InfoServer 1000

Installation and Owner's Guide

Order Number: EK–INFLC–OM. A01

This manual describes how to install, use, test, and maintain the InfoServer 1000 system and packaged configurations.

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取扱説明書に従って正しい取り扱いをして下さい。

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Preface

Document Purpose

This document describes how to install, use, test, and maintain the InfoServer 1000 system and packaged configurations including the InfoServer 1000 as a component. The InfoServer 1000 is a general-purpose disk storage server that quickly and efficiently transfers data between SCSI devices connected to the server and remote network client systems.

For information on session management and software commands, see the *InfoServer System Operations Guide*.

Intended Audience

This document is designed for the people responsible for installing, using, or maintaining InfoServer 1000 systems.

Document Structure

This document is organized as follows:

- **Chapter 1** provides an overview of the InfoServer 1000 system, including the available configurations and indicator descriptions.
- **Chapter 2** provides instructions for installing new standalone InfoServer 1000 systems.
- **Chapter 3** provides instructions for installing new InfoTower mounted InfoServer 1000 systems.
- **Chapter 4** provides instructions for completing an installation, including the starting and booting of InfoServer 1000 systems.
- **Chapter 5** provides information on installing and using add-on storage devices and software-loading devices such as compact-disc drives.

- **Chapter 6** explains how to connect your system to a ThinWire Ethernet or a standard Ethernet network. The chapter also explains how to connect systems into a simple ThinWire workgroup.
- **Chapter 7** provides troubleshooting information.

Appendixes provide information on the following topics:

- **Appendix A** provides a checklist of the basic installation steps.
- **Appendix B** provides instructions for loading and unloading CD-ROM drives.
- **Appendix C** provides instructions for setting SCSI ID numbers on drives for custom configurations.
- **Appendix D** provides system specifications.
- **Appendix E** lists system field replaceable units.

The Glossary defines technical terms used in the document.

Conventions

The following conventions are used in this document:

Return	Boxed wording represents a key name. It indicates that you press a key on the keyboard.
I O	This specifically represents the on/off power switch on equipment. You press | to turn power on, or O to turn power off.
boldface text	Boldface text represents the introduction of a new term defined in the glossary, or a phrase that is emphasized in text.
UPPERCASE TEXT	Uppercase letters indicate that you must enter a command (for example, enter TEST 50).
numbers	Unless otherwise noted, all numbers in the text are assumed to be decimal. Nondecimal radixes—binary, octal, or hexadecimal—are explicitly indicated.

Related Documents

Consult your Digital sales representative for information on obtaining the documents listed in Table 1.

Table 1 Related Documents

Title	Order Number
InfoServer Documentation	
InfoServer System Operations Guide	AA–PJXJB–TE
InfoServer 100 Installation and Owner's Guide	EK–DIS1K–IN
InfoServer 150 Installation and Owner's Guide	EK–INFSV–OM
InfoTower Installation and Owner's Guide	EK–INFOE–OM
Client Documentation	
InfoServer Client for OpenVMS LASTCP and LADCP Utilities	AA–PT4DA–TE
LASTport Handbook	EK–LADLA–AS
InfoServer Client for Macintosh Installation and User's Guide	AA–PPV5B–TE
InfoServer Client for DOS Installation and User's Guide	AA–PJX3A–TE
InfoServer Client for ULTRIX Installation and User's Guide	AA–PNRDA–TE

(continued on next page)

Table 1 (Cont.) Related Documents

Title	Order Number
SCSI Device Documentation	
RRD40 Disc Drive Owner's Manual	EK–RRD40–OM
RRD42 Disc Drive Owner's Manual	EK–RRD42–OM
RWZ01 Magneto-Optical Disk Drive User's Guide	EK–RWZ01–UG
RZ24 Hard Disk Drive Installation Guide	EK–RZ24I–IS
SZ03 Storage Expansion Box Owner's Guide	EK–SDDBY–OG
TK50Z User's Guide	EK–OTK50–UG
TLZ04 Cassette Tape Drive Owner's Manual	EK–TLZ04–OM
TLZ06 Cassette Tape Drive Installation Guide	EK–STEXP–AD
TLZ06 Cassette Tape Drive Owner's Manual	EK–TLZ06–OM
TZ85 Tabletop Cartridge Tape Subsystem Installation Guide	EK–TZ85T–IG
TZ86 Tabletop Cartridge Tape Subsystem Installation Guide	EK–TZ86T–IG
TZK10 Cartridge Tape Drive Owner's Guide	EK–TZK10–OG
DECconnect System Documentation	
DECconnect System General Description	EK–DECSY–GD
DECconnect System Requirements Evaluation Workbook	EK–DECSY–EG
DECconnect System Installation and Verification Guide	EK–DECSY–VG
DECconnect System Standalone ThinWire Networks: Planning and Installation Guide	EK–DECSY–TG
DECconnect System Planning and Configuration Guide	EK–DECSY–CG

1

InfoServer 1000 System Overview

1.1 Introduction

The InfoServer 1000 system is a dedicated SCSI storage server that quickly and efficiently transfers data between SCSI devices connected to the server and remote network **client systems**. It provides a low-cost data sharing capability that is flexible and easy to manage.

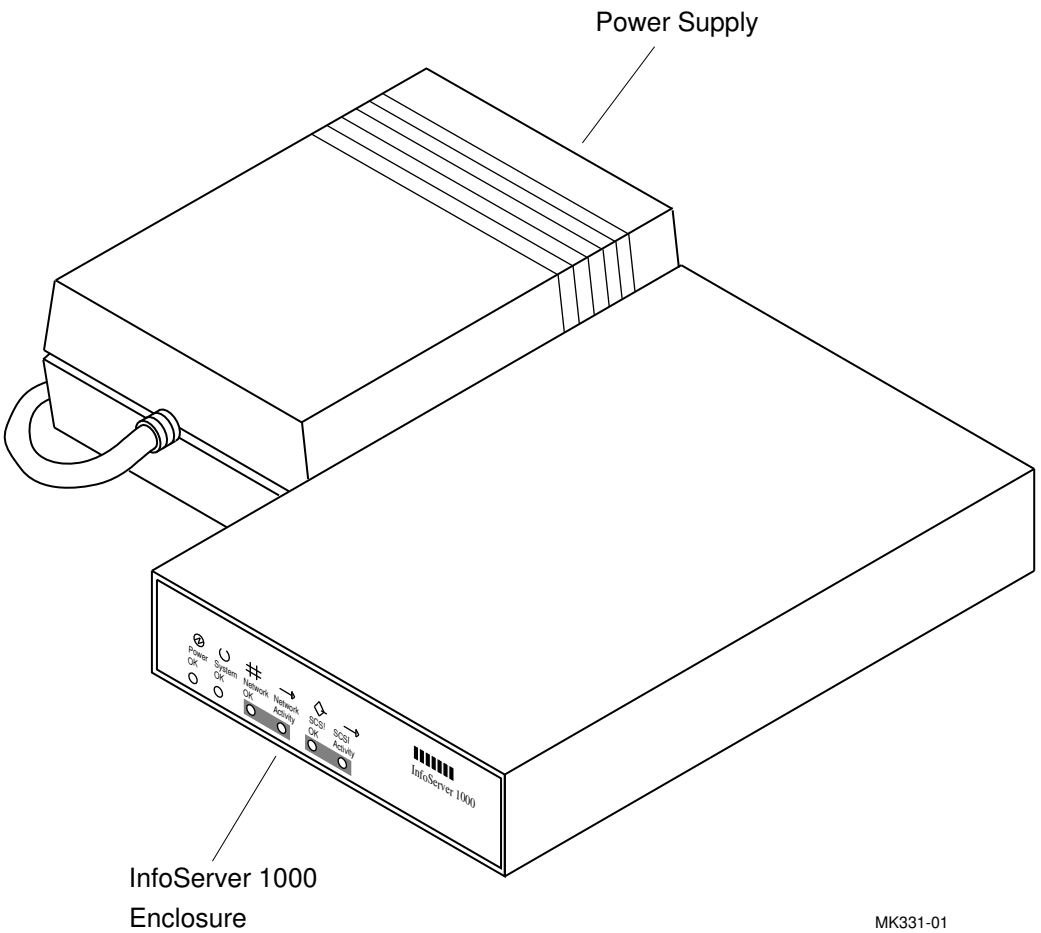
The InfoServer 1000 system can support many diverse operating systems and applications. For example, OpenVMS, ULTRIX, MS–DOS, Mac, and other client systems can share software distribution and documentation on compact discs connected to the server. Most VAX systems can use the server to load their **bootstrap** program, and then perform an OpenVMS operating system installation from a compact disc connected to the server.

The InfoServer 1000 is a small, modular black box server. When the server is attached through SCSI cabling to specific storage devices, it offers the devices to clients on the network. Thus, the clients can share access requests to the devices. Designed with an industry-standard 5.25-inch form factor, it can either sit on a table top daisy-chained to devices, or be mounted into an InfoTower enclosure.

The InfoServer 1000 may be configured with many different storage options. Figure 1–1 shows the standalone InfoServer 1000 product with its external power supply. This is the main component of the server system.

InfoServer 1000 System Overview

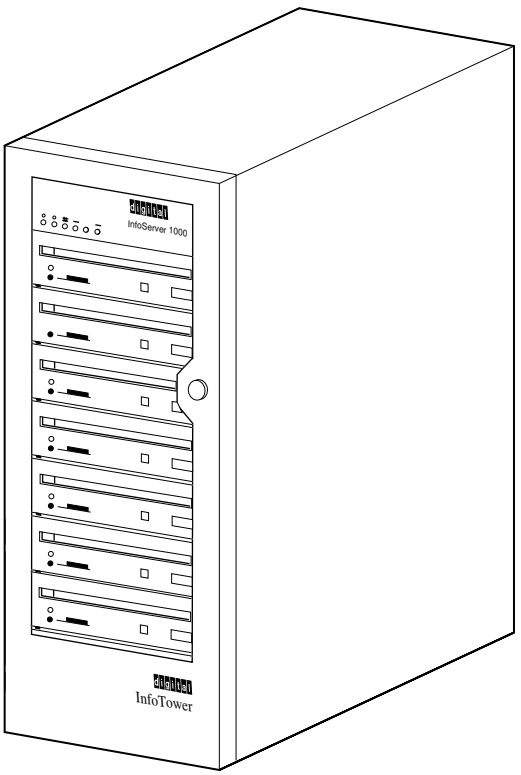
Figure 1–1 Standalone InfoServer 1000



InfoServer Librarian

Figure 1–2 shows the InfoServer 1000 mounted in an InfoTower enclosure. The InfoTower enclosure houses the InfoServer 1000 along with up to seven additional SCSI storage devices. This figure depicts the InfoServer Librarian configuration. The InfoServer Librarian is designed for users needing to share CD-ROM applications in a network. It is configured with either four or seven CD-ROM drives.

Figure 1–2 The InfoServer Librarian



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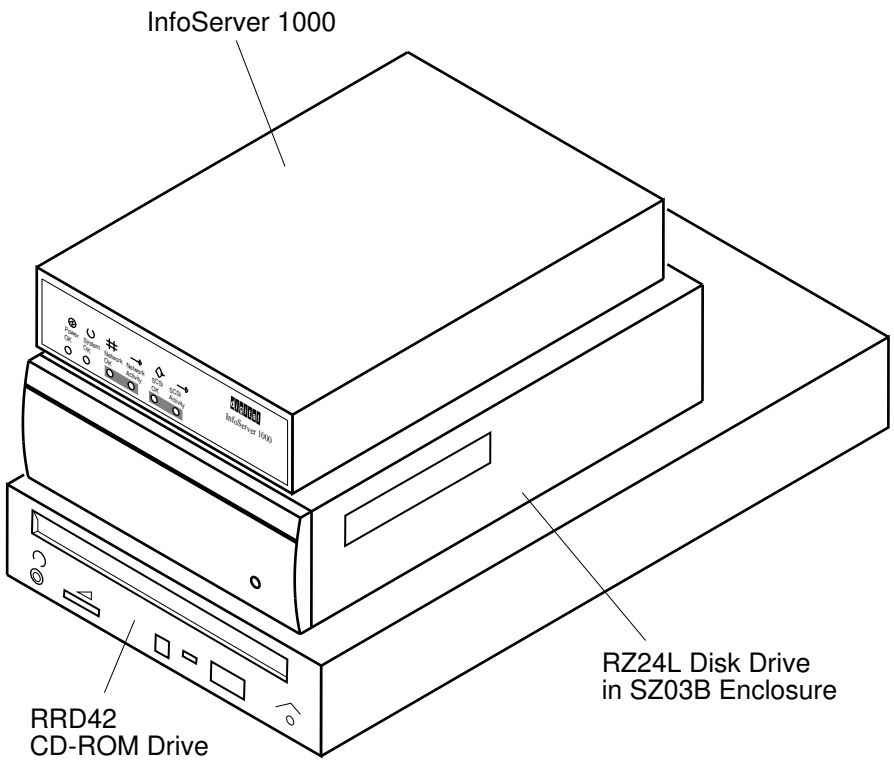
InfoServer VXT

Figure 1–3 shows the InfoServer VXT configuration. The InfoServer VXT is designed for X-Window terminal users desiring to reduce expense and off-load the host through the use of a server. It is configured with a fixed hard-disk drive and an optional CD-ROM drive.

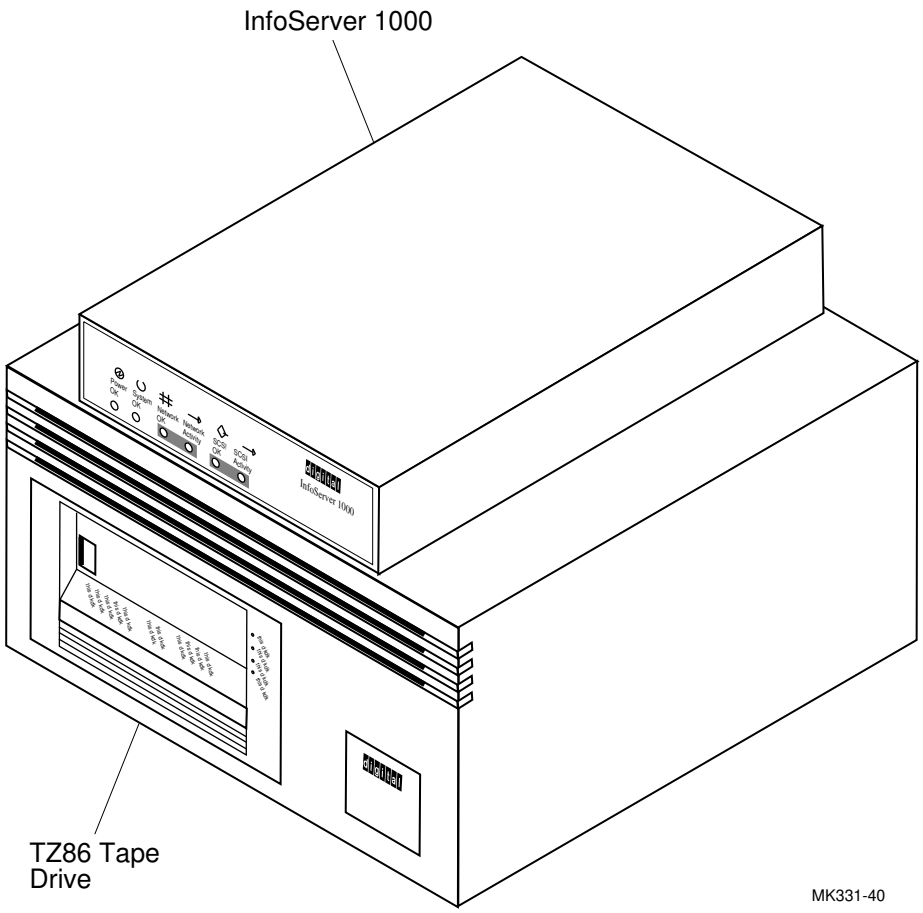
Figure 1–3 The InfoServer VXT



InfoServer Scribe

Figure 1–4 shows the InfoServer Scribe configuration. The InfoServer Scribe is designed for users desiring to back up their systems over the network onto tape subsystems. It is configured with either a high-capacity cartridge tape drive (shown) or a 4 mm digital audiotape (DAT) drive.

Figure 1–4 The InfoServer Scribe



1.2 System Highlights

Your InfoServer 1000 system has many special features.

- Memory—The system comes with 4 MB of internal random access memory (RAM).
- ThinWire Ethernet or standard Ethernet connectability—You can connect the InfoServer 1000 system to ThinWire or standard Ethernet workgroups and networks, but not to more than one type at the same time.
- Internal writeable configuration storage—The InfoServer 1000 system includes internal memory that stores server configuration information.
- Self-sensing power supply—The external power supply (standalone configuration) accepts power inputs in the ranges of 100 Vac to 120 Vac and 200 Vac to 240 Vac, at 50 or 60 Hz. A selection switch is not needed.

  The InfoTower power supply configuration is switch selectable.
- Communication ports—A single DEC423 asynchronous port (with MMJ connector for VT-series terminals) is a standard provision. You can use this port to connect a terminal to the server to establish a local server management session. (Refer to Section 2.3.4 and the *InfoServer System Operations Guide* for more information.) This port is preset to run at 9600 baud. Any terminal connected to this port must initially be set at 9600 baud.
- SCSI connectability—The Small Computer Systems Interconnect II (SCSI-II) is an industry standard for connecting mass storage devices.
- Add-on storage devices—External standalone expansion peripherals may be purchased for the standalone configuration to provide added storage capability (Table 1–1). These external peripherals must be qualified by Digital to meet the system requirements. You can connect up to seven (7) external drives to the InfoServer 1000, provided that you observe SCSI bus length guidelines.

  Alternatively, you can purchase an InfoTower enclosure that houses and connects the InfoServer 1000 along with up to seven (7) *internal* drives. The InfoTower provides the benefits of less power consumption (one power supply for all drives), reduced desktop real estate, and elimination of cable clutter.

Table 1–1 Optional Storage Drives

Model	Description	Capacity
RRD40	Compact disc drive	600 MB
RRD42	Compact disc drive	600 MB
RWZ01	Magneto-optical disk drive	594 MB
RZ23L	Hard-disk drive	121 MB
RZ24L	Hard-disk drive	245 MB
RZ25	Hard-disk drive	426 MB
RZ56	Hard-disk drive	665 MB
RZ57	Hard-disk drive	1 GB
RZ58	Hard-disk drive	1.38 GB
TK50Z	Cartridge tape drive	Up to 95.0 MB
TLZ04	4 mm digital audiotape drive	Up to 1.2 GB
TLZ06	4 mm digital audiotape drive	Up to 4.0 GB
TZ85	Cartridge tape drive	Up to 2.6 GB
TZ86	Cartridge tape drive	Up to 6.0 GB
TZK10	Cartridge tape drive	Up to 525 MB

1.3 CD-ROM Services

The InfoServer 1000 system should have at least one RRD42 compact-disc drive configured in the system or network for software updating purposes.

CD-ROM services will not be evident on the network unless there is a compact disc loaded on one of the CD-ROM readers attached to the InfoServer 1000 system.

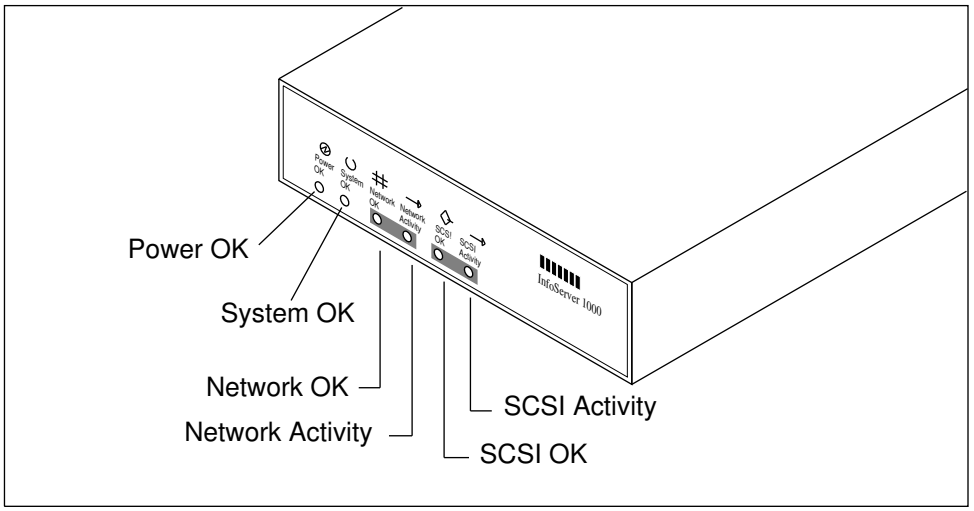
1.4 Console Terminal

Design of the InfoServer 1000 system requires a minimum amount of system management. You normally issue server commands by using a LAT terminal session created to the InfoServer 1000 system from a terminal server. In the rare event that the InfoServer 1000 has problems communicating with client systems, you can connect a terminal to the MMJ port on the back of the enclosure (refer to Section 2.3.4) and follow the instructions in Chapter 7 to troubleshoot the problem. The recommended console terminal is a VT300 or VT400 series terminal.

1.5 Front Panel Indicators

The InfoServer 1000 has six front panel indicators. They show the status of various system conditions. Figure 1–5 shows the indicator locations and names. A list of each indicator and its function follows. Familiarize yourself with the meaning of these indicators before proceeding to system installation and startup.

Figure 1–5 InfoServer 1000 Front Panel Indicators



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INDICATOR FUNCTIONS

System Group

Power OK—The H7827-BA or InfoTower power supply is providing the correct dc voltages to the InfoServer 1000. The InfoServer 1000 is turned on.

