

## Chapter 2: Installation

### Before You Begin

Before you begin to install your P5SS-Me 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*

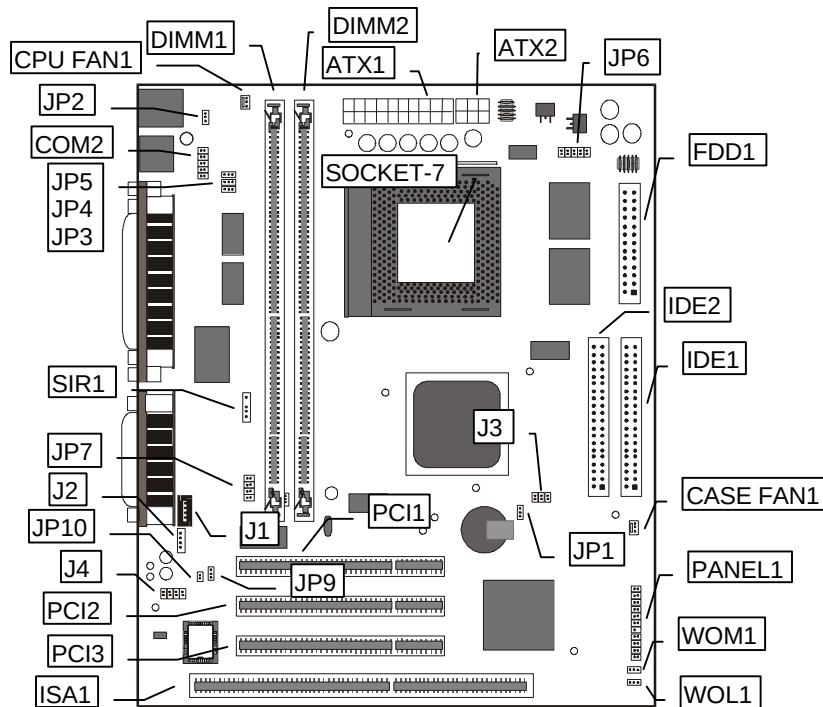
The P5SS-Me mainboard complies with the specifications for a micro-ATX board. The micro-ATX format features small size, fewer expansion slots and smaller power consumption, so that the system case is less expensive. You can also install this kind of board into a full-size ATX case.

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 P5SS-Me 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 a set of I/O ports on the rear edge. Ensure that your case has an I/O template that supports the I/O ports and expansion slots.

## Mainboard Guide

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

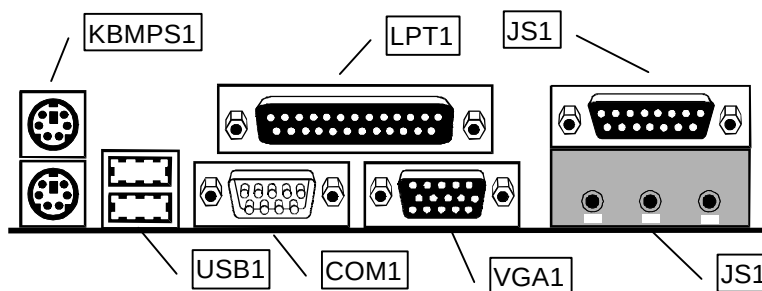


### Key to Mainboard Components

| Component    | Description                                         |
|--------------|-----------------------------------------------------|
| ISA1         | 1 x 8/16-bit ISA expansion slots                    |
| PCI 1,2,3    | 3 x 32-bit PCI expansion slots                      |
| SOCKET-7     | Processor socket                                    |
| DIMM1, DIMM2 | Slots for 168-pin memory module                     |
| FDD1         | Connector for floppy disk drives                    |
| IDE1, IDE2   | Primary and secondary IDE channels                  |
| ATX1         | Connector for ATX power supply                      |
| ATX2         | Power connector for optional 1394 serial bus device |
| COM2         | Connectors for serial port 2                        |
| SIR1         | Connector for optional infrared port                |
| PANEL1       | Panel connector for switches and indicators         |
| CPU FAN1     | Power connector for CPU cooling fan                 |
| CASE FAN1    | Power connector for case cooling fan                |
| WOM1         | Connector for modem wake up                         |

