

Chapter 2: Installation

Before You Begin

Before you begin to install your P6EX-MM 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.

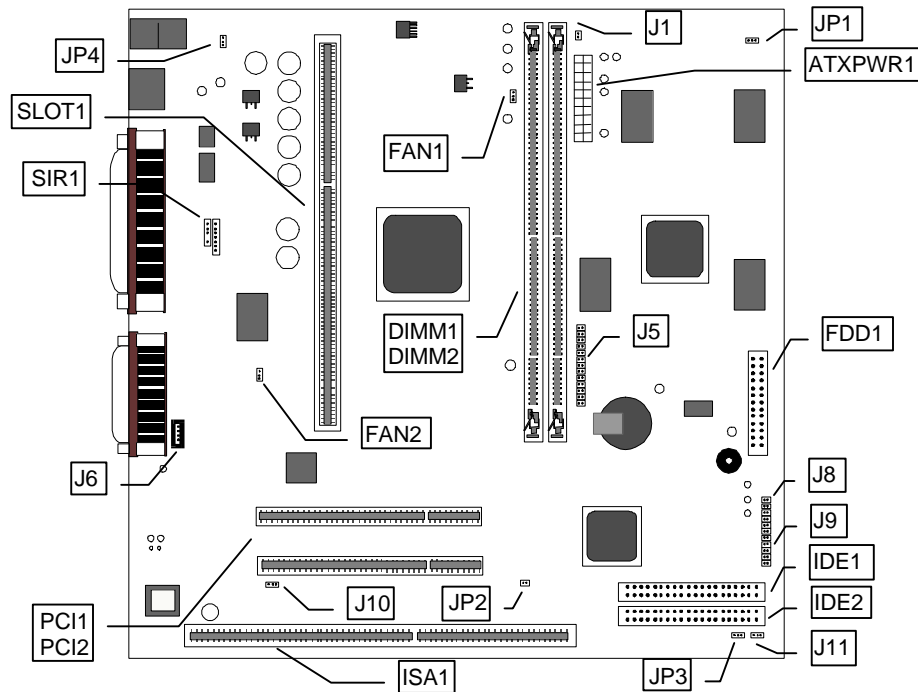
Choosing a Case

The P6EX-MM mainboard has a power connector for an ATX power supply. Ensure that your system is installed with an ATX power unit. The mainboard complies with the specifications for the micro-ATX system case, although it can also be installed in most full-size ATX case designs. The micro-ATX specifications include a maximum size of 9.6" x 9.6" (244mm x 244mm), a reduced number of expansion slots, and support for a smaller power supply unit.

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 P6EX-MM 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.

Mainboard Guide

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

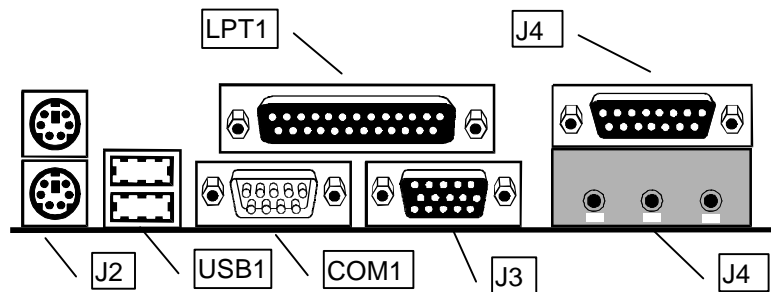


Key to Mainboard Components

Component	Description
ISA1	8/16-bit expansion slot
PCI1, PCI2	2 x 32-bit expansion slots
SLOT1	Slot for CPU cartridge
DIMM1, DIMM2	2 x slots for 168-pin memory modules
FAN1	Power for chassis/power supply cooling fan
FAN2	Power for CPU cartridge cooling fan
ATXPWR1	Connector for ATX power supply
SIR1	Connector for (optional) Standard Infrared port
FDD1	Connector for floppy disk drive
IDE1	Primary IDE channel
IDE2	Secondary IDE channel
J1	Connector for case Open/Close detect
J5	Graphics adapter feature connector
J6	Connector for CD-ROM audio output
J8	Power On/Off connector

