

KFMSB Adapter Installation Guide

Order Number EK-KFMSB-IN. A01

This manual describes installation of the KFMSB adapter into a DEC 7000 AXP system. The KFMSB adapter is the XMI I/O adapter that supports DSSI buses on Alpha AXP systems.

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Preface

Intended Audience

This manual is written for Digital customer service engineers and self-maintenance customers.

Document Structure

This manual uses a structured documentation design. Topics are organized into small sections for efficient on-line and printed reference. Each topic begins with an abstract. You can quickly gain a comprehensive overview by reading only the abstracts. Next is an illustration or example, which also provides quick reference. Last in the structure are descriptive text and syntax definitions.

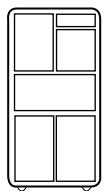
This manual has three chapters and one appendix as follows:

- **Chapter 1, Preparation**, gives an overview of DSSI systems and describes the KFMSB kits.
- **Chapter 2, Installing the Adapter**, explains how to install the adapter.
- **Chapter 3, Acceptance and Troubleshooting**, explains how to check that the module is operational.
- **Appendix A, Using LFU**, explains how to use the Loadable Firmware Update (LFU) Utility. LFU can be used to change the DSSI node ID number of the KFMSB adapter.

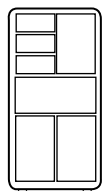
Conventions Used in This Document

Book titles. In text, if a book is cited without a product name, that book is part of the hardware documentation. It is listed in Table 1 along with its order number.

Icons. The icons shown below are used in illustrations for designating part placement in the system described. A shaded area in the icon shows the location of the component or part being discussed.



Front



Rear

Documentation Titles

Table 1 lists the books in the DEC 7000 and VAX 7000 documentation set. Table 2 lists other documents that you may find useful.

Table 1 DEC 7000/VAX 7000 Documentation

Title	Order Number
Installation Kit	EK-7000B-DK
<i>Site Preparation Guide</i>	EK-7000B-SP
<i>Installation Guide</i>	EK-700EB-IN

Table 1 DEC 7000/VAX 7000 Documentation (Continued)

Title	Order Number
Hardware User Information Kit	EK-7001B-DK
<i>Operations Manual</i>	EK-7000B-OP
<i>Basic Troubleshooting</i>	EK-7000B-TS
Additional System Information	
<i>Technical Bulletin Number 1</i>	EK-70TBA-T1
<i>Technical Bulletin Number 2</i>	EK-70TBA-T2
<i>Technical Bulletin Number 3</i>	EK-70TBA-T3
Service Information Kit—VAX 7000	EK-7002A-DK
<i>Platform Service Manual</i>	EK-7000A-SV
<i>System Service Manual</i>	EK-7002B-SV
<i>Pocket Service Guide</i>	EK-7000A-PG
<i>Advanced Troubleshooting</i>	EK-7001A-TS
Service Information Kit—DEC 7000	EK-7002B-DK
<i>Platform Service Manual</i>	EK-7000A-SV
<i>System Service Manual</i>	EK-7002B-SV
<i>Pocket Service Guide</i>	EK-7700A-PG
<i>Advanced Troubleshooting</i>	EK-7701A-TS
Reference Manuals	
<i>Console Reference Manual</i>	EK-70C0B-TM
<i>KA7AA CPU Technical Manual</i>	EK-KA7AA-TM
<i>KN7AA CPU Technical Manual</i>	EK-KN7AA-TM
<i>MS7AA Memory Technical Manual</i>	EK-MS7AA-TM
<i>I/O System Technical Manual</i>	EK-70I0A-TM
<i>Platform Technical Manual</i>	EK-7000A-TM

Table 1 DEC 7000/VAX 7000 Documentation (Continued)

Title	Order Number
Upgrade Manuals	
<i>KA7AA CPU Installation Card</i>	EK-KA7AA-IN
<i>KN7AA CPU Installation Guide</i>	EK-KN7AA-IN
<i>MS7AA Memory Installation Card</i>	EK-MS7AA-IN
<i>KZMSA Adapter Installation Guide</i>	EK-KXMSX-IN
<i>DWLAA Futurebus+ PIU</i>	EK-DWLAA-IN
<i>DWLMA XMI PIU Installation Guide</i>	EK-DWLMA-IN
<i>DWMBB VAXBI PIU Installation Guide</i>	EK-DWMBB-IN
<i>H7237 Battery PIU Installation Guide</i>	EK-H7237-IN
<i>H7263 Power Regulator Installation Card</i>	EK-H7263-IN
<i>BA654 DSSI Disk PIU Installation Guide</i>	EK-BA654-IN
<i>BA655 SCSI Disk and Tape PIU Installation Guide</i>	EK-BA655-IN
<i>Removable Media Installation Guide</i>	EK-TFRRD-IN

Table 2 Related Documents

Title	Order Number
<i>DSSI VMScLuster Installation and Troubleshooting Guide</i>	EK-410AB-MG
<i>DEC 4000 AXP DSSI VMScLuster Installation and Troubleshooting Guide</i>	EK-D4AXP-TS
<i>RF Series Integrated Storage Element User Guide</i>	EK-RF72D-UG
<i>Tx85 Series Cartridge Tape Subsystem Owner's Manual</i>	EK-OTF85-OM

Chapter 1

Preparation

This chapter describes the KFMSB option kits and gives an overview of DSSI systems.

