

# PA-2000

## MAIN BOARD User's Guide



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## HANDLING PRECAUTIONS

→ Static electricity may cause damage to the integrated circuits on the mainboard. Before handling any mainboard outside of its protective packaging, ensure that there is no static electric charge in your body.  
Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

Observe any or all of these basic precautions when handling the mainboard or other computer components:

- Wear a static wrist strap which fits around your wrist and is connected to a natural earth ground.
- Touch a grounded or anti-static surface or a metal fixture such as a water pipe.
- Avoid contact with the components on add-on cards, boards and modules and with the "gold finger" connectors plugged into the expansion slot. It is best to handle system components by their mounting bracket.

Above methods either prevent static build-up or cause it to be discharged properly.

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## ABOUT THIS MANUAL

This manual is designed to guide you and facilitate your use of the PA-2000 mainboard. It is divided into chapters. The chapters contain the main body of information normally referred to by users.

- Chapter 1** gives an overview and introduces the basic parts and features of the mainboard.
- Chapter 2** gives information on the jumper and connector settings on the mainboard.
- Chapter 3** provides information on the memory subsystem of the mainboard in the form of SIMMs and Cache memory and describes how you can upgrade memory.
- Chapter 4** briefly explains the mainboard's BIOS system Setup in general and tells you how to run it and change the system configuration settings.

**NOTE :** The material in this manual is for information only and is subject to change without notice. We reserve the right to make changes in the product design without reservation and without notification to its users. We shall not be liable for technical or editorial omissions made herein; nor for incidental or consequential damages resulting from the furnishing, performance, or use of this material.

## ABOUT THIS MANUAL

This manual is designed to help you get the most out of the PA-2000 mainboard. It includes the chapters that contain the main body of information normally referred to by users.

Chapter 1 gives an overview and introduces the basic parts and features of the mainboard.

Chapter 2 gives information on the jumper and connector settings on the mainboard.

Chapter 3 provides information on the memory subsystem on the mainboard in the form of SIMMs and 7-pin EDO DRAM.

Chapter 4 briefly explains the mainboard's BIOS system and in general and tells you how to run it. It also changes the system configuration settings.

Chapter 5 provides information on the various software utilities that are available for the mainboard.

Chapter 6 provides information on the various software utilities that are available for the mainboard.

Chapter 7 provides information on the various software utilities that are available for the mainboard.

Chapter 8 provides information on the various software utilities that are available for the mainboard.

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Chapter 34 provides information on the various software utilities that are available for the mainboard.

Chapter 35 provides information on the various software utilities that are available for the mainboard.

Chapter 36 provides information on the various software utilities that are available for the mainboard.

Chapter 37 provides information on the various software utilities that are available for the mainboard.

Chapter 38 provides information on the various software utilities that are available for the mainboard.

Chapter 39 provides information on the various software utilities that are available for the mainboard.

Chapter 40 provides information on the various software utilities that are available for the mainboard.

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## Chapter 1

### Overview

The unsurpassed capabilities of the P54C 3.3V CPU combined with Intel's PCI Bus and the advanced features of VIA's VT82C570MV™ chipset make the PA-2000 mainboard the most powerful platform around. The incorporated enhanced PCI IDE support allows the installation of four host interface devices including a CD-ROM drive or a tape streamer. The two serial/one parallel I/O controller and PCI IDE controller chips are onboard to provide you more convenient connection choices for various peripheral devices. The mainboard supports an optional EDO (Extended Data Output) page mode DRAM function pushing overall mainboard performance to a new level.

This chapter gives you a brief overview of this mainboard, providing basic information on its major parts and components.

### Specifications

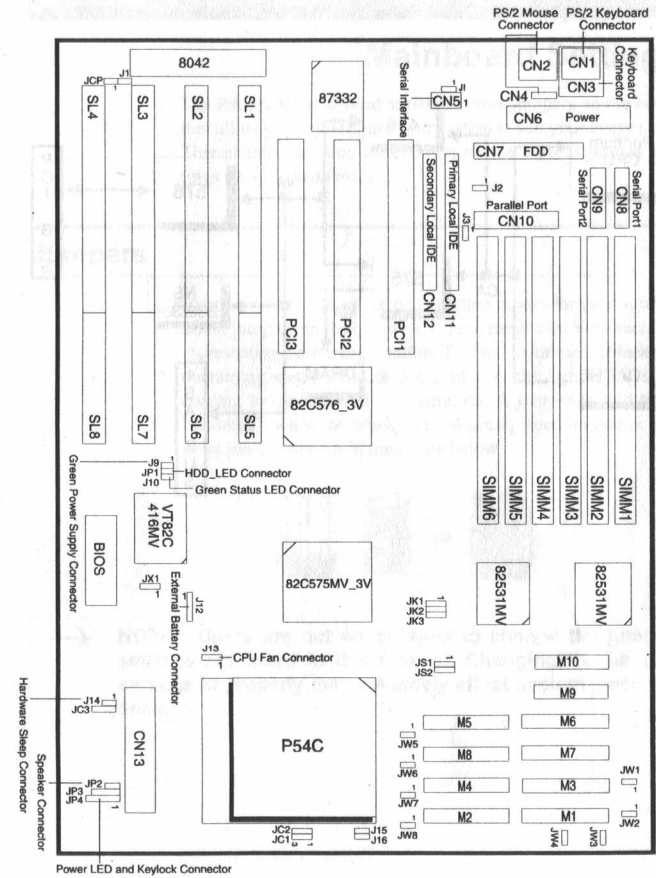
The PA-2000 mainboard comes with the following features:

- Intel P54C 3.3V CPU in a 320-pin ZIF socket.
- VIA VT82C570M chipset for high performance.
- Supports 256KB/512KB standard 3.3V or mix voltage SRAM direct-mapped write-back cache memory.
- Supports 8 up to 192MB RAM in three banks using 72-pin SIMMs; provides standard or EDO page mode DRAM operation.
- Shadowing of system and Video BIOS to speed up access.
- Award BIOS.
- Supports 128KB Flash ROM.
- Built-in VIA 82C416MV™ provides internal keyboard controller, real-time clock and clock generator.

- Four 16-bit ISA expansion slot and three 32-bit PCI Bus master slots.
- Onboard NS 332/334™ I/O chipset supports two serial ports, one parallel port and FDC.

→ **NOTE : When plugging your processor into the CPU (ZIF) socket, make sure that the pin 1 matches that of the CPU socket.**

### Mainboard Layout



## Mainboard Settings

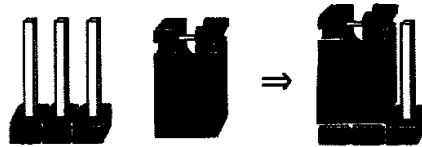
The PA-2000 has several user-adjustable jumpers on the board that allow you to configure your system to suit your every need. This chapter contains information on the various jumper settings on your mainboard.

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### Jumpers



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








Jumpers are used to select the operation modes for your system. Some jumpers on the board have three metal pins with each pin representing a different function. To “set” a jumper, a black cap containing metal contacts is placed over the jumper pin/s according to the required configuration. A jumper is said to be “shorted” when the black cap has been placed on one or two of its pins, as shown in the figure below:









→ **NOTE : Users are not encouraged to change the jumper settings not listed in this manual. Changing the jumper settings improperly may adversely affect system performance.**

### Jumper Setting for CPU Clock









JC2	<b>Clock Rate</b>	
		1:2 (50 MHz/ 100 MHz)
		2:3 (50 MHz/ 75 MHz; 60 MHz/ 90 MHz; 66 MHz/ 100 MHz) (Default)

	50 MHz	60 MHz	66 MHz (Default)
JK1			
JK2			
JK3			

### Jumper Setting for I/O

J1	<b>Display Type</b>	
		Mono/EGA/VGA
		CGA
JCP	<b>Password Clear</b>	
		Enabled
		Disabled (Default)
JI	<b>NS87332/87334</b>	
		IR serial port (for NS334)
		COM Port (for NS332) (Default)

### Jumper Setting for System

J15	<b>CPU Voltage</b>	
		Others
		3.3 Volts
J16	<b>CPU Voltage</b>	
		Others
		3.5 Volts (Default)
JC1	<b>Internal Write-Back/ Write-Through Cache</b>	
		Write-Back (Default)
		Write-Through
JP2	<b>Hardware Reset</b>	
		Enabled
		Disabled (Default)

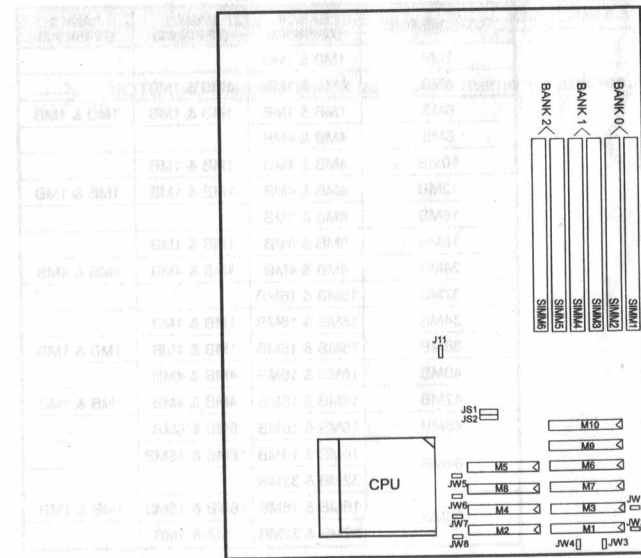
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### System Memory

The PA-2000 can be equipped with the necessary memory for running all your applications. Memory comes in the form of DRAM (SIMMs) and cache SRAM. This chapter describes these two types of memory and gives instructions on how to install each type on the mainboard.

### Memory Locations

The board layout below shows the locations of the DRAM memory banks and the cache SRAM:





## Installing DRAM

### SIMM Banks

The PA-2000 can accommodate onboard memory from 2 to 192MB using SIMMs (Single-In-Line Memory Modules). The mainboard has three memory banks — Bank 0, Bank 1, and Bank 2. Each bank has two SIMM sockets which can accept either a 1MB, 4MB, 8MB, 16MB or 32MB SIMM in each socket.