J9	Panel Connector
J10	Connector for Modem wake up
J11	Connector for LAN wake up
JP1	Graphics enable/disable jumper
JP2	Indicator input for auxiliary (SCSI) hard disk drive
JP3	Clear CMOS Jumper
JP4	Keyboard wake up enable/disable

Side View of the I/O Ports



Key to I/O Port Components

Component	Description
LPT1	Parallel Port (Bidirectional, EPP, ECP)
J4 (Upper)	Game/MIDI port for joystick or MIDI device
J4 (Lower)	Audio Jacks for Stereo Out, Stereo In, Microphone
J2	Upper PS/2 port for mouse, lower PS/2 port for keyboard
USB1	Two Universal Serial Bus ports
COM1	Serial port for COM1 or COM3
J3	Port for display monitor

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**.*

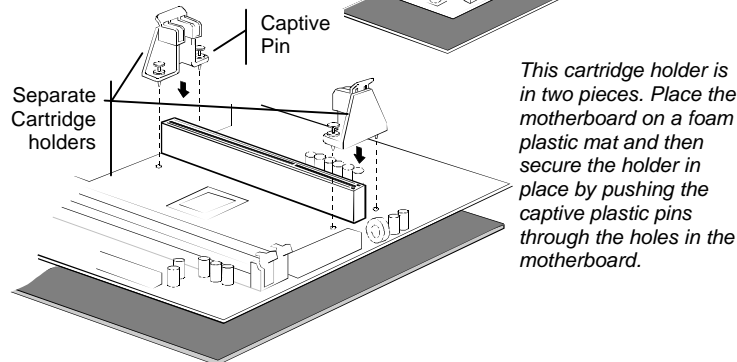
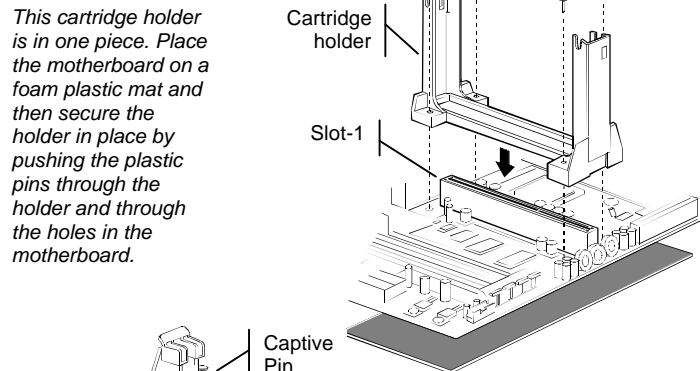
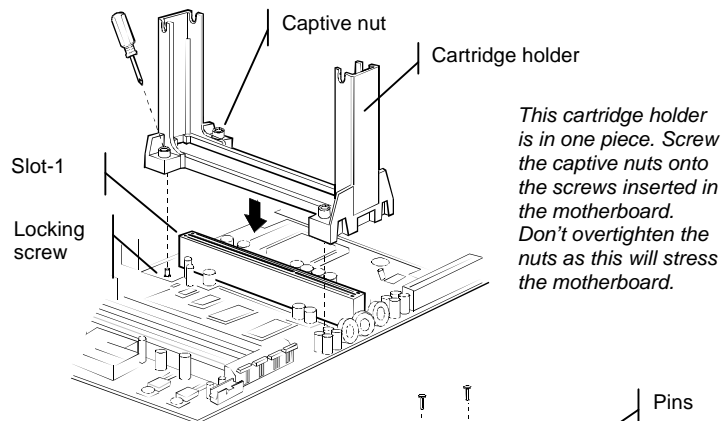
Preparing the Mainboard

Prepare the mainboard by installing the supplied processor cartridge holder. Then install the cartridge according to the supplied instructions. After the processor cartridge is installed, insert your memory modules into the DIMM sockets on the

mainboard. Finish the mainboard preparation by checking that all the jumpers are at the correct setting.

