

MicroVAX 3100

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Model 40/80 to Model 85  
CPU Upgrade Guide

Order Number: EK-M3185-UP. A01

**June 1994**

**Digital Equipment Corporation  
Maynard, Massachusetts**

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**June 1994**

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## Preface

This guide describes how to upgrade a MicroVAX 3100 Model 40 or a MicroVAX 3100 Model 80 system to a MicroVAX 3100 Model 85 by replacing the CPU module with a KA55 Module.

### Audience

This guide is intended for Digital services personnel and licensed self-maintenance customers.

### Customer Responsibilities

Only qualified maintenance personnel (Digital services representatives or qualified self-maintenance customers) should perform the installation procedure.

If you are not a qualified self-maintenance customer, call Digital services to schedule a system conversion. It is your responsibility to perform a software backup before a Digital services representative arrives at your site.

When the conversion is complete, return the original CPU and memory modules to Digital. Appendix A contains forms that need to be completed by the Digital services representative and signed by both you and the Digital services representative.

### Digital Services Responsibilities

Before arriving at the site, you should contact the customer to ensure that the customer's software is backed up.

After installation of the upgrade kit, you must complete the forms in Appendix A and remove them from this document. The forms must be signed by both you and the customer.

The following forms are in Appendix A:

- Digital Services Worksheet
- Installation Receipt–Customer Copy
- Installation Receipt–Digital Services Copy
- Returned Material Checklist

You should give the customer the signed Installation Receipt–Customer Copy. Include the signed Installation Receipt–Digital Services Copy with the CPU module that is being returned to Digital to ensure that the customer receives credit.

## Structure of this Guide

This guide presents an overview of the upgrade process and detailed conversion procedures in one chapter. Appendix A contains forms for the return of the original CPU and memory modules.

## Conventions

The following conventions are used in this guide:

<b>Convention</b>	<b>Description</b>
<i>italic type</i>	Italic type emphasizes important information or indicates variables. It is also used for the titles of manuals.
<b>Note</b>	A note contains information that is of special importance.
<b>Caution</b>	A caution contains information to prevent damage to the equipment.

## Related Documents

The following related documents provide information about the MicroVAX 3100 Model 85:

<b>Documentation</b>	<b>Order Number</b>
<i>MicroVAX 3100 Model 85/95 Installation Information</i>	EK-A0716-IN
<i>MicroVAX 3100 Model 85/95 Operation Information</i>	EK-A0717-OP
<i>MicroVAX 3100 Model 85/95 Customer Technical Information</i>	EK-A0718-TI
<i>MicroVAX 3100 Model 85/95 Troubleshooting and Diagnostic Information</i>	EK-A0719-TM
<i>MicroVAX 3100 Model 90 SCSI Upgrade Manual</i>	EK-501AA-UP



# 1

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## Conversion Process

This chapter describes the general process for upgrading a MicroVAX 3100 Model 40 or Model 80 to a MicroVAX 3100 Model 85 system by replacing the CPU module with a KA55 CPU module.

### 1.1 Overview of the Conversion Process

Tasks required to upgrade MicroVAX 3100 Models 40 and 80 are summarized below. The conversion involves replacing the CPU module and the system medallion. To begin the conversion, turn to Section 1.2.

1. Have the customer back up the system software.
2. Unpack and verify the conversion kit.
3. Update OpenVMS if necessary; OpenVMS version 5.5–2H4, 6.1, or higher is required for a MicroVAX 3100 Model 85.
4. Shut down the operating system and run the power-up diagnostics.
5. Turn off the system power and remove the power cord.
6. Remove the enclosure cover.
7. Remove the SIMMs (memory modules).
8. Remove the upper and lower drive mounting shelves and disconnect the drives.
9. Disconnect all internal cables from the CPU module.
10. Remove the CPU module.
11. Install the new CPU module.
12. Install the new SIMMs that are included in the kit.
13. Reconnect all cables to the CPU module.
14. Reinstall the upper and lower drive mounting shelves in the system box, and reconnect all cables.

## Conversion Process

### 1.1 Overview of the Conversion Process

15. Reinstall the enclosure cover.
16. Connect the power cable, signal cables, and terminators to the system as desired.
17. Apply all new labels and the new medallion.
18. Turn on the system.
19. Have the customer reinstall system software (if necessary).
20. Fill out the forms in Appendix A.
21. Return the CPU module and SIMMs as instructed (see Appendix A).

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**Note**

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Firmware upgrades are not required.

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### 1.2 Unpacking the Kit

Unpack the kit as follows:

1. Make sure there is no external damage to the shipping container, such as dents, holes, or crushed corners.
2. Unpack the conversion kit and check its contents against the shipping invoice. Table 1-1 lists the kit contents for the Model 40/80 upgrade to Model 85, 31JXR-AA.

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**Caution**

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Static discharge can damage modules. Use an antistatic wrist strap and antistatic mat during handling. The wrist strap and mat are in the antistatic kit in the Digital services toolkit.

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3. Unpack the CPU module and SIMMs and place them on a grounded antistatic mat.
4. Save the packing material, and use it to return the original CPU module and SIMMs.

## Conversion Process 1.2 Unpacking the Kit

5. If any item is missing or damaged:
  - Contact the customer's sales representative.
  - Contact the customer's delivery agent.

**Table 1–1 Contents of the 31JXR–AA Upgrade Kit**

Description	Part Number	Quantity
64-Mbyte SIMMs	MS44–DC	1
Product conversion label	36–15946–01	1
Return to D001 multi-use label	36–26123–07	1
Regulatory label, VS3X00	36–30382–23(24)	1
Waverley product ID label, BA42-B	36–36394–02	1
NVAX CPU, 128-Kbyte cache, 16 ns, SCSI	54–21797–04	1
Medallion, MicroVAX 3100-85	74–37642–33	1
MicroVAX 3100 Model 40/80 upgrade guide	EK–M3185–UP	1
OpenVMS multimedia Viking	QA–001AA–UW	1
OpenVMS/V Base MVAX 3190 license	QL–005AP–62	1
MicroVAX 3100 Model 95 CHIK	QZ–A05AA–GZ	1

### 1.3 Before Installing the Kit

Before installing the kit:

1. Have the customer back up the system software before the Digital services representative arrives. It is the customer's responsibility to back up the system software.
2. Shut down the operating system in the proper manner.
3. Power up the system and run diagnostics to verify system operation.
4. If you do not have OpenVMS operating system version 5.5–2H4, 6.1, or higher on your system, it is necessary to install a supported version of OpenVMS before the hardware upgrade begins by following these steps:
  - a. Upgrade the OpenVMS disk 5.5–2H4 or 6.1 (2H4 comes with this kit; 6.1 is orderable).
  - b. Shut down the operating system in the proper manner.
5. Turn off the system power before installing the kit.

## Conversion Process

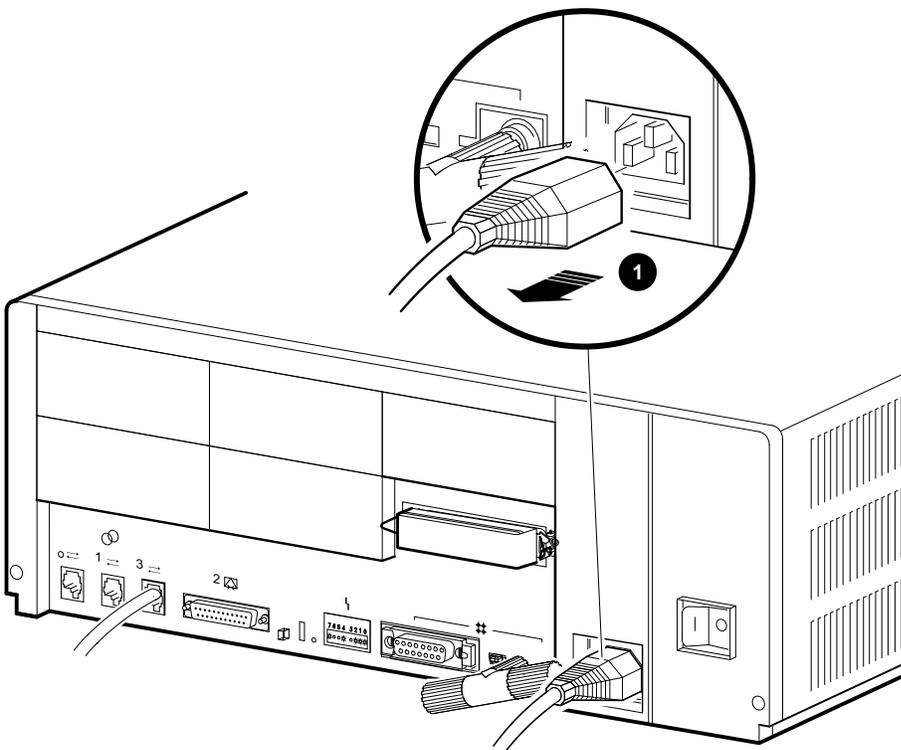
### 1.4 Installing the CPU Module

#### 1.4 Installing the CPU Module

To install the new CPU module (convert to a MicroVAX 3100 Model 85):

