Chapter 2: Installation

Quick Installation Table

This chapter explains how to successfully install the mainboard into a computer case and build a working system. The installation procedure is as follows:

|	
Quick Jumper Setting Reference	Provides a quick reference for the jumper settings on this mainboard.
Before you Begin	Provides advice on choosing a case, avoiding static electricity damage, and setting jumpers.
Preparing the Mainboard	Provides a guide to the mainboard and I/O port locations, full details on the jumper settings, and advice on installing the mainboard in the system case.
Install Other Hardware	Provides guidance on installing essential hardware: processor, memory, hard disk drive, CD-ROM, floppy disk drive, and expansion cards.
Make the External Connections	Provides advice on using the external I/O ports to install peripheral devices such as a keyboard, a monitor, a mouse, a printer, loudspeakers, and so on.

Quick Jumper Setting Reference

If you are familiar with most of the material in this chapter, you can begin preparing the mainboard for installation by using this quick reference to begin the setting the jumpers. A detailed description of the jumper setting appears later in this chapter.

JP1: Clear CMOS memory jumper
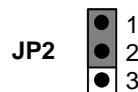Use this 3-pin jumper top clear all the current data stored in the CMOS memory.

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

JP1
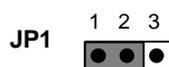
JP2: Keyboard power on jumper
Use this 3-pin jumper to enable keyboard power on with hot keys or password.

Function	Jumper Cap
Enable keyboard power on	Short pins 1-2
Disable keyboard power on	Short pins 2-3

JP2

JP3: Audio/modem enable/disable jumper
Use this jumper to enable or disable the audio system and modem integrated on the mainboard.

Function	Jumper Cap
Enable audio/modem	Short Pins 1-2
Disable audio/modem	Short pins 2-3

JP3
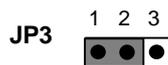
JP5: Set System bus frequency jumper
Use this jumper to set the system bus frequency at auto-detect, or fixed at 100 MHz

Function	Jumper Cap
Normal	Short Pins 1-2
Force 100 MHz	Short pins 2-3

JP5

JP6: Audio codec select jumper

Use this jumper to select if the system uses the audio codec chip integrated on the mainboard, or an audio codec chip located on an optional AMR card.

Function	Jumper Cap
Turn on onboard codec	Short Pins 1-2
Turn off onboard codec	Short pins 2-3

JP6

1 2 3
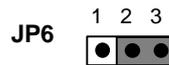
Before You Begin

Before you begin to install your P6IWT-A+ mainboard, take some precautions to ensure that you avoid the possibility of damage to the product from static electricity. Ensure too that you are installing the mainboard into a suitable case.

Static Electricity

In adverse conditions, static electricity can accumulate and discharge through the integrated circuits and silicon chips on this product. These circuits and chips are sensitive and can be permanently damaged by static discharge.

- ♦ If possible wear a grounding wrist strap clipped to a safely grounded device during the installation.

- ♦ If you don't have a wrist strap, discharge any static by touching the metal case of a safely grounded device before beginning the installation.

- ♦ Leave all components inside their static-proof bags until they are required for the installation procedure.

- ♦ Handle all circuit boards and electronic components carefully. Hold boards by the edges only. Do not flex or stress circuit boards.
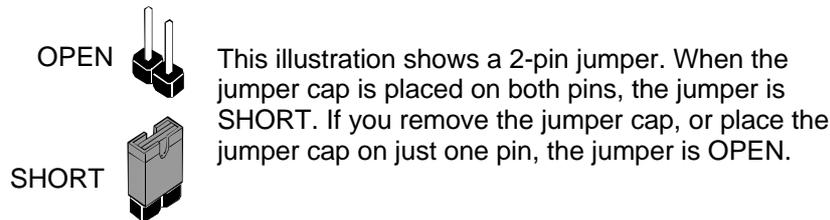
Choosing a Case

This a full-sized ATX mainboard that measures 305mm x 243mm. It has 5 PCI expansion slots and an AMR slot. The mainboard will fit most ATX cases that are designed for full-sized ATX mainboards. With a full set of expansion slots and support for 4 IDE devices, you might like to choose a case that has a robust power supply unit that delivers at least 250 watts.

Some features on the mainboard are implemented by cabling connectors on the mainboard to indicators and switches on the system case. Ensure that your case supports all the features required. The P6IWT-A+ mainboard can support one or two floppy diskette drives and four enhanced IDE drives. Ensure that your case has sufficient power and space for all the drives that you intend to install.

The mainboard has an unusual set of I/O ports on the rear edge that includes two TV-out ports. Ensure that your case has an I/O template that supports the I/O ports and expansion slots.

How to Set Jumpers

A jumper consists of two or more pins mounted on the mainboard. Some jumpers might be arranged in a series with each pair of pins numbered differently. Jumpers are used to change the electronic circuits on the mainboard. When a jumper cap is placed on two jumper pins, the pins are SHORT. If the jumper cap is removed (or placed on just a single pin) the pins are OPEN.

OPEN

SHORT

This illustration shows a 2-pin jumper. When the jumper cap is placed on both pins, the jumper is SHORT. If you remove the jumper cap, or place the jumper cap on just one pin, the jumper is OPEN.

This illustration shows a 3-pin jumper. The jumper cap is placed on pins 2 and 3, so this jumper setting is SHORT PINS 2-3.

This illustration shows the same 3-pin jumper. The jumper cap is placed on pins 1 and 2, so this jumper setting is SHORT PINS 1-2.
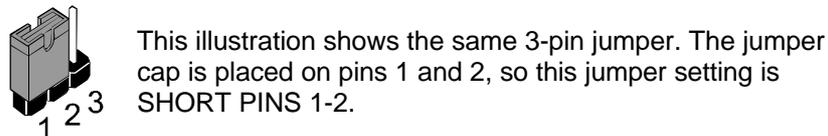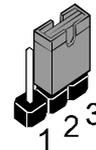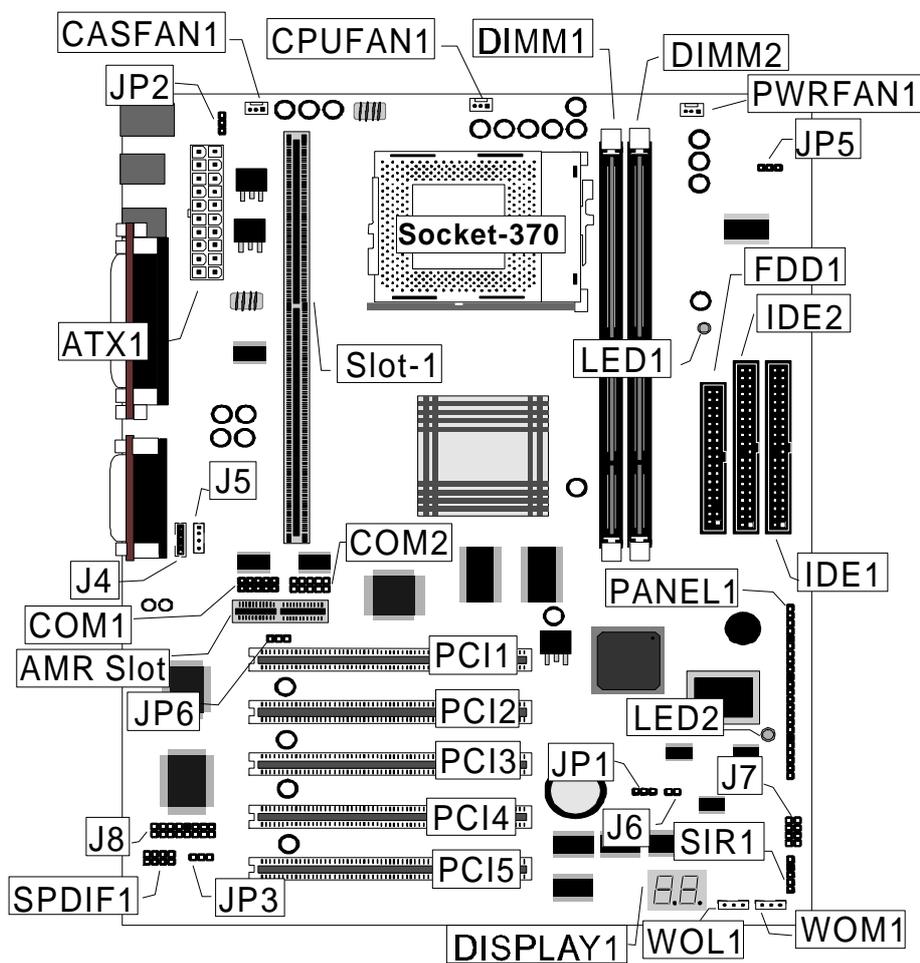
In this manual, all the jumper illustrations clearly show the pin numbers. When you are setting the jumpers, make sure that the jumper caps are placed on the correct pins to select the function or feature that you want to enable or disable.

