BA655 SCSI Disk and Tape PIU Installation Guide

Order Number EK–BA655–IN.001

This manual is intended for Digital customer service engineers and self-maintenance customers installing the BA655 disk and tape PIU. This option includes the PIU enclosure, two modular expansion shelves, and two power supplies.

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Preface

Intended Audience

This manual is written for Digital customer service engineers and self-maintenance customers who install the BA655 option in an H9F00- Ax or an H9F00- Bx cabinet.

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.

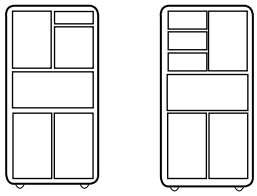
This manual has three chapters as follows:

- **Chapter 1, Preparation,** gives an overview of the option and tells how to prepare for the installation.
- **Chapter 2, Installing the BA655 PIU Option,** gives instructions on how to install and cable the BA655 PIU.
- **Chapter 3, Acceptance and Troubleshooting,** describes the acceptance procedure.

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.



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
Site Preparation Guide	EK–7000B–SP
Installation Guide	EK–700EB–IN
Hardware User Information Kit	EK–7001B–DK
Operations Manual	EK–7000B–OP
Basic Troubleshooting	EK–7000B–TS
Service Information Kit—VAX 7000	EK–7002A–DK
Platform Service Manual	EK–7000A–SV
System Service Manual	EK–7002B–SV
Pocket Service Guide	EK–7000A–PG
Advanced Troubleshooting	EK–7001A–TS
Service Information Kit—DEC 7000	EK–7002B–DK
Platform Service Manual	EK–7000A–SV
System Service Manual	EK–7002B–SV
Pocket Service Guide	EK–7700A–PG
Advanced Troubleshooting	EK–7701A–TS
Reference Manuals	
Console Reference Manual	EK–70C0B–TM
KA7AA CPU Technical Manual	EK–KA7AA–TM
KN7AA CPU Technical Manual	EK–KN7AA–TM
MS7AA Memory Technical Manual	EK–MS7AA–TM
I/O System Technical Manual	EK–70I0A–TM
Platform Technical Manual	EK–7000A–TM

Table 1 DEC 7000/VAX 7000 Documentation (Continued)

Title	Order Number
Upgrade Manuals	
KA7AA CPU Installation Guide	EK–KA7AA–IN
KN7AA CPU Installation Guide	EK–KN7AA–IN
MS7AA Memory Installation Guide	EK–MS7AA–IN
KZMSA Adapter Installation Guide	EK–KXMSX–IN
DWLMA XMI PIU Installation Guide	EK–DWLMA–IN
DWMBB VAXBI PIU Installation Guide	EK–DWMBB–IN
H7237 Battery PIU Installation Guide	EK–H7237–IN
H7263 Power Regulator Installation Guide	EK–H7263–IN
BA654 DSSI Disk PIU Installation Guide	EK–BA654–IN
BA655 SCSI Disk and Tape PIU Installation Guide	EK–BA655–IN
Removable Media Installation Guide	EK–TFRRD–IN

Table 2 Related Documents

Title	Order Number
BA350 Modular Storage Shelf Subsystem Configuration Guide	EK–BA350–CG
BA350 Modular Storage Shelf Subsystem User's Guide	EK–BA350–UG
BA350-LA Modular Storage Shelf User's Guide	EK–350LA–UG
InfoServer 150 Installation and Owner's Guide	EK–INFSV–OM
KZMSA Adapter Installation Guide	EK–KXMSX–IN
RRD42 Disc Drive Owner's Manual	EK–RRD42–OM

