DIGITAL Personal Workstation

600a Upgrade Guide

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Preface

Welcome

This guide describes how to upgrade your DIGITAL Personal Workstation 266*i* or higher Series system to a DIGITAL Personal Workstation 600*a* system by replacing the Main Logic Board (MLB).

Audience

If you are converting your DIGITAL Personal Workstation 266*i* Series system to a DIGITAL Personal Workstation 600*a* system, the information included here is helpful to you.

Organization of the Information

This guide contains information on upgrading DIGITAL Personal Workstation 266*i* or higher Series systems to a DIGITAL Personal Workstation 600*a* system. The following topics (see the Table of Contents for a detailed listing) are covered:

- *Overview* lists the contents of the kit and provides and overview of the upgrade procedures.

- *Installation* provides step-by-step instructions for removing the current MLB and installing the new one.

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 *gigabytes* (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 *kilobits* (for example, 512 Kb). A kilobit equals 1024 bits.
KB	A KB suffix to a numerical value indicates size in *kilobytes* (for example, 640 KB). A kilobyte equals 1024 bytes.

LED	Light-emitting diode.
MAU	Media adapter unit.
Mb	An Mb suffix to a numerical value indicates size in *megabits* (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.
MLB	Main logic board.
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 which were included in your original your DIGITAL Personal Workstation documentation kit:

- *Quick Setup Guide* (order number ER-B30WW-IM. A01) presents a graphical overview of the DIGITAL Personal Workstation system installation. (Note that not all DIGITAL Personal Workstation systems will be shipping with USB.)

- *DIGITAL Personal Workstation User Information* (order number EK-ALMIA-UI. A01) provides detailed user information for the installation, operation, and maintenance of your DIGITAL Personal Workstation.

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-KU. C01 in your correspondence about this manual.

1

The 600*a* Upgrade

Overview

This manual describes the upgrade of your DIGITAL Personal Workstation Model 266*i* or higher to a DIGITAL Personal Workstation Model 600*a*.

Kit Components

The kit for conversion of a DIGITAL Personal Workstation Model 266*i* to a DIGITAL Personal Workstation Model 600*a* is shown in Table 1-1. For further information, see the DIGITAL Systems and Options Catalog (SOC).

Table 1-1 SN-PBXBA-FA Kit List

Part Number	Description
54-24767-03	Main Logic Board
74-51176-55	Speed button
54-25084-DA (1) 20-47405-D2 (1)	SDRAM DIMMs (2)
QB-5L5AA-SA	Software floppy diskettes
EK-ALMIA-KU	Documentation (this manual)
12-36175-01	Wrist grounding strap
AK-RISHE-CA	Alpha System H/W V4.0 Support Diskette (HAL code)
AK-QHCSL-CA	Windows NT Configuration Guide 3.51/4.0
AG-R0KNF-BE	The Graphics Support Services CD
74-52419-01	Fan pipe
74-51236-01	Fan mount, Universal

Upgrade Procedures

You will perform the following general steps to upgrade your system.

- Backup all applications and data

- Shut down the system

- Remove the present Main Logic Board (MLB)

- Remove the present fan mount and fan pipe

- Remove fan from old fan mount and install in new fan mount

- Attach new fan pipe and install new fan mount/fan pipe

- Install the new cache memory

- Install the new MLB

- Move the power connector on the riser card

- Replace the speed button

- Power on the system and reinstall Windows NT

- Install new drivers for systems with Accelpro 2000, 2500, or 2500TX graphics cards

Installation

_____ **CAUTION** _____

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

_____

To convert your DIGITAL Personal Workstation Model 266*i* to a DIGITAL Personal Workstation Model 600*a*, follow these procedures:

1. Backup all applications and data.

2. Shut down your system and all peripheral devices.

3. Unplug the power cord.

_____**WARNING** _____

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

_____

4. Remove the system lock, if necessary.

5. Locate and loosen the three thumb screws ❶ that fasten the system cover to the rear panel (see Figure 1-1). 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.
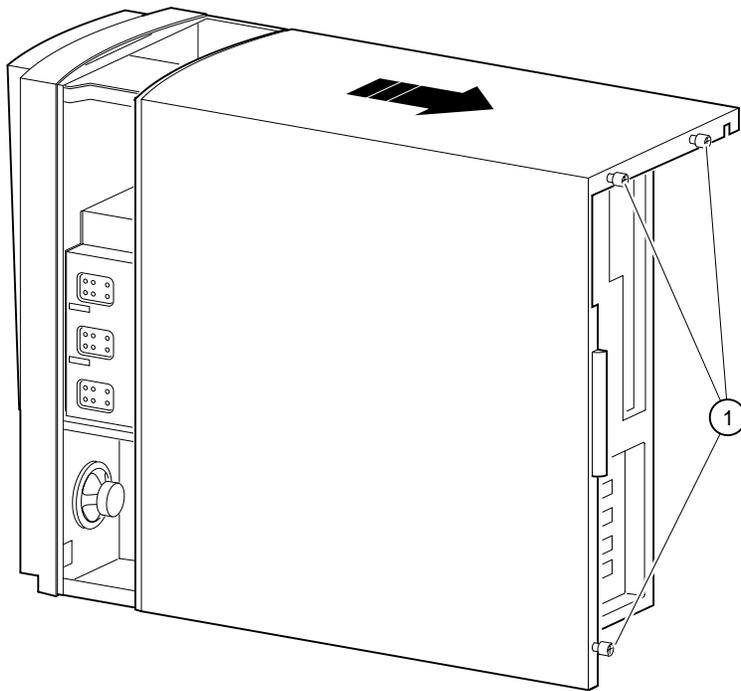
MLO-013575

Figure 1-1 Unlocking and Removing the System Cover

_____**CAUTION** _____

To avoid static discharge damage to sensitive components, wear the wrist grounding strap provided in your kit.

_____

6. Remove the keyboard, mouse, and any other external cables attached to the MLB, and release the two MLB-retaining clips on top of the MLB. (See Figure 1-2.)

7. Hold onto either end of the MLB as you slide it up and out of the system chassis.

8. Carefully place the MLB onto a static-free, flat surface.

DEC00949
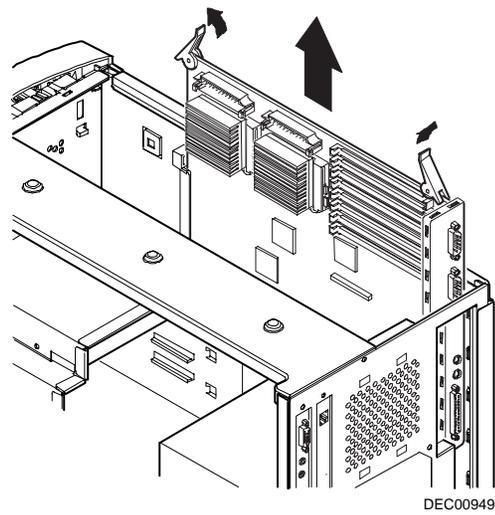
Figure 1-2 Removing the MLB

9. Disconnect the fan cable from its connector ❶ on the riser card. (See Figure 1-3.)
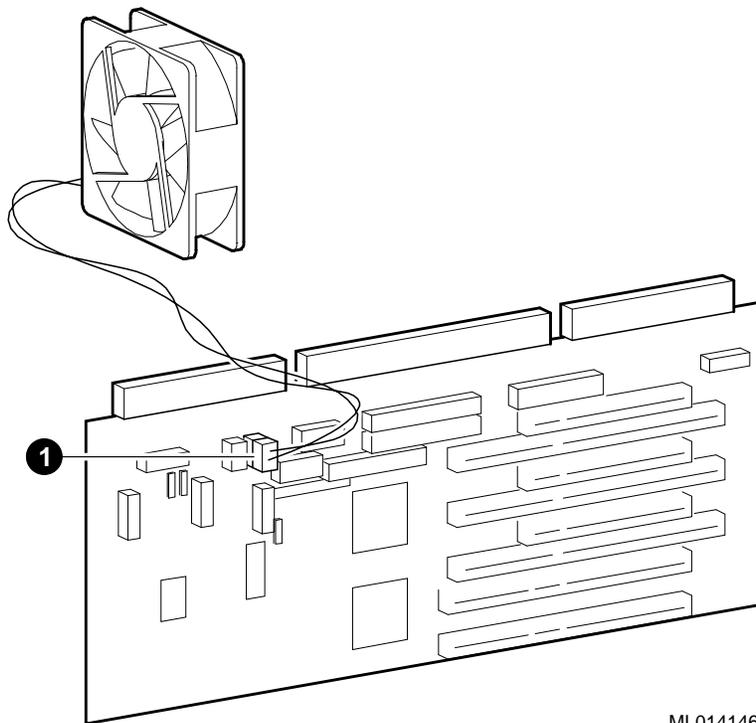
ML014146

