Federal Communications Commission (FCC) Statement

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.

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TABLE OF CONTENTS

Introduction

The CPV4-T mainboard features a Socket 370 for powerful Intel PPGA/FC-PGA Celeron or FC-PGA Pentium III processors. The mainboard incorporates the new VIA Apollo Pro 133A (694X/686A) chipset that supports a 66/100/133 MHz frontside bus (FSB). Three 168-pin DIMM connectors enable you to install up to 1.5 GB of memory using VCM (Virtual Channel Memory) or SDRAM memory modules. The Sound Blaster AC '97 Sigmatel STAC 9721 audio chipset provides audio functionality. The full range of I/O ports includes two USB ports, PS/2 ports for a PS/2 mouse and keyboard, and three audio connectors. With the auxiliary USB connector, you can connect two more USB devices. An audio modem riser (AMR) card enables you to install a fax/modem. Five PCI slots and one ISA slot provide add-in card options.

Using This Manual

This manual is designed to help you build a reliable Personal Computer based on the CPV4-T platform.

Introduction

Includes an introduction, a checklist of the items that ship with this mainboard, and a summary of the principal features and components.

Installing Hardware

Explains how to prepare your mainboard for use, how to install it in a computer case, and how to make the various connections to other computer components and peripheral items.

Using the Firmware

Explains how to use the system Setup utility that is stored in the mainboard's firmware.

Checklist

The CPV4-T mainboard ships with the following components:

- ❑ CPV4-T mainboard
- ❑ One floppy disk drive ribbon cable
- ❑ One IDE ribbon cable (Ultra DMA 66)
- ❑ One CD-ROM with support software driver
- ❑ One user's manual

If any item is missing, or any item appears damaged, contact your mainboard vendor immediately.

CPV4-T Features and Benefits

The CPV4-T mainboard supports Intel's PPGA/FC-PGA Celeron or FC-PGA Pentium III processors. The CPV4-T mainboard features an integrated audio system and an AMR (Audio Modem Riser) slot for the easy installation of a fax/modem.

Processor Information

Supports Intel PPGA/FC-PGA Celeron 66 MHz FSB and FC-PGA Pentium III 100/133 MHz FSB processors

One onboard CPU fan header

VRM Rev. 8.4 components installed onboard

Main Memory

Three 168-pin DIMM sockets support VCM/SDRAM modules

Up to 1.5 GB memory

The system supports three SDRAM memory modules for a maximum memory of 1.5 GB. You can install high-performance PC 100 or PC 133 memory modules operating over a 66/100/133 MHz frontside memory bus. VCM (Virtual Channel Memory) is also supported. Synchronous and asynchronous FSB mode provides more flexibility for processor to memory operation.

Chipset Information

VIA 694X base chipset supporting 66/100/133 MHz FSB

VIA 686A I/O integrated peripheral controller chipset/hardware monitor

Sound Blaster AC '97 Sigmatel 9721 Codec audio chipset

The VIA 694X chipset provides a full range of FSB support for Intel 66/100/133 PPGA/FC-PGA processors. This economical chipset provides VCM (Virtual Channel Memory) support, and enables synchronous and asynchronous frequency operation between the processor and the memory over a wide frequency range. ECC and memory parity features are optional.

The VIA 686A I/O chipset is fully PC99, ACPI v1.0, and APM v1.2 compliant and features a hardware Sound Blaster AC'97 audio function. The integrated RTC has extended 256 bytes of CMOS RAM.

Integrated AC '97 Codec Audio

Integrated hardware Sound Blaster AC '97 Sigmatel STAC 9721 Codec audio chipset

Compatible with Sound Blaster and MS DirectSound, DirectSound 3D and DirectMusic specifications

The integrated audio system supports industry standard specifications including 3D sound. The audio system includes three audio jacks (line-in, line-out, and microphone) and supports full-duplex operation under Windows 95/98. A game port is also provided.

BIOS Information

AMI Plug and Play flash BIOS
ACPI/Deep Green/Energy Star/PC97, PC98, and PC99 compliant
Blinking LED for sleep mode and other functions
Year 2000 compliant

The system BIOS supports automatic detection and configuration of the processor, hardware monitoring, and the Advanced Configuration and Power management Interface (ACPI) specification. The ACPI specification provides easy configuration and energy-efficient operation.

Disk Drive & System I/O

Two onboard dual-channel Ultra DMA 33/66 PCI Bus-Master IDE ports

One floppy drive connector supporting floppy disk drives up to 2.88 MB

Two 16550 compatible high speed serial ports

One ECP/EPP high speed parallel port

Four USB Rev 1.1 ports compatible with Intel Universal HCI v1.1

One SIR (infrared) connector

One PS/2 mouse port and one PS/2 keyboard port

One game port

One line-in jack, one line-out jack, and one microphone jack

The mainboard is installed with a full suite of I/O ports including two PCI IDE channels that support bus mastering Ultra DMA 33/66.

Expansion Slots

One 32-bit AGP slot

Five 32-bit PCI expansion slots

One audio modem riser (AMR) slot

One legacy 8/16-bit ISA expansion slot

Five 32-bit PCI slots let you add in a variety of extra features to the system. The AMR slot permits the easy installation of a third-party audio modem riser (AMR) card. The AMR card can be designed and specified to meet the telecommunications regulations for fax/modems in whatever territory you are using the mainboard. The 8/16-bit ISA slot enables you to install legacy add-in cards. The 32-bit accelerated graphics port (AGP) enables you to connect a 32-bit graphics card.

One AMR slot is shared with one ISA slot—you can use one slot or the other, but you cannot use both slots at the same time.

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Voltage and Power

PIN	Description	PIN	Description
1	3.3V	11	3.3V
2	3.3V	12	-12V
3	Ground	13	Ground
4	+5V	14	PS-ON
5	Ground	15	Ground
6	+5V	16	Ground
7	Ground	17	Ground
8	Power OK	18	-5V
9	5VSB	19	+5V
10	+12V	20	+5V
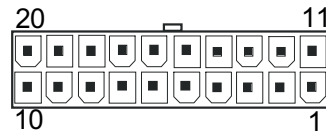
The system is assembled with an ATX power supply that supports all the power management benefits of the ATX system including software power down, power saving modes, and wake-up alarms for modems, networks and a realtime clock.

Physical Dimensions

ATX (12-inch x 7.5-inch)

Double row ATX connectors

The ATX format lets you install the mainboard in a variety of full-size ATX cases.

INSTALLING HARDWARE

Introduction

This chapter explains how to use your CPV4-T mainboard to build a powerful computer system. At a minimum, you will need the following components in order to build a fully functioning system.

- ❑ Computer case with ATX power supply
- ❑ Intel Socket 370 PPGA/FC-PGA Celeron or FC-PGA Pentium III processor
- ❑ One SDRAM memory module
- ❑ One graphics adapter
- ❑ One floppy disk drive
- ❑ One UDMA 33/66 IDE hard disk drive
- ❑ One CD-ROM drive
- ❑ One display monitor
- ❑ One PS/2 mouse
- ❑ One PS/2 keyboard
- ❑ One set of loudspeakers

Use the system I/O ports and expansion slots to add many more features and components to your system than the essential items listed above.

Safety Measures

Computer components and electronic circuit boards can be damaged by discharges of static electricity. Working on computers that are still connected to a power supply can be extremely dangerous. Follow the simple guidelines below to avoid damage to your computer or yourself.

❑ Always disconnect the mainboard from the ATX power supply, and disconnect the computer from the power outlet whenever you are working inside the computer case.

❑ If possible, wear a grounded wrist strap when you are installing the mainboard or working inside the computer case. Alternatively, discharge any static electricity by touching the bare metal chassis of the computer case, or the bare metal body of any other grounded appliance.

❑ Hold electronic circuit boards by the edges only. Do not touch the components on the mainboard unless it is necessary to do so. Do not flex or stress the circuit mainboard.

❑ Leave components inside the static-proof shipping package until you are ready to use the component for the installation.

