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M585LMR, Version 1.2
V6X/May 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 Réglement sur le matériel brouilieur du Canada.

Table of Contents

Chapter 1

Introduction

This mainboard uses the **VIAGRA HT8501/HT82C686A** 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 supports either an **AT** or **ATX power supply.** If you use an ATX supply, it supports all of the ATX power management features including **ACPI** (Advanced Configuration and Power management Interface) and **power saving modes**.

The mainboard supports a full set of **I/O ports** and **two expansion slots.** It supports hardware monitoring and the system ships with trend's **ChipAway Virus** virus protection system. The board adheres to the **Baby-AT form factor**.

Key Features

The key features of this mainboard include:

Socket-7 Processor Support

- Supports all recent socket-7 processors including the Intel **P55C** (Pentium MMX), the Cyrix/IBM **6x86L/6x86MX/MII**, the AMD **K6/K6-2/K6-III**, IDT **C6,** and **Winchip 2/2A** CPUs
- Supports socket-7 processors with system bus frequencies of **60/66/75/83/90/95/100 MHz**
- **CPU Plug and Play** support lets the firmware automatically configure the CPU
- **512K/1 MB/2 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**
- Supports ECC (Error Correction Code) error checking

Expansion Slots

- One **32-bit PCI slot**
- 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 AT/ATX power connector
- Support for Power button/Suspend Switch
- Supports Wake on Modem and Wake on Alarm

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

- 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 and system temperature and fan speeds
- Auto sense mainboard voltages
- Supports AMI's Desktop Client Manager Software (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 X3T12 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

- **PC-Cillin** provides automatic virus protection under Windows 95/98
- **AMI Desktop Client Manager** supports hardware monitoring for stand alone workstations or over a network
- **Gamut** is an audio application that includes MP3 encoding/decoding
- **SuperVoice** is Fax/Modem software with support for data and voice transmission
- **MediaRing Talk** is an internet telephone application.

Dimensions

- Baby-AT form factor (22cm x 22cm)

Package Contents

Your mainboard package ships with the following items:

- Mainboard
- This User's guide
- IDE cable
- Floppy diskette drive cable
- Audio ports and Game/MIDI port extension bracket
- Serial/parallel ports extension bracket
- VGA extension bracket
- 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
- ATX Form card (2 USB ports, IR port & PS/2 Port)

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:

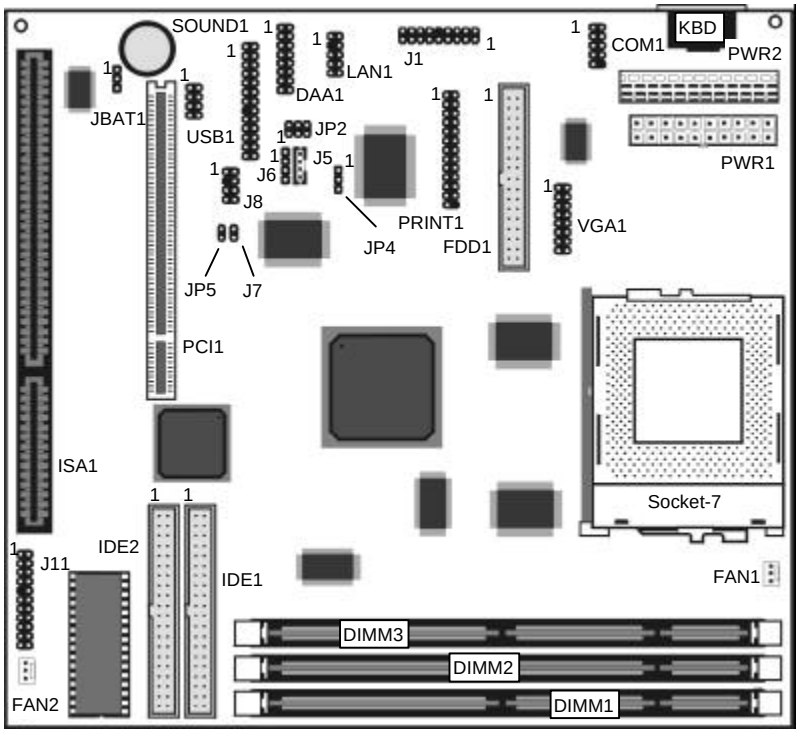
- Identify the mainboard components
- Install the correct processor
- Install one or more memory modules
- Verify that any jumpers or switches are at the correct setting
- Install the mainboard in the system chassis
- Install extension brackets/options
- Install any other devices and make the appropriate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

Note: *Before installing the mainboard, you must ensure that jumper JBAT1 is set to the Normal setting. See this chapter for information on locating JBAT1 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.



Install the Processor

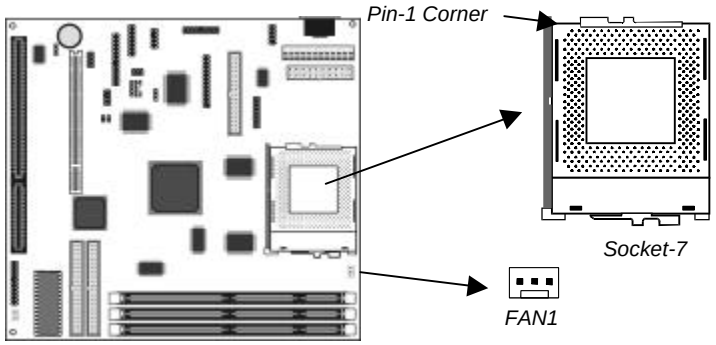
This mainboard is installed with a socket-7, and so it may be installed with any of the socket-7 processors including the Intel P55C (MMX) series, the Cyrix/IBM 6x86L/6x86MX/MII series, the AMD K6/K6-2/K-III series, the IDT C6/Winchip 2/2A series. The mainboard supports system bus speeds of 60, 66, 75, 83, 90, 95, 100 MHz.

The board supports CPU plug and play, so the system 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 clock 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.

