

Personal Workstation 433 *a-Series*

Cache Memory Installation Guide

Order Number: EK-ALMIA-CU. A01

March 1997

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Information - Class B

This device complies with Part 15 of the FCC rules. Operation is subject to the following conditions:

- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. Any changes or modifications to this equipment may void the user's authority to operate this equipment.

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

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

The keyboard and video ports should be connected only with shielded datacables with an external ferrite bead over the cable. When either of these ports is connected with cables without such a ferrite bead, the additional ferrite beads shall be clamped over these cables next to the cable connector.

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Preface

Purpose of the Guide

The *Personal Workstation 433 a-Series System Cache Memory Installation Guide* provides the information you need to successfully upgrade your system's cache memory.

Specifically, the guide describes the following steps in the upgrade (refer to the table of contents for a detailed listing of material covered):

1. Preparing for the cache memory installation.
2. Installing the HAL (hardware abstraction layer).
3. Updating the system using APU firmware.
4. Installing the new cache module.
5. Rebooting the Microsoft Windows NT operating system.

NOTE: You must complete all of the steps covered in the guide to properly perform the upgrade.

Intended Audience

If you are performing a cache memory installation on a Personal Workstation 433 *a-Series* system, this information is relevant for you.

Preface

Special Notices

Three kinds of notices emphasize specific information in this guide:

- A **WARNING** indicates the presence of a hazard that can cause personal injury.
- 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 relating to your DIGITAL Personal Workstation:

- *DIGITAL Personal Workstation User Information* (order number EK-ALMIA-UI). This guide introduces the DIGITAL Personal Workstation system and explains how to start, use, upgrade, troubleshoot, and configure your system.
- *DIGITAL Quick Setup Guide* (order number ER-B30WW-IM). This graphical guide leads you through the initial installation of the DIGITAL Personal Workstation.

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.

- Internet electronic mail to:
reader_comments@eng.pko.dec.com
- Mail to:

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Shared Engineering Services
PKO3-2/21J
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Please reference order number EK-ALMIA-CU. A01 in your correspondence about this guide.

Preparing for the Installation

Prerequisite Hardware

Confirm that you have the correct hardware before you begin. At a minimum, your Personal Workstation 433 *a-Series* system should be running Windows NT 4.0 and have:

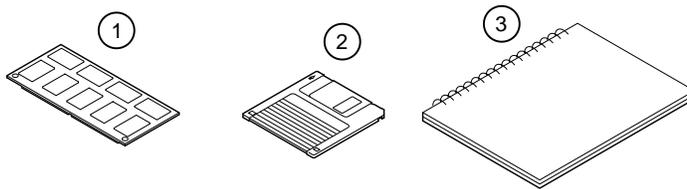
- 32-MB memory.
- Floppy diskette drive.
- 200-MB or greater SCSI hard disk.

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

Cache Memory Kit Contents

Ensure that you have the following items, shown in Figure 1:

- ① 433a Cache memory module (2-MB)
- ② Floppy diskettes (one shown; your kit has two, AK-R4R5A-CA, which contains the APU firmware update, and AK-R4Z2A-CA, which contains the HAL update)
- ③ Documentation (EK-ALMIA-CU)



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Figure 1: Cache Memory Kit

Installing Cache Memory

Shutting Down the Microsoft Windows NT Operating System

Before proceeding with the update, perform the following steps to shut down the Microsoft Windows NT operating system:

1. Close any application data files you have open as well as any applications you have running. Most application programs prompt you to save the information before closing.
2. Shut down the operating system as Table 1 outlines.

Table 1: Operating System Shut Down

Step	Action
1	Click the <code>Start</code> button.
2	Click <code>Shut Down...</code>
3	Select <code>Shut down the Computer?</code>
4	Click the <code>Yes</code> button.

3. Wait for the operating system to complete the shutdown process. The Microsoft Windows NT operating system displays a window indicating it is safe to turn off or restart the system.

Loading the HAL

Before installing the cache memory, ensure that the HAL (hardware abstraction layer) is properly loaded onto your system. This update procedure is applicable for customers whose systems have Windows NT preinstalled. In addition, customers whose systems do not have Windows NT preinstalled (that is, systems for which the Windows NT end user agreement [EULA] has not been completed) also should follow this procedure.

Use the following procedure to load the HAL:

1. Insert the floppy diskette labeled “DIGITAL Personal Workstation ‘a’-Series Cache Module Support Diskette, Disk 2 of 2, HAL Update” into the floppy diskette drive.
2. Power on the system.
3. From the AlphaBIOS main menu, select `Utilities Run → Maintenance Program`. Press `[Enter]`.
4. In the `Run Maintenance Program` dialog box, fill in the fields as follows:
Program Name: `halcopy`
Location: `A:`
5. Press `[Enter]`.

