AcerAltos 900

User's Guide

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IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions carefully. Save them for future reference.

2. Follow all warnings and instructions marked on the product.

3. Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

4. Do not use this product near water.

5. Do not place this product on an unstable cart, stand, or table. The product may fall, causing serious damage to the product.

6. Slots and openings in the cabinet and the back or bottom are provided for ventilation; to ensure reliable operation of the product and to protect it from overheating, these openings must not be blocked or covered. This product should never be placed near or over a radiator or heat register, or in a built-in installation unless proper ventilation is provided.

7. This product should be operated from the type of power indicated on the marking label. If you are not sure of the type of power available, consult your dealer or local power company.

8. This product is equipped with a 3-wire grounding-type plug, a plug having a third (grounding) pin. This plug will only fit into a grounding-type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace the outlet. Do not defeat the purpose of the grounding-type plug.

9. Do not allow anything to rest on the power cord. Do not locate this product where persons will walk on the cord.

10. If an extension cord is used with this product, make sure that the total ampere rating of the equipment plugged into the extension cord does not exceed the extension cord ampere rating. Also, make sure that the total rating of all products plugged into the wall outlet does not exceed 15 amperes.

11. Never push objects of any kind into this product through cabinet slots as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.

12. Do not attempt to service this product yourself, as opening or removing covers may expose you to dangerous voltage points or other risks. Refer all servicing to qualified service personnel.

13. Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

    a. When the power cord or plug is damaged or frayed

    b. If liquid has been spilled into the product

    c. If the product has been exposed to rain or water

    d. If the product does not operate normally when the operating instructions are followed. Adjust only those controls that are covered by the operating instructions since improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to normal condition.

    e. If the product has been dropped or the cabinet has been damaged

    f. If the product exhibits a distinct change in performance, indicating a need for service

14. Use only the proper type of power supply cord (provided in your keyboard/manual accessories box) for this unit. It should be a detachable type: UL listed/CSA certified, type SVT/SJT, rated 6A 125V minimum. Maximum length is 15 feet (4.6 meters).

FCC Class A Radio Frequency
Interference Statement

Note:

This equipment has been tested and found to comply with the limits for a Class A 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 the emission limits.

Table of Contents

List of Figures

List of Tables

Introduction

The AcerAltos 900 is a high performance, entry-level server that can be used as a departmental file server, application server, or communication gateway. It supports a variety of operating systems, including Novell NetWare, SCO UNIX, and Microsoft Windows NT.

The AcerAltos 900 server combines high performance with high expandability while incorporating the latest technological advances. These features include:

- Intel® Pentium® Processor

- 512 KB Pipeline Burst write back second level cache

- 16 MB or 32 MB of system RAM, expandable to 192 MB

- Total of seven I/O expansion slots: 3 EISA, 4 PCI

- Integrated Fast SCSI-2 controller, on the PCI bus

- Integrated SVGA controller with 1 MB of video memory

- Two 16550-compatible UART serial ports

- One parallel port that supports EPP/ECP features

- 200 MB/64-bit wide interface between the processor and memory

- Three 5.25-inch externally accessible half-height drive bays

- Three 3.5-inch half-height drive bays (two external and one internal)

- 200 watt power supply

Conventions

The following conventions are used in this manual:

a , e , s , etc.	Represents 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.

Chapter 1   System Housing

1.1   Features

This chapter contains the following information:

- Features and functions of the front and rear panels
- Getting started
- Installing options

1.1.1   Front Panel

Table 1-1 Features and Functions of the Front Panel

Feature	Function
Speed Indicator LED	Unused LED location. Not implemented
Fixed Disk Drive LED	Indicates fixed disk drive activity for fixed drives
Power LED	Indicates that power is applied to the system
3.5-inch Diskette Drive	Accommodates a 3.5-inch diskette
Drive Bays	Holds the diskette drives and fixed disk drives
Power Button	Turns the system on or off
Reset Button	Resets the system unit
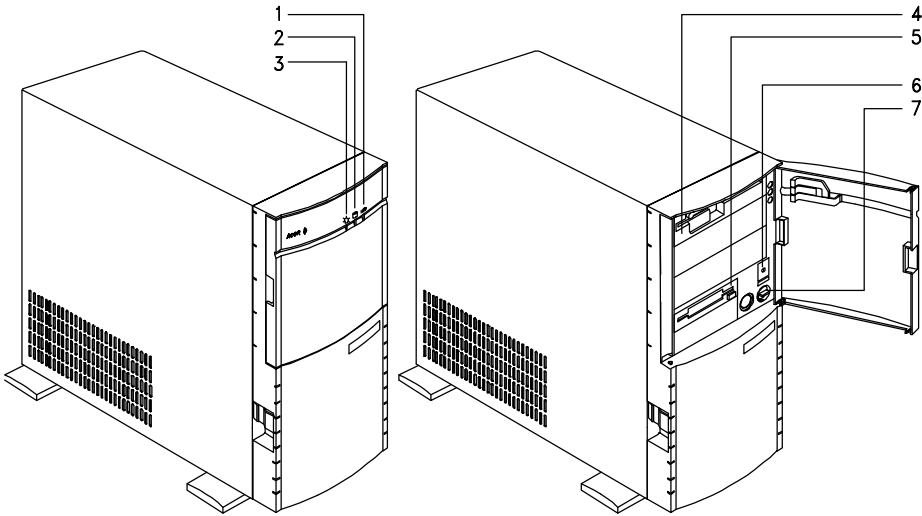
1　Speed Indicator LED (Not Used)　　5　3.5-inch Diskette Drive
2　Fixed Disk Drive LED　　　　　　　6　Power Button
3　Power LED　　　　　　　　　　　　7　Reset Button
4　5.25-inch Drive Bay

Figure 1-1　System Unit Front Panel

1.1.2   Rear Panel

Table 1-2   Features and Functions of the Rear Panel

Feature	Function
Power Socket	Connects the power cable
Parallel Port	Connects a parallel printer
Serial Ports	Connects serial peripherals
SCSI Port	Connects peripheral devices for high-speed, parallel data transfer
Safety Latch	Locks chassis
Keyboard Connector	Connects a PS/2-compatible keyboard
Mouse Connector	Connects a PS/2-compatible mouse
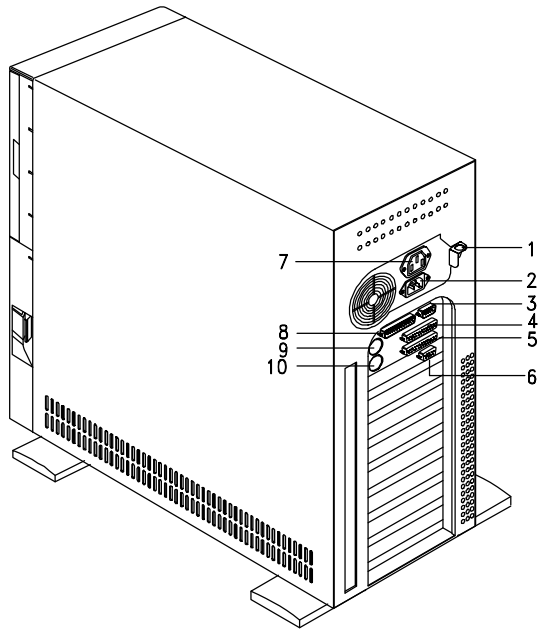
1	Safety Latch	6	Video Port
2	Power Socket	7	Power Supply Outlet
3	Serial 1 Port	8	Serial 2 Port
4	SCSI Port	9	Keyboard Connector
5	Parallel Port	10	Mouse Connector

Figure 1-2   System Unit Rear Panel

1.2　Getting Started

The pre-installation process involves the following:

- Selecting a site

- Unpacking the components

- Positioning the system

- Moving the System

1.2.1　Selecting a Site

Consider the following when selecting a site for the system:

1. Find a place that is comfortable for you. Avoid dusty areas of extreme temperature and humidity.

2. Cable paths should not run near equipment that might cause electromagnetic or frequency interference such as radio transmitters, television sets, copying machines, heaters, or air conditioners.

3. Find a location close to an electrical outlet. Avoid using extension cords.

4. Leave enough space around the system for normal air circulation.

1.2.2   Unpacking the System

Unpack the contents of the system box, following the instructions found with the system unit.

The system box contains the base system with one 3.5-inch diskette drive installed, video board and an accessory tray.   Additional peripherals and configurations may be installed depending upon model.

The accessory tray contains the following:

- AcerAltos 900 User's Guide - (this manual)
- Power Cord
- Keyboard and mouse
- Acer StartUp CD software bundle
- Warranty Package
- Mounting hardware for peripherals

1.2.3   Positioning the System

Arrange the legs of the system so that the system is stable and secure in the standing position.
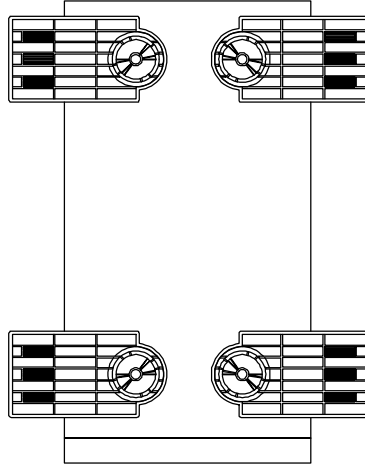
Figure 1-3   Positioning the System (Bottom View)

VENTILATION

HOLES

(Left Side)

A   B

2-4 inches

Figure 1-4   System Housing Vents

The housing has vents on both sides, with the left side being the more important of the two. When standing the system with left ventilation holes facing the wall, leave 2-4 inches of space from the wall to allow air circulation.

To stand the system with left ventilation holes facing out, place the system close to the wall and position the legs as in Detail B.

1.3   Connecting Components

CAUTION: *Make sure that the system is turned off before connecting any system components.*

NOTE: *Each component plug is keyed allowing it to be inserted in one direction.*

Follow these steps to connect the component:

1.   Plug the keyboard into the keyboard connector.
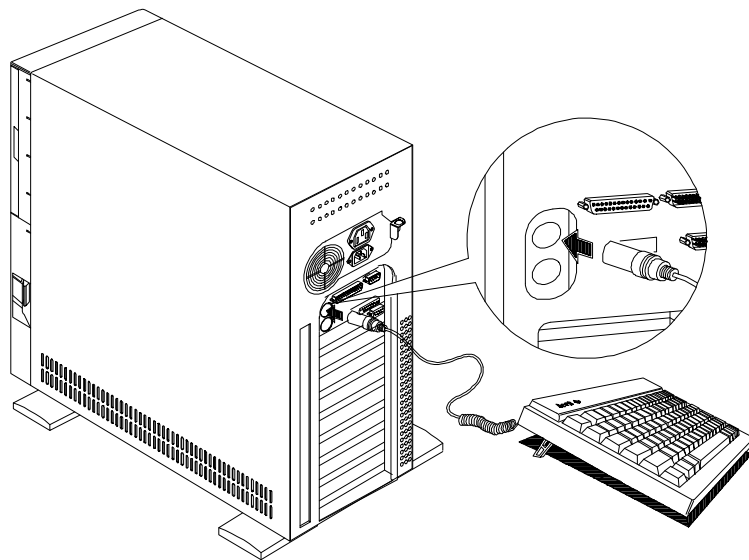
Figure 1-5   Connecting the Keyboard

2. Connect the mouse into the mouse connector.
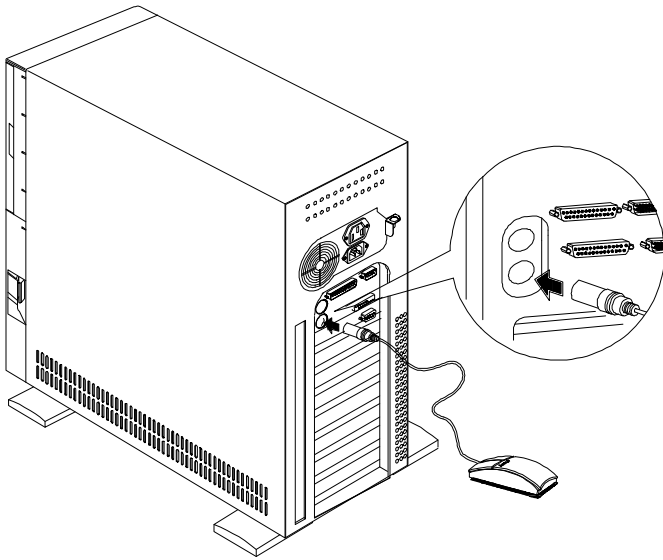
Figure 1-6   Connecting a Mouse

3. Connect the monitor cable into the video socket.
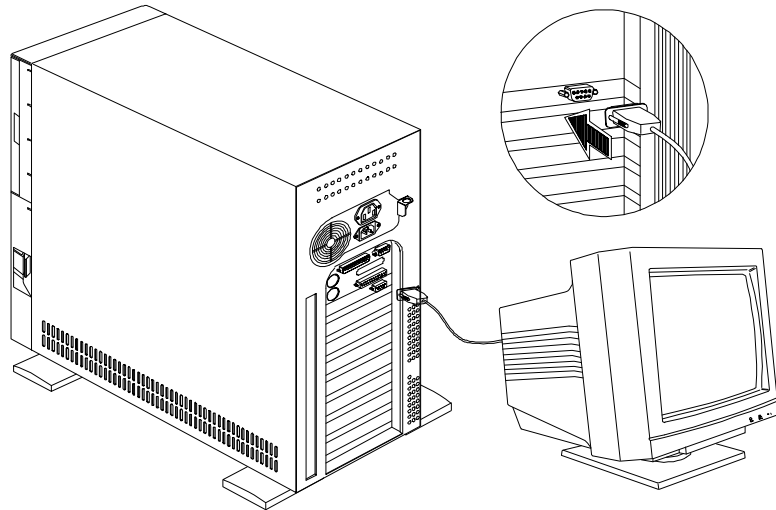
Figure 1-7   Connecting a Monitor

4. If you have a parallel printer, connect it to the parallel port.

    If you have a serial printer or other serial peripheral, connect it to a serial port (Serial 1 or Serial 2).
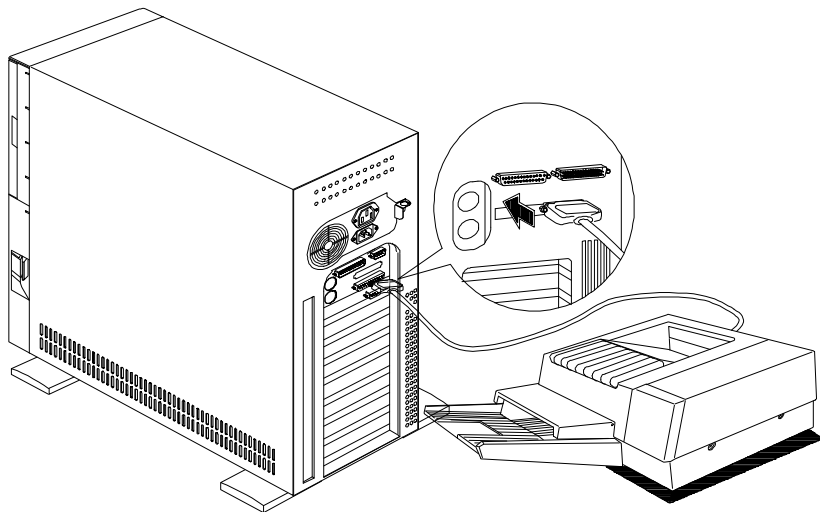
Figure 1-8   Connecting a Printer

5. Plug the female end of the power connector into the system power socket and the other end into a grounded electrical outlet.

6. Plug the monitor power cable into a grounded electrical outlet.

1.4   Installing Options

This section tells you how to open the system housing and install additional components in the system.

IMPORTANT!   *Turn OFF the system power before connecting or removing any peripheral device. Always turn ON any peripherals first before you turn on the system.*

1.4.1   ESD Precautions

Integrated circuits (ICs) on expansion boards are sensitive to static electricity. To avoid damaging the chips from electrostatic discharge (ESD), observe the following precautions:

1.   Do not remove a board from its packaging until you are ready to install it.

2.   Wear a wrist grounding strap before handling electronic components. Wrist grounding straps are available at most electronic component stores.

1.4.2 Opening the System
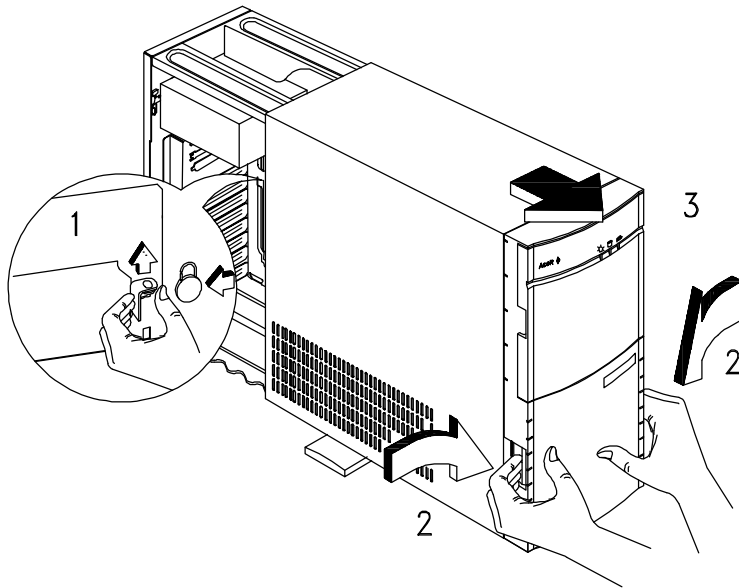
Figure 1-9   Opening the System

1. At the rear of the system, remove the plastic lock and turn the safety latch to unlock the system housing.

2. Pull the front panel release latches on each side of the front panel.

3. Pull the front panel and detach it completely from the housing.

The next figure shows the inside components.
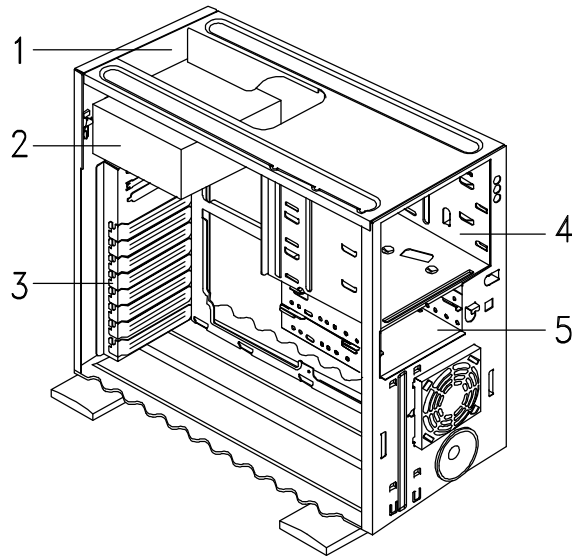
1   3.5-inch Fixed Drive Bays
2   Power Supply
3   Expansion Board Brackets
4   5.25-inch Drive Bays
5   3.5-inch Drive Bays

Figure 1-10 Inside Components

1.4.3   Installing Expansion Boards
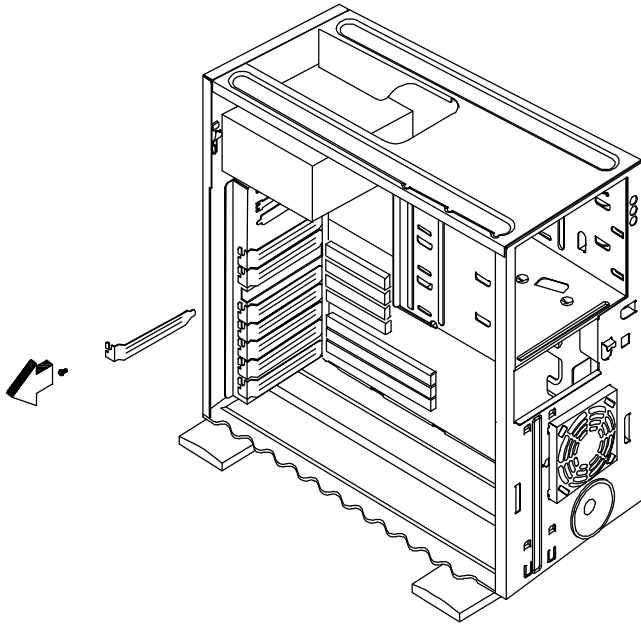
Figure 1-11 Removing a Bracket

1. Study the expansion board installation guide and configure any jumpers as directed.

2. Remove a bracket from any empty expansion slot. Save the screw to secure the new board. Keep the bracket for future use.
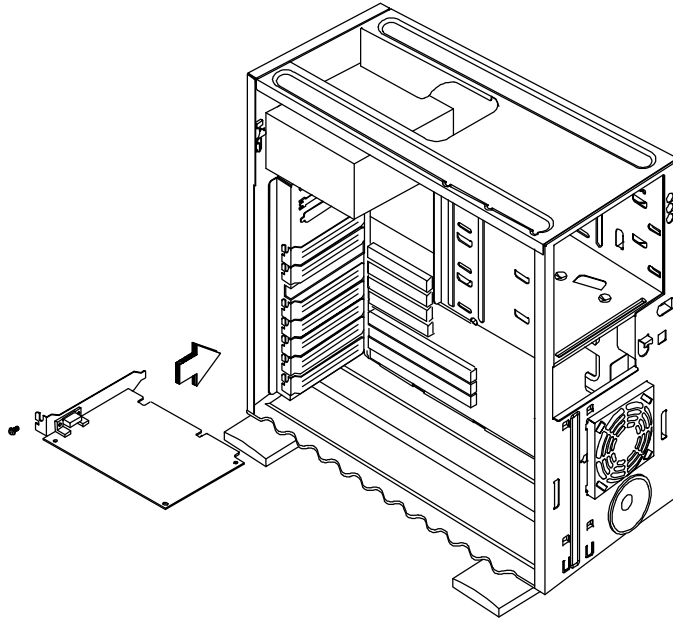
Figure 1-12 Installing a Board

3. Gently insert the board into the expansion slot. Make sure that the board is properly inserted.

4. Secure the board with the screw.

    NOTE: *Do not neglect this last step. The board may use the screw for grounding.*

1.4.4   Installing Drives

Installing a 3.5-inch Diskette Drive

PUSH DOWN

PULL OUT
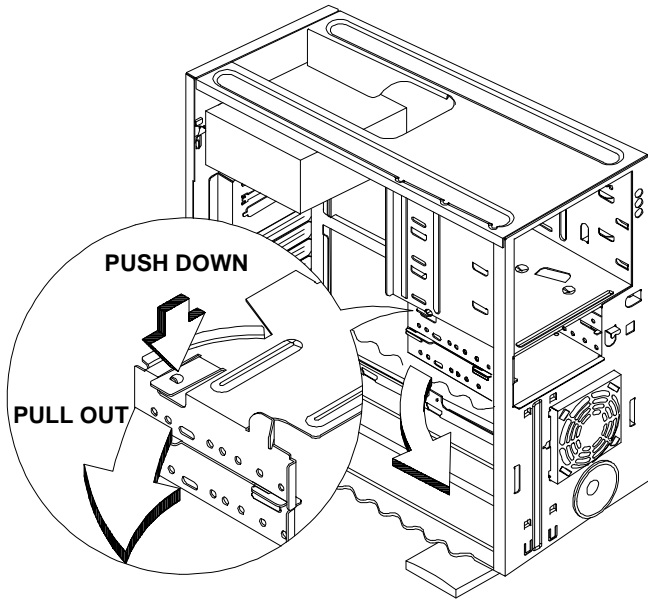
Figure 1-13 Detaching the Drive Frames from the Housing

Follow these steps to install a 3.5-inch diskette drive:

1. Detach the 3.5-inch diskette drive frames from the housing.

2. Detach the upper drive frame from the lower drive frame.

3. Secure a 3.5-inch diskette drive to the upper drive frame.
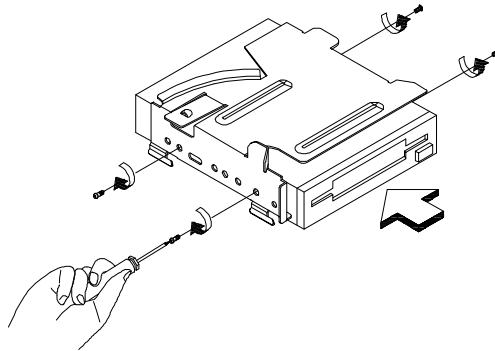
Figure 1-14 Securing the Diskette Drive To the Upper Drive Frame

4. Attach the upper drive frame to the lower drive frame and click it into place.
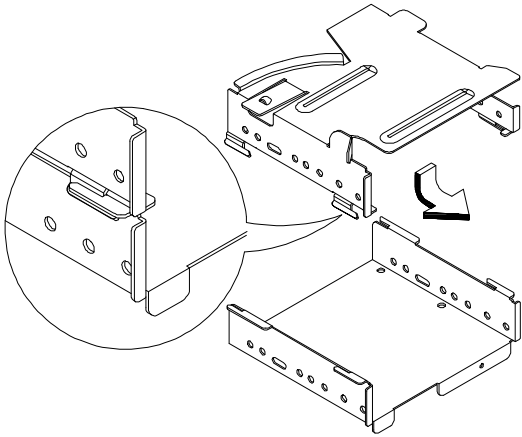
Figure 1-15 Securing the Diskette Drive to the Lower Drive Frame

5. Insert the drive frame into the 3.5-inch drive bay and click it into place.
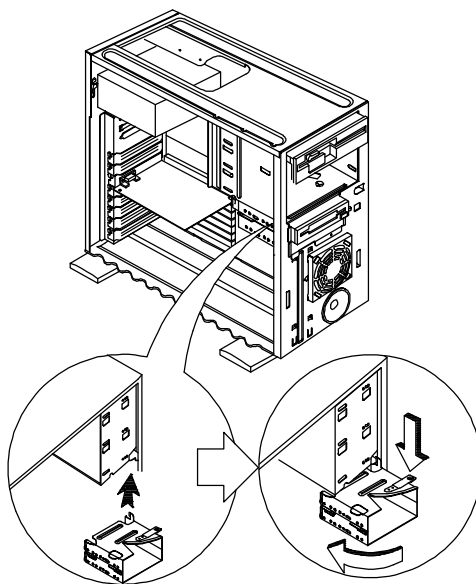
Figure 1-16 Installing a 3.5-inch Diskette Drive

