

StorageWorks™ Solutions

StorageWorks Network Storage Array Server Processor Memory Installation Guide

Order Number: EK-NSAMM-IG. A01

This guide describes how to remove and install the Server Processor Memory option into a server processor.

July 1996

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Any changes or modifications made to this equipment may void the user's authority to operate the equipment.

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.

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Preface

Intended Audience

This manual is intended for use by Digital™ Multivendor Customer Services personnel or other qualified technicians who install and configure OpenVMS™ Alpha™ processors and related storage hardware.

This audience must know how to install and configure StorageWorks shelves, devices, and related components.

Structure

This manual is organized as follows:

- | | |
|-----------|--|
| Chapter 1 | Provides an overview of memory requirements and configurations, and describes preinstallation requirements, considerations, and tasks. |
| Chapter 2 | Describes how to remove and install a server processor single in-line memory module (SIMM) and verify memory configuration. |

Related Documents

Table 1 lists the StorageWorks-related user documents organized by use, system, or product.

Table 1 StorageWorks Related Documentation

| Document Title | Order Number |
|--|--------------|
| StorageWorks Network Storage Array Publications | |
| <i>StorageWorks™ Solutions Getting Started with the StorageWorks Network Storage Array</i> | EK-SWXNA-IG |
| <i>StorageWorks™ Solutions StorageWorks Network Storage Array, Server Processor Component Manual</i> | EK-SWXNA-CM |

Manufacturer's Declarations

Following are manufacturer's declarations applicable to the StorageWorks Network Storage Array:

CAUTION

This is a class A product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

ACHTUNG !

Dieses ist ein Gerät der Funkstörgrenzwertklasse A. In Wohnbereichen können bei Betrieb dieses Gerätes Rundfunkstörungen auftreten, in welchen Fällen die Benutzer für entsprechende Gegenmaßnahmen verantwortlich sind.

ATTENTION !

Ceci est un produit de Classe A. Dans un environnement domestique, ce produit risque de créer des interférences radiélectriques, il appartiendra alors à l'utilisateur de prendre les mesures spécifiques appropriées.

Note

The equipment described in this manual is listed by the Underwriters Laboratories Incorporated and bears the UL Listing mark. The StorageWorks Network Storage Array cabinets also are certified by the Canadian Standards Association and TUV Product Service GmbH and bear both the CSA certification and TUV GS marks.

1.1 Introduction

This chapter provides an overview of the StorageWorks Network Storage Array server processor memory option, and lists preinstallation instructions and considerations.

