

Personal Workstation (Alpha)

User Information

Order Number: EK-ALMIA-UI. A01

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**Digital Equipment Corporation
Maynard, Massachusetts**

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FCC Information - Class B

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

Any changes or modifications made to this equipment may void the user's authority to operate this equipment.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

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

The user may find the following booklet prepared by the Federal Communications Commission helpful: *How to Identify and Resolve Radio-TV Interference Problems*. This booklet is available from the U.S. Government Printing Office, Washington, D.C., 20402. Stock No. 004-00398-5.

All external cables connecting to this basic unit need to be shielded. For cables connecting to option boards, see the option manual or installation instructions.

This digital apparatus does not exceed the Class B limits for radio noise emissions set out in the radio interference regulations of the Canadian Department of Communications.

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Preface

Welcome to the Digital Personal Workstation (Alpha)

This guide introduces the Digital Personal Workstation (Alpha), the latest in the series of Digital Personal Workstation products.

Use this information to start, use, update, troubleshoot, and configure your workstation. You can also find general system information such as console commands and system care here.

Audience

If you are operating, configuring, or adding options to the Digital *Personal Workstation (Alpha)*, the information included here is helpful to you.

Preface

Organization of the Information

This guide includes information on Digital Personal Workstations (Alpha). The following topics (see the Table of Contents for a detailed listing) are covered:

- Chapter 1, *Getting Started*. Installing, starting, restarting, and turning off the system.
- Chapter 2, *System Overview*. Motherboard, keyboard, system controls, indicators, ports, and connections.
- Chapter 3, *Configuring Your System*. Using AlphaBIOS firmware.
- Chapter 4, *Installing System Options*. Installing hard disk, compact disc, and tape drives; memory; option cards; printer cable; and external SCSI cable.
- Chapter 5, *Troubleshooting*. Possible causes and actions to solve problems.
- Appendix A, *System Care*. Cleaning your system, monitor, and mouse.
- Appendix B, *Technical Specifications*.
- Appendix C, *Device Mapping*. I/O addresses and interrupts.
- Appendix D, *Updating System Firmware*.
- Appendix E, *Starting an Operating System Installation*.
- Appendix F, *Equipment Log*.

Conventions

This guide uses the following conventions:

Example	Description
c:\windows	Monospaced text indicates file names, path names, directories, or screen text. Each operating system has its own specific syntax.
[Enter]	Square brackets surrounding text represent a key on the keyboard.
[Ctrl]+[R]	A plus sign indicates that you press both the keys shown at the same time.
	A pointing hand indicates a reference to additional information.

Abbreviations

This guide uses the following abbreviations:

Abbreviation	Meaning
CD	Compact disc.
CD-ROM	Compact disc read-only memory.
CPU	Central processing unit.
DIMM	Dual inline memory module.
DMA	Direct memory access.
DRAM	Dynamic random access memory.
DROM	Diagnostic read only memory.
EIDE	Enhanced integrated drive electronics.
FDC	Floppy disk controller.
flashROM	Electrically erasable, rewriteable, nonvolatile memory.
GB	A GB suffix to a numerical value indicates size in <i>gigabytes</i> (for example, 1 GB). A gigabyte equals 1,073,741,824 bytes.
IRQ	Interrupt request.
ISA	Industry-standard architecture.
Kb	A Kb suffix to a numerical value indicates size in <i>kilobits</i> (for example, 512 Kb). A kilobit equals 1024 bits.
KB	A KB suffix to a numerical value indicates size in <i>kilobytes</i> (for example, 640 KB). A kilobyte equals 1024 bytes.

Preface

Abbreviation	Meaning
LED	Light-emitting diode.
MAU	Media adapter unit.
Mb	An Mb suffix to a numerical value indicates size in <i>megabits</i> (for example, 10 Mb). A megabit equals 1,048,576 bits.
MB	A MB suffix to a numerical value indicates size in megabytes (for example, 550 MB). A megabyte equals 1,048,576 bytes.
MHz	Megahertz.
MII	Media independent interface.
ns	Nanoseconds.
NVRAM	Nonvolatile random access memory.
PCI	Peripheral component interconnect.
RISC	Reduced instruction set computing.
ROM	Read only memory.
SCSI	Small computer system interface.
SDRAM	Synchronous dynamic random access memory.

Special Notices

This guide uses four kinds of notices to emphasize specific information.

WARNING

A **WARNING** indicates the presence of a hazard that can cause personal injury.

CAUTION

A **CAUTION** indicates the presence of a hazard that can damage hardware or corrupt software.

NOTE

A **NOTE** gives general information, such as compatibility with other products or pointers to other information.

HINT

A **HINT** includes suggestions to make your computing tasks easier.

Additional Information Resources

You may wish to consult the following information resources on your Digital Personal Workstation (Alpha):

- *Quick Setup Guide* (order number ER-B30WW-IM. A01) presents a graphical overview of the Digital Personal Workstation (Alpha) system installation. (Note that not all Digital Personal Workstation [Alpha] systems will be shipping with USB.)
- *Digital Personal Workstation (Alpha) Family Technical Information* (order number EK-ALMIA-TI. A01). This optional manual contains detailed technical information for value-added resellers (VARs) and independent software vendors.

Preface

This guide includes basic information on AlphaBIOS. Those Windows NT operating system users who would like more detail on AlphaBIOS may wish to consult the Digital Windows Enterprise Computing Infocenter located at <http://www.windows.digital.com/>. Select Service and Support; then under Firmware and Drivers, choose Alpha-based systems, and press the Go! button. At the Windows NT Drivers and Firmware page, select the latest Configuration Guide. (The "guide" consists a .zip file containing the AlphaBIOS information in .hlp and .txt formats.)

For other product-related information, we suggest that you consult our Web site at <http://www.workstation.digital.com/>. Your distributor or Digital representative also can provide you with information on products and services.

Feedback

Our readers' opinions about this guide or any other Digital manual is important to us. If you have any comments, we'd appreciate your taking the time to send us electronic mail at reader_comments@eng.pko.dec.com.

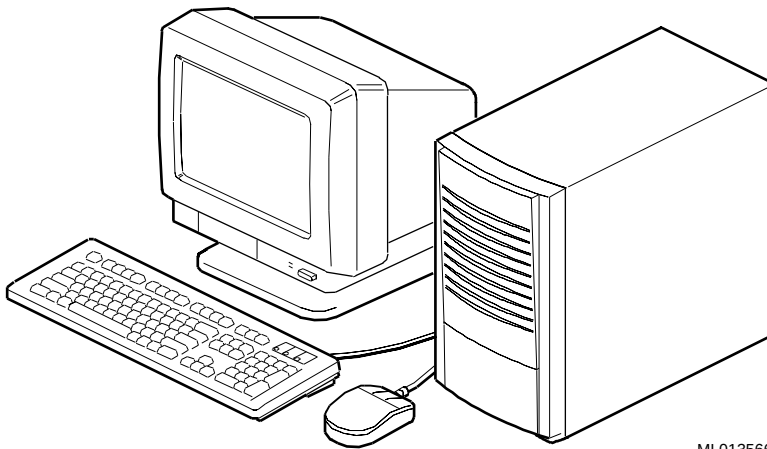
Please reference order number EK-ALMIA-UI. A01 in your correspondence about this manual.

1

Getting Started

Introduction

Your Digital Personal Workstation (Alpha) is a high-performance system that uses the latest microprocessor and core logic technology. The system, housed in a mini-tower box, can stand alone or function as a client in an office network environment. This chapter includes an inventory list of the items shipped with your system and describes how to start, install, restart, and turn off your system. You can also find information here about preloaded software as well as guidelines for system security. Figure 1–1 shows a typical Digital Personal Workstation (Alpha) configuration.



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Figure 1–1: Digital Personal Workstation (Alpha)

Getting Started

System Inventory

Check to make sure you received the following components with your system, and note the items in Appendix F, Equipment Log, for later reference:

Monitor	Video cable
System box	Microphone
Keyboard	Headphone
Mouse	Power cords
	Documentation

Your system may include different components. Consult the shipping list that came with your system for an accurate listing of parts. Also, you may refer to the *Quick Setup Guide* (ER-B30WW-IM. A01) you received for a pictorial representation of the system.

If you think something is missing, contact your distributor or Digital representative.

Before Starting Your System

Before you start your system, perform the following steps:

1. Review the information supplied with your system.
2. Select a well-ventilated site for your system near a grounded power outlet and away from sources of excessive heat. The site also should be isolated from electric noise (for example, spikes, sags, and surges) produced by devices such as air conditioners, large fans, radios, and televisions.
3. Save all shipping containers and packing material for repackaging or moving the system later.

NOTE

Do not install optional hardware or application software until you have started your system and verified that the base system is working correctly.

WARNING

When unpacking and moving system components, be aware that some components (such as the monitor) may be too heavy for you to safely lift alone. If you are doubtful about whether you can lift these items alone, please get assistance.

Getting Started

Posture and Work Habits

If you exercise poor posture while you work or if your equipment is poorly set up, certain recent scientific articles suggest that personal injury may result. Other articles suggest that there is no cause and effect. Because the safety of our users is a great concern to Digital Equipment Corporation, we strongly urge that you read and follow the precautions outlined in Figure 1-2 and. In addition, be sure to adjust your work space so that you are comfortable, and change your position frequently.

Additional ergonomic information is provided on the CD-ROM that you received with your system.

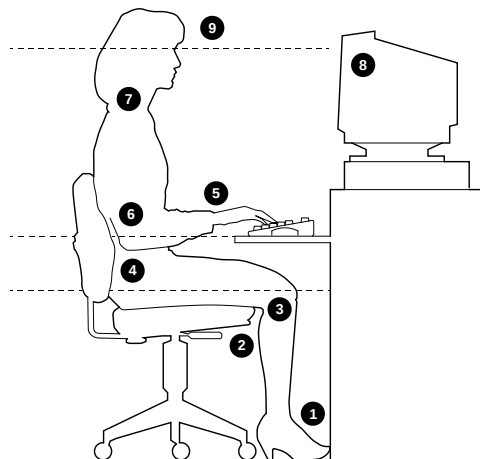


Figure 1-2: Recommendations for Posture and Work Habits

WARNING

If you experience pain or discomfort while using your system, rest and review the instructions for posture and work habits. If the pain or discomfort continues after resuming work, discontinue use and report the condition to your job supervisor or physician.

Getting Started

Table 1–1: Recommendations for Posture and Work Habits

Adjust	To allow the following conditions
Chair	1. Feet are flat on the floor. 2. Legs are vertical and form a right angle to the floor. 3. Your thighs are horizontal, and they are not bearing weight. Keep the backs of your knees away from the seat so you do not compress the area behind them, which could restrict the blood flow. 4. Your upper body is erect and your lower back is supported with a backrest.
Keyboard and Mouse	5. Your wrists are straight and do not flex more than 15 degrees. They are supported and do not rest on sharp edges. If you use a mouse, rest your hand on the mouse so your wrist is not on the work surface. Operate the mouse close to your body's centerline. 6. Upper arms are straight down at your sides, and elbows are close to your sides and support your arm weight. Forearms are at a 70- to 90-degree angle.
Head	7. Avoid neck strain. Your head should incline downward, but no more than 15 to 20 degrees.
Monitor	8. No higher than the level of your eyes and at the correct distance for your vision. 9. Avoid eye fatigue, which can be caused by glare, image quality, uncomfortable furniture, eye height, and uncorrected vision. If you cannot focus to read at different distances, you may need special glasses. Relax your eyes periodically by focusing on distant objects.
Lighting	Avoid direct lighting or sunlight on the screen, which causes glare and reflections. Place lighting behind or to the side of your work area, and distribute the lighting evenly on your work area.
Noise	Keep background noise at a minimum. Background noise above 65 dBA is tiring. Sound-absorbing materials (for example, curtains, carpeting, and acoustic tile) can help reduce background noise.
Temperature	20 – 23 degrees C (68 - 74 degrees F)
Humidity	30% – 70%
Ventilation	Provide adequate air ventilation to operate the equipment and avoid fatigue.
Work Space	> 70 cm (28 inches) center to center, preferably between > 152 cm (60 inches).

Getting Started

Identifying the Correct AC Power Cord

Your Digital Personal Workstation (Alpha) came with the customer-selected AC power cord. Because there are country-specific variations, and systems may be moved, please inspect your power cord to ensure it is the correct one for your country or region. If you are not sure that the supplied AC power cord is correct, contact your authorized Digital service representative before you use it.

WARNING

Do not attempt to modify or use an external 115-Volt AC power cord for 230-Volt AC input power. Modifying the power cord can cause personal injury and severe equipment damage.

Power cords supplied with the Digital Personal Workstation (Alpha) meet the following criteria:

- UL and CSA Certified cord rated for use at 250 Volts AC with a current rating that is at least 125% of the current rating of the Digital Personal Workstation (Alpha). In Europe, the cordage carries the <HAR> mark.
- The AC plug is terminated in a grounding-type male plug designed for use in the region. It must also have marks showing certification by an agency acceptable in the region.
- The connector at the computer end must be an IEC-type CEE-22 female connector.
- The cord length does not exceed 4.5 meters (14.5 feet).

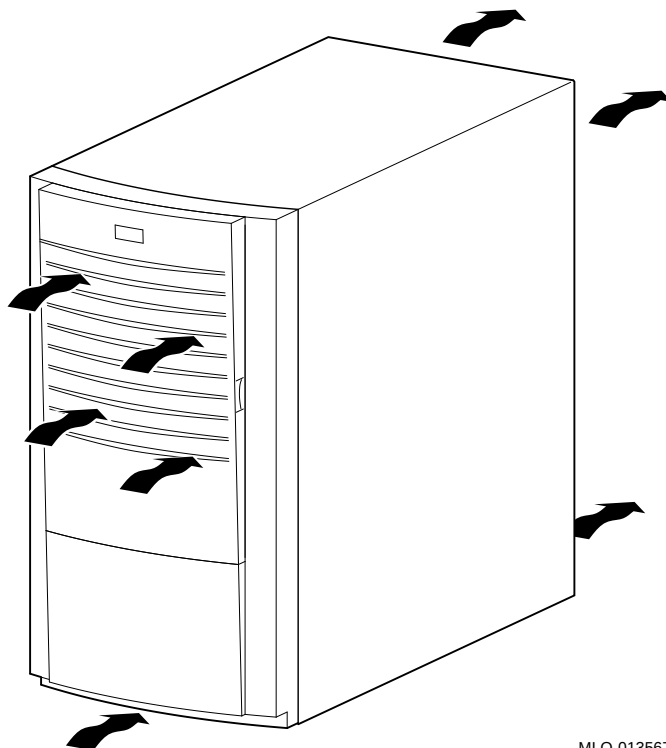
Installing Your System

The *Quick Setup Guide* you received with your system graphically outlines the steps to follow in installing your system.

CAUTION

To ensure proper cooling, verify that air can flow freely into the system front and out the rear of the system.

Position your system so that air can flow freely to and from the vents, as Figure 1–3 shows. Take care not to block any of the vents, especially those on the rear of the system.



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Figure 1–3: System Airflow

Getting Started

Connecting System Parts

To connect the components of your Digital Personal Workstation (Alpha), perform the following steps:

1. Confirm that the voltage selector switch matches your local voltage (either 115 Volts or 230 Volts), as Figure 1–4 shows.

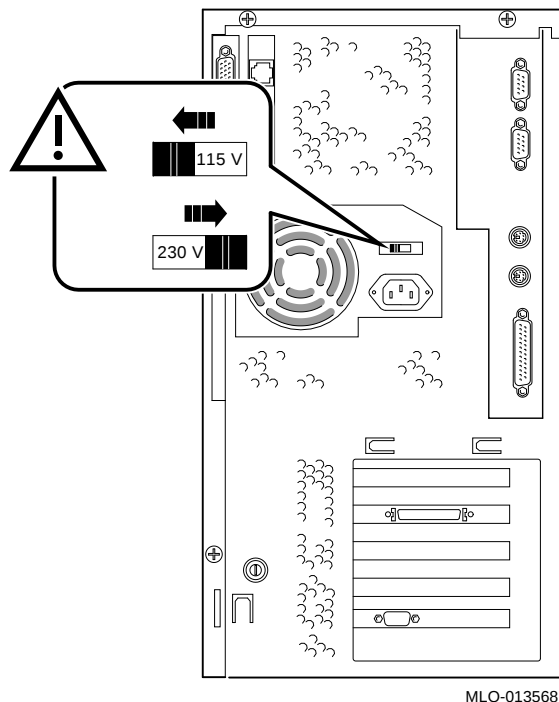


Figure 1–4: Voltage Selector Switch

CAUTION

Improper voltage selection can damage the system's power supply!

