



# ***AP55CS***

**User's Guide**

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# FCC Statement

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## FCC Class B Radio Frequency Interference Statement

**Note:**

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

1. Reorient or relocate the receiving antenna.
2. Increase the separation between the equipment and receiver.
3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
4. Consult the dealer or an experienced radio/television technician for help.

**Notice 1:**

The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

**Notice 2:**

Shielded interface cables, if any, must be used in order to comply with emission limits.

# About this Manual

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## *Purpose and Scope*

This manual tells how to install and configure the system board.

## *Organization*

This manual consists of four chapters and one appendix.

Chapter 1, **Features**, covers the specifications, layout and components of the system board.

Chapter 2, **Hardware Setup**, tells how to set the jumpers, upgrade the CPU and the system memory, install the system board and add expansion cards.

Chapter 3, **VGA**, describes the video graphics accelerator on board, and lists the supported applications and display modes.

Chapter 4, **AMI BIOS**, explains the system BIOS and tells how to configure the system by setting the BIOS parameters.

Appendix A, **Jumper Summary**, gives you a tabular summary of the jumper settings discussed in Chapter 2.

# About this Manual

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## Conventions

The following conventions are used in this manual:

Text entered by user,  
default settings,  
recommended selections

message displayed

a, e, s, etc



Represent text input by the user,  
default settings and recommended  
selections

Denotes actual messages that appear  
on screen

Represent the actual keys that you  
have to press on the keyboard.

### NOTE

Gives bits and pieces of additional  
information related to the current topic.

### WARNING

Alerts you to any damage that might  
result from doing or not doing specific  
actions.

### CAUTION

Suggests precautionary measures to  
avoid potential hardware or software  
problems.

### IMPORTANT

Reminds you to take specific action  
relevant to the accomplishment of the  
procedure at hand.

### TIP

Tells how to accomplish a procedure  
with minimum steps through little  
shortcuts.

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### **Appendix A      Jumper Summary**

*Chapter*

# **Features 1**

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The AP55CS is a Pentium® -based system board that utilizes the PCI/ISA architecture. It has three ISA-AT and three PCI slots for future expansion. It also has four 72-pin single in-line memory modules (SIMM) sockets that accept both Fast Page mode and EDO type DRAMs, and expand system memory to a maximum of 128 MB. The onboard 256-KB pipelined-burst cache memory supports write-back and write-through modes.

The system board integrates the SiS application-specific integrated circuit (ASIC) chipsets that enable the System Management Mode (SMM) function of the Pentium chip. This function enables the board to support the Dark Green Power Management feature that conforms to the U.S. Environmental Protection Agency (EPA) Energy Star standards.

A super I/O controller, a two-channel PCI mode 4 enhanced IDE and a VGA controller are also incorporated in the motherboard to further enhance system performance. The onboard VGA controller features the shared-memory buffer architecture and functions not only as a graphics accelerator, but also as a video accelerator. It allows a maximum display resolution of 1280 x 1024, 256 colors, non-interlaced.

The AP55CS board measures 220 mm x 280 mm, a size that easily fits most housings.

# Features

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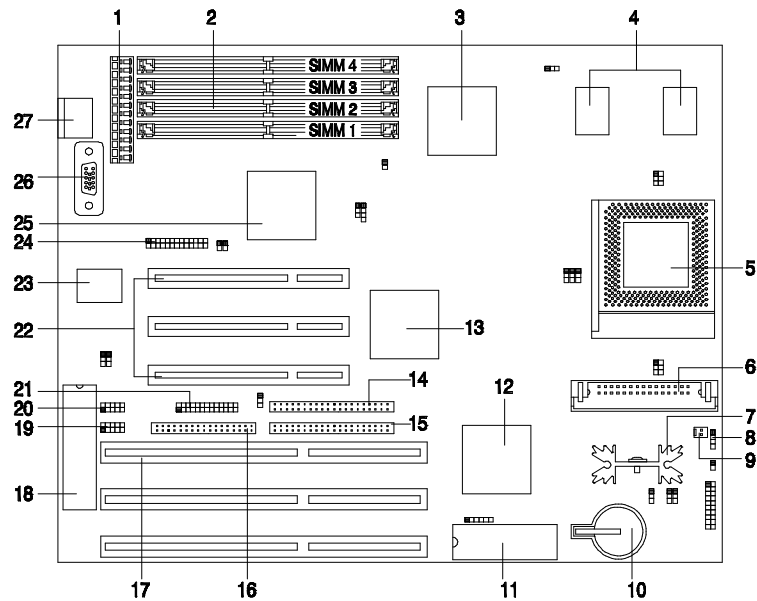
## Specifications

<b>Microprocessor</b>	Intel Pentium (3.3V) Processor, Cyrix 6x86 75/90/100/120/133/150/166 MHz
<b>Memory</b>	128 MB (maximum)
<b>SIMM Sockets</b>	Four 72-pin, 32-/64-bit
<b>ASICs</b>	SiS5511 SiS5512 SiS5513
<b>VGA</b>	SiS6205 64-bit graphics and video accelerator
<b>Bus Architecture</b>	ISA, PCI
<b>Expansion Slots</b>	Three ISA and three PCI slots
<b>Ports</b>	One parallel port (SPP/ECP/EPP) Two serial ports Two-channel PCI mode 4 IDE One floppy-disk drive port
<b>Secondary Cache</b>	256 KB pipelined-burst SRAM
<b>BIOS</b>	AMI Plug-and-Play WinBIOS
<b>RTC</b>	Built-in ASIC
<b>Battery</b>	Lithium (CR2032)
<b>Board Size</b>	220 mm x 280 mm (baby AT)

# Features

## Board Layout

- |  |                                |
|--|--------------------------------|
| 1. Power connector                                     | 14. IDE1 connector             |
| 2. 72-pin SIMM sockets                                 | 15. IDE2 connector             |
| 3. SiS5512 ASIC  | 16. FDD connector              |
| 4. 256-KB pipelined-burst cache                        | 17. ISA slots                  |
| 5. CPU socket  | 18. Keyboard controller        |
| 6. Voltage Regulator Module (VRM) connector (optional) | 19. COM1 connector             |
| 7. Heatsink  | 20. COM 2 connector            |
| 8. HDD LED connector                                   | 21. Parallel port connector    |
| 9. Two-pin fan connector                               | 22. PCI slots                  |
| 10. Lithium battery                                    | 23. System I/O controller chip |
| 11. System BIOS  | 24. Feature connector          |
| 12. SiS5513 ASIC                                       | 25. SiS6205 VGA controller     |
| 13. SiS5511 ASIC                                       | 26. VGA connector              |
|  | 27. AT-keyboard connector      |



# Features

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## System Board Parts

### *Microprocessor*

The AP55CS system board uses an Intel Pentium (3.3V) or a Cyrix 6x86 processor running at speeds of 75, 90, 100, 120, 133, 150 or 166 MHz. Chapter 2 gives details on how to upgrade the Pentium processor.

### *ASICs*

The three ASICs (application-specific integrated circuits) onboard are the SiS5511, SiS5512, and SiS85C513. The SiS5511 serves as the PCI/ISA cache memory controller that supports write-back and write-through cache modes. It features a high-performance arbiter with four PCI masters and a rotating priority mechanism. It also acts as a PCI bridge that translates CPU cycles into PCI cycles.

The SiS5512 functions as a PCI local bus data buffer that offers 64-bit DRAM and 32-bit PCI bus interfaces to support the 64-bit Pentium processor data bus.

The SiS85C513 acts as the ISA/PCI bus bridge that translates the PCI bus cycles into ISA bus cycles or vice-versa. It also functions as an ISA arbiter, DMA cycle and interrupt controller.



# Features

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## ***AMI BIOS***

The AMI BIOS (basic input-output system) resides in the flash ROM chip. This contains the program that performs the power-on self-tests (POST) upon booting. During POST, this program activates the peripheral devices, tests onboard memory, and prepares the system for operation. Chapter 4 gives more information on the AMI BIOS.

## ***Expansion Slots***

The board expansion slots consist of three ISA-AT and three PCI slots. These expansion slots are the parallel bars on the system board. There are rows of golden pins inside each slot that serve as a clutch to secure the contacts of expansion boards. Chapter 2 tells how to install the expansion boards.

## ***DRAM Sockets***

The system board has four 72-pin DRAM sockets that expand system memory to a maximum of 128MB. These sockets accept single- and double-density single in-line memory modules (SIMMs) that support either Fast Page or Extended Data Out (EDO) modes. Chapter 2 discusses the different memory configurations available.

## ***Second-level Cache***

The system board comes with an onboard 256-KB pipelined-burst cache. This enables AP55CS to enhance the performance of a Pentium system.

# Features

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## ***Super I/O Controller***

The onboard super I/O controller chip supports two UART 16450/16550-compatible serial ports and a parallel port (SPP, EPP, ECP)<sup>1</sup>, with a maximum data throughput rate of 1.2 MB/sec. It also accommodates 1.2-/1.44-/2.88-MB disk drives allowing full-range access to 5.25-inch drives with 360 KB or 1.2 MB format and 3.5-inch drives with 720-KB, 1.44-MB or 2.88-MB format.

## ***VGA Controller***

The AP55CS board has a built-in SiS6205 VGA chip. This chip functions both as a graphics and a video accelerator. See Chapter 3 for more details on the VGA feature.

## ***Two-channel PCI Mode 4 Enhanced-IDE Interface***

The board utilizes the enhanced integrated drive electronics (IDE) interface that improves the data transfer rate. It also allows the system to support four IDE devices, such as hard disk with more than 528 MB capacity, CD-ROM, and Tape drives. This feature enables the users to increase the data storage.

## ***Keyboard Connector***

The keyboard connector at the rear of the system board accepts any AT-compatible keyboard.

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<sup>1</sup> SPP: Standard Parallel Port  
EPP: Enhanced Parallel Port (IEEE 1284 compliant)  
ECP: Extended Capabilities Port (IEEE 1284 compliant)

## Hardware Setup 2

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This chapter tells how to set jumpers, upgrade system memory, add expansion boards, and install the system board.

Install the CPU, memory, and set the jumpers before you install the system board inside a system housing. You may add the other components after installing the board. Read this chapter to learn about the components before you install them.

### ESD Precautions

Electrostatic discharge (ESD) can damage your processor, disk drives, expansion boards, and other components. Always observe the following precautions before you install a system component.

1. Do not remove a component from its protective packaging until you are ready to install it.
2. Wear a wrist grounding strap and attach it to a metal part of the system unit before handling components. If a wrist strap is not available, maintain contact with the system unit throughout any procedure requiring ESD protection.

# Hardware Setup

## Installing a Microprocessor

### **ZIF Microprocessor Socket**

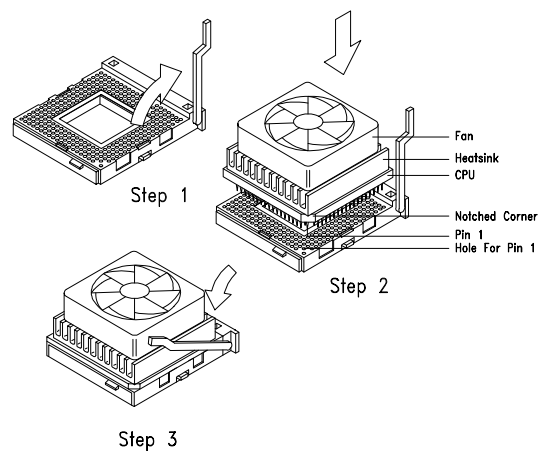
The motherboard has a zero-insertion force microprocessor socket that allows you to install a CPU without using any tools.

Follow these steps to install a CPU in a ZIF-type upgrade socket:



*Make sure that the system power is off before installing any component.*

1. Pull up the socket lever.
2. Insert the CPU with the attached heatsink and fan. Make sure that pin 1 of the CPU aligns with the hole 1 of the socket. The notched corner on the CPU indicates pin 1.



