
Moniputer

Mainboard User's Manual





Version 1.0

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In This Section:

About This Manual

Package Contents

Component Information



The Moniputer Mainboard

This manual contains the information you'll need to use, reconfigure or install upgrades on your Moniputer mainboard. Please take a moment to familiarize yourself with the design and organization of the manual.

Manual Features

This manual uses some icons to call your attention to important information. The icons appear in the sidebar and represent the following:

- Important information
- A recommendation or good idea
- A warning or bad idea
- Danger warning

If You Have The Printed Manual

Obviously it is not possible to provide the additional navigation features in print form. In order that you can still find things with relative ease, where appropriate we have noted the locations of additional information referred to.

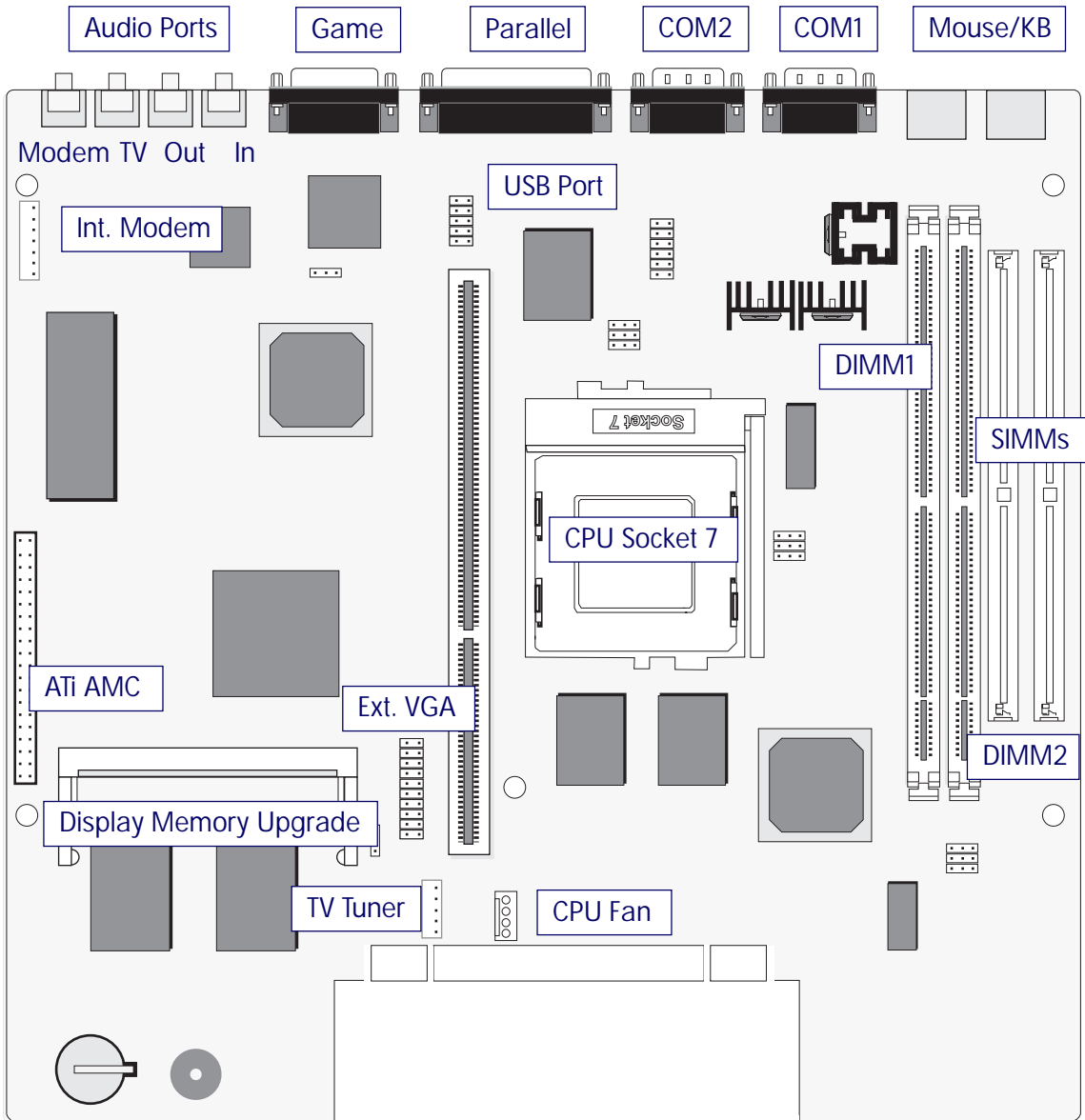
Mainboard Layout

The illustration at right shows the connectors, sockets and ports on the mainboard.

Mainboard Features

The Moniputer mainboard is a highly integrated design that mounts on a tray and slides into the back of the computer. The forward edge of the mainboard has a connector that plugs into a secondary board inside the computer that has the internal power and peripheral connectors on it. The mainboard includes the following features onboard:

- Socket 7 CPU socket supports Pentium and compatible CPUs up to 233MHz
- Intel 82439TX and 82371AB (PIIX4) chipsets
- 256KB or 512KB Pipeline Burst Level 2 cache
- Memory module sockets support up to 256MB:
 - 2 SIMM sockets
 - 2 DIMM sockets
- Onboard Audio
 - Crystal CS4237B audio chip
 - Supports 'Surround-sound' via audio driver
 - Secondary board connections to internal speakers
- Onboard Video Display
 - ATI Rage II+ 3D video chip
 - 2MB display memory standard, upgrade to 4MB
 - Display drivers for multiple Operating Systems
- Internal Peripheral Support:
 - Hard Disk Drive
 - CD-ROM Drive
 - Floppy Disk Drive
- Riser Card Expansion Slots
 - Two PCI 2.1-compliant PCI slots
 - Two 16-bit ISA slots
 - One 8-bit ISA slot



Component Information

This section is a brief description of some of the components on the mainboard that you might need to know about if you want to upgrade or change your system configuration. Even if you are not going to do either of these you may want to review this section.

The mainboard is mounted on a tray that slides into the rear of the Moniputer. It integrates many features onto the board including a variety of external ports.

Expansion Cards & Slots

The mainboard has several expansion slots for system expansion or 'add-on' cards. Three are ISA slots, the other two are PCI slots. When you get an expansion card, it must use one of these to connect to the computer. The slots are on a "riser card" that plugs into the expansion slot connector on the mainboard.

The ISA expansion slots are a legacy of the original IBM PC/AT design. The two longer connectors 16-bit slots and the short one mounted on the reverse side of the card is an 8-bit slot. They all run at a moderate bus speed. There are many kinds of expansion cards that use this slot design to connect to the computer.

PCI slots are the current high-speed 32-bit standard for system expansion cards. They operate at a faster bus speed and have a greater data throughput than ISA cards.

Expansion cards often make use of system resources, which requires managing the system resource configuration. Most newer expansion cards support the 'Plug and Play' standard that allows an Operating System like Windows95 to automatically detect them and configure system resources as needed. Some older ISA designs may not support this standard and may therefore require manual configuration. You should consult the specifications or documentation for a card to determine if this is the case and what needs do be done to properly configure the card.

Memory Sockets & Modules

There are sockets on the mainboard for both system and video display memory.

System Memory Sockets

There are four system memory module sockets on the mainboard, two for SIMM modules and two for DIMM modules.

The two SIMM sockets are for 72-pin SIMM memory modules. SIMM modules can be either Fast Page Mode or EDO DRAM and must be installed in pairs.

The two DIMM sockets are for 168-pin 3.3-volt unbuffered DIMM memory modules. The sockets function independently of each other.

This mainboard has a flexible memory design that allows the use of a variety of memory options up to a total of 256MB. There is more information about this in Adding System Memory section of Section 3: Reconfiguring The Mainboard.

Video Display Memory Socket

There is 2MB of video display memory mounted on the mainboard. The display memory can be upgraded to 4MB by installing an SGRAM memory module in the display memory upgrade socket on the mainboard. See Section 3 for more information.

CPU Socket & CPU

The Socket 7 CPU socket supports the full range of Pentium®-class CPUs including MMX Pentiums®. Installing a CPU in the socket is easy. The lever at the side of the socket latches the CPU in place when it is down and releases it when raised.

If you want to install a CPU upgrade or are installing a CPU on the board for the first time, please refer to 'Installing a CPU' in Section 3: Reconfiguring Your Mainboard.

Port & Controller Connections

There are several ports and connectors on the Moniputer mainboard. Some are external ports and others are internal connectors that connect to other parts of the computer or internal options.

External Ports

This mainboard has two Serial ports, a Parallel port, a Game port for connecting a Joystick, PS/2-type keyboard and mouse ports and several audio ports built onto the board. The audio ports include Line-In and Line-Out ports for the onboard sound card and Line-In ports for an external modem and an external TV tuner. The Line-In ports direct audio to the Moniputer's built-in speakers. These external ports are all accessible at the rear of the computer.

Internal Connectors

There are also several connectors built onto the mainboard, including audio connectors for an internal modem and TV tuner and a power connector for the CPU cooling fan.

Details about these connectors are in Section 4: Reference Information.

In This Section:

Software User's Manual

System User's Guide

Using Your System

This section describes where to find information on and instructions for using your computer. The documentation is divided into three volumes:

- Mainboard User's Manual
- Software User's Manual
- System User's Guide

This manual, the Mainboard User's Manual, covers the mainboard hardware specifications and settings and refers you to the other two manuals for installation and operating instructions.

Software User's Manual

The Software User's Manual explains how to install, setup and use the various software drivers that come with the computer. These include drivers for the ATi Rage II+ onboard display card, the onboard Crystal audio card and various IDE, mouse and CD-ROM drivers. It also has information on using the Flash utility to update the system BIOS.

When you get your computer, it will most likely already be set up for use. If you want to change the software configuration or at some point need to re-install some software, refer to this manual for information and instructions.

System User's Guide

The System User's Guide explains how to set up and operate the computer, including a guide to all controls, ports and options.

The guide explains how to connect external peripheral devices to the computer and use the Infrared wireless communication feature.

The guide also explains how to open the computer and upgrade the system hardware including:

- Upgrading the CPU
- Upgrading the system memory
- Installing expansion cards
- Changing the hard disk
- Adding display memory

When installing a CPU or memory upgrade you will need to refer to both this manual and the System User's Guide.

In This Section:

Adding System Memory
Installing A CPU Upgrade
Adding Display Memory
External VGA & USB Ports

Reconfiguring The Mainboard

This section has information on installing hardware upgrades on the mainboard. It covers adding system memory, upgrading the CPU, installing additional display memory and installing the optional external VGA and USB ports.

Installation procedures for adding system memory and upgrading the CPU are located in the System User's Guide. Instructions for installing a display memory upgrade and the optional ports are in this section.

For information on configuring driver software and updating the system BIOS refer to the Software User's Guide



You can not use SIMM and DIMM modules at the same time on this mainboard.

