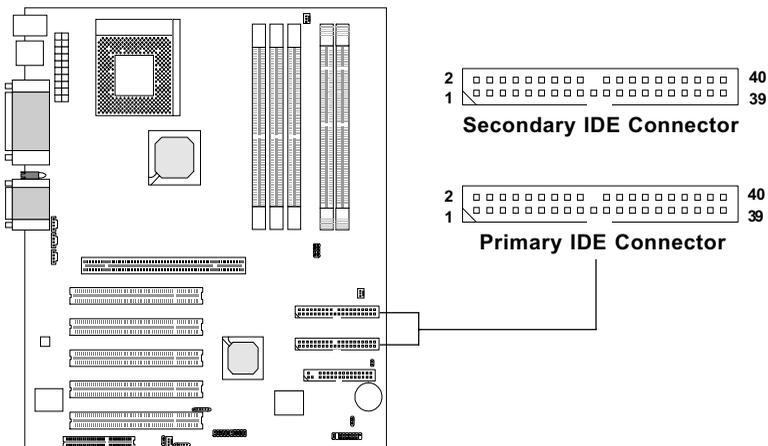
The mainboard uses an IDE controller on the ALi® M1535D+ chipset that provides PIO mode 0-4, Bus Master, and Ultra DMA 33/66/100 modes. It has two HDD connectors IDE1 (Primary) and IDE2 (Secondary). You can connect up to four hard disk drives, CD-ROM or 120MB Floppy to IDE1 and IDE2.

IDE1 (Primary IDE Connector)

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

IDE2 (Secondary IDE Connector)

- You can connect a Master and a Slave drive to IDE2.

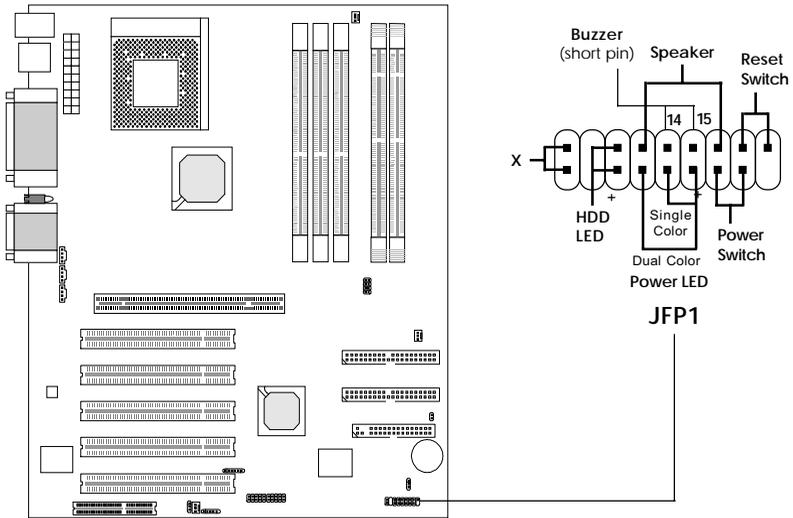


TIP:

If you install two hard disks on cable, you must configure the second drive to Slave mode by setting its jumper. Refer to the hard disk documentation supplied by hard disk vendors for jumper setting instructions.

Case Connector: JFP1

The case connector block JFP1 allows you to connect to the Power Switch, Reset Switch, Speaker, Power LED, and HDD LED on the case.



Chapter 2

Power Switch

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

Reset Switch

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

Power LED

The Power LED is lit while the system power is on. There are two types of LEDs you can connect from the system case to the pin:

2-pin single color power LED: Connected to pin 5 & 6. When the system enters the suspend/sleep mode, the 2-pin power LED blinks.

3-pin dual color power LED (ACPI request): Connected to pin 4, 5 & 6. The 3-pin power LED changes its color to indicate different system states:

GREEN color indicates Full-On mode.

ORANGE color indicates suspend/sleep mode.

Speaker

Speaker from the system case is connected to this pin.

If on-board Buzzer is available, then:

Short pin 14-15: On-board Buzzer Enabled.

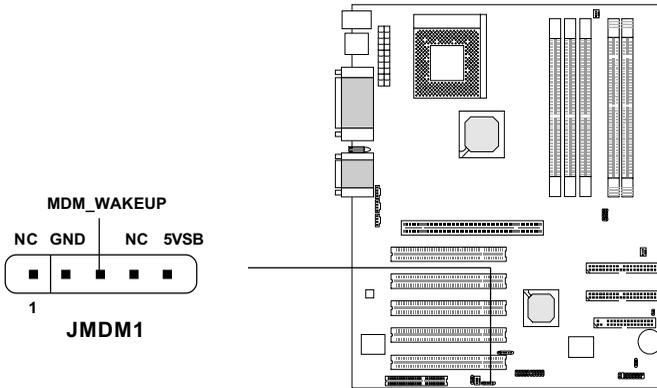
Open pin 14-15: On-board Buzzer Disabled.

HDD LED

HDD LED shows the activity of a hard disk drive. Avoid turning the power off while the HDD led is lit. You can connect the HDD LED from the system case to this pin.

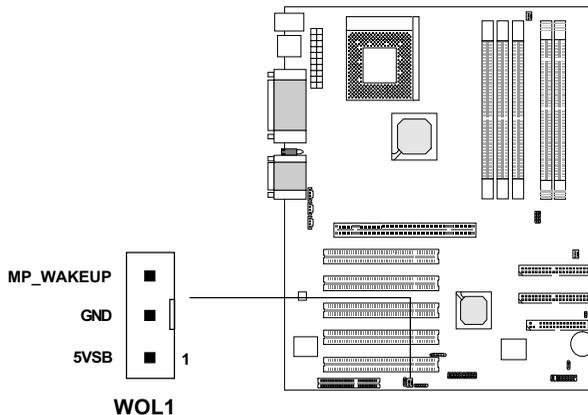
Wake On Ring Connector: JMDM1

This connector allows you to connect to a modem card with Wake On Ring function. The connector will power up the system when a signal is received through the modem card.



Wake On LAN Connector: WOL1

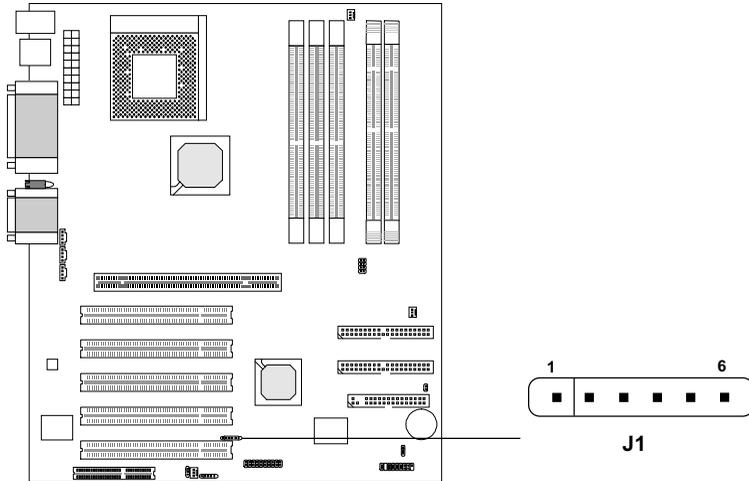
This connector allows you to connect to a LAN card with Wake On LAN function. You can wake up the computer via remote control through a local area network.