|         |                                                                      |
|---------|----------------------------------------------------------------------|
| WOL1    | Connector for LAN wake up                                            |
| JP1     | Clear CMOS memory jumper                                             |
| JP2     | Keyboard power on jumper                                             |
| JP3,4,5 | System bus multiplier for CPU clock                                  |
| JP6     | Processor core voltage setting                                       |
| JP7     | Speed setting for system bus, PCI bus, memory bus                    |
| JP9     | Audio enable/disable jumper                                          |
| JP10    | Set SPDIF output signal level jumper                                 |
| J1      | Audio connector for optional CD-ROM drive                            |
| J2      | Auxiliary audio connector for optional CD-ROM drive                  |
| J3      | SB-Link connector for optional PCI Sound Blaster audio card          |
| J4      | SPDIF In/out connector (professional 24-bit digital audio interface) |

### Side View of the Input/Output Ports



| Component   | Description                                                        |
|-------------|--------------------------------------------------------------------|
| KBMPS1      | PS/2 port for pointing device (upper port)                         |
|             | PS/2 port for keyboard (lower port)                                |
| LPT1        | External parallel port                                             |
| JS1 (Upper) | External game/MIDI port                                            |
| JS1 (Lower) | Audio jacks for (from left to right) line out, line in, microphone |
| VGA1        | External connector for display monitor                             |
| COM1        | External serial port 1/3                                           |
| USB1        | Two stacked Universal Serial Bus ports                             |

## Preparing the Mainboard

Prepare the main board by installing the Pentium or Pentium-compatible processor and then installing either one or two memory modules. This board supports processors that run from 90MHz through to 266Mhz. Finally, review all the important jumper settings to ensure that the board is configured correctly.

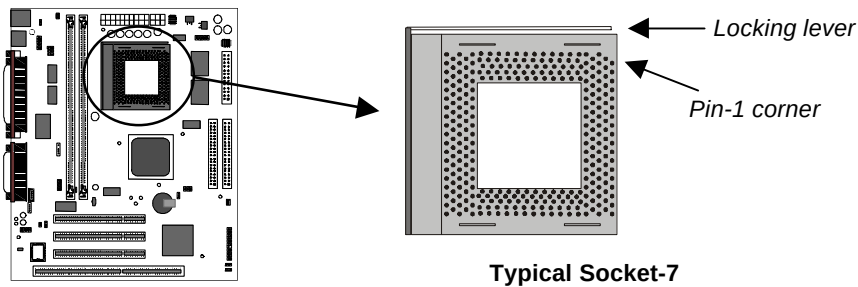
## ***Install the Processor***

This mainboard is installed with a socket-7 processor socket. A wide range of processors are designed for installation in the socket-7; Intel Pentium, Intel Pentium MMX, AMD K5 series, K6 series and K6/2 series, Cyrix/IBM 6X86 series, 6X86L series, and 6X86M series.

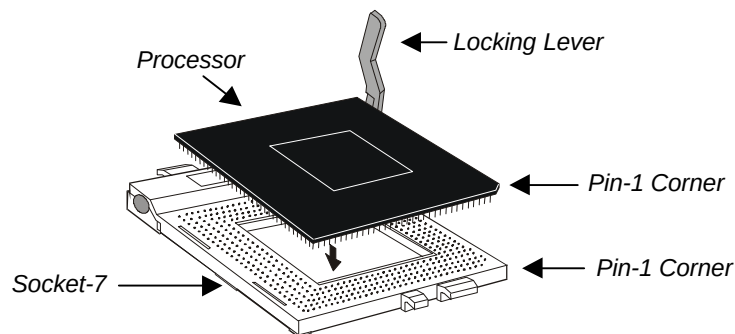
Each of these socket-7 processors is designed to run at a particular internal frequency (the CPU clock) and at a particular external frequency (the system bus). Refer to *Appendix 2: CPU Settings Table* for more information. This mainboard can be configured to support almost all the frequencies required by these socket-7 processors.