6. Connect the diskette drive cables.
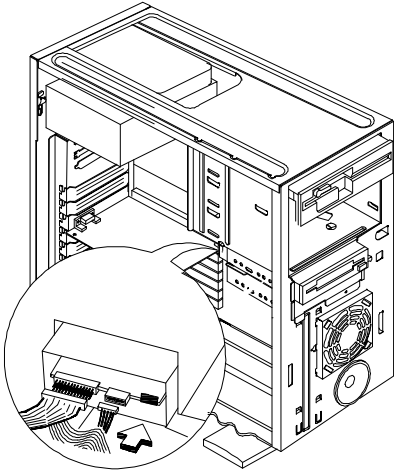
Figure 1-17 Connecting the 3.5-inch Diskette Drive Cables

Installing a 5.25-inch Drive
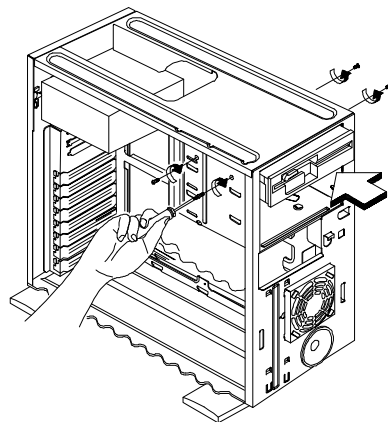
Figure 1-18 Installing a 5.25-inch Drive

This housing can support up to three 5.25-inch drives. To install a 5.25-inch drive, follow these steps:

1. Insert a drive into an available 5.25-inch drive bay.

2. Secure the drive on both sides with the required screws.
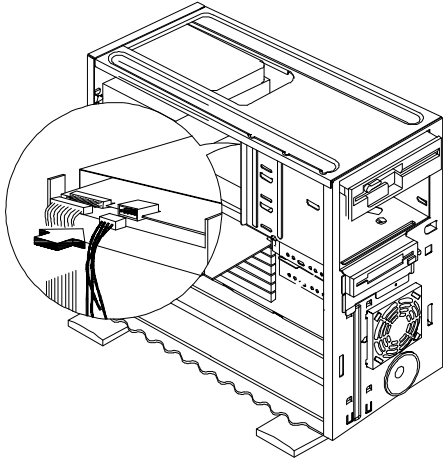
Figure 1-19 Connecting the 5.25-inch Drive Cables

3. After installing the diskette drive, connect the power supply and the drive cable.

Installing a Fixed Disk
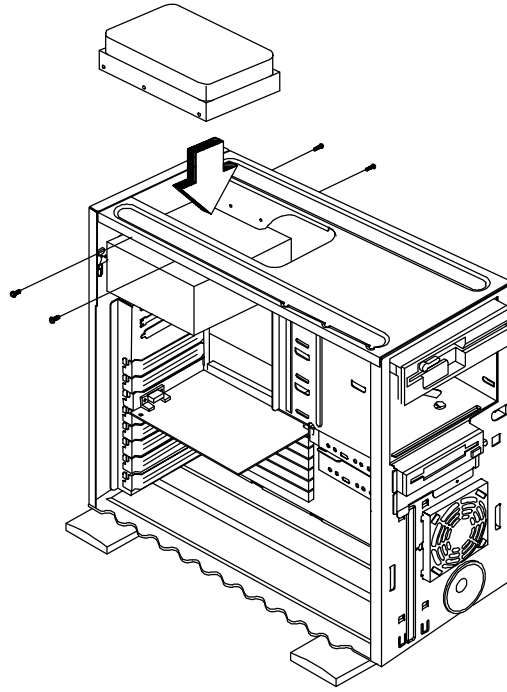
Figure 1-20 Installing a Fixed Disk Drive

You can install either one 3.5-inch, full height fixed disk drive or one 3.5-inch, 1-inch high fixed disk drive into the drive bay. To install a fixed disk, follow these steps:

1. Insert a fixed disk drive into an available drive bay.

2. Secure it on both sides with the necessary screws.
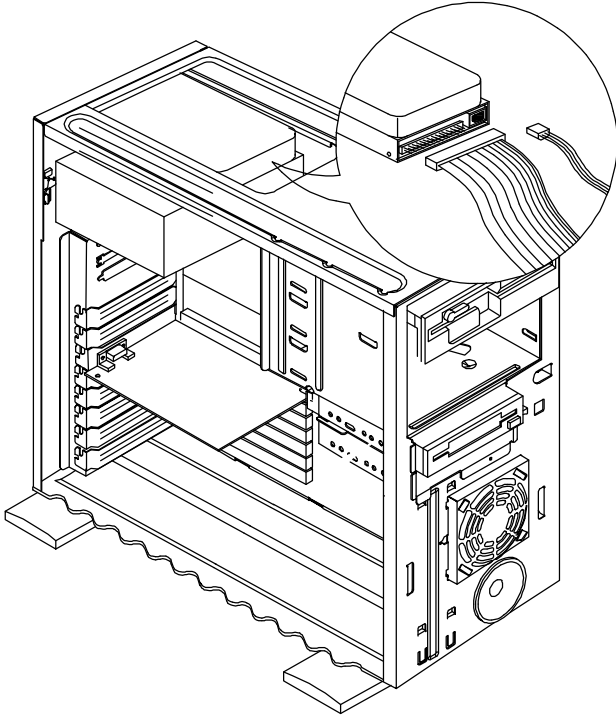
Figure 1-21 Connecting the Fixed Disk Drive Cables

3. Connect the fixed disk drive cables.

Chapter 2   System Board

2.1   Features

This high-performance system board is designed to support Intel® Pentium® processors running at 75/100/120/133/150/166 MHz. It utilizes both the EISA and the PCI local bus architecture. Three EISA and four PCI bus slots reside on the board to allow installation of either master or slave devices, except for one PCI slot that supports only slave devices.

The board has three memory banks, each bank composed of two 72-pin SIMM sockets supporting a maximum system memory of 192 MB when using 32-MB SIMMs. The SIMM sockets support both Fast Page Mode SIMMs or Acer's EDO/ECC SIMMs. A second-level cache socket is installed with a 512-KB synchronous SRAM module.

A 50-pin Fast SCSI-II interface and a 68-pin Fast/Wide SCSI interface come with the system board to connect SCSI devices. Standard I/O features such as two serial interfaces (COM1, COM2), one parallel port interface, a diskette drive interface, and PS/2 mouse and keyboard connectors reside on the system board.

2.2   Major Components

The system board has the following major components:

- One zero-insertion force (ZIF) socket for Intel Pentium processor

- Three memory banks (Bank 1 to Bank 3) composed of six 72-pin SIMM sockets

- Synchronous cache module socket that supports 512 KB second-level write back cache

- Three EISA and four PCI expansion slots

- RTC chip that contains clock/calendar plus 128 bytes CMOS RAM with battery backup

- 50-pin Fast SCSI-II and 68-pin Fast/Wide SCSI interfaces

- IDE and diskette drive interfaces

- Power connector for 200-watt switching power supply

- Onboard VGA chipset with 1 MB DRAM

- External ports:

  - PS/2® compatible keyboard port

  - PS/2® compatible mouse port

  - 9- and 25-pin high speed serial ports

  - Parallel port supporting EPP/ECP

2.2.1 System Board Layout
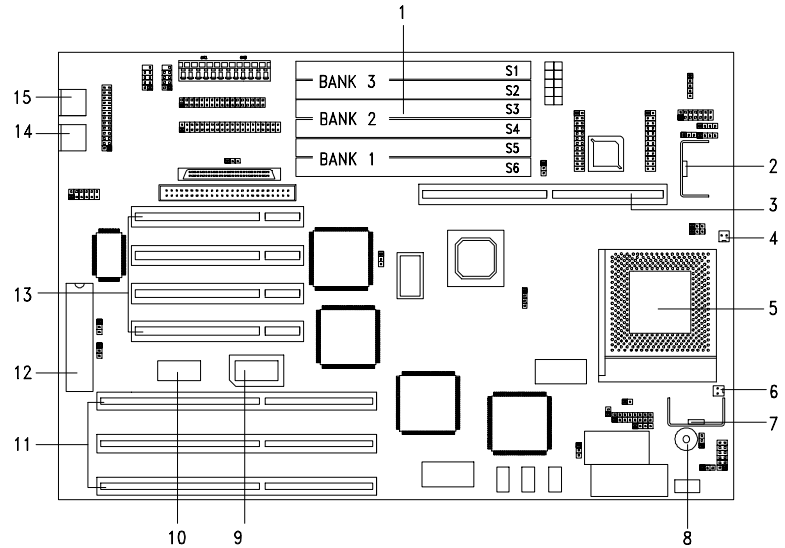
1	SIMM sockets	9	Video RAM upgrade socket
2	CPU voltage regulator	10	Video RAM
3	Cache module socket	11	EISA slots
4	Fan connector 1	12	Keyboard controller
5	CPU socket	13	PCI slots
6	Fan connector 2	14	PS/2 mouse connector
7	CPU voltage regulator	15	PS/2 keyboard connector
8	Buzzer		

Figure 2-1   System Board Layout

2.3 Jumpers and Connectors

2.3.1 Jumper and Connector Locations

Figure 2-2 shows the jumper locations on the system board. The blackened pin on a jumper represents pin 1.
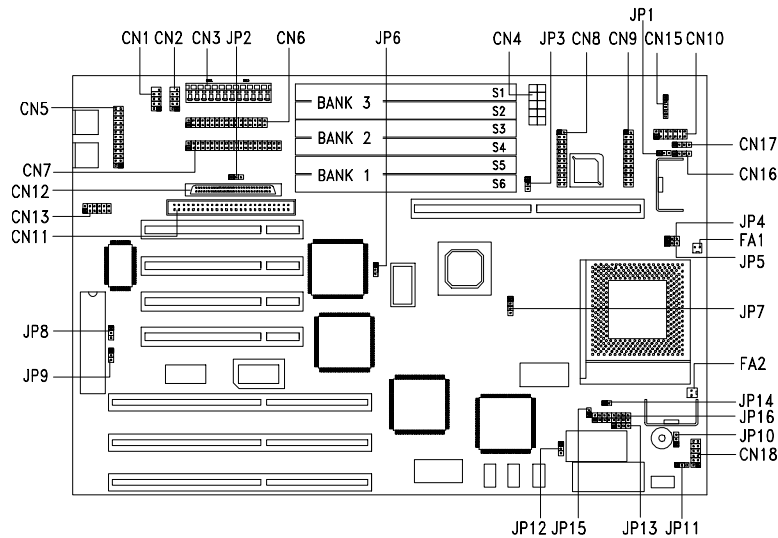
Figure 2-2   Jumper Locations

> Jumpers are prefixed "JP". Connectors are prefixed "CN". FA1 and FA2 are fan connectors.
>
> On this figure, the blackened pin of a jumper represents pin 1.

2.3.2 Jumper Settings

Table 2-1   Jumper Settings

Jumper	Setting	Function
CPU Voltage JP1	1-2 2-3*	VR VRE
SCSI Termination JP2	1-2 2-3*	Terminator always ON Use SCSI Setup Utility to set terminator ON or OFF
Cache Size JP3	1-2 2-3*	256 KB 512 KB
SCSI Selection JP6	1-2* 2-3	16-bit 8-bit
BIOS Version JP8	1-2* 2-3	Acer Generic
Password Security JP9	1-2 2-3*	Enabled Disabled
PC Sound Source JP10	1-2* 2-3	Buzzer Speaker
Front Panel Reset JP11	1-2* 2-3	Enabled Disabled
256-KB BIOS JP12	1-2 2-3*	Reserved Enabled (fixed setting)

---

*   Default setting

Table 2-1   Jumper Settings (continued)

Jumper	Setting			Function		
Core/Bus Freq.	**JP4**	**JP5**	**JP7**	**Bus Freq.**	**Core Freq.**	**Ratio**
JP4, JP5, JP7	2-3	2-3	1-2	50 MHz	75 MHz	3/2
	1-2	1-2	2-3	60 MHz	150 MHz	5/2
	2-3	1-2	2-3	60 MHz	120 MHz	2/1
	2-3	2-3	2-3	60 MHz	90 MHz	3/2
	1-2	1-2	3-4	66 MHz	166 MHz	5/2
	2-3*	1-2*	3-4*	66 MHz	133 MHz	2/1
	2-3	2-3	3-4	66 MHz	100 MHz	3/2

* Default setting

Figure 2-3 illustrates the related settings of JP13, JP14, JP15, and JP16 when selecting the CPU type.
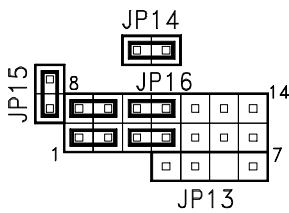
Figure 2-3   JP13, JP14, JP15, and JP16 Settings

2.3.3 Connector Functions

Table 2-2 lists the different connectors on the system board and their respective functions.

Table 2-2   Connector Functions

Connector	Function
CN1	COM1
CN2	COM2
CN3	Power connector for 200-watt SPS
CN4	Power connector for 300-watt SPS
CN5	Parallel port connector
CN6	Diskette drive connector
CN7	IDE drives connector
CN8	Reserved
CN9	Reserved
CN10	Faulty-drive LED connector
CN11	Fast SCSI-II (narrow SCSI) connector
CN12	Wide SCSI connector
CN13	VGA daughter board connector
CN15	Power LED and keylock connector
CN16	Hard disk LED connector
CN17	Speaker connector
CN18	Reset/Turbo connector

2.4   ESD Precautions

Always observe the following ESD (electrostatic discharge) precautions before installing any system component:

1.   Do not remove any system component from its packaging unless you are ready to install it.

2.   Wear a wrist grounding strap before handling electronic components. Wrist grounding straps are available at most electronic component stores.

DO NOT attempt the procedures in the following sections unless you are confident of your capability to perform them. Otherwise, ask a service technician for assistance.

2.5   Installing a VGA Daughter Board

The system board comes with a video controller, a video connector, and a VGA daughter board. This saves one bus slot for another expansion board. The daughter board carries an external video port.

To reinstall if removed, simply plug the daughter board into CN13 and secure the bracket with a screw.

External VGA Port

*VGA Connector
(CN13)*
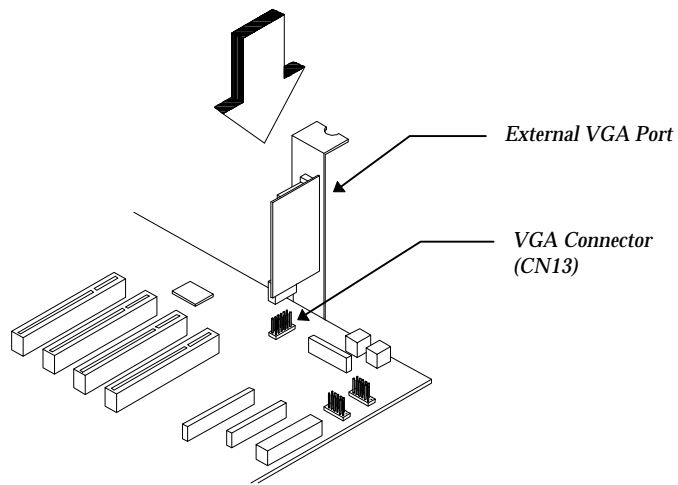
Figure 2-4   Installing a VGA Daughter Board

2.6 CPU Upgrade

The system board comes with a zero-insertion force (ZIF) CPU socket for easy installation.

Follow these steps to install an Intel Pentium processor:

1. Pull up the socket lever.

2. Insert the CPU, making sure that pin 1 of the CPU connects to pin 1 of the socket.

> ⚠ *Be careful not to bend any pins.*

3. Push down the socket lever.
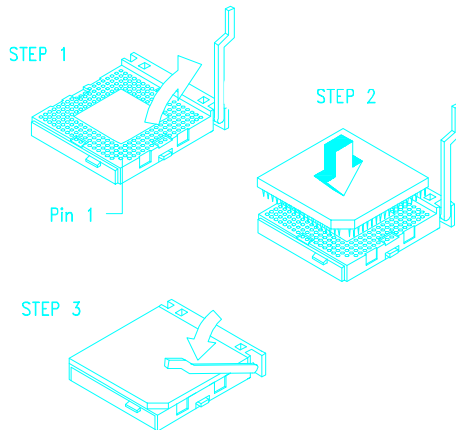
Figure 2-5 Installing an Intel Pentium Processor

4. Change the settings of jumper JP1 for the correct CPU voltage and jumpers JP4, JP5, and JP7 for the CPU frequency. Refer to Table 2-1 and Figure 2-2 for jumper locations and settings.

2.7   Memory Upgrade

The six 72-pin SIMM sockets onboard support Fast Page Mode or Acer's EDO/ECC SIMMs. You may install 4-MB and 16-MB single-density as well as 8-MB, and 32-MB double-density SIMMs for a total of 192-MB system memory. The SIMM sockets also support 64-MB SIMMs, when available, to achieve 384-MB system memory.

2.7.1   Rules for Adding Memory

- Use only the same type of SIMM in a given bank

- You may combine different types of SIMMs for a particular memory configuration as long as the SIMMs in each bank are of the same type.

- Always install SIMMs in pairs. For example, for a total memory of 16 MB, install two 8-MB SIMMs into the sockets marked S6 and S5 (bank 1) or S2 and S1 (bank 3). You can not use a single 16-MB SIMM alone for 16-MB memory.

- Always **install** SIMMs starting from an inner socket. For example, install SIMMs in socket S6 before socket S5, or in socket S2 before socket S1.

- Always **remove** SIMMs starting from an outer socket. For example, remove SIMMs in socket S5 before socket S6, or in socket S1 before socket S2.

- Most operating systems require that memory capacity changes be registered in the system ECU.

2.7.2   Memory Configurations

Table 2-3 lists the available memory configurations.

Table 2-3   Memory Configurations

Bank 1		Bank 2		Bank 3		Total
S6	S5	S4	S3	S2	S1	Memory
8MB	8MB					16MB
8MB	8MB	8MB	8MB			32MB
16MB	16MB					32MB
16MB	16MB	8MB	8MB			48MB
8MB	8MB	8MB	8MB	16MB	16MB	64MB
16MB	16MB	16MB	16MB	16MB	16 MB	96MB
32MB	32MB	32MB	32MB			128MB
32MB	32MB	32MB	32MB	32MB	32MB	192MB

The above configurations are only some of the available memory combinations. You can use other combinations as long as you follow the rules for upgrading memory. See section 2.7.1.

2.7.3 Installing a SIMM

⚠️ *Read the ESD precautions in section 2.4 before proceeding.*

Follow these steps to install a SIMM:

1. Slip a SIMM at a 45º angle into a socket with the gold pins pointing down. Be careful when inserting SIMMs to avoid damaging the SIMM or the socket.

2. Gently push the SIMM to a vertical position until the pegs of the socket slip into the holes on the SIMM, and the holding clips lock the SIMM into position. The SIMM should be at a 90º angle when installed.
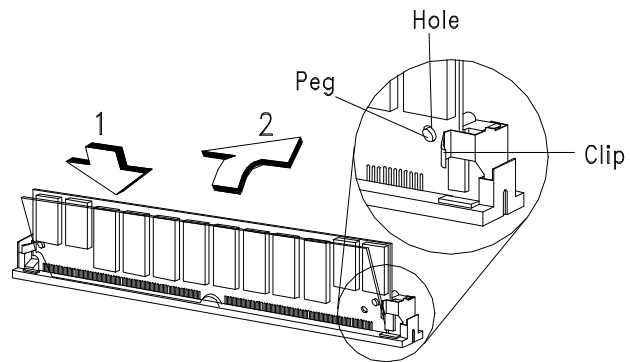
Figure 2-6   Installing a SIMM

2.7.4   Removing a SIMM

Follow these steps to remove a SIMM:

1.   Press the holding clips on both sides of the SIMM outward to release it.

2.   Push the SIMM downward to a 45° angle.

3.   Pull the SIMM out of the socket.
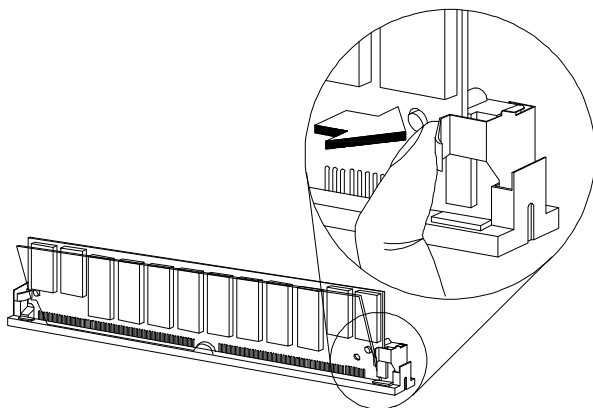
Figure 2-7   Removing a SIMM

2.7.5   Reconfiguring the System

Reconfigure the system after installing or removing SIMMs.

Follow these steps to reconfigure the system:

1.   Reboot the system. A memory error message appears, indicating that the total memory does not match the value stored in CMOS.

2.   Press ⌫ -ⓐ -^   during the power-on self-test (POST) routine to run Setup. During POST, a message indicating a wrong memory configuration appears.

3.   Press ^   twice to exit Setup and reboot the system. The system boots with the new memory configuration.

4.   Run the ECU to register any new memory capacity.

2.8   Second-level Cache Module

The system supports synchronous pipeline burst second-level cache.

The system board has an exclusive 160-pin socket for a synchronous pipeline burst cache module.   The cache module socket supports 512 KB 3.3V cache module.

Follow these steps to install a cache module:

1.   Position the cache module on top of the socket such that its component side faces the CPU.

2.   Insert the cache module carefully until the gold pins of the module fit into place.
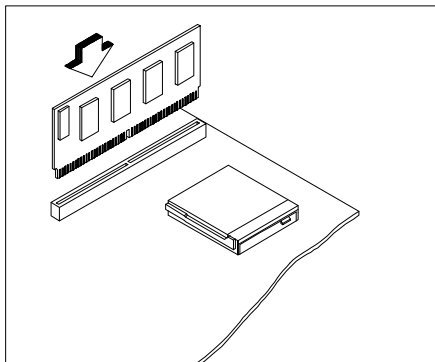
Figure 2-8   Installing a Synchronous Cache Module

2.9   SCSI Feature

The system board features a single-chip SCSI host adapter that adds SCSI I/O capability to the system. The chipset consists of an onboard RISC processor, bus master interface controller, and SCSI controllers. A 50-pin Fast SCSI-II interface with 10 MB/s transfer rate and a 68-pin Wide SCSI interface that transfers at 20 MB/s (Wide SCSI) are also onboard to accommodate various SCSI devices.

2.9.1   Using the SCSI Feature

Follow these steps to use the SCSI feature:

1. Install a SCSI device in the system and connect it to the SCSI interface on the system board. See Figure 2-1 for the location.

2. Enter the BIOS utility to set the corresponding SCSI parameters.

3. Enter the SCSI Setup utility and make the necessary changes. Refer to the SCSI section, Chapter 4, for more information.

2.10 Error Messages

Do not continue using the computer if you receive an error message of any type. Note the message and take corrective action. This section describes the types of error messages and lists their corresponding corrective measures.

There are two general types of error messages:

- Software

- System

2.10.1 Software Error Messages

Software error messages are returned by your operating system or application. These messages typically occur after you boot the operating system or when you run your application. If you receive this type of message, consult your application or operating system manual for help.

2.10.2 System Error Messages

A system error message indicates a problem with the computer itself. A message of this type normally appears during the power-on self-test, before the operating system prompt appears. Table 2-4 lists the system error messages.

Table 2-4   System Error Messages

Message	Action
CMOS Battery Error	Replace the RTC chip or contact your dealer.
CMOS Checksum Error	Check the RTC chip and the necessary jumper. If the battery is still good, run Setup.
Display Card Mismatch	Run Setup
Diskette Drive Controller Error or Not Installed	Check and connect the control cable to the diskette controller.
Diskette Drive Error	Diskette may be defective. If not, replace the diskette drive.
Diskette Drive A Type Mismatch	Run Setup and select the proper drive type.
Diskette Drive B Type Mismatch	Run Setup and select the proper drive type.
Equipment Configuration Error	Modify DRAM configuration to agree with one of the options in Table 2-3.
Hard Disk Controller Error	Run Setup.
Hard Disk 0 Error	Check all cable connections. Replace hard disk.
Hard Disk 1 Error	Check all cable connections. Replace hard disk.
Keyboard Error or No Keyboard Connected	Check and connect the keyboard to the system unit.
Keyboard Interface Error	Replace the keyboard or contact your dealer.
Memory Error at: MMMM:SSSS:OOO (W:XXXX, R:YYYY) where: M: MB, S: Segment, O: Offset, X/Y: write/read pattern	Check SIMMs on the system board. Contact your dealer.

Table 2-4   System Error Messages (continued)

Message	Action
Memory Size Mismatch CPU Clock Mismatch	Check the memory size based on the system specifications. If you are sure that connections and values are correct, ignore the message. If the message reappears, ask for technical assistance.
Onboard Serial Port 1 Conflict	Run Setup and disable the port.
Onboard Serial Port 2 Conflict	Run Setup and disable the port.
Onboard Parallel Port Conflict	Run Setup and disable the port.
Pointing Device Error	Check and connect pointing device.
Pointing Device Interface Error	Replace the pointing device or contact your dealer.
Press F1 key to continue or $\flat$ -a - $\wedge$ for Setup	Press F1 or $\flat$ -a - $\wedge$.
Real Time Clock Error	Check the RTC chip. If it is still good, run Setup. If not, replace the RTC chip.

2.10.3 Correcting Error Conditions

As a general rule, if an error message says "Press F1 to continue," it is caused by a configuration problem, which can be easily corrected. An equipment malfunction is more likely to cause a fatal error, i.e., an error that causes complete system failure.

Here are some corrective measures for error conditions:

1. Run Setup. You must know the correct configuration values for your system before you enter Setup, which is why you should write them down when the system is correctly configured. An incorrect configuration is a major cause of power-on error messages, especially for a new system.

2. Run the ECU.

3. Remove the system cover, following the directions in the System Housing chapter. Check that the jumpers on the system board and any expansion boards are set correctly.

4. If you cannot access a new disk, it may be because your disk is not properly formatted. Use the appropriate operating system's format utility.

5. Check that all connectors and boards are secure.

If you go through these steps and still receive an error message, the cause may be an equipment malfunction.

