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Version 1.0

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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 Règlement sur le matériel brouilleur du Canada.

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CE Declaration of Conformity

We,

**Elitegroup Computer Systems GmbH
Straßburger Allee 18, 41812 Erkelenz
Germany**

in accordance with the Council Directive 89/336/EEC (Electromagnetic Compatibility Directive) declare that the product

P5SS-ML Mainboard

produced by

**Elitegroup Computer Systems Co., Ltd
6F, No. 88, Sec. 6, Chung Shan N. Rd.
Taipei, Taiwan, R.O.C**

has been tested by

Elitegroup Computer Systems GmbH

in accordance with the EMC requirements on the basis of:

**EN 50081-1
EN 55022 (1994)
EN 50082-1
EN 61000-4-2 (1994)
IEC 1000-4-3 (1995)
EN 61000-4-4 (1994)**

The EUT meets the requirements described in the text regulations.

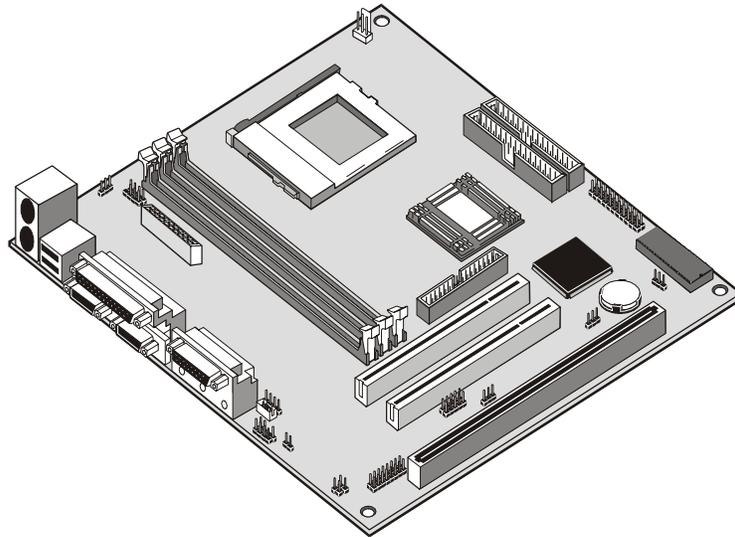
Signature: 
Dipl. Ing. Jens Roux
EMC-Laboratory

Chapter 1: Introduction

Welcome

Congratulations on purchasing the P5SS-ML mainboard. This mainboard supports the installation of the popular and inexpensive socket-7 processor series that lets users choose from a huge range of reliable and powerful processors from a wide variety of vendors.

The P5SS-ML is a micro-ATX mainboard that uses 4-layer printed circuit board and measures 19cm x 24.4cm. The board includes a socket-7 processor slot that supports the wide range of powerful and inexpensive socket-7 processors. The mainboard features the SiS530 chipset that supports a 100 MHz front side bus. The board is highly integrated and includes a 3D sound system, a 3D graphics system, a V.90 56Kbps fax/modem (on a separate module) and a 10BaseT/100BaseTX network adapter. The P5SS-ML lets system integrators create an economic PC that is ready for dial-up and network communications.



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 P5SS-ML Mainboard
- ✓ 1 x Cable/Bracket Pack
 - Diskette drive ribbon cable
 - IDE drive ribbon cable (supports UDMA 33)
- ✓ 1 x Network adapter extension bracket
- ✓ 1 x V.90 Fax/modem DAA Module
- ✓ This User's Manual
- ✓ Software Support CD-ROM Disc

Optional items

- ✓ Digital audio extension bracket

Recommendations

This mainboard automatically determines the CPU clock frequency and system bus frequency for the kind of processor that you install. 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 socket-7 processor support, and the high degree of integration including built-in audio, video, communications, and networking.

Socket-7 Processors

The socket-7 processor socket supports many different kinds of Pentium and Pentium-compatible processors from a variety of vendors. You can install this board with a legacy Intel Pentium or Pentium-MMX, an AMD K5 or K6/K6-2/K6-III, a Cyrix/IBM 6x86L or 6x86MX/MII, or an IDT C6 series. The mainboard supports a wide range of CPU clock speeds and system bus speeds of 60, 66, 75, 83, 95 and 100 MHz. The mainboard BIOS supports automatic processor configuration so you can configure the board for the processor without using jumpers.

SiS530 Chipset

The SiS530 chipset provides full support for socket-7 mainboards and meets PC99 and PCI Revision 2.2 requirements. It includes a built-in AGP, 2D/3D graphics controller, level-2 cache controller, an integrated DRAM controller, and hosts the onboard PCI IDE channels with support for UDMA 33/66.

Up to 1.5 GB Memory Capacity

The board has three DIMM sockets for the installation of 168-pin, 3.3V non-buffered DIMM memory modules. The DIMM memory modules must be installed with SDRAM memory chips. The board supports a memory bus of 66 MHz or 100 MHz, so you can choose between inexpensive 66 MHz memory modules or high-performance PC-100 memory modules. Each installed memory module can be populated with 8 MB up to 512 MB of memory, so a maximum total of 1.5 GB memory can be installed.

Built-in AGP, 2D/3D Graphics System

The mainboard has a built-in graphics system with a shared memory architecture so that up to 8 MB system memory can serve as video memory. The 64-bit graphics system supports a 100 MHz host interface to VGA to speed up the GUI performance and the video playback frame rate.

Built-in PCI 3D Sound

The system includes built-in PCI 3D audio support. 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.

Built-in V.90 Fax/modem

The mainboard includes an integrated fax/modem. The fax/modem supports 56 Kbps transmission using the V.90 protocol. The fax/modem is integrated with the built-in audio system to support voice as well as data transmissions. You must install a DAA module (with line and telephone sockets) in order to use the integrated fax/modem.

Built-in Networking

The mainboard has an integrated LAN adapter. The board ships with a network extension bracket which connects the RJ45 network socket to the board. The RJ45 socket plugs directly into a twisted-pair cable networking architecture using either 10BaseT or 100BaseTX transmission technology.

Expansion Options

The board has good expansion capability with two 32-bit PCI slots and one legacy 8/16-bit ISA slot.

Integrated I/O

The mainboard has a comprehensive set of integrated I/O ports. The I/O ports are installed as connectors on the mainboard or can be installed on the system case using extension brackets. The I/O ports include two PS/2 ports for mouse and keyboard, a parallel port, two USB ports, one serial port, a monitor port, a game/MIDI port, sound jacks, and an optional infrared port. The mainboard includes connections for floppy diskette drives and two PCI IDE channels.

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.

Hardware Monitoring

The system supports hardware monitoring so that monitoring software applications can generate warnings if critical parameters, such as voltages and temperatures, are exceeded

Programmable Firmware

The mainboard includes Award BIOS which 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 socket-7 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.

JP1: Keyboard power on jumper

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

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



Jumper JP6: Clear CMOS Memory

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

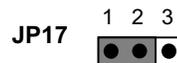
Function	Jumper Cap
Normal operation	Short pins 1-2
Clear CMOS	Short pins 2-3



Jumper JP17: LAN Enable/disable Selector

Use this jumper to enable or disable the LAN adapter integrated on the mainboard.

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



Jumper JP20: LAN Power Selector

Use this 3-pin jumper to select the power setting for the onboard LAN adapter

Function	Jumper Cap
5 Volts	Short pins 1-2
SB 5 Volts	Short pins 2-3



Jumper JP11: 8738 Audio Chip Enable/disable

Use this 2-pin jumper to enable or disable the audio system integrated on this mainboard.

Function	Jumper Cap
Enable audio	Open pins 1-2
Disable audio	Short pins 1-2



Note: If you disable the onboard audio system, you cannot use the onboard fax/modem.

Jumper JP25: Fax/modem Enable/disable

Use this 2-pin jumper to enable or disable the onboard fax/modem.

Function	Jumper Cap
Enable modem	Open pins 1-2
Disable modem	Short pins 1-2



Note: If you have disabled the onboard audio system with jumper JP11, the fax/modem will not function even if it is enabled.

Before You Begin

Before you begin to install your P5SS-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 P5SS-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.

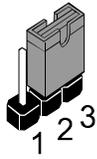
The mainboard has a set of I/O ports on the rear edge. Ensure that your case has an I/O template that supports the I/O ports and expansion slots.

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.

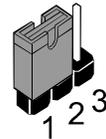


This illustration shows a 2-pin jumper. When the jumper cap is placed on both pins, the jumper is SHORT. If you remove the jumper cap, or place the jumper cap on just one pin, the jumper is OPEN.



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.

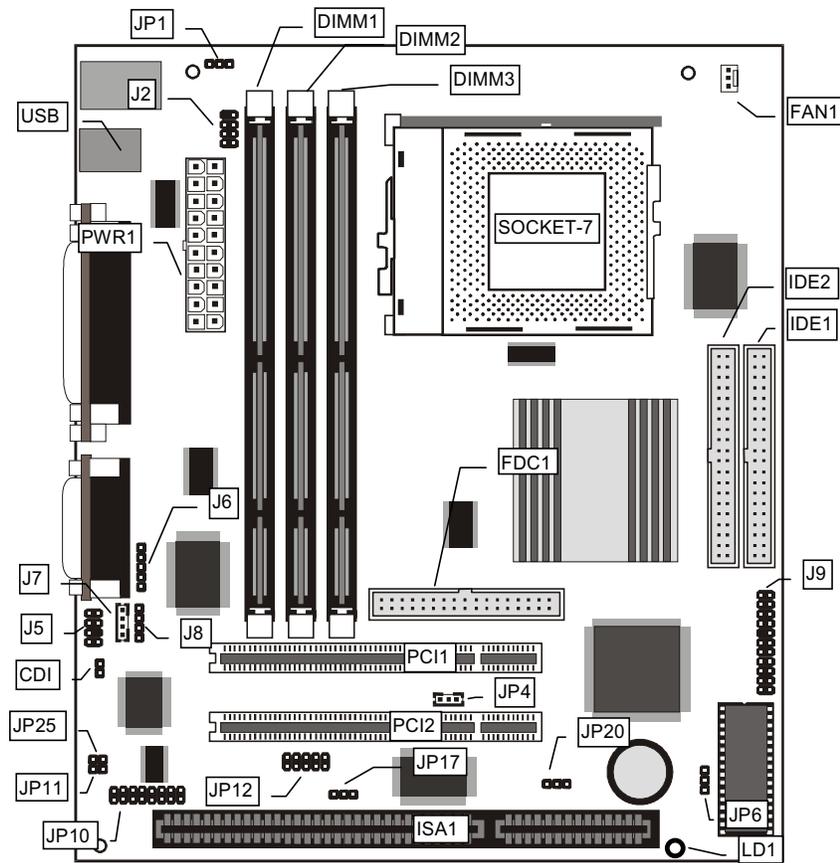


In this manual, all the jumper illustrations clearly show the pin numbers. When you are setting the jumpers, make sure that the jumper caps are placed on the correct pins to select the function or feature that you want to enable or disable.

