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

Declaration of Conformity

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

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

Canadian Department of Communications

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

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

Preface

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INTRODUCTION: ON YOUR MARKS!

Introduction

The jumper-free P3BX.1 ATX motherboard makes an ideal platform for Intel's most powerful processors. The P3BX.1 is a slot-1 motherboard that can be installed with any of Intel's slot-1 processor cartridges including the SEPP Celeron, the Pentium-II series and the Pentium-III 100MHz FSB series. The motherboard integrates a full set of expansion slots and I/O ports.

Using This Manual

This manual is designed to help you build a reliable Personal Computer based on the P3BX.1 platform.

Introduction: On Your Marks!

This chapter includes an introduction, a checklist of the items that ship with this motherboard, and a summary of the principal features and components.

Hardware: Get Ready!

This chapter explains how to prepare your motherboard for use, how to install it in a computer case, and how to make the various connections to other computer components and peripheral items.

Firmware: Get Set!

This chapter explains how to use the system setup utility that is stored in the motherboard's firmware.

Checklist

Checklist

The P3BX.1 motherboard ships with the following components:

- P3BX.1 motherboard (including a retention mechanism for the slot-1)
- One floppy diskette drive ribbon cable
- One IDE ribbon cable (Ultra DMA 33)
- One CD-ROM with support software
- One User Manual

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

P3BX.1 Features and Benefits

The P3BX.1 motherboard supports a wide range of Intel slot-1 cartridges. You can create a low-cost computer with a SEPP Celeron, or a powerful graphics workstation using the latest Pentium-III 100MHz FSB series.

Processor Information

Choice of full range of Slot1 processors
P3BX.1 supports 66/100 MHz front side bus frequency
Onboard CPU Fan Header

Slot-1 processors include the SEPP (Single Edge Processor Package) Celeron, the Pentium-II, and the Pentium-III 100MHz FSB series.

The SEPP Celeron uses a Pentium-II processor with 32K of internal level 1 cache memory and 128K of external level 2 cache memory. It is an economical processor that delivers good entry-level and business-class performance. SEPP Celerons run at clock speeds from 266 MHz through to 500 MHz or higher. They operate over a 66 MHz system bus.

Pentium-II processor cartridges provide business-class to professional-class performance. The Pentium-II core is supported with 32K of internal level 1 cache memory and 512K of external level 2 cache memory. Clock speeds run from 233 MHz through to 450

MHz or higher. Pentium-II's operate over a 66MHz or 100 MHz system bus.

The Pentium-III 100MHz FSB series processor is identical to the Pentium-II processor except that it has added instructions that are designed to improve performance in areas such as the internet, encoding and decoding of compressed audio and video files, and so on. Currently, the Pentium-III 100MHz FSB series ships with clock speeds of 450 MHz, 500 MHz, 550 MHz and 600MHz or higher.

Chipset Information

Intel 82443BX chip
Intel 82371EB chip
Winbond W83977EF-AW chip

The Intel 82443BX chip is optimized for Pentium II processors and supports a 66 or 100MHz bus, and concurrent PCI. Along with a Host-to-PCI bridge interface, the 82443BX host bridge controller has been optimized with a 100/66 MHz SDRAM memory controller and data path. The following functions and capabilities are also featured:

- 64-bit AGTL+ based system data bus Interface
- 32-bit system address bus support
- 64/72-bit main memory interface with optimized support for SDRAM
- AGP 2X interface support
- Data buffering between all interfaces enables high throughput and concurrent operations

The 82443BX system bus interface supports up to two Pentium II processors at a 100 MHz maximum bus frequency. The physical interface design is based on the AGTL+ specification and is compatible with the Intel 440BX AGPset solution. The 82443BX architecture includes an optimized 72-bit SDRAM interface (64-bit Data plus ECC), which supports 3.3V SDRAM technologies.

P3BX.1 Features and Benefits

Main Memory

Three 168-pin DIMM sockets available
Up to 768MB Memory

The motherboard has three DIMM (Dual In-line Memory Module) slots which support memory modules installed with 3.3V, PC-100 (100 MHz) SDRAM memory chips. Each memory module slot can support a maximum capacity of 256MB so total maximum memory is 768MB. The P3BX.1 motherboard supports memory with ECC (Error Correction Code) error correction.

BIOS Information

AMI Plug 'n' Play flash BIOS
ACPI / Deep Green / Energy Star / PC97, PC98 and PC99
compliant
Blinking LED for Sleep mode & more
Year 2000 compliant

The system BIOS support automatic detection and configuration of the processor, hardware monitoring, and the Advanced Configuration and Power Interface (ACPI) specification. It makes for easy configuration, energy-efficient operation, and automatic detection of critical temperatures and voltages.

Disk Drive & System I/O

Onboard Dual Channel Two Ultra DMA 33 PCI Bus-Master IDE
Ports
One Floppy Drive Connector Port (Up to 2.88MB)
Two 16550 compatible High Speed Serial Ports
One ECP/EPP High Speed Parallel Port
Two USB Rev 1.0 Ports & one SIR (infrared) port
One PS/2 Mouse port and one PS/2 Keyboard port

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

Expansion Slots

- One 32-bit AGP slot
- Five 32-bit PCI slots
- Two 8/16-bit legacy ISA slots

The standard ATX motherboard has a full complement of expansion slots. You can add new features and functions to your system by plugging expansion cards into the slots. One PCI slot is shared with one ISA slot. This means that you can use either one of these slots but not both together at the same time.

