Alpha PCI 64–275 Microsoft® Windows NT™

Installation Guide

Order Number: EK–AL275–IG. A01

This document describes how to install Microsoft Windows NT Workstation 3.51 or Windows NT Server 3.51 on an Alpha PCI 64–275 system.

Revision/Update Information:	This is a new manual.
Software Version	Microsoft Windows NT Workstation 3.51 or Windows NT Server 3.51

Digital Equipment Corporation
Maynard, Massachusetts

April 1996

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This document was prepared using VAX DOCUMENT Version 2.1.

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Preface

This document describes how to install the Microsoft Windows NT Workstation 3.51 or Microsoft Windows NT Server 3.51 operating system on the Alpha PCI 64–275.

This Alpha PCI 64–275 version...	Supports these operating systems
EBP30–NA	Windows NT Workstation Windows NT Server (board shipped with ARC firmware console)

This document supplements Microsoft's documentation and applies only to Microsoft Windows NT Workstation 3.51, or Windows NT Server 3.51 operating system. It may not be accurate for other versions of the Windows NT operating system. Digital recommends that you read this entire document before installing the Windows NT Workstation 3.51 or Windows NT Server 3.51 operating system.

Document Conventions and Terms

The following conventions are used in this document:

Convention	Description
`monospace type`	Monospace type in text indicates a command or menu selection.
Caution	Cautions contain information to prevent damage to software or hardware.
Italic type	Italic type emphasizes important information and indicates complete titles of manuals.
Note:	Notes provide additional information about a topic.

Related Documentation

Refer to the following documents:

- *Alpha PCI 64–275 Read Me First*
- *Alpha PCI 64–275 User's Manual*
- *Alpha PCI 64–275 Design Guide*
- *Alpha Microprocessors Motherboard Debug Monitor User's Guide*
- *Alpha Microprocessors SROM Mini-Debugger User's Guide*

1
Installing Windows NT

1.1 Requirements

This section describes the hardware, software, and firmware requirements to install and boot the Windows NT operating system on a Alpha PCI 64–275 system.

1.1.1 Hardware Requirements

You need the following hardware to run the Windows NT operating system on an Alpha PCI 64–275 system:

- A supported video adapter and monitor
- One or more IDE or SCSI hard disks with 94MB available on the partition that will contain the Windows NT operating system and an additional 5MB available on the system partition
- A SCSI or ATAPI CD–ROM drive
- A 3.5-in, 1.44MB diskette drive
- A PS/2 keyboard
- Memory:
  - The Windows NT Workstation operating system requires a minimum of 16MB of memory (RAM); 32MB is recommended.
  - The Windows NT Server 3.51 operating system requires a minimum of 32MB of memory (RAM).
- Optional components:
  - A PS/2 mouse or other supported pointing device
  - One or more supported network adapters if you want to use the Windows NT operating system on a network

See the Microsoft Windows NT Hardware Compatibility List for a list of supported devices. You can get a copy of the list from Microsoft's customer service representative at 1–800–426–9400, from CompuServe Information Systems in Library 1 of the WINNT forum (GO WINNT), or Library 17 of the MSWIN32 forum (GO MSWIN32).

1.1.2 Software Requirements

You need the following software to install the Windows NT operating system on a Alpha PCI 64–275 system:

This required software...	Is available from...
Microsoft Windows NT compact disc	Microsoft Corporation
Manufacturer-supplied hardware support files	Digital Equipment Corporation
Windows NT Firmware	Digital Equipment Corporation

1.1.3 Firmware Requirements

Updating to the newest firmware allows you to take advantage of bug fixes and new functionality. The following table lists the minimum firmware version required for running the Windows NT operating system. To determine if your firmware requires updating, compare the minimum firmware version for your system with the version displayed in the firmware menus.

System	Minimum Firmware Version
Alpha PCI 64–275	3.5-10

Note

Firmware that is below the minimum firmware version is not compatible with the supported version of the Windows NT operating system and must be updated before the installation. For information about how to update the firmware, see Chapter 2.

1.2 Windows NT Firmware

This section describes how to use and update the Windows NT Firmware. This firmware is provided on your Firmware Update diskette and is required to install and boot the Windows NT operating system. See Appendix A for a list of the firmware menus. See Appendix B for solutions to common problems.

1.2.1 What Is the Windows NT Firmware?

The Windows NT Firmware initializes the system and enables you to install and boot the Windows NT 3.51 operating system. The firmware resides in a flash ROM.

1.2.2 Firmware Conventions and Controls

The currently selected option in a menu is highlighted. To select and choose different options in the Windows NT Firmware menus, use the following keys:

Key	Description
Arrow	The arrow keys are used to select different options.
Enter	The Enter key is used to choose the highlighted option.
Escape	The escape key is used to close a menu or cancel an operation.