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

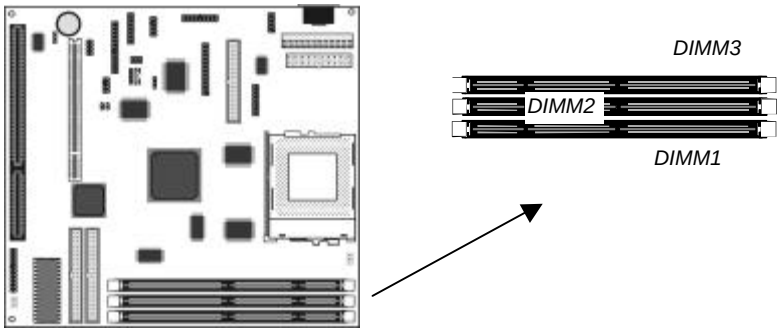
1. Locate the socket-7 and FAN1. Pull the locking lever out from the socket and swing it to the upright position.



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 to operate over a 100 MHz memory bus.

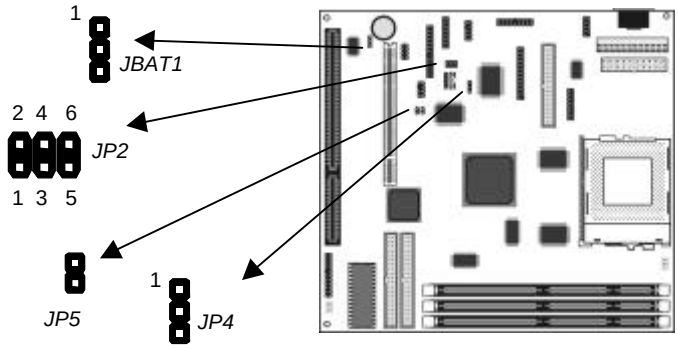
You can install any size of memory module from 16 MB up to 256 MB, so the maximum memory size is 3 x 256 MB = 768 MB.

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 that 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 JBAT1: 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 JP2: Fax/Modem & Audio System Enable/disable Jumper.

This jumper has two rows of three pins. The top row (pins 2-4-6) is used to enable or disable the onboard Fax/Modem. The bottom row (pins 1-3-5) is used to enable or disable the onboard audio system.

Function	Jumper Setting
Enable onboard Fax/Modem	Short Pins 4-6
Disable onboard Fax/Modem	Short Pins 2-4

Function	Jumper Setting
Enable onboard audio	Short Pins 3-5
Disable onboard audio	Short Pins 1-3

Note: *If you use the bottom row of pins to disable the onboard audio system, the Fax/Modem is disabled, even if you have set the top row of pins to the enable Fax/Modem setting.*

Jumper JP4: 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 2-3
Disable onboard LAN	Short Pins 1-2

Jumper JP5: SPDIF Voltage Out Selector.

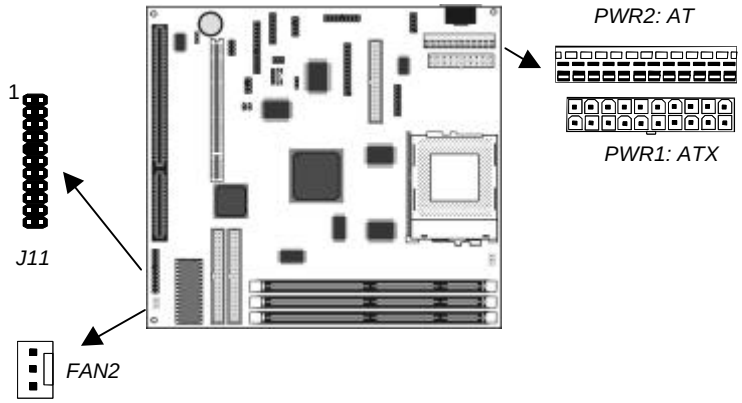
This 2-pin jumper lets you select the voltage for the output of the SPDIF digital audio connector on the mainboard.

Function	Jumper Setting
5 Volts	Short Pins 1-2
0.5 Volts	Open Pins 2-3

Install the Mainboard

Install the mainboard into the system chassis. This mainboard uses the baby-AT format. However, the board supports an AT and an ATX power supply so you can use either an AT or ATX system case. If you use an AT case, some of the ATX power management features might not function.

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.

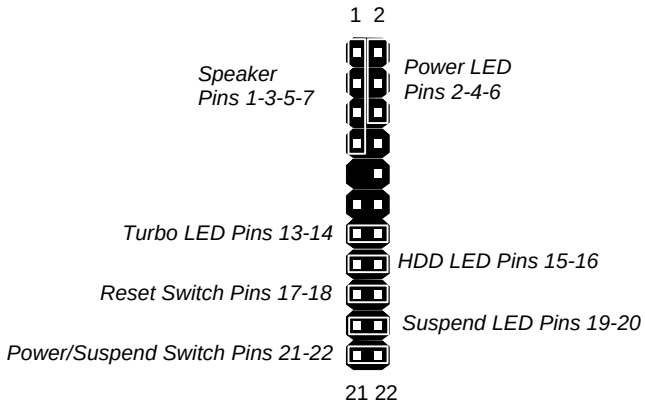


If you are using a case with an ATX power supply, connect the power cable from the ATX power supply unit to the power connector PWR1 on the mainboard.

If you are using a case with an AT power supply, connect the power cable from the AT power supply unit to the power connector PWR2 on the mainboard.

If your case has a chassis cooling fan, connect the cable from the fan to the fan power supply on the mainboard FAN2.

Connect the case switches and indicator LEDs to the bank of switch and LED connectors J11. See the illustration below for a guide to the pin functions of the J11 connector.



Install the Extension Brackets/Options

This mainboard ships with 5 extension brackets/modules:

- Audio ports and Game/MIDI bracket
- Serial/parallel ports bracket
- VGA bracket
- Fax/Modem DAA module
- 10BaseT/100BaseTX LAN bracket

As options, you can also obtain:

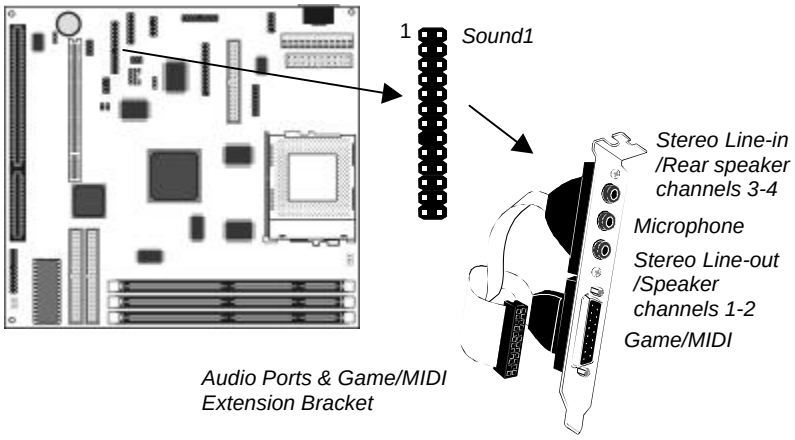
- Digital audio extension bracket
- ATX Form card