Preparing the Mainboard

Mainboard Guide

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



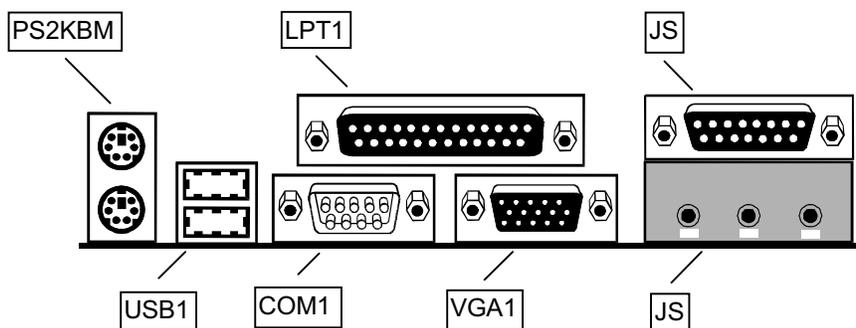
Key to Mainboard Components

Component	Description
Socket-7	Socket for socket-7 processor
PCI 1,2	Two 32-bit PCI slots
ISA1	One 8/16-bit ISA slot
DIMM 1, 2, 3	Three slots for 168-pin SDRAM memory modules
FDC1	Connector for floppy disk drives
IDE1, IDE2	Primary and secondary IDE channels
PWR1	Connector for ATX power supply
CDI	Audio-in connector for digital output from CD-ROM/DVD drive
FAN1	Power connector for CPU cooling fan
*LD1	Power indicator
J2	N/A Reserved for testing
J5	SPDIF digital audio connector
J6	Connector for optional infrared port
J7	Audio connector for CD-ROM/DVD drive
J8	Auxiliary audio connector for CD-ROM/DVD drive
J9	Panel connector for case switches and indicators
JP1	Keyboard power on jumper
JP4	Wake on LAN connector
JP6	Clear CMOS memory jumper
JP10	Connector for fax/modem card
JP11	Enable/disable onboard 8738 audio chip jumper
JP12	Connector for network adapter extension bracket
JP17	LAN enable/disable jumper
JP20	LAN power selector jumper
JP25	Enable/disable onboard fax/modem jumper

***LD1**

This green indicator turns on whenever the system is turned on. The indicator warns users not to work on the mainboard, for example adding expansion cards or changing jumpers, because the system is still active.

I/O Ports Side View

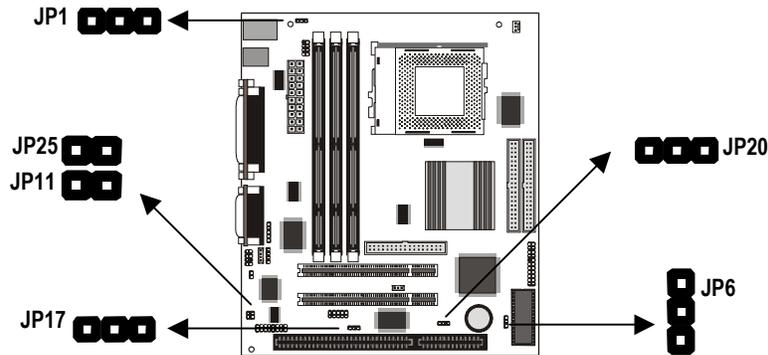


Key to I/O Ports

Component	Description
PS2KBM	PS/2 port for pointing device (upper port) PS/2 port for keyboard (lower port)
LPT1	External parallel port
JS (Upper)	External game/MIDI port
JS (Lower)	Audio jacks for (from left to right) line out, line in, microphone
VGA1	External monitor port
COM1	External serial port COM1/3
USB1	Two stacked Universal Serial Bus ports

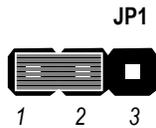
Check the Jumper Settings

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



JP1: 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.

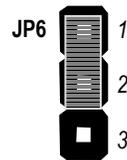


Function	Jumper Cap
Enable keyboard power on	Short pins 1-2
Disable keyboard power on	Short pins 2-3

JP6: 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 correctly. To clear the CMOS memory, turn off the system, disconnect the power cable from the mainboard, and short the appropriate pins for at least 3 seconds.

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



JP17: LAN Enable/disable Jumper

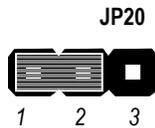
This 3-pin jumper can be used to enable or disable the onboard network adapter. If you prefer to install a different LAN adapter on a third party expansion card, you must disable the onboard LAN.

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



JP20: LAN Power Selector

Use this 3-pin jumper to select the power setting for the onboard LAN adapter.



Function	Jumper Cap
5 Volts	Short pins 1-2
SB 5 Volts	Short pins 2-3

JP11: 8738 Audio Chip Enable/disable Jumper

This 2-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
Enable audio system	Open pins 1-2
Disable audio system	Short pins 1-2



Note: If you disable the onboard audio system, you cannot use the onboard fax/modem.

JP25: Modem Enable/disable Jumper

This 2-pin jumper can be used to enable or disable the onboard modem. If you prefer to install a different modem on a third-party expansion card, you must disable the onboard modem.



Function	Jumper Cap
Enable modem	Open pins 1-2
Disable modem	Short pins 1-2

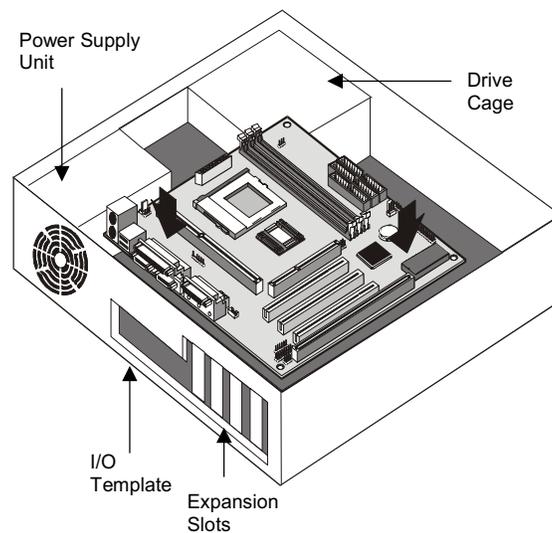
Note: If you have disabled the onboard audio system with jumper JP11, the fax/modem will not function even if it is enabled.

Install the Mainboard in the Case

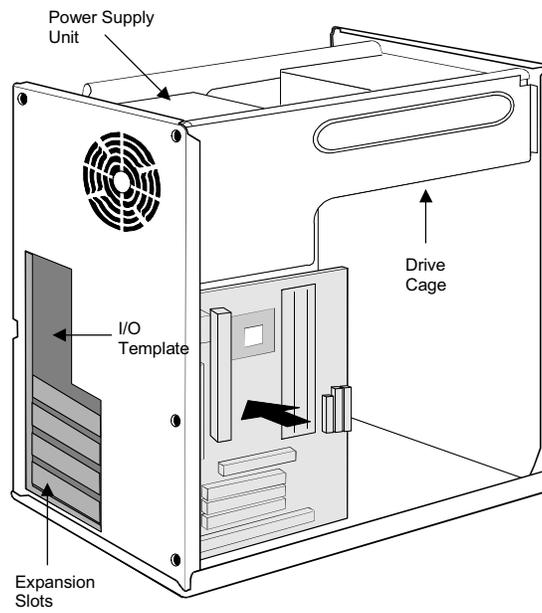
The mainboard is drilled with a series of holes. Most system cases have mounting brackets installed in the case which correspond to the holes in the mainboard. You can secure the mainboard in the system case by placing the mainboard over the mounting brackets and driving screws through the mainboard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

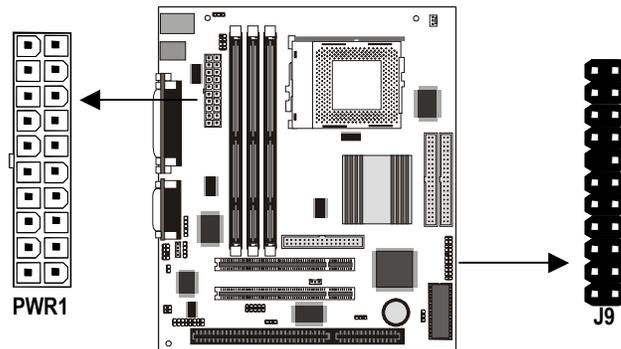


The illustration below shows the mainboard installing into a tower-type case.



Connecting Power and Case Switches & Indicators

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. Then connect the case switches and indicators to the J9 connector on the mainboard.



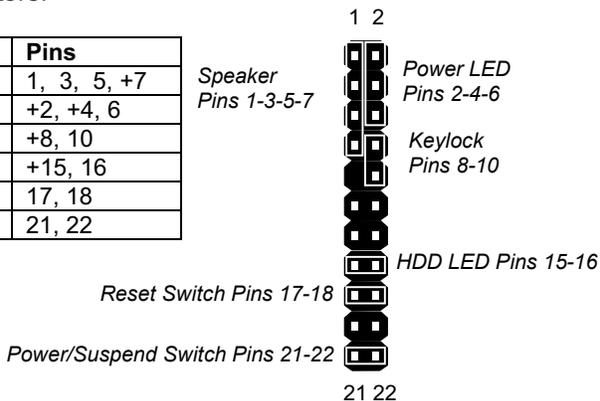
Power Connector

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

J9 Panel Connector

The mainboard J9 PANEL 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.