2. Connect the mouse, keyboard, video cable, microphone, headphone, and power cords to the system components, as Figure 1–5 shows.

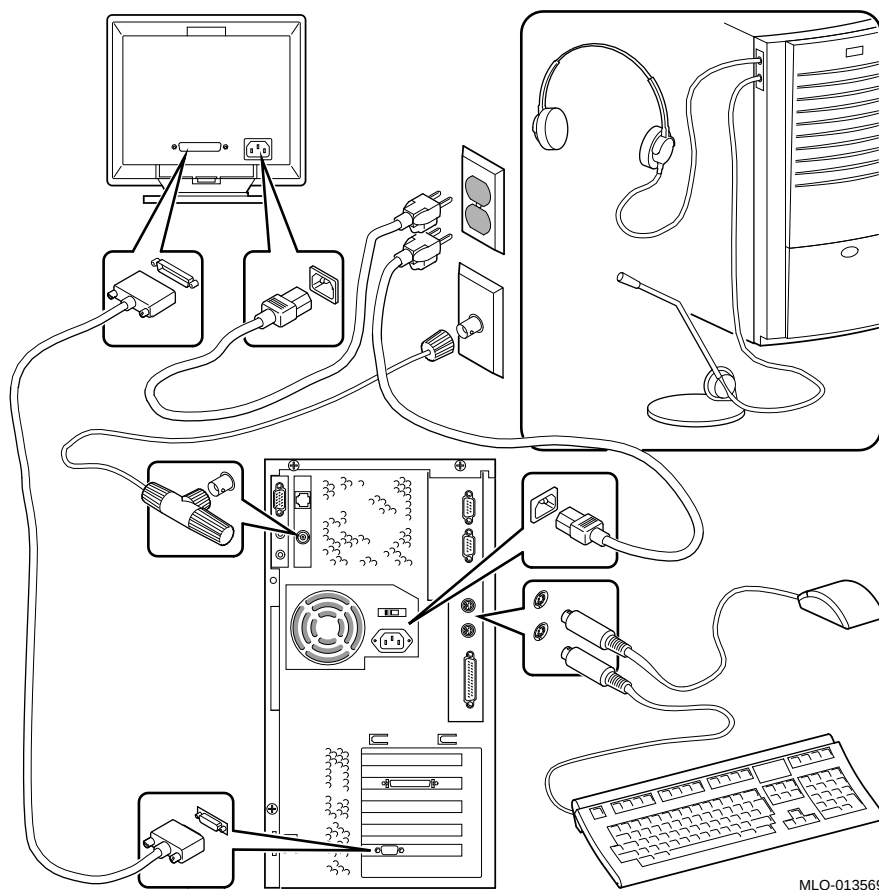


Figure 1-5: Connecting Cables and Power Cords

3. If a SCSI controller is installed and you have an optional external SCSI (small computer system interface) device or SCSI storage box, connect the SCSI cable to the SCSI port on the controller card.

Network Connection

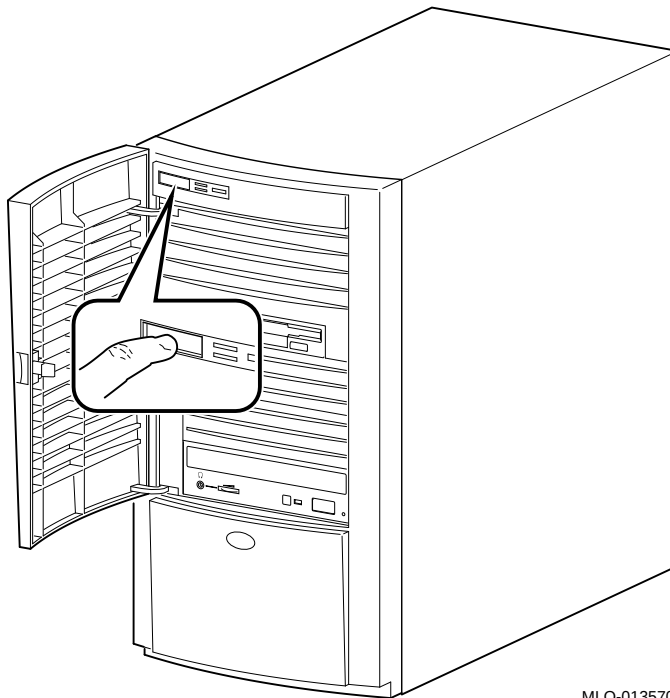
The Digital Personal Workstation (Alpha) has an embedded Ethernet LAN controller. Assuming that the appropriate media adapter unit (MAU) or media independent interface (MII) is already installed, connect your system to the network. Refer to Figure 1-5, which shows the MAU installed.

Getting Started

Starting Your System

Perform the following steps, in order, to start (boot) your Digital Personal Workstation (Alpha):

1. Plug the power cord into the wall.
2. Turn on any external devices, system unit power, and monitor power. Figure 1–6 shows the location of the system unit power button.



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Figure 1–6: Starting Your System

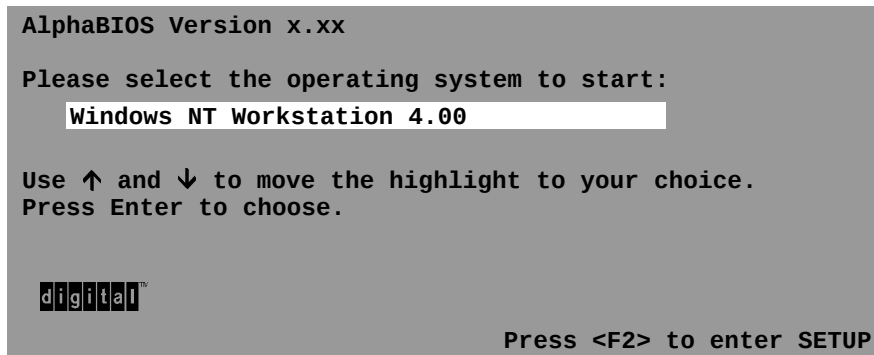
3. After waiting for the monitor to warm up, if necessary, adjust the contrast and brightness to obtain a readable screen display. (Refer to the information supplied with your monitor for adjustment instructions.)
4. Allow your system to complete any power-on self tests (POST) and device initialization messages. (This takes approximately 1 minute.) If you are using the Microsoft Windows NT Workstation operating system and autoboot is enabled, the system starts after a countdown expires.

Preloaded Operating System Software

The Microsoft Windows NT 4.0 operating system is preloaded on all systems. Disk 0 on the SCSI bus is partitioned and formatted so that all other users can immediately install the operating system.

Microsoft Windows NT Workstation

You will see the following display after system power-on and initialization:



If autoboot is enabled, a countdown timer [default 10 seconds] is displayed on the boot screen. Booting occurs when the timer expires.

Turning Off Your System

Before turning off your system, save and close all open files. If you turn the system off without saving and closing files, you might lose some or all of your work.

Perform the following steps, in order, to turn off your system:

1. Close any application data files you have open as well as any applications you have running. Most application programs prompt you to save the information before closing.
2. Shut down the operating system with the appropriate command.
3. To shut down your operating system, follow these steps:
 - Click on **Start** on the Windows NT toolbar.
 - Select **Shut Down . . .**
 - The Shut Down Windows menu displays.
 - Select **Shut down the computer?**
4. Wait for the operating system to complete the shutdown process. Your system displays a message indicating it is safe to turn off or restart the system.

CAUTION

Do not turn off power to your system or peripherals until the shutdown sequence has completed.

5. To turn off power, press the momentary contact power pushbutton.
6. Disconnect the power cord from the wall before servicing your system.

WARNING

Always disconnect the power cord from the wall before servicing your system.

Computer Security

Your Digital Personal Workstation (Alpha) includes several security-related features. See your operation system documentation for more information on the use of these options.

Chassis Lockdown Hasp

A chassis lockdown hasp is secured to the side of the chassis at the lower-left rear of your workstation. When secured with a customer-supplied lock, this hasp prevents others from opening and removing the workstation's outside cover. Using a chain or cable lock, you can secure your workstation to your desk or table as well.

WARNING

Some power continues to be supplied to the system whenever the system is plugged into the wall.

CAUTION

To avoid system damage from static discharge, wear a grounded wrist strap before you touch anything inside the system.

The system is shipped with the lock attached; the customer must orient the hasp to allow correct functioning of the lock. Refer to Figure 1-7 and follow these steps:

1. Turn off power to all external devices connected to the workstation.
2. Turn your workstation off, if necessary, by pressing the momentary power pushbutton.
3. Unplug the workstation power cord from the wall outlet.

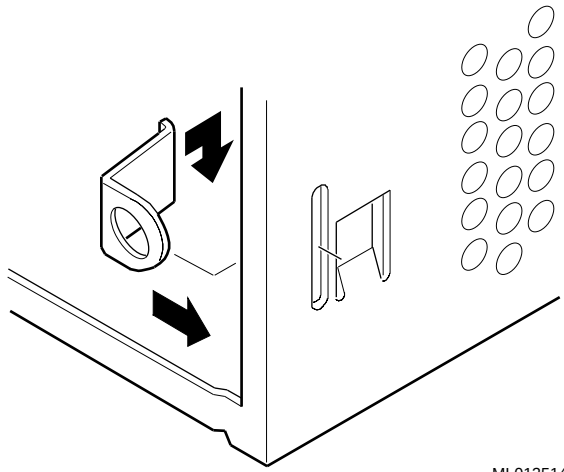
WARNING

Allow 15 seconds for your system's power supply to discharge before removing the cover.

4. Disconnect the power cord from your workstation.
5. Remove the outside cover, according to the steps outlined in Chapter 4 in the section on Removing the System Cover.
6. Insert the hasp tab and pull it through the rear panel of the chassis.

Getting Started

7. Slide the foot of the hasp behind the rear-panel tongue and seat the foot securely.
8. Replace the outside cover, carefully sliding the left, rear-edge slot over the hasp.
9. Connect the power cord to the workstation and to a wall outlet.
10. Turn on all external devices and then turn on workstation.



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Figure 1–7: Chassis Lockdown Hasp

Optional Lock

You may wish to purchase a Kensington lock (order number PCP3H-AG) for your Digital Personal Workstation (Alpha). See Chapter 4, *Installing System Options*, for instructions on installing this lock.

Passwords

For additional security, most screen saver and pause screen displays can have password protection enabled. Also, see the discussions of AlphaBIOS passwords and console security in Chapter 3, *Configuring Your System*, and Chapter 5, *Troubleshooting*.

2

System Overview

Introduction

This chapter provides an overview of the Digital Personal Workstation (Alpha). Topics covered include the hardware components, such as the motherboard, PCI (peripheral component interconnect) architecture, front panel, rear panel, system unit components, and keyboard.

System Features

Your Digital Personal Workstation (Alpha) uses a high-performance Digital Semiconductor chip 21164 CPU. System features include:

- 32 to 384 MB synchronous DRAM main memory currently
- ECC protection for main memory
- 1 MB flashROM
- Enhanced IDE (EIDE) interface with up to four internal devices
- Standard keyboard, mouse, floppy, parallel, and dual serial ports
- 10/Mb/s (10Base2, ThinWire) or *optional* 100 Mb/s (10BaseT, Twisted Pair) Ethernet
- CD-quality audio
- Eight diagnostic LEDs and one power-on LED
- Mini-tower desktop enclosure
- 300-watt power supply

System Overview

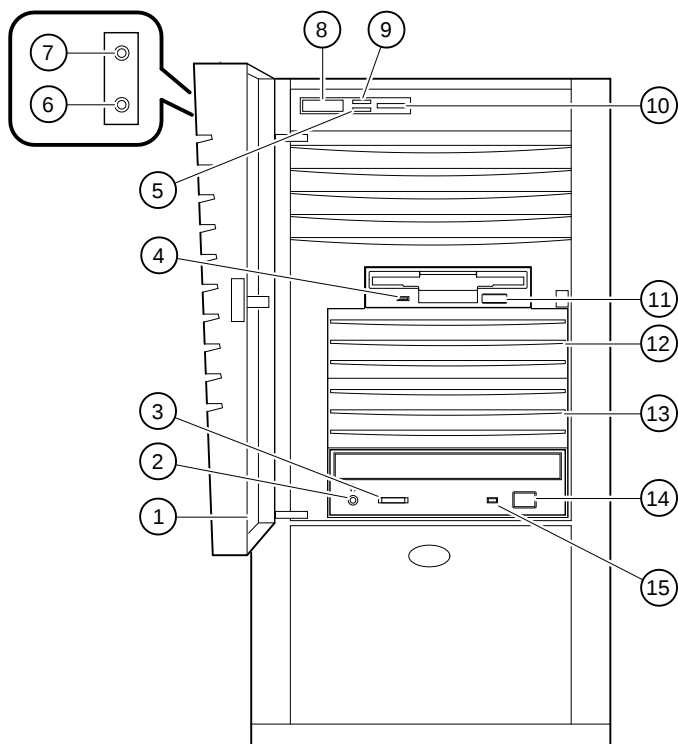
- Five option slots, including: one 32-bit half-size PCI slot; one 64-bit full-size PCI slot (can accommodate either a 32-bit or 64-bit option); one 32-bit half-size PCI/ISA combination slot; one 64-bit full-size PCI/ISA combination slot (can accommodate either a 32-bit or 64-bit option); and one 32-bit full-size PCI/ISA combination slot.
- Six drive bays, including: one front-access 3.5-inch floppy bay; three front-access 5.25-inch by 1.6-inch half-height drive bays; and two internal 3.5-inch by 1.0-inch bays for hard disk drives (HDDs).
- Windows NT operating system



Refer to Appendix B, Technical Specifications, for additional information.

System Front View

Figure 2–1 is a front view of the system (with the door open) showing the location of the controls and indicators. Table 2–1 describes these items.



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Figure 2–1: Front View of System

Table 2–1: Front Components

Figure Legend	Control or Indicator	Function
1	Front door (shown in the open position)	Removable front door.
2	CD-ROM headphone jack	This jack enables you to connect standard stereo headphones so you can listen to audio output from your CD-ROM drive.
3	CD-ROM volume dial	This dial enables you to control the volumes of the CD-ROM headphone audio output from your CD-ROM drive. Volume decreases as the dial is turned to the left and increases as it is turned to the right.
4	Floppy diskette activity LED	Lights when the floppy drive is in use.
5	Disk activity LED	Lights when IDE or the SCSI bus is active.
6	Headphone jack (located on side)	This jack enables you to connect standard stereo headphones to your workstation.
7	Microphone jack (located on side)	This jack enables you to connect a standard microphone to your workstation.
8	Momentary power switch	Turns workstation on or off.
9	Power LED	Lights when your workstation is on.
10	Reset switch	Resets your workstation and causes power-on self-test to run.
11	Floppy diskette eject button	Releases a 3.5-inch floppy diskette from the diskette drive.
12 & 13	Drive bays	Enable you to add a mass storage device to your workstation
14	CD-ROM eject button	Pressing this button opens and closes the CD-ROM drive cavity so that you can insert or remove CD-ROM disks from the drive.
15	CD-ROM activity light	This LED lights during power-up and during CD-ROM disk access.

System Rear View

Figure 2–2 shows the rear connectors. Table 2–2 lists the rear connectors and lock and describes their functions.

