

DIGITAL Alpha PCI 64-275 RIP Kernel

Hardware and Software Information

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Alpha PCI 64-275 RIP Kernel Hardware and Software Information

Introduction

The Alpha PCI 64-275 RIP Kernel is a PC enclosure containing an Alpha PCI 64-275 motherboard. Exceptionally fast processor speed makes it ideally suited for raster image processing.

This manual tells you what you need to do before turning on the power for the first time. It also describes the software and components supplied in the package and provides a troubleshooting checklist.

Turning on the Power

WARNING

Before connecting to an AC power source, check that the setting of the voltage selector switch is correct for your supply voltage. Failure to do so will result in damage to the unit and may result in injury.

WARNING

Vor Anschluß an eine Stromquelle für Wechselstrom muß sichergestellt werden, daß der Spannungswahlschalter entsprechend Ihrer Versorgungsspannung eingestellt ist. Nichtbeachtung führt zu Beschädigung der Einheit und kann Verletzungen verursachen.

Before you turn on the power, you must connect the following components:

- A keyboard, such as a DIGITAL PCXAL-AN or equivalent
- A shielded mouse, such as a DIGITAL PC7XS-EB or equivalent
- A graphics monitor, such as a DIGITAL PCXBV-KA or equivalent.

Refer to the figure showing the rear panel of the enclosure for connector identification on page 35.

Initial Software Setup

You can order the Alpha PCI 64-275 RIP Kernel with a pre-installed copy of either Version 3.51 or Version 4.0 of the Microsoft® Windows NT™ operating system. You initialize the operating system differently depending on the version you have.

In either case, you do not need your Windows NT installation CD-ROM disk to complete the installation unless you need to make additions to the hardware options, need more than the two predefined partitions on the system disk drive, or you abort the installation process, power down, or reset the system before completion.

The internal system hard disk of the RIP Kernel contains two partitions. Partition 2 is a 5MB FAT partition containing the system load files. This must not change. Partition 1 contains the application system files. Partition 1 is shipped as a FAT-formatted partition. After you finish the operating system installation, you can, if you wish, convert the partition 1 to NTFS format by running the CONVERT.EXE program from the MS-DOS prompt under Windows NT.

Before you do such a conversion, however, be sure you want to do so: the procedure is not reversible. RIP applications can fragment¹ a disk because of the large number of disk writes and deletes that occur during image processing. Defragmenting an NTFS partition can be a lengthy process. You should consider using NTFS format on partition 1, or any other partition you may create, only if you believe you have a security problem due to other users or you need to support file names longer than the Windows 8+3 convention. Do not convert the partition if you will be installing an operating system other than Windows NT on the RIP Kernel that will need to access files created by a Windows NT application.

Do **not** convert Partition 2. The system load files must be reside in a FAT-formatted partition.

1. A disk is said to be fragmented when there are not enough consecutive free sectors on the disk to hold a particular file. When this occurs, the file is written in sections to two or more non-contiguous locations on the disk. The disk read/write heads must move to access the complete file, which takes time. Because image processing frequently involves very large file, fragmentation is common. When fragmentation becomes excessive, performance can suffer.

Windows NT V3.51 Setup

RIP Kernels ordered with Windows NT V3.51 have a 5.0MB FAT file structure partition for the system load files and another FAT partition on the remainder of the disk. The installation is in a suspended state. You must finish the installation by entering personalization and site-specific information.

You may choose to add optional¹ hardware, such as a network card or an application-specific card, before performing the initial setup, or if you prefer, you can add options at any time after completing the operating system installation. Refer to the section “Disassembly and Reassembly of the Alpha PCI 64-275 RIP Kernel” on page 31 for procedures.

Windows NT V4.0 Setup

RIP Kernels ordered with Windows NT V4.0 have a 5.0MB FAT file structure partition for the system load files and another FAT partition on the remainder of the disk. The Windows NT Version 4.0 installation is a full installation requiring only your personalization information such as company name, computer name, and so forth, to complete the installation.

Windows NT V4.0 is fully installed at the factory with the latest service packs. All software drivers required for any options that DIGITAL offers with the RIP Kernel are installed. If you want to add or change any options¹, first complete the operating system installation. Then, following the Windows NT installation manual and documentation from the option’s manufacturer, add the additional hardware and, if needed, the appropriate drivers.

Windows NT V3.51 and V4.0 Setup (All Kernel Variants)

Be sure you have all information necessary to complete the installation before you boot the operating system for the first time. If you add optional hardware, you must have the manufacturer’s driver diskettes to properly install the new hardware’s software drivers, where applicable.

When you turn on the power, a black screen will appear on the monitor. The screen will display the BIOS system information. A blue screen will then appear, as the Microsoft Windows NT firmware fully initializes the system. After a few seconds, a Boot Selection menu will appear. Although you can configure the firmware to autoboot from the menu to the Windows NT operating system, the firmware is shipped with this feature disabled. Select:

1. Any options you add to the Kernel must be listed in the Microsoft Hardware Compatibility List (HCL). You can review or copy the latest version of the HCL from the Microsoft Internet web pages. This list is updated regularly as NT service packs are issued by Microsoft.

Boot Windows NT Workstation Version *n.nn* Installation...

from the Boot menu. **Once you boot the operating system, you must complete the installation. If you abort the process, you may need to re-install the operating system from the beginning using your Microsoft Windows NT installation CD.**

Complete installation instructions are in your Microsoft Windows NT for Workstations X86 installation kit. The section "Install/Reinstall from the Microsoft Windows NT for Workstations CD" gives supplemental information. Before starting you should to acquaint yourself with the overall installation procedure found in the Microsoft Windows NT for Workstations Installation Guide.

Install/Reinstall from the Microsoft Windows NT for Workstations CD

Partitioning the System's Hard Disk

The system disk must be partitioned properly before installing Microsoft Windows NT. You must take two factors into account when partitioning the system disk.

- To boot the Microsoft Windows NT Operating System on a DIGITAL Alpha (RISC) system, the BIOS files, the operating system loader (OSLOADER.EXE), and all hardware PAL and HAL files must reside in a FAT-formatted partition. This partition must be marked as a System Partition. Even if you intend to format the user and application areas in NTFS, the BIOS and other system files must reside in a separate FAT-formatted partition at least 5MB in size.
- Some applications are hard coded to operate from partition 'C' of the system disk. They may not run properly if they are loaded to another partition.

To accommodate these two conditions and eliminate potential problems, the system disk should be partitioned with a large (300MB or greater) partition as partition 1 and a smaller (5.0MB) partition as partition 2.

In general, no more than two partitions should reside on the system disk. If you want, however, to have more than two (but no more than four) partitions on the system disk, partition 2 should still be a 5MB FAT-formatted partition to hold the BIOS and system files.

Use the following procedure to partition or repartition your system's hard disk.

When the system is powered on, verify that the ARC revision is 4.49-4 or greater. If it is not, you should upgrade it as explained in the section "RIP Kernel Firmware" on page 9. Then, beginning at the ARC menu, choose the following sequence:

```
Boot menu...
  Supplementary menu...
    Setup the system...
      Machine specific setup...
        Partition hard drives...
```

Disk 0 should be used for the operating system and should be highlighted. If partitions exist, you can delete them by selecting each partition in turn and entering a "D".

To create a partition, enter a “C” and define the partition size. The first partition you create should be the maximum size of the disk capacity displayed at the bottom of the frame, minus 5MB. For example, if the disk capacity is 2.02GB, partition 1 should not exceed 1.997GB. Partition 1 must be 300MB or larger to enable building of the operating system.

DO NOT format this partition. You will format it later as part of the Windows NT software installation process.

After creating the first partition, enter a “C” to create partition 2.

Set partition 2 to 5MB and format the partition in FAT format. When formatting is complete, mark the partition as a system partition.¹

Return to the setup menu and select:

Supplementary menu, and save changes...

Installing Windows NT from the Microsoft Windows CD

Be sure to have all site-specific information, including personalization information, network and connection information, etc. available before you start the installation procedure.