Install the Processor Cartridge

1. This mainboard is supplied with a cartridge holder for the Pentium-II or Celeron processor cartridge. Several different kinds of cartridge holders are available. The illustration below shows how three of the most typical holders are installed.



2. Some cartridge holders also include a support bar for the heat sink. This bar installs to the side of the cartridge holder. Some Pentium-II processors have support struts for the heat sink which lock into the support bar. The documentation with the Pentium-II processor shows how to do this.
3. Follow the instructions given with your cartridge to install the processor cartridge into the cartridge holder.
4. If necessary, connect the power cable from the cartridge cooling fan to the mainboard CPU fan power supply CPUFAN.

***Note:** The P6EX-MM does not use jumpers to set the parameters for your processor, such as the core voltage, the clock multiplier, and so on. You can set the parameters for the processor in firmware using the system BIOS. After your system is installed, the BIOS will automatically detect the kind of processor that is installed and implement the correct setting for it. See the next chapter for details.*

Install the Memory Modules

For this mainboard, you must use 168-pin Dual In-line Memory Modules (DIMMs) which are installed with SDRAM (Synchronous Dynamic Random Access Memory) (SDRAM). This mainboard supports 3.3 volt DRAMs operating over a 66 MHz memory bus. You can install one or two modules, and each module can have a capacity of up to 256 MB. If you only install one memory module, install it in DIMM socket 1.

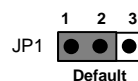
1. The SDRAM sockets are keyed with notches and the DIMMs are keyed with cut-outs so that they can only be installed correctly. Check that the cut-outs on the DIMM edge connector matches the notches in the SDRAM socket.
2. Push the latches on each side of the SDRAM socket down.
3. Install the DIMM into 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 the Jumper Settings

This mainboard only has three jumpers. For most systems the factory defaults will be the correct configuration. Before you install the mainboard, take a moment to check that the two jumpers are at the correct setting.

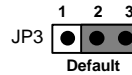
1. Locate the Graphics Enable/Disable jumper JP1. As a default, this jumper enables the built-in graphics system. If you intend installing another graphics adapter in one of the expansion slots, you must disable this jumper.

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



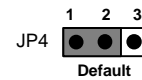
2. Locate the Clear CMOS jumper JP3. Ensure that the jumper cap is placed on pins 2-3. If you ever need to clear the system CMOS memory, you can do this by moving the jumper cap to short pins 1-2 for a few seconds. When you clear the CMOS memory, the system must be turned off and the power cord disconnected.

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



3. Locate the Power Option jumper JP4. This jumper can be used to set a 5V standby voltage for the mainboard. If you want to use the system BIOS to create a keyboard power on signal for the system, you must have the 5V standby voltage enabled.

Function	Jumper Cap
5V standby (for keyboard power on)	Short Pins 1-2
Vcc (no keyboard power on)	Short pins 2-3



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.

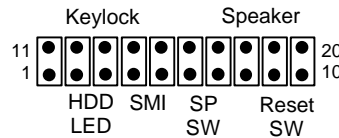
Note: Ribbon cables are usually keyed so that they can only be installed correctly on the device connector. Each connector has the pin-1 side clearly marked. The pin-1 side of each ribbon cable is always marked with a red stripe on the cable.

Part One – Internal Connections

1. Locate the floppy diskette drive connector FDD1. Use the ribbon cable to connect the floppy diskette drive 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. If you need to install more drives, obtain another IDE cable and connect one or two devices to IDE2 following the same procedure as you used with IDE1.

3. Locate the bank of switch and indicator connectors J9. These connectors provide control functions to your system case. Use the illustration below and the following table to make the connections.