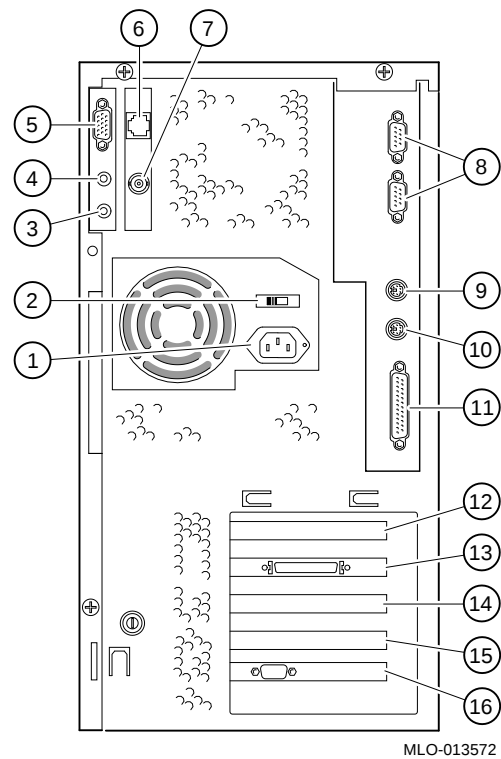


Figure 2–2: Rear Connectors

Table 2–2: Rear Connectors

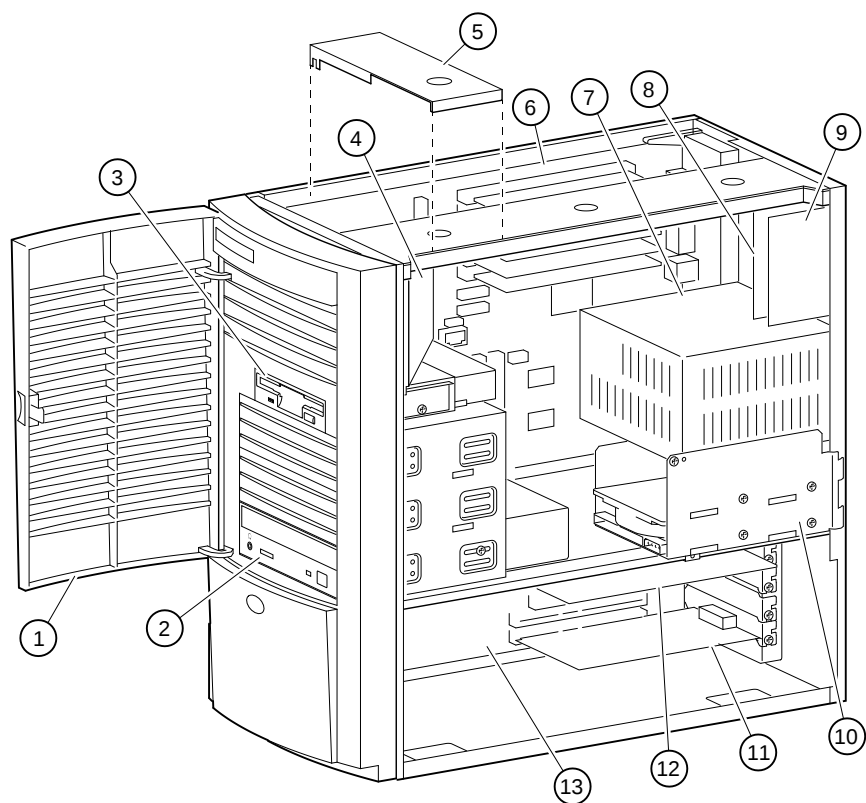
Figure Legend	Connector	Function
1	AC power connector	Connects the system to AC power.
2	Voltage selector switch	Allows you to set your system to work with 115 or 230 Volts AC power.
3	Audio line IN	Brings audio signals into the system (for example, from a stereo amplifier).
4	Speaker OUT	Brings audio output signals to a speaker or headphone.
5	MIDI/joystick	Allows you to connect a MIDI adapter or joystick.
6	Ethernet Twisted Pair	Connects to the embedded Ethernet controller.
7	ThinWire Ethernet	Connects to the embedded Ethernet controller.
8	COM ports 1 (<i>bottom</i>) and 2 (<i>top</i>)	Connectors for communication ports 1 and 2.
9	Mouse	Connects a PS/2-compatible mouse.
10	Keyboard	Use to connect a 101- or 102-key keyboard.
11	Parallel port	Connects an industry-standard parallel printer or other parallel device to the enhanced bidirectional parallel controller.
12	Slot 1: PCI expansion slot	Used for 32-bit PCI expansion options.
13	Slot 2: PCI/ISA combination slot	Used for either an ISA option or a 32-bit PCI option (for example, SCSI controller, as shown).
14	Slot 3: PCI/ISA combination slot	Used for either an ISA option or a 32-bit PCI option.
15	Slot 4: PCI/ISA combination slot	Used for either an ISA option or a 64-bit PCI option.
16	Slot 5: PCI expansion slot	Used for 64-bit PCI expansion options (for example, video option, as shown).

Note: Slots 1 and 2 are half-size; slots 3 through 5 are full-size.

System Overview

System Unit Components

Figure 2–3 shows the location of the Digital Personal Workstation (Alpha) unit components. Table 2–3 lists the system unit components.



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Figure 2–3: System Unit Components

Table 2–3: System Unit Components

Figure Legend	Component
1	Front door assembly.
2	Front-access 5.25-inch drive bay with CD-ROM drive.
3	3.5-inch floppy diskette drive.
4	Fan pipe.
5	Motherboard retainer bracket. See CAUTION below.
6	Motherboard.
7	Power supply.
8	Ethernet connector card (MAU or MII).
9	Audio connector card.
10	Internal 3.5-inch drive bay(s) to support EIDE or SCSI devices.
11	64-bit (or 32-bit) PCI option installed on the riser card.
12	ISA card installed in a PCI/ISA combination slot.
13	Riser card.

CAUTION

The motherboard retainer bracket must be placed over the front-most dimple on the top of the chassis, as shown in Figure 2–3. Placing the bracket elsewhere can damage the system circuits.

Motherboard

Figure 2–4 shows the locations of the motherboard components. Table 2–4 lists the motherboard components.

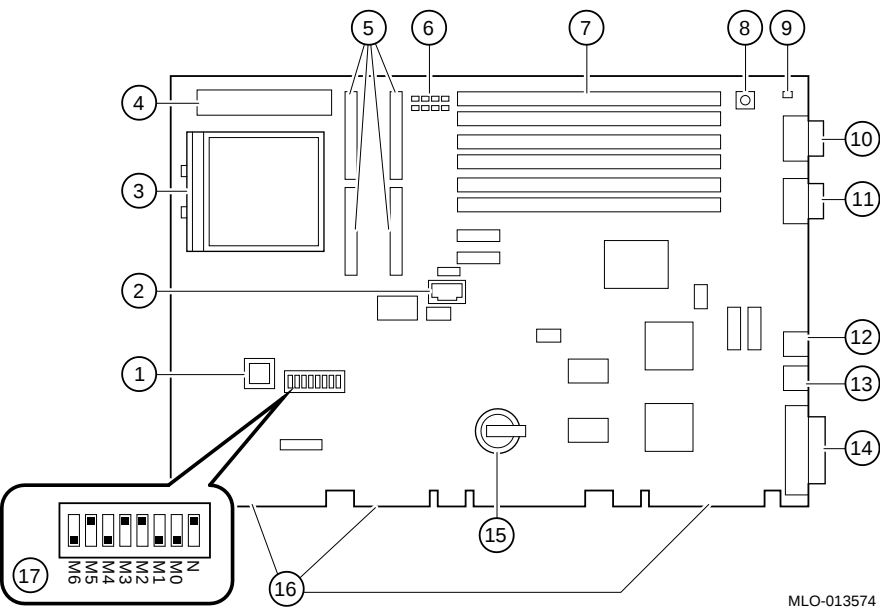


Figure 2–4: Motherboard Components

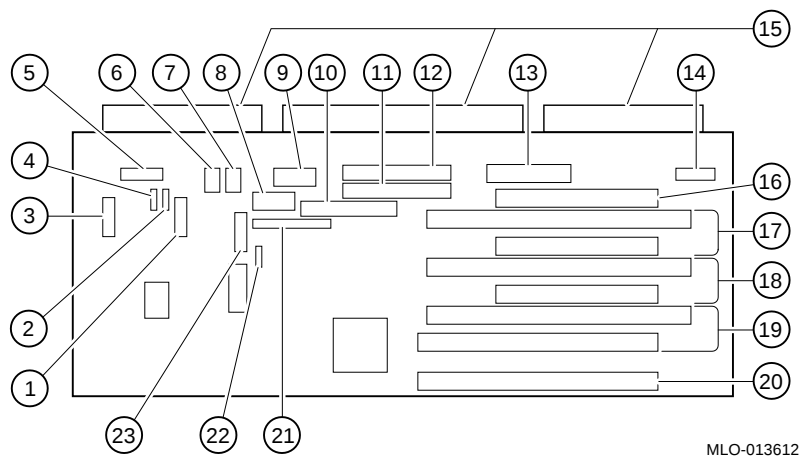
Table 2–4: Motherboard Components

Figure Legend	Component
1	SROM socket (manufacturing use).
2	SROM diagnostic serial port (manufacturing use).
3	Digital Semiconductor 21164 CPU (in zif socket).
4	CPU voltage regulator.
5	Cache connectors.
6	Bank of eight diagnostic LEDs.
7	Six DIMM (dual in-line memory module) sockets 0 (bottom slot) through 5 (top slot).
8	Reset button.
9	Power LED.
10	COM port 2.
11	COM port 1.
12	Mouse port.
13	Keyboard port.
14	Parallel port.
15	Battery.
16	Connections for riser card.
17	CPU clock frequency selection switch bank.

System Overview

Riser Card

Figure 2–5 shows the riser card for the Digital Personal Workstation (Alpha). Table 2–5 lists the riser card components.



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Figure 2–5: Riser Card Components

Table 2–5: Riser Card Components

Figure Legend	Component
1	MIDI /game connector.
2	CD audio IN (J11).
3	Audio connector (J13).
4	FAX/modem IN (J12).
5	Front panel and side audio (J15).
6 &7	Fan IN connectors.
8	Power for Alpha systems.
9	Power for Intel systems (unused).
10	FDD connector for floppy diskette drive.
11	Secondary EIDE connector (J20).
12	Primary EIDE connector (J21).
13	Power (+3.3, ± 5 , ± 12) (J9).
14	Not used.
15	Riser card connectors.
16	32-bit half-size PCI slot (slot 1).
17	32-bit half-size PCI/ISA combination slot (slot 2).
18	32-bit half-size PCI/ISA combination slot (slot 3).
19	64-bit full-size (or 32-bit half-size) PCI/ISA combination slot (slot 4).
20	64-bit full-size (or 32-bit half-size) PCI slot (slot 5).
21	MII connector for 100 Mb/s (10BaseT, Twisted Pair) Ethernet (J26).
22	HD active LED (J10).
23	AUI Ethernet connector for ThinWire (10Base2) and Twisted Pair (10BaseT) (J7).

3

Configuring Your System

Introduction

This chapter shows you how to configure your Digital Personal Workstation (Alpha) running the Microsoft Windows NT Workstation operating system use the AlphaBIOS firmware.

The screens in this chapter are examples only. Your system display may vary from the examples shown.

Configuring with AlphaBIOS Firmware

AlphaBIOS firmware supports the Microsoft Windows NT Workstation operating system. You can use AlphaBIOS firmware to perform various configuration tasks, such as:

- Selecting a copy of the Windows NT system to boot.
- Displaying system configuration information.
- Setting up the hard disk.
- Setting the date and time.
- Enabling and setting the delay for auto start.
- Setting or changing the AlphaBIOS password.
- Setting up boot utilities.

Starting AlphaBIOS

When the system is powered on, and the power-on self-tests (POST) successfully complete, the AlphaBIOS firmware is loaded and started. AlphaBIOS performs several initialization tasks, including: initialize the keyboard and video devices, test memory, and

Configuring Your System

detect and initialize disk controllers. After the video device is initialized, subsequent steps are displayed on the monitor in an initialization window.

When initialization is complete, AlphaBIOS leaves the initialization window and displays the boot screen.

Booting the System

The system is booted from the boot screen (Figure 3–1). The boot screen lists each of the different copies of the Windows NT operating system that have been installed on your system. Choose the operating systems to boot and press [Enter]. Enter the AlphaBIOS Setup program by pressing [F2].

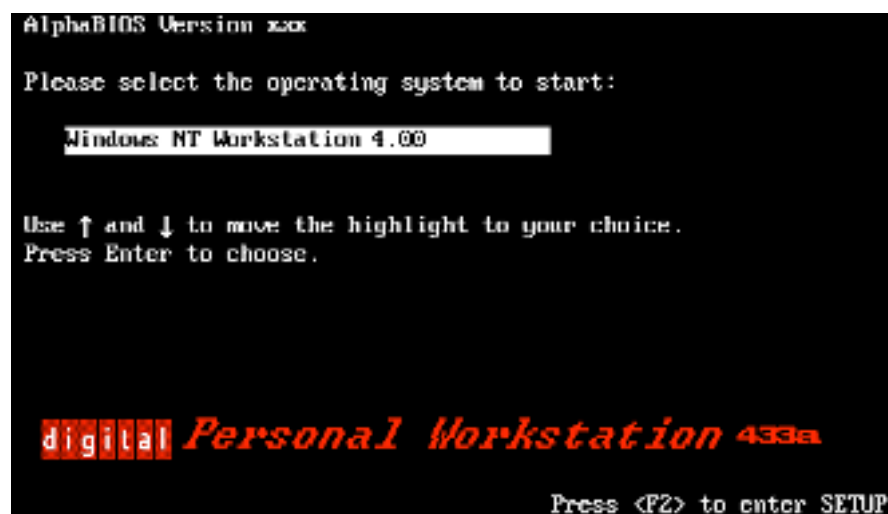


Figure 3–1: AlphaBIOS Boot Screen

AlphaBIOS Setup

Start the AlphaBIOS Setup program by pressing [F2] while the boot screen is displayed. Figure 3-2 shows the AlphaBIOS Setup screen. Use the setup screen to select the desired task. Press [Escape] to return to the boot screen.

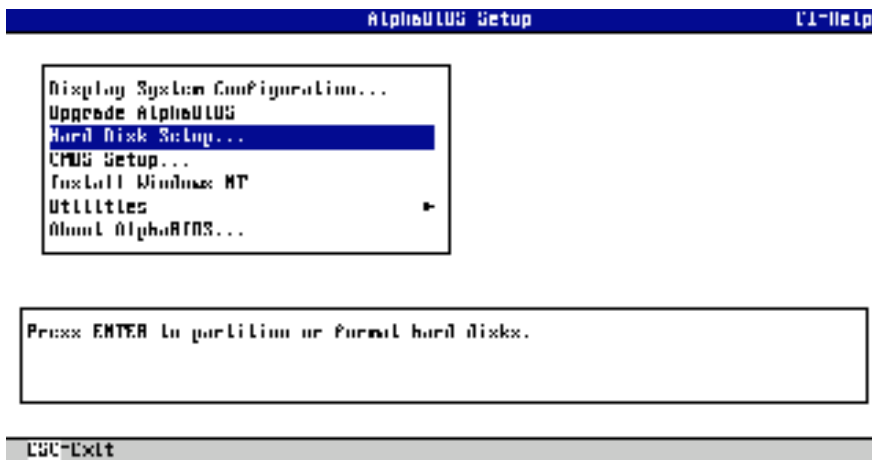


Figure 3-2: AlphaBIOS Setup Screen

Configuring Your System

Displaying Your Configuration

AlphaBIOS provides a clear, easy-to-read display of the system configuration. The display is organized by systemboard, memory, hard disk, PCI, and integrated devices. From the AlphaBIOS Setup screen, select Display System Configuration and press [Enter]. From the Display System Configuration screen, use the arrow keys to select the configuration category you wish to view. Figure 3–3 shows the Systemboard Configuration category.

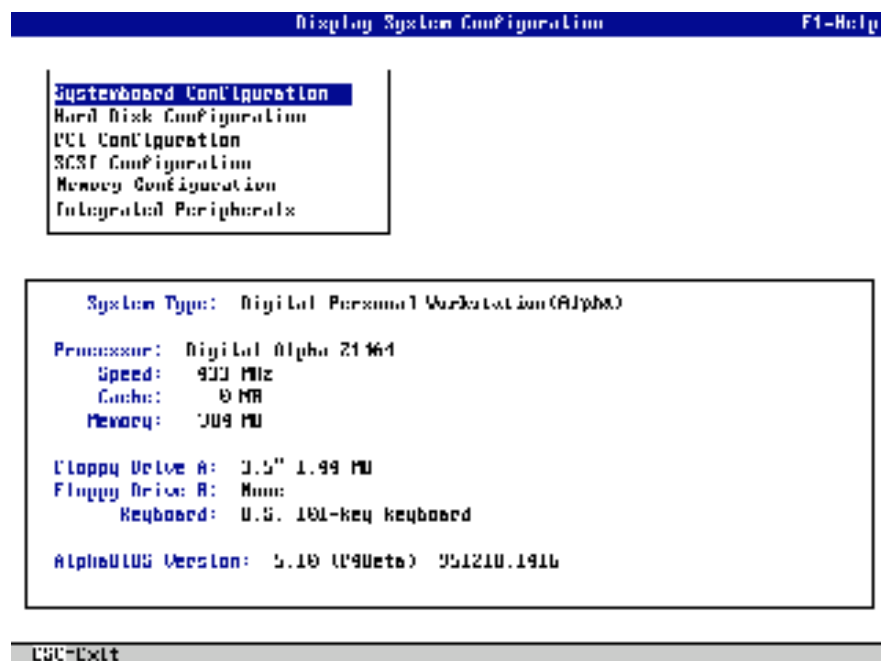


Figure 3–3: Display System Configuration Screen

Memory Configuration

The memory configuration display shows bank size, the starting address of each bank, and the capacity of the DIMMs in the bank.

PCI Configuration

The PCI configuration screen displays both the embedded and the slot-mounted PCI devices. The device names and types, along with their respective revision levels, are displayed.

