Important Information

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Version 1.0

Safety Compliance

Federal Communications Commission (FCC)

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment onto an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Shielded interconnect cables and shielded AC power cable must be employed with this equipment to insure compliance with the pertinent RF emission limits governing this device. Changes or modifications not expressly approved by the system' s manufacturer could void the user' s authority to operate the equipment.

Declaration of Conformity

This device complies with part 15 of the FCC rules. Operation is subject to the following conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

Canadian Department of Communications

This class B digital apparatus meets all requirements of the Canadian Interference-causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Réglement sur le matériel brouilieur du Canada.

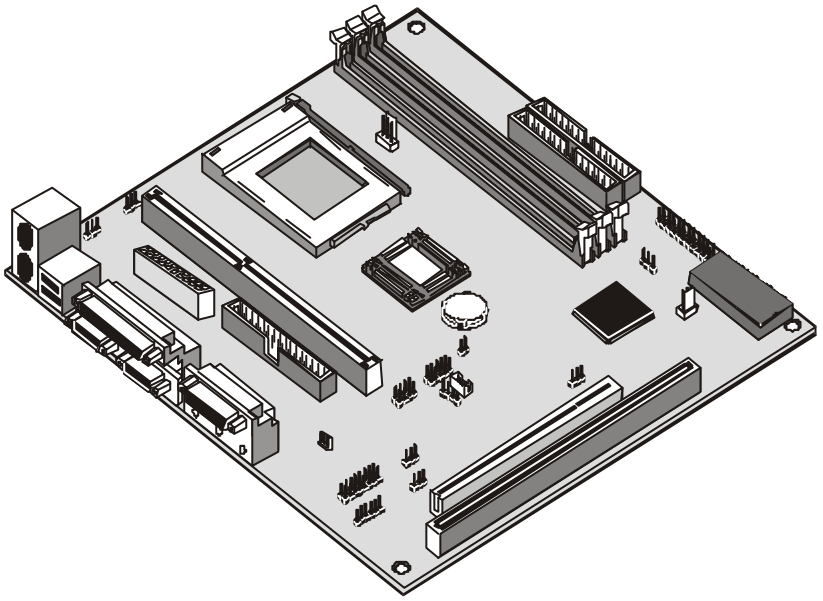
Contents

Chapter 1: Introduction

Welcome

Congratulations on purchasing the P6SET-ML mainboard. The mainboard includes a Slot-1 processor slot and a PPGA (Plastic Pin Grid Array) Celeron Socket-370 processor socket. **This feature means that you can install the mainboard with either a Pentium-III cartridge, a Pentium-II cartridge, the SEPP (Single Edge Processor Package) Celeron cartridge, or one of the new generation PPGA Celerons.**

The mainboard is micro-ATX sized and measures 245mm x 220mm. This board has a high level of integrated features including a built-in PCI 3D sound system, a built-in AGP graphics accelerator, a 10BaseT/100BaseTX network adapter, and an interface for a V.90 fax/modem card. With the addition of just a processor and some memory, this board instantly becomes a very useful multimedia workstation that is network-ready.



This chapter contains the following information:

- **About the Manual** explains how the information in this manual is organized
- **Checklist** comprises a list of the standard and optional components that are shipped with this mainboard
- **Recommendations** lists some Do's and Don'ts from the manufacturer to help ensure reliability and performance from this product
- **Features** highlights the functions and components that make this one of the best value mainboards on the market

About the Manual

The manual consists of the following chapters:

Introduction

Use the **Introduction** Chapter to learn about the features of the mainboard, and the checklist of items that are shipped with the package.

Installation

Use the **Installation** Chapter to learn how to install the mainboard and get your system up and running.

Setup

Use the **Setup** Chapter to configure the mainboard for optimum performance.

Software

Use the **Software** Chapter to learn how to use the software drivers and support programs that are provided with this mainboard.

Checklist

Compare the contents of your mainboard package with the standard checklist below. If any item is missing or appears damaged, please contact the vendor of your mainboard package.

Standard Items

- ✓ 1 x P6SET-ML Mainboard
- ✓ 1 x Cable/Bracket Pack
  - Diskette drive ribbon cable
  - IDE drive ribbon cable
- ✓ 1 x V.90 Fax/modem Card
- ✓ 1 x Network adapter extension bracket
- ✓ This User' s Manual
- ✓ Software Support CD-ROM Disc

Recommendations

This mainboard automatically determines the CPU clock frequency and system bus frequency for the kind of processor that you install. You may be able to change these automatic settings by making changes to jumpers on the mainboard, or changing the settings in the system setup utility. We strongly recommend that you do not overclock the mainboard to run processors or other components faster than their rated speed.

Overclocking components can adversely affect the reliability of the system and introduce errors into your system. Overclocking can permanently damage the mainboard by generating excess heat in components that are run beyond the rated limits.

Components on this mainboard can be damaged by discharges of static electricity. Handle the board carefully holding it by the edges. Don' t flex or stress the circuit board. Keep the board in its static-proof packing until you are ready to install it. Follow the static guidelines given at the beginning of chapter 2.

Features

The key features of this mainboard are the wide range of processors that can be installed, and the high level of integration which includes built-in audio, video, networking, and communications.

Support for Pentium-III/Pentium-II Cartridges or PPGA Celeron

This mainboard support three kinds of Intel processors: Pentium-III cartridges, Pentium-II cartridges and SEPP or PPGA Celerons. Pentium-III cartridges feature 32K of internal level 1 cache memory and 512K of level-2 cache memory with improved instructions to handle 3D audio and video, speech recognition, MPEG2 motion picture encoding/decoding, and TCP/IP internet connections. The Pentium-III runs over a 100 MHz system bus and operates at clock speeds of 450 MHz, 500 MHz and 550 MHz.

The Pentium-II cartridges are very powerful processors that include 32K of internal level-1 cache memory and 512K of external level-2 cache memory. The first generation of Pentium-II cartridges ran over a 66 MHz system bus, but current Pentium-II cartridges run over a 100 MHz system bus and operate at clock speeds from 350 MHz up to 450 MHz or more. The slot-1 processor can also be used by the SEPP Celeron processors which can operate over a 66/100 MHz system bus and operate at clock speeds up to 466 MHz.

The new generation PPGA Celeron processors ship in the familiar square plastic package, and they install in a Zero Insertion Force (ZIF) socket called a Socket-370. The new Celeron processors are close to Pentium-II performance because they include a level-2 cache memory of 128K. However, they operate over a 66 MHz system bus and they currently ship a clock speeds of up to 500 MHz.

System assemblers can install either a Pentium-III or Pentium-II cartridge or the SEPP Celeron in the slot-1 processor slot. Alternatively, they can install a second generation PPGA Celeron in the Socket-370 processor socket. Assemblers can choose the processor they need to meet performance or price targets. You can configure the system for any of the supported processor clock speeds using the BIOS setup utility. It is not necessary to set switches or jumpers.

Three DIMM Memory Slots

The board has three DIMM slots for the installation of 168-pin, 3.3V standard or registered SDRAM (Synchronous Dynamic Random Access Memory) memory modules. The system supports memory that has built-in error correction (EC), error correction code (ECC), or has no error correction.

If you are using a Pentium-III/PentiumII processor cartridge that operates over a 100 MHz system bus, you must install PC-100 compliant memory modules (memory that operates at 100 MHz). If you install the SEPP or PPGA Celeron processor or an older Pentium-II that runs at 66 MHz, you can install memory that operates at 66 MHz.

You can install one, two or three modules. Each memory module can hold a maximum capacity of 256 MB of standard SDRAM chips so maximum memory capacity is 768 MB.

Optimized Chipset

This mainboard is installed with an Xcel2000 chipset. The chipset includes a built-in 64-bit AGP graphics adapter. Support is provided for both a 66 MHz and a 100 MHz system bus. The chipset can address 768 MB of 3.3V SDRAM memory and supports ECC error correction. The chipset also supports two PCI IDE channels, USB ports, and ACPI power management.

Built-in AGP Graphics Accelerator

The mainboard includes a graphics accelerator that uses up to 8 MB of main memory as video memory. The graphics accelerator complies with the AGP Ver. 2 specification. The graphics controller can deliver extended VGA resolutions of up to 1600 x 1200 pixels.

Built-in PCI 3D Sound

The Elite PCI Audio CMI 8738 is a single chip solution for PCI-bus 3D audio. The chip provides Sound Blaster 16-bit-compatible audio, plus support for Microsoft' s DirectSound 3D specification and Aureal A3D interface. The sound ports include jacks for speakers, microphone and stereo in, and a game/MIDI port. The audio system supports full duplex operation and drivers are available for WIN 95/98 and WIN NT 4.0. The audio system can output sound to 4 loudspeakers and also supports SPDIF 24-bit digital sound input and output.

Optional Built-in Communications

The mainboard has an integrated fax/modem connector. As an option, you can purchase a fax/modem extension bracket which connects the

line and telephone RJII sockets to the board. The fax/modem supports the V.90 protocol that allows transmissions at up to 56Kbps and is fully compatible with earlier transmission and error correction standards. It supports automatic fall back and caller ID.

Expansion Options

This mainboard has all the essential functions built-in so it is equipped with just one 32-bit PCI slot and one legacy 8/16 bit ISA slot. The two slots are shared. This means that you can use either of the slots but not both together at the same time. The expansion slots allow you to add an additional function to the mainboard.

Integrated I/O

The board has a comprehensive set of integrated I/O ports. The I/O port array features PS/2 keyboard and mouse ports, a parallel port, two USB ports, one serial port, a monitor port, a game/MIDI port, and three audio jacks. Optionally, you can use the built-in mainboard header to add in an infrared port. The mainboard has two PCI-IDE channels and a floppy disk drive interface.

Hardware Monitoring

The mainboard is installed with an integrated hardware monitoring system. Using this system and the monitoring software supplied with the board, users and system administrators can monitor critical parameters such as the CPU temperature, the fan speeds and so on. Hardware monitoring helps maintain the system and reduce maintenance costs and downtime.

Keyboard Power On Feature

Using the system BIOS setup program, you can configure the system to turn on using a keyboard-typed password. A green keyboard is not required.

Programmable Firmware

The mainboard includes Award BIOS that allows BIOS setting of CPU parameters. The fully programmable firmware enhances the system features and allows users to set power management, CPU and memory timing, LAN and modem wake-up alarms, and so on. The firmware can also be used to set parameters for different processor clock speeds so that you don' t need to change mainboard jumpers and switches.

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.

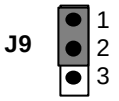
Quick Jumper Setting Reference

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.

J9: Clear CMOS memory jumper

Use this 3-pin jumper to clear all the current data stored in the CMOS memory.

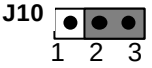
Function	Jumper Cap
Normal operation	Short pins 1-2
Clear CMOS	Short pins 2-3



J10: Keyboard power on jumper

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

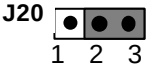
Function	Jumper Cap
Disable keyboard power on	Short pins 1-2
Enable keyboard power on	Short pins 2-3



J20: Select Slot-1 or Socket-370 jumper

Use this 3-pin jumper to select if you are using a Slot-1 processor or a socket-370 processor.

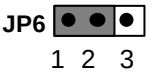
Function	Jumper Cap
Socket-370 processor	Short pins 1-2
Slot-1 processor	Short pins 2-3



JP6: LAN enable/disable jumper

Use this 3-pin jumper to enable or disable the built-in LAN network adapter.

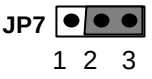
Function	Jumper Cap
Enable onboard LAN	Short pins 1-2
Disable onboard LAN	Short pins 2-3



JP7: Audio enable/disable jumper

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

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

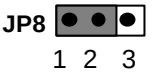


Note: *If you use JP7 to disable the onboard audio, it also disables the onboard fax/modem, even if the fax/modem jumper JP8 is set to enabled.*

JP8: Modem enable/disable jumper

Use this 3-pin jumper to enable or disable the built-in fax/modem.