1. Disconnect the power cord from the wall outlet, then from the system (Figure 1-1).

Figure 1-1 Disconnecting the Power Cord



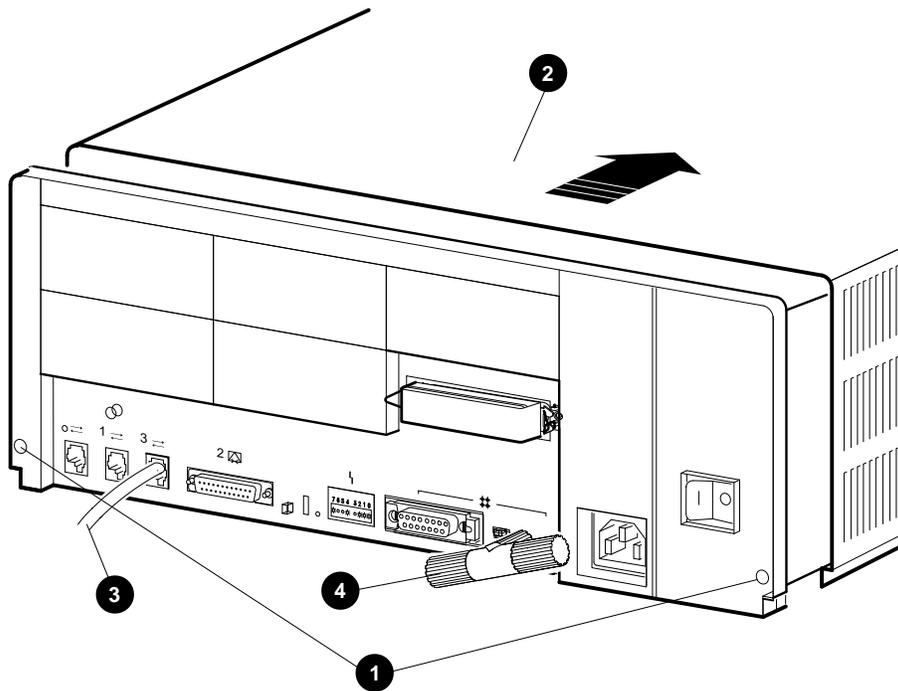
MLO-010959

❶ Power cord

## Conversion Process 1.4 Installing the CPU Module

2. Disconnect the console cable and any external CPU connectors. Remove the enclosure cover by removing the two screws at the rear of the system box and sliding it forward (Figure 1-2).

Figure 1-2 Removing the Enclosure Cover



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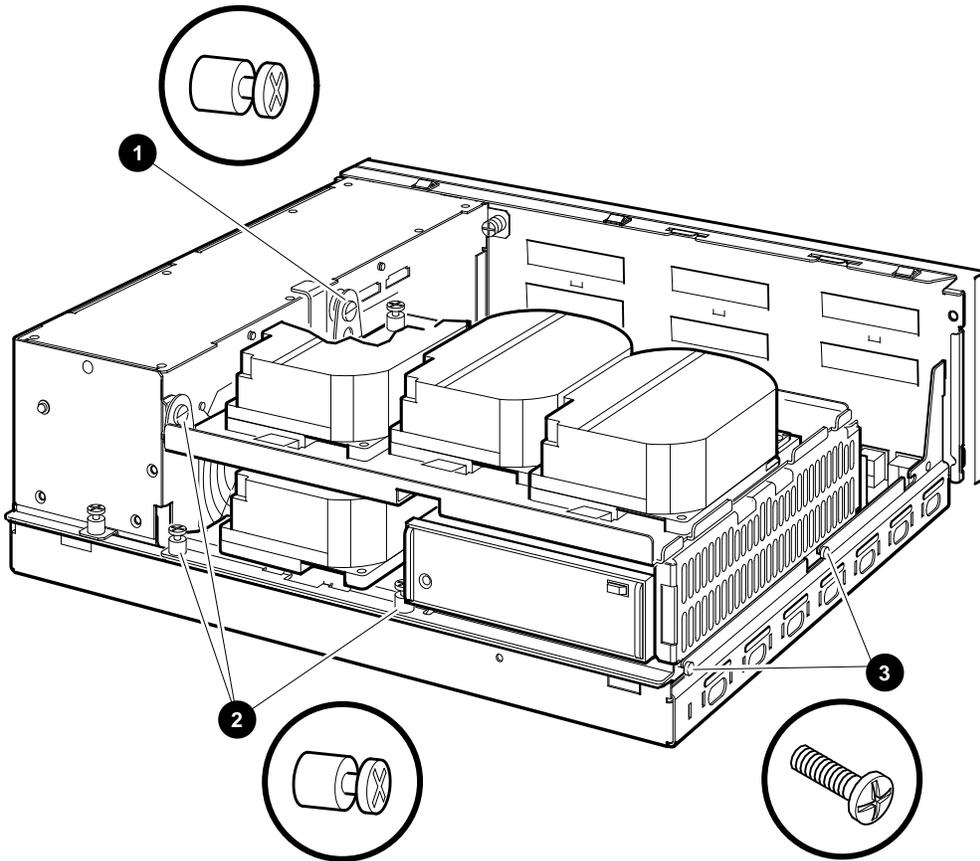
- 1 Screws
- 2 Enclosure cover
- 3 Console cable
- 4 Ethernet external CPU connector

## Conversion Process

### 1.4 Installing the CPU Module

3. Remove the upper and lower drive mounting shelves together as a single unit (it is not necessary to disassemble the shelves themselves). Unscrew all six screws from the shelves, leaving the topmost captive screw until last for support. Leave the captive screws in position and save the Phillips screws for reinstallation of the shelves (Figure 1-3).

