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DIGITAL Personal Workstation
au-Series Operating System

Dual Boot Installation Guide

Part Number: EK–ALUNX-OS. C01

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This guide describes how to run either the DIGITAL UNIX or Microsoft
Windows NT *or both* operating systems on your *au-Series* system.

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Contents

Preface

Introduction

This guide describes how to configure an *au-Series* DIGITAL Personal
Workstation running the DIGITAL UNIX or Windows NT operating system to
function as a:
- DIGITAL UNIX only system
- Microsoft Windows NT only system
- Dual-boot system

NOTE: DIGITAL UNIX *system users can migrate to* Windows NT.
Your *au-Series* system is preloaded with the DIGITAL UNIX operating system
and includes the latest firmware. Consult the DIGITAL Web site for firmware
updates:
http://www.workstation.digital.com/firmware.html.

Intended Audience

If you are interested in how to configure a DIGITAL Personal Workstation *au-
Series* system with the DIGITAL UNIX or Microsoft Windows NT operating
system, or both, this information is relevant for you.

Special Notices

Two kinds of notices emphasize specific information in this guide:

- **A CAUTION indicates the presence of a hazard that can cause damage to hardware or that might corrupt software.**
- A *NOTE* gives general information, such as compatibility with other products or pointers to other resources.

Additional Information Resources

You may wish to consult the following information resources related to your DIGITAL Personal Workstation:

- DIGITAL *Personal Workstation a-Series User Information* (order number EK-ALMIA-UI). This guide explains how to start, use, upgrade, troubleshoot, and configure your system using the Microsoft Windows NT operating system.
- DIGITAL *Personal Workstation au-Series User Information* (order number EK-ALUNX-UI). This guide explains how to start, use, upgrade, troubleshoot, and configure your system using the DIGITAL UNIX operating system.
- DIGITAL *Quick Setup Guide* (order number ER-B30WW-IM). This graphical guide leads you through the initial installation of the DIGITAL Personal Workstation.
- Microsoft *Windows NT Workstation Installation Guide* (Microsoft document number 69396-0696)
- DIGITAL *UNIX Installation Guide* (order number AA-QTLGA-TE)

Contact your DIGITAL representative for other available product-related information.

Feedback

Our readers' opinions about this or any other DIGITAL manual are important to us. If you have any comments, we'd appreciate hearing from you. Send e-mail to *reader_comments@eng.pko.dec.com*

Please reference order number EK-ALUNX-OS. C01 in your correspondence about this guide.

Operating System Installation

This guide explains how to install your DIGITAL Personal Workstation *au-Series* system with either the DIGITAL UNIX *or* the Windows NT operating system with the capability of running either.

Before You Begin

The following guidelines will help ensure a smooth operating-system installation:

- Before you install an operating system, make note of your current system's hardware locations, controller types, and boot selections.
- Insure that all options installed are supported by BOTH operating systems, in particular, Graphics Adapters.
- Ensure that you have all the right bits available for your new operating system, such as the latest firmware revisions, HAL (hardware abstraction layer) revisions, and UNIX V4.0C or later.

Console-Specific Considerations

The DIGITAL Personal Workstation au-Series includes two different consoles: SRM, which is compatible with UNIX and VMS device-naming conventions. Alpha BIOS firmware has been tailored for compatibility with the Windows NT operating system device-naming conventions. These two consoles use different methods for recording user preferences, boot selections, and time of day.

_____ **Caution** _____

Because of the different naming conventions that DIGITAL UNIX and Windows NT use, it is crucial that you record the disk configurations as both consoles view them prior to changing settings or the hardware itself. See the specific instructions later in this guide.

It is recommended that, if possible, any disks used by the operating system already installed, be removed or disconnected while installing the second operating system software.

_____

NOTE: It is necessary to set the correct date/time prior to completing FIS and prior to loading the DIGITAL UNIX or Windows NT operating system. Check the system date/time in each operating system, after switching to new operating system; correct if necessary

Installing the DIGITAL NT Operating System on a DIGITAL UNIX System

Your system came with the DIGITAL UNIX operating system preloaded. If you choose to run the UNIX operating system *only,* your system is ready to go.