With the system disk partitioned as you need it, insert the Microsoft Windows NT CD-ROM into the CD-ROM drive. Reset the system and note which mass storage devices are recognized by the ARC console as it initializes device drivers.

If the ARC console finds an ATAPI controller, an IDE CD-ROM drive is present. You will need to have the appropriate firmware diskette on hand during the installation so you can load the proper IDE driver.

From the ARC console’s boot menu, choose Supplementary menu... and select:

Install Windows NT from a CD ROM...

As the setup program initializes, it will recognize the mass storage devices on the system. If the ARC console previously identified an ATAPI device, enter an “S” to add a driver for the ATAPI device.

-
1. This will delete previous values of the boot selection parameters. If you want to install multiple operating systems on your hard disk, be sure you record the boot selection parameters for each variant. You should record the boot selection parameters even if you install only one operating system. You will need to reset the values if you replace the motherboard or change the non-volatile RAM. Refer to the section “Boot Selection Parameters” on page 19 for more detail.

The next window lists optional drivers. Select "Other." You will be asked to insert the manufacturer's diskette into drive A.

If you are installing Windows NT V3.51, insert the diskette with part number AK-QXG3A-CA.

If you are installing Windows NT V4.0, insert the diskette with part number AK-QXG3C-CA. Both diskettes are shipped with your system.

Setup will list the driver(s) found on the inserted diskette. Be sure ATAPI is highlighted and press Enter.

If you have installed any other mass storage devices (controllers), repeat the procedure using the diskettes provided with the additional devices.

During the latter part of the text segment of the installation, you will be asked to insert the EB64 firmware diskette. Use the same diskette that you used before, either AK-QXG3A-CA or AK-QXG3C-CA.

Continue to follow the directions as they appear on the screen.

When you are asked where to install Windows NT, select the unformatted partition you created in the section "Partitioning the System's Hard Disk" on page 5. (Partition 1 will be shown as C:). Respond to the next window with a "C" to continue the installation to the selected partition.

The next window asks you to select format type. Depending on your application, select FAT or NTFS.

Continue with the application as directed by the questions and appropriate input information.

Custom Installation or Express Installation

Express installations install all application and driver software. Using custom installation, you can choose to not install several applications, including games, media drivers, etc. Depending on your available disk space and use of the system, the custom installation procedure can save over 5MB of space on the "C" partition.

Troubleshooting the Windows NT Installation

This section 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.

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.

RIP Kernel Firmware

Introduction

The Rip Kernel uses a Windows NT Boot Console (the ARC Console) to initialize the system and to boot the operating system. This console is stored in an electrically erasable read-only memory called a flash ROM. When the system is turned on, the ARC Console automatically starts running. The Windows NT operating system uses a second nonvolatile memory, which both the ARC Console and the Windows NT operating system can read and write, to pass information to one another.

The information includes exact paths to the Windows Boot files on the hard disk(s), date and time for the system clock, the definition of all options such as the diskette drive, CD-ROM drive, and so forth. You can examine and selectively modify some of the parameters, as described in “Altering Initial Parameters and Viewing Configuration Information” on page 19.

There is also an update function so you can update the ARC Console to the latest versions as they become available.

In addition to the ARC Console, the flash ROM contains a firmware image for a Debug Monitor. This tool suite is intended for use by qualified service personnel only. The primary function of the Debug Monitor is to act as a failsafe loader if the ARC Console image becomes corrupt. If the ARC Console image becomes corrupt, the Debug Monitor loads automatically in place of the ARC Console. Using the Debug Monitor, the ARC Console image can be reloaded (updated) into the flash ROM from the diskette of firmware images shipped with the system. The Debug Monitor also has a command set that permits examination of the hardware. **The Debug Monitor is intended for use by trained service personnel only.**

The Debug Monitor image shipped in the system may not be the latest version. **If you want to boot the Debug Monitor Console, you may need to update the flash ROM segment containing the Debug Monitor Console before continuing.** If necessary, use the diskette provided (AK-QXG2A-CA) and the procedure described in the section “Updating the Debug Monitor Flash Image” on page 15. DIGITAL suggests that you obtain from DIGITAL a copy of the *Alpha Microprocessors Motherboard Debug Monitor User's Guide* (order number EK-AMEBD-UG) before using any other commands than those described below.

If there is a low-level problem with the graphics adapter or attached graphics monitor, the Debug Monitor I/O will go to the COM1 port. There **must** be a text terminal (character-cell terminal) or a PC emulating a terminal connected to the COM1 port to communicate with the Debug Monitor. In this situation you will need this equipment to return to the ARC Console.

Determining if the Flash Images Need to be Updated

Use the following procedure to see if you need to update the Debug Monitor or the ARC Console.

1. Insert either the ARC Console (AK-QXG3C-CA) or Debug Monitor (AK-QXG2A-CA) firmware diskette into the diskette drive. Be sure the CD-ROM drive does not contain a CD-ROM.

2. Beginning at the ARC Console's Boot menu, select:

```
Supplementary menu...
Install new firmware...
```

The system will appear to be rebooting.

3. When the blue screen reappears and displays `Initializing Firmware update`, hold down the "a" key on the keyboard to select a version of the Firmware Update menu with extra options. There will be some delay as the firmware initializes device drivers and the flash update driver. Keep the key depressed until the extended menu appears.

4. From this extended menu, select `Advanced...`

The Advanced Firmware Update menu will appear.

5. Select the first menu item, `List images in flash`. **Do not** select any other menu items from the Advanced Firmware Update menu! If you accidentally enter any other menu item, use the escape (Esc) key to return to the Advanced Firmware Update menu.

The following table shows the typical values displayed by the `List images` in flash selection:

Image Number	Offset	Image Type	Image Size	Load Address	Other Information
1	0	DBM	191304	300000	2.0 960118.1619
2	3000	NT	304400	300000	4.49-4 960806.1349

Image 1, at Offset 0, is the Debug Monitor. The version of the Debug Monitor is the first number in the Other Information column. If this shows 2.0, or greater, you do not need to update the Debug Monitor.

Image 2, at Offset 3000, is the Windows NT (ARC) Console. The version of the ARC Console is the first number in the Other Information column. If this shows 4.49-4, or greater, you do not need to update the ARC Console.

To return to the Firmware Update menu, press any key to continue, then select `Main menu...` or press the escape (Esc) key. Then select `Restart the system`.

Updating the ARC Console Flash Image

You can upgrade the Windows NT Console (ARC Console) using either the ARC Console itself or by using the Debug Monitor. Updating a corrupt ARC Console can be done only from the Debug Monitor, as the Debug Monitor loads automatically when a corrupt ARC Console image is detected.

Updating the ARC Console Flash Image from the ARC Console

Use the following procedure if you need to update the ARC Console image and the current version of the ARC Console is functional.

1. Insert the ARC Console firmware update diskette (AK-QXG3C-CA) into the diskette drive. Be sure the CD-ROM drive does not contain a CD-ROM.
2. Beginning at the ARC Console's Boot menu, select:

```
Supplementary menu...
  Install new firmware...
```

The system will appear to be rebooting, then will display the Firmware Update menu.

3. Select Update Windows NT Firmware

The screen will display:

```
Really update flash with '...\eb64pnt.rom'?
Yes
No
```

4. Select Yes to begin the flash update. The flash update takes about 30 seconds. The program will display which flash block is being erased, written and verified. Once you have committed to update the flash with the selected ROM image, **do not turn off power or reset the system until the update is complete!**
5. When the flash update is complete, press any key to continue. The Firmware Update menu will reappear. Remove the firmware diskette and select Restart the System.

Updating the ARC Console Flash Image from the Debug Monitor

The Debug Monitor contains commands that interact directly with the hardware and all of the system's memory locations. Be sure to carefully follow the instructions given below.

If the ARC Console image is corrupted, the Debug Monitor will load and run automatically when the system is turned on. This action occurs as a failsafe operation so the ARC Console image can be reloaded (updated).