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.*

Audio Ports and Game/MIDI Port Extension Bracket

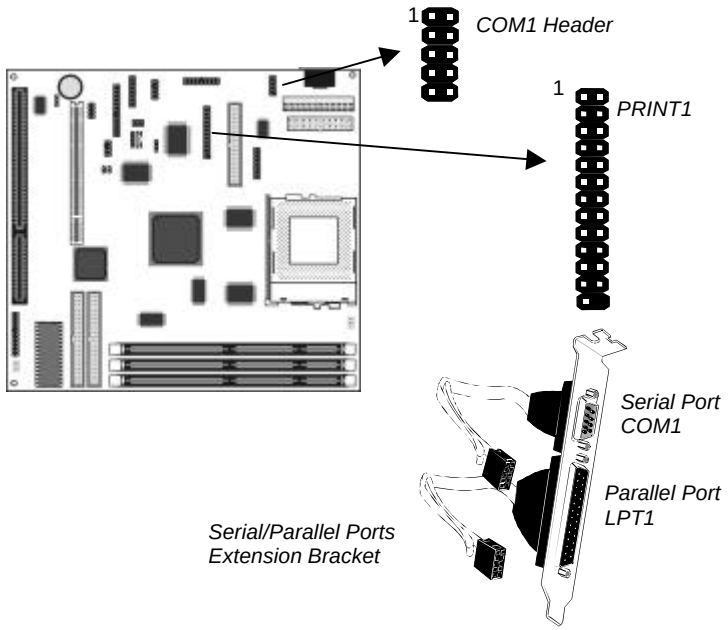
This bracket provides three audio jacks for stereo line in, stereo line out and microphone. In addition it has a 15-pin D-connector which can be used by either a joystick or a MIDI device.
If you are using a four channel speaker system, channel one and two are output through the Stereo Line-out, and the rear speaker channels three and four are output through Stereo Line-in.



1. On the mainboard, locate the SOUND1 header for this bracket.
2. Plug the cable from the bracket into the SOUND1 header.
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.

Serial/Parallel Ports Extension Bracket

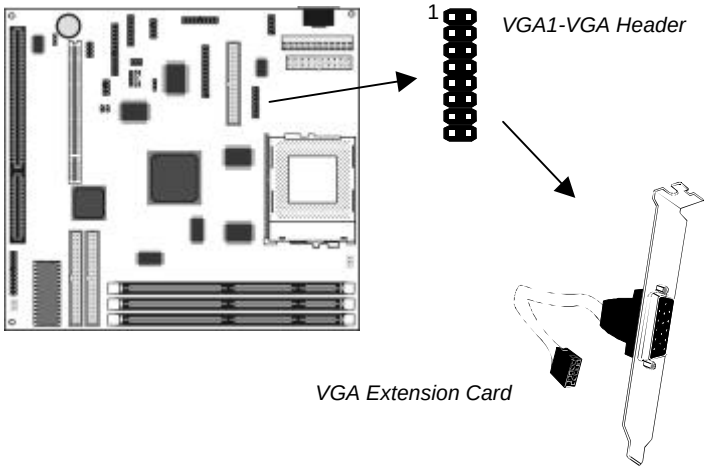
This bracket has one serial port - COM1 (9-pins) and one parallel port – LPT1 (25pins).



1. On the mainboard, locate the headers COM1 and PRINT1 for this bracket.
2. Plug the serial cable into COM1 and the parallel cable into PRINT1.
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.

VGA Extension Card

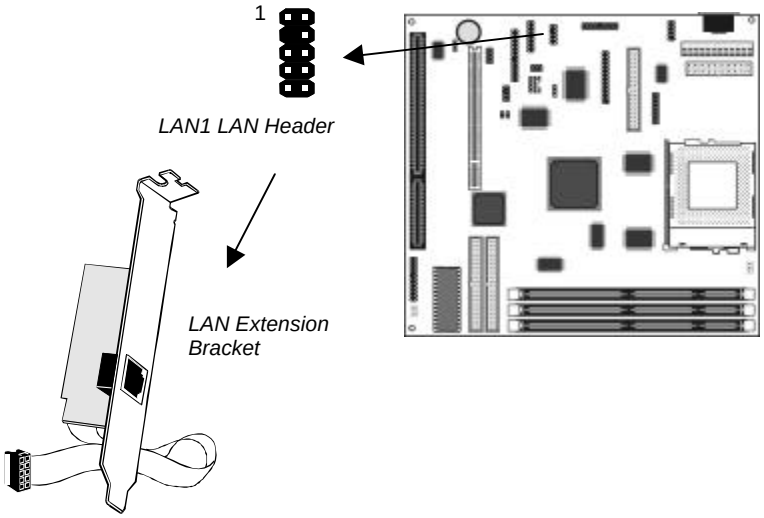
The VGA extension card has a 15-pin connector for an external monitor cable.



1. On the mainboard, locate the VGA1 header for this bracket.
2. Plug the cable from the bracket into the VGA1 header.
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.

LAN Network Adapter Extension Bracket

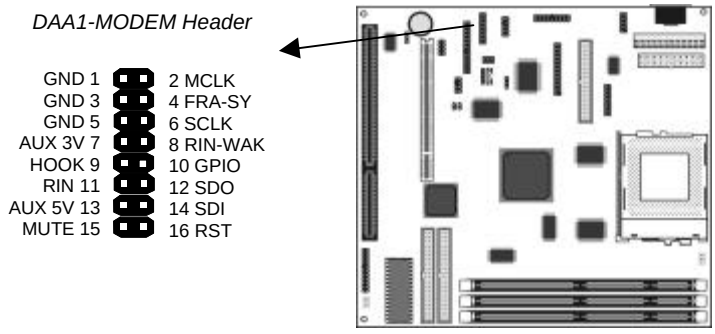
This bracket supports an RJ45 network connector and connects to the built in LAN header LAN1 on the mainboard.