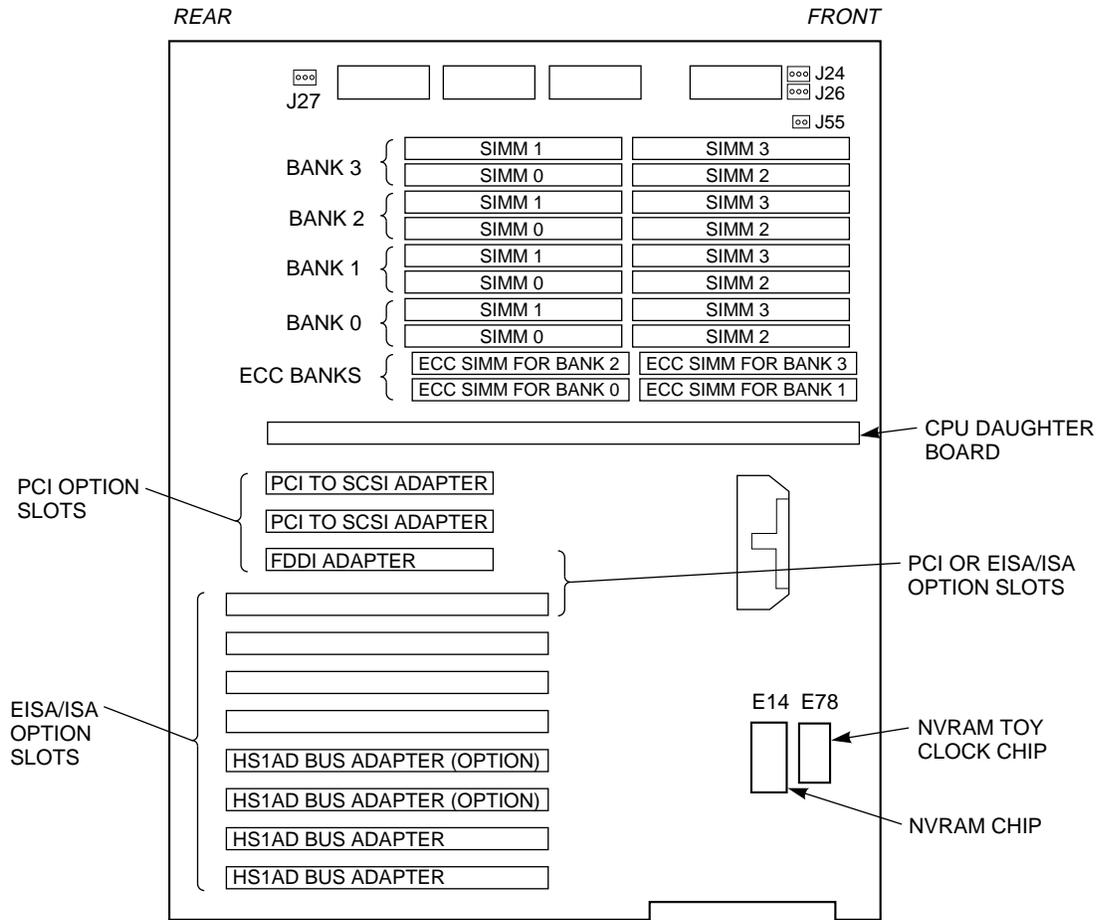
1.2 Memory Capacity

The server processor can support from 64 megabytes to 512 megabytes of memory. Memory options consist of five single in-line memory modules (SIMMs) and are available in the following variations:

- SWXUA-M1 64-megabyte memory option consists of five 16-megabyte SIMMs. An SWXNA server processor fully populated with 16-megabyte SIMMS contains 256 megabytes of memory capacity.
- SWXUA-M2 128-megabyte memory option consists of five 32-megabyte SIMMs. An SWXNA server processor fully populated with 32-megabyte SIMMS contains 512 megabytes of memory capacity.

The motherboard of the server processor has a total of 20 SIMM connectors. The SIMM connectors are grouped into four memory banks (0, 1, 2, and 3) and one error correction code (ECC) SIMM connector for each bank of memory. Memory layout is shown in Figure 1-1.

Figure 1-1 Motherboard Layout



CXO-4626B-MC

1.3 Preparing to Install a SIMM

To prepare the server processor to install a SIMM, you need to assemble the required equipment and familiarize yourself with antistatic precautions.

1.3.1 Required Equipment

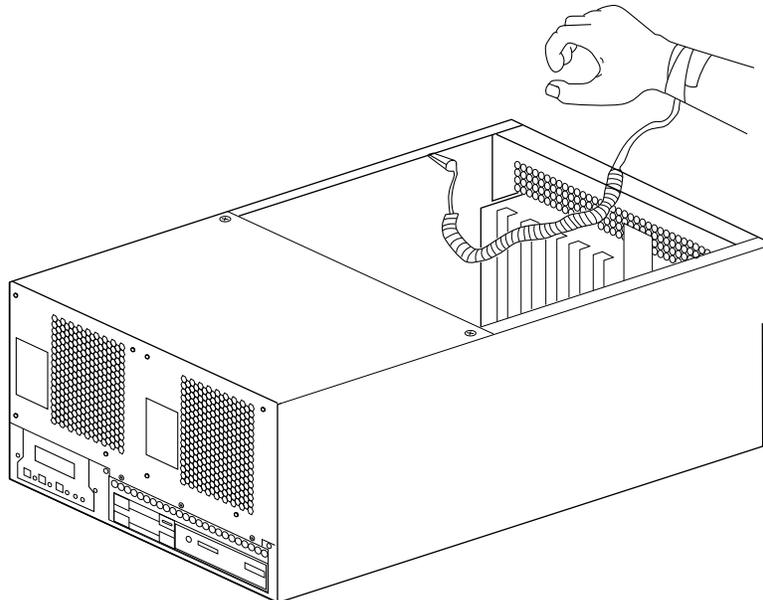
You need the following equipment:

- Flat-blade screwdriver
- Phillips screwdriver
- Antistatic wrist strap

1.3.2 Attach the Antistatic Wrist Strap

Static electricity can damage electronic components. Before you handle internal system components, attach the antistatic wrist strap to your wrist and to the system unit as shown in Figure 1–2.

Figure 1–2 Attaching the Antistatic Wrist Strap



CXO-4635A-MC

Caution

Do not disconnect the system unit power cord or unplug the power cord from the power supply socket. The power cord grounds the system, preventing damage to the internal components.

