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M599LMR, Version 1.4
S5X/April 1999**

Federal Communications Commission (FCC)

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
 - Increase the separation between the equipment and the receiver.
 - Connect the equipment onto an outlet on a circuit different from that to which the receiver is connected.
 - Consult the dealer or an experienced radio/TV technician for help.
- Shielded interconnect cables and shielded AC power cable must be employed with this equipment to insure compliance with the pertinent RF emission limits governing this device. Changes or modifications not expressly approved by the system's manufacturer could void the user's authority to operate the equipment.

Declaration of Conformity

This device complies with part 15 of the FCC rules. Operation is subject to the following conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

Canadian Department of Communications

This class B digital apparatus meets all requirements of the Canadian Interference-causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

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Chapter 1

Introduction

This mainboard uses the **SiS530** chipset to leverage extra performance from the Socket-7 architecture. The mainboard supports all **Socket-7 processors** including newer designs which feature a **100 MHz system bus**. The mainboard firmware supports **CPU Plug and Play** so that the system will automatically adopt the correct configuration for the Socket-7 processor that you install.

The mainboard is highly integrated and includes a built-in **PCI 3D Sound System** and a built-in **3D AGP graphics adapter**. The sound system supports **24-bit digital audio** and a **4-way speaker system**. The graphics system supports extended VGA resolutions with an 8MB frame buffer.

Communications and networking are supported with a **V.90 Fax/Modem DAA module** and a **10BaseT/100BaseTX network adapter**. The mainboard uses an **ATX power supply** and supports all of the ATX power management features including **ACPI** (Advanced Configuration and Power management Interface), **power saving modes** and **keyboard power on hot keys**.

The mainboard has a full set of **ATX I/O ports** and **three expansion slots**. It supports hardware monitoring and ships with trend's **ChipAway Virus** virus protection system. The board adheres to the **micro-ATX form factor** which permits an inexpensive system case and reduced power supply unit.

Key Features

This key features of this mainboard include:

Socket-7 Processor Support

- ◆ Supports all recent socket-7 processors including Intel **P55C** (Pentium MMX), Cyrix/IBM **6x86L/6x86MX/MII**, AMD **K6/K6-2**, and IDT **C6** CPUs
- ◆ Supports socket-7 processors with system bus frequencies of **60/66/75/83/95/100 MHz**
- ◆ **CPU Plug and Play** support let the firmware automatically configure the CPU
- ◆ **512K/1 MB external Level 2 cache memory** is provided onboard

Memory Support

- ◆ Three DIMM slots for 3V **SDRAM** 168-pin memory modules
- ◆ Support for 66 MHz and 100 MHz memory bus
- ◆ Maximum installed memory can be 3 x 256 MB = **768 MB**

Expansion Slots

- ◆ Two **32-bit PCI** slots
- ◆ One **8/16-bit ISA** slots

Onboard IDE channels

- ◆ Primary and Secondary PCI IDE channels
- ◆ Support for PIO (programmable input/output) modes
- ◆ Support for Bus mastering and UltraDMA 33/66 modes

Power Supply and Power Management

- ◆ Provides ATX power connector
- ◆ Support for Power button/Suspend Switch, and **Keyboard Power On/Off** (needs Win98 keyboard)
- ◆ Supports Wake on Modem, Wake on LAN and Wake on Alarm

Built-in Graphics System

- ◆ Onboard 64-bit 3D **AGP Graphics Accelerator**
- ◆ Complies with AGP Ver.1 with 66/133 MHz operation
- ◆ Shared memory architecture allows a maximum of 8 MB main memory to act as frame buffer
- ◆ Supports high resolutions up to 1600 x 1200 pixels

Sound System

- ◆ Meets PC98 audio specification
- ◆ Full duplex playback and recording with built-in 16-bit CODEC
- ◆ HRTF 3D professional audio supports both Direct Sound 3D® and A3D® compatible interfaces plus support for **4-channel speakers**
- ◆ Drivers support Windows 3.1/95/98/NT 4.0
- ◆ Built-in 32 ohm earphone buffer and 3D surround
- ◆ Provides MPU-401 Game/MIDI port and legacy Sound Blaster 16 support
- ◆ Downloadable Wave-table Synthesizer supports Direct Music®
- ◆ Digital Audio Interface with **24-bit stereo**, 44KHz sampling rate and measured **120dB** audio quality
- ◆ Stereo Mixer supports analog mixing from CD-Audio, Line-In, and digital mixing from voice, FM/Wave-table and digital CD-Audio

Onboard I/O Ports

- ◆ Provides **PC99 Color Connector** for easy identification of peripheral devices
- ◆ Floppy disk drive port with 1Mb/s transfer rate
- ◆ One serial port with 16550-compatible fast UART
- ◆ One parallel port with support for ECP and EPP
- ◆ Two USB ports & two PS/2 ports
- ◆ One optional infrared port

Hardware Monitoring

- ◆ Built-in hardware monitoring for CPU temperature and fan speeds

- ◆ Supports AMI's Desktop Client Manager (ADCM)

Built-in LAN Adapter

- ◆ Onboard **10BaseT/100BaseTX LAN Adapter**
- ◆ LAN controller integrates Fast Ethernet MAC and PHY compliant with IEEE802.3u 100BASE-TX, 10BASE-T and ANSI X3212 TP-PMD standards
- ◆ Compliant with ACPI 1.0 and the Network Device Class Power Management 1.0
- ◆ High Performance provided by 100 Mbps clock generator and data recovery circuit for 100 Mbps receiver

Fax/Modem DAA Module

- ◆ **56 Kbps Fax/Modem DAA module**
- ◆ Supports V.90, V.34, V.32bis, V.32, V.22bis, V.22
- ◆ Supports Auto Fallback and MNP 5, V.42bis data compression with 115200 compatible Virtual UART
- ◆ Requires 16 MB RAM and WIN 95/98/NT

Onboard Flash ROM

- ◆ Provides plug and play function for automatic CPU and board configuration
- ◆ Supports plug and play configuration of peripheral devices and expansion cards
- ◆ Built-in virus protection using **Trend's ChipAway Virus** which ensures that the entire boot process is virus protected.

Bundled Software

- ◆ **AMI Desktop Client Manager** supports hardware monitoring for a stand-alone systems or a networked workstation
- ◆ **PC-Cillin** provides automatic virus protection under Windows 95/98
- ◆ **Super Voice** Fax/Modem and voice software
- ◆ **MediaRing Talk** provides PC to PC base internet phone communication
- ◆ **Gamut** provides professional audio applications included MP3 playback

Dimensions

- ◆ Micro ATX form factor (24.4cm x 19cm)

Package Contents

Your mainboard package ships with the following items:

- Mainboard
- This User's guide
- IDE cable
- Floppy diskette drive cable
- V.90 Fax/Modem DAA module
- 10BaseT/100BaseTX network adapter extension bracket
- Support software CD-ROM

Optional Accessories

You can purchase the following optional accessories for this mainboard.