Installing the DIGITAL NT Operating System

Special Considerations

If you choose to run the Windows NT operating system, you must install it from the CD-ROM that came with your system. Before beginning the installation, please read through the following considerations.

Hardware Requirements

Windows NT requires a separate hard disk drive. UNIX and NT cannot reside on the same drive. You received an additional drive with your system. However, you must ensure
(1) that it contains no data *or* (2) that any data on the additional drive is backed up before you attempt to have two operating systems reside on your workstation.

Precautionary Measures

CAUTION: Installing and running two operating systems on one machine carries risks. To minimize these risks, first ensure that you have backups of all your files.

If you do not plan to keep the DIGITAL UNIX operating system on your machine, you may want to remove UNIX and the data hard drive for safekeeping.

The Windows NT Disk Manager utility does not recognize the format of a UNIX disk. Therefore, take care when recording the SCSI ID of your UNIX disk and disk numbers so that you do not inadvertently allow the Disk Manager to corrupt your UNIX disk.

CAUTION: The Disk Manager utility will prompt you to place a "signature" on your UNIX disk. Default is Yes, which corrupts the UNIX disk. Take care to answer No each time you use the Disk Manager utility when the UNIX disk is in the system.

Windows NT V4.0 Operating System Installation Steps

Follow the step by step instructions below to install Windows NT on a system already loaded with DIGITAL UNIX.

NOTE: After each command, press either [Return] or [Enter], depending upon what type of keyboard you have.

I. Switch to SRM Console -

If SRM is already selected, proceed to Step II.
a) Select CMOS SETUP menu item
b) Press F6 key to enter ADVANCED
c) Tab down to CONSOLE SELECTION
d) Select DIGITAL UNIX Console (SRM)_
e) Press F10 key twice
f) Press [Enter].
g) Power Cycle the system

II. Determine what hard drives are used by UNIX:

a) Type date at the SRM prompt and check the SRM console date (and correct if necessary) before installing UNIX.
    Example:
    ```
    >>>date
    >>>date 199805010935.00
    >>>May 01, 1998 9:35 AM
    ```

b) At the SRM prompt, boot UNIX by typing in boot dev#
    or
    if the bootdef_dev variable has been set, just boot.
c) After UNIX has booted, log in.
d) From a DECterm window, type df
e) Note the device id that contains the root, usr and var directories.
     Also note any other device that is mounted.

Example:

```
>df
Filesystem   5112-blocks    Used    Available   Capacity   Mounted on
/dev/rz0a       36108       148924    176522       46%       /
/proc              0            0         0        100%      /proc
/dev/rz10c     1891454      954468    747840       57%       /usr
/dev/rz11c     1891454     1478178    224130       87%       /mnt1
/dev/rz0g      1012680     1012680    820192       90%       /usr1
```

```
Devices rz0(root), rz10(usr), and rz11(mnt1) are being used in
this example.
```

e) At a DECterm window, type swapon -s
f) Record the devices that are being used as the primary and secondary swap space.

- **Table 1 is an example configuration. The device identifications will vary with each individual configuration.**

- **This configuration contains no IDE drives, and SRM console os_type is set to UNIX.**

Table 1: Example Configuration

Controller Number	SCSI ID	SRM	UNIX	NT
0	0	dkc0	rz16	disk 0
	1	dkc100	rz17	disk 1
	2	dkc200	rz18	disk 2
	5	dkc500	rz21	disk 3
1	0	dkd0	rz24	disk 4
	1	dkd100	rz25	disk 5
	2	dkd200	rz26	disk 6
	3	dkd300	rz27	disk 7
	4	dkd400	rz28	disk 8
	5	dkd500	rz29	disk 9

```
Devices rz0(root), rz10(usr), and rz11(mnt1) are being used in this
example.
```

Example:

```
>swapon -s
Swap partition /dev/rz0b  (default swap):
        Allocated space:  40685 pages  (317MB)
        In-use space:     14814 pages  ( 36%)
        Free space:       25871 pages  ( 63%)

Swap partition /dev/rz1C:
        Allocated space:  128178 pages  (1001MB)
        In-use space:     287 pages     (  0%)
        Free space:       127891 pages  ( 99%)

Total swap allocation:
        Allocated space:  168863 pages  (1319MB)
        In-use space:     24928 pages  ( 14%)
        Free space:       15101 pages  (  8%)
        Available space:  143935       ( 85%)
```
In this example, device rz1 and rz0 are being used as swap disks.

g) At a DECterm window, type `shutdown -h now`
   This will shut down the system to the SRM console.