Chapter 1

Preparation

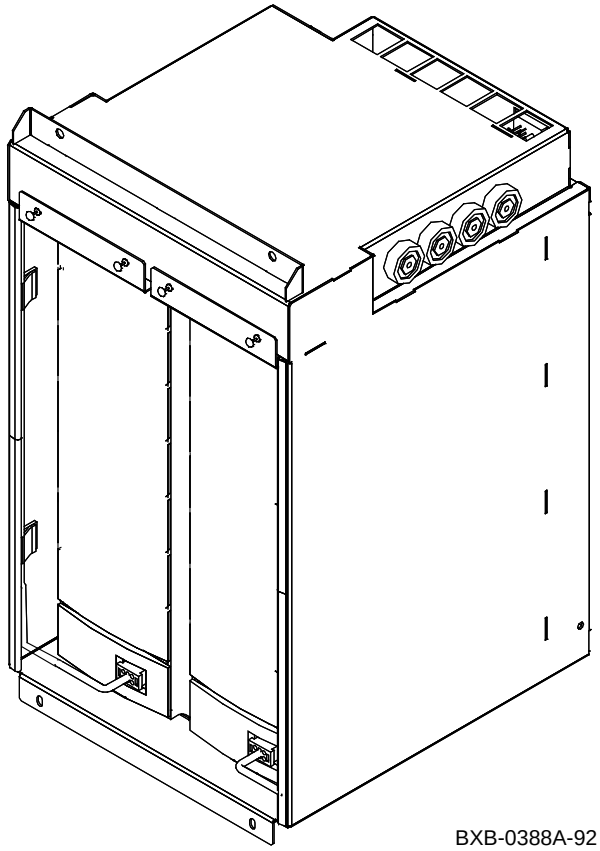
This chapter describes the BA655 disk and tape PIU option and gives preparation guidelines for installing this option into an H9F00- Ax system cabinet or an H9F00- Bx expander cabinet. Chapter 2 describes the installation. Sections in this chapter include:

- BA655 Disk and Tape PIU Description
- Prepare Area, Kit, and Tools
- Check PIU Enclosure for Proper Airflow

1.1 BA655 Disk and Tape PIU Description

The BA655 PIU can be installed to provide additional I/O. This option includes the enclosure, two modular expansion shelves, and two power supplies. The KZMSA adapter, storage units, and SCSI cables must be ordered separately.

Figure 1-1 BA655 PIU



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Before installing additional SCSI I/O in your system, you must order the KZMSA- AB option which includes the KZMSA adapter and the *KZMSA Adapter Installation Guide*. SCSI storage devices and cables must also be ordered separately. Table 1- 1 lists the storage devices, and Table 1- 2 lists the cables.

Table 1- 1 SCSI Storage Device Options

Option Number	Item
RZ26- VA	3.5 inch SCSI disk drive (1 Gbyte)
RZ73- VA	5.25 inch SCSI disk drive (2 Gbytes)
TLZ06- VA	3.5 inch tape drive (4 Gbytes)

Table 1- 2 SCSI Cable Options

Option Number	Item
BC10U- 06	6 ft SCSI internal cable (17- 03153- 02)
BC10U- 09	9 ft SCSI external cable (17- 03153- 03)

1.2 Prepare Area, Kit, and Tools

Set up a work space near the system where you can store components while you work on the BA655 option installation. Unpack the BA655 option kit and check the contents against Table 1-3. Prepare the system for shutdown. You will need a Phillips head screwdriver.