System OK—When blinking once/second indicates that the power-on self-test diagnostics have passed and the InfoServer software **kernel** is running. If on or off, the software is halted or hung.

Network Group

Network OK—When on or blinking, the InfoServer 1000 is connected to an operating Ethernet and there is network activity.

Network Activity—When on, the unicast network packet received is destined for this particular InfoServer 1000. This does not apply to multicast packets.

SCSI Group

SCSI OK—When on, all SCSI peripherals on the bus are accessible. When off, one or more SCSI peripherals on the bus are not accessible (perhaps powered off).

SCSI Activity—When on, a data transfer is in process on the SCSI bus. When off, no data of any kind is being passed on the SCSI bus.

2

Installing Standalone System Configurations

2.1 Introduction

This chapter covers the hardware installation procedures for the following standalone InfoServer 1000 packaged system configurations:

- *InfoServer VXT* X-Window terminal server
- *InfoServer Scribe* network tape backup server

Installation procedures cover the standalone InfoServer 1000 and use the RRD42 compact-disk drive as an example of an expansion peripheral. For specific installation procedures and operating instructions for other peripherals, refer to the documentation provided with the peripheral.

Installing and setting up your standalone InfoServer 1000 system is easy. This chapter provides step-by-step instructions on how to perform the following operations:

- Choosing the right location for the system
- Unpacking, inspecting, and connecting system components
- Turning on and off the system power

Appendix A contains a brief installation checklist, without the details provided in this chapter.

2.2 Choosing the Right Location for the System

Use the following checklist to keep your system operating at its best:

- Carefully read all installation instructions before you turn on the power.
- Keep the temperature between 10° C and 32° C (50° F and 90° F).
- Keep the relative humidity between 10 percent and 90 percent.

Installing Standalone System Configurations

- Keep the air well circulated to prevent excess heat and dust from accumulating.
- Keep your equipment away from heaters, photocopiers, direct sunlight, and abrasive particles.
- Before you set up your system, select a surface that will hold the standalone InfoServer 1000 and associated expansion peripherals. Your desk or work table is a good choice.
- Keep the area clean. Do not place food or liquid on or near your equipment, and do not place your InfoServer 1000 directly on the floor. Dust and dirt will damage the system components.
- Connect your InfoServer 1000 system to a dedicated grounded circuit.

  If you have several pieces of equipment that need to be plugged into a power outlet, use a grounded power strip. Many power strips come with an on/off switch and a power-surge protector.

  Do not exceed the circuit power capacity.
- To avoid damaging equipment that has been moved inside from a cold environment, let the equipment warm to room temperature before you turn it on.

2.3 Unpacking and Inspecting the Standalone System Components

The standalone InfoServer 1000 system is shipped in one carton. This carton contains the InfoServer 1000 hardware with accessories and documentation. The smaller carton, packed inside the larger carton, contains the software compact discs with licenses and instructions. Standalone expansion peripherals are shipped in separate cartons.

CAUTION

InfoServer 1000 software is factory-loaded. The software compact discs shipped with the system are for backup purposes. Do not attempt to load software as part of the installation process.

Figure 2–1 shows the components shipped with the standalone InfoServer 1000 system. Check the contents of the cartons against the shipping list provided. Expansion storage devices are shipped in separate cartons (refer to Section 5.3).

Note

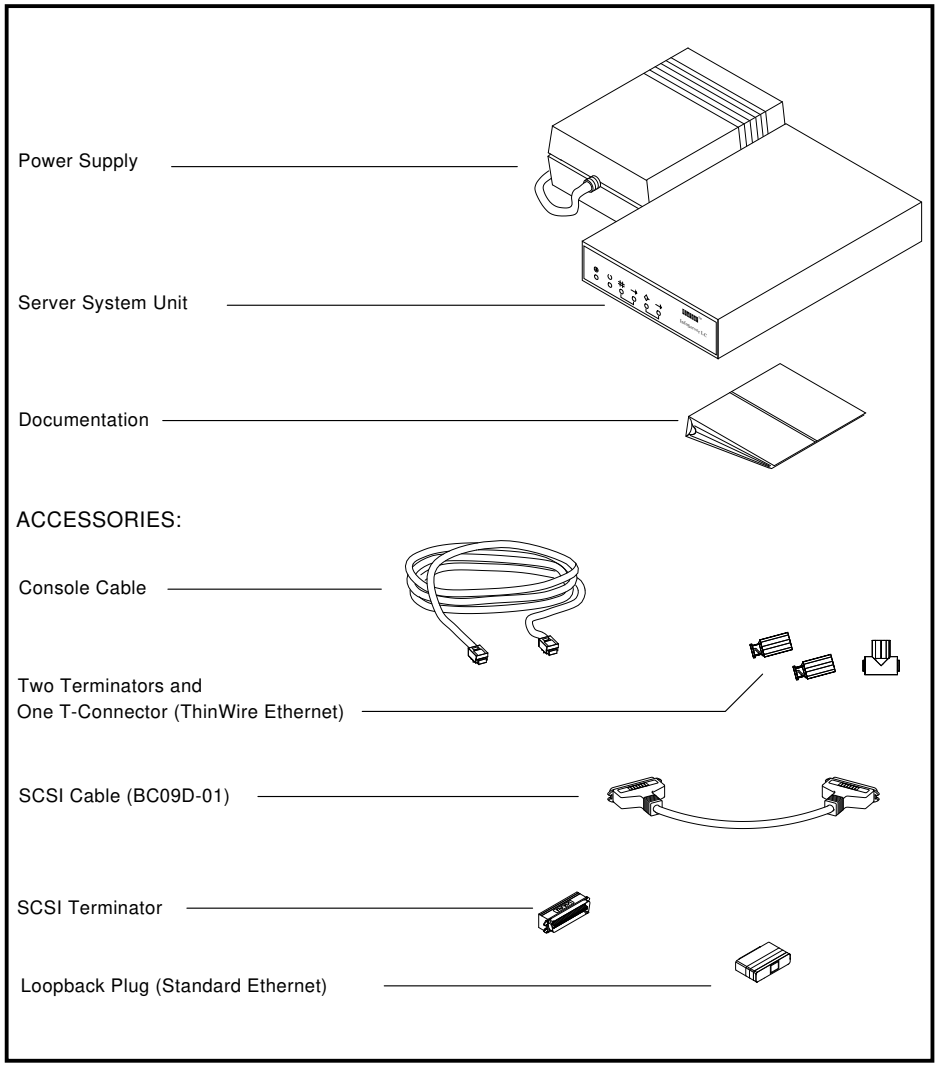
Depending on how you set up your system, you may not use all the components supplied with your system. Store any unused parts safely for future use.

If You Move the System . . .

Always repack the InfoServer 1000 in its original packing material when moving or relocating your system. This precaution will protect the hardware from damage.

Installing Standalone System Configurations

Figure 2–1 Standalone InfoServer 1000 System Components



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2.3.1 Connecting the System Components

After unpacking, follow the instructions in Sections 2.3.2, 2.3.3, 2.3.4, 2.3.5, and 2.3.6 to connect system components.

2.3.2 Identifying the InfoServer 1000 Ports and Connectors

Figure 2–2 shows all the ports and connectors on the rear of the InfoServer 1000 system. Take some time to become familiar with the ports and connectors. Symbols (called icons) identify each port and connector that you will use when installing your system.

2.3.3 Attaching the Ethernet Terminator or Loopback Plug

The InfoServer 1000 adapts to one of two physical Ethernet wiring schemes: ThinWire Ethernet or standard Ethernet. Your InfoServer 1000 has one of these Ethernet connections, depending upon the type ordered.

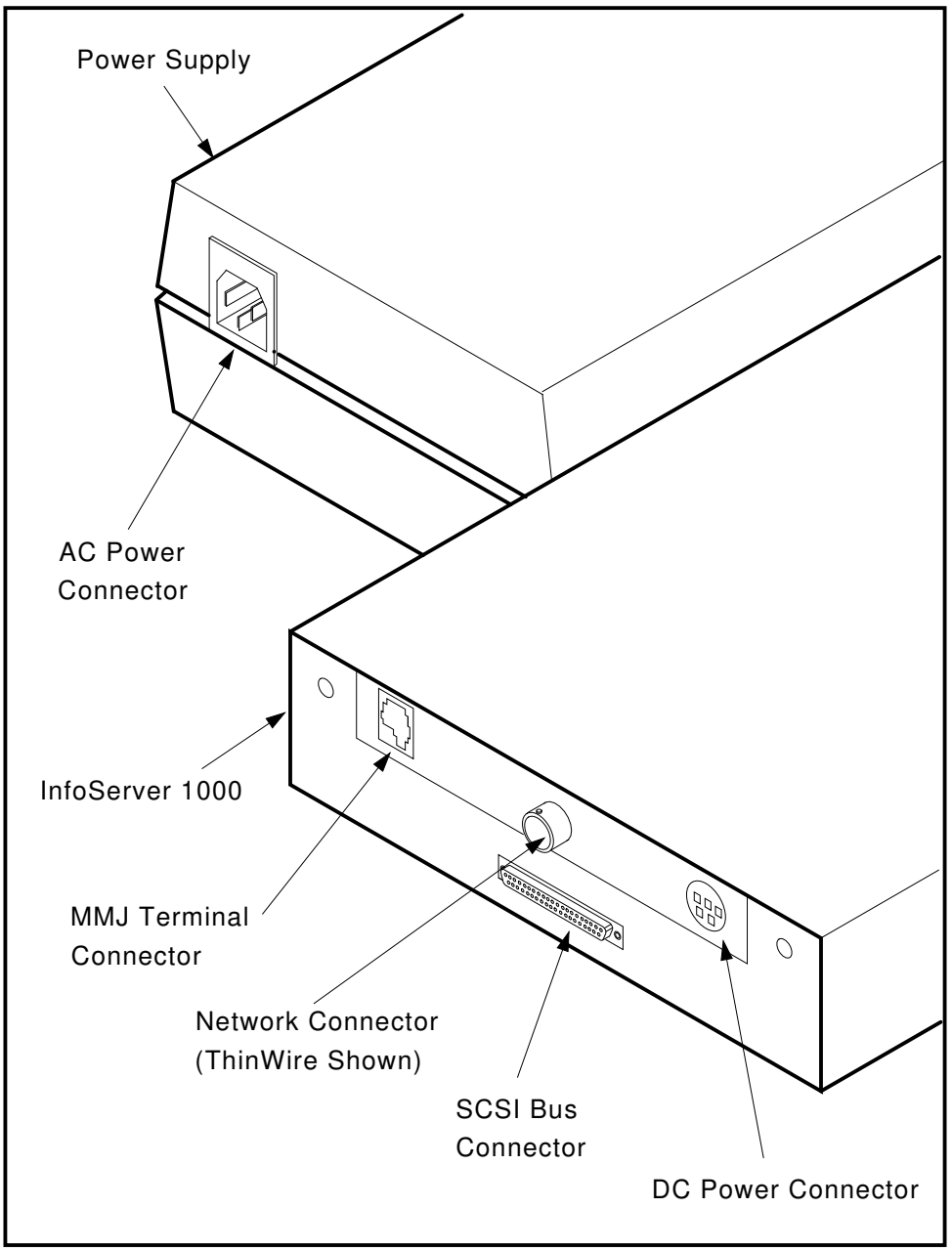
You must connect a terminator or loopback plug to the network connection so that you can run diagnostic tests to verify the internal Ethernet circuits.

Note

The system will not boot if the power-on self-test detects an Ethernet error.

The next two sections describe how to connect the Ethernet terminator or loopback plug to your specific connection. Section 2.3.3.1 describes the ThinWire Ethernet terminator. Section 2.3.3.2 describes the standard Ethernet loopback plug. Read the section for your specific Ethernet connection, then proceed to Section 2.3.4.

Figure 2–2 Standalone InfoServer 1000 Ports and Connectors



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2.3.3.1 Connecting the ThinWire Ethernet Terminator

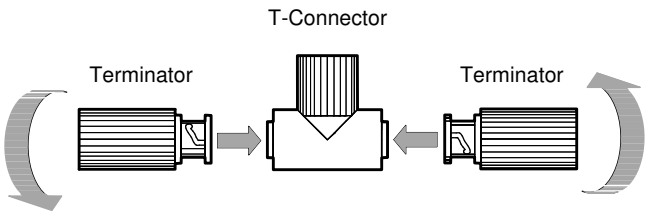
You must connect the T-connector and two Ethernet terminators (Figure 2–1) to the InfoServer 1000, so that you can run diagnostic tests to verify the Ethernet circuits.

For diagnostic purposes, the T-connector and two terminators complete the ThinWire Ethernet circuit. Later, when you decide to connect to a network, you exchange ThinWire cable sections for one or both terminators, depending on your network setup.

To connect the T-connector follow these steps:

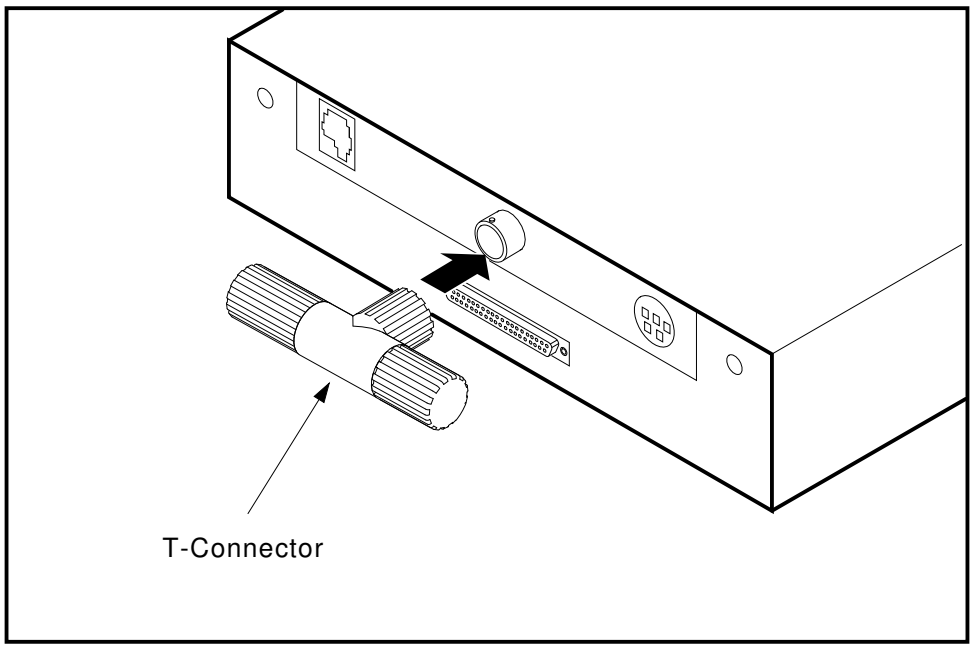
1. Push one terminator into one side of the T-connector, then turn the terminator clockwise until it locks in place, as shown in Figure 2–3.

Figure 2–3 Attaching the Terminators to the T-Connector



2. Push the second terminator into the other side of the T-connector, then turn the terminator clockwise until it locks in place.
3. Connect the T-connector to the ThinWire Ethernet connector on the rear of the InfoServer 1000 by turning the T-connector clockwise until it locks into place (Figure 2–4).

Figure 2–4 Connecting the T-Connector



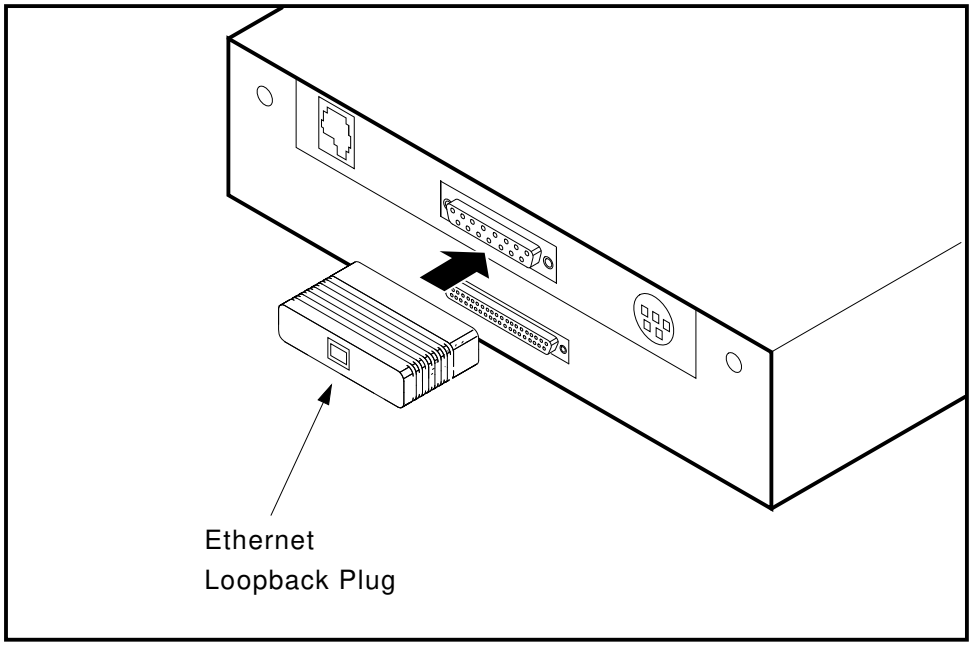
MKV-040000331-06

2.3.3.2 Connecting the Standard Ethernet Loopback Plug

You must connect the loopback plug (Figure 2–1) to the InfoServer 1000, so that you can run diagnostic tests to verify the Ethernet circuits.

For diagnostic purposes, the loopback plug completes the standard Ethernet circuit. Connect the loopback plug to the standard Ethernet port on the back of the InfoServer 1000 by pushing it on (Figure 2–5).

Figure 2–5 Connecting the Standard Ethernet Loopback Plug



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2.3.4 Connecting a Console Terminal

You do not need a locally connected terminal for normal InfoServer 1000 operation. However, Digital advises that you connect a local terminal as part of this installation procedure, to ensure that the InfoServer 1000 system is operating properly at the time of initial setup.

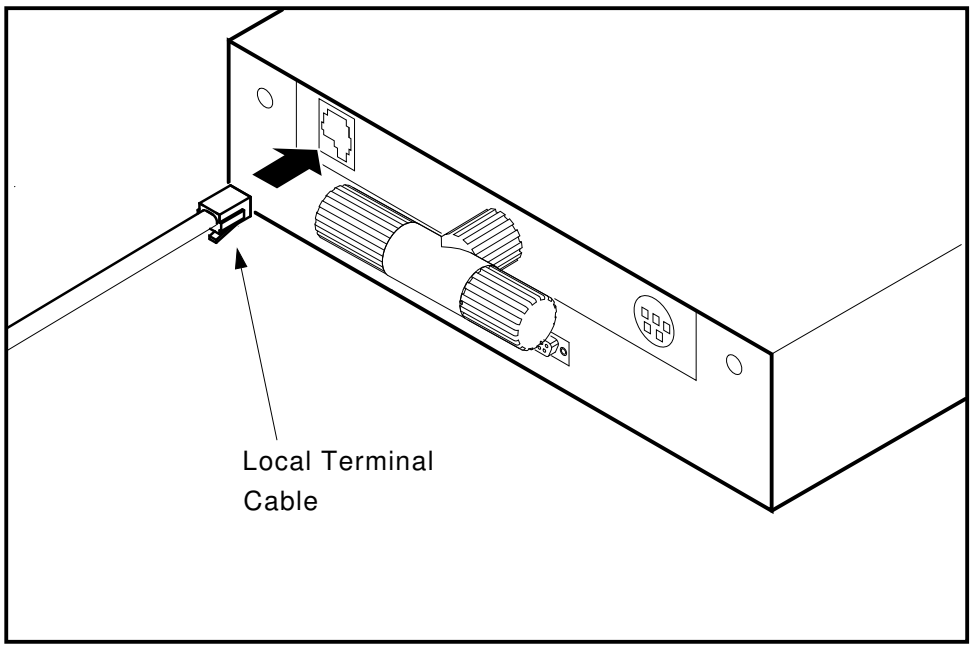
The recommended console terminal is a VT300 or VT400 series terminal. When you connect the terminal cable to the MMJ port on the rear of the terminal, the port must be set for DEC423 operation. Refer to your terminal documentation for details.

To connect a terminal to the server, follow these steps:

1. Ensure that the | O | power switch on the terminal is off (O).
2. Connect the terminal cable supplied with the system to the MMJ port on the rear panel of the InfoServer 1000 as shown in Figure 2–6.
3. Connect the other end of the console cable to the communications port on the terminal.
4. The terminal must be set at 9600 baud, with 8 bits, and no parity. Refer to your terminal documentation if you need information on setting up your terminal.

During normal operation, you can control the server through a LAT terminal server session (if terminal servers are available on your network). If terminal server access is not available, or if client systems have trouble accessing server services, then a locally connected terminal is needed to manage the server or to diagnose server problems. For more information, refer to the *InfoServer System Operations Guide*.

Figure 2–6 Connecting the Console Terminal Cable



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2.3.5 Connecting the Standalone Expansion Peripherals

If you received standalone expansion peripherals with your system, you should connect them to your InfoServer 1000 now. Refer to Chapter 5, Installing Expansion Peripherals for information on connecting expansion peripherals. After installing the expansion peripherals, return to this spot and continue with the power connections.

