P5TX-AR Mainboard
User's Manual

Version 1.1

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In This Section:

About This Manual
Package Contents
Mainboard Features
Component Information

P5TX-AR Package & Product Information

This manual contains all the information you'll need to use the P5TX-AR mainboard. Please take a moment to familiarize yourself with the design and organization of the manual.

Manual Features

This manual is divided into four sections:

- Section 1: Package & Product Information

  A brief overview of what comes in the mainboard package, its basic features, layout and component information.
- Section 2: Using Your Mainboard

  Information on mainboard features that you may make use of in operating your computer.
- Section 3: Reconfiguring Your Mainboard

  How to change or upgrade the mainboard configuration.
- Section 4: Reference Information

  A summary of the mainboard's settings and specifications.

The 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

Online Manual Format

If the support disk for your mainboard is a CD-ROM disc, a copy of the printed manual may be stored on the disc in Adobe Acrobat format. If so, it requires Adobe Acrobat Reader version 3.0 or later to view it. Acrobat Reader for Microsoft Windows95 may also be supplied on the Support Disk. If not, you can obtain a free copy of the Reader software from the Abobe web site which is currently at www.adobe.com as well as other locations.

If you have the online manual, you may want to install Acrobat Reader on your system hard disk. You can copy the manual over as well so that the manual is readily available without having to hunt up the Support Disk when you want to view it.

If you are unfamiliar with Acrobat Reader, please take a moment to view the Reader Online Guide which is available under the Help menu when you run Reader.

Package Contents

The P5TX–AR mainboard package contains the following items. Please inspect the package contents and confirm that everything is there. If anything is missing or damaged, call your vendor for instructions before proceeding. The package includes:

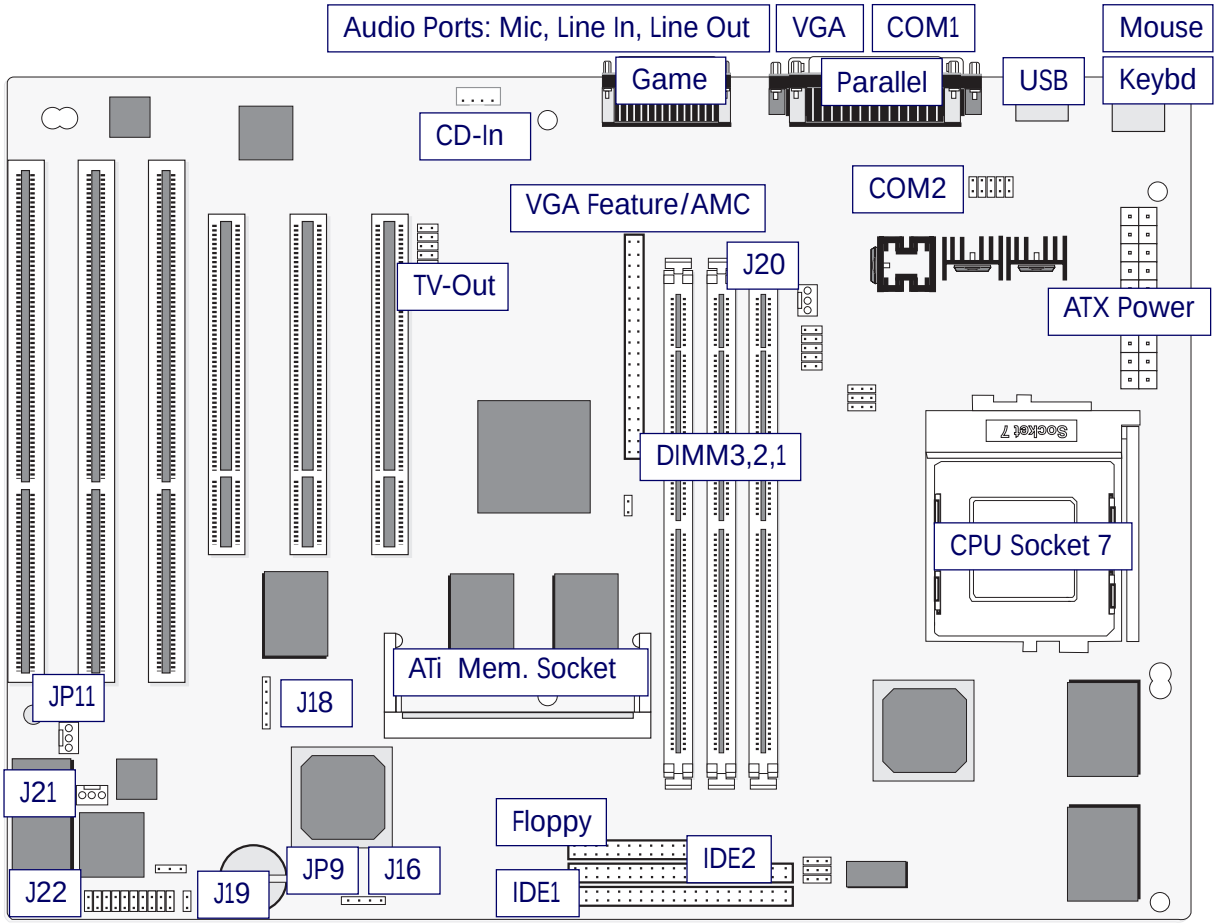
- P5TX–AR Mainboard
- Cable Pack:
  - 1 Floppy Controller Cable
  - 1 IDE Controller Cable
  - 1 COM2 & TV Out Port Bracket with attached cable
- Support Disk:
  - Bus Master Drivers
  - Video Display Drivers
  - Audio Drivers
  - Infrared Module utility

The mainboard comes with IDE Bus Master drivers for several Operating Systems. The drivers are organized in individual folders by OS. In each folder there is a "readme" file that explains how to install the driver. Please locate the folder for the driver you need and check this file.

Mainboard Features

This mainboard is a highly integrated ATX design that incorporates many features on the board. The mainboard includes the following features:

- Socket 7 CPU socket supports Pentium and compatible CPUs up to 233MHz
- Intel 82439TX (MTXC) and 82371AB (PIIX4) chipsets
- Super I/O chip
- NS LM78/LM75 Microprocessor System Hardware Monitor
- 512KB Pipeline Burst SRAM Level 2 cache
- Memory module sockets:
  - 3 DIMM sockets support up to 256MB
  - SODIMM socket for display memory upgrade
- Onboard Audio
  - Crystal CS4237B 3D Sound audio
  - Crystal CS9236 hardware wavetable
  - Supports 'Surround-sound' via audio driver
  - External mini-jack Mic, Line-In and Line-Out connectors
- Onboard Video Display
  - ATI Rage II+ 3D video chip
  - 2MB display memory standard, upgrade to 4MB
  - Display drivers for multiple Operating Systems
- External Ports
  - VGA display, COM1 serial port, Parallel port
  - PS/2 Mouse & Keyboard connectors, dual USB ports
  - Game/Joystick port, Mic, Line-In and Line-Out connectors
- Expansion Card Slots
  - Three PCI 2.1–compliant PCI slots
  - Three 16-bit ISA slots



P5TX-AR Layout

The illustration above shows the connectors, sockets and ports and the mainboard.

The COM1 and VGA ports are underneath the Parallel port. The USB ports and the PS/2 Keyboard (lower) and Mouse (upper) ports are stacked one above the other.

The onboard audio connectors are under the game port. COM2 and TV Out ports are on a port bracket with cables that connect to their respective connectors on the board.

Component Information

This section is a brief description of the components on the mainboard that you might need to know about if you want to upgrade or change your system configuration. If your mainboard is already installed in a system, it isn't necessary for you to review this section.

This mainboard uses the ATX 'form factor', a design that integrates many features onto the board including some number of external ports.

Expansion Cards & Slots

The mainboard has six expansion slots for system expansion or 'add-on' cards. Three are ISA slots, the others are PCI slots. When you get an expansion card, it must use one of these to connect to the computer.

The ISA expansion slots are a legacy of the original IBM PC/AT design. They are 16-bit slots that run at a moderate bus speed. There are many kinds of expansion cards that use this slot design to connect to the computer, some of the most common being sound and modem cards.

PCI slots are the current high-speed 32-bit standard for system expansion cards. They operate at a faster 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 three memory module sockets on the mainboard. They use 168-pin DIMM memory modules. The sockets function independently of each other. This mainboard has a very 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 Your 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 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 several external ports and connectors including the COM2 serial port, a Parallel port, a VGA display connector, a Game port for connecting a Joystick, PS/2-type keyboard and mouse ports and several audio ports. The audio ports include Mic, Line-In and Line-Out connectors for the onboard sound card. These external ports are all accessible at the rear of the computer when the mainboard is installed.

Internal Connectors

There are also several connectors built onto the mainboard, including connectors for four Enhanced IDE devices in two channels, two floppy disk drives, the COM2 serial port and the TV Out option. There are also connectors for a CPU cooling fan, chassis intrusion alert cable and modem ring wake-up cable.

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

In This Section:

System Controls
Hardware Features
Firmware & Software

Using Your Mainboard

This section covers the following topics:

- System Controls & Indicators
- Hardware Features
- Firmware & Software

They go over the system control features and status indicators that connect from the mainboard and explain the software that comes with or is built-into the mainboard.

System Controls

There are two topics in this section, a explanation of the hardware controls and status indicators that connect from the mainboard to your system case and some information about the parts of the CMOS Setup Utility that allow you customize some system features.

Hardware Controls & Indicators

There are some control features and status indicators that connect from the mainboard to your system case, which is sometimes called the 'Enclosure' or 'Chassis.' These are:

- Power Switch
- Power Status Indicator
- Suspend Switch
- Suspend Status Indicator
- Reset Switch
- Hard Disk Drive Activity Indicator
- Keyboard Lock

All of these case features connect to the mainboard via connector J22. Not all system cases have all of these features, so your system may not have all of them. The functions and options for these are shown in the table on the next page.

Hardware Control & Indicator Connectors

Feature	Function
Power Status LED	When lighted indicates that system is turned on
Suspend Switch	Puts the system into Suspend state under Operating Systems that support this power management feature
Suspend LED	When lighted indicates the system is suspended
Reset Switch	Pressing the Reset switch restarts the system
Keyboard Lock	Disables keyboard via a lock mounted on front panel of the case
Speaker	Connects to the PC speaker mounted on the system case
HDD Activity LED	Flashes when hard disk drive is active
Power Switch	Turns the system power on and off. Default sets this to dual function as power and suspend switch. Press once for Suspend, hold for >4 seconds for Off. To set as Power only, change setting in the Power Management section of the CMOS Setup utility.

CMOS Setup Utility Controls

Two sections of the CMOS Setup Utility allow you to configure how some of your system's features work. These are:

- BIOS Features Setup
- Power Management Setup

The CMOS Setup Utility is a program that is permanently stored in the BIOS chip on the mainboard. The utility creates a system hardware configuration record that it stores in a small amount of battery-supported memory on the board. The BIOS uses this record to function as an interface between the system hardware and the operating system. Most of the settings in the CMOS Setup Utility are made automatically, so you won't normally need to use this program. You can, however, customize some of the operational features to suit how you prefer to use the system.

The screen illustrations on the next two pages show the Setup Default settings for these two sections of the utility.