Voltage and Power

- ATX Power Supply Connectors
 - +3.3V for Intel 82443BX, 82371EB, 3.3V PCI, 3.3V components.
 - +5V for processor VRM, PCI and other 5V components on the motherboard.
 - +5VSB for 5V based motherboard devices intended to be wakeup devices.
 - +12V Power Source for DC-FAN and devices
 - +2.5V for CPU CMOS and CLKG
 - +1.5V for CPU AGTL+ BUS

The system uses an ATX power supply and supports all the power management benefits of the ATX system including a software powerdown, power saving modes, wake-up alarms for modem, network and realtime clock, and so on.

Physical Dimensions

- Standard ATX (7.05" x 12")
- Double Row ATX Connectors

The standard ATX format delivers a full set of expansion slots for maximum system development potential.

HARDWARE: GET READY!

Introduction

This chapter is a step-by-step guide that explains how to use your P3BX.1 motherboard to build a powerful computer system. At a minimum, you will need the following components in order to build a fully functioning system.

- ◆ Standard chassis with ATX power supply
- ◆ Intel Slot-1 processor (SEPP Celeron, Pentium-II, Pentium-III 100MHz FSB series)
- ◆ One SDRAM memory module, at least 32 MB for OS
- ◆ One graphics adapter
- ◆ One floppy disk drive
- ◆ One IDE hard disk drive
- ◆ One CD-ROM drive
- ◆ One display monitor
- ◆ One PS/2 (or other type) mouse
- ◆ One PS/2 keyboard

Of course you can 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.

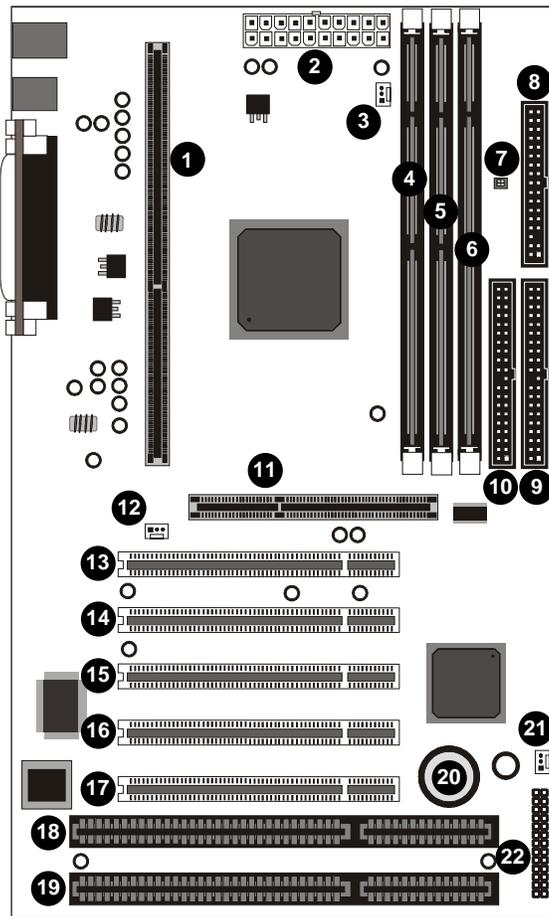
Safety Measures

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 motherboard 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 motherboard 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 board unless it is necessary to do so. Don't flex or stress the circuit board.
- Leave all components inside the static-proof packaging that it ships with until you are ready to use the component for the installation.

Motherboard Layout

Use the following illustration and key to identify the major components on the motherboard.



Note: *Because of optional items and design changes, your motherboard may not be identical to the one shown in the illustration.*

Key to Motherboard Components

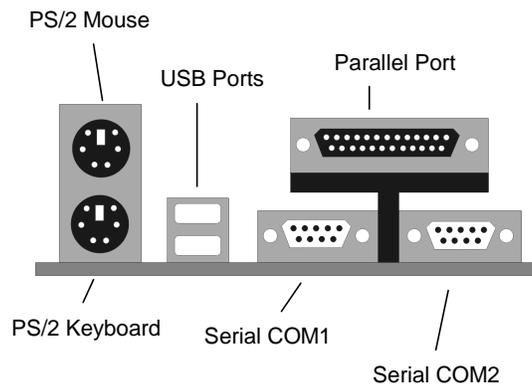
Use the table below to identify the main components on the motherboard illustration.

No.	Name	Function
1	SLOT1	Slot-1 for SEPP Celeron, Pentium-II, Pentium-III 100MHz FSB series
2	Power	Socket for the ATX power supply cable
3	FAN1	Power supply for 12V CPU cooling fan
4	DIMM1	Three slots for SDRAM memory modules
5	DIMM2	
6	DIMM3	
7	SW1	Clear CMOS, clear Password DIP switch
8	FLOPPY	Floppy diskette controller connector
9	PRIMARY	Primary IDE channel connector
10	SECONDARY	Secondary IDE channel connector
11	AGP	One AGP slot for AGP graphics adapter
12	WOL	Wake on LAN connector
13	PCI1	Five 32-bit PCI expansion slots
14	PCI2	
15	PCI3	
16	PCI4	
17	PCI5	
18	ISA1	Two 8/16-bit ISA expansion slots
19	ISA2	
20	BATTERY	CMOS memory / Realtime clock battery
21	FAN2	Power supply for 12V chassis cooling fan
22	PANEL	Connectors for case switches and indicators

Motherboard **Layout**

I/O Ports

Like most ATX motherboards, this board is installed with a two-tier row of I/O ports. The illustration below shows a side-on view of the I/O ports.