CPV4-T Mainboard Guide
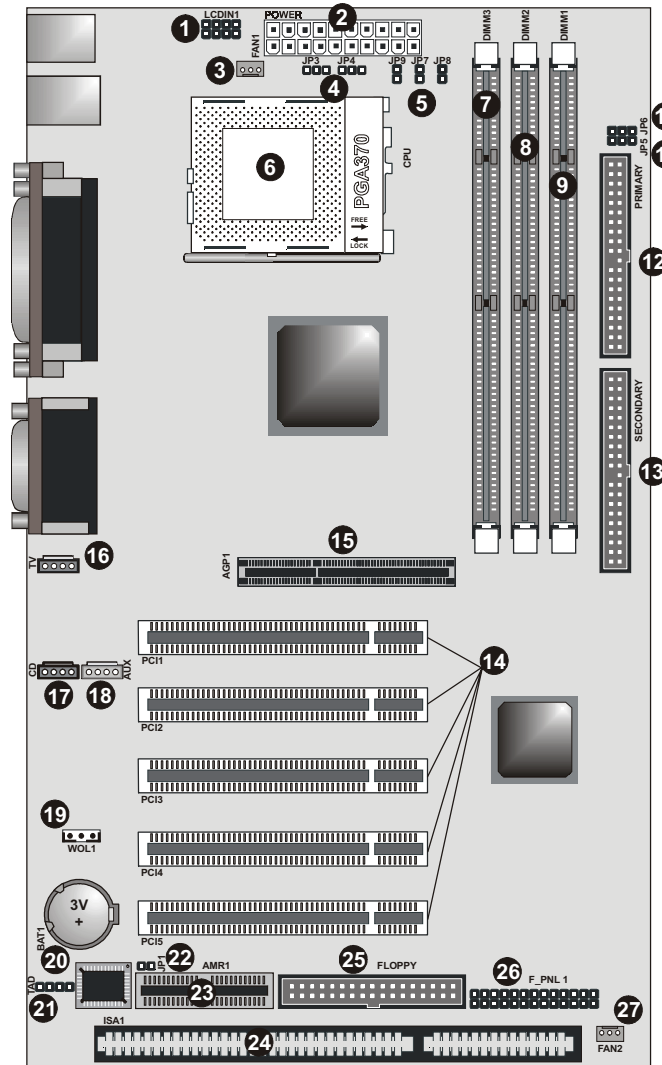
Note: Because of optional items and design changes, your mainboard may not be identical to the one shown in the illustration.

Key to Mainboard Components

No.	Name	Function
1	LCDIN1	Connector for USB 3 and 4
2	POWER	Socket for the ATX power supply cable
3	FAN1	Power supply for 12V CPU cooling fan
4	JP3	Select system bus frequency jumpers
	JP4	
5	JP7	Select Intel processor jumpers
	JP8	
	JP9	
6	CPU	Socket 370 for PPGA/FC-PGA Celeron or FC-PGA Pentium-III processors
7	DIMM3	Three slots for VCM/SDRAM memory modules
8	DIMM2	
9	DIMM1	
10	JP6	Clear password jumper
11	JP5	Clear CMOS jumper
12	PRIMARY	Primary IDE channel connector
13	SECONDARY	Secondary IDE channel connector
14	PCI 1 ~ 5	32-bit PCI expansion slots
15	AGP1	Accelerated graphics port
16	TV	Audio-in connector for TV-tuner card
17	CD	Audio-in connector for CD-ROM/DVD drive
18	AUX	Audio-in connector for AUX_IN
19	WOL1	Wake On LAN connector
20	BAT1	CMOS memory / Realtime clock battery
21	TAD	(Telephone Answering Device) Audio-in connector for voice modem card
22	JP1	Select AMR card as master/slave device
23	AMR1	AMR slot for Audio Modem Riser card
24	ISA1	One 8/16-bit ISA expansion slot
25	FLOPPY	Floppy disk controller connector
26	F_PNL1	Connectors for case switches and indicators
27	FAN2	Power supply for 12V chassis cooling fan

Input/Output Ports

Like most ATX mainboards, this mainboard is installed with a two-tier row of I/O ports. Refer to the illustration below:
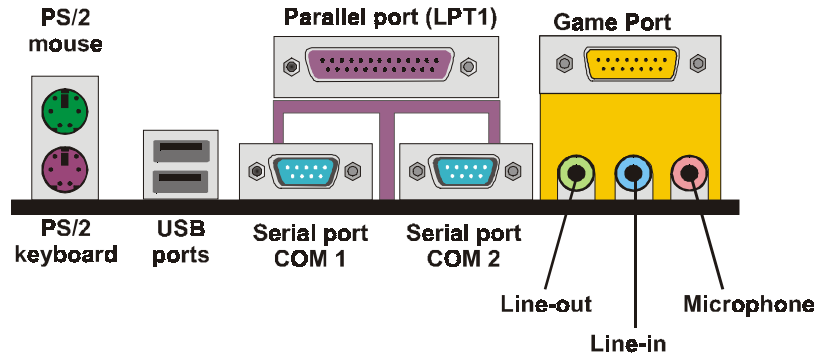
I/O Port Color Coding

The industry has adopted a standard color code to identify many of the I/O ports used in today's systems.

Connector	Color
PS/2 compatible mouse	Green
PS/2 compatible keyboard	Purple
USB	Black
Parallel	Burgundy
Serial	Teal or Turquoise
MIDI/Game	Gold
Audio line-out	Lime
Audio line-in	Light blue
Microphone	Pink

Pre-Installation Procedure

Before you install your mainboard into a computer case, it's convenient to install the processor and memory modules, and set all the jumpers.

Install the Processor

Choosing a Processor

This mainboard has a Socket 370 that can only be installed with a PPGA (Plastic Pin Grid Array)/FC-PGA (Flip Chip PGA) Celeron or FC-PGA Pentium III processor. Take care that you do not purchase a SEPP (Single Edge Processor Package) Celeron or a Slot 1 Pentium III. Also, do not try to install a Socket 7 processor that is similar in design and appearance to the PPGA/FC-PGA Celeron or FC-PGA Pentium III.

PPGA/FC-PGA Celeron and FC-PGA Pentium III processors ship with clock speeds operating over a 66/100/133 MHz frontside bus. All current PPGA/FC-PGA Celeron and FC-PGA Pentium III processors are supported by this mainboard.

Make sure that your processor includes a heat sink/cooling fan assembly. Today's high-speed processors must be cooled in order to ensure reliable operation.

We strongly recommend that you don't try to run your processor faster than its rated speed. Overclocking can introduce reliability errors and the excess heat generated can damage components.

Installation Procedure

1. On the mainboard, identify the CPU Socket 370 and the cooling fan power-supply connector FAN1.
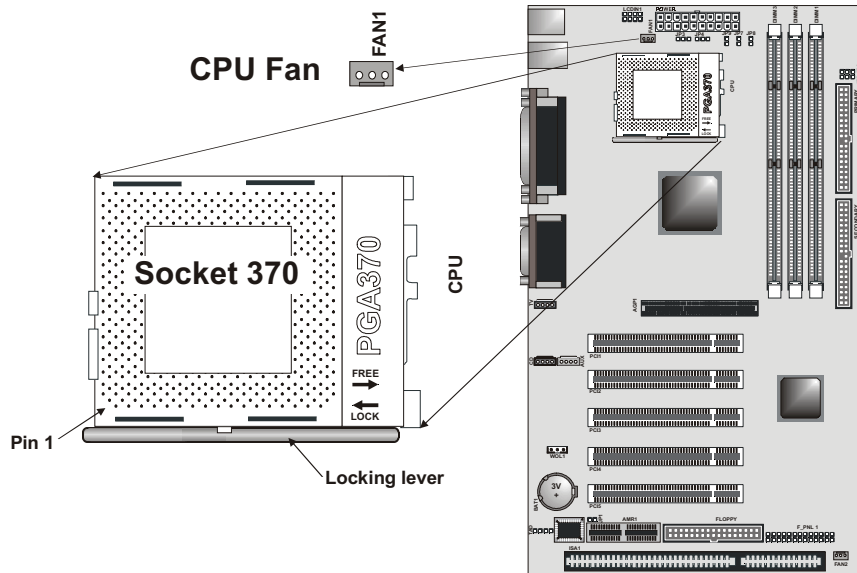
2. Identify the pin-1 corner of the Socket 370. The pin-1 corner is on the same side as the locking lever.

3. Identify the pin-1 corner of the processor (the pin-1 corner on the processor has a beveled edge).

12
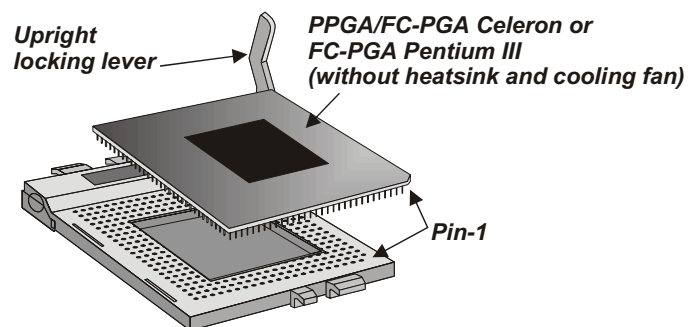
4. Pull the locking lever of the Socket 370 away from the socket to unlatch it, and then swing the lever into the upright position.

5. Align the pin-1 corners and drop the processor into the Socket 370. The processor should drop into place without any force. If it doesn't seat properly, check that you have the pin-1 corners in the correct position.

6. Swing the locking lever down to lock the processor in place and latch the lever under the catch on the side of the socket.