In most cases the reason for the installation of this module is to convert a VAX 7000 system into a DEC 7000 system. To support the DSSI subsystem already installed, you will need to take out the KFMSA adapter (and associated hardware) and install the KFMSB adapter (and associated hardware) in its place. If this is a new installation of a DSSI bus in a DEC system, review the background information in this chapter and see the manuals referenced for more information.

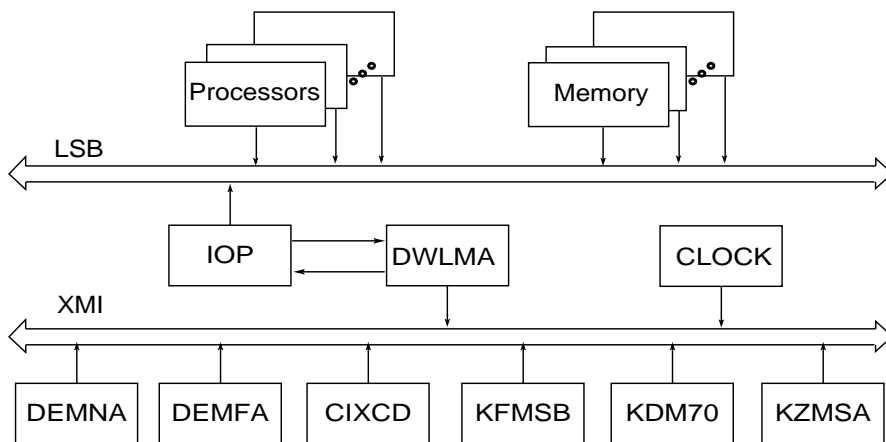
Sections in this chapter include:

- System Configuration
- KFMSB Adapter
- Contents of KFMSB Kits
- DSSI Terminology and Configurations
- DSSI Installation Overview
- Cabling and Setting Node IDs

1.1 System Configuration

To upgrade a VAX 7000 system with DSSI buses to a DEC 7000 system that also uses the DSSI buses requires the removal of the KFMSA adapter from the XMI card cage and the installation of the KFMSB adapter.

Figure 1-1 DEC 7000 Architecture



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If you already have a DSSI subsystem installed, you only need to do the following:

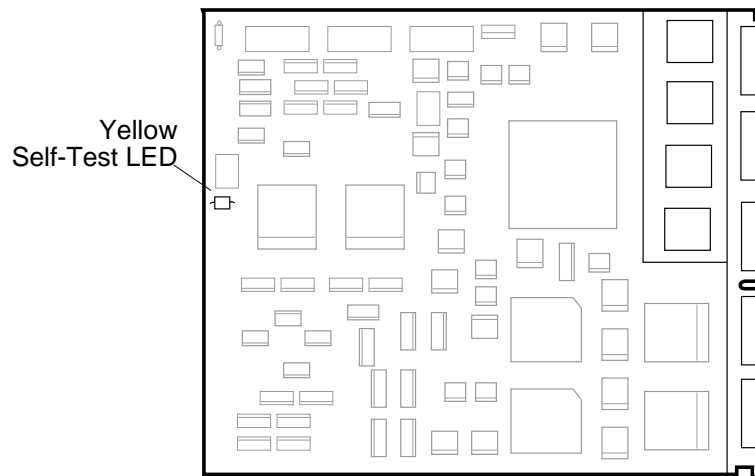
1. Remove the KFMSA adapter and the cabling from the XMI backplane to the bulkhead and remove the bulkhead panel.
2. Install the KFMSB adapter and the cabling from the XMI backplane to the bulkhead and install the bulkhead panel.
3. Run LFU to ensure that you have the latest firmware on the modules.

If you do not already have a DSSI subsystem installed, you will need to install a BA654 DSSI disk PIU for in-cabinet disks. SF or SW cabinets can be used for external disks. For more information, see the books listed in Table 1-6.

1.2 KFMSB Adapter

DEC 7000 systems support DSSI using the KFMSB adapter installed in the XMI card cage. Each KFMSB supports two DSSI buses. The KFMSB has a diagnostic LED and reports status to the system self-test display.

Figure 1-2 KFMSB LED



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Each KFMSB module has two ports, and each port supports a DSSI bus. Each DSSI bus can have up to eight nodes, with node numbers from 0 to 7. The DSSI node IDs for both ports are factory set to node 7. Of the eight nodes configured between any two terminators on a DSSI bus, one to four nodes can be DSSI host adapters. The remaining nodes can be RF disk or TF tape integrated storage elements (ISEs) or HSDxx DSSI-to-SCSI storage adapters.

The buses are configured physically by the cable. The cable from XMI backplane section D (upper section) is designated as bus 1, and the cable from section E is bus 0. These cables connect to the XMI bulkhead.

The KFMSB runs a self-test during power-up and the console displays results on the system self-test display (see Section 3.1). The yellow LED on the KFMSB lights to indicate that self-test passed.

1.3 Contents of KFMSB Kits

Each kit contains an XMI module. The upgrade kit also includes the CK-KFMSB-LB cabinet kit.

Table 1-1 KFMSB Kit Contents

Option Number	Description
KFMSB-AA	Includes the KFMSB XMI module that supports DSSI systems in DEC 7000 and DEC 10000 (AXP) systems; also includes this installation guide (EK-KFMSB-IN).
KFMSB-UA	The upgrade kit includes the KFMSB XMI module, the installation guide, and the KFMSB cabinet kit.