Figure 1-3 Unscrewing the Drive Shelves



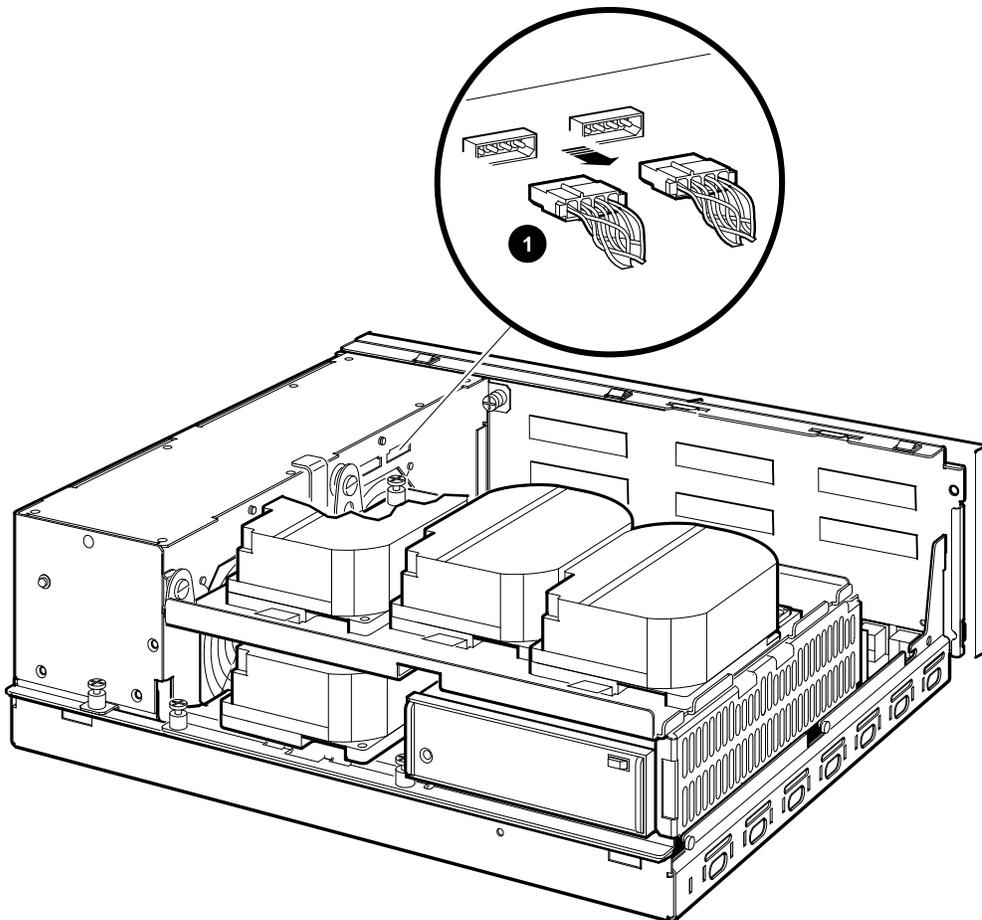
MLO-010961

- 1 Topmost captive screw
- 2 Other captive screws
- 3 Phillips screws

## Conversion Process 1.4 Installing the CPU Module

4. Disconnect the internal power cables from the power supply (Figure 1–4).

**Figure 1–4** Disconnecting the Internal Power Cables



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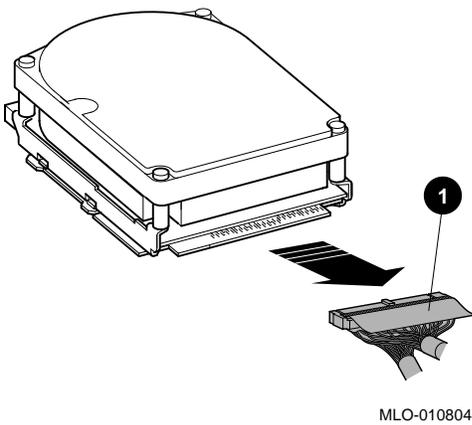
- 1 Internal power cables

## Conversion Process

### 1.4 Installing the CPU Module

5. Disconnect the internal SCSI connectors from all drives mounted on the shelves. Figure 1–5 shows one drive as an example.

**Figure 1–5 Disconnecting Internal SCSI Connectors**



- 1 Internal SCSI connector

6. Remove all SIMMs from the CPU module (Figure 1–6).

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#### Caution

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Static electricity can damage integrated circuits. Wear a wrist strap and place an antistatic mat under the system unit when working with the internal parts of the system unit.

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#### Note

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The SIMMs that you remove from your MicroVAX 3100 Model 40 or Model 80 cannot be used in a MicroVAX 3100 Model 85. They are to be returned for credit using the forms in Appendix A.

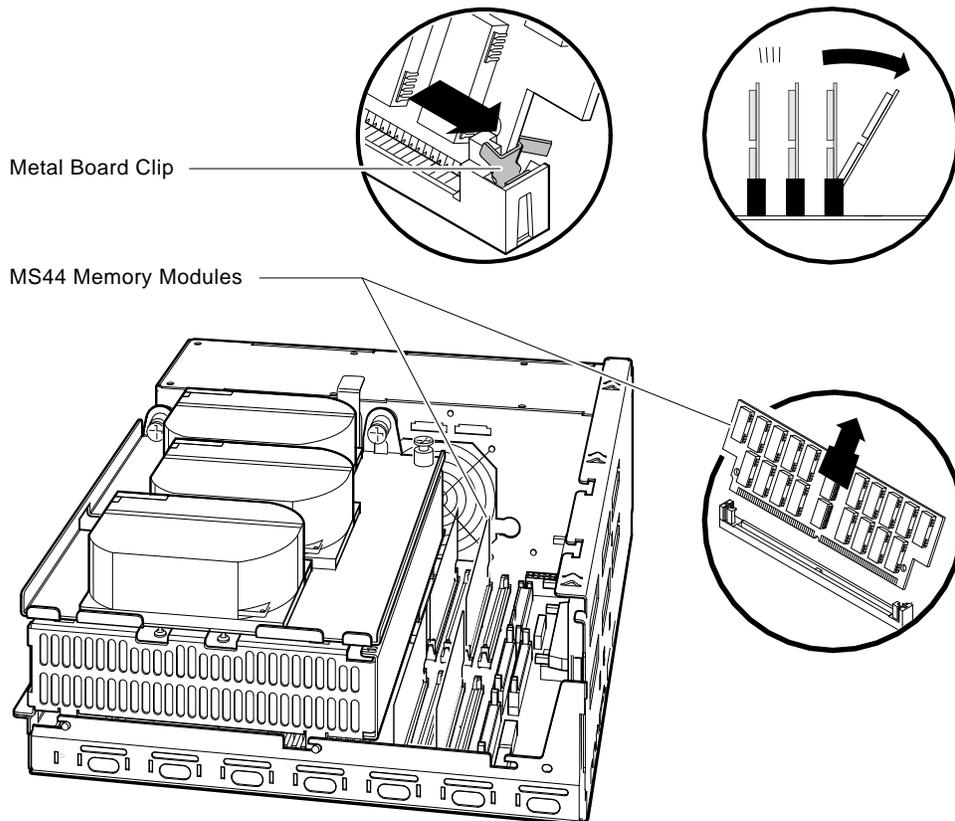
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## Conversion Process 1.4 Installing the CPU Module

Beginning with the SIMMs closest to the front of the enclosure, remove each as follows:

1. Release the memory module (SIMM) by pressing the metal board clips on the memory module connector away from the center.
2. Tip the memory module backward.
3. Lift the memory module up and out of the enclosure, and place it on an antistatic mat.

**Figure 1–6 Removing a SIMM**

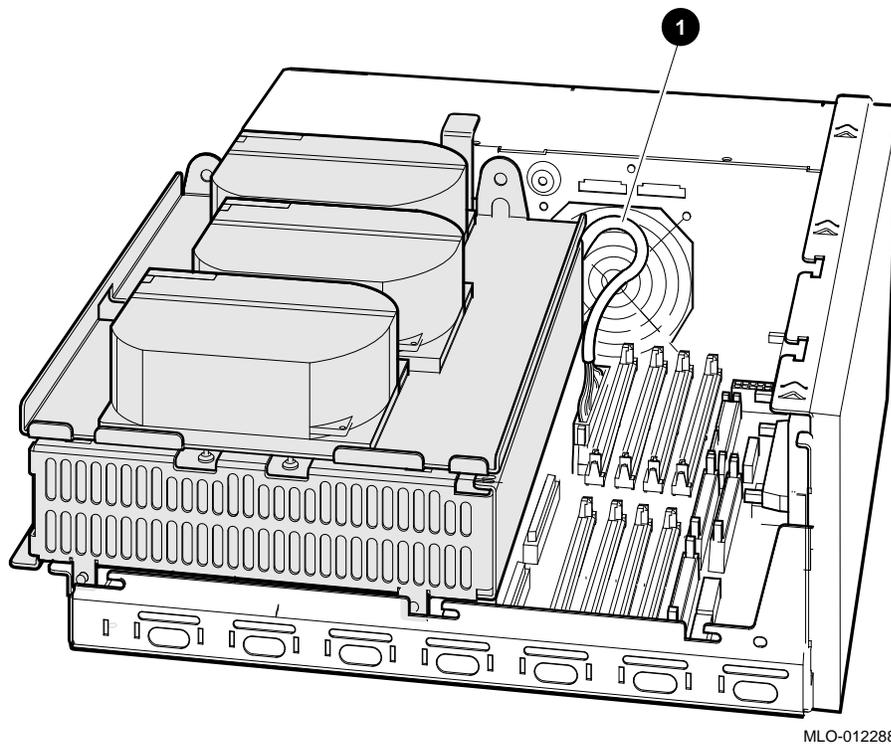


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**Conversion Process**  
**1.4 Installing the CPU Module**