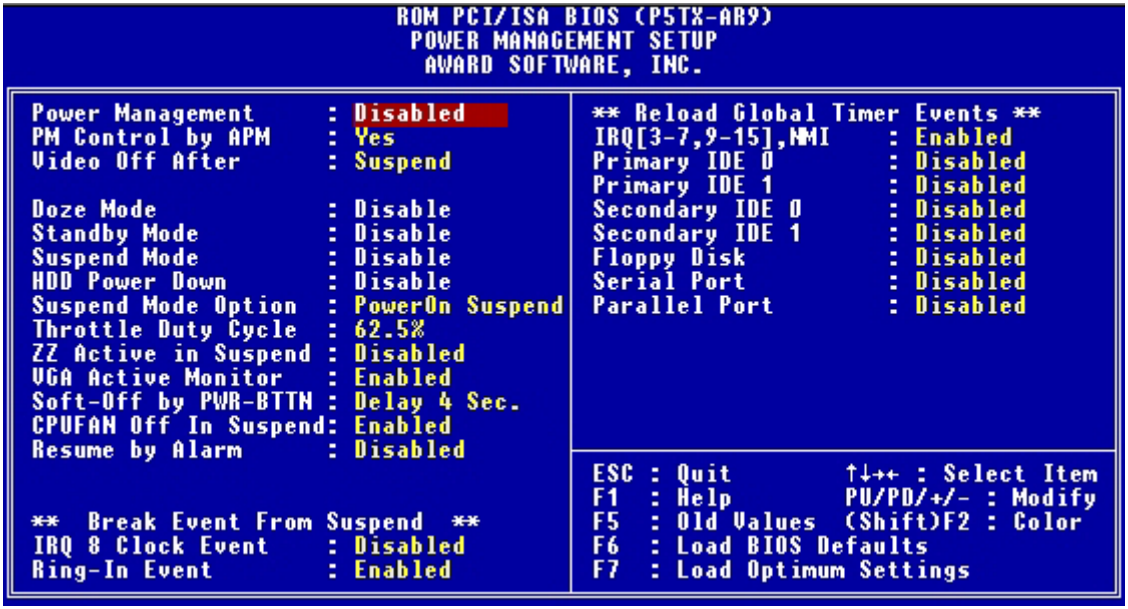
The CMOS Setup Utility Summary in Section 4: Reference Information, lists the setting options for each section of the utility including the two noted above.

CMOS Setup Utility –
BIOS Features Setup
This section of the setup utility allows you to configure some system features including Virus Warning, Boot Sequence and Security Option.

Virus Warning –
When enabled, monitors the primary hard disk boot sector and warns of any attempt to write to it.

Boot Sequence –
Controls the order in which the system checks disk drives for a boot disk.

Security Option –
Sets the level of password protection for the system.



CMOS Setup Utility – Power Management Setup

This section of the setup utility allows you to configure the power management features supported by the BIOS. These can also operate in tandem with Operating System power management features.

You can use the Min Saving or Max Saving default modes or you can configure the power management features individually in the User Define mode.

Hardware Features

This section is a brief overview of information about the mainboard's hardware features.

Onboard Ports

There are several external ports on the mainboard. These are ports standard to most personal computers:

- COM1 Serial Port

  A high-speed serial port which can also be configured as the COM3 port in the CMOS Setup Utility.
- COM2 Serial Port (on supplied Port Bracket)

  A high-speed serial port which can also be configured as the COM4 port in the CMOS Setup Utility.
- Parallel Port

  The parallel port can be configured as a Standard, ECP or EPP parallel port in the CMOS Setup Utility
- PS/2 Keyboard Port (lower) & PS/2 Mouse Port (upper)
- USB ports – two ports (stacked)
- Game Port for joystick or other game device
- Audio connectors – Mic, Line-In & Line-Out
- TV-Out jacks (on supplied Port Bracket)

Connectors

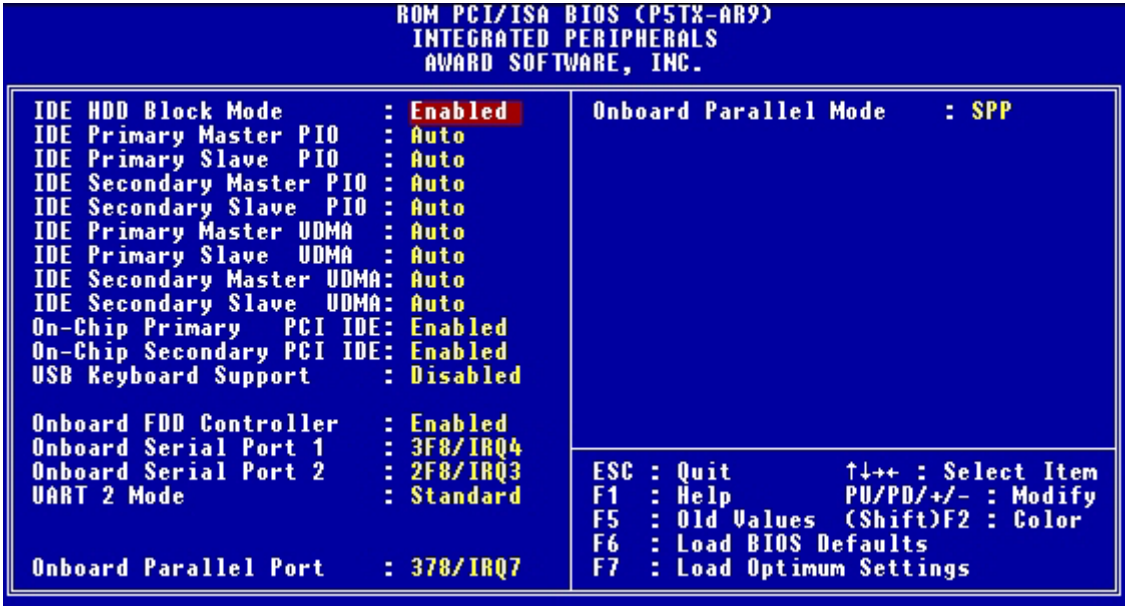
There are several connectors on the mainboard for connecting additional ports and internal peripheral devices

- IDE 1 – Primary IDE Channel

  Connector for the Primary Master and Slave IDE devices.
- IDE 2 – Secondary IDE Channel

  Connector for the Secondary Master and Slave IDE devices.
- Floppy Connector

  Connector for two floppy disk drives.



CMOS Setup Utility – Integrated Peripherals

This section of the setup utility configures the IDE and Floppy controllers and the settings for the external ports

This section enables and configures the optional USB and Infrared features.

The screen illustration shows the settings when Optimum Settings are loaded.

Case Security

The mainboard has a case security feature that will warn if the system case or 'chassis' has been opened since the last time the system was used. There is a photoelectric cell mounted on the mainboard that is active when the system is turned off and will detect the case being opened. The next time you turn the system on a warning message will appear on screen during the POST (Power On Self Test) before the Operating System loads.

The J21 connector on the mainboard connects to a chassis intrusion signal cable.

Cooling Fan Connectors

The is a cooling fan power connector on the mainboard that supports a CPU cooling fan with power management features. If you connect this type of fan, and the 'CPU FAN Off In Suspend' line in the CMOS Setup utility's Power Management Setup section is set to Enabled, the system will turn the fan off when the system is in Suspend mode.

Modem Wake-Up

The JP11 connector on the mainboard is for connecting a signal cable from a modem that supports a modem ring system wake up feature. With such a modem installed and connected to the mainboard via this connector, the system will wake up from Suspend mode when an incoming call is received by the modem.

The 'Ring-In Event' line in the CMOS Setup utility's Power Management Setup section must be set to Enabled for this feature to function.

ATX Power Supply

With an ATX power supply, the system will turn the power off automatically when exiting Windows95.

UltraDMA Hard Disk Drive Support

This mainboard supports hard disks that use UltraDMA data transfer. You attach an UltraDMA drive to one of the IDE cables. If you use the Optimum Settings feature in the CMOS Setup utility the system will automatically detect the drive and configure the system to use it.

Optional Hardware Connectors

There are additional feature connectors on the mainboard for optional ports. These require optional external port hardware.

TV-Out Connectors

This mainboard has an optional feature which allows you to use a television as the display monitor. You can connect a TV to one of the TV-Out connectors on the combined COM2/TV-Out port bracket. There are two connectors, one for a standard RCA jack and the other for an S-Video jack.

The TV-Out cable from the combined COM2/TV-Out port bracket connects to the J15 connector on the mainboard.

IR Ports

There is one standard and one optional connector on the mainboard which support an IR (infrared) port module that enables wireless communication between the computer and other computers and devices with an infrared port. The default IR connector, J18, is for IrDA or ASKIR infrared modules and the optional J17 connector is for Fast IR.

The infrared port module is an optional component. If it is installed, you must set the UART 2 line in the Integrated Peripherals section of the CMOS Setup utility to the appropriate IR mode used by the module.

Firmware & Software

The mainboard hardware is supported by both firmware and software components. Firmware is software that is stored on a chip on the board rather than on disk media.

The firmware component you interface with on this mainboard is the CMOS Setup Utility. This utility establishes various settings used by the BIOS, the basic software that is an interface between the system hardware and software.

The software component is comprised of software drivers that support the PCI IDE controller and some of the other hardware features.

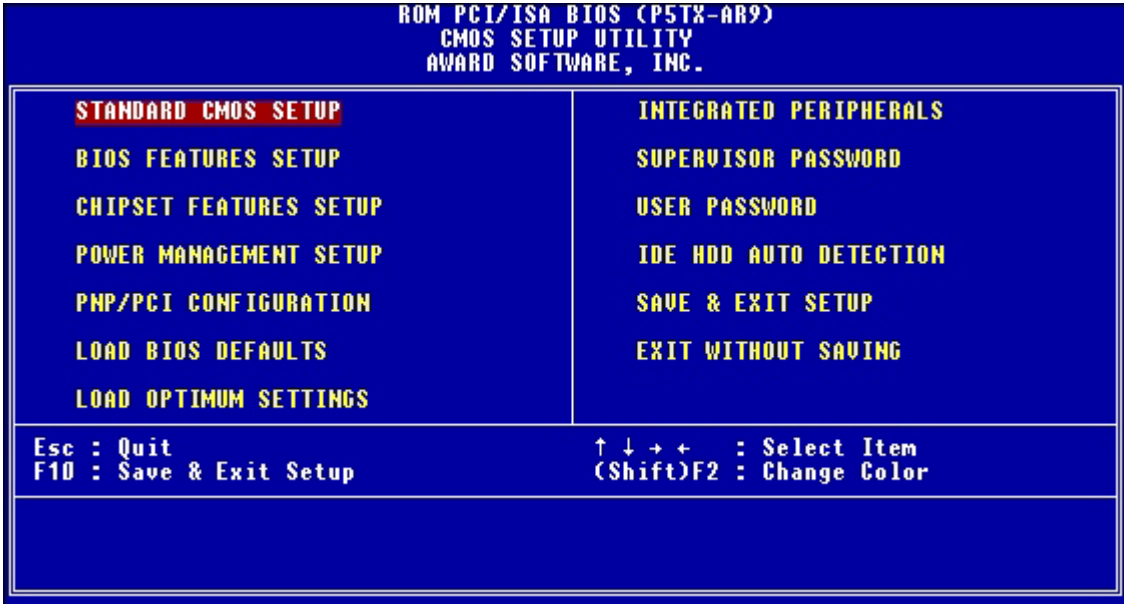
How To Use The CMOS Setup Utility

The CMOS Setup Utility options are listed in detail in Section 4: Reference Information. This section is just a brief explanation of how to run the program to adjust settings as noted in this and the next section.

To run the CMOS Setup Utility, press the Del or Delete key while the computer is starting up, before the operating starts to load. The utility's main screen will appear as shown on the next page. To navigate the program, use the controls shown on the screen. The utility has several sections. Many of the features configured by the utility are set to operate automatically when the 'Setup Defaults', the recommended mode, are used. With Setup Defaults loaded you can still customize various settings.