Removing and Installing SIMMs

You may need to install a new SIMM to replace a faulty module or to upgrade a memory bank. You may need to remove SIMMs to access the memory slots for any new modules. This chapter describes how to remove and install SIMMs, and verify memory configuration.

2.1 Complete Preinstallation Tasks

Make sure you have completed all the preinstallation activities described in Chapter 1 before removing and installing a SIMM.

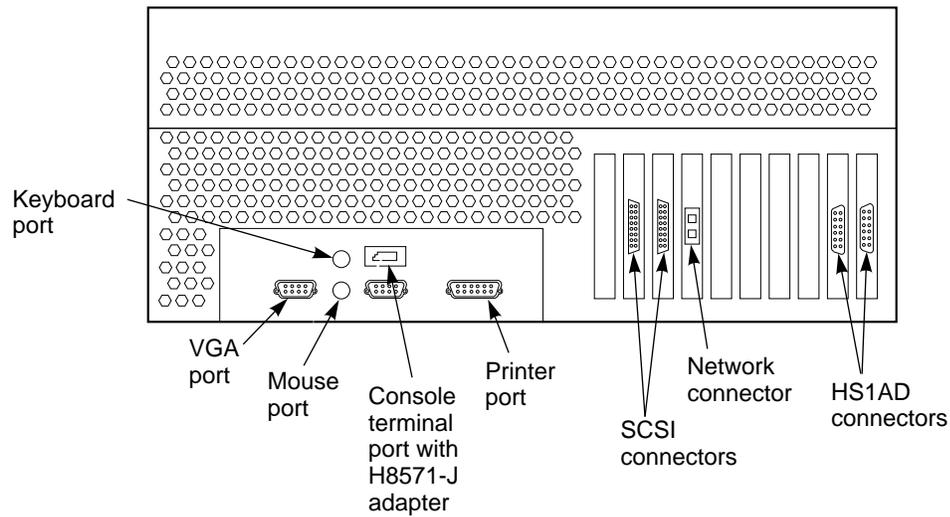
2.2 Connect a Terminal to the Server Processor

Note

You must have a console terminal connected to the Network Storage Array's server processor to complete the installation procedures described in this chapter. If you have a terminal already connected, proceed to Section 2.3. If you do not have a terminal connected, use the following procedure. Any terminal that supports ANSI control sequences can be used, including graphics displays that provide emulation of an ANSI-compatible video terminal.

1. Make sure the power switch on the back of the terminal is OFF.
2. Connect one end of the terminal cable to the back of the terminal.
3. Using a 5/32-inch hex wrench, open the back door of the network array cabinet.
4. Connect the other end of the terminal cable to the EIA terminal port on the rear of the server processor using the female MMJ adapter (part number H8571-J) as shown in Figure 2-1.
5. Turn the terminal power switch to ON.
6. Set the terminal at 9600 baud, with 8 data bits, 1 stop bit, and no parity. Refer to your terminal documentation for terminal setup instructions.

Figure 2–1 Connecting to the Terminal Port of the Server Processor



CXO-4774B-MC

2.3 Shut Down the System

1. Stop all work on the server processor in which the SIMM is to be installed.
2. Perform an orderly shutdown of the operating system in the server processor by typing the following command at the DCL \$ prompt on the terminal connected to the server processor:

```
$ @SYS$SYSTEM:SHUTDOWN
```

Note

When issuing a SHUTDOWN command on one server processor, the other server processor may lock up. If the system locks for 1 minute, enter the INIT or BOOT command on the console for the server processor that was just shut down.

3. When shutdown is complete, open the front door of the network array cabinet with a 5/32-inch hex wrench and depress the power button on the server processor Operator Control Panel (OCP) to turn off power.