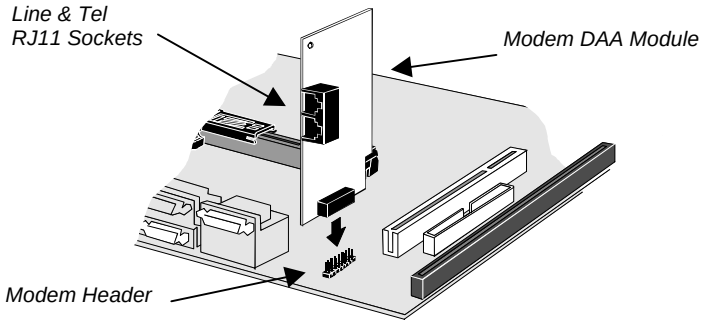
1. On the mainboard, locate the LAN1 header for this bracket.
2. Plug the cable from the bracket into LAN1.
3. In the system chassis, remove a blanking plate from one of the expansion slots and install the extension bracket in the slot. Use the screw that held the blanking plate in place to secure the extension bracket.

Fax/Modem DAA Module

The Fax/Modem DAA module 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.

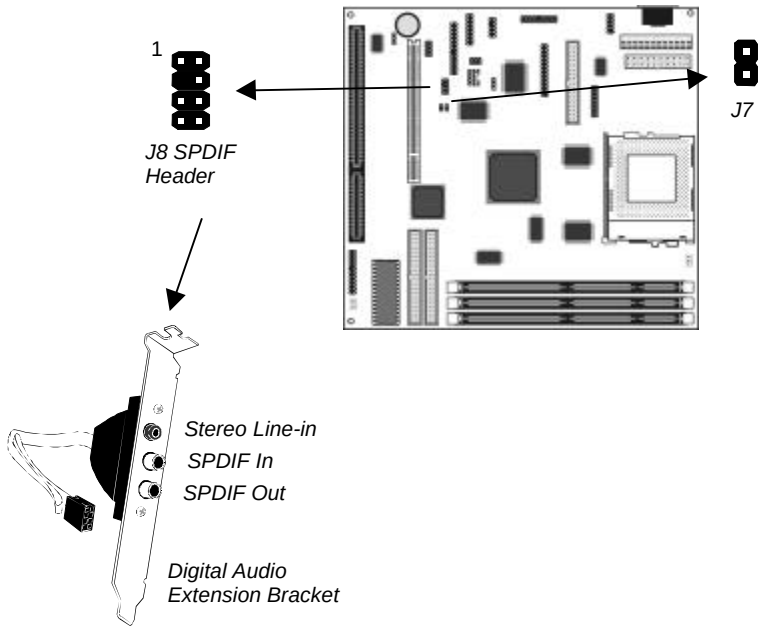


1. Locate the DAA1 modem header on the mainboard.
2. Plug the Fax/Modem DAA module into the DAA1 modem header.
3. Remove the blanking plate adjacent to the Fax/Modem DAA module.



Optional 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 J8 SPDIF header for this bracket.
2. Plug the cable from the bracket into J8.
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.

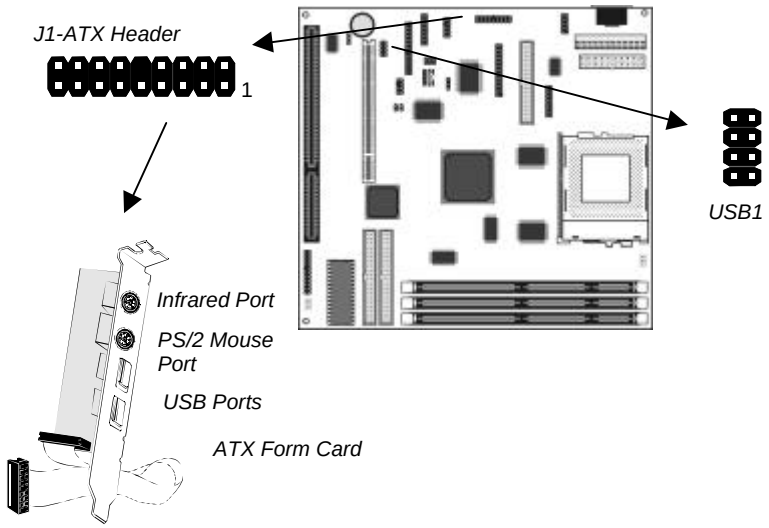
Internal Digital Audio

If you have an 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 J7.

> ***Note:*** *If you have connected a digital audio bracket to J8, You cannot use the J7 connector.*

Optional ATX Form Card

This ATX Form Card provides a mini-DIN PS/2 port for infrared, one mini-DIN port for a PS/2 mouse. In addition it has two USB (Universal Serial Bus) ports.

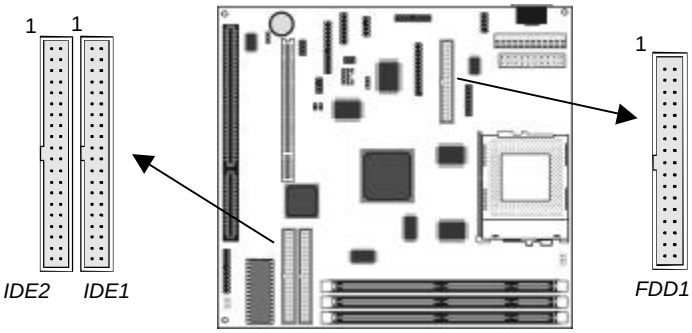


1. On the mainboard, locate the J1 ATX header for this bracket.
2. Plug the cable from the bracket into the J1 ATX header.
3. In the system chassis, remove a blanking plate from one of the expansion slots and install the extension bracket in the slot. Use the screw that held the blanking plate in place to secure the extension bracket.

Note: *The mainboard has a separate header USB1 that can be used to install a third party assembly of USB ports. You can install two USB ports on the ATX form card and two more USB ports using USB1 without causing conflicts.*

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.

