NCR

S10XL Hot Plug Server
User Guide

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Preface

About This Book

This book provides information about the installation, set up, configuration, and operation of the server.

Its goal is to familiarize you with the system and to provide a reference to answer your future questions.

Who Should Read This Book

This book should be used by field engineers or anyone who needs to configure and install the server hardware.

How This Manual is Organized

This manual is divided into the following chapters:

Chapter One – tells you where to start, describes system features, describes the documentation set, and describes how to get additional information and customer support

Chapter Two – describes the installation of major system components

Chapter Three – describes the types of CPU processor boards that may be used on this system

Chapter Four – discusses using the BIOS setup utility

Chapter Five – describes how to use the performance enhancement utilities: AFlash BIOS Utility and EISA Configuration Utility (ECU)

Appendix A – describes the 350 Watt Power Supply requirements

Appendix B – describes error messages

Appendix C – describes sample configurations

Appendix D – describes the hot plug backplane

Appendix E – provides complete support information

Conventions Used in This Book

The following conventions are used in this book:

[F1]	A letter, number, symbol, or word enclosed in [] represents a key on your keyboard. For example, the instruction "press [F1]" means press the key labeled "F1" on your keyboard.
[Enter]	Enter has the same meaning as Return or Carriage Return. All of the terms are interchangeable.
[x] + [y]	Two or three key names, separated by plus signs, indicate multiple-key entries. For example, [Control] + [Alt] + [Del] means hold down [Control] and [Alt] and press [Del].
Note	Notes are pivotal information and may be used to emphasize a recommended sequence of steps.
Warning	Warnings indicate hazards that can cause personal injury or equipment damage if the hazards are not avoided.
Caution	Cautions indicate hazards that might cause personal injury, damage to hardware, or

software if the hazards are not avoided.

Declaration of Conformity

Products bearing the CE label fulfill the requirements of the EMC directive (89/336/EEC) and the Low Voltage directive (73/23/EEC) issued by the European Commission.

To obey these directives, the following European standards must be met:

- EN55022 Class A - Limits and methods of measurement of radio interference characteristics of information technology equipment.

- EN50082-1 EMC Generic Immunity Standard

- EN 60 950 Safety of Information Technology Equipment including Electrical Business Equipment

Where to Start

When you install and configure your server, perform the following steps.

Step	What to Do	How to Do It	Where to Find Information
1	Install any hardware you want to add	Install appropriate disk drives, peripherals, and adapters	• *Quick Hardware Installation* brochure • Chapter 2 of *User Guide* • Drive, peripheral, CPU board, and adapter documentation
2	Configure system settings	Use the BIOS Setup Utility	• *Quick Hardware Installation* brochure • Chapter 2 of *Installing Network Operating System* • Chapter 4 of *User Guide*
3	Configure the PCI adapters	Use the BIOS Setup Utility	Same as Step 2

Step	What to Do	How to Do It	Where to Find Information
4	Configure the SCSI adapters and drives	Use the Adaptec SCSI adapter firmware Setup Utility	• Adaptec SCSI Adapter documentation • Chapter 4 of *Installing Network Operating System*
5	Configure memory and other baseboard settings	Use the EISA Configuration Utility	• *Quick Hardware Installation* brochure • Chapter 3 of *Installing Network Operating System* • Chapters 2 and 5 of *User Guide*
6	Configure EISA adapters	Use the ESIA Configuration Utility	• *Quick Hardware Installation* brochure • Chapter 3 of *Installing Network Operating System* • Chapter 5 of *User Guide*

System Features

This section describes major system features.

Figure 1-1
Front View
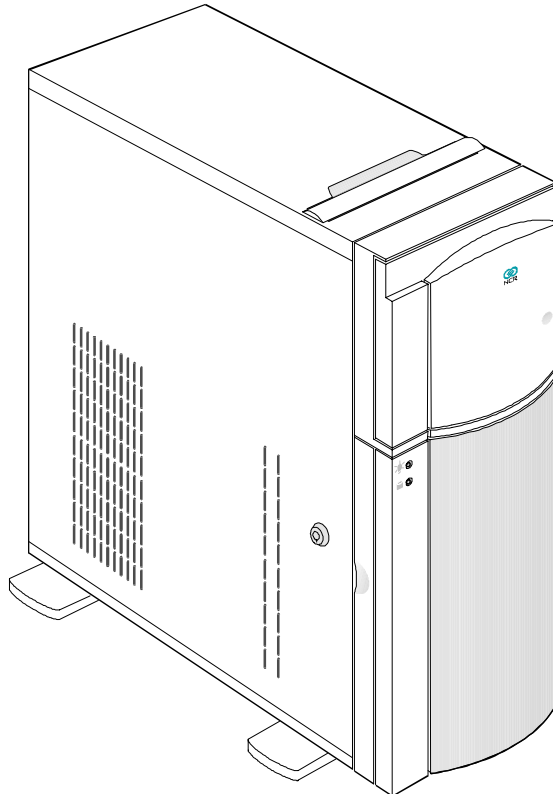
The system has the following minimum features:

- System base board
- 350-watt power supply

- Seven I/O expansion slots (4 EISA, 2 PCI and 1 shared)

- Fast and Wide SCSI-2 controller integrated on the system baseboard

- 25-pin and 9-pin serial ports

- 25-pin parallel port

- Keyboard and mouse ports

- One 3.5-inch 1.44 MB flex drive

- System cabinet

- Eight 3.5-inch hot plug bays and three 5.25-inch user accessible bays, plus a bay for the 3.5-inch flex drive

Documentation Set

The following documents are included with your system to help you install, upgrade, maintain, and troubleshoot your system. Keep all documentation together in a safe place.

- *Quick Hardware Installation*

  This brochure provides you with information to install your system quickly.

- *User Guide*

  This is the manual you are now reading. It provides you with more detailed information about your system.

- Drive, peripheral, CPU board, and adapter documentation

  If you have ordered optional features, such as drives, peripheral devices, CPU boards, or adapters, documentation for those items is packed with the system. This documentation is important to configure your system properly.

Caution   Do not discard any of this documentation. You may need it again if your system ever requires service or you change the configuration. Keep it in a safe place with the other system documentation.

- *Installing Network Operating System*

  This manual describes the procedures for installing an operating system. You should also refer to the

documentation that comes with your operating
system.

Getting Additional Help

If you need additional help, refer to Appendix E of this book.

Overview

This chapter contains information about the following:

- System board features
- ESD precautions
- Major components
- Upgrading the memory
- Installing SIMMs
- SCSI feature
- Positioning the system
- Rear panel features
- Opening the system
- Installing drives
- Installing and removing expansion boards

System Board Features

This high-performance system board supports the Intel Pentium™ microprocessor. The main system board does not contain the CPU and the second-level cache. Instead, it has a special slot designed to accommodate a separate board that carries both the CPU and the second-level cache. This feature gives maximum upgradability and flexibility to your system.

Standard features such as two serial ports, one parallel port, diskette drive interface, and embedded fixed disk drive interface reside on the system board.

The system board has a 0 MB base memory and supports a maximum memory of 128 MB using 32 MB single-density single inline memory modules (SIMMs). A functional system is recommended to have at least 8 MB of RAM.

ESD Precautions

To avoid damaging electronic equipment from electrostatic discharge (ESD), always observe the following precautions before installing any system component:

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

   Integrated circuits (ICs) on expansion boards are highly sensitive to static electricity.

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

Major Components

The system board has the following major components:

- Four 72-pin SIMM sockets labeled Bank 0 and Bank 1 (two sockets comprise one bank)

- One CPU board slot

- Four 32-bit EISA expansion slots supporting master/slave add-on cards

- Two PCI local bus slots

- One shared slot (EISA or PCI)

- 128/256 KB Flash memory for easy system BIOS upgrade

- I/O interfaces for two serial ports, one parallel port, peripheral drives, IDE drives, and one PS/2 keyboard and mouse

- Onboard AIC-7870 chip that supports one SCSI-2 port

- Power connector 1 for 350-watt switching power supply

Figure 2-1 shows the location of the major components on the system board.

Figure 2-1
System Board Layout
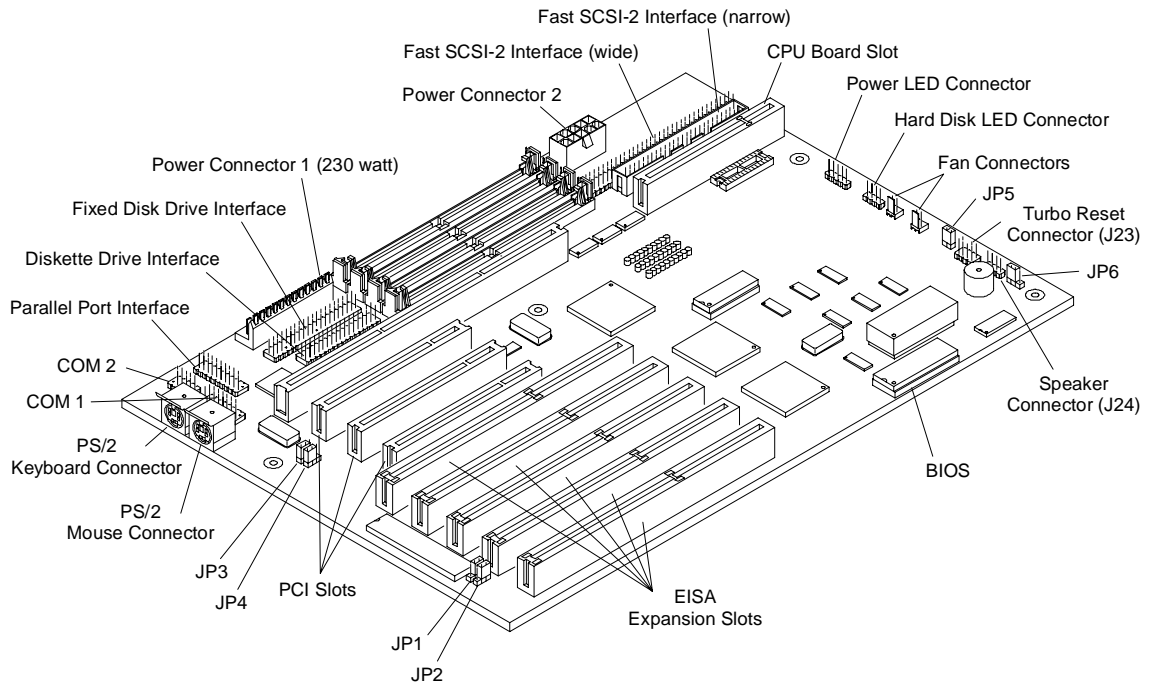
You have to change the jumper settings on the system board when you upgrade the CPU or reconfigure the system.

Jumper Settings

To change a jumper setting, follow these steps:

1. Remove the jumper cap from the jumper.

2. Position the jumper cap over the two pins for the desired setting.

3. Gently press the cap over the pins.

Table 2-1 lists the system board jumpers and their corresponding settings. The asterisks indicate the default settings.

Table 2-1
Jumper Settings

Jumper	Setting	Function
JP1	2-3*	Standard System BIOS
JP2	1-2 2-3*	Password enabled Password disabled
JP3	1-2* 2-3	DMA request 1 (DREQ1) DMA request 3 (DREQ3)
JP4	1-2* 2-3	DMA acknowledge 1 (DACK1) DMA acknowledge 3 (DACK3)
JP5	Open Closed*	Reset button disabled Reset button enabled
JP6	1-2* 2-3	Audio to buzzer Audio to speaker

Upgrading the Memory

You can upgrade the system memory by adding single inline memory modules (SIMMs) into the SIMM sockets or by changing the SIMMs for a higher memory configuration.

The four 72-pin SIMM sockets support 4 MB and 16 MB single-density as well as 8 MB and 32 MB double-density SIMMs.

Table 2-2 lists the available memory configurations.

Table 2-2
Memory Configurations

Bank 0		Bank 1		Total
Socket 0	Socket 1	Socket 0	Socket 1	Memory
4 MB	4 MB			8 MB
8 MB	8 MB			16 MB
16 MB	16 MB			32 MB
32 MB	32 MB			64 MB
32 MB	32 MB	32 MB	32 MB	128 MB

Consider the following when adding memory:

- Always install SIMMs from the lowest bank first. For example, install SIMMs in bank 0 before bank 1.

- Always remove SIMMs from the highest bank first. For example, bank 1 before bank 0.

- 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.

Installing SIMMs

Caution Read the ESD precautions section earlier in this chapter before proceeding.

To install a SIMM, follow these steps:

1. Slip a SIMM at a 45º angle into a socket with the component side facing down.

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

    Note: The SIMM should be at a 90º angle when installed on the baseboard or the dual processor CPU board. The SIMM should be at a 45º angle when installed on the ECC uni-processor CPU board.

Figure 2-2
Installing a SIMM
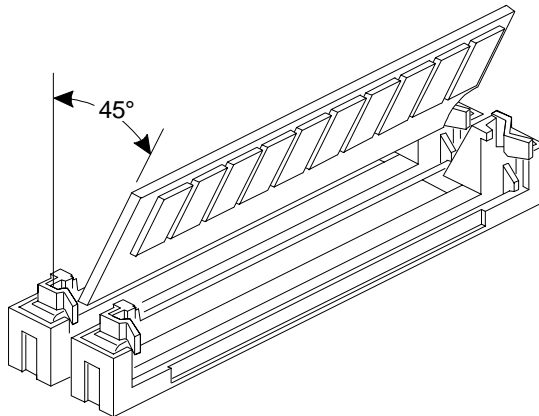
Note: Always install SIMMs starting with Bank 0 and in pairs. For example, for a total memory of 8 MB, install two 4 MB SIMMs in sockets 0 and 1 of Bank 0. You can not use an 8 MB SIMM alone for an 8 MB memory.

Figure 2-3
SIMM Sockets

SIMM Sockets

Bank 0
Bank 1
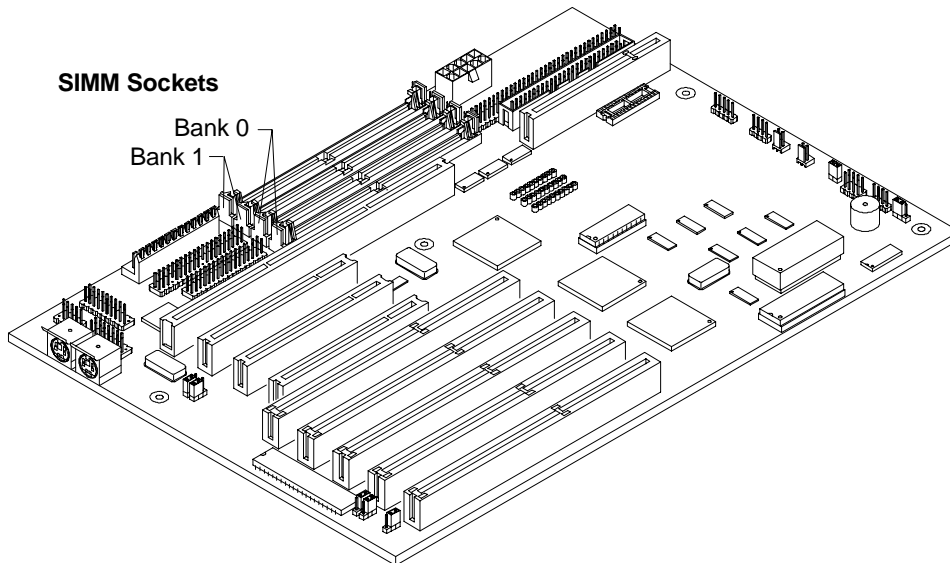
Removing SIMMs

To remove SIMMs, follow these steps:

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

2. Press the SIMM downward at about a 45° angle.

3. Pull the SIMM out of the socket.

Reconfiguring the System

Reconfigure the system after installing or removing SIMMs.

To reconfigure the system, follow these steps:

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

2. Boot the system with the EISA Configuration Utility (ECU) diskette, and configure the baseboard settings for the proper amount of memory. Follow the steps under the heading, "Configuring the System Memory" in Chapter 5.

SCSI Feature

The system board features a single-chip Fast and Wide SCSI-2 host adapter that adds SCSI I/O capability to the system.

The chipset consists of all the components found on the state-of-the-art SCSI host adapters such as the following:

- Onboard microcontroller
- Bus master interface controller
- SCSI controller

The chipset allows transfers at a full 20 MB/second burst transfer rate.

To use the feature, install any SCSI device in your system and connect it to the SCSI interface on the system board. (See Figure 2-1 for the location.) Then, enter the BIOS utility to set the PCI slot parameters. See Chapter 4, "Using the BIOS Setup Utility", for details in setting the parameters. Refer to the SCSI manual for more information on using SCSI.

Note: Onboard terminators (RP12, RP13, and RP14) must be removed when using wide drives. Ensure that terminators are on when only narrow drives are used.