III. Switch From SRM to Alpha BIOS

a) At the SRM console prompt, type `SET os_type NT`
b) Power cycle the system.
c) Alpha BIOS will be entered when the system comes up.

IV. Install Windows NT

a) For the following steps, refer to the Microsoft Windows NT Installation Guide (Microsoft document number 69396-0696)
b) Insert Windows NT installation CD ROM
c) When Alpha BIOS completes memory test, press the `F2` key to enter setup.
d) Select CMOS setup. Modify the date if necessary and save changes.
e) Select the hard disk setup menu item.
f) At the Express setup window, press `ESC`.
g) Select the disk on which Windows NT will be installed.

NOTE: When selecting the device to install Windows NT, make sure you do not select any disk that is being used for the UNIX operating system. Refer to the list that was made in Step II, and the attached table to determine which disks are being used by UNIX.

g) Press F6 to format the selected disk.
h) After the format is completed, press ESC to exit.
i) Select Install Windows NT from menu.
j) For the rest of the NT installation, follow the Microsoft*Windows NT Installation Guide*, (Microsoft document number 69396-0696)
k)   Choose `Install Windows NT.`
l) Press [Enter].
m) If the system indicates that the CD-ROM device is not visible, press [Esc] to leave Setup, power cycle the machine, and repeat the process.

NOTE: Wait 45 seconds before turning the system back on.

n) Press [Esc] to return to Setup.
o) Select `Install Windows NT.`
    The system partition should be partition 2.
p) When you are prompted for computer type at the Window NT Setup screen, choose `other`.
q) Press [Enter].
r) Install the hardware support floppy diskette, and select DIGITAL Personal Workstation a-Series. If your system has no IDE devices, Go to Step W.
s) When you are prompted about additional storage devices, choose `s` and then `other`.
t) Insert the floppy diskette with the CMD CSA-64xx IDE Driver.
u) Press [Enter].
v) After the IDE driver is installed, press [Enter] to continue with Setup.
w) At the Windows NT Workstation Setup screen, press [Enter].
x) At the Windows NT Workstation Setup screen, press [Enter] to confirm your hardware and software components.
y) When you are prompted to select a drive on which to install Windows NT, choose the large FAT partition (C).

    NOTE: You may choose to format the drive as an NTFS drive. See your Windows NT operating system documentation for more information on drive formats.
z) Press [Enter] to install Windows NT.

V. To Switch to SRM from Alpha BIOS (Boot UNIX)

a)   From NT, shut down the system.
b)   After Alpha BIOS finishes memory test, press the F2 key to enter the setup.
c)   Select the `CMOS SETUP` menu item.
d)   Press `F6 ADVANCED`
e)   Tab down to Console Selection
f)   Select: DIGITAL UNIX Console (SRM)
g)   Press F10 key twice
h)   Press enter
i)   Power cycle the system
j)   The SRM console will be entered when the system comes up.

VI. To Switch to Alpha BIOS from SRM (Boot Windows NT)

a)   Select CMOS SETUP menu item
b)   Press F6 key to enter ADVANCED
c)   Tab down to Console Selection
d)   Select: DIGITAL UNIX Console (SRM)
e)   Press F10 key twice
f)   Press enter
g)   Power cycle the system

Installing the DIGITAL UNIX Operating System on a DIGITAL Windows NT System

Your system came with the DIGITAL Windows NT operating system preloaded.
If you choose to run the UNIX operating system *only,* your system is ready to go.

Installing the DIGITAL UNIX Operating System

Special Considerations

If you choose to run UNIX, you must install it either from CD-ROM or RIS
installation. Before beginning the installation, please read through the following
considerations.