Memory Module Sockets

The figure on the next page shows the SIMM and DIMM memory module socket positions.

The SIMM sockets are labeled SIMM1 and SIMM2. You must install SIMM modules in pairs.

The DIMM sockets are at the left of the SIMM sockets.

System Memory

The Moniputer System User's Guide explains how to install additional system memory. This section explains the memory configuration options.

There are some requirements you must follow if you want to install additional system memory. There are four memory module sockets on the mainboard. Two are for 72-pin SIMM modules and form one bank, requiring that two modules must be installed at once. The other two sockets are for 168-pin DIMM sockets which function independently. **You can not use SIMMs and DIMMs at the same time.**

The Moniputer supports Fast Page Mode and EDO DRAM SIMMs and EDO and SDRAM (Synchronous DRAM) DIMMs. You can use module sizes from 8MB to 128MB, either single or double-sided. The total supported memory capacity for this mainboard is 256MB.

Some memory is already installed on the mainboard. You can tell how much by checking the configuration screen that appears when the computer is starting up.

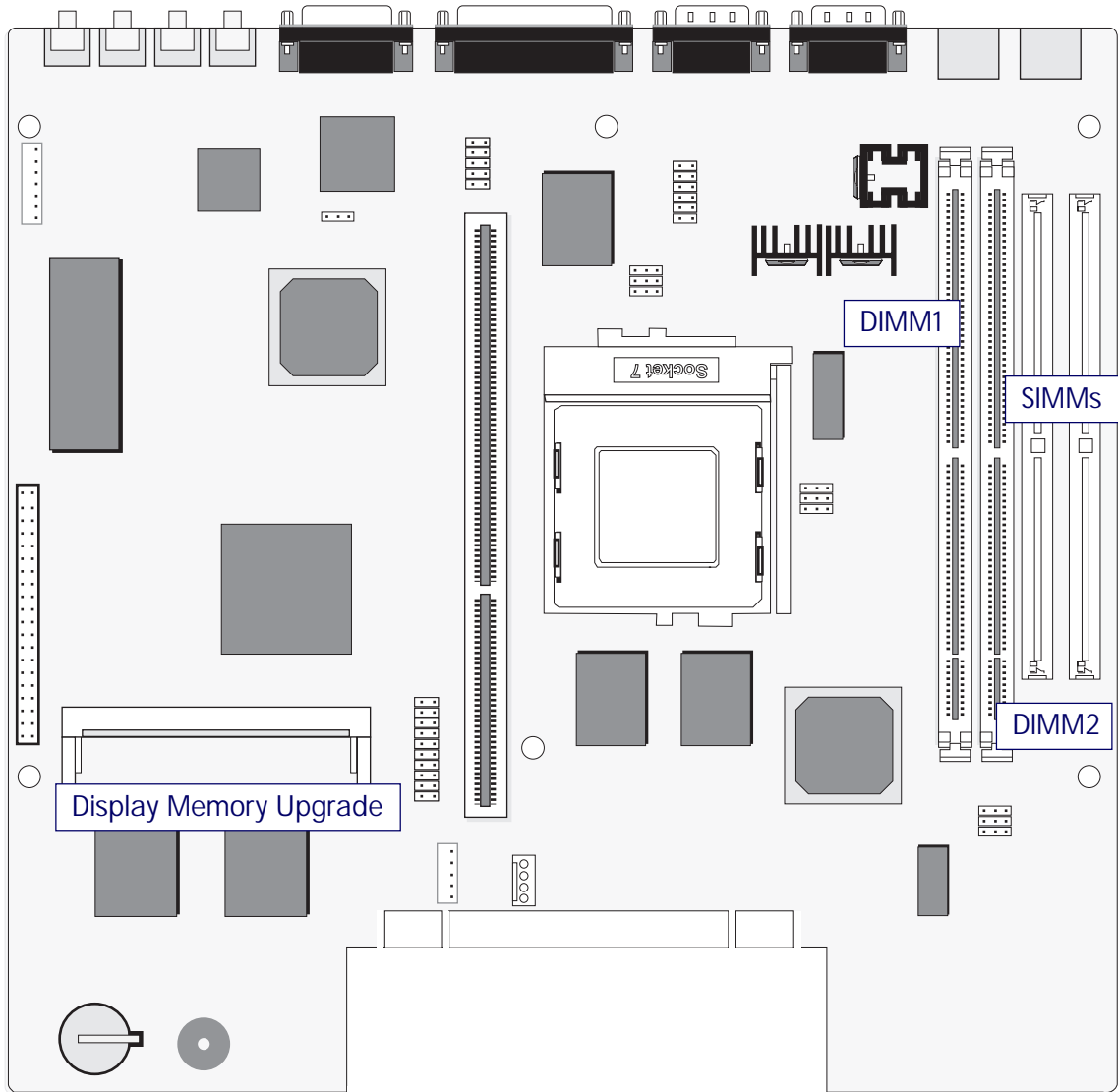
Memory Configurations

You can not install SIMMs and DIMMs at the same time on the Moniputer mainboard. Please see the System User's Guide for additional module installation instructions.

SIMM Module Configurations

You can install up to 128MB SIMM modules up as long as you follow the basic requirement of installing identical modules in both sockets, i.e.:

- Both modules must use 5 Volt DRAM
- Same module memory capacity, e.g. 16MB (MegaBytes)
- Same DRAM memory type, e.g. EDO
- Same operating speed, e.g. 60ns (nanoseconds)





Jumpers JP1, JP2 and JP3 set the voltage for the DIMM sockets. The options are 3.3-Volt and 5-Volt. Sockets for 3.3-volt unbuffered DIMM modules are installed on the board at the factory.

The manufacturer has designed a proprietary 5-Volt DIMM module that can be installed in these sockets. If such modules are factory installed at the time of manufacture, jumpers JP1, 2, and 3 will be set to the 5-Volt setting even though the DIMM sockets are for 3.3-Volt unbuffered modules.

You CAN NOT use 5-Volt and 3.3-Volt modules at the same time on this mainboard. If you want to install more memory, check the DIMM voltage setting. If ANY 5-Volt DIMMs are installed, you MUST remove them and change the JP1-3 jumpers to the 3.3-Volt setting BEFORE you install any 3.3-Volt memory upgrade.

If no proprietary modules are factory-installed, the JP1-3 settings will be for 3.3-Volt unbuffered modules.

DIMM Module Configurations

You can install any combination of module sizes as long as you follow these requirements:

- All modules must be 3.3-Volt unbuffered DRAM
- All modules should have the same operating speed, e.g. 60ns (nanoseconds)

Other than these requirements, there is no limitation on the variety of combinations, so they are not listed here. We recommend using one type of DRAM, either EDO or Synchronous. SDRAM is faster than EDO.

Note: It is possible to install more memory than the board supports. Do not install more than 256MB on this mainboard, the system will ignore additional memory.

Installing A CPU Upgrade

This section lists the setting information for installing a CPU upgrade. Please refer to the Moniputer System User's Guide for installation procedure instructions.

The Basic Procedure

To install a CPU upgrade you must set the mainboard for the CPU you are installing by doing the following:

- Set the External Clock Speed
- Set the Clock Multiplier Factor
- Set the CPU Voltage

You configure CPU settings by adjusting jumper settings on the mainboard. To do this, you will need to know some information about the CPU you plan to install. This information should be provided by the CPU vendor or by the vendor you buy the chip from. You'll need the following information:

- CPU Internal Clock Speed
- CPU Voltage

The internal clock speed is the speed the CPU operates at to process data and is the one used by CPU manufacturers to indicate the speed of the chip, for example, a 133MHz Intel Pentium®. The CPU also has an external clock speed which is the speed at which it interacts with external components.

CPU voltage may either be the same internally and externally or it may be split, depending on the CPU design. Some processors use one voltage for the 'core' (Vcore) and another for input/output (Vio).

Configuring External Clock Speed & Factor

To configure the mainboard for an upgrade CPU's internal clock speed, you have to set the external clock speed (sometimes referred to as the bus speed) and the clock factor so that the result equals the internal clock speed of the CPU you are installing. For example:

$66.6\text{MHz} [\text{external clock}] \times 2.0 [\text{clock factor}] = 133.2\text{MHz}$
or, an effective setting of 133MHz.

Since the internal clock speed the CPU is supposed to operate at is fixed, the two factors, external clock and clock factor, are the variables. The CPU manufacturer or vendor's information should tell you what these should be.

P Rated CPUs

Cyrix, IBM and AMD all make Pentium®-class CPUs that are performance rated at an Intel Pentium® equivalent speed but actually have a slower internal clock speed. This 'P' rating is used to indicate the CPU's performance rather than its internal clock speed. For example, the Cyrix/IBM P166 has an actual internal clock speed of 133MHz. If you install a CPU of this type, make sure you set the mainboard for the actual internal clock speed of the CPU, not its P rating.

Configuring CPU Voltage

The CPU voltage specification should also be provided in information from the manufacturer or vendor. Standard Pentium® CPUs are single voltage. MMX Pentiums® are dual-voltage. You should set the CPU Voltage jumpers according to the specifications you get with the CPU.

CPU Settings

Intel Pentium CPUs

Internal Clock	External Clock	Clock Factor
75MHz	50MHz	1.5
90MHz	60MHz	1.5
100MHz	66.6MHz	1.5
120MHz	60MHz	2.0
133MHz	66.6MHz	2.0
150MHz	60MHz	2.5
166MHz	66.6MHz	2.5
200MHz	66.6MHz	3.0
233MHz	66.6MHz	3.5

Cyrix/IBM CPUs

6X86		
P120+ (100MHz)	50MHz	2.0
P133+ (110MHz)	55MHz	2.0
P150+ (120MHz)	60MHz	2.0
P166+ (133MHz)	66.6MHz	2.0
P200+ (150MHz)	75MHz	2.0
6X86MX		
150MHz	75MHz	2.0

AMD CPUs

K5		
PR75 (75MHz)	50MHz	1.5
PR90 (90MHz)	60MHz	1.5
PR100 (100MHz)	66.6MHz	1.5
PR120 (90MHz)	60MHz	1.5
PR133 (100MHz)	66.6MHz	1.5
PR150 (120MHz)	60MHz	2.0
PR166 (133MHz)	66.6MHz	2.0
K6		
PR200 (200MHz)	66.6MHz	3.0
PR233 (233MHz)	66.6MHz	3.5



In practice, for an Off setting on a two-pin jumper, place the cap over one pin so that it doesn't get lost.

CPU Jumper Tables & Illustrations

The next few pages show the CPU jumper settings. The settings are listed in the tables as follows:

- Where two pins are shorted (connected) by a jumper cap on a three-or-more-pin jumper the shorted pins are listed, e.g. 1-2 or
- For a two-pin jumper, On, if the cap is in place, and Off, if the cap is not in place.