Clearing CMOS

Under some unusual circumstances the configuration record created by the CMOS Setup utility and stored on the mainboard can become corrupted and unusable, possibly leading to the board being unable to operate properly. If this happens, the CMOS record can be cleared by setting jumper JP10 to the clear setting for a moment and then setting it back to the Normal setting. Refer to Section 4 for more information.



CMOS Setup Utility –
This is the main screen for the setup utility from which you access its various sections. The function and use of each section is covered in Section 4: Reference Information.

Flashing The BIOS

This mainboard uses the Award BIOS. The BIOS is stored on a programmable flash memory chip on the mainboard. Updates to the BIOS can be installed by installing a new BIOS file on the flash chip, which replaces the existing one. You do this using software that comes on the Support Disk. There is an explanation of how to install a BIOS update in a 'readme' text file included with the program.

Bus Master Drivers

This mainboard comes with software drivers, for various Operating Systems, that enable the PCI controller to operate in 'Bus Master' mode. The drivers are on the Support Disk. The included 'readme' file has information on the drivers and installation information.

ATi Display Drivers

The display drivers for the onboard ATi 3D Rage II+ display card support a variety of color display modes and screen resolutions. The ATi display drivers provided on the Support Disk come with extensive documentation that explains their installation and use. Please review the relevant documentation for information on using the ATi display card features.

In This Section:

Installing Expansion Cards
Adding System Memory
Installing A CPU Upgrade
Adding An IDE Peripheral
Adding Display Memory
Disabling Onboard Display

Reconfiguring Your Mainboard

This section explains how to install new hardware on your mainboard. It covers installing expansion cards, adding system memory, changing the CPU and installing additional IDE peripheral devices such as a hard disk or a CD-ROM drive.

Installing Expansion Cards

There are seven expansion card slots on the mainboard, three ISA slots and four PCI slots. When you get an expansion card, it will come with instructions on how to install it, so this section covers relevant information from the mainboard side only.

ISA Cards & Slots

ISA expansion cards often use system resources in the form of IRQs and DMA channels. Newer cards that comply with the Plug and Play (PnP) standard are designed to allow the Operating System to automatically configure system resources. Cards that do not support PnP may require manual configuration of both the card hardware and settings in the CMOS Setup Utility.

If you have a PnP-compliant card to install there should be little to do other than follow the installation instructions. If, however, you have a non-PnP card and it requires configuring system resources, you may need to review the third part of this section, Configuring Expansion Card Resources In CMOS Setup.

PCI Cards & Slots

With very few exceptions, any PCI expansion card you are likely to get will be Plug an Play compliant. If you are using an Operating System that supports PnP, such as Windows 95, you should be able to follow the installation instructions that come with the card and have the Operating System automatically recognize and configure the card.

The PCI slots on the mainboard all have 'Bus Master' capability. For installed PCI cards to use this feature an Operating System-specific Bus Master software driver that comes with this mainboard must be installed under your Operating System. These drivers are located on the Support Disk.

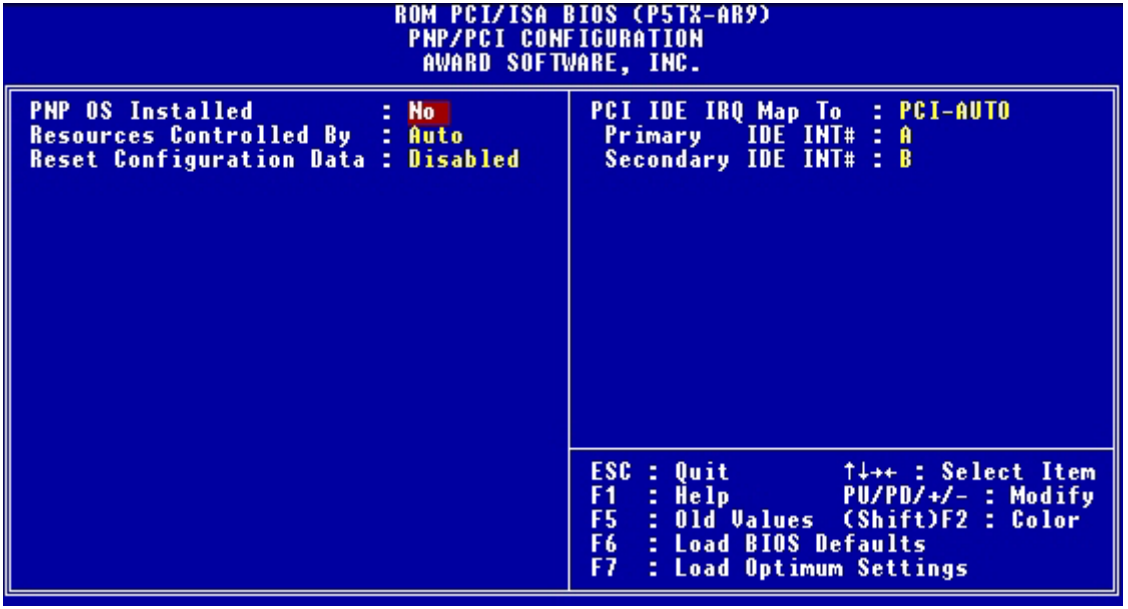
Configuring Expansion Card Resources In CMOS Setup

The CMOS Setup Utility, which is covered in detail in Section 4: Reference Information, has a section called PNP/PCI Configuration. The default settings in this section allow the Operating System to automatically configure IRQ resources for PnP compliant ISA and PCI Cards.

If you need to install a non-PnP card, you will need to configure any IRQ and DMA settings manually, both on the card and in the CMOS Setup Utility. The following three pages show how to do this.

Running CMOS Setup

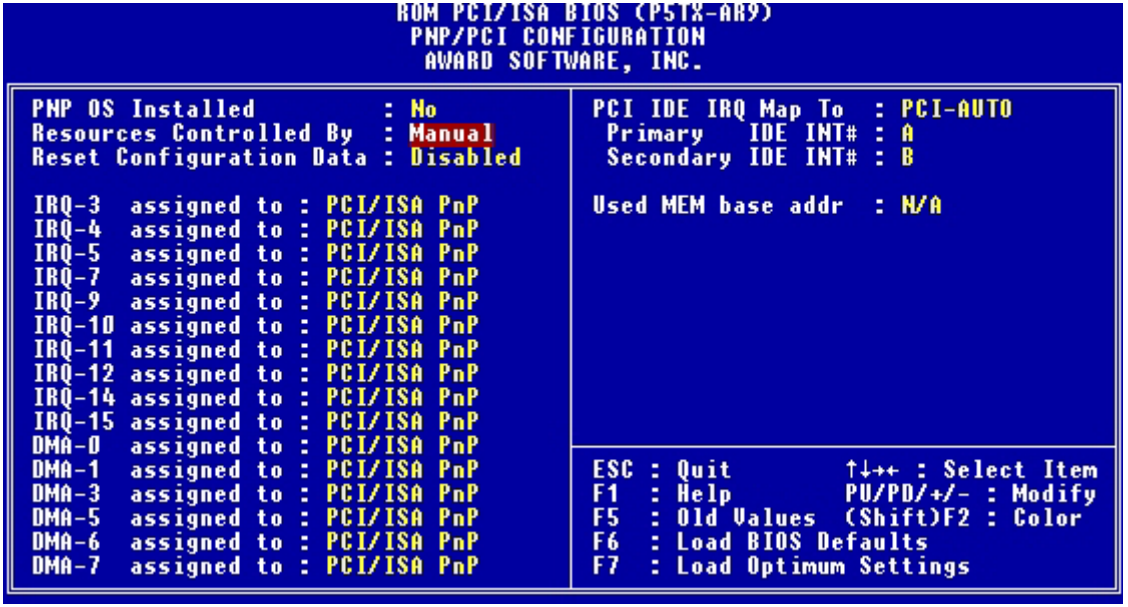
To run the CMOS Setup utility, press the Delete or the Del key while your computer is first starting up. Select the 'PNP/PCI CONFIGURATION' item on the main screen and press the Enter key to open it. When you are finished, press the Esc key once to return to the main screen and then select 'SAVE & EXIT SETUP' and press the Enter key to save the new configuration. For more information on this see Section 4: Reference Information.



CMOS Setup Utility – PnP/PCI Configuration

This is the default screen for this section when Setup Defaults are loaded. If you need to manually configure the IRQ settings, set the first item on the screen to the 'Manual' setting. See the next page.

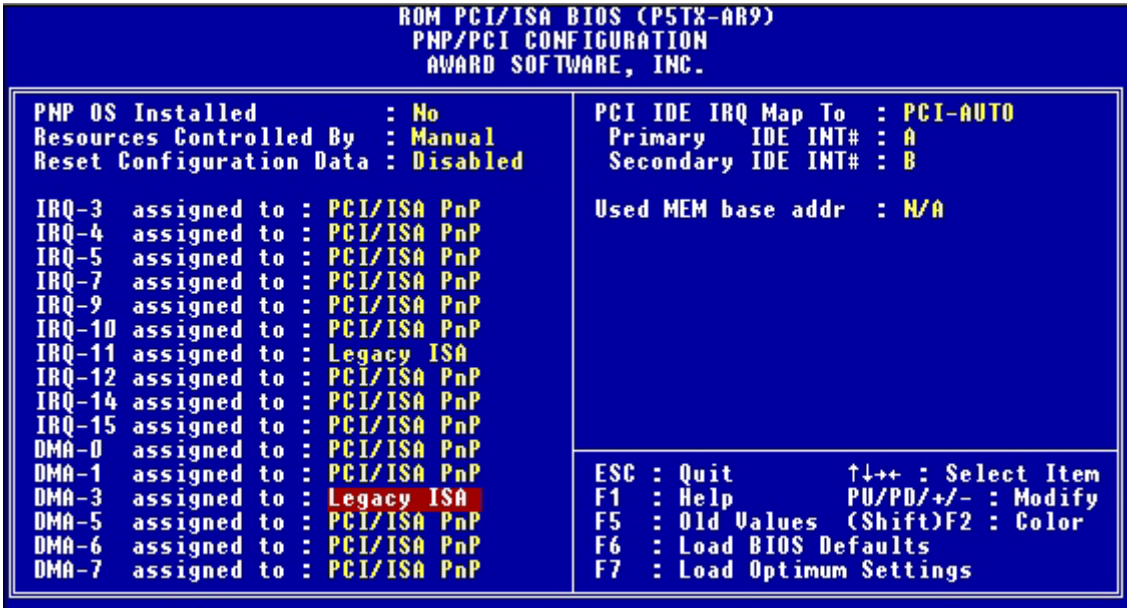
If you install an Operating System that supports Plug and Play, such as Windows95, you should set the first line, 'PNP OS Installed' to 'Yes'.



CMOS Setup Utility – PnP/PCI Configuration

When 'Resources Controlled By' is set to 'Manual' you can individually configure the IRQ & DMA channel settings. The individual defaults are for PnP cards and will still use all the items listed to automatically assign resources as needed.

If you are installing a 'legacy' ISA card that requires manual configuration, you can manually assign the required resources as needed. See the next page for an example.



CMOS Setup Utility – PnPPCI Configuration

This screen shows an example of a manually configured IRQ setting for a "Legacy' ISA expansion card. Legacy cards, by definition, are not PnP compliant and must be manually configured if they require an IRQ or DMA channel. See the card manual for specifics.

When an item in the list is configured this way, it is no longer part of the pool of automatically configurable resources. For this reason, don't configure ISA cards this way unless they are Legacy cards.

Adding System Memory

There are some requirements you must follow if you want to install system memory. The memory subsystem has three 168-pin DIMM sockets which function independently. This mainboard supports both EDO DRAM and SDRAM (Synchronous DRAM) modules. You can use module sizes from 8MB to 128MB, either single or double-sided. The total supported memory capacity for this mainboard is 256MB.