Configuring Your System

SCSI Configuration

If you ordered a base system configuration, you have the option of ordering either an Adaptec 2950 ultrawide SCSI adapter or a Qlogic 1040B ultrawide adapter (SN-KZPBA-CA). If you ordered a packaged system, your system came with an embedded Qlogic adapter.

Integrated Peripherals

The integrated peripherals screen display shows the addresses and IRQs of the serial and parallel ports.

Setting Up the Hard Disks

AlphaBIOS makes it easy to format and partition hard disks on the system. Typically, you partition and format drive 0. Using the Windows NT Disk Administrator, you can quickly partition and format the other drives. Select Hard Disk Setup from the AlphaBIOS Setup screen. Figure 3-4 shows the Hard Disk Setup screen.

Hard Disk Setup				F1-Help
Disk 0	NONCACHED, SCSI ID 0	1001 MB		
	Partition 1	995 MB	FAT	
	Partition 2	6 MB	FAT	
Disk 1	NONCACHED, SCSI ID 1	510 MB		
	Partition 1	200 MB	FAT	
	Unused	310 MB		
[MSCHN]-New [DEL]-Delete [F6]-Format [F7]-Express [ESC]-Exit				

Figure 3-4: Hard Disk Setup Screen

Press [F7] to perform an express disk setup. The express setup command partitions and formats the selected disk in the recommended manner (6 MB FAT system partition)

CMOS Setup Tasks

Use the CMOS setup program to configure system parameters such as the date and time, floppy drive types and capacities, keyboard country and style, and auto start enabling and delay. There also is an advanced CMOS setup mode used to control PCI parity checking, memory testing, and AlphaBIOS password.

To enter CMOS Setup, select CMOS Setup from the AlphaBIOS Setup screen. Use [Tab] to move among the fields.

Configuring Your System

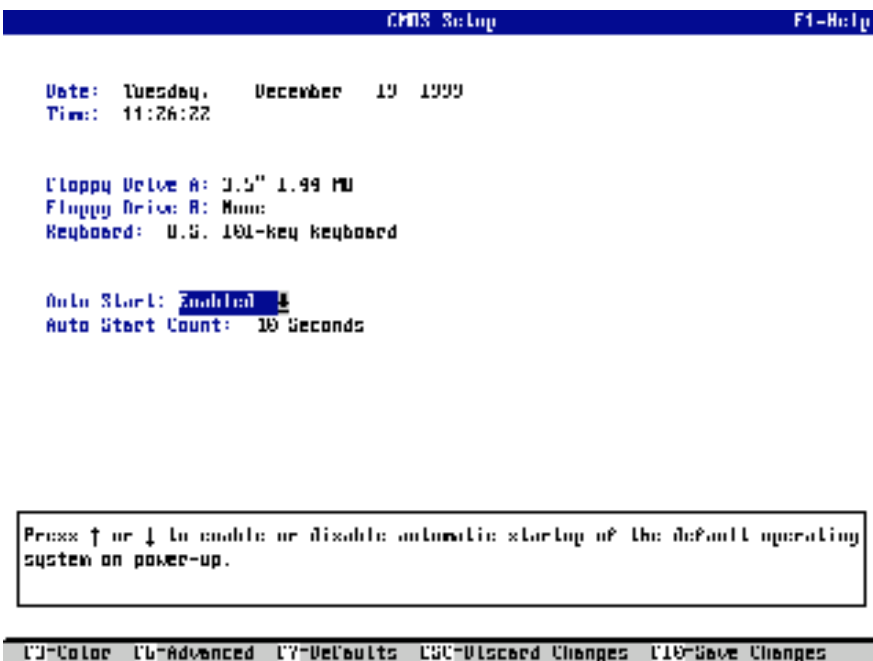


Figure 3-5: CMOS Setup Screen

Date and Time

When setting the time, use the 24-hour format; for example, 10:00 P.M. should be expressed as 22:00:00.

Configuring Your System

Floppy Drive

AlphaBIOS supports the following drive types:

- 3.5-inch, 1.44-MB (shipped with system)
- 5.25-inch, 1.2-MB
- 3.5-inch, 2.88-MB

Keyboard

The keyboard setting allows the use of nearly any language keyboard available. To ensure correct character mappings, make sure that the language of your keyboard, Microsoft Windows NT Workstation, and the keyboard-language selection in CMOS setup all match.

Auto Start and Auto Start Count

The Auto Start setting determines whether the primary operating system is automatically started after the system is reset or power-cycled. The Auto Start Count setting is the amount of time the boot screen is displayed before the default system is automatically started. This delay gives you the opportunity, after resetting or power-cycling the system, to select another operating system to start *or* to enter AlphaBIOS setup.

CMOS Setup Options

- **Color.** Pressing [F3] repeatedly cycles through the available AlphaBIOS color schemes.
- **Advanced.** Pressing [F6] displays the Advanced CMOS Setup screen.
- **Defaults.** Pressing [F7] restores the default standard CMOS setup values without affecting the advanced CMOS setup values.
- **Discard Changes.** Pressing [Escape] restores the settings that were in effect when you started CMOS setup. This option also discards changes made in advanced CMOS setup.
- **Save Changes.** Pressing [F10] saves changes made in both the standard and advanced modes of CMOS setup.

Configuring Your System

Advanced CMOS Setup

Enter the advanced CMOS setup screen by pressing [F6] in the CMOS Setup screen.

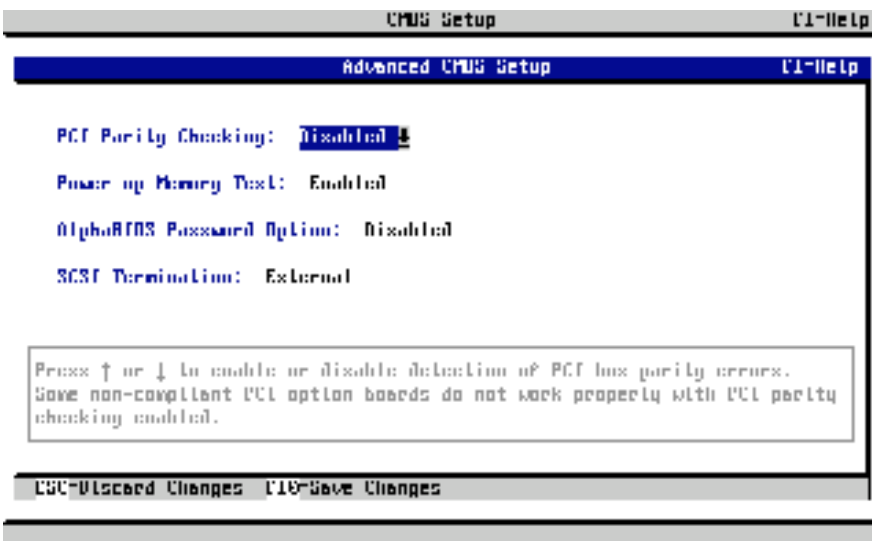


Figure 3–6: Advanced CMOS Setup Screen

PCI Parity Checking

This setting controls PCI parity checking at the PCI bridge chip. Parity checking is performed if enabled and ignored if disabled. The default is disabled. Certain PCI adapters have been known to generate bad parity on the PCI under certain loading conditions, which results in system errors. Ensure that your specific PCI configuration will operate correctly prior to turning on parity checking.

Extended Memory Test

Extended memory test can be enabled or disabled. When enabled, the memory test writes and then reads several patterns of data to main memory. This testing verifies the integrity of the memory but causes a slightly longer boot time.

Configuring Your System

Password Setup

To help maintain system security, AlphaBIOS provides two levels of password protection: system setup and system startup. When system setup protection is enabled, you need a password to enter the AlphaBIOS setup program. When system startup protection is enabled, you must enter a password before system initialization will take place. Startup password protection provides more comprehensive protection than setup password protection because the system cannot be used until you enter the correct password.

NOTE

To change the password, simply set up your password again.

Advanced CMOS Setup Options

- **Discard changes.** Pressing [Escape] restores the settings in effect when you entered advanced CMOS setup. This does not discard changes made to standard CMOS setup.
- **Save changes.** Pressing [F10] saves changes you have made in advanced CMOS setup. When exiting CMOS setup, you also must save your changes at the CMOS setup screen for the changes to be stored permanently.

Utilities

Two utilities, operating system selection and run a maintenance program, are available from the utilities menu.

OS Selection Setup

Each operating system selection is a set of information that describes the disk and partition containing OSLOADER.EXE.

Configuring Your System

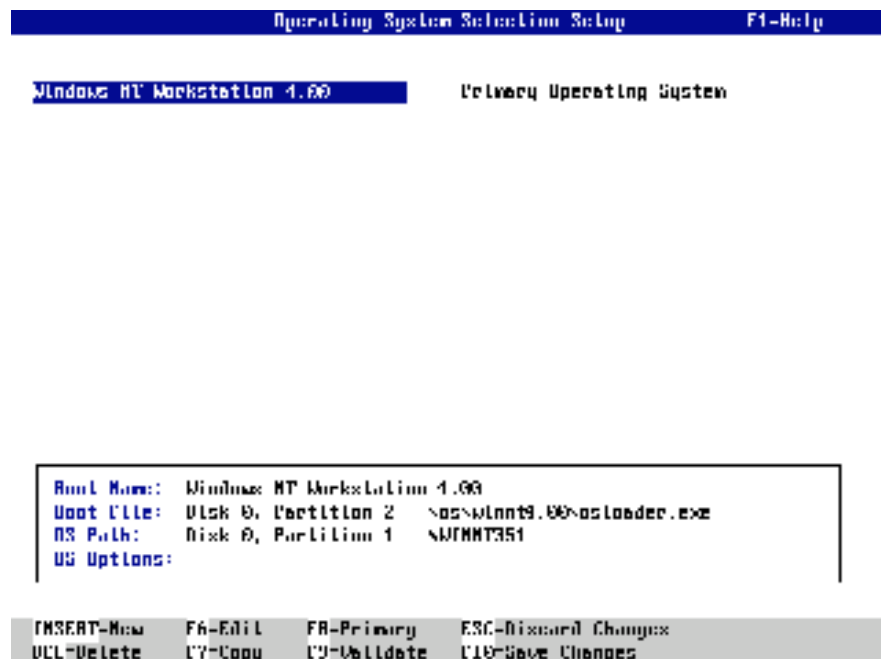


Figure 3-7: Operating System Selection

Running a Maintenance Program

A maintenance program, such as a RAID configuration utility, is run directly from the AlphaBIOS utility menu.

To run a maintenance program, follow this procedure:

1. Start AlphaBIOS setup, select Utilities, select Run Maintenance Program from the submenu, and press [Enter].
2. In the Current Partition field, select the hard-disk partition, floppy disk, or CD drive from which to run the program. Type the program name into the Program Name field.

4

Installing System Options

Introduction

This chapter covers the following topics related to installing options on your Digital Personal Workstation (Alpha) system:

- Removing and replacing the system cover
- Removing the front door
- Installing additional system memory
- Installing expansion boards/PCI bus options
- Installing internal drives
- Connecting external devices
- Replacing the battery

Removing the System Cover

CAUTION

To avoid system damage from static discharge, wear a grounded wrist strap before you touch anything inside the system.

To remove the system cover, refer to Figure 4–1 and perform the following steps:

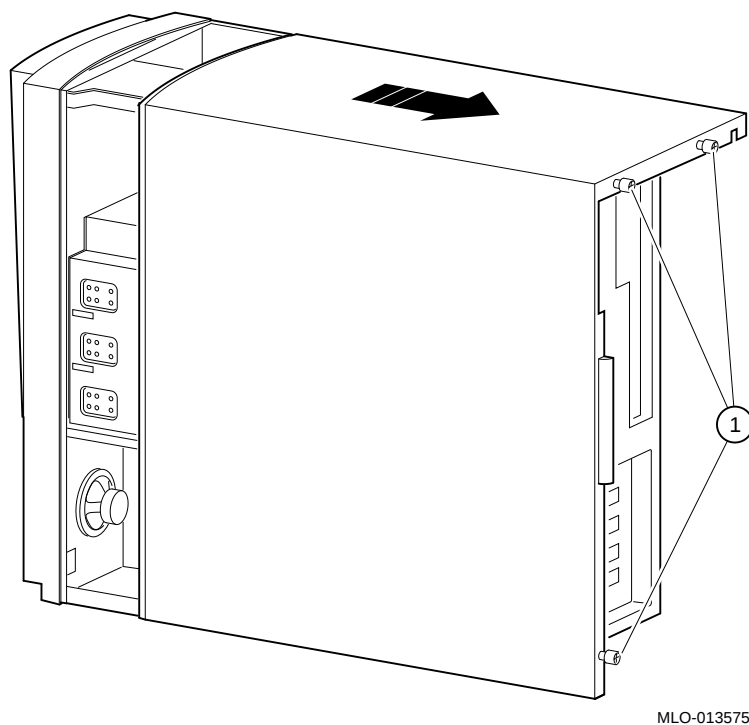
1. Shut down your system and all peripheral devices.
2. Unplug the power cord.

WARNING

Allow at least 15 seconds for the power supply capacitors to discharge safely.

3. Remove the system lock, if necessary.
4. Locate and loosen the three thumb screws ① that fasten the system cover to the rear panel. Place your thumbs on the upper corners of the system cover, pull back on the cover, and slide the cover back and away from the system enclosure. Then lift the cover up and away from the system.

Installing System Options



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Figure 4-1: Unlocking and Removing the System Cover

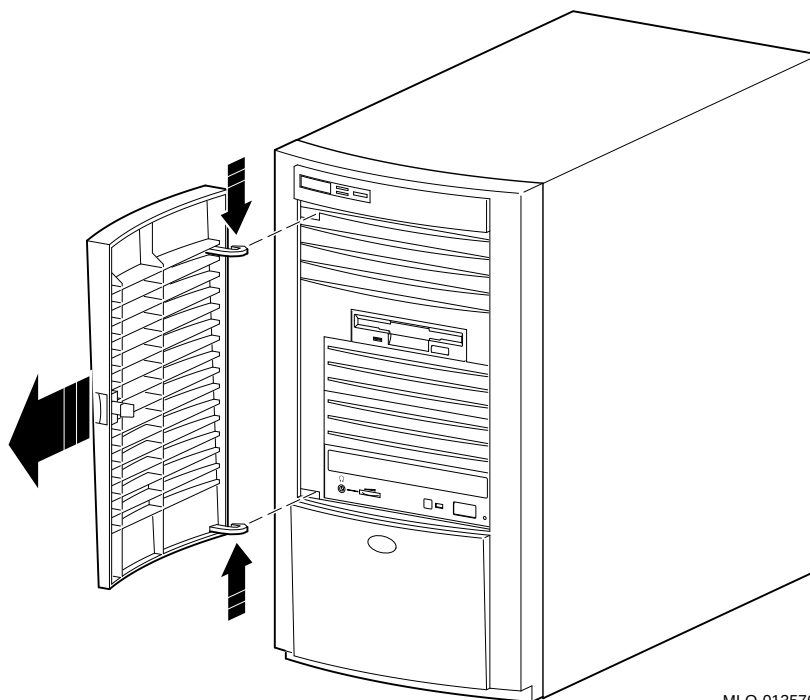
Installing System Options

Removing Front Door

Some users may wish to remove the system front door. This is a matter of personal preference and does not affect the use of front-accessible devices.

To remove the front door, refer to Figure 4–2 and perform the following steps:

1. Open the system door to allow access to the front-accessible devices.
2. While supporting the door, press the top tab down and slide the hinge to the right until it comes free.
3. Lift the door slightly and slide the lower hinge out of the front bezel.
4. Pull the door away from the system.



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Figure 4–2: Removing the Front Door

Adding Memory Modules

The procedures for adding DIMMs to the Digital Personal Workstation (Alpha) are outlined below.

There are three memory banks (J1/J2, J3/J4, and J5/J6) in the system; each bank consists of two DIMMs. Two DIMMs are required because the memory bus width is 144-bits (128 bits of data and 16 bits of ECC). Each DIMM in a bank supplies 72 bits of the 144-bit bus width. Both DIMMs in a bank must be identical, and both must be populated.

To add memory modules (DIMMs), refer to Figure 4–3 as you perform the following steps:

1. Install the DIMM ② straight into the socket. Position the DIMM so that both the retaining clips ① at the socket ends engage. Pay close attention to the keying on the DIMM and the socket.
2. Repeat step 1 for the remaining modules.