Table 1-2 KFMSB Cabinet Kit Contents

Option Number	Part Number	Description
CK-KFMSB-LB	17-03451-01	XMI backplane to bulkhead cable; includes the I/O panel connector.
	12-31281-01	Four bus terminators.

There are two kits: KFMSB-AA, which is the kit to use if you are installing a new system or adding a KFMSB to an existing system, and KFMSB-UA, which is an upgrade kit. The upgrade kit includes the cabinet kit; the other kit does not. You must order the KFMSB cabinet kit (CK-KFMSB-LB) for use with the KFMSB-AA option. If an upgrade kit is being installed, you must return the KFMSA module removed from the VAX system. See Section 2.4.

Cables external to the XMI PIU must be ordered separately.

Table 1-3 DSSI Cable Options (External to XMI Card Cage)

Option Number	Item
BC21Q-06	6 ft DSSI cable (17-02382-09)
BC21Q-09	9 ft DSSI cable (17-02382-02)
BC21Q-16	16 ft DSSI cable (17-02382-05)

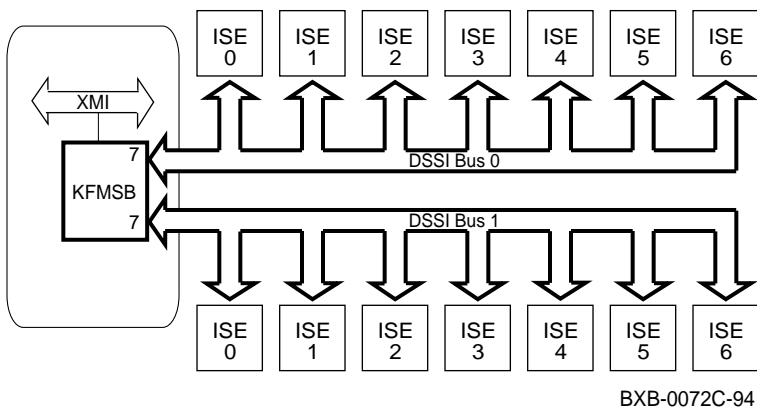
Table 1-4 Other DSSI Cabinet Kits

P/N	Qty—Length	Function
CK-SF200-LM	1 108 in (2.7 m) 1 70 in (1.8 m)	For SF connections. Contains two cables (BC21Q-09 and BC21R-5L). One kit is required for each DSSI bus used (maximum of two kits per KFMSB).

1.4 DSSI Terminology and Configurations

Figure 1-3 shows a single-host configuration consisting of a DEC 7000 system connected to ISEs on a DSSI bus. The ISEs can be in the system cabinet or in expander cabinets. Multi-host systems can also be configured.

Figure 1-3 Single-Host System



DSSI can be implemented in single- or multi-host mode. In single-host, one system has access to integrated storage elements (ISEs) across the DSSI storage bus. In multi-host configurations, the systems remain functionally independent while their common DSSI storage bus, together with VMScluster software, makes ISEs available to each system, providing multiple data paths for access to ISEs.

The system cabinet can have up to two DSSI PIUs, and an expander cabinet can have up to six PIUs. SF and SW cabinets can also be used for disks.

Table 1-5 DSSI Terminology

Term	Definition
Control panel	An enclosure interface that allows remote control of DSSI node ID selection and ISE operating status.
DSSI	Digital Storage System Interconnect. A DSA-based storage interconnect used by the KFMSB adapter and the RF and TF series integrated storage elements to transfer data and to communicate with each other.
Single-host	Storage configuration where ISEs are connected to only one host system.
Multi-host	Storage configuration where ISEs are shared between two, three, or four DSSI adapters on a DSSI subsystem with multiple host systems.
ISE	Integrated storage element. On the DSSI storage bus, all RF and TF storage devices are ISEs.
MSCP	Mass storage control protocol. An application layer protocol used by the host to perform disk I/O operations and I/O control functions.
Node name	A 6-character (maximum) value assigned to each ISE. The node name of each ISE must be unique across the system topology.
Split-bus	A mode of operation where the bus servicing the ISEs in the system cabinet is different from the bus servicing the ISEs in the expander cabinets.
Through-bus	A mode of operation where all ISEs are on the same DSSI bus.

1.5 DSSI Installation Overview

Table 1-6 lists books that provide detailed installation instructions for DSSI systems. Table 1-7 provides an overview of installation. Steps include cabling, terminating the DSSI bus, and setting node IDs for the bus.

Table 1-6 DSSI and Related Documentation

Title	Description
<i>DSSI VMScCluster Installation and Troubleshooting Guide</i> (EK-410AB-MG)	Multi-host mixed DSSI VMScCluster systems. Includes configuration rules, supported ISEs, and detailed installation instructions.
<i>DEC 4000 AXP DSSI VMScCluster Installation and Troubleshooting Guide</i> (EK-D4AXP-TS)	The AXP version of the above title.
<i>TF85 Cartridge Tape Subsystem Owners's Manual</i> (EK-OTF85-OM)	Operating and user instructions for the TF85 tape drive.
<i>TF85B Tape Subsystem Overview</i> (EK-TF85B-OV)	Overview of the TF85 tape subsystem including configuration rules, booting, and field-replaceable units.
<i>DEC 7000 AXP System VAX 7000 Console Reference Manual</i> (EK-70C0B-TM)	Discusses the cdp and set host -dup commands for configuring DSSI subsystems and running resident DUP diagnostics.