7. Plug the cable from the heat sink/cooling fan assembly into the processor cooling fan power supply FAN1.

8. Configuration of the processor is carried out using the system Setup utility as described in the next chapter, *Using the Firmware*. Configure the processor the first time you turn on the assembled computer.

Install Memory Modules

This mainboard has three DIMM (Dual In-line Memory Modules) or VCM (Virtual Channel Memory) slots for the installation of memory modules. The memory modules require 3.3V SDRAM/VCM memory chips.

SDRAM Memory Slots
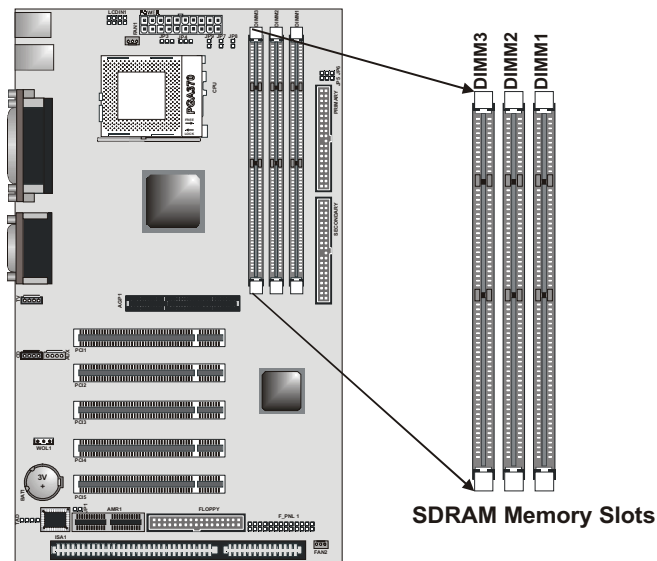
We recommend that you install PC 100/133 modules or faster for optimum performance.

You can install one to three modules. If you install just one module, it makes no difference if you install it in DIMM1, DIMM2, or DIMM3. Each memory module accommodates a maximum of 512 MB; maximum memory is 1.5 GB.

Follow these instructions to install memory modules:

1. On the mainboard, locate the DIMM slots.

2. Pull the locking latches of the slot outwards.

3. Align the memory module correctly. The edge connector of the memory module has notches that match obstructions in the slot. You must match the notches with the obstructions in order to install the module.
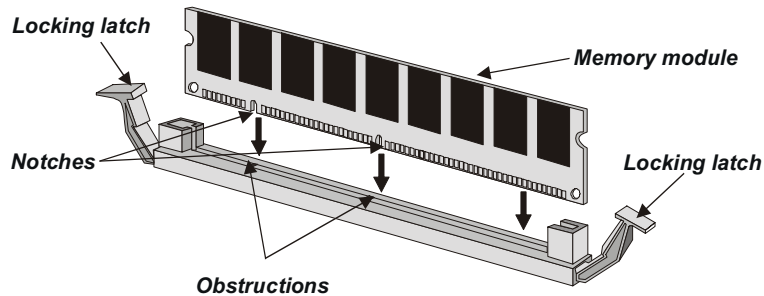
4. Press the edge connector of the memory module into the slot. Press down quite firmly so that the locking latches of the DIMM slot are levered upwards to secure the memory module in place.

5. Repeat the process with any other memory modules that you want to install.

Set the Jumpers

This mainboard has jumpers that need to be set correctly. Jumpers are sets of two, three, or more pins. You can use a jumper cap to connect two adjacent pins. When a jumper cap connects two pins, the pins are SHORT. If you remove a jumper cap from two pins, the pins are OPEN.

The illustrations below show the different positions of a jumper cap on a typical 3-pin jumper. By changing the jumper cap you enable or disable certain features or properties of the mainboard.

**3-pin jumper
(no jumper cap)**

**3-pin jumper
(pins 1-2 SHORT)**

**3-pin jumper
(pins 2-3 SHORT)**
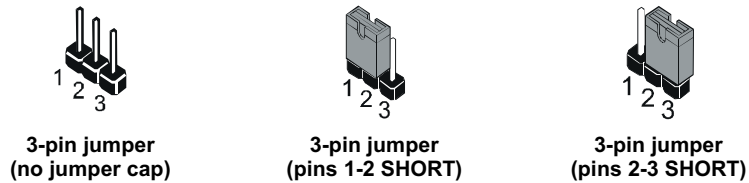
Jumper Location

The illustration below shows the location of the jumpers on the mainboard:
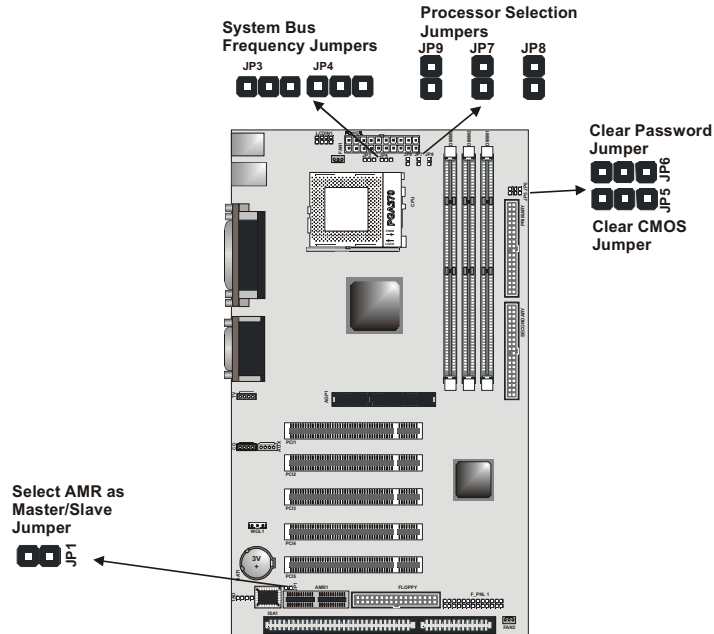
JP1: Select AMR Card as Master/Slave Device

Use this 2-pin jumper to enable the AMR card as a master or slave device.

Function	Jumper Cap
Select AMR card as master.	Open pins 1-2
Select AMR card as slave.	Short pins 1-2

On

● ● JP1

2 1
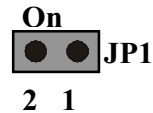
Note: The default setting is shaded gray.

JP3 and JP4: Select System Bus Frequency

Use these 3-pin jumpers to set the system bus frequency for the processor. In the default setting, the system automatically selects the correct frequency for the installed processor. In the "Force 66/100 MHz" settings, the system will use either 66 or 100 MHz no matter what the installed processor frequency is.

Function	JP3	JP4
Auto	Short pins 2-3	Short pins 2-3
Force 66 MHz	Short pins 1-2	Short pins 1-2
Force 100 MHz	Short pins 2-3	Short pins 1-2
Reserved	Other	Other

● ● ● JP3

1 2 3

● ● ● JP4

1 2 3
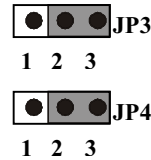
Note: The default setting is shaded gray.

Warning! Setting the processor to a speed higher than its normal speed is called overclocking and is not recommended.

JP5: Clear CMOS memory jumper

Use this 3-pin jumper to clear all the current data stored in the CMOS memory. The system configuration data is stored in CMOS, so you might need to clear this memory if incorrect setup data is preventing your system from starting.

Refer to the table below for jumper settings:

Function	Jumper Cap
Clear CMOS	Short pins 1-2
Normal operation	Short pins 2-3

JP5

3 2 1
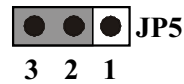
Note: The default setting is shaded gray.

To clear the CMOS, first shut down the system. Short pins 1 and 2 on JP5 and then power on the system. Whey you see the message "Clearing CMOS by Jumper" on the screen, power off the system. The system CMOS will be cleared. Return JP5 to the Normal operation setting (short pins 2 and 3). Power on the system and press F1 to enter the CMOS configuration program. Click "Auto Configuration with Optimal Settings" to load the BIOS optimal values. Save the settings and exit CMOS.

JP6: Clear password jumper

Use this 3-pin jumper to clear the password stored in the CMOS memory. The system configuration data can be protected by a password. This jumper enables you to clear the password protection from the Setup utility, in the event that you have forgotten the password.

Use this 3-pin jumper to clear the password stored in the CMOS memory. Refer to the table below for jumper settings:

Function	Jumper Cap
Clear password	Short pins 1-2
Normal operation	Short pins 2-3

JP6

3 2 1
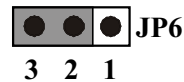
Note: The default setting is shaded gray.