3. Pull down the socket lever to lock the CPU into the socket.
4. Plug the fan cable into the onboard four-pin fan connector.

## Hardware Setup

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5. Set the jumpers accordingly. See the following sections for the correct jumper settings.

### Upgrading the Microprocessor

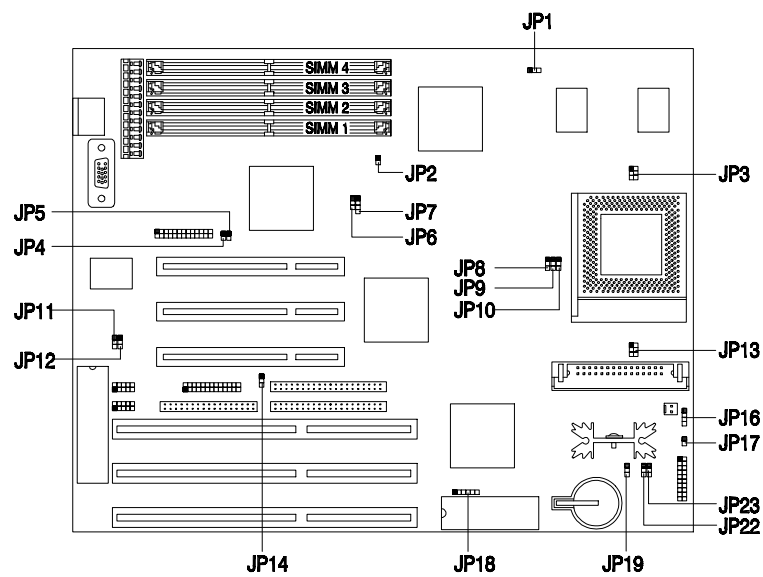
Follow these steps to upgrade the CPU:

1. Turn off the system power.
2. Pull up the socket lever.
3. Remove the installed CPU.
4. Install the upgrade CPU. Refer to the section *Installing a Microprocessor* on how to install the CPU.

# Hardware Setup

## Jumper Settings

You have to change the jumper settings when you reconfigure your system. This section tells how to reset the jumpers. The figure below shows the jumper locations.











































*The jumpers JP3, JP8 and JP13 are reserved for manufacturer use.*

*See Appendix A for the default settings.*

# Hardware Setup

## ***Changing the CPU Type and Speed***

Set jumpers **JP9**, **JP10**, **JP22** and **JP23** according to the CPU type and speed. See the figure below.

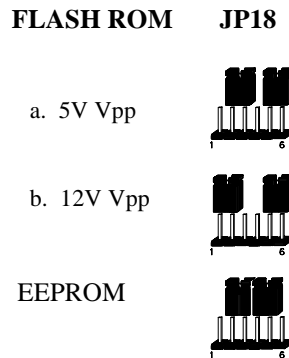
CPU Type	JP9	JP10	JP22	JP23
P54C-75				
P54C-90				
P54C-100				
P54C/CS/CQS-120				
P54C/CS/CQS-133				
P54CS/CQS-150				
P54CS/CQS-166				
Cyrix 6x86-P120+				
Cyrix 6x86-P150+				
Cyrix 6x86-P166+				

# Hardware Setup

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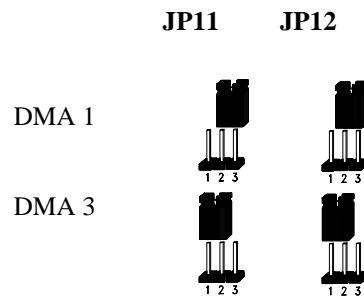
## ***Changing the Flash ROM Type***

Set the six-pin jumper **JP18** according to the type of Flash ROM in use. If the system uses EEPROM instead of Flash ROM, you must reset the jumper to 2-3 and 4-5. The default setting depends on the BIOS ROM type.



## ***Selecting the ECP DMA Channel***

The jumpers **JP11** and **JP12** are used to select the DMA channel for ECP function.



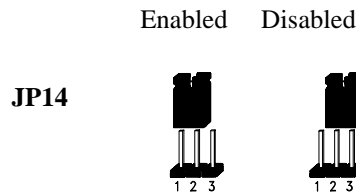
## ***Enabling the FDC and Super I/O Chip***

The jumper **JP14** is used to enable or disable the floppy disk controller (FDC) and the super I/O chip. The onboard I/O chip supports two serial



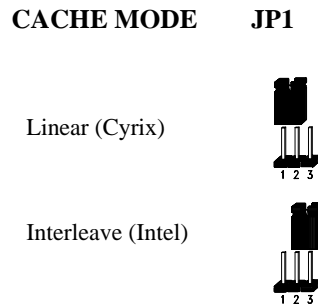
# Hardware Setup

ports, one parallel port and FDD functions. Set the jumper to 2-3 in case you want to use a separate I/O card.



## Selecting the Cache Mode

The motherboard comes with a 256-KB pipelined-burst cache that supports both the linear and the interleave cache modes. The onboard three-pin jumper **JP1** enables you to set the cache mode depending on the CPU type in use. Select linear mode if the CPU in use is a Cyrix CPU. For an Intel CPU, select interleave mode. The default setting is 2-3.

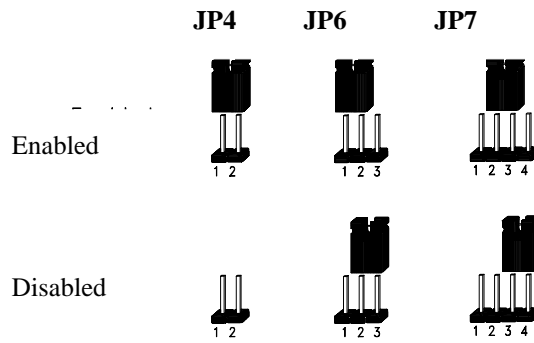


## Enabling the Onboard VGA

The jumpers **JP4**, **JP6** and **JP7** let you enable or disable the onboard SiS 6205 VGA controller. This VGA controller enhances the display resolution of the system. It supports a maximum resolution of 1280 x 1024, 256 colors, NI.

# Hardware Setup

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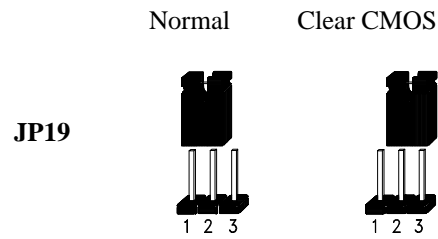


*The AP55CS support the PnP function. The system automatically disables the onboard VGA if you plug-in a VGA card. There is no need to reset the jumpers.*

# Hardware Setup

## ***Clearing the CMOS***

You need to clear the CMOS if you forget your system password. To do this, shut off the system power and short pins 2-3 of **JP19** for a few seconds. Then set the jumper to normal setting by shorting pins 1-2 with a jumper cap. Enter Setup to specify a new password.



# Hardware Setup

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## Memory Configuration

The system memory is expandable to 128 MB by adding single in-line memory modules (SIMMs). The four 72-pin SIMM sockets accommodate 1-, 4-, 16- and 64-MB single-density SIMMs, and 2-, 8- and 32-MB double-density SIMMs. These SIMM sockets also accept both Fast Page type and Extended Data Output (EDO) type DRAMs. The EDO feature extends the data transfer cycle, thus improves memory performance. All SIMMs support a DRAM speed of 70/80 ns or less.

The table below lists the SIMM types and their corresponding capacity.

<b>SIMM Type</b>	<b>Capacity</b>
256 Kb x 32/36	1 MB
512 Kb x 32/36	2 MB
1 Mb x 32/36	4 MB
2 Mb x 32/36	8 MB
4 Mb x 32/36	16 MB
8 Mb x 32/36	32 MB
16 Mb x 32/36	64 MB

The SIMM sockets support 32-/64-bit DRAMs, therefore allowing you to install one SIMM in one bank instead of two. However, you can install this DRAM type only on SIMMs 2 and 4.

# Hardware Setup

The following are the possible SIMM configurations. Notice that you must install the same SIMMs in one bank.

Bank 0		Bank 1		Total Memory
SIMM 1	SIMM 2	SIMM 3	SIMM 4	
2 MB	2 MB			4 MB
2 MB	2 MB	2 MB	2 MB	8 MB
2 MB	2 MB	8 MB	8 MB	20 MB
2 MB	2 MB	16 MB	16 MB	36 MB
4 MB	4 MB			8 MB
4 MB	4 MB	4 MB	4 MB	16 MB
4 MB	4 MB	16 MB	16 MB	40 MB
8 MB	8 MB			16 MB
8 MB	8 MB	8 MB	8 MB	32 MB
8 MB	8 MB	16 MB	16 MB	48 MB
8 MB	8 MB	32 MB	32 MB	80 MB
16 MB	16 MB			32 MB
16 MB	16 MB	16 MB	16 MB	64 MB
32 MB	32 MB			64 MB
32 MB	32 MB	8 MB	8 MB	80 MB
32 MB	32 MB	16 MB	16 MB	96 MB
32 MB	32 MB	32 MB	32 MB	128 MB
64 MB	64 MB			128 MB
	4 MB			4 MB
	8 MB			8 MB
	16 MB			16 MB
	32 MB			32 MB
			4 MB	4 MB
			8 MB	8 MB
			16 MB	16 MB
			32 MB	32 MB

# Hardware Setup

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## ***Installing a SIMM***



*Observe the ESD precautions when installing components.*

Follow these steps to install a SIMM:

1. Slip a SIMM at a 45° angle into a socket with the component side facing down. Always install SIMMs beginning with Bank 0.

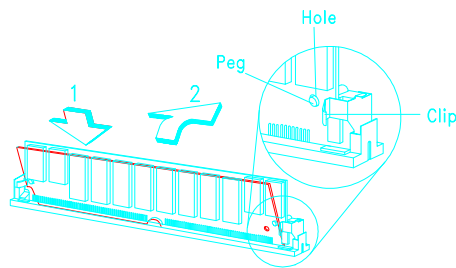


*Be careful when inserting or removing SIMMs. Forcing a SIMM in or out of a socket can damage the socket or the SIMM (or both).*

2. Gently push the SIMM up until the pegs of the socket slip into the holes on the SIMM and the holding clips lock the SIMM into a vertical position.



*The SIMM should be at a 90° angle when installed.*

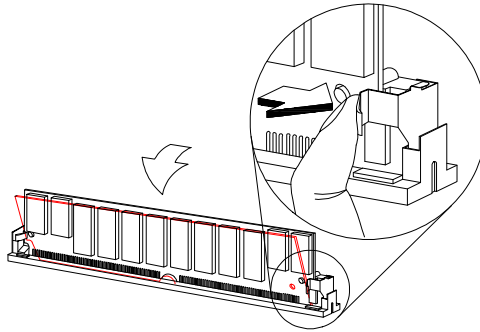


# Hardware Setup

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## ***Removing a SIMM***

1. Press the holding clips on both sides of the SIMM outward to release it.
2. Press the SIMM downward to about a 45° angle.
3. Gently pull the SIMM out of the socket.