Alternately, the Debug Monitor Console can be run by selecting it for operation at the next reset or power cycle of the system. If the Debug Monitor has not automatically loaded, you can select it using the following commands:

Beginning at the ARC Console's Boot Menu, select:

```
Supplementary menu...
  Setup the system...
    Machine specific setup...
      Switch operating systems...
        Switch to Debug Monitor
```

Boot the Debug Monitor Console by pressing reset or turning the power off and on. DIGITAL highly recommends that you obtain a copy of the *Alpha Microprocessors Motherboard Debug Monitor User's Guide* (order number EK-AMEBD-UG) before using any other commands than those described below.

Use the following procedure to reload or upgrade the ARC Console using the Debug Monitor:

1. Insert the ARC Console firmware update diskette (AK-QXG3C-CA) into the diskette drive. Be sure the CD-ROM drive does not contain a CD-ROM.
2. At the debug monitor prompt, AlphaPC64>, enter the following:

```
fwupdate
```

The firmware update utility will reinitialize some system components. Your system may appear to be rebooting.

3. When the Flash Update program begins, it will display the Firmware Update menu. Select Update Windows NT Firmware.
4. The screen will display:

```
Really update flash with '...\eb64pnt.rom'?
Yes
No
```

5. Select Yes to begin the flash update. The flash update takes about 30 seconds. The program will display which flash block is being erased, written and verified. Once you have committed to update the flash with the selected ROM image, **do not turn off power or reset the system until the update is complete!**
6. When the update has completed, the following screen will appear:

```
Console selection does not match flashed image.  
Console selection:  Debug Monitor  
Flashed image:      Windows NT  
Update console selection?  
Yes  
No
```

Select Yes to choose the ARC Console, or No to return to the Debug Monitor Console, followed by the Enter key, then press any key to continue. You will return to the Firmware Update menu. Select `Restart the system`.

If you return to the Debug Monitor and want to switch to the ARC Console, type the following command at the Debug Monitor's prompt:

```
bootopt 1
```

The system will reset the console selection to the ARC Console, but control will remain in the Debug Monitor. You must restart the system to enter the updated ARC Console.

Updating the Debug Monitor Flash Image

You can update the Debug Monitor Console using either the ARC Console or by using the Debug Monitor itself. If the ARC Console is corrupt, updating the Debug Monitor can be done only from the Debug Monitor, as the Debug Monitor loads automatically when a corrupt ARC Console image is detected. In that case, however, you may want to reload the ARC Console before updating the Debug Console.

Updating the Debug Monitor Flash Image from the ARC Console

Use the following procedure if you want to update the Debug Monitor image from the ARC Console:

1. Insert the Debug Monitor Console firmware update diskette (AK-QXG2A-CA) into the diskette drive. Be sure the CD-ROM drive does not contain a CD-ROM.
2. Beginning at the ARC Console's Boot menu, select:
 Supplementary menu...
 Install new firmware...
 The system will appear to be rebooting.
3. When the blue screen reappears and displays `Initializing Firmware update`, hold down the "a" key on the keyboard to select a version of the Firmware Update menu with extra options. There will be some delay as the firmware initializes device drivers and the flash update driver. Keep the key depressed until the extended menu appears.
4. From this extended menu, select:
 Update Debug Monitor
5. The screen will display:
 Updating flash with ...\\pc64dbm.rom.
 Continue with update?
 Yes
 No

Select Yes to begin the flash update. The flash update takes about 30 seconds. The program will display which flash block is being erased, written and verified. Once you have committed to update the flash with the selected ROM image, **do not turn off power or reset the system until the update is complete!**

6. When the flash update is complete, you will see the following screen:

Console selection does not match the firmware you flashed
Update console selection?

Yes

No

Choose No to keep the ARC Console (the current console selection). If you select Yes, you will enter the Debug Monitor Console when you reboot. Then press any key to continue.

7. The Firmware Update menu will reappear. Remove the firmware diskette and select Restart the System.

Updating the Debug Monitor Flash Image from the Debug Monitor

The Debug Monitor contains commands that interact directly with the hardware and all of the system's memory locations. Be sure to carefully follow the instructions given below.

If the ARC Console image is corrupted, the Debug Monitor will load and run automatically when the system is turned on. This action occurs as a failsafe operation so the ARC Console image can be reloaded (reflashed).

Alternately, the Debug Monitor Console can be run by selecting it for operation at the next reset or power cycle of the system. If the Debug Monitor has not automatically loaded, you can select it using the following commands:

Beginning at the ARC Console's Boot Menu, select:

```
Supplementary menu...
  Setup the system...
    Machine specific setup...
      Switch operating systems...
```

Select Switch to Debug Monitor

Boot the Debug Monitor Console by pressing reset or turning the power off and on. DIGITAL highly recommends that you obtain a copy of the *Alpha Microprocessors Motherboard Debug Monitor User's Guide* (order number EK-AMEBD-UG) before using any other commands than those described below.

Use the following procedure to reload or upgrade the Debug Monitor Console using the Debug Monitor.

1. Insert the Debug Monitor Console firmware update diskette (AK-QXG2A-CA) into the diskette drive. Be sure the CD-ROM drive does not contain a CD-ROM.
2. At the Debug Monitor prompt, AlphaPC64>, enter one of the following commands depending on the current version of the firmware you have. (Refer to the section "Determining if the Flash Images Need to be Updated" on page 10 to find out how to display the current firmware version number.)

Firmware version 3.50
and earlier:

```
flload fwupdate
jttopal
```

Firmware version greater than
3.50:

```
fwupdate
```

The firmware update utility will reinitialize some system components. The system will appear to be rebooting.

3. When the blue screen reappears and displays `Initializing Firmware update`, hold down the "a" key on the keyboard to select a version of the Firmware Update menu with extra options. There will be some delay as the firmware initializes device drivers and the flash update driver. Keep the key depressed until the extended menu appears.

4. From this extended menu, select:

`Update Debug Monitor`

5. The screen will display:

```
Updating flash with ...\\pc64dbm.rom.  
Continue with update?  
Yes  
No
```

Select Yes to begin the flash update. The flash update takes about 30 seconds. The program will display which flash block is being erased, written and verified. Once you have committed to update the flash with the selected ROM image, **do not turn off power or reset the system until the update is complete!**

6. When the flash update completes, press any key to return to the Firmware Update menu. Select `Restart the System`.

The system will restart in the Debug Monitor. If you want to switch to the ARC Console, type the following command at the Debug Monitor's prompt:

```
bootopt 1
```

The system will reset the console selection to the ARC Console, but control will remain in the Debug Monitor. You must restart the system to enter the ARC Console.

Altering Initial Parameters and Viewing Configuration Information

Autoboot Timing

Follow these steps to change the setting for Autoboot timing:

- When the Boot Menu appears, use the Keyboard arrow keys to select Supplementary Menu.
- From the supplementary menu, select Set up the system.
- From the system setup menu, select Setup autoboot.
- The firmware will now display: Should the system Autoboot?
- If you select Yes, you will be asked for the countdown time in seconds. If you select No, the system will not autoboot after the firmware has initialized the system.
- The system setup menu will reappear. Use the arrow keys to select Supplementary Menu, and save changes, then press Return.