Function	Pins
Speaker	1, 3, 5, +7
Power Indicator	+2, +4, 6
Keylock	+8, 10
Hard Disk Indicator	+15, 16
Reset Switch	17, 18
Power Switch	21, 22



Install Other Hardware

Start installing the essential hardware required to get your system started.

Install the Processor

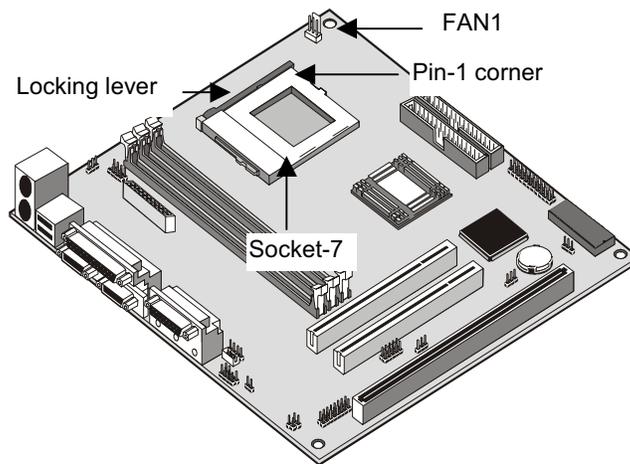
This mainboard has a socket-7 processor socket for the installation of a socket-7 processor. There are many different kinds of socket-7 processors shipping currently, and many legacy socket-7 processors can be found in older computers. This mainboard can support the latest socket-7 processors that are designed to operate over a 100 MHz system bus. Faster system bus frequencies produce higher performance so we recommend that you choose this kind of processor.

Other factors that affect performance are the clock speed of the processor and the internal cache memory of the processor. Generally, the higher the clock speed, the better the performance. The more internal cache memory, the better the performance. See Appendix 2 for a list of some the socket-7 processors that can be installed in this mainboard.

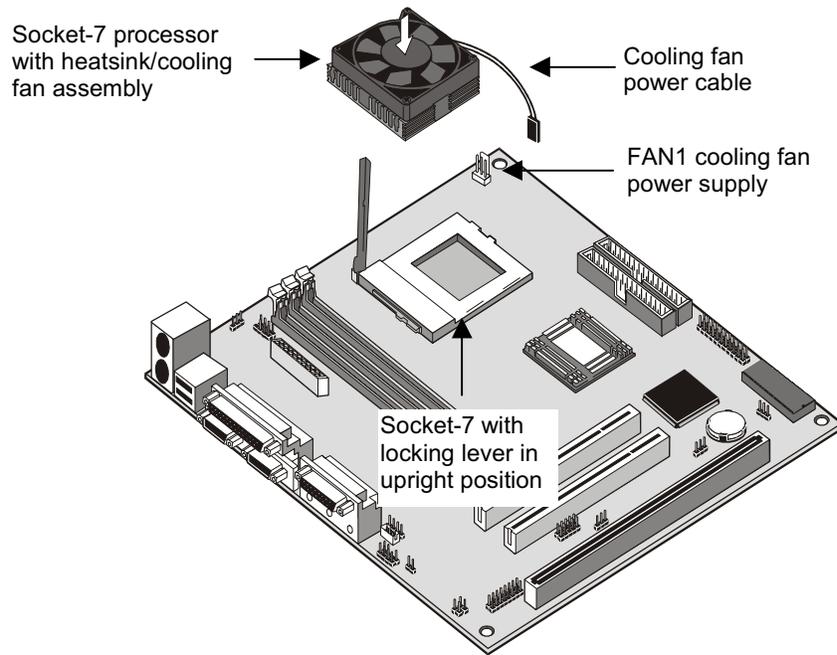
No matter which processor you choose, make sure that it is installed with a heatsink/cooling fan assembly. All modern processors require a cooling system to ensure reliability.

Installing a Socket-7 Processor

On the mainboard, locate the socket-7 for the processor and the FAN1 12V power supply connector for the processor's heatsink/cooling fan assembly.



1. On the socket-7, pull the locking lever away from the socket to unhook it and then raise the locking lever to the upright position.
2. Identify the pin-1 corner on the socket-7 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.
3. Matching the pin-1 corners, drop the processor into the socket. No force is required and the processor should seat into the socket easily.
4. Swing the locking lever down and hook it under the latch on the edge of the socket. This locks the processor in place.
5. Locate the power cable on the heatsink/cooling fan assembly that is attached to the top of the processor.
6. Plug the power cable into the FAN1 12V power supply on the mainboard.



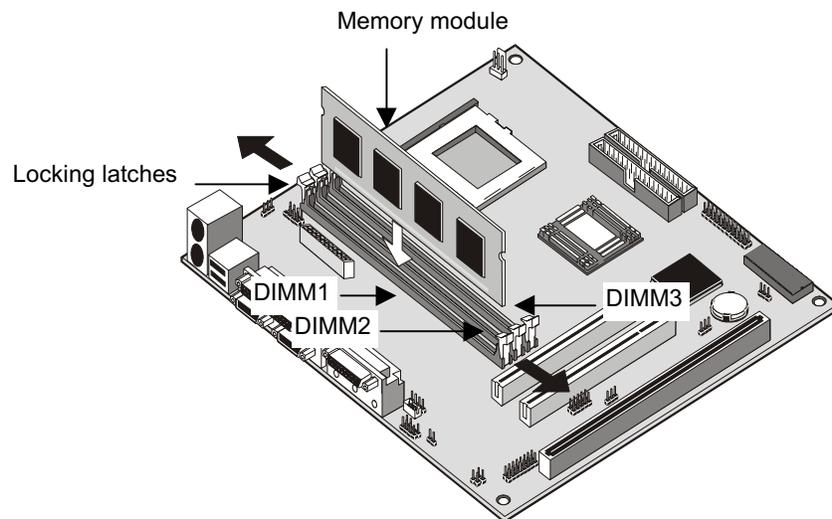
The mainboard must be configured to deliver the correct clock speed and the correct system bus for the kind of processor that you have installed. You can do this by using the system setup utility. The first time you start the system, immediately enter the setup system and make the appropriate settings. Usually, you can automatically configure the CPU by using the BIOS Features Setup 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 portion of the 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 512 MB of memory so the maximum capacity is 1.5 GB. 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 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 colored 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 that 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.

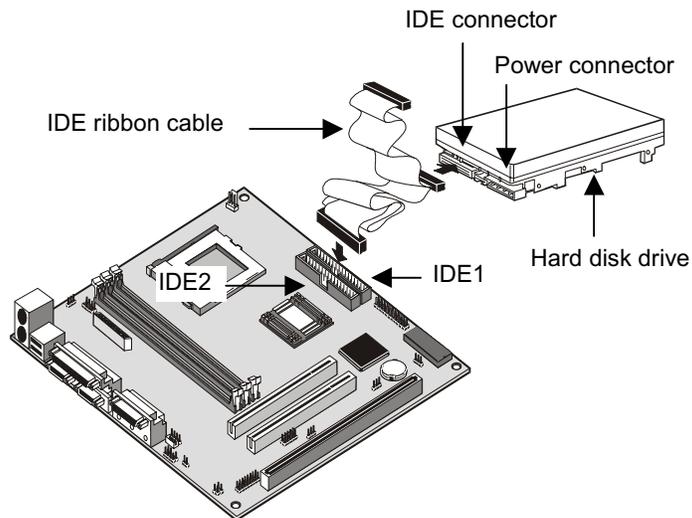
If you want to install more than two IDE devices, obtain a second IDE cable and you can add two more devices to the secondary IDE channel. If there are two devices on the cable, make one is MASTER and one is SLAVE.

UDMA 33/66

This mainboard supports Ultra DMA 33 and 66. UDMA 33/66 technology delivers faster access for IDE devices that support it. We recommend that you install devices that support UDMA 33/66. Also, please use an IDE cable that is specified to support UDMA 33/66. Older IDE cables cannot reliably support UDMA 33/66.

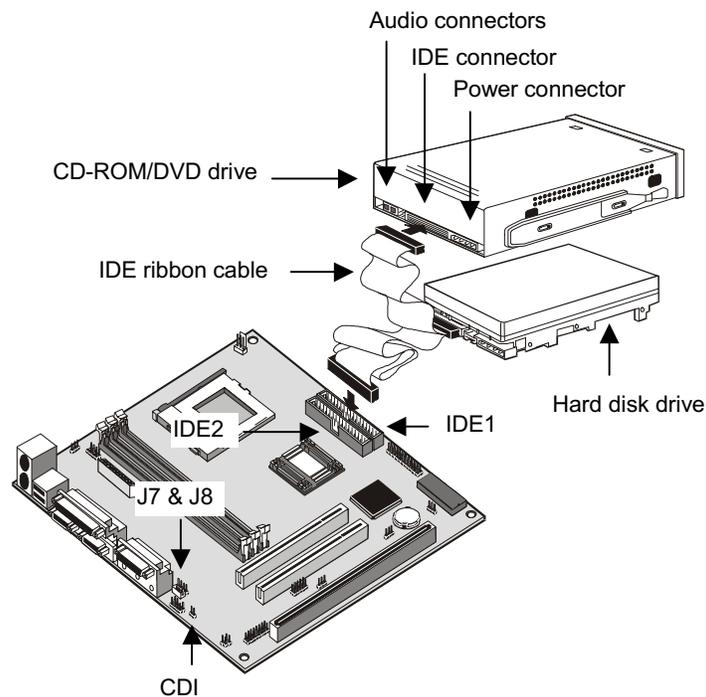
Installing an IDE Hard Disk Drive

1. Install the IDE 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 HDD Auto Detection feature to configure the IDE devices that you have installed. See Chapter 3 for more information.