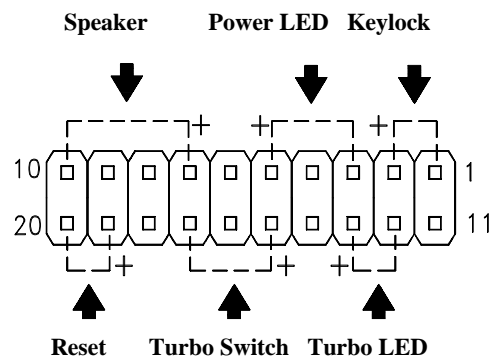


# Hardware Setup

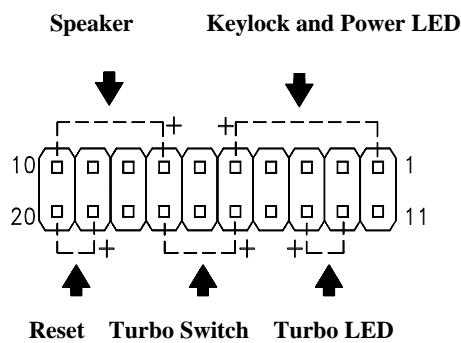
## Connectors

### *Multifunction Connector*

This 20-pin connector is marked **JP24** on the system board. It supports a number of system functions: LED, turbo, reset, keylock, and speaker. Attach the front panel connectors to the corresponding pins as in the illustration below.



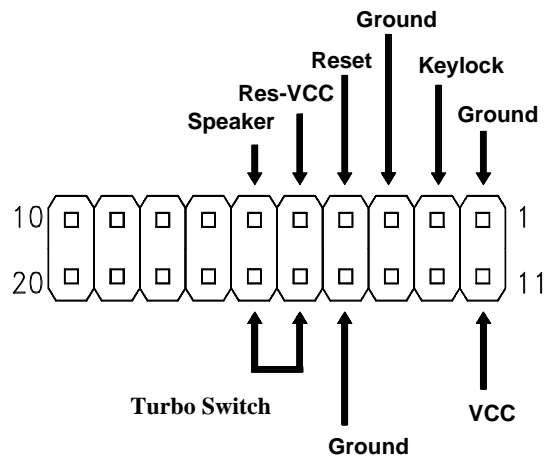
Some housings have a five-pin connector for the keylock and power LED. See the following illustration.





## Hardware Setup

Other housings may have a 12-pin connector. If your housing has this type of connector, plug it into JP24 as shown in the following figure. Make sure that the red wire of the connector connects to pin 11.



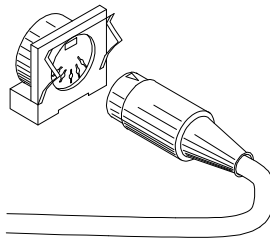
*The AP55CS does not support the turbo function. Therefore, we recommend that you connect the turbo switch to JP17. Refer to the Break/Suspend connector section for more information.*

# Hardware Setup

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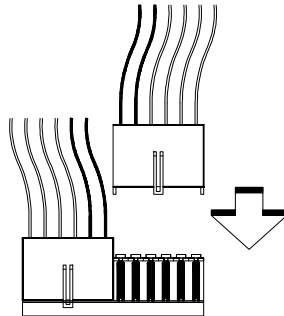
## **Keyboard Connector**

The keyboard connector is a five-pin, AT-compatible connector marked **J1** on the system board. The following figure shows how to connect the keyboard.



## **Power Connector**

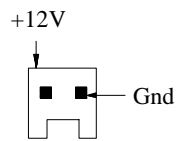
A standard power supply has two cables with six wires each. Attach these cables to the power connector on the board in such a way that all the black wires are in the center. The power connector is marked as **J2**.



# Hardware Setup

## **Fan Connector**

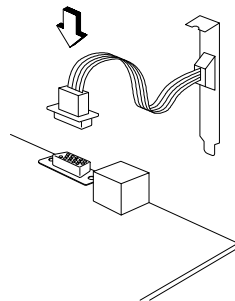
The two-pin fan connector is marked **J7** on the system board. To connect, plug the connector to its corresponding pin as shown in the following figure.



Two-pin fan connector

## **VGA Connector**

The VGA connector marked **J3** onboard is different from the VGA connectors that you normally find on other system boards. The board comes with a cable that is designed to link the onboard VGA connector to the VGA port on the housing. The following figure shows how to insert the cable into the VGA connector and link it to the VGA port.

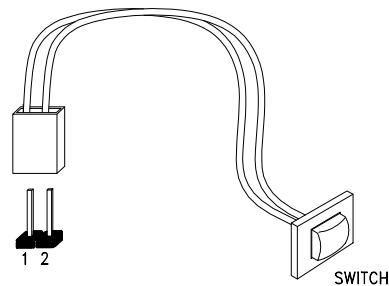


# Hardware Setup

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## **Break/Suspend Connector**

The Break/Suspend connector is a two-pin connector labeled **JP17** on the system board. Pressing the break switch on the front bezel forces the system to enter the suspend mode. Pressing any key on the keyboard returns the system to normal mode.



*The AP55CS does not support the turbo function. Therefore, we recommend that you connect the turbo switch to JP17.*

## **Voltage Regulator Module (VRM) Connector (optional)**

The optional VRM connector is designed to accommodate a voltage regulator module to support future CPUs. This connector is marked **CN5** on the board. See the board layout figure in Chapter 1 for the exact location of the connector.

## **Installation**

The baby-AT size of the system board easily fits most housings. It has mounting holes that conform to the standard system housing.

Some housings may differ slightly in design, requiring additional steps to install the board. Read the documentation that comes with the housing.

# Hardware Setup

---



*Make sure that you have already installed the system board components like the CPU and memory, and have set the appropriate jumpers before you proceed.*

## ***Installing the System Board***

1. Open the system housing.
2. Use at least two screws that come with the housing to secure the board.
3. Attach the power supply cables to the power connector and the front panel connectors to the multifunction connector. See the section *Connectors*.
4. Install any additional components that you have not yet installed.

# Hardware Setup

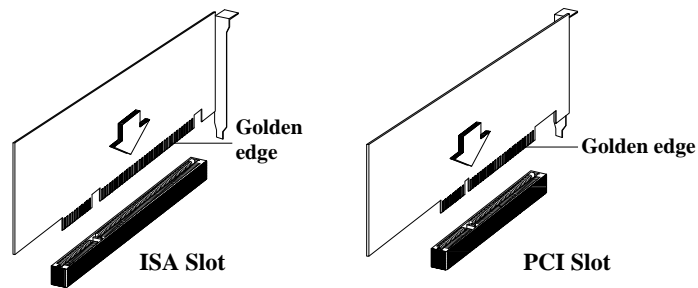
---

## ***Installing Expansion Boards***

Install expansion boards after you have installed the system board into the housing.

Follow these steps to install an expansion board.

1. Remove the bracket opposite the slot that you want to use. Save the cover for future use. Save the screw to secure the expansion board.
2. Remove the board from its protective packaging.
3. Gently insert the golden edge of the board into the slot until it fits.



4. Secure the board bracket with the screw.

*Chapter*  
**VGA 3**

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The AP55CS integrates a SiS6205 high-performance graphics and video accelerator. It enhances the display capabilities of the system with PCI bus through its three-in-one PCI true-color graphic function. It also enables the system to deliver a high-quality full-motion video from CD-ROM drives.

The SiS6205 utilizes the shared-memory buffer architecture. This feature allows the display subsystem to share the system memory.

The following lists the features of the SiS6205 VGA chip:

- Enhanced 64-bit BITBLT graphics engine
- Supports 32-bit PCI rev. 2.0
- Complies with DDC1 and DDC2B specifications
- Multi-format Video for Windows support such as YUV411, YUV422, ARGB8888, RGB888, RGB656, RGB555
- Compatible with Microsoft Video for Windows
- Compatible with Real-Magic MPEG API (for interactive title)
- DCI drivers support
- 135-MHz pixel clock
- Super high-resolution graphics mode
  - 640 x 480, 256/32K/64K/16M colors (NI)
  - 800 x 600, 16/256/32K/64K/16M colors (NI)
  - 1024 x 768, 16/256/32K/64K/16M colors (NI)
  - 1280 x 1024, 16/256 colors (NI), 32K/64K colors (I)
- 2048 x 2048 maximum virtual screen
- 75-Hz maximum refresh rate

# VGA

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## Drivers and Utilities

### *Getting Started*

See to it that you have the following before you install the drivers:

- DOS 5.0, 6.0, 6.2 (or higher version) or OS/2 2.0, 2.1 (or higher version)
- VGA analog monitor

We recommend that you create backup copies of the original driver diskettes. Store the originals and work from the backups. If the copy gets damaged, use the original to create a new copy. Label the working diskettes properly.



*Use the DISKCOPY command to create backup diskettes. Refer to your MS-DOS manual for instructions.*

### *Supported Applications*

The board comes with a set of display drivers for the following applications:

- 3D Studio v3.0
- AutoCAD/386 Release 11, 12
- AutoShade/386 v2.0
- GEM 3.0 /Ventura 2.0
- Lotus 1-2-3/Symphony v2.x
- Microsoft Windows 3.1



# VGA

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- Microsoft Windows NT v3.1 & 3.5
- Microsoft Windows 95
- OrCAD (SDT/VST/PCB) Rel. 4
- OS/2 Presentation Manager 3.0
- P-CAD v6.06
- VersaCAD/386 v2.1
- WordPerfect 5.x & 6.0

## ***Driver Diskettes***

The AP55CS comes with a set of display drivers contained in five 1.44-MB diskettes. The driver files contained in each diskette are as follows:

### **Diskette 1      Application Program Drivers**

SISTAG	Disk Tag file for NT 3.1 and NT 3.5
DISK.TXT	ASCII text file describing the diskette contents
UPDATE.TXT	ASCII text file containing the driver release notes
INSTDRV.EXE	Unpack and copy program
ADI42 <DIR>	Contains the AutoCAD, AutoShade, 3D Studio driver files
GEMDRV <DIR>	Contains the GEM/Ventura driver files
LOTUS <DIR>	Contains Lotus 1-2-3 driver files
ORCAD4 <DIR>	Contains the OrCAD driver files

# VGA

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- PCAD6 <DIR>    Contains the PCAD driver files
- UTILITY <DIR>    Contains the DOS utilities
- VCAD <DIR>    Contains the VersaCAD driver files
- WP51 <DIR>    Contains the WordPefect driver files
- ET24 <DIR>    Contains ETen Chinese System display driver (ETDSPDRV.COM) ver 1.16B01 to support the SiS VGA
  
- WINNT31 <DIR>    Contains the Windows NT 3.1 driver files
- WINNT35 <DIR>    Contains the Windows NT 3.5 driver files
- MANUAL <DIR>    Contains the compressed file of the SiS 6205 user's manual. The file is in Winword 2.0 format.

## **Diskette 2    Windows 95 and OS/2 Warp Drivers**

- Win95 <DIR>    Contains the Windows 95 Beta 3 driver files
- OS2WARP <DIR>    Contains the IBM OS/2 3.0 (Warp) driver files

## **Diskette 3    Windows 3.1 and DCI Drivers**

- Root Files    SiS Windows 3.1 Driver Setup programs
- SGVA <DIR>    Contains Microsoft Windows 3.1 driver files (in compressed format, default support - Windows 3.1 in U.S. version)
- DCI <DIR>    Contains SiS6205 DCI driver files

# VGA

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## **Diskette 4    Microsoft Video for Windows 1.1D Runtime Programs**

Root Files        Microsoft Video for Windows 1.1D Runtime programs

## **Diskette 5    OS/2 3.0 Driver**

OS23OD <DIR>    Contains the Double Bytes (Chinese, Japanese, Korean, etc.), IBM OS/2 3.0 (Warp) driver files

IDEDRV <DIR>    Contains the SiS IDE driver files

### ***Installing the Drivers***

To install the drivers, simply insert Diskette 1 into the driver diskette and type:

```
X:\INSTDRV    e
```

where X is the driver letter containing Diskette 1. Follow the screen instructions to complete the installation.

# VGA

## Standard Display Modes

The table below lists the supported standard display modes.