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
Parallel	Burgundy
PS/2 compatible keyboard	Purple
PS/2 compatible mouse	Green
Serial	Teal or Turquoise
USB	Black

Pre-Installation Procedure

Before you install your motherboard into a computer case, it's convenient to install the processor, install the memory modules, and set any jumpers to correct settings.

Install the Processor

Intel makes all slot1 processors. The best performance slot1 processor is the Pentium-III 100MHz FSB series running at 450/500/550/600 MHz, or higher. Celeron processors using the SEPP (Single Edge Processor Package) format can also be installed in the Slot1. SEPP Celerons have retailed with clock speeds from 266 MHz through to 433 MHz, or higher. The P3BX.1 board supports Pentium-II processors which have retailed with clock speeds ranging from 233 MHz up to 450 MHz, or higher.

Intel may release new generations of slot1 processors in the near future. You can check with your motherboard vendor if new processors are now available

Slot1 Processor Installation Procedure

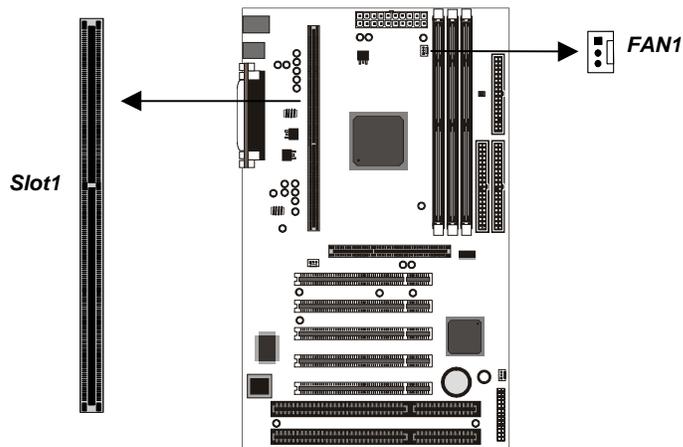
Processor Cartridge Holder

The slot1 processor slot must be installed with a cartridge holder (retention mechanism) to support the processor cartridge and heatsink/cooling fan assembly. The illustration below shows a cartridge holder that is pre-installed on the motherboard. The support struts of the cartridge holder are folded down for shipping. Pull the struts into the upright position before proceeding with the installation.

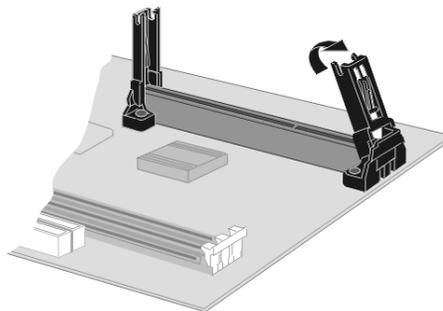
Install the Processor

Your motherboard may ship with other designs of cartridge holder that need to be manually installed on the slot1 and then secured in place with screws or plastic pins inserted on the four holes at either corner of the slot1.

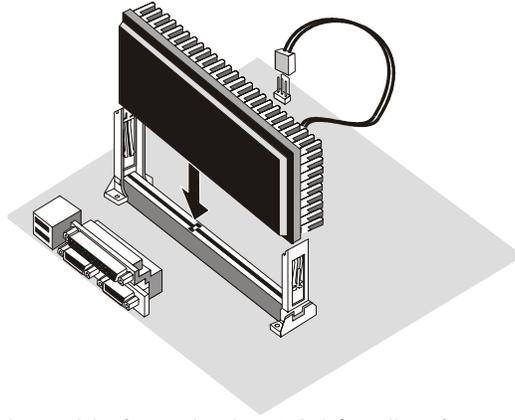
1. On the motherboard, identify the slot1 processor slot and the power supply for the heatsink/cooling fan assembly FAN1.



2. Slide the processor cartridge/heatsink/cooling fan assembly into the cartridge holder.
3. Press the cartridge down quite firmly so that the edge connector on the cartridge seats properly into slot1.



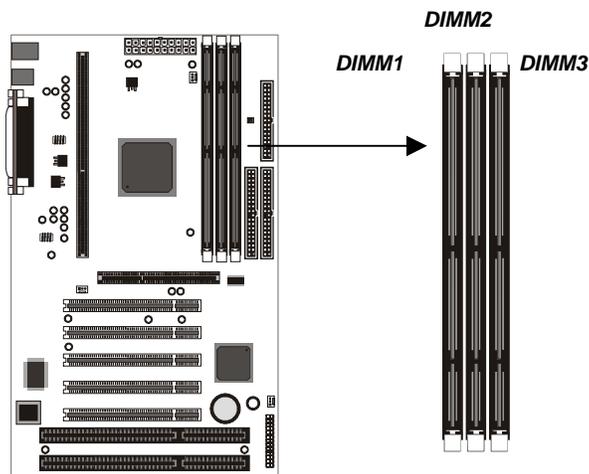
Install the Processor



4. Connect the cable from the heatsink/cooling fan assembly to the processor cooling fan power supply connector FAN1.
5. Configuration of the processor is carried out using the system setup utility as described in chapter three. Configure the processor the first time you turn on the assembled computer.