Positioning the System

When positioning the system, arrange the legs of the housing so that the weight of the system is evenly distributed and is stable.

Figure 2-4
Arranging the System in a Stable Position (Bottom View)
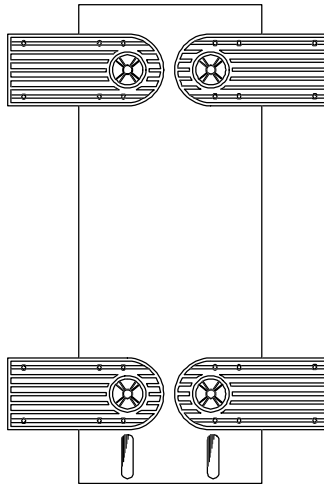
When standing the system with the fan against a wall, leave a space of 5-10 cm from the wall to allow air circulation, then position the legs as in "Position A" of Figure 2-5.

When standing the system with the fan facing out, you can put the system close to the wall and position the legs as in "Position B" of Figure 2-5.

Figure 2-5
Allowing for Air Circulation (Bottom View)
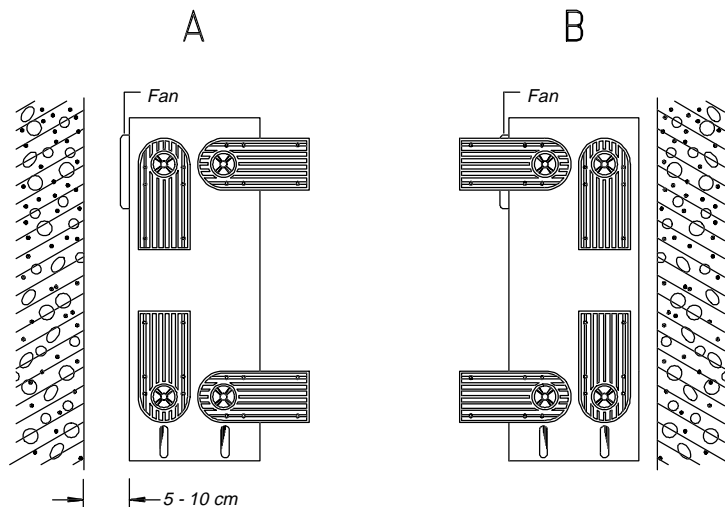
Rear Panel Features

Figure 2-6 illustrates the rear panel features.

Figure 2-6
Rear Panel Features
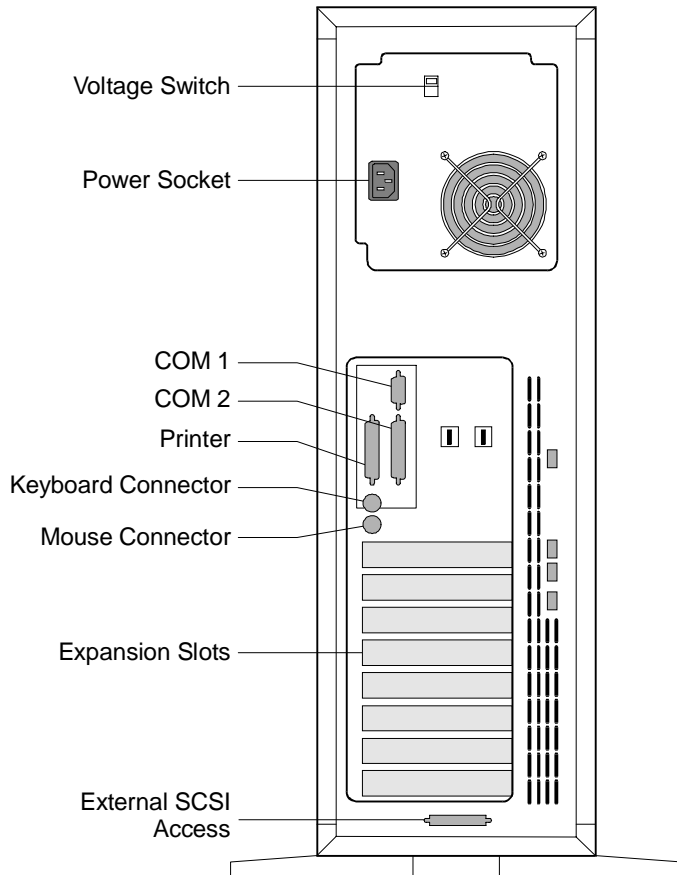
Opening the System

Caution   Read the "ESD Precautions" section earlier in this chapter before proceeding.

Figure 2-7 illustrates how to open the system. The keys to the housing are inside the upper front panel.

Figure 2-7
Opening the System
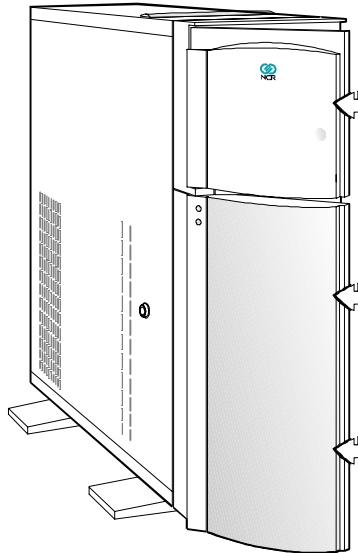
To open the system, follow these steps:

1. Unlock the housing using the key and open the lower front panel cover by pressing the button and pulling the cover.

Figure 2-8
Opening the Cabinet Housing
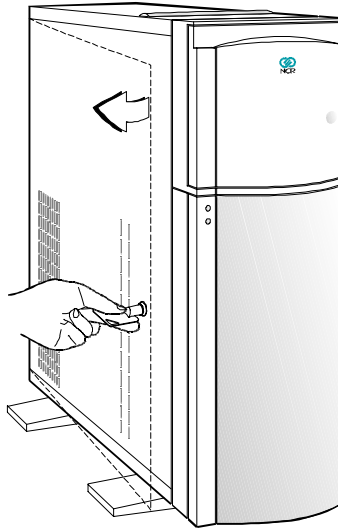
Note: You can not remove the key after you have unlocked the housing. You can remove it only when you lock the housing again.

2. Pull on the key to swing the left side of the housing open. If necessary, you may use a screwdriver gently to pry the side of the housing open.

Installing Drives

Caution Read the "ESD Precautions" section earlier in this chapter before proceeding.

This section describes in detail how to install disk drives in the system.

Removing the Upper Front Panel Cover and Frame

When installing drives on the 5.25-inch drive bays, you have to remove both the upper front panel cover and its frame. Follow these steps:

1. To remove the front panel cover, hold it on both sides and pull.

2. To remove the upper front panel frame, press the latch under it and pull as shown in Figure 2-9.

Figure 2-9
Removing the Upper Front Panel
Cover and Frame
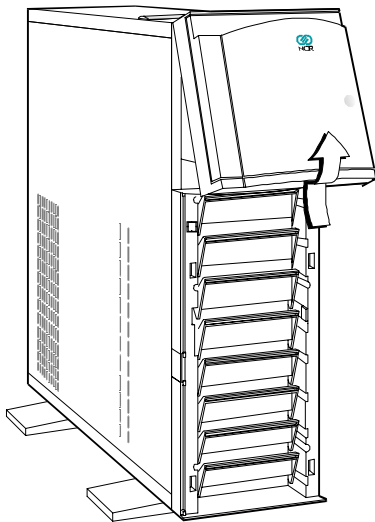
Installing a 3.5-inch Peripheral Drive

To install a 3.5-inch peripheral drive, follow these steps:

1. Remove the screw attaching the 3.5-inch drive frame to the housing.

2. Secure the drive on the drive frame.

Figure 2-10
Securing the Drive on the Frame
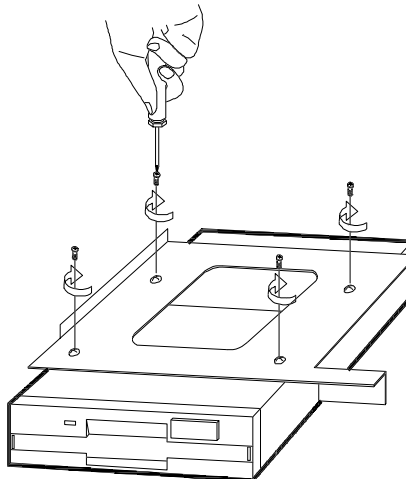
3. Insert the drive into the third drive bay.

4. Secure it with a screw.

5. Connect the drive cables.

Figure 2-11
Securing the Drive
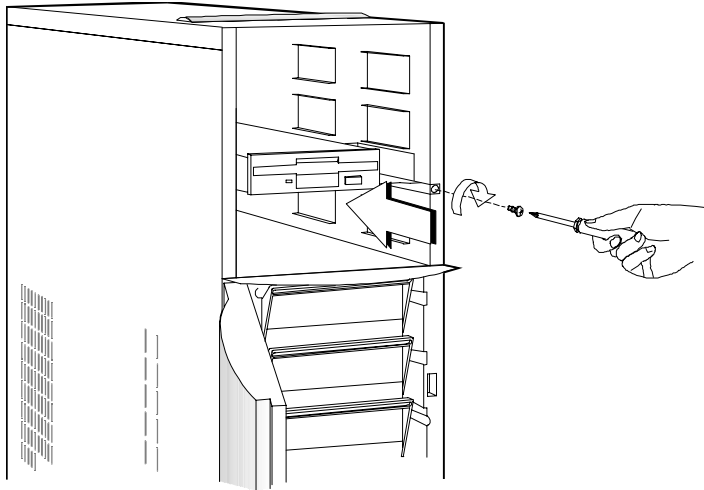
Installing a 5.25-inch Peripheral Drive

To install a 5.25-inch peripheral drive, follow these steps:

1. Secure the drive guides on the sides of the peripheral drive as shown in Figure 2-12.

Figure 2-12
Securing the Drive Guides
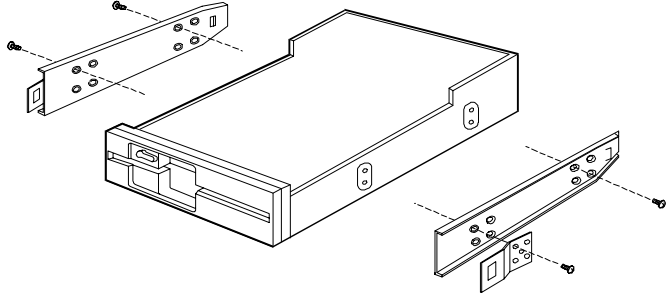
2. Insert the drive into a 5.25-inch drive bay.

3. Connect the drive cables.

Figure 2-13
Inserting the Drive into the Drive Bay
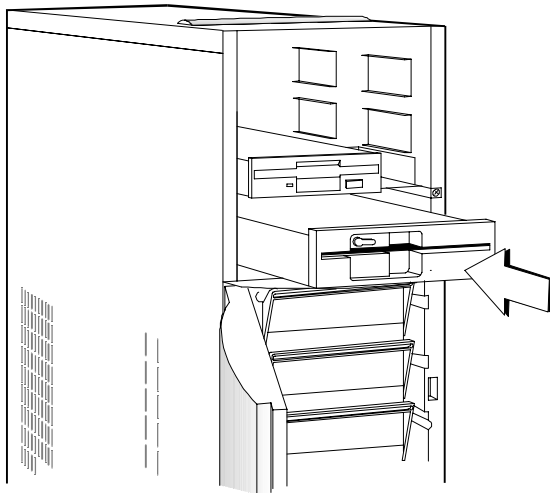
Removing a 5.25-inch Peripheral Drive

To remove a 5.25-inch peripheral drive, follow these steps:

1. Disconnect all the drive cables.

2. Press the metal tabs on the sides of the drive and pull the drive out as shown in Figure 2-14.

Figure 2-14
Pulling the Drive Out
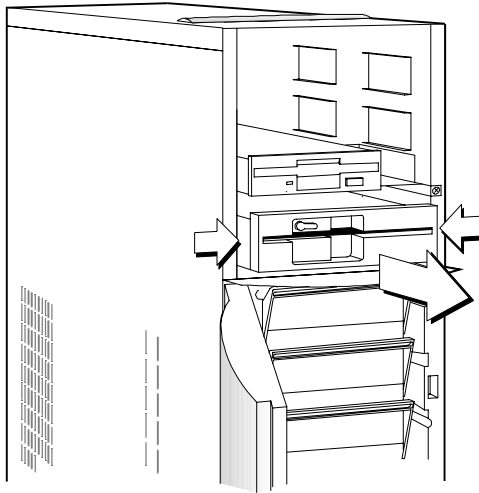
Installing a Hot Plug Fixed Disk Drive

To install a hot plug fixed disk drive, refer to Appendix D. The complete procedure is described there.

Installing and Removing Expansion Boards

This section describes in detail the steps needed to install expansion boards in the system.

Caution Read the "ESD Precautions" section earlier in this chapter before proceeding.

Identifying Expansion Boards

There are three types of expansion boards:

- EISA

- ISA

- PCI

Each expansion board has a different type of connector See Figure 2-15.

An ISA board has a single row of contacts along its connectors. There is usually a single notch in the connector.

An EISA board has a double row of tightly spaced contacts along its connector. There are usually six notches (five small ones and one large one) in the connector.

A PCI board has a single row of tightly spaced contacts along its connectors. There is usually a single notch in the connector.

Figure 2-15
Expansion Board Connectors

ISA board   EISA board   PCI board
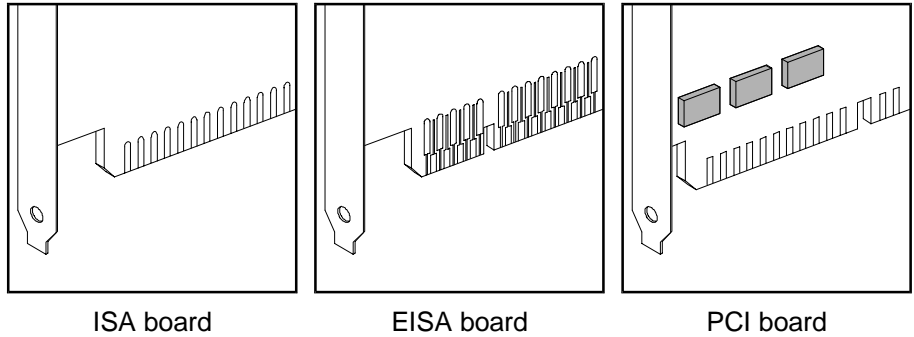
Installing an Expansion Board

To install an expansion board, follow these steps:

1. Study the documentation that came with your expansion board, and configure any jumpers or switches on the board 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. See Figure 2-16 .

Figure 2-16
Removing a Bracket
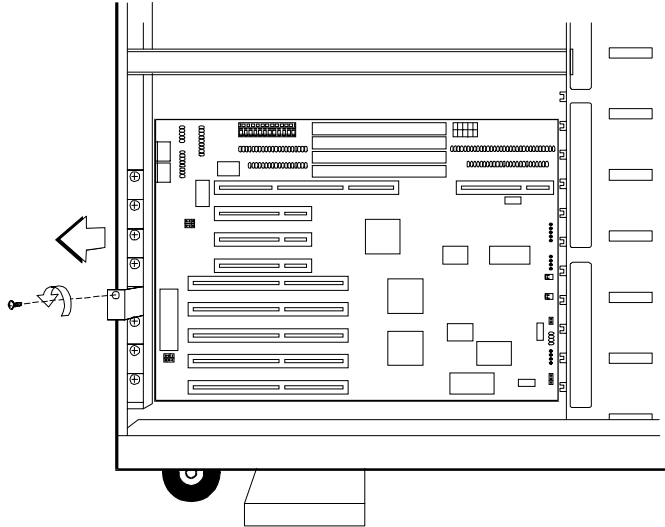
3. Gently insert the board into an expansion slot. Make sure the board is securely seated. See Figure 2-17.

4. Secure the board with the bracket screw.

Caution   Do not neglect this step. The board uses the screw for grounding.

Figure 2-17
Installing a Board
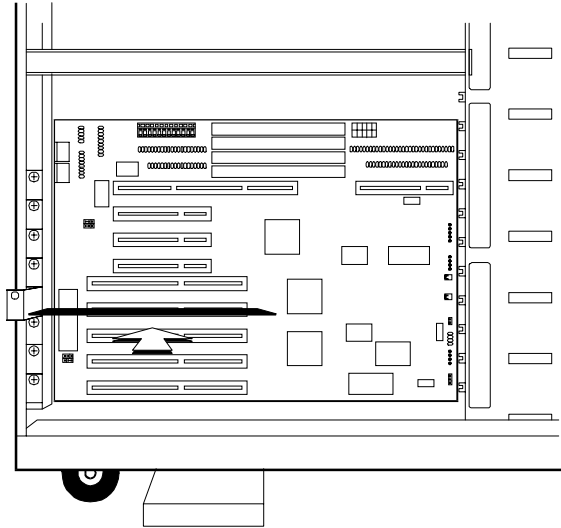
Removing an
Expansion Board

To remove an expansion board, follow these steps:

1. Unplug any cables connected to the board.

2. Remove the bracket screw and pull the board out of the slot.

3. Secure a bracket cover to the empty slot with the screw.

System Baseboard Support

The system baseboard has one CPU board slot that supports these two types of CPU boards:

- CPU boards that support parity memory
- CPU boards that support ECC memory

Installing CPU Boards

If you ordered a CPU board factory-installed, you may skip this chapter. If you must install a CPU board in your system, read all of this information.