Preparing the Mainboard

Mainboard Guide

Use the following illustration and key to identify the components on your mainboard.

Key to Mainboard Components

Component	Description
Slot-1	Slot for Slot-1 processor cartridge
Socket-370	Socket for PPGA Celeron Processor
PCI 1,2,3,4,5	Five 32-bit PCI Slots
AMR Slot	Slot for an Audio Modem Riser card.
DIMM 1, 2	Two slots for 168-pin SDRAM memory module
FDD1	Connector for floppy disk drives
IDE1, IDE2	Primary and secondary IDE channels
ATX1	Connector for ATX power supply
PANEL1	Panel connector for switches and indicators
WOM1	Connector for modem wake up
WOL1	Connector for LAN wake up
SIR1	Connector for infrared port
SPDIF	SPDIF In/out connector (24-bit digital audio interface)
COM1	Connector for serial port 1/3
COM2	Connector for serial port 2/4
CASFAN1	Power connector for case cooling fan
CPUFAN1	Power connector for CPU cooling fan
PWRFAN1	Power connector for power supply cooling fan
J8	Onboard modem connector
J4	Audio connector for CD-ROM/DVD drive
J5	Auxiliary audio connector for CD-ROM/DVD drive
J6	Detects when the case is opened
J7	Auxiliary USB Ports connector
JP1	Clear CMOS memory jumper
JP2	Keyboard power on jumper
JP3	Audio/modem enable/disable jumper
JP5	Set system bus frequency jumper
JP6	Select onboard audio codec or AMR audio codec
LED1*	Suspend-to-RAM indicator
LED2**	Suspension Indicator
DISPLAY1**	BIOS debug display

*LED1

This red indicator turns on if your system is suspended to RAM. In a suspend to RAM, the system turns off most of the power-consuming components except for the 3.3V required to refresh the memory. If LED1 is turned on, it warns you that the computer is suspended to RAM and a refresh current is passing through the memory modules. You should not attempt to remove or install memory modules when LED1 is turned on.

**LED2

This red indicator turns on whenever system is turned on. The LED warns users not to work on the mainboard, for example adding expansion cards or changing jumpers, because the system is still active.

***DISPLAY1

The BIOS debug display is a testing component. If your system has detectable errors, DISPLAY1 will display an error code. You can find out the meaning of the error codes by referring to Appendix 2: Award BIOS POST Code Reference.

I/O Ports Side View
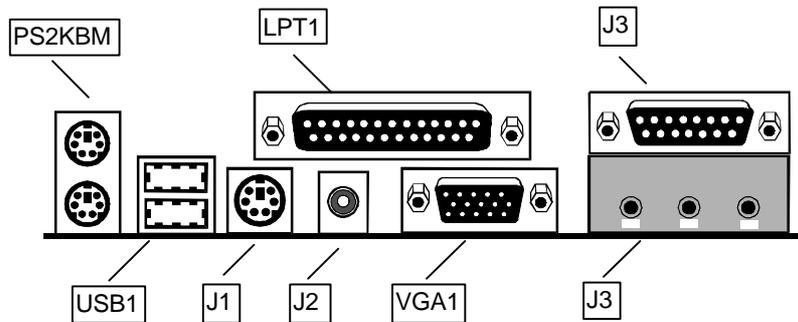
Key to I/O Ports

| Component	Description
PS2KBM	PS/2 port for pointing device (upper port)
	PS/2 port for keyboard (lower port)
LPT1	External parallel port
J3 (Upper)	External game/MIDI port
J3 (Lower)	Audio jacks for (left to right) line out, line in, microphone
VGA1	External monitor port
J2	Video out RCA jack
J1	S-video mini-DIN port
USB1	Two stacked Universal Serial Bus ports

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Check the Jumper Settings

Check all the mainboard jumpers to ensure that the board is configured correctly.
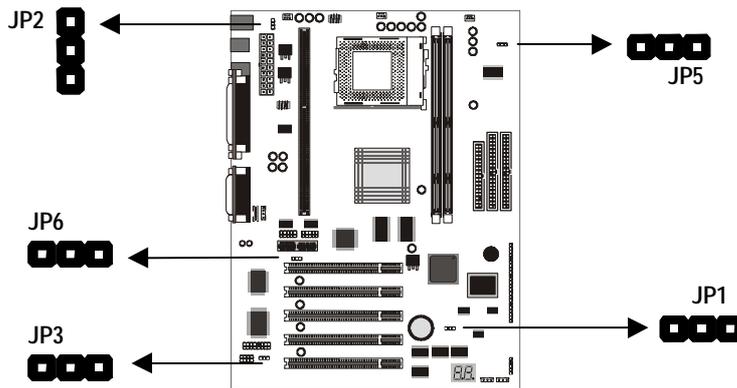
JP1 Clear CMOS Memory Jumper

This jumper lets you erase the system setup settings that are stored in CMOS memory. You might need to erase this data if incorrect settings are preventing your system from operating. To clear the CMOS memory, turn off the system, disconnect the power cable from the mainboard, and short the appropriate pins for a few seconds.
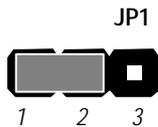

Function	Jumper Cap
Normal Operation	Short pins 1-2
Clear CMOS	Short pins 2-3

### *JP2: Keyboard Power On Jumper*

This jumper lets you use a typed-in password as a power switch to turn your system on. If you enable this property, you need to define the password or the hot keys using the setup utility. See Chapter 3.

Function	Jumper Cap
Disable keyboard power on	Short pins 1-2
Enable keyboard power on	Short pins 2-3
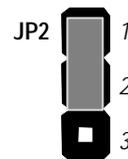
JP3: Audio/Modem System Enable/disable Jumper

This 3-pin jumper can be used to enable or disable the onboard audio system. If you prefer to install a different audio system on a third party expansion card, you must disable the onboard audio.


JP3
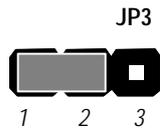
Function	Jumper Cap
Enable audio/modem system	Short pins 1-2
Disable audio/modem system	Short pins 2-3

JP5: Set System Bus Frequency Jumper

Use this 3-pin jumper to set the system bus frequency. In the normal setting, the system automatically selects the correct frequency according to the kind of processor installed. In the Force 100 MHz setting, the system uses a 100 MHz system bus even if the processor is designed to operate with a 66 MHz bus.