In the jumper illustrations, the Pin 1 position is shaded and the jumpers, shown in a “bird’s eye” view, look like this:



A jumper with a cap in position looks like this:



CPU Jumper Settings

Function	Jumper(s)	Settings						
External Speed	JP5-7	Ext. Clock	Bus Speed					
		50MHz	25MHz	JP5: 2-3, 6: 2-3, 7: 2-3				
		55MHz	27.5MHz	JP5: 2-3, 6: 2-3, 7: 1-2				
		60MHz	30MHz	JP5: 1-2, 6: 2-3, 7: 2-3				
		66.6MHz	33.3MHz	JP5: 2-3, 6: 1-2, 7: 2-3				
		68.5MHz	34.2MHz	JP5: 1-2, 6: 1-2, 7: 1-2				
		75MHz	37.5MHz	JP5: 1-2, 6: 2-3, 7: 1-2				
Internal Clock Factor	JP11-13	83.3MHz	41.7MHz JP5: 2-3, 6: 1-2, 7: 1-2					
		1.5x & 3.5x	JP11: 2-3, 12: 1-2, 13: 1-2					
		2.0x	JP11: 2-3, 12: 1-2, 13: 2-3					
		2.5x	JP11: 2-3, 12: 2-3, 13: 2-3					
CPU Core Voltage On= Cap On (One cap for this jumper)	JP26	3.0x	JP11: 2-3, 12: 2-3, 13: 1-2					
		2.5V	11-12	9-10	7-8	3-4	1-2	
		2.8V	On	On				
		2.9V			On			
		3.2V				On		
		3.3V					On	

External Clock Speed

50MHz



68.5MHz



55MHz



75MHz (37.5MHz)



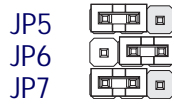
60MHz



83.3MHz

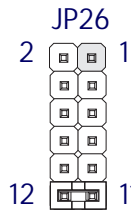


66.6MHz

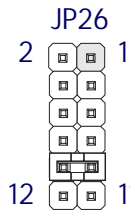


CPU Core Voltage (Vcore)

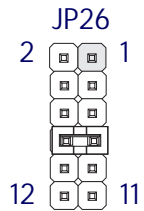
2.5V



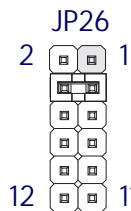
2.8V



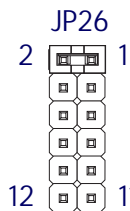
2.9V



3.2V



3.3V



Internal Clock Factor

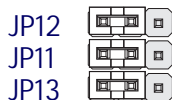
1.5x & 3.5x



2.0x



2.5x

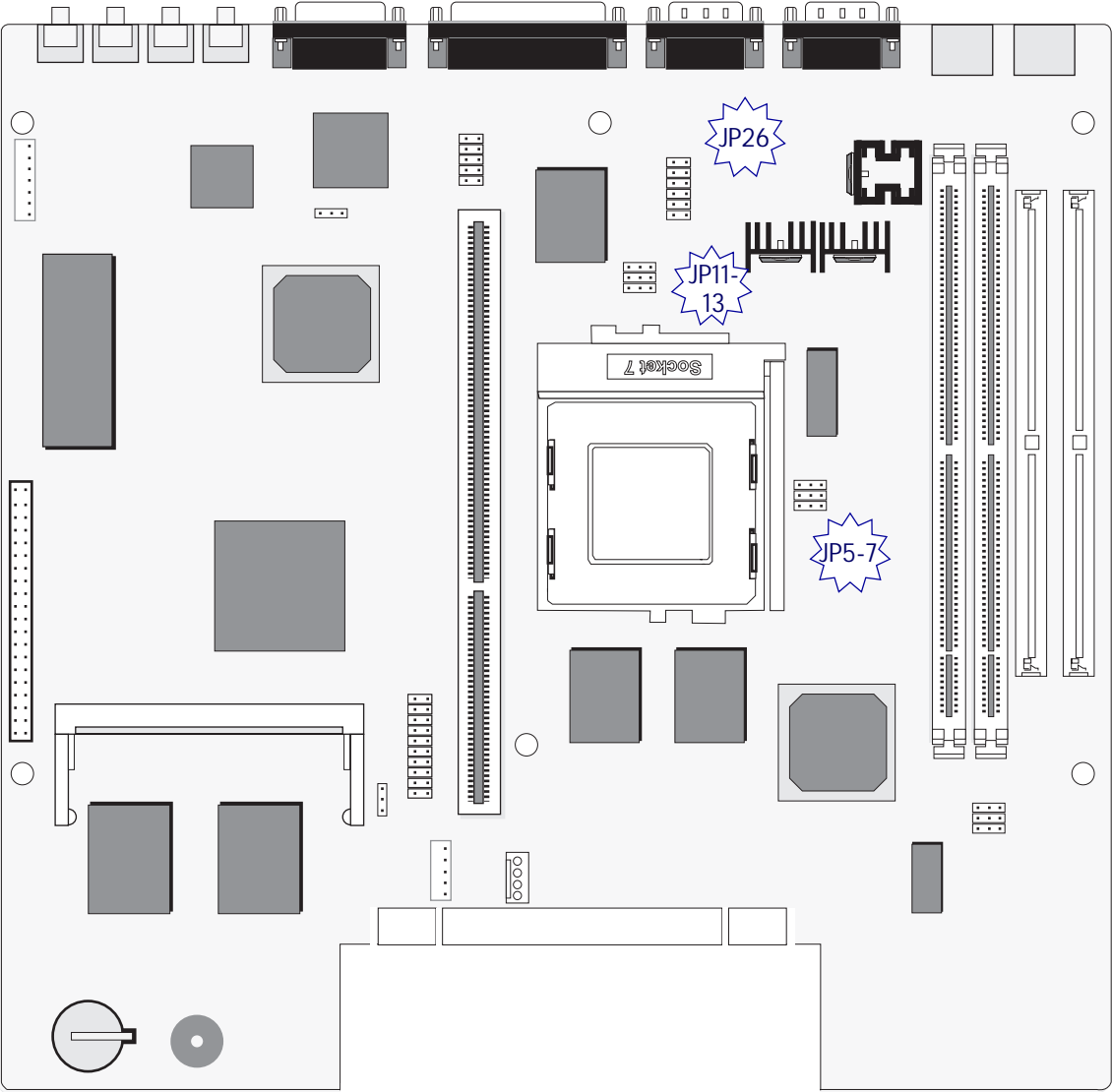


3.0x



CPU Jumper Locations

The illustration at right shows the location of the jumpers illustrated on this page.



Adding Display Memory

The computer comes with 2MB of SGRAM display memory installed on the board. There is an upgrade socket on the mainboard for an upgrade display memory module. This module is a proprietary upgrade module for the ATi Rage II+ onboard video display card.

You can upgrade the display memory to 4MB by installing a 2MB upgrade module in the upgrade socket. To install the module do as follows:

- Orient upgrade module

The chips on the module should be face-up so that the module is correctly oriented. The connecting edge has two sections that are different lengths, so you can not insert the module the wrong way.

- Insert module in socket

Insert the module in the socket at an angle so that the connecting edge inserts fully into the socket. You may need to gently push it into the socket. Adjust the angle of the module to the mainboard if it seems stuck and try again.

- Press module into retaining clips to secure

Press the outer edge of the module down toward the mainboard so that the retaining clips at the side of the socket latch over the edge of the module and secure it in place.

The system will automatically recognize the additional display memory when you start it up. With additional display memory installed there are more display settings available. See the Software User's Manual for details.



If you install the external VGA port, it disables the built-in monitor.

If you later uninstall the external VGA port, you **MUST** replace the cap on the JP15 connector or the internal monitor will not work.

External VGA & USB Ports

The mainboard has connectors for external VGA and USB ports modules. An external VGA port module is supplied with the computer. A dual USB port module is an option.

External VGA Port

The supplied external VGA port module provides an external VGA port to which you can connect another monitor. Installing the external port disables the computer's built-in monitor and allows you to connect an external monitor.

The external VGA port module connects to the JP15 20-pin connector on the mainboard. The connector is located beside the riser card expansion slot and has a solid cap that covers all twenty pins. The cap looks like a row of individual jumper caps. To install the external port, do as follows:

- Remove the JP15 connector cap
Pull the cap off and store it in case you decide to replace it later. You must replace the cap if you remove the external port.
- Attach the VGA port bracket to an expansion slot opening
Remove the slot cover from an available opening, position the port bracket and secure it with the slot cover screw you just removed. We strongly suggest using a slot opening that is not used by any of the expansion slots.
- Connect port cable to JP15

Connect the port module cable to the JP15 connector. The pin 1 position is marked on the mainboard. Orient the cable so that the Pin1 sides match and plug it onto the connector.

External USB Ports

The J6 connector on the mainboard supports an optional dual external USB (Universal Serial Bus) port module. With this module installed, you can connect USB devices to the computer, although your Operating System must also be properly set up to support them in order for them to work.

The external USB port module connects to the JP6 10-pin connector on the mainboard. The connector is located between the riser card expansion slot and the parallel port. To install the port module do as follows:

- Attach the USB port bracket to an expansion slot opening
Remove the slot cover from an available opening, position the port bracket and secure it with the slot cover screw you just removed. We strongly suggest using a slot opening that is not used by any of the expansion slots.
- Connect bracket cable to JP6

Plug the USB port module cable onto the JP6 connector. The pin 1 position is marked on the mainboard. Orient the cable so that the Pin1 sides match and plug it onto the connector.