Hardware Requirements

UNIX requires a separate hard disk drive. UNIX and NT cannot reside on the
same drive. You received an additional drive with your system. However, you
must ensure
(1) that it contains no data *or* (2) that any data on the additional drive is backed up
before you attempt to have two operating systems reside on your workstation.

Precautionary Measures

CAUTION: Installing and running two operating systems on one machine carries risks. To minimize these risks, first ensure that you have backups of all your files.

If you do not plan to keep the Windows NT operating system on your machine, you may want to remove Windows NT and the data hard drive for safekeeping.

UNIX Operating System Installation Steps

Follow the step by step instructions below to install UNIX on a system already loaded with Windows NT.

NOTE: After each command, press either [Return] or [Enter], depending upon what type of keyboard you have.

I. Determine the Hard Drives that are used by NT

a)   Power Up /init system
b)   After Alpha BIOS memory test, press the F2 key to enter setup.
c)   Select Menu item UTILITIES
d)   Select Menu item OS Selection Setup
e)   Note SCSI controller and device number.
     Also note disks being used for NT system disks
     Example: Disk 8, Partition 2.
     Make sure to note the SCSI controller number and device number.
f)   Record this and any other disk that is to be used for NT
g)   Press ESC to return

II. Switch to SRM Console

a)   Select CMOS SETUP menu item
b)   Press F6 key to enter ADVANCED
c)   Tab down to CONSOLE SELECTION
d)   Select DIGITAL UNIX Console (SRM)_
e)   Press F10 key twice
f)   Press [Enter].
g)   Power Cycle the system

III. Install DIGITAL UNIX:

NOTE: UNIX can be installed either by conducting a RIS installation, or it can be installed using the UNIX installation CD-ROM. This procedure will illustrate an installation using the UNIX CD-ROM.

a) For the following steps, refer to the UNIX Installation Guide (Order Number AA-QTLGA-TE).
b) Insert the UNIX Installation CD-ROM
c) Check the SRM console date (and correct if necessary) before installing UNIX.
   Example:
   ```
   >>>date
   >>>date 199805010935.00
   >>>09:35:00 MAY 1, 1998
   ```
d) At the SRM console prompt, determine the id of your CD-ROM.
   Example: `>>>show device`
e) The UNIX installation menu will appear on the screen after the CD has booted.

NOTE: When selecting the device to install the root, usr and var directories and primary /secondary swap space, be sure not to select the device which is the NT system disk or any hard disk that is to be used with NT. Use the list obtained in Step I and the attached label to assist in identifying the NT drives on the system.

- **Table 2 is an example configuration. The device identifications will vary with each individual configuration.**

- **This configuration contains no IDE drives, and SRM console os_type is set to UNIX.**

Table 2: Example Configuration

Controller Number	SCSI ID	SRM	UNIX	NT
0	0	dkc0	rz16	disk 0
	1	dkc100	rz17	disk 1
	2	dkc200	rz18	disk 2
	5	dkc500	rz21	disk 3
1	0	dkd0	rz24	disk 4
	1	dkd100	rz25	disk 5
	2	dkd200	rz26	disk 6
	3	dkd300	rz27	disk 7
	4	dkd400	rz28	disk 8
	5	dkd500	rz29	disk 9

e) Supply all information necessary for the UNIX installation. Refer to the *UNIX Installation Guide*.

f) After installation, the system will boot to the UNIX operating system.

IV. To Switch to Alpha BIOS (Boot Windows NT)

a) At the SRM console prompt, type SET os_type NT

b) Power cycle the system.

c) Alpha BIOS will be entered when the system comes up.

d) After logging into Windows NT, check the system date/time and correct if necessary.

V. To Switch to SRM (Boot UNIX)

a) From NT, shutdown the system.

b) After Alpha BIOS completes memory test, press the F2 key to enter setup.

c) Select the CMOS SETUP menu item.

d) Press F6 ADVANCED

e) Tab down to Console Selection

f) Select : DIGITAL UNIX Console (SRM)

g) Press F10 key twice

h) Press [Enter]

i) Power cycle the system

j) The SRM Console will be entered when the system comes up.

k) After logging into DIGITAL UNIX, check the system date/time and correct if necessary.