### DRAM Configuration

Memory can be installed in a variety of configurations, as shown in the following table:

TOTAL MEMORY	BANK 0 (72-PIN x 2)	BANK 1 (72-PIN x 2)	BANK 2 (72-PIN x 2)
2MB	1MB & 1MB		
4MB	1MB & 1MB	1MB & 1MB	
6MB	1MB & 1MB	1MB & 1MB	1MB & 1MB
8MB	4MB & 4MB		
10MB	4MB & 4MB	1MB & 1MB	
12MB	4MB & 4MB	1MB & 1MB	1MB & 1MB
16MB	8MB & 8MB		
18MB	8MB & 8MB	1MB & 1MB	
24MB	4MB & 4MB	4MB & 4MB	4MB & 4MB
32MB	16MB & 16MB		
34MB	16MB & 16MB	1MB & 1MB	
36MB	16MB & 16MB	1MB & 1MB	1MB & 1MB
40MB	16MB & 16MB	4MB & 4MB	
42MB	16MB & 16MB	4MB & 4MB	1MB & 1MB
48MB	16MB & 16MB	8MB & 8MB	
64MB	16MB & 16MB	16MB & 16MB	
	32MB & 32MB		
66MB	16MB & 16MB	16MB & 16MB	1MB & 1MB
	32MB & 32MB	1MB & 1MB	

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TOTAL MEMORY	BANK 0 (72-PIN x 2)	BANK 1 (72-PIN x 2)	BANK 2 (72-PIN x 2)
68MB	32MB & 32MB	1MB & 1MB	1MB & 1MB
72MB	16MB & 16MB	16MB & 16MB	4MB & 4MB
	32MB & 32MB	4MB & 4MB	
74MB	32MB & 32MB	4MB & 4MB	1MB & 1MB
80MB	32MB & 32MB	4MB & 4MB	4MB & 4MB
96MB	16MB & 16MB	16MB & 16MB	16MB & 16MB
	32MB & 32MB	16MB & 16MB	
98MB	32MB & 32MB	16MB & 16MB	1MB & 1MB
104MB	32MB & 32MB	16MB & 16MB	4MB & 4MB
128MB	32MB & 32MB	16MB & 16MB	16MB & 16MB
	32MB & 32MB	32MB & 32MB	
130MB	32MB & 32MB	32MB & 32MB	1MB & 1MB
136MB	32MB & 32MB	32MB & 32MB	4MB & 4MB
160MB	32MB & 32MB	32MB & 32MB	16MB & 16MB
192MB	32MB & 32MB	32MB & 32MB	32MB & 32MB

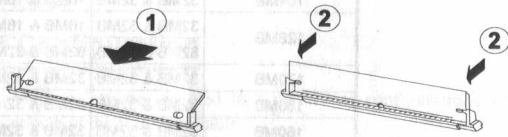
→ NOTE : All memory banks use 72-pin memory modules.

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## Installation Instructions

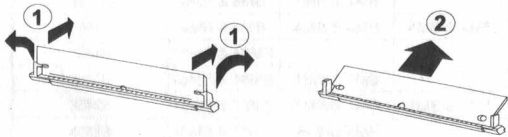
→ **NOTE : Always observe static electricity precautions. See "Handling Precautions" at the start of this manual.**

1. Locate the SIMM banks on the mainboard.
2. Insert the SIMM edge connector at a 90-degree angle onto the socket.



3. Carefully push the SIMM down and back into the socket until the retaining clips of the socket snap, holding the SIMM in place. The holes in the SIMM should match the pins on the socket's retaining clips.

To remove the SIMM/s, pull the retaining latch on both ends of the socket and reverse the procedure above.



## Cache Memory

The PA-2000 can accept standard 3.3V or mix voltage cache SRAM of 256/512KB in DIP packages. Every time the CPU wants to write data to the external memory, if the location in SRAM is a "hit", it writes this data to the cache RAM directly, not to the DRAM.

→ **NOTE : Use the correct chips for the amount of cache memory you want to add. Install both the correct Cache and Tag SRAM. Alter RAM type is the same as Tag RAM.**

## Installing Cache Memory

→ **NOTE : Always observe static electricity precautions. See "Handling Precautions" at the start of this manual.**

If you do not have the confidence to make the installation, better consult a service technician for assistance.

1. Locate the cache memory on the mainboard.
2. Be guided by the Cache SRAM settings depending on your desired SRAM configuration.

Correct orientation of the chip is necessary for the cache to operate properly. Normally, the chips have either a curved notch or a dot. This marker on the chip must be matched to the marker on the socket for correct alignment.

Install the chips individually as follows:

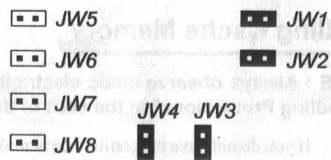
3. Align the chip with the marker on the socket. Press the chip onto the socket, ensuring that the pins on the chip are aligned with the corresponding connections on the socket.
4. Press the chip completely into the socket so that the pins are properly seated.