Chapter 2

IrDA Infrared Module Connector: J1

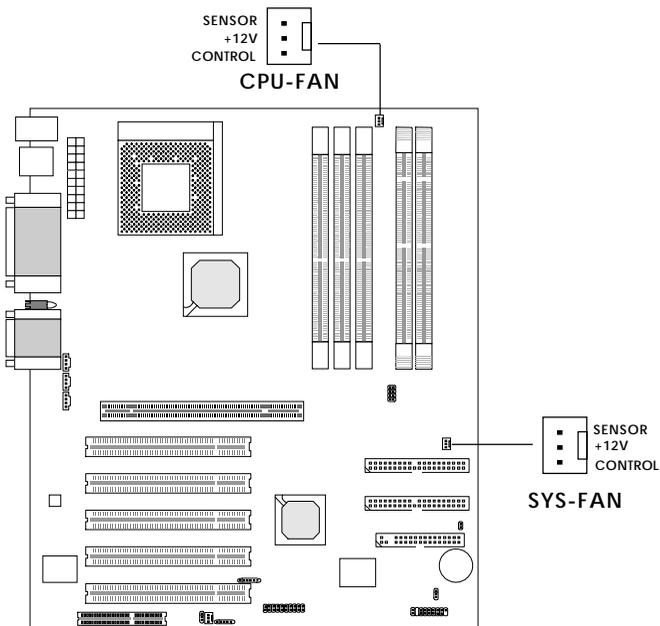
This connector allows you to connect to an IrDA Infrared module. You must configure the setting through the BIOS setup to use the IR function.



Pin	Signal
1	VCC
2	FIR
3	IRRX
4	GND
5	IRTX
6	OVCROFF

Fan Power Connectors: CPU-FAN/SYS-FAN

The CPU-FAN (processor fan) and SYS-FAN (system fan) support system cooling fan with +12V. It supports three-pin head connector. When connecting the wire to the connectors, always take note that the red wire is the positive and should be connected to the +12V, the black wire is Control and should be connected to Control. If the mainboard has a System Hardware Monitor chipset on-board, you must use a specially designed fan with speed sensor to take advantage of the CPU fan control.



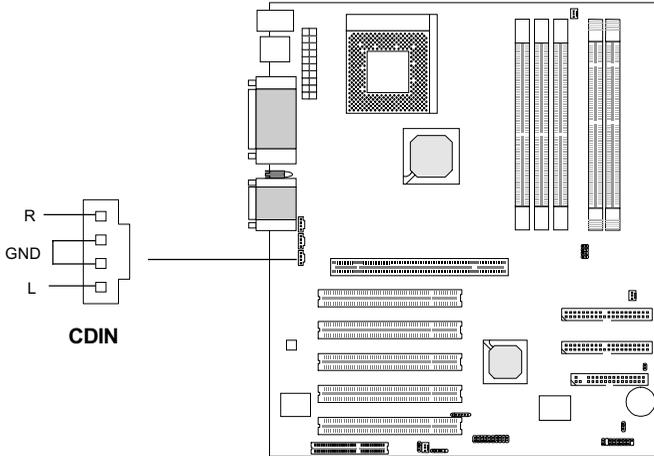
Note:

1. Always consult the vendor for proper CPU cooling fan.
2. CPU Fan supports the fan control. You can install the PC Alert utility that will automatically control the CPU Fan speed according to the actual CPU temperature.

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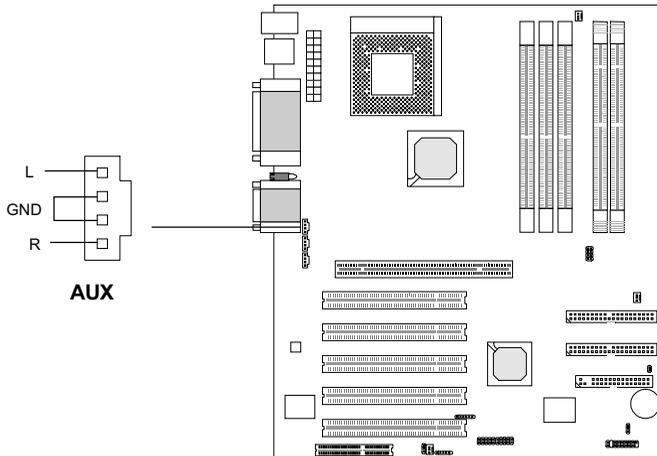
CD-In Connector: CDIN

The connector is for CD-ROM audio connector.



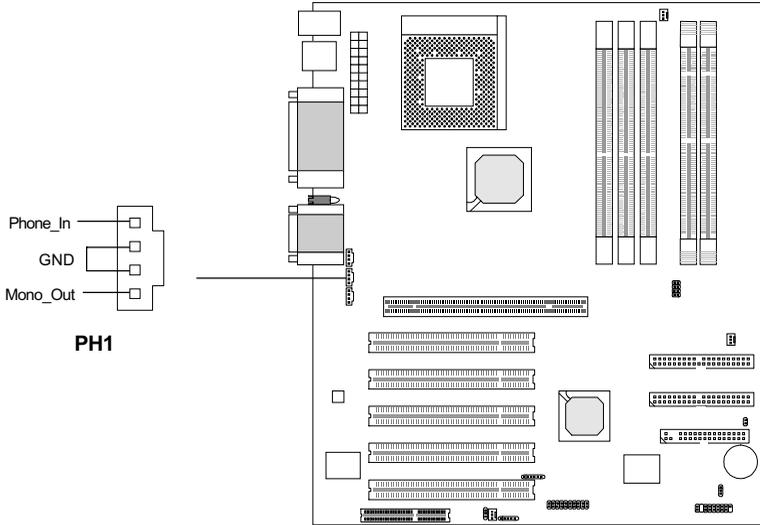
Aux Line-In Connector: AUX

The connector is for DVD add-on card with Line-in connector.



Modem-In Connector: PH1

The connector is for modem with internal audio connector.



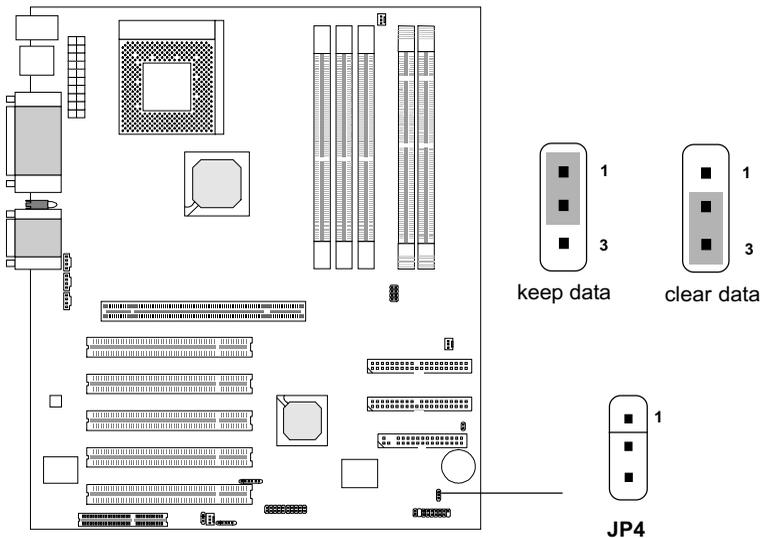
Chapter 2

Jumpers

The motherboard provides the following jumpers for you to set the computer's function. This section will mention how to change your motherboard's function through the use of jumpers.