Boot Selection Parameters

The proper boot selection parameters for SCSI Bus ID 0, Disk 0, Partition 1 are shown below. You can use the LOADIDENTIFIER text to identify various OS setups. It is not critical. To view the boot selection parameters:

From the Boot menu:

- Select Setup the system
- Select Manage boot selection menu
- Select Dump boot selections

Windows NT V3.51 Boot Selection Parameters, as Shipped

These are the settings for the boot selection parameters for the as-shipped installation of Windows NT V3.51. If you install or reinstall Windows NT 3.51, your settings may be different. Be sure to record the settings for your own configuration.

```
LOADIDENTIFIER=Windows NT Workstation 3.51
SYSTEMPARTITION=SCSI(0)disk(0)rdisk(0)partition(2)
OSLOADER=SCSI(0)disk(0)rdisk(0)partition(2)\os\winnt351\osloader.exe
OSLOADPARTITION=SCSI(0)disk(0)rdisk(0)partition(1)
OSFILENAME=\WINNT35
OSLOADOPTIONS=
```

Windows NT V4.0 Boot Selection Parameters, as Shipped

These are the settings for the boot selection parameters for the as-shipped installation of Windows NT V4.0. If you install or reinstall Windows NT 4.0, your settings may be different. Be sure to record the settings for your own configuration.

```
LOADIDENTIFIER=Windows NT Workstation 4.0 (SP1)
SYSTEMPARTITION=SCSI(0)disk(0)rdisk(0)partition(2)
OSLOADER=SCSI(0)disk(0)rdisk(0)partition(2)\os\winnt40\osloader.exe
OSLOADPARTITION=SCSI(0)disk(0)rdisk(0)partition(1)
OSFILENAME=\WINNT
OSLOADOPTIONS=
```

Note: The Reset to Factory Defaults option sets the boot selection parameters to different values. The boot selection parameters will also be reset if you replace the motherboard or the non-volatile RAM. You should record the boot selection parameters for your personal configuration so you can recreate the settings if required.

If the system attempts to boot and the boot selection is wrong, you can enter the Manage Boot Selection menu, then select Verify Boot Selections. In the verification process, the errors will display in yellow.

In the Verify Options mode you can select Change this Selection, then use the arrow keys to select the line of code in error the correct data into the line. To exit, use ESCape.

Viewing Configuration Information

To view the system configuration, select Display hardware configuration in the supplementary menu. It displays information about the processor, firmware level, video option, devices available, and PCI slots.

The system configuration (ETN30-AN) is shipped from the factory as follows:

- BIOS-controlled video card
- 64MB memory
- Diskette drive(fdisk)
- SCSI disk
- CD-ROM drive

Other RIP Kernel versions will show different configurations. When the end of the configuration listing is reached, the Supplementary menu will reappear. Select `Boot menu...` to return to the Boot menu. To add additional options and peripherals, follow the instructions in your Windows NT manuals and the option manufacturer's instructions.

Problem Solving and Troubleshooting

This section provides initial troubleshooting procedures and the following troubleshooting sections listing specific problems, probable causes, and recommended actions to take if your computer fails after you configure it or after you install optional hardware or software.

- Computer Troubleshooting
- Disk Drive Troubleshooting
- Monitor Troubleshooting

Major standard components are covered under warranty as field replaceable units (FRUs). Review the list of FRUs in the Warranty Statement.

Also 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 troubleshoot your Alpha PCI 64-275 RIP Kernel. For more detailed troubleshooting information, refer to the tables in the remainder of this chapter.

- Press [Ctrl] + [Alt] + [Del]. If your computer fails to boot, turn it off, wait until all disk drives spin down completely, then turn it back on.
- Make sure all necessary video, printer, and application device drivers are properly installed.
- Ensure that all cables and connections are secure.
- Run any diagnostic software.
- Contact your service representative for software or hardware related problems.
- Be sure BIOS, firmware, and software versions are up-to-date and compatible. The versions required are shown in the following table.

The minimum firmware revisions required for operating system compatibility are as follows:

BIOS Emulation	ARC Console Minimum Version	Windows NT Version
1.15	4.42	3.51
1.15	4.494	4.0 w/SP1

Note: Windows NT V4.0 must have Service Pack 1 installed to operate properly. Service Packs are available from Microsoft's Internet web pages and on the Microsoft Windows NT V4.0 CD-ROM.

If you need to reinstall the firmware, use the diskette "Alpha PCI 64-275 RX23 Windows NT Firmware Update, AK-QXG3C-CA."

Computer Troubleshooting

Problem	Possible Cause	Action
No response when the computer is turned on.	Computer is not plugged in.	Turn off the computer, plug it in, and then turn it back on again.
	No power at the wall outlet.	Use another wall outlet.
	Main logic board jumpers incorrectly set.	Set all appropriate jumpers (Refer to the description of jumper settings in the Alpha PCI 64-275 documentation set, EK-AL275-DK. A01.)
	Video adapter failed.	Replace video card FRU.
	Motherboard failed.	Replace motherboard FRU.
	Power supply failed.	Replace power supply FRU.
Power is on, but there is no screen display.	Brightness and contrast controls are not correctly set.	Adjust the brightness and contrast controls.
	The monitor-off timer has shut the monitor off.	Follow monitor manufacturer's directions to reactivate monitor.
	Monitor is off.	Turn on the monitor.
	Monitor cable is incorrectly installed.	Check all monitor connections.
	Video adapter failed.	Replace video adapter FRU.
	Monitor failed.	Replace or repair monitor.
Computer will not boot, file NTOSKRNL.EXE not found even though file exists.	Boot selection parameter for application partition set incorrectly.	Reset boot selection parameter to proper value for your configuration.
Computer will not boot, file OSLOADER.EXE not found even though file exists.	Boot selection parameter for system partition set incorrectly	Reset boot selection parameter to proper value for your configuration.

Computer operates incorrectly after installing optional expansion board.	Expansion board installed incorrectly.	Reinstall following expansion board installation instructions.
	Did not run vendor's installation program to configure expansion board before installation.	Run the installation program to properly configure expansion board and then reboot your computer. Refer to the vendor-supplied documentation.
	Expansion board has failed.	Remove expansion board and reboot. If computer boots without errors, replace expansion board.
Computer operates incorrectly after installing optional SIMMs.	SIMMs installed incorrectly.	Remove SIMMs and reinstall. Make sure sockets are filled with the same SIMM size, speed, and type.
	SIMMs have failed.	Replace SIMMs.
	SIMMs are from multiple vendors	Rearrange, if possible, so all SIMMs in a bank are from the same vendor. Replace SIMMs with all of same type.
Computer operates incorrectly after installing secondary cache memory on the CPU module.	Secondary cache memory installed incorrectly.	Remove secondary cache memory and reinstall.
	Secondary cache memory chip(s) have failed.	Replace faulty secondary cache memory chip(s).
Computer does not recognize an added internal or external SCSI device.	SCSI ID conflicts.	Refer to the new SCSI device's installation instructions on setting SCSI IDs. As shipped, the system disk is assigned SCSI ID 0.
	Terminator not removed from new internal SCSI device.	Remove terminator from new internal SCSI device. Refer to the new device's installation instructions.

Terminator not removed from SCSI controller when adding new external SCSI device.

Remove terminating jumper from SCSI controller.

Terminator not set on external SCSI device.

Terminate new external SCSI device. Refer to the new device's installation instructions.

SCSI cable not terminated properly.

Each end – and only the ends – of the SCSI bus must be terminated. Termination power is provided by the controller. If no external drives are connected to the box, the external terminator provided must be connected to the external SCSI port. The internal SCSI termination is provided by a jumper on the CD-ROM drive (ETN30-AN versions of the RIP Kernel) or by a terminator on the internal SCSI cable (versions other than ETN30-AN).

SCSI device not plugged in.

Check power and SCSI cables.

There might be a boot sector virus.

Run anti-virus software.

SCSI controller failed.

Replace SCSI controller FRU.

SCSI disk drive failed.

Replace SCSI disk FRU.

Computer does not boot from a SCSI hard disk drive.

If computer has both an IDE and a SCSI hard disk drive installed, the computer boots from the IDE drive by default.

Reconfigure system.