MODE	TYPE	DISPLAY SIZE	COLORS SHADES	FRAME RATE	H-SYNCH	VIDEO FREQ.
0	Text	320 x 200	16	70	31.5K	25.1M
0*	Text	320 x 250	16	70	31.5K	25.1M
0+	Text	360 x 400	16	70	31.5K	28.3M
1	Text	320 x 200	16	70	31.5K	25.1M
1*	Text	320 x 250	16	70	31.5K	25.1M
1+	Text	360 x 400	16	70	31.5K	28.3M
2	Text	640 x 200	16	70	31.5K	25.1M
2*	Text	640 x 250	16	70	31.5K	25.1M
2+	Text	720 x 400	16	70	31.5K	28.3M
3	Text	640 x 200	16	70	31.5K	25.1M
3*	Text	640 x 250	16	70	31.5K	25.1M
3+	Text	720 x 400	16	70	31.5K	28.3M
4	Graphics	320 x 200	4	70	31.5K	25.1M
5	Graphics	320 x 200	4	70	31.5K	25.1M
6	Graphics	640 x 200	2	70	31.5K	25.1M
7	Text	720 x 350	4	70	31.5K	28.3M
7+	Text	720 x 400	4	70	31.5K	28.3M
0D	Graphics	320 x 200	16	70	31.5K	25.1M
0E	Graphics	640 x 200	16	70	31.5K	25.1M
0F	Graphics	640 x 350	2	70	31.5K	25.1M
10	Graphics	640 x 350	16	70	31.5K	25.1M
11	Graphics	640 x 480	2	60	31.5K	25.1M
12	Graphics	640 x 480	16	60	31.5K	25.1M
13	Graphics	320 x 200	256	70	31.5K	25.1M

# VGA

## Enhanced Video Modes

The table below lists the enhanced video modes supported by the SiS6205 PCI graphics and video accelerator.

MODE	TYPE	DISPLAY SIZE	COLORS SHADES	FRAME RATE	H-SYNCH	VIDEO FREQ.	VGA Memory Size
22	Text	1056 x 352	16	70	30.5K	40.0M	1MB
23	Text	1056 x 350	16	70	30.5K	40.0M	1MB
24	Text	1056 x 364	16	70	30.5K	40.0M	1MB
25	Graphics	640 x 480	16	60	31.5K	25.1M	1MB
26	Text	720 x 480	16	60	31.5K	25.1M	1MB
29	Graphics	800 x 600	16	56	35.1K	30.0M	1MB
29*	Graphics	800 x 600	16	60	37.9K	40.0M	1MB
29+	Graphics	800 x 600	16	72	48.0K	50.0M	1MB
29#	Graphics	800 x 600	16	75	46.8K	50.0M	1MB
2A	Text	800 x 600	16	56	35.1K	36.0M	1MB
2D	Graphics	640 x 350	256	70	31.5K	25.1M	1MB
2E	Graphics	640 x 480	256	60	31.5K	25.1M	1MB
2E*	Graphics	640 x 480	256	72	37.9K	31.5M	1MB
2E+	Graphics	640 x 480	256	75	37.5K	31.5M	1MB
2F	Graphics	640 x 400	256	70	31.5K	25.1M	1MB
30	Graphics	800 x 600	256	56	35.1K	36.0M	1MB
30*	Graphics	800 x 600	256	60	37.9K	40.0M	1MB
30+	Graphics	800 x 600	256	72	48.0K	50.0M	1MB
30#	Graphics	800 x 600	256	75	46.8K	50.0M	1MB
37i	Graphics	1024 x 768	16	87	35.5K	44.9M	1MB
37n	Graphics	1024 x 768	16	60	48.4K	65.0M	1MB
37n+	Graphics	1024 x 768	16	70	56.5K	75.0M	1MB
37n#	Graphics	1024 x 768	16	75	60.2K	80.0M	1MB
38i	Graphics	1024 x 768	256	87	35.5K	44.9M	1MB
38n	Graphics	1024 x 768	256	60	48.4K	65.0M	1MB
38n+	Graphics	1024 x 768	256	70	56.5K	75.0M	1MB
38n#	Graphics	1024 x 768	256	75	60.2K	80.0M	1MB
39i	Graphics	1280 x 1024	16	89	48.8K	80.0M	1MB
39n	Graphics	1280 x 1024	16	60	65.0K	110.0M	1MB
3Ai	Graphics	1280 x 1024	256	89	48.8K	80.0M	2MB
3An	Graphics	1280 x 1024	256	60	65.0K	110.0M	2MB
40	Graphics	320 x 200	32K	70	31.5K	25.1M	1MB
41	Graphics	320 x 200	64K	70	31.5K	25.1M	1MB
42	Graphics	320 x 200	16.8M	70	31.5K	25.1M	1MB
43	Graphics	640 x 480	32K	60	31.5K	25.1M	1MB
43*	Graphics	640 x 480	32K	72	37.9K	31.5M	1MB
43+	Graphics	640 x 480	32K	75	37.5K	31.5M	1MB

"i" interlaced mode

"N" non-interlaced mode

# VGA

## Enhanced Video Modes (continued)

MODE	TYPE	DISPLAY SIZE	COLORS SHADES	FRAME RATE	H-SYNCH	VIDEO FREQ.	VGA Memory Size
44	Graphics	640 x 480	64K	60	31.5K	25.1M	1 MB
44*	Graphics	640 x 480	64K	72	37.9K	31.5M	1MB
44+	Graphics	640 x 480	64K	75	37.5K	31.5M	1MB
45	Graphics	640 x 480	16.8M	60	31.5K	25.1M	1MB
45*	Graphics	640 x 480	16.8M	72	37.9K	31.5M	2MB
45+	Graphics	640 x 480	16.8M	75	37.5K	31.5M	2MB
46	Graphics	800 x 600	32K	56	35.1K	36.0M	1MB
46*	Graphics	800 x 600	32K	60	37.9K	40.0M	1MB
46+	Graphics	800 x 600	32K	72	48.0K	50.0M	2MB
46#	Graphics	800 x 600	32K	75	46.8K	50.0M	2MB
47	Graphics	800 x 600	64K	56	35.1K	36.0M	1MB
47*	Graphics	800 x 600	64K	60	37.9K	40.0M	1MB
47+	Graphics	800 x 600	64K	72	48.0K	50.0M	2MB
47#	Graphics	800 x 600	64K	75	46.8K	50.0M	2MB
48	Graphics	800 x 600	16.8M	56	35.1K	36.0M	2MB
48*	Graphics	800 x 600	16.8M	60	37.9K	40.0M	2MB
48+	Graphics	800 x 600	16.8M	72	48.0K	50.0M	2MB
48#	Graphics	800 x 600	16.8M	75	46.8K	50.0M	2MB
49i	Graphics	1024 x 768	32K	87	35.5K	44.9M	2MB
49n	Graphics	1024 x 768	32K	60	48.4K	65.0M	2MB
49n+	Graphics	1024 x 768	32K	72	56.5K	75.0M	2MB
49n#	Graphics	1024 x 768	32K	75	60.2K	80.0M	2MB
4Ai	Graphics	1024 x 768	64K	87	35.5K	44.9M	2MB
4An	Graphics	1024 x 768	64K	60	48.4K	65.0M	2MB
4An+	Graphics	1024 x 768	64K	72	56.5K	75.0M	2MB
4An#	Graphics	1024 x 768	64K	75	60.2K	80.0M	2MB

"i" interlaced mode  
 "N" non-interlaced mode



*The 45\*, 45+, 46+, 46#, 47+ and 47# modes are not supported in the 1-MB DRAM configuration.*

# VGA

---

## MPEG Function

The onboard VGA chip also supports the MPEG video playback function. The following MPEG group icons appear in your VGA program group:



However, you need to obtain and install your own Xing MPEG drivers to enable the function. The MPEG drivers are not included in the driver diskettes that come with the system board.

## AMI BIOS Setup Main Menu

The AMI BIOS Setup Main Menu appears below. Press **Esc** to enter the system menu.



The AMI BIOS is in Windows form. You can use either the keyboard or a mouse to move between the items. To select among the Setup groups, use **v** to highlight the selected group or simply click on the icon of the selected Setup menu.

To select among the options, you can either use the arrow keys to move the highlight bar or simply click on the icon of the desired option.

After selecting, press **Enter** or double-click on the icon to open the menu.



# AMI BIOS

---

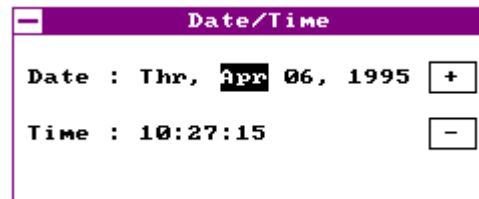
## Standard CMOS Setup

Highlight `Setup` using `v` or simply click on the `Setup` icon. Select `Standard` to input configuration values such as the date, time, and disk types. The Standard CMOS Setup pop-up window appears below:



### *Date/Time*

To set the date and time, highlight `Date/Time` and press `e` or double-click on the `Date/Time` icon. The following screen appears:

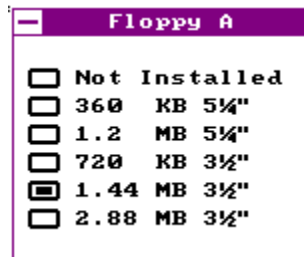


# AMI BIOS

Use the arrow keys to move among the items. Press the + and - keys or click the + and - icons to set the current date and time. Close the window by pressing or double-clicking the Control menu box in the upper-left corner of the window.

## ***Floppy Drives A and B***

To configure the floppy drive, select Floppy A. The following values appear on the screen:



After selecting the proper setting, press or double-click the Control menu box to close the window.

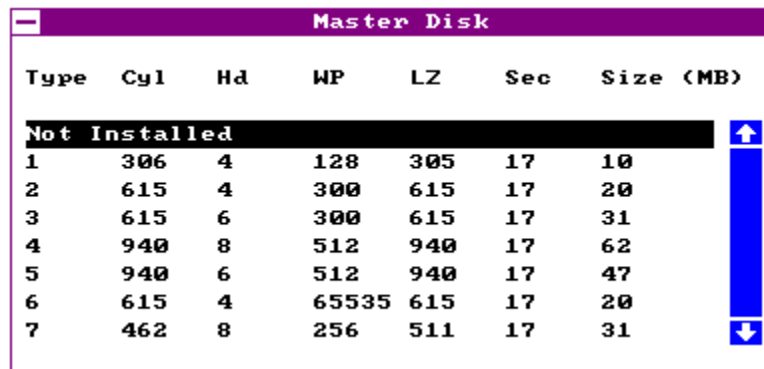
Select Floppy B and follow the same procedure to configure the second floppy drive, if present.

# AMI BIOS

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## *Hard Disk Drives*

Select `Master Hard Disk` to configure the first hard disk. The following values appear on the screen:



Type	Cyl	Hd	WP	LZ	Sec	Size (MB)
Not Installed						
1	306	4	128	305	17	10
2	615	4	300	615	17	20
3	615	6	300	615	17	31
4	940	8	512	940	17	62
5	940	6	512	940	17	47
6	615	4	65535	615	17	20
7	462	8	256	511	17	31

If you cannot find your hard disk drive type on the list, select `User` and enter the disk parameters. You can also select `Utility Setup`. This automatically configures your hard disk. Refer to the section *Utility Setup* for more information.

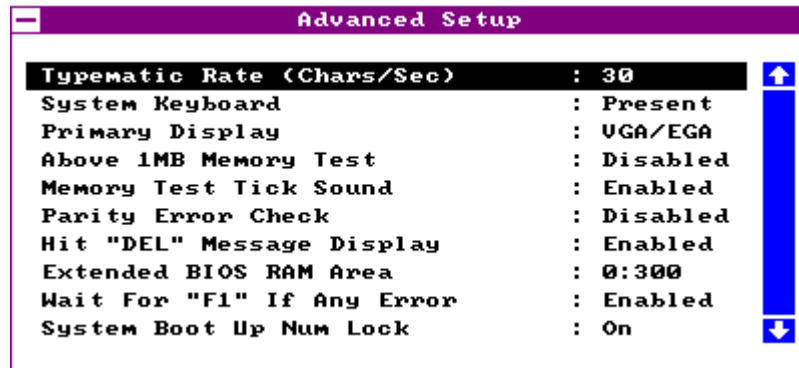
Select `ESDI` or `SCSI` depending the device installed.