When actually performing the installation, refer to the following documents for information on installing CPU boards in the system:

- *Quick Hardware Installation* that came with your system
- *Release Notes* that came with your CPU board
- Chapter 2 of this *User Guide* for the location of the CPU board slot on the system board (Figure 2-1)

Warnings **When installing CPU boards, do not attempt to make any hardware changes unless you are a qualified technician. Ask your dealer for assistance.**

There are two released versions of system BIOS. One is for uniprocessor CPU boards, and the other is for dual processor CPU boards. These versions of BIOS are not interchangeable. Flashing the incorrect version renders the system unusable.

For example, if you flash the BIOS version released for a uniprocessor CPU board on a system configured with a dual CPU board you cannot use the system. If this happens, you must insert the appropriate CPU board into the system and reflash the original BIOS.

Refer to the diskette label to make sure you are using the appropriate BIOS for your system configuration.

When to Use the BIOS Setup Utility

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

Run BIOS Setup when you want to do one or more of the following:

- Install or remove a PCI adapter
- Install or remove an IDE disk drive
- Change the display type
- Change the password or security features
- Change the CPU speed
- Disable or enable the cache memory
- Reserve the top 1 MB of system memory
- Set the date and time

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

For information about adding or removing memory refer to the "Using the EISA Configuration Utility" section of Chapter 5.

Note: If you repeatedly receive Run Setup error

messages, check the computer's internal battery. If the battery is dead or not properly connected, the system cannot retain configuration values in CMOS RAM.

Before running Setup, have the following information ready:

- Diskette drive type. The standard type is a 3.5-inch 1.44 MB diskette drive. A 5.25-inch 1.2 MB drive is supported.

- Fixed disk drive type. The drive information is on a label pasted to your disk drive or in the documentation that comes with your disk drive. Refer also to Table 4-6 at the end of this chapter.

Entering Setup

Power up the system. When the "Press Ctrl-Alt-Esc key to enter Setup" message displays, press the key combination [Control] + [Alt] + [Esc] to enter Setup.

You do not need to insert a diskette or load an operating system. Just press the key combination.

Figure 4-1 shows the BIOS Setup main menu.

Figure 4-1
BIOS Setup Main Menu

```
┌─────────────────────────────────────────────────────────────┐
│                        BIOS Utility                          │
│                                                              │
│                 Basic System Configuration                   │
│               Advanced System Configuration                  │
│                  PCI System Configuration                    │
│                      System Security                         │
│                 Load Setup Default Settings                  │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
├─────────────────────────────────────────────────────────────┤
│  ↑↓ = Move Highlight Bar,  ↵ = Select,   Esc = Exit and Reboot│
└─────────────────────────────────────────────────────────────┘
```
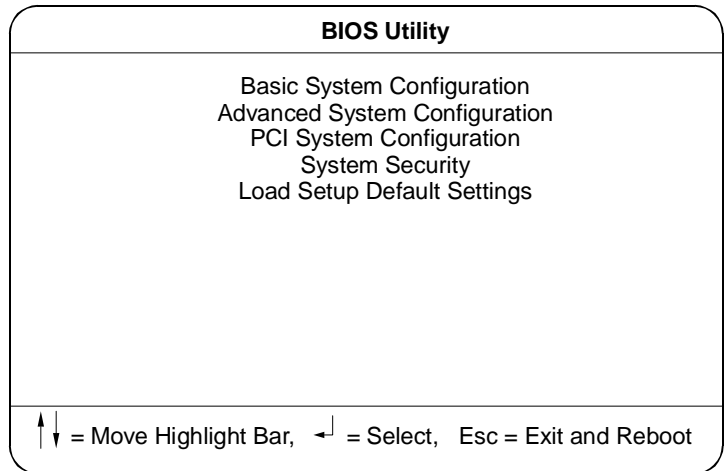
Basic System Configuration

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

Figure 4-2 shows Page 1 of the Basic System Configuration menu.

Figure 4-2
Basic System Configuration Menu
(Page 1 of 2)

```
┌──────────────────────────────────────────────────────────────┐
│        Basic System Configuration          Page 1/2           │
│                                                                │
│  Date                  [00-00-00]                              │
│  Time                  [00:00:00]                              │
│  Diskette Drive A      [1.44 MB 3.5 inch]                      │
│  Diskette Drive B      [     None     ]                        │
│                        Cylinder   Head       Sector            │
│  Hard Disk 0 (0MB)     [None]                                  │
│  Hard Disk 1 (0MB)     [None]                                  │
│                                                                │
│                                                                │
│                                                                │
│                                                                │
│                                                                │
│                                                                │
│  ↑↓ = Move Highlight Bar,  ⟶ ⟵  = Change setting,             │
│  PgDn/PgUp = Move Screen,      F1 = Help,      Esc = Exit      │
└──────────────────────────────────────────────────────────────┘
```

The command line at the bottom of the display has three functions. It tells you how to view the configuration options for each parameter, how to move the highlight bar from one parameter to the next, and how to change the value for each parameter.

1. Press the up- or down-arrow keys to highlight the desired parameter.

2. Press the [Page Down] key to move to the next page, or press the [Page Up] key to return to the previous page.

3. After you select the desired option for a given parameter, press the appropriate arrow key to highlight the next parameter. This option is now set as the configuration value.

Figure 4-3 shows Page 2 of the Basic System Configuration menu.

Figure 4-3
Basic System Configuration Menu
(Page 2 of 2)

```
┌─────────────────────────────────────────────────────────────┐
│          Basic System Configuration          Page 2/2        │
├─────────────────────────────────────────────────────────────┤
│  Communication Settings                                      │
│     Baud Rate                 [9600] BPS                     │
│     Parity                    [None]                         │
│     Stop Bits                 [1] Bits                       │
│     Data Lengths              [8] Bits                       │
│                                                              │
│  Enhanced IDE Features                                       │
│     Hard Disk Block Mode      [Disabled]                     │
│     Advanced P10 Mode         [Disabled]                     │
│     Hard Disk Size > 504MB    [Disabled]                     │
│     Hard Disk 32 Bit Access   [Disabled]                     │
│                                                              │
│     Num Lock After Boot       [Enabled]                      │
│                                                              │
│     Memory Test               [Enabled]                      │
│     Auto Config Mode          [Disabled]                     │
│     Fast Boot Mode            [Disabled]                     │
├─────────────────────────────────────────────────────────────┤
│  ↑↓ = Move Highlight Bar,    ⟶ ⟵  = Change setting,         │
│  PgDn/PgUp = Move Screen,    F1 = Help,    Esc = Exit        │
└─────────────────────────────────────────────────────────────┘
```

To use the Help option, press [F1]. A window displays on the screen with a brief description of the currently highlighted parameter.

The following sections explain the different parameters and their settings.

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 unit. 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 this parameter to set the date. Enter the current date, following the month-day-year format. Whenever you want to change the date, simply highlight the Date parameter and enter the new date.

Valid values for month, day, and year are as follows:

- Month 1 to 12
- Day 1 to 31
- Year 00 to 99

Time

Highlight this parameter and enter the current time in the hour-minute-second format to set the time. Whenever you want to change the time, simply highlight the Time parameter and enter the new time.

Valid values for hour, minute, and second are as follows:

- Hour 00 to 23
- Minute 00 to 59

• Second 00 to 59

Diskette Drives

To enter the configuration value for the first diskette drive (drive A), highlight the Diskette Drive A parameter. Press the left- or right-arrow key to view the options and select the appropriate value.

The Diskette Drive A parameters have the following options:

• 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 to enter the value for the Diskette Drive B parameter. Choose None if you do not have a second diskette drive.

IDE Fixed Disk Drives

Move the highlight bar to the Fixed Disk 0 parameter to configure the IDE fixed disk drive (drive C). Use the left or right arrow key to display the IDE fixed disk options with their respective values. Select an option that corresponds to your IDE fixed disk type. Follow the same procedure to enter the values for the IDE Fixed Disk 1 parameter. Choose None if you do not have a second fixed disk drive.

If you do not know the exact type of your IDE fixed disk, select the option Auto. When you select this

option, the BIOS utility automatically determines the type of your IDE fixed disk during POST. You can see your IDE fixed disk values when you enter the BIOS Utility.

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

You can save the values under the option User.

```
Cylinder Head  Sector
Fixed 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 IDE fixed disk as it detects the saved IDE fixed disk information during POST.

Note: We recommend that you copy the IDE fixed disk 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 installed IDE fixed disks.

However, there are cases when you cannot use the option Auto, instead you have to select User. This is when you installed an IDE fixed disk that was previously formatted but not using the disk native parameters or structure. The IDE disk type may be in the fixed disk type list but the number of cylinders, heads, and sectors are not exactly the same.

Before using the User option, obtain the correct IDE fixed disk information.

To use the User option, follow these steps:

1. Highlight the User option.

2. Type in the number of cylinders, heads, and sectors of the IDE fixed disk.

3. Choose YES when asked if you want to save CMOS data.

System Memory

The system automatically detects the total amount of onboard memory and sets the corresponding value in the Setup program. This information is not adjustable by the user and is for display only. When you install additional memory, the system automatically updates the Total Memory parameter to show the new memory size.

Math Coprocessor

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

Video Display

The video display is the monitor on which the operating system prompt displays when you boot the system. The system automatically detects the video mode of your primary display and sets the configuration value accordingly. The values are as follows:

- Monochrome
- CGA 40 columns x 25 rows
- CGA 80 columns x 25 rows
- VGA/EGA

Communication Settings

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

- Baud rate: 300 to 38,400 bits per second (BPS)

- Parity: odd, even, or none

- Stop bit: 1 or 2 stop bits

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

There is one restriction on the options available for the communication status parameters. If your data length parameter is an 8-bit data word, you must select one of the following combinations:

- 1 stop bit and odd or even parity

- 2 stop bits and no parity

The default values are 9600 BPS, odd parity, 1 stop bit, and 8-bit data word.

Hard Disk Block Mode

This function enhances disk performance depending on the fixed 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/cycle. If your system does not boot after enabling this parameter, change the setting to Disabled. Disable the parameter if your system disk does not support this function.

Advanced PIO Mode

Enabling this parameter allows for faster data recovery and read/write timing that reduces Fixed Disk activity time. This results in better fixed disk performance. To use this feature, your fixed disk must support the advanced PIO mode. If not, set this to Disabled.

Hard Disk Size
> 504 MB

This enhanced IDE feature only works under DOS and Windows 3.x environment. If enabled, it allows you to use a fixed 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 be set to Disabled.

Hard Drive 32-Bit
Access

If enabled, this parameter allows hard drive 32-bit access.

Num Lock After Boot

This parameter allows you to activate the Num Lock function upon system boot.

Memory Test

The system performs a RAM test during the power-on self-test (POST) routine. Set this parameter to Disabled to bypass this test routine. The default setting is Enabled.

Auto-Configuration
Mode

Set this parameter to Enabled if you do not know the fixed disk drive type parameters and the onboard communication port configuration. When set to Enabled, this parameter sets the fixed disk drive type to Auto and the System Speed to High, and enables the

system and video RAM, as well as the primary- and second-level cache. The default setting is Disabled.

Fast Boot Mode

This parameter allows the system to boot faster by skipping some POST routines. If enabled, it sets the System Speed to High, and enables Shadow RAM, and primary- and second-level cache. The default setting is Disabled.

Advanced System Configuration

Select the Advanced System Configuration option to configure the system memory. Figure 4-4 shows Page 1 of the Advanced System Configuration menu.

Figure 4-4
Advanced System Configuration
Menu (Page 1 of 3)

```
┌─────────────────────────────────────────────────────────────┐
│  Advanced System Configuration          Page 1/3             │
├─────────────────────────────────────────────────────────────┤
│  Shadow RAM                                                  │
│      E0000h - FFFFFh (System Bus)        [Enabled]           │
│      C0000h - C7FFFh (Video Bus)         [Enabled]           │
│      C8000h - CFFFFh                     [Disabled]          │
│      D0000h - D7FFFh                     [Disabled]          │
│      D8000h - DFFFFh                     [Disabled]          │
│                                                              │
│      Internal Cache                      [Enabled]           │
│      External Cache                      [Enabled]           │
│          Cache Scheme                    Write Back          │
│                                                              │
│  System Memory Parity                    [Enabled]           │
│  Memory at 15MB - 16MB Reserved for      [System] use        │
│  E0000h - FFFFFh (System BIOS)           [Cacheable]         │
│  C0000h - C7FFFh (Video BIOS)            [Cacheable]         │
├─────────────────────────────────────────────────────────────┤
│  ↑↓ = Move Highlight Bar,   ──→ ←── = Change setting,        │
│  PgDn/PgUp = Move Screen,    F1 = Help,    Esc = Exit        │
└─────────────────────────────────────────────────────────────┘
```

Shadow RAM

The system reserves 384 KB of random access memory (RAM) for the shadow RAM function. This parameter has seven 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 E0000h - FFFFFh is for system BIOS and C0000h - C7FFFh is for shadowing video BIOS. The remaining address ranges are for I/O ROM functions.

Internal Cache (CPU Cache)

This parameter enables/disables the internal cache memory. The default setting is Disabled.

External Cache

This parameter enables/disables the external cache memory. The default setting is Disabled.

Cache Scheme

This parameter is not configurable and sets the cache to Write-back mode. Write-back updates the cache but not the memory when there is a write instruction. It updates the memory only when there is an inconsistency between the cache and the memory.

System Memory Parity

This parameter enables/disables the system from responding to memory parity errors.

Memory at 15 MB-16 MB

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

E0000h - FFFFFh (System BIOS)

If the System BIOS parameter is set to Enabled, you may select Cacheable or Non-cacheable for the E0000h-FFFFFh parameter. When set to Cacheable, it allows the

system BIOS to run directly from the cache memory. The system operates faster. When set to Non-cacheable, it lets the system BIOS run from RAM.

C0000h - C7FFFh (Video BIOS)

If the Video BIOS parameter is set to Enabled, you may select Cacheable or Non-cacheable for the C0000h-C7FFFh parameter. When set to Cacheable, it allows the video BIOS to run directly from the cache memory. The system operates faster. When set to Non-cacheable, it lets the video BIOS run from RAM.

Guaranteed Access Time (Parity Memory Only)

With this parameter set to Enabled, the system guarantees that the ISA 2.1 microseconds CHRDY specification is not violated. This is crucial for some timing-critical expansion boards. Note that enabling this parameter slightly decreases the concurrency of PCI bus and EISA bus.

Highest Priority Device for PCI Arbitration (Parity Memory Only)

This parameter allows PCI bus arbitration to decide which master device supported by the bus can own it at a specific time.

There are basically two arbitration modes for PCI bus masters:

- Fixed – can be CPU or EISA/IO. The CPU and EISA/IO are the two possible highest priority devices. When set to either of these options, and there is more than one device requesting the bus, the master device obtains the bus according to its fixed priorities.

- Rotation – each of the master devices obtains the PCI bus when its turn to own the bus comes. In this option, all the master devices have the same priority on PCI bus ownership.

PCI System Configuration

Figure 4-5 shows the screen that appears when you select the PCI System Configuration menu from the BIOS Utility menu.

Figure 4-5
PCI System Configuration Menu
(Page 1 of 1)

PCI System Configuration				Page 1/1
PCI IRQ Setting	[Manual]			
	INTA	INTB	INTC	INTD
PCI Slot 1	[--]	[--]	[--]	[--]
PCI Slot 2	[--]	[--]	[--]	[--]
PCI Slot 3	[--]	[--]	[--]	[--]
On Board SCSI	[--]	[--]	[--]	[--]
VGA Palette Snoop	[Disabled]			
On Board SCSI AIC-7870	[Enabled]			
Boot Device	[Enabled]			

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

PCI Slot Number

Each PCI slot supports four interrupt pins. The INTA pin is automatically reserved for Function Number 0 (master function). The remaining interrupt pins (INTB, INTC, and INTD) are reserved for multifunction. Refer to your card manual for the interrupt pin assignments.

This parameter assigns the IRQ level for each interrupt pin of the PCI slots. You can assign any of the following available IRQ levels: 3, 5, 9, 10, 11, 14, and 15.

VGA Palette Snoop

PCI devices support the "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.

On Board SCSI

This parameter enables/disables the on board SCSI AIC-7870.

Boot Device

During POST, the normal booting procedure starts with the initialization of the ISA card, followed by the PCI card, then the onboard SCSI, if present. Enabling this parameter changes the normal booting sequence of the system, doing the SCSI initialization prior to add-on PCI card initialization. You can only set this parameter if the On Board SCSI parameter is set to Enabled. The default setting is Disabled.

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 screen in Figure 4-6 displays.

Figure 4-6
System Security Menu (Page 1 of 1)

```
                            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       [3F8]
      Serial Port 2 Base Address       [2F8]
      Parallel Port Base Address       [Parallel 1 (3BCh)]
            Operation Mode             [Standard Parallel Port (SPP)] Mode
            EPP Version Selection      [1.7]

Setup Password                         [None]
Power-on Password                      [None]


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

Press the up- or down-arrow key to highlight from one parameter to the next. Press the right- or left-arrow key to change the setting.