	Operating system software not installed on SCSI drive.	Install operating system software.
	Requested partition does not exist.	Partition the SCSI disk drive, then reload the operating system software.
	Wrong type of SCSI adapter.	Install SCSI adapter recognized by your operating system.
	SCSI controller failed.	Replace SCSI controller FRU.
	SCSI disk drive failed.	Replace SCSI disk FRU.
No response to keyboard commands	Keyboard is password protected.	Enter the keyboard password.
	Keyboard is not connected.	Power down the computer and connect the keyboard.
	Keyboard is connected to the mouse port.	Power down the computer and connect the keyboard to the keyboard port.
	Computer operation halted.	Reboot computer.
	Keyboard lock enabled.	Use supplied key to unlock keyboard switch on computer front panel.
	Keyboard failed.	Replace keyboard.
No response to mouse activity	Mouse is password protected.	Enter the keyboard and mouse password.
	Mouse is not connected.	Power down the computer and connect the mouse.
	Mouse is connected to the keyboard port.	Power down the computer and connect the mouse to the mouse port.
	Computer operation halted.	Reboot computer.

	Mouse driver not installed.	Install the appropriate mouse driver. Refer to supplied application software documentation.
	Mouse failed.	Replace mouse.
Operating system reports parity errors.	You may have an option that does not support PCI parity checking.	Check with the appropriate service representative who might instruct you to disable PCI parity. If so, run the option's setup procedure to disable PCI parity.
	PCI option card failed.	Replace PCI option card.

Disk Drive Troubleshooting

Problem	Possible Cause	Action
IDE/SCSI hard disk drive cannot read or write information.	Incorrect disk drive jumper settings.	Refer to the supplied kit installation instructions.
	Loose or incorrectly installed cables.	Make sure all cables are correctly installed.
	IDE/SCSI hard disk drive is not correctly formatted or partitioned.	Format and partition as required using the supplied operating system.
	Disk drive failed.	Replace IDE disk drive or SCSI disk drive FRU.
Target diskette drive cannot read or write information.	Diskette is not formatted.	Format the diskette.
	Diskette is worn or damaged.	Try another diskette.
	Diskette is write-protected.	Slide the write-protect switch so the hole is not visible (3½-inch diskette) or uncover the write-protect notch (5¼-inch diskette).
	Diskette drive is empty.	Insert a diskette.
	Diskette drive failed.	Replace diskette drive FRU.

Monitor Troubleshooting

Problem	Possible Cause	Action
Monitor power indicator is not on or blinking.	Monitor is turned off.	Turn on the monitor.
	Power cord is not connected.	Connect the power cord to the computer.
	No power at wall outlet.	Use another outlet.
	The monitor-off timer shut off the monitor.	Follow monitor manufacturer's directions to reactivate monitor.
	Power indicator is defective.	Replace or repair monitor.
	Monitor failed.	Replace or repair monitor.
No screen display.	Monitor brightness and contrast controls are incorrectly set.	Adjust the monitor brightness and contrast controls.
	The monitor-off timer shut off the monitor.	Follow monitor manufacturer's directions to reactivate monitor.
	Video adapter failed.	Replace video adapter FRU.
	Monitor failed.	Replace or repair monitor.
No monitor display while loading Windows NT video drivers.	Monitor type incorrectly set.	Set the correct monitor type using the appropriate utility. Refer to your video adapter user's guide.
	Wrong Windows NT driver loaded.	Load the correct video driver.
Distorted, rolling, or flickering screen display, or wrong/uneven color.	Monitor incorrectly adjusted.	Adjust as needed.

Monitor signal cable incorrectly installed. Straighten any bent connector pins and then reconnect.

Monitor failed. Replace or repair monitor.

Monitor fails to switch to high-resolution mode.

Appropriate high-resolution video drivers are not installed or incorrectly installed.

Correctly install all appropriate high-resolution video drivers. Refer to your video adapter user's guide and the documentation supplied with your monitor.

Disassembly and Reassembly of the Alpha PCI 64-275 RIP Kernel

This section tells you how to open the case of the Alpha PCI 64-275 RIP Kernel and remove and install the major FRUs.

CAUTION

Take care when handling the option board. The active components of the option board are sensitive to electrostatic discharge (ESD) and can easily be damaged. You should take anti-ESD precautions such as wearing isolation gloves or an antistatic wriststrap.

Vorsicht

Vorsicht im Umgang mit der Option-Platte. Die Wirkkomponenten auf der Option-Platte dürfen keine Electrostatischen Entladung (ESD) ausgesetzt sein und können leicht beschädigt werden. Bitte treffen Sie Vorkehrungen gegen ESD, wie beispielsweise durch Tragen von Isolierhandschuhen oder antistatischem Armband.

WARNING

Make sure you that you disconnect the AC power supply before you continue.

WARNUNG

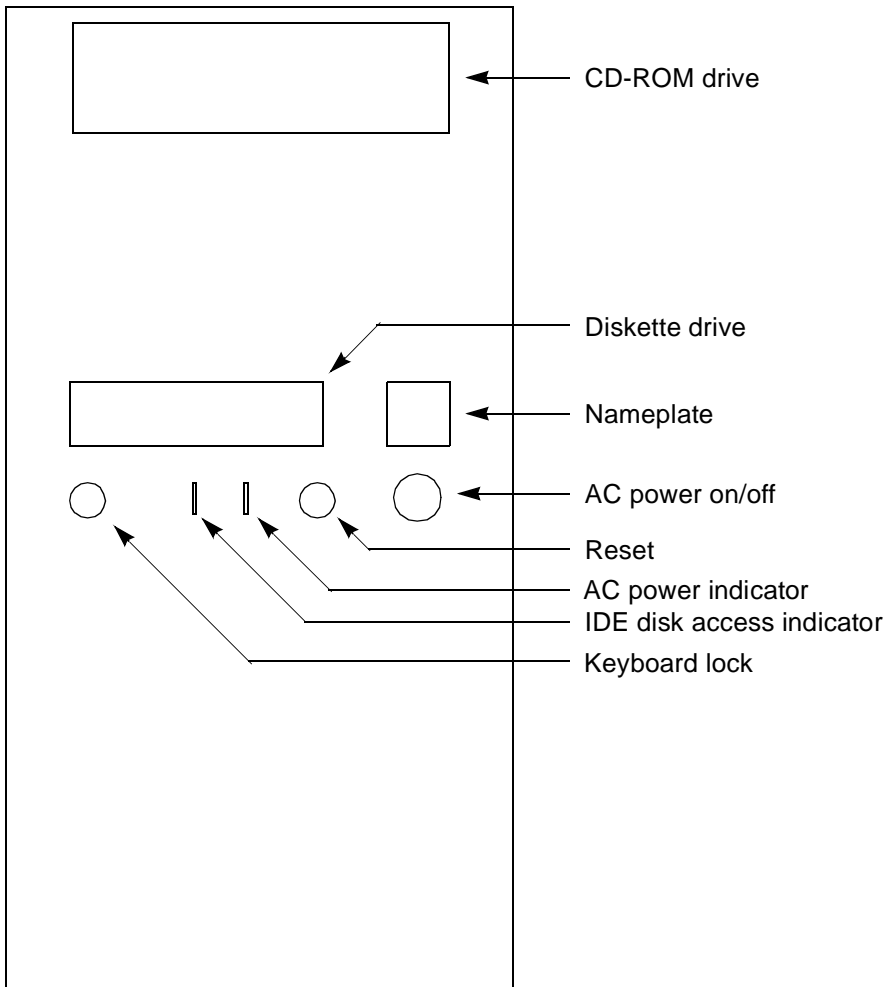
Bitte unterbrechen Sie die Wechselstromversorgung der Moduleinheit, bevor Sie fortfahren.

Front Panel

The front panel of the Alpha PCI 64-275 RIP Kernel contains the following components:

- CD-ROM drive. The CD-ROM drive is at the top of the front panel. Push the button to open the drive.
- Diskette drive.
- Keyboard lock. This locking switch disables the keyboard to prevent unauthorized access to the system.
- IDE disk access light (applicable only to systems with IDE drives, unless optional SCSI disk cable installed). Comes on when the IDE hard disk is accessed.
- Power LED. Comes on when the power switch is turned on.
- Reset. Resets the system.
- Power. Turns on AC power to the system.