If your mainboard is already installed in a system, it will have some amount of memory installed on the board. You can tell how much by checking the configuration screen that appears when the computer is starting up. With some memory installed, there may be one or two sockets available to add additional memory.

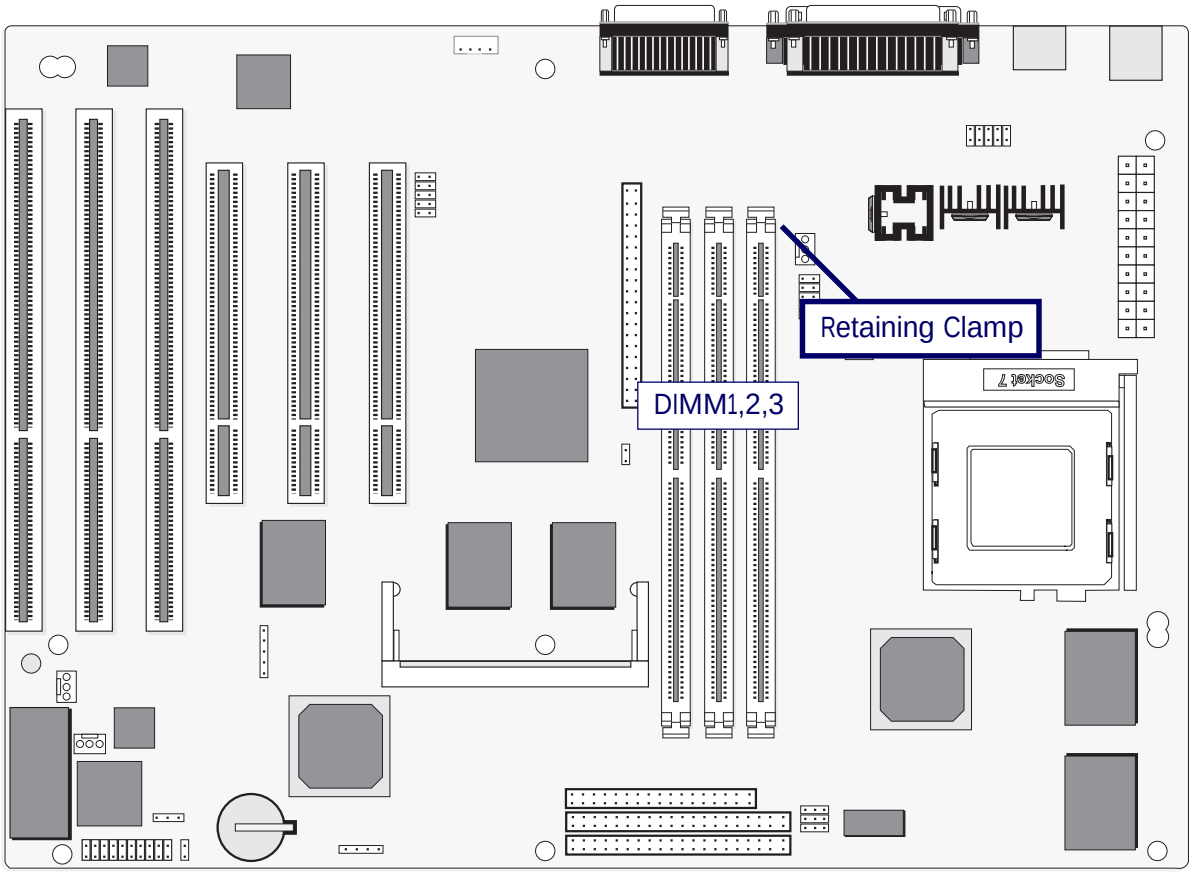
Memory Configurations

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

- All modules must be 3.3–Volt
- All modules should have the same operating speed, e.g. 60ns (nanoseconds)
- DIMM3 can not install any module larger than 32MB

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.



DIMM Sockets

The picture above shows the memory module sockets in detail. The sockets are numbered DIMM1 to DIMM3 starting from the left socket in the picture.

Modules press into place and are held in position by a retaining clamp at each end of the socket.

When you want to remove a module, press down on the retaining clamps to push the module out of the socket.

The DIMM3 socket does not support modules larger than 32MB.
Do not install any module larger than 32MB in this socket.

Installing Memory Modules

To install a DIMM module, look at the module and note the position of the shorter section of the connector edge that plugs into the DIMM socket. Note the position of the shorter section of the socket. Orient the module so that these match and press the module into the socket at a 90° angle. The retaining clamps at each end of the socket will rotate upwards automatically to secure the module in place.

Modules are designed so that they will only insert in one orientation. If you have trouble inserting the connector edge of the module into the socket, it may be oriented the wrong way. Turn the module around and try again. You shouldn't need to force it.

If All Sockets Are Occupied

If you want to install more memory and there are no sockets available, you must remove some installed modules and replace them with the upgrade modules.

If you have to do this, make sure to identify what type of memory is already installed. In some cases, there may be a mix of module types. You can tell this by checking the configuration screen that appears while the computer is starting up. Press the Pause key to temporarily interrupt the start-up process while the screen is visible so that you have more time to read it. When you're done press any key to resume.

Remove the lowest performance and smallest size modules and replace them with the upgrade.

Installing A CPU Upgrade

If you are installing this mainboard it will not have a CPU installed unless your vendor installed one when you purchased the board. If the mainboard is installed in a system, there will already be a CPU installed. In either case the information and procedure for installing a CPU is the same. Since the more likely scenario is that you are installing an upgrade, this section assumes that is what you are doing.

The Basic Procedure

To install a CPU on this mainboard you need to set up the board for a specific CPU by doing the following:

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

You configure the CPU settings by adjusting jumper settings on the board. In order to do this, you will need to know some information about the CPU you plan to install. This 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 board for a 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 is the internal clock speed of the CPU you are installing. For example, the default setting for these is:

66.6MHZ [external clock] x 2.0 [clock factor] =133.2MHz

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 factors 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.

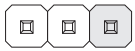
CPU Jumper Tables & Illustrations

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

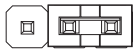
- Where two pins are shorted (connected) by a jumper cap on a three-or-more-pin jumper the shorted pins are listed, e.g. 1-2

  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:



The default settings are noted in the tables.

CPU Jumper Settings

Function	Jumper	Settings					
External Clock	JP4-6	Ext. Clock					
		55MHz	JP4: 2-3, JP5: 1-2, JP6: 2-3				
		60MHz	JP4: 1-2, JP5: 1-2, JP6: 2-3				
		66.6MHz	JP4: 1-2, JP5: 1-2, JP6: 1-2				
		68.5MHz	JP4: 1-2, JP5: 2-3, JP6: 1-2				
		75MHz	JP4: 2-3, JP5: 1-2, JP6: 1-2				
Internal Clock Factor	JP2 & JP3	1.5x & 3.5x	JP2: 1-2, JP3: 1-2				
		2.0x	JP2: 1-2, JP3: 2-3				
		2.5x	JP2: 2-3, JP3: 2-3				
		3.0x	JP2: 2-3, JP3: 1-2				
CPU Core Voltage	JP7		1-2	3-4	5-6	7-8	9-10
On= Cap On		2.5V					On
(One cap for this jumper)		2.8V				On	
		2.9V			On		
		3.2V		On			
		3.3V	On				

Other Jumper Settings

Onboard VGA	JP8	Default	Enable	Open
			Disable	Short
Clear CMOS	JP10	Default	Normal	2-3
			Clear	1-2*

* Put cap on jumper for a moment and then remove to clear current settings

External Clock Speed

55MHz

JP4
JP5
JP6

60MHz

JP4
JP5
JP6

66.6MHz

JP4
JP5
JP6

68.5MHz

JP4
JP5
JP6

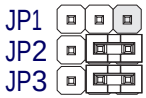
75MHz

JP4
JP5
JP6

Internal Clock Factor

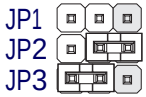
1.5x & 3.5x

JP1
JP2
JP3



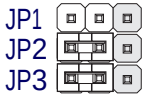
2.0x

JP1
JP2
JP3



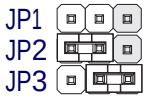
2.5x

JP1
JP2
JP3



3.0x

JP1
JP2
JP3



Onboard VGA

Enable

JP8

Disable

JP8

Clear CMOS

Normal

JP10

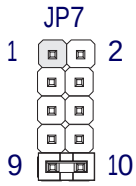
Clear

JP10

CPU Core Voltage (Vcore)

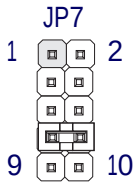
2.5V

JP7



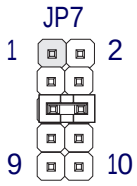
2.8V

JP7



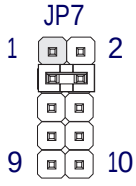
2.9V

JP7



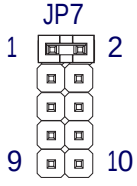
3.2V

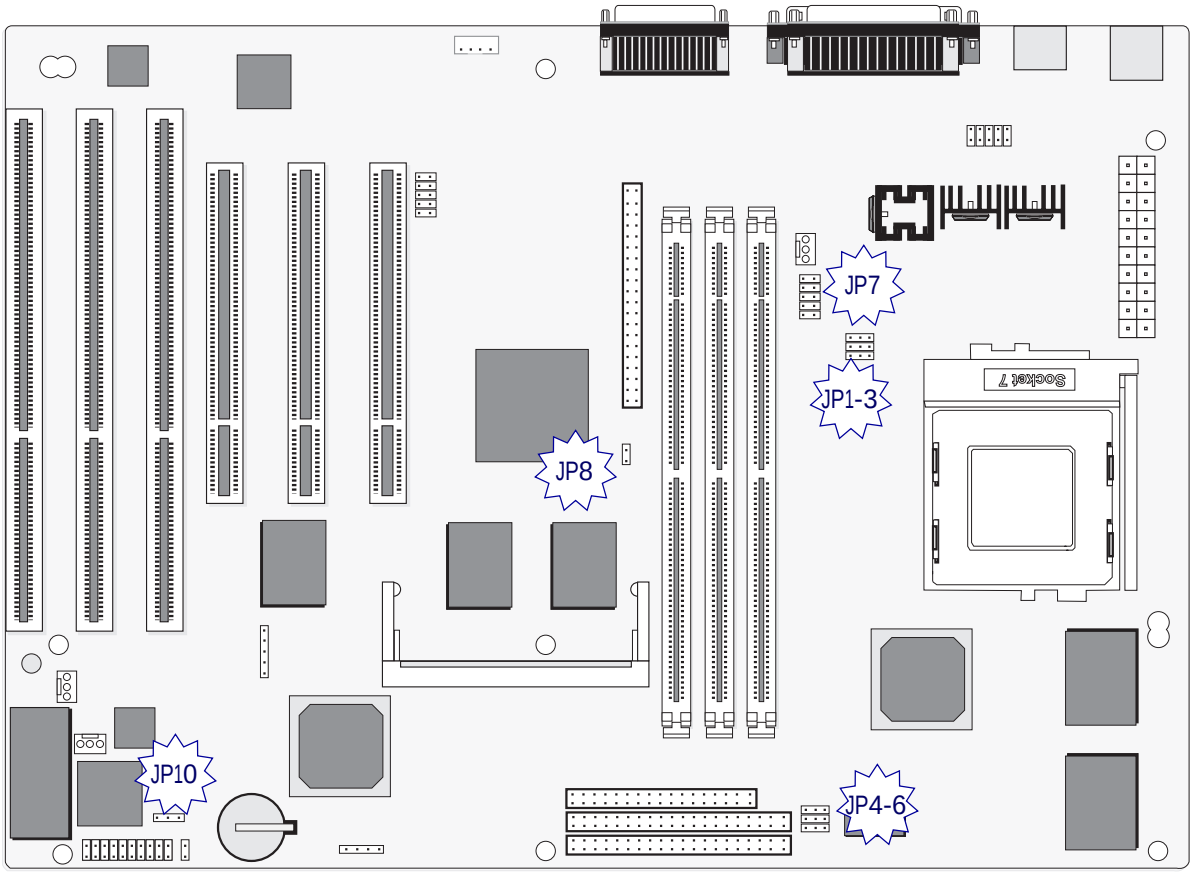
JP7



3.3V

JP7





Jumper Locations

The illustration above shows the location of the jumpers illustrated on the previous page.