2.3.6 Connecting the Standalone InfoServer 1000 Power Supply and Power Cord

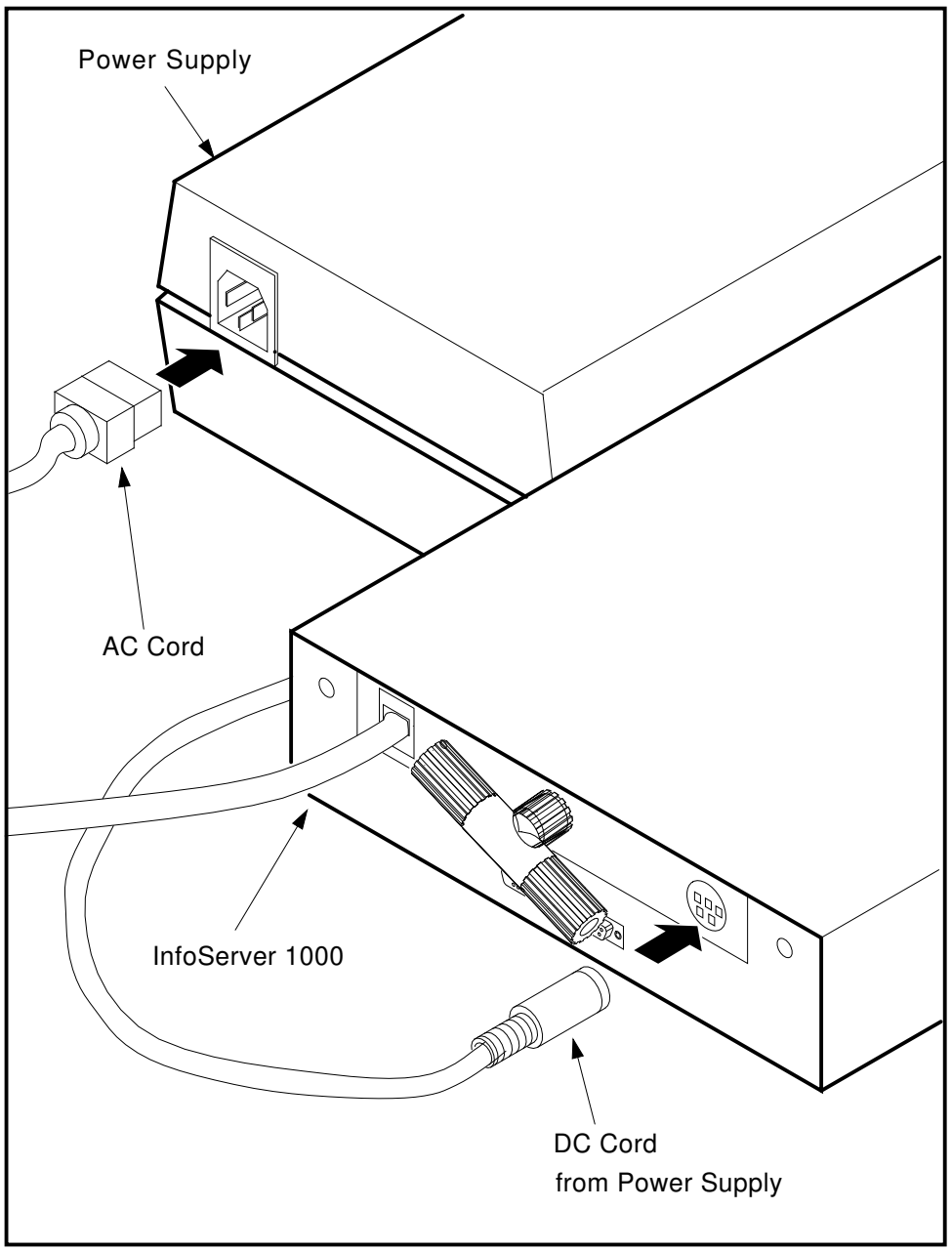
The H7827-BA power supply accepts power inputs in the ranges of 100 Vac to 120 Vac and 200 Vac to 240 Vac, at 50 or 60 Hz. Within these limits the power supply is self-sensing, so a voltage selection switch is not needed.

Connect the dc power cable from the power supply to the dc power input connector at the rear of the InfoServer 1000 as shown in Figure 2–7. Push the connector all the way in.

Connect the supplied ac power cord to the ac power input connector on the power supply as shown in Figure 2–7. When you are ready to apply power to the InfoServer 1000, connect the other end of the power cord to a grounded power outlet. This is the method of turning InfoServer 1000 power on and off; there is no switch.

Refer to Section 1.5 for a description of the front panel indicators.

Figure 2–7 Connecting the InfoServer 1000 AC and DC Power Cords



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2.4 Turning On and Off the System Power

To turn system power on, first turn on any standalone expansion peripherals connected to your system, then plug the InfoServer 1000 power cord into a live power socket. If a power strip is used, plug in the InfoServer 1000 and all expansion peripherals. Ensure that all expansion peripheral power switches are on, and then turn the power strip switch on.

To turn system power off, unplug the power cord or turn the power strip switch off.

Now proceed to Chapter 4, Completing the System Installation to continue the installation.

3

Installing InfoTower System Configurations

3.1 Introduction

This chapter covers the hardware installation procedures for InfoTower packaged system configurations such as the *InfoServer Librarian*.

Installing and setting up your InfoTower mounted InfoServer 1000 system is easy. This chapter provides step-by-step instructions on how to perform the following operations:

- Choosing the right location for the system
- Unpacking, inspecting, and connecting system components
- Turning on and off the system power

Appendix A contains a brief installation checklist, without the details provided in this chapter.

3.2 Choosing the Right Location for the System

Use the following checklist to keep your system operating at its best:

- Carefully read all installation instructions before you turn on the power.
- Keep the temperature between 10° C and 32° C (50° F and 90° F).
- Keep the relative humidity between 10 percent and 90 percent.
- Keep the air well circulated to prevent excess heat and dust from accumulating.
- Keep your equipment away from heaters, photocopiers, direct sunlight, and abrasive particles.
- Before you set up your system, select a surface that will hold the InfoTower enclosure. Your desk or work table is a good choice.

- Keep the area clean. Do not place food or liquid on or near your equipment, and do not place your InfoServer 1000 directly on the floor. Dust and dirt will damage the system components.
- Connect your InfoServer 1000 system to a dedicated grounded circuit.

  If you have several pieces of equipment that need to be plugged into a power outlet, use a grounded power strip. Many power strips come with an on/off switch and a power-surge protector.

  Do not exceed the circuit power capacity.
- To avoid damaging equipment that has been moved inside from a cold environment, let the equipment warm to room temperature before you turn it on.
- When installing an InfoTower mounted system, keep the air vents clear on the front and rear of the system unit for proper ventilation. Blocking the air vents can cause the system to overheat.

3.3 Unpacking and Inspecting the InfoTower System Components

WARNING

Because of the weight of the InfoTower system (25.5 kg (56 lb) fully loaded), two people should lift the equipment out of the shipping carton and place it on a work surface.

The shipping carton contains an accessory tray. The large carton under the accessory tray contains the system. This carton contains the InfoTower enclosure with the InfoServer 1000 system mounted in position 1 with accessories and documentation. The smaller carton, packed inside the larger carton, contains the software compact discs with licenses and instructions.

CAUTION

InfoServer 1000 software is factory-loaded. The software compact discs shipped with the system are for backup purposes. Do not attempt to load software as part of the installation process.

Installing InfoTower System Configurations

Carefully unpack all cartons. Check the contents of the cartons against the shipping list provided. Figure 3–1 shows the components and accessories shipped with the InfoServer 1000 system when mounted in an InfoTower enclosure. Expansion peripherals are shipped installed, configured, and tested in the InfoTower enclosure. Verify that the number and types of SCSI peripherals mounted in the enclosure correspond to the number and types of peripherals ordered.

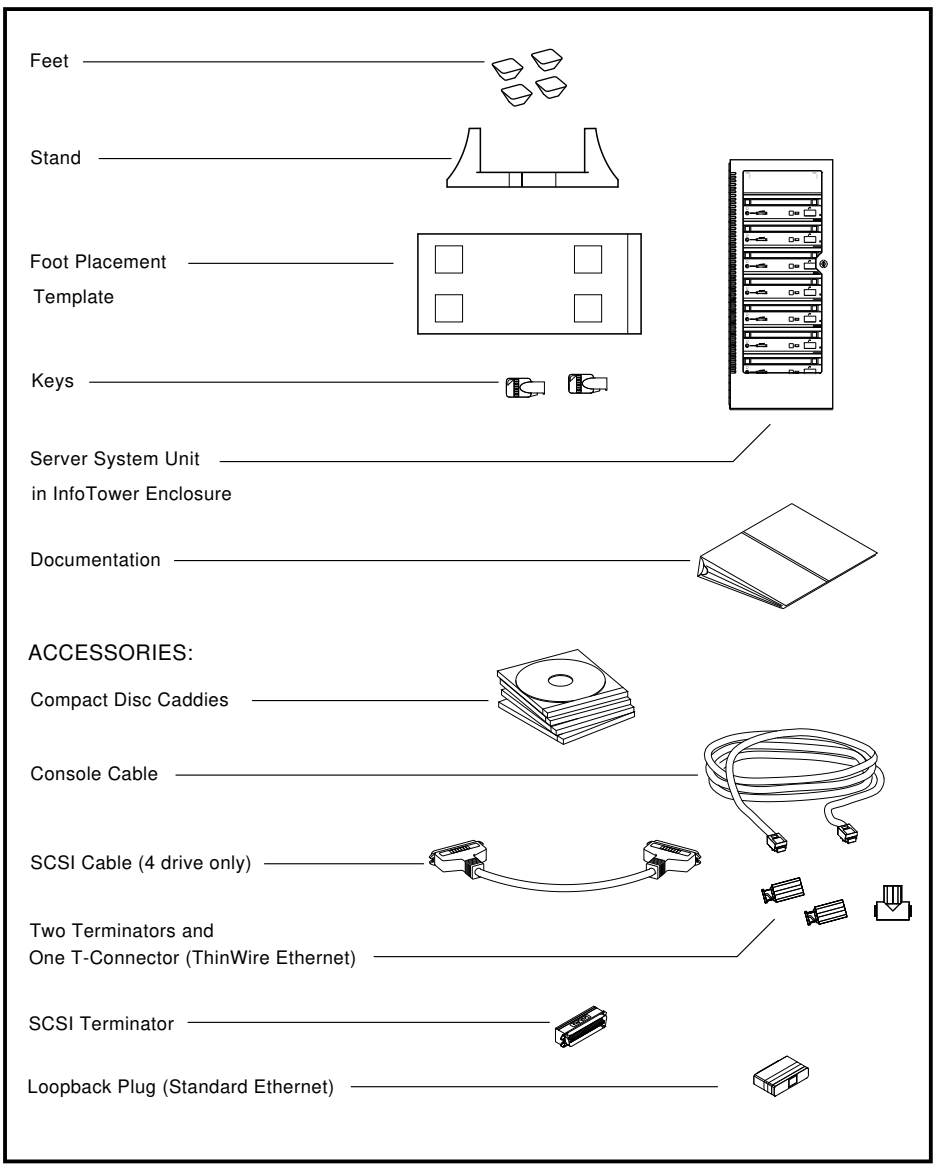
Note

Depending on how you set up your system, you may not use all the components supplied with your system. Store any unused parts safely for future use.

Note

Digital recommends that you use the InfoTower stabilizer stand when orienting the InfoTower enclosure in the vertical (tower) position. The stabilizer stand will resist accidentally tipping the enclosure over.

Figure 3–1 System Components



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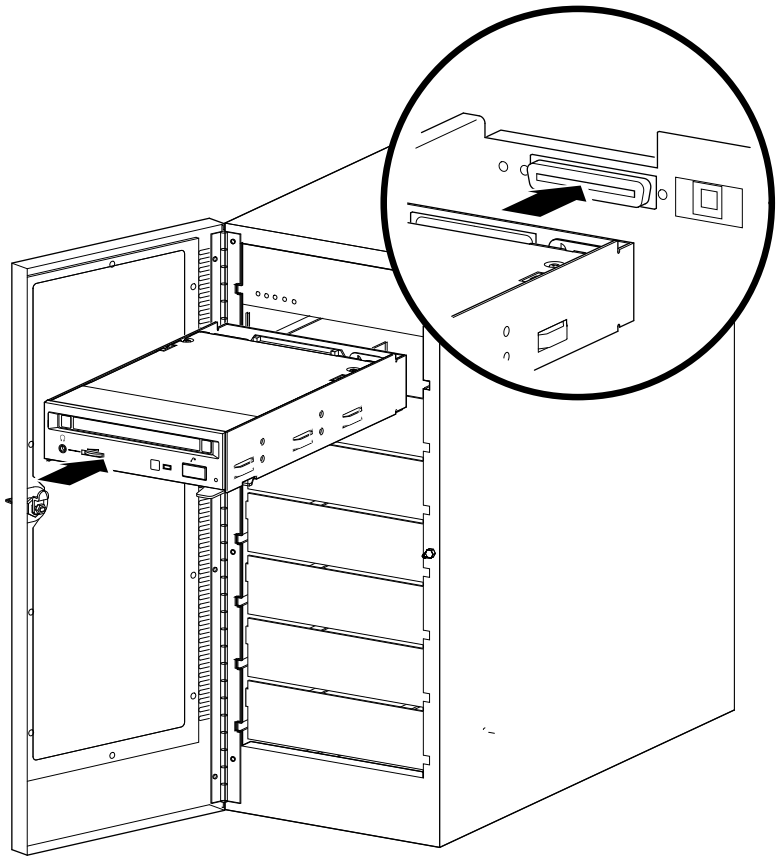
After moving the system into position, unlock and open the enclosure door. Figure 3–2 shows how a SCSI peripheral plugs into the backplane at the factory. Ensure that each peripheral is seated properly and is firmly connected to the backplane by pressing firmly on the front bezel.

Figure 3–2 Properly Seating Peripherals



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If You Move the System . . .

Always repack the system in its original packing material when moving or relocating your system. This precaution will protect the hardware from damage.

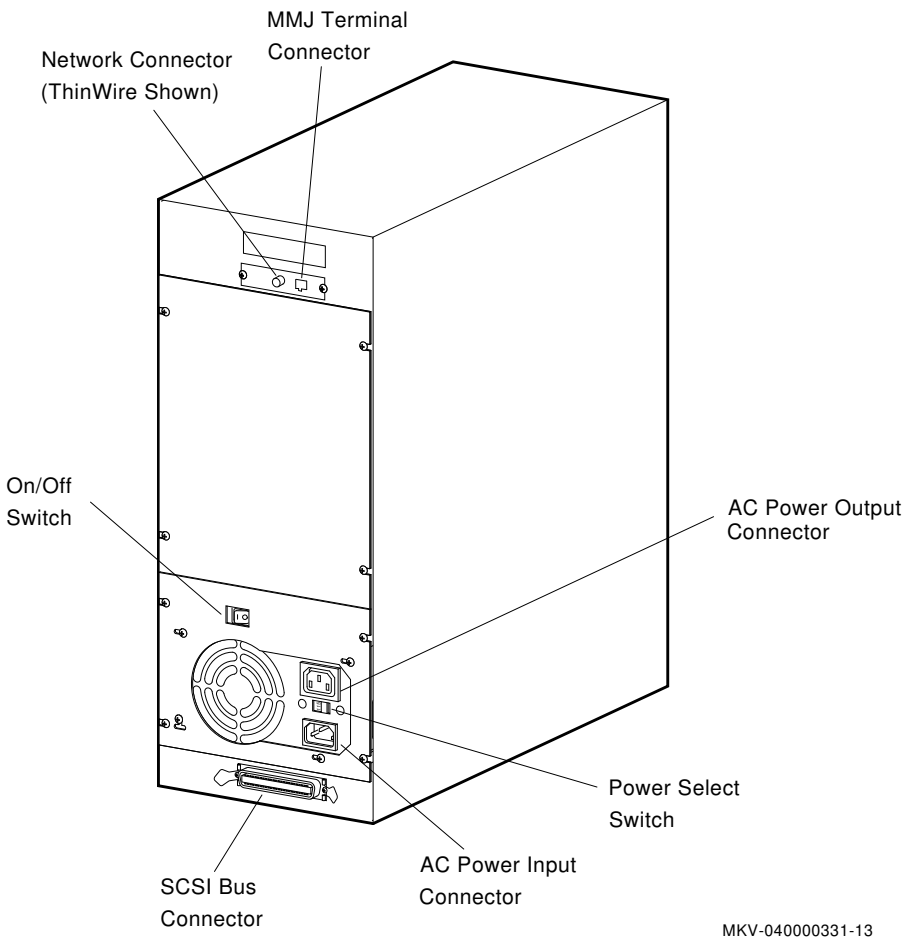
3.3.1 Connecting the System Components

After unpacking, follow the instructions in Sections 3.3.2, 3.3.3, 3.3.4, 3.3.5, and 3.3.6 to connect system components.

3.3.2 Identifying the InfoTower Ports and Connectors

Figure 3–3 shows the ports, connectors, and switch on the rear of the InfoTower system. Take some time to become familiar with the ports and connectors. Symbols (called icons) identify each port and connector that you will use when installing your system.

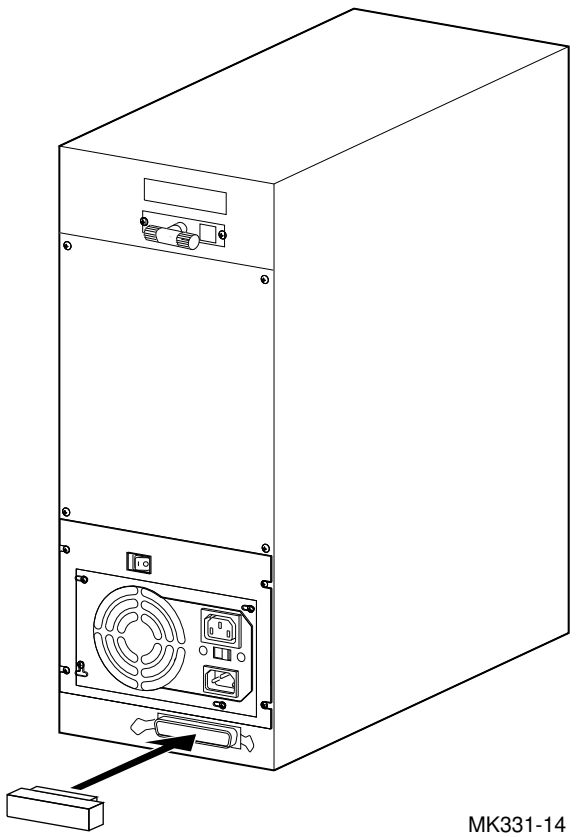
Figure 3–3 InfoTower Ports and Connectors



3.3.3 Installing the SCSI Terminator

Install the SCSI terminator on the SCSI port at the bottom rear of the InfoTower, as shown in Figure 3–4.

Figure 3–4 Installing the SCSI Terminator on the InfoTower Rear Panel



MK331-14

3.3.4 Attaching the Ethernet Terminator or Loopback Plug

The InfoServer 1000 adapts to one of two physical Ethernet wiring schemes: ThinWire Ethernet or standard Ethernet. Your InfoServer 1000 system has one of these Ethernet connections at the rear of the InfoTower enclosure, depending upon the type ordered.

You must connect a terminator or loopback plug to the network connection so that you can run diagnostic tests to verify the internal Ethernet circuits.

Note

The system will not boot if the power-on self-test detects an Ethernet error.

The next two sections describe how to connect the Ethernet terminator or loopback plug to your specific connection. Section 3.3.4.1 describes the ThinWire Ethernet terminator. Section 3.3.4.2 describes the standard Ethernet loopback plug. Read the section for your specific Ethernet connection, then proceed to Section 3.3.5.

3.3.4.1 Connecting the ThinWire Ethernet Terminator

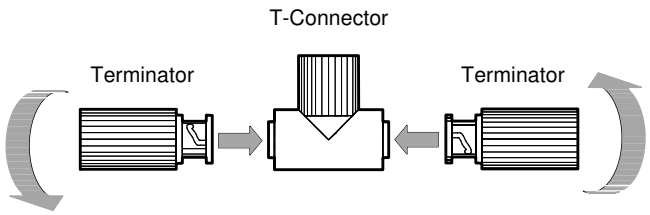
You must connect the T-connector and two Ethernet terminators (Figure 3–1) to the system, so that you can run diagnostic tests to verify the Ethernet circuits.

For diagnostic purposes, the T-connector and two terminators complete the ThinWire Ethernet circuit. Later, when you decide to connect to a network, you exchange ThinWire cable sections for one or both terminators, depending on your network setup.

To connect the T-connector follow these steps:

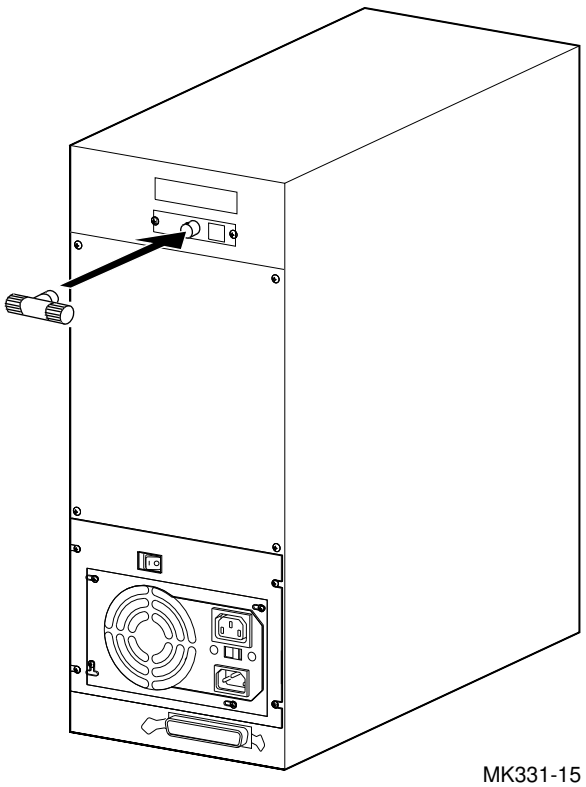
1. Push one terminator into one side of the T-connector, then turn the terminator clockwise until it locks in place, as shown in Figure 3–5.