NOTE: If you see a File Open Error warning box, make sure that you typed “halcopy” correctly and that you have inserted the correct diskette. Then retry.

Installing Cache Memory

6. The following messages display:
Halcopy utility starting...
Do you wish to complete the HAL upgrade?
Y to complete upgrade, anything else to quit...>
7. Press Y to complete the upgrade.
8. The following messages display:
Reading new HAL...
Updating HAL...
Update completed.
Hit any key to return to AlphaBIOS.

NOTE: If you see any messages that include the <Error> string, contact your Digital Field Service or VAR support staff for assistance.

9. Press any key.
10. Your HAL update is now complete. When you restart Windows NT on your DIGITAL Personal Workstation, you will be using the updated HAL.

Copying the HAL over the Internet

If you prefer to copy the HAL over the Internet, follow the next steps:

1. Open the URL <http://www.windows.digital.com/support/sysoft.htm>.
2. You will be at the Windows Enterprise Computing screen.
3. Scroll down to the DIGITAL Personal Workstation heading and choose 433a.
4. You will now be at the DIGITAL Personal Workstation 433a Support Files screen.
5. Choose HAL for WNT 4.0.
6. Save the files on your system.
7. Unzip the archive and copy the files (HAL filename is `halmiata.dll`) to a floppy diskette. Label it "DIGITAL Personal Workstation "a"-Series, Cache Module Support Diskette, Disk 2 of 2, HAL Update."

Installing Cache Memory

Updating System Firmware from APU

You must reflash your system through APU. The next section outlines the steps required to accomplish this.

To update the firmware from APU, follow these steps:

1. From the Main menu, use the down arrow [↓] to select CMOS Setup. Press [Return].
2. Insert the floppy diskette labeled “DIGITAL Personal Workstation ‘a’-Series Cache Module Support Diskette, Disk 1 of 2, APU Firmware Update” into the appropriate drive (drive A:).
3. Press [F6] to go to Advanced Setup.
4. Tab down to Console Selection, and use the up arrow [↑] to select Digital UNIX Console SRM.
5. Press [F10] twice. Press [Return] to save the changes.
6. Power cycle the machine.

NOTE: Wait at least 45 seconds before restarting the machine.

7. The system should come back up the SRM >>> prompt.
8. At the SRM >>> prompt, the Digital Personal Workstation 433a Console X6.2-x will display across the top of the screen.
9. Type >>>b dva0. Press [Return].
10. The display now reads:
Boot dva0.0.0.0.1 -flags 0
block 0 of dva0.0.0.0.1 is a valid boot block

After the system is finished reading the floppy diskette, the SRM >>> prompt changes to the APU → prompt. At this point, you can proceed to perform the update outlined next.

1. At the APU → prompt, type update. Press [Return].
2. The following displays:
APU-I ARE YOU READY TO PROGRAM (SRM) ROM DEVICE? (Y/N)
3. Type y. Press [Return].
4. You will see the following display:
APU-I ERASING (SRM) ROM DEVICE
APU-I PROGRAMMING (SRM) ROM DEVICE
APU-I VERIFY LOADED (SRM) ROM IMAGE
APU-I VERIFY LOADED (SRM) ROM IMAGE DONE
APU-I PROGRAMMING (SRM) ROM COMPLETED
APU-I ERASING (ARC/AlphaBIOS) ROM DEVICE