If you are sure that your configuration values are correct and your battery is in good condition, the problem may lie in a damaged or defective chip.

In either case, contact an authorized service center for assistance.

Chapter 3   BIOS Utility

Most systems are already configured by the manufacturer or the dealer. There is no need to run Setup when starting the computer unless you get a Run Setup message.

The Setup program loads configuration values into the battery-backed nonvolatile memory called CMOS RAM. This memory area is not part of the system RAM.

> *If you repeatedly receive Run Setup messages, the battery may be bad. In this case, the system cannot retain configuration values in CMOS. Ask a qualified technician for assistance.*

Before running Setup, have the following information ready:

- **Diskette drive type** The standard type is a 3.5-inch 1.44 MB diskette drive.

3.1 Entering Setup

To enter Setup, press the key combination b + a + ^ .

You must press b + a + ^ *while the system is booting. This key combination does not work any other time.*

The BIOS Utility main menu then appears:

```
┌─────────────────────────────────────────────────────────┐
│                      BIOS Utility                         │
├─────────────────────────────────────────────────────────┤
│                                                           │
│              Basic System Configuration                   │
│            Advanced System Configuration                  │
│               PCI System Configuration                    │
│            Non-PnP ISA Card Configuration                 │
│              Power Saving Configuration                   │
│                   System Security                         │
│              Load Setup Default Settings                  │
│                                                           │
│                                                           │
│                                                           │
│                                                           │
│                                                           │
│                                                           │
├─────────────────────────────────────────────────────────┤
│ ↑↓ = Move Highlight Bar,  ←  = Select,  Esc = Exit and Reboot │
└─────────────────────────────────────────────────────────┘
```
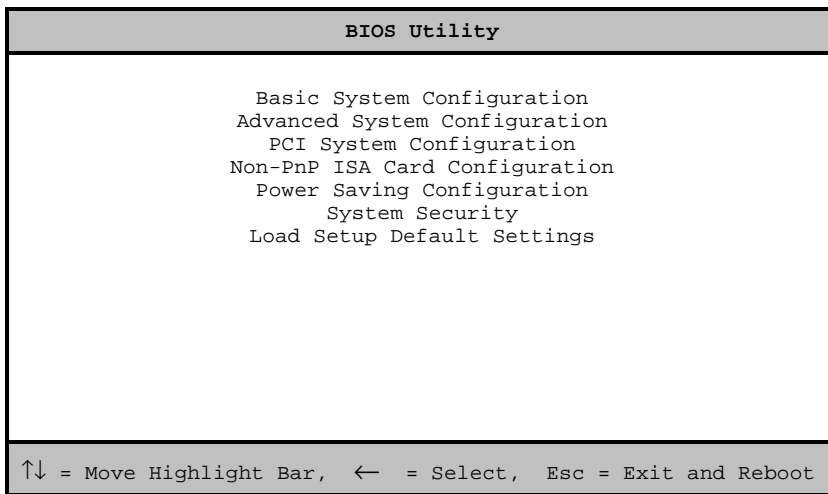
The parameters on the screens show default values. These values may not be the same as those in your system.

The grayed items (denoted with asterisks) on the screens have fixed settings and are not user-configurable.

3.2   Basic System Configuration

Select Basic System Configuration to input configuration values such as date, time, and disk types.

The following screen shows the Basic System Configuration menu.

```
┌─────────────────────────────────────────────────────────────┐
│          Basic System Configuration        Page 1/2          │
├─────────────────────────────────────────────────────────────┤
│   Date ..................... [MM/DD/YY]                       │
│   Time ..................... [HH:MM:SS]                       │
│   Diskette Drive A ......... [1.44 MB 3.5-inch]              │
│   Diskette Drive B ......... [None]                          │
│                                                              │
│                               Cylinder   Head     Sector     │
│                                                              │
│   Hard Disk 0  (xxx MB)..... [None]    xx       xx      xx    │
│   Hard Disk 1  (xxx MB)..... [None]    xx       xx      xx    │
│                                                              │
│                                                              │
│   *Base Memory  ............ [  640]  KB                      │
│   *Extended Memory  ........ [ xxxx]  KB                      │
│   *Total Memory  ........... [ xxxx]  KB                      │
│   *Math Coprocessor  ....... [   Installed   ]               │
│   *Video Display  .......... [VGA/EGA]                        │
├─────────────────────────────────────────────────────────────┤
│   ↑↓ = Move Highlight Bar,   → ← = Change Setting            │
│   PgDn/PgUp = Move Screen,   F1 = Help,   Esc =  Exit         │
└─────────────────────────────────────────────────────────────┘
```

The command line at the bottom of the menu tells you how to highlight items, change settings, and move from one screen to another.

Press ∨ or ⋎ on the cursor-edit keypad to highlight the desired parameter.

Press ✕ or ∠ to select the desired option for an item.

Press }   to move to the next page or {   to return to the previous page.

Press ⌃   to exit the configuration menu.

The following screen shows page 2 of the Basic System Configuration menu.

```
┌─────────────────────────────────────────────────────────┐
│          Basic System Configuration        Page 2/2      │
├─────────────────────────────────────────────────────────┤
│    Communication Settings                                │
│       Baud Rate  .................... [9600] BPS         │
│       Parity  ....................... [None]             │
│       Stop Bits  .................... [1]  Bits          │
│       Data Length  .................. [8]  Bits          │
│                                                          │
│    Enhanced IDE Features                                 │
│       Hard Disk Block Mode  ......... [Disabled]         │
│       Hard Disk Size > 504MB  ....... [Disabled]         │
│                                                          │
│    Large Memory Support Mode ........ [ Normal ]         │
│    Num Lock After Boot  ............. [Enabled ]         │
│    Memory Test  ..................... [Disabled]         │
│    Auto Configuration Mode .......... [Disabled ]        │
│    Fast Boot Mode  .................. [Disabled ]        │
│                                                          │
│                                                          │
├─────────────────────────────────────────────────────────┤
│   ↑↓ = Move Highlight Bar,   → ← = Change Setting        │
│   PgDn/PgUp = Move Screen,   F1 = Help,   Esc  =  Exit   │
└─────────────────────────────────────────────────────────┘
```

The following sections explain the different parameters and their settings.

3.2.1   Date and Time

The real-time clock keeps the system date and time. After setting the date and time, you need not enter them every time you turn on the system. As long as the internal battery remains good (approximately seven years) and connected, the clock continues to keep the date and time accurately even when the power is off.

Date

Highlight the items on the date parameter and press ✕ or ✓ to set the date following the month-day-year format.

Valid values for month, day, and year are:

- Month   1 to 12

- Day   1 to 31

- Year   00 to 99

Time

Highlight the items on the time parameter and press ✕ or ✓ to set the time following the hour-minute-second format.

Valid values for hour, minute, and second are:

- Hour   00 to 23

- Minute   00 to 59

- Second   00 to 59

3.2.2 Diskette Drives

To enter the configuration value for the first diskette drive (drive A), highlight the Diskette Drive A parameter. Press $\times$ or $\angle$ key to view the options and select the appropriate value.

Possible settings for the Diskette Drive parameters:

- `[         None       ]`
- `[360  KB,    5.25-inch]`
- `[1.2  MB,    5.25-inch]`
- `[720  KB,     3.5-inch]`
- `[1.44 MB,     3.5-inch]`
- `[2.88 MB,     3.5-inch]`

Follow the same procedure for Diskette Drive B. Choose **None** if you do not have a second diskette drive.

3.2.3 Hard Disk Drives

Move the highlight bar to the hard disk 0 parameter to configure the first hard disk (drive C). Press $\times$ or $\angle$ to display the hard disk types with their respective values. Select the type that corresponds to your hard disk drive. Follow the same procedure for the other hard disks, if any. Choose **None** if you do not have other drives.

When booting from a SCSI fixed disk installation, have these options set to None.

The following sections, "Selecting the Auto Option" and "Selecting the User Option," describe functions used for IDE drives only.

Selecting the "Auto" Option

If you do not know the exact type of your IDE fixed disk, select the option **Auto**. During the power-on self-test (POST), when the system performs self-testing and self-initialization before loading the operating system and applications, the BIOS utility automatically determines your hard disk type. You can see the drive type and its values when you enter the BIOS Utility.

```
                          Cylinder Head Sector
Hard Disk 0 (xx MB) ...[Auto]    xx    xx    xx
```

If desired, you can save the values under the option **User**.

```
                          Cylinder Head Sector
Hard Disk 0 (xx MB) ...[User]    xx    xx    xx
```

The next time you boot the system, the BIOS utility does not have to auto-configure your hard disk as it detects the saved disk information during POST.

> *We recommend that you copy the IDE disk drive values and keep them in a safe place in case you have to reconfigure the disk in the future.*

Follow the same procedure to auto-configure other hard disks.

Selecting the "User" Option

There are cases when you cannot use the option **Auto**, instead you have to select **User**. Choose the **User** option when you have installed an IDE fixed disk that was previously formatted but does not use the disk native parameters or

structure, that is, the disk type may be in the hard disk types list but the number of cylinders, heads, and sectors differ.

Follow these steps to configure a hard disk with the **User** option:

1. Highlight a hard disk parameter.

2. Select the option **User** and press ⊖   .

3. Type in the number of cylinders, heads, and sectors of the drive under the appropriate columns.

> *Be sure to have the correct hard disk information beforehand.*

4. Choose **Yes** when asked if you want to save CMOS data.

3.2.4 System Memory

The system automatically detects the total amount of onboard memory during the POST and sets the memory parameters accordingly. If you install additional memory, the system automatically adjusts the Total Memory parameter to display the new memory size.

3.2.5 Math Coprocessor

The CPU includes a math coprocessor so this parameter shows **Installed** by default.

3.2.6 Video Display

The video display is the monitor on which the operating system prompt appears when you boot the system. The system automatically detects the video mode of your primary display and sets the configuration value accordingly. Values for this parameter are:

- [Monochrome]

- [CGA 40 columns x 25 rows]

- [CGA 80 columns x 25 rows]

- [VGA/EGA]

3.2.7 Communication Settings

The Communication Settings parameters allow you to set the baud rate, parity, stop bit and data length for the first serial port (COM 1). The values for this parameter are:

- Baud rate   :   110 to 9600 bits per second (BPS)

- Parity   :   odd, even, or none

- Stop bit   :   1 or 2 stop bits

- Data length :   7- or 8-bit data word

The baud rate maximum value 9600 BPS applies only to POST under UNIX environment. The system I/O chipset SMC 37C665 supports up to 115.2K BPS.

3.2.8   Enhanced IDE Features

Hard Disk Block Mode

This function enhances disk performance depending on the hard disk in use. If you set this parameter to **Enabled**, it allows data transfer in block (multiple sectors) by increasing the data transfer rate to 256 bytes per cycle. If your system does not boot after enabling this parameter, change the setting to **Disabled**. This parameter is normally set to **Disabled**.

Hard Disk Size > 504 MB

This enhanced IDE feature works only under DOS and Windows 3.x environments. If enabled, it allows you to use a hard disk with a capacity of more than 504 MB. This is made possible through the Logical Block Address (LBA) mode translation. Other operating systems require this parameter to be set to **Disabled**.

To prevent data loss, set this parameter set to **Enabled** if you are using a hard disk with more than 504 MB capacity that was previously configured through LBA mode. If you use a hard disk configured through cylinder-head-sector (CHS) mode, set this item to **Disabled**.

3.2.9   Large Memory Support Mode

This parameter allows the system to support an extended memory higher than 64 MB. Set this parameter to **Advanced** if you are working under Windows NT environment and the system memory size is greater than or equal to 64 MB, otherwise, set it to **Normal**. The default setting is **Normal**.

3.2.10 Num Lock After Boot

This parameter allows you to activate the Num Lock function upon booting. The default setting is **Enabled**.

3.2.11 Memory Test

When set to **Enabled**, this parameter allows the system to perform a RAM test during the POST routine. When set to **Disabled**, the system detects only the memory size and bypasses the test routine. The default setting is **Disabled**.

This item is fixed to **Disabled** and is not user-configurable if you enabled the Auto Configuration Mode and the Fast Boot Mode parameters on page 2 of the Basic System Configuration menu. See sections 3.2.12 and 3.2.13.

3.2.12 Auto Configuration Mode

When enabled, this parameter automatically sets the system configuration values to their optimized settings. At the same time, it causes the Memory Test parameter to be fixed to **Disabled** and the shadow RAM regions for system and video BIOS to **Enabled**. See sections 3.2.11 and 3.3.1.

This parameter is **Disabled** by default.

3.2.13 Fast Boot Mode

When enabled, this parameter allows the system to boot faster by skipping some POST routines. It bypasses memory test, enables Shadow RAM, and enables primary- and second-level cache. This parameter is disabled by default.

When set to **Enabled**, this parameter causes the Memory Test parameter to be fixed to **Disabled** and the shadow RAM regions for system and video BIOS to **Enabled**. See sections 3.2.11 and 3.3.1.

3.3 Advanced System Configuration

The Advanced System Configuration option allows you to configure the advanced system memory functions.

> *To avoid damaging the system, do not change any settings in the Advanced Configuration unless you are a qualified technician.*

The following screen shows page one of the Advanced System Configuration parameters.

```
        Advanced System Configuration        Page 1/1


    Shadow RAM
      *E0000h - FFFFFh (System BIOS) ... [Enabled ]
      *C0000h - C7FFFh (Video BIOS) ..... [Enabled ]
       C8000h - CBFFFh  ................. [Disabled]
       CC000h - CFFFFh  ................. [Disabled]
       D0000h - D3FFFh .................. [Disabled]
       D4000h - D7FFFh  ................. [Disabled]
       D8000h - DBFFFh  ................. [Disabled]
       DC000h - DFFFFh  ................. [Disabled]

     Internal Cache (CPU Cache)  ......... [Enabled ]
     External Cache  ..................... [Enabled ]

     ECC/Parity Mode Selection  .......... [   ECC   ]
       *Operation of ECC  ................ [   None  ]

     Memory at 15MB-16MB Reserved for .... [     System     ] Use


    ↑↓ = Move Highlight Bar,    → ← = Change Setting
    PgDn/PgUp = Move Screen,   F1 = Help,   Esc  =  Exit
```

The grayed parameters (denoted with asterisks) are not user-configurable.

3.3.1 Shadow RAM

The system reserves 384 KB of random access memory (RAM) for the shadow RAM function. This parameter has eight range addresses. When you set these addresses to **Enabled**, the system BIOS, video BIOS, and I/O ROM functions run directly from the shadow RAM for faster operation. When you set them to **Disabled**, the functions run normally from ROM.

The address range E0000h - FFFFFh is for shadowing the system BIOS. This item is always set to **Enabled** and is not user-configurable.   The address range C0000h - C7FFFh is for shadowing the video BIOS. This item is fixed to **Enabled** and is not user-configurable if the Auto Configuration Mode and the Fast Boot Mode parameters on page 2 of the Basic System Configuration menu are enabled. Otherwise, you can choose to disable this item.

The remaining address ranges are for I/O ROM functions.

3.3.2 Internal Cache (CPU Cache)

This parameter enables or disables the internal cache memory. This item is fixed to **Enabled** and is not user-configurable if you enabled the Auto configuration Mode and Fast Boot Mode parameters on page 2 of the Basic System Configuration menu. Otherwise, you can choose to disable this item.

3.3.3 External Cache

This parameter enables or disables the external cache memory. This item is fixed to **Enabled** and is not user-configurable if you enabled the Auto Configuration Mode and Fast Boot Mode parameters on page 2 of the Basic System Configuration menu. Otherwise, you can choose to disable this item.

3.3.4 ECC/Parity Mode Selection

This parameter allows you to enable or disable the ECC and parity check feature. Fast-page mode SIMMs supports both ECC and parity mode while EDO SIMMs supports only ECC mode.

You must disable this parameter if you installed SIMMs without parity.

Operation of ECC

This parameter is not user-configurable.

3.3.5 Memory at 15MB-16MB

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. Before setting this parameter, check your add-on card manual to determine if your add-on card needs this memory space. If not, set this parameter to **System Use**.

3.4   PCI System Configuration

The PCI System Configuration allows you to specify the settings for your PCI devices.

```
                PCI System Configuration        Page 1/1


    PCI IRQ Setting  ...........[  Auto  ]
                                INTA    INTB    INTC    INTD
      *PCI Slot 1 ...........  [--]    [--]    [--]    [--]
      *PCI Slot 2 ...........  [--]    [--]    [--]    [--]
      *PCI Slot 3 ...........  [--]    [--]    [--]    [--]
      *PCI Slot 4 ...........  [11]    [--]    [--]    [--]

    VGA Palette Snoop  .........[Disabled]

    Onboard SCSI  ..............[Enabled ]
       Boot Device ...........[Enabled]




    ↑↓ = Move Highlight Bar,   → ← = Change Setting
    PgDn/PgUp = Move Screen,   F1 = Help,   Esc  =  Exit
```

3.4.1   PCI IRQ Setting

This parameter allows for **Auto** or **Manual** configuration of PCI devices. If you use plug-and-play (PnP) devices, you can keep the default setting **Auto**. The system then automatically configures the PnP devices. If your PCI device is not a PnP, you can manually assign the interrupt for each device. Refer to your manual for technical information about the PCI card.

> *If you set this parameter to **Manual** and you enabled the onboard SCSI, make sure that you assign the onboard SCSI IRQ to PCI Slot 4.*

PCI Slots

These parameters allow you to specify the appropriate interrupt for each of the PCI devices.   You can assign IRQ3, IRQ4, IRQ5, IRQ7, IRQ9, IRQ10, IRQ11, IRQ12, IRQ14, or IRQ15 to the slots.

> *To avoid conflicts, make sure that the interrupt you assign in any of the PCI slots is not used by other devices.*
>
> *If a PCI card is added to PCI slot 4, it must be capable of sharing an IRQ with the onboard SCSI controller.*

Use the ∨ or ⋎ key to move between fields.   Use the × or ⊏ key to select options.

3.4.2 VGA Palette Snoop

PCI devices support a palette snooping technique that enables the device to control access to their palette registers. Set this parameter to **Enabled** to activate the palette snooping function in the PCI VGA devices installed in your system. Check your VGA card manual for more information about this function. The default setting is **Disabled**.

3.4.3 Onboard SCSI

This parameter allows you to enable or disable the onboard SCSI controller.

Boot Device

This parameter allows you to enable or disable the onboard SCSI boot priority. The default setting is **Enabled**.

3.5 Non-PnP ISA Card Configuration

The Non-PnP ISA Card Configuration parameters allow you to specify the settings for cards without plug-and-play (PnP) features.

```
┌─────────────────────────────────────────────────────────────┐
│        Non-PnP ISA Card Configuration        Page 1/2        │
├─────────────────────────────────────────────────────────────┤
│                                                              │
│  System Resources Used by Non-PnP ISA Cards                  │
│    IRQ 00 ... [---]*   IRQ 08 ... [---]*     DMA 0 ... [No ]  │
│    IRQ 01 ... [---]*   IRQ 09 ... [No ]      DMA 1 ... [No ]  │
│    IRQ 02 ... [---]*   IRQ 10 ... [No ]      DMA 2 ... [---]* │
│    IRQ 03 ... [No ]    IRQ 11 ... [No ]      DMA 3 ... [No ]  │
│    IRQ 04 ... [No ]    IRQ 12 ... [No ]      DMA 4 ... [---]* │
│    IRQ 05 ... [No ]    IRQ 13 ... [---]*     DMA 5 ... [No ]  │
│    IRQ 06 ... [---]*   IRQ 14 ... [---]*     DMA 6 ... [No ]  │
│    IRQ 07 ... [No ]    IRQ 15 ... [No ]      DMA 7 ... [No ]  │
│                                                              │
│  Expansion ROM Region                                        │
│    C8000h - CBFFFh .... [No ]     D4000h - D7FFFh .... [No ]  │
│    CC000h - CFFFFh .... [No ]     D8000h - DBFFFh .... [No ]  │
│    D0000h - D3FFFh .... [No ]     DC000h - DFFFFH .... [No ]  │
│                                                              │
├─────────────────────────────────────────────────────────────┤
│   ↑↓ = Move Highlight Bar,   → ← = Change Setting            │
│   PgDn/PgUp = Move Screen,   F1 = Help,   Esc  =  Exit       │
└─────────────────────────────────────────────────────────────┘
```

The grayed items (denoted with asterisks) have fixed settings and are not user-configurable.

```
┌─────────────────────────────────────────────────────────────┐
│        Non-PnP ISA Card Configuration        Page 2/2        │
├─────────────────────────────────────────────────────────────┤
│  I/O Region                                                  │
│   100h-10Fh .. [No ]   200h-20Fh . [No ]   300h-30Fh ..[No ] │
│   110h-11Fh .. [No ]   210h-21Fh . [No ]   310h-31Fh ..[No ] │
│   120h-12Fh .. [No ]   220h-22Fh . [No ]   320h-32Fh ..[No ] │
│   130h-13Fh .. [No ]   230h-23Fh . [No ]   330h-33Fh ..[No ] │
│   140h-14Fh .. [No ]   240h-24Fh . [No ]   340h-34Fh ..[No ] │
│   150h-15Fh .. [No ]   250h-25Fh . [No ]   350h-35Fh ..[No ] │
│   160h-16Fh .. [No ]   260h-26Fh . [No ]   360h-36Fh ..[No ] │
│   170h-17Fh .. [No ]   270h-27Fh . [No ]   370h-37Fh ..[No ] │
│   180h-18Fh .. [No ]   280h-28Fh . [No ]   380h-38Fh ..[No ] │
│   190h-19Fh .. [No ]   290h-29Fh . [No ]   390h-39Fh ..[No ] │
│   1A0h-1AFh .. [No ]   2A0h-2AFh . [No ]   3A0h-3AFh ..[No ] │
│   1B0h-1BFh .. [No ]   2B0h-2BFh . [No ]   3B0h-3BFh ..[No ] │
│   1C0h-1CFh .. [No ]   2C0h-2CFh . [No ]   3C0h-3CFh ..[No ] │
│   1D0h-1DFh .. [No ]   2D0h-2DFh . [No ]   3D0h-3DFh ..[No ] │
│   1E0h-1EFh .. [No ]   2E0h-2EFh . [No ]   3E0h-3EFh ..[No ] │
│   1F0h-1FFh .. [---]*  2F0h-2FFh . [No ]   3F0h-3FFh ..[No ] │
│                                                              │
├─────────────────────────────────────────────────────────────┤
│   ↑↓ = Move Highlight Bar,   → ← = Change Setting            │
│   PgDn/PgUp = Move Screen,   F1 = Help,   Esc  =  Exit       │
└─────────────────────────────────────────────────────────────┘
```

*Refer to your non-PnP ISA card manual
when setting the following parameters.*

3.5.1 System Resources Used by Non-PnP ISA Cards

This parameter allows you to assign specific IRQ and DMA channels to non-PnP ISA cards. The system will not use such IRQ and DMA channels when it automatically assigns resources to PnP cards.

3.5.2 Expansion ROM Region

This parameter specifies the memory regions available for add-on card use. It allows you to manually assign specific regions to non-PnP cards so that the system will not use those regions when it automatically configures PnP cards.

3.5.3 I/O Region

The items under this parameter allow you to reserve 16-byte I/O address ranges for non-PnP cards. When the system configures PnP cards, the address ranges that you marked will not be used for other cards.

You can assign I/O addresses to non-PnP cards at random as long as you cover the address range required by the card. For example, for a card that requires 178h-188h address, you have to set regions 170h-17Fh and 180h-18Fh to Yes.

3.6   Power Saving Configuration

The Power Saving Configuration parameters are configurable only if your system supports the power management feature.

> *Most multi-user operating systems do not support the Power Saving feature. Consult your operating system manual or call your operating system vendor for information.*

The following screens show the Power Saving Configuration parameters and their default settings:

```
┌─────────────────────────────────────────────────────────────┐
│          Power Saving Configuration          Page 1/1         │
├─────────────────────────────────────────────────────────────┤
│                                                               │
│ Power Management Mode ................[Disabled]              │
│   *IDE Fixed Disk Standby Timer  .....[OFF]                   │
│   *System Standby Timer  .............[OFF]                   │
│                                                               │
│ System/Wakeup Events                                          │
│   IRQ 0 ......[Disabled]*         IRQ 8 ......[Disabled]       │
│   IRQ 1 ......[Enabled ]*         IRQ 9 ......[Disabled]       │
│   IRQ 3 ......[Disabled]          IRQ 10 .....[Disabled]       │
│   IRQ 4 ......[Disabled]          IRQ 11 .....[Disabled]       │
│   IRQ 5 ......[Disabled]          IRQ 12 .....[Enabled ]*      │
│   IRQ 6 ......[Disabled]          IRQ 13 .....[Disabled]       │
│   IRQ 7 ......[Disabled]          IRQ 14 .....[Disabled]       │
│                                  IRQ 15 .....[Disabled]       │
│                                                               │
├─────────────────────────────────────────────────────────────┤
│  ↑↓ = Move Highlight Bar,   → ← = Change Setting              │
│  PgDn/PgUp = Move Screen,  F1 = Help,   Esc  =  Exit          │
└─────────────────────────────────────────────────────────────┘
```

3.6.1 Power Management Mode

This parameter allows you to reduce power consumption. When this parameter is set to **Enabled**, you can configure the system timers. Setting to **Disabled** deactivates the power management feature and all the timers.

IDE Fixed Disk Standby Timer

This parameter allows the hard disk to enter standby mode after inactivity of 1 to 15 minutes, depending on your setting. When you access the hard disk again, allow 3 to 5 seconds (depending on the hard disk) for the disk to return to the normal speed. Set this parameter to **Off** if your hard disk does not support this function.

System Standby Timer

This parameter sets the system to a "fast-on" power saving mode. It automatically enters the standby mode after a specified period of inactivity. Any keyboard or mouse action, or any enabled monitored activities occurring through the IRQ channels, resume system operation. See section 3.6.2.

3.6.2 System/Wakeup Events

This parameter allows you to monitor system activities occurring through the IRQ and determine whether or not to enter power saving mode.

For example, if you assign IRQ 3 to a fax/modem and you set this item to **Enabled**, any fax/modem activity wakes up the system from suspend mode.

3.7   System Security Setup

The Setup program has a number of security features to prevent unauthorized access to the system and its data.