Function	Jumper Cap
Enable onboard modem	Short pins 1-2
Disable onboard modem	Short pins 2-3



Before You Begin

Before you begin to install your P6SET-ML 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.

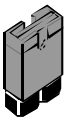
Some features on the mainboard are implemented by cabling connectors on the mainboard to indicators and switches on the system case. Ensure that your case supports all the features required. The P6SET-ML mainboard can support one or two floppy diskette drives and four enhanced IDE drives. Ensure that 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

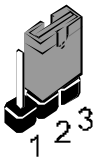
A jumper consists of two or more pins mounted on the mainboard. Some jumpers might be arranged in a series with each pair of pins numbered differently. Jumpers are used to change the electronic circuits on the mainboard. When a jumper cap is placed on two jumper pins, the pins are SHORT. If the jumper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

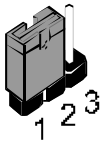
OPEN 

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.





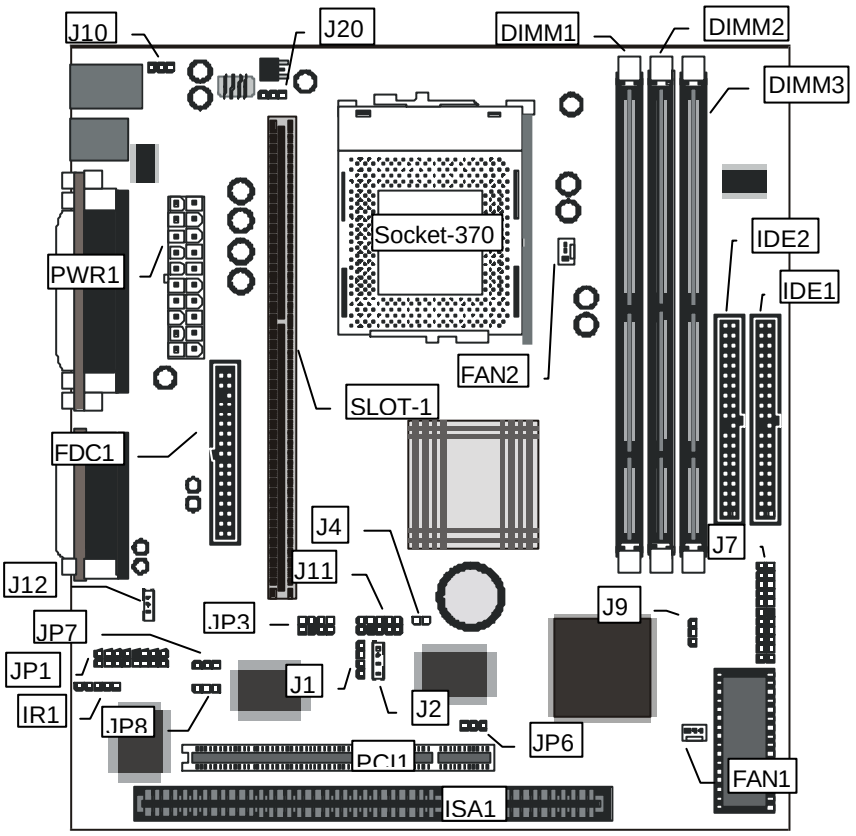
This illustration shows the same 3-pin jumper. The jumper cap is placed on pins 1 and 2, so this jumper setting is SHORT PINS 1-2.

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

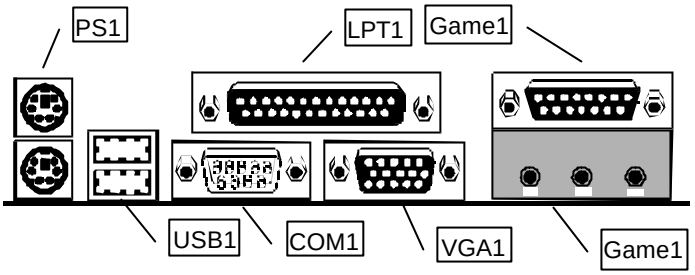
Use the following illustration and key to identify the components on your mainboard.



Key to Mainboard Components

Component	Description
ISA1	8/16-bit ISA expansion slot
PCI1	32-bit PCI expansion slot
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
FDC1	Connector for floppy disk drives
IDE1, IDE2	Primary and secondary IDE channels
PWR1	Connector for ATX power supply
IR1	Connector for optional IR port
J7	Panel connector for switches and indicators
FAN1	Power connector for case cooling fan
FAN2	Power connector for CPU cooling fan
J1	Audio connector for CD-ROM/DVD drive
J2	Auxiliary audio connector for CD-ROM/DVD drive
J4	24-bit digital audio input connector
J9	Clear CMOS memory jumper
J10	Keyboard power on jumper
J11	LAN extension bracket connector
J12	Wake up connector for network adapter
J20	Select Slot-1 or Socket-370 jumper
JP1	Connector for fax/modem adapter card
JP3	SPDIF In/Out connector for 24-bit digital audio
JP6	Enable/disable onboard LAN jumper
JP7	Enable/disable onboard audio/modem jumper
JP8	Enable/disable onboard modem jumper

I/O Ports Side View

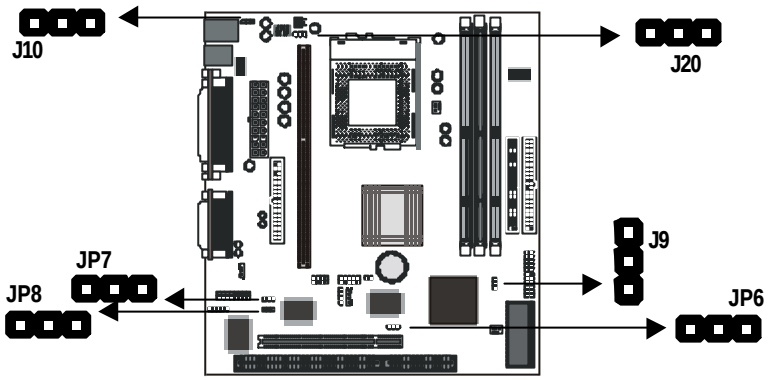


Key to I/O Ports

Component	Description
PS1	PS/2 port for pointing device (upper port) PS/2 port for keyboard (lower port)
LPT1	External parallel port
Game1 (Upper)	External game/MIDI port
Game1 (Lower)	Audio jacks for (left to right) line out, line in, microphone
VGA1	External display monitor port
COM1	External serial port 1/3
USB1	Two stacked Universal Serial Bus ports

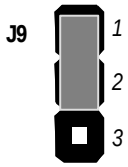
Check the Jumper Settings

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



J9 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.

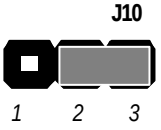


Function	Jumper Cap
Normal Operation	Short pins 1-2
Clear CMOS	Short pins 2-3

J10: 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.

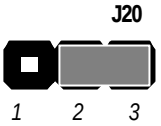
Function	Jumper Cap
Disable keyboard power on	Short pins 1-2
Enable keyboard power on	Short pins 2-3



J20: Select Slot-1 or Socket-370 jumper

This 3-pin jumper is used to define if you are installing a slot-1 processor (SEPP Celeron, Pentium-II, or Pentium-III) or a socket-370 processor (PPGA Celeron).

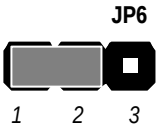
Function	Jumper Cap
Socket-370 processor	Short pins 1-2
Slot-1 processor	Short pins 2-3



JP6: LAN Enable/disable Jumper

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

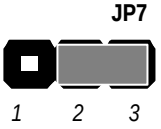
Function	Jumper Cap
Enable onboard LAN	Short pins 1-2
Disable onboard LAN	Short pins 2-3



JP7: 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.

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

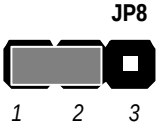


Note: *If you use JP7 to disable the onboard audio system, it also disables the onboard fax/modem, even if the fax/modem jumper JP8 is set to enable.*

JP8: Modem Enable/disable Jumper

This 3-pin jumper can be used to enable or disable the onboard fax/modem. If you prefer to install an alternate fax/modem, you must disable the onboard fax/modem.

Function	Jumper Cap
Enable onboard modem	Short pins 1-2
Disable onboard modem	Short pins 2-3

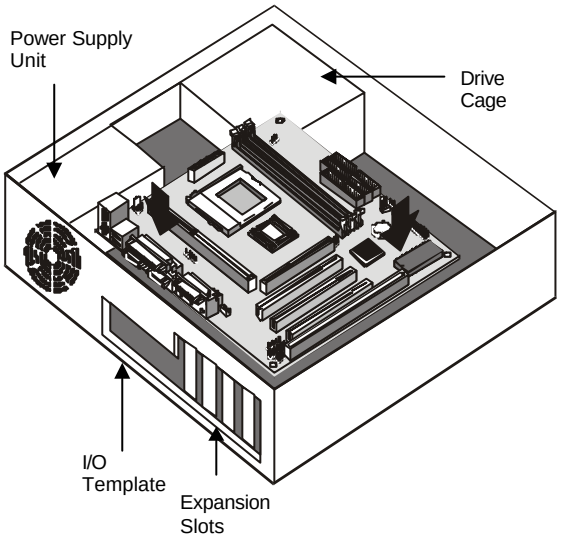


Install the Mainboard in the Case

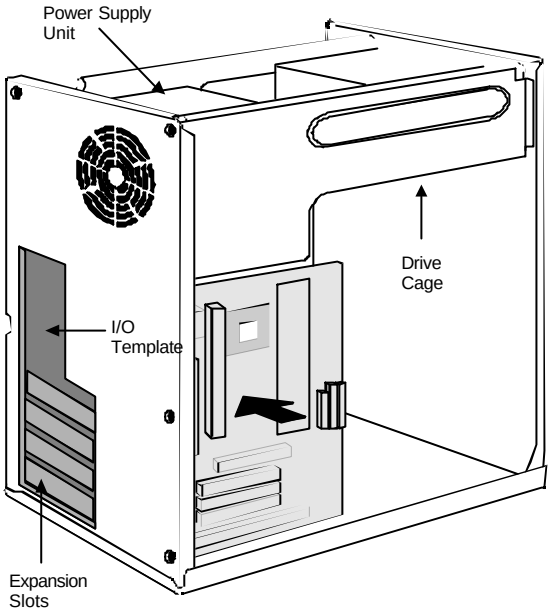
The mainboard is drilled with a series of holes. Most system cases have mounting brackets installed in the case which correspond to the holes in the mainboard. You can secure the mainboard in the system case by placing the mainboard over the mounting brackets and driving screws through the mainboard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

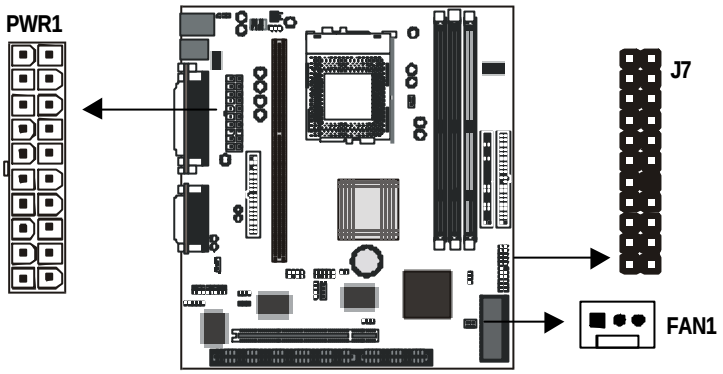


The illustration below shows the mainboard installing into a tower-type case.



Connecting Power, Chassis Fan, and Panel

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 PWR1. Connect the chassis fan (if your case has one) to the power supply FAN1on the mainboard. Then connect the case switches and indicators to the J7 panel connector on the mainboard.