7. Disconnect the internal SCSI cable from the CPU module (Figure 1-7).

**Figure 1-7 Disconnecting the Internal SCSI Cable from the CPU Module**



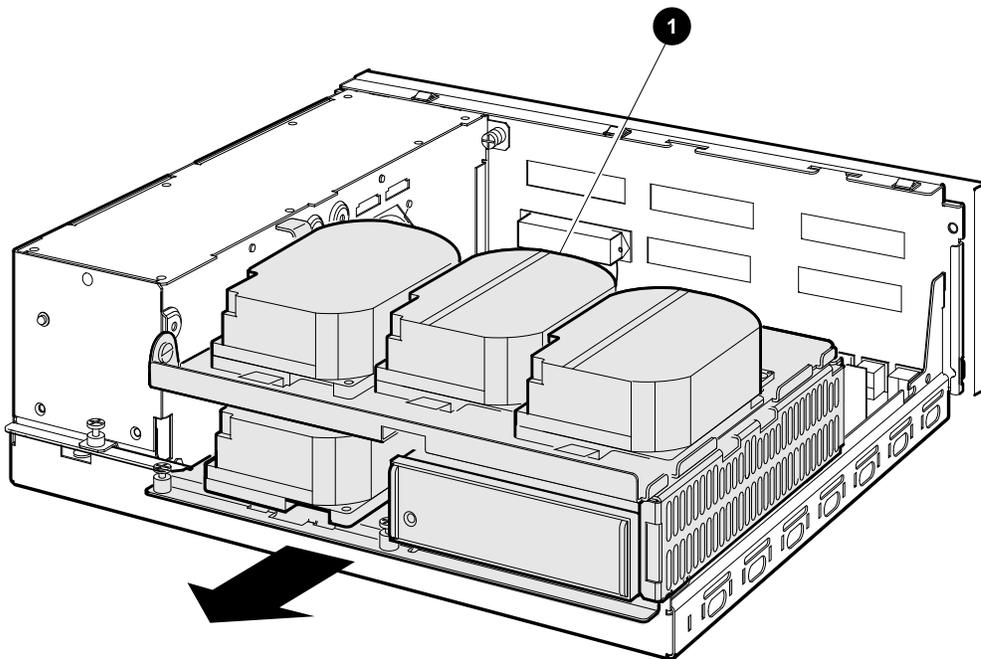
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- 1 Internal SCSI cable

## Conversion Process 1.4 Installing the CPU Module

8. Remove the drive mounting shelves by sliding them forward (Figure 1–8) and lifting them forward and up from the enclosure (Figure 1–9).

**Figure 1–8 Sliding the Drive Mounting Shelves Forward**

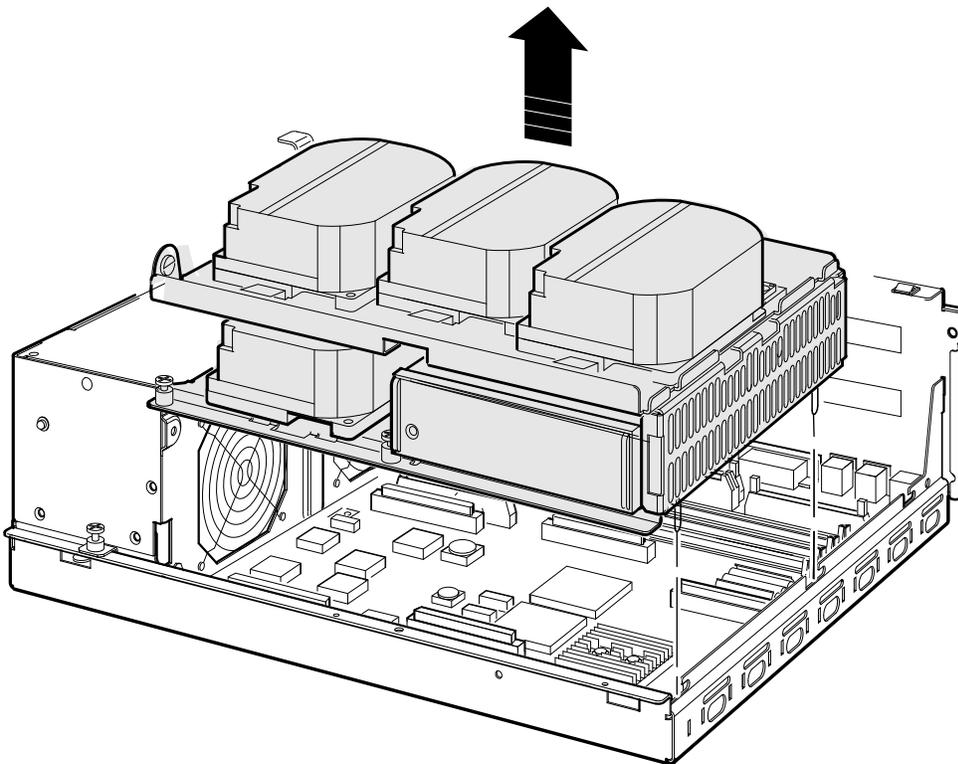


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- 1 Drive mounting shelves

**Conversion Process**  
**1.4 Installing the CPU Module**

**Figure 1–9 Lifting the Drive Mounting Shelves Upward**

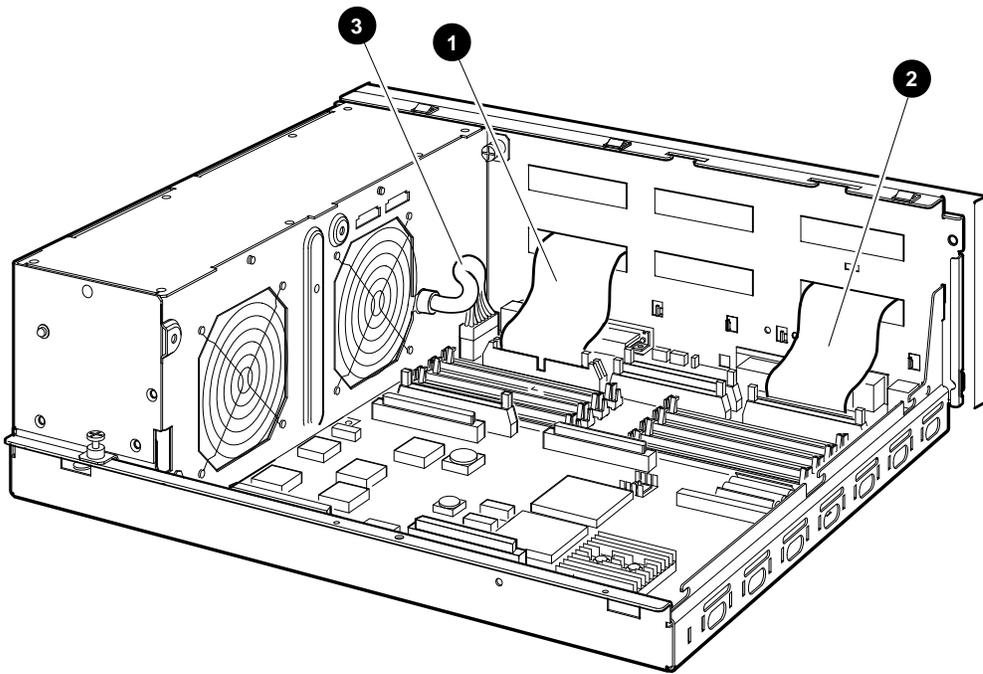


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## Conversion Process 1.4 Installing the CPU Module

9. Remove all cables from the CPU module (Figure 1–10).
  - a. Disconnect the external SCSI cable at the connector on the CPU module.
  - b. Disconnect any internal communications options cables from the CPU module.
  - c. Disconnect the CPU power cable from the CPU module.