Installing Cache Memory

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APU-I PROGRAMMING (ARC/AlphaBIOS) ROM DEVICE
APU-I VERIFY LOADED (ARC/AlphaBIOS) ROM IMAGE
APU-I VERIFY LOADED (ARC/AlphaBIOS) ROM IMAGE DONE
APU-I PROGRAMMING (ARC/AlphaBIOS) ROM COMPLETED
```

To upgrade POST at the APU → prompt, follow these steps:

1. To upgrade the POST (power on self test) code, type `update srom` at the APU → prompt. Press [Return].
2. The following displays:
APU-I ARE YOU READY TO PROGRAM (SROM) ROM DEVICE? (Y/N)
3. Type `y` . Press [Return].
4. You will see the following display:
APU-I ERASING (SROM) ROM DEVICE
APU-I PROGRAMMING (SROM) ROM DEVICE
APU-I VERIFY LOADED (SROM) ROM IMAGE
APU-I VERIFY LOADED (SROM) ROM IMAGE DONE
APU-I PROGRAMMING (SROM) ROM COMPLETED
5. You return to the APU → prompt.
6. Power cycle the machine.

NOTE: Wait at least 45 seconds before turning the machine on again.

7. The system will come back to the SRM >>> prompt.
8. At the SRM >>> prompt, type:
`set os_type nt` [Return]
`show os*` [Return]
9. The display should be as follows:
`os_type NT`
10. Power cycle the machine.

NOTE: Wait at least 45 seconds before turning the machine on again.

11. The APU upgrade is now completed.
12. Your system will now come up to the AlphaBIOS screen.

Installing Cache Memory

Installing the Cache Memory Module

Prior to performing the next steps, ensure that:

1. The HAL has been copied to the appropriate location in the system partition on your system disk.
2. AlphaBIOS and POST have been updated.
3. Microsoft Windows NT operating system has been shut down. (See earlier instructions.)
4. The system has been powered off.

Powering Off the System

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

Once you have safely shut down the Microsoft Windows NT operating system as described earlier, turn off the system power before proceeding.

Removing the System Cover

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

To remove the system cover, refer to Figure 2 and perform the following steps:

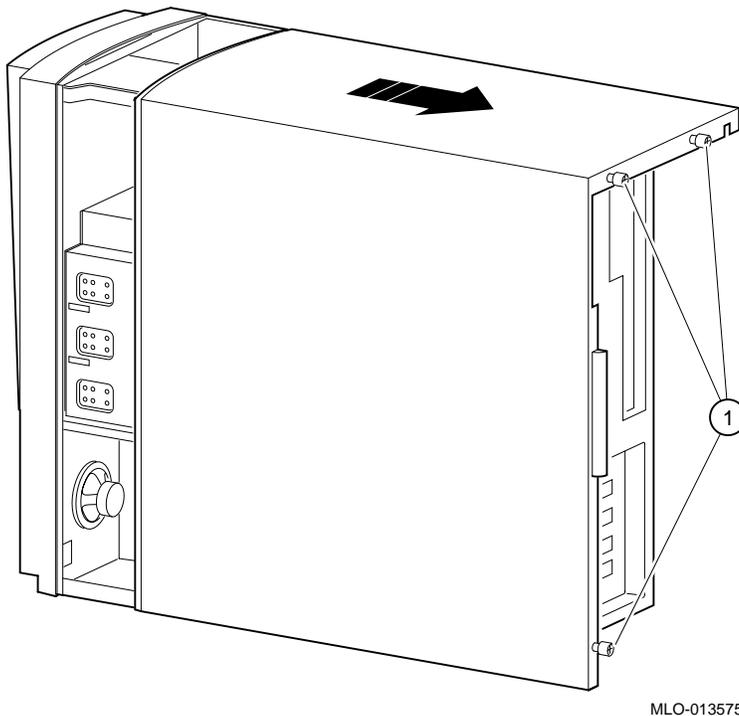
1. Shut down your system and all peripheral devices.
2. Unplug the power cord and all other cables.

WARNING: Allow at least 45 seconds for the power supply capacitors to discharge safely.

3. Remove the system lock, if necessary.

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