Clear CMOS Jumper: JP4

There is a CMOS RAM on board that has a power supply from external battery to keep the data of system configuration. With the CMOS RAM, the system can automatically boot OS every time it is turned on. That battery has long life time for at least 5 years. If you want to clear the system configuration, use the JP4 (Clear CMOS Jumper) to clear data. Follow the instructions below to clear the data:

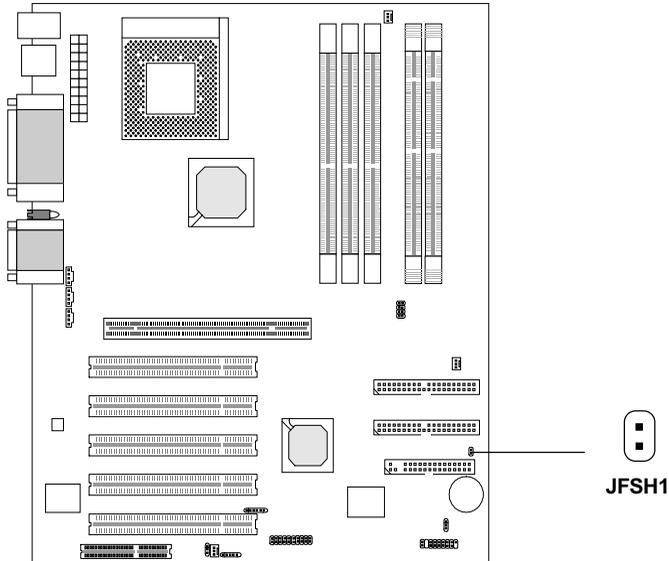


WARNING!

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.

BIOS Flash Jumper: JFSH1

This jumper is used to lock or unlock BIOS flash feature. This jumper should be unlocked when flashing/programming the BIOS.



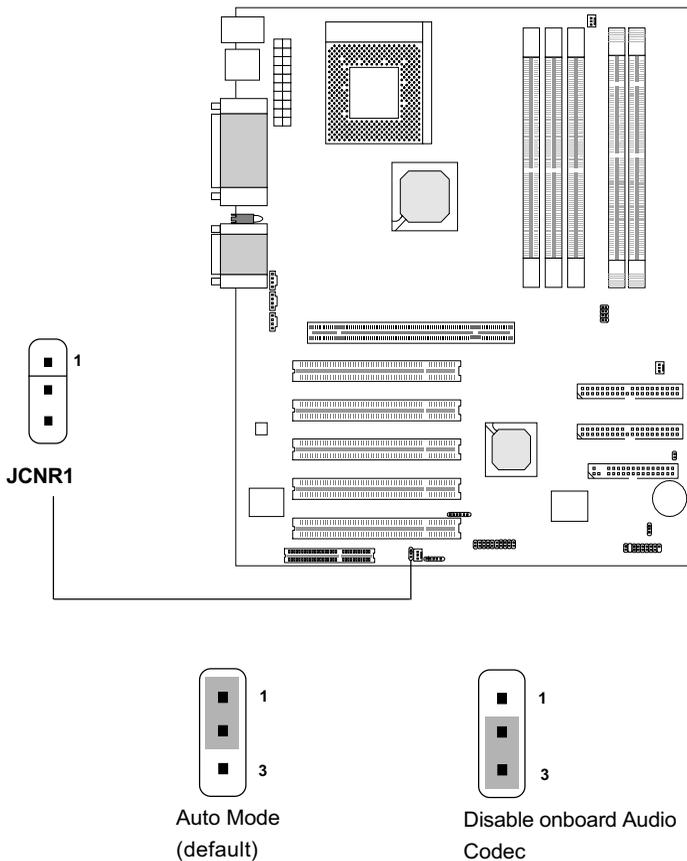
LOCK
BIOS cannot write



UNLOCK
Normal Mode

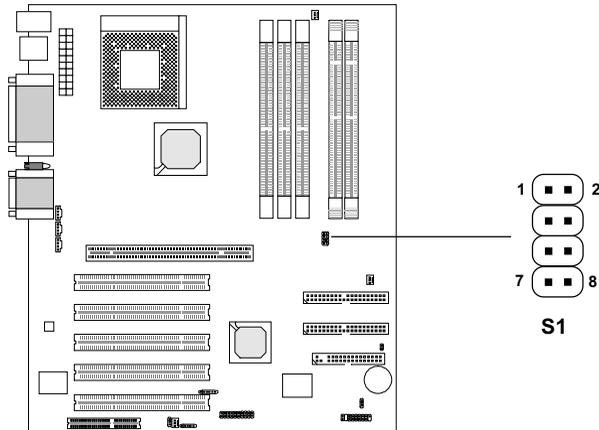
Onboard Audio Codec Jumper: JCNR1

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.



CPU & DRAM Frequency Jumper: S1

The jumper is used for proper configurations of CPU, DRAM and AGP frequencies.



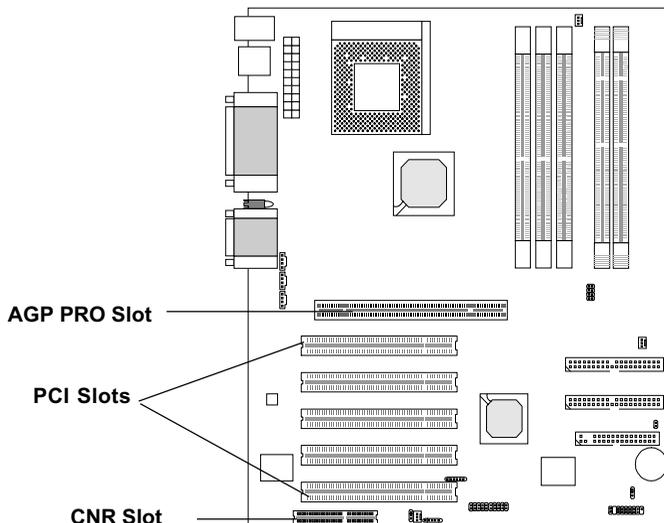
1-2	3-4	5-6	7-8	CPU	DRAM	AGP	PCI
ON	ON	OFF	OFF	100	100	66.7	33.3
ON	OFF	ON	ON	100	133.3	66.7	33.3
ON	OFF	OFF	OFF	133.3	133.3	66.7	33.3

Note: ON = Short, OFF = Open

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Slots

The motherboard provides five 32-bit Master PCI Bus Slots, one AGP PRO and one CNR slot.



AGP (Accelerated Graphics Port) PRO Slot

The AGP Pro Slot allows you to insert the AGP Pro card.

PCI Slots

Five PCI slots allow you to insert the expansion cards to meet your needs. When adding or removing expansion cards, make sure that you unplug the power supply first. Meanwhile, read the documentation for the expansion card to make any necessary hardware or software settings for the expansion card, such as jumpers, switches or BIOS configuration.

CNR (Communication Network Riser)

The CNR specification is an open industry-standard specification that defines a hardware scalable Original Equipment Manufacturer (OEM) main-board riser board and interface, which supports audio and modem only.

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/CT5880 (optional) 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 B#	INT C#	INT D#	INT A#
PCI Slot 2	INT C#	INT D#	INT A#	INT B#
PCI Slot 3	INT D#	INT A#	INT B#	INT C#
PCI Slot 4	INT A#	INT B#	INT C#	INT D#
PCI Slot 5	INT B#	INT C#	INT D#	INT A#
USB-1	INT F#	/	/	/
USB-2	INT E#	/	/	/
CT5880	INT C#	/	/	/

AGP & PCI Slot 4 shared.

PCI Slot 1 & 5 shared.

PCI Slot 2 & Audio chip (CT5880) shared.

AMI® BIOS Setup

3

The mainboard uses AMI® BIOS ROM that provides a Setup utility for users to modify the basic system configuration. The information is stored in a battery-backed CMOS RAM so it retains the Setup information when the power is turned off.