Power Connector

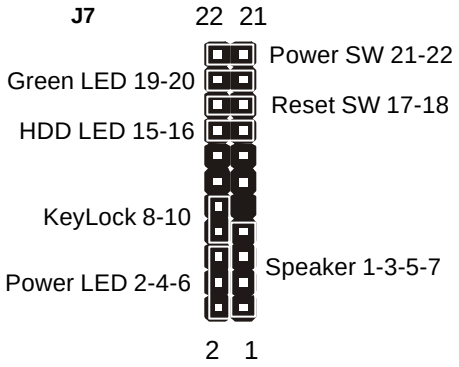
Locate the power cable from the case power supply unit and plug it into the PWR1 power connector.

Chassis Fan

If your case has a cooling fan installed, plug the cable from the chassis-mounted fan into the mainboard fan 12V power supply FAN1.

Panel Connector

The mainboard J7 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. 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 has 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 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 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 MHz system bus. The SEPP Celeron is less expensive than a Pentium-II with the same clock speed.

About Socket-370 Processors

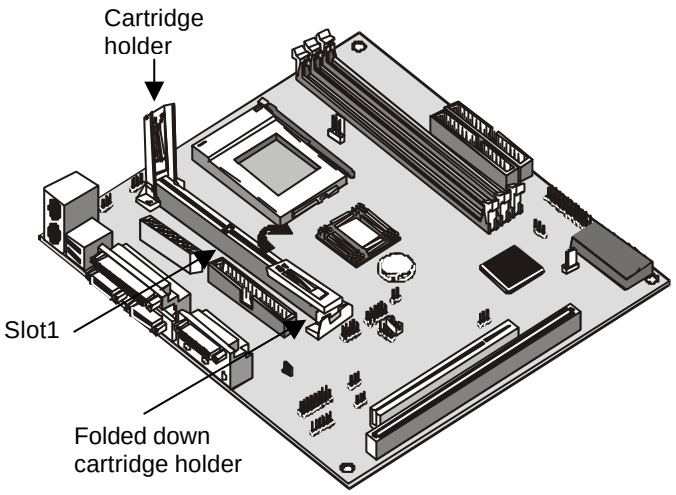
The socket-370 only supports the Intel PPGA Celeron processor.

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.

> ***Note:*** *Make sure that jumper J20 is in the correct setting to select for a slot1 processor.*



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.

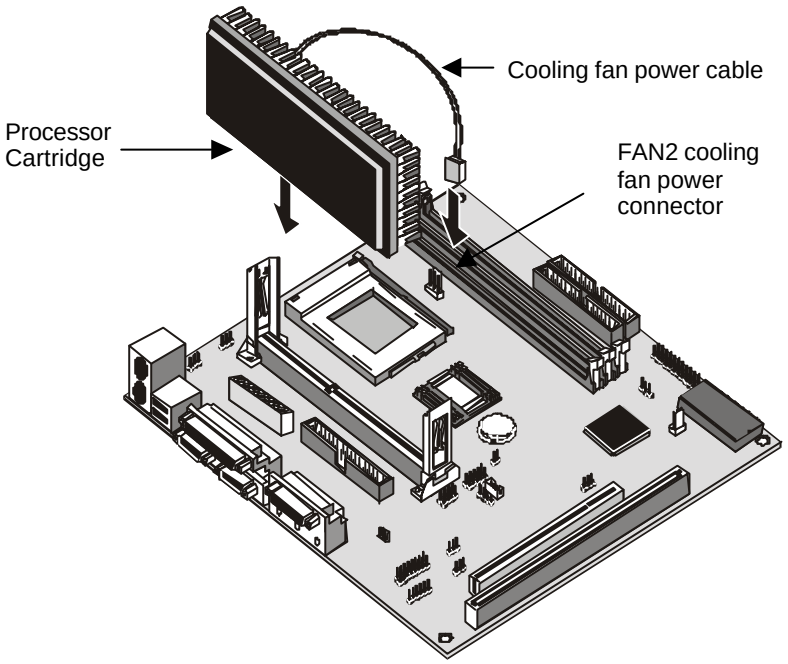
Some cartridge holders are secured in place with screws. If you have this kind of cartridge holder, don't overtighten the screws as this can stress the mainboard.

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 FAN2.



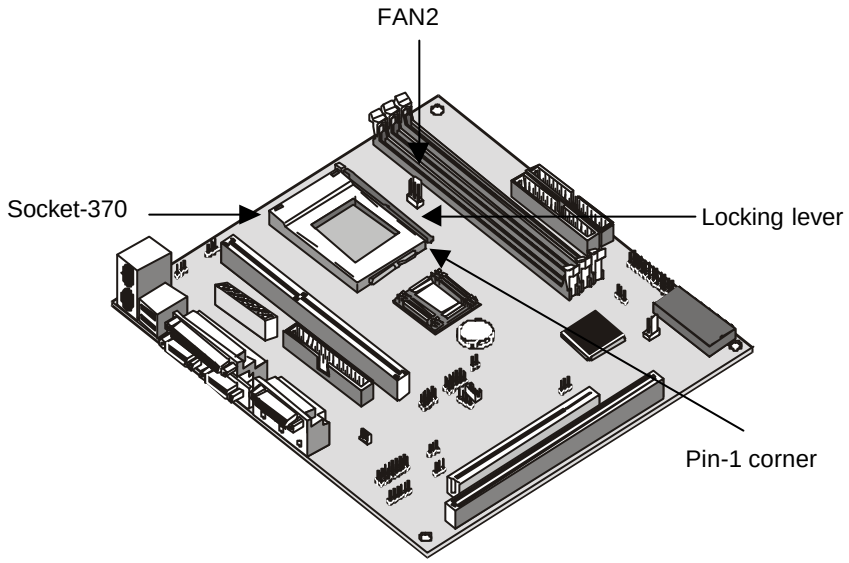
The mainboard must be configured to deliver the correct clock speed and the correct system bus for the kind of processor that you have installed. You can do this by using the system setup utility. The first time you start the system, immediately enter the setup system and make the appropriate settings. 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.

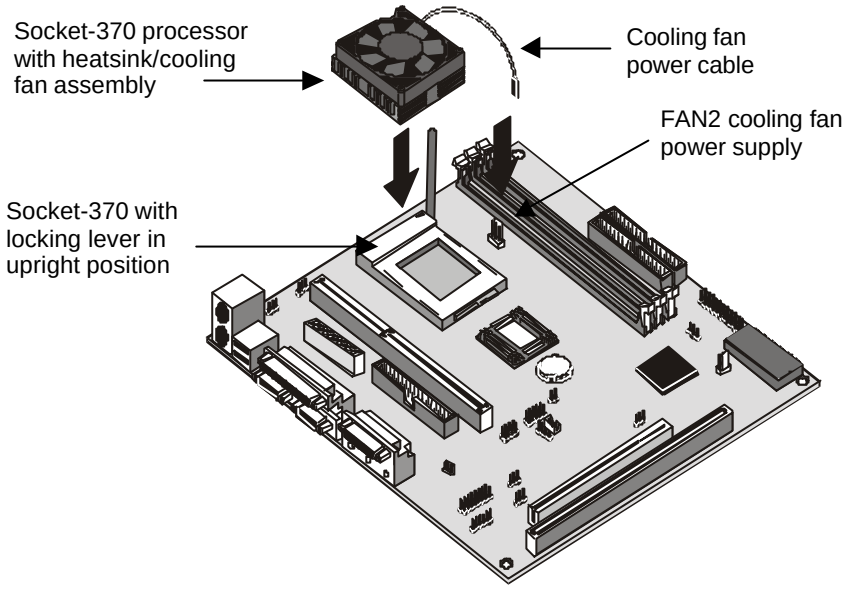
Note: *Make sure that jumper J20 is in the correct setting to select for a socket-370 processor.*

Locate the Socket-370 and FAN2



1. On the mainboard, locate the socket-370 and FAN2.
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 FAN2 12V power supply on the mainboard.



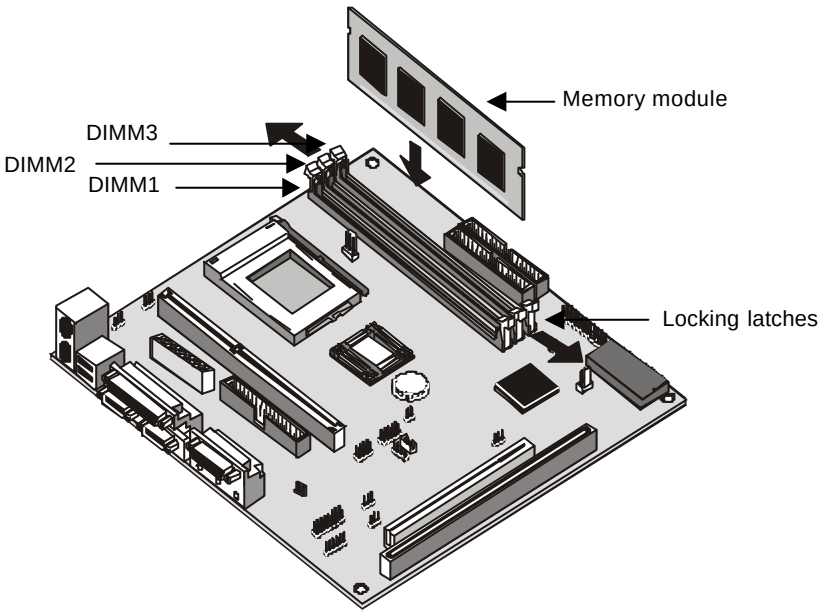
The mainboard must be configured to deliver the correct clock speed and the correct system bus for the kind of processor that you have installed. You can do this by using the system setup utility. The first time you start the system, immediately enter the setup system and make the appropriate settings. Usually, you can automatically configure the CPU by using the 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 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. The first memory module must be installed in DIMM1 so that a section of its memory can be shared with the graphics adapter. A second module can be installed in either DIMM2 or DIMM3. Each module may be installed with up to 256 MB of memory so the maximum capacity is 768 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 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.

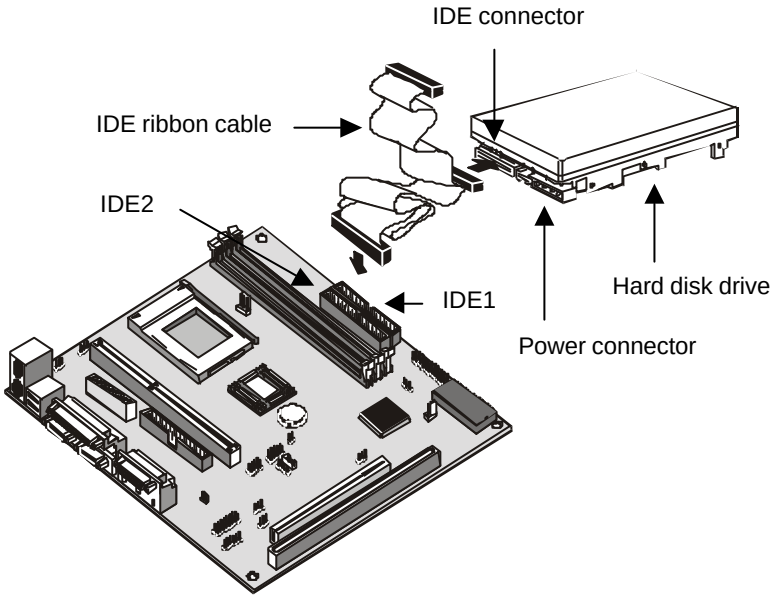
Your mainboard has a primary IDE channel interface (IDE1) and a secondary IDE interface (IDE2). The mainboard ships with one IDE ribbon cable which supports one or two IDE devices. All IDE devices have jumpers or switches which can be used to set the IDE device as MASTER or SLAVE.

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.