Figure 3–5 Attaching the Terminators to the T-Connector



2. Push the second terminator into the other side of the T-connector, then turn the terminator clockwise until it locks in place.
3. Connect the T-connector to the ThinWire Ethernet connector on the rear of the InfoServer 1000 by turning the T-connector clockwise until it locks into place (Figure 3–6).

Figure 3–6 Connecting the T-Connector



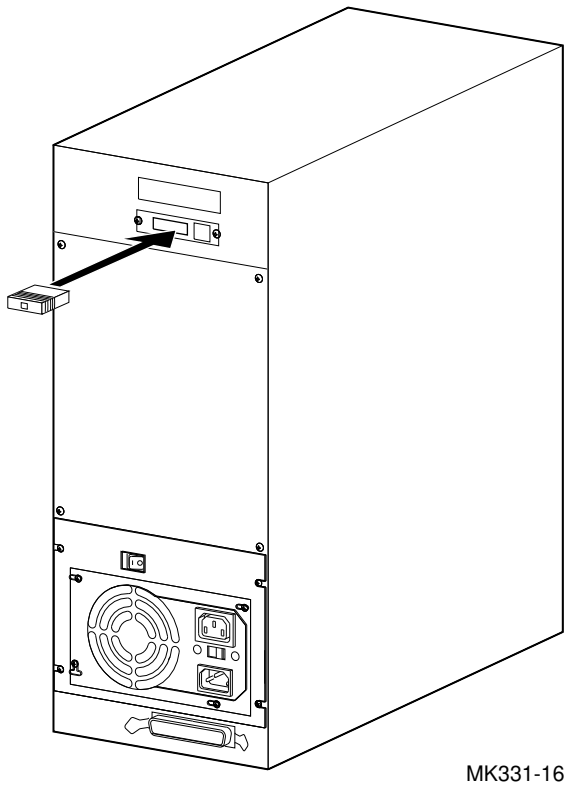
MK331-15

3.3.4.2 Connecting the Standard Ethernet Loopback Plug

You must connect the loopback plug (Figure 3–1) to the system, so that you can run diagnostic tests to verify the Ethernet circuits.

For diagnostic purposes, the loopback plug completes the standard Ethernet circuit. Connect the loopback plug to the standard Ethernet port on the back of the InfoTower enclosure by pushing it on (Figure 3–7).

Figure 3–7 Connecting the Standard Ethernet Loopback Plug



MK331-16

3.3.5 Connecting a Console Terminal

You do not need a locally connected terminal for normal InfoServer 1000 operation. However, Digital advises that you connect a local terminal as part of this installation procedure, to ensure that the InfoServer 1000 system is operating properly at the time of initial setup.

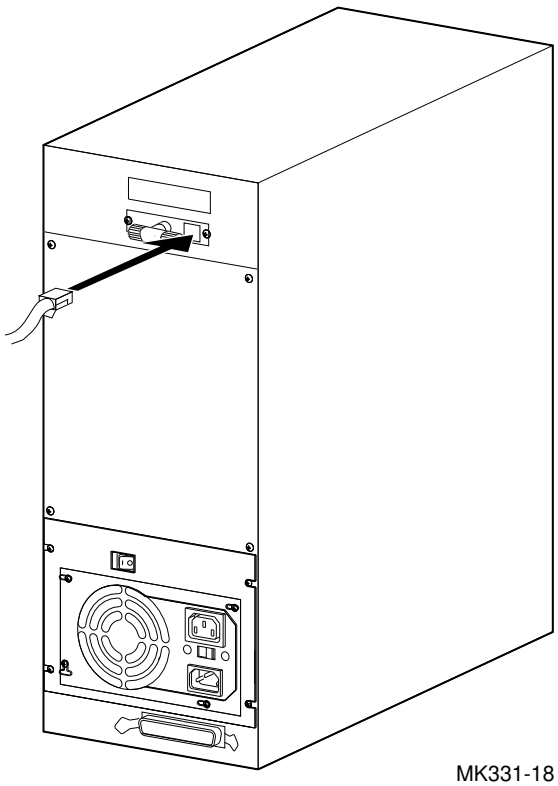
The recommended console terminal is a VT300 or VT400 series terminal. When you connect the terminal cable to the MMJ port on the rear of the terminal, the port must be set for DEC423 operation. Refer to your terminal documentation for details.

To connect a terminal to the server, follow these steps:

1. Ensure that the | O | power switch on the terminal is off (O).
2. Connect the terminal cable supplied with the system to the MMJ port on the rear panel of the InfoServer 1000 as shown in Figure 3–8.
3. Connect the other end of the console cable to the communications port on the terminal.
4. The terminal must be set at 9600 baud, with 8 bits, and no parity. Refer to your terminal documentation if you need information on setting up your terminal.

During normal operation, you can control the server through a LAT terminal server session (if terminal servers are available on your network). If terminal server access is not available, or if client systems have trouble accessing server services, then a locally connected terminal is needed to manage the server or to diagnose server problems. For more information, refer to the *InfoServer System Operations Guide*.

Figure 3–8 Connecting the Console Terminal Cable



MK331-18

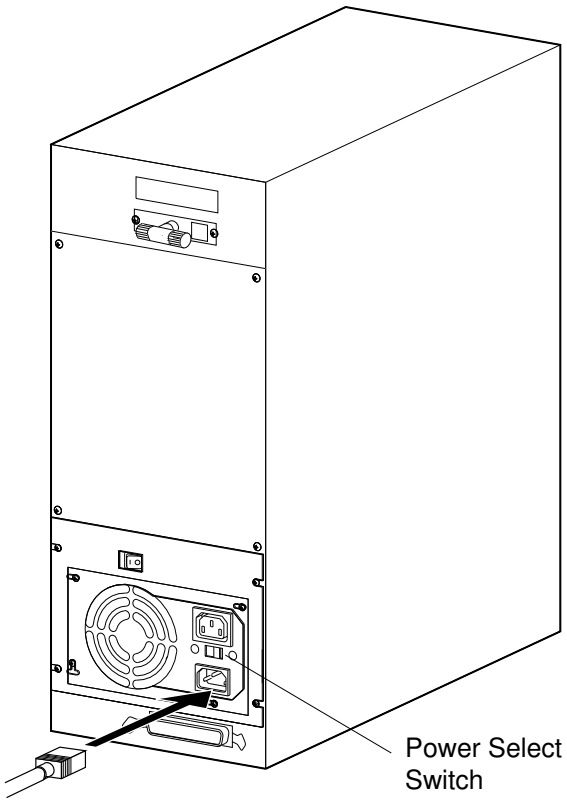
3.3.6 Connecting System Power to InfoTower Configurations

InfoServer 1000 system configurations (CPU and peripherals) housed in the InfoTower enclosure draw their power from a single internal power supply. The InfoTower enclosure accepts power inputs in the ranges of either 100 Vac to 120 Vac or 200 Vac to 240 Vac, at 50 or 60 Hz. Perform the following steps to connect power (Figure 3–9):

1. Ensure that the | O | power switch on the rear panel of the system unit is off (O).
2. Locate and remove the label over the power supply connector.
3. Check the power selection switch. Ensure that it matches your power source voltage range. If necessary, flip the switch from one side to the other.
4. Connect the supplied ac power cord to the ac power input connector at the rear of the InfoTower enclosure.
5. Connect the other end of the power cord to a grounded power outlet.

Refer to Section 1.5 for a description of the front panel indicators.

Figure 3–9 Connecting the InfoTower Enclosure Power Cord



3.4 Turning On and Off the System Power

To turn system power on, set the I O power switch on the rear of the enclosure to the on (|) position.

To turn system power off, set the I O power switch on the rear of the enclosure to the off (O) position.

Now proceed to Chapter 4, Completing the System Installation to continue the installation.

4

Completing the System Installation

4.1 Introduction

The information in this chapter concludes the system installation. Starting and booting your system involves nothing more than turning the InfoServer 1000 system power on. This chapter explains what the console terminal displays when InfoServer 1000 power is turned on. It also directs you to connect the system to a network after starting the system initially.

4.2 Starting the System

After installing your system and attaching a network terminator or loopback plug, the system may be started as a standalone configuration. To start your system, follow these steps:

1. Turn on any standalone expansion peripherals connected to your system.
2. Turn on the console terminal connected to the MMJ port. Refer to your terminal documentation. Note that a console terminal is required when the server is first installed to ensure proper startup and cabling.

Note

To view the system power-on self-test display, you must allow time for the console terminal to warm up and complete its power-on sequence.

3. Turn on the InfoServer 1000.

   The initial power-on display appears on the console terminal in about 1.5 seconds. If you see a display similar to the following, your system has passed all power-on self-tests:

```
InfoServer 1000 V1.0-18F-V3.7 20-JAN-1993 14:04:42.00
08-00-2B-20-CD-02 ThinWire
4MB
|                          |
##########################

OK
```

The system now boots the operating system from the internal memory. If the boot is successful, the console screen displays a message similar to the following:

```
  83 BOOT SYS
-DKA200
-DKA100
-FLASH

DEC InfoServer 1000 V3.0
Copyright (c) 1990, 1991, 1992 Digital Equipment Corp.
ESS-I-INITDISK, Disk initialization complete, 2 devices found
ESS-I-FORMDISK, Formatting internal InfoServer disk, please wait...

DEC InfoServer 1000 V3.0
```

4. Enter the system password (default is ESS) when the system displays the `Enter Password:` prompt.

If you do not see the power-on display or the server fails to bootstrap, turn the power off and review each installation step. Repeat the power-on procedure. If the problem continues, refer to Section 7.12.

4.3 Connecting the System to a Network

After you verify that the InfoServer 1000 system passes its power-on self-test sequence, you must connect the InfoServer 1000 system to the network to make the system available to clients. To connect the InfoServer 1000 system to a network, follow these steps:

1. Turn the InfoServer 1000 power off.
2. Read and perform the steps in Chapter 6, Connecting to a Network to become familiar with how to install your network hardware.
3. After making the network connection, turn the InfoServer 1000 power back on. The server should pass the power-on self-test and reboot successfully.
4. Refer to the *InfoServer System Operations Guide* for information on how to establish a server management session to set up and control the server.

4.4 Booting the System

The InfoServer 1000 operating system starts as part of the bootstrap process when power is first applied. The following sections explain the automatic and manual processes for starting the InfoServer 1000. Use the manual process only if the automatic process fails.

4.4.1 Booting the System Automatically Without a Console

The InfoServer 1000 system's bootstrap program and operating software are loaded into the system at the factory. The InfoServer 1000 attempts to boot automatically from the internal memory when power is applied.

4.4.2 Booting the System with a Console (Only If Necessary)

To boot your system with a console terminal, follow these steps:

1. Turn on any standalone expansion peripherals connected to your InfoServer 1000.
2. Turn on the console terminal connected to the MMJ port.

Note

Allow time for the console terminal to complete its power-on sequence. Otherwise, you will not be able to view the system power-on self-test display.

3. Turn on the InfoServer 1000.

Completing the System Installation

The initial power-on display appears on the console terminal in a few seconds. If you see a display similar to the following, your system has passed all power-on self-tests, and the terminal's keyboard language has been set:

```
InfoServer 1000 V1.0-18F-V3.7 20-JAN-1993 14:04:42.00
08-00-2B-20-CD-02 ThinWire
4MB
|                          |
##########################

OK
```

The system now boots the operating system from the internal memory. If the boot is successful, the console screen displays a message similar to the following:

```
  83 BOOT SYS
-DKA200
-DKA100
-FLASH

DEC InfoServer 1000 V3.0
Copyright (c) 1990, 1991, 1992 Digital Equipment Corp.
ESS-I-INITDISK, Disk initialization complete, 2 devices found
ESS-I-FORMDISK, Formatting internal InfoServer disk, please wait...

DEC InfoServer 1000 V3.0

Enter Password:
```

4. Enter the system password (default is ESS) when the system displays the `Enter Password:` prompt.

5
Installing Expansion Peripherals

5.1 Introduction

This chapter provides information on installing and using external standalone add-on storage peripherals. For information on installing and using add-on storage peripherals for the InfoTower cabinet, refer to the *InfoTower Installation and Owner's Guide*.

An InfoServer 1000 system can support up to seven (7) standalone expansion peripherals on the SCSI bus. Digital qualifies the standalone expansion peripherals recommended for use with the InfoServer 1000 system, to ensure that they meet system requirements.

The chapter explains how to perform the following tasks:

- Connect one or two expansion peripherals of the same type to your InfoServer 1000.
- Verify the SCSI ID default (factory) setting.
- Reset the SCSI ID number.

The chapter provides specific information for the RRD42 CD-ROM expansion drive. For installation and operation information pertaining to other SCSI expansion peripherals, refer to the documentation shipped with the peripheral.

5.2 Guidelines for Connecting Expansion Peripherals

Use the following guidelines when connecting expansion peripherals:

- Connect any combination of external expansion peripherals, as long as you do not connect more than seven (7) expansion peripherals.
- Attach the 50-pin SCSI terminator that comes with your expansion peripheral to an unused bottom SCSI connector on the back of the expansion peripheral. This must be done to maintain signal integrity.
- Plug all expansion peripherals into the same grounded power strip or electrical outlet.

CAUTION

Some expansion peripherals are restricted to either 110 Vac or 220 Vac operation. Ensure that the voltage requirement of any expansion peripheral is compatible with the supply voltage.

The RRD42 expansion peripheral accepts power inputs in the ranges of 100 Vac to 120 Vac and 200 Vac to 240 Vac, at 50 or 60 Hz. Within these limits the power supply is self-sensing, and a voltage selection switch is not necessary.

- Turn on all expansion peripherals before you turn on your InfoServer 1000. This step ensures that the device in each expansion peripheral is ready for use, and that the system firmware includes the device in its configuration.

5.3 Unpacking an Expansion Peripheral

SCSI expansion peripherals in external, standalone enclosures usually come with the following accessories:

- One 50-pin to 50-pin cable (PN BC19J-1E). Use this cable to connect the expansion peripheral to other expansion peripherals.
- One 68-pin to 50-pin cable (PN BC56H-03). This cable is not used on the InfoServer 1000.
- One 50-pin SCSI terminator.
- One power cord.

Before you set up your expansion peripheral, ensure that you have all these parts. Check the contents of the expansion peripheral against the shipping list.

5.4 Connecting One Expansion Peripheral

To connect a single expansion peripheral to your InfoServer 1000, follow these steps:

1. Turn system power off.
2. Turn the expansion peripheral so that the back is facing you.
3. Set the SCSI ID number.

   Each device ships with the SCSI ID number set to 0. Refer to the information provided with the expansion peripheral to verify this setting.

   The RRD42 standalone drive has a rear-panel push button that spins a wheel and advances a number. To set the device ID number, press the button until the desired number appears.
4. Connect the BC09D-01 50-pin expansion peripheral cable as follows:

   Connect the high-density 50-pin end of the cable to the SCSI port on the rear of the InfoServer 1000.

   Connect the opposite 50-pin end of the cable to the top SCSI port on the rear of the expansion peripheral. Snap the spring lock loops in place.
5. Connect a 50-pin SCSI terminator to the lower port on the expansion peripheral.

CAUTION

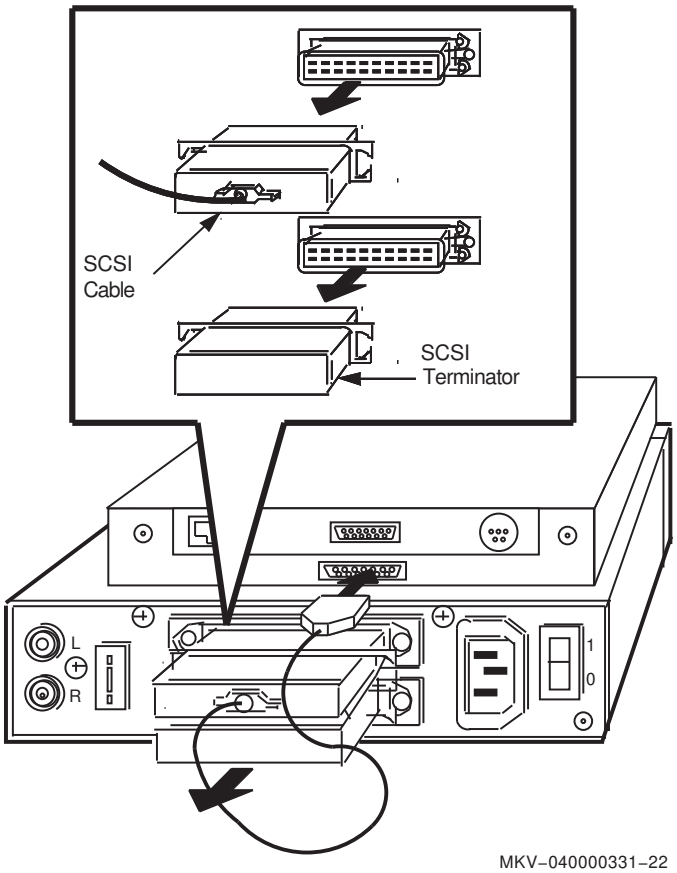
Check the voltage requirement of the expansion peripheral before applying power.

6. Connect the power cord to the power receptacle on the expansion peripheral, then plug the other end into a grounded power outlet.

Figure 5–1 shows how to connect one RRD42 expansion peripheral to the InfoServer 1000. You can stack the InfoServer 1000 on top of the expansion peripheral or place the two enclosures side by side.

Installing Expansion Peripherals

Figure 5–1 Connecting One RRD42 Expansion Peripheral



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5.5 Connecting Two Expansion Peripherals

A second expansion peripheral can be added later to link the two expansion peripherals together in series. You can stack expansion peripherals or place them side by side.

Note

If you have more than one of the same type of device attached to your system, you must change the SCSI ID on the second device to an open ID number on the SCSI bus (refer to Appendix C).

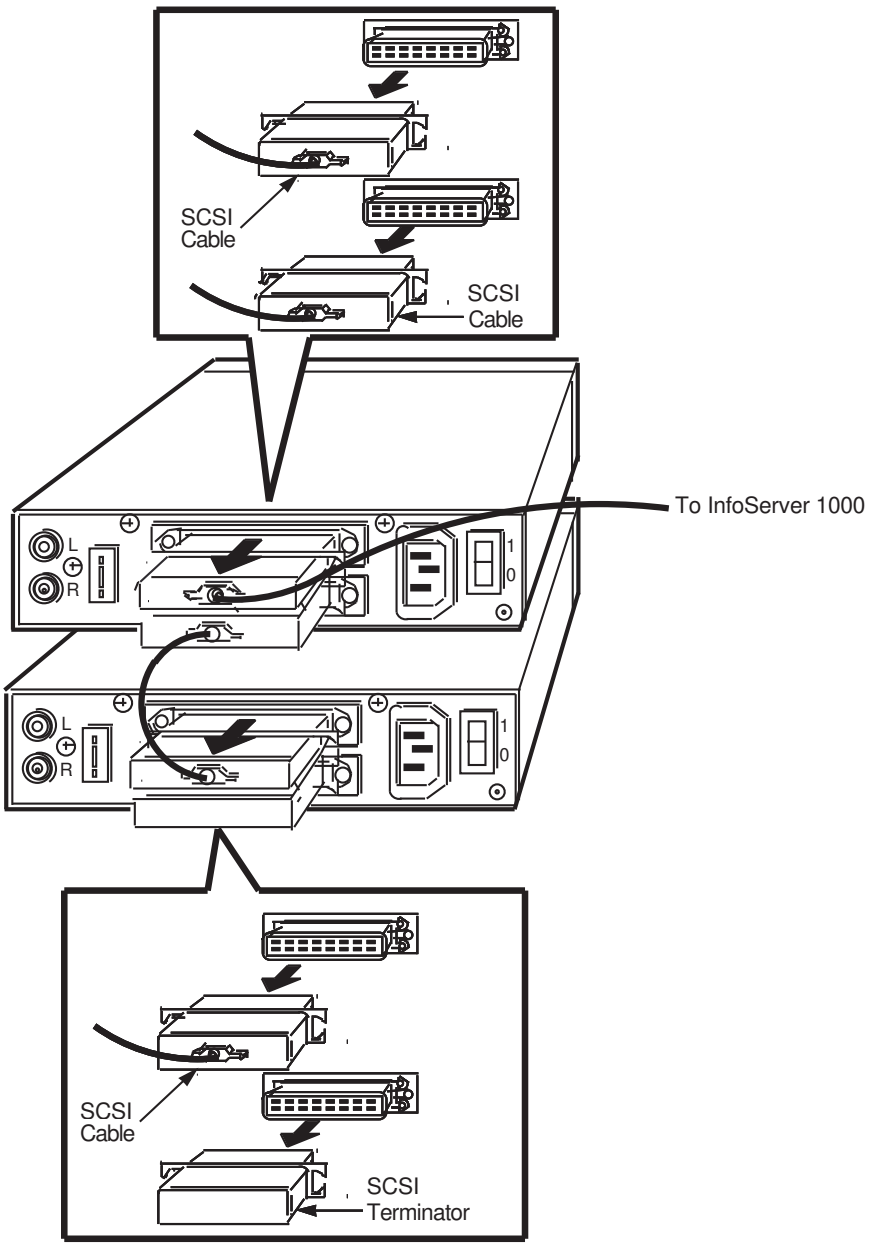
To link two expansion peripherals, follow these steps:

1. Ensure that the | I O | on/off switches on all expansion peripherals are set to off (O), then remove power from the InfoServer 1000.
2. Remove the 50-pin SCSI terminator on the first expansion peripheral. Store the terminator for future use.
3. Connect one end of the BC19J-1E 50-pin to 50-pin connector cable to the upper connector on the second expansion peripheral.
4. Connect the other end of the cable to the lower connector on the first expansion peripheral.
5. Attach a 50-pin terminator to the unused SCSI port on the second expansion peripheral.
6. Connect the power cord of the second expansion peripheral to its power receptacle, then plug the other end into a grounded power outlet. Each expansion peripheral needs its own source of power.