Function	Jumper Cap
Auto-detect bus frequency	Short pins 1-2
Force 100 MHz	Short pins 2-3

JP5
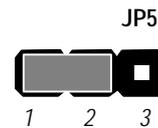
JP6: Select audio codec jumper

Use this 3-pin jumper to select if the system uses the audio codec chip installed on the mainboard, or an audio codec chip located on an optional AMR (Audio Modem Riser) card.

JP6

| Function	Jumper Cap
Turn on onboard codec	Short pins 1-2
Turn off onboard codec	Short pins 2-3

Install the Mainboard in the Case

The mainboard is drilled with a series of holes. Most system cases have mounting brackets installed in the case which correspond to the holes in the mainboard. You can secure the mainboard in the system case by placing the mainboard over the mounting brackets and driving screws through the mainboard into the mounting brackets.

Note: Do not overtighten the screws as this can stress the mainboard.

The illustration below shows a mainboard installing in a standard desktop case.
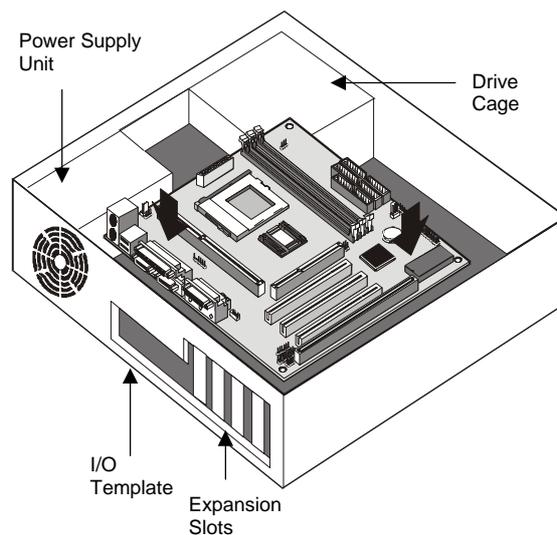
The illustration below shows the mainboard installing into a tower-type case.

Power Supply
Unit

Drive
Cage

I/O
Template

Expansion
Slots
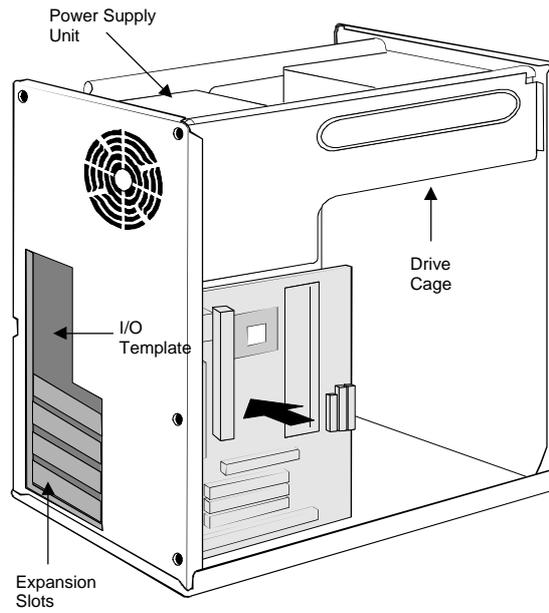
Connecting Power, Chassis Fans, Panel, and Auxiliary USB Ports

After you have installed the mainboard into the system case, connect the power cable from the case power supply unit to the mainboard power connector ATX1. Connect the chassis/power fans (if your case has them) to the 12V power supply connectors CASFAN1or PWRFAN1 on the mainboard. If your case has a case open detect alarm, connect the cable to the case open detect circuit J3. Then connect the case switches and indicators to the PANEL connector on the mainboard.
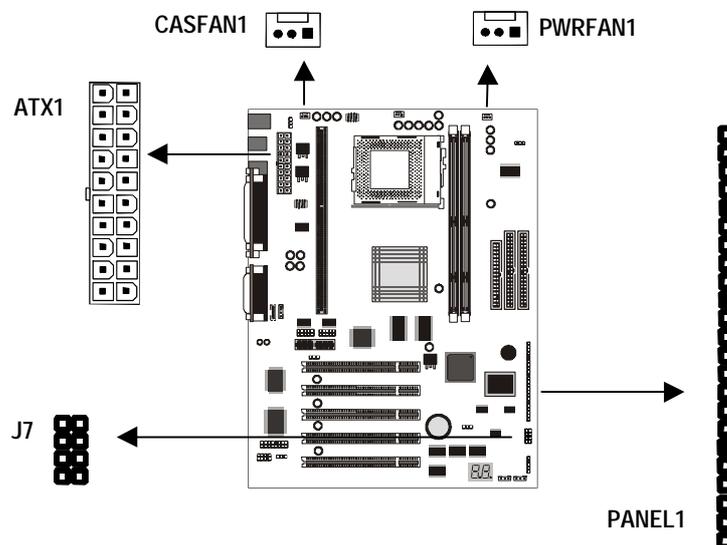
Power Connector

Locate the power cable from the case power supply unit and plug it into the ATX1 power connector.
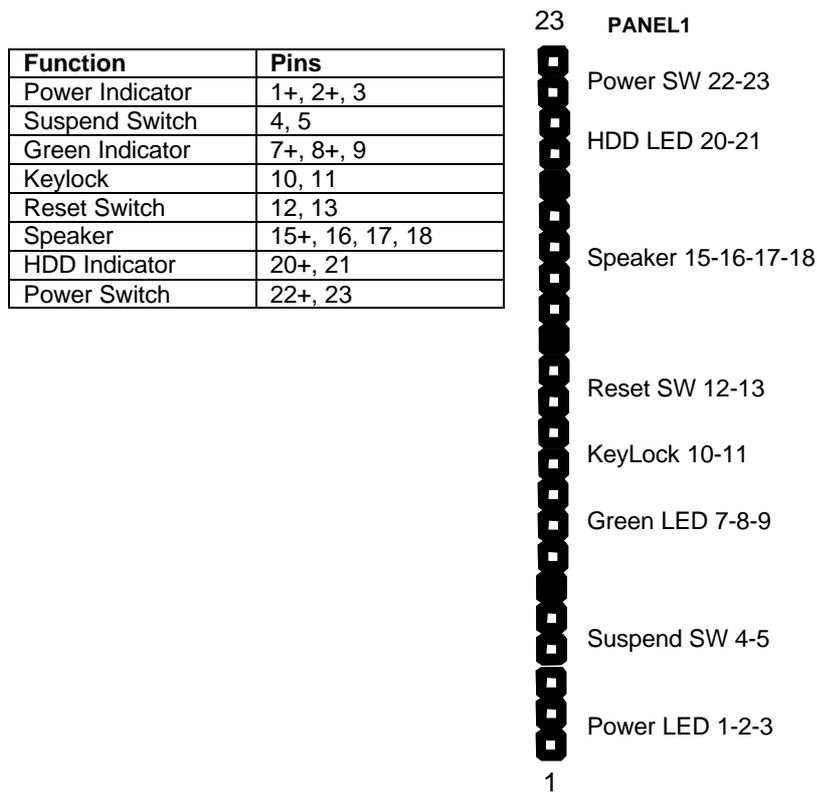
Chassis and Power Fans

If your case has a cooling fan installed in the chassis, plug the cable from the chassis-mounted fan into the mainboard 12V power supply connector CASFAN1. If your case has a cooling fan for the power supply unit, plug the cable into the 12V power supply connector PWRFAN1.