Table 1- 3 BA655 Option Kit

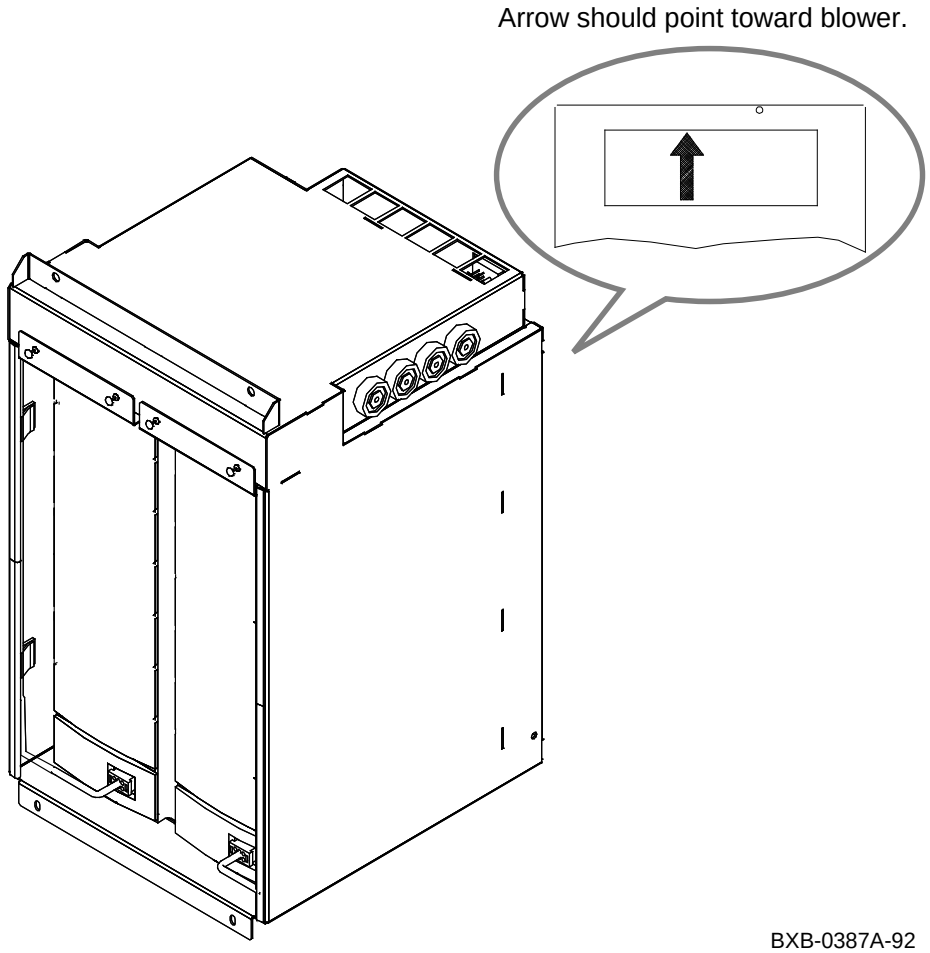
Part Number	Description
70- 30380- 01	SCSI PIU enclosure
BA350- LA	Two modular expansion shelves, two power supplies
17- 03532- 01	Power/signal cable to power supplies
74- 45524- 01	Rear panel
36- 38666- 01	Caution label
EK- BA655- IN	*BA655 SCSI Disk and Tape PIU Installation Guide*

1. Prepare an area near the system where you can place system components during the installation.
2. Perform an orderly shutdown of the system.
3. Turn the control panel keyswitch to the Disable position.
4. Open the cabinet doors.
5. Push the AC power circuit breaker handle down to shut the circuit breaker off.

1.3 Check PIU Enclosure for Proper Airflow

When installing a BA655 PIU in the cabinet, make sure that the rear panel arrow points toward the blower to permit proper airflow. See Figure 1- 2.

Figure 1- 2 PIU Rear Panel

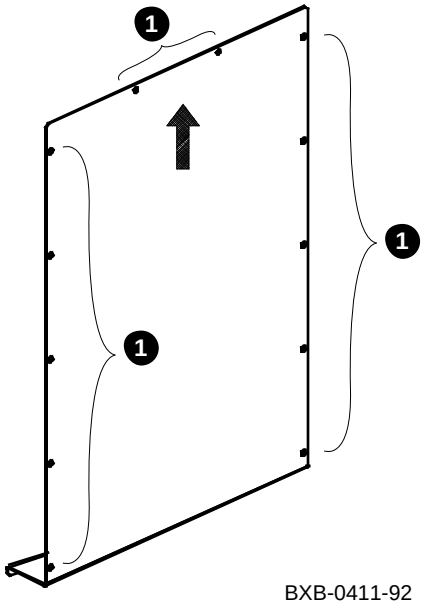


The arrow on the rear panel of the PIU enclosure must point toward the blower. That is, the arrow must point up when installing the PIU below the blower; it must point down when installing the PIU above the blower.

If necessary, use the following procedure to reinstall the PIU rear panel:

1. Using a Phillips screwdriver, remove the 12 screws on the rear panel (see ❶ in Figure 1- 3).
2. Remove and reposition the rear panel.
3. Install the 12 Phillips screws.