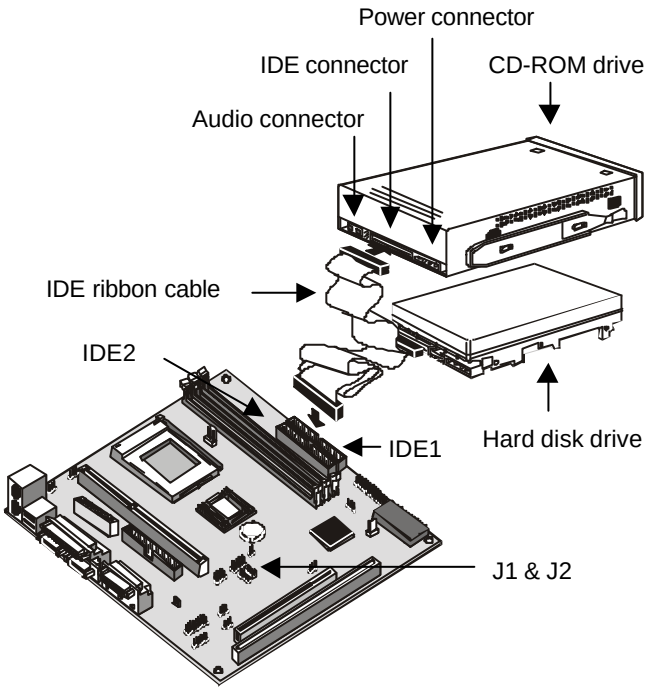
Installing a Hard Disk Drive

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 3 for more information.



Installing a CD-ROM/DVD Drive

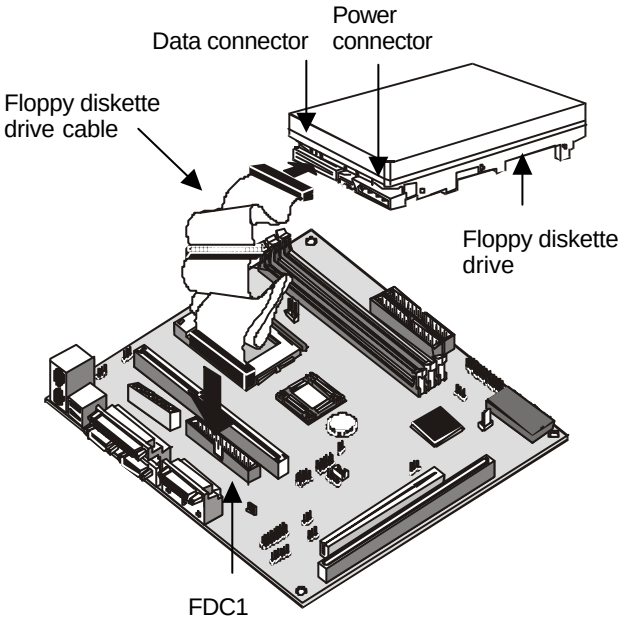
1. Install the CD-ROM/DVD drive into the drive cage in your system case. Plug the IDE cable into the primary IDE channel on the mainboard IDE1.
2. Plug one of the connectors on the IDE cable into the IDE connector on the back edge of the CD-ROM/DVD drive. It doesn't matter which connector on the cable 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 J1 and J2 on the motherboard.
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 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 FDC1.
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 three for more information.

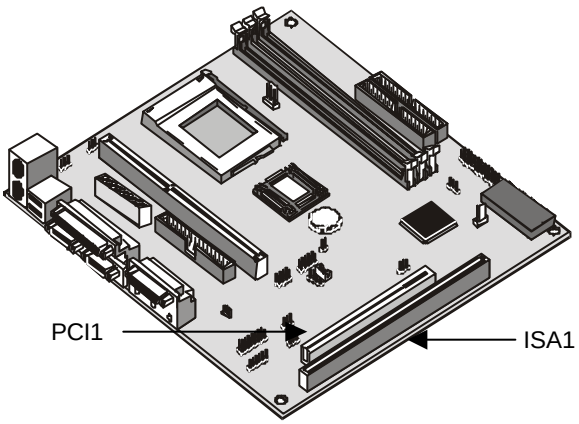


Using the Expansion Slots

This mainboard has two expansion slots: one 32-bit PCI slot and one 8/16-bit ISA slot. The slots are shared. This means that you can use either of these slots but not both together at the same time. You can install an add-in card into these slots to add new features to your system.

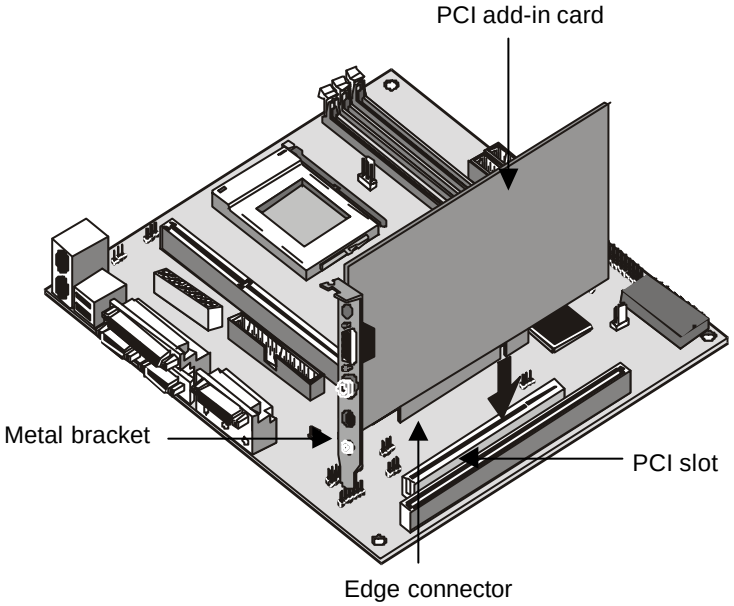
PCI Slot: The PCI slot can be used to install add-in cards that have the 32-bit PCI (Peripheral Components Interconnect) interface.

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.



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.

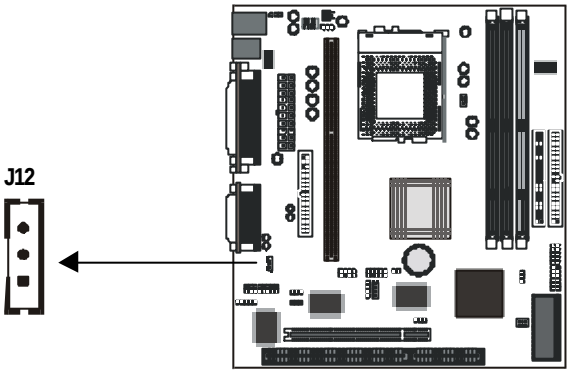


Add-in Card Options

The mainboard has one feature that can be used if you have installed a third party network adapter.

J12: Wake on LAN

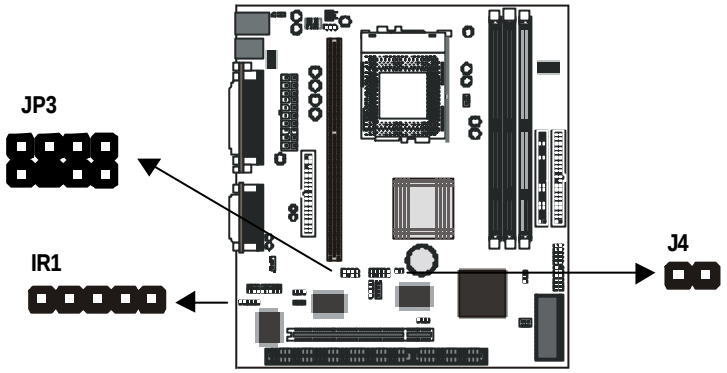
If you have installed a network adapter (LAN adapter), you can use the cable provided with the card to plug into the J12 connector on the mainboard. This is the Wake On LAN feature. When your system is in a power–saving mode, any traffic through the network will automatically resume the system. You must enable this item using the Power Management page of the setup utility. See Chapter three for more information.



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 card. In order to use the built-in LAN adapter, you must install the network adapter 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 IR1 connector on the mainboard.
2. After you have connected the cable, secure the option to the appropriate place on your system case.

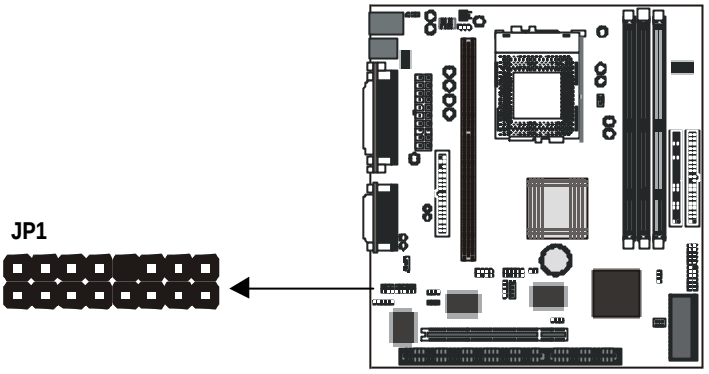
Note: *An infrared port might use some of the same resources as the built-in fax/modem. If you have installed the infrared port, you might have to use your system' s device manager to reallocate resources between the infrared port and the fax/modem. You might not be able to run both devices at the same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

Use the JP3 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 J4 which is the digital audio input connector.

Note: *If you have installed an SPDIF extension bracket, you cannot use the J4 digital audio input connector.*

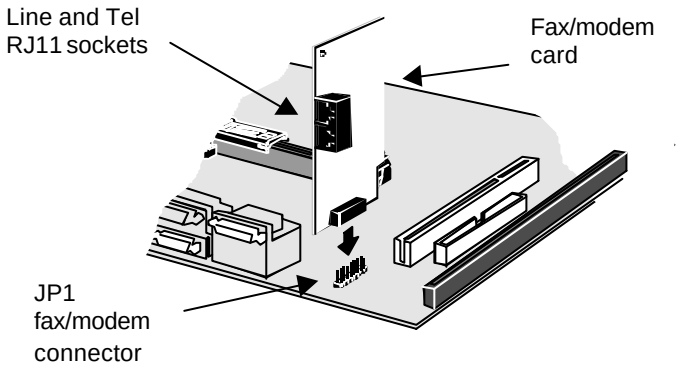
Fax/modem Card

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



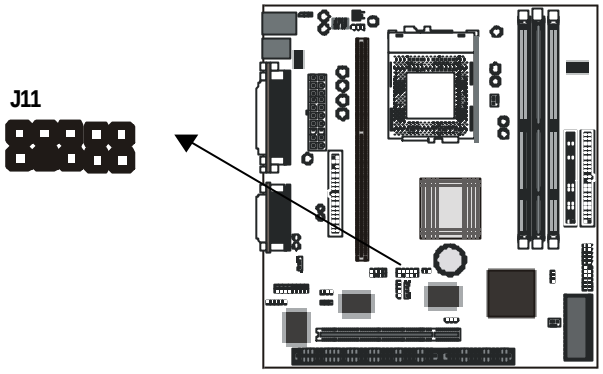
The fax/modem card is supplied with this mainboard.

1. Locate the JP1 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 JP1 connector as shown below. The RJ11 Line and Telephone sockets on the bracket are positioned in the expansion slot with the removed blanking plate.



Network Adapter Extension Bracket

You must install the network adapter extension bracket in order to use the built-in 10BaseT/100BaseTX LAN adapter.

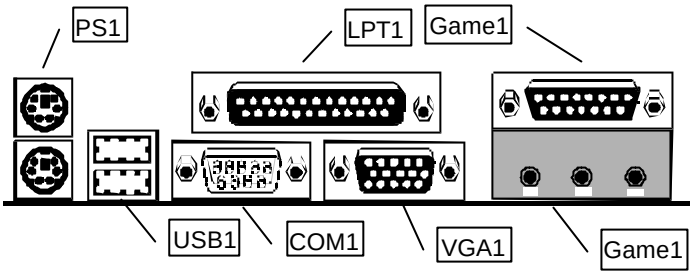


The network adapter extension bracket is supplied with this mainboard.