To clear the CMOS password protection, first shut down the system. Short pins 1 and 2 on JP6, and then power on the system. When you see the message "Clearing Password by Jumper" on the screen, turn off the system. The password has been cleared. Return JP6 to the Normal operation setting (short pins 2 and 3). Power on the system and enter the CMOS configuration program to reset the password. Save the changes and exit the CMOS Setup utility. Refer to the next chapter *Using the Firmware* for information on the BIOS Setup utility.

JP7, JP8, and JP9: Select Intel Processor

Use these 2-pin jumpers to select an Intel processor.

Function	JP7	JP8	JP9
Intel	Open pins 1-2	Short pins 1-2	Short pins 1-2
Reserved	Other		

JP9 JP7 JP8

2

1
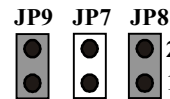
Note: The default setting is shaded gray.

Install the Mainboard in a Computer Case

After you have prepared the mainboard by installing a processor, one or more memory modules, and have set the jumpers correctly, install the mainboard into a computer case and begin connecting essential peripheral items to the connectors on the mainboard.

Choosing a Computer Case

This is a ATX mainboard. It must be installed in a case that uses an ATX power supply. Some full-size cases are specially designed for ATX mainboards. Make sure that the computer case has a two-tier I/O template on the rear side that matches the two-tier I/O port array on this mainboard.

This mainboard can support two floppy disk drives and four IDE devices, so you might want to choose a case that allows you to install a full complement of six devices. Make sure that the case power supply unit has enough capacity to power all the drives that you plan to install.

Follow the instructions given with the computer case to install the main-board onto the mounting brackets inside the case. Do not overtighten the screws when installing as this can stress the mainboard.

Connecting the Case Components

Most computer cases include a power supply unit, power and reset switches and indicators, and a chassis-cooling fan. This section explains how to connect these components.

> **Warning:** Make sure that the power supply unit in the case is not connected to a power outlet while you are carrying out the installation procedure.
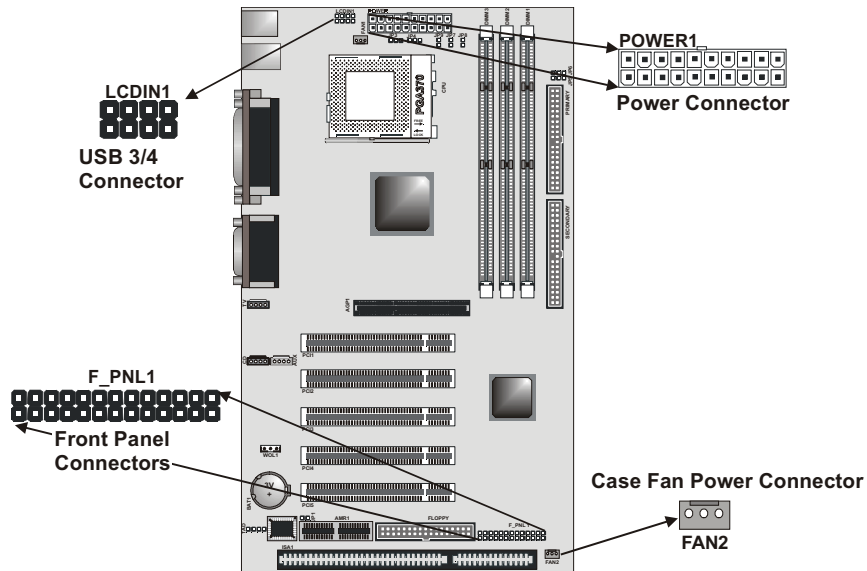
This mainboard has PS/2 and USB ports installed on the rear edge. However, some computer cases have a special module that mounts USB ports on the front side of the case. If you have this type of case, use the auxiliary USB connector "LCDIN1" to connect the front-mounted USB ports to the mainboard. You can use both the front- and rear-mounted USB ports at the same time.

Follow the instructions below to connect the case components:

1. On the mainboard, locate the power connector POWER1, the switches and indicators connector F_PNL1, the chassis cooling fan power connector FAN2, and the auxiliary USB connector LCDIN1.

2. Plug the main power supply cable from the case power-supply unit into the POWER1 ATX connector on the mainboard.

3. If your computer has a module with USB ports, connect the cable from the module to the auxiliary USB port connector LCDIN1. You can use both the front and rear-mounted USB ports at the same time.

4. If your computer case has a chassis-cooling fan, plug the power cable of the cooling fan into the cooling fan power connector FAN2.

5. Connect your computer case's front panel LEDs and buttons to the F_PNL1 connector. Use the illustration and tables below to make the correct connections.

Infrared Connector

PIN	Description
2	N.C.
4	IR TX
6	Ground
8	IR RX
10	N.C.
12	+5V
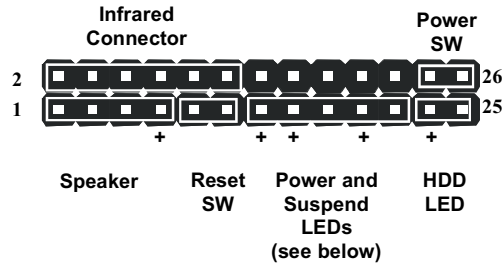
Note: *Short pins 1-3 on F_PNL1 to use the onboard buzzer. The speaker function is disabled.*

Connecting Power and Suspend LEDs

Item	LED	# of pin	Color	Connect to pin
1	Power LED Suspend LED	3-pin 2-pin	Mono. Mono.	13, 15, 17 19, 21
2	Power/Suspend LED	3-pin	Dual Color	15, 17, 19
3	Power LED Suspend LED	2-pin 2-pin	Mono. Mono.	15, 17 19, 21
4	Power/Suspend LED	3-pin	Mono.	15, 17, 19
5	Power/Suspend LED	2-pin	Mono.	19, 21

Note: *Item **1~4** : Power LED State is "Always High"*
Suspend LED State is "Pulse"

*Item **5** : There is one option for Single LED Function*
Support On BIOS Menu

Floppy Disk Drive

The mainboard has a floppy disk drive interface (FLOPPY) that supports one or two floppy disk drives. The floppy disk drive (FDD) ribbon cable has connectors for two 3.5-inch wide disk drives.

Note: The pin-1 side of the FDD ribbon cable is marked with a red stripe

1.   Install the FDD into a suitable drive bay in your computer case.

Floppy Drive Connector
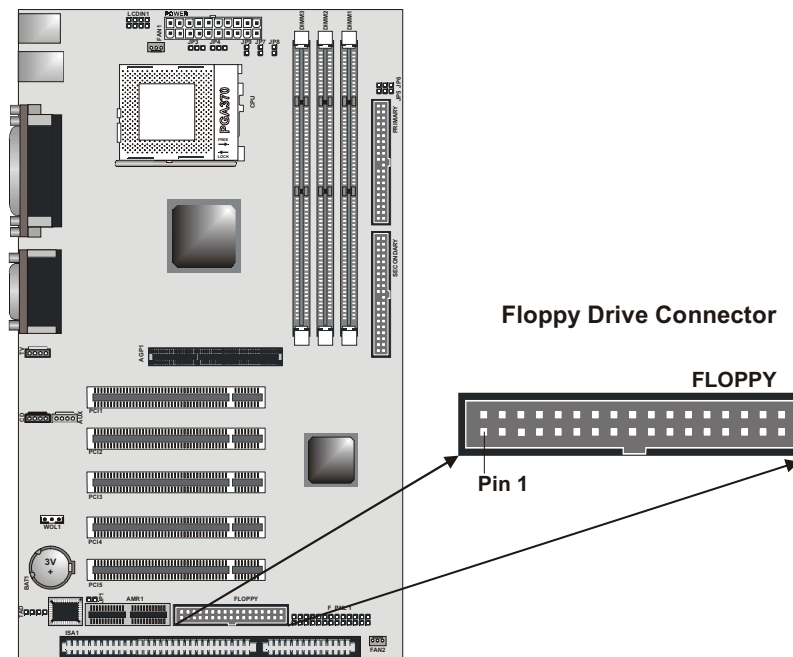
2.   Plug one end of the FDD ribbon cable into the floppy drive connector (FLOPPY). Plug one of the other connectors into the data connector on the rear edge of the FDD module.

3.   Plug a free power supply cable from the case power-supply unit into the power connector on the rear edge of the floppy disk drive.

4.   When you start up your assembled computer, the floppy disk drive will be identified as drive A. If you have installed two drives on the cable, they will be identified as drives A and B.

IDE Devices

The mainboard has two IDE channel connectors; the Primary IDE channel (PRIMARY), and the Secondary IDE channel (SECONDARY). Each IDE channel can support two devices. IDE devices include hard disk drives, CD-ROM drives, and removable media drives such as ZIP drives and LS-120 drives.

This mainboard ships with one IDE cable for installing IDE devices such as an IDE hard drive or CD-ROM drive. You can obtain a second IDE cable if you want to install more than two IDE devices.