Figure 5–2 shows how to connect two RRD42 expansion peripherals to the InfoServer 1000 in series.

Installing Expansion Peripherals

Figure 5–2 Connecting Two RRD42 Expansion Peripherals



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5.6 RRD42 Compact Disc Expansion Peripheral

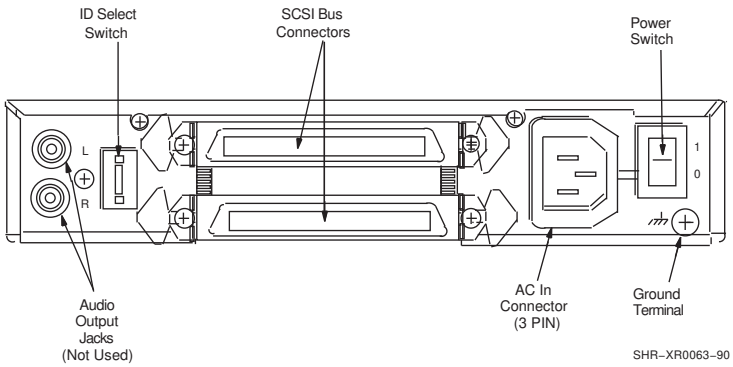
The RRD42 is a read-only storage device that reads data from removable compact discs. Refer to Appendix B for information on the handling and storage of compact discs.

If you are installing an RRD42 expansion peripheral, refer to the beginning of this chapter for unpacking and installation instructions.

5.6.1 Verifying the SCSI ID Number on the RRD42 Expansion Peripheral

Figure 5–3 shows the rear panel of the RRD42 expansion peripheral, which ships with the SCSI ID number set to 0. The number is displayed in a window beneath the ID selector switch.

Figure 5–3 RRD42 Rear Panel



5.6.2 Resetting the SCSI ID on the Second RRD42 Expansion Peripheral

If you add two RRD42 expansion peripherals to your system, you must reset the ID number on the second RRD42 to an open ID — one that is not in use. To reset the number, follow instructions in step 3 of Section 5.4. In the following example, IDs 0, 3, 4, 5 and 7 are open IDs.

To determine available ID numbers on the SCSI bus on your InfoServer 1000 system, enter `SHOW DEVICE` at the console prompt (`>>>`), then press Return. For instructions on how to enter console mode, refer to Section 7.4. Your system configuration appears on the screen. Look for a display similar to the following:

```
>>> SHOW DEVICE
 VMS/VMB      ADDR      DEVTYPE    NUMBYTES     RM/FX    WP    DEVNAM      REV
 -------      ----      -------    --------     -----    --    ------      ---
 ESA0         08-00-2B-20-CD-02 ThinWire
 DKA100       A/1/0     DISK       121.64MB      FX            RZ23L       2528
 DKA200       A/2/0     DISK       593.49MB      RM       WP   RRD42       1.2b
..HostID..    A/6       INITR
   ❶           ❷         ❸          ❹           ❺       ❻      ❼          ❽
```

❶ Device name

❷ Controller/SCSI ID/logical number
In this example:
SCSI ID 0 — Open
SCSI ID 1 — RZ23L hard-disk drive
SCSI ID 2 — RRD42 CD-ROM drive
SCSI ID 3 — Open
SCSI ID 4 — Open
SCSI ID 5 — Open
SCSI ID 6 — Internal SCSI controller
SCSI ID 7 — Open

❸ Generic device type

❹ Device capacity

❺ Removable/fixed media

❻ Write protected

❼ Specific device type

❽ Media revision level

5.7 Preventive Maintenance

The RRD42 drive does not require periodic cleaning. To maintain maximum performance, ensure that the drive's environment is free from contamination.

If errors occur, clean the disc with a clean, lint-free cloth. Wipe the disc from the center out. Do not use solvents, such as benzene, thinner, commercial cleaners, or antistatic sprays.

Follow these guidelines to care for the caddy and the disc:

- Do not drop the disc or caddy.
- The caddy's shutter automatically opens when it is inserted into the drive. Do not open the shutter manually and touch the disc.
- When transporting the the standalone RRD42 standalone drive or the InfoTower, remove the caddy from the drive.
- Do not put the disc and caddy in a location subject to any of the following:

  Dust
  Direct sunlight
  High temperature
  High humidity

- When a disc is dirty, clean it.

6

Connecting to a Network

6.1 Introduction

This chapter explains how to:

- Connect the InfoServer 1000 to a ThinWire Ethernet or standard Ethernet network.
- Test the system with a T-connector or loopback connector.
- Connect several systems together to create a simple ThinWire Ethernet workgroup.

To form a workgroup, connect the systems together with cables and connectors.

Connecting a system to a ThinWire Ethernet network or a standard Ethernet network takes only a few minutes for an experienced user and slightly longer for a new user.

The illustrations in this chapter show Ethernet connections to the standalone InfoServer 1000. The connections are identical when working with the InfoServer 1000 mounted in an InfoTower cabinet.

If you are connecting your InfoServer 1000 to a ThinWire Ethernet network, proceed to Section 6.2.

If you are connecting your InfoServer 1000 to a standard Ethernet network, proceed to Section 6.4.

6.2 Connecting to a ThinWire Ethernet Network

The following sections explain how to connect the InfoServer 1000 system to a ThinWire Ethernet network.

6.2.1 Verifying Your ThinWire Ethernet Network Adapter

To verify the ThinWire Ethernet adapter, it must be correctly terminated. Be sure that the ThinWire Ethernet T-connector and terminators are attached to your system. You also need a console terminal.

Follow these steps:

1. Force the system into console mode as follows:
   a. Turn the InfoServer 1000 power off.
   b. Disconnect the network T-connector at the rear of the enclosure.
   c. Turn the InfoServer 1000 power on.

      When the system runs its power-on self-test diagnostics, the network test will fail and the system will go into console mode. A display similar to the following appears:

```
InfoServer 1000 V1.0-18F-V3.7 20-JAN-1993 14:04:42.00
08-00-2B-20-CD-02 ThinWire
4MB
|                          |
##########################
?? 001   6        NI  0172

  84 FAIL

>>>
```

   d. Reconnect the network T-connector.
2. Enter the following command (Test NI):

```
>>> T NI Return
```

   The system responds with another display similar to the following:

```
>>> T NI
| |
###

OK

>>>
```

If the system responds with a display similar to the following, there is a problem with the InfoServer 1000 network adapter:

```
>>>T NI
| |
###
?? 001   6        NI  0172

  84 FAIL

>>>
```

6.2.2 Connecting Your System to a ThinWire Ethernet Cable

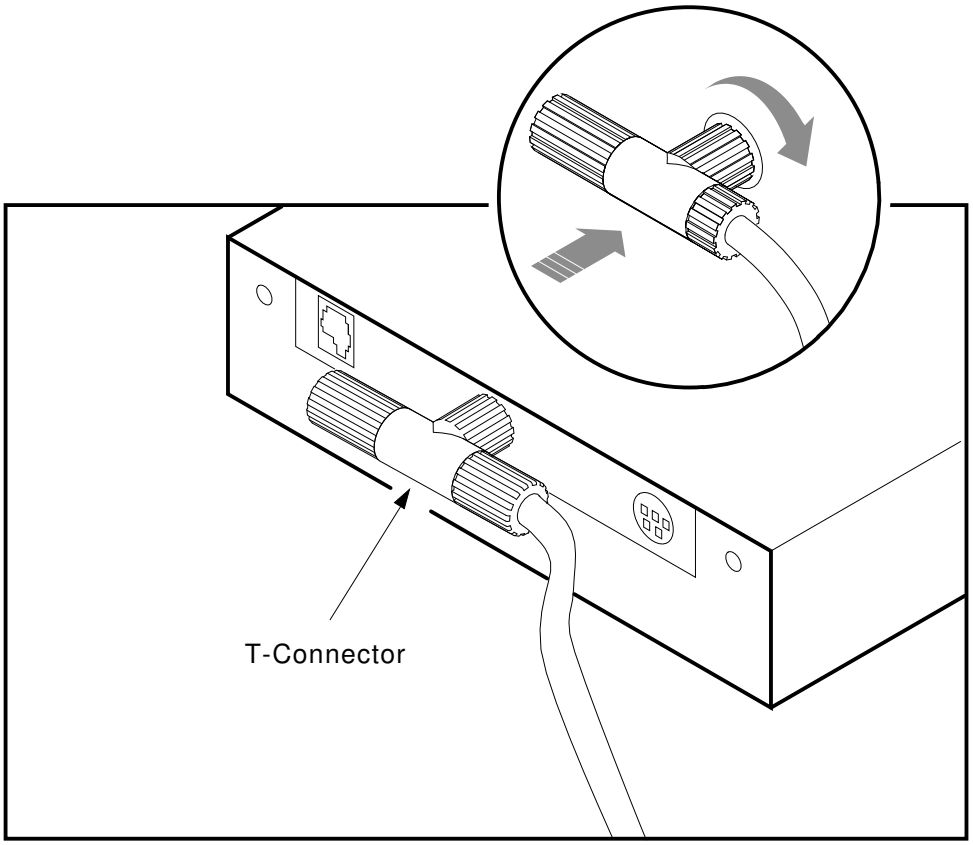
To connect the server system to ThinWire Ethernet cable, follow these steps:

1. Remove power from the system.
2. Attach a ThinWire cable to one side of the T-connector for the InfoServer 1000. Figure 6–1 shows the position of the T-connector.
3. If your system *is* the first or last system in a single ThinWire **segment**, leave a terminator attached to one side of the T-connector.

   A segment is a length of cable made up of one or more cable sections connected with **barrel connectors** or T-connectors.
4. If your system *is not* the first or last system and you want to connect another system to the ThinWire cable, add another section of cable to the other side of the T-connector.

   Ensure that the T-connector is attached correctly to the back of the InfoServer 1000. Push the T-connector onto the InfoServer 1000 BNC connector, then turn the T-connector clockwise until it locks in place.

Figure 6–1 Attaching the T-Connector with Cable Segment to the BNC Connector



6.3 Creating a ThinWire Ethernet Workgroup

A workgroup is a set of systems connected serially on the same ThinWire segment. This segment can work as a standalone network or can be connected to a larger network.

The serial configuration lowers the cost of wiring. However, there is a risk that someone may unplug a system and make the network connections inoperative between systems on the ThinWire segment.

6.3.1 Connecting Your System to an OPEN DECconnect Faceplate

If your office is wired with Digital's OPEN DECconnect products, then connect your system to the OPEN DECconnect faceplate in your office. A **faceplate** is a wall receptacle that provides a network connection for your system.

OPEN DECconnect cabling components support network configurations ranging from simple standalone ThinWire networks to multimedia local area networks (LANs) that connect PCs, DECstations, VAXstations, and VAX systems. No matter how large or how small your network, the most visible OPEN DECconnect component in your office is the faceplate.

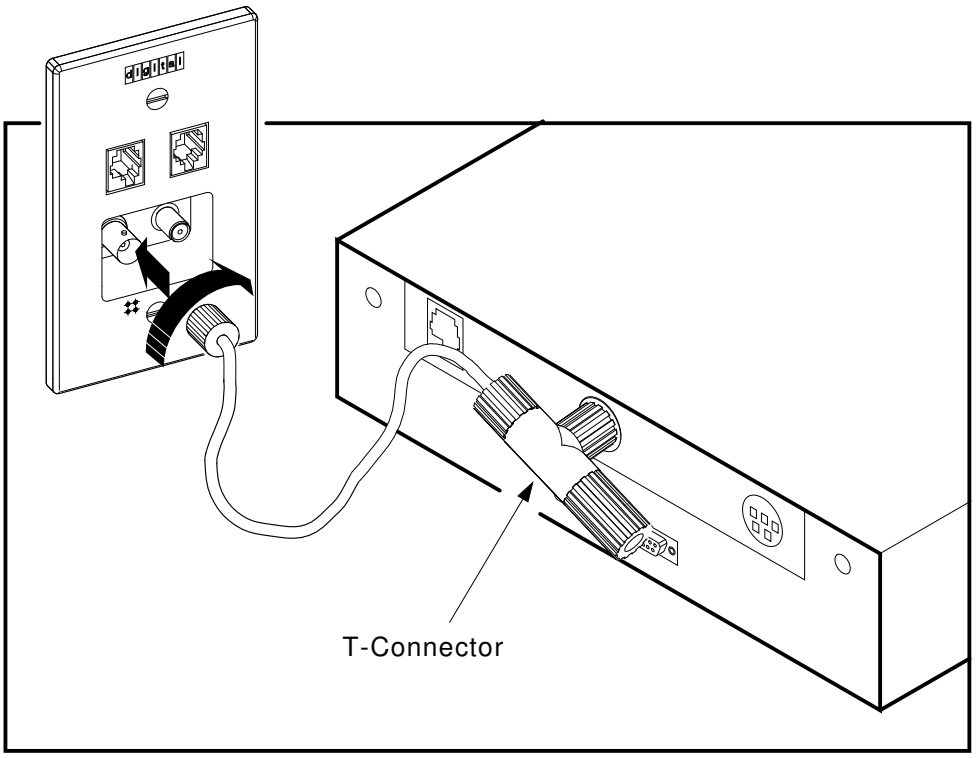
The faceplate has one of the following connectors:

- A ThinWire BNC connector that allows several systems, including InfoServer 1000 systems, to be serially connected to one another on the office side of the faceplate.
- A ThinWire Ethernet serial connector that allows several faceplates to be serially connected behind the wall to a single segment of ThinWire cable. One system can be attached to each faceplate.

Your network coordinator knows which type of OPEN DECconnect faceplate you have in your office.

To connect your system, attach one end of the ThinWire cable to the office side of the OPEN DECconnect faceplate. Attach the other end of the ThinWire cable to the ThinWire connector on the back of your system. Figure 6–2 shows these connections.

Figure 6–2 Connecting to the OPEN DECconnect Faceplate



6.3.2 Troubleshooting the ThinWire Segment

If you find problems during the ThinWire Ethernet installation, use the following checklist to ensure that all connections are correct:

1. Check that all connections are secure on the ThinWire Ethernet segment.
2. Check that there is a T-connector between the connector on the ThinWire cable and the InfoServer 1000.
3. Check that there is no ThinWire segment between the system and the T-connector. The T-connector must attach directly to the system.
4. Check that there are no branches off a ThinWire segment except through a DEMPR multiport repeater.

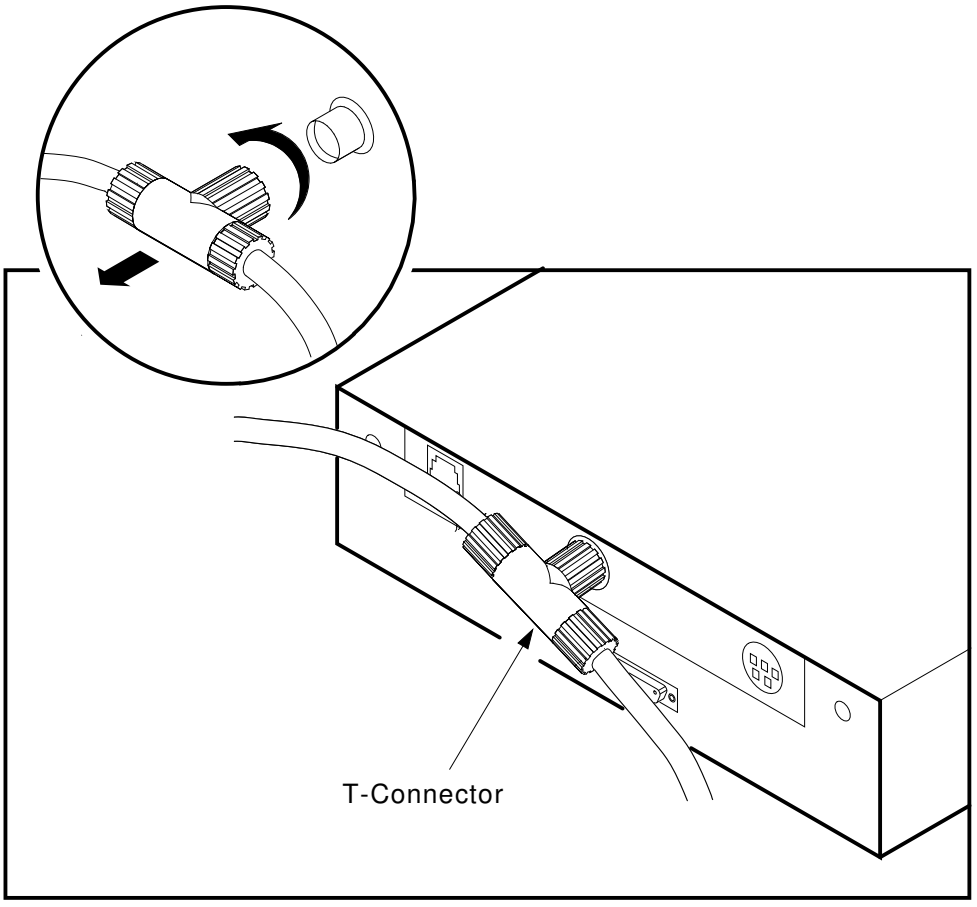
   A DEMPR provides eight (8) ThinWire Ethernet connections from a single standard Ethernet connection.
5. Check that a ThinWire segment is not looped from one port on the DEMPR to another port on the DEMPR.
6. Check that the InfoServer 1000's T-connector has not been disconnected from an operating ThinWire Ethernet segment.

   CAUTION

   If you need to remove a system from an active ThinWire segment, disconnect the center of the T-connector from the system, as shown in Figure 6–3.
7. Check that you have not disconnected a terminator from an active ThinWire segment. This would disrupt network operation.

After you have checked all ThinWire Ethernet connections, retest the Ethernet as directed in Section 6.2.1.

Figure 6–3 Disconnecting the T-Connector



6.4 Connecting to a Standard Ethernet Network

The following sections explain how to connect the InfoServer 1000 system to a standard Ethernet network.

6.4.1 Verifying Your Standard Ethernet Network Adapter

To verify the standard Ethernet adapter, you must attach the 15-pin standard Ethernet loopback plug to your InfoServer 1000.

Follow these steps:

1. Force the system into console mode as follows:
   a. Turn the InfoServer 1000 power off.
   b. Disconnect the network loopback plug at the rear of the enclosure.
   c. Turn the InfoServer 1000 power on.

      When the system runs its power-on self-test diagnostics, the network test will fail and the system will go into console mode. A display similar to the following appears:

```
InfoServer 1000 V1.0-18F-V3.7 20-JAN-1993 14:04:42.00
08-00-2B-20-CD-02 Thickwire
4MB
|                          |
##########################
?? 001   6        NI  0172

  84 FAIL

>>>
```

   d. Reconnect the loopback plug. The indicator on the loopback plug should be on.
2. Enter the following command (Test NI):

```
>>> T NI Return
```

   The system responds with another display similar to the following:

```
>>> T NI
| |
###

OK

>>>
```

If the system responds with a display similar to the following, there is a problem with the InfoServer 1000 network adapter:

```
>>>T NI
| |
###
?? 001   6        NI  0172

  84 FAIL

>>>
```

3. After successful network verification, remove the loopback plug and store it for future diagnostic testing. Connect your system to a standard Ethernet cable, as described in the next section.

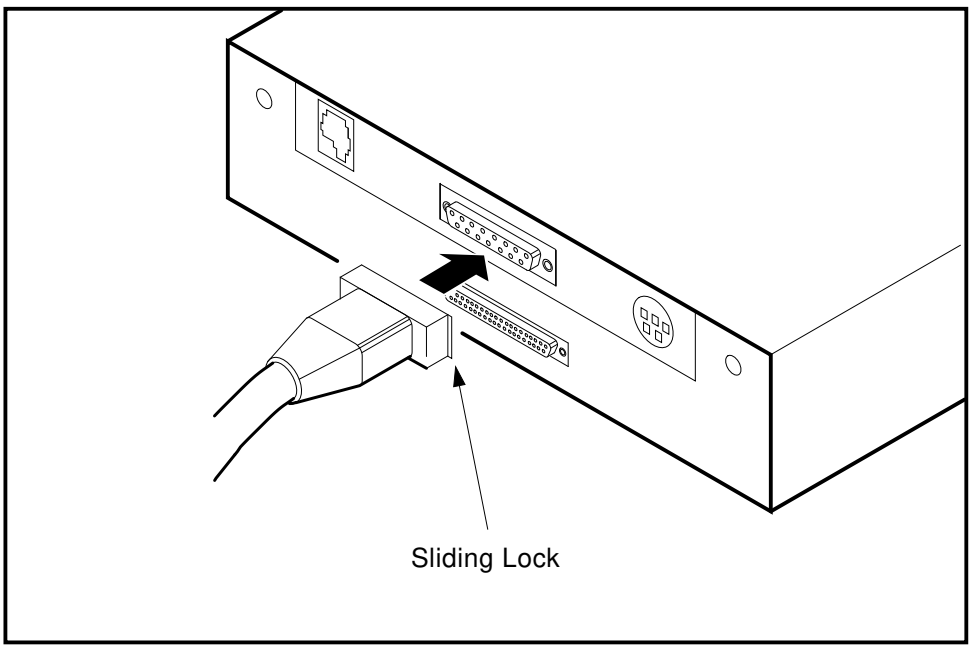
   If you have problems, refer to Section 6.4.3.