- Digital Audio extension bracket

Static Electricity Precautions

1. Components on this mainboard can be damaged by static electricity. Take the following precautions when unpacking the mainboard and installing it in a system.
2. Keep the mainboard, and other components, in their original static-proof packaging until you are ready to install them.
3. During an installation, wear a grounded wrist strap if possible. If you don't have a wrist strap, frequently discharge any static electricity by touching the bare metal of the system chassis.
4. Handle the mainboard carefully by the edges. Avoid touching the components unless it is absolutely necessary. During the installation lay the mainboard on top of the static-proof packaging with the component side facing upwards.
5. Inspect the mainboard for any damage caused during transit. Ensure that all the components that are plugged into sockets are correctly seated.
6. If you suspect that the mainboard has been damaged, do not apply power to the system. Contact your mainboard vendor and report the damage.

Chapter 2

Mainboard Installation

To install this mainboard into your system, follow the procedures in this chapter:

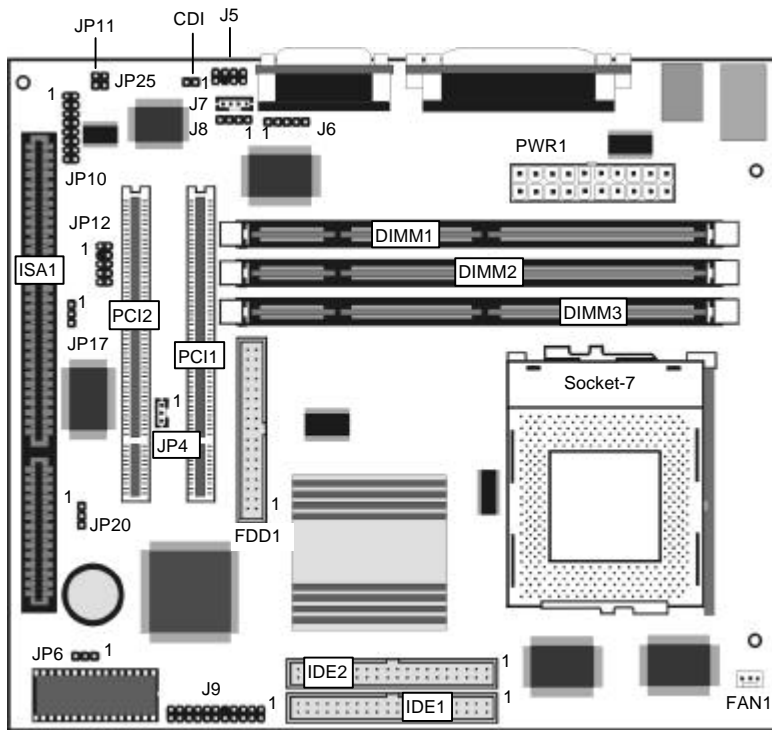
- ❑ Identify the mainboard components
- ❑ Install the correct processor
- ❑ Install one or more memory modules
- ❑ Verify that any jumpers or switches are at the correct setting
- ❑ Install the mainboard in the system chassis
- ❑ Install any other devices and make the appropriate connections to the mainboard headers.

***Note:** Before installing the mainboard, you must ensure that jumper JP6 is set to the Normal setting. See this chapter for information on locating JP6 and changing the jumper setting.*

***Note:** Please do not use the AC power cord to connect the system case to a power outlet until you have completely installed the mainboard and components. In some circumstances, the power management of the system might damage components and create unsafe conditions by allowing power to flow before the installation is complete,*

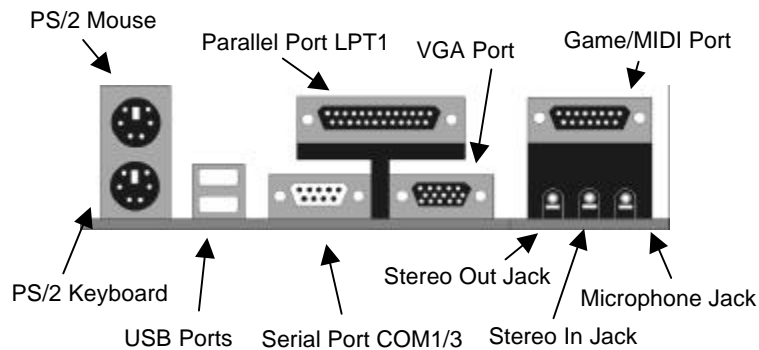
Mainboard Components

Use the diagram below to identify the major components on your mainboard.



I/O Ports

The illustration below shows a side view of the I/O ports installed on the mainboard.



Install the Processor

This mainboard is installed with a socket-7, and so it may be installed with any of the socket-7 processors including the Intel P55C (MMX) series, the Cyrix/IBM 6x86L/6x86MX/MII series, the AMD K6/K6-2 series, and the IDT C6 series. The mainboard supports system bus speeds of 60, 66, 75, 83, 95, 100 MHz.

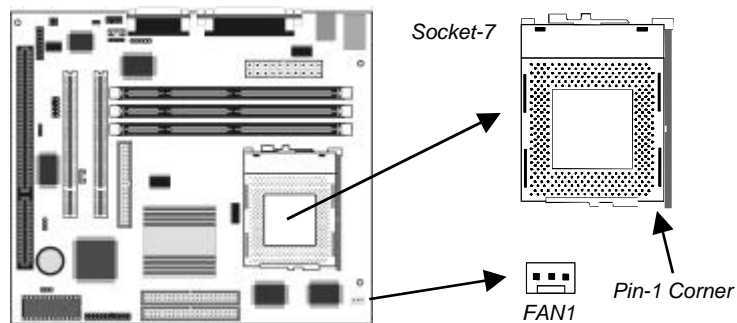
The board supports CPU plug and play, so it can automatically run the installed processor with the correct clock speed and the correct system bus frequency. To automatically configure the processor, use the BIOS setup program to select the CPU speed and system bus frequency. See chapter three for more information.

To ensure reliability, make sure that your socket-7 processor is fitted with a heatsink/cooling fan assembly.

Chapter 2

The socket-7 processor installs into the ZIF (Zero Insertion Force) socket-7 on the mainboard.

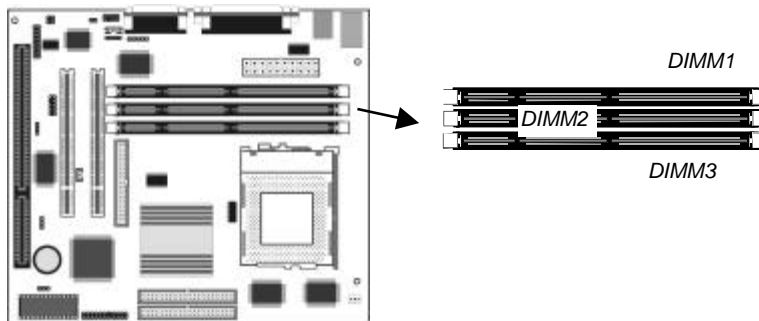
1. Locate the socket-7 and FAN1. Pull the locking lever out from the socket and swing it to the upright position.