Installing an IDE CD-ROM/DVD Drive

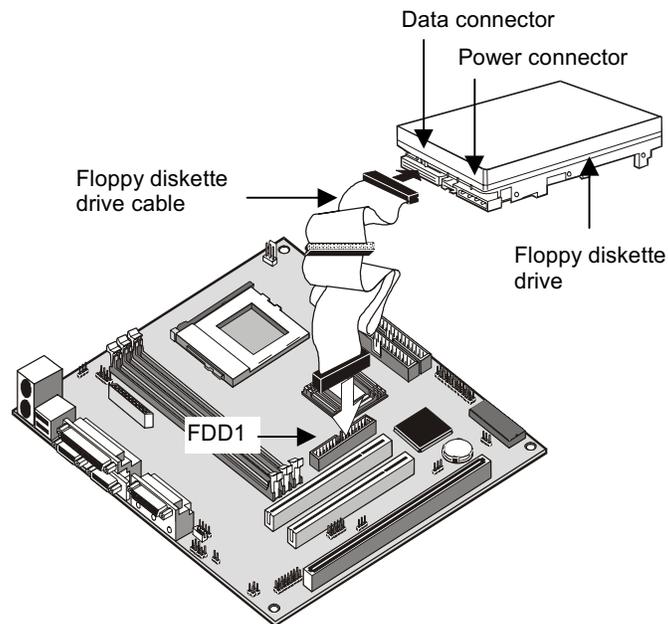
1. Install the IDE CD-ROM/DVD drive into the drive cage in your system case. Plug the IDE cable into the primary IDE channel on the mainboard IDE1.
2. Plug one of the connectors on the IDE cable into the IDE connector on the back edge of the CD-ROM/DVD drive. It doesn't matter which connector on the 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 J7 and J8 on the mainboard. If the drive has digital audio output, you can connect it to the digital audio connector CDI.
5. When you first start up your system, go immediately to the setup utility and use the IDE HDD Auto Detection feature to configure the IDE devices that you have installed. See Chapter 3 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 3.5" 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 FDD1.
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 3 for more information.

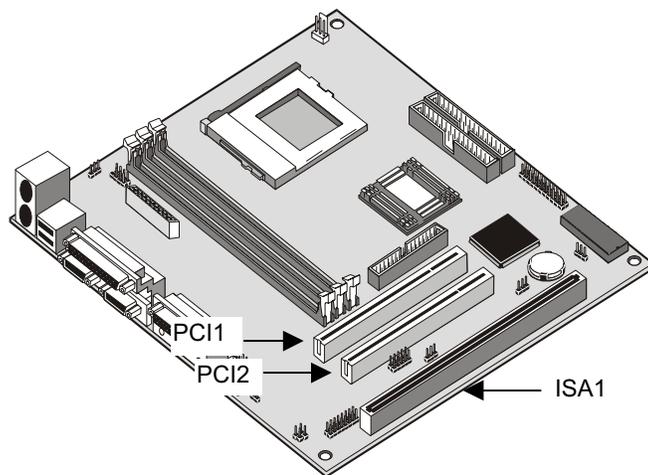


Using the Expansion Slots

This mainboard has two 32-bit PCI expansion slots and one 8/16-bit legacy ISA slot.

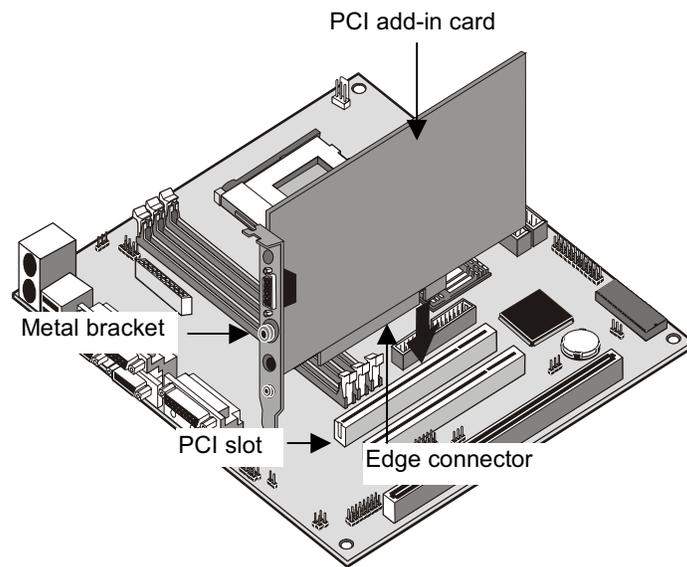
PCI Slots: The PCI slots can be used to install add-in cards that have the 32-bit PCI (Peripheral Components Interconnect) edge connector.

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



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.

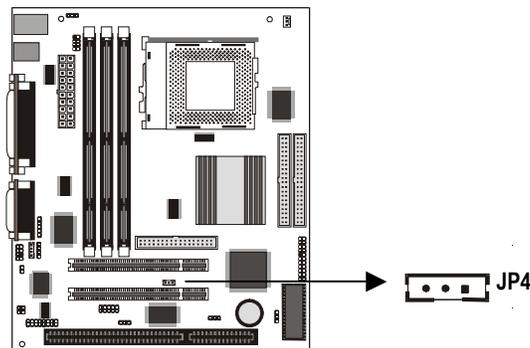


Add-in Card Options

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

JP4: Wake on LAN Connector

If you have installed a network adapter (LAN adapter), you can use the cable provided with the card to plug into the JP4 connector on the mainboard. This is the Wake On LAN feature. When your system is in a power-saving mode or a software powerdown, any traffic through the network automatically resume the system. You normally enable this item using the Power Management Setup page of the setup utility. See Chapter 3 for more information.



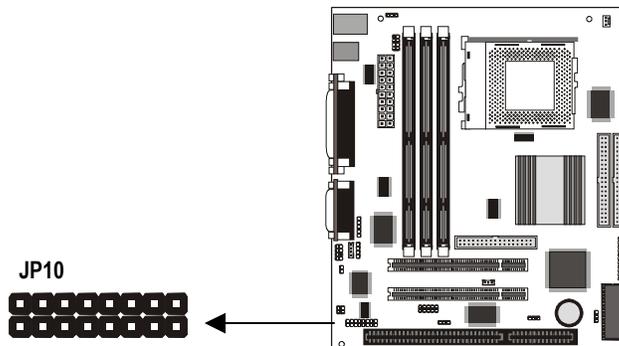
Install Options and Extension Brackets

This mainboard has a number of special connectors that allow you to add optional features to your system. You can install any of the following items:

- ◆ Fax/modem card
- ◆ Network adapter extension bracket
- ◆ Infrared port
- ◆ 24-bit digital audio extension bracket (SPDIF)

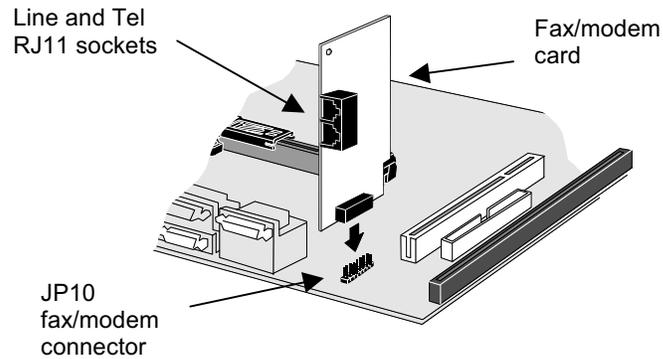
Fax/modem Card

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



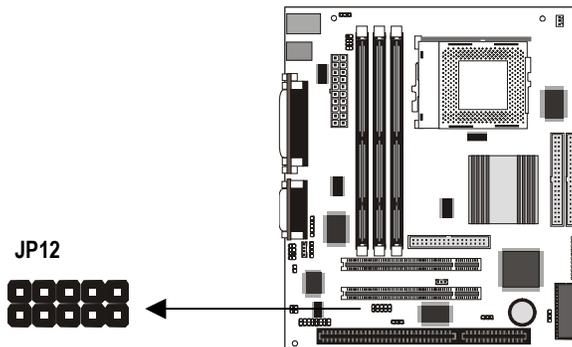
The fax/modem card is an optional item supplied with this mainboard.

1. Locate the JP10 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 onto the JP10 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.

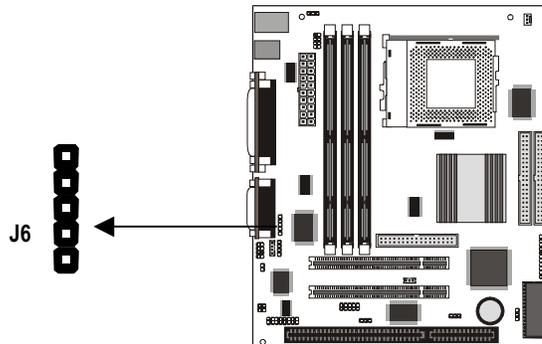


The network adapter extension bracket is supplied with this mainboard.

1. Locate the JP12 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 JP12 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.

Infrared Port

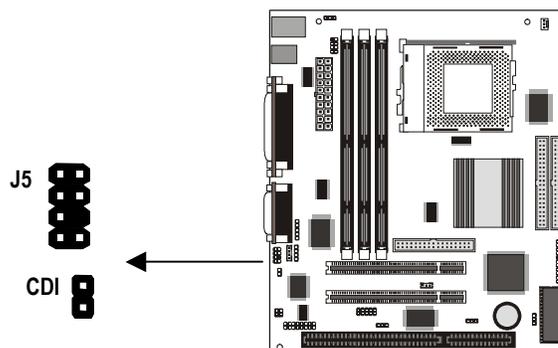
This option can be purchased from third-party vendors.



1. If you are installing an optional serial infrared port, connect the cable from the optional IR port to the J6 connector on the mainboard.
2. After you have connected the cable, secure the optional IR port to the appropriate place on your system case.