1. Locate the J11 network extension bracket connector on the mainboard.
2. Remove a blanking plate from a free expansion slot in the system chassis.
3. Plug the cable from the network adapter extension bracket onto the J11 connector.
4. Install the metal bracket into the expansion slot in the system chassis from which you removed the blanking plate.
5. Secure the bracket by driving a screw through the slot in the top of the metal bracket into the system chassis.

Make the External Connections

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



1. PS1 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 Game1 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 Game1 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. 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.

Chapter 3: Setup

About the Setup Utility

This chapter explains how to use and modify the BIOS setup utility that is stored on the mainboard. The setup utility stores data about the mainboard components and the configuration of devices that are connected to it. This information is used to test and initialize components at start-up time and to make sure everything runs properly when the system is operating.

The setup utility is installed with a set of default values. You will probably have to make changes to the setup utility whenever you add new components to your system such as new disk drives. You may be able to generate increased performance by changing some of the timing values in the setup, but this can be limited by the kind of hardware you are using, for example the rating of your memory chips. In certain circumstances, the system may generate an error message that asks you to make changes to the setup utility. This happens when the system finds an error during the POST (Power On Self Test) that it carries out at start up.

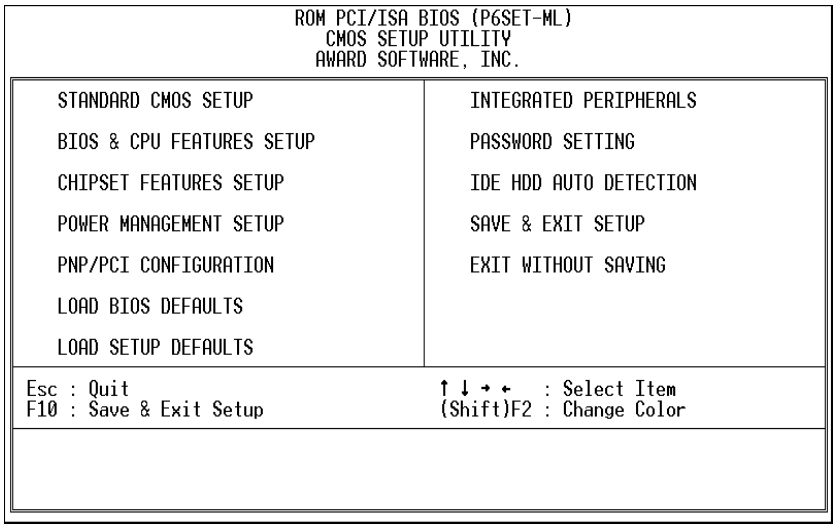
Starting the Setup Utility

You can only start the setup utility shortly after the computer has been turned on. A prompt appears on the computer display which says "*Press DEL to run Setup*". When you see this prompt, press the **Delete** key, and the system will start the setup utility and display the main menu of the utility.

Using the Setup Utility

When you start setup, the main menu appears. The main menu of the setup utility shows a list of the options that are available. A highlight shows which option is currently selected. You can use the cursor arrow keys to move the highlight to other options. When an option is highlighted, you can execute the option by pressing the **Enter** key.

Some options lead to dialog boxes which ask you verify that that you wish to execute that option. You usually answer these dialogs by typing **Y** for yes and **N** for no. Some options lead to dialog boxes which ask for more information. Setting passwords have this kind of dialog box.



Some options lead to tables of items that usually have a value on the right side. The value of the first item is highlighted, and you can use the cursor arrow keys to select any of the other values in the table of items. When an item is highlighted, you can change the value by pressing the **PageUp** or **PageDown** keys, or the **Plus** or **Minus** keys. The **PageUp** and **Plus** keys cycle forward through the available values, the **PageDown** and **Minus** keys cycle backwards through the values.

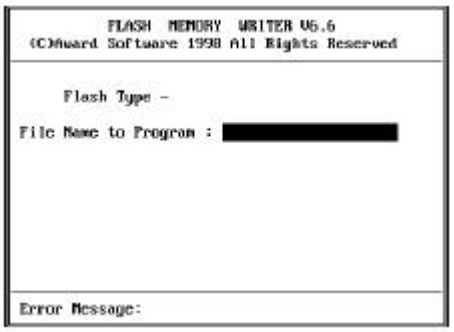
When you are in the main menu, you can exit the utility by pressing the **Escape** key. You can save the current selections and exit the utility by pressing the **F10** key. You can change the color scheme of the utility by pressing the **F2** key while holding down the **Shift** key. When you are in one of the options that displays a dialog box, you can return to the main menu by pressing the **Escape** key.

When you are in an option that displays a table of items, you can return to the main menu by pressing the **Escape** key. For some items, you can display a help message by pressing the **F1** key. You can change the color scheme of the utility by pressing the **F2** key while holding down the **Shift** key. Press **F5** to discard any changes you have made and return all items to the value that they held when the setup utility was started. Press **F6** to load the displayed items with a standard list of default values. Press **F7** to load the displayed items with a high-performance list of default values.

How to Flash a New BIOS

You can install an updated BIOS for this motherboard that you can download from the manufacturer's website. A new BIOS may provide support for new peripherals, improvements in performance or fixes to address known bugs. Install a new BIOS as follows:

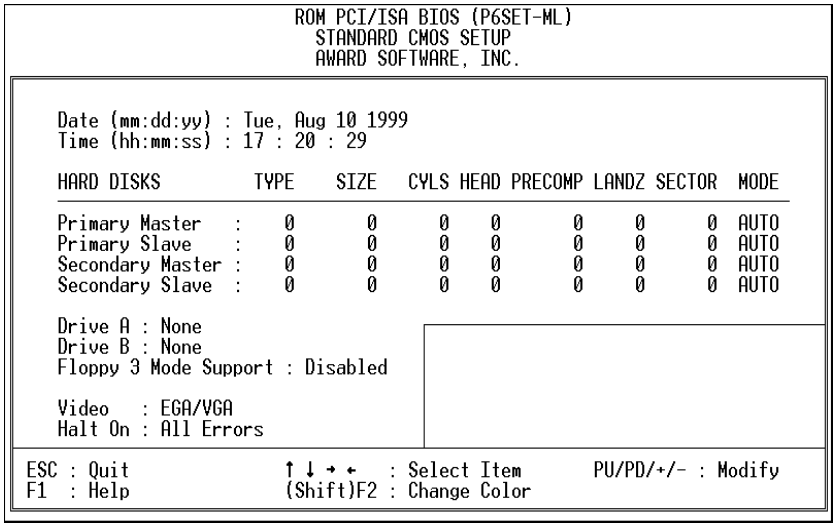
1. Some mainboards have a Flash BIOS jumper that protects the current BIOS from being changed or overwritten. If your mainboard has this jumper, change the setting to allow flashing a new BIOS.
2. Your computer must be running in a real-mode DOS environment, not the DOS window of Windows NT or Windows 95/98. We recommend that you create a new formatted DOS system floppy diskette.
3. Locate the flash memory utility on the support CD-ROM. It's called AWD66.EXE. Copy this file to the new system diskette.
4. Copy the new BIOS file that you downloaded from the manufacturer's website to the newly formatted system diskette.
5. Turn off your computer and insert the newly formatted DOS diskette in your computer's diskette drive.
6. You might need to run the setup utility and change the boot priority items on the BIOS Features Setup page, to force your computer to boot from the floppy diskette drive first.
7. At the A:\ prompt, after your computer has booted a clean DOS from the diskette, type in the filename AWD66 and press **Enter**.



8. In the opening dialog box, type in the filename of the new BIOS and follow the onscreen directions to flash the new BIOS.
9. When the installation is complete, remove the floppy diskette from the diskette drive and restart your computer. If your mainboard has a Flash BIOS jumper, don't forget to reset the jumper to protect the newly installed BIOS from being overwritten.

Standard CMOS Setup Option

This option displays a table of items which defines basic information about your system.



Date and Time

The Date and Time items show the current date and time held by your computer. If you are running a Windows OS, these items are automatically updated whenever you make changes to the Windows Date and Time Properties utility.

Hard Disks ***Defaults: Auto***

These items show the characteristics of hard disk drives on the two available IDE channels. (Note that SCSI hard disk drives do not appear here.) You can automatically install most hard disks using the IDE HDD Auto Detect Option from the main menu. If you find that a drive cannot be automatically detected, you can use these items to select USER, then manually enter the characteristics of the drive. The documentation provided with your drive provides the data you need to fill in the values for CYLS (cylinders), HEAD (read/write heads), and so on.

The drive documentation drive may not tell you what value to use under the MODE heading. If the drive is smaller than 528 MB, set MODE to Normal. If the drive is larger than 528 MB and it supports Logical Block Addressing, set MODE to LBA. Very few high-capacity drives do not support Logical Block Addressing. If you have such a drive, you might be able to configure it by setting the MODE to Large. If you' re not sure which MODE setting is required by your drive, set MODE to Auto and let the setup utility try to determine the mode automatically.

Drive A and Drive B ***Default: 1.44M, 3.5 in., None***

These items define the characteristics of any diskette drive attached to the system. You can connect one or two diskette drives.

Floppy 3 Mode Support ***Default: Disabled***

Floppy 3 mode refers to a 3.5" diskette with a capacity of 1.2 MB. Floppy 3 mode is sometimes used in Japan.

Video ***Default: EGA/VGA***

This item defines the video mode of the system. This mainboard has a built-in VGA graphics system so you must leave this item at the default value.

Halt On ***Default: All Errors***

This item defines the operation of the system POST (Power On Self Test) routine. You can use this item to select which kind of errors in the POST are sufficient to halt the system.

BIOS & CPU Features Setup Option

This option displays a table of items which defines more advanced information about your system. You can make modifications to most of these items without introducing fatal errors to your system.

```
                    ROM PCI/ISA BIOS (P6SET-ML)
                      BIOS & CPU FEATURES SETUP
                      AWARD SOFTWARE, INC.

CPU Internal Core Speed    : 350MHz      OS Select For DRAM > 64MB  : Non-OS2
CPU/SDRAM Bus Frequency : 100/100 MHz    Report No FDD For WIN 95   : Yes
CPU Core:Bus Freq.Multiple : 3.5x        Video  BIOS Shadow  : Enabled
Spread Spectrum            : Disabled    C8000-CBFFF Shadow  : Disabled
Auto DIMM Detect           : Enabled     CC000-CFFFF Shadow  : Disabled
Anti-Virus Protection      : Disabled    D0000-D3FFF Shadow  : Disabled
CPU Internal Cache         : Enabled     D4000-D7FFF Shadow  : Disabled
External Cache             : Enabled     D8000-DBFFF Shadow  : Disabled
Processor Number Feature   : Enabled     DC000-DFFFF Shadow  : Disabled
Quick Power On Self Test   : Enabled
Boot From LAN First        : Disabled
Boot Sequence              : A,C,SCSI
Swap Floppy Drive          : Disabled
Boot Up Floppy Seek        : Enabled
Boot Up NumLock Status     : On
Typematic Rate Setting     : Disabled    ESC : Quit        ↑↓→← : Select Item
Typematic Rate (Chars/Sec) : 6           F1  : Help        PU/PD/+/- : Modify
Typematic Delay (Msec)     : 250         F5  : Old Values  (Shift)F2 : Color
Security Option            : Setup       F6  : Load BIOS  Defaults
PCI/VGA Palette Snoop      : Disabled    F7  : Load Setup Defaults
```

CPU Internal Core Speed ***Default: 350 MHz***

Use this item to set up the mainboard for the kind of processor that you have installed. Set this item to the rated internal clock speed of the installed processor. If you set this to Manual, you can use the two items below *CPU/SDRAM Bus Frequency* and *CPU Core: Bus Freq. Multiple* to manually configure the processor.