In This Section:

Jumper Summary

Port/Connector Summary

CPU Information

Memory Configurations

CMOS Setup Utility

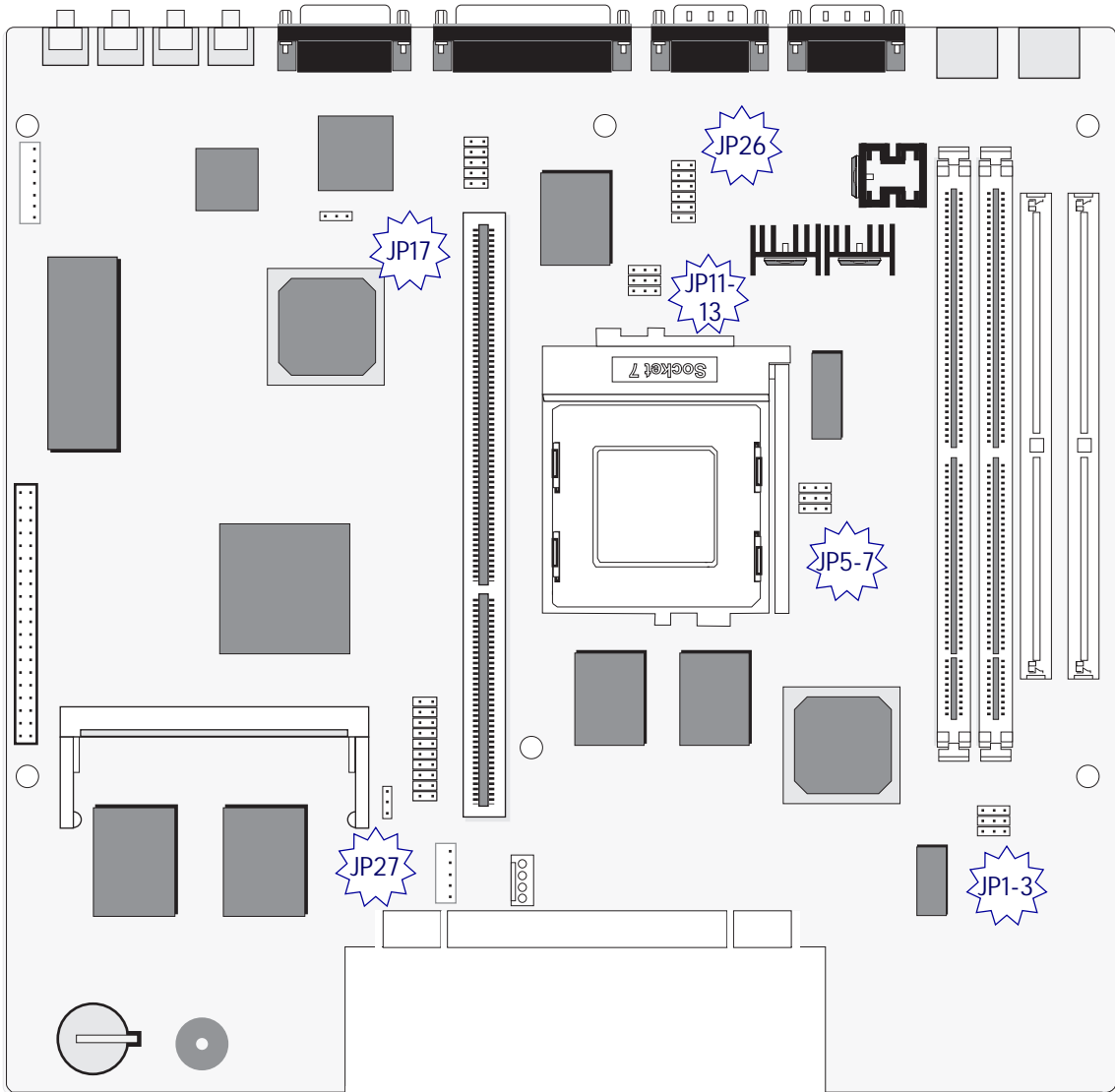
Mainboard Reference Information

This section is a summary of the mainboard's specifications and settings. It includes the following:

- Jumper Configuration Summary
- Port/Connector Summary
- Supported CPUs
- System Memory Configuration Specifications
- CMOS Setup Utility Summary

Using This Section

The information in this section is presented in a summary format to make it easy to find specific information. If you need related explanations, please refer to the topics earlier in the manual.



Jumper Locations

The illustration at left shows the location of the jumpers on the mainboard.

Jumper Configuration Summary

This section lists the jumper setting options for this mainboard. The settings are listed as follows:

- The two pins shorted by a jumper cap on a three-or-more-pin jumper, e.g. 1-2
or
- For a two-pin jumper, On, if the cap is in place, and Off, if a cap is not in place.

In the jumper illustrations, the Pin 1 position is shaded and the jumpers, shown in a “bird’s eye” view, look like this:



A jumper with a cap in position looks like this:



The default settings are noted in the summary tables. Unless you need to upgrade the CPU, disable the onboard VGA feature or upgrade the BIOS, you should not need to change them.

CPU Jumper Settings

Function	Jumper(s)	Settings						
External Speed	JP5-7	Ext. Clock	Bus Speed					
		50MHz	25MHz	JP5: 2-3, 6: 2-3, 7: 2-3				
		55MHz	27.5MHz	JP5: 2-3, 6: 2-3, 7: 1-2				
		60MHz	30MHz	JP5: 1-2, 6: 2-3, 7: 2-3				
		66.6MHz	33.3MHz	JP5: 2-3, 6: 1-2, 7: 2-3				
		68.5MHz	34.2MHz	JP5: 1-2, 6: 1-2, 7: 1-2				
		75MHz	37.5MHz	JP5: 1-2, 6: 2-3, 7: 1-2				
		83.3MHz	41.7MHz	JP5: 2-3, 6: 1-2, 7: 1-2				
Internal Clock Factor	JP11-13	1.5x & 3.5x	JP11: 2-3, 12: 1-2, 13: 1-2					
		2.0x	JP11: 2-3, 12: 1-2, 13: 2-3					
		2.5x	JP11: 2-3, 12: 2-3, 13: 2-3					
		3.0x	JP11: 2-3, 12: 2-3, 13: 1-2					
CPU Core Voltage On= Cap On (One cap for this jumper)	JP26		11-12	9-10	7-8	3-4	1-2	
		2.5V	On					
		2.8V		On				
		2.9V			On			
		3.2V				On		
		3.3V					On	

Other Jumper Settings

DIMM Voltage	JP1-3	5-Volt 3.3-Volt	JP1,2,3: 1-2 JP1,2,3:2-3 (Required– do not change!)
Bypass Password	JP17	Bypass Normal	1-2* 2-3
* This setting allows the system to boot even if a security password is set			
Onboard VGA	JP27	Enable Disable	2-3 1-2
* Disabling this disables the display signal to the Moniputer's built-in monitor			

External Clock Speed

50MHz



68.5MHz



55MHz



75MHz (37.5MHz)



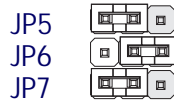
60MHz



83.3MHz

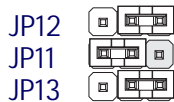


66.6MHz

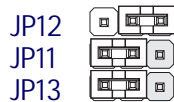


Internal Clock Factor

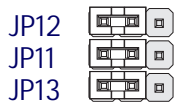
1.5x & 3.5x



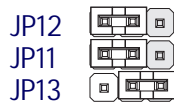
2.0x



2.5x

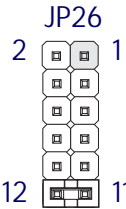


3.0x

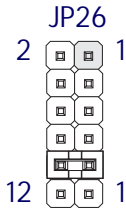


CPU Core Voltage (Vcore)

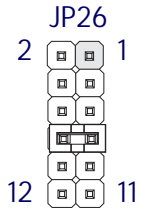
2.5V



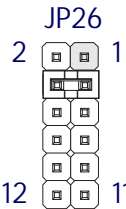
2.8V



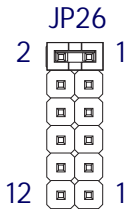
2.9V



3.2V



3.3V



DIMM Voltage

5-Volt



3.3-Volt

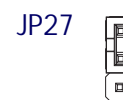


Onboard VGA

Enable



Disable



Bypass Password

Bypass Password

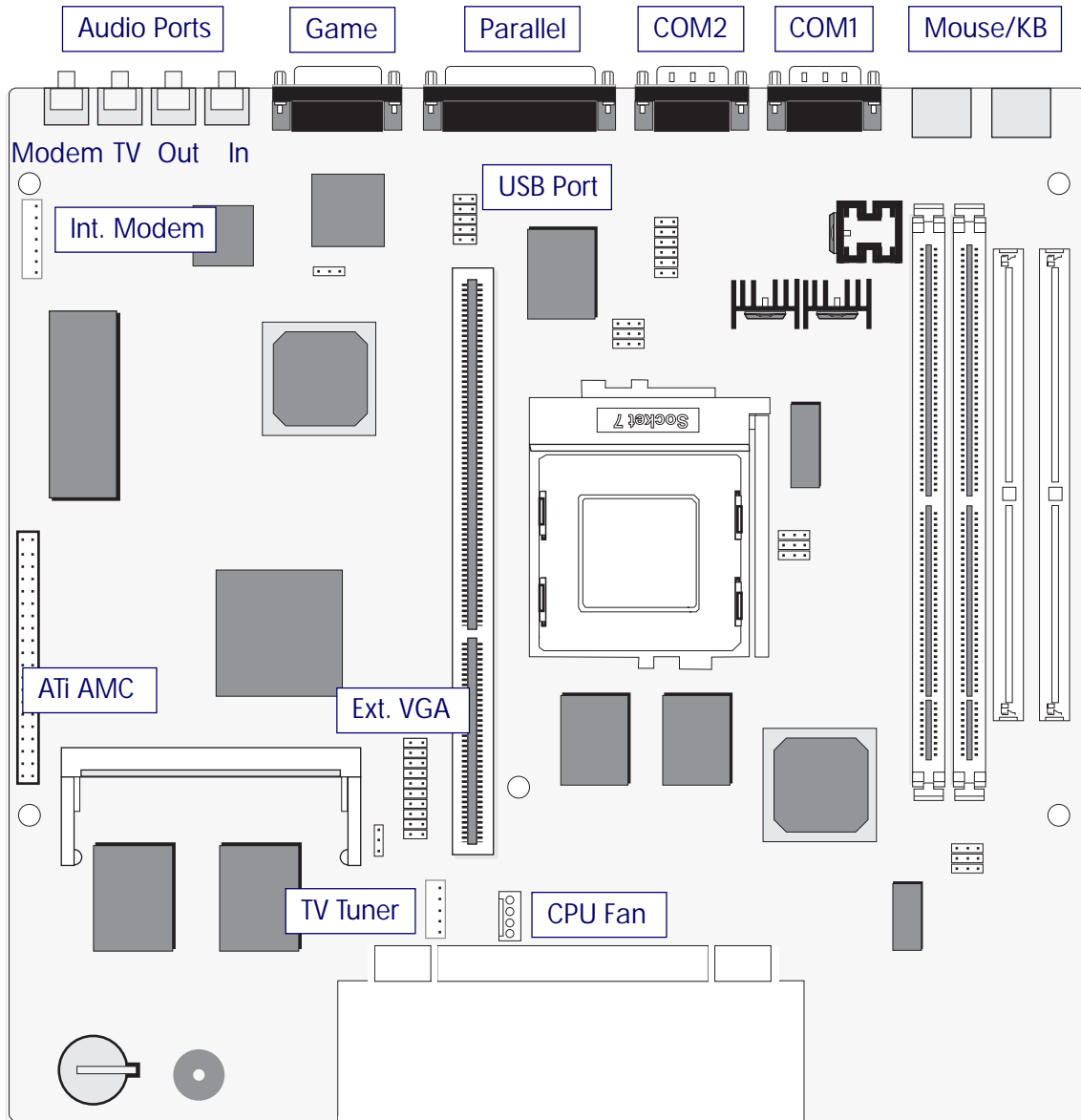


Normal



Onboard Connectors

Name	Function	Description
External		
J1	Keyboard	PS/2 keyboard port
J2	Mouse	PS/2 mouse port
J3	COM 1/3	Onboard 9-pin serial port is COM1, can be set to COM3
J4	COM 2/4	Onboard 9-pin serial port is COM2, can be set to COM4
J5	Parallel Port	Standard 25-pin parallel Printer port
P1	Game Port	Joystick connector
J10	Line-In	Onboard audio line-in jack
J12	Line-Out	Onboard audio line-out jack
J13	TV Line-In	External TV tuner audio line-in
J14	Modem Line-In	External voice modem line-in
Internal		
JP15	External VGA	External VGA port connector – Removing connector cap disables built-in monitor –
J6	USB Ports	Connector for optional dual USB port module
J8	TV Tuner Connector	Audio/Video connector for internal TV tuner card Pin1: TV audio Right Channel; Pin 2: Gnd; Pin 3: TV audio Left Channel; Pin 4: Gnd; Pin 5: Remote Signal Input
J14	CPU Fan Power	CPU fan power connector Pin1: +12V; Pin 2: NC; Pin 3: NC; Pin 4: Gnd
J15	Int. Modem Audio	Internal voice modem audio connector Pin1: Line Out; Pin 2: Gnd; Pin 3: Mono In; Pin 4: Gnd Pin 5: Mono In; Pin 6: Gnd; Pin 7: NC
J16	Ati Rage II+ Feature	AMC feature connector onboard Ati Rage II+ display card



Supported CPUs

This mainboard can use CPUs from Intel, Cyrix, IBM and AMD. The board's switching CPU power design and jumper configuration options allow the use of all Pentium class processors from all three vendors, including those with MMX features. The correct jumper configuration automatically sets the required power configuration for the CPU.