Figure 1- 3 Rear Panel Removal



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Chapter 2

Installing the BA655 PIU Option

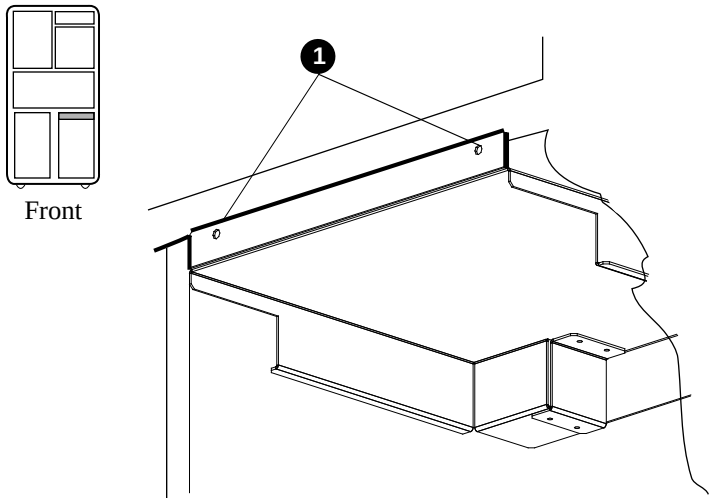
This chapter describes the installation of the BA655 PIU option into an H9F00- Ax system cabinet or an H9F00- Bx expander cabinet. Sections include:

- Remove the Cabinet Airflow Plate
- Install the BA655 PIU
- Cable the BA655 PIU
- Install the Disk or Tape Devices

2.1 Remove the Cabinet Airflow Plate

Remove the cabinet airflow plate located below the blower in the disk PIU space. The plate blocks airflow when a PIU is not present.

Figure 2- 1 Airflow Plate



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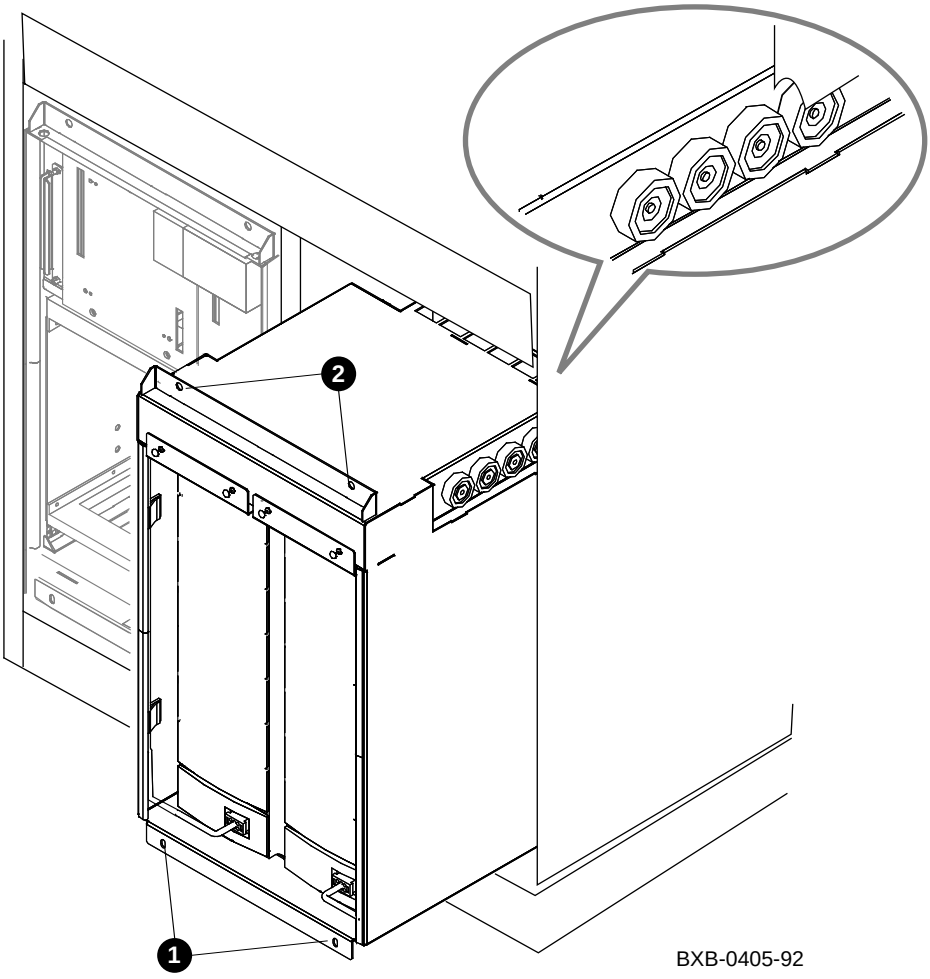
1. Open the front cabinet door.
2. Using a Phillips screwdriver, remove the two screws (see ❶ in Figure 2- 1) and slide the airflow plate out of the cabinet.