CPU/SDRAM Bus Frequency
CPU Core: Bus Freq. Multiple

These items can be changed if you have set the *CPU Internal Core Speed* to Manual. Use the *CPU Host Bus Frequency* to set the system bus frequency for the installed processor (usually 100 MHz). Then use *CPU Frequency* to set a multiple. The multiple times the system bus must equal the core speed of the installed processor e.g. **3.5 (multiple) x 100 MHz (system bus) = 350 MHz (installed processor clock speed)**.

Spread Spectrum ***Default: Disabled***

When this item is enabled, it modulates the system clock generator pulses and can significantly reduce the EMI (electrical magnetic interference) that your system generates. However, it can introduce timing problems for some clock sensitive devices. We recommend that you leave this item at the default value.

Auto DIMM Detect ***Default: Enabled***

If this item is enabled, the system will reduce the occurrence of electromagnetic interference (EMI) by turning off the clock generator signal to DIMM slots which are unoccupied.

Anti-Virus Protection ***Default: Disabled***

When this item is enabled it provides some protection against viruses which try to write to the boot sector and partition table of your hard disk drive. This item is Disabled as a default so that you can install an operating system. We recommend that you enable Anti-Virus Protection as soon as you have installed your disk with an OS.

CPU Internal Cache ***Default: Enabled***

All the processors that can be installed in this mainboard use internal (level 1) cache memory to improve performance. Leave this item at the default value Enabled for better performance.

External Cache ***Default: Enabled***

Most processors that can be installed in this system use external (L2) cache memory to improve performance. The exceptions are older SEPP Celeron CPUs running at 266 or 300 MHz. Enable this item for all but these two processors.

Processor Number Feature ***Default: Enabled***

Each Pentium-III processor cartridge is installed with a unique processor number. This number may be used for verification in internet transactions and e-commerce. If you prefer not to use or distribute the unique processor number, use this item to suppress the processor number.

Quick Power On Self Test ***Default: Enabled***

You can enable this item to shorten the power on testing and have your system start up a little faster. You might like to enable this item after you are confident that your system hardware is operating smoothly.

Boot From LAN First ***Default: Disabled***

Enable this item if you want your computer to remote boot an operating system from a network server.

Boot Sequence ***Default: A,C,SCSI***

This item defines where the system will look for an operating system, and the order of priority. You can boot an OS from many locations including a SCSI or ZIP drive, a floppy diskette drive or an LS-120 high-capacity diskette drive.

Swap Floppy Drive ***Default: Disabled***

If you have two floppy diskette drives in your system, this item allows you to swap around the assigned drive letters so that drive A becomes drive B, and drive B becomes drive A.

Boot Up NumLock Status ***Default: Enabled***

This item defines if the keyboard Num Lock key is active when your system is started.

Typematic Rate Setting ***Default: Disabled***

If this item is enabled, you can use the following two items to set the typematic rate and the typematic delay settings for your keyboard.

Typematic Rate (Chars/Sec) ***Default: 6***

If the item Typematic Rate Setting is enabled, you can use this item to define how many characters per second are generated by a held-down key.

Typematic Delay (Msec) ***Default: 250***

If the item Typematic Rate Setting is enabled, you can use this item to define how many milliseconds must elapse before a held-down key begins generating repeat characters.

Security Option ***Default: Setup***

If you have installed password protection, this item defines if the password is required at system start up, or if it is only required when a user tries to enter the setup utility.

PCI/VGA Palette Snoop ***Default: Disabled***

This item is designed to overcome some problems that can be caused by some non-standard VGA cards. This board includes a built-in VGA system that does not require palette snooping so you must leave this item disabled.

OS Select For DRAM > 64 MB ***Default: Non-OS2***

This item is only required if you have installed more than 64 MB of memory and you are running the OS/2 operating system. Otherwise, leave this item at the default Non-OS2.

Report No FDD for WIN 95 ***Default: Yes***

If you are running a system with no floppy drive and using the Windows 95 OS, select Yes for this item to ensure compatibility with the Windows 95 logo certification.

Video BIOS Shadow ***Default: Enabled***

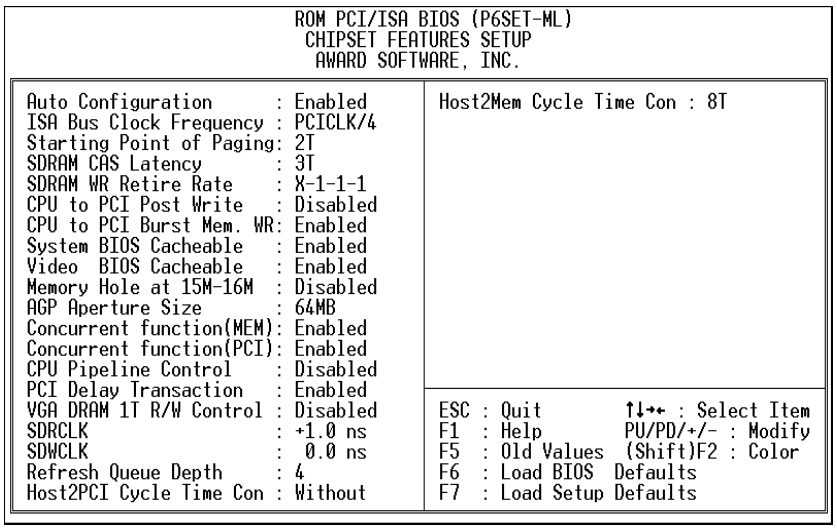
This item allows the video BIOS to be copied to system memory for faster performance.

XXXXX-XXXXX Shadow ***Default: Disabled***

These items allow the BIOS of other devices to be copied to system memory for faster performance.

Chipset Features Option

This option displays a table of items that define critical timing parameters of the mainboard components including the memory, and the system logic. Generally, you should leave the items on this page at their default values unless you are very familiar with the technical specifications of your system hardware. If you change the values incorrectly you may introduce fatal errors or recurring instability into your system.



Auto Configuration ***Default: Enabled***

If this field is enabled, the system will automatically configure the system based on the hardware detected.

ISA Bus Clock Frequency ***Default: PCICLK/4***

This item sets the frequency for the legacy ISA bus slot on the mainboard. Leave this item at the default value PCICLK divided by four.

Starting Point of Paging ***Default: 2T***

This item defines memory paging operations. Leave this item at the default value.

SDRAM CAS Latency ***Default: 3T***
SDRAM WR Retire Rate ***Default: X-1-1-1***

These two items set the timing and wait states for SDRAM memory. We recommend that you leave these items at the default value.

CPU to PCI Post Write ***Default: Disabled***
CPU to PCI Burst Mem. WR ***Default: Enabled***

These two items define the write sequence between the CPU and devices on the PCI bus. We recommend that you leave these items at the default value.

System BIOS Cacheable ***Default: Enabled***
Video BIOS Cacheable ***Default: Enabled***

These items allow the video and/or system to be cached in memory for faster execution. We recommend that you leave these items at the default value.

Memory Hole at 15M-16M ***Default: Disabled***

This item can be used to reserve memory space for some ISA expansion cards that require it.

AGP Aperture Size ***Default: 64MB***

This item defines the size of the aperture if you use an AGP graphics adapter. It refers to a section of the PCI memory address range used for graphics memory.

Concurrent function (MEM) ***Default: Enabled***
Concurrent function (PCI) ***Default: Enabled***

These items allow concurrent operations over the memory and PCI buses. We recommend that you leave these items at the default value.

CPU Pipeline Control ***Default: Disabled***

Pipelining allows the system to signal the CPU for a new memory address even before all data transfers for the current cycle are complete. We recommend that you leave these items at the default value.

PCI Delay Transaction ***Default: Enabled***

If the chipset has an embedded 32-bit write buffer to support delay transaction cycles, you can enable this item to provide compliance with PCI Ver. 2.1 specifications. We recommend that you leave this item at the default value.

VGA DRAM 1T R/W Control ***Default: Disabled***

On this mainboard, a part of main memory is allocated as video memory for the onboard graphics adapter. This item defines the timing of the video memory. We recommend that you leave these items at the default value.

SDRCLK ***Default: +1.0 ns***
SDWCLK ***Default: 0.0 ns***

These items define the operation of memory reads and writes. We recommend that you leave these items at the default value.

Refresh Queue Depth	***Default: 4***
Host2PCI Cycle Time Con	***Default: Without***
Host2Mem Cycle Time Con	***Default: 8T***

These three items contol transactions between the CPU and the memory and the PCI buses. We recommend that you leave these items at the default value.

Power Management Setup Option

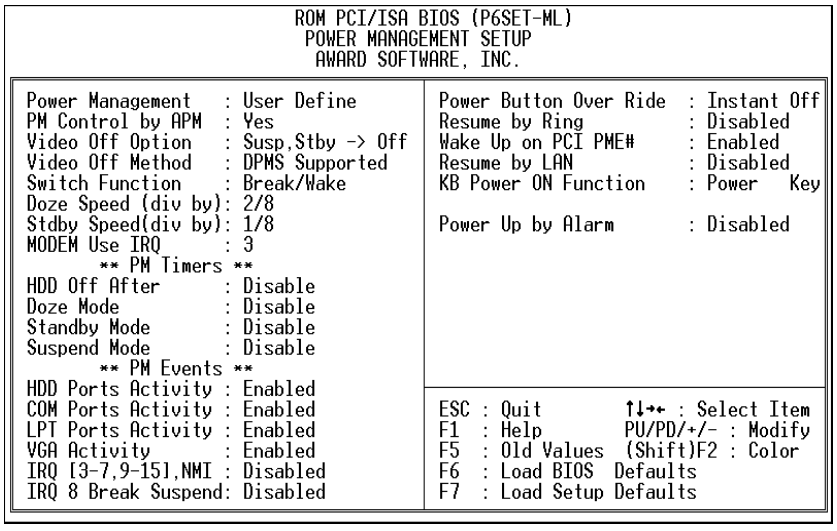
This option displays items which let you control the system power management. Modern operating systems take care of much of the power management. This mainboard supports ACPI (advanced configuration and power interface). This system supports three power-saving modes; doze mode, standby mode, and suspend mode. Standby mode uses less power than doze mode and suspend mode uses the least power.

Power Management Timeouts

The power-saving modes can be controlled by timeouts. If the system is inactive for a time, the timeouts begin counting. If the inactivity continues so that the timeout period elapses, the system enters a power-saving mode. If any item in the list of *PM Events* is Enabled, then any activity on that item will restart the timeout counters.

Wake Up Calls

If the system is suspended, or has been powered down by software, it can be resumed by a wake up call that is generated by incoming traffic to a modem or LAN card, or a fixed alarm on the system realtime clock.



Power Management ***Default: User Define***

This item acts like a master switch for the power-saving modes and hard disk timeouts. If this item is set to Max Saving, doze, standby, and suspend mode, will occur after a short timeout. If this item is set to Min Saving, doze, standby, and suspend mode will occur after a longer timeout. If the item is set to User Define, you can insert your own timeouts for the power-saving modes.

PM Control by APM ***Default: Yes***

Windows 95 and 98 have built-in power management capabilities called APM (Advanced Power Management). When you enable this item, you allow the APM routines in Windows to operate on your system.

Video Off Option ***Default: Susp, Stby -> Off***

This option defines the level of power-saving mode required in to power down the video display. As a default, the video powers down both in suspend mode and standby mode.

Video Off Method ***Default: DPMS Supported***

This item defines how the video is powered down to save power. As a default, this is set to DPMS supported (display power management software).

Switch Function ***Default: Break/Wake***

If this item is enabled, it permits the use of a suspend switch. If the item is set to Break, the suspend switch puts the system in suspend mode. If the item is set to Break/Wake, you can press the suspend switch a second time to wake up the system. If the item is set to Disabled, the suspend switch does not function.

Doze Speed (div by) ***Default: 2/8***

This item determines the processor clock speed when the system is in the power-saving doze mode. It is expressed as a fraction (2/8) of normal full speed.