Processor speeds from 75MHz to 233MHz are supported as well as single and split voltage CPUs.

Intel CPUs Supported:

Pentium P54C, P54CTB, P54CT, P55C

Cyrix & IBM CPUs Supported:

6X86, 6X86L, 6X86MX

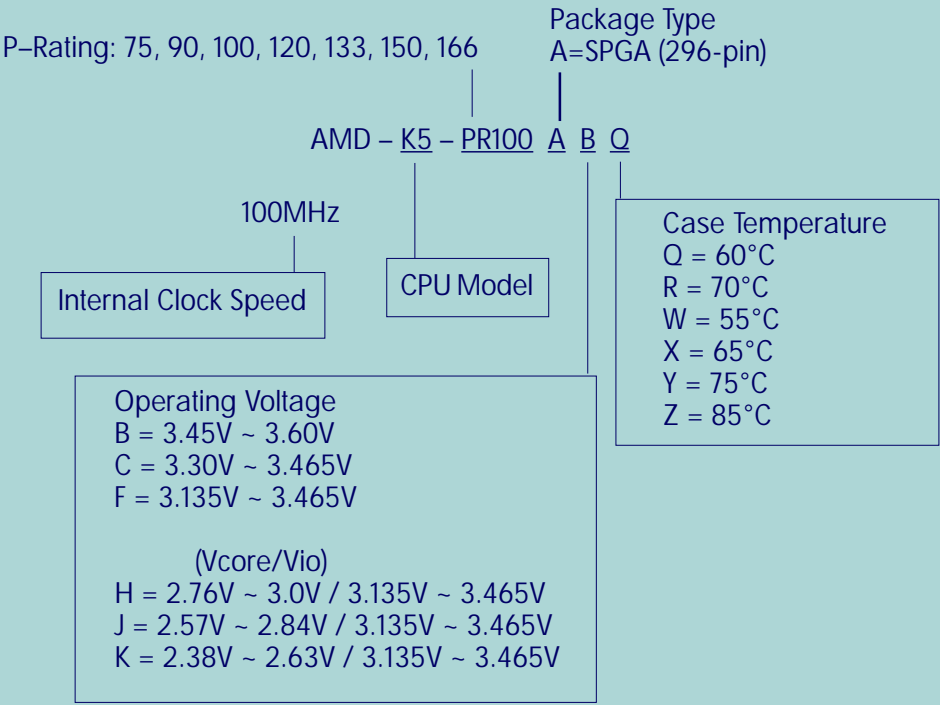
AMD CPUs Supported:

K5, K6

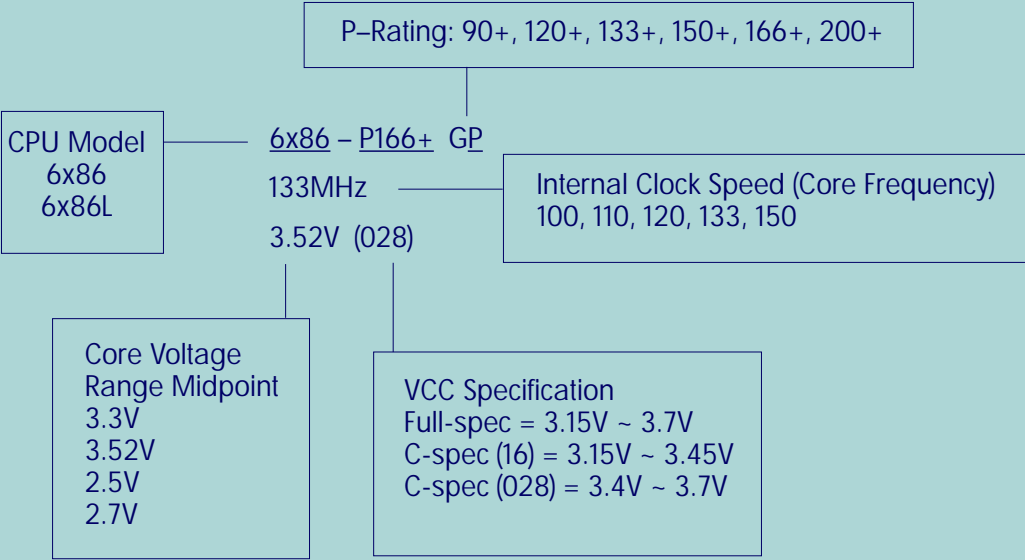
Interpreting CPU Markings

If you are installing a CPU and you do not have the information needed to set the CPU jumper configuration you can usually get it from the markings on the CPU. The following information is a guide to reading the markings.

AMD K5 CPU Markings



Cyrix 6x86 CPU Markings





Jumpers JP1, JP2 and JP3 set the voltage for the DIMM sockets. The options are 3.3-Volt and 5-Volt. Sockets for 3.3-volt unbuffered DIMM modules are installed on the board at the factory.

The manufacturer has designed a proprietary 5-Volt DIMM module that can be installed in these sockets. If such modules are factory installed at the time of manufacture, jumpers JP1, 2, and 3 will be set to the 5-Volt setting even though the DIMM sockets are for 3.3-Volt unbuffered modules.

You **CAN NOT** use 5-Volt and 3.3-Volt modules at the same time on this mainboard. If you want to install more memory, check the DIMM voltage setting. If **ANY** 5-Volt DIMMs are installed, you **MUST** remove them and change the JP1-3 jumpers to the 3.3-Volt setting **BEFORE** you install any 3.3-Volt memory upgrade. If no proprietary modules are factory-installed, the JP1-3 settings will be for 3.3-Volt unbuffered modules.

System Memory Specifications

There are four memory module sockets on the mainboard. Two are for 72-pin SIMM modules and form one bank, requiring that two modules must be installed at once. The other two sockets are for 168-pin DIMM sockets which function independently. **You can not use SIMMs and DIMMs at the same time.**

The Moniputer supports Fast Page Mode and EDO DRAM SIMMs and EDO and SDRAM (Synchronous DRAM) DIMMs. You can use module sizes from 8MB to 128MB, either single or double-sided. The total supported memory capacity for this mainboard is 256MB.

Memory Configurations

You can not install SIMMs and DIMMs at the same time on the Moniputer mainboard. Please see the System User's Guide for additional module installation instructions.

SIMM Module Configurations

You can install up to 128MB SIMM modules up as long as you follow the basic requirement of installing identical modules in both sockets, i.e.:

- Both modules must use 5 Volt DRAM
- Same module memory capacity, e.g. 16MB (MegaBytes)
- Same DRAM memory type, e.g. EDO
- Same operating speed, e.g. 60ns (nanoseconds)

DIMM Module Configurations

You can install any combination of module sizes as long as you follow these requirements:

- All modules must be 3.3-Volt unbuffered DRAM
- All modules should have the same operating speed, e.g. 60ns (nanoseconds)

Other than these requirements, there is no limitation on the variety of combinations, so they are not listed here.

CMOS Setup Utility Summary

This section explains the entries in the CMOS Setup Utility program. This utility is permanently stored on the BIOS chip on the mainboard. It creates a record of the mainboard's and some system configuration information and stores it in battery-supported memory on the mainboard. This record must be intact and accurate in order for the mainboard to operate.

After a brief explanation of how to operate the utility there is a summary of the entries and options for all sections of the utility. Under normal conditions, once your system is set up, you should have little or no need to use this utility.

Using the CMOS Setup Utility

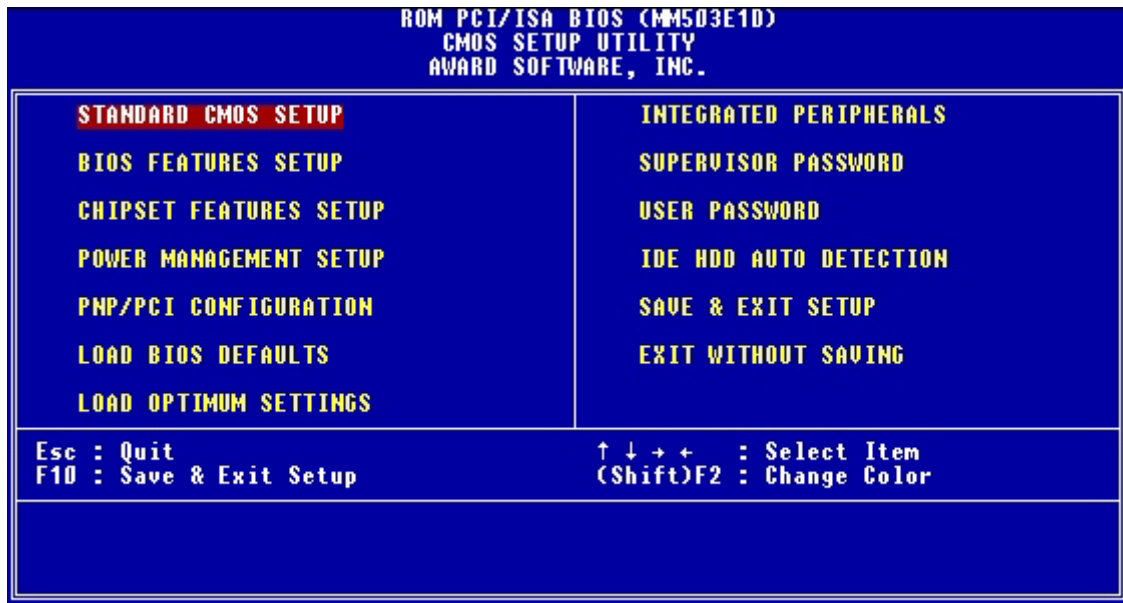
This mainboard uses the Award system BIOS. It is stored in a Flash ROM memory chip on the mainboard. The BIOS uses a software program, also stored on the same chip to create a system configuration record which is saved in a small amount of special "CMOS" memory on the mainboard.