Table 1-7 DSSI Installation

Location	Single-Host Configuration	Multi-Host Configuration
Bus Termination		
System and expander cabinet	Install termination on each unused connector as necessary.	
Node ID Settings		
KFMSB	No change. Leave at factory setting of node ID 7.	Set second host node ID to 6, a third host to 5, and a fourth host to 4.
ISEs	No change. Should be set correctly at factory. Tapes are set to node ID 0; disks are normally set starting at node ID 1 to 6.	
Adding Hosts to Existing DSSI Subsystems		
New and original hosts	Reconfigure DSSI storage bus, setting node IDs, termination, and possibly changing split-bus in SF cabinets.	

1.6 Cabling and Setting Node IDs

A DSSI bus has up to eight nodes, each with a unique node number. Each KFMSB module has two separate DSSI buses, called bus 0 and bus 1, cabled from the XMI backplane to the bulkhead. The external DSSI cables connect the bulkhead to the DSSI PIU.

Each KFMSB module has two separate DSSI buses cabled from XMI backplane sections D and E. The cable from section D is designated as bus 1, and the cable from section E is bus 0.

The overall physical bus length is limited to 27 m (89 ft). One external DSSI cable is required for each bus connection between systems; two cables are required to connect two systems and an expander cabinet. Each bus must be terminated at both ends. See the *DSSI VMScluster Installation and Troubleshooting Guide* for instructions on where and how to install the terminators.

The node IDs for KFMSB modules are factory set with both ports having the node ID of 7. KFMSB node IDs for single-host systems do not have to be changed. For a dual-host system, the second host system's KFMSB node ID must be set to 6. On a tri-host system, the third host system's KFMSB node ID must be set to 5. On a quad-host system, the fourth host system's KFMSB node ID must be set to 4. (Appendix A gives instructions for changing adapter node IDs.)

You can set the DSSI node IDs for the ISEs using the switches on the disk PIU or with the **cdp** console command. Each bus presents a discrete set of registers to the host. For communication to occur, the host software must identify which DSSI bus is attached to which ISE.

NOTE: The new ISE node IDs are not in effect until each device is turned off, then on (power-cycled). After power-cycling, the node IDs have been changed at the ISE level.

When attaching the cables to a disk PIU:

1. For each populated bus, install one external cable to one of the KFMSB disk controller ports. Tighten the two screws that secure each cable to the XMI I/O bulkhead.
2. If the system has more than one KFMSB adapter, install additional DSSI cables, as above.
3. Install terminators where needed. Each bus must be terminated at both ends.

Chapter 2

Installing the Adapter

This chapter tells how to install the KFMSB adapter into an XMI plug-in unit (PIU) in DEC 7000 systems.

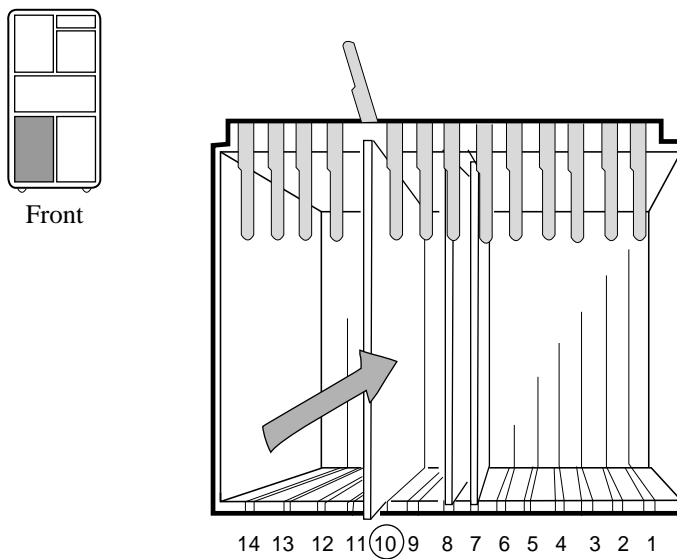
The following sections are in this chapter:

- Installing the Adapter in the XMI Card Cage
- Installing the Internal Cable
- External Cabling and Termination
- Module Return

2.1 Installing the Adapter in the XMI Card Cage

Choose the slot for the KFMSB adapter and install the adapter in the XMI card cage.

Figure 2-1 Installing the KFMSB Adapter



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To install the KFMSB adapter in the XMI card cage:

1. Perform an orderly shutdown of the operating system.
2. Turn the control panel keyswitch to Disable.
3. Open the front and rear cabinet doors.
4. Ground yourself to the cabinet with the antistatic wrist strap from the Electrical Safety Kit.
5. Remove the panel on the front of the XMI PIU by releasing the captive screws at the top of the panel. Check that no LEDs are lit on the XMI modules and that the XMI is not receiving power.
6. Determine the slot where you want the KFMSB to go. Raise the lever and hold it up until you remove or install the module in that slot.

If you are replacing the KFMSA adapter (DSSI adapter on a VAX system), remove that module and put it aside.