Figure 1-3 Disconnecting Fan Cable

10. Remove the fan and fan pipe from the enclosure by releasing its four snap fits ❶.(See Figure 1-4.)
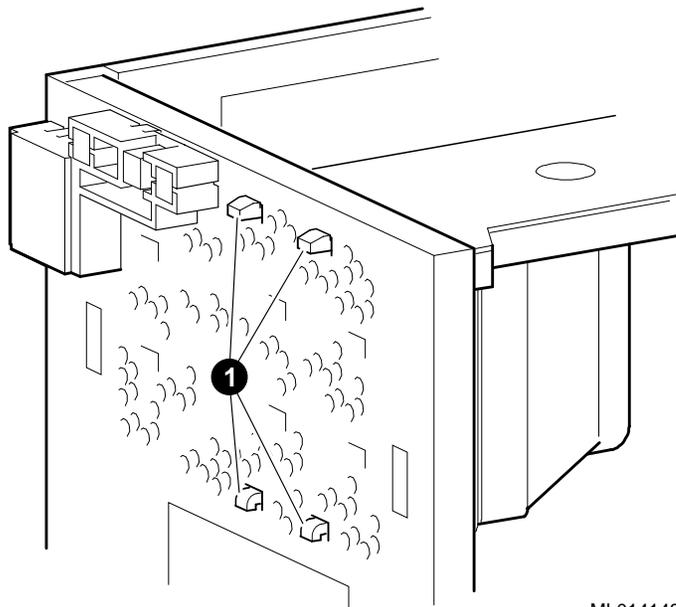
ML014148

Figure 1-4 Removing Fan and Fan Pipe

11. Remove fan from fan mount by releasing snap fits and install in new fan mount. Then connect the new fan pipe. (See Figure 1-5.)
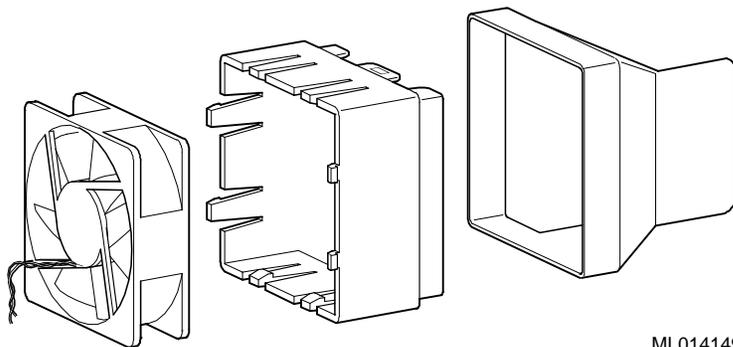
ML014149

Figure 1-5 Installing Fan in New Fan Mount and Fan Pipe

12. Install fan assembly into the enclosure using the snap fits in the orientation shown in Figure 1-6. Run the fan cable to the riser card and connect the cable to the fan connector.
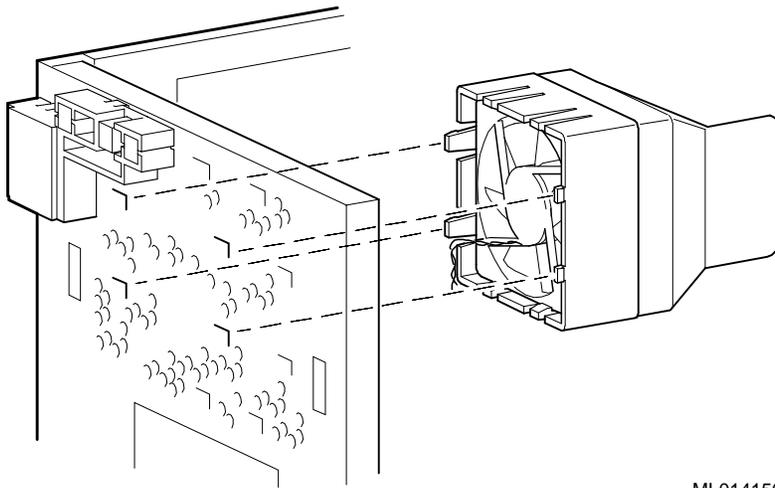
ML014150