When you power on your system, the firmware displays a blue screen on the monitor and initializes the firmware drivers. To interact with the firmware, autoboot must be canceled. If autoboot is enabled, cancel it by pressing the escape key before the time-out period expires.

1.2.3 Updating Firmware on a Flash ROM

Your system was shipped with firmware diskettes that contain the debug console and, depending on the model number purchased, firmware which supports either Windows NT or Digital UNIX.

The firmware utility found on the diskettes will update the firmware in the flash ROMs if needed.

1.2.4 Running the Firmware Update Utility

Before you start, check to see if the CDROM drive contains a CD. If it does, remove it.

1. Turn on system power. After initialization, the Boot menu will appear.
2. Insert the Firmware Update diskette into the floppy drive.
3. From the Supplementary menu, select "Install New Firmware"

4. From the Firmware Update menu, select "Update Windows NT Firmware"

The system will begin checking drivers and then ask:

```
Update flash with mult()disk()fdisk()\pc64nt.rom
```

(For Windows NT, `pc64nt.rom` is the firmware to be updated.)

Use the arrow keys to highlight "Yes" to update (the default is "No"), then press Return to invoke your selection.

The Firmware Update Utility will update the Flash ROM contents for the selected operating support firmware.

If the installed console firmware does not match the revision code of the operating system support firmware, the program will ask if you want to update the console. Digital recommendeds that you do so for normal firmware updates or re-installs.

When complete, the system will ask you to power cycle the system to bring up new firmware. Depending on the firmware you flashed, you may need to reset Bootopt to the intended operating system. Refer to the AlphaPCI 64-275 or AlphaPCI 164-266/300 User's Manual for information about the `bootopt` command.

1.3 Preparing the System

This section describes how to configure the system and prepare the hard disk for installing the Windows NT operating system on an Alpha PCI 64–275.

The firmware automatically sets the system parameters to the configuration encountered on power up. If an error occurs because, for example, you install an option which is not recognized, or because you want to change the graphics monitor's resolution, you will need to follow the steps outlined Section 1.3.1.

1.3.1 Configuring the System

The system must be configured before you can install the Windows NT operating system. Configuring the system defines the default system partition and describes the hardware. If your system has not been configured, follow this procedure:

1. From the Boot menu that appears when you turn on power to your system, choose `Supplementary menu...`.
2. From the Supplementary menu, choose `Set up the system...`.

3. Enter the appropriate values for your system. If you are unsure of the values for your system, use the following typical values:

Step		From the Setup menu, choose...	Typical values to use...
1.	Define the default system partition	Set default environment variables	Media: SCSI Hard Disk SCSI bus number: 0 SCSI ID: 0 Partition: 1 **Note:** Defining the default system partition may remove any existing boot selections.
2.	Describe your hardware	Set default configuration	Monitor resolution: 1024x768 First floppy drive capacity: 3.5˜ 1.44MB Second floppy drive capacity: None Keyboard: U.S. 101-key keyboard SCSI host ID: 7 **Note:** SCSI host ID refers to the SCSI ID of the SCSI host adapter on a given SCSI bus.
3.	Save the changes	Supplementary menu, and save changes...	—

1.3.2 Preparing the Hard Disk

The system partition is the disk partition that contains the hidden files OSLOADER.EXE and HAL.DLL in the subdirectory \OS\WINNT351. If the system partition is large enough, it can also contain the Windows NT operating system, or you may choose to use a separate partition. The system partition and the Windows NT operating system can also be on different hard disks.

If you have a new hard disk or if you do not have the required system partition on your hard disk, you must create the system partition on the hard disk using ARCinst before you install the Windows NT operating system.

1.3.2.1 Creating the System Partition with ARCinst

ARCinst is used to create the system partition on a hard disk; it is located on the Windows NT 3.51 compact disc.

CAUTION

Do not use ARCinst to create partitions other than the system partition. Doing so will prevent your system from booting successfully.

The following procedures describe how to use ARCinst.

Starting ARCinst

To start ARCinst, follow this procedure:

1. Insert the Windows NT compact disc in the CD–ROM drive.
2. Restart your computer.
3. From the Boot menu, choose `Run a Program`.
4. Type `cd:\alpha\arcinst` and press the Enter key.

Deleting a Partition

If you do not have the required free space to create a partition, you may need to delete other partitions on your hard disk. To delete a partition using ARCinst, follow this procedure:

1. From the ARCinst main menu, choose `Configure Partitions`.
2. From the Configure Partitions menu, choose `Delete a Partition`.
3. If you have multiple hard disks, choose the disk from which to delete a partition.
4. From the list of existing partitions, choose the partition you want to delete.

Creating the System Partition

To create the system partition on a hard disk using ARCinst, follow this procedure:

1. From the ARCinst main menu, choose `Configure Partitions`.
2. From the Configure Partitions menu, choose `Create System Partition`.
3. If you have multiple hard disks, choose the disk on which to create the partition.