This chapter provides you with the overview of the BIOS Setup program. It contains the following topics:

Entering Setup	3-2
Control Keys	3-2
Getting Help	3-3
The Main Menu	3-4
Standard CMOS Setup	3-6
BIOS Features Setup	3-8
Chipset Features Setup	3-11
Power Management Setup	3-14
PNP/PCI Configuration	3-18
Integrated Peripherals	3-21
Hardware Monitor Setup	3-24
Load Optimized/Fail-Safe Defaults	3-26
Supervisor/User Password	3-27
IDE HDD Auto Detection	3-29
Save & Exit Setup	3-30
Exit without Saving	3-31

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Entering Setup

Power on the computer and the system will start POST (Power On Self Test) process. When the message below appears on the screen, press key to enter Setup.

Hit DEL if you want to run SETUP

If the message disappears before you respond and you still wish to enter Setup, restart the system by turning it OFF and On or pressing the RESET button. You may also restart the system by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys.

Control Keys

<↑>	Move to the previous item
<↓>	Move to the next item
<←>	Move to the item in the left hand
<→>	Move to the item in the right hand
<Enter>	Select the item
<Esc>	Jumps to the Exit menu or returns to the main menu from a submenu
<+/PU>	Increase the numeric value or make changes
<-/PD>	Decrease the numeric value or make changes
<F5>	Load previous values
<F6>	Load Fail-Safe defaults
<F7>	Load Optimized defaults
<F10>	Save all the CMOS changes and exit

Getting Help

After entering the Setup utility, the first screen you see is the Main Menu.

Main Menu

The main menu displays the setup categories the BIOS supplies. You can use the arrow keys (↑↓) to select the item. The on-line description for the selected setup category is displayed on the bottom of the screen.

Default Settings

The BIOS setup program contains two kinds of default settings: the Optimal and Fail Safe defaults. Optimal defaults provide optimum performance settings for all devices and the system. (The “default” value described in the chapter usually refers to the Optimal defaults unless otherwise specified.) Fail Safe defaults provide the safest set of parameters instead of the optimal system performance for the system.

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The Main Menu

Once you enter AMIBIOS SIMPLE SETUP UTILITY, the Main Menu will appear on the screen. The Main Menu displays twelve configurable functions and two exit choices. Use arrow keys to move among the items and press <Enter> to enter the sub-menu.

AMIBIOS SIMPLE SETUP UTILITY - VERSION 1.43 (C)2001 American Megatrends, Inc. All Rights Reserved	
STANDARD CMOS SETUP	LOAD FAIL-SAFE DEFAULTS
BIOS FEATURES SETUP	LOAD OPTIMIZED DEFAULTS
CHIPSET FEATURES SETUP	SUPERVISOR PASSWORD
POWER MANAGEMENT SETUP	USER PASSWORD
PNP/PCI CONFIGURATION	IDE HDD AUTO DETECTION
INTEGRATED PERIPHERALS	SAVE & EXIT SETUP
HARDWARE MONITOR SETUP	EXIT WITHOUT SAVING
ESC : Quit ↑↓←→ : Select Item F10 : Save & Exit	
Time, Date, Hard Disk Type...	

Standard CMOS Setup

Use this menu for basic system configurations, such as time, date etc.

BIOS Features Setup

Use this menu to setup the items of AMI® special enhanced features.

Chipset Features Setup

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

Power Management Setup

Use this menu to specify your settings for power management.

PNP/PCI Configuration

This entry appears if your system supports PnP/PCI.

Integrated Peripherals

Use this menu to specify your settings for integrated peripherals.

Hardware Monitor Setup

This entry shows your PC's current status.

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 factory default settings into the BIOS for optimal system performance operations.

Supervisor Password

Use this menu to set Supervisor Password.

User Password

Use this menu to set User Password.

Save & Exit Setup

Save changes to CMOS and exit setup.

Exit Without Saving

Abandon all changes and exit setup.

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STANDARD CMOS SETUP

The items inside STANDARD CMOS SETUP menu are divided into 9 categories. Each category includes none, one or more setup items. Use the arrow keys to highlight the item you want to modify and use the <PgUp> or <PgDn> keys to switch to the value you prefer.

AMIBIOS SETUP - STANDARD CMOS SETUP							
(C)2001 American Megatrends, Inc. All Rights Reserved							
Date (mm/dd/yyyy) : Tue Nov 14, 2000							
Time (hh/mm/ss) : 00:00:00							
TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE
Pri Master : Auto							
Pri Slave : Auto							
Sec Master : Auto							
Sec Slave : Auto							
Floppy Drive A : 1.44 MB 3½				Base Memory : 640 Kb			
Floppy Drive B : Not Installed				Other Memory : 384 Kb			
Boot Sector Virus Protection : Disabled				Extended Memory : 127 Mb			
				Total Memory : 128 Mb			
ESC : Exit							
↑↓ : Select Item							
PU/PD/+/- : Modify							
(Shift) F2 : Color							

Date

This allows you to set the system to the date that you want (usually the current date). The 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

This allows you to set the system time that you want (usually the current time). The time format is <hour> <minute> <second>.

Pri Master/Pri Slave/Sec Master/Sec Slave

Press PgUp/<+> or PgDn/<-> to select the hard disk drive type. The specification of hard disk drive will show up on the right hand according to your selection.

TYPE	Type of the device.
SIZE	Capacity of the device.
CYLS	Number of cylinders.
HEAD	Number of heads.
PRECOMP	Write precompensation.
LANDZ	Cylinder location of Landing zone.
SECTOR	Number of sectors.
MODE	Access mode.

Floppy Drive A/B

This item allows you to set the type of floppy drives installed. Available options are *Not Installed*, *360 KB 5¼*, *1.2 MB 5¼*, *720 KB 3½*, *1.44 MB 3½*, or *2.88 MB 3½*. The default value for Floppy Drive A is *1.44 MB 3½*, and for Floppy Drive B is *Not Installed*.

Boot Sector Virus Protection

The item is to set the Virus Warning feature for IDE Hard Disk boot sector protection. When *Enabled*, BIOS will issue a virus warning message and beep if a write to the boot sector or the partition table of the HDD is attempted. Setting options are *Disabled* and *Enabled*. Default value is *Disabled*.

Note: *This feature only protects the boot sector, not the whole hard disk.*

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BIOS FEATURES SETUP

AMIBIOS SETUP - BIOS FEATURES SETUP (C)2001 American Megatrends, Inc. All Rights Reserved	
Quick Boot	:Enabled
1st Boot Device	:Floppy
2nd Boot Device	:IDE-0
3rd Boot Device	:CD-ROM
Try Other Boot Devices	:Yes
Full Screen LOGO Show	:BIOS
S.M.A.R.T. for Hard Disks	:Disabled
BootUp Num-Lock	:On
Floppy Drive Swap	:Disabled
Floppy Drive Seek	:Enabled
Primary Display	:VGA/EGA
Password Check	:Setup
Boot To OS/2 > 64MB	:No
L1 Cache	:WriteBack
L2 Cache	:Enabled
ESC : Quit ↑↓←→ : Select Item F1 : Help PU/PD/+/- : Modify F5 : Load Previous Values F6 : Load Fail-Safe Defaults F7 : Load Optimized Defaults	

Quick Boot

Setting the item to *Enabled* allows the system to boot within 5 seconds since it will skip some check items. Available options are *Enabled* and *Disabled*. The default value is *Enabled*.

1st/2nd/3rd Boot Device

The items allow you to set the sequence of boot devices where AMIBIOS attempts to load the operating system. 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.