If you have two hard disks installed, select `Slave Disk` and follow the same procedure to configure the second hard disk.

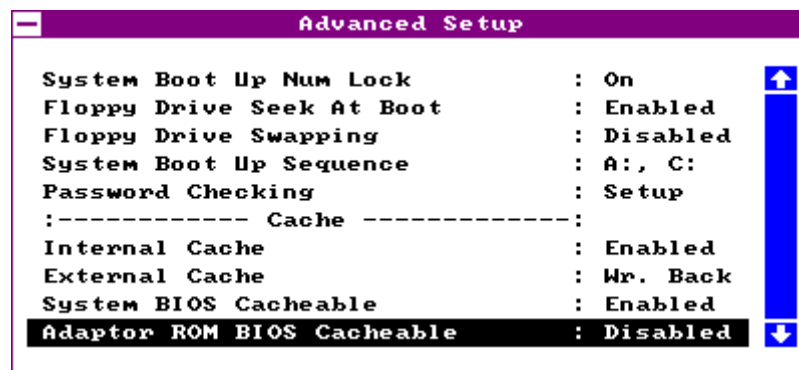
# AMI BIOS

## Advanced CMOS Setup

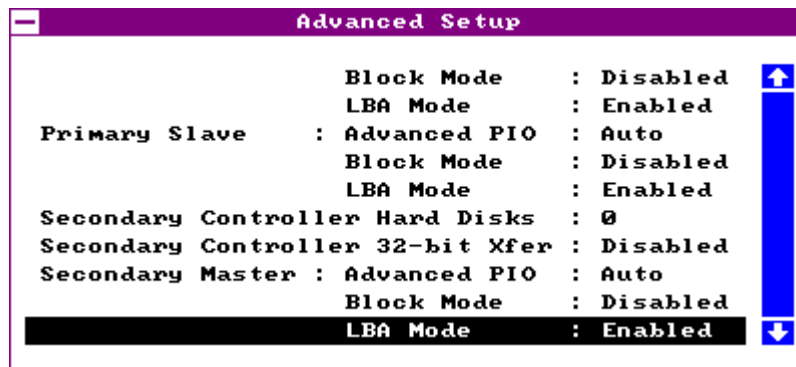
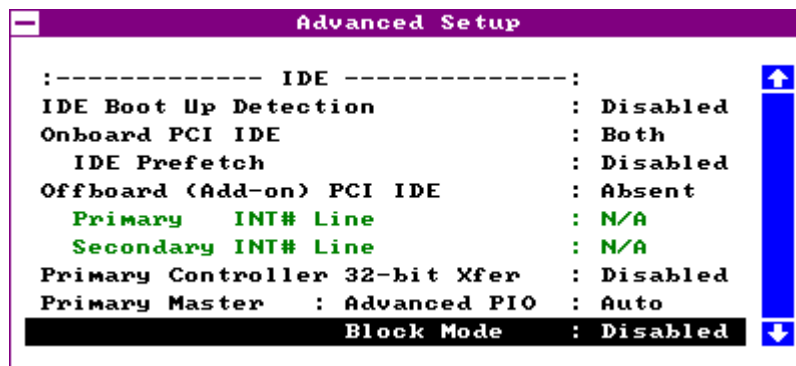
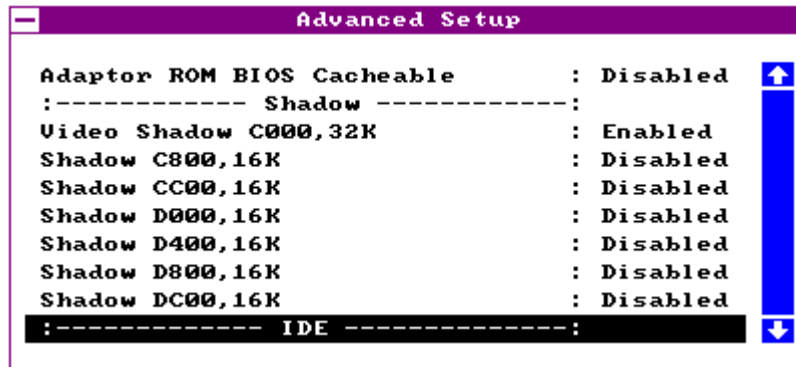
The window below appears if you select the Advanced option.



The screen above does not show all the parameters of the Advanced Configuration menu. Use w or y to highlight the desired parameter. Press } to view the rest of the parameters. The following screens appear:



# AMI BIOS



# AMI BIOS

```
Advanced Setup
-----
Secondary Slave : LBA Mode      : Enabled
                  Advanced PIO  : Auto
                  Block Mode    : Disabled
                  LBA Mode      : Enabled
:----- PCI/PnP -----:
* 1st Priority IRQ for PCI/PnP : IRQ 11
  2nd IRQ                      : IRQ 10
  3rd IRQ                      : IRQ 9
ISA Memory Block Base          : Disabled
ISA Memory Block Size          : Disabled
```

```
Advanced Setup
-----
:----- PCI/PnP -----:
* 1st Priority IRQ for PCI/PnP : IRQ 11
  2nd IRQ                      : IRQ 10
  3rd IRQ                      : IRQ 9
ISA Memory Block Base          : Disabled
ISA Memory Block Size          : Disabled
Boot to PnP Operating System  : No
* Chipset Setup Mode           : End-User
```

## ***Typematic Rate (Chars./Sec.)***

This parameter determines the typematic rate. The typematic rate settings are 15, 20, 30 and Disabled. The default setting is 30. Select Disabled to disregard the rate setting.

# AMI BIOS

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## ***System Keyboard***

Set this parameter to `Present` if there is a keyboard connected to the system. However, some servers may not have keyboards. Select `Absent` if there is no keyboard present.

## ***Primary Display***

This function detects the type of VGA in use. The settings are `VGA/EGA`, `CGA 40 x 25`, `CGA 80 x 25`, `Monp` and `Absent`. The default setting is `VGA/EGA`.

## ***Above 1 MB Memory Test***

This parameter allows your system to check all available memory. Therefore, setting this parameter to `Enabled` slows down the power-on self-test. The default setting is `Disabled`.

## ***Memory Test Tick Sound***

Enabling this parameter lets you hear the tick sound during the memory test. Disable the parameter to bypass the function. The default setting is `Enabled`.

## ***Parity Error Check***

You must set this parameter to `Enabled` if you install SIMMs with parity in your system. Disable the parameter if the SIMMs in use are without parity. Since the DRAM can still operate even without using the parity scheme for SIMMs with parity, this function is normally set to `Disabled`.

# AMI BIOS

---

## ***Hit "Del" Message Display***

This option lets you enable or disable the Hit <Del> if you want Setup message from appearing when the system boots. The default setting is Enabled .

## ***Extended BIOS RAM Area***

This function allows you to relocate the BIOS from ROM to RAM. Relocating to RAM enhances system performance as information access is faster than ROM. The parameter settings are 0:300 and DOS 1K. The default address is 0:300 .

## ***Wait for F1 If Any Error***

If this option is enabled, the BIOS waits for the end user to press F1 before continuing. If this option is disabled, the BIOS continues the boot process without waiting for F1 to be pressed. The default setting is Enabled .

## ***System Boot-up Num Lock***

Setting this parameter to On enables the numeric function of the numeric keypad. Set this parameter to Off to disregard the function. Disabling the numeric function allows you to use the numeric keypad for cursor control. The default setting is On .

## ***Floppy Drive Seek at Boot***

When enabled, the BIOS detects whether there is a floppy disk drive installed. Disable the parameter to bypass the function. The default setting is Enabled .



# AMI BIOS

---

## ***Floppy Drive Swapping***

This parameter allows you to swap floppy drives. For example, if you have two floppy drives (A and B), you can assign the first drive as drive B and the second drive as drive A or vice-versa. Disable the parameter to bypass the function. The default is Disabled.

## ***System Boot-up Sequence***

The settings are C:, A: and A:, C: to specify the system search sequence. The default setting is A:, C: .

## ***Password Checking***

The settings are Setup and Always. The Setup setting allows the system to boot and use the password only to protect the Setup Utility Configuration settings from being tampered with. The Always setting requires you to enter the password everytime you boot the system. The default setting is Setup .

## ***Cache Memory***

### **Internal Cache**

This function lets you enable or disable the internal cache. The default setting is Enabled .

### **External Cache**

This parameter lets you enable the external cache and select the supported cache mode. The available selections are Write back, Write through and Disabled. The default setting is Write back .

# AMI BIOS

---

## **System BIOS Shadow Cacheable**

Enabling this parameter allows you to change the system BIOS location from ROM to RAM. When the system boots, the BIOS routines are copied into the RAM area. This enhances system performance as information access is faster in RAM than in ROM. Disabling the parameter prevents the system BIOS from being cached. The default setting for this parameter is **Enabled**.

## **Adapter ROM BIOS Cacheable**

Similar to the System BIOS Cacheable and Video BIOS Cacheable parameters, enabling this parameter also enhances system performance. This allows you to relocate BIOS routines to RAM, and therefore speeds up information access. The default setting is **Disabled**.

## **Shadow**

### **Video Shadow C000, 32 K**

This address is for shadowing video ROMs. Select **Enabled** to assign the address for shadowing expansion video card with ROM. Select **Disabled** to assign them for cache. The default setting is **Enabled**.

### **Shadow C800 ~ DC00, 16 K**

These addresses are for shadowing other expansion card ROMs. The default setting for these areas is **Disabled**. Set the addresses to **Enabled** if you want to use them for shadowing expansion cards with ROM.

# AMI BIOS

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*The F000 and E000 addresses are exclusively shadowed for BIOS.*

## **IDE**

### **IDE Boot-up Detection**

There are cases wherein the HDD parameters that you entered and those detected by the auto-detection function are mismatched. This causes the system not to boot. If this happens, we recommend that you set this parameter to `Disabled` to bypass the auto-detection function. The default setting is `Disabled`.

### **Onboard PCI IDE**

You may enable or disable the onboard PCI IDE through this parameter. The available settings are `Disabled`, `Both`, `Primary` and `Secondary`. Select `Primary` if your onboard PCI IDE functions as the primary controller. Select `Secondary` if it functions as a secondary controller. Select `Both` if it functions both as a primary and secondary controller. Select `Disabled` to disregard the function. The default setting is `Both`.

### **IDE PREFETCH**

Enabling this parameter increases the IDE hard disk data transfer rate to further improve system performance. However, not all hard disks support this feature. Therefore, the default setting for this parameter is `Disabled`.

# AMI BIOS

---

## **Offboard (Add-on) PCI IDE**

The onboard PCI slots allow you to install expansion cards into your system. If you install a PCI add-on card, you need to specify the slot that it occupies. The selections are Slot 1, Slot 2, Slot 3 and Absent. If the PCI slots are vacant, the parameter is automatically set to Absent .

### **PRIMARY INT# LINE**

This parameter lets you assign an INT for the IDE device connected to your primary IDE connector. The settings are INT A, INT B, INT C, INT D, Absent and Not Used. If you do not have a PCI-IDE card installed in your system and your Offboard (Add-on) PCI IDE parameter is set to Absent, this parameter becomes non-configurable.

### **SECONDARY INT# LINE**

This parameter lets you assign an INT for the IDE device connected to your secondary IDE connector. The settings are INT A, INT B, INT C, INT D, Absent and Not Used. If you do not have a PCI-IDE card installed in your system and your Offboard (Add-on) PCI IDE parameter is set to Absent, this parameter becomes non-configurable.