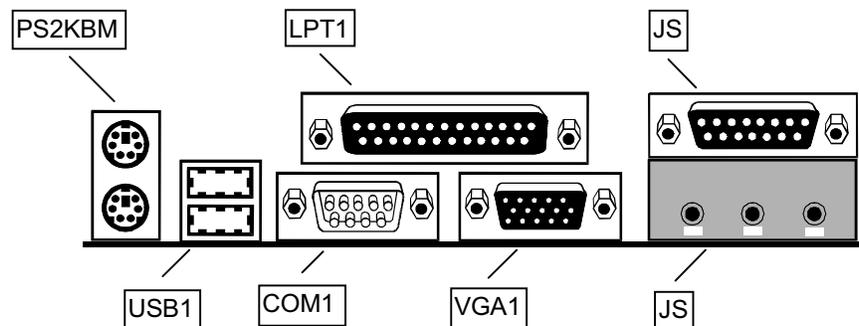
Digital Audio Extension Bracket

You can purchase an optional 24-bit digital audio extension bracket from a third-party vendor. You can use the audio RCA jacks to connect to digital audio devices. Plug the cable from the digital audio extension bracket onto the digital audio connector J5. If you have already used the digital input connector CDI to input digital sound from a CD-ROM/DVD drive, you cannot use J5. You can only use one of these connectors at one time.



Make the External Connections

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



1. PS2KBM 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 JS 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 JS 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.

External Connector Color Coding

To help identify the external connectors, many connectors now use standard colors as shown in the table below.

Connector	Color
Analog VGA	Blue
Audio line in	Light blue
Audio line out	Lime
Digital monitor / flat panel	White
IEEE 1394	Grey
Microphone	Pink
MIDI/Game	Gold
Parallel	Burgundy
PS/2 compatible keyboard	Purple
PS/2 compatible mouse	Green
Serial	Teal or Turquoise
Speaker out / subwoofer	Orange
Right-to-left speaker	Brown
USB	Black
Video out	Yellow
SCSI, network, telephone, modem, and so on	None

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 to you verify 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.

ROM PCI/ISA BIOS (P5SS-ML)
 CMOS SETUP UTILITY
 AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	PASSWORD SETTING
CHIPSET FEATURES SETUP	IDE HDD AUTO DETECTION
POWER MANAGEMENT SETUP	SAVE & EXIT SETUP
PNP/PCI CONFIGURATION	EXIT WITHOUT SAVING
LOAD BIOS DEFAULTS	
LOAD OPTIMUM SETTINGS	
Esc : Quit	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	(Shift)F2 : Change Color

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.

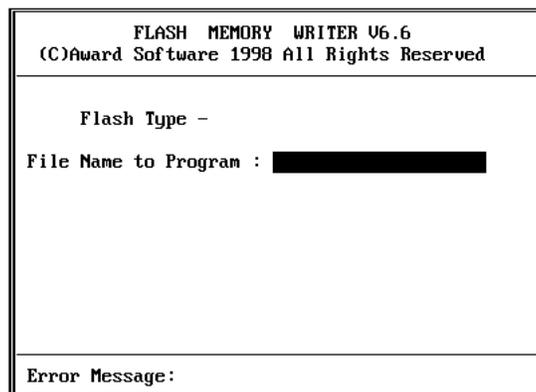
When you are in the main menu, you can exit the utility by pressing the **Escape** key. You can save the current selections and exit the utility by pressing the **F10** key. When you are in one of the options that displays a dialog box, you can return to the main menu by pressing the **Escape** key.

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 **F2** key. You can display a general help screen by pressing **F1**. 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 fail-safe 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. Some Setup programs have an item called Firmware Write Protect that prevents the BIOS from being overwritten. If your BIOS has this item (check the Advanced BIOS Features Setup page) disable it for the present.
3. 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.
4. Locate the flash memory utility on the support CD-ROM. It's called AWD712.EXE. Copy this file to the new system diskette.
5. Copy the new BIOS file that you downloaded from the manufacturer's website to the newly formatted system diskette.
6. Turn off your computer and insert the newly formatted DOS diskette in your computer's diskette drive.
7. You might need to run the setup utility and change the boot priority items on the Advanced BIOS Features Setup page, to force your computer to boot from the floppy diskette drive first.
8. At the A:\ prompt, after your computer has booted a clean DOS from the diskette, type in the filename AWD712 and press **Enter**.



9. In the opening dialog box, type in the filename of the new BIOS and follow the onscreen directions to flash the new BIOS to the motherboard.
10. 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.

ROM PCI/ISA BIOS (P5SS-ML)
STANDARD CMOS SETUP
AWARD SOFTWARE, INC.

Date (mm:dd:yy) : Thu, Aug 5 1999							
Time (hh:mm:ss) : 10 : 25 : 23							
HARD DISKS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR MODE
Primary Master	: 0	0	0	0	0	0	0 NORMAL
Primary Slave	: 0	0	0	0	0	0	0 NORMAL
Secondary Master	: 0	0	0	0	0	0	0 NORMAL
Secondary Slave	: 0	0	0	0	0	0	0 NORMAL
Drive A : 1.44M, 3.5 in.							
Drive B : None							
Floppy 3 Mode Support : Disabled							
Video : EGA/VGA							
Halt On : All Errors							
ESC : Quit		↑ ↓ → ← : Select Item		PU/PD/+/- : Modify			
F1 : Help		(Shift)F2 : Change Color					

Date and Time

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

Hard Disks

Defaults: None

These items show the characteristics of any hard disk drives on the two available IDE channels. You can automatically install most modern hard disks using the IDE HDD Auto Detect Option from the main menu. However, if you find that a drive cannot be automatically detected, you can use these items to manually enter the characteristics of the drive. Give the drive a unique TYPE number. The documentation provided with your drive has the data you need to fill in the values for CYLS (cylinders), HEAD (read/write heads), and so on.

The documentation provided with the 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 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 (P5SS-ML)
BIOS FEATURES SETUP
AWARD SOFTWARE, INC.

CPU Host Bus Frequency	: 66 MHz	Report No FDD For WIN 95	: Yes
CPU Core:Bus Freq.Multiple	: 3.0x	K6 Write Allocate	: Enabled
CPU Voltage	: Default	Video BIOS Shadow	: Enabled
CPU clock failed reset	: Disabled	C8000-CBFFF Shadow	: Disabled
Virus Warning	: Disabled	CC000-CFFFF Shadow	: Disabled
CPU Internal Cache	: Enabled	D0000-D3FFF Shadow	: Disabled
External Cache	: Enabled	D4000-D7FFF Shadow	: Disabled
Quick Power On Self Test	: Enabled	D8000-DBFFF Shadow	: Disabled
Boot From LAN First	: Enabled	DC000-DEFFF Shadow	: Disabled
Boot Sequence	: A,C,SCSI	Cyrix 6x86/MII CPUID:	Enabled
Swap Floppy Drive	: Disabled		
Boot Up Floppy Seek	: Enabled		
Boot Up NumLock Status	: On		
Typematic Rate Setting	: Disabled		
Typematic Rate (Chars/Sec)	: 6		
Typematic Delay (Msec)	: 250	ESC : Quit	↑↓←→ : Select Item
Security Option	: Setup	F1 : Help	PU/PD/+/- : Modify
PCI/UGA Palette Snoop	: Disabled	F5 : Old Values	(Shift)F2 : Color
OS Select For DRAM > 64MB	: Non-OS2	F6 : Load BIOS Defaults	
HDD S.M.A.R.T. capability	: Disabled	F7 : Load Optimum Defaults	

CPU Host Bus Frequency *Default: 66 MHz*

This item selects the system bus frequency (front side bus frequency). The frequency is determined by the kind of processor you have installed in the system. See the documentation supplied with the processor you installed for information on what bus frequency is required, or see Appendix 2 of this manual which has data for many common socket-7 processors.

CPU Core:Bus Freq.Multiple *Default: 3.0x*

Use this item to set a multiple. The multiple times the system bus frequency 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)**.

CPU Voltage *Default: Default*

This item sets the voltage for the processor. The default value allows the processor voltage to be detected automatically.

CPU Clock Failed Reset *Default: Disabled*

If this item is enabled, and your system crashes because you have overclocked the processor, press the power button three times. This action automatically adjusts the speed of the processor to the system bus speed multiplied by two.

Virus Warning***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 Virus Warning 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***

This mainboard can be installed with external (level 2) cache memory to improve performance. Leave this item at the default value Enabled for better performance.

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: Enabled***

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 operating system from many locations including a SCSI device, a 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 Floppy Seek***Default: Enabled***

If this item is enabled, the system will check the number of tracks on any installed floppy disk drives. This is required in order to detect 360 KB floppy diskette drives. If you don't have this kind of drive, we recommend you disable this item for a faster start up.

Boot Up NumLock Status***Default: On***

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 long 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.	
HDD S.M.A.R.T. capability	Default: Disabled
SMART is an industry acronym for Self-Monitoring, Analysis and Reporting Technology. If the documentation of your drive states that SMART is supported, you can enable this item.	
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.	
K6 Write Allocate	Default: Enabled
If you are using an AMD CPU, you can improve performance by enabling this item.	
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.	
Cyrix 6x86/MII CPUID	Default: Enabled
The Cyrix 6x86 and MII series of processors are installed with a unique processor identification number which can be used to verify internet communications, e-commerce transactions, and so on. Use this item to turn the identification number on or off.	

Chipset Features Setup Option

This option displays a table of items that define critical timing parameters of the mainboard components including the CPU, the memory, and the system logic. As a general rule, 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.

ROM PCI/ISA BIOS (P5SS-ML)
CHIPSET FEATURES SETUP
AWARD SOFTWARE, INC.