<i>IDE3</i>	The system will boot from the fourth HDD.
<i>Floppy</i>	The system will boot from floppy drive.
<i>ZIP A:/LS120</i>	The system will boot from LS-120/ZIP drive.
<i>ATAPI ZIP C:</i>	The system will boot from ATAPI ZIP drive.
<i>CD-ROM</i>	The system will boot from the CD-ROM.
<i>SCSI</i>	The system will boot from the SCSI.
<i>Network</i>	The system will boot from the Network drive.
<i>Disabled</i>	Disable this sequence.

Try Other Boot Devices

Setting the option to *Yes* allows the system to try to boot from other devices if the system fails to boot from the 1st/2nd/3rd boot device.

Full Screen LOGO Show

This item enables you to show the company logo on the bootup screen.

Settings are:

<i>BIOS (default)</i>	Shows the POST messages at boot.
<i>Silent</i>	Shows a still image (logo) on the full screen at boot.

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

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 a 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).

BootUpNum-Lock

This item is to set the Num Lock status when the system is powered on. Setting to *On* will turn on the Num Lock key when the system is powered on. Setting to *Off* will allow end users to use the arrow keys on the numeric keypad. Setting options are *On* and *Off*. Default value is *On*.

Floppy Drive Swap

Setting to *Enabled* will swap floppy drives A: and B:. The default value is *Disabled*.

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Floppy Drive Seek

Setting to *Enabled* will make BIOS seek floppy drive A: before booting the system. Settings are *Disabled* and *Enabled*. The default value is *Enabled*.

Primary Display

This configures the primary display subsystem in the computer. Available options are *Mono (monochrome)*, *CGA40x25*, *CGA80x25*, *VGA/EGA* and *Absent*. The default value is *VGA/EGA*.

Password Check

This specifies the type of AMIBIOS password protection that is implemented. Setting options are described below.

Option	Description
Setup (default)	The password prompt appears only when end users try to run Setup.
Always	A password prompt appears every time when the computer is powered on or when end users try to run Setup.

Boot to OS/2 > 64MB

This allows you to run the OS/2[®] operating system with DRAM larger than 64MB. When you choose the default value *No*, you cannot run the OS/2[®] operating system with DRAM larger than 64MB. But it is possible if you choose *Yes*. The default value is *No*.

L1 Cache

This sets the type of caching algorithm used by AMIBIOS and the CPU for L1 cache memory. Setting options are:

WriteBack (default) A write-back algorithm is used.

Disabled AMIBIOS does not specify the type of caching algorithm. The algorithm is set by the CPU.

 **Note:** The L1 cache is built inside the processor.

L2 Cache

The items enable or disable the L2 (external) cache memory for CPU. Setting to *Enabled* will speed up the system performance.

CHIPSET FEATURES SETUP

AMIBIOS SETUP - CHIPSET FEATURES SETUP (C)2001 American Megatrends, Inc. All Rights Reserved	
CPU SysAckLimit	:8
DDR/SDR CAS Select	:2.5/3
Dram Performance	:Normal
AGP Driving Strength	:Auto
AGP Delay Offset	:Auto
Graphics Aperture Size	:128MB
Passive Release	:Disabled
DMA Line Buffer	:Disabled
I/O Recovery Timer	:1 us
BIOS Protection	:Enabled
ESC : Quit ↑↓←→ : Select Item F1 : Help PU/PD/+/- : Modify F5 : Load Previous Values F6 : Load Fail-Safe Defaults F7 : Load Optimized Defaults	

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

CPU SysAckLimit

This item controls how many commands CPU can send to North Bridge or vice versa at a time. Selecting 8 will provide better system performance while selecting 1 offers more reliable performance. Settings are 1, 2, 4 and 8.

DDR/SDR CAS Select

Use this item to select the CAS latency timing (in clock cycles) for DDR/SDR DRAMs. CAS latency is the time delay before the memory starts a read command after receiving it. Settings are 2.5/3 and 2.0/2.

Dram Performance

This controls the timing of the DRAMs installed in your system including

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RAS, CAS, precharge timing setting and the like. Settings are *Normal*, *Slow*, *Failsafe*, *Auto*, *Ultra* and *Fast*. *Failsafe* provides the longest DRAM timing but the most reliable system performance. *Ultra* provides the shortest DRAM timing and the fastest system performance. Selecting *Auto* enables the BIOS to detect the installed DIMMs and determine the best mode. Speeds of different settings are *Ultra* > *Fast* > *Normal* > *Slow* > *Failsafe*. The default value is *Normal*.

AGP Driving Strength

This field configures the strength of the AGP signals. Different settings will affect the reliability of the AGP card. Selecting *Auto* allows BIOS to determine the best value. Settings are *Auto*, *Low*, *Middle* and *High*. The default value is *Auto*.

AGP Delay Offset

This field configures the AGP Delay Offset feature. Settings are *+1*, *+2*, *+3*, *+4*, *+5*, *+6*, *+7*, *-1*, *-2*, *-3*, *-4*, *-5*, *-6*, *-7* and *Auto*. The default value is *Auto*.

Graphics Aperture Size

This item specifies how much system RAM can be allocated to AGP for video purpose. The AGP aperture is memory-mapped while the graphics data structure can reside in an AGP aperture. The aperture range should be programmed as non-cacheable in the processor cache. Access with the aperture range is forwarded to the main memory and then translated to the original issued address via a translation table maintained on the main memory. Available options for the size of aperture are *128MB*, *64MB*, *32MB*, *16MB*, *8 MB*, *4 MB*, *256MB*, *Failsafe*, *Slow* and *Fast*. The default value is *128MB*.

Passive Release

Selecting *Enabled* allows CPU to access PCI buses during passive release. Otherwise, the arbiter only allows another PCI master to access DRAM. Settings are *Enabled* and *Disabled*. The default value is *Disabled*.

DMA Line Buffer

The item enables or disables DMA line buffer feature. Settings are *Enabled* and *Disabled*.

I/O Recovery Timer

This item specifies the length of a delay inserted between consecutive Input/Output operations. The delay is needed because the CPU operates much faster than Input/Output bus and the CPU must be delayed to allow for the completion of Input/Output request. Settings are *1 us* (default), *2 us*, *3 us* and *Disabled*.

BIOS Protection

Setting to *Enabled* will prevent BIOS from performing any BIOS update/flash utility. Settings are *Enabled* (default) and *Disabled*.

Chapter 3

POWER MANAGEMENT SETUP

AMIBIOS SETUP - POWER MANAGEMENT SETUP (C)2001 American Megatrends, Inc. All Rights Reserved			
IPCA Function	:Yes	CPU Critical Temperature	:Disabled
Sleep State	:S1 (POS)	Power Button Function	:Suspend
USB Power On Function	:Disabled	Wake Up On Ring/LAN	:Enabled
Sleep State LED	:Dual Color	Wake Up On PME	:Enabled
Suspend Time Out (Minute)	:Disabled	Resume By Alarm	:Disabled
Modem Use IRQ	:N/A	Alarm Date	:15
Monitor Video	:No	Alarm Hour	:12
Monitor Audio	:No	Alarm Minute	:30
Monitor Serial Port	:Yes	Alarm Second	:30
Monitor Parallel Port	:Yes		
Monitor Floppy	:No		
Monitor Primary HDD(s)	:Yes		
Monitor Secondary HDD(s)	:No		
System Thermal	:Ignore		
		ESC : Quit ↑↓←→ : Select Item F1 : Help PU/PD/+/- : Modify F5 : Load Previous Values F6 : Load Fail-Safe Defaults F7 : Load Optimized Defaults	

IPCA Function

This item is to activate the ACPI (Advanced Configuration and Power Management Interface) Function. If your operating system is ACPI-aware, such as Windows 98SE/2000/ME, select *Yes*. Available options are *Yes* and *No*. The default value is *Yes*.