**Figure 1–10** Disconnecting the External SCSI, Communication Options, and CPU Power Cables



MLO-012336

- ❶ External SCSI cable
- ❷ Internal communications option cable(s)
- ❸ CPU power cable

## Conversion Process

### 1.4 Installing the CPU Module

10. To remove the CPU module, follow these steps:

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**Caution**

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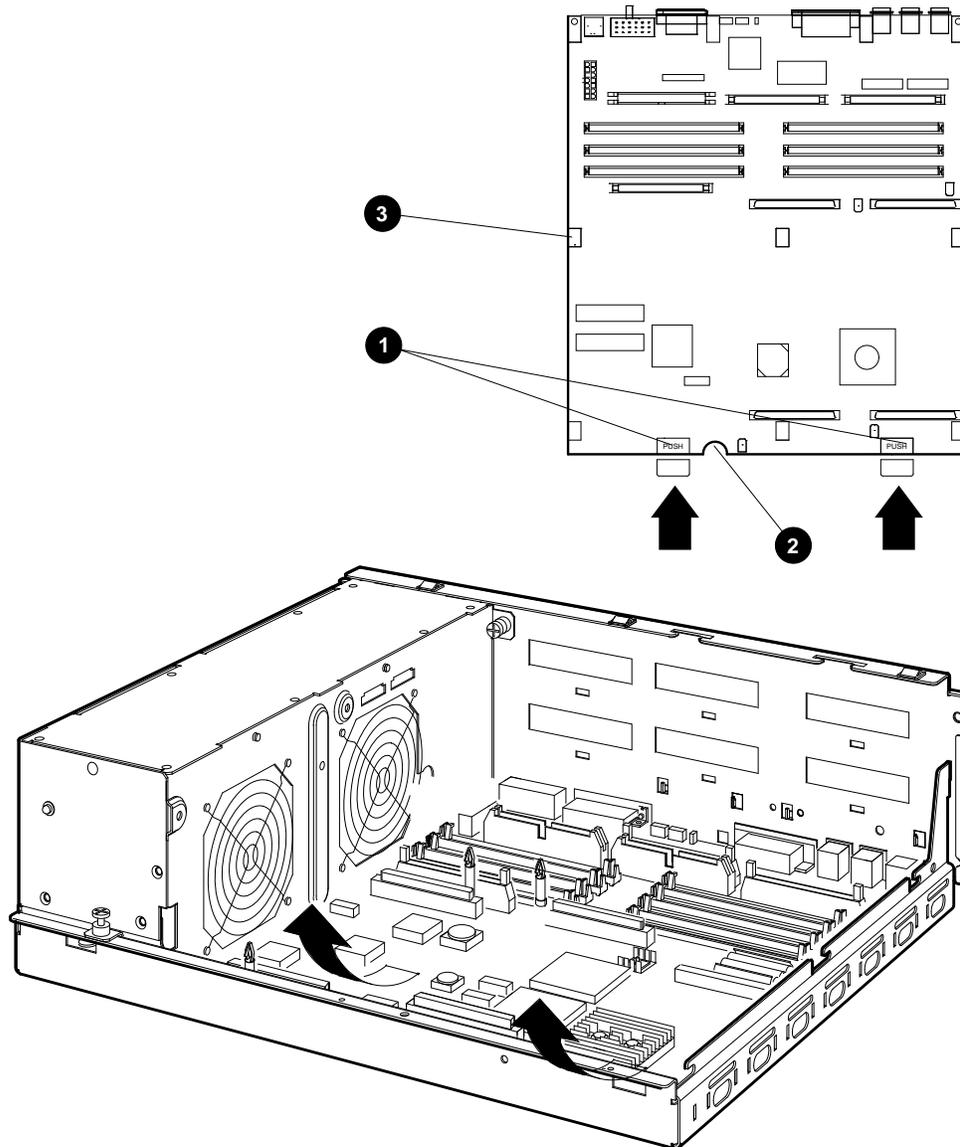
Ensure that you do not damage any of the CPU module components by exerting too much force on them.

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- a. Press the two spring clips (marked by arrows in Figure 1–11) that secure the CPU module in position. The CPU module moves forward under the tension of the connector gaskets. If necessary, slide the CPU module back until it disengages from the ten keyhole cutouts (Figure 1–11).
- b. Use your finger, in the semicircular cutout on the front edge of the CPU module, to lift up the front edge of the CPU module (Figure 1–11).
- c. While supporting the front of the CPU module with one hand, guide the connectors on the back of the CPU module out of the corresponding cutouts on the back of the enclosure.
- d. Remove the CPU module from the enclosure.

## Conversion Process 1.4 Installing the CPU Module

Figure 1–11 Removing the CPU Module



MLO-012295

- ❶ Spring clips
- ❷ Semicircular cutout
- ❸ Keyhole cutouts (10)

## Conversion Process

### 1.4 Installing the CPU Module

11. To install the new CPU module, follow these steps:
  - a. Place the CPU module in the enclosure so that the connectors on the CPU module align with the corresponding cutouts in the back panel of the enclosure. Use the ThinWire Ethernet port as an anchor point to adjust the position of the CPU module correctly.
  - b. Align the keyhole cutouts in the CPU module with the corresponding standoff pillars in the base of the enclosure.

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**Caution**

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Ensure that you do not damage any of the CPU module components by exerting pressure on them.

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- c. Press the CPU module at the two positions marked *push*. The spring clips push the standoff pillars into the keyhole cutouts that secure the CPU module in position (Figure 1-11).

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**Note**

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If you are installing a KZDDA upgrade (SCSI daughter card) in addition to the KA55 CPU, refer to the *MicroVAX 3100 Model 90 SCSI Upgrade Manual*, EK-501AA-UP, for instructions at this point.

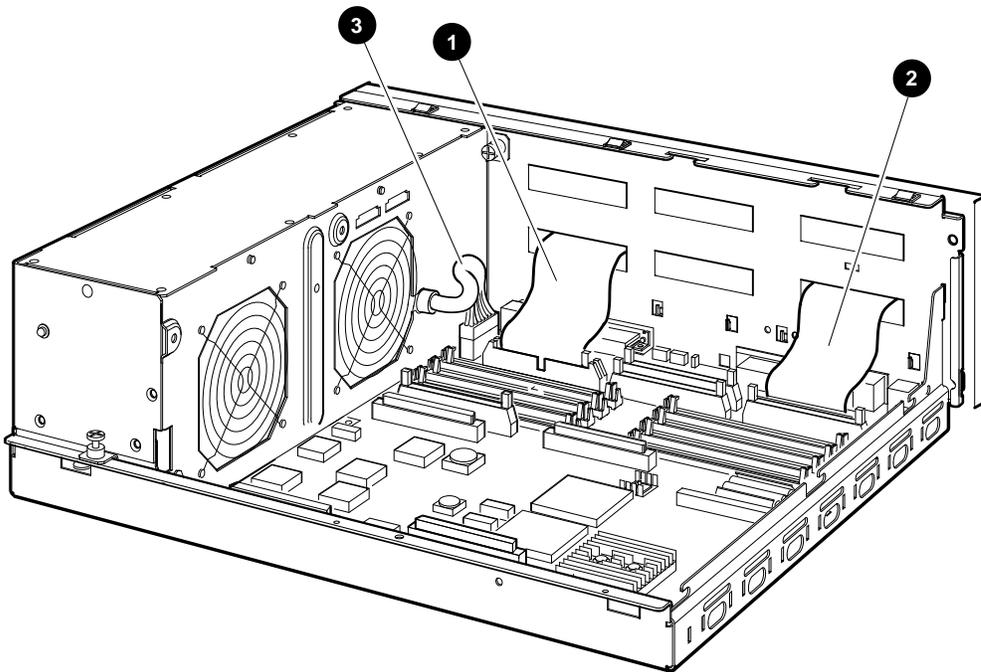
For clarity, cables not applicable to a particular step are omitted from some of the following illustrations.

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## Conversion Process 1.4 Installing the CPU Module

12. Reconnect all cables to the CPU module (Figure 1–12).
  - a. Reconnect the external SCSI cable (17–2944–01) to the connector on the CPU module.
  - b. Reconnect any internal communications options cables.
  - c. Reconnect the CPU power cable to the CPU module.