Enter the Setup program and select System Security.   The following screen appears:

```
┌─────────────────────────────────────────────────────────────────┐
│              System Security              Page 1/1               │
│                                                                   │
│                                                                   │
│ Disk Drive Control                                                │
│   Diskette Drive.................[          Normal        ]       │
│   Hard Disk Drive................[          Normal        ]       │
│   System Boot Drive..............[Drive A then C]                 │
│ Onboard Communication Ports                                       │
│   Serial Port 1 Base Address......[   3F8h   ]                    │
│   Serial Port 2 Base Address......[   2F8h   ]                    │
│   Parallel Port Base Address......[3BC (IRQ 7]                    │
│      Operation Mode..............[Enhanced Parallel Port (EPP)] Mode │
│          *ECP DMA Channel .........[-]                            │
│                                                                   │
│ Onboard PS/2 Mouse (IRQ12) ...[Enabled ]                          │
│                                                                   │
│ Setup Password ...................[  None  ]                      │
│ Power On Password ................[  None  ]                      │
│                                                                   │
│                                                                   │
│    ↑↓ = Move Highlight Bar,   → ← = Change Setting               │
│    PgDn/PgUp = Move Screen,   F1 = Help,   Esc  =  Exit          │
└─────────────────────────────────────────────────────────────────┘
```

3.7.1   Disk Drive Control

The disk drive control features allow you to enable or disable the read/write functions of a disk drive. These features can also control the diskette drive or the hard disk drive boot function to prevent loading operating systems or other programs from a certain drive while the other drives are operational.

Table 3-1 lists the drive control settings and their corresponding functions.

Table 3-1   Drive Control Settings

Diskette Drive	
Setting	**Description**
Normal	Diskette drive functions normally
Write Protect All Sectors	Disables the write function on all sectors
Write Protect Boot Sector	Disables the write function only on boot sector
Disabled	Disables all diskette functions
Hard Disk Drive	
Setting	**Description**
Normal	Hard disk drive functions normally
Write Protect All Sectors	Disables the write function on all sectors
Write Protect Boot Sector	Disables the write function only on boot sector
Disabled	Disables all hard disk functions
System Boot Drive	
Setting	**Description**
Drive A then C	System boots from drive A to C
Drive C then A	System boots from drive C to A
C:	System always boots from drive C
A:	System always boots from drive A

3.7.2   Onboard Communication Ports

Serial Port 1 Base Address

This parameter enables serial port 1 as COM 1 and sets its base address.

Table 3-2   Serial Port 1 Settings

Setting	Function
Serial 1 (3F8h)	COM1 with address 3F8h
2F8h	COM2 with address 2F8h
3E8h	COM3 with address 3E8h
2E8h	COM4 with address 2E8h
Disabled	Disables serial port 1

Serial Port 2 Base Address

This parameter enables serial port 2 as COM2 and sets its base address.

Table 3-3   Serial Port 2 Settings

Setting	Function
Serial 2 (2F8h)	COM2 with address 2F8h
3F8h	COM1 with address 3F8h
2E8h	COM4 with address 2E8h
3E8h	COM3 with address 3E8h
Disabled	Disables serial port 2

Parallel Port Base Address

The system has one parallel port. Table 3-4 lists the options for selecting the parallel port address. You also have the option to disable the parallel port.

Table 3-4   Parallel Port Settings

Setting	Function
3BCh (IRQ 7)	Corresponds to the parallel port with address 3BCh
378h (IRQ 7)	Corresponds to the parallel port with address 378h
278h (IRQ 5)	Corresponds to the parallel port with address 278h
Disabled	Disables the parallel port

To deactivate the parallel port, select the **Disabled** option. If you install an add-on card that has a parallel port whose address conflicts with the parallel port onboard, the system automatically disables the onboard functions.

Check the parallel port address on the add-on card and change the address to one that does not conflict.

Operation Mode

This item allows you to set the operation mode of the parallel port. Table 3-5 lists the different operation modes.

Table 3-5   Parallel Port Operation Mode Settings

Setting	Function
Standard Parallel Port (SPP)	Allows normal speed one-way operation
Standard and Bidirectional	Allows normal speed operation in a two-way mode
Enhanced Parallel Port (EPP)	Allows bidirectional parallel port operation at maximum speed
Extended Capabilities Port (ECP)	Allows parallel port to operate in bidirectional mode and at a speed higher than the maximum data transfer rate

ecp dma channel

This item becomes active only if you select **Extended Capabilities Port (ECP)** as the operation mode. It allows you to select DMA channel 1 or DMA channel 3 (as required in Windows95).

3.7.3   Onboard PS/2 Mouse (IRQ12)

This parameter enables or disables the onboard PS/2 mouse. When set to **Enabled**, it allows you to use the onboard PS/2 mouse assigned with IRQ12. When set to **Disabled**, it deactivates the mouse and frees IRQ12 for the use of other devices.

3.7.4 Setup Password

The Setup Password prevents unauthorized access to the BIOS utility.

Set jumper JP2 to pins 1-2 to enable the password function.

Setting a Password

1. Highlight the Setup Password parameter and press the left- or right-arrow key. The password prompt appears:

2. Type a password. The password may consist of up to seven characters.

Exercise caution when typing your password because the characters do not appear on the screen.

3. Press ⊖ . A prompt asks you to retype the password to verify your first entry.
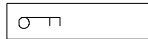
4. Retype the password then press ⊖ .

After setting the password, the system automatically sets the Setup Password parameter to **Present**. The next time you want to enter the BIOS utility, you must key-in your Setup password.

If You Forget the Password

If you forget your password, you must return the configuration values stored in CMOS to their default values. Should this happen, call your dealer for assistance.

3.7.5 Power On Password

The Power On Password secures your system against unauthorized use. Once you set this password, you have to type it whenever you boot the system. To set this password, follow the same procedure as in setting the Setup password.

3.8   Load Setup Default Settings

Use this option to load the default settings for the optimized system configuration. When you load the default settings, some of the parameters are grayed-out with their fixed settings. These grayed parameters are not user-configurable. If you want to change the settings of these items, disable the Fast Boot Mode parameter in the Basic System Configuration menu.

The following dialog box appears when you select Load Setup Default Settings from the main menu.

```
   Load Setup Default Settings
   Are you sure

          [Yes]        [No]
```

Select [**Yes**] to load the default settings.

> *Some settings may differ from the defaults*
> *set at the factory. See Appendix A for*
> *factory default settings.*

3.9   Leaving Setup

Examine the system configuration values. When you are satisfied that all the values are correct, write them down. Store the recorded values in a safe place. In the future, if the battery loses power or the CMOS chip is damaged, you will know what values to enter when you rerun Setup.

Press ^   to leave the system configuration setup. If there is any change in the BIOS utility functions, the following screen appears:

```
Do you want to save CMOS data?

       [Yes]          [No]
```

Use the arrow keys to select your response. Select **Yes** to store the new data in CMOS. Select **No** to retain the old configuration values. Press ⊖   .

Chapter 4   SCSI*Select* Configuration Utility

4.1   The SCSI*Select* Configuration Utility

The SCSI*Select* configuration utility allows you to change SCSI controller settings without opening the computer or changing jumpers.

4.1.1   Default Values

Table 4-1 lists the settings you can change with the SCSI*Select* utility and the default value for each setting. Some settings apply globally to the SCSI controller and all SCSI devices on the bus; other settings apply individually to each device on the bus.

Table 4-1   Default Settings for SCSI Controller and All Devices

Global Settings for SCSI Controller and All Devices	Default Value
Host Adapter SCSI ID	7
SCSI Parity Checking	Enabled
Host Adapter SCSI Termination	Enabled Low OFF/High ON
Boot Device Option	0 (zero)
Host Adapter BIOS[1]	Enabled
Support Removable Disks Under BIOS as Fixed Disks	Boot only
Extended BIOS Translation for DOS Drives > 1 Gbyte	Disabled
Display <Ctrl-A> Message During BIOS Initialization	Enabled
Multiple Lun Support	Enabled
BIOS Support for More Than 2 Drives[1]	Enabled
BIOS Support for Bootable CD-ROM	Enabled
BIOS Support for Int13 Extensions	Enabled
Support for Ultra SCSI Speed	Disabled
Individual Settings for Each SCSI Device	**Default Value**
Initiate Sync Negotiation	Yes
Maximum Sync Transfer Rate	20 MBytes/sec.
Enable Disconnection	Yes
Send Start Unit SCSI Command[1]	No
Initiate Wide Negotiation	Yes

---

[1]   Settings are valid only if host adapter BIOS is enabled.

4.1.2 When to Use the SCSI*Select* Utility

Use the SCSI*Select* utility if you need to

- Change any of the default values listed in Table 4-1

- Check and/or change SCSI device settings that may conflict with those of other devices (e.g, SCSI ID)

- Perform low-level formatting on new SCSI disk devices

4.1.3 Running the SCSI*Select* Utility

To start SCSI*Select*, press **Ctrl**+**A** when the following is displayed during power-up or reset:

```
Press <Ctrl> <A> for SCSISelect™ Utility!
```

> *Your screen may show the key sequence as*
> *<Ctrl> <Hot Key> instead of <Ctrl> <A>.*
> ***The correct sequence is <Ctrl> <A>***.

This message appears after BIOS and POST information displays, and after the banner listing the Adaptec AIC-7880 version number.

4.2 SCSI*Select* Utility Options

When the SCSI*Select* utility detects the AIC-7880 SCSI controller in your computer, it displays the Options menu shown in Figure 4-1.

```
┌──────────────────────────────────────────────────────────────────┐
│ Adaptec AIC7880 Ultra/Ultra W  ◄ SCSISelect (TM) ► Utility v1.2    │
├──────────────────────────────────────────────────────────────────┤
│                                                                    │
│    ┌──── AIC-7880 Ultra/Ultra W at Bus:Device 00:10h ────┐        │
│    │                                                       │        │
│    │  Would you like to configure the host adapter, or run the     │
│    │  SCSI disk utilities? Select the option and press <Enter>.    │
│    │  Press <F5> to switch between color and monochrome modes.     │
│    │                                                       │        │
│    │        ┌─────────── Options ───────────┐             │        │
│    │        │ Configure/View Host Adapter settings │       │        │
│    │        │        SCSI Disk Utilities      │             │        │
│    │        └───────────────────────────────┘             │        │
│    │                                                       │        │
│    └───────────────────────────────────────────────────────┘        │
│                                                                    │
├──────────────────────────────────────────────────────────────────┤
│  Arrow keys to move cursor, <Enter> to select option, <Esc> to exit ( ✳=default) │
└──────────────────────────────────────────────────────────────────┘
```

Figure 4-1   Options Menu Screen

Use the ↑ and ↓ keys and the **Enter** key to make selections in the SCSI*Select* utility. Press **Esc** at any time to return to the previous menu.

> *You can press **F5** to toggle the display between color and monochrome modes. (This feature may not work on some kinds of monitors.)*

4.2.1 Configure/View Host Adapter Settings Menu

The Configure/View Host Adapter Settings menu lists three settings under SCSI Bus Interface Definitions and three additional options, as shown in Figure 4-2:

- **Host Adapter SCSI ID:** changes the host controller SCSI ID from its default value of 7

- **SCSI Parity Checking:** enables or disables host controller SCSI parity checking

- **Host Adapter SCSI Termination:** configures host controller SCSI termination

Advanced users can access Boot Device Options, SCSI Device Configuration, and Advanced Configuration Options through this menu.

```
╔════════════════════════════════════════════════════════════════════╗
║  Adaptec AIC7880 Ultra/Ultra W  ◄ SCSISelect (TM) ► Utility v1.2     ║
╠════════════════════════════════════════════════════════════════════╣
║                                                                      ║
║   ┌──────── AIC-7880 Ultra/Ultra W at Bus:Device 00:10h ────────┐    ║
║   │ ┌ Configuration ────────────────────────────────────────┐   │    ║
║   │ │                                                        │   │    ║
║   │ │  SCSI Bus Interface Definitions                        │   │    ║
║   │ │      Host Adapter SCSI ID ..................7          │   │    ║
║   │ │      SCSI Parity Checking...................Enabled    │   │    ║
║   │ │      Host Adapter SCSI Termination ....Low OFF/High ON │   │    ║
║   │ │  Additional Options                                    │   │    ║
║   │ │      Boot Device Options.............Press <Enter>     │   │    ║
║   │ │      SCSI Device Configuration.......Press <Enter>     │   │    ║
║   │ │      Advanced Configuration Options..Press <Enter>     │   │    ║
║   │ │         <F6> - Reset to Host Adapter Defaults          │   │    ║
║   │ └────────────────────────────────────────────────────────┘   │    ║
║   └────────────────────────────────────────────────────────────┘    ║
║                                                                      ║
╠════════════════════════════════════════════════════════════════════╣
║  Arrow keys to move cursor, <Enter> to select option, <Esc> to exit  ║
║                           ( ✳ default)                               ║
╚════════════════════════════════════════════════════════════════════╝
```

Figure 4-2   Configure/View Host Adapter Settings Screen

Use the cursor ($\uparrow \downarrow$) to move to your selection. Press **Enter** to display a pop-up menu of choices or to make selections. Press **Esc** at any time to return to the previous menu.

> *Press **F6** to reset all settings to the SCSI controller defaults. SCSI controller default settings are marked with an asterisk (*) throughout the selection submenus.*

Host Adapter SCSI ID

This option allows you to change the host controller SCSI ID. Figure 4-3 shows the available IDs for use with the AIC-7880. The default setting is SCSI ID 7. (We recommend that you not change this setting.) Some operating system software will not run unless the SCSI controller ID is set at ID 7.

```
╔══════════════════════════════════════════════════════════════════════╗
║  Adaptec AIC7880 Ultra/Ultra W  ◄ SCSISelect (TM) ► Utility v1.2       ║
╠══════════════════════════════════════════════════════════════════════╣
║                                    0                                   ║
║          AIC-7880 Ultra/           1        Device 00:10h              ║
║   Configuration                    2                                   ║
║                                    3                                   ║
║   SCSI Bus Interface Definiti      4                                   ║
║       Host Adapter SCSI ID         5          ........7                ║
║       SCSI Parity Checking         6          ........Enabled          ║
║       Host Adapter SCSI Te      * 7           ........Low OFF/High ON  ║
║   Additional Options               8                                   ║
║       Boot Device Options..        9          ........Press <Enter>    ║
║       SCSI Device Configur        10          ........Press <Enter>    ║
║       Advanced Configuratio       11          ........Press <Enter>    ║
║              <F6> - Rese          12        r Defaults                 ║
║                                   13                                   ║
║                                   14                                   ║
║                                   15                                   ║
╠══════════════════════════════════════════════════════════════════════╣
║  Arrow keys to move cursor, <Enter> to select option, <Esc> to exit ( ❋ default) ║
╚══════════════════════════════════════════════════════════════════════╝
```

Figure 4-3   Host Adapter SCSI ID Selection Screen for AIC-7880

Each SCSI device on the SCSI bus, including the SCSI controller, must be set to a unique SCSI ID. The SCSI ID serves two purposes: it uniquely identifies each SCSI device on the bus, and it determines the device's priority on the bus during the Arbitration phase. The Arbitration phase determines which device controls the bus when two or more devices request use of it.

Use the cursor (↑ ↓) and **Enter** keys to select the SCSI ID, if you need to change it. Press **Esc** at any time to return to the previous menu.

SCSI Parity Checking

Select this option to enable or disable SCSI Parity Checking on the SCSI controller. Figure 4-4 displays your choices. The default setting is Enabled.

```
┌──────────────────────────────────────────────────────────────────────────────┐
│        Adaptec AIC7880 Ultra/Ultra W  ◄ SCSISelect (TM) ►  Utility v1.2        │
├──────────────────────────────────────────────────────────────────────────────┤
│                                                                                │
│        ┌──────────── AIC-7880 Ultra/Ultra W at Bus:Device 00:10h ──────────┐   │
│        │ ┌─ Configuration ─────────────────────────────────────────────┐   │   │
│        │ │                                                              │   │   │
│        │ │  SCSI Bus Interface Definitions                              │   │   │
│        │ │       Host Adapter SCSI ID ................................7  │   │   │
│        │ │       SCSI Parity Checking....................Enabled        │   │   │
│        │ │       Host Adapter SCSI Termination....Low OFF/High ON       │   │   │
│        │ │  Additional Options          ┌──────────────┐                │   │   │
│        │ │       Boot Device Options.... │ * Enabled    │....Press <Enter>│  │   │
│        │ │       SCSI Device Configura.. │   Disabled   │....Press <Enter>│  │   │
│        │ │       Advanced Configuration Options...........Press <Enter> │   │   │
│        │ │            <F6> - Reset to Host Adapter Defaults             │   │   │
│        │ └──────────────────────────────────────────────────────────────┘   │   │
│        └──────────────────────────────────────────────────────────────────┘   │
├──────────────────────────────────────────────────────────────────────────────┤
│   Arrow keys to move cursor, <Enter> to select option, <Esc> to exit ( ❊ default)│
└──────────────────────────────────────────────────────────────────────────────┘
```

Figure 4-4   SCSI Parity Checking Selection

The SCSI controller always checks parity when reading from the SCSI bus to verify the correct transmission of data from your SCSI devices. You should disable SCSI Parity Checking if any attached SCSI devices do not support SCSI parity. (Most currently available SCSI devices do support SCSI parity.)

Use the cursor (↑ ↓) and **Enter** keys to make selections. Press **Esc** at any time to return to the previous menu.

Host Adapter SCSI Termination

This option allows you to configure host controller SCSI termination. Figure 4-5 shows the choices available if you have an AIC-7880. The default setting is *Low OFF/High ON*.

```
╔════════════════════════════════════════════════════════════════════╗
║      Adaptec AIC7880 Ultra/Ultra W  ◄ SCSISelect (TM) ► Utility v1.2 ║
╚════════════════════════════════════════════════════════════════════╝

        ┌──────── AIC-7880 Ultra/Ultra W at Bus:Device 00:10h ────────┐
        │ ┌─ Configuration ──────────────────────────────────────────┐│
        │ │                                                          ││
        │ │ SCSI Bus Interface Definitions                           ││
        │ │     Host Adapter SCSI ID ...................7            ││
        │ │     SCSI Parity Checking....................Enabled      ││
        │ │     Host Adapter SCSI Termination ..........Low OFF/High ON ││
        │ │                          ┌─────────────────┐            ││
        │ │ Additional Options       │ *  Low ON/High ON │          ││
        │ │     Boot Device Optic     │   Low OFF/High OFF │.Press <Enter> ││
        │ │     SCSI Device Con       │ ▓▓Low OFF/High ON▓▓ │.Press <Enter> ││
        │ │     Advanced Configu      └─────────────────┘ .Press <Enter> ││
        │ │                                                          ││
        │ │          <F6> - Reset to Host Adapter Defaults           ││
        │ └──────────────────────────────────────────────────────────┘│
        └──────────────────────────────────────────────────────────────┘

╔════════════════════════════════════════════════════════════════════╗
║  Arrow keys to move cursor, <Enter> to select option, <Esc> to exit ( ✳ default) ║
╚════════════════════════════════════════════════════════════════════╝
```

Figure 4-5   Host Adapter SCSI Termination Selection for AIC-7880

Use the cursor (↑ ↓) and **Enter** keys to make your selection.

> *Since the system contains both wide (68-pin)
> SCSI devices and narrow (50-pin) SCSI devices,
> termination must be set to allow each section of
> the SCSI bus to be terminated. The narrow
> device in this system is terminated, causing the
> LOW byte on the motherboard to be turned off.
> On the other end, the back panel terminates both
> bytes (Low OFF/High ON).*

Boot Device Options

This option shows the target ID of the device you are booting from. The default
setting is *0* (zero). We recommend that you not change this setting. Some
operating systems will not run unless the boot device is set at zero.

Figure 4-6 shows the Boot Device Options screen.

```
┌─────────────────────────────────────────────────────────────────────┐
│   Adaptec AIC7880 Ultra/Ultra W   ◄ SCSISelect (TM) ► Utility v1.2   │
├─────────────────────────────────────────────────────────────────────┤
│        ┌═══════ AIC-7880 Ultra/Ultra W at Bus:Device 00:10h ═══════┐  │
│        │ ┌ Configuration ────────────────────────────────────────  │  │
│        │ │ SCSI Bus Interface Definitions                          │  │
│        │ │     Host Adapter SCSI ID ....................7          │  │
│        │ │     SCSI Parity Checking.....................Enabled    │  │
│        │ │     Host Adapter SCSI Termination        Low ON/High ON │  │
│ ┌════════════════════ Boot Device Configuration ════════════════════┐ │
│ │                                                                    │ │
│ │   Please run SCSI Disk Utilities to get present devices            │ │
│ │   in your system                                                   │ │
│ │                                                            ▄▄▄▄▄▄   │ │
│ │   Boot Target ID..........................................█ 0   █   │ │
│ ----------Options Listed Below Have NO EFFECT if Multiple Lun Support is Disabled------------ │
│ │                                                                    │ │
│ │   Boot Lun Number...........................................0      │ │
│ └────────────────────────────────────────────────────────────────────┘ │
├─────────────────────────────────────────────────────────────────────┤
│  Arrow keys to move cursor, <Enter> to select option, <Esc> to exit ( ✳ default) │
└─────────────────────────────────────────────────────────────────────┘
```

Figure 4-6   Boot Device Options Screen

SCSI Device Configuration

This option allows you to configure certain parameters of each SCSI device on the SCSI bus. A screen similar to Figure 4-7 appears. The screen shows a column of information for each SCSI ID, even if some SCSI IDs are not assigned to a device. To configure a specific SCSI device, you need to know which SCSI ID it uses. See *SCSI Disk Utilities* later in this section to learn how to determine which SCSI ID is used by which device.

```
┌────────────────────────────────────────────────────────────────────────────┐
│     Adaptec AIC7880 Ultra/Ultra W  ◄ SCSISelect (TM) ► Utility v1.2         │
├────────────────────────────────────────────────────────────────────────────┤
│                                                                            │
│        ┌──────── AIC-7880 Ultra/Ultra W at Bus:Device 00:10h ────────┐      │
│        │ ══════════════ SCSI Device Configuration ═══════════════      │      │
│        │ SCSI Device ID            #0   #1   #2   #3   #4   #5   #6   #7 │     │
│        │                                                               │     │
│        │ Initiate Sync Negotiation.........yes  yes  yes  yes  yes  yes  yes  yes │
│        │ Maximum Sync Transfer Rate ...... 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 │
│        │ Enable Disconnection ..............yes  yes  yes  yes  yes  yes  yes  yes │
│        │ Initiate Wide Negotiation ..........yes  yes  yes  yes  yes  yes  yes  yes │
│        │                                                               │     │
│        │  -----------------Options Listed Below Have NO EFFECT if the BIOS is Disabled ---------------- │
│        │ Send Start Unit Command...........no   no   no   no   no   no   no   no │
│        │ SCSI Device ID            #8   #9  #10  #11  #12  #13  #14  #15 │     │
│        │ Initiate Sync Negotiation.........yes  yes  yes  yes  yes  yes  yes  yes │
│        │ Maximum Sync Transfer Rate ...... 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 │
│        │ Enable Disconnection ..............yes  yes  yes  yes  yes  yes  yes  yes │
│        │ Initiate Wide Negotiation ..........yes  yes  yes  yes  yes  yes  yes  yes │
│        │                                                               │     │
│        │  -----------------Options Listed Below Have NO EFFECT if the BIOS is Disabled ---------------- │
│        │ Send Start Unit Command...........no   no   no   no   no   no   no   no │
│        └───────────────────────────────────────────────────────────────┘     │
│                                                                            │
├────────────────────────────────────────────────────────────────────────────┤
│  Arrow keys to move cursor, <Enter> to select option, <Esc> to exit ( ✳ default)│
└────────────────────────────────────────────────────────────────────────────┘
```

Figure 4-7   SCSI Device Configuration Screen for AIC-7880

Use the cursor keys (↑ ↓) to move between options. Press **Enter** to display a pop-up menu with a selection of values. Use the cursor keys (↑ ↓) to select a value, and press **Enter** to make your selection.

Initiate Sync Negotiation

This option determines whether the SCSI controller initiates synchronous negotiation with the SCSI device.

When set to **yes**, the SCSI controller initiates synchronous negotiation with the SCSI device. When set to **no**, the SCSI controller does not initiate synchronous negotiation. The SCSI controller, however, always *responds* to synchronous negotiation if the SCSI device initiates it. The default setting is *yes*.

Data is transferred in asynchronous mode if neither the SCSI controller nor the SCSI peripheral negotiates for synchronous data transfers.

> *Some older SCSI-1 devices do not support synchronous negotiation. This may cause your computer to operate erratically or hang if Initiate Sync Negotiation is enabled. Set Initiate Sync Negotiation to **no** for these devices.*

Maximum Sync Transfer Rate

This option determines the maximum synchronous data transfer rate that the SCSI controller can support. The SCSI controller supports rates up to the Fast Wide SCSI maximum of 20.0 MBytes/sec. The default value is 20.0.

In most cases, you can use the maximum value of 20.0. If the SCSI controller is set *not* to negotiate for synchronous data transfer (i.e., Initiate Sync Negotiation is set to **no**), then the value selected here is the maximum rate that the SCSI controller accepts from the device during negotiation. (This is standard SCSI protocol.)

Some older SCSI-1 devices do not support Fast SCSI data transfer rates (10.0, 8.0, and 6.7). This may cause your computer to operate erratically or hang if the transfer rate is set too high. Select a Maximum Sync Transfer Rate of 5.0 for these devices.

Enable Disconnection

This option determines whether the SCSI controller allows a SCSI device to disconnect from the SCSI bus (sometimes called Disconnect/Reconnect). Disconnect/Reconnect allows the SCSI controller to perform other operations on the SCSI bus while the SCSI device is temporarily disconnected.

When set to **yes**, the SCSI device may disconnect from the SCSI bus. The SCSI device, however, may choose not to disconnect, even if permitted by the SCSI controller (this can usually be configured on the SCSI device). When set to **no**, the SCSI device is not allowed to disconnect from the SCSI bus. The default setting is *yes.*

You should leave Enable Disconnection set to **yes** if two or more SCSI devices are connected to the SCSI controller. This optimizes SCSI bus performance. If only one SCSI device is connected to the SCSI controller, set Enable Disconnection to **no** to achieve slightly better performance.

Initiate Wide Negotiation

This option allows communication between all devices (lower 8-bit or upper 8-bit) on the wide (16-bit) SCSI bus. When set to **yes**, each device can connect on the bus. When set to **no** (disabled), communication can only occur on the lower 8-bits of the 16-bit SCSI bus. The default setting is *yes*.