### Cache SRAM Specifications and Settings

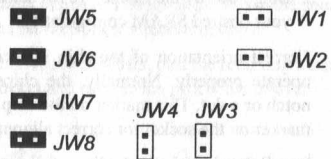
#### Using Various Voltage SRAM

Cache sockets M1 to M8 can take 3.3V or mix-voltage SRAMs. However, cache socket M9 and M10 can only take 5.0V SRAMs. The jumper settings are listed below.

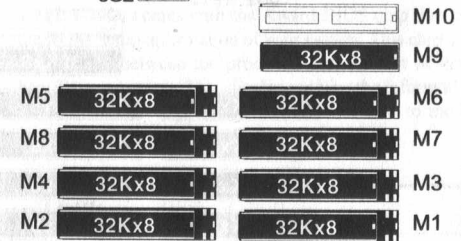
#### Jumper setting for mix-voltage SRAMs (M1-M8).



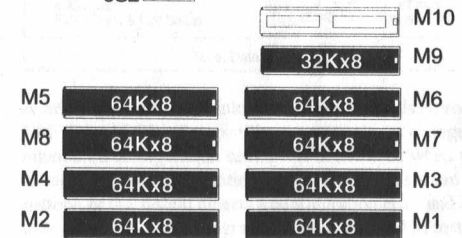
#### Jumper setting for 3.3V SRAMs (M1-M8).

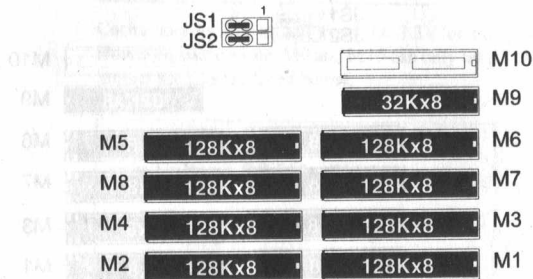


### 256KB Cache SRAM



### 512KB Cache SRAM



**1MB Cache SRAM**

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**Award BIOS Setup**

The PA-2000 comes with the Award BIOS chip that contains the ROM Setup information of your system. This chip serves as an interface between the processor and the rest of the mainboard's components. This chapter explains the information contained in the Setup program and tells you how to modify the settings according to your system configuration.

**CMOS Setup Utility**

ROM PCI/ISA BIOS (2A5L7F09) CMOS SETUP UTILITY AWARD SOFTWARE, INC.	
STANDARD CMOS SETUP BIOS FEATURES SETUP CHIPSET FEATURES SETUP POWER MANAGEMENT SETUP PCI CONFIGURATION SETUP LOAD BIOS DEFAULTS LOAD SETUP DEFAULTS	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
Time, Date, Hard Disk Type...	

A Setup program, built into the system BIOS, is stored in the CMOS RAM. This Setup utility program allows changes to the mainboard configuration settings. It is executed when the user changes system configuration; the user changes system backup battery; or the system detects a configuration error and asks the user to run the Setup program. As power-on RAM testing, the message "Press DEL to enter Setup (JCP)." appears. Use the arrow keys to select and press <Enter> to run the selected program.

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## Standard CMOS Setup

ROM PCI/ISA BIOS (2A5L7F09) STANDARD CMOS SETUP AWARD SOFTWARE, INC.									
Date (mm:dd:yy) : Mon, Jan 24 1994									
Time (hh:mm:ss) : 15 : 38 : 55									
Daylight Saving : Disabled									
HARD DISKS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDS	SECTOR	MODE	
Primary Master	: User	541	1409	16	65535	1408	63	Normal	
Primary Slave	: None	0	0	0	0	0	0	-----	
Secondary Master	: None	0	0	0	0	0	0	-----	
Secondary Slave	: None	0	0	0	0	0	0	-----	
Drive A : 1.44M, 3.5 in.						Base Memory: 640K			
Drive B : 1.2M, 5.25 in.						Extended Memory: 7168K			
Video : EGA/VGA						Other Memory: 384K			
Halt On : All Errors						Total Memory: 8192K			
ESC : Quit									
F1 : Help									
↑ ↓ ← → : Select Item									
(Shift)F2 : Change Color									
PU/PD/+/- : Modify									

The Standard CMOS Setup screen is displayed above. Each item may have one or more option settings. The System BIOS automatically detects memory size, thus no changes are necessary. Use the arrow keys to highlight the item and then use the <PgUp>, or <PgDn> keys to select the value you want in each item.

### Hard Disk Configurations

- TYPE :** Select from "1" to "45" to fill remaining fields with predefined values of disk drives. Select "User" to fill the remaining fields.
- SIZE :** The hard disk size.  
The unit is Mega Bytes.
- CYLS :** The cylinder number of the hard disk.  
The range is from "1" to "1024".
- HEAD :** The read/write head number of hard disk.  
The range is from "1" to "16".
- PRECOMP :** The cylinder number at which the disk drive changes the write timing. The range is from "1" to "1024", or "None".