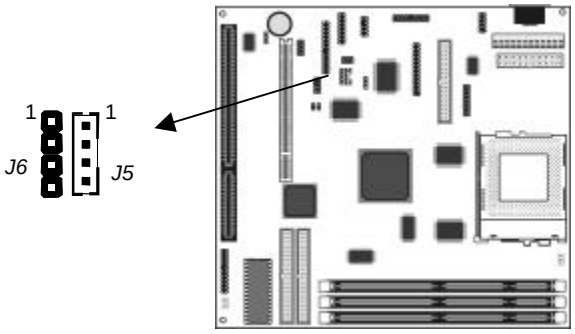
Install the device(s) and supply power from the system power unit. Use the cable provided to connect the device(s) to the Primary IDE channel connector IDE1 on the mainboard.

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

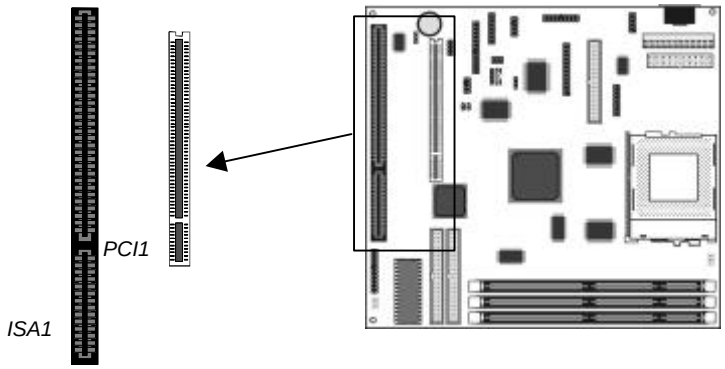
If you have installed a CD-ROM drive or a DVD drive, you can connect the sound output of the drive to the built-in sound system.

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 one PCI 32-bit expansion slots and one 8/16-bit ISA slot.



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

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.

Chapter 3

BIOS Setup

Introduction

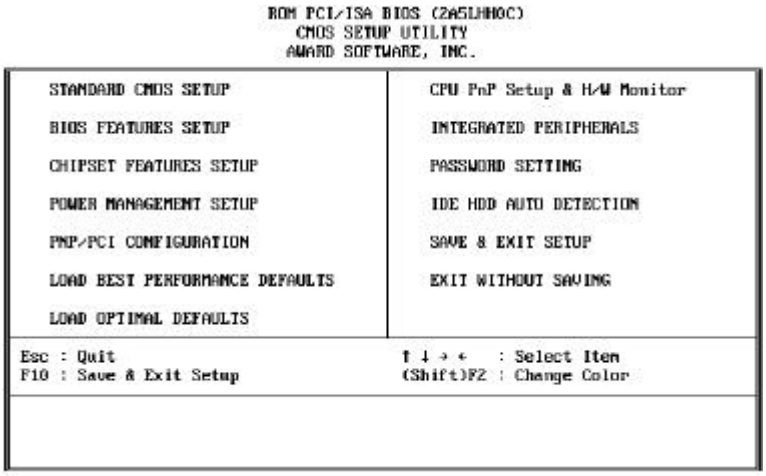
The BIOS setup utility stores information about your computer such as the date and time, the kind of hardware you have installed, and so on. Your computer uses this information to initialize all the components at boot-up time, and make sure that everything runs smoothly.

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.

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 drives, etc.

Running the Setup Utility

Each time your computer starts, before the operating system is booted, a message appears on the screen that prompts "*Press DEL to run SETUP*". When you see this message, press the **Delete** key and the Main Menu page of the setup utility appears on your monitor.



You can use the cursor arrow keys to highlight any of the options on the Main Menu 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.

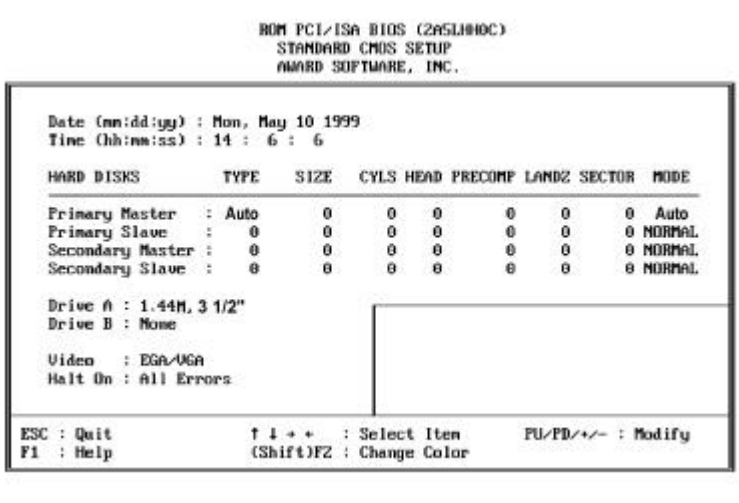
Some of the options on the Main Menu page lead to tables of items with installed values. In these pages, use the cursor arrow keys to highlight the items, and then use the **PgUp** and **PgDn** keys to cycle through the alternate values for each of the items. Other options on the Main Menu page lead 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 high-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.

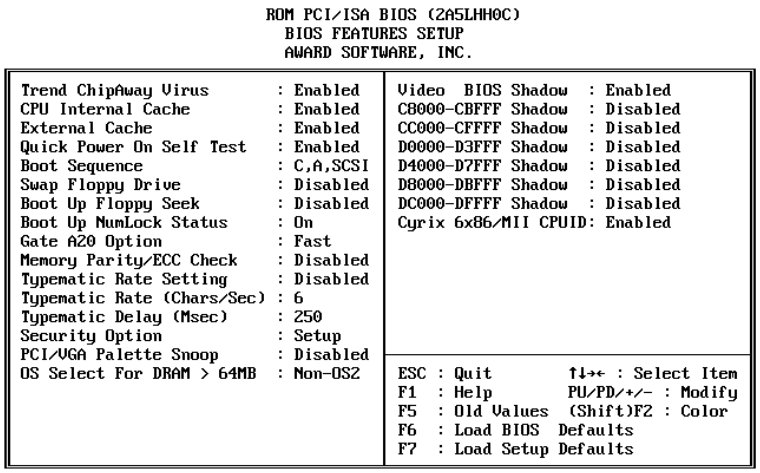


Date & Time	Use these items to install your system with the correct date and time
Primary Master **Primary Slave** **Secondary Master** **Secondary Slave**	These items show the characteristics of any hard disk drives on the four available IDE channels. (Note that SCSI hard disk drives do not appear here.) You can automatically install most modern hard disks using the IDE HDD Auto Detect Option from the main menu. However, if you find that a drive cannot be automatically detected, you can use these items to manually enter the characteristics of the drive. The documentation provided with your drive provides the data you need to fill in the values for CYLS (cylinders), HEAD (read/write heads), and so on.
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.
Video	This item defines the video mode of your system.