Send Start Unit Command

This option, which is supported by some SCSI devices, determines whether the Start Unit Command (SCSI command 1B) is sent to the SCSI device (most devices do not require this). Enabling this option reduces the load on your computer's power supply by allowing the SCSI controller to power-up SCSI devices one-at-a-time when you boot your computer. Otherwise, the devices all power-up at the same time. Most devices require you to set a jumper before they can respond to this command.

When set to **yes**, the Start Unit Command is sent to the SCSI device during bootup. When set to **no**, each SCSI device powers-up in its normal fashion. The default setting is *no*.

> *The Send Start Unit Command setting is valid only if the host adapter BIOS is enabled.*

If this option is enabled for more than one SCSI device, the Start Unit Command is sent first to the device with the lowest SCSI ID. When this device responds to the SCSI controller, the Start Unit Command is sent to the next highest SCSI ID with a setting of **yes**. The process continues until all supported devices respond to the SCSI controller.

*If many drives are set to **yes** for Send Start Unit Command, the boot time varies depending on how long it takes each drive to spin up.*

Advanced Configuration Options

When you select Advanced Configuration Options, a screen similar to Figure 4-8 appears. Do not change these nine options unless absolutely necessary.

```
┌─────────────────────────────────────────────────────────────────────────┐
│      Adaptec AIC7880 Ultra/Ultra W  ◄ SCSISelect (TM) ► Utility v1.2       │
└─────────────────────────────────────────────────────────────────────────┘

        ┌────────────── AIC-7880 Ultra/Ultra W at Bus:Device 00:10h ──────────┐
        │══════════════════ Advanced Configuration Options ═══════════════════│
        │                                                                      │
        │ -------------Options Listed Below Have NO EFFECT if the BIOS is Disabled------------- │
        │ Host Adapter BIOS (Configuration Utility Reserves BIOS Space)......................Enabled │
        │ Support Removable Disks Under BIOS as Fixed Disks ......................Boot Only │
        │ Extended BIOS Translation for DOS Drives > 1Gbyte .......................Disabled │
        │ Display <Ctrl-A> Message During BIOS Initialization .........................Enabled │
        │ Multiple Lun Support...............................................................Enabled │
        │ BIOS Support for More Than 2 Drives (MS-DOS® 5.0 and above)....................Enabled │
        │ BIOS Support for Bootable CD-ROM .................................................Enabled │
        │ BIOS Support for Int13 Extensions...................................................Enabled │
        │ Support for Ultra SCSI Speed ............................................................Disabled │
        └──────────────────────────────────────────────────────────────────┘

    Arrow keys to move cursor, <Enter> to select option, <Esc> to exit (  ❋ default)
```
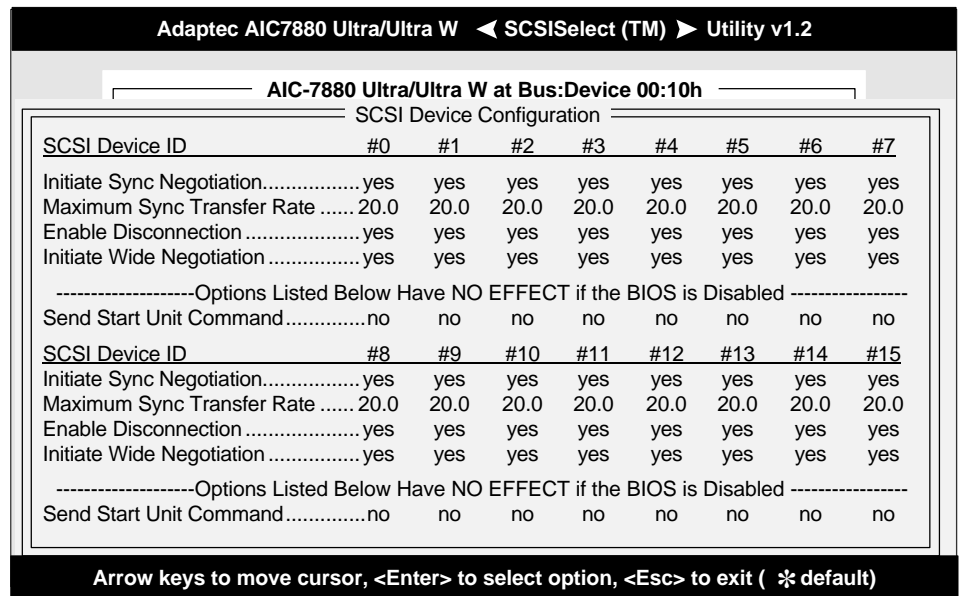
Figure 4-8   Advanced Configuration Options Screen

Use the cursor keys (↑ ↓) to move between options. Press **Enter** to display a pop-up menu with a selection of options. Use the cursor keys (↑ ↓) to select an option, and press **Enter** to make your selection.

Host Adapter BIOS

This option enables or disables the SCSI controller BIOS. The default setting is *Enabled.*

The SCSI controller BIOS must be enabled if you want the computer to boot from a SCSI hard disk drive connected to the SCSI controller. Several SCSI*Select* options cannot be used unless the SCSI controller BIOS is enabled.

Support Removable Disks Under BIOS as Fixed Disks

This option allows you to control which removable-media drives are supported by the SCSI controller BIOS. It is only valid if the SCSI controller BIOS is enabled. The default setting is *Boot Only*. The following choices are available:

- **Boot Only** – Only the removable-media drive designated as the boot device are treated as a hard disk drive.

- **All Disks** – All removable-media drives supported by the BIOS are treated as hard disk drives.

- **Disabled** – No removable-media drives are treated as hard disk drives. In this situation, software drivers are needed because the drives are not controlled by the BIOS.

> *Support for removable-media drives means only that the SCSI controller BIOS **allows** you to use a removable-media drive as if it were a hard disk drive; it does **not** mean you can remove the disk media during operation. If a removable-media SCSI device is controlled by the SCSI controller BIOS, **do not** remove the media while the drive is powered-on or you may lose data! If you want to be able to remove media while the power is on, install the removable-media device driver and set this option to **Disabled.***

Extended BIOS Translation for DOS Drives > 1 GByte

This option allows you to enable or disable extended translation for SCSI hard disks with a capacity greater than 1 GByte. It is only valid if the SCSI controller BIOS is enabled. The default factory setting is *Disabled*.

If this option is enabled, the following translation schemes are used:

* SCSI hard disks < 1 GByte use a translation scheme of 64 heads, 32 sectors per track

* SCSI hard disks > 1 GByte use a translation scheme of 255 heads, 63 sectors per track

See the section "Disk Drives Over 1 Gbyte" in this chapter, for more information on this option. This option should be left Disabled for most operating systems except DOS/Windows.

Display <Ctrl-A> Message During BIOS Initialization

This option allows entering the SCSI *Select* utility during BIOS initialization. The default setting is *Enabled*.

Multiple Lun Support

This option allows access to multiple logical unit numbers per SCSI ID. The default setting is *Enabled*.

BIOS Support for More Than 2 Drives

This option allows you to enable or disable BIOS support for more than two SCSI hard disk drives. It is only valid if the SCSI controller BIOS is enabled. This feature is supported by DOS 5.0 and above. The default setting is *Enabled*.

BIOS Support for Bootable CD-ROM

When this option is enabled, a bootable CD-ROM device may be used to directly load an operating system. The default setting is *Enabled*.

BIOS Support for Int13 Extensions

This option allows access to attached SCSI devices through BIOS Int13 functions. The default setting is *Enabled*.

Support for Ultra SCSI Speed

This option enables wide SCSI data transfers at 40 MB/sec. Most hard disk drives or other SCSI devices do not currently support a communication rate this high. If enabled, be sure the device is capable of running at this rate. The default setting is *Disabled*.

4.2.2 SCSI Disk Utilities

When you select SCSI Disk Utilities from the Options menu the SCSI*Select* utility scans the SCSI bus and lists all SCSI devices installed on the SCSI bus. You will see a screen similar to Figure 4-9. You can easily determine from this screen which SCSI ID is assigned to each device on the SCSI bus.

```
╔═══════════════════════════════════════════════════════════════════╗
║     Adaptec AIC7880 Ultra/Ultra W  ◄ SCSISelect (TM) ► Utility v1.2 ║
╚═══════════════════════════════════════════════════════════════════╝

        ┌──────────── AIC-7880 Ultra/Ultra W at Bus:Device 00:10h ────────────┐
        │              Select SCSI Disk and press <Enter>                     │
   ┌────┴─────────────────────────────────────────────────────────────────────┴────┐
   │                                                                                 │
   │             SCSI ID #0:   QNTMEAST  XP34300                                      │
   │             SCSI ID #1:   No device                                             │
   │             SCSI ID #2:   No device                                             │
   │             SCSI ID #3:   No device                                             │
   │             SCSI ID #4:   Sony CD-ROM CDU-76S                                    │
   │             SCSI ID #5:   No device                                             │
   │             SCSI ID #6:   No device                                             │
   │             SCSI ID #7:   AIC-7880    Ultra/Ultra W                              │
   │             SCSI ID #8:   No device                                             │
   │             SCSI ID #9:   No device                                             │
   │             SCSI ID #10:  No device                                             │
   │             SCSI ID #11:  No device                                             │
   │             SCSI ID #12:  IBM          DORS-32160W                               │
   │             SCSI ID #13:  No device                                             │
   │             SCSI ID #14:  No device                                             │
   │             SCSI ID #15:  No device                                             │
   │                                                                                 │
   └─────────────────────────────────────────────────────────────────────────────┘

╔═══════════════════════════════════════════════════════════════════╗
║  Arrow keys to move cursor, <Enter> to select option, <Esc> to exit ( ✳ default) ║
╚═══════════════════════════════════════════════════════════════════╝
```

Figure 4-9   SCSI Disk Utilities Screen for AIC-7880

When you highlight a disk device by moving to it with the cursor keys and press
Enter, a small menu window appears. You then select **Format Disk** or **Verify
Media** from this menu.

Use the cursor keys ($\uparrow \downarrow$) to move between options. Press **Enter** to display a pop-
up menu with a selection of values. Use the cursor keys ($\uparrow \downarrow$) to select a value,
and press **Enter** to make your -selection.

Format Disk

The **Format Disk** utility performs a low-level format on disk devices.

Most SCSI disk devices are preformatted and do not need to be formatted again. The Adaptec **Format Disk** utility is compatible with the vast majority of SCSI disk drives. Run it on hard disk drives or removable-media drives that were previously used with a non-Adaptec SCSI controller.

> *A low-level format destroys all data on the drive. Be sure to back up your data before performing this operation. You **cannot** abort a low-level format once it is started.*

Verify Disk Media

The **Verify Disk Media** utility scans the selected device's media for defects. If the utility finds bad blocks, it prompts you to reassign them; if you select *yes*, those blocks will no longer be used.

> *You can press **Esc** at any time to abort the* ***Verify Disk Media*** *utility.*

4.3   Configuring Multiple SCSI Controllers

The AHA-2940/W/UW SCSI controller is used as an example in the following discussion.

To use multiple PCI SCSI controllers, do the following:

* Install the boot SCSI controller in the lowest PCI **Device** number. The **Device** number is determined by the slot number on the PCI bus.

    To find out the **Device** number of the AHA-2940 SCSI controller(s), run the SCSI*Select* utility (by pressing the key combination **Ctrl + A** when it is displayed onscreen at bootup). Look on the first screen of SCSI*Select* in the upper right hand corner for **Bus:Device xx:xxh** (given in hex).

    If the **Device** number is high, move the AHA-2940 to a PCI slot at the other end of the motherboard and rerun SCSI*Select* to see if the number is lower.

    Refer to your system documentation for further details on determining the PCI slot number and slot number order in the system.

This step is a recommended solution for most PCI motherboards. You can also simply switch the AHA-2940 SCSI controller into another PCI slot if the boot order is not what is desired.

* If you are booting from the AHA-2940 and using ISA/EISA-based host adapters as secondary devices, you must disable the BIOS on all ISA/EISA-based SCSI controllers.

* If you are booting from ISA/EISA-based SCSI controllers and using the AHA-2940 as a secondary device, see your ISA/EISA-based SCSI controller

documentation to ensure the SCSI controller is at the lowest BIOS base address. ISA/EISA-based SCSI controllers which have their BIOS enabled boot before the AHA-2940.

4.4   Disk Drives Over 1 Gbyte

4.4.1   Extended Translation

Adaptec SCSI controllers have always supported the full range of disk drive capacities under all major operating systems. As disk drives have recently grown beyond 1 GByte in formatted capacity, they have run up against the DOS 1024-cylinder limit.

To continue its support for all SCSI disk drive capacities under DOS, Adaptec has included an extended translation scheme for the AIC-7880 SCSI controllers. This feature supports disk drives of up to 8 GBytes capacity under DOS. *Extended BIOS Translation for DOS Drives > 1 GByte* in this chapter explains how to change the setting of this option in the SCSI*Select* utility. Most operating systems will leave this option Disabled.

4.4.2   The DOS 1 GByte Limit

All current versions of DOS are limited to 1024 cylinders per drive. The standard translation scheme for SCSI host controllers, using 64 heads and 32 sectors, provides a maximum accessible capacity of 1 GByte.

To eliminate the 1 GByte limit, Adaptec's extended translation feature uses 255 heads and 63 sectors, extending the disk drive capacity limit under DOS to 8 GBytes.

*If you have already partitioned a large disk drive with one translation method, conversion to another method will erase your data. Be sure to **back up** your disk drive prior to any change in the translation method used.*

4.4.3   When to Use Extended Translation

With MS-DOS 5.0 and Above

NetWare 386 (versions 3.0 and above) and the versions of UNIX do not share the 1024 cylinder limit of DOS and do not require extended translation to support large disk drives and should not be enabled.

Drives With Mixed Partitions

Use standard translation, not extended translation, on drives formatted with two or more partitions for different operating systems. Partitions for UNIX and NetWare can be larger than 1 GByte when using standard translation.

> *The term UNIX, as used here, includes all versions of AT&T/USL UNIX, SCO v3.2.4 (or later), and ISC v3.0 (or later).*

Using Fdisk

To install a new disk, or to re-partition an existing disk, use the *fdisk* DOS utility as you normally would. The cylinder size increases to 8 MBytes when you enable extended translation. The size of the partition you request must therefore be a multiple of 8 MBytes. If you request a partition size that is not a multiple of 8 MBytes, *fdisk* rounds up to the nearest whole multiple of 8 MBytes.

Questions and Answers About Extended Translation

What happens if I enable extended translation with SCSI drives that are less than 1 GByte in capacity?

Drives handled by the BIOS use extended translation if their formatted capacity is greater than 1 GByte. Drives with less than 1 GByte of formatted capacity use standard translation regardless of whether extended translation is enabled.

4.5   SCSI Troubleshooting Checklist

The AIC-7880 SCSI controller has been tested for compatibility with a wide range of SCSI devices. Most problems that occur during installation result from errors in preparing and connecting devices on the SCSI bus.

Answer these questions first if a problem occurs during installation:

- Are the power cables and SCSI interface cables properly connected?

  Connect internal SCSI devices to your computer's power supply. Connect the power cables of external SCSI devices to a grounded line power outlet. Follow the instructions in the computer and SCSI device documentation.

- Is pin-1 orientation maintained throughout the SCSI bus?

- Are the PCI bus and slot parameters set correctly in your computer's **Setup** program?

  The PCI bus is designed to assign IRQ, port address, and BIOS address settings automatically to the SCSI controller. But you may need to assign some of these values manually in the **Setup** program.

- Is each SCSI device, including the SCSI controller, set to a unique SCSI ID?

- Is SCSI termination set correctly?

  If your problem is still not resolved, continue with the next section.

4.6   BIOS Startup Messages

After you have configured your SCSI controller, the SCSI controller BIOS displays a message when you boot your computer. Normally, this message lists the SCSI ID, manufacturer, model number and other information for each SCSI device that the BIOS detects.

If an initialization failure occurs, however, the SCSI controller BIOS displays a specific error message followed by a *BIOS Installation Failure* message. Here are some of these error messages and their meaning:

```
WARNING!!!

A drive larger than 1 gigabyte has been detected with 64 head / 32 sector
partitioning. This drive is not compatible with the 255 head / 63 sector
translation which has been enabled on this adapter. Data could be
corrupted! Please check your system setup!

Press any key to continue.
```

This message occurs only if Extended BIOS Translation is enabled in the SCSI*Select* utility. It means that the BIOS detected a large capacity drive with invalid partition information in the master boot record.

Extended BIOS Translation is used only with MS-DOS 5.0 or above. You do not need to enable this option if you are using another operating system such as OS/2® or UNIX®.

If you are using a drive larger than 1 GByte under MS-DOS 5.0 or above and this message appears, do the following:

1. Run the SCSI*Select* utility and set Extended BIOS Translation to **Disabled**. (See Extended BIOS Translation for DOS Drives > 1 GByte in the Advanced Configuration Options section)

2. Exit from the SCSI*Select* utility and back up the data on the disk drive, if you want to save it.

3. Perform a SCSI low-level format with the **Format Disk** utility under SCSI Disk Utilities in the SCSI*Select* utility.

> *All data on the target drive will be lost when you run the **Format Disk** utility. Back up your data before you run it!*

4. In the SCSI*Select* Advanced Configuration Options menu, set Extended BIOS -
    Translation to **Enabled**.

5. Partition the drive again.

6. Restore data to the drive, if necessary.

4.6.1   Device connected, but not ready.

This message appears if the SCSI controller receives no answer when it requests
data from an installed SCSI device. The SCSI controller skips this device and
moves on to the next device on the bus.

Do the following if you see this message when you request data from a SCSI
drive:

1. Run the SCSI*Select* utility and access SCSI Device Configuration. Locate the
    host controller's SCSI ID and set Send Start Unit Command to **yes**.

2. Exit the SCSI*Select* utility and request data from the drive again.

3. If the message still appears, follow the drive manufacturer's instructions to
    make sure the drive is set to spin-up when the power is switched ON.

4.6.2   Start unit request failed.

The BIOS was unable to send a Start Unit Command to the device. Run the
SCSI*Select* utility and disable Send Start Unit Command for the device.

Time-out failure during SCSI Inquiry command!

> or

Time-out failure during SCSI Test Unit Ready command!

> or

Time-out failure during Start Unit command!

An unexpected time-out occurred. Check SCSI bus termination. Try disconnecting the SCSI peripheral cables from the SCSI controller and then starting the computer. If the computer successfully restarts, check SCSI bus termination and cable connections. One of the devices on the SCSI bus may be defective.

4.6.3   Disk Drive Configuration Problems

This section describes situations that may occur if your computer has multiple disk drives, including combinations of standard disk drives and SCSI disk drives.

"Standard disk drive" means a disk drive attached to the computer through a standard ISA/EISA, non-SCSI disk controller—for example, an IDE drive.

Standard hard disk drives can be set to the *installed* or *not installed* state by the **Setup** program supplied with the host computer. The **Setup** program allows you to select the number of standard hard disks that are recognized by the computer, regardless of whether they are physically installed. SCSI drives are not controlled through the **Setup** program.

If both SCSI and non-SCSI disk drives are installed, then the non-SCSI disk drive is *always* the boot device.

Booting the Computer from a SCSI Drive

The following items may apply for multiple SCSI controller configurations. See the section "Configuring Multiple SCSI Controllers" for more detailed information.

• Be sure that both standard hard disks are mapped out of the computer using the **Setup** program by setting the **Setup** program to **No Drives Installed**.

- Be sure that the SCSI boot drive is set to SCSI ID 0 and that there are no SCSI ID conflicts. Check the drive installation manual for information about setting the SCSI ID for that device. You can use the SCSI*Select* utility to determine the SCSI IDs of devices on the SCSI bus.

- Be sure that parity checking is consistently enabled or disabled on all devices on the SCSI bus. See the section "SCSI Parity Checking".

- Try enabling Include in BIOS Scan in the SCSI Device Configuration option of the SCSI*Select* utility. See the section "SCSI Device Configuration".

- Be sure to cycle the power OFF and ON after changing any values on a SCSI controller, in a **Setup** program, or on a SCSI device. Doing this ensures that the new initial values are loaded.

- Be sure that the SCSI bus is properly terminated. See the section "Setting SCSI Bus Termination".

- Be sure that the intended boot disk has an active partition and has been formatted.

- Check cable connections and pin-1 orientation.

Using a Standard Drive as C and a SCSI Drive as D

- Use the **Setup** program to map the second standard hard disk (if one exists) out of the configuration.

- Be sure that the SCSI drive to be used as drive D is set to SCSI ID 0. Check the drive manual for information on setting the SCSI ID for that device. You can also use the SCSI*Select* utility to determine the SCSI addresses of peripherals on the SCSI bus.

- Be sure that SCSI parity checking is consistently enabled or disabled on all devices on the SCSI bus.

- Verify that the SCSI controller and the SCSI devices are properly configured and installed.

- Be sure to cycle the power OFF and ON after changing any values on a SCSI controller, in a **Setup** program, or on a SCSI device. Doing this ensures that the new initial values are loaded.

- Be sure that the SCSI bus is properly terminated.

- Be sure that the disk is formatted and has a partition.

- Check cable connections and pin-1 orientation.

Using a SCSI Drive as C and Another SCSI Drive as D

- Make sure your computer's CMOS **Setup** is set to **No Drives Installed**, as is required for SCSI host controllers.

- Be sure that the SCSI drive to be used as drive C is set to SCSI ID 0. Check the disk drive manual for information on setting the SCSI ID for that device. You can also use the SCSI*Select* utility to determine the SCSI addresses of peripherals on the SCSI bus.

- Set the SCSI drive to be used as drive D to SCSI ID 1. Check the drive manual for information on setting the SCSI ID for that device.

- Try enabling **Include in BIOS Scan** in the SCSI Device Configuration option of the SCSI*Select* utility. See the section "SCSI Device Configuration".

- Be sure to cycle the power OFF and ON after changing any values on a SCSI controller, in a **Setup** program, or on a SCSI device. This ensures that the new initial values are loaded.

- Be sure that SCSI parity checking is consistently enabled or disabled on all devices on the SCSI bus.

- Verify that the SCSI controllers and the SCSI devices are properly configured and installed.

- Be sure that the SCSI bus is properly terminated.

- Be sure that, if necessary, the disk has a partition and is formatted.

Computer Hangs, or SCSI Controller Cannot Always Find the Drives

- Check SCSI parity for consistency and be sure SCSI termination is set correctly.

- Check cable length and integrity. Check pin-1 orientation.

- If the SCSI controller LED remains on when the computer hangs, the host adapter may be interfering with your computer's operation. It may be installed in a motherboard slot that does not support First-Party DMA (i.e., Bus Master) data transfers. See your computer documentation.

Chapter 5   EISA Configuration Utility

5.1   EISA Configuration Utility

The EISA Configuration Utility (ECU) is a program that allows you to easily configure your EISA computer. Use this utility when you set up your EISA computer for the first time or any time you change your configuration by adding or removing an EISA or ISA board or memory. The program stores the configuration information in the computer's nonvolatile memory where it is available whenever you use your computer.

5.1.1 Functions

The ECU does the following:

- Configures memory and main board options.

- Supports EISA and ISA boards, PCI devices, and plug-and-play ISA boards.

- Automatically detects EISA boards, PCI devices, and plug-and-play ISA boards installed in the computer.

- Helps you configure ISA boards by providing the appropriate switch and jumper settings, if the ISA board has a CFG file.

- Notifies you if a conflict occurs during configuration.

- Creates and maintains the System Configuration Information (SCI) file as a backup for the computer's nonvolatile memory.

- Supports configuration (CFG) file extensions.

5.1.2 Making Menu Selections

You can either use the keyboard or the mouse (if a mouse driver was loaded) to make menu selections in the EISA Configuration Utility program.

Using the Keyboard

Table 5-1   Keyboard Function Keys

Key	Function
Tab or ∨	Moves the cursor to the next field
⇧ + Tab or ∧	Moves the cursor to the previous field
∧ or ∨	Moves the cursor between items within a list
↵	Selects an item
∧	Cancels the most recent action
{ , } , ∧ or ∨	Scrolls a screen
⌂	Moves the cursor to the top of a list
⌐	Moves the cursor to the bottom of a list
⌂ + ⌐	Moves the cursor to the beginning of a menu
⌂ + ⌐	Moves the cursor to the end of a menu

Using the mouse

> *A mouse driver must be loaded in order to use the mouse. When you access the ECU through Acer StartUp, a mouse driver is loaded.*

Follow these steps to use the mouse when making menu selections:

1. Position the cursor over the desired option then click on the left mouse button to select it.

2. When a sub-menu appears, click on the left button again to make a selection.

3. If a scroll bar appears on the right side of the screen, place the mouse cursor over the arrow at the top or at the bottom of the scroll bar, then click and hold the left mouse button to scroll up or down the page.

5.1.3 Getting Help

The EISA Configuration Utility automatically displays information about each choice on the ECU main menu and the second-level menus. The utility also allows you to access online help once you begin the configuration process.

Press ⌑ to display the help menu. Press ^   to remove the help menu from the screen.

5.2 Starting the ECU

1. You can access the ECU two ways:

    - From the Acer StartUp main menu, click on the **EISA Configuration** icon, then click on the **EISA Configuration** button on the System Configuration menu.

    - Use **Diskette Maker** in Acer StartUp to make an ECU diskette, then insert the ECU diskette into drive A and reboot the system.

2. System messages display, then the ECU logo screen appears. Press any key to continue.

3. A welcome screen appears. Press **Enter** to leave the Welcome screen and display the ECU main menu—Steps in Configuring Your Computer (see Figure 5-1).

