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 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 to 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

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

JP3: Audio enable/disable jumper

Use this 3-pin jumper to enable or disable the built-in audio system.

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

JP4: Set System Bus Frequency

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
Normal operation	Short pins 1-2
Force 100 MHz	Short pins 2-3

JP4

1 2 3

Before You Begin

Before you begin to install your P6BAT-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 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 board to indicators and switches on the system case. Ensure that your case supports all the features required. The P6BAT-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.

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
ISA1	8/16-bit ISA expansion slot
PCI 1, 2, 3	3 x 32-bit PCI expansion slot
AGP1	Slot for AGP graphics adapter
SLOT-1	Slot for Pentium-II/III processor or SEPP Celeron processor
SOCKET-370	Socket for PPGA Celeron processor
DIMM1, 2, 3	Slots for 168-pin memory modules
FDD1	Connector for floppy disk drives
IDE1, IDE2	Primary and secondary IDE channels
ATX1	Connector for ATX power supply
SIR1	Connector for optional IR port
PANEL1	Panel connector for switches and indicators
CPUFAN1	Power connector for CPU cooling fan
CASEFAN2	Power connector for case cooling fan
CD IN1	Audio connector for optional CD-ROM drive
CD IN2	Auxiliary audio connector for optional CD-ROM drive
SPDIF1	In/Out connector for 24-bit digital audio
MDM1	Connector for fax/modem adapter card
SIDEBAND1	SB-Link connector for PCI Sound Blaster cards
WOL1	Wake up connector for network adapter
WOM1	Wake up connector for fax/modem card
JP1	Clear CMOS memory jumper
JP2	Keyboard power on jumper
JP3	Onboard audio enable/disable jumper
JP4	Set system bus frequency jumper
LED1	Power LED

I/O Ports Side View

Key to I/O Ports

Component	Description
KBMPS2	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 (left to right) line out, line in, microphone
COM2	External serial port 2/4
COM1	External serial port 1/3
USB1	Two stacked Universal Serial Bus ports

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 for more information.

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

JP3: Audio 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 in order to free up resources for the alternate sound card.

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

JP4: Set System Bus Frequency

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

Function	Jumper Cap
Normal Operation	Short pins 1-2
Force 100 MHz	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 the mainboard installing in a standard desktop case.

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

Connecting Power, Chassis Fan, and Panel

After you have installed the mainboard into the system case, connect the chassis fan (if your case has one) to the power supply CASEFAN1on the mainboard. Then connect the case switches and indicators to the PANEL1 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 Fan

If your case has a cooling fan installed, plug the cable from the fan into the mainboard fan power supply CASEFAN1.

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.

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 mainboard. 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 three kinds of processor into the Slot1: Pentium-III, Pentium-II, and SEPP Celeron.

Intel Pentium-III
The Pentium-III has the highest performance. This processor is similar to the Pentium-II but it includes new instructions to improve the throughput of multimedia data such as 3D audio and video, speech recognition. MPEG2 motion picture encoding/decoding and TCP/IP internet connections. However, only recently released software can have the capability of using these improved instructions. The Pentium-III has 32K of internal cache memory and 512K of external cache memory. Currently Pentium-III processors are available at clock speeds up to 550 MHz and they operate over a 100 MHz system bus. The Pentium-III is the most expensive of the processors supported by this mainboard.

Intel Pentium-II
The Pentium–II has a wide range of performances. 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 less expensive than Pentium-IIIs with the same clock speed.

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 466 MHz. They all operate over a 66 KHz 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 433 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 which 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

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 power supply on the mainboard.

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.

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 66 MHz or 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 module in any one of the three DIMM slots. Each module may be installed with up to 128 MB of memory so the maximum capacity is 384 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 the cut-outs on the module edge connector match the notches in the 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 which 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 three for more information.

Installing a CD-ROM Drive

1. Install the CD-ROM 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 CD-ROM 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 CD-ROM drive.
5. Use the audio cable provided with the CD-ROM drive to connect the audio connector on the rear edge of the CD-ROM drive to the one of the two CD IN connectors on the motherboard.
6. 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 three 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.
2. Plug the diskette drive cable into the diskette drive interface on the mainboard FDD1.
3. 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.
4. Plug a power cable from the case power supply unit into the power connector on the back edge of the diskette drive.
5. 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 three for more information.

Using the Expansion Slots

This mainboard has several expansion slots. You can install add-in cards into these slots to add new features to your system. In order to get your system started, you must install an add-in graphics adapter. The mainboard has three kinds of expansion slots.

AGP Slot: The AGP slot can be used to install a graphics adapter that has the AGP (Accelerated Graphics Port) interface.

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

ISA Slot: The ISA slot can be used to install add-in cards that have the legacy 8/16-bit ISA (Industry Standard Architecture) interface.

> ***Note:*** *The third PCI slot PCI3 is shared with the ISA slot ISA1. This means that you may use either one of these slots, but you cannot use both of them at the same time.*

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.

Add-in Card Options

The mainboard has some features that can be used by some types of add-in cards.

SIDEBAND1

If you have installed a PCI Sound Blaster add-in card, you can use the cable provided with the card to plug into the SIDEBAND1 connector on the mainboard. This circuit solves some problems that can occur when you use your system to play legacy computer games that run in the DOS real-mode environment.

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 will automatically resume the system. You must enable this item using the Power Management page of the setup utility. See Chapter three for more information.

WOM1: Wake on Modem

If you have installed a fax/modem add-in 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, an incoming call will 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

On this mainboard you can install an optional infrared port. In order to use the built-in fax modem you must install the fax/modem extension bracket. If you have a 24-bit digital audio device, you can connect it to the SPDIF digital audio connector.

Infrared Port and Digital Audio

1. If you want to install an optional serial infrared port, connect the cable from the optional IR port to the IR connector on the mainboard.
2. After you have connected the cable, secure the option to the appropriate place on your system case.

Note: *An infrared port uses some of the same resources as the built-in fax/modem and the second serial port. If you have installed the infrared port, you might have to use your system's device manager to reallocate resources between the infrared port and the fax/modem or second serial port. You might not be able to run both devices at the same time.*

Use the SPDIF1 In/Out connector to connect a digital audio extension bracket to your system. If you have CD-ROM drive or DVD drive with digital output, you can use an internal digital audio cable to connect the digital audio output of the drive to the input pins of the SPDIF1 connector. The input pins are marked with a white box in the illustration.

Fax/modem Extension Bracket

The fax/modem extension bracket is supplied with this mainboard.

1. Locate the MDM1 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 extension bracket on to the MDM1 connector as shown below. The RJ11 Line and Telephone sockets on the bracket are positioned in the expansion slot with the removed blanking plate.

Make the External Connections

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

1. KBMPS2 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. COM2 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 COM2/4.
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.