Function	Pins
Keylock	+11, 12, 13, 14, 15
Speaker	17, 18, 19, 20
Hard Disk Indicator	+2, 3
SML (dual purpose power/suspend switch)	4, 5
Suspend switch	6, 7
Reset switch	9, 10



4. Connect the case power switch cable to the power on/off connector J8.
5. Locate the ATX power connector ATXPWR1. Connect the cable from your system ATX power supply into the connector. The connector is keyed so that it can only be installed correctly.
6. Install expansion cards into the expansion slots. You can use the ISA slot, and the two PCI slots to install a variety of expansion cards in your system, such as a network adapter, a SCSI host adapter, an internal modem card, and so on.

Part Two – Optional Internal Connections

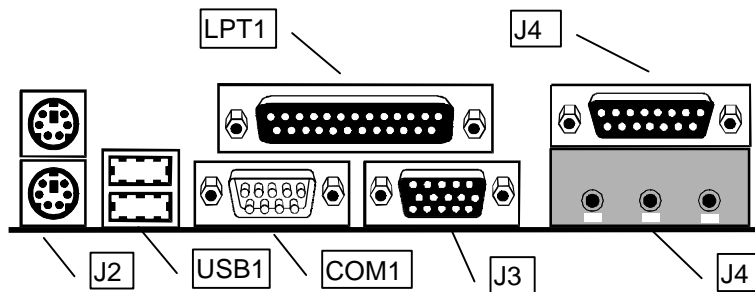
You may install optional items such as an infrared port. If you have installed a network adapter or an internal modem, you can use the wake-up connectors so that your system will automatically resume from a power-saving mode when there is incoming network or modem traffic.

1. Locate the infrared connector SIR1. Use the cable provided with the infrared device to connect to the IR connector. Secure the infrared device to the appropriate space in the system case.
2. If you have installed a network adapter, connect the cable from the network adapter to the Wake on LAN connector J11. This will enable your system to resume from a power saving mode when there is network traffic. When you use the LAN wake up function, you must make sure that the 5V standby current from the power supply is more than 700mA.
3. If you have installed an internal modem, connect the cable from the internal modem to the Wake on Modem Connector J11. This will enable your system to resume from a power saving mode when there is modem traffic.
4. You may install extra cooling fans. Some ATX power units have a cooling fan, or you have a case mounted fan. You can connect it to the cooling fan power connector FAN1.
5. If your case supports a detector that indicates when the case is opened, you can connect the cable to the case open detect connector J1.

6. If you install a CD-ROM drive in your system, you can connect the audio output of the CD-ROM drive to the audio system integrated on the mainboard. Connect the CD-ROM drive audio cable to either J6.
7. You may have installed an auxiliary video card, such as an MPEG1/2 decoder card, or a video capture card. In some cases, these cards must be linked to the current graphics adapter by connecting them to the feature connector. Locate the feature connector J5, and use the ribbon cable provided with the auxiliary video card to connect to J5.
8. You may have installed a hard disk drive which does not operate through the primary or secondary IDE channels – for example, a SCSI hard disk drive connected to a SCSI host adapter card. In this case, you can connect the hard disk LED signal cable to JP2. This will pass the hard disk indicator signal through to the J9 panel connector so that it will be visible on the case hard disk drive indicator.

Part Three – 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. J2 is two stacked PS/2 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. USB1 is a stack of two universal serial bus (USB) ports. Some new devices now use the USB interface to take advantage of its faster transmission, and the fact that many devices can be “daisy chained” on a single cable.
3. COM1 is a serial port which can be used by serial devices such as a mouse, a fax/modem and so on. Your system identifies this serial port as COM1/3
4. J3 is the external monitor port. Use this port to connect the system to display monitor with VGA or extended VGA resolution.
5. J4 on the lower level is a set of three audio jacks. The left jack is for Stereo Out and can be connected to speakers, headphones, and so on. The middle jack is for Stereo In and can be used to input audio from external devices such as a radio or tape player. The right jack is for a microphone.

6. J4 on the upper level is a Game/MIDI port. You can use this port to connect to a joystick device or a MIDI device such as a MIDI keyboard or synthesizer. The port will auto detect which kind of device is connected.
7. LPT1 is a parallel port which can be used by printers or other parallel communications devices. Your system identifies the parallel port as LPT1.