Install Memory Modules

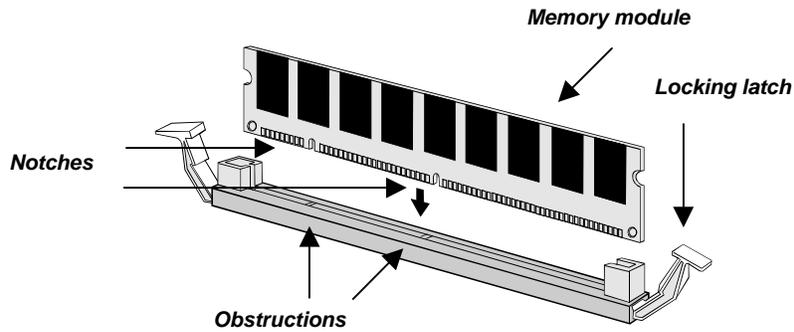
This motherboard has three DIMM (Dual In-line Memory Modules) slots for the installation of memory modules. The memory modules must use 3.3V SDRAM memory chips. This board will support memory modules that use ECC (Error Correction Code) error checking.



You can install one, two or three modules. If you install one or two modules, it makes no difference into which of the three slots you install them. Each memory module can carry a maximum of 256MB memory of double banks so total maximum memory is 768MB.

1. On the motherboard, locate the three DIMM slots.
2. Pull the locking latches of the DIMM 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.

BIOS DIP Switch

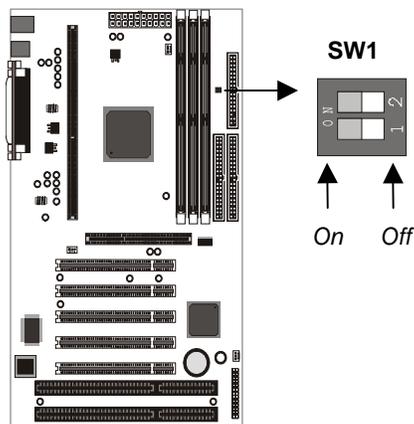


4. Press the edge connector of the memory module into the slot. Press down quite firmly so that the locking latches of the DIMM slot are levered upwards to secure the memory module in place.
5. Repeat the process with any other memory modules that you want to install.

BIOS DIP Switch

This motherboard is jumper free, and all frequency and voltage settings are done through the BIOS. The only hardware configuration function left to be set manually on the motherboard is an easy to use DIP switch for changing BIOS security.

Locate the DIP switch on the motherboard.



BIOS DIP Switch

SW1: Clear CMOS Memory & Clear CMOS Password

The white blocks represent the switch's position. Use these two DIP switches to clear the contents and the password of the CMOS memory.

Setting	Switch 1
Normal Operation	Off
Clear CMOS BIOS	On

The setup utility is stored in CMOS, so you might need to clear this memory if incorrect setup data is stopping your system from starting. To clear the CMOS, disconnect the ATX power cable from the motherboard. Move switch 1 to the On setting and leave it there for a few seconds. Then return the switch to the Off setting and reconnect the power cable.

Setting	Switch 2
Normal Operation	Off
Clear CMOS Password	On

The setup utility can be protected by a password. This switch allows you to clear the password protection from the setup utility, in case you forgot the initial password. To clear the CMOS password protection, disconnect the ATX power cable from the motherboard. Move switch 2 to the On setting and leave it there for a few seconds. Then return the switch to the Off setting and reconnect the power cable.

Note: *Default settings are shaded gray.*

Install the Motherboard in a Computer Case

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

Choosing a Computer Case

This is a standard ATX motherboard, so you must use a computer case that is installed with an ATX power supply unit. The case should have openings in the rear edge for all the seven expansion slots that are available on this board. 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 board.

This board can support two floppy diskette 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 board onto the mounting brackets inside the case. The motherboard has several holes drilled through it, and you should be able to drive a screw through some of these holes into the mounting brackets in the case. Don't overtighten the screws as this can stress the motherboard.

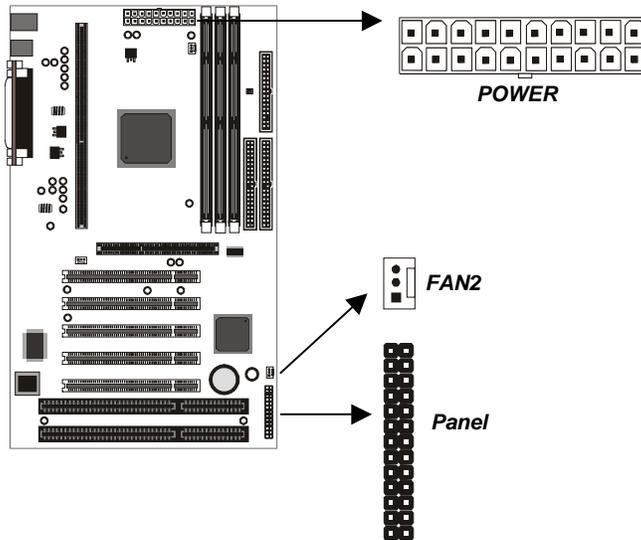
Connecting the Case Components

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

Note: *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.*

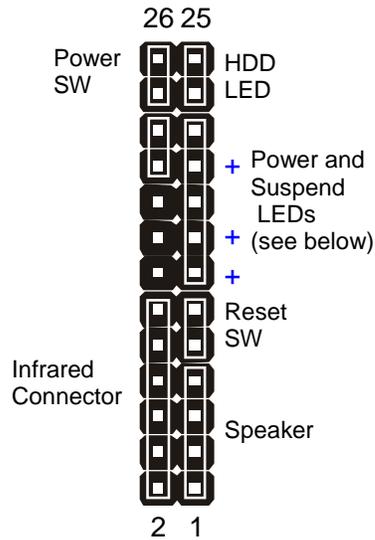
Connecting *the Case Components*

1. On the motherboard, locate the power connector (POWER), the PANEL connector, and the cooling fan power connector FAN2 .