Accessing The CMOS Setup Utility

When you turn on your computer, a message appears on the screen indicating you can run the Setup program by pressing the Del key (it's on the keypad.) The message appears after the POST (Power On Self Test).

If you want to run Setup but you don't respond in time before the message disappears, you can reset the system by pressing the Ctrl + Alt + Delete keys at the same time, or by pushing the system Reset button. The message will then reappear.

After you press the Del or Delete key the program menu screen will appear, displaying the Setup utility section names and some command instructions.



Menu Commands

If you look at the lower portion of the screen illustration you'll see a section that lists the control commands for this level of the program. You execute a command by pressing the key for that command. The program commands are :

Quit

This command will close the Setup program when you press the ESC key.

Save & Exit Setup

This will save the current settings and close the Setup program when you press the F10 key.

Select Item

You can use the arrow keys on your keyboard to move around the screen and select a menu item. An item is highlighted when it is selected.

Change Color

Change the program color scheme by pressing Shift + F2.

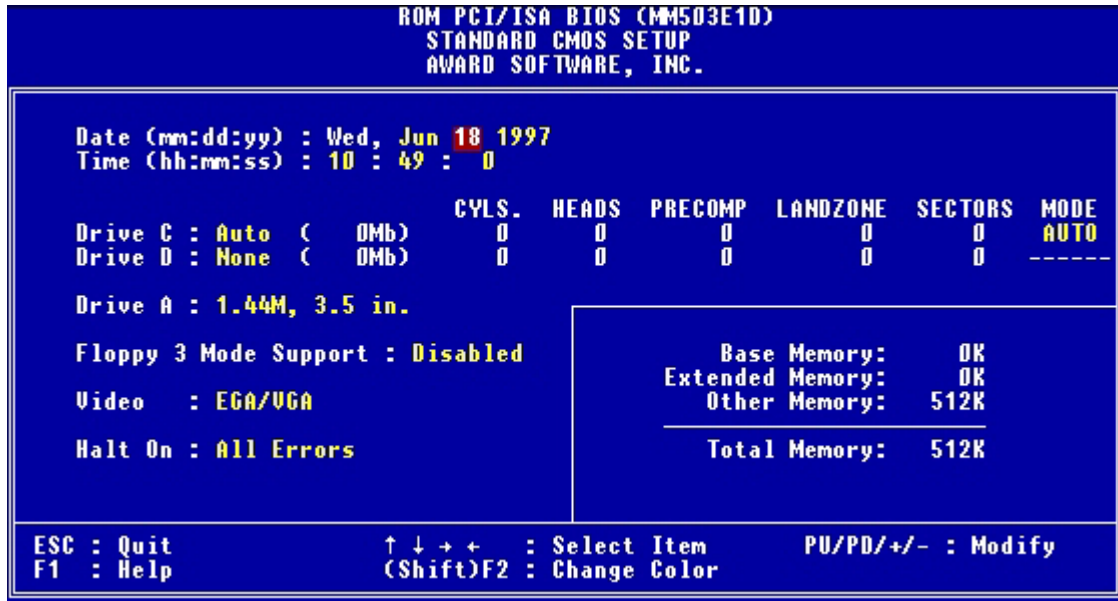
The section at the bottom of the screen displays a brief explanation of a highlighted menu item's function.

There are six main sections to the Setup program:

- Standard CMOS Setup
Date, time, disk drive, video display and error handling
- BIOS Features Setup
System customization features and video display settings
- Chipset Features Setup
Chipset settings, memory configuration feature for specialized add-on cards and VGA memory configuration
- Power Management Setup
Sets up the "green" power management features
- PNP/PCI Configuration
PCI expansion slot and system resource settings

- Load BIOS Defaults
Loads minimum settings from the BIOS ROM.
- Load Optimum Settings
Loads optimized settings from the BIOS ROM.
- Integrated Peripherals
Settings for the IDE channels and onboard ports
- Supervisor Password & User Password
Sets a system password which is configured by the Security Option item in BIOS Features Setup.
- IDE HDD Auto Detection
Automatically detects the drive parameters of any installed IDE hard disk drives and enters them automatically in the Standard CMOS Setup .
- Save & Exit Setup
Saves the current settings and exits the program.
- Exit Without Saving
Discards any changes made during the current session and exits the program.

To enter a section of the Setup program, highlight the menu item and press the Enter key.



Standard CMOS Setup

To enter this section, highlight this menu item in the main menu and press the Enter key. The screen above will appear.

Menu Commands

If you look at the lower portion of the screen illustration you'll see a section that lists the control commands for this level of the program. You execute a command by pressing the key for that command. The program commands are :

Quit

This command will close the Setup program when you press the ESC key.

Help

This displays information about the highlighted item when you press the F10 key.

Note:

Due to a technical limitation in producing the illustration of this screen, the memory figures shown are not standard. Your system will display the figures for the memory installed on the mainboard.

Select Item

You can use the arrow keys on your keyboard to move around the screen and select a menu item. An item is highlighted when it is selected.

Change Color

You can change the program color scheme by pressing Shift + F2.

Modify

To change the setting of a highlighted selection you can press either the Page Up (PU) and Page Down (PD) keys or the Plus (+) and Minus (–) keys. Pressing a key once will switch to the next setting option for the selected item.

If your mainboard is already installed in a working system the proper entries are already entered on this screen and you shouldn't change them except for adjusting the Date and Time entries if necessary.

Date & Time

The first two lines on the screen are the date and time settings for the system clock.

Hard Disk Type & Parameters

Use the IDE HDD Auto Detection feature to automatically enter the drive parameters of IDE hard disk drives in these fields. Only hard disk information is entered here. Other IDE devices do not use this.

For an IDE hard drive, you should set the entry to "Auto" and the BIOS will automatically detect all drive information needed. You can use the IDE HDD Auto Detection utility described later to supervise the auto-detection process. If you want to do this, leave the drive set to "None". You can also enter specifications manually by using the "User" option.

Large Hard Disk Modes

The last of the drive parameter entries – Mode – has four options, Normal, LBA, Large and Auto. The Mode settings are for IDE hard disks only.

Normal

For IDE hard disks of 528MB or less.

LBA

This stands for Logical Block Addressing, the current standard access mode for large IDE hard disk drives. It allows the use of hard disks larger than 528MB by causing the IDE controller to translate between the logical address it creates and the hard disk's actual physical address. The maximum drive size supported is 8.4GB.

Large

For 1GB or smaller drives with more than 1024 cylinders and no LBA support. This access mode causes the Operating System to treat the drive as if it has fewer than 1024 cylinders by dividing the cylinder total in half and doubling the number of heads. Drives needing this mode are less common.

Most large IDE hard disk drives currently available use the LBA mode. Use the AUTO setting to automatically detect the correct mode for new drives.

Floppy Disk Drives

The floppy disk drive item sets the drive type for drive A and must be entered manually. The options are

360KB, 5.25 in.

1.2MB, 5.25 in.

720KB, 3.5 in.

1.44MB, 3.5 in. Default

2.88MB, 3.5 in.

None

Highlight the listing after each drive name and select the appropriate entry.

Floppy 3 Mode Support

3 Mode is a Japanese 3.5-inch floppy disk drive specification. If this type of drive is installed you should enable this feature. The default setting is Disabled.

Video Display Types

You set this according to the type of display card in your system. This should be left on EGA/VGA. The options are:

EGA/VGA

Mono (for Hercules or MDA)

CGA 40

CGA 80

Error Handling

The last line – Halt On – sets when the system stops if an error occurs. The options are:

All Errors (Default)

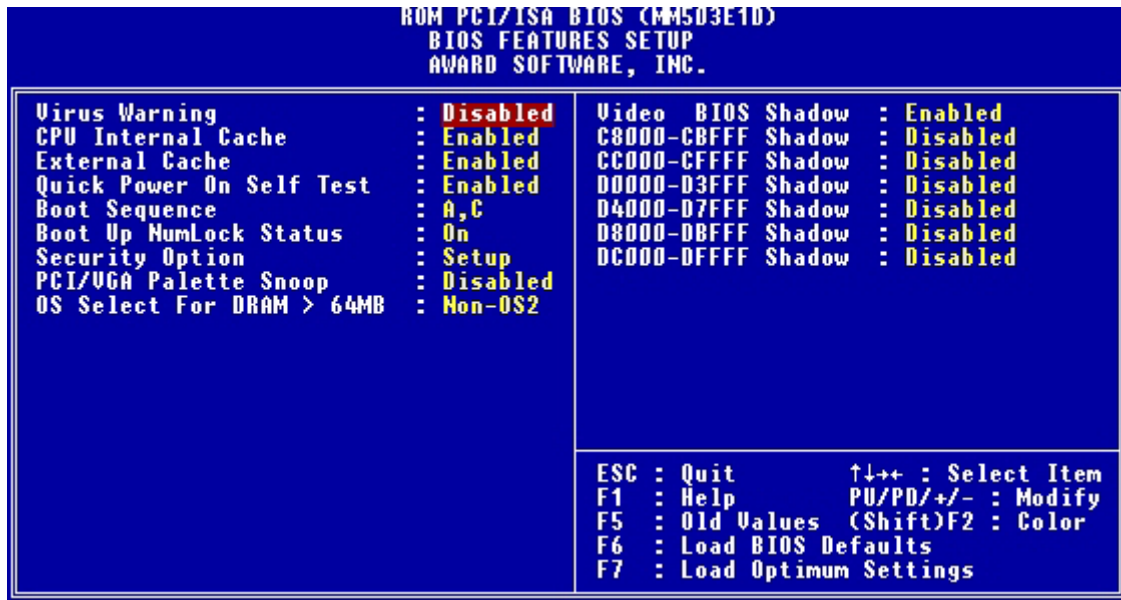
No Errors

All, But Keyboard

All, But Diskette

All, But Disk/Key

When you are finished in this section, exit to the main menu screen by pressing the Esc key.



BIOS Features Setup

To enter this section of the Setup program, highlight this menu item in the main menu and press the Enter key. The following screen will appear.

Menu Commands

If you look at the lower portion of the screen illustration you'll see a section that lists the control commands for this level of the program. You execute a command by pressing the key for that command. The program commands are :

Quit

This command will close the Setup program when you press the ESC key.

Help

This displays information about the highlighted item when you press the F10 key.

Select Item

You can use the arrow keys on your keyboard to move around the screen and select a menu item. An item is highlighted when it is selected.