# AMI BIOS

---

## Primary Controller 32-bit Transfer

Enabling this function improves disk performance of the PCI IDE functioning as primary controller by increasing the data transfer rate from 16 bit to 32 bit. However, if you select the add-on card to function as the primary controller, you must check your add-on card manual before enabling the parameter. The default setting is Disabled.

## Primary Master

### ADVANCED PIO

This parameter lets you set the PIO mode that the master drive connected to the primary IDE connector supports. The selections are from Mode 0 to Mode 4, Auto and Disabled. Set this parameter either by entering the PIO mode manually or selecting `Auto` to automatically detect the supported PIO mode. Disable the parameter to bypass the feature. The default is `Auto`.

### BLOCK MODE

Enabling this feature enhances the performance of the disk functioning as primary master by allowing the data transfer in block (multiple sectors). This increases the data transfer rate to 256 bytes/cycle. Disable the parameter to disregard the feature. The default setting is `Disabled`.

# AMI BIOS

---

## LBA MODE

This feature allows you to use a hard disk with a capacity of higher than 528 MB. This is made possible through the Logical Block Address (LBA) mode translation. Enable the parameter if the hard disk functioning as primary master supports this feature.

### **Primary Slave**

## ADVANCED PIO

This parameter lets you set the PIO mode that your onboard PCI IDE functioning as primary slave supports. The selections are from Mode 0 to Mode 4, Auto and Disabled. Set this parameter either by entering the PIO mode manually or selecting `Auto` to automatically detect the supported PIO mode. Disable the parameter to bypass the feature. The default setting is `Auto`.

## BLOCK MODE

Enabling this feature enhances the performance of the disk functioning as primary slave by allowing the data transfer in block (multiple sectors). This increases the data transfer rate to 256 bytes/cycle. Disable the parameter to disregard the feature. The default setting is `Disabled`.

## LBA MODE

This feature allows you to use a hard disk with a capacity of higher than 528 MB. This is made possible through the Logical Block Address (LBA) mode translation. Enable the parameter if the hard disk functioning as primary slave supports this feature.

# AMI BIOS

---

## **Secondary Controller Hard Disks**

You may install additional hard disk(s) in your system. This parameter lets you set the number of hard disks that can function as secondary controller. The allowable maximum number is 2.

## **Secondary Controller 32-bit Transfer**

Enabling this function improves disk performance of the PCI IDE functioning as secondary controller by increasing the data transfer rate from 16 bit to 32 bit. However, if you select the add-on card to function as the primary controller, you must check your add-on card manual before enabling the parameter. The default setting is Disabled.

## **Secondary Master**

### **ADVANCED PIO**

This parameter lets you set the PIO mode that your onboard PCI IDE functioning as secondary master supports. The selections are from Mode 0 to Mode 4, Auto and Disabled. Set this parameter either by entering the PIO mode manually or selecting `Auto` to automatically detect the supported PIO mode. Disable the parameter to bypass the feature. The default setting is `Auto`.

### **BLOCK MODE**

Enabling this feature enhances the performance of the disk functioning as secondary master by allowing the data transfer in block (multiple sectors). This increases the data transfer rate to 256 bytes/cycle. Disable the parameter to disregard the feature. The default setting is Disabled.

# AMI BIOS

---

## LBA MODE

This feature allows you to use a hard disk with a capacity of higher than 528 MB. This is made possible through the Logical Block Address (LBA) mode translation. Enable the parameter if the hard disk functioning as secondary master supports this feature.

### **Secondary Slave**

## ADVANCED PIO

This parameter lets you set the PIO mode that your onboard PCI IDE functioning as secondary slave supports. The selections are from Mode 0 to Mode 4, Auto and Disabled. Set this parameter either by entering the PIO mode manually or selecting `Auto` to automatically detect the supported PIO mode. Disable the parameter to bypass the feature. The default setting is `Auto`.

## BLOCK MODE

Enabling this feature enhances the performance of the disk functioning as secondary slave by allowing the data transfer in block (multiple sectors). This increases the data transfer rate to 256 bytes/cycle. Disable the parameter to disregard the feature. The default setting is `Disabled`.

## LBA MODE

This feature allows you to use a hard disk with a capacity of higher than 528 MB. This is made possible through the Logical Block Address (LBA) mode translation. Enable the parameter if the hard disk functioning as secondary slave supports this feature.



# AMI BIOS

---

## ***1st Priority IRQ for PCI/PnP***

This parameter lets you set the first available IRQ that can be assigned for PCI/PnP function to prevent IRQ conflicts. The IRQ selections are IRQ 6, 7, 9, 10, 11, 12, 13, 14 and 15. The default setting is IRQ 11.

## ***2nd IRQ***

This parameter lets you set the second available IRQ that can be assigned to PCI/PnP function to prevent IRQ conflicts. The IRQ selections are IRQ 6, 7, 9, 10, 11, 12, 13, 14 and 15. The default is IRQ 10.

## ***3rd IRQ***

This parameter lets you set the third available IRQ that can be assigned to PCI/PnP function to prevent IRQ conflicts. The IRQ selections are IRQ 6, 7, 9, 10, 11, 12, 13, 14 and 15. The default is IRQ 9.

## ***ISA Memory Block Base***

The BIOS automatically allocates memory for PnP cards. However, for non-PnP cards or ISA legacy cards, you need to command the BIOS to allocate memory for these cards. This parameter enables you to set the memory area that you want to reserve. The available settings are C800, CC00, D000, D400, D800, DC00 and Disabled. The default setting is Disabled.

# AMI BIOS

---

## ***ISA Memory Block Size***

If you enable the ISA Memory Block Base parameter, then you need to specify the memory size that you want to reserve for your ISA cards. This parameter allows you to set the memory size for ISA card functions. The selections are 8 KB, 16 KB, 32 KB and 64 KB.

## ***Boot to PnP Operating System***

This parameter is normally set to **No**. Set it to **Yes** only if you have Windows 95 installed in your system.

## ***Chipset Setup Mode***

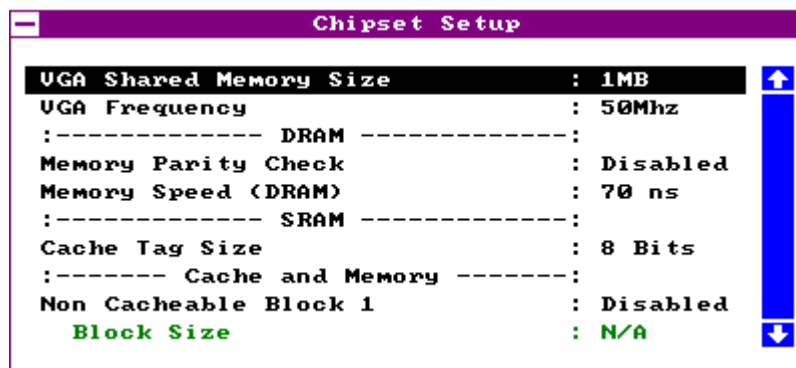
This function allows you to change the Chipset Setup DRAM control parameters according to the end-user type. The available settings are **End-user** and **Engineer**. We recommend that you select **End-user**. See the following section for more details on Chipset Features Setup.

# AMI BIOS

## Chipset Features Setup

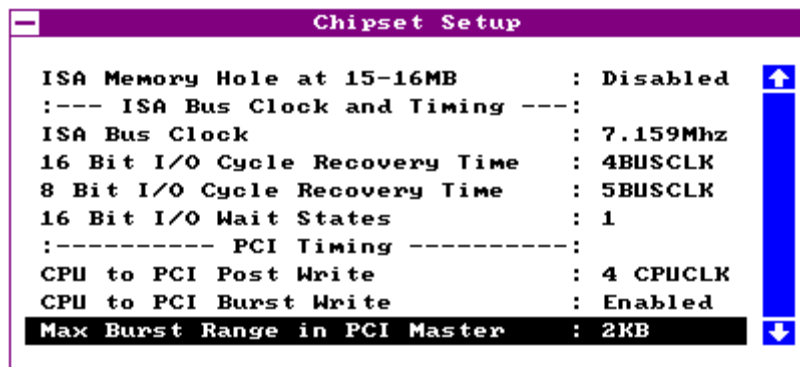
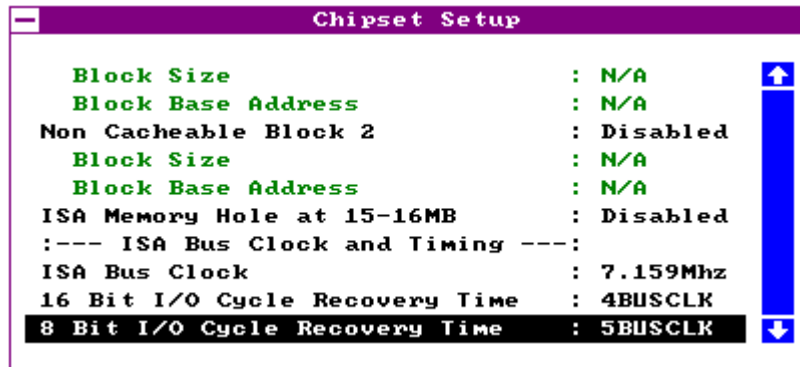
The Chipset Features Setup controls the board's chipset settings. The controls for this menu are the same as for the previous screen.

The Chipset Setup DRAM control parameters differ depending on the Chipset Setup Mode setting in the Advanced CMOS Setup. The following screen appears if you select the Chipset option from the Setup menu and if the Chipset Setup Mode parameter setting is End-user.



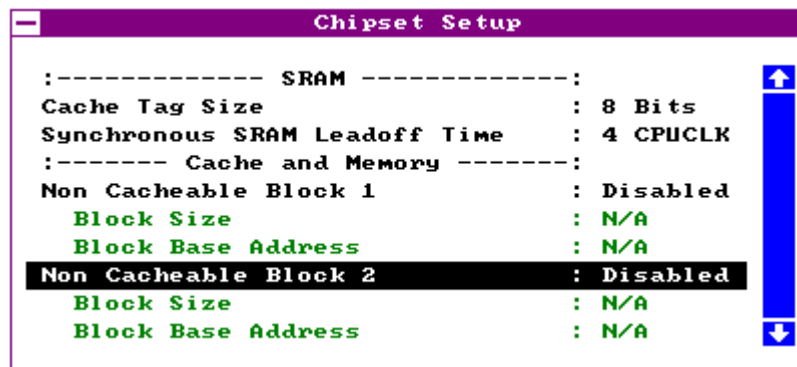
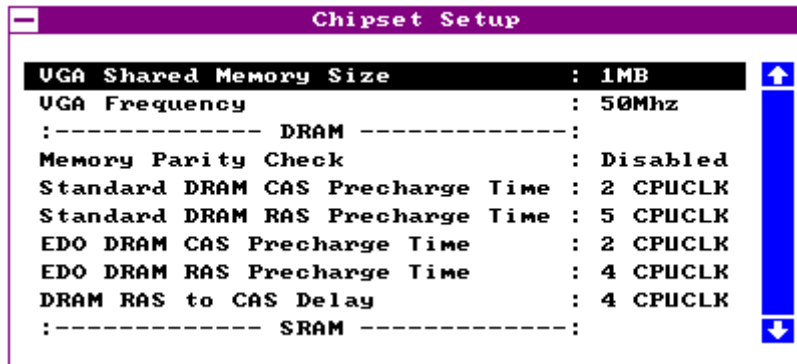
The above screen does not show all the parameters of the Chipset Setup menu. Use w or y to highlight the desired parameter. Press  $\downarrow$  to view the rest of the parameters and the following screens appear:

# AMI BIOS



# AMI BIOS

The following screens appear if your Chipset Setup Mode parameter setting is `Engineer` . Take note of the new parameters.