Sleep State

This item specifies the power saving modes for ACPI function. Options are:

S1 (POS) The S1 sleep mode is a low power state. In this state, no system context is lost (CPU or chipset) and hard-

S3 (STR) ware maintains all system context.
The S3 sleep mode is a lower power state where the information of system configuration and open applications/files is saved to main memory that remains powered while most other hardware components turn off to save energy. The information stored in memory will be used to restore the system when an “wake up” event occurs.

The default value is *S1 (POS)*.

USB Power On Function

This item enables or disables the activity on the USB device to wake up the system from sleep states. Available options are *Enabled* and *Disabled*. The default value is *Disabled*.

Sleep State LED

This item sets how the system uses sleep state LED on the case to indicate the sleep state. Available options are:

- Blinking* The sleep state LED blinks to indicate the sleep state.
- Single Color* The sleep state LED remains the same color.
- Dual Color* The sleep state LED changes its color to indicate the sleep state.

The default value is *Dual Color*.

Suspend Time Out (Minute)

The item specifies the length of the period of system inactivity before the system enters the suspend mode from the standby mode. Nearly all power use is reduced in the suspend mode. Settings are *Disabled* (default), *1*, *2*, *4*, *8*, *10*, *20*, *30*, *40*, *50* and *60* (Minutes).

Modem Use IRQ

This allows users to specify an IRQ (interrupt request) line for the installed modem module. Settings are *N/A*, *3*, *4*, *5*, *7*, *9*, *10* and *11*.

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Monitor Video/Audio/Serial Port/Parallel Port/Floppy/Primary HDD(s)/Secondary HDD(s)

These items specify if the BIOS will monitor the activity of the specified hardware peripheral or component. If set to *Yes*, any activity detected on the specified hardware peripheral or component will wake up the system or prevent the system from entering the power saving modes. Settings are *Yes* and *No*. The default values for different items are listed below:

Monitor Video	<i>No</i>
Monitor Audio	<i>No</i>
Monitor Serial Port	<i>Yes</i>
Monitor Parallel Port	<i>Yes</i>
Monitor Floppy	<i>No</i>
Monitor Primary HDD(s)	<i>Yes</i>
Monitor Secondary HDD(s)	<i>No</i>

System Thermal

If set to *Monitor*, the system will always monitor the system temperature after the system is turned on. The default value is *Ignore*.

CPU Critical Temperature

This item is used to specify a thermal limit for CPU. If CPU temperature reaches the specified limit, the system will issue a warning to prevent the CPU overheat problem. Settings are *Disabled*, *45°C/113°F*, *50°C/122°F*, *55°C/131°F*, *60°C/140°F*, *65°C/149°F*, *70°C/158°F* and *75°C/167°F*.

Power Button Function

This feature sets the function of the power button. Settings are:

<i>On/Off</i>	The power button functions as normal on/off button.
<i>Suspend</i>	When you press the power button, the computer enters the suspend/sleep mode, but if the button is pressed for more than four seconds, the computer is turned off.

Wake Up On Ring/LAN/PME

When setting to *Enabled*, the features allow your system to be awakened from the power saving modes through an incoming call from the modem, an input signal from the LAN or any event on PME (Power Management

Event). Settings are *Enabled* and *Disabled*.

Note: You need to install a modem/LAN card supporting power on function for *Wake Up On Ring/LAN function*.

Resume By Alarm

This is used to enable or disable the feature of booting up the system on a scheduled time/date from the soft off (S5) state. Settings are *Enabled* and *Disabled*.

Alarm Date/Hour/Minute/Second

If **Resume By Alarm** is set to *Enabled*, the system will automatically resume (boot up) on a specific date/hour/minute/second specified in these fields.

Settings for each item are:

Alarm Date	01 ~ 31, Every Day
Alarm Hour	00 ~ 23
Alarm Minute	00 ~ 59
Alarm Second	00 ~ 59

Note: If you change these settings, you must reboot the system until it enters the operating system and then power off the system. By doing so, the changed settings will go into effect next time you power on the system.

Chapter 3

PNP/PCI CONFIGURATION

This section describes configuring the PCI bus system and PnP (Plug & Play) feature. PCI, or Personal Computer Interconnect, is a system which allows I/O devices to operate at speeds nearing the speed the CPU itself uses when communicating with its 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.

AMIBIOS SETUP - PNP/PCI CONFIGURATION (C)2001 American Megatrends, Inc. All Rights Reserved	
Clear NVRAM	:No
Primary Graphics Adapter	:PCI
PCI VGA Palette Snoop	:Disabled
DMA Channel 0	:PnP
DMA Channel 1	:PnP
DMA Channel 3	:PnP
DMA Channel 5	:PnP
DMA Channel 6	:PnP
DMA Channel 7	:PnP
IRQ3	:PCI/PnP
IRQ4	:PCI/PnP
IRQ5	:PCI/PnP
IRQ7	:PCI/PnP
IRQ9	:PCI/PnP
IRQ10	:PCI/PnP
IRQ11	:PCI/PnP
IRQ14	:PCI/PnP
IRQ15	:PCI/PnP
ESC : Quit ↑↓←→ : Select Item F1 : Help PU/PD/+/- : Modify F5 : Load Previous Values F6 : Load Fail-Safe Defaults F7 : Load Optimized Defaults	

Clear NVRAM

The ESCD (Extended System Configuration Data) NVRAM (Non-volatile Random Access Memory) is where the BIOS stores resource information for both PNP and non-PNP devices in a bit string format. When the item is set to *Yes*, the system will reset ESCD NVRAM right after the system is booted up and then set the setting of the item back to *No* automatically. The default value is *No*.

Primary Graphics Adapter

This item specifies which VGA card is your primary graphics adapter. Settings are *AGP* and *PCI*. The default value is *PCI*.

PCI VGA Palette Snoop

When 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 one ISA) and the:

VGA Palette Snoop Bit Setting	Action
<i>Disabled</i>	Data read or written by the CPU is only directed to the PCI VGA device's palette registers.
<i>Enabled</i>	Data read or written by the CPU is directed to both the PCI VGA device's palette registers and the ISA VGA device's palette registers, permitting the palette registers of both VGA devices to be identical.

The setting must be set to *Enabled* if any ISA adapter card installed in the system requires VGA palette snooping. The default value is *Disabled*.

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

These items specify the bus that the system DMA (Direct Memory Access) channel is used. These options allow you to reserve DMAs for Legacy ISA adapter cards.

The settings determine if AMIBIOS 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 reserve the DMA by assigning an *ISA/EISA* setting to it. The default value is *PnP*.

Chapter 3

IRQ 3/4/5/7/9/10/11/14/15

These items specify the bus where the specified IRQ line is used. These options allow you to reserve IRQs for Legacy ISA adapter cards.

The settings determine if AMIBIOS 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 IRQ pool, the end user can use these settings to reserve the IRQ by assigning an *ISA/EISA* setting to it. Onboard I/O is configured by AMIBIOS. All IRQs used by onboard I/O are configured as *PCI/PnP*. If all IRQs are set to *ISA/EISA*, and IRQ 14/15 are allocated to the onboard PCI IDE, IRQ 9 will still be available for PCI and PnP devices. Available settings are *ISA/EISA* and *PCI/PnP*. The default value is *PCI/PnP*.