Installing System Options

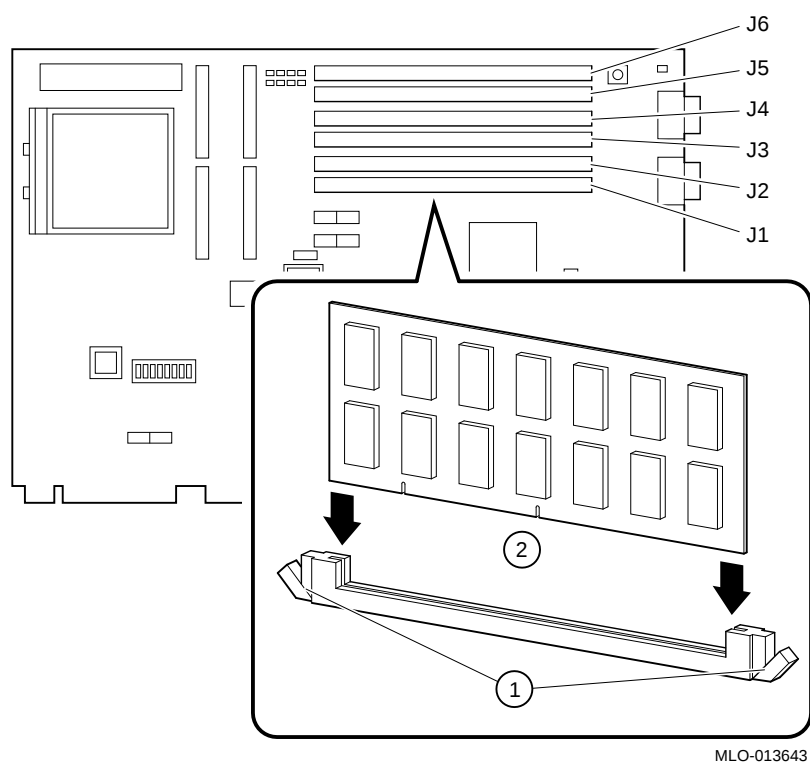


Figure 4-3: Memory Installation

Installing Expansion Boards

The Digital Personal Workstation (Alpha) has five option slots, including:

- one 32-bit half-size PCI slot (slot 1)
- one 32-bit half-size PCI/ISA combination slot (slot 2)
- one 32-bit full-size PCI/ISA combination slot (slot 3)
- one 64-bit (or 32-bit) full-size PCI/ISA combination slot (slot 4)
- one 64-bit (or 32-bit) full-size PCI slot (slot 5)

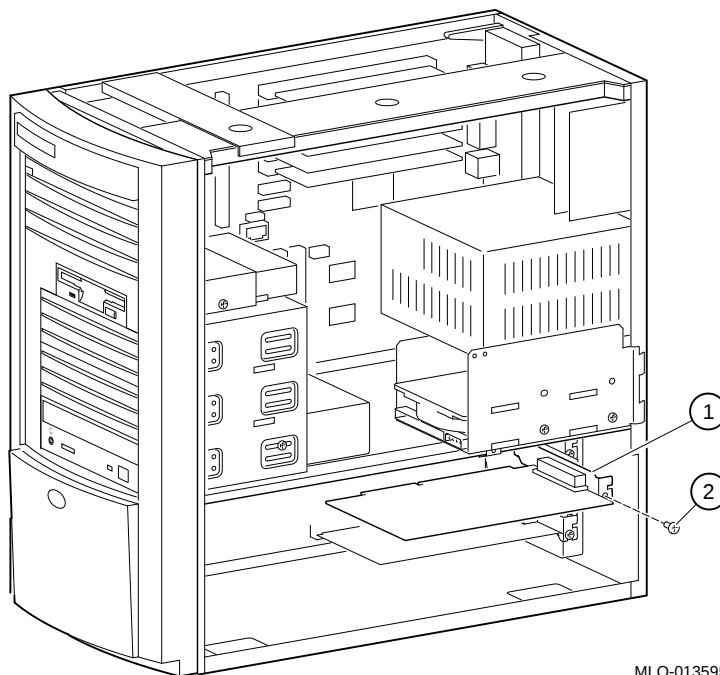


Refer to your option module documentation for instructions on configuring a PCI or an ISA option module.

To install an expansion board, refer to Figure 4–4 as you perform the following steps:

1. Unlock and remove the system cover.
2. Pick an available slot ① for your board.

Installing System Options



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Figure 4-4: Installing an Expansion Board

3. Unscrew and remove the metal filler plate for the slot you have chosen.
4. Insert the new expansion card into the riser card slot. (See Figure 4-4.) Push the board firmly into the socket.
5. Replace the screw ② to secure the module at the rear panel.

Drive-Installation Overview

This section covers configuration guidelines, general drive-installation information, and cable layouts.

The Digital Personal Workstation (Alpha) supports a maximum of six mass storage devices internally.

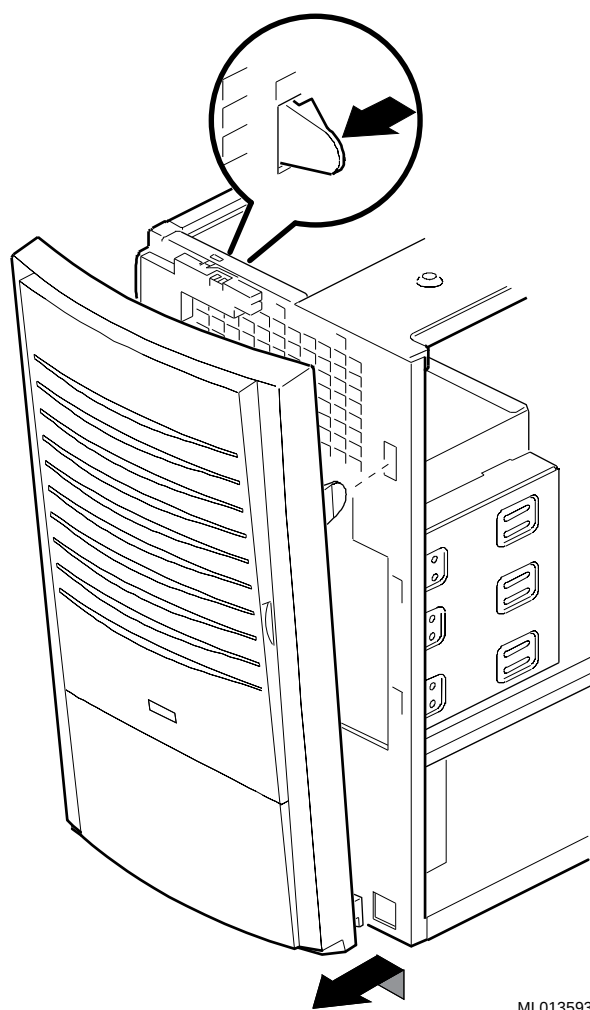
- The front 3.5-inch bay contains a factory-installed 3.5-inch diskette drive.
- The front 5.25-inch bay contains a factory-installed CD-ROM and room for two additional 5.25-inch half-height devices; 3.5-inch devices are supported with adapters.
- The internal device bay is not accessible from the front of the workstation and contains a factory-installed, low-profile (1-inch high), 3.5-inch hard disk drive. This device bay also has room to install a second low-profile (1-inch high), 3.5-inch hard disk drive.

Removing the Front Bezel

To install a device into the front bays, you must first remove the workstation's front bezel. Refer to Figure 4-5 and follow the steps outlined below:

1. Turn off your workstation and monitor.
2. Disconnect all external devices, AC power, and monitor power.
3. Remove the outside cover, according to the steps outlined earlier in the section, Removing the System Cover.
4. From the top of the workstation, looking down toward the bottom of the front of the chassis, view the two tabs from the front bezel that hold the bezel in place and secure it to the chassis. Find both tabs (one on the left and one on the right).
5. Push both tabs toward the center of the workstation to release the top of the bezel.
6. Gently pull the top of the bezel approximately 1 inch away from the top of the chassis.
7. Gently, but firmly, pull up on the bezel to unhook the bottom bezel mounts.

Installing System Options



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Figure 4-5: Removing Front Bezel

Configuration Guidelines for EIDE

The system EIDE controller supports up to four drives: two on the primary port and two on the secondary port. The first drive attached to each port must be set up as master. The second drive on each port must be set up as slave. A full configuration of four drives would consist of a master drive and a slave drive on the primary port as well as a master drive and a slave drive on the secondary port.

Configuration Guidelines for SCSI

System configurations ordered with a SCSI chip ship with a Qlogic 1040bUX controller.

An ultrawide SCSI device can connect computers to other computers or peripheral devices, such as CD-ROM drives, tape drives, or hard drives. Ultrawide SCSI allows up to 15 SCSI or ultrawide SCSI devices to be connected to a single port using a daisy chain. (A daisy chain is a series of connections in which the first device is connected to the computer, the second device is connected to the first, and so forth.) Each SCSI device must have a unique SCSI ID.

SCSI Bus Length

For Ultra drives, the total length of all the cables cannot exceed 3 meters (9.9 feet) if your system has four or fewer SCSI devices attached to the board. If your system has five or more devices, the total cable length cannot exceed 1.5 meters (4.95 feet).

The first SCSI card handles only the internal drives. Use another card for external devices.

Termination

The adapter provides active, software-controlled termination.

There are three connectors on the SCSI adapter:

- 68-pin, high-density external SCSI-2 connector
- 68-pin, high density internal SCSI-2 connector
- 50-pin internal ribbon connector

You can use up to two of the connectors on the card. Using three violates the SCSI rules.



Refer to the SCSI controller documentation for more information.

Installing System Options

Installing Storage Devices

This section describes how to install drives in the front-accessible bays and the internal bays.

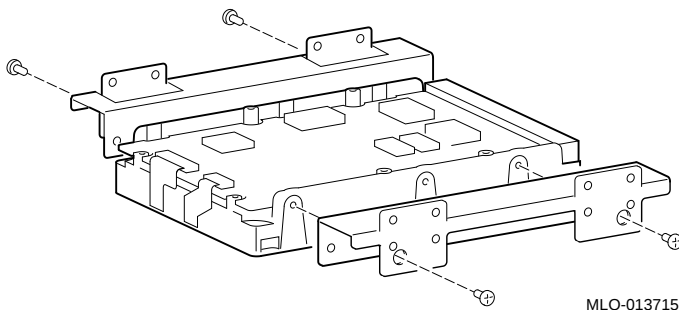
NOTE

Be sure to read the instructions that come with your new equipment as well as the appropriate instructions in this section.

Front-Accessible Bays

Normally, the front-accessible bays arrive with a floppy diskette drive in the top bay and a CD-ROM drive in the bottom bay. There are two 5.25-inch bays available for additional drives. Perform the following steps to add a drive in a front-accessible bay:

1. Remove the system cover. (Refer to the section, Removing the System Cover, earlier in this chapter.)
2. Remove the front bezel assembly. (Refer to the section, Removing the Front Bezel, earlier in this chapter.)
3. Remove the appropriate filler panel from the front bezel (for drives requiring front access).
4. Refer to the drive's documentation and set the drive jumpers (master or slave for IDE drives, SCSI ID for SCSI drives).
5. If you are installing a 3.5-inch drive, attach the expansion brackets to the sides of the drive, as Figure 4-6 shows.



MLO-013715

Figure 4-6: Attaching Brackets to a Drive

6. Remove the appropriate metal filler plate.

Installing System Options

7. Remove the left side rail from the bay. Do not use sharp instruments that could damage the bay.

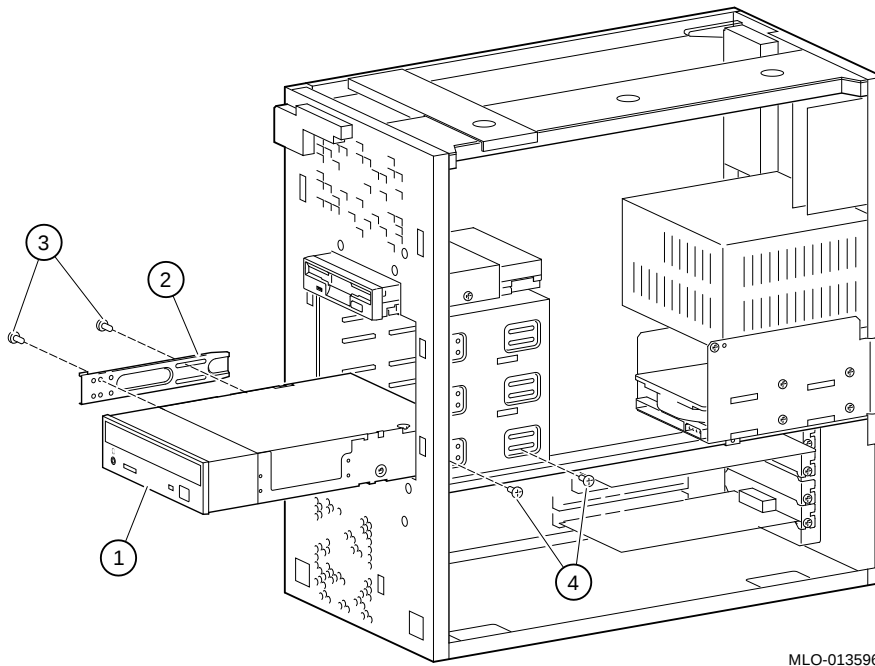


Figure 4-7: Installing an Additional Drive

8. Install the side rail ② onto the drive assembly ① (in this example, a CD-ROM drive). Use two screws ③ to attach the side rail.
9. Slide the drive, with the rail attached, into the bay and secure it with screws ④.
10. Connect the data and power cables to the drive.
11. Replace the front bezel assembly.
12. Replace the system cover. (Refer to the section, Replacing the System Cover, later in the chapter.)

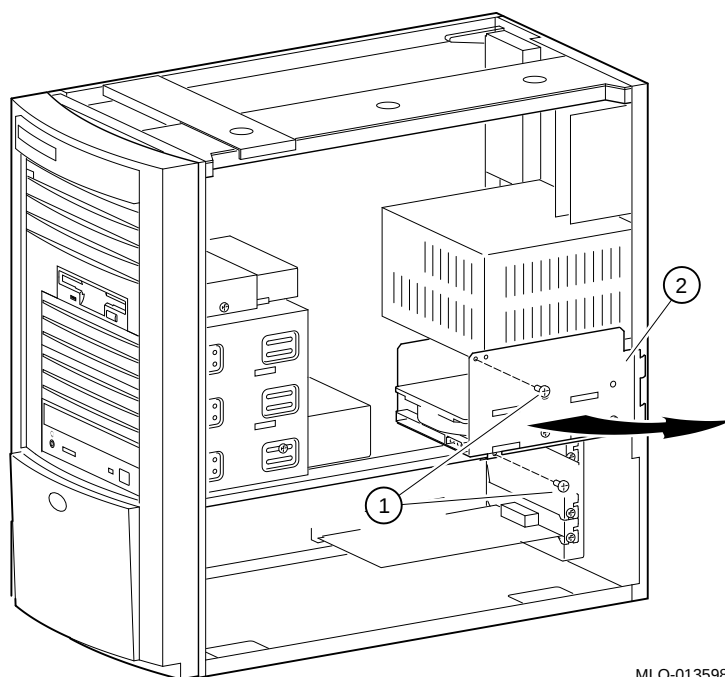
Internal Bays

Usually, the internal bays arrive with a hard drive in the bottom bay. There is one 3.5-inch bay available for an additional drive. Perform the following steps to add a drive in the internal bay:

1. Remove the system cover. (Refer to the section, Removing the System Cover, earlier in this chapter.)

Installing System Options

2. See Figure 4-8, and remove the two screws ① from the internal bay cage ②.

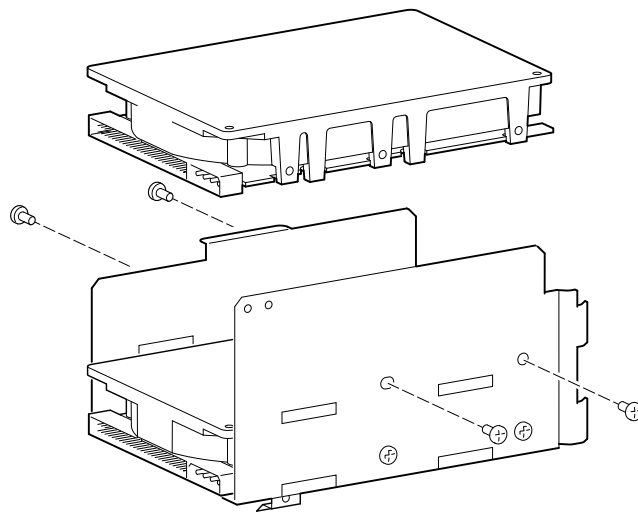


MLO-013598

Figure 4-8: Adding a Drive in the Internal Bay

3. Carefully swing the cage outward and lift it out of the chassis. Take care not to damage the cables attached to the drive in the lower bay.
4. Refer to the drive's documentation and set the drive jumpers (master or slave for the IDE drives and SCSI ID for SCSI drives).
5. Mount the new 3.5-inch drive into the top position using four screws (two on each side). See Figure 4-9.