- LANDS :** The cylinder number that the disk drive heads (read/write) are seated when the disk drive is parked. The range is from "1" to "1024".
- SECTOR :** The sector number of each track defined on the hard disk. The range is from "1" to "64".
- MODE :** Some hard disks support LBA Mode for data transfer. If your disk does, select "LBA". Otherwise, select "Normal".

Please refer to the IDE HDD Auto Detection section on page 4-17 for a quick configuration of new hard drives.

### Daylight Saving

Enable this item to set the clock one hour in advance. Disable it to subtract one hour when standard time begins. After the changes are made, press <Esc> to return to main menu.

## BIOS Features Setup

ROM PCI/ISA BIOS (2A5L7F09) BIOS FEATURES SETUP AWARD SOFTWARE, INC.			
External Cache	: Enabled	Video BIOS Shadow	: Enabled
Quick Power On Self Test	: Disabled	C8000 - CBFFF	: Disabled
Boot Sequence	: A, C	CC000 - CFFFF	: Disabled
Swap Floppy Drive	: Disabled	D0000 - D3FFF	: Disabled
Boot Up Floppy Seek	: Enabled	D4000 - D7FFF	: Disabled
Boot Up Numlock Status	: On	D8000 - DBFFF	: Disabled
Memory Parity Check	: Disabled	DC000 - DFFFF	: Disabled
Typematic Rate Setting	: Disabled		
Typematic Rate (Chars/Sec)	: 6		
Typematic Delay (Msec)	: 250		
Security Option	: Setup		
		ESC : Quit	↑ ↓ → ← : Select Item
		F1 : Help	PU/PD/+/- : Modify
		F5 : Old Values	(Shift) F2 : Color
		F6 : Load BIOS Defaults	
		F7 : Load Setup Defaults	

Moving around the BIOS Features Setup program shown above works the same way as moving around the Standard CMOS Setup program.

Users are not encouraged to run the BIOS Features Setup program. Your system should have been fine-tuned before shipment. Improper Setup may cause the system to fail, consult your dealer before making any changes.

### External Cache

When enabled, supports an optional cache SRAM.

The available options are: Enabled (Default), Disabled.

### Quick Power On Self Test

When disabled, allows the BIOS to bypass the extensive memory test.

The options are: Enabled, Disabled (Default).

### Boot Sequence

Allows the system BIOS to first try to boot the operating system from the selected disk drive.

The options are: A, C (Default); C, A.

### Swap Floppy Drive

Allows you to switch the order in which the system accesses the floppy drives.

The options are: Enabled, Disabled (Default).

### Boot Up Floppy Seek

When enabled, assigns the BIOS to perform floppy disk drive tests by issuing the time-consuming seek commands.

The options are: Enabled (Default), Disabled.

### Boot Up Numlock Status

When set to On, allows the BIOS to automatically enable the Num Lock function when the system boots.

The options are: On (Default), Off.

### Memory Parity Check

When enabled, allows the DRAM to execute parity bit check.

The options are: Disabled (Default), Enabled.

### Typematic Rate Setting

The term "typematic" means that when a keyboard key is held down, the character is repeatedly entered until the key is released. When this item is enabled, you may change the typematic repeat rate.

The options are: Disabled (Default), Enabled.

### Typematic Rate (Chars/Sec)

Sets the rate of a character repeat when the key is held down.

The options are: 6 (Default), 8, 10, 12, 15, 20, 24, 30.

**Typematic Delay (Msec)**

Sets the delay time before a character is repeated.

The options are: 250 (Default), 500, 750, 1000 millisecond.

**Security Option**

Allows you to set the security level when booting up the system.

The available options are: Setup (Default), System.

**Video BIOS Shadow**

Allows the BIOS to copy the video ROM code of the add-on video card to the system memory for faster access.

The options are: Enabled (Default), Disabled.

**C8000-CBFFF to DC000-DFFFF Shadow**

Allows the BIOS to copy the BIOS ROM code of the add-on card to system memory for faster access. It may improve the performance of the add-on card.

Some add-on cards will not function properly if its BIOS ROM code is shadowed. To use these options correctly, you need to know the memory address range used by the BIOS ROM of each add-on card.

The available options are: Enabled, Disabled (Default).

**Chipset Features Setup**

ROM PCI/ISA BIOS (2A5L7F09) CMOS SETUP UTILITY CHIPSET FEATURES SETUP			
Decoupled Refresh	: Enabled	DRAM for BANK 0	: Standard
Video BIOS Cacheable	: Enabled	DRAM for BANK 1	: Standard
System BIOS Cacheable	: Enabled	DRAM for BANK 2	: Standard
Memory Hole At 15Mb Addr.	: Disabled	Onboard FDC Control	: Enabled
Cache Timing Control	: Fast	Onboard Serial Port 1	: COM1 /3F8H
DRAM Timing Copntrol	: Fast	Onboard Serial Port 2	: COM2 /2F8H
SRAM Tag/Alt Bit Config.	: 7 Tags + ALT	Onboard Parallel Port	: 378H/IRQ7
IDE HDD Block Mode	: Enabled	Onboard Printer Mode	: Standard
IDE 32-bit Transfer Mode	: Enabled	ECP Use DMA Channel No.:	3
Onboard IDE First Channel	: Enabled	ESC: Quit	↑ ↓ ← → : Select Item
Onboard IDE Second Channel	: Enabled	F1 : Help	PU/PD/+/- : Modify
1st Channel IDE Master PIO	: Auto	F5 : Old Values	(Shift) F2 : Color
1st Channel IDE Slave PIO	: Auto	F6 : Load BIOS Defaults	
		F7 : Load Setup Defaults	

**Decoupled Refresh**

When enabled, the onboard DRAM will be decoupled from ISA bus memory device so that the processor can re-access the onboard DRAM without waiting for the completion of ISA bus memory refresh.