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 fixed disk drive boot function to prevent loading operating systems or other programs from a certain drive while the other drives remain operational.

Table 4-1 lists the functions of the drive control settings.

Table 4-1
Drive Control Settings

Diskette Drive	
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
Fixed Disk Drive	
Normal	Fixed 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 fixed disk functions
System Boot Drive	
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

Note: The drive control settings that you specify take

effect only if the diskette and fixed disk controllers are **not** disabled through jumper settings.

Onboard Communication Ports

There are three onboard communications ports:

- Serial Port 1
- Serial Port 2
- Parallel Port

Serial Port 1

This parameter enables serial port 1 as COM 1 and sets its address. Table 4-2 lists the Serial Port 1 settings.

Table 4-2
Serial Port 1 Settings

Setting	Function
Serial 1 (3F8h)	COM1 with address 3F8h
Serial 2 (2F8h)	COM2 with address 2F8h
Serial 3 (3E8h)	COM3 with address 3E8h
Serial 4 (2E8h)	COM4 with address 2E8h
Disabled	Disables serial port 1

Serial Port 2

This parameter enables serial port 2 and sets its address. Table 4-3 lists the Serial Port 2 settings.

Table 4-3
Serial Port 2 Settings

Setting	Function
Serial 1 (3F8h)	COM1 with address 3F8h
Serial 2 (2F8h)	COM2 with address 2F8h
Serial 3 (3E8h)	COM3 with address 3E8h
Serial 4 (2E8h)	COM4 with address 2E8h
Disabled	Disables serial port 2

Parallel Port

The system has one parallel port. The following table lists the options for selecting the parallel port address. You also have the option to disable the parallel port. Table 4-4 lists the Parallel Port settings.

Table 4-4
Parallel Port Settings

Setting	Function
3BCh	Corresponds to the parallel port 1 with address 3BCh
378h	Corresponds to the parallel port 2 with address 378h
278h	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 adjust the address to one that does not conflict.

Operation Mode

This item allows you to set the operation mode of the parallel port. Table 4-5 lists the different operation modes of the parallel port.

Table 4-5
Parallel Port Operation Modes

Setting	Function
Standard Parallel Port (SPP)	Allows normal speed operation but in one direction only
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
Standard and Bidirectional	Allows normal speed operation in a two-way mode
EPP Version Selected	Allows selection of either EPP Version 1.7 or 1.9 if the Operation Mode of the Parallel Port is set to Enhanced Parallel Port (EPP)

Setup Password

This option lets you set a password to prevent unauthorized access to the BIOS Utility.

Setting a Password

To set a password, follow these steps:

1. Highlight the Setup Password parameter and press the left- or right-arrow key to display the password prompt.

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

   Note: Be careful when typing your password because the characters do not appear on the screen when you type them.

3. Press [Enter]. Another prompt asks you to retype the password to verify your first entry.

4. Retype the password, and press [Enter].

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. Write down your password and keep it in a secure place.

Caution If you forget your password, you have to reset the configuration values stored in BIOS Setup to their default values. Ask your dealer for assistance.

Power-On Password

This parameter allows you to set the system password. The power-on password secures your system against

unauthorized users. Once you set this password, you have to type it whenever you boot the system.

To set the power-on password, follow the same procedures as in setting the setup password.

Note: To enable the password function, you must strap pins 1-2 on JP2 located on the system baseboard. The factory default setting disables the password function with pins 2-3 strapped. See Figure 2-1 in Chapter 2 for the location of JP2.

To change the existing password, enter the current password at the prompt when you boot the system, followed by a slash (/) and the new password you wish to specify. Again, be careful when typing the password as it does not appear on screen when you enter it.

Loading Setup Default Settings

This parameter loads the default values to the system configuration parameters. The default values are the optimized configuration settings for the system.

Enabling the Auto Configuration Mode and the Fast Boot Mode parameters under the Basic System Configuration menu allows this function to set the System Speed, Shadow RAM, Cache, and other system parameters to their default settings.

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, such as in this manual. 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.

To leave the system configuration setup, follow these steps:

1. Press [Esc] to leave setup.

2. If there is any change in the BIOS Utility functions, you must choose to save or not save any changes. Use the arrow keys to select your response.

   Select Yes to store the new data in BIOS Setup. Select No to retain the old configuration values.

3. Press [Enter].

Fixed Disk Types

Table 4-6 lists values for the fixed disk types.

Table 4-6
Fixed Disk Types

Type	Cylinders	Heads	Sectors Per Track
0	(indicates SCSI or no fixed disk)		
1	306	4	17
2	615	4	17
3	615	6	17
4	940	8	17
5	940	6	17
6	615	4	17
7	462	8	17
8	733	5	17
9	900	15	17
10	820	3	17
11	855	5	17
12	855	7	17
13	306	8	17
14	733	7	17

Type	Cylinders	Heads	Sectors Per Track
15	(reserved)		
16	612	4	17
17	977	5	17
18	977	7	17
19	1024	7	17
20	733	5	17
21	733	7	17
22	733	5	17
23	306	4	17
24	612	4	17
25	306	4	17
26	612	4	17
27	698	7	17
28	976	5	17
29	306	4	17
30	611	4	17
31	732	7	17
32	1023	5	17

Type	Cylinders	Heads	Sectors Per Track
33	751	8	17
34	755	16	17
35	731	13	26
36	980	15	17
37	936	16	17
38	981	5	17
39	981	10	17
40	762	8	39
41	980	5	17
42	832	8	33
43	683	12	38
44	513	16	38
45	776	8	33
46	683	16	38
47	832	6	33
48	615	2	34
49	989	16	63
50	823	4	38

Type	Cylinders	Heads	Sectors Per Track
51	1001	15	17
52	1024	17	22
53	723	13	51
54	548	8	38
55	1013	4	41
56	929	15	17
57	817	14	36
58	723	13	81
59	802	4	39
60	1024	9	17
61	895	5	55
62	(reserved)		
63	966	10	34
64	1024	8	17
65	1024	11	17
66	918	11	17
67	905	9	17
68	1024	10	17

Type	Cylinders	Heads	Sectors Per Track
69	1024	12	17
70	1024	13	17
71	1024	14	17
72	1024	2	17
73	1024	16	17
74	918	15	17
75	820	6	17
76	1024	5	17
77	1024	8	17
78	(reserved)		
79	1001	15	32
80	1024	16	63
81	1024	10	17
82	1024	11	17
83	1024	15	17
84	776	8	33
85	926	13	17
86	805	4	26

Type	Cylinders	Heads	Sectors Per Track
87	976	5	17
88	745	4	28
89	747	2	28
90	782	2	1Bh
91	985	13	32
92	816	15	32
93	968	5	17
94	903	8	46
95	966	5	34
96	535	10	50
97	715	10	50
98~100	(reserved)		
Auto or User	(user-defined)		

Identifying the System Utilities

This chapter contains information about the system utilities that are used when upgrading your system.

These utilities are as follows:

- AFlash BIOS Utility
- EISA Configuration Utility (ECU)

Note: The AFlash BIOS Utility diskette does not come with the system package. Ask your dealer if you need the utility.

Using the AFlash BIOS Utility

This section contains information on using the AFlash BIOS utility.

Warning   **When installing CPU boards be aware of the following:**

Do not install memory-related drivers (XMS, EMS, or DPMI) when you use Aflash.

There are two released versions of system BIOS. One is for uniprocessor CPU boards, and the other is for dual processor CPU boards. These versions of BIOS are *not* interchangeable. Flashing the incorrect version renders the system unusable.

For example, if you flash the version released for a uniprocessor CPU board on a system configured with a dual processor CPU board, you cannot use the system. If this happens, you must insert the appropriate CPU board into the system and reflash the original BIOS.

Refer to the diskette label to make sure you are using the appropriate BIOS for your system configuration.

Functions

The AFlash BIOS utility has three functions that support all the operations required for system Flash ROM directly from or to the DOS file:

- Loads the BIOS file to the buffer - reads the specified file from a diskette to memory for future program use or for check only. It supports the 64 KB, 128 KB, 192 KB or 256 KB files.

- Saves the BIOS to a disk file - reads the BIOS from the current BIOS area and writes it to a file specified by the user.

- Programs the flash memory - programs the Flash memory according to the data loaded in drive A. This function also shows the BIOS checksum and the BIOS type to make sure that the operation is correct.

Procedure

To use the Aflash BIOS utility, follow these steps:

1. Copy the MSG.DAT and AFLASH.EXE files from the system utilities diskette into a subdirectory of your choice.

2. From that subdirectory, type "aflash" and press [Enter].

3. A help message displays. Press any key to continue.

4. The main menu displays. Use the up- or down- arrow keys to highlight the options. Press [Enter] to select. If warnings or error messages appear, press any key to continue or quit.

5. If you want to save a copy of the current BIOS into a file, select *Save BIOS to Disk File*.

6. Select *Load BIOS File* to load the BIOS file into memory.

7. Select *Program Flash Memory* to erase the current BIOS, and program Flash ROM.

Warning   **Do not turn off system power while Flash BIOS is programming. This destroys the BIOS.**

8. Reboot the system.

A quicker way to load the BIOS file into memory, and program the Aflash ROM is to type "c:\aflash [*filename*]" and press [Enter].

The program automatically performs the loading and programming functions, then reboots the system.

If the program cannot find the BIOS file, it shows the main menu and flashes this message:

```
Can't Read This File !!! Press any key to
continue...
```

Follow the procedures for loading and programming BIOS file using the main menu.

Using the EISA Configuration Utility

The EISA Configuration Utility (ECU) configures your computer and the boards or options added to the system.

The ECU does the following:

- Resolves conflicts between DMA channels, interrupt (IRQ) lines, I/O port addresses, and memory requirements

- Presents the option settings that specify those parameters

- Presents settings for other functions that are necessary or desirable to make the presentation useful

Note: The EISA Configuration Utility (ECU) does not set the IRQ levels for PCI adapters. Use the BIOS Setup Utility, described in Chapter 4, to set IRQ levels for PCI adapters. You enter these IRQ settings in the ECU so that the ECU does not assign them to EISA adapters that have already been used for PCI adapters.

Before you install an expansion board, whether ISA or EISA, you must run the EISA configuration utility (ECU) to configure the system.

Installing an Expansion Board

To install an expansion board, follow these steps:

1. Run ECU and specify board parameters.

2. Configure the board.

3. Install the board.

Running ECU ensures conflict-free configuration of system components.

System Requirements

The ECU runs on any ISA or EISA computer using MS-DOS version 3.2 or higher.

It requires the following minimum features:

*   640 KB of memory
*   1.44 MB diskette drive

You may wish to use a mouse to move the cursor and to select options within the utility.

The ECU includes an executable file, SD.EXE (System Dispatcher) that helps you configure your system resources.

Using the EISA Configuration Utility

To use the utility, follow these steps:

1. Turn on your computer. (Reset the system if power is already on.)

2. Insert the system utilities diskette in drive A. The EISA Configuration Utility starts automatically.

3. The Advanced Configuration Menu displays.

4. Press any key to continue. The system loads the configuration files. If any are not found on the ECU diskette you are prompted for the diskette that contains the required configuration files.

What If It Will Not Boot?

Sometimes the EISA Configuration Utility will not boot. If this happens, perform the following procedure:

1. Using the BIOS Setup Utility, disable all PCI adapters.

2. Boot the EISA Configuration Utility.

3. Configure the system.

4. Go back into the BIOS Setup Utility, and re-enable the PCI adapters.

Menus

The ECU is a menu-driven program organized into a main menu and various submenus, with help screens for all options.

Table 5-1 describes the menu items and their submenus.

Table 5-1
EISA Configuration Utility Menu
Items and Submenus

Menu Item	Submenu	Function
System	Open	Opens an existing SCI file for editing
	Save As	Makes a backup copy of the current configuration choices in a specified SCI file
	Print	Prints configuration data about the current option or the entire configuration on a printer
	Verify	Verifies that the computer is correctly configured; the configuration is free of system resource conflicts
	Exit	Permits viewing of switch, jumper, and software settings; also used to exit the utility – without saving the new configuration or after saving the new configuration
Edit	Add	Adds a selected board option to the current configuration
	Move	Selects the current board and moves it to a selected available slot

Menu Item	Submenu	Function
	Remove	Selects the current board and removes it from the current configuration
	Change Function	Selects the current function and allows you to change the function choice; only selectable when the detailed view is active
	Change Resource	Selects the current function and allows you to change the system resources for the function; only selectable when the detailed view is active
	Revert to Saved	Sets all choices for the current board or the entire configuration to the last saved choices
	Reset to Default	Sets all choices for the current board or the entire configuration to the manufacturer's default choices
	Lock	Secures all choices for the current board or the entire configuration to the manufacturer's default choices
	Unlock	Unlocks all choices for the current board or the entire configuration
View	Overview	Displays a general overview of the configuration
	Detailed by slot	Displays a detailed view of the By Slot configuration sorted by slot
	Detailed by type	Displays a detailed view of the By Type configuration sorted by type of function
	Switch and Jumper Settings	Selects the current board or jumper option and displays settings information about its switches and jumpers

Menu Item	Submenu	Function
	Software Settings	Selects the current board or option and displays information about software drivers
	Connections	Selects the current board or option and displays information about its external cable connections
	Board Specifications	Selects the current board or Specifications option and displays information about identification and physical characteristics
	Resources	Selects the current board or function and displays system resource summary information
Settings	Auto Verify	Checks the system configuration for resource conflicts each time you change the configuration (Selecting Auto Verify turns Manual Verify off.)
	Manual Verify	Does not check the system configuration for resource conflicts (You must select Verify from the System pulldown menu to check your system configuration.)
Help	Help Topics	Displays an index of help topics which can be displayed on your screen
	Help	Displays help information about the currently selected board, option, or function (This menu item performs the same function as pressing the [F1] key.)
	How to Use Keys	Displays a list of the key sequences which you can use
	How to Use Help	Displays information about using Help
	Copyright Information	Displays copyright information about the utility

Configuring the Computer

Figure 5-1
System Configuration Overview
Menu (Page 1 of 1)

Figure 5-1 shows the System Configuration Overview menu. It displays a graphical overview of the boards and options installed in your computer.
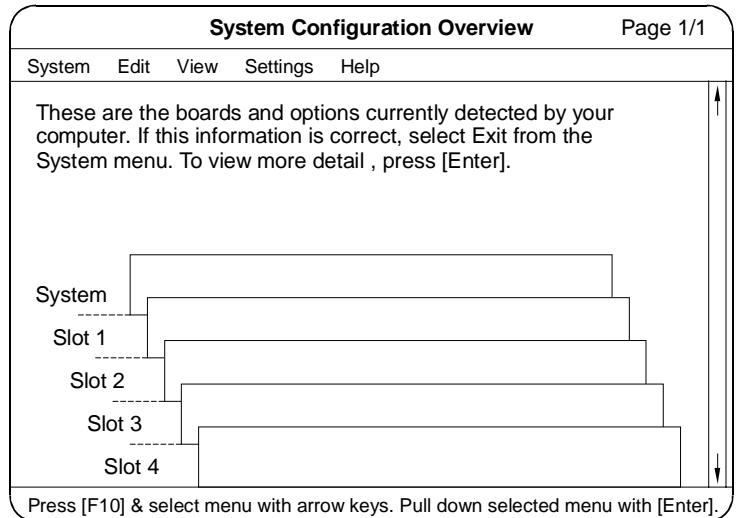
For ISA boards, write down the list of the switch, jumper, and software settings you need to change.

If no CFG file accompanies an option or board you want to install, follow the instructions that go with the option to install it.

For EISA and PCI boards, if there is a conflict of resources you need to change functions and edit resources.