Follow the steps below to install the processor in the socket-7.

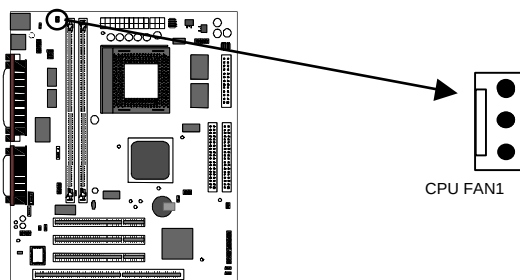
1. Locate the zero insertion force (ZIF) socket-7 for the processor.



2. On the socket and on the processor, identify the pin 1 corner. You can identify the pin 1 corner by noting that in the rectangular matrix of pins and holes on the socket and processor, one pin and one hole is absent on the pin 1 corner.
3. Push the socket locking lever away from the socket to unhook it. Swing the lever into the upright position.
4. Insert the processor into the socket taking care that you have matched the pin 1 corners. No force is required, and the processor should seat smoothly into the socket.



5. Swing the locking lever down and hook it under the latch on the side of the socket to lock it in place.
6. Locate the power connector for the processor cooling fan CPU FAN1. If your processor has a cooling fan installed, connect the cable from the cooling fan to CPU FAN1.



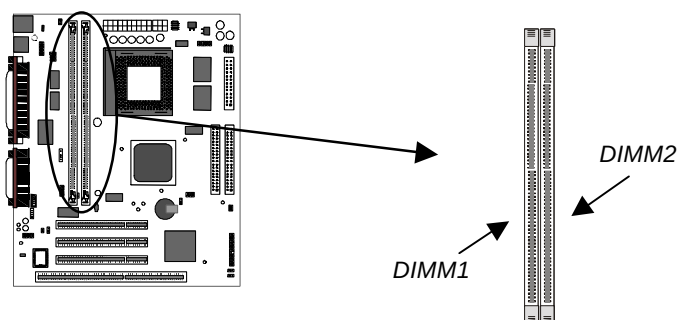
### ***Install the Memory Modules***

For this mainboard, you must use 168-pin Dual In-line Memory Modules (DIMMs) which are installed with Synchronous Dynamic Random Access Memory (SDRAM) chips. Your system will not function if you try to use any other kind of memory.

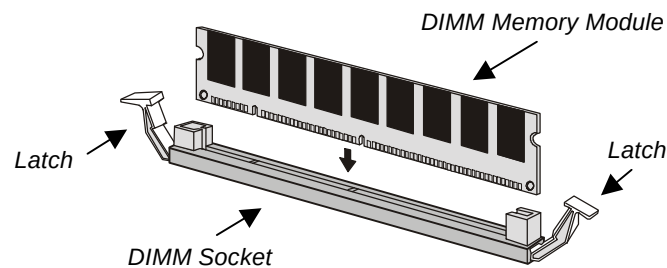
Most memory modules are designed to operate over a 66 MHz system bus or a 100 MHz system bus. This board supports both these system bus frequencies plus many other frequencies. The system bus frequency is determined by the processor that you have installed. See *Appendix 2: CPU Settings Table* for more information.

The DIMMs can hold memory capacities from 8 MB through to 512 MB. You can install one or two DIMMs in any combination. If you are installing just one DIMM, install it in DIMM socket 1.

1. Locate the DIMM sockets on the mainboard.



2. The SDRAM sockets are keyed with notches and the DIMMs are keyed with cut-outs so that they can only be installed correctly. Check that the cut-outs on the DIMM edge connector matches the notches in the SDRAM socket.
3. Push the latches on each side of the SDRAM socket down.
4. Install the DIMM into the socket and press it carefully but firmly down so that it seats correctly. The latches at either side of the socket will be levered upwards and latch on the edges of the DIMM when it is installed correctly.