Installing System Options



MLO-013597

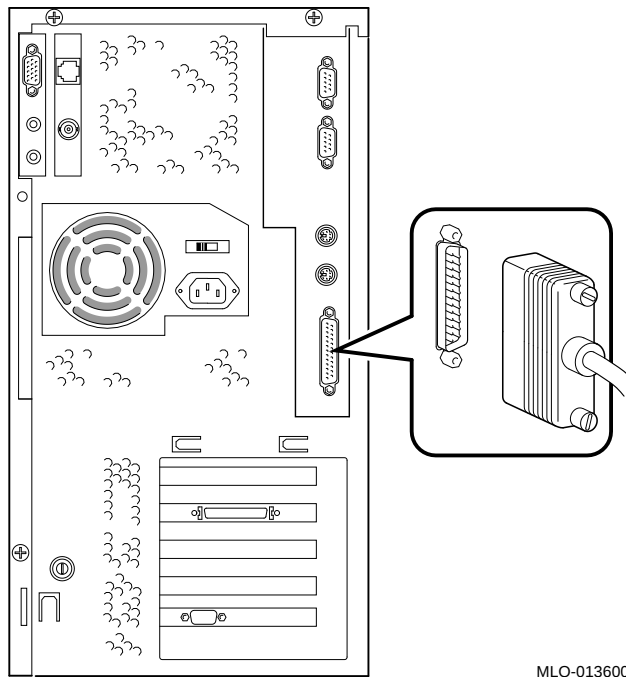
Figure 4-9: Mounting the 3.5-inch Drive

6. Connect the data and power cables to the drive.
7. Reinstall the bay cage and swing it back into position.
8. Fasten the bay cage with two screws: one at the power supply and one in the chassis support bracket.
9. Replace the system cover. (Refer to the section, Replacing the System Cover, later in this chapter.)

Installing System Options

Cabling for a Printer or Other Parallel Device

Connect the cable to the parallel port, as Figure 4–10 shows. Be sure that you are using the correct type of printer cable. If your cable has the incorrect type of connector, you need an adapter or a different cable.



MLO-013600

Figure 4–10: Cabling for Printer or Other Parallel Device

Installing System Options

External Options

You might wish to connect an external device or an expansion box: for example, a SCSI storage expansion box. To add external devices, follow these steps:

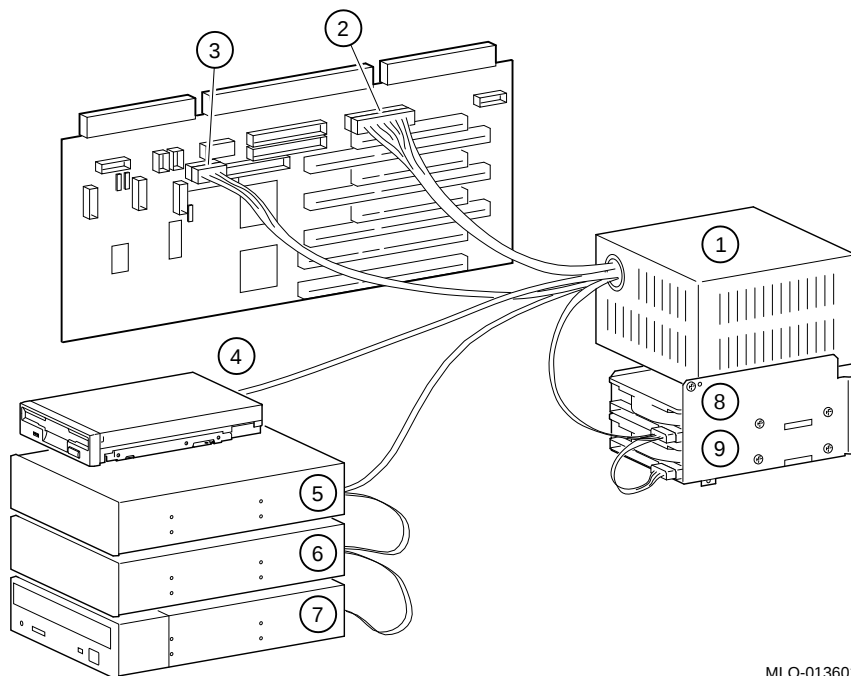
1. Set the drive jumpers or switches for the desired ID.
2. Connect the option's cable to the external port. Use a cable with a 68-pin high-density type connector to connect to the system.

You may need to use a 68- to 50-pin adapter to connect narrow SCSI devices.

Installing System Options

Internal Cable Layout

Figure 4–11 through Figure 4–16 show system-box cabling; Table 4–1 through Table 4–6 list components.



MLO-013601

Figure 4–11: Power Supply Cable Configuration

Installing System Options

Table 4–1: Power Supply Cable Configuration

Legend	Component
1	Power supply.
2	+/- 12, +/-5, +3.3V DC to motherboard.
3	Alpha power connector.
4	Floppy drive.
5	Power connector for optional hard drive.
6	Power connector for optional hard drive.
7	CD-ROM drive.
8	Internal hard drive.
9	Internal hard drive.

Installing System Options

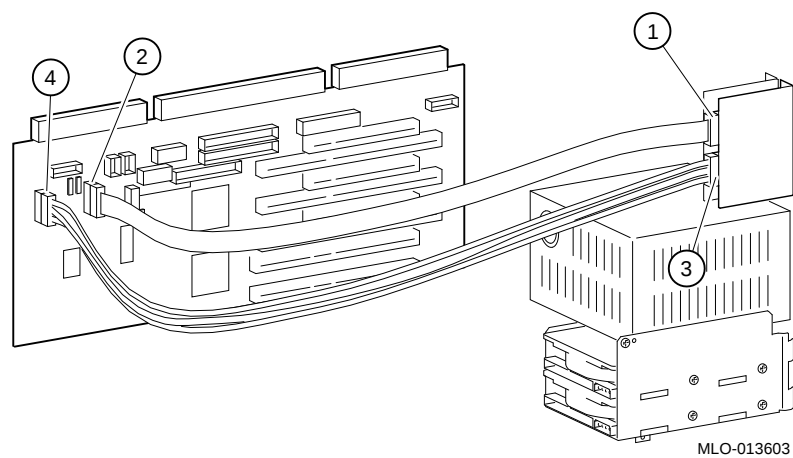


Figure 4-12: Audio Cable Layout

Table 4-2: Audio Cable Layout

Legend	Component
1	Audio card. MIDI/game connector (J4).
2	Riser card. MIDI/game connector (J14).
3	Audio card. Audio signal connector (J3).
4	Riser card. Audio signal cable (J13).

Installing System Options

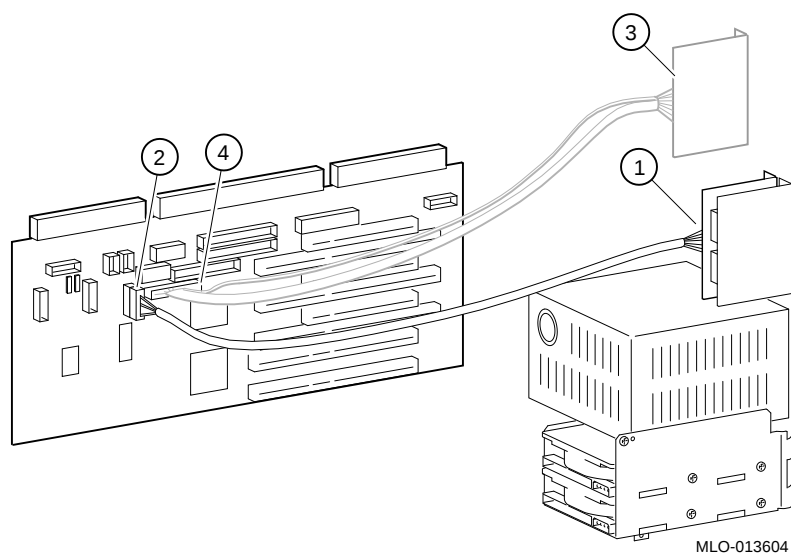


Figure 4-13: MAU or MII Cabling

Table 4-3: MAU or MII Cabling

Legend	Component
1	AUI cable to MAU.
2	Riser card. AUI connector (J7).
3	MII cable.
4	Riser card. MII connector (J26)

Installing System Options

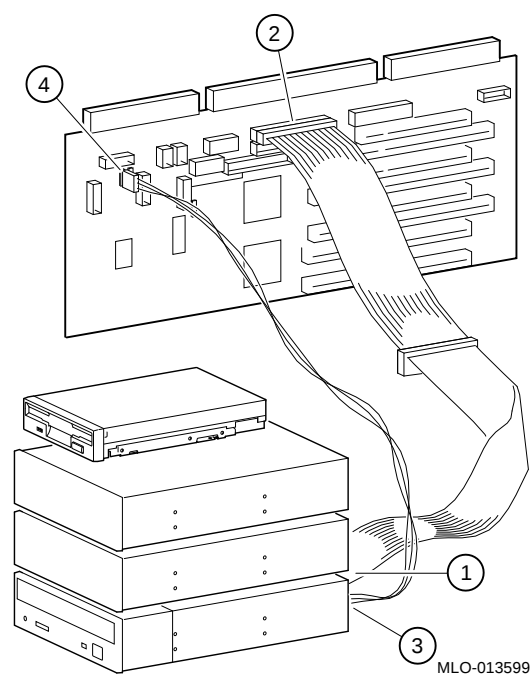
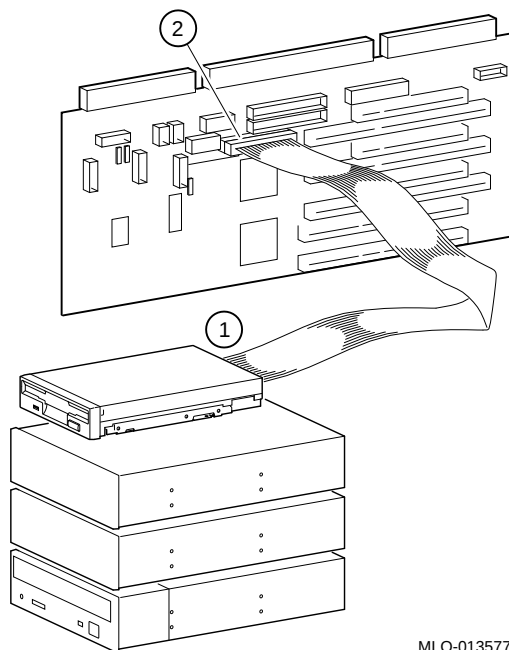


Figure 4-14: CD-ROM Cabling

Table 4-4: CD-ROM Cabling

Legend	Component
1	IDE cable to CD-ROM drive.
2	IDE cable connection on riser card (J21).
3	CD audio cable to CD-ROM drive.
4	CD audio cable connection on riser card (J11).

Installing System Options



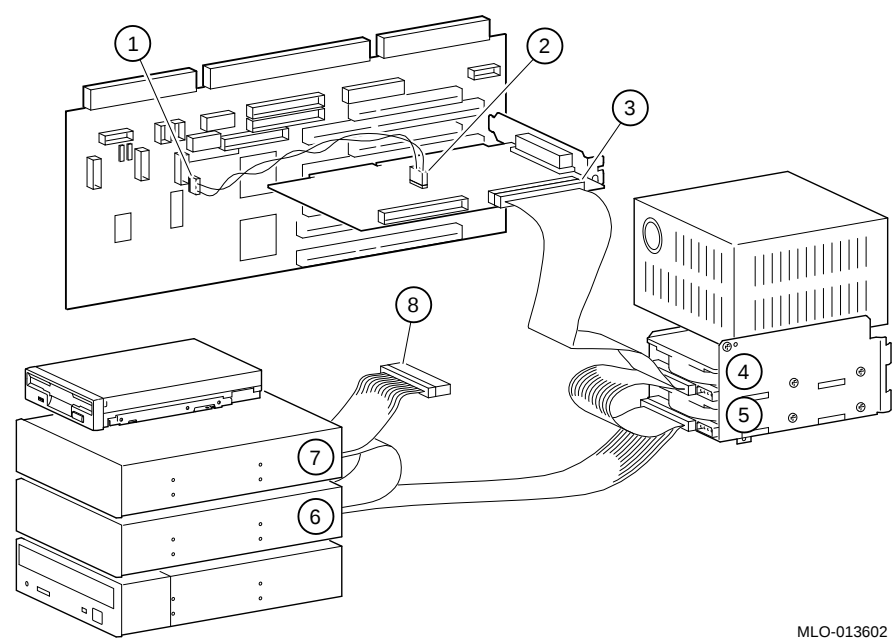
MLO-013577

Figure 4-15: FDC Cabling

Table 4-5: FDC Cabling

Legend	Component
1	FDC cable to floppy diskette drive.
2	FDC cable connection on riser card (J16).

Installing System Options



MLO-013602

Figure 4-16: SCSI Cabling

Table 4-6: SCSI Cabling

Legend	Component
1	SCSI drive activity cable (J10) connection to riser card.
2	SCSI drive activity cable.
3	SCSI bus cable into SCSI adapter.
4	Optional SCSI hard drive.
5	SCSI hard drive.
6 & 7	Optional slots.
8	Internal SCSI bus terminator.

Replacing the Battery

The battery supplies power to the real time clock while the system is off. If necessary, replace the lithium battery with a Digital (P/N 12-41474-05), Toshiba (P/N CR2032) ,or equivalent 3-Volt DC lithium battery. After replacing the battery, you must verify the system configuration and setup data.

WARNING

If the battery is incorrectly replaced, there is danger of explosion. Replace the battery only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to manufacturer's instructions. Be certain to follow any state or local statutes for proper battery disposal.

CAUTION

Take care not to bend the spring that holds down the battery. A bent spring could result in poor battery contact and intermittent system problems.

1. Gently press down on the battery and push it out sideways, as Figure 4–17 shows.
2. Insert the new battery, positive side (+) up, into the holder.

Installing System Options

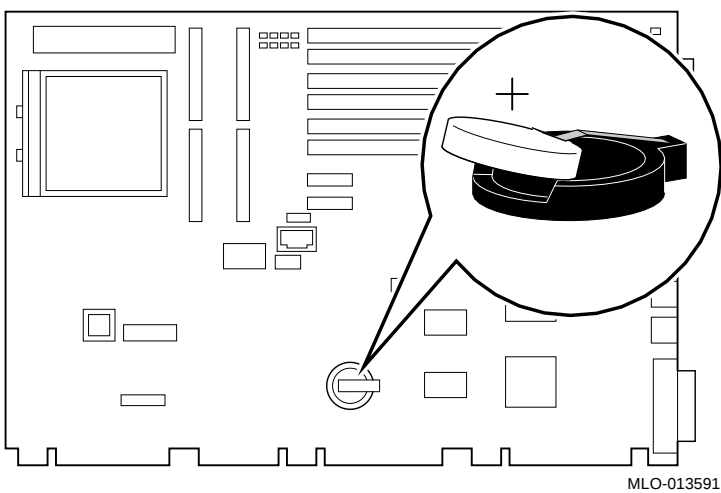
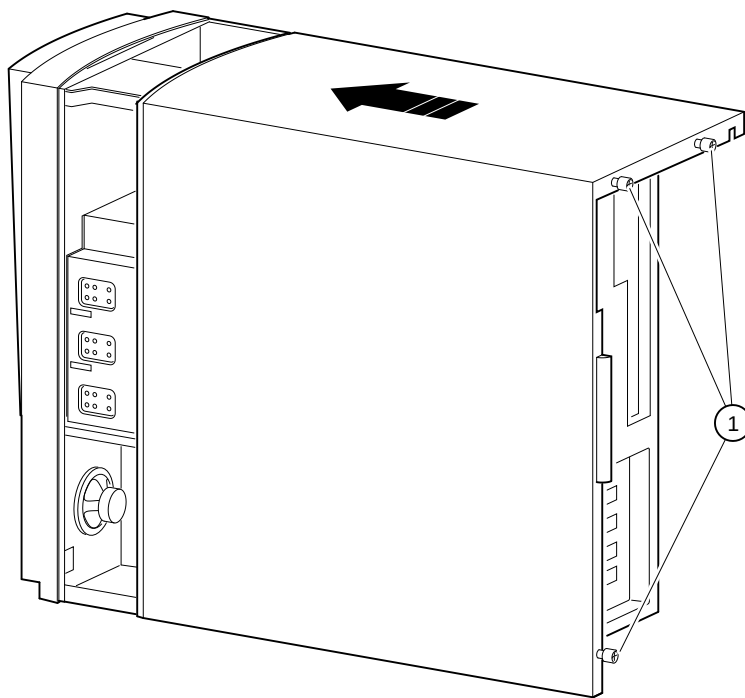


Figure 4-17: Replacing the Battery

Replacing the System Cover

To replace the system cover, see Figure 4–18 and follow the next procedure.