Note: The pin-1 side of the IDE ribbon cable is marked with a red stripe.

Master & Slave

When you install two devices on a single IDE channel, you must configure one of the devices as a MASTER device and the other as a SLAVE device. These configurations have no effect on performance and are just a naming convention so that your computer system can distinguish between the two devices on the same channel.

All IDE devices have documentation that tells you how to set the device as MASTER or SLAVE. If you are installing two devices on the IDE ribbon cable, configure one device as MASTER and one device as SLAVE before you begin.

Installing the Device

1. Install the IDE device(s) into a suitable drive bay in your computer case.
2. Plug one end of the IDE cable into the primary IDE connector (PRIMARY). Plug one of the other connectors into the data connector on the rear edge of the IDE device. If you are installing two devices, plug the other connector into the data connector on the rear edge of the second device.
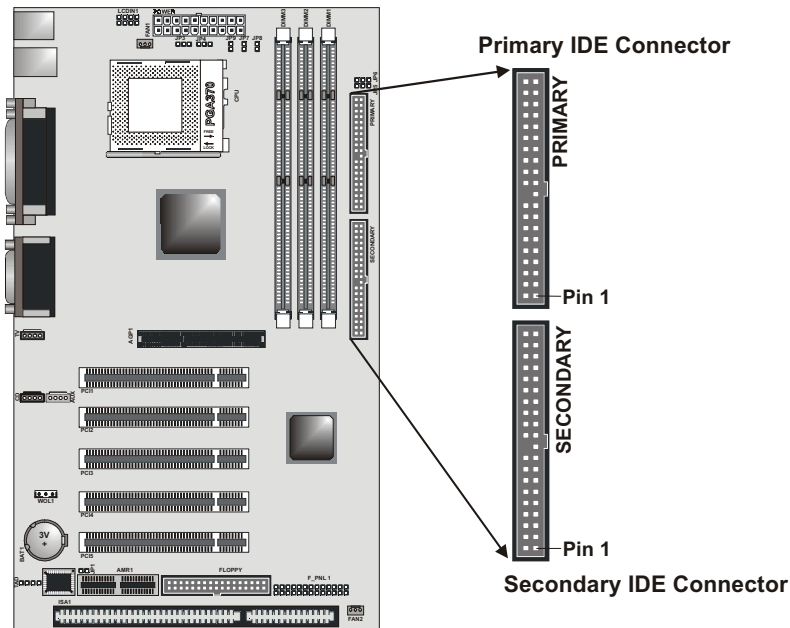
Primary IDE Connector

PRIMARY

Pin 1

SECONDARY

Pin 1

Secondary IDE Connector

3. Plug a free power supply cable from the case power supply unit into the power connector on the rear edge of the IDE device(s).

4. When you start up your assembled computer, an IDE hard disk drive on the primary IDE channel is identified as drive C. A second IDE drive on the primary IDE channel is identified as drive D.

5. Run the Setup utility to configure the installed IDE devices. The Setup utility can automatically configure most IDE devices; see the following chapter for more information.

6. If you have installed a CD-ROM (or DVD) drive, you need to connect the audio output of the drive to the sound system integrated on the mainboard. This procedure is explained in the following section *Audio Connections.*

7. When using an IDE UDMA 66 cable, plug the system connector into the PRIMARY/SECONDARY onboard connector. Plug the Master connector of the cable into the IDE UDMA 66 Master device, and plug the Slave connector of the cable into the IDE UDMA 66 device used as a Slave device.

Audio Connections

You can connect the audio output from your CD-ROM (or DVD) drive into the CD connector on the mainboard. Refer to the following illustration:
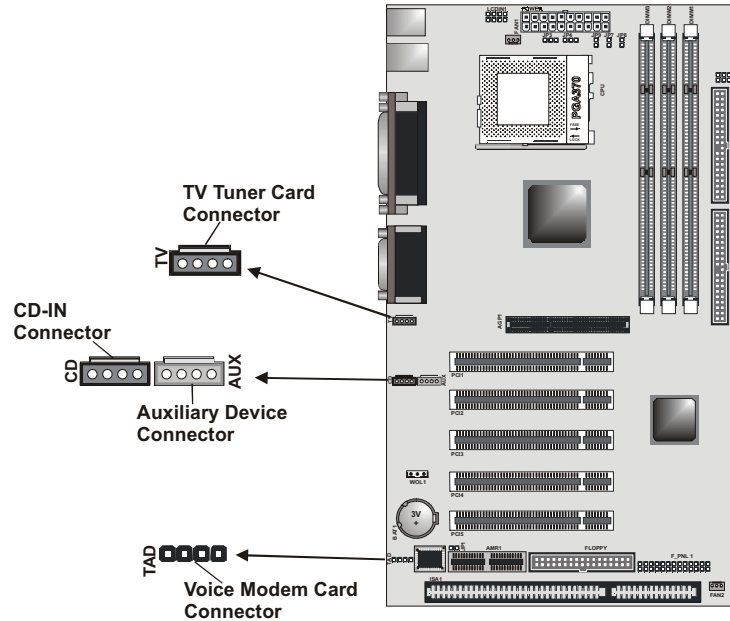
Connect your TV-tuner card audio output to TV. Use CD to connect the audio output from a CD-ROM or DVD drive. Use AUX for connecting auxiliary audio devices. Use TAD to connect the voice output from a voice modem card.

Installing Expansion Cards

This mainboard has one 32-bit AGP slot, five 32-bit PCI slots, an AMR slot, and one 8/16-bit ISA slot.

Accelerated Graphics Port Slot AGP1

PCI Slots — PCI1, PCI2, PCI3, PCI4, PCI5

Audio Modem Riser Slot AMR1

ISA Slot ISA1
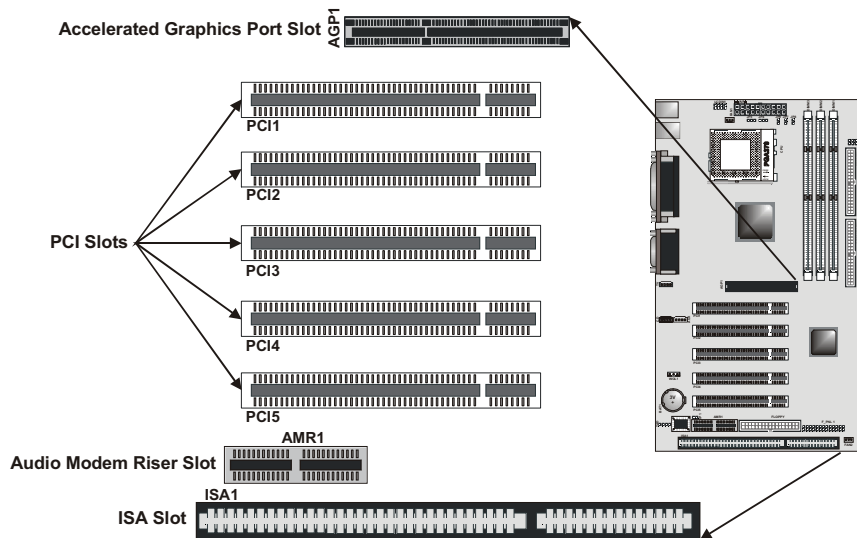
- ❑ Connect a 32-bit AGP (accelerated graphics port) video card to the AGP slot.

- ❑ The PCI slots support current add-in cards that have a 32-bit PCI (Peripheral Components Interconnect) edge connector.

- ❑ The AMR (Audio Modem Riser) slot supports an Audio Modem Riser Card. The AMR slot is designed to overcome the problem that different territories have different regulatory requirements for a fax/modem. You can use the AMR slot to easily install an Audio Modem Riser card that is approved for use in your location. The AMR slot and the ISA slot are shared—you can use one or the other, but you cannot use both slots at the same time.

- ❑ The ISA slot supports legacy 8/16-bit add-in cards. The AMR slot and the ISA slot are shared—you can use one or the other, but you cannot use both slots at the same time.

Note: *To ensure your system's stability, please verify that the PCI add-in cards you are using support ACPI Power Management functions. If they do not support ACPI, do not enter S3 or S4 suspend mode.*

Follow these instructions to install an add-in card:

1. In the computer case, remove the blanking plate from the opening in the case adjacent to the slot you are going to use.

2. Hold the edge connector of the add-in card directly over the slot that you are going to use. The metal bracket on one edge of the add-in card fits into the opening from which you removed the blanking plate.

3. Carefully press the card down so that the edge connector installs into the expansion slot. You might need to rock the card slightly to make sure that the edge connector is seated properly into the slot.

4. Secure the add-in card with a screw.

Add-in Card Options

This mainboard has a Wake On LAN feature. If you have installed a network (LAN) adapter expansion card, you can connect the card to the Wake On LAN connector WOL. If your system is in a software power down or a power-saving mode, incoming traffic to the network adapter can resume the system. You have to enable this feature using the system Setup utility. See the following chapter *Using the Firmware* for more information.