	Set it to EGA/VGA.
Halt On	This item determines what kind of errors are sufficient to halt the system.

BIOS Features 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.

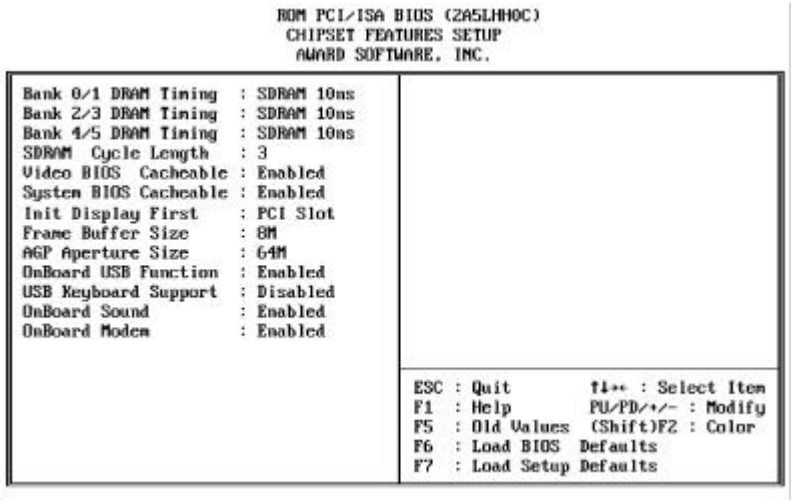


Trend Chipaway Virus	This mainboard has built-in virus protection in the firmware. Use this item to enable or disable the built-in virus protection.
CPU Internal Cache	All the processors supported by this system have internal level-1 cache so leave this item enabled.
External Cache	Most of the processors supported by this system have external level-1 cache so leave this item enabled. The exceptions are the SEPP Celerons running at 266 and 300 MHz.
Quick Power On Self Test	If you enable this item, the power on testing will be shortened so that the system boots faster.
Boot Sequence	This item determines the order and sequence of the drives that the system will search to boot an operating system.

Swap Floppy Drive	If you have two floppy diskette drives installed, you can use this item to change the drive letter assignments so that drive B becomes drive A.
Boot Up Floppy Seek	If you enable this item, the system checks the tracks on the floppy drives at boot time. Don't enable this item unless you have an old 360K, 5.25" floppy drive.
Boot Up NumLock Status	This item determines if your system starts up with the Num Lock key active or not active.
Gate A20 Option	This item determines how the system runs legacy software written for early X86 processors. Leave this item at the default value.
Typematic Rate Setting	If this item is enabled, you can use the following two items to change the operation of your keyboard.
Typematic Rate (Chars/Sec)	If you have enabled *Typematic Rate Setting*, you can use this item to determine how many characters are generated per second by a held down key.
Typematic Delay (Msec)	If you have enabled *Typematic Rate Setting*, you can use this item to determine how long a key needs to be held down before it generates a character.
Security Option	If you have installed password protection, use this item to determine if the password is required at start-up or on entry to the setup utility.
PCI/VGA Pallete Snoop	This item might be required to overcome some problems with non-standard VGA cards.
OS Select For DRAM > 64 MB	Enable this item if you are running OS/2 and you have installed more than 64 MB memory.
Video BIOS Shadow	This item allows the video BIOS to be copied to system memory for faster execution.
XXXXX-XXXXX Shadow	These items allow the BIOS of other devices to be copied to system memory for faster execution.

Chipset Features Setup Page

This page sets some of the timing parameters for your system. Before making changes to this page, you must ensure that your hardware supports the new values.

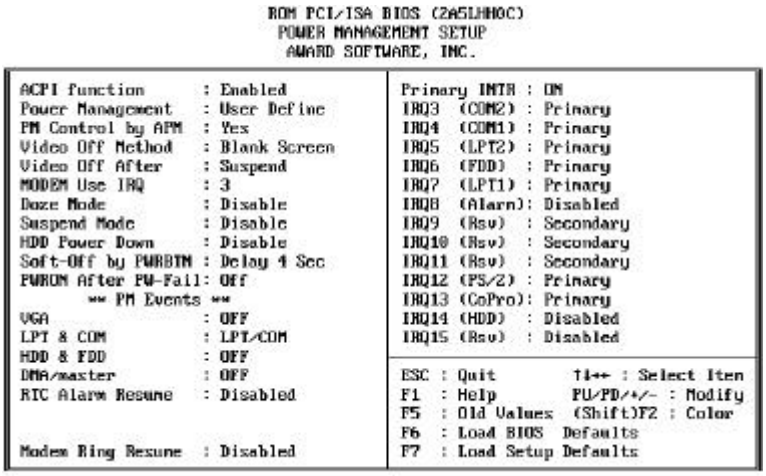


Bank 0/1 2/3 4/5 DRAM Timing	These three items set the timing parameters for the memory that you have installed. Leave these items at the default values.
SDRAM Cycle Length	This item install timing parameters for the installed SDRAM memory. We recommend that you leave this item at the default value.
Video BIOS Cacheable **System BIOS Cacheable**	These items allow the video and/or system to be cached in memory for faster execution. We recommend that you leave these items at the default value.
Init Display First	Use this item to define if your primary display adapter is installed in a PCI slot or is installed on the AGP bus.
Frame Buffer Size	Use this item to define the amount of main memory that can be shared as video memory for the onboard graphics adapter.

AGP Aperture Size	This item defines an aperture size for an AGP graphics adapter. It defines the section of the PCI memory address space reserved for graphics.
Onboard USB Function	Enable this item if you intend using the USB ports that are integrated on this mainboard.
USB Keyboard Support	Enable this item if you intend using a USB keyboard.
OnBoard Sound	Use this item to enable or disable the onboard sound system.
OnBoard Modem	Use this item to enable or disable the onboard fax/modem.