Figure 1-6 Installing Fan Assembly

13. Carefully remove the new MLB from its ESD-protected bag and place it onto a static-free, flat surface.

14. Carefully remove the DIMM modules from their ESD-protected bag.

_____ **NOTE**_____

There are three memory banks (J1/J2, J3/J4, and J5/J6) in the system; each bank consists of two DIMMs; it is suggested that you use bank J5/J6 for this upgrade.
_____

15. To add memory modules (DIMMs), refer to Figure 1-7 as you perform the following steps:

   a) Install the DIMM ❷ straight into the socket. Position the DIMM so that both the retaining clips ❶ at the socket ends engage. Pay close attention to the keying on the DIMM and the socket.

   b) Repeat for the remaining module.

MLO-013643
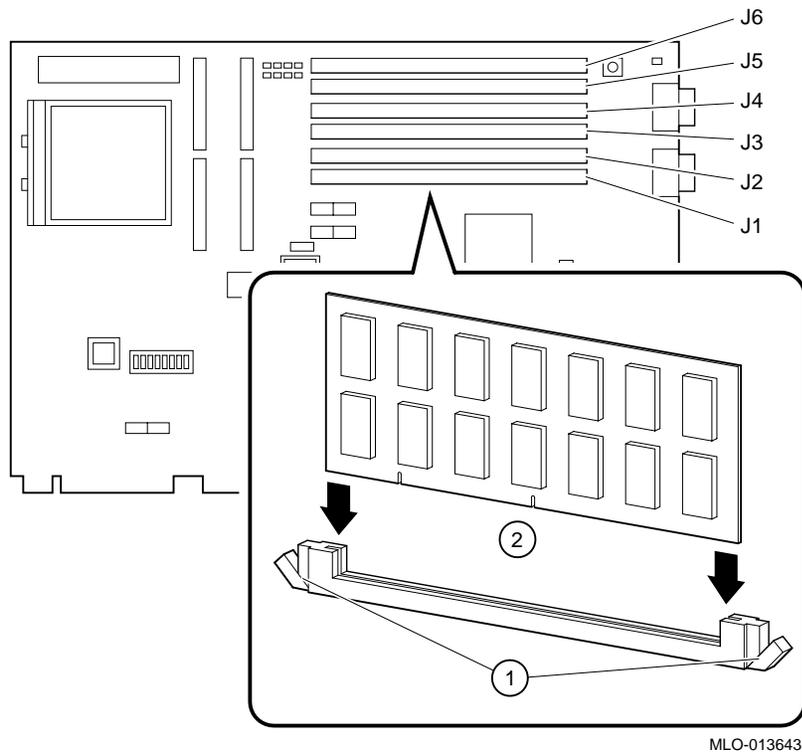
Figure 1-7 Installing the Memory

16. Hold onto either end of the new MLB as you slide it down into the system chassis. (See Figure 1-8.)

17. Carefully seat the new MLB onto the connectors inside the system chassis.

18. Lock the MLB-retaining clips over the MLB to secure it.

19. Reconnect the keyboard, mouse, and any other external cables you removed to the new MLB.
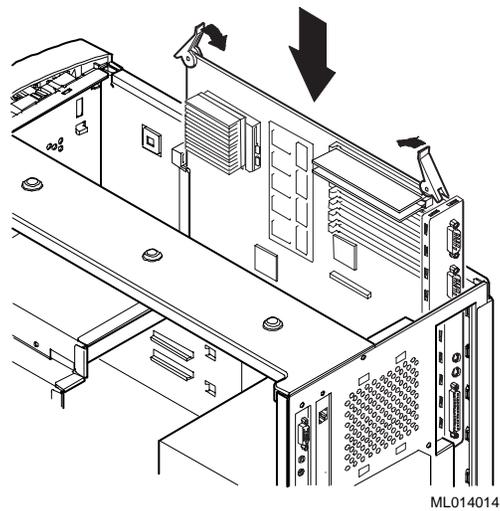
ML014014