Auto Configuration	: Enabled	AGP Aperture Size	: 64MB
Refresh Rate Control	: 15.6us	System BIOS Cacheable	: Disabled
Ref/Act Command Delay	: 6T	Video BIOS Cacheable	: Enabled
Refresh Queue Depth	: 12	Memory Hole at 15M-16M	: Disabled
RAS Precharge Time	: 5T	UGA Shared Memory Size	: 4 MB
RAS to CAS Delay	: 4T	UGA Memory Clock (MHz)	: 66
ISA Bus Clock Frequency	: PCICLK/4	DRAM Controller 1 T WR	: Disabled
Starting Point of Paging	: 2T	DRAM Controller 1 T RD	: Enabled
MA# Enable	: Enabled	PCI Post Write Buffer	: Disabled
L2 Cache Burst RD Cycle	: Delay 1 T	PCI Delayed Transaction	: Disabled
Asyn/Sync Mode CPU/DRAM	: Synchronous	Auto Detect DIMM/PCI Clk	: Enabled
SDRAM CAS Latency	: 3T	Spread Spectrum	: Disabled
SDRAM WR Retire Rate	: X-2-2-2		
DRAM Opt RAS Precharge	: Enabled	ESC : Quit	↑↓←→ : Select Item
PCI Peer Concurrency	: Enabled	F1 : Help	PU/PD/+/- : Modify
Read Prefetch Memory RD	: Enabled	F5 : Old Values (Shift)	F2 : Color
Assert TRDY After Prefet	: 2 Qws	F6 : Load BIOS Defaults	
CPU to PCI Burst Mem. WR	: Enabled	F7 : Load Optimum Defaults	
CPU to PCI Post Write	: Enabled		
Linear Mode SRAM Support	: Disabled		

Auto Configuration **Default: Enabled**

Leave this item at the default value enabled. Auto configuration installs preset default values for many of the timing parameters of your system.

Refresh Rate Control **Default: 15.6us** **Ref/Act Command Delay** **Default: 6T** **Refresh Queue Depth** **Default: 12**

These items define the timing and method that the system uses to refresh the DRAM memory. We recommend that you leave these items at the default settings.

RAS Precharge Time: **Default: 5T**

The precharge time defines the number of clock cycles used by the Row Address Strobe (RAS) to accumulate charge for a refresh. If insufficient time is allowed, the refresh may be incomplete and data can be lost. We recommend that you leave this item at the default setting.

RAS to CAS Delay **Default: 4T**
This item defines the delay between the Row Address Strobe (RAS) and Column Address Strobe (CAS) signals. A shorter delay gives better performance and a longer delay improves stability. We recommend that you leave this item at the default value.

ISA Bus Clock Frequency **Default: PCICLK/4**
This item sets the timing for the ISA bus by dividing the frequency of the PCI bus. The PCI bus is usually set to 33 MHz, and we recommend that you divide this by four to set the ISA bus frequency.

Starting Point of Paging **Default: 2T**
This item controls the start timing of memory paging operations. We recommend that you leave this item at the default setting.

NA# Enable **Default: Enabled**
This item enables pipelining so that the chipset can signal the CPU for new memory addresses before all the data transfers for the current cycle are complete. We recommend that you leave this item disabled.

L2 cache Burst RD Cycle **Default: Delay 1 T**
This item determines the burst mode timing for the level 2 cache. Leave this item at the default value.

Asyn/Sync Mode CPU/DRAM **Default: Synchronous**
This item determines if asynchronous or synchronous timing is used between the CPU and memory. Leave this item at the default value.

SDRAM CAS Latency **Default: 3T**
SDRAM WR Retire Rate **Default: X-2-2-2**
These items define the timing for SDRAM memory. Leave these items at the default value.

DRAM Opt RAS Precharge **Default: Enabled**
This item defines the precharge time for the Row Address Strobe for DRAM. Leave this item at the default value.

PCI Peer Concurrency **Default: Enabled**
Leave this item at the default value Enabled.

Read Prefetch Memory RD **Default: Enabled**
When this item is enabled, the system is allowed to prefetch the next read instruction and initiate the next process. Leave this item at the default value enabled for better performance.

Assert TRDY After Prefet **Default: 2 QWs**
Leave this item at the default value.

CPU to PCI Burst Mem. WR **Default: Enabled**
When this item is enabled, the system can assemble long PCI bursts from data held in buffers. Leave this item at the default value enabled for better performance.

CPU to PCI Post Write **Default: Enabled**

When this item is enabled, writes from the CPU to the PCI bus are buffered to compensate for the different speeds of the CPU and PCI buses. Leave this item at the default value enabled.

Linear Mode SDRAM Support **Default: Disabled**

Select Enabled if your system is installed with a processor that require linear mode, for example the Cyrix M1/M2 series.

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 dedicated for graphics memory.

System BIOS Cacheable **Default: Disabled**

Video BIOS Cacheable **Default: Enabled**

These two items allow the system and video BIOS to be cached for faster performance. We recommend that you leave these items at the default values.

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

This item can be used to reserve memory space for some ISA cards that require it. We recommend that you leave this item at the default value Disabled.

VGA Shared Memory Size **Default: 4 MB**

This system uses a shared memory architecture which allows the graphics system to share some of the main memory. Use this item to define the size of the shared graphics memory.

VGA Memory Clock **Default: 66**

This item sets the speed of the VGA memory clock. Leave this item at the default value.

DRAM Controller 1 T WR **Default: Disabled**

DRAM Controller 1 T RD **Default: Enabled**

These items define timing parameters for installed DRAM. Leave these items at the default values.

PCI Post Write Buffer **Default: Disabled**

PCI Delayed Transaction **Default: Disabled**

These items define if the chipset can use a buffer for posted writes, and if delayed transaction cycles are supported. Leave these items at the default values disabled.

Auto Detect DIMM/PCI Clk **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 or PCI slots which are unoccupied.

Spread Spectrum**Default: Disabled**

When this item is enabled, it can significantly reduce the EMI (electromagnetic interference) that your system generates by modulating the extreme values of the clock generator pulses. Enabling this item might cause problems with timing-critical devices such as SCSI adapters. We recommend that you leave this item at the default value disabled.

Power Management Setup Option

This option displays a table of items which lets you control the power management of the system. Modern operating systems take care of much of the routine power management. This system supports three levels of 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.

The power management in the setup utility lets you specify a timeout for each of the power-saving modes, and a timeout for a hard disk drive power down. A timeout, means a period of time when the system (or the hard disk drive) is inactive. If the timeout completes, the system power-saving mode will execute, or the hard disk drive will power down.

You can resume from the power-saving modes by carrying out any of the activities which are enabled in the list ****PM Events****.

ROM PCI/ISA BIOS (P5SS-ML)
POWER MANAGEMENT SETUP
AWARD SOFTWARE, INC.

Power Management : User Define	IRQ [3-7,9-15],NMI : Enabled
Video Off Option : Susp,Stby -> Off	IRQ 8 Break Suspend : Disabled
Video Off Method : DPMS Supported	Power Button Over Ride : Instant Off
Switch Function : Break/Wake	Lan/Ring Wake Up : Enabled
Doze Speed (div by): 2/8	Modem WakeUp : Enabled
Stdby Speed(div by): 1/8	PME# WakeUp : Disabled
MODEM Use IRQ : 3	KB Power ON Password : Enter
Hot Key Function As: Power On	Power Up by Alarm : Disabled
AC Resume : Disabled	
** PM Timers **	
HDD Off After : Disabled	
Doze Mode : Disabled	
Standby Mode : Disabled	
Suspend Mode : Disabled	
** PM Events **	
HDD Ports Activity : Enabled	ESC : Quit ↑↓←→ : Select Item
COM Ports Activity : Enabled	F1 : Help PU/PD/+/- : Modify
LPT Ports Activity : Enabled	F5 : Old Values (Shift)F2 : Color
UGA Activity : Enabled	F6 : Load BIOS Defaults
	F7 : Load Optimum Defaults

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 timeout of 10 seconds. If this item is set to Min Saving, doze, standby, and suspend mode will occur after a timeout of 4 hours. If the item is set to User Define, you can insert your own timeouts for the power-saving modes.

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

This option defines which level of power-saving mode is required in order 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 Support (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 defines the clock speed of the CPU when the system is in the Doze power saving mode. As a default, the CPU will run at a quarter of its rated speed.

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

This item defines the clock speed of the CPU when the system is in the Standby power saving mode. As a default, the CPU will run at a 1/8 of its rated speed.

Modem Use IRQ**Default: 3**

If you would like an incoming call on a 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.

Hot Key Function As:**Default: Power On**

Your system may be programmed to turn on or off in response to pressing hot keys on the keyboard. This item lets you select if the system responds with a power on or off or goes into suspend mode. The hot keys to press are CTRL + ALT + Backspace.

AC Resume**Default: Disabled**

When this item is enabled, the system will wake up or power up when the AC power supply is reconnected to the system.

HDD Off After**Default: Disabled**

You can use this item to set a timeout for a hard disk powerdown. You can set a time from 1 to 15 minutes. If the hard disk is inactive for the time specified, it will power down. It will automatically return to full power when it is next accessed.

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.

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.

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.

HDD Ports Activity **Default: Enabled**
When this item is enabled, any activity on the disk drives connected to the system can reset power-saving mode timeouts to zero, or resume the system from a power saving mode.

COM Ports Activity **Default: Enabled**
When this item is enabled, any transmission through the serial ports connected to the system can reset power-saving mode timeouts to zero, or resume the system from a power saving mode.

LPT Ports Activity **Default: Enabled**
When this item is enabled, any transmission through the parallel ports connected to the system can reset power-saving mode timeouts to zero, or resume the system from a power saving mode.

VGA Activity **Default: Enabled**
When this item is enabled, any activity on the graphics system can reset power-saving mode timeouts to zero, or resume the system from a power saving mode.

IRQ [3-7,9-15],NMI **Default: Enabled**
When this item is enabled, any activity through the system interrupt request lines 3-7, 9-15 and the non-masked interrupt can reset power-saving mode timeouts to zero, 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**
Under ACPI (advanced configuration and power interface) the system can be turned off mechanically (by the power button) or it can undergo a software power off. If the system has been turned off by software, the system can be resumed by a LAN, MODEM or ALARM wake up signal. This item allows you to define a software power off using the power button. If the value is set to Instant-Off, the power button will automatically cause a software power off. If the value is set to Delay 4 Sec. the power button must be held down for a full four seconds to cause a software power off.

Lan/Ring Wake Up***Default: Enabled***

If this item is enabled, the system can resume from a power-saving mode or software power down when there is incoming traffic to an installed LAN network adapter.

Modem WakeUp***Default: Enabled***

If this item is enabled, the system can resume from a power-saving mode or software power down when there is an incoming call to an installed modem card.

PME# WakeUp***Default: Disabled***

If this item is enabled, then the Power Management Events on this page that are enabled, can resume the system from a power-saving mode or a software power down. If this item is disabled, the Power Management Events on this page that are enabled can only reset the timeout counters.