Wake On LAN Connector

WOL1
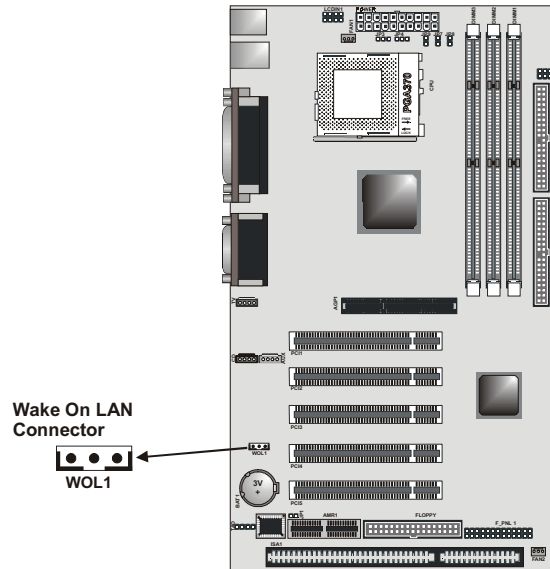
USING THE FIRMWARE

Introduction

The computer employs the latest AMI BIOS CMOS chip with support for Windows Plug and Play. This CMOS chip contains the ROM Setup instructions for configuring the mainboard's BIOS. The BIOS (Basic Input and Output System) Setup utility is a menu driven utility that enables you to make changes to the system configuration and tailor your system to suit your individual work needs. BIOS is a ROM-based configuration utility that displays the system's configuration status and provides you with a tool to set system parameters. These parameters are stored in non-volatile battery-backed-up CMOS RAM that saves this information even when the power is turned off. When the system is turned back on, the system is configured with the values found in CMOS.

You can configure such items as:

❑ Hard drives, diskette drives, and peripherals

❑ Video display type and display options

❑ Password protection from unauthorized use

❑ Power Management Features

This chapter guides you through the Setup utility by providing clear explanations for all Setup options.

A standard configuration has already been set in the Setup utility. However, we recommend that you read this chapter in case you need to make any changes in the future.

This Setup utility should be executed under the following conditions:

- ❑ When changing the system configuration
- ❑ When a configuration error is detected by the system and you are prompted to make changes to the Setup utility
- ❑ When resetting the system clock
- ❑ When setting the CPU clock speed so that it automatically runs either fast or slow
- ❑ When redefining the communication ports to prevent any conflicts
- ❑ When making changes to the Power Management configuration
- ❑ When changing the password or making other changes to the security setup

If you are not sure how to configure the Setup utility, we suggest that you select *Auto Configuration with Optimal Settings* on the Main Menu screen, then exit saving changes. This loads optimized default settings for normal use.

Running the Setup Utility

To run the Setup utility from the BIOS POST screen, press the **Delete** key when prompted to enter the Main Menu.

```
AMIBIOS HIFLEX SETUP UTILITY – VERSION 1.23b
(C)1999 American Megatrends, Inc. All Rights Reserved

                    Standard CMOS Setup
                    Advanced CMOS Setup
                   Advanced Chipset Setup
                   Power Management Setup
                  PCI / Plug and Play Setup
                      Peripheral Setup
                   Hardware Monitor Setup
                   Auto-Detect Hard Disks
                    Change User Password
                 Change Supervisor Password
                   Change Language Setting
            Auto Configuration with Optimal Settings
            Auto Configuration with Fail Safe Settings
                   Save Settings and Exit
                    Exit Without Saving

      Standard CMOS setup for changing time, date, hard disk type, etc.
          ESC:Exit  ↑↓:Sel  F2/F3:Color  F10:Save & Exit
```

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. Press **F2** or **F3** to cycle through the different color schemes for the Setup utility. Press **F10** to open a dialog box that lets you save changes and exit 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 **PageUp** and **PageDn** keys to cycle through the alternate values for each of the items. Other options on the Main Menu page lead to dialog boxes that require you to answer Yes or No by pressing the **Y** or **N** keys.

You can see the available options for each field in the right-hand or lower pane of each screen.

Standard CMOS Setup Page

Use this page to set basic information such as the date and time, the IDE devices, and the diskette drives.

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

Date (mm/dd/yyyy): Tue Feb 22,2000              Base Memory: 0 KB
Time (hh/mm/ss)  : 09:27:08                     Extd Memory: 0 MB

Floppy Drive A:   1.44 MB 3½
Floppy Drive B:   Not Installed
                                                LBA  Blk  PIO  32Bit
              Type           Size  Cyln  Head WPcom Sec Mode Mode Mode Mode
Pri Master : Auto                                                     On
Pri Slave  : Auto                                                     On
Sec Master : Auto                                                     On
Sec Slave  : Auto                                                     On

Boot Sector Virus Protection    Disabled

Month:  Jan - Dec                               ESC:Exit  ↑↓:Sel
  Day:   01 - 31                                PgUp/PgDn:Modify
  Year: 1901 - 2099                             F1:Help F2/F3:Color

```

Date and Time

Use these items to set the correct date and time.

Floppy Drive A and Floppy Drive B

If you have one floppy drive installed change the item Floppy Drive A so that it describes the characteristics of the drive. If you have a second floppy drive, do the same for Floppy Drive B.

Primary/Secondary Master/Slave

These items show the characteristics of any devices on the two available IDE channels (four devices maximum). The system automatically detects most modern hard disks using the Auto-Detect Hard Disks Option from the main menu. If the system doesn't auto-detect a drive, try to find a preset type from 1-46 that matches your hard disk. Alternatively, you can set the item to User, and manually enter the characteristics of the drive in the columns marked Size, Cyln (cylinders), Head (drive heads), etc. You can also set these items to configure other kinds of IDE devices such as CD-ROM or Floptical.

Boot Sector Virus Protection

Enable this item to provide some protection against viruses that at-tack the boot sector of a hard disk. You need to disable this item until you have installed an operating system on the hard disk.

Base/Extd Memory

These fields display the total amount of base and extended memory on your system. These are display only fields.

Advanced CMOS Setup Page

This page lets you make some changes to the basic operation of your computer.

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

 Quick Boot                  Enabled        Available Options:
 1st Boot Device             Floppy           Disabled
 2nd Boot Device             IDE-0          ▶ Enabled
 3rd Boot Device             CDROM
 Try Other Boot Devices      Yes
 Initial Display Mode        BIOS
 Floppy Access Control       Read-Write
 S.M.A.R.T. for Hard Disks   Enabled
 BootUp Num-Lock             On
 Floppy Drive Swap           Disabled
 Floppy Drive Seek           Disabled
 PS/2 Mouse Support          Enabled
 Primary Display             VGA/EGA
 Password Check              Setup
 Boot To OS/2 > 64MB         No
 Wait For 'F1' If Error      Enabled
 CPU Serial Number           Disabled
 Cache Bus ECC               Enabled        ESC:Exit  ↑↓:Sel
 System BIOS Cacheable       Enabled        PgUp/PgDn:Modify
 C000,32k Shadow             Cached         F1:Help F2/F3:Color
```

Quick Boot

If you enable this item, the system eliminates some of the power on test routines so that the start-up time is quicker.

1st/ 2nd/3rd Boot Device

Use these three items to determine where and in which order the sys-tem will look for a bootable operating system each time it is started.

Try Other Boot Devices

If you enable this item, the system will continue looking for an operating system in any other installed devices if it fails to find a bootable OS in the three devices already specified.

Initial Display Mode

This item determines the appearance of the system at start-up time. If the value is set to "BIOS," the results of the POST (Power On Self Test) are displayed. If the value is set to "Silent," a Logo screen is displayed.

Floppy Access Control

This option lets you define the operation of floppy disk drives as Read-Only or Read-Write.

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

SMART is an industry acronym for Self-monitoring, Analysis and Reporting Technology. If the documentation of your hard disk states that SMART is supported, you can enable this item.

BootUp Num-Lock

If you enable this item, the Num Lock key is activated each time the system is started.

Floppy Drive Swap

If you have two floppy diskette drives installed, you can use this item to change the drive letter assignments so that drive A becomes drive B and drive B becomes drive A.

Floppy Drive Seek

If you enable this item, the system will check the geometry of the floppy disk drives at start up time. You only need to enable this item if you have a 5.25-inch floppy diskette drive with a 360K capacity.

PS/2 Mouse Support

Enable this item if you plan to use a mouse or trackball with a PS/2 interface.

Primary Display

Use this item to define the type of monitor you are using. You should leave this item at the default value VGA/EGA.

Password Check

If you have installed password protection, use this item to determine if the password is required at start-up (Always) or on entry to the Setup utility (Setup).