INTEGRATED PERIPHERALS

AMIBIOS SETUP-INTEGRATED PERIPHERALS (C)2001 American Megatrends, Inc. All Rights Reserved	
FDC Function	:Auto
Serial Port1	:Auto
Serial Port2	:Auto
Serial Port2 Mode	:Normal
Serial Port3	:Disabled
Serial Port3 Mode	:N/A
Serial Port3 IRQ	:N/A
Serial Port3 DMA	:N/A
Parallel Port	:Auto
Parallel Port Mode	:ECP+EPP
EPP Version	:1.7
Parallel Port IRQ	:Auto
Parallel Port DMA	:Auto
KeyBoard PowerOn	:Disabled
HotKey Select	:N/A
IDE Function	:Both
USB Function	:Enabled
USB Legacy Support	:Disabled
OnBoard Audio	:Enabled
OnChip MC'97 Modem	:Disabled
ESC : Quit ↑↓←→ : Select Item F1 : Help PU/PD/+/- : Modify F5 : Load Previous Values F6 : Load Fail-Safe Defaults F7 : Load Optimized Defaults	

FDC Function

This is used to enable or disable the onboard Floppy controller.

Option	Description
Auto (default)	BIOS will automatically determine whether to enable the onboard Floppy controller or not.
Enabled	Enables the onboard Floppy controller.
Disabled	Disables the onboard Floppy controller.

Chapter 3

Serial Port1/2/3

These items specify the base I/O port address of the onboard Serial Port 1 (COM 1)/Serial Port 2 (COM 2)/Serial Port 3 (COM 3). Selecting *Auto* allows AMIBIOS to automatically determine the correct base I/O port address. Settings are *Auto*, *3F8h/COM1*, *2F8h/COM2*, *3E8h/COM3*, *2E8h/COM4* and *Disabled*. The default value is *Auto*.

Serial Port2/3 Mode

This item sets the operation mode for Serial Port 2/3. Settings are *Normal*, *IrDA*, *ASKIR* and/or *FIR* (*the last three operation modes are setting options for IR function*).

Serial Port3 IRQ

This is used to select the IRQ line for Serial Port 3. Settings are *3*, *4*, *10* and *11*.

Serial Port3 DMA

This is used to select the DMA channel for Serial Port 3 when Serial Port3 is set to the *FIR* mode. Settings are *1* and *3*.

Parallel Port

This feature specifies the base I/O port address for the onboard Parallel Port. Settings are *Auto*, *378h*, *278h*, *3BCh* and *Disabled*. Default is *Auto*.

Parallel Port Mode

This item selects the operating mode for the onboard parallel port: *Normal*, *Bi-Dir*, *EPP* or *ECP+EPP*. Default is *ECP+EPP*.

EPP Version

The item selects the EPP version used by the parallel port if the port is set to *EPP* or *ECP+EPP* mode. Settings are *1.7* and *1.9*.

Parallel Port IRQ

When **Parallel Port** is set to *Auto*, the item shows *Auto* indicating that BIOS determines the IRQ for the parallel port automatically.

Parallel Port DMA

This feature needs to be configured only when **Parallel Port Mode** is set to the *ECP+EPP* mode. When **Parallel Port** is set to *Auto*, the field will show *Auto* indicating that BIOS automatically determines the DMA channel for the parallel port.

KeyboardPowerOn

This controls how and whether the PS/2 keyboard is able to power on the system.

HotKey Select

This item allows you to specify a hot key combination for the **Keyboard PowerOn** function.

IDEFunction

This allows you to enable or disable on-chip IDE controller. Settings are *Disabled*, *Primary*, *Secondary* and *Both*. The default value is *Both*.

USB Function

This is used to enable or disable the USB ports. Settings are *Enabled* and *Disabled*. The default is *Enabled*.

USB Legacy Support

Set to *Keyboard* if your system installs and uses an USB keyboard. Set to *Keyb+Mouse* if the system installs and uses the USB keyboard and mouse. Default is *Disabled*.

OnBoard Audio

This allows you to enable or disable the onboard hardware audio. Settings are *Disabled* and *Enabled*. The default value is *Enabled*.

OnChipMC'97Modem

This item is used to enable or disable the onboard MC'97 feature. Settings are *Disabled* and *Enabled*. The default value is *Disabled*.

Chapter 3

HARDWARE MONITOR SETUP

This section is to set CPU FSB frequency, monitor the current hardware status including CPU/system temperature, CPU/System Fan speeds, Vcore etc. This is available only if there is hardware monitoring onboard.

AMIBIOS SETUP - HARDWARE MONITOR SETUP (C)2001 American Megatrends, Inc. All Rights Reserved	
CPU FSB/DRAM Clock :By HW Spread Spectrum :Enabled -- Hardware Monitor -- CPU Temperature :46°C/114°F CPU FAN :3860 RPM System FAN :0 RPM 3.3V :3.344V 12V :12.205V Vcore :1.760V 5V :4.906V	ESC : Quit ↑↓←→ : Select Item F1 : Help PU/PD/+/- : Modify F5 : Load Previous Values F6 : Load Fail-Safe Defaults F7 : Load Optimized Defaults

CPU FSB/SDRAM Clock

This item is used to set clock frequencies (in MHz) for CPU FSB (Front Side Bus) and SDRAM. Selecting *By HW* will enable the CPU FSB and SDRAM to follow the hardware configurations based on jumper settings. Settings are *By HW*, *100/100*, *100/133*, *133/100* and *133/133*.

Spread Spectrum

This is to enable or disable Clock Generator's Spread Spectrum function. When overclocking the processor, always set it to *Disabled*. The default value is *Enabled*.

Hardware Monitor

Hardware Monitor displays the current status of all of the monitored hardware devices/components such as system voltages, temperatures and fan speeds.

Chapter 3

LOAD OPTIMIZED/FAIL-SAFE DEFAULTS

The two options on the main menu allow users to restore all of the BIOS settings to the default Optimized or Fail-Safe defaults. The Optimized Defaults are the default values set by the mainboard manufacturer specifically for the optimized performance of the mainboard. The Fail-Safe Defaults are the default values set by the BIOS vendor for the stable system performance.

AMIBIOS SIMPLE SETUP UTILITY - VERSION 1.43 (C)2001 American Megatrends, Inc. All Rights Reserved	
STANDARD CMOS SETUP	LOAD FAIL-SAFE DEFAULTS
BIOS FEATURES SETUP	LOAD OPTIMIZED DEFAULTS
CHIPSET FEATURES SETUP	SUPERVISOR PASSWORD
POWER MANAGEMENT SETUP	USER PASSWORD
PNP/PCI CONFIGURATION	IDE HDD AUTO DETECTION
INTEGRATED PERIPHERALS	SAVE & EXIT SETUP
HARDWARE MONITOR SETUP	EXIT WITHOUT SAVING
ESC : Quit ↑↓←→ : Select Item	
F10 : Save & Exit	
Time, Date, Hard Disk Type...	

SUPERVISOR/USER PASSWORD

When you select this function, a message as below will appear on the screen:

AMIBIOS SIMPLE SETUP UTILITY - VERSION 1.43 (C)2001 American Megatrends, Inc. All Rights Reserved	
STANDARD CMOS SETUP BIOS FEATURES SETUP CHIPSET FEATURES SETUP POWER MANAGEMENT SETUP PNP/PCI CON INTEGRATED HARDWARE MONITOR SETUP	LOAD FAIL-SAFE DEFAULTS LOAD OPTIMIZED DEFAULTS SUPERVISOR PASSWORD USER PASSWORD PROTECTION UP EXIT WITHOUT SAVING
Enter Password:	
ESC : Quit ↑↓←→ : Select Item F10 : Save & Exit	
Time, Date, Hard Disk Type...	

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

To clear a set password, just press <Enter> when you are prompted to enter the password. A message will show up confirming the password will be disabled. Once the password is disabled, the system will boot and you can enter Setup without entering any password.

When a password has been set, 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.