Installing Cache Memory



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Figure 2: Unlocking and Removing System Cover

Removing the MLB

NOTES: 1. Before beginning this section, confirm that you have removed all cables; this will facilitate the next steps. 2. Remove the MLB from the system to facilitate access to the cache memory connectors on the MLB.

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

Refer to Figure 3 and follow these steps to remove the MLB from your system:

1. With the system cover off, release the two MLB-retaining clips on top of the MLB.
2. Hold onto either end of the MLB as you slide it up and out of the system chassis.
3. Carefully place the MLB onto a static-free, flat surface.

Installing Cache Memory

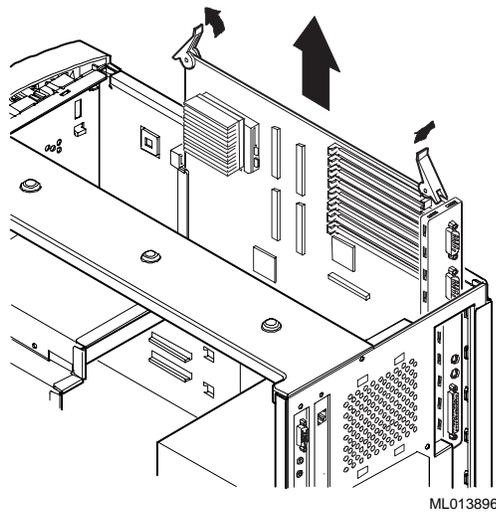


Figure 3: Removing the MLB

Installing the Cache Memory

NOTE: Carefully remove the cache memory module from its ESD-protected bag.

To install the cache memory onto the MLB, refer to Figure 4 and follow these steps:

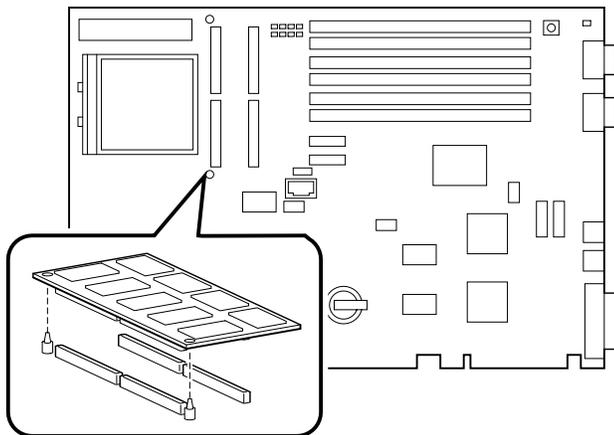


Figure 4: Installing Cache Memory

1. Using the alignment pins on the MLB as a guide, carefully position the cache memory onto the MLB connectors.
2. Once the module is properly aligned, firmly press down on it to engage the connectors.

Installing Cache Memory

NOTE: Some systems shipped without the alignment pins in place. If you received a system without pins, use the corresponding holes in the cache memory and the MLB as a positioning guide.

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

Replacing the MLB

Refer to Figure 5 and follow these steps to replace the MLB into the system after you have installed the cache memory:

1. Hold onto either end of the MLB as you slide it down into the system chassis.
2. Carefully seat the MLB onto the connectors inside the system chassis.
3. Lock the MLB-retaining clips over the MLB to secure it.

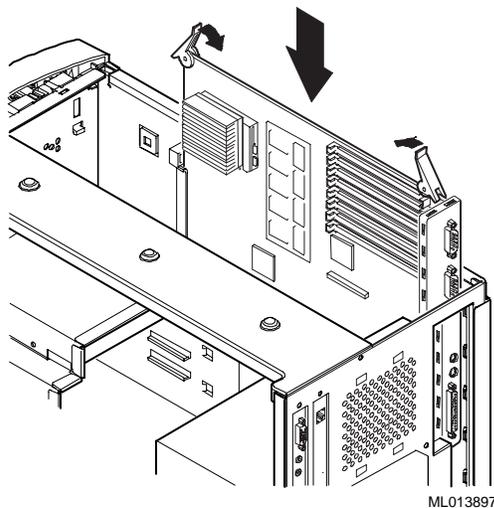
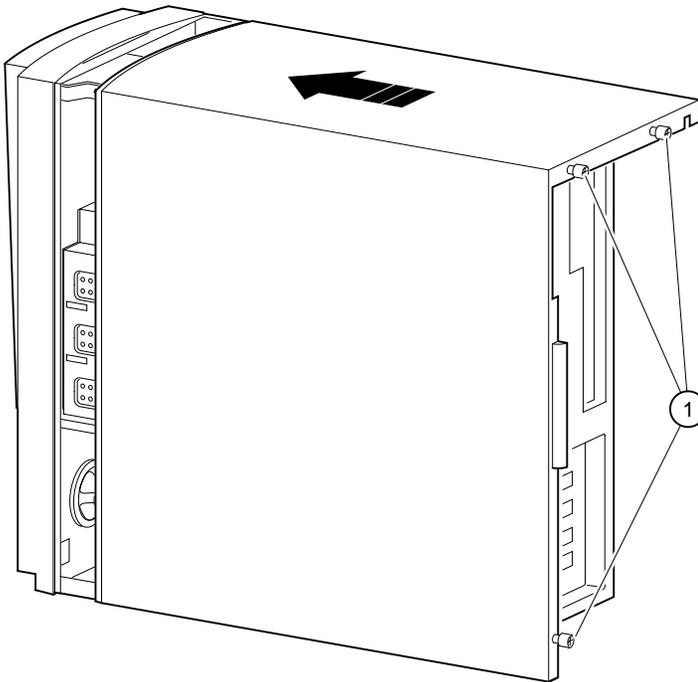


Figure 5: Replacing the MLB

Installing Cache Memory

Replacing the System Cover

To replace the system cover, refer to Figure 6 and follow the next procedure:



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Figure 6: Replacing System Cover

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

Powering On the System

Power on the system and boot the operating system.