2.2 Install the BA655 PIU

Insert the BA655 PIU into the cabinet.

Figure 2- 2 Installing the BA655 Option

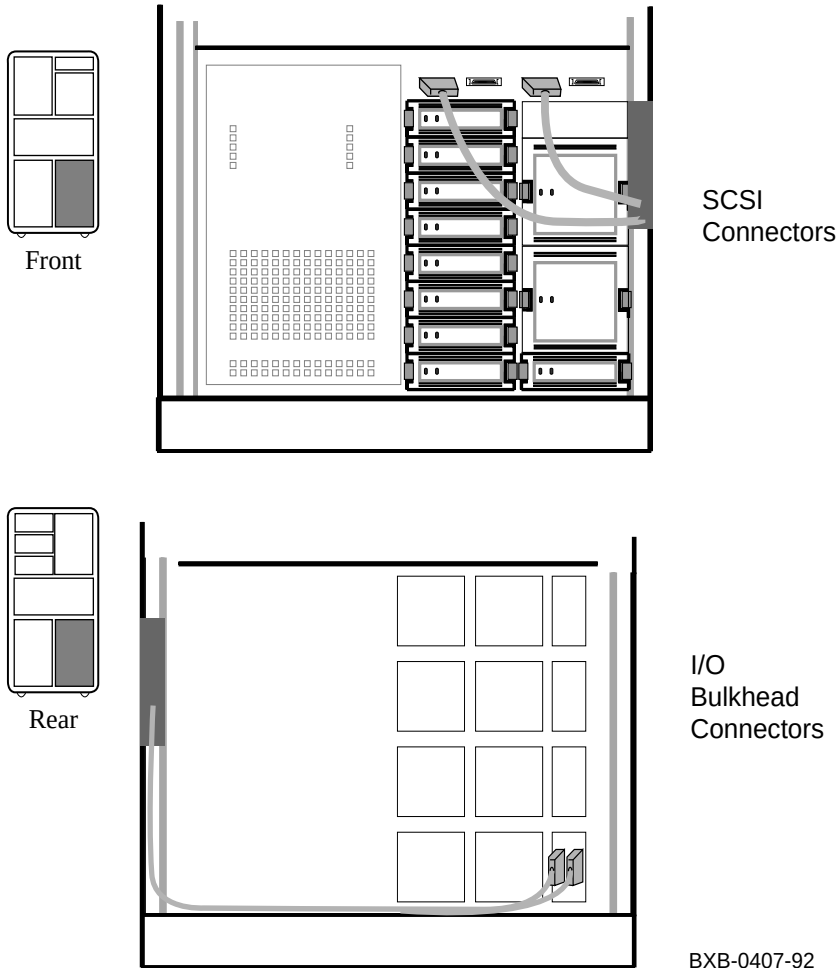


1. Line up the rollers at the top of each side of the PIU enclosure with the slides in the cabinet. See Figure 2- 2. Push the PIU enclosure straight into the cabinet until it seats.
2. Install the two Phillips screws at the bottom of the PIU enclosure (see ❶).
3. Tighten the top two captive screws (see ❷).

2.3 Cable the BA655 PIU

Connect the SCSI cable to the leftmost connector in the modular expansion shelf. Thread the cable through the opening on the side of the cabinet. Connect the other end of the cable to the I/O bulkhead. See Figure 2- 3.

Figure 2- 3 Cabling



Use the following procedure to cable the SCSI disk PIU.

1. Connect the BC10U- xx cable to the leftmost connector on the SCSI shelf.
2. Thread the cable through the opening at the side of the cabinet.
3. Connect the cable to the I/O bulkhead panel reserved for the SCSI I/O. See the *KZMSA Adapter Installation Guide* for more information.