Chapter 3

Additionally, when a password is enabled, you can also have AMIBIOS to request a password each time the system is booted. This would prevent unauthorized use of your computer. The setting to determine when the password prompt is required is the PASSWORD CHECK option of the BIOS FEATURES SETUP menu. If the PASSWORD CHECK option is set to *Always*, the password is required both at boot and at entry to Setup. If set to *Setup*, password prompt only occurs when trying to enter Setup.

About Supervisor Password & User Password:

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

User password: Can only enter but do not have the right to change the settings of the setup menus

IDE HDD AUTO DETECTION

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

AMIBIOS SETUP - STANDARD CMOS SETUP (C)2001 American Megatrends, Inc. All Rights Reserved							
Date (mm/dd/yyyy) : Tue Nov 14, 2000 Time (hh/mm/ss) : 00:00:00							
TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE
Pri Master : Auto Pri Slave : Auto Sec Master : Auto Sec Slave : Auto							
Floppy Drive A : 1.44 MB 3½ Floppy Drive B : Not Installed		Base Memory : 640 Kb Other Memory : 384 Kb Extended Memory : 127 Mb Total Memory : 128 Mb					
Boot Sector Virus Protection : Disabled							
		ESC : Exit ↑ ↓ : Select Item PU/PD/+/- : Modify (Shift) F2 : Color					

Chapter 3

SAVE & EXIT SETUP

When you want to quit the Setup menu, you can select this option to save the changes and quit. A message as below will appear on the screen:

AMIBIOS SIMPLE SETUP UTILITY - VERSION 1.43 (C)2001 American Megatrends, Inc. All Rights Reserved	
STANDARD CMOS SETUP	LOAD FAIL-SAFE DEFAULTS
BIOS FEATURES SETUP	LOAD OPTIMIZED DEFAULTS
CHIPSET FEATURES SETUP	SUPERVISOR PASSWORD
POWER MANAGEMENT SETUP	USER PASSWORD
PNP/PCI CONFIGURATION	ACTION
INTEGRATED PERIPHERALS	SAVE to CMOS and Exit(Y/N)? Y
HARDWARE MONITOR SETUP	EXIT WITHOUT SAVING
ESC : Quit ↑↓←→ : Select Item	
F10 : Save & Exit	
Time, Date, Hard Disk Type...	

Typing *Y* will allow you to quit the Setup Utility and save the user setup changes to RTC CMOS.

Typing *N* will return to the Setup Utility.

EXIT WITHOUT SAVING

When you want to quit the Setup menu, you can select this option to abandon the changes. A message as below will appear on the screen:

AMIBIOS SIMPLE SETUP UTILITY - VERSION 1.43 (C)2001 American Megatrends, Inc. All Rights Reserved	
STANDARD CMOS SETUP	LOAD FAIL-SAFE DEFAULTS
BIOS FEATURES SETUP	LOAD OPTIMIZED DEFAULTS
CHIPSET FEATURES SETUP	SUPERVISOR PASSWORD
POWER MANAGEMENT SETUP	USER PASSWORD
PNP/PCI CONFIGURATION	SECTION
INTEGRATED PERIPHERALS	P
HARDWARE MONITOR SETUP	EXIT WITHOUT SAVING
ESC : Quit ↑↓←→ : Select Item	
F10 : Save & Exit	
Time, Date, Hard Disk Type..	

Typing *Y* will allow you to quit the Setup Utility without saving any changes to RTCMOS.

Typing *N* will return to the Setup Utility.

Audio Drivers

4

The chapter describes the features and basic system requirements for the onboard audio controller or codec and how to install the audio drivers into your system.

This chapter contains the following topics:

System Requirements	4-2
Creative® CT5880 (Optional)	4-3
Sigmatel 9721	4-5

Chapter 4

System Requirements

This section describes the basic system requirements for the audio drivers installation and usage.

CPU

AMD® Athlon™/Duron™ processor or higher

Chipset

ALi® M1647/M1535D+ chipset

Monitor

VGA Support, minimum 640x480 resolution

Operating system

DOS 5.0 or higher, Windows® 95/98, Windows® NT3.51/4.0, OS/2®, Windows® 2000 or Windows® ME

CD-ROM

2X speed or above

Creative® CT5880 (Optional)

If your mainboard comes with the optional Creative® CT5880 digital audio controller, you must install the Creative® audio driver to provide excellent audio performance to your PC.

Features

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

Driver Installation

Insert the CD disk into the CD-ROM drive. The CD will auto-run and installations for Microsoft DirectX7.0a, Creative PCI 128 Sound Drivers and ALi® chipset will be displayed on the screen. Before installing the audio driver, please make sure you have already finished installing the ALi chipset driver(s). To install the audio driver, click on the appropriate button on the screen for automatic installation.

Installation for Windows® 98

Windows® 98 will automatically detect the onboard hardware “PCI Multimedia Audio Device” and “Gameport Joystick.” Please press **Next** and then **Finish**. Don’t click on **Cancel** because the audio driver needs the ID.

1. Insert the CD disk into the CD-ROM drive.
2. Look for the CD-ROM drive and double click on the CD-ROM icon. The setup screen will show up.
3. Click on the “Creative PCI 128 Sound Drivers” icon on the screen to copy the audio drivers into the hard disk.
4. A message will appear prompting you to restart Windows, select **Yes** to restart the system.

Chapter 4

Installation for Windows® NT 4.0

1. Click **Start**, **Settings** and **Control Panel**.
2. Double click the **Multimedia** icon.
3. Click on the **Devices** tab.
4. Press **Add**.
5. Double click “Unlisted or Updated Driver”.
6. Insert the CD disk into the CD-ROM drive.
7. When the Install from Disk dialog box appears, specify the path to your CD-ROM drive :*\Sound\Creative\PCI 128\NT4*.
8. Click **OK**.
9. Click **OK**.
10. A message indicating the drivers were successfully installed appears. Click **OK** and then restart Windows® NT.

Sigmatel 9721

Sigmatel 9721 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
- *SigmaTel Surround (SS3D)* Stereo Enhancement
- Six analog line-level inputs
- SNR > 95 dB through Mixer and DAC

Driver Installation

Insert the CD disk into the CD-ROM drive. The CD will auto-run and installations for Microsoft DirectX7.0a, Creative Audio PCI Sound Drivers and ALi® chipset will be displayed on the screen. Before installing the audio driver, please make sure you have already finished installing the ALi chipset driver(s). To install the audio driver, click on the appropriate button on the screen for automatic installation.

Installation for Windows® 98

Windows® 98 will automatically detect the onboard hardware “PCI Multimedia Audio Device” and “Gameport Joystick.” Please press **Next** and then **Finish**. Don't click on **Cancel** because the audio driver needs the ID.

1. Insert the CD disk into the CD-ROM drive.
2. Look for the CD-ROM drive and double click on the CD-ROM icon. The setup screen will show up.
3. Click on the “SigmaTel Sound Drivers” icon on the screen to copy the audio drivers into the hard disk.
4. A message will appear prompting you to restart Windows, select **Yes** to restart the system.

Chapter 4

Installation for Windows® NT 4.0

1. Click **Start**, **Settings** and **Control Panel**.
2. Double click the **Multimedia** icon.
3. Click on the **Devices** tab.
4. Press **Add**.
5. Double click “Unlisted or Updated Driver”.
6. Insert the CD disk into the CD-ROM drive.
7. When the Install from Disk dialog box appears, specify the path to your CD-ROM drive :*\Sound\Sigmatel\97XX\Driver\NT4*.
8. Click **OK**.
9. Click **OK**.
10. A message indicating the drivers were successfully installed appears. Click **OK** and then restart Windows® NT.