2. On the socket-7 processor, identify the pin-1 corner by noting that it has a slight bevel.
3. On the socket-7, identify the pin-1 corner. The pin-1 corner is on the same side as the locking lever, closest to the top of the lever when it is in the locked position.
4. Match the pin-1 corners and insert the socket-7 processor into the socket. No force is required and the processor should drop into place freely.
5. Swing the locking lever down and hook it under the catch on the side of the socket. This locks the socket-7 processor in the socket.
6. If the socket-7 processor is installed with a cooling fan assembly, connect the cable from the fan to the CPU fan power connector FAN1.

Install Memory

The mainboard has three DIMM slots that can be installed with memory modules. You must install at least one memory module in order to use the mainboard. You must install the first memory module into DIMM1 so that the system can share some of the memory with the built-in graphics system. A second module can be installed in either DIMM2 or DIMM3.



For this mainboard, you must use 168-pin, 3.3V memory modules installed with SDRAM memory chips. For best performance, we recommend that you use PC-100 memory modules which operate over a 100 MHz memory bus.

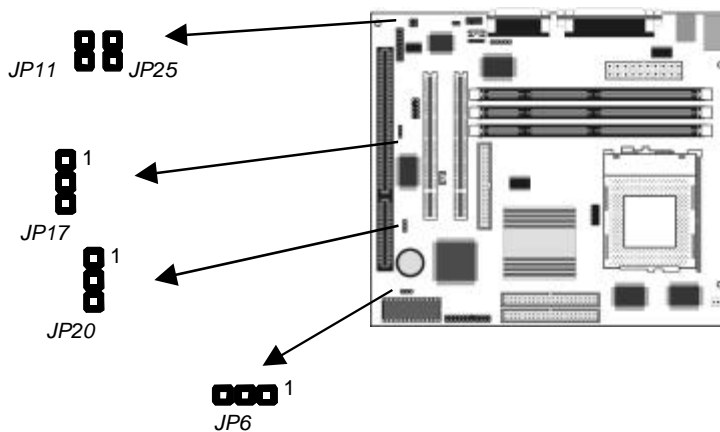
You can install any size of memory module from 16 MB up to 256 MB, so the maximum memory size is $3 \times 256 \text{ MB} = 768 \text{ MB}$.

The edge connectors on the memory modules have cut outs, which coincide with struts in the DIMM slots, so the memory modules can only be installed in the correct way.

On the DIMM slot, pull the locking latches at either end of the slots outwards. Position the memory module correctly and insert it into the DIMM slot. Press the module down into the slot so that the locking latches lever inwards and lock the module in place.

Set the Jumpers

Jumpers are sets of pins which can be connected together with jumper caps. The jumper caps change the way the mainboard operates by changing the electronic circuits on the mainboard. If a jumper cap connects two pins, we say the pins are **SHORT**. If a jumper cap is removed from two pins, the pins are **OPEN**.



Jumper JP6: Clear CMOS Memory

Use this jumper to clear the contents of the CMOS memory. You may need to clear the CMOS memory if the settings in the setup utility are incorrect and prevent your mainboard from operating. To clear the CMOS memory, disconnect all the power cables from the mainboard and then move the jumper cap into the **CLEAR** setting for a few seconds.

Function	Jumper Setting
Normal Operation	Short Pins 1-2
Clear CMOS memory	Short Pins 2-3

*Note: The mainboard ships with this jumper in the **CLEAR** position so you must change this jumper to **NORMAL**.*

Jumper JP17: LAN Enable/disable Selector

This mainboard has a built-in 10BaseT/100BaseTX network adapter. If you plan on using an alternative network adapter, you must use this jumper to disable the onboard network adapter.

Function	Jumper Setting
Enable onboard LAN	Short Pins 1-2
Disable onboard LAN	Short Pins 2-3

Jumper JP20: LAN Power Selector

This jumper selects the operating power of the onboard network adapter. Leave this jumper at the default value 5 Volts.

Function	Jumper Setting
5 Volts	Short Pins 1-2
SB 5 Volts	Short Pins 2-3

Jumper JP11: Audio System Enable/disable

Use this jumper to enable or disable the audio system integrated on this mainboard. Disable the built-in audio if you plan on using another audio system on an expansion card.

Function	Jumper Setting
Enable Audio	Open Pins 1-2
Disable Audio	Short Pins 1-2

Note: If you disable the onboard audio system, you cannot use the onboard Fax/Modem.

Jumper JP25: Fax/Modem Enable/disable

Use this jumper to enable or disable the onboard Fax/Modem. Disable the Fax/Modem if you plan on using another Fax/Modem.

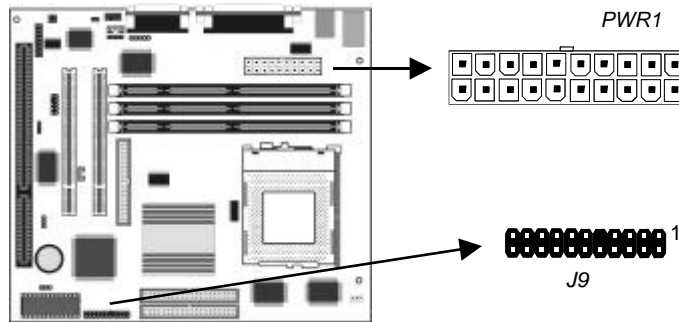
Function	Jumper Setting
Enable Fax/Modem	Open Pins 1-2
Disable Fax/Modem	Short Pins 1-2

Note: If you have disabled the onboard audio system with jumper JP11, the Fax/Modem will not function even if it is enabled.

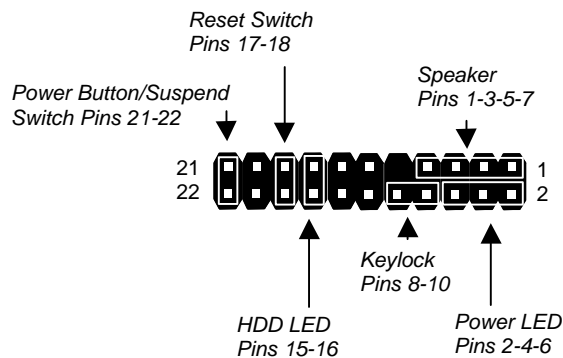
Install the Mainboard

Install the mainboard into the system chassis. This mainboard uses the mini-ATX format with a twin-tier of I/O ports. Ensure that your case has an I/O template that can be used by this mainboard.

Install the mainboard into the unit case. Follow the instructions provided by the case manufacturer using the screws and mounting points provided in the chassis.



Connect the power cable from the ATX power supply unit to the power connector PWR1 on the mainboard. Connect the case switches and indicator LEDs to the bank of switch and LED connectors J9. See the illustration below for a guide to the pin functions of the J9 connector.



Install the Extension Brackets/Options

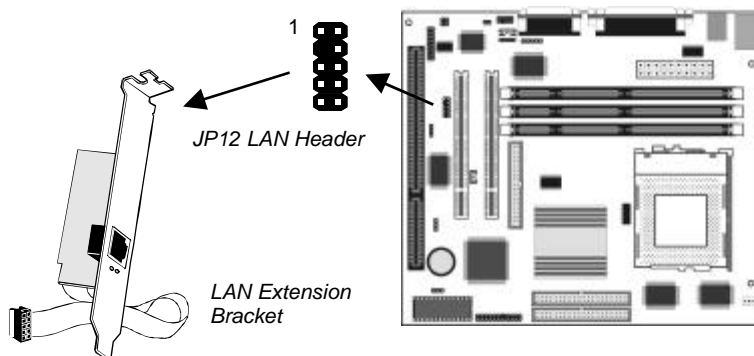
This mainboard ships with a Fax/Modem DAA module and a 10BaseT/100BaseTX LAN extension bracket. As options, you can also obtain a digital audio extension bracket, an infrared port and an internal digital audio cable.