Front Panel



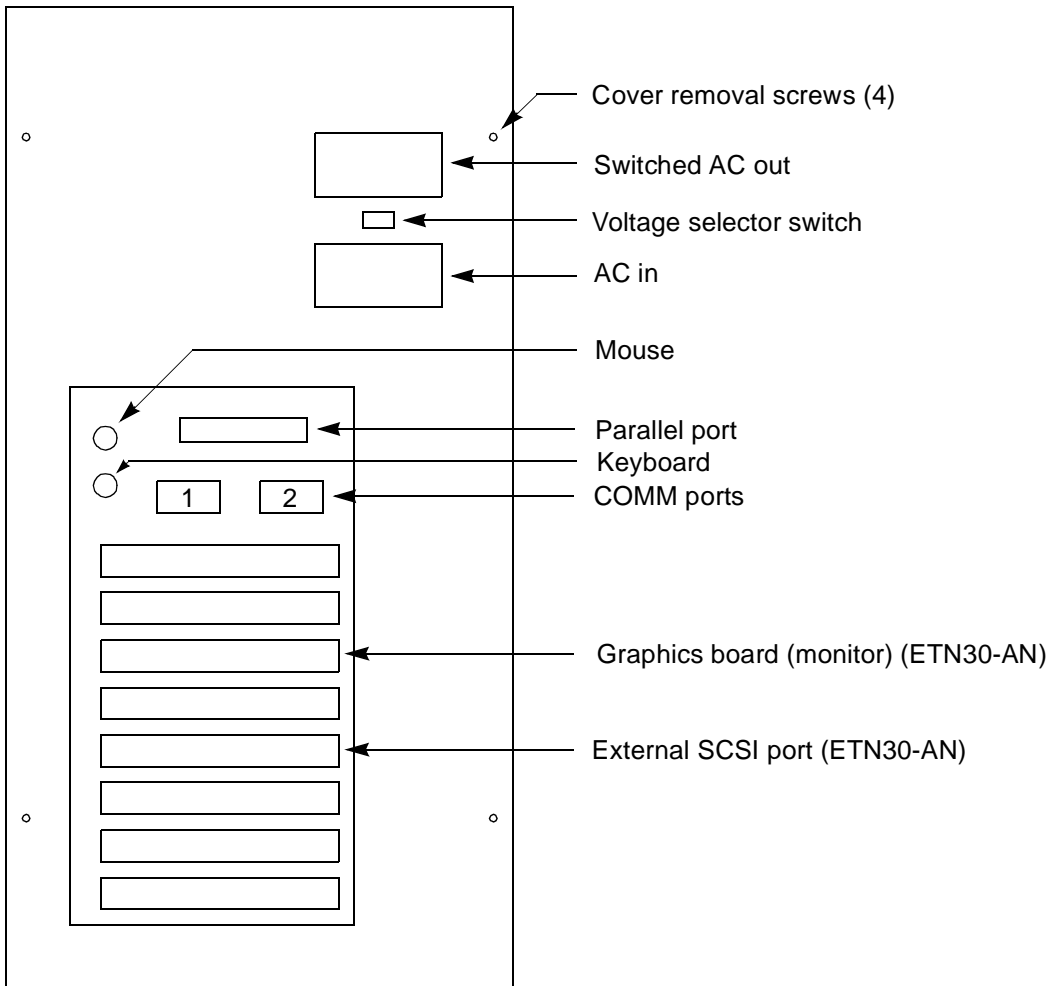
Rear Panel

The rear panel of the Alpha PCI 64-275 RIP Kernel contains, from top to bottom, the following sockets and switches:

- AC out. Switched AC power outlet (1.0 A @ 115V or 0.5 A @ 230V).
- Voltage select switch.
- AC in. Plug in the power cord here.
- 6-pin PS/2 style mini-DIN socket for mouse (upper socket).
- 6-pin PS/2 style mini-DIN socket for keyboard (lower socket).
- 25-pin parallel port socket.
- 10-pin COM1 port socket (left).
- 10-pin COM2 port socket (right).
- 15-pin socket for monitor cable.
- 50-pin high-density socket for external SCSI device.

The rear panel of versions of the RIP Kernel other than the ETN30-AN will be similar, but connectors and connector locations may vary depending on the options chosen.

Rear Panel



Removing the Cover

The cover of the Alpha PCI 64-275 RIP Kernel is held in place by four hex/Philips binding head screws located at the edges of the rear panel.

To remove the cover:

1. Take out the four screws completely.
2. Slide the cover back about 1/4" [7mm], then gently lift it up and away from the main frame.

Do not operate the unit for extended periods with the cover removed. Overheating and damage of components will occur,

Installing the Cover

Reverse the removal procedure. Slide the cover down and forward from the rear. Make sure the lower edge of frame goes between the outer skin of the cover and the weldment attached to the inside.

When the cover is in place, install the four screws at the edges of the rear panel.

Be careful not to catch and bend the three long grounding foils on the top of the front panel. Be sure the cover slides *over* those tabs.

Should the grounding foils be broken or removed, radio emissions may be possible, and the unit may no longer conform to FCC/VDE EMI emission and susceptibility standards

Removing the Diskette and Hard Disk Drives

The standard hard disk drive supplied with the unit is in a hidden storage bay area just below the diskette drive. Both the diskette and hard disk drive are mounted in a 3½" drive bay frame. The frame and disk drives should be removed as a single unit. Once the frame is out of the enclosure, you can remove the diskette or hard disk drive from the frame.

1. Remove the enclosure cover as described previously. Lay the enclosure on its right side as you face the enclosure from the front. Turn the enclosure so the bottom of the enclosure is closest to you and the front of the enclosure is on your right.
2. A metal cross brace about ¾" [19mm] square goes across the middle of the enclosure. The 3½" drive bay frame is located under the right-hand end of the cross brace. Locate the diskette and hard disk drive and unplug all cables, noting their position and orientation. Pin 1 is identified by the red striped wire on the cable's connector.
3. Above the cross brace, at the right, you will see the 5¼" front-accessible drive bay frame. A plate on the 3½" drive bay frame attaches it to the 5¼" drive bay frame. The plate has two open-ended slots, with a screw in each slot. Remove the two screws in these slots fully. There are also two smaller screws in the plate. Do not remove the smaller screws.
4. Slide the 3½" drive bay frame containing the diskette and hard disk drives to the left towards the back of the enclosure. This will release two keyed tabs on the 3½" drive bay frame that lock it to the 5¼" drive bay frame. Slide the frame back far enough to clear the diskette drive bezel.
5. Tip the bottom of the diskette and hard disk frame to the left, away from the 5¼" drive bay frame and out from under the cross brace and power cable. Be sure not to damage the cache DIMMs below the frame as you tilt it away from the 5¼" drive bay frame.

If there is insufficient clearance, remove the white plastic assembly holding the fan and speaker. The assembly is held by two plastic tabs that go through the front panel of the enclosure. Reach in at the top of the plastic assembly and push the tabs down to unclip them.

The diskette and the hard drive are each held to the 3½" drive bay frame by four screws. Remove the four screws to remove a drive from the frame. Note the positions of any jumpers and set the new disk's jumpers to match.

Replacing the Diskette and Hard Disk Drives

Reverse the removal procedure to reinstall the 3½" drive bay frame. Install the disk and diskette cables after mounting the assembly and securing it with the two mounting screws.

When installing the 3½" drive bay frame, tip the assembly into place, being sure the slotted tab on top overlaps the 5¼" drive bay frame, then swing the frame into position being sure the lower tabs engage the mating slots. Tilt the frame into a vertical position so the diskette drive bezel can slide into its opening in the main front bezel. Slide the assembly forward. Install the two screws in the slotted tab on top of the 5¼" drive bay frame.

Connect the cables, being sure pin one is properly located.

Replace the enclosure's cover as described above.

Removing the CD-ROM Drive

1. Remove the enclosure cover as described previously.
2. Unplug the power cable and the SCSI or IDE cable from the rear of the CD-ROM drive. Note the orientation of the plugs.
3. Remove the two screws on each side of the 5¼" drive bay frame that hold the CD-ROM drive in place.
4. Slide the CD-ROM drive out through the front bezel.