**Figure 1–12 Connecting the External SCSI Cable to the CPU Module**



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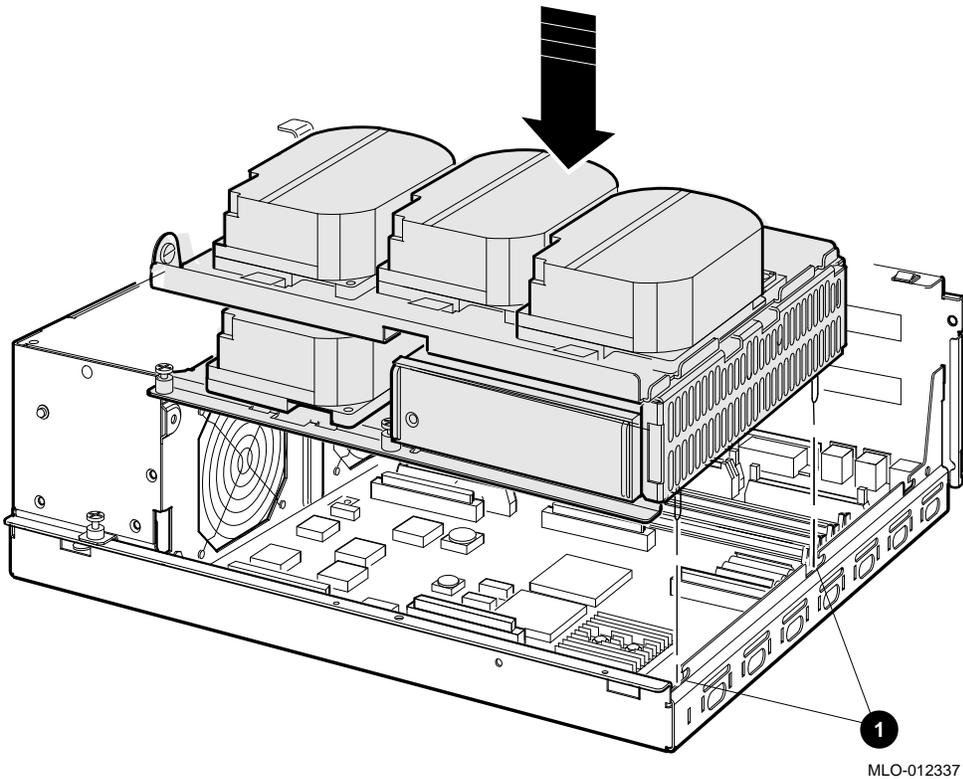
- ❶ External SCSI cable
- ❷ Internal communications option cable(s)
- ❸ CPU power cable

## Conversion Process

### 1.4 Installing the CPU Module

13. Reinstall the upper and lower drive mounting shelves in the system box, and connect the internal SCSI cable (17-03588-01 or 17-02943-01) to the CPU module.
  - a. Position the shelves by lining up the bracket tabs, but do not slide them backward yet (Figure 1-13).

**Figure 1-13** Aligning the Drive Mounting Shelves

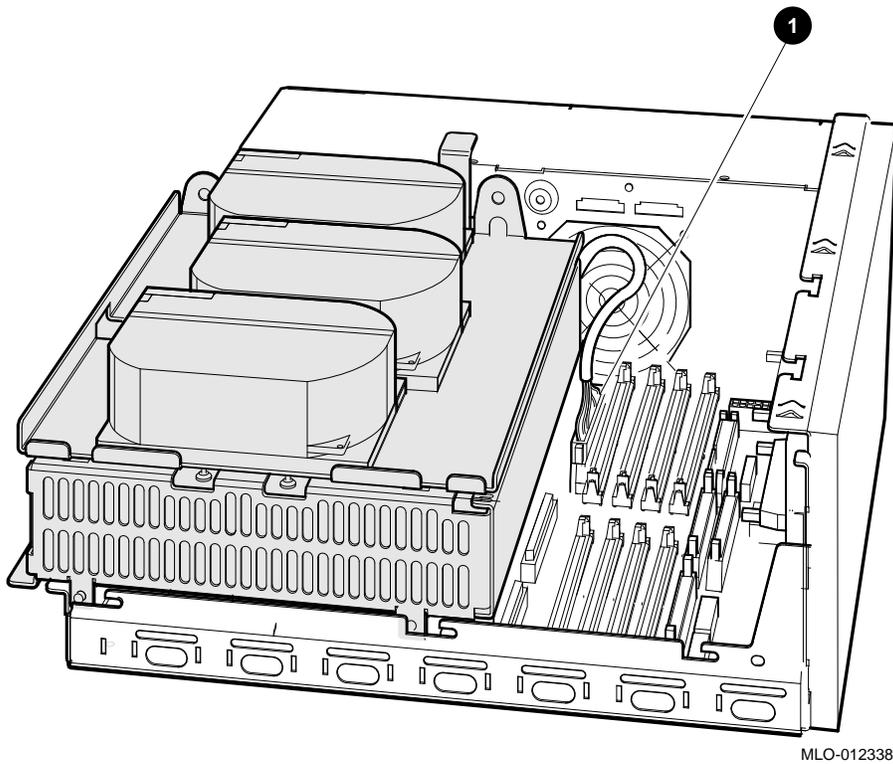


① Bracket tabs

## Conversion Process 1.4 Installing the CPU Module

- b. Connect the internal SCSI cable to its connector on the CPU module (Figure 1-14).
- c. Slide the shelves down and backward into place so that the holes on the bracket tabs line up with their cutouts.

**Figure 1-14 Reinstalling the Drive Mounting Shelves**



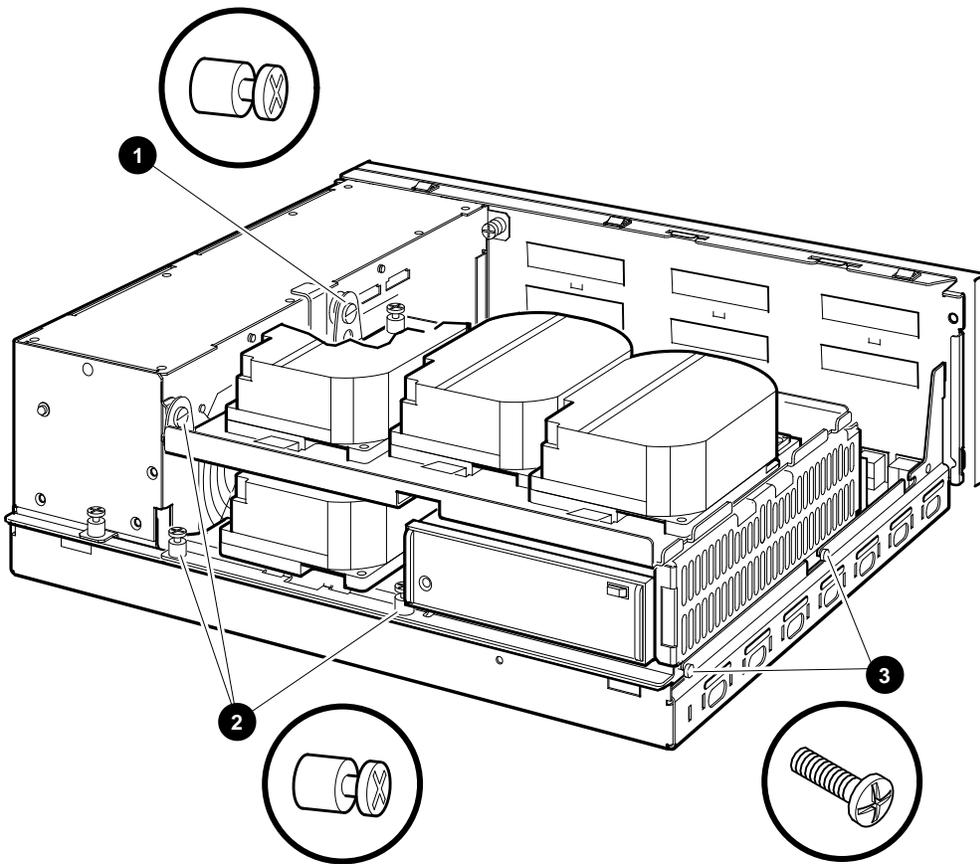
- ❶ Internal SCSI cable

## Conversion Process

### 1.4 Installing the CPU Module

- d. Tighten the shelves in place using the six screws that held them in originally (Figure 1–15).
  1. Tighten the topmost captive screw first so that the shelves do not fall and damage components underneath.
  2. Tighten the remaining captive screws.
  3. Replace and tighten the Phillips screws.