The modules and extension brackets are used to transmit features on the mainboard to external connectors that can be fixed to the system chassis. Follow the steps below to install the extension brackets.

Note: All the ribbon cables used on the extension brackets carry a red stripe on the pin-1 side of the cable.

LAN Network Adapter Extension Bracket

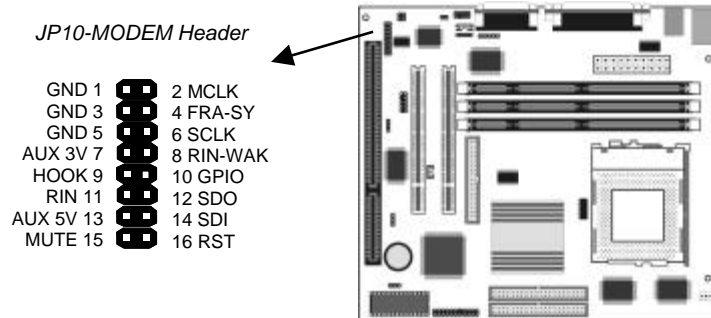
This bracket supports an RJ45 network connector and connects to the built in LAN header JP12 on the mainboard.



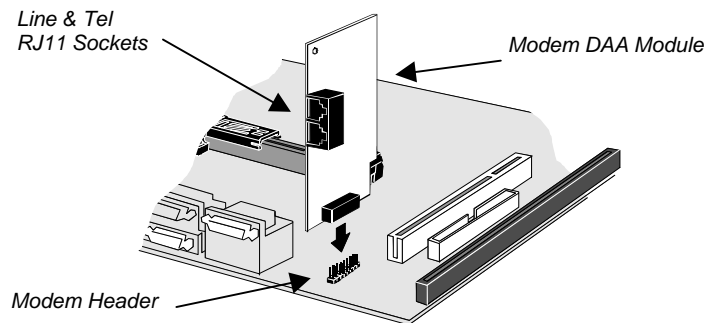
1. On the mainboard, locate the JP12 LAN header for this bracket.
2. Plug the cable from the bracket into JP12.
3. In the system chassis, remove a blanking plate from one of the expansion slots and install the extension bracket in the slot. Use the screw that held the blanking plate in place to secure the extension bracket.

Fax/Modem DAA Module

The Fax/Modem card plugs directly into the mainboard adjacent to an expansion slot in the system chassis. When you remove the blanking plate from the system chassis, you can access the LINE and TEL RJ11 connectors on the metal edge of the Fax/Modem DAA module.

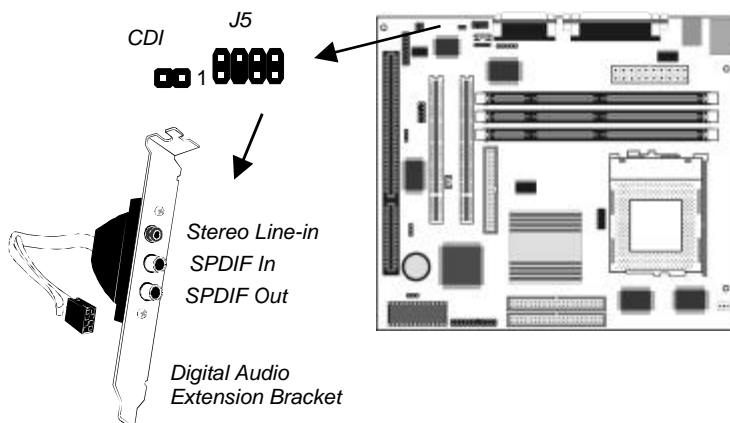


1. Locate the JP10 modem header on the mainboard.
2. Plug the Fax/Modem DAA module into the JP10 modem header.
3. Remove the blanking plate adjacent to the Fax/Modem DAA module.



Digital Audio Extension Bracket

This bracket has two RCA jacks for digital audio in and digital audio out, and an auxiliary jack for a stereo line-in device.



1. On the mainboard, locate the J5 SPDIF header for this bracket.
2. Plug the cable from the bracket into J5.
3. In the system chassis, remove a blanking plate from one of the expansion slots and install the extension bracket in the slot. Use the screw that held the blanking plate in place to secure the extension bracket.

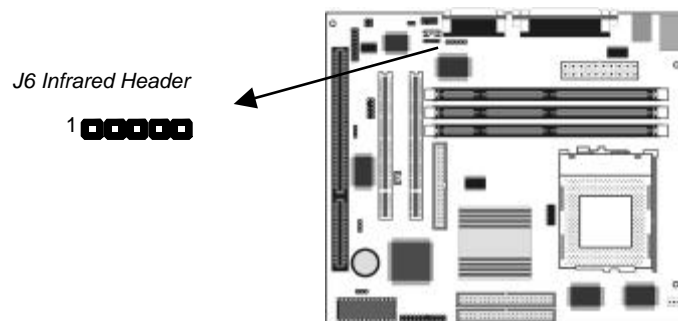
Internal Digital Audio

If you have the optional internal digital audio cable, you can use it to connect the digital audio output connector of a CD-ROM or DVD drive to the digital audio in connector CDI.

Note: If you have connected a digital audio bracket to J5, You cannot use the CDI connector.

Optional Infrared Port

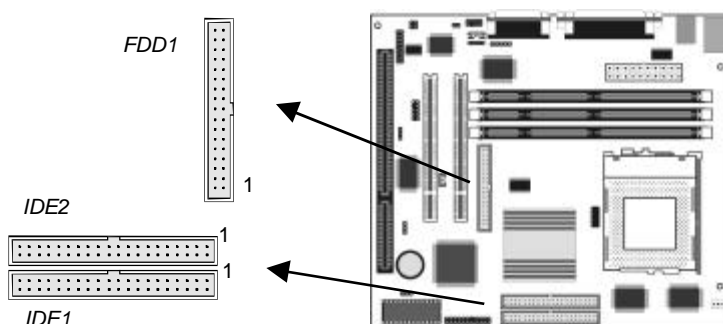
The mainboard has an infrared header J6 so that you can install an optional serial infrared port.



1. On the mainboard locate the infrared port header J6.
2. Connect the ribbon cable from the port to the header J6 and then secure the port to an appropriate place in your system chassis.

Install Other Devices

Install and connect any other devices in the system following the steps below.



Floppy Disk Drive

The mainboard ships with a floppy disk drive cable that can support one or two drives. Drives can be 3.5" or 5.25" wide, with capacities of 360K, 720K, 1.2MB, 1.44MB, or 2.88MB.

Install your drives and supply power from the system power unit. Use the cable provided to connect the drives to the floppy disk drive header FDD1.