NOTE: When both shelves of devices are on one SCSI bus, you must cable the two shelves together with a BC10U-06 cable. Plug the cable into the rightmost connector of each shelf.

2.4 Install the Disk or Tape Devices

Insert the storage devices into the modular expansion shelves.

Figure 2- 4 Sample SCSI Configuration

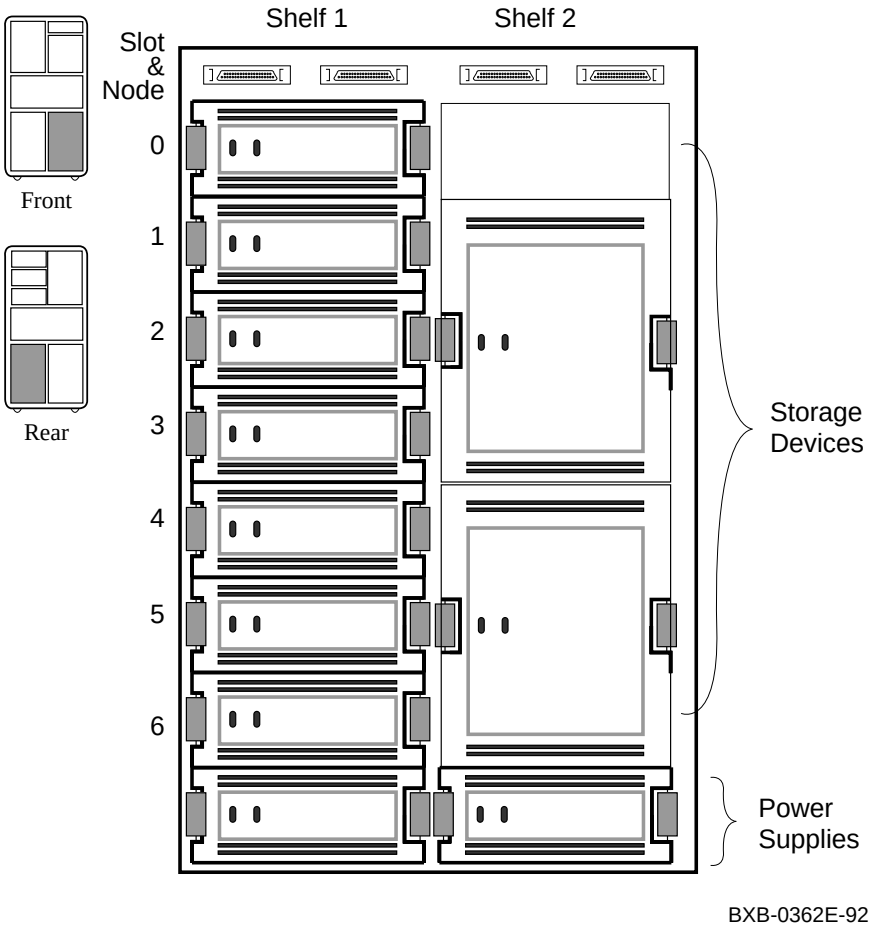
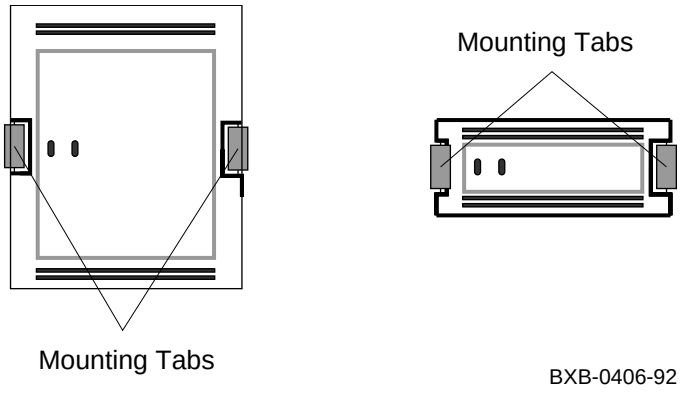


Figure 2- 4 shows a SCSI PIU with two modular expansion shelves. Shelf 1 contains seven 3.5 inch disk drives, and shelf 2 contains two 5.25 disk drives. Each 3.5 inch disk drive uses one slot; each 5.25 inch disk drive uses three slots. A tape drive uses one slot.