KB Power ON Password***Default: Enter***

If your system is installed with a keyboard power on capability, this item lets you add a password that must be typed on the keyboard in order to turn on the power.

Power Up by Alarm***Default: Disabled***

If you enable this item, new fields appear which let you set a date and time for an alarm that can resume the system from a power saving mode or a software power off.

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. If you have not installed a riser card with expansion slots, you do not need to make any changes to this option.

ROM PCI/ISA BIOS (P5SS-ML)
PNP/PCI CONFIGURATION
AWARD SOFTWARE, INC.

PNP OS Installed : No	PCI IRQ Activated By : Level
Resources Controlled By : Manual	Assign IRQ For USB : Enabled
Reset Configuration Data : Disabled	
IRQ-3 assigned to : PCI/ISA PnP	
IRQ-4 assigned to : PCI/ISA PnP	
IRQ-5 assigned to : Legacy ISA	
IRQ-7 assigned to : PCI/ISA PnP	
IRQ-9 assigned to : PCI/ISA PnP	
IRQ-10 assigned to : PCI/ISA PnP	
IRQ-11 assigned to : PCI/ISA PnP	
IRQ-12 assigned to : PCI/ISA PnP	
IRQ-14 assigned to : PCI/ISA PnP	
IRQ-15 assigned to : PCI/ISA PnP	
DMA-0 assigned to : PCI/ISA PnP	
DMA-1 assigned to : PCI/ISA PnP	ESC : Quit ↑↓→← : Select Item
DMA-3 assigned to : PCI/ISA PnP	F1 : Help PU/PD/+/- : Modify
DMA-5 assigned to : PCI/ISA PnP	F5 : Old Values (Shift)F2 : Color
DMA-6 assigned to : PCI/ISA PnP	F6 : Load BIOS Defaults
DMA-7 assigned to : PCI/ISA PnP	F7 : Load Optimum Defaults

PNP OS Installed

Default: No

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

Resources Controlled By

Default: Manual

This item is set at the default Manual. If you find that you cannot get a particular expansion card to work properly, you might be able to solve the problem by setting this item to Manual, and defining the characteristics of the card in the new items which appear.

When this item is set 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 will be cleared from memory. New updated configuration data will be created.

PCI IRQ Activated By ***Default: Level***

This item defines the signal that is used by the PCI device to trigger an interrupt. Unless you have a PCI device which you know uses an edge signal, leave this item at the default value Level.

Assign IRQ For USB ***Default: Enabled***

When this item is enabled, the system can assign an IRQ to devices connected on the USB port.

Load BIOS Defaults Option

This option displays a dialog box which allows you to install BIOS defaults for all appropriate items in the whole setup utility. Press the **Y** key and then the **Enter** key to install the defaults. Press the **N** key and then **Enter** to not install the defaults. The BIOS defaults do not place great demands on the system and are generally very stable. If your system is not functioning correctly, you might like to install 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 Optimum Settings Option

This option displays a dialog box which allows you to install optimum defaults for all appropriate items in the whole setup utility. Press the **Y** key and then the **Enter** key to install the defaults. Press the **N** key and then **Enter** to not install the defaults. The optimum defaults can place some demands on the system that are greater than the performance level of the components, such as the processor and the memory. You could cause fatal errors or recurring instability if you install the setup defaults when your hardware does not support it. 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.

ROM PCI/ISA BIOS (P55S-ML)
INTEGRATED PERIPHERALS
AWARD SOFTWARE, INC.

Internal PCI/IDE : Both	Parallel Port Mode : SPP
IDE Primary Master PIO : Auto	PS/2 mouse function : Enabled
IDE Primary Slave PIO : Auto	USB Controller : Enabled
IDE Secondary Master PIO: Auto	USB Keyboard Support : Disabled
IDE Secondary Slave PIO: Auto	Init Display First : PCI Slot
Primary Master UltraDMA: Auto	Current CPU Temperature :
Primary Slave UltraDMA: Auto	Current FAN Speed :
Secondary MasterUltraDMA: Auto	+12(V) +5 (V)
Secondary Slave UltraDMA: Auto	1/0(V) CPU(V)
IDE Burst Mode : Enabled	
IDE Data Port Post Write: Disabled	
IDE HDD Block Mode : Enabled	
Onboard FDC Controller : Enabled	
Onboard Serial Port 1 : 3F8/IRQ4	ESC : Quit ↑↓←→ : Select Item
Onboard Serial Port 2 : 2F8/IRQ3	F1 : Help PU/PD/+/- : Modify
IR Address Select : Disable	F5 : Old Values (Shift)F2 : Color
	F6 : Load BIOS Defaults
Onboard Parallel Port : 378/IRQ7	F7 : Load Optimum Defaults

Internal PCI/IDE

Default: Both

This item lets you enable or disable the primary and secondary PCI/IDE channels that are integrated into this mainboard. Leave this item at the default value unless you intend using other IDE channels installed on an expansion card.

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.

Primary Master UltraDMA	Default: Auto
Primary Slave UltraDMA	Default: Auto
Secondary Master UltraDMA	Default: Auto
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: Enabled
-----------------------	-------------------------

Burst mode transfers can improve the access to IDE devices. Enable this item for improved performance. If your IDE drives cannot support high performance, or if you feel that too many disk errors are being generated, disable this item.

IDE Data Port Post Write	Default: Disabled
---------------------------------	--------------------------

If this item is enabled, it speeds up the processing of drive reads and writes, but it can cause instability in IDE subsystems that cannot support such fast performance. If you are getting disk drive errors, set this item to disabled.

IDE HDD Block Mode	Default: Enabled
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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
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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).

Onboard Serial Port 2	Default: 2F8/IRQ3
------------------------------	--------------------------

This item lets you disable the built-in serial port 2, or enable it by assigning an I/O address and an Interrupt Request Line (IRQ).

IR Address Select	Default: Disabled
--------------------------	--------------------------

If you have installed an optional infrared port, you must change the setting of this item to one of the available addresses. Two new items then appear. Use *IR Mode* to select the mode of the IR port. Use *IR IRQ Select* to assign an IRQ to the IR port.

Onboard Parallel Port	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).

Onboard Parallel Mode**Default: SPP**

This item defines the operation of the parallel port. As a default it is 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. If you change the parallel port to ECP, one new item appears to let you define a DMA channel for the ECP port.

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

This item lets you disable the PS/2 mouse connector on this system. You should disable this item if you are using a mouse or pointing device which connects through a serial port.

USB Controller**Default: Enabled**

This item lets you enable or disable the USB ports that are integrated into this mainboard.

USB Keyboard Support**Default: Disabled**

Enable this item if you are using a keyboard connected through the USB interface.

Init Display First**Default: PCI Slot**

Use this item to define if your graphics adapter is installed in one of the PCI slots, or if you have installed an AGP graphics adapter into the AGP slot.

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 Settings

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 is 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 software for this mainboard is stored in the **P5SS-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

CM18X38 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

- NT:** This folder has Ultra DMA 33/66 drivers for systems that are running Windows NT 4.0
- Win9x:** This folder has Ultra DMA 33/66 drivers for systems that are running Windows 95 or 98

P5SS-ML Folder

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

- VGA:** Software and drivers for the onboard graphics system for various Windows versions
 - **Win9x:** This sub-folder has software and drivers for the onboard graphics adapter if you are running Windows 95 or 98.
 - **Winnt40:** This sub-folder has software and drivers for the onboard graphics adapter if you are running Windows NT Ver. 4.0.
 - **Win2000:** This sub-folder has software and drivers for the onboard graphics adapter if you are running Windows 2000
- MONITOR :** Hardware monitoring software for Windows 95/98, and Windows NT4.0/5.0
- SiS_irq:** This folder has PCI IRQ miniport drivers only for use in systems that are running Windows 95 OSR2.1
- AUDIO, IDE:** These folders are empty. A readme file directs you to an 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 can either use the **AWD66.EXE** or the **AWD712.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_ITE_GAME\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

Win9x Folder

If you are running Windows 95 or 98, simply log on to this folder and run SETUP.EXE. Follow the prompts of the installation program.

NT

If you are running Windows NT 4.0, install the UDMA drivers as follows:

1. Enter Windows NT 4.0 System.
2. Double click the *My Computer* icon on the Desktop.
3. Double click the *Control Panel* icon in *My Computer*.
4. Double click the *SCSI Adapters* icon in *Control Panel*.
5. Click on the folder tab labeled *Drivers* in *SCSI Adapters*. The currently installed SCSI adapter drivers will be listed in the Drivers menu.
6. The display should list the default ATAPI driver, *IDE CD-ROM (ATAPI 1.2)/Dual-channel PCI IDE Controller*.
7. Select *Remove* to remove the driver, and then click *Yes* in the *Remove* window.
8. Select *Add...* to add a new driver.
9. Insert the software support CD into the CD-ROM drive, and click *Have Disk* in the *Install Driver* window.
10. Browse to the SiS_IDE\NT folder on the support CD.
11. Choose *SIS PCI MASTER IDE Miniport DRIVER* in *Install Driver* and click *OK*.
12. Change the path to the correct location and click *Continue* in *Windows NT Setup* window.
13. Click *Yes* to restart the computer in the *System Settings Change* window.

Mainboard (P5SS-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. Three folders contain software that you can install.

VGA Sub-Folder

Installs the graphics drivers and software for systems running Windows 95, 98 or 2000. Run the program SETUP.EXE and follow the prompts of the installation program to select which operating system you are running.

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 a PCI IRQ miniport driver. However, this software is only required if your system is running the legacy operating system Windows 95 OSR2.1. To find out which version of Windows 95 your system is running, use Windows Registry Editor REGEDIT to browse to

HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion

If the value of VersionNumber is either 4.03.1212 or 4.03.1214 you can install the driver in this folder.

Appendix 1: Quick Jumper Setting Reference

JP1: Keyboard power on jumper

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

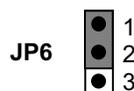
Function	Jumper Cap
Enable keyboard power on	Short pins 1-2
Disable keyboard power on	Short pins 2-3



Jumper JP6: Clear CMOS Memory

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



Jumper JP17: LAN Enable/disable Selector

Use this jumper to enable or disable the LAN adapter integrated on the mainboard.