Boot to OS/2 > 64MB

Enable this item if you are running OS/2 and you have installed more than 64 MB memory.

Wait For 'F1' If Error

If you enable this item and the system finds an error during the start up testing, it will display a prompt asking you to press F1 to continue.

CPU Serial Number

Some new processors (for example the Pentium-III) are installed with a unique serial number that can be used to validate Internet transactions and so on. If you don't want to use this number, disable this item.

Cache Bus ECC

Enable this item if the cache memory supports ECC (Error Correction Code) error correction.

System BIOS Cacheable

If you enable this item, the system BIOS is copied to main memory for faster execution.

C000, 32K Shadow

These items determine how the 32K of video ROM at address C000h is treated. If you enable C000, 32K of the video ROM is copied to main memory and it can be cached in the cache memory as well for faster execution.

Advanced Chipset Setup Page

This page lets you make advanced changes to the operation of your computer.

```
┌─────────────────────────────────────────────────────────────────┐
│              AMIBIOS SETUP - ADVANCED CHIPSET SETUP               │
│         (C)1999 American Megatrends, Inc. All Rights Reserved     │
├───────────────────────────────────────┬───────────────────────────┤
│ USB Controller             USB Port 0&1 │   Available Options:      │
│ USB KB/Mouse Legacy Support   Disabled  │     Disabled              │
│ CPU Frequency Selection       66MHz     │   ▶ USB Port 0&1          │
│ CPU/System Clock Ratio        3.0x      │     USB Port 2&3          │
│ ********* DRAM Timing *********          │     All USB Port          │
│   Configure SDRAM Timing by SPD  Enabled │                          │
│   DRAM Frequency              100Mhz    │                          │
│   SDRAM CAS# Latency          3         │                          │
│                                         │                          │
│ DRAM Bank Interleave          Enabled   │                          │
│ DRAM Integrity Mode           Disabled  │                          │
│ Memory Hole                   Disabled  │                          │
│ AGP Mode                      4x        │                          │
│ AGP Read Synchronization      Enabled   │                          │
│ AGP Comp. Driving             Auto      │                          │
│ Manual AGP Comp. Driving      CB        │                          │
│ AGP Aperture Size             64MB      │                          │
│ PCI Delay Transaction         Enabled   │  ESC:Exit  ↑↓:Sel        │
│ ClkGen Spread Spectrum        Disabled  │  PgUp/PgDn:Modify        │
│ ClkGen for PCI Slot/DIMM      Enabled   │  F1:Help F2/F3:Color     │
└───────────────────────────────────────┴───────────────────────────┘
```

USB Controller

Enable this item if you plan to use the Universal Serial Bus ports on this mainboard.

USB KB/Mouse Legacy Support

Enable this item if you plan to use a keyboard or mouse with a USB interface, and you are using a non Plug and Play legacy operating system (such as DOS).

CPU Frequency Selection

Use this item to select the CPU frequency.

Note: *We recommend that you do not set the CPU frequency at a value other than the ones listed under "available options" (66, 75, and 83 MHz). Overclocking may result in premature wear on the processor. Ensure that the DIMMs that you use can handle the specified SDRAM MHz; otherwise, bootup will not be possible.*

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CPU/System Clock Ratio

Use this item to select a multiplier for the CPU frequency. The value of the multiplier must be set so that

Multiplier x CPU Frequency = CPU Clock Speed

For example, if you have a processor that is rated to run at 450 MHz and the system is running a CPU frequency of 100 MHz, you should select a multiplier of 4.5 so that:

4.5 (Multiplier) x 100 MHz (front side bus) = 450 MHz (CPU clock)

Configure SDRAM Timing by SPD

Enable this to allow the system to automatically set the SDRAM timing by SPD (Serial Presence Detect). SPD is an EEPROM chip on the DIMM module that stores information about the memory chips it contains, including size, speed, voltage, row and column addresses, and manufacturer. If you disable this item, you can use the following three items to manually set the timing parameters for the system memory.

DRAM Frequency

If "Configure SPDRAM timing by SPD" is enabled, you do not have to set the DRAM frequency. Otherwise, set this item at the frequency of the DRAM you have installed. The options are 66 MHz, 100 MHz, and 133 MHz.

SDRAM CAS# Latency

This item sets a timing parameter for the Column Address Strobe memory access. Leave this item at the default value Auto so that the system auto-detects the correct timing.

DRAM Bank Interleave

Enable this item to increase memory speed. When enabled, separate memory banks are set for odd and even addresses and the next byte of memory can be accessed while the current byte is being refreshed.

DRAM Integrity Mode

Enable this item to allow BIOS to perform a parity/ECC check to the POST memory tests. Select "Enabled" only if the system DRAM supports parity/ECC checking.

Memory Hole

If set to "Enabled," when the system memory size is equal to or greater than 16M bytes, the physical memory address from 15M to 16M will be passed to PCI or ISA and there will be a 1 MB hole in your system memory. This option is designed for some OS with special add-in cards which need 15-16 MB memory space. The default setting is "Disable."

AGP Mode

This item allows you to enable or disable the caching of display data for the video memory of the processor. Enabling can greatly improve the display speed. If your graphics display card does not support this feature, you need to disable this item. The default setting is "Enabled."

AGP Read Synchronization

Enable this item to implement a single delay when reading to the AGP Bus. By default, two-wait states are used by the system, allowing for greater stability.

AGP Comp. Driving

This item can be used to signal driving current on AGP cards to auto or Manual. Some AGP cards need stronger than normal driving current in order to operate. We recommend that you set this item to "Auto" by default.

Manual AGP Comp. Driving

When the previous item AGP Driving Control is set to "Manual," you can use this item to set the AGP current driving value.

AGP Aperture Size

This item defines the size of the aperture if you use an AGP graphics adapter. It refers to a section of the PCI memory address range used for graphics memory. We recommend that you leave this item at the default value. The default setting is "64 MB."

PCI Delay Transaction

The chipset has an embedded 32-bit posted write buffer to support delay transaction cycles. Select "Enabled" to support compliance with PCI specification version 2.1. The options are "Enabled," and "Disabled."

ClkGen Spread Spectrum

When set to "Enabled," the system clock frequency will be automatically modulated to help reduce electromagnetic interference. Default is "Enabled."

ClkGen for PCI Slot/DIMM

When set to "Enabled," the system will automatically turn off the PCI and DIMM clock when not in use to reduce electromagnetic interference.

Power Management Setup Page

This page sets parameters for system power management operation.

```
               AMIBIOS SETUP - POWER MANAGEMENT SETUP
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 ACPI Standby State              S1/POS        Available Options:
 USB Device Wakeup From S3-S5    Disabled      ▶ S1/POS
 Power Management/APM            Enabled         S3/STR
 Video Power Down Mode           Suspend
 Hard Disk Power Down Mode       Suspend
 Standby Time Out (Minute)       Disabled
 Suspend Time Out (Minute)       Disabled
 Power Button Function           On/Off
 Power ON LED Select             Dual
 PowerLoss Control               Last State
 K/B Power On Function           Disabled
 Resume On Ring                  Disabled
 Resume On LAN                   Disabled
 Resume On PME#                  Disabled
 Resume On RTC Alarm             Disabled
 RTC Alarm Date                  15
 RTC Alarm Hour                  12
 RTC Alarm Minute                30          ESC:Exit  ↑↓:Sel
 RTC Alarm Second                30          PgUp/PgDn:Modify
                                             F1:Help F2/F3:Color
```

ACPI Standby State

Use this item to define the nature of the ACPI standby power-saving mode as S1 or S3. S1 is a power-saving mode in which the CPU clock is halted, the VGA controller and other devices are powered down. S3 is a suspend to RAM mode in which only the contents of system memory are refreshed.

USB Device Wakeup From S3-S5

Use this item to enable USB activity to wakeup the system from a power saving mode. The default setting is "Disabled."

Power Management/APM

If you enable this item, it allows operating systems, such as Win95/98 that have APM (Advanced Power Management) to assume control over some of the power management operations on your system. When set to "Enabled," the following four fields become available.

Video Power Down Mode

Use this item to determine which level of power-saving mode is required to cause a power down of the video system. This field is available only when Power Management/APM is enabled.

Hard Disk Power Down Mode

Use this item to determine which level of power-saving mode is required to cause a power down of the hard disk drive. This field is available only when Power Management/APM is enabled.

Standby Time Out (Minute)

Use this item to set a timeout (in minutes) for the Standby power-saving mode or disable the timeout. If the system is idle for the duration of the timeout, the system will automatically enter standby mode. This field is available only when Power Management/APM is enabled.

Suspend Time Out (Minute)

Use this item to set a timeout (in minutes) for the Suspend power-saving mode or disable the timeout. If the system is idle for the duration of the timeout, the system will automatically enter suspend mode. This field is available only when Power Management/APM is enabled.