J7: Auxiliary USB Connector

This mainboard has two built-in USB ports on the rear edge of the board. Some system cases have built-in USB ports on the chassis that must be connected to a USB connector on the mainboard. If you have this kind of system case, connect the cable from the chassis-mounted USB ports to the J7 connector. Note that if you use the J7 connector, the USB ports on the rear-edge of the mainboard will be disabled.

Panel Connector

The mainboard PANEL1 connector has a standard set of switch and indicator connectors that are commonly found on ATX system cases. Use the illustration below to make the correct connections to the case switches and indicators.

Function	Pins
Power Indicator	1+, 2+, 3
Suspend Switch	4, 5
Green Indicator	7+, 8+, 9
Keylock	10, 11
Reset Switch	12, 13
Speaker	15+, 16, 17, 18
HDD Indicator	20+, 21
Power Switch	22+, 23

23   **PANEL1**

Power SW 22-23

HDD LED 20-21

Speaker 15-16-17-18

Reset SW 12-13

KeyLock 10-11

Green LED 7-8-9

Suspend SW 4-5

Power LED 1-2-3

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Install Other Hardware

Start installing the essential hardware required to get your system started.

Install the Processor

This mainboard has a Slot1 processor slot and a Socket-370 processor socket. You can only install one processor however, so you must choose what kind of processor to run on this. To choose a processor, you need to consider the performance requirements of the system and also the price of the processor. Performance is based on the processor design, the clock speed and system bus frequency of the processor, and the quantity of internal cache memory and external cache memory. Higher clock speeds and larger amounts of cache memory deliver greater performance.

About Slot1 Processors

You can install two kinds of processor into the Slot1: Pentium-II and SEPP Celeron. ***Note that although the Pentium-III also has a Slot1 edge connector, it is not supported by the Intel 810 chipset used on this mainboard.***

Intel Pentium-II
The Pentium –II has a wide range of performance. Pentium-II processors have shipped with clock speeds of 233 MHz through to 450 MHz. Currently you might find that stores only stock Pentium-IIs with clock speeds of 350 MHz and higher. Pentium-IIs with a clock speed of 350 MHz or higher operate over a 100 MHz system bus. Pentium-IIs slower than 350 MHz operate over a 66 MHz system bus. All Pentium-IIs have 32K of internal cache memory and 512K of external cache memory. Pentium-IIs are the most powerful, and the most expensive, processors that you can install on this mainboard.

Intel SEPP Celeron
SEPP stands for Single Edge Processor Package. The SEPP Celeron is similar to a Pentium-II except that it only has 128K of external cache memory. The first generation of SEPP Celerons had no external cache memory at all and ran at 266 MHz. These Celerons do not ship currently but are still supported by this mainboard. SEPP Celerons are available with clock speeds of 266 MHz through to 500 MHz. They all operate over a 66 MHz system bus. The SEPP Celeron is less expensive than a Pentium-II with the same clock speed.

About Socket-370 Processors

The socket-370 only supports the Intel PPGA Celeron processor.

Intel PPGA Celeron
PPGA stands for Plastic Pin Grid Array. This is a description of the square plastic package that the processor is embedded in. The PPGA Celeron is identical to the SEPP Celeron, except for the external packaging. PPGA Celerons run at clock speeds from 300 MHz through to 500 MHz. All the current PPGA Celerons operate over a 66 MHz system bus. The PPGA Celeron is less expensive than a SEPP Celeron with the same clock speed.

Installing a Slot1 Processor

This board has a SLOT1 processor cartridge slot. The slot must be installed with a cartridge holder that supports the processor cartridge. The cartridge holder may be already installed on your mainboard with the support brackets folded over. In this case simply pull the support brackets into the upright position.
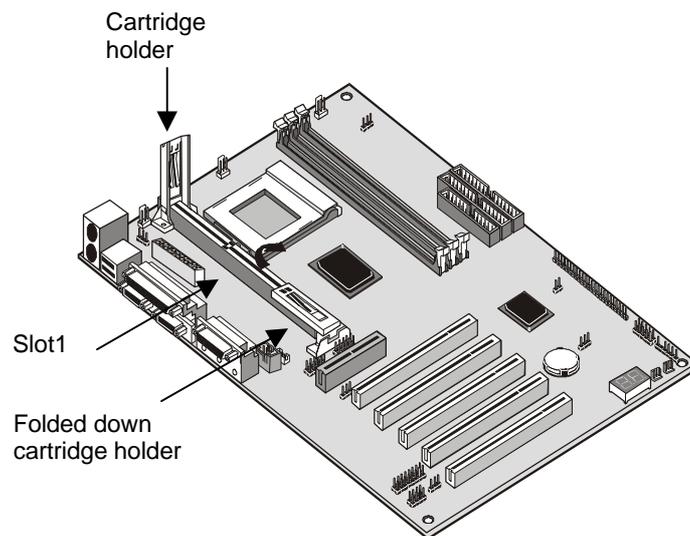

If the cartridge holder is not already installed, install it onto the slot1. Some cartridge holders are in two parts, one part for each end of the slot1. Other cartridge holders are a single assembly that sits over the whole length of the slot1.

Some cartridge holders are secured in place with screws. If you have this kind of cartridge holder, don' t overtighten the screws as this can stress the mainboard. Some cartridge holders are secured in place with plastic pins. In this case, place the mainboard on a foam plastic mat when you push the pins into place.

Some cartridge holders also include a support bar for the processor heat sink. This bar installs to the side of the cartridge holder. Some processor cartridges have support struts for the heat sink which lock into the support bar. The documentation supplied with the processor shows how to do this.

Install the Processor Cartridge

After you have installed the cartridge holder, follow the instructions supplied with the processor cartridge to insert the cartridge into the holder. If the processor has a cooling fan, connect the power cable of the fan to the power supply connector on the mainboard CPUFAN1.
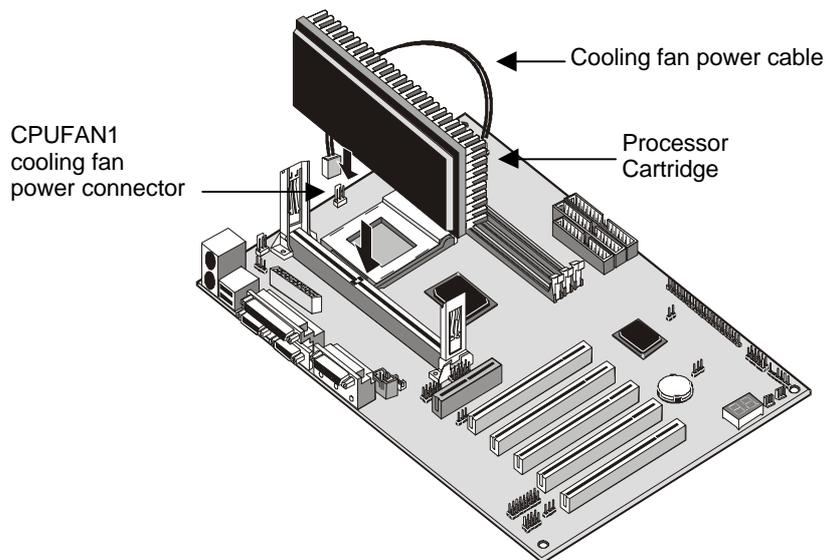