Adding An IDE Peripheral

This section covers some aspects of installing internal IDE peripheral devices as they relate to the mainboard. The onboard Enhanced IDE controller supports up to four devices, two per IDE channel. The primary hard disk drive in most systems is an IDE device. You may want to install more hard disks, a CD-ROM drive or combination of these and other devices. This mainboard supports both PIO and UltraDMA modes, which it can detect automatically. You can install a mix of devices. With the Setup Defaults loaded in the CMOS Setup utility, the system will automatically detect and configure multiple devices of whatever mode.

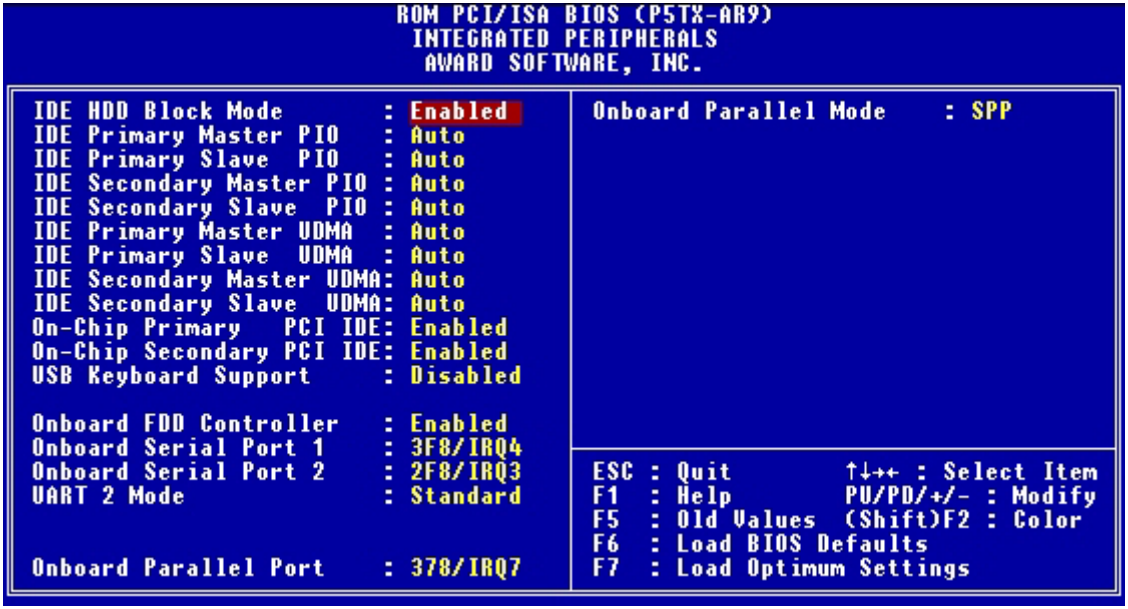
IDE Transfer Modes

Hard disk read and write operations are executed via the mainboard chipset. The transfer of data between the hard disk and the system takes place using one of a number of transfer modes – either one of several PIO modes or UltaDMA mode.

Although there are several PIO Modes (0 through 4), and this mainboard supports all of them, most current hard disk and CD-ROM drives use either Mode 3 or 4. The greater the mode number, the faster the transfer rate, so you should use the fastest mode the device can operate at. With Optimum Settings loaded in the CMOS Setup Utility, the system will automatically detect the fastest mode a device can use and set it for that mode.

UltraDMA is another transfer method that provides even faster data transfer than PIO modes. To use it you must install a drive that uses this transfer method. Drives that use PIO Mode transfer can not use the UltraDMA setting.

The settings for drive modes are in the Integrated Peripherals section of the CMOS Setup utility. The screen illustration at right shows the Setup Defaults settings.



CMOS Setup Utility – Integrated Peripherals

The illustration above shows the Setup Defaults settings for this screen. You can install IDE devices under these settings and the system will automatically detect and set the best mode for each device.

You can also set the transfer mode for each device manually, although we recommend using the default settings unless you have a reason not to and you know what you are doing.

Installing IDE Devices

The mainboard's Enhanced IDE controller supports four devices in two channels, IDE1 and IDE2. These are called the Primary and Secondary IDE channels.

Each channel supports two devices, the first device is called the Master device and the second the Slave device. You must configure any IDE device you install to operate as one or the other. To find out how to configure the device you plan to install you should refer to the manual that comes with the device. You may need to set jumpers or switches to configure it.

IDE Cables

The mainboard comes with one IDE ribbon cable to connect two devices to the mainboard. If you need to install devices on the second channel you will need to get another IDE cable. These are a standard and inexpensive item that you can generally find at any computer supply store. One edge of the cable is colored to indicate the Pin 1 side. When you connect the cable to the mainboard and a device you must orient the cable so that this colored edge is at the Pin 1 side of the connector you are attaching it to.

The mainboard IDE connectors have an orientation cut-out to ensure correct orientation, and the supplied cable has an orientation tab on the side of the connector. Some IDE cables do not have this tab and therefore are not forced to use the correct orientation. You should check that any cable you buy has orientation tabs on the side of the connectors. If you get a cable that does not have them, make sure the cable is correctly oriented when you attach it to the board and the device.

IDE cables have three connectors on them, one at each end and one in-between, closer to one of the ends. When you install a device on the second channel, attach the lone end to the IDE2 connector on the mainboard. The two connectors that are closer to each other are for connecting to IDE devices. The connector on the end is for the Master device and the connector in the middle is for the Slave device.

IDE Devices & CMOS Setup

When you install a new hard disk drive its parameters will be automatically detected by the BIOS and entered in the Standard CMOS Setup section of the CMOS Setup utility if you use the Optimum Settings, which automatically detect any new hard disk drive. All other devices do not use drive parameters and will not show up in the device list on this page.

Adding Display Memory

The mainboard comes with 2MB of SGRAM display memory mounted on the board. There is an upgrade socket on the mainboard for an upgrade display memory module. The 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 configurations available.

Disabling The Onboard Video Display

If you want to use a video display card other than the onboard ATi Rage II+ you can disable the onboard display by putting a jumper cap on jumper JP8. The location of the jumper and the settings are shown on pages 14 and 15 of this section.

When you disable the onboard video display the external VGA connector on the board is also disabled. Use the VGA connector on the alternate display card you install to connect a monitor.

In This Section:

Jumper Summary
Connector Summary
CPU Information
Memory Configurations
CMOS Setup Utility

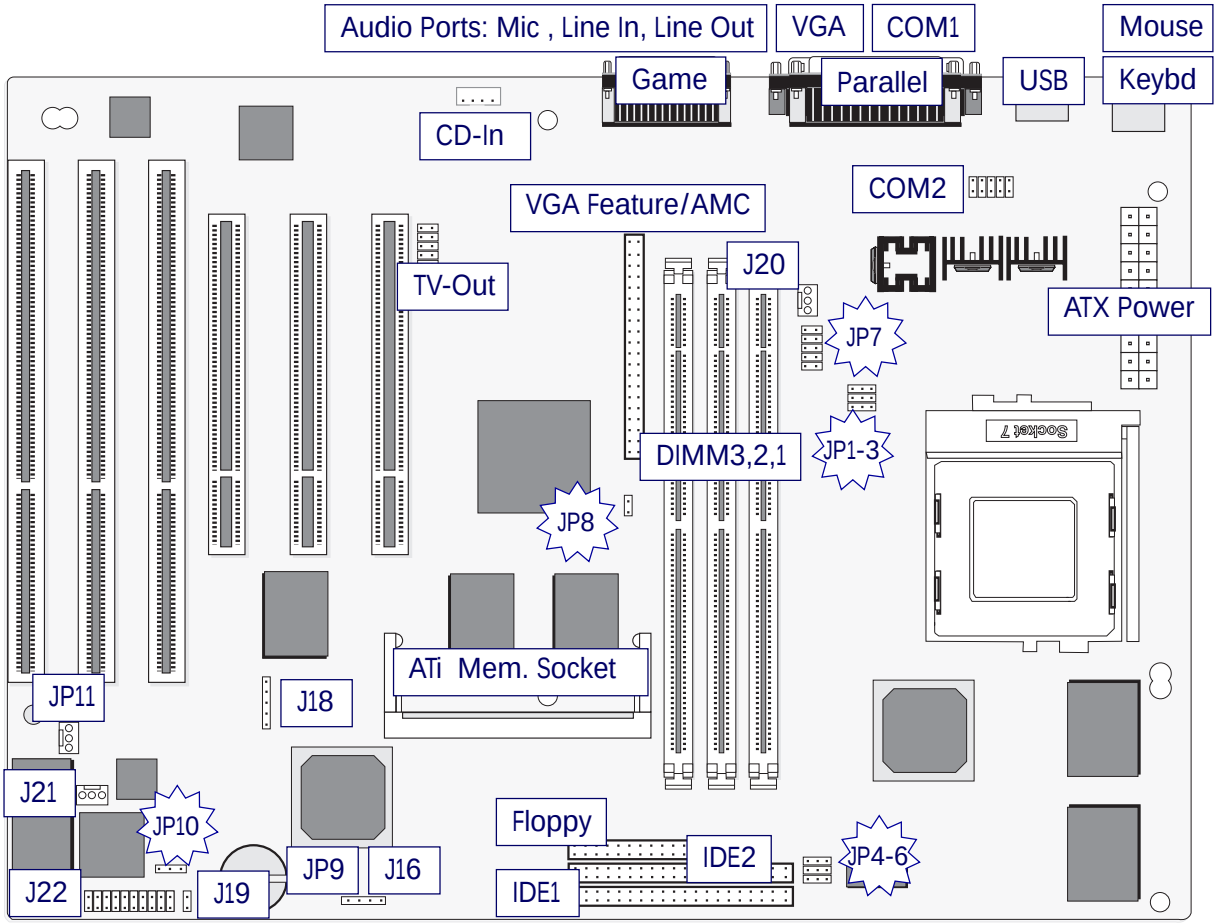
P5TX–AR Reference Information

This section is a summary of the P5TX–AR's specifications and settings. It includes the following:

- Jumper Configuration Summary
- 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 & Connectors

The illustration above shows the location of the jumpers, ports and other connectors on the mainboard.

The COM1 and VGA ports are underneath the Parallel port. The USB ports and the PS/2 Keyboard and Mouse ports are stacked.

The COM2 connector is on the board and connects to the COM2 cable from the combination COM2 and TV Out port bracket.