Power Button Function

If this item is set to "On/Off," the power button acts as a standard on/off switch. If you set this item to "Suspend," pressing the power button enters the system into a power-saving suspend mode.

Power ON LED Select

Enables you to select either dual or single LED support for the chassis.

PowerLoss Control

This sets the power state after a shutdown due to an unexpected interrupt of AC power. If the value is set to "ON," the system turns back on. If the value is set to "OFF," the system remains turned off. If the value is set to "KEEP LAST," the system returns to the last power state.

K/B Power On Function

This system can be resumed from a software powerdown or a power-saving mode by a keystroke on the keyboard. Use these items to enable or disable these features.

Resume On RING

Enable this item to allow a telephone or modem signal to resume the system from suspend or standby mode.

Wake On LAN

Enable this item to allow LAN activity to resume the system from suspend or standby mode.

Resume On PME#

When set to "Enabled," the system power will be turned on if there is any PCI card activity from PCI cards that trigger a PME event, such as LAN or Modem cards.

Resume on RTC Alarm

This mainboard features an alarm on the system realtime clock that can resume the system from a software power-down or a power-saving mode. Use this item to enable or disable this feature.

RTC Alarm Date, Hour, Minute Second

If you have enabled the realtime clock alarm feature, use these four items to set the alarm time and date.

PCI/Plug and Play Setup Page

This page lets you determine how the system handles Plug and Play devices and PCI bus devices.

```
          AMIBIOS SETUP - PCI / PLUG AND PLAY SETUP
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 Plug and Play Aware O/S        Yes          Available Options:
 Clear NVRAM                    No              No
 PCI Latency Timer (PCI Clocks) 64           ▶ Yes
 Primary Graphics Adapter       AGP
 DMA Channel 0                  PnP
 DMA Channel 1                  PnP
 DMA Channel 3                  PnP
 DMA Channel 5                  PnP
 DMA Channel 6                  PnP
 DMA Channel 7                  PnP
 IRQ3                           PCI/PnP
 IRQ4                           PCI/PnP
 IRQ5                           PCI/PnP
 IRQ7                           PCI/PnP
 IRQ9                           PCI/PnP
 IRQ10                          PCI/PnP
 IRQ11                          PCI/PnP
 IRQ14                          PCI/PnP     ESC:Exit  ↑↓:Sel
 IRQ15                          PCI/PnP     PgUp/PgDn:Modify
                                           F1:Help F2/F3:Color
```

Plug and Play Aware O/S

Set this item to "Yes" if you are using an operating system that supports Plug and Play such as Windows 95/98.

Clear NVRAM

The system BIOS stores information about the configuration of Plug and Play devices in NVRAM (Non-Volatile Random Access Memory). If you set this item to "Yes," the current information is deleted, and new information is created the next time the system is booted.

PCI Latency Timer (PCI Clocks)

This item sets a timing parameter for the PCI bus. Since this item is determined by the system hardware, leave this at the default value.

Primary Graphics Adapter

Use this item to determine if your primary graphics adapter is integrated on the mainboard or installed on an add-in graphics card.

DMA Channel 0…DMA Channel 7

These DMA channels are set to "PnP" as default so that the Plug and Play manager can dynamically allocate them when they are required. If you have a legacy ISA or EISA device that does not support Plug and Play, you can reserve a DMA channel for the device using these items.

IRQ3…IRQ15

These IRQs are set to "PCI/PnP" as default so that the Plug and Play manager can dynamically allocate them when they are required. If you have a legacy ISA or EISA device that does not support Plug and Play, you can reserve an IRQ for the device using these items.

Peripheral Setup Page

Use this page to set parameters for peripheral items on your system.

```
                  AMIBIOS SETUP - PERIPHERAL SETUP
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OnBoard IDE                    Both              Available Options:
OnBoard FDC                    Auto                Disabled
OnBoard Serial Port1           Auto                Primary
OnBoard Serial Port2           Auto                Secondary
  Serial Port2 Mode            Normal            ▶ Both
    Duplex Mode                N/A
OnBoard Parallel Port          Auto
  Parallel Port Mode           ECP
  EPP Version                  N/A
  Parallel Port DMA Channel    Auto
  Parallel Port IRQ            Auto

OnBoard MC'97 Modem            Disabled
OnBoard AC'97 Audio            Enabled
OnBoard Legacy Audio           Enabled
  Sound Blaster                Disabled
    SB I/O Base Address        220h-22Fh
    SB IRQ Select              IRQ 5           ESC:Exit  ↑↓:Sel
    SB DMA Select              DMA 1           PgUp/PgDn:Modify
  MPU-401                      Disabled    ▼   F1:Help F2/F3:Color
```

Onboard IDE

Use this item to enable or disable the primary and secondary IDE channels that are installed on the mainboard.

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Onboard FDC

Use this item to enable or disable the floppy diskette drive interface that is integrated on this mainboard.

Onboard Serial Port 1 and Serial Port 2

Use these items to disable the serial ports or to assign a port address and name to the ports. We recommend that you set these items to Auto so that the system can dynamically assign port addresses and names.

Serial Port 2 Mode

If you set this item to "Normal," serial port B remains a regular serial port. If you set this item to "IrDA," the resources of serial port B are assigned to the infrared port (optional) on this mainboard.

Duplex Mode

If you have assigned serial port 2 to the infrared port, use this item to determine if the infrared port can use full-duplex or half-duplex transmission.

Onboard Parallel Port

Use this item to disable the parallel port or assign a port address to the parallel port. We recommend that you set this item to "Auto" so that the system can dynamically assign a port address.

Parallel Port Mode

Use this item to determine the mode of the parallel port. You can select Normal, Bi-directional, EPP (Enhanced Parallel Port) or ECP (Extended Capabilities Port).

EPP Mode Select

Sets the EPP specification. There are two options—"EPP1.9" (default) and "EPP1.7."

Parallel Port IRQ/DMA Channel

These items are not available in most circumstances. If they are available, use them to allocate an IRQ and DMA (Direct Memory Access) channel for the parallel port.

Onboard AC'97 Audio/Modem

Use this item to enable or disable the audio and modem codec (compression-decompression) chips that are integrated on this mainboard.

OnBoard Legacy Audio

Enable this item to set the I/O base address, IRQ, and DMA of the onboard legacy audio chip. You can also enable Sound Blaster and MPU-401 compatibility.

Hardware Monitor Setup Page

This page lets you install hardware monitoring parameters so that the system can warn you when critical parameters are exceeded.

```
             AMIBIOS SETUP - HARDWARE MONITOR SETUP
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  -=≡ System Hardware Monitor ≡=-
   CPU Temperature              28°C/82°F
   System Temperature           35°C/95°F
   Internal Temperature         25°C/77°F
   CPU Fan Speed                4753 RPM
   Chassis Fan Speed            5066 RPM
    Vcore                       1.984 V
    + 2.500V                    2.574 V
    + 3.300V                    3.456 V
    + 5.000V                    4.974 V
    +12.000V                    12.045 V



                                            ESC:Exit  ↑↓:Sel
                                            PgUp/PgDn:Modify
                                            F1:Help F2/F3:Color
```

System Hardware Monitor

If your mainboard supports hardware monitoring, these items (except Chassis Intrusion) are auto-detected and the results are reported. You cannot make changes to these items.

Auto Detect Hard Disks

This item automatically detects and installs any hard disk drives installed on the primary and secondary IDE channels. 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.

Change User/Supervisor Password

You can install a Supervisor password, and if you install a supervisor password, you can then install a user password. A user password does not provide access to many of the features in the Setup utility.

If you highlight these items 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.

Removing the Password

Highlight this item and type in the current password. At the next dialog box press **Enter** to disable password protection.

Change Language Setting

This item is not functional on this mainboard.

Auto Configuration with Optimal Settings

If you highlight this item and press **Enter**, a dialog box asks if you want to install optimal settings for all the items in the Setup utility. Press the **Y** key to indicate Yes, and then press **Enter** to install the optimal settings.

The optimal settings 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.

Auto Configuration with Fail-Safe Settings

If you highlight this item and press **Enter**, a dialog box asks if you want to install fail-safe settings for all the items in the Setup utility. Press the **Y** key to indicate Yes, and then press **Enter** to install the fail-safe settings.

The fail-safe settings default values are not demanding so a system should be able to operate with the fails safe settings even if it is installed with slower memory chips or other kinds of low-performance components.

Save Settings and Exit

Highlight this item and press **Enter** to save any changes that you have made in the Setup utility and exit the Setup utility. When the Save Settings and Exit dialog box appears, press **Y** to save the changes and exit, or press **N** to return to the setup main menu.

Exit Without Saving

Highlight this item and press **Enter** to discard any changes that you have made in the Setup utility and exit the Setup utility. 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.