The mainboard must be configured to deliver the correct clock speed and the correct system bus for the kind of processor that you have installed. You can do this by using the system setup utility. The first time you start the system, immediately enter the setup system and make the appropriate settings. Usually, you can automatically configure the CPU by using the BIOS Features page of the setup utility. See Chapter 3 for more information.
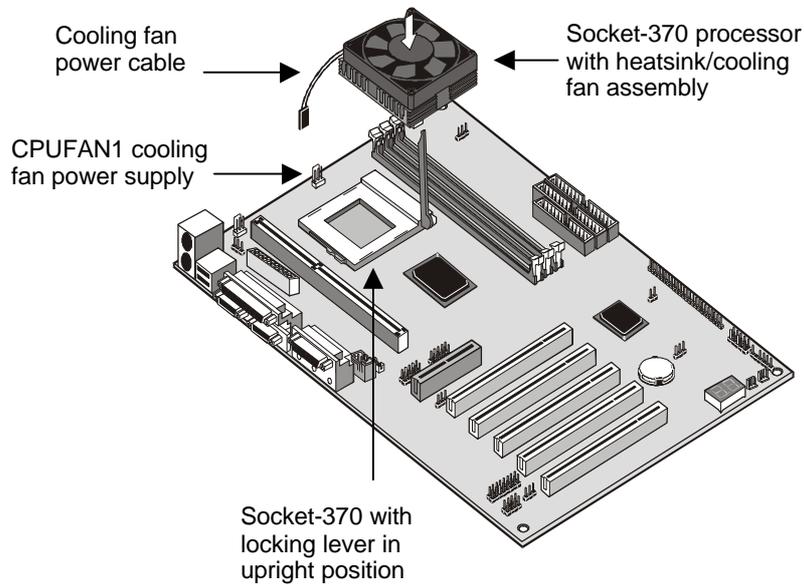
Installing a Socket-370 Processor

If you have decided to install the mainboard with a PPGA Celeron processor, follow the steps below.

Locate the Socket-370 and CPUFAN1

CPUFAN1

Socket-370

Pin-1 corner
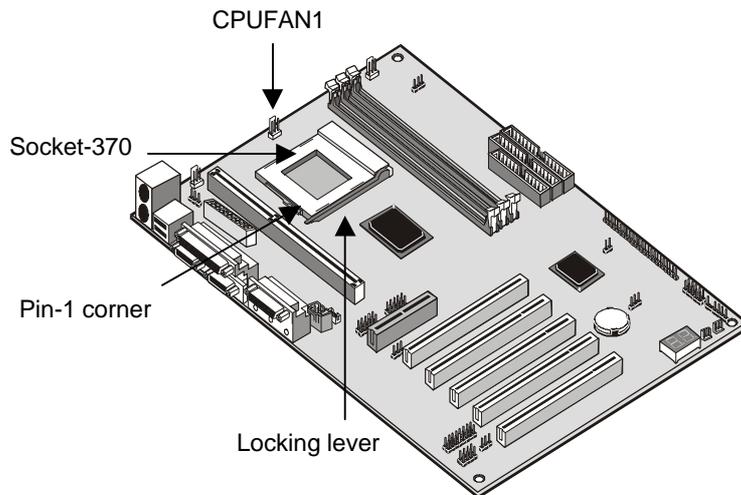
Locking lever

1. On the mainboard, locate the socket-370 and CPUFAN1.
2. On the socket-370, pull the locking lever away from the socket to unhook it and then raise the locking lever to the upright position.
3. Identify the pin-1 corner on the socket-370 and the pin-1 corner on the processor. The socket pin-1 corner is adjacent to the handle of the locking lever. The processor pin-1 corner is beveled.
4. Matching the pin-1 corners, drop the processor into the socket. No force is required and the processor should seat into the socket easily.
5. Swing the locking lever down and hook it under the latch on the edge of the socket. This locks the processor in place.
6. Locate the power cable on the heatsink/cooling fan assembly that is attached to the top of the processor.
7. Plug the power cable into the CPUFAN1 12V power supply on the mainboard.

Cooling fan power cable

Socket-370 processor with heatsink/cooling fan assembly

CPUFAN1 cooling fan power supply

Socket-370 with locking lever in upright position

The mainboard must be configured to deliver the correct clock speed and the correct system bus for the kind of processor that you have installed. You can do this by using the system setup utility. The first time you start the system, immediately enter the setup system and make the appropriate settings. Usually, you can automatically configure the CPU by using the CPU & BIOS Features page of the setup utility. See Chapter 3 for more information.

Install the Memory Modules

For this mainboard, you must use 168-pin 3.3V non-buffered Dual In-line
Memory Modules (DIMMs). The memory chips must be standard or
registered SDRAM (Synchronous Dynamic Random Access Memory).
The memory bus can run at 100 MHz. If your processor operates over a
100 MHz system bus, you must install PC-100 memory that also
operates over a 100 MHz bus. If you install a processor that operates
over a 66 MHz bus, you can install memory chips that operate at 66 MHz.

You must install at least one memory module. You can install the
memory module in either DIMM1 or DIMM2. Each module may be
installed with up to 256 MB of memory so the maximum capacity is 512
MB. The mainboard supports memory chips that have EC (Error
Correction) or ECC (Error Correction Code).

1. Locate the DIMM slots on the mainboard.
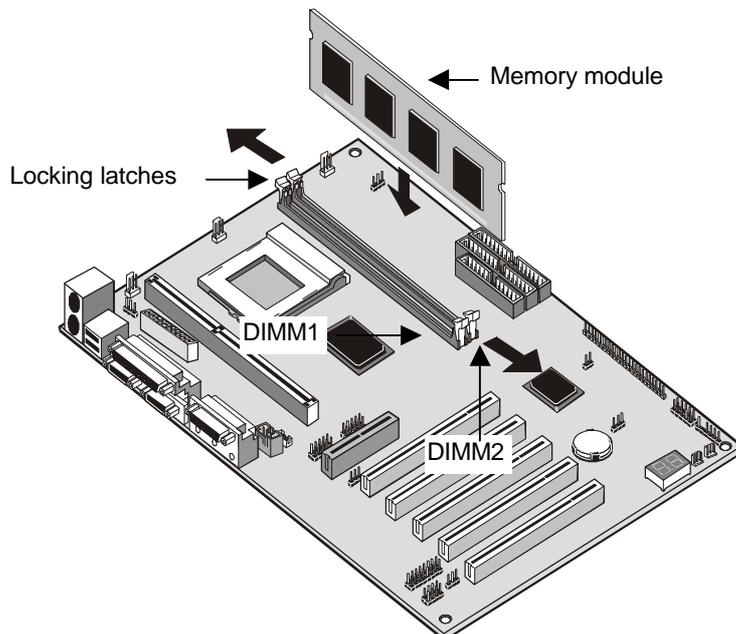
2. The DIMM slots are keyed with notches and the DIMMs are keyed
    with cut-outs so that they can only be installed correctly. Check that

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the cut-outs on the DIMM module edge connector match the notches in the DIMM slot.

3. Push the latches on each side of the DIMM slot down.
4. Install the DIMM module into the slot and press it carefully but firmly down so that it seats correctly. The latches at either side of the slot will be levered upwards and latch on to the edges of the DIMM when it is installed correctly.

Install a Hard Disk Drive and CD-ROM

This section describes how to install IDE devices such as a hard disk drive and a CD-ROM drive.

> *Note: Ribbon cable connectors are usually keyed so that they can only be installed correctly on the device connector. If the connector is not keyed make sure that you match the pin-1 side of the cable connector with the pin-1 side of the device connector. Each connector has the pin-1 side clearly marked. The pin-1 side of each ribbon cable is always marked with a red stripe on the cable.*

About IDE Devices.