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

Jumper Configuration Summary

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

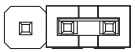
- The two pins shorted by a jumper cap on a three-or-more-pin jumper, e.g. 1-2

  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	Settings					
External Clock	JP4-6	Ext. Clock					
		55MHz	JP4: 2-3, JP5: 1-2, JP6: 2-3				
		60MHz	JP4: 1-2, JP5: 1-2, JP6: 2-3				
		66.6MHz	JP4: 1-2, JP5: 1-2, JP6: 1-2				
		68.5MHz	JP4: 1-2, JP5: 2-3, JP6: 1-2				
		75MHz	JP4: 2-3, JP5: 1-2, JP6: 1-2				
Internal Clock Factor	JP2 & JP3	1.5x & 3.5x	JP2: 1-2, JP3: 1-2				
		2.0x	JP2: 1-2, JP3: 2-3				
		2.5x	JP2: 2-3, JP3: 2-3				
		3.0x	JP2: 2-3, JP3: 1-2				
CPU Core Voltage	JP7		1-2	3-4	5-6	7-8	9-10
On= Cap On		2.5V					On
(One cap for this jumper)		2.8V				On	
		2.9V			On		
		3.2V		On			
		3.3V	On				

Other Jumper Settings

Onboard VGA	JP8	Default	Enable	Open
			Disable	Short
Clear CMOS	JP10	Default	Normal	2-3
			Clear	1-2*

* Put cap on jumper for a moment and then remove to clear current settings

External Clock Speed

55MHz

JP4
JP5
JP6

60MHz

JP4
JP5
JP6

66.6MHz

JP4
JP5
JP6

68.5MHz

JP4
JP5
JP6

75MHz

JP4
JP5
JP6

Internal Clock Factor

1.5x & 3.5x

JP1
JP2
JP3

2.0x

JP1
JP2
JP3

2.5x

JP1
JP2
JP3

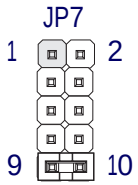
3.0x

JP1
JP2
JP3

CPU Core Voltage (Vcore)

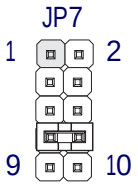
2.5V

JP7



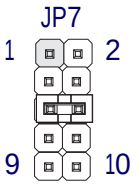
2.8V

JP7



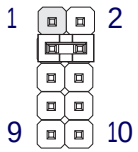
2.9V

JP7



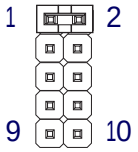
3.2V

JP7



3.3V

JP7



Onboard VGA

Enable

JP8

Disable

JP8

Clear CMOS

Normal

JP10

Clear

JP10

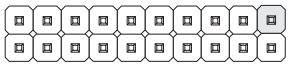
Onboard Connectors

Name	Function	Description
J1	Keyboard & Mouse	Stacked PS/2 ports, keyboard lower, mouse upper
J2	ATX Power	Connects to 20-pin ATX power supply lead
J3	USB Port 1 & Port 2	Stacked Universal Serial Bus ports
J4 COM2	Serial Port Two	Connector for external 9-pin serial port port bracket is can be set to COM4
J5	Serial Port One	Onboard 9-pin serial port is COM1, can be set to COM3
J6	Parallel Port	Standard 25-pin parallel Printer port
J7	External VGA	External VGA port connector
J8	Floppy Drive Controller	34-pin connector connects to 2-device cable; End device is Drive A:, middle is Drive B:
J9	Second IDE Channel	40-pin connector connects to 2-device cable; End device is Secondary Master, middle is Slave
J10	First IDE Channel	40-pin connector connects to 2-device cable; End device is Primary Master, middle is Slave
J11	Audio jacks	Jacks for Line-In, Line-Out & microphone
J12	Video Feature	VGA feature connector & ATi AMC connector
J13	SODIMM	Socket for display memory upgrade
J14	CD-In	CD-ROM dive audio cable connector
J15	TV Out	Connector for an optional external TV port module
J16 LED	Hard Disk LED	Connector for case-mounted hard disk activity indicator
J17	FIR header (optional)	Connects to optional Fast IR infrared module cable
J18	Intel IR header	Connects to optional IrDA or ASKIR infrared module cable

Name	Function	Description
J19	Power Button	Connects case-mounted power push-button
J20	CPU Fan power	For power management-enabled cooling fan power cable
J21	Intrusion Detector	Connects to chassis intrusion detector cable
J22	Case Features	Connects to case features: Pin 2-3: Power On LED; Pin 4-5: Suspend Switch; Pin 6-7: Turbo Switch; Pin 9-10: Reset Switch Pin 11-15: Keyboard Lock; Pin 17-20: Speaker
P1	Game Port	Standard external game port
JP9	Suspend LED	Connects to case-mounted Suspend mode indicator
JP11	Modem Ring Wake-up	Connects to internal modem for system wake-up on modem ring

J22: Case Features Connector

10–9 7–6 5–4 3–2



20 – 17 15 – 11

Pins 2-3: Power On LED
Pins 4-5: Suspend Switch
Pins 6-7: Turbo Switch
Pins 9-10: Reset Switch
Pins 11-15: Keyboard Lock
Pins 17-20: Speaker

19 – 20

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 200MHz 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

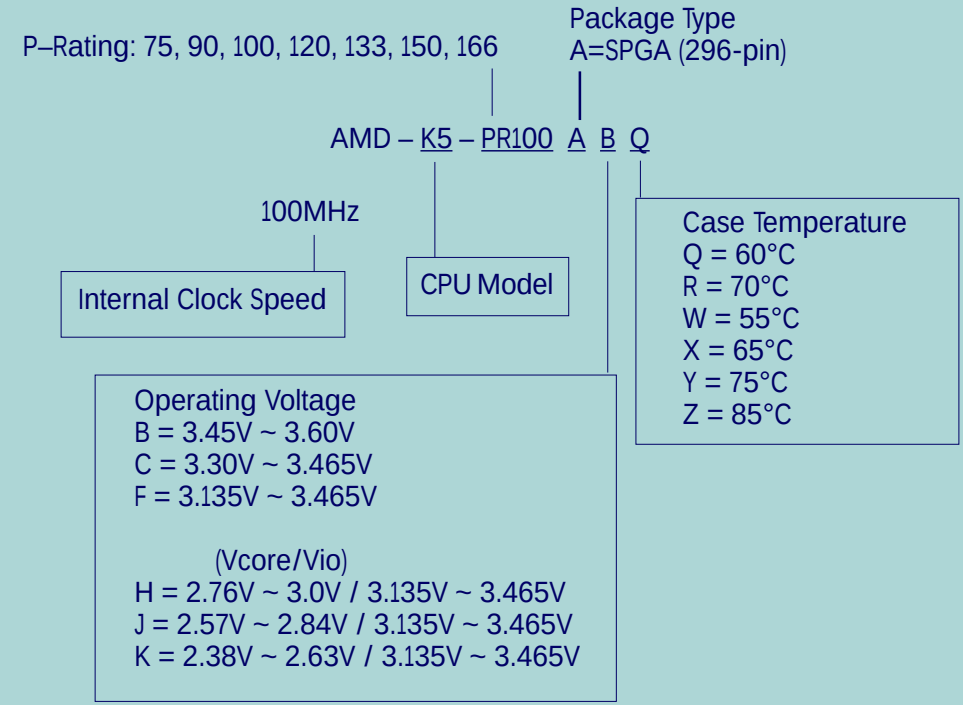
AMD CPUs Supported:

K5, K6

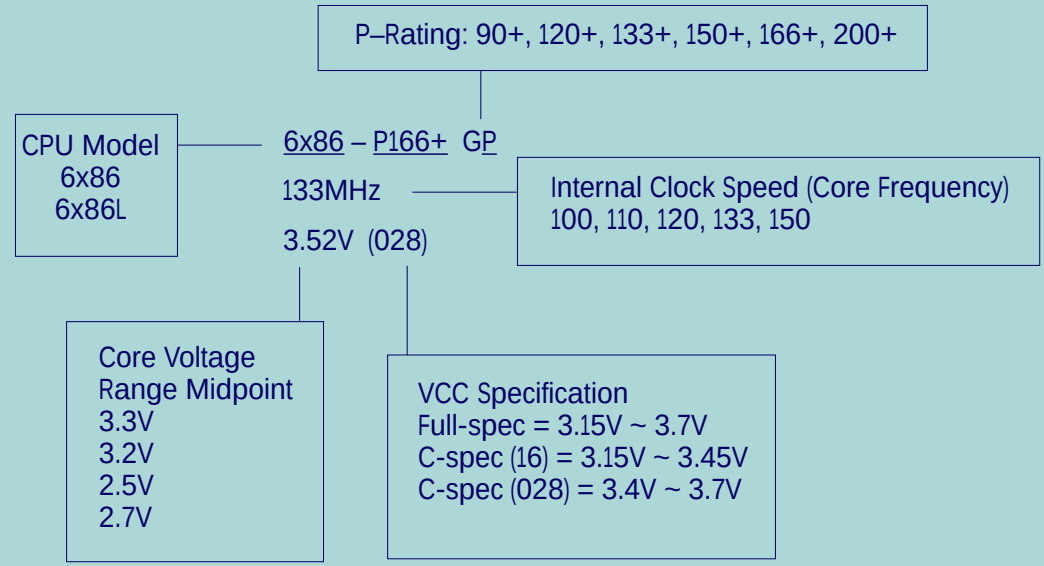
Interpreting CPU Markings

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 makings on the CPU. The following information is a guide to reading the markings.

AMD K5 CPU Markings



Cyrix 6x86 CPU Markings



System Memory Specifications

The memory subsystem on this mainboard has three 168-pin DIMM sockets. The sockets function independently and can use either EDO DRAM or SDRAM 3.3–Volt modules. Single or double-sided modules from 8MB to 128MB are supported up to a total memory capacity of 256MB.

Memory Configurations

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

- All modules must be 3.3–Volt
- All modules have same operating speed, e.g. 60ns

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.

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

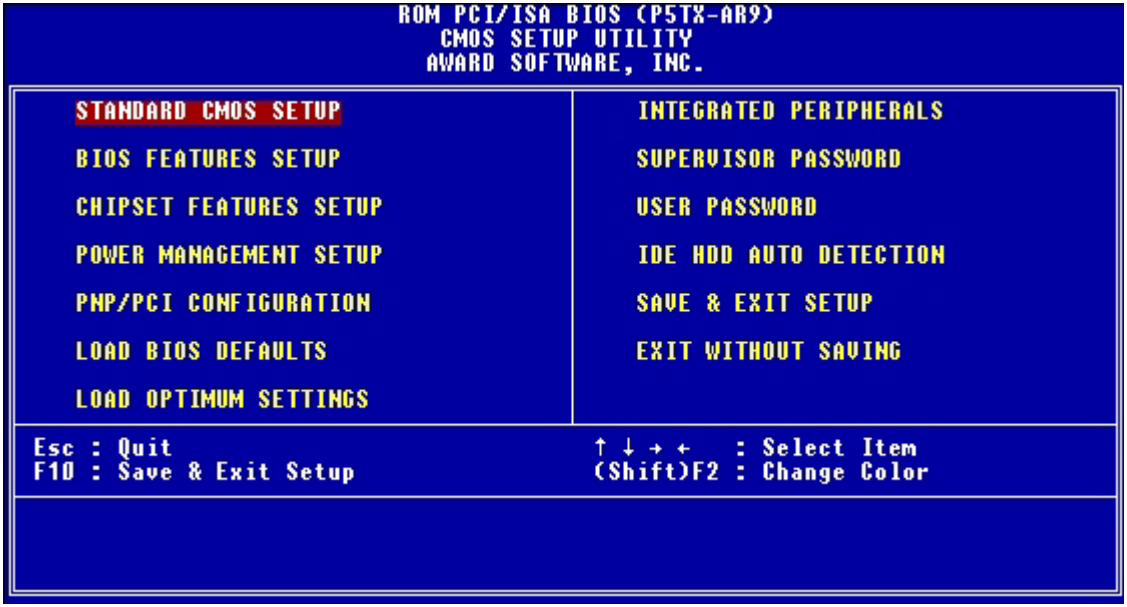
This mainboard uses the Award system BIOS. It is stored in a Flash ROM memory chip on the mainboard. The BIOS uses a software program, also stored on the same chip to create a system configuration record which is saved in a small amount of special "CMOS" memory on the mainboard.