6.4.2 Connecting a Transceiver Cable to Your System

A transceiver cable is the physical connection between a standard Ethernet network interface and an InfoServer 1000 system. You use a transceiver cable to connect your system to an H4005 transceiver or DELNI unit, which connects to the standard Thickwire Ethernet cable. To connect a transceiver cable to your system:

1. Remove power from the InfoServer 1000 system.
2. Connect the 15-pin connector on the transceiver cable to the standard Ethernet connector on the rear of the InfoServer 1000.
3. Use a screwdriver to move the connector's sliding lock and make the standard Ethernet connection secure as shown in Figure 6–4.

Figure 6–4 Securing the Standard Ethernet Cable



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6.4.3 Troubleshooting the Standard Ethernet Connection

If you have problems verifying the standard Ethernet connection, follow these steps:

1. During standalone verification, ensure that the loopback plug is securely connected to the system.

   If you are connected to an active Ethernet segment, you can test the system without the loopback plug.

2. Turn your system off, then turn it on again. The system verifies the Ethernet connection during the power-on sequence.

3. After you check all Ethernet connections, retest the Ethernet adapter as directed in Section 6.4.1.

7
Solving Problems

7.1 Introduction

This chapter provides information on troubleshooting problems with the InfoServer 1000 system. Topics include:

- Checking cable connections
- Using the troubleshooting table
- Entering the console mode
- Interpreting power-on error messages
- Running self-tests
- Displaying system configuration information
- Displaying device information
- Running test utilities for expansion peripherals
- Restarting the system after running tests
- Reestablishing console parameters
- Recovering from bootstrap failures
- Service information
- Command summary

7.2 Checking the Cable Connections

If a problem occurs, first make sure that all power (ac and dc), network, and SCSI device cables are connected correctly. Follow these steps to check the cables:

1. Turn off the console terminal.
2. Turn off all expansion peripherals.

3. Turn off the InfoServer 1000.
4. With all equipment turned off, check that the following cables are correctly connected at both ends:
   - Console cable (linking the console terminal or LAT port to the InfoServer 1000)
   - Terminal power cord
   - InfoServer 1000 or InfoTower power cord(s)
   - SCSI cables from standalone InfoServer 1000 to standalone expansion peripherals
   - Standalone peripheral power cords

Now, apply power to your equipment in the following order:

1. Turn on the standalone expansion peripherals (if any).
2. Turn on the console terminal.
3. Turn on the InfoServer 1000 or the InfoTower.

The power-on self-test display should appear and the InfoServer 1000 system should boot. The console display should look similar to the following example:

```
InfoServer 1000 V1.0-18F-V3.7 20-JAN-1993 14:04:42.00
08-00-2B-20-CD-02 ThinWire
4MB
|                          |
##########################

OK

  83 BOOT SYS
-DKA200
-DKA100
-FLASH

DEC InfoServer 1000 V3.0
Copyright (c) 1990, 1991, 1992 Digital Equipment Corp.
ESS-I-INITDISK, Disk initialization complete, 2 devices found
ESS-I-FORMDISK, Formatting internal InfoServer disk, please wait...

DEC InfoServer 1000 V3.0
```

After the last line of the display, the InfoServer 1000 operating system kernel is running and the System OK indicator flashes on and off once/second. If the display does not resemble this example, or if any question marks appear in the display, refer to Section 7.3.

7.3 Using the Troubleshooting Table

Table 7–1 suggests corrective actions for certain system problems. When you have a problem, perform the following steps:

1. Note the symptoms of the problem.
2. Check the **Symptom** column in Table 7–1 for a match.
3. Check the conditions for that symptom in the **Possible Cause** column. If more than one possible cause is given, check the possible causes and their suggested solutions in the order listed.
4. Follow the advice in the **Suggested Solution** column.
5. If the problem continues, refer to Section 7.13.

Table 7–1 Troubleshooting Basic System Problems

Symptom	Possible Cause	Suggested Solution
InfoServer 1000 Problems		
The InfoServer 1000 Power OK indicator is off.	The ac power cord is not connected. The power outlet may not be working.	Check the power cord connections at both ends. Try a lamp that you know works in the power outlet.
	The dc power cord is not connected (standalone enclosure only).	Check that the dc power cord is firmly inserted into its socket at the rear of the InfoServer 1000.
	The | O power switch is not turned on (|) (InfoTower only.)	Check the setting of the | O power switch.
		Remove power from the system. Unplug the terminal cable, network cable, and SCSI cables /terminator. Then plug all cables back in and apply power to the system.
The power-on display does not appear within 1 second.	The terminal cable is not connected.	Check that the terminal cable is plugged in at both ends.

(continued on next page)

Table 7–1 (Cont.) Troubleshooting Basic System Problems

Symptom	Possible Cause	Suggested Solution
InfoServer 1000 Problems		
	Terminal settings may be incorrect.	Refer to the terminal documentation. The terminal should be set to 9600 baud, 8 bits, and no parity.
The power-on display contains question marks.	Possible CD-ROM drive error.	If question marks appear with any numbers in the power-on display, refer to Section 7.6 for further test instructions.
The server system's software `Enter Password:` prompt does not appear on the screen.	System software is not installed or is corrupt.	Refer to Section 7.12.
Standalone Expansion Peripheral Problems		
The power indicator is off.	The I O power switch is not turned on.	Check the setting of the power switch.
	The power cable or SCSI cable is not installed correctly.	Check that the power cable and SCSI cable (if any) are installed correctly at both ends. Also check the SCSI terminator on the last standalone expansion peripheral.
		InfoTower configuration—Check that the SCSI peripheral is firmly seated in the enclosure (Figure 3–2).
		Refer to the documentation supplied with your standalone peripheral.

7.4 Entering the Console Mode

You must be at the **console mode** prompt in order to enter commands or run diagnostics. To enter console mode initially on the InfoServer 1000, you must simulate a failure. The easiest way to do this is to interrupt the network connection during power on as follows:

1. Turn the InfoServer 1000 power off.
2. Disconnect the network at the rear of the enclosure.
3. Turn the InfoServer 1000 power on.

   When the system runs its power-on self-test diagnostics, the network test fails and the system will go into console mode (>>>).
4. Reconnect the network.
5. Enter the desired commands.

Thereafter, you may enable halt-on-break mode with the following command:

```
>>> SET XDELTA 1
```

When XDELTA is enabled, you may enter console mode at any time by pressing the Break key on the console. Digital recommends that for normal use, this mode be turned off with the command:

```
>>>SET XDELTA 0
```

to avoid halting the InfoServer 1000 with an unintentional console break.

7.5 Interpreting the Power-On Error Messages

The InfoServer 1000 displays important information during its power-on self-test sequence. A single question mark indicates status information. A double question mark indicates possible failures.

Note

If the console terminal does not display any information on the screen after the power-on self-test sequence starts (approximately 1 second), a terminal or system failure may exist. Check Table 7–1, the basic troubleshooting table.

Solving Problems

Status Information

A single question mark indicates status information. For example:

```
InfoServer 1000 V1.0-18F-V3.7 20-JAN-1993 14:04:42.00
08-00-2B-20-CD-02 ThinWire
4MB
|                          |
############################
?  120   7      SCSI  0034

>>>
```

If you see a single question mark in the power-on display, but operation of the system seems normal, you can continue to use the system if the question mark is next to a 7 (the SCSI bus controller test).

If you continue to see errors of this type during the power-on display, use the information in the rest of this chapter to solve the problems. If the system continues to display error information or fails to operate normally, call your Digital Services representative.

Possible Failures

If double question marks appear in the power-on display, failures may exist in the system.

A double question mark indicates a hard error that can affect normal operation and use of some system component. For example:

```
InfoServer 1000 V1.0-18F-V3.7 20-JAN-1993 14:04:42.00
08-00-2B-20-CD-02 ThinWire
4MB
|                          |
############################
?? 001   6        NI  0172
❶       ❷       ❸    ❹
  84 FAIL

>>>
```

❶ Failure number

❷ Diagnostic test number

❸ Device under test

❹ Error code

This message indicates that the Ethernet adapter is present in the system, but that one or more of the following problems exist:

- No cable is installed on the Ethernet connector.
- The loopback plug is not installed on the standard Ethernet port for testing purposes.
- The terminator is not installed on the ThinWire Ethernet port.
- A network cable is faulty.

7.6 Running the Self-Tests

Self-test diagnostic programs reside permanently in your system's read-only memory (ROM). You can run self-tests from the console terminal when the system is in console mode (refer to Section 7.4). After running each self-test, enter the command `SHOW CONFIG` and press Return to display the status of the device tested (refer to Section 7.7).

To test a device in your system, follow these steps:

1. Use Table 7–2 to find the number or mnemonic code that represents the device that you want to test.
2. Put the system in console mode (refer to Section 7.4).
3. Enter `TEST` (or the letter `T`) and the mnemonic code or number of the test:

```
>>> T NI Return
    | |
    ###

OK

>>>
```

If you want to test a consecutive series of devices, enter `TEST` (or `T`) followed by each number in the series separated by a space:

```
>>> T 1 2 3 4 Return
    |           |
    ########################

OK

>>>
```

If the self-test is successful, no question mark or error message is displayed, and the console prompt appears.

If a device fails the self-test, a failure message is displayed before the console prompt appears.

```
>>> T NI Return
| |
###
?? 001   6        NI  0172

  84 FAIL

>>>
```

If a self-test results in a failure, execute the SHOW ERROR command to display any error codes.

```
>>> SHOW ERROR Return

?? 001   6        NI  00AC
001 0000 00000000 00000000 00000000 00000000 00000000 00000000
```

Table 7–2 Power-On Display and Self-Test Identifiers

Mnemonic Code (Number)	Tested Device
NVR (1)	Nonvolatile RAM
DZ (2)	Serial line controller (console/LAT port)
MEM (3)	Memory
IT (4)	Interval timer
SYS (5)	System device verification
NI (6)	Ethernet network interconnect
SCSI (7)	Internal SCSI bus controller

7.7 Displaying the System Configuration Information

The InfoServer 1000 can display configuration, Ethernet ID, and status information. Error information displayed is valuable to your service representative. Have this information ready if you call for service. Refer to Chapter 5 and Appendix C for more information. Table 7–2 lists the mnemonic code used for each device. To display your system configuration, perform the following steps:

1. Put the system in console mode (refer to Section 7.4).
2. Enter the SHOW CONFIG command at the console prompt (>>>). The following example shows a typical display.

```
>>> SHOW CONFIG Return

InfoServer 1000 V1.0
08-00-2B-20-CD-02 ThinWire
4MB

DEVNBR    DEVNAM          INFO
------    --------    -------------------------
     1         NVR    OK
     2          DZ    OK
     3         MEM    OK
                      4MB = S0=4MB, S1=0MB
     4          IT    OK
     5         SYS    OK
     6          NI    OK
     7        SCSI    OK
                      1-RRD42   2-RZ23L   6-INITR
```

7.8 Displaying the Device Information

To determine which devices are installed in your system and their SCSI bus ID assignments, enter the SHOW DEVICE command at the console prompt (>>>). The system displays information similar to the following:

```
>>> SHOW DEVICE Return
 VMS/VMB      ADDR      DEVTYPE    NUMBYTES     RM/FX    WP    DEVNAM      REV
 -------      ----      -------    --------     -----    --    ------      ---
 ESA0         08-00-2B-20-CD-02 ThinWire
 DKA100       A/1/0     DISK       121.64MB      FX            RZ23L       2528
 DKA200       A/2/0     DISK       593.49MB      RM      WP    RRD42       1.2b
..HostID..    A/6       INITR
   ❶           ❷         ❸          ❹           ❺       ❻      ❼          ❽
```

❶ Device name

❷ Controller/SCSI ID/logical number
In this example:
SCSI ID 0 — Open
SCSI ID 1 — RZ23L hard-disk drive
SCSI ID 2 — RRD42 CD-ROM drive
SCSI ID 3 — Open
SCSI ID 4 — Open
SCSI ID 5 — Open
SCSI ID 6 — Internal SCSI controller
SCSI ID 7 — Open

❸ Generic device type

❹ Device capacity

❺ Removable/fixed media

❻ Write protected

❼ Specific device type

❽ Media revision level

7.9 Running the Test Utilities for Expansion Peripherals

If an expansion peripheral fails, check that all cable connections are in place.

To test an RRD42 CD-ROM drive, follow these steps:

1. Put the system in console mode (refer to Section 7.4). The console prompt (>>>) appears on your screen.
2. Insert a disc in the RRD42 drive, following the instructions in Appendix B.
3. Enter the TEST SCSI command at the console prompt.
4. The test should display the normal response code as follows:

```
>>> T SCSI Return
| |
###

OK

>>>
```

If the SCSI test fails, issue the following commands:

```
>>> U
>>> SHOW DEVICE
>>> SHOW DEVICE
```

The SHOW DEVICE command should be issued twice to ensure that the InfoServer 1000 issues a SCSI bus reset to clear any peripheral error conditions. If the drive does not appear listed after the second SHOW DEVICE command, there is a problem with the RRD42 compact disc drive. Do not use the drive. Call your Digital Services representative for help.

7.10 Restarting the System After Running Tests

While running any of the tests or procedures in this chapter, your system is in console mode. If the InfoServer 1000 system software is already loaded in the internal memory (refer to Section 4.2), resuming normal operation is easy. Reenter **program mode** in one of two ways:

- Enter the BOOT command at the console prompt and press Return. The system then searches its internal memory for the server's load image.
- Turn the InfoServer 1000 off and then on again. The server is configured to boot automatically at power-on.

Either method lets the server boot the system software in the internal memory. If the software has not been copied into memory, place the InfoServer software compact disc in the compact disc drive. If the system fails to boot initially from the internal memory, the system automatically tries to boot from the compact disc drive. It will try to boot indefinitely.

If the system does not boot when you enter the BOOT command, refer to Section 7.12.

7.11 Reestablishing the Console Parameters

It may be necessary to reestablish key console parameters if you have replaced the system. Enter the following commands at the console prompt:

```
>>> SET BOOT DKA200, DKA100, FLASH Return
>>> SET HALT 2 Return
>>> SET BFLG D0000000 Return
>>> SET XDELTA 0 Return
>>> BOOT Return
```

7.12 Recovering from Bootstrap Failures

If the InfoServer 1000 system fails to boot and displays the following error message, the internal FLASH memory is corrupted:

```
- IMAGE_NOT_PRESENT C7
```

Use the following procedure to upgrade FLASH memory. Otherwise, the procedure should be used *only* if the InfoServer 1000 software in FLASH is known to be out-of-date as described in the software release notes.

1. Turn the InfoServer 1000 power off.
2. Disconnect the Ethernet cable at the rear of the enclosure.
3. Connect the console terminal, turn it on, and allow it to warm up.
4. Turn the InfoServer 1000 power on.
5. If the self-test diagnostics do not complete and the console prompt >>> does not appear, proceed to step 11.
6. If you have a CD-ROM drive on the system, execute a SHOW DEVICE command and make note of the unit number of the CD-ROM drive. Otherwise, proceed to step 10.

7. Boot the InfoServer 1000 from the CD-ROM drive with the command:

```
>>> B DKAnnn:
```

   where nnn refers to the unit number.

8. When the Enter Password: prompt appears, enter the default password (ESS) or the last saved password. If you have forgotten the current password, refer to the troubleshooting chapter in the *InfoServer System Operations Guide*.

9. Enter the following commands in response to the InfoServer> prompt:

```
InfoServer> SET STATE OFF
InfoServer> UPDATE SYSTEM DKm: FLASH
```

   where m is 1—5 or 7 (the unit number of the device containing the compact disk).

   Proceed to step 13.

10. If there is no CD-ROM drive available, enter the following command to boot the InfoServer 1000 from the Ethernet:

```
>>> B/100 ESA0
Bootfile:
```

    Proceed to step 12 if the Bootfile: prompt appears.

11. If the B/100 ESA0 command does not produce a Bootfile prompt, or if the InfoServer 1000 does not even execute the power-on self-test to the point where the >>> prompt appears, then perform the following steps:

    a. Turn the power off.

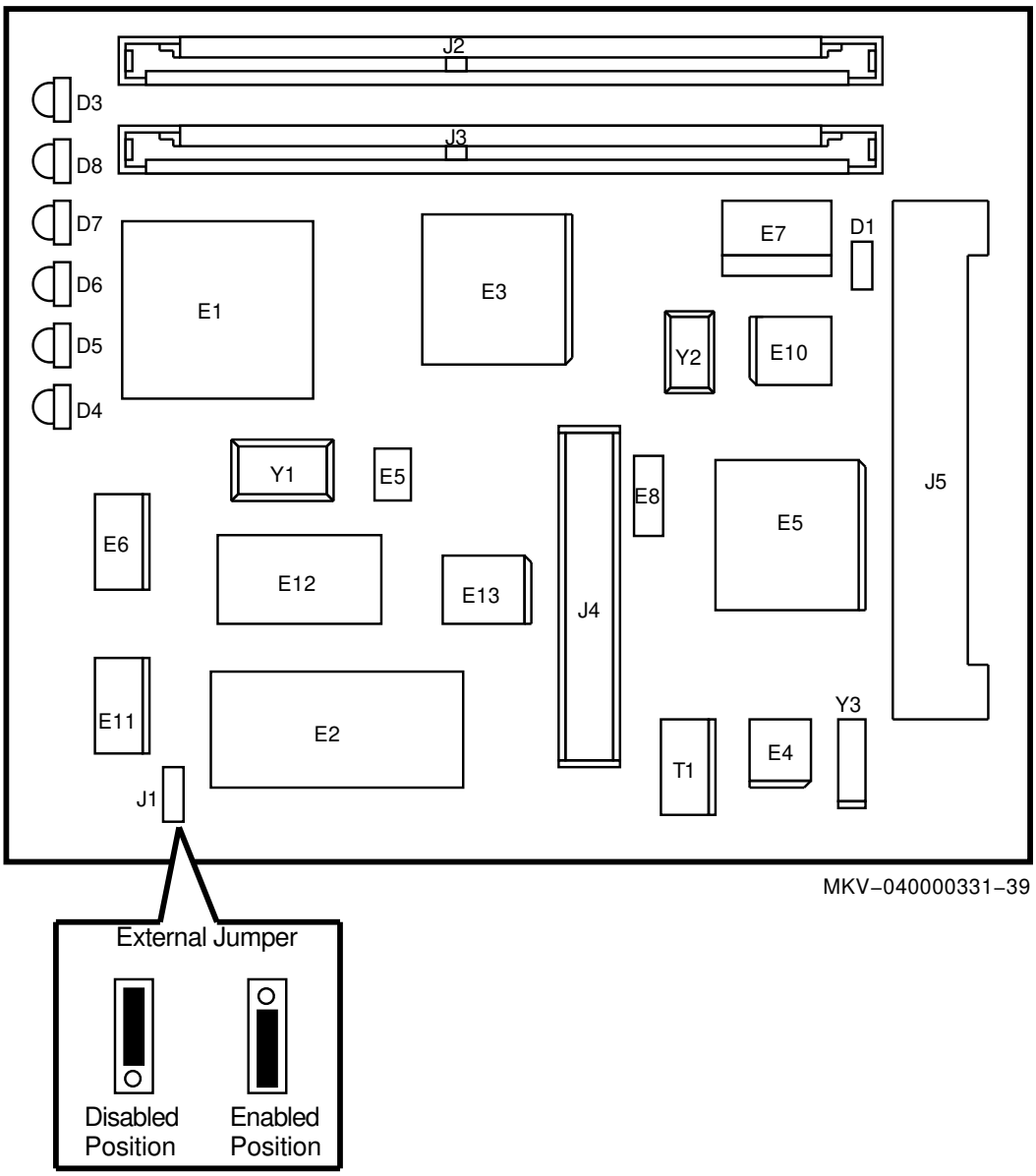
    b. Remove two retaining screws on the bottom and slide off the InfoServer 1000 cover.

    c. Move the external jumper (J1) to the "enabled" position (Figure 7–1).

    d. Replace the cover and turn the power on. The Bootfile: prompt should appear.

12. At the Bootfile: prompt, enter the name of the boot image provided by the software release notes document. If step 11 has been executed, then the boot image should be chosen to update the diagnostics as well as the InfoServer 1000 firmware image.

Figure 7–1 Setting the External Jumper (J1)



You must have the image available for MOP downline loading from another InfoServer 1000 or from a host system. Refer to the *InfoServer System Operations Guide* for instructions on enabling MOP downline loading of InfoServer update images.