## Check all the Jumper Settings

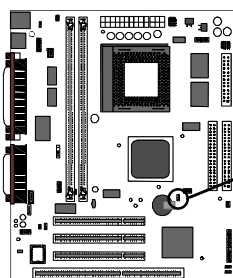
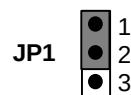
Check all the mainboard jumpers to ensure that the board is configured correctly .

### A Note on 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**.

### JP1: Clear CMOS Memory Jumper

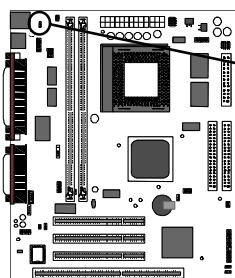
This jumper lets you erase the system setup settings that are stored in CMOS memory. You might need to erase this data if incorrect settings are preventing your system from operating. To clear the CMOS memory, turn off the system, disconnect the power cable from the mainboard, and short the appropriate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



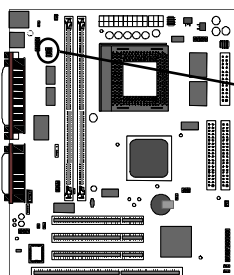
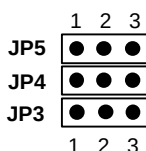
JP2



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

### JP3,4,5: Set System Bus Multiplier Jumper

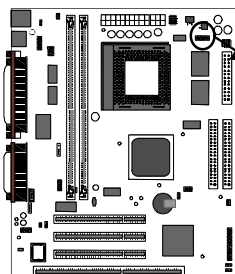
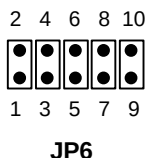
The system bus frequency and the CPU clock speed are determined by the type of processor that is installed. See *Appendix 2: CPU Settings Table*. On this board, you must set the system bus with jumper J7. Then, you can configure the CPU clock speed by creating a system bus multiplier. The CPU clock speed is the product of the system bus frequency times the multiplier. For example, if you have a system bus speed of 100 MHz and a multiplier of 3.5, the CPU clock speed will be  $100 \times 3.5 = 350$  MHz.



| System Bus Multiplier | Short Pin Settings |     |     |
|-----------------------|--------------------|-----|-----|
|                       | JP3                | JP4 | JP5 |
| 2.5                   | 1-2                | 2-3 | 2-3 |
| 3                     | 1-2                | 2-3 | 1-2 |
| 2                     | 1-2                | 1-2 | 2-3 |
| 1.5/3.5               | 1-2                | 1-2 | 1-2 |
| 4.5                   | 2-3                | 2-3 | 2-3 |
| 5                     | 2-3                | 2-3 | 1-2 |
| 4                     | 2-3                | 1-2 | 2-3 |
| 5.5                   | 2-3                | 1-2 | 1-2 |

### JP6: Set Processor Core Voltage Jumper

Different processor types have different core voltage requirements. See *Appendix 2* for information on the core voltage required for the processor that you have installed. Use this jumper to set the correct voltage.

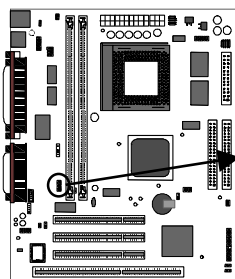


JP6

| Volt. | Pin Settings |       |       |       |      |
|-------|--------------|-------|-------|-------|------|
|       | 1-2          | 3-4   | 5-6   | 7-8   | 9-10 |
| 3.5V  | Short        | Short | Short | Short | N/A  |
| 3.3V  | Short        | Open  | Short | Short | N/A  |
| 3.2V  | Open         | Open  | Short | Short | N/A  |
| 2.9V  | Short        | Open  | Open  | Short | N/A  |
| 2.8V  | Open         | Open  | Open  | Short | N/A  |
| 2.5V  | Short        | Open  | Short | Open  | N/A  |
| 2.2V  | Open         | Short | Open  | Open  | N/A  |
| 2.1V  | Short        | Open  | Open  | Open  | N/A  |

### JP7: Set Frequencies for System Bus, PCI Bus, & Memory Bus Jumper

The system bus frequency is determined by the kind of processor you have installed on the board. Most current memory modules are PC-100 compliant which means that they operate with a 100 MHz memory bus. Older memory modules might be designed for a 66 MHz memory bus. Nearly all PCI cards are designed to operate reliably over a 33.3 MHz PCI bus. Use the jumper JP7 to select the frequency of these buses according to the specifications of the processor, memory modules, and PCI cards that you have installed.



