

Chapter 2: Installation

Before You Begin

Before you begin to install your P6BX-MS 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.

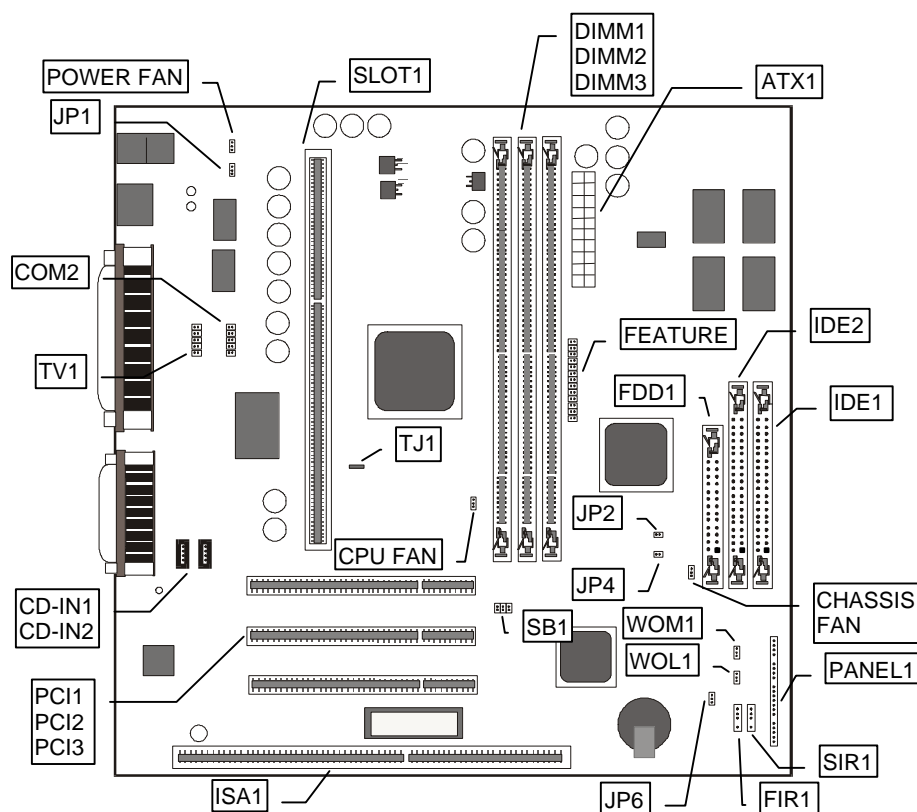
Choosing a Case

The P6BX-MS 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 P6BX-MS 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.

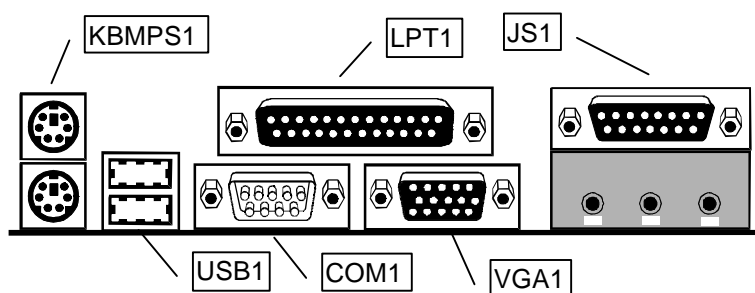


Key to Mainboard Components

Component	Description
ISA1	8/16-bit expansion slot
PC11, PC12, PC13	3 x 32-bit expansion slots
SLOT1	Slot for CPU cartridge
DIMM1, 2, 3	3 x slots for 168-pin memory modules
POWER FAN	Power for power supply cooling fan
CHASSIS FAN	Power for chassis cooling fan
CPU FAN	Power for CPU cartridge cooling fan
ATX1	Connector for ATX power supply
FEATURE	Feature connector for auxiliary graphics card
SIR1	Connector for Serial Infrared port
FIR1	Connector for (optional) Fast Infrared port

CD-IN1, CD-IN2	Connectors for CD-ROM audio output
WOM1	Connector for Modem wake up
WOL1	Connector for LAN wake up
SB1	SB-Link (For PCI SoundBlaster cards)
FDD1	Floppy disk drive connector
IDE1	Primary IDE channel
IDE2	Secondary IDE channel
COM2	Connector for second serial port
TV1	Connector for (optional) TV-out port
PANEL1	Panel Connector
TJ1	Thermistor Junction – thermal detector (optional) for processor module
JP1	Power option jumper (for keyboard power on)
JP2	Graphics enable/disable jumper
JP4	TV-out format jumper
JP6	Clear CMOS jumper

Side View of the I/O Ports



Key to I/O Port Components

Component	Description
KBMPS1	Upper PS/2 port for mouse, lower PS/2 port for keyboard
LPT1	Parallel Port (Bidirectional, EPP, ECP)
JS1 (Upper)	Game/MIDI port for joystick or MIDI device
JS1 (Lower)	Audio Jacks for Stereo Out, Stereo In, Microphone
VGA1	Port for display monitor
COM1	Serial port for COM1 or COM 3
USB1	Two Universal Serial Bus ports