2. Plug the main power supply cable from the case power supply unit into the POWER connector on the motherboard.
3. If your computer case has a chassis cooling fan, plug the power cable of the cooling fan into the chassis cooling fan connector FAN2.
4. Locate the PANEL connector on the motherboard. Begin connecting the case switches and indicators to the appropriate pins on the PANEL connector. Use the illustration below to make the correct connections.

Connecting *the Case Components*



Note: *If you short the pins 1-3 on PANEL, you can use the onboard buzzer.*

Connecting Power and Suspend LEDs

One 3-pin cable with dual colors for Power & Suspend LEDs	Connect to pins 15-17-19
One 3-pin cable with single color for Power LED only	Connect to pins 15-17-19
One 2-pin cable for Power LED & one 2-pin cable for Suspend LED	Connect Power to pins 15-17 Connect Suspend to pins 19-21
One 3-pin cable for Power LED & one 2-pin cable for Suspend LED	Connect Power to pins 13-15-17 Connect Suspend to pins 19-21

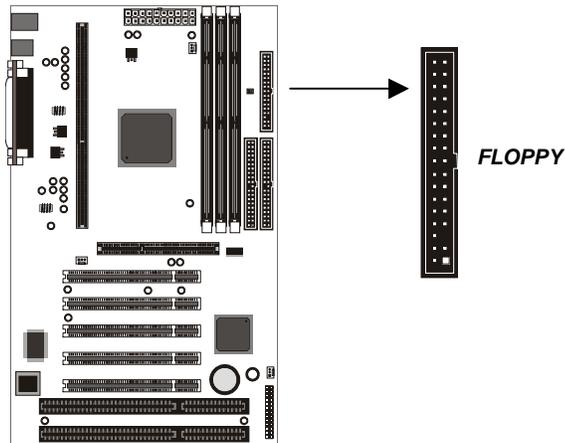
Note: *“Power LED State” to “Always On”*
“Suspend LED State” to “Pulse Trigger”

Floppy Diskette Drive

The motherboard has a floppy diskette drive interface that will support one or two floppy disk drives. The floppy diskette drive ribbon cable has connectors for two 3.5" wide diskette drives.

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

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



2. Locate the floppy diskette drive connector on the motherboard. The connector is named FLOPPY. Plug one end of the floppy diskette drive ribbon cable into FLOPPY. Plug one of the other connectors into the data connector on the rear edge of the floppy diskette drive.
3. Plug a free power supply cable from the case power supply unit into the power connector on the rear edge of the floppy diskette drive.
4. When you start up your assembled computer, the floppy diskette 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 motherboard has two IDE channel connectors, the Primary IDE channel and the Secondary IDE channel. 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.

Typically, most people install one IDE hard disk drive and one IDE CD-ROM drive so this motherboard ships with one IDE cable. You can easily obtain a second IDE cable if you want to install more than two IDE devices.

Ultra-DMA

This motherboard supports Ultra-DMA 33. Ultra DMA is a technology that improves the performance of IDE devices. However you must use IDE cables that are approved for the faster UDMA performance. If you buy an IDE cable to use the secondary IDE channel, make sure the cable supports UDMA.

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

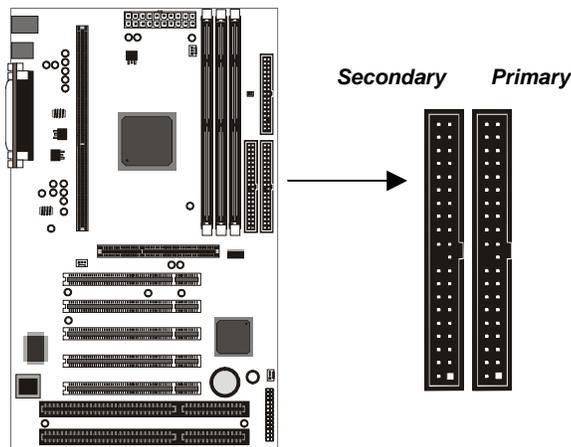
Master & Slave

When you install two devices on a single IDE channel, you must configure one of the devices as a MASTER device and one of the devices 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. Normally you do this by changing a jumper on the rear edge of the device. 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. Locate the Primary IDE channel connector on the motherboard. The connector is named PRIMARY. Plug one end of the IDE cable into 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.