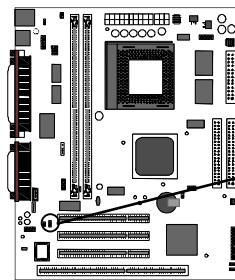
JP7

|   |   |
|---|---|
| 1 | 2 |
| 3 | 4 |
| 5 | 6 |
| 7 | 8 |

| Bus Frequencies |       |      | JP7 Pin Settings |       |       |       |
|-----------------|-------|------|------------------|-------|-------|-------|
| Syst            | Mem   | PCI  | 1-2              | 3-4   | 5-6   | 7-8   |
| 133.3           | 133.3 | 33.3 | Open             | Open  | Open  | Open  |
| 124             | 124   | 31   | Open             | Open  | Open  | Short |
| 112             | 112   | 37.3 | Open             | Open  | Short | Open  |
| 100             | 100   | 33.3 | Open             | Open  | Short | Short |
| 95              | 95    | 31.7 | Open             | Short | Open  | Open  |
| 83.3            | 83.3  | 33.3 | Open             | Short | Open  | Short |
| 75              | 75    | 30   | Open             | Short | Short | Open  |
| 66.7            | 66.7  | 33.3 | Open             | Short | Short | Short |
| 133.3           | 88.9  | 33.3 | Short            | Open  | Open  | Open  |
| 124             | 82.7  | 31   | Short            | Open  | Open  | Short |
| 112             | 74.7  | 37.3 | Short            | Open  | Short | Open  |
| 105             | 70    | 35   | Short            | Open  | Short | Short |
| 100             | 66.7  | 33.3 | Short            | Short | Open  | Open  |
| 95              | 63.3  | 31.7 | Short            | Short | Open  | Short |
| 83.3            | 66.6  | 33.3 | Short            | Short | Short | Open  |
| 66.8            | 89.1  | 33.4 | Short            | Short | Short | Short |

### JP9: Audio System Enable/disable Jumper

This jumper lets you enable or disable the audio system that is integrated on the motherboard. You must disable the audio system if you install an alternative sound card using one of the expansion slots.



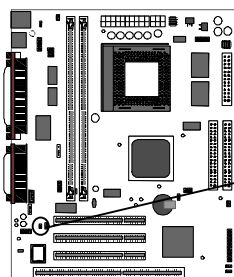
JP9

|   |
|---|
| 3 |
| 2 |
| 1 |

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

### JP10: Set SPDIF Output Signal Level Jumper

If you use the SPDIF Input/Output connector (J4), you can use this jumper to set the level of the output signal to either 5 volts or 0.5 volts.



2  
1 JP10

| Function  | Jumper Cap     |
|-----------|----------------|
| 5 volts   | Short pins 1-2 |
| 0.5 volts | Open pins 1-2  |

## Install the Mainboard in the System Case

Use the screws and mounting brackets supplied with your system case to install the mainboard. Follow the instructions provided by the case manufacturer.

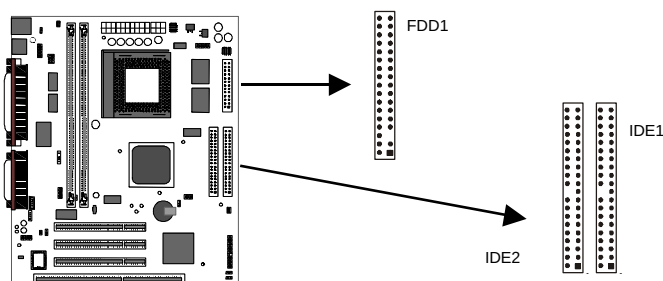
### Connect Devices, Switches and Indicators to the Mainboard

**Note:** You might not need to carry out every step in the following procedure. It depends on the options you are installing, and the features that are supported by your system case.