Figure 1–15 Securing the Drive Mounting Shelves



- ❶ Topmost captive screw      ❸ Phillips screws  
❷ Other captive screws

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## Conversion Process 1.4 Installing the CPU Module

14. Determine the appropriate orientation of the new SIMMs to be installed.

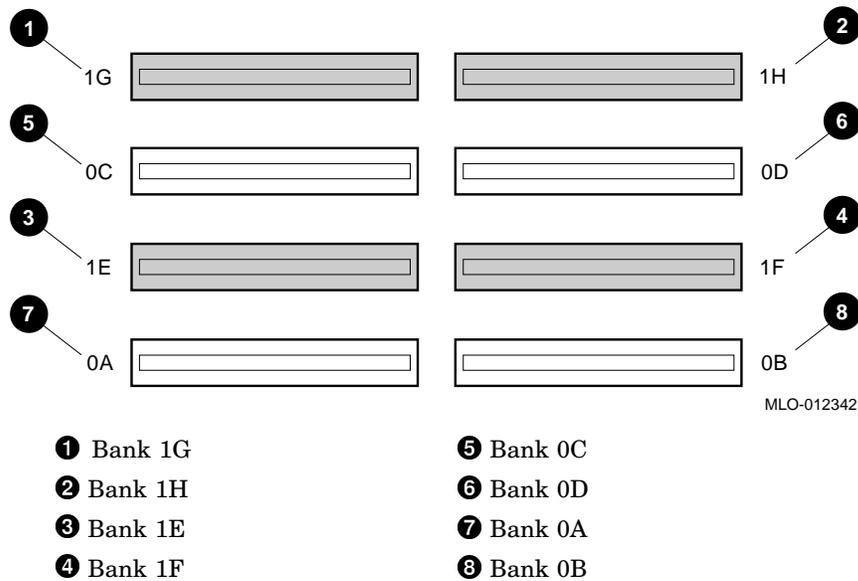
The upgrade kit includes MS44–DC (four MS44–CA 16 Mbyte SIMMs, totaling 64 Mbytes of memory). A customer may order another MS44–DC or MS44L–BC (four MS44L–AA 4 Mbyte SIMMs totaling 16 Mbytes of memory) as an option.

**Note**

MS44–DC (four MS44–CA SIMMs) must be installed in either the “1” bank or the “0” bank of connectors; do not mix banks.

Figure 1–16 shows the banks of slots as they are viewed from the front of the system. The “1” set of banks is shaded for identification.

**Figure 1–16 Identifying Appropriate Banks of SIMM Connectors.**



## Conversion Process

### 1.4 Installing the CPU Module

15. Install the new SIMMs as follows, beginning with the module closest to the front of the enclosure (Figure 1–17).

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#### Caution

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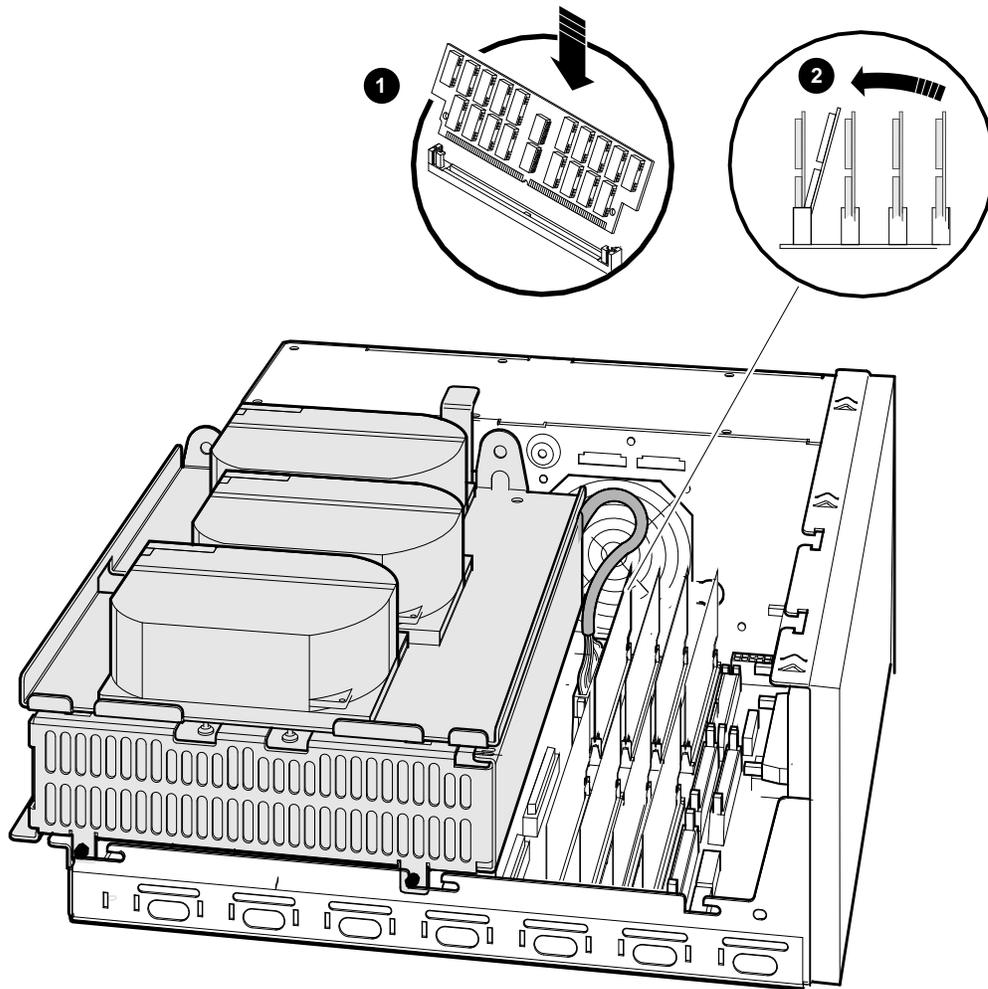
When installing a SIMM, note that the connectors on the CPU module are keyed so that you cannot install the module with an incorrect orientation. Do not try to force a module into a connector with an incorrect orientation.

---

1. Tip the memory module backward.
2. Slide the module into its connector while still tipped backward, and tip it back upright.

**Conversion Process**  
**1.4 Installing the CPU Module**

**Figure 1–17 Installing a Memory Module**



MLO-012339

**1** Sliding the module in

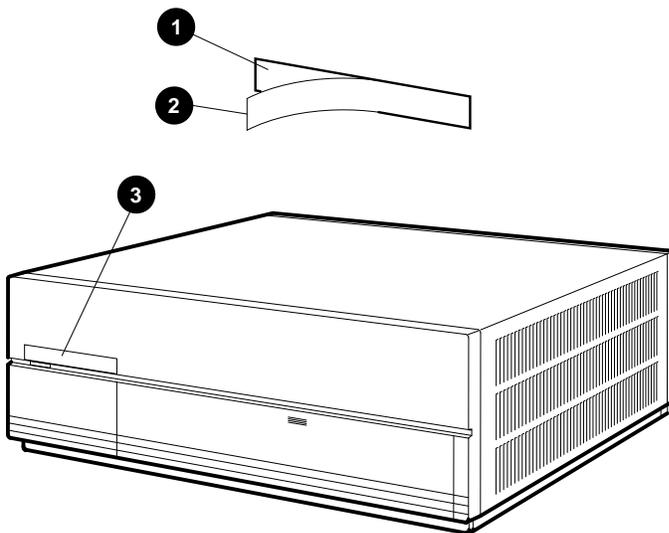
**2** Tipping it upright

## Conversion Process

### 1.4 Installing the CPU Module

16. Reconnect the SCSI connectors to the drives (Figure 1-5).
17. Reconnect the internal power cables (Figure 1-4).
18. Reinstall the enclosure cover, reconnect the console cable to port number 3, and reconnect all external CPU connectors (Figure 1-2).
19. Place the new label, 36-30382-23 (24), whichever is appropriate for your country, over the existing label.
20. Remove the system medallion and install the new one, 74-37642-33. See Figure 1-18.
  - a. Peel the backing off the new medallion.
  - b. Apply the new medallion in place of the original one.

**Figure 1-18 Applying the New Medallion**



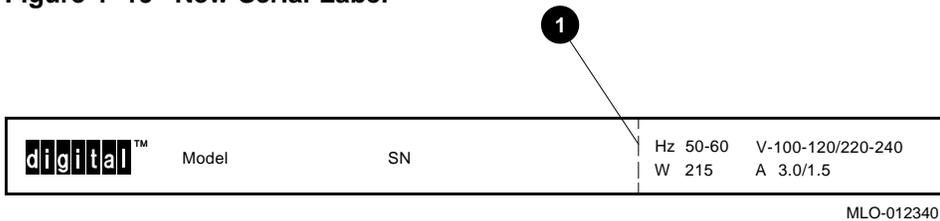
MLO-010951

- ❶ Backing
- ❷ New medallion
- ❸ Medallion location

## Conversion Process 1.4 Installing the CPU Module

21. Cut the new serial label (36–36394–02) as shown in Figure 1–19 and discard the left side. Place the remaining part of the new serial label on the right side of the old serial label (located on the top left corner of the rear bezel).