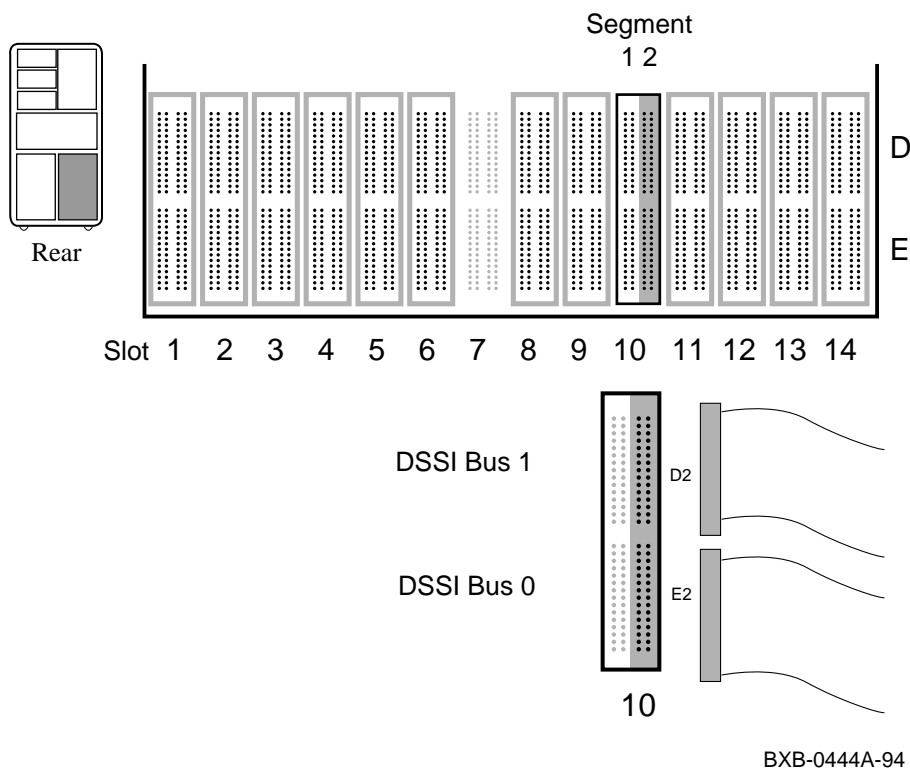
Install the KFMSB module.

7. Replace the front panel of the XMI card cage.

2.2 Installing the Internal Cable

Install the cable that connects the XMI backplane to the bulkhead. The cable includes the bulkhead connector. Plug the connector cables into the appropriate segments of the XMI backplane. Install terminators.

Figure 2-2 Cabling the XMI Backplane



Installing the KFMSB adapter requires installing the CK-KFMSB-LB cabinet kit. The kit consists of a Y cable (17-03451-01) and an attached bulkhead connector panel.

To install the cable assembly to the XMI bulkhead door:

1. Remove the cable door (a panel at the bottom of the cabinet) by releasing the two captive screws at the top of the panel and lifting it off.
2. Lift the two spring-loaded pins on the bulkhead door and swing it open on its hinges.
3. Remove the flat plate over one of the openings in the I/O bulkhead.
4. If you are replacing the KFMSA module, you must remove its internal XMI cabling and the bulkhead panel.
5. Install the cable assembly using a Phillips screwdriver to fasten the four small screws that hold the plate to the bulkhead door.

To install the connector cables in the XMI backplane:

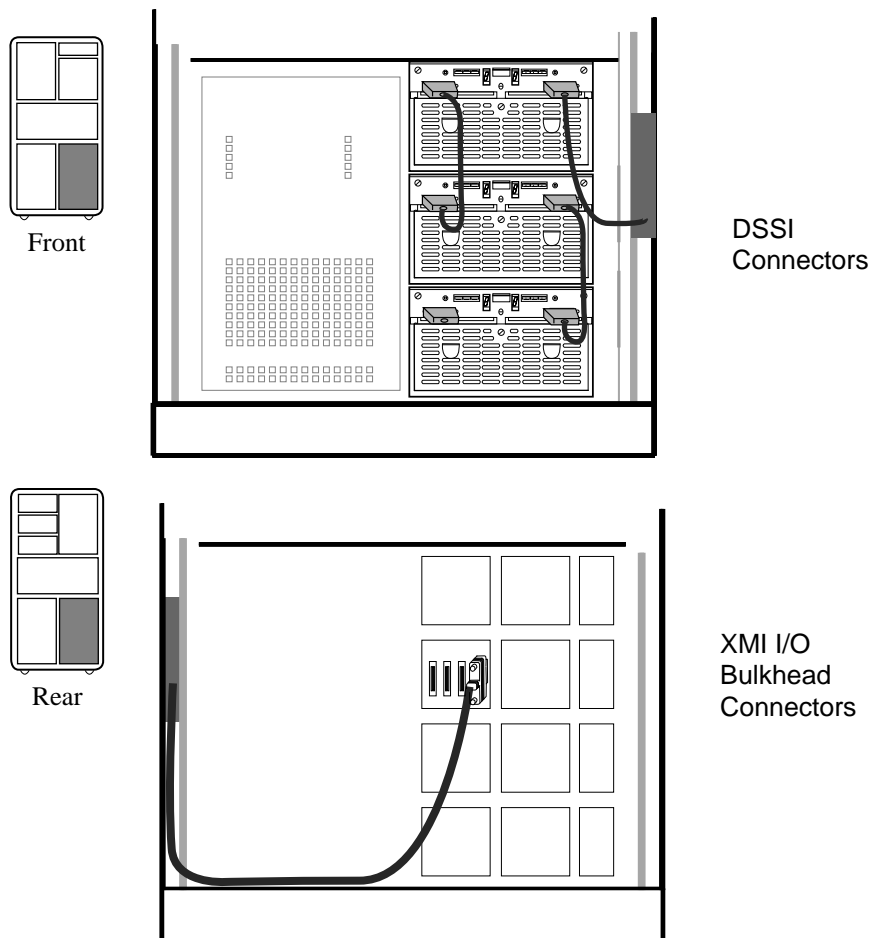
1. Plug one end into segment D2 on the XMI backplane and the other into segment E2. Segment D is for channel 1 and segment E is for channel 0. The raised "notch" on one side of the cable connector goes to the right.
2. Route the cables through the cable hold-downs at the bottom of the PIU.
3. Refasten the I/O panel door at the bottom of the cabinet.