The configuration options are used to do the following:

- Change resources or functions especially when resource conflicts occur

- Print configuration data about an installed board or the entire system

- Lock a configuration with the current settings; for example, the board resources are locked in the system and do not change when you add new boards to the system

- Solve resource conflicts on a computer with locked boards

At the top of the screen is a bar listing pull-down menus. Use the pull-down menus to enter configuration data about your computer. As you enter information, the entries are verified (when Auto Verify is turned on).

If the utility finds any resource conflicts, you must correct the errors by changing function and resource choices. When there are no resource conflicts, the configuration information is saved in an SCI file.

The bottom of the screen shows a line that contains a list of the keys you can use. You can get help information about a selection on a menu or any object on a screen by pressing [F1] while your cursor is on the selection or object.

You can also display help information from the Help Topics Index by selecting Help Topics from the Help pull-down menu or by pressing [Shift] + [F1].

Configuring the System Memory

Memory is not configured automatically. The system administrator must use the EISA Configuration utility (ECU) to configure the system manually.

To use the ECU to configure the system, follow these steps:

1. Boot the system with the ECU diskette.

2. Select the system baseboard from the configuration screen.

3. Select 4 - 16 MB Extended Memory from the system baseboard configuration screen. The following options display:

    ```
    4 MB Ext Memory
    8 MB Ext Memory
    12 MB Ext Memory
    16 MB Ext Memory with 15-16 MB System Used
    16 MB Ext Memory with 15-16 MB Add-on card used (Pentium used only)
    ```

4. Make the selection that is appropriate for your system configuration.

    For example, if your system comes configured with 4 MB of system memory, select 4 MB Ext Memory. If your system comes configured with 8 MB of system memory, select 8 MB Ext Memory. If your system comes configured with 12 MB of system memory, select 12 MB Ext Memory.

    If your system comes configured with 16 MB or more of system memory, and your system is **not** configured with an add-on card that requires the use of memory in the 15-16 MB range, select 16 MB Ext Memory with 15-16 MB System Used.

If your system comes configured with 16 MB or more of system memory, and your system **is** configured with an add-on card that requires the use of memory in the 15-16 MB range, select 16 MB Ext Memory with 15-16 MB Add-On Card Used.

5. After making the appropriate selection, press [Enter]. You are returned to the system baseboard configuration screen.

6. If your system is configured with more than 16 MB of system memory, press [Control] + [R] to select 16 - 64 MB Extended Memory - - - - - - - CTRL-R to add the Memory.

7. Observe the following memory configuration screen:

```
Memory Address (-) 16 M    Type: SYSTEM


Size   0
(value between 0 - 48M,
   in increments of 4M)
```

8. Tab to the size (amount of memory in range) field.

   If your system has 64 MB or more of system memory, enter 48M.

   If your system has less than 64 MB of system memory, subtract 16 MB from the amount of total system memory and enter that value in this field. For example, if your system has 24 MB of total system memory, subtract 16 MB from 24 MB to get 8

MB (24 MB - 16 MB = 8 MB), and enter 8M in the size field.

9. After entering the appropriate selection in the size field, press [Enter]. You are returned to the system baseboard configuration screen.

10. If your system is configured with more than 64 MB of system memory, press [Control] + [R] to select 64 - 128 MB Extended Memory - - - - - - - CTRL-R to add the Memory.

11. Observe the following memory configuration screen:

    ```
    Memory Address (-) 64 M    Type: SYSTEM

    Size  0
    (value between 0 - 64M,
     in increments of 4M)
    ```

12. Tab down to the size field.

    If your system has 128 MB of system memory, enter 64M.

    If your system has less than 128 MB of system memory, subtract 64 MB from the amount of total system memory and enter that value in this field. For example, if your system has 96 MB of total system memory, subtract 64 MB from 96 MB to get 32 MB (96 MB - 64 MB = 32 MB), and enter 32M in the size field.

13. After entering the appropriate selection in the size field, press [Enter]. You are returned to the system baseboard configuration screen.

14. System memory is now correctly configured. Exit from the EISA Configuration Utility. Make sure to save the system configuration.

Configuring an ISA Option Without a CFG File

To configure an ISA option without a CFG file, follow these steps:

1. Run the EISA Configuration Utility.

2. If you have a printer, print the resources used by the entire system by choosing System, then Print.

If you do not have a printer, select View, then Resources, and write down the resources used by the system.

3. Set the appropriate jumpers or switches on the ISA board. make sure that the board does not conflict with the system resources currently in use.

Avoiding Resource Conflicts

If the system uses resources needed by an ISA option, you have to release those resources and reallocate other resources to the system.

To avoid resource conflicts, follow these steps:

1. Specify other resources by selecting Edit, then Change Resource or Change Function.

2. Select System, then Print to print a list of the resources.

3. Select View, then Switch, and Jumper Settings to see how to change the switch and jumper settings. Make a note of the information.

4. Exit from the utility.

5. Turn off the system and set the jumpers and switches.

If you have locked the board configuration using Edit and Lock commands, you need to unlock the configuration to make all resources available to the ECU.

To unlock the configuration, follow these steps:

1. Select Edit, and then Unlock to unlock either the entire system or the current board. The current board is highlighted.

2. Select OK.

3. Select System, then Verify.

Options

Starting the ECU From a Fixed Disk

Although we recommend that you start this utility from the System Configuration diskette, you can start the utility from your fixed disk if you have MS-DOS installed on it.

Installing the Utility on a Fixed Disk

You must copy the utility files to your fixed disk before you can start the utility.

To copy the files, insert the System Configuration diskette in drive A and type "copy a:*.* [*d:*][*path*]" where *d:* is the fixed drive that contains the utility files and *path* is the path on the fixed drive that contains the utility files.

Starting the Utility

To run the utility, type "[*d:*][*path*]SD[/B][/H][/K][/M][/A]" and press [Enter]. Items in brackets are optional and only the information within the brackets is entered.

Table 5-2 describes the ECU parameters.

Table 5-2
EISA Configuration Utility
Parameters

Parameter	Function	Description
/B	BIOS video mode	This parameter causes all screens to be displayed using BIOS Int 10H calls. Use this parameter on computers with non-standard displays. The default mode is to write directly to video memory.
/H	High resolution display	If you have an EGA monitor, the utility displays in 43-line mode. If you have a VGA monitor, the utility displays in 50-line mode. If you do not enter this parameter, your screen displays 25 lines.
/K	Keyboard only mode	The computer does not support the use of a mouse device even if one is present. The default is to support a mouse if its driver is loaded in memory.
/M	Monochrome display	This parameter displays the screens in black and white.
/A	Expanded mode	This mode offers an expanded set of menus with additional functionality. This mode may also be activated by pressing [Control] + [A] instead of [Enter] when the Welcome screen displays.

A logo displays when the utility begins. Press any key to display a Welcome screen. Press [Enter] to display the main menu.

Starting the Configure Computer Selection from MS-DOS

You can bypass the main menu, and start the Configure Computer selection directly from MS-DOS. This permits the use of command line parameters to customize the operation of the utility. You must have MS-DOS and this utility installed on your fixed disk.

Type "[*d:*][*path*]CF[/B][/H][/K][/M][/N][/T][/F]" at the DOS prompt to start the selection from MS-DOS. Items in brackets are optional and only the information within the brackets is entered.

The parameters are described in Table 5-3. The /B, /H, /M, and /K parameters are explained in Table 5-2.

Table 5-3
Configure Computer Selection
Parameters

Parameter	Function	Description
/N	Non-target modeling mode	This parameter runs the utility in non-target modeling mode. When you run this utility, the configuration which is stored in the SYSTEM.SCI file displays.

When you save the configuration, it is normally saved to the SYSTEM.SCI file. However, with non-target modeling mode, you can create an SCI file for a computer other than the one on which you are running the utility, create multiple SCI files, and create one SCI file for multiple computers. |
| /T | Detailed view by slot | This parameter causes the default view to be detailed by slot instead of overview. |
| /F | Fast configuration operation | This is the automatic configuration mode. The utility determines the boards and options and configures the system without user assistance. |

Types of Power Supply Requirements

This appendix covers the input and output requirements of the 350-watt power supply.

Input Requirements

The following represent the input requirements of the 350-watt power supply:

- Maximum waveform harmonic distortion shall be less than 5%. The power supply must operate above frequency with both 100~120/200~240 VRMS input voltage ranges.

- The power supply must operate over both voltage ranges with an outside switch.

Table A-1 indicates the 350-watt power supply input requirements.

Table A-1
350-Watt Power Supply Input
Requirements

Input Frequency	Nominal Frequency	Frequency Variations
	50 Hz	47 Hz ~ 53 Hz
	60 Hz	57 Hz ~ 63 Hz

Input Voltage	Nominal Voltage	Variation Range
	100 ~ 120 VRMS	90 ~ 132 VRMS
	200 ~ 240 VRMS	180 ~ 264 VRMS

Input Current	Maximum Input Current	Measuring Range
	10 A	90 ~ 132 VRMS
	5 A	180 ~ 264 VRMS

Inrush Current	The power supply inrush current shall be less than the ratings of its critical components (including the fuse, rectifiers, and the surge-limiting device) for all conditions of line voltage.
Efficiency	65% minimum (measuring at maximum load, applying nominal line)

Output Requirements

The following represent the output requirements of the 350-watt power supply:

- Ripple and noise bandwidth is from DC to 20 MHz.
- +12V should provide 12 A surge current for the first 10 seconds after power on, and this regulation should be within +7% and -6%.
- Total power consumption is 350 watts.

Table A-2 indicates the 350-watt power supply output requirements (measured at output power connector).

Table A-2
350-Watt Power Supply Output
Requirements

Output	Nominal	Regulation	Minimum Output Load	Maximum Output Load	Ripple	Noise
1	+5 V	+5% to -3%	1.5 A	43 A	50 mV	100 mV
2	-5 V	+8% to -8%	0.0 A	1 A	100 mV	240 mV
3	+12 V	+5% to -4%	0.2 A	10 A	120 mV	240 mV
4	-12 V	+8% to -8%	0.0 A	1 A	120 mV	240 mV

Types of Error Messages

This appendix explains the different types of error messages and corresponding corrective measures.

There are two general types of error messages:

- Software
- System

Caution Do not continue using the computer if you receive an error message of any type. Note the message and take corrective action.

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 programs. If you receive this type of message, consult your application or operating system manual for help.

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 B-1 lists system error messages and the corresponding corrective measures.

Table B-1
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 error	Diskette may be bad. If not, replace the diskette drive or cable.
Diskette drive controller error or not installed	Check and connect the control cable to the diskette controller.
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.

Message	Action
Equipment configuration error	Modify DRAM configuration to agree with one of the options in the memory configuration shown in Figure 4-4.
Fixed disk controller error	Run Setup.
Fixed disk 0 error	Check all cable connections. Replace fixed disk.
Fixed disk 1 error	Check all cable connections. Replace fixed 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 is MB, S is Segment, O is Offset, X/Y is write/read pattern	Check the memory size based on the system specifications. Check the internal cable connections. 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 Ctrl-Alt-Esc for setup	Press [F1] or [Control] + [Alt] + [Esc].

Message	Action
Press F1 to setup or other key to continue	Press [F1] and reconfigure the system.
Real time clock error	Check the RTC chip. If it is still good, run Setup. If not, replace the RTC chip.

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, that is, 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. Always write them down when the system is correctly configured.

   Note: An incorrect configuration is a major cause of power-on error messages, especially for a new system.

2. Remove the system cover. Check that the jumpers on the system board and any expansion boards are set correctly.

3. If you cannot access a new disk, it may be because your disk is not properly formatted. Format the disk first using the FDISK and FORMAT commands.

4. Check that all connectors and boards are securely plugged in.

If you go through the corrective steps above 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 both cases, contact an authorized service center for assistance.

Types of Sample Configurations

Two sample configurations are discussed in this appendix:

- Standard Configuration
- RAID Configuration

Use the sample configurations to help configure your system.

Sample Standard Configuration

A standard configuration might consist of the following:

- Pentium 166 MHz processor with parity memory support

- 32 MB system memory

- ISA video board with 1 MB video RAM

- PCI Ethernet adapter (SMC8432BTA)

- PCI Token Ring adapter (Olicom OC-3136)

- 2 GB SCSI Fast and Wide disk drive connected to an integrated Adaptec 7870 PCI SCSI controller

- SCSI CD-ROM drive connected to an integrated Adaptec 7870 PCI SCSI controller

Following are the steps to install and configure this sample configuration.

Installing the Hardware

To install the hardware, follow these steps:

1. Strap the SCSI IDs for the 2 GB SCSI disk drive and the SCSI CD-ROM drive. (See the documentation that came with your drives for strapping information.)

2. Install the 2 GB SCSI disk drive in a hot plug carrier and install in the top hot plug bay.

3. Install the SCSI CD-ROM drive in the top front drive bay.

4. Connect power cables and SCSI cables to the SCSI CD-ROM drive. A Fast/Wide SCSI cable should already be connected from the Adaptec controller on the baseboard to the hot plug backplane.

5. Install the memory SIMMs in bank 1 on the system baseboard (installed in groups of two SIMMs).

6. Install the PCI Ethernet Adapter in PCI slot 1 (topmost PCI slot).

7. Install the PCI Token Ring Adapter in PCI slot 2 (below the PCI Ethernet adapter).

8. Install the ISA Video Board in EISA/ISA slot 2 (second EISA/ISA slot from the top).

Configuring the System Settings

To configure the system settings in the BIOS Setup Utility, follow these steps:

1. Turn on power to the system. Observe that the memory test is executed (memory addresses should be rapidly displayed in upper left-hand corner of screen). Ignore any memory size mismatch error displayed on the screen.

2. Press [Control] + [Alt] + [Esc] when prompted to enter the BIOS Setup Utility.

3. Select Load System Defaults and press [Enter].

4. Select Basic System Configuration. To go from page to page, press [Page Down] or [Page Up].

5. Go to page 2 and set parameters as follows (in the order indicated):

    Hard Disk Block Mode   [Disabled]
    Advanced PIO Mode   [Disabled]
    Hard Disk Size > 504   [Disabled]
    Hard Disk 32-Bit Access   [Disabled]
    Auto Configuration   [Disabled]
    Fast Boot Mode   [Disabled]
    Num Lock After Boot   [Enabled]
    Memory Test   [Enabled]

6. Return to page 1, and set parameters as follows:

    Diskette Drive A   [1.44 MB 3.5-inch]
    Diskette Drive B   [None]
    Fixed Disk 0 (0 MB)   [None]
    Fixed Disk 1 (0 MB)   [None]

7. Press [Esc] to return to the main menu in BIOS Setup.

8. Select Advanced System Configuration.

    Page 1 - Verify that the parameters are set as follows:

    C0000h - C7FFFh (Video BIOS)   [Enabled]
    C8000h - CFFFFh   [Disabled]
    D0000h - D7FFFh   [Disabled]
    D8000h - DFFFFh   [Disabled]

    Internal Cache (CPU Cache)   [Enabled]

External Cache   [Enabled]
Cache Scheme   [Write Back]

Caution: Do **not** select Write Through for the Cache Scheme.
Selecting Write Through for the Cache Scheme renders
the system unusable.

System Memory Parity   [Enabled]
Memory at 15 MB-16 MB Res for   [System] Use
E0000h - FFFFFh (System BIOS)   [Cacheable]
C0000h - C7FFFh (Video BIOS)   [Cacheable]

For Dual Processor Boards:

Page 2 - Set the parameters as follows:

Guaranteed Access Time Mode   [Enabled]
Highest Priority Device for PCI Arb   [Rotation]

9. Press [Esc] to return to the main menu in BIOS
Setup.

10. Select System Security. On Page 1, set the
parameters as follows:

Disk Drive Control
    Diskette Drive   [Normal]
    Fixed Disk Drive   [Normal]
    System Boot Drive   [Drive A Then C]

On Board Communication Ports
    Serial Port 1 Base Address [3F8h]
    Serial Port 2 Base Address [2F8h]
    Parallel Port Base Address [Parallel 1 (3BCh)]
        Operation Mode [Stndrd PP (SPP)]

EPP Version Selection   [1.7]

Setup Password   [None]
Power On Password   [None]

11. Press [Esc] to return to the main menu in BIOS Setup.

Configuring the PCI Adapters

To configure the PCI adapters, follow these steps:

1. Select PCI System Configuration from the main menu in BIOS Setup.

2. Use the up and down arrow keys to select the PCI slot number. Use the right and left arrow keys to change the IRQ Level for INTA Pin settings.

- Available IRQ settings are 3, 4 ,5, 7, 9, 10, 11, 14, 15.

- To make IRQ 3 available for selection, you must disable Serial Port 2 in the System Security menu.

- To make IRQ 4 available for selection, you must disable Serial Port 1 in the System Security menu.

- To make IRQ 7 available for selection, you must disable Parallel Port 1 in the System Security menu.

3. Make the following settings:

- Set PCI IRQ Setting to Manual.

- Set PCI slot 1 (PCI Ethernet Adapter SMC8432BTA) to IRQ5.