To install a storage device:

1. Insert the storage device in the slot guides.
2. Push it in until the mounting tabs lock in place (see Figure 2- 5).

Figure 2- 5 Storage Device Mounting Tabs



BA655 SCSI Disk and Tape PIU Configuration Rules

- The maximum number of SCSI disk and tape PIUs is two in a main cabinet and four in an expander cabinet.
- Each SCSI disk and tape PIU contains two shelves. Each shelf contains seven slots for disks and tapes, in any combination.

Chapter 3

Acceptance and Troubleshooting

This chapter discusses the acceptance procedure and troubleshooting guidelines for the BA655 option. See the *Advanced Troubleshooting* manual for more information on troubleshooting. Sections include:

- Restore Power and Check Self- Test Results
- Testing the KZMSA Adapter and SCSI Devices
- SCSI Device LEDs

3.1 Restore Power and Check Self- Test Results

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

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

```
Initializing the system... 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 = GAO1234567
>>> 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                          xmi0
   5+    KZMSA     (0C36)   003E  kzmsa0 ❸
   8+    DWLMA     (102A)   0104  dwlma0
   9+    KZMSA     (0C36)   003E  kzmsa1 ❹
   E+    DEMNA     (0C03)   060B  demna0
```

Example 1- 1 Sample Self- Test Display (Continued)

```
>>> show device kzmsa1 ❺
polling for units on kzmsa1, slot 9, xmi0...
dka0.0.0.9.0       DKA0                    RZ26
dka1.0.0.9.0       DKA1                    RZ26
dka2.0.0.9.0       DKA2                    RZ26
dka3.0.0.9.0       DKA3                    RZ26
dka4.0.0.9.0       DKA4                    RZ26
dka5.0.0.9.0       DKA5                    RZ26
dka6.0.0.9.0       DKA6                    RZ26
>>>
```

1. Close the cabinet doors.
2. Pull the AC power circuit breaker handle up to turn the circuit breaker on.
3. Turn the control panel keyswitch to the Enable position; the system should power up and run self- test.

In Example 3- 1:

❶ Self- test runs at power- up.

❷ The user enters a **show config** command.

❸ The first KZMSA adapter, kzmsa0, passes self- test. Kzmsa0 supports the in- cabinet RRD42 CD drive.

❹ The second KZMSA adapter, kzmsa1, also passes self- test. This adapter supports the devices in the SCSI PIU.

❺ The user enters a **show device kzmsa1** command. You can check to see if all the devices associated with the KZMSA adapter are reported by issuing this command.

3.2 Testing the KZMSA Adapter and SCSI Devices

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

Example 3- 2 Testing the KZMSA and Devices

```
>>> test kzmsa1 ❶
Device exerciser selected for run time of 120 seconds
Type Ctrl/C to abort...
Initializing kzmsa1
Self-test passed on device kzmsa1 ❷
Configuring kzmsa1
polling for units on kzmsa1, slot 9, xmi0...
dkb300.3.1.9.0     DKB300                   RZ73 ❸
dkb400.4.1.9.0     DKB400                   RZ73
Starting device exerciser on dkb300.3.1.9.0 (id #12d) in READ-ONLY mode
Stopping device exerciser on dkb300.3.1.9.0 (id #12d)
Starting device exerciser on dkb400.4.1.9.0 (id #13e) in READ-ONLY mode
Stopping device exerciser on dkb400.4.1.9.0 (id #13e)
Starting device exerciser on dkb300.3.1.9.0 (id #154) in READ-ONLY mode
Stopping device exerciser on dkb300.3.1.9.0 (id #154)
Starting device exerciser on dkb400.4.1.9.0 (id #165) in READ-ONLY mode
Stopping device exerciser on dkb400.4.1.9.0 (id #165)
Starting device exerciser on dkb300.3.1.9.0 (id #17b) in READ-ONLY mode
Stopping device exerciser on dkb300.3.1.9.0 (id #17b)
Starting device exerciser on dkb400.4.1.9.0 (id #18d) in READ-ONLY mode
Stopping device exerciser on dkb400.4.1.9.0 (id #18d)
Done testing...
>>>
```

❶ The user enters **test kzmsa1** to test the KZMSA adapter and the devices associated with the adapter.