5.3 ECU Main Menu ⎯Steps in Configuring Your Computer

```
┌──────────── Steps in configuring your computer ───────────┐
│                                                            │
│   Step 1: Important EISA configuration information         │
│                                                            │
│   Step 2: Add or remove boards                             │
│                                                            │
│   Step 3: View or edit details                             │
│                                                            │
│   Step 4: Examine switches or print report                 │
│                                                            │
│   Step 5: Save and exit                                    │
│  ──────────────────────────────────────────────────────── │
│   >Select=ENTER<            <Cancel=ESC>                   │
│                                                            │
└────────────────────────────────────────────────────────────┘
```
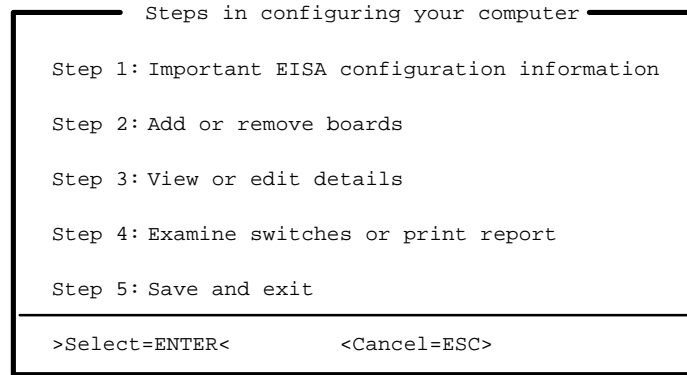
Figure 5-1   ECU Main Menu ¾ Steps in Configuring Your Computer

The five selections on the ECU main menu are briefly described below. Specific tasks, such as configuring your computer for the first time (section 5.4), adding or removing boards (section 5.5), and configuring memory (section 5.6) are discussed in detail later in this chapter.

All the ECU screens have a command bar at the bottom to guide you through the utility.

5.3.1   Main Menu Selections

Step 1: Important EISA Configuration Information

This selection is highlighted when you first enter the main menu. It gives an overview of how to configure your computer with the EISA Configuration Utility. Press **Enter** to select this item. Then press the up and down arrow keys to move up or down the text. When you select **Step 1: Important EISA Configuration Information**, the following screen displays:

```
┌──Step 1: Important EISA configuration information──┐
│  ┌──────────────┐  Your new EISA computer requires a │
│  │   Welcome    │  new approach to configuration.     │
│  │     to       │  Please take just a few minutes to  │
│  │    EISA      │  read all of the screens in this    │
│  │              │  step (Step 1) for more information. │
│  │              │                                      │
│  │              │  You may return to these screens at  │
│  │              │  any time by pressing F1 and         │
│  │     ▄▄▄▄     │  selecting 'EISA configuration'      │
│  │    █████     │  from the help menu.                 │
│  └──────────────┘                                      │
│                     Press ENTER to continue.           │
│  ─────────────────────────────────────────────        │
│  >Next=ENTER<    <Previous=F9>    <Done=F10>           │
└────────────────────────────────────────────────┘
```

Figure 5-2   Important EISA Configuration Information

Take a few moments to read all seven screens in this step. The screens provide details about using the ECU program to configure EISA and ISA boards. You can learn how to determine if a board is EISA or ISA and how to use steps 2, 3, and 4 on the ECU main menu. The last screen in the series summarizes the steps to follow when configuring your computer.

You can move between screens by pressing **Enter** to go to the next screen, or **F9** to go back to the previous screen. After viewing the screens, press **Enter** or **F10** to return to the ECU main menu.

Additional information is available in the Help sub-menus that automatically display at the bottom right of the window. The Help submenus consist of a series of screens that describe the ECU process and how the process differs for EISA and ISA boards.

Use the up and down arrow keys to read a short explanation of each of the configuration steps.

Step 2: Add or Remove Boards

Each time you add or remove a configurable board, you must reconfigure the computer using the ECU program. When you select this item, the screen displays a list of the boards and options installed in your computer.

The screen contains the configuration data that the ECU read from your CFG file. It includes the number of EISA slots and device controllers detected.

Figure 5-3 shows a sample Add or Remove Boards screen.

```
             Step 2: Add or remove boards

 Listed are the board and options detected in your
 computer.

   Press INSERT to add the boards or options which
   could not be detected or which you plan to install.
   Press DEL to remove the highlighted board from your
   configuration.
   Press F7 to move the highlighted board to another
   slot.
   Press F10 when you have completed this step.

   ┌─────────────────────────────────────────────────┐
   │ >  AcerAltos Server                               │
   │    Slot 1  (Empty)                                │
   │    Slot 2  (Empty)                                │
   │    Slot 3  (Empty)                                │
   │    Embedded PCI SCSI Controller                   │
   │                                                   │
   └─────────────────────────────────────────────────┘

  >Add=INSERT<   <Remove=DEL>     <Move=F7>    <Done=F10>
```

Figure 5-3   Add or Remove Boards

See the section "Adding or Removing Boards" for a detailed procedure.

Step 3: View or Edit Details

The ECU also allows you to view or edit your system configuration information.
You may have to edit your system settings when you add or remove boards,
when you make other hardware changes or when there are device assignment
conflicts. Figure 5-4 shows a sample View or Edit Details screen.

**The configuration data on the following screen depends on your CFG file and
may not be exactly the same as the one on your actual screen.**

Press ↑ and ↓ to see all information.

See also: Advanced Menus ⇒ View Additional System Information ⇒
                   Used Resources and Available Resources

```
                 Step 3: View or Edit Details

          Press  ↑  and  ↓  to see all information.

     Press ENTER to edit the functions of the highlighted
     item.

     Press F6 to edit its resources (IRQs, DMAs, I/O ports,
     or memory).

     Press F10 when you have finished this step.

System - AcerAltos Server
  System BIOS Type ............... RAM BIOS Enable (128 K)
  System Processor ............... Pentium at 133 MHz
  Special System Ports ........... Special System Ports
  EISA Reserved Devices .......... EISA Reserved Devices

  System Memory Functions
    Base System Memory .......... Enabled
    8   -   16 MB System Memory .. 16 MB System Memory
         ........................ with 15-16MB System Use
    16  -   64 MB System Memory .. Enabled
    64  - 128 MB System Memory ... Enabled
    128 - 192 MB System Memory ... Enabled
    192 - 256 MB System Memory ... Enabled
    256 - 320 MB System Memory ... Enabled
    320 - 384 MB System Memory ... Enabled

  Mouse Port ..................... Enabled
  Keyboard Port .................. Enabled
  Floppy Disk Controller ......... Enabled
  IDE HDD Interface .............. Disabled
  Parallel Port .................. Enabled
  Serial Ports
    Select COM1 Port Address ..... 3F8h
    Select COM2 Port Address ..... 2F8h


  >Edit=ENTER<   <Edit Resources=F6>   <Advanced=F7>   <Done=F10>
```

Figure 5-4   View or Edit Details

Step 4: Examine Switches or Print Report

This selection lists the boards installed in your computer. Figure 5-5 shows a sample Examine Switches or Print Report screen.

Boards marked with an arrow on the screen may have defined jumpers and switches that you must physically verify. It may also mean that there is a software statement with additional information about the board.

To view the switch and jumper settings, highlight the board marked with an arrow and press **Enter**.

You can print a hard copy of the switch and jumpers settings or you can print the information to a TXT file (see the section "Configuring Your Computer for the First Time" for details).

```
┌──── Step 4: Examine switches or print report ────┐
│                                                    │
│  You must PHYSICALLY verify that the switches and jumpers │
│  of each board marked with an arrow ( → ) are set as │
│  required.  These settings cannot be detected or changed by │
│  this program.                                     │
│                                                    │
│     To view the required settings for the highlighted │
│     board, press ENTER.  Pick up the board and compare its │
│     settings to the required settings.  Change the board │
│     settings to match the required settings.       │
│                                                    │
│  ┌──────────────────────────────────────────────┐ │
│  │ >   System   AcerAltos Server                  │ │
│  │     Slot 1   (Empty)                           │ │
│  │     Slot 2   (Empty)                           │ │
│  │     Slot 3   (Empty)                           │ │
│  │     Embedded PCI SCSI Controller               │ │
│  │                                                │ │
│  └──────────────────────────────────────────────┘ │
│                                                    │
│ >View=ENTER<       <Print=F7>        <Done=F10>    │
└────────────────────────────────────────────────────┘
```

Figure 5-5   Examine Switches or Print Report

Step 5: Save and Exit

Figure 5-6 shows the Save and Exit screen. Press **Enter** to save your configuration
and exit the ECU program. You can also exit without saving in this step.

```
┌──────────────────── Step 5: Save and Exit ────────────────────┐
│                                                               │
│  In order to complete the configuration process, you must     │
│  save your configuration.  In this step, you must select      │
│  whether to save your configuration or to discard your        │
│  changes before exiting this program.                         │
│                                                               │
│  If you choose to save, this program will save the new        │
│  configuration in your computer's nonvolatile memory and      │
│  in a SYSTEM.CHL and SYSTEM.SCI files in your current         │
│  directory, and then your computer will be restarted for      │
│  you.  (The files will not be created if you are running      │
│  on a CD.)  If you choose to discard the configuration,       │
│  any changes you have made will be lost.                      │
│                                                               │
│   ┌─────────────────────────────────────────────────────┐     │
│   │ Save the configuration and restart the computer     │     │
│   │ Discard the configuration and return to the main menu│    │
│   └─────────────────────────────────────────────────────┘     │
│                                                               │
├───────────────────────────────────────────────────────────────┤
│ >Select=ENTER<    <Cancel=ESC>                                │
└───────────────────────────────────────────────────────────────┘
```

Figure 5-6   Save and Exit

5.4 Configuring Your Computer for the First Time

Follow these steps when configuring your computer for the first time:

1. Select **Step 1: Important EISA Configuration Information** from the ECU main menu. Read through the information then press **F10** when you are done.

2. Select **Step 4: Examine switches or print report**, then press **Enter** to display the screen shown below.

```
        ┌── Step 4: Examine switches or print report ──┐

      You must PHYSICALLY verify that the switches and jumpers
      of each board marked with an arrow ( → ) are set as
      required.  These settings cannot be detected or changed by
      this program.

         To view the required settings for the highlighted
         board, press ENTER.  Pick up the board and compare its
         settings to the required settings.  Change the board
         settings to match the required settings.

         ┌──────────────────────────────────────────┐
         │ >   System   AcerAltos Server            │
         │     Slot 1   (Empty)                     │
         │     Slot 2   (Empty)                     │
         │     Slot 3   (Empty)                     │
         │     Embedded PCI SCSI Controller         │
         │                                          │
         │                                          │
         └──────────────────────────────────────────┘

       >View=ENTER<      <Print=F7>       <Done=F10>
```
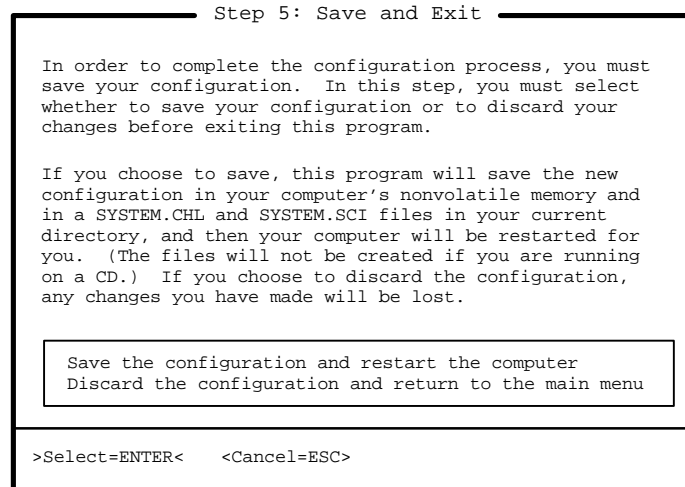
Figure 5-7   Examine Switches or Print Report

3. Notice the boards marked with an arrow on the screen, if any. The arrow indicates that the boards in your computer may have defined jumpers and switches that you must physically verify. It may also mean that there is a software statement with additional information about the board.

4. To view the switch and jumper settings, highlight the board marked with an arrow and press **Enter**. The switch/jumpers settings screen for the board appears.

5. Scroll through the switch and jumper settings for the board, and press **F10** when you have finished viewing the information.

6. To print the information, select **Print** by pressing **F7**. The Print Settings screen appears.

   • If you have a printer attached to your computer, select **Print all configuration settings** or **Print settings for selected board or option**, then press **Enter** to print a hard copy of the switch and jumper settings and other configuration information.

   • If you do not have a printer, select **Print all configuration settings to a file** or **Print settings for selected board or option to a file**. A Print Information to TXT File screen appears.

   • If you want to print the switch and jumper settings to a different diskette, insert a diskette in drive A and press **Enter**. Another Print Information to TXT File screen appears. Enter the name of your file or choose an existing filename and press **Enter**.

   > *If you inserted a different diskette, remember to reinsert the ECU diskette after printing is complete.*

7. Press **F10** when you are through. The ECU main menu, Steps in Configuring Your Computer, reappears.

8. Select **Step 5: Save and Exit**, then press **Enter**. The following screen appears.

```
┌─────────────────────────────────────────────────────────────┐
│                    Step 5:  Save and Exit                    │
│   In order to complete the configuration process, you must save your   │
│   configuration.  In this step, you must select whether to save your   │
│   configuration or to discard your changes before exiting this program.│
│                                                              │
│   If you choose to save, this program will save the new configuration in│
│   your computer's nonvolatile memory and in a SYSTEM.CHL and  │
│   SYSTEM.SCI files in your current directory, and then your computer will│
│   be restarted for you.  (The files will not be created if you are running on│
│   a CD.)  If you choose to discard the configuration, any changes you have│
│   made will be lost.                                         │
│                                                              │
│      ┌──────────────────────────────────────────────────┐    │
│      │  Save the configuration and restart the computer │    │
│      │  Discard the configuration and return to the main menu │ │
│      └──────────────────────────────────────────────────┘    │
│                                                              │
│   ─────────────────────────────────────────────────────     │
│    Select=ENTER      <Cancel=ESC>                           │
│                                                              │
│                                                              │
└─────────────────────────────────────────────────────────────┘
```

Figure 5-8   Save and Exit

9. To save your changes, select **Save the configuration and restart the computer**, then press **Enter**.

    To discard the changes, choose the option **Discard the configuration and return to the main menu**. Any changes that you made are lost.

10. When the reboot screen appears, press **Enter**.

11. Turn off the computer and remove the ECU diskette, if not running from CD.

5.5   Adding or Removing Boards

Each time you add or remove a board, you must reconfigure the computer using the EISA Configuration Utility program.

Adding Boards

Follow these steps when adding a board:

1. Select **Step 2: Add or remove boards** from the ECU main menu. Press **Enter** to display the following screen:

```
┌──────────────── Step 2:  Add or remove boards ────────────────┐
│                                                                │
│  Listed are the board and options detected in your computer.   │
│                                                                │
│      Press INSERT to add the boards or options which could not be detected │
│      or which you plan to install.                             │
│      Press DEL to remove the highlighted board from your configuration.     │
│      Press F7 to move the highlighted board to another slot.   │
│      Press F10 when you have completed this step.              │
│                                                                │
│      ┌──────────────────────────────────────────┐             │
│      │   AcerAltos Server                        │             │
│      │   Slot 1      (Empty)                     │             │
│      │   Slot 2      (Empty)                     │             │
│      │   Slot 3      (Empty)                     │             │
│      │   Embedded PCI SCSI Controller            │             │
│      │                                           │             │
│      │                                           │             │
│      └──────────────────────────────────────────┘             │
│                                                                │
│  ──────────────────────────────────────────────               │
│   Add=INSERT    <Remove=DEL>    <Move=F7>    <Done=F10>        │
│                                                                │
│                                                                │
│                                                                │
└────────────────────────────────────────────────────────────────┘
```

Figure 5-9   Add or Remove Boards

The screen contains the configuration data that the ECU read from your CFG file. It includes the number of EISA slots and device controllers detected.

2. If you want to add or have already added a board, highlight a slot and press
   h   to select an option from the list that appears.

3. Press **F10** when done. The ECU main menu displays.

4. Select **Step 4: Examine switches or print report**, then press **Enter**.

5. On the Examine Switches or Print Report screen that displays, notice the boards marked with an arrow, if any. The arrow indicates that the boards in your computer may have defined jumpers and switches that you must physically verify. It may also mean that there is a software statement with additional information about the board.

6. To view the switch and jumper settings, highlight the board marked with an arrow and press **Enter**.

7. When the switch/jumpers settings screen for the board displays, scroll through the switch and jumper settings for the board. Press **F10** when you have finished viewing the information.

8. To print the information, select **Print** by pressing **F7**. The Print Settings screen appears.

   - If you have a printer attached to your computer, select **Print all configuration settings** or **Print settings for selected board or option**, then press **Enter** to print a hard copy of the switch and jumper settings and other configuration information.

   - If you do not have a printer, select **Print all configuration settings to a file** or **Print settings for selected board or option to a file**. A Print Information to TXT File screen appears.

   - If you want to print the switch and jumper settings to a different diskette, insert a diskette in drive A and press **Enter**. Another Print Information to TXT File screen appears. Enter the name of your file or choose an existing filename and press **Enter**.

   If you inserted a different diskette, remember to reinsert the ECU diskette after printing is complete.

9. Press **F10** when you are through. The ECU main menu, Steps in Configuring Your Computer, reappears.

10. Select **Step 5: Save and Exit**, then press **Enter**. The Save and Exit screen displays.

11. To save your changes, select **Save the configuration and restart the computer**, then press **Enter**.

    To discard the changes, choose the option **Discard the configuration and return to the main menu**. Any changes that you made are lost.

12. When the reboot screen appears, press **Enter**.

13. Turn off the computer and remove the ECU diskette, if not running from CD.

Removing a Board

Follow these steps when you remove a board:

1. Select **Step 2: Add or remove boards** from the ECU main menu.

2. Select the board that you want to remove from the configuration and press
   ○ . A remove confirmation screen appears.

3. Press **Enter**. The Add or Remove Boards screen reappears.

4. Press **F10** when done. The ECU main menu displays.

5. Follow steps 4 to 13 in the previous section, Adding a Board, to complete your configuration.

5.6   Configuring Memory

Each time you change your system's memory configuration, you must reconfigure the computer using the ECU.

*When removing memory, run the ECU and change memory size **before** physically removing the memory; otherwise, the system may become inoperable.*

The following discussion describes how to configure a system for 96 MB of memory.

1. Highlight **Step 3: View or edit details** from the ECU main menu, then press **Enter**. The View or Edit details screen displays (a sample screen is shown in Figure 5-4).

2. Use the up and down arrow keys to highlight the memory function you wish to configure. In this example, your basic system configuration is installed with 16 MB; therefore, the **16 - 64MB System Memory** parameter is the first memory function you must configure.

    a) Highlight **16 - 64MB System Memory**, then press **Enter**.

    b) The System Memory Functions screen displays, showing the function is enabled:

```
                 System Memory Functions

16 - 64MB System Memory

          (*) Enabled

          ( ) Disabled


Press F6 to edit the resources (IRQs, DMAs, I/O ports or
memory) of the highlighted setting.


Done = F10        Edit Resources = F6          Cancel = ESC
```

c) Press **F6** to edit resources. The Enabled screen displays. Use the Tab key or the up and down arrow keys to move between fields. Use the plus and minus keys to change resources.

```
                        Enabled

These are the resources used by this choice.  Use the PLUS (+)
and MINUS (-) keys to change items marked with a plus/minus
symbol.


          Memory Address 16M

          Memory Amount   0

Done = F10        Cancel = ESC
```

d) On the above screen, the **Memory Address** field shows the beginning memory address (16M); the **Memory Amount** field shows **0**. Configure additional memory by changing the **Memory Amount** field, as described below.

64MB is the total amount that can be configured within each memory function parameter. Therefore, for the 16 - 64MB parameter, change the **Memory Amount** field to 48M.

Memory Address: 16M
Memory Amount: 48M
_____
Total   64M

Press **F10** to return to the View or Edit Details screen.

3. Use the up and down arrow keys to highlight the next memory function, **64 - 128MB System Memory,** then press **Enter** to display the System Memory Function screen. Press **F6** to edit resources.

Change the **Memory Amount** field as described below:

64MB is the total amount that can be configured within each memory function parameter. Therefore, for the 64 - 128MB parameter, change the **Memory Amount** field to 32M.

Memory Address: 64M
Memory Amount: 32M
_____
Total   96M

Press **F10** to return to the View or Edit Details screen.

4. Your system is now configured with 96 MB of memory as follows:

8 - 16 MB System Memory   16 MB

16 - 64 MB System Memory   48 MB

64 - 128 MB System Memory   32 MB

_____

96 MB

5. Repeat the process to configure additional memory, starting with the last modified field not equaling 64MB. Do not leave gaps between memory addresses. This can cause your system to become inoperable.

6. Press **F10** when you are through. The ECU main menu, Steps in Configuring Your Computer, reappears.

7. Select **Step 5: Save and exit**, then press **Enter**. The Save and Exit screen displays.

8. To save your changes, select **Save the configuration and restart the computer**, then press **Enter**.

   To discard the changes, choose the option **Discard the configuration and return to the main menu**. Any changes that you made are lost.

9. When the reboot screen appears, press **Enter**.

10. Turn off the computer and remove the ECU diskette, if not running from CD.

5.7   Viewing or Editing Configuration Details

The ECU also allows you to view or edit your system configuration information. You may have to edit your system settings when you add or remove boards, when you made any other hardware changes, or when there are device assignment conflicts.

To view or edit your configuration, simply click on **Step 3: View or edit details** from the ECU main menu then press **Enter**   to display the screen shown in Figure 5-4.

Advanced Menus

Press **F7** from the View or Edit Details screen to display the Advanced menu. This menu contains four options: Lock/unlock boards, View additional system information menu, Set verification mode menu, and Maintain SCI files menu.

Lock/unlock boards

This option allows you to secure choices for the current board or the entire system to the current selections, or to unlock those choices so that changes can be made. Locking a board prevents changes to a board's settings. An exclamation point (!) next to the selection indicates that a board is locked.

View additional system information

This option allows you to choose from a menu of options for displaying detailed information about system specifications and resources, including:

- Board specifications

  Displays information about the identification and physical characteristics of your boards

- System specifications

  Displays system statistics and information about the slots in your computer.

- Used resources

  Displays information about which boards and functions are using your computer's resources, including DMA channels, IRQ levels, I/O ports, and memory addresses.

- Available resources

  Displays a list of those resources which are unassigned and are available for allocation to boards.

Set verification mode menu

This option allows you to specify whether your computer's configuration should be checked each time you make a change or only when you choose.

Select **Automatic** to have the computer's configuration verified automatically each time a change is made and have conflicts identified and resolved as they occur.

Select **Manual** to verify your computer's configuration only when you select the <Verify> push-button on the **Step 3: View or edit details** screen. Note that the <Verify> push-button displays only when the program is in **Manual** verification mode.

Maintain SCI files menu

This option allows you to select from a menu of options regarding System Configuration Information (SCI) files.

Select **Open...** to display a previously created System Configuration Information (SCI) file.

This will cause the current configuration information to be lost.

Select **Save as...** to save the current configuration information to a backup file.

5.8 What To Do If Your Nonvolatile Memory Is Invalid

If the nonvolatile memory has become invalid or it has not been initialized, the following screen may display before the ECU main menu appears.

```
The EISA configuration nonvolatile memory for this system is invalid.  A
backup system configuration information (SYSTEM.SCI) file, however, does
exist.

Press ENTER to use this backup SCI file to restore your configuration.

Press ESC if you prefer to reconfigure your system and you do not want to
load the backup.

      (* )  Use backup SCI file

      ( )  Do not use backup SCI file

Select = ENTER              Cancel = ESC
```

If you have previously run the ECU from floppy disk and saved your system configuration, select **Use backup SCI file**.

For systems where the nonvolatile memory has not been initialized, select **Do not use backup SCI file** and proceed with the system configuration.

Appendix A System Resources

A.1   Memory Map

Table A-1   System Memory Map

Address	Size	Function
0000000 ~ 009FFFF	640 KB system memory	Onboard DRAM
00A0000 ~ 00BFFFF	128 KB video RAM	Reserved for graphics display buffer, non-cacheable
00C0000 ~ 00C7FFF	32 KB for VGA BIOS	Reserved for ROM on I/O adapters
00C8000 ~ 00CFFFF	32 KB I/O expansion ROM	Reserved for ROM on I/O adapters
00D0000 ~ 00D3FFF	16 KB I/O expansion ROM	Reserved for ROM on I/O adapters
00D4000 ~ 00D7FFF	16 KB I/O expansion ROM	Reserved for ROM on I/O adapters
00D8000 ~ 00DBFFF	16 KB I/O expansion ROM	Reserved for ROM on I/O adapters
00DC000 ~ 00DFFFF	16 KB I/O expansion ROM	Reserved for ROM on I/O adapters
00E0000 ~ 00E7FFF	32 KB for SCSI BIOS	Reserved SCSI BIOS
00E8000 ~ 00EFFFF	32 KB	Reserved onboard (video RAM BIOS)
00F0000 ~ 00FFFFF	64 KB BIOS	System ROM BIOS (ROM) System RAM BIOS (DRAM)
0100000 ~ 0F9FFFF	System memory	Onboard DRAM
0FA0000 ~ 0FFFFFF	384 KB I/O card memory	Reserved for memory map I/O card, non-cacheable
1000000 ~ FFFFFFF	System memory	Onboard DRAM

A.2 I/O Address Map

Table A-2   System I/O Address Map

Address Range (hex)	Device
000 ~ 01F	DMA controller 1
020 ~ 027	Interrupt controller 1
030 ~ 037	Interrupt controller 1
040 ~ 047	System timer
050 ~ 057	System timer
060 ~ 06F	Keyboard controller
070 ~ 07F	Real-time clock, NMI mask
080 ~ 09F	DMA page register/speed status register
0A0 ~ 0BF	Interrupt controller 2
0C0 ~ 0DF	DMA controller 2
0F0	Clear math coprocessor
0F1	Reset math coprocessor
0F8 ~ 0FF	Math coprocessor
4F0	AEN4 enables (onboard VGA enabled) Flash ROM programming IRQ12 enabled 3.5-inch diskette 3 -mode selection DMA channel 1 selection DMA channel 3 selection
4F1	ASM data read/write port
4F2	ASM index write port
0CF8	PCI configuration address regulation

Table A-2   System I/O Address Map (continued)

Address Range (hex)	Device
0CFC	PCI configuration data regulation
1F0 ~ 1F7	Hard disk
278 ~ 27F	Parallel port 3
2F8 ~ 2FF	Serial port 2
378 ~ 37F	Parallel port 2
3B0 ~ 3BF	Parallel port 1
3C0 ~ 3CF	EGA, VGA, SVGA
3D0 ~ 3DF	CGA, VGA, SVGA
3F0 ~ 3F7	Diskette drive controller
3F7 ~ 3FF	Serial port 1

A.3   Interrupt Channels

Table A-3   Interrupt Channels

Channel	Function
IRQ0	Timer output 0
IRQ1	Keyboard
IRQ2	Reserved
IRQ3	Serial port 2
IRQ4	Serial port 1
IRQ5	Reserved
IRQ6	Diskette drive
IRQ7	Parallel port
IRQ8	Real-time clock
IRQ9	Reserved
IRQ10	Reserved
IRQ11	Reserved
IRQ12	PS/2 mouse
IRQ13	Math coprocessor
IRQ14	IDE
IRQ15	Reserved

A.4 System Default Configuration

The following tables show your system's factory default configuration.