Modify

To change the setting of a highlighted selection you can press either the Page Up (PU) and Page Down (PD) keys or the Plus (+) and Minus (-) keys. Pressing a key once will switch to the next setting option for the selected item.

Change Color

Change the program color scheme by pressing Shift + F2.

Old Values

If you make changes during the current session and you don't want to keep them you can recall the last set of saved values for this page by pressing the F5 key.

Load BIOS Defaults

Pressing F6 loads the BIOS Default settings for this page.

Load Optimum Settings

Pressing F7 loads the Optimum Settings for this page.

If your mainboard is already installed in a working system the proper entries are already entered on this screen and you shouldn't change them.

Virus Warning

This protects the primary hard disk's boot sector and partition table from infection. Any attempt to write to them will halt the system and produce a warning message. If this happens, you can either allow the system to continue or stop it and boot from a virus-free bootable floppy disk. Use an anti-virus utility located on the floppy disk to check the hard disk. The default setting is Disabled.

CPU Internal Cache

This enables CPU's Level 1 built-in cache. Leave it enabled to maintain system performance. The default setting is Enabled.

External Cache

This is the Level 2 external cache. Leave this enabled to maintain system performance. The default setting is Enabled.

Quick Power On Self Test

This feature speeds up the Power On Self Test (POST) by skipping some parts of the POST. If your system is functioning normally, you can enable this feature to speed the boot process. The default setting is Enabled.

Boot Sequence

This determines the order in which the computer checks drives for an operating system. In addition to the drive A: floppy disk drive and the drive C: boot hard disk, you can configure the order to include the CD-ROM drive. The options are:

A, C C, A

C, CD-ROM, A CD-ROM, C, A

C Only

Boot Up NumLock Status

This item allows you to select which mode the numeric keypad on an IBM-compatible extended keyboard is set to when the computer boots up. The options are:

On	– Numeric keypad mode	(Default)
Off	– Cursor control mode	

Security Option

This sets when password protection is active. The two options are:

System	– Password required at boot up
Setup	– Password controls access to Setup utility

You create a password using the Password Setting option in the main menu. If no password is set, the system ignores this item.

PCI/VGA Palette Snoop

If your video display card has an MPEG card attached to the feature connector, the display may invert to black on white while booting. If this happens, set this line to Enabled to correct the problem. The default setting is Disabled.

OS Select For DRAM >64MB

If your system has more than 64MB of system memory installed and you are using the OS/2 operating system, set this to the OS2 setting. The default setting, Non-OS2, is for all other operating systems.

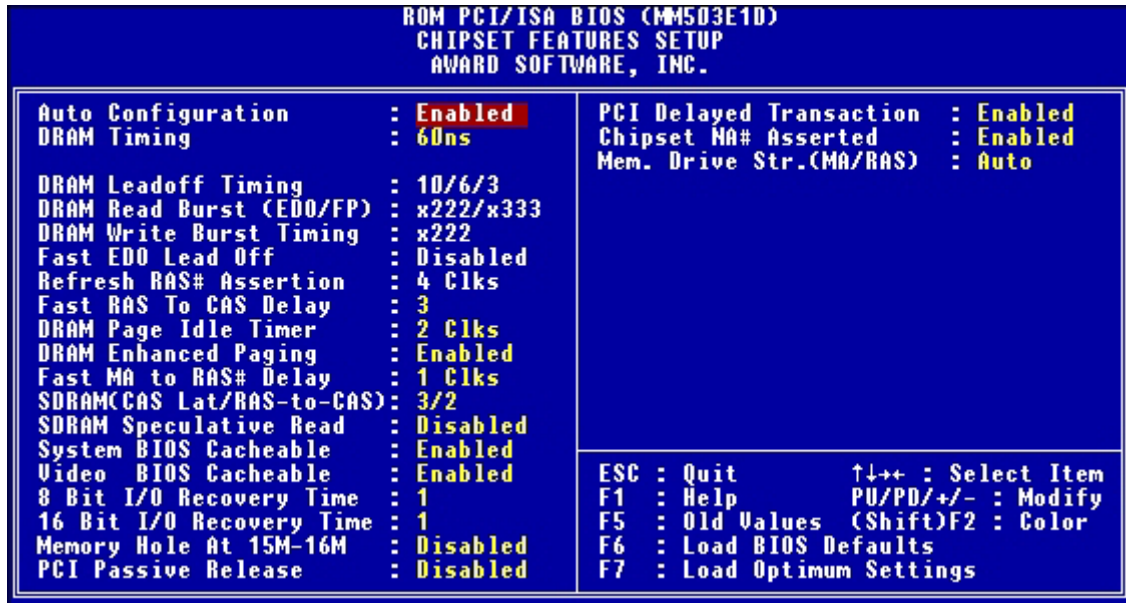
Video BIOS Shadow

This copies the video display card BIOS into system DRAM to increase display speed and is required for system performance. The default setting is Enabled.

Shadowing Address Ranges

The next six lines, from C8000-CBFFF Shadow to DC000-DFFFF Shadow are address ranges for shadowing other expansion card ROMs. If there are any expansion cards with ROMs installed in your system, you have to know the address range they use to shadow them specifically. The default setting for all of these is Disabled.

When you are done in this section press the Esc key to return to the main menu.



Chipset Features Setup

To enter this section of the Setup program, highlight this menu item in the main menu and press the Enter key. The following screen will appear.

Menu Commands

The menu commands for this screen are the same as for the BIOS Features Setup screen.

Auto Configuration

Everything on this screen except for the Memory Hole item is set automatically when auto-configuration is active. If you disable it you can set the values manually, although we recommend against this. Don't disable automatic configuration unless you know what you are doing. The default setting is Enabled.

Memory Hole At 15M–16M

Some special add-on cards require a 1MB address space between 15 and 16MB. The documentation for this type of card should tell you if it needs this. The default setting is Disabled.

To return to the main menu press the Esc key.



Power Management Setup

To enter this section of the Setup program, highlight this menu item in the main menu and press the Enter key. The following screen will appear.

Menu Commands

The menu commands for this screen are the same as for the BIOS Features Setup screen.

What Power Management Does

Power management lets you set up your computer to save electricity when it is not actively in use by putting the system into progressively greater power saving modes. In the power management scheme there are four system states which proceed in the following sequence:

Normal

Doze

Standby

Suspend

Power Management

This controls the entire power management scheme. There are four settings:

User Defined

You set the power saving options manually

Disable

Turns off all power management

Max Saving

Maximizes power saving by activating maximum power saving settings after one minute of system inactivity

Min Saving

Produces less power saving by activating moderate power saving settings after one hour of system inactivity

PM Control By APM

When this is set to Yes the Advanced Power Management feature in Microsoft Windows controls power management operation. The default setting is No.

Video Off Method

This governs monitor power saving by controlling how power management blanks the monitor screen. The default setting blanks the screen and turns off vertical and horizontal scanning and requires a monitor with “green” features. If you don’t have this type of monitor, use the Blank option. DPMS (Display Power Management System) allows the BIOS to control the video display card if the card has the DPMS feature.

V/H SYNC+Blank	(Default)
Blank	(Non-green monitor, less saving)
DPMS	(Display card must support DPMS)

Video Off After

This governs when the video display gets turned off. The options are:

Suspend	Off after system enters Suspend mode
Standby	Off after system enters Standby mode
Doze	Off after system enters Doze mode
N/A	No display shut off

Doze Mode

This sets the period of system inactivity after which the system goes into Doze mode, the most limited power saving state. The settings range from 1 minute to 1 hour and can be set manually when power management is in User Define mode. The default setting is Disabled. When the system goes into power saving mode, power management will skip to the next mode in the sequence if this is disabled.

Standby Mode

This sets the period of system inactivity after which the system goes into Standby mode, the intermediate power saving state. The settings range from 1 minute to 1 hour and can be set manually when power management is in User Define mode. The default setting is Disabled. When the system goes into power saving mode, power management will skip to the next mode in the sequence if this is disabled.

Suspend Mode

This sets the period of system inactivity after which the system goes into Suspend mode, the maximum power saving state. The settings range from 1 minute to 1 hour and can be set manually when power management is in User Define mode. The default setting is Disabled. When the system goes into power saving mode, power management will skip to the next mode in the sequence if this is disabled.

HDD Power Down

This shuts down IDE hard disks that support a power saving mode after a specified time period. The settings range from 1 to 15 minutes and can be set manually when power management is in User Define mode. HDD Power Down does not affect SCSI hard disks. The default setting is Disabled.

The system automatically resumes from any power saving mode when there is system activity such as keyboard activity or an IRQ wake-up event like mouse movement or a modem ring.

CPU Fan Off In Suspend

In the default Enabled setting, when a CPU Fan is connected to one of the fan power connectors on the mainboard, the fan will turn off when the system is in Suspend mode. The other option is Disabled.

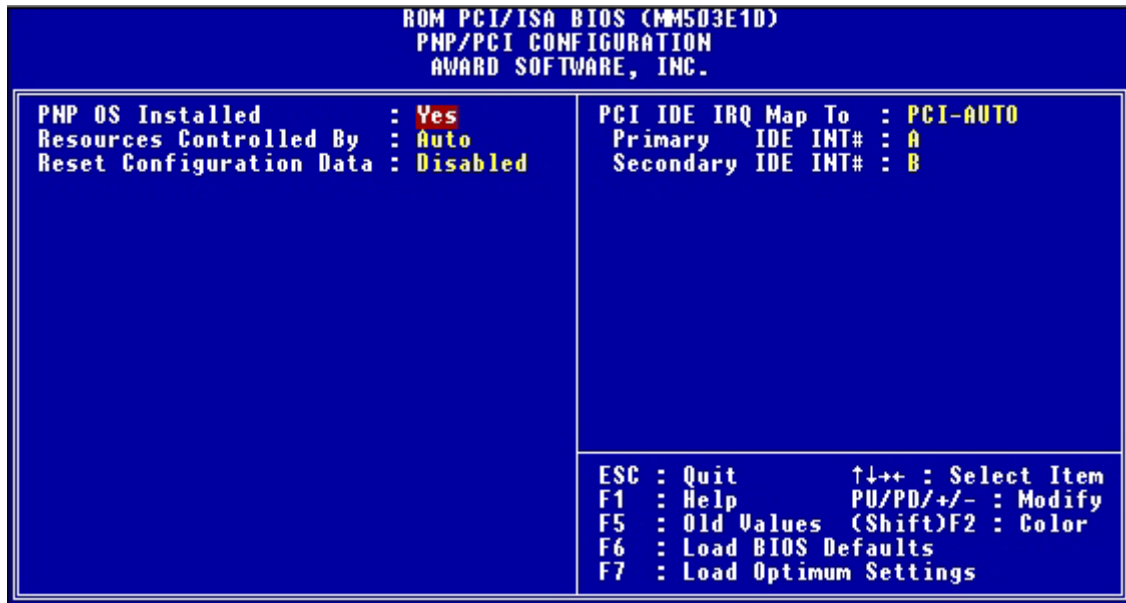
Break Event From Suspend

The two lines in this section control whether the system will wake-up if either of the events noted occur. The defaults are shown on the screen illustration on the next page.