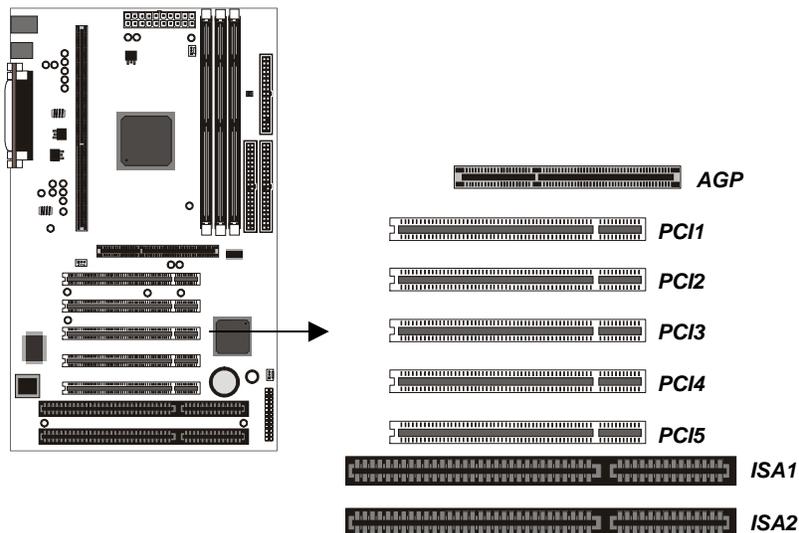


3. Plug a free power supply cable from the case power supply unit into the power connector on the rear edge of the IDE device(s).
4. When you start up your assembled computer, an IDE hard disk drive on the primary IDE channel is identified as drive C. A second IDE drive on the primary IDE channel is 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.

Installing Expansion Cards

This motherboard has one AGP slot, five 32-bit PCI slots and two 8/16-bit ISA slots. The PCI slot and the ISA slot that are side by side (PCI5 and ISA1) are shared. This means that you can use either of these slots but you cannot use them both at the same time.

- The AGP slot supports an add-in graphics adapter which has an AGP (Accelerated Graphics Port) edge connector.
- The PCI slots support current add-in cards which have a 32-bit PCI (Peripheral Components Interconnect) edge connector.
- The ISA slots support legacy add-in cards which have an 8/16-bit ISA (Industry Standard Architecture) edge connector.



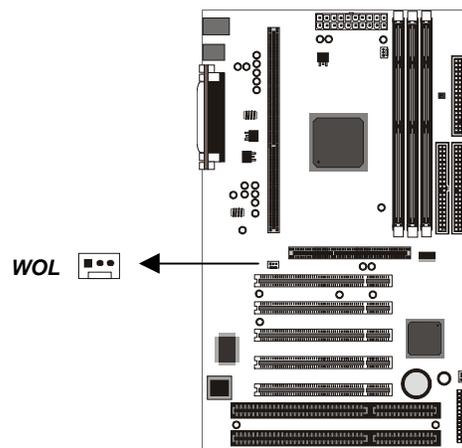
Add-in Card Options

Locate the expansion slots on the motherboard.

1. Select which slot you plan to use according to the kind of add-in card you are going to install.
2. In the computer case, remove the blanking plate from the opening in the case adjacent to the slot you are going to use.
3. 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.
4. 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.
5. Drive a screw through the metal bracket on the edge of the card to secure it in place. The opening in the case has a screw available on the top of the opening.

Add-in Card Options

This motherboard 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 might have to enable this feature using the system setup utility. See the following chapter for more information.



FIRMWARE: GET SET!

Introduction

This chapter explains how to use the system setup utility that is stored in the system BIOS. The setup utility is like a database of the hardware that is installed in your computer. It contains information about the configuration of the hardware, how you want the hardware to operate, the current date and time, and so on.

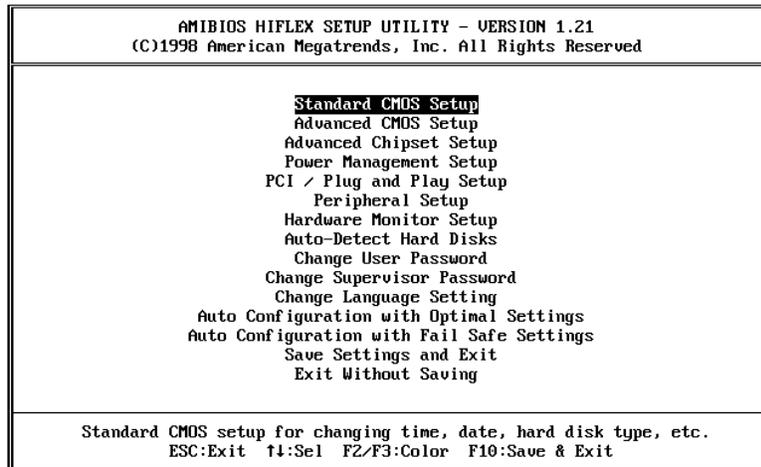
When you have assembled your computer, you should immediately run the setup utility to configure the new hardware that you have used to build your system. Thereafter, you may not need to visit the setup utility again unless you make changes to the hardware configuration of the system.

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.

Running the Setup Utility



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 hitting the **Y** or **N** keys.

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)1998 American Megatrends, Inc. All Rights Reserved									
Date (mm/dd/yyyy): Thu Dec 21, 1999					Base Memory: 0 KB				
Time (hh/mm/ss) : 14:24:27					Ext'd Memory: 0 MB				
Floppy Drive A: Not Installed									
Floppy Drive B: Not Installed									
					LBA Blk PIO 32Bit				
Type		Size	Cyln	Head	WPcom	Sec	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 F1:Sel				
Day: 01 - 31					PgUp/PgDn:Modify				
Year: 1901 - 9999					F1:Help F2/F3:Color				

Date & Time

Use these items to install your system with the correct date and time

Floppy Drive A & Floppy Drive B

If you have just 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 Master/Primary Slave/Secondary Master/Secondary Slave

These items show the characteristics of any devices on the two available IDE channels. You can automatically install most modern hard disks using the Auto-Detect Hard Disks Option from the main menu. If you can't auto-detect a drive, you might be able to find a preset type from 1-46 that matches your hard disk. Or, 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.