IDE Devices

IDE devices include hard disk drives, high-density diskette drives, and CD-ROM/DVD drives.

The mainboard ships with an IDE cable that can support one or two IDE devices. If you connect two devices to a single cable, you must configure one of the drives as Master and one of the drives as Slave. The documentation of the IDE device will tell you how to configure for Master or Slave.

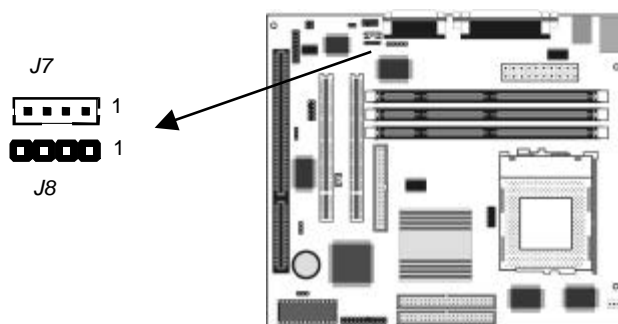
Install the device(s) and supply power from the system power unit. Use the cable provided to connect the device(s) to the Primary IDE channel connector IDE1 on the mainboard.

If you want to install more IDE devices, you can purchase a second IDE cable and connect one or two devices to the Secondary IDE channel connector IDE on the mainboard. If you have two devices on the cable, one must be Master and one must be Slave.

Internal Analog Sound Connections

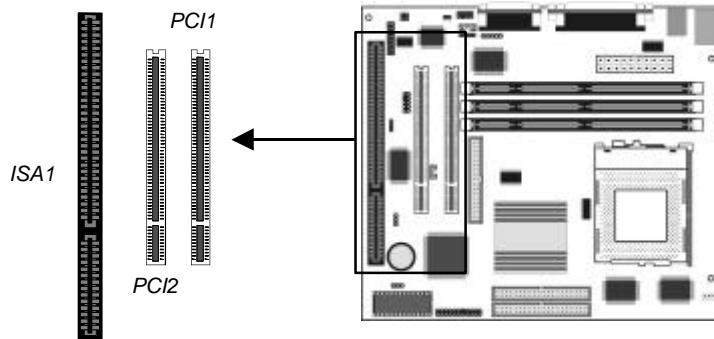
If you have installed a CD-ROM drive or a DVD drive, you can connect the sound output of the drive to the built-in sound system.

On the mainboard, locate the two 4-pin connectors for J7 and J8. There are two kinds of connector because different brands of CD-ROM drive have different kinds of cable connectors on their audio output cable. Connect the cable to the appropriate connector.



Expansion Slots

This mainboard has two PCI 32-bit expansion slots and one 8/16-bit ISA slot.



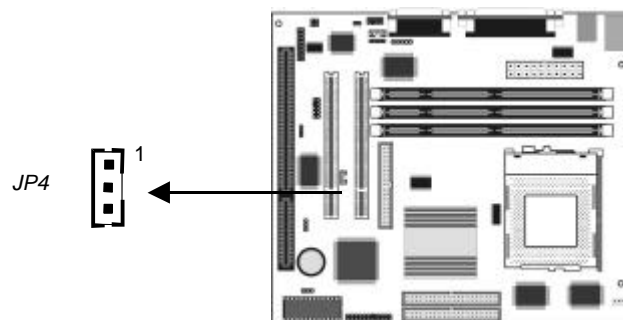
Use the PCI slots to install 32-bit PCI expansion cards. Use the ISA slot to install legacy 8/16-bit expansion cards.

Installing an Expansion Card

1. Locate the PCI or ISA slot on the mainboard.
2. Remove the blanking plate from the appropriate expansion slot on the system chassis.
3. Install the edge connector of the expansion card into the slot and press it quite firmly down so that it is seated correctly.
4. Secure the bracket of the expansion card into the expansion slot in the system chassis using the screw that held the blanking plate in place.

Wake On LAN Connector

If you have installed a network adapter card, connect the adapter to the wake on LAN connector JP4. You can then use the setup utility to program your computer to resume from a power saving mode whenever there is traffic through the network.



Chapter 3

BIOS Setup

Introduction

The BIOS setup utility stores information about your computer such as the date and time, the kind of hardware you have installed, and so on. Your computer uses this information to initialize all the components at boot up time, and make sure that everything runs smoothly.

If the information in the setup utility is incorrect, it may cause your system to malfunction. It can even stop your computer from booting properly. If this happens, you can use the clear CMOS jumper to clear the CMOS memory area that is used to store the setup information, or you can hold down the **End** key while you reboot your computer. Holding down the **End** key also clears the setup information.

You can run the setup utility and manually make changes to the setup utility. You might need to do this to configure some of the hardware that you add to the mainboard, such as the CPU, the memory, disk drive, etc.

Running the Setup Utility

Each time your computer starts, before the operating system is booted, a message appears on the screen that prompts “Hit if you want to run SETUP”. When you see this message, press the **Delete** key and the Mainmenu page of the setup utility appears on your monitor.

AMIBIOS SIMPLE SETUP UTILITY - VERSION 1.20 (C)1998 American Megatrends, Inc. All Rights Reserved			
Standard CMOS Setup		Features Setup	
Advanced Setup		CPU PnP Setup	
Power Management Setup		Hardware Monitor	
PCI / Plug and Play Setup		Change Password	
Load Optimal Settings		Exit	
Load Best Performance Settings			
ESC: Quit	↑↓←→: Select Item	(Shift)F2: Change Color	F5: Old Values
F6: Optimal values	F7: Best performance values		F10: Save&Exit
Standard CMOS setup for changing time, date, hard disk type, etc.			

You can use the cursor arrow keys to highlight any of the options on the Mainmenu page. Press **Enter** to select the highlighted option. To leave the setup utility, press the **Escape** key. Hold down the **Shift** key and press **F2** to cycle through the optional color schemes of the setup utility.

Some of the options on the Mainmenu page lead to tables of items with installed values. In these pages, use the cursor arrow keys to highlight the items, and then use the **PgUp** and **PgDn** keys to cycle through the alternate values for each of the items. Other options on the Mainmenu page lead to dialog boxes which require you to answer Yes or No by hitting the **Y** or **N** keys.

If you have already made changes to the setup utility, press **F10** to save those changes and exit the utility. Press **F5** to reset the changes to the original values. Press **F6** to install the setup utility

with a set of default values. Press **F7** to install the setup utility with a set of best-performance values.

Standard CMOS Setup Page

Use this page to set basic information such as the date and time, the IDE devices, and the diskette drives. If you press the F3 key, the system will automatically detect and configure the hard disks on the IDE channels.