Your mainboard has a primary IDE channel interface (IDE1) and a secondary IDE interface (IDE2). The mainboard ships with one IDE ribbon cable which supports one or two IDE devices. All IDE devices have jumpers or switches that can be used to set the IDE device as MASTER or SLAVE.

If you install two IDE devices on one cable, you must make sure that one device is set to MASTER and the other device is set to SLAVE. The documentation of your IDE device explains how to do this.

If you want to install more than two IDE devices, obtain a second IDE cable and you can add two more devices to the secondary IDE channel. If there are two devices on the cable, make one MASTER and one SLAVE.

Installing a Hard Disk Drive

1. Install the hard disk drive into the drive cage in your system case.

2. Plug the IDE cable into the primary IDE channel on the mainboard IDE1.

3. Plug one of the connectors on the IDE cable into the IDE connector on the back edge of the hard disk drive. It doesn't matter which connector on the cable that you use. Make sure that you have the pin-1 side of the cable matched with the pin-1 side of the connector.

4. Plug a power cable from the case power supply unit into the power connector on the back edge of the hard disk drive.

5. When you first start up your system, go immediately to the setup utility and use the IDE Hard Disk Auto Detect feature to configure the IDE devices that you have installed. See Chapter 3 for more information.
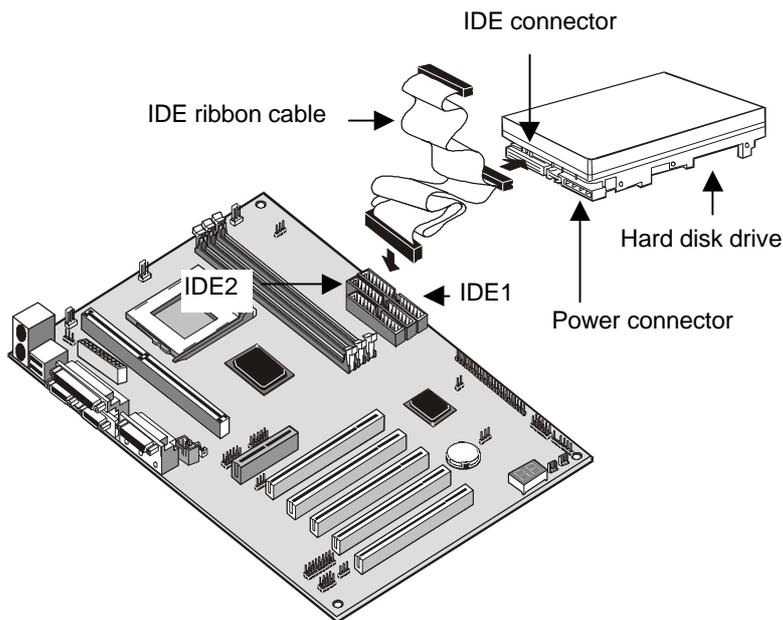
Installing a CD-ROM/DVD Drive

1. Install the CD-ROM/DVD drive into the drive cage in your system case. Plug the IDE cable into the primary IDE channel on the mainboard IDE1.
2. Plug one of the connectors on the IDE cable into the IDE connector on the back edge of the CD-ROM/DVD drive. It doesn't matter which connector on the cable that you use. Make sure that you have the pin-1 side of the cable matched with the pin-1 side of the connector.
3. Plug a power cable from the case power supply unit into the power connector on the back edge of the CD-ROM/DVD drive.
4. Use the audio cable provided with the CD-ROM/DVD drive to connect the audio connector on the rear edge of the CD-ROM/DVD drive to the one of the two audio-in connectors J4 and J5 on the mainboard.
5. When you first start up your system, go immediately to the setup utility and use the IDE Hard Disk Auto Detect feature to configure the IDE devices that you have installed. See Chapter 3 for more information.
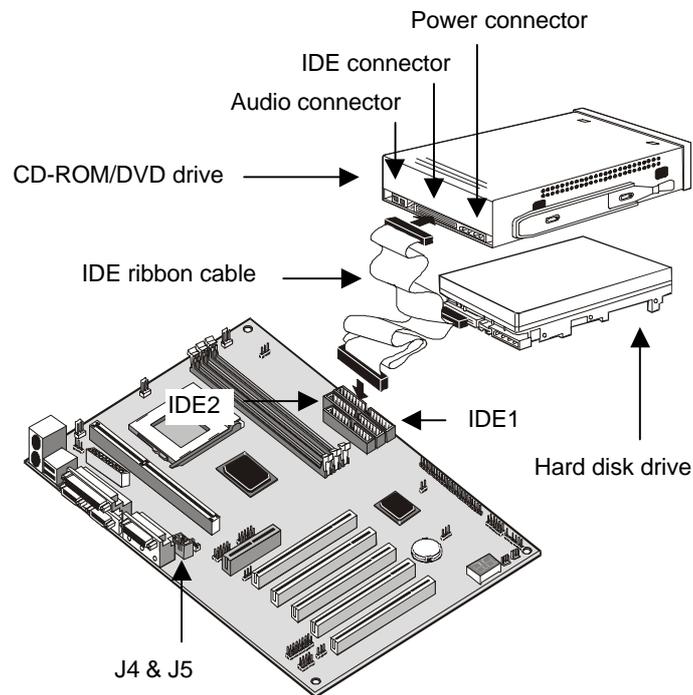
Installing a Floppy Diskette Drive

The mainboard has a floppy diskette drive interface and it ships with a
diskette drive ribbon cable that supports one or two floppy diskette drives.
You can install a 5.25" drive or a 3.5" drive with various capacities. The
floppy diskette drive cable has one type of connector for a 5.25" drive
and another type of connector for a 5.25" drive

1. Install the floppy diskette drive into the drive cage in your system
    case. Plug the diskette drive cable into the diskette drive interface on
    the mainboard FDD1.
2. Plug one of the connectors on the diskette drive cable into the data
    connector on the back edge of the floppy diskette drive. Make sure
    that you have the pin-1 side of the cable matched with the pin-1 side
    of the connector.
3. Plug a power cable from the case power supply unit into the power
    connector on the back edge of the diskette drive.
4. When you first start up your system, go immediately to the setup
    utility and use the Standard page to configure the floppy diskette
    drives that you have installed. See Chapter 3 for more information.


Data connector

Floppy diskette
drive cable

Power
connector

Floppy diskette
drive

FDD1
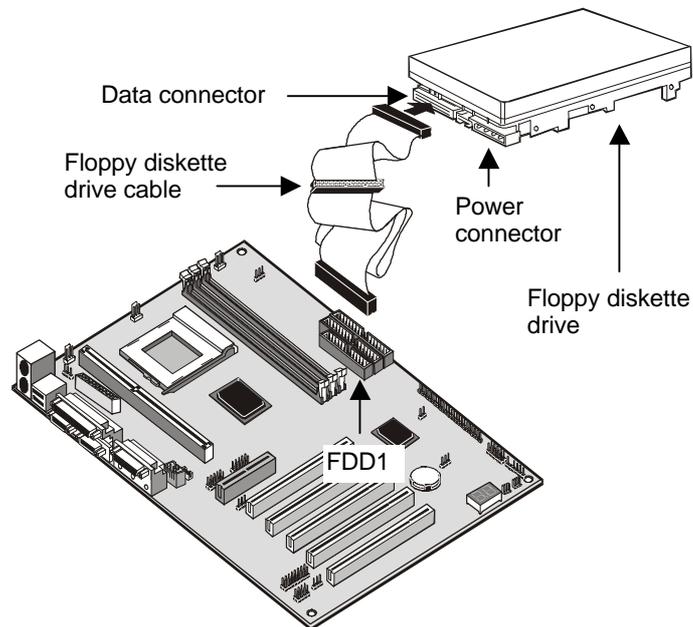
Using the Expansion Slots

This mainboard has five 32-bit PCI expansion slots and one AMR slot.