Advanced CMOS Setup Page

Boot Sector Virus Protection

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

Advanced CMOS Setup Page

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

AMIBIOS SETUP - ADVANCED CMOS SETUP (C)1998 American Megatrends, Inc. All Rights Reserved		
Quick Boot	Enabled	Available Options: Disabled ▶ Enabled
1st Boot Device	Floppy	
2nd Boot Device	IDE-0	
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	UGA/EGA	
Password Check	Setup	
Boot To OS/2 > 64MB	No	
CPU Serial Number	Enabled	
Cache Bus ECC	Enabled	
System BIOS Cacheable	Enabled	
C000, 16k Shadow	Cached	ESC:Exit ↑↓:Sel PgUp/PgDn:Modify F1:Help F2/F3:Color
C400, 16k Shadow	Cached	

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 3 items to determine where and in which order the system 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 legacy 5.25" floppy diskette drive with a 360K capacity.

PS/2 Mouse Support

Enable this item if you plan on using 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.

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.

C000,16k Shadow, C400,16K Shadow

These items determine how the 16K of video ROM at address C000h is treated. If you disable both items, the video ROM is not copied to main memory. If you enable C000, 16K of the video ROM is copied to main memory. If you enable C400, 16K of the video ROM is copied to main memory. If you set the items to Cached, 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 some advanced changes to the operation of your computer.

AMIBIOS SETUP - ADVANCED CHIPSET SETUP	
(C)1998 American Megatrends, Inc. All Rights Reserved	
***** SDRAM Timing *****	
Configure SDRAM Timing by SPD	Enabled
SDRAM RAS# to CAS# delay	3 SCLKs
SDRAM RAS# Precharge	3 SCLKs
SDRAM CAS# Latency	3 SCLKs
DRAM Integrity Mode	Non-ECC
Memory Hole	Disabled
Graphics Aperture Size	64MB
PIIX4 Delayed Transaction	Enabled
ClkGen for PCI Slot/DIMM	Enabled
USB KB/Mouse Legacy Support	Disabled
Available Options:	
Disabled	
▶ Enabled	
ESC:Exit F4:Sel	
PgUp/PgDn:Modify	
F1:Help F2/F3:Color	

DRAM Timing - use the items below this header to configure the memory module slots.

Configure SDRAM Timing by SPD

Enable this item if you want the system SPD (Serial Presence Detect) to automatically detect the speed of the installed memory modules.

SDRAM RAS# to CAS# delay

SDRAM RAS# Precharge

SDRAM CAS# Latency

These three items set the timing parameters for the system memory such as the CAS (Column Address Strobe) and RAS (Row Address Strobe). We recommend that you Enable the first item Configure SDRAM Timing by SPD so that the memory timing is automatically detected.

DRAM Integrity Mode

This item enables or disables ECC (Error Correction Code) error checking on the memory.

Memory Hole

This item can be used to reserve memory space for some ISA expansion cards that require it.

Graphics Aperture Size

This item specifies how much system memory can be used for an AGP graphics aperture.

PIIX4 Delayed Transaction

If the chipset has an embedded 32-bit write buffer to support delay transaction cycles, you can enable this item to provide compliance with PCI Ver. 2.1 specifications.

ClkGen for PCI Slot/DIMM

If you enable this item, the system does not generate clock signals for unused PCI or DIMM slots, so that EMI (electromagnetic interference) is reduced.

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 legacy operating system that does not support Plug and Play such as DOS.

Power Management Setup Page

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

AMIBIOS SETUP - POWER MANAGEMENT SETUP (C)1998 American Megatrends, Inc. All Rights Reserved		
Power Management/APM	Enabled	Available Options: Disabled ▶ Enabled
Video Power Down Mode	Suspend	
Hard Disk Power Down Mode	Suspend	
Standby Time Out (Minute)	Disabled	
Suspend Time Out (Minute)	Disabled	
System Thermal	Ignore	
Thermal Slow Clock Ratio	50-62.5%	
Power Button Function	On/Off	
Ring Resume From Soft Off	Disabled	
LAN Resume From Soft Off	Disabled	
RTC Alarm Resume From Soft Off	Disabled	
RTC Alarm Date	15	
RTC Alarm Hour	12	
RTC Alarm Minute	30	
RTC Alarm Second	30	

ESC:Exit F4:Sel
PgUp/PgDn:Modify
F1:Help F2/F3:Color

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.

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.

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.

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

Power Management Setup Page

duration of the timeout, the system will automatically enter standby mode.

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.

System Thermal

If you enable this item, and your motherboard is installed with hardware monitoring, the system will monitor the heat output of the system.

Thermal Slow Clock Ratio

If the System Thermal item is enabled, you can use this item to set the degree the system clock should be reduced, depending on the heat monitored. You can set this item to a ratio in a range anywhere between 0 and 100%.

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 puts the system into a power-saving suspend mode. To turn off the system when the setting is SUSPEND, you must hold down the power button for four seconds.

Ring Resume from Soft Off

If this item enabled, an incoming call to an external modem can resume the system from a software power down.

LAN Resume from Soft Off

If this item enabled, incoming traffic to a network (LAN) adapter can resume the system from a software power down. You might need to make a hardware connection from the LAN adapter to a wake-on-LAN connector on the motherboard for this feature to operate.