- Set PCI slot 2 (PCI Token Ring Adapter Olicom OC-3136) to IRQ 14.

- Set PCI slot 3 to --.

- Set the On Board SCSI to IRQ 11.

- Set the VGA Palette Snoop to Disabled.

- Set the On Board SCSI AIC-7870 to Enabled.

- Set the Boot Drive to Enabled.

When you finish, the screen should look like the following:

PCI IRQ Setting	[Manual]			
	INTA	INTB	INTC	INTD
PCI Slot 1	[5]	[14]	[--]	[11]
PCI Slot 2	[14]	[--]	[11]	[5]
PCI Slot 3	[--]	[11]	[5]	[14]
On Board SCSI	[11]	[5]	[14]	[--]
VGA Palette Snoop	[Disabled]			
On Board SCSI AIC-7870	[Enabled]			
Boot Device	[Enabled]			

4. Press [Esc] to return to the main menu in BIOS Setup.

5. Press [Esc], again. Select Yes to save System Settings and PCI Adapter settings, and to reboot the system.

Configuring the SCSI Adapters and Drives

After configuring the System Settings and PCI Adapter settings using the BIOS Setup Utility, the system reboots.

To configure the SCSI adapters and drivers, if connected to an Adaptec SCSI adapter, follow these steps:

1. Press [Control] + [A] when the following displays:

   ```
   Adaptec AIC-7870 BIOS v1.2
   <<Press hot key for SCSI Select (TM)
   Utility>>
   ```

   (Refer to the Adaptec SCSI documentation for additional information about these settings).

2. Select SCSI Disk Utilities. Observe that the 2 GB disk drive and the CD-ROM drive are displayed with the correct information. If a low-level format on the 2 GB disk drive is needed, perform it now. It is usually not needed.

3. Select Configure/View Host Adapter Settings and set the parameters as follows:

   SCSI Bus Interface Definitions
   Host Adapter SCSI ID   [7]
   SCSI Parity Checking   [Enabled]
   Host Adapter SCSI Term   [Low ON/High
   Boot Device Options:
       Boot Target ID   [0]
       Boot LUN Number   [0]

4. Select SCSI Device Configuration and set the parameters as follows:

SCSI Device ID (tab to desired device)

Initiate Sync Negotiation	[yes]
Maximum Sync Transfer Rate	[20]
Enable Disconnection	[yes]
Initiate Wide Negotiation	[yes]
Send Start Unit Command	[yes]

5. Press [Enter] to return to previous menu.

6. Select Advanced Configuration Options and set the parameters as follows:

Host Adapter BIOS (Config Util...)	[Enabled]
Support Removable Disks...	[Boot Only]
Extended BIOS Translation...	[Enabled]
Display <CTRL-A> Message During BIOS Initialization...	[Enabled]
Multiple LUN Support	[Disabled]
BIOS Support for More than 2...	[Enabled]

7. Press [Enter] to return to previous menu.

8. Press [Esc] until prompted to save configuration. Save the configuration and the system reboots.

Configuring the Memory and Other Baseboard Settings

Sometimes the EISA Configuration Utility will not boot. If this happens, perform the following procedure:

1. Using the BIOS Setup Utility, disable all PCI adapters.

2. Boot the EISA Configuration Utility.

3. Configure the system.

4. Return to the BIOS Setup Utility, and re-enable the PCI adapters.

To configure memory and other baseboard settings, follow these steps:

1. Insert the EISA Configuration Utility in the diskette drive. Observe that the EISA Configuration Utility boots properly.

2. Select M5 from the Advanced Configuration menu.

   Note: Refer to Chapter 5 for instructions on configuring the memory correctly.

   The PCI Adapter IRQ values entered below do **not** set the IRQ level for PCI Adapters.

   PCI Adapter IRQ settings are set in the BIOS Setup Utility. You enter the IRQ settings in the EISA Configuration Utility so that the EISA Configuration Utility does not assign IRQ values to EISA Adapters that have already been used for PCI Adapters.

   Make sure the parallel port and serial ports are configured the same way as in the BIOS Setup Utility.

3. Configure the baseboard options as follows:

    System Memory Function
        Base System Memory   [640K Base Mem]
        4-16 MB Ext Memory   [16MB Ext Mem...]
        16-64 MB Ext Memory   [Ctrl-R to add...]
    PCI Devices IRQ
        On board 7870 SCSI   [Disabled]
        PCI slot 1   [Disabled]*
        PCI slot 2   [Disabled]*
        PCI slot 3   [Disabled]*
    System BIOS Type   [E, F Segment...]
    Peripheral Device Status
        Mouse Port   [Enabled]
        Keyboard Port   [Enabled]
        Floppy Disk Controller   [Enabled]
        IDE HDD Interface   [Disabled]
        Parallel Port   [Enabled as LPT1...]
        Serial Port 1   [Enabled as Serial 1...]
        Serial Port 2   [Enabled as Serial 2...]
    System Setting
        Special System Ports   [Enabled]
        EISA Reserved Device   [Enabled]

*Note: If a PCI adapter is configured in the system, change Disabled to the IRQ level for the PCI adapter installed in the slot.

4. Exit and save the configuration.

At this point the server is setup, configured, and ready for the operating system.

Sample RAID Configuration

A RAID configuration might consist of the following:

- Pentium 166 MHz Processor w/ECC Mem Support

- 128 MB System Memory

- ISA Video Board with 1 MB Video RAM

- PCI Ethernet Adapter (SMC8432BTA)

- PCI Token Ring Adapter (Olicom OC-3136)

- PCI RAID Adapter (Mylex)

- Four 4 GB SCSI wide hard drives connected to the Mylex RAID controller

- One 2 GB SCSI wide hard drive connected to the onboard AIC-7870 SCSI controller

- SCSI CD-ROM drive connected to the onboard AIC-7870 SCSI controller

Installing the Hardware

To install the hardware, follow these steps:

1. Split the hot plug backplane.

2. Strap the 2 GB wide drive as SCSI ID 0. Plug it into the hot plug backplane in drive bay 1 (top).

3. Strap the CD-ROM drive as SCSI ID 3. Insert it into the top, front 5.25-inch drive bay. Connect the power cable and the narrow SCSI cable to the CD-ROM drive.

4. Strap the four 4 GB wide drives as SCSI IDs 0, 1, 2, 3. Plug them into the hot plug backplane in drive bays 5, 6, 7, and 8 (bottom four drive bays).

5. Install the memory SIMMs in banks one and two on the system baseboard (installed in groups of two SIMMs).

6. Install the PCI Ethernet Adapter in PCI slot 1 (topmost PCI slot).

7. Install the PCI Token Ring Adapter in PCI slot 2.

8. Install the PCI RAID Adapter in PCI slot 3.

Configuring the System Settings

The procedure is the same as the procedure for configuring the system settings in the Standard Configuration. The procedure is repeated here for your convenience.

To configure the system settings, follow these steps:

1. Turn on power to the system. Observe that the memory test is executed (memory addresses should be rapidly displayed in upper left-hand corner of screen). Ignore any memory size mismatch error displayed on the screen.

2. Press [Control] + [Alt] + [Esc] when prompted to enter the BIOS Setup Utility.

3. Select Load System Setup Defaults and press [Enter].

4. Select Basic System Configuration. To go from page to page, press [Page Down] or [Page Up].

5. Go to Page 2 and set parameters as follows, in the order indicated:

Hard Disk Block Mode	[Disabled]
Advanced PIO Mode	[Disabled]
Hard Disk Size > 504	[Disabled]
Hard Disk 32-Bit Access	[Disabled]
Auto Configuration	[Disabled]
Fast Boot Mode	[Disabled]
Num Lock After Boot	[Enabled]
Memory Test	[Enabled]

6. Return to Page 1, and set parameters as follows:

Diskette Drive A	[1.44 MB 3.5-inch]
Diskette Drive B	[None]
Fixed Disk 0 (0 MB)	[None]
Fixed Disk 1 (0 MB)	[None]

7. Press [Esc] to return to the main menu in BIOS Setup.

8. Select Advanced System Configuration.

    Page 1 - Verify that the parameters are set as follows:

C0000h - C7FFFh (Video BIOS)	[Enabled]
C8000h - CFFFFh	[Disabled]
D0000h - D7FFFh	[Disabled]
D8000h - DFFFFh	[Disabled]
Internal Cache (CPU Cache)	[Enabled]

External Cache   [Enabled]
Cache Scheme   [Write Back]

System Memory Parity   [Enabled]
Memory at 15 MB -16 MB Res for   [System] Use
E0000h - FFFFFh (System BIOS)   [Cacheable]
C0000h - C7FFFh (Video BIOS)   [Cacheable]

For Dual Processor Boards:

Page 2 - Set the parameters as follows:

Guaranteed Access Time Mode   [Enabled]
Highest Priority Device for PCI Arb   [Rotation]

9. Press [Esc] to return to the main menu in BIOS
    Setup.

10. Select System Security. On Page 1, set the
    parameters as follows:

    Disk Drive Control
        Diskette Drive   [Normal]
        Fixed Disk Drive   [Normal]
        System Boot Drive   [Drive A then C]

    On Board Communication Ports
        Serial Port 1 Base Address   [3F8h]
        Serial Port 2 Base Address   [2F8h]
        Parallel Port Base Address   [Parallel 1 (3BCh)]
            Operation Mode [Stndrd PP (SPP)]
            EPP Version Selection   [1.7]

    Setup Password   [None]
    Power On Password   [None]

11. Press [Esc] to return to the main menu in BIOS Setup.

Configuring the PCI Adapters

To configure PCI adapters, follow these steps:

1. Select PCI System Configuration from the main menu in BIOS Setup.

2. Use the up and down arrow keys to select the PCI slot number. Use the right and left arrow keys to change the IRQ Level for INTA Pin settings.

   • Available IRQ settings are 3, 4 ,5, 7, 9, 10, 11, 14, and 15.

   • To make IRQ 3 available for selection, you must disable Serial Port 2 in the System Security menu.

   • To make IRQ 4 available for selection, you must disable Serial Port 1 in the System Security menu.

   • To make IRQ 7 available for selection, you must disable Parallel Port 1 in the System Security menu.

3. Make the following settings:

   • Set PCI IRQ setting to Manual.

   • Set PCI slot 1 (PCI Ethernet Adapter SMC8432BTA) to IRQ5.

   • Set PCI slot 2 (PCI Token Ring Adapter Olicom OC-3136) to IRQ 14.

   • Set PCI slot 3 (Mylex PCI RAID Adapter) to IRQ 15.

- Set the On Board SCSI to IRQ 11.
- Set the VGA Palette Snoop to Disabled.
- Set the On Board SCSI AIC-7870 to Enabled.
- Set the Boot Drive to Enabled.

When you finish, the screen should look like the following:

PCI IRQ Setting	[Manual]			
	INTA	INTB	INTC	INTD
PCI Slot 1	[5]	[14]	[15]	[11]
PCI Slot 2	[14]	[15]	[11]	[5]
PCI Slot 3	[15]	[11]	[5]	[14]
On Board SCSI	[11]	[5]	[14]	[15]
VGA Palette Snoop	[Disabled]			
On Board SCSI AIC-7870	[Enabled]			
Boot Device	[Enabled]			

4. Press [Esc] to return to the main menu in BIOS Setup.

5. Press [Esc] again. Select Yes to save System Settings and PCI Adapter settings and to reboot the system.

Configuring the SCSI Adapters and Drives

After configuring the System Settings and PCI Adapter settings using the BIOS Setup Utility, the system reboots.

To configure the SCSI adapters and drivers, if connected to an Adaptec SCSI adapter, follow these steps:

1. Press [Control] + [A] when the following displays:

```
Adaptec AIC-7870 BIOS v1.2
<<Press hot key for SCSI Select (TM)
Utility>>
```

(Refer to the Adaptec SCSI Manual for additional information about these settings).

2. Select SCSI Disk Utilities. Observe that the information that displays for the 2 GB disk drive and the CD-ROM drive is correct. If a low-level format on the 2 GB disk drive is needed, perform it now. It is usually not needed.

3. Select Configure/View Host Adapter Settings and set the parameters as follows:

   SCSI Bus Interface Definitions
   Host Adapter SCSI ID   [7]
   SCSI Parity Checking   [Enabled]
   Host Adapter SCSI Term   [Low ON/High ON]
   Boot Device Options:
       Boot Target ID   [0]
       Boot LUN Number   [0]

4. Select SCSI Device Configuration and set the parameters as follows:

   SCSI Device ID (tab to desired device)
   Initiate Sync Negotiation   [yes]
   Maximum Sync Transfer Rate   [20]
   Enable Disconnection   [yes]
   Initiate Wide Negotiation   [yes]
   Send Start Unit Command   [yes]

5. Press [Enter] to return to previous menu.

6. Select *Advanced Configuration Options* and set the
    parameters as follows:

    Host Adapter BIOS (Config Util...)   [Enabled]
    Support Removable Disks...   [Boot Only]
    Extended BIOS Translation...   [Enabled]
    Display <CTRL-A> Message During   [Enabled]
    BIOS Initialization...
    Multiple LUN Support   [Disabled]
    BIOS Support for More than 2...   [Enabled]

7. Press [Enter] to return to previous menu.

8. Press [Esc] until prompted to save configuration.
    Save the configuration and the system reboots.

Configuring the Memory and Other Baseboard Settings

The procedure is the same as the procedure for
configuring memory and other baseboard settings in the
Standard Configuration. The procedure is repeated for
your convenience.

Sometimes the EISA Configuration Utility will not boot.
If this happens, perform the following procedure:

1. Using the BIOS Setup Utility, disable all PCI
    adapters.

2. Boot the EISA Configuration Utility.

3. Configure the system.

4. Go back into the BIOS Setup Utility, and re-enable the PCI adapters.

To configure memory and other baseboard settings, follow these steps:

1. Insert the EISA Configuration Utility in the diskette drive. Observe that the EISA Configuration Utility boots properly.

2. Select M5 from the Advanced Configuration menu.

    Note: Refer to Chapter 5 for instructions on configuring the memory correctly.

    The PCI Adapter IRQ values entered below do **not** set the IRQ level for PCI Adapters.

    PCI Adapter IRQ settings are set in the BIOS Setup Utility. You enter the IRQ settings in the EISA Configuration Utility so that the EISA Configuration Utility does not assign IRQ values to EISA Adapters that have already been used for PCI Adapters.

    Make sure the parallel port and serial ports are configured the same way as in the BIOS Setup Utility.

3. Configure the baseboard options as follows:

    ```
    System Memory Function
        Base System Memory        [640 K Base Mem]
        4-16 MB Ext Memory        [16 MB Ext Mem...]
        16-64 MB Ext Memory       [Ctrl-R to add...]
    PCI Devices IRQ assignment
        On board 7870 SCSI        [Disabled]
    ```

PCI Slot 1   [Disabled]*
PCI Slot 2   [Disabled]*
PCI Slot 3   [Disabled]*
System BIOS Type   [E, F Segment...]
Peripheral Device Status
    Mouse Port   [Enabled]
    Keyboard Port   [Enabled]
    Floppy Disk Controller   [Enabled]
    IDE HDD Interface   [Disabled]
    Parallel Port   [Enabled as LPT1...]
    Serial Port 1   [Enabled as Serial 1...]
    Serial Port 2   [Enabled as Serial 2...]
System Setting
    Special System Ports   [Enabled]
    EISA Reserved Device   [Enabled]

***Note:**   If a PCI adapter is configured in the system, change Disabled to the IRQ level for the PCI adapter installed in the slot.

4.   Exit and save the configuration.

Configuring the Mylex RAID Array Group

Prior to installing the operating system, it is necessary to use the Mylex Disk Array Configuration Utility to configure the Array Group.

Refer to the *Mylex Disk Array Controller User's Manual* for detailed instructions.

Features

The hot plug wide SCSI backplane subsystem consists of a BP-W8 backplane and drive trays that support wide SCSI hard drives. It is specifically designed for a tower housing (IDUN) and accommodates up to eight SCSI drives.