Disable this if you are using the ISA type ET-4000 VGA card.

The available options are: Enabled (Default), Disabled.

**Video BIOS Cacheable**

When enabled, allows the system to use the video BIOS code from the cache instead of the slower DRAMs or ROMs.

The available options are: Enabled (Default), Disabled.

**System BIOS Cacheable**

When enabled, allows the ROM area F000H-FFFFH cacheable as cache controller is enabled.

The available options are: Enabled (Default), Disabled.

**Memory Hole At 15MB Addr.**

When enabled, every time the processor accesses the 15~16MB address, memory hole at the 15MB address will be relocated to the 15~16MB address range of the ISA cycle. When disabled, it will let the memory hole at the 15MB address decode be treated as a DRAM cycle when processor accesses the 15~16MB address.

The available options are: Enabled, Disabled (Default).

**Cache Timing Control**

Allows you to adjust the access speed of VT82C575MV to the external cache.

The options are: Normal, Fast, Turbo (Default).

**DRAM Timing Control**

Allows you to speed up the data access of VT82C575MV.

The options are: Normal, Fast (Default).

**SRAM Tag/Alt Bit Config.**

Allows the alter bit to check whether or not the external cache writes back data to main memory.

The options are: 7Tags+ALT (Default), 10Tags+ALT, 8 Tags.

**IDE HDD Block Mode**

When enabled, allows the system to execute read/write requests to hard disk in block mode.

The options are: Enabled (Default), Disabled.

**IDE 32-bit Transfer Mode**

When enabled, allows the system to execute read/write requests to hard disk in the speed of 32 bits per read/write cycle.

The options are: Enabled (Default), Disabled.

**Onboard IDE first channel**

Enable this item if the IDE hard drives use the onboard PCI IDE controller.

The available options are: Enabled (Default), Disabled.

**Onboard IDE second channel**

When enabled, allows you to use onboard ISA IDE controller.

The available options are: Enabled (Default), Disabled.

**1st Channel IDE Master PIO**

Allows automatic or manual setting of the PCI primary IDE hard disk (master) mode.

The available options are: Auto (Default), Mode 0, Mode 1, Mode 2, Mode 3, Mode 4.

**1st Channel IDE Slave PIO**

Allows automatic or manual setting of the PCI primary IDE hard disk (slave) mode.

The available options are: Auto (Default), Mode 0, Mode 1, Mode 2, Mode 3, Mode 4.

**DRAM for BANK 0-2**

Select "EDO" when you use EDO DRAMs.

The options are: Standard (Default), EDO.

**Onboard FDC Control**

When enabled, allows you to activate the floppy disk controller (FDC).

The options are: Enabled (Default), Disabled.



**Onboard Serial Port 1**

If the serial port 1 uses the onboard I/O controller you can modify your serial port parameters. If some I/O card needs to be installed, COM 3 and COM4 may be needed. Set COM 3 or COM 4 by using this feature.

The options are: COM1/3F8H (Default), COM2/2F8H, COM3/3E8H, COM4/2E8H.

**Onboard Serial Port 2**

This item is similar to the item above but applicable to the serial port 2. If some I/O card needs to be installed, COM 3 and COM4 may be needed. Select COM 3 or COM 4 by using this feature.

The options are: COM1/3F8H, COM2/2F8H (Default), COM3/3E8H, COM4/2E8H.

**Onboard Parallel Port**

Select from a given set of parameters if the parallel port uses the onboard I/O controller.

The options are: Disabled, 278H/IRQ5, 3BCH/IRQ7, 378H/IRQ5, 378H/IRQ7 (Default).

**Onboard Printer Mode**

Allows you to connect with an advanced printer I/O mode.

The options are: EPP Mode, ECP Mode, Standard (Default).

**ECP Use DMA Channel No.**

Allows you to adjust the DMA channel number 3 or 1 for the ECP mode of the printer.

The options are: 1, 3 (Default).