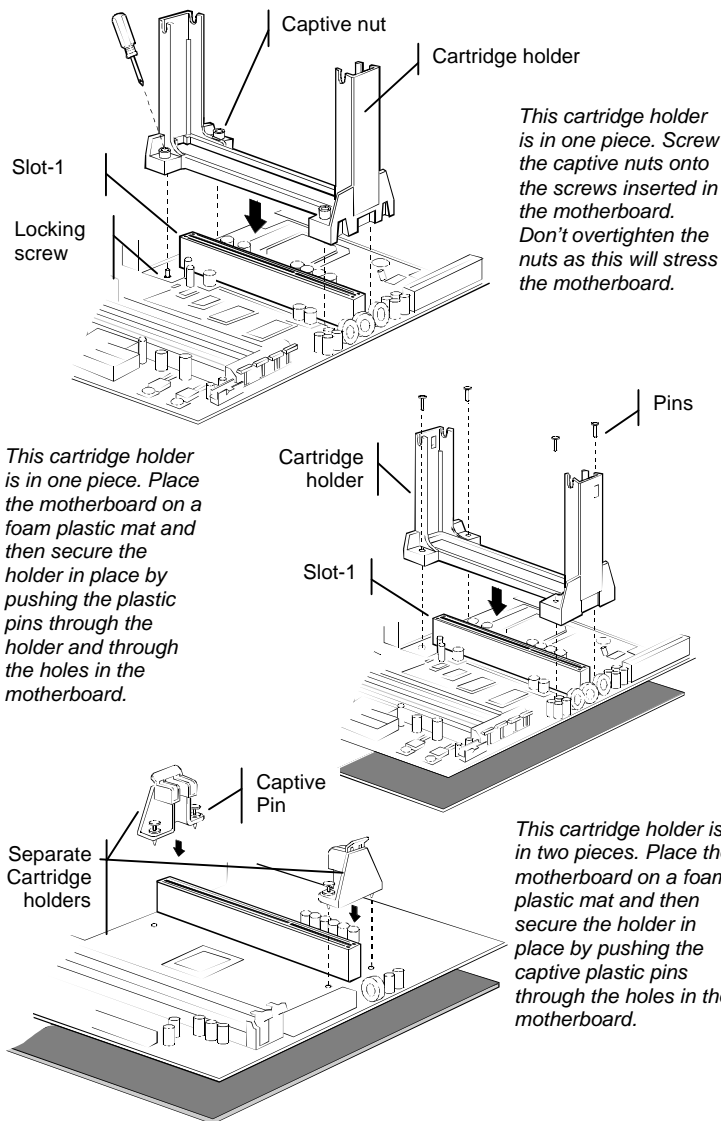
Preparing the Mainboard

Prepare the mainboard by installing the supplied Pentium-II cartridge holder. Then install the Pentium-II cartridge according to the instructions supplied with the cartridge. Complete the processor installation by installing the supplied heat-sink support (if supplied), and connecting the heat sink power cable to the mainboard connector.

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 mainboard jumpers are at the correct setting.

Install the Pentium-II Processor

1. This motherboard 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 Pentium 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 CPU FAN.

***Note:** The P6BX-MS 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). This mainboard supports 3.3 volt DRAMs operating over a 66 MHz memory bus, and it will also support PC-100 compliant memory which operates over a 100 MHz memory bus. If you are installing a processor which runs using a 100 MHz bus, you must use PC-100 compliant memory.

You can install one, two or three modules, and each module can have a capacity of up to 128 MB for standard SDRAM. If you use registered DRAM, the capacity of the modules can be doubled to 256 MB. All the memory modules that you install must be of the same kind. If you only install one memory module, install it in DIMM socket 1. If you install two modules, install them in DIMM sockets 1 and 2.

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

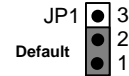
This mainboard only has four jumpers that require manual configuration. For most systems the factory defaults will be the correct configuration. Before you install the mainboard, take a moment to check that all the jumpers are at the correct setting.

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**.

1. Locate the Keyboard Power On Enable/Disable jumper JP1. This jumper lets you set keyboard power source is standby voltage of 5V or Vcc. The standby voltage of 5V is required if you want to use the keyboard power on feature. The keyboard power on feature can be turned on using the system BIOS. See the next chapter for more information.