The backplane subsystem has the following major features:

- Hot Plug feature that allows replacement of a defective hard drive even while the system is in full operation

- Two LEDs on the SCSI drive front panel to indicate power and drive failure

- Supports fast-and-wide (16-bit) devices

- Allows "split" and "combine" SCSI-channel configurations

- Fixed 2.85-volt and controlled impedance of 90 ~ 110 ohms for more stable hard disk performance (For ultra SCSI, the impedance is 90 ±10%)

- Supports other external SCSI devices that are not directly connected to the backplane board
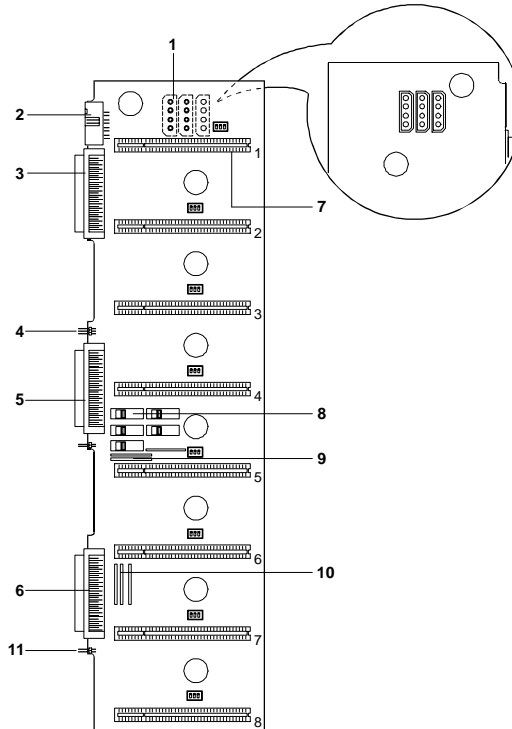
Major Components

This section describes the major components of the hot plug backplane.

Hot Plug Backplane

Figure D-1 illustrates components of the hot plug backplane.

Figure D-1
Hot Plug Backplane Components

1	Power connector	7	SCSI drive slot
2	Front panel LED connector	8	Terminator switches
3	SCSI channel 1	9	Terminators RA4, RA5, RA6
4	J3	10	Terminators RA1, RA2, RA3
5	SCSI channel 2	11	J4
6	SCSI channel 3		

Hot Plug SCSI Drive Tray

The backplane subsystem comes with a 68-pin wide SCSI drive tray connector.

Figure D-2
Hot Plug SCSI Drive Tray
Components
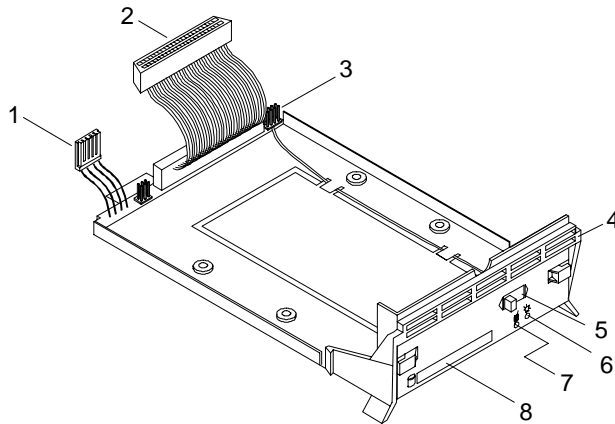
1 Power connector
2 68-pin wide-SCSI connector
3 Power control connector (J4)
4 Drive tray handle
5 Power switch
6 Power LED
7 Faulty drive LED
8 Drive activity LED window

SCSI Channel Configurations

The backplane SCSI channels 1 and 2 can support eight
SCSI devices. You may configure the backplane as
single-channel (combine) or dual-channel (split)
controller. In single-channel configuration, channel 1
supports the SCSI devices plugged into slots 1 through
8. In a dual-channel configuration, channel 1 supports
the devices in slots 1 through 4, and channel 2 supports
the devices in slots 5 through 8.

Single-Channel Configuration

Figure D-3 illustrates a single-channel configuration.

Figure D-3
Single-Channel Configuration

Connect to the system board Wide SCSI connectors

Connect to external SCSI devices

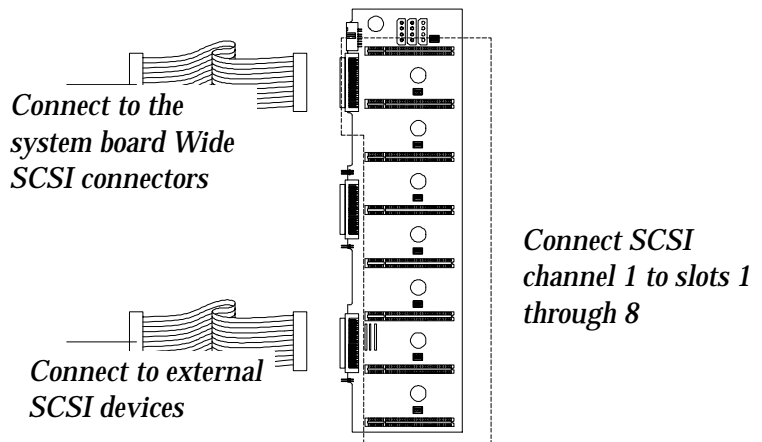*Connect SCSI channel 1 to slots 1 through 8*

Table D-1 lists the terminator settings for the single-channel configuration.

Table D-1
Terminator Settings for Single-Channel Configuration

Terminator	Setting
With External Device	
RA1, RA2, RA3	Removed
RA4, RA5, RA6	Removed (see note)
Without External Device	
RA1, RA2, RA3	Installed
RA4, RA5, RA6	Removed

Note: For configurations with external device, terminate the signal at the external device. Also, be sure the terminator switches are set to the left (combine) position when installing a single-channel configuration. See Figure D-1.

Dual-Channel Configuration

Figure D-4
Dual-Channel Configuration

Figure D-4 illustrates a dual-channel configuration.

Connect to the system board Wide SCSI connectors

Connect to external SCSI devices

Connect SCSI channel 1 to slots 1 through 4

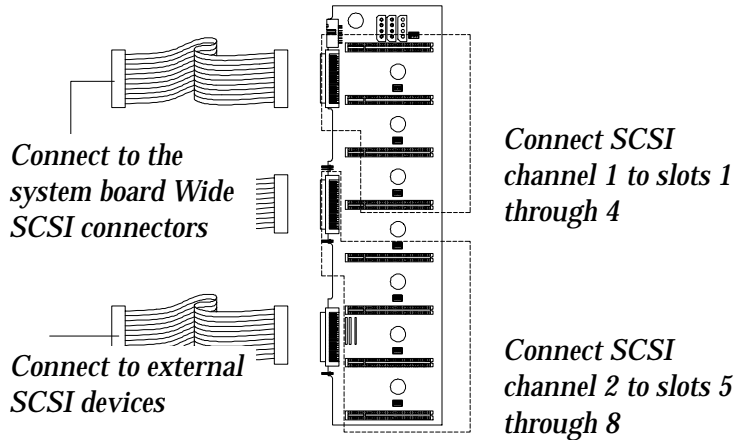*Connect SCSI channel 2 to slots 5 through 8*

Table D-2 lists the terminator settings for the dual-channel configuration.

Table D-2
Terminator Settings for Dual-Channel Configuration

Terminator	Setting
With External Device	
RA1, RA2, RA3	Removed
RA4, RA5, RA6	Installed
Without External Device	
RA1, RA2, RA3	Installed
RA4, RA5, RA6	Installed

Note: Be sure the terminator switches are set to the right (split) position when installing a dual-channel configuration. See Figure D-1.

Installation

This section describes the hot plug backplane installation procedures.

Using the System Board SCSI Connectors

If your system board has onboard SCSI connectors, you may connect them directly to the backplane channels using SCSI cables.

To install the backplane when you are using the SCSI connectors on the system board, follow these steps:

1. Set the terminator switches on the backplane according to your planned SCSI channel configuration. Refer to the "SCSI Channel Configurations" section earlier in this appendix for the channel configurations.

2. Define the SCSI drive IDs by setting the SCSI ID jumpers on the hard disk drive.

3. Remove all the old hard disk drive trays from the system, if any.

4. Install the backplane and secure it with eight screws.

Figure D-5
Installing the Hot Plug Backplane
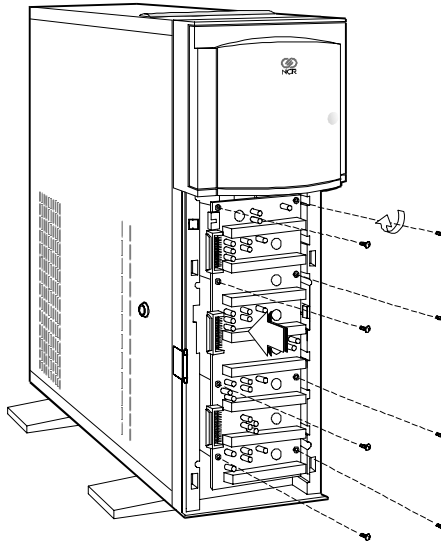
5. Connect three power cables into the connectors at the back of the backplane board.

6. Remove the terminators on each of the SCSI drives that you will install.

7. Position the drive over the hot plug tray and connect the SCSI cable and power cable.

Figure D-6
Connecting the Drive Cables
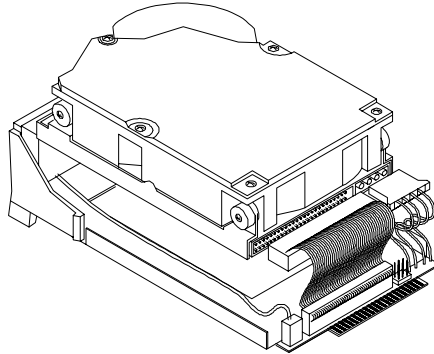
8. Secure the drive to the tray with four screws.

Figure D-7
Securing the Drive to the Hop Plug Tray
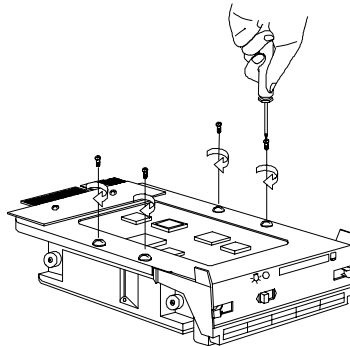
9. Install the drive tray into the backplane board.

   Note: Make sure that the power switch on the drive tray is set to the Unlock/Power Off position before you plug it to the board.

Figure D-8
Installing the Hot Plug Drive Tray
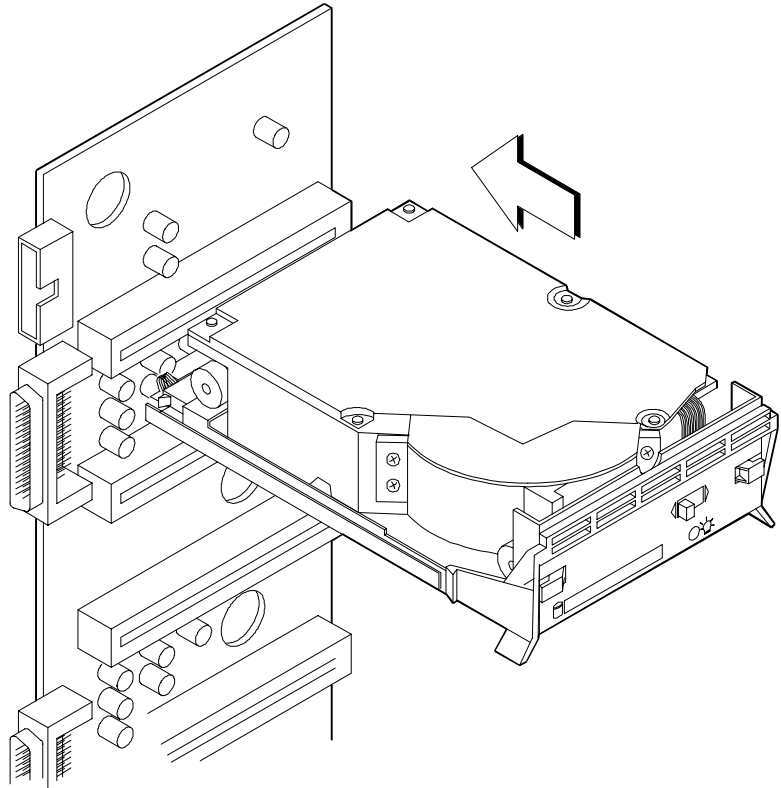
10. Power on the system.

11. Slide the power switch of the drive tray to the Lock/Power On position. The power LED lights up.

Using a RAID Controller Board

You can install a RAID controller and have it connected to the backplane.

To install the backplane board when you are using a RAID controller board, follow these steps:

1. Set the terminator switches on the backplane according to your planned SCSI channel configuration. Refer to the "SCSI Channel Configuration" section of this appendix for the channel configurations.

2. Define the SCSI drive IDs by setting the SCSI ID jumpers on the hard disk drive.

3. Install the backplane and secure it with eight screws. Refer to Figure D-5.

4. Connect three power cables into the connectors at the back of the backplane board.

5. Connect one end of each of the SCSI cables to the channels on the RAID controller board and the other end to the corresponding channels on the backplane. Figure D-9 shows how to connect the cables properly.

   The SCSI cables are specifically marked and configured for each of the channels.

Figure D-9
Connecting the Power and SCSI
Cables
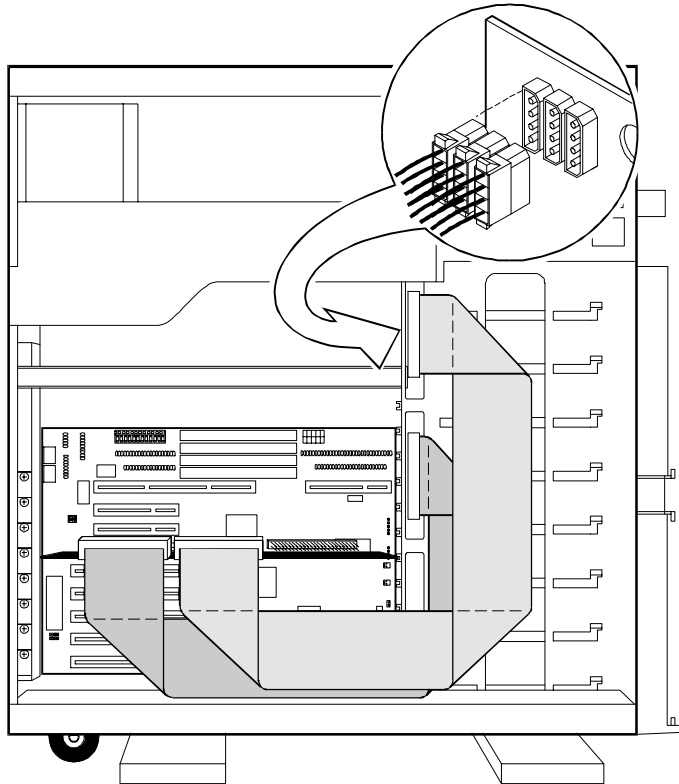
6. Follow steps 6 to 11 under the previous "Using the System Board SCSI Connectors" heading in this section to complete the installation.

Using the Hot Plug Feature

The faulty drive indicator on the hot plug drive tray lights up whenever the drive that it carries becomes bad or defective. When this happens, you can replace the defective drive without shutting off the system or quitting any running application by using the hot plug feature.

To use the hot plug feature, follow these steps:

1. Set the hot plug drive tray power switch to the Unlock/Power Off position.

2. Pull out the drive tray.

3. Take out the defective drive from the tray.

4. Configure the new hard disk. Make sure that the new drive ID is the same as the old drive ID.

5. Install the new disk according to the installation steps in the "Installation" section of this appendix.

   Note: Make sure that the power switch on the drive tray is set to the Unlock/Power Off position before you plug it to the backplane board.

Preface

This appendix includes the forms to enter complete
records for the NCR S10XL Hot Plug system. You
should keep complete and accurate records.

This appendix includes the following sections:

- **Support Services** - Information about NCR support services

- **Hardware Records** - Logs to enter the hardware performance and service records

- **Software Records** - Logs to enter the software records

- **Current System Configuration** - Logs to identify system components and peripherals

- **Preventive Maintenance** - Logs to enter preventive maintenance activities

- **Installation Records** - A place to file records of the original parts and configuration of the system as it was shipped from the factory

- **Customer Support Agreement** - A place to file a copy of your current support agreement.

- **List of NCR Support Telephone Numbers** - A list of support telephone numbers for the United States and other areas of the world

Support Services

This section is for recording and maintaining information about NCR support services.

The following items are included in this section:

- A place to record your class/model number, serial number, and system ID number
- An overview of NCR on-site hardware support services
- A page to record NCR support phone numbers
- The procedure for placing a hardware support call
- The procedure for placing a software support call

System Numbers

This system support log is for the follow system:

Enter Class/Model Number _____

Enter Serial Number _____

Enter System ID Number _____

NCR On-Site Hardware Support Services

NCR offers on-site system hardware support. Check with your local office for detailed coverage hours. Three support levels are available, as listed below.

	Priority Plus	Priority	Next Day
Coverage Hours	24 hours 7 days	8 a.m. - 9 p.m. Mon-Fri	8 a.m. - 5 p.m. Mon-Fri
Response Time*	Best response; not to exceed 4 hours	Best response; not to exceed 4 hours	Next working day
Usage Environment	Highly Critical	Urgent	Less critical

* Response time to locations beyond 160 km may be longer.