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.


ROM PCI/ISA BIOS (P5TX-AR9)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.
STANDARD CMOS SETUP
BIOS FEATURES SETUP
CHIPSET FEATURES SETUP
POWER MANAGEMENT SETUP
PNP/PCI CONFIGURATION
LOAD BIOS DEFAULTS
LOAD OPTIMUM SETTINGS
INTEGRATED PERIPHERALS
SUPERVISOR PASSWORD
USER PASSWORD
IDE HDD AUTO DETECTION
SAVE & EXIT SETUP
EXIT WITHOUT SAVING
Esc : Quit
F10 : Save & Exit Setup
↑ ↓ → ← : Select Item
(Shift)F2 : Change Color

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

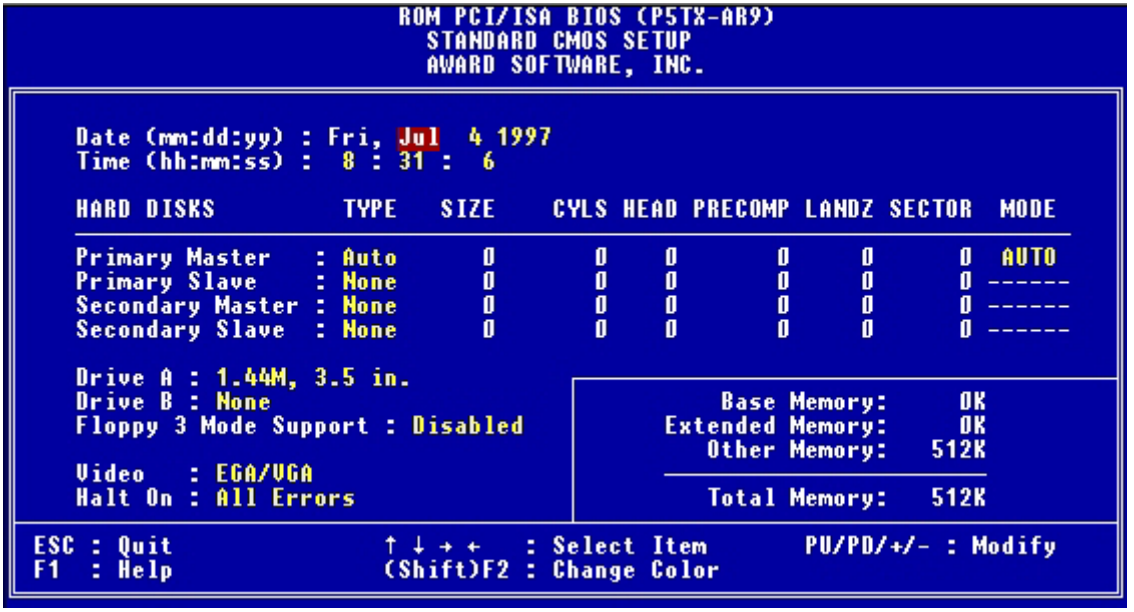
  PCI expansion slot and system resource settings

- 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

The other main menu items are affected by these items :

- 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.



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.

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.

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

For an IDE hard disk drive, you should set the entries to "Auto" and the BIOS will automatically detect all drive information needed.

You can also use the IDE HDD Auto Detection feature, described later, to automatically enter the drive parameters of IDE hard disk drives in these fields. If you have only SCSI hard disk drives installed in your system leave the settings here at None. Only hard disk information needs to be entered here. Other IDE devices do not use this.

If you use the IDE HDD Auto Detection utility to supervise the auto-detection process, leave the drive items set to "None". You can also enter specifications manually by setting a line to 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 two floppy disk drive items set the drive type for drives A and B, 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.
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 normally 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 of either 256KB or 512KB. 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 another IDE hard disk drive or CD-ROM drive or a SCSI device. The options are:

A, C, SCSI	C, A, SCSI	SCSI, A, C	SCSI, C, A
D, A, SCSI	E, A, SCSI	F, A, SCSI	
C, CD-ROM, A	CD-ROM, C, A		
C Only			

Swap Floppy Drive

This switches the floppy drive assignments so that drive A is treated as drive B: and drive B: as drive A: under DOS. The default setting is Disabled.

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	

Boot Up System Speed

This item sets the system speed at boot-up. Use the default setting. The options are:

High	– Maximum CPU speed	(Default)
Low		

Typematic Rate Setting

When enabled, you can set the two keyboard typematic controls that follow. The default setting is Disabled.

Typematic Rate (Char/Sec)

Adjusts the keystroke repeat rate. The choices range from 6 to 30 characters per second. The default is 6.

Typematic Delay (Msec)

Adjusts the character display interval (the time between the display of one character and the next. There are four delay rate choices measured in milliseconds: 250, 500, 750 and 1000. The default is 250.

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. With no password set, the system ignores this.

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 and the OS/2 operating system is in use, set this to the OS2 setting. The default setting, Non-OS2, is for all other operating systems.

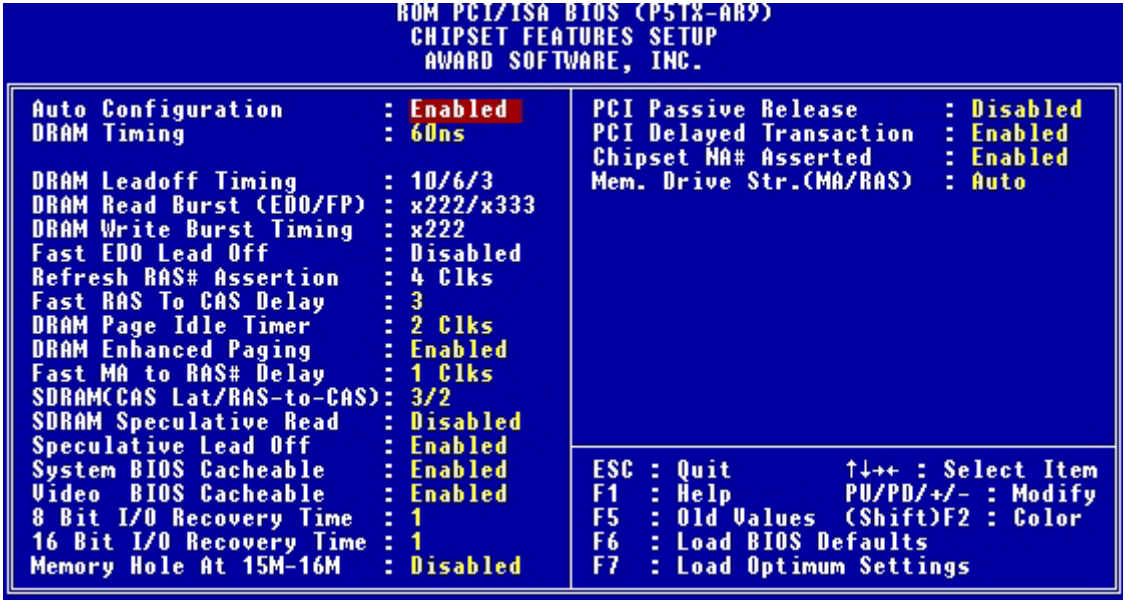
Video BIOS Shadow

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.

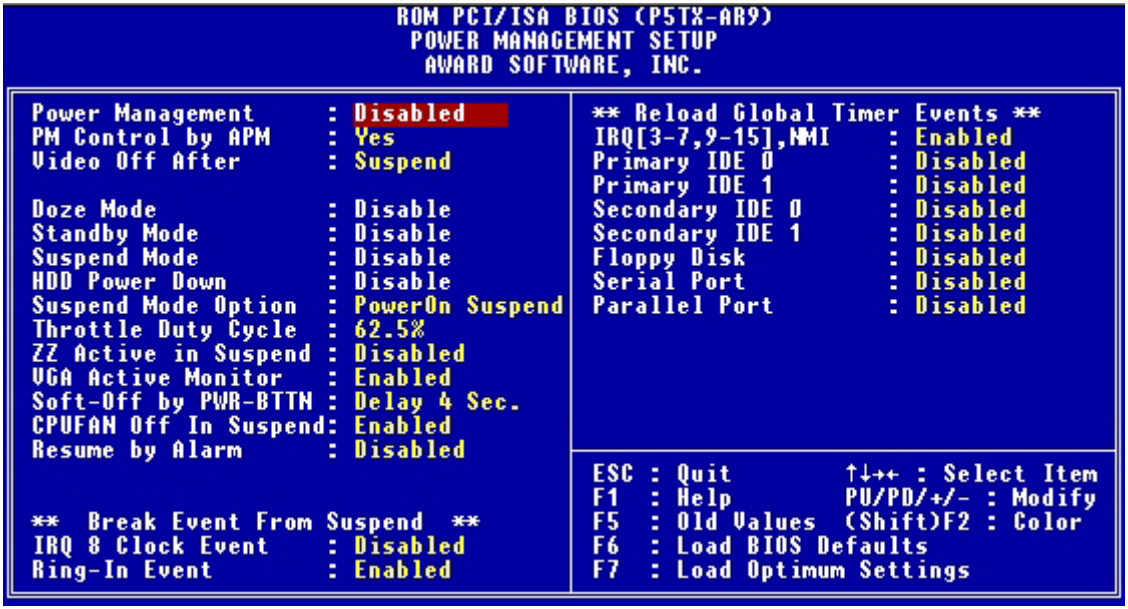
Auto Configuration

Everything on this screen except for the Memory Hole item is either an optimum setting or set automatically when auto-configuration is active. If you disable it you can set the DRAM timing values manually. We recommend against making any manual settings in this section 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 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.

Suspend Mode Option

This sets what happens when you suspend the system. PowerOn Suspend is the standard suspend mode, which suspends the system while the power is turned on. With Suspend to Disk, initiating suspend mode saves the system state to the hard disk and you can turn the system off. When you turn the system on again it will recover the suspended state. The options are:

PowerOn Suspend	Default
Suspend to Disk	

Throttle Duty Cycle

This line sets the percentage by which the CPU speed is cut back when power saving initiates. The settings are:

62.5%	Default
75%	
87.5%	
12.5%	
25%	
37.5%	
50%	

ZZ Active In Suspend

This item puts the cache controller into sleep mode when the system is in Suspend mode to achieve additional power saving. The default setting is Disabled, the option is Enabled.

VGA Active Monitor

When this line is set to the default, Enabled, the system will not initiate power saving while there is display activity. The other option is Disabled.

Soft-Off By PWR-BTTN

This line controls the function of a power switch attached to the J19 Power Push Button connector. When set to the default, you must press the power switch for four seconds or more to turn the system off. Pressing it for less than four seconds will put the system into Suspend mode. If your system has a separate Suspend switch you can set this to Instant Off and the power switch will only function to turn the system on and off.