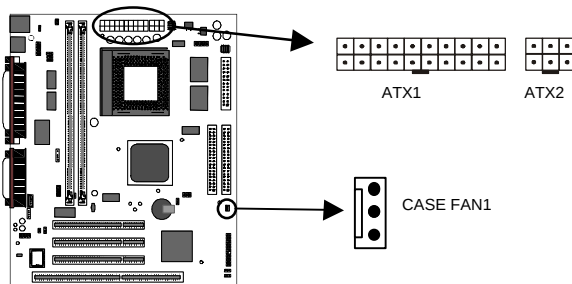
**Note:** Ribbon cable connectors are usually keyed so that they can only be installed correctly on the device connector. If the connector is not keyed make sure that you match the pin-1 side of the cable connector with the pin-1 side of the device connector. Each connector has the pin-1 side clearly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

### Part One – Internal Connections

1. Locate the floppy diskette drive connector FDD1. Use the ribbon cable to connect one or two floppy diskettes to the mainboard.
2. Locate the Enhanced IDE connectors IDE1 (primary) and IDE2 (secondary). A single IDE cable is provided with the mainboard. Connect the cable to IDE1. The cable has two connectors for IDE devices. If you connect two devices, you must configure one device as Master, and one device as Slave. See the documentation provided with the devices for information on this. To install more drives, use another IDE cable and connect one or two devices to IDE2.

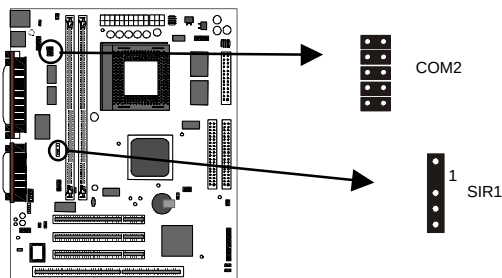


3. Locate the power connector ATX1. Connect the power cable from the power supply unit to ATX1. The connector is keyed so that it can only be installed correctly.
4. Locate the 1394 serial bus device power connector ATX2. If you are installing a 1394 serial device, connect the power cable from the device to this connector.
5. If your system case has a built-in cooling fan, you can supply power to the fan from the case fan power connector CASE FAN1. Connect the power cable from the fan to CASE FAN1.

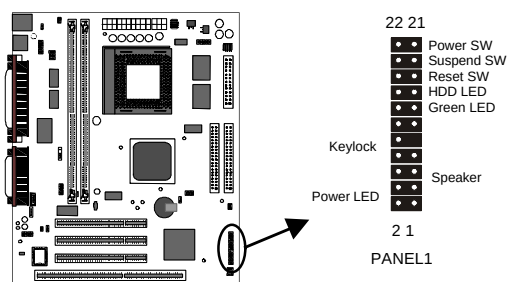


6. If you want to install a second serial port, connect the data cable from the optional second serial port to the COM2 connector on the mainboard.
7. If you want to install an optional Serial Infrared Port, connect the cable from the optional IR port to the SIR1 connector on the mainboard.

**Note:** You can install a second serial port or an infrared port. If you install both, you will not be able to use them at the same time. Use the setup utility to assign the second serial port to COM2 or SIR1.

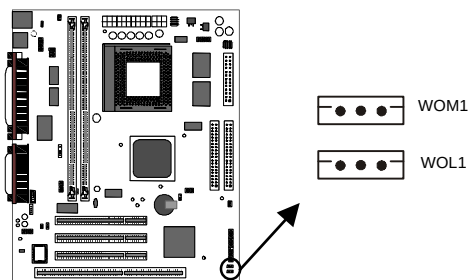


8. Locate the bank of switch and indicator connectors PANEL1. These connectors provide control functions to your system case. Use the table below to make the connections.