*This manual describes only the parameters found in the Chipset Setup screen for the End-user setting.*

# AMI BIOS

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## ***VGA Shared Memory Size***

This function lets you set the memory size to reserve for VGA function. The settings are 1 MB and 2 MB. Select 2 MB if you want to support higher resolution. See the Enhanced Video Modes table in Chapter 3 for the required VGA memory size for each supported resolution. The default setting for this parameter is 1 MB.

## ***VGA Frequency***

You can set the frequency that your VGA supports by pressing  $\rightarrow$  or  $\leftarrow$ . The range is from 40 MHz to 70 MHz. The default setting is 50 MHz.

## ***DRAM***

### **Memory Parity Check**

This option lets you enable or disable the optional parity DRAM. Set this parameter to Disabled if the SIMMs in use is without parity. The default is Disabled.

### **Memory Speed (DRAM)**

This option allows you to set the memory speed that your DRAM supports. The available settings for this parameter are 60 ns and 70 ns. The default is 70 ns.

# AMI BIOS

---

## ***SRAM***

### **Cache Tag Size**

This parameter lets you set the tag size that your cache supports. The selections are 7 bits and 8 bits. The default is 8 bits.

## ***Cache and Memory***

### **Noncacheable Block (1 and 2)**

This feature allows you to allocate the memory to either DRAM or PCI bus. The options are DRAM, PCI bus and Disabled. Select DRAM to reserve the total memory area for system use. Select PCI bus to reserve the memory area for I/O or add-on card use. Select Disabled to disregard the feature.

#### **BLOCK SIZE**

This parameter lets you set the memory size reserved to either system use or add-on card use. The available settings are 64 KB, 128 KB, 256 KB, 512 KB, 1 MB, 2 MB, 4 MB, and 8 MB.

#### **BLOCK BASE ADDRESS**

This parameter lets you set the starting address where you want to relocate the memory. The memory selections depend on the selected block size. For example, if the Block Size is set to 128 KB, the memory selections are in multiples of 128 i.e., 0 KB, 128 KB, 256 KB, etc. You can move from one selection to another by pressing **+** or **-**.

# AMI BIOS

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## **ISA Memory Hole at 15-16 MB**

To prevent memory address conflicts between the system and expansion boards, reserve this memory range for the use of either the system or an expansion board. Disable the parameter to disregard the option.

## ***ISA Bus Clock and Timing***

### **ISA Bus Clock**

This parameter allows you to set the ISA bus clock that your board supports. The selections are 7.159 MHz, PCICLK/4 and PCICLK/3. The default setting is 7.159 MHz .

### **16-bit I/O Cycle Recovery Time**

This parameter allows you to set the response time of the 16-bit I/O devices connected to your system. The selection ranges from 2 BUSCLK to 5 BUSCLK. The default setting is 4 BUSCLK .

### **8-bit I/O Cycle Recovery Time**

This parameter allows you to set the response time of the 8-bit I/O devices connected to your system. The available settings are 3 BUSCLK, 4 BUSCLK, 5 BUSCLK and 8 BUSCLK. The default is 5 BUSCLK .

### **16-bit I/O Wait States**

This parameter lets you set the wait state of the 16-bit I/O devices connected to your system. The settings are 0 and 1. The default setting is 1.



# AMI BIOS

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## ***PCI Timing***

### **CPU-to-PCI Post Write**

Enable this parameter to control the posting of the CPU-to-memory write data in the posting buffers. Disable the parameter to deactivate the buffering function. The default is Enabled .

### **CPU-to-PCI Burst Write**

Enabling this parameter allows the translation of the host cycles into memory-burst cycles and controls the memory-burst-write cycles. Disabling the function deactivates the memory-burst writes. The default is Enabled .

### **Max. Burst Range in PCI Master**

Increasing the burst range improves system performance. However, the burst range varies depending on the SIMM configuration type that the system supports.

The available settings for this parameter are 256 KB, 512 KB, 1 MB, 2 MB and 4 MB. Select 4 MB if you want to install SIMMs in pairs. Select 2 MB for single-module support. The default setting is 2 MB .

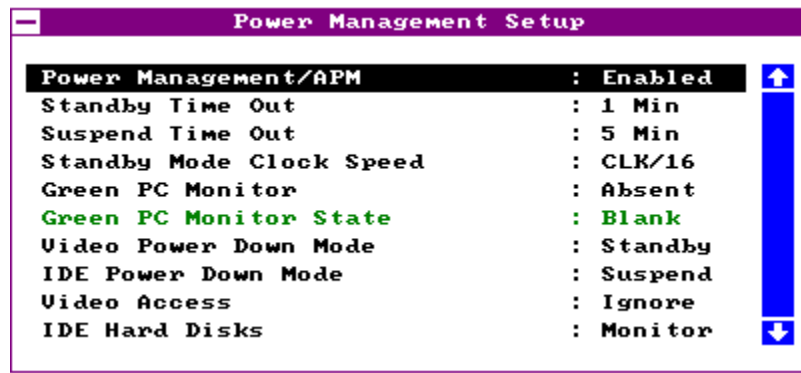


*See the section Memory Configurations in Chapter 2 for the list of SIMM configurations supported by the system board and for detailed information on how to install a SIMM.*

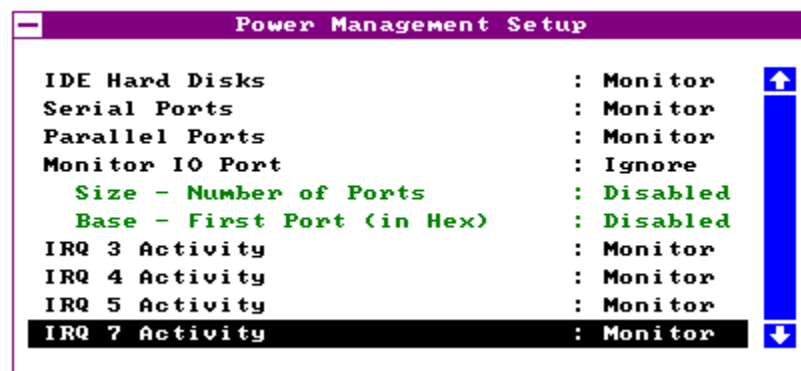
# AMI BIOS

## Power Management Setup

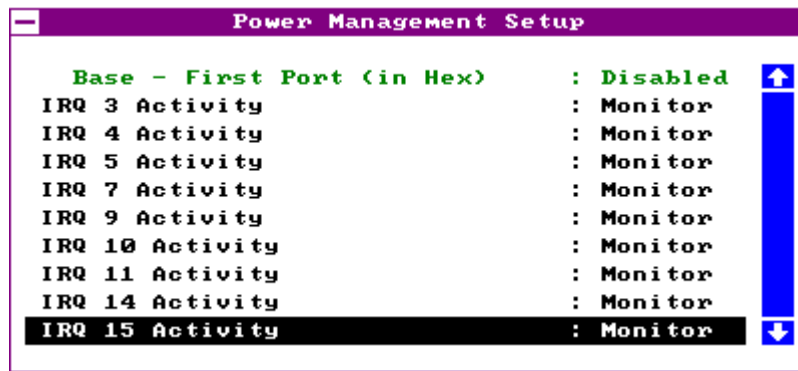
To take advantage of the power management features, select Power Management from the Setup menu. To select, highlight Power Mgmt and press e or double-click on the Power Management icon. The following screen appears:



The screen above does not show all the parameters of the Power Management Setup menu. Use w or y to highlight the desired parameter. Press } to view the rest of the parameters. The following screens appear:



# AMI BIOS



## ***Power Management/APM***

Set this parameter to `Enabled` to take advantage of the power-saving feature. Disable the parameter to bypass the feature.

## ***Standby Timeout***

This function lets you set when to put the system into standby mode. In standby mode, the CPU clock slows down. Any event detected returns the system to full power. The settings are 10 sec, 30 sec, 1 min, 5 min, 10 min, 20 min, 30 min and Disabled.

## ***Suspend Timeout***

This function lets you set when to put the system into suspend mode. In suspend mode, the CPU clock stops. Any event detected returns the system to full power. The settings are 10 sec, 30 sec, 1 min, 5 min, 10 min, 20 min, 30 min and Disabled.

# AMI BIOS

---

## ***Standby Mode Clock Speed***

When the system enters the standby mode, the CPU clock starts to slow down. The parameter lets you set the clock speed in standby mode. The settings are Clk/4, Clk/8, Clk/12 and Clk/16. The default setting is Clk/16 .

## ***Green PC Monitor***

Set this option to `Present` if the monitor in use is a green PC monitor. Otherwise, set this to `Absent` .

## ***Green PC Monitor State***

This function lets you set the status of the green PC monitor once the system enters the power-saving mode. The options are `Blank`, `Standby`, `Suspend` and `Off`. The default is `Blank` .

## ***Video Power-down Mode***

This option allows you to set the mode when to power down your video monitor. The video monitor returns to full power once the system resumes to normal mode. The selections are `Standby`, `Suspend` and `Disabled`. The default setting is `Standby` .

## ***IDE Power-down Mode***

This option lets you set the mode when to “spin down your IDE hard disk. The disk returns to full speed once the system resumes to normal mode. The available settings are `Standby`, `Suspend` and `Disabled`. The default setting is `Suspend` .

# AMI BIOS

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## ***Video Access***

Set this option to `Monitor` if you want to check the video activities. Any video activity detected resumes the system to normal mode. Select `Ignore` to bypass video activities during power-saving mode.

## ***IDE Hard Disks***

Set this option to `Monitor` if you want to check the IDE hard disk activities. Any IDE hard disk activity detected resumes the system to normal mode. Select `Ignore` to bypass the function during power-saving mode.

## ***Serial Ports***

Set this option to `Monitor` if you want to check the serial port activities. Any serial port activity detected resumes the system to normal mode. Select `Ignore` to bypass the function during power-saving mode.

## ***Parallel Ports***

Set this option to `Monitor` if you want to check the parallel port activities. Any parallel port activity detected resumes the system to normal mode. Select `Ignore` to bypass the function during power-saving mode.

# AMI BIOS

---

## **Monitor I/O Port**

Set this option to `Monitor` if you want to check the I/O port activities. Any I/O port activity detected resumes the system to normal mode. Select `Ignore` to bypass the function during power-saving mode.

## **Size -- Number of Ports**

This parameter is configurable only if the Monitor I/O Port is set to `Monitor`. This allows you to set the I/O address range to monitor. The options are 1, 2, 4, 8, 16, 32, 64, 128, and Disabled.

## **Base -- First Port (in Hex)**

Similar to the Size -- Number of Ports option, this parameter is configurable only if the Monitor I/O Port is set to `Monitor`. This parameter lets you set the base address of the I/O address range that you want to monitor. To set, simply click the + and - icons until you find the desired address.



*To determine the I/O address supported by the I/O card, refer to the card manual.*

# AMI BIOS

## ***IRQ 3, IRQ 4, IRQ 5, IRQ 7, IRQ 9, IRQ 10, IRQ 11, IRQ 14 and IRQ 15 Activities***

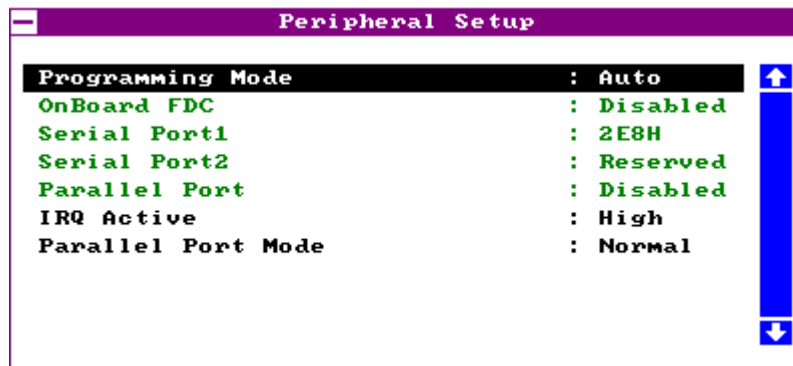
These options let you monitor the IRQ activities. Set these parameters to `Monitor` to check IRQ activities. Any IRQ activity detected resumes the system to normal mode. Select the parameters that you want to bypass to `Ignore` to disregard its activities during power-saving mode.