MLO-013605

Figure 4–18: Replacing the System Cover

1. Line up the flanges on the inside of the bottom-left portion of the cover so that they overlap the edge of the chassis body.
2. Then slide the cover forward to secure it into place. Fasten the system cover with the three thumbscrews ① provided.

Installing System Options

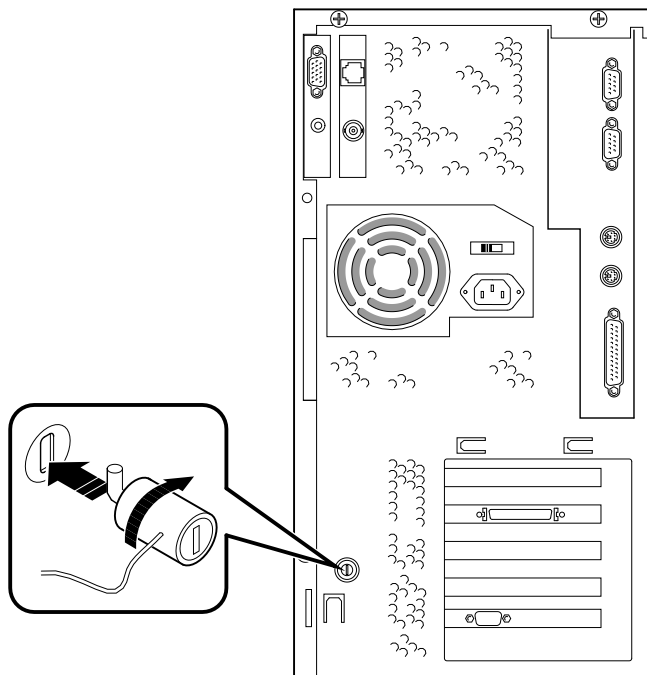
Installing Optional Lock

If you ordered an optional Kensington lock (order number PCP3H-AG), see the section below for installation instructions.

Kensington Lock

To install a Kensington lock, refer to Figure 4–19 and secure the lock onto your system as shown.

1. Insert the lock into the opening at the back of the system.
2. Turn the lock clockwise to secure it.
3. Connect the power cord and plug it into the wall outlet.
4. Turn on the system.



MLO-013714

Figure 4–19: Using the Optional Kensington Lock

5

Troubleshooting

Introduction

This chapter describes initial and system troubleshooting for your Digital Personal Workstation (Alpha).



Refer to the documentation supplied with additional options if you are experiencing problems with specific options that you have installed.

Initial Troubleshooting

Follow these general procedures to initially troubleshoot your Digital Personal Workstation (Alpha):

1. Check that the power indicator is on and that the fan is running.
2. Check the power indicator on the monitor. Also, check the monitor, keyboard, and mouse cables to ensure that they are connected and seated properly.
3. Press the Reset button. Try rebooting your system.
4. Make sure that all cables and connections are secure.
5. Contact Digital Services or your service provider for software- or hardware-related problems.

NOTE

If you need to return a failed component, pack it in its original container and return it to Digital Equipment Corporation or your service provider.

Troubleshooting

Equipment Log

For your convenience, Appendix F, Equipment Log, includes a form on which you can record all model numbers and serial numbers of your hardware components (system unit, monitor, keyboard, and mouse) and system hardware configuration information (CPU, memory size, drive size, ports, and so on).

General Troubleshooting

Table 5–1 lists how to identify and solve problems that could occur with your system, disk drive, audio, and monitor.

Table 5–1: System Troubleshooting

Problem	Possible Cause	Action
Power indicator not on.	System is not plugged in.	Plug the system in, and then turn it back on.
	System is not turned on.	Push the power button.
	No power at the wall outlet.	Use another wall outlet.
	Internal power supply cables not reconnected after installing options.	Reconnect cables.
	Internal power cable connected to the wrong power connector.	Connect to the correct power connector. (See Chapter 2, System Overview.)
	Power supply failure.	Contact your service representative.
	Correct voltage not set.	Unplug the system, set correct voltage on system back, and turn system back on. (Note: The power supply may have been damaged.)
	Fans not connected.	Connect fans to the riser card.
	Fan vents blocked.	Remove obstruction from fan vents.
	Power switch cable not plugged into riser card.	Plug power switch cable into the riser card.

Table 5–1: System Troubleshooting (*continued*)

Problem	Possible Cause	Action
Power is on, but there is no screen display and no beeps.	Brightness and contrast controls are not correctly set.	Adjust the brightness and contrast controls.
	Monitor is off.	Turn on the monitor.
	Monitor cable or power cord is incorrectly installed.	Check all monitor connections.
	Configuration error.	Refer to the video module documentation for more information.
	Monitor is defective.	Try another monitor.
	Defective video controller module.	Replace the video module.
Power is on, but there is no screen display. System beeps on power-up.	Keyboard or video controller missing or malfunctioning.	AlphaBIOS tests for keyboard and video before displaying information. Check connections.
	Various possible causes.	See Table 5–5.

Troubleshooting

Table 5–1: System Troubleshooting (*continued*)

Problem	Possible Cause	Action
System does not boot.	Operating system software is not installed on the hard disk drive.	Install the appropriate operating system.
	Hard drive cable is not connected.	Connect hard drive cable.
	System cannot find the boot device.	Check the system configuration for correct device parameters. Use the AlphaBIOS firmware to display system configuration. Look at the hard disk configuration to determine what hard disk is available. Verify the operating system selection information.
	Environment variables incorrectly set.	From the Boot screen, press [F2] to go to setup. From there, go to the desired location to correctly set the environment variables.
	Hard disk drive is not correctly formatted or the requested partition does not exist.	Format the hard disk drive or correctly partition the hard disk drive using the supplied software.
	There is no software on the requested partition.	Install software on the requested partition or point to the correct partition.
System boots automatically when you don't want it to.	System is set to autoboot.	When AlphaBIOS starts, press a ↓ to stop the autostart countdown. Go to Setup to change a variable.
Target boot device not listed in show device, show config (SRM), or in the AlphaBIOS display system configuration.	Loose power and/or data cable.	Secure all signal and power cable connections.
	SCSI bus too long.	Alter SCSI bus to correct length.
	SCSI drive not set as drive 0.	Reset SCSI drive as drive 0.

Troubleshooting

Table 5–1: System Troubleshooting (*continued*)

Problem	Possible Cause	Action
No response to keyboard commands.	Keyboard is password protected.	Enter the keyboard password, if supported by your operating system. (See Chapter 3, Configuring Your System, for help in resetting your password.)
	Keyboard is not connected.	Connect the keyboard to the keyboard port.
	Keyboard is connected to the mouse port.	Connect the keyboard to the keyboard port.
No response to mouse commands.	Mouse is not connected.	Connect the mouse and restart the operating system.
	Mouse is connected to the keyboard port.	Connect the mouse to the mouse port and restart the operating system.
	Mouse driver not installed.	Install the appropriate mouse driver; refer to your supplied application software documentation.
	Mouse ball sticking.	Refer to Appendix A.
System forgets some environment variables or the time-of-day while powered off.	Dead battery.	Replace the lithium battery. Use a Digital (P/N 12-41474-05) or type 2032 three-Volt DC lithium battery. (See Chapter 4, Installing System Options.)
	No contact between battery holder and battery.	Carefully adjust metal tab on battery holder to allow contact with battery.

Troubleshooting

Table 5–I: System Troubleshooting (*continued*)

Problem	Possible Cause	Action
Security mode is enabled. Password does not work.	User does not have correct password.	Perform the following steps: 1. Power off the system. 2. Open the system box. 3. Power on the system and wait for the console to start. 4. Press the password reset button on the motherboard. 5. Power off the system. 6. Reassemble system. 7. Power on the system. 8. Set new password if desired. Get necessary configuration data from the Equipment Log (Appendix F), where you recorded it.

Troubleshooting

Table 5–2: Disk Drive Troubleshooting

Problem	Possible Cause	Action
Hard disk drive cannot read or write information.	Incorrect SCSI drive ID settings.	Set the SCSI ID. Refer to the disk drive installation instructions.
	Loose or incorrectly installed cables.	Make sure all cables are correctly installed.
	Disk drive is not correctly formatted or partitioned.	Format and partition as required using the supplied operating system.
	External drive not powered up.	Turn on the external drive.
Floppy drive cannot read or write information.	Floppy diskette is not formatted.	Format the floppy diskette.
	Floppy diskette is wrong density.	Use a floppy diskette of the proper density for your drive.
	Floppy diskette is worn or damaged.	Try another floppy diskette.
	Floppy diskette is write protected.	Slide the write-protect switch so the hole is not visible.
	Floppy drive is empty.	Insert a floppy diskette.
	Floppy drive power or data cable not connected.	Connect floppy drive power or data cable.
	Floppy drive data cable connector installed backwards.	Install floppy drive data cable connector correctly.

Troubleshooting

Table 5–3: Audio Troubleshooting

Problem	Possible Cause	Action
No sound.	Cables not plugged in.	Plug in the cables.
	Driver not installed.	Install the driver.
	Volume control set low.	Use an on-screen volume control (if available) to increase the volume.
	Headset plugged in.	Unplug headset and plug microphone into correct connector.
	No power to external speakers.	Plug in external speakers.
	Internal speakers not connected.	Connect internal speaker.
Cannot record.	Cables not plugged in.	Plug in the cables.
	Record volume level set low.	Use the appropriate control to increase the record level.
Distorted sound.	Record volume level set high.	Reduce the volume level. (Use amplified speakers.)

Troubleshooting

Table 5–4: Monitor Troubleshooting

Problem	Possible Cause	Action
Monitor power indicator is not on.	Monitor is turned off.	Turn on the monitor.
	Power cord is not connected.	Connect the power cord to the system or a wall receptacle.
	No power at wall receptacle.	Use another receptacle.
	Monitor is defective.	Try another monitor.
Distorted, rolling, or flickering screen display, or wrong/uneven color.	Adjustments incorrect.	Adjust accordingly.
	Wrong type of monitor.	Try another monitor.
	Defective monitor.	Try another monitor.
	Monitor signal cable loose or damaged.	Inspect connector pins. Replace cable if damaged.
Monitor power indicator is flashing.	Monitor cable not connected.	Connect monitor cable.

Troubleshooting

Error Beep Codes

Table 5–5 shows error beep codes you may encounter while using the Digital Personal Workstation (Alpha). For example, if the POST (power-on self-test) code could not find any good memory, you would hear a 1-3-3 beep code (one beep, a pause, a burst of three beeps, a pause, and another burst of three beeps).

Table 5–5: Error Beep Codes

Beep Code	Meaning
1-1-4	(1) The POST code could not read the POST or flashROM headers, or (2) there was a checksum failure.
1-2-1	(1) The POST code detected a TOY failure, or (2) the TOY interrupt did not occur.
1-2-4	The POST code detected a hard failure.
1-3-3	The POST code could not find at least 2 MB of good memory.
3-2-1	The POST code was unable to read the header of the flashROM, or the flashROM checksum failed. Therefore, the POST code attempted to boot from the floppy diskette. The attempt failed because there was no boot block on the floppy diskette.
3-2-3	The POST code was directed to load the floppy diskette, but there was no boot block on the floppy diskette.
3-2-4	The POST code detected a failure with the keyboard or mouse controller.
3-3-1	The POST code detected a hard failure. The LEDs may provide more diagnostic information.

LEDs

Your system contains eight diagnostic LEDs (visible at the top of the motherboard with the system cover removed) as well as one power-on LED. During execution of the POST (power-on self-test), before a console display device is available, some errors are reported by the LEDs. The LEDs are written with CD once the system is fully functional.

Depending upon your operating system, LEDs may remain lighted even though the system is functioning properly. If, however, your system is experiencing problems and any of the LEDs on your system stay lighted, contact your Digital service representative.

A

System Care

Introduction

This appendix describes how to:

- Clean the system, including the outside enclosure, monitor screen, mouse, and keyboard
- Move the system

WARNING

Make sure you turn off the system, disconnect any external devices, and unplug the power cord from the wall before cleaning any part of your system. When using a moistened cloth for cleaning, do not allow fluid to leak into the system, keyboard, or monitor. Wait until the system is completely dry before applying power.

Cleaning the System Unit

Clean the outside of the system periodically with a soft cloth lightly moistened with a mild detergent solution. Do not use solvents or abrasive cleaners.

Cleaning the Monitor

If the monitor screen gets dirty, clean it with a sponge or chamois cloth lightly dampened with a mild detergent solution. Do not use solvents or abrasive cleaners.

System Care

WARNING

If you use a prepackaged screen cleaner, ensure that it is *nonflammable*. To prevent cleaner from seeping into the system case, never spray the cleaner directly on the screen. Instead, apply the cleaner to a clean cloth, and then wipe the screen.

Cleaning the System Mouse

If the mouse does not move smoothly or if the pointer jumps across the screen when you are using the mouse, the ball inside the mouse may need cleaning. To clean the ball, perform the following steps as Figure A–1 shows:

1. Turn the mouse over and remove the plate on the bottom.
2. Remove the locking ring and rubber ball ①.
3. Clean the ball and rollers ② with a cotton swab that has been lightly dampened with a mild detergent. Rinse the ball and rollers with a dampened cotton swab.
4. Replace the ball and plate ③.

NOTE

Consistent use of a high-quality mouse pad will decrease debris build-up in the mouse ball.

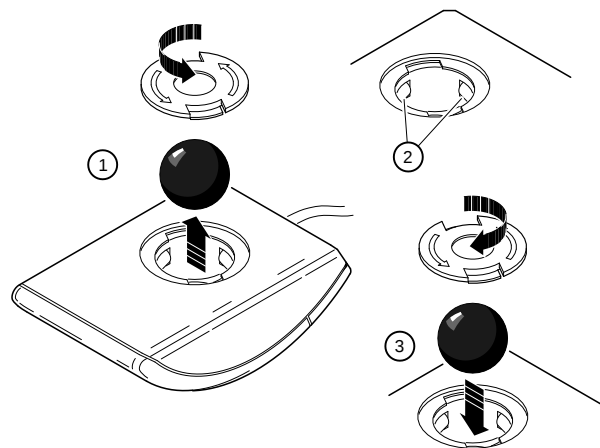


Figure A-1: Cleaning the System Mouse

System Care

Cleaning the System Keyboard

From time to time, the keyboard keys might get dirty with use. Wipe the keys with a clean cloth that has been lightly dampened with a mild detergent solution.

Moving the System

Perform the following steps before shipping or moving the system:

1. Back up all files stored on the hard disk drive.
2. Turn off the external peripherals, the system, and the monitor.
3. Disconnect the power cord from the wall outlet and from the back of the system unit.
4. Disconnect the monitor, keyboard, mouse, and any other cables from the back of the system unit.
5. Package the system as the next section, *Packing Your System*, describes.

Packing the System

If you are moving the system a short distance (for example, from one room to another in the same building), you may not wish to pack it. If you are shipping the system or moving it by vehicle, though, pack it to avoid damage.

Pack the system in the original packing material and containers. If you did not save the boxes and packing material, use a sturdy carton and cushion the computer well to avoid damage.

Installing the System at a New Location

After moving the system to a new location, follow the installation instructions on the installation information to unpack and install it.

B

Technical Specifications

Introduction

This appendix describes the following technical characteristics of the Digital Personal Workstation (Alpha):

- System specifications
- External system connectors
- Expansion slot current limitations
- System current requirements
- Motherboard switches and jumpers

Technical Specifications

System Specifications

Table B–1 lists the Digital Personal Workstation (Alpha) processor features, performance, dimensions, environmental, and acoustics specifications.

Table B–1: Processor Features

Feature	Specification
Processor type	DECchip 21164
Core logic	Pyxis chip
Bcache	Optional write-back, 2- and 4-MB

Table B–2: System Specifications

Attributes	Specification
PCI clock	Between 30 and 33.33-Mhz, depending on CPU frequency
Slots	Two PCI and three PCI/ISA combination
Memory	Up to 1.5 GB

Table B–3: System Dimensions

Dimension	Specification
Depth	44.8 cm (17.5 in.)
Width	22 cm (8.6 in.)
Height	41 cm (16 in.)
Weight	18.6 kg (41 lb.)