Figure 1-8 Installing the New MLB

20. Move the power connector on the riser card from the Intel connector ❶ to the Alpha connector ❷. See Figure 1-9.
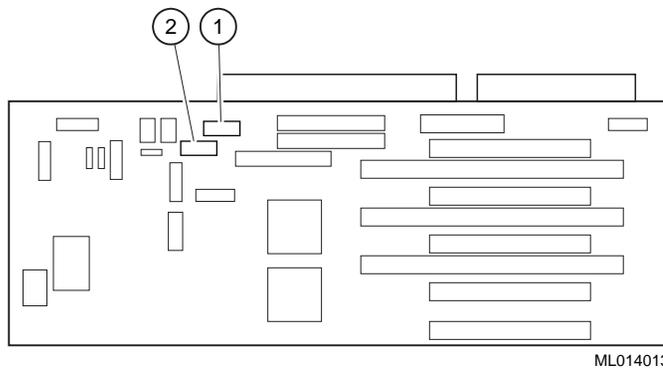
ML014013

Figure 1-9 Moving the Power Cable

21. To replace the speed button with the new 600*a* speed button, you must first remove the front bezel. Refer to Figure 1-10 and follow these steps:

   a) 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).

   b) Push both tabs toward the center of the workstation to release the top of the bezel.

   c) Gently pull the top of the bezel approximately 1 inch away from the top of the chassis.

   d) Gently, but firmly, pull up on the bezel to unhook the bottom bezel mounts.
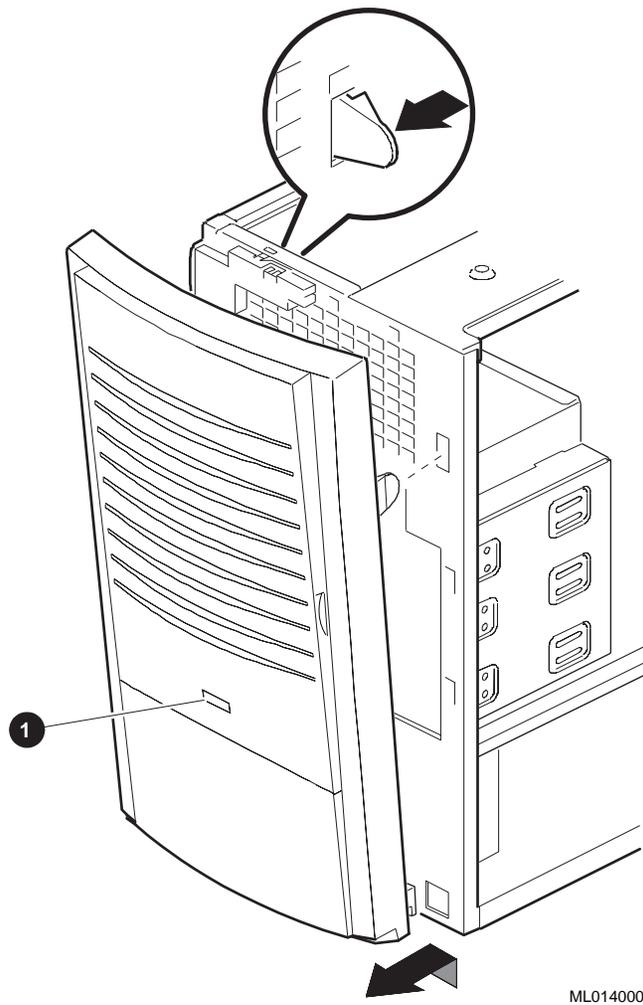
ML014000

Figure 1-10 Replacing the Speed Button

e) From the inside of the bezel, compress the tabs on the speed button ❶ and slide it
through the bezel to the front.

f) To install the new speed button, reverse the procedure above.