*You must enable at least one IRQ activity. Otherwise, the system stays in suspend mode.*

## **Peripheral Setup**

This screen appears if you select `Peripherals` or double-click on the Peripheral Setup icon from the Setup menu. The Peripheral Setup screen allows you to set up your system peripherals.



# AMI BIOS

---

## ***Programming Mode***

The settings for this option are Auto and Manual. The Manual setting allows you to set up the screen items manually. The Auto setting sets up all the items automatically except for the Parallel Port Mode parameter. The default is Auto.

## ***Onboard FDC***

Enabling this function allows you to use the onboard floppy disk controller (FDC). The default setting is Enabled.

## ***Serial Port 1***

This parameter allows you to set the base address of serial port 1. The available settings are 3F8H, 2F8H, 3E8H, 2E8H and Disabled.

## ***Serial Port 2***

This parameter allows you to set the base address of serial port 2. The available settings are 3F8H, 2F8H, 3E8H, 2E8H and Disabled.

## ***Parallel Port***

This parameter allows you to set the base address of the parallel port. The available settings are 3BCH, 378H, 278H and Disabled.



# AMI BIOS

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## ***IRQ Active***

This option specifies if the parallel and serial port IRQs are active high or active low. The settings are High and Low. The default is High.

## ***Parallel Port Mode***

This option lets you set the parallel port mode. The settings are Normal or Extended. The default is Normal.

# AMI BIOS

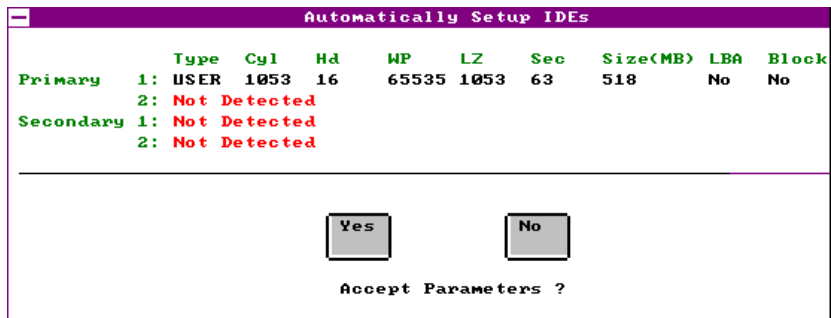
## Utility Setup

### IDE Setup

This function allows your system to automatically configure your IDE hard disk(s). This screen appears if you select IDE Setup .



After a few seconds, the screen below appears showing your disk(s) parameters. Select Yes to accept the values.



# AMI BIOS

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## ***Color Set***

This pop-up window appears if you select `Color Set` from the Utility Setup menu.



Color Set lets you select the background color of your Setup window. The selections are LCD, Army, Pastel, and Sky.

# AMI BIOS

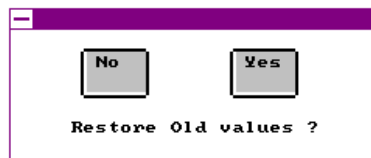
---

## Default Setup

Select this option to automatically set your system configuration parameters. To select, highlight `Default` and press `e`.

### *Original*

This option loads the values that you saved before shutting off the system. The following prompt appears if you choose `Original` from the Default Setup menu. Select `Yes` to load the original values.



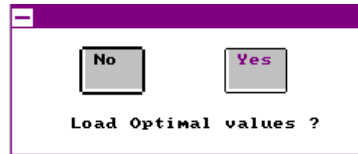
### *Optimal*

Choose this option and the BIOS configures the system using the best-case values to optimize system performance. However, these values may not be applicable to your system. If your system does not boot after choosing this setting, reconfigure it using the Fail-safe settings. Refer to the following section.

The screen below appears if you choose `Optimal` from the Default Setup menu. Select `Yes` to load the optimum values.

# AMI BIOS

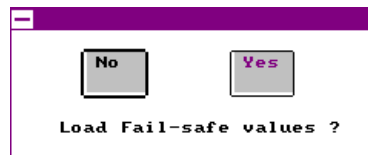
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## ***Fail-safe***

Choose this option and the BIOS automatically configures the system using the most stable settings. These settings are not necessarily the best settings for system performance, but safe and stable enough to guarantee you that your system will boot. This is useful if you are having problems with your current system configuration and need to determine the cause.

A prompt appears if you choose `Fail-safe` from the Default Setup menu. Select `Yes` to load the fail-safe values.



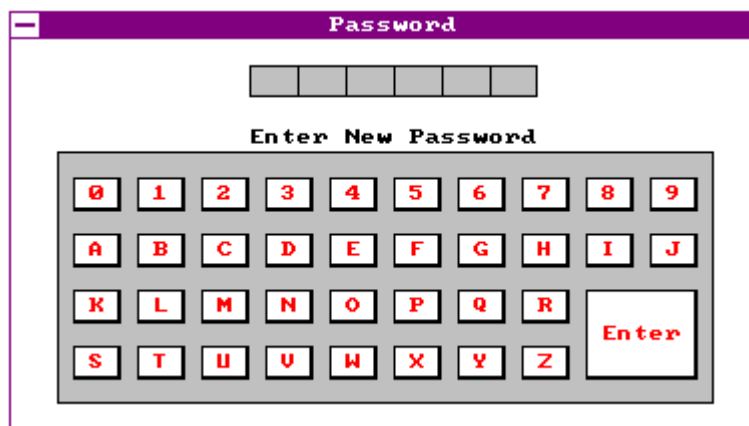
# AMI BIOS

## Security Setup

### *Password*

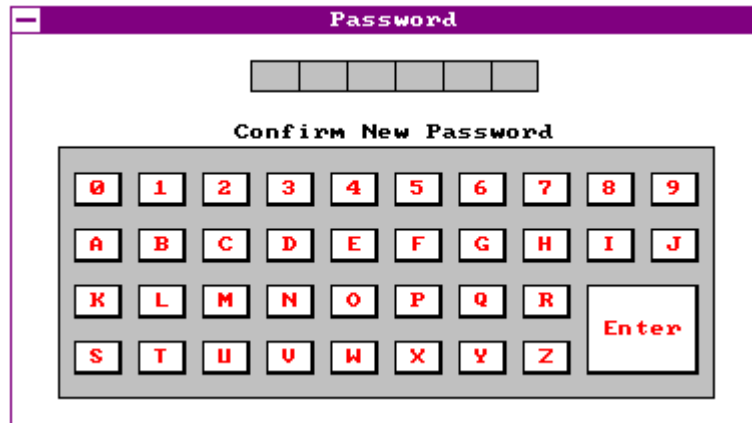
The system password prevents unauthorized use of your computer. If you enabled the password feature, it is impossible to boot the computer without entering the password.

To set a password, highlight `Password` or simply double-click the Password icon. The following screen appears:



Your password can consist of up to six characters. The password does not appear on the screen. WinBIOS prompts you to retype the password. The following screen appears.

# AMI BIOS



If you forget your password, you must clear the CMOS RAM and reconfigure the system.

To disable the password, press **e** when prompted for your password. Press **e** again when prompted to retype the password.

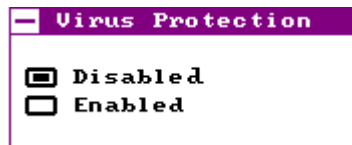


# AMI BIOS

## ***Anti-virus***

Set this parameter to `Enabled` to protect the boot sector and partition table of your hard disk from virus intrusion. Set it to `Disabled` to bypass the feature.

A prompt appears when you select `Anti-virus` from the Security Setup menu:



Select `Enabled` and the screen below appears:



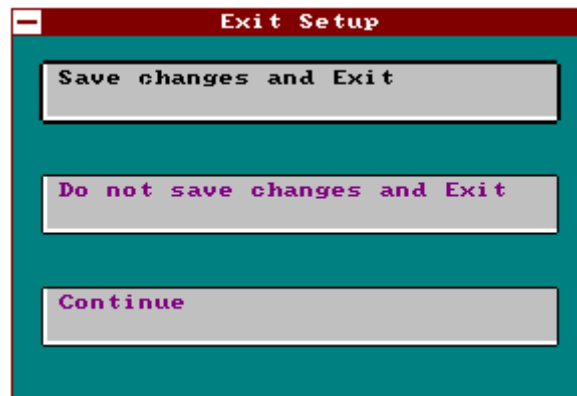


# AMI BIOS

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## Exit Setup

To exit Setup, you can either double-click on the Control menu box or simply press **F10**. A dialog box appears on the screen.



If you select **Save Changes and Exit**, the BIOS automatically saves all CMOS values before leaving Setup. Select **Do Not Save Changes and Exit** to exit Setup without saving the CMOS values. Select **Continue** to return to Setup if you want to reconfigure your system.

# AMI BIOS

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## NCR SCSI BIOS and Drivers

The NCR 53C810 SCSI BIOS resides on the same flash memory chip as the system BIOS. To use the onboard NCR BIOS, you need to install an NCR 53C810 SCSI controller card in your system.

All SCSI devices that you install in your system require software drivers. The NCR SCSI BIOS directly supports SCSI hard disks under DOS, Windows and OS/2. It also uses DOS-format and SCO UNIX-format support floppy disk device drivers that come with the NCR 53C810 SCSI controller card. The DOS-format device drivers are for SCSI devices used with DOS, Windows NT, Novell NetWare and OS/2. The SCO UNIX-format device drivers are for SCSI devices used with SCO UNIX. These drivers offer higher performance than the direct BIOS support.

To use the device drivers, you must install them in your system hard disk drive and add them to your system configuration files. For detailed installation instructions, see the README files that come with the drivers.



*The system board also supports the AMI Flash Memory Writer Utility that allows you to upgrade the system BIOS. For more information on this utility, contact your local distributor.*

# Jumper Summary **A**

## CPU Type and Speed

CPU Type	JP9	JP10	JP22	JP23
P54C-75	2-3	2-3	2-3	2-3
P54C-90	2-3	1-2	2-3	2-3
P54C-100	1-2	2-3	2-3	2-3
P54C/CS/CQS-120	2-3	1-2	1-2	2-3
P54C/CS/CQS-133	1-2	2-3	1-2	2-3
P54CS/CQS-150	2-3	1-2	1-2	1-2
P54CS/CQS-166	1-2	2-3	1-2	1-2
Cyrix 6x86-P120+	2-3	2-3	Open	Open
Cyrix 6x86-P150+	2-3	1-2	Open	Open
Cyrix 6x86-P166+	1-2	2-3	Open	Open

## Flash ROM Type

Type	JP18
Flash ROM 5V Vpp	2-3, 5-6
12V Vpp	1-2, 5-6
EEPROM	2-3, 4-5

## ECP DMA Channel

DMA	JP11	JP12
DMA 1	2-3	2-3
DMA 3	1-2	1-2

## FDC and Super I/O Chip

Function	JP14
Enabled	1-2
Disabled	2-3

# Jumper Summary

---

## Cache Mode

Cache Mode	JP1
Linear (Cyrix)	1-2
Interleave (Intel)	2-3

## VGA

Function	JP4	JP6	JP7
Enabled	1-2	1-2	2-3
Disabled	Open	2-3	3-4

## CMOS

Function	JP19
Normal	1-2
Clear CMOS	2-3

## Default Setting for Reserved Jumpers

Jumper	Default Setting
JP3	1-2, 3-4, 5-6
JP8	1-2
JP13	1-2, 3-4, 5-6