Table A-4   Basic System Configuration (Page 1/2)

Parameter	Default Setting
Diskette Drive A	1.44 MB 3.5-inch
Diskette Drive B	None
Fixed Disk 0	None
Fixed Disk 1	None
Base Memory is always 640 KB, while the total amount is determined by configuration.	
Math coprocessor is always installed.	
Video display is automatically detected.	

Table A-5   Basic System Configuration (Page 2/2)

Parameter	Default Setting
Baud Rate	9600BPS
Parity	None
Stop Bits	1
Data Length	8
Hard Disk Block Mode	Disabled
Hard Disk Size > 504 MB	Disabled
Large Memory Support Mode	Normal
NUM Lock After Boot	Enabled
Memory Test	Disabled
Auto Configuration Mode	Disabled
Fast Boot Mode	Disabled

Table A-6   Advanced System Configuration (Page 1/1)

Parameter	Default Setting
E0000h - FFFFFh	Enabled
C0000h - C7FFFh	Enabled
C8000h - CBFFFh	Disabled
CC000h - CFFFFh	Disabled
D0000h - D3FFFh	Disabled
D4000h - D7FFFh	Disabled
D8000h - DBFFFh	Disabled
DC000h - DFFFFh	Disabled
Internal Cache	Enabled
External Cache	Enabled
ECC/Parity Mode Selection	ECC
Memory at 15 MB - 16 MB	System Use

Table A-7   PCI System Configuration

Parameter	Default Setting
PCI IRQ Setting	Auto
PCI Slots 1, 2, and 3	Not Configured
PCI Slot 4	11[*]
VGA Palette Snoop	Disabled
Onboard SCSI	Enabled
Boot Device	Enabled

---

[*]   PCI slot 4 and the onboard SCSI controller share the same IRQ.

Table A-8   System Security

Parameter	Default Setting
Disk Drive Control	
Diskette Drive	Normal
Fixed Disk Drive	Normal
System Boot Drive	Drive A then C
On-board Communication Ports	
Serial Port 1	3F8h
Serial Port 2	2F8h
Parallel Port	3BC (IRQ 7)
Operation Mode	Enhanced Parallel Port
Onboard PS/2 Mouse	Enabled
Setup Password	None
Power-On Password	None

Table A-9   EISA Configuration Utility - ECU

Parameter	Default Setting
Step 3: View or edit details	
Base System Memory	640 KB Base Memory
8 - 16 MB Extended Memory	16 MB Ext Memory with 15 - 16 MB System Use
Peripheral Device Status	
Mouse Port	Enabled
Keyboard Port	Enabled
Floppy Disk Controller	Enabled
IDE HDD Interface	Disabled
Parallel Port	Enabled
Serial Port 1 (9-pin)	Enabled as COM1 (3F8h)
Serial Port 2 (25-pin)	Enabled as COM2 (2F8h)

Index

Release Note

AcerAltos 900+ Update

Thank you for purchasing an AcerAltos 900+ server. We want to provide you with the most up-to-date information about your new server.

This release note updates the *AcerAltos 900 User's Guide* (P/N 49.AA983.001) with information about RDM, a key component in Acer's manageability suite. **For the latest information about RDM, look to this release note and the *Remote Diagnostic Manager (RDM) User's Guide* included with your server.**

Similarly, for the latest information about ASM Pro, refer to the *Advanced Server Manager Pro (ASM Pro) User's Guide* included with your server.

In addition, the information on page 1-6 of the *AcerAltos 900 User's Guide*, "Unpacking the System," can now be found on the System Contents sheet included with your system.

The remainder of this release note is divided into the following sections:

- Notes

- RDM LED Location

- RDM Connector Locations

- RDM BIOS Utility

- The "EISA Configuration Utility for AA900+" Diskette

Notes

1. **IMPORTANT**! Do not run the aflash utility from within the RDM hidden partition. The system will not boot if you do this.

2. The RDLMP.EXE utility may indicate the BIOS version as "unknown" instead of version 1.3. This is normal behavior.

3. Please note the default setting for "Extended BIOS translation for DOS Drives > 1 Gbyte" (an Advanced Configuration option discussed in Chapter 4, SCSI*Select* Configuration Utility). The default setting is **Enabled**. **Do not change this setting or your system may not boot**.

4. The Parallel Port Operation Mode default setting is Standard and Bidirectional (not Enhanced (EPP) as shown in the *User's Guide*). In order to use the Enhanced Parallel Port Operation Mode, you must switch to a different parallel port base address. Use either parallel port base address 378h or 278h if you wish to use the Enhanced Parallel Port Operation Mode.

5. The table below replaces the Core/Bus Frequency data in Table 2-1 in the User's Guide. This update includes jumper settings for a Pentium 200 MHz system.

Table 2-1   Jumper Settings (continued)

Jumper	Setting			Function		
Core/Bus Freq.	**JP4**	**JP5**	**JP7**	**Bus Freq.**	**Core Freq.**	**Ratio**
JP4, JP5, JP7	2-3	2-3	1-2	50 MHz	75 MHz	3/2
	1-2	1-2	2-3	60 MHz	150 MHz	5/2
	2-3	1-2	2-3	60 MHz	120 MHz	2/1
	2-3	2-3	2-3	60 MHz	90 MHz	3/2
	1-2	1-2	3-4	66 MHz	166 MHz	5/2
	2-3	1-2	3-4	66 MHz	133 MHz	2/1
	2-3	2-3	3-4	66 MHz	100 MHz	3/2
	1-2	2-3	3-4	66 MHz	200 MHz	3/1

6. The table below replaces Table 2-5 in the User's Guide. It shows how to configure memory for a maximum system memory of 384 MB using 64 MB SIMMs. The system ships with ECC/EDO memory. Do not combine FPM memory and ECC/EDO memory in the same memory bank.

Bank 1		Bank 2		Bank 3		Total
S1	**S2**	**S3**	**S4**	**S5**	**S6**	**Memory**
8 MB	8 MB					16 MB
8 MB	8 MB	8 MB	8 MB			32 MB
8 MB	8 MB	8 MB	8 MB	8 MB	8 MB	48 MB
16 MB	16 MB	16 MB	16 MB			64 MB
16 MB	16 MB	16 MB	16 MB	8 MB	8 MB	80 MB
16 MB	16 MB	16 MB	16 MB	16 MB	16 MB	96 MB
32 MB	32 MB	32 MB	32 MB			128MB
32 MB	32 MB	32 MB	32 MB	8 MB	8 MB	144MB
32 MB	32 MB	32 MB	32 MB	16 MB	16 MB	160MB
32 MB	32 MB	32 MB	32 MB	32 MB	32 MB	192MB
64 MB	64 MB	16 MB	16 MB	16 MB	16 MB	192MB
64 MB	64 MB	32 MB	32 MB	16 MB	16 MB	224MB
64 MB	64 MB	64 MB	64 MB			256MB
64 MB	64 MB	64 MB	64 MB	64 MB	64 MB	384MB

8. The following note replaces the note in "PCI Slots" on page 3-17 of the User's Guide.

To avoid conflicts, make sure that the interrupt you assign in any of the PCI slots is not used by other devices.

If a PCI card is added to PCI slot 4, it must be capable of sharing an IRQ with the onboard SCSI controller. PCI slot 4 is not a bus master slot.

RDM LED Location

The figure below shows the location of the RDM LED indicator. This indicator remains lit (on) whenever RDM is activated. The figure below replaces the figure on page 1-2 of the *AcerAltos 900 User's Guide.* For more information about RDM hardware, including how to reinstall the RDM module and LED, refer to the *Remote Diagnostic Manager (RDM) User's Guide.*

The RDM module and LED are pre-installed at the Acer factory.

1	RDM LED	5	3.5-inch Diskette Drive
2	Fixed Disk Drive LED	6	Power Button
3	Power LED	7	Reset Button
4	5.25-inch Drive Bay		
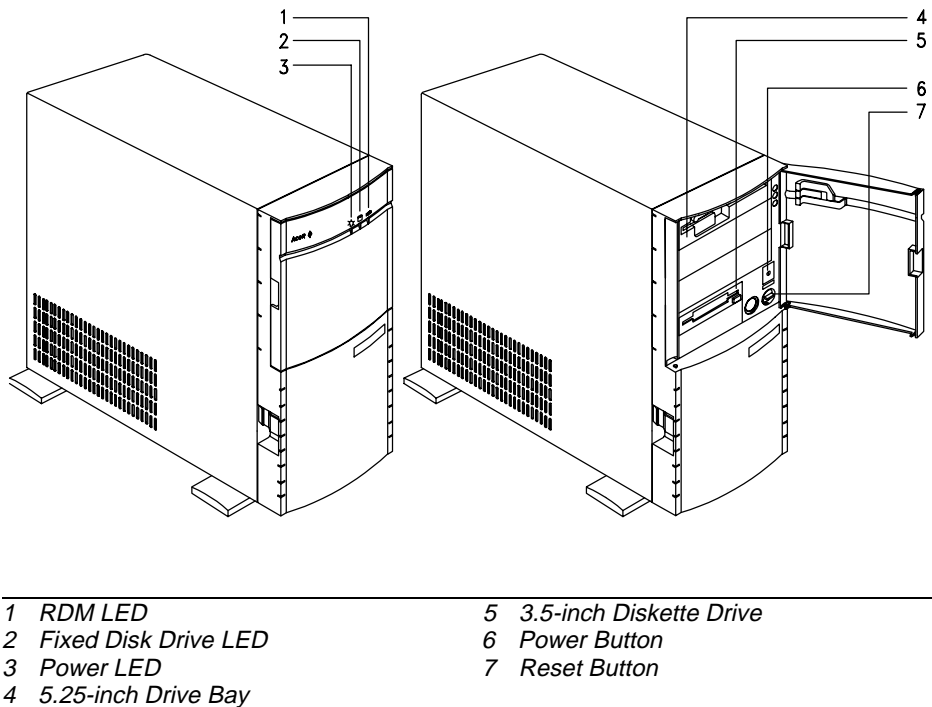
RDM Connector Locations

The figure below shows the location of the RDM connectors (**CN8 and CN9**) on the system board.
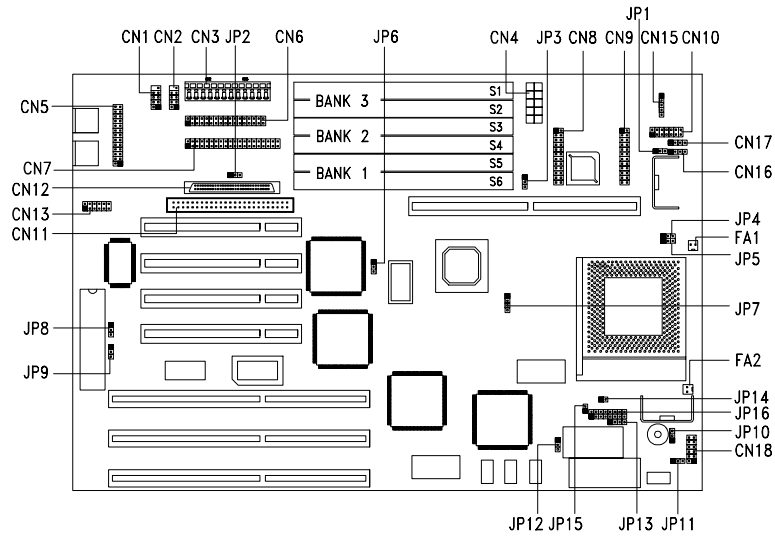
RDM BIOS Utility

Refer to the *RDM User's Guide* for the latest information about the RDM BIOS Utility.

The "EISA Configuration Utility for AA900+" Diskette

Do NOT use StartUp to access the ECU. Instead, use the EISA Configuration Utility for AA900+ floppy diskette that came with your system. Refer to this release note for ECU information. This release note updates Chapter 5 in the AA900 User's Guide.

The EISA Configuration Utility (ECU) is a program that allows you to easily configure your EISA computer. Use this utility when you set up your EISA computer for the first time or any time you change your configuration by adding or removing an EISA or ISA board. The program stores the configuration information in the computer's nonvolatile memory where it is available whenever you use your computer.

Functions

The ECU does the following:

- Supports EISA and ISA boards, PCI devices, and plug-and-play ISA boards.

- Automatically detects EISA boards, PCI devices, and plug-and-play ISA boards installed in the computer.

- Helps you configure an ISA board by providing the appropriate switch and jumper settings.

- Notifies you immediately if a conflict occurs during configuration.

- Creates and maintains the System Configuration Information (SCI) file as a backup for the computer's nonvolatile memory.

- Supports configuration (CFG) file extensions.

- Allows you to set the computer's date and time.

*The following sections tell of the various ways
to configure your computer using the ECU.*

Running ECU

Follow these steps to run ECU:

1. Insert the EISA Configuration Utility for AA900+ diskette in drive A and turn on the computer (reset the system if the power is already on). The ECU logo screen appears.

2. Press any key to continue. A welcome screen appears.

3. Press ⌊ENTER⌋ to display the Main Menu.

```
                         Main Menu
  ┌─────────────────────────────────────────────────┐
  │                                                   │
  │   Learn about configuring your computer           │
  │                                                   │
  │   Configure computer                              │
  │                                                   │
  │   Set date                                        │
  │                                                   │
  │   Set time                                        │
  │                                                   │
  │   Maintain system configuration diskette          │
  │                                                   │
  │   Exit from this utility                          │
  │                                                   │
  └─────────────────────────────────────────────────┘
```
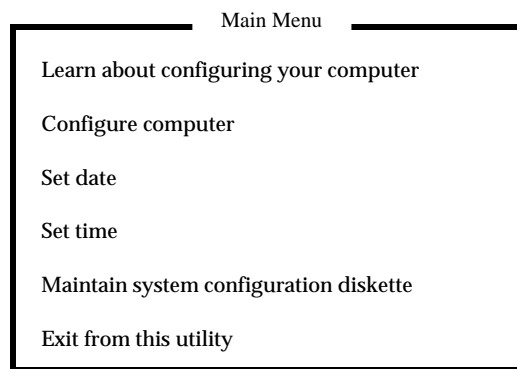
Figure 1   ECU Main Menu

Getting Help

The ECU automatically displays information about each choice on the Main Menu and the second-level menus. The utility also allows you to access an online help once you begin the configuration process.

Press ⌊F1⌋ to display the help menu. Press ⌊ESC⌋ to remove the help menu on the screen.

Making Menu Selections

You can use the keyboard or the mouse to make menu selections.

Using the Keyboard

Table 1   Keyboard Function Keys

Key	Function
Tab or [↓]	Moves the cursor to the next field
[SHIFT] + Tab or [↑]	Moves the cursor to the previous field
[↑] or [↓]	Moves the cursor between items within a list
[ENTER]	Selects an item
[ESC]	Cancels the most recent action
[PGUP], [PGDN], [↑] or [↓]	Scrolls a screen
[HOME]	Moves the cursor to the top of a list
[END]	Moves the cursor to the bottom of a list
[CTRL] + [HOME]	Moves the cursor to the beginning of a menu
[CTRL] + [END]	Moves the cursor to the end of a menu
[INSERT]	Inserts screen options or selections

Using the mouse

Follow these steps to use the mouse when making menu selections:

1. Position the cursor over the desired option then click on the left mouse button to select it.

2. When a sub-menu appears, click on the left button again to make a selection.

3. If a scroll bar appears on the right side of the screen, place the mouse cursor over the arrow at the top or at the bottom of the scroll bar, then click and hold the left mouse button to scroll up or down the page.

Setting the Date and Time

The Set Date and Set Time options in the Main Menu allow you to set the date and time for your computer. Once you set the date and time, your computer keeps track of it, even when the power is turned off.

Set the date and time before you configure the system.

Follow this steps to set the date and time:

1. Run ECU. See the "Running ECU" section.

2. From the Main Menu, select Set Date to display the following screen:

```
┌──── Set Date ────────────────────┐
│ Date  01-01-1996  (mm-dd-yyy)     │
│                                   │
│>Select=ENTER<     <Cancel=ESC>    │
└───────────────────────────────────┘
```

Figure 2   Set Date

3. Type in a new date and press ⟦ENTER⟧. The program then returns you to the Main Menu.

4. From the Main Menu, select Set Time to display the following screen:

```
┌──── Set Time ────────────────────┐
│ Time  08-30-10  (hh:mm:ss)        │
│                                   │
│>Select=ENTER<     <Cancel=ESC>    │
└───────────────────────────────────┘
```

Figure 3   Set Time

5. Type in a new time and press ⟦ENTER⟧.

Configuring Your Computer for the First Time

Follow these steps when configuring your computer for the first time:

1. Run ECU. See the "Running ECU" section.

2. From the Main Menu, select Configure computer to display the following screen.

```
                    Steps in configuring your computer
    ┌────────────────────────────────────────────────────────────┐
    │ Step 1:  Important EISA configuration information           │
    │ Step 2:  Add or remove boards                               │
    │ Step 3:  View or edit details                               │
    │ Step 4:  Examine switches or print report                   │
    │ Step 5:  Save and exit                                      │
    │ ─────────────────────────────────────────────────────────  │
    │ >Select=ENTER<        <Cancel=ESC>                          │
    └────────────────────────────────────────────────────────────┘
```
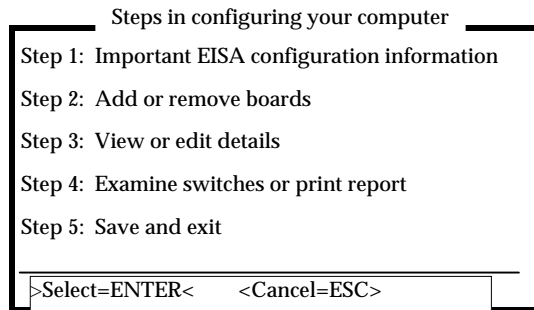
Figure 4   Steps in Configuring Your Computer

3. Select Step 1: Important EISA configuration information from the menu to display the following screen.

```
                Step 1:  Important EISA configuration information
    ┌────────────────────────────────────────────────────────────┐
    │  ┌───────────────┐   Your new EISA computer requires a new  │
    │  │   Welcome     │   approach to configuration.  Please take│
    │  │     to        │   just a few minutes to read all of the  │
    │  │    EISA       │   screens in this step (Step 1) for more │
    │  │               │   information.                           │
    │  │               │                                          │
    │  │               │   You may return to these screens at any │
    │  └───────────────┘   time by pressing F1 and selecting 'EISA│
    │    ┌────────┐        configuration' from the help menu.     │
    │    └────────┘        Press ENTER to continue.               │
    │ >Next=ENTER<     <Previous=F9>      <Done=F10>              │
    └────────────────────────────────────────────────────────────┘
```
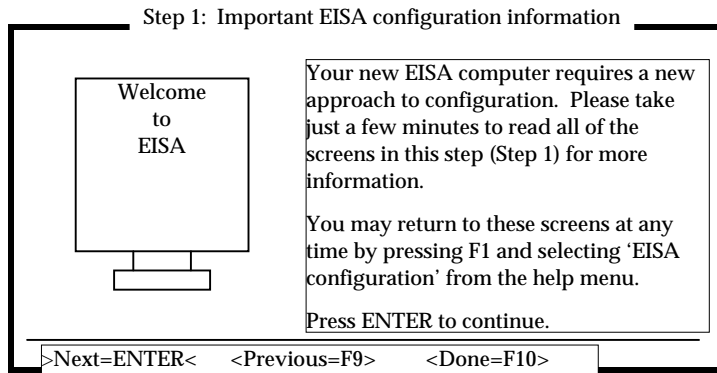
Figure 5   Important EISA Configuration Information

4. Read through the information then press [F10] when you are done.

5. Select Step 4: Examine switches or print report, then press [ENTER] to display the following screen.

```
┌──────────────┤ Step 4:  Examine switches or print report ├──────────────┐
│ You must PHYSICALLY verify that the switches and jumpers of each          │
│ board marked with an arrow ( → ) are set as required.  These settings     │
│ cannot be detected or changed by this program.                           │
│                                                                          │
│    To view the required settings for the highlighted board, press ENTER. │
│    Pick up the board and compare its settings to the required settings.  │
│    Change the board settings to match the required settings.             │
│                                                                          │
│       ┌───────────────────────────────────────────────┐                  │
│       │  System        Server                          │                  │
│       │  PCI 1         (Empty)                          │                  │
│       │  PCI 2         (Empty)                          │                  │
│       │  PCI 3         (Empty)                          │                  │
│       │  PCI 4         (Empty)                          │                  │
│       │  OB SCSI       PCI SCSI Controller             │                  │
│       │  EISA 1        (Empty)                          │                  │
│       │  EISA 2        (Empty)                          │                  │
│       │  EISA 3        (Empty)                          │                  │
│       └───────────────────────────────────────────────┘                  │
│                                                                          │
│   >View=ENTER<     <Print=F7>    <Done=F10>                               │
└──────────────────────────────────────────────────────────────────────────┘
```

Figure 6   Examine Switches or Print Report

6. Notice the boards marked with an arrow on the screen, if any. The arrow indicates that the boards in your computer may have defined jumpers and switches that you must physically verify. It may also mean that there is a software statement with additional information about the board.

7. To view the switch and jumper settings, highlight the board marked with an arrow and press [ENTER]. The switch/jumpers settings screen for the board appears.

8. Scroll through the switch and jumper settings for the board, and press [F10] when you have finished viewing the information.

9. To print the information, select Print by pressing [F7]. The Print Settings screen appears.

```
┌─────────────────┤ Print Settings ├─────────────────┐
│                                                     │
│  Select desired direction:                          │
│  ┌───────────────────────────────────────────────┐  │
│  │    Print settings for selected board or option │  │
│  │    Print settings for selected board or option to a file │
│  │  ▶ Print all configuration settings            │  │
│  │    Print all configuration settings to a file  │  │
│  └───────────────────────────────────────────────┘  │
│                                                     │
│  >Select=ENTER<    <Printer Setup=F8> <Cancel=ESC>  │
└─────────────────────────────────────────────────────┘
```
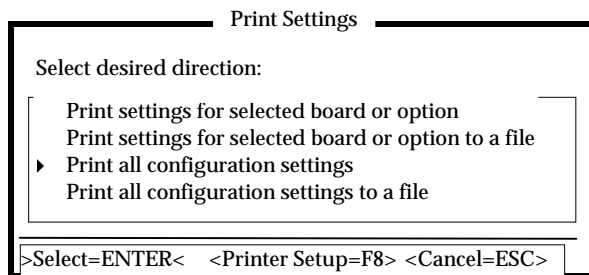
Figure 7   Print Settings

10. Do one of the following:

   - If you have a printer attached to your computer, select Print all configuration settings or Print settings for selected board or option then press ENTER to print a hard copy of the switch and jumper settings and other configuration information.

   - If you do not have a printer, select Print all configuration settings to a file or Print settings for selected board or option to a file. A Print Information to TXT File screen appears. Type in a filename then press ENTER.

   - If you want to print the switch and jumper settings to a different diskette, insert a diskette in drive A and press ENTER. Another Print Information to TXT File screen appears. Enter the a filename or choose an existing filename. Press ENTER.

> *If you inserted a different diskette, remember to reinsert the System Configuration diskette after printing is complete.*
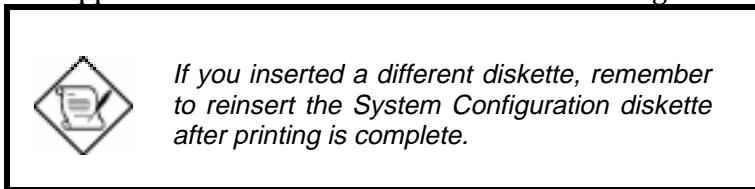
11. Press F10 when you are through. The Steps in Configuring Your Computer reappears.

12. Select Step 5: Save and exit then press ENTER to display the screen as in the following page.

```
┌──────────────── Step 5:  Save and Exit ────────────────┐
│ ┌────────────────────────────────────────────────────┐ │
│ │In order to complete the configuration process, you │ │
│ │must save your configuration.  In this step, you must│ │
│ │select whether to save your configuration or to      │ │
│ │discard your changes before exiting this program.    │ │
│ │                                                     │ │
│ │If you choose to save, this program will save the new│ │
│ │configuration in your computer's nonvolatile memory  │ │
│ │and in a SYSTEM.CHL and SYSTEM.SCI files in your     │ │
│ │current directory, and then your computer will be    │ │
│ │restarted for you.  (The files will not be created if│ │
│ │you are running on a CD.)  If you choose to discard  │ │
│ │the configuration, any changes you have made will be │ │
│ │lost.                                                │ │
│ └────────────────────────────────────────────────────┘ │
│   ┌──────────────────────────────────────────────────┐ │
│   │ Save the configuration and restart the computer   │ │
│   │ Discard the configuration and return to the main  │ │
│   │ menu                                              │ │
│   └──────────────────────────────────────────────────┘ │
│ ──────────────────────────────────────────────────────  │
│ >Select=ENTER<   <Cancel=ESC>                           │
└─────────────────────────────────────────────────────────┘
```

Figure 8   Save and Exit

13. To save your changes, select Save the configuration and restart the computer then press ENTER.

   To discard the changes, choose the option Discard the configuration and return to the main menu. Any changes that you made are lost.

14. When the reboot screen appears, press ENTER.

15. Turn off the computer and remove the System Configuration diskette.

16. Check the boards in your computer that have switches and jumpers and compare their settings with your printed copy.

17. Make any necessary changes.

Requirements when Adding Boards

Each time you add a board, you must determine the type of board you are adding and locate the board's corresponding configuration (CFG) file. When you have done this, reconfigure the computer with ECU.

Determine the Board Type

Knowing the type of board you have allows you to determine which procedure to follow when configuring the computer. EISA boards, PCI devices, and plug-and-play (PnP) ISA boards have machine-readable identifications that allow the ECU to automatically detect the board and read its corresponding configuration file. However, non-PnP ISA boards do not have machine-readable identifications, so the ECU cannot detect them automatically.

Do either one of these steps to determine your board type:

- Check the manufacturer's documentation that came with the board.