Standby Speed (div by) ***Default: 1/8***

This item determines the processor clock speed when the system is in the power-saving standby mode. It is expressed as a fraction (1/8) of normal full speed.

Modem Use IRQ ***Default: 3***

If you would like an incoming call on a fax/modem to automatically resume the system from suspend mode, use this item to specify the interrupt request line (IRQ) that is used by the modem.

HDD Off After ***Default: Disabled***

If you have selected User Define for the Power Management item, you can set this item to a selection of timeouts from 1 to 15 minutes. The hard disk drive will power down if the selected timeout passes without any activity on the hard disk.

Doze Mode ***Default: Disabled***

If you have selected User Define for the Power Management item, you can set this item to a selection of timeouts from 10 seconds to 4 hours. The system will

go into the power-saving doze mode if the selected timeout passes without any system activity.

Standby Mode ***Default: Disabled***

If you have selected User Define for the Power Management item, you can set this item to a selection of timeouts from 10 seconds to 4 hours. The system will go into the power-saving standby mode if the selected timeout passes without any system activity.

Suspend Mode ***Default: Disabled***

If you have selected User Define for the Power Management item, you can set this item to a selection of timeouts from 10 seconds to 4 hours. The system will go into the power-saving suspend mode if the selected timeout passes without any system activity.

HDD Ports Activity ***Default: Enabled***

When this item is Enabled, any activity on the hard disk drive will automatically reset the timeout counters for the power-saving modes, or resume the system from a power-saving mode.

COM Ports Activity ***Default: Enabled***

When this item is Enabled, any activity through the serial ports (COM1/3, COM2/4, or an Infrared Port) will automatically reset the timeout counters for the power-saving modes, or resume the system from a power-saving mode.

LPT Ports Activity ***Default: Enabled***

When this item is Enabled, any activity through the parallel port (LPT1) will automatically reset the timeout counters for the power-saving modes, or resume the system from a power-saving mode.

VGA Activity ***Default: Enabled***

When this item is Enabled, any activity on the graphics sub-system will automatically reset the timeout counters for the power-saving modes, or resume the system from a power-saving mode.

IRQ[3-7, 9-15],NMI ***Default: Enabled***

When this item is Enabled, if any activity is detected on the system interrupts (IRQs) and the non-masked interrupt (NMI), the system will automatically reset the timeout counters for the power-saving modes, or resume the system from a power-saving mode.

IRQ 8 Break Suspend ***Default: Disabled***

When this item is enabled, any activity through the system interrupt request line 8 can reset power-saving mode timeouts to zero, or resume the system from a power saving mode. IRQ 8 is normally used by the system realtime clock.

Power Button Over Ride ***Default: Instant Off***

This item lets you define if the system power button causes a power off or a power-saving suspend mode.

Resume by Ring ***Default: Disabled***

If this item is enabled, it allows the system to resume from a software powerdown whenever there is incoming call to an installed Modem.

Wake Up On PCI PME# ***Default: Enabled***

If this item is enabled, it allows the system to enable the LAN Power On Function when you use the PCI Ver 2.2 PCI LAN card.

Resume by LAN ***Default: Disabled***

If this item is enabled, it allows the system to resume from a software powerdown whenever there is incoming traffic to an installed Modem.

KB Power ON Function ***Default: Power Key***

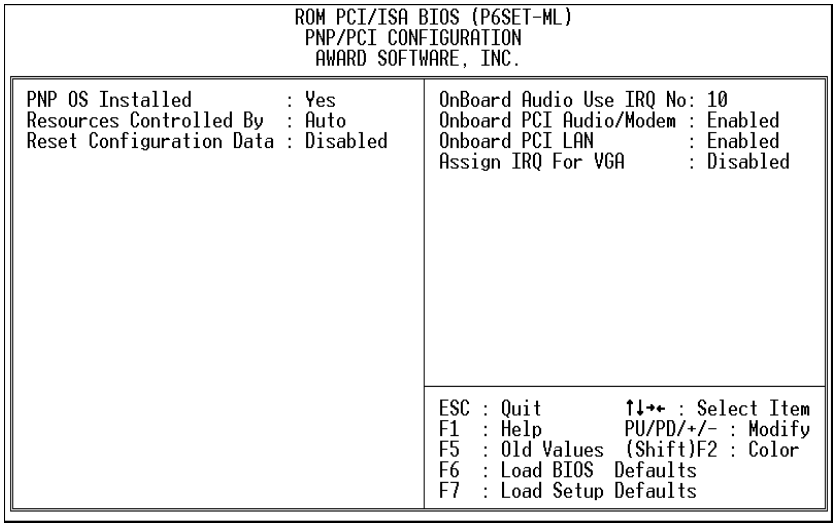
This item lets you select hot keys or a password as the method of using the keyboard power on feature.

Power Up By Alarm ***Default: Disabled***

If you enable this item, you can use the alarm items which appear to install your system with a time and date for an alarm that resumes the system from a power-saving mode.

PNP/PCI Configuration Option

This option displays a table of items that configures how PNP (Plug and Play) and PCI expansion cards operate in your system.



PNP OS Installed ***Default: Yes***

If you install a Plug and Play operating system such as Windows 95 or 98, you can set this item to Yes. When set to Yes you can use the Device Manager utility in the OS to make changes to the configuration of expansion cards.

Resources Controlled By ***Default: Auto***

You should leave this item at the default Auto. If you cannot get an expansion card to work properly, you might be able to solve the problem by changing this item to Manual, and defining the characteristics of the card in the new items which appear. If you change this item to Manual, the display will list a series of items that allow you to define the assignments of the system interrupt lines (IRQs) and Direct Memory Access (DMA) channels. As a default, these items are set to PCI/ISA PnP. If you install an ISA-bus card that does not support PNP, and it requires a special IRQ and DMA, you can modify the list of assignments. Change the values of the IRQ and DMA that are required to Legacy ISA.

Reset Configuration Data ***Default: Disabled***

If you enable this item and restart the system, any PNP configuration data stored in the BIOS setup is cleared from memory. New updated data is created.

Onboard Audio Use IRQ No ***Default: 10***

Use this item to assign an IRQ to the onboard audio system

Onboard PCI Audio/Modem ***Default: Enabled***

Use this item to enable or disable the onboard PCI audio/modem system.

Onboard PCI LAN ***Default: Enabled***

Use this item to enable or disable the onboard PCI LAN system.

Assign IRQ for VGA ***Default: Disabled***

If this item is enabled, an IRQ will be assigned to the PCI VGA graphics system.

Load BIOS Defaults Option

This option opens dialog box that lets you install BIOS defaults for all appropriate items in the whole setup utility. Press the **Y** key and then **Enter** to install the defaults. Press the **N** key and then **Enter** to not install the defaults. The BIOS defaults place no great demands on the system and are generally stable. If your system is not functioning correctly, try installing the BIOS defaults as a first step in getting your system working properly again. If you only want to install BIOS defaults for a specific option, select and display that option, and then press the **F6** key.

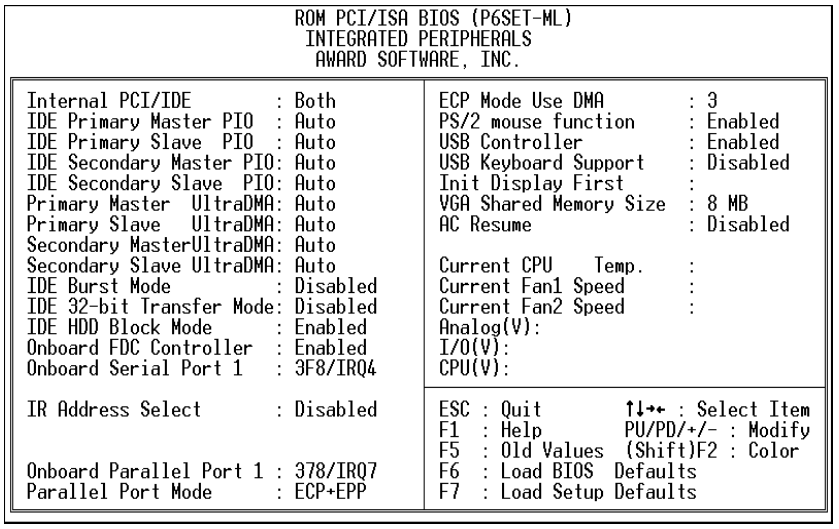
Load Setup Defaults Option

This option opens dialog box that lets you install optimum defaults for all appropriate items in the whole setup utility. Press the **Y** key and then **Enter** to install the defaults. Press the **N** key and then **Enter** to not install the defaults. The setup defaults place demands on the system that may be greater than the performance level of the components, such as the CPU and the memory. You can cause fatal errors or instability if you

install the setup defaults when your hardware does not support them. If you only want to install setup defaults for a specific option, select and display that option, and then press the **F7** key.

Integrated Peripherals Option

This option displays a list of items which defines the operation of some peripheral items on the system's input/output ports.



IDE HDD Block Mode ***Default: Enabled***

Block mode transfers can improve the access to IDE devices. Enable this item if your IDE devices support block mode transfers.

IDE Primary Master PIO ***Default: Auto***
IDE Primary Slave PIO ***Default: Auto***
IDE Secondary Master PIO ***Default: Auto***
IDE Secondary Slave PIO ***Default: Auto***

Each IDE channel supports a master device and a slave device. These four items let you assign which kind of PIO (Programmed Input/Output) is used by IDE devices. You can choose Auto, to let the system auto detect which PIO mode is best, or you can install a PIO mode from 0-4.

IDE Primary Master UltraDMA ***Default: Auto***
IDE Primary Slave UltraDMA ***Default: Auto***
IDE Secondary Master UltraDMA ***Default: Auto***
IDE Secondary Slave UltraDMA ***Default: Auto***

Each IDE channel supports a master device and a slave device. This motherboard supports UltraDMA. UltraDMA technology provides faster access to IDE devices. If you install a device which supports UltraDMA, change the appropriate item on this list to Auto. You may have to install the UltraDMA driver supplied with this motherboard in order to use an UltraDMA device.

IDE Burst Mode ***Default: Disabled***

Burst mode transfers can improve the access to IDE devices. Enable this item if your IDE devices support burst mode transfers.

IDE 32-Bit Transfer Mode ***Default: Disabled***

If this item is enabled, system can simulation 32 bits transfer mode for 16 bits transfer mode OS.

IDE HDD Block Mode ***Default: Enabled***

Block mode transfers can improve the access to IDE devices. Enable this item if your IDE devices support block mode transfers.

Onboard FDC Controller ***Default: Enabled***

Use this item to turn on or off the floppy disk controller that is built into this mainboard.

Onboard Serial Port 1 ***Default: 3F8/IRQ4***

This item lets you disable the built-in serial port 1, or enable it by assigning an I/O address and an Interrupt Request Line (IRQ).

IR Address Select ***Default: Disabled***

Use this item to assign an address to the IR port if you have installed this optional item.

Onboard Parallel Port 1 ***Default: 378/IRQ7***

This item lets you disable the built-in parallel port, or enable it by assigning an I/O address and an Interrupt Request Line (IRQ).

Parallel Port Mode ***Default: ECP+EPP***

This item defines the operation of the parallel port. It can be set to SPP (standard parallel port). If you are connected to a parallel device that supports the higher-performance EPP (enhanced parallel port) or the ECP (extended capabilities port) make the appropriate changes to this item.

ECP Mode Use DMA ***Default: 3***

If you are using the parallel port as an ECP (extended capabilities port), use this item to assign a DMA channel to the port.

PS/2 mouse function ***Default: Enabled***

Use this item to enable or disable the built-in PS/2 mouse port. If you are using a serial port mouse, you can conserve system resources by disabling the PS/2 mouse port.

USB Controller ***Default: Enabled***

Use this item to enable or disable the built-in Universal Serial Bus ports. If you are not using any USB devices, you can conserve system resources by disabling the USB ports.

USB Keyboard Support ***Default: Disabled***

Enable this item if you plan on using a keyboard which operates through the USB poart.