22. 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. (See Figure 1-11.)

23. Slide the cover forward to secure it into place. Fasten the system cover with the three thumbscrews ❶ provided.
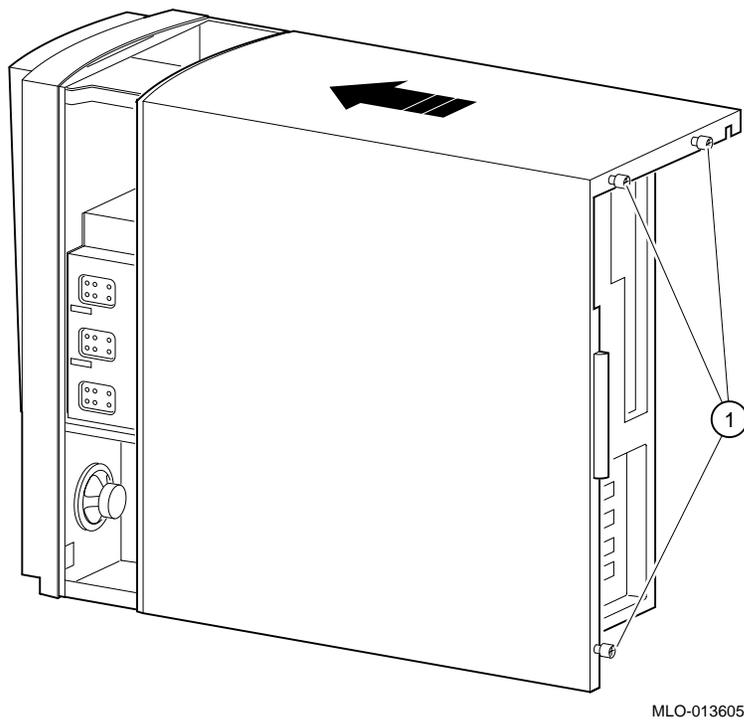
MLO-013605

Figure 1-11 Replacing the Cover

24. Plug in the power cord.

25. Power on the system.

26. Reinstall Windows NT. Refer to EK-ALMIA-UI, *Windows NT,* and Appendix A for details.

27. Place the old MLB in the ESD-protected bag which the new one came in and store it in case you wish to use it in the future.

A

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	A-1
Set up partitions for a Windows NT Workstation installation	A-2

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 A–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.

_____

Table A–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

Table A–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 stprage 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.

Table A–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 Graphics Support Services CD, AG-R0KNF-BE. Press [Enter].	You have chosen to change your computer's display type to one supported by a hardware manufacturer-supplied CD.
14	Select the appropriate display driver. Press [Enter].	You can choose your graphics card type from the list displayed. If you have an Accelpro 2000, 2500, or 2500TX card, you must download the driver from the Internet, as they are not included on the CD: http://www.digital.com/AccelPRO Drivers can be downloaded and installed after the system has been booted up. The system will boot up in VGA mode by default.
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 *Microsoft Windows NT Workstation System Guide.*

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

Table A–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 A–1 to re-attempt a Windows NT installation.

B

Loading ESS 1887 Audio Driver

Introduction

This information provides the procedure for loading and configuring the ESS 1887 audio driver. .

To load the ESS 1887 audio driver:

1. Select My Computer.

2. Select Control Panel.

3. Select Multimedia

    a) Select Devices.

    b) Select Audio Devices.

    c) Select Add.

    d) Choose Unlisted or Updated drivers and select OK.

4. When Install Driver box appears, install the ESS driver diskette in to the diskette drive and enter A:\ (This will select the diskette drive) and select OK.

    The add Unlisted or Updated Driver box will appear. Select ES1888/1887/1868/1878/1869 audiodrive, then select OK.

Loading ESS 1887 Audio Driver

5. From the Driver exists box, choose NEW, then choose the default values:

    I/O address   220

    Capture DMA   1

    Capture IRQ   5

    MPU401 I/O add   320

    Playback DMA   0

    Select OK.

6. Reboot the system.