**Figure 1–19 New Serial Label**



❶ Cut here.

22. Apply the conversion label (36–15946–00) in any spot on the system box you wish.
23. Have the customer reinstall system data (if necessary).
24. Fill out the forms in Appendix A.
25. Return the original CPU module and SIMMs as instructed (see Appendix A).



# A

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## Mandatory Return Procedure and Forms

The original CPU module and SIMMs must be returned to Digital Equipment Corporation. Digital services personnel must follow the instructions for repackaging and returning them. These instructions apply only to United States area installations.

For installations outside the United States area, contact the local Digital Equipment Corporation office for return destination instructions.

### A.1 Return Procedure

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#### Note

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Customers who do not return their original CPU modules and SIMMs will be charged a fee.

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Return the original CPU module and SIMMs as follows:

1. Obtain the serial number of the system being converted. Customer Administrative Services (CAS) cannot process the order without this serial number.
2. Ensure that the serial number is on the purchase order.
3. Issue a hardcopy quotation to the customer, referencing the serial number, and state the following:

Return of the replaced modules to Digital is a condition of sale for this conversion. Failure to return the modules will result in a penalty charge. Installation of hardware by Digital services personnel is required.

4. Pack the original CPU module and SIMMs using the packaging material set aside from the carton of the conversion kit.

## Mandatory Return Procedure and Forms

### A.1 Return Procedure

Pack the CPU module first in the nickel-plated bag, then in the pink plastic wrapping, and finally in the box. Do not seal the box for shipping until you have included all necessary paperwork. Pack the SIMMs in the packaging the others arrived in.

5. Complete the Digital Services Worksheet in Section A.2. It documents the work you performed.

Return the worksheet to your contract administrator at the branch office.

6. Contact your local Digital CAS office to obtain information for the Installation Receipt and the Return Material Checklist in Section A.2.

Ask the CAS representative for a return authorization (RA) number. CAS will contact the customer to arrange for carrier pickup and return of the module to Digital Equipment Corporation.

7. Complete both copies of the Installation Receipt.

The first copy is the customer's receipt. It shows that the installation was completed and that Digital services contacted CAS.

Return the second copy to Digital services along with the original CPU module and SIMMs so that the customer does not incur a penalty charge.

8. Complete the Returned Material Checklist.

Return the checklist with the original module.

9. Place the self-adhesive mailing label on the box to be returned.

Write the return authorization (RA) number in the space provided on the label.

10. Seal the box for shipment.

Refer questions regarding the return procedure to the local account representative.

### A.2 Return Forms

This section contains the:

- Digital Services Worksheet
- Installation Receipt–Customer Copy
- Installation Receipt–Digital Services Copy
- Returned Material Checklist

**Mandatory Return Procedure and Forms  
A.2 Return Forms**

**Digital Services Worksheet**

This form acts as a verification of the work performed on the system and as a check on the procedures used. Please fill out this form and return it to your Contract Administrator for updating the customer's contract.

Customer: \_\_\_\_\_

Previous System Model Number: \_\_\_\_\_

Previous System Serial Number: \_\_\_\_\_

Original CPU Module Serial Number: \_\_\_\_\_

Original SIMM Serial Numbers: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

New System Name: \_\_\_\_\_

New System Model Number: \_\_\_\_\_

New System Serial Number: \_\_\_\_\_

New CPU Module Serial Number: \_\_\_\_\_

New SIMM Serial Numbers: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Comments: \_\_\_\_\_

**Mandatory Return Procedure and Forms**  
**A.2 Return Forms**

**Mandatory Return Procedure and Forms  
A.2 Return Forms**

**Installation Receipt—Customer Copy**

*For the upgrade of MicroVAX 3100 Model 40 or MicroVAX 3100 Model 80 to MicroVAX 3100 Model 85.*

This form acts as a customer receipt and as verification for Digital services that the upgrade kit was installed.

Digital services: Complete both copies of this form. Give a copy to the customer and a copy to the local CAS office for filing with customer documents.

Customer: Digital Equipment Corporation will contact you within the next several days to arrange for package pickup and return. Keep this copy as your record of installation by Digital Equipment Corporation.

**Note**

Contact the local CAS office to obtain the RA (return authorization) number. You should have the Digital order number available. Be sure to note the name of the person you speak with.

Name of CAS representative: \_\_\_\_\_

Branch Office: \_\_\_\_\_, will arrange for package pickup and return.

Return Authorization (RA) Number: \_\_\_\_\_

Digital Order Number: \_\_\_\_\_

Original CPU Module Serial Number: \_\_\_\_\_

Original SIMM Serial Numbers: \_\_\_\_\_

Converted to: \_\_\_\_\_

New System Serial Number: \_\_\_\_\_

New CPU Module Serial Number: \_\_\_\_\_

New SIMM Serial Numbers: \_\_\_\_\_

(See overleaf for signatures)

**Mandatory Return Procedure and Forms**  
**A.2 Return Forms**

Installation was performed on this date: \_\_\_\_\_

CPU Module and SIMMs Packed for Return:

Customer Name: \_\_\_\_\_ Phone Number: \_\_\_\_\_

Customer Signature: \_\_\_\_\_

Digital Services Representative Signature: \_\_\_\_\_

**Mandatory Return Procedure and Forms**  
**A.2 Return Forms**

**Installation Receipt—Digital Services Copy**

*For the upgrade of MicroVAX 3100 Model 40 or MicroVAX 3100 Model 80 to MicroVAX 3100 Model 85.*

This form acts as a verification for Digital services that the Upgrade kit was installed.

Digital Services: Complete both copies of this form. Give a copy to the customer and a copy to the local CAS office for filing with customer documents.

\_\_\_\_\_ **Note** \_\_\_\_\_

Contact the local CAS office to obtain the RA (return authorization) number. You should have the Digital order number available. Be sure to note the name of the person you speak with.

\_\_\_\_\_

Name of CAS representative: \_\_\_\_\_

Branch Office: \_\_\_\_\_, will arrange for package pickup and return.

Return Authorization (RA) Number: \_\_\_\_\_

Digital Order Number: \_\_\_\_\_

Original CPU Module Serial Number: \_\_\_\_\_

Original SIMM Serial Numbers: \_\_\_\_\_

Converted to: \_\_\_\_\_

New System Serial Number: \_\_\_\_\_

New CPU Module Serial Number: \_\_\_\_\_

New SIMM Serial Numbers: \_\_\_\_\_

(See overleaf for signatures)

**Mandatory Return Procedure and Forms**  
**A.2 Return Forms**

Installation was performed on this date: \_\_\_\_\_

CPU Module and SIMMs Packed for Return:

Customer Name: \_\_\_\_\_ Phone Number: \_\_\_\_\_

Customer Signature: \_\_\_\_\_

Digital Services Representative Signature: \_\_\_\_\_

**Mandatory Return Procedure and Forms  
A.2 Return Forms**

**Returned Material Checklist**

*For the upgrade of MicroVAX 3100 Model 40 or MicroVAX 3100 Model 80 to  
MicroVAX 3100 Model 85.*

This form must be filled out and returned with the original CPU module and  
SIMMs to ensure that the customer does not incur a penalty charge.

Return Authorization (RA) Number: \_\_\_\_\_

Digital Order Number: \_\_\_\_\_

Customer Name: \_\_\_\_\_

Customer Address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Customer Contact: \_\_\_\_\_

**\*\*\*\*\* Include This Form With Your Module Return\*\*\*\*\***



## Reader's Comments

MicroVAX 3100  
Model 40/80 to Model 85  
CPU Upgrade Guide  
EK-M3185-UP. A01

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Your comments and suggestions help us improve the quality of our publications.

Thank you for your assistance.

<b>I rate this manual's:</b>	<b>Excellent</b>	<b>Good</b>	<b>Fair</b>	<b>Poor</b>
Accuracy (product works as manual says)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Completeness (enough information)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Clarity (easy to understand)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Organization (structure of subject matter)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Figures (useful)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Examples (useful)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Index (ability to find topic)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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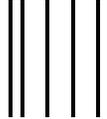
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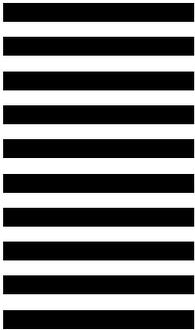
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