NOTE: For multihost configurations, it is a good idea to keep the same scheme for the cable connections on the I/O panel: for example, left for channel 0, and right for channel 1.

2.3 External Cabling and Termination

You now reconnect the external DSSI cables from the XMI bulkhead to the DSSI PIU. If this is a new DSSI installation, refer to the manuals listed in Table 1-6.

Figure 2-3 Cabling to the DSSI PIU



If the DSSI subsystem is already installed, you can now reconnect the DSSI cable from the PIU.

- Install the external DSSI cabling and terminate each bus at each end. Four terminators (12-31281-01) are included in the cable kit.
- Close the cabinet doors.
- Power up the system by turning the control panel keyswitch to Enable.

2.4 Module Return

Any KFMSA modules taken from an upgraded machine should be returned to the Returns Sort Center.

These instructions for the return of modules apply to the U.S area only. Those installing upgrades in other areas should follow procedures for those countries.

1. Package the module removed from the system in the same container in which the new module was shipped. Be sure to remove the return address label from inside the box prior to packing.
2. Seal the container securely with packing tape.
3. Attach the return address label. Be sure to cover all previous shipping information with the label and/or packing tape.
4. Contact your district Customer Administration Services (CAS) representative for a Return Authorization Number (RA number). CAS will need the Digital order number and customer name. CAS will arrange for pickup of this material. (If you do not know the district CAS representative, contact the district sales office for instructions.)
5. Write the RA number on the return address label. Be sure this is legible.
6. Customers should be advised that they will be billed for modules not returned to Digital.
7. Send the package to the customer shipping area for pickup.
8. Digital customer service must fill out the LARS form as follows:

System Processor Type: 7XXX
Activity N
Call Type I
Module/Fail Area: ?????-XX RA# _____

(Fill in "X" with information from shipping paperwork and give the RA number.)

Chapter 3

Acceptance and Troubleshooting

This chapter discusses the acceptance procedure and troubleshooting guidelines for the KFMSB adapter. To be recognized by the system, the KFMSB requires that the KN7AA processors and the supporting operating system and console software are already installed. See the *Advanced Troubleshooting* manual for more information on troubleshooting. Sections in this chapter include:

- Restore Power and Check Self-Test Results
- Testing the KFMSB Adapter and DSSI Devices
- DSSI Disk Drive LEDs

3.1 Restore Power and Check Self-Test Results

Power up the system and check the self-test display to see if the KFMSB adapter passed self-test. You can also check the yellow LED on the KFMSB adapter. The LED is on when the adapter passes self-test. See Section 3.2 for more information on testing.

Example 3-1 Sample Self-Test Display and Show Commands

```

❶
F E D C B A 9 8 7 6 5 4 3 2 1 0 NODE #
      A M . . . . . P TYP
      o + . . . . . + ST1
      . . . . . B BPD
      o + . . . . . + ST2
      . . . . . B BPD
      + + . . . . . + ST3
      . . . . . B BPD

+ . . . . + + . . + . . . . C0 XMI +
. . . . . C1
. . . . . C2
. . . . . C3

      . A0 . . . . . ILV
      . 128 . . . . . 128Mb

Firmware Rev = V1.0-1625 SROM Rev = V1.0-0 SYS SN = GA01234567
>>> show config ❷
      Name      Type      Rev      Mnemonic
LSB
0+   KN7AA      (8001)   0000    kn7aa0
7+   MS7AA      (4000)   0000    ms7aa0
8+   IOP        (2000)   0002    iop0

C0 XMI
5+   KDM70      (0C22)   1E11    kdm700
8+   DWLMA      (102A)   0104    dwlma0
9+   KFMSB      (0C31)   01F3    kfmsb0 ❸
E+   DEMNA      (0C03)   0802    demna0

```

Example 3-1 Sample Self-Test Display and Show Commands (Continued)

```
>>> show device kfmsb0 ④
polling for units on kfmsb0, slot 9, xmi0...
dua0.0.0.9.0      DUA0      RF73
dua1.0.0.9.0      DUA1      RF73
dua2.0.0.9.0      DUA2      RF73
dua3.0.0.9.0      DUA3      RF73
dua4.0.0.9.0      DUA4      RF73
dua5.0.0.9.0      DUA5      RF73
>>>
```

1. Close the cabinet doors.
2. Turn the control panel keyswitch to the Enable position; the system should power up and run self-test.