AMIBIOS SETUP - STANDARD CMOS SETUP										
(C)1998 American Megatrends, Inc. All Rights Reserved										
Date (mm/dd/yyyy): Thu 01 29,1999										
Time (hh/mm/ss) : 09:58:31										
	Type	Size	Cyln	Head	WPcom	Sec	LBA	Blk	PIO	32Bit
Pri Master	: Not Installed									
Pri Slave	: Not Installed									
Sec Master	: Not Installed									
Sec Slave	: Not Installed									
Floppy Drive A: Not Installed										
Floppy Drive B: Not Installed										
Month: Jan - Dec					ESC : Exit					
Day: 01 - 31					↑↓ : Select Item					
Year: 1901 - 2099					PU/PD/+/- : Modify					
					(Shift)F2 : Color					
					F3 : Detect All HDD					

Date & Time	Use these items to install your system with the correct date and time
Pri Master Pri Slave Sec Master Sec Slave	Use these items to configure devices on the primary and secondary IDE channels. To configure a hard disk drive, choose <i>Auto</i> . If the <i>Auto</i> setting fails to find a hard disk drive, set it to <i>User</i> , and then fill in the hard disk characteristics (Size, Cyls, etc.) manually. If you have a CD-ROM drive, select the setting <i>CDROM</i> . If you have an ATAPI device with removable media (e.g. a ZIP drive or an LS-120) select <i>ARMD</i> .
Floppy Drive A Floppy Drive B	Use these items to set the size and capacity of the floppy diskette drive(s) installed in the system.

Advanced Setup Page

Use this page to set more advanced information about your system. Take some care with this page. Making changes can affect the operation of your computer.

AMIBIOS SETUP - ADVANCED SETUP	
(C)1998 American Megatrends, Inc. All Rights Reserved	
Trend ChipAwayVirus	Enabled
Share memory size	8MB
1st Boot Device	IDE-0
2nd Boot Device	Floppy
Try Other Boot Devices	Yes
S.M.A.R.T. for Hard Disks	Disabled
BootUp Num-Lock	On
Floppy Drive Swap	Disabled
Floppy Drive Seek	Disabled
Password Check	Setup
Boot to OS/2 Over 64MB	Disabled
Internal Cache	Enabled
External Cache	Enabled
System BIOS Cacheable	Disabled
Video,32K Shadow	Enabled
Refresh Queue Depth	12
Graphic Win Size	64M
CAS Latency	3T
ESC : Quit F10 : Select Item F1 : Help F5/PD/+/ : Modify F5 : Old Values (Shift) F2 : Color F6 : Load Optimal values F7 : Load Best performance values	

Trend ChipAway Virus	This mainboard has built-in virus protection in the firmware. Use this item to enable or disable the built-in virus protection.
Share Memory Size	This item lets you allocate a portion of the main memory for use by the onboard VGA system. Leave this at the default value 8 MB
1st Boot Device 2nd Boot Device	Use these two items to determine the order and priority that your computer follows to load an operating system at start-up time.
Try Other Boot Devices	If you enable this item, the system will also search for other boot devices if it fails to find an operating system from the first two locations.
S.M.A.R.T. for Hard Disks	Enable this item if your hard disk(s) supports SMART (Self-Monitoring, Analysis and Reporting Technology).
BootUp Num-Lock	This items determines if the Num Lock key is active or inactive at system start-up time.

Floppy Drive Swap	If you have two diskette drives installed and you enable this item, drive A becomes drive B and drive B becomes drive A.
Floppy Drive Seek	If you enable this item, your system will check the diskette drives at start up time. Disable this item unless you are using an old 360K diskette drive.
Password Check	If you have installed a password on your system, use this item to determine if the password is required to enter the setup utility (<i>Setup</i>) or required at start-up time and to enter the setup utility (<i>Always</i>).
Boot to OS/2 Over 64MB	Enable this item if you are booting the OS/2 operating system and you have more than 64MB of memory installed.
Internal Cache	Leave this item enabled since all the processors that can be installed on this board have internal cache memory.
External Cache	Leave this item enabled since this mainboard is installed with external cache memory.
System BIOS Cacheable	If you enable this item, a segment of the system BIOS will be cached to main memory for faster execution.
Video 32K Shadow	When this item is enabled, 32 kilobytes of the system video BIOS is copied to system memory from where it can execute more rapidly.
Refresh Queue Depth	This item determines the operation of the memory refresh timing. We recommend that you leave this item at the default value.
Graphic Win Size	This item determines the operation of the onboard graphics adapter. We recommend that you leave this item at the default value.
CAS Latency	This item determines the operation of the main memory CAS (column address strobe). We recommend that you leave this item at the default value.

Power Management Setup Page

This page sets some of the parameters for the system power management operation.

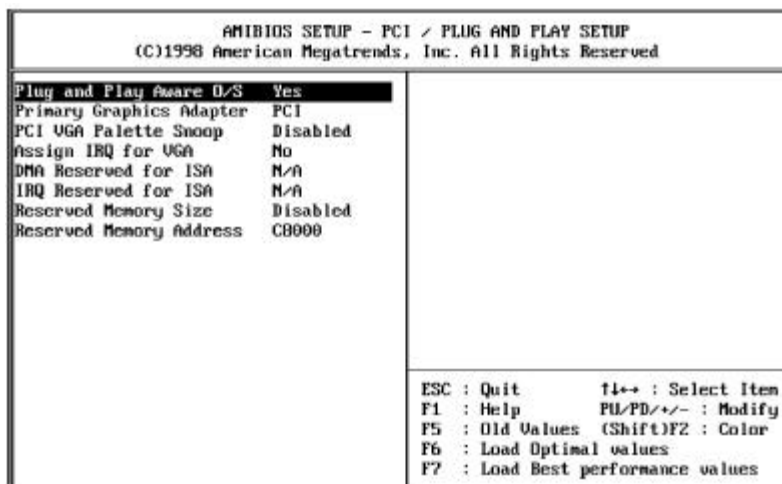
AMIBIOS SETUP - POWER MANAGEMENT SETUP	
(C)1998 American Megatrends, Inc. All Rights Reserved	
Power Management/APM	Disabled
Standby Time Out (Minute)	Disabled
Suspend Time Out (Minute)	Disabled
Keyboard Power On	Disabled
Lan Card Power On	Disabled
Ring On Power On	Disabled
RTC Alarm Power On	Disabled
RTC Alarm Date	15
RTC Alarm Hour	12
RTC Alarm Minute	30
RTC Alarm Second	30
ESC : Quit ↑↓↔ : Select Item F1 : Help PU/PD/+/- : Modify F5 : Old Values (Shift)F2 : Color F6 : Load Optimal values F7 : Load Best performance values	

Power Management/APM	Use this item to enable or disable the power management routines. If you enable the power management, you can use the items below to set the power management operation.
Standby Time Out (Minute)	This sets the timeout for standby mode in minutes. If the time selected passes without any system activity, the computer will enter the power-saving standby mode.
Suspend Time Out (Minute)	This sets the timeout for suspend mode in minutes. If the time selected passes without any system activity, the computer will enter the power-saving suspend mode.
Keyboard Power On	Your system can enter a software power down. If you enable this item, you can resume the system by pressing hot keys on the keyboard. You must enable the jumper for Keyboard Power On.
Lan Card Power On	Your system can enter a software power down. If you enable this item, the system can automatically resume if there is traffic on the network adapter.

Ring On Power On	Your system can enter a software power down. If you enable this item, the system can automatically resume if there is an incoming call on the built-in Fax/Modem.
RTC Alarm Power On	Your system can enter a software power down. If you enable this item, the system can automatically resume at a fixed time on the system's RTC (realtime clock). Use the items below to set the date and time of the wake-up alarm.