4. Set the system partition to 100 megabytes. ARCinst will then create the system partition and format it using the FAT file system.
5. The following message will appear on your screen: `Do you want to make this the system partition (y/n)?`

   Press the N key.

CAUTION

The system partition will be set incorrectly if the Y key is pressed in response to this message. Press the N key. The ARCinst program will create the system partition.

Exiting from ARCinst

To leave ARCinst and to return to the firmware menus, choose `Exit` from the ARCinst main menu.

1.4 Installing the Windows NT Operating System

This chapter supplements the Microsoft Windows NT installation guide for installing the Windows NT operating system on an Alpha PCI 64–275 system that has been prepared as described in the preceding chapters. If you encounter any problems while installing the Windows NT operating system, see Appendix B for solutions to some common problems.

If you already have a previous version of Windows NT installed, see the Microsoft Windows NT installation guide for information about how to upgrade to a new version of the operating system.

1.4.1 Determining the Computer Type

During the Windows NT installation procedure, you will be asked for the type of computer that you have. Select `Digital AlphaPC64`.

1.4.2 Starting Windows NT Setup

Windows NT Setup installs the Windows NT operating system; it is located on the Microsoft Windows NT compact disc. Windows NT Setup provides a brief description of available key functions at the bottom of the screen.

The following procedure supersedes the Starting Setup on a RISC-Based Computer section of the Microsoft Windows NT installation guide.

To start the Windows NT Setup program, follow this procedure:

1. Insert the Windows NT compact disc in the CD–ROM drive.

2. Restart your computer.
3. From the Boot menu, choose Supplementary menu....
4. From the Supplementary menu, choose Install Windows NT from CD--ROM.
5. Follow the instructions on the screen.

Note

If you have an Alpha Windows NT driver diskette for your video card, you can use the driver to install the Windows NT operating system. Follow this procedure:

1. Choose Custom Setup.
2. Choose display type Other, and insert the graphics disk driver when asked for the manufacturer-supplied hardware support disk.

A

Firmware Menus

This appendix lists the main Windows NT Firmware menus. These examples are similar to the menus you will see when you use the Windows NT Firmware. The text of some of the options may differ, and some options may not always be available.

Boot menu:

Boot the default operating system
Boot an alternate operating system
Run a program
Supplementary menu...

Supplementary menu:

Install new firmware
Install Windows NT from CD˜ROM
Set up the system... (Displays the Setup menu.)
Display hardware configuration
Boot menu...

Setup menu:

Set system time
Set default environment variables
Set default configuration
Manage boot selections menu... (Displays boot selections menu.)
Setup autoboot
Machine specific setup... (Choose this option to change the operating system for which the firmware should be loaded from the firmware ROM on power-up.)
Edit environment variables
Reset system to factory defaults
Help
Supplementary menu, and do not save changes...

Supplementary menu, and save changes. (If the configuration was changed, the `Supplementary Menu, and save changes...` option restarts the firmware instead of returning you to the Supplementary menu.)
Boot selections menu:

Add a boot selection
Change a boot selection
Check boot selections
Delete a boot selection
Dump boot selections
Rearrange boot selections
Setup menu...

B
Troubleshooting

This appendix provides solutions to some of the common problems you may encounter while you use the Windows NT Firmware and install the Windows NT operating system.

Problem

When you turn on your computer, no blue screen is displayed.

Possible Solutions

Make sure that:

- The computer is properly plugged into an ac outlet and is turned on.
- The monitor is turned on and is plugged into an ac outlet or into the back of your computer, as appropriate for your monitor's power cable.
- The video card is correctly connected to the monitor.
- The flash ROM update procedure was performed correctly. After verifying that the flash ROM update procedure was performed correctly, check the output of COM1 for error messages. COM1 should be set to 9600 baud, 8 data bits, 1 stop bit, no parity.
- The console selection stored in non-volatile RAM and the Boot Option jumper are set properly, and check the output of COM1 for debug monitor messages. See the Alpha PCI 64–275 user's guide for information on the Boot Option jumper and see the *Alpha Microprocessors Motherboard Debug Monitor User's Guide*, EK–AMEBD–UG, for information on the `boot opt` command.

Problem

While booting the Windows NT operating system, you receive one of the following error messages:

- The required system file DISPLAY_DRIVER.DLL is bad or missing.
- The required system file DISPLAY_DRIVER.SYS is bad or missing.

Possible Solutions

These error messages indicate video driver problems. Use the following table to solve common video driver problems:

If the...	Then...
Driver becomes disabled	Boot the Windows NT operating system with the last known good configuration.
Wrong video driver is chosen while installing the Windows NT operating system	Reinstall the Windows NT operating system with the correct driver.
New video card was installed before the driver was installed	Reinstall the old video card, boot the Windows NT operating system, and install the driver for the new video card. Then install the new video card and reboot the Windows NT operating system.