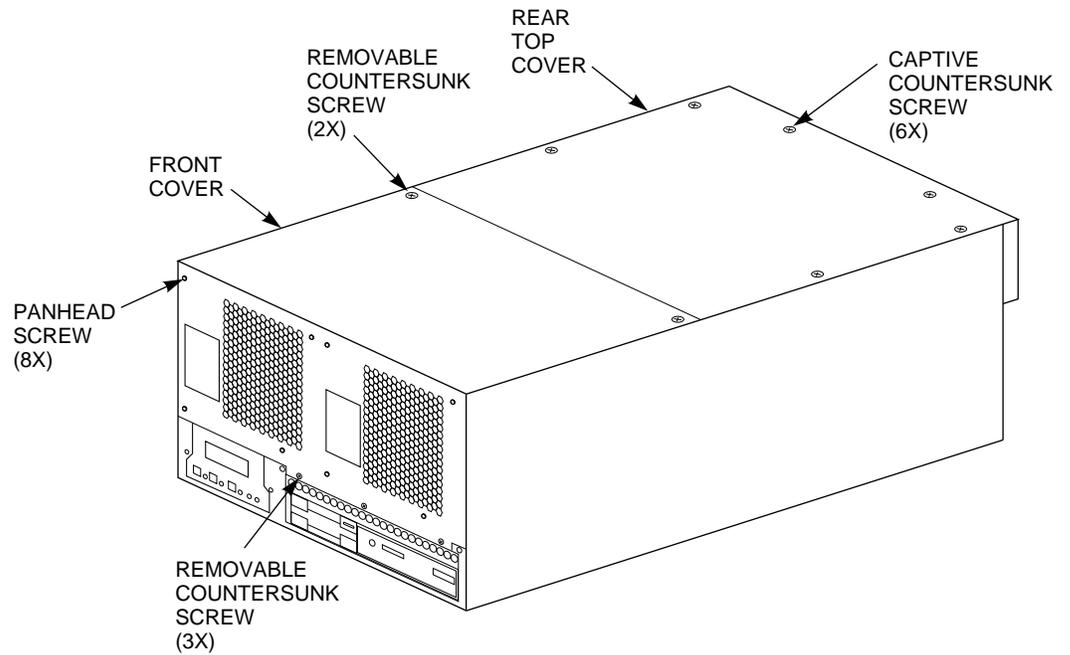
2.4 Slide the Server Processor Out of the Network Array

Now that your system is shut down and both doors of the network array are open, perform the following steps:

1. Remove the red shipping brackets that hold the server processor in place.
2. Slide the processor out of the back on its slides to enable you to easily access the rear top cover.

3. Loosen all the screws on the rear top cover using a Phillips screwdriver (see Figure 2-2).
4. Lift off the rear top cover.

Figure 2-2 Position of Cabinet Screws



CXO-4725A-MC

2.5 Remove and Replace SIMMs in the Correct Order

It is recommended that SIMMs be removed and installed only in successive order, to prevent damage to SIMMs adjacent to the ones you want to remove. For example, if you have SIMMs already installed in Banks 1, 2, and 3, and you want to remove a SIMM from Bank 0, follow this process:

1. Remove SIMMs in Bank 3.
2. Remove SIMMs in Bank 2.
3. Remove SIMMs in Bank 1.
4. Remove the SIMM you need to remove in Bank 0.

Refer to Figure 1–1 for clarification of the SIMM configuration on the motherboard. Figure 2–3 shows the removal procedure for a SIMM.

WARNING

Memory and CPU modules have parts that operate at high temperatures. Wait 2 minutes after power is removed before handling these modules.

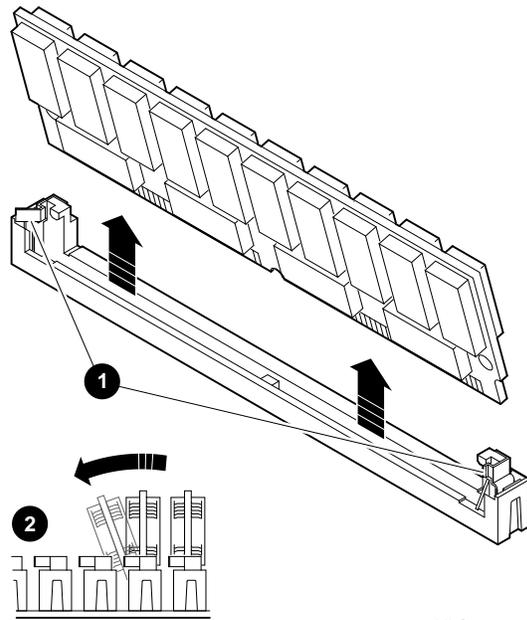
1. Remove the SIMMs by pressing the metal clips on both sides of the SIMM connector to the side. (See callout 1 in Figure 2–3.)

Note

You may want to use a screwdriver to press back on the metal clips, but be very careful not to damage the motherboard.

2. Note the position of any SIMMs you remove.
3. Tilt the memory module and lift it out of its connector. (See callout 2 in Figure 2–3.)
4. Replace the SIMM and any others you may have removed in the reverse order from the previous procedure. (See Section 2.6.3.)