**Power Management Setup**

ROM PCI/ISA BIOS (2A5L7F09) CMOS SETUP UTILITY POWER MANAGEMENT SETUP			
Power Management	: Disabled	IRQ3 Activity	: Primary
Doze Timer	: 2 min	IRQ4 Activity	: Primary
Suspend Timer	: 8 min	IRQ5 Activity	: Primary
Suspend Mode	: Enabled	IRQ7 Activity	: Primary
HDD Power Management	: Disabled	IRQ8 Activity	: Primary
VGA Activity Wakeup	: Disabled	IRQ10 Activity	: Primary
		IRQ11 Activity	: Primary
		IRQ12 Activity	: Primary
ESC: Quit		↑ ↓ → ← : Select Item	
F1 : Help		P/UPD+/- : Modify (Shift) F2 : Color	
F6 : Old Values			
F8 : Load BIOS Defaults			
F7 : Load Setup Defaults			

Many PC users never turn their computers off because of delays in reloading their operating system or applications. An energy efficient mainboard combats such energy waste by using System Management Mode (SMM), static technology, and processor clock control to conserve energy.

During periods of inactivity, system automatically initiates a power saving mode, reducing both system and monitor power. The Power Management Setup allows you to blank out the VGA display, slow down processor speed, and turn off HDD spindle motor during a set period of time.

SMM processors include a Doze, Sleep, and Suspend feature which slows down the processor clock (8 MHz) after it remains non-operational during a specified period.

**Power Management**

When enabled, allows you to use the Power Management features.

The available options are: Enabled, Disabled (Default).

**Doze Timer**

Processor speed will slowdown and enter “**Doze Mode**” assuming there is no operation during the selected period. Normal processor speed is resumed by pressing any key.

The options are: 8 sec, 32 sec, 2 min (Default), 8 min, 16 min.

**Suspend Timer**

Allows you to select a specified period of time before the system enters the “**Suspend mode**”.

The available options are: 2, 8 (Default), 16 and 32 min.

**Suspend Mode**

When enabled, the mainboard enters the “**Suspend Mode**” if there is no operation during the specified period in the Suspend Timer.

The options are: Enabled (Default), Disabled.

**HDD Power Management**

Allows the HDD spindle motor to turn off after a certain time period.

The options are: Disabled (Default), 20, 30, 45, 60 min.

**VGA Activity Wakeup**

When enabled, allows the Doze Timer to start counting when no activity is detected on the VGA display.

The available options are: Enabled, Disabled (Default).

**IRQ# Activity**

When set at “**Primary**” the processor will power down only after the BIOS does not detect any IRQ# activity during the time specified by the Suspend timer. If set at “**Secondary**”, the processor will power down after any IRQ activity.

The options are: Primary (Default), Secondary.

**PCI Configuration Setup**

ROM PCI/ISA BIOS (2A5L7F09) PCI CONFIGURATION SETUP AWARD SOFTWARE, INC.			
Slot 1 Using INT#	: Auto	PCI Dynamic Bursting	: Enabled
Slot 2 Using INT#	: Auto	CPU to PCI Write Buffer	: Disabled
Slot 3 Using INT#	: Auto	PCI Byte Merge	: Disabled
Available IRQ	: 10	PCI Burst	: Disabled
Available IRQ	: 11	PCI Master Write Buffer	: Enabled
Available IRQ	: 9	PCI Master Prefetch	: Enabled
Available IRQ	: 5	PCI Master Burst Read	: Enabled
PCI IRQ Activated By	: Level	PCI Master Burst Write	: Enabled
PCI IDE IRQ Map To	: PCI-AUTO	PCI Master IWS Write	: Disabled
Primary IDE INT#	: A to IRQ14	Local Memory Detect Point	: Fast
Secondary IDE INT#	: B to IRQ15		
ESC: Quit		↑ ↓ → ← : Select Item	
F1 : Help		PU/PD/+/=: Modify	
F5 : Old Values		(Shift) F2 : Color	
F6 : Load BIOS Defaults			
F7 : Load Setup Defaults			

The PA-2000 mainboard provides three PCI card slots, marked PCI 1, PCI 2, PCI 3, respectively. They can be used either as a master slot or a slave slot. A master slot is an agent slot that initiates a bus transaction. A slave slot, on the other hand, is an agent slot that responds to a bus transaction initiated by a master slot. For example, if you insert a SCSI card configured as a master device and using IRQ 5 on PCI Slot 3, set the “**Slot Using IRQ**” item as “**5**” in the PCI Configuration BIOS Setup. Below is a short description of the above items in the PCI Configuration of its setup utility.

**Slot 1-3 Using INT#**

Allows the BIOS to automatically detect which interrupt is used by the card in the particular PCI slot.

The options are: Auto (Default), A, B, C, D.

**Available IRQ**

Allows the BIOS to assign an available IRQ if the attached PCI device needs an IRQ path to access the mainboard.

The options are: NA, 5, 7, 9, 10, 11.

**PCI IRQ Activated By**

If your IDE card is triggered by edge, set it at "Edge".

The options are: Level (Default), Edge.

**PCI IDE IRQ Map To**

Set to Auto to allow the system BIOS to automatically detect which interrupt is used by the PCI master drive.

The options are: PCI-AUTO (Default), PCI-SLOT1, PCI-SLOT2, PCI-SLOT3, ISA.

**PCI Dynamic Bursting**

When enabled, executes the "Burst write" function during a PCI cycle.

The options are: Enabled (Default), Disabled.

**CPU to PCI Write Buffer**

When enabled, allows data and address access to the internal buffer of VT82C576 so the processor can be released from the wait state.