Delay 4 Sec.	Default
Instant Off	

CPU Fan Off In Suspend

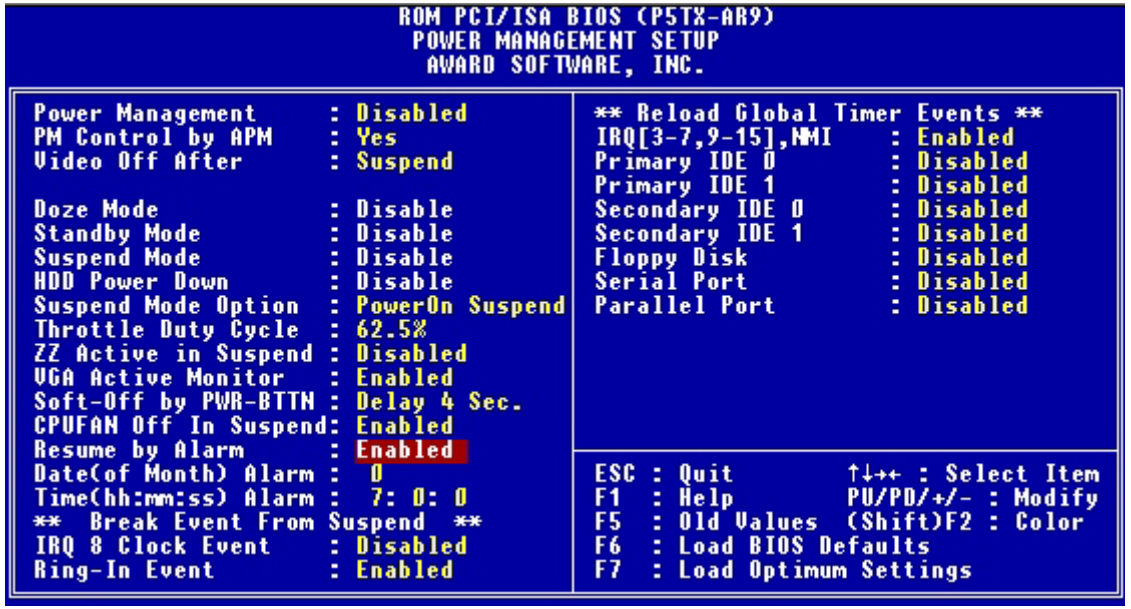
In the default Enabled setting, when a CPU Fan is connected to one of the fan power connectors on the mainboard, the fan will turn off when the system is in Suspend mode. The other option is Disabled.

Resume By Alarm

You can set the system to wake up at a certain date and time by setting this line to Enabled. When enabled, two more lines appear to allow you to set the wake-up date and time. The date is a day within the current calendar month. The screen on the next page illustrates this. The default setting is Disabled.

Break Event From Suspend

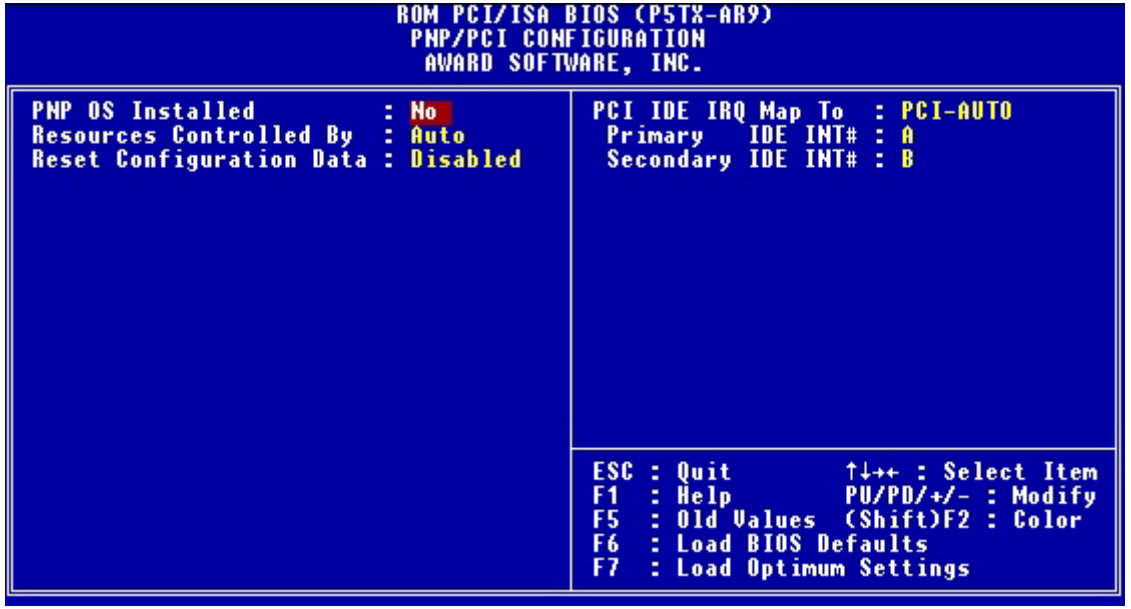
The two lines in this section control whether the system will wake-up if either of the events noted occur. The defaults are shown on the screen illustration on the next page.



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.

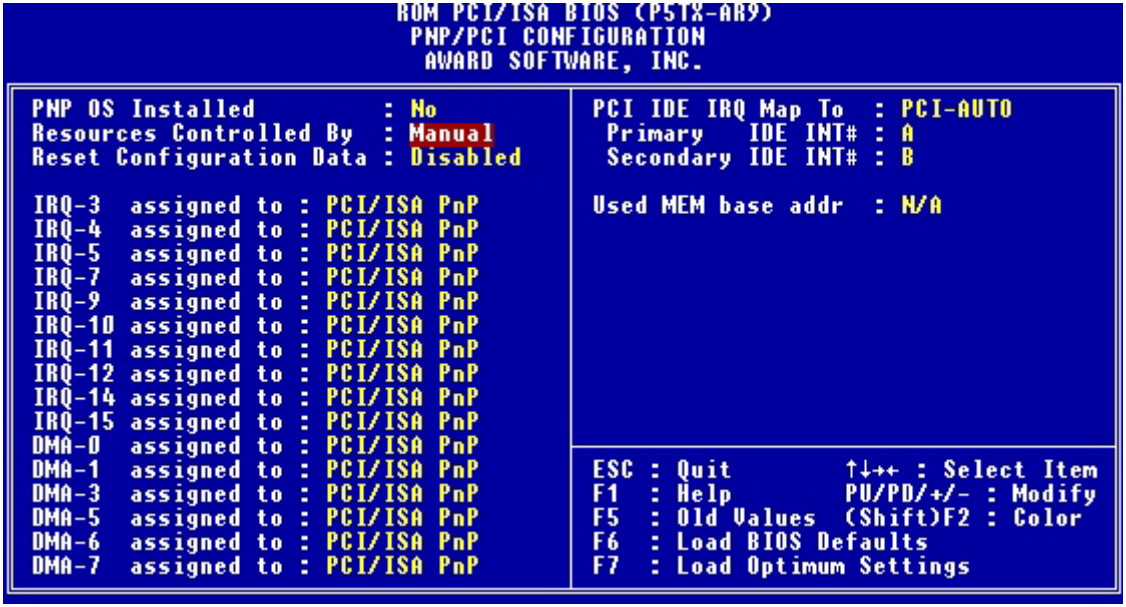


PNP/PCI Configuration

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
PCI-SLOT4

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

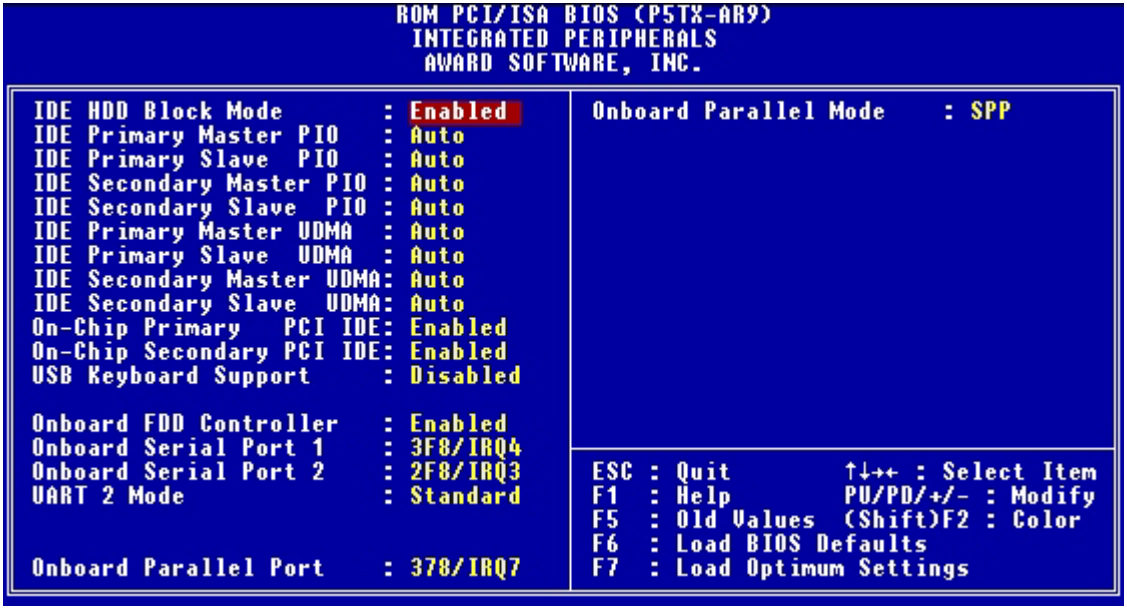
To use this command highlight it in the main menu and press Enter. A message will appear asking if you want to load the BIOS Defaults. Press the Y key and then the Enter key. The BIOS default settings will load. Press the N key if you want to cancel.

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 optimum 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 all IDE channels. It also configures the other onboard 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/Secondary Master/ Slave PIO

These four 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 Master/Slave UltraDMA

These four 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/Secondary PCI IDE

Enables or Disables the Primary or Secondary 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.

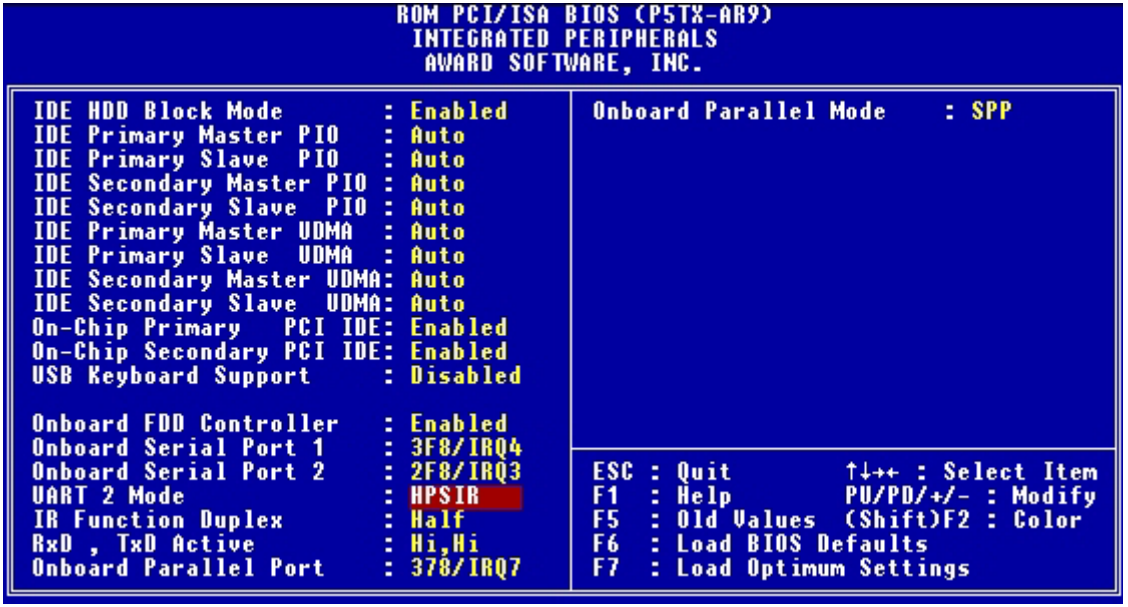
3F8/IRQ4	Onboard serial port COM1 default
2F8/IRQ3	Onboard serial port COM2 default
3E8/IRQ4	
2E8/IRQ3	
Disabled	

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

The infrared mode you select here should be the same as the infrared module you are connected to the mainboard. You can also manually configure the Duplex, RxD and TxD settings if the defaults are not correct for the installed module. See the screen illustration on the next page.



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 next option, 'Onboard Parallel Mode', 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.