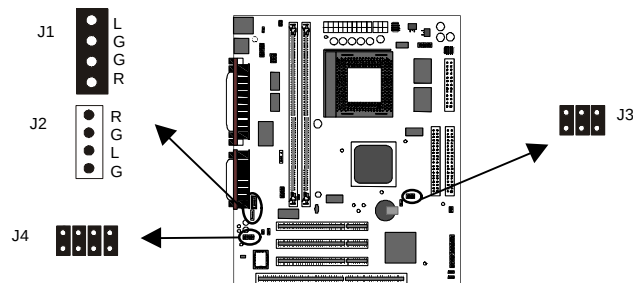


| Function            | Pins        |
|---------------------|-------------|
| Speaker             | 1, 3, 5, +7 |
| Power Indicator     | +2, +4, 6   |
| Keylock             | +8, 10      |
| Green Indicator     | +13, 14     |
| Hard Disk Indicator | +15, 16     |
| Reset Switch        | 17, 18      |
| Suspend Switch      | 19, 20      |
| Power Switch        | 21, 22      |

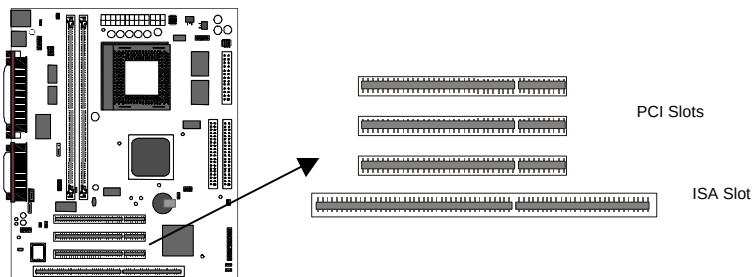
9. The mainboard has wake up connectors for an optional network adapter or an optional internal fax/modem card. If you have installed a network adapter expansion card, connect it to the wake on LAN connector WOL1. If you have installed an internal fax/modem expansion card, connect it to the wake on modem connector WOM1.



10. The mainboard has four audio connectors. J1 is an 4-pin audio connector which can be used to input the audio from a CD-ROM or DVD drive. J2 is exactly the same, except that it supports an alternative kind of connector. Use either J1 or J2 to connect your CD/DVD drive audio output. If you have installed a device which supports SPDIF digital audio, you can connect the device to the SPDIF output connector J\$. If you disable the built-in audio and install a Sound Blaster PCI sound card, you can connect it to the SB-Link connector J3. SB-Link allows a PCI Sound Blaster card to function correctly while playing DOS real-mode games.

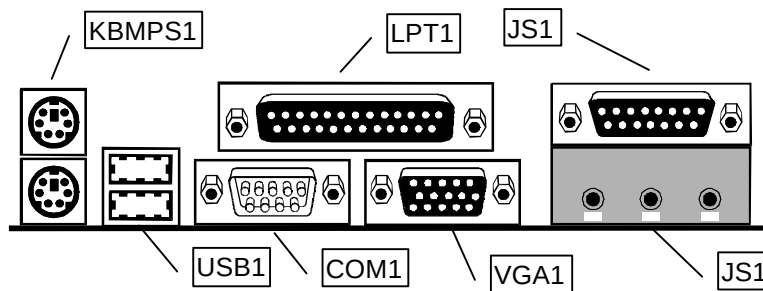


11. Locate the 32-bit PCI expansion slots and the 8/16 bit ISA expansion slots. Install any expansion cards into the correct kind of slot, and secure the card bracket to the system case.



## Part Two – External Connections

After you have installed the mainboard and completed the internal connections, you can use the external connectors to attach peripheral devices to your system.



1. KBMPS1 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 JS1 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 JS1 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 the external monitor. Use this port to connect to a VGA or higher resolution display monitor.
6. COM1 is a serial port that can be used by serial devices such as a mouse, a fax/modem and so on. This serial port is identified by the system as COM1/3.
7. USB1 is a stack of two Universal Serial Bus ports. Use these ports to connect to USB devices.