In Example 3-1:

- ① Self-test runs at power-up.
- ② The user enters a **show config** command.
- ③ The KFMSB adapter, kfmsb0, passes self-test.

Note: If the system does not recognize the KFMSB adapter, you may need to run LFU to upgrade the firmware on the module.

- ④ The user enters a **show device kfmsb0** command. You can check to see if all the devices associated with the KFMSB adapter are reported by issuing this command.

3.2 Testing the KFMSB Adapter and DSSI Devices

Example 3-2 shows how to test a KFMSB adapter and associated devices.

Example 3-2 Testing the KFMSB and Devices

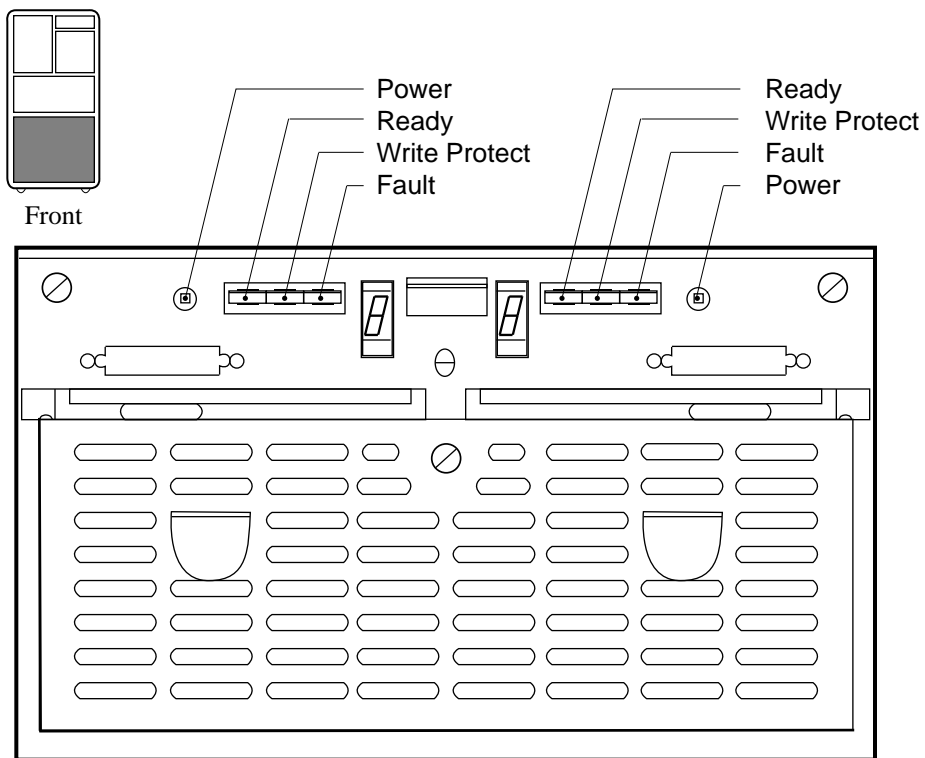
```
>>> test kfmsb0 ❶
Device exerciser selected for run time of 120 seconds
Type Ctrl/C to abort...
Initializing kfmsb0
Self-test passed on device kfmsb0 ❷
Configuring kfmsb0
polling for units on kfmsb0, slot 9, xmi0...
dua3.3.1.9.0    DUA3                RF73 ❸
dua4.4.1.9.0    DUA4                RF73
Starting device exerciser on dua3.3.1.9.0 (id #12d) in READ-ONLY mode
Stopping device exerciser on dua3.3.1.9.0 (id #12d)
Starting device exerciser on dua4.4.1.9.0 (id #13e) in READ-ONLY mode
Stopping device exerciser on dua4.4.1.9.0 (id #13e)
Starting device exerciser on dua3.3.1.9.0 (id #154) in READ-ONLY mode
Stopping device exerciser on dua3.3.1.9.0 (id #154)
Starting device exerciser on dua4.4.1.9.0 (id #165) in READ-ONLY mode
Stopping device exerciser on dua4.4.1.9.0 (id #165)
Starting device exerciser on dua3.3.1.9.0 (id #17b) in READ-ONLY mode
Stopping device exerciser on dua3.3.1.9.0 (id #17b)
Starting device exerciser on dua4.4.1.9.0 (id #18d) in READ-ONLY mode
Stopping device exerciser on dua4.4.1.9.0 (id #18d)
Done testing...
>>>
```


- ❶ The user enters a **test kfmsb0** command to test the KFMSB adapter and devices associated with the adapter.
- ❷ The KFMSB passes self-test.
- ❸ The devices associated with kfmsb0 are polled. Two RF73 disk drives are listed. Testing begins.

3.3 DSSI Disk Drive LEDs

Each DSSI disk drive in a storage array building block has a set of LEDs. See Figure 3-1.

Figure 3-1 DSSI Disk Drive LEDs



BXB-0045-92

Table 3-1 Indicator Switches on Disk Control Panel

Indicator Switch	Pushbutton Position	Light	Function
DC Pwr (Green)	In	On	DC power present.
	Out	Off	DC power not present.
Ready (Green)	In	On	Integrated storage element is on-line.
	Out	Off	Integrated storage element is off-line.
Wrt Prot (Yellow)	In	On	Write-protect enabled.
	Out	Off	Write-protect disabled.
Fault (Red)	Momentary Switch	On	Fault condition.
		Off	Normal operation.