Replacing the CD-ROM Drive

Reverse the removal procedure.

Removing The Motherboard

The motherboard is removed from the bottom of the unit's enclosure.

1. Remove all external cables to the enclosure.
2. Remove the enclosure cover as described previously. After removing the cover, look at the right side of the unit as you face it from the front. See how the motherboard is partly held in position by nylon keyhole locking pins.
3. Facing the enclosure from the front, lay the enclosure on its right side. Rotate the enclosure so the bottom is nearest to you and the front panel is to your right. Remove the enclosure's bottom cover plate by removing one screw at the front of the cover plate.
4. Remove all PCI and ISA options.
5. Remove all signal cables going to the motherboard. Write down where each one goes. Note pin one, identified on the cable by the red marked wire and on the motherboard by a "V".
6. Remove the DC power connections. Write down where each connector goes. The power connections are keyed, but it is possible to force a connector into the wrong connector on the motherboard.
7. The motherboard is attached by three screws along the edges of the board. Two of the screws are on opposite sides of the mouse and keyboard connectors at the left side of the motherboard. The third is at the lower front corner of the motherboard. Remove the screws.
8. Slide the motherboard toward the top of the enclosure (toward the power supply), then gently lift up about half an inch [12 millimeters] to disengage the nylon keyhole locking pins on the back of the motherboard.
9. Slide the motherboard out through the bottom of the enclosure.

Replacing the Motherboard

After removing the old motherboard, remove the nylon keyhole pins from the old motherboard, noting their exact locations. Install the pins on the new motherboard in the same positions.

Install the new motherboard by reversing the removal procedure. Be careful not to damage the metal EMI gasket at the keyboard and mouse connectors' bulk-head entry point. Reinstall all cables in the positions they were on the old motherboard.

Reset the boot selection parameters for your configuration.

Removing the Power Supply

1. Remove the enclosure cover as described previously.
2. Facing the enclosure from the front, lay the enclosure on its right side. Rotate the enclosure so the bottom is toward you and the front panel is to your right.
3. Remove the 3½" drive bay frame containing the diskette and hard disk drive as described previously.
4. Disconnect all DC power connections to disk options and the motherboard. Take note of the power connection proper locations. The power connectors are keyed, but excessive force can override the keys.
5. From the inside of the enclosure, remove the single screw holding the power switch in place. You can remove the cache DIMMs for access, but the DIMMs are difficult to reinstall because of the amount of force required. If you do remove the DIMMs, you may find that you have to remove the motherboard to reinstall them.

To remove a DIMM, lift up on the white handle at its right-hand end. This will lift one end of the module, permitting it to be worked loose.

6. Cut the tie wraps holding the power cord to the cross brace.
7. Remove the four screws holding the power supply in place while holding the supply to prevent it dropping and possibly bending the chassis when only one screw remains in place. Lift out the power supply.

Replacing the Power Supply

Check that the new supply's DC power connectors are properly keyed. If not, remove the appropriate key tabs on each connector. (Power supplies purchased from DIGITAL will be properly keyed from the factory.)

Install the new supply in the reverse order as described above. Be sure to install tie wraps to hold the cord going to the switch against the cross brace, as it was originally.

WARNING

Before connecting to an AC power source, check that the setting of the voltage selector switch is correct for your supply voltage. Failure to do so will result in damage to the module unit and may result in injury.

WARNUNG

Vor Anschluß an eine Stromquelle für Wechselstrom muß sichergestellt werden, daß der Spannungswahlschalter entsprechend Ihrer Versorgungsspannung eingestellt ist. Nichtbeachtung führt zu Beschädigung der Moduleinheit und kann Verletzungen verursachen.

Adding Memory

The Alpha PCI 64-275 memory subsystem used in the RIP Kernel supports industry-standard single inline memory modules (SIMMs) with a 128-bit data bus structure. Each SIMM must be 36 bits wide, with 32 data bits, 1 parity bit, and 3 unused bits with an access time of 70ns or less. The processor can address up to 512MB of memory in two banks of four SIMMs.

The four SIMMS in each bank must be identical. The SIMMs can, however, differ between banks. For example, bank 0 could have two EPBXM-AB kits, a total of 32MB, while bank 1 could have two EPBXM-AD kits, a total of 128MB, for a system total of 160MB.

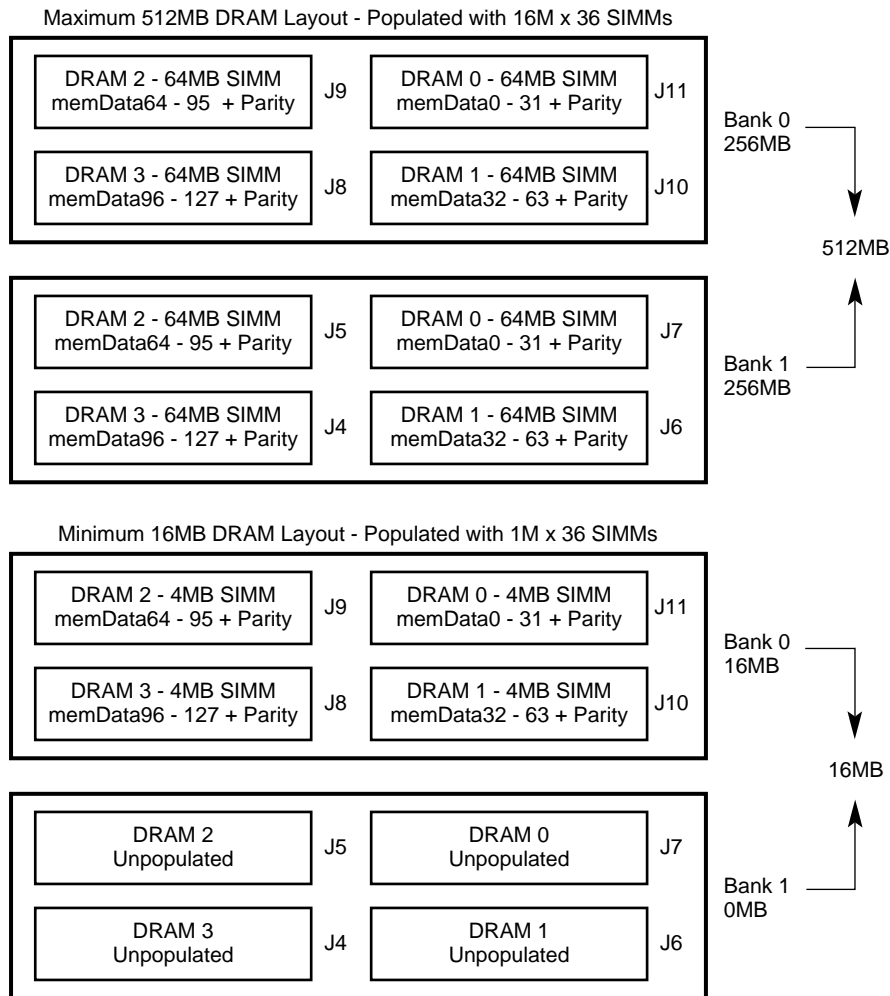
Figure 1 shows the maximum and minimum SIMM bank layouts. The Alpha PCI 64-275 motherboard supports the following SIMM sizes:

SIMM Depth x Width	SIMM Size	DIGITAL Part Number ¹	Total Kit Size
1M x 36	4MB	EBPXM-AA	8MB
2M x 36	8MB	EPBXM-AB	16MB
4M x 36	16MB	EBPXM-AC	32MB
8M x 36	32MB	EBPXM-AD	64MB
16M x 36	64MB	EBPXM-AE	128MB

¹The DIGITAL part number is for a kit of two SIMMs, which gives the total amount of memory shown under "Total Kit Size." **The RIP kernel requires installation of SIMMs in groups of four**, so you must order two of a given part number to get four SIMMs.