13. The following display appears:

```
          ---InfoServer 1000 FLASH ROM Update Program V1.5---
 Current Contents of FLASH:
 Segment  Size     Version Maj.Rev. Min.Rev. Pat.Rev.   Time   Name
00000001 00004000 00000001
00000002 0001C000 00000001
00000003 00005000 00000002 00000001 00000071 00000000 00000000 EXT_HEADER
00000004 0003C000 00000002 0000000F 00000007 00000000 2B4D6498 SYSLOCS
00000005 0000F000 00000002 0000000F 00000007 00000000 2B4D6498 HELP.MEM
 Update  Contents of FLASH:
 Segment  Size     Version Maj.Rev. Min.Rev. Pat.Rev.   Time   Name
00000001 00004000 00000001
00000002 0001C000 00000001
00000003 00005000 00000002 00000001 00000071 00000000 00000000 EXT_HEADER
00000004 0003C000 00000002 0000000F 00000007 00000000 2B4D6498 SYSLOCS
00000005 0000F000 00000002 0000000F 00000007 00000000 2B4D6498 HELP.MEM

--- Flash image size (HEX): 00050000 Starting offset (HEX): 00020000

                        ---CAUTION---
--- EXECUTING THIS PROGRAM WILL CHANGE YOUR CURRENT INFOSERVER ROM IMAGE ---

Do you really want to continue [Y/N] ? :
```

If the SYSLOCS and HELP.MEM segments do not appear in the "Current Contents" display, then FLASH memory is indeed corrupt and you may continue with the process. If the two unlabeled segments do not appear, then the diagnostic code is corrupt. The diagnostic update displays the following information. It is important to note that the starting offset is zero.

```
--- Flash image size (HEX): 00070000 Starting offset (HEX): 00000000

                        ---CAUTION---
--- EXECUTING THIS PROGRAM WILL CHANGE ALL OF YOUR CURRENT ROM ---

Do you really want to continue [Y/N] ? :
```

14. Respond to the question with a Y or an N. If N is chosen, proceed to step 15. Otherwise, the following display appears.

```
Do you really want to continue [Y/N] ? : Y

DO NOT ATTEMPT TO INTERRUPT PROGRAM EXECUTION!
DOING SO WILL RESULT IN LOSS OF OPERABLE STATE!
The program will take one minute at most.
led codes display information
0000 0nnn          -   in process of erasing     FEPROM block nnn
0000 1nnn          -   in process of programming FEPROM block nnn
0001 0nnn          -   in process of verifying   FEPROM block nnn

DO NOT POWER DOWN OR TOUCH BREAK, OR YOU WILL DAMAGE THE CPU MODULE!!!!
!!!! THE SYSTEM WILL THEN DO A POWERUP RESTART and HALT at the console!!!!
!!!! OTHERWISE, POWER CYCLE THE BOX AFTER ALL LEDS ARE LIT !!!!
Erasing     Block 00000005
Programming Block 00000005
Verifying   Block 00000005
Erasing     Block 00000006
Programming Block 00000006
Verifying   Block 00000006
Erasing     Block 00000007
Programming Block 00000007
Verifying   Block 00000007
?06 HLT INST
  PC= 00000B7A PSL= 041F0004

>>>
```

In some cases, the InfoServer 1000 may hang after the verification of block 7 with all of the indicators lit. If this happens, turn the InfoServer 1000 power off and then on.

15. If step 11 has been executed, turn the InfoServer 1000 power off, remove the cover, restore the external jumper (J1) to its original position, and replace the cover.

16. Restore the halt action with the following command and boot the system:

```
>>> SET HALT 2
>>> B/0 FLASH
```

17. Refer to the *InfoServer System Operations Guide* to restore functions if the licensed functions do not appear.

7.13 Service Information

If you have followed the corrective actions listed in this chapter and continue to have problems with your system, call your Digital Services representative.

Before you call:

1. Write down the serial and model numbers of your system. Your system is identified by a label on the rear of the InfoServer 1000 or InfoTower. For example:

   Model: SEA*xx*-A*x*, InfoServer 1000 system.

   Your Digital Services representative may need this number when you call.

2. Make notes based on the troubleshooting table at the beginning of this chapter. This information informs your service representative as to the state of your system when the problem occurred.

3. Be prepared to read information from the screen and to enter commands at the keyboard while you talk to your service representative on the telephone.

4. Six indicators on the front of the InfoServer 1000 show key status information. Write down the status of these indicators. Your service representative may ask you to describe which indicators are on or off.

7.14 Command Summary

Table 7–3 and Table 7–4 list the SET and SHOW command options used in these troubleshooting procedures. To display a list of all InfoServer commands, enter `HELP` at the console prompt and press Return. For more information on commands, refer to the *InfoServer System Operations Guide*.

Table 7–3 SET Command Summary

Command	Default Set
SET BFLG	Sets the bootstrap address.
SET BOOT	Sets the bootstrap device.
SET HALT	Sets the default halt action.
SET SCSI	Sets the SCSI device ID number.
SET XDELTA	Sets the enable/disable halt on Break key.

Table 7–4 SHOW Command Summary

Command	Information Displayed
SHOW BFLG	The bootstrap address
SHOW BOOT	The bootstrap device
SHOW CONFIG	Internal device configuration
SHOW DEVICE	Devices available and SCSI ID
SHOW ETHER	Hardware Ethernet address
SHOW HALT	Default action after your system halts
SHOW MEMORY	Memory for your InfoServer 1000
SHOW SCSI	SCSI device ID number
SHOW XDELTA	Halt on Break key status

A
Installation Checklist

A.1 Introduction

This appendix provides a checklist of the basic installation steps. For more detailed instructions, refer to Chapter 2 for standalone configurations such as the InfoServer VXT or InfoServer Scribe, or Chapter 3 for InfoServer Librarian configurations using the InfoTower enclosure. Chapter 4 concludes the installation. The applicable section number is identified in parenthesis.

A.2 Standalone InfoServer 1000 Installation Steps

Follow these basic steps to install standalone InfoServer 1000 system configurations.

1. Choose a suitable location for the system (Section 2.2).
2. Unpack and inspect the standalone system components (Section 2.3).
3. Identify the InfoServer 1000 ports and connectors (Section 2.3.2).
4. Attach the Ethernet terminator or loopback plug (Section 2.3.3).
   - Connect the ThinWire Ethernet terminator (Section 2.3.3.1), or
   - Connect the standard Ethernet loopback plug (Section 2.3.3.2).
5. Connect a console terminal (Section 2.3.4).
6. Connect the standalone expansion peripherals (Section 2.3.5).
7. Connect the InfoServer 1000 power supply and power cord (Section 2.3.6).
8. Familiarize yourself with the front panel indicators (Section 1.5).
9. Turn on the system (Section 2.4 and Section 4.2).

Installation Checklist

CAUTION

InfoServer 1000 software is factory-loaded. The software compact discs shipped with the system are for backup purposes. Do not attempt to load software as part of the installation process.

10. Load a compact disc or tape, if applicable (Appendix B).
11. Connect the system to a network (Section 4.3).
12. Boot the system (Section 4.4).
    - Boot automatically without a console (Section 4.4.1) or manually with a console (Section 4.4.2).

A.3 InfoTower Installation Steps

Follow these basic steps to install the InfoServer Librarian system in an InfoTower enclosure.

1. Choose a suitable location for the system (Section 3.2).

WARNING

Because of the weight of the InfoTower system (25.5 kg (56 lb) fully loaded), two people should lift the equipment out of the shipping carton and place it on a work surface.

2. Unpack and inspect the InfoTower system components (Section 3.3).

Note

Digital recommends that you use the InfoTower stabilizer stand when orienting the InfoTower enclosure in the vertical (tower) position. The stabilizer stand will resist accidentally tipping the enclosure over.

Note

After moving the system into position, unlock and open the enclosure door. Ensure that each peripheral is seated properly and is firmly connected to the backplane by pressing firmly on the front bezel.

3. Identify the InfoTower ports and connectors (Section 3.3.2).
4. Install the SCSI terminator (Section 3.3.3).
5. Attach the Ethernet terminator or loopback plug (Section 3.3.4).
   - Connect the ThinWire Ethernet terminator (Section 3.3.4.1), or
   - Connect the standard Ethernet loopback plug (Section 3.3.4.2).
6. Connect a console terminal (Section 3.3.5).
7. Connect the InfoTower system power cord (Section 3.3.6).
8. Familiarize yourself with the front panel indicators (Section 1.5).
9. Turn on the system (Section 3.4 and Section 4.2).

CAUTION

InfoServer 1000 software is factory-loaded. The software compact discs shipped with the system are for backup purposes. Do not attempt to load software as part of the installation process.

10. Load a compact disc (Appendix B).
11. Connect the system to a network (Section 4.3).
12. Boot the system (Section 4.4).
    - Boot automatically without a console (Section 4.4.1) or manually with a console (Section 4.4.2).

B

Loading and Unloading Compact Disks

B.1 Introduction

The information in this appendix provides instruction on how to load and unload CD-ROM disks into the RRD42 reader using a caddy.

B.2 Loading a Compact Disc

When you load a disc into the compact-disc drive, insert the entire disc **caddy** into the disc door on the drive. Do not remove the disc from the caddy.

To load compact discs that you want to serve to the network, follow these steps:

1. Examine the disc caddy. Ensure that it is not cracked or damaged. Never load a damaged caddy into a compact-disc drive.
2. If a protective film is on the lid of the caddy, remove the film before using the caddy (Figure B–1).
3. To open the lid of the caddy, press the tabs on both sides and lift the lid (Figure B–1).
4. To load an empty caddy with a disc, hold the disc by the edges and place the disc (with disc label up) into the caddy (Figure B–2). Do not touch the surface of the disc. Be sure to place the disc beneath the edge of the caddy.
5. Press both corners firmly to close the lid (Figure B–2).

Note

The loading procedure for the RRD42 standalone and enclosure-mounted drives is the same with one exception; the standalone drive requires setting the power switch to on. Figure B–3 shows the standalone drive.

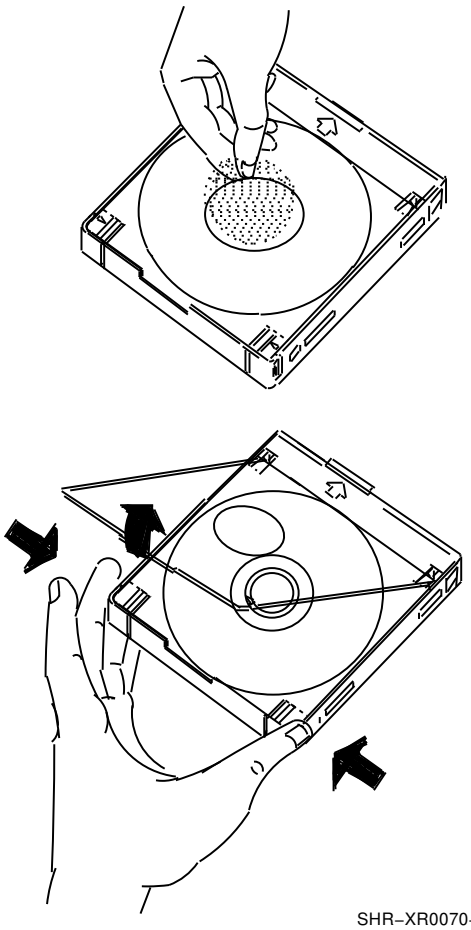
6. Insert the caddy into the drive (Figure B–3).

Loading and Unloading Compact Disks

The green activity light should turn on within five (5) seconds. If the drive accepts the disc and caddy, but the light does not come on, the disc could be placed incorrectly in the caddy. Remove the disc and check that the label is facing up when you insert the disc into the drive again. If the activity light still does not come on, there could be a problem with the RRD42 drive. Contact your local Digital Services representative.

The drive reads the Table of Contents (TOC) on the disc. The busy indicator lights while the TOC is read. When the busy indicator light goes off, the drive is ready to receive commands.

Figure B–1 Opening the Caddy



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Loading and Unloading Compact Disks

Figure B–2 Loading the Disc

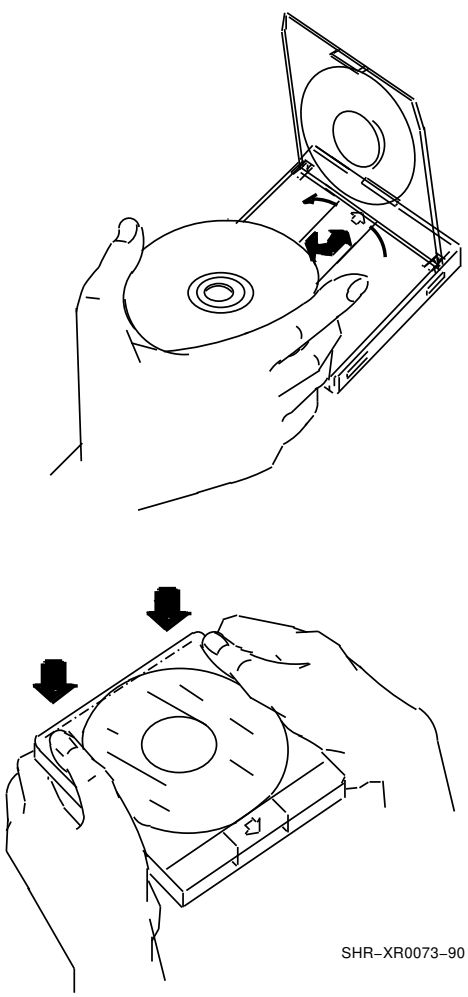
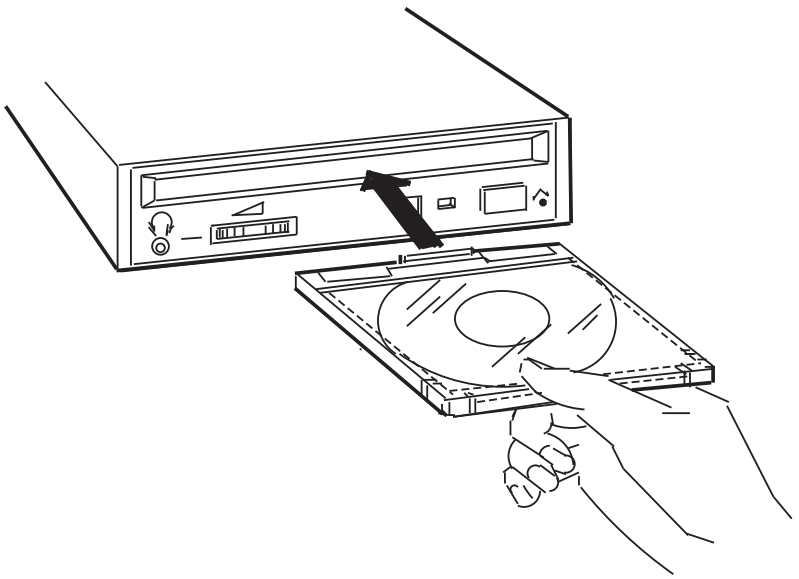


Figure B–3 Loading the Caddy into the Drive



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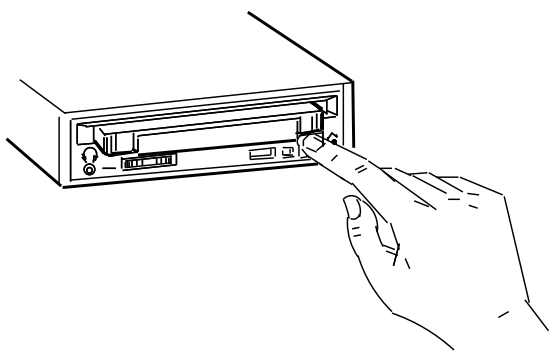
B.3 Unloading a Compact Disc

Before unloading a compact disc, ensure that the green activity light is not flashing. If the light is flashing, the compact-disc drive is transferring data. Wait until the green activity light stops flashing.

Press the eject button on the drive to eject the caddy as shown in Figure B–4.

Figure B–4 Ejecting the Caddy from the Drive



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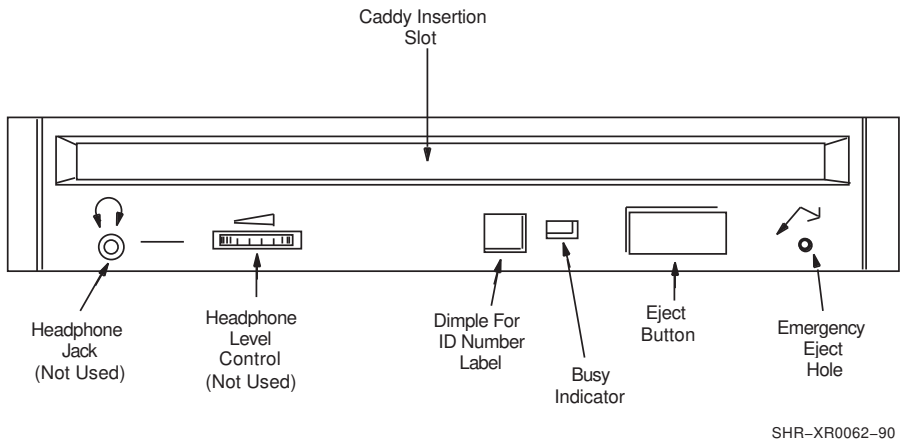
The eject button on the RRD42 drive does not function when disabled by software or if power to the drive is turned off. Use the following procedure for manual ejection:

1. Turn off the power to the drive.
2. Insert a steel rod, about 1.2 millimeters in diameter and 35 millimeters or 1.37 inches long, and push it into the emergency eject hole at the lower right of the front panel (Figure B–5). The rod can be made by straightening a large paper clip.

Figure B–5 Front Panel of the RRD42 Drive



C
SCSI ID Numbers

C.1 Introduction

The information in this appendix is for technical users who want to create custom configurations.

The small computer systems interface (SCSI) is an interface designed for connecting disks and other peripheral devices to computer systems. SCSI is defined by an American National Standards Institute (ANSI) standard and used by many computer and peripheral vendors throughout the industry. The InfoServer 1000 complies with the SCSI-II standard.

Up to eight (8) SCSI devices can share a SCSI bus. All data and commands are sent back and forth on the bus (cable). Each SCSI device attached to the cable "looks" at all the data, but a SCSI device recognizes only the data that has the proper device identification, called a SCSI ID number. [1]

[1] The SCSI controller within the InfoServer 1000 occupies one SCSI ID number.

C.2 SCSI ID Default Settings

You are responsible for the SCSI ID settings on your equipment. Digital sets each SCSI device to a default setting before the equipment leaves the factory. You may never need to change a default setting. Default settings should only be changed when a system is configured with more than one of a particular device.

The SCSI ID numbers are 0 through 7. The number 7 is reserved for a device requiring the highest priority on the SCSI bus. The number 6 is reserved for the controller. The remaining six ID numbers (0 through 5) are available for custom configuration.

Table C–1 lists the default SCSI settings for the InfoServer 1000 system. The ID numbers listed give optimal performance on most systems. However, if you have special performance needs, you can set the ID number on each SCSI device manually. For most applications, SCSI ID numbers can be set arbitrarily as long as no two devices share the same ID.

Table C–1 SCSI ID Numbers for InfoServer 1000 System

SCSI ID	SCSI Device
0	First RRD42 CD-ROM drive
1	Available for expansion
2	Available for expansion
3	Available for expansion
4	Available for expansion
5	Available for expansion
6	SCSI controller
7	Available for expansion (highest priority)

Each device has a set of switches or jumpers that can be set for a specific SCSI ID. The optional standalone hard-disk drives and additional RRD42 compact-disc drives are mounted in expansion enclosures that have external switches.

C.3 Determining the SCSI ID Numbers

To determine SCSI ID numbers, enter the SHOW DEVICE command at the console prompt (>>>), then press Return. For directions on how to place the system in console mode, refer to Section 7.4. The command displays your system configuration on the screen.

In the following example, the system contains a controller, an RRD42 compact-disc drive, and an RZ23L hard-disk drive. There are five open ID numbers.

```
>>> SHOW DEVICE Return
 VMS/VMB      ADDR      DEVTYPE    NUMBYTES     RM/FX    WP    DEVNAM      REV
 -------      ----      -------    --------     -----    --    ------      ---
 ESA0         08-00-2B-20-CD-02 ThinWire
 DKA100       A/1/0     DISK       121.64MB      FX            RZ23L       2528
 DKA200       A/2/0     DISK       593.49MB      RM      WP    RRD42       1.2b
..HostID..    A/6       INITR
    ❶          ❷         ❸          ❹           ❺       ❻      ❼          ❽
```

❶ Device name

❷ Controller/SCSI ID/logical number
In this example:
SCSI ID 0 — Open
SCSI ID 1 — RZ23L hard-disk drive
SCSI ID 2 — RRD42 CD-ROM drive
SCSI ID 3 — Open
SCSI ID 4 — Open
SCSI ID 5 — Open
SCSI ID 6 — Internal SCSI controller
SCSI ID 7 — Open

❸ Generic device type

❹ Device capacity

❺ Removable/fixed media

❻ Write protected

❼ Specific device type

❽ Media revision level

Rules for Setting SCSI ID Numbers

- You can have up to seven (7) expansion peripherals on the SCSI bus.
- Each peripheral must have its own unique identifier.
- The SCSI bus must be terminated.

Proper operation of the SCSI bus requires that you use high-quality, properly configured cables and connectors to connect all devices. Digital recommends that you use only Digital-supplied cable assemblies intended for interconnecting SCSI devices. This ensures that the impedance characteristics, signal propagation velocity, inductance, capacitance, cross-talk, grounding, conductor pairing, and shielding meet the requirements for proper operation of the bus.

Digital also recommends that all units on the SCSI bus be powered from a common ac power source. Digital does not guarantee the proper operation of any SCSI bus that uses cable assemblies not supplied by Digital, or that is not configured in accordance with Digital's recommendations.

C.4 Setting the RRD42 ID Numbers

The RRD42 tabletop drive has a rear-panel push button (Figure 5–3) that spins a wheel and advances a number. To set the device ID number, press the button until the desired number appears.

D
System Specifications

D.1 Introduction

This appendix lists InfoServer 1000 and InfoTower system specifications, including operating and storage conditions.

D.2 InfoServer 1000 Hardware Specifications

Table D–1 lists hardware specifications for the standalone InfoServer 1000 and InfoTower mounted system components.