Power Management Setup Page

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



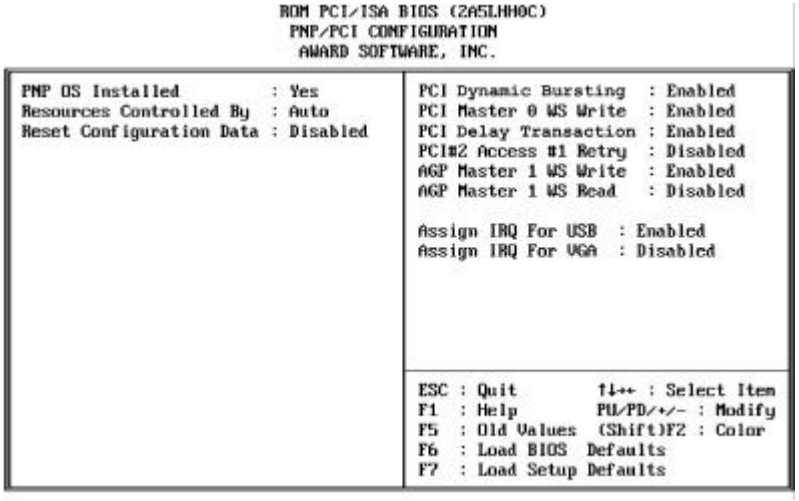
ACPI function	This mainboard supports ACPI (Advanced Configuration and Power Management Interface.) Use this item to turn the feature on or off.

Power Management	Use this item to enable or disable power management. If you set to *Max Saving*, the system powerdown timeouts are short. If you set to *Min Saving*, the powerdown timeouts are longer. If you set to *User Define*, you can set the powerdown timeouts manually using the items below.
PM Control by APM	If you enable this item, it allows an operating system with APM (Advanced Power Management) such as WIN 95/98 to operate power management routines on your system.
Video Off Method	This item defines how the video is powered down.
Video Off After	This item defines which power-saving mode is required to power down the video.
MODEM Use IRQ	Set this item with the IRQ used by an optional Modem so that the system can resume from a soft powerdown when an incoming call is received.
Doze Mode	Use this item to set a powerdown timeout for the power saving doze mode. If the time passes with no activity, the system enters doze mode.
Suspend Mode	Use this item to set a powerdown timeout for the power saving suspend mode. If the time passes with no activity, the system enters suspend mode.
HDD Power Down	Use this item to set a powerdown timeout for the hard disk drive. If the time passes with no activity, the hard disk powers down.
Soft-Off by PWRBTN	Under ACPI (advanced configuration and power interface) the system can be turned off mechanically (by the power button) or it can undergo a software power off. If the system has been turned off by software, the system can be resumed by a LAN, MODEM or ALARM wake up signal. This item allows you to define a software power off using the power button. If the value is set to Instant-Off, the power button will automatically cause a software power off. If the value is set to Delay 4 Sec. the power button must be held down for a full four seconds to cause a software power off.

PWRON After PW-Fail	Use this item to set a system power state when power restores after sudden AC power loss.
VGA	If this item is enabled, any video activity can resume the system from a software powerdown or a power saving mode.
LPT & COM	If this item is enabled, any activity through the serial port or the parallel port can resume the system from a software powerdown or a power saving mode.
HDD & FDD	If this item is enabled, any activity on the hard disk drive(s) or the floppy disk drive(s) can resume the system from a software powerdown or a power saving mode.
DMA/Master	If this item is enabled, any activity on the system DMA channels can resume the system from a software powerdown or a power saving mode.
RTC Alarm Resume	If this item is enabled, you can use the following items to set an alarm time on the system realtime clock. The alarm can wake the system up from a power saving mode or a software power down.
Modem Ring Resume.	If this item is enabled, the system can be resumed from a power-saving mode or a software powerdown by an incoming call to the fax/modem.
Primary INTR	If you enable this item, you can use the following list of interrupts to select which interrupts have an effect on the power management routines.
IRQ3 – IRQ15	Interrupt Requests are allocated to various system resources. Use these items to determine the effect of any activity on the IRQ line. If you select Disabled there is no effect. If you select Secondary, activity on the IRQ will reset the powerdown timeouts. If you select Primary, activity on the IRQ will reset the powerdown timeouts and resume the system from a software power down or a power-saving mode.

PNP/PCI Configuration 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.



PNP OS Installed	Enable this item if you are using an O/S that supports Plug and Play such as Windows 95 or 98.
Resources Controlled By	This item lets you select for Automatic or Manual configuration of devices. If you set it to manual, new items appear. You can use these items to reserve an interrupt request line (IRQ) and a DMA channel for the device by setting the value to Legacy ISA.
Reset Configuration Data	Your system stores information on the configuration of Plug and Play devices. If you enable this item, the system will delete the current data and create new data at the next system start up.
PCI Dynamic Bursting	This item determines the operation of Dynamic Bursting for PCI bus. Leave this item at the default value.

PCI Master 0 WS Write	This item defines a timing parameter for the PCI bus. Leave this item at the default value.
PCI Delay Transaction	This item can be enabled if the system has an embedded 32-bit write buffer to support delay transaction cycles. Leave this item at the default value.
PCI#2 Access #1 Retry	This item defines a timing parameter for the PCI bus. Leave this item at the default value.
AGP Master 1 WS Write	This item defines a timing parameter for the AGP bus. Leave this item at the default value.
AGP Master 1 WS Read	This item defines a timing parameter for the AGP bus. Leave this item at the default value.
Assign IRQ for USB	If this item is enabled, an IRQ will be assigned to the onboard USB ports.
Assign IRQ for VGA	If this item is enabled, an IRQ will be assigned to the PCI VGA graphics system.

Load Best Performance Defaults

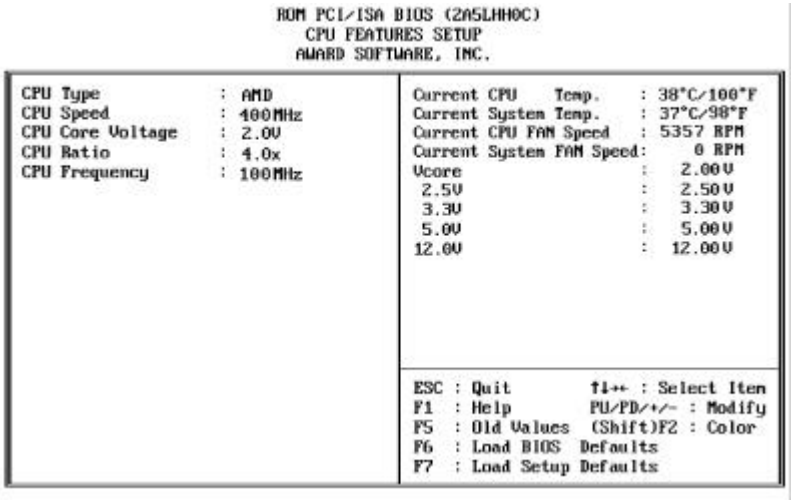
If you select this item and press **Enter** a dialog box appears. If you press **Y**, and then **Enter**, the setup utility is loaded with a set of best performance default values. The setup default values are quite demanding and your system might not function properly if you are using slower memory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

Load Optimal Defaults

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 should allow your system to function with most kinds of hardware and memory chips.