Technical Specifications

Table B-4: System Environmental Specifications

Attributes	Specification
Operating temperature	10°C to 40°C (50°F to 104°F)
Storage temperature	–40°C to 65°C (–4°F to 149°F)
Operating humidity (noncondensing)	10% to 90% relative humidity, maximum wet bulb 28°C (82°F)
Storage humidity (noncondensing)	10% to 90% relative humidity, maximum wet bulb 46°C (114°F)
Altitude Operating Nonoperating	3,048 m (10,000 ft) maximum 12,190 m (40,000 ft) maximum

Table B-5: Acoustics: Preliminary Declared Values per ISO 9296 and ISO 7779

Product	Sound Power Level $L_{WA,d}$, B		Sound Pressure Level $L_{pA,m}$, dBA (operator position)	
	Idle	Operate	Idle	Operate
Digital Personal Workstation 433a				
with 0 x disk	5.2	5.2	36	36
with 2 GB disk	5.3	5.5	37	39

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

Technical Specifications

External System Connectors

This section lists the pin assignments for your system's external connectors.

- Bidirectional enhanced parallel port connector, 25-pin D-submini female
- Two serial connectors, 9-pin D-submini male
- Keyboard and mouse connectors, 6-pin mini-DIN

Bidirectional Enhanced Parallel Port Connector

The bidirectional connector provides an interface to a printer or other parallel devices. Table B–6 lists pin assignments. An asterisk (*) after a signal name indicates an active low signal.

Table B–6: Bidirectional Parallel Port Pinouts

DB25 Pin	Signal	Function
1	STB-R*	Strobe
2	PRTD0	Printer data bit 0
3	PRTD1	Printer data bit 1
4	PRTD2	Printer data bit 2
5	PRTD3	Printer data bit 3
6	PRTD4	Printer data bit 4
7	PRTD5	Printer data bit 5
8	PRTD6	Printer data bit 6
9	PRTD7	Printer data bit 7
10	ACK*	Acknowledge
11	BUSY	Busy
12	PE	Paper end
13	SLCT	Select
14	AUTOFDXT*	Autofeed
15	ERR*	Error
16	INIT*	Initialize printer
17	SLCTIN*	Select input
18 to 25	GND	Ground

Serial Port Connectors

The serial port connectors consist of two 9-pin D-subminiature connectors. Table B–7 lists their pin assignments.

The baud rates supported by the system's serial ports are 50, 75, 110, 134.5, 150, 300, 600, 1200, 1800, 2000, 2400, 3600, 4800, 7200, 9600, 19200, 38400, 57600, and 115,200. The serial ports have signals for full MODEM control. Refer to your operating system information to confirm which of the baud rates from the preceding list your operating system supports.

Table B–7: 9-Pin Serial Port Pinouts

DB9 Pin	Signal	Function
1	DCD	Data carrier detect
2	RXD	Receive data
3	TXD	Transmit data
4	DTR	Data terminal ready
5	GND	Ground
6	DSR	Data set ready
7	RTS	Request to send
8	CTS	Clear to send
9	RI	Ring indicator

Technical Specifications

Keyboard and Mouse Connectors

The keyboard and mouse connectors consist of two 6-pin mini-DIN connectors. Table B–8 lists their pin assignments.

Table B–8: Keyboard and Mouse Connector Pinouts

Pin	Keyboard Signals	Mouse Signals
1	KB Data	MS Data
2	Reserved	Reserved
3	Ground	Ground
4	+5 Volts dc	+5 Volts dc
5	KB Clock	MS Clock
6	Reserved	Reserved

Power Supply and Input Power Requirements

The 300-watt voltage-selectable power supply is provided. Table B–9 lists the input power requirements. Table B–10 shows the output voltage specifications.

Table B–9: System Input Power Requirements

Rated Voltage Range	Rated Input Current	Operating Frequency Range
100 Volts AC – 120 Volts AC	5.5 A	47 Hz – 63 Hz
220 Volts AC – 240 Volts AC	3 A	47 Hz – 63 Hz

Table B–10: System Output Power Specifications

Voltage	Output Current (Amps)
+3.3	0.0 – 20
+5.0	1.5 – 20
+12.0	0.2 – 8.0
-5.0	0.0 – 0.3
-12.0	0.1 – 0.5

Motherboard Frequency Switches

Figure B–1 shows the switches used to set the CPU clock speed. The settings shown are for a 433-MHz system. If you perform a CPU upgrade, consult the documentation that comes with the upgrade for instructions on resetting the switches. Otherwise, do not change the switch settings.

CAUTION

Do not touch any electronic component unless you are safely grounded. Wear a grounded wrist strap or touch an exposed metal part of the system unit chassis. A static discharge from your fingers can permanently damage electronic components.

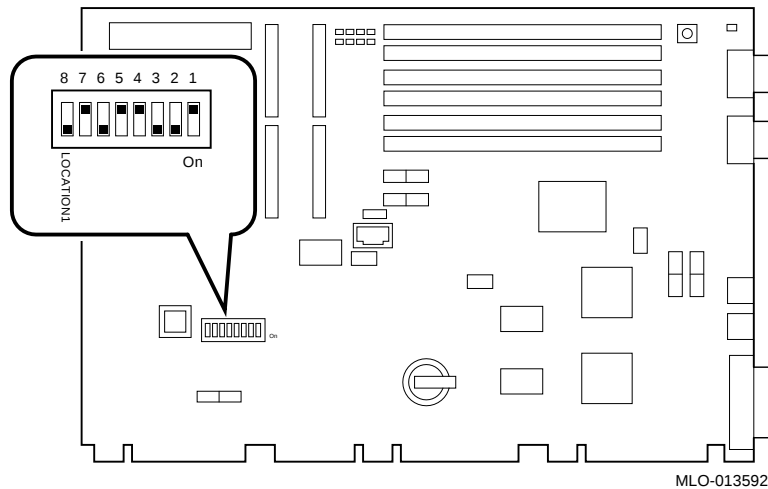


Figure B–1: CPU Frequency Switch Settings (433-MHz System)

C

Device Mapping

Introduction

This appendix lists system device mapping information, including:

- Interrupt map
- DMA (direct memory access) channel assignments

For information on the ISA I/O address map, refer to the *Digital Personal Workstation (Alpha) Technical Information* (EK-ALMIA-TI. A01).

Interrupt Map

The IRQ (interrupt request) assignments for the Digital Personal Workstation (Alpha) are shown in .This information is useful when adding or reconfiguring options on your system. Avoid conflicts when assigning IRQs by associating one IRQ to one source. PCI interrupt levels are set by the operating system.

Device Mapping

The Windows NT operating system preassigns the PCI devices specific IRQs, as Table C–1 shows. If a PCI device is not installed in a PCI slot, the IRQ associated with that slot remains unavailable for ISA devices. For example, if PCI slot 2 is empty, IRQ9 is not available for any other device.

Table C–1: Default System Interrupt Assignments

IRQ#	Source	Windows NT-Specific Preassignments
0	Timer/counter.	
1	Keyboard.	
2	Internal cascade of IRQ8-15.	
3	Serial port 2 or ISA slot.	
4	Serial port 1 or ISA slot.	
5	Parallel port or ISA slot or audio.	
6	Floppy controller or ISA slot.	
7	Parallel port or ISA slot or audio.	
8	Reserved.	
9	ISA slot or audio.	
10	ISA slot or audio.	
11	ISA slot or audio.	
12	Mouse or ISA slot.	
13	Reserved.	
14	ISA slot or IDE primary.	
15	ISA slot or IDE secondary.	

DMA Channel Assignments

The DMA channel assignments for ISA options are shown in Table C–2. This information is useful when adding ISA options to your system. Avoid DMA channel conflicts by not assigning multiple devices to the same channel.

Table C–2: DMA Channel Assignments

Channel	Device
0	Audio (or 87303 ECP parallel port).
1	Audio (or 87303 ECP parallel port).
2	Floppy disk controller (ISA option slot).
3	Audio (ISA option slot) or parallel port.
4	Unavailable. (Channels 0-3 are cascaded to this channel.)
5	Available to ISA slots (audio).
6	Available to ISA slots.
7	Available to ISA slots.

D

Updating System Firmware

Introduction

This appendix explains how to use the firmware update utility to install firmware upgrades.

NOTE

The user is responsible for performing system firmware upgrades. Consult your upgrade documentation for more information.

System Firmware

The Digital Personal Workstation (Alpha) contains 1 MB of flashROM for the console firmware. The flashROM contains the AlphaBIOS firmware.

Update Utility

Use the update utility to update your AlphaBIOS. The update utility contains two images: the update utility itself and the AlphaBIOS image.

Updating System Firmware

Using the Flash Update Utility from AlphaBIOS

You may update the firmware by either using the supplied CD *or* by copying the firmware from the Internet onto a floppy diskette.

Updating Firmware from AlphaBIOS

To update the firmware from AlphaBIOS using the firmware CD or floppy diskette, follow these steps:

1. Shut down the Windows NT operating system and restart the system.
2. Insert the Firmware Update CD-ROM or a floppy diskette (prepared as the next section describes) into the appropriate drive.
3. From the AlphaBIOS boot screen, press [F2] to enter AlphaBIOS setup.
4. From the AlphaBIOS setup screen, select **Upgrade AlphaBIOS**.

HINT

AlphaBIOS verifies the system image and displays the old and new firmware versions.

5. Follow the screen prompts to complete the update.

Preparing a Firmware Floppy Diskette

Copy the firmware over the Internet from the <ftp.digital.com/pub/Digital/Alpha/firmware> area and follow these steps:

1. Format a blank floppy diskette (FAT).
2. Copy the appropriate file to Drive a:.

E

Starting an Operating System Installation

Introduction

This information provides what you need to begin an operating system installation. Once you have started an installation, follow the on-screen instructions and refer to the appropriate operating system documentation.

Using the table below, first locate the operating system you want to install and refer to the appropriate table number:

If you want to:	Go to Table:
Install Windows NT Workstation on a properly partitioned and formatted disk	E-1
Set up partitions for a Windows NT Workstation installation	E-2

Starting an Operating System Installation

Starting a Windows NT Workstation Installation

Digital partitions and formats disk 0 on the first SCSI controller in non-RAID Windows NT Workstation systems. The partitions are set up as follows:

- Partition 1 (typically, the "C" drive) is the size of the disk less 6 MB and formatted FAT. Normally, you select "convert to NTFS" during the Windows NT installation.
- Partition 2 (typically, the "D" drive) is 6 MB, formatted FAT, and identified as the system partition.

Refer to Table E–1 for the steps to start installing Windows NT Workstation on a properly partitioned and formatted disk.

NOTE

The AlphaBIOS console must be installed and running in order to perform a Windows NT installation.

Starting an Operating System Installation

Table E–1: Starting a Windows NT Workstation Installation

Step	Action	Result or Displayed Text
1	Insert the Microsoft Windows NT Workstation CD-ROM into the CD drive.	CD-ROM drive is ready.
2	From the AlphaBIOS boot screen, press [F2].	AlphaBIOS setup screen displays.
3	Select Install windows NT.	Windows NT setup procedure starts. The following message is displayed: Setup could not determine the type of computer you have, or you have chosen to manually specify the computer type. Select the computer type from the following list, or select "Other" if you have a device support disk provided by your computer manufacturer. . . . => Other
4	Select Other . Press [Enter].	"Please insert the disk labeled Manufacturer-supplied hardware support disk into drive A:."
5	You have chosen to configure a computer for use with Windows NT using a device support disk provided by the computer's manufacturer. Select the computer type from the following list, or press [Esc] to return to the previous screen. =>Digital Personal Workstation Family	You have chosen to change your computer type to one supported by a disk provided by a hardware manufacturer. "Please insert manufacturer-supplied hardware support disk."
6	Select Digital Personal Workstation Family. Press [Enter].	Setup could not determine the type of one or more mass storage devices installed in your system, or you have chosen to manually specify an adapter. Currently, Setup will load support for the following storage devices: Qlogic PCI SCSI Host Adapter or Adaptec Ahxxxx

Starting an Operating System Installation

Table E–1: Starting a Windows NT Workstation Installation (*continued*)

Step	Action	Result or Displayed Text
7	Type "S" to select additional SCSI adapters (in this case, to select an IDE controller).	Select the SCSI Adapter you want from the following list, or select "Other" if you have a device support disk provided by an adapter manufacturer. . . . =>Other
8	Select Other. Press [Enter].	Please insert the disk labeled Manufacturer-supplied hardware support disk into Drive A:.
9	Insert the Adapter hardware support diskette (CMD CSA-64xxx IDE driver). Press [Enter].	You have chosen to configure a SCSI adapter for use with Windows NT, using a device support disk provided by an Adapter manufacturer. Select the SCSI Adapter you want from the following list, or press [Esc] to return to the previous screen. =>CMD CSA-64xx IDE Driver
10	Press [Enter] to continue.	Setup will load support for the following mass storage device(s) Qlogic PCI SCSI Host Adapter CMD CSA-64xx IDE Driver
11	Press [Enter] to continue.	Setup has determined that your computer contains the following hardware and software components: Computer: Digital... Display: VGA-Compatible Keyboard: XT, AT, or Enhanced (83-104 keys) Keyboard Layout: US Pointing Device: MousePort Mouse No Changes: The above list matches my computer.

Starting an Operating System Installation

Table E–1: Starting a Windows NT Workstation Installation (*continued*)

Step	Action	Result or Displayed Text
12	Select Display: (to load a video driver). Press [Enter].	You have asked to change the type of display to be installed.
13	Insert the provided display driver diskette. Press [Enter].	You have chosen to change your computer's display type to one supported by a hardware manufacturer-supplied disk.
14	Select the appropriate display driver. Press [Enter].	You can choose your graphics card type from the list displayed.
15	Select "The above list matches my computer." Press [Enter].	"The list below shows existing partitions and spaces available for creating new partitions."
16	Select the desired disk. Press [Enter].	Follow the on-screen instructions and continue the installation. For more information, refer to the <i>Microsoft Windows NT Workstation System Guide</i> .

Starting an Operating System Installation

If you are installing the operating system on a disk that has not been partitioned and formatted, refer to Table E–2.

Table E–2: Setting Up Partitions for a Windows NT Installation

Step	Action	Result
1	From the AlphaBIOS boot screen, press [F2].	AlphaBIOS setup screen displays.
2	Select Hard Disk Setup...	If disk 0 is not partitioned, a message asking if you would like to proceed with default disk partitioning displays.
3	Press [F10] to continue.	Express Setup Complete screen displays.
4	Press [Enter].	A list of disks, including partitions, displays.
5	Press [Escape].	AlphaBIOS setup screen displays. Refer to Table E–1 to re-attempt a Windows NT installation.

Equipment Log

Introduction

You can use the Equipment Log to gather information that you may need if problems occur with your system and you need to call your service representative or Digital Equipment Corporation for assistance.

Use the Equipment Log to record information about your system hardware and software components. Update the Equipment Log when you add options.

Equipment Log

The log consists of five tables, which you can use to record the following information:

- Your system's hardware components (Table F-1).
- Your system's ISA equipment configuration (Table F-2).
- Your system's hardware configuration (Table F-3).
- The operating system or application software installed on your Digital Personal Workstation (Alpha) (Table F-4).
- Additional components (Table F-5).

Equipment Log

Table F-1: Hardware Components

Component	Vendor/ Type/Size	Model Number/ Speed	Serial Number	Date Installed
System unit	Digital Personal Workstation (Alpha)			
System unit key number				
Monitor				
Keyboard				
Mouse				
Optional drive				
Additional storage device 1				
Additional storage device 2				
Additional storage device 3				
Additional storage device 4				

Use Table F-2 to keep track of your Digital Personal Workstation's (Alpha) expansion options. The upper portion of the table shows the standard devices. You can use the lower portion of the table to record the parameters of ISA or PCI devices you add to the riser card.

Table F–2: ISA Equipment Configuration

Device	Handle	Slot	IOBASE	Membase and Memlen	DMAmode and chan	IRQ 0-3
Keyboard	KBD	0	60			1
Mouse	MOUSE	0	60			12
Serial Line 1	COM1	0	3F8			4
Serial Line 2	COM2	0	2F8			3
Parallel Port	LPT1	0	3BC		3, if used	7
FDC	FLOPPY	0	3F2		2, if used	6
IDE						14, 15
Audio						
Riser Card ISA Expansion Slots						
Riser Card PCI Slots						

Table F–3: Hardware Configuration

Component	Digital Personal Workstation (Alpha) Specifics
CPU (central processing unit) speed and model	
Firmware version: AlphaBIOS	
Memory size: Bank 0 Bank 1 Bank 2	
Video module (in PCI slot)	
SCSI (in PCI slot)	

Equipment Log

Table F-4: Installed Software

Operating System or Application Software	Version Number	License Number	Date Installed	Which Disk?

Table F-5: Additional Component Information

Component	Vendor	Model Number	Serial Number	Date Installed

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