PCI Slots: The PCI slots can be used to install add-in cards that have the 32-bit PCI (Peripheral Components Interconnect) interface.

AMR Slot: The AMR (Audio Modem Riser) slot is an industry standard slot that allows for the installation of a special audio/modem riser card. Different territories have different regulations regarding the specifications of a modem card. You can purchase an AMR card that is approved in your area and install it directly into the AMR slot.
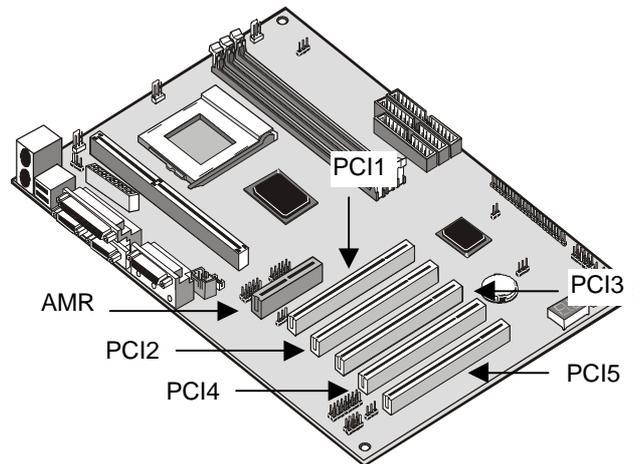
1. Before installing an expansion card, check the documentation for the card carefully. If the card is not Plug and Play, you may have to manually configure the card before installation.
2. Select which expansion slot you are going to use for your add-in card.
3. In the system case, remove the blanking plate from the slot in the system case that corresponds to the expansion slot that you are going to use.
4. Position the edge connector of the add-in card over the expansion slot. Position the metal bracket of the card in the empty slot in the system case.

5. Install the edge connector of the add-in card into the expansion slot. Press down quite firmly so that you are sure that the edge connector is correctly seated in the slot.
6. Secure the metal bracket of the card in the empty slot in the system case with a screw.
7. For some add-in cards, for example graphics adapters and network adapters, you have to install drivers and software before you can begin using the add-in card.

PCI add-in card

PCI slot

Metal bracket

Edge connector
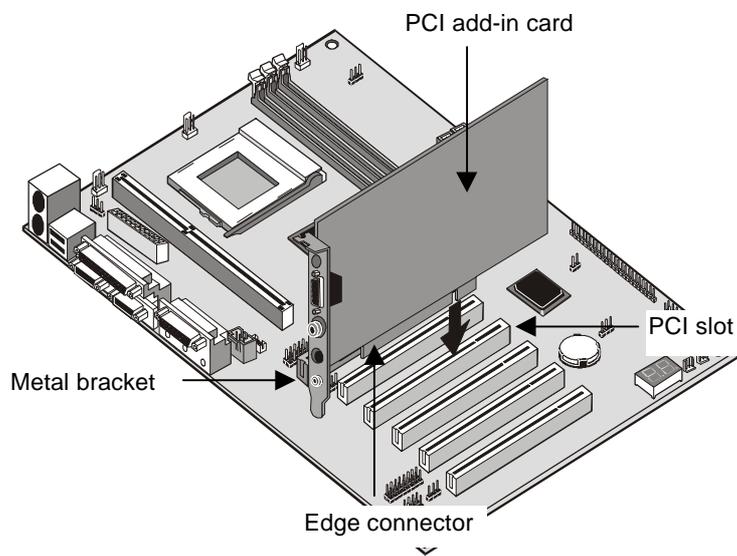
Note: If you have installed an AMR card, you should check the settings of jumpers JP3 (audio/modem enable/disable) and JP6 (select onboard codec or AMR codec). You should disable the onboard audio/modem to avoid conflicts with the AMR card. You can use the AMR codec chip (if it has one) or the onboard codec chip.

Add-in Card Options

The mainboard has two features that can be used if you have installed either a fax/modem card or a network adapter card.

WOL1: Wake on LAN

If you have installed a network adapter (LAN adapter), you can use the cable provided with the card to plug into the WOL1 connector on the mainboard. This is the Wake On LAN feature. When your system is in a power–saving mode, any traffic through the network automatically resume the system. You must enable this item using the Power Management page of the setup utility. See Chapter three for more information.

WOL1   WOM1
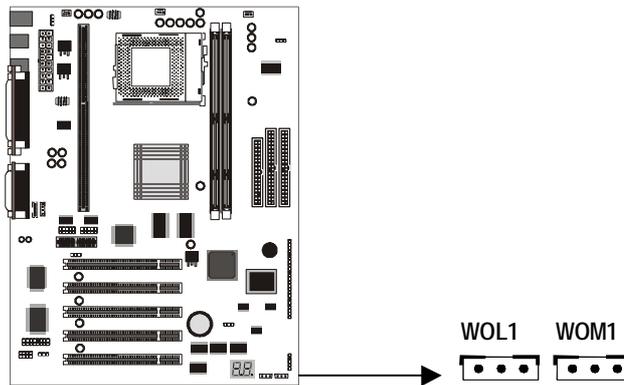
WOM1: Wake on Modem

If you have installed a fax/modem card, you can use the cable provided with the card to plug into the WOM1 connector on the mainboard. This is the Wake On Modem feature. When your system is in a power–saving mode, any incoming calls to the modem automatically resume the system. You must enable this item using the Power Management page of the setup utility. See Chapter three for more information.

Install Options and Extension Brackets

This mainboard has a number of special connectors that allow you to add optional features to your system. You can install any of the following items:

♦   Fax/modem card option
♦   Infrared port
♦   Serial ports extension bracket
♦   24-bit digital audio extension bracket (SPDIF)

Fax/modem Card

You must install the fax/modem card in order to use the built-in fax/modem.

J8
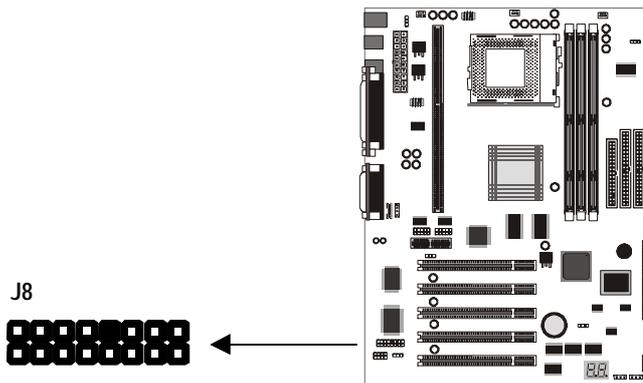
The fax/modem card is supplied with this mainboard.

1.   Locate the J8 fax/modem connector on the mainboard.
2.   Remove the expansion slot blanking plate from the system chassis that is adjacent to the fax/modem connector.
3.   Install the fax/modem card on to the J8 connector as shown below. The RJ11 Line and Telephone sockets on the bracket are positioned in the expansion slot with the removed blanking plate.