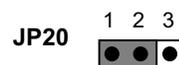
Function	Jumper Cap
Enable LAN	Short pins 1-2
Disable LAN	Short pins 2-3



Jumper JP20: LAN Power Selector

Use this 3-pin jumper to select the power setting for the onboard LAN adapter

Function	Jumper Cap
5 Volts	Short pins 1-2
SB 5 Volts	Short pins 2-3



Jumper JP11: 8738 Audio Chip Enable/disable

Use this 2-pin jumper to enable or disable the audio system integrated on this mainboard.

Function	Jumper Cap	
Enable audio	Open pins 1-2	JP11 
Disable audio	Short pins 1-2	

Note: If you disable the onboard audio system, you cannot use the onboard fax/modem.

Jumper JP25: Fax/modem Enable/disable

Use this 2-pin jumper to enable or disable the onboard fax/modem.

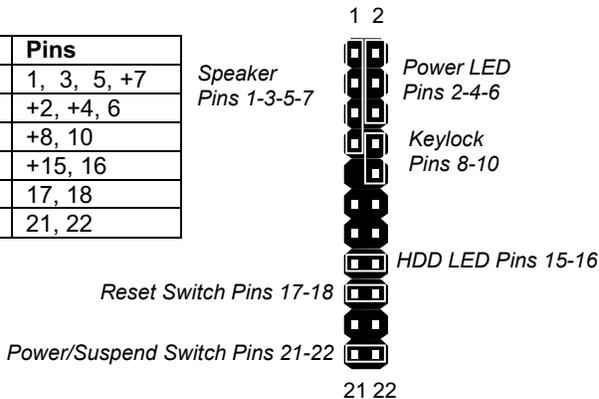
Function	Jumper Cap	
Enable modem	Open pins 1-2	JP25 
Disable modem	Short pins 1-2	

Note: If you have disabled the onboard audio system with jumper JP11, the fax/modem will not function even if it is enabled.

J9 Panel Connector

The mainboard J9 PANEL 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.

Function	Pins
Speaker	1, 3, 5, +7
Power Indicator	+2, +4, 6
Keylock	+8, 10
Hard Disk Indicator	+15, 16
Reset Switch	17, 18
Power Switch	21, 22



Appendix 2: CPU Settings Table

The table below shows the parameters for a range of socket-7 CPUs
Intel Pentium CPUs (including MMX)

<i>Internal Clock MHz</i>	<i>External Clock MHz</i>	<i>Clock Multiplier</i>
133	66	X 2.0
166	66	X 2.5
200	66	X 3.0
233	66	X 3.5

Cyrix/IBM CPUs 6X86 & 6X86L Series

<i>Internal Clock MHz</i>	<i>External Clock MHz</i>	<i>Clock Multiplier</i>
P166+ (133)	66	X 2.0
P200+ (150)	75	X 2.0

Cyrix/IBM CPUs MII/6X86MX Series

<i>Internal Clock MHz</i>	<i>External Clock MHz</i>	<i>Clock Multiplier</i>
PR166 (133)	66	X 2.0
PR200 (166)	66	X 2.5
PR233 (200)	66	X 3.0
PR200 (150)	75	X 2.0
PR233 (188)	75	X 2.5
PR300 (225)	75	X 3.0
PR233 (166)	83	X 2.0
PR266 (208)	83	X 2.5
PR300 (233)	66	X 3.5
PR333(250)	83	X3.0
PR366(250)	100	X2.5

AMD K5 Series

<i>Internal Clock MHz</i>	<i>External Clock MHz</i>	<i>Clock Multiplier</i>
PR133 (133)	66	X 2.0
PR166 (166)	66	X 2.5

AMD K6 Series

<i>Internal Clock MHz</i>	<i>External Clock MHz</i>	<i>Clock Multiplier</i>
PR166 (166)	66	X 2.5
PR200 (200)	66	X 3.0
PR233 (233)	66	X 3.5
PR266 (266)	66	X 4.0
PR300 (300)	66	X 4.5

AMD K6/2 Series

<i>Internal Clock MHz</i>	<i>External Clock MHz</i>	<i>Clock Multiplier</i>
PR266(266)	66	X 4.0
PR300(300)	66	X 4.5
PR300 (300)	100	X 3.0
PR333 (333)	66	X 5.0
PR333 (333)	95	X 3.5
PR350(350)	100	X 3.5

PR366(366)	66	X 5.5
PR380(380)	95	X 4.0
PR400(400)	100	X4.0
PR450(450)	100	X4.5
PR475(475)	95	X5.0

AMD K6 III Series

<i>Internal Clock MHz</i>	<i>External Clock MHz</i>	<i>Clock Multiplier</i>
PR400(400)	100	X 4.0
PR450(450)	100	X 4.5

Notes on the Table

- The internal clock speed of the CPU is supposed to be fixed, so always treat the other two factors, the external clock and the clock multiplier as the variable items which have to be changed to produce the desired internal clock. The CPU manufacturer or vendor should provide information on the settings of these items.
- Cyrix, IBM, and AMD all make Pentium-class CPUs. Sometimes, when they name a CPU, they do not use the actual internal clock speed. Instead, they name the CPU according to its performance, using standard Pentium CPUs as a benchmark. Therefore the Cyrix P166 is rated as 166 MHz performance, but its actual internal clock is 133 MHz. For all non-Intel CPUs in the table, the name of the CPU is followed by a figure in brackets. The figure in brackets is the true internal clock speed of the CPU, and it is not always the same as the figure in the name of the CPU. Always use the figure in brackets when calculating the CPU settings.
- The CPU settings table will be revised at every opportunity. If you have a new CPU which does not appear on the table, check with the manufacturer or vendor for the CPU settings information.

Appendix 3: Glossary

AGP	Stands for Accelerated Graphics Port. The AGP interface provides direct access to main memory so that an AGP graphics adapter can store large texture files in main memory when rendering complex 3D video images.
BIOS	Stands for Basic Input Output System. A BIOS chip provides the basic communications between all the separate components of a modern PC
CD-ROM	Stands for Compact Disc-Read Only Memory. That is a CD-ROM on which the data is fixed and cannot be overwritten or changed.
CPU	Stands for Central Processing Unit. That is, the microprocessor that runs the system.
DIMM	Stands for Dual In-line Memory Module. Computer memory is packaged in this way for easy insertion into a DIMM slot on PC motherboards.
DVD	Stands for Digital Video/Versatile Disc. DVD is the same physical size as a CD-ROM but it holds much more data. DVDs are mostly used to distribute full length feature films with multiple language soundtracks.
FTP	Stands for File Transfer Protocol. The FTP protocol is an efficient means of transferring data over the internet without the graphics overhead of the world wide web.
HTML	Stands for HyperText Mark-up Language. All web sites and many other online documents are written with HTML codes so that they can be universally recognized by HTML web browsers.
IDE	Stands for Integrated Device Electronic. Most personal computers use IDE hard disks and CD-ROM drives because they deliver good performance without high cost.
ISA	Stands for Industry Standard Architecture. This 8/16-bit bus is very nearly obsolete and has been replaced by the 32-bit PCI bus.

LAN	Stand for Local Area Network, that is, a collection of PCs all connected with Ethernet cables.
LED	Stands for Light Emitting Diode. LEDs are used as indicator lights on most computer systems.
NTSC	Stands for National Television Standards Committee/ NTSC is the television video format used principally in the USA, Japan, and Central & Latin America. It uses 525 lines of dots to create each picture frame.
OS	Stands for Operating System. The operating system is the basic software of a computer on top of which you can install applications that are designed to run on that particular OS. Popular OSs include Windows, Windows NT, Unix, and Linux.
PCI	Stands for Peripheral Components Interface. The 32-bit PCI bus has replaced the old ISA bus as the standard interface for adding peripheral items to personal computers
PnP	Stands for Plug and Play. The plug and play initiative attempts to make computer peripherals self-configuring so that they work automatically when they are connected to the system.
POST	Stands for Power On Self Test. Most computers carry out a POST each time they are started up to make sure that everything is working properly
PPGA	Stands for Plastic Pin Grid Array. This describes the square plastic packaging used by many microprocessors including the Celeron, the Pentium-MMX, the AMD K5/K6, and etc.
RAM	Stands for Random Access Memory. That is the memory installed in computers which stores data as long as the computer is turned on and the memory is refreshed with an electric current.

ROM	Stands for Read Only Memory. ROM implies that the data stored in the ROM is fixed and cannot be altered. It does need to be refreshed with an electrical current so the data stays intact even if the device is turned off.
SDRAM	Stands for Synchronous Dynamic Random Access Memory. SDRAM is the most popular type of memory for current personal computers
SEPP	Stands for Single Edge Processor Package. This describes the packaging used by the Celeron processor that is designed to fit the Slot1 processor slot.
SLOT1	Slot1 is a special slot on some mainboards that allows for the installation of Slot1 processor cartridges such as the SEPP Celeron, the Pentium-II and the Pentium-III.
SOCKET-370	Socket-370 is a special socket on some mainboards that allows for the installation of a PPGA Celeron processor
SOCKET-7	Socket-7 is a special socket on some mainboard that allows for the installation of socket-7 processors such as the Pentium-MMX, the AMD K6/K7, the Cyrix M1/M2 and so on.
SPDIF	Stands for Sony Phillips Digital InterFace. SPDIF is a 24-bit digital interface for audio systems developed by Sony and Phillips.
USB	Stands for Universal Serial Bus. The USB bus is an attempt to create a new interface to the PC that provides good throughput without high cost. The USB bus allows many devices to connect to a single USB port.
WWW	Stands for World Wide Web. The World Wide Web is a massive collection of inter-linked internet sites that can be accessed with a web browser.

Addendum

Note 1:

Make sure that “JP6” is in Normal Operation Status (Short pins 1-2) before you boot up your system.

Note 2:

We want to inform you that the SPDIF header on the board is an optional item. If you get the board that does not have the SPDIF header that means your board does not provide the SPDIF function.

Note 3:

Please notice that the correct jumper setting for JP1 is as follows:

JP1: Keyboard power on jumper

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

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