The Fault indicator switch goes on for approximately 10 seconds during power-up, and then goes off. If the Fault indicator switch stays on, press the switch to diagnose the problem (see Table 3-2). See the *RF Series Integrated Storage Element User Guide* for more information.

Table 3-2 DSSI Disk Drive Fault Diagnosis

Fault Indicator Switch	When Pressed...	
On	Slow Flash	Integrated storage element calibrations being performed.
On	Fast Flash	Disk control panel failure.

Appendix A

Using LFU

The Loadable Firmware Update (LFU) Utility can be used to update firmware on modules and to change the node number of KFMSB adapters.

A.1 Boot LFU

You can run the Loadable Firmware Update (LFU) Utility from the RRD42 or an InfoServer.

Example A-1 Booting LFU from the RRD42

```
P00>>> sho dev kzmsa ①
polling for units on kzmsa0, slot 3, xmi0...
dka300.3.0.3.0 DKA300 RZ73
dka400.4.0.3.0 DKA400 RZ73
dkb400.4.1.3.0 DKB400 RRD42 ②

P00>>> b dkb400.4.1.3.0 -flag 0,80 ③
Bootfile: [DEC7000]AXP7000_Vnn.APB ④
Booting...
```

Example A-2 Booting LFU from an InfoServer

```
P00>>> sho net ①
polling for units on demna0, slot 13, xmi0...
exa0.0.13.0: 01-00-2B-24-3F-E1
polling for units on demna1, slot 14, xmi0
exb0.0.14.0 01-00-2B-24-3F-E1
P00>>> boot exa0 -file AXP7000_Vnn ②
Booting...
Connecting to boot device exa0
Requesting MOP Assistance Volunteer.....
```

Booting LFU from the RRD42

See Example A-1.

Place the Alpha AXP Systems Firmware Update CD-ROM in the system load device and do the following:

- 1 Type **sho dev kzmsa** at the console terminal to find the load device, the RRD42, on the system.
- 2 In Example A-1 the unit number for the RRD42 is shown as dkb400.4.1.3.0.
- 3 Using the unit number, boot the system load device.
- 4 For a DEC 7000 system, type the bootfile name as shown. The *nn* is the version number of the Alpha AXP firmware CD-ROM.

Booting LFU from an InfoServer

See Example A-2.

Place the Alpha AXP Systems Firmware Update CD-ROM in an InfoServer and do the following:

- 1 Type **sho net** at the console terminal to see if there is more than one DEMNA.
- 2 Boot from the first DEMNA (exa0), using the **-file** option with the file name AXP7000_Vnn, supplying the correct version number.

A.2 Use Display Command to Check Configuration

The LFU display command shows the system configuration, providing the device mnemonic you use to modify the KFMSB node number.

Example A-3 LFU Display Command

Function? display

	Name	Type	Rev	Mnemonic	FW Rev	HW Rev
LSB						
0+	KN7AA	(8001)	0000	kn7aa0	1.0	E04
5+	MS7AA	(4000)	0000	ms7aa0	N/A	A01
7+	MS7AA	(4000)	0000	ms7aa1	N/A	A01
8+	IOP	(2000)	0002	iop0	N/A	A
C0 XMI						
				xmi0		
8+	DWLMA	(102A)	A5A6	dwlma0	N/A	A
B+	KZMSA	(0C36)	5143	kzmsa0	4.3	F01
C+	KFMSB	(0C31)	5143	kfmsb0	4.3	F01
E+	DEMNA	(0C03)	060B	demna0	6.8	

Use the LFU **display** command to find the device mnemonic for the KFMSB adapter that you want to modify. The **display** command is shown in Example A-3.

A.3 Use Modify to Change the DSSI Node Number

The LFU modify command allows you to change the DSSI node number of a KFMSB adapter.

Example A-4 LFU Modify Command

```
Function? modify kfmsb0      ❶
kfmsb0

Channel 0 DSSI node ID:      07
Channel 1 DSSI node ID:      07

Do you wish to modify any of these parameters? [y/(n)] y
                                                                    ❷

Channel 0 DSSI node ID:      07
Change? [y/(n)] y           ❸

Valid ID is a value from 0 to 7.
Enter new DSSI node ID: 3

Channel 1 DSSI node ID:      07
Change? [y/(n)] y

Valid ID is a value from 0 to 7.
Enter new DSSI node ID: 6

Channel 0 DSSI node ID:      03      ❹
Channel 1 DSSI node ID:      06

Modify kfmsb0 with these parameter values? [y/(n)] y
Function? exit                ❺
```

To modify the DSSI node number for a KFMSB module :

- ❶ Enter the **modify** command. The **modify** command displays the current settings for the parameters.
- ❷ LFU asks if you wish to modify any parameters. Type **y**.
- ❸ LFU displays each parameter and asks if you want to modify it. Press RETURN to accept the current setting; type **y** and RETURN to change the current setting.
- ❹ LFU displays the new settings and asks if you want to modify the KFMSB with the settings you just provided. Type **y** and RETURN to modify the EEPROM in the KFMSB with the new values.
(Note: Installing firmware updates with LFU does not affect the parameters you change here; they stay changed through the update.)
- ❺ Exit LFU when you are done.

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