CPU PnP Setup & Hardware Monitor Page

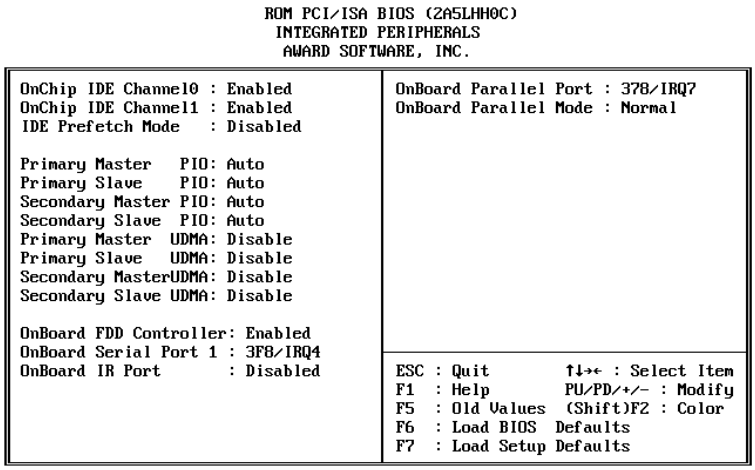
This page uses Plug and Play technology to setup your system for the kind of CPU you have installed. This page appears blank below because it does not have defaults.



CPU Type **CPU Core Voltage**	These two items show the kind and core voltage of CPU that is installed in your system.
CPU Speed	This item shows the CPU speed that has been auto-detected by the system. If you set this to manual, you can use the following two items to manually insert a system bus and clock speed.
CPU Ratio	The ratio is a multiplier. The multiplier times the system bus must equal the clock speed of the installed CPU
CPU Frequency	This item shows the system bus speed. The system bus speed times the multiplier must equal the speed of the installed CPU.
Current CPU / System Temp. / FAN Speed	These four items show the threshold temperature and fan speed for the CPU and system.
Vcore – 12 V	These items show the diverse voltages of CPU and system.

Integrated Peripherals Setup Page

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



OnChip IDE Channel0	Use this item to enable or disable the onboard Primary IDE channel.
OnChip IDE Channel1	Use this item to enable or disable the onboard Secondary IDE channel.
IDE Prefetch Mode	Use this item to enable prefetching if your system supports it.
Primary / Secondary Master / Slave PIO	The primary and secondary IDE channels can each support a Master and Slave device. Use these items to enable a Programmable Input/Output mode for each of the devices.
IDE Primary / Secondary Master / Slave UltraDMA	The primary and secondary IDE channels can each support a Master and Slave device. Use these items to enable an UltraDMA mode for each of the devices.
OnBoard FDC Controller	Use this item to enable or disable the onboard floppy disk drive controller.
OnBoard Serial Port 1	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 set an address for an optional infrared port. If you set an address or use the Auto setting, a new item appears called UART 2 Mode. Use this item to set the Infrared protocol. Use the other new items to define the characteristics of the infrared port.
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.

Password Settings

If you highlight this item and press **Enter**, a dialog box appears which lets you enter a 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.

IDE HDD Auto Detection

This item automatically detects and installs any hard disk drives installed on the primary and secondary IDE channel. Most modern drives can be detected. If you are using a very old drive that can't be detected, you can install it manually.

Setup will check for two devices on the primary IDE channel and then two devices on the secondary IDE channel. At each device, the system will flash an N in the dialog box. Press **Enter** to skip

the device and proceed to the next device. Press **Y**, then **Enter** to tell the system to auto-detect the device.

Save and Exit Setup

Highlight this item and press **Enter** to exit the Setup utility without saving any changes that you have made.
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 return to the setup main menu.

Exit Without Saving Option

Highlight this item and press **Enter** to discard any changes that you have made in the setup utility and exit the setup program. When the Exit Without Saving dialog box appears, press **Y** to discard changes and exit, or press **N** to return to the setup main menu.

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\M585LMR\WIN9X\SETUP.EXE
- Windows NT4.0 – D:\IDE\M585LMR\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\M585LMR

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\
- Windows 95/98 – D:\SOUND\Driver\8738AM\W95-98\
- Windows NT – D:\SOUND\Driver\8738AM\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\AWDFL711.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. SuperVoice is a suite of modem applications for data and voice transmissions.
D:\MODEM\8738\Win9x
D:\MODEM\SuperVoice\

Media Ring Talk Software

MediaRing Talk provides an internet telephone for the onboard modem.
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

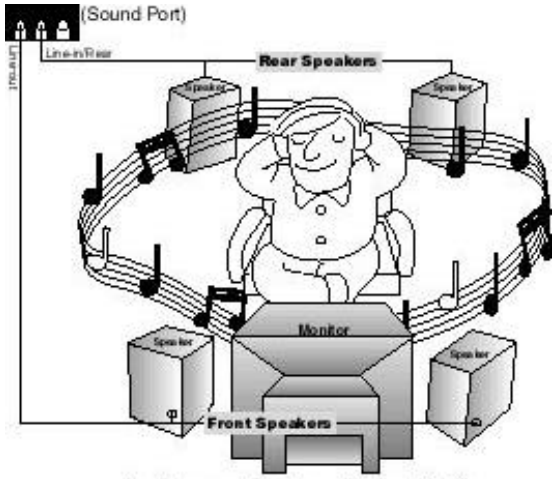
The onboard Sound Pro audio system supports 2 wave channels (front/rear) known as the 4 speaker system. If you are running applications which use the DirectSound® 3D or A3D® audio interface, your system can simulate realistic 3D sound through a 4 speaker setup. Follow the steps below to install a 4-speaker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