Table D–1 InfoServer 1000 System Hardware Specifications

Specification	Value or Description
Processor	32-bit CPU with 1 KB of first-level cache
DRAM memory	4 MB
ROM memory	512 KB flash, 32 KB NVR
Optional storage	RRD42 CD-ROM expansion peripherals and other standard SCSI-II disk and tape devices
Terminals	Supports the VT300 and VT400 series
Interfaces	1 SCSI port 1 asynchronous 9600 baud terminal port 1 Ethernet port (ThinWire or standard (thickwire))

D.3 Standalone InfoServer 1000 Specifications

Table D–2 lists the standalone InfoServer 1000 power requirements and specifications.

Table D–2 Standalone InfoServer 1000 Power Specifications

Specification	Value or Description
H7827-BA input voltage	Automatically adjusting ac input. Range: 100 Vac to 120 Vac, 220 Vac to 240 Vac
H7827-BA input current (typical)	0.7 A in a 110 Vac circuit 0.42 A in a 220 Vac circuit
Power (maximum)	35 W
Frequency	47 Hz to 63 Hz
H7827-BA output voltage/current	5.1 Vdc @ 2.5 A 12.1 Vdc @ 0.875 A
H7827-BA dc output cable length	1.83 m (6.0 ft)
H7827-BA dc output cable connector	7-position mini-DIN 5 V pins 1, 3 12 V pins 2, 4 return pins 5, 6, 7

Table D–3 lists the standalone InfoServer 1000 weight and dimensions.

Table D–3 Standalone InfoServer 1000 Weight and Dimensions

Device	Weight	Height	Width	Depth
InfoServer 1000	1.25 kg	3.90 cm	14.5 cm	21.1 cm
	2.75 lb	1.53 in	5.70 in	8.30 in
H7827-BA power supply	0.8 kg	5.16 cm	9.00 cm	15.75 cm
	1.75 lb	2.03 in	3.54 in	6.20 in

Table D–4 lists the standalone InfoServer 1000 operating conditions.

Table D–4 Standalone InfoServer 1000 Operating Conditions

Specification	Value
Temperature range	10° C to 40° C (50° F to 104° F)
Temperature change rate	11° C/hour (20° F/hour) maximum
Relative humidity	10% to 80% noncondensing
Maximum wet bulb temperature	28° C (82° F)
Minimum dew point	2° C (36° F)
Altitude	2400 m at 36° C (8000 ft at 96° F)

Table D–5 lists the standalone InfoServer 1000 storage conditions.

Table D–5 Standalone InfoServer 1000 Storage Conditions

Specification	Value
Temperature range	5° C to 50° C (41° F to 122° F)
Relative humidity	10% to 95% at 66° C (151° F) (noncondensing)
Altitude	0 to 2400 m (0 to 8000 ft)
Maximum wet bulb temperature	32° C (90° F)
Minimum dew point	2° C (36° F)

System Specifications

Table D–6 and Table D–7 list the acoustic specifications for the InfoServer 1000 system.

Table D–6 InfoServer 1000 System Acoustic Values (Declared Values Per ISO 9296 and ISO 7779)

	Sound Power Level L_{WAd}, B		Sound Pressure Level L_{pAm}, dBA Bystander Positions	
	Idle	Operate	Idle	Operate
SEADB-AA	No acoustic noise			
H7827-BA	No acoustic noise			
RRD42-FA	3.9	4.0	21	22
SZ03B-BC	5.2	5.2	38	38

Note: Current values for specific configurations are available from Digital Services representatives. 1 B = 10 dBA.

Table D–7 InfoServer 1000 Schallemissionswerte (Werteangaben nach ISO 9296 und ISO 7779/DIN EN27779)

	Schalleistungspegel L_{WAd}, B		Schalldruckpegel L_{pAm}, dBA Zuschauerpositionen	
	Leerlauf	Betrieb	Leerlauf	Betrieb
SEADB-AA	keine meßbaren Schallemissionen			
H7827-BA	keine meßbaren Schallemissionen			
RRD42-FA	3,9	4,0	21	22
SZ03B-BC	5,2	5,2	38	38

Aktuelle Werte für spezielle Ausrüstungsstufen sind über die Digital Equipment Vertretungen erhältlich. 1 B = 10 dBA.

D.4 InfoTower System Specifications

Table D–8 lists the functional specifications for the InfoTower system.

Table D–8 InfoTower System Functional Specifications

Specification	Value or Description
System enclosure	Desktop and Tower configuration
Storage capability	Seven 5.25-inch (13.3 cm) half-height SCSI devices
Interface	SCSI-II
Nominal ac voltage	120/240 Vac switch selectable
Power source phasing	Single phase
Nominal frequency	50 Hz—60 Hz
Voltage ranges	90 Vac—135 Vac 180 Vac—265 Vac
Line frequency tolerance	47 Hz—63 Hz
Maximum ac running current	5 A @ 115 Vac 3 A @ 230 Vac
Maximum power consumption	307.0 W
Height	17.78 cm (7.0 in.)
Width	43.18 cm (17.0 in.)
Depth	43.18 cm (17.0 in.)
Weight	25.45 kg (56 lb) loaded with 7 CD-ROM drives
Noncondensing maximum operating altitude	2400 m (8000 ft)

System Specifications

Table D–9 lists the physical specifications for the InfoTower system.

Table D–9 InfoTower System Physical Specifications

Specification	Operating	Nonoperating
Ambient temperature	10° C to 35° C	-40° C to 66° C
Relative humidity	10% to 85%	10% to 95% (packaged) noncondensing
Maximum wet bulb	28° C (82° F) (noncon-densing)	32° C (90° F) (packaged) (noncondensing)
Altitude	2400 m (8000 ft)	5000 m (16000 ft)
Heat dissipation	1,050 Btu/h	N/A
Temperature gradient	11° C/hr (20° F/hr)	20° C/hr (36° F/hr)

Table D–10 lists the input electrical specifications for the InfoTower system.

Table D–10 InfoTower System Input Characteristics - Electrical Specifications

Specification	Value or Description
Line voltage	90 Vac—135 Vac, 180 Vac—265 Vac (switch selectable)
Line frequency	47 Hz—63 Hz
Line current	8 A maximum @ 90 Vac including 3 A auxilliary 6 A maximum @ 180 Vac including 2 A auxilliary
Power consumption	60 W @ minimum load
Apparent power (maximum)	462 VA @ maximum load, 120 Vac range 507 VA @ maximum load, 220 Vac range
Power factor (typical)	0.5
Inrush current (typical)	13.6 A @ 120 Vac, 9.9 A @ 220 Vac
Efficiency (typical)	65%

Table D–11 lists the output electrical specifications for the InfoTower system.

Table D–11 InfoTower System Output Characteristics - Electrical Specifications

Nominal Output Voltage	Load Current Maximum/Minimum	Regulation Tolerance Maximum/Minimum
5 Vdc	20 A / 3 A	5.25 V / 4.80 V
12 Vdc	8 A / 0 A	12.60 V / 11.40 V
-5 Vdc	0.5 A / 0 A	-5.50 V / -4.50 V
-12 Vdc	0.5 A / 0 A	-13.20 V / -10.80 V

System Specifications

Table D–12 and Table D–13 list the acoustic specifications for the InfoTower system.

Table D–12 InfoTower System Acoustic Values (Declared Values Per ISO 9296 and ISO 7779)

	Sound Power Level L_{WAd}, B		Sound Pressure Level L_{pAm}, dBA Bystander Positions	
	Idle	Operate	Idle	Operate
SEADB-PA with 0 x RRD42	4.7	4.7	33	33
SEADB-RA/RE with 4 x RRD42	4.7	4.8	33	33
SEADB-SA/SE with 7 x RRD42	4.7	4.8	33	33

Note: Current values for specific configurations are available from Digital Services representatives. 1 B = 10 dBA.

Table D–13 InfoTower Schallemissionswerte (Werteangaben nach ISO 9296 und ISO 7779/DIN EN27779)

	Schalleistungspegel L_{WAd}, B		Schalldruckpegel L_{pAm}, dBA Zuschauerpositionen	
	Leerlauf	Betrieb	Leerlauf	Betrieb
SEADB-PA mit 0 x RRD42	4,7	4,7	33	33
SEADB-RA/RE mit 4 x RRD42	4,7	4,8	33	33
SEADB-SA/SE mit 7 x RRD42	4,7	4,8	33	33

Aktuelle Werte für spezielle Ausrüstungsstufen sind über die Digital Equipment Vertretungen erhältlich. 1 B = 10 dBA.

E

Field Replaceable Units

E.1 Introduction

This appendix contains a list of all the field replaceable units (FRUs) and their part numbers. Table E–1 lists FRUs for the InfoServer 1000 system. Table E–2 lists FRUs for the InfoTower system. Table E–3 lists the ac power cables.

Field Replaceable Units

Table E–1 InfoServer 1000 Field Replaceable Units

Part Number	FRU Description
12-22196-01	Plug, thickwire loopback
12-25869-01	T-connector, coaxial, BNC (H8223)
12-26318-01	Terminator, 50-ohm coaxial BNC (H8225)
12-35759-01	Terminator, SCSI-II
17-00811-03	Console cable (BC16E-25)
17-01351-01	Cable assembly, SCSI 50-pin, 3 ft (BC19J-03)
17-01351-04	Cable assembly, SCSI 50-pin, 1.5 ft (BC19J-1E)
17-02641-01	Cable assembly, SCSI-II to Champ, 3 ft (BC09D-03)
17-02641-06	Cable assembly, SCSI-II to Champ, 1 ft (BC09D-01)
17-03579-02	Cable assembly, ribbon, 16 inch, 34-conductor
17-03712-01	Cable assembly, 4-conductor, drive bracket dc power
17-03713-01	Cable assembly, 4-conductor, 18 AWG dc power extender
17-03714-01	Cable assembly, 50-conductor, drive bracket SCSI
30-34512-01	CD-ROM drive caddy
54-21868-01	Network adapter, thickwire
54-21870-01	Network adapter, ThinWire
70-30343-01	Standalone InfoServer 1000, ThinWire
70-30343-03	Standalone InfoServer 1000, thickwire
70-30343-04	InfoServer 1000 configured for InfoTower (Digital)
H7827-BA	Power supply for standalone InfoServer 1000

Table E–2 InfoTower Field Replaceable Units

Part Number	FRU Description
12-30552-01	Terminator, SCSI
17-02008-01	Cable assembly, SCSI 68-pin to 50-pin, 3 ft (BC56H-03)
30-40426-01	Stand
70-30871-01	Drive mounting bracket assembly, 1/2-height
BA56A-AA	InfoTower option (empty)

Table E–3 AC Power Cables

Part Number	FRU Description
17-00198-14	Power cable, ac, Australia/New Zealand (BN19H-2E)
17-00199-21	Power cable, ac, Central Europe (BN19W-2E)[1]
17-00209-15	Power cable, ac, UK/Ireland (BN19A-2E)
17-00210-13	Power cable, ac, Switzerland (BN19E-2E)
17-00310-08	Power cable, ac, Denmark (BN19K-2E)
17-00364-18	Power cable, ac, Italy (BN19M-2E)
17-00456-16	Power cable, ac, India/S. Africa (BN19S-2E)
17-00457-16	Power cable, ac, Israel (BN18L-2E)
17-00606-02	Power cable, ac, US/Canada/Japan (BN19P-1K)

[1]Austria, Belgium, Finland, France, Germany, Netherlands, Norway, Sweden, Hungary, Poland, Czechoslovakia, Portugal, and Spain

Glossary

32-bit

The length of the internal data path of the CPU.

802.3

An Institute of Electrical and Electronics Engineers (IEEE) standard describing the physical and data link layers of a local area network based on bus topology and carrier sense multiple access/collision detect (CSMA/CD).

application program

A program, such as a financial spreadsheet program, that performs an end-user task.

ASCII

American Standard Code for Information Interchange. A set of 7- or 8-bit binary numbers representing the alphabet, punctuation, numerals, and other special symbols used in text representation and communications protocol.

barrel connector

A female connector for connecting two sections of ThinWire cable.

baud rate

The speed at which signals are serially transmitted along a communications line. One baud equals one bit/second.

binary

A number system that uses two digits—0 and 1. They are represented in system circuitry by two voltage levels. Programs are executed in binary form.

bit

A binary digit; the smallest unit of information in a binary system of notation, designated as a 0 or a 1.

BMA

The name assigned to Digital's suite of special-purpose, high-performance protocols; including LAT, LASTport/Disk, LASTport/Tape, and LASTport/PDQ.

boot

See *bootstrap*.

boot device

The device that is booted at system startup. See *bootstrap* and *device*.

bootable medium

A fixed disk or magnetic tape cartridge containing software (such as an operating system) that a bootstrap program can load into the system memory and execute.

bootstrap (or boot)

To attempt to load the operating system software from a mass storage device. An internal program makes the attempt.

bus

A channel (a set of wires) along which communication signals in a computer system travel.

byte

A group of eight binary digits (bits). A byte is one-quarter of a VAX system longword.

caddy

A compact disc holder used to insert a compact disc into a compact-disc drive.

central processing unit (CPU)

The part of the system that controls the interpretation and execution of instructions.

client system

A computer system, connected to the same local area network as a server system, that connects to and uses services provided by the server.

coaxial cable

A 2-conductor, concentric, constant-impedance transmission cable.

communications line

A cable along which electrical signals are transmitted. Devices or systems that are connected by a communications line can share information and resources.

computer system

A combination of system hardware, software, and external devices that perform operations and tasks.

console mode

The state in which the computer is controlled from the console terminal. Console mode is indicated by the console prompt >>> on the monitor screen. (Compare to *program mode*.)

console prompt

A prompt used for communication between the system manager and the computer.

controller

A system component, usually a printed circuit board, that regulates the operation of one or more peripheral devices.

CPU

Abbreviation for central processing unit. See *central processing unit*.

daisy chain

A group of systems linked together sequentially.

data

A formal representation of information suitable for communication, interpretation, and processing by humans or computers.

data transmission

The movement of data in the form of electrical signals along a communications line.

debug

To detect, locate, and correct errors (bugs) in hardware or software.

DECnet

Digital's networking software that runs on nodes in both local and wide-area networks.

default

A value or setting used by the system if a specific setting is not entered by a user. Default settings are often set at the factory and reflect the most commonly used values.

DELNI

Digital's local network interconnect product that provides eight separate network interfaces from a single transceiver trap.

DEMPR

Digital's multiport repeater that provides eight ThinWire Ethernet drops from a single standard Ethernet connection.

device

The general name for any unit that is connected to the system and is capable of receiving, storing, or transmitting data. See *input/output (I/O) device* and *controller.*

device icon

An *icon* on the rear of the InfoServer 1000 that represents the device that can be plugged into the connector.

device name

The name by which a device or controller is identified in the system.

diagnostics

Programs, located in read-only memory, that detect and identify abnormal system hardware operation. See *read-only memory*.

disk

A flat circular plate with a coating that stores data magnetically in concentric circles (tracks). A disk resides permanently inside a disk drive, while a diskette is removable.

disk drive

A device that holds a *disk*. The drive contains mechanical components to spin the disk and move the read/write heads that store and read information on the surface of the disk.

disk server

A hardware system designed to provide operating system and data storage for other users.

error message

A message displayed by a system to indicate a mistake or malfunction.

Ethernet

A type of local area network based on carrier sense multiple access with collision detection (CSMA/CD).

faceplate

A wall receptacle that provides a network connection for a system.

file

A collection of related information treated by the system as a single unit.

format

To prepare a diskette to accept data.

formatted data

Data that is structured in a particular pattern to be understood by the system software.

ground

A voltage reference point in a system that has a zero voltage potential.

hard disk

A *disk* that resides permanently inside a disk drive.

hardware

The physical components—mechanical and electrical—that make up a system. Compare to *software*.

head

The part of a fixed disk drive, diskette drive, or tape drive that reads, records, and erases data. Also called read/write head.

icon

A graphic symbol that visually represents a device or a procedure's function.

IEEE

Institute of Electrical and Electronics Engineers.

input/output (I/O) device

A piece of equipment that accepts data for transmission to (input) and from (output) the system. For example, a terminal.

I/O

Input/output. See *input/output (I/O) device*.

kernel

The integral part of the operating system that controls processes, system scheduling, memory management, input and output services, device management, network communications, and the organization of the file systems.

LAT

Local area transport. The LAT is a communications protocol that implements terminal emulation over an Ethernet local-area network. Terminals are normally connected to terminal servers, which send messages containing terminal data to host systems. The host systems view the remote terminal as if it was locally connected to the host.

LED

Light-emitting diode. LEDs are used as indicators on the system enclosure.

link

A communications path between two nodes. A physical link is the electrical connection between two nodes. A logical link implies that two nodes are able to communicate whether or not they have a direct physical link.

load

To copy software (usually from a peripheral device) to memory. To physically place a disk in a disk drive or a tape in a tape drive.

load device

The drive that holds the distribution media during software installation.

local area network (LAN)

A high-speed communications network that covers a limited geographical area; such as a section of a building, an entire building, or a cluster of buildings. It is a privately owned communication network whose speed is upward of 1 megabit/second.

logical link

Two nodes are able to communicate by means of software whether or not they have a direct physical link.

megabyte

1,048,576 (2^{20}) bytes.

memory

The area of the system that electrically stores instructions and data (often temporarily).

memory module

A printed circuit board that contains additional memory for the system.

module

A printed circuit board that contains electrical components and electrically conductive pathways between components. A module stores data or memory, or controls the functions of a device.

multiport repeater

A repeater used to connect two or more cable segments. The repeater extends Ethernet networks beyond the limits imposed by a single segment. Repeaters perform the basic actions of restoring signal amplitude, waveform, and timing amplitude to normal data and collision signals.

multisegment LAN

A LAN composed of more than one cable segment.

network

A group of individual computer systems that are connected by communications lines to share information and resources.

network coordinator

The network coordinator manages the network, assigns unique node names and addresses for each system on the network, and provides administrative assistance to network users.

network manager

See *network coordinator*.

node

An individual information-processing unit, such as a computer, workstation, or peripheral device, that is connected to a network. A node is an end point to any branch of a network or a junction common to two or more branches.

OPEN DECconnect

Digital's simple, cost-effective cabling system for extending Ethernet and terminal interconnections into offices and work areas.

OPEN DECconnect faceplate

See *faceplate*.

operating system

A collection of system programs that controls the operation of the system and allows the user access to data files, input/output devices, and applications programs. The operating system software performs such tasks as assigning memory to programs and data, processing requests, and scheduling jobs. VMS, ULTRIX, and MS–DOS are some examples of operating systems.

output device

A device that accepts data from the system. A printer is an example of an output device.

peripheral device

A device that provides the CPU with additional memory storage or communications capability. Examples are disk and diskette drives, video terminals, and printers.

port

Another term for a connector on a device (such as a computer or server), used to make a connection to another device (such as a terminal, printer, or communications device). Connectors are usually on the rear of equipment.

power-on sequence

A series of ordered events that occur when you supply power by turning on the system.

program

The sequence of instructions the system uses to perform a task. See *software*.

program mode

The state in which the computer is controlled by the operating system. After the operating system is installed, the system always operates in program mode, unless put into console mode. See *console mode*.

prompt

Words or characters that the system displays to indicate that it is waiting for a command to be entered.

RAM

Abbreviation for random-access memory. See *random-access memory*.

random-access memory (RAM)

Memory that can be both read and written into, and can randomly access any one location during normal operations. The type of memory the system uses to store the instructions of programs currently being run.

read-only memory (ROM)

A memory whose contents cannot be modified. The system can use the data contained in a ROM, but cannot change the data.

ROM

Read-only memory.

run

n. A single continuous execution of a program. *–v.* To execute a program.

SCSI

See *Small Computer System Interface*.

section

A single length of ThinWire Ethernet cable terminated at each end with a connector.

segment

A length of cable made up of one or more cable sections connected with barrel connectors or T-connectors.

server

Hardware or software that provides a specific set of services to a satellite.

single-segment LAN

A LAN that is composed of only one coaxial cable segment. See also *section* and *segment*.

Small Computer System Interface (SCSI)

An interface designed for connecting disks and other peripheral devices to computer systems. SCSI is defined by an American National Standards Institute (ANSI) standard and is used by many computer and peripheral vendors throughout the industry.

software

Programs executed by the system to perform a chosen or required function. Compare to *hardware*.

standard Ethernet

IEEE standard 802.3 compliant Ethernet network composed of standard Ethernet cable. Compare to *ThinWire Ethernet* cable.

storage medium

Any device capable of recording information, such as a hard disk.

store

To enter data into a storage device, such as a disk, or into memory.

system

A combination of system hardware, software, and peripheral devices that performs specific processing operations.

system management tasks

Tasks performed by an assigned person (usually the system manager) to operate and maintain the system.

T-connector

A three-point connector used to join ThinWire Ethernet cable sections. The connector also has a connector that is attached directly to a system.

terminal

An input/output device that lets a user communicate with the system. Terminals are divided into two categories—video and hardcopy.

terminator

A connector used on one or both ends of a communication line or bus that provides the 50-ohm termination resistance needed for the cable. Used on an Ethernet segment or a SCSI bus.

ThinWire

A Digital trademark used to describe its 10 base 2 (IEEE standard 802.3 compliant) Ethernet products used for local distribution of data.

ThinWire connector

The connector on the rear of the InfoServer 1000 to which the ThinWire Ethernet cable is attached.

ThinWire Ethernet

An *Ethernet* network that uses *ThinWire* cable. ThinWire is ideal for small standalone networks in which the users share resources, such as printers and storage devices.

transceiver

A device that provides a single physical connection between standard Ethernet and Ethernet communication equipment.

twisted-pair cable

Multiple-conductor cable whose component cables are paired, twisted, and enclosed in a single jacket.

user input device

A piece of equipment that is used to transfer data to the system. For example, keyboard, disk, tape, and system are input devices.

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