Reload Global Timer Events

The system will restart the power saving count-down when an event generates from any of the items in this section that are set to Enabled. The defaults are shown above.

When you are finished in this section, press the Esc key to return to the main menu.

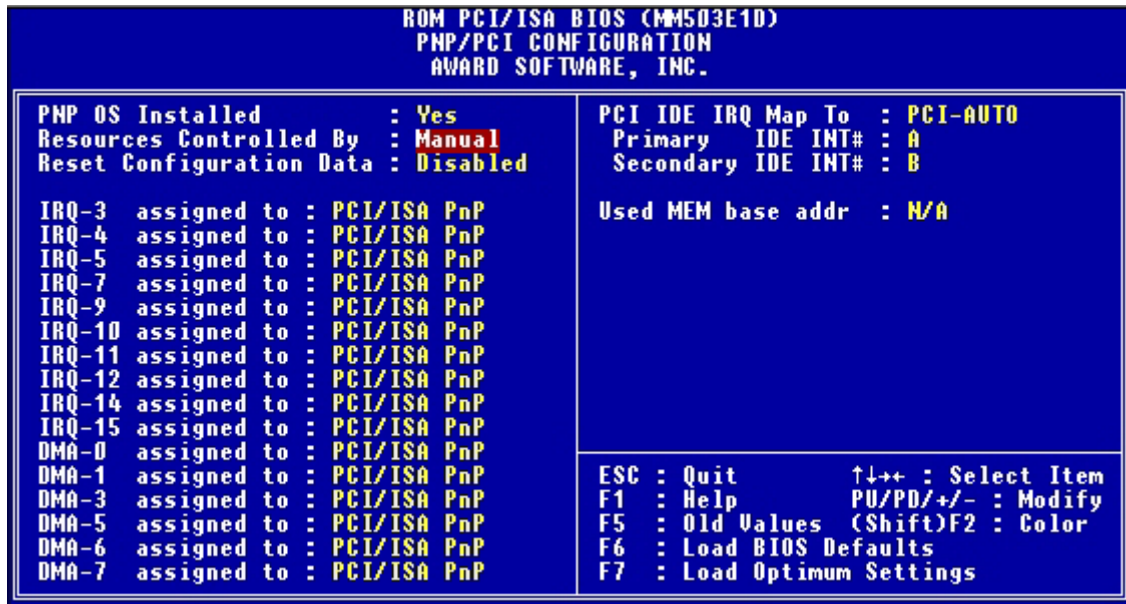


PNP/PCI Configuration

To enter this section of the Setup program, highlight this menu item in the main menu and press the Enter key. The following screen will appear.

Menu Commands

The menu commands for this screen are the same as for the BIOS Features Setup screen.



Resources Controlled By

When this line is set to Auto the BIOS will automatically configure IRQ and DMA resources. This is the recommended setting. If you set this line to Manual, the screen changes as shown above and allows manual configuration. In general you should only need to do this if you are installing an ISA card that requires manual configuration.

Reset Configuration Data

The default setting is 'Disabled'. If you need to clear the ESCD data, set this to 'Enabled'. The data will clear automatically and the BIOS will reset this line to the 'Disabled' setting.

PCI IDE IRQ Map To

Most of PCI IDE cards are non-PCI compliant. This line defines the IRQ Routing to make them work properly. The available settings are:

PCI-AUTO (default)

ISA

PCI-SLOT1

PCI-SLOT2

PCI-SLOT3

If you set this option to 'ISA', both the 'Primary IDE INT#' and 'Secondary IDE INT#' options below it will not appear on the screen.

Primary/Secondary IDE INT#

These define the primary/secondary IDE INT# of a PCI IDE card. The setting options are:

A (Primary IDE INT# default)

B (Secondary IDE INT# default)

C

D

When you are finished you can press the Esc key to return to the main menu.

Load BIOS Defaults

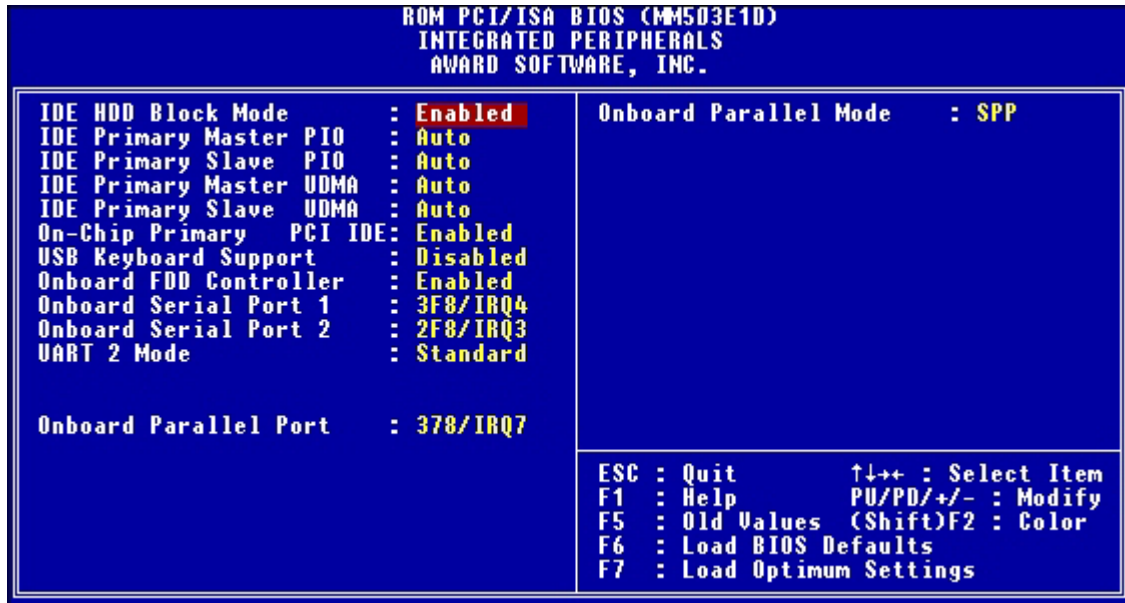
To use this command highlight it in the main menu and press Enter. A message will appear asking if you want to load the BIOS Defaults. Press the Y key and then the Enter key. The BIOS default settings will load. Press the N key if you want to cancel.

This loads a set of troubleshooting default values permanently stored in the BIOS ROM. The settings are not optimal and turn off all the performance features. Standard CMOS Setup is not affected by this command.

Load Optimum Settings

To use this command highlight it in the main menu and press Enter. A message will appear asking if you want to load the Optimum Settings. Press the Y key and then the Enter key. The optimized default settings will load. Press the N key if you want to cancel.

This loads a set of optimized default values permanently stored in the BIOS ROM. Use this command to load default settings for normal system operation. Standard CMOS Setup is not affected by this command.



Integrated Peripherals

This section sets the IDE transfer mode for the IDE channels. It also configures the other on-board ports.

Menu Commands

The menu commands for this screen are the same as for the BIOS Features Setup screen.

IDE HDD Block Mode

Enables hard disk drive block transfer mode . The setting options are:

Enabled (default)

Disabled

IDE Primary Master/ Slave PIO

These lines set the hard disk PIO transfer mode, which affects the hard disk data transfer rate. The system will auto-detect the PIO mode of a device in any of these positions when they are set to 'Auto', the recommended setting. Alternatively, you can set the mode manually. Modes 0 to 4 are supported.

Primary Master/Slave UDMA

These lines enable hard disk UltraDMA transfer mode, which requires a drive that supports this data transfer method. The system will auto-detect an UltraDMA device in any of these four positions when they are set to 'Auto', the recommended setting. The other setting is 'Disabled'. You can leave these set to Auto without effect if there are no UltraDMA devices installed.

On-Chip Primary PCI IDE

Enables or Disables the Primary PCI controllers. Selecting "Disabled" releases IRQ14.

Enabled (default)

Disabled

USB Keyboard Support

Enables or Disables support for a USB keyboard. Enable this if you connect a USB keyboard. The default is Disabled.

Onboard FDD Controller

Enables or Disables the onboard Floppy Drive controller.

Onboard Serial Port 1/2

Sets the I/O address for serial ports 1 & 2.

3F8/IRQ4	Onboard serial port COM1 default
----------	----------------------------------

2F8/IRQ3	Onboard serial port COM2 default
----------	----------------------------------

3E8/IRQ4

2E8/IRQ3

Disabled

UART 2 Mode

Sets mode for the second serial port UART. If you select an IR module type, the second serial port will not be available. The setting options are:

Standard (default) – (used by COM2 serial port)

ASKIR

HPSIR

Onboard Parallel Port

Sets the I/O address for the onboard parallel port. The setting options are:

378H/IRQ7 (default)

Disabled

278H/IRQ5

3BCH/IRQ7

If you set this option to 'Disabled', the 'Onboard Parallel Mode' option below will not appear on the screen.

Onboard Parallel Mode

Selects the parallel port mode. The setting options are:

SPP (default)

ECP/EPP

EPP/SPP

ECP

If you set this option to 'SPP' or 'EPP/SPP', the 'ECP Mode Use DMA' option will not appear on the screen. If you set this option to 'SPP' or 'ECP', the 'Parallel Port EPP Type' option will not appear on the screen.

ECP Mode Use DMA

Selects the ECP Mode DMA channel. The setting options are:

3 (default)

1

Parallel Port EPP Type

Sets the EPP protocol version. The setting options are:

EPP 1.7 (default)

EPP 1.9

Password Setting

To use this command, highlight it in the main menu and press Enter. A message will appear prompting you to enter a password.

Type in a password. The password is case sensitive, and can be up to 8 alphanumeric characters. Press Enter when you finish typing in the password.

If you typed in a password, the message "Confirm Password" will appear. Confirm the password by typing it again and pressing Enter. The message box will close.

If you decide you don't want to set a password after you activate this command, or if you want to eliminate an existing password, press Enter without typing anything else. The message "Password Disabled" will appear and the message box will close.

When you set a password, the Security Option line in BIOS Features Setup controls when the password is required. You can set the option to require the password when the system boots up or when calling up the CMOS Setup utility. The mainboard ships with no password.

IDE HDD Auto Detection

When you install an IDE hard drive, you can use this feature to automatically detect the drive parameters and enter them in the appropriate Hard Disk section of Standard CMOS Setup. However, since the Auto settings in Standard CMOS Setup perform the same function, you do not need to configure IDE hard disk drives from here. If you want to use this feature, highlight it in the main menu and press the Enter key.

Save And Exit Setup

When you select this and press Enter the values entered during the current session are recorded in CMOS memory.

Exit Without Saving

When you select this and press Enter the Setup Utility closes without recording any changes made during the current session.