NCR Support Phone Numbers

A list of NCR support telephone numbers is located at the end of this appendix. Enter the NCR support phone numbers that you will use in this section.

Enter Hardware Support Number   _____

Enter Software Support Number   _____

Enter After Hours Support Number   _____

To place a hardware support call, follow these steps:

Placing a Hardware Support Call

1. Call the hardware support number you recorded on the previous page. Note that after-hours calls are subject to an extended coverage charge.

2. Provide the following information to the support associate:

   - Model/serial number

   - Brief description of symptoms, including any error messages or numbers displayed

   - Your NCR Customer Support Agreement number

   - Your company name and address

   - Name and telephone number of the person NCR should contact about the problem

   - Purchase order number

   - Billing address

3. Ask the support associate for the Support Call Incident number assigned to your support call. Use this number if you have questions regarding the support problem.

4. The support associate will direct your call to a system analyst, depending on availability, or NCR will return your call. Be prepared to provide the following information:

- Record any failure or error information displayed. If appropriate, record the entire screen.

- Perform a memory dump of the system, if possible.

- Be prepared to answer these questions:

  - Is this an initial or recurring problem?

  - Under what circumstances did the failure or error occur?

  - Is any non-NCR equipment in use?

  - Did you perform a memory dump?

  - Have you made any recent changes to the system?

  - What operating system and version are you using?

5. Depending on the kind of failure or error, the system analyst may ask you to perform a system backup.

Placing a Software Support Call

Software support contract agreements are available to support your local operating system environment. Ask about these service products at the support center.

To place a software support call, follow these steps:

1. Call the software support number you recorded under the heading "NCR Support Phone Numbers" earlier in this appendix. Note that after-hours calls are subject to an extended coverage charge.

2. Provide the following information to the support associate:

   - System/network handle

   - Brief description of symptoms, including any error messages or numbers displayed

   - Your company name and address

   - Name and telephone number of the person NCR should contact about the problem

3. A system analyst will return your call. Be prepared to provide the following information:

   - Operating system version

   - Application module

   - Application/program version

   - The exact wording of the error message, including the number, if applicable

Hardware Records

This section is for recording and maintaining hardware performance and service records. These records allow the system user and support associates to get important information to ensure successful operation of the system.

Note: To maintain accurate records, it is essential that you complete all customer entry portions of the appropriate log when placing a support call.

Different Types of Logs

There are different ways to maintain hardware records. Discuss these different types of logs with your account support associate. Then, set up the logs according to your company's needs. The descriptions below give examples of several recording methods.

One Log for All Service

Maintain one Hardware Log for all service performed on the system, including the CPU, hard drives, peripheral drives, plotters, printers, other components, and peripherals. Record all preventive maintenance, service notes, and updates in this log.

One Log for The System and a Separate Log for Each Peripheral Device

Maintain one Hardware Log for repair service, preventive maintenance, support notes, and updates that apply only to the CPU and the entire system.

Maintain separate Hardware Logs for the repair service, preventive maintenance, support notes, and updates for system peripherals. For example, use a separate form for each hard drive, peripheral drive, plotter, and printer on the system.

Use another Hardware Log to record support information on all the miscellaneous devices such as terminals, distributed terminal controllers, small printers, and PCs.

This method is useful when you have large systems with many peripherals. Then whenever a peripheral is moved to a different system, the Hardware Log can stay with the equipment.

One Log for the System and Separate Logs for Each Peripheral Category

Maintain one Hardware Log for repair service, preventive maintenance, support notes, and updates that apply only to the CPU and the entire system.

Maintain separate Hardware Logs for system peripherals. Maintain one log for all the hard drives on the system, another for all the printers, and so on. Maintain an additional log for miscellaneous devices such as terminals, small printers, and PCs.

Hardware Log

Page _____

Customer Entry	NCR Entry			
	☐ Service Note	☐ PM	☐ Repair	☐ Upgrade
Date/Time NCR Notified	Date Start Time		Incident #	
Operator	Class/Model#		Serial#	
NCR Contact	Completion Time			
PO#/Signature (if required)	Action (including follow-up commitments)			
Problem				
	Parts P/N	P/N	P/N	P/N
	P/N	P/N	P/N	P/N

Hardware Log

Page _____

Customer Entry	NCR Entry			
	☐ Service Note	☐ PM	☐ Repair	☐ Upgrade
Date/Time NCR Notified	Date Start Time		Incident #	
Operator	Class/Model#		Serial#	
NCR Contact	Completion Time			
PO#/Signature (if required)	Action (including follow-up commitments)			
Problem				
	Parts P/N	P/N	P/N	P/N
	P/N	P/N	P/N	P/N

Hardware Log

Page _____

Customer Entry	NCR Entry			
	☐ Service Note	☐ PM	☐ Repair	☐ Upgrade
Date/Time NCR Notified	Date Start Time		Incident #	
Operator	Class/Model#		Serial#	
NCR Contact	Completion Time			
PO#/Signature (if required)	Action (including follow-up commitments)			
Problem				
	Parts P/N	P/N	P/N	P/N
	P/N	P/N	P/N	P/N

Hardware Log

Page _____

Customer Entry	NCR Entry			
	□ Service Note	□ PM	□ Repair	□ Upgrade
Date/Time NCR Notified	Date Start Time		Incident #	
Operator	Class/Model#		Serial#	
NCR Contact	Completion Time			
PO#/Signature (if required)	Action (including follow-up commitments)			
Problem				
	Parts P/N	P/N	P/N	P/N
	P/N	P/N	P/N	P/N

Hardware Log

Page _____

Customer Entry	NCR Entry			
	☐ Service Note	☐ PM	☐ Repair	☐ Upgrade
Date/Time NCR Notified	Date Start Time		Incident #	
Operator	Class/Model#		Serial#	
NCR Contact	Completion Time			
PO#/Signature (if required)	Action (including follow-up commitments)			
Problem				
	Parts P/N	P/N	P/N	P/N
	P/N	P/N	P/N	P/N

Hardware Log

Page _____

Customer Entry	NCR Entry			
	☐ Service Note	☐ PM	☐ Repair	☐ Upgrade
Date/Time NCR Notified	Date Start Time		Incident #	
Operator	Class/Model#		Serial#	
NCR Contact	Completion Time			
PO#/Signature (if required)	Action (including follow-up commitments)			
Problem				
	Parts P/N	P/N	P/N	P/N
	P/N	P/N	P/N	P/N

Hardware Log

Page _____

Customer Entry	NCR Entry			
	☐ Service Note	☐ PM	☐ Repair	☐ Upgrade
Date/Time NCR Notified	Date Start Time		Incident #	
Operator	Class/Model#		Serial#	
NCR Contact	Completion Time			
PO#/Signature (if required)	Action (including follow-up commitments)			
Problem				
	Parts P/N	P/N	P/N	P/N
	P/N	P/N	P/N	P/N

Hardware Log

Page _____

Customer Entry	NCR Entry			
	☐ Service Note	☐ PM	☐ Repair	☐ Upgrade
Date/Time NCR Notified	Date Start Time		Incident #	
Operator	Class/Model#		Serial#	
NCR Contact	Completion Time			
PO#/Signature (if required)	Action (including follow-up commitments)			
Problem				
	Parts P/N	P/N	P/N	P/N
	P/N	P/N	P/N	P/N

Software Records

This section is for recording and maintaining software performance and service records. These records allow the system user and support associates to get important information to ensure successful operation of the system.

Note: To maintain accurate records, it is essential that the customer complete all customer entry portions of the Software Product Log or the System Software Log when placing a support call.

NCR S10XL Hot Plug Server User Guide

Software Product Log

Name of Software Package _____ **Page** _____

System Serial Number	Product Number	
Sales Order Shipped	Operating System	
Initial Date Shipped	Warranty Code	

Date Installed	Revision	Update	Patch	Revision Level	Product Name	Sales Order Number	Name of Installer

Software Product Log

Name of Software Package _____ **Page** _____

System Serial Number	Product Number
Sales Order Shipped	Operating System
Initial Date Shipped	Warranty Code

Date Installed	Revision	Update	Patch	Revision Level	Product Name	Sales Order Number	Name of Installer

Software Product Log

Name of Software Package _____ **Page** _____

System Serial Number	Product Number	
Sales Order Shipped	Operating System	
Initial Date Shipped	Warranty Code	

Date Installed	Revision	Update	Patch	Revision Level	Product Name	Sales Order Number	Name of Installer

Software Product Log

Name of Software Package _____   **Page** _____

System Serial Number	Product Number
Sales Order Shipped	Operating System
Initial Date Shipped	Warranty Code

Date Installed	Revision	Update	Patch	Revision Level	Product Name	Sales Order Number	Name of Installer

System Software Log

Page _____

Customer Entry	NCR Entry	
Date/Time NCR Notified	Date Start Time	NCR Contact
Operator	Resolution	
Software Version		
Nickname		
PICS ID#		
Problem (symptom, failure#, error#)		

System Software Log

Page _____

Customer Entry	NCR Entry	
Date/Time NCR Notified	Date Start Time	NCR Contact
Operator	Resolution	
Software Version		
Nickname		
PICS ID#		
Problem (symptom, failure#, error#)		

System Software Log

Page _____

Customer Entry	NCR Entry	
Date/Time NCR Notified	Date Start Time	NCR Contact
Operator	Resolution	
Software Version		
Nickname		
PICS ID#		
Problem (symptom, failure#, error#)		

System Software Log

Page _____

Customer Entry	NCR Entry		
Date/Time NCR Notified	Date Start Time		NCR Contact
Operator	Resolution		
Software Version			
Nickname			
PICS ID#			
Problem (symptom, failure#, error#)			

System Software Log

Page _____

Customer Entry	NCR Entry	
Date/Time NCR Notified	Date Start Time	NCR Contact
Operator	Resolution	
Software Version		
Nickname		
PICS ID#		
Problem (symptom, failure#, error#)		

System Software Log

Page _____

Customer Entry	NCR Entry	
Date/Time NCR Notified	Date Start Time	NCR Contact
Operator	Resolution	
Software Version		
Nickname		
PICS ID#		
Problem (symptom, failure#, error#)		

System Software Log

Page _____

Customer Entry	NCR Entry		
Date/Time NCR Notified	Date Start Time	NCR Contact	
Operator	Resolution		
Software Version			
Nickname			
PICS ID#			
Problem (symptom, failure#, error#)			

System Software Log

Page _____

Customer Entry	NCR Entry	
Date/Time NCR Notified	Date Start Time	NCR Contact
Operator	Resolution	
Software Version		
Nickname		
PICS ID#		
Problem (symptom, failure#, error#)		

Current System Configuration

This section is for recording and maintaining information about system components and peripherals.

Complete the following on the forms provided in this section:

- Adapter board locations
- System equipment list
- Hardware configuration report (a printout of current system I/O configuration)

Adapter Board Locations

Record the physical location of each adapter board installed in the CPU.

System Equipment List

This list provides a convenient location to record the serial numbers, class/model numbers, and location of system equipment.

Hardware Configuration Report

As you make changes in the system, make a listing of the system's current I/O configuration in this section.

Adapter Board Locations

Record information about each adapter board installed in your system.

PCI Slot 1	
PCI Slot 2	
PCI Slot 3 Shared	
EISA Slot 1 Shared	
EISA Slot 2	
EISA Slot 3	
EISA Slot 4	
EISA Slot 5	

System Equipment List

Page _____

Physical Path	LDEV or LU Number	Device Model Number	Device Serial Number	Description	Location / Phone

System Equipment List

Page _____

Physical Path	LDEV or LU Number	Device Model Number	Device Serial Number	Description	Location / Phone

Hardware Configuration

As you make changes in the system, make a listing of the system's current I/O configuration in this section.

Preventive Maintenance

This section is for entering preventive maintenance activities.

The primary purpose of preventive maintenance is to keep unscheduled interruptions to a minimum. Following a well-planned preventive maintenance program can help you maintain a high level of system performance at a minimum cost.

This section provides the following information and forms:

- General customer preventive maintenance guidelines
- General customer preventive maintenance procedures
- Preventive Timetable Worksheets
- Forms for recording preventive maintenance reference manuals and procedures

It is important for you to perform preventive maintenance on a regular basis. This section includes a form for listing the materials and equipment required to perform preventive maintenance on each piece of equipment and a brief description of the procedure.

You should establish a preventive maintenance schedule when the system is installed. Take the environment into consideration. For example, if you have an extremely dusty environment, the system will

require more frequent cleaning. Use the Preventive Timetable Worksheets provided to record the schedule.

General Customer Preventive Maintenance Guidelines

General customer preventive maintenance guidelines are as follows:

Central Processor Unit (CPU)

Clean CPUs on a regular basis to prevent heat build-up due to dust on electronic components. Use a high quality cleaner prescribed for computer equipment.

Disk Drives

Check the preventive maintenance procedures listed in the documentation that came with your disk drive.

Tape Drives

Clean the magnetic tape path at regular intervals to remove oxide build-up, especially on the read/write head. Use only the prescribed cleaning fluids to clean the tape path. Improper use of non-prescribed cleaners can leave residue that can increase tape read/write errors and damage the tape drive and tapes.

Use only high quality tapes. Use of poor quality tapes can lead to loss of data and damage to the tape drive.

Plotters

Clean plotters on a regular basis. Check the preventive maintenance procedures listed in the documentation that came with your plotter.

Terminals and PCs

Clean terminals and PCs and replace batteries on a regular basis. If battery replacement is necessary, follow the procedures in the documentation that came with your terminal or PC.

General Customer Preventive Maintenance Procedures

Use this list as a guide only. Refer to the documentation that came with individual devices for specific procedures.

- Review and investigate any problems logged in the Hardware Log since the past preventive maintenance.

- Review the System Software Log files.

- Inspect the equipment. Check all lamps, indicators, switches, controls, fans, blowers, and air filters. Replace worn parts if necessary.

- Observe the operation of the equipment.

- Run the self-test diagnostic.

- Clean device exterior surfaces.

- Check only those adjustments known to require periodic attention.

- Provide users with feedback about overall system performance.

- Record the preventive maintenance information on the appropriate Hardware Log.

Preventive Maintenance Timetable Worksheet

Year _____

Product	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Time Required												
Scheduled Date												
Scheduled Time												
CE or Customer Initial												

Preventive Maintenance Timetable Worksheet

Year _____

Product	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Time Required												
Scheduled Date												
Scheduled Time												
CE or Customer Initial												

Preventive Maintenance Reference Sheet

Device Name	Special Tools, Equipment, and Materials	Preventive Maintenance Procedure	Reference Manual (Title, Part #, and Page #)

Preventive Maintenance Reference Sheet

Device Name	Special Tools, Equipment, and Materials	Preventive Maintenance Procedure	Reference Manual (Title, Part #, and Page #)

Installation Records

This section is for attaching information about the parts and configuration of the system as it was shipped from the factory.

Attach documents here such as packing lists, hardware configuration records, and software installation records.

Note: After the system is installed, complete the "Current System Configuration" section earlier in this appendix.

Customer Support Agreement

Attach a copy of your current customer support agreement here.

List of NCR Support Telephone Numbers

This section contains support telephone numbers for the United States and other areas of the world.

NCR Faxback System

Call the NCR Faxback system at 1-803-939-2082 to receive a free faxed list of the latest information available. The information you need may be available through this fax system.

United States Support

In the United States, call the NCR General Purpose Global Support Center.

AT&T UNIX SVR4 MP-RAS	1-800-543-9935
Other Supported Network Operating Systems	1-800-469-4668

Other Areas Support

Toll numbers are marked with an asterisk (*). Toll-free numbers are unavailable in those areas.

Australia	1-800-069-238	Luxembourg-FR	0800-2998
Austria	06-605722	Malaysia	800-5067
Belgium-FRA	0800-71252	Netherlands	06-0225121
Belgium-NED	0800-71253	New Zealand	0-800-445-337
Canada	1-800-387-7557	Norway	800-11351
Cyprus	080-92252	Philippines	1-800-611-0037
Denmark	800-18422	Poland	31-35-687-6023*
Dubai	31-35-687-6032*	Portugal	05-05313334
Egypt	31-35-687-6033*	PRC	10-800-3571
Finland	31-35-687-6022*	Russia	31-35-687-6026*
France	05-917938	Saudi Arabia	31-35-687-6031*
Germany	0130-815252	Singapore	800-616-1271
Greece	00800-311252	South Africa	800-995009
Hong Kong	800-3353	Spain	900-983152
India	61-2-935-3992*	Sweden	020-795830
Indonesia	001-800-61-850	Switzerland	155-7703
Ireland	1-800-553110	Taiwan	0080-611-196
Israel	177-3103708	Thailand	001-800-6115-071
Korea	0078-61-1-0483	United Kingdom	0800-963969
Lebanon	31-35-687-6034*	United States	1-800-774-7406
Luxembourg-GE	0800-5242	Zimbabwe	31-35-687-6042*

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