PCI / Plug and Play Setup Page

This page sets some of the parameters for devices installed on the system PCI bus, and devices that use the system plug and play capability.



Plug and Play Aware O/S	Enable this item if you are using an O/S that supports Plug and Play such as Windows 95 or 98.
Primary Graphics Adapter	Use this item to define if your primary graphics adapter is installed in a PCI slot or on an AGP bus.

Chapter 3

PCI VGA Palette Snoop	When this item is enabled, multiple VGA devices operating on different buses can handle data from the CPU on each set of palette registers on every video device.
Assign IRQ for VGA	If this item is enabled, an IRQ will be assigned to the PCI VGA graphics system. We recommend that you set this value to No.
DMA Reserved for ISA	If you set it to a DMA, the channel will be reserved for an installed non-PnP ISA or EISA expansion card.
IRQ Reserved for ISA	If you set it to an IRQ, the IRQ line will be reserved for an installed non-PnP ISA or EISA expansion card.
Reserved Memory Size	This item lets you reserve a block of memory for any device that requires it.
Reserved Memory Address	This item lets you set the address for any block of memory that has been reserved.

Load Optimal Settings

If you select this item and press **Enter** a dialog box appears. If you press **Y**, and then **Enter**, the setup utility is loaded with a set of optimal default values. The optimal default values are not very demanding and they should allow your system to function with most kinds of hardware and memory chips.

Load Best Performance Settings

If you select this item and press **Enter** a dialog box appears. If you press **Y**, and then **Enter**, the setup utility is loaded with a set of best-performance default values. The optimal default values are quite demanding and your system might not function properly if you are using slower memory chips or other kinds of low-performance components.

Features Setup Page

This page sets some of the parameters for peripheral devices installed on the system.

AMIBIOS SETUP - FEATURES SETUP	
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Onboard FDC	Enabled
Onboard Serial Port1	3F8h/COM1
Onboard Ir Port	Disabled
Ir Duplex	Half
Onboard Parallel Port	378h
Parallel Port Mode	Normal
Parallel Port IRQ	7
Parallel Port DMA	N/A
Onboard PCI IDE	Both
USB Function	Disabled
USB Function for DOS	Disabled
ESC : Quit F4 : Select Item F1 : Help F5/PF5 : Modify F5 : Old Values (Shift)F2 : Color F6 : Load Optimal values F7 : Load Best performance values	

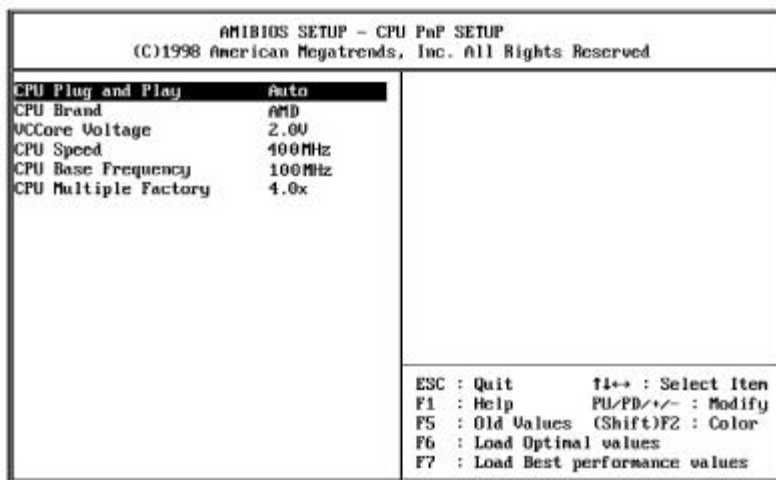
Onboard FDC	Use this item to enable or disable the onboard floppy disk drive interface.
Onboard Serial Port1	Use this item to enable or disable the onboard serial port COM1, and to assign a port address
Onboard IR Port	Use this item to define the protocol for an infrared port if you have installed an optional IR port.
IR Duplex	Use this item to define if the optional infrared port is full-duplex or half-duplex.
Onboard Parallel Port	Use this item to enable or disable the onboard parallel port LPT1, and to assign a port address
Parallel Port Mode	Use this item to determine the parallel port mode. You can select Normal, ECP (Extended Capabilities Port), EPP (Enhanced Parallel Port), or ECP + EPP.
Parallel Port IRQ	Use this item to assign an IRQ to the parallel port.
Parallel Port DMA	Use this item to assign a DMA channel to the parallel port.

Chapter 3

Onboard PCI IDE	Use this item to enable or disable either of the two onboard IDE channels, Primary or Secondary.
USB Function	Use this item to enable or disable the USB (Universal Bus Ports) that are integrated on this mainboard.
USB Function for DOS	If you have enabled the USB function, use this item to enable or disable USB when you are working in the DOS environment.

CPU PnP Setup Page

This page lets you configure the mainboard for the kind of CPU that you have installed.

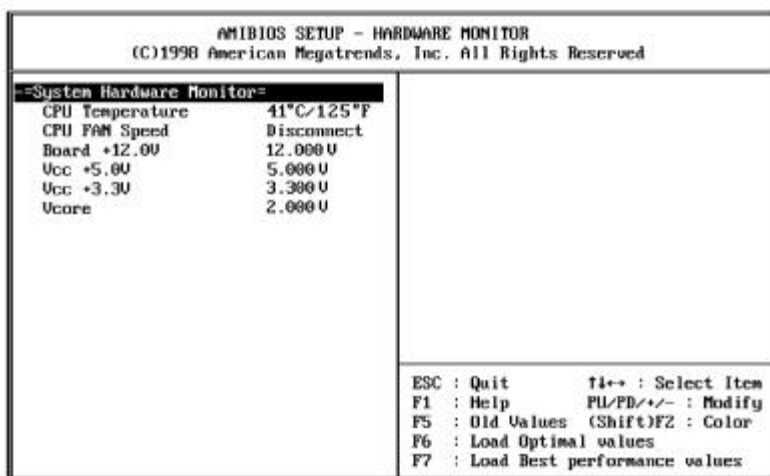


CPU Plug and Play	If you set this item to <i>Auto</i> , the system will automatically detect the kind of CPU you have installed and configure the mainboard for it. If you set this item to <i>User Define</i> , you can use the following items to manually configure the mainboard.
CPU Brand	Use this item to set define the Brand of CPU that you have installed in the system.

VCCore Voltage	Use this item to define the core voltage of the processor that you have installed.
CPU Speed	Use this item to define the clock speed of the processor that you have installed.
CPU Base Frequency	Use this item to define the system bus frequency that is supported by the processor that you have installed.
CPU Multiple Factory	Use this item to set a multiplier for the system bus frequency. The multiplier x the system bus frequency must equal the internal clock speed of your CPU, e.g. 100 MHz (system bus) x 3.5 (multiplier) = 350 MHz (internal clock speed of installed CPU).

Hardware Monitor Page

This page sets some of the parameters for the hardware monitoring function of this mainboard.