RTC Alarm Resume From Soft Off

If this item is enabled, you can set an alarm on the system RTC (RealTime Clock) that will resume the system from a software power down. Use the items below to set the Alarm Date, Hour, Minute and Second.

RTC Alarm Date/Hour/Minute/Second

Use these items to set a time when the system should resume from a software power down.

PCI / Plug and Play Setup Page

This page lets determine how the system handles plug and play devices and devices on the PCI bus.

AMIBIOS SETUP - PCI / PLUG AND PLAY SETUP (C)1998 American Megatrends, Inc. All Rights Reserved		
Plug and Play Aware O/S	Yes	Available Options: No ▶ Yes
Clear NVRAM	No	
PCI Latency Timer (PCI Clocks)	64	
Primary Graphics Adapter	AGP	
PCI Slot1/5 IRQ Priority	Auto	
PCI Slot2 IRQ Priority	Auto	
PCI Slot3 IRQ Priority	Auto	
PCI Slot4 IRQ Priority	Auto	
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	

ESC:Exit ↑:Sel
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 on an add-in expansion card installed in a PCI or AGP slot.

PCI Slot1/5 IRQ Priority

PCI Slot2 IRQ Priority

PCI Slot3 IRQ Priority

PCI Slot4 IRQ Priority

Use these items to assign priority allocation of an IRQ (interrupt request line) to devices installed in each of the PCI slots. We recommend that you set these items to Auto.

DMA Channel 0.....DMA Channel 7

These DMA (Direct Memory Access) channels are set to PnP by default, so that the Plug and Play manager can dynamically allocate them as and when they are required. If you set an DMA channel to ISA/EISA, it is reserved and cannot be allocated by the Plug and Play manager.

IRQ3.....IRQ15

These IRQs are set to PCI/PnP as a default, so that the Plug and Play manager can dynamically allocate them as and when they are required. If you set an IRQ to ISA/EISA, it is reserved and cannot be allocated by the Plug and Play manager.

Peripheral Setup Page

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

AMIBIOS SETUP - PERIPHERAL SETUP (C)1998 American Megatrends, Inc. All Rights Reserved		
OnBoard FDC	Auto	Available Options: ▶ Auto Disabled Enabled ESC:Exit F4:Sel PgUp/PgDn:Modify F1:Help F2/F3:Color
OnBoard Serial PortA	Auto	
OnBoard Serial PortB	Auto	
Serial PortB Mode	Normal	
OnBoard Parallel Port	Auto	
Parallel Port Mode	ECP	
EPP Version	N/A	
Parallel Port IRQ	Auto	
Parallel Port DMA Channel	Auto	
PowerLoss Control	Keep Last	
K/B Wake-up function	Disabled	
Mouse Wake-up function	Disabled	
OnBoard IDE	Both	

Onboard FDC

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

Onboard Serial Port A

Onboard Serial Port B

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 B 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 that is an optional item on this motherboard.

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 Version

If the Parallel mode is set to EPP, you can this item to determine the EPP version, either 1.7 or 1.9

Parallel Port IRQ

Parallel Port DMA Channel

Use this to allocate an IRQ and DMA (Direct Memory Access) channel for the parallel port.

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 Wake-up function

If you enable this item, you can turn on the system from a software power down by hitting the space key on the keyboard.

Mouse Wake-up function

If you enable this item, you can turn on the system from a software power down by double-clicking the mouse button.

Onboard IDE

Use this item to enable the primary and secondary IDE channels that are integrated on this motherboard.

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		
(C)1998 American Megatrends, Inc. All Rights Reserved		
CPU Frequency Selection	100MHz	Available Options:
CPU/System Clock Ratio	4.5x	2.0x
--≡ System Hardware Monitor ≡--		
Current CPU Temperature	39°C	2.5x
Current CPU Fan Speed	4655 RPM	3.0x
Current Case Fan2 Speed	0 RPM	3.5x
Vcore	2.016 V	4.0x
Vtt	1.536 V	▶ 4.5x
Vio	3.440 V	5.0x
+ 5.000V	5.109 V	5.5x
+12.000V	12.410 V	6.0x
-12.000V	-12.886 V	6.5x
- 5.000V	-5.151 V	7.0x
5USB	5.458 V	7.5x
VBAT	3.248 V	8.0x
		1.5x
ESC:Exit F1:Sel		
PgUp/PgDn:Modify		
F1:Help F2/F3:Color		

CPU Frequency Selection CPU/System Clock Ratio

The system auto-detects the correct CPU settings. However, you can use these items to install the CPU settings manually. If you install incorrect settings, the system may become unstable.

Use the CPU Frequency Selection to select the basic system front side bus frequency. Use this CPU/System Clock Ratio to select a multiplier for the system frontside bus frequency. The value of the multiplier must be set so that

Multiplier x Front Side Bus 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 front side bus frequency of 100 MHz, you should select a multiplier of 4.5 so that:

$$4.5 \text{ (Multiplier)} \times 100 \text{ MHz (front side bus)} = 450 \text{ MHz (CPU clock)}$$

Auto Detect Hard Disks

Note: *There are two choices for each of the CPU frequency settings. The setting marked with an asterisk means that spread spectrum is enabled to reduce electromagnetic interference (EMI).*

System Hardware Monitor.....and following items

This motherboard supports hardware monitoring, these items 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 also 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.

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.

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 failsafe 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 program. 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 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.