The options are: Enabled (Default), Disabled.

**PCI Byte Merge**

When enabled, allows the PCI cycle to send data out only after the internal buffer of VT82C576 is filled up completely.

If you are using Trident 9440 PCI VGA card (VC-910), AVANCE ALG 2301 PCI VGA card or KELVIN 64-PCI (Cirrus 5434) PCI VGA card, keep this feature disabled.

The options are: Disabled (Default), Enabled.

**PCI Master Write Buffer**

When enabled, allows the PCI write operation by informing the CPU of pending data from the PCI device. Processor is released from waiting state by a signal from the master card.

The options are: Enabled (Default), Disabled.

**PCI Master Prefetch**

When enabled, allows the data and address to be saved in the internal buffer of VT82C576 to reduce master drive access time.

The options are: Enabled (Default), Disabled.

**PCI Master Burst Write**

When enabled, allows the PCI master drive to burst write data to system, instead of the normal speed (32 bits at a time). It increases the data transfer from PCI to system.

The options are: Enabled (Default), Disabled.

**PCI Master 1WS Write**

When enabled, allows one more wait state cycle delay when the PCI master drive writes data to DRAM.

The options are: Enabled, Disabled (Default).

**Local Memory Detect Point**

If set at Fast, the PCI access to the same 1KB address in memory will be reduced one PCI cycle. If you use the ADAPTEC PCI SCSI Cards AHA-2940/45, please set at "Medium".

The options are: Fast (Default), Medium.

**Interrupt Assignments of PCI Slots**

SLOT	INT OF SLOT	INT OF VT82C576
Slot 1	A	A
	B	B
	C	C
	D	D
Slot 2	A	B
	B	C
	C	D
	D	A
Slot 3	A	C
	B	D
	C	A
	D	B

---

## Load BIOS Defaults

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BIOS defaults contain the most appropriate values of the system parameters that allow minimum configuration for a satisfactory system performance. The OEM manufacturer may change the defaults through MODBIN before the binary image burns into the ROM.

---

## Load Setup Defaults

---

Selecting this field loads the factory defaults for BIOS and Chipset Features which the system automatically detects.

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## Supervisor/User Password

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To enable the Supervisor/User passwords, select the item from the Standard CMOS Setup. You will be prompted to create your own password. Type your password up to eight characters and press <Enter>. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password. To disable password, press <Enter> when you are prompted to enter password. A message appears, confirming the password is disabled.

Under the BIOS Feature Setup (refer to page 4-4) if **System** is selected under the Security Option field and the **Supervisor Password** is enabled, you will be prompted for the Supervisor Password every time you try to enter the CMOS Setup Utility. If **System** is selected and the **User Password** is enabled, you will be requested to enter the User Password every time you reboot the system. If **Setup** is selected under the Security Option field and the **User Password** is enabled, you will be prompted only when you reboot the system.

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## Clear Password

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If you forget your password, turn off the system power first and remove the system unit cover. Locate Jumper JCP and cap it. Remove Jumper JCP and reset the system. At this point, you will not be asked for the password to enter Setup.

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## IDE HDD Auto Detection

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The IDE Hard Disk Drive Auto Detection BIOS feature automatically detects your new hard disk drive type. Use it for a quick configuration of new hard drives.

→ **NOTE: After your new hard disk type has been automatically configured by the BIOS, avoid pressing "Esc" if you wish to quit this screen and skip back to the CMOS Setup Utility screen otherwise you may lose all the modified settings. Follow the screen instructions on how to return to the Setup Utility screen instead.**

## Save and Exit Setup

ROM PCI/ISA BIOS (2A5L7F09) CMOS SETUP UTILITY AWARD SOFTWARE, INC.	
STANDARD CMOS SETUP BIOS FEATURES SETUP CHIPSET FEATURES SETUP POWER MANAGEMENT SETUP PCI CONFIGURATION SETUP LOAD BIOS	SUPERVISOR PASSWORD USER PASSWORD IDE HDD AUTO DETECTION SAVE & EXIT SETUP EXIT WITHOUT SAVING
SAVE to CMOS and EXIT (Y/N)? Y	
LOAD SETUP DEFAULTS	
ESC : Quit F10 : Save & Exit Setup	↑ ↓ → ← : Select Item (Shift) F2 : Change Color
SAVE DATA TO CMOS and EXIT SETUP	

After you have made changes under Setup, press <Esc> to return to the main menu. Move cursor to “**Save and Exit Setup**” or press “**F10**” and then press “**Y**” to change the CMOS Setup. If you did not change anything, press <Esc> again or move cursor to “**Exit Without Saving**” and press “**Y**” to retain the Setup settings. As you select this feature, the following message will appear at the center of the screen to allow you to save data to CMOS and exit the setup utility.

SAVE to CMOS and EXIT (Y/N)?

## Exit Without Saving

As you select this feature, the following message will appear at the center of the screen to allow you to save data to CMOS and exit the setup utility.

Quit Without Saving (Y/N)?

→ **NOTE : Default values of the various Setup items on this chapter may not necessarily be the same ones shown on your screen.**