- Read the label on the board. EISA boards are usually labeled "EISA".

- Look at the connectors. ISA board connectors have only one row of contacts and may have one board key slot. EISA board connectors have two rows of contacts and several board key slots.

Locate the Configuration (CFG) File

The CFG file contains descriptions of system resources required by the board. It also helps the ECU determine settings for jumpers or switches on the board. The ECU requires a CFG file to configure the board without conflicting with other boards or devices in the system.

The CFG file for an EISA board is in the option configuration diskette that comes with the board. If this diskette does not come with the EISA board, check if the CFG file is included in the System Configuration diskette, or contact your board vendor.

The CFG file for an ISA board may be in the option configuration diskette. If not, look in the CFG File Library diskette or in the System Configuration diskette.

If you cannot find a CFG file for your ISA board, use the Generic ISA CFG file that comes ECU. See the "Using the Generic ISA CFG File" section for instructions.

Adding EISA Boards

Follow these steps when adding EISA boards to your computer:

1. Locate the corresponding CFG file for the EISA board. See the "Requirements when Adding Boards" section for information on locating the CFG file.

2. Turn off the computer if it is on, and install the EISA board(s). Follow the installation instructions in the board documentation.

3. Run ECU. See the "Running ECU" section.

4. Select Maintain system configuration diskette from the Main Menu then press ENTER to display the following screen.

```
┌─── Maintain System Configuration Diskette ───┐

   Create a backup SCI file

   Load a backup SCI file

   Copy/update CFG files

   Copy/update SCI files

   Delete CFG files

   Delete SCI files

   Return to the main menu
└                                              ┘
```
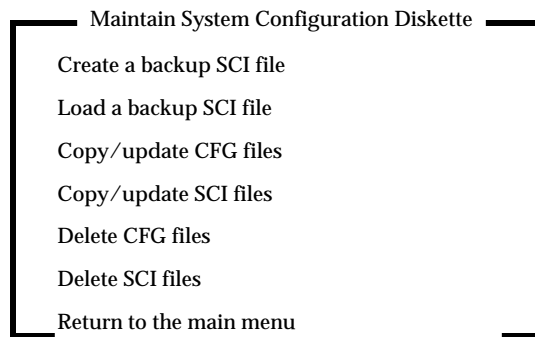
Figure 9   Maintain System Configuration Diskette

5. Select Copy/update CFG files the press ENTER. A list of CFG files from your System Configuration diskette appears.

6. Press F7 to display the Change Directory screen, then press F5 to display the Change Diskette screen.

```
┌─── Change Diskette ───┐

  You may now change your diskette
  before pressing ENTER to return to
  the previous panel.
  ─────────────────────────
  >OK=ENTER<
└                       ┘
```
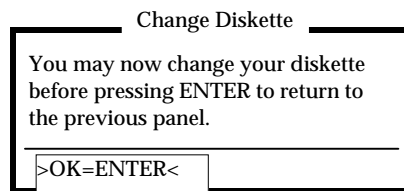
Figure 10   Change Diskette

7. Remove the System Configuration diskette and insert the option configuration diskette. Press ENTER.

8. From the list that appears, select the CFG file(s) that corresponds to the EISA board(s) that you installed then press ENTER. The Destination Diskette screen appears.

```
┌──────── Destination Diskette ────────┐
│                                       │
│ Please insert the System Configuration diskette. │
│ ─────────────────────────────────     │
│ >Select=ENTER<      <Cancel=ESC>      │
└───────────────────────────────────────┘
```
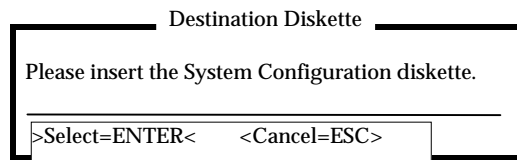
Figure 11   Destination Diskette

9. Remove the option configuration diskette and reinsert the System Configuration diskette.

> *Even if the CFG file for the EISA board already exists in your System Configuration diskette, copy the CFG file from the option configuration diskette. This ensures that you have the latest version of the file.*
>
> *In rare cases when the CFG file in the System Configuration diskette is newer, a dialog box appears to confirm file replacement. Press ESC to keep the newer version.*
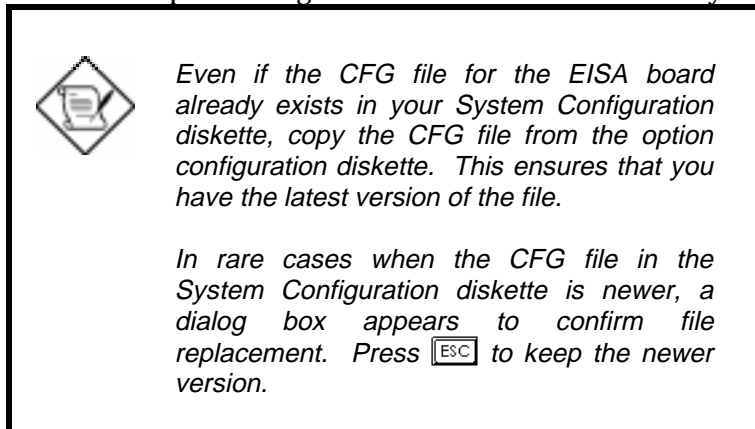
10. Press ENTER to copy the CFG file(s) to the System Configuration diskette, after which a Copy Complete message appears.

11. Press ENTER to return to the Maintain System Configuration Diskette screen.

12. Select the option Return to the main menu then press ENTER.

13. From the Main Menu, select the option Configure computer then press ENTER to load the CFG file(s) and to add the EISA board(s) in the system configuration. The screen Steps in Configuring Your Computer then appears.

14. Proceed to steps 5 through 17 in "Configuring Your Computer for the First Time" to complete your configuration.

Adding ISA Boards

Follow these steps when adding ISA boards:

1. Determine the manufacturer and the name of the ISA board(s) that you want to install.

2. Run ECU. See the "Running ECU" section.

3. From the Main Menu, select Configure computer. The screen Steps in Configuring Your Computer appears.

4. Select Step 2: Add or remove boards then press ENTER to display the following screen.

```
┌──────────── Step 2:  Add or remove boards ─────────────┐
│ Listed are the board and options detected in your computer.      │
│                                                                  │
│     Press INSERT to add the boards or options which could not be │
│     detected or which you plan to install.                       │
│                                                                  │
│     Press DEL to remove the highlighted board from your configuration. │
│                                                                  │
│     Press F7 to move the highlighted board to another slot.      │
│                                                                  │
│     Press F10 when you have completed this step.                 │
│                                                                  │
│           System          Server                                 │
│           PCI 1           (Empty)                                │
│           PCI 2           (Empty)                                │
│           PCI 3           (Empty)                                │
│           PCI 4           (Empty)                                │
│           OB SCSI         PCI SCSI Controller                    │
│           EISA 1          (Empty)                                │
│           EISA 2          (Empty)                                │
│           EISA 3          (Empty)                                │
│                                                                  │
│ >Add=INSERT<  <Remove=DEL>    <Move=F7>    <Done=F10>            │
└──────────────────────────────────────────────────────┘
```

Figure 12   Add or Remove Boards

The screen contains the configuration data that the ECU read from your CFG file. It includes the number of EISA slots and device controllers detected.

5. Select Add by pressing INSERT. The Add screen appears with instructions on how to locate the diskette that contains the CFG file for your board(s).

6. Press ENTER to display the screen Select a Configuration (CFG) File to Add.

7. Do one of the following:

- If the CFG file(s) for your board(s) is in the list, select the file(s) and press [ENTER].

- If the CFG file(s) is not in the list and an option configuration diskette comes with the board, press [F7] to display the Change Directory screen. Select the drive where you want to insert the option configuration diskette. (If you have only one diskette drive, press [F5] to display the Change Diskette screen, then remove the System Configuration diskette.) Insert the option configuration diskette and press [ENTER] to display a list of CFG files that the diskette contains. Select the file(s) that corresponds to your ISA board(s) and press [ENTER]. (If you removed the System Configuration diskette, the Destination Diskette box appears. Remove the option configuration diskette and reinsert the System Configuration diskette. Press [ENTER].)

- If the CFG file(s) is not in the list and an option configuration diskette does not come with the board, select and copy file(s) from the CFG File Library diskette following the instructions as when you are using an option configuration diskette.

- If you cannot locate the CFG file, select Generic ISA Adapter from the System Configuration diskette and press [ENTER]. See the "Using the Generic ISA CFG File" section for instructions on using this option.

8. When the Add Confirmation screen appears, read the board manufacturer's comments then press [ENTER] when done The Add screen then appears with a list of the physical slots in the system.

9. Select an appropriate slot(s) to install the board(s) then press [ENTER]. If you want to add a board with a tag such as "video", install it in a slot with an identical tag. Otherwise, you can select any available slot.

   If the board that you installed conflicts with other boards or devices, a caution message appears.

```
┌──────────────── Caution ────────────────┐
│                                          │
│   The last board added caused an         │
│   unresolvable conflict in your computer's│
│   configuration.  This board has a       │
│   'Deactivated' status.                  │
│                                          │
│   Either a locked board is causing this utility│
│   to be unable to find a valid configuration,│
│   or a valid configuration does not  exist.│
│                                          │
│   If the board remains deactivated after │
│   unlocking any locked boards, you must  │
│   remove this board or the one(s) with which│
│   it is in conflict in order to save a correct│
│   configuration.                         │
│                                          │
│  ──────────────────────────────────      │
│  >OK=ENTER<                              │
└──────────────────────────────────────────┘
```

Figure 13   Caution Message

When you see this message, press [ENTER]. The Step 2: Add or Remove Boards screen appears showing the deactivated board. Select the deactivated board and press [DELETE] to remove the board from the configuration.

10. Press ⌷F10⌷ when the Step 2: Add or Remove Boards screen appears. The Steps in Configuring Your Computer reappears.

11. Proceed to steps 5 to 17 in "Configuring Your Computer for the First Time" to complete your configuration.

12. Compare the actual settings of the boards in the system plus the ISA boards that you want to install with the printed copy of the configuration settings. The actual settings and the configuration settings should match.

13. Make changes in jumper or switch settings, if necessary.

14. Install the ISA board(s).

Adding PCI Devices and PnP ISA Boards

Follow these steps to install a PCI device or a PnP ISA board:

1. Turn off the computer if it is on, and install the board(s). Follow the installation instructions in the board documentation.

2. Run ECU. See the "Running ECU" section.

> *PCI devices and PnP ISA boards do not require a corresponding CFG file. The configuration information is already stored on the board.*

3. From the main menu, select the option Configure computer then press ⌷ENTER⌷ to load the CFG file(s) and to add the board(s) in the configuration. The screen Steps in Configuring Your Computer then appears.

4. Proceed to steps 5 through 17 in "Configuring Your Computer for the First Time" to complete your configuration.

Using the Generic ISA CFG File

The ECU has a Generic ISA CFG file that you may use to reserve the required system resources for ISA boards that do not have a corresponding CFG file. Select the Generic ISA CFG file option if you cannot locate the CFG file for the ISA board either in the System Configuration diskette, option configuration diskette, or in the CFG File Library diskette.

Follow these steps to configure an ISA board using the Generic ISA CFG file:

1. Locate the manufacturer's documentation for the ISA board. This documentation allows you to determine the required resources for the ISA board.

2. Run ECU. See the "Running ECU" section.

3. From the Main Menu, select Configure computer then press ENTER. The screen Steps in Configuring Your Computer appears.

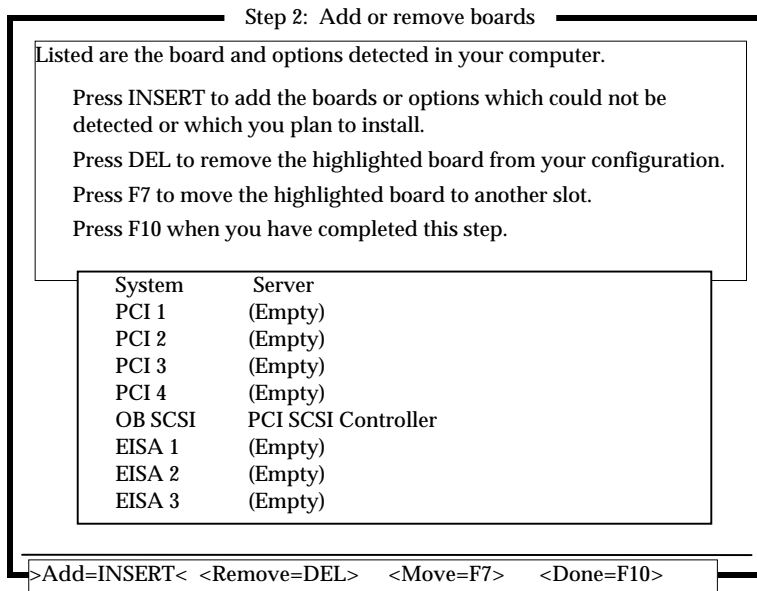4. Select Step 2: Add or remove boards and press ENTER.

5. From the Step 2: Add or Remove Boards screen, select Add by pressing INSERT. The Add screen then appears with instructions on how to locate the diskette that contains the CFG file for your board(s).

6. Press ENTER to display the screen Select a Configuration (CFG) File to Add. See next page.

```
┌──────────── Select a Configuration File to Add ────────────┐
│                                                            │
│   If the desired CFG file is not on this list, select 'Not Listed' or │
│   select 'Directory=F7' to search another directory.       │
│                                                            │
│   Directory:  A:\*.CFG                                     │
│  ┌──────────────────────────────────────────────────────┐ │
│  │  !ACE3010.CFG    ACME Arcnet Plan                      │ │
│  │  !ACE6010.CFG    ACME Disk Controller                  │ │
│  │  !ACE7010.CFG    ACME Multi-function Board             │ │
│  │  !ACE2010.CFG    ACME PC Network                       │ │
│  │  !ACE3030.CFG    ACME Sample vs. Board 1               │ │
│  │  !ACE1010.CFG    ACME Super Fast System Board          │ │
│  │  !ACE4010.CFG    ACME Tape Controller                  │ │
│  │  !ACE5010.CFG    ACME VDU Video Controller             │ │
│  │  !ISA0000.CFG    Generic ISA Adapter                   │ │
│  └──────────────────────────────────────────────────────┘ │
│ >Select=ENTER<   <Not Listed=F5>   <Sort=F6>   Directory=F7> │
└────────────────────────────────────────────────────────────┘
```

Figure 14   Select a Configuration File to Add

7. From the list of CFG files that appear, select Generic ISA Adapter then press ENTER. The Add Confirmation screen appears.

```
┌──────── Add Confirmation ─────────┐
│                                    │
│  Board Name:  Generic ISA Adapter  │
│                                    │
│  Manufacturer's Comments:          │
│  Use this generic adapter to reserve the resources for any ISA │
│  adapter for which a CFG file does not exist.                  │
│                                                                │
│  Determine the appropriate resource selections for IRQs,       │
│  DMAs, port addresses, and memory just as you would in any     │
│  ISA computer system and select them manually during          │
│  configuration as follows:                                     │
│                                                                │
│  •  Select 'Step 3: View or edit details'                      │
│  •  Locate the ISA Generics Adapter and edit the functions by  │
│     pressing ENTER.                                            │
│  •  Press F6 to edit the resources used by the board.          │
│  •  After selection all of the resources, select 'Advanced' (F7) │
│     and lock the board.                                        │
│ ──────────────────────────────────────────────────────────── │
│ >OK=ENTER<    <Cancel=ESC>                                     │
└────────────────────────────────────────────────────────────────┘
```

Figure 15   Add Confirmation

8. Read the manufacturer's comments and press ENTER when done. The Add screen appears asking you to select a slot to install the board.

9. From the list on the screen, select the slot in which you want to install the board, then press ENTER. The screen Step 2: Add or Remove Boards appears.

> *Note that the Generic ISA Adapter board is added to the configuration.*
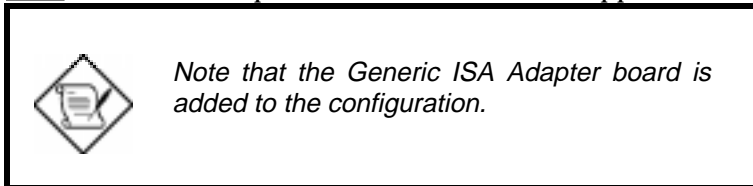
10. Press F10. The screen Steps in Configuring Your Computer reappears.

11. Select Step 3: View or edit details from the menu then press ⌷ENTER⌷. The View or Edit Details screen appears.

```
┌─────────────────── Step 3:  View or Edit Details ───────────────────┐
│  ┌────────────────────────────────────────────────────────────┐   │
│  │             Press ↑ and ↓ to see all information.           │   │
│  │                                                            │   │
│  │  Press ENTER to edit the functions of the highlighted item.│   │
│  │  Press F6 to edit its resources (IRQs, DMAs, I/O ports, or memory). │
│  │  Press F10 when you have finished this step.               │   │
│  └────────────────────────────────────────────────────────────┘   │
│  ┌────────────────────────────────────────────────────────────┐   │
│  │ System – Server                                            │   │
│  │   Motherboard                                              │   │
│  │     Base System Memory............................Enabled  │   │
│  │     System BIOS...................................Enabled  │   │
│  │     Extended Memory...............................Enabled  │   │
│  │     Memory at 15M-16M ............................15-16M System use │
│  │     Special Ports.................................Enabled  │   │
│  │   Parallel Port                                            │   │
│  │     Base Address..................................Enabled as LPT1 (3Bch) │
│  │     Operation Mode ...............................Standard Parallel Port │
│  │     ECP DMA Channel ..............................Disabled │   │
│  │   Serial Port 1...................................Enabled as COM1 (3F8h) │
│  │   Serial Port 2...................................Enabled as COM2 (2F8h) │
│  └────────────────────────────────────────────────────────────┘   │
│   >Edit=ENTER<   <Edit Resources=F6>   <Advanced=F7>   <Done=F10>  │
└─────────────────────────────────────────────────────────────────────┘
```

Figure 16   Step 3: View or Edit Details

```
┌─────────────────── Step 3:  View or edit details ───────────────────┐
│  ┌────────────────────────────────────────────────────────────┐   │
│  │             Press ↑ and ↓ to see all information.           │   │
│  │                                                            │   │
│  │  Press ENTER to edit the functions of the highlighted item.│   │
│  │  Press F6 to edit its resources (IRQs, DMAs, I/O ports, or memory). │
│  │  Press F10 when you have finished this step.               │   │
│  └────────────────────────────────────────────────────────────┘   │
│  ┌────────────────────────────────────────────────────────────┐   │
│  │ Floppy Disk Controller                                     │   │
│  │   Diskette Drive Security.........................Normal   │   │
│  │   Diskette Drive A................................1.44 MB  │   │
│  │   Diskette Drive B................................None     │   │
│  │ Hard Disk Controller                                       │   │
│  │   Hard Disk Drive Security........................Normal   │   │
│  │   Hard Disk 0.....................................Auto     │   │
│  │   Hard Disk 1.....................................Auto     │   │
│  │   System Boot Drive...............................Drive A then C │
│  │ Onboard PS/2 Mouse (IRQ12)........................Enabled  │   │
│  │ Onboard VGA.......................................Enabled  │   │
│  │ OB SCSI - PCI SCSI Controller                              │   │
│  │   PCI Function 1..................................Enabled  │   │
│  └────────────────────────────────────────────────────────────┘   │
│   >Edit=ENTER<   <Edit Resources=F6>   <Advanced=F7>   <Done=F10>  │
└─────────────────────────────────────────────────────────────────────┘
```
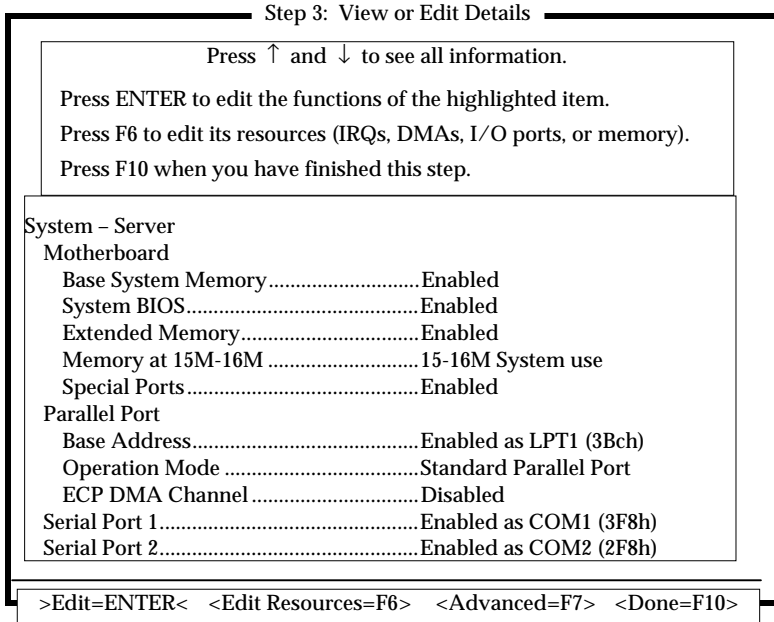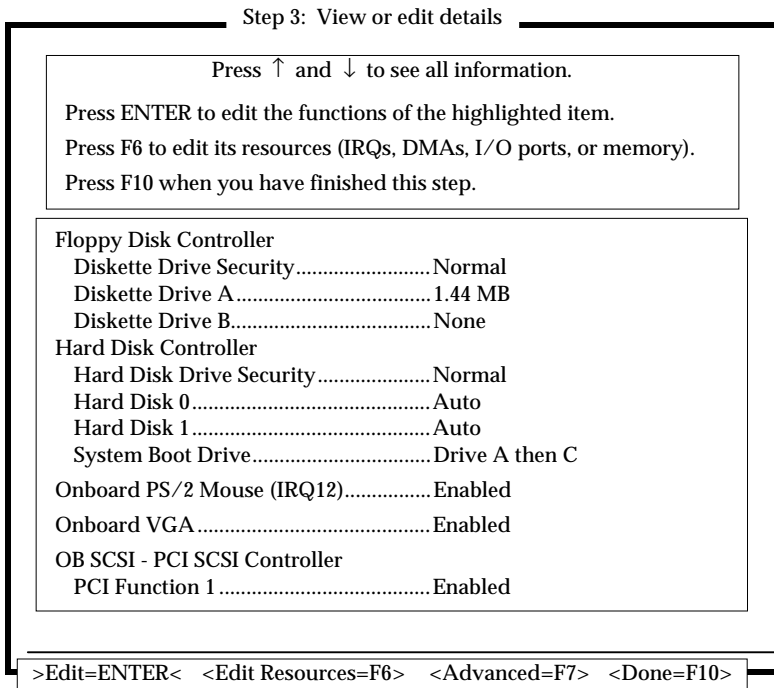
Figure 16   Step 3: View or Edit Details (continued)

12. Scroll through the boards listed on the screen until you find the option Generic ISA Adapter board.

13. Select a function under the Generic ISA Adapter option and press ENTER to display its corresponding function screen.

14. Edit the function according to the board manufacturer's documentation.

15. Select F6 to edit the resources of the board following the manufacturer's instructions on how to set the resources.

16. Press F10 when done.

17. Follow steps 13 to 16 to set the other functions.

18. Press F7 when you have finished editing all the functions and resources of the board. The Advanced Menu screen appears.
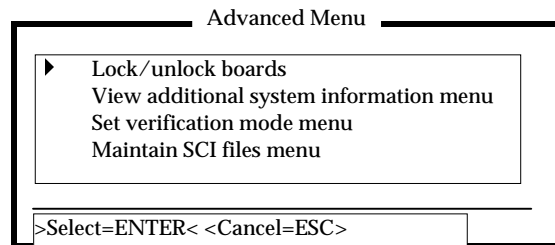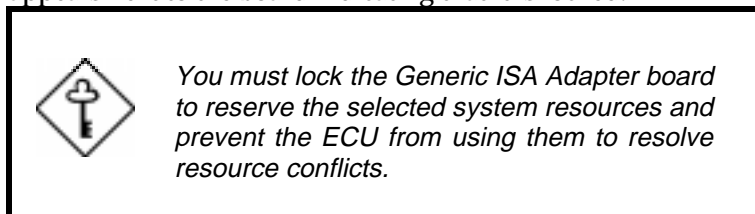
```
┌──────────── Advanced Menu ────────────┐
│                                        │
│  ┌──────────────────────────────────┐  │
│  │ ►   Lock/unlock boards            │  │
│  │     View additional system        │  │
│  │     information menu               │  │
│  │     Set verification mode menu    │  │
│  │     Maintain SCI files menu       │  │
│  │                                    │  │
│  └──────────────────────────────────┘  │
│  ──────────────────────────────────    │
│  >Select=ENTER< <Cancel=ESC>           │
└────────────────────────────────────────┘
```

Figure 17   Advanced Menu

19. Select Lock/unlock boards and press ENTER. The Lock/unlock Boards screen appears with a list of the slots and the boards installed.

20. Select the Generic ISA Adapter board from the list then press ENTER. An exclamation point appears next to the board indicating that it is locked.

> *You must lock the Generic ISA Adapter board to reserve the selected system resources and prevent the ECU from using them to resolve resource conflicts.*

21. Select F10 when done. The Advanced Menu reappears.

22. Press ESC. The Step 3: View or Edit Details screen reappears.

23. Press F10. The screen Steps in Configuring Your Computer reappears.

24. Follow steps 5 through 17 in "Configuring Your Computer for the First Time" to complete your configuration.

Removing a Board

Whenever you physically remove any board, remove its configuration stored in the NVRAM by reconfiguring the computer.

Follow these steps when you remove a board:

1. If the computer is on, turn it off and remove the board.

2. Insert the System Configuration diskette in drive A and turn on the computer. A message appears telling you that the configuration is not correct.

3. When the ECU logo screen and the welcome screen appears, press ENTER to display the Main Menu.

4. Select Configure computer from the Main Menu then press ENTER. The screen Steps in Configuring Your Computer appears.

5. Select Step 2: Add or remove boards and press ENTER.

6. From the list of boards that appear, select the board that you want to remove from the configuration and press DELETE. A remove confirmation screen appears.

7. Press ENTER. The screen Step 2: Add or Remove Boards reappears.

8. Press F10 when done.

9. Follow steps 5 through 17 in "Configuring Your Computer for the First Time" to complete your configuration.