CPU Temperature	Use this item to set the threshold temperature for the CPU. The system will alert you if this temperature is exceeded.
-----------------	--

Chapter 3

CPU FAN Speed & VCCs	Use these items to set the parameters for the voltages that control the fans and the CPU core. If the values deviate by an amount greater than the values installed here, the hardware monitoring will alert you with a warning.
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Change Password

If you highlight this item and press **Enter**, a dialog box appears which lets you enter a Supervisor password. You can enter no more than six letters or numbers. Press **Enter** after you have typed in the password. A second dialog box asks you to retype the password for confirmation. Press **Enter** after you have retyped it correctly. The password is required at boot time, or when the user enters the setup utility.

Change or Remove the Password

Highlight this item and type in the current password. At the next dialog box, type in the new password, or just press Enter to disable password protection.

Exit

Highlight this item and press **Enter** to save the changes that you have made in the setup utility and exit the setup program. When the Save and Exit dialog box appears, press **Y** to save and exit, or press **N** to exit without saving.

Chapter 4

Software & Applications

Introduction

The support software CD-ROM that is included in the mainboard package contains all the drivers and utility programs needed to properly run our products. Below you can find a brief description of each software program, and the right location for your mainboard version. More information on each individual program might be available in a README file, located in the same directory as the software.

In order to run the software, put the support software CD-ROM in the CD-ROM drive, and execute the EXE file name given in the description below.

*Note: The correct path name for each software driver is provided, where **D:** identifies the CD-ROM drive letter – modify if necessary.*

Bus Master IDE Driver

The IDE Bus Master Drivers allows the system to properly manage the IDE channels on the mainboard. You only need to install an IDE driver if you are running Windows 95.

- ◆ Windows 95/98 – D:\IDE\M599LMR\WIN9X\SETUP.EXE
- ◆ Windows NT4.0 – D:\IDE\M599LMR\NT4

USB Driver

The USB Driver allows the system to recognize the USB ports on the mainboard. You need to install this driver if you are running Windows 95.

This driver is available for:

- ◆ Windows 95 – D:\USB\EUSBSUPP\USBSUPP.EXE
- ◆ Windows 95 (Chinese) –
D:\USB\CUSBSUPP\CUSBSUPP.EXE

Video Driver

The video drivers are available for Windows 95/98 and Windows NT. Look for the folders in:

- ◆ D:\VGA\M599LMR

Sound Driver

The Sound driver allows the system to generate optimal sound effects.

This driver is available for:

- ◆ DOS & Windows 3.x – D:\SOUND\Driver\8738AM\DOS-W31\
W31\
- ◆ Windows 95/98 – D:\SOUND\Driver\8738AM\W95-98\
W95-98\
- ◆ Windows NT – D:\SOUND\Driver\8738AM\NT40\
NT40\

There is also an Audio Rack application program available for:

- ◆ Windows 95/98 - D:\SOUND\Gamut\Audio Player

BIOS Update Utility

The BIOS Update utility allows you to update the BIOS setup file on your mainboard to a newer version. You can download the latest version of the BIOS setup available for your mainboard from the website.

- ◆ D:\UTILITY\AMIFL815.EXE

PC-Cillin Software

The PC-Cillin software program provides anti-virus protection for your system.

This program is available for:

- ◆ DOS – D:\PC-CILLIN\DOS\PCSCAN.EXE
- ◆ Windows 95 – D:\PC-CILLIN\WIN95\DISK1\SETUP.EXE
- ◆ Windows 98 – D:\PC-CILLIN\WIN98\SETUP.EXE

LAN Driver

The LAN driver is required by the onboard LAN adapter.
D:\LAN\Davicom9102

Modem Driver

The Modem driver is required by the onboard modem module.
D:\MODEM\8738\Win9x
D:\MODEM\SuperVoice\

Media Ring Talk Software

D:\MODEM\MediaRingTalk\

ADCM Software

The AMI Desk-Client Management software provides network management services.

This software is available for:

Windows 95/98 – D:\AMI ADCM\WIN95&98\SETUP.EXE

Using the PCI Sound Pro Application

1. Before you install the PCI Sound Pro drivers, make sure your Operating System has been installed, otherwise the PCI Sound Pro might be detected as “Other device” by the device manager of your OS.
2. After the drivers are properly installed, choose the MULTIMEDIA icon in the CONTROL PANEL when you need to use the Software Wave-Table drivers as a MIDI output device. Select the MIDI page and click on “C-media SoftMidi Synthesis (Win98) / Driver (Win95)”, then click “OK” to confirm.
3. A Windows application named Audio Rack is provided with the PCI Sound Pro drivers, which gives you control over all the audio functions through a user interface that is as simple to use as a home stereo system. We recommend that you use the System Mixer in the Audio Rack software to control your

computer's audio volume, recording device and the recording gain.

4. If the devices that you are using require the MIDI port as the control interface, you need to select the MULTIMEDIA icon in the CONTROL PANEL. Select the MIDI page and click on "CM8738 MPU-401" (Win98) or "CM8738/C3DX PCI Audio External MIDI Port" (Win95), and then click "OK" to confirm.
5. For more information, refer to the PCI Sound Pro manual in the CD which ships with this mainboard.

The Four Speakers System

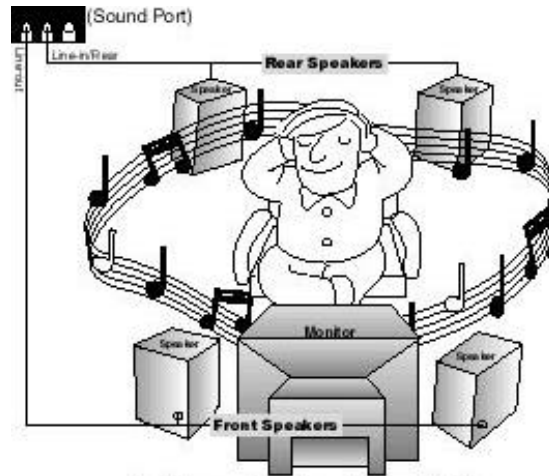
The onboard Sound Pro audio system supports 2 wave channels (front/rear) known as the 4 speaker system. If you are running applications which use the DirectSound® 3D or A3D® audio interface, your system can simulate realistic 3D sound through a 4 speaker setup. Follow the steps below to install a 4-speaker setup.

Speaker Installation

Connect the front two speakers to the Line-out jack on the sound ports extension bracket. Connect the rear two speakers to the Line-in/Rear jack on the sound ports extension bracket. The original Line-in can be moved to Aux.

Speaker Position

Set up your speakers similar to the following figure to get the best audio result.



A picture on the 4 speakers application.

Mixer Setup

There is a 4-speakers option in the Volume Control of the Mixer when you are setting up the PCI Audio Application. Click on the 4 SPK icon to enable this option. This means that the output to the rear speakers is sent through the Line-in/Rear jack. In order to avoid hardware conflicts, **DO NOT** enable this option when the Line-in/Rear jack is connected with a line-in device. While the 4 speakers mode is enabled, turn on/off the output of the front speakers and adjust the volume of the speakers so that the front/rear speakers have the same volume.

Demo

Execute the “Helicopter” demo in the C3D HRTF Positional Audio Demos of the PCI Audio Application. When you hear the helicopter flying behind you, it means that the rear speakers are working properly.