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

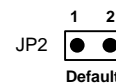


If your system case has a Green Indicator lamp connected to the Green LED connector on the PANEL1 connector, the operation of the Green indicator will change according to the setting of the Keyboard Power On Jumper. The Green indicator lamp will behave as follows:

System State	KB Power On Enabled	KB Power On Disabled	Description
Soft Power Off	Green LED On	Green LED Off	The ATX power supply is On, but the mainboard is on 5V standby
Power On	Green LED On	Green LED On	The ATX power supply is On and the mainboard is On
Suspend Mode	Green LED Flashes	Green LED Flashes	The system is suspended, either by the suspend switch connected to the PANEL1 connector, or the suspend button in Windows OS
Power Off	Green LED Off	Green LED Off	System is completely powered down with ATX power supply Off

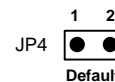
2. Locate the Onboard Graphics Enable/Disable jumper JP2. This jumper lets you enable or disable the AGP graphics adapter that is integrated on the mainboard. Disable this jumper if you intend to use an alternative graphics adapter in one of the expansion slots

Function	Jumper Position
Enable onboard graphics	Open pins 1-2
Disable onboard graphics	Close pins 1-2



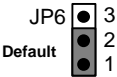
3. Locate the TV-out format jumper JP4. This jumper configures the TV-out connector (TV1) to deliver either a PAL or NTSC video signal.

Function	Jumper Position
Select NTSC	Open pins 1-2
Select PAL	Short pins 1-2



- Locate the Clear CMOS jumper JP6. Ensure that the jumper cap is placed on pins 1-2. If you ever need to clear the system CMOS memory, you can do this by moving the jumper cap to short pins 2-3 for a few seconds. When you clear the CMOS memory, the system must be turned off and the ATX power supply cable must be disconnected from the ATX power connector on the mainboard.

Function	Jumper Position
Normal Operation	Short pins 1-2
Clear CMOS Memory	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.

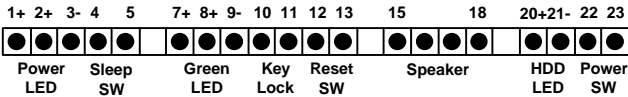
Connect Devices, Switches and Indicators to the Mainboard

***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

- Locate the floppy diskette drive connector FDD1. Use the ribbon cable to connect the floppy diskette drive to the mainboard.
- 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.
- Locate the bank of switch and indicator connectors PANEL1. These connectors provide control functions to your system case. Use the illustration below and the following table to make the connections.



Function	Pinout
Power Indicator	+1, +2, 3
Sleep Switch	4, 5
Green Indicator	+7, +8, 9
Key Lock	10, 11
Reset Switch	12, 13
Speaker	+15, 16, 17, 18
Hard Disk Indicator	+20, 21
Power Switch	+22, 23

4. Locate the ATX power connector ATX1. Connect the cable from your system ATX power supply into the connector. The connector is keyed so that it can only be installed correctly.
5. Install expansion cards into the expansion slots. You can use the 8/16-bit ISA slot, and the three 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 connectors SIR1 (Standard Infrared) and FIR1 (Fast Infrared). Check if your infrared port requires the fast or standard interface. Use the cable provided with the infrared device to connect to the appropriate IR connector. Secure the infrared port to the system case.
2. Locate the second serial port connector COM2. You can connect a second serial port to this connector. Use the cable provided with the serial port to make the connection to COM2, and then secure the serial port to the system case.

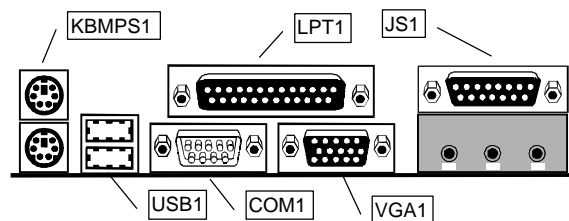
Note: *If you install an infrared port, it must share a COM port assignment with the second external serial port COM2/4. You can select which port is in use by using the setup utility.*

3. If you have installed a network adapter, connect the cable from the network adapter to the Wake on LAN connector WOL1. 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.
4. If you have installed an internal modem, connect the cable from the internal modem to the Wake on Modem Connector WOM1. This will enable your system to resume from a power saving mode when there is an incoming call to the modem.
5. You may install some kind of graphics or video card, for example a video capture card or an MPEG decoder. Some cards need to be connected to the graphics adapter through the feature connector. Locate the FEATURE connector on the

- mainboard and use the cable provided with the video card to connect to the feature connector.
6. You may install a Creative PCI Sound Blaster sound card. You can connect this card to the mainboard connector SB-Link. The SB-Link connector provides a PCI-compatible solution that allows your Sound Blaster to run real-mode DOS game applications.
 7. You may install extra cooling fans. Some ATX power units have a cooling fan. You can connect this to the ATX cooling fan power connector POWER FAN. If you have a case mounted fan, you can connect it to the case cooling fan power connector CHASSIS FAN.
 8. 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 the CD-audio connector CD-IN1. If the connector from the CD-ROM is not compatible with CD-IN1, you can use the auxiliary CD-audio connector CD-IN2.

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. KBMPS1 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 peripheral 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 or COM3
4. VGA1 is the port for an external monitor.
5. JS1 (lower) 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. JS1 (upper) 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.