Figure 2-3 Removing SIMMs from the Motherboard



MLO-011575

2.6 Add and Install SIMMs

2.6.1 Before You Install SIMMs

Before you install SIMMs, check the following:

- Make sure you have completed all the preinstallation tasks described in Chapter 1 before installing a SIMM.
- Make sure you shut down the system as described in Section 2.3 before installing a SIMM.

2.6.2 Check the Rules for Installing a Memory Option

Observe the following rules when installing SIMMs for the memory option:

- Bank 0 must contain a memory option. A memory option consists of 5 SIMMs: 0, 1, 2, and 3, and 1 error correction (ECC) SIMM.
- When you install a memory option in a memory bank, you must install a SIMM in all of the connectors in that bank.
- All SIMMs within a bank must be of the same memory capacity.
- It is recommended that larger SIMM groups occupy the lower-numbered banks.
- Observe the rules and recommendations regarding the procedure for removing and installing SIMMs (see Section 2.5).

If you need more information on the previous procedures, refer to the *StorageWorks™ Solutions StorageWorks Network Storage Array, Server Processor Component Manual*.

2.6.3 Install SIMMs

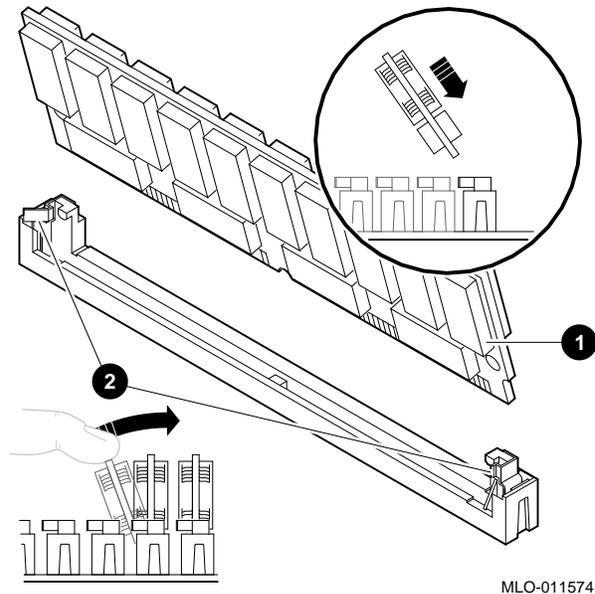
If you first need to remove a SIMM from the bank into which you want to install one, refer to Section 2.5 for the correct procedure.

WARNING

Memory and CPU modules have parts that operate at high temperatures. Wait 2 minutes after power is removed before handling these modules.

1. Tilt the connecting end of the module and press gently on the module so it slips into the two posts located at each end of the slot. (See callout 1 in Figure 2-4.)
2. Snap the SIMM into place in the correct upright position, as shown in Figure 2-4. Make sure that the SIMM is fully seated. The two latches on the ends of each SIMM connector should lock around the edges of the SIMM. (See callout 2 in Figure 2-4.)
3. Install all SIMMs using this same procedure, including any you removed for access.

Figure 2–4 Installing a SIMM



2.7 Replace the Server Processor in the Network Array Cabinet

When you have finished removing and installing all the SIMMs, and you are ready to close the server, perform the following steps:

1. Reinstall top rear cover on the server processor.
2. Depress the slide locks and slide server processor back into your network array.
3. Reinstall the red shipping brackets on the rear of the network array cabinet.
4. Close and lock the rear door.

2.8 Power Up the Server Processor

1. Depress the power button on the server processor OCP to power up the server processor.
2. Close the front door of the network array.
3. Press the Return key on the network array console terminal connected to the server processor.

2.9 Verify the Memory Configuration

Before booting your system, you should verify the memory configuration using the following command:

```
>>> SHO MEM
```

The Show Memory Command

The show memory command displays information for each memory module in the system. The command and a sample display are shown in Example 2-1.

Example 2-1 Show Memory Command

```
>>> SHO MEM
      128 Meg of System Memory
      Bank 0 = 64 Mbytes(16 MB Per Simm) Starting at 0x00000000
      Bank 1 = 64 Mbytes(16 MB Per Simm) Starting at 0x04000000
      Bank 2 = No Memory Detected
      Bank 3 = No Memory Detected

>>> CONT
```

2.10 Boot Your System

When you have successfully completed the installation of the SIMM upgrade memory option, you should boot your system by entering BOOT at the >>> prompt.

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