34

Line and Tel RJ11 sockets

Fax/modem card

J48 fax/modem connector
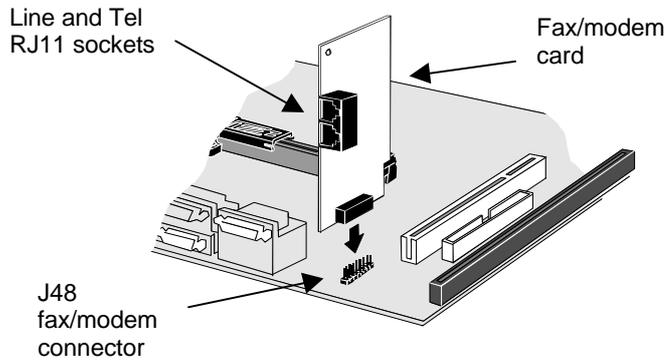
Serial Ports Extension Bracket

If you want to have external serial ports available in your computer case, you must install the serial ports extension bracket.

COM1   COM2
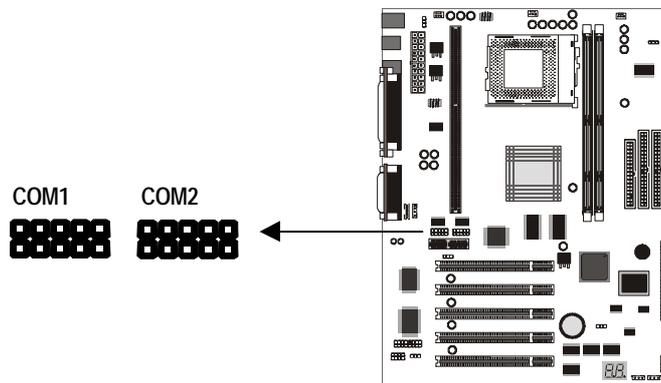
The serial ports extension bracket is supplied with this mainboard.

1. Locate the two serial port connectors COM1 and COM2. Remove a blanking plate from a free expansion slot in the system chassis.
2. Plug the two cables from the serial ports extension bracket. You can connect either of the cables to either of the connectors. The port connected to COM1 is identified as serial port COM1/3. The port connected to COM2 is identified as COM2/4
3. Install the metal bracket into the expansion slot in the system chassis from which you removed the blanking plate.

4. Secure the bracket by driving a screw through the slot in the top of
    the metal bracket into the system chassis.

    *Note: An IR port and a second serial port use the same resources,
    and they may use some of the resources required by a fax/modem
    card. If you have more than one of these items installed, you may
    not be able to use them at the same time. You can use the
    Peripherals page of the setup utility to switch resources between
    an IR port and a second serial port. See Chapter 3 for more
    information.*

    ### Infrared Port

This option can be purchased from third-party vendors.
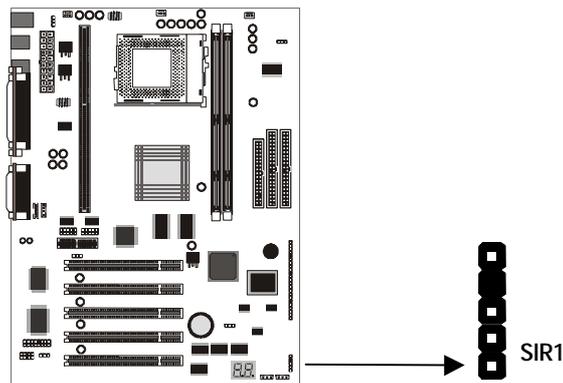
SIR1

1. Connect the cable from the optional IR port to the SIR1 connector on
    the mainboard.
2. After you have connected the cable, secure the optional IR port to
    the appropriate place on your system case.

    *Note: An IR port and a second serial port use the same resources,
    and they may use some of the resources required by a fax/modem
    card. If you have more than one of these items installed, you may
    not be able to use them at the same time. You can use the
    Peripherals page of the setup utility to switch resources between
    an IR port and a second serial port. See Chapter 3 for more
    information.*

Digital Audio Extension Bracket

You can purchase an optional 24-bit digital audio extension bracket from a third-party vendor. You can use the audio RCA jacks to connect to digital audio devices. If your CD-ROM/DVD drive has digital audio output, you can connect it to the input pins of the SPDIF connector.
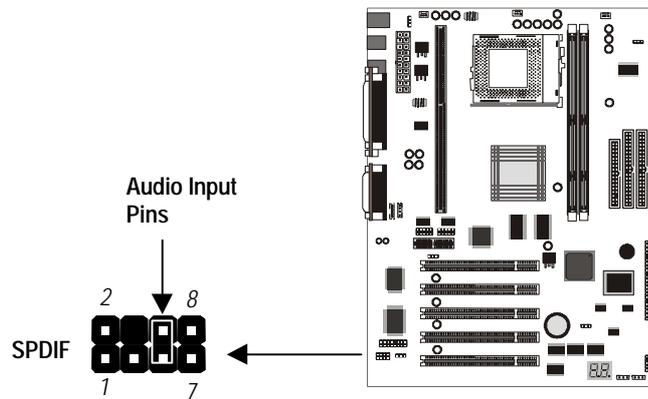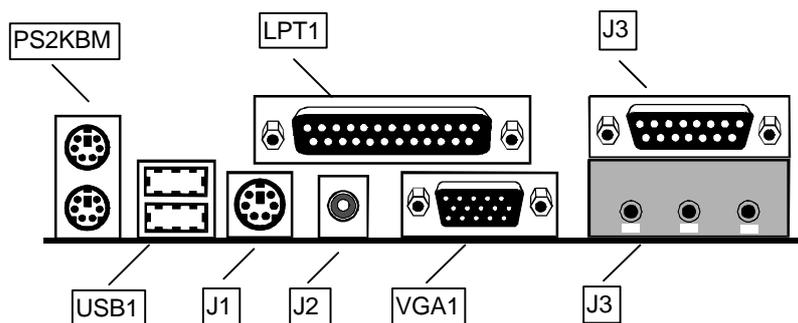

On the mainboard, locate the digital audio connector SPDIF. Connect the cable from the digital audio extension bracket to SPDIF. If you have digital audio output from your CD-ROM/DVD drive, connect it to the marked audio input pins.

Make the External Connections

After you have installed the mainboard, make the connections to the external ports.

1. PS2KBM is a stack of two PS/2 mini-DIN ports. The upper port can be used by a PS/2 mouse or pointing device. The lower port can be used by a PS/2 keyboard.
2. LPT1 is a parallel port that can be used by printers or other parallel communications devices. The system identifies the parallel port as LPT1.
3. The upper 15-pin port J3 is a game/MIDI port. You can use this port to connect a joystick or a MIDI device to your system
4. The lower part of J3 is three audio jacks. The left side jack is for a stereo line out signal. The middle jack is for a stereo line in signal. The right side jack is for a microphone.
5. VGA1 is the connector for a display monitor. Plug the data cable from the monitor into VGA1.
6. J2 is a video-out RCA jack. Use this port to send the video output of the system to a video device that uses RCA jackplugs, for example most TV sets and VCRs.
7. J1 is a mini-DIN port for S-Video. Use this port to send the video output of the system to a video device that uses the S-Video interface, for example some VCRs and video cameras.
8. USB1 is a stack of two Universal Serial Bus ports. Use these ports to connect to USB devices.

External Connector Color Coding

To help identify the external connectors, many connectors now use standard colors as shown in the table below.

Connector	Color
Analog VGA	Blue
Audio line in	Light blue
Audio line out	Lime
Digital monitor / flat panel	White
IEEE 1394	Grey
Microphone	Pink
MIDI/Game	Gold
Parallel	Burgundy
PS/2 compatible keyboard	Purple
PS/2 compatible mouse	Green
Serial	Teal or Turquoise
Speaker out / subwoofer	Orange
Right-to-left speaker	Brown
USB	Black
Video out	Yellow
SCSI, network, telephone, modem, and so on	None