Init Display First ***Default: PCI Slot***

Use this item to define if your graphics adapter is installed in one of the PCI slots.

VGA Shared Memory Size ***Default: 8 MB***

Use this item to set the amount of memory that can be used by the onboard VGA system. We recommend that you leave this at the default value 8 MB.

AC Resume ***Default: Disabled***

If this item is enabled, system will automatic power on when power come back after power lost .

Current CPU Temp., Current System Temp., etc.

If you are using the hardware monitoring features of this system, you can use these items to set thermal and electrical parameters for the system.

Password Setting

This item can be used to install a password. To install a password, follow these steps:

1. Highlight the item Password Settings on the main menu and press **Enter**.
2. The password dialog box appears.
3. If you are installing a new password, carefully type in the password. You cannot use more than 8 characters or numbers. The password will differentiate between upper case and lower characters. Press **Enter** after you have typed in the password. If you are deleting a password that is already installed just press **Enter** when the password dialog box appears.
4. The system will ask you to confirm the new password by asking you to type it in a second time. Carefully type the password again and press **Enter**, or just press **Enter** if you are deleting a password that is already installed.
5. If you typed the password correctly, the password will be installed.

IDE HDD Auto Detection Option

This item automatically detects and installs any hard disk drives installed on the primary and secondary IDE channel. Most modern drives can be detected. If you are using a very old drive that can' t be detected, you can install it manually using the Standard CMOS Setup option.

Setup will check for two devices on the primary IDE channel and then two devices on the secondary IDE channel. At each device, the system will flash an N in the dialog box. Press **Enter** to skip the device and proceed to the next device. Press **Y**, then **Enter** to tell the system to auto-detect the device.

Save And Exit Setup Option

Highlight this item and press **Enter** to save the changes that you have made in the setup utility and exit the setup program. When the Save and Exit dialog box appears, press **Y** to save and exit, or press **N** to return to the setup main menu.

Exit Without Saving Option

Highlight this item and press **Enter** to discard any changes that you have made in the setup utility and exit the setup program. When the Exit Without Saving dialog box appears, press **Y** to discard changes and exit, or press **N** to return to the setup main menu.

Chapter 4: Software

About the Software

The software for this mainboard is supplied on a CD-ROM. The disk has some folders that can be used by many different mainboards, for example the **UTILITY** and **PERIPHERAL** folders. Some folders can only be used by mainboards which have certain brands of chipsets, for example the **INTEL** and **VIA** folders. In addition, software that is specifically intended for one kind of mainboard is stored in a folder with the name of that board. The folder for this mainboard is stored in the **P6SET-ML** folder.

> ***Note:*** *Never try to install software from a folder that is not specified for use with your mainboard.*

Folders for this Mainboard

For this board, you can install software from the following folders:

Utility Folder

You can use the software in the following sub-folders:

- **AWDFLASH**: Software to erase and install new revisions of the system BIOS
- **DIRECTX5:** Software display drivers for Microsoft' s DirectX Rev. 5 specification
- **PC-CILLIN:** Anti-virus software
- **BITWARE:** Software for the built-in fax/modem
- **GAMUT:** Audio rack for built-in sound system

CMI8X38 Folder

You can use the software from the following sub-folders:

- **AUDIO:** Drivers and software for the built-in audio system
- **MODEM:** Drivers and software for the built-in fax/modem

Peripheral Folder

You can use the software in the following sub-folders:

- **LAN:** Drivers and software for the built-in network adapter
- **KEYBOARD, CD-ROM, MOUSE:** These three folders have drivers for accessories manufactured by BTC. Some system assemblers ship these accessories with complete systems based on this mainboard.

SiS_IDE Folder

- **WIN9x:** Bus mastering Ultra DMA drivers for Windows 95/98
- **NT4.0:** Bus mastering Ultra DMA drivers for Windows NT4.0

SiS620_VGA Folder

- Drivers and software for the built-in graphics adapter

P6SET-ML Folder

You can use the software in the following sub-folders:

- **MONITOR :** Hardware monitoring software for Windows 95/98, and Windows NT4.0/5.0
- **SiS_IRQ :** Miniport drivers for Windows 95
- **AUDIO, IDE, LAN, MODEM, VGA:** These folders are empty. A readme file directs you to alternate location with the required software.

Note: *Some folders are subdivided into different operating systems such as DOS, Windows 95, Windows NT, and so on. Always make sure that you are installing the correct software for the operating system on your computer. Some folders are also subdivided into different language versions, such as English, French, German and so on.*

Note: *Before installing any software, always inspect the folder for files named README.TXT, INSTALL.TXT, or something similar. These files may contain important information that is not included in this manual.*

Running the Support CD-ROM

1. Place the disk in your CD-ROM drive. If you are running Windows with Autoplay enabled, the opening screen of the CD appears automatically. Click on READ ME to read the latest instructions.
2. Click on the item BROWSE THE CD TITLE. This uses Windows Explorer to show the contents of the support CD.
3. Double click on a folder to display the sub-folders.
4. Before installing the software, look for a file named README.TXT, or something similar. This file may contain important information to help you install the software correctly.
5. Some software is installed in separate folders for different operating systems, such as DOS, WIN NT, WIN95/98, and so on. Always log on to the correct folder for the kind of OS you are using.
6. To install the software, you usually execute a file named SETUP.EXE or INSTALL.EXE by double clicking on the filename.

Utility Folder Installation Notes

Award Flash Memory Utility

This utility lets you erase the system BIOS stored on a Flash Memory chip on the mainboard, and lets you copy an updated BIOS to the chip. Take care how you use this program. If you erase the current BIOS and fail to write a new BIOS, or write a new BIOS that is incorrect, your system will malfunction.

There are two flash memory utilities called **AWD66.EXE** and **AWD712.EXE**. For this mainboard you must use the **AWD66.EXE** utility. To use the utility, you must be in real-mode DOS (not the DOS box that is available in Windows 95/98/NT). If you are using WINDOWS 95/98, shut down your computer and select the option Restart in DOS in the shut-down dialog box. If you are running Windows NT, shut down your computer and boot from a DOS diskette temporarily in order to run the flash memory utility.

DirectX5 Drivers

The DirectX drivers are for installation only in Windows 95/98. The directX drivers need to be installed before you install an AGP driver. You may be able to get more up-to-date directX drivers from the Microsoft web site. Start the installation by clicking on the file DX5CORE.EXE.

PC-Cillin Anti-Virus Utility

Anti-virus software is provided for DOS, for WIN95, and WIN 98. Log on to the appropriate directory for your operating system. For DOS, copy all the files in the DOS folder to your hard disk drive. For Windows 95, log on to the Disk 1 folder and run SETUP. For Windows 98, run SETUP.

CMI8X38 Folder Installation Notes

Audio Software

This folder has software and drivers for the sound system that is integrated on this mainboard. Drivers are provided for Windows 95/98, Windows NT, and DOS. An MS-WORD format manual is stored in the MANUAL folder.

DOS Installation

Log on to the DOSDRV folder and run the program INSTALL.EXE

Windows 95/98 Installation

Please specify the path to the CD-ROM\CMI8X38\AUDIO\W95-98\DRV when your system detects the installed audio system. To install the audio applications, log on to the W95-98 folder, and then log on to the APPS folder. Run the SETUP program.

Windows NT 4.0 Installation

1. Press the *"Start"* button.
2. Move the highlight to *"Settings"* and select *"Control Panel".*
3. Double click on the *"Multimedia"* icon.
4. Select the *"Devices"* tab.
5. Press the *"Add..."* button.
6. Select item *"Unlisted or Updated Driver"* in the *"List of Drivers"* list box.
7. Specify the path to the PCI audio NT drivers.
8. Select *"C-Media CM8338 PCI Device"* and press the *"OK"* button.
9. Choose proper I/O or the *"OK"* button for the default setting.
10. Restart the Windows NT system.

To install the audio applications, log on to the NT4 folder, and then log on to the APPS folder. Run the SETUP program.

Modem Driver and Software

Install the Modem driver from the sub-folders for Windows 95/98 or Windows NT4.0.

Windows 95/98

The modem is a plug and play device so Windows 95/98 will automatically detect the presence of your modem. When the Plug and Play wizard begins to look for modem drivers, click on the button that says ***Have Disk*** and then browse or type in the pathname to the CMI8x58\modem\win9x folder.

Windows NT 4.0

Follow the instructions in the README file in the WINNT4 sub-folder.

Peripheral Folder Installation Notes

Network Drivers

You can use the **LAN** sub-folder to install a driver for the built-in network adapter. Log on to the LAN folder. This folder has sub-folders for many different operating systems including Netware, DOS, SCO UNIX, Workgroups for Windows, Windows 95/98, OS2, and so on. Log on to the correct operating system and version for your computer. Read or print the README file that is stored in the sub-folder. Follow the installation instructions in the README file.

SiS_IDE Folder Installation Notes

Ultra DMA Drivers

This folder has bus mastering IDE drivers that will improve the performance of IDE devices if you are running Windows 95/98 or Windows NT4.0.

For a Windows 95/98 installation, log on to the WIN9X sub-folder and run SETUP. For a Windows NT4.o installation, log on to the NT sub-folder and follow the installation instructions contained in the README.TXT file.

SiS620_VGA Folder Installation Notes

This folder has drivers and software for the built-in graphics adapter. The sub-folder Win9X has the drivers for Windows 95/98. The sub-folder Winnt4.0 has the drivers for Windows NT4.0. The sub-folder Winnt5.0 has drivers that can be used by varieties of Windows 2000. Follow the installation instructions that are stored in the README.TXT file in the SiS620_VGA folder.

Mainboard (P6SET-ML) Installation Notes

Most of the sub-folders in this folder are empty, with a short README file giving directions to alternate folders for the appropriate software. Two folders contain software that you can install.

Monitor Sub-folder

The software in this folder provides a graphical interface to the hardware monitoring feature of this mainboard. The software will run under Windows 95/98 or Windows NT4.0. Follow the installation instructions contained in the file INSTALL.TXT.

SiS_IRQ Sub-folder

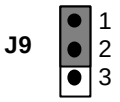
This folder has Miniport drivers. You only need to install these drivers if you are using a legacy Windows 95 operating system. Follow the installation instructions given in the README.TXT file.

Appendix 1: Quick Jumper Setting Reference

J9: Clear CMOS memory jumper

Use this 3-pin jumper to clear all the current data stored in the CMOS memory.

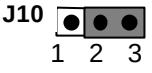
Function	Jumper Cap
Normal operation	Short pins 1-2
Clear CMOS	Short pins 2-3



J10: Keyboard power on jumper

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

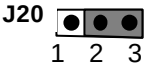
Function	Jumper Cap
Disable keyboard power on	Short pins 1-2
Enable keyboard power on	Short pins 2-3



J20: Select Slot-1 or Socket-370 jumper

Use this 3-pin jumper to select if you are using a Slot-1 processor or a socket-370 processor.

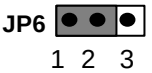
Function	Jumper Cap
Socket-370 processor	Short pins 1-2
Slot-1 processor	Short pins 2-3



JP6: LAN enable/disable jumper

Use this 3-pin jumper to enable or disable the built-in LAN network adapter.

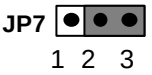
Function	Jumper Cap
Enable onboard LAN	Short pins 1-2
Disable onboard LAN	Short pins 2-3



JP7: Audio enable/disable jumper

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

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

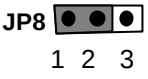


Note: *If you use JP7 to disable the onboard audio, it also disables the onboard fax/modem, even if the fax/modem jumper JP8 is set to enabled.*

JP8: Modem enable/disable jumper

Use this 3-pin jumper to enable or disable the built-in fax/modem.

Function	Jumper Cap
Enable onboard modem	Short pins 1-2
Disable onboard modem	Short pins 2-3



Panel Connector

The mainboard J7 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.