The optimal memory size required depends on your application.

Figure 1 Maximum and Minimum SIMM Bank Layouts



LJ04134A.AI

Motherboard Operating Environment Characteristics

Characteristic	Description
Temperature	10°C to 40°C (50°F to 104°F) ambient on the board
Temperature change rate (maximum)	20°C/hour (36°F/hour)
Relative humidity	10% to 90% noncondensing
Maximum wet bulb	32°C (90°F)
Minimum dew point	2°C (36°F)
EMC compliance	Compliance certification is the responsibility of the system integrator. The Alpha PCI 64-275 was tested in industry-representative enclosures to prove feasibility of emissions compliance.
CE compliance	The Alpha PCI 64-275 carries CE certification. The module has a certification label.
Shock and vibration	Passing of shock and vibration tests is dependent on the method used to mount the Alpha PCI 64-275 board, the design of the enclosure, and how the enclosure is supported. Testing is the responsibility of the system integrator.

Technical Support

Before calling for technical support, first attempt to isolate the problem using the guidelines in the section “Problem Solving and Troubleshooting” on page 21. Also refer to the “Pre-Call Checklist” on page 49.

If you need technical support with your Alpha PCI 64-275 RIP Kernel, contact your local DIGITAL representative. Please provide your local representative with the model number, serial number, and if possible a brief description of the problem you are encountering.

Additional technical documentation is available from DIGITAL on the major DIGITAL semiconductor components used in your Alpha PCI 64-275 RIP Kernel. A complete list of these documents can be obtained from your local representative. The documentation set EK-AL275-DK.A01 describes in detail the motherboard used in the Alpha PCI 64-275 RIP Kernel.

For the latest information and product updates, visit Digital Equipment’s OEM home page at UIC:

<http://www.digital.com/info/oem/>

Regulatory Conformance Statements

FCC Declarations:

This equipment generates, uses, and may emit radio frequencies. The equipment has been type tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC rules, which are designed to provide reasonable protection against such radio frequency interference.

Operation of this equipment in a residential area may cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

Acoustics Values:

Acoustics - declared values per ISO 9296 and ISO 7779:

Product	Sound Power Level L_{WAd} , B		Sound Pressure Level L_{pAm} , dBA (bystander positions)	
	Idle	Operate	Idle	Operate
ETN30-AN	5.6	5.6	40	40

[Current values for specific configurations are available from DIGITAL representatives. 1 B = 10 dBA.]

Schallemissionswerte - Werteangaben nach ISO 9296 und ISO 7779/DIN EN27779:

Gerät	Schalleistungspegel L_{WAd} , B		Schalldruckpegel L_{pAm} , dBA (Zuschauerpositionen)	
	Leerlauf	Betrieb	Leerlauf	Betrieb
ETN30-AN	5.6	5.6	40	40

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

Warranty Statement

Return to DIGITAL Hardware Maintenance

This product comes with a 1 year Return to DIGITAL warranty as described in the following sections.

Hardware Warranty

A limited warranty consisting of Return to DIGITAL hardware support. Warranty provides free repair or replacement of the field replaceable unit (FRU) through the DIGITAL Customer Support Center.

Availability

Warranty support is available worldwide to Customers. Proof of purchase or ownership of equipment, including serial numbers, may be required.

Return-to-DIGITAL Process

In order to return products under warranty, the Customer needs to contact the DIGITAL Customer Support Center in their particular geography. The Customer will be provided a Return Material Authorization Number (RMA#) and an address to which to send the defective material. Customer is responsible for sending the product to the address provided. The Customer pays for transportation for Return-to-DIGITAL warranty to the nearest DIGITAL return center. DIGITAL pays transportation for return to the Customer.

In the U.S. the Customer can call 1-800-354-9000 to obtain the necessary information to return the product. Elsewhere in the world, the Customer needs to contact the nearest DIGITAL Customer Support Center.

Response Time

DIGITAL will use an advanced exchange replacement process through the Customer Support Center. Turn around time will be two days from receipt at the DIGITAL Customer Support Center

A defective FRU must be received by the DIGITAL Support Center within 10 days of shipment of replacement FRU or the Customer will be billed for replacement part at full Country List Price (CLP).

Eligible FRUs

Field replaceable units (FRUs) as defined by DIGITAL are the only parts eligible for coverage. FRUs in need of repair due to improper treatment or use are not eligible for return. Improper treatment includes, but is not limited to, lifted or burnt etches or delamination due to non-DIGITAL repair or modification.

Replacement FRUs will be at the current revision level and may be refurbished. In the event newly installed field engineering Change Orders (FCOs) cause an incompatibility or other interference within the customer's system, the Customer accepts responsibility or such incompatibility or interference.

Ineligible FRUs

If FRUs are returned which are deemed ineligible, DIGITAL may demand return of any replacement FRUs or charge customer for full List Price value of replacement FRUs and will return the ineligible FRUs to the customer upon receipt of payment or the replacement FRUs.

Purchaser Responsibility

- Installation of the equipment is the sole responsibility of the Customer
- Fault diagnosis and equipment disassembly is the sole responsibility of the Customer on returns of field replaceable units
- The Customer shall properly package and prepay transportation cost of FRUs sent to DIGITAL
- The Customer assumes all risk of loss or damage to FRUs in transit to DIGITAL.

Pre-Call Checklist

Prior to calling DIGITAL or your authorized reseller, please follow the pre-call checklist. This will allow us to assist you more quickly and efficiently.

- Consult your product user documentation that is included with your product to assure that your system features are properly configured.
- Execute the customer diagnostics provided with your product, if applicable, and record the information. Consult the accompanying user documentation for more details on operation of this utility.
- Have the product model number and serial number available to enable processing of warranty support.
- Have the BIOS and firmware version numbers available. These appear on the screen when you turn on the power.
- Review the FRU descriptions in the ETN30-AN RIP Kernel FRUs and Order Numbers section so you can properly identify the FRUs.

ETN30-AN RIP Kernel FRUs and Order Numbers

The table below gives part numbers for FRUs used in the ETN30-AN Alpha PCI 64-275 RIP Kernel.

Order Number	DIGITAL Number	Description
30-47570-01	30-47570-01	Power supply
PBXRX-AA	PBXRX-AA	1.44 Mb diskette drive
54-23641-03	54-23641-03	Alpha PCI 64-275 motherboard with 2Mb cache and 64Mb memory
KZPAA-AA	KZPAA	PCI SCSI controller
PBXGA-JA	PBXGA-JA	PCI graphics card
PCXRD-CA	RRD45	SCSI CD-ROM drive
PBXRZ-EA	RZ26N	1.01 GB SCSI hard disk drive

ETN30-BN RIP Kernel FRUs and Order Numbers

The table below gives part numbers for FRUs used in all ETN30-BN Alpha PCI 64-275 RIP Kernels. In addition, each installed option (hard disk, Ethernet card, etc.) is a FRU. Look at the option line items on your original purchase order to determine part numbers.

Order Number	DIGITAL Number	Description
30-47570-01	30-47570-01	Power supply
54-23641-01	54-23641-01	Alpha PCI 64-275 motherboard with 2Mb cache, no memory
PBXRX-AA	PBXRX-AA	1.44 Mb diskette drive
PCXRN-AF	PCXRN-AF	IDE CD-ROM drive

Software Maintenance

DIGITAL Software products are warranted to conform to the applicable Software Product Description (SPD). This means that DIGITAL will remedy any non-conformance when it is reported by the Customer, during the warranty period, to the service location identified by DIGITAL.

Warranty of third party software products sold by DIGITAL is as designated in the Software Product Description (SPD). The term of the warranty, and the manner in which DIGITAL will remedy any non-conformance is specified in the Software Product Description (SPD) or the price list. All other software is provided "as is." DIGITAL does not warranty that the execution of the Software shall be uninterrupted or error free. DIGITAL does not warranty the form or content of third party distributed software or documentation, both of which DIGITAL provides "as is." Certain third party distributed software is warranted by the third party.