❷ The KZMSA passes self- test.

❸ The devices associated with kzmsa1 are polled. Two RZ73 disk drives are listed. Testing begins.

3.3 SCSI Device LEDs

SCSI LEDs are located on each disk drive and power supply. Table 3- 1 and Table 3- 2 list the functions of the LEDs shown in Figure 3- 1.

Figure 3- 1 SCSI LEDs

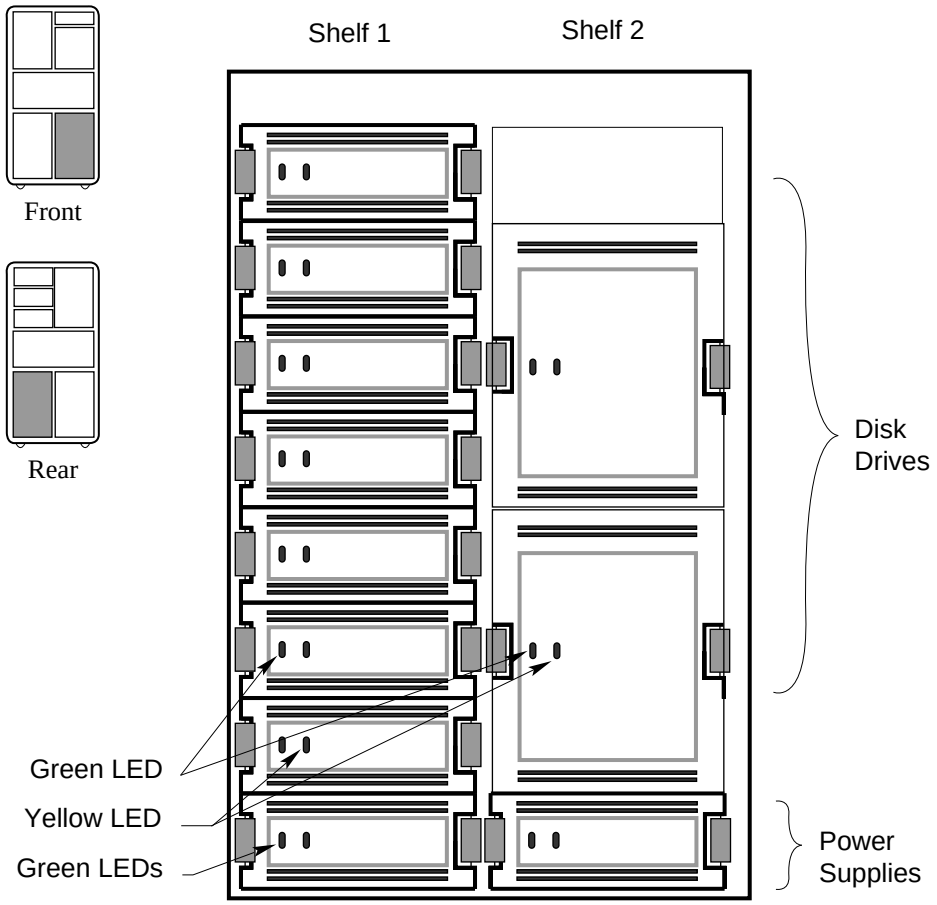


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Table 3- 1 SCSI Disk Drive LEDs

Indicator LED	LED State	Meaning
Green	Off	No activity
	Flashing	Activity
	On	Activity
Yellow	Off	Normal
	Flashing	Spin up/spin down
	On[1]	Not used

[1]This LED state is not supported on DEC 7000 systems.

Table 3- 2 SCSI Power Supply LEDs

Indicator LED	LED State	Meaning
Green (left)	Off	Shelf fault
	On	Shelf OK
Green (right)	Off	Power fault
	On	Power OK

See the *TLZ06 Cassette Tape Drive Owner's Manual* for information on the tape drive LEDs.

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